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THE RESULTS 2011

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GMES MASTERS

THE EUROPEAN EARTH MONITORING COMPETITION

UPON THE INITIATIVE OF

esa GMES We care for a safer world DLR T

ORGANISED BY

ANWENDUNGSZENTRUM Oberpfaffenhofen

Jean-Jacques Dordain
Director General
European Space Agency (ESA)

In 2011, the GMES programme has entered its initial operational phase. The first Sentinels, the backbone of GMES, will be launched from 2013 onwards. At this crucial stage, the time was ripe for the launch of the first European Earth Monitoring Competition – the GMES Masters – which illustrates the benefits and possibilities of the GMES initiative for European decision-makers and the greater public.

By triggering the creation of innovative value-added services, the competition demonstrates the potential of the GMES programme to stimulate economic growth in Europe. As the 2011 GMES Masters has clearly shown, an important number of promising business cases making use of GMES services are now ready to be implemented, and many more are to follow in the near future. The ideas span a broad array of applications for GMES services in commercial fields, ranging from environmental conservation and mitigation of climate change to tourism, fishery management, and social networking.

In order to develop their full potential – economically, but also in terms of raising public awareness – it is now our task to support the realisation of the GMES Masters' winning ideas. This is what the GMES Masters stands for, both in 2011 and the years to come.

Finally, let us not forget that a sustainable success of the GMES initiative strongly depends on the continued support of all stakeholders, in particular in view of the expected start of the GMES operational phase in 2014.

Jean-Jacques Dordain

Martin Zeil
Bavarian State Minister of Economic Affairs, Infrastructure, Transport and Technology

The first European Earth Monitoring Competition, the GMES Masters, was carried out from July to September 2011. More than 100 application ideas were submitted, indicating the considerable potential Global Monitoring for Environment and Security (GMES) presents for economic utilisation in Europe. In addition to the European satellite navigation system GALILEO, GMES forms the second pillar of Europe's space activities. The extensive space-based and in-situ data provided by GMES will enhance reliable services in environmental observation, as well as the safety and security of EU citizens.

Bavaria actively supports the space industry and is well positioned in terms of research and the commercial use of space and Earth monitoring technologies. The Free State of Bavaria – together with the European Space Agency (ESA), the German Aerospace Center (DLR), and T-Systems – is co-financing the new annual GMES Masters, which is to promote the commercial application of this future technology and the development of new, commercially viable, user-oriented services and products. Given the positive response to the contest and the great number of relevant contributions, the GMES Masters has proved its ability to generate a greater public awareness of the benefits and scope of the European GMES programme.

I would like to thank all of the participants for their faith in the impact of this new competition, as well as all our partners for their drive to support the realisation of the ideas.

Congratulations to all the winners of the first GMES Masters and all the best in bringing your ideas to fruition!

Martin Zeil

INTRO

Thorsten Rudolph
Managing Director

Ulrike Daniels
Project Manager

Lara Schaflinger
Project Officer

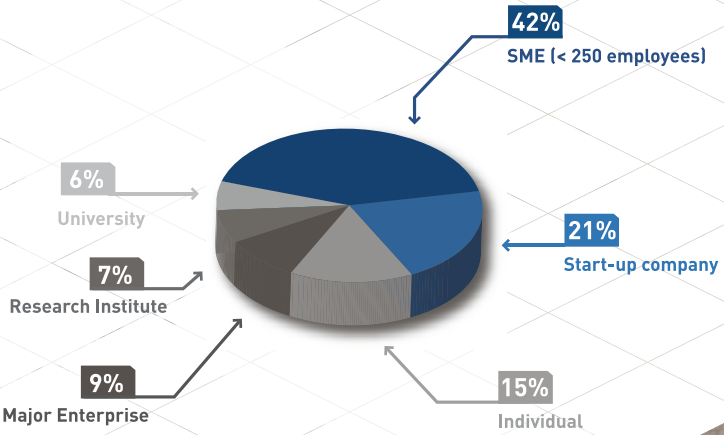
The GMES Masters – The European Earth Monitoring Competition 2011 proved to be a success in its very first year. From July to September, 200 registrations were counted and more than 100 participants from 17 different countries submitted their ideas based on the GMES service domains.

The GMES Masters was launched to annually reward the best services, business cases and application ideas based on the extensive space-based and in-situ data provided by the Global Monitoring for Environment and Security (GMES) programme to foster product development and entrepreneurship in Europe. With 63% of the contributions submitted by small & medium enterprises, and start-up companies, the GMES Masters exactly reached its focused target group. All addressed GMES focus topics – Land, Ocean, Air Quality, Emergency Response and Climate Change – were covered by the submitted ideas. The applications provide added value services in various economic fields such as environmental protection, cloud computing and tourism.

Special thanks are due to the European Space Agency (ESA), the Bavarian Ministry of Economy, the German Aerospace Center (DLR) and T-Systems for their dedicated initiative for the creation of the new GMES Masters competition.

We would also like to thank all participants for their contributions and are looking forward to an exciting GMES Masters 2012.

Participating Organisations 2011



ABOUT GMES

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As the most ambitious Earth observation programme to date, Global Monitoring for Environment and Security (GMES) will provide accurate, timely and easily accessible information to improve the management of the environment, understand and mitigate the effects of climate change and ensure safety and security for the European citizens. The GMES programme is led by the European Union (EU). The European Space Agency (ESA) is the overall coordinator of the GMES Space Component and will, inter alia, ensure the delivery of data from upwards of 30 satellites (the GMES Sentinel Missions and the national or European Contributing Missions).

The European Environmental Agency (EEA) is responsible for the GMES In-Situ Component, i.e. for data from airborne and ground sensors, while the European Commission (EC), acting on behalf of the European Union, is responsible for the GMES programme management and the GMES services.

Thanks to GMES the users will be provided with information through services dedicated to a systematic monitoring and forecasting of the state of the Earth's subsystems. Six thematic areas are developed: Land, Ocean, Air Quality, Emergency Response, Security and Climate Change. A land monitoring service, a marine monitoring service and an atmosphere monitoring service contribute directly to the monitoring of climate change and to the assessment of mitigation and adaptation policies. Two additional GMES services address respectively emergency response (e.g. floods, fires, technological accidents, humanitarian aid) and security-related aspects (e.g. maritime surveillance, border control). Today GMES is in its initial operational phase, with many of its services already pre-operational. It is planned that GMES will enter into its operational phase in 2014.

THE WINNER
IDEAS CHALLENGE

OFFICIAL WINNER
GMES MASTER
2011
THE EUROPEAN EARTH MONITORING COMPETITION

THE IDEA

DEFOREST ACTION EARTHWATCHERS - CROWD SOURCED TROPICAL FOREST MONITORING

DeforestAction EarthWatchers is about empowering world citizens in rainforest monitoring by integrating Earth observation, social media, human computation, and collaborative intelligence. It involves millions of volunteers in analysing near real-time satellite imagery to help halt illegal deforestation.

This project can build upon GMES monitoring services and imagery from Sentinel 1 and 2 missions. Large areas can be monitored using crowdsourcing (allocating a small area to each group) on a specially designed webGIS, and the system is linked to social media to enable cooperation and collaborative intelligence. It also provides a new approach to education by involving students directly in the conservation effort and going beyond classroom lectures on deforestation.

A crucial component deploys ground teams to confirm/disprove illegal deforestation suggested by EarthWatchers and engage local authorities if necessary.

The world's forests are disappearing and most deforestation is done illegally. A new approach is needed that goes beyond reporting and actually takes action – DeforestAction.

THE WINNERS

Dr Eduardo Dias, Dr Willie Smits, Dr Hans van Leeuwen, Prof Dr Henk Scholten, Edwin Wisse, Dr Cathy Henkel, Bert Temme, Tim Ebben, Michael Furdyk, Sean Tierney
Geodan, The Netherlands
eduardo.dias@geodan.com
www.geodan.com

DEFOREST ACTION
EARTHWATCHERS

THE GMES MASTERS IDEAS CHALLENGE

The Ideas Challenge is at the core of the GMES Masters competition. By combining all available terrestrial and space-based information systems, GMES is giving Europe an independent environmental monitoring capability to improve the quality and the security of life of European citizens. For the Ideas Challenge all submissions have been welcome which address any of the following main thematic areas: Land, Ocean, Air Quality, Emergency Response and Climate Change. The best idea for a commercially viable business using GMES data has been rewarded, upon recommendation of an independent panel of experts evaluating all proposals.

THE PRIZE

The winner has been rewarded with a cash prize of 10,000 Euro as well as the chance to get the idea further developed in one of the five ESA Business Incubation Centres (BICs). ESA BICs are designed to bridge the gap between an idea and its development into a viable business. The incubation package has a value of up to 60,000 Euro.

THE EXPERTISE

«DeforestAction combines crowdsourcing and collaborative intelligence with environmental protection in an innovative way.
The solution also demonstrates the social dimension of GMES, which will be essential to its success and overall acceptance.»

Dr Sebastian Carl
Head of GeoData and Data-Products
GAF AG

THE WINNER
ESA APP CHALLENGE

THE IDEA

AQUAMAP – NEAR REAL-TIME WATER QUALITY SERVICES ON MOBILE PHONES

Up-to-date water quality information – on underwater visibility or algae pressures, for example – is of essential relevance for seaside tourists, divers, fisheries, and offshore companies.

The main objective of the idea is to provide near real-time, high-resolution water quality products to both private users (scuba divers, seaside tourists, etc.) via mobile phones and professional offshore companies. Very fast user- and service-friendly access to the products will be facilitated by the use of cloud computing solutions and/or processor installations directly on top of GMES ground segments and satellite data archives. The proposed idea will demonstrate the practical commercial implementation of GMES. The new monitoring technologies will also help in observing and understanding increasing anthropogenic impacts on our environment.

THE WINNERS

Dr Thomas Heege, Dr Viacheslav Kiselev, Sabine Ohlendorf, Christoph Kleih, Andreas Müller, Anke Bogner, Claudia Weinmann, Karin Schenk, Benedict Bömmerl
EOMAP GmbH & Co. KG, Germany
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www.eomap.de

THE PARTNER

ESA – THE EUROPEAN SPACE AGENCY

The European Space Agency (ESA) is Europe's gateway to space. Its mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world. To contribute to the success of GMES ESA is exploiting its 35 years of expertise in space programme development and management.
While the GMES programme is politically led by the European Union (EU), ESA is the overall coordinator of the GMES Space Component and will, inter alia, ensure the delivery of data from the GMES Sentinel satellites and an important number of Contributing Missions.
Today, the Space Component is in its pre-operational stage, serving users with satellite data currently available through the GMES Contributing Missions at national, European and international level.

THE PRIZE

ESA has awarded the ESA App Challenge to the best application idea for the usage of GMES on mobile phones or tablets. The winner will be considered for support by one of the five European Space Agency's Business Incubation Centres (ESA BICs) across Europe.

THE EXPERTISE

«Through more frequent data updates and integration of multiple satellite sensors, higher spatial resolution, and cloud computing facilities, this cost-effective mass-market solution offers more accurate data than current services.»

Franz Haslbeck
Director
m-Academy

THE WINNER
DLR ENVIRONMENTAL CHALLENGE

THE IDEA

EOPPAD – EO OF POWER PLANT AQUATIC DISCHARGES

The idea involves using Earth observation data from GMES to monitor the environmental impacts of cooling water discharges from thermal power plants (TPPs) under the increasing effects of climate change.

TPPs tend to be sited on coastlines or near inland bodies of water. This affords proximity to ready supplies of cooling water that can be easily returned back into its source environment.

However, due to the onset of climate change, it is possible that the receiving bodies of water may be unable to accommodate TPP discharges without adverse environmental impacts. This is especially relevant where inland and coastal floral and faunal species may be currently living in temperature regimes towards the upper end of their tolerance levels.

This could result in TPPs being required to reduce generation or shut down operations, increasing the risk of blackouts and/or leading to price increases as alternative sources of power are used.

The proposed Earth observation monitoring capability will enable the end-user to assess environmental impacts associated with the discharge of cooling water back into the environment.

THE WINNERS

Will Aicken, Richard Seaby

Serco Ltd, United Kingdom

will.aicken@serco.com

www.serco.com

THE PARTNER

DLR – THE GERMAN AEROSPACE CENTER

DLR is Germany's national research center for aeronautics and space. DLR also hosts the Earth Observation Center (EOC), comprised by the German Remote Sensing Data Center (DFD) and the Remote Sensing Technology Institute (IMF). EOC works in all fields related to the development of algorithms and data analysis systems, practical implementation of Earth observation applications and services – from satellite data capture and near real-time services to disaster monitoring and environmental mapping. As such, the EOC is involved in many aspects of GMES design, implementation, and operations. In determining the focal points of its research, DLR is to a large extent guided by the demand for innovative products and services developed in close cooperation with industry. It also invests in promising technologies and offers its research and development capacities to customers for their own use.

THE PRIZE

DLR has been looking for new applications in Earth observation, especially proposals addressing the mapping of the environment and climate. The winner will receive a voucher for a workshop or initial coaching according to what further realisation of the idea requires.

THE EXPERTISE

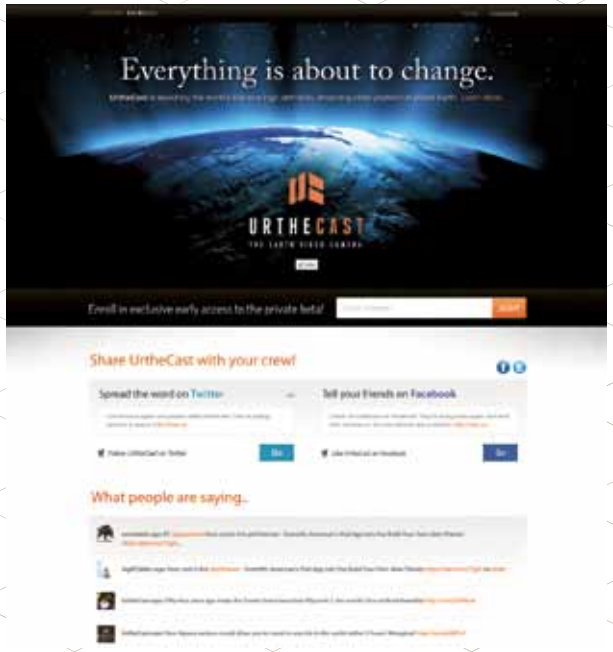
«EOPPAD leverages the unique advantages of Earth observation with a strong focus on GMES and related data sources.
The concept's well-established innovative value is highly relevant to the monitoring of environmental effects of the energy supplies of today and tomorrow.»

Gunter Schreier
Head of Business Development and GMES Coordination
German Remote Sensing Data Center (DFD), German Aerospace Center (DLR)

THE WINNER
T-SYSTEMS CLOUD COMPUTING CHALLENGE

THE IDEA

URTHECAST
EARTH VIDEO CAMERA



UrtheCast is building and launching a platform that will provide the world's first continuous, high-definition, streaming video of planet Earth from space. The data will be processed into a video feed that is then streamed to users on the Internet, to television channels, and to smartphones.

The user experience on the UrtheCast platform will generate significant awareness, publicity, and user interest. For users, the UrtheCast platform will feel like a blend between a video version of Google Earth and YouTube. UrtheCast's web platform will be fully integrated with social media, allowing for a seamless registration process. Users will be able to create their own apps and sell them to others at UrtheCast.com.

Thanks to the ability to generate apps and media content, UrtheCast's potential offerings are practically limitless. UrtheCast plans to utilise existing imagery of Earth both to build the web platform and to leverage the infrastructure, relationships, and resources of GMES.

THE WINNERS

Scott Larson, Serguei Bedziouk, Cameron Chell, Robert Kennedy, George Tyc, John Ellis, Laura Powell, Matt Boyd, Eric Bieller
UrtheCast, Canada
Lpowell@urthecast.com
www.UrtheCast.com

URTHECAST
THE EARTH VIDEO CAMERA

THE PARTNER

T-SYSTEMS

T-Systems operates information and communication technology for multinational corporations and public institutions. Furthermore, the Deutsche Telekom subsidiary is a leading supplier of cloud computing, and enables customers to use ICT resources via the Internet as and when they need them, only paying for what they use.
In the future, GMES services will be available in completely new dimensions by making use of extensive monitoring data from space and sensor networks that can be processed in near real-time. Providing such future GMES services to a wide variety of users and industries will entail building on cloud computing technologies to create commercially attractive and sustainable services.

THE PRIZE

T-Systems has been looking for the best GMES application or service idea that will make use of the Infrastructure-as-a-Service cloud computing service model and will assist the winner in getting the awarded GMES application or service off the ground, which could lead to a long-term partnership.

THE EXPERTISE

«UrtheCast scored highest because the company convinced with a clear go-to-market strategy, their technical description of the proposed solution, and its innovative use of GMES data and cloud computing.»

Jurry de la Mar
Head of International Sales - Public Sector
T-Systems International GmbH

THE WINNER
BEST SERVICE CHALLENGE

THE IDEA

SRRS – SATELLITE RAPID RESPONSE SYSTEM

In emergency situations, it is necessary to respond as quickly as possible. When the type of emergency depends on the use of satellite data, it then becomes necessary to plan the acquisition, processing, and distribution of this data and have teams ready 24 hours a day, seven days a week to respond to this type of situation.

The Satellite Rapid Response System (SRRS) was created by CHELYS with the precise intent of making satellite data available as quickly as possible in the form of images and value-added products.

SRRS is able to perform real-time processing of most satellite data from ESA and NASA missions in order to make the data received from Earth immediately available (two minutes after acquisition), transforming it into products that can be instantly analysed.
The strength of SRRS lies in its ability to process raw data without having to wait for it to become higher-level products. This means that the system is not dependent upon data processing times at reception centres and can provide images and other data that is ready to be studied to users and researchers.

THE WINNERS

Luca Mellano, Luigi Scozzafava
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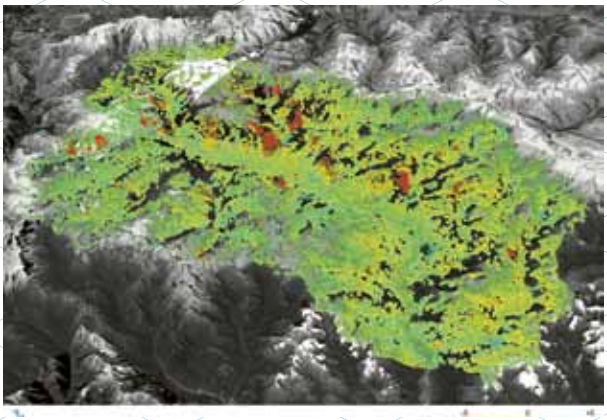
www. chelys.it

Chelys

2ND PLACE - BEST SERVICE CHALLENGE

SQUEESAR™ – LANDSLIDE & INSTABILITY MAPPING SERVICE



TRE processes satellite radar imagery to provide surface displacement maps to regional governments for landslide mapping. Instability maps are interpreted by geological institutions to delineate landslide boundaries, identify potential hazard areas, and update existing landslide inventories. This unique service provides high-density data and frequent updates.

Alastair Belson
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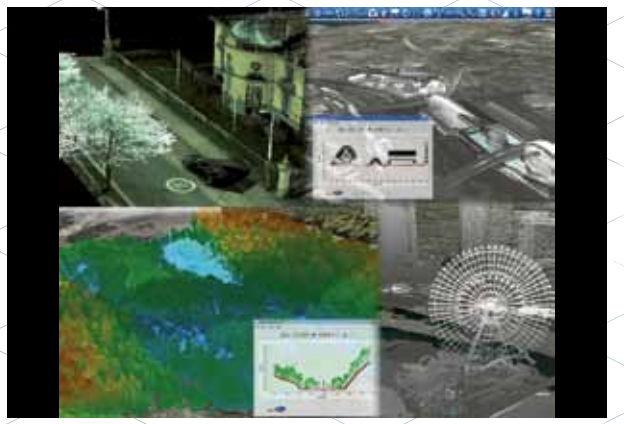
www.treuropa.com

TRE
Sensing the Planet

3RD PLACE - BEST SERVICE CHALLENGE

DIELMO SERVER - GOT LIDAR? MAXIMISE LIDAR RESEARCH



DIELMO 3D has developed a new server technology focused on making original LiDAR information (irregular point cloud and raster products) accessible to everyone and allowing remote access for visualisation, analysis, and data distribution. By overcoming the corresponding technological barriers, DIELMO 3D has also increased the number of potential LiDAR users.

Jose Carlos Garcia Gonzalez
DIELMO 3D S.L., Spain
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www.dielmo.com

Lidar Online

THE EXPERTS
IDEAS CHALLENGE

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HEAD GEODATA AND DATA-PRODUCTS
GAF AG

MARKUS JOCHUM
GEOLAND2 COORDINATOR
ASTRIUM SERVICES | INFOTERRA GMBH

PETER SEIGE
EXPERT SPACE PROGRAMME
BAVARIAN MINISTRY OF ECONOMIC AFFAIRS,
INFRASTRUCTURE, TRANSPORT AND TECHNOLOGY

ANDREAS SIEBERT
HEAD GEOSPATIAL SOLUTIONS
MUNICH REINSURANCE COMPANY

FRANK SPRENGER
CEO
SUSTAINABLE AG

MIKKO STRAHLENDORFF
MINISTERIAL ADVISER
FINNISH MINISTRY OF TRANSPORT & COMMUNICATIONS

PROF DR CAROLA TIEDE
PROFESSOR
MUNICH UNIVERSITY OF APPLIED SCIENCES

THE EXPERTS
ESA APP CHALLENGE

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THE EXPERTS

DLR ENVIRONMENTAL CHALLENGE

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CHAIRMAN & UNIV.- PROFESSOR
RUNDER TISCH GIS E.V. / TU MÜNCHEN

GUNTER SCHREIER
HEAD OF BUSINESS DEVELOPMENT AND GMES COORDINATION
GERMAN REMOTE SENSING DATA CENTER (DFD)
GERMAN AEROSPACE CENTER (DLR)

THE EXPERTS

T-SYSTEMS CLOUD COMPUTING CHALLENGE

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