EO₄OG PROJECT

■ OIL & GAS REQUIREMENTS

This project is driven by the needs of the oil & gas industry with regards to Health and Safety, sustainable development and national and international regulations. The goal is to identify new geographic areas to cover and introduce new high performance technologies in the different phases of O&G operations. Consortium members will work in close collaboration with the oil & gas industry to define expectations in terms of improvement of data/services currently available and development of new services. We welcome interested individuals to provide feedback via **http://www.ogeo-portal.eu/**.

SATELLITE SOLUTIONS

Earth Observation satellites offer a unique opportunity to assess and characterize ocean conditions, including physical and biological behaviors. These satellites orbit the Earth at altitudes between ~800 and ~1300 km. These satellites carry onboard sensors that measure different physical parameters describing the Earth like cloud cover, winds, ocean currents, sea surface temperature, salinity, ocean color... Ground segment stations download real-time satellite data in order to process value-added products to institutional, scientific and industrial communities. There are several families of sensors onboard satellites:

- Optical sensors
- Infrared and microwave sensors
- Altimetry and imaging radar sensors

Each EO data type has its own strengths for assessing physical and biological ocean behavior. One can take advantage of merging different kinds of variables to better assess metocean conditions or strengthen an environmental survey.

■ EO4OG PRODUCTS AND VALUE ADDED SERVICES

A preliminary list of EO missions and sensors has been identified based on the project team experience. An exhaustive review of the EO-based technologies and products will be completed together with the requirements definition and will be made available to the OG community via **http://www.ogeo-portal.eu/**.
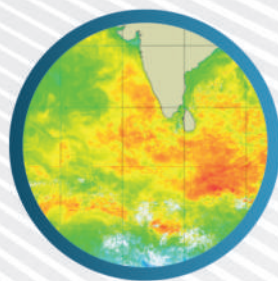
SEA SURFACE TEMPERATURE

SST is one of the most stable of the key geographical variables inducing global climate changes. It enables the detection and accurate quantification of oceanic fronts, upwelling and eddies, as well as heat transfers over the ocean at global and local scales.
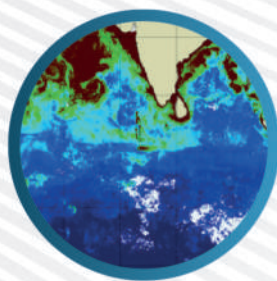
OCEAN COLOR

OC imagery enables the monitoring of ocean features such as fronts between water masses, strong biologic activity, phytoplankton content, oceanic fronts, plume rivers, upwelling and eddies.
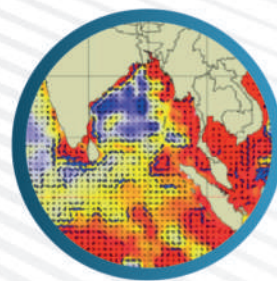
SEA SURFACE HEIGHT AND SEA SURFACE CURRENTS

SSH and associated mesoscale ocean currents derived from radar altimeters are key parameters for the survey of mesoscale eddies and mean currents.
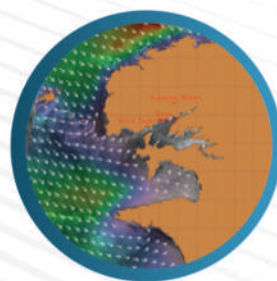
WINDS AND WAVES

Wind and swell observed from SAR satellites are valuable complements to metocean analysis with an ability to detect local details of wind circulations (breeze effects, rain cells, precise location of atmospheric front).
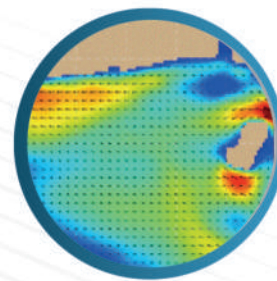
SURFACE CURRENTS

High-resolution maps of surface or underwater currents illustrate the strong potential of EO data as input to local and global numerical ocean models.

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CLS - 02.2014

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EO₄OG PROJECT

EARTH OBSERVATION FOR OIL & GAS: OFFSHORE

⊚esa

CLS
COLLECTE LOCALISATION SATELLITES

c·core
Smart Solutions for Challenging Environments

EO$_4$OG PROJECT

◼ OBJECTIVES

Funded by the European Space Agency, the aim of the EO4OG project is to establish the current capabilities and use of satellite based Earth Observation for the Oil and Gas sector. The outcome of the study will be made available to the OGEO portal and the OGP Earth Observation sub-committee, with the intention that they will form the basis for OGP to develop and publish industrial EO guidelines through initiatives like Joint Industry projects.

◼ BUILDING A PORTFOLIO OF EO SERVICES FOR THE O&G SECTOR

COLLECT OGP REQUIREMENTS

Based on the team experts' experience, the definition of a preliminary set of requirements will be presented to the OGP members via the OGEO web portal. Web campaigns will be dedicated to ensure an efficient review and consolidation of these users' needs. The EO4OG partners will then provide the final requirements specifications together with the assessment of the gap existing between these needs and the EO datasets (actual and forthcoming).

FOCUS ON OGP LIFECYCLE PHASES

Special attention will be paid on the typical phases of an OGP project: Pre-license acquisition, Exploration, Development, Exploitation/Production, Decommissioning.

CATALOGUE DATA AND SERVICES

The project team will carry out the review of direct spaceborne observations, composite products and modeled derived products that appear relevant to the OGP sector. The EO4OG portfolio will also provide the description of the corresponding services (revisit time, spatial resolution, data access and format, ...).

◼ EO PRODUCTS IN SUPPORT OF OIL & GAS ACTIVITIES

METOCEAN MONITORING

• Establishment of historic records for winds, waves and currents
• Establishment of wind, waves (including tidal and internal) and currents forecast to operations (including seismic)
• Storm forecasting ...

ENVIRONMENTAL SURVEYING

• Baseline historic mapping of environment and ecosystems
• Continuous monitoring of changes throughout oil and gas lifecycle
• Water quality monitoring during operations (like dredging and refueling)
• Coastal morphology monitoring
• Gas flare monitoring
• Environmental impact assesments
• Environmental compliance monitoring ...

◼ TARGET AREAS OF INTEREST

Within the project framework, each consortium will address a specific zone.

● CLS will address Angola, South Africa, Mozambique, Northern Brazil, Argentina, and the Caspian Sea.
● C-CORE will address Myanmar, Eastern Mediterranean, West of Ireland, Morocco, South China Sea, and Falklands.

esa

The European Space Agency (ESA) is Europe's gateway to space. With 20 member states, 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. In this capacity, ESA also funds a number of projects such as the EO4OG project, to ensure the best dissemination to industry and the general public of space-derived products.

CLS
COLLECTE LOCALISATION SATELLITES

CLS has over 25 years of experience in delivering data and services to customers all over the world. With a staff of 470, in France and abroad, CLS offers services in environmental monitoring, maritime security, and management of marine resources to a broad range of professionals including government, industry and the scientific community, and maintains an operational center with expert support 24/7. Since 2001, CLS has developed services for the oil & gas industry based on its built-in expertise on data collection, radar imagery or numerical modelling. For the EO4OG Project, CLS leads a consortium composed of METEO GROUP and NERSC. Tullow Oil kindly supports the team as a consultant.

c·core
Smart Solutions for Challenging Environments

With unparalleled harsh-environment expertise and worldleading capability in Remote Sensing, Ice Engineering and Geotechnical Engineering, C-CORE provides R&D services and technology solutions to industry and government clients on every continent. Our Remote Sensing team combines expertise in Earth Observation with Radar and Vision Systems to provide operational detection services, product development and applied R&D to advance new technologies with applications in resource development, transportation, defense, and security and environmental monitoring. For the EO4OG project, C-CORE heads a consortium composed of StormGeo, Stantec, Hatfield Consultants and GeoCento.

◼ WEB PORTAL

CLS / CLS / C-CORE
Preliminary set of EO that comply with OG requirements
OGP
EO4OG products and added value services
http://www.ogeo-portal.eu/

◼ PLANNING

KICK OFF	PM1	PM2	International WORKSHOP	FINAL PRESENTATION
	Team reports ESA on the geo-information requirements	Team reports ESA on the current EO capabilities & gap analysis	With OGP members, all invited to an international event in Frascati/Rome	Workshop conclusions and roadmap towards OGP guidelines

EARTH OBSERVATIONS: SAFE, ECO-RESPONSIBLE & EFFICIENT EXPLOITATION OF NATURAL RESOURCES