SIROCCO

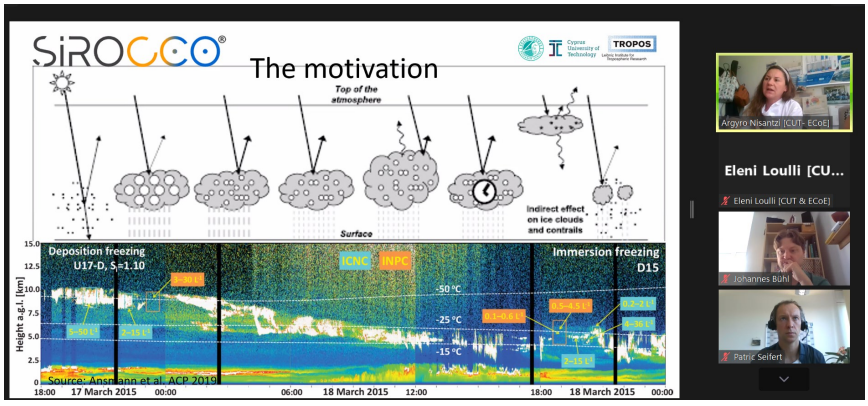
3rd newsletter

Volume 1, Issue 3

July 2022

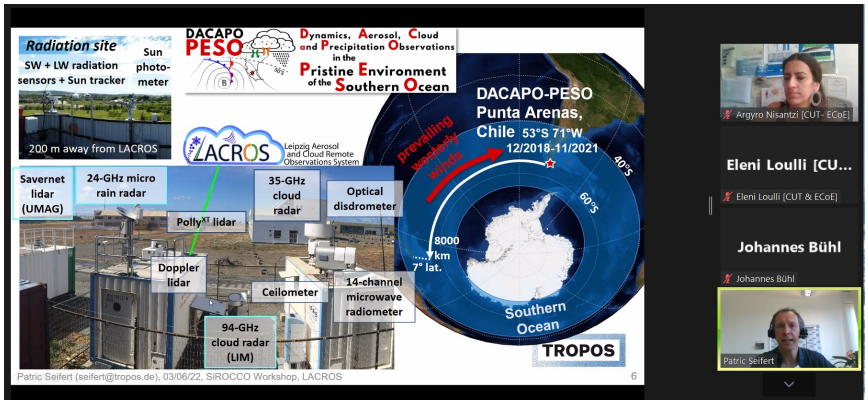
On the 3rd of June 2022, SIROCCO project organized a 1-day workshop that aimed to promote the work being done in "Aerosol-cloud dynamic interaction" by the researchers of CUT and TROPOS.

The workshop was addressed by Dr. Mamouri and Dr. Nisantzi with a presentation that provided an overview of the project. The SIROCCO overview was followed by presentations given by Dr. Patric Seifert and Dr. Johannes Bühl.



Their presentations focused on giving an overview about dynamics, aerosol, cloud and precipitation field campaigns and explaining the global precipitation patterns in the framework of SIROCCO.

The second part of the workshop included presentations on smoke, haze, precipitation and aerosol effects monitoring and on ice formation in stratiform clouds.



Inside this issue:

SCIENTIFIC EVENTS

Conferences

Poster presentation at the EGU General Assembly 2021

19th - 30th of April 2021, online

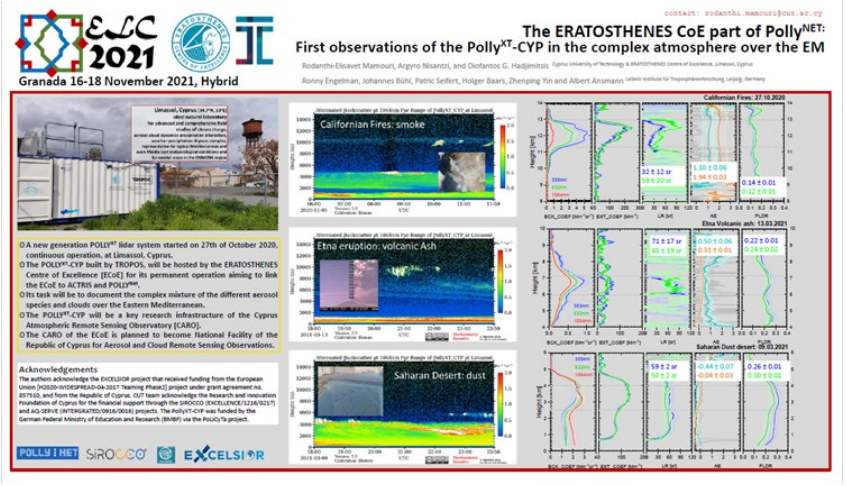
Our team members Dr. Rodanthi Elisavet Mamouri and Dr. Argyro Nisantzi presented a poster entitled "The ERATOSTHENES Centre of Excellence in the POLLYNET. First observations of the POLLYXT-CYP at Limassol, Cyprus" at the EGU General Assembly 2021. The poster demonstrated how the lidar system, coordinated by the Cyprus University of Technology, will become a key component of the project. The EGU General Assembly 2021 brought together geoscientists from all over the world to one meeting covering all disciplines of the Earth, planetary, and space sciences.

SIROCCO at EGU2021

SIROCCO at the European Lidar Conference 2021

16th - 18th of November 2021, Granada and hybrid

The team of SIROCCO project attended the European Lidar Conference 2021 with a poster presentation entitled "The ERATOSTHENES CoE part of PollyNET, First observations of the PollyXT-CYP in the complex atmosphere over the Eastern Mediterranean". The topics of the European Lidar Conference 2021 included Lidar technology, Lidar algorithms and data products, Lidar applications, Challenges: Atmospheric boundary layer and low altitude profiling, Open topic: Synergies, Open forum: companies and users.

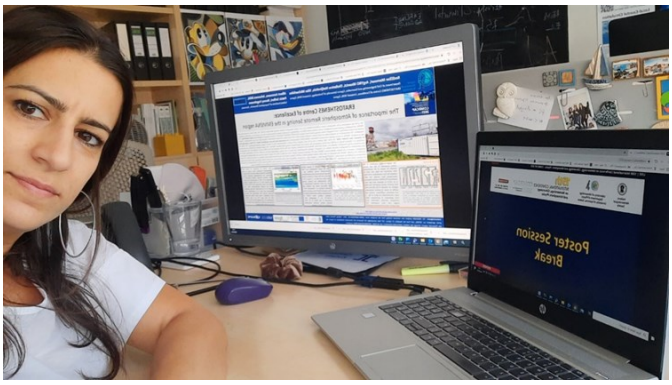


SIROCCO at ELC2021

Poster presentation at the 15th International Conference on Meteorology, Climatology and Atmospheric Physics (COMECAP2021)

26th - 29th of September 2021

At the 15th International Conference on Meteorology, Climatology and Atmospheric Physics – COMECAP2021, our team member Dr. Argyro Nisantzi presented a poster entitled "The importance of Atmospheric Remote Sensing in the EMMENA region". The poster presented how the lidar system will become a key component at the Cyprus University of Technology.



Dr Argyro Nisantzi at COMECAP2021

Presentations at the 1st ACTRIS Science Conference

11th – 13th May 2022 , online

SIROCCO team member Dr. Johannes Bühl gave a presentation at the 1st ACTRIS Science Conference. This three-day open science conference aimed to bring together members of different atmospheric science communities and discuss the latest scientific breakthroughs e.g., in air quality and climate research. The contributions were solicited on the topics covering all aspects of ACTRIS scientific activities. The presentation of Dr. Bühl was under Session 1: Climate Change and was entitled "Optimizing Cloudnet for observation of global precipitation patterns".

Dr Bühl presenting at the conference

Presentations at the EGU General Assembly 2022

23th – 27th May 2022 , Vienna and hybrid

SIROCCO team member, Ms Eleni Loulli gave a presentation on "Precipitation classification and quantitative mapping using ground-based radar data, intended for drought monitoring in Cyprus", at the EGU 2022.

Ms Loulli at EGU22

Ms Loulli and Session Convener Dr Michaelides

Ms Loulli and the rest of the presenters of the session AS1.13: Precipitation: Measurement, Climatology, Remote Sensing, and Modelling

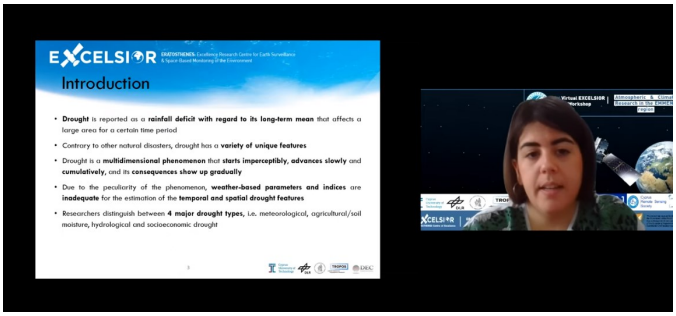
Workshops

Participation at the Second Virtual EXCELSIOR Workshop: "Atmospheric & Climate Research in the EMMENA Region"

8th of June 2021, online

Our team members Dr. Albert Ansmann, Dr. Johannes Bühl and Ms Eleni Loulli participated with presentations at the Second virtual EXCELSIOR Workshop: "Atmospheric & Climate Research in the EMMENA Region". Their presentations were entitled „Intro to the topic: The ERATOSTHENES Center of Excellence – a future hub of Atmospheric Science in EMMENA", "Ground-based remote sensing of aerosol, clouds and precipitation in EMMENA" and "Precipitation and Drought monitoring with ground-based X-BAND radars in Cyprus" respectively.

Dr Johannes Bühl at EXCELSIOR Workshop



Ms Eleni Loulli at EXCELSIOR Workshop

Participation at the ACTRIS Centre for Cloud Remote Sensing (CCRES) workshop

3rd and 5th of May 2022, online

The SIROCCO team participated at the ACTRIS Centre for Cloud Remote Sensing (CCRES) workshop on two half-days during May 3rd and May 5th (9h00-12h30). In the meeting the CARO National Facility of the ERATOSTHENES Centre of Excellence have been presented by the team to all of the CRS community. Based on the initial plan, the Cloud remote sensing platform of the ECoE will be ready for Labelling end of 2024.

Presentation of Dr Mamouri at the CCRES workshop

OUTREACH AND PUBLIC AWARENESS

Interview of Dr Rodanthi Elisavet Mamouri at Philelefthеros newspaper

19th of February 2021

Our team member Dr Rodanthi Elisavet Mamouri, gave an interview in Philelefthеros newspaper. Through her interview she informed about the new lidar PollyXT-CYP and its importance for the future of atmospheric observations in the Eastern Mediterranean Region.

Additionally, she explained the significance of the development of the ERATOSTHENES Centre of Excellence.

14 [ΚΟΙΝΩΝΙΑ] Ο ΦΙΛΕΛΕΥΘΕΡΟΣ ΠΑΡΑΣΚΕΥΗ 19 ΦΕΒΡΟΥΑΡΙΟΥ 2021

Φυσικό Ατμοσφαιρικό Εργαστήρι η Κύπρος

Συνέντευξη με την Ανώτερη Ερευνήτρια του ΤΕΠΑΚ Ροδάνθη Ελισάβετ Μαμούρη για το σύστημα lidar PollyXT

ΤΙ ΣΗΜΑΙΝΕΙ ΓΙΑ ΤΟ ΤΕΠΑΚ ΚΑΙ ΤΟ ΚΕΝΤΡΟ ΑΡΙΣΤΕΙΑΣ ΕΡΑΤΟΣΘΕΝΗΣ ΑΥΤΟ ΤΟ ΣΥΣΤΗΜΑ;

Interview of Dr Mamouri in Greek

SIROCCO at Spring ACTRIS IMP Meeting 2021

29th – 30th of March 2021, online

The Spring ACTRIS IMP Meeting, was held online on March 29- 30, 2021. During the general assembly on Monday March 29, the ACTRIS Steering committee and the ACTRIS Head Office approved the application of the ECoE to participate in the Associate partnership program.

ECoE will contribute to the Remote Sensing component of ACTRIS with the Cyprus Atmospheric Remote Sensing Observatory National Facilities (CARO NF). The PollyXT-CYP and the CLOUDNET station will constitute the Aerosol and Cloud Remote Sensing Observational Platforms of Cyprus.

National facilities presentation

SIROCCO at Researcher's Night 2021

24th of September 2021, online

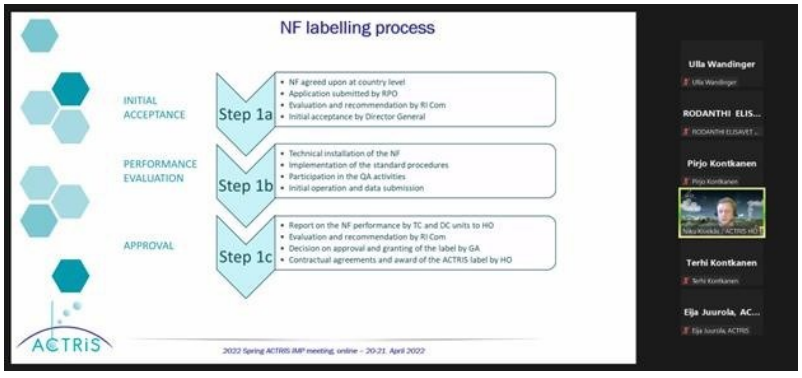
Researcher's Night 2021 event was held virtually. SIROCCO Project participated at the event with its own virtual booth. The visitors of the booth could find information on the role of clouds and aerosol in the solar radiation budget. The main theme of the event was the transition to the digital and green age, inspired by the European Green Deal and the European Digital Strategy.

SIROCCO team participating online at the Researchers Night

SIROCCO at Spring ACTRIS IMP Meeting 2022

20th of April 2022, online

THe SIROCCO team participated at the 2022 Spring ACTRIS IMP. During the 2022 Spring ACTRIS IMP meeting that took place on April 20th 2022, the SIROCCO members had the opportunity to be informed among others about the ACTRIS Long term sustainability plan, Implementation of operations, the Strategic development of ACTRIS and activities for Community engagement. Additionally, the team has been informed about the Labelling procedures for the integration of the CARO: Cyprus Atmospheric Research Observatory to the ACTRIS.

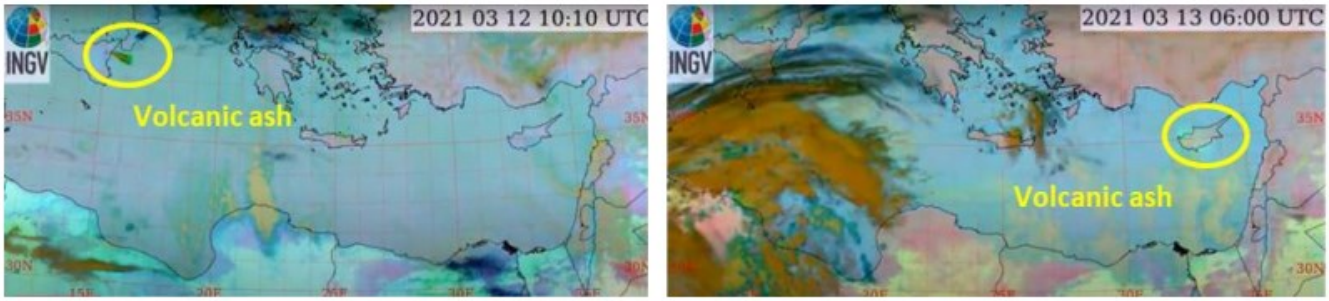


SIROCCO at ACTRIS IMP meeting

PROJECT PROGRESS

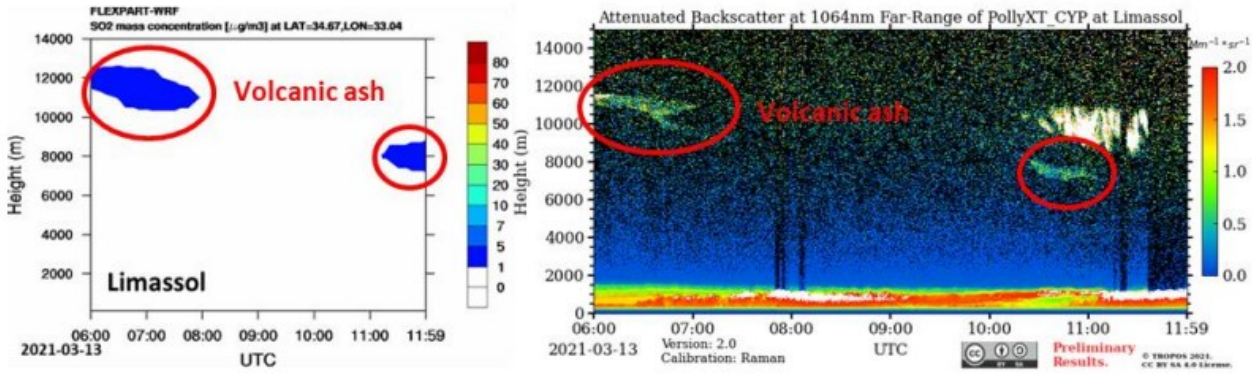
The Journey of Volcanic Ash from Mount Etna to Limassol

The volcanic ash cloud from the eruption of Mount Etna (March 12, 2021) was recorded by the PollyXT-CYP Lidar system of ECoE that has been operating continuously since October 2020 in Limassol. The layers of the volcanic particles extend from 7.5 km to 12.5 km above sea level. The recent activity of Mount Etna peaked on March 12, 2021, at 06:18 UTC, according to the Catania Geophysical Observatory (INGV-EO). The emitted ash cloud reached up to 6 km altitude, while the intense volcanic activity continued at 08:45 UTC (10:45 local time) where the ash concentrations reached an altitude of up to 10km above sea level.



The volcanic cloud as it was located (a) above the Mediterranean Sea at 10: 10UTC and (b) above ECoE Observatory in Limassol at 06:00 UTC. The retrievals from the MSG-3 (Meteosat Second Generation (MSG)) satellite were made by INGV.

The mixture of volcanic ash and sulfur gases was transported to Cyprus due to atmospheric circulation and crossed the Cloud and Aerosol Remote Sensing Observatory on March 13, 2021, at 06:00 UTC, as seen by the MSG-3 satellite. The cloud was observed both in Greece and in Cyprus. As part of Horizon2020-e-shape research project in the NOA-ReACT team utilizes the observations of Italian INGV partners to provide real-time forecasts of volcanic ash transport and sulfate suspensions using the FLEXPART-WRF numerical model. The volcanic ash cloud was recorded by the PollyXT-CYP system of ECoE. The volcanic particles layers extend from 7.0 km to 12.0 km above sea level, forming an impressive footprint in the upper atmosphere over Limassol.

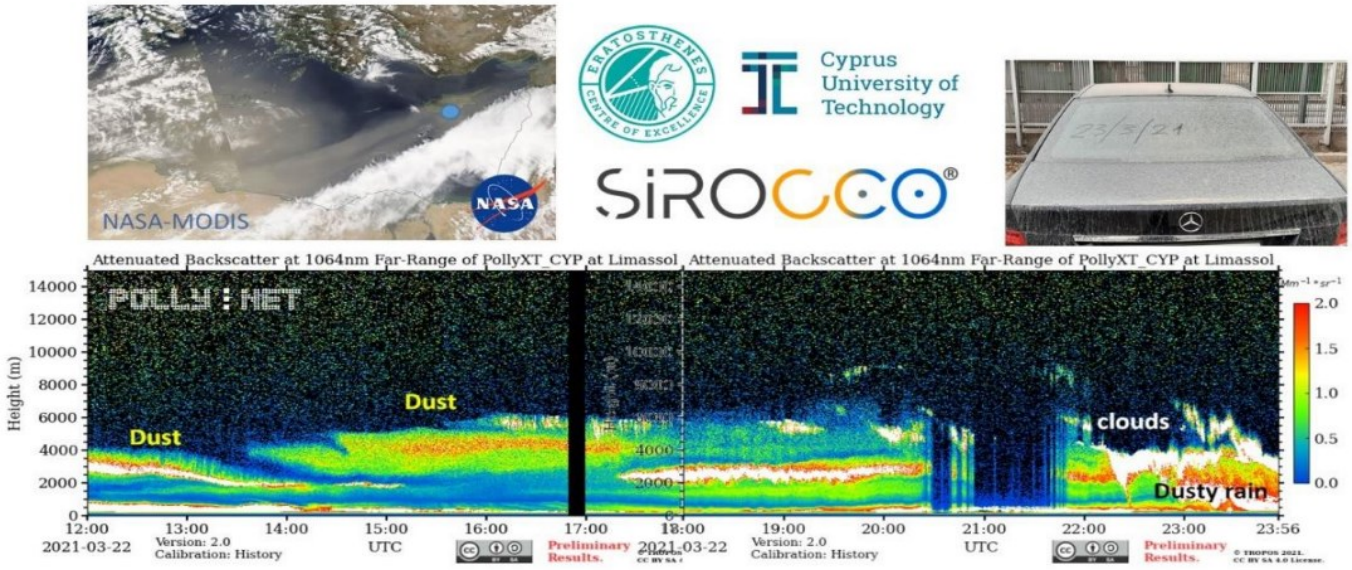


(left) Volcanic ash concentration simulations with the FLEXPART-WRF dispersion model providing by NOA (March 13, 2021), Monitoring of volcanic ash layers with the PolyXT-CYP lidar system of ECoE (March 13, 2021, 06: 00-12: 00 UTC).

The monitoring and research related to the transport of volcanic ash into the atmosphere is very important for improving early warning systems for Aviation Safety, as volcanic ash particles can cause damages to aircraft engines.

The dust transfer from North Africa

The dust transfer from North Africa that has been affecting the Eastern on the 23rd of March, was recorded by the PollyXT Lidar system of Limassol of the ERATOSTHENES Centre of Excellence of the Cyprus University of Technology. Intense particle load occurs from the ground level up to 6km, significantly affecting human activities and especially vulnerable groups. The occurrence of coloured precipitation that was observed in Cyprus on that day was also due to the transfer of dust.



(upper left) Satellite image from NASA-MODIS, (upper right) Photo taken in Limassol on the 23rd of March (lower) Attenuated Backscatter of PollyXT-CYP Limassol

SIROCCO final meeting

30th of June 2022, Limassol, Cyprus

SIROCCO team members Dr. Rodanthi Mamouri, Dr. Argyro Nisantzi, Dr. Albert Ansmann and Ms. Eleni Loulli held the final meeting of the SIROCCO project. The outcome of the project, as well as fields of potential further collaboration between CUT and TROPOS were discussed during the meeting. Additionally, the team discuss about the exploitation and dissemination of the projects' results.

SIROCCO team members at CUT premises

JOURNALS

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5. Ansmann, A., Ohneiser, K., Mamouri, R.-E., Knopf, D. A., Veselovskii, I., Baars, H., Engelmann, R., Foth, A., Jimenez, C., Seifert, P., and Barja, B.: Tropospheric and stratospheric wildfire smoke profiling with lidar: mass, surface area, CCN, and INP retrieval, Atmos. Chem. Phys., 21, 9779–9807, https://doi.org/10.5194/acp-21-9779-2021, 2021.
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