JOHN D. ALBERTSON

David Croll Fellow Professor
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EDUCATION

1996 Ph.D., Hydrologic Science, University of California, Davis
1993 M.E.S., Hydrology, School of Forestry and Environmental Studies, Yale University
1989 M.B.A., Finance, University of Hartford
1985 B.S., Civil Engineering**,** State University of New York at Buffalo

PROFESSIONAL RECORD

2015-Present	Croll Fellow Professor, School of Civil and Environmental Engineering, Cornell University
2009-2015	W.H. Gardner Jr. Department Chair, Civil and Environmental Engineering, Duke University.
2008-2015	Professor, Department of Civil and Environmental Engineering, (Secondary Appointment: Nicholas School of the Environment}, Duke University
2002- 2008	Associate Professor, Department of Civil and Environmental Engineering, (Secondary Appointment: Nicholas School of the Environment}, Duke University
2001-2002	Associate Professor, Department of Environmental Sciences, University of Virginia
1996- 2001	Assistant Professor, Department of Environmental Sciences, University of Virginia
1993-1996	Post Graduate Researcher, Hydrologic Science, University of California, Davis
1991-1993	Research Assistant, Hydrology, Yale University
1985-1991	Project Engineer and Project Manager, Transmission Line Structural Design, Northeast Utilities Service Company, Hartford, CT

VISITING POSITIONS

2012 Spring	Visiting Professor (supported by *Fondazione Cassa di Risparmio di Padova e Rovigo),* Department of Civil and Environmental Engineering, University of Padova, Padova, Italy.
2012 Winter	Visiting Professor, Department of Civil and Environmental Engineering, University of Cagliari, Cagliari, Italy
2011 Fall	Visiting Scientist, Institute for Alpine Environment, EURopean ACademy of
1998-2003	Bolzano (EURAC), Bolzano, Italy Visiting Senior Scientist, Department of Civil and Environmental Engineering, University College, Cork, Ireland.

CONSULTING

- Next generation mobile measurements of air quality; US EPA (2014-2015).
- Fugitive methane emissions monitoring strategies for oil and gas operations; NSF (2018), mAIRsure (2019-present)

RESEARCH INTERESTS

Environmental fluid dynamics; Surface hydrology and boundary layer meteorology; Large eddy simulation of complex turbulent layer flows; Turbulent transport processes; Fugitive methane emission detection with mobile sensors.

PRINCIPAL TEACHING

Current: CEE 4320/6320: Hydrology;
CEE 6035: Atmospheric Boundary Layer Turbulence
CEE 6550: Transport, Mixing, and Reaction

Past: Water Resources Engineering (UG); Optimal Environmental Sensing (G); Advanced Turbulence Theories (G). Environmental Engineering and Science (UG); Mechanics of Solids (UG); Land-Atmosphere Interaction (G); Hydrological Transport Processes (G); Hydrological Field Methods and Data Analysis (UG); and Physical Hydrology (UG).

PROFESSIONAL SERVICE (Selected)

- CUAHSI, Elected to Board of Directors, Dec 2017.
- Cornell University, School of Civil and Environmental Engineering, Strategic Planning Committee, Chair (2016-Present)
- Cornell University, College of Engineering, Subsurface Energy Cluster Hire Committee, Member (2015-Present)
- Cornell University, School of Civil and Environmental Engineering, Undergraduate Curriculum Committee, Member (2015-Present)
- Princeton University, Department of Civil and Environmental Engineering, Advisory Council, Member (2013-Present)
- American Geophysical Union, Chair of Special Session, Estimation of Spatial and Temporal Variability of Land Surface Hydrological and Thermal Processes, San Francisco, Fall 2015.
- Cornell University, College of Engineering, Freshman Advisor, 2015-Present.
- Duke University Department of Civil and Environmental Engineering, Department Chair (2009-2015)
- Nelson Mandela Metropolitan University, S. Africa, External PhD Examiner
- Duke University, Office of the Provost, Committee to Evaluate Nicholas School of Environment Dean for Reappointment, Chair (2010).
- Duke University, Pratt School of Engineering, Member of Dean's Advisory Committee (2009-Present).
- Venice Institute of Science, Letters and Art (Venice, Italy), Member of the Coordinating Committee for a Series of International Summer Schools on "Biogeodynamics and Earth System Sciences." (2010-2014).
- Irish EPA, Advisory Board for National Project on Soil Hydrology (2008-2011).
- NASA, Drought and Flood Extremes Working Group, Co-Chair (2009 – 2010).
- NASA, Various Grant Selection Panels (e.g. 1 in 2006, 3 in 2008, 1 in 2010).
- Duke Engineering Faculty Council, Chair (2008-2009).
- Duke Engineering Faculty Council, Member (2007-2008).
- University of Trento, Italy, External PhD examiner (2007)

- Duke Center for Hydrology and Environmental Fluid Dynamics, Co-Director (2005-2007).
- *Water Resources Research*, Associate Editor (2000-2003).
- National Science Foundation, Hydrology Grant Selection Panel, Member (2001, 2002, 2006).
- *Journal of Applied Meteorology*, Associate Editor (1998-2001).
- AGU, Committee on Large Scale Field Experimentation, Member (2008-2010).
- AGU, Committee on Large Scale Field Experimentation, Chair, (1996-2001).
- AGU, AIP, and AMS Journals, Frequent Manuscript Reviewer.
- NSF, NASA, DOE, Proposal Reviewer.
- AGU, Committee on Student Paper Awards, Member, (1999-2002).
- AGU, Frequent Fall meeting session chair over past 20 yeard.
- EPA/NSF, Water and Watersheds Program, Proposal Review Panel Member, (1998, 1999).
- European Union, Advisor to Project on Volga's River Water Resources (1998-2001).
- Irish EPA, Advisor to Project on Eutrophication from Agricultural Sources (2001-2004).
- Irish EPA, Advisor to CelticFlux Greenhouse Gas Emission Project (2002-2006).

HONORS and AWARDS

- Croll Fellow, Cornell University (2015)
- USDA-ARS, Natural Resource Institute Outside Collaborator of the Year Award (2000)
- NASA, New Investigator Program (NIP) in the Earth Sciences Award (1999)
- Packard Fellowship Nominee for University of Virginia (1998, 1999)
- AGU, Hydrology Section, Outstanding Student Paper Award (1996)
- NASA Graduate Student Fellowship in Global Change Research (1994-1996)
- Hutchinson Fellowship, Institute of Biospheric Studies, Yale University (1992-1993)
- Charles Wood Scholarship, Yale University (1991-1993)
- Tibor T. Polgar Fellowship, Hudson River Foundation (1992)
- Northeast Utilities Chairman's Award for Outstanding Performance (1989)

PROFESSIONAL AFFILIATIONS

- American Geophysical Union, member
- American Meteorological Society, member
- American Chemical Society, member
- Air and Waster Management Association, member
- Chi Epsilon (Civil Engineering Honor Society), member
- Licensed Professional Engineer, State of Connecticut (1989-1993; Now lapsed)

PUBLICATIONS

Web of Science (11/2017): H-Index = 33; Career Citations > 3300.
Google Scholar (11/2017): H-Index = 40; Career Citations > 5000.

(Names <u>underlined</u> are present of former members of Albertson's lab)

A. Books and Edited Volumes

Lakshmi, V., J.D. Albertson, and J. Schaake, Editors, *Land Surface Hydrology, Meteorology, and Climate: Observations and Modeling*, AGU Press, 246pp, 2001.

B. Journal Articles

108.) Montaldo, N., Curreli, M., Corona, R., Saba, A. and Albertson, J.D., 2020. Estimating and Modeling the Effects of Grass Growth on Surface Runoff through a Rainfall Simulator on Field Plots. *Journal of Hydrometeorology*, *21*(6), pp.1297-1310.

107.) Peng, X., Steinschneider, S. and Albertson, J., 2020. Investigating Long-Range Seasonal Predictability of East African Short Rains: Influence of the Mascarene High on the Indian Ocean Walker Cell. *Journal of Applied Meteorology and Climatology*, *59*(6), pp.1077-1090.

106.) Zhou, X., A. Montazari, J. D. Albertson, 2019, Mobile sensing of point-source gas emissions using Bayesian inference: An empirical examination of the likelihood function, *Atmospheric Environment, 218: # 116981.*

105.) Zi, T., Kumar, M., and Albertson J., 2019, Intercomparing varied erosion, deposition and transport process representations for simulating sediment yield, *Nature Research, Scientific Reports,* 9(1): 12029.

104.) Zhou, X., Fletcher P., Rudek, J., von Fischer, J., Hamburg S. P., and Albertson J. D. 2019. Estimation of methane emissions from the U.S. ammonia fertilizer industry using a mobile sensing approach. *Elem Sci Anth, 7: 19. DOI: https://doi.org/10.1525/elementa.358*

103.) Corona, R., Montaldo, N. and Albertson, J.D., 2018. On the Role of NAO-Driven Interannual Variability in Rainfall Seasonality on Water Resources and Hydrologic Design in a Typical Mediterranean Basin. *Journal of Hydrometeorology,* 19(3), pp.485-498.

102.) Zhou, X., Marani, M., Albertson, J. D., & Silvestri, S. 2017. Hyperspectral and Multispectral Retrieval of Suspended Sediment in Shallow Coastal Waters Using Semi-Analytical and Empirical Methods. *Remote Sensing*, *9*(4), 393.

101.) Yin, J., Albertson, J. D., & Porporato, A. 2017. A probabilistic description of entrainment instability for cloud-topped boundary-layer models. *Quarterly Journal of the Royal Meteorological Society*, *143*(703), 650-660.

100.) Zi, T., Kumar, M., Kiely, G., Lewis, C., & Albertson, J. 2016. Simulating the spatio-temporal dynamics of soil erosion, deposition, and yield using a coupled sediment dynamics and 3D distributed hydrologic model. *Environmental Modelling & Software*, *83*, 310-325.

99.) Albertson, J.D., T.A. Harvey, G. Foderaro, P. Zhu, X. Zhou, S. Ferrari, M. S. Amin, M. Modrak, H.L. Brantley, and E. Thoma. "A Mobile Sensing Approach for Regional Surveillance of Fugitive Methane Emissions in Oil and Gas Production." *Environmental science & technology*, DOI: 10.1021/acs.est.5b05059, 2016.

98.) J. Yin, J. Albertson, J. R Rigby, and A. Porporato, 2015: Land and atmospheric controls on initiation and intensity of moist convection: CAPE dynamics and LCL crossings, *Water Resources Research* 51.10: 8476-8493, 2015

97.) Orlandini, S., G. Moretti, and J. D. Albertson. 2015: Evidence of an emerging levee failure mechanism causing disastrous floods in Italy, *Water Resources Research* 51, no. 10: 7995-8011, 2015.

96.) Rigby, J. R., J. Yin, J. Albertson, and A. Porporato, 2015: Approximate Analytical Solution to Diurnal Atmospheric Boundary-Layer Growth Under Well-Watered Conditions. *Boundary-Layer Meteorology* 156: 73-89. 2015

95.) Foster-Wittig, T.A., E.D. Thoma, and J.D. Albertson. "Estimation of point source fugitive emission rates from a single sensor time series: A conditionally-sampled Gaussian plume reconstruction." *Atmospheric Environment* 115: 101-109. 2015.

94.) Vico, G., Thompson, S. E., Manzoni, S., Molini, A., Albertson, J. D., Almeida‐Cortez, J. S., ... & Porporato, A. Climatic, ecophysiological, and phenological controls on plant ecohydrological strategies in seasonally dry ecosystems. *Ecohydrology*. 8:4, 660-681.DOI: 10.1002/eco.1533, 2015.

93.) Della Chiesa, S., G. Bertoldi, G. Niedrist, N. Obojes, S. Endrizzi, J. D. Albertson, G. Wohlfahrt, L. Hörtnagl, and U. Tappeiner. "Modelling changes in grassland hydrological cycling along an elevational gradient in the Alps." *Ecohydrology*, DOI: 10.1002/eco.1471, 2014.

92.) Yin, J., A. Porporato, J.D. Albertson, Interplay of Climate Seasonality and Soil Moisture - Rainfall Feedback, *Water Resources Research*, DOI: 10.1002/2013WR014772, 2014.

91.) Wilson, T.G., C. Cortis, N. Montaldo, and J. D. Albertson, Development and testing of a large, transportable rainfall simulator for plot-scale runoff and parameter estimation, *Hydrol. Earth Syst. Sci. Discuss*., 11, 4267-4310, 2014

90.) Rudd, K., J.D. Albertson, S Ferrari, Optimal Root Profiles In Water-Limited Ecosystems. *Advances in Water Resources*, 71: 16-22, 2014.

89.) Lewis, C., Albertson, J., Zi, T., Xu, X., & Kiely, G., How does afforestation affect the hydrology of a blanket peatland? A modelling study. *Hydrological Processes*, *27*(25), 3577-3588, 2013.

88.) Huang, J., G. Katul, and J. Albertson. The role of coherent turbulent structures in explaining scalar dissimilarity within the canopy sublayer. *Environmental Fluid Mechanics*, 1-29, DOI 10.1007/s10652-013-9280-9, 2013.

87.) Volpe, V., M. Marani, J. D. Albertson, and G. Katul. Root controls on water redistribution and carbon uptake in the soil-plant system under current and future climate.. *Advances in Water Resources*, 60:110-120, 2013.

86.) Lewis, C., R. Rafique, N. Foley, P. Leahy, G., Morgan, J. Albertson, S. Kumar, & G. Kiely, Seasonal exports of phosphorus from intensively fertilized nested grassland catchments, *Journal of Environmental Sciences*, 25(9) 1847–1857, 2013.

85.) Bertoldi, G., Kustas, W. P., & Albertson, J. D., Evaluating source area contributions from aircraft flux measurements over heterogeneous land using large-eddy simulation. *Boundary-layer meteorology*, *147*(2), 261-279, 2013.

84.) Montaldo, N., R. Corona, and J. D. Albertson. On the separate effects of soil and land cover on Mediterranean ecohydrology: Two contrasting case studies in Sardinia, Italy, *Water Resour. Res.*, doi:10.1029/2012WR012171, Vol 49, 2, 1123-1136, 2013.

83.) Orlandini, S., G. Moretti, M. A. Corticelli, P. E. Santangelo, A. Capra, R. Rivola, and J. D. Albertson, Evaluation of flow direction methods against field observations of overland flow dispersion, *Water Resour. Res*., 48, W10523, doi:10.1029/ 2012WR012067, 2012.

82.) Lewis, C., Albertson, J., Xu, X. and Kiely, G., Spatial variability of hydraulic conductivity and bulk density along a blanket peatland hillslope. *Hydrol. Process*., 26: 1527–1537. doi: 10.1002/hyp.8252, 2012.

81.) Xu, X., C. Lewis, W. Liu, J.D. Albertson, G. Kiely, Analysis of single-ring infiltrometer data for soil hydraulic properties estimation: Comparison of BEST and Wu methods, *Agricultural Water Management*, 107, 34-41, ISSN 0378-3774, 10.1016/j.agwat.2012.01.004, 2012

80.) Huang J, M. Cassiani and J.D. Albertson, Coherent Turbulent Structures Across a Vegetation Discontinuity, *Boundary-Layer Meteorology*, 140(1): 1-22, 2011.

79.) Yi, C.X. et al., Climate control of terrestrial carbon exchange across biomes and continents, *Environmental Research Letters*, 5(3): # 034007, 2010.

78.) Cassiani M., P. Franzese, J.D Albertson, A coupled Eulerian and Lagrangian Mixing Model for Intermittant Concentration Time Series, *Physics of Fluids*, 21(8): #085105, 2009.

77.) Huang J, M. Cassiani and J.D. Albertson, The Effects of Vegetation Density on Coherent Turbulent Structures within the Canopy Sublayer: A Large-Eddy Simulation Study, *Boundary-Layer Meteorology*, 133(2): 253-275, 2009.

76.) Kim,T.-Y., M. Cassiani, J.D. Albertson, J.E. Dolbow, E. Fried, and M. E. Gurtin, Impact of the inherent separation of scales in the Navier-Stokes-αβ equations, *Physical Review E*, vol. 79, Issue 4, id. 045307, 2009.

75.) Huang J, M. Cassiani and J.D. Albertson, Analysis of coherent structures within the atmospheric boundary layer, *Boundary-Layer Meteorology*, 131(2): 147-171, 2009.

74.) Detto, M., Katul, G., Mancini, M., Montaldo, N., Albertson, J.D., Surface heterogeneity and its signature in higher-order scalar similarity relationships, *Agricultural and Forest Meteorology*, 148 (6-7): 902-916, 2008.

73.) Cassiani M., G.G. Katul, J.D Albertson, The effects of canopy leaf area index on airflow across forest edges: Large-eddy simulation and analytical results, *Boundary-Layer Meteorology*, 126, 3, 433-460, 2008.

72.) Bertoldi G, W.P., Kustas, J.D. Albertson, Estimating spatial variability in atmospheric properties over remotely sensed land surface conditions, *Journal of Applied Meteorology and Climatology*, 47, 8, 2147-2165, 2008.

71.) Montaldo N., J. D. Albertson, and M. Mancini, Vegetation Dynamics and Soil Water Balance in a Water-limited Mediterranean Ecosystem on Sardinia, Italy, *Hydrol. Earth Syst. Sci.*, 12:6, 1257-1271, 2008.

70.) Timmermans, W.J., G. Bertoldi, J.D. Albertson, A. Olioso, Z. Su, A.S.M. Gieske, Accounting for Atmospheric Boundary Layer variability on flux estimation from RS Observations, *International Journal of Remote Sensing*, 29, 5275-5290, 2008.

69.) Bertoldi, G., J. D. Albertson, W. P. Kustas, F. Li, and M. C. Anderson, On the opposing roles of air temperature and wind speed variability in flux estimation from remotely sensed land surface states, *Water Resources Research*, VOL. 43, W10433, doi:10.1029/2007WR005911, 2007.

68.) Cassiani, M., A. Radicchi, J.D. Albertson, U. Giostra, An efficient algorithm for scalar PDF modelling in incompressible turbulent flow; numerical analysis with evaluation of IEM and IECM micro-mixing models, *Journal of Computational Physics*, 223, 519-550, 2007.

67.) Montaldo, N., J.D. Albertson, and M. Mancini, Dynamic Calibration with an Ensemble Kalman Filter based data assimilation approach for root zone moisture predictions, *J. Hydrometeorology*, 8(4): 910, 2007.

66.) Cassiani, M., A. Radicchi, and J.D. Albertson, Modelling of Concentration Fluctuations in Canopy Turbulence, *Boundary-Layer Meteorology*, 122 (3): 655-681 Mar 2007.

65.) Poggi, D., G.G. Katul, J.D. Albertson, and L. Ridolfi, An Investigation of Turbulent Flows Over a Hilly Surface, *Physics of Fluids*, 19, 036601, 12pp, 2007.

64.) Williams, C.A., T.M. Scanlon, J.D. Albertson, Influence of surface heterogeneity on scalar dissimilarity in the roughness sublayer, *Boundary-Layer Meteorol* (2007) 122:149–165.

63.) Jaksic V, G. Kiely, J. Albertson, R. Oren, G. Katul, P. Leahy, K. Byrne. Net ecosystem exchange of grassland in contrasting wet and dry years, *Agricultural and Forest Meteorology* 139 (3-4): 323-334 OCT 12 2006.

62.) Drewry, D., and J.D. Albertson, Diagnosing Model Error in Canopy-Atmosphere Exchange Using Empirical Orthogonal Function Analysis, *Water Resources Research*, 42, W06421, doi:10.1029/2005WR004496, 2006.

61.) Detto, M., N. Montaldo, J.D. Albertson, M. Mancini, and G. Katul, Soil moisture and vegetation controls on evapotranspiration in an heterogeneous Mediterranean ecosystem on Sardinia, Italy, *Water Resources Research*, 42 (8): Art. No. W08419 AUG 11 2006.

60.) Emanuel, R. E., J. D. Albertson, H. E. Epstein, and C. A. Williams, Carbon dioxide exchange and early old-field succession, *J. Geophys. Res. - Biogeosciences*, 111, G01011, doi:10.1029/2005JG000069, 2006.

59.) Montaldo, N., R. Rondena, J.D. Albertson, and M. Mancini, Parsimonious Modeling of Vegetation Dynamics for Ecohydrologic Studies of Water-Limited Ecosystems, *Water Resources Research*, 41, W10416, 2005.

58.) Oren, R., C.-I. Hsieh, P. Stoy, J.D. Albertson, H.R. McCarthy, P. Harrell, and G. G. Katul, Estimating the uncertainty in annual net ecosystem carbon exchange: spatial variation in turbulent fluxes and sampling errors in eddy-covariance measurements, *Global Change Biology*, Volume 12, Page 883, doi:10.1111/j.1365-2486.2006.01131.x, 2006.

57.) Williams, C.A., and J.D. Albertson, Dynamical effects of the statistical structure of annual rainfall on dryland vegetation, *Global Change Biology*, Volume 12, Page 777, doi:10.1111/j.1365-2486.2006.01111.x, 2006.

56.) Williams, C.A., and J.D. Albertson, Contrasting short- and long-timescale effects of vegetation dynamics on water and carbon fluxes in water-limited ecosystems, *Water Resources Research*, 41, (6), W06005, 2005.

55.) Shi, B., B. Vidakovic, G.G. Katul, and J.D. Albertson, Assessing the Effects of Atmospheric Stability on the Fine Structure of Surface Layer Turbulence using Local and Global Multi-scale Approaches, *Physics of Fluids*, 17, 055104, 2005.

54.) Poggi, D., Katul, G.G., and J.D. Albertson, Scalar Dispersion within a Model Canopy: Measurements and Three-Dimensional Lagrangian Models, *Advances in Water Resources*, 29(2): 326-335, 2006.

53.) Williams, C.A., and J.D. Albertson, Soil moisture controls on canopy-scale water and carbon fluxes in an African savanna, *Water Resources Research* 40, (9): Art. No. W09302, 2004.

52.) Poggi, D., A. Porporato, L. Ridolfi, J.D. Albertson, G.G. Katul, Interaction between large and small scales in the canopy sublayer, *Geophys. Res. Lett*., Vol. 31, No. 5, L05102, 2004.

51.) Montaldo,N., V. Toninelli, J. D. Albertson, M. Mancini, and P. A. Troch, The effect of background hydrometeorological conditions on the sensitivity of evapotranspiration to

model parameters: analysis with measurements from an Italian alpine catchment, *Hydrology and Earth System Sciences,* 7 (6): 848-861, 2003

50) Poggi, D., G.G. Katul, and J.D. Albertson, A note on the contribution of dispersive fluxes to momentum transfer within canopies, *Boundary-Layer Meteorology,* 111 (3): 615-621, 2004.

49.) Poggi, D., G.G. Katul, and J.D. Albertson, Momentum transfer and turbulent kinetic energy budgets within a dense model canopy, *Boundary-Layer Meteorology*, 111 (3): 589-614, 2004

48.) Poggi, D. A. Porporato, L. Ridolfi, J.D. Albertson, G.G. Katul, The effect of vegetation density on canopy sub-layer turbulence, *Boundary-Layer Meteorology*, 111 (3): 565-587, 2004

47.) Scanlon, T.M., and J.D. Albertson, Canopy scale measurements of CO_2 and water vapor exchange along a precipitation gradient in southern Africa, *Global Change Biology*, 10 (3): 329-341, 2004.

46.) Scanlon, T.M., and J.D. Albertson, Water availability and the spatial complexity of CO2, water, and energy fluxes over a heterogeneous sparse canopy, *Journal of Hydrometeorology*, 4 (5): 798-809, 2003.

45.) Montaldo, N., and J.D. Albertson, Temporal Dynamics of Soil Moisture Variability: 2. Implication for Land Surface Models, *Water Resources Research,* 39 (10): Art. No. 1275, 2003.

44.) Albertson, J.D. and N. Montaldo, Temporal Dynamics of Soil Moisture Variability: 1. Theoretical Basis, *Water Resources Research,* 39 (10): Art. No. 1274, 2003.

43.) Scanlon, T.M., and J.D. Albertson, Inferred controls on tree/grass composition in a savanna ecosystem: combining 16 year NDVI data with a dynamic soil moisture model, *Water Resources Research*, 39 (8): Art. No. 1224, 2003.

42.) Kustas, W.P., and J.D. Albertson, Effects of surface temperature contrast on land-atmosphere exchange: A case study from Monsoon90, *Water Resources Research,* 39 (6): Art. No. 1159, 2003.

41.) Katul, G.G., C. Angelini, C. De Canditiis, B. Vidakovic, J.D. Albertson, and U. Amato, Are the effects of large scale flow conditions really lost through the turbulent cascade?, *Geophysical Research Letters,* 30 (4): art. no. 1164, 2003.

40.) Montaldo, N., and J.D. Albertson, Multi-scale assimilation of surface soil moisture data for root zone moisture predictions, *Advances in Water Resources*, 26, 33-44, 2003.

39.) Scanlon, T.M., J.D. Albertson, K.K. Caylor, and C.A. Williams, Determining land surface fractional cover components from NDVI and rainfall time series for a savanna ecosystem, *Remote Sensing of Environment*, 82(2-3), 376-388, 2002.

38.) Katul, G.G., P. Wiberg, J.D. Albertson, and G.W. Hornberger, A mixing layer theory for flow resistance in shallow streams, *Water Resources Research,* 38 (11): art. no. 1250, 2002.

37.) Oltchev A, Cermak J, Gurtz J, Tishenko A, Kiely G, Nadezhdina N, Zappa M, Lebedeva N, Vitvar T, Albertson JD, Tatarinov F, Tishenko D, Nadezhdin V, Kozlov B, Ibrom A, Vygodskaya N, Gravenhorst G, The response of the water fluxes of the boreal forest region at the Volga's source area to climatic and land-use changes, *Physics And Chemistry of the Earth,* 27 (9-10): 675-690 2002

36.) Katul, G., C.-T. Lai, K. Schafer, B, Vidakovic, J. Albertson, D. Ellsworth, and R. Oren, Multiscale analysis of vegetation surface fluxes: from seconds to years, *Advances in Water Resources,* 24 (9-10): 1119-1132, 2001.

35.) Montaldo, N., and J.D. Albertson, On the use of the Force-Restore SVAT model formulation for stratified soils, *Journal of Hydrometeorology,* 2(6), 571-578, 2001.

34) Montaldo, N., J.D. Albertson, M. Mancini, and G. Kiely, Robust prediction of root zone soil moisture from assimilation of surface soil moisture data, *Water Resources Research,* 37(12), 2889-2900, 2001.

33.) Albertson, J.D., G.G. Katul, and P. Wiberg, Relative importance of local and regional controls on coupled water, carbon, and energy fluxes, *Advances in Water Resources,* 24 (9/10), 1103-1118, 2001.

32.) Katul, G.G., C.-T. Lai, J.D. Albertson, B. Vidakovic, K. Schafer, C.-I. Hsieh and R. Oren, Quantifying the complexity in mapping energy inputs and hydrologic state variables into land-surface fluxes, *Geophysical Research Letters*, 28(17), 3305-3307, 2001.

31.) Albertson, J.D**.,** and G. Kiely, On the structure of soil moisture time series in the context of land surface models, *Journal of Hydrology*, 243(1-2), 101-119, 2001.

30.) Scanlon, T.M., and J.D. Albertson, Turbulent transport of carbon dioxide and water within vegetation canopies during unstable conditions: Identification of episodes using wavelet analysis, *J. Geophysical Research – Atmospheres,* 106, 7251-7262, 2001.

29.) Albertson, J.D., W.P. Kustas, and T.M. Scanlon, Large-eddy simulation over heterogeneous terrain with remotely sensed land surface conditions, *Water Resources Research*, 37, 1939-1953, 2001.

28.) Katul, G.G., B. Vidakovic, and J.D. Albertson, Estimating global and local scaling exponents in turbulent flows using wavelet transformations, *Physics of Fluids,* 13, 241-250, 2001.

27.) Vidakovic, B., G. Katul, and J.D. Albertson, Multiscale denoising of self-similar processes, *Journal of Geophysical Research – Atmospheres*, 105 (D22): 27049-27058, 2000.

26.) Katul, G., C.-I. Hsieh, D. Bowling, K. Clark, N. Shurpali, A. Turnipseed, J. Albertson, K. Tu, D. Hollinger, R. Evans, B. Orff, D. Anderson, D. Ellsworth, R. Oren, and C. Vogel, Spatial variability of turbulent fluxes in the roughness sublayer of a uniform pine forest, *Boundary-Layer Meteorology*, 93, 1-28,1999.

25.) Kiely, G., M. Parlange, J. Albertson, Water resources and climate change processes – Preface, *Advances in Water Resources*. 23(2):101-103, 1999.

24.) Albertson, J.D., and M.B. Parlange, Surface length scales and shear stress: Implications for land-atmosphere interaction over complex terrain, *Water Resources Research,* 35, 2121-2132, 1999.

23.) Szilagyi, J., M.B. Parlange, G.G. Katul, and J.D. Albertson, An objective method for determining principal time scales of coherent eddy structures using orthonormal wavelets, *Advances in Water Resources,* 22(6), 561-566, 1999.

22.) Katul, G.G., and J.D. Albertson, Modeling CO_2 sources, sinks, and fluxes within a forested canopy, *Journal of Geophysical Research*, 104 , D6 , 6081-6092, 1999.

21.) Albertson, J.D., and M.B. Parlange, Natural integration of scalar fluxes from complex terrain, *Advances in Water Resources*, 23, 239-252, 1999.

20.) Katul, G.G., and J.D. Albertson, An investigation of higher order closure models for a forested canopy, *Boundary Layer Meteorology,* 89, 47-74, 1998.

19.) Szilagyi, J., M.B. Parlange, and J.D. Albertson, On the application of recession flow analysis for aquifer parameter estimation, *Water Resources Research,* 34, 1851-1857, 1998.

18.) Kiely, G., J.D. Albertson, M.B. Parlange, Recent trends in diurnal variations of precipitation at Valentia on the west coast of Ireland, *Journal of Hydrology*, 207, 270-279, 1998.

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16.) Albertson, J.D., G.G. Katul, M.B. Parlange, and W.E. Eichinger, Spectral scaling of static pressure fluctuations in the atmospheric surface layer: The interaction between large and small scales, *Physics of Fluids*, 10, 1725-1732, 1998.

15.) Kiely, G., J.D. Albertson, M.B. Parlange, and R.W. Katz, Conditioning stochastic properties of daily precipitation on indices of atmospheric circulation, *Meteorological Applications* 5, 75-87, 1998.

14.) Tyler, S.W., S. Kranz, M.B. Parlange**,** J.D. Albertson, G.G. Katul, G. Cochran, B. Lyles, and G. Holder, Estimation of groundwater evaporation and salt flux from Owens Dry Lake, California, USA, *Journal of Hydrology*, 200(1-4), 110-135, 1997.

13.) Cahill, A.T., M.B. Parlange, J.D. Albertson, On the Brutsaert temperature roughness

length model for sensible heat flux estimation, *Water Resources Research*, 33(10), 2315-2324, 1997.

12.) Albertson, J.D.**,** M.B. Parlange, G. Kiely, and W.E. Eichinger, The average dissipation rate of turbulent kinetic energy in the neutral and unstable atmospheric surface layer, *Journal of Geophysical Research*, 102(D12), 13423-13432, 1997.

11.) Chu, C.-R., M.B. Parlange, G.G. Katul, and J.D. Albertson, Probability density functions of turbulent velocity and temperature in the atmospheric surface layer, *Water Resources Research*, 32, 1681-1688, 1996.

10.) Katul, G.G., J.D. Albertson, C.-I. Hsieh, P.S. Conklin, J.T. Sigmon, M.B. Parlange, and K.N. Knoerr, The "inactive" eddy-motion and the large-scale turbulent static pressure fluctuations in the dynamic sublayer, *J. Atmospheric Sciences*, 53, 2512-2524, 1995.

9.) Szilagyi, J., G.G. Katul, M.B. Parlange, J.D. Albertson, and A.T. Cahill, The local effect of intermittency on the inertial subrange energy spectrum of the atmospheric surface layer, *Boundary-Layer Meteorology*, 79, 35-50, 1996.

8.) Kiely, G., J.D. Albertson**,** M.B. Parlange, and W.E. Eichinger, Convective scaling of the average dissipation rate of temperature variance in the atmospheric surface layer, *Boundary-Layer Meteorology*, 77, 267-284, 1996.

7.) Katul, G.G., M.B. Parlange, J.D. Albertson, and C.-R. Chu**,** An investigation of the sweeping decorrelation hypothesis in atmospheric surface layer flows, *Fluid Dynamics Research*, 16, 275-295, 1995.

6.) Parlange, M.B., W.E. Eichinger, and J.D. Albertson, Regional evaporation into the atmospheric boundary layer, *Reviews of Geophysics*, 33, 99-124, 1995.

5.) Katul, G.G., M.B. Parlange, J.D. Albertson, and C.-R. Chu, Local isotropy and anisotropy in the sheared and heated atmospheric surface layer, *Boundary-Layer Meteorology*, 72, 123-148, 1995**.**

4.) Albertson, J.D., M.B. Parlange, G.G. Katul, C.-R. Chu, H. Stricker, and S. Tyler, Sensible heat flux from arid regions: A simple flux-variance method, *Water Resources Research*, 31, 969-973, 1995.

3.) Katul, G.G., C.R. Chu, M.B. Parlange, J.D. Albertson, and T. Ortenburger, Low-wavenumber spectral characteristics of velocity and temperature in the atmospheric surface layer, *Journal of Geophysical Research*, 100, 7, 14243-14255, 1995.

2.) Katul, G.G., J.D. Albertson, M.B. Parlange, C.-R. Chu, and H. Stricker, *Journal of Geophysical Research*, 99, 22869-22876, 1994.

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C. Book Chapters (*Refereed*)

11.) Zhou, X., Amaral, V., and Albertson J. D. 2017, Source characterization of airborne emissions using a sensor network: examining the impact of sensor quality, quantity, and wind climatology, *2017 IEEE International Conference on Big Data (IEEE Big Data 2017)*, Boston, MA, USA, 4621-4629,http://doi.org/10.1109/BigData.2017.8258506

10.) J.R. Gemerek, S. Ferrari, J.D. Albertson, 2017, Fugitive gas emission rate estimation using multiple heterogeneous mobile sensors, *IEEE International Symposium on Olfaction and Electronic Nose (ISOEN)*, DOI: 10.1109/ISOEN.2017.7968897.

10). Bennetts, V. H., Lilienthal, A. J., Schaffernicht, E., Ferrari, S., & Albertson, J. (2015, June). Integrated simulation of gas dispersion and mobile sensing systems. In *Proceedings of the Workshop on Realistic, Rapid and Repeatable Robot Simulation (R4SIM), Robotics: Science and Systems XI, Rome, Italy* (Vol. 16).

9.) Albertson, J.D., C.A. Williams, T.M. Scanlon, and N. Montaldo, Soil Moisture Controls on Water vapor and carbon Fluxes in Semi-Arid Regions, in: Dryland Ecohydrology, Eds. P. D'Odorico and A. Porporato, Springer, pp67-83, 2006.

8.) Katul, G.G., D. Cava, D. Poggi, J.D. Albertson, and L. Mahrt, Stationarity, homogeneity, and ergodicity in canopy turbulence, in *Handbook of Micrometeorology: A Guide for Surface Flux Measurements*, Eds: X. Lee and W. Massman, Elsevier, 2005.

7.) Albertson, J.D., T.M. Scanlon, A.T. Cahill, and W.P. Kustas, Estimating surface energy fluxes with remotely sensed data, *Remote Sensing in Hydrology 2000, IAHS Publ. No. 267 (M. Owe, K. Brubaker, J. Ritchie and A. Rango Eds.)*, pp 145-150.

6.) Kustas, W.P., J.D. Albertson, T.M. Scanlon, and A.T. Cahill, Issues in monitoring evapotranspiration with radiometric temperature observations, *Remote Sensing in Hydrology 2000, IAHS Publ. No. 267 (M. Owe, K. Brubaker, J. Ritchie and A. Rango Eds.)*, pp 239-245.

5.) Scanlon, T.M., J.D. Albertson, and W. P. Kustas, Scale effects in estimating large eddy-driven sensible heat fluxes over heterogeneous terrain, *Remote Sensing in Hydrology 2000, IAHS Publ. No. 267 (M. Owe, K. Brubaker, J. Ritchie and A. Rango Eds.)*, pp 175-180.

4.) Katul, G.G. and J.D. Albertson, Low-dimensional turbulent transport mechanics near the forest-atmosphere interface, *Bayesian inference in wavelet based models*, Springer-Verlag, 1999.

3.) Parlange, M.B., J.D. Albertson, W.E. Eichinger, A.T. Cahill and T.J. Jackson, Evaporation: Use of fast response turbulence sensors, raman lidar and passive microwave remote sensing, in: *Vadose Zone Hydrology: Cutting Across Disciplines*, M.B. Parlange and JW Hopmans (eds.), pp260-278, Oxford University Press, 1999.

2.) Albertson, J.D. , G. Kiely, and M.B. Parlange, Surface fluxes of momentum, heat, and water vapor, in: *Radiation and Water in the Climate System*, NATO ASI Series 1: Global Environmental Change, Vol.45, (E.Raschke, Editor), pp59-82, Springer-Verlag, 1996.

1.) Katul, G.G., J. D. Albertson, C.-R. Chu, and M.B. Parlange, Intermittency in atmospheric

surface layer turbulence: The orthonormal wavelet representation, in: *Wavelets in Geophysics*, (E. Foufoula-Georgiou and P. Kumar, Editors.), pp81-105, Academic Press, 1994.

SEMINARS AND PRESENTATIONS

- "Evidence of an Emerging Disturbance of Earthen Levees Causing Disastrous Floods in Italy" AGU Fall Meeting, Dec 2015.
- "Mobile monitoring of fugitive methane emissions from natural gas consumer industries" AGU Fall Meeting, Dec 2015.
- "The Hydrologic regime over the last 90 years in the Flumendosa basin, Sardinia: the effect of climate change." AGU Fall Meeting, Dec 2015.
- "Upscaling and Downscaling of Land Surface Fluxes with Surface Temperature (Invited)" AGU Fall Meeting, Dec 2015.
- "Land-Atmosphere Interaction Through the Lens of Turbulent Boundary Layer Flows" Seminar in Cornell's BEE Department, November, 2015.
- Mobile Sensing Tools to Localize and Quantify Fugitive Methane Emissions (Invited)" ACSF-EDF Retreat, November 2015.
- "Fugitive Methane Emissions and Turbulent Dispersion: Toward robust source inference (Invited)", Department of Energies, ARPA-E MONITOR Program meeting, Denver, CO, May 2015.
- New Faculty Talk to Advisory Council Meeting, Cornell School of Civil and Environmental Engineering, April 2015.
- "Influence of sub-grid scale parameterizations on atmospheric variability over a heterogeneous agricultural area." *EGU General Assembly*, Vienna, Austria, April 2015.
- "The Fluid Mechanics of Land-Atmosphere Interaction: From Greenhouse Gas Emissions in Energy Production to Climate Impacts on Water Resources" Department Seminar, Civil and Environmental Engineering, Cornell University, Oct 2014.
- "Estimation of Methane Emission Rates from a Single High-Frequency Gas Sensor" Air and Waste Management Association Conference, Long Beach, CA, June 2014.
- "Mass and Energy Fluxes Between the Land and Atmosphere", Department Seminar, Civil and Environmental Engineering, Texas A&M, June 2014.
- "Remote Sensing Retrieval of Water Constituents in Shallow Coastal Waters with Applications to the Venice Lagoon" AGU Fall Meeting, Dec 2013.
- "Simulating the Interactions between Eroding Processes and SOC in a Distributed Manner", AGU Fall Meeting, Dec 2013.
- "Semi-arid hydrology and vegetation dynamics under a changing climate", Department Seminar, Civil and Environmental Engineering, Politecnic of Milano, Italy, Dec 2013
- Short Course for PhD students on "Hydrology and Water Resources in a Dynamic Climate" at the University of Cagliari, Italy, 4-7 June 2012.
- University of Modena, Italy, Department Seminar on Water Resources, March 2012.
- "A Tour of Feedbacks in the Land-Atmosphere System" University of Padova, Italy, University-Wide Seminar. June 2012.
- NASA Terrestrial Ecology Science Team Meeting, Washington DC, Invited, Oct 2011.
- "Coupling of land surface hydrology and the atmospheric boundary layer with a focus on convective rainfall triggering (and drought)," Seminar, University of Basilicata, Italy, June 2011.

- "Coupled remote sensing and Large Eddy Simulation to study land surface fluxes over heterogeneous terrain" Seminar, University of Basilicata, Italy, June 2011.
- "Vegetation dynamics and implications for land surface hydrology in semi-arid region" Seminar, University of Basilicata, Italy, June 2011.
- "The effects of Climate and Land use interactions on hydrologic response and erosion" Seminar, University of Basilicata, Italy, June 2011.
- "Soil water balances and vegetation dynamics in two contrasting water-limited Mediterranean ecosystems on Sardinia, Italy", European Geophysical Union Meeting, Vienna, Austria, April 2011.
- "On the estimation of the design flood of the Rio Mogoro dam in Sardinia", European Geophysical Union Meeting, Vienna, Austria, April 2011.
- "Plant adaptation in saline environments and effects on root water uptake", European Geophysical Union Meeting, Vienna, Austria, April 2011.
- "Design and testing of a plot scale rainfall simulator in Sardina, Italy for calibration of a distributed hydrologic model", European Geophysical Union Meeting, Vienna, Austria, April 2011.
- "Climate Impacts on Irish Soils", Invited Presentation to the Irish EPA, March 2011.
- Role of Residual Layer in Controlling Diurnal ABL Evolution" Fall 2010 Meeting of the American Geophysical Union, San Francisco, CA.
- " Development and evaluation of a soil erosion module for the GEOTOP distributed hydrological model", Fall 2010 Meeting of the American Geophysical Union, San Francisco, CA.
- "Interannual rainfall variability, vegetation dynamics, and runoff controls in Mediterranean climates" Fall 2010 Meeting of the American Geophysical Union, San Francisco, CA.
- "Design and testing of a plot scale rainfall simulator in Sardina, Italy for calibration of a distributed hydrologic model" Fall 2010 Meeting of the American Geophysical Union, San Francisco, CA.
- "Soil- and plant- water uptake in saline environments and their consequences to plant adaptation in fluctuating climates" Fall 2010 Meeting of the American Geophysical Union, San Francisco, CA.
- NASA Terrestrial Ecology Science Team Meeting, March, 2010.
- AGU Fall Meeting 2009, San Francisco, Two Invited Talks.
- NASA Energy and Water Cycle Workshop, Invited talk, December 2009.
- Summer School on Environmental Dynamics, Set of Invited Lectures, Venice, Italy, June 2009.
- EURAC, Bolzanno, Italy, March 2009.
- University of Cagliari, Italy, Department of Civil Engineering, March, 2009.
- Texas A&M University, Department of Civil and Environmental Engineering, March 2009.
- ITC, The Netherlands, August 2008.
- Padova University, Italy, Department of Civil and Environmental Engineering, Invited Lecture, 12 March 2008.
- AGU Fall Meeting 2007, San Francisco, Invited Talk.
- Texas A&M University, Interdisciplinary Distinguished Lecture Series on Multiscale Processes in Earth Systems, Invited Lecture, 12 September, 2007.

- Princeton University, Department of Civil and Environmental Engineering, Invited Lecture, 13 March 2007.
- Italian Hydraulics Conference, Rome, Italy, “The Effect of Land-Atmosphere Feedbacks on the Spatial Structure Of Land Surface Over Heterogeneous Terrain” September 2006
- AGU Spring Meeting 2006, Baltimore, “Atmospheric Surface Layer Response to Landscape Heterogeneity”
- Princeton University, Department of Civil and Environmental Engineering, Invited Seminar, 08 February 2006.
- AGU Fall Meeting 2006, San Francisco, “Effects of land surface heterogeneity on second order scalar statistics in the surface boundary layer above a Mediterranean ecosystem”
- European Geophysical Union Meeting, Vienna, Austria, “Vegetation Dynamics Effects on the Soil Water Budget of a Water-Limited Mediterranean Ecosystem also in the Context of Inter-annual Rainfall Variability” April 2006,
- AGU Fall Meeting 2006, San Francisco, “Equifinality and Uncertainty in Models of Canopy-Atmosphere Exchange”
- American Meteorological Society Meeting. "Lagrangian stochastic modeling of concentration fluctuations in atmospheric flows" 2006
- University of Trento (Italy), Department of Civil Engineering, Invited Seminar, 17 March 2005
- University of Pittsburgh, Department of Civil and Environmental Engineering, Invited Seminar, April 2005.
- University of Bologna (Italy), Department of Civil Engineering, Invited Seminar, June 2005.
- Planning Workshop on Data – Model Fusion, Duke FACE. Invited Talk, 13 January 2005
- European Geophysical Society Meeting in Vienna, AUSTRIA, 25 April 2005: "Temporal Dynamics of Soil Moisture Variance." Invited Talk in Session HS25.
- European Geophysical Society Meeting in Vienna, AUSTRIA, 27 April 2005: "Soil Moisture Controls on Water and Carbon Fluxes in Semi-Arid Regions" by "Albertson, J.; Williams, C. ; Scanlon, T.; Montaldo, N. Invited Talk in HS28.
- DOE-NIGEC meeting at Oak Ridge National Laboratory, ”An Optimal Merger of Data and Models for Carbon Sequestration Assessment at AmeriFlux Sites” Invited Talk, 16 May 2005.
- CNR-Princeton New Frontiers in Hydrology Workshop “Hydrological Implications of vegetation Dynamics”, Invited Talk, 20 May 2005.
- Ecological Society of America Annual Meeting, “Contrasting short- and long-timescale effects of vegetation dynamics on water and carbon fluxes in water-limited ecosystems”, 2005.
- AGU Fall Meeting, “The effect of land-atmosphere feedbacks on the spatial structure of land surface fluxes over complex terrain” 2005.
- The Johns Hopkins University, Center for Environmental and Applied Fluid Mechanics, Invited Seminar, 13 February 2004.
- Princeton University’s International Workshop on Data Assimilation, Keynote Seminar, 25 October 2004.
- Duke Center for Nonlinear and Complex Systems, Invited Seminar, 04 Feb 2003
- Duke University, EOS Program, Invited Seminar,05 Feb 2003
- Cremona Branch of Politecnico di Milano, (Italy), Department of Civil Engineering, Invited Seminar, 04 April 2003.

- Politecnico di Milano, (Italy), Department of Hydraulics, Invited Seminar,19 June 2003.
- Duke University, Center on Global Change, Invited Seminar, November 2003.
- AFRIFLUX Meeting, Helsinki, Finland, Invited Seminar, October 2003.
- AGU Fall meeting, Invited Talk, December 2003.
- Duke University, Department of Civil and Environmental Engineering, Invited Seminar, 3 April 2002
- European Geophysical Society Meeting, Contributed talk, April 2002.
- DOE Orientation for Summer Research Fellows, Gainesville, FL, Invited Speaker, 13 June 2002.
- NASA Safari 2000 Workshop, Charlottesville, VA, invited seminar 8 Oct 2002,
- CNR-Princeton Frontiers in Hydrology Workshop at Princeton University, Invited Seminar, 23-25 October 2002
- DOE NIGEC Southeast Regional Conference, Invited Seminar, 6 Nov 2002.
- UNC, Department of Geological Sciences, Invited Seminar, 7 November 2002
- International Workshop on Catchment-scale Hydrological Modeling and Data Assimilation, Wageningen, The Netherlands, Keynote, *"Spatial Organization of Land-Atmosphere Interaction."* September 2001,
- Center for Advanced Studies, Research and Development in Sardinia, CRS4, Invited Seminar, 2001.
- Duke University, Department of Civil and Environmental Engineering, Invited Seminar, 2001.
- Politecnico di Milano, (Italy), Department of Hydraulics, Invited Seminar,2001.
- NASA Safari 2000 First Data Workshop, Siavonga, Zambia, August 2001, "Measurements and Modeling of Carbon and Water Coupling in African Savannas"
- European Geophysical Society, March 2001, Nice, France, "Should Modeled and Observed Land Surface Temperatures be Equal? – Defining the Ideal Case for Data Assimilation Goals."
- American Geophysical Union, December 2000 Meeting, San Francisco, CA: "Relative importance of local and regional controls on coupled water, carbon, and energy fluxes."
- NIGEC Southeast Region Annual Conference, Gainesville, Florida, November 2000, "Spatial Variability of CO_2 Uptake by Forests: Defining the Contributions of Biology and Meteorology."
- Workshop on Climate Change along the Kalahari Transect, Maun, Botswana, October 2000, "CO_2 and Water Vapor Fluxes Along the Kalahari Transect: Analysis of Short-Time Scale Responses"
- IEEE Geosciences and Remote Sensing Symposium, July 2000, Honolulu, HI, "Large Eddy Simulation of Atmospheric Boundary Layer Processes over Remotely Sensed Land Surface Conditions"
- Remote Sensing in Hydrology Conference, Santa Fe, NM, April 2000, "Estimating Surface Energy Fluxes with Remotely Sensed Data: From Field Experiments to Predictive Models"
- NIGEC Southeast Region Annual Conference, Tuscaloosa, Alabama, March 2000, "Spatial variability of CO2 uptake by forests: Defining the relative contributions of biology and Meteorology".
- American Geophysical Union, December 1999 Meeting, San Francisco, CA: "An Exploration of the Force-Restore Land Surface Model Structure for Grass-Dominated Surfaces Under Both Wet and Dry Climatic Conditions"

- American Geophysical Union, 1999 Spring Meeting, Boston, MA, "Turbulent Exchange Processes Across the Forest-Atmosphere Interface".
- NIGEC Southeast Region Annual Conference, Tuscaloosa, Alabama, March 1999, "Spatial variability of CO2 uptake by forests: Defining the relative contributions of biology and Meteorology".
- American Geophysical Union, 1998 Fall Meeting, San Francisco, CA: "Soil Moisture Dynamics Along a Grass Covered Hillslope."
- American Geophysical Union, 1998 Spring Meeting, Boston, MA: "Evaporation From Spatially Variable Forest Canopies."
- Duke University, Center for Hydrologic Science, Distinguished Speaker Series, 1998.
- Johns Hopkins Conference in Environmental Fluid Mechanics, April 1998, Baltimore, MD, "Large eddy simulation of the atmospheric boundary layer over complex terrain."
- American Geophysical Union, 1997 Fall Meeting, San Francisco, CA: "Spectral scaling of static pressure fluctuations in the atmospheric surface layer: The interaction between large and small scales."
- University College Cork, Ireland, Department of Civil Engineering, Invited Seminar, 1997.
- American Geophysical Union, 1997 Spring Meeting, Baltimore, MD: "Scalar Flux from Complex Terrain."
- University of California at Davis, Hydrologic Science, Invited Seminar, 1996.
- University of California at Santa Barbara, Environmental Science and Management, Invited Seminar, 1996.
- University of Virginia, Department of Environmental Sciences, Invited Seminar, 1996.
- University of Minnesota, Department of Soil Water and Climate, Invited Seminar, 1996.
- University of Illinois at Chicago, Department of Geology, Invited Seminar, 1996.
- American Geophysical Union, 1996 Fall Meeting, San Francisco, CA: "Large Eddy Simulation of Land-Atmosphere Exchange During the HAPEX-MOBILHY Experiment.
- American Geophysical Union, 1996 Spring Meeting, Baltimore, MD: "Atmospheric coupling between land surface patches: a large eddy simulation."
- American Geophysical Union, 1995 Fall Meeting, San Francisco, CA: "A refined approach for computing surface fluxes from dissipation rates."
- CA Salinity/Drainage Conference, 1995 Meeting, Sacramento: "Field scale transport in the vadose zone."
- NCAR Planetary Boundary Layer Colloquium, 1995, Boulder, CO. "The effect of boundary layer stratification on length scales of velocity and scalars."
- UC INCOR, Institutional Collaborative Research, 1995 Meeting, Davis, CA. "Boundary layer turbulence: Scaling production and dissipation of turbulent energy in the atmospheric surface layer."
- Vadose Zone Hydrology - Cutting Across Disciplines, 1995, Davis, CA. "Scaling the kinetics of soil aggegate breakdown."
- American Geophysical Union, 1994 Fall Meeting, San Francisco, CA: "The average dissipation rate of turbulent kinetic energy in the neutral and unstable atmospheric surface layer."
- American Geophysical Union, 1994 Spring Meeting, Baltimore, MD: "Estimates of sensible and latent heat fluxes from the standard deviations of temperature and humidity."
- CA Salinity/Drainage Conference, 1994, Sacramento,: "Coupled processes at the land-atmosphere interface."

- Kearney Foundation Soil Science Conference, 1994 Meeting, Berkeley, CA. "Elastic lidar measurements of field scale volatilization physics."
- American Geophysical Union, 1993 Fall Meeting, San Francisco, CA: "Arid region heat fluxes between the land and the atmosphere over a dry lake bed."

GRADUATE STUDENTS SUPERVISED

Laura Murray, M.S. 1999,

Scott Dusterhoff, M.S., 2001,

Todd Scanlon, Ph.D., 2002, "The role of water availability in controlling coupled vegetation-atmosphere dynamics", (Now Associate Prof., Univ. of Virginia)

Ryan Emanuel, MS, 2003 (Now Assistant Prof. NC State Univ.)

Christopher Williams, Ph.D., 2004, "Hydrologic Controls on Vegetation Function and Structure in Water-Limited Systems", (Now Associate Prof. Clark University)

Darren Drewry, Ph.D., 2007, "Constraining Land-Atmosphere Interaction Across Scales", (Now Scientist, JPL)

Jing Huang, Ph.D., 2010, "Coherent Structures in Land-Atmosphere Interaction", (Now Scientist, CSIRO)

Tierney Foster-Wittig, Ph.D. (2015) "Mobile Sensors: Assessment of Fugitive Methane Emissions from Near and Far-Field Sources."

Jun Yin PhD. (2015), "Land-atmosphere Interaction: from Atmospheric Boundary Layer to Soil Moisture."

Xiaochi Zhou Ph.D. (2015), "Novel Sensing and Inference Techniques in Air and Water Environments."

Tan Zi, Ph.D. (2017), "Local and non-local impacts of rainfall on soil water erosion."

Tiffany Wilson, Ph.D. (2017) "Climate Impacts on Mediterranean Water Resources." (Now post-doc at USDA)

Amir Montazeri, PhD (2020 Anticipated, Cornell)

Xiao Peng, PhD (2021 Anticipated, Cornell)

Andrew Young, PhD (2024 Anticipated, Cornell)

POST-DOCS SUPERVISED

Dr. Nicola Montaldo, Ph.D. 1999, Politecnico di Milano, Italy. (2000 – 2001) (Now Associate Prof., University of Cagliari, Italy)

Dr. Nathaniel Brunsell, Ph.D. 2002, Utah State University (2002 –2004) (Now Associate Prof., University of Kansas)

Dr. Davide Poggi, Ph.D. 2002, Politecnico di Torino (2002 – 2006) (Now Associate Prof., Politecnico di Torino, Italy.)

Dr. Massimo Cassiani, Ph.D. 2002, Università degli Studi di Urbino (January 2005 – 2008)

(Now Scientist, Norwegian Institute for Air Research)

Dr. Giacomo Bertoldi, PhD, 2005, University of Trento, (August 2005 – 2008) (Now Senior Researcher, Institute for Alpine Environment, EURAC)

Dr. Xiaochi Zhou, PhD 2015, Duke University, (January 2016-2018)

CURRENT RESEARCH SUPPORT

NASA, Interdisciplianry Science, "Connecting Urbanization to Patterns of Heat and Precipitation Risk: Linking Mechanistic Understanding to Quantification by Remote Sensing" (19-IDS19-0102)," $1,468,268, 7/2020-6/2023.
PI: J.D. Albertson

Cornell China Center, '*Food - Energy - Water Security in the Three Rivers Headwater Region: Integrating science, data, and decision tools to manage under a changing climate and development pressures'*, $134,000, 4/2019-4/2022
PI: J.D. Albertson

ACSF, Joint program with EDF, "*Characterization of VOCs Emissions from Industrial Facilities and Natural Gas Production Sites: A Mobile Sensing Approach"*
$100,000. 6/2017-5/2019
PI: J.D. Albertson

ARPA-E ((US DOE), "*Turbulent Dispersion Tools and Analysis for Identifying Location and Intensity of Fugitive Methane Emissions*"
$465,000. 9/2016-8/2019
PI: J. D. ALbertson

NSF, IGERT: *Training Program in Wireless Intelligent Sensor Networks (WISeNet)*
$3,126,329 (2011-2017)
PI: S. Ferrari, Co-I's: J.D. Albertson, P. Agarwal, R. Parr, G.Katul

NSF, EPAS, "*A Distributed Approximate Dynamic Programming (ADP) Approach for Robust Adaptive Control Of Multiscale Dynamical Systems*"
$390,754 (2014-2017)
PI: S. Ferrari, Co-I: J.D. Albertson, and I. Kevrekidis (Princeton)

PAST RESEARCH SUPPORT

ACSF, Joint program with EDF, "*Mobile Sensing Tools to Localize and Quantify Fugitive Methane Emissions*"
$86,000. 9/2015-3/2017
PI: J.D. Albertson

NSF, Hydrologic Science Program, "*Implications of Vegetation Dynamics for Semi-Arid Hydrology: A Basis for Predicting Climate Impacts on Water Resources*."
$397,000 (09-13)

PI: J. D. Albertson

NASA, Energy and Water Cycle Program, *"Identifying Controls and Predictability of Extreme Drought Persistence From Remote Sensing Data."*
$403,000 (09-13)
PI: J.D. Albertson, Co-I: A. Porporato

NASA, Land Cover Land Use Change Program, *"Optimal Dynamic Predictions Of Semi-Arid Land Cover Change and Implications for Ecosystem Goods and Services"*
$715,217 (08-12)
PI: J.D. Albertson, Co-I's: S. Ferrari (Duke); E. Wood (Princeton); H. Shugart (UVa)

DOE, National Institute for Climate Change Research (NICCR), *"Designing Forest Warming Experiments and other Interacting Factors."*
$130,002 (07-09)
PI: J.D. Albertson, Co-I: R. Jackson

NASA, Terrestrial Hydrology Program, *Effects of Land Surface Heterogeneity on Regional Flux Estimation Using Large Eddy Simulation Model with Remote Sensing",*
$719,000 (05-09)
PI: Kustas; (Albertson's subcontract > $300k.)

DOE, TCP, "*Controls of Net Ecosystem Exchange at an Old Field, a Pine Plantation, and a Hardwood Forest under Identical Climatic and Edaphic Conditions"*
$453,000 05-09.
PI: Ram Oren; Co-I's J.D. Albertson, and G.G. Katul

Duke Center on Global Change, *"Hydroclimate Drivers of Malaria Dynamics: An Interdisciplinary Approach"*
~ $52,000 (07-08)
PI: J.D. Albertson; Co-I's: A. Porporato, R. Jackson, K. Koelle

NSF, Hydrologic Science Program, "*Organized Turbulence over Forested Landscapes: Theoretical Basis for a Low-Dimensional Model*"
$410,000, (02-05)
PI: J.D. Albertson; Co-I: G.G. Katul

NASA, *"The Impact of Field-Scale Heterogeneity in Surface Moisture and Vegetation Cover on Regional Scale Fluxes from Land-Atmosphere Modeling and Remote Sensing Perspectives"*
Albertson's Contract $105,000 (02-05)
PI: W.P. Kustas

USDA, Hydrology and Remote Sensing Lab, Cooperative Agreement, "*LES with Remote Sensing to Evaluate Effect of Land Surface Heterogeneity on Evaporation*,"
$35,000, 4/02-1/09
PI: J.D. Albertson

DOE, National Institute of Global Environmental Change (NIGEC), "*Separating Soil-Atmosphere and Canopy-Atmosphere Exchange of CO_2 by Micrometeorological Methods",*
$294, 000 (01-05)
PI: J.D. Albertson

University of Virginia, Fund for Excellence in Science and Technology (FEST), *"Resolving the Scale-wise Sensitivities in the Dynamical Coupling Between Climate and the Biosphere"*

$214,699 (01-03) (Albertson left the project when he moved to Duke)
PI: J.D. Albertson (Co-Is: H. Epstein, M.E. Mann).

USDA, Ecosystems, *"Fate of Reactive Nitrogen Derived from Agricultural Sources in Coastal Lagoons"*

$360,000 (00-03)
PI: K.J. McGlathery; Co-I: J.D. Albertson.

NSF, LTER Program, "*Long Term Ecological Research on Disturbance, Succession, and Ecosystem Change at the Virginia Coast Reserve: LTER III"*

$4,200,000 (00 –06) (Albertson left the project when he moved to Duke)
Albertson one of many Co-I's.

NSF, Hydrologic Sciences Program, "*The Role of Canopy Structure on Variability of Water and Heat Fluxes from Forested Watersheds*"

$246,955 (99-02)
PI: J.D. Albertson

NASA, New Investigator Program in the Earth Sciences, "*Estimating Root Zone Soil Moisture and Exploring Scale Aspects of its Coupling to the Atmospheric Boundary Layer*"

$373,721 (99-02)
PI: J.D. Albertson

DOE, National Institute of Global Environmental Change (NIGEC), "*Spatial Variability of CO_2 Uptake by Forests: Defining the Relative Contributions of Biology and Meteorology"*

$174,859 (98-01)
PI: J.D. Albertson

VA Water Resources Research Center, "*Experimental Investigation of Soil Moisture – Runoff Dynamics*"

$10,000 (98-00)
PI: J.D. Albertson

USGS, *"Generation of Non-Point Source Pollution and Flood Waters: Identifying Source Areas from Considerations of Soil Moisture Dynamics"*

$46,980 (97-98)
PI: J.D. Albertson