

Publications

Manuscripts under Review

- Kriegel, M., M. Pichler, and A. K. Steiner (2024), The influence of double jet streams on the occurrence of heatwaves in the Northern Hemisphere, *Commun. Earth. Environ.* (in review).
- De la Torre, A., P. Alexander, T. Schmidt, A. K. Steiner, F. Ladstädter, R. Hierro, and P. Llamedo (2024), Signs of climate variability in double tropopause global distribution from radio occultation data, *Atmos. Chem. Phys.*, (in review). *EGUsphere* (preprint), 1-32, <https://doi.org/10.5194/egusphere-2024-1654>.

Journal Publications – Peer Reviewed

77. Yessimbet, K., **A. K. Steiner**, F. Ladstädter, and A. C. Ossó (2024), Observational perspective on sudden stratospheric warmings and blocking from Eliassen-Palm fluxes, *Atmos. Chem. Phys.*, 24, 10893-10919, doi:[10.5194/acp-24-10893-2024](https://doi.org/10.5194/acp-24-10893-2024).
76. Stocker, M., **A. K. Steiner**, F. Ladstädter, U. Foelsche, and W. J. Randel (2024), Strong persistent cooling of the stratosphere after the Hunga eruption, *Commun. Earth. Environ.*, 5, 450, 1-11, doi:[10.1038/s43247-024-01620-3](https://doi.org/10.1038/s43247-024-01620-3) (**Featured Article**)
75. Dunn, R. J. H., J. Blannin, N. Gobron, J. B. Miller, K. M. Willett, M. Ades, ... **A.K. Steiner** et al. (2024). Global Climate. In: State of the Climate in 2023, *Bull. Amer. Meteor. Soc.*, 105(8), S12–S155 doi:[10.1175/BAMS-D-24-0116.1](https://doi.org/10.1175/BAMS-D-24-0116.1).
74. Dunn, R. J. H., J. B. Miller, K. M. Willett, N. Gobron, M. Ades, M., R. Adler, ...**A.K. Steiner**, et al. (2023), Global Climate, In: State of the Climate in 2022. *Bull. Amer. Meteor. Soc.*, 104(9), S11–S145. doi:[10.1175/BAMS-D-23-0090.1](https://doi.org/10.1175/BAMS-D-23-0090.1).
73. von Schuckmann, K., A. Minère, F. Gues, F. J. Cuesta-Valero, G. Kirchengast, S. Adusumilli, F. Straneo, M. Ablain, R. P. Allan, P. M., Barker, H. Beltrami, A. Blazquez, T. Boyer, L. Cheng, J. Church, D. Desbruyeres, H. Dolman, C. M. Domingues, A. García-García, D. Giglio, J. E. Gilson, M. Gorfer, L. Haimberger, M. Z. Hakuba, S. Hendricks, S. Hosoda, G. C. Johnson, R. Killick, B. King, N. Kolodziejczyk, A. Korosov, G. Krinner, M. Kuusela, F. W. Landerer, M. Langer, T. Lavergne, I. Lawrence, Y. Li, J. Lyman, F. Marti, B. Marzeion, M. Mayer, A. H. MacDougall, T. McDougall, D. P. Monselesan, J. Nitzbon, I. Ootosaka, J. Peng, S. Purkey, D. Roemmich, Kanako Sato, Katsunari Sato, A. Savita, A. Schweiger, A. Shepherd, S. I. Seneviratne, L. Simons, D. A. Slater, T. Slater, N. Smith, **A. K. Steiner**, T. Suga, T. Szekely, W. Thiery, M.-L. Timmermans, I. Vanderkelen, S. E. Wjiffels, T. Wu, and M. Zemp (2023), Heat stored in the Earth system 1960-2020: Where does the energy go?, *Earth System Science Data*, 15(4), 1675–1709, <https://doi.org/10.5194/essd-15-1675-2023>.
72. Ladstädter, F., **A. K. Steiner**, and H. Gleisner (2023), Resolving the 21st century temperature trends of the upper troposphere–lower stratosphere with satellite observations, *Scientific Rep.*, 13(1), 1306, doi:[10.1038/s41598-023-28222-x](https://doi.org/10.1038/s41598-023-28222-x).
71. Engdaw, M. M., **A. K. Steiner**, G. C. Hegerl, and A. P. Ballinger (2023). Attribution of observed changes in extreme temperatures to anthropogenic forcing using CMIP6 models, *Weather and Climate Extremes*, 39, 100548, doi:[10.1016/j.wace.2023.100548](https://doi.org/10.1016/j.wace.2023.100548).
70. Yessimbet, K., T. G. Shepherd, A. C. Ossó, and **A. K. Steiner** (2022), Pathways of influence between northern hemisphere blocking and stratospheric polar vortex variability, *Geophys. Res. Lett.*, 49(23), e2022GL100895, doi:[10.1029/2022GL100895](https://doi.org/10.1029/2022GL100895).
69. Randel, W. J., C. Covey, L. Polvani, and **A. K. Steiner** (2022), Stratospheric Temperatures, In: State of the Climate in 2021, Section 2 Global Climate, Dunn et al. (Eds.), *Bull. Amer. Meteor. Soc.*, 103(8), S11–S142, doi:[10.1175/BAMS-D-22-0092.1](https://doi.org/10.1175/BAMS-D-22-0092.1)
68. Engdaw, M. M., A. P. Ballinger, G. C. Hegerl, and **A. K. Steiner** (2022, eo 2021), Changes in temperature and heat waves over Africa using observational and reanalysis data sets, *Int. J. Climatol.*, 42(2), 1165–1180, doi:[10.1002/joc.7295](https://doi.org/10.1002/joc.7295).

67. Yessimbet, K., A. Ossó, R. Kaltenberger, L. Magnusson, and **A. K. Steiner** (2022, eo 2021), Heavy Alpine snowfall in January 2019 connected to atmospheric blocking, *Weather*, 77(1), 7–15, doi:[10.1002/wea.4020](https://doi.org/10.1002/wea.4020).
66. Stocker, M., F. Ladstädter, and **A. K. Steiner** (2021), Observing the climate impact of large wildfires on stratospheric temperature, *Scientific Rep.*, 11, 22994, doi:[10.1038/s41598-021-02335-7](https://doi.org/10.1038/s41598-021-02335-7).
65. Meng, L., J. Liu, D. W. Tarasick, W. J. Randel, **A. K. Steiner**, H. Wilhelmson, L. Wang, and L. Haimberger (2021), Continuous rise of the tropopause in the Northern Hemisphere over 1980-2020, *Science Advances*, 7(45), eabi8065, doi:[10.1126/sciadv.abi8065](https://doi.org/10.1126/sciadv.abi8065). (Research highlight in Nature Climate Change, Jan 2022, doi:[10.1038/s41558-021-01264-7](https://doi.org/10.1038/s41558-021-01264-7)).
64. Santer, B.D., S. Po-Chedley, C. Mears, J. C. Fyfe, N. Gillett, Q. Fu, J. F. Painter, S. Solomon, **A. K. Steiner**, F. J. Wentz, M. D. Zelinka, and C-Z. Zou (2021), Using climate model simulations to constrain observations, *J. Climate*, 34(15), 6281–6301, doi:[10.1175/JCLI-D-20-0768.1](https://doi.org/10.1175/JCLI-D-20-0768.1).
63. Scherllin-Pirscher, B., **A. K. Steiner**, R. A. Anthes, M. J. Alexander, S. P. Alexander, R. Biondi, T. Birner, J. Kim, W. J. Randel, S-W. Son, T. Tsuda, Z. Zeng (2021), Tropical temperature variability in the UTLS: New insights from GPS radio occultation observations, *J. Climate*, 34(8), 2813–2838, doi:[10.1175/JCLI-D-20-0385.1](https://doi.org/10.1175/JCLI-D-20-0385.1). (published online 2020), (Review paper).
62. Tournigand, P.-Y., V. Cigala, A. J. Prata, **A. K. Steiner**, G. Kirchengast, H. Brenot, L. Clarisse, and R. Biondi (2020), The 2015 Calbuco Volcanic Cloud Detection Using GNSS Radio Occultation and Satellite Lidar, *Proceedings of IGARSS 2020 – 2020 IEEE International Geoscience and Remote Sensing Symposium*, 6834–6837, doi: [10.1109/IGARSS39084.2020.9323356](https://doi.org/10.1109/IGARSS39084.2020.9323356).
61. Tournigand, P.-Y., V. Cigala, E. Lasota, M. Hammouti, L. Clarisse, H. Brenot, F. Prata, G. Kirchengast, **A. K. Steiner**, and R. Biondi (2020), A multi-sensor satellite-based archive of the largest SO₂ volcanic eruptions since 2006, *Earth Syst. Sci. Data*, 12(4), 3139–3159, doi:[10.5194/essd-12-3139-2020](https://doi.org/10.5194/essd-12-3139-2020).
60. Lasota, E., **A. K. Steiner**, G. Kirchengast, and R. Biondi (2020), Tropical cyclones vertical structure from GNSS radio occultation: an archive covering the period 2001–2018, *Earth Syst. Sci. Data*, 12(4), 2679–2693, doi:[10.5194/essd-12-2679-2020](https://doi.org/10.5194/essd-12-2679-2020).
59. von Schuckmann, K., L. Cheng, M. D. Palmer, J. Hansen, C. Tassone, V. Aich, S. Adusumilli, H. Beltrami, T. Boyer, F. J. Cuesta-Valero, D. Desbruyères, C. Domingues, A. García-García, P. Gentine, J. Gilson, M. Gorfer, L. Haimberger, M. Ishii, G. C. Johnson, R. Killik, B. A. King, G. Kirchengast, N. Kolodziejczyk, J. Lyman, B. Marzeion, M. Mayer, M. Monier, D. P. Monselesan, S. Purkey, D. Roemmich, A. Schweiger, S. I. Seneviratne, A. Shepherd, D. A. Slater, **A. K. Steiner**, F. Straneo, M.-L. Timmermans, and S. E. Wijffels (2020), Heat stored in the Earth system: where does the energy go? *Earth Syst. Sci. Data*, 12, 2013–2041, doi:[10.5194/essd-12-2013-2020](https://doi.org/10.5194/essd-12-2013-2020).
58. **Steiner, A. K.**, F. Ladstädter, W. J. Randel, A. C. Maycock, Q. Fu, C. Claud, H. Gleisner, L. Haimberger, S.-P. Ho, P. Keckhut, T. Leblanc, C. Mears, L. Polvani, B. Santer, T. Schmidt, V. Sofieva, R. Wing, and C.-Z. Zou (2020), Observed temperature changes in the troposphere and stratosphere from 1979 to 2018, *J. Climate*, 33(19), 8165–8194. doi:[10.1175/JCLI-D-19-0998.1](https://doi.org/10.1175/JCLI-D-19-0998.1).
57. Ho, S.-P., R. A. Anthes, C. O. Ao, S. Healy, A. Horanyi, D. Hunt, A. J. Mannucci, N. Pedatella, W. J. Randel, A. Simmons, **A. K. Steiner**, F. Xie, X. Yue, and Z. Zeng (2020), The COSMIC/FORMOSAT-3 Radio Occultation Mission after 12 years: Accomplishments, Remaining Challenges, and Potential Impacts of COSMIC-2, *Bull. Amer. Meteor. Soc.*, 101(7), E1107–E1136, doi: [10.1175/BAMS-D-18-0290.1](https://doi.org/10.1175/BAMS-D-18-0290.1).
56. Wilhelmson, H., F. Ladstädter, T. Schmidt, and **A. K. Steiner** (2020), Double tropopauses and the tropical belt connected to ENSO, *Geophys. Res. Lett.*, 47(14), 1–10, e2020GL089027, doi: [10.1029/2020GL089027](https://doi.org/10.1029/2020GL089027).
55. **Steiner, A. K.**, F. Ladstädter, C. O. Ao, H. Gleisner, S.-P. Ho, D. Hunt, T. Schmidt, U. Foelsche, G. Kirchengast, Y.-H. Kuo, K. B. Lauritsen, A. J. Mannucci, J. K. Nielsen, W. Schreiner, M. Schwärz, S. Sokolovskiy, S. Syndergaard, and J. Wickert (2020), Consistency and structural uncertainty of multi-mission GPS radio occultation records, *Atmos. Meas. Tech.*, 13, 2547–2575, doi:[10.5194/amt-13-2547-2020](https://doi.org/10.5194/amt-13-2547-2020).
54. Knittel, N., M. W. Jury, B. Bednar-Friedl, G. Bachner, and **A. K. Steiner** (2020), A global analysis of heat-related labour productivity losses under climate change – implications for Germany’s foreign trade, *Climatic Change* doi:[10.1007/s10584-020-02661-1](https://doi.org/10.1007/s10584-020-02661-1).

53. Stocker, M., F. Ladstädter, H. Wilhelmson, and **A. K. Steiner** (2019), Quantifying stratospheric temperature signals and climate imprints from post-2000 volcanic eruptions, *Geophys. Res. Lett.*, 46, 12486–12494, doi: [10.1029/2019GL084396](https://doi.org/10.1029/2019GL084396).
52. Cigala, V., R. Biondi, F. Prata, **A. K. Steiner**, G. Kirchengast, and H. Brenot (2019), GNSS radio occultation advances the monitoring of volcanic clouds: the case of the 2008 Kasatochi eruption, *Remote Sens.*, 11(19), 2199, doi: [10.3390/rs11192199](https://doi.org/10.3390/rs11192199).
51. Maycock, A. C., W. J. Randel, **A. K. Steiner**, A. Y. Karpechko, J. Cristy, R. Saunders, D. W. J. Thompson, C.-Z. Zou, A. Chrysanthou, N. L. Abraham, H. Akiyoshi, A. T. Archibald, N. Butchart, M. Chipperfield, M. Dameris, M. Deushi, S. Dhomse, G. Di Genova, P. Jöckel, D. E. Kinnison, O. Kirner, F. Ladstädter, M. Michou, O. Morgenstern, F. O'Connor, L. Oman, G. Pitari, D. A. Plummer, L. E. Revell, E. Rozanov, A. Stenke, D. Visioni, Y. Yamashita, G. Zeng, (2018), Revisiting the mystery of recent stratospheric temperature trends, *Geophys. Res. Lett.*, 45(18), 9919–9933, doi:[10.1029/2018GL078035](https://doi.org/10.1029/2018GL078035) (**Frontier article; Research spotlight in AGU's Eos**: doi:[10.1029/2018EO109113](https://doi.org/10.1029/2018EO109113)).
50. Unterberger, C., L. Brunner, S. Nabernegg, K. W. Steininger, **A. K. Steiner**, E. Stabentheiner, S. Monschein, and H. Truhetz (2018), Spring frost risk for regional apple production under a warmer climate, *PLoS ONE*, 13(7):e0200201, doi:[10.1371/journal.pone.0200201](https://doi.org/10.1371/journal.pone.0200201).
49. Brunner, L., N. Schaller, J. Anstey, J. Sillmann, and **A. K. Steiner** (2018), Dependence of present and future European temperature extremes on the location of atmospheric blocking, *Geophys. Res. Lett.*, 45(12), 6311–6320, doi:[10.1029/2018GL077837](https://doi.org/10.1029/2018GL077837).
48. Hierro, R., **A. K. Steiner**, A. de la Torre, P. Alexander, P. Llamedo, and P. Cremades (2018), Orographic and convective gravity waves above the Alps and Andes mountains during GPS radio occultation events – a case study, *Atmos. Meas. Tech.*, 11, 3523–3539, doi:[10.5194/amt-11-3523-2018](https://doi.org/10.5194/amt-11-3523-2018).
47. **Steiner, A. K.**, B. C. Lackner, and M. A. Ringer (2018), Tropical convection regimes in climate models: evaluation with satellite observations, *Atmos. Chem. Phys.*, 18, 4657–4672, doi:[10.5194/acp-18-4657-2018](https://doi.org/10.5194/acp-18-4657-2018).
46. Chardellach, E., J. Wickert, R. Baggen, J. Benito, A. Camps, N. Catarinho, B. Chapron, F. Fabra, G. Flato, H. Fagner, C. Gabarró, C. Gommenginger, C. Haas, S. Healy, M. Hernandez-Pajares, P. Hoeg, A. Jäggi, J. Kainulainen, S. Abbas Khan, N. M.K. Lemke, W. Li, S. V. Nghiem, N. Pierdicca, M. Portabella, K. Rautiainen, A. Rius, I. Sasgen, M. Semmling, C.K. Shum, F. Soulat, **A. K. Steiner**, S. Tailhades, M. Thomas, R. Vilaseca, and C. Zuffada (2018), GNSS Transpolar Earth Reflectometry explorINg system (G-TERN): Mission concept, *IEEE Access*, 6, 13980–14018, doi:[10.1109/ACCESS.2018.2814072](https://doi.org/10.1109/ACCESS.2018.2814072).
45. Wilhelmson, H., 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](https://doi.org/10.5194/amt-11-1333-2018) (**Highlight article**).
44. Angerer, B., 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](https://doi.org/10.5194/amt-10-4845-2017).
43. Brunner, L., and **A. K. Steiner** (2017), A global perspective on atmospheric blocking using GPS radio occultation – one decade of observations, *Atmos. Meas. Tech.*, 10, 4727–4745, doi:[10.5194/amt-10-4727-2017](https://doi.org/10.5194/amt-10-4727-2017).
42. Biondi, R., **A. K. Steiner**, G. Kirchengast, H. Brenot, and T. Rieckh (2017), Supporting the detection and monitoring of volcanic clouds: a promising new application of Global Navigation Satellite System radio occultation, *Adv. Space Res.*, 60(12), 2707–2722, doi:[10.1016/j.asr.2017.06.039](https://doi.org/10.1016/j.asr.2017.06.039). (**Featured key scientific article in Advances in Engineering**)
41. Scherllin-Pirscher, B., **A. K. Steiner**, G. Kirchengast, M. Schwärz, and S. S. Leroy (2017), The power of vertical geolocation of atmospheric profiles from GNSS radio occultation, *J. Geophys. Res. Atmos.*, 122, 1595–1616, doi:[10.1002/2016JD025902](https://doi.org/10.1002/2016JD025902).
40. Brunner, L., G. C. Hegerl, and **A. K. Steiner** (2017), Connecting atmospheric blocking to European temperature extremes in spring, *J. Climate*, 30(2), 585–594, doi:[10.1175/JCLI-D-16-0518.1](https://doi.org/10.1175/JCLI-D-16-0518.1).
39. Brunner, L., **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](https://doi.org/10.5194/acp-16-4593-2016).

38. Biondi, R., **A. K. Steiner**, G. Kirchengast, and T. Rieckh (2015), 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](https://doi.org/10.5194/acp-15-5181-2015).
37. Ladstädter, F., **A. K. Steiner**, M. Schwärz, and G. Kirchengast (2015), 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](https://doi.org/10.5194/amt-8-1819-2015).
36. Scherllin-Pirscher, B., **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*, 7367–7374, doi:[10.1002/2014GL061524](https://doi.org/10.1002/2014GL061524).
35. **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 (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](https://doi.org/10.5194/acp-13-1469-2013).
34. Foelsche U., **A. K. Steiner**, and K.B. Lauritsen (2013), Preface “Observing atmosphere and climate with occultation techniques – results from the OPAC 2010 Workshop”, *Atmos. Meas. Tech.*, *6*, 33, doi:[10.5194/amt-6-33-2013](https://doi.org/10.5194/amt-6-33-2013).
33. Ho, S.-P., 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](https://doi.org/10.1029/2012JD017665).
32. Foelsche, U., 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](https://doi.org/10.5194/amt-4-2007-2011).
31. Lackner, B.C., **A. K. Steiner**, G. C. Hegerl, and G. Kirchengast (2011), Atmospheric climate change detection by radio occultation data using a fingerprinting method, *J. Clim.*, *24*, 5275–5291, doi:[10.1175/2011JCLI3966.1](https://doi.org/10.1175/2011JCLI3966.1).
30. Lackner, B. C., **A. K. Steiner**, and G. Kirchengast (2011), Where to see climate change best in radio occultation variables – Study using GCMs and ECMWF reanalyses, *Ann. Geophys.*, *29*, 2147–2167, doi:[10.5194/angeo-29-2147-2011](https://doi.org/10.5194/angeo-29-2147-2011).
29. Ladstädter, F., **A. K. Steiner**, U. Foelsche, L. Haimberger, C. Tavalato, and G. Kirchengast (2011), An assessment of differences in lower stratospheric temperature records from (A)MSU, radiosondes, and GPS radio occultation, *Atmos. Meas. Tech.*, *4*, 1965–1977, doi:[10.5194/amt-4-1965-2011](https://doi.org/10.5194/amt-4-1965-2011).
28. Scherllin-Pirscher, B., 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](https://doi.org/10.5194/amt-4-2019-2011).
27. Scherllin-Pirscher, B., **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](https://doi.org/10.5194/amt-4-1875-2011).
26. **Steiner, A. K.**, 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](https://doi.org/10.1029/2010RS004614).
25. Ladstädter F., **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](https://doi.org/10.1175/2009JTECHA1374.1).
24. **Steiner, A. K.**, G. Kirchengast, B. C. Lackner, B. Pirscher, M. Borsche, and U. Foelsche (2010), Correction to “Atmospheric temperature change detection with GPS radio occultation 1995 to 2008”, *Geophys. Res. Lett.*, *37*, L03704, doi:[10.1029/2010GL042427](https://doi.org/10.1029/2010GL042427).
23. Foelsche, U., 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 *New Horizons in Occultation Research*:

- Studies in Atmosphere and Climate*, A.K. Steiner, B. Pirscher, U. Foelsche, and G. Kirchengast (Eds.), Springer, Berlin, Heidelberg, 181–194, doi:[10.1007/978-3-642-00321-9_15](https://doi.org/10.1007/978-3-642-00321-9_15).
22. Ho, S.-P., G. Kirchengast, S. Leroy, J. Wickert, T. Mannucci, **A. K. Steiner**, D. Hunt, W. Schreiner, S. V. Sokolovskiy, C.O. 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: Inter-comparison of CHAMP refractivity climate records 2002-2006 from different data centers, *J. Geophys. Res.*, *114*, D23107, doi:[10.1029/2009JD011969](https://doi.org/10.1029/2009JD011969).
 21. Lackner B. C., **A. K. Steiner**, F. Ladstädter, and G. Kirchengast (2009), Trend indicators of atmospheric climate change based on global climate model scenarios, in *New Horizons in Occultation Research: Studies in Atmosphere and Climate*, A. K. Steiner, B. Pirscher, U. Foelsche, and G. Kirchengast (Eds.), Springer, Berlin Heidelberg, 247–259, doi:[10.1007/978-3-642-00321-9-20](https://doi.org/10.1007/978-3-642-00321-9-20).
 20. Ladstädter F., **A. K. Steiner**, B. C. Lackner, G. Kirchengast, P. Muigg, J. Kehrler, and H. Doleisch (2009), SimVis: An interactive visual field exploration tool applied to climate research, in *New Horizons in Occultation Research: Studies in Atmosphere and Climate*, A. K. Steiner, B. Pirscher, U. Foelsche, and G. Kirchengast (Eds.), Springer, Berlin Heidelberg, 235–245, doi:[10.1007/978-3-642-00321-9-19](https://doi.org/10.1007/978-3-642-00321-9-19).
 19. **Steiner, A. K.**, G. Kirchengast, M. Borsche, and U. Foelsche (2009), Lower stratospheric temperatures from CHAMP RO compared to MSU/AMSU records: An analysis of error sources, in *New Horizons in Occultation Research: Studies in Atmosphere and Climate*, A. K. Steiner, B. Pirscher, U. Foelsche, and G. Kirchengast (Eds.), Springer, Berlin, Heidelberg, 219–234, doi:[10.1007/978-3-642-00321-9_18](https://doi.org/10.1007/978-3-642-00321-9_18).
 18. **Steiner, A. K.**, 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*, L18702, doi:[10.1029/2009GL039777](https://doi.org/10.1029/2009GL039777).
 17. Foelsche, U., G. Kirchengast, **A. K. Steiner**, L. Kornblueh, E. Manzini, and L. Bengtsson (2008), An observing system simulation experiment for climate monitoring with GNSS radio occultation data: Setup and testbed study, *J. Geophys. Res.*, *113*, D11108, doi:[10.1029/2007JD009231](https://doi.org/10.1029/2007JD009231).
 16. Kehrler, J., F. Ladstädter, P. Muigg, H. Doleisch, **A. Steiner**, and H. Hauser (2008), Hypothesis generation in climate research with interactive visual data exploration, *IEEE TVCG*, *14*(6), 1579–1586, doi:[10.1109/TVCG.2008.139](https://doi.org/10.1109/TVCG.2008.139).
 15. Luntama, J.-P., G. Kirchengast, M. Borsche, U. Foelsche, **A. K. Steiner**, S. Healy, A. von Engeln, E. O’Clerigh, and C. Marquardt (2008), Prospects of the EPS GRAS mission for operational atmospheric applications, *Bull. Amer. Met. Soc.*, *89*, 1863–1875, doi:[10.1175/2008BAMS2399.1](https://doi.org/10.1175/2008BAMS2399.1).
 14. Foelsche, U., 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, *Climate Dynamics*, *31*, 49–65, doi:[10.1007/s00382-007-0337-7](https://doi.org/10.1007/s00382-007-0337-7).
 13. **Steiner, A. K.**, G. Kirchengast, M. Borsche, U. Foelsche, and T. Schoengassner (2007), A multi-year comparison of lower stratospheric temperatures from CHAMP radio occultation data with MSU/AMSU records, *J. Geophys. Res.*, *112*, D22110, doi:[10.1029/2006JD008283](https://doi.org/10.1029/2006JD008283).
 12. Borsche, M., A. Gobiet, **A. K. Steiner**, U. Foelsche, G. Kirchengast, T. Schmidt, and J. Wickert (2006), Pre-operational retrieval of radio occultation based climatologies, in: *Atmosphere and Climate: Studies by Occultation Methods*, U. Foelsche, G. Kirchengast, and A. K. Steiner (Eds.), Springer, Berlin-Heidelberg, 315–323, doi:[10.1007/3-540-34121-8_26](https://doi.org/10.1007/3-540-34121-8_26).
 11. Foelsche, U., A. Gobiet, **A. K. Steiner**, G. Kirchengast, M. Borsche, T. Schmidt, and J. Wickert (2006), Global climatologies based on radio occultation data: The CHAMPCLIM project, in: *Atmosphere and Climate: Studies by Occultation Methods*, U. Foelsche, G. Kirchengast, and A. K. Steiner (Eds.), Springer, Berlin-Heidelberg, 303–314, doi:[10.1007/3-540-34121-8_25](https://doi.org/10.1007/3-540-34121-8_25).
 10. **Steiner, A. K.**, A. Löscher, and G. Kirchengast (2006), Error characteristics of refractivity profiles retrieved from CHAMP radio occultation data, in *Atmosphere and Climate – Studies by Occultation Methods*, U. Foelsche, G. Kirchengast, and A.K. Steiner (Eds.), Springer Berlin-Heidelberg, 27–36, doi:[10.1007/3-540-34121-8_3](https://doi.org/10.1007/3-540-34121-8_3).

9. Foelsche, U., A. Gobiet, A. Löscher, G. Kirchengast, **A. K. Steiner**, J. Wickert, and T. Schmidt (2005), The CHAMPCLIM project: An overview, in *Earth observation with CHAMP- Results from three years in orbit*, Reigber et al. (Eds.), Springer, Berlin, Heidelberg, New York, 615–620, doi:[10.1007/3-540-26800-6_98](https://doi.org/10.1007/3-540-26800-6_98).
8. Gobiet, A., U. Foelsche, **A. K. Steiner**, M. Borsche, G. Kirchengast, and J. Wickert (2005), Climatological validation of stratospheric temperatures in ECMWF operational analyses with CHAMP radio occultation data, *Geophys. Res. Lett.*, *32*, L12806, doi:[10.1029/2005GL022617](https://doi.org/10.1029/2005GL022617).
7. **Steiner, A. K.**, and G. Kirchengast (2005), Error analysis for GNSS radio occultation data based on ensembles of profiles from end-to-end simulations, *J. Geophys. Res.*, *110*, doi:[10.1029/2004JD005251](https://doi.org/10.1029/2004JD005251).
6. Wickert, J., A. Gobiet, G. Beyerle, **A. K. Steiner**, G. Kirchengast, U. Foelsche, and T. Schmidt (2005), GPS radio occultation with CHAMP: Comparison of atmospheric profiles from GFZ Potsdam and IGAM Graz, in *Earth observation with CHAMP- Results from three years in orbit*, Reigber et al. (Eds.), Springer, Berlin, Heidelberg, New York, 525–530, doi:[10.1007/3-540-26800-6_83](https://doi.org/10.1007/3-540-26800-6_83).
5. **Steiner, A. K.**, and G. Kirchengast (2004), Ensemble-based analysis of errors in atmospheric profiles retrieved from GNSS radio occultation data, in *Occultations for Probing Atmosphere and Climate*, G. Kirchengast, U. Foelsche, and A. K. Steiner (Eds.), Springer, Berlin, Heidelberg, New York, 149–160, doi:[10.1007/978-3-662-09041-1](https://doi.org/10.1007/978-3-662-09041-1).
4. Foelsche, U., G. Kirchengast, and **A. K. Steiner** (2003), Global climate monitoring based on CHAMP/GPS radio occultation data, in *First CHAMP mission results for gravity, magnetic and atmospheric studies*, Reigber et al. (Eds.), Springer, Berlin, Heidelberg, New York, 397–407, doi:[10.1007/978-3-540-38366-6](https://doi.org/10.1007/978-3-540-38366-6).
3. **Steiner, A. K.**, G. Kirchengast, U. Foelsche, L. Kornblueh, E. Manzini, and L. Bengtsson (2001), GNSS occultation sounding for climate monitoring, *Phys. Chem. Earth (A)*, *26*, 113–124, doi:[10.1016%2FS1464-1895\(01\)00034-5](https://doi.org/10.1016%2FS1464-1895(01)00034-5).
2. **Steiner, A. K.**, and G. Kirchengast (2000), Gravity wave spectra from GPS/MET occultation observations, *J. Atmos. Oceanic Technology*, *17*, 495–503, doi:[10.1175/1520-0426\(2000\)017<0495:GWSFGM>2.0.CO;2](https://doi.org/10.1175/1520-0426(2000)017<0495:GWSFGM>2.0.CO;2).
1. **Steiner, A. K.**, G. Kirchengast, and H. P. Ladreiter (1999), Inversion, error analysis, and validation of GPS/MET occultation data, *Ann. Geophys.*, *17*, 122–138, doi:[10.1007/s00585-999-0122-5](https://doi.org/10.1007/s00585-999-0122-5).

Monographs, Edited Books, Book Chapters, and Special Issues

11. Foelsche, U., **Steiner, A. K.**, H. Shao, A. Mannucci, K. B. Lauritsen, C. Marquardt, and P. Stammes (Eds.) (2023-2024), *Observing Atmosphere and Climate with Occultation Techniques – results from the OPAC-IROWG 2022 workshop*, *Atmos. Meas. Tech.*, Special Issue 1270, https://amt.copernicus.org/articles/special_issue1270.html.
10. **Steiner A. K.**, and M. M. Engdaw (2022), Climate change, its impacts, and attribution of causes: Current status and challenges, In E. Schulev-Steindl, et al. (Eds.), *Climate Change, Responsibility and Liability, Climate Change Law and Governance Volume 1*, 1st Ed., 21–40, ISBN 978-3-8487-8707-4, Nomos Verlagsgesellschaft mbH & Co. KG., Baden-Baden, Germany, doi: [10.5771/9783748930990-21](https://doi.org/10.5771/9783748930990-21).
9. **Steiner, A. K.** (2022), Klimaschutz aus naturwissenschaftlicher Sicht – Die Fakten zum Klimawandel, in: Klimaschutz im Recht, Jahrbuch des österreichischen und europäischen Umweltrechts 2022: Klimaschutz im Recht, Vol. 54, Institut für Umweltrecht, JKU Linz (Hrsg), RdU - Schriftenreihe Recht der Umwelt, MANZ Verlag GmbH Wien, 256 pp., ISBN: 978-3-214-02606-6, doi:[10.5771/9783214250065](https://doi.org/10.5771/9783214250065).
8. Groß-Vogt, K., T. Hermann, M. W. Jury, **A. K. Steiner**, and S. Kartadinata (2018). Klima|Anlage—Performing Climate Data. In W. Leal Filho, B. Lackner, & H. McGhie (Eds.), *Addressing the Challenges in Communicating Climate Change Across Various Audiences*, 339–355, Springer International Publishing, doi:[10.1007/978-3-319-98294-6_21](https://doi.org/10.1007/978-3-319-98294-6_21).
7. **Steiner, A. K.**, U. Foelsche, S. Healy, A. Mannucci, A. von Engel, J. Wickert, and S. A. Buehler (Eds.) (2018), *Observing Atmosphere and Climate with Occultation Techniques – results from the OPAC-IROWG 2016 workshop*, *Atmos. Meas. Tech.*, Special Issue 881, https://www.atmos-meas-tech.net/special_issue881.html.
6. Foelsche, U., **A. K. Steiner**, R. Anthes, J.-Y. Liu, A. von Engel, and S. Bühler (Eds.) (2014), *Observing atmosphere and climate with occultation techniques – results from the OPAC-IROWG 2013 workshop*, *Atmos. Meas. Tech.*, Special Issue 68, www.atmos-meas-tech.net/special_issue68.html.
5. Haimberger L., P. Seibert, R. Hitzemberger, **A. K. Steiner**, and P. Weihs (2014), Das globale Klimasystem und Ursachen des Klimawandels (The global climate system and causes of climate change), in: Austrian Assessment Report 2014 (AAR 2014, Austrian Panel on Climate Change (APCC), Verlag der Österreichischen Akademie der Wissenschaften, Vienna, Austria, 133–172, doi: 10.1553/aar14s133, http://hw.oeaw.ac.at/Oxc1aa500e_0x00314497.pdf.
4. Foelsche, U., **A. K. Steiner**, and K. B. Lauritsen (Eds.) (2011), *Observing atmosphere and climate with occultation techniques - results from the OPAC 2010 Workshop*, *Atmos. Meas. Tech.*, Special Issue 20, www.atmos-meas-tech.net/special_issue20.html.
3. **Steiner, A. K.**, B. Pirscher, U. Foelsche, and G. Kirchengast (Eds.) (2009), *New Horizons in Occultation Research: Studies in Atmosphere and Climate*, Springer, Berlin, Heidelberg, doi:[10.1007/978-3-642-00321-9](https://doi.org/10.1007/978-3-642-00321-9).
2. Foelsche, U., Kirchengast, G., and **A. K. Steiner** (Eds.) (2006), *Atmosphere and Climate: Studies by Occultation Methods*, Springer, Berlin, Heidelberg, New York, doi:[10.1007/3-540-34121-8](https://doi.org/10.1007/3-540-34121-8).
1. Kirchengast, G., U. Foelsche, **A. K. Steiner** (Eds.) (2004), *Occultations for Probing Atmosphere and Climate*, Springer, Berlin, Heidelberg, New York, doi:[10.1007/978-3-662-09041-1](https://doi.org/10.1007/978-3-662-09041-1).

Further Written Publications – Proceedings and Reports

46. **Steiner, A. K.** (2023), Observing atmospheric temperature trends and extremes - Advances with GNSS radio occultation, in: Global Climate Observing System (GCOS), 2nd GCOS Climate Observation Conference - Conference report. Darmstadt, Germany 17-19 October 2022. GCOS-249, World Meteorological Organization (WMO), Geneva, 2023, https://library.wmo.int/doc_num.php?explnum_id=11549.
45. Liu, J., L. Meng, D. W. Tarasick, W. J. Randel, **A. K. Steiner**, H. Wilhelmson, L. Wang, L. Haimberger, and W. K. Hocking (2022), The troposphere is expanding due to anthropogenic climate change, *Bulletin for the Canadian Meteorological and Oceanographic Society* CMOS-SCMO, <https://bulletin.cmos.ca/the-troposphere-is-expanding-due-to-anthropogenic-climate-change/>.
44. **Steiner, A. K.** (2022), Klimaschutz vorantreiben - unwiederbringliche Chance für Österreich, in: H. Hösele, Initiative Österreich 22 (Hrsg.), Österreich 22 - Perspektiven und Herausforderungen. Graz, Agentur 1904-Kleine Zeitung, 56-57.
43. **Steiner, A. K.** (2021), Current state of atmospheric temperature trends from observations – Milestones achieved by the Atmospheric Temperature Changes and their Drivers (ATC) Activity, *SPARC Newsletter No. 56*, 11–13, DLR-IPA, Oberpfaffenhofen, Germany, January 2021, <http://www.sparc-climate.org/publications/newsletter/>.
42. **Stocker, M. and A. K. Steiner** (2021), Case study: effects of Wildfires on the Vertical Atmospheric Temperature Structure – New Insights with Satellite Data?, *KKL-ÖAW Study Report*, January 2021
41. **Steiner, A. K.** and P. Vergados (2020), Climate Sub-Group Report, in: *Summary of the Seventh International Radio Occultation Workshop*, 19–25 Sep 2019, Elsinore, Denmark, *IROWG/05/2020*, 6–10, IROWG, <http://irowg.org/>.
40. **Steiner, A. K.**, and A. C. Maycock (2019), Report on the 2nd Atmospheric Temperature Changes and their Drivers (ATC) Activity Workshop, *SPARC 2019: SPARC Newsletter No. 52*, 21–23, DLR-IPA, Oberpfaffenhofen, Germany, January 2019, <http://www.sparc-climate.org/publications/newsletter/>.
39. Kern, M., A. von Engel, B. Forte, G. Kirchengast, J. van den Ijssel, A. Hauschild, S.; Healy, M. Ringer, M. J. Angling, R. Biondi, E. Cardellach, M. Garcia, A. Garcia, H.; Gleisner, M. Hernandez-Pajares, K. B. Lauritsen, B. Nava, J. K. Nielsen, R.; Notarpietro, S. Remus, **A. K. Steiner**, and S. Syndergaard (2018), *Radio Occultation Science Plan - EUMETSAT Polar System (EPS-SG) / Meteorological Operational Second Generation (MetOp-SG)*, v2C, 28 November 2018, EUMETSAT, Darmstadt, Germany, https://www-cdn.eumetsat.int/files/2020-04/pdf_science_epssg_ro_plan.pdf.
38. Ao, C., and **A. K. Steiner** (2017), Climate Sub-Group Report, in: *Summary of the Fifth International Radio Occultation Workshop*, 8–14 Sep 2016, Leibnitz, Austria, *IROWG/MM/2017*, 5–8, IROWG, February 2017, http://irowg.org/wpcms/wp-content/uploads/2017/05/IROWG5_Minutes_Summary.pdf.
37. Maycock, A. C., **A. K. Steiner**, and B. Randel (2016), Report on the 1st Atmospheric Temperature Changes and their Drivers (ATC) Activity Workshop, 25-26 April 2016, Graz, Austria, *SPARC newsletter n° 47 – July 2016*, 36–39, SPARC, <http://www.sparc-climate.org/publications/newsletter/>.
36. Maycock, A. C., **A. K. Steiner**, and B. Randel (2016), Atmospheric Temperature Changes and their Drivers (ATC), *SPARC Annual Report 2016*, 10–12, SPARC, <http://www.sparc-climate.org/publications/annual-reports/>.
35. 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 (2016): Beobachtung von klimatischen Veränderungen und atmosphärischen Prozessen mittels GPS Radio-Okkultation, in: *Proc. 17. Österr. Klimatag*, April 2016, Graz, Austria, 140-141, <https://www.ccca.ac.at/de/ccca-aktivitaeten/oesterr-klimatag/klimatag-2016/programm/>.
34. Randel, B., D. Seidel, D. Thompson, **A. Steiner**, and A. Maycock (2016), Temperature trends activity report, *SPARC Annual Report 2015*, 27–28, SPARC, <http://www.sparc-climate.org/publications/annual-reports/>.
33. Foelsche, U., B. Scherllin-Pirscher, J. Danzer, **A. K. Steiner**, F. Ladstädter, T. Rieckh, J. Schwarz, R. Klingler, G. Kirchengast (2014), Beobachtung von Prozessen und klimatischen Veränderungen in der Atmosphäre mittels Radio-Okkultationsdaten, *Proc. 15. Österr. Klimatag*, April 2014, Innsbruck, Austria, V33, 54–55, http://ccca.boku.ac.at/wp-content/uploads/2014/04/Tagungsband_Klimatag2014_10Apr.pdf.

32. Foelsche, U., and **A. K. Steiner** (2013), Climate Sub-Group Report, in: Summary of the 3rd International Radio Occultation Workshop, 5–11 Sep 2013, Leibnitz, Austria, version 3, 19 Dec 2013, IROWG/MM/2013, 21 pp, http://irowg.org/wp-content/uploads/2013/11/IROWG-3_Minutes_Summary.pdf.
31. **Steiner, A. K.** (2014), TRENDEVAL – Climate trends and model evaluation, Final Report for the Austrian Science Fund, 18 pp., Wegener Center, Graz, Austria.
30. Mandl R., and **A. K. Steiner** (2013), Was gibt es Neues am Wegener Center, *GEOGRAPHIEaktuell*, 18 IV/2013, <http://www.oegg.info/>.
29. **Steiner, A. K.** (2012), Atmospheric climate monitoring and change detection using GPS radio occultation records, *Habilitation thesis*, University of Graz, Graz, Austria, June 2012.
28. Foelsche, U., B. Scherllin-Pirscher, F. Ladstädter, **A. K. Steiner**, and G. Kirchengast (2011), Konsistente Klimatologien der Atmosphäre mittels Radio-Okkultation, *Proc. 12. Österr. Klimatag*, September 2011, Vienna, Austria, V16, 3 pp.
27. Foelsche, U., B. Scherllin-Pirscher, **A. K. Steiner**, F. Ladstädter, and G. Kirchengast (2011), Observing Earth's atmosphere and climate with GNSS radio occultation, *Proc. IEEE International Geosci. and Rem. Sensing Symp.*, 24–29 Jul 2011, Vancouver, Canada.
26. Kirchengast, G., K. Steininger, A. Gobiet, und **A. K. Steiner** (2011), Klimawandel messbar machen und unsere Antworten gestalten, *Soziale Technik 3/2011*, 11–14, IFZ für Technik, Arbeit und Kultur, Klagenfurt-Wien-Graz.
25. Lackner, B. C., **A. K. Steiner**, G. C. Hegerl, G. Kirchengast (2011), Klimawandeldetektion in der freien Atmosphäre mittels GPS Radio-Okkultation, *Proc. 12. Österr. Klimatag*, 21–22 Sep 2011, Vienna, Austria, V15, 2 pp.
24. **Steiner, A. K.**, B. C. Lackner, F. Ladstädter, G. Kirchengast, B. Pirscher, G. C. Hegerl, and U. Foelsche (2010), GPS radio occultation for climate applications, ext. abstract, *International Beacon Satellite Symposium 2010*, P. Doherty, M. Hernández-Pajares, J. M. Juan, J. Sanz, and A. Aragon-Angel (Eds.), June 2010, Techn. Univ. Catalonia (UPC), Barcelona, 5 pp., http://gge.unb.ca/Resources/BSS2010/abstracts/a96_revGO.pdf.
23. Borsche, M., U. Foelsche, B. Pirscher, **A. K. Steiner**, B.C. Lackner, J. Fritzer, M. Pock, and G. Kirchengast (2008), Radiookkultation für globale und regionale Klimabeobachtung der Atmosphäre: Ergebnisse des Wegener Zentrums Graz, *Proc. 10. Österr. Klimatag*, March 2008, Vienna, Austria, V08, 3 pp.
22. Foelsche, U., G. Kirchengast, M. Borsche, B. Pirscher, and **A. K. Steiner** (2008), Creating a consistent radio occultation data base for climate studies in the upper troposphere and lower stratosphere, *Proc. of the ECMWF GRAS-SAF Workshop on Applications of Radio Occultation Measurements*, 16–18 June 2008, ECMWF, Reading, UK, 151–165.
21. Kirchengast, G., S. Schweitzer, B. Pirscher, M. Pock, F. Ladstädter, B. C. Lackner, I. Thaler, M. Borsche, U. Foelsche, **A. K. Steiner**, and J. Fritzer (2008), EOPSCCLIM – End-to-end Occultation Processing System and Climate Monitoring Service: MetOp GRAS and ACCURATE Integration (Final Report), *Tech. Rep. for FFG-ALR No. 2/2008* (Exec.Summ.) & *FFG-ALR Rep. No.5/2007 & No.1/2008*, Wegener Center, Univ. of Graz, Austria.
20. Pirscher, B., B. C. Lackner, I. Thaler, M. Pock, U. Foelsche, **A. K. Steiner**, and G. Kirchengast (2007), Initial validation of GRAS occultation data from MetOp and setup of regional climate monitoring including the IPCC land and ocean regions, *Tech. Rep. for FFG-ALR No. 5/2007*, Wegener Center, Univ. of Graz, Austria.
19. Borsche, M., U. Foelsche, **A. K. Steiner**, A. Gobiet, B. C. Lackner, B. Pirscher, and G. Kirchengast (2006), Processing system for provision of CHAMP radio occultation based climatologies, *WegCenter Rep. for FFG-ALR No. 1/2006*, 41 pp., Wegener Center, Univ. of Graz, Austria.
18. Foelsche, U., M. Borsche, **A. K. Steiner**, B. Pirscher, B. C. Lackner, A. Gobiet, and G. Kirchengast (2006), CHAMP radio occultation based climatologies for global monitoring of climate change, *WegCenter Rep. for FFG-ALR No. 3/2006*, 52 pp., Wegener Center, Univ. of Graz, Austria.
17. Foelsche, U., M. Borsche, **A. K. Steiner**, A. Löscher, B. Pirscher, B. C. Lackner, and G. Kirchengast (2006), Klima-Monitoring mit Radio-Okkultationsdaten des Satelliten CHAMP, *Proc. 9. Österr. Klimatag*, March 2006, Vienna, Austria, P25, 3 pp.
16. Kirchengast, G., U. Foelsche, **A. K. Steiner**, M. Schwärz, J. Wickert, L. Kornblueh, K. B. Lauritsen, A. Loescher, and B. H. Lambrigtsen (2006), GRASIVaI - Contribution to EPS GRAS and IASI Cal/Val by independent retrieval

- algorithms and comparison to short-term reference climatologies, *ESA Spec. Publ. SP-618/CD (Proc. 1st EPS/MetOp RAO Workshop, May 2006, ESRIN)*, ESA/ESTEC Publ. Division, Noordwijk, NL.
15. Kirchengast, G., U. Foelsche, **A. K. Steiner**, M. Schwärz, M. Pock, J. Wickert, T. Schmidt, K. B. Lauritsen, A. Loescher, B. Kuo, C. Rocken, J. Jungclaus, L. Kornblueh, J. Marotzke, G. C. Hegerl, H. Hauser, H. Doleisch, R. Giering, T. Kaminski, B. H. Lambrigtsen, C. Retscher, and S. S. Leroy (2006), EPSCLim – Climate variability and change analysis and climate model validation supported by EPS/MetOp GRAS and IASI data, *ESA Spec. Publ. SP-618/CD (Proc. 1st EPS/MetOp RAO Workshop, May 2006, ESRIN)*, ESA/ESTEC Publ. Div., Noordwijk, NL.
 14. Foelsche, U., A. Gobiet, **A. K. Steiner**, G. Kirchengast, M. Borsche, T. Schmidt, and J. Wickert (2005), Observing Earth's climate with radio occultation data from the CHAMP satellite, in *Festschrift on the Occasion of the 75th Birthday of em.Univ.Prof. Dr. S.J. Bauer*, H.O. Rucker and R. Leitinger (Eds.), Inst. for Space Research/Austrian Acad. of Sciences and Inst. for Geophys., Astrophys., and Meteorol./Univ. of Graz, Austria, 143–153.
 13. Foelsche, U., G. Kirchengast, A. Gobiet, **A. K. Steiner**, A. Löscher, M. Borsche, J. Wickert, and T. Schmidt (2004), Das CHAMPCLIM Projekt - Klimabeobachtung mit Satelliten, *Proc. 8. Österr. Klimatag*, April 2004, Vienna Austria, 3 pp.
 12. Gobiet, A., **A. K. Steiner**, C. Retscher, U. Foelsche, and G. Kirchengast (2004), Radio occultation data and algorithms validation based on CHAMP/GPS data, *Techn. Report for ASA No. 1/2004*, 46 pp., Inst. for Geophys., Astrophys., and Meteorol., Univ. of Graz, Austria.
 11. **Steiner, A. K.** (2004), Error analysis of refractivity profiles retrieved from CHAMP radio occultation data, *DMI Scientific Report 04-02*, 19 pp., Danish Meteorological Institute, Copenhagen, Denmark.
 10. **Steiner, A. K.**, A. Gobiet, U. Foelsche, and G. Kirchengast (2004), Radio occultation data processing advancements for optimizing climate utility, *Tech. Report for ASA No. 3/2004*, 87 pp., Inst. f. Geophys., Astrophys., and Meteorol., Univ. Graz, Austria.
 9. Foelsche, U., G. Kirchengast, **A. K. Steiner**, and A. Gobiet (2003), Observing climate change with the radio occultation technique: From simulation studies to satellite constellations, *Proc. CD-Rom 30th International Symposium on Remote Sensing of the Environment*, November 2003, Honolulu.
 8. Kirchengast, G., U. Foelsche, and **A. K. Steiner** (2003), Climate monitoring using GNSS occultation: Promises, achievements, and challenges, *Proc. 4th Oersted Int'l Science Team Conference (OIST-4)*, Sept. 2002, *DMI Report 03-09*, 269–274, Danish Meteorological Institute, Copenhagen, Denmark.
 7. **Steiner, A. K.**, U. Foelsche, A. Gobiet, and G. Kirchengast (2003), Simulation studies on the analysis of radio occultation data, *Proceedings of the 2nd GRAS-SAF user workshop*, June 11-13, Helsingor, Denmark, *EUMETSAT Rep.No. EUM P40*, 11–13, EUMETSAT, Darmstadt.
 6. **Steiner, A. K.**, and G. Kirchengast (2003), Empirical error analysis of GNSS radio occultation data, *Proc. 4th Oersted Int'l Science Team Conference (OIST-4)*, Sept. 2002, *DMI Report 03-09*, 347, Danish Meteorological Institute, Copenhagen, Denmark.
 5. Foelsche, U., G. Kirchengast, **A. K. Steiner**, L. Kornblueh, E. Manzini und L. Bengtsson (2002), Klimawandel-Monitoring mit satellitengetragenen GNSS Okkultationssensoren, *Proc. 7. Klimakolloquium*, Mar. 2002, Vienna, Austria, 20-22.
 4. Gobiet, A., G. Kirchengast, U. Foelsche, **A. K. Steiner**, and A. Löscher (2002), Advancements of GNSS occultation retrieval in the stratosphere for climate monitoring, *Proc. 2002 EUMETSAT Meteorol. Satellite Data Users Conference*, Sept. 2002, 633–641, Dublin, Ireland.
 3. Foelsche, U., G. Kirchengast, **A. K. Steiner**, L. Kornblueh, E. Manzini und L. Bengtsson (2001), Klimawandel-Monitoring mit satellitengetragenen GNSS Okkultationssensoren, *Proc. Deutsch-Österreichisch-Schweizerische Meteorologentagung 2001*, Sept. 2001, Vienna, Austria, *Österreichische Beiträge zu Meteorologie und Geophysik*, 27, 19 pp.
 2. Kirchengast, G., **A. K. Steiner**, U. Foelsche, L. Kornblueh, E. Manzini, and L. Bengtsson (2000), Spaceborne climate change monitoring by GNSS occultation sensors, *Proc. 11th Symp. on Global Change Studies*, Amer.Met.Soc. Annual Meeting 2000, Long Beach/CA, USA, 62–65.
 1. Hocke, K., G. Kirchengast, and **A. K. Steiner** (1997), Ionospheric correction and inversion of GNSS occultation data: Problems and solutions, *Techn. Rep. for ESA/ESTEC No. 2/1997*, 35 pp., Inst. for Meteorol. and Geophys., Univ. of Graz, Austria, Graz, Austria.