

## BIOGRAPHICAL DATA

**CARL A. FRIEHE**

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**PLACE OF BIRTH:** Pittsburgh, Pennsylvania

### **EDUCATION:**

BScE 1961 Purdue University

MScE 1964 Stanford University

Ph.D. 1968 Stanford University

### **HONORS AND AWARDS:**

Tau Beta Pi, Omega Chi Epsilon

Instructor of the Year, School of Engineering, UCI 1988

Instructor of the Year, School of Engineering, UCI 1989

Faculty Advisor Award, American Institute of Aeronautics and Astronautics, Region VI 1987–1988

Outstanding Undergraduate Teacher Award, School of Engineering, UCI 1990

Fellow, American Association for the Advancement of Science, 1996

**PRIMARY RESEARCH INTERESTS:** Turbulence, air-sea interaction and micro meteorology, instrumentation.

### **PROFESSIONAL EXPERIENCE:**

- 1984–present Professor, Department of Mechanical Engineering, University of California, Irvine. (Also Department of Earth System Science)
- 1982–1984 Associate Professor, School of Engineering, University of California, Irvine.
- 1980–1981 NCAR Affiliate Associate Professor, Department of Atmospheric Sciences, University of Washington, Seattle, Washington.
- 1978–1982 Deputy Manager for Research, Research Aviation Facility, National Center for Atmospheric Research (NCAR), Boulder, Colorado.
- 1976–1978 Associate Research Engineer and Lecturer, University of California, AMES and Scripps Institution of Oceanography, La Jolla, California.
- 1969–1976 Assistant Research Engineer, University of California, San Diego, Department of Applied Mechanics and Engineering Sciences (AMES), La Jolla, California.
- 1968–1969 Assistant Professor and Post-Doctoral Fellow, The Johns Hopkins University, Baltimore, Maryland.
- 1963–1968 Research Assistant, Stanford University, Stanford, California.
- 1961–1963 Research Engineer, Western Electric Company, Princeton, New Jersey.

## PROFESSIONAL ACTIVITIES:

- Member, American Physical Society Division of Fluid Dynamics, American Geophysical Union, American Meteorological Society, American Institute of Aeronautics and Astronautics, American Association for the Advancement of Science.
- Session Chairman, American Physical Society, Optical Society of America, American Meteorological Society.
- Reviewer for: *Journal of Fluid Mechanics*, *Physics of Fluids*, *Journal of Geophysical Research*, *Journal of Applied Meteorology*, *Journal of Applied Mechanics*, *Monthly Weather Review*, *Journal of Atmospheric and Oceanic Technology*, *Journal of the Atmospheric Sciences*, *Marine Technical Society Journal*, *Journal of Physical Oceanography*, *Journal of Fluids Engineering*.

National Science Foundation, NASA, NOAA, Australian Grants Program.

- Member, Editorial review board, *Izvestia: Atmospheric and Oceanic Physics* 1983–1988.
- Associate Editor, *Journal of Atmospheric and Oceanic Technology* 1989-1993; Guest Editor, 1991, 1992.
- Co-editor, *Boundary-Layer Meteorology*, 2001-
- National Center for Atmospheric Research (NCAR) and University Corporation for Atmospheric Research (UCAR) Activities:

Chairman, Advisory Panel, Research Aviation Facility, National Center for Atmospheric Research (1984–1986).

Member's Representative for UC Irvine to University Corporation for Atmospheric Research (1987– present).

Member, UCAR Nominating Committee (1988 and 1990).

Member, UCAR Specification Review Panel for NCAR's Atmospheric Technology Division (ATD) (1986).

Chairman, UCAR Specification Review Panel for NCAR's ATD (1989).

Member, NSF Review of NCAR's Atmospheric Technology Division (ATD) (2001).

- National Research Council (NRC), National Academy of Sciences Activities:

Member, NRC Ocean Sciences Board Committee on NOAA Coastal Ocean Program, 1991-1995.

Member, NRC Board on Atmospheric Sciences and Climate Panel on Coastal Meteorology, 1990-1991.

Member, NRC Ocean Studies Board Panel on Marine Meteorology, 1993.

Attendee and Session Co-Chair, NRC Symposium on Navy Coastal Oceanography, Little Creek, VA, 1991.

Attendee and Panelist, NRC Symposium on Navy Meteorology and Oceanography, Fallon NAS, NV, 1995.

Member, Ocean Studies Board, 1997-2000.

Member, NRC Ocean Sciences Board Committee on Environmental Information for Naval Use, 2001-2002.

- Member, American Meteorological Society Committee on Meteorology and Oceanography of the Coastal Zone, 1993-1994.
- Chair, American Meteorological Society Committee on Meteorology and Oceanography of the Coastal Zone, 1994-1996
- Member, Scientific Committee on Ocean Research (SCOR) Working Group on Sea State and Atmospheric Drag Coefficient, 1993-present.
- Member, Review Committee for the Laboratory for Hydro-spheric Processes, NASA Goddard Space Flight Center (1993).
- Member, Technical Advisory Committee for Coastal Hazards Program, National Atmospheric and Oceanic Administration (1992-1994).
- Member, Coastal Ocean Processes [NSF] Steering Committee (1995-present).
- Member, Ocean Studies Board, National Academy of Sciences, 1997-2000.
- Representative, National Academy of Sciences Ocean Studies Board, to Scientific Committee on Ocean Research 33rd Meeting, Rio de Janeiro, Brazil, 1997.

### **Principal Investigator Grants**

- Office of Naval Research: "Surface Flux Analysis," 1974-1978
- National Science Foundation: "Ocean-Atmosphere Flux Scale Study," 1975-1978
- National Oceanic and Atmospheric Administration (National Data Buoy Office): "Air-Sea Interaction Requirements for Buoys," 1976-1978

- National Science Foundation: “Wind Structure and Variability Off of the Northern California Coast During the CODE Experiment,” 1983-1985
- Jet Propulsion Laboratory: “Aircraft Software Development,” 1983-1985
- Office of Naval Research: “Aircraft Research and Coordination for FASINEX,” 1985-1989
- National Science Foundation: “Aircraft Measurements in FASINEX,” 1986-1988
- Office of Naval Research/DoD: “Equipment for Boundary-Layer Research,” 1987
- National Science Foundation: “Aircraft Measurements in the Shelf Mixed Layer Experiment (SMILE),” 1989-1991 (via Woods Hole Oceanographic Institution)
- Office of Naval Research: “Marine Boundary-Layer and Air-Sea Interaction and Studies,” 1989-1994
- National Science Foundation: “Analysis of SMILE Aircraft Data,” 1991-1994 (via Woods Hole Oceanographic Institution)
- National Science Foundation: “Research Experience for Undergraduates Supplement,” 1993
- National Science Foundation: “Supplement for CEPEX Analysis,” 1993
- Office of Naval Research: “Flux-Profiles in the Marine Surface Layer over the Open Ocean,” 1993-1996
- University of California INCOR program, 1994-1996
- National Oceanic and Atmospheric Administration: “Aircraft Data Processing Software,” 1995 (Supplement to NSF grant).
- National Oceanic and Atmospheric Administration: “Air-Sea Exchange Processes in TOGA COARE,” 1995-1998
- University of California Campus Laboratory Cooperative research program (CLC), 1996-present
- Office of Naval Research: “Flux-Profiles in the Marine Surface Layer over the Open Ocean,” 1996-1998
- Office of Naval Research Defense University Research Instrumentation Program: “Laser Doppler Measurements of Surface Wind and Aerosols over the Sea,” 1997
- Office of Naval Research: “Aircraft Measurements of Surface Fluxes in the Japan/East Sea,” 1999-2002
- Office of Naval Research: “Refractive Index Effects in the Marine Boundary Layer,” 1999-2002

### **Co-Principal Investigator Grants**

- Advanced Research Products Agency: “Surface Wave Effects,” 1971-1973 (with C.H. Gibson and F.H. Champagne, UCSD)
- Advanced Research Projects Agency: “Refractive Index in the Atmosphere,” 1973-1974 (with C.H. Gibson, UCSD)
- National Science Foundation: “Boundary-Layer Measurements During AMTEX,” 1974-1976 (with F.H. Champagne, C.H. Gibson, and J.C. LaRue, UCSD)
- National Science Foundation: “Studies of Atmospheric Turbulence and Diffusion in the Surface Layer,” 1977-1978 (with F.H. Champagne, C.H. Gibson, and J.C. LaRue, UCSD)
- National Science Foundation: “Turbulence Measurements in Conjunction with the University of Washington von Karman Experiment,” 1984-1987 (with J.C. LaRue, UCI)
- Army Research Office: “Short-Term Innovative Research Project: Intermittency of Atmospheric Turbulence,” Summer, 1985 (with J.C. LaRue, UCI)
- University of California INCOR Program: “Boundary-Layer Parameterizations,” 1992-1993 (with D. Cooper (LANL) and M. Parlange (UCD))
- National Science Foundation: “TOGA: NOAA WP3D Gust Probe System for TOGA COARE,” 1991-1994 (with B. Walter, SAIC)
- National Science Foundation: “TOGA: Air-Sea Exchange Processes in TOGA COARE,” 1993-1994 (with D. P. Rogers (SIO) and R. L. Grossman (UColo))

### **Academic Committees**

- Co-Chair PhD Dissertation for S. P. Oncley, UCI
- Chair PhD Dissertation for A. G. Enriquez, Bradford W. Berger, Scott D. Miller UCI
- Chair of M.S. Dissertation Committee for J.I. Campbell, H.M. Nguyen, UCI.
- UCI: Member, Conflict-of-Interest Committee (1991-1997), Teaching Load Committee (1992), Faculty Welfare Committee (1995-1998), Committee on Academic Personnel, (1997, Winter and Spring Quarters)
- UC Systemwide: Member, quinquennial review committee, Institute for Geophysics and Planetary Physics (IGPP), 1989 and 1996.

### **Scientist-in-Charge**

- FLIP Atmospheric Boundary-Layer Cruise, April 1972
- FLIP Ocean-Atmosphere Experiment, February 1973

- NCAR Electra Ocean Flux Scale Study, 1975
- FLIP Marine Boundary Layer Experiment, 1995
- Twin Otter Aircraft Measurements in the Japan/East Sea, 2000

#### **Co-Scientist**

- UCSD-AFCRL Boundary-Layer Experiment, Minnesota, 1973
- UCSD-Denmark RISO Atmospheric Experiment, 1974
- Global Atmospheric Research Program (GARP) AMTEX experiment, Ryukyu Islands, Japan, 1975
- Bass Straits, Australia, Air-Sea Interaction experiment, 1976
- UCSD-NCAR Research Aviation Facility Turbulence Program, 1977
- IMST Air-Sea Interaction Wind Tunnel Experiment, 1974 and 1977
- Participant, JASIN, 1978; MONEX, 1979; STREX, 1980; CODE 1981 & 1982; von Karman Experiment, 1984 & 1985; FASINEX, 1986; ERICA, 1989; SMILE, 1989; ASTEX, 1992; TOGA COARE, 1992-1993, Rough Evaporation Duct Experiment, 2001

#### **Consultant**

- EG & G, Inc. Environmental Division
- National Center for Atmospheric Research, Research Aviation Facility
- “Enterprise,” 1977 America’s Cup race
- Jet Propulsion Laboratory, University of Dayton, University of Colorado
- Texas Board of Regents, Louisiana Board of Regents
- Orbital Sciences Corporation

#### **Visitor**

- Uppsala University, Uppsala, Sweden, 1987
- Woods Hole Oceanographic Institution, 1990

## PUBLISHED PAPERS: REVIEWED JOURNALS

1. Klein, I., Marshall, D.I. and Friehe, C.A., "Metering Screw Performance with Temperature Gradients: II, Comparison of Calculated and Measured Performance," *SPE Journal*, **21**, No. 11, pp. 1299-1304 (1965).
2. Friehe, C.A., "Static Coefficient of Friction for Polyethylenes," *Polymer Engineering and Science*, **6**, No. 2, pp. 135-141 (1966).
3. Friehe, C.A. and Schwarz, W.H., "Deviations from the Cosine Law for Yawed Cylindrical Anemometer Probes," *J. Applied Mech.*, **35**, Series E, No. 4, pp. 655-662 (1968).
4. Friehe, C.A. and Schwarz, W.H., "Grid-Generated Turbulence in Dilute Polymer Solutions," *J. Fluid Mech.*, **44**, Pt. 1, pp. 173-193 (1970).
5. Stegen, G.R., Gibson, C.H., and Friehe, C.A., "Measurements of Momentum and Sensible Heat Fluxes over the Open Ocean," *J. Phys. Ocean.*, **3**, No. 1, pp. 86-92 (1973).
6. Friehe, C.A., Gibson, C.H., Champagne, F.H., and LaRue, J.C., "Turbulence Measurements in the Marine Boundary Layer," *Atmos. Technology*, No. 7, pp. 15-23 (1975).
7. Friehe, C.A., LaRue, J.C., Champagne, F.H., Gibson, C.H., and Dreyer, G.F., "Effects of Temperature and Humidity Fluctuations on the Optical Refractive Index in the Marine Boundary Layer," *J. Opt. Soc. Amer.*, **65**, pp. 1502-1511 (1975).
8. Friehe, C.A., "Effect of Sound Speed Fluctuations on Sonic Anemometer Measurements," *J. Appl. Met.*, **15**, pp. 607-610 (1976).
9. Friehe, C.A. and Schmitt, K.F., "Parameterization of Air-Sea Interface Fluxes of Sensible Heat and Moisture by the Bulk Aerodynamic Formulas," *J. Phys. Ocean.*, **6**, 801-809 (1976).
10. Friehe, C.A., "Estimation of the Refractive-Index Temperature Structure Parameter Over the Ocean," *Applied Optics*, **16**, pp. 334-340 (1977).
11. Champagne, F.H., Friehe, C.A., LaRue, J.C. and Wyngaard, J.C., "Flux Measurements, Flux Estimation Techniques and Fine Scale Turbulence Measurements in the Unstable Surface Layer Over Land," *J. Atmos. Sci.*, **34**, 515-530 (1977).
12. Gibson, C.H., Friehe, C.A., and McConnell, S.O., "Structure of Sheared Turbulent Fields," *Phys. Fluids*, **20** (10), Pt. II, pp. S156-S167 (1977).
13. Schmitt, K.F., Friehe, C.A., and Gibson, C.H., "Humidity Sensitivity of Atmospheric Temperature Sensors by Salt Contamination," *J. Phys. Ocean.*, **8**, pp. 151-161 (1978).
14. Antonia, R.A., Chambers, A.J., Rajogopalan, S., Sreenivasan, K.R., and Friehe, C.A., "Measurements of Turbulent Flux in Bass Strait," *J. Phys. Ocean.*, **8**, pp. 23-37 (1978).
15. Antonia, R.A., Chambers, A.J., Van Atta, C.W., Friehe, C.A., and Helland, K.N., "Skewness of Temperature Derivative in a Heated Grid Flow," *Physics of Fluids*, pp. 509-510 (1978).

16. Antonia, R.A., Chambers, A.J., and Friehe, C.A., "Statistical Properties of Optical Refractive Index Fluctuations in the Marine Boundary Layer," *Boundary-Layer Met.*, **15**, pp. 243-253 (1978).
17. Schmitt, K.F., Friehe, C.A., and Gibson, C.H., "Sea Surface Stress Measurements," *Boundary-Layer Met.*, **15**, pp. 215-228 (1978).
18. Friehe, C.A. and Pazan, S.E., "Performance of an Air-Sea Interaction Buoy," *J. of Appl. Met.*, **17**, pp. 1488-1497 (1978).
19. Antonia, R.A., Chambers, A.J., Friehe, C.A., and Van Atta, C.W., "Temperature Ramps in the Atmospheric Surface Layer," *J. Atmos. Sci.*, **36**, pp. 99-108 (1979).
20. Schmitt, K.F., Friehe, C.A., and Gibson C.H., "Structure of Marine Surface Layer Turbulence," *J. Atmos. Sci.*, **36**, pp. 602-618 (1979).
21. Antonia, R.A., Chambers, A.J., and Friehe, C.A., "Note on the Viscous Heating Term in the  $\theta^2$  Equation," *Boundary-Layer Met.*, **19**, pp. 269-272 (1980).
22. Friehe, C.A., "Vortex Shedding From Cylinders at Low Reynolds Numbers," *J. Fluid Mech.*, **100**, pp. 237-241 (1980).
23. Brown, E.N., Shapiro, M.A., Kennedy, P.J., and Friehe, C.A., "The Application of Airborne Radar Altimetry to the Measurement of Height and Slope of Isobaric Surfaces," *J. Appl. Met.*, **20**, No. 9, pp. 1070-1075 (1981).
24. Brown, E.N., Friehe, C.A., and Lenschow, D.H., "The Use of Pressure Fluctuations on the Nose of an Aircraft for Measuring Air Motion," *J. Appl. Met.*, **22**, No. 1, pp. 171-180 (1983).
25. Friehe, C.A., Beardsley, R.C., Winant, C.D. and Dean, J.P., "Inter-comparison of Aircraft and Surface Buoy Meteorological Data During CODE-1," *J. Atmos. and Oceanic Tech.*, **1**, No. 1, pp. 79-86 (1984).
26. Wyngaard, J.C., Rockwell, L., and Friehe, C.A., "Errors in the Measurement of Turbulence Upstream of an Axisymmetric Body," *J. Atmos. and Oceanic Tech.*, **2**, 606-614 (1985).
27. Friehe, C.A., Grossman, R.L. and Pann, Y., "Calibration of an Airborne Lyman-Alpha Hygrometer and Measurement of Water Vapor Flux Using a Thermoelectric Hygrometer," *J. Atmos. and Oceanic Tech.*, **3**, pp. 299-304 (1986).
28. Grossman, R.L. and Friehe, C.A., "Vertical Structure of the Southwest Monsoon Low-Level Jet Over the Central and Eastern Arabian Sea," *J. of the Atmos. Sci.*, **43**, pp. 3266-3272 (1986).
29. Beardsley, R., Dorman, C., Friehe, C., Rosenfeld, L. and Winant, C., "Local Atmospheric Forcing During CODE-1 and CODE-2. Part I: A Description of the Marine Boundary Layer and Atmospheric Conditions Over a Northern California Upwelling Region," *J. of Geophysical Research, Oceans*, **92**, 1467-1488, (1987).



30. Zemba, J. and Friehe, C.A., "The Marine Atmospheric Boundary-Layer Jet in the Coastal Ocean Dynamics Experiment (CODE)," *J. of Geophysical Research, Oceans*, **92**, pp. 1489-1496 (1987).
31. Friehe, C.A., "Review of Atmospheric Boundary-Layer Research, 1983-1986," *Reviews of Geophysics*, **25**, No. 3, pp. 387-392 (1987).
32. Winant, C.D., C. E. Dorman, C. A. Friehe, R. C. Beardsley, "The Marine Layer off Northern California: An Example of Supercritical Channel Flow," *J. of the Atmos. Sci.*, **45**, pp. 3588-3605 (1988).
33. Tjernstrom, M. and C. A. Friehe, "Analysis of a Radome Air-Motion System on a Twin-Jet Aircraft for Boundary-Layer Research," *J. Atmospheric and Oceanic Technology*, **8**, pp. 19-40 (1991).
34. Friehe, C. A., Shaw, W. J., Rogers, D. P., Davidson, K. L., Large, W. G., Stage, S. A., Crescenti, G. H., Khalsa, S. J. S., Greenhut, G. K., and Li, F., "Air-Sea Fluxes and Surface-Layer Turbulence Around a Sea Surface Temperature Front," *J. Geophys. Res.*, **96**, no. C5, pp. 8593-8609 (1991).
35. Friehe, C. A. and H. Stommel, "Andrew F. Bunker: Pioneering in Air-Sea Interaction Research, 1946-1976, *Bulletin of the American Meteorological Society*, **72**, no. 1, pp. 44-49 (1991).
36. Friehe, C. A. and D. Khelif, "Fast-Response Aircraft Temperature Sensors," *J. Atmos. and Oceanic Tech.*, **9**, no. 6, 784-795 (1992).
37. Hudgins, L., Friehe, C. A. and M. E. Mayer, "Wavelet Transforms and Atmospheric Turbulence," *Phys. Rev. Letters*, **71**, no. 20, 3279-3282 (1993).
38. Payne, G. A., Friehe, C. A. and D. K. Edwards, "Time and Frequency Response of a Resistance-Wire Aircraft Atmospheric Temperature Sensor," *J. Atmos. and Oceanic Tech.*, **11**, no. 2, 463-475 (1993).
39. Fuehrer, P. L., Friehe, C. A. and D. K. Edwards, "Frequency Response of a Thermistor Temperature Probe in Air," *J. Atmos. and Oceanic Tech.*, **11**, no. 2, 476-488 (1993).
40. Weissman, D. E., Davidson K. L., Brown R. A., Friehe, C. A. and F. Li, "The Relationships Between Microwave Radar Cross Section and both Wind Speed and Stress - Model Function Development Using FASINEX Data," *J. Geophys. Res.*, **99**, no. C5, 10087-10108 (1994).
41. Rogers, D. P., Johnson, D. W. and C. A. Friehe, "The Stable Internal Boundary Layer Over a Coastal Sea: I - Airborne Measurements of the Mean and Turbulence Structure," *J. of the Atmos. Sci.*, **52**, No. 6., 667-683 (1995).
42. Rogers, D. P., Johnson, D. W. and C. A. Friehe, "The Stable Internal Boundary Layer Over a Coastal Sea: II - Gravity Waves and the Momentum Balance," *J. of the Atmos. Sci.*, **52**, No. 6, 684-696 (1995).

43. Berger, B. W. and C. A. Friehe, "Boundary-Layer Structure Near the Cold Front of a Marine Cyclone," *Boundary-Layer Meteorology*, **73**, 227-253 (1994).
44. Enriquez, A. G. and C. A. Friehe, "Wind Stress and Wind Stress Curl over a Northern California Upwelling Zone," *J. Phys. Oceanog.*, **25**, 1651-1671 (1995).
45. Rogers, D. P., Yang X., Norris, P. M., Johnson, D. W., Martin, G. L., Friehe, C. A., and B. W. Berger, "Diurnal Evolution of the Cloud-Topped Marine Boundary Layer. Part I: Nocturnal Stratocumulus Development," *J. of the Atmos. Sci.*, **52**, No. 16, 2953-2966 (1995).
46. Dorman, C. E., A. G. Enriquez and C. A. Friehe, "Structure of the Lower Atmosphere over the Northern California Coast During Winter," *Monthly Weather Review*, **123**, No. 8, 2383-2404 (1995).
47. Oncley, S. P., Friehe, C. A., LaRue, J. C., Businger, J. A., Itsweire, E. C. and S. Chang, "Surface Layer Fluxes, Profiles and Turbulence Measurements over Uniform Terrain under Near-Neutral Conditions," *J. Atmos. Sciences*, **53**, No. 7, 1029-1044 (1996).
48. Song, X., Friehe, C. A. and D. Hu, "Ship-board Measurements and Estimations of Air-Sea Fluxes in the Western Tropical Pacific," *Boundary-Layer Meteorology*, **81**, 373-397 (1996).
49. Enriquez, A. G. and C. A. Friehe, "Bulk Parameterization of Momentum, Heat and Moisture Fluxes over a Coastal Upwelling Area," *J. Geophys. Res. (Oceans)*, **102**, no. C3, 5781-5798 (1997).
50. Beardsley, R. C., A. G. Enriquez, C. A. Friehe, and C. A. Alessi, "Inter-comparison of Aircraft and Buoy Measurements of Wind and Wind Stress During SMILE," *J. Atmos. and Ocean. Tech.*, **14**, No. 4, 969-977 (1997).
51. Hagan, D., D. P. Rogers, C. A. Friehe, R. W. Weller, and E. Walsh, "Aircraft Observations of Sea Surface Temperature Variability in the Tropical Pacific," *J. Geophys. Res. (Oceans)*, **102**, no. C7, 15,733-15,748 (1997).
52. Song, X. and Friehe, C. A., "Surface Air-Sea Fluxes and Upper Ocean Heat Budget at 156° E, 4° S During TOGA COARE," *J. Geophys. Res. (Oceans)*, **102**, no. C10, 23109-23129 (1997).
53. Serra, Y. L., D. P. Rogers, D. E. Hagan, C. A. Friehe, R. L. Grossman, R. A. Weller, and S. Anderson, "Atmospheric Boundary Layer over the Central and Western Equatorial Pacific Ocean Observed During COARE and CEPEX," *J. Geophys. Res. (Oceans)*, **102**, no. C10, 23217-23237 (1997).
54. Walsh, E. J., D. C. Vandemark, C. A. Friehe, S. P. Burns, D. Khelif, R. N. Swift, J. F. Scott, "Measuring Sea Surface Mean Square Slope with a 36-GHz Scanning Radar Altimeter," *J. Geophys. Res. (Oceans)*, **103**, no. C6, 12,587-12,601 (1998).
55. Walsh, E. J., D. E. Hagan, D. P. Rogers, R. A. Weller, C. W. Fairall, C. A. Friehe, S. P. Burns, D. Khelif, D. C. Vandemark, R. N. Swift, and J. F. Scott, "Observations of Sea Surface Mean Square Slope Under Light Wind During the Tropical Ocean-Global Atmosphere

- Coupled Ocean-Atmosphere Response Experiment,” *J. Geophys. Res. (Oceans)*, **103**, no. C6, 12,603-12,612 (1998).
56. Fuehrer, P. L. and C. A. Friehe, “A Physically-Based Turbulent Velocity Time Series Decomposition,” *Boundary-Layer Meteorology*, **90**, 241-295 (1999).
  57. Hristov, T., C. A. Friehe and S. Miller, “Wave-Coherent Fields in the Air Flow over Ocean Waves - Identification of Cooperative Behavior Buried in Turbulence,” *Phys. Rev. Letters*, **81**, no. 23, 5245-5248 (1998).
  58. Khelif, D., S. P. Burns and C. A. Friehe, “Improved Wind Measurements on Research Aircraft,” *J. Atmos. and Ocean. Tech.*, **16**, 860-875 (1999).
  59. Burns, S. P., D. Khelif, C. A. Friehe, ..., “Comparisons of Aircraft, Ship and Buoy Meteorological Measurements from TOGA COARE,” *J. Geophys. Res. (Atmospheres)*, **104**, no. D24, 30853-30883 (1999).
  60. Fuehrer, P. L., C. A. Friehe, T. S. Hristov, D. I. Cooper and W. E. Eichinger, “Statistical-Uncertainty-Based Adaptive Filtering of Lidar Signals,” *Appl. Optics*, **39**, no. 5, 850-859 (2000).
  61. Fuehrer, P. L. and C. A. Friehe, “Flux Corrections Revisited,” *Boundary-Layer Meteorology*, **102**, 415-457 (2002).

#### **PUBLISHED PAPERS: PROCEEDINGS OF CONFERENCES**

1. Friehe, C.A. and W. H. Schwarz, “The Use of Pitot-Static Tubes and Hot-Film Anemometers in Dilute Polymer Solutions,” *Proceedings of the Symposium on Viscous Drag Reduction*, Plenum Press, pp. 281-296 (1970).
2. Friehe, C.A., Van Atta, C.W. and C. H. Gibson, “Jet Turbulence: Dissipation Rate Measurements and Correlations,” *AGARD Conference Proceedings*, No. 93, pp. 18-1 - 18-7 (1971).
3. Coantic, M. and C. A. Friehe, “Slow-Response Humidity Sensors,” in *Air-Sea Interaction*, F. Dobson, L. Hasse, R. Davis, eds., Pergamon Press, pp. 399-411 (1980).
4. Friehe, C.A. and C. H. Gibson, “Estimates of the Surface Fluxes Over the Ocean,” in Conference Proceedings, in *Turbulent Fluxes Through the Sea Surface, Wave Dynamics and Prediction*, A. Favre and K. Hasselman, eds., Pergamon Press, pp. 67-80 (1978).
5. Mestayer, P.G., Champagne, F.H., Friehe, C.A., LaRue, J.C., and C. H. Gibson, “Estimation of The Fluxes Over the Ocean by the Covariance and Dissipation Method,” in *Turbulent Fluxes through the Sea Surface, Wave Dynamics and Prediction*, A. Favre and K. Hasselman, eds., Pergamon Press, pp. 51-66 (1978).
6. Lenschow, D.H., Friehe, C.A., and J. C. LaRue, “The Development of an Airborne Hot-Wire Anemometer System,” *Proceedings of American Meteorological Society Conference*, Denver, Colorado, pp. 463-466 (1978).

7. Friehe, C.A. and C. D. Winant, "Observations of Wind and Sea Surface Temperature Structure Off the Northern California Coast," in *First Intl. Conf. on Meteorology and Air/Sea Interaction of the Coastal Zone*, H. Tennekes and C.N.K. Mooers, eds., pp. 209-214, American Meteorological Society (1982).
8. Friehe, C.A., "Fine-Scale Measurements of Velocity, Temperature and Humidity in the Atmospheric Boundary Layer," in *Probing the Atmospheric Boundary Layer*, D.H. Lenschow, ed., American Meteorological Society, Boston, MA, pp. 29-38 (1986).
9. Friehe, C. A., E. R. Williams and R. L. Grossman, "An Inter-comparison of Two Aircraft Gust Probe Systems," in *Lower Tropospheric Profiling*, NCAR, NOAA and AMS, pp. 235-236e (1988).
10. Rogers, D. P., C. A. Friehe and W. J. Shaw, "Surface Layer Turbulence over a Sea Surface Temperature Front," *Ninth Symposium on Turbulence and Diffusion*, American Meteorological Society, pp. 58-61 (1990).
11. Oncley, S. P., Businger, J. A., Friehe, C. A., LaRue, J. C., Itsweire, E. C. and S. Chang, "Surface Layer Profiles and Turbulence Measurements over Uniform Terrain under Near-Neutral Conditions," *Ninth Symposium on Turbulence and Diffusion*, American Meteorological Society, pp. 237-240 (1990).
12. Enriquez, A. G. and C. A. Friehe, "Measurement and Parameterization of Fluxes of Momentum, Sensible Heat and Moisture over a Coastal Region," *Tenth Symposium on Turbulence and Diffusion*, American Meteorological Society, pp. 12-14 (1992).
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