## **OTM-034: Monitoring hydrocarbon leaks**

## Monitoring hydrocarbon leaks

## Challenge

Challenge ID	OTM:034				
Title	Monitoring hydrocarbon leaks				
Theme ID	ON 4.2: Environmental monitoring - Continuous monitoring of changes throughout the lifecycle				
Originator of Challenge	Onshore: OTM				
Challenge Reviewer / initiator	PEMEX, PetroSA, Shell, Eni, Exxon, Chevron				
General description	Overview of Challenge				
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).				
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				
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 an 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				
What do you currently do to address this challenge?/ How is this challenge conventionally addressed?	Use of existing base maps (which are often inaccurate),				
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				
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					
Lifecycle stage	Pre license	Exp.	Dev.	Prod.	Decom.
Score from impact quantification [1]	0	0	0	4	0
Climate classification	NOT CLIMATE SDECIFIC				
<i>C</i> 1					
Scusonar variations	•				
Impact Area	Environments	1			
Impact Area Technology Urgency	Environmenta				
Technology Urgency	Environmenta Immediately				
1			_		
Technology Urgency (How quickly does the user need the solution)		(0-2 years)	application	_	
Technology Urgency (How quickly does the user need the solution) Information requirements	Immediately	(0-2 years)	application		
Technology Urgency (How quickly does the user need the solution) Information requirements Update frequency	Immediately	(0-2 years)	application	-	
Technology Urgency (How quickly does the user need the solution) Information requirements Update frequency Data Currently used	Immediately	(0-2 years)	application	_	
Technology Urgency (How quickly does the user need the solution) Information requirements Update frequency Data Currently used Spatial resolution	Immediately depending on 80-90%	(0-2 years)		shapefile, geotif	f or KML)
Technology Urgency (How quickly does the user need the solution) Information requirements Update frequency Data Currently used Spatial resolution Thematic accuracy	Immediately depending on 80-90%	(0-2 years)		shapefile, geotif	f or KML)
Technology Urgency (How quickly does the user need the solution) Information requirements Update frequency Data Currently used Spatial resolution Thematic accuracy Example formats	depending on 80-90% Standardized	(0-2 years)		shapefile, geotif	f or KML)
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Determin properties of the near surf Leakages can have direct and indirect Depending on the size of the leakage leakage into a river) the cost of monit monitoring which can be a Use of existing base maps (which are of a hydrocarbons seeping from micro anomalies manifested as changes in Certain portions of electro magnetic regions can be used to effectively id EO could be a useful complimentary temperature of the challenge with the consequence of lake vs. leak in a desert).  Climate classification  NOT CLIMATE SPECIFIC Generic onshore (Unspecified) Generic onshore (Unspecified)	Title Monitoring hydrocarbon leaks  Theme ID ON 4.2: Environmental monitoring - Continuous throughout the lifecycle  Originator of Challenge Challenge Reviewer / initiator  General description  What is the nature of the challenge? (What is not adequately addressed at present?)  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Determine lithology, mi properties of the near surf  Leakages can have direct and indirect impacts on the leakage into a river) the cost of monitoring can be hi monitoring which can be a  Use of existing base maps (which are often inaccurate)  Hydrocarbons seeping from micro fractures typi anomalies manifested as changes in soil brightness Certain portions of electro magnetic spectrum in the regions can be used to effectively id  EO could be a useful complimentary technology to the consequences and the pre-leak standard.  Pre license Exp. Dev. Prod.  O 0 0 4  Climate classification  Geographic context/restrictions  Topographic classification / Offshore classification  Geographic context/restrictions  Topographic classification / Offshore classification

<sup>[1]</sup> 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