

## **Abstract for Data Space 2017**

### **Predicting, monitoring and alerting of landslides and ground deformation affecting transport infrastructure**

**Authors:** *Claire Roberts, Adam Thomas and Michael Wooster, CGG*

**Affiliation:** *NPA Satellite Mapping, CGG, Crockham Park, Edenbridge, Kent, TN8 6SR, United Kingdom*

**Email:** *Claire.roberts@cgg.com*

**Keywords:** *Geology and Geomorphology, GIS Integration, Interferometry, Landslides, Mapping, Persistent Scatterers Interferometry, SAR, Subsidence, GNSS*

**Theme:** *Hazards, resilience and sustainability*

Transport owners and operators across the UK face significant challenges in monitoring and predicting ground deformation along their transport infrastructure. Incidents related to landslides and subsidence on road and rail transport systems can have a negative impact on society and local business communities. Therefore, it is in the interest of owners and operators of transport infrastructure to understand and manage their exposure to geological hazards to minimise their impact. LiveLand, an ESA ARTES 20 IAP funded development project led by CGG, aims to support the transport owners in Scotland by providing improved intelligence to assist with the proactive management of landslide and ground deformation events across transport networks.

Current monitoring practices often provide reactive rather than proactive information on landslide and ground deformation events across a transport network, and primarily consist of in-situ sensor technologies and site visits. LiveLand is driven by user needs and aims to provide regional, network and in-situ level information using a three tiered approach. Experts within: earth observation satellites and processing; in-situ low cost GNSS units; and landslide susceptibility forecast modelling technologies provide up to date geohazard information on areas surrounding the road and rail networks, which provides supporting evidence to transport owners and operators with their hazard and asset management systems.

The long term societal and economic benefits of reduced disruptions and improved commercial performance of the transport network will have an impact not only on the transport companies themselves in terms of reduced fines and closure of the network, but also on the day to day lives of the general public.