TRUST - TDRSS Resource User Support Tool
Space Network Control Conference, December 1990

TRUST
TDRSS Resource User Support Tool

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DEVELOPMENT CYCLE

Software tools: OASIS
OASIS
SUPPAS
TRUST Support
SUPPAS V2
TRUST Scheduling
SUPPAS V1
OASIS V3

Projects: Flight

1980s

OASIS
TIGS

SME
UARS/SOLSTICE
TOPEX
LDBP
EOS/SOLSTICE

TDRSS

Today

1990's

Study

Laboratory for Atmospheric and Space Physics
TRUST DEVELOPMENT

Flight Projects
- Solar Mesosphere Explorer (SME): Realtime Control and Monitoring; Science Planning and Scheduling; TDRSS Scheduling and Ground Control
- Solar/Stellar Irradiance Comparison Experiment (SOLSTICE): Science and Mission Planning; Instrument Monitoring, Command and Control
- Ocean Topography Experiment (TOPEX - JPL): LASP Involvement Includes TDRSS Scheduling
- Long Duration Balloon Project (LDBP - GSFC/WFF): LASP Involvement includes TDRSS Scheduling and Ground Control

Study Projects
- Telescience Implications on Ground Systems, Scheduling Architectures Concepts and Networks (TIGS SCAN Testbed - GSFC): LASP Involvement Includes Planning and Scheduling; Instrument Operations
# Scheduling Window

**Schedule Overview**

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<th>Schedule Time</th>
<th>TDW</th>
<th>TDE</th>
<th>TDS</th>
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<th>14:00:00</th>
<th>16:00:00</th>
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**Events**

- Orbit events
- S/C events

**Time Slots**

- 12:20:00
- 12:30:00
- 12:40:00
- 12:50:00

# ODM/GCMR Window

**Window Overview**

- **Functionality**
  - Configure TDRSS with
  - Play mode (RT/PSK)
  - Phase mode (CD/NCO)
  - Forward Link Reacq
  - Return Link Reacq
  - Link Reconfiguration
  - Forward Link Sweep
  - Inhibit Doppler Compensation
  - All the other "uff"

- **Input/Output**
  - TDW: REACQ GöRM-Link_Mode=RET
  - ODM REQUEST 9803, Link_Mode=RETURN

**Data Table**

<table>
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<tr>
<th>Status</th>
<th>Signal</th>
<th>Freq</th>
<th>Doppler Comp</th>
<th>Power Mode</th>
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**NOTES**

- Laboratory for Atmospheric and Space Physics
SUMMARY

• Generic TDRSS Scheduling with use of the Expert System
• Automatic Re-scheduling, for conflict resolution, with Expert System
• ODM/QDM Processing and Constraint Checking
• Trend analysis of TDRSS link, as an aid to TDRSS Operations
• Capable of formatting schedule messages, to allow scheduling of multiple networks (TDRSS, DSN, etc.)
• Receives and processes Spacecraft PSAT & Orbital Information
• Capable of handling several communications protocols (NASCOM, SPAN/DECNET, TCP/IP, etc.)
• Supplies planner/scheduler/operator a view of possible activities, in the Scientific/Mission Context (X Window Based)
• Menu driven GCMR, Schedule Requests & Processing, if desired
• Multi Spacecraft Capability
• Written Entirely In Ada