1.1 EDGAR L ANDREAS, 1946-2015, IN REMEMBRANCE

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1. iNTRODUCTION

Ed Andreas, a friend and colleague of many in our research community, stepped out of his home office in New Hampshire, went for a run as was his custom, and suffered from a medical event from which he succumbed on September 30, 2015. The organizers of this AMS 20th Conference on Air-Sea Interaction deemed it appropriate to dedicate this session on sea surface processes in honor of Ed, and to begin this session with some acknowledgment of Edgar Andreas' contributions to our science, and some comments on those attributes that made him so productive a research scientist, and such an effective professional collaborator and valued friend.

We cannot in the allotted time touch upon all of the air-sea interaction topics that Ed's work has helped illuminate, but we will mention some of the research threads that ran through Ed's almost 30 years at the U.S. Army's Cold Regions Research and Engineering Laboratory in Hanover, NH, and his more than eight years working out of his home in Lebanon, NH, which served as an outpost of NorthWest Research Associates.

2. PROFESSIONAL CAREER

When we look at Ed's publications, of which there were more than 140, we find that he contributed his insights to a number of topics, many having to do with the Arctic atmospheric boundary layer and with air-sea fluxes at high latitudes, and many reflecting his efforts to improve earlier parameterizations of the sea surface spray flux, as well as others on meteorological instrumentation, particularly for application in the study of the atmospheric boundary layer.

Among his most frequently cited papers on the Arctic were his 1987 paper, "A theory for the scalar roughness and the scalar transfer coefficients over snow and sea ice"(Andreas,1987), and a paper he co-authored with Persson, Fairall, Guest, and Perovich (Persson et al, 2002) on "Measurements near the atmospheric surface flux group tower…Near-surface conditions and surface energy budget" based on the measurements taken during the Surface Heat Budget of the Arctic Ocean Experiment.

When we look at Ed's most often referenced papers on the topic of sea spray, we come upon his papers on "Sea spray and the turbulent air-sea heat fluxes" (Andreas,1992) and on "A new sea spray generation function for wind speeds up to 32 m/s" (Andreas, 1998), and his paper with Edson, Monahan, Rouault, and Smith, dealing with "The spray contribution to net evaporation from the sea: A review of recent progress" (Andreas et al,1995).

An early paper, reflecting his interest in instruments and measurement and following up on his then recently completed Ph.D. at Oregon State University, was "Velocity spectra and cospectra and integral statistics over Arctic leads" which he published with his thesis advisor Clayton Paulson (Andreas and Paulson,1979).

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Many of Ed Andreas' other early publications also reflected his interests in boundary-layer meteorological instrumentation, and high latitude air-sea, and air-ice interactions (e.g, Andreas,1979, 1980, 1981, and Andreas et al, 1979).

Ed never lost his enthusiasm for field work in cold climes. The photograph accompanying this text shows Ed tending a suite of instruments on Mt. Desert Rock, Maine, in the winter of 2012-2013.

And Ed was always open to new ideas, and new research topics. Just in the past several years he became interested in the role of sea spray in facilitating the air-sea exchange of gases, and reached out to collaborate with atmospheric chemists on this topic. One of the first papers stemming from this collaboration was published posthumously early this year (Andreas et al, 2016). Others are currently in preparation.

3. ED ANDREAS THE PERSON

Ed Andreas, born in Sterling, IL, never lost his pronounced work ethic, one of his many Mid-West virtues. He was to his core a principled person. But just as Ed's research interests were multi-faceted, so was he a multi-faceted individual. This was apparent when one collaborated with Ed. He was as critical of his own work, as he was of that of others, but he never stinted in praising the work of others in his publications. He was a true believer in the community of scholars, and his community was a global one.

Some sense of Ed Andreas as a person, and of the breadth of his interests beyond his science, can be obtained from a reading of the biographical sketch published in his local New Hampshire newspaper, the *Valley News*, several months after his passing (Jurgens, 2015).

Edgar L Andreas was a Fellow of the American Meteorological Society, a Fellow of the Royal Meteorological Society (UK), a recipient of the Antarctica Service Medal from NSF and ONR, and of numerous awards for his technical writings.

4. ACKNOWLEDGMENTS

We wish to acknowledge the help we received in preparing this brief article from Ed's immediate family, and from many of his colleagues, particularly his former colleagues at NorthWest Research Associates. We wish to note that Penny Vlahos and ECM are currently able to work toward the completion of several papers that were begun in collaboration with Ed Andreas in his last months, thanks to the continued support of the National Science Foundation via Grant AGS-1356541.

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