

TCarta Wins ESA Funding for Satellite-based Air Quality Service



TCarta, a global provider of geospatial solutions, has teamed up with King's College London to win funding from the European Space Agency (ESA) to develop an air-quality modelling service that leverages commercial satellite imagery. The service will provide organizations with accurate snapshots of existing air quality conditions along with modelling outputs to forecast how modifications in pollutant sources can change concentrations in the air over time.

The TCarta and King's team will match the €1.5 million awarded by the [ESA ARTES 20](#) programme for a demonstration project that will generate air quality data for a number of major cities worldwide and deliver products through online services, APIs and data feeds. TCarta and King's successfully proved the technical and commercial viability of the service

in a pilot study also funded by ESA in 2018.

Impact on environment and health

The air quality service will be offered commercially as a solution for governments at local and regional levels, as well as NGOs, to better understand the mechanisms affecting airborne pollutants so that air quality can be managed and mitigation strategies put in place. Other end users will include automotive manufacturers, mobility service providers and construction companies that need to model the impact their products and activities have on the surrounding environment and people's health.

"There is currently a lack of accurate and reliable air quality data around the world – which is leading to poor decision making," said Greg Lewis, TCarta business manager. "Our product will be a practical step to easily access accurate data and to support better and more informed decision-making."

Vehicle counts from satellite imagery

Until now, the availability of traffic data has been fragmented due to limited deployment of roadside sensors and is non-existent in many developing regions of the world. TCarta have devised algorithms to extract automobile counts on roadways from very high-resolution (VHR) satellite imagery, to be used as additional inputs to King's industry-leading air quality modelling capabilities. Collection of vehicle counts from satellite imagery over any city on Earth will provide a consistent and global data set, and funding from ESA will be essential to improve, scale up and develop the data processing methodologies.

"Very-high-resolution air quality modelling of this type is only possible with a detailed understanding of roadside emissions, which is now possible through our unique earth observation approach," said Sean Beevers, air quality lead at King's. "We will be able to bridge the data gap in areas of the world where detailed traffic information has been hard to come by."

TCarta is currently developing a range of online services to deliver a variety of digital air quality products, many of which will be available as off-the-shelf datasets in geospatial formats. Pollutants measured and mapped will include particulates (PM2.5 and PM10), NOx, NO2, and others.