

# LWA User Program Update

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on behalf of the LWA collaboration

# Outline

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- Currently approved projects
  - Scheduling of observations
  - Data transfer to user
  - Archiving
  - Data reduction
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# Approved Projects LWA1

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Project Title	PI	Code
LWA Cosmic Ray Air Shower Trigger	Besson, D.	LB001
Tracking the dynamic spectrum of Jupiter	Clarke, T.	LC001
Ionospheric Scintillations	Crane, P.	LC002
Passive Meteor Scatter using the Long Wavelength Array	Close, S.	LC003
A GCN-Triggered search for prompt GRB emission	Ellingson, S.	LE001
Crab Giant Pulses	Ellingson, S.	LE002
Continuing measurements of the CasA/CygA flux ratio	Hartman, J.	LH001
Searching for hot Jupiters with LWA1	Hartman, J.	LH002
Carbon Radio Recombination Lines in the Cygnus Arm	Pihlstrom, Y.	LP001
Multi-frequency large scale sky surveys with LWA1	Polisensky, E.	LP002
Low Frequency Studies of Radio Pulsars	Ray, P.	LR001

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# Approved Projects LWA1 cont.

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Ionospheric Absorption Measurements Using LWA-1 as an Imaging Riometer	Rickard, L.J.	LR002
Single Dispersed Pulses	Simonetti, J.	LS001
Observing the Transient Universe with the First LWA Station	Taylor, G.	LT001
Solar Radio Bursts at High Temporal and Spectral Resolution	White, S.	LW001

- Future proposal call TBD
    - End of 2011?
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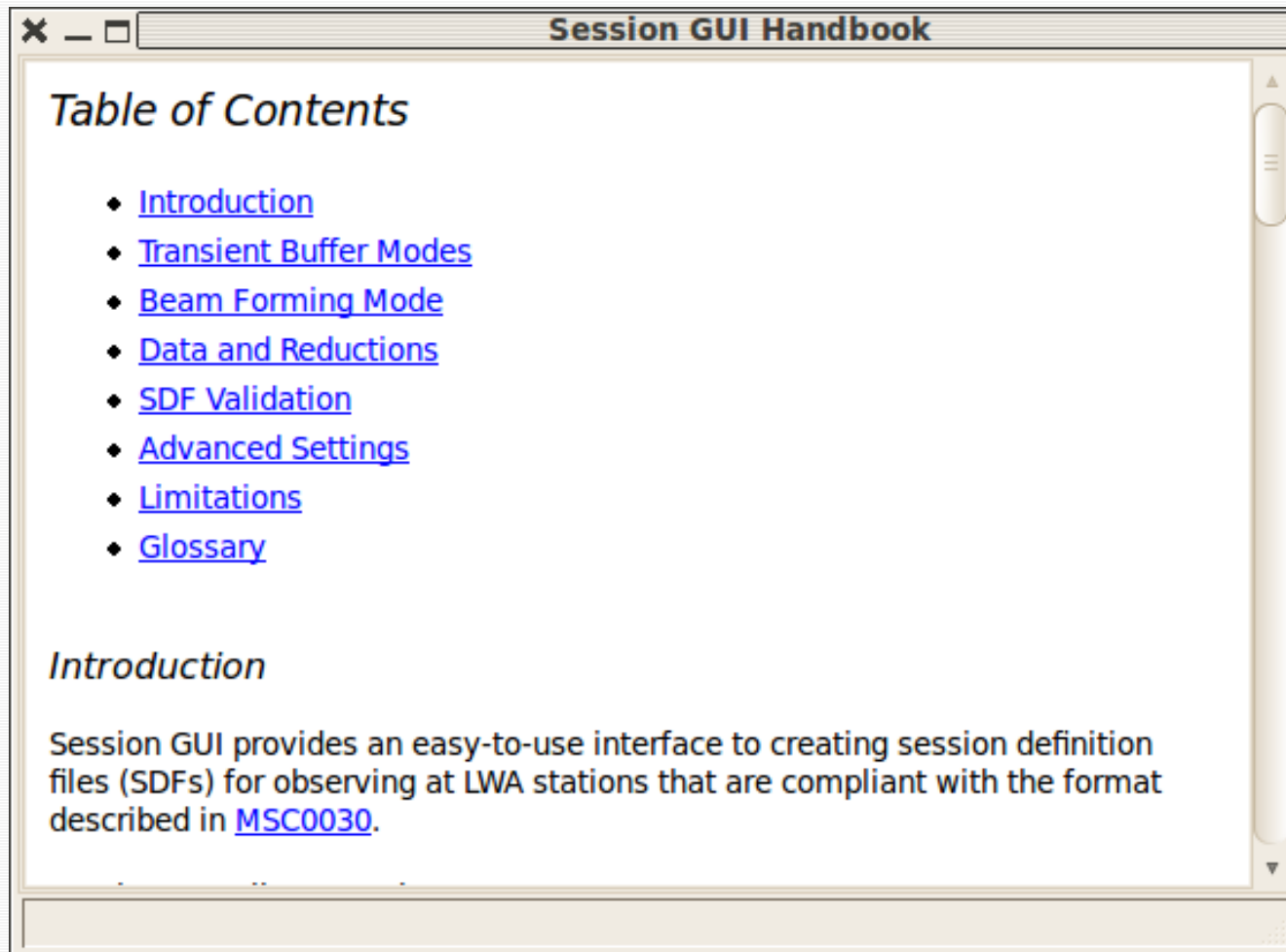
# Scheduling

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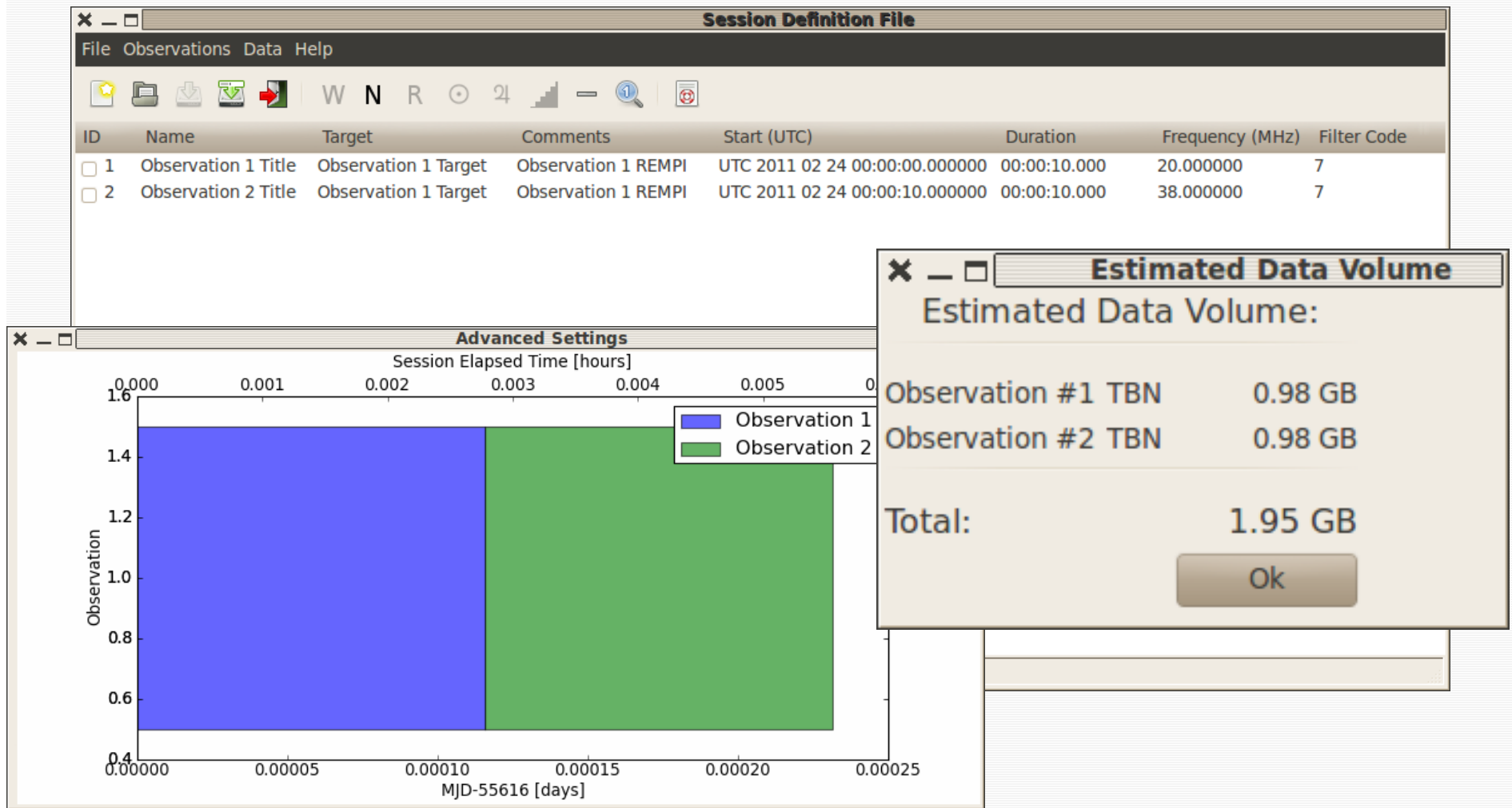
- LWA project office schedules *when* a project will be observed
    - Depends on data rate & storage capabilities
    - Transient science may override normal projects
  
  - LWA user schedules *how* a project will be observed
    - A block of time will be allocated by scheduler
    - User creates a session definition file that will be read by MCS (compliant with MCS0030)
    - File verified by scheduler and then fed to MCS for scheduling
    - Data copied, MCS creates meta-data
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# GUI example

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# GUI screenshots



# Transfer of data to user

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- LWA memo 177 contains all details
  
  - Limited resources constrain user data collection options
  
  - Assumptions:
    - DRX 627 Mbps
    - TBN/TBW 1000 Mbps
    - Data collection at site ~1/week
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# Option 1: Raw data

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- TBN/TBW, and if no averaging acceptable at DRX
    - User provides storage medium
      - DRSUs
        - 2 DRSUs => 36 hours observing per week
      - External USB harddrives > 2TB, ext2 formatted
        - 5 drives => same duty cycle but up to 72h for cpying the data to drives
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# Option 2: Averaged data

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- Time and/or frequency averaged data
    - Written to FITS format
    - Archived at UNM for internet user access
      - Connection rates 8-30 Mbps
    - Reduction to 20 Mbps required (typical averaging factor >30)
      - Example: 4096 channels, 1s integration => 0.26 Mbps
  - Performed at site with data recording computers when data is not actively recorded
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# Archiving

- ❑ Currently disks in shelf, will be connected for data transfer upon request from user.
- ❑ Access via <http://fornax.phys.unm.edu/lwa/archive/list.py>

The image shows two browser windows. The left window, titled "LWA Disk Listing", displays a table with the following data:

Disk	Brand	Serial Number	Number of Files	UT Date Range	Available
Cavalry	YAHU5D0P	23		2010-11-10 to 2010-12-17	No

The right window, titled "Details for Disk YAHU5D0P", displays a table with the following data:

Filename on Disk	Obs. Mode	File Size	Time Range	Download
<a href="#">055510_000003731.dat</a>	TBW	12.8 GB	2010-11-10 01:02:34 to 2010-11-10 01:36:55 UTC	Not Available
<a href="#">055511_000004674.dat</a>	TBW	58.4 GB	2010-11-11 04:10:08 to 2010-11-11 06:50:45 UTC	Not Available
<a href="#">055519_00000068.dat</a>	TBW	25.7 GB	2010-11-19 03:39:03 to 2010-11-19 04:49:02 UTC	Not Available
<a href="#">055526_000003600.dat</a>	TBW	54.7 GB	2010-11-26 04:05:02 to 2010-11-26 06:34:03 UTC	Not Available
<a href="#">055536_000013155_1_TBW.dat</a>	TBW	367.3 MB	2010-12-06 19:13:06 to 2010-12-06 19:13:06 UTC	Not Available
<a href="#">055536_000013194_1_TBW.dat</a>	TBW	367.3 MB	2010-12-06 19:23:49 to 2010-12-06 19:23:49 UTC	Not Available
<a href="#">055536_000013213_1_TBW.dat</a>	TBW	367.3 MB	2010-12-06 19:33:31 to 2010-12-06 19:33:31 UTC	Not Available
<a href="#">055536_000013232_1_TBW.dat</a>	TBW	367.3 MB	2010-12-06 19:41:57 to 2010-12-06 19:41:57 UTC	Not Available
<a href="#">055536_000013251_1_TBW.dat</a>	TBW	367.3 MB	2010-12-06 19:48:04 to 2010-12-06 19:48:04 UTC	Not Available
<a href="#">055536_000013321_1_TBW.dat</a>	TBW	367.3 MB	2010-12-06 19:56:39 to 2010-12-06 19:56:39 UTC	Not Available
<a href="#">055536_000013355_1_TBW.dat</a>	TBW	367.3 MB	2010-12-06 20:11:45 to 2010-12-06 20:11:45 UTC	Not Available
<a href="#">055536_000013375_1_TBW.dat</a>	TBW	367.3 MB	2010-12-06 20:20:11 to 2010-12-06 20:20:11 UTC	Not Available
<a href="#">055536_000013394_1_TBW.dat</a>	TBW	367.3 MB	2010-12-06 20:26:53 to 2010-12-06 20:26:53 UTC	Not Available
<a href="#">055538_000018596.dat</a>	TBW	3.7 GB	2010-12-08 21:46:03 to 2010-12-08 21:56:03 UTC	Not Available
<a href="#">055540_000025979.dat</a>	TBW	40.8 GB	2010-12-10 05:19:03 to 2010-12-10 07:17:03 UTC	Not Available
<a href="#">055540_000027004.dat</a>	TBW	503.1 GB	2010-12-10 16:39:03 to 2010-12-11 16:39:03 UTC	Not Available
<a href="#">055541_000028844.dat</a>	TBW	41.9 GB	2010-12-11 23:44:03 to 2010-12-12 01:44:03 UTC	Not Available

# Metadata & proprietary period

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- Metadata available via UNM archive webpage
- Proprietary period 1 year

# Data reduction

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- A lot will be left to individual users, but we will
    - Provide a LWA software library
    - Provide a central repository for new software
  
  - We will not:
    - Provide calibrated/reduced data
  
  - Users encouraged to call in to the weekly TWGs to find out what is going on, and to discuss specific issues with the data
  
  - Consult the wikipage
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