

Barbara Scherllin-Pirscher

Curriculum Vitae

Personal Data

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Nationality Austrian.

Academic Education

- 2010 **Ph.D. in natural sciences**, *Institute of Physics, University of Graz, Graz, Austria*, Thesis: *Multi-satellite climatologies of fundamental atmospheric variables from radio occultation and their validation.*
- 2005 **Master of science**, *Institute of Physics, University of Graz, Graz, Austria*, Thesis: *Climate diagnostics in radio occultation temperature climatologies of CHAMP and ECMWF.*
- 2004 **Master of science**, *Institute of Geophysics, Astronomy, and Meteorology, University of Graz, Graz, Austria*, Thesis: *Sonnenähnliche Sterne (Solarlike stars).*
- 2001 **Master of science**, *Institute of Physics (Education with specialization in high school level physics and mathematics), University of Graz, Graz, Austria*, Thesis: *Einfluss der Sonne auf das globale Klimasystem (Influence of the sun on climate system).*

Professional Development

- since 07/2016 **Scientist**, *Chemical Weather Forecasts, Zentralanstalt für Meteorologie und Geodynamik, Vienna, Austria.*
- 03/2013–
06/2016 **Senior PostDoc scientist and project leader**, *Wegener Center for Climate and Global Change, University of Graz, Graz, Austria.*
- 08/2011–
02/2013 **PostDoc scientist**, *Wegener Center for Climate and Global Change, University of Graz, Graz, Austria.*
- 08/2010–
07/2011 **PostDoc scientist**, *National Center for Atmospheric Research (NCAR), Boulder, CO, USA, Advanced Study Program (ASP) fellowship.*
- 06/2010–
07/2010 **PostDoc scientist**, *Wegener Center for Climate and Global Change, University of Graz, Graz, Austria.*
- 03/2006–
05/2010 **PhD student**, *Wegener Center for Climate and Global Change, University of Graz, Graz, Austria.*
- 09/2001–
09/2002 **High school teacher for physics and mathematics**, *BG und BRG Lichtenfelsgasse, Graz, Austria.*

Research Visits

- 09/2018–10/2018 **Visiting scientist**, *National Oceanic and Atmospheric Administration (NOAA)*, Boulder, CO, USA.
- 04/2018 **Visiting scientist**, *National Oceanic and Atmospheric Administration (NOAA)*, Boulder, CO, USA.
- 03/2018 **Visiting scientist**, *National Oceanic and Atmospheric Administration (NOAA)*, College Park, MD, USA.
- 09/2015 **Visiting scientist**, *National Center for Atmospheric Research (NCAR)*, Boulder, CO, USA.
- 09/2014 **Visiting scientist**, *Harvard University*, Cambridge, MA, USA.
- 03/2012 **Visiting scientist**, *Danish Meteorological Institute (DMI)*, Copenhagen, Denmark.
- 02/2012 **Visiting scientist**, *European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT)*, Darmstadt, Germany.
- 11/2011 **Visiting scientist**, *Danish Meteorological Institute (DMI)*, Copenhagen, Denmark.
- 04/2008–05/2008 **Visiting scientist**, *COSMIC Project Office, UCAR*, Boulder, CO, USA.

Training

- 03/2019 **Advanced project management**, *Zentralanstalt für Meteorologie und Geodynamik*, Vienna, Austria, (2 days).
- 03/2018 **Project management**, *Zentralanstalt für Meteorologie und Geodynamik*, Vienna, Austria, (2 days).
- 03/2017 **Data assimilation**, *European Center for Medium-Range Weather Forecasts (ECMWF)*, Reading, United Kingdom, (1 week).
- 07/2013 **Workshop on storm tracks**, *Stratospheric-Tropospheric Processes and their Role in Climate (SPARC)*, Grindelwald, Switzerland, (1 week).
- 07/2013 **Workshop on the Brewer Dobson Circulation (BDC)**, *Stratospheric-Tropospheric Processes and their Role in Climate (SPARC)*, Grindelwald, Switzerland, (1 week).
- 07/2013 **ECHAM Workshop**, *Max Planck Institute (MPI)*, Hamburg, Germany, (1 week).

Awards and Fellowships

- 2012 **Hertha-Firnberg fellowship**, *Austrian Science Fund (FWF)*.
- 2010 **Advanced Study Program (ASP) fellowship**, *National Center for Atmospheric Research (NCAR)*.
- 2010 **First prize of the faculty for natural sciences for outstanding achievements of young female scientists**, *with focus on peer-reviewed journal publications during Ph.D. studies*, University of Graz, Graz, Austria.

Acquired Third Party Funding

- 2018 **LIDAR-X – Towards improved knowledge of the vertical distribution of aerosols in the atmosphere**, *DTC visiting scientist project*, 03/2018 to 02/2019.
- 2012 **DYNOCC – El Niño Dynamics and Effects Observed with Radio Occultation**, *FWF project number T620-N29*, 03/2013 to 02/2016.

2012 **BAROCLIM – Further development of BAROCLIM and implementation in ROPP, ROM-SAF visiting scientist project VS19, 12/2012 to 04/2013.**

Research Interests and Fields of Research

Environmental Physics and Air Quality Modeling

- Air quality modeling with WRF-Chem
- Modeling of Saharan dust outbreaks and volcanic eruptions
- Impact of the dispersion of atmospheric aerosols on aviation
- Ammonia and secondary aerosol formation
- Aerosol data assimilation with the Gridpoint Statistical Interpolation (GSI)
- Modeling of aerosol optical properties with the Community Radiative Transfer Model (CRTM)
- Evaluation of aerosol optical properties obtained with different models

Atmospheric Physics and Remote Sensing

- Investigation of atmospheric phenomena using radio occultation data
- Analysis of atmospheric Kelvin waves in the tropical tropopause region (TTL)
- Investigation of the temporal and spatial structure of El Niño–Southern Oscillation (ENSO)
- Analysis of atmospheric tides in the upper troposphere and lower stratosphere region
- Construction and validation of climatologies of different atmospheric variables based on radio occultation measurements from multiple missions
- Comparison of atmospheric profiles from different RO satellite missions
- Focus on satellite orbits and influence of local time sampling on radio occultation climatologies
- Error analysis and characterization of single RO profiles and RO climatological fields
- Retrieval and validation of RO data and processing advancements
- Intercomparison of RO data products from different data processing centers
- Contribution to scientific algorithm development of the EGOPS (End-to-end GNSS Occultation Performance Simulator) software tool
- Development of the CLIPS (Climate Processing System) software tool
- Multivariate statistical methods for pattern analysis, focus on Principal Component Analysis (PCA)

Services for the Scientific Community

- since 2009 Reviewer for international journals such as “Journal of Geophysical Research” (JRG), “Atmospheric Chemistry and Physics” (ACP), “Atmospheric Measurement Techniques” (AMT), “International Journal of Climatology”, “Journal of Atmospheric and Solar-Terrestrial Physics”
- since 2017 Member of the COST Action “InDust”
- 2019 Lead organizer of the TOP user workshop held at ZAMG, Vienna, Austria
- 2018 Reviewer for the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) on products of the Satellite Application Facility on RO Meteorology (ROM-SAF)
- 2012–2016 Team member of the Climate Subgroup of the International Radio Occultation Working Group (IROWG), a working group of the Coordination Group for Meteorological Satellites

- 2007–2016 Team member of the Radio Occultation (RO) Trends Working Group, an international collaboration of main RO processing centers on the intercomparison of RO data records
- 09/2014 Session chair at the 8th FORMOSAT-3/COSMIC Data Users' Workshop in Boulder, CO, USA
- 04/2011 Co-convener at the EGU General Assembly 2011, Vienna, Austria, session CL 2.17, Physical and biogeochemical feedbacks in the climate system and climate observations from space
- 2010–2011 Committee member: Thompson Lecture Series Committee, Advanced Study Program, NCAR, Boulder, CO, USA
- 2007–2009 Co-editor of the peer-reviewed proceeding book "New Horizons in Occultation Research: Studies in Atmosphere and Climate" (Springer Verlag)

Additional Skills and Professional Experience

- since 1993 Volunteer paramedic, EMS (emergency medical service), Graz, Austria
- 1996–2014 Instructor for first aid and BLS (basic life support)
- 2008/2009 Final copy editor, "New Horizons in Occultation Research: Studies in Atmosphere and Climate", Springer Book, Berlin Heidelberg
- 2005–2016 Part-time weather observer of the weather station at the University of Graz, Graz, Austria
- 2004/2005 Final copy editor, "Atmosphere and Climate: Studies by Occultation Methods", Springer Book, Berlin Heidelberg

Computer Skills

- Platforms Windows, Linux
- FORTTRAN scientific programming
- Python scientific programming
- IDL scientific programming
- L^AT_EX writing and editing scientific documents

Languages

- German Mother tongue
- English fluent
- French some

Barbara Scherllin-Pirscher

Publications

Peer-Reviewed Publications

2019

- * M. Hirtl, M. Stuefer, D. Arnold, G. Grell, C. Maurer, S. Natali, **B. Scherllin-Pirscher**, and P. Webley (2019), The effects of simulating volcanic aerosol radiative feedbacks with WRF-Chem during the Eyjafjallajökull eruption, April and May 2010. *Atmos. Env.*, 198, 194–206, doi:10.1016/j.atmosenv.2018.10.058.

2018

- * P. Pišoft, P. Šácha, J. Miksovsky, P. Huszar, **B. Scherllin-Pirscher**, and U. Foelsche (2018), Revisiting internal gravity waves analysis using GPS RO density profiles: comparison with temperature profiles and application for wave field stability study. *Atmos. Meas. Tech.*, 11, 515–527, doi:10.5194/amt-11-515-2018.
- * H. Wilhelmson, F. Ladstädter, **B. Scherllin-Pirscher**, and A. K. Steiner (2018), Atmospheric QBO and ENSO indices with high vertical resolution from GNSS radio occultation temperature measurements. *Atmos. Meas. Tech.*, 11, 1333–1346, doi:10.5194/amt-11-1333-2018.

2017

- * B. Angerer, F. Ladstädter, **B. Scherllin-Pirscher**, M. Schwärz, A. K. Steiner, U. Foelsche, and G. Kirchengast (2017), Quality aspects of the Wegener Center multi-satellite GPS radio occultation record OPSv5.6. *Atmos. Meas. Tech.*, 10, 4845–4863, doi:10.5194/amt-10-4845-2017.
- * **B. Scherllin-Pirscher**, W. J. Randel, and J. Kim (2017), Tropical temperature variability and Kelvin-wave activity in the UTLS from GPS RO measurements. *Atmos. Chem. Phys.*, 17, 793–806, doi:10.5194/acp-17-793-2017.
- * **B. Scherllin-Pirscher**, A. K. Steiner, G. Kirchengast, M. Schwärz, and S. Leroy (2017), The power of vertical geolocation of atmospheric profiles from GNSS radio occultation. *J. Geophys. Res.*, 122, 1595–1616, doi:10.1002/2016JD025902.

2016

- * L. Brunner, A. K. Steiner, **B. Scherllin-Pirscher**, and M. W. Jury (2016), Exploring atmospheric blocking with GPS radio occultation observations. *Atmos. Chem. Phys.*, 16, 4593–4604, doi:10.5194/acp-16-4593-2016.

2015

- * Y. Li, G. Kirchengast, **B. Scherllin-Pirscher**, R. Norman, Y. B. Yuan, J. Fritzer, M. Schwaerz, and K. Zhang (2015), Dynamic statistical optimization of GNSS radio occultation bending angles: advanced algorithm and performance analysis. *Atmos. Meas. Tech.*, 8, 3447–3465, doi:10.5194/amt-8-3447-2015.

- * **B. Scherllin-Pirscher**, S. Syndergaard, U. Foelsche, and K. B. Lauritsen (2015), Generation of a bending angle radio occultation climatology (BAROCLIM) and its use in radio occultation retrievals, *Atmos. Meas. Tech.*, 8, 109–124, doi:10.5194/amt-8-109-2015.

2014

- * J. Danzer, U. Foelsche, **B. Scherllin-Pirscher**, and M. Schwärz (2014), Influence of changes in humidity on dry temperature in GPS RO climatologies. *Atmos. Meas. Tech.*, 7, 2883–2896, doi:10.5194/amt-7-2883-2014.
- * T. Rieckh, **B. Scherllin-Pirscher**, F. Ladstädter, and U. Foelsche (2014), Characteristics of tropopause parameters as observed with GPS radio occultation. *Atmos. Meas. Tech.*, 7, 3947–3958, doi:10.5194/amt-7-3947-2014.
- * **B. Scherllin-Pirscher**, A. K. Steiner, and G. Kirchengast (2014), Deriving dynamics from GPS radio occultation: Three-dimensional wind fields for monitoring the climate, *Geophys. Res. Lett.*, 41(20): 7367–7374, 2014. doi:10.1002/2014GL061524.

2013

- * J. Danzer, **B. Scherllin-Pirscher**, and U. Foelsche (2013), Systematic residual ionospheric errors in radio occultation data and a potential way to minimize them. *Atmos. Meas. Tech.*, 6, 2169–2179, doi:10.5194/amt-6-2169-2013.
- * Y. Li, G. Kirchengast, **B. Scherllin-Pirscher**, S. Wu, M. Schwaerz, J. Fritzer, S. Zhang, B. A. Carter, and K. Zhang (2013), A new dynamic approach for statistical optimization of GNSS radio occultation bending angles for optimal climate monitoring utility. *J. Geophys. Res.*, 118, 13022–13040, doi:10.1002/2013JD020763.
- * A. K. Steiner, D. Hunt, S.-P. Ho, G. Kirchengast, A. J. Mannucci, **B. Scherllin-Pirscher**, H. Gleisner, A. von Engel, T. Schmidt, C. Ao, S. S. Leroy, E. R. Kursinski, U. Foelsche, M. Gorbunov, S. Heise, Y.-H. Kuo, K. B. Lauritsen, C. Marquardt, C. Rocken, W. Schreiner, S. Sokolovskiy, S. Syndergaard, and J. Wickert (2013), Quantification of structural uncertainty in climate data records from GPS radio occultation, *Atmos. Chem. Phys.*, 13, 1469–1484 doi:10.5194/acp-13-1469-2013.

2012

- * S.-P. Ho, D. Hunt, A. K. Steiner, A. J. Mannucci, G. Kirchengast, H. Gleisner, S. Heise, A. von Engel, C. Marquardt, S. Sokolovskiy, W. Schreiner, **B. Scherllin-Pirscher**, C. Ao, J. Wickert, S. Syndergaard, K. Lauritsen, S. Leroy, E. R. Kursinski, Y.-H. Kuo, U. Foelsche, T. Schmidt, and M. Gorbunov (2012), 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. *J. Geophys. Res.*, 117, D18111, doi:10.1029/2012JD017665.
- * **B. Scherllin-Pirscher**, C. Deser, S.-P. Ho, C. Chou, W. Randel, and Y.-H. Kuo (2012), The vertical and spatial structure of ENSO in the upper troposphere and lower stratosphere from GPS radio occultation measurements, *Geophys. Res. Lett.*, 39, L20801, doi:10.1029/2012GL053071.

2011

- * U. Foelsche, **B. Scherllin-Pirscher**, F. Ladstädter, A. K. Steiner, and G. Kirchengast (2011), Refractivity and temperature climate records from multiple radio occultation satellites consistent within 0.05 %. *Atmos. Meas. Tech.*, 4, 2007–2018, doi:10.5194/amt-4-2007-2011.

- * **B. Scherllin-Pirscher**, G. Kirchengast, A. K. Steiner, Y.-H. Kuo, and U. Foelsche (2011), Quantifying uncertainty in climatological fields from GPS radio occultation: an empirical-analytical error model, *Atmos. Meas. Tech.*, 4, 2019–2034, doi:10.5194/amt-4-2019-2011.
- * **B. Scherllin-Pirscher**, A. K. Steiner, G. Kirchengast, Y.-H. Kuo, and U. Foelsche (2011), Empirical analysis and modeling of errors of atmospheric profiles from GPS radio occultation, *Atmos. Meas. Tech.*, 4, 1875–1890, doi:10.5194/amt-4-1875-2011.
- * A. K. Steiner, B. C. Lackner, F. Ladstädter, **B. Scherllin-Pirscher**, U. Foelsche, and G. Kirchengast (2011), GPS radio occultation for climate monitoring and change detection. *Radio Sci.*, 46, RS0D24, doi:10.1029/2010RS004614.

2010

- * F. Ladstädter, A. K. Steiner, B. C. Lackner, **B. Pirscher**, G. Kirchengast, J. Kehler, H. Hauser, P. Muigg, and H. Doleisch (2010), Exploration of climate data using interactive visualization. *J. Atmos. Oceanic Tech.*, 27, 667–679, doi:10.1175/2009JTECHA1374.1.
- * **B. Pirscher**, U. Foelsche, M. Borsche, G. Kirchengast, and Y.-H. Kuo (2010), Analysis of migrating diurnal tides detected in FORMOSAT-3/COSMIC temperature data. *J. Geophys. Res.*, 115, D14108, doi:10.1029/2009JD013008.

2009

- * U. Foelsche, **B. Pirscher**, M. Borsche, A. K. Steiner, G. Kirchengast, and C. Rocken (2009), Climatologies based on radio occultation data from CHAMP and Formosat-3/COSMIC. In A. K. Steiner, B. Pirscher, U. Foelsche, and G. Kirchengast, editors, *New Horizons in Occultation Research: Studies in Atmosphere and Climate*, pages 181–194. Springer, Berlin Heidelberg.
- * U. Foelsche, **B. Pirscher**, M. Borsche, G. Kirchengast, and J. Wickert (2009), Assessing the climate monitoring utility of radio occultation data: From CHAMP to FORMOSAT-3/COSMIC. *Terr. Atmos. Oceanic Sci.*, 20(1), 155–170.
- * S.-P. Ho, G. Kirchengast, S. Leroy, J. Wickert, A. J. Mannucci, A. K. Steiner, D. Hunt, W. Schreiner, S. Sokolovskiy, C. Ao, M. Borsche, A. von Engeln, U. Foelsche, S. Heise, B. Iijima, Y.-H. Kuo, E. R. Kursinski, **B. Pirscher**, M. Ringer, C. Rocken, and T. Schmidt (2009), Estimating the uncertainty of using GPS radio occultation data for climate monitoring: Intercomparison of CHAMP refractivity climate records from 2002 to 2006 from different data centers. *J. Geophys. Res.*, 114, D23107.
- * **B. Pirscher**, U. Foelsche, M. Borsche, and G. Kirchengast (2009), Sampling of the diurnal tide of temperature using Formosat-3/COSMIC data. In A. K. Steiner, B. Pirscher, U. Foelsche, and G. Kirchengast, editors, *New Horizons in Occultation Research: Studies in Atmosphere and Climate*, pages 131–140. Springer, Berlin Heidelberg.
- * A. K. Steiner, G. Kirchengast, B. C. Lackner, **B. Pirscher**, M. Borsche, and U. Foelsche (2009), Atmospheric temperature change detection with GPS radio occultation 1995 to 2008. *Geophys. Res. Lett.*, 36.
- * A. K. Steiner, **B. Pirscher**, U. Foelsche, and G. Kirchengast, editors (2009), *New Horizons in Occultation Research: Studies in Atmosphere and Climate*, Springer, Berlin Heidelberg.

2008

- * U. Foelsche, M. Borsche, A. K. Steiner, A. Gobiet, **B. Pirscher**, G. Kirchengast, J. Wickert, and T. Schmidt (2008), Observing upper troposphere-lower stratosphere climate with radio occultation data from the CHAMP satellite. *Clim. Dyn.*, 31, 49–65, doi:10.1007/s00382-007-0337-7.

2007

- * **B. Pirscher**, U. Foelsche, B. C. Lackner, and G. Kirchengast (2007), Local time influence in single-satellite radio occultation climatologies from sun-synchronous and non sun-synchronous satellites. *J. Geophys. Res.*, 112, doi:10.1029/2006JD007934.

Further Publications

2019

- * S. Natali, C. Rendl, G. Triebnig, D. Santillan, M. Hirtl, and **B. Scherllin-Pirscher** (2019), Technology and atmospheric mission platform – OPERations (TOP). *Geophys. Res. Abstr.*, 21, EGU2019-17701, Vienna, Austria.
- * **B. Scherllin-Pirscher** (2019), Towards improved knowledge of the vertical distribution of aerosols in the atmosphere: part I. *DTC Visiting Scientist Report*, 54 pp.
- * **B. Scherllin-Pirscher** (2019), Towards a Better Understanding of the Vertical Aerosol Distribution in the Atmosphere. *Developmental Testbed Center Transitions News*, 18, 4–6.
- * **B. Scherllin-Pirscher**, B. T. Johnson, J. Gasteiger, M. Pagowski, and P. Stegmann (2019), Simulation of LIDAR-based aerosol measurements and their evaluation for a Saharan dust event in spring 2018. *Geophys. Res. Abstr.*, 21, EGU2019-8094, Vienna, Austria.

2018

- * M. Hirtl, M. Stuefer, D. Arnold Arias, C. Maurer, S. Natali, and **B. Scherllin-Pirscher** (2018), Simulating the influence of aerosol feedback effects with WRF-Chem on surface- and vertical distributions of wind speed and temperature during the Eyjafjallajökull 2010 eruption. *Geophys. Res. Abstr.*, 20, EGU2018-12189, Vienna, Austria.
- * C. Nagl, W. Spangl, **B. Scherllin-Pirscher**, M. Hofstätter, I. Anders (2018), Einfluss des Klimawandels auf die Luftqualität. Aktueller Stand von Modellrechnungen. *Report, Band 0659*, ISBN 978-3-99004-477-3, Umweltbundesamt GmbH, Wien, 36 pp.
- * S. Natali, S. Mantovani, M. Hirtl, D. Arnold, C. Maurer, and **B. Scherllin-Pirscher** (2018), Atmospheric Sciences data cube. *Geophys. Res. Abstr.*, 20, EGU2018-19079, Vienna, Austria.
- * S. Natali, S. Mantovani, M. Hirtl, **B. Scherllin-Pirscher**, D. Santillan, G. Triebnig, and C. Lopes (2018), Virtual Exploitation Environment Demonstration for Atmospheric Missions. *Geophys. Res. Abstr.*, 20, EGU2018-16852, Vienna, Austria.
- * S. Natali, S. Mantovani, M. Hirtl, **B. Scherllin-Pirscher**, D. Santillan, G. Triebnig, and C. Lopes (2018), Calibration and Validation activities with the Virtual Research Environment for Atmospheric Missions (VEEDAM). *Geophys. Res. Abstr.*, 20, EGU2018-16743, Vienna, Austria.
- * M. Plu, M. Hirtl, M. Sofiev, L. Robertson, D. Arnold, R. Baró, C. Maurer, M. D. Mulder, **B. Scherllin-Pirscher**, M. Maree Parks, A. Uppstu, B. Sič, and L. El Amraoui (2018), System definition and design document for aviation service. *EUNADICS-AV deliverable D32*, 27 pp.
- * **B. Scherllin-Pirscher**, G. Wotawa, M. Hirtl, and the EUNADICS-AV Team (2018), EUNADICS-AV: European Natural Airborne Disaster Information and Coordination System for Aviation. *extended abstract*, ATM workshop, Salzburg, Austria.

- * A. Uppstu, M. Plu, L. El Amraoui, D. Arnold, M. Hirtl, L. Mona, L. Robertson, **B. Scherllin-Pirscher**, B. Sič, M. Sofiev (2018), Observation operator for lidar- and aircraft-type datasets. *EUNADICS-AV deliverable D24*, 11 pp.

2017

- * B. Angerer, F. Ladstädter, **B. Scherllin-Pirscher**, M. Schwärz, and A. K. Steiner (2017), Quality Aspects of the WEGC Multi-Satellite GPS Radio Occultation Record. *Geophys. Res. Abstr.*, 19, EGU2017-15273, Vienna, Austria.
- * M. Hirtl, M. Stuefer, D. Arnold Arias, C. Flandorfer, C. Maurer, S. Natali, and **B. Scherllin-Pirscher** (2017), The influence of the direct- and semi-direct effect on the weather conditions in Europe caused by the volcanic ash plume of the Eyjafjallajökull eruption during April and May 2010 with WRF-Chem. *Geophys. Res. Abstr.*, 19, EGU2017-5998, Vienna, Austria.
- * G. Kirchengast, Y. Li, **B. Scherllin-Pirscher**, M. Schwaerz, J. Schwarz, and J. K. Nielsen (2017), A new retrieval algorithm for tropospheric temperature, humidity and pressure profiling based on GNSS radio occultation data. *Geophys. Res. Abstr.*, 19, EGU2017-16328, Vienna, Austria.
- * G. Kirchengast, M. Schwaerz, J. Schwarz, J. Ramsauer, J. Fritzer, **B. Scherllin-Pirscher**, J. Innerkofler, V. Proschek, T. Rieckh, and J. Danzer (2017), Reference OPS DAD – Reference Occultation Processing System (rOPS) Detailed Algorithm Description. *Wegener Center International Report Series*, Graz, Austria.
- * S. Natali, S. Mantovani, G. Triebnig, D. Santillan, M. Hirtl, **B. Scherllin-Pirscher**, and C. Lopes (2017), Virtual exploitation environment demonstration for atmospheric missions. *Proc. of the 2017 conference on Big Data from Space (BiDS'17)*, 236–238, doi:10.2760/383579.
- * **B. Scherllin-Pirscher**, W. J. Randel, and J. Kim (2017), Sub-seasonal temperature variability in the tropical upper troposphere and lower stratosphere observed with GPS radio occultation. *Geophys. Res. Abstr.*, 19, EGU2017-19480, Vienna, Austria.
- * H. Wilhelmson, **B. Scherllin-Pirscher**, F. Ladstädter, and A. K. Steiner (2017), QBO and ENSO indices from GPS Radio Occultation to describe atmospheric variability. *Geophys. Res. Abstr.*, 19, EGU2017-8279, Vienna, Austria.
- * **B. Scherllin-Pirscher**, I. Anders, and M. Hofstätter (2017), Änderung der Luftqualität in Österreich in der Klimazukunft. *Report*, 32 pp, ZAMG, Vienna, Austria.
- * **B. Scherllin-Pirscher**, M. Hirtl, C. Flandorfer, and M. Pagowski (2017), Assimilation of MODIS AOD measurements during the Sahara dust episode in April 2016. *Geophys. Res. Abstr.*, 19, EGU2017-12175, Vienna, Austria.

2016

- * U. Foelsche, A. K. Steiner, **B. Scherllin-Pirscher**, J. Danzer, F. Ladstädter, M. Schwärz, T. Rieckh, J. Schwarz, R. Klingler, R. Riccardo, L. Brunner, J. Fritzer, and G. Kirchengast (2016), Beobachtung von klimatischen Veränderungen und atmosphärischen Prozessen mittels GPS Radio-Okkultation. *Proc. 17. Österr. Klimatag*, 140–141, CCCA, Vienna, Austria.
- * G. Kirchengast, M. Schwaerz, J. Schwarz, **B. Scherllin-Pirscher**, C. Pock, J. Innerkofler, V. Proschek, A. Steiner, J. Danzer, F. Ladstaedter, and U. Foelsche (2016), Employing GNSS radio occultation for solving the global climate monitoring problem for the fundamental state of the atmosphere. *Geophys. Res. Abstr.*, 19, EGU2016-12035, Vienna, Austria.

- * **B. Scherllin-Pirscher** and C. Flandorfer (2016), Auswirkungen der Reduktion landwirtschaftlicher Ammoniak-Emissionen auf die Feinstaubkonzentration in Österreich. *Studie im Rahmen des Entwicklungsprojektes WERK-MAUS der ZAMG*, 26 pp, ZAMG, Vienna, Austria.
- * M. Schwärz, G. Kirchengast, **B. Scherllin-Pirscher**, J. Schwarz, F. Ladstädter, and B. Angerer (2016), MIPAS Validation - Validation Report MIPAS Level 2 compared to RO. *Wegener Center Tech. Rep. for ESA/ESRIN Series*, Graz, Austria.
- * M. Schwärz, G. Kirchengast, **B. Scherllin-Pirscher**, J. Schwarz, F. Ladstädter, and B. Angerer (2016), GOMOS Validation – Validation Report GOMOS Level 2 compared to RO. *Wegener Center Tech. Rep. for ESA/ESRIN Series*, Graz, Austria.
- * M. Schwärz, G. Kirchengast, **B. Scherllin-Pirscher**, J. Schwarz, F. Ladstädter, and B. Angerer (2016), Multi-Mission Validation by Satellite Radio Occultation Extension Project – Final Report. *Wegener Center Tech. Rep. for ESA/ESRIN Series*, Graz, Austria.

2015

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Science Talks (First Author Only)

2019

- * **B. Scherllin-Pirscher** and the EUNADICS-AV team (2019), Dust Impacts on Aviation. *inDust Training School on Dust Products*, Aveiro, Portugal.
- * **B. Scherllin-Pirscher** and the EUNADICS-AV team (2019), Desert dust as an environmental emergency issue. *inDust User Workshop on Dust Products for Aviation*, Cranfield, UK.
- * **B. Scherllin-Pirscher** and the EUNADICS-AV team (2019), Air traffic simulations during hazardous events. *inDust User Workshop on Dust Products for Aviation*, Cranfield, UK.

2018

- * **B. Scherllin-Pirscher** (2018), Towards a better understanding of the vertical aerosol distribution in the atmosphere. *DTC Seminar*, Boulder, CO, USA.
- * **B. Scherllin-Pirscher**, Gerhard Wotawa, Marcus Hirtl, and the EUNADICS-AV Team (2018), EUNADICS-AV: European Natural Airborne Disaster Information and Coordination System for Aviation. *2nd International Workshop on Meteorology and Air Traffic Management*, Salzburg, Austria.

2017

- * **B. Scherllin-Pirscher** and K. Baumann Stanzer (2017), Aerosol modelling activities with WRF-Chem at ZAMG. *1st Vienna Atmospheric Aerosol Workshop*, Vienna, Austria.
- * **B. Scherllin-Pirscher**, G. Wotawa, M. Hirtl und das EUNADICS-AV Team (2017), EUNADICS-AV: Generierung und Verbreitung konsistenter und kohärenter Informationen für den Flugverkehr im Fall einer Gefährdung durch Naturkatastrophen oder nukleare Störfälle. *7. Österreichischer MeteorologInnentag*, Graz, Austria.

2016

- * **B. Scherllin-Pirscher**, W. J. Randel, and J. Kim (2016), Temperature Variability and Kelvin Wave Activity in the Equatorial Region Observed with GPS Radio Occultation. *Joint OPAC-6 & IROWG-5*, Seggau, Austria.

2015

- * **B. Scherllin-Pirscher**, F. Ladstädter, A. K. Steiner, and G. Kirchengast (2015), Characteristics of atmospheric Kelvin waves during warm and cold ENSO phases observed with GPS RO. *EGU General Assembly 2015*, Vienna, Austria.

2014

- * **B. Scherllin-Pirscher**, A. K. Steiner, and G. Kirchengast (2014), The El Niño–Southern Oscillation signal in geopotential height and wind derived from GPS RO. *Eighth FORMOSAT-3/COSMIC Data Users' Workshop*, Boulder, CO, USA.
- * **B. Scherllin-Pirscher** (2014), GPS radio occultation data and their use to investigate the upper tropospheric and lower stratospheric ENSO signal. *HUARP meeting*, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, USA.

2013

- * **B. Scherllin-Pirscher**, S. Syndergaard, U. Foelsche, and K. B. Lauritsen (2013), Generation of a bending angle radio occultation climatological (BAROCLIM) model using Formosat-3/COSMIC data and its use in RO profiles retrievals. *OPAC-IROWG 2013 International Workshop*, Seggau Castle, Austria.

2012

- * **B. Scherllin-Pirscher**, C. Deser, S.-P. Ho, C. Chou, W. Randel, and Y.-H. Kuo (2012), Upper tropospheric and lower stratospheric ENSO signal derived from GPS radio occultation temperature. *EGU General Assembly 2012*, Vienna, Austria.
- * **B. Scherllin-Pirscher**, C. Deser, S.-P. Ho, C. Chou, W. Randel, and Y.-H. Kuo (2012), Three dimensional reconstruction of the atmospheric ENSO signal. *IROWG-2 International Workshop*, Estes Park, CO, USA.

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2009

- * **B. Pirscher**, G. Kirchengast, and U. Foelsche (2009), Bending angle data quality and its effects on refractivity and temperature climate records from different RO satellites. *Fourth FORMOSAT-3/COSMIC Data Users Workshop*, Boulder, CO, USA.

2008

- * **B. Pirscher**, U. Foelsche, M. Borsche, and G. Kirchengast (2008), Atmospheric diurnal tides of temperature in the upper troposphere and lower stratosphere using radio occultation data from Formosat-3/COSMIC. *Formosat-3/COSMIC Annual Science Meeting*, (in conjunction with the 4th Asian Space Conference), Taipei, Taiwan.
- * **B. Pirscher** U. Foelsche, M. Borsche, and G. Kirchengast (2008), Globale Analyse des Temperatur-Tagesgangs in der oberen Troposphäre und unteren Stratosphäre mittels Radio-Okkultations-Daten. *10. Österr. Klimatag*, Univ. f. Bodenkultur, Vienna, Austria.

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- * **B. Pirscher**, U. Foelsche, M. Borsche, and G. Kirchengast (2007), Diurnal sampling utilizing Formosat-3/COSMIC data. *Second FORMOSAT-3/COSMIC Data Users Workshop*, Boulder, CO, USA.
- * **B. Pirscher**, U. Foelsche, and G. Kirchengast (2007), Local time sampling with Formosat-3/COSMIC. *3rd International Workshop on Occultations for Probing Atmosphere and Climate (OPAC-3)*, Graz, Austria.

2006

- * **B. Pirscher**, U. Foelsche, B. C. Lackner, and G. Kirchengast (2006), Local time influence in radio occultation climatologies. *First FORMOSAT-3/COSMIC Data Users Workshop*, Boulder, CO, USA.

Posters (First Author Only)

2019

- * **B. Scherllin-Pirscher**, B. T. Johnson, J. Gasteiger, M. Pagowski, and P. Stegmann (2019), Simulation of LIDAR-based aerosol measurements and their evaluation for a Saharan dust event in spring 2018. *EGU General Assembly 2019*, Vienna, Austria.
- * **B. Scherllin-Pirscher**, B. T. Johnson, J. Gasteiger, M. Pagowski, and P. Stegmann (2019), Simulation of LIDAR-based aerosol measurements and their evaluation for a Saharan dust event in spring 2018. *17th JCSDA Technical Review Meeting & Science Workshop on Satellite Data Assimilation*, Washington, DC, USA.

2018

- * **B. Scherllin-Pirscher**, M. Hirtl, C. Flandorfer, E. Ludewig, and M. Pagowski (2018), Assimilation of MODIS AOD During the Saharan Dust Episode in April 2016. *EO4Alps: The Alps from Space Workshop*, Innsbruck, Austria.
- * **B. Scherllin-Pirscher**, B. T. Johnson, and M. Pagowski (2018), Modeling Aerosol Optical Properties with CRTM. *EUNADICS-AV mid-term review meeting*, Rome, Italy.

* **B. Scherllin-Pirscher**, B. T. Johnson, and M. Pagowski (2018), Towards a better understanding of the vertical aerosol distribution in the atmosphere. *2018 International Workshop on Air Quality Forecasting Research*, Boulder, CO, USA.

* **B. Scherllin-Pirscher**, B. T. Johnson, and M. Pagowski (2018), Modeling Aerosol Optical Properties with CRTM. *16th JCSDA Technical Review Meeting & Science Workshop on Satellite Data Assimilation*, Boulder, CO, USA.

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* **B. Scherllin-Pirscher**, M. Hirtl, C. Flandorfer and M. Pagowski (2017), Assimilation of MODIS AOD measurements during the Sahara dust episode in April 2016. *ECMWF Data Assimilation Course*, Reading, UK.

* **B. Scherllin-Pirscher**, M. Hirtl, C. Flandorfer, and M. Pagowski (2017), Assimilation of MODIS AOD measurements during the Sahara dust episode in April 2016. *EGU General Assembly 2017*, Vienna, Austria.

* **B. Scherllin-Pirscher**, W. J. Randel, and J. Kim (2017), Sub-seasonal temperature variability in the tropical upper troposphere and lower stratosphere observed with GPS radio occultation. *EGU General Assembly 2017*, Vienna, Austria.

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* **B. Scherllin-Pirscher**, A. K. Steiner, G. Kirchengast, and S. S. Leroy (2015), Montgomery potential and wind fields on isentropic surfaces from GPS radio occultation. *EGU General Assembly 2015*, Vienna, Austria.

* **B. Scherllin-Pirscher**, A. K. Steiner, G. Kirchengast, and S. S. Leroy (2015), Atmospheric wind fields from GPS radio occultation. *SPARC workshop on storm tracks*, Grindelwald, Switzerland.

2014

* **B. Scherllin-Pirscher**, A. K. Steiner, and G. Kirchengast (2014), Geopotential height and geostrophic wind from radio occultation data. *5th SPARC General Assembly*, Queenstown, New Zealand.

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* **B. Scherllin-Pirscher**, C. Deser, S.-P. Ho, C. Chou, W. Randel, and Y.-H. Kuo (2013), The UTLS ENSO signal from high resolution GPS radio occultation temperature profiles. *EGU General Assembly 2013*, Vienna, Austria.

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* **B. Scherllin-Pirscher**, A. K. Steiner, U. Foelsche, and G. Kirchengast (2012), Upper troposphere and lower stratosphere observations with radio occultation. *SPARC Workshop on the Brewer-Dobson Circulation*, Grindelwald, Switzerland.

2010

* **B. Scherllin-Pirscher**, A. K. Steiner, U. Foelsche, G. Kirchengast, and Y.-H. Kuo (2010), Error analysis of GPS radio occultation atmospheric profiles. *AGU Fall Meeting 2010*, San Francisco, CA, USA.

* **B. Scherllin-Pirscher**, A. K. Steiner, U. Foelsche, G. Kirchengast, and Y.-H. Kuo (2010), Error characteristics of GPS radio occultation atmospheric profiles. *OPAC 2010 International Workshop*, Graz, Austria.

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- * **B. Pirscher**, U. Foelsche, M. Borsche, G. Kirchengast, and Y.-H. Kuo (2009), Analyse atmosphärischer Gezeiten der oberen Troposphäre und unteren Stratosphäre anhand von Radio-Okkultationsdaten. 3. *Österreichischer MeteorologInnen*tag, Graz, Austria.
- * **B. Pirscher**, U. Foelsche, M. Borsche, G. Kirchengast, and Y.-H. Kuo (2009), Upper tropospheric and lower stratospheric diurnal tides of temperature derived from radio occultation measurements. *EGU General Assembly*, Vienna, Austria.

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Presentations in Media

2018

- * **Kurier**: Wetterfrosch im Weltraum. 22 August 2018
- * **futurezone.at**: Wie der neue Satellit Aeolus für bessere Wettervorhersagen sorgt. 22 August 2018, <https://futurezone.at/science/wie-der-neue-satellit-aeolus-fuer-bessere-wettervorhersagen-sorgt/400095860>
- * **derstandard.at**: Mission Aeolus startbereit: Satellit wird Winde erforschen. 18 August 2018, <https://derstandard.at/2000085519405/Mission-Aeolus-startbereitSatellit-wird-Winde-erforschen>
- * **kleinezeitung.at**: Europäischer Wind-Satellit "Aeolus" vor dem Start. 17 August 2018, https://www.kleinezeitung.at/international/5481391/Auch-Oesterreich-dabei_Europaeischer-WindSatellit-Aeolus-vor-dem-Start
- * **futurezone.at**: ZAMG erwartet bessere Prognosen dank neuem Wind-Satelliten. 17 August 2018, <https://futurezone.at/science/zamg-erwartet-bessere-prognosen-dank-neuem-wind-satelliten/400092134>
- * **science.apa.at**: Europäische Wind-Mission "Aeolus" vor dem Start. 17 August 2018

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- * **Der Standard**: Geistesblitz. Die Vermessung der Atmosphäre. 06 April 2016, <https://derstandard.at/2000034228195/Die-Vermessung-der-Atmosphaere>

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- * **derstandard.at**, Erstmals globale Windfelder in 3D gemessen. 14 November 2014, <https://derstandard.at/2000008176653/Erstmals-globale-Windfelder-in-3D-gemessen>
- * **kleinezeitung.at**, Grazern gelingt Meilenstein in der Klimaforschung. 14 November 2014, https://www.kleinezeitung.at/steiermark/graz/grazumgebung/4595324/KarlFranzensUniversitaet_Meilenstein-in-der-Klimaforschung
- * **steiermark.orf.at**, Grazer setzten Meilenstein im Klima-Monitoring. 14 November 2014, <https://steiermark.orf.at/v2/news/stories/2679300/>
- * **science.orf.at**, Globale Windfelder in 3D gemessen. 14 November 2014, <https://sciencev2.orf.at/stories/1749441/index.html>

- * **derStandard.at**, Erstmals globale Windfelder in 3D gemessen. 14 November 2014, <https://derstandard.at/2000008176653/Erstmals-globale-Windfelder-in-3D-gemessen>
2011
- * **Kleine Zeitung**, Klimadaten aus wolkiger Höhe. 23 January 2011
2010
- * **UCAR Magazine**, Graz and UCAR. 01 October 2010
2009
- * **Zeitschrift der katholische Lehrer – und Erziehergemeinschaft: Begegnungen**, Wege entstehen, indem wir sie gehen. Das Wegener Zentrum für Klima und Globalen Wandel. 01 May 2009
2007
- * **Jensens Radio**, Ein Gespräch mit Barbara Pirscher über Satellitenmessungen. 01 April 2007