

Press Release

Friday 7th November 2008

CHRIS satellite imager celebrates 7 years' scientific success

The scientific community is celebrating 7 years of high resolution hyperspectral satellite imagery from the highly successful CHRIS multi-spectral payload imager. The instrument has been so successful that an advanced variant is under development, offering new functionality for Earth observation missions in a wide range of applications in resource monitoring and mapping, environmental science and security.



Proba captures manmade islands located just off the coast of Dubai in the United Arab Emirates. Image acquired on 5 November 2007 by ESA's Proba's CHRIS (Compact High Resolution Imaging Spectrometer) instrument.

Credit: SSTL through ESA

CHRIS (Compact High Resolution Imaging Spectrometer) was developed by SSTL's Optical Payload Group (formerly Sira Space Group), and placed into orbit in October 2001 on the PROBA mission developed by the European Space Agency (ESA). The sophisticated optical earth imaging instrument recently passed its 7th year in orbit as the highest resolution civil hyperspectral instrument in space.

Data from CHRIS has been highly successful in development of new Earth observation applications, and is supporting 94 international Principal Investigators (PIs), acquiring images from over 240 sites in 43 countries for diverse scientific research.

Dr. Mike Cutter, SSTL Optical Payloads Group explained the importance and value of such instrumentation, "Hyperspectral instruments have been widely used on

aircraft for mineral prospecting and resource management and the CHRIS instruments enable this capability to be used on a national and continental scale, which is critical both for efficient management of natural resources and for providing the information to determine the effects of climate change and mitigation measures."

SSTL's subsidiary DMCii schedules and processes images captured by CHRIS for ESA. The data from the mission then used in a wide range of applications including land cover assessment, resource management, deforestation and forest management, precision farming, aerosol monitoring and water quality assessment. The mission also supports International Charter: Space and Major Disasters campaigns by providing high resolution optical imagery of disaster affected areas.

The CHRIS hyperspectral images have been in high demand over the past 7 years, and the PROBA / CHRIS mission has pioneered and validated techniques for future scientific and commercial imaging spectrometer missions. Another reason for the scientific demand is that images can be acquired at 5 different view angles for each site, on a single over pass, allowing both spectral and directional signatures to be captured.

The new, more advanced CHRIS-2 instrument expands upon this unique capability by including the short wave infra-red band (SWIR), which allows further valuable applications to be addressed including mineralogy, prospecting, crop health and pollution monitoring.

Hyperspectral imagers split the available light from a scene into a large range of channels, providing detailed information about the imagery content. Whereas the CHRIS instrument provided up to 62 channels in the visible band, the CHRIS-2 instrument extends this capability to over 200 bands, including the short-wave infra-red bands (SWIR). Placing such an instrument on a spacecraft provides global reach and supports national and international routine imaging campaigns efficiently.

SSTL will provide the CHRIS-2 instrument on future Earth observation missions or as a stand-alone payload for integration with third party satellite platforms.

About SSTL

SSTL develops innovative technologies to change the economics of space, delivering cost effective satellite missions within rapid timescales. The Company is a world leader in the design, manufacture and operation of high performance small satellites with experience gained over more than 25 years and 32 satellites launched.

SSTL employs 300 staff working on LEO, MEO, GEO and interplanetary missions, turnkey satellite platforms and space-proven satellite subsystems and optical systems. The Company also provides training and development programmes and consultancy services, and performs studies for ESA, NASA and commercial customers related to platform design, mission analysis and planning.

Based in Guildford, UK, SSTL is currently owned by the University of Surrey (85%), SSTL staff (5%), and SpaceX of the USA (10%). www.sstl.co.uk

Notes to editor:

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<http://www.ballard.co.uk/sstl/>

A high resolution image can be downloaded from the ESA website:
<http://www.esa.int/esa-mmq/mmq.pl?b=b&type=l&mission=Proba&single=y&start=12>

Image caption: *Proba captures manmade islands located just off the coast of Dubai in the United Arab Emirates. Palm Jumeirah (left) is the smallest of three massive palm-shaped islands, and The World is a collection of 300 islets built in the shape of a world map. Image acquired on 5 November 2007 by ESA's Proba's CHRIS (Compact High Resolution Imaging Spectrometer) instrument.*

Credit: SSTL through ESA.

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