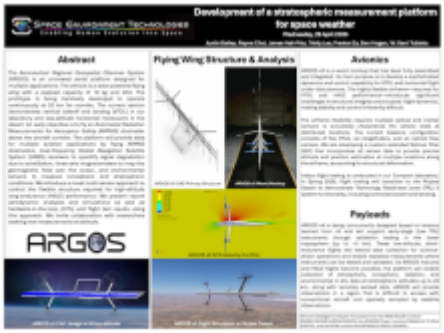
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Poster
The Aeronautical Regional Geospatial Observer System (ARGOS) is an uncrewed aerial platform designed for multiple applications. The vehicle is a solar-powered flying wing with a payload capacity of 10 kg and 20U. The prototype is being iteratively developed to operate continuously at 20 km for months. The current version demonstrates vertical takeoff and landing (VTOL) in our laboratory and low-altitude horizontal maneuvers in the desert. An early objective is to fly an Automated Radiation Measurements for Aerospace Safety (ARMAS) dosimeter above the aircraft corridor. The platform will provide data for multiple aviation applications by flying ARMAS dosimeters, dual-frequency Global Navigation Satellite System (GNSS) receivers to quantify signal degradation due to scintillation, three-axis magnetometers to map the geomagnetic field over the ocean, and environmental sensors to measure ionospheric and stratospheric conditions. We introduce a novel multi-sensor approach to control the flexible structure required for HALE performance. We present recent aerodynamic analyses and simulations as well as hardware-in-the-loop (HITL) and flight test results using this approach. We invite collaboration with researchers seeking new measurements at altitude.


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