P 1.7 INITIATING UNDERGRADUATE STUDENT RESEARCH PROJECTS IN OPERATIONAL METEOROLOGY: KEAN UNIVERSITY OPERATIONAL UNDERGRADUATE RESEARCH IN METEOROLOGY & PROFESSIONAL ACTIVITIES AND COLLABORATIVE TRAINING (KU-OUR-METPACT)

Paul J. Croft*
Kean University, Union, New Jersey

1. KU-OUR-METPACT

Undergraduate student participation in research activities and professional development is paramount to their ultimate career success and also supports their retention and course performance. To be successful these activities must be focused, their relevance made clear, be connected to the students' coursework, must involve skills development and application, and the outcomes must be distinct.

To achieve these goals, a student educational collective for undergraduate research experiences and development (SECURED) was initiated during the spring 2005 semester at Kean University. The purpose was to develop an initial collective of meteorology students to perform research and professional development activities that would ultimately expand into collaborative and cooperative projects with others.

Three students in consultation with the author developed projects to focus on cool season severe weather events in and near the Philadelphia National Weather Service County Warning Area, air quality observations in relation to synoptic weather conditions in New Jersey during the spring season, and fog occurrence and spatial attributes during one winter season as related to the potential for weather modification applications at selected sites.

Each project was focused according to real-time operations-based needs, relevant to prediction and understanding of various meteorological phenomena, involved the relational aspects of data, basic statistical techniques, and interpretation to coursework in dynamic, synoptic, and physical meteorology as well as instrumentation, required specific analytic and other skills to provide improved understanding and application of meteorological principles in the performance of real-time operational duties.

Those students involved in the process were expected to participate also in several professional development activities. These included abstract preparation and submittal, preprint drafting, and the production of figures and tables for the development of an oral or poster presentation and for a manuscript. Each of these were completed in stages so as to "grow" the student's skills set and engage them in the community of their chosen discipline.

2. OUTCOMES

The selected outcomes for students included the development of abstracts and preprints as well as poster and oral presentations and delivery of these internally and at regional and national professional meetings and conferences. Students were also in contact with professionals and other peers to allow them an opportunity to work directly in the field by considering and "handling" all aspects of their research endeavor.

Each of these provided real career and professional experiences as well as materials for resume and portfolio development. These students were then able to serve as peer mentors to other undergraduate students in the department and could encourage their participation in the program. The continued development of the program is expected to involve up to three students per semester prior to its expansion to include students at all stages of their degree work and to ensure continuity with time and growth.

ACKNOWLEDGEMENTS

Many thanks to the Department of Geology and Meteorology faculty and staff at Kean University for their assistance and supporting infrastructure. This project and its ongoing development is also indebted to the first three students to participate: Aaron Burton, Belkys Melendez, and Michael Stroz.

* *Corresponding Author Address*: Dr. Paul J. Croft – Professor of Meteorology, Kean University, Department of Geology and Meteorology, 1000 Morris Avenue, Union, NJ 07083; email <pcroft@kean.edu>.