Final Report for Grant Period 9/15/91 - 9/14/92

Dr. Tony England and Nigel Hinds

Radiation Laboratory
Department of Electrical Engineering & Computer Science
The University of Michigan
1301 Beal Avenue
Ann Arbor, Michigan 48109-2122
(313) 763-5534; E-mail address: england@eecs.umich.edu
(313) 763-5243; E-mail address: nigel@eecs.umich.edu

January 27, 1993

1 Introduction

Our task was to evaluate the NASA EOSDIS Information Management System (IMS), version 0. This report summarizes our work in the fiscal year 1992 (grant period from 9/15/91 to 9/14/92).

Although, IMS version 0 (V0) goals are stated in many documents, we consider these among the most important. V0 will provide Earth scientists a uniform view of all V0 DAAC and ADC information and services. This includes directory information and a uniform user interface for data searches. The V0 team will also document their experiences to provide valuable lessons for future EOSDIS work.

Our evaluation stressed adherence to those goals as well as the following immediate system requirements. IMS should:

- allow users to easily search large and dispersed data bases

- deliver data products quickly and easily

The remainder of this report is outlined as follows. Section 2 describes the activities in which we have participated and the reports we have written. Section 3 summarizes our recommendations made throughout the year.

engin
UMR 1147

engin
UMR 1147

2 FY92 Activities

Retreat, November 1991

This meeting included the IMS team at NASA headquarters, the participates DAACs and the other members of the evaluation team. The purpose was to evaluate a prototype of the user interface built by the development team. After this meeting we produced written recommendations to the design team.

In preparation for this meeting we spent a week testing the V0 software and documenting recommendations. At this meeting we also presenting drafts of prototypically V0 user scenarios for evaluation by the V0 design team.

EOSDIS Version 0 Documents Review, December 1991

In this report we reviewed a number of the initial V0 planning documents. The list includes: "Science Data Plan for the V0 EOSDIS", July 1991; "EOSDIS Version 0 Science Plan", August 1991; "EOSDIS Version 0 Functional Requirements", September 1991.

Retreat, April 1992

This meeting included the IMS team at NASA headquarters, the participating DAACs and the other members of the evaluation team. The purpose was to evaluate the V0 system to date and set new priorities for 1992. Data browsing facilities were given a high priority, as was a graphic user interface. After this meeting we produced a written summary of recommendations to the design team.

In preparation for this meeting we spent more time performing user interface tests.

Data Dictionary Position Paper, March 1992

In an effort to make a V0 data dictionary a priority item, a report was prepared and discussed with a number of participants at the April 1992 retreat.

Continuing Document Review, 1992

During the course of the year we have reviewed many NASA documents. These include: "Formatting System Requirements version 0.3"; Various Science Data Plans from the DAACs; "EOS Science Software developer's Handbook"; "EOSDIS Science Processing Library Software Categories".

Continuing Feedback, 1992

Throughout the year we have contributed to a number of technical discussions via email.

Other Software Reviewed, 1992

In addition to the V0 user interface review, we testing Science Processing Library Software (SPLS) and provided written comments to designers.

3 Conclusions

In this section we provide a summary of our FY92 recommendations.

The EOSDIS project is approaching information management on a very large scale, if not the largest ever attempted. Naturally, there are few existing systems which fill the special needs of the project. Although many of those needs are easy to identify (e.g., multimedia information retrieval, and high speed networks) the solutions remain areas of research. Enabling technology is that which is necessary for the EOSDIS infrastructure to function properly, but can not be realistically be developed by the project. It must be made clear how dependent the success of EOSDIS is on these enabling technologies. They may become obstacles later in the project lifetime.

The IMS design team needs to take a more active role in the user interface evaluation. Presently, the Data Panel evaluation team members (i.e. The Tire Kickers) are responsible for summarizing their experiences with the software. Although much data can be gathered with this technique, IMS developers must also perform tests where the IMS users are observed. In many cases it has been apparent that users can not sufficiently articulate their problems and concerns. User observations would allow the developers to watch user interaction with the software and obtain unbiased data.

The focus of V0 needs to be refined. Particularly, since the V1 contractor could replace it with an entirely new system, V0 should be performing preliminary design and testing in a few key areas. Currently, V0 wish list is large and diverse.

Finally, we wish to commend the IMS design team for significant progress with V0 during this grant year. We fully appreciate the difficulty of their task.