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Innovation in Geospatial Solutions for Climate and Sustainability

Geospatial World Forum (GWF)

Dr. Gabriela Seiz

Rotterdam, 15 May 2024

<https://wgicouncil.org/>

Geospatial in Everything

Geospatial for Everyone



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ATMOSPHERE



BIOSPHERE



HYDROSPHERE



GEOSPHERE

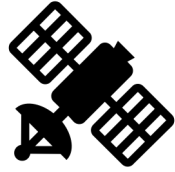


HUMAN SPHERE

Geospatial – From Ground to Space

Spatial Scale and Technology

- Satellites



- Aircraft



- Drones



- Ground-based sensors



Geospatial – ESG



E

- GHG emissions
- Land Use/ Forest mapping
- Water management
- Nature/ Biodiversity

S

- Safety
- Socio-economic maps
- Vulnerability analysis
- Health service planning

G

- Cyber/ Data security
- Data privacy
- Spatial digital twins
- Policy insights

Measuring GHG Emissions

- **Methane** (CH₄) is the second-most important Greenhouse Gas (GHG)
- Oil and Gas Industry: Methane emissions from venting, fugitives and flaring comprise **almost half the industry's total Scope 1 and 2 emissions**
- Oil and Gas Climate Initiative (OGCI) Satellite Monitoring Campaign 2022-2023 in **Algeria, Kazakhstan and Egypt**
- Two operators in Algeria and Kazakhstan able to mitigate **three persistent CH₄ emission sources**, with a combined **average emission rate of 3'200 kg CH₄/hour**
- OGCI is extending the campaign **to more countries and operators**



Coastal Mapping for Climate Adaptation



- Climate change poses a fundamental threat to **small island states**
- **Coastal mapping**, as basis for climate mitigation and adaptation planning
- The **Tuvalu Coastal Adaptation Project** developed innovative coastal protection solutions in one of the world's most vulnerable small island developing states
- The project has worked with Fugro, to leverage **airborne lidar technology** to capture precise coastal data and build adaptation plans
- Further ongoing projects: **Seabed 2030** ; Mapping **seagrass** around Italy (**ecosystem restoration**)



Safety Improvements in Mining



- **Safety** is an important materiality for the sustainability assessment of companies
- **Geospatial Solutions** from Hexagon for surface and for underground mining operations can help to improve safety
- Preliminary study results from mines in Mexico, South America, Western Australia and Canada with **Hexagon HxGN MineProtect Collision Avoidance System (CAS)**
- Mines report **reductions of critical events, collisions, and vehicle over-speed events** in the mines
- Detailed study on impacts of safety improvements ongoing (results in Q4/2024)

Location Intelligence, Hospitality Sector

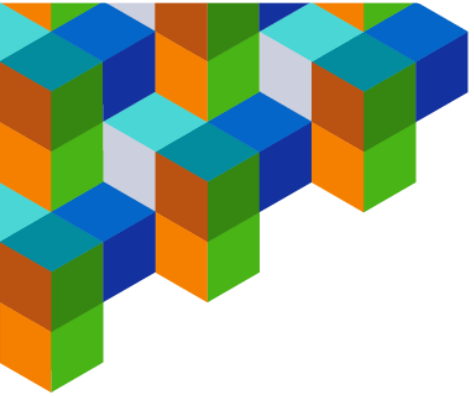


- Businesses need a **centralized, systematic way to monitor risks** across geographic areas and **take action to mitigate impacts**
- **Risk maps** are a very effective way to **monitor vulnerabilities around the globe**
- At **Marriott International** (with 8'700 properties in 139 countries), an in-house risk map called **Risk Atlas** has become a key tool for executives and decision-makers
- With the Risk Atlas, Marriott is able to **protect both hotel guests and their own assets**
- **Location technology and geospatial intelligence** will be a key tool for organizations for better visualizing, understanding and tackling their **Scope-3 emissions**

Conclusions, Outlook



- Geospatial Solutions can play a **very important role in climate and sustainability**
- **WGIC Member companies** provide essential Geospatial Solutions (complementary to public data)
- Geospatial Solutions on **several spatial scales, various technologies, E-S-G**
- Geospatial technology and services are an **integral part of climate and sustainability action** across all dimensions through the provision of unique **insights**
- **Impact** requires **action** based on these insights, with the geospatial industry as an **enabler**



WGIC Members



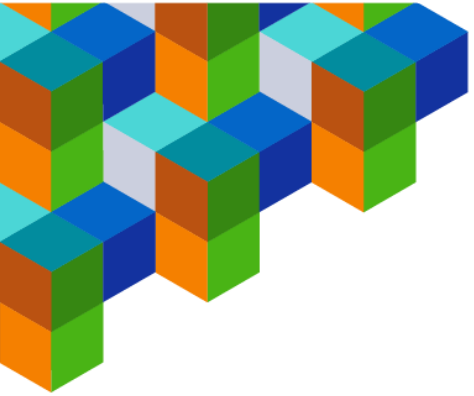
PATRON MEMBERS



CORPORATE MEMBERS



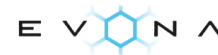
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Thank You

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