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Autonomous Flying Platforms for Atmospheric and Earth Surface Observations (APAESO) - A pioneering research facility in Cyprus

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The use of Unmanned Aerial Systems (UASs) has increased dramatically in the recent decades. UASs are widely used for different civil applications such as land management, earth sciences, contaminant detection and monitoring and commercial use.

The Autonomous Flying Platforms for Atmospheric and Earth Surface Observations project (APAESO) of the Energy, Environment and Water Research Center (EEWRC) at the Cyprus Institute is aimed at the dual purpose of carrying out atmospheric and earth-surface observations in the Mediterranean.

The APAESO UAS platforms will provide the unique ability to produce 3D measurements for determining: physical, chemical and radiative atmospheric properties, aerosol and dust concentrations and atmospheric dynamics as well as 2D investigations into: surface morphology, vegetation and land use patterns, archaeological site reconnaissance, contaminant detection and ocean surface properties (biology, waves, currents) at high spatial resolution.

Through a modular design philosophy, APAESO will be very adaptable for a variety of scientific investigations enabling scientific collaborations between the Cyprus Institute and national and international research organizations.

The Cyprus Institute is currently procuring the “Cruiser”, which is a medium size Unmanned Aerial Vehicle (UAV) that is capable of carrying a payload of up to 10 kg, fly to altitude of 5000 m AGL with an endurance of up to 10 hours. Within the next phase of the project, the “Cruiser” will be equipped with instruments for atmospheric and earth surface observations.

The poster will present the different components of the project: the UAS platform, payload to be integrated and scientific challenges that we are about to tackle and solve.