MISSION OPERATIONS
AND DATA SYSTEMS DIRECTORATE

# STS-79/S/MM-04/ SPACEHAB-05 FLIGHT READINESS REVIEW

## NETWORKS

## AGENDA

- INTEGRATED NETWORKS
- TDRSS CONSTELLATION
- SIGNIFICANT CHANGES
- ZOE COVERAGE
- JSC-KALININGRAD VOICE CIRCUITS
- MIR/MCC-M TO JSC/MCC-H VIDEO
- CONFIGURATION MANAGEMENT
- SUMMARY
- READINESS CERTIFICATION

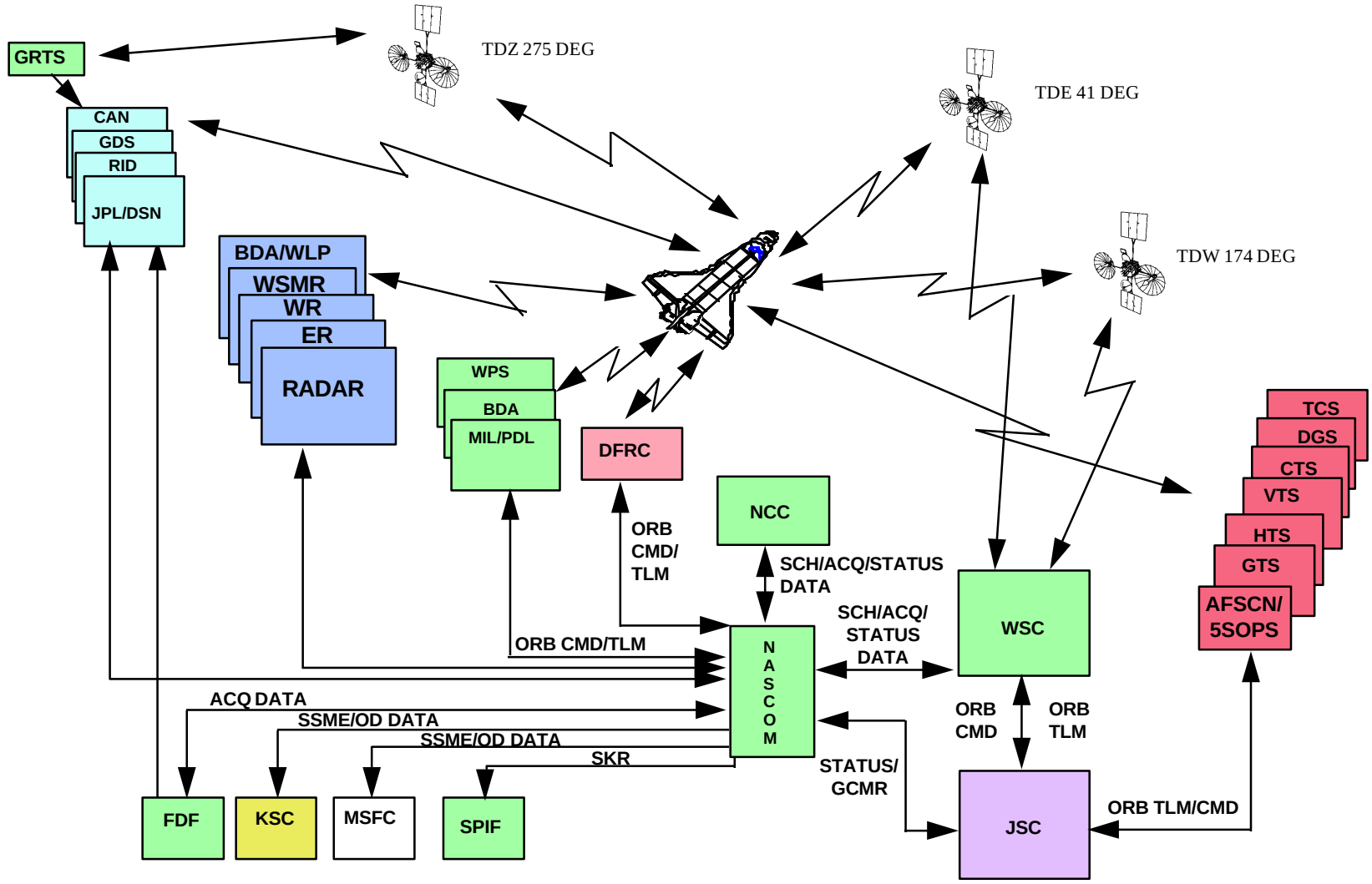
GARY A. MORSE
GSFC/NETWORKS
AUGUST 1996

MO&DS DIRECTORATE

CODE 500

# STS-79/S/MM-04/SPACEHAB-05 NETWORKS

## STS-79 INTEGRATED NETWORK



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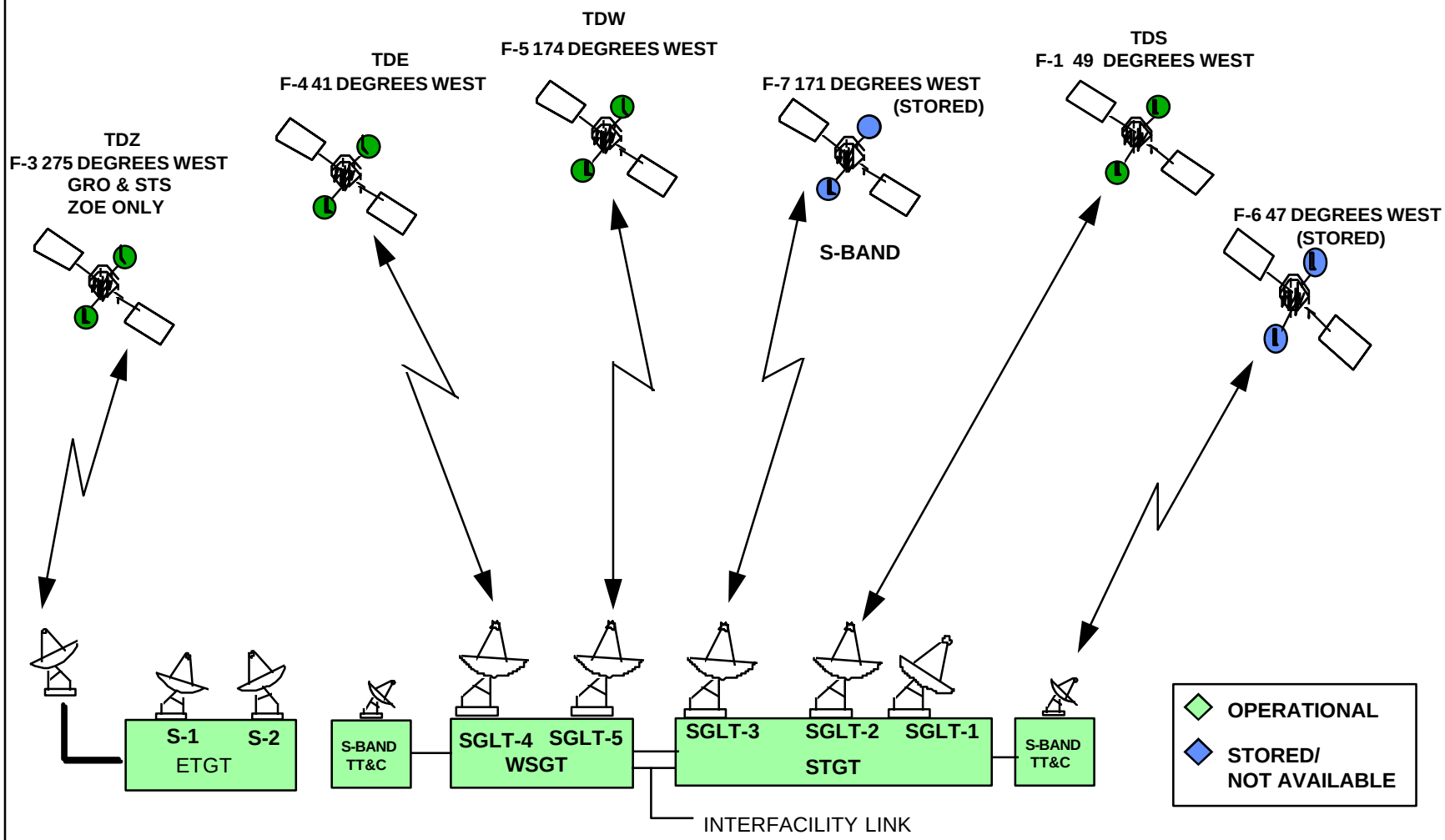
# TDRSS CONSTELLATION



# SIGNIFICANT CHANGES

- WHITE SANDS COMPLEX
  - SOFTWARE 96003B
    - DELIVERY COMPLETED JULY 16
    - USS AND SYSTEM MANAGEMENT (32 DR'S)
  - TDRS
    - TDRS-3 SA-2 PRIME TWT FAILURE (JUNE 4, 1996)
      - CHARACTERIZATION ON SA-2 (FAILED TWT) AND SA-1 COMPLETED
      - GRTS (AUSTRALIA) FORWARD LINK HARDWARE MODIFIED FOR SA-1 OPERATIONS
    - TDRS-6 WAS REPOSITIONED FROM 46 DEGREES WEST TO 47 DEGREES WEST FOR C-BAND COMMERCIAL OPERATIONS

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# SIGNIFICANT CHANGES (CONT)

- C-BAND RADARS
  - PTPC DOWN SEPTEMBER 13 TO SEPTEMBER 28 FOR DEPOT LEVEL MAINTENANCE
    - NO NAVIGATION IMPACT
  - FRCC (DRYDEN) DOWN FOR SYSTEM UPGRADES - APRIL-SEPTEMBER 1996
    - EAFC WILL REPLACE FRCC
- GROUND NETWORK
  - MIL LINK 2 UHF QUAD HELIX A/G CHECKOUT WAS SUCCESSFUL DURING STS-78 PRE-LAUNCH/ASCENT AND ON-ORBIT.
- DEEP SPACE NETWORK
  - GDS - SHUTTLE FORWARD LINK (SFL) REMOTE CAPABILITY UPGRADE COMPLETED AND TESTED.
- 5 SOPS/AFSCN
  - INDIAN OCEAN STATION (IOS) CLOSED AUGUST 15, 1996
  - PROGRAMMABLE TELEMETRY PROCESSOR'S (PTP) WILL BE OPERATED IN SHADOW MODE AT SUNNYVALE.
    - REPLACES MDM'S

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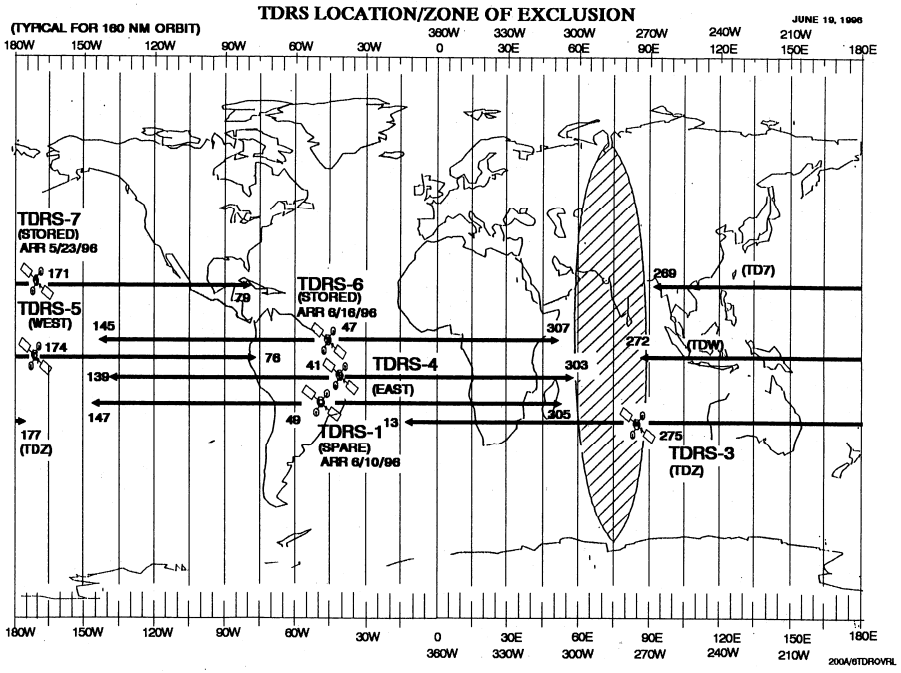
# ZOE COVERAGE

- FORWARD/RETURN LINK SUPPORT AVAILABLE FOR:
  - AOA (BACKUP TO TDE)
  - DOCKING
  - UNDOCKING
  - L-1 DAY CHECK
  - DE-ORBIT BURN




| ORBIT | MET | COMMENTS |
|---|---|---|
| 1 | | TO COVER OMS-2 |
| | | DOCKING |
| 103 | | UNDOCKING |
| 124 | TBS | L-1 DAY CHECK |
| 138 | | |

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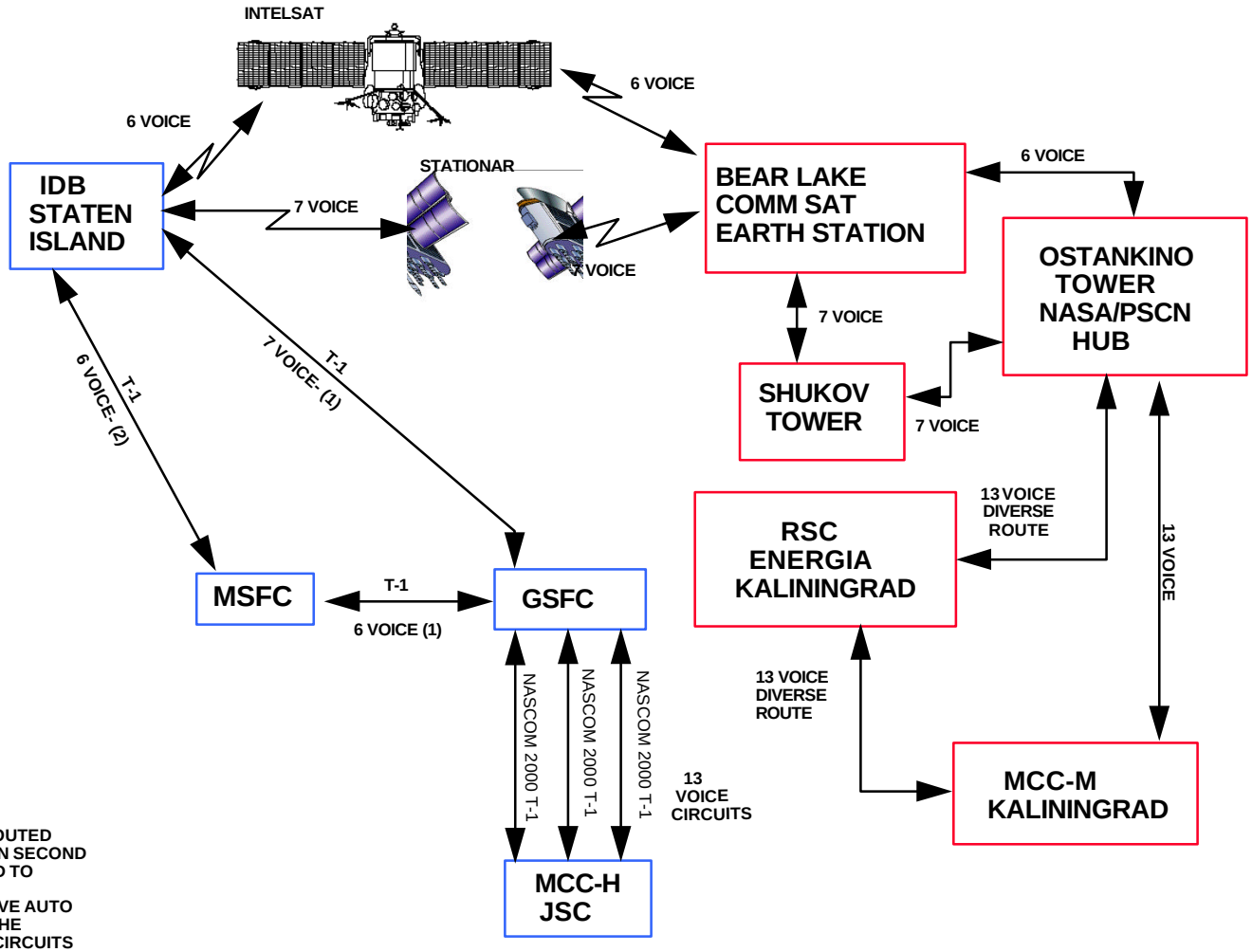
# JSC - KALININGRAD VOICE CIRCUITS




NOTES:

(1)
JSC/GSFC/STATEN IS./MCC-M
LOOP #1 = MIR/STS-OPS
2 = A/G MIR
4 = FLT DIR MCC-H
7 = MOSCOW CONSULT
11 = PAO MOSCOW
12 = SIM AIR TO AIR
13 = VHF SPARE

(2)
JSC/GSFC/MSFC/STATEN IS./MCC-M
LOOP # 3 = MCC-M/MCC-H GC
5 = FLT DIR MCC-M
6 = MIR SIM COORD/MIR P/I
8 = HOUSTON CONSULT
9 = A/G STS
10 = ASTRONAUT SURGEON

(3) - 13 VOICE CIR.'S (JSC/MCC-H TO KALININGRAD/MCC-M) ARE ROUTED SEVEN IN ONE PATH AND SIX IN SECOND PATH. DIVERSITY IS PROVIDED TO EXTENT POSSIBLE. TWO T-1'S BETWEEN US AND RUSSIA HAVE AUTO SWITCH OVER FEATURES IN THE EVENT OF A FAILURE, ALL 13 CIRCUITS WILL FAIL OVER.

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# JSC - KALININGRAD VOICE CIRCUITS

1. MIR SHUTTLE OPS CH-1
2. A/G MIR CH-2
3. MCC-M/MCC-H GC CH-3
4. FLIGHT DIRECTOR MCC-H CH-4
5. FLIGHT DIRECTOR MCC-M CH-5
6. MIR SIM COORD/MIR P/I CH-6
7. MOSCOW CONSULT CH-7
8. HOUSTON CONSULT CH-8
9. A/G STS CH-9
10. ASTRONAUT SURGEON CH-10
11. PAO MOSCOW CH-11
12. SIM AIR-TO-AIR (JIS ONLY) CH-12
13. VHF SPARE CH-13

} VIA PSCN

14. MCC-M/MCC-H GSOC BACK UP #1 (MIR SHUTTLE OPS)
15. MCC-M/MCC-H GSOC BACK UP #2 (A/G MIR)

} NASCOM STANDARD

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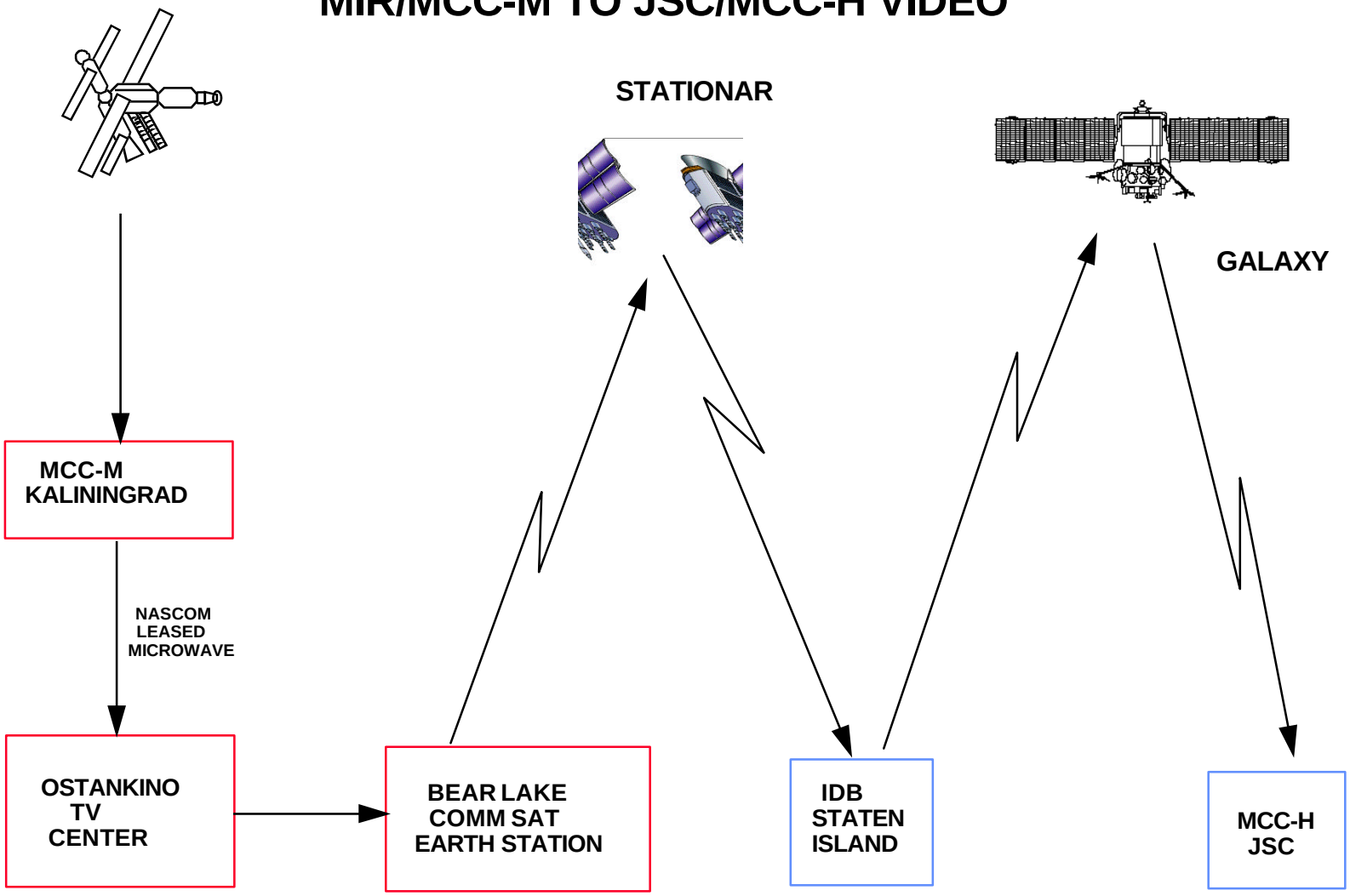
# MIR/MCC-M TO JSC/MCC-H VIDEO



# CONFIGURATION MANAGEMENT

- HARDWARE/SOFTWARE FREEZE
  - INTEGRATED NETWORKS FREEZE WILL BE IMPOSED AT LAUNCH MINUS 7 DAYS
  - EXEMPTIONS ARE APPROVED BY THE NETWORK DIRECTOR AND APPROPRIATE DIVISION CHIEFS
- CRITICAL PERIOD RESTRICTIONS
  - MAINTENANCE AND TESTING RESTRICTIONS ARE IMPOSED ON SPACE AND GROUND NETWORK ELEMENTS DURING CRITICAL MISSION PERIODS
    - LAUNCH
    - MIR RENDEZVOUS
    - MIR UNDOCKING/FLYAROUND
    - DE-ORBIT
    - LANDING

# SUMMARY

- STANDARD OPEN WORK REMAINS
  - COMPLETION OF JIS'S AND OPS EXERCISES FOR NETWORK SITES
  - SPACE AND GROUND NETWORK VER/VAL L-7 DAYS
- INTEGRATED NETWORKS AND GSFC SUPPORT ELEMENTS ARE READY TO SUPPORT STS-79/S/MM-04/SPACEHAB-05

# GODDARD SPACE FLIGHT CENTER

## CERTIFICATE OF MISSION OPERATIONS AND DATA SYSTEMS DIRECTORATE (MO&DSD) NETWORKS READINESS

**THIS IS TO CERTIFY THAT WITH SUCCESSFUL COMPLETION OF FLIGHT READINESS PREPARATIONS AND CLOSURE OF ASSOCIATED ACTION ITEMS, ALL MO&DSD ELEMENTS AND INTEGRATED NETWORKS ARE READY TO SUPPORT THE STS-79/S/MM-04/SPACEHAB-05 MISSION.**

| | | |
|---|---|---|
| 6/28/96 | 6/28/96 | 6/28/9 |
| G. A. MORSE — DATE | W. WATSON — DATE | R. STELMASZEK — DATE |
| SPACE SHUTTLE NETWORK DIRECTOR | ASSISTANT CHIEF NETWORKS DIVISION | HUMAN SPACE FLIGHT MISSION SUPPORT MANAGER |
| 6/28/96 | 6/28/96 for | 6/28/96 |
| W. FRIEDMAN — DATE | W. MACK — DATE | JON Z. WALKER — DATE |
| NMOS PROGRAM MANAGER | OFFICE OF FLIGHT ASSURANCE | HEAD, INTEGRATION AND OPERATIONS MANAGEMENT |