Vegetation and Fire Weather

We need real-time or near-real-time data on conditions of vegetation, etc.

The NWS Storm Prediction Center (SPC) provides fire weather forecasts at:
http://www.spc.noaa.gov/products/fire/wx/

A web site that has satellite derived fire detection is:
http://cimss.ssec.wisc.edu/goes/burn/abba.html.

Regarding vegetation health, NESDIS produces vegetation index products from Polar satellites. With GOES-R in the 2012 or later time frame, a 0.86-micrometer channel is planned which will improve the capability to monitor the health of vegetation.

Hyperspectral Imaging

Where are hyperspectral imagery and data products?

NOAA is investigating two parts of the spectrum for potential application of hyperspectral data, visible to near IR (with wavelengths from about 0.2 to 5 micrometers) and IR (about 3 to 15 micrometers). In the visible to near IR, NASA launched an instrument on EO-1 called Hyperion. Samples of these data can be seen at: http://eo1.gsfc.nasa.gov/Technology/Hyperion.html.

In this region may be useful for coastal zone, open ocean, and coral reef purposes, if they are designed for that purpose. In the IR band, concept studies are underway to provide a Hyperspectral Environmental Sensor (HES) as an atmospheric sounder for the GOES-R series. HES will be an interferometer-class instrument and will be based on technology demonstrations from NASA’s Geostationary Imaging Fourier Transform Spectrometer (GIFTS). NOAA, NASA, and the Navy are partners on the GIFTS effort. NOAA will be responsible for all data receipt, calibration, and initial data distribution of GIFTS data.

Soil Moisture

Soil moisture is not in the list of the NESDIS products—is that because the technology algorithms are not ready?

NPOESS will carry the Conically Scanned Microwave Imager/Sounder (CMIS) on all spacecraft. Measurements are made in the 6GHz range for soil moisture. The program has procured algorithms for calculating soil moisture. More information is available on the NPOESS website. NESDIS does produce soil moisture products. They can be found at:

These products will be improved in the NPOESS era.

NPOESS Environmental Data Records (EDRs)

Current NPOESS EDR’s are defined for operational and forecast support and climate monitoring. I suggest development of event products or exploration of potential thereof. The host of new sensors and quantity of channels will provide a lot of data for “knowledge through data development” activities. The addition of an active-fire monitoring EDR is along these lines, as also is consideration of an Aerosol Polarimetry Sensor (ASP). Also, polar tropospheric winds could be done by NASA as has been initially demonstrated by the University of Wisconsin.

We have placed the Algorithm Theoretical Basis Documents for our products (Environmental Data Records) on our web site so both users, labs, and the academic community will have access to the science behind the product. This yields the result mentioned and also provides the opportunity for an informal peer review.

Archival

Archive data and ensure accessibility to secure long-term benefits.

One way that NOAA plans to improve access is through the Comprehensive Large Array-data Stewardship System (CLASS) project. The vast NOAA data holdings are collected and stored at various data centers that are responsible for the perpetual stewardship, archiving, and dissemination of environmental data. Instead of having customers track down specific data at one of the various data centers, NOAA is planning to build a “one-stop” point of access to these data.

The CLASS project goal is to provide a simple WEB-based interface that will allow customers to access data from NOAA data holdings. CLASS will afford efficient management of high volumes (petabytes) of critical environmental data. CLASS will also provide expansion in storage capacity, increased communications bandwidth, and automation of data management activities to deliver rapid access to the NOAA data holdings. Placing data on-line for access via the World Wide Web is a high priority in accordance with the federal government’s e-Government initiative. There are time frames for the project, with schedule goals organized around various data campaigns. Some of the key start dates are:
- GOES campaign - January 2003
- E-Commerce capability - June 2003
- NPP campaign - January 2004
- EOS campaign - June 2005
- METOP campaign - June 2005

Overlapping Operations

Emphasize overlapping operations to ease the transition time.

This recommendation has been turned over to the GOES Users’ Working Group. In the case of Emergency Managers Weather Information Network (EMWIN) and Weather Facsimile/Low Rate Information Transmission (WFAX/LRIT) services, special transition plans have been developed.


Polar User Conference

Many references were made to the GOES User Conference. Since there will be so many changes in the Polar Program in the future with Metop and NPOESS, it seems it would be advantageous to NESDIS to hold a similar Polar User Conference.

NPOESS has a similar event, the MAXI Review. Unfortunately, events of 9/11 resulted in the 2001 session being cancelled, however, the next MAXI is scheduled for October 28-30, 2002. In the MAXI, users and interested parties will be able to hear from and question builders and designers of sensors and systems and to learn more about products that will be available from NPOESS. NESDIS is currently planning the NOAA-sponsored GOES and POES “Satellite Direct Readout User Conference for the Americas.” This Conference will be held in Miami, FL, Dec 9-13, 2002. NOAA point of contact is Wayne Winston@noaa.gov.

More Polar Data

We need more polar data—sometimes it’s all that we have.

Significant NOAA resources are going into maintaining and improving polar capability both with the current POES and the future NPOESS systems. NESDIS realizes the importance of polar data at high latitude sites like Fairbanks, Alaska. NESDIS is currently working with NWS to make more satellite data available to NWS field offices via AWIPS and has plans to upgrade direct readout capabilities at Fairbanks.

Reference:
- 84th Annual Meeting of the American Meteorological Society (AMS) Annual Meeting Orlando, FL January 17, 2002
The NOAA Administrator for Satellite and Information Services, Gregory W. Withee, opened the forum with an overview of future NOAA satellite system development. The forum focused on four key questions that were presented to participants. Taking each question in turn, Gerry Dittberner presented a brief overview of NESDIS’ current efforts in each area.

The floor was then opened to participants to offer comments, questions or feedback to a panel of NESDIS satellite systems experts comprised of James Garuca (GOES Requirements Manager), Tom Schott (POES Product Manager), and Mike Haas (National Polar-orbiting Operational Environmental Satellite System [NPOESS] User Interface). Panel members responded to participants’ comments and questions on each topic, before opening the floor to general comments and questions. Several recommendations emerged during the session and from those submitted afterward.

Based on the keen interest of participants, it was clear that the forum’s goals to exchange information and provide future program status were well met. The NOAA Satellite Systems Forum proved to be a useful part of our outreach efforts and will be continued at future AMS Annual Meetings. The next session will be at the AMS Annual Meeting in Long Beach, CA on February 9 through 13, 2003.

**Recommendations**

**Communication:** NOAA recognizes the need for 2-way dialog between the user community and NESDIS. What methods of communication would best serve this need?

**Education:** Benefits from improved observing systems and improved data availability are unknown to many users and will not be fully realized if users are not aware of the systems’ full capabilities and limitations. How can NOAA educate the user community on emerging satellite technologies and techniques for fully utilizing satellite data and products?

**Integration:** Geostationary Operational Environmental Satellite (GOES) and Polar-orbiting Environmental Satellite (POES) satellites are extremely valuable national and international technological resources. What can be done to ensure the user community is able to integrate the new data into operations immediately following post-launch checkout?

**Aerosol Products**

Explore the wide variety of potential uses for data from new satellite systems. This should include aerosols, and particulates sensing.

NOAA has identified such a need through the requirements process for future systems and NPOESS has added a sensor (Aerosol Polarity Sensor) to provide data on Aerosol Optical Thickness, Aerosol Particle Size; and Aerosol Refractive Index. Additional Scattering Albedo, and Shape. While designed for long-term climate applications, the products will also enhance operations, especially in input to Numerical Weather Prediction (NWP). Current NESDIS aerosol products can be found at: http://psgsil1.nesdis.noaa.gov:8080/PSB/EPS/Aerosol.html

**Land Observation**

There is a need for data on land observation for land use, crop production, etc. While not a total solution, NPOESS will provide data on Land Surface Type, Land Surface Temperature, Soil Moisture, NDVI, and an Enhanced Vegetation Index. Details will be available from all three NPOESS Operational Products. Additional resources are available on the NPOESS Web Page: (http://npoess1b.ip.noaa.gov).

There are a number of other land observation products available from NESDIS. A list of NESDIS products can be found at: http://satprod.osd.noaa.gov/ en.html

…a web link that will take you to that product