BIOSPHERIC SCIENCES BRANCH HIGHLIGHTS
January - February 2008

- SCIENCE POLICY AND TEAM MEETINGS, WORKSHOPS

**** Tucker and Anyamba participate in workshop on Global Climate Change and Spread of Infections Diseases**

Compton J. Tucker (614) and Assaf Anyamba (614.4/ GEST) participated in a workshop on "Global Climate Change and Extreme Weather Events: Understanding the Potential Contributions to the Emergence, Re-emergence and Spread of Infectious Disease", (December 4-5, 2007, Washington DC). The workshop was organized under the umbrella of the Forum on Microbial Threats by the Board on Global Health, Institute of Medicine of the National Academy of Sciences Forum on Microbial Threats. Tucker presented on the "Use of remote sensing for detecting the impacts of climate and environmental change on infectious disease epidemiology". Anyamba participated in the panel discussions. The Forum aimed at gathering information from experts on the evidence and likely climate change contributions to the global burden on diseases.

**** Meeting organized to link science with GSFC sustainable planning**

Molly Brown (Code 614.4/SSAI) organized a meeting with GSFC chief architect Alan Binstock, Jon Rall, Jon Ranson (Code 614.4), Pam Millar, Bob Knox (Code 614.4) and two people from the environment office, Darlene Squibb and Janine Pollack, on the ongoing effort to link science with sustainable planning. Binstock et al. have worked on a transformation landscape plan for the Center. This plan was presented as a poster at the Code 600 science poster session a few weeks ago. The plan includes reforestation, meadows and local drainage for the Goddard campus. The sustainability project will involve coupling existing science activities with new efforts and instrumentation to measure the biophysical impact of a number of changes to the management of the Goddard grounds, including adding new trees, converting mowed lawn to meadows, introducing natural storm water catchment systems, among others. By treating these changes as a natural experiment, it is hoped to be able to document a reduction of the contribution of the Center to water pollution, the urban heat island and impact on the local ecosystem over a discrete time frame. Then the plans can be used as the basis for the transformation of other NASA centers as well as other private and public facilities.

**** ESA meetings: FLEX MAG and Dynamic Vegetation Modeling Study**

Elizabeth Middleton (614.4) participated in the 5th FLuorescence EXplorer (FLEX) Mission Advisory Group meeting (Jan. 17-18, 2008) as the Outside Observer at ESTEC, Noordwijk, The Netherlands. The main objectives of the meeting were to discuss the findings from industrial studies, to agree on a payload baseline design, and to discuss the status of the mission's Assessment Report. This meeting followed a one-day progress meeting of the Dynamic Vegetation Modelling (DVM) Study (Jan. 16), to which Dr. Middleton was invited to attend. These activities are sponsored by the European Space Agency.

**** DESDynI meetings with JPL and NASA Headquarters**

DESDynI is one of the top priority NASA Earth Science missions as described by the NRC Decadal Survey Report (along with SMAP, ICESAT-II, and CLARREO). DESDynI consists of a Multi-beam 25 m Waveform Lidar and an L-band Interferometric Synthetic Aperture Radar. The Lidar instrument is the BioMM-L Lidar that has been under development at GSFC as an ESSP mission for the last several years. It is based on the GSFC HOMER laser that is scheduled to begin environmental testing in February. The primary science measurement goals of the DESDynI mission are surface deformation and natural hazards, vegetation structure and ecosystem monitoring, and ice sheet deformation. A meeting was held January 24th between JPL and GSFC representatives of the DESDynI mission to discuss the detailed implementation approach and options. Jon Ranson(Code 614.4), Bryan Blair(Code 694), Bob Knox(Code 614.4), and Jeanne Sauber(Code 698) were in attendance from GSFC. A second meeting was held on January 25th at NASA HQ with the relevant HQ Program Managers (John LaBrecque, Diane Wickland, Seelye Martin, and Craig Dobson) to update them on the mission design status and some sampling issues that need to be resolved, and to discuss a plan to move forward with the mission. Discussions focused on the findings from a recent mission design study, mission implementation options, science requirements, and funding requirements. JPL and GSFC will be meeting regularly to continue to prepare for this mission.

- FUNDED RESEARCH

**** Paper selected as AGU Journal Highlight**

The editors of GRL selected the paper entitled "Wildfires dynamic in the larch dominance zone" by VI Kharuk (Sukachev Institute Of Forestry, Krasnoyarsk, Russia); J. Ranson (Code 614.4); and M. Dvinskaya (V. N. Sukachev Institute of Forestry) as an "AGU Journal Highlight". A general summary will be published in GRL’s online and print editions, and will be distributed to interested news media.

**** Molly Brown authors Food Security paper in Science**

On February 1, the following article was published in Science:
Brown, M.E. and C.C. Funk (2008) Food Security under Climate Change. Science. Vol 319, Issue 5863.

Further information can be found on the URL for the Discovery channel:

http://dsc.discovery.com/news/2008/01/31/hunger-crops.html>http://dsc.discovery.com/news/2008/01/31/hunger-crops.html

- SIGNIFICANT ACTIVITIES

**** Brown interviewed and filmed by Discovery Channel**

Brown (Code 614.4/SSAI) was interviewed and filmed by reporters from the Discovery Channel for their online news outlet. The result of the filming and interview by discovery channel was a written report and a video that were published on Discovery.com

See them at:
Discovery Channel (with video): Where Hunger Will Hit in 2030
http://dsc.discovery.com/news/2008/01/31/hunger-crops.html

**** Imhoff gives invited talk at State-EPA Symposium**

Marc Imhoff gave an invited talk to a group of State and Federal Environmental program managers and private land developers last week as part of a State-EPA Symposium entitled "2008 Symposium on Innovating for Sustainable Results: Integrated Approaches for Energy, Climate and the Environment". Imhoff was invited by the Council of Excellence in Government to talk to the group on how Greenhouse gas emissions are inferred and measured from satellites. The Symposium took place January 7 - 10, 2008 in Chapel Hill, North Carolina.
http://www.excelgov.org/sustainableresults

**** Imhoff supports HQ outreach activities at UNESCO for International Year of Planet Earth**

Marc Imhoff traveled to Paris, France supporting NASA/HQ in outreach activities at the United Nations Education Scientific and Cultural Organization (UNESCO) kick-off event for the International Year of Planet Earth (IYPE) February 12-13. Imhoff helped support NASA's Magic Planet with the EOSPSO support staff, Winnie Humberson and Steve Graham. Imhoff made an invited E-theater presentation on Feb 13 and gave two television interviews. More than 2000

participants from the international community involved in the Earth sciences, mineral resources, and energy, over 850 international delegates, and 11 government ministers attended.

On Feb. 14 and 15, Marc Imhoff, Steve Graham, and Winnie Humberson met with an exhibit designer for the City of Science and Industry and representatives of the Palais de la découverte (Museum of Science Discovery), to discuss the possibility of a long-term partnership to develop multiple language version of Magic Planet to be display in these two museums.

**** Brown organizes and speaks at 'Food Security and Climate Change in Africa' symposium**

Molly Brown organized and spoke at a symposium of the 2008 Annual Meeting of the American Association for the Advancement of Science (AAAS), held in Boston, MA from February 14-18, 2008. The symposium was entitled 'Food Security and Climate Change in Africa', and had three speakers, Brown with a talk entitled 'Remote Sensing Data for Food Security Early Warning', a talk by climatologist Christopher Funk of the University of California Santa Barbara entitled 'Climate Change, Agricultural Capacity and Trends in African Food Security', and finally a talk by Richard Choularton, who works for Chemonics International and the Famine Early Warning Systems Network, entitled 'Focusing on the Future: Moving from Early Warning Analysis to Decision Support'. The symposium had 50 participants in the audience and was well received. The theme of the meeting was Science and Technology from a Global Perspective.