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|  | Challenge ID | OTM:002 |
| 1 | Title | Tracking fluid migration in the subsurface |
| 2 | Theme ID | ON 3.3: Subsidence monitoring - Reservoir management |
| 3 | Originator of Challenge | Onshore: OTM |
| 4 | Challenge Reviewer / initiator  | PEMEX, Statoil, Exxon |
|  | General description | Overview of Challenge |
| 5 | What is the nature of the challenge? (What is not adequately addressed at present?) | It is often challenging to track injected fluids such as those used for EOR/ IOR. Data that can give information to identify where fluid migration has gone to can be very valuable. |
| 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? | Costs related to the loss of injection fluids in the reservoir can be large. |
| 8 | What do you currently do to address this challenge?/ How is this challenge conventionally addressed? | subsurface sensors, including acoustic, electrical and gravity sensors can be used |
| 9 | What kind of solution do you envisage could address this challenge? | Ground movement satellite imagery could indicate sub-surface pressure build up due to injected fluid migration from observed surface movement |
| 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]](#footnote-1) | 0 | 0 | 1 | 3 | 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 | Operational cost reduction |
| 17 | Technology Urgency(How quickly does the user need the solution) | Immediately (0-2 years) |
|  | Information requirements |  |
| 18 | Update frequency | daily / weekly /annually (application dependent) |
| 19 | Data Currently used  | Downhole tools |
| 20 | Spatial resolution | Downhole tools |
| 21 | Thematic accuracy |  |
| 22 | Example formats | GIS Shape file |
| 23 | Timeliness | Within a month |
| 24 | Geographic Extent | Reservoir footprint |
| 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* [↑](#footnote-ref-1)