Hatfield-1102: Identify rock-strewn areas to avoid point loading

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Challenge

Challenge ID:	HCP-1102	Originator:	Onshore: Hatfield
Title:	**Identify rock-strewn areas to avoid point loading.**		
Theme:	ON 1.1: Seismic Planning - Areas of poor coupling		
Consortium Lead:	RPS Group	Interviewed Company:	RPS Group
Geography:	ON.REG.00 - Generic onshore		

Challenge Description

What is not possible / not adequately addressed at present?

Poor data quality is experienced in areas where the source strength is easily absorbed.
If dynamite is used as a source then certain rock types require different drill methods. Extra effort and time required for receiver line layout if individual receivers need to be drilled in place.
Access issues - extremely rough terrain for trucks/vibroseis vehicles may need a large clearance effort.

What effect does this challenge have on operations?

Surface geology can affect coupling, seismic signal response and seismic acquisition logistics. Large surface and semi-buried rocks in arid environments can affect the vibroseis equipment (vibrating plate may be in contact with buried rocks, leading to poor coupling). Different surface geology can diffuse or deflect seismic signals, while actual surface conditions can affect receiver layout and vehicle and personnel movements.

Thematic information requirements:	Ortho base images Terrain information Lithology, structural geology, surficial geology

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

Regional geological maps and satellite imagery is used to identify potential areas.

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

A method to estimate rock density or surface roughness. More accurate delineation of surface geological extents could lead to more intricate seismic design.

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

Would consider reflectance-based assessment to identify rock density or surface roughness from radar.

Challenge Classification

Impact on Lifecycle (0=none, 4=high):		Climate / Topography / Urgency:	
Pre-license:	1	Climate class:	Dry
Exploration:	3	Topographic class:	Barren Plains
Development:	2	Seasonal variations:	Any season
Production:	1	Impact area:	Data Quality
Decommissioning:	1	Technology urgency:	3 - Immediately (0-2 years)

Challenge Information Requirements

Update frequency:	Snapshot
Data currently used:	Reconnaissance

Spatial resolution:	Regional, Basin
Thematic accuracy:	Not specific
Required formats:	Not Specific
Timeliness (Vintage):	Reference data
Geographic extents:	Regional
Existing standards:	None

Relevant products

Relevant products

Content by label

There is no content with the specified labels