### **ABOUT THE CENTER**

The Climate and Atmosphere Research Center (CARE-C) is a regional Center of Excellence for environmental and climate change research.

It focuses on creating sustainable solutions to address relevant societal challenges in Cyprus and the wider Eastern Mediterranean and Middle East region (EMME). The Center works in collaboration with leading international academic institutions, and takes advantage of cutting-edge local environmental monitoring facilities.

CARE-C was established in January 2020 through funding secured from the European Union's "Horizon 2020" research and innovation programme (under grant agreement No. 856612) and the Cyprus Government, within the framework of the EMME-CARE project (Eastern Mediterranean and Middle East - Climate and Atmosphere Research Center).

CARE-C's activities focus on three key areas:

- ► Science and Research on climate change and air pollution over the EMME region.
- Innovation and Entrepreneurship focusing on identifying promising commercial research applications.
- Education and Training including postgraduate degree courses on meteorology and atmospheric sciences, and training on climate change, weather forecasting and atmospheric instrumentation.





# **CLIMATE AND ATMOSPHERE**



## **RESEARCH CENTER CARE-C**

### **MAJOR PARTNERS & NETWORKS**

### **Advanced European Partners**



Max Planck Institute for Chemistry, Germany



French Alternative Energies and Atomic Energy Commission, France



University of Helsinki, Finland

### Networks

- ► Aerosols, Clouds, Trace gases Research Infrastructure (ACTRIS)
- Aerosol Robotic Network (AERONET)
- ► Global Atmosphere Watch (GAW) of the World Meteorological Organization (WMO)
- ► Middle East North Africa Coordinated **Regional Climate Downscaling Experiment** (MENACORDEX)

### **Regional Partners**

- ► American University of Beirut, Lebanon
- Egypt Japan University Of Science & Technology, Egypt
- ► Kuwait Institute for Science and Research (KISR), Kuwait
- ► National and Kapodistrian University of Athens, Greece

### Contact

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### PEOPLE

### **Management Board**

Jean Sciare EMME-CARE Coordinator, The Cyprus Institute

Jos Lelieveld Professor and Director, Atmospheric Chemistry Department, Max Planck Institute for Chemistry

Markku Kulmala Professor and Director, Atmospheric Sciences Division, University of Helsinki

Philippe Ciais Professor and Associate Director, Laboratoire des Sciences du Climat et de l'Environnement

Michalis Yiangou Vice-President of Operations, The Cyprus Institute

### Faculty

Jean Sciare Professor and CARE-C Director

Jos Lelieveld Institute Professor

George Biskos Associate Professor

Panos Hadjinicolaou Associate Professor

**Theodoros Christoudias** Assistant Professor

### Adjunct

Andreas Schmidt-Ott Professor

Jonathan Williams Professor

Mihalis Vrekoussis Professor

**Nicos Mihalopoulos** Professor

Silas Michaelides Professor

Charbel Afif Associate Professor

### Regional focus, global impact

The EMME region has been identified as a global climate change "hotspot", and is already facing adverse effects, including heat waves and droughts, which are only due to intensify in the coming decades. CARE-C has set out to address these challenges through a combination of research, innovation and education activities, leveraging the strategic geo-political location of Cyprus as a gateway between Europe and the Middle East. The Center is acting as a knowledge hub for environmental and climate change research, fostering innovative and sustainable solutions for the region and the planet.

Accordingly, CARE-C is establishing a Regional Professorship Program with a view of developing a Mediterranean and Middle Eastern science and policy strategy on climate change and has already engaged with partners including from Greece, Lebanon, Jordan, Egypt, Kuwait and U.A.E. CARE-C has strong collaborations with Cyprus Government Departments, and an active role in the scientific component of the Cyprus Government's Initiative for coordinating climate action in the East Mediterranean and Middle East region. Further, CARE-C collaborates with leading international institutions such as its Advanced Partners, and is part of many international networks.



### **Research Departments**

Environmental Observations conducting continuous long-term measurements of atmospheric composition, related environmental parameters and trends, and analysis of atmospheric loads and interactions of gaseous and aerosol pollutants in urban and remote regions of the EMME to further our understanding of the changing regional environment

### **RESEARCH AGENDA HIGHLIGHTS**

Environmental Predictions, dedicated to the study of the role of anthropogenic emissions in biogeochemical cycles, air quality and climate change with a focus on the EMME region

Impact and Policy, dedicated to pursuing multi- and cross-disciplinary research on societal challenges needing regional and local solutions

Innovation, identifying attractive commercial research applications that contribute to sustainable economic growth and ensure the Center's financial longevity



### **Research Infrastructures**

Atmosphere and Climate Data Center (DAC), aimed at providing well-documented open access to observational data and related process chains and flows gathered by CARE-C

Cyprus Atmospheric Observatory (CAO), located at a regional background site in Cyprus, it provides high guality, long-term observations of key atmospheric pollutants relevant to air quality and climate change

Environmental Chemistry Laboratory (ECL), for trace gases and aerosol analyses



Working on the development of miniaturized instruments at the Instrumentation lab

Instrumentation Laboratory (IL) & NanoLab Facility, dedicated to the development of miniaturized, lightweight and cost-effective instruments for measuring aerosol particles and gaseous pollutants

Unmanned Systems Research Laboratory (USRL), with a fleet of unmanned aerial vehicles (UAVs) for atmospheric and earth surface observations that is unique to Cyprus and the region

## **Innovation and Entrepreneurship**

CARE-C identifies promising commercial research applications that contribute to the sustainable economic growth of Cyprus, working with regional organizations in the private and public sectors, and Departments of the Cyprus Government.

- Unmanned Aerial Vehicles in meteorology, regional carbon footprint and air quality forecasting



### **EDUCATION & TRAINING**

Relevant products and services include:

- competitive services for atmospheric measurements (air sampling, chemical analyses).
- cost-effective atmospheric sensors
- early warning systems for dust storms and extreme weather events



CoBi (Composite Bird) the new UAV designed by USRL during a flight

The Graduate School of the Cyprus Institute offers fully accredited postgraduate degree programs in CARE-C's areas of focus.

Specifically, a Doctoral Program in Energy, Environment and Atmospheric Sciences and an MSc / MPhil in Environmental Sciences, offering two specialized tracks "Atmospheric Sciences" and "Meteorology".



Teaching session with Cyl postgraduate students at CAO facilities in Athala

Students in these programs have the opportunity to study alongside exceptional inter-disciplinary faculty and world-leading research teams, leveraging a first class research environment with unique infrastructures.

Further, CARE-C offers trainings in climate change and weather forecasting and hands-on practice on atmospheric instrumentation and knowledge transfer and exploitation.



CARE-C's Environmental Chemistry Laboratory