

A future centre for climate and weather research in the Eastern Mediterranean: the ATARRI project

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The ATARRI “Atmospheric and radiation research and innovation in eastern Mediterranean project” is a European project in the framework of Horizon2023 that has the aim to expand the Earth Observation and modelling capacities of the Eratosthenes Centre of Excellence (ECoE) with the final goal to create a centre for frontier climate and weather research and services in the Eastern Mediterranean. To achieve this, the ECoE, has aligned forces with four leading institutions in Europe, namely the Barcelona Supercomputer Centre (BSC/CNS), the ARMINES association (the contractual research arm of the Mines Paris – PSL Research University and its affiliated entity Ecole Nationale Supérieure des Mines de Paris (ENSMP), the FCIENCIAS UL.ID (FC.ID) (a private non-profit entity through which FCUL and other institutions develop their contractual research and European projects.) and its affiliated entity, the Faculty of Sciences of the University of Lisbon (CIENCIAS UL), the Physikalisch-Meteorologisches Observatorium Davos/World Radiation Center (PMOD/WRC) and GRASP SAS SME. The main objective of the ATARRI is to exploit the full potential of the ERATOSTHENES CoE, **CARO National Facility and Solar Network** towards scientific excellence and application development in the atmospheric research encompassing the Earth Observation R&I and modeling capacities of **the Centre**.

A better understanding of atmospheric processes in the East Mediterranean and development of applications for climate, energy and environmental services are needs of ATARRI project and are based on the improvement of atmospheric remote sensing measurements and the potential synergy with the currently non-existing atmospheric modelling component. ATARRI goals will be achieved through a series of transfer of knowledge actions (workshops, seminars, technical information and software/model exchange, expert visits) by experienced partners towards ECoE, including mostly science related but also scientific management aspects. In addition, a research experimental project is foreseen in the last year of the ATARRI, dealing with dust intrusions, aerosol characterization, interactions with solar radiation and various related scientific and socioeconomic effects for the Cyprus area. To enhance scientific capacities of the ECoE technical workshops will be organised, on the 4 scientific Domains of the project: 1. Dust modelling and forecasting; 2. Aerosol microphysics characterization; 3. Dust radiative effect and solar radiation and 4. Solar energy applications. Furthermore, mobility actions will take the form of two types of exchanges: on-site short-term visits from leading institutions at ECoE premises and short-term staff exchange from ECoE to BSC/CNS, GRASP SAS, ARMINES, FC.ID, and PMOD/WRC-WRC premises. The research project of the last year called “The role of Dust to the climate” will use the ground-based instruments of CARO observatory in Limassol (Cyprus) and the newly gained capacity in atmospheric modelling, retrievals, and

synergy analysis. The main scientific question addressed by this exploratory scientific project revolves around the impact of the dust storm (or strong dust intrusions), on microphysics retrievals, aerosol modelling, solar energy and radiation, as well as validation of space observations against ground-based ones.

Keywords: European project, Horizon2023, remote sensing, aerosols, clouds, radiation

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