



Detecting water leaks from space

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The UK has a water leak problem. Over 3000 billion litres of water are lost a day across England & Wales - greater than 20% of the nation's supply. Despite investment in infrastructure, leakage is worse now than it was a decade ago. The issue hasn't been as important to water companies in the past as it is cheaper to use more water than to reduce leakage. However, an increasing water deficit and concerns for the sustainability of the UK water supply infrastructure has prompted Ofwat to set an ambitious target of 50% leakage reduction by 2050. Can Earth Observation data be used to identify probable water leaks? By doing so, water companies would be able to repair their infrastructure more effectively. Previous approaches have included looking at NDVI anomalies over time in optical imagery [1], or by exploiting the signature of chlorinated water in L-band (ALOS) SAR imagery [2]. In this project, the student would explore various approaches for identifying water leaks, combining ground truth leak data from UK water companies with open-access Sentinel 2, ALOS, and Planetscope (academic license) satellite imagery.

References: 1. Agapiou et al. 2013, August. Use of satellite derived vegetation indices for the detection of water pipeline leakages in semiarid areas. In First International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2013) (Vol. 8795, p. 879507). International Society for Optics and Photonics. 2. <https://utiliscorp.com/>