

OTM-008: Determine historical ground movement for infrastructure planning

Determine historical ground movement for infrastructure planning

Challenge

Challenge ID	OTM:008				
1 Title	Determine historical ground movement for infrastructure planning				
2 Theme ID	ON 3.2: Subsidence monitoring - Infrastructure monitoring				
3 Originator of Challenge	Onshore: OTM				
4 Challenge Reviewer / initiator	BP, Statoil, PetroSA, Petronas				
General description		Overview of Challenge			
5 What is the nature of the challenge? (What is not adequately addressed at present?)	Use of historic ground movement data can influence infrastructure planning, through identification of ground movement trends, etc. It is important to know to what extent and in which direction the is ground moving, before any building /extraction occurs.				
6 Thematic information requirements	1. Obtain detailed topographic information,		13. Monitor ground movement,		
7 Nature of the challenge - What effect does this challenge have on operations?	Influencing infrastructure planning				
8 What do you currently do to address this challenge?/ How is this challenge conventionally addressed?	Optical imagery is used				
9 What kind of solution do you envisage could address this challenge?	Historical SAR data acquired over areas where infrastructure is planned can be analysed to produce historical ground movement maps. Areas of subsidence / uplift can be identified and avoid when in the planning phase.				
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]	3	3	3	0	1
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	Infrastructure planning				
17 Technology Urgency (How quickly does the user need the solution)	Immediately (0-2 years)				
Information requirements					
18 Update frequency	One off historic				
19 Data Currently used					
20 Spatial resolution					
21 Thematic accuracy					
22 Example formats	GIS Shape file				
23 Timeliness	Within six months				
24 Geographic Extent	Development area only				
25 Existing standards	No industry standards. TRE have their own internal INSAR 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 themes

- [Product Sheet: Asset Monitoring](#)
- [Product Sheet: Engineering geology evaluation](#)
- [Product Sheet: Permafrost zone stability](#)
- [Product Sheet: Reservoir Optimization](#)
- [Product Sheet: Slope stability](#)
- [Product Sheet: Surface Deformation](#)
- [Product Sheet: Transport Network](#)