

GEST is a consortium of scientists and engineers, led by the University of Maryland, Baltimore County (UMBC), to conduct scientific research in Earth and information sciences and related technologies in collaboration with the NASA Goddard Space Flight Center (GSFC). The consortium members of GEST include UMBC, Hampton University, Howard University, Caelum Research Corporation, and Northrop Grumman Corporation.

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## Fighting Disease with Weather Forecasts GEST Center's Assaf Anyamba Helps to Slow Deadly Fever in Kenya

by Charles Rose, Assistant Director, Media Relations, UMBC

Recently, Assaf Anyamba, a research associate scientist with GEST, got a first-hand look at how his research helped save lives. Anyamba, an expert on using earth science satellite data to see the links between weather, disease and famine, was on personal travel in East Africa when an outbreak of Rift Valley Fever ~ a deadly hemorrhagic disease ~ began in Kenya. A similar outbreak the same time of year in 1997-1998 killed about 400 people.

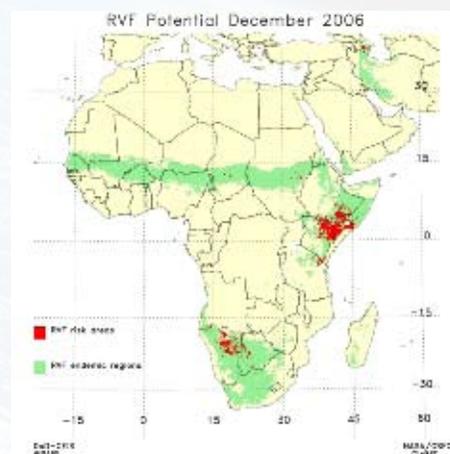


Assaf Anyamba (right) surveys a typical breeding environment for Rift Valley Fever-carrying mosquitos northeast of Nairobi, Kenya. He is joined by Kenneth Linthicum (left) director of the USDA Center for Medical, Agricultural and Veterinary Entomology, and Elizabeth Kioko, a research entomologist with the DOD-Walter Reed Project, Kenya.

But this time Anyamba and a team of earth science and public health colleagues from NASA, the Department of Defense and the USDA had seen the outbreak coming. Back in October, Anyamba and other scientists tracked satellite imaging data and weather forecasts predicting warmer ocean temperatures that would result in widespread and heavy rainfall and a spike in the mosquito population—perfect conditions for Rift Valley Fever. Thanks to their work, the Kenyan government partnered with international science and public health teams and had time to take preventative steps, such as outlawing the ritual sacrifice of cattle, sheep and goats during the Muslim Eid festival. These and other steps helped reduce human contact with likely animal carriers of the disease. This year's outbreak death toll was limited to 104 people so far.

Anyamba was tapped by the Department of Defense - Global Emerging Infections Surveillance and Response System (DoD-GEIS) and the World Health Organization (WHO) to monitor conditions associated with vector-borne disease outbreaks and provide early warning information to prevent and minimize the impacts of outbreaks such as the one in Kenya. In recent months, he presented his findings on using earth science to prevent diseases like Rift Valley to various prestigious international health groups, including the WHO, the Food and Agriculture Organization of the United Nations and the U.S. Rift Valley Fever Working Group. In February and March, he will be doing assessment fieldwork in Kenya to monitor the success of the disease prevention efforts.

Anyamba's work helping to contain the outbreak received international media attention from the Associated Press, *The Chicago Tribune*, *Washington Post*, *New York Times* and many other major news outlets. "This is a culmination of 10 years of dedicated work," said Anyamba. "It is a great pleasure to have the opportunity to translate scientific data and analysis results into products that benefit global public health."



A map produced by Anyamba's research team predicted the Kenyan outbreak of Rift Valley Fever.

## Welcoming New GEST Faculty and Staff

A number of new GEST staff and faculty have joined our ranks since the last newsletter. We would like to welcome the following with some information about them by way of introduction.

**Yannick Tremolet** joined GEST as an Associate Research Scientist on January 1, 2007 from the European Centre for Medium-Range Weather Forecasts in Reading, UK. His Ph.D. in Applied Mathematics was received from the Université Joseph Fourier in Grenoble, France. His expertise is in variational data assimilation and he will be collaborating with Michele Rienecker's group in the GMAO on 4-D VAR atmospheric data assimilation with the GEOS-5 model. Tremolet will be in the GEST Data Assimilation Research Group led by Ron Errico. He can be reached at:

Office: code 610.1, Bldg 33, room C212  
Telephone: 301-614-6166  
Email: yannick@gmao.gsfc.nasa.gov

**Tom Kucsera** joined GEST as a Research Analyst on January 22, 2007 from SSAI. Tom has been at NASA Goddard for 25 years, much of it in the Atmospheric Chemistry and Dynamics Branch. His M.S. in Meteorology was from the University of Maryland and his B.S. in Atmospheric Science and Mathematics was from SUNY Albany. He will be providing atmospheric modeling support on the GOCART and GMI programs, working with Susan Strahan. He will be in the GEST Atmospheric Chemistry and Dynamics Group led by Nick Krotkov. If you wish to contact him regarding his research, his contact points are:

Office: code 613.3, Bldg 33, room E426  
Telephone: 301-614-6046  
Email: tom.l.kucsera.1@gsfc.nasa.gov

**Toshihisa (Toshi) Matsui** joined GEST as an Assistant Research Scientist on January 23, 2007 from Colorado State University where he received his Ph.D. in Atmospheric Science. His research work has focused on the Earth's water and energy cycle in the context of aerosol-cloud and land-atmosphere interactions. He will be collaborating with Wei-Kuo Tao in the modeling of interactive cloud processes and precipitation systems. Matsui will be in the GEST Cloud Modeling and Analysis Group led by Chung-Lin Shie and Lin Tian. If you wish to contact him regarding his research, his contact points are:

Office: code 613.1, Bldg 33, room E406  
Telephone: 301-614-5948  
Email: matsui@agnes.gsfc.nasa.gov

**In-Sun Song** joined GEST as an Assistant Research Scientist on February 12, 2007 from Yonsei University in Seoul, South Korea where he received his Ph.D. in Atmospheric Sciences. His research work has been on convectively forced internal gravity waves and their parameterization in large-scale models. He will be collaborating with Julio Bacmeister in the modeling of gravity waves in the GMAO GEOS-5 General Circulation Model. Song will be in the GEST Data Assimilation Research Group led by Ron Errico. If you wish to contact him regarding his research, his contact points are:

Office: code 610.1, Bldg 33, room C112  
Telephone: 301-614-6424  
Email: isong@gmao.gsfc.nasa.gov

**Helen-Nicole (Eleni) Kostis** joined GEST as a Research Associate on February 19, 2007 from the University of Illinois at Chicago (UIC) where she has just received her M.F.A. in Electronic Visualization. Kostis also has a B.Sc. in Mathematics and a M.Sc. in Computer Science. She has done virtual-reality designs, 3D modeling, texturing, and is an artist in the creation of tele-immersive artworks. She will be collaborating with Wade Sisler in the Goddard Visualization Studio to present Earth and space science remote sensing data for outreach of NASA scientific

missions and research to the public. Kostis will be in the GEST Information Science and Educational Technology Research Group led by Susan Hoban. If you wish to contact her regarding her research, her contact points are:

Office: code 130.0, Bldg 28, room E102C  
Telephone: 301-614-2674  
Email: eleni@umbc.edu

**Yuekui Yang** joined GEST as a Research Associate on March 1, 2007 from the University of Illinois at Urbana-Champaign where he received his Ph.D. in Atmospheric Sciences. His research work has been on 3D radiative effects on BRF frequency distribution and their impacts on satellite cloud detection, aerosol optical depth retrieval, and aerosol direct radiative forcing determination. He will be collaborating with Alexander Marshak on 3D statistical cloud modeling based on ICESat and MODIS data. Yang will be in the GEST Cloud Modeling and Analysis Group led by Chung-Lin Shie and Lin Tian. He is currently at the GEST office at UMBC pending his badging and allocation of his office at GSFC. He may be reached by phone at 410-455-8808.

**Kirsten Fristad** joined GEST as a Research Assistant on March 6, 2007. She received her B.A. in Geology from Macalester College in St. Paul Minnesota. Fristad has been an intern in the NASA Academy at Goddard, and has quite a bit of field experience, especially in Katmai National Park, Alaska. Her specialty is in studies of Mars analogues and will be collaborating with Inge ten Kate, Jeffrey Joseph, and Paul Mahaffy in the SAM (Sample Analysis on Mars) Lab at GSFC to develop protocols for organic geochemical analysis of Mars material. Fristad will be in the GEST Terrestrial Physics Group led by Alexander Smirnov. If you wish to contact her regarding her research, her contact points are:

Office: code 699.0, Bldg 33, SAM Lab  
Telephone: 301-614-5289  
Email: fristad@ssedmail.gsfc.nasa.gov

GEST also welcomes two new business specialists who will be providing proposal preparation and grant management support to our faculty. **Derek Stivers** obtained his B.S. in Business Administration from UMUC in 2006. Stivers will be supporting the Terrestrial Physics, Information Science and Education Technology, and Cloud Modeling and Analysis research groups. He can be reached at 410-455-3471. **Mary Dawson** has a B.S. in Business Management with concentrations in Accounting and Finance from UMUC. She will be supporting the Data Assimilation; Global Modeling, Data Impact, and Data Simulation; and Heliophysics groups and can be reached at 410-455-8027.

## Employment Opportunities

GEST is seeking qualified applicants for a number of opportunities, including:

- **Director, International Energy and Water Cycle Experiment (GEWEX) Project Office (IGPO)**
- **550-74-257, Development of Fabry-Perot Interferometers**
- **606-73-250, Educational Outreach**
- **613-77-265, Atmospheric Chemistry/Climate Modeling**
- **613-78-267, GMI Stratospheric-Tropospheric Modeling**
- **614-81-278, Carbon Cycle Modeling**
- **614-83-000, Vegetation Studies from Satellite Imagery**
- **971-00-002, Land Data Assimilation**
- **Media Specialists (3 open positions):**
  - **Television Production Specialist**
  - **Communications Specialist**
  - **Web Development Specialist**

More information about these positions, including requirements and deadlines, can be found on the GEST web site at:

[http://gest.umbc.edu/employment\\_opp/employment.html](http://gest.umbc.edu/employment_opp/employment.html)