

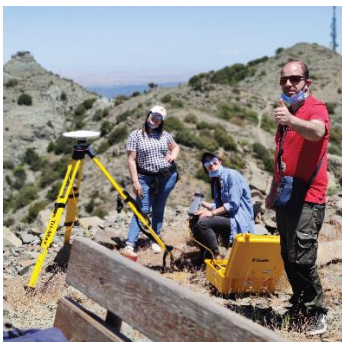


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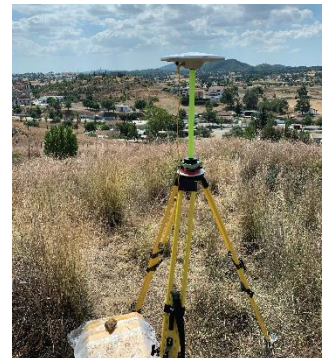
24h GNSS Measurements Campaign for the Candidate Locations Hosting the Permanent Segment (PS)

For the installation of permanent GPS/GNSS stations of CyCLOPS network, totally seven (seven) possible locations were selected. CyCLOPS team proceeded with the measurements in order to obtain the suitability and the accessibility of the CyCLOPS PS. The 24h measurement process started on the 25th of May and ended on the 29th of July. The equipment has temporarily been installed in rocky areas, as well, for their stability and safety.

25 May 2020 – The first potential location is in Troodos area in Nicosia District with an altitude of almost 1700 meters above mean sea level. The second candidate site is located in Saranti (Madari) area in Nicosia District, as well. Madari is the second highest location (altitude 1582 m. above mean sea level) of Cyprus.



29 May 2020 – The third potentially suitable location is in Mathiatis village in Nicosia District, in the middle of Cyprus, with an altitude of 365 meters above Mean Sea Level.





05 June 2020 – The fourth candidate site is located in Troulloi village, which is located in the eastern Cyprus, in Larnaca District. It is one of only four villages located within the United Nations Buffer Zone. The measurements were collected by two (2) GPS/GNSS due to the phenomenon of multipath of the specific area.

15 June 2020 – Two more candidate locations of the CyCLOPS PS are in Asgata and Souni-Zanakia regions, both areas belong to Limassol District. Specifically, Asgata is 26 km from the city of Limassol and is located on the border of Limassol and Larnaca provinces, being the easterner village of Limassol. On the other side, Souni-Zanakia community is about 23 km from Limassol and is in the west part of the city. Regarding their altitudes, Asgata and Souni-Zanatzia regions have an altitude of 120 and 420 meters above Mean Sea Level, respectively.

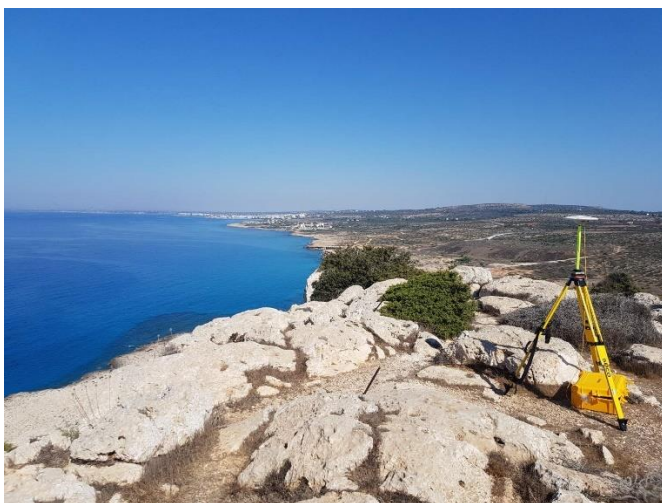




18 June 2020 – Two of the most challenging possible locations for the installation of GPS/GNSS stations of CyCLOPS network are within the region of Akamas peninsula and Alevga/Kokkina area. The protected area of Akamas lies on the west coast of Cyprus and it belongs to the Natura 2000 network, from 2009. Alevga/Kokkina region of interest is in the Nicosia District and especially in Tilliria Peninsula, south of the Kokkina exclave but in an area still controlled by the Cypriot government.



29 July 2020 – The final candidate location that 24h measurements were carried out is in Cavo Greco area. Cavo Greco is a peninsula in the southeastern part of the island of Cyprus. It is at the southern end of Famagusta Bay and forms part of Ayia Napa Municipality, and it is the de facto easternmost point of both the Republic of Cyprus and the European Union. The area is designated as a national forest park, which it belongs to the Natura 2000 network, from 2009.

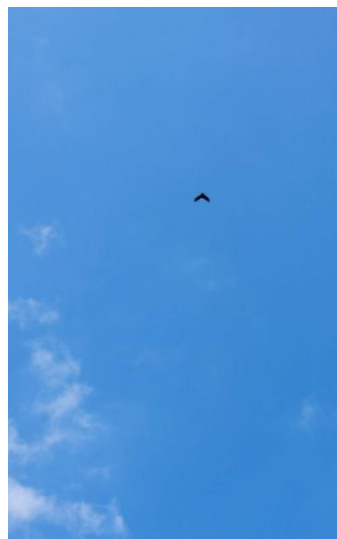




UAV Mapping Campaign for the Candidate Locations Hosting the Permanent Segment (PS)

Following the requests to the Competent Authorities for obtaining permits for the installation of permanent GPS/GNSS station and Corner Reflectors in seven (7) parcels of interest, the CyCLOPS team proceeded with the mapping of the areas in order to create georeferenced 3D models (Digital Terrain Models, Digital Surface Models, and Orthomosaics) of high resolution. The models mentioned above and their generated data (e.g., Slope, Aspect, Viewshed, etc.) are necessary for the areas' multi-criteria analysis, thus, combined with other data (e.g., satellite data), aim to select the installation points' optimal location. The mapping process started on the 5th of June and ended on the 29th of July, covering areas up to 500 hectares (5Km²) in 90 minutes of flight. The UAV is equipped with senseFly S.O.D.A. 3D mapping camera (sensor 1", RGB resolution 5,472 x 3,648 px (3:2)), which has the ability to change orientation during flight to capture three images (2 oblique, 1 nadir) every time, instead of just one, for a much wider field of view. The digital elevation models were created in Pix4Dmapper and analyzed in ArcGIS Pro.

27/02/2020	SOUNI
15/06/2020	ASGATA
25/06/2020	MATHIATIS/TROULLOI
30/06/2020	AKAMAS/ALEVGA
29/07/2020	CAVO GRECO





Publications

June 2020

- M. Tzouvaras, C. Danezis, and D. G. Hadjimitsis. Differential SAR Interferometry Using Sentinel-1 Imagery- Limitations in Monitoring Fast Moving Landslides: The Case Study of Cyprus. Geosciences, 10(6):236, June 2020. ([doi:10.3390/geosciences10060236](https://doi.org/10.3390/geosciences10060236))

July 2020

- C. Danezis. CyCLOPS: A Strategic Research Infrastructure Unit for Geohazards Monitoring in Cyprus and the Southeastern Mediterranean Region. In 1st virtual excelsior international technical workshop, July 2020.

August 2020

- D. Kakoullis and C. Danezis. Permanent Infrastructures for Continuous Space-based Monitoring of Natural Hazards. In Eighth International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2020), volume 11524, page 115241F. International society for optics and photonics (SPIE), August 2020. ([doi:10.1117/12.2571201](https://doi.org/10.1117/12.2571201))
- K. Fotiou and C. Danezis. An Overview of Electronic Corner Reflectors and their Use in Ground Deformation Monitoring Applications. In Eighth International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2020), volume 11524, page 115240N. International society for optics and photonics (SPIE), August 2020. ([doi:10.1117/12.2571886](https://doi.org/10.1117/12.2571886))

