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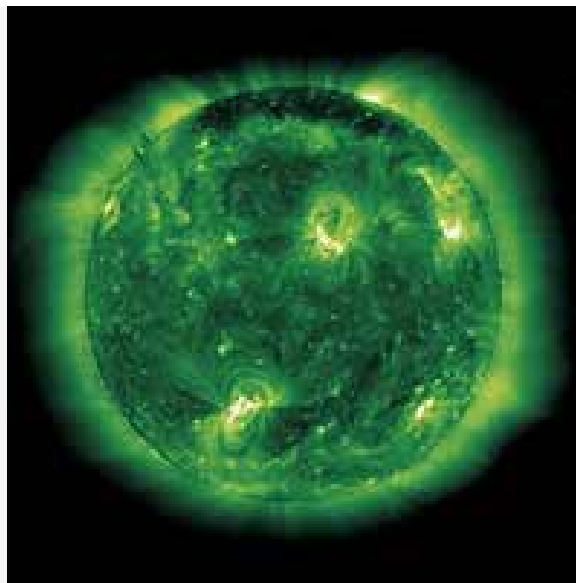
First European space weather telescope observes solar storms and analyses their impact on Earth

31 May 2007

Greater reliability for satellites and terrestrial systems / DLR participation on both scientific and financial levels

The first European space weather telescope's test operation started today. The telescope is expected to significantly improve the level of detection of solar storms and the forecasting of so-called space weather. The term "space weather" describes effects in Earth's orbit, in the atmosphere and on Earth, generated mainly by eruptions on the Sun, which influence and disrupt the smooth functioning and the reliability of technical systems in space and on the ground, and life and the health of human beings. The Sun is the main factor that influences space weather. It is also influenced by other effects such as galactic cosmic radiation.

DLR and ESA's financial involvement



Ultraviolet view of the Sun

The premiere for the first European space muon telescope MuSTAnG (Muon Space Weather Telescope for Anisotropies at Greifswald / Muon Space Weather Telescope for Elotrophy in Greifswald) took place at the newly-constructed mathematical sciences faculty of the University of Greifswald (Mecklenburg-West Pomerania). The setting up of the telescope was supported financially by the German Aerospace Center (DLR) by way of the European Space Agency's (ESA) technology development program (General Support Technology Program GSTP4). After the completion of the test phase the space weather telescope is to be integrated into an international network of space weather telescopes in Japan, Australia, Brazil, Kuwait and the US. It is planned that right from the beginning the data from the telescope will also be used by DLR in Neustrelitz (Space Weather Application Center - Ionosphere SWACI). As a first stage the aim is for DLR to ascertain how information from the space weather telescope can be used to forecast interferences in the ionosphere.

Space weather can seriously interfere with terrestrial applications – greater reliability as a result of improved forecasts

The muon telescope MuSTAnG is used to investigate solar storms and forecast space weather. Storms in space can harm the propagation of radio waves used by modern navigation and communication systems for transmitting signals. Strong turbulence-like changes in the electron density of the ionosphere cause a deterioration in signal quality and even interrupt signals used in modern communication and navigation systems and individual remote sensing systems.

Today's modern and highly complex society is becoming more and more dependent on technologies which can be influenced by space weather. As a result, energetic radiation of particles can directly interrupt the transmission of TV or mobile radio satellites by destroying the electronics system. Additional problems can arise as a result of the deterioration in the conditions for propagation of the radio waves used in telecommunication and navigation systems.

DLR is studying the effects of solar storms on the ionosphere – greater reliability for satellites

As a result of the DLR project in Neustrelitz (Space Weather Application Center - Ionosphere SWACI) and the availability of specific information about space weather, in particular about the current state of the ionosphere and expected changes in it, it is anticipated that first and foremost the level of accuracy and reliability of affected communication and navigation systems will be improved.

The Space Weather Application Center "Ionosphere" (SWACI) is a joint project of the DLR Institute for Communication and Navigation and the DLR's German Remote Sensing Data Center (DFD). Both are headquartered in Oberpaffenhofen near Munich. SWACI is a research project aimed at developing the foundations of a space weather data center that focuses on the ionosphere. The future DLR Ionosphere Center in Neustrelitz (NIC) is intended to provide European users with up-to-date information including warnings and forecasts concerning space weather and in particular regarding the state of the ionosphere.

The first phase of the project was sponsored by the government of Mecklenburg-West Pomerania.

Related Contacts

Eduard Müller

German Aerospace Center
Public Relations

Tel: +49 2203 601-2805

Fax: +49 2203 601-3249

E-Mail: Eduard.Mueller@dlr.de

Dr.rer.nat. Norbert Jakowski

German Aerospace Center
Institute of Communications and Navigation, Navigation

Tel: +49 3981 480-151

Fax: +49 3981 480-123

E-Mail: Norbert.Jakowski@dlr.de

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