

Feiqin Xie

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Department of Physical & Environmental Sciences
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SUMMARY OF RESEARCH INTERESTS

My primary research interests are in atmospheric remote sensing and atmospheric dynamic. Specifically, I am interested in using spaceborne and airborne GNSS (Global Navigation Satellite System) radio occultation measurements as well as nadir-viewing satellite lidar, radar and infrared observations for atmospheric research. My recent project focuses on the low clouds and the boundary layer dynamics over the subtropical eastern oceans. I have actively pursued grant opportunities with funded projects by NSF, NOAA and NASA as Principal-Investigator (PI) or Co-Investigator. I have also served as a Ph.D. committee member and mentored several under/graduate students.

EDUCATION

- Ph.D. University of Arizona, 2006
Atmospheric Sciences (Minor: Remote Sensing and Spatial Analysis)
- M.S. Peking (Beijing) University (China), 2001
Atmospheric Physics and Atmospheric Environment
- B. S. Lanzhou University (China), 1998 (with honors)
Atmospheric Physics and Atmospheric Environment

APPOINTMENT

Assistant Professor – Atmospheric Sciences (2012.09 – present)

Department of Physical & Environmental Sciences
Texas A&M University-Corpus Christi, Corpus Christi, TX

Assistant Researcher (2009.10 – 2012.08)

Joint Institute for Regional Earth System Science and Engineering,
University of California, Los Angeles, CA

Aerosol and Cloud Group & Ionospheric and Atmospheric Remote Sensing Group
Jet Propulsion Laboratory, California Institute of Technology (Affiliate)

Caltech Postdoctoral Scholar (2008.10 – 2009.09)

Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

Postdoctoral Researcher (2006.05 – 2008.09)

Department of Earth and Atmospheric Sciences, Purdue University, West Lafayette, IN

Research & Teaching Assistant (2001.08 – 2006.05)

Department of Atmospheric Sciences, University of Arizona, Tucson, AZ

Research & Teaching Assistant (1998.09 – 2001.06)

Center for Environmental Sciences, Peking University, Beijing, China

RESEARCH GRANTS

Co-Principal-Investigator: National Science Foundation (NSF)/Climate and Large Scale Dynamics Program: “*Collaborative Research: Investigating the characteristics of lower tropospheric airborne GPS radio occultation observations and their impact in hurricane studies*”, NSF 09-29, 2010-2013.

Co-Investigator: National Oceanic and Atmospheric Administration (NOAA), NESDIS-NESDISPO-2008-2001042: Research in Satellite Data Assimilation for Numerical Weather, Climate, and Environmental Forecast Systems: “*Improving the Impact of GPSRO Data Assimilation in the Lower Troposphere*”, NA08NES4400015, NOAA, 2010-2012.

Co-Investigator: Director's Research and Development Fund (NASA JPL), “*Studying atmospheric planetary boundary layer (PBL) with innovative satellite remote sensing and numerical models*”, 2011.

SELECTED PEER-REVIEWED PUBLICATIONS

Ao, C. O., D. E. Waliser, S. K. Chan, J.-L. Li, B. Tian, **F. Xie**, and A. J. Mannucci, 2012, Planetary boundary layer depths from GPS radio occultation profiles, *J. Geophys. Res.*, 117, D16117, doi:10.1029/2012JD017598.

Zhang, C., Y. Wang, A. Lauer, K. Hamilton, and **F. Xie**, 2012: Cloud base and top heights in the Hawaiian region determined with satellite and ground-based measurements, *Geophys. Res. Lett.*, doi:10.1029/2012GL052355.

Xie, F., D. L. Wu, C. O. Ao, A. Mannucci and E. R. Kursinski, 2012: Advances and limitations of atmospheric boundary layer observations with GPS occultation over southeast Pacific Ocean, *Atmos. Chem. Phys.*, 12, 903-918, doi:10.5194/acp-12-903-2012.

Xie, F., D. L. Wu, C. O. Ao, E. R. Kursinski, A. Mannucci and S. Syndergaard, 2010: Super-refraction effects on GPS radio occultation refractivity in marine boundary layers, *Geophys. Res. Lett.*, 37, L11805, doi:10.1029/2010GL043299.

Xie, F., D. L. Wu, C. O. Ao, A. Mannucci, 2010: Atmospheric diurnal variations observed with GPS radio occultation soundings, *Atmospheric Chemistry and Physics*, 10, 1–11, doi:10.5194/acp-10-1-2010.

Muradyan, P., J. S. Haase, **F. Xie**, J. L. Garrison, and J. Voo, 2010: GPS/INS navigation precision and its effect on airborne radio occultation retrieval accuracy, *GPS Solutions*, doi: 10.1007/s10291-010-0183-7.

Xie, F., J. S. Haase, S. Syndergaard, 2008: Profiling the atmosphere using the airborne GPS radio occultation technique: a sensitivity study, *IEEE Transactions on Geoscience and Remote Sensing*, doi:10.1109/TGRS.2008.2004713.

- Xie, F.**, S. Syndergaard, E. R. Kursinski and B. M. Herman, 2006: An approach for retrieving marine boundary layer refractivity from GPS occultation data in the presence of super-refraction, *J. Atmos. Oceanic Technol*, 23, 1629-1644.
- Cai, X., **F. Xie**, and J. Chen, 2002: Large-eddy Simulation for unstable surface layers, *Acta Scientiarum Naturalium Universitatis Pekinensis* (in Chinese with English Abstract), 38 (5), 698-704.
- Xie, F.**, and X. Cai, 2000: Spatial and temporal variation of total ozone over East Asia and Europe: an inter-comparison, *J. Environ. Sci. Health*, A35 (10), 1923-1930.

SELECTED PRESENTATIONS IN SYMPOSIUMS AND CONFERENCES

- Xie, F.**, J. S. Haase and P. Muradyan: *Airborne GNSS radio occultation retrieval with a radio-holographic method*, IROWG 2nd Workshop, Estes Park, CO, March 28 – April 3, 2012.
- Muradyan, P., J. S. Haase, U. Acikoz, J. L. Garrison and **F. Xie**: *Profiling the atmosphere with the airborne RO technique using GPS signals recorded in open-loop mode*, IROWG 2nd Workshop, Estes Park, CO, March 28 – April 3, 2012.
- Murphy, B., Haase, J.S., Muradyan, P., Johnson, A.V., **F. Xie** and J. L., Garrison: *The Use of Airborne GPS radio occultation in the Pre-Depression Investigation of Cloud-systems in the Tropics (PREDICT) experiment*, Fifth FORMOSAT-3 / COSMIC Data Users Workshop and International Conference on GPS Radio Occultation, Taipei, Taiwan, April 13-15, 2011.
- Ao, C. O., B. A. Iijima, A. J. Mannucci, T. K. Meehan and **F. Xie**: *Outstanding Issues Concerning GPS RO Measurements in the Lower Troposphere*, IROWG 2nd Workshop, Estes Park, CO, March 28 – April 3, 2012.
- Xie, F.**, D. L. Wu, C. O. Ao, A. J. Mannucci and E. R. Kursinski: *Evaluating the Marine Atmospheric Boundary Layer in Reanalyses over Subtropical Eastern Oceans with in-situ radiosondes, COSMIC Radio Occultation and CALIPSO Lidar Measurements*, IROWG 2nd Workshop, Estes Park, CO, March 28 – April 3, 2012.
- Xie, F.**, D. L. Wu, J. F. Li, C. O. Ao, A. J. Mannucci, E. R. Kursinski and X. Jiang: *Diagnostic Evaluation of Atmospheric Boundary Layer Heights in Global Analyses and Reanalyses over Subtropical Eastern Oceans with COSMIC Radio Occultation and Radiosonde Sounding Measurements*, *AGU Fall Meeting*, San Francisco, CA, December 5-9, 2011.
- Xie, F.**, D. L. Wu, C. O. Ao, A. J. Mannucci and E. R. Kursinski: *VOCALS/Southeast Pacific Science: Cloudy atmospheric boundary layer observations over subtropical eastern oceans from COSMIC GPS occultation*, *World Climate Research Programme (WCRP) Open Science Conference*, Denver, CO, October 24-28, 2011.
- Kursinski, E. R. and **F. Xie**: *Improving the Impact of GPS RO in the Troposphere*, *the 9th NOAA (National Oceanic and Atmospheric Administration) JCSDA (Joint Center for Satellite Data Assimilation) Workshop on Satellite Data Assimilation*, University of Maryland, College Park, Maryland, May 24-25, 2011.
- Murphy, B., Haase, J.S., Muradyan, P., Johnson, A.V., **F. Xie** and J. L., Garrison: *The Use of Airborne GPS radio occultation in the Pre-Depression Investigation of Cloud-systems in the Tropics (PREDICT) experiment*, Fifth FORMOSAT-3 / COSMIC Data Users Workshop and International Conference on GPS Radio Occultation, Taipei, Taiwan,

April 13-15, 2011.

- Xie, F.**, D. L. Wu, C. O. Ao, A. J. Mannucci and E. R. Kursinski: Characteristics of atmospheric boundary layer structures over subtropical stratocumulus regions, AGU Fall Meeting, San Francisco, California, December 13-17, 2010.
- Ao, C. O., **F. Xie**, Y. Zhang, D. J. Seidel, J. E. Kay, C. Deser: High-Latitude Inversion Layers from GPS Radio Occultation Observations, AGU Fall Meeting, San Francisco, California, December 13-17, 2010.
- Xie, F.**, D. L. Wu, C. O. Ao, E. R. Kursinski and A. J. Mannucci: Stratocumulus-topped atmospheric boundary layers: GPS RO observations vs. ECMWF analysis, 19th Symposium on Boundary Layers and Turbulence, sponsored by the American Meteorological Society, Keystone, Colorado, August 2-6, 2010.
- Xie, F.**, D. L. Wu, C. O. Ao, A. J. Mannucci: Observing the diurnal cycle with GPS/COSMIC occultations, 90th AMS Annual Meeting, Atlanta, Georgia, January 17-21, 2010.
- Xie, F.**, D. L. Wu, C. O. Ao, E. R. Kursinski, A. J. Mannucci and S. Syndergaard: Profiling Stratocumulus-topped Boundary Layers with GPS Radio Occultation, AGU Fall Meeting, San Francisco, California, December 14-18, 2009.
- Xie, F.**, D. L. Wu, C. O. Ao, A. J. Mannucci: Atmospheric diurnal cycle observed from GPS radio occultation soundings, Fourth FORMOSAT-3/COSMIC Data Users Workshop, Boulder, Colorado, October 27-29, 2009.
- Xie, F.**, D. L. Wu, C. O. Ao, A. J. Mannucci, B. Iijima and M. Pestana: Atmospheric diurnal and semi-diurnal variations observed from GPS radio occultation soundings, Global Navigation Satellite System Radio Occultation Workshop, Pasadena, California, April 7-9, 2009.
- Teixeira, J., A. J. Mannucci, C. O. Ao, D. L. Wu and **F. Xie**, Science Requirements – Atmosphere or Future observations of cloudy boundary layers and the cloud/climate feedback, Global Navigation Satellite System Radio Occultation Workshop, Pasadena, California, April 7-9, 2009.
- Haase, J. S., **F. Xie**, Muradyan, P., J. L. Garrison, T. Lulich, J. Voo, F.G. Nievinski, and K. Larson, 2009: New Atmospheric Observations from the Airborne GNSS Instrument System for Multistatic and Occultation Sensing (GISMOS), AGU Fall Meeting, San Francisco, California, December 15-19, 2008.
- Xie, F.**, J. S. Haase, T. Lulich, P. Muradyan, J. L. Garrison, S. Syndergaard and E. Calais: Profiling the Atmosphere with an Airborne GPS Receiver System, 88th AMS Annual Meeting, New Orleans, Louisiana, January 20-24, 2008.
- Garrison, J. L., and M. Walker, J. S. Haase, T. Lulich, **F. Xie** and Coauthors: Development and testing of the GISMOS instrument, *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, Barcelona, Spain, 2007.
- Xie, F.**, J. S. Haase, S. Syndergaard, T. Lulich, P. Muradyan, J. L. Garrison and E. Calais: Error Estimation of Airborne GPS Radio Occultation Measurements: Simulation Analysis, Second FORMOSAT-3/COSMIC Data Users Workshop, Boulder, Colorado, October 22-24 2007.
- Kursinski, E. R., **F. Xie** and C. O. Ao: Issues Regarding GPS RO-Derived Tropospheric Humidity, First FORMOSAT-3/COSMIC Data Users Workshop, Boulder, Colorado, October 16-18, 2006.

Xie, F.: Characterizing the Earth's Atmosphere Using GPS Radio Occultation Measurements: Opportunities and Challenges, Department of Earth and Atmospheric Sciences Seminar (Invited), Purdue University, August 31, 2006.

Xie, F., S. Syndergaard, E. R. Kursinski, C. O. Ao and B. M. Herman: An Approach for Retrieving Marine Boundary Layer Refractivity From GPS Occultation Data, AGU Fall Meeting, San Francisco, California, December 5-9, 2005.

Xie, F., S. Syndergaard, E. R. Kursinski and B. M. Herman: Reconstruction of the Marine Boundary Layer Refractivity in the Presence of Super-refraction (Poster), Second GPS Radio Occultation Data Users' Workshop, Lansdowne, Virginia, August 22-24, 2005.

PROFESSIONAL AFFILIATIONS

American Geophysical Union, Full Member, since 2004

American Meteorological Society, Full Member, since 2005

Sigma-Xi, The Scientific Research Society, Full Member, since 2009

Chinese-American Oceanic and Atmospheric Association, since 2009

PROFESSIONAL SERVICE

PhD committee member for Ph.D. Student (P. Muradyan), Department of Earth and Atmospheric Sciences, Purdue University

Teaching Assistant for the following classes: *Boundary Layer Meteorology*, *Radiative Transfer* and *Boundary Layer Meteorology*

Reviewer for scientific journals: Journal of Atmospheric Sciences, Radio Science, Advances in Space Research, IEEE International Geoscience and Remote Sensing Symposium (IGARSS), IEEE Transactions on Geoscience and Remote Sensing (TGRS), GPS Solutions, Remote Sensing,

Panelist for the 2012 SMART (Science, Mathematics And Research for Transformation) Scholarship Evaluation Panel, 2011

Science Team Member:

International Radio Occultation Working Group (IROWG)

GNSS Radio-occultations and Heavy Precipitation Experiment in PAZ (ROHPP), Spain

Volunteer Team Member:

Urban Search and Rescue (USAR) team, Jet Propulsion Laboratory, Caltech, Pasadena, California

HONORS AND AWARDS

Research Assistant Scholarship, University of Arizona, Tucson, Arizona, 2001-2006

GPSC Travel Scholarship, University of Arizona, Tucson, Arizona, 2005

Graduate Tuition Scholarship, University of Arizona, Tucson, Arizona, 2005

Outstanding Student Award, Peking University, Beijing, China, 2000

Honor Graduate Award, Lanzhou University, Lanzhou, Gansu, China, 1998