MonARIS
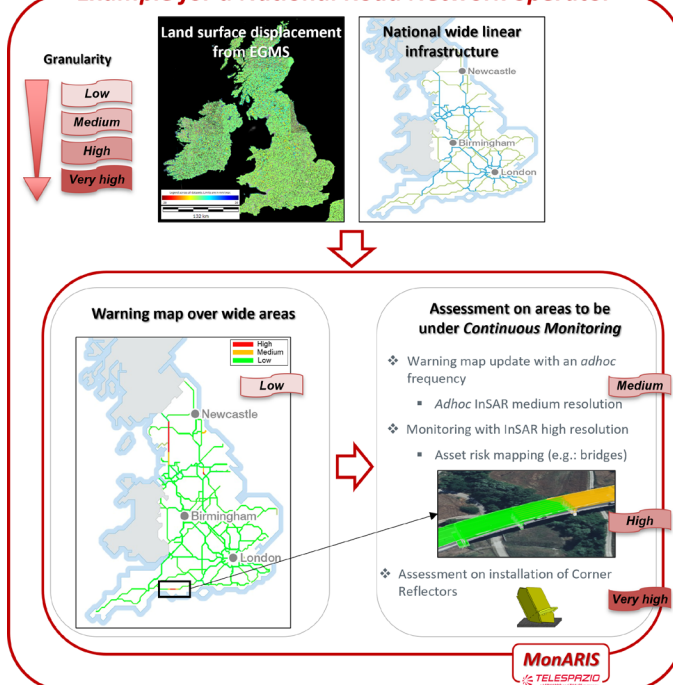
Monitoring of Assets and Regions using InSAR

SERVICE OVERVIEW

MonARIS is a service that provides risk assessment in terms of surface displacement. The service is adapted to all range of granularity: from low, covering wide areas, to high, providing detailed information on specific assets of interest.

› The service is provided thanks to the combination of different tools developed by Telespazio UK. These tools are applied to a variety of satellite InSAR (Interferometric Synthetic Aperture Radar) data.

› For the coarse granular assessment, the main input is the EGMS (European Ground Motion Service) data, which provides European wide information. The results of this global analysis detects areas and specific assets that requires more attention. Adhoc continuous monitoring can then be followed by adapted InSAR analysis with medium and/or high-resolution data. The structural health of the assets can also be monitored combining BIM (Building Information Model) with satellite data and in-situ sensors as required.

› *MonARIS* is an adaptable service. The complete workflow goes from the analysis of wide areas (regional or national) to detailed specific assets. However, the service can be used flexibly, either focusing only on wide areas or analysing only specific assets when they have been previously identified and prioritised.

Example for a National Road Network operator

telespazio.co.uk

Telespazio UK Ltd 350 Capability Green, Luton Bedfordshire, LU1 3LU, UK

Tel: +44 (0)1582 399 000
Info: info_uk@telespazio.com

TELESPAZIO
a LEONARDO and THALES company

MonARIS

TPZ UK Analytical Tools used by MonARIS

Displacement clusters detection over wide areas (*Hotspotter*)

Tool that performs an automatic and exhaustive analysis of PSI (Persistent Scatter Interferometry) measurement points classifying them relative to a time series and highlighting spatial clusters of points with similar behaviour in time.

Linear Asset Structural Stability (*LASS*)

Tool that classifies linear assets in Red-Amber-Green by using PSI results. The classification is based on several parameters related to the displacement time series and it can be tailored to the customer needs.

Satellite Structural Health Monitoring (*S-SHM*)

Tool that performs a detailed analysis of structural health based on high resolution PSI measurements and the asset's BIM (Building Information Model). The tool provides a Red-Amber-Green classification of the individual elements of an asset using tailored tolerance of displacement. It allows the integration of in-situ measurements and other risk parameters.
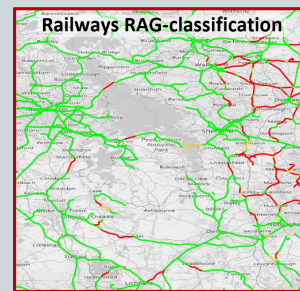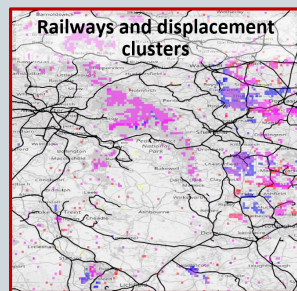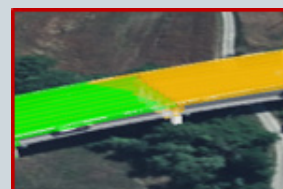

S-SHM over a Reactor Building

MonARIS' Use Case: UK Railway Network

Hotspotter: Clusters of displacement over wide areas

LASS: Spatial analysis of displacement clusters and railways

Railways and displacement clusters

Railways RAG-classification

S-SHM: Detailed analysis of displacement over the different elements of a bridge

Deliverables:

› Geospatial database with results
› Report with analysis of the results

---

telespazio.co.uk

Telespazio UK Ltd 350 Capability Green, Luton Bedfordshire, LU1 3LU, UK

Tel: +44 (0)1582 399 000
Info: info_uk@telespazio.com

TELESPAZIO *a LEONARDO and THALES company*