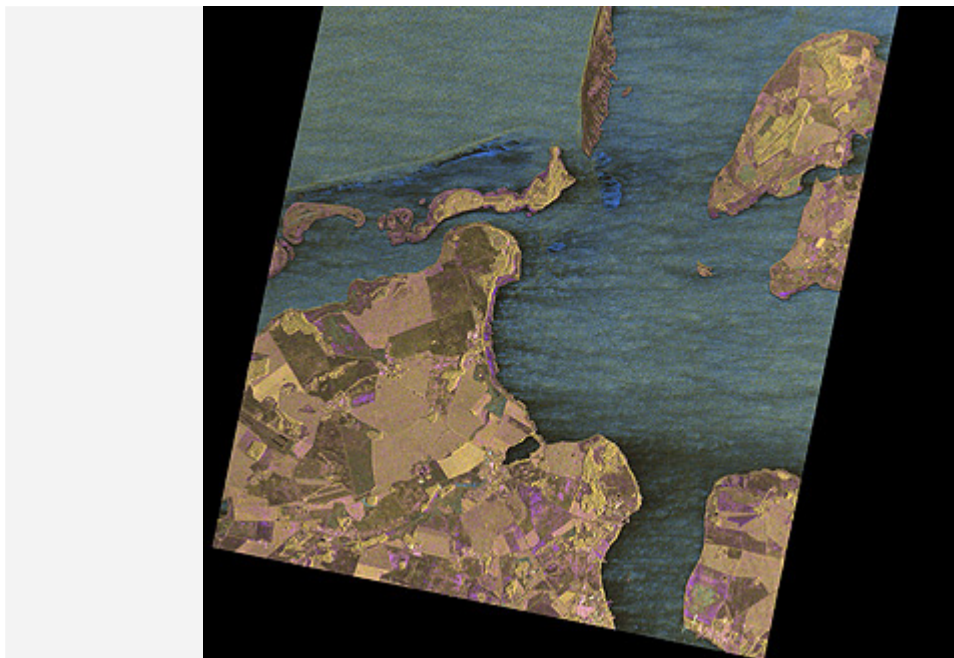

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TerraSAR-X radar satellite transmits excellent images for numerous scientific applications – a German success story

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Hiddensee, Germany

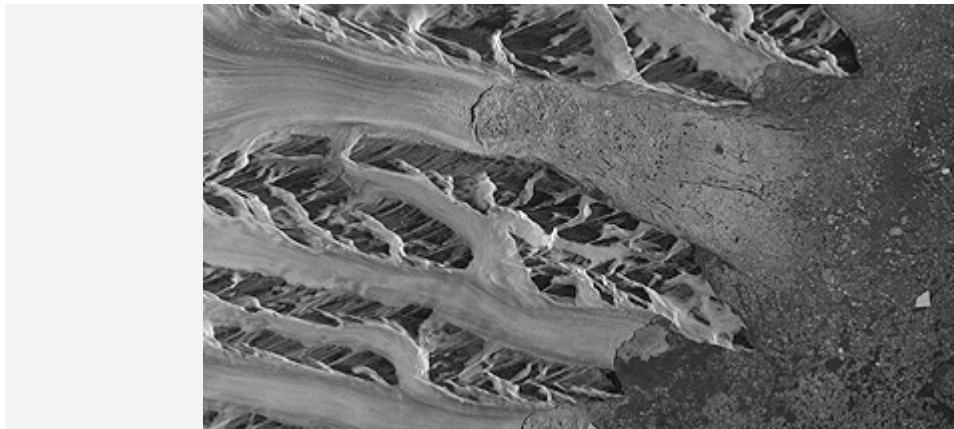
Although it has been in orbit for less than two months and is not yet fully commissioned, Germany's first Earth observation radar satellite, TerraSAR-X, already produces images of outstanding quality for numerous applications. It is an excellent example of a smoothly-functioning project handled jointly by the public sector and the industry (Public-Private Partnership, PPP), which is why it may justifiably be called a German success story: "TerraSAR-X shows what Germany's research and industry can do if they join forces", explained Prof. Johann-Dietrich Wörner, chairman of the board of the German Aerospace Center (DLR).

Wörner was enthusiastic about the radar images that had become available at this early stage: "TerraSAR-X documents Germany's eminent position in remote radar sensing. Our data will be an important source of information for international researchers, but they will also serve to promote commercial Earth Observation applications. What's more, Germany will play a leading role in the European Earth Observation programme GMES (Global Monitoring for Environment and Security) – not least because of TerraSAR-X."

At a press conference held at the Federal Press Office in Berlin, the entire bandwidth of the German satellite's capabilities was shown for the first time by DLR and Infoterra GmbH, a subsidiary of the PPP partner Astrium GmbH. Radar images taken on a journey 'around the world' document the versatility of these unique data, which may be used to protect coastal zones and surface waters, monitor

woodcutting in rainforests and measure the speed of the wind, the clouds or objects moving on Earth's surface. In addition, the photographs demonstrate the outstanding resolution of this new technology in which Germany's industry and research lead the world.

Already a German success story less than four days after launch



Larsen Ice Shelf, Antarctica

On 15 June 2007, the German radar satellite TerraSAR-X was launched from the Russian cosmodrome at Baikonur in Kazakhstan into a near-Earth orbit at an altitude of 514 kilometres.

After no more than four days, the first data were recorded by the German Remote Sensing Data Center (DFD) at Neustrelitz. Shortly afterwards, they were successfully converted into image products at the DLR Applied Remote Sensing Cluster in Oberpfaffenhofen. As Prof. Richard Bamler, the director of the Applied Remote Sensing Cluster, put it: "This sets a world record – receiving the first images no more than four days after the launch of a satellite. This has never happened before with a system of such complexity."

Although the so-called commissioning phase, the period in which the satellite is subjected to further tests and the on-board measuring instruments are calibrated, will extend approximately to the end of the year, DLR scientists are very happy right now. As Mr. Bamler said, "Eight weeks after the launch, the German radar satellite is practically operational in every respect, and we already have more than 2500 data records for completing our analysis of the instrument and the infrastructure on the ground: An outstanding achievement by our engineers and scientists."

TerraSAR-X on track for commercial success

Next to the scientific objectives which DLR represents and promotes, the TerraSAR-X mission also revolves around the commercialisation of the data produced. It is intended to sell TerraSAR-X data, as well as geoinformation products derived from them, worldwide so as to ensure the long-term sustainability of the German TerraSAR-X mission: The next satellite in line, TerraSAR-X-2, will be financed by the profits of Infoterra GmbH.

At Friedrichshafen, people were equally pleased about the promising data initially transmitted by the satellite: "TerraSAR-X has impressively demonstrated its capabilities", as the CEO of Infoterra GmbH, Jörg Herrmann, said. "We have already conducted several evaluations of the data that have become available so far, with results of which anybody might be proud. So the technical conditions for our commercial business could not be better, and our preparatory marketing activities of recent years are bearing fruit as well, for there is an immense interest among potential customers. At the moment, we already have almost 2500 orders for demonstration data from more than 40 nations."

TerraSAR-X has furnished its first elevation models, and their quality will improve even further when it is joined by TanDEM-X in 2009



Pyramids of Giza, Egypt

Not only radar data records but also digital elevation maps derived from sets of two TerraSAR-X images have become available at this early stage.

Because the images of each set are taken at a certain interval, however, this high-precision survey method will currently work only with arid zones and deserts. This will change after the launch of TanDEM-X, the sister satellite of TerraSAR-X.

From 2009 onwards, TanDEM-X will fly in a twin constellation with TerraSAR-X. The two systems, which are of almost identical construction, will then simultaneously take images at slightly different angles from which highly precise elevation models can be developed.

Radar data improve our understanding of complicated environmental processes

The evaluation of the novel information supplied by the satellite will concentrate especially on improving our understanding of our environment. Prof. Stefan Dech, the director of the DLR Remote Data Sensing Center at Oberpfaffenhofen, stated that "the data supplied by TerraSAR-X will help us scientists to find answers to pressing questions. Specifically, we are hoping for new insights in the field of managing the environment of Earth's megacities. At the same time, we expect TerraSAR-X to provide valuable and speedy support in the area of disaster management."

TerraSAR-X is the first German satellite to be realised in a public-private partnership between the German Aerospace Center (DLR) and Astrium GmbH of Friedrichshafen: DLR is responsible for the scientific use of TerraSAR-X data, the concept and implementation of the mission, and the control of the satellite. Astrium shares in the cost of developing, building, and operating the satellite. Infoterra GmbH, a subsidiary of Astrium specifically established for the purpose, handles the commercial marketing of the data.

About DLR

DLR is the national aerospace research centre of the Federal Republic of Germany. Its far-flung research and development activities in the fields of aviation, astronautics, transportation and energy are embedded in national and international cooperations. In addition to conducting its own research, DLR is responsible for planning and implementing Germany's space activities and for representing German interests on the international plane in its capacity as Germany's Space Agency.

DLR operates 32 institutes and facilities in eight locations: Köln-Porz, Berlin-Adlershof, Bonn-Oberkassel, Braunschweig, Göttingen, Lampoldshausen, Oberpfaffenhofen and Stuttgart. Its staff consists of around 5200 employees. DLR maintains offices in Brussels, Paris and Washington D.C.

About Infoterra

Infoterra GmbH was founded in 2001 by Europe's leading space group, Astrium, solely for the purpose of handling the commercial marketing of TerraSAR-X data. The company is responsible for the commercialisation of the TerraSAR-X data as well as of any geoinformation products and services

derived from them. Employing a staff of 30 at Friedrichshafen, Infoterra GmbH is a member of the European Infoterra group which includes companies in Great Britain and France. The group employs a total of 300 people and generates annual sales in the amount of 50 million Euros.

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