

MODIS DATA SYSTEM STUDY

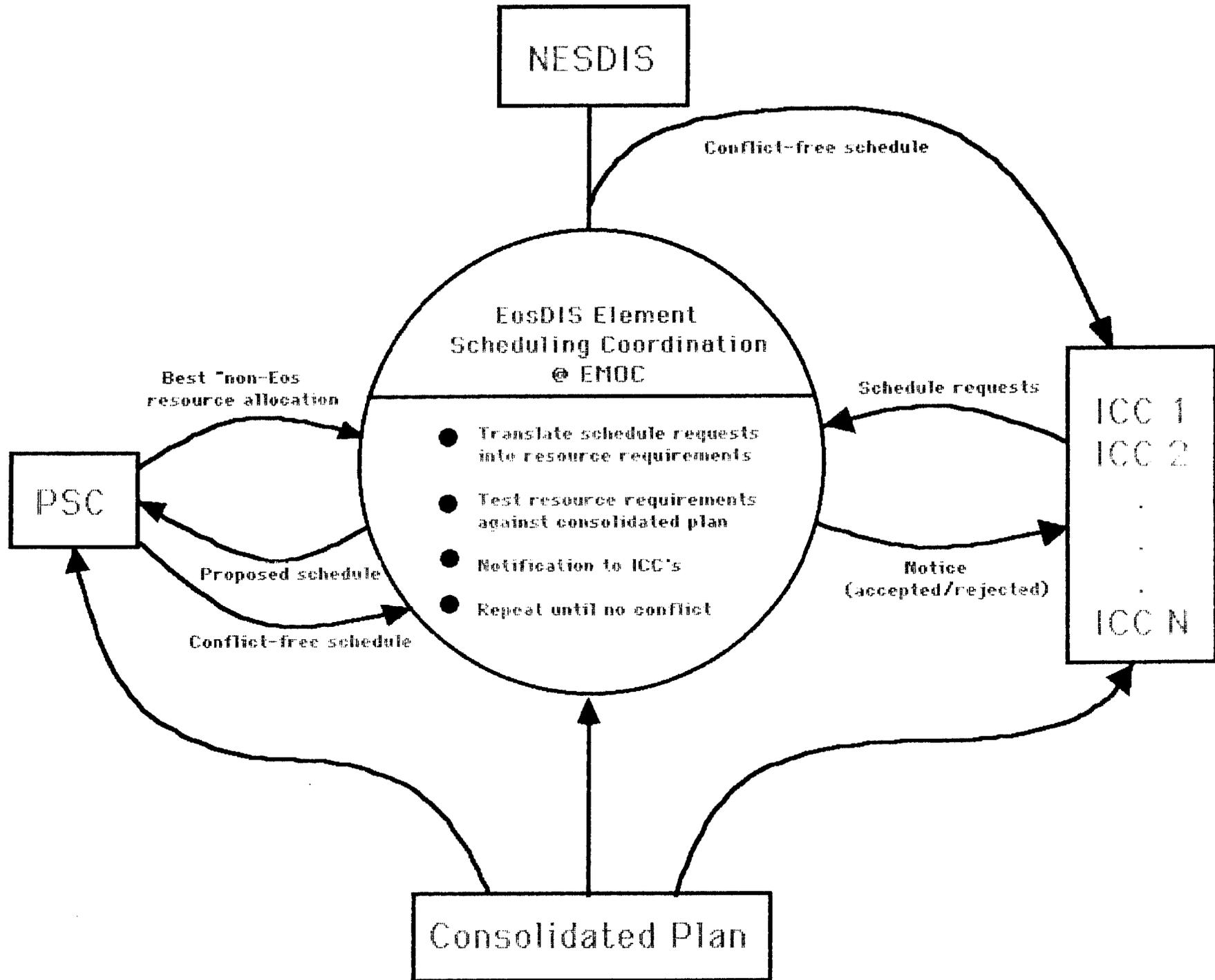
TEAM PRESENTATION

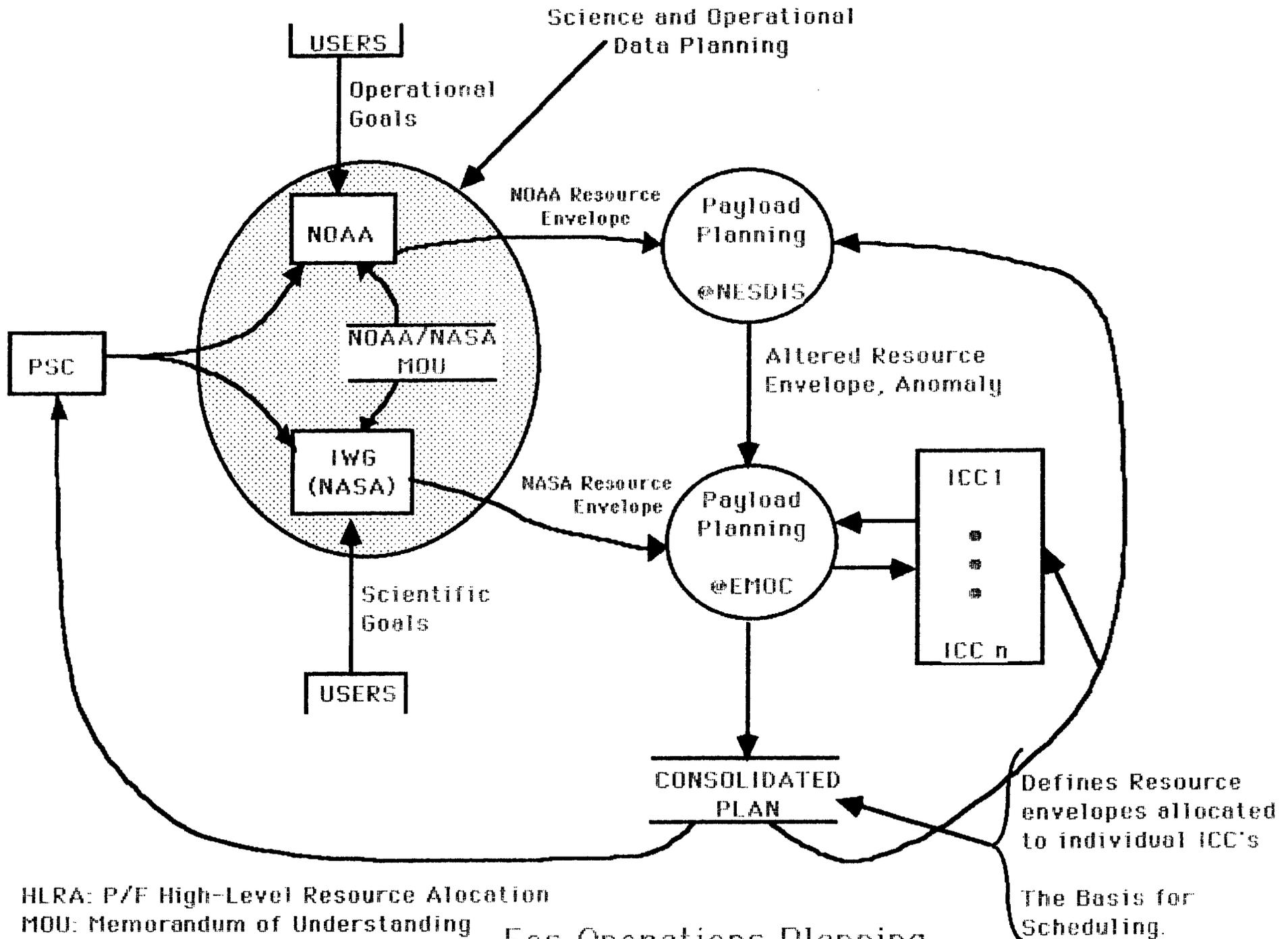
June 3, 1988

CONTENTS

1. The MODIS Data System in the EosDIS Environment
2. MODIS Data System Study Work Breakdown Structure
3. MODIS Data System Study Functional Requirements Document Outline
4. Minutes of the Last Meeting

Eos Operations Scheduling

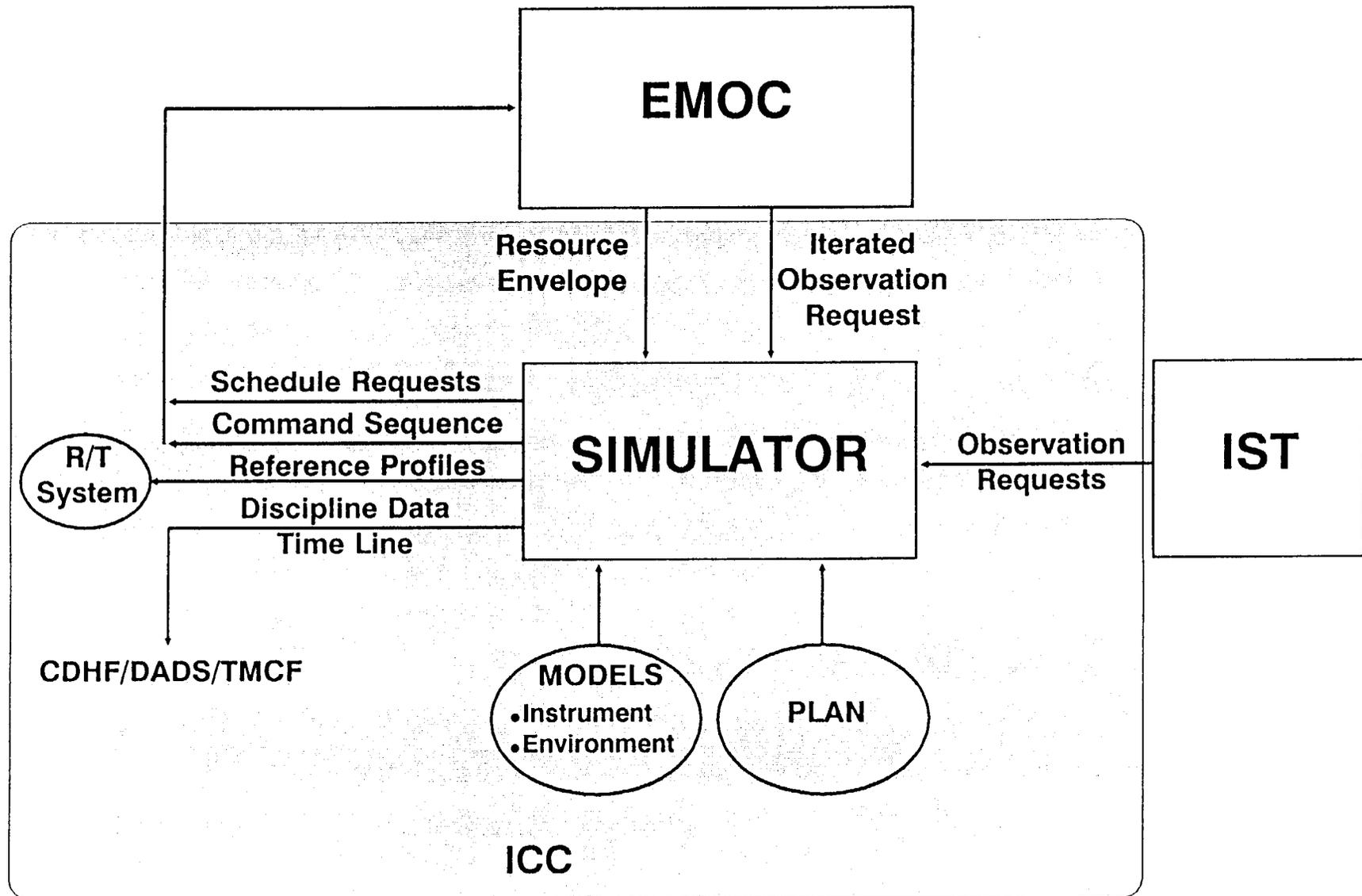




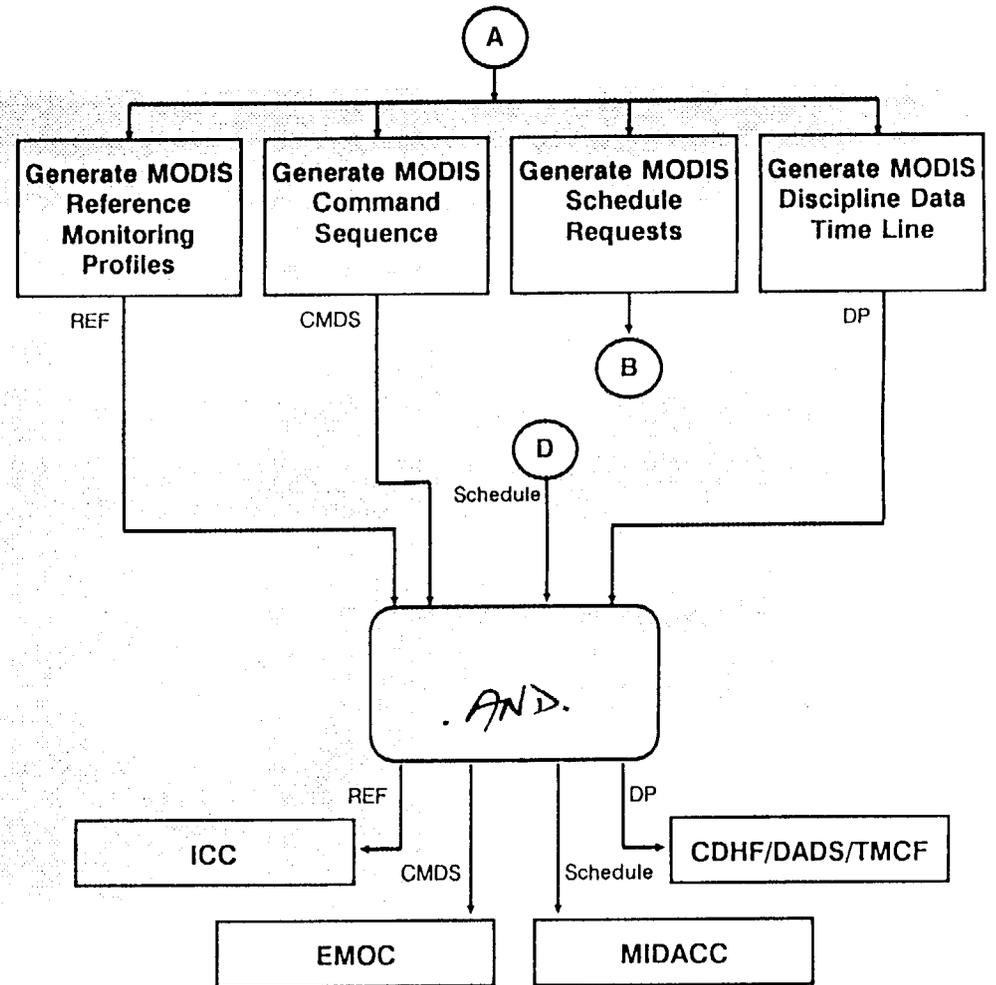
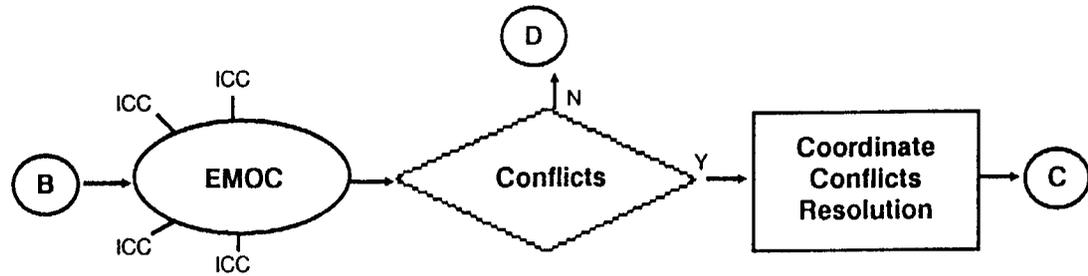
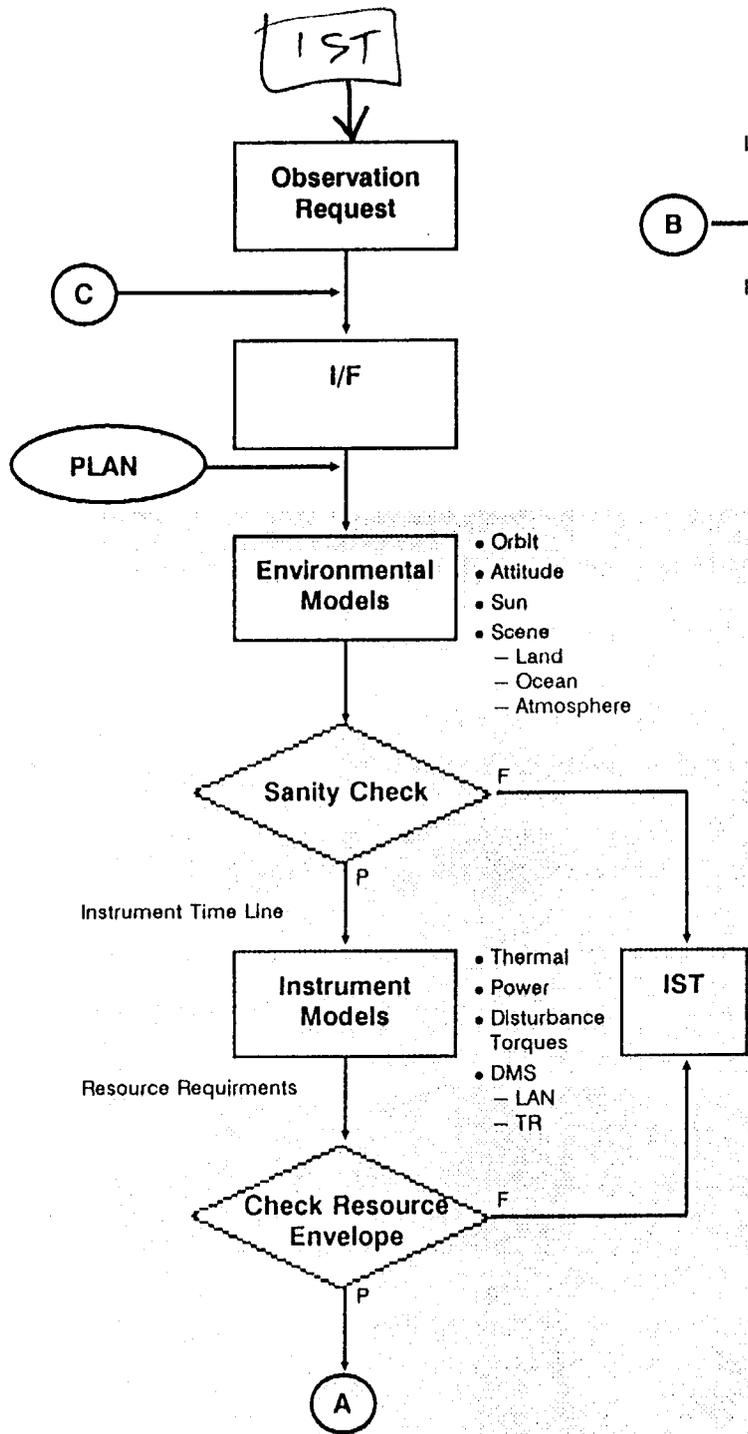
HLRA: P/F High-Level Resource Allocation
 MOU: Memorandum of Understanding

Eos Operations Planning

Defines Resource envelopes allocated to individual ICC's
 The Basis for Scheduling.



ICC Planning & Scheduling Overview



SYNOPSIS OF JULY 20, 1988 INTERVIEW WITH C. JUSTICE

A preliminary discussion of the MODIS data processing questionnaire was held with Dr. C. Justice. Prior to this discussion, there was a brief meeting to discuss the data system study philosophy and the use of the questionnaire. Participants in this meeting were: J. Smith, S. Wharton, C. Justice, H. Kyle, P. Ardanuy, E. Hurley, and S. Kim.

The scientists expressed concern that, whatever information was supplied through the questionnaire/interview process, it would be incomplete and could possibly lock the data system development onto a system which would not meet the needs of the ultimate science team, etc. H. Kyle stated that, under the circumstances, it was better to do something in terms of scoping the size of the system than to wait until next year when the science team will be in place.

J. Smith suggested that we might gain access to the list of names of proposers, and perhaps obtain copies of the data plans submitted by these people. He also suggested that there be a science "coordinator" to coordinate the interviewing activities. After this initial meeting, C. Justice and the Data System Study Team members discussed the current work at GSFC using GIMMS (Global Inventory Monitoring and Modeling Studies), and also, talked about the MODIS questionnaire. The highlights of this discussion are listed below:

Regarding the GIMMS system and AVHRR:

1. GAC data are resampled to 8-km resolution and mapped on geographical coordinates.
2. Cloud masks are created using thermal IR (channel 5).
3. Justice is working on a correction for precipitable water using Channels 4 and 5.
4. NOAA produces a 20-km resolution Global Vegetation Index (GVI) product which suffers from discontinuities due to algorithm changes.

Regarding the MODIS experiment:

1. The information contained in current AO proposals may be limited due to the fact that these are primarily concerned with prelaunch activities.
2. In the MODIS era an automated atmospheric correction needs to be in place for the terrestrial data processing.
3. All of the level 1B data, as well as an automated locating procedure (something that does what the man-in-the-loop accomplishes today when refining the location of image) data, are

required. The 250 m channels may be used as a sharpening band (e.g., 10 m bands on SPOT) to improve the co-registration of the 500 m and 1000 m channels, and monitoring field observations. Also, a star tracker may be essential. How well can we do with location if a star tracker is accessed by the MODIS data collection system?

Finally, Justice and the team discussed the questionnaire, and it was decided that Justice would fill it out for a particular product before the next meeting. Justice felt that a lot of the requirements would be generic, so that it may not be necessary to go through the exercise for each product.

The next meeting with Justice will take place in about two weeks.

Justice presented the team members with a copy of portions of an EOS MODIS AO proposal to monitor global biomass. However, most of the data plan information is concerned with the prelaunch activities proposed. The key points regarding data processing and instrument operations are given below:

1. A global sampling procedure will be developed in the prelaunch stage. This procedure will impact the data processing (image processing techniques) to be used in processing the MODIS data for this investigation.
2. Postlaunch activities will use MODIS-N and HIRIS data to develop estimates of global forest biomass.
3. Postlaunch analyses will require coincident MODIS-N and HIRIS data over selected regions in North America, South America, Africa, Asia, Australia, and Europe.
4. Two basic sampling approaches exist. One approach, allows a direct investigation of inhomogeneity and structure within the MODIS pixels by directly linking a given MODIS pixel with a coincident subset of HIRIS pixels. This technique demands that the MODIS-HIRIS registration be relatively accurate to ensure that the same ground area is being observed by both sensors. The other technique deals with the location of HIRIS pixels in a MODIS stratum rather than directly comparing MODIS and HIRIS on a per-pixel basis, and therefore is "more robust than the other technique in terms of MODIS-HIRIS registration.
5. The proposal points to the need for a transformation which should be available to users of MODIS and HIRIS data that would "permit the researcher to calculate equivalent HIRIS pixels for a given MODIS pixel - image to image registration. Transformations which would allow researchers to convert the MODIS - HIRIS data to certain mapping projections would be an aid to those using ground-referenced ancillary data."

6. In the postlaunch investigation, "it is expected that, at a minimum, portions of two-four level 1B MODIS-HIRIS orbits across each continent will be requested.

7. The investigation will require that "MODIS and HIRIS instruments are simultaneously acquiring colocated data."

ACTION ITEMS:

7/8-1 (Ardanuy/Kim) Review the factors associated with assuming a 40% (or other) oversampling, as well as for calibration, housekeeping, and other engineering data, as they bear on the MODIS data rates and volume.

**** Closed ****

7/8-2 (Sharts) Investigate the effect, if any, that real-time and possibly redundant data transmissions will play in determining the MODIS data rates and volume.

7/8-3 (Han) Review the draft data product questionnaire with members of the MODIS Instrument Team.

7/15-1 (Han) Confirm the 10 and 20 megabit per second data rates projected for low data-rate instruments and the platform LAN.
