Range Scheduling Aid
(RSA)

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Satellite Control Network

COMMUNICATIONS SATELLITE
COMMUNICATIONS SATELLITE
MISSION SATELLITE
TT&C
REMOTE TRACKING STATIONS

FALCON AFB, CO
ONIZUKA AFB, CA
Range Scheduling - Current Approach

MITRE Tasking

- "Investigate the feasibility and utility of developing a knowledge-based scheduling aid..."

- Approach:
  - Replicate current scheduling in automated environment
  - Develop prototype with user interaction
  - Create user-friendly, graphical interface
Range Scheduling - New Approach

RSA Features

- Graphical User Interface
  - Similar look and feel to paper based approach
  - Real-time response to schedulers

- Constraint Based Analytical Capability
  - Provides scheduling tools
  - Automates scheduler heuristics

- Multi-user
  - Architecture supports real-time multi-user capability

- Portable
  - Sun, Symbolics, TI Explorer, and Mac II
### Range Scheduling Aid Display

**Schedule Area**

<table>
<thead>
<tr>
<th>Remote Tracking Stations</th>
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</thead>
<tbody>
<tr>
<td>POGO</td>
</tr>
<tr>
<td>BOSS</td>
</tr>
<tr>
<td>COOK</td>
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<tr>
<td>HULA</td>
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<tr>
<td>GUAM</td>
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</tbody>
</table>

**Timeline**

- Setup: 0000
- Start: 0000

**Mitre**

- May 2
- May 3
- May 4

**Documentation**

-iron: 2205 (B) preferred start: 0615 duration: 0015 lead: 10 lag: 10
Constraint Based Analytic Capability

- Conflict Identification
  - Oversubscribed resources?
    - At local Remote Tracking Station
    - Across AFSCN
      - Adequate turnaround time

- Conflict Explanation
  - Type of conflict
  - Specific resources and times associated with conflict
Constraint Based Analytic Capability (concluded)

- Conflict Resolution
  - For single task (list of possible solutions)
  - Globally across time slice

- Error Checking
  - Satellite visible?
  - In requested time window?
  - At proper RTS?

RSA Architecture
Range Scheduling Aid Benefits

- Automated scheduling
- Electronic schedule dissemination
- Simultaneous scheduling
- Extensible system
- Reduced training time