

Report on the CORF Meeting, 16-17 October 2006

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The fall meeting of the Committee on Radio Frequencies of the National Academies was held at the Array Operations Center of the NRAO in Socorro, NM on 16-17 October 2006. The familiar names among the attendees were David DeBoer, Steve Ellingson, Jim Moran, Paul Vanden Bout, Mike Davis, Tom Gergely, and Andy Clegg; other attendees represented the remote-sensing community and NRC staff. Greg Taylor and I were allotted 45 minutes on Monday afternoon to discuss the Long Wavelength Array and our concerns about frequency coordination issues. Greg gave a status report on the LWA and some of the science. I discussed frequency coordination.

The two main issues that I raised were broadband over power line (BPL) and the reallocation of television channels for digital television. FCC regulations currently provide for an exclusion zone with a radius of 65 km around the VLA in the band 73.0-74.6 MHz and consultation zones around other radio observatories listed in footnote US311. Obviously, we prefer similar exclusion zones around individual LWA stations (or the whole array) in all the relevant radio-astronomical allocations. Not surprisingly, the FCC is unlikely to provide such protection at this early stage of the project. Tom Gergely and Andy Clegg of the NSF will consider how to proceed; the initial steps are likely to be the registration of individual stations in the FCC database and in the Government Master File.

The transition to digital television (DTV) is now scheduled by act of Congress to occur on 18 February 2009. The channels to be auctioned or assigned to public-safety service are 52-69. Full-power digital television stations will be restricted to the “core” channels 2-51 (low-power, repeater, and translator stations are not required to switch to digital transmission.) However, the FCC appears to be encouraging DTV stations to move out of channels 2-6, with what goal I have no idea.. The final results should be known soon because the FCC is scheduled to release the final DTV Table of Allocations soon, but currently there appear to be no DTV channels 2-6 in New Mexico and adjacent states or in Mexico within 275 km of the border. This, of course, makes the short observation of DTV channel 4 on 22 July at the LWDA site inexplicable – which leaves “anomalous propagation” from who knows where.

Another FCC initiative that Andy Clegg described is to fill in “TV white space” which means, for example, that in Albuquerque channels 3 and 6 are vacant and the FCC wants to allow other services to use those channels locally. There are impediments like the fact that video equipment like VCRs use channels 3 and 4 for their output signals and other limitations to be identified. Of course, radio astronomy likes to use those empty channels, too.

Another scientific user that uses empty VHF channels is the Lightning Mapping Arrays that are being installed around the country by lightning researchers at New Mexico Tech (see www.lightning.nmt.edu/nmt_lms/). These systems were described by Paul Krehbiel of New Mexico Tech. They detect the impulsive emission from lightning strokes in an unused television channel with time-of-arrival detectors at perhaps 8-10 stations distributed over an area ~60 km in size. They determine the three-dimensional distribution of lightning and are another diagnostic of the severity of thunderstorms. In fact, an LMA was just installed in the Washington area for research with the Weather Service. I will try to organize a lunch talk the next time some one in the group visits Washington, probably in the spring.

If one googles on “lightning mapping array” one will find many other installations around the country. In fact, they are interested in studying thunderstorms in West Texas which grow and move on to East Texas. So I told Paul the Applied Research Laboratory at the University of Texas has a site at Wink and gave him Tom Gaussiran’s name.

On Tuesday afternoon the Committee members came to the VLA site for a tour of the EVLA and the Alma Test Facility. And they also visited the LWDA site while I was moving stuff out of the trailer and were very interested in what we were doing.