

Configuration/Site Group Update.

To: VLBA Configuration/Site Group
From: R. C. Walker
Subject: Current concerns and meeting notes.

As discussed in Memo 226, the membership of the Configuration/Site group is being changed. So far, the people who have expressed an interest in remaining in the group are: Peery (Site group chairman), Benson, Bridle, Brundage, Cotton, Crane, Hogg, Jones, Legg, Schwab, Wade, and Walker. These are the people who will be reminded of the meetings by Cathy. If anyone wants to be added to the list, please let me know. Of course, anyone is welcome at the meetings.

Rather than review what has been discussed in each meeting, I will attempt to summarize the current status of each of the sites of the VLBA. Besides the activities and concerns outlined here, Buck is obtaining maps and other information for all sites and is contacting local people. He and Cam Wade have just made the first on site inspections at Fort Davis, Kitt Peak, Owens Valley, and Central Washington.

We need to have more information on the elevation limit specification for the antennas and for the horizons at the sites. Irwin Shapiro has expressed a desire for a 0 degree limit - is this really 0 or 2 or 5 etc? Zero degree horizons are hard to find and place a severe constraint on the sites that can be used while a 2 to 5 degree specification is much less restrictive. Also, the antenna specifications keep showing up as 5 degrees despite comments that a 0 deg limit is desired. How hard should we fight for 0 degrees?

We also need to have information on the importance of altitude. How do we trade ease of access against altitude. This may be of importance at some of the southwest sites.

HAWAII. Hawaii is turning into one of the most difficult sites. Hawaii has a tropical climate (ie. lots of water vapor) and is important at all wavelengths because it provides the longest baselines. Therefore it is important that we find a high altitude site. Cam Wade has agreed to try to determine just what is the minimum altitude that is tolerable. Our best guess at the moment is 9000 feet. There are only three mountains in the state of Hawaii over 9000 feet and one other over 8000 (The next highest is about 5000). All of them have serious problems:

1. Mauna Loa (13680) is an active volcano - need I say more?
2. Haleakala (10023) on Maui has very powerful transmitters near the best sites. Buck is investigating possible alternate sites on the mountain but the outlook is not good.

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3. Hualalai (8271) on Hawaii is somewhat low and access is understood to be poor although we may need more information.
4. Mauna Kea (13796) is probably our best bet but there are environmental problems with any potential sites. There is little need to go to the summit. A site near the 9000 foot station that supports the observatories at the summit would be good. A comprehensive land use plan for Mauna Kea apparently has been agreed upon very recently and we are not in it - hence much of the problem.

We would appreciate any information or help anyone can provide regarding the Hawaii site.

PUERTO RICO. Dave Hogg has arranged with JPL to borrow a machine that was designed for smog studies but that should provide the water vapor information we need from Puerto Rico. He and George Grove will be going to PR in mid August and, along with Ken Turner, will be trained in the use of the machine by Bruce Gary from JPL. Measurements will be taken at Arecibo, Remy, and somewhere on the South Coast. The primary concerns are the level of water vapor on the South Coast and the fluctuations at all sites. Dave is asking for advice on just how to present the data.

HAYSTACK. We don't anticipate serious problems with this well supported site. However, we are also considering Quabbin (FCRAO) as a possible alternative that might have less interference, drier atmosphere, and close proximity to a mm telescope.

OVRO. The concern about wind has been alleviated by Memo 229. It seems that winds between 20 and 40 miles per hour are fairly common but stronger winds are relatively rare. Thus we will have at least 'normal' (in the terminology of the antenna specifications) operating conditions almost all of the time. The maximum recorded gust in Memo 229 is equal to the maximum wind under which the antenna specifications require at least some operational capability.

FORT DAVIS There are at least two options for this site: the current radio astronomy site and McDonald Observatory. I learned in a recent conversation with Frank Bash that the University of Texas is considering a site about 10 miles from McDonald for the 300 inch optical telescope. That site is over 8000 feet which is significantly higher than McDonald. Frank also pointed out that McDonald provides housing at very low rents for its employees at the observatory because of the isolation. We may need to do the same.

VLAE3 (Alias Winston) Dick Thompson and Peter Napier have located two sites with good access, power, and line of sight to South Baldy for a possible microwave link to the VLA. They are at:

- 1.) 33.23 N, 107.28 W
- 2.) 33.43 N, 107.73 W

I have looked these specific sites, along with alternates for the other New Mexico site and a memo should have just appeared on the

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subject. Site number 2 above looks best.

BERNAL There is considerable concern about this site. It is not very good for a microwave link and it may be in an area where there are potential security problems. The recent memo mentioned above shows the coverage provided by Los Alamos and I am recommending that site.

There are no immediate concerns about the other sites (Kitt Peak, Oroville, and Iowa). This does not mean that they are being ignored but only that no special concerns have been raised recently. The site group has also collected maps for several other sites that have been mentioned but is concentrating on the ten of Memo 205.

The drafts of both the Configuration and Site chapters in Volume 3 of the proposal are being reviewed. A major concern is that the operations group is asking for much more building space (headquarters) than was specified before so the facilities specified in the site draft may not be enough.

MEETINGS Attendees at the meetings were:

1. May 25: Benson, Bridle, Brundage, Cotton, Hogg, Peery, Readhead, Reid, Walker.
2. June 22: Bridle, Hogg, Peery, Schwab, Wade (List may be incomplete).
3. July 20: Benson, Bridle, Cotton, Crane, Hogg, Jones, Linfield, Peery, Schwab, Wade, Walker.