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Exploring the Potentials of Unmanned Aerial Systems for Assessing Atmospheric and Environmental Properties in the Eastern Mediterranean

Manfred Lange, Amit Teller, Stelios Ioannou, and Christos Keleshis

The Cyprus Institute, Energy, Environment and Water Research Center, Nicosia, Cyprus (m.a.lange@cyi.ac.cy, +357 22 208625)

Unmanned Aerial Systems (UASs) are widely used for different earth-sciences applications providing chiefly a link between in-situ ground based measurements and satellite remote sensing observations. 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 (Eastern) Mediterranean. We have acquired two CRUISERS (ET-Air, Slovakia) as UAS platforms within APAESO. They enable 3D measurements for determining physical, chemical and radiative atmospheric properties, aerosol and dust concentrations and atmospheric dynamics as well as 2D investigations into land management practices, vegetation and agricultural mapping, contaminant detection and the monitoring and assessment of hydrological parameters and processes of a given region at high spatial resolution. The paper will briefly describe the different components of the project: the UAS platform, payloads to be integrated and major scientific missions to be carried out with an emphasis on assessing current conditions and changes in atmospheric properties and environmental characteristics in the eastern Mediterranean. The project is being supported by a grant of the Cyprus Research Promotion Foundation.