A I P S L E T T E R

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During the two months since the first issue of The AIPSLETTER, we have been quite busy developing and improving the AIPS system. However, it seems that you have not been so busy. In that issue, we asked to hear from you on three subjects: (1) our mailing list, (2) how you would like to update your copy of AIPS, and (3) how you are now using AIPS. To date, we have received only two responses. Keep those cards and letters coming, folks! In the first issue, we promised to attach a copy of our bug report form. Unfortunately, in the rush of mailing, it appears that we forgot to enclose it. Hopefully, you will find a copy enclosed with this issue.

SUMMARY of Changes: November 1 - December 31, 1981

These changes are listed in detail in the CHANGE.DOC file reproduced later in the AIPSLETTER. The period was not one in which whole new areas of software were created, although several new UV tasks appeared. Instead, we seem to have devoted our time to enhancing, generalizing, and making more convenient the existing, large body of software.

Three of the changes required, at least, the relinking of the full set of programs. The first of these was the installation of an accounting system which keeps track of CPU and real time utilization by time, user number, program name, and POPS number. A program to display the contents of the accounting file in detail and/or in various sorted summaries was developed as were a standard task-close subroutine and, for Vaxes, a Z-level exit handler which even takes care of the accounting and a message on aborts. The second change simplified the handling of the assigned TV and graphics devices and alterred the structure of the image catalog for the graphics devices. The main motivation for this change was to allow remote, dial-up users to receive their graphics displays on their remote terminal. However, the simplification was worthwhile in any case. The third "global" change was in the nature of

the time attached to each image in the catalogs. We have changed it from creation to last access time. This allows the new verb TIMDEST to destroy all images (all users!) which have not been used in the last DETIME days, where your AIPS Manager will set the minimum legal value for DETIME (e.g. 14 days).

In response to numerous user complaints, several practices were revised. The GETNAME verbs now use USERID as an input adverb and will search all disks if INDISK is zero. SAVE/GET files are now allowed to have 16-character names and verbs to index and to destroy such files are available. The "verb" GO now automatically saves the adverb values used for the most recent execution of each task in an indexed, user-owned file. The new "verb" TGET will recover these values and, incidentally, also set the adverb TASK thereby simplifying the typing of subsequent INPUTS and GO commands. This facility should help overcome some of the problems caused by the globality of the adverbs for users who are reducing several sources at one time. Since disk space is often a problem, all programs have been revised to accept OUTDISK = 0 to mean the highest numbered disk with enough space for the file. All tape writing programs now follow industry standards by writing multiple ends-of-file whenever an end-of-file might be required. After the EOFs are written, the tapes are repositioned to the appropriate spot with respect to them. The POPS language processor now provides more space for creating and editing procedures. Note that several of these changes require the destruction of all pre-existing SAVE/GET files.

The display routines received some attention. All of them now support a pixel position axis label option. GREYS and PCNTR are now smarter in aligning the secondary images with the primary image given by INNAME, et al. PCNTR should be able to handle rotations and transpositions correctly now. PROFL had numerous, minor problems corrected, particularly bugs affecting images which are not of the standard VLA type (i.e. transposed, optical). The problem of uncatalogued plot files produced, for example, by aborting CNTR has been alleviated by automatically destroying such files when they are encountered. The TV pseudo-color contour algorithm has been changed to hold the number of contours fixed and to let the cursor set the start level and width. A new verb, TVALL, performs a simplified sequence of TV operations including clearing the screens, loading an image with a labeled step wedge, and invoking an inter- active zoom and enhancement (black/white or color contour) algorithm. The new verb TVFIDDLE invokes the interactive part of TVALL without the clears and loads.

The "spectral-line" area received some useful attention. Several more bugs in TRANS were squashed. MCUBE now uses two "reference" images in building a new "cube", reducing the problems with reference pixel value accuracy and dropping the need to have two adjacent "planes" when first building the cube. MCUBE now also allows the addition/replacement of "planes" in existing "cubes". The self- calibration task, ASCAL, has adopted a new format for the gain solution file and has the option to catalogue it as an extension file. This is a necessary step in the direction of allowing one gain file to be applied to other data bases. A pseudo-array processor version of ASCAL is now available. A task to build a false color (RGB) image from a

spectral-line cube is in the final testing stages.

The UV data base package has been developing rapidly, partly in anticipation of handling VLBI data. Almost all routines now support a multi-frequency UV data base. Conversion programs between AIPS and the Cal Tech VAX VLBI package have been begun. A standard ANtennas extension file has been developed along with a task to print its contents. A task to use it to compute more accurate UVW's is under development. Tasks to copy UV data bases over limited time ranges and to concatanate UV data bases have been written, as has a task to plot the UV data.

Numerous minor fixes have also been made. Among these are changes to APCLN's messages and the scaling of the TV display of the residual image. The Slice file format was revised, again, and all routines standardized. Task SUBIM now copies all Clean Components files along with the subimage. A CRT option with page-full handling has, so far, been added to PRTHI, CAT, and CATALOG. The WaWa or "easy" IO package received several corrections and new utility subroutines.

Listing of CHANGE.DOC for the period November 1 - December 31

PART 3 of 1981. Part 1 stored as CHANGED.81A.
Part 2 stored as CHANGED.81B (Aipsletter 11/1/81)

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465. Nov. 5, 1981 ZSTOPA David Brown
ZSTOPA used to assume that the logical translation for TT was always 6 chars. or less. However, file accesses through DEC-NET to [TEST] cause LOGIN.COM to be executed with TT assigned to a FAL.LOG file instead of a terminal. The resulting length overflow prevented the connection. ZSTOPA has been changed to simply return when the translation is longer than 6 characters.
Moved nowhere

466. Nov. 9, 1981 CLIP Bill Cotton
Added includes 'DHDR.INC' and 'CHDR.INC' to routine FUDHIS.
Moved: MODCOMP this date.

467. Nov. 10, 1981 CTICS, ITICS Gary
Fixed bug in printing degree labels on large fields of view.
Increased max increment to 5 hours or 5 degrees.
Moved to Modcomp Nov 17, nowhere else.

468. Nov. 10, 1981 APCLN,DCLN.INC,CCLN.INC,PASS2 Bill
Changed TV display scaling of the residuals so that the intensity scale only changes when the peak changes by a factor of ten. Also removed several messages which appeared to confuse users and changed others to be more easily understood.

Most of the places where a flux density is given they are now scaled units.
Moved to Modcomp Dec 31, nowhere else:

469. November 10, 1981 TRANS Eric
Fixed bug causing bad disk addressing most of the time
Moved to VLA this date, to Modcomp Nov 17.

470. Nov. 10, 1981 UVMAP Bill
Added spectral channel selection. Also changed:
DMPX.INC, CMPX.INC, [TEST.INPUTS and HELP]UVMAP.
Moved: to Modcomp Dec 31, nowhere else

471. Nov. 11, 1981 APCLN Bill
DISPTV now gives the maximum in the TV display.
Moved: to Modcomp Dec 31, nowhere else

472. Nov. 11, 1981 UVSRT Bill
Fixed bug in reading data which caused data to sometimes overwrite the FTAB.
Moved: to Modcomp Dec 31, nowhere else

473. Nov. 12, 1981 Spectral Line conversion of UV routines Bill
Modified UVPGET and COMMON /UVHDR/ to give the increments for frequency and stokes in the data array as well as the stokes value in the first pixel.
Additional modifications to UVMAP, includes removing COMMON /UVHDR/ from CMPX.INC and putting DUVH and CUVH.INC into the source code.
PRTUV modified to print one channel at a time.
Files involved in these changes:
DMPX.INC, CMPX.INC, DUVH.INC, CUVH.INC
UVMAP.FOR, PRTUV.FOR, UVPGET.FOR
[TEST.INPUTS and HELP]PRTUV.
Moved: to Modcomp Dec 31, nowhere else

473. Nov. 13, 1981 PRTUV Bill
PRTUV will now print as many spectral channels as will fit in the format.
moved: to Modcomp Dec 31, nowhere else

474. Nov. 13, 1981 UVFLG Bill
Converted to work on spectral lina data. Also changed:
[TEST.INPUTS and HELP]UVFLG.
Moved: to Modcomp Dec 31, nowhere else

475. Nov. 13, 1981 APCLN Bill
When the user requests that the CLEAN components not be restored, the program now computes the beam and enters the correct value in the catalog.
Moved: to Modcomp Dec 31, nowhere else

476. Nov. 13, 1981 UVSUB Bill
Spectral line conversion, added channel number. The program also has the capability to subtract a model from all frequency

channels. Also changed:
DSUB.INC, CSUB.INC, [TEST.INPUTS and HELP]UVSUB.
Moved: to Modcomp Dec 31, nowhere else

478. Nov. 16, 1981 UVSRT Bill
Fixed declaration of arrays A and IWK (renamed WK) in subroutine ICSORT to REAL*4
Moved: to Modcomp Dec 31, nowhere else

479. November 16, 1981 Several Eric
Standardize some of the new or newly revised routines. Alter The Slice file format (scale, offset not applied to stored values - this lets RESCALE work).

CNTR	:	Change limit on LTYPE
DECONV	:	Retype, change returned values on error
FNDEXT	:	Minor typing
LABINI	:	Handle LTYPE=6 for pixel labeling
PCNTR	:	Change limit on LTYPE
SL2PL	:	New format, minor typing, models plotted fully
SLBINI	:	Allow LTYPE 6 from user, dummy type=10 now
SLFIT	:	Minor retyping, put in scaling on slice data, descale answers, fix QUICK handling on RELPOP
TIMDAT	:	Change form of date to day-month-year (FITS)
AU5B	:	Change limit on LTYPE
AU6	:	New color contour algorithm
AU6A	:	Alter call (mode, hold RPOS value) to IENHNS
AU6C	:	(new) Do TVALL (load,wedge,zoom,enhance)
AU8A	:	Slice file max/min now have to be scaled
AU9A	:	No data statement for N3 -> bad things on error
AU9B	:	Remove debug, minor typing, limit on LTYPE changed
AU9C	:	Retype some, Decrement stack counter
IENHNS	:	Allow third mode (no plot, return any button) Change call sequence (RPOS in/out now)
IMCCLR	:	Fourth set, alter algorithm
SET1DG	:	Minor typing
TKCURS	:	Minor typing
TKGGPL	:	Minor retyping, fix up precursor comments
TKGMPL	:	Plot full area, new format
TKRSPL	:	Format change, renumber, plot from ends
TKSLAC	:	Minor typing
TKSLIN	:	Minor typing, remove debug
TKSLPL	:	Fix handling of blanking
TVBLNK	:	Use YSPLIT rather than YSLECT gets smoother blink
VERBS	:	Add AU6C
VERBSB	:	Add AU6C as bad verb
VERBSC	:	Add AU6C as bad verb
GREYS	:	Change limit on LTYPE
SLICE	:	Correct handling of blanking, new format move SLICE to [.APL] from [.NOTST]
[HELP]POPSDAT	:	Add verb TVALL
[HELP]TVALL	:	New

[HELP]CNTR, GREYS, LTYPE, PCNTR, PROFL, SLFIT, SL2PL, TKGUESS,

TKMODEL, TKRESID, TKSLICE, TVLABEL : Add LTYPE 6
[HELP]TKAGUESS, TKAMODEL, TKARESID, TKASLICE : remove LTYPE

[INPUTS]TVALL : New
[INPUTS]CNTR, GREYS, PCNTR, PROFL, SLFIT, SL2PL, TKGUESS,
TKMODEL, TKRESID, TKSLICE, TVLABEL : Add LTYPE 6
[INPUTS]TKAGUESS, TKAMODEL, TKARESID, TKASLICE : Remove LTYPE
Moved to Modcomp Nov 17, nowhere else

480. Nov. 16, 1981 [TEST.PSAP]APINIT Fred
In the pseudo-AP version of APINIT, the array SPAD ought to have been declared INTEGER*4. I corrected APINIT in the TEST area on the CV Vax.
Moved to Modcomp Dec 31, nowhere else

481. Nov. 16, 1981 [TEST.PSAP]MAXV and MINV Fred
In both of these routines the address placed in SP15 ought to have been smaller by one. I corrected the versions of these routines in the TEST area on the CV Vax.
Moved to Modcomp Dec 31, nowhere else

482. Nov. 16, 1981 [TEST.PSAP]VSMA, CVEXP, and APGSP Fred
I added counterparts of the above-named routines (from the AP Math Library) to the pseudo-AP library on the CV Vax.
Moved to Modcomp Dec 31, nowhere else

483. Nov. 16, 1981 [TEST.FPS]MCALC.VFC and .FOR Fred
I stripped the vector chainer routine MCALC out of the main body of ASCAL and placed the vector function chainer code and the Fortran code in the FPS area on the CV VAX. This is so as to allow a pseudo-AP version of ASCAL.
Moved to Modcomp Dec 31, nowhere else

484. Nov. 16, 1981 [TEST.PSAP]MCALC.FOR Fred
I added a Fortran version of the vector function chainer routine MCALC (called by ASCAL and by LSCAL) to the pseudo-AP library in the TEST area on the CV Vax. It hasn't been tested yet.
Moved to Modcomp Dec 31, nowhere else

485. November 16, 1981 ZTOPEN (Vax only) Eric
Text member name includes the .INC for include files.
Moved nowhere

486. Nov. 16, 1981 PRTUV Bill
Fixed bug which caused LL correlator data to be labeled RR when no RR data was present.
Moved: to Modcomp Dec 31, nowhere else.

487. Nov. 16, 1981 UVIBM Bill
Spectral line conversion. Will write one channel per file. Also now handles one correlator data (RR or LL only)
Also changed: [TEST.INPUTS and HELP]UVIBM.
Moved: to Modcomp Dec 31, nowhere else.

488. Nov. 17, 1981 ASCAL and LSCAL Fred
In order to allow pseudo-AP versions of these tasks, I stripped out the subroutine MCALC (see above) and changed all AP address calculations to pseudo-I*4. Also, I created a pseudo-AP version and tried it on the VAX, and found it to work properly. These changes were made only in the TEST area on the CV Vax.
Moved to Modcomp (sort of) Dec 31, nowhere else.

489. November 18, 1981 several Eric

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PROFL    : Numerous improvements, changes of scaling,
           upgrade axis labeling to CTICS again
CTICS    : Force same   decimals on linear axis tick labels
CNTR     : Unrelated axes XYRATIO default -> window ratio
PCNTR    :    "         "     "        "          "     "
GREYS    :    "         "     "        "          "     "
IMLOD    : Fix it to handle END, HISTORY, and COMMENT
           keywords even if they have illegal = signs
ITICS    : Force same   decimals on linear axis tick labels
AU6C     : New verb TVFIDDLE = 2nd half of TVALL
VERBS    : Add TVFIDDLE
VERBSB   :  "      "      as bad entry
VERBSC   :  "      "      as bad entry
PRTMSG   : No printing if PRIO > 10 or USER = -32000
AIPSC    : No message print if everything ok
AIPSB    : No message print on AIPSB exits
[INPUTS]PROFL, CNTR, PCNTR, GREYS : Clarify XYRATIO
[INPUTS]TVFIDDLE                  : New
[INPUTS]QEXIT                     : New
[INPUTS]SETWIN, SETBOX, SETNBOXS, SETXWIN, OFFROAM :
                                    Doc the procs
[HELP]POPSDAT                     : Add verb TVFIDDLE, proc
                                    QEXIT
[HELP]TVFIDDLE, QEXIT             : New
[HELP]SETWIN, SETBOX, SETNBOXS, SETXWIN, OFFROAM :
                                    Doc the procs
[HELP]PROFL, CNTR, PCNTR, GREYS   : Clarify XYRATIO
[HELP]XYRATIO                     : Expand description
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Moved to Modcomp Dec 31, nowhere else

490. November 18, 1981 PBCOR Ed
Fixed error in CRADEC subroutine of PBCOR. Sign of input pointing position not handled correctly.
Updated TEST.NOTST source code at VLA and CV VAX,
Updated EXE files in TEST and AIPS at VLA and CV VAX
Moved to VLA this date, to Modcomp Dec 31.

491. November 18, 1981 [DOC]MV2C06AN.,DANT.INC,EANT.INC Bill
Added documentation and include files in preparation for implemention of antenna extention files.
Moved: to Modcomp Dec 31, nowhere else

492. Nov. 19, 1981 CLIP Bill
Modified to check all frequency channels.
Moved: to Modcomp Dec 31, nowhere else

493. Nov. 19, 1981 UVCOP Bill
New task, copies timerange selected subset of uv data.
Also created/changed: [TEST.INPUTS and HELP]UVCOP and [TEST.HELP]TASKS.
Moved: to Modcomp Dec 31, nowhere else

494. Nov, 19, 1981 PRTUV Bill
Fixed bug which caused an error in the printed frequency.
Moved: to Modcomp Dec 31, nowhere else

495. Nov, 19, 1981 [DOC]MV2C06AN. and MV2C06CC. Bill
Modified these documentation files.
Moved: to Modcomp Dec 31, nowhere else

496. Nov. 19, 1981 PROFL Gary
Modification of hidden line algorithm.
Moved to Modcomp Dec 31, nowhere else.

497. Nov. 19, 1981 ZPHFIL Gary
Changed to recognize special terminals that need special graphics terminals. The terminals and graphics terminals are specified by group logical assignments.
Moved nowhere.

498. November 22, 1981 Several Eric
I have developed an accounting system for AIPS which all tasks and AIPSs must use. The routines modified are
DMSG.INC, CMSG.INC : Add account file position NACOUN to common
DBAT.INC, CBAT.INC : Minor typing
DBWT.INC, CBWT.INC : Minor typing
DMAP.INC, CMAP.INC : Carry RQUICK for use by DIEMAP

ACOUNT : NEW: creates account entries fills in final parms
DIE : Call DIETSK rather than do msg, relpop itself
DIETSK : NEW and OBLIGATORY>>>> Does close down message, stops acccounting, resumes AIPS if needed
GTPARM : Starts accounting now
RELPOP : Removed all non-error messages. They are the responsibility of DIETSK now.
TSKEND : Call DIETSK rather than do msg, RELPOP itself

AIPS : Moved start up and close down into separate routines. These can be overlayed rather than INIT and OERROR. Handles accounting.
AIPSB : Add calls to accounting
AIPSC : Use DIETSK rather than own messages, RELPOP
FILAIP : Add section to create/init accounting file
FILINI : Add section to init accounting file
PRTACC : NEW - print accounting info in various ways, init

ZCPU : Minor retype, move from [.NOTST] to [.APL]
The following tasks have been revised to call DIETSK rather than perform the messages, and RELPOP calls themselves
[.APL]CNTR, CNVRT, EXPND, EXIND, FITTP, IBMTP, IMEAN,

MCUBE, PCNTR, PROFL, PRTIM, PRTPL, SL2PL, SLFIT, SLICE, SUBIM, TKPL, TVPL, UVFLG, OLDFT, PRTUV
[.NOTST]APCLN, APMAP, ASCAL, CCMOD, CCTP, CITCC, CONVL, CORAV, CORFQ, FNDUV, GREYS, IMFIT, LSCAL, NTERP, PRTCC, REGLR, UVDIS

The following tasks call DIE or TSKEND and hence only have to be relinked
[.APL]COMB, IMLOD, SUMIM, TRANS, UVIBM, UVLOD, UVSRT
[.NOTST]CLIP, MOMFT, OLDUV, PBCOR, UVCOP, UVMAP, UVSUB, ZERO

Moved to Modcomp Dec 31, nowhere else

499. Nov. 23, 1981 CITCC Bill
Temporary task to write CLEAN components in a file accessable by Cal. Tech VLBI programs. Also [TEST.INPUTS]CITCC.
This routine will only run on a VAX.
Moved: nowhere

500. Nov. 25, 1981 EXTINI Bill
EXTINI will now return value of BP used if input BP=0 and the file previously existed.
Moved: to Modcomp Dec 31, nowhere else.

501. Nov. 25, 1981 PRTAN Bill
New task to print the contents of the antenna ('AN') files.
Also [TEST.INPUTS and HELP] PRTAN., [TEST.HELP]TASKS.
Moved: to Modcomp Dec 31, nowhere else.

502. Nov. 25, 1981 EXTCOP Bill
New subroutine to copy EXTINI-EXTIO type extension files from one catalogued file to another.
Moved: to Modcomp Dec 31, nowhere else.

503. Nov. 25, 1981 UVSUB Bill
Corrected value of NPARM sent to GTPARM
Moved from VLA site this date, to Modcomp Dec 31.

504. Nov. 25, 1981 [AIPS]PLOT.COM Gary
I think I fixed the plot spooler to allow for a task allocating the printer before the plot spooler can reset everything. Still needs more field testing.
Moved nowhere.

505. November 25, 1981 Several Eric
ITICS : Removed bug re axes w incr like 0.2.
MCREAT : Allow IVOL <= 0 to imply any disk.
UVCREA : Ditto
MAPCR : Now returns disk used.
CATIO : Changes catlg date with each IO. Date now last access
CATDIR : Fix format to go w above
GINIT : Now destroys any pre-existing file by requested name
The following tasks were modified to allow OUTDISK = 0 to mean

any disk (rather than normal default of indisk):
APCLN, APMAP, ASCAL, COMB, IMLOD, MCUBE, NTERP, SUBIM, SUMIM
TRANS, UVMAP, UVSRT, UVSUB, LSCAL, CLIP, ZERO
The following tasks must be relinked due to changes in GINIT
or in the meaning of Outdisk:
UVLOD, CONVL, PBCOR, REGLR, UVDIS, CNTR, GREYS, IMEAN, PCNTR,
PROFL, SL2PL
The following [.INPUTS] were changed for OUTDISK change:
APMAP, IMLOD, MCUBE, SUBIM, TRANS, UVSRT, RGBMP, PBCOR
The following [.HELP] were changed for OUTDISK change:
OUTDISK, APCLN, APMAP, ASCAL, COMB, IMLOD, MCUBE, NTERP,
SUBIM, SUMIM, TRANS, UVLOD, UVMAP, UVSRT, UVSUB, LSCAL, CLIP,
CONVL, PBCOR, REGLR, TOAIP
Moved to Modcomp Dec 31, nowhere else

506. Nov. 26, 1981 BPRLSE Bill
New routine. BPRLSE calls APRLSE and the delays the task
by 100 millisec. if NPOPS .NE. 1 to allow other users
a chance to get at the AP. Implemented in:
APCLN, UVMAP, UVSUB
Moved: to Modcomp Dec 31, nowhere else.

507. Nov. 26, 1981 UVLOD Bill
Modified to create an antenna (AN) file.
Moved: to Modcomp Dec 31, nowhere else.

508. Nov. 26, 1981 EXTCOP Bill
Added calls to EXTCOP to copy antenna files in the following:
UVSRT, UVSUB, CLIP, FUDGE
Moved: to Modcomp Dec 31, nowhere else.

509. Nov. 26, 1981 UVIBM Bill
Now writes ANTE records on EXPORT tape if an AN file exists.
Moved: to Modcomp Dec 31, nowhere else

510. Nov. 27, 1981 UVSRT Bill
Moved to NOTST due to use of EXTCOP.
Moved: to Modcomp Dec 31, nowhere else

511. Nov. 27, 1981 APCLN Bill
Fixed BMSHP so that it should work for VLBI sized beams
on the VAX.
Moved: to Modcomp Dec 31, nowhere else.

512. Nov. 27, 1981 [TEST.PSAP]BPRLSE Bill
Added pseudo-AP routine.
Moved: to Modcomp Dec 31, nowhere else

513. Nov. 28, 1981 UVCOP Bill
Modified to copy antenna file.
Moved: to Modcomp Dec 31, nowhere else.

514. Nov. 30, 1981 APCLN Bill
Modified INGAUS and RESTOR to sum arguments of the
gaussian before exponentiation rather than exponentiating

then multiplying. This should take care of the large beam problem.
Moved: to Modcomp Dec 31, nowhere else.

515. November 30, 1981 Several Eric
I have developed a task-oriented get with auto-save on GO and generalized the names used for SAVE and GET. These changed the following subroutines:

AIPSB	:	Destroy its TS file after each job
AIPSC	:	Save task adverbs to directoried TSfile on GO destroy its TS file on exit
AU2	:	Correct bug in moving character adverbs, Add auto save of adverb values to directoried TS file
AU2A	:	NEW - Does recovery of Task adverbs, index Tasks saved and Save/Get files, destroy single SG files
AU3A	:	Have diskuse use s in directory rather than ZEXIST and SAVDEST use directory heavily
GETNAM	:	Allow imbedded blanks between quotes or ( )
HELPS	:	Add name pickup for TGET, SGDESTR
PRTACC	:	Pretty up print out for full lists
SGLOCA	:	NEW - Checks Save/Get directory to locate requested file after parsing user-supplied name
STORES	:	Call SGLOCA rather than parse old, simpler names
VERBS	:	Add AU2A
VERBSB	:	Add AU2A
VERBSC	:	Add AU2A

[HELP]POPSDAT. : Add TGET, SGDESTR, TGINDEX, SGINDEX
Moved to Modcomp Dec 31, nowhere else

516. November 30, 1981 Several more Eric
I have rearranged the handling if the Image Catalog, primarily to support remote terminals (assumed to be dual text/graphics). AIPS now assigns a TV and a TK to itself as it comes up. These assignments are kept in the variables NTVDEV and NTKDEV after the ZWHOMI call. These are passed to all tasks automatically on GO and picked up by GTPARM. The routines changed are:

AIPSB	:	Force NTVDEV = NTKDEV = 0 after GTPARM call
AIPSC	:	Force NTVDEV = NTKDEV = 0 after GTPARM call, make space for 2 new automatic variables
AU2	:	Pass NTVDEV and NTKDEV
AU2A	:	Skip over the 2 new variables
AU9A	:	Change test on TK available, plane
AU9B	:	" " " " " "
AU9C	:	" " " "
AUA	:	Move batch Q further down in passed parms
FILAIP	:	Create new TK image catalog, fix up all IC inits
FILINI	:	Fix up all IC inits
SLOCIN	:	Change plane to use NTKDEV
ZSTRTA	:	Drop messages about device assignments
ZWHOMI	:	Add section assigning devices by POPS and whether they are remote terminal or not.

GTPARM : Pick up TV and TK assignments

ICINIT : Init TK graphics separately from TV graphics planes
ICOPEN : Change tests on availability, file name for TK image catatog
ICREAD : Change record for TK read from image catalog
ICWRIT : Change record number for TK write to image catalog
TKPL : Change test on availablity, move screen clearing until after arcsec / mm message
TVOPEN : Change test on availability
TVPL : " " " "
ZDCHIN : Add to comments re NTVDEV, NTKDEV
ZPHFIL : Remove tests on TT assignment, use NTKDEV to get which TK device

APMAP : Change TV available test
APCLN : " " " "
NTERP : " " " "
UVMAP : " " " "

Note: all tasks must be relinked because of these changes.
Moved to Modcomp Dec 31, nowhere else.

517. December 1, 1981 Several Eric
TVINIT : Check NTVDEV rather than NTVACC
BATER : Adjust position of parms in starting AIPSC, add accounting file calls
AU3 : Require image name as well as disk, type on destroy
AU8 : Correct comments
PRTACC : Fix up info some, correct bad default, show limits
[HELP]IMDEST, EXTDEST : Correct, clarify
[INPUTS]IMDEST, EXTDEST : Correct, clarify
[HELP]SAVE, GET : Change to new format
[HELP]TGET, SGDESTR, TGINDEX, SGINDEX : New
[INPUTS]TGET, SGDESTR, TGINDEX, SGINDEX, GET, SAVE : New
Moved to Modcomp Dec 31, nowhere else

518. Dec 1, 1981 MAPWIN Gary
Fixed bug. Putting default values of BLC, TRC in FILTAB instead of actual values.
Moved to Modcomp Dec 31, nowhere else

519. Dec 2, 1981 TSKEND, IOSET1, IOSET2, ... Gary
MAPCR
Added 'DIE' type deletion of newly created maps upon error.
Moved to Modcomp Dec 31, nowhere else.

520. Dec 2, 1981 FILOPN Gary.
No longer taking exclusive use on call to ZOPEN. This permits opening a file twice under different LUN's.
Moved to Modcomp Dec 31, nowhere else

521. December 2, 1981 more with task activation Eric
AU2 : Add spare word auto-passed to tasks
AU2A : " " " " " "

AUA : " " " " " "
AIPSC : " " " " " "
BATER : " " " " " "
GTPARM : Add spare word (skipped over for now)
EXES.CTS : Add some new tasks
Note: this requires all tasks to be linked
Moved to Modcomp Dec 31, nowhere else

522. December 2, 1981 [DOC] files Eric
MV2C0501 : add TSKEND to how to write a task
MV2C0502 : Mention [TEST.HELP] et al, All Change info to Vax [TEST]CHANGE.DOC
MV1C0203 : Automatic PRTMSG
MV1C0202 : Add TGET, SGDESTR; change SAVE, GET
MV2C06TD : Add more automaticly passed parameters
MV2C06IC : New file for TK; describe NTVDEV, NTKDEV
MV2C06SG : Describe new directory file, new routines
MV2C06AC : New - describe accounting file
MV2C06TS : New - describe Task adverb Save file
Moved to Modcomp Dec 31, nowhere else

523. December 3, 1981 UVLOD Bill
Fixed bug which caused failure when two or more segments of data were encountered.
Moved: to Modcomp Dec 31, nowhere else.

524. Dec 3, 1981 ZPHFIL, ZWHOMI Gary
Changed logical names for remote terminals and corresponding TEK TT's to make them independent of the message terminal logical names. Increased number of message terminals and the number of remote terminals to 9.
Moved nowhere.

525. Dec. 3, 1981 [DOC]MV2C1002. Gary
Changed VAX installation procedure documentation to reflect 524 above.
Moved to Modcomp Dec 31, nowhere else.

526. Dec 3, 1981 [TEST.NOTST]HIREAD.FOR Stuart
[TEST.NOTST]TBLIO.FOR
New routines. HIREAD will return one HI card per call. TBLIO is a routine to create/search/read/write "TB" table files.
Moved to Modcomp Dec 31, nowhere else.

527. Dec. 4, 1981 HDRWIN Gary
Fixed two bugs. ERROR not declared I*2. Not copying header info in CAT2 back into HDR.
Moved to Modcomp Dec 31, nowhere else.

528. December 4, 1981 [DOC] Eric
Update WHATSUP, INCSUP, APPLSUP, APSUP, UTILSUP, TVSUP, IOSUP, TASKSUP, POPSUP to include new revised routines
Moved to Modcomp Dec 31, nowhere else

529. Dec. 4, 1981 CONVL. Bill
Got revised version from Imke dePater. Modified to be compatible with mods made by Eric for accounting. Also fixed , in routine CONVOL, a bug by writing the log of the integrated weight into the AP.
Moved: to Modcomp Dec 31, nowhere else.

530. Dec. 4, 1981 [TEST.NOTST]LG2BIT.FOR Fred
Added this new subroutine, which will be used in ASCAL. Its purpose is to convert an array of logical flags to bit flags packed within an array of integer words. It also can do the inverse operation.
Moved to Modcomp Dec 31, nowhere else.

531. Dec. 5, 1981 PRTCC Bill
Fixed several bugs: initilize SUM and fix problem in format.
Moved: to Modcomp Dec 31, nowhere else.

532. Dec. 6, 1981 ANTDAT Bill
New routine in [TEST.NOTST] which returns arrays of JD reference dates and Frequencies from all the antenna (AN) files associated with an uv data base.
Moved: to Modcomp Dec 31, nowhere else.

533. Dec. 6, 1981 EXTCOP Bill
Added input argument for output version number. Also modified to copy multiple extension files. Changed call in the following:
UVSRT, UVSUB, CLIP, UVCOP, FUDGE
Moved: to Modcomp Dec 31, nowhere else.

534. DEC. 6, 1981 UVLOD, PRTAN, MV2C06AN. Bill
Modified AN header to include reference date and frequency.
Moved: to Modcomp Dec 31, nowhere else.

535. Dec. 6, 1981 UVIBM Bill
Modified to handle multiple array data. Moved to [.NOTST], added call to ANTDAT, corrects time and uses correct frequency to scale u, v, w to nsec.
Moved: to Modcomp Dec 31, nowhere else.

536. Dec 7, 1981 IMFIT Ed
DECNET'ed IMFIT from VLA site. IMFIT.FOR in [TEST.NOTST] and IMFIT.EXE in [TEST]. Help and inputs also copied into [TEST.HELP] and [TEST.INPUTS].
Moved from VLA this date, to Modcomp Dec 31.

537. Dec 7, 1981 PBCOR Ed
DECNET'ed PBCOR from VLA site. Same files brought as for IMFIT.
Moved from VLA this date, to Modcomp Dec 31.

538. Dec 7, 1981 UVPLT Ed
DECNET'ed UVPLT from VLA sige. Same files brought as for IMFIT.
Moved from VLA this date, to Modcomp Dec 31.

539. Dec. 7, 1981 [.NOTST]RGBMP [.HELP]RGBMP [.INPUTS]RGBMP Gary
New task to convert 3rd dimension of a cube to 3 planes representing the colors red, green, blue.
Moved to Modcomp Dec 31, nowhere else.

540. Dec. 7, 1981 [.NOTST] several new ones Gary
The following routines may be of some use when using WAWA I/O.
FILDEF - fill in default values for a name string.
GETNAM - Get the actual name string of an open file given LUN.
GETWIN - Get the current window of an open file.
MADD - Add two open windowed maps and put results in a 3rd.
MCOPY - Copy one windowed map into another windowed map.
MFILL - Fill a window of a map with a specified constant.
PRTERR - Print WAWA error message and corresponding map name.
SAVHDR - Save a map header.
Moved to Modcomp Dec 31, nowhere else.

541. Dec. 7, 1981 [.NOTST]ASCAL and LSCAL Fred
LG2BIT now is incorporated in ASCAL and LSCAL so that the editing flags stored within the gain records are bit flags rather than logical flags. This change has shortened the gain records from 3 kbytes to 1 kbyte. Soon it will be possible to create cataloged gain (extension) files.
I also made a minor correction to the call to SNCRB in the subroutine VISCOR: an argument of 0 was used where an array of bad disk numbers ought to have been. There was no ill effect caused by this error.
Moved to Modcomp (sort of) Dec 31, nowhere else.

542. Dec. 7, 1981 [DOC]WHATSUP. IOSUP. TASKSUP. Gary
Updated for 539, 540 above.
Moved to Modcomp Dec 31, nowhere else.

543. Dec. 8, 1981 PBCOR Ed
Fixed bug in IC. Had to make this a floating point number.
Moved to Modcomp Dec 31, nowhere else.

544. Dec. 8, 1981 COMPILE.COM Gary
Updated installation procedure to create accounting file.
Moved nowhere.

545. Dec. 8, 1981 OLDLD, OLDSR, OLDUV Ed
Copied fortran code for OLDLD, OLDSR and OLDUV from the VLA VAX to [TEST.NOTST], recompiled and put EXE module in [TEST] only. The help and inputs files were also copied from the VLA.
Moved from VLA this dtae, nowhere else.

546. Dec. 8, 1981 DOSR, COSR, DOIN, COIN Ed
Copied the include files DOSR.INC, COSR.INC, DOIN.INC AND COIN.INC from the VLA VAX into the [TEST] area in order to compile OLDSR and OLDLD
Moved from VLA this dtae, nowhere else

547. Dec. 9, 1981 [TEST.APL]ZESTEX.MAR Gary
New routine to extablish an exit handler to clean up accounting in case of an abort.
Moved nowhere.

548. Dec. 9, 1981 ZDCHIN Gary
Changed to call ZESTEX.
Moved nowhere.

549. Dec. 10, 1981 UVPGET Bill
Added DMSG.INC and CMSG.INC (again).
Moved to Modcomp Dec 31, nowhere else

550. Dec. 11, 1981 EXTIO Bill
Fixed bug in computing logical record record offset for logical records larger than 512 bytes.
Moved to Modcomp Dec 31, nowhere else.

551. Dec. 11, 1981 DBCON Bill
New task which concatenates uv databases. Also changed or added:
[TEST.INPUT]DBCON, [TEST.HELP]DBCON, MAPCLEAN, TASKS
DDBC.INC and CDBC.INC
Moved to Modcomp Dec 31, nowhere else.

552. Dec. 12, 1981 UVLOD Bill
Commented out call to ZCMPRS since it doesn't work compressing very large files.
Moved to Modcomp Dec 31, nowhere else.

553. Dec. 15, 1981 PRTAN Bill
Added adverb NITER = number of records to print, also changed:
[TEST.INPUTS and HELP]PRTAN.
Moved to Modcomp Dec 31, nowhere else.

554. Dec. 15, 1981 APCLN Bill
Fixed FILES to tell CC file than the number of CLEAN components is equal to BITER.
Moved to Modcomp Dec 31, nowhere else.

555. December 15, 1981 Several Eric
CAPL.INC, DAPL.INC : Add DETIME adverb, increase K array
DCOM.INC, CCOM.INC : Add use blanking parm
DCON.INC : Increase K array

COMB : Add CLIP opcode, change to do clipping always
COMLAB : Rearrange display of levs: always get close ")"
CONDRW : Fix bug: recognized only multi-bit blanking
CTICS : Add 2 milliarcsec tick, correct bug in tick search
IBMTP : Writes EOFs in all cases, adverb DOEOF controls tape positioning afterwards
IMEAN : Standardize total flux conversion parts incl fix character handling, avoid 0 divide, handle rect. map
PROFL : Add 2 milliarcsec tick, correct bug in tick search

```
TRANS    :  Fix disk-based X-Y transpose: read/write all blocks
            close extra scratch file
ZCPU     :  (Vax) Change comments some
ZTAPE    :  Add OPcode MEOF: weof/meof write 4 EOFs, move tape
            to just after/before first of the EOFs
Forces relink CNTR, PCNTR, GREYS, FITTP, UVIBM

AIPS     :  Call ZSTAIP on exiting
AIPSC    :  Change CU3A to new form of AU3A
AU2      :  Drop pretense of doing SPY printout, change call seq
            to ZTQSPY
AU3A     :  New verb: TIMDEST, time adverb on ALLDEST
AU5C     :  Fix wedge scaling for floating-point images
AU6C     :  Fix wedge scaling for floating-point images
AU7      :  Fix RESCALE max/min for Factor < 0.0
AU8      :  GET.NAME to use USERID as input not output, loop
            on IN.DISK <= 0
INIT     :  Larger MPAGE, LPAGE
ITICS    :  Add 2 milliarcsec tick, correct bug in tick search
POPSGN   :  More program space  list space
STORES   :  More list space, fewer STORE scratch areas
ZSTAIP   :  New and null on Vax at the moment
ZTQSPY   :  Standardize typing, use MSGWRT, change call seq.
            be more selective on which to print
Forces recompile of all AU..'s, relink AIPSB also

[.HELP]IBMTP, DOEOF  :  Clarify what now happens on end file
[.HELP]SPY           :  No longer uses TASK adverb
[.HELP]COMB, OPCODE  :  Add CLIP, clarify COMB some
[.HELP]COMBCODE      :  New, additional explanations
[.HELP]POPSDAT.      :  Add verb TIMDEST, adverb DETIME
[.HELP]GETNAME, GET2NAME, GET3NAME : Change to use USERID as
                        input, INDISK = 0 => any, return
                        disk   if needed to avoid duplicates
[.HELP]ALLDEST       :  Use DETIME, clarify
[.HELP]TIMDEST, DETIME  :  New
[.HELP]STORE, RESTORE   :  Change   limit from 5 to 3

[.INPUTS]SPY         :  No longer uses TASK adverb
[.INPUTS]IBMTP       :  For DOEOF, recommend the HELP file
[.INPUTS]COMB        :  Add CLIP
[.INPUTS]GETNAME, GET2NAME, GET3NAME : Change to USERID as
                        input, INDISK 0 -> any, output?
[.INPUTS]ALLDEST     :  Use DETIME, clarify
[.INPUTS]TIMDEST     :  New
Moved to Modcomp Dec 31, nowhere else
```

556. December 15, 1981 MODCOMP Z routines Eric

```
ZOPEN    :  Fix typing, do TV, TK assignments here now
ZWAIT    :  Fix error in retry computation of File position
            index, correct retry failure report, no retry on
            abortable conditions
ZFIO     :  Fix error on retry file position index, no retry on
            abortable conditions
ZCPU     :  Do a real one for MC.  Move to [.APL] from [.NOTST]
```

ZTAPE : Clean up typing, add opcode MEOF, make WEOF and MEOF write several EOFs, then back up

ZSTAIP : NEW - reactivates batch processors on AIPS exit.
ZWHOMI : Now does TV, TK assignments and messages
ZTQSPY : Change call sequence. Now prints its own info, including task status and CPU.
Moved nowhere and there ain't nowhere to go.

557. Dec. 15, 1981 ASCAL and LSCAL Fred
In the TEST area on the CV Vax I made a large number of changes (also changed help and inputs files) to catalog gain extension files. Begin and end times of the solution intervals were added to the gain file, since this information is needed to produce useful displays of the gain solutions or to apply the gains to other data bases. A few more embellishments may be required; e.g., goodness of fit from the solution routine. I also made some more minor corrections: changed from using NLUSER in opening files to using USERID, added a section to copy antenna files, and attempted to improve cataloging of history and plot files.
DOCAT is the adverb which says whether the gain extension file ought to be left attached to the visibility output file or ought to be destroyed. The gain files are assigned type 'GA'.
Now there may be more difficulty in shoehorning ASCAL into the Modcomp -- I'll probably wait until January for this.
Moved to Modcomp (sort of) Dec 31, nowhere else

558. Dec. 15, 1981 UVLOD Bill
Now records antenna number instead of DCS address as antenna number.
Moved to Modcomp Dec 31, nowhere else.

559. Dec. 16, 1981 UVLOD Bill
Fixed to put Freq in Hz into antenna file header.
Moved to Modcomp Dec 31, nowhere else.

560. Dec. 16, 1981 AU7, AU3 Gary
Added print to CRT option for PRTHI and a wait for user response if the screen is full for CAT, CATALOG, and PRTHI (if DOCRT is true).
Moved to Modcomp Dec 31, nowhere else.

561. Dec. 16, 1981 [TEST.AIPS]SCHOLD (new) Gary
[DOC]POPSUP
Subroutine to wait for user response and allow quit option. Used in 560 above.
Moved to Modcomp Dec 31, nowhere else.

562. Dec. 16, 1981 [.AIPS]CATLST (new), [.APL]CATDIR Gary
[DOC]POPSUP
Removed catalog listing function from CATDIR and put it

in CATLST.
Moved to Modcomp Dec 31, nowhere else.

563. Dec. 16, 1981 new adverbs and corresponding help files Gary
[TEST]CAPL.INC, DAPL.INC
[TEST.HELP]POPSDAT.
[TEST.HELP]DOCRT, CPARM, DPARM
plus adverb CHANNEL with no help file as yet.
Moved to Modcomp Dec 31, nowhere else.

564. December 19, 1981 Several Eric
ZPHFIL : Made error name more rediculous
IMEAN : Made larger format for beam area in cells
ACOUNT : Add IOP=3 for system-caused, but trapped aborts
ZESTEX : Vax abort trap - use argument 3 for ACOUNT
BOUNDS : Better format for small limits

AU3A : Remove comments on the destroys, avoid bad user s
ZTQSPY : Use message level 1
AU2A : Always sets TASK adverb
PRTACC : Recognize controlled aborts
AU7 : Bug in avoiding duplicate names in RENAME

UVMAP : Test for <= 0 filed of view
APMAP : Test for <= 0 filed of view

[.help]POPSDAT : Default MINPATCH = 51
" TGET : Always set TASK
" COMB : Change LOG to LN which was intended
[.INPUTS]TGET : Always set TASK
" UVMAP : Limit CELLSIZE >1.e-6
" APMAP : Limit CELLSIZE > 1.E-6
[DOC]MV1C0202. : Alter TGET description
Moved to Modcomp Dec 31, nowhere else

565. December 20, 1981 UVIBM Ed
Changed task UVIBM to UVEXP in all [TEST] files
Moved to Modcomp Dec 31, nowhere else.

566. December 20, 1981 PRTHI Ed
Added DOCRT adverb in [TEST.INPUTS] and
[TEST.HELP] files.
Moved to Modcomp Dec 31, nowhere else.

567. December 20, 1981 CONVL Ed
Fixed [TEST.INPUTS]
Moved to Modcomp Dec 31, nowhere else

568. December 20, 1981 CORER Ed
Added this new task into TEST. The code has been
place in the TEST.NOTST area and the other relevant
files have been updated.
Moved to Modcomp Dec 31, nowhere else.

569. December 20, 1981 [TEST.HELP] Ed

Made many changes to general help files to make
The CV files similar to those at the VLA.
Deleted in [TEST.HELP] were GENERAL., APPLIC.,
CURSOR., MAPCLEAN., TV.
Added in [TEST.HELP] were UTILITY., ANALYSIS.,
INTERACT., SPECLINE., UV.
Changes were made in HELP., DISPLAY., POPSYM., ROAM.,
and WHATSNEW.
See the listing in file HELP. for the complete set
of general help files.
Moved to Modcomp Dec 31, nowhere else

570. December 21, 1981 Several Eric
CAPL.INC, DAPL.INC : Add DOALIGN, NPOINTS adverbs

EXTCOP : Standardize a little, move to [.APL]
PCNTR : Check image alignments centering window on ref pix
Handle rotations in vector drawing
Pol line now in arc sec when possible
SUBIM : Handle floating images, copy CC files
UVMAP : Correct so that Q U maps also show rotation
in the header as well as in the data

[.HELP]PCNTR : Add DOALIGN, mention centering
" SUBIM : Copies CC files along
" NAXIS : Remove MCUBE usage of this adverb
" POPSDAT : Add DOALIGN, NPOINTS
" DOGRIDCR : Add tasks list
" DOALIGN : New
" NPOINTS : New
" COMB : Switch to DOALIGN
" MCUBE : Switch to NPOINTS
[.INPUTS]PCNTR : Add DOALIGN, correct range on LEVS
" COMB : Switch to DOALIGN
" CNTR : Correct range of LEVS
" MCUBE : Switch to NPOINTS
Moved to Modcomp Dec 31, nowhere else

571. December 23, 1981 Several Eric
GREYS : Rearrange, retype, add adverbs DOCONT, DOALIGN
better tests on alignment, correct axis label bugs,
commas after LEVS in display
AU8A : Correct for changes in GREYS
MAPOPN : Change message level to allow suppress
POPSGN : Call ACOUNT
PRTACC : Call ACOUNT, handle aborts better
APCLN : Correct sign of map Rotation wrt Clean beam PA
COMLAB : Commas between displayed LEVS
CNTR : Count LEVS / line differently incl commas
PCNTR : " " " " " "

[.help]GREYS : Correct for changes in GREYS
[.inputs]GREYS : Correct for new adverbs, etc.
Moved to Modcomp Dec 31, nowhere else

572. December 24, 1981 MCUBE assoc. Eric

MCUBE : Change structure of software. Allow add planes to to existing cubes. Compute axis incr. from 2 specified planes. Loop inseq to in2seq by in3seq.
COMPAX : Removed from [.APL] added to MCUBE itself revised a lot to allow BLC's etc on 2nd map
SWAPAX : Add message common to handle possible messages
[.HELP]MCUBE : Reflect changes
" AX2REF : New adverb
" POPSDAT: Add AX2REF
[.INPUTS]MCUBE: Reflect changes
DAPL.INC, CAPL.INC : Add AX2REF
Moved to Modcomp Dec 31, nowhere else

573. December 28, 1981 AU6A Eric

Fixed call args to YSPLIT for blinking
Moved to Modcomp Dec 31, nowhere else

573. December 30, 1981 FTAB size for MODCOMP Eric

Add 4 words / map file for Modcomp: requires revision of ZMIO, ZTFILL, ZWAIT (MC only) : save FPI for retries
Also revise declared size of FTAB in programs:
AIPS, AIPSB, CNTR, CNVRT, COMB, EXFND, EXIND, FITTP, GREYS, IBMTP, IMLOD, MCUBE, OLDFT, PCNTR, PROFL, SL2PL, SLICE, SUBIM, TRANS, XXLOD, ZFT5.INC
Moved to Modcomp Dec 31, nowhere else.

574. Dec. 30, 1981 EXES.CT1, EXES.CT5, FORS.CT1, Gary
FORS.CT2, FORS.CT3, FORS.CT4,
FORS.CT5, MARS.CT1
[DOC]MV2C1002.

Updated and verified installation control files and instructions for this date.
Moved nowhere.

575. Dec 31, 1981 Modcomp Z's Eric

ZMIO : Add 2 words to hold initial FPI for retries
ZTFILL : Ditto
ZDCHIN : Ditto, also change lines/CRT page
ZWAIT : Ditto and use them
ZSTRTA : Remove device messages now in ZWHOMI
ZM70XF : Add 2 words for double buffer IO each FTAB UFT
Moved nowhere and there ain't nowhere to go

576. Dec 31, 1981 Bugs found by Modcomp compiler Eric

AU2A : Bad error test
AU7 : Called BATPRT, ZENDPG on DOCRT true.
AIPSC : Suppress message on no TGET file when destroying
AIPSB : Ditto
BPRLSE : Moved form [.NOTST] to [.FPS] to differentiate with the pseudo=AP version
GETNAM : WaWa (new) routine renamed to GTNAME to avoid dupl.
RGBMP : Rename GETNAM to GTNAME
PRTERR : Rename GETNAM to GTNAME
HIREAD : Remove blank line

MADD : Use WaWa standard names, drop DATA statements
MCOPY : Ditto
MFILL : Ditto
Moved from Modcomp this date, nowhere else.

AIPS TROUBLE OR COMMENT REPORT

Concerns:

AIPS BUG GENERAL COMMENTS

Date:

Name:

Address:

Phone:

Please staple any supporting evidence to this form, to help reconstruct the exact circumstances. For AIPS an INPUTS listing and the relevant part of the message file are usually needed.

Description:

(If necessary, continue on the back of this form.)

R e s p o n s e:

Name:

Date:

A I P S L E T T E R

Volume II, Number 2: March 15, 1982

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1.0 EDITORIAL COMMENTS

We have changed our publication date from the first to the fifteenth of every other month. This was done in order to insure the cooperation of the Computer Division Secretary who must handle tape lists on the first of each month. We trust that the slight delay in the publication of this issue will have gone unnoticed.

One of our main troubles in exporting AIPS is in getting feedback from the recipients of the tapes. Have they brought up the software, are they using it, what problems have they encountered, or are they leaving the tapes to gather dust on the shelf for some reason? We would appreciate written reports from you on your experiences both for our edification and, possibly, for inclusion in the AIPSLETTER.

We have heard that Cal Tech has a Grinnell television display working with AIPS under Vax/VMS, that the University of Texas has AIPS going on a Vax UNIX system, that MIT has a Nova version of AIPS, that the University of Minnesota is working on a CDC version, and that NRAO is working on an IBM version. Progress reports from these groups would indeed be interesting. Also, please don't forget that we are available by phone to answer any questions you may have and to provide any other assistance that we can. The Charlottesville phone numbers are 804-296-0211 (FTS 938-1271), extension 266.

2.0 AVAILABILITY OF FITS TEST TAPE

Some AIPS sites may have to translate non-VLA data to FITS in order to read it into AIPS. Or they may wish to take data out of AIPS in FITS format and read it into some other system. Such sites will need to build FITS reading and writing routines for such applications. The fourth version of the FITS Test Tape is now available from Don Wells in Charlottesville. The tape contains twelve files, including xray, optical and radio image data written by six different FITS writing programs at four different observatories. The principal purpose of the FITS Test Tape is to certify that a FITS reading routine

conforms to FITS specifications. An eight-page writeup is supplied with the tape to discuss the details of FITS rules and styles as illustrated on the tape. A copy of the tape and writeup will be supplied upon request at no cost to persons who believe they have a use for the tape.

3.0 SUMMARY OF CHANGES: JANUARY 1 - MARCH 14, 1982

These changes are listed in detail in the CHANGE.DOC file reproduced later in the AIPSLETTER. Among the changes you will find new tasks including

UVPLT : plots u-v data on user-specified axes
UVFND : prints potentially bad u-v points from disk files
EXPND : converts a single-file, multi-source export tape to a multi-file, single source per file tape
CONVL : convolves image with gaussian or another image
PRTTP : prints complete contents of tape
CORMS : version of COMB, produces an RMS map

plus the beginnings of what should be an extensive library of VLB-oriented tasks.

Several older areas have received major improvements. FITTP can now write several images to tape per execution and will include the Clean Components data (if any) with the image. IMLOD can recover these clean components. The task APCLN has finally reached something like our proper standards! Along the way, we altered the handling of defaults and enhanced the TV option including allowing the user to terminate the cleaning with the TV cursor after each major cycle. UVMAP and UVSUB now do more accurate position shifts and a pseudo array processor version of UVSUB is available. ASCAL has been made to run faster and has received numerous minor alterations. Two service programs, FIXCAT and FIXFIL, have been created for use by system managers. The uv - paraform task, FUDGE, has been standardized. A bug, which could cause, for example, APCLN9 to perform the job requested by user number 1 and vice versa, has been exterminated.

As usual, numerous routines received less drastic alterations. Significant errors were removed from RGBMP, PBCOR, and SLFIT. The Vax method for opening the line printer was changed and an error in the handling of errors by ZQIO was repaired.

4.0 VLBI CAPABILITIES ADDED TO AIPS

A new area of software is being opened up to support VLBI inside the AIPS system. All of the tasks so far are non-standard and some are Vax-specific, in particular those that communicate between AIPS and the Cal Tech (Vax) VLBI package. Since this area is of interest to at least some of our customers, we list here the new [HELP]VLBI file:

VLBI
Type: Software dealing with VLBI data.

CITCC	T	Writes CC file in CIT package format.
PRTDR	T	Prints contents of fringe fitting (DR) file.
TOAIPS	T	Reads uv data and converts to AIPS data set.
TOVLB	T	Converts AIPS UV data to CIT MERGE data set.
VBMRG	T	Merges a VLBI data set including polarization.
VBFIT	T	Global fringe fitting task (NOT YET AVAILABLE)
VLBDR	T	Estimates antenna delays and rates from FRINGE NRAO output and writes control table for FRINGE

In addition to these specialized routines, many other tasks have been modified to accomodate VLBI data. Among such modifications are the use of a full spectral-line capability in the u-v data base and extra levels in the tick mark routines. The fundamentally general design of the AIPS data bases and software has lent itself well to the peculiarities of VLBI data and AIPS is now used regularly for VLBI reductions. Two areas are currently under active development. One is a fringe fitting routine that solves for antenna delay, rate, and phase using all available data. This process should increase greatly the sensitivity of multi-antenna VLBI observations. The other is a pair of uv-FITS tasks. These should enhance AIPS' ability to talk to the world of interferometry.

5.0 CHANGE.DOC, 01JAN82-14MAR82

577. January 2, 1982 FORS .CT3 and .CT5 Eric
Change name of GETNAM to GTNAME, move BPRLSE to [.FPS]
Moved to VLA & CV AIPS Jan 8, nowhere else

578. January 3, 1982 AU2, ZTQSPY Eric
SPY message level 2 for batch, bug in retake terminals
Moved from Modcomp this date, to VLA & CV AIPS Jan 8

579. January 4, 1982 UVPLT Eric
Remove all the page marks, add call to DIE (may not be the thing needed, however).
Moved to VLA & CV AIPS Jan 8, to Modcomp Jan 10

580. Jan. 4, 1982 ASCAL and LSCAL Fred
I moved the calls to ZDCHIN and VHDRIN from the main program to the subroutine SCLPRM. This change will allow a more efficient overlay structure on the Modcomp.
Also removed the call to CHPACK in SCLPRM.
Moved to VLA & CV AIPS Jan 8, nowhere else.

590. Jan. 6, 1982 POPSDAT. DAPL.INC CAPL.INC Gary
Added adverb DOALL.
Moved to VLA & CV AIPS Jan 8, to Modcomp Jan 10.

591. Jan. 6, 1982 FITTP Gary
Added DOALL option. One can now backup all files that match the input parameters (using traditional defaults) as well as the 1st matching file.
Moved to VLA & CV AIPS Jan 8, to Modcomp Jan 10.

592. Jan. 6, 1982 ZQTRUN.MAR Gary
Fixed bug that caused ZCMPRS not to work on large files.
Changed MOVZWL to MOVL.
Moved to VLA & CV AIPS Jan 8, nowhere else.

593. Jan. 6, 1982 ASCAL and LSCAL Fred
I added a further check on antenna numbers (see #407, Oct. 1, 1981): the program now flags data on baselines labeled i-j whenever j does not exceed i. The program makes no special mention of data flagged for this cause, but rather counts them in its summary printout as points that already were flagged.
Moved to VLA & CV AIPS Jan 8, nowhere else.

594. Jan. 7, 1982 CORFQ Fred
The UVHDR common in CORFQ was inconsistent with that in UVPGET, thus record pointers were wrong, and the program was adjusting the wrong data (in particular, it was screwing up baseline numbers). I inserted the INCLUDE statements for DUVH and CUVH to make the commons agree.
Moved to VLA & CV AIPS Jan 8, to Modcomp Jan 10.

595. January 7, 1982 Several Eric
ITICS : Get more X-axis ticks
AU6C : TVFIDDLE didn't know what channels to fiddle
Fail to close TV on MAPOPN error
UVSRT : Lost info on ext files when output UV file was same as input.
MAPFIX : Add some catlg handling when must retry max/min
[HELP, INPUTS]TVFIDDLE : Add TVCHAN adverb
[HELP]IMWEDGE, IMPWEDGE : Fix up typing
Moved to VLA & CV AIPS Jan 8, to Modcomp Jan 10

596. January 8, 1982 (late) WaWa IO Eric
MAPCR : Use FILES common only on non-scratch files
FILDES : Init catalog number in call to CATDIR
MAPFIX : Ease up on overflow test by 1, leave destroy on error to TSKEND
Moved to Modcomp Jan 10, to VLA Jan 16.

597. January 10, 1982 ITICS Eric
Even more X-axis ticks allowed
Moved to Modcomp Jan 10, to VLA Jan 16.

598. January 10, 1982 AJAX.COM (Vax only) Eric
Fix procedure so that it doesn't alter defaults.
Moved to VLA Jan 16.

599. Jan. 11, 1982 RGBMP, MADD, MCOPY Gary
Fixed bugs concerning blanked pixels and weighting factor.

Moved to VLA Jan 16, to Modcomp Feb 3.

600. January 11, 1982 A couple Eric
AU2A : Delete SG directory when highest # = # empties
AU3A : Declare and Data T and F
SGLOCA : Do not decr. # empties when overwriting a file
UVCREA : Clear extension file areas
IMEAN : Fixed branch to avoid incorrect error message
Moved to VLA Jan 16, to Modcomp Feb 3

601. January 12, 1982 UVMAP Bill
Added OUTSEQ and "Z" term in the position shift. Also changed:
DMPX.INC, CMPX.INC, [TEST.INPUTS and HELP]UVMAP.
Moved: MODCOMP 15Jan82, to VLA Jan 20.

602. January 12, 1982 UVSUB Bill
"Z" term in position shift includes only the position
difference between the uv data phase reference position and the
CLEAN map reference position.
Moved: MODCOMP 15Jan82, to VLA Jan 20.

603. January 16, 1982 VAX things Eric
FORS.CT1 : Remove TKPL from list
TRANSPRT.COM : Send CHANGED.* also
STSPOOL.COM : Change RANCID to AIPS
COMPILE.COM, COMPIL2.COM : Link PRTACC, PRNTMN
Moved from VLA this date, nowhere else needed.

604. January 16, 1982 A few Eric
UVSRT : Allow it to do compress again
AU4 : INTAPE <= 0 now means 1 as per documentation
Moved from VLA this date, to Modcomp Feb 3.

605. January 18, 1982 UVMAP Bill
When shifting positions the new RA is computed from the
unshifted value of the declination. Fixed bug in history
which reversed old and shifted positions.
Also corrected mispelled constant in VISRD 3.046741E-5
to 3.0461741E-5.
Moved to MODCOMP this date, to VLA Jan 20.

606. Jan. 20, 1982 ASCAL and LSCAL Fred
In VISCOR the calls to LG2BIT were out of place, so that
LG2BIT was being called many more times than necessary.
This was evidently slowing down VISCOR by a factor of
5-10.
Moved to MODCOMP and VLA today.

607. Jan. 20, 1982 ASCAL and LSCAL Fred
I modified the gain solution routines GCALC and GCALC1
so that always when there are six or fewer antennas they
use a damping factor equal to 1/4. The intent of this
modification is to make these routines work more reliably
on VLBI data.
Moved to VLA(1) March 7, nowhere else.

608. Jan. 21, 1982 several INPUTS and HELPS Bill
Changed IN2SEQ and IN3SEQ used for frequency channel to CHANNEL in:
[TEST.INPUTS]UVEXP,UVFLG,UVMAP,UVSUB,PRTUV and
[TEST.HELP]UVEXP,UVFLG,UVMAP,UVSUB,PRTUV
Also removed "DON'T BE A DISK HOG" message from [TEST.INPUTS]UVLOD since it is no longer relavant.
Moved to VLA Jan 23, to Modcomp Feb 3.

609. January 19, 1982 IMLOD, APCLN, [.help]APCLN Eric
Fix up IMLOD to parse history from RANCID and VLACV, remove excess tests for END et al in FITHIS. Fix up error handling in APCLN and stop defaulting disks to 1.
Moved from VLA Jan 24, to Modcomp Feb 3.

610. January 20,1982 UVPLT Tim
Corrected bugs preventing proper selection of data. Also corrected incorrect decl. of XINTER in TICS sub.
Moved from VLA Jan 24, to Modcomp Feb 3.

611. Jan 20, 1982 2 new tasks Eric/Perley
PRTTP : To list tape contents
CORMS : Version of COMB to put out RMS maps
both with associated INPUTS and HELPs
Moved from VLA Jan 24, to Modcomp Feb 3.

612. January 20, 1982 COMB, PBCOR Eric
COMB : Fixed bug - set BFLAG true when input pix. blank also
PBCOR : Changed blanked pixel counter to real*8
[.HELP]WHATSNEW : Updated
Moved from VLA Jan 24, to Modcomp Feb 3.

613. January 22-23, 1982 Several Eric
FIXCAT : NEW - service pgm in [.AIPS] to clear messed up entries in catalog files
IBMTP : Set the product/band header parameter
DESCR : Add CONVL to list, check UVMAP on requested APMAP (won't work until CONVL fixed up some)
EXFND : Separate clip flux for polarization, VCLP opcode
[.INPUTS]EXFND. : Ditto
[.HELP]EXFND. : Ditto
[.HELP]OPCODE. : Add VCLP for EXFND
APCLN : Stop setting outdisk = indisk
PRTPL : Recognize PCNTR plots, fix address problem in PRFINT (led to ISTART=0 => overwrite data)
[.INPUTS]PRTPL : Let ASPMM be scaling factor non-standard
[.HELP]PRTPL : plot types. " " "
[DOC]MV2C06PL. : Add types 6,7; add char offset to GCHAR
PRTUV : Fix up # bytes in buffer (use NWDPFP, not BP)
Moved from VLA Jan 24, to Modcomp Feb 3.

614. January 23, 1982 UVFND w HELP & Inputs Eric
New task - like EXIND but for UV disk data bases
also [.HELP]TASKS.
PBCOR : Failed to handle input blanked pixels
DFUV.INC, CFUV.INC : For FNDUV parms

DPTP.INC, CPTP.INC : For PRTTP parms
Moved from VLA Jan 24, to Modcomp Feb 3

615. Jan. 25, 1982 ZGTDIR.MAR Gary
Fixed bug in returning include file. Not putting .INC after name for include files.
Moved to VLA this date, nowhere else.

616. January 25, 1982 Vax things Eric
TRANSPRT, TRANSHALF, and INSTALL coms moved *.COM and the changed.doc's to the second tape.
Moved from VLA this date.

617. January 25, 1982 TKTICS Eric
TKTICS : Fix to use constant # decimals on non-ra/dec axes
Moved from VLA this date, to Modcomp Feb 3.

618. January 27, 1982 FUDGE, CLIP, UVCOP Bill
Several minor changes. No longer recomputes baseline on return from DIDDLE. Buffer size reduced to size actually useable. A couple of other minor bugs fixed.
Moved: MODCOMP this date, to VLA(1) March 7, nowhere else

619. January 27, 1982 VBMRG Bill
New task to merge VLBI uv data sets. Also [TEST.INPUTS and HELP] VBMRG and added [TEST.HELP]VLBI. also mentioned in HELP.
Moved: to Modcomp Feb 3, nowhere else.

620. January 27, 1982 VLBDR Bill
New VLBI task. Currently will only work on a VAX. Makes antenna bases estimates of delay and rate from FRINGE output and writes an ASCII file that can be used as input to FRINGE to constrain the delays and rates. Also: [TEST.INPUTS and HELP]VLBDR.
Moved: nowhere

621. Jan. 27, 1982 ASCOR Fred
Added [TEST.HELP & INPUTS] files for this task, whose purpose is to apply ASCAL's gain corrections to a visibility file other than the one used by ASCAL, say, to a spectral line channel visibility file. Task itself doesn't work yet.
Moved nowhere.

622. Jan. 27, 1982 PBCOR Bill
Wrong return code was sent to TSKEND - fixed.
Moved: MODCOMP this date, to VLA(1) March 7, nowhere else.

623. Jan. 28, 1982 [TEST.NOTST]REBLD.FOR Gary
New stand alone utility to rebuild the directory portion of a catalog from the header information in the catalog. This is useful if someone mistakenly initializes a catalog with FILINI.
Moved MODCOMP, nowhere else.

624. Jan. 28, 1982 [TEST.INPUTS & HELP]UVLOD Bill
Changed NITER to NPOINTS.
Moved: to Modcomp Feb 3, to VLA(1) March 7, nowhere else.

625. January 28, 1982 Several from David Garrett (U Tx) Eric
SETPAR : READs all must be from unit 5
MDISK : Declare integers FIBLK, FNBYTE
ZPRMPT : Declare integer OUTLUN
SL2PL : Declare variables DOSLIC, DOMODL, DORES correctly
SLICE : IRETCOD should be IRETCD
UVMAP : Subroutine MAPOUT, no longer needs LSEQ
APMAP : Subroutine MAPOUT no longer datas LSEQ twice
PROFL : Change dimensions of PERCNT, LBRACE in routine PFCHAR to match size in equivalence tables
Moved to Modcomp Feb 3, to VLA(1) March 7, nowhere else

626. January 28, 1982 [TEST.INPUTS & HELP]TOAIPS Bill
Changed NITER to NPOINTS.
Moved: nowhere.

627. January 29, 1982 Several [.HELP] files Eric
Clarify tape positioning in help files of TPHEAD, IMLOD, EXIND, EXFND, UVLOD, FITTP, UVEXP
Moved to Modcomp Feb 3, to VLA(1) March 7, nowhere else

628. January 29, 1982 SLFIT Eric
Declare REAL*8 WORK(12) in GAUFIN
Moved to VLA Jan 30, to Modcomp Feb 3.

629. January 30, 1982 PRTPL Eric
Switched file to fast IO type - program runs a lot faster
Moved to VLA Jan 30, to Modcomp Feb 3

630. February 1, 1982 Several Eric
BATER : Insert the BATDAT include where ACOUNT (1,....) needed it
BATER.COM : Change ZSTOPR to ZSTOPA
ZSTRTB : (Vax only) Change MNAME to Character*5, allows resumption to work
Moved to Modcomp Feb 3, to VLA(1) March 7, nowhere else

631. Feb. 1, 1982 ZOPEN Gary.
Our method of handling print out to LPA0: does not work for some other line printer drivers. Added DISP='PRINT' to FORTRAN open statement to fix this. This also means we don't need the group assignment FOR001 = LPA0: anymore.
Moved to VLA(1) March 7, nowhere else

632. February 2, 1982 Several Eric
EXTCOP : It was looking for header info in the scratch buffer, not the header buffer
AUB : It did not look for correct file on UNQUEUE and JOBLIST. UNQUEUEd too fast also.
ZDOPRT : Add ISIZE and Buffer to call sequence (not used on Vax) - Vax version only so far

PRTPL : Add buffer size and buffer to call ZDOPRT
BATER : Modify CUB to match changes in AUB
IMCCLR : Correct IMPS 64-color table (switch RED and GREEN)
Moved to Modcomp Feb 3, to VLA(1) March 7, nowhere else.

633. February 3, 1982 task startup Eric
The old system allowed for example APCLN3 to do the job of APCLN1 while APCLN1 did the job of APCLN3. This led to confusion on message terminals, sub-process IDs, SPY, etc.
GTPARM : Call WHOAMI rather than search full TD file list
WHOAMI : (NEW) Get task name, number via call to ZGNAME
ZGNAME : (NEW, VAX) gets task ID via SYS$GETJPI
ZGNAME : (NEW, MODCOMP) gets task ID via REX #43
Moved to Modcomp Feb 3, to VLA(1) March 7, nowhere else

634. Feb. 3, 1982 UVLOD Bill
Fixed bug which caused failure when a source record had no data and was followed by another source record for the same source.
Moved: MODCOMP this date, to VLA(1) March 7, nowhere else.

635. Feb. 3, 1982 ASCAL Fred
Modified SOLVE to enter the reference antenna numbers in the gain records. Also changed VISCOR to record the mean modulus of the gain solutions in the gain file header.
Also now record information on the number of if's, and which if's they are, (i.e., R, L, or R and L) in the gain file header record.
Also redefined the meaning of the if flags which are stored in the gain records, so that information on missing antennas is more explicitly communicated to ASCOR.
Haven't yet made the parallel changes to LSCAL.
Moved to VLA(1) March 7, nowhere else

636. Feb. 3, 1982 PROFL Gary
Changed dimensions of PERCNT and LBRACE to match data statement. Changed equivalence table to match dimensions.
Moved to Modcomp Feb 3, to VLA(1) March 7, nowhere else.

637. Feb. 3, 1982 ZQIO.MAR David
Fixed bug. Now passes correct error code to ZQMSG.
Moved to VLA(1) March 7, nowhere else

638. February 8, 1982 Several Eric
PRTPL : Fix equivalence in character generator (like PROFL), correct IY0 computation in Y limit
AU2 : Double check & resuspend if needed on DOWAIT true
AUA : Ditto
BATER : Ditto (in CUA subroutine)
UVFND : Set LUN before MAPOPN call
CPRT.inc : Fix comment position
DPRT.inc : Ditto
DFIT.inc : Ditto
CFIT.inc : Ditto
DMLT.inc : Ditto and add new variables

CMLT.inc : Ditto and add new variables
Moved to Modcomp Feb 11, to VLA(1) March 7, nowhere else.

639. Feb. 8, 1982 Several Bill
Clones of UVSUB (including FUDGE etc.) had an uninitilized argument to HIINIT.
UVCOP : Arg. changed to N3 (& added to DATA stmt.)
VBCAL : ditto
VBMRG : ditto
CLIP : ditto
UVSUB : ditto
UVSRT : ditto (N2 was in DATA stmt)
UVCOP, CLIP, UVSUB moved to MODCOMP this date, to VLA(1) March 7, nowhere else

640. Feb. 9, 1982 ZTXMAT.MAR Gary
Fixed bug. Device and directory specification assummed less than 20 charaters. Increased to 48. This bug would show up when using verbs INPUTS or HELP for a VAX system with long directory or subdirectory names.
Moved to VLA(1) March 7, nowhere else

641. February 9, 1982 New FITS format Eric
An extension to FITS to transfer tables of numbers has been devised and applied first to Clean Components files. Tasks involved in reading & writing are
FITTP : Automatically write CC files as TABLES, restructure the main also
PRTTP : Actually read data records to check tape quality, Understand TABLES extensions, print their headers, and read their data
IMLOD : Read TABLES extensions and create CC files if found. Restructure the main also
Moved to Modcomp Feb 11, to VLA(1) March 7, nowhere else.

642. Feb. 10, 1982 VBMRG Bill
Now disregards data whose amplitude is less than half of another choice for the same visibility point.
Moved: nowhere.

643. February 10-11, 1982 A couple Eric
PRTPL : Minor typing corrections
UVSRT : Prevent overwriting some strange output file, allow only overwriting the input UV file.
DUVH.INC : Move comments to line up
CUVH.INC : Ditto
PBCOR : More includes in main so overlays might work
FUDGE : Standardize, move to [.APL] from [.NOTST], prevent overwite except for OUTfile = INfile
Moved: to Modcomp Feb 11, to VLA(1) March 7, nowhere else..

644. Feb. 11, 1982 EXPND Bill
Copied an EXPORT tape writing one file per source record.
Also added/changed:
DXPN.INC, CXPN.INC, [TEST.INPUTS]EXPND.
[TEST.HELP]EXPND, TASKS, TAPE

[DOC]INCSUP, TASKSUP
Moved to Modcomp Feb 22, to VLA(1) March 7, nowhere else

645. February 12, 1982 Today's Eric
[DOC] TASKSUP : Added UVFND, PRTTP; corrected IMLOD, FITTP
[HELP] TASKS : Minor correction
[INPUTS] EXFND : Add VCLP
[INPUTS] FITTP : Add mention of CC files
[HELP] FITTP : Add that CC files are written out
[HELP] IMLOD : Add that CC files are picked up
Moved to Modcomp Feb 22, to VLA(1) March 7, nowhere else

645. Feb. 12, 1982 [AIPS]PLOT.COM Gary
Bug. There was a way the 'plot spooler' system could hang up due to my misunderstanding of the ON WARNING command. The bug might be fixed now.
Moved to VLA(1) March 7, nowhere else

646. Feb 13, 1982 [TEST] ASCAL Ed
Commented out line 2810 so Robert Laing could run ASCAL on a concatenated data base; i.e. error message that data is not in TB order is ignored. This should be fixed by placing a TB as the sort order for the concatenating of TB data bases.

647. February 13, 1982 TKTICS Eric
Fix up blanking on minutes of arc too soon, go to more tick increments (like ITICS, CTICS).
Moved to Modcomp Feb 22, to VLA(1) March 7, nowhere else

648. Feb. 14, 1982 [TEST.INPUTS]UVLOD. Bill
Changed max. for NFILES to -999 to 999.
Moved to MODCOMP this date, to VLA(1) March 7, nowhere else.

649. Feb. 15, 1982 UVSRT Bill
Fixed buffer size computation in INSORT to agree with that in MERGE.
Moved: to Modcomp Feb 22, to VLA(1) March 7, nowhere else.

650. February 16, 1982 A bunch Eric
Add appropriate non-standard messages to CCMOD, CLIP, CONVL, CORAV, CORER, CORFQ, CORMS, DBCON, EXPND, FNDUV, IMFIT, MOMFT, PBCOR, PRTAN, PRTCC, REGLR, RGBMP, UVCOP, UVDIS, UVEXP, UVPLT, UVSUB

CORMS : Remove backspace characters (killed MCTAPE)
PBCOR : Put in proper declarations in main program
RGBMP : Declared MSG common in initialize routine
MCREAT : Minor typing corrections
UVFND : Add integrity tests on time, ant. #, weights done on all OPCODEs incl unrecognized OPCODEs
[.HELP]UVFND : Add about integrity tests
Moved to Modcomp Feb 22, nowhere else
Moved the serious ones to VLA(1) March 7

651. February 16, 1982 [AIPS]LOGIN.COM Gary

Now sets terminal to /UNKNOWN/FULLDUP to allow messages to come out without pressing RETURN.
Moved to VLA(1) March 7, nowhere else

652. February 17, 1982 BPCLN (for the moment) Eric
Revise APCLN: standardize the typing, convert all AP calls to use Pseudo I*4 addresses and increments, change default IN2NAMEs and OUTNAMEs, use TV image catalog, clear TV screen only on first write, ask user if he wants to stop cleaning (if DOTV true) using TV buttons after each residual map is shown.
Change [.HELP]BPCLN also.
Moved to Modcomp Feb 22, to VLA(1) March 7, nowhere else

653. February 20, 1982 APCLN and friends Eric
Standardize typing, fix up default INNAME et al. handling
Move from [.NOTST] to [.APL]
APCLN : See 652 above, renamed to APCLN again
APXPOS : Minor retyping
I2TOR4 : Standardize typing, character handling, comments
PASS1 : Standardize typing, clean up error handling, go to correct usage of Pseudo I*4 args for AP routines
PASS2 : As for PASS1
R4TOI2 : Standardize typing, character handling
Moved to Modcomp Feb 22, to VLA(1) March 7, nowhere else.

654. February 22, 1982 Several Bill
MAXMIN (AP microcode routine) had several bugs fixed,' it didn't find all max and min. Microcode source fixed in [TEST.FPS]WDC.AP and a new fortran version is installed in [TEST.FPS]

PASS2 - Now in complex to real transform it switches halves of each row before reading them. Changed in [TEST.APL]

CONVL, new task. convolves an image with a gaussian or another image. Replaces the older routine by the same name. Additions/changes in:
[TEST.NOTST]CONVL.FOR
[TEST]DCVL.INC and CCVL.INC
[TEST.INPUTS]CONVL.
[TEST.HELP]CONVL., TASKS., ANALYSIS.
[DOC]TASKSUP., INCSUP.
Moved: MODCOMP this date, to VLA(1) March 7, nowhere else.

655. February 22, 1982 Some more Eric
R4TOI2 : Leave output map in WRITe status
APCLN : Leave that WRITe status to be cleared by DIE
ZWHOMI : (Modcomp only) Change to call ZGNAME
ZTQSPY : (Modcomp only) Change to call ZTQSP2
ZTQSP2 : NEW - (Modcomp only) gets list of active tasks etc., All assembly to get around changes on TCB structures as Modcomp updates their systems
Moved to Modcomp Feb 22, to VLA(1) March 7, nowhere else.

656. February 23-24, 1982 Modcomp discovered Eric
UVMAP : Fix HI common declaration
UVCOP : Bad declaration of NAMEIN in main
FUDGE : Ditto
CLIP : Ditto, fix HI common declaration
UVSUB : Fix HI common declaration
UVFND : Remove DATA statement for common variable
RGBMP : A common out of order
APMAP : Numerous failures of code to seem to lead to a RETURN statement
DBCON : Failed to DATA T, F; missing comma in a DATA
Moved to Modcomp Feb 23, to VLA(1) March 7, nowhere else.

657. February 23-24, 1982 Several more Eric
FIXFIL : New [.AIPS] service program to correct single words in specified files.
ACOUNT : Make it more self-protective (done 19-Feb)
PRTTP : Error on IBM tapes (failed to loop) and add about blanking bits (if any)
IBMTP : Messed up all magic value blanked outputs!!!!! Fixed this for data and for header parameter
EXFND : Test weights correctly in VCLP operation
PRTACC : Add a sequence # to user and task print outs
FNDUV : Withdrawn (UVFND does its op among other things)
[.INPUTS]FNDUV : Withdrawn
[DOC]TASKSUP,WHATSUP,IOSUP,UTILSUP : Remove FNDUV, show changes to standard, etc.
Moved to Modcomp March 5, to VLA(1) March 7, nowhere else

658. February 23, 1982 PSAP version of UVSUB Bill
Added routines:
[TEST.PSAP]PTSUB, PTFAZ and RECT
which allow UVSUB to be used with the pseudo AP.
Moved: to Modcomp March 5, to VLA(1) March 7, nowhere else.

659. February 24, 1982 DBCON Bill
Now marks output sort order 'TB', if both input sort orders are 'TB'.
Moved: to Modcomp March 5, to VLA(1) March 7, nowhere else.

660. February 25, 1982 VAX things Eric/Gary
FORS.CT1 : Add APCLN routines
FORS.CT5 : Remove APCLN subroutines
APS.CT1 : New: lists APCLN
APS.CT5 : New: lists Not-standard AP-using tasks
EXES.CT5 : Remove AP-using tasks
LINKT.COM : Uses two lists; APS.CT1 and EXES.CT1.
LINKNS.COM: Uses two lists; APS.CT5 and EXES.CT5.
MV2C1002. : Updated documentation for LINKT
MV2C1003. : Updated listings of LINKT and LINKNS
Moved to Modcomp (the [DOC] ones) March 5, to VLA(1) March 7

661. February 25, 1982 The Cleaning Lady's complaint Eric
EXTINI : Add protection for overflow in # comps which will fit in file
EXTIO : Convert 32766's to computed max integer

Moved to VLA by link and to Modcomp this date.

662. February 26, 1982 Eric
AU2 : Fix error formats
Moved to Modcomp March 5, to VLA(1) March 7, nowhere else

663. March 1, 1982 More installation procedure updates. Gary.
New APS.CTi, plus making logical names used in installation the same as those required to run AIPS.

COMPIL2.COM	COMPILE.COM	INSTALL.COM
LINKA.COM	LINKNS.COM	LINKT.COM
UPDATE1.COM	UPDATET.COM	UPDATENS.COM

Moved to VLA(1) March 7, nowhere else

664. March 2, 1982 UVPL2 Eric
Test version (standardized) of UVPLT incl [.HELP] and [.INPUTS]
Change meaning of some of parms a bit, make it use standard axis labeling routines, remove data read and selection logic errors, use standard plot file creation modes, remove the pseudo-Fortran 77 junk, allow axes in "backward" order, remove excess GPOS command (which increased file size by 25%), get correct parms into plot file record 1 with defaults all filled in, etc.
DUVP.INC : UVPL2 parms
CUVP.INC : " "
AU8A : EXTLIST recognize and describe UV plot files
[DOC]INCSUP : Add DUVP, CUVP
" TASKSUP: Change UVPLT description to that of UVPL2 in anticipation of UVPL2 becoming UVPLT.
Moved to Modcomp (as UVPLT) March 5, to VLA(1) March 7

665. March 5, 1982 AU2, AU2A Eric
AU2 : Put in some integrity checks to protect the TGET file
AU2A : Read correct record in check of dir.
APCLN : Fix up some formats to tell more
Moved to Modcomp March 5, to VLA(1) March 7, nowhere else

666. March 7, 1982 UVPL2 -> UVPLT Eric
Change name in fortran and inputs and help
Moved already to Modcomp, to VLA(1) March 7, nowhere else

667. March 7, 1982 PBCOR Arnold / Eric
Incorporate A. Rots' faster method of computing the primary beam correction
Moved to VLA(1) March 7, nowhere else

668. MARCH 10, 1982 APCLN Bill
History file now has CLEAN restoring beam to 10 microsec.
Moved: nowhere.

669. March 9, 1982 Transport/update procedures Gary
Fixed bugs or deficiences in the procedures below:

INSTALL.COM	LINKA.COM	LINKNS.COM
LINKT.COM	UPDATE0.COM	UPDATE1.COM
UPDATENS.COM	EXES.CT5	FORS.CT5

Moved: nowhere.

670. March 12, 1982 [TEST.PSAP]CFFT Bill
Made Base address pointer to XFOUR I*4 and subtracted 1.
I don't see how this has ever worked.
Moved: nowhere.

671. March 13, 1982 PRTDR Bill
New task. Prints selected contents of a VLBI fringe fitting solution file (DR extension file). Also added/changed:
[TEST.INPUTS]PRTDR.
[TEST.HELP]PRTDR., TASKS., VLBI.
Moved: nowhere.

672. March 13, 1982 TV errors Eric
AUSA : Close TV on ReRoam error
TVBLNK : Turn off channel on manual blink
Moved nowhere

673. March 14, 1982 CVSDIV Bill
Added in [TEST.FPS] and [TEST.PSAP] an AP routine to divide a complex vector by a complex scalar.
Moved: nowhere

AIPSLETTER

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TEXset by EWG

AIPS Under UNIX

David Garrett of the Astronomy Department at the University of Texas in Austin recently visited the AIPS group in Charlottesville and described how he installed AIPS under the UNIX operating system on a VAX-11/780. Because system calls and the file system architecture are essentially standardized for all UNIX implementations David's work has probably effectively ported AIPS to UNIX systems in general, and not just to VAX/UNIX. The discussion which follows is based on notes made during his talk and may not be exactly correct in all details.

David rewrote the AIPS assembly-language Z-routines in C, the nice structured language in which the UNIX operating system itself is written. The Fortran Z-routines are almost unchanged, except for ENCODE and DECODE statements (see discussion below). All AIPS tasking schemes worked under UNIX.

David said that the AIPS in Austin is using about 20 Mb of disk (plus data files). It allows two interactive users and one batch queue. A Tektronix 4025 (emulating the 4010) and a pen plotter are used for plot output. There is no TV display at the present time.

The Austin VAX does not have an AP and so it is roughly ten times slower than a VAX with AP. In addition, it appears to be perhaps another factor of two slower. It is thought that this is due to two causes: 1) the code produced by the UNIX Fortran compiler appears to be slower than code produced by VMS Fortran, and 2) UNIX consumes time copying data between its disk buffers and the user buffers. The latter problem occurs because UNIX does not support overlapped I/O directly from disk into a tasks' buffers. Both of these weaknesses are expected to be corrected in future releases of VAX/UNIX.

The UNIX Fortran-77 compiler does not support ENCODE and DECODE, and this caused some difficulty in the installation of AIPS. This problem will occur with many Fortran-77 compilers because ENCODE and DECODE are not a part of the Fortran-77 standard. (The AIPS group in Charlottesville encountered the same problem in the implementation of AIPS for the IBM computer.) The solution which David adopted in the Austin UNIX implementation was to translate ENCODE/DECODE statements to the equivalent Fortran-77 internal-WRITE/internal-READ statement syntax, and to declare MSGTXT

to be type CHARACTER. The remaining cases of Hollerith variables other than MSGTXT appearing in ENCODE/DECODE statements were cured by individual changes of variable typing to CHARACTER.

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Image Storage System Planned

The I^2S digital image displays used at AIPS installations would be more useful for spectral-line data analysis if they could hold many more images in their memories so that the "movie-loop" display technique could be used. The builders of the *GYPSY* system at Groningen did this by adding an analog video disk between the I^2S and its monitor, so that the analog video signals can be recorded and later played back into the monitor. Although the *GYPSY* display has been successful there have been some problems with the analog disk (price, availability, reliability, lifetime). Ray Escoffier has proposed that NRAO construct an image storage system for the I^2S using digital disks, and put it between the host computer and the I^2S, so that it can record the digital images from the I^2S memory and later load those images back into the I^2S memory. We expect that an initial system of this type will be constructed in Charlottesville, perhaps before the end of 1982. We expect that additional copies will later be constructed for all four of the AIPS systems at NRAO, and also a copy for the I^2S display in the "pipeline" at the VLA. The purpose of this note is to inform the community of AIPS users about the scope of this project so that they may begin to consider whether they will want to duplicate the system for their I^2S displays.

NRAO has various models, memory sizes, and features in its existing I^2S displays, and so the image storage system will have to be versatile enough to support a variety of I^2S configurations, but it will *not* support displays made by other vendors. The system will be connected between the host computer and the I^2S display. As far as protocol is concerned, the image storage system will appear to be an I^2S to the host, and a host to the I^2S. Contention will be handled by the image storage system presenting a "busy" status to the host while transactions between the image storage system and the I^2S are in progress. The display features supported by the image storage system will be as independent of AIPS as is possible, so that the device will be useful for I^2S displays used with image processing systems other than AIPS (e.g., the VLA pipeline).

The image storage system will be able to store at least 128 512×512 byte images, and play them back in any order at a rate of at least 4 images per second. It will consist of the interface circuitry, a buffer memory for images, a microcomputer, a control panel, and four Winchester disks to store the images. Control of image transmission operations will be by software residing in the microcomputer. It is likely that a *digital* cassette tape recorder will be provided. This will allow the stored images to be copied from the disks to removable tape cassettes and, later, loaded back onto the disks from the cassettes.

The control panel will enable the range, direction, and rate of movie-loop operations to be controlled in a flexible, interactive fashion. The design of the panel will permit more controls to be added so that additional software in the microcomputer can control other features of the I^2S display, such as the enhancement functions in the lookup tables. The concept is that various display modes and enhancement functions will be selected by dedicated switches rather than by AIPS verbs entered through the terminal. A considerable number of knobs will be provided to control the enhancement functions. This means that the trackball will tend to be used more for positioning the cursor on objects seen in maps, and less as an all-purpose multiplexed

analog input device. The display control panel will be added to the AIPS system without removing any of the existing display control verbs or trackball usages. Thus, AIPS users will not have to use the control panel if they don't want to and non-NRAO sites will not be obliged to duplicate the panel in order to run AIPS. User comments on the control panel concept and on the details of its implementation are invited.

The hardware configuration and component selection are still subject to change, but it now appears that the final hardware cost of the system may turn out to be less than $20K. Expressions of general interest, requests for further information, and ideas for features to be implemented are all welcomed.

Summary of Changes: 15Mar–14May1982

These changes are listed in detail in the CHANGE.DOC file reproduced later in the *AIPSLETTER*. The changes during this period occurred in a wide variety of areas including new or revised UV and VLBI tasks, enhanced display tasks, the naming of disk files, and the handling of tapes, message files, batch, shared television devices, and AIPS installation.

Perhaps the most important development in the UV area was the completion of the task ASCOR. This task applies a complex gain file determined by the self-calibration of one data set (i.e. continuum) to another data set (i.e. a line channel). The new task AVER does time averaging of UV data. The UV FITS reading task is in partial release under the name UVLOD. Tasks CLIP and UVCOP were "standardized", including corrections to the code and alterations to the input parameters. DBCON can now handle small position differences between the two data sets being concatanated. PRTUV now handles the options BITER and XINC correctly. Under development, but not yet released, is a revision of the UV format to be more truthful about the actual contents of the files. Many of the UV tasks are being revised to take advantage of the altered format and to come closer to meeting our standards.

In the VLBI area, the most important development is the completion of the tasks VBFIT and VBCOR. The former fits the fringe delay, rate, and phase using data from all antennas and a source model. Basically, it is a self-calibration in the fringe delay-rate space and will allow the recovery of weaker signals than were previously available. A preliminary paper on the method has appeared (F. R. Schwab, *Global Fringe Search Techniques for VLBI*, VLBA Memo 82, April 1982) and a more complete paper is in preparation. VBCOR applies the calibration determined by VBFIT to other data sets. Task VBMRG has become much smarter in handling averaged data and PRTDR has been cleaned up.

In the map plane regime, the new task FFT performs complex and real Fourier transforms on two-dimensional arrays. The experimental task PHCLN performs a modified Clean algorithm designed to enhance the smoother regions of the image. Tasks IMEAN, MCUBE, CNTR, PCNTR, and GREYS were enhanced to support either integer or floating-point input images, while tasks TRANS and SUBIM had further bugs removed.

Several system-wide areas were altered significantly during the period: (1) It was found that VAX/VMS would not allow a subprocess to take exclusive use of a tape drive. Thus, AIPS could rewind a tape while FITTP was in the middle of writing on it! We have now sidestepped the problem by having ZOPEN open a disk file before opening the associated tape drive. (2) AIPS is normally operated with several interactive users all using the same television device. To support this properly, we now have a TV status file which is opened and read by TVOPEN and closed and written by TVCLOS. Thus, each AIPS version will know the current status of the device, even if it has been modified by other AIPS users. Also, it is no longer necessary to initialize the status when every AIPS begins. (3) Each AIPS System Manager may now choose whether the users' data files and catalogs will have user-independent or user-dependent actual names. The former has the advantage of allowing users access to data under a variety of user numbers, while the latter allows fast (system) backup and restore operations of a user's entire data set on most computers. Note that this option is system-wide, not user-number dependent. Users must be aware that such backup tapes are system dependent and not

particularly transportable. However, in many cases, their speed and convenience outweigh this disadvantage. (4) The limit on the number of simultaneous interactive, Checker, and batch AIPS has been raised from 9 to 15. (5) The batch system now allows the user to delay the start of his job. In addition, jobs which use the array processor may never be run in queue number 1 and may be run only at night from the other queues. Interactive tasks always have precedence when competing for the array processor.

Our installation and update procedures and programs have also been improved in order to allow, in particular, more flexible management of disk space. The revised VAX/VMS procedures allow the [AIPS] logon area to be omitted, saving 20000 blocks of disk for the load modules alone. Since there are numerous costs and problems in running and maintaining two separate logon areas, this is an option which should be given serious consideration. The utility program FILAIP has been corrected and enhanced and is now the recommended method for creating and initializing a complete set of AIPS system files. This program, or the procedure COMPIL2 which invokes it, allows the System Manager to configure his AIPS system flexibly (i.e. number of interactive and batch AIPS, size of TV catalogs, etc.). To assist in the disk-space crunch, we have decreased the size of the message files by a factor of ten. Message files for batch jobs will automatically expand and contract as needed, but interactive message files now fill up and need printing or clearing fairly quickly.

CHANGE.DOC, 15Mar82–14May82

674. *March 16, 1982* PRTDR *Bill*
Corrected indexing for when more than one correlator is present.
Moved: to MODCOMP April 1, to VLA April 22.

675. *March 16, 1982* [DOC]MV2C06DR. *Bill*
Corrected constant given to convert radians per day to mHz.
Moved: to MODCOMP April 1, to VLA April 22.

676. *March 16, 1982* TRANS *Eric*
Bug in x-y disk-based transpose where output row <= 1/2 sector. I don't know how this mess looked like it worked!
Moved to VLA this date, to MODCOMP April 1

677. *March 17, 1982* SUBIM *Eric*
Fixed for at least the 2nd time the missing continue statement for looping over more than 2 dimensions.
Moved to VLA this date, to MODCOMP April 1.

678. *March 19, 1982* FILAIP, COMPIL2 *Gary*
Fixed bugs due to changes in AIPS during the last 7 months.
Moved to MODCOMP April 1, to VLA April 22.

679. *March 19, 1982* [DOC]MV2C1002. *Gary*
Tried to make some warnings more explicit to reduce common errors during AIPS installation.
Moved to MODCOMP April 1, to VLA April 22.

680. *March 18, 1982* PRTTP *Eric*

Fixed up first record recognition of UV export to include either RUN or DEF records at start.
Moved to MODCOMP April 1, to VLA April 22.

681. *March 20, 1982* CLIP incl inputs and help *Eric*

Standardize (re-clone from FUDGE), change to separate clip levels for parallel-hand and cross-hand polarizations.
Moved to MODCOMP April 1, to VLA April 22

682. *March 21, 1982* UVCOP incl help *Eric*

Standardize (re-clone from CLIP), change default for end time.
Moved to MODCOMP April 1, to VLA April 22.

683. *March 21, 1982* CDC discovered problems *Frank/Eric*

Frank Ghigo (U of Mn) has found the following corrections:

STORES : A GO TO list requiring fall through
AIPS : Ditto (in INTERP) also fix typing some
AIPSB : Ditto, ditto
AIPSC : Ditto, ditto
POPSGN : Ditto, ditto
COMB : Assumed 2 words per floating point two places
LLOCAT : Put to next real boundary correctly not by 2's

Moved to MODCOMP April 1, to VLA April 22.

684. *March 21, 1982* fix up Batch some *Eric*

Batch should allow the option of not running the job until later. I have just started on it by having AIPSB delay and retry if BATQ error $= -1$.
Moved to MODCOMP April 1, to VLA April 22.

685. *March 23, 1982* FFT *Bill*

New task. Does complex fourier transform from either uv or map plane to the other. The imaginary part of the input can be set to zero but the output is always two images containing the real and imaginary parts of the result. Also added/changed:
[TEST.INPUTS]FFT
[TEST]DFFT.INC, CFFT.INC
[TEST.HELP]FFT., TASKS., UV., OPCODE.
Moved: to MODCOMP April 1, to VLA April 22.

686. *March 23, 1982* UVLO2 *Gary*

Version of UVLOD that reads both EXPORT and FITS formats of uv data. Will replace UVLOD after field testing.
CFUV.INC, VFUV.INC
[.NOTST]UVLO2
[.INPUTS]UVLO2. [.HELP]UVLO2.
Moved to MODCOMP April 1, to VLA April 22.

687. *March 23, 1982* UVFND, CUFV.INC, DUVF.INC *Eric*

Rename include files to accomodate UVLO2 above.
Moved to MODCOMP April 1, to VLA April 22.

688. *March 24, 1982* Several *Eric*

A number of changes were implemented: message files are shorter, but may grow without limit for batch (alter MS format to hold file size). All MS files are on disk 1. POPS numbers may go to 15 (using hex characters). The batch jobs may be submitted with a request to run them after a delay. Affected routines include:

`DMSG.INC` : Add parm MSGREC (current size of MSG file)
`CMSG.INC` : Ditto

`BATPRT` : Alter call sequence to BATQ
`BATQ` : Change call sequence (delay time on RUNN), fix up queueing algorithm, return status to say that a job is queued for later
`BLDTNM` : Allow POPS numbers up to F (hex)
`GREG` : Correct error of 0.5 days
`JD2DAT` : (New) changes Julian Day (R*8) to 6-value time
`MSGWRT` : Use new file format (1'st logical reserved), expand file for batch
`RELPOP` : Allow POPS numbers up to correct limit
`WHOAMI` : Ditto
`ZEXPND` : Prevent recursive call to MSGWRT on error
`ZCMPRS` : Ditto

`AIPSB` : New call seq to BATQ, also see above
`AIPSC` : Support delay time input, new call seq to BATQ
`AUA` : Send delay time to AIPSC
`FILINI` : Init all MS files with their size, disk 1
`FILAIP` : Ditto
`PRTACC` : Allow POPS numbers up to 15 or correct limit
`PRTMSG` : Use new file format, compress batch MS files
`ZTQSPY` : Allow terminating char to go 1–9, A–F

`[.INPUTS]` and `[.HELP]SUBMIT` : Add DETIME adverb
Requires recompile/link all tasks and programs
Moved to MODCOMP April 1, to VLA April 22.

689. *March 25, 1982* MLREOF *Gary*

Format on tape error message was not correct.
Moved to MODCOMP April 1, to VLA April 22.

690. *March 28, 1982* PRTUV *Eric*

Sent wrong number Vis to `UVINIT` (if BITER > 0), didn't adjust NITER for XINC.
Moved to MODCOMP April 1, to VLA April 22

691. *March 29, 1982* IMEAN *Eric*

Change to allow floating input maps, fix up error handling.
Moved to MODCOMP April 1, to VLA April 22.

692. *March 29, 1982* ASCOR *Fred*

Made a sufficient number of changes to `ASCOR` that the task now appears to work properly.
Moved to MODCOMP April 1, to VLA April 22.

693. *April 1, 1982* VBMRG *Bill*

Added integration time to the inputs list. Now computes VLB avering time windows and considers all data in each window to be at the same time. Also changed:
`[TEST.INPUTS]VBMRG` and `[TEST.HELP]VBMRG`.
Moved: to VLA April 22, nowhere else.

694. *April 1, 1982* MODCOMP discovered *Eric*

`[.PSAP]CVSDIV` : Change incr to J in code, not K.
Moved from MODCOMP this date, to VLA April 22.

695. *April 2, 1982* [TEST.HELP]ASCOR. *Fred*

Added a cautionary note to ASCOR's HELP file. I believe that Ed added a similar note to the version at the VLA.
Moved to VLA April 22, nowhere else.

696. *April 2-4, 1982* MODCOMP discovered *Eric*

`FILAIP` : Did not init NREC for BQ files, wrong ME size,...
`PRTMSG` : Was printing user 0 messages
`SLFIT` : Did not have full common declared in root
`FFT` : Missing commas in continued DATA statements
`UVL02` : EPS not decl or data'd in UVFHDR, ITYP misspelled in GETCRD, 2 blank lines, F not decl or data'd in UVFDAT
Moved to MODCOMP this date, to VLA April 22.

697. *April 7, 1982* Allow more floating point *Eric*

`WRPLAN` : Allow input and output to be either integer or float
`WRBLNK` : Allow output to be integer or float
`MCUBE` : Allow input planes to be either integer or float, old output cubes may be integer (overflow pixels are blanked)
`CONDRW` : Allow input to be integer or float
`CNTR` : Ditto
`PCNTR` : Ditto for any of the 3 images
`CLIP` : Add UVRANGE over which to perform the clip
`[.inputs]CLIP` : Ditto
`[.help]CLIP` : Ditto
Moved to MODCOMP April 8, to VLA April 22.

698. *April 8, 1982* MODCOMP discovered *Eric*

`AU2` : Test for extra delays did message all POPS numbers
`AIPSC` : Parm common not declared in main
`MSGWRT` : Failed to DATA variable SEARCH (How has it worked so well??—could not close on error however)
`MCUBE` : Forgot an include, misspelled K2INH
`WRPLAN` : Misspelled IPLANE in error message
Moved from MODCOMP this date, to VLA April 22.

699. *April 10, 1982* Batch AP fix *Bill*

New routine BPINIT which calls APINIT in a loop with a task delay and immediate return from APINIT. Batch jobs have a delay of 10 sec (interactive = 1msec) so that all interactive jobs have 10 sec. to grab the AP. Changed:
APCLN UVMAP ASCAL UVSUB FFT CONVL
APMAP LSCAL NTERP REGLR UVDIS
Moved: to VLA April 22, nowhere else.

700. *April 10, 1982* AU2 *Eric*

Fixed bug wiped out TGET files on entry number 36.
Moved to MODCOMP this date, to VLA April 22.

701. *April 12, 1982* PROFL *Gary*

Fixed bug in handling magic value blank pixels. Now sets blank value to pixel value representing zero instead of zero.
Moved to VLA April 22, nowhere else.

702. *April 13, 1982* ASCAL *Bill*

Fixed bug which caused SCFIND to blow up when it thought that there were more than 200 scans.
Moved: to VLA April 22, nowhere else.

703. *April 14, 1982* ASCAL and LSCAL *Fred*

Redid the change described in 702 in a way that's more likely to work.
Moved to VLA April 22, nowhere else.

704. *April 14, 1982* PROFL *Gary*

Now recognizes real maps, complains and then closes down gracefully.
Moved to VLA April 22, nowhere else.

705. *April 14, 1982* DBCON *Bill*

Changed to shift second data set to the position of the first if DOPOS is true.
Also changed: [TEST.INPUTS and HELP]DBCON.
Moved: to VLA April 22, nowhere else.

706. *April 15, 1982* AVER *Bill*

New task: averages a uv data base.
Also: [TEST.INPUTS and HELP]AVER.
Moved: to VLA April 22, nowhere else.

707. *April 15, 1982* VBFIT and VBCOR *Bill*

New tasks. VBFIT does antenna based delay, rate and phase fits to a spectral line format data base and corrects the data. VBCOR will apply the solution obtained from VBFIT to another data base. Also:
[TEST.INPUT and HELP]VBFIT. and VBCOR.
DFRN.INC, CFRN.INC, DFRC.INC and DFRC.INC
Moved: to VLA April 22, nowhere else.

708. *April 16, 1982* User private data *Eric*

The system is being changed to allow data to be stored in one of two ways: via public catalogs with file names which do not reveal the user number or in private catalogs (user "owned") which, on vaxes, have names *.uuu (where uuu is the user number). The system manager may decide which system you will use. The second may cost more disk, prevents one user from access to another user's files, etc., but allows VAX system-level dump and restore to tape in ways much faster than AIPS itself can be allowed to do. Of course, such backup tapes may not be able to be read on any other system. Routines involved include:

`DDCH.INC` : Add UCTSIZ
`CDCH.INC` : Ditto
`IDCH.INC` : Ditto

`ZDCHIN` : Use last spare word as UCTSIZ (> 0 => private files, value => size of each user catalog)
`ZLDFIL` : Old version of ZPHFIL
`ZPHFIL` : Use type and UCTSIZ parameter to add extension to file names

`AIPS` : Call CATCR to create user catalogs, if needed, after getting a new user number
`AU3A` : Loop over user number, mucking with NLUSER, if private type (on TIMDEST and DISKUSE)
`CATCHG` : Utility to convert public type systems to private type
`CATCR` : Create and init (if not pre-existing) catlg files
`FILAIP` : Don't create catlg files if private type
`FILINI` : Ask user number if private type when init CA files
`SETPAR` : Make UCTSIZ available (for the moment)

Moved to VLA April 22, nowhere else.

709. *April 19, 1982* AP tasks in batch *Eric*

Because of flagrant abuse of the batch capabilities of AIPS by certain users, the following rules are now in force. Batch queue 1 will not run any AP tasks (if there is more than one batch queue). The other batch queues will not run AP tasks during certain hours. Routines changed:

`AU2` : Recognize batch AP tasks and not perform the GO during specified hours. Also not read records in TS file if there is no data in them.
`AIPSC` : Add delay time to jobs if they are to use AP tasks. Refuse AP tasks in queue 1.
`AU3A` : Check all user numbers for SG and TS files
`CATCHG` : Ditto
`DESCR` : Add FFT and VBFIT to list of recognized tasks
`ACOUNT` : Not read data-free records.

Moved to VLA April 22, nowhere else.

710. *April 20, 1982* backup command procedures *Gary*

The following VAX/VMS-specific command procedures will allow a user to backup and restore his individual AIPS files.

`MOUNTBK.COM` `MOUNTBK2.COM` `BACKUP.COM`
`RESTORE.COM` `[DOC]BACKUP.`

Moved to VLA April 22, nowhere else.

711. *April 21, 1982* Tape troubles on VAX *David/Eric*

The VAX does not let a sub-process take exclusive use of a tape drive away from the parent process, but will do that with a disk file. Thus, EXCL is now implemented for tapes by taking exclusive use of a 0-block disk file TA10010n.

`ZPHFIL` : Recognize 'TA' as public name
`ZOPEN` : (VAX) open disk as well as tape on tapes
`ZCLOSE` : (VAX) close disk as well as tape on tapes
`LSERCH` : Allow LUN's up to 60 for this disk business
`FILAIP` : Create TA files
`[DOC]MV2C06TA` : Doc the files
Moved to VLA April 22, nowhere else.

712. *April 23, 1982* PRTMSG *Eric*

Now prints error message if it can't open files.
Moved to VLA April 28, nowhere else.

713. *April 23, 1982* ZOPEN *Gary*

Bug. Two people could not print simultaneously. Changed UNKNOWN to NEW and PRINT to PRINT/DELETE in printer FORTRAN open.
Moved to VLA April 28, nowhere else.

714. *April 23, 1982* CATCHG *Eric*

Was putting in the current time in the output catlg slots. Added version of `CATDIR` to it to pass the old last access time to it.
Moved to VLA April 28, nowhere else.

715. *April 23, 1982* [helps]UVPLT *Eric*

Correct defaults for BPARM(1 and 2).
Moved to VLA April 28, nowhere else.

716. *April 28, 1982* TV arrangement *Eric*

The current TV status will now be stored on disk. Each TV will have its own disk file which will be opened and read on a `TVOPEN` and update and closed on a `TVCLOS`. AIPS need not open the TV and initialize it when it comes up. Routines affected:

`DTVC.INC, CTVC.INC` : Now have most parameters
`DTVD.INC, CTVD.INC` : Now have only local parms (i.e. LUN...)

`APMAP` : Change TVOPEN call seq, change ZCLOSE to TVCLOS
`REGLR` : Ditto
`TVDISP` : Ditto
`UVDIS` : Ditto
`UVMAP` : Ditto

716. *April 28, 1982* TV continued *Eric*

APCLN : Change calls to TVOPEN, ZCLOSE (TV) to TVCLOS
TVCLOS : (NEW) Close TV device and disk, update disk first
TVINIT : Change calls to TVOPEN, change ZCLOSE to TVCLOS
TVOPEN : Open TV device and disk, get TV status and parms from the disk
TVPL : Call TVOPEN and TVCLOS rather than ZOPEN and ZCLOSE
TVWHER : Remove DTVD
YCURSE : Remove DTVD, retype a bit
YINIT : Remove DTVD, retype a bit
YSCROL : Remove DTVD, retype a bit
YSLECT : Remove DTVD, retype a bit
YSPLIT : Remove DTVD, retype a bit
YTVCIN : Enhance comments w warning
YZOOMC : Remove DTVD, retype a bit
ZDCHIN : DEVTAB(8) now a disk file (type 0)
ZPHFIL : Add public file type ID (Image disk)

AIPS : Change call to TVINIT to call to YTVCIN on start up
AU5 : Change call to TVOPEN, call TVCLOS not ZCLOSE
AU5A : Ditto
AU5B : Ditto
AU5C : Ditto
AU6 : Ditto
AU6A : Ditto
AU6B : Ditto
AU6C : Ditto
FILAIP : Create TV control param files and init
FILINI : Init TV control parameter files
ICOVER : Remove DTVD
SETPAR : Clean up typing, correct error branches
SETTVP : (NEW) Program to init and revise TV control parm files
TVBLNK : Remove DTVD
TVFIND : Remove DTVD
TVROAM : Remove DTVD
Moved to VLA May 7, nowhere else.

717. *April 28, 1982* DCHCOM *Eric*

I'm tired of messing with this common trying to squeeze things in. So DEVTAB and FTAB will now be in a separate common from the other parameters. Affected:
CDCH.INC : Declare common /FTABCM/
All tasks and subroutines should be recompiled and relinked.
Moved to VLA May 7, nowhere else.

718. *April 28, 1982* Retyping to standards *Eric*

A number of more or less standard routines were found to not be quite up to current typing rules and were corrected.
Many include files:

```
CANT    DANT    CAPL    CBCR    DBCR    CBPL
DBPL    CCLN    DCLN    CCOM    DCOM    ECOM
CCVL    DCVL    CDBC    DDBC    CEVI    DEVI
CFFT    DFFT    CFIL    DFIL    CMAP    DMAP
CMCU    DMCU    CMPX    DMPX    COIN    DOIN
COSR    DOSR    CPFI    DPFI    CSRT    DSRT
CSUB    DSUB    CTRA    DTRA    CUIN    DUIN
CXPN    DXPN    CUVF    DUVF    IBWT    IHIS
VFUV

IZERO   TRIM    YALUCT  YCONST  YCRCTL  YFDBCK
YGGRAM  YGRAPH  YGYHDR  YIFM    YLUT    YMKHDR
YMNMAX  YOFM    YRHIST  YSHIFT  YSTCUR  ZLDFIL
ZPHFIL

YLNCLR

[.FPS]CVCMUL  PHSROT  PTDIV

[.INPUTS]CORER.  COROF.
```

Moved to VLA May 7, nowhere else.

719. *April 30, 1982* VAX installation procedure *Gary*

```
COMPILE.COM  INSTALL.COM  LINKA.COM
LINKNS.COM   LINKT.COM    UPDATEO.COM
UPDATE1.COM  UPDATEA.COM  [DOC]MV2C1002.
EXES.CT2
```

Changed to make the [AIPS] area optional. Also added a new "control file" `EXES.CT2` for utility programs.
Moved to VLA May 7, nowhere else.

720. *May 5, 1982* AU3A *Eric*

Corrected numerous format statements
Moved to VLA May 7, nowhere else.

721. *May 5–6, 1982* GREYS *Eric*

Converted to support floating point and/or integer input maps. Corrected to new calling sequence of `CONDRW`.
Moved to VLA May 7, nowhere else.

722. *May 5, 1982* RM *Rick*

New non-standard task with helps and inputs to find rotation measures from a strange cube.
Moved from VLA to VAX, nowhere else.

723. *May 5, 1982* MAPFIX *Arnold/Eric*

Error test too stringent.
Moved to VLA May 7, nowhere else.

724. *May 6, 1982* Installation proc updates *Gary*

`COMPILE.COM` : creates, inits tape and tv control files.
`COMPIL2.COM` : ditto
`FILAIP` : Bug: Changed IND to FIND two places.
Moved to VLA May 7, nowhere else.

725. *May 6, 1982* ZTKILL *Gary*

Bug since day one dealing with setting character string lengths. Would not let you abort a task with a 5 character name after you had aborted a task with a 4 character name.
Moved to VLA May 7, nowhere else.

726. *May 6, 1982* AU8A *Eric*

Corrected pickup of gray-scale info in EXTLIST.
Moved to VLA May 7, nowhere else

727. *May 7, 1982* TVOPEN *Eric*

Correct failure to issue desired error message on TV busy.
Moved to VLA May 7, nowhere else.

728. *May 7, 1982* PHCLN *Tim*

New task. Does the Prussian hat clean.
`PHCLN.FOR` in `[TEST.NOTST]`
`HELP` and `INPUTS` files
`DPCL.INC`, `CPCL.INC`
Moved nowhere.

729. *May 8, 1982* DAPL.INC *Gary*

CHANNL misspelled as CHANNEL.
Moved nowhere.

730. *May 14, 1982* PRTCC *Bill*

Added adverb DOCRT. If DOCRT is true and the job is interactive output is to user terminal. Also changed:
`[TEST.INPUTS` and `HELP]PRTCC.`
Moved: from VLA to CV VAX this date, nowhere else.

731. *May 14, 1982* TV junk *Eric*

Add parameter to give number of ALU units in the TV. If there are none, but one tries to write to one, bad things used to happen. Routines affected:
`DTVC.INC` : Add parameter TVALUS, reduce TVDUMS by one.
`CTVC.INC` : Add parameter TVALUS.
`YTVCIN` : Set TVALUS to 1.
`YALUCT` : Return error 2 if there are no ALUs.
`YINIT` : Call YALUCT only if there are ALUs.
`SETTVP` : Set parameter TVALUS.
Moved: to VLA this date, nowhere else.

732. *May 14, 1982* GNPLT *Stuart*

New task. Will plot gain solutions from **ASCAL**. Now has data selection by time range, antenna range and correlator.
Stripped plotting code from **ASCAL.FOR**.
Modified descriptions in **[.INPUTS** and **.HELP]ASCAL**.
Created **[.INPUTS]GNPLT** and **[.HELP]GNPLT**
Moved nowhere.

AIPSLETTER

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National Radio Astronomy Observatory

A newsletter for users of the
Astronomical Image Processing System

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TEXset by EWG

Pseudo-Array Processor Error Discovered

AIPS installations which do not have an array processor are able to run the tasks APCLN, UVMAP, ASCAL, UVSUB, APMAP, FFT, CONVL, VBFIT, *et al.* by linking them with our library of "pseudo-array processor" subroutines. Unfortunately, on or about April 10, 1982, an error crept into this library. On that date, we introduced a new subroutine BPINIT which allowed us to give added priority to the AIPS1 user in obtaining access to a true array processor. The pseudo-array processor version of BPINIT was, incorrectly, created as a completely dummy routine. However, it must contain the line

```
CALL APINIT (I1, I2, I3)
```

before the

```
999  RETURN
```

statement. This call statement causes the pseudo-array processor routine APINIT to be link editted with the rest of the program. Since APINIT is the only subroutine with the correct, *full size* declaration of the pseudo-array processor "core", its failure to be included in the load modules has significant consequences. Everyone who uses the pseudo-array processor version of AIPS should check for the subroutine [TEST.PSAP]BPINIT.FOR and, if it is present, insert the call to APINIT.

The Mailbag: Letters Received From AIPS Sites

The AIPS group is grateful for the letters it receives from the various AIPS sites. This feedback is an essential ingredient in the process of constructing software which executes in a variety of environments using a variety of hardware and software configurations. The group has recently received several letters which contained reports of problems involving modules of code, installation procedures, and unusual system

configurations. These problem reports, with the GRIPE reports from the VLA, guide the group in the process of continuing the general development of AIPS, as well as in the fixing of specific bugs. Several of the letters contain discussions which seem to us to be of more general interest, and we quote from them below.

David Garrett (University of Texas) writes that he has received the new UNIX Fortran compiler from Berkeley: *"I promptly found a couple of bugs in it, but I think now they are fixed. This new compiler performs some sort of 'optimization' which greatly speeds up the pseudo-array processor routines, so now* UVMAP *and* APCLN *are running 30-40% faster."* [Note: see the 15 May 1982 *AIPSLETTER* for a discussion of David's installation of AIPS under UNIX.]

Frank Ghigo (University of Minnesota) recently sent us a report on progress with AIPS for the Cyber. Apparently, much of AIPS is functional although the style of operation is different on this batch-oriented system from what it is under a multi-process system like the VAX. *"At present, our AIPS is at a standstill because we have, for the moment, run out of money. This is a result of both the high charges made by the U of M computer center and the considerable demands placed by AIPS on any system. To give a few examples, the cost for storing the executable AIPS modules,* HELPs, *and* INPUTS *files, and a catalog of 15 maps on the disk is in excess of* $100 *per week. The test runs of* APCLN *cost about* $25 *each ... The difficulty of running AIPS under these conditions only serves to underscore the need for a dedicated Astronomy Department computer, a point we have of course been making to NSF for several years."*

Jerry Hudson (University of California, Berkeley) reports that AIPS works on his VAX after some difficulties with the installation procedure. He only has one terminal available to use for the functions of command entry, plotting, and task message monitoring, and the conventions of AIPS make this a nuisance. *"Anyway, we're crunching numbers now and getting some good out of the system ... My next job will be to hook AIPS to our AED display."* [Note: The remark about the AED is of particular importance to the community of AIPS users because it is one of the least expensive digital image displays on the market. The AIPS group wants to receive reports concerning the interfacing of new devices to AIPS, and is always ready to offer advice to implementors.]

Stuart Button (University of Toronto) writes: *"I had hoped that updates would be possible through phone links, but the rate at which code is being modified makes this impractical. In the time from 31 October 1981 to 1 January 1982 more than 5000 blocks of code were modified. Even with a 1200 baud line this represents about 6 hours to transmit. At regular long distance rates this is about* $200. *The link is run by a routine similar to VAXNET and is not totally free from parity errors and dropped characters. The error rate transmitting that much code could be a problem. Clearly tape transport is the most economical way to do a full update. I have used the link to get specific tasks for which we wanted an update as quickly as possible.* [Stuart is referring to use of the dial-up 1200 baud modem of the Charlottesville VAX, (804)296-0305.] *Apart from VLA mapping and display, we now have a number of other uses. Processing of PDS scans of optical plates could become a major user of AIPS time in the near future. Other tasks have developed primarily to make use of the* I^2S *display. I have written a routine for producing Aitoff-Hammer projection maps of our all-sky polarization and rotation measure catalog. A couple of graduate students are using AIPS to display theoretical modelling results. These are a stochastic star formation galaxy model and an inclined torus model for radio sources. Also, several of the geophysicists and high energy physicists who share our VAX have indicated an interest in using AIPS/*I^2S *although no one has been bold enough to try to write a task ... AIPS is rapidly becoming the largest VAX user in the astronomy group, even though we are in limited production due to lack of disk space. There are 56 VAX users in the astronomy group and 5 AIPS users. When full production is possible AIPS will probably account for more usage than the rest of the group put together. With geo and h.e.p. there are about 150 users on the VAX ... When the VAX gets busy (most afternoons) the response time in AIPS becomes extremely slow, particularly in* HELPs *or* INPUTS."

Summary of Changes: 15 May – 14 July

These changes are listed in detail in the CHANGE.DOC file reproduced later in the *AIPSLETTER*. The changes during this period can be characterized by the phrase "cleaning up our act." Our procedure library was made less NRAO-specific, our internal uv-data format was changed to tell the truth about what we are doing, and our ostensibly *standard* code was brought closer to our true standards.

Our AIPS installation procedures for Vax/VMS have been completely rewritten. They are now friendlier, less prone to error, and more efficient. In particular, the Vax DCL command **COPY** has been replaced with **BACKUP**. This allows the procedures to run faster, to carry the file names more correctly, and to use only one-third of a tape rather than two tapes. The installation procedure now asks the user for all needed system parameters (e.g. numbers of disks, tape drives, TVs) and for all needed directory names. It verifies the existence of the directories and creates a command file which can be used to assign all of the necessary logical names. All service procedures have been revised to use the logical names as well. Hopefully, these changes will reduce the difficulties encountered by some of our users in installing and updating their copies of the AIPS system.

The uv-format change involved changing the random-parameter axis labels from U, V, and W to UU-L, VV-L, and WW-L to convey the actual, non-standard units (wavelengths) and reserving the Stokes axis values 1 through 4 for the true Stokes I, Q, U, and V. The VLA's natural Stokes axis is now defined to have Stokes values -1 through -4 for polarizations RR, LL, RL, and LR, respectively. A service program **CATCHU** was written to perform the format conversion. It is desirable for all AIPS programs to support both kinds of Stokes axes. This involved only modest changes to the tasks **CLIP**, **PRTUV**, and **UVFLG**. While updating other tasks, however, somewhat larger changes were made. These include

- **CORER** - Rewritten with corrected computations and control over the quantity of print.
- **CORFQ** - Standardized.
- **DBCON** - Standardized, revised to handle mixed Stokes on input.
- **UVEXP** - Changed to handle multiple array configurations.
- **UVFND** - Usage of the adverb **STOKES** corrected.
- **UVLOD** - Large quantities of code added to read FITS tapes, changed to handle multiple arrays on export tapes.
- **UVMAP** - TV handling cleaned up including loading the full uv plane to the TV using alternate pixels if needed.
- **UVPLT** - Real and imaginary parts of the visibilities added as axis types.
- **UVSUB** - Standardized, file creation and loading of clean components into the array processor corrected.

Other non-standard, uv tasks such as **ASCAL**, **ASCOR**, and some of the VLB tasks seem to work after relinking, but they should receive more attention (and standardization) sometime soon.

The project to bring AIPS up on the IBM under the OS operating system has pointed out numerous problems with the coding of *even* our "standard" routines. Almost all of these problems were violations of our basic coding standards and, in a few cases, were errors which could have had practical consequences for the Vax and Modcomp. With the help of David Brown, we have corrected most of the standard programs by removing simple constants from calls, by always using the correct names for built-in functions, by correcting the alignment of variables in commons, and by declaring and initializing all variables. Since Fortran **READ**s and **WRITE**s directly to terminals are not allowed on all machines, they have been replaced by calls to an appropriate Z subroutine. Despite the large number of routines involved in these changes, we were very pleasantly suprised by the small number of changes we actually had to make.

We did a few other things during the last two months as well. The most notable is a substantive improvement in the task **CONVL**. It will now handle cubes and images whose sizes are not an integer power of two. Position shifting in **UVMAP** and **UVSUB** has been improved once again. A bug affecting the opening of

the line printer, but due to an error in Vax tape IO, was corrected. Task COMB had opcodes REAL and IMAG added to do polar to rectangular conversions.

CHANGE.DOC: 15May82–14Jul82

733. *May 19, 1982* [.NOTST]PRTCC *Bill*

Added one more digit to output format.
Moved: from VLA this date.

734. *May 19, 1982* [.NOTST]ASCAL and LSCAL *Fred*

LSCAL had not quite been working as intended: Though its array sizes had been made larger than ASCAL's, it couldn't use as much data as would fill these arrays because someone overlooked the need to address the high part of AP memory in the subroutine GTVMOD. I've fixed GTVMOD (in ASCAL, too, where the change was not needed).
Moved nowhere.

735. *May 19, 1982* [.HELP, .INPUTS]ASCAL and LSCAL *Fred*

I modified these files to omit mention of the plot option (old BPARM(5)), which Stuart Button stripped out (See number 732 *in last issue*).
Moved nowhere.

736. *May 25, 1982* [.AIPS]FIXCAT *Gary*

Updated to work with individual user catalogs.
Moved nowhere.

737. *May 25, 1982* [DOC]MV2C06SP. *Gary*

New. Documentation for system parameter file.
Moved nowhere.

738. *May 27, 1982* [.NOTST]PLNGET, PLNPUT *Bill*

New routines to read/write subimages of an image. As currently implemented PLNGET will read a subimage of a plane parallel to the front of either an I*2 or R*4 image, rotate the center to the correct location, and zero fill all cells not obtained from the input. PLNPUT selects a subset from a scratch file and writes it into a plane parallel to the front of a catalogued map. Output may be either I*2 or R*4.
Also changed: [DOC]WHATSUP and UTILSUP.
Moved: from VLA and to MODCOMP this date.

739. *May 27, 1982* [.NOTST]FITT2 *Gary*

[.INPUTS]FITT2. [.HELP]FITT2. DFTP.INC
CFTP.INC DKEY.INC VKEY.INC
New task and associated stuff that will write FITS format tapes for maps and uv data. Uses new format for uv data header.
Moved nowhere.

740. *May 27, 1982* [.NOTST]UVLO2 *Gary*

Now uses new uv data header format.
Moved nowhere.

741. *June 1, 1982* LSERCH *Gary/Eric*

Bug. Symptoms: Printer would not open after any tape verb was executed. `LSERCH` was treating LUNs greater than 50 (our new TA files) as devices.
Moved nowhere.

742. *June 2, 1982* [.PSAP]CVMOV, VMA *Bill*

New pseudo AP routines, complex vector move and vector multiply and add. Needed for pesudo AP version of `VBFIT`.
Moved: nowhere.

743. *June 3-4, 1982* IBM discovered *David/Eric*

A variety of minor declaration problems have been found when attempting to install AIPS on the IBM. In `[TEST.AIPS]` the routines corrected are:

- `AIPS` — Change calls to `OERROR`, fix `LLOCAT` call.
- `AIPSB` — Ditto.
- `AIPSC` — Ditto, plus some retyping.
- `ASSIGN` — Remove simple constant in call.
- `AU1A` — Remove simple constant in call.
- `AU2` — Remove simple constants in calls.
- `COMPIL` — Remove algebra from calls.
- `EDITOR` — Fix up typing quite a bit.
- `INIT` — Standardize, remove simple constants from calls.
- `ITICS` — Use `R*8` sign function.
- `LLOCAT` — Remove simple constants from calls.
- `LSTHDR` — Rename `PRODUCT` to 6 letters.
- `LTSTOR` — Remove simple constants from calls, standardize.
- `MASSGN` — Remove simple constant from call.
- `OERROR` — No call argument - get from common.
- `POP` — Remove simple constant.
- `PRNTMN` — Typo `IOMAXPP -> IOMAXP`, remove simple constants from calls, retype some.
- `POPSGN` — Change calls to `OERROR`, remove simple constants from calls, etc.
- `PRTMSG` — Use `I*2` abs function.
- `PSEUDO` — Remove simple constants from calls, retype.
- `QUICK` — Ditto.
- `RDFITS` — Replace simple constants—needs more work.
- `SETPAR` — Replace a simple constant.
- `STORES` — Replace simple constants.
- `TKRSPL` — Illegal `.EQ.` between logicals.
- `TKTICS` — Use `R*8` int and sign functions.

Moved nowhere.

744. *June 4, 1982* UVMAP, UVSUB *Bill*

The position shifting in these routines was changed on the suggestion of Rick Perley to include the effects of curvature.
Moved: nowhere.

745. *June 5, 1982* DWRITE *Bill/Ed*

Added more Stokes types. Relinked `AIPS`.
Moved: nowhere.

746. *June 5, 1982* IBMTP *Bill/Ed*

Switched Stokes code for fractional polarization and polarization angle to agree with IBM conventions.
Moved: nowhere.

747. *June 5, 1982* COMB *Bill*

Added OPCODEs 'REAL' and 'IMAG' to do polar to rectangular conversion.
Moved: nowhere.

748. *June 6-7, 1982* IBM discovered *David/Eric*

Routines needing fix up in the [TEST.APL] area in order to work correctly on the IBM include:

CATDIR — Remove constants from a call.
CTICS — Use R*8 sign function where required.
DIRDEC — Use R*8 sin, sqrt, arsin functions where needed.
DPMPAR — Use double precision function statement, standardize some.
ENORM — Use double precision function statement, standardize some.
FITTP — Remove constants from a call, add comma in a format.
IBMTP — Add comma in a format.
IMEAN — Drop AINT function reference.
LMDER — Remove constants from calls, standardize some.
LMPAR — Remove constant from call, standardize some.
LMSTR — Remove constants from calls, standardize some.
MAPCR — Remove constant from call.
MSKIP — Remove constants from calls, retype a little.
PROFL — Use correct abs and sign functions.
PRTIM — Remove constants from calls, retype a little.
PRIPL — Use integer abs function.
QRFAC — Remove constants from calls, standardize some.
SLFIT — Remove constant from call, use DABS where needed.
TKPL — Remove constant from call.

Moved nowhere.

749. *June 7, 1982* IBM discovered *David/Eric*

Alignment problems arise in commons that have been incorrectly arranged. Include files corrected are:

CPOP.INC — Move R*4 variables to front of list -> recompile AIPS, AIPSB, AIPSC, ASSIGN, AUB, AU1A, AU2, AU2A, AU3A, AU5, AU5C, AU8, AU9C, BATER, BCLEAN, CHUNT, COMPIL, EDITOR, HELPS, INIT, LTSTOR, MASSGN, OERROR, POLISH, POPSGN, PSEUDO, QUICK, STORES, SUBS, SYMBOL
DBAT.INC — Add dummy variable.
CBAT.INC — Add dummy variable -> recompile above plus PREAD.

Moved nowhere.

750. *June 8, 1982* Terminal I/O *Eric*

Not all computers can talk to terminals directly and freely via normal Fortran reads and writes. Thus a new Z routine is required. Routines affected (first 2 in [.APL], others are in [.AIPS]):

- MSGWRT — Call ZTTYIO to do terminal IO, allow interactive message files to expand.
- ZTTYIO — (New) Performs reads/writes of up to 132 characters to a terminal.
- CATCHG — Change one read/write pair to use ZTTYIO, close accounting entry.
- EXPTAP — Change read/writes to use ZTTYIO, close accounting.
- FILAIP — Change read/writes to use ZTTYIO, close accounting.
- FILINI — Change read/writes to use ZTTYIO, close accounting.
- FIXCAT — Change read/writes to use ZTTYIO, close accounting.
- FIXFIL — Change read/writes to use ZTTYIO, close accounting.
- POPSGN — Change read/write pair to use ZTTYIO.
- PRTACC — Change read/writes to use ZTTYIO.
- PRNTMN — Change read/writes to use ZTTYIO, close accounting.
- PRTMSG — Contract all MS files.
- RDFITS — Change read/writes to use ZTTYIO, close accounting, standardize to use ZC8CL, CHXPND, make smarter to understand end-of-tape and end-of-header.
- SETPAR — Change read/writes to use ZTTYIO, close accounting, revise code input to QUESTV.
- SETTVP — Change read/writes to use ZTTYIO, close accounting.

Moved nowhere.

751. *June 17, 1982* [TEST.APL] *Gary*

Fixed undeclared variables. The following programs contained undeclared variables. No errors would result on machines that could specify I*2 as the default during compilation but problems could occur on machines such as the IBM.

APCLN	APXPOS	BATQ	BLDTNM	CATDIR	CATIME
DBINIT	DECBIT	DECONV	DELEXT	DIE	DWRITE
EXTCOP	EXTINI	EXTIO	FILCLS	FILCR	FILDES
FILIO	FILL	FILOPN	FILZCH	FNDEXT	FNDX
FNDY	FSWTCH	GCHAR	GETERR	GETHDR	GETLOG
GETNUM	GETSTR	GETSYM	GFINIS	GINIT	GINITG
GINITL	GPOS	GRAYPX	GREG	GTPARM	GVEC
HDRWIN	HICOPY	HICREA	HILOCT	HISCOP	ICREAD
ICWRIT	IISVEC	IMA2MP	IMANOT	IMCHAR	IMCHRW
IOSET1	IOSET2	IOSET3	IOSET4	IOSET5	ISCALE
IZERO	JD2DAT	KPACK	LABINI	LMDER	LMSTR
LSERCH	LSORT	MADDEX	MAPCLR	MAPCLS	MAPFIX
MAPIO	MAPOPN	MAPSIZ	MAPWIN	MAPXY	MATVMU
MDESTR	MERGE	MINIT	MINSK	MLREOF	MP2IMA
MSCALE	MSCALF	MSCALI	MSGWRT	MSKIP	NMATCH
OVLIOR	OVLROI	PASS1	PASS2	R4TOI2	RANDUM
RELPOP	RNGSET	SETLOC	SHSORT	SKYFRM	SLBINI
SNCR	SNCRB	SNDY	SNEVAL	SNEVWT	SNRVAL
SPFIL	SWAPAX	TEKFLS	TICCOR	TRIM	TSKEND
TVOPEN	TXTMAT	UNPACK	UVCREA	UVDISK	UNINIT
WHOAMI	WINDOW	WRBLNK	WRPLAN	XYVAL	YCONST

Moved nowhere.

751. *June 17, 1982* [TEST.APL] continued *Gary*

Fixed more undeclared variables in the [TEST.APL] area.

YCRCTL	YCURSE	YFDBCK	YGRAPH	YINIT	YSCROL
YSLECT	YSTCUR	YTVCIN	ZCLOSE	ZCMPRS	ZDCHIN
ZENDPG	ZEXPND	ZFIO	ZLDFIL	ZM7OXF	ZMIO
ZMSGCL	ZMSGOP	ZOPEN	ZPHFIL	ZR8P4	ZTAPE
ZTFILL	ZTKBUF	ZTOPEN	ZWAIT	CLIP	CNVRT
EXFND	EXIND	GREYS	IBMTP	IMEAN	MCUBE
PROFL	PRTIM	PRTTP	SL2PL	SLFIT	GAUFIN
SLICE	SUBIM	SUMIM	TKPL	TRANS	TVPL
ZVERPL					

Moved nowhere.

752. *June 17, 1982* [TEST.APL] *Gary*

The following errors were discovered while doing 751 above.

BOUNDS — MMSGTXT -> MSGTXT in error handler.
DIRRA — COSR not declared as R*8.
HDRINF — N8 not initialized.
MAPMAX — DMSG, CMSG not included for error message.
OPEXT — NOMAP not initialized to FALSE.
UNSCR — F not initialized to FALSE.
CNTR — RQUICK -> QUICK could leave spare resumption on VAX.
COMB — in COMBHI, FLASE -> FALSE.
FITTP — N1 not initialized.
PCNTR — NOSAV -> NOSAVE.

Moved nowhere.

753. *June 17, 1982* [TEST.AIPS] *Gary*

More harmless (on the Vax and Modcomp) undeclared variables.

ASSIGN	AU1A	AU2	AU2A	AU3	AU3A
AU4	AU5	AU5A	AU5B	AU5C	AU6
AU6A	AU6B	AU6C	AU9	AU9A	AU9B
AU9C	AUA	AUB	AUT	BCLEAN	CATLST
CHUNT	COMPIL	DESCR	EDITOR	GETFLD	GETNAM
HELPS	HUNT	IAXIS1	IENHNS	IMCCLR	IMLCLR
IMINIT	ITICS	LLOCAT	LSTHDR	MASSGN	OERROR
PFIT	POLISH	PREAD	PRTMSG	PSEUDO	QUICK
SCHOLD	SLOCIN	STORES	SUBS	SYMBOL	TKCHAR
TKGGPL	TKGMPL	TKLAB	TKRSPL	TKSLAC	TKSLIN
TKTICS	TKVECX	TVLOAD	TVROAM	TVWIND	VERBS
VERBSB	VERBSC	ZKDUMP	AIPS	AIPSB	AIPSC
BATER	FILINI	POPSGN	PRTACC	RDFITS	ZSTRTA

Moved nowhere.

754. *June 17, 1982* [TEST.AIPS] *Gary*

Errors discovered while doing 753.
CATCHG — UCTSUZ -> UCTSIZ.
EXPTAP — TTIND -> TTYIND.
FILAIP — TTIND -> TTYIND, NE -> EQ, 1020 -> 1120.
FIXCAT — F, T, READ, WRITE, N72 not initialized, PHNAME not dimensioned.
FIXFIL — N1, N72 not initialized.
PRNTMN — NN4 -> N4.
SETPAR — EXC -> EXCL.
Moved nowhere.

755. *June 17, 1982* [TEST.PSAP] *Gary*

Harmless undeclared variables in this directory.

APGET	APGET2	APGRD1	APGRD2	APGRID	APPUT
APPUT2	APRFT	BOXSUM	BPINIT	CRVMUL	CSQTRN
CVJADD	CVMAGS	CVMOV	CVSDIV	HIST	MAXV
MCALC	MINV	MTRANS	PHSROT	PTDIV	RFFT
SVE	VADD	VCLIP	VDIV	VEXP	VFILL
VFIX	VFLT	VMOV	VMUL	VNEG	VRVRS
VSMUL	VSQ	VSUB	VSWAP	VTRANS	VTSMUL

Moved nowhere.

756. *June 17, 1982* [.PSAP]SEARCH *Gary*

Error discovered while doing 755: ZERO -> ZERO
Moved nowhere.

757. *June 18, 1982* ZTOPEN *Gary*

Changed non exclusive text file open to READONLY. This will allow access to files outside of the AIPS group and to files that are write protected.
Moved: nowhere.

758. *June 21, 1982* Include files *Eric*

More include files needed their comment lines aligned:

DFTP.INC	DPRM.INC	DSUB.INC	VKEY.INC	VFUV.INC
CFTP.INC	CPRM.INC	COPL.INC	CSUB.INC	

Moved nowhere.

759. *June 29, 1982* [.NOTST]ERF and DERF *Fred*

Neither the Vax nor the Modcomp has an error function routine in its Fortran library, so I added these routines whose arithmetic is suited to 32-bit and 64-bit machines. ERF is a single-precision routine and DERF, double. These use Chebyshev polynomial expansions taken from Y. Luke.
Moved: nowhere

760. *July 1, 1982* [.NOTST]CONVL *Bill*

Installed new improved version, does data cubes, non-power of two maps (zero padding) and does double size transforms when convolving two images. Also:
DCVL.INC, CCVL.INC, [.INPUTS and HELP]CONVL.
Moved: to MODCOMP sometime earlier. Has been on all NRAO VAXs as CONXX since about 20 May 1982.

761. *July 8, 1982* History for FITS *Eric*

Created a new routine to stuff 80-character FITS cards into our 72-character history file:

HIAD80 — (New) subroutine to do this.
GETSYM — Watch for HISTORY = and COMMENT = FITS cards.
IMLOD — Use HIAD80, correct IBM map stokes values 7 vs 8.

Moved nowhere.

762. *July 8, 1982* UV data format *Eric*

The UV data format has contained several inconsistencies which made it harder to talk to the outside world: the axes were called U, V, and W but had units of wavelengths and the polarizations were called STOKES values 1 thru 4, but were actually RR, LL, RL, and LR. These are now changed. STOKES values of -1 thru -4 will mean RR, LL, RL, and LR and will be the usual units inside AIPS. However, all standard programs will, if possible, also handle true STOKES. Axes in wavelengths will be called UU-L, VV-L, and WW-L. Affected include files are

DDBC.INC — Add polarization correction pointers.
CDBC.INC — Ditto.
DFUV.INC — Change array dimensions.
VFUV.INC — Allow up to 20 Random-parameter types.
DUIN.INC — Add FITS common parameters.
CUIN.INC — Ditto.
DUVF.INC — Remove weight array ISWT.
CUVF.INC — Ditto.
DUVP.INC — Add parameter TYPCCR.
CUVP.INC — Ditto.

Moved nowhere.

763. *July 8, 1982* UV change (continued) *Eric*

Programs in the [TEST.APL] area affected by the change are

UVSRT — Relinked only.
CLIP — Set clips correctly based on computing the actual Stokes value for each correlator.
FUDGE — Remove unnecessary diddle with output names.
PRTUV — Compute correct Stokes for column headers.
UVCOP — Minor format change.
UVFLG — Flag all correlators unless standard RR, LL, RL, LR. Alter flags to be more correct.
UVFND — Fix up handling of STOKES adverb by calling VISCHK, support both RR and true Stokes types.
UVLOD — Change characters for U, V, W axes, CRP and CIC for Stokes axis. Make call to ZCMPRS active again for at least the 3rd time.
UVPGET — Search for desired axis types (new codes),correct error in determination of INCS parameter.
UVPLT — Add plotting of real and imaginary parts. Convert to handle real Stokes axes.
VISCHK — (New) Subroutine to determine if a uv sample is desired for mapping and return full RR, LL, RL, LR set.

Moved nowhere.

764. *July 8, 1982* UV format change *Eric*

Programs in the [TEST.NOTST] area which were simply relinked are ASCAL and ASCOR and several VLBI ones (all probably need a serious effort, however). Those changed are

DBCON — Standardize typing some (it was pretty good). Make it handle Stokes increments of -1. Make it convert one set of RR *et al.* to match the other set of I, Q, U, V.

UVLO2 — Read in and produce either type of Stokes. Correct handling of Stokes data, allow default outnames to come from FITS header, ignore user parms like INNAME and NPOINTS, use includes to get proper declaration of common for FITS, allow up to 20 random-parameters, start standardizing. Improve handling of history information.

UVMAP — Correct handling of Stokes parameters, call VISCHK, work on standardizing the typing, correct TV stuff to clear image catalog and to load every n^{th} pixel (if needed) to fit full uv plane on screen.

Moved nowhere.

765. *July 8, 1982* UV format change *Eric*

In the course of correcting the handling of the UV format the following routines moved from [TEST.NOTST] to [TEST.APL]

ANTDAT — Standardize, add number arrays to returned info.

CORER — Major rewrite to standardize, compute correct Stokes and channel numbers, correct rms, less printing, correct summing, etc.

CORFQ — Standardize.

UVEXP — Standardize, write separate source structures for separate arrays, handle true and RR *et al.* Stokes.

UVSUB — Standardize, use true Stokes, fix bugs *re* file creation and the filling of CC data into AP.

Moved nowhere.

766. *July 8, 1982* UV format changes *Eric*

In the course of the UV format upgrade, the following [HELP] and [INPUTS] files had additions

CORER — [.INPUTS] and [.HELP] add adverbs USERID, CHANNEL, and FLUX.

DBCON — [.HELP] fix typing, add 2^{nd} input file adverbs.

UVEXP — [.INPUTS] and [.HELP] add adverb DOALL.

UVPLT — [.HELP] add real and imaginary parts options.

Moved nowhere.

767. *July 8, 1982* CATCHU *Eric*

A new service program to change the old UV format headers to the new format for a selected set of users.

Moved nowhere.

768. *July 8, 1982* Odds and ends *Gary*

AUT — Removed BJET (no source in [TEST]).

FILINI — Some variables declared twice from the Great Variable Declaration Event. (See 751-756).

PRTIM — Same as above.

SUBIM — Same.

SETPAR — Added more room to FTAB. An invalid entry would result in too many files open.

Moved nowhere.

769. *July 9, 1982* VAX procedures .COM *Gary*

`ASSIGN.COM` — (New) will contain all assignments made at login time. This file will be created automatically for new customers by our new installation procedure.

`LOGIN.COM` — Calls `ASSIGN.COM`

Moved nowhere.

770. *July 9, 1982* VAX command procedures *Gary*

Changed hard coded directory names to logical names in the following procedures so that they will still work at other installations.

`AASMRPL`	`ACOMRPL`	`ASMRPL`	`COMRPL`	`NASMRPL`	`NCOMRPL`
`PCOMRPL`	`ACOMLNK`	`ACOMLNKD`	`COMLNK`	`COMLNKD`	`NCOMLNK`
`NCOMLNKD`	`PSAPLNK`	`PSAPLNKD`	`APCLNK`	`APCLNKD`	

Moved nowhere.

AIPSLETTER

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National Radio Astronomy Observatory

A newsletter for users of the Astronomical Image Processing System

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TEXset by EWG

Personal Notes

At the beginning of August we welcomed Walter back from his one year visit to the Netherlands. Unhappily for us, Walter has recently decided to accept a position as the Deputy Project Scientist of the Science Data Analysis System at the Space Telescope Science Institute (STScI) in Baltimore, and will be leaving Charlottesville soon. Ed officially moved to Socorro in the middle of August and he and Eva Rigby were married soon afterward. Tim attended the Maximum Entropy conference in Laramie, Wyoming, during August and returned full of enthusiasm for new MEM experiments. Bill and his family have gone to Barcelona, Spain, and Onsala, Sweden, for two months for research, and to install AIPS on a ModComp at Onsala. Re UNIX/AIPS inquiries: David Garrett (U. of Texas, Austin) informs us that his phone number is now (512) 471-4461.

AIPS Questionnaire and Other Good Things

The last page of this *AIPSLETTER* is a form which is intended to be removed, filled out, and returned to us. A reward is offered for such good deeds. We expect to include a summary of the responses in a future *AIPSLETTER*. Two of the subjects discussed in this *AIPSLETTER* are of special importance to the AIPS user community. First, the new 60-day cyclic updating procedure (discussed in the next article), and second, the new GRIPEs mechanism which we have installed in AIPS (discussed in the Changes article). These two new mechanisms are related: the first improves the communication of new software from Charlottesville to other sites, and the second improves the communication of software problem reports from the sites back to Charlottesville. We want to minimize the time delay in each direction with the goal that any bug found by any user at any site will be corrected at all sites in a minimum number of update cycles (ideally, one).

New Cyclic Updating Schedule for AIPS

AIPS code will now be updated on a two month cycle. Beginning on September 15, 1982 (the publication date of this *AIPSLETTER*) and thereafter at two month intervals, we will freeze a version of AIPS which contains all of the well-tested and debugged software and supporting documentation. Code will be transferred from the [TEST] directories to the [AIPS] directories in phase with the 60 day update cycle so that [AIPS] will track [TEST] with a phase difference. (Actually, as discussed elsewhere in the *AIPSLETTER*, the names will be changed to NEW and OLD to protect the innocent.) The frozen version of AIPS will be tested further in Charlottesville and at the VLA for about 10 days in order to find and correct any major bugs which remain in the code. Installation tapes of this version of AIPS will then be generated and sent to any institution which has sent a written request for a copy of AIPS to Charlottesville during the previous two months.

All changes in the code over the previous two months will be listed in the concurrent issue of the *AIPSLETTER* so that it will almost exactly document the peculiarities and new features of the exported version. Additional changes made during the 10 day period, which should be few in number, will be documented and sent with the tapes.

This change in our procedures is motivated by several problems which we have encountered. First, the VLA versions of AIPS have not always tracked the Charlottesville version with sufficient reliability and with a small enough phase difference. By installing a new version of AIPS at the VLA every 60 days this problem should be cured. Next, the [AIPS] versions of AIPS have not always had the intended relation to the [TEST] versions of AIPS. The usual commentary has been: "Users never want to run [AIPS] because it is always obsolete". Now, [AIPS] will always be no more than 60 days old and will have the intended advantage of being a debugged version. Finally, the fact that the Charlottesville version of AIPS has been exported to the VLA, the ModComp, and to non-NRAO sites, on a random, unscheduled, basis has meant that probably no two copies of AIPS were ever identical. So if bugs were discovered it was difficult to know who should be informed. With the new update scheme the versions of the export tapes will have names (e.g., "15Sept82"), with the result that system managers will be able to say things like "I am running the 15 November 82 version of AIPS", and the Charlottesville group will be able to say things like "The following bug fix should be installed in all 15 September 82 copies of AIPS that have an AP."

Because extensive modifications and additions are still occurring in AIPS, we continue to feel that it is more practical to export the AIPS software as a complete set rather than sending out only the modified files. Perhaps we will change our minds when AIPS becomes more stable. We are guessing that most non-NRAO installations will probably want to update their systems no more than twice a year — or when important new programs become available.

We currently export in two tape formats: VMS BACKUP and a primitive card image scheme for non-VMS systems. We are considering various improvements in the latter format which would make it have equivalent functionality to BACKUP.

We welcome feedback and comments on the new cyclic update schedule and on the content and format of exported tapes.

Summary of Changes: 15 July – 14 Sep

These changes are listed in detail in the CHANGE.DOC file reproduced later in the *AIPSLETTER*. The changes during this period have been very numerous. In fact, there are 147 entries reported in this issue, while 97 entries were reported in the last two issues combined. During the early portion of the period we continued the process of standardizing our *standard* code. Most of the work, however, involved improvements in existing routines based on suggestions made by our users.

The most significant changes were made in the self-calibration task ASCAL. The data are now divided by the model and time averaged before any gain solutions are done. This has numerous advantages. The array processor is used solely to compute the model visibilities and, hence, ASCAL may now release the array processor for other tasks much more quickly. The number of data points in each gain solution is reduced, cutting the total CPU time by large factors in many cases. ASCAL now corrects the model for any coordinate shifts and rotations before applying it to the data. In addition, the user may now choose whether or not the amplitude gains are normalized before they are applied to the data. This option allows ASCAL to be applied to uncalibrated data (no normalization) as well as to previously calibrated data. A new roller subroutine is in ASCAL as well. Every 5 minutes of real time, this subroutine rolls ASCAL's data out of the array processor to a scratch file. The task then waits for 10 seconds before trying to reclaim the array processor. This should give other tasks their fair turn to use the AP.

Several significant changes were made in the task UVSUB as well. The roller subroutine, also added to UVSUB, makes the task share the array processor with other tasks. The program corrects the model for all shifts and rotations before subtracting it from the data. And the program will now handle models for the polarized flux as well as for the total intensity. The task UVMAP had a change made to the meaning of the shift parameters in the presence of rotation and had corrections made to the sign of the V Stokes parameter and to the handling of the zero spacing fluxes, particularly for spectral line data. The task ASCOR was corrected to handle gain renormalization in a manner consistent with ASCAL.

The handling of magnetic tapes in AIPS was improved by the addition of the adverb DOEOT to the tasks FITTP, UVEXP, and IBMTP. This adverb, when true (its default), instructs the tasks to advance the tape to the "end-of-information" (two consecutive file marks) before writing. This should help users to avoid writing over files they still want to keep. Tape positioning controls were also added to the task PRTTP. Other tasks were improved as well. MCUBE now understands that input "planes" may differ in their reference pixels as well as in their reference values. A serious bug, which for some reason had not bothered us previously, was removed from UVSRT. The TV display in APCLN now shows the full range of residual map intensities. The algorithm for scaling line printer plots was changed in the task PRTIM. The drawing of negative (dashed) contours by CNTR, PCNTR, and GREYS was improved substantially and blanked, floating-point images are now correctly supported.

The smaller message files turned out to cause considerable user irritation. They have now been changed to expand as needed for interactive as well as batch users and to complain about overfull files only every 16 lines. In addition, numerous tasks and verbs had their message priorities altered to avoid clogging the file with information which is redundant or which is readily available via PRTHI, IMHEADER, PRTCC, *et al.*. There is a revised set of HELP files on general topics described in HELP HELP. The AIPS program will now accept lower case as well as upper case input. Note that character string data are treated as if, for example, A and a are different. The character string data read in by pseudoverbs (as in GO apmap) are converted to upper case automatically, however. Dates will now, normally, be displayed in the Vax standard format (e.g., 15-SEP-1982).

Some changes were made to verbs in AIPS. The verb IMDEST was renamed ZAP to avoid file destruction due to typographical error (i.e., IMH, IND). A pseudoverb, TPUT < *taskname* > was created to store task (or

verb) adverbs for later retrieval by TGET. ABORTASK was converted to a pseudoverb taking the task name as an optional immediate argument (like GO but without min. match). ABORTASK will also attempt to destroy the task's scratch files using the same routine as the verb SCRDEST. The verb CAT has been replaced by MCAT for map files and UCAT for UV files. The verb CATALOG still lists all catalogue entries specified by its adverbs.

Several TV verbs were changed as well. In interactive enhancement, TVTRANS now uses buttons A or B to turn on or off the plot and TVBLINK and TVMBLINK use buttons A and B to select which channel is enhanced. All three use button C to reverse the sign of the slope. GRCLEAR and GROFF now clear or disable all graphics channels by default. The adverbs to set the window and increments for TVLOD, TVALL, and TVROAM have been renamed to TBLC, TTRC, TXINC, and TYINC. This should prevent errors caused by the widespread use of BLC, TRC, XINC, and YINC. The interactive display of the map intensity under the TV cursor used to offer the options of reading the intensity from disk (CURMVALU) or from the TV (CURVALUE). Since, surprisingly, they ran at the same speeds, we have dropped the less accurate TV read and renamed the verb CURVALUE. The three choices of wedges for display on the TV were confusing. They have been reduced to two. TVWEDGE now loads a wedge of intensities from the clip minimum to maximum while IMWEDGE loads intensities covering the full range of image intensities. Both use the same clip levels (PIXRANGE) and loading functions (FUNCTYPE) as the TV image to which they correspond.

There will be several new tasks on the transport tapes. These include DESCM and UVDGP which select subsets of a UV data base. A task to perform CPU-based rotation, rescaling, and shifts of images is in experimental release and is called GEOM. Several tasks and subroutines have been submitted by Stuart Button and Arnold Rots. They have not been incorporated fully into the AIPS system as yet, but will be on the tapes. Stuart's contributions relate to plotting star positions and to plotting with alternative geometries. Arnold's tasks work on spectral line cubes to smooth images (SMOTH) and to fit moments to the profiles (MOMNT) and work to make plots on a Zeta plotter (KONTR).

A few more technical changes have been made. The upgrade to Vax Revision 3.0 required correcting a few routines to be less sensitive to the number of underline characters at the beginning of device names. A new privilege is required to have processes write on terminals other than the logon terminal unless those terminals have been declared with a $ SET PROTECTION /DEVICE *devicename*. The AIPS accounting file now has an entry for IO count to allow tasks which do excessive amounts of IO to be identified. A 20-character parameter has been added to the system device characteristics common. This parameter is used to identify the local computer and may be set with the service routine SETPAR.

Many of these changes were made as a result of user comments, complaints, and suggestions. In order to provide a simple means for the users to get their complaints to us in an organized fashion, we have instituted a new system based on the less formal "Gripe" system developed by Tim Cornwell at the VLA. The user may employ the new verb GRIPE to enter any complaint or suggestion he wishes. The new verbs GRINDEX and GRLIST may be used to index the current contents of the Gripe file and to list any individual entry. A stand-alone program, GRIPR, provides the same services for users currently unable to acquire an AIPS terminal. At appropriate intervals, the local AIPS manager can write the contents of the Gripe file on tape via the new service program GRITP and send the tape to us in Charlottesville. Alternatively, we are prepared to arrange a schedule of regular phone transmissions of the file directly to the Charlottesville Vax. If you are interested in this service, please contact us. Once in Charlottesville, the tapes or disk files will be converted by a local program to a text file suitable for typesetting. After some additional editting and generation of the response, three copies of the final typeset complaint will be made—one each for the Charlottesville and VLA AIPS Caiges and one mailed to the user who submitted the Gripe. We hope that this system will prove both responsive and satisfactory.

Coming Attractions

One of the implications of the new 60-day update cycle is that we can now *plan* major changes in the system so that they occur in the intervals *between* updates. We intend to take advantage of this fact immediately after 15 September by making major changes in the Charlottesville [TEST] version. These changes will be exported in the 15 November tapes. The purpose of this article in the *AIPSLETTER* is to inform system managers about the nature of the proposed changes. Please note that we are not *promising* to implement all of the changes discussed below during the next two months, although we hope to do so, and that we may not implement all of the changes in exactly the manner shown below.

Proposed Changes in Directories and File Names

We intend to make major changes in the directory structure of AIPS. In particular, we want to have more subdirectories and we want them to be organized under fewer main directories, preferably just one. We believe that a reorganization along these lines will make it easier for system programmers to configure systems, for application programmers to find various files, and for system managers to control the allocation of resources. An example of the problem is seen in the observation that on 15 September 1982 the Charlottesville [TEST] directory (*not* including files in the subdirectories under it) contained a total of 1077 files (384 *.*nnn*, 157 *.COM, 134 *.EXE, 134 *.INC, 68 *., 37 *.DAT, 13 *.FOR, 13 *.DIR, and 137 miscellaneous). Clearly it is hard to manage a directory containing such a large number of files with such a wide variety of names and functions. We are also driven to this change by the recent decision to permit users to specify whether a given task is to execute from the [AIPS] or from the [TEST] directories.

We have not yet worked out all of the details of the proposed new directory structure, and so the following should be regarded as a *very* tentative outline:

[AIPS]	The main directory, very few files
[AIPS.DATA]	(data file types AN, CA, HI, MA, PL, UV, *et al.*)
[AIPS.*xxx*]	*.COM, *.CT*n* (Control area for version *xxx*)
[AIPS.*xxx*.INC]	*.INC Include files
[AIPS.*xxx*.INPUTS]	*.INP Inputs files
[AIPS.*xxx*.HELP]	*.HLP Help files
[AIPS.*xxx*.RUN]	*.RUN Run files
[AIPS.*xxx*.LOAD]	*.EXE Load modules
[AIPS.*xxx*.AIPS]	SUBLIB.OLB for AIPS *et al.*
[AIPS.*xxx*.AIPS.SUB]	Subroutines for AIPS and service programs
[AIPS.*xxx*.AIPS.PGM]	Service programs and AIPS
[AIPS.*xxx*.AIPS.ZSUB.VMS]	AIPS's Z routines Vax/VMS
[AIPS.*xxx*.AIPS.ZSUB.MC4]	AIPS's Z routines Modcomp
[AIPS.*xxx*.AIPS.ZSUB.???]	AIPS's Z routines etc.
[AIPS.*xxx*.AIPS.YSUB.IIS]	AIPS's Y routines I^2S
[AIPS.*xxx*.AIPS.YSUB.???]	AIPS's Y routines etc.
[AIPS.*xxx*.APL]	SUBLIB.OLB application link library
[AIPS.*xxx*.APL.SUB]	Application subroutines
[AIPS.*xxx*.APL.PGM]	Application programs (non-AP tasks)
[AIPS.*xxx*.APL.APGM]	Application AP tasks

[AIPS.*xxx*.APL.ZSUB.VMS]	Application Z routines Vax/VMS
[AIPS.*xxx*.APL.ZSUB.MC4]	Application Z routines Modcomp
[AIPS.*xxx*.APL.ZSUB.???]	Application Z routines etc.
[AIPS.*xxx*.APL.YSUB.IIS]	Application Y routines I^2S
[AIPS.*xxx*.APL.YSUB.???]	Application Y routines etc.
[AIPS.*xxx*.NOTST]	SUBLIB.OLB non-standard link library
[AIPS.*xxx*.NOTST.SUB]	Non-standard subroutines
[AIPS.*xxx*.NOTST.PGM]	Non-standard programs (non-AP tasks)
[AIPS.*xxx*.NOTST.APGM]	Non-standard AP tasks
[AIPS.*xxx*.FPS]	SUBLIB.OLB true array processor link library
[AIPS.*xxx*.FPS.SUB]	True array processor subroutines: *.FOR, *.AP, *.VFC
[AIPS.*xxx*.PSAP]	SUBLIB.OLB AP simulator link library
[AIPS.*xxx*.PSAP.SUB]	AP simulator subroutines
[AIPS.*xxx*.PSAP.LOAD]	Pseudo-AP task load modules (if there is a real AP)
[AIPS.*xxx*.ICAP]	SUBLIB.OLB AP simulation by a single task link library
[AIPS.*xxx*.ICAP.SUB]	Subroutines for this type pseudo AP
[AIPS.*xxx*.DOC]	????
[AIPS.*xxx*.DOC.TEXT]	Text files for main manuals
[AIPS.*xxx*.DOC.WHO]	*AIPSLETTER* files, mailing lists
[AIPS.*xxx*.DOC.GRIP]	Gripes TEXset files
[AIPS.LOCAL]	SUBLIB.OLB link library for local programs.
[AIPS.LOCAL.SUB]	Local subroutines
[AIPS.LOCAL.PGM]	Local programs and tasks
[AIPS.LOCAL.APGM]	Local AP-using programs and tasks
[AIPS.LOCAL.INPUTS]	Inputs files for local tasks
[AIPS.LOCAL.HELP]	Help files for local tasks
[AIPS.LOCAL.LOAD]	*.EXE load modules for local programs

The symbol *xxx* represents one or more separate, but parallel sets of directories. In particular, one of the *xxx* could be SEP15 represented by the logical symbol OLD and another could be NOV15 represented by the logical symbol NEW.

This subdirectory structure will incorporate the distinction which was previously designated by the main directories and logins of [TEST] and [AIPS]. (A login mechanism of some sort will permit the old login conventions to be maintained.) Several old main directories (RUN, DOC, etc.) will now become subdirectories of our new main directory [AIPS]. The versions of the source code, documentation, and other files in the "OLD" area will, at least in Charlottesville, be protected by special Vax/VMS techniques. This replaces most of the need for the old login area [VPOPS].

We intend to define a number of new logical symbols to point to the various subdirectories. For VMS systems this will make it easier to access the directories for maintenance purposes and will also make it easier to reconfigure the directory structure. We hope to implement this scheme in such a way that it will be easy to transform the symbols to suit the conventions of non-VMS systems. References to the logical symbols will be inserted in the appropriate places in the AIPS source code.

The fact that the *.INC files will now be in a subdirectory will mean that include statements in programs and subroutines will have to look something like INCLUDE 'INCS:DHDR.INC' (prefixed with the logical symbol

for the include subdirectory). This means that the preprocessor used in the ModComp will need a bit of new logic. Other non-VMS systems will either be able to emulate VMS logical symbols or else they can use either a text editor or a preprocessor to substitute an appropriate subdirectory syntax for the prefixes.

Note that we propose to add file-type suffixes to the names of INPUTS, HELPs, and RUN files. This will eliminate the ambiguities of the present naming conventions which have sometimes caused trouble.

We would like to be able to compile the [OLD] tasks with the optimizer enabled in the Fortran compiler, a change which might make some improvement in performance on VMS systems. Under VMS 2.x it was obvious that a number of routines were being compiled incorrectly, and so AIPS code has always been compiled unoptimized. We are sad to report that the latest trials with the VMS 3.0 Fortran compiler show that DEC still has a problem. In any case, the [NEW] tasks will always be compiled unoptimized to allow use of the debugger.

The fact that we intend to allow execution of either the [NEW] or [OLD] versions of tasks, and that the data files produced by such tasks will all be in the same directory, implies that it will now be awkward to introduce any major changes in the disk data file formats. This problem was discussed extensively in August and we decided to proceed with the new scheme, and just accept the fact that we will have some troubles if we want to change formats in the future. AIPS is beginning to be mature, and we judge that future changes will be less frequent.

Revisions to Volumes I, II, and III

The three volumes of the AIPS manuals have not been significantly revised in about a year and inconsistencies between the documents and the actual code of the system are beginning to be embarrassingly obvious. The group intends to undertake a major review and cleanup of these text files during the next 60-day cycle.

We are also considering some changes which will make it easier to produce elegant listings of the manuals in a machine- and device-independent way. We would like for each volume of these manuals to have both a good Table of Contents and an Index and to have nice page headings.

Improved WHATSUP, TASKSUP, Etc.

It is obvious that the one-line-summary files have become practically obsolete. These files have been generated by hand in the past. We intend to devise a new scheme in which these files will be generated automatically from the files which they describe. We have not yet decided all of the details of this plan, but the general idea is that one or more specially coded comment lines will appear among the precursor comments in each file. A utility procedure will be used to read all of the source files and to create the summary files from the special comment lines which it finds.

Printing the *COOKBOOK*

For many AIPS users it appears that the *COOKBOOK* is not only the first AIPS document that they encounter, but also the last. For this reason, it is clear that maintaining and improving the quality of this manual must have a high priority for the AIPS group. Unfortunately, the *COOKBOOK* has been reproduced normally on ordinary lineprinters which, since they are seldom in optimum adjustment, has had adverse affects on the readability of the document. There is a consensus that we should make an effort to correct this problem. Although this project has been delayed for several months, it still has a high priority and we

hope to complete it before the 15 November deadline. The idea is that we will create camera-ready copy in Charlottesville and then Green Bank will print several hundred copies of the manual for distribution at the VLA and in Charlottesville. We will also send copies to various non-NRAO AIPS sites (see the Questionnaire at the end of this *AIPSLETTER*), who can then xerox additional copies for their users.

Experimental Pseudo-AP Task

Just before leaving for Sweden, Bill constructed an experimental pseudo-AP system and successfully demonstrated portability of the code from VAX to ModComp. The concept is that the AP emulation will be done using a single separate task rather than by linking a collection of subroutines into every task which wants to pretend that it has an AP. There are several reasons why we think this is a good idea. First, it avoids addressing limit problems in machines with smaller architectures (e.g., ModComp). Second, it permits the main task to execute disk I/O overlapped with the AP-task execution. Several AIPS AP tasks are designed to exploit this possibility and the old AP-emulation scheme precludes it. Finally, the emulated AP has the proper relation to tasks which want to use it, namely, that there may be many tasks which want to use the AP, but there is only one AP (or maybe two?). This means that tasks will compete for the AP (e.g., only one APCLN will execute at a time), and that the priority and periodic rollout schemes will work just as they do when there is a real AP present. The experiments performed in recent weeks have demonstrated the feasibility of these ideas, and we will probably convert to this scheme eventually. However, further development will probably be delayed until Bill returns.

CHANGE.DOC: 15Jul82–14Sep82

771. *July 15, 1982* [.PSAP]BPINIT *Eric*

Changed to have it call `[.PSAP]APINIT`. Without that, the pseudo-AP tasks had an array processory "memory" size of one word!
Moved to Modcomp Aug 27, nowhere else.

772. *July 15, 1982* [.APL]AXEFND and ROTFND *Bill*

New routine, `AXEFND` finds the axis number of a given axis type, either uniform or random.
`ROTFND` determines the map rotation angle.
Moved: to Modcomp Aug 27, nowhere else.

773. *July 16, 1982* Several things *Stuart*

These are some routines written at University of Toronto and sent by Vaxnet to [.NOTST].

STRTIC — New subroutine. Will extract RA and DEC values from "TB" file and add vector commands to plot file for crosshair tics at those positions which fall inside map boundary. (Subroutine call was added to CNTR and GREYS at U of T.)

NEWTB — New task. Will create "TB" file from text file in RUNFIL: area. Quick way to get positions from papers or non-standard catalogues into AIPS for use by STRTIC. Text file format is described in help file. Also [.HELP and .INPUTS] files.

AITOFF — New subroutine. Will produce plotfile vectors for Aitoff-Hammer equal area projection grid.

ATFPNT — New subroutine. Will calculate x-y position on Aitoff grid for given longitude and latitude.

Moved to CV VAX, nowhere else.

774. *July 19, 1982* IMLOD *Eric*

A bug crept in causing unknown keyword = parameters to appear in the (FITS) history file as INBITPIX =. It didn't do this once upon a time.
Moved to Modcomp Aug 27, nowhere else.

775. *July 19, 1982* FILINI *Eric*

An extra read from unit 5 escaped removal when direct Fortran READs and WRITEs were excized. Made program not work on INIT.
Moved to Modcomp Aug 27, nowhere else.

776. *July 19, 1982* PRTMSG *Eric*

Had hard-coded zero divide if USER = -32000 (while doing the file compress part).
Moved to Modcomp Aug 27, nowhere else.

777. *July 20, 1982* Calls to MSGWRT *Eric*

It has been our custom, in violation of our standards, to call MSGWRT with a simple numeric argument. Since MSGWRT is also called with I*2, computed-variable arguments, this must cease. The opportunity has also been taken, in some cases, to clean up the typing styles a bit. Routines corrected in the [TEST.AIPS] area are:

AIPS	AIPSB	AIPSC	AU1A	AU2	AU2A
AU3	AU3A	AU5	AU5A	AU5B	AU5C
AU6	AU6A	AU6B	AU6C	AU7	AU8
AU8A	AU9	AU9A	AU9B	AU9C	AUA
AUB	BATER	BBUILD	BCLEAN	CATCHG	CATCHU
CATCR	CATLST	CHUNT	DESCR	EXPTAP	FILAIP
FILINI	FIXCAT	FIXFIL	FWRITE	HELPS	HUNT
IAXIS1	ITICS	LSTHDR	OERROR	POPSGN	PREAD
PRNTMN	PRTACC	PRTMSG	PSEUDO	QUICK	

Moved to Modcomp Aug 27, nowhere else.

778. *July 19, 1982* LSERCH *Eric*

Standardize typing.
Moved to Modcomp Aug 27, nowhere else.

779. *July 21, 1982* Map rotation *Bill*

UVMAP — Will now properly shift rotated data. Also changed default parameters for the exponential convolving function, it should work now (also changed [.HELP] file UV3TYPE).

APCLN — Added call to ROTFND to get map rotation angle.

UVSUB — Will now subtract CLEAN components from data with arbitrary shift and combinations of rotations. Also CLEAN map history is not copied anymore.

Moved: to Modcomp Aug 27, nowhere else.

780. *July 21, 1982* ZTQSPY *Gary*

ZTQSPY was assuming the AIPS group number was 100. The routine now interrogates the system to find this value.
Moved nowhere.

781. *July 22, 1982* IAXIS1 *Don*

During change 753 *(see previous issue)* variable YGAP in IAXIS1 should have been declared to be R*4 but was declared as I*2. This caused the verb TVLABEL to crash. AIPS relinked.
Moved to Modcomp Aug 27, nowhere else.

782. *July 22, 1982* PRNTMN *Gary*

Variable left out of ENCODE statement.
Moved to Modcomp Aug 27, nowhere else.

783. *July 22, 1982* Installation Procedure *Gary*

The installation procedure has been made friendlier, less prone to user error and I hope less prone to fall apart when changes are made to AIPS. By using BACKUP instead of COPY we can put all of AIPS on 1/3 of a tape instead of 2 tapes.

INSTALL.COM — Main AIPS installation procedure.

UPDATE.COM — Procedure for a limited update of an existing AIPS.

TRANSPRT.COM — Makes a tape using BACKUP that can be read by our installation proc.

FILAI2 — Similiar to FILAIP but designed specifically for the installation proc. FILAI2 reads input from a text file instead of from FOR005, masks error messages from lower level routines, uses ZTTYIO instead of MSGWRT, deletes old versions of any files except for CAtalog files.

Moved nowhere.

784. *July 22, 1982* More Installation Procedures *Gary*

Installation subprocedures:

COMPAL	COMPAP	COMPNS	COMPPO	COMPPS	LINKA
LINKAN	LINKAP	LINKNS	LINKT	LOGVER	PROMPTD
PROMPTL	PROMPTP				

Documentation:

MV2C1002	MV2C1003	MV2C1004	MV2C1005	MV2C1006	MV2C1007

Moved documentation to Modcomp Aug 27, nowhere else.

785. *July 22, 1982* TOAIP *Bill/John Benson*

Copied all Fortran routines into one file and put in `.NOTST`. Also copied CIT macro routines `TAPEIO` and `NUMCON` into separate files in `[.NOTST]`. The Fortran file now contains many "standard" VLB routines from various packages. This will *ONLY* work on a VAX/VMS.
Moved: nowhere

786. *July 23, 1982* More of MSGWRT *Eric*

More routines changed to call `MSGWRT (N%)` in `[TEST.AIPS]`

RDFITS	RDUSER	SCHOLD	SET1DG	SETPAR	SETTVP
SGLOCA	SLOCIN	STORES	SYMBOL	TKCHAR	TKGGPL
TKGMPL	TKRSPL	TKSLAC	TKSLIN	TKSLPL	TKTICS
TKVECX	TVBLNK	TVFIND	TVLOAD	TVROAM	ZACTV8
ZKDUMP	ZSUSPN	ZTKILL	ZTQSPY	ZWHOMI	

Moved to Modcomp Aug 27, nowhere else.

787. *July 23, 1982* Service programs *Eric*

Many of the service programs in `[TEST.AIPS]` failed to call `ACOUNT` at the beginning although all faithfully closed the accounting they had not opened. Corrected are

CATCHG	EXPTAP	FILAIP	FILINI	FIXCAT
FIXFIL	PRNTMN	RDFITS	SETPAR	SETTVP

Moved to Modcomp Aug 27, nowhere else.

788. *July 23, 1982* TOVLB *Bill/John Benson*

All Fortran code copied into one file in `.NOTST`. Added CIT Macro routine `SYSACCT.MAR` to `[.NOTST]`. Fixed up output disk selection. This task will *ONLY* work on a VAX!!!!!!!!!
Also: `[.INPUTS` and `HELP]TOVLB`.
Moved: nowhere.

789. *July 23/26, 1982* Calls to MSGWRT *Eric*

Continue minor standardizing typing and conversion of the calls to `MSGWRT` to use correctly declared and data'd `INTEGER*2` variables. This time in `[TEST.APL]`:

ACOUNT	APCLN	APXPOS	BOUNDS	CATDIR	CATIME
CATIO	CLAB1	CLIP	CNTR	CNVRT	COMB
COMLAB	COMOFF	CONDRW	COORDD	CORER	CORFQ
CTICS	DARSIN	DECBIT	DELEXT	DIETSK	DWRITE
EXFND	EXIND	EXTCOP	EXTINI	EXTIO	FILCLS
FILCR	FILDES	FILIO	FILOPN	FITTP	FUDGE
GCHAR	GETHDR	GETLOG	GFINIS	GINIT	GINITG
GINITL	GMCAT	GRAYPX	GREYS	GTPARM	GVEC
HICOPY	HICREA	HIIO	HILOCT	HISCOP	I2TOR4
IBMTP	ICINIT				

Moved to Modcomp Aug 27, nowhere else

790. *July 26, 1982* PASS2 *Eric/Bill*

Wrong call sequence used to call `VSQRT`. Affects task `CONVL`. The destination vector (= source vector) was left out of the two calls.
Moved to Modcomp Aug 27, nowhere else.

791. *July 27, 1982* LSTHDR *Don*

Added ERR jump in an ENCODE statement so that IMHEADER verb will not produce format overflow errors when it is executed on a file which is in the process of being created by the IMLOD task (apparently only occurred if FITS file had BITPIX of 32). AIPS relinked.
Moved to Modcomp Aug 27, nowhere else.

792. *July 27, 1982* Calls to MSGWRT *Eric*

More standardizing of typing, especially calls to MSGWRT, in the [TEST.APL] area:

ICREAD	ICWRIT	IMEAN	IMLOD	MADDEX	MAPCLR
MAPCR	MAPFIX	MAPIO	MAPMAX	MAPOPN	MAPSNC
MCREAT	MCUBE	MDESTR	MERGE	MINIT	MLREOF
MSCALE	MSCALF	MSCALI	NEWPOS	OPEXT	PASS1
PASS2	PCNTR	PROFL	PRTIM		

Moved to Modcomp Aug 27, nowhere else.

793. *July 27, 1982* MSGWRT *Eric*

Change it to complain about full message file only every 10^{th} time.
Moved to Modcomp Aug 27, nowhere else.

794. *July 28, 1982* TRANS *Eric*

Correct bug which arose in disk-based x-y transposes where the number of rows which fit in 32768 bytes was an odd number. MINIT rounded down to the nearest even, but TRANS itself did not. Also modified some inner loops in the hope that they might go faster.
Moved to [AIPS] and the VLA [TEST] area today, to Modcomp Aug 27.

795. *July 28, 1982* Calls to MSGWRT *Eric*

More standardizing in the [TEST.APL] area, especially of calls to MSGWRT:

PRTPL	PRTTP	PRTUV	R4TOI2	RANDIN	RANDUM
RELPOP	ROTFND	SETLOC	SL2PL	SLBINI	SLFIT
SLICE	SNCR	SNCRB	SNDY	SNEVAL	SUBIM
SUMIM					

Moved to Modcomp Aug 27, nowhere else.

796. *July 29, 1982* OSORT *Eric*

It has been found that OSORT can start sorting data outside the input array. This will lead to writing over the core area containing call addresses and/or to an infinite loop in PERMAT. Why this has not occurred earlier is not clear—perhaps values just outside the defined array forced the sort back into the array and a re-link changed which variables were placed next to the array. Relinked UVSRT.
Moved to Modcomp Aug 27, nowhere else.

797. *July 29, 1982* SETPAR *Eric*

Program encoded the messages to show contents of DEVTAB, but neglected to write them to the terminal.
Moved to Modcomp Aug 27, nowhere else.

798. *July 30, 1982* SMOTH *Ed/Arnold*

Copied SMOTH task package from AIPS:: to CVAX including [.INPUTS and .HELP]SMOTH. and the Fortran in [.NOTST]. Compiled SMOTH.
Moved nowhere else.

799. *July 30, 1982* MOMNT *Ed/Arnold*

Copied MOMNT task package from AIPS:: to CVAX including [.INPUTS and .HELP]MOMNT. and the Fortran in [.NOTST]. Could not compile MOMNT. Need more linking virtual memory. Gary is working on this.
Moved nowhere else.

800. *July 30, 1982* T3VERB *Ed/Jim*

Copied [TEST.HELP]T3VERB. from AIPS:: to CVAX
Moved nowhere else.

801. *July 30, 1982* Sorting *Eric*

The sort routines use passed array dimensions. These need to be declared simply as INTEGER not as INTEGER*2, primarily for the IBM. However, these variables must be I*2 when used for other purposes. The problems (see number 796 above) with OSORT arise from not setting Array(0) to $-\infty$ and Array(N+1) to $+\infty$. The ACM write up neglected to point out that requirement, although Knuth made it very clear. Routines corrected for this are

- UVSRT — Use INTEGER variables, add 2 places to work arrays, change call sequence to OSORT.
- OSORT — Add to call sequence the new size of the work arrays (N + 2), use INTEGER for passed dimensions.
- SHSORT — Use INTEGER for passed dimensions.
- LSORT — Use INTEGER for passed dimensions.
- PERMAT — Use INTEGER for passed dimensions.

Moved to Modcomp Aug 27, nowhere else.

802. *July 30, 1982* V polarization *Eric*

I have a clear memory of changing the sign of the V polarization to that of the IAU and IEEE (namely (RR - LL)/2). However, the following programs no longer contain the change if indeed it was ever made. It has been made now anyway.

- APMAP — Change Vpol sign.
- UVMAP — Change Vpol sign.

Moved to Modcomp Aug 27, nowhere else.

803. *July 30, 1982* DESCM *Bill*

New task. Reduces the size of a uv data set by picking a limited subset.
Also: [.INPUTS and .HELP]DESCM. and TASKS.
Moved to Modcomp Aug 27, nowhere else.

804. *July 30,1982* [.PSAP]PTDIV *Bill*

Fixed addressing bug. This routine is used in VBFIT only.
Moved: to Modcomp Aug 27, nowhere else.

805. *July 30, 1982* Calls to MSGWRT *Eric*

The saga of standardizing the *standard* code continues in the [TEST.APL] area:

SWAPAX	TKPL	TPHEAD	TRANS	TVCLOS	TVINIT
TVOPEN	TVPL	TXTMAT	UNPACK	UVCOP	UVCREA

Moved to Modcomp Aug 27, nowhere else.

806. *July 30, 1982* XXSUB *Bill*

Version of UVSUB that subtracts polarized CLEAN components installed in [.NOTST]. Also added in [.FPS] and [.PSAP] VFC and microcode routines XXPTS (VFC) and CVSMS (AP). The microcode version of CVSMS was added to the library [TEST.FPS]WDC.AP and FPS link library WDC.LIB.

Moved: to Modcomp Aug 27, nowhere else.

807. *July 31, 1982* UVSUB, XXSUB *Eric*

The VAX Fortran compiler seems to have a bug: for a DO loop I1 to I2 by I3, the VAX computes the number of executions to perform as (I2 - I1 + I3) / I3 when it first encounters the DO statement. Unfortunately, if I1 = 1, I2 = 29000, and I3 = 10000, as in UVSUB, then an integer overflow occurs. Another potential overflow might arise when I2 = 32000 say. Then, the loop counter would go to 40000 before the final test for loop completion. This will produce an infinite loop on some machines. Thus, DO loops which are likely to have such large values of I2 and I3 must be restructured. This has been done in UVSUB and XXSUB.

Moved to Modcomp Aug 27, nowhere else.

808. *July 31, 1982* Calls to MSGWRT *Eric*

More of the same, today to the following (where all Z routines are the VAX/VMS versions:

UVEXP	UVFLG	UVFND	UVINIT	UVLOD	UVPGET
UVPLT	UVSRT	UVSUB	VISCHK	WINDOW	WRBLNK
WRPLAN	XXSUB	ZCLOSE	ZCMPRS	ZCREAT	ZDATE
ZDELAY	ZEXPND	ZFIO	ZM70XF	ZMIO	ZOPEN
ZQMSG	ZRENAM	ZTAPE	ZTCLOS	ZTFILL	ZTIME
ZTKBUF	ZTOPEN	ZTREAD	ZTRSUM	ZWAIT	

Moved to Modcomp Aug 27, nowhere else.

809. *Aug 3, 1982* ZACTV9.MAR *Gary*

Modified to work with VMS Version 3.0. Logical name translations that translate to device names now start with 2 underscores instead of 1.

Moved nowhere.

810. *August 4, 1982* PIXXY adverb *Eric*

Some users were confused about the 7-dimensional nature of this adverb. The following [.HELP] files were changed

CCMOD	IMVAL	IMXY	MAXFIT	TKXY

And the following [.INPUTS] files were changed

IMVAL	IMXY	MAXFIT	TKXY

Moved to Modcomp Aug 27, nowhere else.

811. *August 5, 1982* Contouring *Eric*

The contour algorithm was doing a poor job on negative contours (dashed lines) in an attempt to make TKPL displays of complicated fields look ok. Abandoning this as hopeless, I have put in a field-size dependent way of breaking the lines at every pixel. In addition, PLEV and the peak flux were being interpreted only with respect to the peak positive flux which is incorrect for many types of maps. Routines changed

CONDRW — Change negative contouring to variable broken lines.
COMLAB — Show true peak flux (compared in ABS value).
CNTR — Use PLEV wrt true ABS peak flux.
PCNTR — Ditto.
GREYS — Ditto.
MCUBE — Make an error message have value 7 rather than 5.

Moved to Modcomp Aug 27, nowhere else.

812. *Aug 5, 1982* ZWHOMI, ZSTOPA *Gary*

These routines needed to be changed because of changes in VMS 3.0 dealing with translating logical names to device names and getting two underscores instead of one.
Moved nowhere.

813. *August 9, 1982* [.HELPs] *Eric*

SAVDEST — Added info that TGET files are also destroyed.
PIXRANGE — Added info on units.
COMB — Add suggestion re how to do POLI.

Moved to Modcomp Aug 27, nowhere else.

814. *Aug 9, 1982* ZWHOMI, ZACTV9 *Gary*

Modified these programs to ignore all leading underscores when comparing names. This should allow AIPS to run on both VMS 3 and VMS 2. Also ZACTV9 was using but not saving registers R7 and R8. This bug was apparently not causing any problems.
Moved nowhere.

815. *August 9, 1982* COMB *Eric*

Add warnings re types of maps and scaling factor for polarization angle maps.
Moved to Modcomp Aug 27, nowhere else.

816. *August 9, 1982* APCLN *Eric*

Also : DCLN.INC and CCLN.INC
Add error trap for non power of 2 input maps. Change TV display to go from min to max intensity (inside the clean windows).
Moved to Modcomp Aug 27, nowhere else.

817. *Aug 10, 1982* XXSUB (new UVSUB) *Bill*

Now rolls out of the AP after every 5 min. elapsed real time since the AP assigned.
Moved: to Modcomp Aug 27, nowhere else

818. *August 10, 1982* GEOMA *Don*

New task to shift, rotate, and scale images. Present version does only the first plane of 3-D image, and simply copies descriptions of the axes without change. These deficiencies probably will be corrected soon.
Moved to Modcomp Sept 3, nowhere else.

819. *August 10, 1982* PRTCC *Eric*

It skipped over the increment counter on a formatting error leading to every component coming out with that error rather than every `XINC`th one.
Moved to Modcomp Aug 27, nowhere else.

820. *Aug 10, 1982* [FPS]DAPEX.FOR *Gary*

Floating point systems code: Module `APASGN` was trapping on error 840_{16} (device already allocated). The allocate statement started returning error $9B0_{16}$ (no device available) under VMS 3.0. `APASGN` now traps on both error codes.
Moved nowhere.

821. *Aug 10, 1982* [.FPS and .PSAP]BPINIT *Bill*

AP number returned is now positive for real AP and negative for virtual APs. Here real AP means any "array processor" which consists of sharable hardware. It is intended to indicate whether or not the "AP" needs to be rolled out.
Moved: to Modcomp Aug 27, nowhere else.

822. *Aug 10, 1982* [.NOTST]APROLL *Bill*

Routine to write a specified subset of the current AP data memory to a scratch file, release the AP, time delay, re-assign the AP, and load the data back into the AP.
Moved: to Modcomp Aug 27, nowhere else

823. *Aug 11, 1982* XXSUB *Bill*

Added `BADDISK` to `INPUTS` list.
Also changed: `[.HELP` and `.INPUTS]XXSUB`.
Moved: to Modcomp Aug 27, nowhere else

824. *Aug 11, 1982* ZTTYIO *Gary*

Removed an `END=` from a write statement. This was caught by the new 3.0 compiler.
Moved to Modcomp Aug 30, nowhere else.

825. *August 12, 1982* Lower case input *Eric*

AIPS will now support mixed upper and lower case input. Most lower case is converted to upper case before use, but character string data are not. Routines affect are [.AIPS]:

- CHLTOU — (NEW) Convert any lower case letters in a packed string to upper case.
- GETNAM — Parse upper and lower case, call CHLTOU.
- HELPS — Standardize typing a little.
- GETFLD — Parse lower case also.
- SYMBOL — Call CHLTOU.
- AU1A — Call CHLTOU on TASK adverb default.
- AU2 — Call CHLTOU on TASK adverb default.
- AU2A — Call CHLTOU on TASK adverb default.
- AU3A — Call CHLTOU on SCRDEST and on permissions for major destroy operations.
- AIPSC — Call CHLTOU on permissions for destroys.
- SCHOLD — Allow 'q' as well as 'Q' to stop listings.

Moved to Modcomp Aug 27, nowhere else.

826. *August 13, 1982* MCUBE *Eric*

The program used to require that the "planes" differ in their coordinate reference value. I have made it also use the coordinate reference pixel. Now one can have all the frequencies the same, for example, and set the channel number into the coordinate reference pixel.
Moved to Modcomp Aug 27, nowhere else.

827. *August 13, 1982* [.HELP]TAPE, IMEAN *Eric*

Correct name of UVEXP, was called UVIBM. Add remark about total flux on clean maps (from IMEAN).
Moved to Modcomp Aug 27, nowhere else.

828. *August 13, 1982* PRTCC *Eric*

Limit NITER to NCOMP - BITER + 1 to block user error (where NITER was taken as the max iteration as in APCLN).
Moved to Modcomp Aug 27, nowhere else.

829. *August Friday the 13th* AVER *Bill*

Fixed bug which caused last baseline to be garbage.
Moved: VLA this date, to Modcomp Aug 27.

830. *August, 13, 1982* CONDRW *Eric*

Correct recognition of blanked pixels in floating point maps. Relink CNTR, PCNTR, GREYS.
Moved to Modcomp Aug 27, nowhere else.

831. *August, 16, 1982* APBIG, UVBIG, XXEXP *Ed*

Removed all traces of these tasks from [TEST]. These were special purpose versions not needed anymore.
Removed only in CVAX.

832. *August 16, 1982* OLDLD, OLDSR, OLDUV *Ed*

Removed all traces of these tasks from [TEST].
Removed in CVAX and Modcomp (Aug 27).

833. *August 16, 1982* TVLOAD *Eric*

Corrected potential overflow for floating-point images.
Moved to Modcomp Aug 27, nowhere else.

834. *August 16, 1982* IAXIS1, AU5C, AU6C *Eric*

Put in tests to prevent zero divides *et al.* when trying to label or step wedge an image of only 1 or 2 pixels.
Moved to Modcomp Aug 27, nowhere else.

835. *Aug 16, 1982* Backups *Gary*

Procedures: `BCKAIPS.COM` and `RESAIPS.COM`
`HELP` files: `BCKAIPS` and `RESAIPS`
Changed the name of `BACKUP` and `RESTORE` to `BCKAIPS` and `RESAIPS` to avoid conflicts with Vax `DCL BACKUP` and AIPS verb `RESTORE`. Also made helps files for the procedures. `BCKAIPS` now prompts for a <CR> before doing the verify pass. This allows the user to remount the first tape for multivolume backups.
Moved nowhere.

836. *Aug. 16, 1982* CLIP *Bill*

Added a lower limit by which to clip data. Also changed: `[.INPUTS` and `.HELP]CLIP`.
Moved: to Modcomp Aug 27, nowhere else.

837. *August 16, 1982* YINIT *Eric*

Cursor had horizontal bar in row 33, should have been 32.
Moved to Modcomp Aug 27, nowhere else.

838. *August 17, 1982* MCUBE *Eric*

Fix spelling in format statement.
Moved to Modcomp Aug 27, nowhere else.

839. *August 17, 1982* Verb MAXFIT *Eric*

Alter `[.AIPS]AU9`, `[.HELP`, and `.INPUTS]MAXFIT` to use the adverb `IMSIZE` to determine how large an area to search for a peak before the parabolic fit. If the adverbs values are outside the range 3 to 16, 11 is used.
Moved to Modcomp Aug 27, nowhere else.

840. *August 17, 1982* AU7 *Eric*

Clean up the typing a little.
Moved to Modcomp Aug 27, nowhere else.

841. *August 17, 1982* APCLN *Eric*

Make it check that the beam peak is 1.0 in all cases and quit if it is not. Change various message levels so that fewer messages are treated as important and most messages that go to the history file do not go to the message file.
Moved to Modcomp Aug 27, nowhere else.

842. *August 18, 1982* AU8A *Eric*

Add code to have verb EXTLIST recognize and describe CC files. Also changed [.HELP and .INPUTS] EXTLIST.
Moved to Modcomp Aug 27, nowhere else.

843. *August 18, 1982* IENHNS, AU6A *Eric*

Modify the code for black and white image enhancement. On verb TVTRANS, it now uses buttons A or B to turn on/off the plot and button C to switch the sign of the slope. On verbs TVBLINK and TVMBLINK, buttons A and B are used to specify which channel is to be enhanced and button C switches the sign of the slope. Also changed: [.HELP and .INPUTS] TVTRANSF, TVBLINK, and TVMBLINK.
Moved to Modcomp Aug 27, nowhere else.

844. *August 18, 1982* ASCOR *Fred*

Enabled the gain renormalization in ASCOR so that in the case of full complex gains the mean modulus of the antenna gains, as applied to the data, is unity, just as in ASCAL. That this wasn't being done before was an oversight. The effect was that line/continuum comparison gave inconsistent results in the case of strong continuum, because the continuum channel would have had the renormalization applied, and the line channels would not have.
Moved to Modcomp Aug 27, nowhere else.

845. *August 18, 1982* MSGWRT *Eric*

Changed it to complain only every 16 messages when interactive file is too full.
Moved to Modcomp Aug 27, nowhere else.

846. *August 18, 1982* PRTPL *Gary*

The *truncate a vector that is off the plot* algorithm was not working in some cases thus producing numerous annoying error messages from a lower level routine. Fixed it.
Moved to Modcomp Aug 27, nowhere else.

847. *August 18, 1982* ASCAL *Bill*

Installed new version (old version moved to OLCAL). Amoung the new features are: correct handling of map translation and rotation, correction of the data by the model value before the gain solution so that data is now always averaged, rolling out the AP every five minutes and giving more messages about its progress. Also added includes DCAL.INC and CCAL.INC and changed the HELP and INPUTS files.
Moved to Modcomp Aug 27, nowhere else.

848. *August 19, 1982* UVSUB *Eric*

Installed new version, moving old version to OLSUB. Changed names of [.APL, .HELP, and .INPUTS] UVSUB to OLSUB. Changed names of [.NOTST, .HELP, and .INPUTS] XXSUB to UVSUB. Also changed message levels in the new UVSUB to reduce the amount which go to the message file.
Moved to Modcomp Aug 27, nowhere else.

849. *August 19, 1982* Message levels *Eric*

Changed message levels in several routines to reduce the number of unimportant (or duplicated in history files) messages which end up clogging the message file. Routines affected are

IMLOD — Summary of image loaded.
GFINIS — Disk space guess and use.
UVMAP — Timing, convolution function, map closed.
APMAP — Ditto.
PRTPL — Progress messages.

Moved to Modcomp Aug 27, nowhere else.

850. *August 19, 1982* ASCOR *Fred*

The subroutine INTG needed minor corrections to handle the cases of one or three line channels, rather than the usual case of two. Now it will work properly for 1, 2, 3, or 4 line channels under some circumstances (MODE = 0 in ASCOR, APARM(8) = 1 in ASCAL).
Moved to Modcomp Aug 27, nowhere else.

851. *August 19, 1982* HELP files *Ed*

Revised completely the HELP utility files which list all of the AIPS verbs, tasks, internal procedures and pseudo verbs in convenient groups. In addition to this on-line documentation, the lists will also be put at the end of the AIPS cookbook. The HELP files which have been deleted are:

UTILITY	DISPLAY	INTERACT	SPECLINE	TAPE	UV

The HELP files which have been modified are:

TASKS	HELP	ANALYSIS	BATCHJOB	CATINFO	DOTASK
POPSYM	ROAM	VLBI	WHATSNEW		

The HELP files which have been added are:

INDEX	APTASKS	CUBE	CURSOR	DELETE	GENERAL
MAPETC	PL2D	SL1D	PANIC	TAPU	TVCOLOR
TVGEN	TVINTER	UVPR			

Moved to Modcomp Aug 27, nowhere else.

852. *August 19, 1982* Transport procedures *Gary*

SHORTINS.COM — (new) Short installation procedure that allows a user with a set up very similiar to NRAO to load the executable modules and object libraries directly without going though the compilations and links.
TRANSPRT.COM — Now puts the executable modules and object module libraries in save sets at the end of the transport tape.
MV2C1008 — (new) Instructions for using SHORTINS.
MV2C1005 — minor revisions.
MV2C1006 — minor revisions.

Moved to Modcomp Aug 27, nowhere else.

853. *August 19, 1982* IMLHS *WaWa*

Added experimental task IMLHS to CV test area. Displays two maps as luminosity and hue on I^2S. Needs a lot of refinement, but it's fun. Try it!
Moved nowhere.

854. *August 19, 1982* AXEFND *Bill*

Added RETURN statment, apparently the VAX doesn't care.
Moved: MODCOMP this date, nowhere else.

855. *August 24, 1982* GETNUM *Eric*

Correct to handle lower case exponents also.
Moved to Modcomp Aug 27, nowhere else.

856. *August 24, 1982* Gripes, TV adverbs *Eric*

Today I changed the corner and increment adverbs for TVLOD, TVALL, and TVROAM. I also added verbs to make entries in a Gripe file, to index the contents of the Gripe file, and to list any specified Gripe. Routines changed in the [TEST.AIPS] area are:

AU5A — Use adverbs TBLC, TTRC, TXINC, TYINC now.
AU6C — Ditto.
AUC — (NEW) Performs new verbs GRIPE, GRINDEX, and GRLIST.
CHGRIP — (NEW) Does all the hard work of character handling and some IO for AUC.
FILINI — Initialize new Gripe file GR100000.
FILAI2 — Create and initialize Gripe file.
FILAIP — Ditto.
OERROR — Add a message 'Not in RUN'.
VERBS — Call AUC.
VERBSB — Handle AUC's verb numbers as error.
VERBSC — Ditto.

Moved to Modcomp Aug 27, nowhere else.

857. *August 24, 1982* Help files *Eric*

During changes 856 and 858, the following files in [.HELP] were changed:

BLC — Fix up wording.
GRINDEX — New. Describe the verb briefly.
GRIPE — New. Describe what Gripes are and how to use the verb.
GRLIST — New. Describe briefly.
IMDEST — Deleted.
POPSDAT — Changed IMDEST to ZAP, added adverbs TXINC, TYINC, TBLC, TTRC, added verbs GRIPE, GRINDEX, and GRLIST.
TBLC — New. Revise BLC wording to generate this one.
TRC — Revise wording.
TTRC — New. Is TRC with added wording.
TVALL — Change adverbs for BLC, TRC, XINC, and YINC.
TVLOD — Ditto.
TVROAM — Ditto.
TXINC — New. Is XINC with added words.
TYINC — New. Is YINC with added words.
XINC — Reword a bit.
YINC — Reword a bit.

Moved to Modcomp Aug 27, nowhere else.

858. *August 24, 1982* Inputs files *Eric*

During change 856, several Inputs files needed correction. Also renamed IMDEST to ZAP to avoid min. match troubles with IMHEADER. Files changed in [.INPUTS] are

GRINDEX — New: no adverbs remark.
GRIPE — New: no adverbs remark.
GRLIST — New.
IMDEST — Deleted.
TVALL — Change BLC, TRC, XINC, YINC adverbs.
TVLOD — Ditto.
TVROAM — Ditto.
ZAP — The former IMDEST.

Moved to Modcomp Aug 27, nowhere else.

859. *August 24, 1982* Includes *Eric*

Added variables for the adverbs TXINC, TYINC, TBLC, and TTRC in DAPL.INC and CAPL.INC.
Moved to Modcomp Aug 27, nowhere else.

860. *August 25, 1982* BATER *Eric*

Changed to support upper/lower case, to do adverbs via equivalence, to print messages on EXIT, and to use adverb PRIORITY. Also: deleted DBPL.INC and CBPL.INC.
Moved to Modcomp Aug 27, nowhere else.

861. *August 25, 1982* Message levels *Eric*

Changed the message levels of the "symbol could be" messages in [.APL]TXTMAT and [.AIPS]CHUNT to level 1. They will now come out faster and not clog the message file.
Moved to Modcomp Aug 27, nowhere else.

862. *August 25, 1982* GRIPR *Eric*

Stand-alone program based on BATER to do the Gripe related verbs without hogging an AIPS. Also a Vax procedure GRIPE.COM to start GRIPR for people who don't like to type RUN GRIPR.
Moved to Modcomp Aug 27, nowhere else.

863. *August 25, 1982* VBFIT, VBCOR *Bill*

Fix several bugs found installing VBFIT on the MODCOMP and changed array PHASE to INTEGER*2 so that it would fit on the MODCOMP. Bugs found in routines UVCOR and DELFAZ fixed in the corresponding routines in VBCOR.
Moved: from MODCOMP this date (VBFIT), nowhere else.

864. *August 26, 1982* UVLOD *Bill*

Updated VBLOD to new uv header format and renamed UVLOD. This task will read both normal and extended (VLBI) EXPORT format tapes.
Moved: to Modcomp Aug 27, nowhere else.

865. *August 27, 1982* SMOTH *Arnold*

Task to smooth in the map plane.
Moved from VLA to CV (source, inputs and help); not compiled

866. *August 27, 1982* MOMNT *Arnold*

Task to do spectral line profile analysis (moments). Moved from VLA to CV (source, inputs and help); not compiled. This task needs about 4.3 Mbytes swap and page slots. A much smaller (about 200 kbytes) but also much slower version of the source code can be found in `SLOWMOMNT.FOR`.
Moved nowhere else.

867. *August 27, 1982* KONTR *Arnold*

Task to make contour plots on the ZETA pen plotter. This is just a reminder that the code exist. It is only available on `AIPS::` and `VAX3::`

868. *August 27, 1982* ZETASUBS *Arnold*

Basic subroutine package from Nicolet-Zeta to drive the ZETA pen plotter. Fixed to allow more digits in subroutine `NUMBER`. *Requires* `/NOI4` *compilation!*
Exists only in `AIPS::[TEST.NOTST]`

869. *August 27, 1982* ZCPU *Gary/Eric*

Modified to return IO count as well as cpu. Modcomp version only returns 0. The system doesn't count IOs.
Moved to Modcomp this date, nowhere else.

870. *August 27, 1982* Several *Eric*

Two significant changes were made: (1) a system name parameter was added to the device characteristics common and (2) the accounting file was modified to contain also the task IO count. Routines affected so far:

`IDCH.INC`	—	Added `SYSNAM` and dummy variables.
`DDCH.INC`	—	Ditto.
`CDCH.INC`	—	Ditto.
`ACOUNT`	—	Support new format, get IO count from `ZCPU` and store it in the file.
`FILINI`	—	Initialize new format AC file.
`FILAIP`	—	Ditto, also init the new system name parameter.
`FILAI2`	—	Ditto(s).
`ZDCHIN`	—	Set dummy value to system name, then get it from the system parameters file.
`SETPAR`	—	Display and modify the system name field.
`UVMAP`	—	Change call sequence to `ZCPU`.

Moved to Modcomp this date, nowhere else.

871. *August 29, 1982* AVER *Bill*

Fixed dimension of `NAMEIN` in main program.
Moved from MODCOMP this date, nowhere else.

872. *August 29, 1982* CORMS *Bill*

Fixed mispelling of `K4CRP` (`KRCRP`).
Moved from MODCOMP this date, nowhere else.

873. *August 29, 1982* GNPLT *Bill*

Fixed initilization of variable `INC` to 1. It was apparently intended to be input but is not.
Moved from MODCOMP this date, nowhere else.

874. *August 29, 1982* IMFIT *Bill*

Fix a couple of bugs, 1) an array in common was in a `DATA` stmt, now has a call to `RFILL`, 2) an uninitilized variable was used in an obscure fashion and the line was commented out, I don't think that it did anything useful before.
Moved from MODCOMP this date, nowhere else.

875. *August 29, 1982* ASCAL *Bill*

Removed `IBAD` from `DATA` statment in `SOLVE` as the values are now read in. Also removed uninitilized loop count `IH` from `SCFIND` and replaced with `NSCANS`.
Moved from MODCOMP this date, nowhere else.

876. *August 30, 1982* SUMSQ *Fred*

This is a new task whose purpose is to sum the squared pixel values of a number of input maps and write an output map. It's just a modified version of `SUMIM`. In combination with `SUMIM` and `COMB`, it can be used to average maps and compute the r.m.s. of the average. Added `HELP` and `INPUTS` files.
Moved to Modcomp Sep 3, nowhere else.

877. *August 30, 1982* UVDGP *Fred*

This is a new task whose purpose is to copy a visibility data file, omitting the M^{th} N^{th} of the data. For example, if $M = 1$ and $N = 2$, then the first half of the data set is deleted. Or, if $M = 3$ and $N = 8$, then the third eighth of the data set is deleted. It probably won't have much popular appeal — its purpose is experimental: to jackknife the map-CLEAN procedure in order to estimate the variance in CLEAN maps. Added `HELP` and `INPUTS` files.
Moved nowhere.

878. *August 30, 1982* [DOC]MV2C06SP. *Eric*

Add System name to SP file description.
Moved to Modcomp Sep 3, nowhere else.

879. *August 30, 1982* PRTACC *Eric*

Make it handle new AC file format and add displays of the IO count and the average IO count / CPU second.
Moved to Modcomp Sep 3, nowhere else.

880. *August 30, 1982* FILINI *Eric*

Add a `DATA` statement for `NT`, correct a format reading the user number.
Moved to Modcomp Sep 3, nowhere else.

881. *August 30, 1982* UVMAP *Bill*

Changed `COMPLEX*8` to `COMPLEX` as the Modcomp apparently requires.
Moved to Modcomp Sep 3, nowhere else.

882. *August 30, 1982* GRIPR, AUC *Eric*

Add system ID to Gripe file.
Moved to Modcomp Sep 3, nowhere else.

883. *August 31, 1982* Time/date strings *Eric*

Using the FITS notation for date (dd/mm/yy) seems to confuse the reader. Thus, outside the image header and other FITS-like things, we will use a notation like that of the Vax. Routines changed:

- `TIMDAT` — Routine to produce the strings changed to 11-char date output argument (3 R*4s).
- `CATLST` — Changed to call `TIMDAT`.
- `AU2A` — Changed call to `TIMDAT` and formats.
- `AU8A` — Changed calls to `TIMDAT` and formats (will use only the first 6 chars of date (dd-mmm) omit year.
- `PRTMSG` — Changed calls to `TIMDAT` and formats.
- `PRTACC` — Changed calls to `TIMDAT` and formats.
- `HISCOP` — Changed to use `TIMDAT`.

The latter requires relinking `CLIP`, `APCLN`, `CONVL`, `UVCOP`, `FFT`, `FUDGE`, `DBCON`, `RGBMP`, `APMAP`, `UVMAP`, `PBCOR`, `UVSUB`, `SUMIM`, `TRANS`, `UVSRT`, `ASCAL`, `LSCAL`, and `ASCOR` at least.
Moved to Modcomp Sep 3, nowhere else.

884. *August 31, 1982* Gripes *Eric*

Changed `AUC` and `GRIPR` to use the new time strings and to record the logon user number.
Moved to Modcomp Sep 3, nowhere else.

885. *August 31, 1982* GRITP *Eric*

New service program to write the contents of a Gripes file on a (legal, believe it or not) FITS tape. This tape may be sent to Charlottesville to have your Gripes processed. The program will verify the tape and initialize the Gripe file also.
Moved to Modcomp Sep 3, nowhere else.

886. *September 1, 1982* [.PSAP]SEARCH *Bill*

Removed a number of internal calls to `APWD`, `APWR`, `APPUT`, `APGSP` and added the Pseudo AP `INCLUDE`s. This shouldn't change how it works but should make it run faster.
Moved: to Modcomp Sep 3, nowhere else.

887. *September 1, 1982* SUMSQ *Fred*

Added an option intended to cause the program to compute the square root of the sum of the squared maps.
Moved to Modcomp Sep 3, nowhere else.

888. *September 1, 1982* GRTOTEX *Eric*

Vax service program to read standard and other Gripes files and the Gripes FITS tape (produced by `GRITP`). It writes a Fortran file suitable for additional editting and input to TEX.
Moved: should not be moved anywhere.

889. *September 2, 1982* IBM discovered *Kerry/Eric*

Several `Nn` variables were not declared, not initialized, and/or not used. In `[TEST.AIPS]` routines corrected were

`AIPSB` — `BATSET` had `N4` uninitialized, `GTLINB` had `NO`, `N4` not declared.
`AUA` — Several not used.
`AU3` — Several not used.
`AU3A` — One not used.
`AU5B` — One not used.
`AU8A` — One not used.
`AU9A` — Two not used.
`AU9B` — One not used.
`BATER` — Two not declared in `CUB`, several unused.
`GRIPR` — Several unused.
`COMPIL` — One unused.
`FILINI` — `N8` not initialized, `N5` unused.
`FIXCAT` — `N72` not declared.
`FIXFIL` — `N72` not declared.
`TKSLIN` — `N6`, `N8` not declared, several not used.

Moved to Modcomp Sep 3, nowhere else.

890. *September 2, 1982* IBM discovered *Kerry/Eric*

More of the same: all these are in `[TEST.APL]` and had either undeclared or unintialized variables of name `Nn`.

`CLIP`	`FILCLS`	`IMEAN`	`IMLOD`	`MAPOPN`	`PROFL`
`PRTUV`	`SLFIT`	`SLICE`	`UVCOP`	`UVEXP`	`UVFND`
`UVPLT`	`UVSRT`				

Moved to Modcomp Sep 3, nowhere else.

891. *September 3, 1982* ASCAL *Bill*

Fixed bug which caused an error when `INDISK2` or `INSEQ2` were zero.
Moved: MODCOMP this date, nowhere else.

892. *September 3, 1982* UVFLG *Eric*

Changed time handling: if *Time*1 = *Time*2 = 0 then *Time*2 = 999 days, if *Time*1 = *Time*2$\neq$0 then allow 4-second range, if *Time*1 > *Time*2 then error exit. Also changed the `HELP` file.
Moved to Modcomp Sep 3, nowhere else.

893. *September 3, 1982* UVMAP, APMAP *Eric*

Added test to prevent 0 divide when one of the 2 tapers is zero. I remember doing this sometime ago - maybe it got written up and then lost. Also added change so that `ZEROSP` of 1 is used for R Stokes and of 2 for L (with `ZEROSP(1)` a default for L). Also changed `[.HELP]ZEROSP.`, `UVMAP.`, and `APMAP.`.
Moved to Modcomp Sep 3, nowhere else.

894. *September 3, 1982* UVEXP *Eric*

Corrected handling of `DOALL` (0 was treated as false) and of frequencies (the scaling was based only on the header value, but U,V,W were scaled at times by values for other arrays).
Moved to Modcomp Sep 3, nowhere else.

895. *September 4, 1982* PRTIM *Eric*

Make it count lines correctly to do correct call to ZENDPG at the end. Change characters for blanked pixels to ':' and for zeros in 1-digit displays to '.'. Change scaling so that it computes VMAX = AMAX1 (*dmax*, —10.0**dmin*) rounded up to the next power of 10. Then it applies FACTOR. Also changed [.HELP]PRTIM.
Moved to Modcomp Sep 9, nowhere else.

896. *September 6, 1982* MCUBE *Eric*

Add error message to show bad pixel value when "plane" doesn't fit into cube.
Moved to Modcomp Sep 9, nowhere else.

897. *September 6, 1982* Message levels *Eric*

Lower message levels of CATALOG and IMHEADER verbs in subroutines CATLST and LSTHDR.
Moved to Modcomp Sep 9, nowhere else.

898. *September 6, 1982* TPUT, ABORTASK *Eric*

Create new pseudoverb TPUT to put adverbs for a task or verb into the task save file for later fetching by TGET. Make ABORTASK a pseudoverb with the task name as an optional immediate argument and make it try to do a SCRDEST. Also allow batch to run AP tasks more hours of the day. Routines affected are:

HELPS — Allow the new pseudoverbs, set correct "verb" numbers.
AU2 — Pick up immediate argument for new pseudoverbs, block task data file for TPUT, add SCRDEST to ABORT portion, change times when batch may start AP tasks.
AIPSC — Change times when batch jobs with AP tasks may start.

Moved to Modcomp Sep 9, nowhere else.

899. *September 6, 1982* AU3 : CATalog verbs *Eric*

Change CAT to MCAT and UCAT for maps and UV (only) in subroutine AU3.
Moved to Modcomp Sep 9, nowhere else.

900. *September 6, 1982* AU1, PRTMSG *Eric*

Make it check user catalog files and delete any empty ones on EXIT and RESTART. Print the user input unless PRIORITY > 5.
Moved to Modcomp Sep 9, nowhere else.

901. *September 6, 1982* TV verbs *Eric*

For GRCLEAR and GROFF, make the default all channels. For wedges, drop the pure TV intensity wedge verb and rename the wedge from image clip min to max TVWEDGE (was IMPWEDGE). For interactive cursor values, drop the one that read from the TV memory since the disk one is just as fast and more accurate. Routines affected are

AU5 — Change graphics defaults.
AU5C — Remove pure TV wedge, rearrange verb numbers.
AU6B — Comment out the TV memory part (leave it there for later reference, however). Renumber verbs.
AU6C — Update precursor comments.

Moved to Modcomp Sep 9, nowhere else.

902. *September 6, 1982* HELP files *Eric*

The changes listed above (#s 898-901) require some revisions in the HELP files as follows:

POPSDAT — New pseudoverbs ABORTASK, TPUT; delete verbs IMPWEDGE and CURMVALU; add adverb VERSION and set initial value to 'OLD'.
CAT — Delete.
MCAT — New: quick catalogue listing of map files.
UCAT — New: quick catalogue listing of UV files.
ABORTASK — Add info re immediate argument and scratch destroy.
TPUT — New: reverse of TGET.
BATCHJOB — Add info about limits on AP use during daytime.
SUBMIT — Ditto.
BATQUE — Ditto.
CURMVALU — Delete.
CURVALUE — Change to show values come from disk.
GROFF — Correct wording, add new default.
GRCLEAR — Add new default.
GRON — Correct wording.
TVON — Correct wording.
TVOFF — Correct wording.
IMPWEDGE — Delete.
TVWEDGE — Change to show wedge comes from image clip min to max.
IMWEDGE — Fix up wording a little.

Moved to Modcomp Sep 9, nowhere else.

903. *September 6, 1982* INPUTS files *Eric*

The changes listed above (#s 898-901) require some revisions in the INPUTS files as follows:

CAT — Delete.
MCAT — New: quick catalogue listing of map files.
UCAT — New: quick catalogue listing of UV files.
ABORTASK — Add info re immediate argument and scratch destroy.
TPUT — New: reverse of TGET.
SUBMIT — Add info re limits on use of AP in daytime.
CURMVALU — Delete.
CURVALUE — Change to show values come from disk.
GROFF — Correct wording, add new default.
GRCLEAR — Add new default.
GRON — Correct wording.
TVON — Correct wording.
TVOFF — Correct wording.
IMPWEDGE — Delete.
TVWEDGE — Change to show wedge comes from image clip min to max.
IMWEDGE — Fix up wording a little.

Moved to Modcomp Sep 9, nowhere else.

904. *September 6, 1982* *APL.INC *Eric*

Add 20-character adverb VERSION to the verb subroutine includes as a variable named VERSON.

Moved to Modcomp Sep 9, nowhere else.

905. *September 7, 1982* PRTTP *Eric*

Fixed handling of tape at end-of-tape so that it will be positioned correctly to write a new file (if desired). Also added an advance file after the initial rewind to allow the first NFILES files to be skipped. Add magic value (NFILES > 1000) to indicate no tape movement. Also changed: [.HELP and .INPUTS] PRTTP (add adverb NFILES) and [.HELP] NFILES (describe usual usage of NFILES).
Moved to Modcomp Sep 9, nowhere else.

906. *September 7, 1982* ZQTAPE.MAR *Eric*

Changed the Rewind operation to a wait-mode QIO form. Without this, the completion of the rewind interfered with subsequent tape IO calls. VAX routine only.
Moved nowhere.

907. *September 7, 1982* DOEOT, AVEOT *Eric*

Add new adverb DOEOT to request that tape writing programs advance the output tape to the first double end-of-file before writing. Add new verb AVEOT to advance the tape to the first double end-of-file. Files changed:

[HELP]AVEOT	—	New: describe new verb.
[INPUTS]AVEOT	—	New: describe new verb.
[HELP]DOEOT	—	New: describe new adverb.
[HELP]POPSDAT	—	Add new verb and adverb.
DAPL.INC	—	Add new adverb.
CAPL.INC	—	Add new adverb.
AU4	—	Add verb AVEOT as fifth branch point.
FNDEOT	—	New subroutine in [.APL] to find EOT on open tape unit and position tape after the first of the double end-of-file.

Moved to Modcomp Sep 9, nowhere else.

908. *September 8, 1982* FITTP, FITT2 *Eric*

Add adverb to go to end-of-information before writing. Add system name parameter to ORIGIN keyword in headers. Also fix bad declaration of BLC and TRC in FITT2. Changes made in the Fortran, Help, and Inputs files of both and in DFTP.INC and CFTP.INC.
Moved to Modcomp Sep 9, nowhere else.

909. *September 8, 1982* IBMTP, UVEXP *Eric*

Add the adverb DOEOT to these tasks too. Add System name and correct format of END record produced by UVEXP. Changed the Fortran, Help, and Inputs files.
Moved to Modcomp Sep 9, nowhere else.

910. *September 8, 1982* Misc. changes *Eric*

In testing some of the above, miscellaneous changes were made:

UVLOD	—	Fix test which recognizes special VLB Export format.
ZTAPE	—	Fix pointer affecting an error message.
DPTP.INC	—	Reduce size of buffer to that needed.
PRTTP	—	Go to single buffer reads for Export format to avoid going too far at the end and getting hung up in strange Vax End-of-information problems.

Moved to Modcomp Sep 9, nowhere else.

911. *September 8, 1982* General HELPs *Eric*

The following HELP files were changed to reflect changes made over the last couple of weeks (i.e. MCAT, UCAT, GRIPE, TPUT, AVEOT, ZAP, etc.):

BATCHJOB	GRIPR	GRIPE	INDEX	CATINFO
DELETE	GENERAL	TAPU	TVINTER	CURSOR

Moved to Modcomp Sep 9, nowhere else.

912. *September 9, 1982* More HELPs *Eric*

A totally new WHATSNEW has been typed. It is divided into sections geared to the *AIPSLETTER* magic dates. The HELPs called GRIPR and NFILES were fixed since they had lines longer than 64 characters.
Moved to Modcomp Sep 9, nowhere else.

913. *September 12, 1982* ZCREAT *Eric*

Changed no room error message to take 1 line on the monitor.
Moved nowhere.

914. *September 13, 1982* GEOM *Don*

Improved version of GEOMA (see Change # 818). Now does cubes, with windowing using BLC and TRC, and tries to get the axis descriptions correct. Name changed to GEOM and the old names GEOMA and GEOMB have been entirely suppressed. Users should be wary of the axis descriptions, particularly the rotation angle, until further tests have been made.
Moved nowhere.

915. *September 14, 1982* KONTR *Ed*

Moved source code files KONTR and ZETASUBS to [.NOTST] and moved the [.HELP and .INPUTS] for KONTR.
Moved: from VLA AIPS:: to CVAX, nowhere else.

916. *September 14, 1982* ADDIM *Ed*

Delete ADDIM help and inputs file in [TEST].
Moved: nowhere.

917. *September 14, 1982* AIPS Cookbook *Ed*

Sent Sept. 15 version of AIPS *COOKBOOK*. It is stored under the names [DOC] AIPS.SCR and COOKBOOK. *(Eric).*
Moved from VLA VAX1 to CV VAX, nowhere else.

AIPS Questionnaire

Although the AIPS software has been sent to over 30 installations around the world, we have received responses from only a few of them. The following list of questions is an attempt to solicit information about various aspects of the systems which are supporting or will support AIPS. Please mark responses on this sheet and return it to:

Dr. Edward B. Fomalont
National Radio Astronomy Observatory
P.O. Box O
Socorro, NM 87801 USA

As an incentive, each site which returns this form to us will receive three copies of the new edition of the AIPS *COOKBOOK* when it is printed (hopefully, by 15 November 1982).

1. Name, Institution and Address:

2. Manufacturer, model, and operating system of computer used for AIPS:

3. List the major peripherals in the computer system:

4. Are you now able to run AIPS? If not, why not? If so, give date of the most recent installation tape used:

5. Percentage of computing time on the CPU now used for AIPS; maximum percentage of computing time that could be used for AIPS:

6. Number of potential **AIPS** users:

7. Is **AIPS** being used with non-VLA imagery? If so, from where do the non-VLA images come?

8. Is the new update procedure, described in this *AIPSLETTER*, satisfactory? How can it be improved?

9. Do you wish to participate in the new GRIPEs scheme (see article in *AIPSLETTER*)? If so, does your machine have a dial-up port? Please provide details:

10. List any major problems you have encountered with **AIPS**:

11. Additional comments:

AIPSLETTER

Volume II, Number 6: November 15, 1982

National Radio Astronomy Observatory

A newsletter for users of the
Astronomical Image Processing System

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TEXset by EWG

Responses to the AIPS Questionaire

Responses to the Questionnaire (see page 31 of the September 15, 1982 *AIPSLETTER*) were still trickling in as the publication date of this *AIPSLETTER* approached. So far we have received 17 responses, representing 15 different machines, all VAXes. Of these VAXes, 4 are the 750 model and 11 are the 780. Two of the machines run UNIX, the other 13 run various versions of VMS (2.4, 2.5, or 3.0). Twelve of the machines run AIPS regularly, with utilization estimates ranging from 1 to 20 percent. NRAO itself runs AIPS on 4 machines, 3 780s under VMS, and a ModComp. This makes a total of 16 machines running AIPS regularly. We have heard reports of AIPS in use on at least 8 other machines: 6 VAXes under VMS, one VAX under UNIX, and a ModComp. We know of various projects, either proposed or in progress, to port AIPS to other environments (Gould/SEL, and IBM4341 under OS360, CMS, and UTS). Because we are missing at least one third of the AIPS machines in our present sample we have decided to defer a final summary until the next issue of the *AIPSLETTER*. We would very much appreciate receiving reports from the sites which have not yet responded to the Questionnaire, especially from the 8 sites mentioned above where we know AIPS is in production use.

We still intend to fulfill our promise to send copies of the new *COOKBOOK* to sites, and to users, who respond to the Questionnaire.

Examination of the responses shows that many sites are running versions of AIPS which are six or more months old. AIPS has evolved rapidly in 1982. Many new features, bug-fixes, tasks, and verbs are available in the more recent versions. For example, the `15NOV82` version offers full support of the UV-FITS tape format, including the `DOALL` option. The improved modularity of the directory structure and the prevasive use of logical names should make installation and maintenance of the `15NOV82` AIPS in the various VAX/VMS systems easier. Another example: recent versions support the `GRIPE` system. We encourage all AIPS sites to make an effort to catch up!

The Mailbag

Neil Killeen (Mount Stromlo Observatory, Private Bag, Woden Post Office, ACT 2606, Australia) writes: *"Well, I finally escaped from the VLA in late January and found my way back to Australia clutching my prized* AIPS *tapes and warding off all nasty scanning machines that looked likely to irradiate me with magnetons. All arrived intact. Installation of the system on our VAX11/780 was really quite simple. About the only problem was a routine called* `GREG.FOR` *that refused to compile because one of our programmers has his terminal assigned to the logical name* `GREG` *so I was effectively trying to compile his terminal. Since the initial installation, which really did work perfectly essentially first time, a minimal amount of changes have been necessary. For example, getting it to plot on our Versatec was a bit tricky. Things were falling apart in* `ZQIOV.MAR` *for no apparent reason. Jacking up the working set made it go, but it wasn't over the limit to start with. We eventually rewrote* `ZQIOV` *in FORTRAN and all problems went away. Why are some of these routines in MACRO? Is it for speed only?* [Ed.: They are in macro for historical reasons only. It would be reasonable to rewrite most VMS Z-routines in Fortran now that the 3.0 Fortran compiler can access the system symbol definitions.] *I eventually got brave enough to rewrite the TV stuff to a small extent for our RAMTEK and ARGS systems. I was pleasantly surprised at how easy it was. For somebody with minimum knowledge of programming it was really quite painless. I used the WaWa package which really is quite simple to use. Might I suggest a WaWa routine for reading in a 2-D array where the looping is done inside rather than having to call* `MAPIO` *for each line and doing the same things inside it over and over. Perhaps this has already been done now, though ..."*

Supermicros and AIPS

During 1982 a number of vendors have entered the market offering computer systems which utilize Motorola MC68000 microcomputer chips. Several of these vendors assert that the performance of their current systems is approximately comparable to that of the VAX11/750. Improvements which are planned by these vendors and by Motorola and its second-source licensees suggest that by the end of calendar 1983 this microcomputer architecture is likely to be comparable to that of the VAX11/780 in capability. We refer to these new 32-bit microcomputers as "supermicros". Of course, supermicro systems are cheaper than supermini systems like VAXes because they have fewer parts. For example, a recent quote for a stand-alone supermicro image processing system was about $45K (800 by 1000 graphics terminal, 640 by 480 image display, 0.5 Mb memory, 80 Mb disk, 1600 bpi tape). One of us, DCW, is currently preparing a report discussing the importance of this new technology for astronomical image processing. The AIPS group in Charlottesville would like to begin exploring the possibility of installing AIPS on such supermicro systems. We invite any of our users who are interested in discussing these ideas to contact us (especially if they have money!).

Summary of Changes: 15 Sep – 14 Nov

These changes are listed in detail in the CHANGE.DOC file reproduced later in the *AIPSLETTER*. The changes during this period were concentrated on the implementation of the new directory structure described in the last issue of the *AIPSLETTER*. The ordinary user will not see most of the changes. He *will* note that there is now only one logon area (`[AIPS]`) and one data area (`[AIPS.DATA]`), that he is asked

which version of AIPS he desires, that he may specify the VERSION of each task he runs (including PSAP versions of AP tasks), and that RUN files are now stored in the area [AIPS.RUN] under names of the form <*user-name*>.RUN. Programmers will, however, notice a great number of changes—hopefully. They should now logon to their own area and issue the command @[AIPS]CDNEW to set the appropriate default area and protection and to make numerous local logical assignments. The compile-replace and compile-link procedures were rewritten (see CHANGE.DOC entry #926 below) and additional logicals are available (see #958). Help files are stored in [.HELP] with extensions .HLP and Inputs files are stored in [.INPUTS] with extensions .INP. Fortran routines appear in several sub-subdirectories as described in the previous issue of the *AIPSLETTER*. INCLUDE statements now require the form INCLUDE 'INCS:*xxxx*.INC'. We have also changed most of the group logical symbols primarily to refer to the new data areas and to remove ambiguities in the assignments of TV and TK devices. Please note that the changes described above apply to Vax/VMS systems. Other operating systems may not implement all of these structures.

The conversion of AIPS to the new directory structure required more effort than we had anticipated. As a result, the improvements in the documentation, which we had hoped to have in this release, have had to be postponed. Nonetheless, several new tasks have appeared. Among them are AVTP to perform asynchronous tape positioning and BTCOP to perform a format modification on UV files appropriate to certain analysis problems, particularly spectral line. There are three new and still very experimental tasks as well. IMLHS uses three images to modulate a hue-saturation-luminosity display on the television. REDIT allows the user to edit RUN files with the local text editor (SOS on Vaxes) without exiting AIPS. H2MEM makes maximum entropy maps using the log(*I*) entropy.

Several existing areas, particularly our handling of FITS tapes, received substantial improvements. FITTP will now write UV, as well as map, FITS files and handles floating-point map files correctly. UVLOD will read UV FITS files—at least those written by FITTP. In addition, UVLOD now supports a DOALL option for VLA Export format tapes. This option allows several consecutive sources worth of data to be loaded to disk at one time. The meanings of the adverbs SOURCE and BAND were changed and the adverbs NITER and BITER were added in UVLOD to support this option. Both IMLOD and UVLOD may now be instructed to use the recorded image sequence number (on AIPS FITS tapes) as the default value for OUTSEQ. Task PRTTP now accepts a PRTLEV adverb to control how much is printed for FITS files. By default, an IMHEADER-like display is produced. The verbs TPHEAD and AVMAP were also made smarter. For FITS tapes, they produce an IMHEADER-like display and, for UV Export tapes, they produce some useful information. Task TVPL now allows the user to specify any TV graphics plane for its display, but channel 1 is still recommended. CORER now supports two additional options—a timerange and the subtraction of a point source at the coordinate origin.

There have also been revisions in the AIPS program itself. It will now accept character strings up to 60 characters. It will now attempt to handle the *erroneous* statement GO *verb-name* by replacing it with TPUT *verb-name* ; *verb-name*. Users who (foolishly) wish to have none of their messages logged may now request that (foolishness) with the pseudoverb MSGKILL. And last, but not least, a new, character-oriented editing capability has been added for procedures (MODIFY) and for batch work files (BAMODIFY).

CHANGE.DOC: 15Sep82–14Nov82

918. *September 17, 1982* UVSUB *Eric*

The Modcomp points out that subroutine VISSUB had a reference to IMOD rather than MOD and set DELTIM to 5.0 not 5.0D0.
Moved from Modcomp this date, nowhere else.

919. *September 17, 1982* Vax installation procedures *Gary*

`INSTALL.COM` — Now creates data files in `[AIPS]` area instead of copying them from `TEST`. This prevents problems when someone is using `INSTALL` to update an existing system and tries to update `TEST` and `AIPS` at the same time. Also added more progress report messages.

`PROMPTP.COM` — Now asks for local system ID, which is put in the system parameter file.

`PROMPTL.COM` — Changed wording on remote terminal question.

`UPDATE.COM` — Changed instructions in the header telling the user to use `/NEW VERSION` option when copying the initial command files from tape. Thus new versions of the update procedure supercede old versions.

`FILAI2.FOR` — Reads SYSTEM ID set by `PROMPTP`. Also detects that a zero sized AP memory was input (meaning pseudo AP is desired) and changes this to a positive value in the system parameter file so that the programs won't complain.

`MV2C1003.` — Updated documentation to reflect the above changes.

`MV2C1004.` — Ditto.

`MV2C1005.` — Ditto.

`MV2C1006.` — Ditto.

`MV2C1007.` — Ditto.

Moved nowhere.

920. *September 20, 1982* GEOM *Don*

In subroutine `GEOHDR` inside `GEOM.FOR` the commanded scale changes were being multiplied by the coordinate increments instead of being divided into them. *The bread always lands butter-side down.* Users should still be somewhat skeptical regarding the axis descriptions associated with images computed by `GEOM`, particularly regarding the effects of rotation and the y-axis differential scale factor. Further tests are planned.
Moved to VLA 15-Oct, nowhere else.

921. *Sept. 21, 1982* MAPCR, PRTNAM *WaWa*

`MAPCR` now inserts the true Volume and Sequence numbers of the created file into the input `NAMS`tring if blank defaults were used in calling. The file name is not printed into the message file except in case of error. `PRTNAM` now calls `CATDIR` to fill in defaults and to find the slot number if known.
Moved nowhere.

922. *Sept. 22, 1982* IMLHS *WaWa*

`IMLHS` now accepts a third input map to modulate the saturation of the output TV image. If any of `INNAME`, `IN2NAME`, or `IN3NAME` are blank the corresponding color quantity (luminosity, hue, or saturation) are set to a constant, in general maximum, value. `APARM(1:2)` and `APARM(3:4)` serve the same function as `PIXRANGE` for hue and saturation, respectively.
Moved nowhere.

923. *September 22, 1982* [.INPUTS]CORER *Eric*

Somehow the minus sign on the lower limit on `USERID` got lost.
Moved to Modcomp, `[AIPS]` area here, and `[TEST]` area at VLA this date.

924. *Sep 28, 1982* REDIT *Gary*

[.NOTST]REDIT.FOR ZEDIT.MAR
[.INPUTS]REDIT. [.HELP]REDIT.

Experimental task to use SOS from AIPS. It prints a strange error message when starting up, but seems to work ok after that.
Moved nowhere.

925. *October 3, 1982* Everything *Gary/Eric*

All source code, Helps, Inputs were moved from [TEST.*xxx*] to the appropriate subdirectories of [AIPS.15NOV82.*xxx.sss*]. Then all Fortran routines were run through a procedure which inserted INCS: in all INCLUDE statements.
Moved nowhere.

926. *October 3, 1982* Vax procedures *Gary/Eric*

New procedures for compilation and link edit were written. The procedures COMRPL, ACOMRPL, NCOMRPL, PCOMRPL, and FCOMRPL do compilation and replacement in the various SUBLIBs. They take the argument LIST or CROSS to make a compiler listing. The procedures COMLNK, ACOMLNK, and NCOMLNK do compile and link and take arguments LIST or CROSS for Fortran listings, DEBUG for Debug-form of load module, and MAP for link editor maps. The procs APCLNK and NAPCLNK compile and link both a Pseudo and a real AP version of tasks. They take arguments LIST or CROSS, DEBUG, MAP, and NOPSAP or NOFPS.
Moved nowhere.

927. *October 11, 1982* ZPHFIL (Vax) *Eric*

Change scratch files to user-owned, change disk logical names to DAO*n*, change to logical name(s) for TV devices, change logical names of TK devices and support remote TK users directly.
Moved nowhere.

928. *October 11, 1982* MSGKILL *Eric*

Create a new pseudoverb MSGKILL (TRUE or FALSE) to block all messages from going to the message file (except in batch). Routines affected:

- AU2 — Pass MSGKIL parameter to all tasks.
- DMSG.INC — Add MSGKIL parameter.
- CMSG.INC — Add MSGKIL parameter.
- POPSDAT — in [.HELP] - add new pseudoverb MSGKILL.
- PSEUDO — Handle new pseudoverb, setting MSGKIL parameter.
- ZDCHIN — Initialize MSGKIL parameter.
- GTPARM — Pick up MSGKIL parameter from AIPS.
- MSGWRT — If MSGKIL = 32000, convert all messages to level 1 for *interactive* AIPS and tasks.

Moved nowhere.

929. *October 11, 1982* ASSIGNL.COM *Eric*

A Vax command file to assign all the group logicals needed in the new arrangement.
Moved nowhere.

930. *October 11, 1982* Time-date strings *Eric*

More programs needed their time and/or date strings fixed up. Strings that users normally see should be in Vax-like form (done by TIMDAT) and FITS strings are in DD/MM/YY. The string in the header as DATE-MAP is FITS like and should be set each time a file is created. This function was moved to the standard file creation routines MCREAT and UVCREA. Routines affected:

- APCLN — Vax-like string for history file, drop DATE-MAP setting.
- APMAP — Ditto.
- UVMAP — Ditto, also fix typing some more.
- DATDAT — (NEW) subroutine converts FITS date string to Vax.
- LSTHDR — Call DATDAT for date strings.
- BATPRT — Change to Vax date format.
- MCREAT — Add setting of DATE-MAP into header.
- UVCREA — Add setting of DATE-MAP into header.
- MAPCR — Remove setting of DATE-MAP parameter.
- PRTCC — Change to standard time formats, clean up typing some.
- PRTAN — (MOVE to APL from NOTST), change to standard time formats, standardize typing.
- PRTUV — Times to standard form.
- FITTP — Correct format of output DATE keyword to DD/MM/YY.
- UVLOD — Drop setting of DATE-MAP, change time formats for History file.

Moved nowhere.

931. *October 11, 1982* Tasks vs Verbs: HELPS *Eric*

There is a confusion over the difference between tasks and verbs. Although I believe that a user should know and appreciate the difference, I also find it annoying to be chided for *accidentally* typing GO TVLOD. Thus, HELPS has been revised to convert GO *<verb-name>* into TPUT *<verb-name>* ; *<verb-name>*. This should work now, but there is a potential for trouble because of the use of min match.
Moved nowhere.

932. *October 11, 1982* Misc changes *Eric*

- CCLN.INC — Move position of buffers in common to correct floating point boundary (required by equivalences in the code).
- BOUNDS — Make error messages (value out of range) more visible.
- GETNAM — Correct position of NKAR = 0 statement.
- UVPGET — Skip INCS and INCF loops if not to be executed.

Moved nowhere.

933. *October 11, 1982* CORER *Eric*

The program needs more options to be more useful. I have added a time range over which to do the sums and the subtraction of an unpolarized source at the origin before doing the sums. The summing arrays were changed to REAL*4 which should be ok. The [.INPUTS] and [.HELP] files were also revised. The files [.NOTST] CORAV.FOR and [.INPUTS] CORAV were deleted. That task would not work and CORER does what it tried to do.
Moved nowhere.

934. *October 11, 1982* New directory structures *Eric*

The new directory structures involve two main logical changes: (1) the primary areas are subdivided by category and (2) there may be more than one version desired. This requires changes to handle the VERSION adverb and forces a change in the format of the TGET file. In all, the routines affected are:

- PRNTMN — Loop over all subdirectories, change call sequences to ZGTDIR and ZTOPEN, ask for VERSION info, change parsing of INCLUDE source-code lines.
- EXPTAP — Ditto.
- BATER — Pass VERSION = 'NEW' to AIPSC, new call sequence to ZACTV8, add adverb DETIME.
- AUA — Pass VERSION adverb to AIPSC and use it in starting AIPSC.
- AIPSC — Receive and use VERSION adverb to start AIPSB, change TS file format storing Version code number.
- AU2 — Use adverb to open Inputs file and activate task, change TS file format storing Version code number, correct error test in ABORTASK.
- AU2A — Check Version ID number on TGET and display it on TGINDEX.
- TXTMAT — Pass Version parameter on to ZTXMAT.
- AU1A — Support Version adverb on Inputs and Help.
- POPSGN — Read Version parameter (default NEW), limit POPS number range to that allowed.

Moved nowhere.

935. *October 11, 1982* Scratch file names *Eric*

The WaWa IO package stores scratch files in the catalogue and uses file names SC*dnnn*01, where *nnn* is the catalogue number. Thus, non-WaWa routines should use *??d*000*vv*. All scratch files will now be "user-owned" to go with this use of the catalogue. Routines affected are:

- SNCR — Change apparent catlg number to 0.
- SNCRB — Change apparent catlg number to 0.
- DESCR — Change apparent catlg number to 0 for non-WaWa.
- PRTPL — Change apparent catlg number to 0.
- ZPHFIL — Drop scratch files from list of public types.

Moved nowhere.

936. *October 12, 1982* Inputs and Helps *Eric*

Create [.HELP] MSGKILL and [.INPUTS] MSGKILL and DEBUG.
Moved nowhere.

937. *October 12, 1982* FILAIP *Eric*

Correct format numbers in several ENCODE statements.
Moved nowhere.

938. *October 12, 1982* PRTTP *Eric*

Add current time and date in Vax-like format to page headers and dump info on tape label files to printer.
Moved nowhere.

939. *October 12, 1982* PBCOR *Eric*

Change it to prevent it from lowering any brightnesses.
Moved nowhere.

940. *October 13, 1982* UVLO2 *Eric*

Added options OUTSEQ (with value < 0 => take tape value on FITS) and DOALL for Export format. Changed blank source name to mean any and blank BAND to mean any. Corrected handling of dates and linited the FITS part to data types which are at least vaguely rational. Changed all MSGWRT calls and checked and corrected all undeclared and unused variables.
Also changed: DUIN.INC and CUIN.INC, [.HELP and .INPUTS] UVLO2
Moved nowhere.

941. *October 14, 1982* FITT3 *Eric*

Major rewrite and standardization of the FITS writing program for both UV and MAp data. Corrected numerous small errors, added option DOSTOKES, cleaned up the tape IO method, changed the map header preparation to match that of the UV header, and much more.
Also created: DFT3.INC, CFT3.INC, DKE3.INC, VKE3.INC, EFT3.INC, [.HELP] DOSTOKES and POPSDAT, DAPL.INC, CAPL.INC, [.HELP and .INPUTS] FITT3
Moved nowhere.

942. *October 14, 1982* NXTMAP *Eric*

Subroutine pulled from FITT2 for more general use—finds the next map matching the name parameters and opens it.
Moved nowhere.

943. *October 14, 1982* POLISH *Eric*

Created local variable, set = TAG, to call the subroutines like HELPS and PSEUDO. This prevents the global common variable TAG from causing the value of the argument to these routines to change mysteriously.
Moved nowhere.

944. *October 15, 1982* Bugs *Eric*

MSGWRT — Was repeating old messages to the screen when MSGKILL was TRUE. The routine changed level -1 and 0 messages to level 1 incorrectly.
AU2A — Corrected call sequence to TXTMAT for TGET.
Moved nowhere

945. *October 15, 1982* Vax Z Routines *Gary*

The following routines were changed to work for the new directory structure and for the VERSION adverb.

ZGTDIR.FOR — (was .MAR) New call sequence, convert VERSION via calls to ZDIR and ZPARS.
ZDIR.FOR — (new) builds a complete source code file name.
ZTXMAT.FOR — (was .MAR) New call sequence, convert VERSION via calls to ZDIR and ZPARS.
ZDOPRT.MAR — Change comments, remove code to get device name.
ZACTV8.FOR — Use VERSON (added to call sequence) to build a "full" task name to send to ZACTV9.
ZACTV9.MAR — Change call sequence to have "image" name and separate "process name", use these and a new list of logical names for task TT device.
ZPARS.MAR — (new) finds all files matching a given file specification.

Moved nowhere

946. *October 15, 1982* ZSTRTA.FOR *Gary*

Changed to allow AIPS*i* to be reserved for a specific terminal.
Moved nowhere.

947. *October 20, 1982* Fixes *Gary*

ZDIR.FOR — was not recognizing DOC files.
ZGTDIR.FOR — N1000 not initialized.
ZOPEN.FOR — Changed DB to DA (new logical name for data area).
Moved nowhere.

948. *October 21, 1982* BTCOP *Fred*

This is a new task, identical to UVCOP except that data corresponding to arrays numbered higher than one are fudged to have their array number set equal to one. Specifically, (1) the fractional part of the baseline number (in which place the array number is encoded) is set equal to zero, (2) five times the array number (less one) is subtracted from the recorded times, and (3) only 1 antenna extension file is copied. This task is needed because the task DBCON, used to concatenate two visibility data bases, assigns different array numbers to the two segments of data (and also alters the recorded times). When the observations are in fact contemporaneous (as in the case of combining different parts of a spectral line data base contained in a number of visibility files) one wants the times not to be altered, in order for the self-cal programs ASCAL and ASCOR to function properly. The need for this task arose when a spectral line observer wanted to self-cal using two continuum channels which had been written into two different visibility files. He concatenated the two data bases with DBCON (first flagging one of the two channels from each of the input files) and found that in the output file from DBCON five days had been added to the times corresponding to the second continuum channel.
Moved nowhere.

949. *October 25, 1982* UVLOD and FITTP *Eric*

Release for user testing the new versions of UVLOD and FITTP: Rename UVL02 and FITT3 to [.APL.PGM] UVLOD and FITTP, rename the [.HELP and .INPUTS] files, rename DFT3.INC, CFT3.INC, EFT3.INC, DKE3.INC, VKE3.INC to *FTP.INC and *KEY.INC. These should now support UV FITS plus the DOALL option for Export format (in UVLOD) among other things.
Moved nowhere.

950. *October 25, 1982* GRITP *Eric*

Subtle bug causing failure to quit when the end came just inside the last disk record. Corrected in tape write and in the verify.
Moved nowhere.

951. *October 25, 1982* PSAP Version *Eric*

Having not thought out how to request the PSAP version of a load module before, we had it messed up. The corrected values of the adverb VERSION will be OLDPSAP and NEWPSAP. Routines affected are:

AU2 — Recognize 2 kinds of PSAP, show as different in the TGET file.
AU2A — Ditto.
ZACTV8 — Trap new type and invoke correct load module.

Moved nowhere.

952. *October 25, 1982* ZOPEN *Eric*

Improve error message on tape control disk file (Vax only).
Moved nowhere.

953. *October 25, 1982* HELP files *Eric*

The adverb VERSION is used a number of places, so changed the following [.HELP] *.HLP files:

VERSION — (New) List the standard ones, etc.
INP — Add VERSION adverb.
INPUTS — Add VERSION adverb.
HELP — Add VERSION adverb.
GO — Add VERSION adverb.
TGET — Add VERSION adverb.
TPUT — Add VERSION adverb.
SUBMIT — Add VERSION adverb.

Moved nowhere.

954. *October 25, 1982* Inputs files *Eric*

Also modify the following [.INPUTS] *.INP files:

GO — Add VERSION adverb.
TGET — Add VERSION adverb.
TPUT — Add VERSION adverb.
INP — (NEW!!!) Add VERSION adverb.
INPUTS — (NEW!!!) Add VERSION adverb.
HELP — (NEW!!!) Add VERSION adverb.
SUBMIT — Add VERSION adverb.

Moved nowhere.

955. *October 25, 1982* AVTP *Eric*

New task: positions tape via rewind, advance (or back) files, and advance to end-of-information. This will remove need to wait for the comparable verbs. Also created the [.HELP and .INPUTS] files AVTP. and moved CHLTOU to [.APL.SUB] from [.AIPS.SUB].
Moved nowhere.

956. *October 26, 1982* PRTPL *Gary*

Changed computation of IEBLK in module PRFINT to use the correct number of rows, rather than one too few. This bug could cause an end of file (error 4) while initializing the bit map file. Because of round up this error rarely occurred.
Moved nowhere.

957. *October 27, 1982* ZWHOMI *Gary*

Bug from directory changeover. I forgot to add 9 to the remote users NTKDEV.
Moved nowhere.

958. *October 28, 1982* ZSTRTA *Gary*

Another directory change over bug. ZSTRTA was off by one in determining the maximum allowable interactive users.
Moved nowhere.

959. *October 28, 1982* ASSIGNP.COM *Gary*

The following process logical assignments have been made for the source code areas to assist programmers:

UMAO:[AIPS.15NOV82.AIPS.SUB]	AIPSUB
UMAO:[AIPS.15NOV82.AIPS.PGM]	AIPPGM
UMAO:[AIPS.15NOV82.AIPS.ZSUB.VMS]	AIPVMS
UMAO:[AIPS.15NOV82.AIPS.YSUB.IIS]	AIPIIS
UMAO:[AIPS.15NOV82.APL.SUB]	APLSUB
UMAO:[AIPS.15NOV82.APL.PGM]	APLPGM
UMAO:[AIPS.15NOV82.APL.APGM]	APLAPG
UMAO:[AIPS.15NOV82.APL.ZSUB.VMS]	APLVMS
UMAO:[AIPS.15NOV82.APL.YSUB.IIS]	APLIIS
UMAO:[AIPS.15NOV82.NOTST.SUB]	NOTSUB
UMAO:[AIPS.15NOV82.NOTST.PGM]	NOTPGM
UMAO:[AIPS.15NOV82.NOTST.APGM]	NOTAPG
UMAO:[AIPS.15NOV82.FPS.SUB]	FPSSUB
UMAO:[AIPS.15NOV82.PSAP.SUB]	SAPSUB
UMAO:[AIPS.15NOV82.ICAP.SUB]	CAPSUB
UMAO:[AIPS.15NOV82.DOC.WHO]	DOCWHO
UMAO:[AIPS.15NOV82.DOC.TEXT]	DOCTXT

Moved nowhere.

960. *November 1, 1982* IBM-Unix discovered *Don/Eric*

Two routines, MSGWRT and ZPHFIL, were discovered to still have arguments which were simple numeric constants. This cannot be allowed even in Z routines since most Vax Z routines can be used in the IBM-Unix version.
Moved nowhere.

961. *November 1, 1982* Vax-Unix bugs *David Garrett/Eric*

A new compiler at the University of Texas Vax has led to even more bugs being discovered. They are mostly in Pseudo-array processor routines, but the APCLN ones could be serious. The PSAP versions of APMAP, UVMAP, FFT, CONVL, and ASCAL must be relinked after these corrections:

- APCLN — Pseudo-I*4 needed in call to VSMSA in BMSHOV, invalid use of Pseudo-I*4 to subtract 1 by adding MONE = 1,0 in INGAUS.
- GRDFIN — Needed Pseudo-I*4 arguments in calls to VNEG.
- VTRANS — Needed Pseudo-I*4 arguments in calls to VSWAP.
- MCALC — Variable IVMOD not declared as (2).
- XPOSE — Many call sequences required pseudo-I*4 arguments.

Moved nowhere.

962. *November 2, 1982* Lower case adverbs *Eric*

Some adverbs should not differentiate between upper and lower case character strings. Have changed UVLOD (adverb SOURCE and Export format source name) and tasks CCMOD, COMB, CORMS, EXFND, FFT, and UVFND (adverb OPCODE).
Moved nowhere.

963. *November 2, 1982* PRTTP *Eric*

I have made PRTTP smarter in handling FITS headers. It now parses them completely and build a standard AIPS header plus additional information. An IMHEADER-like summary is always printed and the user may request non-History or all header card images as well. Files affected are

DFUV.INC — Add pointers for required variables, make the whole thing into one list with equates.
EFUV.INC — Equate the various tables.
VFUV.INC — Add pointers to required keyword storage locations.
VKEY.INC — Correct DATE to DATE-MAP.
DPTP.INC — Add user-requested print level.
CPTP.INC — Ditto.
UVLOD — Add EFUV.INC reference removing old EQUIVALENCEs.
PRTTP — Add routines to parse the FITS headers and print the results, add PRTLEV control.
DAPL.INC — Add PRTLEV.
CAPL.INC — Ditto.
POPSDAT.HLP — Add adverb PRTLEV.
PRTTP.HLP — Add adverb PRTLEV explanation.
PRTTP.INP — Ditto.
PRTLEV.HLP — (New) Explain new adverb.

Moved nowhere.

964. *November 3, 1982* More on VERSION *Eric*

The POPS language MEmory files need to have 2 versions: one at logical symbol NEW: and one at OLD:. This means that AIPS must know which version it is and pass that on to the tasks. It has the benefit of giving a good default for the adverb VERSION. It has the defect that once a "NEW" area is declared "OLD", then the AIPS program must be revised slightly to know that. The following files were changed, but all programs must be relinked:

IDCH.INC — Add variable VERNAM.
DDCH.INC — Ditto.
CDCH.INC — Ditto.
ZDCHIN — Initialize VERNAM to NEW:.
ZPHFIL — Special names for ME disk files using VERNAM.
POPSGN — Set and use VERNAM from user VERSION input.
AIPS — Set VERNAM using statement in main routine.
GTPARM — New format for Task Data file - VERNAM is passed automatically.
AU2 — Use VERNAM as default for VERSION and pass VERNAM to tasks.
AU2A — Use VERNAM as default for VERSION and skip over that location on "verb" TGET.
AUA — Use VERNAM as default for VERSION and pass VERNAM to AIPSC.
BATER — Set VERNAM (like in AIPS), pass VERNAM to AIPSC and use it as VERSION.
AU1 — Stop deletion of user catalogs in Batch and Checker jobs.
AIPSC — Use VERNAM (picked up from AIPS/BATER) to set default VERSION and to pass to AIPSB.
POPSDAT — Change default VERSION to blank.
AU1A — Use VERNAM as default VERSION for INPUTS and HELP.
HELPS — Use VERNAM as default VERSION for RUN (temporary).
VERSION — .HELP] Change explanation of Null value.

Moved nowhere.

965. *November 3, 1982* TPHEAD et al. *Eric*

Now that PRTTP is smarter, the verbs TPHEAD and AVMAP need to be also. With the changes below, TPHEAD will produce IMHEADER-like summaries of FITS files and even a little about Export files:

GETCRD — (New) Pull it from UVLOD, change call sequence to give start point in symbol table, change SORT table number.

FPARSE — (New) A version of PARSCD (in UVLOD) designed to handle all sorts of FITS files to produce AIPS headers.

UWRITE — (New) prints summary of RUN and the first SOUR records in an export format file.

FWRITE — Completely rewritten to read full FITS header and call MSGHDR to display the results.

MSGHDR — (New) Displays the results in an IMHEADER-like way of parsing a full FITS header.

TPHEAD — Change it to recognize Export format, change call sequence.

AU4 — Change to use new TPHEAD, FWRITE and UWRITE in doing verbs TPHEAD and AVMAP.

PRTTP — Remove subroutines GETCRD and PRPARS, change call for parsing to FPARSE.

UVLOD — Remove subroutine GETCRD, change PARSCD to use full symbol table with new call sequence of GETCRD.

IMLOD — Change call sequence to TPHEAD, carry result integer back into main routines.

Moved nowhere.

966. *November 5, 1982* RUN files (ZDIR) *Eric*

Move the RUN files to the area [AIPS.RUN], rather than having them in dated areas like [AIPS.15NOV82.RUN]. Pick them up on the Vax with the logical symbol RUNFIL:.

Moved nowhere.

967. *November 5, 1982* Minor fixes *Eric*

TPHEAD — Put out a message when tape label files are skipped.

APCLN — Release the AP in all cases, not just when the TV is used. Also loosen the test on positional agreement of dirty and (old) clean map.

COMB — Loosen test on map alignment from 0.05 pixels to 0.1.

Moved nowhere.

968. *November 5, 1982* IMLOD *Eric*

Add option (OUTSEQ = -1) to request the out-sequence number to be that found in the FITS header. Modify the INPUTS and HELP files to reflect this.

Moved nowhere.

969. *November 5, 1982* Vax procedure SPACE *Tim/Eric*

Import from the VLA Tim's procedures SPACE.COM, SPACES.COM, and SPACED.COM. These produce a listing of the total disk space taken by AIPS users' data. Fixed them to handle the new logical names and directory structure.

Moved nowhere.

970. *November 5, 1982* ASPMM *Eric*

There appears to be confusion over when TKPL and PRTPL will accept or override the user-specified ASPMM. I have added messages to both tasks to appear whenever the override is required.
Moved nowhere.

971. *November 5, 1982* HELP files *Eric*

Correct and enhance numerous HELP files:

- RUN — Add information on Vax directory area and that the first line is a comment.
- LEVS — Enhance information regarding accuracy of displays of the LEVS values.
- TVINTER — Add CURVALUE.
- OFFTRAN — Correct spelling of TVCHAN.
- PANIC — Brought text from VLA and retyped some. Added ABORTASK to it.
- ASCAL — Correct remark about normalization of amplitudes, add note on DOCAT for GNPLT.

Moved nowhere.

972. *November 8, 1982* H2MEM *Tim*

A new mapping task to replace APMEM. Makes an MEM map using the $\log(I)$ entropy. Also INC, HELP and INPUTS.
Moved nowhere.

973. *November 8, 1982* Misc *Eric*

- AU3A — Corrected array dimensions to allow up to 9 disks in DISKUSE.
- TVWIND — Corrected to set TVCHAN to 1 when user-specified value out of range.
- BATER — Added user advice remarks to initialize routine.
- GRIPR — Added user advice remarks to initialize routine.

Moved nowhere.

974. *November 8, 1982* TVPL *Eric*

Add adverb GRCHAN to allow users to request graphics channels 1, 2, or 3 for the line drawing portions of their plots. Modified the [.HELP and .INPUTS] files also.
Moved nowhere.

975. *November 9, 1982* MODIFY *George Martin/Eric*

New pseudoverb to do editing of a line of a procedure allowing character substitution, deletion, and insertion. Subroutines altered are

- EDITOR — Set up parms (like EDIT) for MODIFY.
- POLISH — On MODIFY, call first EDITOR, then STORES with a special "verb" number, then return to COMPIL to compile the line.
- STORES — Read in old line, modification commands and merge the results, displaying both before and after lines.
- PSEUDO — Support new POPS mode used for MODIFY.
- POPSDAT — [.HELP] file add new pseudoverb, mark reserved numbers.
- MODIFY — [.HELP and .INPUTS] (New) files.

Moved nowhere.

976. *November 9, 1982* Character string lengths *Eric*

Modify include file DSMS.INC and subroutine GETFLD to allow character strings to have lengths up to 60 characters. Requires recompilation of

ASSIGN	AU1A	AU2	AU2A	BCLEAN	COMPIL
EDITOR	GETNAM	HELPS	INIT	LTSTOR	MASSGN
OERROR	POLISH	PRTMSG	PSEUDO	QUICK	STORES
SUBS	SYMBOL				

and requires recompilation and relinking of

AIPS	AIPSB	AIPSC	BATER	GRIPR	POPSGN

Moved nowhere.

977. *November 9, 1982* Installation procedure *Gary*

Re-worked the installation procedure for the new directory structure. The new routines are:

IBUILD.COM	ICOMPAI.COM	ICOMPAL.COM	ICOMPAP.COM
ICOMPNS	ICOMPPS.COM	ICREATE.COM	ILINKA.COM
ILINKAN.COM	ILINKAP.COM	ILINKNS.COM	ILINKT.COM
ILOAD.COM	IPROMPTL.COM	IPROMPTL.COM	IPROMPTP.COM
ISHORTINS.COM	ISYSPARM.COM	FILAI2.FOR	

Moved nowhere.

978. *November 9, 1982* ZTOPEN *Gary*

Bug in error handling. IERR was zero for some errors.
Moved nowhere.

979. *November 10, 1982* BAMODIFY *Eric*

New verb to do MODIFY-type editing on batch work files. Things changed:

- BBUILD — Drop unused array.
- AUB — Add code for new verb.
- POPSDAT — Add verb.
- BATCHJOB — [.HELP] file add info on BAMODIFY.
- BAMODIFY — [.HELP and .INPUTS] (New) describe the verb.

Moved nowhere.

980. *November 13, 1982* Misc *Eric*

- PRTCC — Correct error in ENCODE statement that led to messed up page headers.
- TVPL — Allow GRCHAN 4 (black insert color) also.

Moved nowhere.

981. *November 14, 1982* Inputs files *Eric*

Change all INPUTS files which gave 3 as the limit on the number of disks. The new limit is 9, which should save the VLA from having to change these limits henceforth.
Moved nowhere.

982. *November 15, 1982* Installation documentation *Gary*

Correct all parts of Volume II, Chapter 10 to reflect the new subdirectory structures and the new installation procedures:

MV2C1002.	MV2C1003.	MV2C1004.
MV2C1005.	MV2C1005.	MV2C1006.
MV2C1006.	MV2C1007.	MV2C1008.

Moved nowhere.

983. *November 15, 1982* TOAIP *JMB*

Cleaned up code in `TOAIP`.
Moved nowhere.

984. *November 15, 1982* CITCC *JMB*

`CITCC` now writes output CIT clean components file in `UMAO:[AIPS]` directory, instead of old `MXAO:[TEST]`.
Moved nowhere.

985. *November 16, 1982* H2MEM *Tim*

New version , should be faster, some changes in output.
Moved Nowhere.

986. *November 16, 1982* AIPS *Eric*

Corrected handling of version identifier so that it would be available when `INIT` is first called.
Moved nowhere.