



German Receiver GREAT installed on SOFIA for the first time

01 February 2011

On 21 and 22 January 2011, the German Receiver for Astronomy at Terahertz Frequencies, GREAT, was installed on Stratospheric Observatory For Infrared Astronomy, SOFIA, for the first time. The installation and first tests were successful. Further tests will follow before the first scientific flight of SOFIA with GREAT on board takes place in April 2011.

"Thanks to all those who participated in the project over the years and contributed to the completion of the instrument," says Rolf Güsten from Max Planck Institute for Radio Astronomy and project manager for GREAT.

GREAT, the German Receiver for Astronomy at Terahertz Frequencies, is a receiver for spectroscopic observations at far-infrared frequencies between 1.2 and 5 terahertz (60-220 microns), which are not accessible from the ground due to absorption by water vapour. GREAT is one of two first generation German SOFIA instruments developed by a consortium of German research institutes, which includes Max Planck Institute for Radio Astronomy (MPIfR), University of Cologne, Max Planck Institute for Solar System Research, the DLR Institute of Planetary Research. Rolf Güsten (MPIfR) is the project manager for GREAT. The development of the instrument was financed by the participating institutes, the Max Planck Society and the German Research Foundation.

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The German Receiver for Astronomy at Terahertz Frequencies, GREAT, in front of the Stratospheric Observatory For Infrared Astronomy, SOFIA, prior to boarding at NASA's Dryden Aircraft Operation Facility in Palmdale, California. From left to right: Helmut Wiesemeyer, Rolf Güsten (Principal Investigator), Jürgen Stutzki (Co-Principal Investigator), Stefan Heyminck, Karl Jacobs, Urs Graf, and Oliver Ricken.

Credit: NASA/Tom Tschida.

German Receiver GREAT



Front view of the German Receiver for Astronomy at Terahertz Frequencies, GREAT on its transport cart. The two cryostats host sensitive Hot Electron Bolometer (HEB) detectors for terahertz radiation. The operating temperature of these detectors is -269°C (4 Kelvin). The frontal plate while it was being mounted on the telescope flange.

Credit: NASA/Tom Tschida.

GREAT being mounted on SOFIA



Front view of the German Receiver for Astronomy at Terahertz Frequencies, GREAT on its transport cart. The two cryostats host sensitive Hot Electron Bolometer (HEB) detectors for terahertz radiation. The operating temperature of these detectors is -269°C (4 Kelvin). The frontal plate while it was being mounted on the telescope flange (B/W image).

Credit: NASA/Tom Tschida.

GREAT on the forklift



The German Receiver for Astronomy at Terahertz Frequencies, GREAT, on the forklift. Almost 700 kilograms of delicate electronics, including cart, were loaded onto the aircraft with utmost care.

Credit: NASA/Tom Tschida.

GREAT on the forklift



The German Receiver for Astronomy at Terahertz Frequencies, GREAT, on the forklift.

Credit: NASA/Tom Tschida.

GREAT is moved to the rear section of the aircraft



Once inside, GREAT is moved to the rear section of the aircraft. On the left are: Urs Graf and Stefan Heyminck, and on the right: Sal Ramirez and Steve Robinson.

Credit: NASA/Tom Tschida.

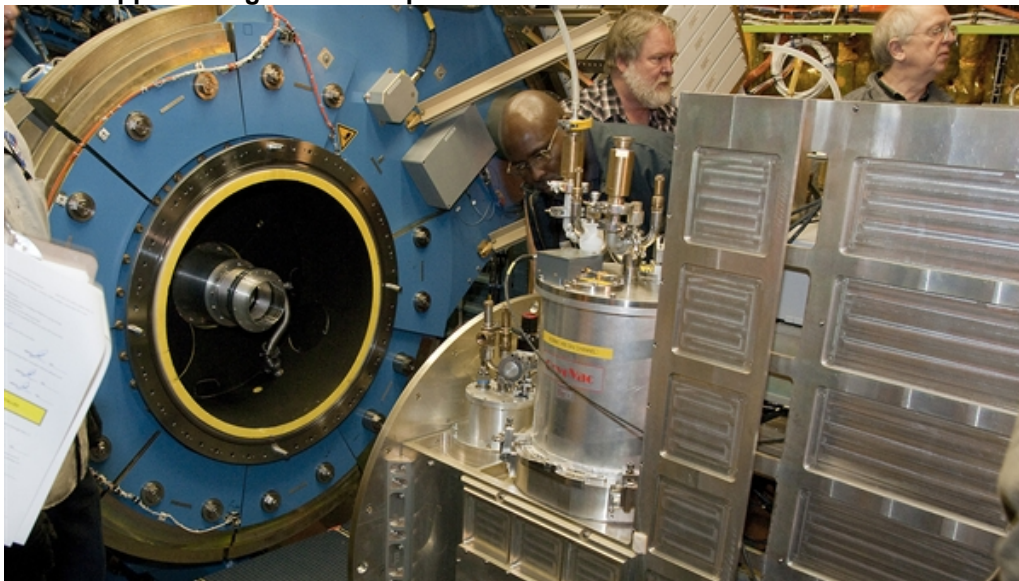
GREAT approaching the telescope



GREAT approaching the telescope. In the foreground is Steve Robinson, crew chief of SOFIA. GREAT is in front of the telescope flange, awaiting final inspection and clearance. The pressure coupler inside the telescope tube is visible in the image.

Credit: NASA/Tom Tschida.

GREAT approaching the telescope



GREAT approaching the telescope.

Credit: NASA/Tom Tschida.

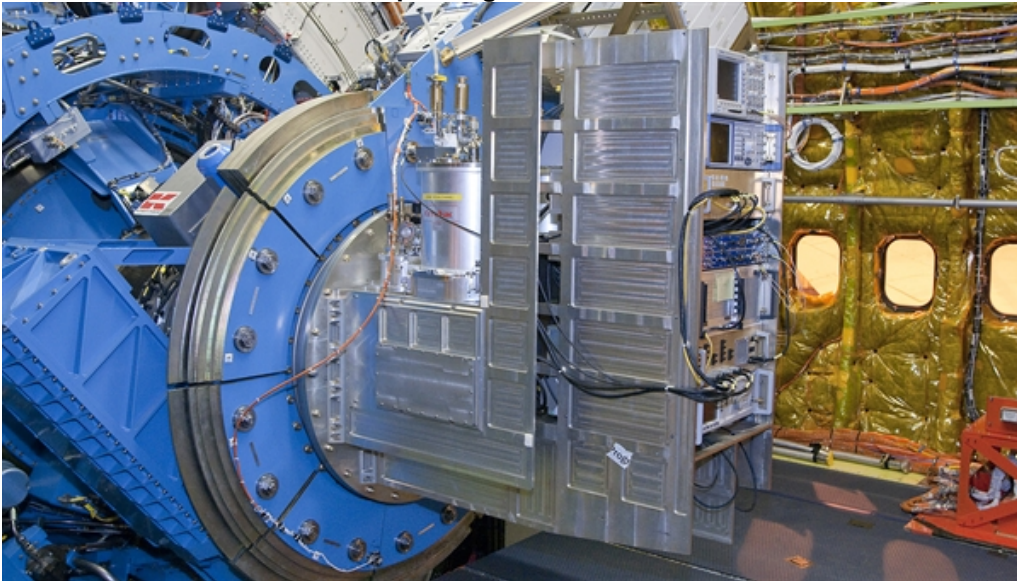
Final inspection and cleaning of the mounting plate



Final inspection and cleaning of the mounting plate before mating with the telescope. Rainer Strecker (DSI quality Management) works with the mounting plate: Alvin Mitchell and Rolf Güsten are in the background.

Credit: NASA/Tom Tschida.

GREAT mounted on the telescope flange



GREAT mounted on the telescope flange, which is in the nominal position (telescope at 40 degrees). During observation, GREAT will move with the telescope (± 20 degrees).

Credit: NASA/Tom Tschida.

GREAT was successfully installed



The team is happy as GREAT was installed successfully on the telescope flange. On the left, Helmut Wiesemeyer, Oliver Ricken, Christoph Leinz, Urs Graf, and Rolf Güsten. On the right, Stefan Heyminck, Jürgen Stutzki, and Karl Jacobs.

Credit: NASA/Tom Tschida.

Happy faces after a long day's work



Happy faces after a long day's work - the GREAT team and DAOF support team have worked closely together. Mission accomplished.

In the front row and standing from left to right: Zaheer Ali, Sal Ramirez, Conrad Castrellon, Chris Korber, Tim Krall and Gus Carreno.

Standing in the back row, from left to right: Kevin Reilly, Steve Robinson, Oliver Ricken, Charlie Kaminski, Urs Graf, Jürgen Stützki, Rolf Güsten, Karl Jacobs, Stefan Heyminck, Mike Moore, Marco Lentini, Alvin Mitchell and Rainer Strecker.

Credit: NASA/Tom Tschida..

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