EO Services (Markets)

This page provides the top-level structure for the breakdown (taxonomy) of the EO Services markets. There are 22 market sectors identified grouped into 6 categories (titles on the tabs) organised according to the EARSC Taxonomy. The information is organised by:

- Market Sector: this defines the area of the market for which EO services apply.
- Composition: gives examples of the types of organisation that make up the market sector. It helps define the sector.
- EO Services: each EO service is unique within the thematic services taxonomy but may apply in several different market segments. For each EO service, there may be many specific products which are being offered and which are described in a section on the application service page.

Managed Living Resources

Managed Living Resources

Users in managed living resources refer to human activities exploiting natural organic resources. Knowledge and information products to forge a viable strategy for the user's operations such as the assessment of the status of the resource due to natural or human activities for effective commercial exploitation and conservation. This includes **agriculture**, **fishing** and **forestry** sectors.

Market Sector	Composition	EO Services
Agriculture	Agricultural commodities/trading, agricultural production / horticulture, agricultural services, agriculture machinery, agriculture and rural development policy, agri chemicals / plants & fertilizers, animal production / livestock/ stock traders on commodity price like wheat, coffee. The EO/GI users also include agriculture and rural policy makers and insurers.	Assess environmental impact of farming Assess crop damage due to storms Monitor crop disease and stress Assess crop acreage and yield harvest Monitor specific crop types Forecast crop yields Monitor water use on crops and horticulture Detect illegal or undesired crops Measure land use statistics
Forestry	Forest management, forest Services, commodities, logging industry, wood, paper and pulp industry, forest policy, forest machinery, forest policy makers.	Assess deforestation / forest degradation Assess environmental impact of forestry Assess forest damage due to storms or insects Assess changes in the carbon balance Detect and monitor wildfires Assess forest types Monitor forest resources Detect illegal forest activities
Fisheries	Fish stock management, fishing fleets, fishery distribution logistics, aquaculture / fish farms, coastal management agencies, fisheries authorities / policy makers.	Map water depth / charting Forecast and map large waves Map fish shoals Detect and monitor illegal fishing Forecast and monitor current movement and drift Detect and monitor oil slicks Detect and monitor oil slicks Monitor pollution at sea

Energy & Mineral Resources

Energy & Mineral Resources

Users in energy and mineral resources deal with the harvesting of energy from **renewable resources** and **extractive industries** including **oil and gas and raw materials**. EO information helps them in exploring potential locations to build new mines or power plants, in identifying risks from infrastructure and in managing the environmental impact of their operations. Uses that apply to the extractive industries: a study of landforms, structures, and the subsurface, to understand physical processes creating and modifying the Earth's crust.

Market Sector	Composition	EO Services

Oil and Gas	Offshore & onshore exploration and production, drilling and support services, oil and gas commodities trading, energy planners.	Assess environmental impact of human activities
		Asset infrastructure monitoring
		Map water depth / charting
		Monitor construction and buildings
		Monitor ocean quality and productivity
		Monitor the coast line
		Monitor atmosphere composition
		Monitor land ecosystems and biodiversity
		Forecast and monitor current movement and drift
		Baseline mapping
		Monitor vegetation encroachment
		Map geological features
		Measure detect land surface change
		Map and assess flooding
		Monitor forest resources
		Detect and monitor wildfires
		Detect and monitor hurricanes and typhoons
		Identify hydrocarbon seeps in soil
		Assess ground water and run-off
		Detect and monitor ice risk at sea
		Monitor land cover and detect change
		Forecast and monitor ocean winds and waves
		Detect and monitor oil slicks
		Monitor coastal ecosystem
		Monitor air quality & emissions
		Monitor marine habitats
		Forecast and map large waves
		Monitor ice on rivers and lakes
		Monitor oil rigs and flares
		Forecasting sunlight exposure
		Forecast weather
		Monitor pollution at sea
		Monitor urban areas
		Monitor sensitive risk areas
		Assess and monitor water bodies
		Detect and monitor ground movement
		Assess dredging operation impacts
		Map seismic survey operations
		Map and monitor transport networks

Oil and Gas		

Renewable Energy	Solar energy providers, wind energy providers, tidal energy providers, energy and carbon traders, local and regional planners, national policy makers.	Assess changes in the carbon balance Map and monitor solar energy (solar farms) Forecast and monitor current movement and drift Map and monitor wind energy (wind farms) Forecast and monitor ocean winds and waves Map hydroelectric sources
Raw Materials	Mining and quarrying companies, exploration and survey specialists, commodities traders, exploration and extraction equipment suppliers, drilling, excavation and support services, regional planners / policy makers.	Assess environmental impact of human activities Map geological features Detect and monitor ground movement Measure land use statistics Monitor land pollution Monitor mineral extraction

Infrastructure & Transport
Infrastructure & Transport

Users in transport and infrastructure apply to all manufacturing and physical supply in **land** but also **marine** domains including **transport & logistics**, **utilities**, **construction**, **communication & connectivity**, and **tourism**. They oversee assets, monitor competition, build competitive advantage and source ground-truthing data.

Market Sector	Composition	EO Services
Utilities & Supplies	Power station operators, water plants operators, survey companies, hydroelectric suppliers, regulatory Bodies, distribution companies, landfill and waste, regional planners / policy makers.	Monitor pollution in rivers and lakes Assess changes in the carbon balance Assess environmental impact of human activities Monitor land pollution Assess and monitor water quality Assess ground water and run-off
Construction	Construction companies, civil engineering consultancies, architect and design companies, planning authorities, national land agencies.	Monitor building development Assess environmental impact of human activities Map and assess flooding Detect land movement, subsidence, heave Monitor land-use statistics
Transport & Logistics	Road transport operators, haulage, road infrastructure operators, tolls airport operators, rail operators, airlines and airline services, transport engineers.	Assess environmental impact of human activities Map and assess flooding Detect land movement, subsidence, heave Assess changes to urban and rural areas Assess and monitor volcanic activity Monitor ice on rivers and lakes Monitor ice free passages for ships

Marine & Maritime	Ports & harbors administration, bulk cargo carriers, cruise liners operators, ferry operators, naval operations, rescue and safety at sea.	Monitor water quality and productivity
		Monitor pollution at sea
		Forecast and map large waves
		Detect and monitor oil slicks
		Detect and monitor ice-risk at sea
		Monitor ice free passages for ships
		Forecast and monitor ocean movement and drift
		Forecast and monitor ocean winds and waves
		Map water depth / charting
		Monitor ship movements
Communications & Connectivity	Construction companies, civil engineering consultancies, architect and design companies, planning authorities, national land agencies.	Monitor building development
		Assess changes to urban and rural areas
		Map line of sight visibility (terrain height, land cover)
Travel & Tourism	Tour operators, leisure service providers, hotels, parks etc., offices of tourism, travel agencies, ski and coastal resorts, surfers & sailors.	

Financial & Digital Services
Financial & Digital Services

Users in financial and digital services cover a broad area of activity that touches on many other market sectors such as **insurance & real estate**, **retail**, **news & media** and **digital interfaces**. They look to better understand risks, accelerate claims, and detect fraud. The categories included are identifiable as a "service" for the tertiary sector which provides advice, access, experience activities and knowledge and there are not part of the physical supply of goods.

Market Sector	Composition	EO Services
Insurance & Real Estate	Primary insurance companies, re-insurance sector, insurance brokers, insurance service suppliers, commercial banks, major projects, international financial institution.	Assess crop damage due to storms
		Monitor building development
		Assess damage from earthquakes
		Forecast and map large waves
		Detect and monitor wildfires
		Map and assess flooding
		Detect land movement, subsidence, heave
		Forecast and assess landslides
Retail & Geo-marketing	Navigation and LBS, retail centres, advertising and marketing agencies, shopping chains, logistics.	Assess land value, ownership, type, use
		Monitor high risk areas
		Map urban areas

News & Media	Television companies, broadcasting providers, news and Information agencies, web service providers, entertainment software providers	Assess damage from earthquakes
		Forecast and map large waves
		Detect and monitor wildfires
		Detect sensitive risk areas
		Forecast and assess landslides
		Monitor high risk areas
		Assess and monitor volcanic activity
ICT, Knowledge & Digital Interfaces	Fixed and mobile telecommunications providers	
Travel, Tourism and Leisure	Tour operators, Leisure service providers, hotels, parks etc, Offices of tourism, Travel agencies, Ski and coastal resorts, Surfers & sailors.	Monitor pollution in rivers and lakes
		Assess changes in land use and quality
		Map and assess flooding
		Forecast and monitor ocean winds and waves

Defence & Security
Defence & Security

Users in **defence** and **security** work in the field of **military, emergency and social protection** and define, collect, analyse information to provide intelligence & safety (monitor events, improve response and drive resilience). Some examples are activities under **humanitarian response** such as border control organisations, police and rescue forces, coast guards, civil protection, military services, and intelligence services which can use EO services to detect and monitor high risk areas produced naturally or by humans, monitor border incursions or maritime movements.

Market Sector	Composition	EO Services
Emergency & Social Protection	Coast guards, ambulance services, fire services, police services, civil protection organisations, rescue services.	Detect and monitor arid areas
		Detect and monitor wildfires
		Map and assess flooding
		Forecast and assess landslides
		Assess and monitor volcanic activity
		Forecast and map large waves
		Assess damage from earthquakes
		Monitor snow cover
		Detect and monitor hurricanes and typhoons
Security, Defence & Military	Border control organisations, police and rescue forces, military services, intelligence Services.	Monitor land border incursions
		Detect sensitive risk areas
		Monitor high risk areas
		Assess pressures on populations and migrations
		Detect ships in critical areas.

| Humanitarian Operations | Humanitarian aid and support organisations such as:

European level (DG RELEX; DG ECHO, DG ENV / MIC),
UN level (OCHA, UNHCR, UNDPKO, UNDP, UNOPS, UNITAR, UNICEF, UNESCO, WFP),
international level (IFRC, WHO, WB, donor organisations),
national level (Civil Protection Agencies, Ministries of Internal Affairs / Civil Protection Department, Development and Aid Agencies). | Detect and monitor arid areas

Detect sensitive risk areas

Map disaster areas (Situation Awareness)

Monitor water use on crops and horticulture

Monitor humanitarian movement and camps

Assess pressures on populations and migration

Monitor air quality

Forecasting epidemics and diseases

Forecasting sunlight exposure |

Environmental, Climate & Health
Environmental, Climate & Health

Users in the **public administrations** or **private organizations** using EO to increase the **environmental or climate change** impact on policy making decisions which are key to our safety and our economy i.e., assisting in developing monitoring to evaluate and deliver policy goals, provide an assessment of ecosystems, rapid response to major environmental risk events, or those associated with **health security** & care. These users are largely related to international treaties and hence a strong international collaboration.

Market Sector	Composition	EO Services

Environmental Ecosystems & Pollution	Coast guards, ambulance services, fire services, police services, civil protection organisations, rescue services.	Assess environmental impact of farming Monitor air quality Assess Change in the carbon balance Assess climate change risk Assess crop acreage and yield harvest Forecast crop yields Assess environmental impact of human activities Detect changes in glaciers Monitor water use on crops and horticulture Assess land value, ownership, type use etc Assess changes in land use and quality Measure land-use statistics Detect and monitor oil slicks Monitor land pollution Assess dredging operations impacts Detect and monitor ice-risk at sea Forecast and monitor ocean movement and drift
Health Care	Public administration personnel, civil servants, public health community (working on health issues such as air quality, forecasting sunlight exposure, forecasting epidemics, diseases).	
Meteo & Climate	Meteorologists in range of downstream applications.	

Urban Development
Urban Development

Users in urban development and users involved in the development of rural settlements perform tasks at local and regional scales (to the scale of nations) on mapping land use and monitoring urbanization. These users benefit from EO information to manage the use of land & its impacts. Users include experts in e.g. urban planners, architects, spatial planning offices, urban policy makers in public/private sectors in **smart cities** or **generic urban** local/regional **planning** belong to this category.

Market Sector	Composition	EO Services

Local & Regional Planning	Spatial planning departments of municipalities, spatial planning offices, spatial planning policy makers.	Monitor air quality Monitor pollution in rivers and lakes Monitor building development Assess land value, ownership, type, use Assess changes in land use and quality Detect land movement; subsidence, heave Measure land-use statistics Monitor high risk areas Assess pressures on populations and migration Assess changes to urban and rural areas Map urban areas Monitor urban development
Smart Cities	Urban planners, architects, spatial planning offices, urban policy makers.	Monitor air quality Monitor pollution in rivers and lakes Monitor building development Assess land value, ownership, type, use Assess changes in land use and quality Detect land movement; subsidence, heave Measure land-use statistics Monitor high risk areas Assess pressures on populations and migration Assess changes to urban and rural areas Map urban areas Monitor urban development

Citizens & Society
Citizens & Society

Citizens and society in general use and engage with EO services through **mobile devices**, **social media platforms** and **apps**. We also categorize in this section the users in **education**, **research** and **training** providing knowledge and learning outcomes.

Market Sector	Composition	EO Services
Consumer Solutions	Mobile devices, social media platforms, app developers.	
Leisure	People oriented to basic public understanding on EO services for their leisure activities.	

Education, Training & Research	Schools and education authorities, universities, research organisations, professional training organisations.	Assess changes in the carbon balance Assess climate change risk Map geological features Monitor high risk areas Assess changes to urban and rural areas