



# CGI forging ties with GEOSS

## Geospatial World Forum, Geneva

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Chetan Pradhan – Earth Observation Account Manager



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# CGI Corporate Overview



**CGI**

Experience the commitment®

# CGI is a global end-to-end IT and business process services leader

High-end business  
and IT consulting

69,000 professionals,  
85% shareholders

10,000 clients across  
the globe

System integration, IT  
and business process  
outsourcing

400 offices,  
40 countries around  
the world

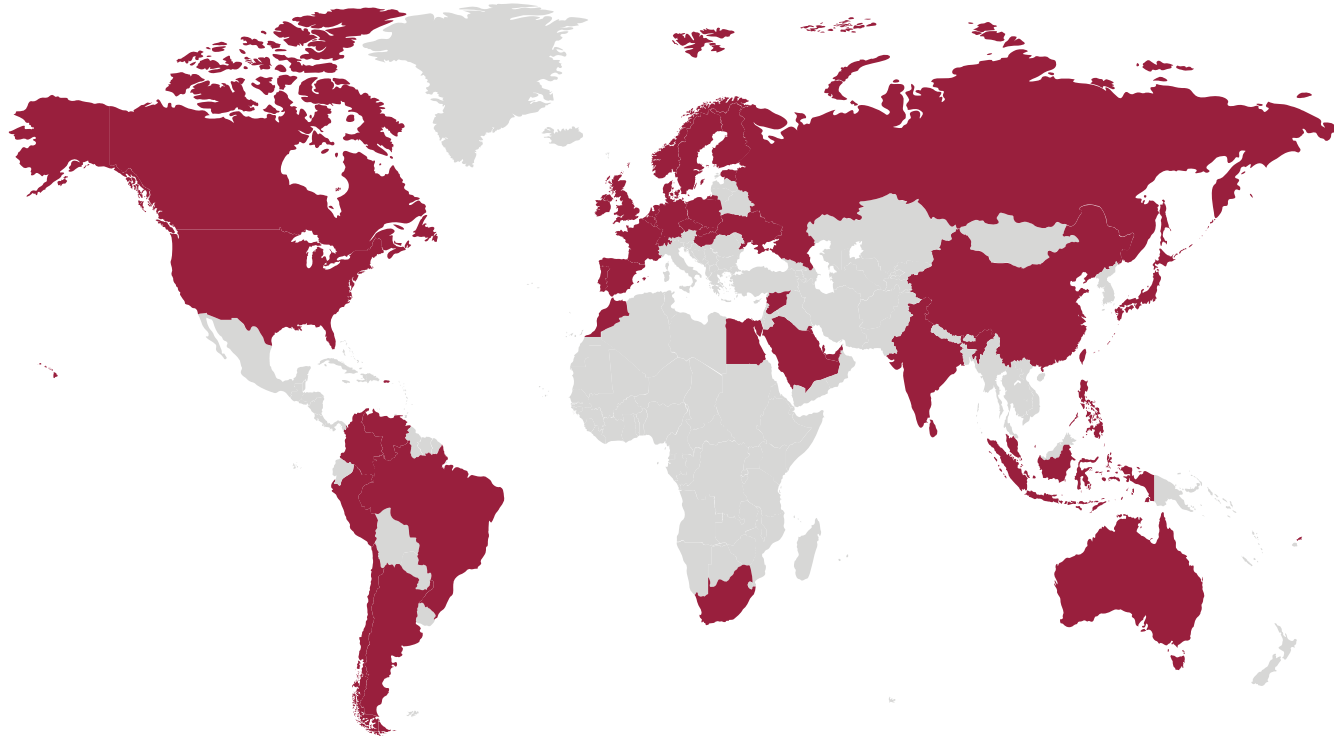
Client satisfaction:  
9.1/10

100+ mission-critical  
IP-based solutions

CAD \$10Bn (€7Bn)  
annualized revenue



# World's 5<sup>th</sup> largest independent IT and Business Process Services firm



**International** Space,  
Defence & Intelligence  
presence including  
NATO, ESA and EDA

Enabling **24x7**  
**'follow the  
sun'** services

**95%** on-time,  
on-budget  
delivery



# A few of our clients

## Financial Services



## Government



## Health



## Telecom & Utilities



## Manufacturing, Retail & Distribution



## Oil & Gas



Over 10,000 commercial and government organizations worldwide



# CGI activities in Space



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**We delivered systems that produce weather satellite images and data for Europe, Africa, East Asia, Australasia and the Pacific and Indian Oceans, covering a population of over 3 billion people**

**We delivered the Galileo satellite constellation control facility that will control all of Galileo's 30 satellites – Europe's strategically important satellite navigation system**

**We are the largest independent supplier of security systems for ESA's Galileo programme**

**We are a European leader in military satellite communications ground segment systems**

**Our software has supported the missions of more than 200 satellites**

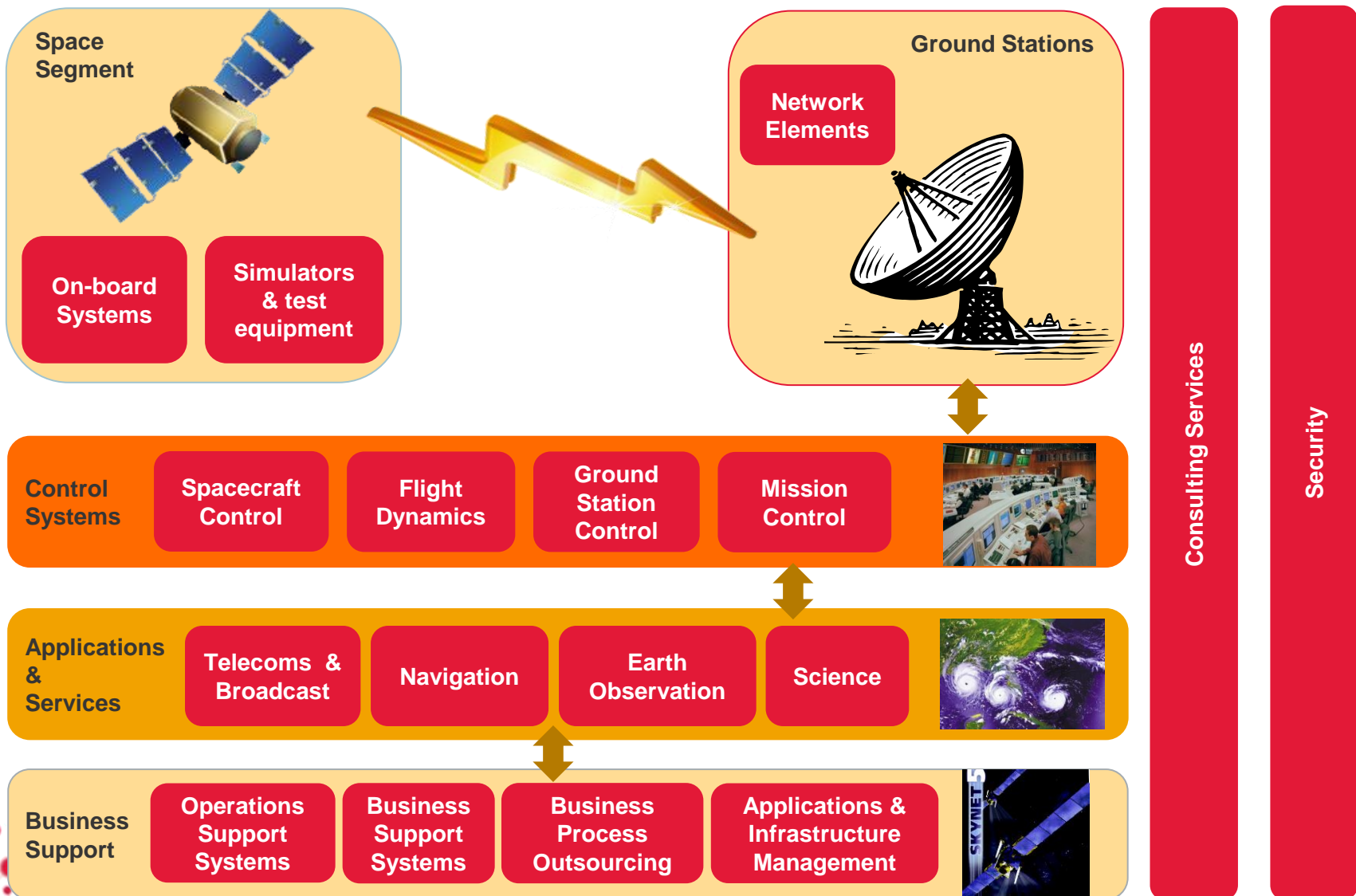


# We have long-term, strong client relationships

- Our client list is a “Who’s Who” of the European space industry including:
  - European Commission, European Space Agency, GSA
  - National space agencies and other government departments across Europe
  - EUMETSAT, Eutelsat, Inmarsat and SES Global
  - EADS Astrium and Thales Alenia Space
- We have worked with the European Space Agency since 1970: Over 40 years relationship with European Space Operations Centre in Germany
- Over 20 years relationship with EUMETSAT and Eutelsat

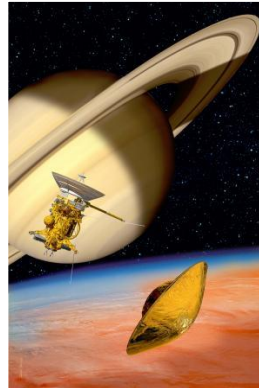


# What we do in Space

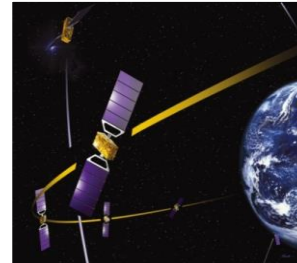


# Some examples of our work in space

- Satellite Communications
- Satellite Navigation
- Earth Observation
- Satellite and Mission Control Systems
- Science Operations and Facilities
- Space Security



*Huygens onboard software*



*Galileo cryptography and satellite control systems*



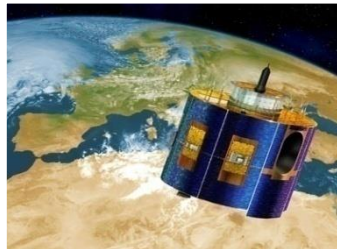
*Range safety trajectory monitoring system for all Ariane launches*



*Satellite control facility for Eutelsat's fleet of 20+ satellites*



*MTSAT ground systems for Japanese Met Agency*



*MSG real-time meteo image processing*



*Skynet 5 Ground Systems*



*Space Applications Catapult, (formerly ISIC) Harwell, Oxford*



*ESA: Over 40 years of satellite control systems and operations*



# CGI in Geospatial Information Systems and Earth Observation



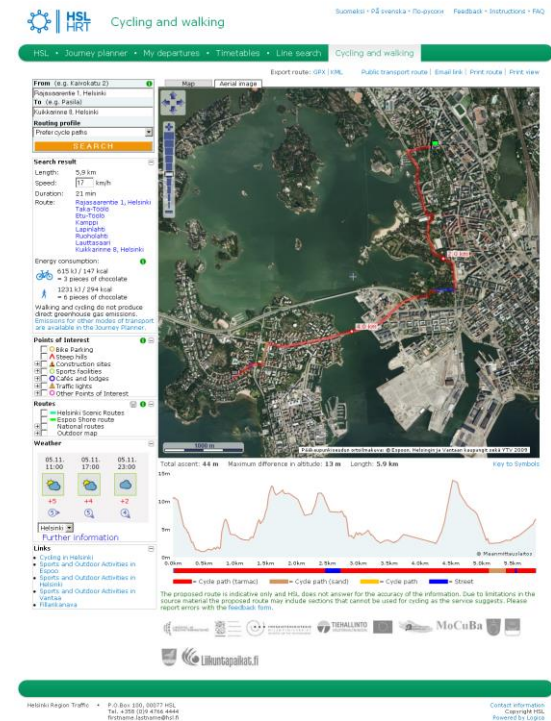
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# Geospatial Information Systems

- We operate 12 global geospatial centres of excellence with over 500 GIS experts worldwide, using the latest GIS technologies including ESRI, Integraph, GE SmallWorld, Oracle, Google and Open Source tools.
- We deliver solutions to government and commercial clients worldwide, in a wide range of industries including utilities, oil and gas, health, telecom, defence, agriculture, forestry, financial services, transport and logistics.
- We combine in-depth knowledge of our clients' businesses with our extensive geospatial expertise, to deliver a range of solutions including:
  - Land consolidation (Cadaster); Routing; Mapping; Border crossing; Asset management; Utilities management (network planning, outage management, distribution); Environment and forestry; National security and emergency response; Healthcare; and more.



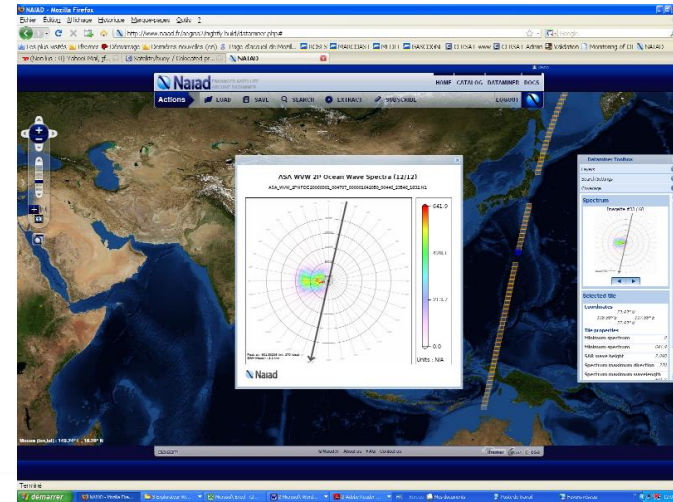
*Navici® Trip Planner*



# CGI in EO applications: *GlobWAVE* portal for wave data



- The project objective is to improve uptake of satellite-derived wind-wave and swell data in the scientific, operational and commercial user communities
- Combines altimetry data (ERS-1, ERS-2, ENVISAT, TOPEX/Poseidon, Jason-1, Jason-2, GEOSAT, GFO) and Synthetic Aperture Radar (SAR) Data (ERS-1, ERS-2 and ENVISAT)
- Provides satellite vs. *in-situ* matchup database and query interface, and online tools for data dissemination, satellite data query (NAIAD) and HR-DDS services for statistics and visualisation.
- See [www.globwave.info](http://www.globwave.info)

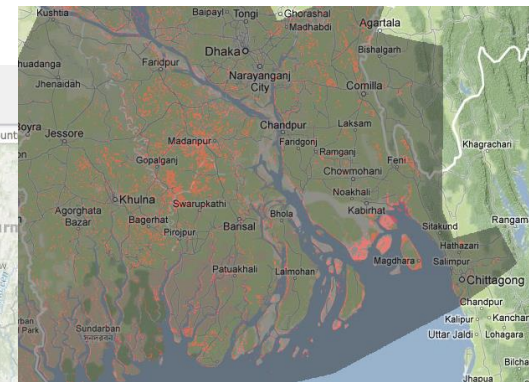
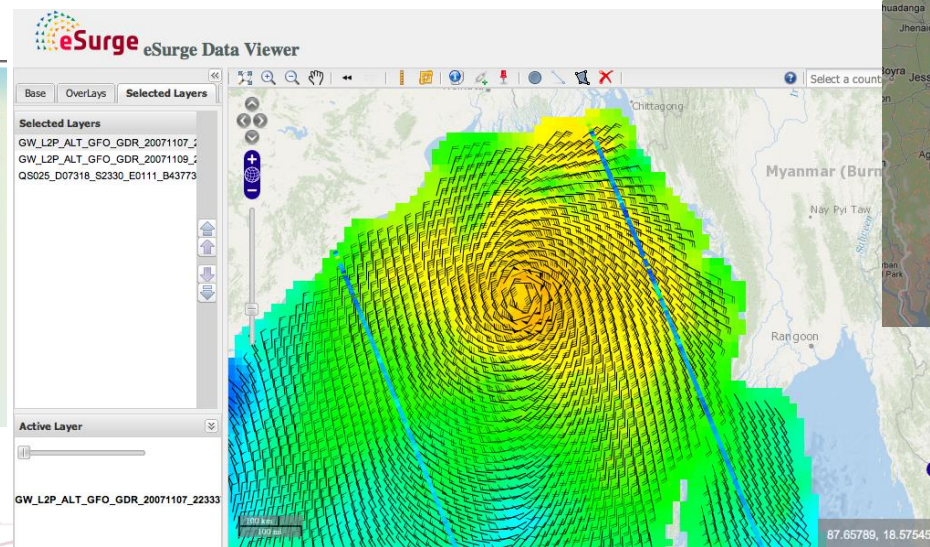




# CGI in EO applications: eSurge coastal storm surge prediction



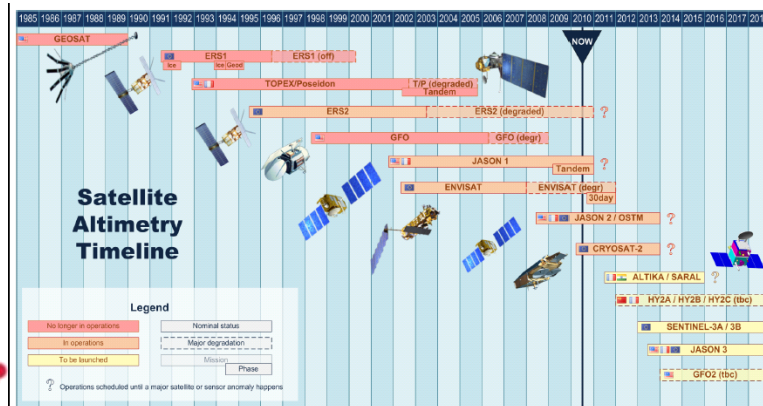
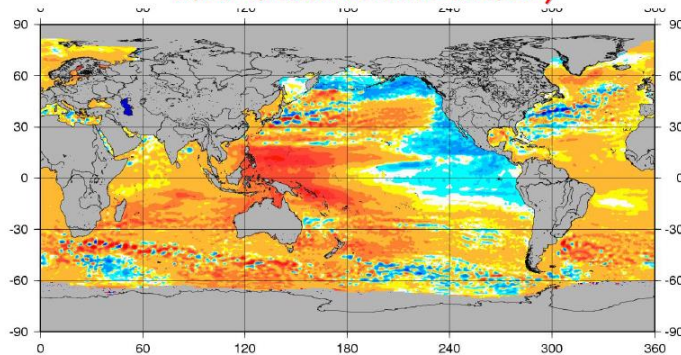
- eSurge is an ESA DUE Project being undertaken by CGI UK, with science partners NOC (UK), DMI (DK), CMRC (IRL) and KNMI (NL).
- It aims to demonstrate how satellite data can improve storm surge forecasting by:
  - Making available an easy to access archive of past storm surge events.
  - Providing a demonstration near real time service, for access to data during ongoing surge events.
  - Performing some modelling experiments to demonstrate the improvement in forecasting.
- eSurge data is available online at [www.storm-surge.info](http://www.storm-surge.info).



# CGI in EO applications: ESA Climate Change Initiative - Sea Level & Sea Ice

- Sea level and Sea Ice are “Essential Climate Variables” – CGI is supporting these ESA projects with programme management and system engineering skills.

*Spatial trend patterns in sea level (1993-2009)  
Multi-mission satellite altimetry*

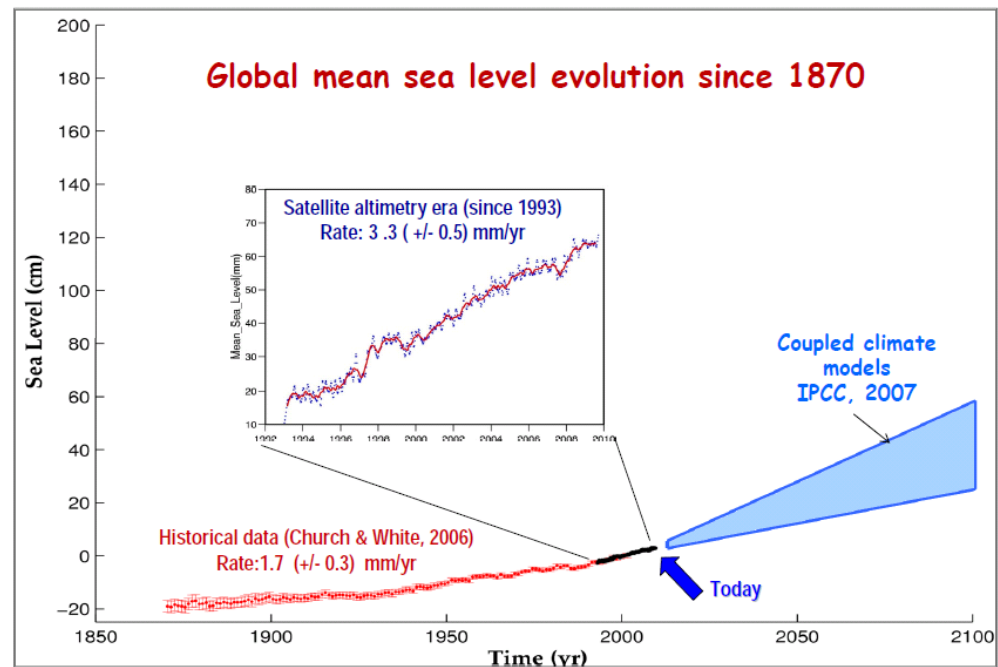


sea level  
cci



sea ice  
cci

*Global mean sea level evolution since 1870*





# Live Land – Predicting and monitoring risk from landslides to roads/railways



British Geological Survey  
NATURAL ENVIRONMENT RESEARCH COUNCIL



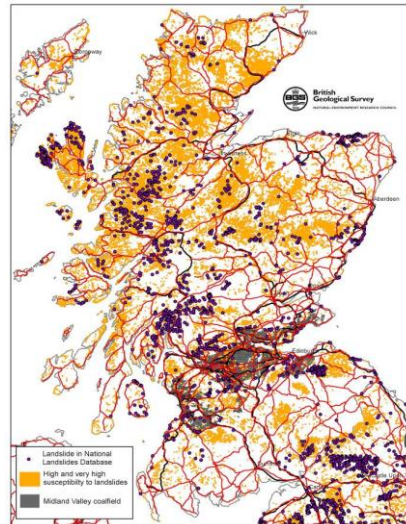
Addresses the need to predict, monitor and alert for geological risk (landslides & subsidence) on transport infrastructure. Combines EO, SatNav and SatComs.

- Identification of risk areas, including use of EO derived datasets (including InSAR surface motion datasets, DEM, vegetation analysis)
- GNSS instrumentation investigation – Low cost, high accuracy
- Landslide modelling – Weather forecasting integration; refine triggers
- Alerting system investigation, including asset management system integration

## What?



## Where?



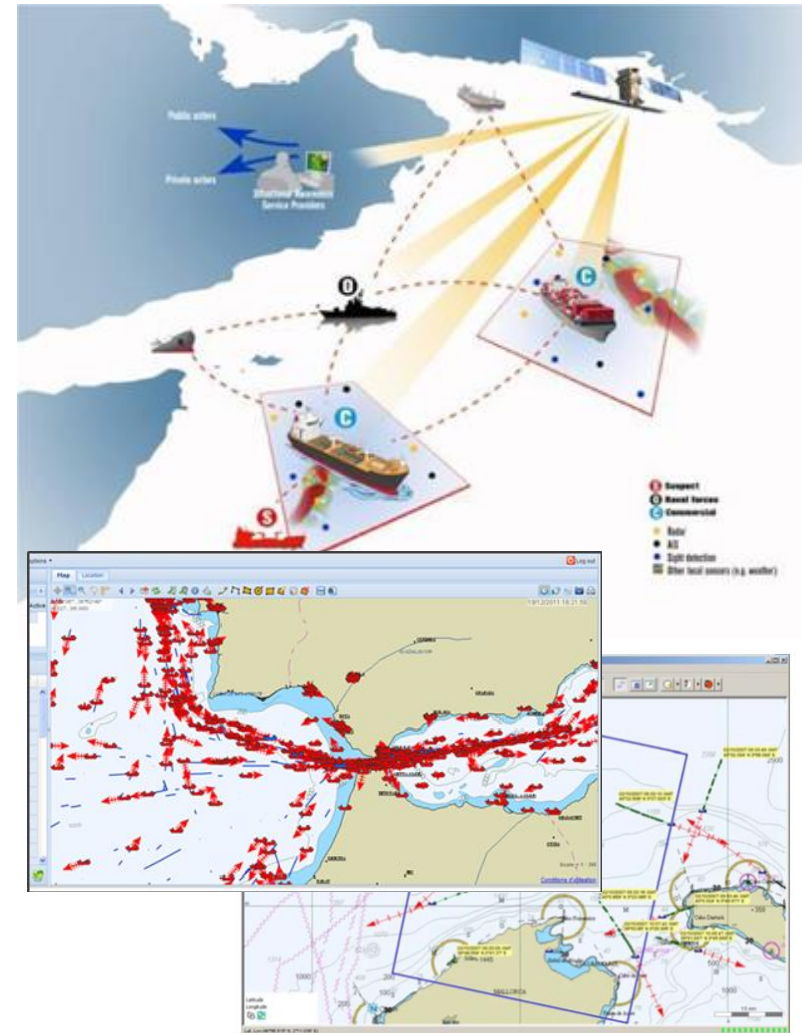
## How?



# MAPP – Maritime Piracy Prevention (ESA IAP)



- The increase in piracy incidents in areas such as the Gulf of Aden and the Gulf of Guinea cause substantial risk and cost to the shipping industry and governments.
- CGI and the MAPP Consortium are investigating the use of satellite services to improve shared situational awareness for Ship Owners, Insurers, Maritime Authorities and other stakeholders.
- The service aims to utilise a range of satellite communications to facilitate better information exchange between ship and shore, investigate novel methods of sharing local maritime pictures and fuse data from a wide variety of existing sources (Sat-AIS, EO data, Radar, LRIT etc).
- The aim is to respond to the key user requirement, “Where are the bad guys?” and provide high value risk and alert products to the shipping community.



# SatResponse – Improving Disaster Response (ESA IAP)

- Space provides a secure, resilient, always-on infrastructure for dealing with natural or man-made disasters
  - Satcom has a critical role in aid operations where terrestrial systems are often inoperable or unavailable – but services can be expensive and bandwidth limited.
  - Earth observation services provide information indispensable in targeting interventions – but information delivery is often too slow.
  - Situational awareness platforms allow crucial information be shared – but getting information to/from the field can be expensive and difficult.
- CGI and the SatResponse consortium are investigating how services can be more effectively delivered to UN Agencies, NGOs and Civil Protection Authorities. The aim is to offer improved procurement and operational models to provide cost effective broadband satcom, and providing a service delivery platform through which a variety of disaster response applications can be easily accessed.



# Forging ties with GEOSS



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# Existing links to GEOSS

- Maintenance of GEOSS Portal via CGI Contract with ESA-ESRIN

The screenshot displays the GEOSS Portal interface. At the top, the 'GEO GROUP ON EARTH OBSERVATIONS' logo is on the left, and the 'GEOSS Portal' title with the tagline 'Discover, Access, Contribute Earth Observations and Information & Services' is in the center. To the right are the 'esa' and 'ESRIN' logos. Below the header is a green navigation bar with links for 'HOME', 'VIDEO TUTORIAL', and 'SEND FEEDBACK'. The main content area is divided into three sections. On the left is a 'SEARCH' sidebar with a text input field, a 'Related Topics' dropdown, and expandable categories: '+ Themes', '+ Country/Geography', '+ Data Access Conditions', and '+ Earth Observation Catalogs'. It also includes 'Start Date' and 'End Date' date pickers, and 'CLEAR' and 'SEARCH' buttons. The center section features a world map with a grid overlay and navigation controls (compass, zoom, pan). On the right is a 'WHAT IS GEOSS PORTAL' section with introductory text and links for 'Register Your Resources' and 'Tell US what you think'. Below the map is a 'POPULAR SEARCHES' section with a list of terms: Precipitation, Land, Surface, Temperature, Land, Cover, Urbanization, Sea, Surface, Temperature, River, Flow, Observation, Surface, Atmospheric, Condition, Elevation, and Soil. The bottom section is titled 'EO NEWS'.

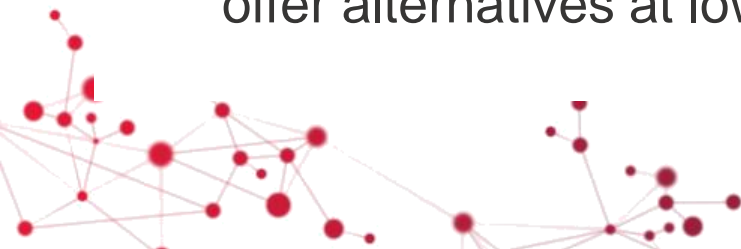
# CGI's current thinking on GEOSS

- CGI is a leading global player in the commercial geospatial industry and has a growing footprint as an Earth observation value-added services provider for government and commercial applications.
- Our goal is to become a supplier of integrated solutions that combine space/EO data with other sources of geospatial information, to deliver rich information services to public and private sector users worldwide, for commercial, scientific and humanitarian applications.
- **We are therefore very excited by the potential of GEOSS**, both as a platform that we might use to reach relevant users worldwide, and as a source of data and products that we might be able to exploit to the benefit of both public and private sector customers globally.



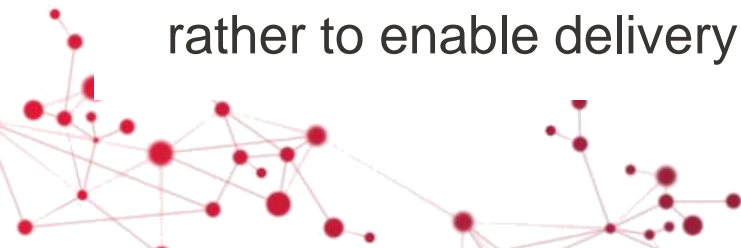
# Challenges

- How will GEOSS engage with companies like CGI in the commercial Earth Observation value-adding industry?
- In particular, how will GEOSS ensure that its engagement with the private sector is not exclusively focused on the big global players, and be inclusive to established smaller players who bring deep insight of specific user challenges?
- How will GEOSS develop in future? What is the road-map?
- Without clarity, there is a risk that development of GEOSS may inadvertently distort an existing or emerging commercial market.
- The private sector will be reluctant to invest in new EO systems and services if there is a perceived threat that GEOSS will step in and offer alternatives at low or no cost.



# CGI's aspirations for ties with GEOSS

- We fully subscribe to the GEOSS vision of being a **global and flexible network of content providers**
- This network must be **fully inclusive to commercial content providers**, who are best positioned to multiply up the benefits via commercial exploitation opportunities, delivering growth and jobs
- We would like to see GEOSS **engage directly with the Earth Observation value-adding industry** to build this network, and support the private sector by (a) promoting applications amongst public sector users and decision makers and (b) making the public sector needs accessible to the commercial value-adding sector.
- In particular, GEOSS should be careful not to circumvent the Earth observation value-adding sector in delivery of decision-support services to end-user sectors such as agriculture, energy etc. but rather to enable delivery of services via our industry sector.



# Conclusions

- GEOSS holds significant promise for the future delivery of geospatial services on a global basis.
- CGI, as a leading provider of geospatial information systems, has valuable contributions to make to GEOSS in terms of geospatial decision-support tools for a variety of applications and users.
- We are therefore keen to see GEOSS engage with commercial geospatial service providers like us, to ensure maximum benefit is derived from the exploitation of the potential of GEOSS.
- We look forward to working more closely with GEOSS, through work-plan elements specifically directed at our industry sector, to help build up and exploit the GEOSS network for mutual benefit.



# Thank you for your attention

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Earth Observation

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[www.cgi.com/space](http://www.cgi.com/space)

The CGI logo is displayed in a bold, red, sans-serif font. The letters 'C', 'G', and 'I' are connected, with the 'G' having a distinctive shape. The logo is positioned in the bottom right corner of the slide.

**CGI**