Curriculum Vitae: Shu-Peng Ben Ho

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Short Bio

Dr. Shu-peng Ben Ho is the Lead Scientist of the Global Navigation Satellite System (GNSS) Radio Occultation (RO) at NESDIS/STAR. He received his Ph.D. in Atmospheric and Oceanic Science from the University of Wisconsin-Madison in 1998. His research field is in infrared (IR), microwave (MW), and GNSS RO satellite remote sensing and their climate science applications. He has authored or co-authored more than 98 scientific publications, including journal papers and book chapters, which have been cited more than 5000 times. He has led several international GNSS RO investigations on their climate impacts and is the author of the IPCC AR5 GNSS RO section. He was also the interim lead scientist in the Constellation Observing System for Meteorology, Ionosphere and Climate (COSMIC) program in UCAR. He also served on the editor board for Remote Sensing, the leading Guest Editor for the Journal of Remote Sensing special issues, Guest editor for the TAO COSMIC-2 Special Issue, and is on the Editorial Board of the International Journal of Atmospheric Sciences. He received the UCAR Outstanding Accomplishment Award for Scientific and Technical Advancement in 2008 and Special Contribution to the UCAR COSMIC Mission Award in 2007. He was listed in Who's Who in America from 2012 to 2016, Who's Who in the World in 2018, and Who is Who Top Scientist in 2018. He is a member of the American Geophysical Union, the American Meteorological Society, and IEEE Transactions on Geoscience and Remote Sensing.

EDUCATION

Ph. D. (Atmospheric Science), 1998 -- University of Wisconsin-Madison
M.S., (Atmospheric Science), 1995 --University of Wisconsin-Madison
M.S., (Atmospheric Science), 1992, Rutgers-the State University of New Jersey
B.A., (Computer Science), 1987, Feng Chia University, Taichung, Taiwan

PROFESSIONAL EXPERIENCE

2022- : NOAA/NESDIS/STAR GNSS RO program Lead Scientist
2022- : NOAA/NESDIS/GNSS RO Science and Quality Assessment Grant Manager
2020- : NOAA/NESDIS/STAR Acting Lead Scientist for Satellite Sounding Program

2020- : NOAA/NESDIS/STAR Lead Scientist for GNSS RO Team
2018- : NOAA/NESDIS/STAR Physical Scientist for GNSS RO science
2016- : UCAR/COSMIC Interim Lead Scientist
2014- : UCAR/COSMIC, Project scientist III
2008-2013: UCAR/COSMIC, Project scientist II
2005-2008: UCAR/COSMIC
2002-2005: NCAR/ACD, Project scientist I
2001-2002: NCAR/ACD, Associate Scientist III
1998-2001: Analytical Service & Materials, Inc., in affiliation of NASA Langley Research Center, Hampton, VA, Research Scientist
1993-1998: Department of Atmospheric and Oceanic, University of Wisconsin-Madison, Research Assistant
1990-1992: Department of Meteorology, Rutgers-the State University of New Jersey, Research Assistant

PROFESSIONAL SERVICES

Section 1: Institutional Service

1. Supervisor of COSMIC student program, 2008
2. Director of the Student Program for 2011 COSMIC student trip and workshop, Taipei, Taiwan.
3. Chair of NCAR Asian Listening Meeting breakout section, 2008
4. Committee of NCAR Asian circle Meeting, 2009-present.
5. Panel member of NCAR Asian circle Meeting, 2010
6. Coordinator and moderator of the UCAR/COSMIC Science Seminar Series, 2009-present
7. Coordinator of the COSMIC science team meeting, 2013-present
8. NCAR SOARS steering committee, 2014-present

Section 2: Scientific Community Service/Working Groups

1. Lead the international RO trend working group – round 1 comparison (2009-2010)
2. Lead the international RO trend working group – round 2 comparisons (2011-2012)
3. Member of the international RO trend working group and lead at COSMIC UCAR for – round 3 comparisons (2013-present)
4. Team leader for NOAA NCDC GPS RO climate data record (2010- present)
5. Member of the WCRP (World Climate Research Program) GEWEX Radiation Panel (GRP) water vapor profile climate data record assessment (2012- present).
6. Members of the NASA AURA science team for the TES instrument (2007-2011)
7. Member of the WCRP (World Climate Research Program) SPARC global temperature profile climate record assessment (2011- present).
8. Member of the International Radio Occultation Working Group (2011- present).
9. Member of U.S. Climate Variability and Predictability Program (CLIVAR) working group (2015-)
10. NASA ROSES proposal review panel (2015)

11. Regular reviewers of NASA, NSF, and other international proposals
12. Member of the U.S.A. federal Advisory Committee for the Sustained National Climate Assessment
13. Co-chair of the WCRP (World Climate Research Program) GEWEX Radiation Panel (GRP) water vapor profile climate data record assessment group (2017-present).
14. Member of GSICS (Global Space-based Inter-calibration System) (2018- present)
15. Committee of the NOAA satellite needs working group – representing NESDI S STAR (2019-)

Section 3: Organizer/Convertor/Steering Committee for Scientific Meetings and Workshops

1. Organizer: Workshop on the Applications of GPS Radio Occultation to Climate, NCAR Foothills Laboratory, Building #1 Atrium Conference Room 3450 Mitchell Lane, Boulder, CO 80301 March 17-18, 2008.
2. Co-Organizer: Program Committee of COSMIC 2009 International Workshop
3. Organizer and Chair: COSMIC scientific applications section in the COSMIC/NCAR/UCAR retreat, 2009.
4. Section Chair: COSMIC scientific applications section in the COSMIC/NCAR/UCAR retreat, 2009.
5. Chair: COSMIC scientific applications section in the COSMIC/NCAR/UCAR retreat, 2009.
6. Organizer and Chair and panel member: the Science Opportunities for COSMIC-II, COSMIC/NCAR/UCAR retreat, 2010, Lake Shore Lodge and Conference Center, Estes Pak, CO.
7. Organizer and Co-chair: COSMIC-NOAA climate meeting in AMS, 2008.
8. Organizer and Co-chair: COSMIC-NOAA climate meeting in AMS, 2009.
9. Organizer and Co-chair: COSMIC-NOAA climate meeting in AMS, 2010.
10. Chair: student poster competition of COSMIC international workshop, Boulder, CO, USA, October, 2009.
11. Organizer and Co-chair: UCAR/COSMIC workshop the RO inversion and climate workshop in Estes Park, CO, USA from 28th March to 3rd April 2012, together with the CGMS International Radio Occultation Working Group (IROWG).
12. Organizer: the climate section in the 5th FORMOSAT-3/COSMIC Data Users Workshop & ICGPSRO, April, 2011, Taipei, Taiwan.
13. Converter: the climate section in the 5th FORMOSAT-3/COSMIC Data Users Workshop & ICGPSRO, April, 2011, Taipei, Taiwan.
14. Co-Chair: Student poster competition of the 5th FORMOSAT-3/COSMIC Data Users Workshop & ICGPSRO 2011, April, 2011, Taipei, Taiwan.
15. Co-Chair: for the COSMIC workshop of the GPS RO Data Processing for Climate Applications, Estes Park, CO, USA from 28th March to 3rd April 2012.
16. Organizer and Chair: Workshop Organizing Committee for the sixth COSMIC users' workshop, Boulder CO., 2012.
17. Chair: the sixth COSMIC users' workshop, Boulder, CO., 2012.

18. Converter: the climate section in the 2nd IROWG Workshop 28 March 3, April 2012, CO, U.S.A.
19. Converter/Moderator: section of Inventory and requirements on data records and reference data working group for the GEWEX water vapor assessment workshop, September, 25-28, 2012, Germany.
20. Co-Chair: the 8th COSMIC users' workshop, Climate Applications section, Boulder, CO, USA, October, 2014.
21. Section chair for RO climate application: the 3rd ICGPSRO conference, March, 9-11, 2016, Taipei, Taiwan.
22. Steering committee for the 10th FORMOSAT-3/COSMIC Data Users' Workshop and 6thInternational Radio Occultation Working Group (IROWG-6) Sep., 21-27, 2017, Estes Park, Colorado USA.

Section 4: Journals

1. Guest editor for the Special Issue for Advances in Meteorology
2. Editor for the Journal of Remote Sensing Special Issue "GPS/GNSS for Earth Science and Applications"
3. Editorial Board of International Journal of Atmospheric Sciences
4. Senior Editor of the International Journal of Sciences (IF = 2.0)
5. 2019-: Editorial board for the journal of Satellite Oceanography and Meteorology
6. 2019-: Editorial board for Remote Sensing (IF = 4.5)
7. 2020: Guest editor for the Special Issue for GNSS RO for Remote Sensing (IF = 4.5)
8. 2021: Guest editor for the TAO COSMIC-2 Special Issue (IF = 2.0)
9. 2022: associate editor for Special Issue: Analysis of atmospheric water vapour observations and their uncertainties for climate applications (ACP/AMT/ESSD/HESS inter-journal SI)
10. Regular reviewer of manuscripts for journals and proposals

EDUCTION & OUTREACH

Section 1: Supervisory Experiences

1. 2007-2008: supervisor of Dr. Wenying He, COSMIC/UCAR visiting scientist from Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
2. 2008-2012: supervisor of Xinjia Zhou, COSMIC/UCAR visiting scientist from Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
3. 2008-2011: supervisor of Dr. Patrick F. Callaghan, COSMIC/UCAR post-graduate scientist.
4. 2009-2010: supervisor of Professor Jie Xiang, ACD/NCAR, COSMIC/UCAR visiting scientist from Department of Atmospheric science, Nanjing University, Nanjing, China.
5. 2009-2010: supervisor of Dr. Junmei Zhang, COSMIC/UCAR visiting scientist from Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.

6. 2009-2011: supervisor of Teresa VanHove, COSMIC/UCAR associate scientist.
7. 2010-2011: co-supervisor of Jerry Raj, Ph. D. student from the National Central University, Taiwan.
8. 2010-2012: supervisor of Wen-Hsin Teng, student visitor from the National Central University, Taiwan.
9. 2012-present: supervisor of Dr. Liang Peng, COSMIC/UCAR visiting scientist from Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
10. 2010-2012: co-supervisor of Dr. Barbara Scherllin-Pirscher, a NCAR ASP post-doctor scientist, who is originally from University of Graz, Austria.
11. 2010-2012: co-supervisor of Dr. Zhen Zang, NCAR COSMIC project scientist.
12. 2011-2013: co-supervisor of Mr. Riccardo Biondi, Ph. D. visitor from DMI.
13. 2012-2013: co-supervisor of Ms. Xu Xu, Associate Professor visitor from China
14. 2013: co-supervisor of Ms. Hsiao-chun Lin, a SOARS student from NCU, Taiwan.
15. 2014: co-supervisor of Ms. Therese Rieckh, a Ph. D student from WegC, Graz
16. 2014: co-supervisor of Mr. Ji-yian Chien, a graduate student from NCU, Taiwan.
17. 2014: co-supervisor of Dr. Xiaohua Xu, Professor from School of Geodesy & Geomatics, Wuhan University, China.
18. 2016: supervisor of Dr. Xingqin Fang, PS I of COSMIC/UCAR
19. 2014- : supervisor of Dr. Liang Peng, associate scientist II COSMIC/UCAR
20. 2016- : supervisor of Dr. Hui Liu, PS II of COSMIC/UCAR
21. 2016- : supervisor of Dr. Tae-kwon Wee, PS II of COSMIC/UCAR
22. 2016- : supervisor of Dr. Hailing Zhen, post-graduate scientist of COSMIC/UCAR
23. 2017- : supervisor of Dr. Iurii Cherniak, PS I scientist of COSMIC/UCAR
24. 2018- : supervisor of Mr. Xinjia Zhou, Research scientist of NESDIS/STAR
25. 2018- : supervisor of Dr. Loknath Adhikari, Research scientist of NESDIS/STAR
26. 2018- : supervisor of Dr. Stanislav Kireev, Research scientist of NESDIS/STAR
27. 2018- : supervisor of Dr. Khalil Ahmad, Research scientist of NESDIS/STAR
28. 2019- : supervisor of Dr. Yuxiang He, Research scientist of NESDIS/STAR
29. 2018- : supervisor of Dr. Erin Lynch, Post-doc scientist of CICS/University of Maryland
30. 2018- : supervisor of Dr. Bin Zhang, Research scientist of CICS/University of Maryland
31. 2018- : supervisor of Dr. Xi Shao, Research scientist of CICS/University of Maryland
32. 2019- : supervisor of Dr. Ling Liu, Research scientist of CICS/University of Maryland
33. 2020 -: supervisor of about 40 scientists from STAR satellite sounding team and from GNSS RO team.

Section 2: Hosting Scientific Visitor

2010, July: Dr. Andrea Stenier, research scientist from WegC, Graz
2012, July: Dr. Uli Foelsche, Associate Professor from WegC, Graz

PROFESSIONAL SOCIETY

Member of the American Meteorological Society
Member of the American Geophysical Union
Member of American Association for the Advancement of Science

AWARDS AND RECOGNITIONS

Section 1: External Awards and Recognitions

1. 2019, Terra Team Pecora award from NASA.
2. 2019: Guest Editor of the Special Issue of GNSS RO for the journal of "Remote Sensing"
3. 2020: Steering committee for IROWG and COSMIC users workshop
4. 2020: Steering committee for GNSS RO Virtual Seminar Series, 2020-
5. 2020: Invited speaker for ICGPSRO conference.
6. 2018: Selected as "Marquis Who is who Top scientist".
7. May, 2017: Selected as "2017 Albert Nelson Marquis Lifetime Achievement Award winner for Who is who in American".
8. June, 2017: Selected as "2017 Marquis Who is who in American for 2017".
9. September, 2017: Selected as "2017 Marquis Who is who in the World for 2017".
10. March, 2014: Invited as the Lead guest editor for a special issue of the Scientific World Journal (impact factor = 1.73).
11. July, 2015: Selected in "Who is who in American" for the 2016 issue.
12. July, 2013: Selected in "Who is who in American" for the 2014 issue.
13. January, 2013: Invited visiting to the GPS Scientific Application Research Center in National Central University, Taiwan from 5 to 15 January, 2012.
14. Feb. 2013: Invited as the Lead Guest Editor of the Special Issues for Advances in Meteorology (impact factor = 1.24).
15. Member of international working groups, the World Climate Research Programme (WCRP) Global Energy and Water Cycle Experiment (GEWEX).
16. Member of international working groups, the World Climate Research Programme (WCRP) Global Stratospheric Processes and their Role in Climate (SPARC)
17. 2012- : Member of NASA Sounder science team
18. January, 2012: Invited visiting to the GPS Scientific Application Research Center in National Central University, Taiwan from 5 to 15 January, 2012.
19. February, 2014: Selected in "Who is who in American" for 2015 issue.
20. February, 2013: Selected in "Who is who in American" for 2014 issue.
21. February, 2012: Selected in "Who is who in American" for 2013 issue.
22. June, 2011: Selected in "Who is who in American" for 2012 issue.
23. May, 2011: invited to join the WCRP SPARC group.
24. March, 2011: invited to attend the World Climate Research Programme (WCRP) Global Energy and Water Cycle Experiment (GEWEX) Radiation Panel (GRP) workshop and the ESA Data User Element (DUE) programme's global Vapour project in Frascati, Italy.
25. November, 2010: invited to be a Contributing Author for the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC WGI AR5).

26. June 2010: Invited visiting to the GPS Scientific Application Research Center in National Central University, Taiwan from June 5 to July 2, 2010.
27. March 2009: Invited to workshop on the "Assessment of Small Satellite Missions to "Meet the Needs of the Earth Sciences", University of Colorado Laboratory for Atmospheric and Space Physics (LASP).
28. July 2009: Selected in "Who is who in American" for 2010 issue.
29. June 2008: Selected in "Who is who in American" for 2009 issue.
30. April 2007: Selected by "Who is who in the World" for 2008 issue.
31. May 2006: Selected in "Who is who in American" for 2007 issue.

Section 2: Internal Awards and Recognitions

1. December 2006: UCAR Outstanding Accomplishment Award for Scientific and Technical Advancement (for the MOPITT project).

2. September 2006: Key Contributor to UCAR COSMIC Program Award
   Citation: the recognition of the key contributor to UCAR COSMIC Program

3. April 2007: Special Contribution to UCAR COSMIC Mission Award.
   Citation: the special recognition of the science contribution to COMSIC mission

4. October 2008: COSMIC Special Recognition Award for coordinating COSMIC Student Program.
   Citation: the special recognition for coordinating COSMIC student program

5. March 2016: 15 years of service award in UCAR/NCAR
6. Jan. 2018: COSMIC Special Recognition Award for Interim Lead Scientist for COSMIC Program.
   Citation: the special recognition for leading COSMIC science team

7. June 2020, NOAA CIYA award for recognition of the contribution to commercial weather data pilot project.

EXTERNALLY FUNDED COLLABORATIONS

1. Principal Investigator: Validation and Calibration of MSU/AMSU Measurements and Radiosonde Observations Using GPS RO Data for Improving Stratospheric and Tropospheric Temperature Trends, NOAA, NA07OAR4310224, POP: 08/01/07-07/31/10 ($300K for three years, finished).

2. Principal Investigator: Satellite and Ground-Based Validation of TES Tropospheric CO Products, NASA, NNX07AB52G, POP: 01/15/07-01/14/10 ($600K for three years, finished).

3. Co-Principal Investigator: A Climate Virtual Observatory (CVO): Online Data Fusion & Analysis for Climate Variability & Change, POP: 04/01/08-03/31/09

($350K for two years finished).

4. Co-Principal Investigator: UCAR-NOAA Collaborative Planning for an Operational Radio Occultation (RO) Mission, NOAA NESDIS, 2009-2011 (on going).

5. Co-Principal Investigator: Climate Trends and model Evaluation by Radio Occultation Trendeval: Analysis, Detection and Attribution of Atmospheric Climate Trend and Climate Model Evaluation based on Data Records from Radio Occultation, Research Project Proposal to the Austrian Science Fund, 2009-2011, POP: 07/01/10-06/30/12.

6. Principal Investigator: Construction of Consistent Microwave Sensor Temperature Records and Tropopause Height Climatology Using MSU/AMSU Measurements, GPS RO Data and Radiosonde Observations, NOAA, POP: 07/01/2009-06/30/2012 ($600K for three years, from 2008 to 2011).

7. Co-Principal Investigator: Continued Operation of COSMIC in Support of Operational and Research for years 2011 -2015, NSF (2.0M per year).

8. Consultant: NASA FBAR project, 2010-2013 (on going).

9. Co-Principal Investigator: Applications and Construction of Climate Data Records for Global Climate Change Studies, China-973 project, China, 2010-2014 (on going).

10. Principal Investigator: RO-Calibrated AMSU Brightness Temperature CDR, NOAA, 2013 (sole source contract, $10K/year, on going).

11. Co-Principal Investigator: Radio occultation based gridded climate data sets - RO-CLIM, SCOPE-CM (Sustained and coordinated processing of Environmental Satellite data for Climate Monitoring). 2013 (approved).

12. Co-Principal Investigator: Sustained generations of upper tropospheric humidity (UTH) from multi-sensors with multi-agency cooperation, SCOPE-CM (Sustained and coordinated processing of Environmental Satellite data for Climate Monitoring). 2013 (approved).

13. Principal Investigator: The Mean Layer Temperature – Troposphere & Stratosphere CDR, the Mean Layer Temperature - Lower Stratosphere CDR and the Tropopause Height Climatology, NCDC, NOAA, 2015 ($100K/year, on going).

14. Principal Investigator: A New Reprocessing Scheme to Improve the Aqua AIRS Global Temperature and Water Vapor Retrievals in the Lower Troposphere and Stratosphere using GPS Radio Occultation Measurements, NASA ROSES 2013, 2013-2016 (approved).

15. Co-Principal Investigator: Continued Operation of COSMIC GPS Radio Occultation Constellation in Support of Research Applications in Atmospheric Sciences, NSF and NASA joint proposal (2.8M/yr from 2015-2020).

16. Principal Investigator: Generating the Enhanced Atmospheric and Hydrometeor Retrievals from the Combined Microwave Sounders and GPS RO Measurements, NOAA 2015, 2015-2017.

17. Co-Principal Investigator: The atmospheric Natural EXtreme evenTs REseArch, Monitoring and detection (NEXTREAM), 2015-2019.

18. International Scientific Advisory Partners: Convective storms and tropical cyclone detection improvements (VORTECS)", FWF Austria and Taiwan Project (submitted).

19. Principal Investigator: UCP program development fund, 2015 ($12K, approved).

20. Principal Investigator: The Mean Layer Temperature – Troposphere & Stratosphere CDR, the Mean Layer Temperature - Lower Stratosphere CDR and the Tropopause Height Climatology, NCDC, NOAA, 2016 (on going).

21. Principal Investigator: Calibration Inter-consistency study of SNPP/NASA ATMS, POES/AMSU-A, and Metop-A/-B AMSU-A Observations using GPS Radio Occultation Data and Radiosonde Data for Re-construction of Stratospheric and Tropospheric Temperature Trends from 1980 to 2019, NASA inter-satellite consistency study, 2016-2019 (submitted).

22. Collaborator: A multi-mission and multi-processing-center observation ensemble of GPS radio occultation climate dataset, NASA DATA FOR OPERATION AND ASSESSMENT, 2017-2020 (submitted).

23. Principal Investigator: Integrated Multi-mission Upper Tropospheric Humidity Earth System Data Records for Climate Research, NASA ROSES: Making Earth System Data Records for Use in Research Environments, 2017-2022 (submitted).

24. Co-Principal Investigator: A Multi-Decadal Multi-Satellite Record of High Vertical Resolution Upper Troposphere Lower Stratosphere Temperature Products, NASA ROSES: Making Earth System Data Records for Use in Research Environments, 2017-2022 (submitted).

25. Principal Investigator: the NOAA Technology Maturation Program for RO data exploration project, 2018.

26. Principal Investigator: Exploitation of the New Approaches of using COSMIC-2 data in Numerical Weather Prediction in the Moist Troposphere, NOAA Technology Maturation Program: FY19 Projects to Support NESDIS Strategic

Planning and Observing Systems Exploitation Activities.

27. Principal Investigator: Exploitation of the New Approaches of using COSMIC-2 data in Numerical Weather Prediction in the Moist Troposphere, NOAA Technology Maturation Program: FY20 Projects to Support NESDIS Strategic Planning and Observing Systems Exploitation Activities.

28. Principal Investigator: NOAA METOP-SG project, 2019- ($160K/year)

29. Principal Investigator: NOAA STAR Sounding, 2021 (including NUCAPS, MiRS, NPROVS) (~$2.3M per year)

30. Principal Investigator: COSMIC-2 Projects to Support NESDIS Strategic Planning and Observing Systems Exploitation Activities for OPPA and OSAAP, 2019 ($1.65M)

31. Principal Investigator: COSMIC-2 Projects to Support NESDIS Strategic Planning and Observing Systems Exploitation Activities for OPPA and OSAAP, 2020 ($1.65M)

32. Principal Investigator: COSMIC-2 Projects to Support NESDIS Strategic Planning and Observing Systems Exploitation Activities for OPPA and OSAAP, 2021 ($1.65M)

33. Principal Investigator: COSMIC-2 Projects to Support NESDIS Strategic Planning and Observing Systems Exploitation Activities for OPPA and OSAAP, 2022 ($1.0M)

PUBLICATIONS

Section 1: Thesis

1. **Shu-peng Ho**, An Expert System for Validation and Screening of Air Quality data. Master Thesis. Rutgers-the State University of New Jersey. 1992.

2. **Shu-peng Ho**, Atmospheric Profiles from Simultaneous Observations of Upwelling and Downwelling Spectral Radiance. Ph. D. Thesis, University of Wisconsin - Madison, March 1998.

Section 2: Referred Journal Articles

Total citation: 5589 (H=36)

* Written by students, science visitors, post-docs and supervised by Ho.

1. S. -P. Ho, G. Gu and X. Zhou : The Planetary Boundary Layer Height Climatology over Oceans using COSMIC-2 and Spire GNSS RO Bending Angles from 2019 to 2023: Comparisons to CALIOP, ERA-5, MERRA2, and CFS Reanalysis, *IEEE Transactions on Geoscience and Remote Sensing*, doi: 10.1109/TGRS.2024.3503418

2. Tim Trent, Marc Schröder, Shu-peng Ho, etc. : Evaluation of total column water vapour products from satellite observations and reanalyses within the GEWEX Water Vapor Assessment, *EGUsphere. 2024, 24 (16) 9667–9695*, doi.org/10.5194/acp-24-9667-2024

3. S. -P. Ho and G. Gu: The Global Planetary Boundary Layer Height Climatology over Oceans using COSMIC-2 and Spire GNSS RO Bending Angles, *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium, Athens, Greece, 2024, pp. 3877-3880*, doi: 10.1109/IGARSS53475.2024.10642597.

4. Y. Chen, X. Zhou, S. -P. Ho, X. Shao and T. -C. Liu: Comparison of Radio Occultation Bending Angle and Refractivity Processed by Different Inversion Algorithms from Multi-Ro Missions, *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium, Athens, Greece, 2024, pp. 8904-8907*, doi: 10.1109/IGARSS53475.2024.10641034.

5. O. Bock, C. A. Mears, S. P. Ho, and X. Shao : Total column water vapor, [In "STATE OF THE CLIMATE IN 2023"], *Bull. Amer. Meteor. Soc., 105 (8)*, https://doi.org/10.1175/2024BAMSStateoftheClimate.1

6. Shu-peng Ho, Xinjia Zhou, Xi Shao, Yong Chen, Xin Jing, William Miller : Using the Commercial GNSS RO Spire Data in the Neutral Atmosphere for Climate and Weather Prediction Studies, *Remote Sensing. 2023, 15(19), 4836*, https://doi.org/10.3390/rs15194836

7. C. A. Mears, J. P. Nicolas, O. Bock, S. P. Ho, X. Zhou : Total column water vapor, [In "STATE OF THE CLIMATE IN 2022"], *Bull. Amer. Meteor. Soc., 104 (9)*, DOI: 10.1175/2023BAMSStateoftheClimate.1

8. Xin Jing, Shu-Peng Ho, Xi Shao, Tung-Chang Liu, Yong Chen, Xinjia Zhou : Spire RO Thermal Profiles for Climate Studies: Initial Comparisons of the Measurements from Spire, NOAA-20 ATMS, Radiosonde, and COSMIC-2, *Remote Sensing. 2023, 15(15), 3710*, doi.org/10.3390/rs15153710

9. William J. Miller , Yong Chen , Shu-Peng Ho , and Xi Shao : Evaluating the Impacts of COSMIC-2 GNSS RO Bending Angle Assimilation on Atlantic Hurricane Forecasts Using the HWRF Model, *Monthly Weather Review. 2023, 151(7), 1821–1847*, DOI: 10.1175/MWR-D-22-0198.1

10. John Xun Yang , Yalei You , William Blackwell , Cheng Da , Eugenia Kalnay , Christopher Grassotti , Quanhua (Mark) Liu , Ralph Ferraro , Huan Meng , Cheng-Zhi Zou , Shu-Peng Ho et al., 2023: SatERR: A Community Error Inventory for Satellite Microwave Observation Error Representation and Uncertainty Quantification, *Bulletin of the American Meteorological Society. 2023, Early Online Release*, DOI: 10.1175/BAMS-D-22-0207.1

11. Xi Shao, Shu-Peng Ho, Xin Jing, Xinjia Zhou, Yong Chen, Tung-Chang Liu, Bin Zhang, and Jun Dong : Characterizing the Tropospheric Water Vapor Variation using COSMIC Radio Occultation and ECMWF Reanalysis Data, *Atmospheric Chemistry and Physics. 2023, 23(22), 14187–14218*, DOI: 10.5194/acp-2022-660

12. **S.-P. Ho**, Stanislav Kireev, Xi Shao, Xinjia Zhou, Xin Jing : Processing and Validation of the STAR COSMIC-2 Temperature and Water Vapor Profiles in the Neural Atmosphere, *Remote Sens. 2022, 14(21), 5588*, DOI: 10.3390/rs14215588

13. Robbie Iacovazzi, Quanhua Liu, Xinjia Zhou, Stanislav Kireev, Ninghai Sun, **S.-P. Ho**, 2022: COSMIC-2 soundings impacts on a RO-based NOAA microwave satellite data quality monitoring system, *Terr. Atmos. Ocean. Sci., 33 (1), 1-25*, DOI: 10.1007/s44195-022-00008-0

14. **S.-P. Ho**, Nick Pedatella, Ulrich Foelsche, Sean Healy, Jan-Peter Weiss, Richard Ullman : Using Radio Occultation Data for Atmospheric Numerical Weather Prediction, Climate Sciences, and Ionospheric Studies and Initial Results from COSMIC-2, Commercial RO Data, and Recent RO Missions, *Bulletin of the American Meteorological Society, 01 Sep 2022*, DOI: 10.1175/BAMS-D-22-0174.1

15. Vinay Kumar, SB Prasad, K Krishna Reddy, SK Dhaka, RK Choudhary, M Venkatarami Reddy, **S.-P. Ho,** : Temperature Perturbations in the Troposphere and Lower Stratosphere Over a Semi-arid Region During the 2010 Solar Eclipse, *Pure and Applied Geophysics volume 179, pages2487–2499 (2022)*, DOI: 10.1007/s00024-022-03045-5

16. Bin Zhang, **S.-P. Ho**, Changyong Cao, Xi Shao, Jun Dong, Yong Chen, 2022: Verification and Validation of the COSMIC-2 Excess Phase and Bending Angle Algorithms for Data Quality Assurance at STAR, *Remote Sens. 2022, 14(14), 3288*, DOI: 10.3390/rs14143288

17. Yong Chen, Changyong Cao, Xi Shao, **S.-P. Ho,** : Assessment of the Consistency and Stability of CrIS Infrared Observations Using COSMIC-2 Radio

Occultation Data over Ocean, *Remote Sens. 2022, 14(11), 2721*, DOI: 10.3390/rs14112721

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98. **Ho, S.-P.**, Smith, W. L., and Huang, H. L. (2002), The Retrieval of Atmospheric Temperature and Water Vapor Profile using Combined Satellite and Ground Based Infrared Spectral Radiance Measurements. *Applied Optics*, *41*, 4057-4069.

Section 4: Other Publications and Proceedings

1. **Ho, S.-P.**, J. C. Gille, D. P. Edwards, M. N. Deeter, J. Warner, G. L. Francis, D. Ziskin, Retrieval of surface skin temperature from MOPITT measurements: validation and impacts to the retrievals of tropospheric carbon monoxide profiles Geoscience and Remote Sensing Symposium, 2002. IGARSS apos;02. 2002 IEEE International Volume 6, Issue, 2002 Page(s): 3177 - 3179 vol.6, 10.1109/IGARSS.2002.1027122.

2. **Ho, S.-P.**, J. C. Gille, D. P. Edwards, Juying Warner, M. N. Deeter, G. L. Francis, D. Ziskin, Validation of the retrieval of surface skin temperature and surface emissivity from MOPITT measurements and their impacts on the retrieval of tropospheric carbon monoxide profiles, Proc. SPIE 4891, Optical Remote Sensing of the Atmosphere and Clouds III, (9 April 2003); doi: 10.1117/12.467311.

3. **Ho, S.-P.**, David P. Edwards, John C. Gille, Jarmei Chen, and Daniel Ziskin National Ctr. for Atmospheric Research (USA) Improvement of the global surface emissivity from MOPITT measurements and its impacts on the retrievals of tropospheric carbon monoxide profiles, Proc. SPIE, Vol. 5652, 124 (2004); DOI:10.1117/12.579046.

4. Lin B., Patrick Minnis, **Shu-peng Ho**, Jianping Huang, and Alice Fan, Ice Water Path and Overlapping Frequency of Tropical Overcast Clouds, IUGG 2003 Japan. (proceeding)

5. John C. Gille, David P. Edwards, Juying Warner, Merritt N. Deeter, Gene L. Francis, **Shu-peng Ho** and Daniel Ziskin, SPIE's third International Aaia-Pacific Symposium on Remote Sensing of the Atmosphere, Environment, and Space, 23-27 October 2002, Hangzhou, China. (proceeding)

6. Louisa Emmons, John C. Gille, David P. Edwards, Merritt N. Deeter, Juying Warner, Gene L. Francis, **Shu-peng Ho**, Validation of MOPITT Retrieval of Carbon Monoxide, IGARSS 02 annual meeting, Toronto, Canada, 24-28 June 2002.

7. Merritt N. Deeter, John C. Gille, David P. Edwards, Jean-Luc Attie, Juying Warner, Gene L. Francis, **Shu-peng Ho** and Daniel Ziskin, Quantitative Radiance Validation for the MOPITT Instrument, IGARSS 02 annual meeting, Toronto, Canada, 24-28 June 2002.

8. Bing Lin, Patrick Minnis, Bruce Wielicki, Yongxiang Hu, and **Shu-peng Ho**. Overcast clouds determined by TRMM measurements. IRS, 24-29 July, 2000 Saint Petersburg, Russia. (proceeding)

9. Young, David F., Minnis, Patrick, Lin, Bing, Ayers, J. Kirk, **Shu-Peng Ho**, Albrecht, Bruce A. - Rifkin, Hollis - Fairall, Chris W. - Garreaud, René. Cloud and Radiation Properties Derived from Satellite Data During the Fall 1999 CIMAR-5 and EPIC Cruises. CLIVAR Pan-American PI Meeting. (proceeding)

10. W. F. Feltz, W. L. Smith, **S.-P. Ho**, T, J. Schmit, X. L. Ma, H. B. Howell : Combined Surface and Satellite Infrared Measurements of Atmospheric Temperature and Water Vapor Profiles. Proceedings of the 10th Symposium on Meteorological Observations and Instrument, Phoenix, AZ, January 11-16, 1998. (proceeding)

11. William L. Smith, S. A. Ackerman, D. H. DeSlover, W. F. Feltz, **S.-P. Ho**, R. O. Knuteson, H. E. Revercomb, and S. A. Clough. ARM Science Applications of AERI Measurements, Atmospheric Radiation Measurement (ARM) Science Team Meeting, San Antonio, TX March 3-7, 1997. (proceeding)

12. Valery A. Yudin, John C. Gille, David P. Edwards, Merritt N. Deeter, Shu-peng Ho, and Louisa K. Emmons, Data assimilation of carbon monoxide in the troposphere, Proc. SPIE, Vol. 6299, 62990K (2006); doi:10.1117/12.680968, Remote Sensing of Aerosol and Chemical Gases, Model Simulation/Assimilation, and Applications to Air Quality, SPIE, Sunday 13 August 2006, San Diego, CA, USA.

13. Ho S.-P., Xinjia Zhou, Ying-Hwa Kuo, Doug Hunt, Cheng-Zhi Zou, Construction of a Consistent Microwave Sensor Temperature Record in the Lower Stratosphere Using Global Positioning System Radio Occultation Data and Microwave Sounding Measurements, joint 2010 CWB Weather Analysis and Forecasting and COAA 5th International Ocean-Atmosphere Conference, June 28-30, 2010, Center Weather Bureau, Taipei.

Section 5: Book Chapters

Section 6: other Referred Articles

14. William L. Smith, H. L. Huang, M. S. Whipple and **S.-P. Ho**, UW-CIMSS Physical Retrieval System Science Document for AIRS/AMSU/MHS, AIRS science team document, Jet propulsion Laboratory, NASA, Pasadena, Calif., 1996.

15. **Ho, S.-P.**, Smith, William L.; Huang, Hung-Lung Retrieval of atmospheric-temperature and water-vapor profiles by use of combined satellite and ground-based infrared spectral-radiance measurements, NASA Center: Langley Research Center, 2002, NTRS: 2005-09-29, Document ID: 20020069237.

16. **Ho, S.-P.**, B. Lin, P. Minnis, T. F. Fan, Estimation of Cloud Properties over Oceans Using VIRS and TMI Measurements on the TRMM Satellite, NASA Technical Report 2000.

17. Lin, B. P. Minnis, B. Wielicki, Y. X. Hu, **S.-P. Ho**, Overcast clouds determined by TRMM measurements, NASA Technical Report, NASA Center: Langley Research Center, NTRS: 2004-11-03, Document ID: 20000090515, 2000.

INVITED TALKS

1. **Ho, S.-P.**, A New Reprocessing Scheme to Improve the Aqua AIRS Global Temperature and Water Vapor Retrievals in the Lower Troposphere and Stratosphere using GPS Radio Occultation Measurements, the 4th ICGPSRO 2018, April 18~20, Taipei, Taiwan.

2. **Ho, S.-P**, New Climate Data Records that Can be Derived from GPS RO Data: Planetary Boundary Layer Heights and Upper Troposphere Humidity, 7, Feb., National Climate Data Center, Asheville NC, 2014.

3. **Ho, S.-P**, GPS RO-MSU calibration and data record, 2008: NOAA-NIST Workshop on Calibration for Climate-Quality Time Series, Camp Springs, MD, Jan 14, 2008.

4. **Ho, S.-P.**, Validation and Calibration of Microwave Sounders' Lower Stratosphere Temperature Trend using GPS RO Data, COSMIC/FORMAST-3, 4, Dec. Taipei, Taiwan, 2006.

5. **Ho, S.-P.**, Climatological Validation of Microwave Lower Stratosphere Temperature using GPS RO Data, invited seminar given in National Central University, May 8, 2006, Taiwan.

6. **Ho, S.-P.**, Validation and Calibration of MSU/AMSU Measurements using GPS RO Data for Improving Stratospheric Temperature Trend Analysis, invited seminar given in National Technical institute, May 10, Taiwan, 2006.

7. **Ho, S.-P.,** Comparability and reproducibility of RO data, Workshop on the Applications of GPS Radio Occultation to Climate, NCAR Foothills Laboratory, Building #1 Atrium Conference Room 3450 Mitchell Lane, Boulder, CO 80301 March 17-18, 2008.

8. **Ho, S.-P.**, Validation of Microwave Sounders' Lower Stratosphere Temperature Trend using GPS RO Data, NOAA-COSMIC climate meeting, 14th Symposium on Meteorological Observation and Instrumentation, San Antonio, TX 14-18 January 2007.

9. **Ho, S.-P**, Construction of Consistent Temperature Records using Global Positioning System Radio Occultation Data and Microwave Sounding Measurements, NOAA-COSMIC climate meeting in AMS, New Orleans, LA., 20-24 January 2008.

10. **Ho, S.-P**, Applications of COSMIC RO to Climate Studies, NRC-CES meeting, Boulder, CO, Sep.22-23, 2008.

11. **Ho, S.-P.** "Enhancement of the AIRS Troposphere and Stratosphere Temperature Climate Data Records using Global Positioning System Radio Occultation Data", tele-conference presentation to JPL, Feb. 17 2010.

12. **Ho, S.-P.,** Construction of a Consistent Microwave Sensor Temperature Record in the Lower Stratosphere Using Global Positioning System Radio Occultation Data and Microwave Sounding Measurements, 2010 Workshop on Climate Data Records from Satellite Microwave Radiometry, March 22-24, 2010 at the NOAA Science Center, in Silver Spring, MD.

13. **Ho S.-P.**, Xinjia Zhou, Ying-Hwa Kuo, Construction of a Consistent Microwave Sensor Temperature Record in the Lower Stratosphere Using Global Positioning System Radio Occultation Data and Microwave Sounding Measurements, June 17, 2010, Center Weather Bureau, Taipei.

14. **Ho, S.-P.**, et al., Current Developments on the Applications of COSMIC from the Troposphere to Stratosphere and the Potential Impacts of COSMIC-2 Data, invited seminar given in Department of Atmospheric Science, National Central University, Jan. 29, 2013, Taiwan.

15. **Ho, S.-P.**, et al., Current Developments on the Applications of COSMIC from the Troposphere to Stratosphere and the Potential Impacts of COSMIC-2 Data, invited seminar given in Research Center for Environmental Changes, Academia Sinica, Jan. 31, 2013, Taiwan.

16. **Ho, S.-P.,** Using COSMIC GPS RO Data to Study Atmospheric Trends and Modes of Variability above, within, and below Clouds, invited seminar given in Jet Propulsion Lab, California Institute of Technology, Aug. 28, 2015, CA., USA.

NATIOANL and INTERNATIONAL CONFERENCES PRESENTATIONS (presenting author only for the last 5 years)

1. **Ho, S.-P.**, Liang Peng, Rick Anthes, Ying-Hwa Kuo, Planetary Boundary Layer Heights from COSMIC and CALIOP over Ocean, AMS, Atlanta, GA., 2-6, Feb., 2014.

2. **Ho, S.-P.,** Liang Peng, Rick Anthes, Ying-Hwa Kuo, Estimation of Planetary Boundary Layer Heights from COSMIC, CLIPSO, and High Resolution Radiosondes during the VOCALS-REx, AMS, Atlanta, GA., 2-6, Feb., 2014.

3. **Ho, S.-P.,** Liang Peng, Calibration of Temperature Troposphere / Stratosphere from Advanced Microwave Sounding Unit using High Quality Radiosonde Data Identified by Radio Occultation Data, the 5rd international workshop on Occultation for Probing Atmosphere and climate, Graz, Austria, Sep. 8-11, 2013.

4. **Ho, S.-P.**, Ying-Hwa Kuo and Zhen Zeng, Validation of Microwave Lower Stratosphere Temperature using CHAMP GPS RO Data, Formosat-3/COSMIC data user Workshop, Oct 17, Boulder. CO, 2006.

5. **Ho, S.-P**., D. P. Edwards, Improvements of the Retrievals of Carbon Monoxide in the Planetary Boundary Layer using Combined Infrared and Solar Measurements : A Simulation Study, NCAR AIR Quality work shop, Boulder, CO., 2006.

6. **Ho, S.-P.**, D. P. Edwards, A Simulation Study to investigate the possible Retrievals of Carbon Monoxide in the Planetary Boundary Layer using Combined Infrared and Near Infrared Measurements, 3 - 17 August 2006, San Diego, California USA.

7. **Ho, S.-P.**, Y.-H. Kuo and Z. Zhen, Validation of Lower Stratosphere Temperature from AMSU/MSU Measurements using GPS RO data, COSMIC meeting in AMS, San Antonio, TX 14-18 January 2007.

8. **Ho, S.-P.**, Y.-H. Kuo and Z. Zhen, Validation of Microwave Sounders' Lower Stratosphere Temperature Trend using GPS RO Data, 14th Symposium on Meteorological Observation and Instrumentation, San Antonio, TX 14-18 January 2007.

9. **Ho, S.-P.**, D. Edwards, J. C. Gille, Validation of TES CO profiles using MOPTT CO Products, ACD NCAR report, Jan. 9, 2007.

10. **Ho, S.-P.**, D. Edwards, Validation of TES CO profiles using MOPTT CO Products, AURA validation meeting, Boulder CO., Oct. 2006.

11. **Ho, S.-P**, Applications of COSMIC Radio Occultation Data to Climate Monitoring: Early Results, NOAA, Camp Springs, MD, July 13, 2007.

12. **Ho, S.-P**, Applications of COSMIC Radio Occultation Data to Climate Monitoring: Early Results, the 3rd international workshop on Occultation for Probing Atmosphere and climate, Graz, Austria, Sep. 17-21, 2007.

13. **Ho, S.-P**, Inter-comparisons of Refractivity and Dry Temperature Derived from different Data Center, COSMIC-workshop, Boulder, CO., Oct. 22-24, 2007.

14. **Ho, S.-P**, Applications of COSMIC Radio Occultation Data to Climate Monitoring: Early Results, AMS, New Orleans, LA., 20-24 January 2008.

15. **Ho, S.-P**, Construction of Consistent Temperature Records using Global Positioning System Radio Occultation Data and Microwave Sounding Measurements, COSMIC meeting in AMS, New Orleans, LA., 20-24 January 2008.

16. **Ho, S.-P.**, Ying-Hwa Kuo, Wenying He, Doug Hunt, Chris Rocken, William Schreiner, and Sergey Sokolovskiy, Global Comparisons of Water Vapor Profiles in the Lower Troposphere from COSMIC Radio Occultation, in situ Observations, and ECMWF Analysis, 4th Asian Space Conference, Taipei, Taiwan, 1-3, October, 2008.

17. **Ho, S.-P.**, Ying-Hwa Kuo, Doug Hunt, Chris Rocken, William Schreiner, and Sergey Sokolovskiy, and Jens Wickert, Anthony J. Mannucci, Quantitative Estimation of the Reproducibility of GPS RO Data for Climate Research, 4th Asian Space Conference, Taipei, Taiwan, 1-3, October, 2008.

18. **Ho, S.-P.**,,Tele-conference presentation: JPL talk about the "Enhancement of the AIRS Troposphere and Stratosphere Temperature Climate Data Records using Global Positioning System Radio Occultation Data", April, 2010.

19. **Ho, S.-P.**, Xinjia Zhou, Ying-Hwa Kuo , Doug Hunt, Cheng-Zhi Zou. Construction of a Consistent Microwave Sensor Temperature Record in the Lower Stratosphere Using Global Positioning System Radio Occultation Data and Microwave Sounding Measurements, 2010 Workshop on Climate Data Records from Satellite Microwave Radiometry, March 22-24 2010 at NOAA Science Center in Silver Spring, MD (invited).

20. **Ho, S.-P.**, Xinjia Zhou, Ying-Hwa Kuo, Doug Hunt, Cheng-Zhi Zou, Construction of a Consistent Microwave Sensor Temperature Record in the Lower Stratosphere Using Global Positioning System Radio Occultation Data and Microwave Sounding Measurements, joint 2010 CWB Weather Analysis and Forecasting and COAA 5th International Ocean-Atmosphere Conference, June 28-30, 2010, Center Weather Bureau, Taipei, Taiwan.

21. **Ho, S.-P.**, Xinjia Zhou, Ying-Hwa Kuo, Construction of a Consistent Microwave Sensor Temperature Record in the Lower Stratosphere Using Global Positioning System Radio Occultation Data and Microwave Sounding Measurements, June 17, 2010, Center Weather Bureau, Taipei (invited).

22. **Ho, S.-P.**, Using SI-traceable Global Positioning System Radio Occultation Measurements for Climate Monitoring, National Central University, Department of Atmospheric Science, and GPS ARC, June 22, Jhongli, Taiwan (invited).

23. **Ho, S.-P.**, Xinjia Zhou, Ying-Hwa Kuo, Climate Calibration Observatory in Orbit: Calibration and Validation of Measurements of AMSU and AIRS using Global Positioning System Radio Occultation Observations, September, 6-10, OPAC-4, Graz, Austria.

24. **Ho, S.-P.**, Xinjia Zhou, Ying-Hwa Kuo, Assessment of Systematic Biases of Radiosonde Temperature and Moisture Measurements using Global Positioning System Radio Occultation from COSMIC, September, 6-10, OPAC-4, Graz, Austria.

25. **Ho, S.-P.**, Construction of Consistent Microwave Sensor Temperature Records and Tropopause Height Climatology using MSU/AMSU Measurements, GPS RO Data, and Radiosonde Observations, Climate Data Records Program Review meeting, August 4-5, 2010 in Asheville, NC.

26. **Ho, S.-P.**, Construction of Consistent Microwave Sensor Temperature Records and Tropopause Height Climatology using MSU/AMSU Measurements, GPS RO Data, and Radiosonde Observations, ARC/SDS Program Review meeting, September, 14-16, 2010 in Asheville, NC.

27. **Ho, S.-P.**, Assessment of Systematic Biases of Radiosonde Moisture Measurements using Global Positioning System Radio Occultation from COSMIC, GEWEX/ESA DUE GlobVapour workshop on long term water vapour data sets and their quality assessment, 8 – 10 March 2011 - ESA/ESRIN, Frascati, Italy (invited).

28. **Ho, S.-P.**, Xinjia Zhou, Ying-Hwa Kuo, Assessment of Systematic Biases of Radiosonde Moisture Measurements using Global Positioning System Radio Occultation from COSMIC, 91st American Meteorological Society Annual Meeting, Seattle, WA, USA.

29. **Ho, S.-P.**, Xinjia Zhou, Ying-Hwa Kuo, Climate Calibration Observatory in Orbit: Using COSMIC RO Data to Calibrate and Validate the AIRS and AMSU Troposphere and Stratosphere Temperature Climate Data Records, 91st American Meteorological Society Annual Meeting, Seattle, WA, USA.

30. **Ho, S.-P.**, Y.-H. Kuo, X.-J. Zhou, and P. Callaghan, 2011: Long Term Assessment of Radiosonde Temperature Systematic Biases using COSMIC, CHAMP, and GRACE from 2001 to 2010. The 5th FORMOSAT-3/COSMIC Data Users Workshop & ICGPSRO, April 12-14, 2011, Taipei, Taiwan.

31. **Ho, S.-P.,** et al., Summaries of GPS RO Inversion Procedures in the Upper Troposphere and Middle Stratosphere among Operational Centers and Structural Uncertainties in the Multiple Center Comparisons, 2nd IROWG Workshop 28 March

3, April 2012, Estes Park, CO, U.S.A.

32. **Ho, S.-P.**, et al., Reproducibility of GPS Radio Occultation Data for Climate Monitoring: Profile-to-Profile Inter-comparison of CHAMP Climate Records 2002 to 2008 from Six Data Centers, The 6th FORMOSAT-3/COSMIC Data Users Workshop, September 31-Oct. 2, 2012, Boulder CO., U.S.A.

33. **Ho, S.-P.**, et al., Global Assessment of Radiosonde Systematic Temperature Biases in the lower Stratosphere using COSMIC, CHAMP, and GRACE from 2001 to 2010, The 6th FORMOSAT-3/COSMIC Data Users Workshop, September 31-Oct. 2, 2012, Boulder CO., U.S.A.

34. **Ho, S.-P.**, et al., Calibration of Temperature Troposphere / Stratosphere from Advanced Microwave Sounding Unit using High Quality Radiosonde Data Identified by Radio Occultation Data, 92nd American Meteorological Society Annual Meeting, Jan. 6-10, Austin, TX, USA.

35. **Ho, S.-P.**, et al., Current Developments on the Applications of COSMIC from the Troposphere to Stratosphere and the Potential Impacts of COSMIC-2 Data, invited seminar given in Department of Atmospheric Science, National Central University, Jan. 29, 2013, Taiwan.

36. **Ho, S.-P.**, et al., Current Developments on the Applications of COSMIC from the Troposphere to Stratosphere and the Potential Impacts of COSMIC-2 Data, invited seminar given in Research Center for Environmental Changes, Academia Sinica, Jan. 31, 2013, Taiwan.