



EARSC

European Association
of Remote Sensing
Companies

The European EO Services Industry

Geoff Sawyer , EARSC Secretary General

Insurance Workshop

23rd February 2012, Frascati



What is EARSC?

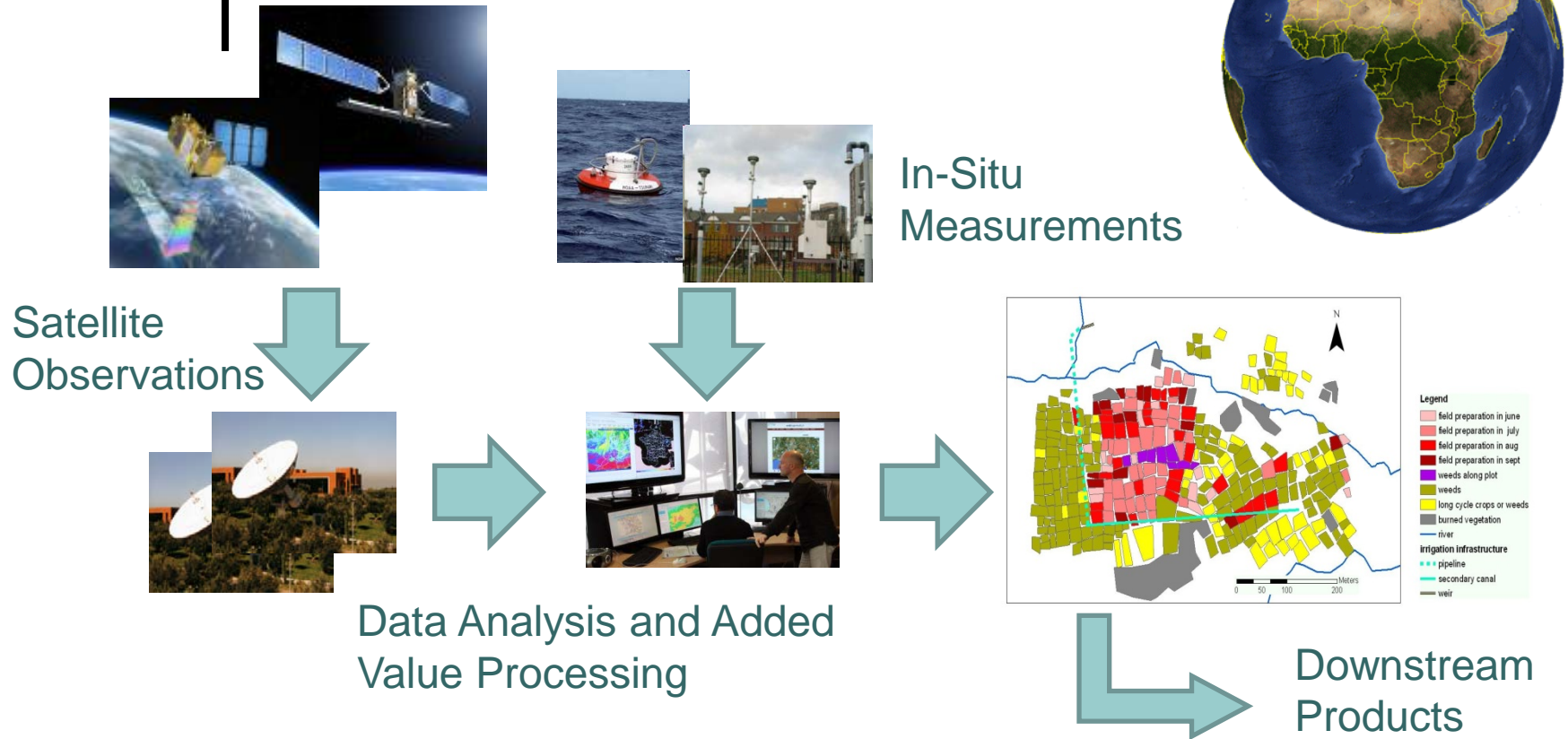
- EARSC is a non-profit-making organisation created in 1989 as the voice of the European geo-information EO service industry
- Mission & objectives:
 - to foster the development of the European Geo-Information Service Industry
 - to stimulate a sustainable market for Geo-information services using EO data, openly accessible to all members
- Today EARSC has 70 members in more than 22 countries, and is a recognized association worldwide
- Represents European geo-information providers creating a sustainable network between industry, decision makers and users



European EO Services Industry

- Offers a full range of services based on extensive experience serving government, industry and the citizen
- Includes data providers, downstream service providers, software and consultancy companies with a mastery of space-borne/airborne/in-situ systems and sensors technologies.
- Innovative / dynamic; many new companies, changing ownership
- Between 100 and 200 companies largely SME's with strong partnership experience across European borders.
 - Estimated as €800m to €1b annual revenues.
 - Highly skilled workforce; interchange with other sectors
 - Last survey in 2006 identified 152 organisations.
 - Full industry survey will be made by EARSC during 2012.

EO Services Value Chain



Satellite Operators

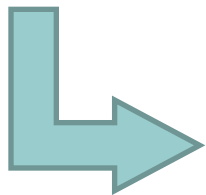
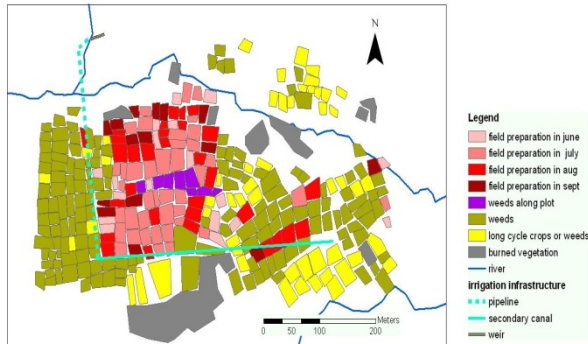


Ground Station &
Data Providers



Downstream Service
Provider

EO Services – Thematic Areas



Downstream
Products



Marine



Security



Land

Thematic Areas



**Built
Environment**



**Atmosphere &
Climate**



**Disasters &
Geohazards**



What does EARSC do?

- To achieve our mission, we focus on:
 - Improving customer awareness and acceptance of Earth observation and remote sensing based solutions
 - Improving market access for our members
 - Promoting our members capabilities
 - Engaging with key organisations (ESA, the EC and others) to make the EO VA sector's views known and acted upon.
- EARSC works with many partners to achieve these goals.



How can EARSC help?

For Companies:

- Networking: meet and partner with other member companies
- Communications - website, newsletter, directorate, numerous events on both European and International stages.
- Information on the EO services industry and on potential markets.
- Exchange of best practice and common standards.

For Companies and Clients:

- **EOpages** is a web-based marketplace for users to find the services they need and suppliers to provide them.
- **OGEO Portal** is a web-based tool to enable Oil & Gas and EO service industries to work together.

OGEO Portal



Login



**OGEO IS THE FORUM
FOR INFORMATION
EXCHANGE BETWEEN
THE OIL AND GAS AND
GEOINFORMATION
COMMUNITIES.**

FAST INFORMATION

The portal offers the advantage of rapid and direct information exchange across the range of activities undertaken in both market sectors allowing users to post questions related to information that is being sought.



BUILDING NETWORKS

Suppliers could co-ordinate and exchange expertise as well as building networks and partnerships to respond to demand requests making commercial offers easier to put together and more targeted as a result of prior exchange.



PROBLEM SOLVING

At the online site members could find other members dedicated to helping each other solve business problems, find new suppliers, win new customers, share experiences and practical advice. Do you want to know more about registration.

OGEO Portal - Applications

OGEO Wiki > Home > applications > Sea Ice and Icebergs

Sea Ice and Icebergs

Labels: [icebergs](#) [arctic](#) [sea-ice](#) [ice](#)

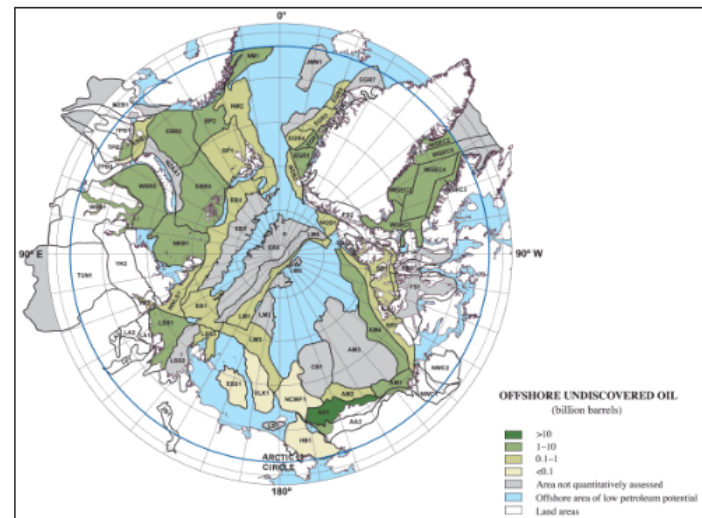
Added by [Geoff Sawyer](#), last edited by [Geoff Sawyer](#) on Nov 17, 2011 ([view change](#))

[Sea ice](#) and [icebergs](#) pose a significant set of challenges for offshore oil and gas, and are becoming increasingly relevant as offshore interests extend into more extreme environments. The Arctic region in particular is becoming a focus for oil and gas activities as surveys suggest the presence of significant resources. According to the [US Geological Survey](#), 30% of the world's gas and 11% of the world's oil deposits are estimated to lie beneath the Arctic regions[1].

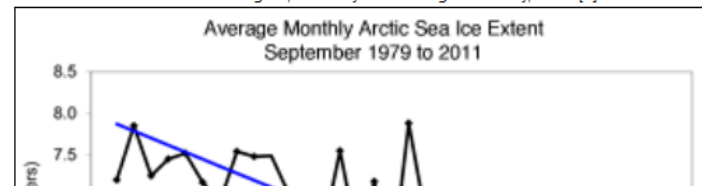
Areas of current oil and gas interest include the Barents Sea (Shtockman), east and west Greenland, and the Beaufort and Chukchi Seas. [Sea ice](#), which is formed from sea water, is not just a challenge in the polar regions. It is also present in temperate areas of oil and gas activity including the Sea of Okhotsk (Sakhalin), along the east coast of Canada and in the Caspian and Bohai Seas. [Icebergs](#) and ice islands, which unlike sea ice are calved from coastal glaciers and ice shelves and are thus formed from fresh water, have a quite different distribution and pose quite distinct challenges to oil and gas operations, particularly around Greenland, along the east Canadian coast, in the Barents Sea and, potentially, in the south Atlantic (Falkland Islands).

Within the Arctic, the pressure to exploit resources in this challenging environment is encouraged by declines in sea ice coverage. The most significant reductions in ice coverage over the last few decades have been in summer, with the result that many areas have been experiencing longer ice-free seasons and/or are becoming more accessible to marine vessels. While this has been creating opportunities for the oil and gas industry, in many Arctic regions sea ice remains a threat even in summer and there is a keen awareness that the challenges of operating in this region remain formidable. Remoteness and harsh operating conditions combined with strict standards on health and safety and protection of the environment create demanding conditions for entry into these areas, with earth observation being an essential and important component of the required package of technology.

Earth observation plays important roles in assessing ice conditions during several stages of



Undiscovered oil in the Arctic region, courtesy US Geological Survey, 2008 [1].



OGEO Portal – Success Stories

[OGEO Wiki](#) > [Home](#) > [Success Stories](#) > [Monitoring Dredging Plumes and Water Quality](#)

Monitoring Dredging Plumes and Water Quality

Labels: [success-story](#) [woodside](#) [eomap](#) [edit](#)

2 Added by [Geoff Sawyer](#), last edited by [Geoff Sawyer](#) on Oct 18, 2011 ([view change](#))

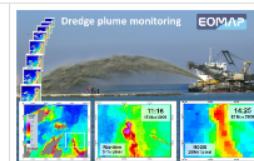


[Edit](#) [Share](#) [Add](#)

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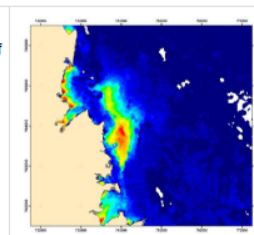
Project Background

[Woodside Energy](#) needed a dredge monitoring solution to satisfy regulatory requirements. Starting in October 2007, satellite based turbidity mapping offered a solution and operationally generated maps were delivered on a regular basis. The coastal water monitoring area is located in North Western Australia and water turbidity products were delivered on average every two days for more than two years for an area of 1000 sqkm. These data sets complemented the localised, point based environmental monitoring strategy of [Woodside's](#) PLUTO LNG development project with spatially resolved distribution maps. Dredging operations support new pipeline laying activities and the shipping channel expansions. The Service provider was [Eomap GmbH](#).



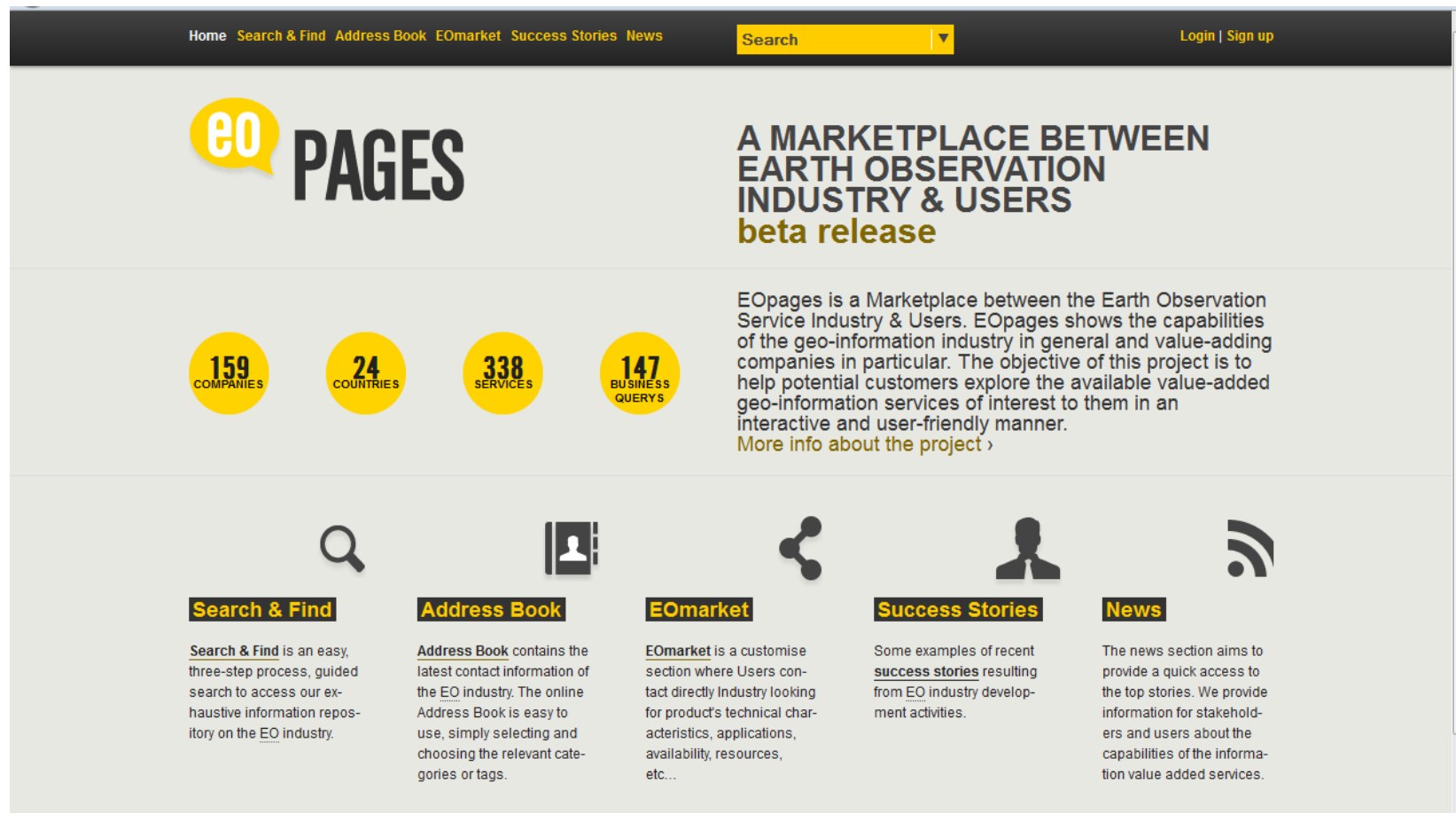
Issues and Needs

The large size of the required water quality monitoring area (~1000 sqkm) needed to be covered in regular intervals, allowing for a high frequency during dredging operations. The movements and size of the dredge plume had to be detected and quantified consistently in terms of turbidity with an adequate spatial resolution. The creation and fading of plumes, their potential impact on adjacent coastal areas, and the impact of natural factors such as re-suspension due to tidal currents and storms needed to be quantified for the environmental assessment. Conventional methods using insitu sensors of turbidity allow a point wise, vertically resolved measurement of turbidity and suspended solids, but not an area wide coverage with a clear classification of natural or man made turbidity sources. An increased number of insitu sensors would not only just increase cost, but also require regular maintenance and together with conventional airborne monitoring would increase HSE risks substantially.



Solution

Satellite based monitoring allows a sustainable service provision without any direct HSE risks. Physics based retrieval algorithms ensure the consistent and operational generation of quantitative water quality maps. Additionally, flexible client defined temporal and spatial resolutions and back-up solutions can be implemented if satellite sensor independent processing technologies are applied. These requirements were fulfilled with the established EOMAP processing technology. Within the monitoring program, various other remote sensing sources were integrated for verification, using the hyperspectral airborne HYMAP sensor and the multispectral satellite sensors IKONOS, RapidEye, MERIS, MODIS Terra and Aqua. The product evidence shows consistent and well calibrated turbidity data, comprising spatial resolutions between 3 and 250 meters and a frequency of up to two records per



The screenshot shows the homepage of the EOpages website. At the top is a dark navigation bar with links: Home, Search & Find, Address Book, EOMarket, Success Stories, and News. A yellow search bar is on the right, and 'Login | Sign up' is in the top right corner. The main header features the 'eo PAGES' logo and the text 'A MARKETPLACE BETWEEN EARTH OBSERVATION INDUSTRY & USERS' followed by 'beta release' in yellow. Below this, four yellow circles display statistics: 159 COMPANIES, 24 COUNTRIES, 338 SERVICES, and 147 BUSINESS QUERYS. A paragraph describes EOpages as a marketplace between the Earth Observation Service Industry & Users, aiming to help potential customers explore value-added geo-information services. A link 'More info about the project >' is provided. The footer contains five columns with icons and titles: Search & Find (magnifying glass), Address Book (ID card), EOMarket (network icon), Success Stories (person icon), and News (RSS icon). Each column has a brief description of its function.

Home Search & Find Address Book EOMarket Success Stories News

Search

Login | Sign up

eo PAGES

**A MARKETPLACE BETWEEN
EARTH OBSERVATION
INDUSTRY & USERS
beta release**

EOpages is a Marketplace between the Earth Observation Service Industry & Users. EOpages shows the capabilities of the geo-information industry in general and value-adding companies in particular. The objective of this project is to help potential customers explore the available value-added geo-information services of interest to them in an interactive and user-friendly manner.
[More info about the project >](#)

159 COMPANIES **24 COUNTRIES** **338 SERVICES** **147 BUSINESS QUERYS**

Search & Find
Search & Find is an easy, three-step process, guided search to access our exhaustive information repository on the EO industry.

Address Book
Address Book contains the latest contact information of the EO industry. The online Address Book is easy to use, simply selecting and choosing the relevant categories or tags.

EOMarket
EOMarket is a customise section where Users contact directly Industry looking for product's technical characteristics, applications, availability, resources, etc...

Success Stories
Some examples of recent **success stories** resulting from EO industry development activities.

News
The news section aims to provide a quick access to the top stories. We provide information for stakeholders and users about the capabilities of the information value added services.

EO Services – Markets & Sectors

Energy & Natural Resources



Oil & Gas



Alternative
Energy



Mining

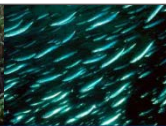
Managed Living Resources



Agriculture



Forestry



Fisheries

International Bodies



Environment
Climate &
Pollution



Humaitarian
Operations

Industry



Utilities



Construction



Transport



Maritime



Communication

Services



Insurance &
Finance



Real-Estate
Management



News &
Media



Travel Tourism
Leisure

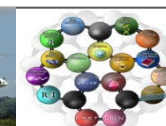
Public Authorities



Local
Planners



Emergency
Services



Research &
Education



Security &
Defence

Markets
&
Sectors



Infrastructure Development Planning

Earth Observation Support to Urban Development

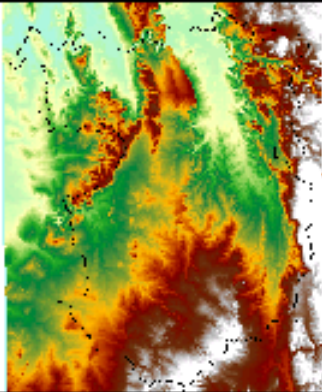
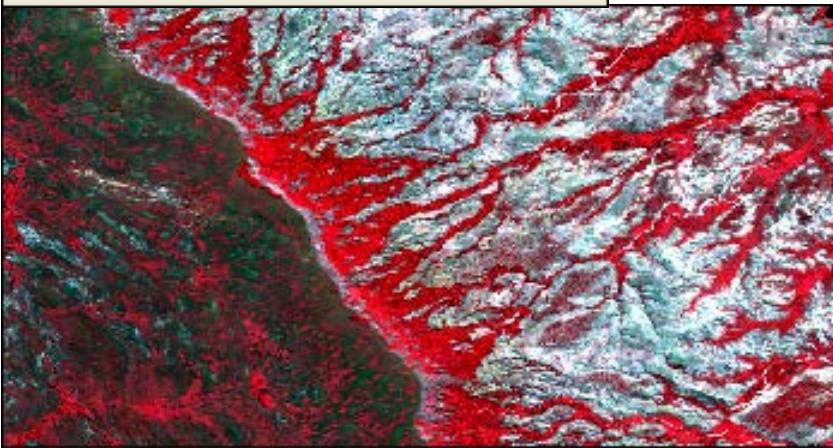


Fig.1 3D Overlay DEM within the area of Service Trial 2 using ESRI ArcScene with Basic Drainage System overlay

DEM_3D_arscene_hydro

Fig.2 Samples of Satellite imagery in CIR and Land Cover overlay



SatData_LC

- **Users:** Int. Fund Agricultural Development, Madagascar
- **Need:** Situation awareness information of large areas in Madagascar to contribute to an improved development planning for agricultural production
- **Challenge:** Identify service areas with potential for further agricultural activities within the region
- **Initiative:** Production of Land Cover Maps for agricultural activities within the river valleys and Digital Elevation Models to support the actual development planning within the region using high spatial and thematic accuracy.
- **Results:** The information provided through this service and its product has led to a more efficient development planning
- **Service provider:** GAF-AG (www.gaf.de)

Storm Damage Assessment in Forests



Forest Area in SW France before Storm
"KLAUS"; RapidEye, January, 02, 2009



Result of Change Detection

Courtesy: RapidEye



Flood Risk Assessment



- Scenario: clogging of a bridge
- Simulation duration: 24 hrs
- Today integrated into the operational system of civil protection department of City of Kempten / Bavaria



Flood Risk Assessment – Damage Maps

● ● ●
Input data:

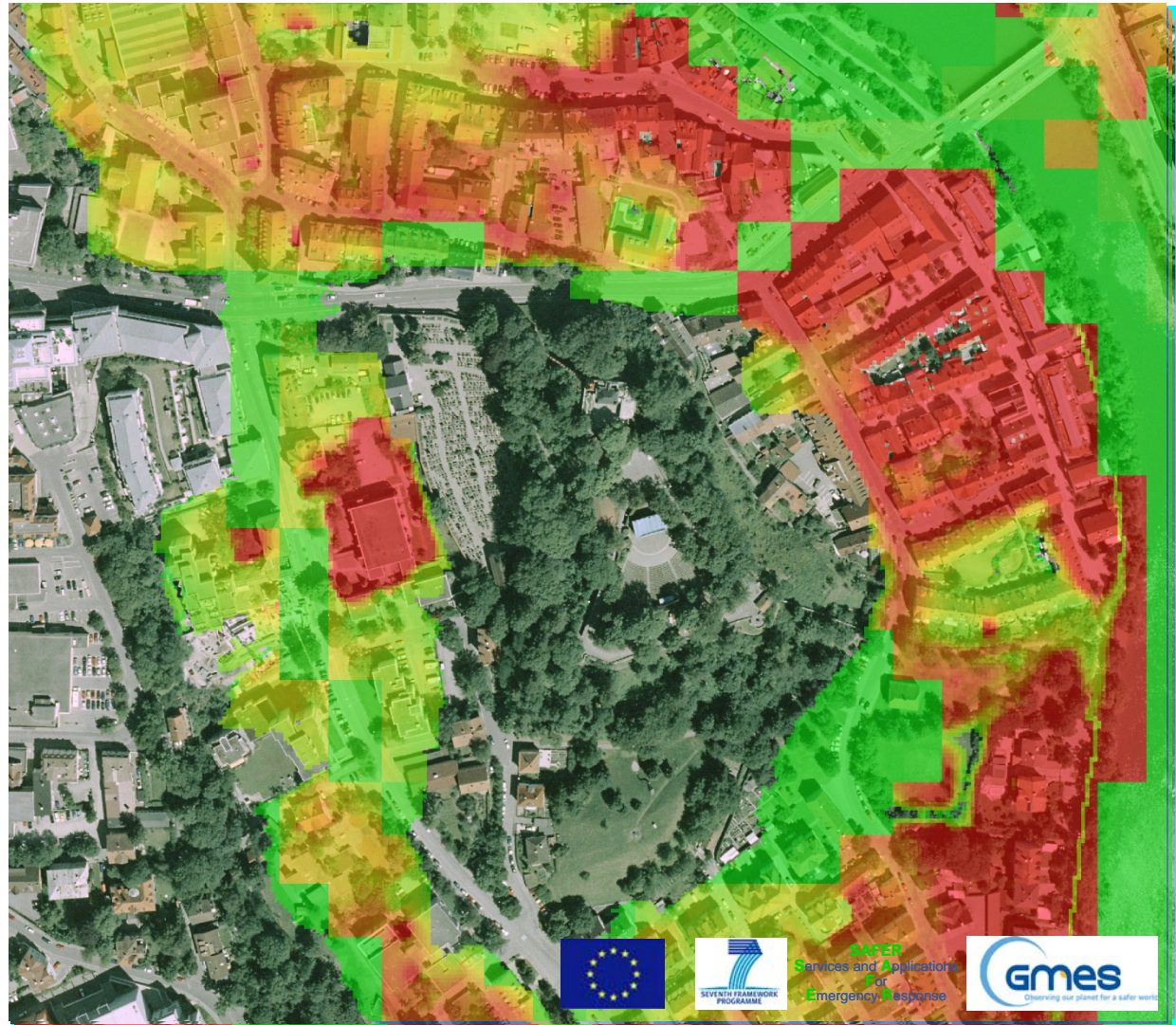
- Remote Sensing Data
- Assets map
- Flood extent map

Result:

Map showing

- high
- medium and
- low

damage potential
[€/m²]





EARSC and GMES

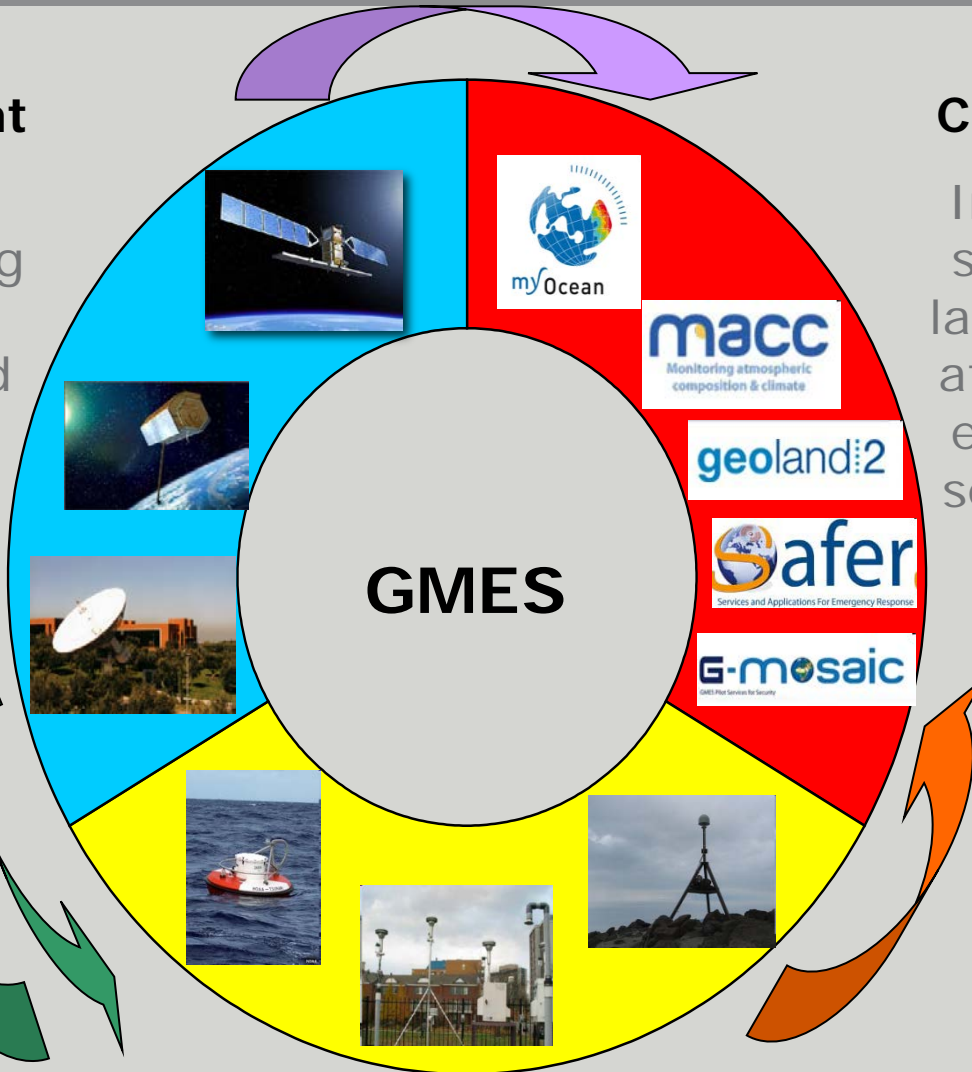
- GMES is a key European public programme to provide space-derived information on environment and security to European policy makers and citizens.
- GMES provides a strong opportunity as a market driver for EO Services.
 - Industry has invested quite heavily with the goal to exploit opportunities using GMES products & services in other markets eg. commercial, export and non-EU government.
- Hence, EARSC has a strong interest in the way GMES will be implemented:
 - 3 Position papers available on EARSC web-site.

GMES Components



Space Component

Sentinels,
Contributing
Missions
and related
Ground
Segment



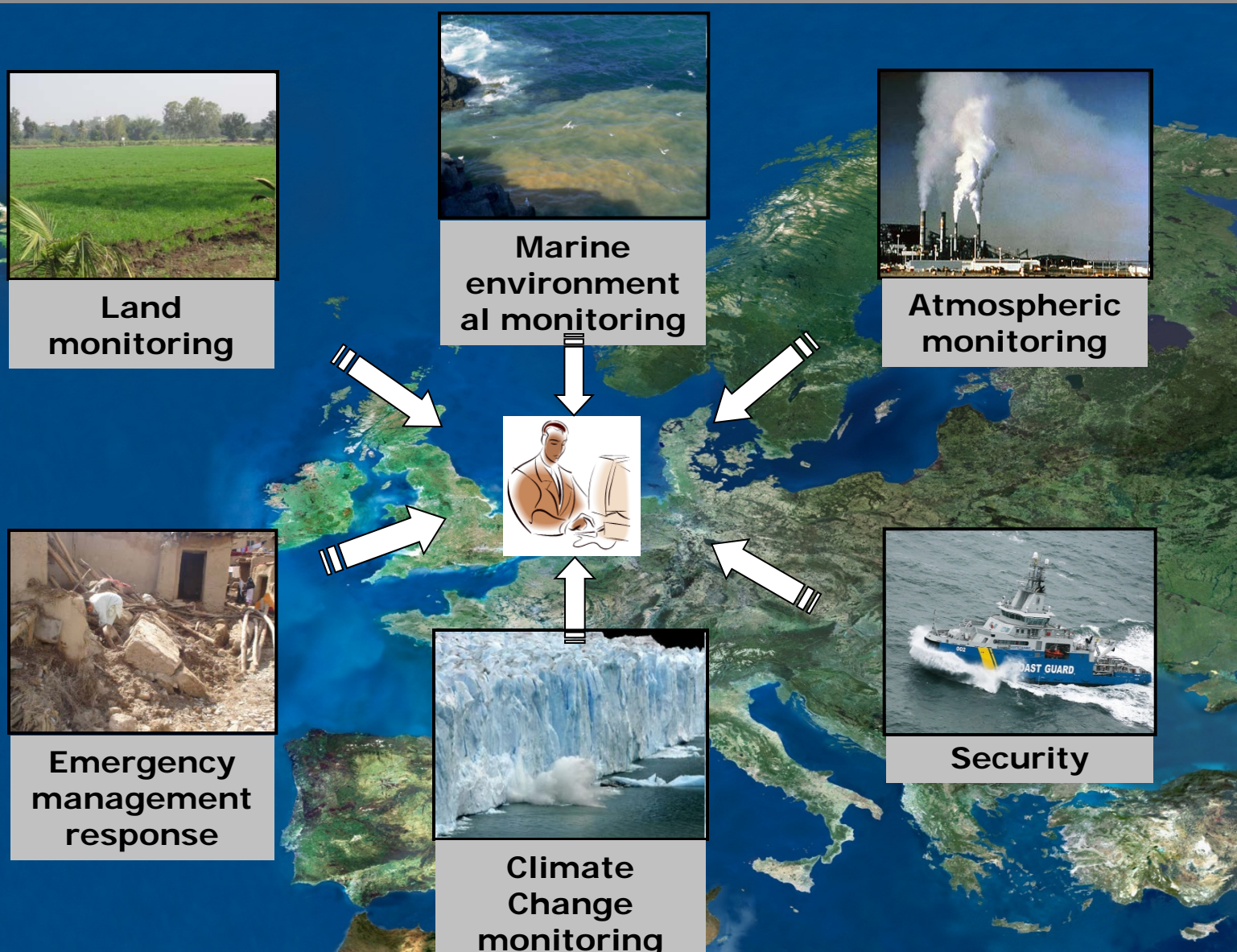
Services Component

Information
services for
land, marine,
atmosphere,
emergency,
security and
climate
change

In-situ Component Land, air and water monitoring sensors



GMES Services domains





EARSC and GMES Data Policy

Development of the market is best supported by raw data being made available at low or zero cost:

- Raw data from Sentinels should be free and open.
- Data from commercial satellite operators should be procured under appropriate license conditions.
- Core services to be freely and unconditionally available to all European users.
- Downstream services should be procured commercially on a fair and competitive basis.
- A registration system for GMES users should be put in place to ensure that basic quality conditions are met and licensing conditions are respected as well as achieving fair competition (reciprocity) on the international market.



Oil & Gas with EO Industries (OGEO)

- OGEO objective:
 - The OGEO Working Group has the goal to organise and develop co-operation between members of the two Communities Oil & Gas companies and EO service companies.
- For the last 15 months, EARSC has been working with the OGEO group formed in late 2010.
 - Follows ESA-organised first workshop in September 2010
 - OGEO organised the second workshop in December 2011.
- OGEO group formed to direct activities
 - Representatives (6) of the O&G industry coming from OGP (Oil & Gas Producers Association).
 - EARSC representing the EO Services industries
 - ESA are the key sponsor.



OGEO - Activities

Activities:

1. Promote cross-links between the Communities
 1. Awareness raising, promotions, common meetings
2. Develop a web-portal (OGEO Portal)
 1. Wiki (information exchange) of EO applications and success stories
 2. Discussion forums
 3. Other resources ie. Knowledge management, standards and best industry practices.
3. Joint Industry Project
 1. Focus on use of EO for oil spills and post disaster management.

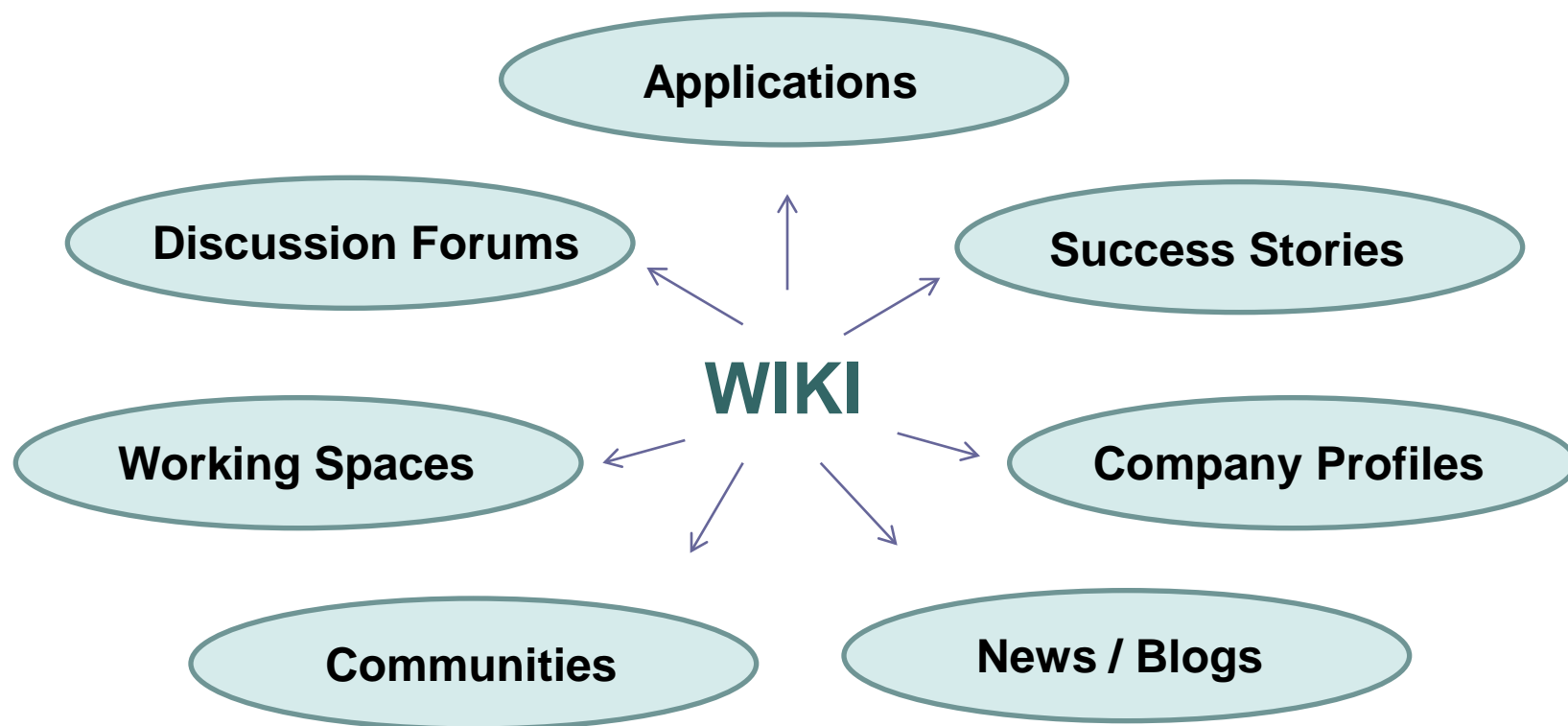


What does the Portal Offer?

- Provides a secure environment for exchange open only to people working in the O&G or EO services industries.
- Forum for exchange of ideas, questions, promotion of company capabilities.
- Communities of interest around common topics eg Arctic, Oil slick monitoring, Multi-spectral techniques.....etc
- Facilities for managing working groups or projects.
- Communications via blogs, forums, communities etc.
- Wiki Information Exchange and Knowledge Management tools.



OGEO Portal





Summary

- EARSC provides stakeholders with an effective interface to the EU EO services industry
 - Neutral support to find suppliers and obtain contractual services
 - Eopages will provide a first entry point to the full range of services being offered.
 - OGEO-Portal provides an example of a link to a specific client community
- An opportunity for insurance industry to develop new links with the EO Community.

www.earsc.eu / www.eomag.eu / www.eopages.eu / www.ogeo-portal.eu