

The benefits of web-based EO platforms for public health applications

Rochelle Schneider, ESA Φ-lab

It has been an exponential increase in the use of satellite and satellite-based products for public health applications. Epidemiological studies on estimating the health effects of environmental hazards (i.e., air pollution and heatwaves) usually rely on point measurements from fixed ground-based monitors, which offer limited spatio-temporal coverage. Data from satellites, climate and atmospheric reanalysis provide continuous and boundless information which are essential for rebuilding the human exposure path using machine learning (ML). Satellite-based ML regression models can reconstruction missing exposure information at a high spatio-temporal resolution, enabling the quantification of the risk of human-exposure to different environmental hazards.

This new Earth Observation (EO) community however is not used to working with intense EO data management (volume and format), multiple spatio-temporal synchronisations, higher computing power demand, and different data access systems (e.g., download service, cloud-computing infrastructure, API, toolboxes, and web-based geospatial analysis platform). These additional layers of complexity can be overwhelming and driving away new EO users; therefore, new online EO data services are moving towards an 'user-centric' focus, encouraging non-EO community to handle big volume of EO products directly at the web-based platform. This significantly reduces the burden of dealing with EO data processing on local machines as well as technical requirements needed for cloud-based services. This talk will show examples of satellite-based ML models for environmental health research and demonstrate some data access systems to extract EO satellites and Earth system models products to be used directly into public health applications.