

OTM-036: Geohazard exposure analysis

Geohazard exposure analysis

Challenge

Challenge ID	OTM:036				
1 Title	Geohazard exposure analysis				
2 Theme ID	ON 4.3: Environmental monitoring - Natural HazardRisk Analysis				
3 Originator of Challenge	Onshore: OTM				
4 Challenge Reviewer / initiator	PEMEX, BP, Statoil, PetroSA, Sasol, Exxon				
General description		Overview of Challenge			
5 What is the nature of the challenge? (What is not adequately addressed at present?)	It can be challenging to obtain an adequate exposure analysis (highlighting which hazards endanger the site location), especially in remote areas. This situation is worsened where there has previously been little or no monitoring in the area. The identification of geohazards (landslips, seismic movements, etc.) is one element of this.				
6 Thematic information requirements	1. Obtain detailed topographic information, 2. Obtain detailed terrain characterisation, 3. Obtain detailed vegetation information, 11. Determine lithology, mineralogy and structural properties of the near surface, 13. Monitor ground movement,				
7 Nature of the challenge - What effect does this challenge have on operations?	Being aware of this information i.e. what are the size and frequency of the different hazards? allows us to quantify the potential damage extent. Subsequently, this allows us to consider appropriate actions to mitigate these risks and ensure the safety				
8 What do you currently do to address this challenge?/ How is this challenge conventionally addressed?	Existing mapping and recorded data, but this rarely is sufficient - it usually needs to be generated fresh by on the ground surveys.				
9 What kind of solution do you envisage could address this challenge?	Very high to medium resolution exposure analysis based on EO data (impact of floods, impact of landslides, etc.) Resolution depends on covered area and size of analysis objective				
10 What is your view on the capability of technology to meet this need? – are you currently using EO tech? If not, why not?	medium resolution exposure analysis (impact of floods, impact of landslides, etc.)				
Challenge classification					
11 Lifecycle stage	Pre license	Exp.	Dev.	Prod.	Decom.
Score from impact quantification [1]	4	0	0	0	0
12 Climate classification	NOT CLIMATE SPECIFIC				
13 Geographic context/restrictions	Generic onshore (Unspecified)				
14 Topographic classification / Offshore classification	Generic onshore (Unspecified)				
15 Seasonal variations	Any season				
16 Impact Area	operational cost reduction				
17 Technology Urgency (How quickly does the user need the solution)	Immediately (0-2 years)				
Information requirements					
18 Update frequency	depending on sensor and application				
19 Data Currently used					
20 Spatial resolution					
21 Thematic accuracy	80-90%				
22 Example formats	Standardized geo-spatial formats (e.g. shapefile, geotiff or KML)				
23 Timeliness	Reference data - timeliness not important				
24 Geographic Extent					
25 Existing standards					

[1] Impact quantification scores: 4 – Critical/ enabling; 3 – Significant/ competitive advantage; 2 – Important but non-essential; 1 – Nice to have; 0 – No impact, need satisfied with existing technology

Relevant products

- [Product Sheet: Building Inventory](#)
- [Product Sheet: Engineering geology evaluation](#)
- [Product Sheet: Faults and discontinuities](#)
- [Product Sheet: Flood extent](#)
- [Product Sheet: Floodplain mapping and Flood risk assessment](#)
- [Product Sheet: Geomorphology map](#)
- [Product Sheet: Land Use](#)
- [Product Sheet: Lithology and surficial geology mapping](#)
- [Product Sheet: Reservoir Optimization](#)
- [Product Sheet: Slope stability](#)
- [Product Sheet: Structural geology](#)
- [Product Sheet: Urban Settlement](#)
- [Product Sheet: Water body extent](#)
- [Product Sheet: Water Catchment](#)
- [Product Sheet: Wet areas](#)