

---

Session: Big SAR data empowers the sustainable cities and communities

Co-Chairs: Fulong CHEN

---

## **Big SAR Down-Streaming Applications for Cultural Heritage**

Athos Agapiou<sup>1,\*</sup>

<sup>1,\*</sup>Earth Observation Cultural Heritage Research Lab, Department of Civil Engineering and Geomatics,

Faculty of Engineering and Technology, Cyprus University of Technology, 3036 Limassol, Cyprus

[athos.agapiou@cut.ac.cy](mailto:athos.agapiou@cut.ac.cy)

This presentation is focused on radar down-streaming applications designed for cultural heritage as part of previous or ongoing research activities of the Cyprus University of Technology. The study initially presents the broader context regarding systematic monitoring and the need for earth observation products for heritage applications. Then, a short overview of the space programme and recent trends are highlighted, especially the use of big data. The presentation is then focused on specific examples and studies of SAR applications for cultural heritage using down-streaming services such as the use of integrated Sentinel-1 and Sentinel-2 for the detection of archaeological proxies, the use of the Hybrid Pluggable Processing Pipeline (HyP3) cloud-based system of NASA Alaska Satellite Facility (ASF) for detecting displacements within archaeological sites in Cyprus after a 5.6 Magnitude scale earthquake event. Furthermore, results from a study dealing with monitoring vertical sprawl in Cyprus using Google Earth Engine and Sentinel-1 are demonstrated. Further results are shown for rapid mapping after technological accidents near heritage sites and exploiting the recently released European Ground Motion Service (EGMS). The presentation ends with a general discussion and future steps.