

JCET NEWS

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SPRING 2013

California Skies

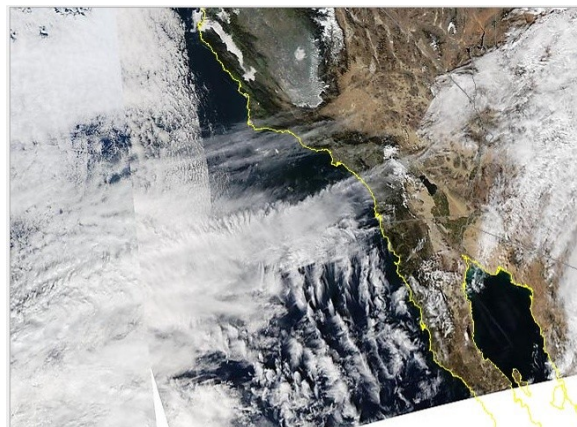
A team of JCET scientists and students led by Drs. Ray Hoff and Vanderlei Martins, in conjunction with NASA engineers, engaged in a series of air-borne missions over the San Joaquin Valley in California to study air pollutants in the region. These flyovers were part of the NASA DISCOVER-AQ and Polarimeter Definition Experiment (PODEX) missions (January 8 to February 16, 2013).



ER2 pilot in astronaut suit boarding the NASA aircraft.

DISCOVER-AQ is a NASA sponsored field experiment to analyze atmospheric aerosol data. Aerosols are tiny solid and liquid particles in our atmosphere. PODEX is another NASA sponsored experiment with the goal of developing the next generation of satellite instruments (imaging polarimeters) which measure aerosol and clouds from space.

The San Joaquin Valley is exposed to high concentrations of aerosols, ammonia, nitrates, formaldehyde, CO and other pollutants at this time of year. The experiment is exposing the causes: very low-



Aerosol Data over California, Photo: NASA

boundary layer heights and very poor dispersion.

Dr. Martins' group was involved with two newly developed instruments: the PACS (Passive Aerosol & Cloud Suite) multi-angle imaging polarimeter that flew on NASA's ER2 aircraft and the Polarized Imaging Nephelometer (PI-NEPH), which flew on the NASA P3-B aircraft.



Daniel Orozco taking measurements on-site for Brent Holben's group at GSFC. Photo: Hannah Halliday.

On the ground, Dr. Hoff's team was involved in making measurements with lidar and two new instruments: the Aerodyne CAPS (Cavity Attenuated Phase Shift) extinction monitor and a hygroscopic nephelometer built by Mr. Daniel Orozco.

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The missions were successful for all. The teams are now beginning to understand the sources of particulates which influence the poor air quality on the San Joaquin Valley of California as well as the new remote sensing measurements tested by PODEX.

Team members included Mr. Tim Berkoff, Dr. Roberto Fernandez-Borda along with Physics Graduate Students Mr. Daniel Orozco, Mr. Gergely Dolgos, and Mr. Reed Espinosa, JCET Engineers, Mr.



The PACS team from left, standing: Kevin Townsend and Lerroy Sparr; kneeling: Dominik Cieslak, Vanderlei Martins, Roberto Fernandez-Borda, Stuart Banks.

Dominik Cieslak and Mr. Kevin Townsend, NASA GSFC Engineers Mr. Leroy Sparr and Mr. Stuart Banks, and Research Scientist Mrs. Leigh Munchak.

For more information on this exciting mission, visit: <http://discover-aq.larc.nasa.gov/>

DISCOVER-AQ stands for Deriving Information on Surface Conditions from Column and VERTically Resolved Observations Relevant to - Air Quality

News

- **William Olson receives a NASA grant** for continuation of his NASA Precipitation Measurement Missions (PMM) PMM Science Team activities along with Co-I Dr. Benjamin Johnson. Their research is focused on the modeling of the microwave scattering properties of precipitation. These models are required to do a proper estimation of rainfall based on a combination of satellite radar and passive microwave observations. The new grant will provide

funds to continue work specifically on the modeling of ice-phase and melting precipitation.

- **JCET Student Alex St. Pe** made her poster and oral presentation at the 35th Annual Graduate Research Conference held in February. Alexandra was designated the top presenter in her session for her presentation "Examining Multidecadal Relationships Between the Saharan Air Layer and Large-Scale Major Atlantic Hurricane Environments." **In addition, JCET student John Sullivan** won the Best Poster for Physics/

Mechanical Engineering at the 2013 GRC. His poster is entitled "Construction and Theory behind a Differential Absorption (DIAL) Tropospheric Ozone Lidar using a Nd:YAG laser and Raman Cells."

- **Congratulations to Drs. Susan Hoban, Prasun Kundu and Lorraine Remer** for admission to the UMBC Graduate School Faculty.
- **Congratulations to Adriana Rocha Lima** for being selected as the recipient of the 2013-2014 JCET Graduate Fellowship.

New Faculty

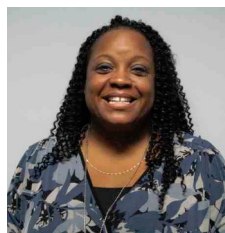


JCET welcomes Dr. Tilak Hewagama, Associate Research Scientist, working with Dr. Larrabee Strow and his group on climate trend research. Dr. Hewagama is characterizing earth observing infrared spectrometers.

All the latest JCET team members can be viewed on the updated Organization Chart on JCET's website: <http://jcet.umbc.edu/directory/org-chart/>

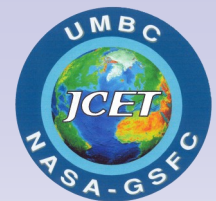
JCET People

Each addition of the JCET Newsletter will feature a different JCET Staff Member or Faculty. Our April edition will kick off this series with Ms. Brizjette Lewis, our Executive Administrative Assistant for JCET, based at Goddard.



Brizjette, or Brie, processes all faculty and visitor security access to NASA, updates the JCET website, and performs a wide array of other duties to keep the JCET Goddard office running.

Brie's favorite pastimes are sewing, reading, cooking, and dancing. Brie is also a science fiction movie buff! Next time you are at JCET's NASA Goddard office in Building 22, Room 170, stop by to say hello.



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