

NSF funds students doing airborne atmospheric science



Millersville University Meteorology (R. Clark, T. Sikora, and B. Billings) will lead a partnership with three other universities (Penn State, Rutgers, and University of Baltimore-Baltimore County) for a two-week educational deployment of the University of Wyoming King Air aircraft (UWKA) in early November 2017 that will serve as the stimulus for 175 undergraduate and graduate students to be immersed in the study of the atmosphere from an airborne platform. In particular, faculty and students from Millersville University (MU), Pennsylvania State University (PSU), Rutgers, The State University of New Jersey (RU), and the University of Maryland, Baltimore County (UMBC) will use this valuable airborne observing system to study synoptic scale cold fronts and other atmospheric phenomena in the mid-Atlantic Appalachian Mountains, Piedmont, and Coastal Plain.

The scientific objectives include the investigation of the fine-scale front-terrain interactions that occur as cold fronts cross the study region, and the lee wave processes that occur in the post-cold front environment. During intervening periods, the focus will be redirected to thermally driven circulations such as mountain-valley breezes, possible Lake Erie breezes, regional scale upslope (easterly) winds, and the modification of the marine air mass as it moves onshore, and boundary layer and air chemistry processes. Where possible, we will capitalize on opportunities to conduct sensor comparison (e.g. between the tethered balloon and aircraft at the same altitude) for integration into course content in instrumentation courses, and we will test a novel statistical method for determining the uncertainty in aircraft static pressure (i.e. the static pressure defect) using “Lenschow maneuvers” as part of an exercise in an instrumentation course.

See more at https://www.eol.ucar.edu/field_projects/sear-mar. There will be an opportunity for the public to view this aircraft at the Lancaster airport.