



SUNRISE ISPRS SC Summer School in Marina di Ragusa (Italy)

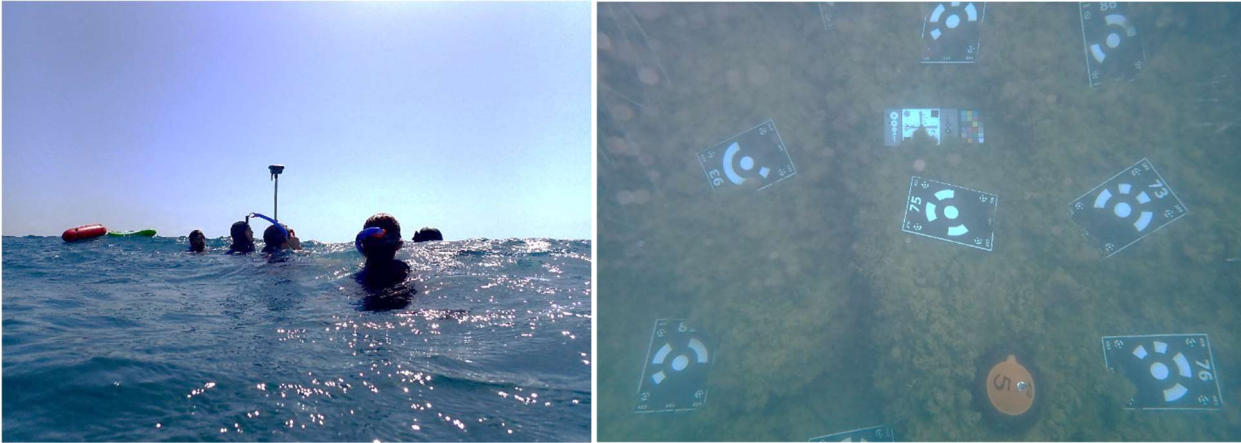
The first edition of the SUNRISE (Seashore and UNDERwater documentation of aRchaeological heritage palimpSests and Environment) summer school was carried out in Marina di Ragusa in Sicily (Italy) from 3-9 September 2022. It was jointly organized by Politecnico di Torino, IUAV, University of Sassari, FBK, University of Udine and University of Modena and Reggio Emilia with the support of SIFET (Italian Society of Photogrammetry and Topography), ISPRS Student Consortium, private companies (Images, Microgeo, Stonex, Leica and Geomax) and the municipality of Santa Croce Camerina.

The five day summer school was attended by 20 students from Europe, Asia and USA, divided into 4 groups lead by 17 tutors.

After the first day of lectures focused on the theoretical basis of surveying, photogrammetry, LiDAR, and SLAM, field activities took place in a submerged and terrestrial scenario. The underwater surveying involved a submerged amphora, and the terrestrial activity was focused on the Arab bath of Mezzagnone, a 6th-century AD building that has been fully preserved to this day. In the test areas, the tutors and the five private companies operationally showed the most advanced technologies for multi-sensor surveying, with drones, laser scanners, and mobile mapping systems. During the underwater survey, scuba divers and snorkel students cooperated to acquire images of the amphora and control points via GNSS RTK.



Data acquisition and data processing



Underwater data acquisition

After the data acquisition, the four groups processed the data, coordinated and supported by the tutors, in order to produce 3D models (point clouds, texturized meshes, digital terrain and surface models, 2D sections, and plans).



3D point cloud (left), east and west orthophoto (right) of the Mezzagnone building

The overall work was then officially presented during the final day with excellent feedback from citizens, local municipalities, and public offices (Soprintendenza per i Beni Culturali e Ambientali di Ragusa and Soprintendenza del Mare della Sicilia).



Students and tutor

The Summer school tutors are officers of the following ISPRS Working groups:

- ICWG II/1a Autonomous Sensing Systems and their Applications
- WG I/7 Multi-sensor Modelling and Cross-modality Fusion
- WG II/2 Point Cloud Generation and Processing
- WG II/6 Cultural Heritage Data Acquisition and Processing
- WG II/7 Underwater Data Acquisition and Processing
- WG IV/1 Spatial Data Representation and Interoperability