MODIS DATA STUDY TEAM PRESENTATION

October 5, 1990

AGENDA

1. Status of the MODIS Level-1 Processing System Design
2. MODIS Study Team Action Items Derived From the Science Team Meeting

ITEMS TO BE CONSIDERED IN THE SYSTEM ENGINEERING OF THE MODIS LEVEL-1 PROCESSING SYSTEM DESIGN

A first draft of the working conceptual Level-1 processing system design was delivered on September 21. This first iteration was driven by a set of loosely stated requirements on the output data products (i.e., Level-1A, Level-1B, browse, metadata, MCST support, status, etc.). The draft combined, for the first time, a treatment of all functional processes and requisite data flows.

In this first pass, inconsistencies exist among data flow diagrams at equivalent and adjacent levels. These will be removed through a structured design walkthrough, which is presently underway.

At the end of October, we will deliver a second, refined draft of the working conceptual Level-1 processing system design for peer review and to solicit general constructive comment. In addition to the walk-through, we anticipate the following to be complete in this timeframe:

1. The draft design will be used as a tool to redefine the Level-1 Processing System functional requirements and to rigorously specify the input and output data structures. It is important that these entities be firmed up as early as possible.

2. A revised and firm definition of the MODIS Level-0, 1A, 1B, 2, and higher products will be delivered identifying the functions that are to be included at each processing level.

3. Using the existing system definition diagrams (context and data flow), we will work backwards to the requirements specification (assumptions phase). All present knowledge regarding Level-1 processing will be assembled in this stage (e.g., pixel interleaving specifications). Consistency with the most recent EOSDIS and CDOS conceptual architectures will be coordinated (CF attached figure). Data flow discrepancies identified at this point will result in formal comment and dialogue with the affected project.

4. Starting with the context diagram, we will rethink the environmental model. Calibration parameter inputs, system operator, UTC for time scheduling events and processing control, and hard copy (audit trail and MIR) will be added to the external items. Then, we plan to progress through the data flow diagrams combining and redefining the flows to minimize coupling and maximizing cohesion.

5. The data dictionary will be enhanced to include a data type entry which will include a discrimination of data stores vs flows, data vs event (utilizing state transition diagrams-see below), and decomposition of item entries to the element level.

6. We propose to generate an event list. We will add temporal dependencies with the goal of creating a state transaction diagram.

7. We will determine the required processing system database categories and descriptions. For example: platform ephemeris, attitude, and events; instrument events; various clock correlations and drifts; calibration coefficients and type; audit trail; etc.

8. A real-time structured design methodology will be selected.

CONCERNS

Concise definitions of level-n criteria. for example:

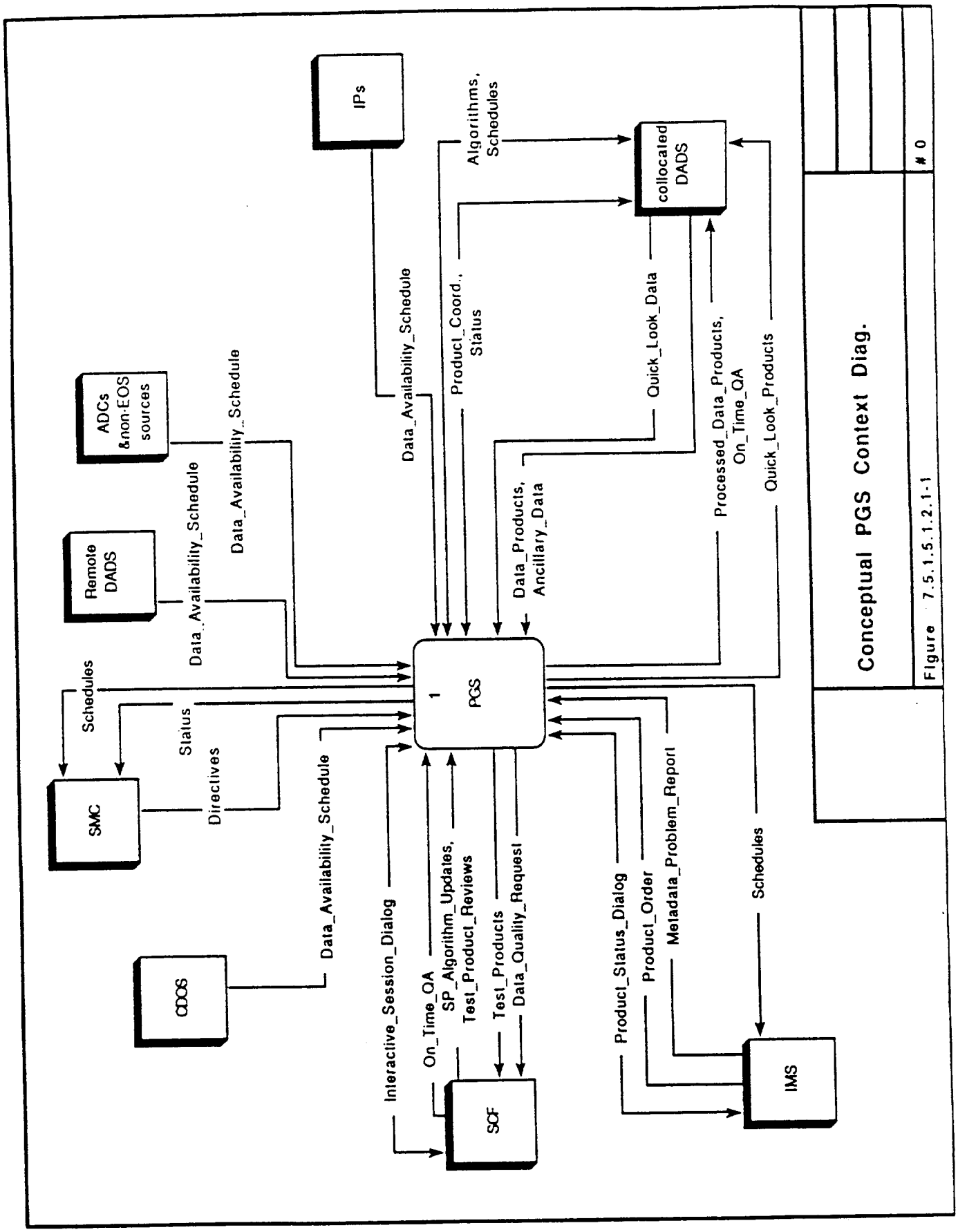
- Level-0: packets from CDOS with <?> annotation appended.
- Level-1A: radiometric/spectral parameters appended <?> <?> set of geometric (ephemeris) parameters
- Level-1B:
- Level-2, etc.

Definition of MCST support products.

Definition of metadata.

Browse compositing techniques.

Requirements of the calibration function on the Level-1 processing system.


IPs
Algorithms, Schedules
collocated DADS
ADCs &non-EOS sources
Data_Availability_Schedule
Product_Coord., Status
Quick_Look_Data
Remote DADS
Data_Availability_Schedule
Data_Availability_Schedule
Data_Products, Ancillary_Data
Processed_Data_Products, On_Time_QA
Quick_Look_Products
Schedules
Status
1
PGS
SMC
Directives
Data_Availability_Schedule
CDOS
Data_Availability_Schedule
Interactive_Session_Dialog
On_Time_QA
SP_Algorithm_Updates,
Test_Product_Reviews
Test_Products
Data_Quality_Request
SCF
Product_Status_Dialog
Product_Order
Metadata_Problem_Report
Schedules
IMS
Conceptual PGS Context Diag.
Figure 7.5.1.5.1.2.1-1
0

MODIS DATA STUDY TEAM ACTION ITEMS DERIVED FROM THE STUDY TEAM MEETING (DRAFT)

1. Provide science team with a concise report summarizing the proposed navigation methodology, including selection of geoid model, justification for anchor-point strategy, and perhaps selection of different orbital models (predictive for planning, definitive GPS for processing).

2. Given science team requirements, provide image and other browse data recommendations to the team members (and EOSDIS for incorporation in the C/D specifications) meeting the stated requirements.

3. Support science product development/generation development by assisting the science team in identifying the land/ocean coverage of MODIS-T in composite mode with different tilt angles and strategies.

4. Clarify the definitions of the various levels of products to be produced by MODIS.