

MODIS SCIENCE TEAM MEMBER
Quarterly Report (July - September 1993)

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a) Task Objectives

The objectives of this phase of the project were: to continue the research program developing the 'at-launch' algorithms for MODIS atmospheric correction, vegetation indices, fire detection and land cover and to build the infrastructure and collaboration to permit the research to be undertaken. The project has developed a number of collaborative projects which are intended to expand the scope of the team members activities and involve a larger community in the MODIS research. Due to the small number of researchers addressing the issues necessary for the methodological advances needed for MODIS, emphasis has been given to developing international collaborative research through the IGBP Data and Information System Core Project. In addition, the goals of the MODIS project, the status of the instrument and preliminary results of the research were presented at key scientific meetings. The project was also represented at the MODIS Team meeting. Results of the studies undertaken as part of the project are in the process of being written up and submitted for publication.

b) Tasks Accomplished (Data analysis and interpretation).

Specifically the project has addressed the following topics over the last four months:

o MODIS Atmospheric Correction

- The Atmospheric correction ATBD was completed and submitted.
- 6S Code : The beta version of the code has been completed. It is available through ftp anonymous on [kratmos.gsfc.nasa.gov](ftp://kratmos.gsfc.nasa.gov). A reference paper is being written providing description of the Code.
- E. Coast SCAR : 20 scenes of AVHRR data (NOAA 11) acquired during SCAR have been analyzed for aerosol retrieval. The local sunphotometer

network provide us 40 points of validation for the dark target method for aerosol retrieval. Results are very encouraging showing a agreement within the error budget analysis. MAS: the MAS data from July 28th 1993 has been provided to us by SDST and is being currently analyzed. Other days will follow.

- Sunphotometer Network: A presentation of the sunphotometer and associated atmospheric correction activities was given during during the LTER All Hands Meeting at Estes Park (Colorado). A plan for collaboration has been discussed that includes installation of sunphotometers at selected LTER sites,atmospheric correction and analysis of AVHRR and TM data. The LP DAAC Version O activity is providing the AVHRR data and the Landsat Pathfinder Global Land Cover Test Sites will provide the TM data.

- o MODIS Land Cover

- Collaborative work is being undertaken with UMD personnel to develop procedures for using time-series AVHRR data to derive land cover classifications for Africa.

- o MODIS Fire Detection

- The Fire ATBD was completed and submitted in conjunction with Dr. Y. Kaufman. - A paper is in preparation on the AVHRR Fire detection procedures for Africa.

- o MODIS Vegetation Index

- The Modis VI ATBD was completed and submitted in conjunction with Dr. A. Huete.
 - Emphasis for this task has been placed on developing improved procedures for the processing of AVHRR data to generate global NDVI data sets. This activity is in collaboration with Dr N. Saleous with the GIMMS group at GSFC.

- c) Data / Analysis / Interpretation

AVHRR GAC data (GIMMS), LAC data (EDC/South Africa) and subsets of the IGBP Global Data Set were analyzed during the reporting period.

MAS data were analyzed and new AVIRIS and MAS data were collected.

Sunphotometer data continued to be collected at GSFC and for a number of remote sites. Analysis is continuing. Network was tested in Brazil in preparation for the SCAR B campaign.

Landsat data were obtained through the EDC MODIS test site initiative. Landsat TM data were acquired through the EOSAT NASA data grant.

Meetings Attended.

NSF LTER All hands Meeting at Estes Park (September '93) EPA Interagency Fire Meeting, Michigan (September '93) GSFC EOS Physical/Social Science Meeting (July '93)

d) Anticipated Future Actions.

Research:

Review the BRDF ATBD for synergy with the Atmospheric correction ATBD. Analysis of the Pre-SCAR field campaign data Develop proposal for the NSF LTER Atmospheric Correction study Promote global sun photometer network.

Work to obtain access to the global 1km test site data from the LP DAAC. Continued AVHRR Fire algorithm study Continued AVHRR Land Cover study Continued AVHRR Vegetation Index processing improvements Continued MODIS Airborne Simulator (MAS) analysis

Upcoming Meetings:

Val d'Isere Spectral Signatures Meeting (Jan 94) ECE JRC Fire Meeting (Oct 93)

EDC DAAC Meeting (Oct 93)

SWAMP Meeting (Nov 93)

MODIS VI Meeting (Jan- Feb 94)

Hardware Purchase

o No new equipment purchased

e) Problems/Corrective Actions

Nothing to report

f) New Papers

IGBP Fire Algorithm Workshop Report (IGBP Report - in review)

AVHRR Lessons Learned. Justice C.O. and Townshend J.R.G (IJRS - submitted).