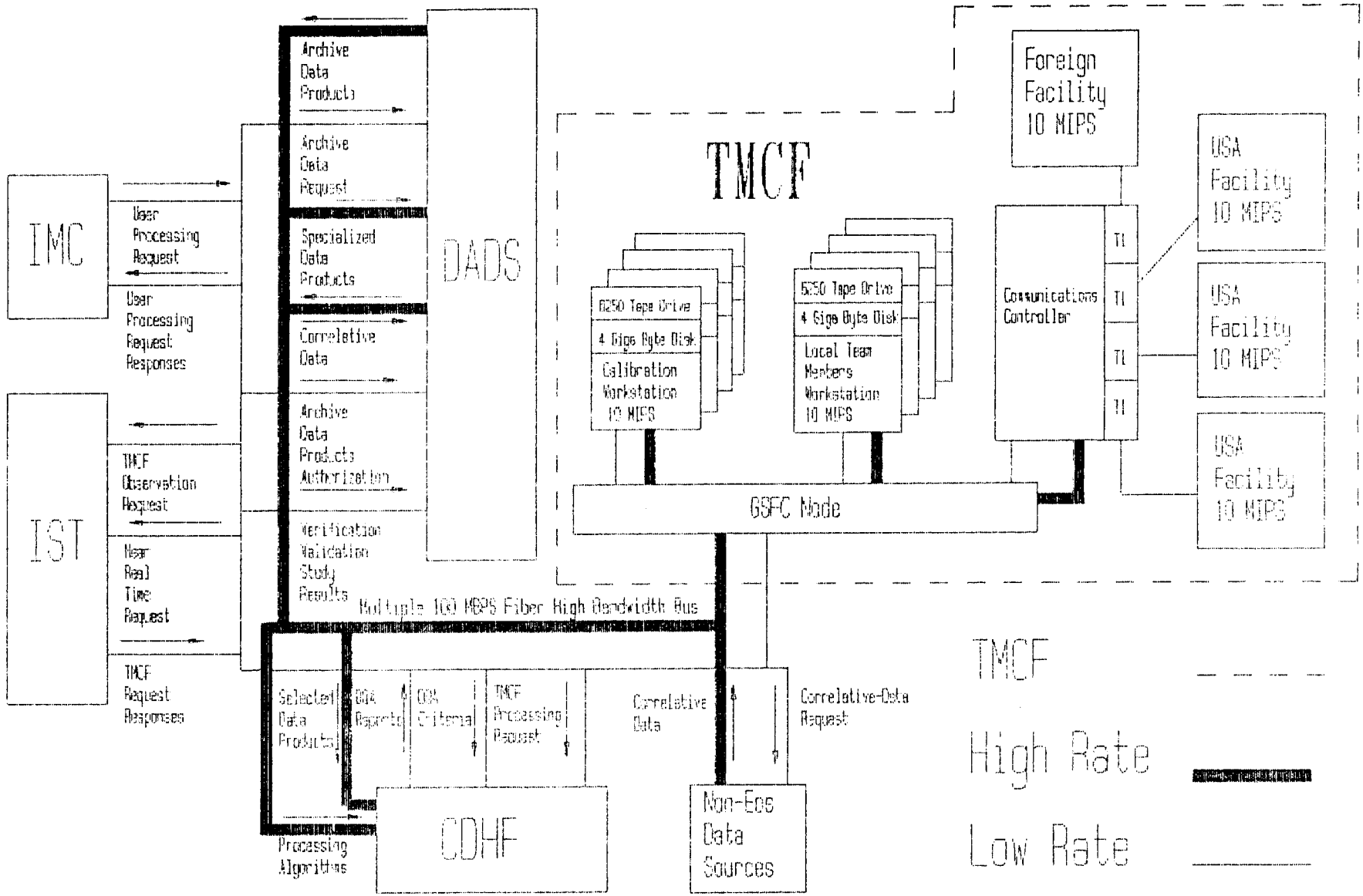
MODIS DATA SYSTEM STUDY

TEAM PRESENTATION

November 23, 1988

AGENDA

1. TMCF Conceptual Architecture
2. MODIS Data Product Requests
3. MODIS Data System Phase-B Study Plan for November to March


IMC
User Processing Request
User Processing Request Responses
IST
TMCF Observation Request
Near Real Time Request
TMCF Request Responses
Archive Data Products
Archive Data Request
Specialized Data Products
Correlative Data
Archive Data Products Authorization
Verification Validation Study Results
DADS
Multiple 100 MBPS Fiber High Bandwidth Bus
Selected Data Products
EOS Reports
EOS Criteria
TMCF Processing Request
Correlative Data
Correlative-Data Request
Processing Algorithms
CDHF
Non-Eos Data Sources
TMCF
6250 Tape Drive
4 Giga Byte Disk
Calibration Workstation 10 MIPS
6250 Tape Drive
4 Giga Byte Disk
Local Team Members Workstation 10 MIPS
GSFC Node
Communications Controller
T1
T1
T1
T1
Foreign Facility 10 MIPS
USA Facility 10 MIPS
USA Facility 10 MIPS
USA Facility 10 MIPS
TMCF
High Rate
Low Rate

MODIS DATA PRODUCT REQUESTS

Level-1B and Level-2:

Define a "heavy global user" as one who needs: (1) 1 km resolution global coverage; (2) 10 days of data; and (3) 10 MODIS radiances and/or parameters. Define a "heavy regional user" as one who needs: (1) 1 km resolution coverage over 1/20 of the Earth; (2) 365 days of data; and (3) 10 MODIS radiances and/or parameters. The typical data request will be for on the order of 10**12 bits of data. We define a "moderate" MODIS data user as one who orders 10% of a heavy user, such as with only one MODIS parameter. We define a "light" MODIS data user as one who orders 1% of a heavy user (e.g., only one month of regional data or a single day of global data. We assume the user community is equally partitioned into light, moderate, and heavy users.

For each transaction of Level-1B and Level-2 data, we have:

Light user:	10**10 bits
Moderate user:	10**11 bits
Heavy user:	10**12 bits

Level-3:

Three general types of Level-3 MODIS data will exist: (1) global; (2) regional; and (3) rectified image. We will assume that the global Level-3 MODIS data, as derived from Level-1B and Level-2 products, will exist on grids with 20 km and 100 km resolutions (with 10**5 and 10**6 elements, respectively). We will assume that the regional Level-3 MODIS data, as derived from Level-1B and Level-2 products, will exist on grids with 5 km and 20 km resolutions (with 10**6 and 10**7 elements, respectively). We will assume that the rectified Level-3 MODIS image data, as derived from Level-1B and Level-2 products, will exist on a 1 km resolution grid of 2,048 x 2,048 lines and pixels (with 4*10**6 elements). Assuming that 10 parameters are required, a Level-3 data transaction involves:

All users: 10**9 bits

Browse Data:

Browse data will be single byte image data over a 512 x 512 line/pixel array (eight of which cover the entire Earth at about a 20 km equatorial resolution). For the browse data, every transaction involves:

All users: 10**7 bits

November 23, 1988

MODIS DATA SYSTEM PHASE-B STUDY PLAN FOR NOVEMBER TO MARCH

1. Near-Term Study Drivers:

1.1 Briefing of the EosDIS Phase-B Contractors on December 15
1.2 Preparations for the NASA Non-Advocacy Review by March 31
1.3 Briefing of the MODIS Science Team by March 31

2. Near-Term Study Objectives:

2.1 Complete the MODIS/HIRIS Level-I Requirements by November 22
2.2 Complete the MODIS/HIRIS Commonality Study by December 15
2.3 Deliver Preliminary System Specification by December 15
2.4 Deliver Preliminary Operations Concept by December 15
2.5 Resume performance of the study plan

3. Near-Term Study Plan:

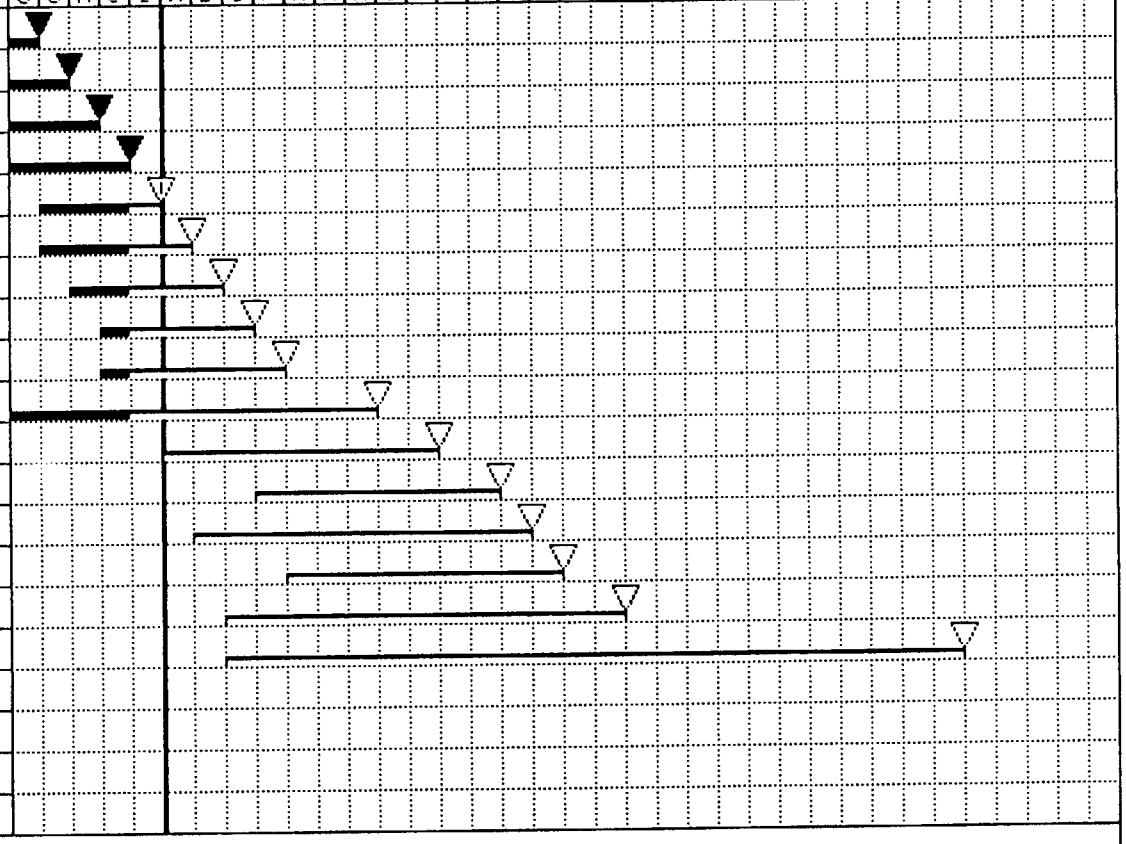
3.1 Complete the compilation of the Level-I requirements
3.2 Refine the sizing estimates for CDHF Level-2/3/4 processing
3.3 Collect all performance requirements in one document
3.4 All day retreat Monday November 28 to review the Operations Concept
3.5 All day retreat Tuesday November 29 to review the System Specifications
3.6 Prepare briefings for the Phase-B Contractors
3.7 Resume performance of the study plan
3.8 Support preparations for the Non-Advocacy Review

MODIS DATA SYSTEM STUDY
APPROVAL D.H.
ACCOMP.

Summary of Deliverables

ORIG. APPVL. 06/24/88
LAST CHANGE 10/25/88
STATUS AS OF 11/01/88

	MILESTONES
01	WBS Study Plans
02	Prelim User Data Prod Req'ts
03	Preliminary Operations Concept
04	Functional Requirements Doc
05	Prelim Data Processing Plan
06	Prelim Data Requirements Doc
07	Prelim System Specification
08	Operations Concept
09	Conceptual Design Doc
10	Draft Calibration Plan
11	Draft Data Processing Plan
12	Draft Instrument Oper'ns Plan
13	Data Requirements Doc
14	Database Specification
15	System Specification
16	Program Specification
17	
18	
19	
20	



Note:
1 - Deliverable delayed due to HIRIS/MODIS commonality study

MODIS DATA SYSTEM STUDY
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WBS - 2000

ORIG. APPVL. 07/01/88
LAST CHANGE 10/25/88
STATUS AS OF 11/01/88

	MILESTONES	88 J	88 J	88 A	88 S	88 O	88 N	88 D	89 J	89 F	89 M	89 A	89 M
01	2000 Req'ts Anlysis Study Plan												
02	2100 User Data Product Req'ts												
03	2200 MIDACS Operations Concept												
04	2300 MIDACS Operations Req'ts												
05	2400 System Performance Req'ts												
06	2500 MIDACS Functional Req'ts												
07	2640 Prelim L4 Requirements												
08	2650 Prelim Data Requirements												
09													
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11													
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16													
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Note:
1 - Required Deliverable
2 - deliverable delayed due to HIRIS/MODIS commonality study

MODIS DATA SYSTEM STUDY
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WBS 3000

ORIG. APPVL. 07/01/88
LAST CHANGE 10/25/88
STATUS AS OF 11/01/88

	MILESTONES	88 J	88 J	88 A	88 S	88 O	88 N	88 D	89 J	89 F	89 M	89 A	89 M
01	3000 Architecture Study Plan												
02	3100 EosDIS Architecture Rev												
03	3200 MIDACS External I/F Rep't												
04	3300 MIDACS Data Flow Report												
05	3420 Configur'n Cost Analysis												
06	3450 Arch Trade Study Report												
07	3500 Prelim Sys Specification												
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Note:
1 - Required Deliverable
2 - Deliverable delayed due to HIRIS/MODIS commonality study

MODIS DATA SYSTEM STUDY
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WBS 4000

ORIG. APPVL. 07/01/88
LAST CHANGE 10/25/88
STATUS AS OF 11/01/88

	MILESTONES
01	4000 Operations Study Plan
02	4120 L1 Data Proc Ops Concept
03	4120 L2/3 Data Proc Ops Conc
04	4300 Prelim Instr Cal'n Plan
05	4400 Prelim Data Proc Plan
06	4500 Prelim Instr Ops Plan
07	4120 L4 Data Proc Ops Concept
08	4100 MIDACS Ops Concept
09	4250 Data Proc Ops Scenario
10	4200 MIDACS Ops Scenarios
11	4340 Continuing Instr Cal Plan
12	4300 Instrument Cal'n Plan
13	4430 Input Data Attributes
14	4400 Data Processing Plan
15	4530 Operations Procedures
16	4500 Instrument Operation Plan
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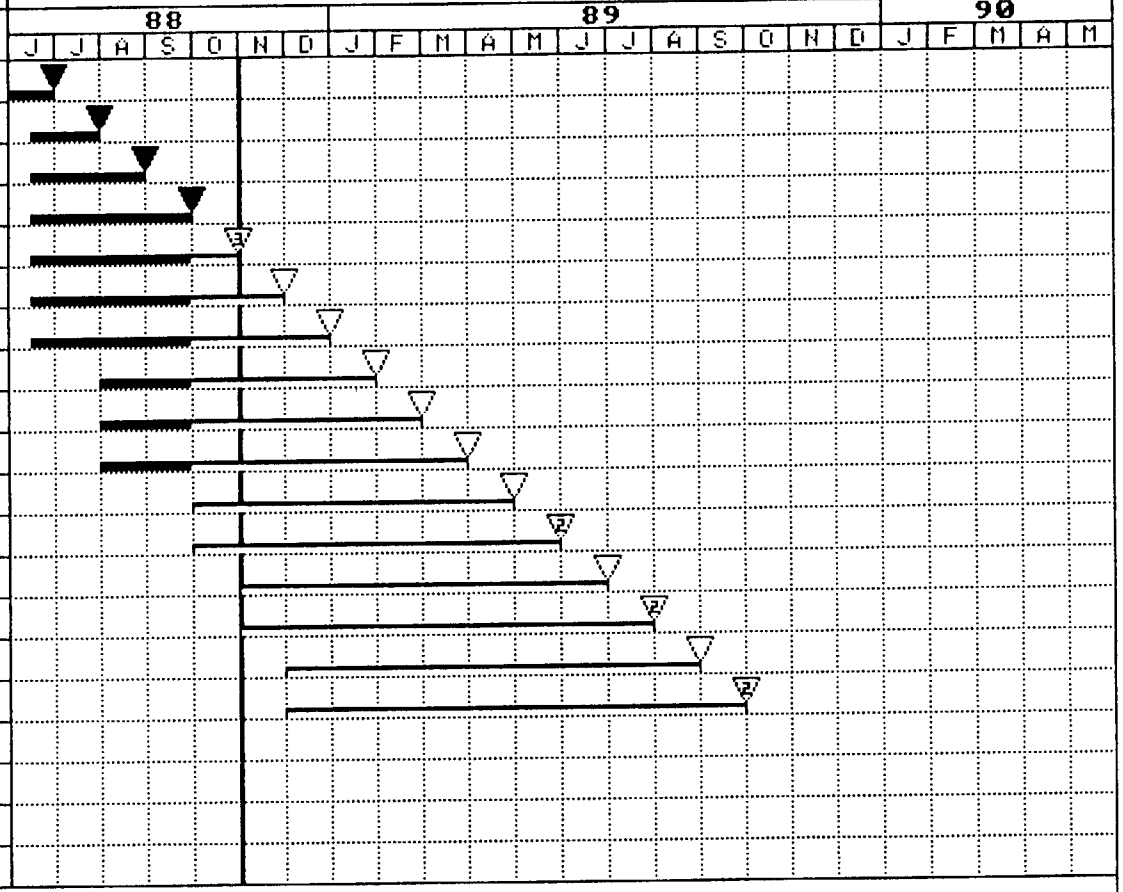

Note:
2 - Supporting Deliverable
3 - Deliverable delayed due to HIRIS/MODIS commonality study

MODIS DATA SYSTEM STUDY
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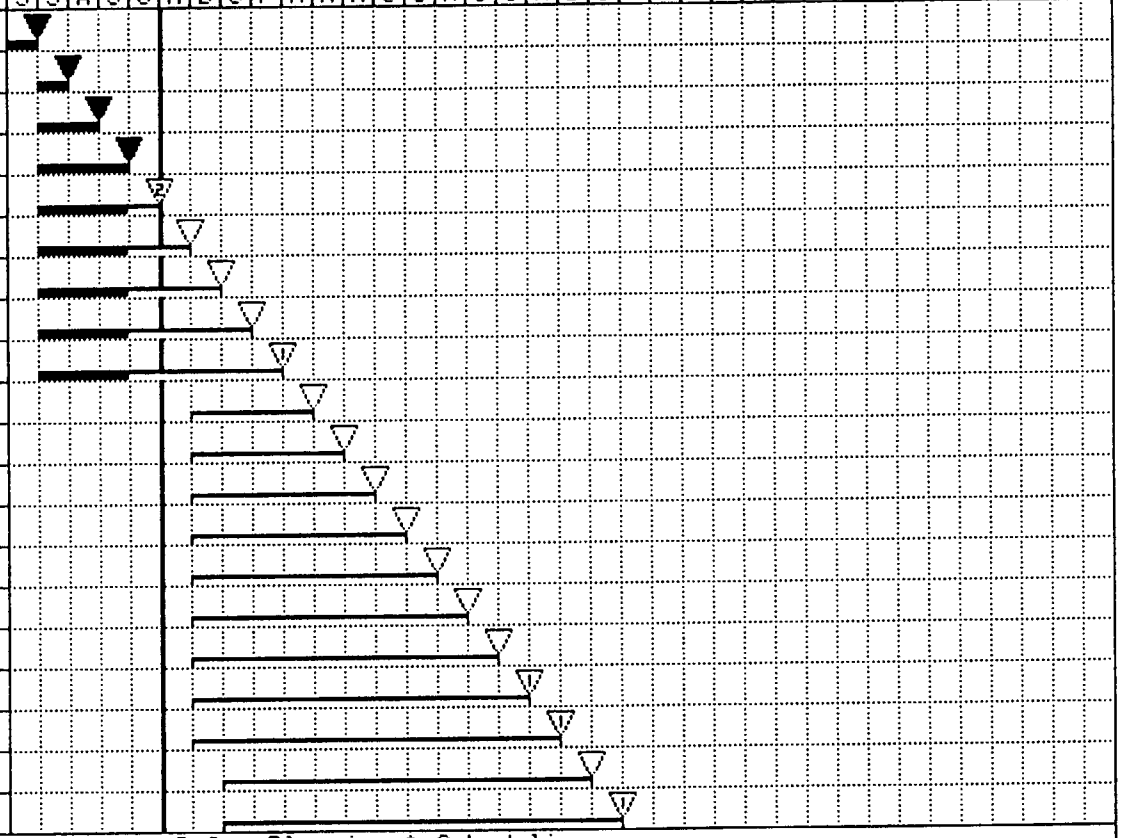
WBS 5000

ORIG. APPVL. 07/01/88
LAST CHANGE 10/25/88
STATUS AS OF 11/01/88

	MILESTONES
01	5000 Sys Spec Study Plan
02	5120 P/S Operations Concepts
03	5120 CDHF Operations Concepts
04	5120 DADS Operations Concepts
05	5120 User Access Ops Concepts
06	5120 Instrument Ops Scenarios
07	5120 Data Proc Ops Scenarios
08	5120 System Requirements Rev
09	5100 Sys Conceptual Design
10	5210 Mission Data Requirements
11	5310 IMC Requirements
12	5220 Operations Data Req'ts
13	5320 Database Spec - Internal
14	5230 Calibration Data Req'ts
15	5330 Database Spec - External
16	5240 MIDACS Mgt Rep'ting Req't
17	5200 MIDACS Data Requirements
18	5300 MIDACS Database Spec
19	5700 Trade Studies Report
20	5400 MIDACS System Specific'n



P/S - Planning & Scheduling

Note:
1 - Required Deliverable
2 - Deliverable delayed due to HIRIS/MODIS commonality study