

## CURRICULUM VITA

### HARINDRA JOSEPH SHERMAL FERNANDO

#### Professor of Engineering

#### EDUCATION

California Institute of Technology (1983 - 1984):	Post Doctoral (Fluid Mechanics)
The Johns Hopkins University (1980 - 1983):	Post Doctoral 1983, Ph.D. (Fluid Mechanics) 1983, M.A. (Fluid Mechanics) 1982
The University of Sri Lanka (1974 - 1979):	B.Sc. (Eng.) Hons. 1979, 1st class honors in Mechanical Engineering
St. Sebastian's School, Moratuwa, Sri Lanka (1960 - 1973):	G.C.E. (Advanced Level) 1973

#### PRINCIPAL RESEARCH INTERESTS

Fluid Mechanics: turbulence in homogeneous, stratified and rotating flows, double-diffusive phenomena, multiphase flows, oceanic flows, industrial fluid mechanics, urban air pollution, sustainability engineering

#### PRINCIPAL TEACHING INTERESTS

Fluid Mechanics, Engineering Mathematics, Environmental Fluid Mechanics, Turbulence, Ecosystems Engineering

#### POSITIONS HELD

2010-	Wayne & Diana Murdy Endowed Professor in Engineering and Geosciences, University of Notre Dame.
2010-	Professor Emeritus, Arizona State University
1994-2009	Director, Center for Environmental Fluid Dynamics (EFD), Arizona State University (1994-2007 – EFD Program; 2008 - Arizona Board of Regents' Center)
1992-2009	Professor, Department of Mechanical and Aerospace Engineering, Arizona State University (2008 – Affiliate Professor, School of Sustainability)
1988-1992	Associate Professor, Department of Mechanical and Aerospace Engineering, Arizona State University
1984-1988	Assistant Professor, Department of Mechanical and Aerospace Engineering, Arizona State University
1983-84	Post-Doctoral Fellow, Division of Engineering and Applied Sciences, California Institute of Technology
1983 April - September	Post-Doctoral Fellow, Department of Earth and Planetary Sciences, The Johns Hopkins University
1980-83	Research Assistant, Department of Earth and Planetary Sciences, The Johns Hopkins University
1979-80	Assistant Lecturer in Mechanical Engineering, University of Sri Lanka, Katubedda Campus

1973-74

Staff Member, St. Sebastian's College, Moratuwa, Sri Lanka

## HONORS AND DISTINCTIONS

1979	UNESCO Gold Medal for the best engineering student of the year
1980	Australian-Colombo Plan Scholarship
1980	British Commonwealth Scholarship
1980	Colombo Rotary Club award for the productive public servant of the year
1980	East-West Center Award (University of Hawaii)
1980	UNESCO Graduate Fellowship
1980	Westland Helicopters External Research Assistantship
1980-83	Gilman Fellowship (The Johns Hopkins University)
1987	Presidential Young Investigator Award (National Science Foundation)
1987, 1988, 1989	American Western Universities Faculty Participation Award (Department of Energy/Solar Energy Research Institute)
1991	Overseas Fellow - Churchill College, Cambridge, UK
1993-	Listed in Who's Who in Science and Engineering; Who's Who in American Education; American Men and Women in Science; Who's Who in the World; International Directory of Biographies; Who's Who in Engineering Education; The Contemporary Who's Who
1997	ASU Alumni Faculty Achievement Award for Research
1997	"Appreciation Certificate" from the Western Alliance to Expand Student Opportunities (WAESO)
2001	Rieger Foundation Award for the "Third Distinguished Rieger Scholar in Environmental Sciences"
2002	Elected Fellow, American Society of Mechanical Engineers
2003	ASU Graduate College – Faculty Mentorship Appreciation Award
2004	William Mong Distinguished Lectureship, Hong Kong University
2004	Elected Fellow, American Physical Society
2007	Award of Excellence for Science and Research, Alumni Association, St. Sebastian's College (75 <sup>th</sup> Jubilee Award).
2007	Sri Lanka Foundation of USA, Lifetime Achievement Award
2007	Featured in an article in the New York Times (25 <sup>th</sup> December)
2008	Recognized for "Outstanding Environmental Achievements" in the IEA/CMTA/CICC Conference awards (for Air Quality).
2008	Tempe Five Who Matter - honored by Arizona Republic Newspaper at the yearend as one of the five Tempe residents who have made a notable difference in the life of the city.
2009	Elected to Academia Europaea (The Academy of Europe)
2009	Elected Fellow, American Meteorological Society

## VISITING POSITIONS

1989, 1990	Senior Visitor, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, England (Seven Months)
1995	Visiting Professor, ETH, Zurich (August-September)
1991-1996	U.K. Meteorological Office (Visiting Scientist, Summers)
1998	Visiting Professor, University of Girona, Spain (summer)
2002	Tel Aviv University, Israel (1.5 months, Rieger Distinguished Scholar)
2007-2011	Visiting Professor, University of Toulon, France (1 month)

## GUEST LECTURESHIPS

1995	Woods Hole Oceanographic Institution (Principal Lecturer, Geophysical Fluid Dynamics Summer Program)
2002	University of Alberta, Invited Lecturer, Fluid Dynamics Summer School
2003	University of Cambridge, Invited Lecturer, GAFD Summer Program
2005	Summer School on Urban Meteorology, Lecci, Italy (lecturer)
2006	Summer School on Coastal Dynamics, Toulon, France (lecturer)
2007	Woods Hole Oceanographic Institution (Geophysical Fluid Dynamics Program)
2008	National Center for Atmospheric Research, Geophysical Turbulence Program Summer Schools (Principal Lecturer)

## PAPERS AUTHORED

### Archival Journal Papers Published (After 1983)

- Fernando, H.J.S. and Long, R.R., "The Growth of a Grid-Generated Mixed Layer in a Two-Fluid System," *Journal of Fluid Mechanics*, **133**, 377-395, 1983.
- Fernando, H.J.S. and Long, R.R., "On the Nature of the Entrainment Interface of a Two-Layer Fluid Subjected to Zero-Mean-Shear Turbulence," *Journal of Fluid Mechanics*, **151**, 21-53, 1985.
- Fernando, H.J.S., "A Discussion on Oscillatory Boundary Layer and Eddy Viscosity," *ASCE Journal of Hydraulics Engineering*, **111(6)**, 1036-1038, 1985.
- Fernando, H.J.S. and Long, R.R., "The Growth of a Shear-Free Mixed Layer in a Linearly Stratified Fluid," *Physics of Fluids*, **28(10)**, 2999-3005, 1985.
- Fernando, H.J.S., "A Discussion on the Dynamics of Jets in Two-Layer Stratified Fluids," *ASCE Journal of Hydraulics Engineering*, **112(11)**, 1107-1111, 1986.
- Fernando, H.J.S., "On Buoyancy Transfer Across an Entrainment Interface," *Boundary-Layer Meteorology*, **34**, 171-176, 1986.
- Narimousa, S. and Fernando, H.J.S., "On the Sheared Density Interface of an Entraining Stratified Fluid," *Journal of Fluid Mechanics*, **174**, 1-22, 1987.
- Fernando, H.J.S., "Comments on Wind Direction and Equilibrium Mixed Layer Depth: General Theory," *Journal of Physical Oceanography*, **17(1)**, 169-170, 1987.

- Fernando, H.J.S., "The Formation of Layered Structure When a Stable Salinity Gradient is Heated From Below," *Journal of Fluid Mechanics*, **182**, 525-541, 1987.
- Hannoun, I.A., Fernando, H.J.S. and List, E.J., "Turbulence Structure Near a Density Interface," *Journal of Fluid Mechanics*, **189**, 189-209, 1988.
- Fernando, H.J.S., "The Growth of a Turbulent Patch in a Stratified Fluid," *Journal of Fluid Mechanics*, **190**, 55-70, 1988.
- Fernando, H.J.S., "An Intrusion in a Stratified Fluid," *Transactions of the American Geophysical Union, EOS*, **69(16)**, 1-2, 1988.
- Fernando, H.J.S. and Long, R.R., "Turbulent Mixing at a Density Interface in the Presence of a Steady Stabilizing Buoyancy Flux," *Dynamics of Atmospheres and Oceans*, **12**, 233-257, 1988.
- Fernando, H.J.S., Boyer, D.L. and Chen, R-r., "Turbulent Thermal Convection in Rotating and Stratified Fluids," *Dynamics of Atmospheres and Oceans*, **13**, 95-121, 1989.
- Fernando, H.J.S., "Note on Interfacial Mixing in Stratified Flows," *Journal of Hydraulics Research*, **27(3)**, 463-465, 1989.
- Boyer, D.L., Davies, P.A., Fernando, H.J.S. and Zhang, X., "Linearly Stratified Flow Past a Horizontal Circular Cylinder," *Philosophical Transactions of the Royal Society (London), Series A*, **328**, 501-528, 1989.
- Fernando, H.J.S., "Oceanographic Implications of Laboratory Experiments on Diffusive Interfaces," *Journal of Physical Oceanography*, **19(11)**, 1707-1715, 1989.
- Fernando, H.J.S., "Buoyancy Transfer Across a Diffusive Interface," *Journal of Fluid Mechanics*, **209**, 1-34, 1989.
- Chen, R-r., Fernando, H.J.S. and Boyer, D.L., "Formation of Isolated Vortices in a Rotating Convecting Fluid," *Journal of Geophysical Research (Atmospheres)*, **94(D15)**, 18,445-18,453, 1989.
- Muench, R., Fernando, H.J.S. and Stegen, G.R., "Temperature and Salinity Steps in the Northwestern Weddell Sea," *Journal of Physical Oceanography*, **20(2)**, 295-306, 1990.
- De Silva, I.P.D., Montenegro, L.M. and Fernando, H.J.S., "Measurement of Interfacial Distortions at a Stratified Entrainment Interface," *Experiments in Fluids*, **9(3)**, 174-177, 1990.
- Fernando, H.J.S., Johnstone, H. and Zangrando F., "Interfacial Mixing by Turbulent Buoyant Jets," *Journal of Hydraulics Engineering*, **117(1)**, 1-20, 1990.
- Fernando, H.J.S. and Little, L.J., "Molecular Diffusive Effects in Penetrative Convection," *Physics of Fluids A*, **2(9)**, 1592-1596, 1990 (also see the erratum in *Phys. Fluids*, **8(8)**, 2550).
- Fernando, H.J.S., "Comments on Interfacial Migration in Thermohaline Staircases," *Journal of Physical Oceanography*, **20(12)**, 1994-1995, 1990.
- Fernando, H.J.S., "Turbulent Mixing in Stratified Fluids," *Annual Reviews of Fluid Mechanics*, **23**, 455-493, 1991.

- Noh, Y. and Fernando, H.J.S., "A Numerical Study on the Formation of a Thermocline in Shear-Free Turbulence," *Physics of Fluids A*, **3(3)**, 422-426, 1991.
- Zangrando, F. and Fernando, H.J.S., "A Predictive Model for the Erosion of Thermohaline Interfaces," *ASME Journal of Solar Energy Engineering*, **113**, 59-65, 1991.
- Fernando, H.J.S., Chen, R-r. and Boyer, D.L., "Turbulent Thermal Convection in Rotating Fluids," *Journal of Fluid Mechanics*, **228**, 513-547, 1991.
- Stegen, G.R., Muench, R.D., Fernando, H.J.S. and Ching, C.Y., "The Spatial/Temporal Evolution of Diffusive Thermohaline Layers," *Physics of Fluids A*, **3(5)**, 1142, 1991.
- Stephenson, P.H. and Fernando, H.J.S., "Laboratory Experiments on Turbulent Mixing Across Sheared Interfaces," *Physics of Fluids A*, **3(5)**, 1461, 1991.
- Noh, Y. and Fernando, H.J.S., "Propagation of Gravity Currents Along an Incline in the Presence of Boundary Mixing," *Journal of Geophysical Research (Oceans)*, **96(7)**, 12,586-12,592, 1991.
- Noh, Y. and Fernando, H.J.S., "Dispersion of Suspended Particles in Turbulent Fluids," *Physics of Fluids A*, **3(7)**, 1730-1740, 1991.
- Davies, P.A., Fernando, H.J.S., Besley, P. and Simpson, R., "The Generation and Spreading of a Turbulent Mixed Layer in a Rotating Stratified Fluid," *Journal of Geophysical Research (Oceans)*, **96(7)**, 12,567-12,585, 1991.
- Stephenson, P.W. and Fernando, H.J.S., "Turbulence and Mixing in a Stratified Shear Flow," *Journal of Geophysical and Astrophysical Fluid Dynamics*, **59**, 147-164, 1991.
- Noh, Y. and Fernando, H.J.S., "The Motion of Buoyant Cloud Along an Incline in the Presence of Boundary Mixing," *Journal of Fluid Mechanics*, **235**, 557-577, 1992.
- Lin, Q., Lindberg, W., Boyer, D.L. and Fernando, H.J.S., "Linearly Stratified Flow Past a Sphere," *Journal of Fluid Mechanics*, **240**, 315-354, 1992.
- De Silva, I.P.D. and Fernando, H.J.S., "Some Aspects on Mixing in a Stratified Turbulent Patch," *Journal of Fluid Mechanics*, **240**, 601-625, 1992.
- Noh, Y., Fernando, H.J.S. and Ching, C.Y., "Flow Induced by the Impingement of a Thermal on a Density Interface," *Journal of Physical Oceanography*, **22(10)**, 1207-1220, 1992.
- Lin, Q., Boyer, D.L., Fernando, H.J.S. and "Turbulent Wakes of Linearly Stratified Flow Past a Sphere," *Physics of Fluids A*, **4(8)**, 1687-1696, 1992.
- Noh, Y. and Fernando, H.J.S., "The Influence of Molecular Diffusion on the Deepening of the Mixed Layer," *Dynamics of Atmospheres and Oceans*, **17**, 187-215, 1993.
- Noh, Y. and Fernando, H.J.S., "A Numerical Model for the Fluid Motion at a Density Front in the Presence of Background Turbulence," *Journal of Physical Oceanography*, **23(6)**, 1142-1153, 1993.
- Fernando, H.J.S. and De Silva, I.P.D., "Note on Secondary Flows in Oscillating-Grid Mixing Box Experiments," *Physics of Fluids A*, **5(7)**, 1849-1851, 1993.
- Fernando, H.J.S. and Ching, C.Y., "Effects of Background Rotation on Turbulent Line Plumes," *Journal of Physical Oceanography*, **23**, 2125-2129, 1993.

- Fernando, H.J.S. and Ching, C.Y., "Lead-Induced Convection: A Laboratory Perspective," *Journal of Marine Systems*, **4**, 217-230, 1993.
- Lin, Q., Boyer, D.L. and Fernando, H.J.S., "Note on Internal Waves Generated by the Turbulent Wake of a Sphere," *Experiments in Fluids*, **15**, 147-154, 1993.
- Noh, Y. and Fernando, H.J.S., "The Transition in the Sedimentation Pattern of a Particle Cloud," *Physics of Fluids A*, **5(12)**, 3049-3055, 1993.
- Ching, C.Y., Fernando, H.J.S. and Noh, Y., "Interaction of a Negatively Buoyant Line Plume with a Density Interface," *Dynamics of Atmospheres and Oceans*, **19**, 367-388, 1993.
- Davies, P.A., Boyer, D.L., Fernando, H.J.S. and Zhang, X., "On the Unsteady Motion of a Circular Cylinder through a Linearly Stratified Fluid," *Philosophical Transactions of the Royal Society (London)*, **A345**, 1-34, 1994.
- Lin, Q., Boyer, D.L. and Fernando, H.J.S., "Flows Generated by the Periodic Horizontal Oscillations of a Sphere in a Linearly Stratified Fluid," *Journal of Fluid Mechanics*, **263**, 245-270, 1994. ([50](#))
- Flor, J., Fernando, H.J.S. and Van Heijst, G.J.F., "The Evolution of an Isolated Turbulent Region in a Two-Layer Fluid," *Physics of Fluids*, **6(1)**, 287-296, 1994.
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- De Silva I.P.D. and Fernando, H.J.S., "Oscillating Grids as a Source of Nearly Isotropic Turbulence," *Physics of Fluids*, **6(7)**, 2455-2464, 1994.
- Fernando, H.J.S. and Brandt, A., "Recent Advances in Double-Diffusive Convection," *Applied Mechanics Reviews*, **4(79)**, C1-C7, 1994.
- Perera, M.A.J.M., Fernando, H.J.S. and Boyer, D.L., "Mixing Induced by the Oscillatory Flow Past a Right Circular Cylinder," *Journal of Fluid Mechanics*, **284**, 11-21, 1995.
- Berman, N.S., Boyer, D.L., Brazel, A.J., Brazel, S.W., Celada, R.A., Chen, R-r., Fernando, H.J.S., Fitch, M.J. and Wang, H-w., "Synoptic Classification and the Design of Physical Model Experiments for Complex Terrain," *Journal of Applied Meteorology*, **34(3)**, 719-730, 1995.
- Davies, P.A., Mofor, L.A. and Fernando, H.J.S., "Laboratory Studies of Mixed Buoyant Jets in Shallow Cross-Flows," *Proceedings of the Institute of Civil Engineers, Water, Marine and Energy*, **112**, 75-78, 1995.
- Voropayev, S.A., Fernando, H.J.S. and Mitchell, L.A., "On the Rate of Frazil Ice Formation in the Presence of Turbulence," *Journal of Physical Oceanography*, **25(6)**, 1441-1450, 1995.
- Kit, E., Fernando, H.J.S. and Brown, J.A., "Experimental Examination of Eulerian Frequency Spectra in Zero-Mean-Shear Turbulence," *Physics of Fluids*, **7(5)**, 1168-1170, 1995.

- Ching, C.Y., Fernando, H.J.S. and Robles, A., "Breakdown of Line Plumes in Turbulent Environments," *Journal of Geophysical Research (Oceans)*, **100(C3)**, 4707-4713, 1995.
- Fernando, H.J.S., "Migration of Density Interfaces Subjected to Differential Turbulent Forcing," *Journal of Geophysical and Astrophysical Fluid Dynamics*, **78**, 1-20, 1995.
- Neves, M.J. and Fernando, H.J.S., "Sedimentation of Particles from Jets Discharged by Ocean Outfalls – A theoretical and Laboratory Study." *Water Science and Technology*, 133-140.
- Xu, Y., Fernando, H.J.S. and Boyer, D.L., "Turbulent Wakes of Stratified Flow Past a Cylinder," *Physics of Fluids*, **7(9)**, 2243-2255, 1996.
- Noh, Y. and Fernando, H.J.S., "Onset of Stratification in the Mixed Layer Subjected to a Stabilizing Buoyancy Flux," *Journal of Fluid Mechanics*, **304**, 27-46, 1996.
- Chen, R-r., Berman, N.S., Boyer, D.L. and Fernando, H.J.S., "Physical Model of Diurnal Heating in the Vicinity of a Long Mountain," *Journal of the Atmospheric Sciences*, **53(1)**, 62-85, 1996.
- Ching, C.Y., Fernando, H.J.S., Mofor, L. and Davies, P.A., "Interaction of Multiple Line Plumes in an Uniform Environment," *Journal of Physical Oceanography*, **26(4)**, 525-540, 1996.
- Fernando, H.J.S. and Hunt, J.C.R., "Some Aspects of Turbulence and Mixing in Stably Stratified Layers," *Dynamics of Atmospheres and Oceans*, **23**, 55-61, 1996.
- Broderson, S., Metzger, D.E. and Fernando, H.J.S., "Flows Generated by the Impingement of a Jet on a Rotating Surface: Part I - Basic Flow Patterns," *Journal of Fluids Engineering*, **118(1)**, 62-67, 1996.
- Broderson, S., Metzger, D.E. and Fernando, H.J.S., "Flows Generated by the Impingement of a Jet on a Rotating Surface: Part II - Detailed Flow Structure and Analysis," *Journal of Fluids Engineering*, **118 (1)**, 68-73, 1996.
- Voropayev, S.A., Fernando, H.J.S. and Wu, P.C., "Starting and Steady Quadrupolar Flow," *Physics of Fluids*, **8(2)**, 384-396, 1996.
- Srdic, A., Fernando, H.J.S. and Montenegro, L.M., "Generation of Nearly Isotropic Turbulence Using Two Oscillating Grids," *Experiments in Fluids*, **20**, 395-397, 1996.
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- Voropayev, S.A. and Fernando, H.J.S., "Propagation of Grid Turbulence in Homogeneous Fluids," *Physics of Fluids*, **8(9)**, 2435-2440, 1996.
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- Kit, E., Strang, E. and Fernando, H.J.S., "Measurement of Turbulence Near Shear-Free Density Interfaces," *Journal of Fluid Mechanics*, **334**, 293-314, 1997.
- Voropayev, S.A., Zhang, X., Boyer, D.L., Fernando, H.J.S. and Wu, A., "Horizontal Jets in Rotating Stratified Fluids," *Physics of Fluids*, **9(1)**, 115-126, 1997.
- Kit, E. and Fernando, H.J.S., "Frequency Spectra of Scalar Fluctuations at Entraining Stratified Interfaces," *Fluid Dynamics Research*, **19**, 65-75, 1997.

- Xu, Y., Boyer, D.L., Fernando, H.J.S. and Zhang, X., "Motion Fields Generated by the Oscillatory Motion of a Circular Cylinder in a Linearly Stratified Fluid," *Experimental Thermal and Fluid Science*, **14**, 277-296, 1997.
- Folkard, A., Davies, P.A. and Fernando, H.J.S., "Measurements of Turbulent Patch in a Rotating Linearly Stratified Fluid," *Dynamics of Atmospheres and Oceans*, **26**, 27-51, 1997.
- Fernando, H.J.S. and Hunt, J.C.R., "Turbulence, Waves and Mixing at Shear-Free Density Interfaces; Part 1 - A Theoretical Model," *Journal of Fluid Mechanics*, **347**, 197-234, 1997.
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- Zhang, X., Boyer, D.L. and Fernando, H.J.S., "Turbulence-Induced Rectified Flows in Rotating Fluids," *Journal of Fluid Mechanics*, **350**, 97-118, 1997.
- DeSilva, I.P.D. and Fernando, H.J.S., "Experiments on Collapsing Patches in Stratified Fluids," *Journal of Fluid Mechanics*, **358**, 29-60, 1998.
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- Fernando, H.J.S., Chen, R-r. and Ayotte, B.A., "Development of a Point Plume in the Presence of Background Rotation," *Physics of Fluids*, **10(9)**, 2369-2383, 1998.
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- Fonseka, S.V., Fernando, H.J.S. and van Heijst, G.J.F., "The Evolution of an Isolated Turbulent Region in a Stratified Fluid," *Journal of Geophysical Research*, **103(C11)**, 24,857-24,868, 1998.
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- Fernando, H.J.S. "Entrainment and Mixing in Stably Stratified Flows," Invited Lecture, GTP/NCAR conference on "Observations, Experiments and LES" Boulder, CO Aug. 12-15, 1998.
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- Fernando, H.J.S. "Flow and Dispersion in Complex terrain Airsheds," Invited Paper, Fluid Mechanics and the Environment, Conference in Honor of Sid Leibovich's 60<sup>th</sup> Birthday, Ithaca, NY, Aug 23-24, 1999.
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- Fernando, H.J.S. "Flow in Complex Terrain Areas," Keynote Paper, NSF-CNRS Workshop on "Transport and Mixing of Reactive and Passive Scalars in the Atmospheric Boundary Layer," July 4, 2001, Institut Pierre-Simon Laplace, Paris.

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- Fernando, H.J.S. “Air Pollution Research at ASU,” “American Lung Association, Pulmonary Research Forum, Tempe, AZ, February 7, 2004.
- Fernando, H.J.S. “Air Quality Dynamics in the Phoenix Area,” Invited Paper, Yale-IGES International Workshop on Urbanization and Environmental Change, April 22-24, Yale University, New Haven, CT, 2004
- Fernando, H.J.S. “Fluid Mechanics of Urban Environments,” Keynote Paper, Proceedings 10<sup>th</sup> Congress of Asian Fluid Mechanics (Ed., J.J. Wijethunga), University of Peradeniya, Sri Lanka, 17-21 May (Paper A02, CD).
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- Fernando, H.J.S. “Challenges in Tackling Urban Environmental Problems: An Example of a Rapidly Growing City,” IAI Institute for Urbanization and Global Change Research in Latin America, Mexico City, Sep 27 to October 8<sup>th</sup>, 2004.
- Fernando, H.J.S., “Air Pollution in Urban Settings,” Invited Speaker, NSF Workshop on Sensors for Environmental Observatories, Seattle, WA Nov 30 – Dec 02, 2004.
- Fernando, H.J.S. “Challenges in Tackling Urban Environmental Problems: An Example of a Rapidly Growing City,” William Mong Distinguished Lecture in Engineering and Computer Sciences, Hong Kong University, 2004.
- Fernando, H.J.S. “Urban Environments: Effects of Global Change and Extreme Events,” Keynote Speaker, Joint Houston-London Conference at the Shell Oil Auditorium, Rice University on Climate Change, Extreme Events and Coastal Cities, February 9-10, 2005.
- Fernando, H.J.S. “The Sumatra Tsunami in Sri Lanka,” Invited Speaker, Urgent Meeting on Tsunami Research, March 18, 2005, Institute of Civil Engineers and Lighthill Institute of Mathematics, London, 2005.
- Fernando, H.J.S. “Coherent Structures in Fluid Mechanics: Their Role in Mixing and Transport in Environmental Flows,” Invited Speaker, Proceedings, GTP Workshop on Coherent Structures in Atmosphere and Ocean, NCAR, July 11-14, 2005.

- Fernando, H.J.S. "Observations Following the Sumatra Tsunami in Sri Lanka," Conference on Infrastructure Reconstruction, College of Engineering, University of Calgary, October 21, 2005.
- Fernando, H.J.S. "Small Scale Turbulence and Mixing in Stratified Shear Flows," Invited Speaker, Conference on Emerging Paradigms in Non-Linear Sciences, Los Alamos National Laboratory, Jan 26-Jan 28, 2006.
- Fernando, H.J.S., "Air Circulation and Contaminant Dispersion in Cities," Keynote Speaker, NATO Advanced Research Workshop on Planetary Boundary Layer, 18-22 April, Dubrovnic, Croatia, 2006.
- Fernando, H.J.S. and Lozovatsky, I., "Turbulence and Mixing in Strongly Stratified Layers of Natural Flows," Keynote Speaker, 10<sup>th</sup> European Workshop on Physical Processes in Natural Waters, June 26-28, 2006, University of Granada, Spain.
- Fernando, H.J.S., "Particle Laden Flows: from Geophysical to sub-Kolmogorov Scales," Keynote Closing Speaker, Euromech Colloquium 477, University of Twente, June 21-33, 2006.
- Fernando, H.J.S., "Flow, Turbulence and Transport in Complex Terrain Airsheds: From Meso to Street Canyon Scales," Keynote Speaker, NCAR GTP Workshop on Turbulence and Scalar Transport in Roughness Sublayers, September 26-28, 2006.
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- Calhoun, R., Retallack, C., Christman, A. and Fernando, H.J.S., "Nocturnal Valley Flow in T-Rex," Invited Talk, Stable Atmospheric Boundary Layer Workshop, Sedona, Arizona, November 12-16, 2006.
- Fernando, H.J.S., "Small Scale Mixing in Stably Stratified Flows," Invited Speaker in the AFOSR Workshop on "Challenges of Multi-scale Atmospheric Turbulence," Tempe, AZ, Dec 14-15, 2006.
- Fernando, H.J.S. "Transport and Small Scale Mixing in Topographically Dominated Stably Stratified Flows," Keynote Speaker, Sixth International Symposium on Stratified Flows, Perth, Australia, December 11-14, 2006.
- Fernando, H.J.S., "Coral Observations Following Sumatra Tsunami in Sri Lanka," IIHR-Asia Pacific Division Meeting, Hong Kong, Inaugural Thematic Paper, January 15-16, 2007.
- Fernando, H.J.S. "Tsunamis: A Journey through their Manifestation and Aftermath," *American Society of Limnology and Oceanology (ASLO)*, Keynote Union Session Speaker, Annual Conference, Santa Fe, February 2-7, 2007.
- Fernando, H.J.S., "Particle Laden Flows in Geophysics," Invited Speaker, Explosive Volcanism Workshop, Integrating Numerical and Laboratory Models of Explosive Eruptions with Deposits: Understanding Explosive Volcanic Sedimentation, Prescott, Arizona, March 31-April 4, 2007.

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- Fernando, H.J.S., “Air Quality in Phoenix Area,” Conference on “Rome Experience to the ATMOSFERA Production in Milan: A Project for the Air Quality in Big Cities,” Invited Speaker, April 23, Campidoglio, Rome, 2007.
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- Fernando, H.J.S., “Tales of Troubled Waters: Sumatra Tsunami, Katrina Storm Surge and Cognates,” NATO (Security through Science Program) Workshop on Aral Sea, Keynote Speaker, Girona, Spain, July 11-14, 2007. (50)
- Mahalov, A., Nicolaenko, B. and Fernando, H.J.S., “High Performance Computing of Environmental Flows,” Invited Paper, Multi-Scale Mathematics in Defense Research and It’s Spin-Offs, Lighthill Institute of Mathematics, Workshop, May 31-June 2, 2007.
- Di Sabatino, S. and Fernando, H.J.S., “Turbulent Mixing Scenario during Evening Transition,” Invited Paper, Turbulent Mixing and Beyond, The Abdus Salam International Centre for Theoretical Physics, Trieste, August 18-26, 2007.
- Fernando, H.J.S. “Some Non-Linear Problems Associated with Modeling of Urban Air Flows,” Keynote Speaker, First Basil Nicolaenko Distinguished Lecture Series in Non-Linear Sciences, Arizona State University, October 8, 2007.
- Fernando, H.J.S., “Urban heat Island in Phoenix,” City of Phoenix, Invited Speaker and Moderator, Continuous learning Institute, October 6, 2007.
- Fernando, H.J.S. “Wading in Troubled Waters: Tsunamis, Storm Surges and Stressed Environments,” Keynote Speaker, 5<sup>th</sup> International Symposium on Environmental Hydraulics, Tempe, AZ 4-7, 2007.
- Fernando, H.J.S. “Anthropogenic Exacerbation of Natural Disasters,” Mini-Conference on “A Dynamic Approach to Mitigation of Natural Disasters,” Keynote Speaker, International Infrastructure Renewal & Reconstruction, University of Calgary, April 10-11, 2008.

Fernando, H.J.S., "Journeying Through Some Stressed Ecosystems," Invited Speaker, National Academy of Engineering, Regional Meeting and Sustainability Symposium, Tempe, Arizona, April 2008.

Fernando, H.J.S., "Urban heat Island of Phoenix," Invited Speaker, Weather Workshop, National Weather Service, Phoenix, May 13, 2008.

Fernando, H.J.S., "Technology Infusion for Atmospheric Boundary layer Research; Observations and Experiments on Multi-scale Turbulence Phenomena," Keynote Speaker, Geophysical Turbulence Phenomena; Observing the Turbulent Atmosphere: Sampling Strategies, Technology and Applications. Theme of the Year Workshop, National Center for Atmospheric Research, Boulder, CO, May 28-30, 2008.

Fernando, H.J.S., "Episodic Events in Nature; The Role of Turbulence, Waves and Mixing," 2<sup>nd</sup> NATO Workshop on Aral Sea, Invited Speaker, Tashkent, Uzbekistan, October 22-24, 2008.

Fernando, H.J.S., "Fluid Mechanics of Urban Environments," Invited Speaker, American Physical Society Fluid Dynamics Meeting, San Antonio, Texas, *Bull. Am. Phys. Soc.* **53(15)**, 212, 2008.

Fernando, H.J.S. and Voropayev, S.A., "Shallow Flows in the Atmosphere and Oceans: Geophysical and Engineering Applications," Keynote Speaker, Proceedings, International Symposium on Shallow Flows, Hong Kong, December 10-12, 2008.

Hunt, J.C.R., Eames, I., Westerweel, J., Davidson, P.A., Voropayev, S., Fernando, H.J.S., and M. Braza, "Thin Shear Layers – The Key to Turbulence Structure? Keynote Paper (by J.C.R.Hunt), Proceedings, International Symposium on Shallow Flows, Hong Kong, December 10-12, 2008.

E.R. Pardyjak and H.J.S. Fernando, "The Effect of Surface type on the Decay of Turbulence in the Surface Layer During Evening Transition," Invited Paper, European Meteorological Society, 9th EMS / 9th ECAM, EMS2009-531, 02 Oct 2009.

Princevac, M., Fernando, H.J.S. and Hunt, J.C.R., "Thermally Driven Flows in Complex Terrain: Field, Laboratory and Analytical Investigation," Invited Paper, International Symposium on Multi-Phase Flow in Atmospheric Boundary Layer", October 16th to 19th, Lanzhou, China, 2009. (50)

Fernando, H.J.S and Lozovatsky, I., "Topographic Influence on Internal Waves," Keynote Speaker, Turbulence and Internal Waves in Mediterranean Sea (TURBINTERMED) Workshop, March 10-12, Toulon, France, 2010. (66)

Fernando, H.J.S. "Environmental Hydraulics and Sustainability: Some Lessons from Recent Past," Keynote Address, 6<sup>th</sup> International Symposium on Environmental Hydraulics, Athens, Greece, 23-25 June, 2010.

Fernando, H.J.S., "Water Resources: Changes over Next 20 Years," Invited Speaker, 1<sup>st</sup> IAHR Summit on Hydro-Environmental Engineering and Research, "The Engineering and Research Contribution to Global Water Security, Athens, June 14, 2010.

Ovenden, N., Shaffer, S. And Fernando, H.J.S. "Investigations of Environmental and Terrain Effects on the Propagation of Freeway Noise, Invited Paper, Acoustical Society of America (ASA), Seattle May 23 and 27, 2011.

Fernando, H.J.S. "Sustainable Coastal Cities: Role of Environmental Hydraulics," Invited Speaker, Future of Environmental Hydraulics (Symposium in honor of Heinz Stefan). University of Minnesota, St. Anthony Falls Hydraulics Laboratory, May 11, 2011.

Fernando, H.J.S. "Flow and Dispersion through Urban Canopies," Invited Speaker, Symposium Honoring Professor C.C. Mei, American Academy of Arts and Sciences, Boston, May 20, 2011.

Fernando, H.J.S., Pol, S., Nath, C., Voropayev, S., Webb, S. and Lord, D., "Jets, Plumes and Double Diffusion under Confinement – And their Role in Fluid Mechanics of US Strategic Petroleum Reserves," Invited Speaker, Gehard H. Jirka Memorial Colloquium on Environmental Fluid Mechanics," June 3-4, Karlsruhe, Germany, 2011.

Fernando, H.J.S., Climate Impacts on Urban Areas, Workshop on Asian Climate Change and Variability: Trends and Policy, Invited Speaker, Divecha Center for Climate Change, IIS Bangalore, July 20 to 22, 2011.

Fernando, H.J.S. "Toward Sustainable and Secure Coastal Zones: Role of Waves, Tides, Sediments and Turbulence," Inaugural Keynote Speaker, 6<sup>th</sup> International Symposium on Asian and Pacific Coasts (APAC 2011), Hong Kong, December 14-16, 2011.

Fernando, H.J.S. "Sustainable and Secure Coastal Zones: Role of Waves, Tides, Sediments and Turbulence," Invited Speaker, 5<sup>th</sup> Annual CENSAM (Center for Environmental Sensing and Modeling) Workshop, MIT-Singapore Alliance, Jan 12-13, 2012.

Fernando, H.J.S. "Air Quality at Different Spatial Scales: Panel Discussion," Invited Speaker, 5<sup>th</sup> Annual CENSAM (Center for Environmental Sensing and Modeling) Workshop, MIT-Singapore Alliance, Jan 12-13, 2012.

Fernando, H.J.S., "Mixing in Stratified Shear Layers, including the Effects of Topography, Invited Speaker, Workshop on Physical Processes in the Bay of Bengal and Monsoon ISO. 5-7 March, Indian Institute of Sciences, Bangalore, 2012.

#### **CONFERENCE PROCEEDINGS (Refereed, National and International)**

Fernando, H.J.S., "Peat: Its Origin and Nature," Karmantha, **10**(October), 16-19, 1977.

Herath, K. and Fernando, H.J.S., "Use of Solar Panels for the Domestic Lighting in Sri Lanka," Paper for the *Symposium on Policy on Energy*, Institute of Engineers, Sri Lanka, 1980.

- Fernando, H.J.S., "A Note on the Peat Resources in Sri Lanka," *Peat as an Energy Alternative II*, Inst. Gas Tech., I.I.T., Chicago, ISPEA Trans., 109-118, 1981.
- Fernando, H.J.S. and Long, R.R., "Mixed Layer Growth in Stratified Fluids," *The Ocean Surface: Wave Breaking, Turbulent Mixing and Radio Probing* (Eds. Y. Toba and H. Mitsuyasu), 541-546, 1985.
- Fernando, H.J.S., "Molecular Diffusive Effects in Stratified Turbulent Mixing," *Advances in Aerodynamics, Fluid Mechanics and Hydraulics* (Eds. R. Arndt, S. Heinz, C. Farell and S. Peterson), 997-1004, 1986.
- Fernando, H.J.S., "Evolution of a Series of Convecting Layers Separated by Diffusive Density Interfaces," *Proceedings of the International Symposium on Buoyant Flows* (Ed. G. Noutsopoulos), Athens, Greece, 348-358, 1986.
- Fernando, H.J.S. and De Silva, I.P.D., "Collapse of a Turbulent Patch in a Stratified Fluid," *Eighth Symposium on Turbulence and Diffusion, American Meteorological Society*, 283-284, 1988.
- Fernando, H.J.S. and De Silva, I.P.D., "On the Growth and Collapse of a Turbulent Patch in a Stratified Fluid," *Transport Phenomena in Turbulent Flows* (Eds. M. Hirata and N. Kasagi), Hemisphere Publishing, 545-556, 1988.
- Fernando, H.J.S. and De Silva, I.P.D., "On the Lengthscales of Stratified Turbulence," *Proceedings 4th Asian Congress of Fluid Mechanics*, A174-177, 1989.
- Fernando, H.J.S., "Turbulent Mixing Across Density Interfaces: A Review of Laboratory Experiments and Their Oceanographic Implications," (Invited Paper), *'Aha Hulikoa, Winter Hawaiian Workshop Proceedings*, Institute of Geophysics, University of Hawaii, 205-218, 1989.
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- Fernando, H.J.S. Analysis of Low Frequency Behavior in Reactor Power Signals. Report to the Arizona Public Service Company, pp 36, 2006. (Report 4)
- Fernando, H.J.S. “Air Entrainment under Reactor Shut Down Conditions: A Criterion for Model Testing,” Report to the Arizona Public Service Company, pp 7, 2006 (Report 5).
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- Fernando, H.J.S. “Report on Palo Verde Nuclear Generating Station (PVNGS) Engineering Studies: 13 – MS – A108, Report to the Arizona Public Service Company, pp 9, 2008 (report 8).
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Fernando, H.J.S. & Sharma, A., Numerical Modeling of Flow in the Condensate Polisher Vessel of a Nuclear Reactor: Implications of modifications, APS PO # 500529566 (Report # 10), 2009.

Fernando, H.J.S. Report on the ONR – ARO Workshop on “Weather in Mountainous Terrain”, (Overcoming Scientific Barriers to Weather Support). Fiesta Resort & Conference Center, Tempe, AZ, February 1-2, 2010. (Available on CD).

## **SPONSORED RESEARCH PROJECTS**

### **Projects Funded**

#### *External Funding*

- 06/01/85 - 03/11/87: National Science Foundation Research Initiation; Turbulent Mixing in the Presence of Stable Stratification. (\$69,998)
- 06/01/87 - 06/01/92: National Science Foundation; Presidential Young Investigator Award. (\$265,000)
- 06/01/87 - 03/05/89: Office of Naval Research, Arctic Science Programs; Mixing Across Double-Diffusive Interfaces. (\$66,363)
- 10/15/87 - 10/14/89: Office of Naval Research, Coastal Sciences Program; Laboratory Experiments on Boundary Mixing and Front Formation in Stratified Fluids. (\$92,833)
- 02/01/88 - Garrett Fluid Systems Company; Presidential Young Investigator Matching Equipment. (\$10,565)
- 06/01/88 - National Science Foundation; Research Education for Undergraduates. (\$3,379)
- 09/14/88 - Science Applications International Corporation; Analysis of Weddell Sea Oceanographic Data. (\$5,785)
- 10/01/89 - 09/30/91: Office of Naval Research, Arctic Sciences Program; Laboratory Experiments on Fluid Dynamical Processes Related to Winter Arctic Leads. (\$113,080)
- 06/01/89 - National Science Foundation; Research Education for Undergraduates Award. (\$4,000)
- 11/28/89 - Intel Corporation; Presidential Young Investigator Award Matching Equipment. (\$35,702)
- 01/01/90 - 12/31/91: Office of Naval Research, Small-Scale Processes Program; Diapycnal Mixing, Gravity Current Propagation and Sediment Dispersion in Turbulent Fluids. (\$131,888)
- 01/01/90 - 12/30/92: Office of Naval Research, Ocean Engineering; Experimental and Theoretical Studies of Wakes in Stratified Fluids, Co-PI, PI - Dr. D.L. Boyer. (\$185,837)
- 06/01/90 - 05/31/93: National Science Foundation, Division of International Programs; Structure of Turbulence Near Density Interfaces. (\$14,470)
- 06/01/90 - 05/31/91: Garrett Engine Division (Allied Signal); Rotating Disk Cavity Flow. (\$10,212)

- 09/01/90 - 08/01/93: North Atlantic Treaty Organization; Spreading of a Locally Generated Mixed Layer in a Linearly Stratified Fluid, Co-PIs - Drs. P.A. Davies, D.L. Boyer and G. Chabert d'Heires. (£7,240)
- 06/01/91 - 10/31/91: Army Research Office; Trapping of Internal Gravity Waves in an Inversion, PI, Co-PI - Dr. D.L. Boyer. (\$20,804)
- 05/03/91 - Silicon Graphics; IRIS 3100 Silicon Graphics Work Stations and 4020 PC; Equipment Donation. (\$78,600)
- 03/01/91 - 02/29/92: Southwest Center for Environmental Research; Modeling of Drainage Flow in Rio Grande Basin, PI, Co-PI - Dr. D.L. Boyer. (\$14,100)
- 10/01/91 - 09/30/94: Science Applications International Corporation; Collapse of Stratified Turbulent Jets. (\$20,000)
- 10/01/91 - 09/30/93: Office of Naval Research, Arctic Science Programs; Hydrodynamics of Convection Under Polar Leads. (\$124,058)
- 01/01/92 - 12/30/94: Office of Naval Research, Small-Scale Processes Program; Turbulent Mixing in Stratified and Sediment Laden Flows. (\$210,069)
- 08/01/92 - 06/30/93: Science Applications International Corporation; Collapse of Stratified Turbulent Jets. (\$9,950)
- 09/30/92 - 09/29/93: Office of Naval Research, Engineering Program; Laser-Induced Fluorescence/ Particle Tracking System for Stratified Turbulence Research, Co-PI - Dr. D.L. Boyer. (\$81,000)
- 10/01/92 - 09/30/95: National Science Foundation (CTS); Turbulent Mixing in Environmental Flows. (\$235,271): REU Supplement - (\$16,000)
- 01/15/92 - 03/15/95: Office of Naval Research, Small-Scale Processes Program; AASERT: Mixing and Internal Wave Propagation in Stratified Flows. (\$98,326)
- 02/15/93 - 02/14/94: Southwest Center for Environmental Research; Air Quality in Nogales, Co-PI, PI - Dr. N. Berman. (\$77,500)
- 05/01/93 - 04/30/96: Office of Naval Research, Arctic Programs; AASERT: Laboratory Experiments on Deep Ocean Convection. (\$92,000)
- 10/01/93 - 09/30/96: Environmental Protection Agency; Particle-Laden Stratified Turbulent Flows. (\$216,069)
- 05/01/93 - 04/30/96: Office of Naval Research, Ocean Technology Programs; AASERT: Measurement of Lift, Drag and Torque on Obstacles in Stratified and Rotating Flows, Co-PI, PI - Dr. D.L. Boyer. (\$97,571)
- 10/01/93 - 09/30/95: Office of Naval Research, Arctic Science Programs; Studies on Convection in Polar Oceans. (\$133,298)
- 10/01/93 - 09/30/96: National Science Foundation (Ocean Sciences); Physical Modeling of Tidal Currents in the Vicinity of Continental Shelf Breaks, Co-PI, PI - Dr. D.L. Boyer. (\$294,236)
- 01/15/94 - 03/15/97: Office of Naval Research, Small-Scale Processes Program; AASERT: Critical-Layer Absorption in Stratified Flows. (\$90,830)
- 01/01/95 - 12/30/96: Office of Naval Research, Small-Scale Processes Program; Turbulence and Mixing in Deep and Coastal Oceans. (\$167,747)
- 01/07/95 - 30/06/98: Army Research Office; Turbulent Mixing in Stratified Shear Flows, Co-PI - Dr. D.L. Boyer. (\$205,362)
- 01/04/95 - 01/30/98: Office of Naval Research; Dynamics of Cobbles in and Near the Surf Zone, Co-PI, PI - Dr. D.L. Boyer. (\$338,184)

- 01/01/95 - 12/31/97: Arizona State University Multi-Disciplinary Initiative; Environmental Transport, Eco-Systems Analysis and Biore restoration in Arid Regions, Co-PIs - Drs. D. Patten, P. Fox and N. Berman. (\$225,000)
- 05/15/95 - 06/30/95: Arizona Department of Environmental Quality; Design of a System to Limit Coliform Bacteria in Recreational Areas of Lake Havasu, PI - P. Fox. (\$22,000)
- 10/01/95- 09/30/97: Office of Naval Research; Studies on Convection in Polar Oceans. (\$137,937).
- 01/01/96- 12/31/98: National Science Foundation; Studies on Environmental Turbulent Flows. (\$259,317 + 3 REU awards \$12,000)
- 01/01/97- 12/31/98: Office of Naval Research; Mixing, Fine-Structure and Internal Waves Near Shallow Summit Sea Mounts, Co-P.I., P.I. - I. Lozovatsky (220,847)
- 01/01/97 12/31/98: Office of Naval Research; Turbulent Mixing in Oceanic Surface and Coastal Boundary Layers (\$174,962).
- 01/01/97 12/31/99: National Science Foundation; Physical and Numerical Modeling of Currents in and Near Submarine Canyons (\$295,919), Co-P.I., P.I. - D.L. Boyer.
- 06/01/97 05/30/00: Office of Naval Research, Coastal Dynamics Program; AASERT: Mine Movement in and Near Surf Zone (\$ 115,116), Co-P.I., P.I. - D.L. Boyer.
- 06/01/97 05/30/00: Army Research Office, Geosciences and Engineering; AASERT: Turbulent Patches in Stratified Shear Flows (\$ 109,469), P.I., Co-P.I. - D.L. Boyer.
- 04/01/97 05/30/98: Environmental Protection Agency, SCERP Program; Complex-Terrain Airshed of El Paso - Ciudad Juarez - Sunland Park Basin (\$ 82,918), Co-P.I., P.I. - N.S. Berman
- 08/01/97 07/31/99: National Science Foundation; Modeling of Contaminant Dispersion in Complex Terrain Flows (\$425,000), P.I., Co-P.I.'s - N.S. Berman, D.L. Boyer, A. Mahalov and J. Anderson.
- 10/01/98 09/30/99: Environmental Protection Agency, SCERP Program; Characterization of Ambient Particulate Matter in the Paso del Norte Region (\$ 75,000), Co-P.I. (with J. Anderson), P.I. - N.S. Berman
- 04/01/98 03/31/01: Air Force Office of Scientific Research; Development and Verification of Experimental Databases for Pancake Structures in Geophysical Flows (86,925); Co-P.I. (with A. Mahalov), P.I. - B. Nicolaenko.
- 04/01/98 3/31/00: Office of Naval Research, Coastal Dynamics Program; Dynamics of Cobbles in and Near the Surf Zone (\$200,000); Co-P.I., P.I. - D.L. Boyer.
- 08/15/98 8/14/01: US Department of Education, GAANN Program; Graduate Education in Environmental Technology (\$378,330); P.I., Co-P.I.'s - G. Raupp, P. Phelan and P. Fox.
- 10/12/98 9/30/99: US Bureau of Reclamation; Evaluations of Flow Fields in Wetlands Using Physical Models (\$73,623); Co-P.I., P.I. - P. Fox.
- 08/01/98 12/1/98: Arizona Department of Environmental Quality; Meteorological Measurements at the Falcon Field Airport (\$10,639).
- 10/01/99 09/30/00: Environmental Protection Agency, SCERP Program: Modeling of the El Paso Airshed (\$ 75,000), Co-P.I. with J. Anderson, P.I. - N.S. Berman
- 01/01/99 12/31/01: National Science Foundation (Urban Research Initiative); Dynamics of an Urban Carbon Dioxide Dome (\$ 498,000), Co P.I. with T. Day, P. Glober, T. Hogan, J. Klopatek and E. Wentz, P.I. – Robert Balling

01/01/99 12/32/00: Office of Naval Research: Topographic Influence on Internal Waves and Meso-scale Ocean Dynamics, Co-P.I., P.I. - I. Lozovatsky (280,000)

05/01/99 31/12/00: Office of the President, ASU; Neighborhood Seed Grant Program; Tempe Town Lake Evaporation and Climate Modification (68,775), Co P.I with Tony Brazel, P.I. Nancy Selover

15/08/99 14/08/03: Department of Energy: Vertical Transports and Mixing in Complex Terrain Airsheds (\$744,696), PI, Co P.I.'s – J. Anderson, D.L. Boyer and N.S. Berman.

15/06/99 06/14/00: National Science Foundation: Environmental Stratified Shear Flows (\$45,000), PI.

11/17/99 06/16/01: Arizona Department of Transportation: A Field Study of Particulate Emissions from Major Roadways in the Phoenix Airshed (\$325,056), Co-PI, P.I. - J. Anderson.

01/01/00 05/30/01: Southwest Center for Environmental Research and Policy/EPA: Meso-scale Meteorological Modeling of El Paso Del Norte Airshed (\$75,000+24,000), PI, Co-PI's Neil Berman and James Anderson.

04/01/00 03/31/02: Office of Naval Research (Coastal Dynamics Program): The Dynamics of Cobbles in and Near the Surf Zone (\$229,075), Co PI with Sergey Voropayev, PI: D.L. Boyer.

06/01/00 05/30/01: SCERP/EPA, A Multi-Scale Atmospheric Analysis of Particulate Concentration and Flow in the Douglas-Agua Prieta Airshed (\$67,239), Co-PI, P.I. Andrew Ellis.

07/01/00 06/30/03: National Science Foundation: Urban Fluid Mechanics: Thermal Circulation in Complex Terrain (\$294,368), PI.

10/01/00 09/31/03: US Army Research Office: Effects of Roughness and Thermal Inhomogeneities on Urban Flows (\$242,000), PI, Co-PI. – Don Boyer

01/15/00 12/31/02: Office of Naval Research: Studies of Mine Burial in Coastal Environments (249,995), PI., Co-PI's – Don Boyer, Sergey Voropayev

06/01/00 05/30/03: National Science Foundation: Interpretation of SHEBA Data Using Numerical Models, Co-PI, PI – David Smith.

01/01/01 12/31/02: Office of Naval Research: Laboratory Benchmarks for the Development of Numerical Models (217,352), Co-PI, PI – Don Boyer

01/01/01 12/31/01: Office of Naval Research: Lateral and Vertical Mixing in Marginal Zones, (\$100,000), Co-PI, PI – Iosiff Lozovatsky

01/18/01 12/21/01: National Science Foundation: US-France Cooperative Research (\$18,000), Co-PI with Alex Mahalov, P.I. – Basil Nicolaenko

08/15/01 08/14/02: Arizona Department of Environmental Quality (\$69,489), Modeling of Douglas/Agua Prieta Airshed, Co-PI, PI – Joseph Zehnder

06/01/01 08/31/02: SCERP/EPA (\$70,000): Tran-border Flux of Fugitive Dust at Douglas, Arizona- Agua Prieta Airshed, Co-PI, PI – James Anderson, S.M. Lee

09/30/01 09/30/04: Air Force Office of Scientific Research (\$852,604): Statistics and Variability of Turbulence Dynamics in the Middle Atmosphere, Co-P.I. with Alex Mahalov, PI – Basil Nicolaenko.

04/01/02 10/01/02: Office of Naval Research (54,615), Dynamics of Cobbles in and Near the Surf Zone, PI, Co P.I.s D.L. Boyer and S. Voropayev

07/01/02 06/30/03: SCERP/EPA (\$80,000): Effects of Prescribed Fires on Air Quality in the Yuma/San Luis Area, PI. Co P.I.'s – J. Anderson & S.M. Lee

04/01/02 03/31/03: Army Research Office (DURIP) (\$750,000): Remote Sensing of Urban Environments: Acquisition of an Eye-Safe Coherent Doppler Lidar for Arizona State University's Urban Fluid Mechanics Research, Co. P.I., P.I. – R. Calhoun.

08/01/02 07/31/04: University of Houston (EPA Prime) (\$80,000); Urban-Scale Flow Modeling: Co-PI, PI -S.M. Lee.

03/01/02 02/28/04: Office of Naval Research (\$168,293): Wakes of Maneuvering bodies in Stratified Fluids, Co PI, PI: S. Voropayev.

10/01/02 06/01/04: Arizona Department of Environmental Quality (91,450) ASU/ADEQ Modeling Center, PI.

03/31/03 03/31/04: Army Research Office (\$152,530): Doppler Lidar Measurements of Wind, Turbulence and Aerosol Backscatter Measurements in an Urban Environment, Co PI, PI: Ronald Calhoun

04/01/04 03/31/04: Office of Naval Research (\$91,400): Acquisition of a Stereoscopic PIV system for Flow Measurements Around Submerged Mines in Shoaling Waters , PI.

06/01/03 05/31/04: Physical Characterization of Aerosols from Prescribed Burns in the Yuma-San-Luis Area, Co P.I., PI: J. Anderson

05/01/03 01/31/04: Arizona Public Service Company (\$65,207): Flow Induced Vibrations in a Shutdown Cooling System, PI, Co PI – Leonard Montenegro.

06/01/03 05/31/04: Arizona Department of Environmental Quality (30,000): Modeling of 8-Hour Ozone Boundaries, PI.

04/01/03 06/30/04: Arizona Department of Environmental Quality (90,925): 8-Hour Ozone Non-Attainment Boundaries Analysis and Socio-Economic Information, PI.

10/01/03 09/31/04: Department of Energy (118,778): Vertical Transport and Mixing in Complex Terrain Airsheds," PI, Co-PIs: D. Boyer and J. Anderson.

05/11/04 05/10/06: Arizona Department of Transportation (\$50,000). Intergovernmental Service Agreement: Environmental Monitoring Along Freeways, PI.

09/01/04 08/31/05: National Science Foundation (\$114,949): MUSES: Decision Support for Urban Development: Air Quality, Social Justice, Material and Energy and the Impact of Social Decision Making. Co-PI with 7 others, PI: John Crittenden.

04/01/04 03/31/06: Office of Naval Research (\$223,151): Ripple Dynamics and Benthic Transformation under Variable Wave Forcing. PI: Co PI: Sergey Voropayev and Mark Schmeekle.

06/01/04 08/31/05: SCERP/EPA (\$70,000): Agricultural Burns Surrounding Yuma-San Luis Border: Plume Dispersion and Health Effects, PI, Co PI: PI – James Anderson, S.M. Lee

07/01/04 06/30/07: Army Research Office (\$275,000): Air Flow and Dispersion Over an Urban Downtown Area, Co PI (PI: Ronald Calhoun)

08/15/04 08/14/05: National Science Foundation (\$86,000): MEASURES: A Proof of Concept Demonstration, PI (Co PIs: J. Anderson, J. Crittenden and S. Panchanathan)

08/15/04 08/14/05: Arizona Department of Environmental Quality (\$50,000): ASU-ADEQ Modeling Center Support, PI.

01/01/05 12/31/07: Air Force Office of Scientific Research (\$997,543): Characterization and Prediction of Clear Air and Optical Stratospheric Turbulence for DOD High Altitude Platforms, Co-P.I. with Alex Mahalov, PI – Basil Nicolaenko

- 01/10/05 01/31/06: Arizona Public Service Company (\$90,000): Continued Studies on Flow Induced Vibrations in a Shutdown Cooling System, PI, Co PI – Leonard Montenegro.
- 10/01/04 09/30/06: Office of Naval Research (\$289,000): Mixing, Internal Waves and Meso-Scale Dynamics in the East China Sea. Co PI, PI – I. Lozovatsky.
- 10/01/04 09/60/07: National Science Foundation (\$185,956): Collaborative Research: Surface Boundary Layer Characterization in Urban Areas, PI
- 03/01/05 02/28/07: Office of Naval Research (\$196,000): Wakes of Maneuvering bodies in Stratified Fluids, Co PI, PI: S. Voropayev.
- 05/01/05 04/30/06; Army Research Office (\$113,933); Acquisition of a SODAR/RASS Instrument Package for Remote Sensing of Urban Environments, PI, Co P.I.: R. Calhoun.
- 05/01/05 11/01/05; City of Scottsdale (Gutierrez-Palmenberg Inc.); \$ 3000; Modeling Support for Air Emissions from Ground Water Facilities, PI.
- 07/01/05 06/30/06: Arizona Department of Environmental Quality (\$235,000); ADEQ Modeling Center Activities; PI.
- 08/01/05 07/31/09: United States-Israel Bi-national Science Foundation (\$69,000); Relating Spatial to temporal Instability of Meteorological Shear Flows. PI, US Side (co PIs – Eliezer Kit and Alex Gelfgat, Tel Aviv University)
- 10/01/05 09/30/06: Arizona Department of Transportation (\$90,000); Effects of Wind Velocity and Inversion Strength on the Acoustic Propagation from Freeway Corridors; PI
- 01/01/06 07/31/06: Office of Naval Research (98,768); Ripple Dynamics and Benthic Transformations under Variable Wave Forcing; PI (Co PIs – Mark Schmeckle and S. Voropayev)
- 12/29/05 03/31/06: Air Quality Technical Assistance; Maricopa Association of Governments (MAG); \$ 2851; PI.
- 12/15/05 11/20/08: National Science Foundation; Coherent Lidar Deployment and Data Analysis for Terrain-Induced Rotor Experiment (\$417,808); co-PI, PI- R. Calhoun
- 06/01/2006 05/31/2007: Arizona Public Service Company; VOPT Pretrip Investigations (\$94,834); PI.
- 09/21/2006 09/2-/2007: Army Research Office, The Sedona Workshop on the Stable Boundary Layer (\$44,325); PI Co-PI -R. Calhoun.
- 11/01/2006 09/30/2007: Tracking of Pollution Plume Using a Doppler Lidar; Arizona Department of Environmental Quality (\$30,000); PI, Co-PI – R. Calhoun.
- 11/01/2006 09/30/2007: Continued Enhancement and Support for the ASU/ADEQ Modeling Center; Arizona Department of Environmental Quality (\$190,000); PI.
- 10/01/2006 09/30/2009: Compositional Convection in Oil Storage Tanks; Sandia National Laboratory (\$290,000); PI.
- 04/01/2007 06/30/2008: Modeling and Monitoring of Particulate Matter in Support of Children’s Health Assessment Studies; Arizona Department of Environmental Quality (\$222,000); PI (Co PIs: M. Rimza, J. Anderson and G. Runger)
- 03/01/2007 02/28/2010: Wakes of Maneuvering Bodies in Stratified Fluids; Office of Naval Research (\$310,000); Co-PI, PI: S. Voropayev
- 04/01/2007 03/31/2009: Ripple Dynamics and Benthic Transformations under Variable Wave Forcing; Office of Naval Research (\$203,100), PI, Co-PI – S. Voropayev

04/01/2007 12/30/2009: Nonlinear Internal Waves in Tidal and Marginal Seas; Office of Naval Research (\$310,000); Co-PI, PI: I. Lozovatsky.

04/01/2007 09/30/2008; Thermal Circulation in Complex Terrain: Upslope, Downslope and Transitional Flows, Science Foundation of Arizona (\$ 106,663), PI.

03/29/2007 12/28/2007; Coherent Doppler Lidar Deployment in the Canopy Horizontal Array Turbulence Study, Army Research Office (\$41,901), co-PI, PI – R. Calhoun.

06/01/2007 03/01/2009: Physical Modeling of the Upper Plenum of the PVNGS Reactor, Arizona Public Service Company (\$144,362), PI.

06/20/2007 05/31/2008: Support for the ASU/ADEQ Modeling Center, Arizona Department of Environmental Quality (\$48,000), PI.

7/23/2007 5/31/2008: Modeling and Monitoring of Particulate Matter in Support of Children’s Health Assessment Studies; Arizona Department of Environmental Quality (\$146,174), PI, Co-PI – James Anderson.

09/01/2007 10/31/2008: Physics-based Modeling support for the Development of Automated Target Recognition Algorithms of Ship Wakes, Raytheon Missile Systems (\$89,589), PI.

01/17/2008 06/30/2009: ASU-ADEQ Air Quality Modeling Studies, Arizona Department of Environmental Quality (\$310,000), PI.

02/01/2008 06/30/2008: The Use of DOAS for Monitoring Pollution in the Phoenix Area, Arizona Department of Environmental Quality (\$130,000), PI.

02/15/2008 01/15/2009: Investigation on Flow Anomalies in Acid Scrubbers of Honeywell Engine Plant (\$75,000), Honeywell Inc., PI, co-PI – James Anderson.

01/01/2009 12/31/2009: Air Quality Modeling and Monitoring in Arizona, Arizona Department of Environmental Quality, PI, \$ 485,999.

01/01/2009 12/31/2009; Environmental Measurements in Support of Traffic Generated Noise Studies, Arizona Department of Transportation, PI \$65,000.

01/01/2009 12/31/2010; Major Sources and Transport of Fugitive Dust in the PM10 Nonattainment Area of SW Phoenix, Honeywell Inc., PI, 277,000 (co PIs: James Anderson, Matt Frazer, Ronald Calhoun).

07/01/2009 06/30/2010; Multi-Core Hardware for High Performance Atmospheric Characterization and Forecasting. Air Force Office of Scientific Research, Co-PI, 250,000 (PI; Alex Mahalov)

07/01/2009 06/30/2010: Visualization of Complex Spatio-Temporal Multiscale Fluid Dynamic Phenomena, National Science Foundation, co-PI, 113,890 (PI: Juan Lopez)

09/01/2009 8/30/2013: CMG Research: Multiscale Modeling of Urban Atmospheres in a Changing Climate. National Science Foundation, co-PI, 775,000 (PI: Alex Mahalov, with H.-P. Huang, W. Tang, M. Moustououi)

09/01/2009 6/30/2010: Further studies on Flow Instabilities in Nuclear Reactors, PI, \$158,000.

01/01/10 12/31/2013: Climate Change and Inland Seas: Phenomena, Feedbacks and Uncertainties. European Union, People, Marie Curie International Research Exchange Scheme, FP7-PEOPLE-2009-IRSES (11 months of Post-Doctoral Support)

10/30/09 06/30/10: ADEQ/ASU Air Modeling Research, Arizona Department of Environmental Quality, PI, \$80,000.

- 01/01/2010 12/31/2010: Workshop: Weather in Mountainous Terrain, Army Research Office, PI, \$24,552 (nd: 201602).
- 12/15/2010 06/05/2011: Advanced Research Workshop: Climate Change, Human Health and National Security; North Atlantic Treaty Organization, PI, \$59,470 (nd: 261274).
- 04/01/2010 03/30/2030: Mesoscale Dynamics, Lateral and Vertical Mixing in China Seas and Western Pacific; Office of Naval Research (N000141010738); Co-PI, \$483,040 (nd: 201637).
- 07/01/2010 06/30/2011: ASU/ADEQ/ Air Modeling for Western Arizona Sonora Border Air Quality Study (WASBAQS); PI; \$ 74,300 (nd. 250123).
- 07/01/2010 06/30/2011: ASU/ADEQ; Air Quality Modeling for the Joint Air Toxics Assessment Project (JATAP), \$30,000, PI (nd. 250130)
- 07/01/2010 06/30/2011: Air Modeling for Western Arizona Sonora Border Air Quality Study (WASBAQS), PI, \$55,000 (nd; 250123)
- 02/01/2010 09/30/2010: Jet Penetration into Stratified Fluids, Sandia National Laboratories, PI; 80,000 (nd: 208002)
- 01/01/2011 12/30/2012: ASIRI: Air-Sea Interactions in Northern Indian Ocean (And it's Relation to Monsoonal Dynamics of the Bay of Bengal), Office of Naval Research, \$ 213,159, PI.
- 01/01/2011 12/30/2011: Workshop on Climate Change, Human Health and National Security, North Atlantic Treaty Organization; \$59,740, PI (nd: 261274)
- 01/01/2012 12/31/2012: Jet Penetration into Stratified Fluids, Sandia National Laboratories, PI, 120,000 (nd: 208002)
- 06/01/2011 05/30/2017: MOUNTAIN TERRAIN ATMOSPHERIC MODELING AND OBSERVATIONS (MATERHORN) PROGRAM, Office of Naval Research, PI; \$ 7,236,965.
- 03/01/2012 02/28/2012: ASIRI-EBOB Workshop; Air-Sea Interactions in Northern Indian Ocean (ASIRI): Effects of Freshwater Fluxes in Bay of Bengal (EBOB) GRANT N62909-12-1-1061 Office of Naval Research, Global. \$15.750.
- 02/01/2012 09/30/2012: Jet Penetration into Stratified Fluids, Sandia National Laboratories, PI; 35,000 (nd: 208002)
- 04/01/2012 03/30/2013: Lidar Deployment in Port Headland, Western Australia, Western Australia Department of Environment, Curtin University (*Sub*); PI: \$32, 400 (nd: 261436).

### ***Internal Funding***

- Faculty Grant in Aid 1985: Mixed Layer Development and Subsequent Step Microstructure Formation When a Stable Salinity Gradient is Heated From Below. (\$3,000)
- Faculty Grant in Aid 1986: Turbulent Mixing in the Presence of a Stabilizing Buoyancy Flux. (\$3,000)
- Research Incentive Award 1986: Laboratory Modeling of Some Sea-Ice Related Phenomena. (\$3,000)
- Research Incentive Award 1986: Turbulent Mixing in the Presence of Buoyancy and Double-Diffusive Effects. (\$10,000)
- Center for Energy Research Instrumentation Grant 1986. (\$1,600)
- Garrett Seed Money Program 1989. (\$6,500)
- Multidisciplinary Research Award, Provost Office, ASU, 1993. (\$150,000)

Multidisciplinary Research: Vice President for Research, ASU 1996-2001 (\$250,000)  
Multidisciplinary Research: Vice President for Research Office, ASU 2002-2009 (\$640,000)

### **Travel Grants**

National Science Foundation Travel Grant (\$1,900) to attend Wave Breaking, Turbulent Mixing and Radio Probing of the Ocean Surface Meeting, Sendai, Japan (1984).  
Office of Naval Research/American Geophysical Union Travel Grant (\$900) to attend IAMAP/IAPSO Joint Assembly, Honolulu, HI (1985).  
National Science Foundation Travel Grant (\$500) to attend Sir G.I. Taylor Scientific Meeting, Cambridge, England (1986).  
Japanese Environmental Research Council Travel Grant (\$500) to attend 2nd International Symposium on Transport Phenomena in Turbulent Flows, Tokyo, Japan (1987).  
American Geophysical Union Travel Grant (\$1,100) to attend Joint Oceanographic Assembly, Acapulco, Mexico (1988).  
Office of Naval Research Travel Grant (\$960) to attend 'Aha Hulikoa Winter Hawaiian Workshop, Honolulu, HI (1989).  
National Science Foundation Travel Grant (\$400) to attend Double-Diffusion in Physical Oceanography Meeting, Woods Hole, MA (1989).  
American Western Universities Travel Grant (\$765) to visit Solar Energy Research Institute, Golden, CO (1990).  
American Geophysical Union Travel Grant (\$850) to attend the International Union of Geodesy and Geophysics Meeting, Vienna, Austria (1991).  
National Science Foundation Travel Grant (\$800) to attend the 18th International Congress of Theoretical and Applied Mechanics, Haifa, Israel (1992).  
NATO Scientific Exchange Program Grant (\$7,899) to carry out joint research at the University of Oporto, Oporto, Portugal (1994).  
NATO Scientific Exchange Program Grant (\$8,500) to carry out joint research at the University of Girona, Spain (1996).  
NATO Scientific Exchange Program Grant (\$6,400) to carry out joint research at the University of Girona, Spain (1998).  
NATO Scientific Exchange Program Grant (\$8,500) to carry out joint research at the University of Rome and Tel Aviv University (2004).

### **STUDENT DISSERTATION/THESIS SUPERVISION (Completed)**

Philip Stephenson	Mixing in Stratified Shear Flows (M.S. 1989)
C.Y. Ching	Formation and Evolution of Thermohaline Staircases (M.S. 1990)
Miran Perera	Mixing Induced by Oscillatory Stratified Flow Past a Right Circular Cylinder (Co-Supervision with Dr. D.L. Boyer) (M.S. 1991)
I.P.D. De Silva	Studies on Turbulent Mixing in Stratified Turbulent Patches (Ph.D. 1991)
Quiang Lin	Stratified Flow Past Obstacles (Co-Supervision with Dr. D.L. Boyer) (Ph.D. 1993)

B. Ayotte	Convection From Isolated Sources in the Presence of Background Turbulence (M.S. 1993)
Y. Xu	Cylinder Wakes in Linearly Stratified Flows (Co-Supervision with Dr. D.L. Boyer) (Ph.D. 1994)
C.Y. Ching	Turbulent Plumes in the Environment (Ph.D. 1994)
S. Fonseka	Turbulent Jets and Jet Puffs in Stratified Fluids (Ph.D. 1995)
G. Cole	Turbulent Thermal Convection in Stratified Fluids (M.S. 1995)
David Striver	Measurement of Drag and Lift on Bodies Moving Through Stratified Fluids (Co-Supervision with Dr. D.L. Boyer) (M.S. 1995)
Alex Wu	Theoretical Analyses of Some Low and High Reynolds Number Flows (M.S. 1995)
John Cuprek	Studies on Preconditioning Phase of Oceanic Deep Convection (M.S. 1995)
Paul Luccio	The Motion of Cobbles in the Swash Zone (Co-Supervision with Dr. D.L. Boyer) (M.S. 1997)
David Coder	Evolution of a Turbulent Patch in a Stratified Shear Flow (M.S. 1997)
Jason Rooney	Cobble Motion Under Wave-Induced Oscillatory Flow (Co-Supervision with Dr. D.L. Boyer) (M.S. 1997)
P.A. Priyadarshana	Effects of Mechanical Stirring on Turbulent Convection With Applications to Deep Ocean Convection (M.S. 1997).
E.J. Strang	Entrainment and Mixing in Stratified Shear Flows (Ph.D. 1997)
Andjelka Srdic	Dispersion in Stratified and Turbulent Flows (Ph.D. 1998)
Michael Levi	Convection in Rotating Stratified Fluids (M.S. 1998)
Dawn Lervick	The Influence of Molecular Diffusion on the Final Decay of Stratified Turbulence (M.S. 1998).
Rajka Kristc	The Nature of Rough Wall Steady and Oscillatory Boundary Layers (Ph.D. 1999)
Michael McNamee	An Experimental Study of Axi-Symmetric Turbulent Puffs: Their Motion, Dilution and Sedimentation. (M.S. 2001)
John Rotter	The evolution of Kelvin-Helmholtz Billows in Non-Stratified and Stratified Shear Flows (M.S. 2000)
Michael Arzabe	Evaluation of Deep Zone Flow Fields in Constructed Wetlands Using a Physical Model (M.S. 2000)
Brian (Wai-Chung) Chan	Modeling of Anabatic Flows In Complex Terrain (M.S. 2001)
Eric Pardyjak	Atmospheric Boundary Layer Dynamics in Regions of Complex Terrain (Ph.D. 2001)
Sergey Smirnov	Jets and Wakes in Stratified Fluids (Ph.D. 2002)
Sean Riley	Decay of Convective Turbulence in the Presence of an Inversion Layer (MS 2003).
Marko Princevec	Dynamics of Thermal Circulation in Complex Terrain (Ph.D., 2003)
Firat Testik	Experimental and Theoretical Modeling of Sand-Water-Object Interaction Under Non-Linear Progressive Waves (Ph.D. 2003, co-supervision with D. Boyer).
Cristian Dumitrescu	Gravity Currents in Urban Environments (M.S., 2005).

Amit Gupta	Flow through a Building Cluster: A Numerical Study (MS 2005)
Sridhar Balasubramanian	Ripple Dynamics and Mine Evolution in Coastal Zone: Laboratory Experiments and Model Evaluations (MS 2005)
David Boswell	Gradient Richardson Number Measurements in the Nocturnal Boundary Layer: Effects of Spatial Resolution (MS 2006)
Richard Morrison	Studies of Wake Signatures in Shallow Fluid Layers: Laboratory Experiments and Phenomenological Modeling (MS 2006)
Bret Verhoef	Evening Transition in Complex Terrain: The Phoenix Transition Flow Experiment (TRANSFLEX) (MS 2006)
Zhihe Zhao	Numerical Simulation of Scour Around Fixed and Sagging Pipelines Using a Two Phase Model (Ph.D. 2006)
Dragan Zajic	Flow and Turbulence in Roughness Canopies (Ph.D. 2006)
Parikh, N.	Sensor networks: Decentralized Monitoring and Subspace Classification of Events (Co-Supervision with Huan Liu, CSE, MS, 2006).
Anna, Abhilasha	Numerical Modeling of Time Dependent Flows in the Upper Plenum of a Nuclear Reactor (MS 2008)
Sant, Thomas	Measurements of Eddy Dissipation Rate in the Atmosphere: Flow Following Hot Film Anemometry (MS 2008).
Sridhar Balasubramanian	Ripple Dynamics in Heterogeneous Media (PhD 2008)
Stephen Shaffer	Investigations of Environmental Effects on Freeway Acoustics (MS 2009).
Chinmoy Nath	Surface Wake Signatures in a Temperature Stratified Fluid: Laboratory Experiments and Theoretical Modeling (MS 2009)
Ashish Sharma	Numerical Modeling of Flow in the Condensate Polisher Vessel of a Nuclear Reactor (MS 2009)
Suhas Pol	Evolution of Convection and Turbulent Jets in Stratified Low Aspect Ratio Containers (PhD, 2010)
Darren Gest	Entrainment by Turbulent Jets in Two Layer Stratified Fluids (MS 2010)
Kasun Perera	Interaction of Valley and Slope Flows in Complex Terrain (MS, 2010).

#### **STUDENT AWARDS:**

James McGrath - *Best student paper award*, AGU Ocean Sciences Meeting, 1994.

Chinmoy Nath – *Runner Up*, AIAA Western Regional Research Symposium Awards, 2008.

Ann Dallman - *Zahm Research Travel Grant Fund*, University of Notre Dame, 2012.

Ann Dallman – *Second place for the Best Student Oral Presentation*, 92<sup>nd</sup> Annual Meeting of the American Meteorological Society, 17<sup>th</sup> Conference on Air Pollution Meteorology, Jan 22-26, New Orleans.

Christopher Hocut, *Best Overall Presentation*, 92<sup>nd</sup> Annual Meeting of the American Meteorological Society, 17<sup>th</sup> Conference on Air Pollution Meteorology, Jan 22-26, New Orleans.

### **STUDENT DISSERTATION/THESIS SUPERVISION (In Progress)**

Ann Dallman	Ph.D. (Notre Dame)
Jeff Brown	Ph.D. (ASU)
Chinmoy Nath	Ph.D. (Notre Dame)
Chris Hocut	Ph.D. (Notre Dame)
Zachariah Silver	Ph.D. (Notre Dame)
Alan Baret	Ph.D. (Notre Dame)

### **POST-DOCTORAL/RESEARCH PROFESSORS (In Progress)**

Dr. Iossif Lozovatsky	(November 1994 - )
Dr. Sergey Voropayev	(February 1996 - )
Dr. Reneta Dimitrova	(May 2007 - )
Dr. Dan Liberzon	(June 2010-)
Dr. Charles Retallack	(August 2010-)
Dr. Laura Leo	(August 2011-)

### **POST-DOCTORAL/VISITING SCIENTISTS COLLABORATION (Completed)**

Dr. Yign Noh	(November 1987 - April 1991)
Prof. G.J.F. Van Heijst	(November 1988 - February 1989)
Dr. L. Bopearatchi	(April 1990 - March 1991)
Prof. C-S. Yoon	(June 1990 - August 1990)
Prof. Mario Neves	(June 1990 - September 1990)
Dr. Linus Mofar	(August 1990 - March 1991)
Dr. B. Kim	(February 1991 - May 1991)
Mr. J. Flor	(March 1991 - May 1991)
Miss D. Obaton	(April 1991 - May 1991)
Dr. M. Mugbil	(June 1991 - February 1994 )
Dr. I.P.D. De Silva	(September 1991 - March 1994 )
Mr. Andrew Folkard	(June 1992 - July 1992)
Dr. Quiang Lin	(June 1993 - 1994)
Prof. Eliezer Kit	(July 1993 - October 1993)
Prof. Jorge Neves	(July 1993 - October 1993)
Mr. Earnest Knoors	(September 1993 - November 1993)
Mr. Mark van de Zende	(September 1993 - November 1993)
Prof. Sergei Vorapayev	(November 1993 - October 1994)
Dr. Richard Manasseh	(June 1994 - August 1994)
Dr. Nagwa Mohammed	(June 1994 - October 1994)
Mr. Frans de Rooj	(September 1994 - December 1994)
Mr. Jordi Colomer	(January 1995 - May 1995)
Mr. Bert Niestadt	(September 1995 - December 1995)
Mr. Paul Peeters	(March 1996-June 1996)
Dr. Andrew Folkard	(July 1994 - July 1995)
Professor G. Christodoulou	(January 1997 - May 1997)

Dr. C.Y. Ching	(August 1994 - January 1997)
Professor Boris Boubnov	(December 1996 - February 1997)
Mr. Richard Eijmberts	(January 1998 - May 1998)
Dr. Jordi Colomer	(March 1997 - September 1997)
Dr. Ibrahim Oroud	(August 1997 - May 1988)
Dr. Heather Earnshaw	(Jan 1997-September 1998)
Mr. Oscar Van der Straten	(Oct 1998- June 1999)
Mr. Adrienne Cense	(Dec 1998 –May 1999 )
Dr. Teresa Serra	(Aug 1999-Nov 1999 )
Dr. Ge Wang	(January 1998-April 2000)
Professor Paolo Monti	(September 2000-December 2000)
Professor Thomasz Kowalewski	(September 2000-December 2000)
Dr. Hong Zhu	(September 2000 – June 2001)
Ms. Michela Senesi	(July 2001-December 2001)
Dr. Heng Sun	(January 2001-July, 2001)
Dr. Olga Alexandrova	(September 2000-August 2002)
Dr. Jae-Jin Kim	(June 2001- December 2002)
Mr. Walter Griori	(July 2002-May 2003)
Dr. Andjelka Srdic	(September 1999 – January 2004)
Dr. Susanne Grossman-Clarke	(March 2000- October 2004)
Mr. Andrea Datto	(June 2003- December 2003)
Dr. Sang Mi Lee	(November 1999 – November 2004)
Dr. Marko Princevac	(June 2003 – August 2004)
Ms. Chiara Puglini	(July 2004 – May 2005)
Dr. Saman Samarawickrama	(June 2005 –Aug 2005 )
Dr. David Smith	(May 1997- Aug. 2005)
Prof. Rohinton Emmanuel	(January 2006 - May 2006)
Prof. Silvana DeSabatino	(January 2006 - April 2006)
Dr. Yu-Jin Choi	(August 2004 –Ocotber 2006)
Professor J. Park	(August 2004 –July 2007)
Ms. Eric Trujillo	(March 2004-March 2006)
Dr. Nick Ovenden	(August 2007-September 2007)
Ms. Kyunsung Park	(October 2004 – June 2006)
Ms. Hristina Kirova	(March 2006-December 2006)
Prof. Silvana DeSabatino	(January 2007 - April 2007)
Dr. Sergey Dikarev	(December 2007- July 2008)
Dr. Irina Tomashevskaya	(November 2007 – January 2008)
Professor Mathias Roth	(February 2007-May 2007)
Professor C-S. Yoon	(February 2007- March 2008)
Professor Philippe Fraunier	(March 2008)
Professor Jan-Peter Muller	(December 2008-January 2009)
Dr. Nick Ovenden	(September 2008, 2009)
Dr. Stacy Shi	(February 2007-February 2009)
Dr. Zhihe Zhao	(October 2006 – October 2008 )
Ms. Rajani Rai	(August 2009-December 2009)
Mr. Alexis Kabis	(August 2009-December 2009)
Mr. Guillermo Bizzard	(August 2009-December 2009)

Professor Eliezer Kit	(November 2009-December 2009)
Professor Silvana DiSabatino	(November 2009-)
Mr. Andreau Nadal Garci	(July 2010-September 2010)
Dr. Jesus Palella	(July 2010-September 2010)
Mr. Sergio Castellias	(July 2010-September 2010)
Arnault Vallerie (French Naval Academy)	(September 2010 – November 2010)
Romain Bergeras (French Naval Academy)	(September 2010 – November 2010)
Dr. Laura Leo (University of Salento, Italy)	(May 2010 – October 2010)
Dr. Nick Ovenden (University College, London)	(February 2012, Royal Society Scholar)
Thomas Bodanar (Czech Technical University)	(February 22 – May 23, 2012)
Dr. G.N. Bhat (Indian Institute of Sciences)	(March 18 - May 1, 2012)

### **UNDERGRADUATE PROJECT SUPERVISION**

Fall 1984:	Tom Nesdill and David McComia - Investigations on laboratory thermohaline staircases
Spring 1985:	Frederick Stanik and Steve Crownover - Design and construction of a 1-D traversing mechanism Akbar Ghafourian - Design and construction of an oscillating-grid mixing facility
Fall 1985:	Paul Johnson and Kristin van Valkenberg - Design and construction of a convection chamber
Spring 1986:	Fred Zerweg - Experiments on stratified intrusions Robert Kime - Experiments on differential mixing in stratified fluids
Fall 1986:	Cal Christianson - Design and construction of a shooting probe mechanism
Spring 1987:	Mitch Martin and Andreas Vismanthas - Experiments on turbulent convection
Fall 1987:	Salem Goolanrobee - Design and construction of a laser traversing mechanism Jim Frech - Design and construction of a boundary mixing tank
Spring 1988:	Kirk Irvine - Design and construction of a disk pump
Fall 1988:	Andy Rutenberg - Design and construction of a differential mixing tank Brent Finley - Design and construction of a tow tank
Fall 1988, Summer 1989:	Leigh Little - Experiments on thermal convection
Spring 1989:	David Lopez - Design and construction of a line thermal plume source Eric Edwards - Design and construction of a 2-D traversing mechanism
Summer 1989:	Mary O'Connell - Experiments on differential mixed layer deepening
Fall 1989:	Tanya Bose - Research on turbulent buoyant plumes Leigh Little - Experiments on decaying stratified turbulence
Spring 1990:	Steve Lemons - Design of a shooting probe assembly

Spring 1991: Tanya Bose - Design and construction of a multiple plume facility  
Chris Montgomery - Experiments on mixing across stable interfaces

Fall 1991: James McGrath - Experiments on differential mixing across interfaces  
Mario Lattanzio - Experiments on inclined plumes

Spring 1992: Larry Burns - Design of a stratified shear flow facility

Fall 1992: Paul Amorillo - Experiments with traveling plumes

Spring 1993: John Cuprak - Experiments on deep convection  
Brendon Daas - Design of a convection facility

Fall 1993: John Platt and Paul Staggars - Design of a rotating flow facility

Spring 1994: Nick Mavrikos - Design of an oscillating flow facility

Fall 1994: K. Lin - Design of a bi-directional shear flow facility  
Jane Owen and Reza Rajabian - Design of a laminar flow fountain

Spring 1995: Dale Pulczynski - Design and construction of a bi-directional fluid flow tank

Fall 1995: Karl Webster - Design of a Three Dimensional Parallel Laser Beam Scanner

Spring 1996: Ronald Derrick - Design and Construction of a Wave Maker

Spring 1997: Alma Mujezinovic - Design of a Water Tank with an Oscillating Bottom

Fall 1997: Ben McEachern - Design of Experimental Apparatus for Convection in Stratified Fluids

Spring 1998: Robert Sisik - Design and Construction of a Variable Heat Flux Convection Chamber

Fall 1998: Rick Conner and Chris Herman – Laboratory Simulation of Convection in Complex Terrain Flows

Spring 2000: Matthew Cuprak and Chris Smith - Design of a Chamber to Study Slope Flows

Fall 2000: Thomas Kraus – Design and Manufacture of a Computer Controlled Two-Axis Traverse  
Destry Lucas – Design of Flow Facility to Investigate Roughness Effects on Turbulent Flows

Spring 2001: Joel McLean – Design of a facility to Study Thermal Circulation

Fall 2001: Eric Loomis – Design of an Underwater Flow Visualization System Using Submersible Cameras  
Nicholas Brindley – Rolling Sphere Problem on a Slope (Honors Thesis)  
Matt Elliot – Dispersion of Highway Debris Under Orthogonal Flow (Honors Thesis)

Spring 2002: Rochelle Jim and Bereket - Design and Construction of a 20-m Telescopic Tower

Summer 2002: Nathan Andreni – Design of a System to Simulate Fluid Flow Past the Junction of Two Slopes

Fall 2002: Tracy Doyle -- Heating and Cooling Slope to Mimic Diurnal Cycle

Spring 2003: Karl Fenstermaker – Telescopic Tower Roller Guides

Fall 2003	Gerardo Delago and Mark Duckworth – Flow Visualization System for a Flow Facility.
Spring 2004	David Kim and Matthew Pyon – Vortex Shedding from Heaving Body in Uniform Motion
Spring 2005	Leonardo Latorre and Bilal Farooq, Swirling Flows inside Pressurized Water Reactors
Fall 2005	Jamie Shepherd and David Mason – Investigation of Flow Anomalies within a Reactor Chamber
Fall 2006	Uven Choi - Design of an Automated Atmospheric Turbulence Measurement System
Fall 2007	Josh Garret (FURI Fellow) – Tracking of Ship Wakes using Infra Red Imagery.
Fall 2007	Nick Martin, IR Imaging of Ocean Surface (REU)
Summer 2008	Chris Ruckel (Visualization of Flow Instabilities, REU)
Fall 2007-	Dustin Hoffman, Design of a Rail System for Remote Sensing (REU)
<b>Notre Dame:</b>	
Spring 2010	Joseph Realle (Webpage development), Jonathan Rosini (Low aspect ratio convection), Ricky Kennedy (Flow in Diversions)
Summer 2010	Peter Chung (Design of a Water Tunnel)
Fall 2010	Peter Chung (Water Tunnel Design), Taylor Sheppard (Asia Monsoon simulations), Marisa Gaither (Flow in Turbines)
Spring 2011	Peter Chung (Water Tunnel Design), Taylor Sheppard (Monsoon Simulations), Cathy Chukwulebe (Internal wave interactions)
Summer 2011	Margaret Bellon (Slatt Fellow), Matthew Daye

## **K-12 EDUCATIONAL AND OUTREACH ACTIVITIES**

Under the ONR summer High-School traineeship program, the following students were supervised during 1998-2000: Mark Hank, A. DeMassio, Brian Martin, Anjela Prestinario, A. Kim

Under the NSF Research Education for Teachers Program, the following teachers were supervised: Kristin Rademacher and Monica Balance (2001)

Council of Elders, Villa Montessori School, Phoenix (2002)

Arizona Board of Regents/Mountain View High School Teachers Summer Professional Development Program (One day activity at ASU, Environmental Fluid Dynamics Program), 2005, 15 teachers).

Facilitator, City of Phoenix Planning Department, Continuous Learning Institute “Urban Heat Islands Panel.” (2007)

Anderson Junior High School, Chandler, Presentation on Tsunamis (2005, 2008, 2009)

Our Lady of Mount Carmel School, Tempe, Presentation on Water Resources (2010)

## **THESIS COMMEM SERVICE**

**ASU:**

- Ph.D. Eddy Birch, Paul Delenbach, Altaf Hassan, Tom Buter, Nay Lin, Ronald Redetsky, Tim Haynes, Mark Reibert, Dan McGuiness, Bjorna Tikkas, Mark Hilderbrandt, Frank Yu, Rudolfo Vasquez, Ian Lyttle, Bao Nguyen, Ryosuke Akahori, Antonio Rubio, Kirsten Chojnicki; Michael Murphy, Jonathan Baltzar, Brent Hedquist
- M.S. Mohamad Anwer, Prasad Pingali, Anju Nanda, Brent Steinwich, Nay Lin, Rick Holtz, Z. Xu, Katie Clifton, M. Henninson, I. Little, M. MacArthur, Fayzal Elbaty, Dan McGuiness, M-H. Chen, Fan Ho, F. Hreinsson, Cindy Law, Bin Xie, B. Rupesh, Hemanth Gokula, Robert Heap, Anupama Mattegunta, Kirsten Chojnicki, Stewart Smith, Tamara Rodic, Moutushi Zakir, Raghu Krishnamurthy, Aditya Choukulkar, Shantanu Kongara, Anandram Venkatasubramanian

**Notre Dame:**

PhD: Rosanne Martyr (CE/GEOS), Patrick Kerr (CE/GEOS), Jacob Allen Cress (AME), Casey Dietrich (CE/GEOS)

**INVITED PRESENTATIONS**

Rutgers, State University of New Jersey (1983), California Institute of Technology (1984), The Johns Hopkins University (1984), The University of Wyoming (1985), Army Research Office, Durham, North Carolina (1986), The Johns Hopkins University (1986), University of Sri Lanka (1987), Florida State University (1988), Institute of Naval Oceanography (1988), Naval Research Laboratory (1988), Air Force Office of Scientific Research (1989), Eindhoven University (1990), Georgia Institute of Technology (1990), Princeton University (1990), University of California at San Diego (1990), University of Cambridge (1990), University of Delaware (1990), University of Dundee (1990), University of Southern Mississippi (1990), Korea Ocean Research and Development Center (1991), Oregon State University (1991), University of Southern California (1991), ETH Swiss Federal Institute of Technology (1992), University of Oporto, Portugal (1992), British Meteorological Office (1993), Iowa Institute of Hydraulics Research (1993), National Science Foundation (1993), Stanford University (1993), University of Iowa (1993), University of Oporto, Portugal (1993), University of Washington (1993), California Institute of Technology (1994), Los Alamos National Laboratory (1994), Tel Aviv University (1994), Kyushu University (1995), Kyushu University, Institution of Engineering Sciences (1995), Woods Hole Oceanographic Institution (1995 - GFD Summer Program, Principal Lecturer), Swiss Federal Institute of Technology, Zurich (1995), Institute of Aquatic Sciences and Water Pollution Control, Zurich (1995), Cornell University (1995), University of Roma (1995), University of Southern California (Aerospace Engineering) (1996), Northwestern University (1996), Indian Institute of Sciences (1996), Hong Kong University Science and Technology (1996), Cornell University (1997), California Institute of Technology (1997), Thammasat University, Bangkok (1997), Asian Institute of Technology (1997), Stanford University (1997), University of Girona (1998), Courant Institute of the New York University (1998), Los Alamos National Laboratory, Institute of Applied Mechanics of the Taiwan National University (1998), Central China University (1998), University of California, Riverside (1999), University of California, San Diego (1999), Sun City Engineers Club (1999), Kiwanis Club of Scottsdale

(1999), Army Research Office (1999), University of North Carolina (1999), University of Roma (1999); Georgia Institute of Technology (2000), University of Cambridge, UK (2000), Massachusetts Institute of Technology (2000 May), University of Arizona (2000), University of Northern Arizona (2000), Massachusetts Institute of Technology (2000 Dec), Florida State University (2001), Stanford University (2001); University of Alberta (2001); Iowa Institute of Hydraulics Research Distinguished Lecture Series, University of Iowa (2002), University of Texas, El Paso (2002), Hong Kong University of Science and Technology (2002), Tel Aviv University (2002), Beer Sheeva University (2002), Technion, Israel Institute of Technology (2002), SCERP Management Committee (EPA Region 9), San Francisco (2000), Taiwan National University (2002), Industrial Technology Research Institute, Taiwan (2002); The Johns Hopkins University (2003); California Institute of Technology (2003), Arizona State University (Geology), 2003; Polish Academy of Sciences (Warsaw) (2003), University of California, Riverside, 2003; University of California, Berkeley (2003); Indian Institute of Technology (Delhi) (2004); Urban Development & Poverty Alleviation Authority/ HUDCO, Delhi, India, (2004); Office of the Principal Secretary, Delhi Government (2004); Universidad Autonoma Metropolitana, Mexico (2004), University of Peradeniya, BMICH (2005), University of Minnesota (2005), Arizona Department of Environmental Quality (2005), China Ocean University, Keelung (2005), Taiwan National University (2005); Swiss Federal Institute of Aquatic Sciences and Technology (EAWAG), 2005; Texas Tech, Lubbock (2005); University of Arizona (2006), University of Cambridge, UK (2006); Wageningen University, the Netherlands, (2006); Seoul National University (2006); Arizona State University, MAE (2007); University of Illinois, Urbana Champaign (2007); University of Texas at Austin (2007); University of Notre Dame (2007), Arizona State University, Geographical Sciences (2007), University of Toulon (2007); Korea Power Electric Company (2007); Arizona State University, Civil Engineering (2007), Illinois Institute of Technology (2007); Santa Clara University (2008), Massachusetts Institute of Technology (2008); The University of San Diego (2008); Virginia Commonwealth University (2008; Distinguished Lecture Series); The University of Notre Dame (2008); P.P. Shirshov Institute of Oceanography, Moscow (2008), University of Trieste (Institute of Theoretical Physics) (2009), University of Arizona (AME, 2009), University of Toronto (2009), University of Alberta (2009), University of Girona (2009), University of Toulon (2009), Princeton University (2010); Harvard University (2010), Indian Institute of Sciences (2011), University of Reading, UK (2011), University of Toulon, France (2011), Notre Dame Advanced Study Institute (2012).

**Named Lectures:** Alwin G. Anderson Award Lecture, University of Minnesota (2003); William Mong Lecture, University of Hong Kong, 2004; Leading Edge Lecture Series, University of Toronto, 2009.

**Popular Lectures:** Engineers without Borders, ASU (2005), Kiwanis Club, Phoenix (2005); ASU Faculty Wives Association (2006); Battening Down the Hatches; Engineer Meets Climate Change (Notre Dame, Alumni Reunion)

## **PROFESSIONAL COMMITTEE SERVICE**

### **National and International**

External Thesis Examiner, Tel Aviv University; (1988)

Member, National Science Foundation, Instrumentation Panel; (1988)  
Member, Dutch Foundation for Fundamental Research, Review Panel; (1988, 1994)  
Guest Member, Annual Reviews of Fluid Mechanics Editorial Committee; (1991)  
Member, Australian Research Council, Review Panel; (1991, 1993, 1994)  
External Thesis Examiner, University of Cambridge, U.K.; (1993)  
Member, Hong Kong Science Foundation, Review Panel; (1993-2003)  
External Thesis Examiner, University of Western Australia, Australia; (1995, 1996)  
Member, South African Science Foundation, Review Panel; (1995)  
Co-Chair, Working Group (WG 108) on Double Diffusion, Scientific Committee on Oceanic Research (SCOR) (1996- )  
National Science Foundation Career Awards Panel (1996)  
National Science Foundation, Ocean Sciences Panel (1997)  
External Thesis Examiner, Indian Institute of Sciences, Bangalore (1998)  
Member, Canadian Research Council Review Panel (1997, 1998)  
Member, National Science Foundation Graduate Fellowship panel (1994, 1995, 1996, 1997, 1999, 2000)  
National Science Foundation, Career Awards Panel (1999).  
Member, American Meteorological Society, Committee on the Meteorological Aspects of Air Pollution (1999-2002).  
Member, Thermal Fatigue Expert Panel, Electric Power Research Institute (EPRI) (2000).  
Member, Boeing (Mesa) team on the design of an airborne pollution elimination system (2001)  
External Examiner, Kwangju Institute of Science and Technology, Korea (2001)  
Member, Review Committee for the Journal "Physics of Fluids," American Institute of Physics (2002).  
Panelist, Chemical and Biological National Security Program, Department of Homeland Security (2002)  
Frenkiel Award Committee, Division of Fluid Dynamics, American Physical Society (2003, 2004)  
Member, Department of Homeland Security, Bio/Chem Countermeasures Review Committee (2003).  
Member, NSF Tsunami Survey Team in Sri Lanka, (2005).  
Member, Publicity Committee, American Physical Society (2005-08).  
Member, NSF CLEANER sensor committee (2005-)  
National Science Foundation, Oceanography Panel (2006)  
Member, Working Group to the development of environmental observatories: A subgroup of WATERS Network (2006-2007)  
Working Member, International Scientific Advisory Committee, The Catalan Institute for Water Research (ICRA), a research centre established by the Generalitat de Catalunya (2007-).  
Member, American Geophysical Union Committee on Updating its position on "Meeting the Challenges of Natural Hazards" (2007-)  
Member, Panel on "A Retrospective on Some Recent Natural Disasters," 5<sup>th</sup> International Symposium on Environmental Hydraulics, Tempe, AZ, 6<sup>th</sup> December, (2007).  
Member, Scientific Advisory Panel, Collaborative Computing Environment and Data Repository, International Center for Theoretical Physics (2007-)  
Member, Louisiana Coastal Area Restoration Science Board, US Department of Interior (2006-)  
Member, NSF CLEANER Organizational committee (2005-)

Member, Selection Committee for Selection of Newsworthy Abstracts, American Physical Society Fluid Dynamics Meeting (2008, 2009, 2010).  
Member, US Army Corps of Engineers, West Bay Diversion Review Committee (2009).  
Member, Evaluation Panel, DOD Strategic Environmental Research and Development (SERDP) Program (2011).  
Member IAHR (International Association of Hydraulics Research) Committee for Fluid Mechanics (elected 2011-)  
Member, National Science Foundation Advisory Panel for Environmental Science and Education (2012-2115).

### **Local**

Member, Organizing Committee for the American Physical Society, Division of Fluid Dynamics Meeting, Tempe; (1991)  
Member, Organizing Committee for the Turbulent Shear Flow Conference, Tempe; (1993)  
Member, Scientific Review Committee for Student Projects, Arizona Department of Transportation (1999).  
Member, Organizing Committee, 3<sup>rd</sup> International Symposium on Environmental Hydraulics, 2001  
Co-Chair, Regional Haze State Implementation Plan Stakeholder Advisory Group, Arizona Department of Environmental Quality (2002)  
Member, Organizing Committee, 6th International Symposium on Environmental Hydraulics, 2006-7.  
Member, City of Phoenix Continuous Learning Panel on “Urban Heat Island,” 2007.

## **OTHER PROFESSIONAL AND SCIENTIFIC SERVICE**

### **Memberships in Professional Societies**

American Physical Society (Fellow)  
American Society of Mechanical Engineers (Fellow)  
American Meteorological Society (Fellow)  
International Institute for Infrastructure Reconstruction IIIR (Fellow)  
European Academy (Elected Member, Cosmology Division)  
American Geophysical Union (member)  
American Society for Engineering Education (professional member)  
European Geophysical Society (member)  
American Association for Advancement for Science (member)  
American Oceanographic Society (member)  
EUROMECH, European Mechanics Society (member)

### **Conference Activities; Organizer or Co-Organizer**

- Co-Organizer, Special Session on "Laboratory Experiments in Physical Oceanography," American Geophysical Union Meeting; (Fall 1989).
- Organizer, Sixth Annual Arizona Fluid Mechanics Conference; (February 1990).
- Co-Organizer, Office of Naval Research Workshop on "Vortex Dynamics," Tempe; (March 1991).
- Co-Organizer, Special Session on "Ocean Fluid Mechanics," American Physical Society Fluid Dynamics Meeting, Tempe; (November 1991).
- Co-Organizer, Special Session on "Laboratory Experiments in Physical Oceanography," AGU Ocean Sciences Meeting, New Orleans; (January 1992).
- Convenor, American Geophysical Union Chapman Conference on "Double-Diffusive Convection," American Geophysical Union; (November 1993).
- Co-Organizer, Special session on "Laboratory Experiments in Physical Oceanography," American Geophysical Union Ocean Sciences Meeting, San Diego; (February 1994).
- Organizer, NATO Advanced Research Workshop on "Fluid Mechanics of Turbulent Jets and Plumes," Vianna do Castello, Portugal; (June 1993).
- Co-Organizer, Army Research Office Workshop on "Nocturnal Boundary Layer," Tempe, AZ; (January 1994).
- Co-Organizer, international workshop on "New Directions in Geophysical Fluid Dynamics and Turbulence," Tempe, Arizona (May 1996)
- Co-Organizer, Special session on "Laboratory Experiments in Physical Oceanography," American Geophysical Union Ocean Sciences Meeting, San Diego (February 1997).
- Organizer, WG-108 Scientific Committee for Ocean Research Workshop on Double Diffusive Convection (Nov. 4-5, 1999).
- Co-Convenor, Special Session on "Field Experiments, Laboratory Investigations and Numerical Simulations of Turbulent Mixing in Stratified and Rotating Flows" American Geophysical Union Meeting, Ocean Sciences Meeting, Jan 22-26, 2004.
- Organizer, ONR Mini Turbulence workshop, 2005.
- Co-Convenor, Special Session on "Frontiers in Geophysical Fluid Dynamics" American Geophysical Union Meeting, Ocean Sciences Meeting, February 21-16, 2006.
- Organizer, Sedona SABLE, Stable Atmospheric Boundary Layer Workshop, Sedona, Arizona, Nov 12-16, 2006. (Sponsor: ARO).
- Organizer, Weather in Mountain Terrain workshop (Army Research Office and Office of Naval Research) 2010, Feb 1-2.
- Co-Convenor, American Geophysical Union, Meeting of the Americas; Session OS16: Multi-scale Momentum and Scalar Transports in Geophysical Flows: Measurements and Modeling, Brazil, 8-13, 2010.
- Co-Organizer, Geophysical Turbulence Workshop, Annual Meeting of the Pacific Division of the American Association for the Advancement of Science, June 12-16, 2011
- Organizer, Climate Change, Human Health and National Security, NATO Advanced Research Workshop, Croatia, April 28-30, 2011.
- Co-Organizer, Ocean-Atmosphere Processes of Monsoon Dynamics, Ocean Sciences Meeting (OSM) in Salt Lake City, Utah, 20-24 February 2012 (Co-organizer with Dr. Hemantha Wijesekera)
- Co-Organizer,, Enhanced Regions of Mixing in the Coastal and Deep Ocean" Ocean Sciences Meeting (OSM) in Salt Lake City, Utah, 20-24 February 2012 (Co-organizer with Dr. Jeff Book; session 090)
- Co-Organizer, 6<sup>th</sup> Symposium of Shallow Water Flows, University of Iowa/Notre Dame, 2012.

### **Conference Activities; Member of the Scientific/Organizing Committee**

- Member, Organizing Committee, Conference on "Near Wall Turbulent Flows," Tempe, AZ; (March 1993).
- Member, Organizing Committee, Workshop on "Laboratory Models for Oceanic Flows," Moscow, Russia; (August 1993).
- Member, Organizing Committee, "Mixing and Dispersion in Stably Stratified Flows," University of Dundee, Scotland (September 1996).
- Member, Scientific Advisory Committee, Fifth International Symposium on Stratified Flows, Vancouver, Canada, 1999.
- Member, Scientific Advisory Committee, Second International Symposium on Turbulence and Shear Flow Phenomena, Stockholm, 2001.
- Member, Organizing Committee, Second International Conference on Environmental Hydraulics (2001).
- Member, International Advisory Committee, Second International Conference on "Ecological and Hydrometeorological Problems of Large Cities and Industrial Zones." Russian State Hydrometeorological University, 2003. Co-Convenor, Special Session on "Frontiers in Geophysical Fluid Dynamics" American Geophysical Union Meeting, Ocean Sciences Meeting, February 21-16, 2006.
- Member, International Advisory Committee, International Symposium on Shallow Flows, Delft University of technology, The Netherlands, 2002.
- Member, Scientific Advisory Committee, Third International Symposium on Turbulence and Shear Flow Phenomena, Tokyo, 2003.
- Member, Scientific Advisory Committee, International Symposium on Shallow Flows, Delft, The Netherlands, 2003.
- Member, Scientific Advisory Committee, Fourth International Symposium on Turbulence and Shear Flow Phenomena, Virginia, 2004.
- Member, International Scientific Committee, 4<sup>th</sup> Symposium on Environmental Hydraulics and 14<sup>th</sup> IAHR (APD) Congress, Hong Kong, 2004.
- Member, International Scientific Committee, Fluxes and Structures in Geophysical Flows, Moscow State University, June 22-26, 2004.
- Member, Scientific Advisory Committee, Fifth International Symposium on Turbulence and Shear Flow Phenomena, TSFP-5, Garching, Germany, 2007.
- Member, Scientific Advisory Committee, International Conference on "Turbulent Mixing Beyond," (TMBW-07), Trieste, Italy, Aug 18-26, 2007.
- Member, Scientific Advisory Committee, Sixth International Symposium on Turbulence and Shear Flow Phenomena, TSFP-5, Seoul, Korea, 2007.
- Member, Scientific Advisory Committee, 5<sup>th</sup> International Symposium on Environmental Hydraulics, Tempe, Arizona, 2006-7.
- Member, Scientific Advisory Committee, International Symposium on Shallow Water Flows, Hong Kong, 2007-2008.
- Member, International Program Committee, International Conference on Fluxes and Structures in Fluids: Physics of Geospheres, Moscow, Russia, 2009.
- Member, International Scientific Advisory Committee, Sixth International Symposium of Environmental Hydraulics, Athens, Greece (2009-10).

Member, International Program Committee, International Conference on Fluxes and Structures in Fluids: Physics of Geospheres, Vladovistok, Russia, 2011.

Member, International Scientific Committee, International Symposium on Stratified Flows, August 23-26, 2011.

Member, International Scientific Committee, Conf. of the Croatian Society of Mechanics to be held May 22 to 25, 2012 in Zadar.

Scientific Committee Member, International Conference of Turbulent Mixing and Beyond, Trieste, 2011.

Member, International Scientific Committee, IUTAM Symposium on Waves in Fluids, Effects of Non-Linearity, Rotation, Stratification and Dissipation, Moscow, July 18-20, 2012.

Scientific Committee Member, IUTAM Symposium (GA 10.01) on "The Dynamics of Extreme Events Influenced by Climate Change", China, September, 21-23, 2013.

### **Journal Editorships**

Associate Editor, Journal of Environmental Fluid Dynamics (2000-)

Technical and Associate Editor, Applied Mechanics Reviews (Fluid Mechanics), American Society of Mechanical Engineers (1992-).

Editor, Journal of Theoretical and Computational Fluid Dynamics (1996-)

Associate Editor, Journal of Hydro-environmental Research – An IAHR-APD/KWRA Journal (2007-)

Editor, Advances of Fluid Mechanics Series (2000-)

Associate Editor, Advances and Applications of Fluid Mechanics (2006-)

Editor, Non-Linear Processes in Geophysics (European Geophysical Union) (2010-2013)

### **Guest Editorships**

Guest Co-Editor, Special Issue on "Laboratory Experiments in Physical Oceanography," Journal of Geophysical Research (Oceans), 1994.

Guest Co-Editor, Special Issue on "Ocean Fluid Mechanics," Dynamics of Atmospheres and Oceans Journal (1995).

Guest Co-Editor, Special Issue on "Laboratory Experiments in Physical Oceanography," Dynamics of Atmospheres and Oceans Journal (1999).

### **Referee Service**

Applied Mechanics Reviews, Journal of Visualization, ASME Journal of Solar Energy Engineering, Boundary Layer Meteorology, Civil Engineering & Environmental Systems, Continental Shelf Research, Cornell Theory Center, Dynamics of Atmospheres and Oceans, Computers in Fluids, Experiments in Fluids, Environmental Science & Technology, Fluid Dynamics Research, French National Research Agency (ANR), Geophysical Research Letters, Indoor Air, International Journal of Heat and Mass Transfer, Journal of Applied Meteorology, Journal of Atmospheric Sciences, Journal of Fluid Mechanics, Journal of Fluids Engineering, Journal of Geophysical Research (Oceans), Journal of Geophysical Research (Atmosphere), Journal of Geophysical Research (Earth Systems) Journal of Heat Transfer, Journal of

Hydraulics Engineering, ASCE, Journal of Physical Oceanography, Monthly Weather Review, National Research Council, Natural Environmental Research Council (UK), National Science Foundation (proposals), Australian Research Council, Numerical Heat Transfer, Physics of Fluids, West Educational Publishing (book reviews), Chemical Engineering Journal, Australian Research Council, International Journal of Heat and Fluid Flow, Experimental Thermal and Fluid Science, Computers in Fluids, Canadian Research Council, Research Council, Hong Kong Research Council, Livingston Trust Fund, UK, Dutch Fundamental Research Council, Department of Energy, Kluwer Academic Publishing (book reviews); Norwegian Research Council, Bulletin of the American Meteorological Society, Journal of Environmental Quality, Journal of Environmental Fluid Mechanics, Quarterly Journal of the Royal Meteorological Society, Ground Water Research Institute (Technion, Israel), Journal of Climate, Arabian Journal of Science and Engineering, AGU Journal of Earth Interactions, Science

External Examiner (PhD): Indian Institute of Sciences; University of Western Australia; University of Cambridge; Tel Aviv University

### **Other Activities**

Consultant for:

California Engineering Research, Inc.  
Ceylon Cement Corporation  
Industrial Development Board, Sri Lanka  
Science Applications International Corporation  
Solar Energy Research Institute, Golden, Colorado  
Arizona Mist Inc.  
Electric Power Research Institute  
Arizona Public Service Company

### **ASU COMMITTEE SERVICE**

#### **University Level**

Member, Parking Citations Appeals Committee (1987 - 1990)  
ASU Alumni Distinguished Achievement Awards Committee (1997)  
Member, Advisory Panel for Vice President for Research (1997)  
Member, Search Committee for the Vice Provost for Research (1998)  
Mentor, Preparing Future Faculty Program (1999)  
Member, Atmospheric Sciences Certification Committee (2000-2001)  
Member, Phoenix 2100 Committee (2000)  
Charter Group of the Academic Council, Office of the President (2003-06)  
College of Engineering, Dean Search Committee (2005)  
Faculty Senate (2006-2008)  
Member, Environmental Fluid Mechanics Search Committee, Department of Mathematics (2007).  
Member, Advisory Panel for Vice President for Research and Economic Affairs (2008-2009)

#### **College Level**

Member, Academic Grievance Committee, College of Engineering (1990)  
Chair, Committee to Evaluate the Efficacy of a Center for Environmental Fluid Dynamics (1993)  
Member, Associate Dean for Research Search Committee (1993)  
Chair, Chemical, Bio and Materials Engineering Chair Search Committee (1993 - 1994)  
Member and Affirmative Action Representative, Electrical Engineering Chair Search (1996)  
Member, Strategic Planning Committee for Retreats (1999)  
Member, CEAS Academic Senate (1999- 2002)  
Member, CEAS Research Advisory Board (1999-2003)  
Planning Committee, High-Bay Research Building (2003)  
Member, Lighthill Institute of Mathematics (University of London)/ASU Joint Program (2005)  
Associate Dean's Advisory Committee for Research (2005-8)

### **Departmental Level**

Member, Qualifying Examination Committee (1985, 1987, 1988, 1989)  
Member, Mechanical Engineering Curriculum Committee (1986)  
Member, Graduate Affairs Committee (1988, 1989, 1991)  
Chair, Publicity Committee (1991)  
Compiled the departmental graduate brochure (with A. Majumdar, 1991)  
Group Representative, Fluid Mechanics Group (1991)  
Member, Fluid Mechanics Search Committee (1991)  
Chair, Graduate Affairs Committee (1992 - 1993)  
Member, Publicity Committee (1993 - 1995)  
Member, Search Committee, Material Sciences (1994)  
Chair, Promotion, Tenure and Retention Committee (1994 - 1995),. Member (1992 to date)  
Chair, Space and Facilities Committee (1995-1996)  
Fluid Mechanics Group Representative (1995-1996)  
Chair, Environmental Fluid Dynamics Search Committee (1996) - MAE  
Member, Environmental Fluid Dynamics Search Committee (1996) - CEE  
Member, Search Committee, Heat Transfer (1997)  
Member, Graduate Affairs Committee (1996, 1997, 1998, 2001, 2002, 2003, 2004, 2005, 2006)  
Member, Departmental Advisory Committee (1998)  
Chair, Environmental Fluid Dynamics Search Committee (1999) - MAE  
Chair, Environmental Fluid Dynamics Search Committee (2000) – MAE  
Faculty Representative, MAE Assessment Fair (2002)  
Vice Chair, Promotion, Tenure and Retention Committee (2003-4)  
Member, Aerospace Faculty Search Committee (2003-4)  
Chair, Promotion, Tenure and Retention Committee (2004-5)  
MAE Advisory Committee (2006)  
MAE Personnel Committee (2006)  
Chair, Environmental Fluid Dynamics, Search Committee (2006-7)  
MAE Personnel Committee (2007)  
Chair, Environmental Fluid Dynamics, Search Committee (2007-8)  
MAE Personnel Committee (2007-8)  
MAE Advisory Committee (2008-2009)  
MAE Personnel Committee (2008-2009)

### **NOTRE DAME:**

**University level:**

Building Bridges Program (2010, 2011)  
Limited Submission Committee/representative from the College of Engineering (2010, 2011)  
Committee to develop introductory level sustainability courses (2010-11)  
Laetare medal committee (2011-2013)

**College**

National Awards Committee (2010)  
Endowed Chair Review Committee (2010, 2011)  
Hosting Edison Lecturers (2010, 2011)  
Joint College of Engineering and College of Science New Faculty Orientation panelist (2011)

**Department**

Strategic planning committee (Chair, 2010)  
Environmental Change Initiative, Interdepartmental Committee (2010)  
Search Committee – Biology/Civil Engineering Joint Position Committee (2010-11)

**Other Service:**

Slatt Fellowship Mentor (2011)

**COURSES TAUGHT**

**University of Notre Dame:**

Fall 2010: [CE 60410-01 & CE 40410-01: Advanced Fluid Dynamics; 10 grad students/ 2 undergrads; CIF Report: Effectiveness of teaching 4.7/5], CE 63400: Environmental Fluid Dynamics Seminar: 9 registrants; CIF Report: 4.5/5)

**Arizona State University:**

**Undergraduate**

Fluid Mechanics 1: Fall 1985 (students' evaluation 4.34/5; number of students 42), Fall 1986 (4.46/5, 35), Spring 1989 (3.86/5, 61), Spring 1993 (3.99/5, 75), Fall 2001 (4.32/47)  
Fluid Mechanics 11: Spring 1986 (4.09/5, 42); Fall 1992 (4.41/5, 57), Spring 1995;  
Dynamics: Spring 1987 (4.31/5, 17), Spring 1987 (4.51/5), Spring 1988 (3.94/5, 17)  
Partial Differential Equations: Fall 1987 (4.48/5, 13), Spring 1988 (4.23/5,34), Fall 1988 (4.35/5, 19), Fall 1989 (3.99/5, 51), Spring 1998 (4.12/5, 59)  
Introduction to Mechanical Engineering (Fall 2007)  
Introduction to ASU – Fulton School of Engineering (3.67/5, 5)

**Graduate**

Fluid Dynamics: Fall 1988 (4.49/5, 18), Fall 1991 (4.32, 26), Fall 1998 (4.83,11), Fall 2003; Fall 2005 (x/19)  
Ideal Fluid Flows: Spring 1989 (4.72/5, 8), Spring 1990 (4.35/5, 10)

Turbulent Shear Flows: Fall 1985 (4.61/5, 4), Fall 1989 (4.83/5, 7), Fall 1993 (4.63/5, 12), Fall 1995 (4.58/5, 5), Spring 1997 (4.80/5, 6), Fall 2000 (4.44/10)  
Turbulent Modeling: Fall 1987 (4.68/5, 10), Spring 1991 (4.65/5, 11)  
Linear Algebra: Fall 1984 (3.92/5, 27)  
Partial Differential Equations: Spring 1985 (4.03/5, 48)  
Ecosystems Engineering Seminar (*Every semester* since 1994 Fall)  
Environmental Transport: Fall 1996 (cross listed)  
Environmental Turbulence: Spring 1996 (cross listed)  
Air Pollution: Spring 2006 (collaboratively with three others)  
Geophysical Fluid Dynamics; Spring 1992 (4.58/5, 7), Fall 1993 (4.86/12), Fall 2002, Fall 2004 (4.77/11); Fall 2008 (5/9)  
Environmental Fluid Dynamics: Spring 1996 (4.38/5, 12); Spring 2000 (4.69/9), Fall 2006 (4.92/5; 12)  
Air Pollution (co-instruction with four others; Spring 2006 (4/5, 6)  
Waves and Instabilities in Environmental Flows; Spring 2008 (5/5, 6), Spring 2009 (4.72/5, 8)

## **MEDIA**

### **Television Appearances**

- Tracking Pollution from Space, Discoveries and Breakthroughs Inside Science, Ivanhoe Broadcast News - Winter Park, FL, USA, <http://www.ivanhoe.com/science/story/2008/10/489a.html>, (with American Geophysical Union and American Meteorological Society).
- Heat Island and Weather, Fox 10 News (David Munsey Reporting), August 3, 2008.
- Phoenix Heat Island, Channel 12 News (Melissa Gonzalo reporting), June 23, 2008.
- High Temperatures in Phoenix, Channel 12 News (Veronica Sanchez reporting), May 19, 2008.
- Urban Heat Island Project with KPNX, Channel 12 News (Two separate newscasts, Jarrid Sebasta Reporting), April 4, 2008.
- Urban Heat Island of Phoenix, Channel 5 (CBS) News (three separate newscasts, Marcy Valenzuela reporting), May 15, 2007.
- Tutela Ambiente (Rete Oro – TG, April 23, 2007).
- ATMOSPHERA Project in Phoenix (Italian National TV), April 23, 2007
- Infrastructure Reconstruction Following Sumatra Tsunami, CTV Calgary (10/21/2005)
- Tsunamis: An Anatomy of a Disaster, BBC Horizon Program (commentator and consultant, Aired on March 1, 2005, 61 million viewers around the world)
- Tsunami Surveys in Asia- Channel 15 (ABC) News Interview with Lisa Fletcher (01/23/05)
- International Tsunami Team- Channel 12 (NBC) News Interview with Tram Mai (01/18/05)
- Tsunami in Asia- Channel 15 (ABC) News Interview with Lisa Fletcher (01/02/05)
- Tsunami in Asia- Channel 15 (ABC) News (12/29/04)
- Indonesian Quake- Channel 12 (NBC) News at 5 (12/28/04)
- Fires in California- Channel 15 (ABC) News (10/14/03)

- Air Pollution research at ASU- Channel 8 (KAET/PBS) 30 minutes (May 2002 and re-run May 2003)
- Following the Phoenix Pollution Plume- Channel 15 (ABC) News (01/15/98)
- Pollution in Phoenix- Channel 12 (NBC) News (01/14/98)
- Explosive Mines- Channel 3 News (12/22/97)
- Flashfloods in Arizona- Channel 5 (CBS) News (05/13/97)

## **Radio**

- Sri Lanka Tsunami and Coral Poaching (Science Show on ABC Radio National, Australia, March 31, 2007 with Robyn Williams:  
<http://www.abc.net.au/rn/scienceshow/stories/2007/1882488.htm>)
- Tsunami Data Points to the Value of Reefs, All Things Considered, National Public Radio, December 26, 2006 (Christopher Joyce Reporting).
- Tsunami Warning after the Tonga Quake – KTAR Radio, Phoenix (May 3, 2006)
- Effects of Corals Reefs on Tsunamis, Earthwatch Radio, Wisconsin (Elizabeth Katt-Reinders reporting), 2005 (aired over 100 stations worldwide)
- Effects of Corals Reefs on Tsunami Destruction – Swedish Broadcasting Corporation (Aug 17, 2005; Sven Börjesson Interviewing)
- Air Pollution in Phoenix – KAET Radio (Jan 23, 1998)

## **Within ASU Press**

- In the Spotlight – ASU Insight, Vol. 28 (3), August 3, 2007.
- Fernando finds human causes in Tsunami devastation, ASU Insight, May 2006.
- ASUs Fernando applies expertise to Tsunami research, ASU Insight, April 14, 2006.
- Reef mining made tsunami damage worse, Fernando says. ASU Insight, August 19, 2005.
- Advanced Tsunami Warning System is the Researcher’s goal for SE Asia (Full Circle, Spring 2005)
- The Wave (ASU Research Magazine by Diane Boudreau, and the writer received an IABC (International Association of Business Communicators) Silver Quill during the Southern Regional Conference, Sep 24, Kansas City)
- Engineer Visits Homeland to Decipher Tsunami Secrets, (ASU Magazine, Spring 2005)
- Professor Returns to Sri Lanka in Quest for Tsunami Clues, (ASU insight, Summer 2005)
- Professor returns to Sri Lanka in quest for Tsunami clues (ASU Highlights, Summer 2005)
- Professor Aides in Tsunami Research (State Press, Jan 23 2005)
- Sri Lankan Reconstruction Moving Swiftly (State Press, Jan 18, 2005)
- Quest for information leads Fernando back to Sri Lanka (ASU Insight, Jan 14, 2005)
- Research Shows Tsunami Destructive path in Sri Lanka (ASU Insight, June 24, 2005)
- The Wave, ASU Research Magazine (Spring 2005 Issue)
- CEAS Researchers Help Determine Ozone Violation Boundaries for the State of Arizona (Full Circle, Spring 2003)
- NASA satellites help scientists sniff out pollution (ASU Insight, December 14, Front page).

- ASU Researchers Get Cleaner Air-Pollution Picture (The State Press, January 16<sup>th</sup>, 2008, page 3).
- In the News, Joe Fernando recounts his conclusions....(ASU Insight, January 18, 2008)
- ASU Model to Help Fix Nuclear Plant Problems (State Press, March 17, 2008, page 5).

#### **Within Notre Dame - Press**

- Professors Explore Technology's impact, Observer, October 13<sup>th</sup>, 2010.  
<http://www.ndsmcobserver.com/news/professors-explore-technology-s-impact-1.1686908>
- Friedman to address recent book at Forum's signature event  
<http://www.ndsmcobserver.com/news/friedman-to-address-recent-book-at-forum-s-signature-event-1.1742176>
- New paper describes how weather affects the scale of urban noise pollution  
<http://newsinfo.nd.edu/news/22057-new-paper-describes-how-weather-affects-the-scale/>
- Fernando plays key role in NATO program on climate change and national security of-urban-noise-pollution/  
<http://newsinfo.nd.edu/news/22056-fernando-plays-key-role-in-nato-program-on-climate-change-and-national-security/>
- Engineering Professors Receive MURI grants, August 2011  
<http://newsinfo.nd.edu/news/22131-engineering-professors-receive-muri-grants/>
- Course lays ground for new minor, Observer, August 26<sup>th</sup>, 2011.  
<http://www.ndsmcobserver.com/news/course-lays-ground-for-new-minor-1.2566051>
- Walling off the Noise, Autumn Notre Dame Magazine,  
<http://magazine.nd.edu/news/26002-walling-off-noise/>

#### **Arizona/Indiana/National/International Press**

- Surf is up at ASU (Arizona Republic, February, 1998)
- ASU Enlisted in Effort to Battle Terror (East Valley Tribune, Monday May 19, 2003)
- Professor takes Expertise to Disaster Site (Arizona Republic, Front Page, Jan 10, 2005)
- Sri Lankans seek Tsunami Answers, lean on ASU Professor (Arizona Republic, Jan 12, 2005)
- Marines Tackle Sri Lankan Debris (Arizona Republic, Jan 13, 2005)
- The Man who Saved his Village (Arizona Republic, Jan , 2005)
- Sri Lanka: Coastal development helps tsunamic havoc-study. Reuters, January 9, 2005 (Maggie Fox, Health and Science Correspondent Reporting)
- ASU Professor Visits Tsunami Destruction (Arizona Republic,Jan 11, 2004)
- Youthful Marines Grow up Fast at disaster (Jan 15, 2005)
- Disaster in Asia Reverberates Here, (Arizona Republic, Dec 30, 2005)
- East Valley Friends, Relatives feel Impact of Asian Tragedy (Arizona Republic, Dec 31, 2004)
- Scientist Share Information on Tsunami (Arizona Republic Jan, 16, 2005)
- Republic Joins ASU Professor in Sri Lanka (Arizona Republic, Jan 12, 2005)
- Scientists to study whet a part of Sri Lanka was spared (Knight Rider, Jan 6, 2005, by Seth Bornstein) – also appeared in Centre Daily Times, Tallahassee Democrat, Myrtle Beach Sun-News, Lexington Herald-Leader

- Rushed Reporter arrived in Sri Lanka (Chandler Republic, Jan 12, 2005)
- Tsunami Scientists Hear Stories (Arizona Republic, Jan 21, 2005)
- ASU Professor Joins the Tsunami Studies (Arizona Republic, February 14th, 2005)
- Seeking answers, hope amid site of devastation (Jan. 9, 2005)  
[www.azcentral.com/specials/special11/articles/0107asuteam09.html](http://www.azcentral.com/specials/special11/articles/0107asuteam09.html)
- Research team visits tsunami devastation (Jan. 11, 2005)  
[www.azcentral.com/specials/special11/articles/0111asuteam11.html](http://www.azcentral.com/specials/special11/articles/0111asuteam11.html)
- Sri Lankans seek tsunami answers, lean on ASU professor (Jan. 12, 2005)  
[www.azcentral.com/specials/special11/articles/0112asuteam12.html](http://www.azcentral.com/specials/special11/articles/0112asuteam12.html)
- Republic joins ASU Prof in Sri Lanka (Jan. 12, 2005)  
[www.azcentral.com/arizonarepublic/mesa/articles/0112diary12Z10.html](http://www.azcentral.com/arizonarepublic/mesa/articles/0112diary12Z10.html)
- Arizona Republic special report – Tsunami touches Arizona  
[www.azcentral.com/specials/special23/](http://www.azcentral.com/specials/special23/)
- ASU's tsunami research shows barriers should stay (Arizona Republic, March 20, 2005)
- Tsunami research shows destructive oath worse in developed areas (Marketing and Strategic Communications, 06/09/2005, Michael Price)
- Tsunami Expert Shares Information with ASU (Arizona Republic, June 8, 2005)
- Coastal Development aided tsunami, The Mercury, Tasmania, 06/10/200, David Bros)
- Clear view of the clouds will bring better weather forecasts (London Daily Telegraph, August 8, 2005)
- Coral could slow tsunamis: Illegal coral mining may have intensified destruction around Sri Lanka, a study says (Honolulu Star, August 17<sup>th</sup>, reported by Theresa Barry, Bloomberg News, 2005)
- Sri Lanka: Coastal development helps tsunami wreak havoc – study (Reuters, 6/9/2005. Maggie Fox Reporting)
- Coastal development aided tsunami – In Australia: The Sunday Times, The Courier-Mail, The Manly, Daily News, The Sunday Mail, Herald Sun, Reported by the Washington Correspondent, 06/10/2005)
- Tsunami damage was enhanced by coral theft – Missing reefs allowed wave to surge farther inland. ). *Nature*, 25<sup>th</sup> August Issue, 2005, 1071 – Emma Marris Reporting)
- More natural protection could have helped Tsunami defense. Bulletin American Meteorological Society, *Nowcast*, November 2005, pages 1533-1534.
- Illegal Destruction of Coral Reefs Worsened Tsunami Impact (U.S., Sri Lankan researcher find coral reefs protected towns from waves), US State Department, International
- Corals may have helped Tsunami Defense (National Geographic, December Issue, Asian Edition).
- Illegal Destruction of Coral Reefs Worsened Impact of Tsunami (Red Orbit Breaking News), August 17<sup>th</sup>, 2005.
- Poachers eased tsunami's path, London Guardian 17 August 2005 (International News section)

- How development made tsunami worse....Scientists cite factors that increased wave damage (CNBC News, June 9, 2005) <http://msnbc.msn.com/id/8159347>
- Valley residents offer reflections on Asian Tsunami a Year After (Asian SUNews, December 15, 2005; Peter Tran Reporting)
- ASU Professor Find Lessons in Sri Lanka (Arizona Republic, Front Page, December 26, 2005).
- Professor to Pitch Theory on Tsunami to Sri Lanka (Arizona Republic, full length article, March 15, 2006)
- Sri Lankan Signs Warn Coral Thieves of Nature's Wrath (Nature, 440, Apr 20<sup>th</sup> 2006, 981).
- Fast-growing Phoenix, beset by dirty air, targets construction and clean up-plan (Christian Science Monitor, March 30<sup>th</sup>, 2007).
- Valley's 'heat island' defined (Arizona Republic, Business news 04/19/2007)
- ASU professor shows it is getting hotter, (Arizona Republic, 04/17/2007).
- Higher Temperature Speed Up Ozone Formation (Arizona Republic, May 1, 2007)
- Quei "nasi Intelligenti" che combattono il IPm10, (*Reaazione*, La Repubblica, Rome, April 24, 2007).
- Climate projection and weather forecast just for everyone (Bjeknes Times, 3<sup>rd</sup> May, 2007).
- Catching Polluters Made Easier with NASA Satellite Data (Science Daily, 12<sup>th</sup> December 2007).
- **A Conversation With Harindra Joseph S. Fernando: On the Ground and in the Water, Tracing a Giant Wave's Path ....** Dr. Harindra Joseph S. Fernando study the human activities that make a natural disaster even more deadly (**The New York Times**, By CLAUDIA DREIFUS, December 25, 2007).
- Tracing Tsunami's Destructive Path (Daily News, Sri Lanka, December 26, 2007, Claudia Dreifus)
- On the Ground and in the Water, Tracing a Giant Wave's Path (International Herald Tribune, December 26<sup>th</sup>, 2007)  
<http://www.iht.com/articles/2007/12/26/healthscience/sntsunami.php>
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