Eric R. Pardyjak

a. Professional Preparation

Michigan State University (Lansing, MI)	Mechanical Engineering	B.S.	1994
University of Wisconsin (Madison, WI)	Mechanical Engineering	M.S.	1996
Arizona State University (Tempe, AZ)	Mechanical Engineering	Ph.D.	2001
Los Alamos Nat Lab (Los Alamos, NM)	Transport/Dispersion	PD	1999-2001

b. Appointments

2013-present	Full Professor, Dept. of Mechanical Engineering, University of Utah
2013-present	Adjunct Full Professor, Department of Atmos. Sciences, University of Utah
2016-2017	Visiting Professor, Université Paul Sabatier, Laboratoire d'Aérologie, France
2007-2013	Associate Professor, Dept. of Mechanical Engineering, University of Utah
2011	Invited Professor, Université Paul Sabatier, Laboratoire d'Aérologie, France
2010-2011	Director of Graduate Studies/Associate Chair, Dept. of Mech. Eng. Univ. of Utah
2009-2010	Visiting Professor, École Polytechnique Fédérale de Lausanne, Switzerland
2007-2013	Adjunct Associate Professor, Department of Atmos. Sciences, University of Utah
2006-2007	Adjunct Assistant Professor, Department of Atmos. Sciences, University of Utah
2001-2007	Assistant Professor, Department of Mechanical Engineering, University of Utah

c. Publications

(i) Five publications most closely related to the proposed project:

1. Perelet, A., I. Gultepe, S.W. Hoch, E.R. Pardyjak, Using a combined infrared and microwave scintillometer system to measure fog at km scales, under revision, *Boundary-Layer Meteorol*., 2020.
2. Hang, C., D.F. Nadeau, I. Gultepe, S.W. Hoch, C. Román-Cascón, K. Pryor, H.J.S. Fernando, E. D. Creegan, L. S. Leo, Z. Silver, E. R. Pardyjak, A Case Study of the Mechanisms Modulating the Evolution of Valley Fog, *Pure and Applied Geophysics*, **173**, 3011–3030, 2016.
3. Fernando, H.J.S., E.R. Pardyjak et al., The MATERHORN - Unraveling the Intricacies of Mountain Weather, *Bull. Amer. Meteor. Soc*., **96**, 1945–1967, 2015.
4. Nadeau, D.F., Pardyjak, E.R., Higgins, C.W., Huwald, H., Parlange, M.B., Flow during the evening transition over steep Alpine slopes. *Q. J. R. Meteorol. Soc.,* **139**, 607-624, 2013.
5. Moran, S.M., E.R. Pardyjak, J.M. Veranth, Understanding the role of grid turbulence in enhancing PM_{10} deposition: Scaling the Stokes number with R_λ, Physics of Fluids, **25**, 115103, 2013.

(ii) Five other significant products:

1. Pardyjak, E.R. and R. Stoll, Improving measurement technology for the design of sustainable cities, *Meas. Sci. & Technol.,* 28 (9), 092001, 2017.
2. Pardyjak, E.R., P. Monti, and H.J.S. Fernando. Flux Richardson number measurements in stable atmospheric shear flows, *J. Fluid. Mech*., 459, 307-316, 2002.
3. Nadeau, D.F., Pardyjak, E.R., Higgins, and H., Parlange, M.B., Similarity scaling over a steep alpine slope, *Boundary-Layer Meteor.* 147(3), 401-419*,* 2013.
4. Pataki, D.E., B.J. Tyler, R.E. Peterson, A.P. Nair, W.J. Steenburgh, and E.R. Pardyjak (2005). Can carbon dioxide be used as a tracer of urban atmospheric transport? *J. Geophys. Res*., 110, D15102.
5. Ramamurthy, R. and Pardyjak, E.R. (2011). Toward understanding the behavior of carbon dioxide and surface energy fluxes in the semi-arid Salt Lake Valley, Utah, USA, *Atmospheric Environment*, 45, 73-84.

d. Synergistic Activities

1. Collaborative Field Experiments - Pardyjak has worked together with government agencies from the U.S., France, Canada, and U.K. as well as National Laboratories and Universities from around the world to produce high-resolution field-experiment datasets of flow in complex terrain that have led to improved scientific understanding and modeling capabilities. Urban flow experiments have included the Mock Urban Setting Tests (MUST) at the Dugway Proving Ground (DPG), the URBAN 2000 field campaign in Salt Lake City, and the Joint Urban 2003 dispersion field campaign in Oklahoma City, and the Urban Trace-gas Emission Study (UTES) in Salt Lake City. Additional field research has been conducted in the area of atmospheric transport in *Mountain Terrain*. Experiments have included: the Mountain Terrain Atmospheric Modeling and Observation (MATERHORN) ONR MURI program, the Boundary Layer Late Afternoon and Sunset Turbulence (BLLAST) experiment in France, the Swiss Slope Experiment at La Fouly (SELF) investigating the interaction of thermal circulation patterns and turbulent fluxes on steep mountain slopes, the KAtabatic winds and Stability over CADarache for Dispersion of Effluents (KASCADE) in France, Mercury deposition experiments in Idaho and Utah, the Vertical Transport and Mixing Experiment (VTMX) in Salt Lake City, and the Phoenix Air-Flow Experiments (PAFEX-I and II). Additional field experiments have been conducted to study trans-border (US/Mexico) air pollution. We have studied the impact of surface temperature heterogeneity by conducting the 2018/2019 Idealized horizontal Planar Array experiment for Quantifying Surface heterogeneity (IPAQS). Field experiments focusing on the interaction of fog and turbulence have included MATERHORN-Fog (radiation and valley fog) and the C-FOG project (advection fog) conducted along the Avalon Peninsula in Newfoundland.
2. Multi-disciplinary Research – Pardyjak is the College of Engineering alternate faculty representative for the University of Utah's Global Change and Sustainability Center (GCSC). The mission of the GCSC is "to encourage broad interdisciplinary research, education, and outreach on natural and human-built systems, the dynamic interactions between those systems, and the role of humans in the environment." Pardyjak has collaborated with urban planners, aerosol chemists, biologists and meteorologists at multiple universities to provide new understanding of reaction, transport and dispersion of pollution. More recently, Pardyjak has worked with Atmospheric Scientists to develop new instrumentation for measuring hydrometeors and winds. Pardyjak has also worked with members of the Health and Sports Science group at the University of Utah to develop improved experimental measuring techniques.
3. Undergraduate Research – Pardyjak has made a strong effort to incorporate undergraduate students into his research program. Since 2001, Pardyjak has supervised over 30 undergraduates working on a variety of engineering and environmental fluid mechanics projects. Over one third of the students have continued on to graduate school. Some of these students have also been selected to present their research at the National Conference on Undergraduate Research.