19 Mar. 1992

VLBA TEST MEMO NO. 30

To: VLBA Test Memo Series From: Craig Walker Subject: An example of what rain/snow can do to 4cm sensitivity with the dichroic system.

The attached plots show the raw fringe amplitudes from the phase delay experiment run by the NASA group (used to be CDP). They were sent by Dave Shaffer. They show a dramatic loss of sensitivity at the time that it was snowing at PT. Below are entries from the logs and from the TSYS records. The weather records show that precipitation started at the time of the sudden loss of sensitivity and let up at the time that the sensitivity started to recover. It appears that the S/X system if very sensitive to moisture, especially at 4cm. This sensitivity has been noted in a number of previous experiments. It needs to be characterized properly to see if anything can be done about it. Note that the signals pass through 4 reflectors and one window for 4cms/x, all of which can get wet. Most other frequencies see 2 reflectors and one window.

Notes from logs (time is UT):
 1435 %PT is getting some form of precip.; probably snow at
 this temperature.
 1650 *PT site tech reports about 1 inch of snow
 now in area and still snowing; a wet and heavy snow
1716-1718 *PT antenna auto-stowed.

The frequency setup:

!	1	4cm B RC	P 1 (J	505.99MHz	2M	8106.99MHz	3.46
!	2	4cm B RC	P 2 t	J	575.99MHz	2M	8176.99MHz	3.61
!	3	4cm B RC	р Зт	J	890.99MHz	2M	8491.99MHz	3.91
!	4	4cm B RC	P 4 t	J	995.99MHz	2M	8596.99MHz	4.07
1	5	13cm A RC	P 51	6	679.01MHz	2M	2221.99MHz	2.70
!	6	13cm A RC	P 61	L	659.01MHz	2M	2241.99MHz	2.79
!	7	13cm A RC	P71	L	569.01MHz	2M	2331.99MHz	2.45
!	8	13cm A RC	P 81	L	539.01MHz	2M	2361.99MHz	2.65

Some sample system temperatures in channel order.

FD BH2PD1	1633+38/1	044-11:59:40/044-12:02:30	
044 11:59.68	40.1 40.3	37.8 39.1 33.3 31.1 36.0	45.6
! FD BH2PD1	1633+38/1	044-15:59:10/044-16:02:00	
044 15:59.18	39.9 41.5	39.2 39.5 35.0 32.8 37.8	45.0
IA BH2PD1	1633+38/1	044-11.59.40/044-12.02.30	
044 11:59 68	41.8 41.3	39.7 40.2 40.2 36.3 41.5	47.4
I LA BH2PD1	1633+38/1	044-15-11:50/044-15-14-40	
044 15:11.85	58.0 58.8	60.9 61.8 43.6 42.8 48.6	62.4
! LA BH2PD1	3C345/1 04	4-15:57:30/044-15:59:00	
044 15:57.52	44.4 45.1	44.3 44.5 43.8 50.4 47.2	88.0
I LA BH2PD1	1633+38/1	044-15:59:10/044-16:02:00	
044 16:02.00	44.1 43.8	43.0 43.5 39.7 46.1 48.6	61.8
! PT BH2PD1	1633+38/1	044 - 11:59:40/044 - 12:02:30	
044 11:59.68	61.0 61.5	57.6 61.3 41.1 49.8 46.2	43.3
! PT BH2PD1	3C345/1 04	4-15:57:30/044-15:59:00	
044 15:57.52	255.2 221.7 2	52.7 266.6 78.6 114.3 105.2	87.4
! PT BH2PD1	3C345/999	044-16:02:00/044-16:02:30	a - a -
044 16:02.50	295.6 269.4 2	79.9 239.3 85.0 123.3 109.0	90.8

Facsimile Trans	mission from	David B. Shaffer Interferometrics Inc. 1742 Saddleback Court Henderson, Nevada 89104					
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1633+38 at S-Band 800 700 FRINGE AMPLITUDE 600 500 400 300 200 100 0 14.0 16.0 18.0 6.0 8.0 10.0 12.0 (UT)TIME

3C345 at S-Band



INTERFEROMETRICS INC.

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1633+38 at X-Band



3C345 at X-Band

