Hatfield-2501: Characterization of surface/near-surface structural geological properties for infrastructure planning

Characterization of surface/near-surface structural geological properties for infrastructure planning

Challenge

Challenge ID:	HCP-2501	Originator:	Onshore: Hatfield
Title:	**Characterization of surface/near-surface structural geological properties for infrastructure planning.**		
Theme:	ON 2.5: Surface Geology Mapping - Engineering geological evaluation		
Consortium Lead:	Arup	Interviewed Company:	Arup
Geography:	ON.REG.00 - Generic onshore		

Challenge Description

What is not possible / not adequately addressed at present?

Need to support the identification of engineering-geological parameters of surface and near-surface materials (rock-soil) for design of infrastructure, foundation design, route planning and slope stability assessment, and rock excavability (e.g. for pipeline trenching).

What effect does this challenge have on operations?

Reduces uncertainty, improves decision making for field development.
Early identification of constraints and opportunities.

Thematic information requirements:	Identification of: soil / rock; soil type (sand / clay); soft / hard ground;

What do you currently do to address this challenge?
How is this challenge conventionally addressed?

Geotechnical Desk Study
Ground investigations and boreholes
Geological maps
Field geological mapping
Geophysics
Remote Sensing (multispectral) analysis

What kind of solutions do you envisage could address this challenge?

DEM analysis
High Resolution stereo DEM
Multispectral and hyperspectral
Automated classification processing
Geophysics

What is your view on the capability of technology to meet this need?
Are you currently using EO tech? If not, why not?

Best suited to use of high resolution optical imagery and high resolution DEM. Currently only rarely used because of perceived high cost. There is a need to educate industry to the cost-benefit value of using this data early on in project lifecycle - data

Challenge Classification

Impact on Lifecycle (0=none, 4=high):		Climate / Topography / Urgency:	
Pre-license:	1	Climate class:	Generic climate

Exploration:	2	Topographic class:	Not specific
Development:	3	Seasonal variations:	Any season
Production:	1	Impact area:	Environmental, Health and Safety, Cost reduction
Decommissioning:	1	Technology urgency:	3 - Immediately (0-2 years)
Challenge Information Requirements			
Update frequency:	Snapshot		
Data currently used:	Air photo interpretation DEM analysis (ASTER, SRTM, High res optical DEM) Google Earth		
Spatial resolution:	Regional to License		
Thematic accuracy:	Not specific		
Required formats:	Not Specific		
Timeliness (Vintage):	Reference data		
Geographic extents:	License		
Existing standards:	None		

Relevant products

Content by label

There is no content with the specified labels