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# Transition to EVLA

2006-2011



# Plan for Talk



- 
- First, a short report on the current status of the Transition
  - Pause for questions
  - Then most of the talk on future plans



# Summary of Transition to Date



- 
- Focus on testing hardware, software planning, bringing EVLA antennas back into the array.
  - The hardest work is still ahead.
  - Delays have compressed commissioning schedule.
  - Scientific staff very thin.



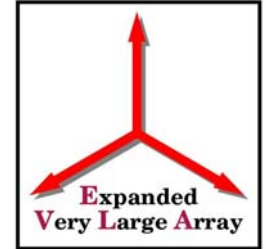
# Current Status



- Up to 3 EVLA antennas now being used for general research.
- 3 more being outfitted or tested:  $28 - 3 = 25$  antennas maximum available right now.
- Some limitations in using VLA and EVLA antennas together: documented on web and in email newsletter.



# Acceptance Tests



- Before each of the three EVLA antennas were returned to the array, they passed a hardware test and a series of on-the-sky tests.
- Still some operations jobs require high level staff help.
- Will move to routine hardware/operations/on-the-sky sequence of tests for inclusion in the transition array.
- A document describing final EVLA acceptance tests exists.
- Antenna/receiver tests should become routine next year: turn over to a postdoc.



# Questions ?





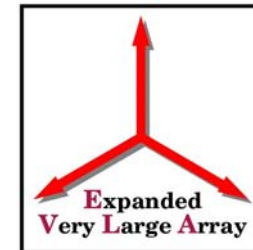
# Future Transition Plans



- Transition plans need to combine the reality of changes in schedule and availability of staff with scientific priorities.
- 2006: Transition schedule becoming clearer but will be firmer by the end of the year.
- Time to discuss general ideas for the final transition to EVLA with the community.



# Future Schedule



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Date	EVLA	VLA	EVLA Receivers
Jan07	7	20	3L,7K,7Q
Jan08	13	14	9L,7C,13K,7Ka,13Q
Jan09	18	8	15L,4S,14C,18K,13Ka,18Q
Jan10	24	2	21L,7S,21C,24K,19Ka,24Q
Jan11	27		27L,C,K,Ka,Q,12S,3X,6U





# WIDAR Plan



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Aug07: Prototype correlator installed at VLA

Apr08: First part of final WIDAR arrives at VLA with limited production boards.

Aug08-Aug09: Install full WIDAR correlator rack-by-rack. Slowly gain full WIDAR capability.



# Compressed Schedule



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- Correlator availability at VLA starts later than originally planned but full WIDAR is still intended to be finished on schedule in 2009.
  - This compresses the time-frame for science commissioning of EVLA.



# Blue Sky Science Milestones



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Feb07: Begin offering full frequency tuning  
for available EVLA receivers with VLA  
correlator

Aug07: Start exercising full calibration path

Apr08: Science commissioning begins

Jan09: Early science with WIDAR begins

Mar10: Open “shared risk” observing



# Blue Sky Schedule Risks



- Hardware meets plan on schedule?
- Software ready on time ?
- Enough scientists available for commissioning ?  
Need 9 more by 2008.

Currently have 4 FTE/yr working on EVLA spread among many scientists with other responsibilities.  
Need 9 FTE/yr (5 more FTE/yr) which takes 9 more people.



# Scientific Staffing



- Since 2000 the AOC astronomical Sci Staff has shrunk from the level which we assumed in the Phase I proposal would be available to work on EVLA. (20 in 2000 to 12 now for VLA & VLBA).
- This is not entirely bad since the heaviest workload is from 2007-2010. However, we now need to increase the staff to compensate and allow the project to succeed.
- Lack of Sci Staff starting to hurt project in 2006.
- Staffing plan taking form to deal with situation.



# Scientific Staff Tasks 2007-2010



- 
- Acceptance tests for all antennas/receivers
  - Correlator commissioning
  - Scientific guidance/testing for SSS
  - Development of new observing procedures
  - User documentation
  - Reduce “Pioneer” EVLA projects and make results available to the community



# Postprocessing Tasks 2007-2010



- 
- Develop CASA user interface
  - Develop wide-band editing & calibration
  - Develop wide-band imaging algorithms
  - Provide help & documentation for outside users of EVLA/CASA
  - Develop a robust system
  - Develop use of cluster computing



# Brave New World



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Astronomy with EVLA will be very different:

- Often 100-1000X the data volume, 16000 channels
- Octave bandwidths including spectral regions with strong interference
- Wide-band (wide-field) imaging
- A new reduction package





# Dealing with the Brave New World



- 
- NRAO staff and outside users need to learn how to use the new telescope.
  - NRAO needs to learn how to provide the necessary services.
  - Everyone can't just expect to do things the way they have in the past.
  - Will take time and people to develop.



# Scientific Staffing



- 
- Need to rebuild the AOC Scientific Staff to reach EVLA potential in a timely way.
  - Can make use of long term visitors and postdocs in 2007-2010.
  - Also need to build a younger staff at the AOC for long-term EVLA success.
  - Need more staff just to engage community.



# First Positions Needed by 2007



- 
- New EVLA Software Project Scientist (to replace Rupen when WIDAR correlator tests start).
  - Postdoc to carry out routine acceptance tests.
  - SSS Support Scientist to work with non-astronomical programming staff.



# Community Input



- 
- 2006: Begin to raise basic ideas for scientific transition from VLA to EVLA with existing committees.
  - 2007+: Work with EVLA Science Advisory Committee to converge on a realistic science transition plan.



# How to be fair ?



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- How do we make new EVLA capabilities available to the community in a fair way given the practicalities of bringing up a new instrument ?



# One Possible Approach to First Science



- Jan09-Mar10: Begin using EVLA for science: first with a few long-term visitors and slowly ramping up the number of users.
- Reorder configuration schedule starting with D and moving toward A.
- During this time carry out a few large “Pioneer projects” (defined in detail by the community but consistent with construction requirements) and put the resulting images on the web for anyone to use (like HDF and NVSS).



# Pioneer Projects



- Large projects for the general community before EVLA is complete.
- Intended to sample EVLA capabilities, point the way for future proposals, and give the community access to EVLA data before we are ready for open proposals.
- Possible Examples: Hi-z galaxy molecular line imaging survey; Imaging line survey in Orion.



# First Open, Shared-Risk Science



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Mar10: Open EVLA to general proposals with  
a limited set of modes:

- 1) Simple spectral line
- 2) Narrow-field, wide-band continuum

Work toward making more complicated  
modes available: wide-field, wide-band  
continuum, multiple spectral windows etc.





# Questions ?





# Backup Slide





# Transition Planning



- 
- EVLA Coordination Meeting (Weekly)
  - Transition Coordination (Monthly)
  - Scientific Planning (Monthly)
  - Additional Ad Hoc Meetings as Required