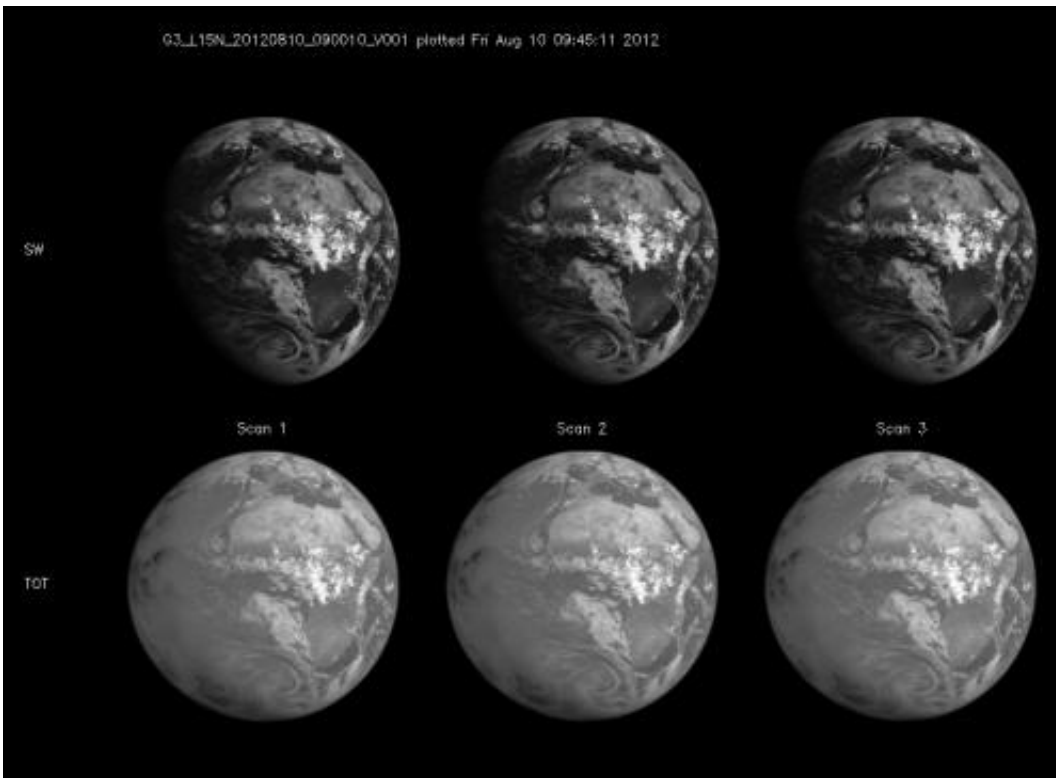


New satellite has begun taking the Earth's temperature

August 27 2012



The image shows calibrated radiances produced by RAL Space for the shortwave (SW) channel which measures reflected sunlight and its total channel sensitive to all outgoing energy from thermal emissions by the earth and reflected sunlight. These observations allow reflected shortwave and emitted long-wave fluxes to be calculated that are then used by scientists for studying climate. Credit: EUMETSAT

(Phys.org)—The temperature of the Earth, through its thermal and

reflected energy, is now being measured more accurately than ever thanks to the operation of a new satellite based and UK developed detector called GERB 3. This device will be key to the tracking of climate trends over the next 5 years.

The Geostationary Earth Radiation Budget (GERB) 3 instrument, aboard the latest European weather satellite MSG-3, was successfully activated 9th August and the first image produced the next day. The data that will now become available from GERB 3 will be vital to validate climate models in new ways and measure clear changes in climactic patterns.

The GERB instrument, developed and manufactured by an international consortium led by STFC's RAL Space, is one of a pair of instruments onboard the MSG-3 satellite, which is operated by EUMETSAT. The switch-on of GERB follows the successful switch-on and release of the first image from the Spinning Enhanced Visible and Infrared Imager SEVIRI earlier in the week. GERB is a visible-infrared radiometer for Earth radiation budget studies, making [accurate measurements](#) of the [short wave](#) (SW) and long wave (LW) components of the radiation budget at the top of the atmosphere.

Speaking about the successful activation Dr. Jacqui Russell from RAL Space said "Whilst there are still a lot of tests to be done, this first measurement from GERB 3 on MSG-3 indicates good instrument performance in both channels, showing the instrument is measuring the emitted thermal and reflected energy from the Earth as expected. Its operation should enable us to continue the [climate record](#) of high [time resolution](#) geostationary radiation budget measurements for several more years.'

"The 9 years of data already accumulated from GERBs 1 and 2 have enabled us to test [climate models](#) in new ways and are providing a unique insight into how the emitted and reflected energy fluxes changes though

the day and in response to changes in cloud and aerosol; the longer the record the more understanding is gained and we can begin to look at longer term [climate trends](#), so we are very glad that all indications so far for GERB 3 are positive and promise a further 3 to 5 years of measurements."

GERB measures how the Earth heats and cools by making high accuracy measurements of the solar radiation absorbed, and the infrared energy emitted. It provides measurements every 15 minutes allowing scientists to study events and features such as convective cloud, frontal systems and aerosol variability from dust storms or volcanoes. It is the first instrument providing dedicated measurements of the Earth radiation budget from geostationary orbit and will provide data for use by meteorologists and climate scientists worldwide.

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More information: www.eumetsat.int/Home/index.htm

Provided by Science & Technology Facilities Council

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