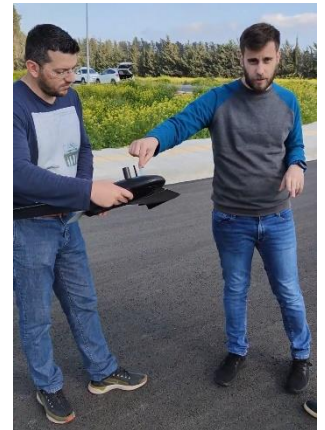




CyCLOPS News Bulletin January 2020- April 2020

Initialization of UAV mapping campaigns

27 February 2020 – The CyCLOPS Team proceeded with the mapping of the first candidate location at Souni area in Limassol, in order to create georeferenced 3D models (Digital Terrain Model, Digital Surface Model and Orthomosaic) of high resolution.



RSCy 2020

16 - 18 March 2020 – CyCLOPS team has a strongly participation in RSCy 2020 «Eighth International Conference on Remote Sensing and Geoinformation of Environment» which would take place on the 16th to 18th of March 2020. Due to the emergency measures taken as a result of the COVID-19 pandemic, the Government of the Republic of Cyprus announced that all conferences and events have been suspended. Nonetheless, totally two manuscripts were submitted at the RSCy2020 for the SPIE Conferences Proceedings. The first manuscript titled «*Permanent Infrastructures for Continuous Space-based Monitoring of Natural Hazards*» was submitted by Mr. Dimitris Kakoullis and Ass. Professor Dr. Chris Danezis, which aims to present current permanent infrastructures dedicated to space-based deformation monitoring, perform analysis of their instrumentation, review their monumentation types and procedures, and examine the required spatial distribution of network multi-sensor stations. The second manuscript titled «*An overview of Electronic Corner Reflectors and their use in Ground Deformation Monitoring Applications*» submitted by Mrs. Kyriaki Fotiou and Ass. Prof. Dr. Chris Danezis. In this submission, a holistic analysis of the ECR-C band transponders is carried out, along with a worldwide overview and a comparison of their results in various application sectors using different satellite radar missions and techniques.





Publications

January 2020

- M. Tzouvaras, C. Danezis, and D. G. Hadjimitsis. Small Scale Landslide Detection Using Sentinel-1 Interferometric SAR Coherence. *Remote sensing*, 12(10):1560, January 2020. ([doi:10.3390/rs12101560](https://doi.org/10.3390/rs12101560))
- C. Danezis, M. Chatzinikos, and C. Kotsakis. Linear and Nonlinear Deformation Effects in the Permanent GNSS Network of Cyprus. *Sensors*, 20(6):1768, January 2020. ([doi:10.3390/s20061768](https://doi.org/10.3390/s20061768))

April 2020

- G. Melillos, K. Themistocleous, C. Danezis, S. Michaelides, D. G. Hadjimitsis, S. Jacobsen, and B. Tings. The Use of Remote Sensing for Maritime Surveillance for Security and Safety in Cyprus. In *Detection and Sensing of Mines, Explosive Objects, and Obscured Targets XXV*, volume 11418, page 114180J. International society for optics and photonics, April 2020. ([doi:10.1117/12.2567102](https://doi.org/10.1117/12.2567102))

Meet our PhD Students

Dimitris Kakoullis – Dimitris Kakoullis holds a Dipl. Ing. (5y) from the University of Thessaly (PRD-UTH) Department of Planning and Regional Development and a BSc in Geomatic Engineering from the Cyprus University of Technology (CUT) Department of Civil Engineering and Geomatics. During his BSc studies, he has received several awards because of his performance as a student and graduated first in his class. Dimitris' PhD focuses on Geoinformatics and Geo-Hazards. The main objective of his research, which is relevant to his research activity in "CyCLOPS" project, is the establishment of a novel Strategic Research Infrastructure Unit for monitoring Solid Earth processes and Geohazards in Cyprus and the broader EMENA region. The objective includes (a) the deployment of permanent co-located multi-sensor configurations (Tier-1 GPS/GNSS reference stations, SAR Corner Reflectors, weather stations, tiltmeters et al) throughout Cyprus and (b) the promotion of geohazard monitoring and critical infrastructure resilience.





Kyriaki Fotiou - Kyriaki Fotiou holds a BSc Degree in Survey Engineering and Geomatics from the Cyprus University of Technology (CUT) and a MSc Degree, with distinction, in Geoinformation and Geospatial Technologies from Cyprus University of Technology (CUT), as well. Through her MSc dissertation 'Deformation monitoring in World Heritage Monuments using SAR satellite data and Interferometry and Geodetic techniques: The Case Study of Choirokoitia Archaeological Site in Cyprus', Kyriaki obtained advanced knowledge in SAR Geodesy. Her research mainly focused on Remote Sensing (SAR Satellite Image Processing), SAR Interferometry, Geodesy and GIS Applications. More specifically, the topic of the PhD is the use of SAR Satellite Data in Deformation Monitoring Applications,

under the supervision of Dr. Chris Danezis. Using specific techniques such as Differential and Persistent Scatter Interferometry (using Trihedral Corner Reflectors and Electronic Transponders) in combination with GNSS measurements, natural phenomena (earthquakes, landslides, ground movements) can be detected, monitored, validated and analyzed. She is a Research Associate at the CUT Laboratory of Geodesy and Hydrographic Surveying. Last but not least, she is a Research Associate at the CUT Laboratory of Geodesy and Hydrographic Surveying.

Marina Pekri - Marina Pekri holds a BSc "Survey Engineering and Geomatics" with Final Research Thesis: Creation of a Digital Terrain Model for wider area of Limassol in Cyprus and a MSc, with distinction, in "Geoinformatics and Geospatial Technologies" with Final Research Thesis: Calculation of Tidal levels in Limassol area through the processing of measurements of the completed tidal station of Limassol from the Cyprus University of Technology (CUT). Marina's PhD focuses on the Assessment of Satellite Altimetry Performance on the Determination of Tidal Levels and CalVal Applications. The methodology of her PhD until now is all over the background study on Satellite Altimetry (Historical Background, Frequency and range measurements, Level of processing of Altimeter Data, Pulses Reflection, Basic Waveform Shape, Satellite Altimetry Data). Furthermore, she studies the reasons of MSL rising and how important this phenomenon is for the island of Cyprus, and finally, the processing of altimetric data mainly from Sentinel-3 (SRAL Instrument Measurement Mode) using BRAT. She is a Research Associate at the CUT Laboratory of Geodesy and Hydrographic Surveying. Currently she participates in the funded project 'THAL-CHOR 2' (Marine Spatial Planning in Cyprus).





Marios Nikolaidis - Mr. Marios Nikolaidis holds a combined BSc “Physical Oceanography and Informatics” from the University of Wales, Bangor, and he is currently doing his PhD in Marine Geodesy at the Department of Civil Engineering and Geomatics. Mr. Marios Nikolaidis begun his professional career immediately after completing his undergraduate studies. In 2011 he was enrolled in the laboratory of Oceanography Center, University of Cyprus as a junior researcher, being responsible for Quality Control and processing of the in-situ sea observations regarding the physical parameters of sea water masses of the Levantine Sea. He has participated as a research scientist in over 15 research programmes: GROOM,

PREMARPOL, MEDESS-4MS, MYOCEAN II and others, with the latest ones being MAESTRALE and CyCLOPS. Among his responsibilities were: preparation and deployment of oceanographic instruments (e.g. CTD, ADCP), data processing and visualization of measurements, participation in oceanographic cruises for data collection, software development for supporting sea forecasting mathematical models (CYCOFOS and others) and for the needs of certain research programs (e.g. GIS platform development for MAESTRALE). Currently, he is enrolled at the CUT Geodesy Lab. His research focuses on Physical Oceanography and Marine Geodesy, with a focus on developing forecasting mathematical models. He has co-authored 4 scientific papers so far (with 1 pending review). Furthermore, he is interested in developing software solutions to assist promoting his research objectives.

George Ioannou - Mr. George Ioannou is a holder of a bachelor’s degree in Computer Science and a master’s degree in geospatial technologies. He was involved with the design and the implementation of the Land Information System (LIS) of the Cyprus Lands and Surveys department. He was member of the team which was responsible for the development and operation of the Geographic Information component of the system. He worked closely with topographers, civil engineers and environment engineers for the analysis, design and implementation of applications within this project scope. For the last three years he was involved in projects related to geospatial information in Cyprus and abroad. He provided consultancy, software development and support in projects related to the environment, land registration and hazard mitigation. He also taught the class of Geographic Information Systems in real estate to the undergraduate students of the Real Estate program of the Neapolis University Cyprus.

