

OTM-034: Monitoring hydrocarbon leaks

Monitoring hydrocarbon leaks

Challenge

Challenge ID	OTM:034				
1 Title	Monitoring hydrocarbon leaks				
2 Theme ID	ON 4.2: Environmental monitoring - Continuous monitoring of changes throughout the lifecycle				
3 Originator of Challenge	Onshore: OTM				
4 Challenge Reviewer / initiator	PEMEX, PetroSA, Shell, Eni, Exxon, Chevron				
General description		Overview of Challenge			
5 What is the nature of the challenge? (What is not adequately addressed at present?)	In the event of a hydrocarbon leak we are required to restore the environment to the pre-leak standard. Depending on the scale of the leak, impacts can be short- or long-term and the consequences can be varied (e.g. leak into a river or lake vs. leak in a desert).				
6 Thematic information requirements	2. Obtain detailed terrain characterisation, 6. Identify inland water bodies and determine water quality, 7. Determine air quality, 10. Fauna and presence and patterns, 11. Determine lithology, mineralogy and structural properties of the near surf				
7 Nature of the challenge - What effect does this challenge have on operations?	Leakages can have direct and indirect impacts on the ecosystem and society. Depending on the size of the leakage and if it is local or moving (e.g. oil leakage into a river) the cost of monitoring can be high. Especially long-term monitoring which can be a				
8 What do you currently do to address this challenge?/ How is this challenge conventionally addressed?	Use of existing base maps (which are often inaccurate),				
9 What kind of solution do you envisage could address this challenge?	Hydrocarbons seeping from micro fractures typically result in surface anomalies manifested as changes in soil brightness and vegetation health. Certain portions of electro magnetic spectrum in the visible and infrared regions can be used to effectively id				
10 What is your view on the capability of technology to meet this need? – are you currently using EO tech? If not, why not?	EO could be a useful complimentary technology				
Challenge classification					
11 Lifecycle stage	Pre license	Exp.	Dev.	Prod.	Decom.
Score from impact quantification [1]	0	0	0	4	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	Environmental				
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	within a day				
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

Content by label

There is no content with the specified labels

