



In this Issue

1. Communication on the GMES Programme and its Operations from 2014 onwards
2. Cost-Benefit Analysis on the GMES Programme Available Online
3. European Space Policy Institute Publishes Study on GMES
4. Climate Talks at COP 17
5. The Respond Atlas Now Online
6. LANDSAT Archives Now Available

GMES Project Corner

7. "Your Ocean online" at the First Innovation Convention
8. MACC: 2nd Grant Agreement Signed
9. Recent SAFER Activations

Disclaimer

This E-News is published by the SWIFT project whose aim is to support information dissemination in the framework of the European Commission GMES programme.

SWIFT is a Coordination and Support Action funded by the European Commission / Directorate General Enterprise and Industry under the 7th Framework Programme.

The views expressed in this E-News are those of the authors and do not necessarily represent those of the European Commission.

1. **Communication on the GMES Programme and its Operations from 2014 onwards**

On 30 November 2011, the European Commission adopted its Communication on the "*European Earth monitoring programme (GMES) and its operations from 2014 onward*". This communication presents its proposals for the future funding, governance and operations of the GMES programme for the period 2014 - 2020.

The European Commission, in its Communication on the European Earth monitoring programme, has made an assessment involving three different financing options. Based on its assessment, the Commission proposes to opt for the creation of a specific GMES fund, similar to the model chosen for the European Development Fund, with financial contributions from all Member States, based on their Gross National Income (GNI). The management of the fund would be delegated to the European Commission.

Regarding the governance issues, the European Commission proposes to remain responsible for the political supervision and the overall coordination of the GMES, on behalf of the Union. The Commission proposes to delegate certain management tasks such as evaluation, negotiation and follow-up of contracts to the European GNSS Agency (GSA). These tasks would however not include operations.

For operations, the European Commission proposes that the technical coordination of service is entrusted to several European entities, depending on their knowledge and expertise. For instance, the technical coordination of the land monitoring service could be entrusted to the European Environment Agency, the technical coordination of the atmosphere monitoring service could be entrusted to the European Centre for Medium-range Weather Forecasting, the technical coordination of the emergency management service could be entrusted to the European Emergency Response Centre, etc.

The Communication addresses also the GMES data and information policy that will continue to build on the principle of a full and open access (subject to legal and security restrictions) and taking into account existing legislation, in particular directive on the re-use of public sector information and INSPIRE directive, to achieve the following objectives:

- a) Promoting the use and sharing of GMES information and data;
- b) Strengthening Earth observation markets in Europe with a view to enabling growth and job creation;
- c) Contributing to the sustainability and continuity of the provision of GMES data and information;
- d) Supporting the European research, technology and innovation communities.

The document is a response to the request of the Competitiveness Council of the 31 May 2011 to present by the end of 2011 a proposal for the operations and a clarification of the governance of GMES in the period from 2014 to 2020 in order to launch the debate with the other institutions. It paves the way for the long-term, sustainable governance and funding of the GMES programme.

The full text of the Communication is available at:

<http://www.gmes.info/fileadmin/files/1.%20GMES%20Reference%20Documents/COM-2011-831.pdf>

2. Cost-Benefit Analysis on the GMES Programme Available Online

Booz & Company was commissioned by the European Commission to undertake a cost-benefit analysis of the GMES programme. The final version II of the study report is now available online. The main focus of this study was the assessment of four broad funding options for GMES and its operational services. According to the study, GMES has the potential to deliver considerable net benefits for the EU across priority policy areas of climate change, environmental policy and industrial policy.

Cost-benefit analysis on the GMES programme, conducted by Booz & Company analysed the four following funding options:

- Baseline Option with no on-going commitment to replace infrastructure or investing significantly in services (Option A);
- Baseline Option Extended, but still with no ongoing commitment to replace infrastructure over the longer term and invest significantly in services (Option B);
- Partial Continuity, with commitment to provide Sentinel infrastructure and invest considerably in services, with limited support to ensuring continuity of data from Contributing Missions (Option C);
- Full Continuity with commitment to provide Sentinel infrastructure and enhanced support for the continuity of data from Contributing Mission with full investment in services (Option D).

A detailed assessment of these four models shows that GMES has the potential to deliver considerable net benefits for the EU across priority policy areas of climate change, environmental policy and industrial policy. However, given the sheer scale and longevity of the programme, such high levels of spending come with the risk that net benefits may not materialise as predicted. The key reasons for this are:

- Uncertainty and gaps in policies on data that could be a constraint upon the downstream sector;
- Insufficient commercial focus and lack of a strategy to respond to what is needed to catalyse the downstream sector;
- Insufficient engagement and influence with users, creating the risk of a programme that appears to be supplier and public sector driven, rather than end-user driven;
- Risks of substandard expenditure on infrastructure and services at the detailed level over the longer term as requirements, technologies and policies evolve;
- Inadequate risk management and programme management approach to the programme;
- Restrictions on funding and financing options that severely limit the scope to engage the private sector in long term performance oriented contracts; and
- Overlapping and divided roles and responsibilities for governance leading to a lack of strategic focus for the GMES programme.

Even though the study includes a number of key enablers that could address these issues, it is stated that the highest priority should be a comprehensive assessment of the governance needs and options for GMES. GMES needs strong strategic leadership, with a programme approach that is dynamic, has a first-class risk management strategy and will fully engage with users and the downstream sector in the ongoing development and delivery of its programme. It should be focused on delivering across the

high impact benefit areas such as climate change and environmental policy, and facilitating the development of the downstream sector.

If governance issues are addressed, it could also provide a strategic foundation for the EU developing GMES as a world-class, leading base for Earth Observation with a downstream sector that grows to its full potential. Given the sheer scale of investment involved, it would be in the best interests of the EU to maximise the potential return from this, and to take GMES from being partially dependent on a set of research and development projects delivering pilot and pre-operational services, to a fully-fledged operational programme providing a valuable contribution to a wide range of public policy and private purposes.

The full version of the study can be found at:

http://ec.europa.eu/enterprise/policies/space/files/gmes/studies/ec_gmes_cba_final_en.pdf

3. European Space Policy Institute Publishes Study on GMES

On 25 November 2011, the European Space Policy Institute (ESPI) published a study entitled *"The Socio-Economic benefits of GMES. A Synthesis Derived from a Comprehensive Analysis of Previous Results, Focusing on Disaster Management"*. The study is building on existing third-party results on the quantification of socio-economic benefits of GMES (including the one described in the second article of this E-News) and provides a holistic comparative assessment on the economic, strategic and political benefits.

The study on the socio-economic benefits of GMES, published on 25 November 2011 by the European Space Policy Institute, focuses on the following areas:

- Disasters in Europe with focus on flooding and fires;
- Public opinion on civil protection;
- Overview and analysis of past socio-economic benefits studies on GMES;
- Analysis of quantifiable and non quantifiable economic, strategic and political benefits.

The results of this analysis show that GMES can produce significant socio-economic benefits and can offer significant strategic and political benefits for Europe. These benefits concern European leadership in this high-profile area and the long term quality of life of the European citizens. According to the study, the main strategic and political benefits of GMES are access to independent information to support European interests and decision-making and European autonomy in critical technologies and capabilities. This scientific paper provides information on the projected economic benefits by impact category and estimates that for every 1 euro of tax payer's money invested in GMES, the citizen receive the equivalent of at least 10 Euros public benefits back in a dynamic scenario where the interrelationship between impacted areas is taken into account.

The study was conducted by ESPI Resident Fellow Christina Giannopapa under the auspices of the 2011 Polish Presidency of the Council of the European Union in consultation with relevant European stakeholders. In the framework of this research, a presentation was made on 27 October 2011 to the Competitiveness Council Space Working Party in Brussels. In the presentation the author of the study

discussed issues related to the impact natural disasters have in Europe, the public perception on these issues and the impact GMES can bring.

The full version of the report is available at:

http://www.espi.or.at/images/stories/dokumente/studies/ESP_Report_39.pdf

4. Climate Talks at COP 17

The COP 17 conference was held from 28 November to 9 December 2011 in the city of Durban, South Africa in order to discuss the climate challenges at high political level. Prior to the conference, the results of research entitled "*Rapid growth in CO₂ emissions after the 2008–2009 global financial crisis*" were published, according to which the emissions from burning fossil fuels rose by 5.9% in 2010, bringing the total rise since 1990 to 49%. The conference addressed various points related to GMES and the role of Earth Observation satellites.

Based on the recent research, carbon dioxide emissions from burning fossil fuels have soared in the last 20 years, giving the world much less chance of avoiding dangerous climate change. The research was published as lead negotiators were arriving at the UN climate talks in Durban, South Africa, where prospects of a new global treaty on climate change appeared to have stalled, with deep divisions between developed and developing countries. Corinne Le Quéré, director of the Tyndall Centre for Climate Change Research at the University of East Anglia, and an author of the research, said the data showed that little had been achieved over 20 years in reducing the risks from climate change.

In the framework of the conference, the European Space Agency (ESA), being of the observers, discussed its Climate Change Initiative and the Sentinel satellite series. The Climate Change Initiative is using archived data going back three decades from Agency and Member-State satellites. Combined with data from new missions, this information is used to produce new, verified information on a wide range of climate variables.

New operational satellites like the Sentinel series of Earth-observing missions will ensure the continuity of this data. With the first three planned for launch in 2013, the missions will maintain a constellation of satellites continuously monitoring essential climate variables for the next three decades. Thanks to ESA's open data policy, climate research and modelling scientists worldwide will have free access to these data. The Sentinels are being developed specifically for the operational needs of the Global Monitoring for Environment and Security programme.

Furthermore, a side event along with the European Commission's Joint Research Centre (JRC) and the South African Space Agency (SANSA) on sustaining systematic climate observations from space was held during the conference. An exhibit entitled "*Global Monitoring of our Climate*" was running during the two weeks of COP 17. In addition, one of the side events focused also on the Reducing Emissions from Deforestation and Degradation (REDD+) scheme. REDD+ uses satellite observations of forests and involves developed and developing countries working together for carbon offsetting. The scheme is currently implementing the GMES Service Element on Forest Monitoring services in Gabon and the Republic of Congo.

The next COP 18 conference will be held in Qatar from 26 November to 7 December 2012.

More information is available at: <http://www.cop17-cmp7durban.com/>

5. The Respond Atlas Now Online

The Respond project has recently released a portfolio of its services, called the Respond Atlas. The Respond project began in 2004 as a European Global Monitoring for Environment and Security (GMES) initiative. During its five years of service, hundreds of maps were produced to assist in relief efforts linked to crises such as the aftermath of Cyclone Nargis, the 2004 Asian tsunami and also the Sudan's refugee situation in Darfur.

A review of crisis response using Earth observation techniques is now available online. The so-called Respond Atlas, produced by the Respond project, outlines global events where remote sensing assisted in preparing for and responding to disasters and humanitarian crises. Respond's users came from five main groups: EU bodies, UN organisations, international humanitarian aid organisations (like the Red Cross), donor governments and international non-governmental organisations.

Over the course of the project, more than 38 user organisations signed up to receive Respond services. The service provided mapping far beyond the disaster response phase by supporting recovery, rehabilitation and reconstruction activities. Earth observation-derived mapping was used for years following the 2004 Asian tsunami, and the products were also used for resettlement.

However, not all disasters have a rapid onset. Some, such as drought and famine, can grow for months before being recognised as a crisis needing international intervention. Once an emergency was recognised and assistance requested, Respond provided reference mapping from archived satellite imagery to compare to newly acquired satellite data specifically tasked to monitor the event.

Satellite maps also supported programmes to help internally displaced persons and refugees. Customised maps were delivered to UN refugee agency and other non-governmental organisations for the planning and placement of shelters, as well as life-line services such as power, water and sanitation. Maps were also used for rehearsing evacuation plans. The members of the Respond consortium are actively engaged in realising Earth observation capacities for crisis response with leading providers from Europe involved in the European Commission's GMES SAFER project.

Continued availability of Earth observation data is prerequisite for the continuity of crisis mapping services in the long term. The upcoming Sentinel missions – developed specifically for the operational needs of the GMES programme – are essential to the supply of rapid multisensor coverage over disaster-stricken areas.

More information is available at:

<http://esamultimedia.esa.int/multimedia/publications/RespondAtlas/pageflip.html>

6. LANDSAT Archives Now Available

On 23 November 2011, over 30 years of archived data from the Earth-observing satellites became available, free of charge. The majority of these products are unique to ESA's (European Space Agency) archive and have never before been accessible anywhere else by the scientific user community.

Over 30 years of archived data from the US Landsat Earth-observing satellites are now available, free of charge. The majority of these products are unique to ESA's archive and have never before been accessible anywhere else by the scientific user community. In its archives, ESA holds around two million products that cover Europe and North Africa. The total amount of data available is worth about 450 terabytes – that's equivalent to about 900 000 hours of audio recorded at CD quality. ESA has been acquiring Landsat data at European stations since the 1970s.

ESA revised its Earth observation data policy in 2010 to adapt to the 'Joint Principles for a Sentinel Data Policy'. This policy was approved by ESA Member States participating in the GMES Space Component Programme, and supports the concept of providing free and open access to data.

ESA archives opens access to all products from the Thematic Mapper and Enhanced Thematic Mapper instruments aboard the Landsats. Data from the older Multispectral Scanner will be made available at a later stage. To access the data, users can go to the Earth Observation Principal Investigator Portal to submit a brief project description and request data. ESA then assigns the project a quota based on the system's current processing capacity. When the data are ready, the user will receive directions for online retrieval.

In order to allow improved and faster access, ESA will soon begin gradually to process all data into an online archive for users to access independently. Owing to the vast amount of data, this process will take about two years.

To access the data, users can submit a brief project description and request data at:

<http://eopi.esa.int/esa/esa?cmd=aodetail&aoname=landsat>

GMES Projects Corner

7. "Your Ocean online" at the First Innovation Convention

One year after the adoption of the Innovation Union flagship initiative, the first Innovation Convention organised by the European Commission brought together world's leading experts in research and innovation. On 5-6 December 2011, the exhibition showcased exciting research and innovation results being developed under European funding programmes. One of the selected examples was also the MyOcean project.

MyOcean project had its exhibition showcase during the first Innovation Convention organised by the European Commission on 5-6 December 2011. This conference brought together world leading experts in research and innovation to share their views on building a global innovation economy. MyOcean is the EU funded (FP7) project developing the pre-operational version of the GMES Marine Environment Monitoring service. It provides open and free access to state-of-the-art Ocean analyses and forecasts based on the combination of satellite and in situ observations, and their assimilation into 3D models, for the past, in real time and for the near future.

Visitors to the MyOcean stand were able to manipulate an interactive globe featuring currents and temperatures and discover the first MyOcean application for a smartphone displaying Ocean forecasts from the bottom of the ocean to its surface. They also learned how can a user access the comprehensive MyOcean catalogue of products through the MyOcean web portal.

More information about MyOcean project is available at: <http://www.myocean.eu.org/>

8. MACC: 2nd Grant Agreement Signed

A second phase of funding for the pre-operational GMES atmospheric monitoring and forecasting service provided by MACC has been secured until July 2014. The grant agreement for a continuation project, MACC-II, funded under the European Union's Seventh Framework Programme, entered into force on 14 October 2011.

On 14 October 2011, the grant agreement concerning the funding of GMES atmospheric monitoring and forecasting service entered into force. MACC-II will largely continue the production streams and developmental effort of MACC, but will no longer include support for supply of national air-quality data or study of downstream test cases. There will be increased coordination of validation activities and increased effort on estimation of emissions. Services, including the website (below), will continue to be provided under the name MACC.

More information about the MACC is available at:

<http://www.gmes-atmosphere.eu/>

9. Recent SAFER Activations

The GMES Emergency Management Service powered by SAFER (Services and Applications for Emergency Response), a project co-funded under the Seventh Framework Programme of the European Commission, reinforces the EU capacity to respond to emergency situations: it provides a reactive cartographic service to the registered users involved in the management of humanitarian crisis, natural disasters and man-made emergency situations with timely and high quality products derived from Space Observation. During the period covered by this issue the SAFER Service has been activated 7 times due to fires in Romania and La Reunion, floods in France, Italy, Cambodia and Armenia as well as due to the earthquake in Turkey.

Fires in Romania

On 6 November 2011, heath and forest fires broke out in the region of Sibiu in Romania at several un-associated locations in the mountains. The fires spread quickly and strong winds hampered the fire-fighting operations. A total of approximately 40 hectares of forest, grassland and heath land were burnt down. SAFER delivered satellite images of affected area in order to assist recovery forces on the ground.

Floods in France

On 3 November 2011, the Hérault River reached a red vigilance level on the Vigicrues flood-watch site whereas on the Météo France weather vigilance map 3 Departments (Hérault, Aveyron, Lozère) went red and 5 Departments (Tarn, Bouches-du-Rhône, Haute-Loire, Gard et Ardèche) hit orange vigilance levels with respect to serious flood risks. The red vigilance level was triggered upriver due a *"confirmed intensification of precipitation expected for the end of the afternoon and the following night"* according to a Météo France communiqué. *"Over the Cevennes chain, rainfall was recorded at between 150 and 250 mm, cumulating locally at 300 mm. This rainfall event was worrying by its duration, but equally because of the risk of locally intense downpours"* affirmed Météo France. Furthermore, a strong East to South-East wind was announced, with gusts of 80 to 100 kmph on the coast, which could lead to a sea level rise and the filling-up of coastal river estuaries.

Fires in La Reunion

On the afternoon of 25 October 2011, several wildfires were reported to be burning in the centre of the Reunion National Park, which is registered as a UNESCO world heritage site. According to the report published by the prefecture, at present, hundreds of hectares of forest are affected by the fire that has ravaged the area of Piton Rouge in the Maïdo massif. More than 400 emergency personnel have been mobilized.

Flood in Italy

On 25 October 2011, torrential rains that triggered flash flooding and mudslides in northern Italy were unusual. The rains reached an intensity of over 140 millimetres per hour. Coastal areas near Liguria and Tuscany were hit hard by the heavy rains, so that, Italy has declared a state of emergency for regions damaged by flood waters. At least nine people have died in flash floods.

Earthquake in Turkey

On 23 October 2011 an earthquake with a magnitude of 7.3 at 5 km depth hit the province of Van in eastern Turkey, followed by a series of powerful aftershocks of magnitudes up to 5.6. The epicentre was located at 38° 37' 40.80"N, 43° 29' 9.60"E, at the village of Tabanlı 19 km northeast of the city of Van between the Van Lake and the Iranian border. Several municipalities around the Van Lake were affected. Especially Bitlis on the west side and Ercis on the north side of the lake were hit severely. According to Turkish media phone lines and electricity had been cut off. Thus initial reports of damage and casualties have been hard to come by.

Floods in Cambodia

On 8 October 2011 strong typhoons and heavy rains caused severe floods in the South East Asia. Cambodia experienced the worst flooding in over a decade with an over-flood of the Mekong and Tonle Sap rivers affecting 17 of 24 provinces. The flood waters in many provinces have been raised both from heavy rain and from the impacts of flooding from neighbouring countries. Thailand and Vietnam also experienced heavy flooding. There are more than one million people affected and at least 100,000 people displaced, but numbers are expected to increase. More than 10% of agricultural land has been inundated and the rice crop will most likely be lost.

Floods in Algeria

On 1-2 October 2011 heavy downpours hit the area of El Bayadh, 700 km SW of Algiers, leading to deadly flooding within the town of El Bayadh. The flooding has badly affected the population and property: 13 dead, tens of injured, hundreds of destroyed houses, 5 collapsed bridges at an estimated cost of 6 billion dinars (600 million euro) not counting housing. An emergency shelter has been set up for the flood affected population within an unused factory.

The maps produced by SAFER can be found at:

<http://www.emergencyresponse.eu/gmes/en/ref/home.html>