Protecting Water Resources at Anglian Water

Implementing satellite-based leak detection on a rural trunk main network

Anglian Water is the largest water and water recycling company in England and Wales by geographic area, supplying water and water recycling services to almost seven million people in the East of England and Hartlepool.

Client issue

Anglian Water were having trouble finding non-surfacing leaks across their large rural trunk-main network, in hard to access areas.

The solution

Using satellite-based technology to scan large areas at scale in order to identify leakage. This is the only technology available of it's kind with the capability to identify leaks from space.

How it works

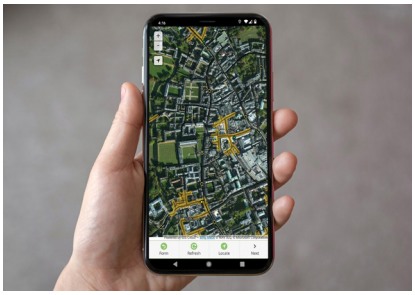
ASTERRA uses remote earth observation L-Band Synthetic Aperture Radar (SAR) imagery to identify likely leak locations. The satellite image is taken by means of microwave illumination of the area of interest and collection of backscatter pulses for analysis. Once the satellite image is obtained, it is overlaid with the water pipe network GIS and the pipes where water leaks were detected are highlighted. Data from satellite images are provided to the customer as part of a subscription based service.

Differentiating factor

Satellite leak detection allows utilities to survey an entire network for leaks, at scale, without installing any equipment in the ground. The satellite technology allows field crews to "see" below the surface, and identify leaks that otherwise might have remained hidden for years. The technology is pipe material agnostic, and can find leaks across trunks mains, service pipes, and customer side leaks.

Implementation

This followed standard ASTERRA satellite technology implementation. A satellite image was taken, and analysed



Area of trunk mains scanned	**2,500km**
POIs delivered	**568**
Leaks per POI	**0.9**
Leaks per km	**4.9**

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95 Total leaks found

Trunk main leaks: 41
Additional leaks: 54

to find leaks in the ground. Management teams and field crews received the points of interest (POI) via an online portal and field map application, after which formal field verification began.

The results

In total, 95 leaks were found out of 105 leaks investigated, including 41 on trunk mains. This translated to 4.9 leaks per kilometer investigated. This project has resulted in daily savings of 2,000,000 liters per day, or enough water to supply 8,000 homes.

The future

Anglian water has begun trialling similar satellite-based technology from SUEZ and ASTERRA for wastewater networks.

ASTERRA SUEZ

Nick Haskins

BDM Leakage
nick.haskins@suez.com