OTM-014: Forecasting sand dune migration

Forecasting sand dune migration

Challenge

	Challenge ID	OTM:014				
1	Title	Forecasting sand dune migration				
2	Theme ID	ON 5.3: Logistics planning and operations - Facility siting, pipeline routing and roads development				
3	Originator of Challenge	Onshore: OTM				
4	Challenge Reviewer / initiator	BP, Ramani, Shell				
	General description	Overview of Challenge				
5	What is the nature of the challenge? (What is not adequately addressed at present?)	Predicting the location of geohazards is an important consideration for pipeline routing and facility siting. An asset can be in situ for 25+ years, during which time the location of geohazards can evolve. We must be aware of the migration patterns of these geohazards to ensure that in 25 years time our asset is still functional.				
6	Thematic information requirements	1. Obtain detailed topographic information, 2. Obtain detailed terrain characterisation,				
7	Nature of the challenge - What effect does this challenge have on operations?	If geohazards such as dune migration are present and these threats are identified, appropriate mitigation can be arranged. This is typically via re-location of the asset.				
8	What do you currently do to address this challenge?/ How is this challenge conventionally addressed?	The use of satellite images, in particular of those freely available on the World Wide Web, is a convenient resource. For more detailed study, the migration of dunes is measured by combining surface mapping with aerial and satellite imagery, GPS, and gro				
9	What kind of solution do you envisage could address this challenge?	Monitoring of sand dune migration can be accomplished through a number of methods, combining surface mapping (DEMs) with aerial and satellite imagery, GPS and LIDAR measurements, together with multi-temporal satellite data analysis.				
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]	2	1	3	2	3
12	Climate classification	Desert				
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, strategic decision enabler				
17	Technology Urgency (How quickly does the user need the solution)	Immediately (0-2 years)				
	Information requirements					
18	Update frequency	Varies, typically once per month over a period of years				
19	Data Currently used	Satellite imagery or aerial photography				
20	Spatial resolution	Satellite imagery or aerial photography				
21	Thematic accuracy	Varies				
22	Example formats					
23	Timeliness	Within a month				
24	Geographic Extent	District area				
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