# Hatfield-3101: Baseline and monitoring of areas with active faults and subsidence

Baseline and monitoring of areas with active faults and subsidence

Challenge

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| **Challenge ID:** | HCP-3101 | Originator: | Onshore: Hatfield |
| **Title:** | **Baseline and monitoring of areas with active faults and subsidence.** | | |
| Theme: | ON 3.1: Subsidence monitoring - Land motion relating to fault lines or other causes | | |
| Consortium Lead: | Arup | Interviewed Company: | Arup |
| Geography: | ON.REG.00 - Generic onshore | | |

**Challenge Description**

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| What is not possible / not adequately addressed at present? |
| Need to provide accurate, wide area ground deformation data to complement accurate ground survey data of generally more limited spatial coverage. Identify areas of high differential settlement for potential damage to surface infrastructure. Providing historic ground movement for baseline and monitoring. Identify subsidence depressions that may pose flood risk potential. Identify areas of high seismic risk (ground shaking, liquefaction, fault rupture). |
| What effect does this challenge have on operations? |
| Potential for risk to staff health and safety, liability issues to general public or surrounding infrastructure, and major disruption to operations and resulting loss of revenue. There is also potential for environmental damage. |

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| Thematic information requirements: | Surface motion (horizontal and vertical)<br>Terrain information<br>Distribution and status of infrastructure<br>Topographic information |

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| What do you currently do to address this challenge?<br>How is this challenge conventionally addressed? |
| Known areas are monitored by surveying and borehole. instrumentation (strain gauges and inclinometers) |
| What kind of solutions do you envisage could address this challenge? |
| InSAR based monitoring. Complementary methods to extrapolate and compare with surface measurements. |
| What is your view on the capability of technology to meet this need?<br>Are you currently using EO tech? If not, why not? |
| InSAR is currently used but InSAR model consistency is an existing issue. Historic inSAR for deformation baseline desirable. |

**Challenge Classification**

| Impact on Lifecycle (0=none, 4=high): | | Climate / Topography / Urgency: | |
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| Pre-license: | 2 | Climate class: | Generic climate |
| Exploration: | 3 | Topographic class: | Not specific |
| Development: | 3 | Seasonal variations: | Any season |
| Production: | 3 | Impact area: | Health and Safety, Cost reduction |
| Decommissioning: | 2 | Technology urgency: | 3 - Immediately (0-2 years) |

**Challenge Information Requirements**

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| Update frequency: | Snapshot to monthly |
| Data currently used: | InSAR and surface land surveying |
| Spatial resolution: | License |

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

## Relevant products

**Content by label**

There is no content with the specified labels