

Response to the Report of the 2008 Science Advisory Group for the EVLA
April 25, 2009

The second meeting of the Science Advisory Group for the EVLA (SAGE) was held in Socorro on December 19-20, 2008. The SAGE forwarded its recommendations on the EVLA in a report to the NRAO Director. We appreciate the recommendations. The following is our response to the SAGE recommendations (in italics; responses are in regular font).

We recommend that Observatory scientists who ... will play major roles in the commissioning process be designated clearly, and that the time allocation proposed for them [in the resident shared risk observing (RSRO) program] be increased from the current 200 hours per year.

The commissioning scientists have been designated. We have increased the possible time allotted to commissioning scientists from 200 to 500 hours per year (see <http://www.aoc.nrao.edu/evla/astro/EVLAstaffobs.shtml>).

We recommend that scientifically useful, calibrated data arising from WIDAR-0 tests should be made publicly available immediately through the archive and announced on the EVLA website and through the NRAO email listserver; staff scientists should be encouraged to publish worthwhile results as part of the effort to inform the community of the power of the EVLA.

Tests made with WIDAR-0, the initial subset of the final WIDAR correlator, are designed primarily to evaluate correlator systems integration issues and the performance of the EVLA's wideband signal path. The tests are not designed with scientific objectives in mind. Most of the data produced by the tests will not be calibrated, and its scientific usefulness will be very limited. The data will be used to develop calibration schemes in preparation for OSRO. Nevertheless, the WIDAR-0 data will be stored in the data archive.

Staff scientists are publishing their results to inform the community of the EVLA's capabilities. For example, Fish (2007 ApJ, 669, L81) used the expanded tuning range of the EVLA C-band (4-8 GHz) receivers in the discovery of 6 GHz OH masers in stellar envelopes and star forming regions. Claussen is preparing a paper on the first interferometric detection of a SiS maser at 18.154 GHz in IRC+10216.

[To advertise EVLA capability], *we recommend a special issue of the NRAO newsletter focusing on EVLA ... and a short article ... for the AAS Newsletter.*

We routinely post EVLA-related articles in the NRAO e-newsletter. We will seek other outlets for advertising EVLA capabilities.

Detailed timelines of the growing capabilities of the instrument should be made available [on the EVLA web-page] and kept current.

EVLA capabilities are posted and kept current on the “EVLA information for astronomers” web page at <http://www.aoc.nrao.edu/evla/astro/>.

[The recommended priority order for the development of WIDAR capabilities is maximize bandwidth, improve velocity resolution through recirculation, and operation at high frequency.] ... *we recommend that phased-array operation and VLBI compatibility be given priority over... burst-mode or pulsar capabilities.*

We have used this recommendation to develop a plan for the growth of WIDAR capabilities during the RSRO period. Phase-array operation for VLBI observations and pulsar capabilities are not likely to be implemented until 2013, or after, unless an investigator proposes to implement these capabilities sooner within the RSRO period.

Among software priorities, we recommend that parallelization of basic calibration and imaging tasks relevant to wide-bandwidth data be given priority.

Our current software development prioritizes the software needed to enable general access to the EVLA through the OSRO program; we believe that without this as the highest priority we risk losing our user base even before we are able to offer the wide bandwidth capabilities to the community. In parallel to this effort, however, we are also working to optimize the calibration and imaging tasks needed to enable wide bandwidth operation for RSRO. For example, U. Rau has made good progress on the algorithm development front in a recent study of multi-frequency synthesis imaging with wideband EVLA data.

...some concern was expressed as to whether sufficient analysis of the impacts and a prioritization of tasks have been completed for both the algorithmic development and the major software efforts necessary for the productive commissioning of the facility.

The software and algorithm development tasks that are needed for OSRO have been identified and incorporated in a schedule for transition to EVLA operations. A detailed, prioritized list of the data analysis and algorithm development tasks was forwarded to the CASA group for inclusion in its six month software development cycle. Periodic meetings are held to review the status of CASA and other EVLA-specific software development. Additionally, a working group has

been formed to organize effort across the Observatory for the development of the more complicated algorithms needed for EVLA commissioning.

We strongly urge the Observatory to consider opening up new modes [beyond the initial VLA emulator configurations] to OSRO after they have been thoroughly tested ...

As described in the presentation on shared risk observing given to the SAGE committee during its December 2008 meeting, 'OSRO capabilities will be expanded as and when we can support them' (slide 9 of that presentation).

We [recommend that future EVLA workshops] have a scientific focus. ... the next meeting should be in Socorro. We intend to focus [the meeting] on stars on and off the main sequence.

A second EVLA workshop, "The EVLA Vision: Stars On and Off the Main Sequence", will be held in Socorro on May 28-29, 2009. The workshop webpage can be found at http://www.aoc.nrao.edu/events/evla_stars09/.

We are enthusiastic about the RSRO program.

We appreciate the Committee's endorsement of the program.

The NRAO should release as soon as possible in the new year a call for letters of interest in the [RSRO] program. ... If warranted by the response, a one-day meeting could be held in conjunction with the next EVLA workshop to explore the details of the program ... we believe it is important that the double D-array block and change in the configuration cycle (both of which we endorse) be announced as soon as possible.

The reversal of the array configuration cycle was first announced in the January 15, 2009, News for Proposers (see <http://www.vla.nrao.edu/astro/guides/news/#VLAnews>). The RSRO program was announced in the February issue of the NRAO e-newsletter (see <http://www.nrao.edu/news/newsletters/archive.shtml>). This article described the double D-array scheduling block and the change in array configuration. The e-newsletter article also requested that letters of interest in the RSRO program be forwarded to the NRAO by March 15, 2009. Letters were received from nine groups pledging significant resources to the EVLA commissioning effort. We do not plan to hold an RSRO workshop at this time, as we believe that it will be more efficient to have teleconferenced discussions with each group, focusing on their individual RSRO interests.

Our main concern with [the RSRO] program is that the software support may not be available to allow the RSROs to be effective in testing all instrument capabilities and producing science from the facility. Thus, we recommend that some organized system be set up so that RSROs have access to appropriate staff and others to assure that their visits are productive and helpful.

We share this concern. We are now devising a process that optimizes and matches the overall EVLA software development effort to the requirements and needs of visiting RSR observers.

We appreciate the complexity of [commensal observations] and believe it needs broad discussion within the community. ... In our last report we recommended a process in which a call for commensal observing would be made after the selection of primary science proposals by the TAC... We continue to believe this is an approach worth trying... We do not feel sufficiently well-informed to design these [correlator] modes ... it was also suggested that a workshop be convened, perhaps in 2011 after some experience with the full correlator has been gained, to define standard modes.

As the SAGE implies, we believe it is premature to develop a rigorous policy on the issue of commensal observations. After we have gained experience with the full correlator, perhaps on the timescale of 2011, we will investigate and experiment with possible WIDAR configurations that allow commensal observations. The lessons learned will be used to provide input to future meetings of SAGE and the NRAO Users Committee so that informed recommendations on a commensal observing policy can be made. In the meantime, however, we will develop standardized observing modes and procedures that will best optimize the science that can be done with archival data, in accordance with a recommendation made in a recent meeting of the EVLA Advisory Committee.

... [O]ne-third of the [SAGE] membership should rotate off following this meeting. We recommend consideration be given to appointing young members who will be future users of this instrument and, given the early emphasis on high frequencies, that scientists with experience in these bands be included for consideration.

We will target young scientists and scientists with experience in high frequency observations as we attempt to fill the vacancies left by the departing members of SAGE.