

## Ghana, Germany, U.K., Canada & U.S.: Richard Damoah's Road Map

Last fall, atmospheric scientist **Dr. Richard Damoah** (GESTAR/MSU, Code 614) began teaching a meteorology course at Morgan State University (MSU), and as an integral part of his instruction, he worked toward incorporating a weather station on campus, which WeatherBug installed in September 2014, thanks to funding from the MSU Department of Physics. Most recently, Dr. Damoah has been upgrading the weather station to include a camera and lightning sensor; funds for this were provided by MSU's A Student-Centered, Entrepreneurship Development (ASCEND) program. Preliminary analyses of the station data by his students were presented at the following events: (1) MSU-Maryland Science Olympiad, March 7th; (2) MSU Innovation Day at the Maryland State Legislature, Annapolis, MD, March 19th; (3) MSU 22nd Annual Undergraduate & Graduate Research Symposium, April 14th; and (4) GESTAR's All-Hands Meeting Poster Session, August 5th. It's not only Dr. Damoah's students who benefit from the weather station: the Morgan faculty also is able to create projects based on weather data, and it provides the community a resource for weather-related events. Dr. Damoah was recently recognized "for his initiative to install a meteorological/climate observatory at MSU ... and to contribute to the development and advancement of STEM education at MSU" (see Awards Section, page 5). The MSU weather station can be viewed here: <http://weather.weatherbug.com/weather-safety/online-weather-center/OnlineWeatherCenter.aspx?aid=5990>.



*Image Provided by  
 R. Damoah*

Dr. Damoah developed his interest in science through his uncle, Ransford Kyeremeh, who currently works at the Korle Bu Teaching Hospital in Ghana. He began his science course at Benkum Secondary School in the eastern region of Ghana and continued at Accra Academy, Accra, Ghana, where he completed his "A levels" (Advanced Level from the British system). He studied physics at University of Cape-Coast in the central region of Ghana, where he completed his Bsc. in physics in 2000. Subsequently, he had the opportunity to travel to Germany for a Masters in environmental physics at University of Bremen, and followed this by studying and completing his Ph.D. in atmospheric pollution at Technical University of Munich. As a post-doc, he worked on climate modeling at the University of Edinburgh, U.K. for three years before taking a research fellowship position at University of Waterloo, Canada to work on pollution transport. In 2011, Dr. Damoah finally arrived at NASA Goddard from Canada to work in the Atmospheric Chemistry and Dynamics Lab (Code 614).

Now that Dr. Damoah is an instructor, we wondered about the main question his students presented him: "The question I always get from my new students is 'What does it take to work at NASA Goddard?' My simple answer to them is hard work and focus." And what excites the students about learning about weather-related events? "Being chosen as the Meteorologist for the Day. As part of the course activities, a student is nominated as the Meteorologist for the Day, and on Friday, he or she has to prepare a weather report and present it in front of the class using data from the MSU weather station. This excites them the most because they feel like they are in front of the television presenting the weather." We also were curious how this class has affected students' opinions on weather/climate and their own discoveries: "Some students who have taken this course have told me how [it] has developed their interest about weather and climate. And there is even crossover between other fields of study; for example, one student from MSU's School of Journalism developed a documentary project on our weather station." Furthermore, there may be plans to broadcast the weather reports from the MSU weather station on WEAA 88.9 FM, a radio station located on MSU's campus that reaches the Baltimore metro area and streams online. From engaging the students to informing the community, Dr. Damoah's efforts are having an impact.

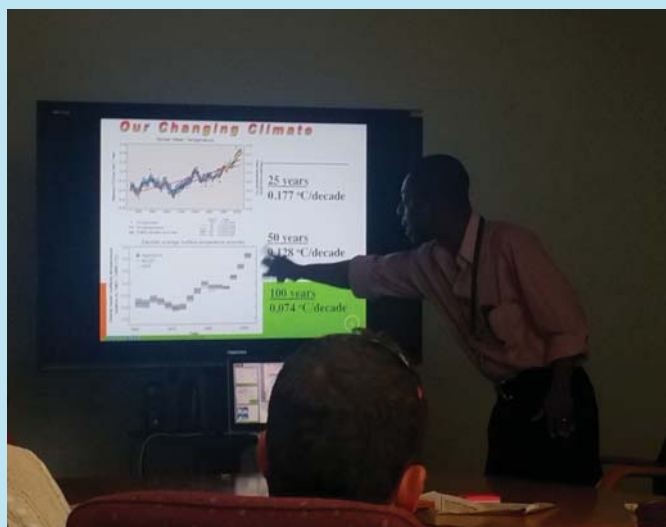
In March 2015, at a Satellite Applications workshop at All Nations University College (ANUC) in Koforidua, Ghana, Dr. Damoah, Dr. Ally M. Toure (SSAI/Code 617) and Dr. Antony Kinyua (MSU) donated Physics and Earth Science books to ANUC, as the university is in the process of introducing an undergraduate course in earth science and this presented a good opportunity to contribute to ANUC. During the workshop, Dr. Damoah had

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the opportunity to meet ANUC's president, who expressed interest in discussions with Morgan State, and eventually a visit was arranged for him and some of his colleagues. Dr. Damoah also presented to AERONET PI Brent Holben the possibility of establishing a ground station at ANUC; to date, these talks are still in discussion.

In June, the Education unit at NASA Goddard organized a training session for 30 high school teachers from Pennsylvania and New York on Global Climate Change. Dr. Damoah gave an oral presentation and assigned the teachers a project to deliver at the end of the training. MSU student researchers Chante Vines, Bashan Prah and Kianna Spencer were mainly responsible in training the participants, taking them through the steps of accomplishing the research project by using NASA Giovanni. They were part of an initial group of 20 student researchers mentored by Dr. Damoah under the NASA-GESTAR-MSU program who received training on various Giovanni Portals and the analytical software used by NASA scientists. Also in June, Dr. Damoah received the good news that his proposal to NIH through Morgan's ASCEND program to redesign and improve upon his meteorology course had been accepted for funding. A gathering of all awardees is being planned for the beginning of the fall semester to learn about specific plans for course redesign.



*Image Provided by R. Damoah*

Dr. Damoah conducts research activities for GESTAR that employ his areas of expertise. Along with **Dr. Assaf Anyamba** (GESTAR/USRA, Code 618), he works on a task that supports scientists at FDA's Center for Food Safety and Applied Nutrition (CFSAN) and at NASA GSFC on designing, building and operating a Geospatial Risk Assessment Model of environmental contamination of produce by enteric pathogens. By incorporating data from various sources (e.g., the USDA National Agricultural Statistics Service cropland map layer, NCEP Rainfall and MODIS Vegetation Index, among others), CFSAN can relay to industry the need to investigate specific areas where it is likely that produce has been environmentally contaminated by *e. coli* and Salmonella. This model is being designed and tested over California, where about 80% of all produce consumed in the U.S. is grown. Dr. Damoah's primary role is to investigate the meteorological and climatic variables associated with Pathogen activity. He also supports CHORI (Children's Hospital and Research Center at Oakland). CHORI's effort, led by Dr. Anyamba, is to investigate the burden of the Chikungunya virus and Dengue virus transmission, infection and disease in Kenya. Dr. Damoah's role in CHORI is to extract, process and analyze NOAA's ARC (African Rainfall Climatology) data at the study locations and provide the information to the project members. In early 2015, he updated the rainfall system analysis website he constructed as part of this vector-borne diseases study. Additionally, Dr. Damoah participates in a study of biomass burning and water cycle dynamics across the Northern sub-Saharan African region (NSSA). Led by Dr. Charles Ichoku (GSFC, Code 613), this effort aims to analyze the impacts of recent biomass-burning by monitoring and assessing multiple regional surface, atmospheric, and water cycle processes through remote sensing and modeling approaches. The goal is to obtain results for societal benefits and climate impact assessments. Dr. Damoah investigates the recent and future impact of biomass burning from the NSSA region on atmospheric composition and their associated radiative impact, using NASA's GEOSCCM (Goddard's Chemistry Climate Model). Most recently, he initiated a 10-year GEOSCCM simulation to quantify the average impact of NSSA biomass burning on air quality and climate.

To keep up with Dr. Damoah's research projects and other activities, visit his NASA webpage: <http://acdb-ext.gsfc.nasa.gov/People/Damoah/>.

## EVENTS

### *Morgan Innovation Day*

On March 19, **Ron Errico**, **Nikki Privé**, **Cynthia Randles**, **Xiaowen Li** and **Benita Bell** participated in Morgan Innovation Day (MID), hosted by Morgan State University at the State Capitol Building, Annapolis, MD. Drs. Errico and Privé discussed OSSEs and numerical weather prediction research at the GMAO with attendees, while Dr. Li presented an exhibit titled “What makes Rain?”

### *Curious about Curiosity?*

Curiosity used a new experiment to analyze xenon, a heavy noble gas. The xenon experiment occurred only after months of testing, which was led by **Charles Malespin**, who developed the sequence of instructions for SAM (Curiosity’s Sample Analysis at Mars) to carry out. SAM analyzed xenon, which can provide information into the “history of the loss of the Martian atmosphere, since the special characteristics of xenon allows [researchers] to learn more about the process by which the layers of atmosphere were stripped off Mars than using measurements of other gases.” See the March 2015 article from JPL: <http://www.jpl.nasa.gov/news/news.php?feature=4532>.

### *Science Happenings Around Town*

On March 24, **Valentina Aquila** gave a talk about volcanoes, climate, and geoengineering at the Rockville Science Cafe. Science Cafés are live events in casual settings, such as a pubs, coffeehouses or restaurants, are open to everyone, featuring a scientist engaging and leading the discussion to encourage conversation, debate, and interaction. Science Cafés were first held in January 2009; since then, topics covered have included “biology, earth science, science policy, and other cutting edge scientific concepts”. For more information: <http://rockvillesciencecenter.org/programs/science-cafe/>.

**David Lagomasino** presented a Lightning Talk at the first-ever DC Science Hack Day event, billed as a “48-hour hack-make-do-a-thon with science!”, held at The Wilson Center in Washington, DC on May 16-17. His presentation on the link between satellite imagery and crowd sourcing to monitor deforestation and other ecosystem changes was used to help spark ideas. After giving the talk, speaking with many groups of people, and advising some of

the hackers, he was inspired to put together his own hack project. In the end, David’s team was awarded the “Best use of data” award for turning Landsat imagery into music. According to the DC Science Hack Day site, these events have occurred over 50 times in 17 different countries but never before in DC. Lightning Talks are 5-minute presentations on a challenge, dataset, idea or tool. Other presenters at the DC event were from the EPA, the JFK Center for the Performing Arts, the Environmental Law Institute, NIH and USGS, among others. Dr. Lagomasino’s work and Science Hack Day participation was featured on the Landsat Science website: <http://landsat.gsfc.nasa.gov/?p=10539>, “The Sound of Deforestation, A Hack to Make Data Sing”.

### *Earth Day in DC*

**Winnie Humberson** and **Steve Graham** organized Earth Day events in Washington, DC. On April 17 and 18, members of NASA GSFC staffed the NASA tent at Earth Day on the National Mall and the Earth Day exhibit at Union Station on April 21 and 22. **Kristen Weaver**, **Erica McGrath-Spangler** and **Ernie Wright** were among GESTAR members who engaged with the public. **Kayvon Sharghi** also supported outreach activities on Earth Day on the National Mall and at Union Station, speaking with people about the NASA Viz app and NASA’s exploration of the solar system and beyond. In May, Kayvon and **Helen-Nicole Kostis** promoted the usage and capabilities of the NASA Viz to people who visited their display at the 2015 World Science Festival in New York.



*Helen-Nicole Kostis and Kayvon Sharghi, New York; photo provided by K. Sharghi*

## AWARDS & ACCOLADES

**Michael Kurylo** was selected to the NIST Portrait Gallery of Distinguished Scientists, Engineers and Administrators. His career with the National Institute of Standards and Technology (NIST) began over 40 years ago. The NIST Portrait Gallery, established in the early 1970s to honor NBS/NIST alumni for outstanding career contributions to the work of the NBS/NIST, now includes approximately 300 people. NIST was formerly known as the National Bureau of Standards. Along with six others, Dr. Kurylo will be inducted in an official ceremony on October 9, 2015. Portraits and biographies of those selected will be on display in the main corridor leading to the NIST cafeteria in Gaithersburg, MD, and in the Digital Portrait Gallery at the NIST sites in Gaithersburg and in Boulder, Colo. His citation reads as follows: “Michael J. Kurylo (Materials Measurement Laboratory: 1969-2003): For leadership in the measurement and critical evaluation of gas phase kinetics, photochemical, and spectroscopic data of trace atmospheric chemical species related to the ozone layer and environmental change.” Dr. Kurylo provided GESTAR with a storied biography that covers his many years of working at NBS/NIST and NASA, studying gas phase reaction kinetics, atmospheric photochemistry, and stratospheric ozone, as well as his initial and ongoing experiences with science and policy as they affect decision-making; visit the GESTAR site under News to read about his career: <http://gestar.usra.edu/index.cfm/news/>.

At the 2015 Contractor Peer Awards Ceremony, two GESTAR members were recognized. **Genna Duberstein** won the Code 100 Peer Award in the Wild Card category, for her work on the Solarium exhibit as well as her talk at the prestigious TEDx Peachtree event in Atlanta, Georgia. **Robert Garner** won the Code 100 Peer Award in the On-The-Spot category, a spontaneous event in which attendees show their admiration for another attendee’s efforts by bestowing them with dots, which were handed out at the ceremony; Rob collected quite a few and was presented with this award. Genna and Rob each received a certificate from Code 100 Center Director Chris Scolese.

**Radina Soebiyanto** was selected as the U.S. ASPIRE (APEC Science Prize for Innovation, Research and Education) Nominee, in relation to her work on climate-sensitive diseases. APEC (Asia-Pacific Economic Cooperation) is an

*(Awards, cont’d)*

economic/trade forum that consists of 21 countries, and ASPIRE is an annual award for young scientists. The theme for this year’s competition is “Disaster Risk Reduction”. Dr. Soebiyanto has utilized remote sensing data for her research on influenza, dengue fever and chikungunya. This past year, her research resulted in publications on the association between influenza activity and three tropical Central American countries: El Salvador, Panama and Guatemala. She continues to examine the role of weather parameters on influenza in Costa Rica, Nicaragua and Honduras, and has begun to process data for use in forecasting influenza in Spain. Last summer, she and her sponsor at NASA Goddard, Dr. Richard Kiang, participated in the White House Office of Science and Technology Policy workshop on Integrating Prediction and Forecasting Models for Decision-Making – Dengue Epidemic Prediction. The ASPIRE award ceremony will be held in late August in Cebu, Phillipines.

**Yuekui Yang** received an award from NASA Goddard Space Flight Center for contributing to the DSCOVR launch. He was presented with a plaque from NASA, signed by Albert Vernacchio (DSCOVR project manager) and Adam Szabo (DSCOVR project scientist): “In recognition and appreciation of your outstanding contribution to the successful launch of the Deep Space Climate Observatory, enabling continued space weather forecasting and unique Earth science observations.” Dr. Yang has been working on DSCOVR since its refurbishment in 2010. Prior to the launch of DSCOVR, he was responsible for the DSCOVR earth RGB image algorithm and the data quality check algorithms for the DSCOVR-EPIC instrument. Dr. Yang is a DSCOVR earth science team member and is the PI of the Earth Polychromatic Imaging Camera (EPIC) cloud algorithm team.

On April 17, **Charles Gatebe** participated in Sreeja Nag’s doctoral thesis defense at the Massachusetts Institute of Technology, Boston, Massachusetts. Sreeja defended her doctoral thesis successfully. Committee members were Prof. Oli de Weck (Chair), Prof. David Miller (NASA Chief Technologist), Prof. Kerri Cahoy, and Dr. Gatebe.

*(Awards, cont'd)*

At GESTAR's 4th Anniversary Celebration in late May, members gathered to celebrate highlights and accomplishments of this past year. Several people were presented with a GESTAR Exceptional Service Award, recognizing their efforts and contributions to GESTAR and NASA GSFC.

**Stephen Ungar:** "For his sustained contributions to the Earth Observing-1 Mission (EO-1) satellite and the Hyperspectral Infrared (HyspIRI) imager."

**Nikki Privé:** "During the past year, Nikki has made outstanding contributions to the GESTAR task of developing a framework for conducting Observing System Simulation Experiments (OSSEs) at NASA Goddard's Global Modeling and Assimilation Office (GMAO)."

**Ryan Fitzgibbons:** "From launch coverage, including a live broadcast, to developing a new treatment for visualizations of hurricanes and storms, Ryan has worked at a consistently high level of excellence."

**Kristen Weaver:** "For her outstanding and innovative contributions to the communication of NASA's science mission to the public."

**Gabrielle De Lannoy:** "For her extraordinary contribution to the success of the SMAP Mission and her outstanding scientific productivity (authored and co-authored more than 30 publications since GESTAR inception)."

**Joseph Lyu:** "For his support of JPSS/NPP ATMS/VIIRS Cal/Val & Algorithm Development. He works as both a senior scientist and a senior system engineer."

**Andrew Swanson:** "Andrew has been working on new technology development projects for in situ aircraft instrumentation. He has supported GSFC Internal Research and Development (IRAD) and Earth Science Technology Office (ESTO) projects developing new instruments for the in situ detection of formaldehyde and methane flux."

**Alex Kekesi:** "He has made key contributions to the Global Precipitation Measurement (GPM) Outreach Team. As the leader for SVS GPM visualization efforts, Alex developed

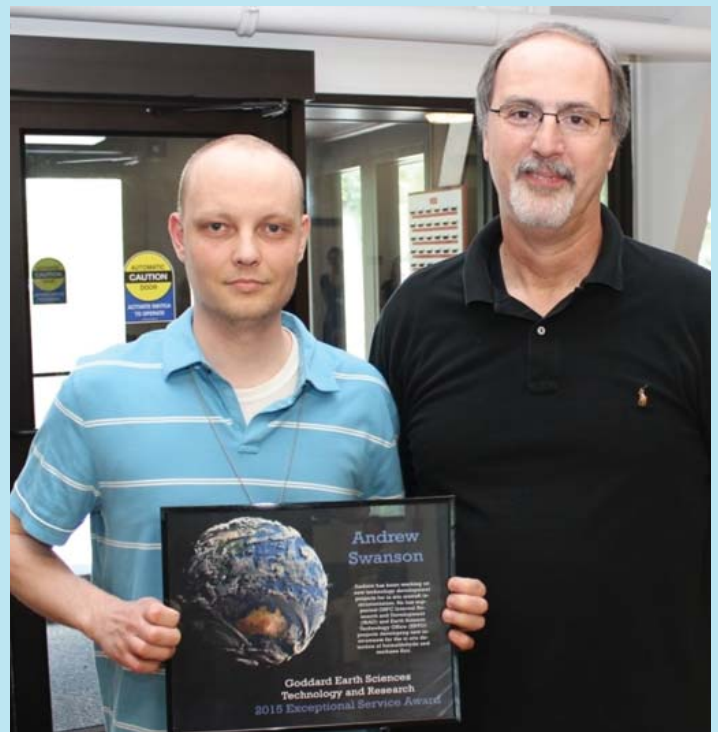
*(Awards, cont'd)*

and refined the GPM visualization pipeline that he and SVS colleagues have used continuously since the March 25, 2014 first light release to create world-class GPM visualizations."

**Richard Damoah:** "For his personal initiative to install a meteorological/climate observatory at MSU that will benefit students and university for many years to come. His initiative to identify, train students and build partnerships with other GESTAR scientists at Goddard that contributes towards the development and advancement of STEM education at MSU."

GESTAR also delivered its 4th Annual Report to NASA GSFC in June, which presents research, highlights, events, and other accomplishments from 2014-2015. The report is available online: <http://gestar.usra.edu/index.cfm/about-gestar/annual-reports/>.

Photos from the GESTAR Celebration:



A. Swanson (GESTAR/USRA) and GESTAR Director Bill Corso  
 (photo credit: J. Cohen)

(photos, cont'd)



Joseph Lyu (GESTAR/IMSG) and Hui Xu (GESTAR/IMSG)  
 (photo credit: J. Cohen)



Assaf Anyamba (GESTAR/USRA) with Kelechi Onyemaechi  
 (MSU Student Researcher, at Dr. Anyamba's right) and other  
 MSU students (photo credit: J. Cohen)

## maniac talk

GESTAR thanks the following scientists who presented talks this past spring: *Eugenia Kalnay*, UMCP (Mar 2015), *Richard Stolarski*, JHU/NASA GSFC Emeritus (Apr 2015), *Rick Spinrad*, NOAA (May 2015) and *Richard Eckman*, NASA HQ (June 2015). These and other past talks are available online at the Maniac Talk site: <http://maniactalk.gestar.usra.edu/> or at the SED Highlights page under Presentations: <http://science.gsfc.nasa.gov/sed/>. Please visit the Maniac Talk site to see the rest of the 2015 lineup. Thanks again to Charles Gatebe and Bill Hyrbyk for their ongoing efforts with these events.

## New Hires

GESTAR welcomes the following members:

- Patricia Castellanos
- Ivona Cetinic
- Allison Collow
- Amir Ibrahim
- Dongjae (Krystofer) Kim
- Sophia Roberts

## Moving On

*Tepei Yasunari* is now an Assistant Professor with the Laboratory of Atmospheric Environment Engineering at Hakkaido University, Sapporo, Japan.

## Grants Awarded

NASA ROSES Proposal Awarded: Fast Polarized Code for V3 AERONET Reprocessing, PI: **Sergey Korkin**.

USDA/FAS Proposal Awarded: Global Agricultural Monitoring, PI: **Assaf Anyamba**.

NIH/MSU ASCEND Proposal Awarded: Course Redesign Proposal, PI: **Richard Damoah**.

## Recent Publications

Blakey, T., A. M. Melesse and C. S. Rousseaux (2015), Toward connecting subtropical algal blooms to freshwater nutrient sources using a long-term, spatially distributed, in situ chlorophyll-a record, *Catena*, 133, 119-127.

Buchard, V., A. M. da Silva, P. R. Colarco, A. Darmenov, C. A. Randles, R. Govindaraju, O. Torres, J. Campbell, and R. Spurr (2015), Using the OMI aerosol index and absorption aerosol optical depth to evaluate the NASA MERRA Aerosol Reanalysis, *Atmos. Chem. Phys.*, 15, 5743-5760, <http://www.atmos-chem-phys.net/15/5743/2015/acp-15-5743-2015.html>.

Cho, H., Z. Zhang, K. Meyer, M. Lebsock, S. Platnick, A. S. Ackerman, L. Di Girolamo, L. C.-Labonnote, C. Cornet, J. Riedi, and R. E. Holz (2015), Frequency and causes of failed MODIS cloud property retrievals for liquid phase clouds over global oceans, *Journal Geophysical Research - Atmospheres*, 120 (9), 4132-4154, doi:10.1002/2015JD023161.

Daloz, A. S., S. J. Camargo, J. P. Kossin, K. Emanuel, M. Horn, J. A. Jones, D. Kim, T. E. LaRow, Y.-K. Lim, M. Roberts, P. L. Vidale, C. M. Patricola, E. Scoccimarro, D. Shaevitz, H. Wang, M. Wehner and M. Zhao (2015), Cluster analysis of downscaled and explicitly simulated North Atlantic tropical cyclone tracks, *J. Climate*, 28(4), 1333-1361, doi:10.1175/JCLI-D-13-00646.1

Dawson, K., N. Meskhidze, D. Josset, and S. Gassó (2015), Spaceborne observations of the lidar ratio of marine aerosols, *Atmos. Chem. Phys.*, 15, 3241-3255, doi:10.5194/acp-15-3241-2015. *Note:* Dr. Gassó was a thesis committee member of the lead author, who graduated from North Carolina State University.

De Lannoy, G.J.M., R. H. Reichle, J. Peng, Y. Kerr, R. Castro, E. J. Kim, and Q. Liu (2015), Converting Between SMOS and SMAP Level-1 Brightness Temperature Observations Over Nonfrozen Land, *IEEE Geoscience and Remote Sensing Letters*, 12(9), 1-5, doi:10.1109/LGRS.2015.2437612 (online).

Draper, C., R. Reichle, G. De Lannoy, and B. Scarino (2015), A Dynamic Approach to Addressing Observation-Minus-Forecast Bias in a Land Surface Skin Temperature Data Assimilation System, *J. Hydrometeorol*, 16, 449-464, doi:10.1175/JHM-D-14-0087.1

Emde, C., V. Barlakas, C. Cornet, F. Evans, S. Korkin, Y. Ota, L. C.-Labonnote, A. Lyapustin, A. Macke, B. Mayer, and M. Wendisch (2015), IPRT polarized radiative transfer model intercomparison project – phase A, *JQSRT*, 164, 8-36, doi:jqsrt.2015.05.007.

Freissinet, C., D. Glavin, P. R. Mahaffy, K. E. Miller, C. A. Malespin, et al. (2015), Organic molecules in the Sheepbed Mudstone, Gale Crater, Mars, *Journal Geophysical Research - Planets*, 120 (3), 359-624, doi:10.1002/2014JE004737.

Gelaro, R., W. Putman, S. Pawson, C. Draper, A. Molod, P. Norris, L. Ott, N. Privé, O. Reale, D. Achuthavarier, M. Bosilovich, V. Buchard, W. Chao, L. Coy, R. Cullather, A. da Silva, A. Darmenov, R. Errico, M. Fuentes, M.-J. Kim, R. Koster, W. McCarty, J. Nattala, G. Partyka, S. Schubert, G. Vernieres, Y. Vikhliav, and K. Wargan (2015), Evaluation of the 7-km GEOS-5 Nature Run, NASA/Technical Memorandum, 2014-104606, Vol. 36, No. 3, doi:NASA/TM-2014-104606.

Gong, J., J. Yue, and D. L. Wu (2015), Global survey of concentric gravity waves in AIRS images and ECMWF analysis, *Journal Geophysical Research - Atmospheres*, doi:10.1002/2014JD022527.

Gong, J., D. L. Wu and V. Limpasuvan (2015), Meridionally tilted ice cloud structures in the tropical upper troposphere as seen by CloudSat, *Atmos. Chem. Phys.*, 15, 6271-6281, doi:10.5194/acp-15-6271-2015.

Grotjahn, R., R. Black, R. Leung, M. F. Wehner, M. Barlow, M. Bosilovich, A. Gershunov, W. J. Gutowski Jr., J. R. Gyakum, R. W. Katz, Y.-Y. Lee, Y.-K. Lim, and Prabhat (2015), North American Extreme Temperature Events and Related Large Scale Meteorological Patterns: A review of statistical Methods, Dynamics, Modeling, and Trends, *Climate Dynamics*, doi:10.1007/s00382-015-2638-6 (online).

*(Publications, cont'd)*

Labow, G. J., **J. R. Ziemke**, R. D. McPeters, D. P. Haffner, and P. K. Bhartia (2015), A total ozone-dependent ozone profile climatology based on ozonesondes and Aura MLS data, *J. Geophys. Res. Atmos.*, 120, 2537-2545, doi:10.1002/2014JD022634.

**Lagomasino, D.**, T. Fatoyinbo, S. Lee, and M. Simard (2015), High-resolution forest canopy height estimation in an Africa blue carbon ecosystem, *Remote Sensing in Ecology and Conservation*, doi:10.1002/rse2.3 (online).

**Lamsal, L.**, B. Duncan, Y. Yoshida, N. Krotkov, K. Pickering, D. Streets, and Z. Lu (2015), U.S. NO<sub>2</sub> trends (2005–2013): EPA Air Quality System (AQS) data versus improved observations from the Ozone Monitoring Instrument (OMI), *Atmos. Environ.*, Vol. 110, doi:10.1016/j.atmosenv.2015.03.055.

Lievens, H., S. Tomer, A. Al Bitar, **G.J.M. De Lannoy**, M. Drusch, G. Dumedah, H.-J. Hendricks-Franssens, Y. Kerr, M. Pan, J. Roundy, H. Vereecken, J. Walker, E. Wood, N. Verhoest, and V. Pauwels (2015), SMOS soil moisture assimilation for improved stream flow simulation in the Murray Darling Basin, Australia, *Remote Sensing of Environment*, 168, 146-162 (online).

**Lim, Y.-K.**, and H.-D. Kim (2015), Comparison of the impact of the Arctic Oscillation and Eurasian teleconnection on interannual variation in East Asian winter temperatures and monsoon, *Theor. Appl. Climatol.*, doi:10.1007/s00704-015-1418-x (online).

**Lim, Y.-K.**, S. D. Schubert, **O. Reale**, M.-Y. Lee, A. M. Molod, and **M. J. Suarez** (2015), Sensitivity of tropical cyclones to parameterized convection in the NASA GEOS5 model, *J. Climate*, 28(2), 551-573, doi:10.1175/JCLI-D-14-00104.1.

**Lim, Y.-K.** (2015), The East Atlantic/West Russia (EA/WR) teleconnection in the North Atlantic: climate impact and relation to Rossby wave propagation, *Clim. Dyn.*, 44, 3211-3222, doi: 10.1007/s00382-014-2381-4.

Lu, Z., D. G. Streets, B. de Foy, **L. N. Lamsal**, B. N. Duncan, and J. Xing (2015), Emissions of nitrogen oxides from U.S. urban areas: estimation from Ozone Monitoring Instrument retrievals for 2005-2014, *Atmos. Chem. Phys. Disc.*, Vol. 15, 14961-15003, doi:10.5194/acpd-15-14961-2015.

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Matsui, T., W.-K. Tao, S. J. Munchak, G. Huffman, and **M. Grecu** (2015), Satellite View of Quasi-Equilibrium States in Tropical Convection and Precipitation Microphysics, *Geophysical Research Letters*, 42, doi:10.1002/2015GL063261.

**Meyer, K.**, S. Platnick, and Z. Zhang (2015), Simultaneously inferring above-cloud absorbing aerosol optical thickness and underlying liquid phase cloud optical and microphysical properties using MODIS, *Journal Geophysical Research - Atmospheres*, 120 (11), 5524–5547, doi:10.1002/2015JD023128.

**Stanley, T.**, D. B. Kirschbaum, and S. Yatheendradas (2015), Modeling landslide susceptibility over large regions with fuzzy overlay, *Landslides*, doi:10.1007/s10346-015-0577-2. Strahan, S.E., L.D. Oman, A.R. Douglass, and L. Coy (2015), Modulation of Antarctic vortex composition by the Quasi-Biennial Oscillation, *Geophys. Res. Lett.*, 42, 10.1002/2015GL063759.

\*Follow-up to previous newsletter publication: See accompanying video from the NASA Goddard SVS: <http://svs.gsfc.nasa.gov/cgi-bin/details.cgi?aid=11781>, Big Ozone Holes Headed for Extinction by 2040, featuring scientist **Susan Strahan** being interviewed on her December 2014 JGR article and which **Joy Ng** and **Kayvon Sharghi** produced, and **Brian Monroe** was Animator.



*(Publications, cont'd)*

Tong, D., L. Lamsal, L. Pan, H. Kim, P. Lee, T. Chai, and K. Pickering (2015), Long-term NO<sub>x</sub> trends over large cities in the United States during the Great Recession: Intercomparison of satellite retrievals, ground observations, and emission inventories, *Atmos. Environ.*, Vol. 109, doi:10.1016/j.atmosenv.2015.01.035.

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**Kayvon Sharghi** produced, Joy narrated, and **Cindy Starr** was Data Visualizer.

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*Watch for an upcoming announcement regarding a GESTAR All Hands Meeting in October or November.*

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