More than 30 years of Italian experience in Earth Observation.

From COSMO-SkyMed radar constellation to Data analytics

Valerio Perusini
Head of Line of business GeoInformation
Commecial development

e-geos
AN ASI / TELESPAZIO COMPANY

LEONARDO 67%

THALES 33%

TELESPAZIO a LEONARDO and THALES company

agenzia spaziale italiana

COSMO-SkyMed
exclusive world wide rights

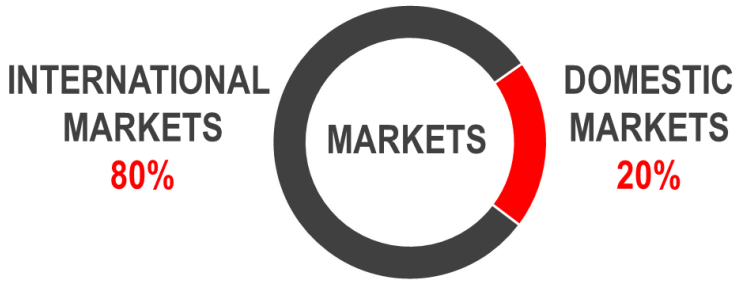
- Contracts
- People
- Assets

80% 20%

e-geos
AN ASI / TELESPAZIO COMPANY

100%

GAFAG
an e-GEOS (ASI / Telespazio) Company



10+
SATELLITE MISSIONS DATA ACQUIRED

70millions
AGRICULTURAL PARCELS

1750+
MARITIME REPORTS/ YEAR

9+
COMMERCIAL USER TERMINALS AROUND THE GLOBE

3000+
MAPS PRODUCED IN 4 YEARS

270+
ACTIVATIONS OF THE e-GEOS EMERGENCY MANAGEMENT SERVICE

100m €+
REVENUES

500+
PEOPLE

e-geos
AN ASI / TELESPAZIO COMPANY

GEOINFORMATION HUB

DATA OPERATOR

Management of Earth Observation Receiving Ground Segment

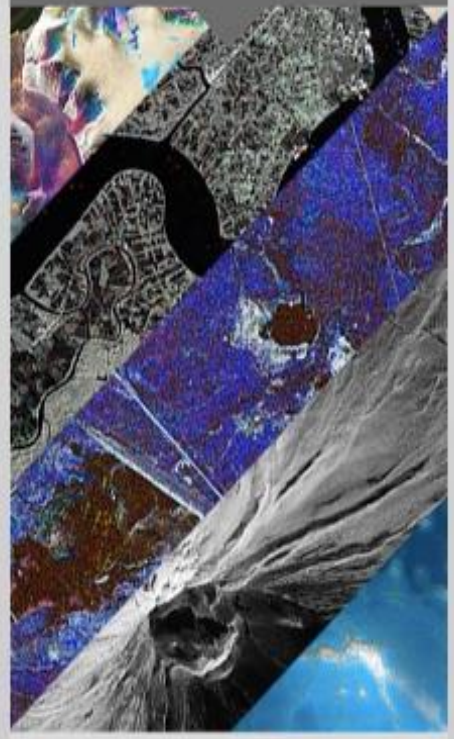
- Geodesy

DATA ACCESS HUB

Provision of Optical and Radar Satellite Data

- Non-EO Data

CONTENT DEVELOPER



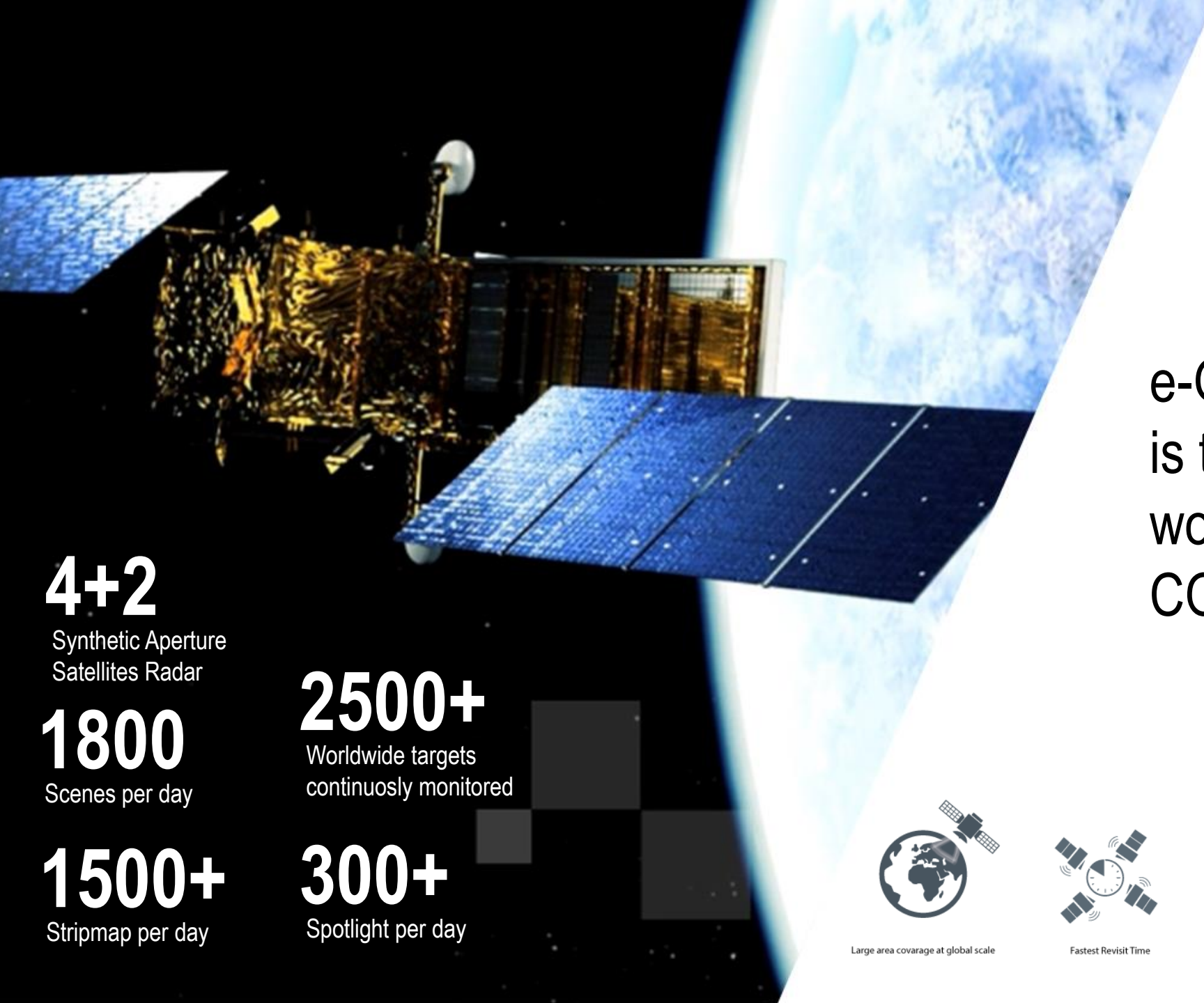
Data Analysis and Integration & Geographic Layers Production

SERVICES AND PLATFORMS PROVIDER

Geoinformation systems, services and applications

CONSULTANT

Projects Fed by International Funding Institutions



COSMO-SkyMed

e-GEOS
is the exclusive commercial worldwide distributor of COSMO-SkyMed

4+2
Synthetic Aperture Satellites Radar

1800
Scenes per day

2500+
Worldwide targets continuosly monitored

1500+
Stripmap per day

300+
Spotlight per day

Large area covarage at global scale

Fastest Revisit Time


Left/Right Looking


All-weather day/night

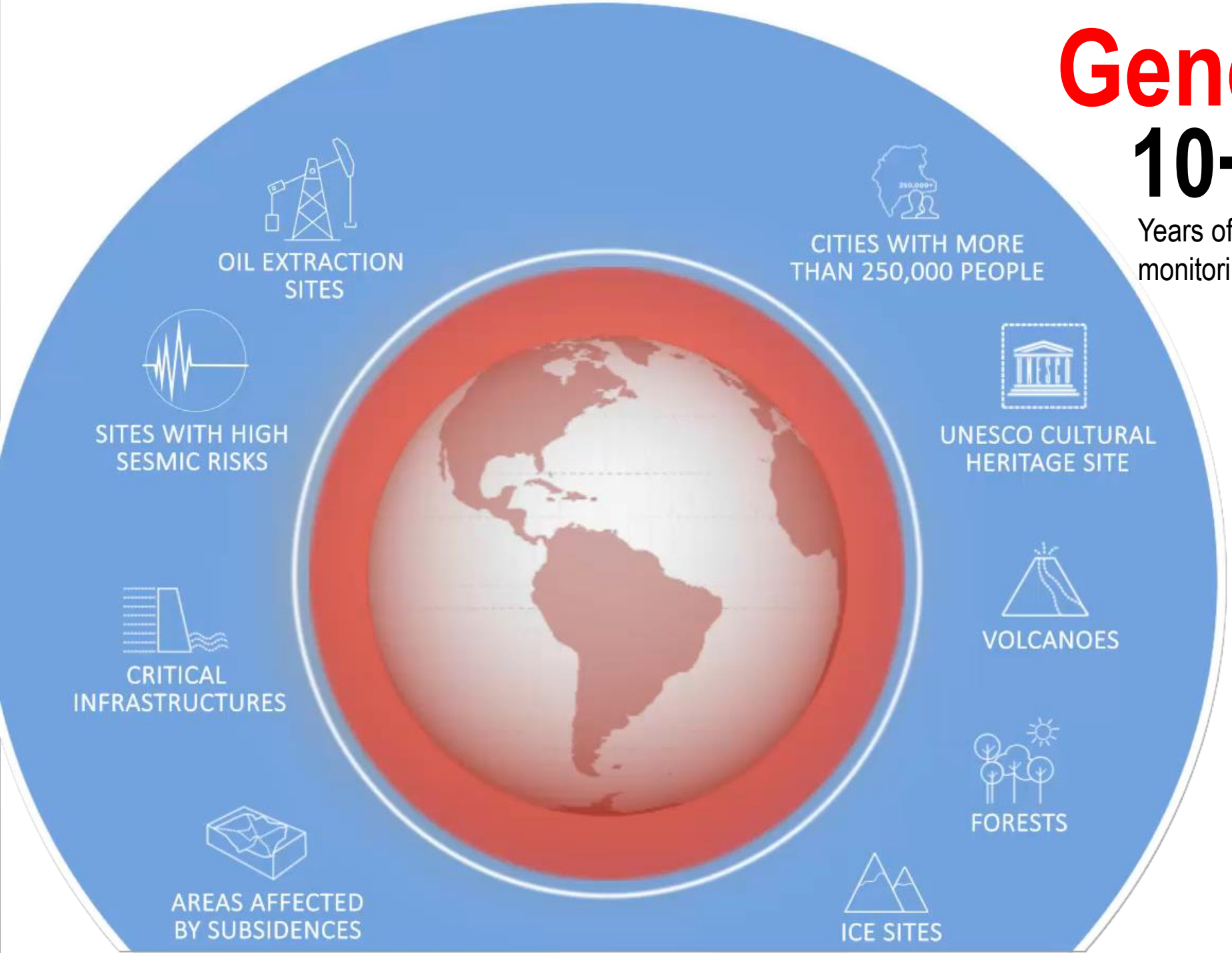
e-geos

Genetic stacks

10+
Years of continuous monitoring

200+
Images per site homongous genetic stacks

2500+
Targets worldwide



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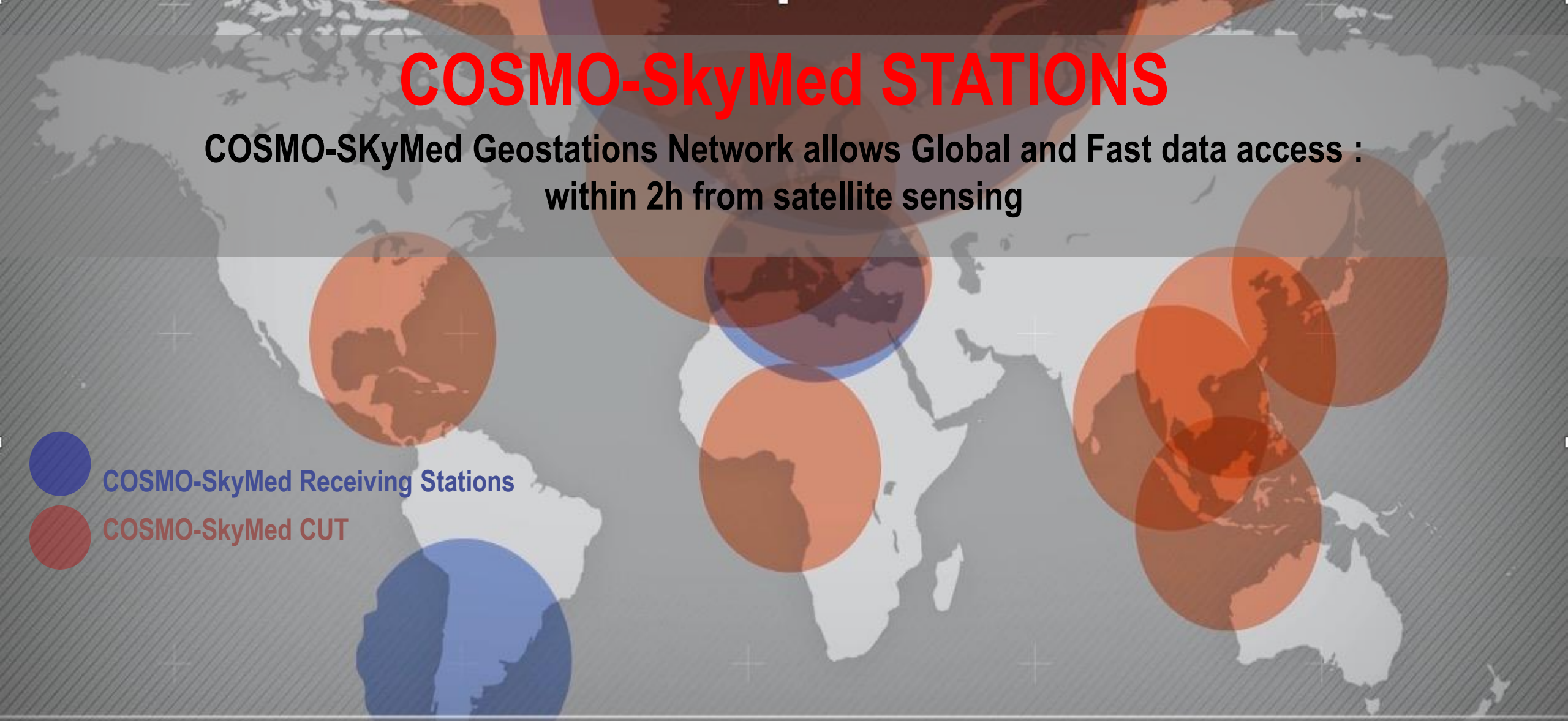
COSMO-SkyMed STATIONS

COSMO-SKyMed Geostations Network allows Global and Fast data access :
within 2h from satellite sensing



COSMO-SkyMed STATIONS AND COMMERCIAL USER TERMINALS
FOR GEOINFORMATION SERVICES

e-geos

THE VALUE CHAIN FOR THE NEW VALUE ADDED SERVICES

More value addition/processing to the raw data

High

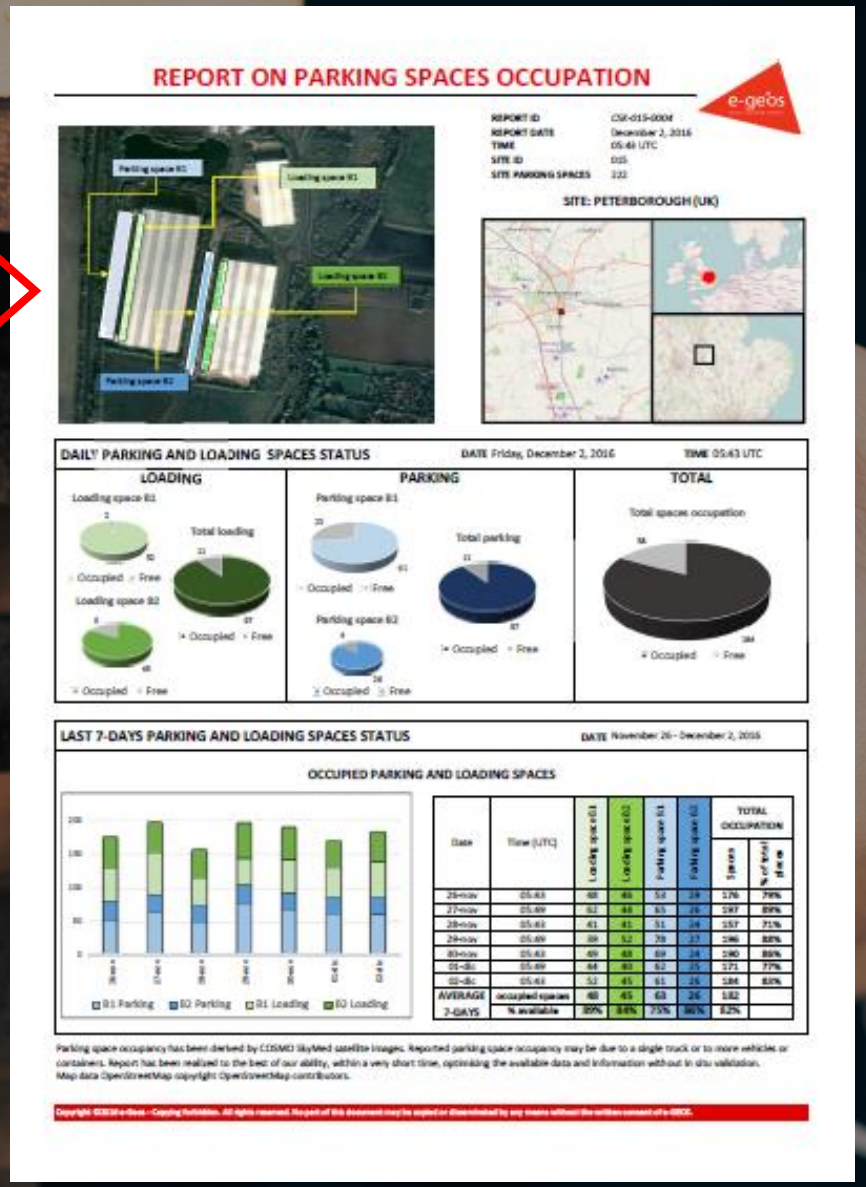
Big data analysis

Information Products

Value Added Services

Data

Low

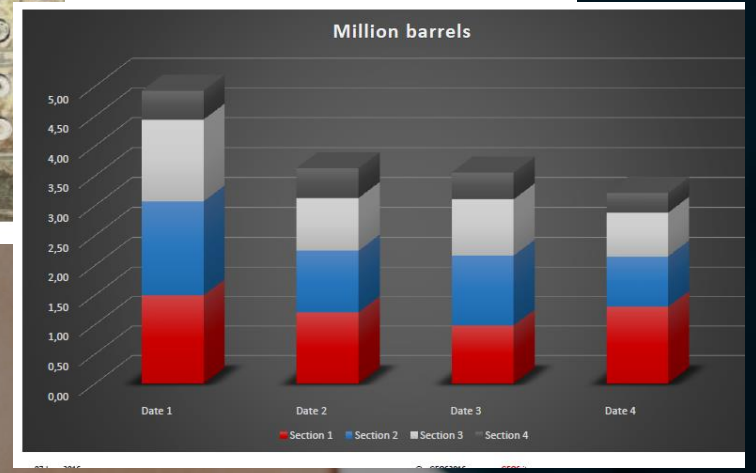


OPTICAL DATA

Provide identification of oil tanks to be monitored and the assessment of oil levels over the depende

RADAR DATA

Provide assessment of oil levels over the area of interest at different hours of the days, independently on cloud coverage and lighting conditions



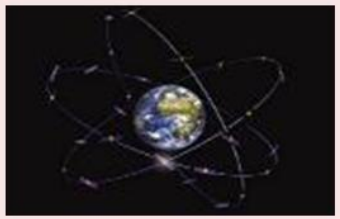
FROM WORKFLOW TO VERTICAL PLATFORMS

DATA OPERATOR	DATA ACCESS HUB	CONTENT DEVELOPER	SERVICES AND PLATFORMS PROVIDER	DELIVERY

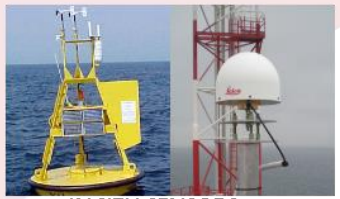
GEOSPATIAL DATA

SATELLITE

AERIAL / UAV SURVEY



NAVIGATION



IN SITU SENSORS

PRODUCTION UNIT

SPECIALISED LAYERS

SPECIALISED DATABASES

GEO INFORMATION LAYERS

VERTICAL PLATFORMS

GEO-SPATIAL ANALYSIS

AS A SERVICE

ON PREMISES

MARITIME SURVEILLANCE & OIL SPILL

For supporting Defense and Marine forces in **Maritime Situational Awareness** services, for Coast Guards, international environmental protection organizations and defense.

SEnSE
Smart Eyes on SEas

Solution providing multi-sensor reports and analysis for :

- Near-Real Time Vessel Detection and tracking
- Wind&Wave analysis
- Ice charting
- Geospatial Analysis and Alert Notifications
- Activity Reports: Near-Real Time, Oil-spill detection
- On-Off shore platform / infrastructures Subsidence

Ground Receiving Terminal Network

Experienced Operators on maritime surveillance Sat image analysis

Operational h24/7

Multisensor solution

Validated by Institutional User

Secure data access

e-geos

AMSA SERVICE

Australian Government
Geoscience Australia

geospatial intelligence pty ltd

SEonSE
Smart Eyes on SEas

e-geos
AN ASI / TELESPAZIO COMPANY

SATELLITE-BASED OIL SPILL MONITORING AND TRACKING SUPPLIES TO THE AUSTRALIAN MARITIME SAFETY AUTHORITY (AMSA)

AMSA SERVICE

Australian Government
Geoscience Australia

geospatial intelligence pty ltd

SERVICE GOALS

SEonSE
Smart Eyes on SEas

To provide oil spill monitoring adopting two *modus operandi* (both 24/7/365):

- **Oil Spill Monitoring Compliance** (products within 3 hours from acquisition)
- **Incident Response** (products within 2 hours from acquisition)

To monitor, detect and respond to incidents from both shipping and offshore installations over **areas of interest as specified by AMSA**, including the full extent of the EEZ, Extended Continental Shelf Area and External Territories (except the Australian Antarctic Territory), and those areas covered by the Mutual Aid agreements with Papua New Guinea and the Pacific nations covered by PacPlan.

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AMSA SERVICE

SERVICE BENEFITS

SEonSE Smart Eyes on SEas

- AMSA will be provided with four satellite surveillance and analysis capabilities:
  1. monitor risks and detection of illegal vessel-sourced pollution for compliance purposes
  2. confirm suspected oil spill incidents
  3. rapid assessment and deployment for oil spill response purposes
  4. experimental assessment of other potential capabilities, including search and rescue.

- Volume of Service variable, based on AMSA's needs and events to be monitored

- To source and use an independent satellite-derived **Automatic Identification System** (**AIS**) feed to assist in possible spill source identification

Australian Government
Geoscience Australia

geospatial intelligence pty ltd

e-geos

Australian Government
Geoscience Australia

geospatial intelligence pty ltd

SEonSE
Smart Eyes on SEas

e-geos
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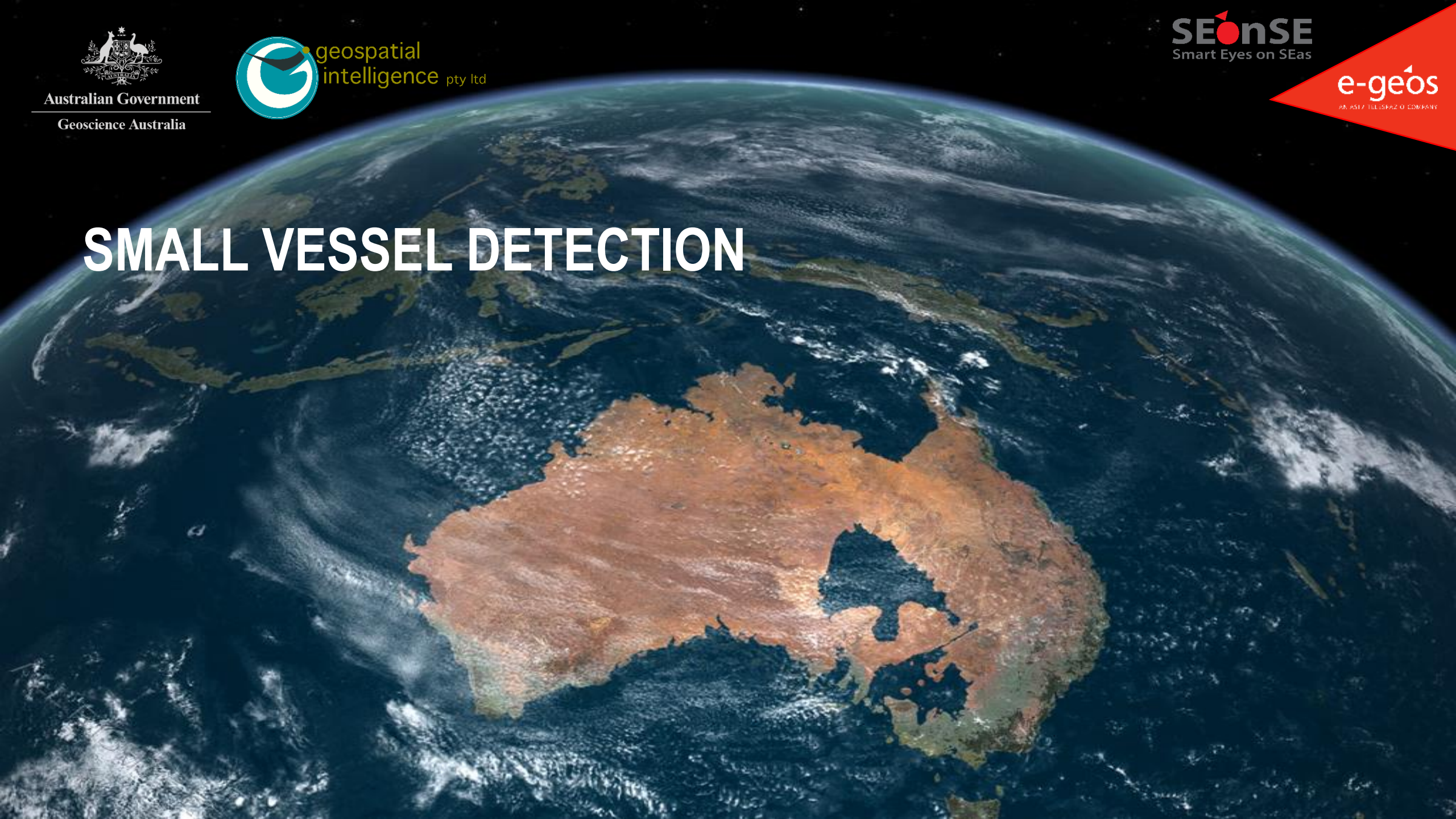
SMALL VESSEL DETECTION



SMALL VESSEL DETECTION

- Detection of small vessel / boats < 25 m
- Go fast detection
- Smuggling / immigration / illegal traffic

Thanks to

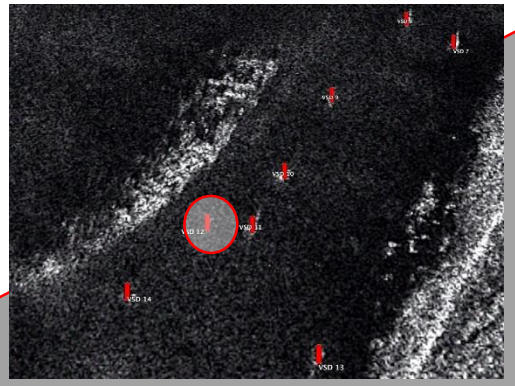
- Very high resolution
- Highest revisit
- More images per day

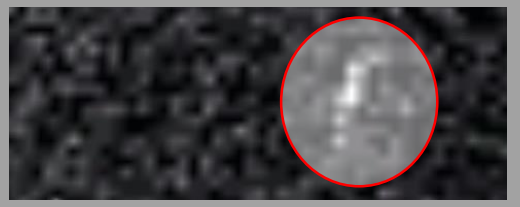
SMALL VESSEL DETECTION

geospatial intelligence pty ltd

Australian Government
Geoscience Australia

SEonSE reports based on COSMO-SkyMEd radar image





Ship 12	
Sensor	**Date**
CSK	2017-08-15T07:57:34.000Z
Direction	**Speed**
250	N/A m/s
Length	**Width**
11.1 m	3.6 m
Cooperative data	
AIS MMSI: N/A	

Length
11,1 m!

SEonSE
Smart Eyes on SEas

e-geos

ENI AUSTRALIA

OIL SPILL MONITORING SERVICE

e-geos
AN ASI / TELESPAZIO COMPANY

Service volume: 2 data and relevant VA products per day; service duration depends on oil extraction operations (e.g. 4÷6 months each)

Information Age for final products delivery: about 2÷3 hours since the sensing.

Contract period: 2012-2015

THE NEED

Well Operations monitoring.
Alerting in case of oil slicks during oil extraction.
The Australian National Plan sets out the responsibilities of different entities in responding to an oil spill, with the oil company having primary operational responsibility and assistance being made available from a range of sources. Satellite based monitoring is one of these sources.

e-GEOS SOLUTION

Thanks to the **COSMO-SkyMed constellation**, e-GEOS provides the Customers (worldwide) with a regular (**twice per day on a 24/7 basis**) satellite data acquisition and processing service during the whole drilling well lifecycle.
The service aims at alerting the Customer in case an oil spill is detected during the operations.
e-GEOS also provided vessels detection and SAT-AIS data integration.

DEMANDS / SOLUTIONS

LAND MANAGEMENT AND INFRASTRUCTURES

AssetWatch

For supporting the **planning, management and maintenance of infrastructures and strategic assets**, **for Power Supply Utilities,** Asset Monitoring, Transportation and Infrastructures, Mining, Oil & Gas, Natural Resources Management.

A suite of solutions, based on:

- Ground Motion Analysis (DIFSAR and GPS)
- Change Detection Analysis
- 3D modeling
- GIS Solutions

Ground Receiving Terminal Network

Experienced Operators on maritime surveillance Sat image analysis

Operational h24/7

Multisensor solution

Validated by Institutional User

Secure data access

e-geos

EMERGENCY MANAGEMENT SERVICE

We are the EUROPEAN PROVIDER for DISASTER MANAGEMENT MAPS

European Commission

e-geos

ASKme!
emergency/info on demand

Geo-information products to support **civil protection** and **humanitarian aid** operators natural/man made disasters

opernicus
Europe's eyes on Earth

European Commission

24/7
OPERATIONAL

40+
EXPERIENCED OPERATORS

3500+
MAPS PRODUCED IN 4 YEARS

270+
ACTIVATIONS OF THE e-GEOS EMERGENCY MANAGEMENT SERVICE

2.500.000+
Kmq delivered

50+
COUNTRIES

Copernicus Europe's eyes on Earth

IN AUSTRALIA

2016 FLOODS IN SOUTH EASTERN AUSTRALIA

EMSR184 – Flood of the Lachlan river

- 9 Areas of Interest
- 27 monitoring cycle over 4 areas
- 29 maps produced
- 27.000 sqkm surface covered

2017 TROPICAL CYCLONE DEBBIE IN AUSTRALIA

EMSR200 – Tropical cyclone Debbie

- 12 Areas of Interest
- 1 monitoring cycle over 3 seleted hotspots
- 15 maps produced
- 23.000 sqkm surface covered

e-geos
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e-geos AN ASI / TELESPAZIO COMPANY IN AUSTRALIA

EMERGENCY MANAGEMENT SERVICE WORKFLOW FOR AUSTRALIA

Civil Protections

Australian Government
Geoscience Australia

Map(s) request

e-geos
AN ASI / TELESPAZIO COMPANY

Service activation

Civil Protections

Rapid mapping Team

geospatial intelligence pty ltd

Satellite data request

9h
Pre-event maps

3h
1st Post-event maps

from data availability

European Commission

Proposal of EU / e-GEOS
To Australian Government

e-geos AN ASI / TELESPAZIO COMPANY

FLOOD IN AUSTRALIA

e-geos AN ASI / TELESPAZIO COMPANY

Event description:

Starting from late November **2010**
heavy rains caused strong floods
in various areas of eastern Australia
(Queensland, Taroom, etc.), being the most relevant event in the past decades.

Activation entity: Land Management Property Agency (LMPA)

COSMO-SkyMed images over areas of interest indicated by the Australian *Department of Environment and Resource Management*

Analysis of **flood extent** in cooperation with the University of New South Wales

200+ images acquired, analysed and delivered to Australian authorities within **5** hours from sensing

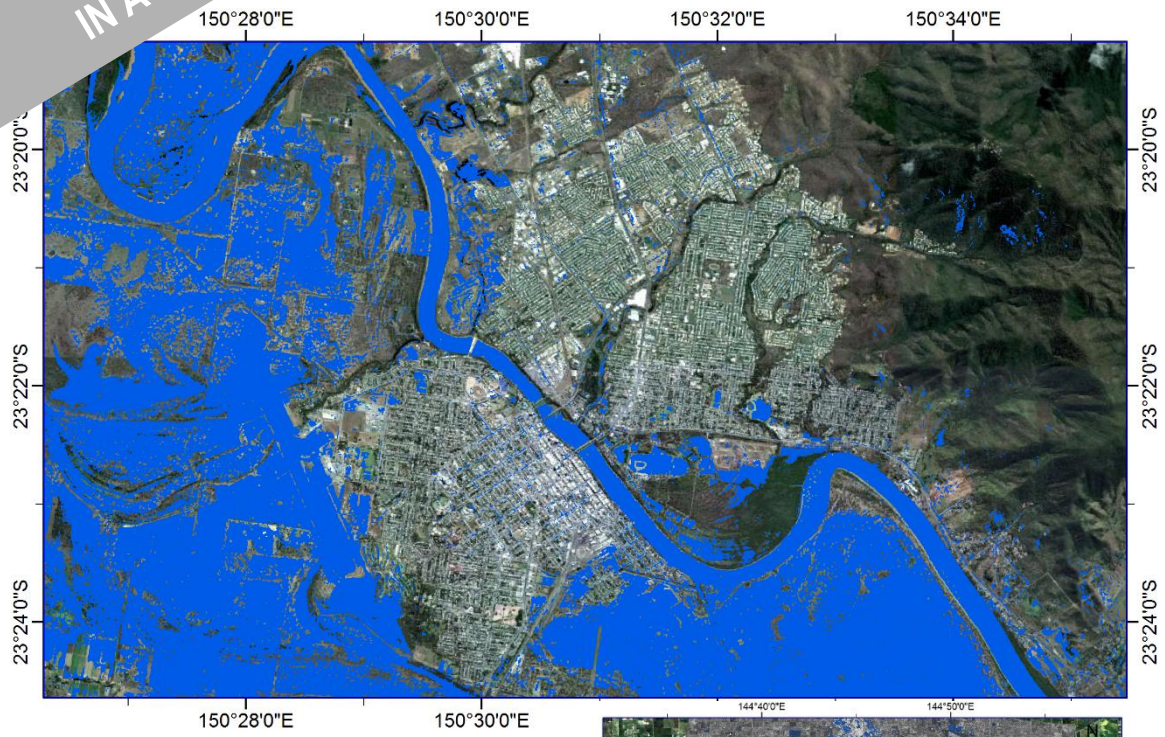
Every day access to **24h** interferometric datasets

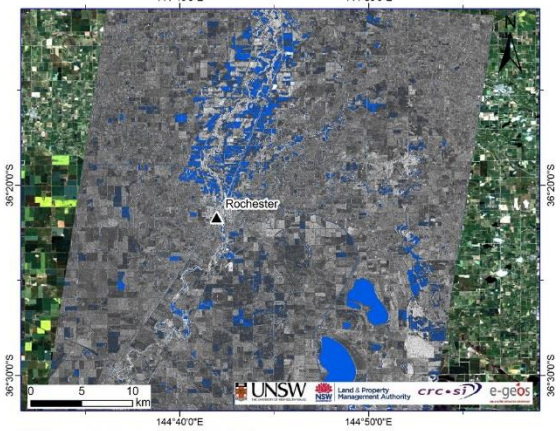
e-geos AN ASI / TELESPAZIO COMPANY

FLOOD IN AUSTRALIA

FLOODED AREAS EXTRACTION

e-geos AN ASI / TELESPAZIO COMPANY





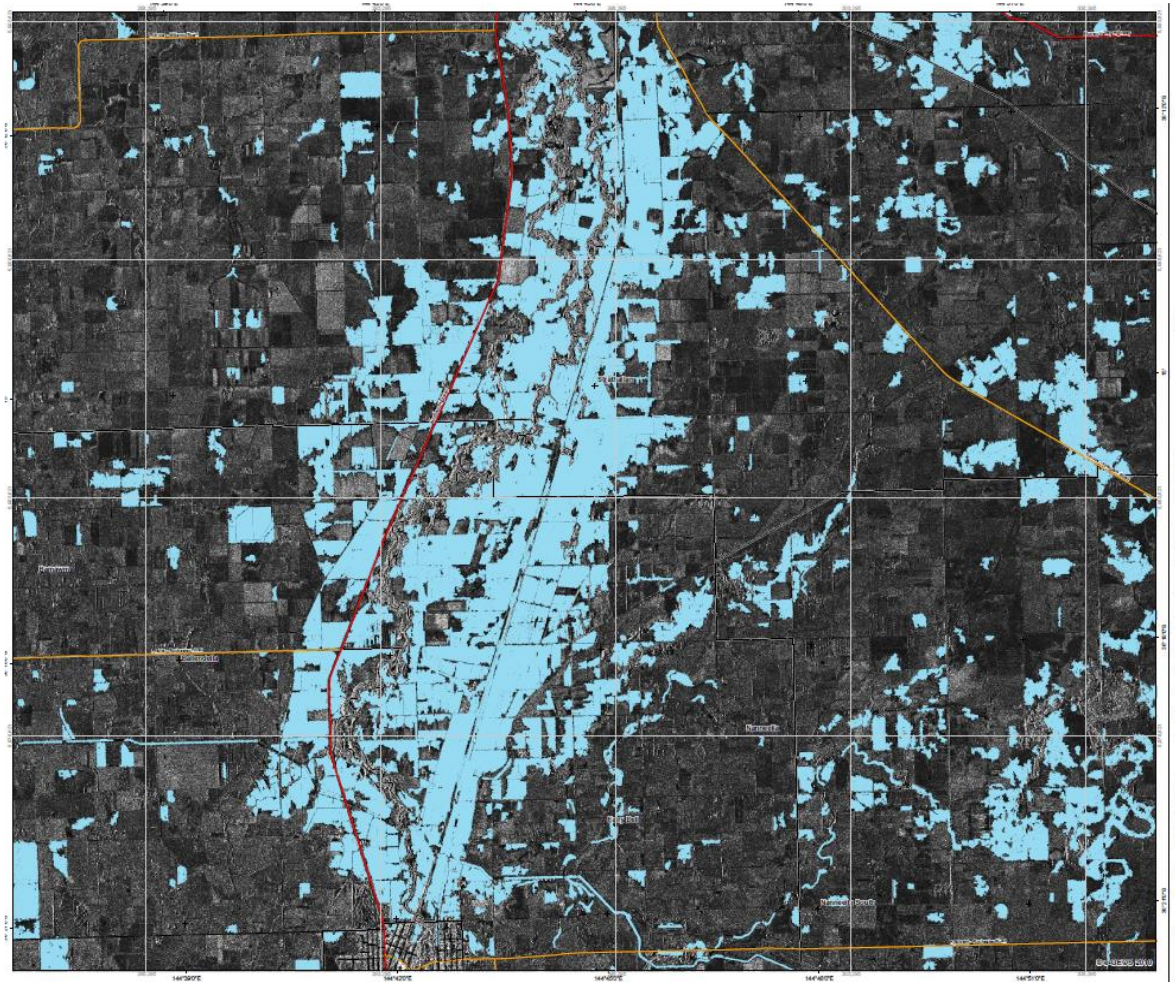
CSK Intensity: 17 January 2011 19:36

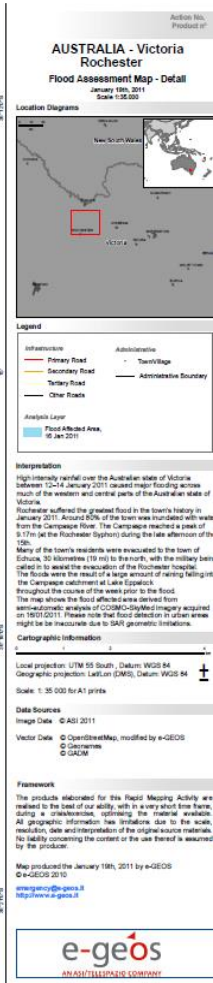
Product CSK (c) ASI [2011] distributed by e-GEOS.
Processed by the Geodesy and Earth Observing Systems Group, UNSW School of Surveying and Spatial Information Systems
Supported by UNSW, LPMA and CRCSI

Estimated Water Body

In a nutshell:

- **200+** images acquired and analysed
- **70+** products generated and delivered in cooperation with New South Wales University



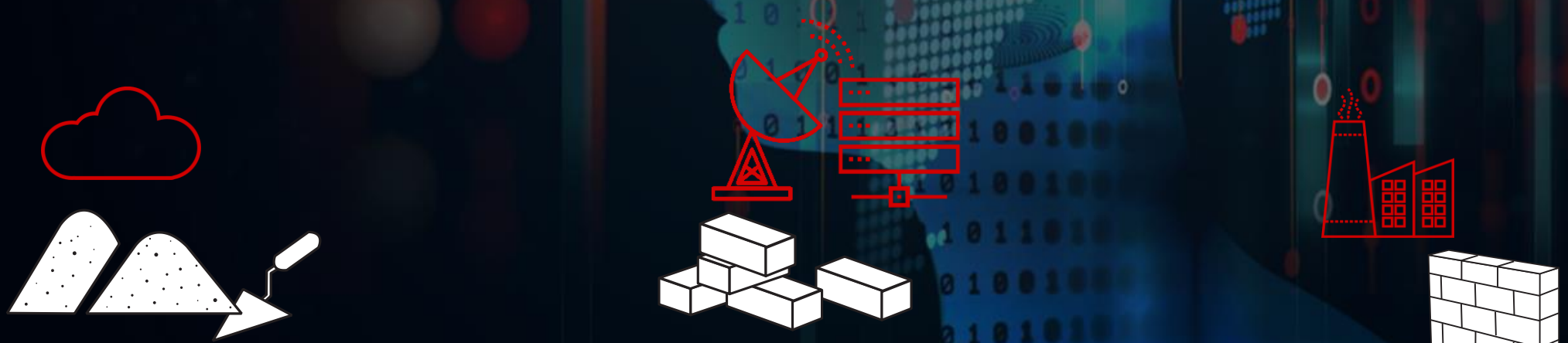


GEO INFORMATION CENTRE

The GeoInformation Centre is the e-GEOS is a complete and secure **production chain** dedicated to the production of civilian and IMINT reports .

The Geo Information concept allows:

- The **cloud based** access to **COSMO-SkyMed** constellation and multi mission EO data
- In situ implementation of a **Geo-Information Centre** for the exploitation of multimission and **multisesnsors** satellite imagery
- The users to run **operational tools** for geo-spatial intelligence tasks



Thanks for your attention!

valerio.perusini@telespazio.com