



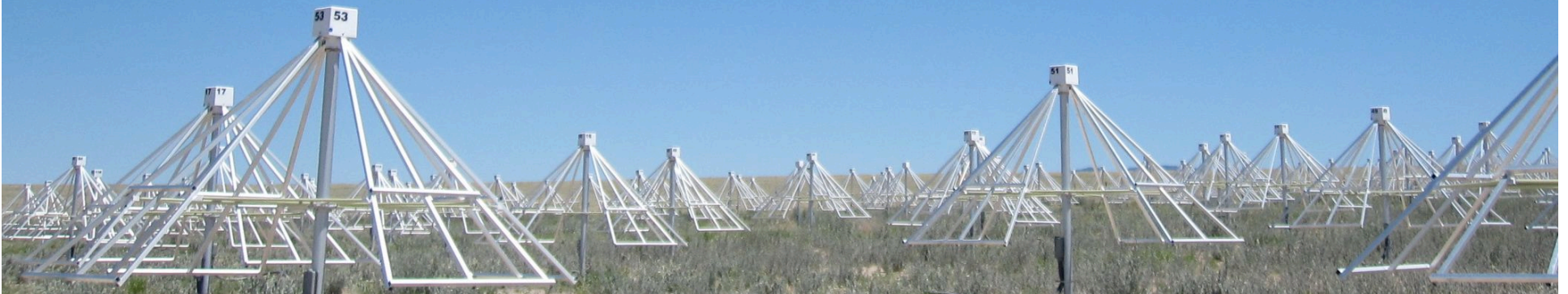
URO and Future Plans

Greg Taylor (UNM) on behalf of the LWA Project



Current Support

- **ONR – extended through 9/30/2012**
 - **Power, communications, travel to site**
 - **System Engineer (Joe Craig)**
 - **User Programs (Ylva Pihlstrom)**
 - **Technical Assistance (Steve Tremblay & Ken Obenberger)**
- **DTRA program – ends 1/20/2012**
 - **System Engineer (Joe Craig)**
 - **Research faculty (Lee Rickard)**
 - **Software (Jayce Dowell)**
- **LUNAR program – ends 5/1/2013**
 - **Director (Greg Taylor) and Software (Jayce Dowell)**



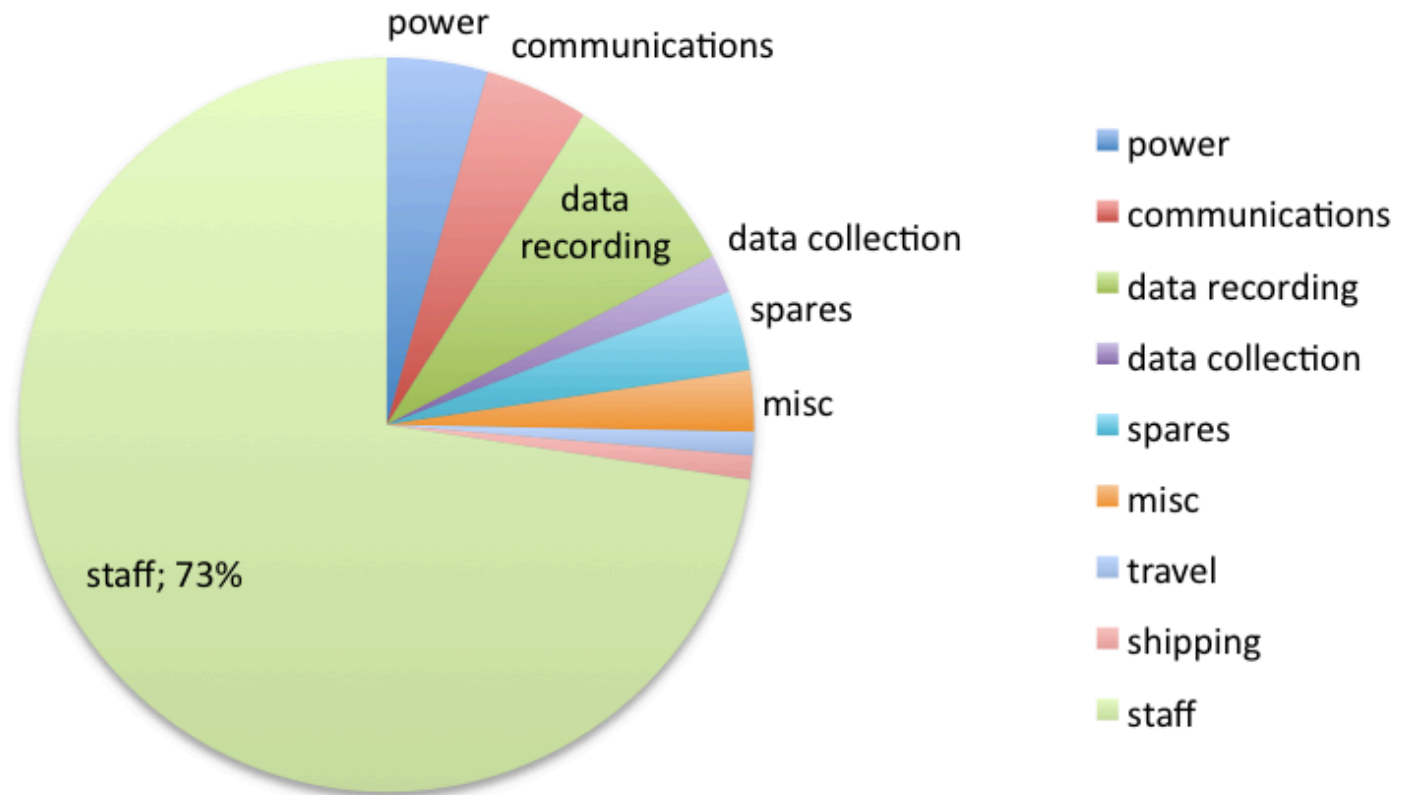
Pending Support

- **LEDA (Large aperture Experiment to detect the Dark Ages/Greenhill)**
 - System Engineer (Joe Craig)
 - Software (Jayce Dowell)
 - Technical Assistance (Ken Obenberger)
- **AAG Proposal (Cosmic Dawn/Bowman)**
 - System Engineer (Joe Craig)
 - Software (Jayce Dowell)
 - Contribution to power and communications
- **AFRL Proposals (waiting on RFP)**
- **URO Proposal (due May 23) Taylor**
- **DOD Proposal (due May 25) Jenet**



URO Budget - \$600K/year

LWA1 Operations Cost - URO



URO Details

- **User Programs**
 - Letters from LWA1 users
 - Letters from affiliates – JPL, UC, NMT, PandA, ...
- **Science Case (thanks!)**
- **Technical development**
 - On-the-fly reduction
 - Polarimetry
 - LWA1 – EVLA interface



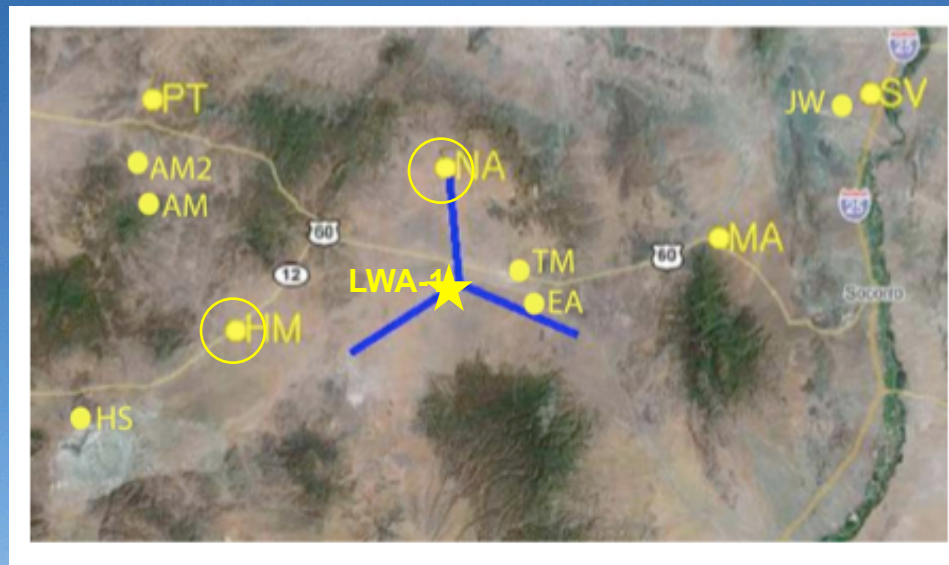
Future

Science with LWA1 is underway

(Unfunded) goal for LWA is still 53 Stations

Some alternative funding obtained; additional proposals pending

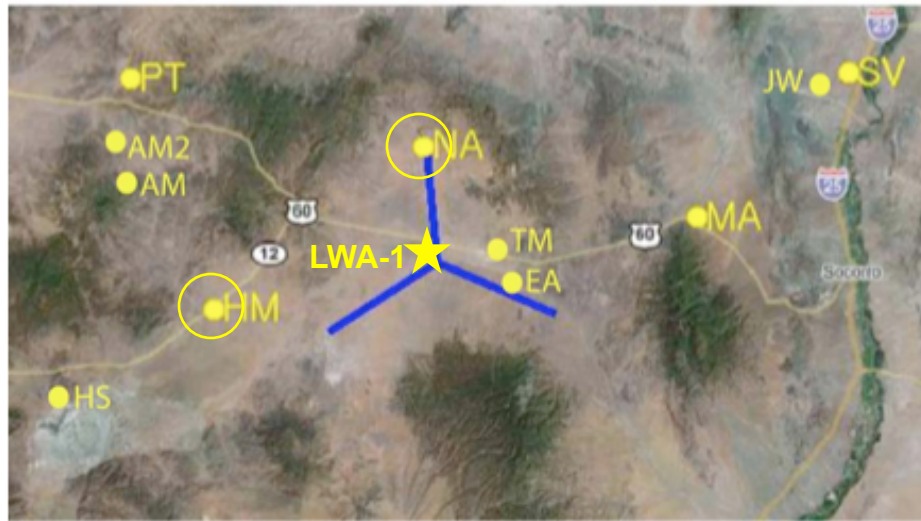
- Development/preparation of sites for LWA-2 (NA) + LWA-3 (HM) with baselines 19 km, 35 km, and 43 km
- Leases and CatEx's for these sites already obtained



Thank You for your Support!



LWA-2 Site (NA)



For more information:

Henning et al. (2010) , “The First Station of the LongWavelength Array” [LWA Memo 170]

Ellingson *et al.* (2009), “The Long Wavelength Array,”
Proc. IEEE, 97, 1421 [LWA Memo 157]

Ellingson (*in press*), “Sensitivity of Antenna Arrays for Long-
Wavelength Radio Astronomy,”
IEEE, Trans. Ant. & Prop. [LWA Memo 166]

Navarro *et al.* (2010), “Implementation of a Digital Processing
Subsystem for a Long Wavelength Array Station,” *URSI 2010
NRSM* [available on LWA web site]

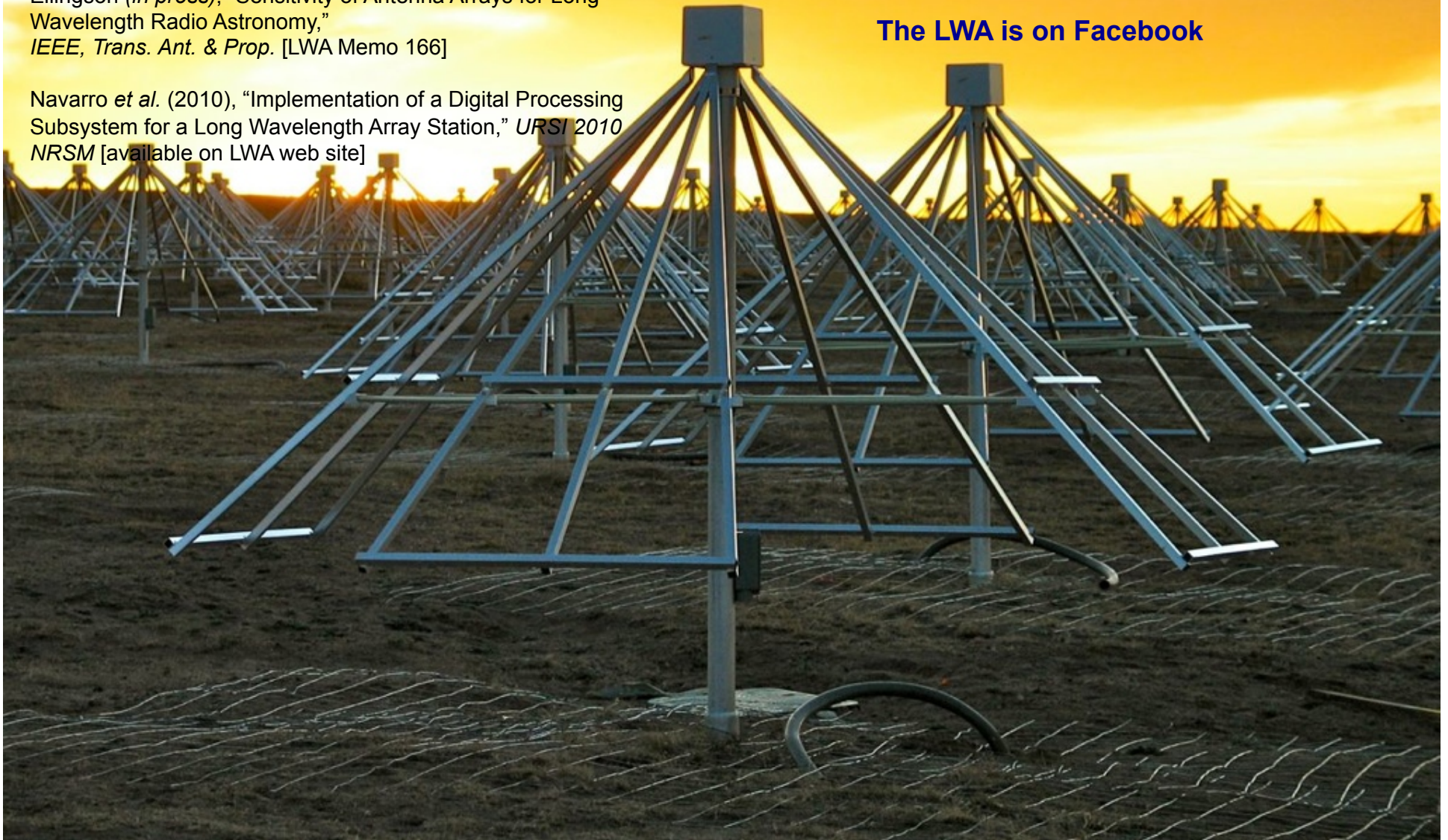
Project Web Site:

<http://lwa.unm.edu>

Memo Series:

<http://www.phys.unm.edu/~lwa/memos>

The LWA is on Facebook

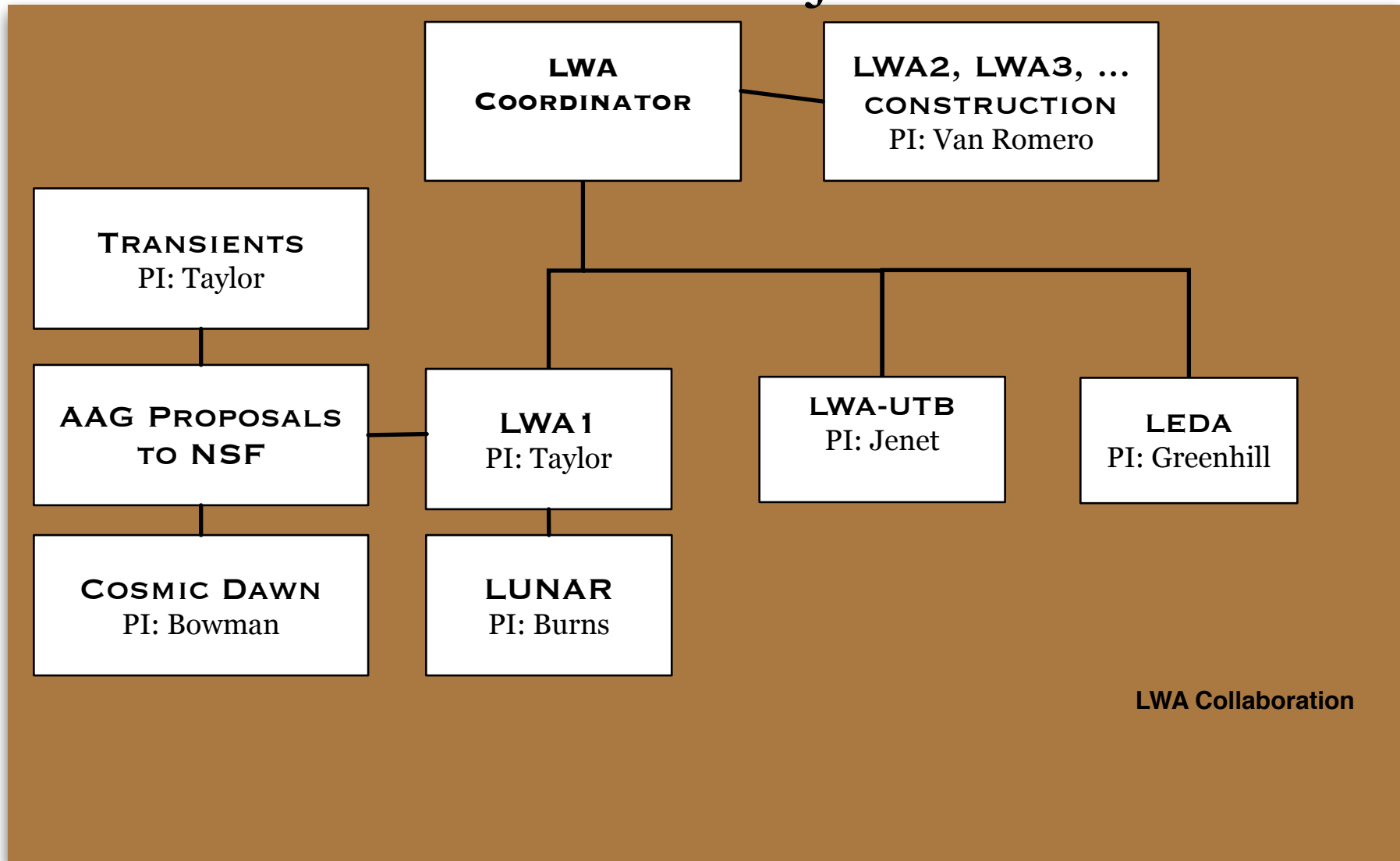


Backup Slides



LWA Projects

5/9/2011



Technical Specifications:

	<u>Required</u>	<u>Achieved</u>
• Frequency Range:	20 MHz to 80 MHz	10 MHz to 88 MHz
• Angular resolution:	$\theta \leq [8,2]''$	$\theta \leq [7,1.4]''$
• LAS at [20,80] MHz	$\geq [8,2]^\circ$	$\geq [16,4]^\circ$
• Baseline range:	100 m to 400 km	50 m to 600 km
• Sensitivity [20,80 MHz]:	$\sigma \leq [1.0,0.5]$	$\sigma \leq [0.5,0.1]$
• Collecting Area (m²)	$A_c = 1 \times 10^6$	$A_c = 4 \times 10^6$
• Dynamic range:	$DR \geq [1 \times 10^3, 2 \times 10^3]$	$DR \geq [2 \times 10^3, 8 \times 10^3]$
• Δv_{\max} (per beam)	$\Delta v \geq 4$ MHz	$\Delta v = 20$ MHz
• Δv_{\min}	$\Delta v \leq 100$ Hz	$\Delta v \leq 10$ Hz
• Temporal Res	$\Delta \tau = 10$ msec	$\Delta \tau \leq 0.1$ msec
• Polarization:	1 circular	Full
• Sky Coverage:	$z \geq 40^\circ$	$z \geq 15^\circ$
• FoV [20,80] MHz	$[8,2]^\circ$	$\leq [16,4]^\circ$
• # of beams:	4 single pol.	4 single pol.
• Configuration:	2D array, N = 53 stations	2D array, N \geq 53

