

# ARSCliSys publications 2017-2004

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## 2017

### *Peer-reviewed Publications*

**Angerer, B., F. Ladstädter, B. Scherllin-Pirscher, M. Schwärz, A. K. Steiner, U. Foelsche, and G. Kirchengast**

Quality aspects of the Wegener Center multi-satellite GPS radio occultation record OPSv5.6

*Atmos. Meas. Tech.*, 10, 4845–4863, 2017

[10.5194/amt-10-4845-2017](https://doi.org/10.5194/amt-10-4845-2017)

**Biondi, R., A. K. Steiner, G. Kirchengast, H. Brenot, and T. Rieckh**

Supporting the detection and monitoring of volcanic clouds: A promising new application of Global Navigation Satellite System radio occultation

*Adv. Space Res.*, 60, 2707-2722, 2017

[10.1016/j.asr.2017.06.039](https://doi.org/10.1016/j.asr.2017.06.039)

**Brunner, L., and A. K. Steiner**

A global perspective on atmospheric blocking using GPS radio occultation - one decade of observations

*Atmos. Meas. Tech.*, 10, 4727-4745, 2017

[10.5194/amt-10-4727-2017](https://doi.org/10.5194/amt-10-4727-2017)

**Brunner, L., G. C. Hegerl, and A. K. Steiner**

Connecting atmospheric blocking to European temperature extremes in spring

*J. Climate*, 30, 585-594, 2017

[10.1175/JCLI-D-16-0518.1](https://doi.org/10.1175/JCLI-D-16-0518.1)

[cgms-info.org](http://cgms-info.org)

**Liu, C. L., G. Kirchengast, S. Syndergaard, E. R. Kursinski, Y. Q. Sun, W. H. Bai, and Q. F. Du**

A review of low Earth orbit occultation using microwave and infrared-laser signals for monitoring the atmosphere and climate

*Adv. Space Res.*, 60, 2776-2811, 2017

[10.1016/j.asr.2017.05.011](https://doi.org/10.1016/j.asr.2017.05.011)

**Nehir, A. R., C. Kiemle, M. D. Lebsock, G. Kirchengast, S. A. Buehler, U. Löhnert, C.-L. Liu, P. C. Hargrave, M. Barrera-Verdejo, and D. M. Winker**

Emerging Technologies and Synergies for Airborne and Space-Based Measurements of Water Vapor Profiles

*Surv. Geophys.*, 38, 1445-1482, 2017

[10.1007/s10712-017-9448-9](https://doi.org/10.1007/s10712-017-9448-9)

**O, S., U. Foelsche, G. Kirchengast, J. Fuchsberger, J. Tan, and W. A. Petersen**

Evaluation of GPM IMERG Early, Late, and Final rainfall estimates using WegenerNet gauge data in southeastern Austria

*Hydrol. Earth Syst. Sci.*, 21, 6559-6572, 2017

[10.5194/hess-21-6559-2017](https://doi.org/10.5194/hess-21-6559-2017)

**Pincus, R., A. Beljaars, S. A. Buehler, G. Kirchengast, F. Ladstädter, and J. S. Whitaker**

The Representation of Tropospheric Water Vapor Over Low-Latitude Oceans in (Re-)analysis: Errors, Impacts, and the Ability to Exploit Current and Prospective Observations

*Surv. Geophys.*, 38, 1399-1423, 2017

[10.1007/s10712-017-9437-z](https://doi.org/10.1007/s10712-017-9437-z)

**Rieckh, T., R. Anthes, W. Randel, S.-P. Ho, and U. Foelsche**

Tropospheric dry layers in the tropical western Pacific: comparisons of GPS radio occultation with multiple data sets

*Atmos. Meas. Tech.*, 10, 1093–1110, 2017

[10.5194/amt-10-1093-2017](https://doi.org/10.5194/amt-10-1093-2017)

**Scherllin-Pirscher, B., A. K. Steiner, G. Kirchengast, M. Schwärz, and S. S. Leroy**

The power of vertical geolocation of atmospheric profiles from GNSS radio occultation

*J. Geophys. Res.-Atmos.*, 122, 1595–1616, 2017

[10.1002/2016JD025902](https://doi.org/10.1002/2016JD025902)

**Scherllin-Pirscher, B., W. J. Randel, and J. Kim**

Tropical temperature variability and Kelvin wave activity in the UTLS from GPS RO measurements

*Atmos. Chem. Phys.*, 17, 793–806, 2017

[10.5194/acp-17-793-2017](https://doi.org/10.5194/acp-17-793-2017)

[Paper data \(note, 88 MB!\)](#)

**Schlager, C., G. Kirchengast, and J. Fuchsberger**

Generation of high-resolution wind fields from the WegenerNet dense meteorological station network in southeastern Austria

*Wea. Forecast.*, 32, 1301–1319, 2017

[10.1175/WAF-D-16-0169.1](https://doi.org/10.1175/WAF-D-16-0169.1)

**Schwarz, J., G. Kirchengast, and M. Schwaerz**

Integrating uncertainty propagation in GNSS radio occultation retrieval: From bending angle to dry-air atmospheric profiles

*Earth Space Sci.*, 4, 200–228, 2017

[10.1002/2016EA000234](https://doi.org/10.1002/2016EA000234)

*Selected Further Publications and Reports*

**Ebner, S.**

Analysis and Homogenization of WegenerNet Temperature and Humidity Data and Quality Evaluation for Climate Trend Studies

Wegener Center Verlag, Graz, Austria, [Scientific Report No. 70-2017](#),

ISBN 978-3-9503918-9-3, 2017

**Foelsche, U., S. Healy, and A. Mannucci**

Report of IROWG activities: Outcome and Recommendations from the IROWG 5 Working Papers for CGMS-45, Coordination Group for Meteorological Satellites (Hrsg.), Darmstadt: EUMETSAT, 2017

[cgms-info.org](http://cgms-info.org)

**Foelsche, U., S. Healy, A. Mannucci, and IROWG members**

Summary of the Fifth International Radio Occultation Workshop  
[irowg.org](http://irowg.org), 2017

**Fuchsberger, J., G. Kirchengast, C. Bichler, T. Kabas, G. Lenz, and A. Leuprecht**

The new WegenerNet Web Portal - A Gateway to over 10 Years of High-resolution Weather and Climate Data  
in *Proc. 18. Österr. Klimatag*, 166-167, Vienna, Austria, 2017  
[ccca.ac.at](http://ccca.ac.at)

**Kirchengast, G., V. Madner, E. Schulev-Steindl, K. Steininger, B. Hollaus, and M. Karl**

Flughafen Wien: Untersagung der dritten Piste durch das BVwG---Besprechung zu BVwG 2.2.2017, W109 2000179-1 (Vienna airport: third landing strip denied by Federal Administrative Court---Discussion of the Court's decision; in German)  
*Recht der Umwelt*, 03/17, 121-131, 2017

**Kirchengast, G., V. Madner, E. Schulev-Steindl, K. Steininger, B. Hollaus, and M. Karl**

Flughafen Wien: VfGH behebt Untersagung der dritten Piste durch das BVwG wegen Willkür---Besprechung zu VfGH 29.6.2017 E 875/2017-32, E 886/2017-31 (Vienna airport: Constitutional Court repeals the third landing strip denial by the Federal Administrative Court---Discussion of the Court's decision; in German)  
*Recht der Umwelt*, 06/17, 252-261, 2017

**Kirchengast, G., J. Fuchsberger, T. Kabas, C. Bichler, and U. Foelsche**

WegenerNet Klimastationsnetz Feldbachregion: 10 Jahre hochauflösende Wetter- und Klimadaten  
[Wasserland Steiermark](http://WasserlandSteiermark), 2/2017, 14-19, Nov. 2017

**Scheidl, D., J. Fuchsberger, and G. Kirchengast**

Analysis of the Quality of WegenerNet Humidity Data and Improvements  
Wegener Center Verlag, Graz, Austria, [Scientific Report No. 74-2017](http://ScientificReportNo.74-2017), ISBN 978-3-9504501-2-5, 2017

**Schröer, K., and M. Tye**

Understanding the risk from small scale precipitation extremes using damage data  
in *Proc. 18. Österr. Klimatag*, 84-85, Vienna, Austria, 2017  
[ccca.ac.at](http://ccca.ac.at)

# 2016

## *Peer-reviewed Publications*

**Brunner, L., A. K. Steiner, B. Scherllin-Pirscher, and M. W. Jury**

Exploring atmospheric blocking with GPS radio occultation observations

*Atmos. Chem. Phys.*, 16, 4593–4604, 2016

[10.5194/acp-16-4593-2016](https://doi.org/10.5194/acp-16-4593-2016)

**O, S., U. Foelsche, G. Kirchengast, and J. Fuchsberger**

Validation and correction of rainfall data from the WegenerNet high density network in southeast Austria

*Journal of Hydrology*, 2016

[10.1016/j.jhydrol.2016.11.049](https://doi.org/10.1016/j.jhydrol.2016.11.049)

**Olefs, M., D. J. Baumgartner, F. Obleitner, C. Bichler, U. Foelsche, H. Pietsch, H. E. Rieder, P. Weihs, F. Geyer, T. Haiden, and W. Schöner**

The Austrian radiation monitoring network ARAD – best practice and added value

*Atmos. Meas. Tech.*, 9, 1513–1531, 2016

[10.5194/amt-9-1513-2016](https://doi.org/10.5194/amt-9-1513-2016)

**Syndergaard, S., and G. Kirchengast**

An Abel transform for deriving line-of-sight wind profiles from LEO-LEO infrared laser occultation measurements

*J. Geophys. Res.-Atmos.*, 121, 2525–2541, 2016

[10.1002/2015JD023535](https://doi.org/10.1002/2015JD023535)

## *Selected Further Publications and Reports*

**Foelsche, U., S. Healy, and A. Mannucci**

Report of IROWG activities

*Working paper for CGMS-44*, 6 pp, 2016

**Foelsche, U., 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**

Beobachtung von klimatischen Veränderungen und atmosphärischen Prozessen mittels GPS Radio-Okkultation

*Proc. 17. Österr. Klimatag*, April 2016, Graz, Austria, P08, 140-141

**Fuchsberger, J., G. Kirchengast, C. Bichler, T. Kabas, G. Lenz, and A. Leuprecht**

The new WegenerNet Web Portal - A Gateway to over 10 Years of High-resolution Weather and Climate Data

in *Proc. 18. Österr. Klimatag*, 166–167, Vienna, Austria, 2017

**Innerkofler, J., C. Pock, G. Kirchengast, M. Schwärz, A. Jäggi, and J. Schwarz**

Towards SI-traceable radio occultation excess phase processing with integrated uncertainty estimation for climate applications  
in *Geophysical Research Abstracts*, 18, EGU2016-15675, Vienna, Austria, 2016

**Maycock, A. C., A. K. Steiner, and B. Randel**

Report on the 1st Atmospheric Temperature Changes and their Drivers (ATC) Activity Workshop, 25-26 April 2016, Graz, Austria  
SPARC, SPARC newsletter n° 47 - July 2016, 2016  
[sparc-climate.org](http://sparc-climate.org)

**Randel, B., D. Seidel, D. Thompson, A. Steiner, and A. Maycock**

Temperature trends activity report  
*SPARC Annual Report 2015*, 27-28, SPARC, 2016  
[sparc-climate.org](http://sparc-climate.org)

**Schwärz, M., G. Kirchengast, B. Scherllin-Pirscher, J. Schwarz, F. Ladstädter, and B. Angerer**

Multi-mission validation by satellite radio occultation extension project (final report)  
*Technical Report for ESA/ESRIN No. 01/2016*, Wegener Center, Univ. of Graz, Graz, Austria, 2016  
[\[pdf \(~16,4 MB\)\]](#)

**Sungmin O, U. Foelsche, G. Kirchengast, and J. Fuchsberger**

The WegenerNet high density network as a tool to explore uncertainties in measured extreme rainfall events  
*Proc. 17. Österr. Klimatag*, April 2016, Graz, Austria, P09, 142-143, 2016

## 2015

### *Peer-reviewed Publications*

**Biondi, R., A. K. Steiner, G. Kirchengast, and T. Rieckh**

Characterization of thermal structure and conditions for overshooting of tropical and extratropical cyclones with GPS radio occultation  
*Atmos. Chem. Phys.*, 15, 5181-5193, doi:10.5194/acp-15-5181-2015, 2015  
[www.atmos-chem-phys.net/15/5181/2015](http://www.atmos-chem-phys.net/15/5181/2015)

**Danzer, J., S. B. Healy, and I. D. Culverwell**

A simulation study with a new residual ionospheric error model for GPS radio occultation climatologies  
*Atmos. Meas. Tech.*, 8, 3395-3404, doi:10.5194/amt-8-3395-2015, 2015  
[www.atmos-meas-tech.net/8/3395/2015/](http://www.atmos-meas-tech.net/8/3395/2015/)

**Gorbunov, M. E., and G. Kirchengast**

Uncertainty propagation through wave optics retrieval of bending angles from GPS radio occultation: Theory and simulation results

*Radio Sci.*, 50, 1086–1096, doi:10.1002/2015RS005730, 2015

<http://onlinelibrary.wiley.com/doi/10.1002/2015RS005730/abstract>

**Hager, B., and U. Foelsche**

Stable isotope composition of precipitation in Austria

*Austrian Journal of Earth Sciences*, 108/2, doi:10.17738/ajes.2015.0012, 2015

[http://www.univie.ac.at/ajes/archive/volume\\_108\\_2/hager\\_foelsche\\_ajes\\_108\\_2.pdf](http://www.univie.ac.at/ajes/archive/volume_108_2/hager_foelsche_ajes_108_2.pdf)

**Kann, A., I. Meirold-Mautner, F. Schmid, G. Kirchengast, J. Fuchsberger, V. Meyer, L. Tüchler, and B. Bica**

Evaluation of high-resolution precipitation analyses using a dense station network

*Hydrol. Earth Syst. Sci.*, 19, 1547–1559, doi:10.5194/hess-19-1547-2015, 2015

<http://www.hydrol-earth-syst-sci.net/19/1547/2015/>

**Ladstädter, F., A. K. Steiner, M. Schwärz, and G. Kirchengast**

Climate intercomparison of GPS radio occultation, RS90/92 radiosondes and GRUAN from 2002 to 2013

*Atmos. Meas. Tech.*, 8, 1819–1834, doi:10.5194/amt-8-1819-2015, 2015

[www.atmos-meas-tech.net/8/1819/2015/](http://www.atmos-meas-tech.net/8/1819/2015/)

**Li, Y., G. Kirchengast, B. Scherllin-Pirscher, R. Norman, Y. Yuan, J. Fritzer, M. Schwaerz, and K. Zhang**

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, 2015

[www.atmos-meas-tech.net/8/3447/2015/](http://www.atmos-meas-tech.net/8/3447/2015/)

**Liu, C. L., G. Kirchengast, K. Zhang, R. Norman, Y. Li, S. C. Zhang, J. Fritzer, M. Schwaerz, S. Q. Wu, and Z. X. Tan**

Quantifying residual ionospheric errors in GNSS radio occultation bending angles based on ensembles of profiles from end-to-end simulations

*Atmos. Meas. Tech.*, 8, 2999–3019, doi:10.5194/amt-8-2999-2015, 2015

[www.atmos-meas-tech.net/8/2999/2015/](http://www.atmos-meas-tech.net/8/2999/2015/)

**Norman, R., J. Le Marshall, W. Rohm, B. A. Carter, G. Kirchengast, S. Alexander, C. Liu, and K. Zhang**

Simulating the impact of refractive transverse gradients resulting from a severe troposphere weather event on GPS signal propagation

*IEEE J. Sel. Topics Appl. Earth Obs. Remote Sens.*, 8, 418–424,

doi:10.1109/JSTARS.2014.2344091, 2015

**Plach, A., V. Proschek, and G. Kirchengast**

Profiling wind and greenhouse gases by infrared-laser occultation: results from end-to-end simulations in windy air

*Atmos. Meas. Tech.*, 8, 2813–2825, doi:10.5194/amt-8-2813-2015, 2015

[www.atmos-meas-tech.net/8/2813/2015/](http://www.atmos-meas-tech.net/8/2813/2015/)

**Proschek, V., G. Kirchengast, S. Schweitzer, J. S. A. Brooke, P. F. Bernath, C. B. Thomas, J.-G. Wang, K. A. Tereszchuk, G. González Abad, R. J. Hargreaves, C. A. Beale, J. J. Harrison, P. A. Martin, V. L. Kasyutich, C. Gerbig, O. Kolle, and A. Loescher**

Retrieval and validation of carbon dioxide, methane and water vapor for the Canary Islands IR-laser occultation experiment

*Atmos. Meas. Tech.*, 8, 3315–3336, doi:10.5194/amt-8-3315-2015, 2015

[www.atmos-meas-tech.net/8/3315/2015/](http://www.atmos-meas-tech.net/8/3315/2015/)

**Scherllin-Pirscher, B., S. Syndergaard, U. Foelsche, and K. B. Lauritsen**

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, 2015

[www.atmos-meas-tech.net/8/109/2015/](http://www.atmos-meas-tech.net/8/109/2015/)

*Selected Further Publications and Reports of the Center*

**Brunner, L., A. K. Steiner, B. Scherllin-Pirscher, and Martin W. Jury**

Exploring atmospheric blocking with GPS radio occultation observations

*Atmos. Chem. Phys. Discuss.*, 15, 35799–35822, doi:10.5194/acpd-15-35799-2015, 2015

[www.atmos-chem-phys-discuss.net/15/35799/2015/](http://www.atmos-chem-phys-discuss.net/15/35799/2015/)

**Foelsche, U.**

BENCHCLIM – Benchmark Climatologies from Radio Occultation Data

*Final Report for the Austrian Science Fund - FWF*, 19 pp., 2015

**Danzer, Julia, S. B. Healy, and I. D. Culverwell**

A simulation study with a new residual ionospheric error model for GPS radio occultation climatologies.

*Atmos. Meas. Tech. Discuss.*, 8, 1151–1176, doi:10.5194/amtd-8-1151-2015, 2015

[www.atmos-meas-tech-discuss.net/8/1151/2015/](http://www.atmos-meas-tech-discuss.net/8/1151/2015/)

**Fuchsberger, J., G. Kirchengast, T. Kabas, C. Bichler, and R. Galovic**

Aktuelle Entwicklungen im WegenerNet Klimastationsnetz Region Feldbach

Tagungsband 16. Österr. Klimatag, April 2015, Wien, Austria, P03, 112–113, ISBN 978-3-9503778-1-1, 2015

**Mirtl M., Bahn M., Battin T., Borsdorf A., Dirnböck T., Englisch M., Erschbamer B., Fuchsberger J., Gaube V., Grabherr G., Gratzer G., Haberl H., Klug H., Kreiner D., Mayer R., Peterseil J., Richter A., Schindler S., Stocker-Kiss A., Tappeiner U., Weisse T., Winiwarter V., Wohlfahrt G., Zink R.**

Forschung für die Zukunft - LTER-Austria White Paper 2015 zur Lage und Ausrichtung von prozessorientierter Ökosystemforschung, Biodiversitäts- und Naturschutzforschung sowie sozio-ökologischer Forschung in Österreich. LTER-Austria Schriftenreihe, Vol. 2 ISBN 978-3-9503986-0-1

[http://www.umweltbundesamt.at/fileadmin/site/presse/news\\_2015/Whitepaper\\_d\\_e\\_2015\\_Lter\\_3\\_Auflage.pdf](http://www.umweltbundesamt.at/fileadmin/site/presse/news_2015/Whitepaper_d_e_2015_Lter_3_Auflage.pdf)

**Innerkofler, J.,**

[Evaluation of the climate utility of radio occultation data in the upper stratosphere and mesosphere](#) (MSc thesis)

Sci. Rep. No. 65-2015, pp., Wegener Center Verlag, Graz, Austria, Juli 2015

**Li, Y., G. Kirchengast, B. Scherllin-Pirscher, R. Norman, Y. Yuan, J. Fritzer, M. Schwaerz, and K. Zhang**

Dynamic statistical optimization of GNSS radio occultation bending angles: an advanced algorithm and its performance analysis

Atmos. Meas. Tech. Discuss., 8, 811-855, doi:10.5194/amtd-8-811-2015,2015  
[www.atmos-meas-tech-discuss.net/8/811/2015/](http://www.atmos-meas-tech-discuss.net/8/811/2015/)

**Liu, C. L., G. Kirchengast, K. Zhang, R. Norman, Y. Li, S. C. Zhang, J. Fritzer, M. Schwaerz, S. Q. Wu, and Z. X. Tan**

Quantifying residual ionospheric errors in GNSS radio occultation bending angles based on ensembles of profiles from end-to-end simulations

Atmos. Meas. Tech. Discuss., 8, 759-809, doi:10.5194/amtd-8-759-2015, 2015  
[www.atmos-meas-tech-discuss.net/8/759/2015/](http://www.atmos-meas-tech-discuss.net/8/759/2015/)

**Iefs, M., D.J. Baumgartner, F. Obleitner, C. Bichler, U. Foelsche, H. Pietsch, H.E. Rieder, P. Weihs, F. Geyer, T. Haiden, and W. Schöner**

The Austrian radiation monitoring network ARAD - best practice and added value

Atmos. Meas. Tech. Discuss., 8, 10663-10710, doi:10.5194/amtd-8-10663-2015, 2015  
[www.atmos-meas-tech-discuss.net/8/10663/2015/](http://www.atmos-meas-tech-discuss.net/8/10663/2015/)

**Pock, C.**

[Low Earth Orbit Determination for GNSS Radio Occultation with Aspects of Uncertainty Estimation](#) (MSc thesis)

Scientific Report No.66-2015, pp. Wegener Center Verlag, Graz, Austria, July 2015

**Plach, A., V. Proschek, and G. Kirchengast**

Profiling wind and greenhouse gases by infrared-laser occultation: results from end-to-end simulations in windy air

Atmos. Meas. Tech. Discuss., 8, 405-441, doi:10.5194/amtd-8-405-2015, 2015  
[www.atmos-meas-tech-discuss.net/8/405/2015/](http://www.atmos-meas-tech-discuss.net/8/405/2015/)

# 2014

*Peer-reviewed publications*

**Auer, I., U. Foelsche** (Coordinating Lead Authors), **R. Böhm, B. Chimani, L. Haimberger, H. Kerschner, K. A. Koinig, K. Nicolussi, and C. Spötl** (Lead Authors)

Vergangene Klimaänderung in Österreich (Past Climate Change in Austria) *Austrian Assessment Report 2014* (AAR 2014), Austrian Panel on Climate Change (APCC), Verlag der Österreichischen Akademie der Wissenschaften, Vienna, Austria, 227-299, doi:10.1553/aar14s227, 2014

**Danzer, J., U. Foelsche, B. Scherllin-Pirscher, and M. Schwärz**

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, 2014  
[www.atmos-meas-tech.net/7/2883/2014/](http://www.atmos-meas-tech.net/7/2883/2014/)

**Danzer, J., H. Gleisner, and S. B. Healy**

CHAMP climate data based on the inversion of monthly average bending angles *Atmos. Meas. Tech.*, 7, 4071-4079, doi:10.5194/amt-7-4071-2014, 2014  
[www.atmos-meas-tech-discuss.net/7/4071/2014/](http://www.atmos-meas-tech-discuss.net/7/4071/2014/)

**Foelsche, U., A. K. Steiner, R. Anthes, J.-Y. Liu, A. von Engel, and S. Bühler** (Eds.)

Observing atmosphere and climate with occultation techniques - results from the OPAC-IROWG 2013 Workshop  
*Atmos. Meas. Tech.*, Special Issue, 2014  
[www.atmos-meas-tech.net/special\\_issue68.html](http://www.atmos-meas-tech.net/special_issue68.html)

**Foelsche, U., A. K. Steiner, R. Anthes, J.-Y. Liu, A. von Engel, and S. Bühler** (Eds.)

Observing atmosphere and climate with occultation techniques - results from the OPAC-IROWG 2013 Workshop  
*Atmos. Meas. Tech. Discuss.*, Special Issue, 2014  
[www.atmos-meas-tech-discuss.net/special\\_issue48.html](http://www.atmos-meas-tech-discuss.net/special_issue48.html)

**Gurvich, A. S., M. E. Gorbunov, O. V. Fedorova, M. I. Fortus, G. Kirchengast, V. Proschek, and K. A. Tereszchuk**

Spatiotemporal structure of a laser beam at a path length of 144 km: comparative analysis of spatial and temporal spectra  
*Appl. Optics*, 53, 12, 2625-2631, doi:10.1364/AO.53.002625, 2014  
<http://www.opticsinfobase.org/ao/abstract.cfm?uri=ao-53-12-2625>

**Haimberger, L., P. Seibert (Coordinating Lead Authors), R. Hitzenberger, A. K. Steiner, and P. Weihs** (Lead Authors)

Das globale Klimasystem und Ursachen des Klimawandels (The global climate system and causes of climate change)

Austrian Assessment Report 2014 (AAR 2014), Austrian Panel on Climate Change (APCC), Verlag der Österreichischen Akademie der Wissenschaften, Vienna, Austria, 137-171, doi:10.1553/aar14s133, 2014

**Kirchengast, G., T. Kabas, A. Leuprecht, C. Bichler, and H. Truhetz**

WegenerNet: A pioneering high-resolution network for monitoring weather and climate

*Bull. Amer. Meteorol. Soc.*, 95, 227-242, doi:10.1175/BAMS-D-11-00161.1, 2014

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Analysis of internal gravity waves with GPS RO density profiles

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Analysis of internal gravity waves with GPS RO density profiles  
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**Scherllin-Pirscher, B., S. Syndergaard, U. Foelsche, and K. B. Lauritsen**

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A new dynamic approach for statistical optimization of GNSS radio occultation bending angles for optimal climate monitoring utility

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**Liu, C. L., G. Kirchengast, K. F. Zhang, R. Norman, Y. Li, S. C. Zhang, B. Carter, J. Fritzer, M. Schwaerz, S. L. Choy, S. Q. Wu, and Z. X. Tan**

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**Steiner, A. K., 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**

Quantification of structural uncertainty in climate data records from GPS radio occultation

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<http://www.bmvit.gv.at/bmvit/service/publikationen/innovation/raumfahrttechnologie/downloads/weltraumstrategie2012.pdf>

**Fuchsberger, J., and G. Kirchengast**

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[http://www.wegener.net/org/misc/WegenerNet\\_TechNote-SoilMoisture.pdf](http://www.wegener.net/org/misc/WegenerNet_TechNote-SoilMoisture.pdf)

**Plach, A., V. Proschek, and G. Kirchengast**

Abel transform retrieval of wind profiles from LEO-LEO IR laser occultation: End-to-end simulations and performance analysis

Tech. Rep. for ESA-ESTEC No. 2/2013, 66 pp, Wegener Center, University of Graz, Graz, Austria, 2013

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Retrieval and validation of carbon dioxide, methane and water vapor for the Canary Islands IR-laser occultation experiment

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**Rieckh, T.**

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**Scherllin-Pirscher, B.**

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MMValRO-CCN3 – Multi-Mission Validation by Satellite Radio Occultation (Final Report)  
Tech. Rep. for ESA-ESRIN No. 1/2013, 187 pp, Wegener Center, University of Graz,  
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**Schwarz, J.**

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Greenhouse gas measurements over a 144 km open path in the Canary Islands  
*Atmos. Meas. Tech.*, 5, 2309-2319, doi:10.5194/amt-5-2309-2012, 2012  
<http://www.atmos-meas-tech.net/5/2309/2012/>  
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**Gurvich, A. S., M. E. Gorbunov, O. V. Fedorova, G. Kirchengast, V. Proschek, G. Gonzalez Abad, and K. A. Tereszchuk**

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Appl. Optics, 51, 7374-7383, doi:10.1364/AO.51.007374, 2012

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**Scherllin-Pirscher, B., C. Deser, S.-P. Ho, C. Chou, W. Randel, and Y.-H. Kuo**

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Geophys. Res. Lett., 39, L20801, doi:10.1029/2012GL053071, 2012

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#### *Selected Further Publications and Reports*

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SWIR long range differential absorption experiment for trace gas measurements study IRDAS-EXP: Summary report

UoY Tech. Rep. for ESA-ESTEC July 2012, 50 pp, Dept of Chemistry, University of York, York, UK, 2012

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Development of bending angle climatology from RO data  
CDOP Visiting Scientist Report 14, DMI, Copenhagen, Denmark, 51 pp., July 2012  
[http://www.romsaf.org/Publications/reports/grassaf\\_vs14\\_rep\\_v10.pdf](http://www.romsaf.org/Publications/reports/grassaf_vs14_rep_v10.pdf)

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IAP&WEGC Tech. Rep. for ESA-ESTEC No. 1/2012, 24 pp, Wegener Center, University of Graz, Graz, Austria, 2012

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**Steiner, A. K.**

Atmospheric climate monitoring and change detection using GPS radio occultation records  
Habilitation thesis, June 2012

## 2011

*Peer-reviewed Publications, Book Chapters, Books*

**Foelsche, U., S. Syndergaard, J. Fritzer, and G. Kirchengast**

Errors in GNSS radio occultation data: relevance of the measurement geometry and obliquity of profiles  
Atmos. Meas. Tech., 4, 189-199, doi:10.5194/amt-4-189-2011, 2011  
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Atmos. Meas. Tech., 4, 2007-2018, doi:10.5194/amt-4-2007-2011, 2011  
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Observing atmosphere and climate with occultation techniques - results from the OPAC 2010 Workshop

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