

Over View

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GMES: time for the UK to stand up and be counted

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What is GMES?

Global Monitoring for Environment and Security (GMES) is a European-wide initiative to provide information to policymakers, operational organisations and the citizen by exploiting imagery from satellites in concert with ground-based measurements. It is sponsored by the European Commission via its research funds, and by the European Space Agency by supporting the development of service elements or GSEs.

Why is it important?

■ For the first time it will provide a consistent cross-European information base to judge the effectiveness of environmental legislation, helping to protect the environment for future generations.

■ It will provide timely and relevant information to protect citizens caught up in crises and disasters within Europe and worldwide.

■ It is the first attempt to match user needs with technological capability across Europe

■ It is the first time that high-level political backing has been given and the level of funding needed to maintain such a system has been sought.

At present Europe is dependent mainly on US EO satellites and, to a lesser extent, on ESA's EO satellites such as Envisat, which were developed as experimental rather than operational missions. GMES has the potential to develop into a dedicated, purpose-designed European capability to meet European needs.

earth.esa.int/gmes/
www.gmes.info/



British Association of Remote Sensing Companies

Global Monitoring for Environment & Security (GMES) provides the greatest opportunity to match the information needs of European institutional users with the capabilities of Earth Observation satellites. The UK is in danger of being sidelined by the rest of Europe if it does not stake a claim by stating its priorities for information, or in which areas it wants to provide services.

GMES is timely, as the focus of "evidence-based" policy making in the UK includes high priority targets such as global change and support for Africa. At a recent meeting, Defra noted, "2005 (is a) crucial year for the future of GMES ...the final proposal from the EC to the Council of Europe and the European Parliament, and also from the ESA Executive to its Council"

In terms of the information that GMES will provide (which will be used to underpin new environmental policies), the UK already has a strong position with Defra, the UK environmental department, which currently leads the UK in high-level meetings of the GMES Advisory Council (GAC). This is in contrast to many other member states, where the lead is from a Space Agency or Research Department.

However, it is already clear that the French will control the GMES marine services (despite a spirited fight from some UK stakeholders), and Germany has control of land surface issues. Which part is the UK going to claim?

As recognised by Defra at a recent UK consultation meeting, there are two areas to consider: What are the UK policy priorities for information services arising from GMES, and what are the UK Industrial priorities for provision of these data and services?

Other member states are also very active - in sending representatives to the joint

EC/ESA GMES programme office (GPO), and influencing the development of GMES from the inside.

In the ESA world, the initial set of ten services will be subject to tenders to move to the "implementation" phase, with the second wave of two services following close behind. The UK must lobby strongly to hold or even gain ground in these programmes. On the plus side, UK downstream industry, with help from BNSC, has established a lead in two service lines - urban ground movement (TerraFirma) and humanitarian aid (Respond), as well as smaller roles in many of the other lines, notably marine and ice monitoring, but the UK has no publicly-visible stance or "claimed ground".

BARSC sees the successful implementation of these services as key to GMES, and is concerned that the UK may be forced to relinquish the strong grip on these key areas because of ESA's geo-political rules, the same rules that have led to some €27m being owed to the UK in other ESA EO programmes.

On paper, the UK position is strong. The combination of Defra, BNSC, Industry, NERC and other government department support is powerful, yet the UK lacks a stated aim and focus for GMES. It is time for the UK to stake its rightful claim in this important programme.

BARSC stands ready to do its part. Our members are at the sharp end, providing information services for ministries such as Defra. We await the call!

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UK Involvement in GMES

A quick reference guide

ESA

Under the ESA GMES Service Element (GSE) Programme, the UK is leading two of the 12 service lines, and has involvement in 6 others:



TerraFirma - Pan-European ground motion hazard information service

Led by:

NPA Group Ltd

Supported by:

SciSys (Systems engineers)

British Geological Survey (Core user)

BIICL (Policy review)

www.terrafirma.eu.com



Respond - Mapping service provider to the humanitarian aid community

Led by:

Infoterra UK Ltd.

Supported by:

SciSys (System engineers and consultants)

AlertNet (In-sector provider)

SSTL (Data supplier)

ESYS (Consultancy)

www.respond-int.org



Risk-EOS - Flooding and wildfire support service

Supported by:

UK Met. Office (Core user)

www.risk-eos.com



GMFS - Food security service

Supported by:

ESYS (Cost benefit analysis)

www.gmfs.info



CoastWatch - Algal bloom and oil spill service

Supported by:

SOS (Service provider)

Hydraulics Research Wallingford

(Systems engineers)

www.coastwatch.info



ROSES - Marine information service

Supported by:

SOS (Systems engineers)

ESYS (Cost benefit analysis)

www.roses.cls.fr



Icemon and Northern View - Ice mapping

Supported by:

Vexcel UK (Systems)

ESYS (Cost benefit analysis)

www.icemon.org

www.northernview.org

More information on the GSE programme: www.esa.int/gmes

European Commission

The EC is currently using the Framework 6 research programme to support GMES. Many of these projects are just getting going. It is expected that the UK will prime at least one major project resulting from the next call in early 2005.

GEOLAND - a large integrated project on the subject of land cover primed by Germany.

UK involvement:

Infoterra UK

www.gmes-geoland.info

GMOSS - a network of excellence in the area of security and humanitarian aid, primed by JRC and run by Germany.

UK involvement:

QinetiQ

WIN - an integrated project, run by France, looking at infrastructure issues.

UK involvement:

ESYS

Member News

Insurance sector market drivers

“Opportunities for the use of Earth Observation (EO) within the insurance and reinsurance sectors are expected to grow as data collection and modelling become more widely available and appreciated within the industry.” This was the view of Dr Alan Punter, MD of Aon Ltd., a keynote speaker at a recent workshop held by Aon and ESYS plc. In his opinion, the major opportunities for EO are either to replace current methods of exposure and loss assessment with something more cost-effective, accurate or independent, or to supplement current methods to improve reliability of pricing and to provide new types of data to support new types of insurance coverage.

The workshop was held as part of an ESA-sponsored EO Market Development (EOMD) programme project to assess and respond to market drivers in the insurance sector. Subjects tackled included agriculture and forestry, wind and energy derivatives, geotechnical risks and hydrological risks.



“The workshop was a remarkable success, bringing together an unprecedented number of practitioners and professionals from across the insurance/earth observation divide,” commented Charles Eyre, Aon Project Manager and Director of Climate Change Solutions. The study will complete with the results of three collaborative projects, funded by ESYS, that include the use of EO in Forestry Reinsurance, Digital Elevation modelling for risk exposure mapping and subsidence mapping.

Rapid mapping allows aid through in Sudan



Rapid provision of vital emergency supplies to the people who need them most is a huge logistical problem for aid agencies working to avert the humanitarian disaster in Sudan. Transportation of supplies from airport to refugee camp is one such problem.

Early in September, Infoterra received an urgent call from the DLR, one of Infoterra’s partners in the GMES RESPOND project team. They had been informed by the DRK (German Red Cross) of major problems trying to deliver aid to a refugee camp at Trejine in Chad from the city of Abeche. Seasonal flooding had blocked previously open routes, and the lack of any accurate mapping reduced opportunities to find alternative routes.

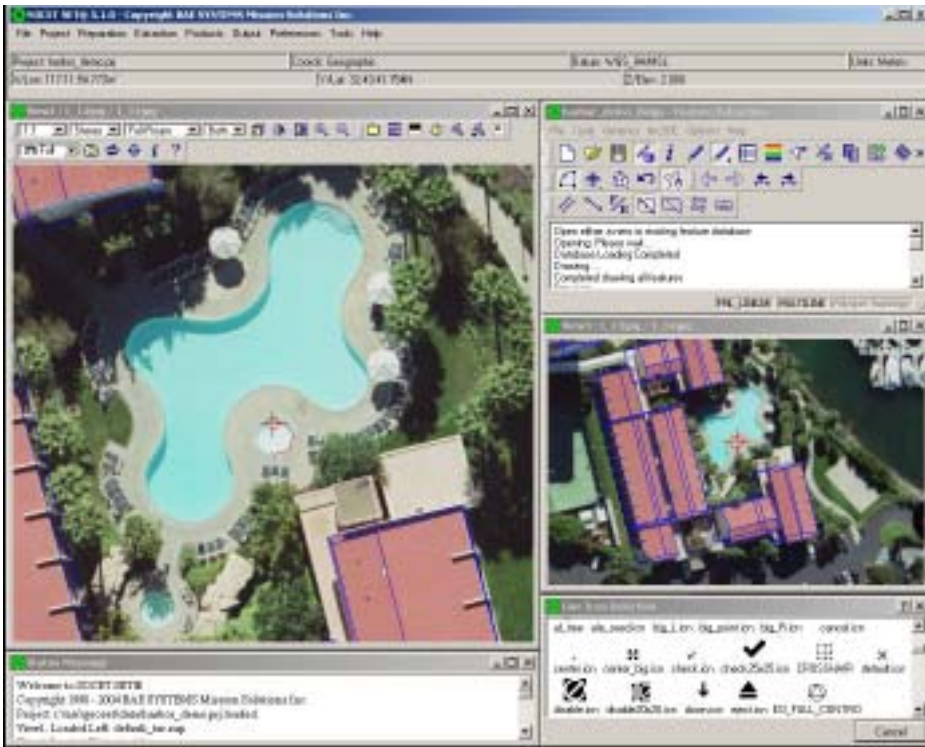
Infoterra took the decision to provide the required mapping. Landsat 7 data was

sourced from USGS and interpreted to identify features such as settlements, roads, tracks and wadis over a 110km x 110km area of interest. This was combined with existing roads data to provide a 1:200,000 scale map.

Despite image interpretation difficulties, a map featuring a comprehensive network of roads and tracks was dispatched within four weeks, providing workers with the means to plan alternative routes, and reducing the time taken to drive from airport to the refugee camp. DRK commented, “It was a very important tool for the logistics planning. Until then, we had no map of the operational area whatsoever! It showed the area vital for us, since the sub-delegation was located in Abeche, and regular travel between both locations was necessary in very difficult climatic conditions.”

BARSC WORKSHOP 2005

Details of our annual one-day workshop coming soon.



Photogrammetry productivity enhancements

SOCET SET® v5.2, released last month, is part of a versatile suite of photogrammetry software for precision mapping and image interpretation from BAE Systems, which is used in commercial, government, military and intelligence applications worldwide. Both SOCET SET and the company's VITec® Electronic Light Table (VITec ELT) product run on either Windows or Unix platforms.

Dave Child, proprietor of The Mapping Place, a UK photogrammetric service, uses SOCET SET to process the bulk of his work - large triangulation projects. It allows

his staff to use a robust tool to do the tedious work of point measurement and bundle adjustment, so he can focus on customer service and on staying competitive with larger vendors.

SOCET GXP™, the next generation of BAE Systems' photogrammetry tools, was introduced in October. The new software will ultimately deliver the strengths of both SOCET SET and VITec ELT in one cohesive package.

COASTCHART Update

Around the world, there is a significant lack of coastal information, due to the difficulty and cost of coastal surveys. In many places, particularly in developing countries, the position of the shoreline is not accurately known. In addition the coastal information shown on marine charts is often out of date, which can present a risk to shipping. The COASTCHART project aims to provide hydrographic offices with a system that allows standard navigation charts to be updated with accurate coastline information derived from space-based observations.

The primary objective of this two-year project is to deliver a coastline delineation system to hydrographic offices in France

(SHOM) and the UK (UKHO). In addition, the project will delineate 6000km of coastline along the West African coast and deliver data products from this work to chart compilers in the hydrographic offices. The main data source used will be the Advanced Synthetic Aperture Radar (ASAR) on Envisat, ESA's flagship satellite for observing the Earth. Due to its viewing flexibility and cloud penetrating capability, ASAR radar allows images to be acquired that coincide with the time of high tide at key locations along the coast – even in the cloudy tropics.

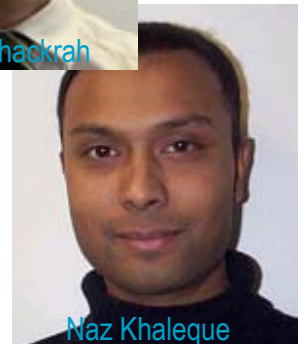
LogicaCMG teamed up with PCI in Canada, BRGM and BOOST Technologies

Changes at RSI

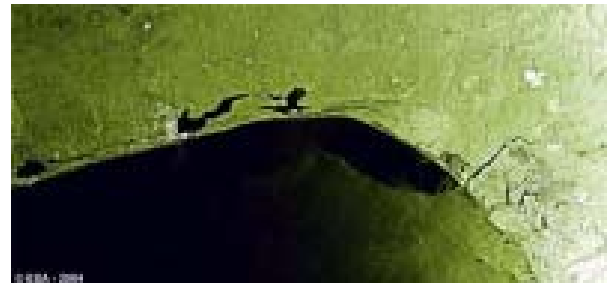
Research Systems, Inc. (RSI) announces the promotion of Dr. Naz Khaleque to head of the ENVI arm of RSI (UK) Global Services and the addition of Dr. Graham Thackrah as a Technical Consultant, specializing in ENVI and remote sensing at RSI's UK office in Berkshire.



Graham Thackrah



Naz Khaleque



Wide-swath Envisat radar image (400km wide) over the coast of Togo, Benin and Nigeria.

in France and Remote Sensing Applications Consultants, Plymouth University and University College London in the UK to win the € 1m COASTCHART contract in July. The System Requirements Review has now been completed and data acquisition has commenced in accordance with an imaging plan designed to maximise land-water discrimination. Multiple SAR images will cover each part of the coastline at times of both low and high water. The image set will comprise an optimised combination of incidence angles and polarisations.

