

WATER LEAKAGE APPLICATIONS



TELESPAZIO IN THE UK - OVERVIEW

With a pedigree in space technology stretching back over 40 years, Telespazio UK (TPZ UK) is an experienced consulting, technology, engineering, space operations and service development business. A subsidiary of Telespazio S.p.A in Rome, TPZ UK has built its first class reputation by exploiting technology developments in Earth Observation (EO) and satellite navigation & communications, pioneering innovative services in space operations and applications.

TPZ UK is trusted to deliver the high value, quality systems and services expected by its customers. It offers solutions and services in three main lines of business:

› **Geo Information & Satellite Imaging Services** – developing capabilities using Synthetic Aperture Radar (SAR) and optical imagery for providing novel solutions from water leak detection and rapid flood mapping to smart infrastructure and environmental monitoring.

› **Satellite Communications** – services for the utilities, telco, oil & gas, maritime and defence sectors, implementing fixed-line and mobile broadband satellite services.

› **System Development & Mission Support** – capabilities in the use of satellite observations for the climate change marketplace.

Our service portfolio in Geo Information & Satellite Imaging business is built on exploiting high revisit EO satellite constellations for developing near real time, low latency and land deformation applications. TPZ UK is active in all areas relating to the EO market, including acquiring and processing satellite data through to data analysis services and developing products.

BUSINESS APPLICATIONS

Space technologies underpin a whole range of services that enable the modern world. Examples of our delivery expertise include:

- › Reliable, high accuracy, cost-effective and early warning dam monitoring system
- › Monitoring critical national infrastructure such as gas and water pipelines
- › Interferometric measurements for landslides and ground subsidence analysis
- › Rush mapping in support to natural disaster management such as flood events

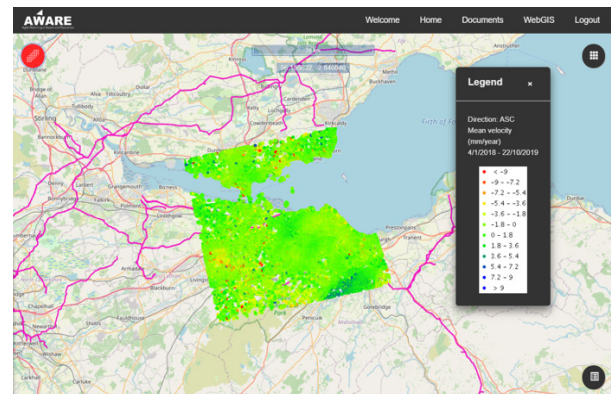
- › Thematic mapping and change detection analysis for projects, including land cover change, agriculture and deforestation



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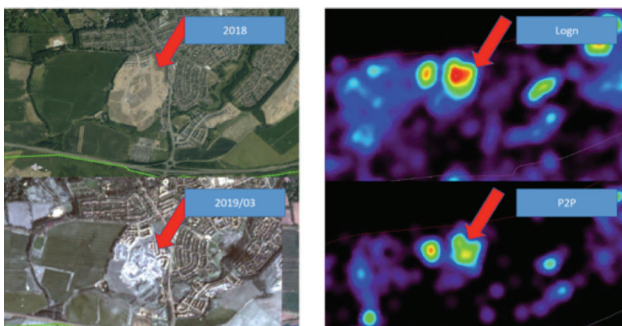
The following applications are examples of services TPZ UK can offer when considering different approaches to leak detection, either as a preventative maintenance service or a targeted repair service.

- › **Pipeline strain service.** The purpose is as a preventative maintenance service. It focuses on an EO-derived parameter of strain – differential ground movement – that can be detected and observed on a section of pipeline using satellite data (PSP-IfSAR derived from SAR data).



Pipeline Interference

Optical and radar surface change detection



- › **Pipeline interference service.** This is a preventative maintenance service. It focuses on identifying interference and/or encroachment along the pipeline route, based on use of change detection methodologies applied to satellite imagery. This is an ongoing monitoring activity involving both SAR and optical imagery-derived detection algorithms, independent of each other, but complementary.

- › **Pipeline leak detection service.** A targeted repair service that utilises two independent detection mechanisms: optical imaging to detect anomalies in vegetation vigour and SAR to detect anomalies in soil moisture, both along known water supply pipeline routes. SAR enhances the exposure of potential leakages regardless of the cloud cover and time of the day, thus ensuring visibility all year round. Optical data can be collected at higher spatial resolution than SAR, therefore delivering an advantage in busier (e.g. urban) environments.

Leak Detection Vegetation anomalies detection

