

ACTS PROJECT & PROPAGATION PROGRAM UPDATE

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NASA Lewis Research Center
ACTS Propagation Studies Workshop
June 6, 1996



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SPACECRAFT STATUS

- Spacecraft operations continue to be nominal
- Sixth eclipse season completed. Battery reconditioning to be re-evaluated before fall eclipse.



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INCLINED ORBIT

- Hydrazine depletion estimate updated to July 1998 (as of 5/20/96)
- Delete last N/S maneuver saves enough fuel for more than 3 yrs. of E/W maneuvers
- Operations will require diurnal stepping of momentum wheel pivot to maintain spot beam locations



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INCLINED ORBIT, cont.

- Net result is that ACTS operations could be sustained for 2.3 years beyond July '98
 - Limited by range of S/C pivot
 - Current roll & yaw pointing accuracy expected to be only slightly degraded



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INCLINED ORBIT, cont.

WHAT'S REQ'D TO MAINTAIN PROP. MEASUREMENTS IN I/O PHASE?

- Sufficient margin?
- Tracking hardware?
- Preprocessing software mod's?
- S/C ephemeris data distribution?
- *COST to implement?*



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EXPERIMENTS PROGRAM

- Number of approved experiments: 81
 - Experiments started: 66
 - Experiments completed: 36
- Current regular users:
 - Mayo Clinic
 - JPL
 - Natl Library Medicine
 - GSFC
 - Georgetown Univ.
 - LeRC
 - Army

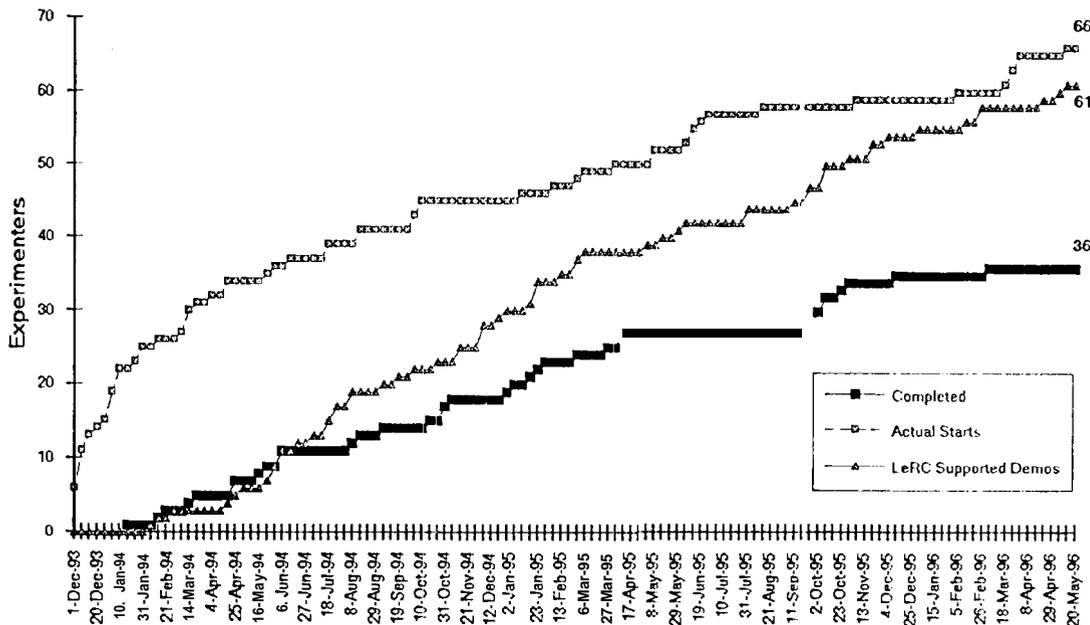


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ACTS Experiment Starts/Completes



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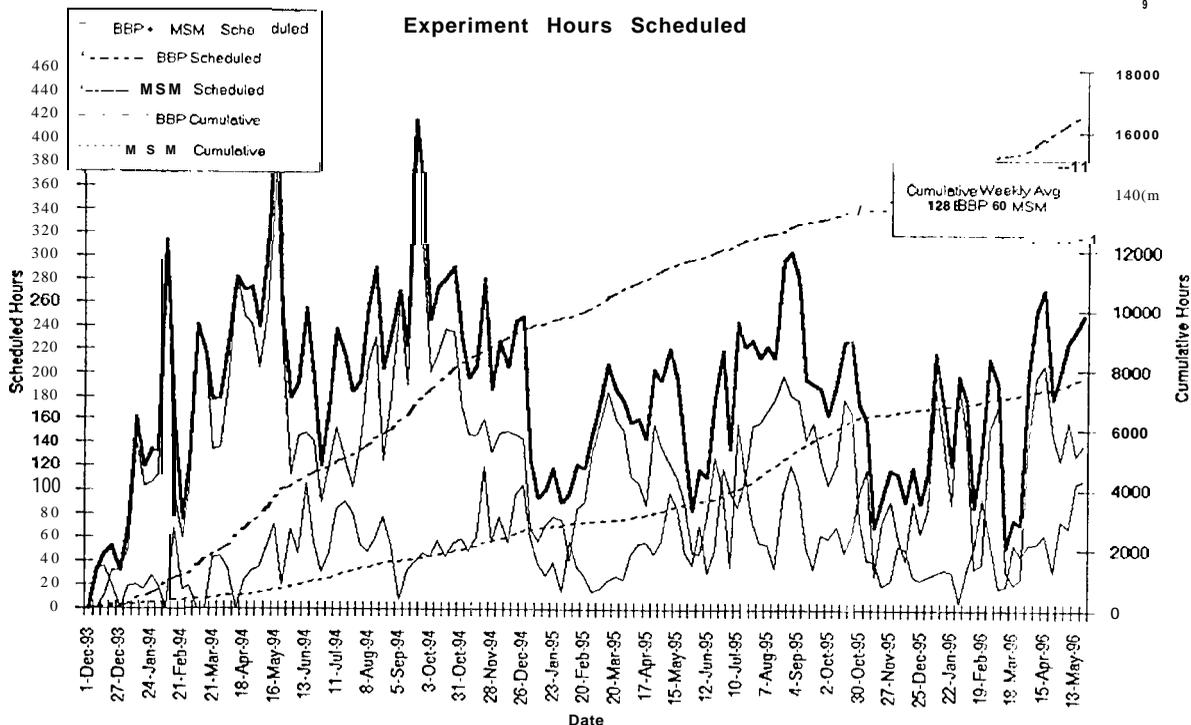
EXPERIMENTS PROGRAM

Recent demos supported:

- AIAA ICSS Conf., Feb. '96, Washington DC, USAT
- Global Legal Info. Network, May '96, Wash. DC, T1 VSAT
- Congressman Sensenbrenner, (R-WI; House Science Committee) at LeRC in April '96, USAT



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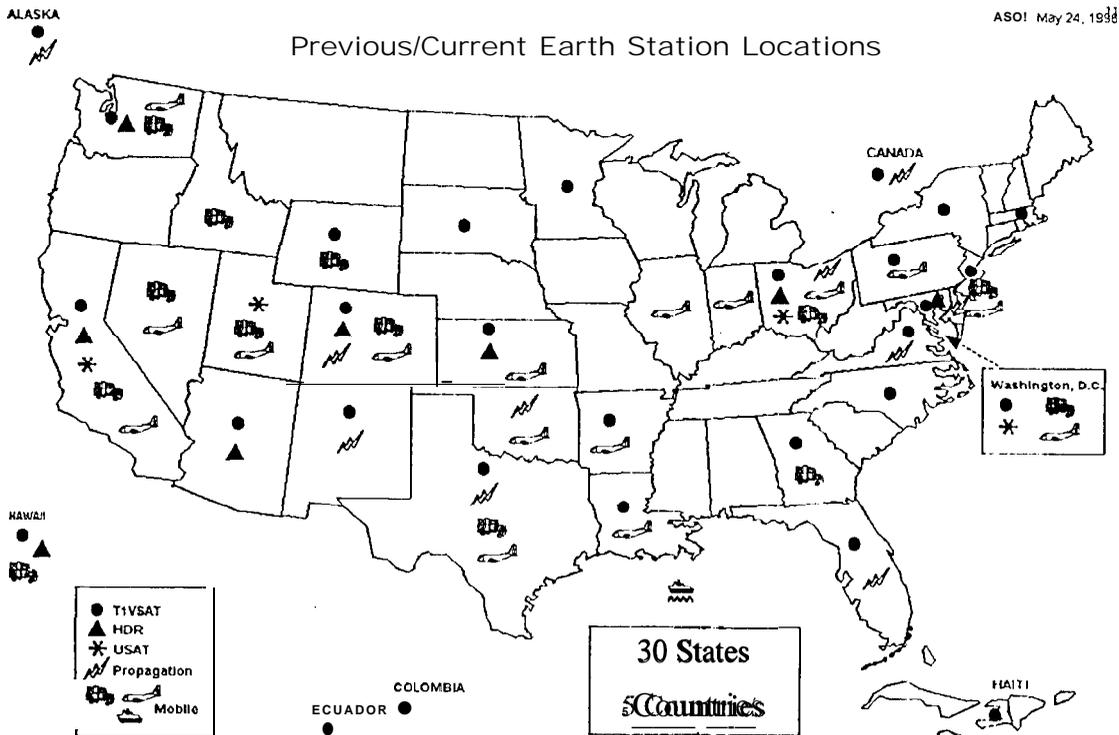
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EARTH STATION STATUS

- Fleet of T1 VSAT'S remains operational
- All 5 High Data Rate terminals operated together on 5/06/96 (a first!)
- 2 USAT's removed from So. Cal. Edison. Being used in demos & experiments
- ACTS Mobile terminal to support Olympic Torch Relay, shipboard & aero applications



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Reorganizations

- Zero Base Review (ZBR) has resulted in:
 - NASA HQ downsizing announced
 - Impact unclear, but Level 2. Space Comm. Program Office to move to LeRC
 - Lewis is restructuring
 - Increase Supervisory :Non-Supervisory to 1:14
 - Space Comm Division & ACTS looking at transition to post-ACTS



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PROPAGATION PROGRAM ⁶³ STATUS

- New Leader at JPL...

Welcome Dr. Nasser Golshan!!

- Program continuation under consideration

- Satellite Industry Task Force (SITF) input to NASA by late June-early July 1996
- NASA to notify exptrs. ASAP of continuation or termination



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Prop_e Program Status, cont.

- If continued:

- Contract options exercised by NASA (already negotiated)
- Provides 1 year of funding (through FY 97)
- Complete 3rd year of data+ 10 mos. of 4th year.

- Continuation must fit into ACTS Project budget/plans.

Reality = If propagation is funded, something else may not be.



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Prop. Program Status, cent

•Other considerations:

- Value added of 1 (or more) year of data
- Terminal maintenance/age
- Inclined orbit operations
- Other studies (e.g., mobile, de-pol, wideband dispersion, tropical data, . . .)

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Program Timeline

