Biospheric Sciences Highlights for September – October 2004

** Compton Tucker receives Galathea Medal from Danish Royal Court

Compton (Jim) Tucker has been selected to receive the Galathea medal for his contributions to geographical sciences. Specifically his pioneering work in the development and use of remote sensing for determining primary production is being honored. The medal will be presented by the Danish Crown Prince at a ceremony in Copenhagen on November 2nd.

** Tom Eck receives Journal of Applied Meteorology Editor's Award

Tom Eck (Code 923) received the Journal of Applied Meteorology Editor's Award from the American Meteorological Society. This award will be presented at the awards banquet of the 85th annual meeting of the Society on January 12, 2005 in San Diego, California.
The citation for this award reads: "For exercising extraordinary diligence and tact in a review that led to profound improvement of an important piece of work."

** AERONET and the United Arab Emirates Unified Aerosol Experiment (UAE2) Campaign

Fully understanding dust optical properties, assessing their transport and modeling their impact on climate remain a significant problem. AERONET staff along with the Naval Research Laboratory in Monterey, California has mounted a unique field campaign in the United Arab Emirates with the support of NASA HQ (Radiation Sciences Program, Hal Maring) in collaboration with the UAE Department of Water Resources Studies (Office of His Highness the President) marshaling the considerable resources of Code 900 and other NASA and non-NASA entities specifically to address these issues from a remote sensing perspective. The ultimate goals of the UAE2 campaign are to (1) evaluate and improve the suite of satellite aerosol and ocean products frequently used by the scientific community in this region of the world, (2) determine the fundamental microphysical, optical and transport properties of aerosol properties in this region, (3) understand how aerosol particles interact with the regional radiation budget in bright surfaced locations, and (4) model and explain the complicated flow patterns in the costal regions of the Arabian Gulf and the Gulf of Oman.

AERONET (Holben & team, Code 923) established a first ever mesoscale network of 18 sun and sky scanning AERONET sites operating in extreme heat (to 50°C) and humidity (morning fogs) over and around the southern Persian Gulf of the UAE territory from June through September of 2004. Two MPLNET (Judd Welton, Code 912) micropulse lidars, SMART (Si-Chee Tsay, Code 913) and MAARCO (Jeff Reid, NRL) round out the ground based in situ observations. Aircraft support by the S. African Weather Service and the University of Witts (Stuart Piketh) are hosting the Cloud

Absorption Radiometer (CAR, Michael King, Code 900), the University of Hawaii's NASA supported airborne lidar (John Porter) and NRL's suite of in situ aerosol sensors. Satellite systems that are producing special research products includes MODIS (Lorraine Remer, Code 913), MISR (Ralph Kahn, JPL), SeaWiFS (Christina Hsu, Code 916), TOMS (Christina Hsu, Code 916) and AVHRR (Phil Durkee, NRL) and are available in near real time through the MODIS rapid response system (Jacques Desloitres). Model aerosol transport predictions are provided from Doug Westphal, NRL and assessment from GoCART (Mian Chin, Code 916).

All assembled data are accessible from the campaign website http://uae2.gsfc.nasa.gov/ (David Giles, Code 923) where considerably more information on the project are available. The field operations ended October 7, 2004 after more than 80 hours of flight operations and spatially and temporally continuous ground and satellite observations. Jeff Reid (NRL) is the Mission Scientist and Charles Gatebe is the Deputy.

**** Thirteenth Meeting of the Earth Sciences Joint Working Group (ESJWG)**

The Thirteenth Meeting of the Earth Sciences Joint Working Group (ESJWG) was hosted by NASA at the University of Maryland in College Park, Maryland during September 22-23, 2004. The meeting was co Chaired by Dr. Philip DeCola of the Sun-Earth Division, NASA Science Mission Directorate, and Academician Nikolai P. Laverov, Vice President, Russian Academy of Sciences (RAS), with the participation of Dr. Jack Kaye, Director of Research for the Sun-Earth Division, NASA Science Mission Directorate. The primary purpose for this ESJWG meeting was to discuss the transition to a high-level framework agreement between RAS and NASA, which would provide a formal mechanism under which specific cooperative projects could be established and carried out. As part of this discussion, RAS and NASA reviewed and commented on a draft concept paper for cooperation in the area of Earth science. Dr. Don Deering led the U.S. side to review the progress made by the Land Biosphere and Hydrology Subgroup over the past two years and the discussions for the development of the international agreement. The concept paper outlined possible governing principles and forms of cooperation, which included a suggested list of specific projects, such as the Northern Eurasia Earth Science Partnership Initiative (NEESPI) and scientific areas of cooperation.

**** Dr. Lahouari Bounoua leads a team of Moroccan Scientists on Earth Science Research**

Dr. Bounoua of Code 923 and E. G. Moody working for Michael King in Code 900 were selected for funding for a project entitled "Inventory and mapping pine populations in Morocco using satellite data and evaluation of their physiological response to environmental stresses". The research team includes: 1- Dr. A. Bouli, Mr. A. Ouatmane, Ms N. Wahid and Ms Z. Droussi, all from University Cadi Ayyad, Morocco.

The proposal is funded by the SysTem for Analysis, Research and Training (START), a non-profit organization that seeks to establish and foster regional networks of collaborating scientists and institutions in developing countries. These networks conduct

research on regional aspects of environmental change, assess impacts and vulnerabilities to such changes and provide information to policy-makers. START operates under the aegis of the International Council for Science and is co-sponsored by the International Geosphere-Biosphere Program (IGBP), the World Climate Research Program (WCRP) and the International Human Dimensions Programs on global environmental change (IHDP). Dr. Bounoua and Moody will help enhance the scientific capacity of the Moroccan team to address complex processes of forest degradation and its impact on local and regional climate.

Publications

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Pinheiro ACT, Privette JL, Mahoney R, Tucker CJ, "Directional effects in a daily AVHRR land surface temperature dataset over Africa", IEEE Transactions on Geoscience and Remote Sensing, 42 (9): 1941-1954, SEP 2004.

Morisette, J.T., J.L. Privette, A. Strahler, P. Mayaux and C.O. Justice (2003), An approach for the validation of global land products through the Committee of Earth Observing Satellites, a chapter in *Remote Sensing and GIS Accuracy Assessment*, edited by RS Lunetta and JG Lyon. U.S. Environmental Protection Agency, CRC Press, Boca Raton, FL, 304 pp.

Marshall CH, Pielke RA, Steyaert LT, "Has the conversion of natural wetlands to agricultural land increased the incidence and severity of damaging freezes in south Florida?", Monthly Weather Review, Art. 132 (9): 2243-2258, SEP 2004.

Ranson, K.J., G. Sun, K. Kovacs, and V. I. Kharuk, 2004, “Assessing tundra-taiga boundary with multi-sensor satellite data, Remote Sensing of Environment, Vol. 93, pp. 283-295.