

TROPICAL RAINFALL MEASURING MISSION (TRMM) MISSION TERMINATION AND CLOSEOUT REVIEW (email to: rich.blakeslee@nasa.gov / 256-961-7962):

The Tropical Rainfall Measuring Mission (TRMM) Mission Termination and Close-out review (also called the TRMM Key Decision Point-F review) chaired by Dr. Michael Freilich, Earth Science Division Director, was held on March 24, 2015. TRMM, launched in late 1997 as a three year mission, has now successfully completed 17+ years of science observations, including those of the MSFC built Lightning Imaging Sensor (LIS). TRMM, its orbit in decline since it exhausted its fuel last summer, will be turned off April 14 with its re-entry expected June 23. Dr. Freilich noted the exceptional job of the TRMM team in maintaining the TRMM data set and keeping it relevant to the international science community. He also noted how the length of this mission has now produced statistically significant observations and strongly encouraged the science community to continue to turn these important observations into improved understanding of our Earth's precipitation systems. The International Space Station (ISS) LIS, which will be launched in February 2016, will provide a follow-on to TRMM LIS science observations.

PRESENTATION TO REDORBIT STAFF (email to: brad.zavodsky@nasa.gov/256-961-7914):

Bradley Zavodsky (ZP11) met with staff members from the Nashville-based redOrbit website (www.redorbit.com) as part of their visit to MSFC on Tuesday, March 17. The website offers science, space, technology, and health news along with videos, images, and reference information. The objective of the visit was to promote Marshall's role in space exploration and science to a broader, general public readership of the redOrbit website. Mr. Zavodsky gave an overview of the Short-term Prediction Research and Transition (SPoRT) Center and answered questions about weather forecasting and earth science.

INTERACTIONS WITH DAN BLAETTLER (CASIS) DURING HIS VISIT TO

MARSHALL (email to: gary.jedlovec@nasa.gov/256-961-7966): Mr. Dan Blaettler, Program Manager with the Center for Advancement of Science in Space (CASIS), visited Marshall last week to learn about our capabilities to support the International Space Station (ISS) Program and Project Good Earth (PGE) activities. Mr. Blaettler listened to presentations on the science and application focus of Short-term Prediction Research and Transition (SPoRT) and SERVIR projects, instrument development and accommodation activities of the Lightning Imaging Sensor (ISS LIS) and the ISS SERVIR Environmental Research and Visualization System (ISERV), and a tour of the several development and testing labs in Bldg 4487. The highlight of his visit was a tour of the ISS Payload Operations and Integration Center (POIC). Mr. Blaettler learned a lot about the functions of the POIC through extensive discussions with operational personnel. He left with a comprehensive understanding of the end-to-end capabilities that Marshall has for instrument development, integration, operation, product generation and dissemination, and interaction with end users of the data. During the discussions of the role of the Earth Science Office's Remote Sensing Applications (RSA) team can plan in supporting CASIS PGE objectives, George Fletcher highlighted a database he is developing describing past, current, and future observing capabilities for ISS and free-flier instrument relevant to the PGE mission. CASIS plans to use this "market survey" information to look for new instrument development partnerships supporting the mission.

PAPER ACCEPTED IN JOURNAL OF GEOPHYSICAL RESEARCH (email to: timothy.j.lang@nasa.gov / 256-961-7861): Timothy Lang (ZP11) is first author on an article recently accepted for publication in *Journal of Geophysical Research - Atmospheres*. Titled “Large Charge Moment Change Lightning on 31 May-1 June 2013, Including in the El Reno Tornadoic Storm,” the paper describes the powerful cloud-to-ground (CG) lightning produced by the storm system that produced the deadly El Reno tornado and flash flooding event. The ~12-hour event was split into three time periods - Early, Middle, and Late. The Early period featured the tornadoic supercell, which produced a large number of positive large charge moment change (CMC) CG lightning strokes. These powerful discharges were caused by an anomalous electrical charge structure in the storm. During the Middle period, the storm developed into a massive mesoscale convective system (MCS), and the positive large CMC lightning strokes switched to occurring mostly in the stratiform precipitation region, similar to thunderstorms that produce sprites in the upper atmosphere. During the Late period, the sprite-class positive lightning continued to occur in the stratiform region, but in the convective cores sprite-class negative CG lightning (which was rare before this time) began occurring frequently. The results suggest that lightning charge moment change measurements have meteorological applications, and provide additional information about thunderstorm evolution beyond just counting regular lightning flashes.