

Hatfield-5306: Assessing terrain stability for infrastructure planning in permafrost environments

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Challenge

Challenge ID:	HCP-5306	Originator:	Onshore: Hatfield
Title:	Assessing terrain stability for infrastructure planning in permafrost environments.		
Theme:	ON 5.3: Logistics planning and operations - Facility siting, pipeline routing and roads development		
Consortium Lead:	C-CORE	Interviewed Company:	C-CORE
Geography:	ON.REG.03 - Canada		
Challenge Description			
What is not possible / not adequately addressed at present?			
Need for support from geotechnical terrain stability assessments to determine optimal locations of future/planned infrastructure development (e.g. roads, well pads, and pipeline routes, etc.).			
What effect does this challenge have on operations?			
Reduce risk of infrastructure failure or cost of mobilization/demob if there is a need to relocate infrastructure in the future.			
Thematic information requirements:		Surface motion (horizontal and vertical) Terrain information	
What do you currently do to address this challenge?			
How is this challenge conventionally addressed?			
Geotechnical engineering based on surficial geology knowledge and borehole sampling.			
What kind of solutions do you envisage could address this challenge?			
Integrated ground movement detection. Improved surficial sediment maps. Improved permafrost models. Higher resolution climate change models.			
What is your view on the capability of technology to meet this need?			
Are you currently using EO tech? If not, why not?			
Has not been proven in operations but it is needed for long term infrastructure planning and for short term multi-year operations. Also useful for logistics (transportation routes over frozen ground).			
Challenge Classification			
Impact on Lifecycle (0=none, 4=high):		Climate / Topography / Urgency:	
Pre-license:	2	Climate class:	Severe Mid-Latitude, polar
Exploration:	2	Topographic class:	Snow/Ice
Development:	3	Seasonal variations:	Any season
Production:	4	Impact area:	Environmental
Decommissioning:	0	Technology urgency:	2 - Short term (2-5 years)
Challenge Information Requirements			
Update frequency:	Snapshot		
Data currently used:	Aerial imagery, optical imagery, LiDAR, field assessments		
Spatial resolution:	License		

Thematic accuracy:	Not specific
Required formats:	Not specific
Timeliness (Vintage):	Reference data
Geographic extents:	Basin
Existing standards:	None

Relevant products

Content by label

There is no content with the specified labels