Dear GSFC Colleagues,

The new JCET cooperative agreement is now in its second quarter. This report describes the research of the JCET faculty, funding proposals that have been submitted this quarter, education and outreach efforts of the Center, changes in personnel and upcoming events.

With great pleasure we submit this quarterly report highlighting our ongoing partnership with NASA Goddard Space Flight Center.

Belay B. Demoz and the JCET team.
**JCET: QUARTERLY REPORT: Period Covered: January 1 - March 31, 2016**

**Highlights : A summary of newsworthy JCET activity.**

**Mustafa Aksoy** (555/UMBC JCET) was awarded the NASA “Robert H. Goddard Exceptional Achievement for Engineering” as a member of SMAP Radiometer Level 1 Algorithm Development Team for excellence in development and delivery of the SMAP Radiometer Level 1 Algorithm.

**Zhibo Zhang** (613/UMBC JCET & Physics) and Jun Wang, University of Nebraska organized the session "Impacts of Aerosol-Cloud Interactions on Radiation I" at the American Meteorology Society Annual Meeting 2016 at New Orleans in Jan. 2016.

**Jae N. Lee** (613/UMBC JCET), Thomas Hearty (Wyle Information System), Richard Cullather (610/UMD), Sophie Nowicki (615), and Joel Susskind (610), presented a talk entitled “Comparison of Surface Temperature at Greenland Summit in AIRS, MERRA, and in-situ measurements” at the GeoSummit meeting, held at GSFC, January 19.

**Jae N. Lee** (613/UMBC JCET), Dorothy Hall (615), Joel Susskind (610), Lena Iredell (610/SAIC), Thomas Hearty (Wyle Information System), Dong L. Wu (613), and Sophie Nowicki (615), presented a poster entitled “Variations of Surface Temperature Over Greenland As Observed In AIRS, MODIS, and In-Situ Measurements”, at the Program for Arctic Regional Climate Assessment (PARCA) meeting, GSFC, January 20.

Young-Kwon Lim (610.1/USRA), Siegfried Schubert (610.1), Sophie Nowicki (615), **Jae N. Lee** (613/UMBC JCET), Andrea Molod (610.1/ESSIC), Richard Cullather (610.1/UMD), Bin Zhao (610.1/SAIC), and Isabella Velicogna gave an oral talk titled "Atmospheric Summer Teleconnections and Greenland Ice Sheet Surface Mass Variation: Insights from MERRA2" at the Program for Arctic Regional Climate Assessment (PARCA) meeting held at NASA/GSFC, January 20.

A recent paper by **Glenn Wolfe** (614/UMBC JCET) and coworkers ("Quantifying sources and sinks of reactive gases in the lower atmosphere using airborne flux observations" (doi:10.1002/2015GL065839)) was highlighted in a Research Spotlight on AGU's EOS Earth and Space Science News website. The paper presents a novel analysis of airborne observations taken on the DC-8 during NASA's 2013 SEAC4RS mission. [https://eos.org/research-spotlights/trace-gas-exchange-offers-key-insight-into-atmospheric-processes](https://eos.org/research-spotlights/trace-gas-exchange-offers-key-insight-into-atmospheric-processes)


**Kevin Turpie** (616/UMBC JCET) hosted a community-wide HyspIRI Town Hall and chaired a four-part session titled, "Present and Future Coastal and Inland Aquatic Remote Sensing for Science and Societal Benefits” at the 2016 Ocean Sciences meeting in New Orleans, February 23 & 24.

**Ana Prados** (614/UMBC JCET) organized a remote sensing training best practices meeting with the US Forest Service Remote Sensing Applications Center (RSAC) and Conservation International. The purpose of the meeting was to discuss training experiences among the three programs and identify key common best practices that can be shared with the wider capacity building and remote sensing
communities. The meeting was held in Salt Lake City on March 14-15th. NASA’s Applied Remote Sensing Training Program (led by Prados) will be leading the development and eventual publication of a Remote Sensing Training Best Practices Manual intended for NASA scientists and other professionals.

Jay Herman (614/UMBC JCET) reported that DSCOVR observed Jupiter in all 10 wavelengths and images of the 4 Galilean Moons. The observation is possible only once per year.

Margo Young, Business Analyst for JCET, received the UMBC Employee of the Quarter Award.

PROPOSALS: LISTING OF PROPOSALS AWARDED AND SUBMITTED

Awarded
Larrabee Strow - US DOC/NOAA
Title: Full Spectral Resolution Fast Radiative Transfer Modules For CrIS

Submitted
Huisheng Bian to NOAA (Subcontract under USRA)
Title: Towards the improvement of chemical lateral boundary conditions for the National Air Quality Forecasting Capability

Ruben Delgado to NOAA (Subcontract from CUNY CREST)
Title: NOAA Educational Partnership Cooperative Science Center Solicitation for the Center: Earth System Sciences and Remote Sensing Technologies

Belay Demoz on behalf of Brian Carroll for NESSF (NASA/Fellowship)
Title: Investigation of Low-Level Jet wind Evolution using molecular and aerosol 3D Doppler lidar systems.

Belay Demoz to NOAA (Subcontract from Howard)
Title: NOAA Cooperative Science Center in Atmospheric Sciences and Meteorology at Howard University

Belay Demoz to NOAA/NWS (subcontract from CICS:ESSIC/UMD)
Title: Investigate and validate the effectiveness of the Vaisala CL31 ceilometer algorithm at selected sites across the U.S. for the Automated Surface Observing System (ASOS) program product improvement

Belay Demoz to NOAA/JPSS/PGRR (subcontract from CICS:ESSIC/UMD)
Title: In Support of NOAA’s commitment to the Global Climate Observing System (GCOS) Reference Upper Air Network (GRAUN)

Larrabee Strow to NOAA/DOC:
Title: Full Spectral Resolution Fast Radiative Transfer Modules For CrIS

Larrabee Strow to JPL/Renewal
Title: AIRS Climate and Calibration Algorithms

Kevin Turpie to NASA Roses BIO A.6 (subcontract from NC State)
Title: From Arboreal to Benthic Communities: the ABCs of Land to Ocean Biodiversity Observations A

MEETINGS AND FIELD WORK ATTENDED: LISTING OF MEETINGS, TRAVEL

Ruben Delgado, Zhibo Zhang and three students: 2016 Annual Meeting of the American Meteorological Society, New Orleans, LA.
Tamás Vármai, Zhibo Zhang: CALIPSO/CloudSat Science Team meeting
Block Blevins, Ana Prados, Joint meeting w/NASA ARSET & USDA Forest Service
Andrew Tangborn, Sergio deSouza-Machado, Lawrence Stroh: AIRS Science Team meeting
Andrew Tangborn: International Astronautical Federation Spring meeting
Reed Espinosa, Brent McBride: NCAR Atmospheric Radiation Science Workshop
Kevin Turpie: 2016 Ocean Sciences, New Orleans, LA.
Ana Prados: Capacity building meeting w/NASA Langley

EDUCATION AND OUTREACH: LISTING OF OUTREACH, GRADUATE SEMINAR, COURSES TAUGHT AND ADVISEMENT, AND STUDENT ACCOMPLISHMENTS.

Recent Affiliations:
Glenn Wolfe and Jason St. Clair have become affiliate faculty in the Chemistry Department.
Ruben Delgado became affiliated with the Physics Department and Susan Hoban was re-affiliated with Physics.

Courses being taught by JCET Faculty & Staff in Spring 2016:
PHYS 622: Aerosols, clouds and radiation, Dr. Belay Demoz
GES 400x: Earth’s Cryosphere, Dr. Christopher Shuman
FYS 108: Mathematics in Literature, Ms. Catherine Kruchten

JCET Seminar:
The 2015-16 cohort of nine JCET graduate students are participating in the Spring JCET Seminar Series. The students have been tasked with developing a proposal to NASA to study dust transport across the Atlantic. Each week one student prepares and delivers a presentation on one aspect of the proposal. This exercise has become an important component in the professional development of these young scientists. The seminar series is open to the public.

Link to Seminar schedule  Link to Seminar website

Recent student accomplishments:
Daniel Orozco successfully defended his PhD dissertation on 3/30/2016.

PUBLICATIONS : LISTING OF REPORTS AND ARTICLES

SUBMITTED


**ACCEPTED**


Yurganov L.N., Leifer I., Estimates of methane emission rates from some Arctic and sub-Arctic areas, based on orbital interferometer IASI data, Current problems in remote sensing of the Earth from space, 2016, Vol. 13, No 3.


UPCOMING EVENTS: A “HEADS-UP” SECTION FOR UPCOMING EVENTS.

SEEING SCIENCE

Christopher Shuman is a participating in the UMBC Seeing Science project, a campus-wide, interdisciplinary activity, that will take place over the course of a full year. Its goal is to bring together the UMBC’s science, humanities, and art communities to explore communicating science through visual imagery. Researchers and students will explore topics such as the central and evolving role that images play in defining, shaping, promoting, and furthering science, and how images made in and about the
sciences impact public opinion and policy, science education, visual and popular culture, and trigger awareness of and discussion about pressing issues.

**Spring 2016 JCET Seminar**
The JCET graduate research assistants are developing a proposal to NASA to study dust transport across the Atlantic. Each week, the students will give a presentation on one aspect of the proposal concept. The seminar is held each Tuesday, 11 am – Noon, at UMBC in Physics 401. The public is welcome to attend.

**PERSONNEL CHANGES:**

**LISTING OF PROMOTIONS:**
None this Quarter.

**HIRES:**

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<tr>
<td>Mustafa Aksoy</td>
<td>1/11/2016</td>
<td>POST DOCTORAL RESEARCH ASSOCIATE</td>
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<tr>
<td>Brock Blevins</td>
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<td>RESEARCH ANALYST</td>
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<tr>
<td>Janet Mercer</td>
<td>2/29/2016</td>
<td>EXECUTIVE ADMINISTRATIVE ASSISTANT I</td>
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<tr>
<td>Stephen Nicholls</td>
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<tr>
<td>Hua Song</td>
<td>1/25/2016</td>
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**DEPARTURES:**

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<td>Scott Rabenhorst</td>
<td>3/31/2016</td>
<td>POST DOCTORAL RESEARCH ASSOCIATE</td>
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