

# EO<sub>4</sub>OG PROJECT

## OIL & GAS REQUIREMENTS

This project is driven by the needs of the oil & gas industry with regards to meeting the challenges of onshore exploration and production, health and safety, and compliance with national and international regulations. The goal is to understand industry needs and to identify new technologies that support industry across all phases of the oil & gas lifecycle. Consortium members will work closely with the oil & gas industry and key service providers to define expectations and information requirements for geospatial data and services. We welcome feedback through the OGEO Portal: <http://www.earsc-portal.eu>

## SATELLITE SOLUTIONS

Many of the environmental and geophysical factors important to oil & gas development and operation can be measured by Earth observation satellites. Recent advances have greatly enhanced our ability to describe and understand natural resources, facilitate exploration and planning of oil & gas development, and support environmental impact assessments and monitoring. These advances include:

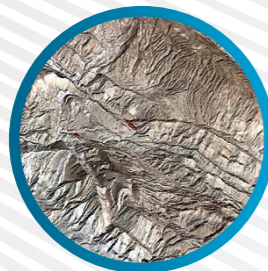
- Improved spatial and spectral resolution;
- More frequent observations and increased selection of satellite platforms;
- New frequencies/wavelengths and enhanced information from radar polarization;
- Flexible imaging geometries; and
- Timely access to data and information products through new communications and web-based technologies.

## THEMATIC AREAS AND PRODUCTS



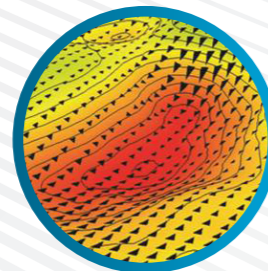
### SEISMIC PLANNING

- Identification of:
- Areas prone to poor coupling
  - Adverse terrain for trafficability
  - Environmentally sensitive areas



### SURFACE GEOLOGY MAPPING

- Characterization of:
- Geological features
  - Geohazards
  - Hydrology and drainage
  - Lithology



### SUBSIDENCE MONITORING

- Surface deformation monitoring for:
- Infrastructure and pipelines
  - Sub-surface reservoir activity
  - Decommissioning



### ENVIRONMENTAL MONITORING

- Environmental baseline prior to activities
- Environmental and social impact assessment
- Monitoring and adaptive management



### LOGISTICS PLANNING AND OPERATIONS

- Baseline mapping of terrain and infrastructure
- Infrastructure siting and routing
- Ongoing monitoring of assets

### ESA

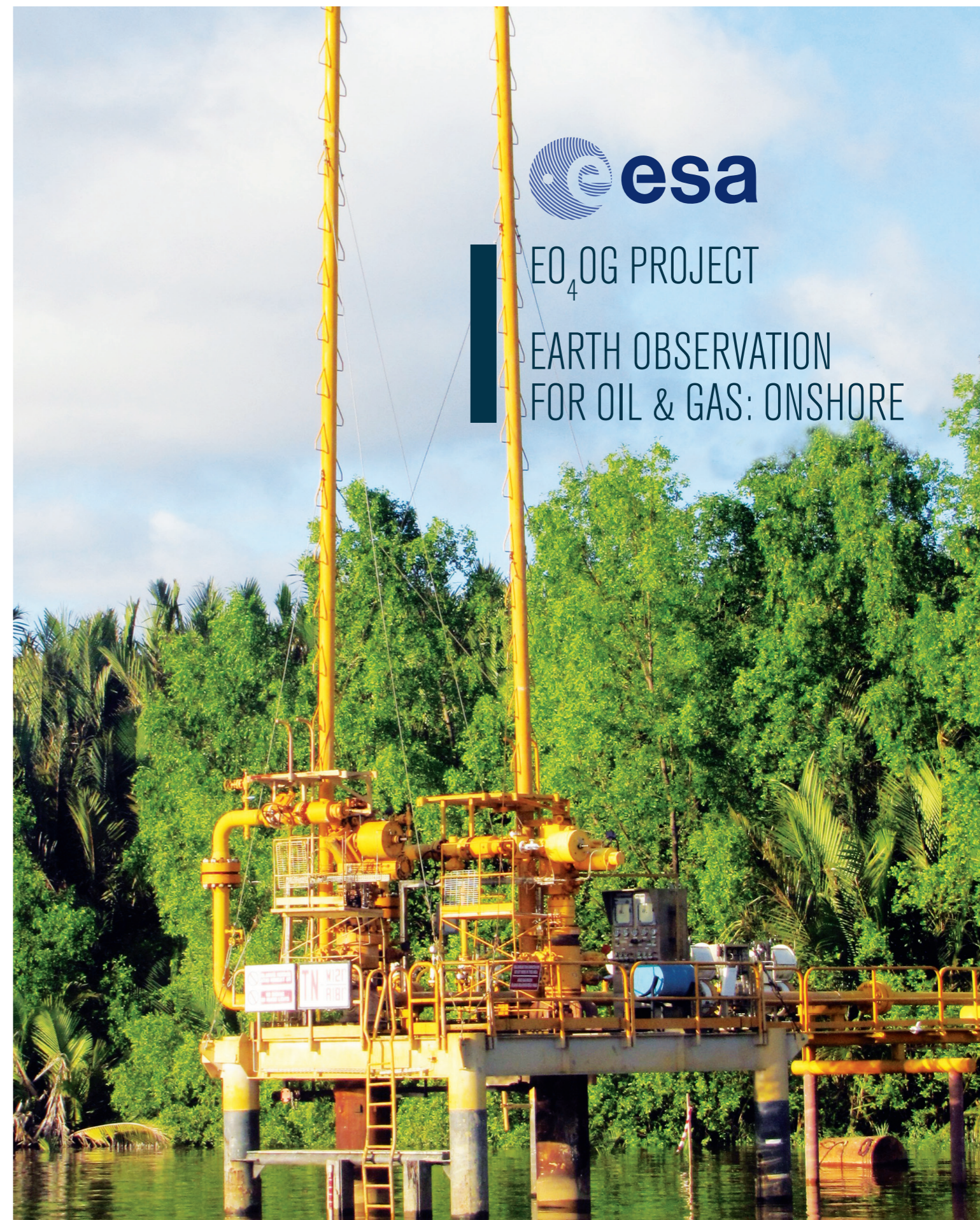
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EO<sub>4</sub>OG PROJECT

EARTH OBSERVATION  
FOR OIL & GAS: ONSHORE





# EO<sub>4</sub>OG PROJECT



## OBJECTIVES

Funded by the European Space Agency, the aim of the EO<sub>4</sub>OG project is to establish the current capabilities and use of satellite based Earth Observation for the Oil & 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.

## UNDERSTANDING THE CHALLENGES FACING THE OIL & GAS INDUSTRY

### INFORMATION REQUIREMENTS

Development of new resources presents considerable technical challenges in terms of geological complexity, water supply, infrastructure, and environmental and security issues. These challenges and information needs will be captured as part of the project. Focus will be on frontier regions.

### OIL & GAS PROJECT CYCLE

Some information requirements occur through all phases, although demands in terms of data volume, precision, frequency, and extent changes depending on the phase. We will consider the challenges and requirements in pre-licence, exploration, development, production, and decommissioning.

## EO SOLUTIONS AND GAP ANALYSIS

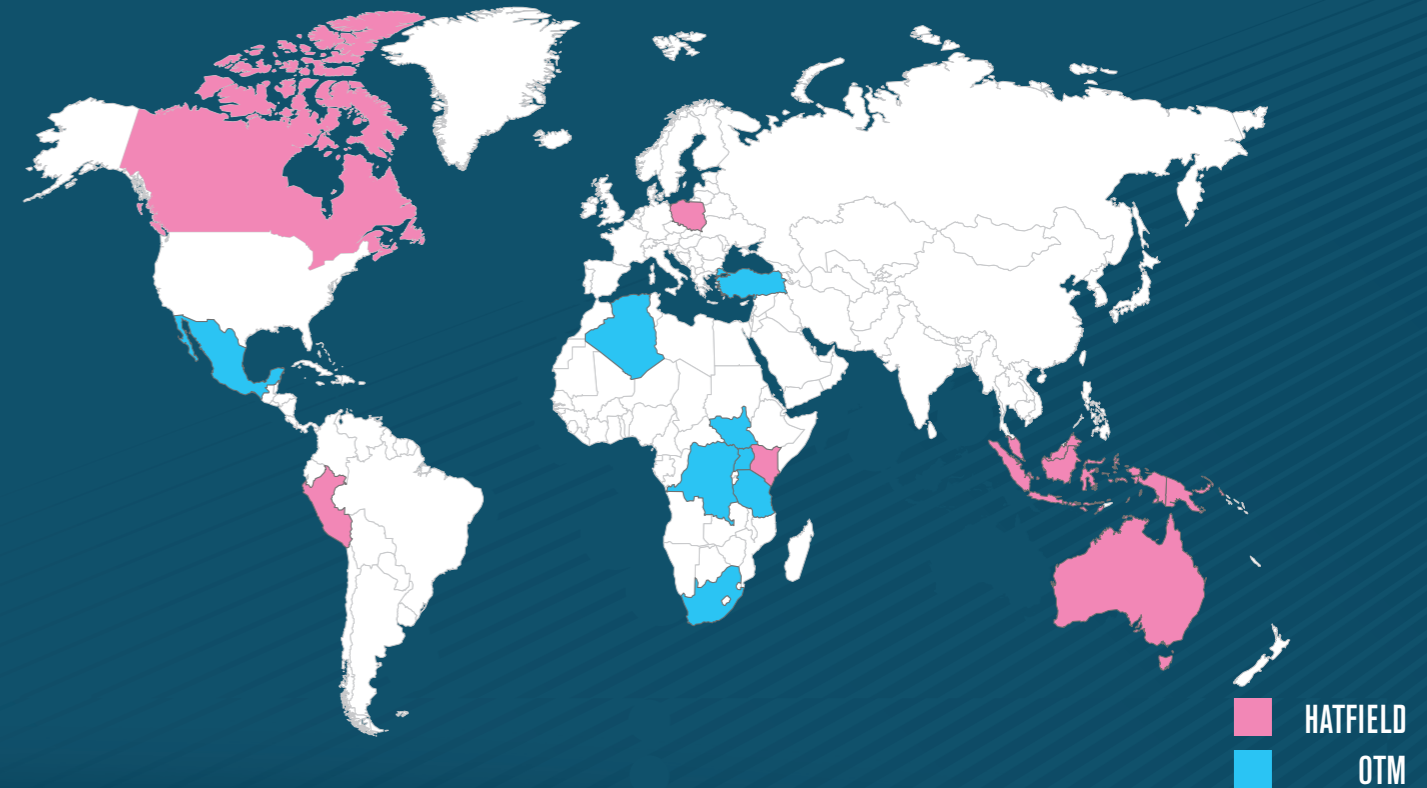
### CURRENT AND FUTURE EO TECHNOLOGIES

Research and development by oil & gas companies and suppliers has led to the application of numerous EO-based products in the oil & gas sector. Current technologies and planned EO missions expected to become operational within 5 years will be reviewed.

### GAP ANALYSIS

The focus will be on information requirements, products and services, and the data required to support the industry.

## TARGET AREAS OF INTEREST



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 EO<sub>4</sub>OG project, to ensure the best dissemination to industry and the general public of space-derived products.



OTM offers specialist technology consulting services to the oil & gas and alternative energy sectors, helping operators and their suppliers to identify, commercialise and deploy new technologies. OTM's team includes leading service providers and technology providers:



Hatfield is focused on helping the oil & gas sector around the world to improve environmental monitoring programs, including application of Earth Observation technologies. Hatfield's team includes leading service providers and technology providers:



## WEB PORTAL



## WORKPLAN



**EARTH OBSERVATION: SUPPORTS SAFE AND ENVIRONMENTALLY RESPONSIBLE OIL & GAS EXPLORATION AND PRODUCTION**