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A UAS-Facility at the Energy, Environment and Water Research (EEWRC) Center of The Cyprus Institute (CyI)

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Unmanned Aerial Systems (UAS) 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 (APAESO is being supported by a grant of the Cyprus Research Promotion Foundation: ΠΔ/Π/0308/09). After having acquired four CRUISERS (ET-Air, Slovakia) as UAS platforms and a substantial range of scientific instruments to be employed on these platforms, we are currently in the process of specifying and implementing a more permanent, operational UAS Facility at the EEWRC of CyI. This facility will consist of three main components: (i) Ground/Operation component (GOC); (ii) Instrumentation/Mission component (IMC) and (iii) Flight team component (FTC). The GOC will be comprised by the following elements: a) a dedicated Control and Operation Facility, which will be employed mainly during flight operations and scientific missions, b) workshops and technical infrastructure and c) appropriate storage space for platforms, platform elements, scientific instrumentations, spare parts and maintenance and miscellaneous materials. The already mentioned range of different scientific instruments for atmospheric measurements and remote sensing investigations and a number of "mandatory" instruments, which will be flown on every mission (e.g., basic meteorological sensors, a simple video camera, GPS, etc.) as well as a calibration and gauging laboratory forms the core of the IMC. The FTC consists mainly of a number of skilled and experienced pilots with a basic understanding of scientific UAS applications. The implementation of appropriate pre-, in- and post-flight manuals and check lists comprise an important part of the FTC.
The paper will describe and discuss these elements and their implementation in light of completing an operational UAS facility at the EEWRC.