

List of Publications and Theses (2007–2019)  
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**Atmospheric and Earth System Research  
with the Research Aircraft HALO  
(High Altitude and Long Range Research Aircraft)**

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## Submitted Journal–Publications

- Bony, S. and Stevens, B.: Large-scale vertical motions measured from dropsondes., *J. Atmos. Sci.*, submitted, 2018.
- Ewald, F., Groß, S., Hagen, M., Hirsch, L., Delanoë, J., and Bauer-Pfundstein, M.: Calibration of a 35-GHz Airborne Cloud Radar: Lessons Learned and Intercomparisons with 94-GHz Cloud Radars, *Atmos. Meas. Tech. Discuss.*, <https://doi.org/10.5194/amt-2018-269>, in review, 2018.
- Jacob, M., Ament, F., Gutleben, M., Konow, H., Mech, M., Wirth, M., and Crewell, S.: Investigating the liquid water path over the tropical Atlantic with synergistic airborne measurements, *Atmos. Meas. Tech. Discuss.*, submitted, 2018.
- Kaluza, T., Kunkel, D., and Hoor, P.: Composite analysis of the tropopause inversion layer in extratropical baroclinic waves, *Atmos. Chem. Phys. Discuss.*, pp. 1–22, <https://doi.org/10.5194/acp-2018-1100>, in review, 2018.
- Kölling, T., Zinner, T., and Mayer, B.: Aircraft based Stereographic Reconstruction of 3D Cloud Geometry, *Atmos. Meas. Tech. Discuss.*, pp. 1–19, <https://doi.org/10.5194/amt-2018-284>, in review, 2018.
- Konow, H., Jacob, M., Ament, F., Crewell, S., Ewald, F., Hagen, M., Hirsch, L., Jansen, F., Mech, M., and Stevens, B.: A unified data set of airborne cloud remote sensing using the HALO Microwave Package (HAMP), *Earth Syst. Sci. Data Discuss.*, 2018, 1–21, <https://doi.org/10.5194/essd-2018-116>, in review, 2018.
- Krasauskas, L., Ungermann, J., Ensmann, S., Krisch, I., Kretschmer, E., Preusse, P., and Riese, M.: Tomographic airborne limb sounder retrievals on irregular grid with second order regularisation, *Atmos. Meas. Tech. Discuss.*, pp. 1–27, <https://doi.org/10.5194/amt-2018-199>, accepted, 2018.
- Mei, F., Comstock, J. M., Wang, J., Pekour, M., Shilling, J., Schneider, J., Hubbe, J., Long, C. N., Wendisch, M., Machado, L. A. T., Schmid, B., Krisna, T., Giez, A., Weinzierl, B., Zoeger, M., Schulz, C., Pöhlker, M. L., Schlager, H., Cecchini, M. A., Andreae, M. O., Martin, S. T., de Sá, S. S., Fan, J., Tomlinson, J., Springston, S., Pöschl, U., Artaxo, P., Pöhlker, C., Klimach, T., and Minikin, A.: Comparison of Aircraft Measurements during GoAmazon2014/5 and ACRIDICON-CHUVA, *Atmos. Meas. Tech.*, submitted, 2019.
- Mülmenstädt, J., Gryspeerdt, E., Salzmann, M., Ma, P.-L., Dipu, S., and Quaas, J.: Separating radiative forcing by aerosol–cloud interactions and fast cloud adjustments in the ECHAM-HAMMOZ aerosol–climate model using the method of partial radiative perturbations, *Atmos. Chem. Phys. Discuss.*, 2019, 1–20, <https://doi.org/10.5194/acp-2018-1304>, in review, 2019.
- Wolf, K., Ehrlich, A., Jacob, M., Crewell, S., Wirth, M., and Wendisch, M.: Improvement of Airborne Retrievals of Cloud Droplet Number Concentration of Trade Wind Cumulus Using a Synergetic Approach, *Atmos. Meas. Tech. Discuss.*, pp. 1–37, <https://doi.org/10.5194/amt-2018-266>, in review, 2018.
- Zinner, T., Schwarz, U., Kölling, T., Ewald, F., Jäkel, E., Mayer, B., and Wendisch, M.: Cloud geometry from oxygen-A band observations through an aircraft side window, *Atmos. Meas. Tech. Discuss.*, 2018, 1–20, <https://doi.org/10.5194/amt-2018-220>, accepted, 2018.
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# Peer-Reviewed Journal-Publications

- Abdelmonem, A., Schnaiter, M., Amsler, P., Hesse, E., Meyer, J., and Leisner, T.: First correlated measurements of the shape and light scattering properties of cloud particles using the new Particle Habit Imaging and Polar Scattering (PHIPS) probe, *Atmos. Meas. Tech.*, 4, 2125–2142, <https://doi.org/10.5194/amt-4-2125-2011>, 2011.
- Abdelmonem, A., Järvinen, E., Duft, D., Hirst, E., Vogt, S., Leisner, T., and Schnaiter, M.: PHIPS–HALO: the airborne Particle Habit Imaging and Polar Scattering probe – Part 1: Design and operation, *Atmos. Meas. Tech.*, 9, 3131–3144, <https://doi.org/10.5194/amt-9-3131-2016>, 2016.
- Andreae, M. O., Afchine, A., Albrecht, R., Holanda, B. A., Artaxo, P., Barbosa, H. M. J., Borrmann, S., Cecchini, M. A., Costa, A., Dollner, M., Fütterer, D., Järvinen, E., Jurkat, T., Klimach, T., Konemann, T., Knote, C., Krämer, M., Krisna, T., Machado, L. A. T., Mertes, S., Minikin, A., Pöhlker, C., Pöhlker, M. L., Pöschl, U., Rosenfeld, D., Sauer, D., Schlager, H., Schnaiter, M., Schneider, J., Schulz, C., Spanu, A., Sperling, V. B., Voigt, C., Walser, A., Wang, J., Weinzierl, B., Wendisch, M., and Ziereis, H.: Aerosol characteristics and particle production in the upper troposphere over the Amazon Basin, *Atmos. Chem. Phys.*, 18, 921–961, <https://doi.org/10.5194/acp-18-921-2018>, 2018.
- Andrés-Hernández, M. D., Kartal, D., Crowley, J. N., Sinha, V., Regelin, E., Martínez-Harder, M., Nenakhov, V., Williams, J., Harder, H., Bozem, H., Song, W., Thieser, J., Tang, M. J., Hosaynali Beigi, Z., and Burrows, J. P.: Diel peroxy radicals in a semi industrial coastal area: Night-time formation of free radicals, *Atmos. Chem. Phys.*, 13, 5731–5749, <https://doi.org/10.5194/acp-13-5731-2013>, 2013.
- Bohn, B. and Lohse, I.: Calibration and evaluation of CCD spectroradiometers for ground-based and airborne measurements of spectral actinic flux densities, *Atmos. Meas. Tech.*, 10, 3151–3174, <https://doi.org/10.5194/amt-10-3151-2017>, 2017.
- Bony, S., Stevens, B., Ament, F., Bigorre, S., Chazette, P., Crewell, S., Delanoë, J., Emanuel, K., Farrell, D., Flamant, C., Gross, S., Hirsch, L., Karstensen, J., Mayer, B., Nuijens, L., Ruppert Jr., J. H., Sandu, I., Siebesma, P., Speich, S., Szczap, F., Totems, J., Vogel, R., Wendisch, M., and Wirth, M.: EUREC4A: A Field Campaign to Elucidate the Couplings Between Clouds, Convection and Circulation, *Surv. Geophys.*, 38, 1529–1568, <https://doi.org/10.1007/s10712-017-9428-0>, 2017.
- Braga, R. C., Rosenfeld, D., Weigel, R., Jurkat, T., Andreae, M. O., Wendisch, M., Pöhlker, M. L., Klimach, T., Pöschl, U., Pöhlker, C., Voigt, C., Mahnke, C., Borrmann, S., Albrecht, R. I., Molleker, S., Vila, D. A., Machado, L. A. T., and Artaxo, P.: Comparing parameterized versus measured microphysical properties of tropical convective cloud bases during the ACRIDICON–CHUVA campaign, *Atmos. Chem. Phys.*, 17, 7365–7386, <https://doi.org/10.5194/acp-17-7365-2017>, 2017a.
- Braga, R. C., Rosenfeld, D., Weigel, R., Jurkat, T., Andreae, M. O., Wendisch, M., Pöschl, U., Voigt, C., Mahnke, C., Borrmann, S., Albrecht, R. I., Molleker, S., Vila, D. A., Machado, L. A. T., and Grulich, L.: Further evidence for CCN aerosol concentrations determining the height of warm rain and ice initiation in convective clouds over the Amazon basin, *Atmos. Chem. Phys.*, 17, 14 433–14 456, <https://doi.org/10.5194/acp-17-14433-2017>, 2017b.
- Brands, M., Kamphus, M., Böttger, T., Schneider, J., Drewnick, F., Roth, A., Curtius, J., Voigt,
-

- C., Borbon, A., Beekmann, M., Bourdon, A., Perrin, T., and Borrmann, S.: Characterization of a newly developed Aircraft-based Laser Ablation Aerosol Mass Spectrometer (ALABAMA) and first field deployment in urban pollution plumes over Paris during MEGAPOLI 2009, *Aerosol Sci. Tech.*, 45, 46–64, <https://doi.org/10.1080/02786826.2010.517813>, 2011.
- Brath, M., Fox, S., Eriksson, P., Harlow, R. C., Burgdorf, M., and Buehler, S. A.: Retrieval of an ice water path over the ocean from ISMAR and MARSS millimeter and submillimeter brightness temperatures, *Atmos. Meas. Tech.*, 11, 611–632, <https://doi.org/10.5194/amt-11-611-2018>, 2018.
- Buchholz, B., Afchine, A., and Ebert, V.: Rapid, optical measurement of the atmospheric pressure on a fast research aircraft using open-path TDLAS, *Atmos. Meas. Tech.*, 7, 3653–3666, <https://doi.org/10.5194/amt-7-3653-2014>, 2014.
- Buchholz, B., Afchine, A., Klein, A., Schiller, C., Krämer, M., and Ebert, V.: HAL, a new airborne, absolute, twin dual-channel, multi-phase TDLAS-hygrometer: background, design, setup, and first flight data, *Atmos. Meas. Tech.*, 10, 35–57, <https://doi.org/10.5194/amt-10-35-2017>, 2017.
- Bundke, U., Reimann, B., Nillius, B., Jaenicke, R., and Bingemer, H.: Development of a Bioaerosol single particle detector (BIO IN) for the Fast Ice Nucleus CHamber FINCH, *Atmos. Meas. Tech.*, 3, 263–271, <https://doi.org/10.5194/amt-3-263-2010>, 2010.
- Burdanowitz, J., Klepp, C., Bakan, S., and Buehler, S. A.: Simulation of Ship-Track versus Satellite-Sensor Differences in Oceanic Precipitation Using an Island-Based Radar, *Remote Sens.*, 9, 593, <https://doi.org/10.3390/rs9060593>, 2017.
- Cecchini, M. A., Machado, L. A. T., Andreae, M. O., Martin, S. T., Albrecht, R. I., Artaxo, P., Barbosa, H. M. J., Borrmann, S., Fütterer, D., Jurkat, T., Mahnke, C., Minikin, A., Molleker, S., Pöhlker, M. L., Pöschl, U., Rosenfeld, D., Voigt, C., Weinzierl, B., and Wendisch, M.: Sensitivities of Amazonian clouds to aerosols and updraft speed, *Atmos. Chem. Phys.*, 17, 10 037–10 050, <https://doi.org/10.5194/acp-17-10037-2017>, 2017a.
- Cecchini, M. A., Machado, L. A. T., Wendisch, M., Costa, A., Krämer, M., Andreae, M. O., Afchine, A., Albrecht, R. I., Artaxo, P., Borrmann, S., Fütterer, D., Klimach, T., Mahnke, C., Martin, S. T., Minikin, A., Molleker, S., Pardo, L. H., Pöhlker, C., Pöhlker, M. L., Pöschl, U., Rosenfeld, D., and Weinzierl, B.: Illustration of microphysical processes in Amazonian deep convective clouds in the gamma phase space: introduction and potential applications, *Atmos. Chem. Phys.*, 17, 14 727–14 746, <https://doi.org/10.5194/acp-17-14727-2017>, 2017b.
- Costa, A., Meyer, J., Afchine, A., Luebke, A., Günther, G., Dorsey, J. R., Gallagher, M. W., Ehrlich, A., Wendisch, M., Baumgardner, D., Wex, H., and Krämer, M.: Classification of Arctic, midlatitude and tropical clouds in the mixed-phase temperature regime, *Atmos. Chem. Phys.*, 17, 12 219–12 238, <https://doi.org/10.5194/acp-17-12219-2017>, 2017.
- Cziczo, D., Garimella, S., Raddatz, M., Hoehler, K., Schnaiter, M., Saathoff, H., Moehler, O., Abbatt, J. P. D., and Ladino, L. A.: Ice nucleation by surrogates of Martian mineral dust: What can we learn about Mars without leaving Earth?, *J. Geophys. Res.*, 118, 1945–1954, <https://doi.org/10.1002/jgre.20155>, 2013.
- Deutschmann, T., Beirle, S., Frieß, U., Grzegorski, M., Kern, C., Kritten, L., Platt, U., Prados-Román, C., Pukite, J., Wagner, T., Werner, B., and Pfeilsticker, K.: The Monte Carlo atmospheric radiative transfer model McArtim: Introduction and validation of Jacobians and 3D features, *J. Quant. Spectrosc. Ra.*, 112, 1119–1137, <https://doi.org/10.1016/j.jqsrt.2010.12.009>, 2011.
- Ebell, K., Orlandi, E., Hünerbein, A., Löhnert, U., and Crewell, S.: Combining ground-based with satellite-based measurements in the atmospheric state retrieval: Assessment of the information content, *J. Geophys. Res. - Atmos.*, 118, 6940–6956, <https://doi.org/10.1002/jgrd.50548>, 2013.
- Fiedler, V., Arnold, F., Schlager, H., Dörnbrack, A., Pirjola, L., and Stohl, A.: East Asian SO<sub>2</sub> pollution plume over Europe – Part 2: Evolution and potential impact, *Atmos. Chem. Phys.*, 9, 4729–4745, <https://doi.org/10.5194/acp-9-4729-2009>, 2009a.
- Fiedler, V., Nau, R., Ludmann, S., Arnold, F., Schlager, H., and Stohl, A.: East Asian SO<sub>2</sub> pollution plume over Europe – Part 1: Airborne trace gas measurements and source identification by particle dispersion model simulations, *Atmos. Chem. Phys.*, 9, 4717–4728, <https://doi.org/10.5194/acp-9-4717-2009>, 2009b.
- Fischer, L., Kiemle, C., and Craig, G. C.: Height-resolved variability of midlatitude tropospheric water

- vapor measured by an airborne lidar, *Geophys. Res. Lett.*, 39, L06 803, <https://doi.org/10.1029/2011GL050621>, 2012.
- Fischer, L., Craig, G. C., and Kiemle, C.: Horizontal structure function and vertical correlation analysis of mesoscale water vapor variability observed by airborne lidar, *J. Geophys. Res. - Atmos.*, 118, 7579–7590, <https://doi.org/10.1002/jgrd.50588>, 2013.
- Fricke, C., Ehrlich, A., Jäkel, E., Bohn, B., Wirth, M., and Wendisch, M.: Influence of local surface albedo variability and ice crystal shape on passive remote sensing of thin cirrus, *Atmos. Chem. Phys.*, 14, 1943–1958, <https://doi.org/10.5194/acp-14-1943-2014>, 2014.
- Gayet, J.-F., Shcherbakov, V., Voigt, C., Schumann, U., Schäuble, D., Jessberger, P., Petzold, A., Minikin, A., Schlager, H., Dubovik, O., and Lapyonok, T.: The evolution of microphysical and optical properties of an A380 contrail in the vortex phase, *Atmos. Chem. Phys.*, 12, 6629–6643, <https://doi.org/10.5194/acp-12-6629-2012>, 2012.
- General, S., Pöhler, D., Sihler, H., Bobrowski, N., Frieß, U., Zielcke, J., Horbanski, M., Shepson, P. B., Stirm, B. H., Simpson, W. R., Weber, K., Fischer, C., and Platt, U.: The Heidelberg Airborne Imaging DOAS Instrument (HAIDI) - A novel imaging DOAS device for 2-D and 3-D imaging of trace gases and aerosols, *Atmos. Meas. Tech.*, 7, 3459–3485, <https://doi.org/10.5194/amt-7-3459-2014>, 2014.
- General, S., Bobrowski, N., Pöhler, D., Weber, K., Fischer, C., and Platt, U.: Airborne I-DOAS measurements at Mt. Etna: BrO and OCIO evolution in the plume, *J. Volcanol. Geoth. Res.*, 300, 175–186, <https://doi.org/10.1016/j.jvolgeores.2014.05.012>, available online 22 May 2014, 2015.
- Gottschaldt, K.-D., Schlager, H., Baumann, R., Bozem, H., Eyring, V., Hoor, P., Jöckel, P., Jurkat, T., Voigt, C., Zahn, A., and Ziereis, H.: Trace gas composition in the Asian summer monsoon anticyclone: A case study based on aircraft observations and model simulations, *Atmos. Chem. Phys.*, 17, 6091–6111, <https://doi.org/10.5194/acp-17-6091-2017>, 2017.
- Gottschaldt, K.-D., Schlager, H., Baumann, R., Cai, D. S., Eyring, V., Graf, P., Grewe, V., Jöckel, P., Jurkat-Witschas, T., Voigt, C., Zahn, A., and Ziereis, H.: Dynamics and composition of the Asian summer monsoon anticyclone, *Atmos. Chem. Phys.*, 18, 5655–5675, <https://doi.org/10.5194/acp-18-5655-2018>, 2018.
- Groß, S., Esselborn, M., Abicht, F., Wirth, M., Fix, A., and Minikin, A.: Airborne high spectral resolution lidar observation of pollution aerosol during EUCAARI-LONGREX, *Atmos. Chem. Phys.*, 13, 2435–2444, <https://doi.org/10.5194/acp-13-2435-2013>, 2013a.
- Groß, S., Esselborn, M., Weinzierl, B., Wirth, M., Fix, A., and Petzold, A.: Aerosol classification by airborne high spectral resolution lidar observations, *Atmos. Chem. Phys.*, 13, 2487–2505, <https://doi.org/10.5194/acp-13-2487-2013>, 2013b.
- Groß, S., Wirth, M., Schäfler, A., Fix, A., Kaufmann, S., and Voigt, C.: Potential of airborne lidar measurements for cirrus cloud studies, *Atmos. Meas. Tech.*, 7, 2745–2755, <https://doi.org/10.5194/amt-7-2745-2014>, 2014.
- Groß, S., Freudenthaler, V., Wirth, M., and Weinzierl, B.: Towards an aerosol classification scheme for future EarthCARE lidar observations and implications for research needs, *Atmos. Sci. Lett.*, 16, 77–82, <https://doi.org/10.1002/as12.524>, first published online 25 Aug 2014, 2015.
- Gryspeerd, E., Sourdeval, O., Quaas, J., Delanoë, J., Krämer, M., and Kühne, P.: Ice crystal number concentration estimates from lidar-radar satellite remote sensing – Part 2: Controls on the ice crystal number concentration, *Atmos. Chem. Phys.*, 18, 14 351–14 370, <https://doi.org/10.5194/acp-18-14351-2018>, 2018.
- Harris, E., Sinha, B., van Pinxteren, D., Schneider, J., Poulain, L., Collett, J., D’Anna, B., Fahlbusch, B., Foley, S., Fomba, K. W., George, C., Gnauk, T., Henning, S., Lee, T., Mertes, S., Roth, A., Stratmann, F., Borrmann, S., Hoppe, P., and Herrmann, H.: In-cloud sulfate addition to single particles resolved with sulfur isotope analysis during HCCT-2010, *Atmos. Chem. Phys.*, 14, 4219–4235, <https://doi.org/10.5194/acp-14-4219-2014>, 2014.
- Henning, S., Dieckmann, K., Ignatius, K., Schäfer, M., Zedler, P., Harris, E., Sinha, B., van Pinxteren, D., Mertes, S., Birmili, W., Merkel, M., Wu, Z., Wiedensohler, A., Wex, H., Herrmann, H., and Stratmann, F.: Influence of cloud processing on CCN activation behaviour in the Thuringian Forest, Germany during HCCT-2010, *Atmos. Chem. Phys.*, 14, 7859–7868, <https://doi.org/10.5194/>

- [acp-14-7859-2014](#), 2014.
- Hermann, M., Weigelt, A., Assmann, D., Pfeifer, S., Müller, T., Conrath, T., Voigtländer, J., Heintzenberg, J., Wiedensohler, A., Martinsson, B. G., Deshler, T., Brenninkmeijer, C. A. M., and Zahn, A.: An optical particle size spectrometer for aircraft-borne measurements in IAGOS-CARIBIC, *Atmos. Meas. Tech.*, 9, 2179–2194, <https://doi.org/10.5194/amt-9-2179-2016>, 2016.
- Hoerger, C. C., Claude, A., Plass-Duelmer, C., Reimann, S., Eckart, E., Steinbrecher, R., Aalto, J., Arduini, J., Bonnaire, N., Cape, J. N., Colomb, A., Connolly, R., Diskova, J., Dumitrean, P., Ehlers, C., Gros, V., Hakola, H., Hill, M., Hopkins, J. R., Jäger, J., Junek, R., Kajos, M. K., Klemp, D., Leuchner, M., Lewis, A. C., Locoge, N., Maione, M., Martin, D., Michl, K., Nemitz, E., O'Doherty, S., Pérez Ballesta, P., Ruuskanen, T. M., Sauvage, S., Schmidbauer, N., Spain, T. G., Straube, E., Vana, M., Vollmer, M. K., Wegener, R., and Wenger, A.: ACTRIS non-methane hydrocarbon intercomparison experiment in Europe to support WMO GAW and EMEP observation networks, *Atmos. Meas. Tech.*, 8, 2715–2736, <https://doi.org/10.5194/amt-8-2715-2015>, 2015.
- Hollstein, A. and Fischer, J.: Radiative transfer solutions for coupled atmosphere ocean systems using the matrix operator technique, *J. Quant. Spectrosc. Ra.*, 113, 536–548, <https://doi.org/10.1016/j.jqsrt.2012.01.010>, 2012.
- Horstjann, M., Nenakhov, V., and Burrows, J.: Frequency stabilization of blue extended cavity diode lasers by external cavity optical feedback, *Appl. Phys. B*, 106, 261–266, <https://doi.org/10.1007/s00340-011-4705-y>, 2012.
- Horstjann, M., Andrés-Hernández, M. D., Nenakhov, V., Chrobry, A., and Burrows, J. P.: Peroxy radical detection for airborne atmospheric measurements using absorption spectroscopy of NO<sub>2</sub>, *Atmos. Meas. Tech.*, 7, 1245–1257, <https://doi.org/10.5194/amt-7-1245-2014>, 2014.
- Hüneke, T., Aderhold, O.-A., Bounin, J., Dorf, M., Gentry, E., Grossmann, K., Groß, J.-U., Hoor, P., Jöckel, P., Kenntner, M., Knapp, M., Knecht, M., Lörks, D., Ludmann, S., Matthes, S., Raecke, R., Reichert, M., Weimar, J., Werner, B., Zahn, A., Ziereis, H., and Pfeilsticker, K.: The novel HALO mini-DOAS instrument: inferring trace gas concentrations from airborne UV/visible limb spectroscopy under all skies using the scaling method, *Atmos. Meas. Tech.*, 10, 4209–4234, <https://doi.org/10.5194/amt-10-4209-2017>, 2017.
- Jäkel, E., Wendisch, M., Krisna, T. C., Ewald, F., Kölling, T., Jurkat, T., Voigt, C., Cecchini, M. A., Machado, L. A. T., Afchine, A., Costa, A., Krämer, M., Andreae, M. O., Pöschl, U., Rosenfeld, D., and Yuan, T.: Vertical distribution of the particle phase in tropical deep convective clouds as derived from cloud-side reflected solar radiation measurements, *Atmos. Chem. Phys.*, 17, 9049–9066, <https://doi.org/10.5194/acp-17-9049-2017>, 2017.
- Järvinen, E., Schnaiter, M., Mioche, G., Jourdan, O., Shcherbakov, V. N., Costa, A., Afchine, A., Krämer, M., Heidelberg, F., Jurkat, T., Voigt, C., Schlager, H., Nichman, L., Gallagher, M., Hirst, E., Schmitt, C., Bansemmer, A., Heymsfield, A., Lawson, P., Tricoli, U., Pfeilsticker, K., Vochezer, P., Möhler, O., and Leisner, T.: Quasi-Spherical Ice in Convective Clouds, *J. Atmos. Sci.*, 73, 3885–3910, <https://doi.org/10.1175/JAS-D-15-0365.1>, 2016.
- Järvinen, E., Jourdan, O., Neubauer, D., Yao, B., Liu, C., Andreae, M. O., Lohmann, U., Wendisch, M., McFarquhar, G. M., Leisner, T., and Schnaiter, M.: Additional global climate cooling by clouds due to ice crystal complexity, *Atmos. Chem. Phys.*, 18, 15767–15781, <https://doi.org/10.5194/acp-18-15767-2018>, 2018a.
- Järvinen, E., Wernli, H., and Schnaiter, M.: Investigations of Mesoscopic Complexity of Small Ice Crystals in Midlatitude Cirrus, *Geophys. Res. Lett.*, 45, 11,465–11,472, <https://doi.org/10.1029/2018GL079079>, 2018b.
- Jeßberger, P., Voigt, C., Schumann, U., Sölch, I., Schlager, H., Kaufmann, S., Petzold, A., Schäuble, D., and Gayet, J.-F.: Aircraft type influence on contrail properties, *Atmos. Chem. Phys.*, 13, 11965–11984, <https://doi.org/10.5194/acp-13-11965-2013>, 2013.
- Johansson, S., Woiwode, W., Höpfner, M., Friedl-Vallon, F., Kleinert, A., Kretschmer, E., Latzko, T., Orphal, J., Preusse, P., Ungermann, J., Santee, M. L., Jurkat-Witschas, T., Marsing, A., Voigt, C., Giez, A., Krämer, M., Rolf, C., Zahn, A., Engel, A., Sinnhuber, B.-M., and Oelhaf, H.: Airborne limb-imaging measurements of temperature, HNO<sub>3</sub>, O<sub>3</sub>, ClONO<sub>2</sub>, H<sub>2</sub>O and CFC-12 during the Arctic winter 2015/16: characterization, in-situ validation and comparison to Aura/MLS, *Atmos. Meas.*



- Tech., 11, 4737–4756, <https://doi.org/10.5194/amt-11-4737-2018>, 2018.
- Jurkat, T., Voigt, C., Arnold, F., Schlager, H., Aufmhoff, H., Schmale, J., Schneider, J., Lichtenstern, M., and Dörnbrack, A.: Airborne stratospheric ITCIMS-measurements of SO<sub>2</sub>, HCl, and HNO<sub>3</sub> in the aged plume of volcano Kasatochi, J. Geophys. Res., 115, <https://doi.org/10.1029/2010JD013890>, 2010.
- Jurkat, T., Voigt, C., Arnold, F., Schlager, H., Kleffmann, J., Aufmhoff, H., Schäuble, D., Schäfer, M., and Schumann, U.: Measurements of HONO, NO, NO<sub>y</sub> and SO<sub>2</sub> in aircraft exhaust plumes at cruise, Geophys. Res. Lett., 38, <https://doi.org/10.1029/2011GL046884>, 2011.
- Jurkat, T., Voigt, C., Kaufmann, S., Zahn, A., Sprenger, M., Hoor, P., Bozem, H., Müller, S., Dörnbrack, A., Schlager, H., Bönisch, H., and Engel, A.: A quantitative analysis of stratospheric HCl, HNO<sub>3</sub>, and O<sub>3</sub> in the tropopause region near the subtropical jet, Geophys. Res. Lett., 41, 3315–3321, <https://doi.org/10.1002/2013GL059159>, 2014.
- Jurkat, T., Kaufmann, S., Voigt, C., Schäuble, D., Jeßberger, P., and Ziereis, H.: The airborne mass spectrometer AIMS – Part 2: Measurements of trace gases with stratospheric or tropospheric origin in the UTLS, Atmos. Meas. Tech., 9, 1907–1923, <https://doi.org/10.5194/amt-9-1907-2016>, 2016.
- Jurkat, T., Voigt, C., Kaufmann, S., Groß, J.-U., Ziereis, H., Dörnbrack, A., Hoor, P., Bozem, H., Engel, A., Bönisch, H., Keber, T., Hüneke, T., Pfeilsticker, K., Zahn, A., Walker, K. A., Boone, C. D., Bernath, P. F., and Schlager, H.: Depletion of ozone and reservoir species of chlorine and nitrogen oxide in the lower Antarctic polar vortex measured from aircraft, Geophys. Res. Lett., 44(12), 6440–6449, <https://doi.org/10.1002/2017GL073270>, 2017.
- Kaiser, J., Wolfe, G. M., Bohn, B., Broch, S., Fuchs, H., Ganzeveld, L. N., Gomm, S., Häseler, R., Hofzumahaus, A., Holland, F., Jäger, J., Li, X., Lohse, I., Lu, K., Prévôt, A. S. H., Rohrer, F., Wegener, R., Wolf, R., Mentel, T. F., Kiendler-Scharr, A., Wahner, A., and Keutsch, F. N.: Evidence for an unidentified non-photochemical ground-level source of formaldehyde in the Po Valley with potential implications for ozone production, Atmos. Chem. Phys., 15, 1289–1298, <https://doi.org/10.5194/acp-15-1289-2015>, 2015.
- Kaufmann, M., Blank, J., Guggenmoser, T., Ungermann, J., Engel, A., Ern, M., Friedl-Vallon, F., Gerber, D., Groß, J. U., Guenther, G., Höpfner, M., Kleinert, A., Kretschmer, E., Latzko, T., Maucher, G., Neubert, T., Nordmeyer, H., Oelhaf, H., Olschewski, F., Orphal, J., Preusse, P., Schlager, H., Schneider, H., Schuettmeyer, D., Stroh, F., Suminska-Ebersoldt, O., Vogel, B., Volk, C. M., Woiwode, W., and Riese, M.: Retrieval of three-dimensional small-scale structures in upper-tropospheric/lower-stratospheric composition as measured by GLORIA, Atmos. Meas. Tech., 8, 81–95, <https://doi.org/10.5194/amt-8-81-2015>, 2015.
- Kaufmann, S., Voigt, C., Jeßberger, P., Jurkat, T., Schlager, H., Schwarzenboeck, A., Klingebiel, M., and Thornberry, T.: In situ measurements of ice saturation in young contrails, Geophys. Res. Lett., 41, <https://doi.org/10.1002/2013GL058276>, 2014.
- Kaufmann, S., Voigt, C., Jurkat, T., Thornberry, T., Fahey, D. W., Gao, R.-S., Schlage, R., Schäuble, D., and Zöger, M.: The airborne mass spectrometer AIMS – Part 1: AIMS-H<sub>2</sub>O for UTLS water vapor measurements, Atmos. Meas. Tech., 9, 939–953, <https://doi.org/10.5194/amt-9-939-2016>, 2016.
- Khosrawi, F., Kirner, O., Sinnhuber, B.-M., Johansson, S., Höpfner, M., Santee, M. L., Froidevaux, L., Ungermann, J., Ruhnke, R., Woiwode, W., Oelhaf, H., and Braesicke, P.: Denitrification, dehydration and ozone loss during the 2015/2016 Arctic winter, Atmos. Chem. Phys., 17, 12 893–12 910, <https://doi.org/10.5194/acp-17-12893-2017>, 2017.
- Kiemle, C., Groß, S., Wirth, M., and Bugliaro, L.: Airborne Lidar Observations of Water Vapor Variability in Tropical Shallow Convective Environment, Surv. Geophys., 38, 1425–1443, <https://doi.org/10.1007/s10712-017-9431-5>, 2017.
- Kleinert, A., Friedl-Vallon, F., Guggenmoser, T., Höpfner, M., Neubert, T., Ribalda, R., Sha, M. K., Ungermann, J., Blank, J., Ebersoldt, A., Kretschmer, E., Latzko, T., Oelhaf, H., Olschewski, F., and Preusse, P.: Level 0 to 1 processing of the imaging Fourier transform spectrometer GLORIA: generation of radiometrically and spectrally calibrated spectra, Atmos. Meas. Tech., 7, 4167–4184, <https://doi.org/10.5194/amt-7-4167-2014>, 2014.

- Kleinert, A., Krisch, I., Ungermann, J., Adibekyan, A., Gutschwager, B., and Monte, C.: Characterization of blackbody inhomogeneity and its effect on the retrieval results of the GLORIA instrument, *Atmos. Meas. Tech.*, 11, 3871–3882, <https://doi.org/10.5194/amt-11-3871-2018>, 2018.
- Krämer, M., Rolf, C., Luebke, A., Afchine, A., Spelten, N., Costa, A., Meyer, J., Zöger, M., Smith, J., Herman, R. L., Buchholz, B., Ebert, V., Baumgardner, D., Borrmann, S., Klingebiel, M., and Avallone, L.: A microphysics guide to cirrus clouds – Part 1: Cirrus types, *Atmos. Chem. Phys.*, 16, 3463–3483, <https://doi.org/10.5194/acp-16-3463-2016>, 2016.
- Krause, J., Hoor, P., Engel, A., Plöger, F., Groöß, J.-U., Bönisch, H., Keber, T., Sinnhuber, B.-M., Woiwode, W., and Oelhaf, H.: Mixing and ageing in the polar lower stratosphere in winter 2015–2016, *Atmos. Chem. Phys.*, 18, 6057–6073, <https://doi.org/10.5194/acp-18-6057-2018>, 2018.
- Kretschmer, E., Bachner, M., Blank, J., Dapp, R., Ebersoldt, A., Friedl-Vallon, F., Guggenmoser, T., Gulde, T., Hartmann, V., Lutz, R., Maucher, G., Neubert, T., Oelhaf, H., Preusse, P., Schardt, G., Schmitt, C., Schönfeld, A., and Tan, V.: In-flight control and communication architecture of the GLORIA imaging limb sounder on atmospheric research aircraft, *Atmos. Meas. Tech.*, 8, 2543–2553, <https://doi.org/10.5194/amt-8-2543-2015>, 2015.
- Krisna, T. C., Wendisch, M., Ehrlich, A., Jäkel, E., Werner, F., Weigel, R., Borrmann, S., Mahnke, C., Pöschl, U., Andreae, M. O., Voigt, C., and Machado, L. A. T.: Comparing airborne and satellite retrievals of cloud optical thickness and particle effective radius using a spectral radiance ratio technique: two case studies for cirrus and deep convective clouds, *Atmos. Chem. Phys.*, 18, 4439–4462, <https://doi.org/10.5194/acp-18-4439-2018>, 2018.
- Krüger, M. L., Mertes, S., Klimach, T., Cheng, Y., Su, H., Schneider, J., Andreae, M., Pöschl, U., and Rose, D.: Assessment of cloud supersaturation by size-resolved aerosol particle and cloud condensation nuclei (CCN) measurements, *Atmos. Meas. Tech.*, 7, 2615–2629, <https://doi.org/10.5194/amt-7-2615-2014>, 2014.
- Kupiszewski, P., Weingartner, E., Vochezer, P., Schnaiter, M., Bigi, A., Gysel, M., Rosati, B., Toprak, E., Mertes, S., and Baltensperger, U.: The Ice Selective Inlet: a novel technique for exclusive extraction of pristine ice crystals in mixed-phase clouds, *Atmos. Meas. Tech.*, 8, 3087–3106, <https://doi.org/10.5194/amt-8-3087-2015>, 2015.
- Kupiszewski, P., Zanatta, M., Mertes, S., Vochezer, P., Lloyd, G., Schneider, J., Schenk, L., Schnaiter, M., Baltensperger, U., Weingartner, E., and Gysel, M.: Ice residual properties in mixed-phase clouds at the high-alpine Jungfrauoch site, *J. Geophys. Res. - Atmos.*, 121, 12,343–12,362, <https://doi.org/10.1002/2016JD024894>, 2016.
- Laborde, M., Schnaiter, M., Linke, C., Saathoff, H., Naumann, K.-H., Möhler, O., Berlenz, S., Wagner, U., Taylor, J. W., Liu, D., Flynn, M., Allan, J. D., Coe, H., Heimerl, K., Dahlkötter, F., Weinzierl, B., Wollny, A. G., Zanatta, M., Cozic, J., Laj, P., Hitznerberge, R., Schwarz, J. P., and Gysel, M.: Single Particle Soot Photometer intercomparison at the AIDA chamber, *Atmos. Meas. Tech.*, 5, 3077–3097, <https://doi.org/10.5194/amt-5-3077-2012>, 2012.
- Lammert, A. and Ament, F.: Capabilities and uncertainties of aircraft measurements for the validation of satellite precipitation products – a virtual case study, *Meteorol. Z.*, 24, 495–502, <https://dx.doi.org/10.1127/metz/2015/0663>, 2015.
- Lennartz, S. T., Kryzstofiak, G., Marandino, C. A., Sinnhuber, B.-M., Tegtmeier, S., Ziska, F., Hossaini, R., Krüger, K., Montzka, S. A., Atlas, E., Oram, D. E., Keber, T., Bönisch, H., and Quack, B.: Modelling marine emissions and atmospheric distributions of halocarbons and dimethyl sulfide: the influence of prescribed water concentration vs. prescribed emissions, *Atmos. Chem. Phys.*, 15, 11 753–11 772, <https://doi.org/10.5194/acp-15-11753-2015>, 2015.
- Li, X., Rohrer, F., Hofzumahaus, A., Brauers, T., Häseler, R., Bohn, B., Broch, S., Fuchs, H., Gomm, S., Holland, F., Jäger, J., Kaiser, J., Keutsch, F. N., Lohse, I., Lu, K., Tillmann, R., Wegener, R., Wolfe, G. M., Mentel, T. F., Kiendler-Scharr, A., and Wahner, A.: Missing gas-phase source of HONO inferred from Zeppelin measurements in the troposphere, *Science*, 344, 292–296, <https://doi.org/10.1126/science.1248999>, 2014.
- Lu, B., Barthelmes, F., Petrovic, S., Förste, C., Flechtner, F., Luo, Z., He, K., and Li, M.: Airborne Gravimetry of GEOHALO Mission: Data Processing and Gravity Field Modeling, *J. Geophys. Res. - Sol. Ea.*, 122, 10,586–10,604, <https://doi.org/10.1002/2017JB014425>, 2017.

- Luebke, A. E., Afchine, A., Costa, A., Grooß, J.-U., Meyer, J., Rolf, C., Spelten, N., Avallone, L. M., Baumgardner, D., and Krämer, M.: The origin of midlatitude ice clouds and the resulting influence on their microphysical properties, *Atmos. Chem. Phys.*, 16, 5793–5809, <https://doi.org/10.5194/acp-16-5793-2016>, 2016.
- Machado, L. A. T., Calheiros, A. J. P., Biscaro, T., Giangrande, S., Silva Dias, M. A. F., Cecchini, M. A., Albrecht, R., Andreae, M. O., Araujo, W. F., Artaxo, P., Borrmann, S., Braga, R., Burleyson, C., Eichholz, C. W., Fan, J., Feng, Z., Fisch, G. F., Jensen, M. P., Martin, S. T., Pöschl, U., Pöhlker, C., Pöhlker, M. L., Ribaud, J.-F., Rosenfeld, D., Saraiva, J. M. B., Schumacher, C., Thalman, R., Walter, D., and Wendisch, M.: Overview: Precipitation characteristics and sensitivities to environmental conditions during GoAmazon2014/5 and ACRIDICON-CHUVA, *Atmos. Chem. Phys.*, 18, 6461–6482, <https://doi.org/10.5194/acp-18-6461-2018>, 2018.
- Martin, S. T., Artaxo, P., Machado, L. A. T., Manzi, A. O., Souza, R. A. F., Schumacher, C., Wang, J., Andreae, M. O., Barbosa, H. M. J., Fan, J., Fisch, G., Goldstein, A. H., Guenther, A., Jimenez, J. L., Pöschl, U., Silva Dias, M. A., Smith, J. N., and Wendisch, M.: Introduction: Observations and Modeling of the Green Ocean Amazon (GoAmazon2014/5), *Atmos. Chem. Phys.*, 16, 4785–4797, <https://doi.org/10.5194/acp-16-4785-2016>, 2016.
- Martin, S. T., Artaxo, P., Machado, L., Manzi, A. O., Souza, R. A. F., Schumacher, C., Wang, J., Biscaro, T., Brito, J., Calheiros, A., Jardine, K., Medeiros, A., Portela, B., de Sá, S. S., Adachi, K., Aiken, A. C., Albrecht, R., Alexander, L., Andreae, M. O., Barbosa, H. M. J., Buseck, P., Chand, D., Comstock, J. M., Day, D. A., Dubey, M., Fan, J., Fast, J., Fisch, G., Fortner, E., Giangrande, S., Gilles, M., Goldstein, A. H., Guenther, A., Hubbe, J., Jensen, M., Jimenez, J. L., Keutsch, F. N., Kim, S., Kuang, C., Laskin, A., McKinney, K., Mei, F., Miller, M., Nascimento, R., Pauliquevis, T., Pekour, M., Peres, J., Petäjä, T., Pöhlker, C., Pöschl, U., Rizzo, L., Schmid, B., Shilling, J. E., Silva Dias, M. A., Smith, J. N., Tomlinson, J. M., Tóta, J., and Wendisch, M.: The Green Ocean Amazon Experiment (GoAmazon2014/5) Observes Pollution Affecting Gases, Aerosols, Clouds, and Rainfall over the Rain Forest, *B. Am. Meteorol. Soc.*, 98, 981–997, <https://doi.org/10.1175/BAMS-D-15-00221.1>, 2017.
- Mech, M., Orlandi, E., Crewell, S., Ament, F., Hirsch, L., Hagen, M., Peters, G., and Stevens, B.: HAMP - the microwave package on the High Altitude and Long range research aircraft HALO, *Atmos. Meas. Tech.*, 7, 4539–4553, <https://doi.org/10.5194/amt-7-4539-2014>, 2014.
- Mikhailov, E., Vlasenko, S., Rose, D., and Pöschl, U.: Mass-based hygroscopicity parameter interaction model and measurement of atmospheric aerosol water uptake, *Atmos. Chem. Phys.*, 13, 717–740, <https://doi.org/10.5194/acp-13-717-2013>, 2013.
- Molleker, S., Borrmann, S., Schlager, H., Luo, B., Frey, W., Klingebiel, M., Weigel, R., Ebert, M., Mitev, V., Matthey, R., Woiwode, W., Oelhaf, H., Dörnbrack, A., Stratmann, G., Grooß, J.-U., Günther, G., Vogel, B., Müller, R., Krämer, M., Meyer, J., and Cairo, F.: Microphysical properties of synoptic-scale polar stratospheric clouds: in situ measurements of unexpectedly large HNO<sub>3</sub>-containing particles in the Arctic vortex, *Atmos. Chem. Phys.*, 14, 10 785–10 801, <https://doi.org/10.5194/acp-14-10785-2014>, 2014.
- Moore, R. H., Thornhill, K. L., Weinzierl, B., Sauer, D., D’Ascoli, E., Kim, J., Lichtenstern, M., Scheibe, M., Beaton, B., Beyersdorf, A. J., Barrick, J., Bulzan, D., Corr, C. A., Crosbie, E., Jurkat, T., Martin, R., Riddick, D., Shook, M., Slover, G., Voigt, C., White, R., Winstead, E., Yasky, R., Ziemba, L. D., Brown, A., Schlager, H., and Anderson, B. E.: Biofuel blending reduces particle emissions from aircraft engines at cruise conditions, *Nature*, 543, 411–415, <https://doi.org/10.1038/nature21420>, 2017.
- Müller, S., Hoor, P., Bozem, H., Gute, E., Vogel, B., Zahn, A., Bönisch, H., Keber, T., Krämer, M., Rolf, C., Riese, M., Schlager, H., and Engel, A.: Impact of the Asian monsoon on the extratropical lower stratosphere: trace gas observations during TACTS over Europe 2012, *Atmos. Chem. Phys.*, 16, 10 573–10 589, <https://doi.org/10.5194/acp-16-10573-2016>, 2016.
- Mülmenstädt, J. and Feingold, G.: The Radiative Forcing of Aerosol–Cloud Interactions in Liquid Clouds: Wrestling and Embracing Uncertainty, *Curr. Clim. Change Rep.*, 4, 23–40, <https://doi.org/10.1007/s40641-018-0089-y>, 2018.
- Peterson, P. K., Pratt, K. A., Simpson, W. R., Nghiem, S. V., Pérez, L. X. P., Boone, E. J., Pöhler, D.,

- Zielcke, J., General, S., Shepson, P. B., Frieß, U., Platt, U., and Stirm, B. H.: The role of open lead interactions in atmospheric ozone variability between Arctic coastal and inland sites, *Elem. Sci. Anth.*, 4, <http://doi.org/10.12952/journal.elementa.000109>, 2016.
- Peterson, P. K., Pöhler, D., Sihler, H., Zielcke, J., General, S., Frieß, U., Platt, U., Simpson, W. R., Nghiem, S. V., Shepson, P. B., Stirm, B. H., Dhaniyala, S., Wagner, T., Caulton, D. R., Fuentes, J. D., and Pratt, K. A.: Observations of bromine monoxide transport in the Arctic sustained on aerosol particles, *Atmos. Chem. Phys.*, 17, 7567–7579, <https://doi.org/10.5194/acp-17-7567-2017>, 2017.
- Peterson, P. K., Pöhler, D., Zielcke, J., General, S., Frieß, U., Platt, U., Simpson, W. R., Nghiem, S. V., Shepson, P. B., Stirm, B. H., and Pratt, K. A.: Springtime Bromine Activation Over Coastal and Inland Arctic Snowpacks, *ACS Earth Space Chem.*, 2, 1075–1086, <https://doi.org/10.1021/acsearthspacechem.8b00083>, 2018.
- Piesch, C., Sartorius, C., Friedl-Vallon, F., Gulde, T., Heger, S., Kretschmer, E., Maucher, G., Nordmeyer, H., Barthel, J., Ebersoldt, A., Graf, F., Hase, F., Kleinert, A., Neubert, T., and Schillings, H. J.: The mechanical and thermal setup of the GLORIA spectrometer, *Atmos. Meas. Tech.*, 8, 1773–1787, <https://doi.org/10.5194/amt-8-1773-2015>, 2015.
- Quennehen, B., Schwarzenboeck, A., Schmale, J., Schneider, J., Sodemann, H., Stohl, A., Ancellet, G., Crumeyrolle, S., and Law, K. S.: Physical and chemical properties of pollution aerosol particles transported from North America to Greenland as measured during the POLARCAT summer campaign, *Atmos. Chem. Phys.*, 11, 10947–10963, <https://doi.org/10.5194/acp-11-10947-2011>, 2011.
- Ren, Y., Baumann, R., and Schlager, H.: An airborne perfluorocarbon tracer system and its first application for a Lagrangian experiment, *Atmos. Meas. Tech.*, 8, 69–80, <https://doi.org/10.5194/amt-8-69-2015>, 2015.
- Riese, M., Oelhaf, H., Preusse, P., Blank, J., Ern, M., Friedl-Vallon, F., Fischer, H., Guggenmoser, T., Höpfner, M., Hoor, P., Kaufmann, M., Orphal, J., Plöger, F., Spang, R., Suminska-Ebersoldt, O., Ungermann, J., Vogel, B., and Woiwode, W.: Gimballed Limb Observer for Radiance Imaging of the Atmosphere (GLORIA) scientific objectives, *Atmos. Meas. Tech.*, 7, 1915–1928, <https://doi.org/10.5194/amt-7-1915-2014>, 2014.
- Roiger, A., Aufmhoff, H., Stock, P., Arnold, F., and Schlager, H.: An aircraft-borne chemical ionization - ion trap mass spectrometer (CI-ITMS) for fast PAN and PPN measurements, *Atmos. Meas. Tech.*, 4, 173–188, <https://doi.org/10.5194/amt-4-173-2011>, 2011a.
- Roiger, A., Schlager, H., Schäfler, A., Huntrieser, H., Scheibe, M., Aufmhoff, H., Cooper, O. R., Sodemann, H., Stohl, A., Burkhardt, J., Lazzara, M., Schiller, C., Law, K. S., and Arnold, F.: In-situ observation of Asian pollution transported into the Arctic lowermost stratosphere, *Atmos. Chem. Phys.*, 11, 10975–10994, <https://doi.org/10.5194/acp-11-10975-2011>, 2011b.
- Rolf, C., Afchine, A., Bozem, H., Buchholz, B., Ebert, V., Guggenmoser, T., Hoor, P., Konopka, P., Kretschmer, E., Müller, S., Schlager, H., Spelten, N., Sumińska-Ebersoldt, O., Ungermann, J., Zahn, A., and Krämer, M.: Transport of Antarctic stratospheric strongly dehydrated air into the troposphere observed during the HALO-ESMVal campaign 2012, *Atmos. Chem. Phys.*, 15, 9143–9158, <https://doi.org/10.5194/acp-15-9143-2015>, 2015.
- Rolf, C., Vogel, B., Hoor, P., Afchine, A., Günther, G., Krämer, M., Müller, R., Müller, S., Spelten, N., and Riese, M.: Water vapor increase in the lower stratosphere of the Northern Hemisphere due to the Asian monsoon anticyclone observed during the TACTS/ESMVal campaigns, *Atmos. Chem. Phys.*, 18, 2973–2983, <https://doi.org/10.5194/acp-18-2973-2018>, 2018.
- Roth, A., Schneider, J., Klimach, T., Mertes, S., van Pinxteren, D., Herrmann, H., and Borrmann, S.: Aerosol properties, source identification, and cloud processing in orographic clouds measured by single particle mass spectrometry on a central European mountain site during HCCT-2010, *Atmos. Chem. Phys.*, 16, 505–524, <https://doi.org/10.5194/acp-16-505-2016>, 2016.
- Sala, S., Bönisch, H., Keber, T., Oram, D. E., Mills, G., and Engel, A.: Deriving an atmospheric budget of total organic bromine using airborne in situ measurements from the western Pacific area during SHIVA, *Atmos. Chem. Phys.*, 14, 6903–6923, <https://doi.org/10.5194/acp-14-6903-2014>, 2014.
- Saturno, J., Ditas, F., Penning de Vries, M., Holanda, B. A., Pöhlker, M. L., Carbone, S., Walter, D., Bobrowski, N., Brito, J., Chi, X., Gutmann, A., Hrabe de Angelis, I., Machado, L. A. T., Moran-

- Zuloaga, D., Rüdiger, J., Schneider, J., Schulz, C., Wang, Q., Wendisch, M., Artaxo, P., Wagner, T., Pöschl, U., Andreae, M. O., and Pöhlker, C.: African volcanic emissions influencing atmospheric aerosols over the Amazon rain forest, *Atmos. Chem. Phys.*, 18, 10391–10405, <https://doi.org/10.5194/acp-18-10391-2018>, 2018.
- Schäfler, A., Craig, G., Wernli, H., Arbogast, P., Doyle, J. D., McTaggart-Cowan, R., Methven, J., Rivière, G., Ament, F., Boettcher, M., Bramberger, M., Cazenave, Q., Cotton, R., Crewell, S., Delanoë, J., Dörnbrack, A., Ehrlich, A., Ewald, F., Fix, A., Grams, C. M., Gray, S. L., Grob, H., Groß, S., Hagen, M., Harvey, B., Hirsch, L., Jacob, M., Kölling, T., Konow, H., Lemmerz, C., Lux, O., Magnusson, L., Mayer, B., Mech, M., Moore, R., Pelon, J., Quinting, J., Rahm, S., Rapp, M., Rautenhaus, M., Reitebuch, O., Reynolds, C. A., Sodemann, H., Spengler, T., Vaughan, G., Wendisch, M., Wirth, M., Witschas, B., Wolf, K., and Zinner, T.: The North Atlantic Waveguide and Downstream Impact Experiment, *B. Am. Meteorol. Soc.*, 99, 1607–1637, <https://doi.org/10.1175/BAMS-D-17-0003.1>, 2018.
- Schaller, T., Scheinert, M., Förste, C., and Barthelmes, F.: Inversion of GEOHALO aerogravimetry to infer ocean bottom topography: application to the Tyrrhenian, Ionian and Adriatic seas, *Geophys. J. Intern.*, 216, 840–850, <https://dx.doi.org/10.1093/gji/ggy456>, 2018.
- Schäuble, D., Voigt, C., Kärcher, B., Stock, P., Schlager, H., Krämer, M., Schiller, C., Bauer, R., Spelten, N., de Reus, M., Szakáll, M., Borrmann, S., Weers, U., and Peter, T.: Airborne measurements of the nitric acid partitioning in persistent contrails, *Atmos. Chem. Phys.*, 9, 8189–8197, <https://doi.org/10.5194/acp-9-8189-2009>, 2009.
- Schmale, J., Schneider, J., Jurkat, T., Voigt, C., Kalesse, H., Rautenhaus, M., Lichtenstern, M., Schlager, H., Ancellet, G., Arnold, F., Gerding, M., Mattis, I., Wendisch, M., and Borrmann, S.: Aerosol layers from the 2008 eruptions of Mount Okmok and Mount Kasatochi: In situ upper troposphere and lower stratosphere measurements of sulfate and organics over Europe, *J. Geophys. Res.*, 115, <https://doi.org/10.1029/2009JD013628>, 2010.
- Schmale, J., Schneider, J., Ancellet, G., Quennehen, B., Stohl, A., Sodemann, H., Burkhardt, J., Hamburger, T., Arnold, S. R., Schwarzenboeck, A., Borrmann, S., and Law, K. S.: Source identification and airborne chemical characterisation of aerosol pollution from long-range transport over Greenland during POLARCAT summer campaign 2008, *Atmos. Chem. Phys.*, 11, 10097–10123, <https://doi.org/10.5194/acp-11-10097-2011>, 2011.
- Schmidt, S., Schneider, J., Klimach, T., Mertes, S., Schenk, L. P., Kupiszewski, P., Curtius, J., and Borrmann, S.: Online single particle analysis of ice particle residuals from mountain-top mixed-phase clouds using laboratory derived particle type assignment, *Atmos. Chem. Phys.*, 17, 575–594, <https://doi.org/10.5194/acp-17-575-2017>, 2017.
- Schmitt, C. G., Heymsfield, A. J., Connolly, P., Järvinen, E., and Schnaiter, M.: A global view of atmospheric ice particle complexity, *Geophys. Res. Lett.*, 43, 11,913–11,920, <https://doi.org/10.1002/2016GL071267>, 2016a.
- Schmitt, C. G., Schnaiter, M., Heymsfield, A. J., Yang, P., Hirst, E., and Bansemer, A.: The Microphysical Properties of Small Ice Particles Measured by the Small Ice Detector-3 Probe during the MACPEX Field Campaign, *J. Atmos. Sci.*, 73, 4775–4791, <https://doi.org/10.1175/JAS-D-16-0126.1>, 2016b.
- Schnaiter, M., Kaye, P. H., Hirst, E., Ulanowski, Z., and Wagner, R.: Exploring the surface roughness of small ice crystals by measuring high resolution angular scattering patterns, *Atti d. Acc. Polo. dei Peri., Phys., Math., and Nat. Sci.*, 89, <http://dx.doi.org/10.1478/C1V89S1P084>, 2011.
- Schnaiter, M., Büttner, S., Möhler, O., Skrotzki, J., Vragel, M., and Wagner, R.: Influence of particle size and shape on the backscattering linear depolarization ratio of small ice crystals – cloud chamber measurements in the context of contrail and cirrus microphysics, *Atmos. Chem. Phys.*, 12, 10465–10484, <https://doi.org/10.5194/acp-12-10465-2012>, 2012.
- Schnaiter, M., Järvinen, E., Vochezer, P., Abdelmonem, A., Wagner, R., Jourdan, O., Mioche, G., Shcherbakov, V. N., Schmitt, C. G., Tricoli, U., Ulanowski, Z., and Heymsfield, A. J.: Cloud chamber experiments on the origin of ice crystal complexity in cirrus clouds, *Atmos. Chem. Phys.*, 16, 5091–5110, <https://doi.org/10.5194/acp-16-5091-2016>, 2016.
- Schnaiter, M., Järvinen, E., Abdelmonem, A., and Leisner, T.: PHIPS-HALO: the airborne particle habit

- imaging and polar scattering probe – Part 2: Characterization and first results, *Atmos. Meas. Tech.*, 11, 341–357, <https://doi.org/10.5194/amt-11-341-2018>, 2018.
- Schön, R., Schnaiter, M., Ulanowski, Z., Schmitt, C., Benz, S., Möhler, O., Vogt, S., Wagner, R., and Schurath, U.: Particle habit imaging using incoherent light: A first step toward a novel instrument for cloud microphysics, *J. Atmos. Ocean. Tech.*, 28, 493–512, <https://doi.org/10.1175/2011JTECHA1445.1>, 2011.
- Schulz, C., Schneider, J., Amorim Holanda, B., Appel, O., Costa, A., de Sá, S. S., Dreiling, V., Fütterer, D., Jurkat-Witschas, T., Klimach, T., Knote, C., Krämer, M., Martin, S. T., Mertes, S., Pöhlker, M. L., Sauer, D., Voigt, C., Walser, A., Weinzierl, B., Ziereis, H., Zöger, M., Andreae, M. O., Artaxo, P., Machado, L. A. T., Pöschl, U., Wendisch, M., and Borrmann, S.: Aircraft-based observations of isoprene-epoxydiol-derived secondary organic aerosol (IEPOX-SOA) in the tropical upper troposphere over the Amazon region, *Atmos. Chem. Phys.*, 18, 14 979–15 001, <https://doi.org/10.5194/acp-18-14979-2018>, 2018.
- Schumann, U., Jeßberger, P., and Voigt, C.: Contrail ice particles in aircraft wakes and their climatic importance, *Geophys. Res. Lett.*, 40, 2867–2872, <https://doi.org/10.1002/grl.50539>, 2013.
- Shcherbakov, V., Jourdan, O., Voigt, C., Gayet, J.-F., Chauvigne, A., Schwarzenboeck, A., Minikin, A., Klingebiel, M., Weigel, R., Borrmann, S., Jurkat, T., Kaufmann, S., Schlage, R., Goubeyre, C., Febvre, G., Lapyonok, T., Frey, W., Molléker, S., and Weinzierl, B.: Porous aerosol in degassing plumes of Mt. Etna and Mt. Stromboli, *Atmos. Chem. Phys.*, 16, 11 883–11 897, <https://doi.org/10.5194/acp-16-11883-2016>, 2016.
- Sourdeval, O., Gryspeerdt, E., Krämer, M., Goren, T., Delanoë, J., Afchine, A., Hemmer, F., and Quaas, J.: Ice crystal number concentration estimates from lidar–radar satellite remote sensing – Part 1: Method and evaluation, *Atmos. Chem. Phys.*, 18, 14 327–14 350, <https://doi.org/10.5194/acp-18-14327-2018>, 2018.
- Spiegel, J. K., Buchmann, N., Mayol-Bracero, O. L., Cuadra Rodríguez, L. A., Valle Díaz, C. J., Prather, K. A., Mertes, S., and Eugster, W.: Do cloud properties in a Puerto Rican tropical montane cloud forest depend on occurrence of long-range transported African dust?, *Pure Appl. Geophys.*, 171, 2443–2459, <https://doi.org/10.1007/s00024-014-0830-y>, 2014.
- Stegmann, P., Tropea, C., Järvinen, E., and Schnaiter, M.: Comparison of measured and computed phase functions of individual tropospheric ice crystals, *J. Quant. Spectrosc. Ra.*, 178, 379–389, <https://doi.org/10.1016/j.jqsrt.2015.12.019>, 2016.
- Stevens, B., Farrell, D., Hirsch, L., Jansen, F., Nuijens, L., Serikov, I., Brüggemann, B., Forde, M., Linne, H., Lonitz, K., and Prospero, J. M.: The Barbados Cloud Observatory: Anchoring Investigations of Clouds and Circulation on the Edge of the ITCZ, *B. Am. Meteorol. Soc.*, 97, 787–801, <https://doi.org/10.1175/BAMS-D-14-00247.1>, 2016.
- Stevens, B., Brogniez, H., Kiemle, C., Lacour, J. L., Crevoisier, C., and Kiliani, J.: Structure and dynamical influence of water vapor in the lower tropical troposphere., *Surv. Geophys.*, 38, 1371–1397, <https://doi.org/10.1007/s10712-017-9420-8>, 2017.
- Stevens, B., Ament, F., Bony, S., Crewell, S., Ewald, F., Gross, S., Hansen, A., Hirsch, L., Jacob, M., Kölling, T., Konow, H., Mayer, B., Wendisch, M., Wirth, M., Wolf, K., Bakan, S., Bauer-Pfundstein, M., Brueck, M., Delanoë, J., Ehrlich, A., Farrell, D., Forde, M., Göttsche, F., Grob, H., Hagen, M., Jäkel, E., Jansen, F., Klepp, C., Klingebiel, M., Mech, M., Peters, G., Rapp, M., Wing, A. A., and Zinner, T.: A high-altitude long-range aircraft configured as a cloud observatory – the NARVAL expeditions, *B. Am. Meteorol. Soc.*, <https://doi.org/10.1175/BAMS-D-18-0198.1>, early online release 18 January, 2019.
- Tilgner, A., Schöne, L., Bräuer, P., van Pinxteren, D., Hoffmann, E., Spindler, G., Styler, S. A., Mertes, S., Birmili, W., Otto, R., Merkel, M., Weinhold, K., Wiedensohler, A., Deneke, H., Schrödner, R., Wolke, R., Schneider, J., Haunold, W., Engel, A., Wéber, A., and Herrmann, H.: Comprehensive assessment of meteorological conditions and airflow connectivity during HCCT-2010, *Atmos. Chem. Phys.*, 14, 9105–9128, <https://doi.org/10.5194/acp-14-9105-2014>, 2014.
- Tricoli, U., Vochezer, P., and Pfeilsticker, K.: Transition operator calculation with the Green's dyadic technique for electromagnetic scattering: A numerical approach using the Dyson equation, *J. Quant. Spectrosc. Ra.*, 162, 77–88, <https://doi.org/10.1016/j.jqsrt.2015.04.006>, 2015.

- Ungermann, J., Blank, J., Dick, M., Ebersoldt, A., Friedl-Vallon, F., Giez, A., Guggenmoser, T., Höpfner, M., Jurkat, T., Kaufmann, M., Kaufmann, S., Kleinert, A., Krämer, M., Latzko, T., Oelhaf, H., Olchewski, F., Preusse, P., Rolf, C., Schillings, J., Suminska-Ebersoldt, O., Tan, V., Thomas, N., Voigt, C., Zahn, A., Zöger, M., and Riese, M.: Level 2 processing for the imaging Fourier transform spectrometer GLORIA: derivation and validation of temperature and trace gas volume mixing ratios from calibrated dynamics mode spectra, *Atmos. Meas. Tech.*, 8, 2473–2489, <https://doi.org/10.5194/amt-8-2473-2015>, 2015.
- Urbanek, B., Groß, S., Schäfler, A., and Wirth, M.: Determining stages of cirrus evolution: a cloud classification scheme, *Atmos. Meas. Tech.*, 10, 1653–1664, <https://doi.org/10.5194/amt-10-1653-2017>, 2017.
- Urbanek, B., Groß, S., Wirth, M., Rolf, C., Krämer, M., and Voigt, C.: High Depolarization Ratios of Naturally Occurring Cirrus Clouds Near Air Traffic Regions Over Europe, *Geophys. Res. Lett.*, 45, 13,166–13,172, <https://doi.org/10.1029/2018GL079345>, 2018.
- van Pinxteren, D., Fomba, K. W., Mertes, S., Müller, K., Spindler, G., Schneider, J., Lee, T., Collett, J. L., and Herrmann, H.: Cloud water composition during HCCT-2010: Scavenging efficiencies, solute concentrations, and droplet size dependence of inorganic ions and dissolved organic carbon, *Atmos. Chem. Phys.*, 16, 3185–3205, <https://doi.org/10.5194/acp-16-3185-2016>, 2016.
- Vochezer, P., Järvinen, E., Wagner, R., Kupiszewski, P., Leisner, T., and Schnaiter, M.: In situ characterization of mixed phase clouds using the Small Ice Detector and the Particle Phase Discriminator, *Atmos. Meas. Tech.*, 9, 159–177, <https://doi.org/10.5194/amt-9-159-2016>, 2016.
- Vogel, B., Günther, G., Müller, R., Groß, J.-U., Hoor, P., Krämer, M., Müller, S., Zahn, A., and Riese, M.: Fast transport from Southeast Asia boundary layer sources to northern Europe: rapid uplift in typhoons and eastward eddy shedding of the Asian monsoon anticyclone, *Atmos. Chem. Phys.*, 14, 12 745–12 762, <https://doi.org/10.5194/acp-14-12745-2014>, 2014.
- Vogel, B., Günther, G., Müller, R., Groß, J.-U., Afchine, A., Bozem, H., Hoor, P., Krämer, M., Müller, S., Riese, M., Rolf, C., Spelten, N., Stiller, G. P., Ungermann, J., and Zahn, A.: Long-range transport pathways of tropospheric source gases originating in Asia into the northern lower stratosphere during the Asian monsoon season 2012, *Atmos. Chem. Phys.*, 16, 15 301–15 325, <https://doi.org/10.5194/acp-16-15301-2016>, 2016.
- Voigt, C., Schumann, U., Jurkat, T., Schäuble, D., Schlager, H., Petzold, A., Gayet, J.-F., Krämer, M., Schneider, J., Borrmann, S., Schmale, J., Jessberger, P., Hamburger, T., Lichtenstern, M., Scheibe, M., Gourbeyre, C., Meyer, J., Kübbeler, M., Frey, W., Kalesse, H., Butler, T., Lawrence, M. G., Holzäpfel, F., Arnold, F., Wendisch, M., Döpelheuer, A., Gottschaldt, K., Baumann, R., Zöger, M., Sölch, I., Rautenhaus, M., and Dörnbrack, A.: In-situ observations of young contrails - Overview and selected case studies from the CONCERT campaign, *Atmos. Chem. Phys.*, 10, 9039–9056, <https://doi.org/10.5194/acp-10-9039-2010>, 2010.
- Voigt, C., Schumann, U., Jessberger, P., Jurkat, T., Petzold, A., Gayet, J.-F., Krämer, M., Thornberry, T., and Fahey, D.: Extinction and optical depth of contrails, *Geophys. Res. Lett.*, 38, <https://doi.org/10.1029/2011GL047189>, 2011.
- Voigt, C., Jeßberger, P., Jurkat, T., Kaufmann, S., Baumann, R., Schlager, H., Bobrowski, N., Guffirda, G., and Salerno, G.: Evolution of CO<sub>2</sub>, SO<sub>2</sub>, HCl and HNO<sub>3</sub> in the volcanic plumes from Etna, *Geophys. Res. Lett.*, 41, 2196–2203, <https://doi.org/10.1002/2013GL058974>, 2014.
- Voigt, C., Schumann, U., Minikin, A., Abdelmonem, A., Afchine, A., Borrmann, S., Boettcher, M., Buchholz, B., Bugliaro, L., Costa, A., Curtius, J., Dollner, M., Dörnbrack, A., Dreiling, V., Ebert, V., Ehrlich, A., Fix, A., Forster, L., Frank, F., Fütterer, D., Giez, A., Graf, K., Groß, J.-U., Groß, S., Heinold, B., Hüneke, T., Järvinen, E., Jurkat, T., Kaufmann, S., Kenntner, M., Klingebiel, M., Klimach, T., Kohl, R., Krämer, M., Krisna, T. C., Luebke, A., Mayer, B., Mertes, S., Molleker, S., Petzold, A., Pfeilsticker, K., Port, M., Rapp, M., Reutter, P., Rolf, C., Rose, D., Sauer, D., Schäfler, A., Schrage, R., Schnaiter, M., Schneider, J., Spelten, N., Spichtinger, P., Stock, P., Weigel, R., Weinzierl, B., Wendisch, M., Werner, F., Wernli, H., Wirth, M., Zahn, A., Ziereis, H., and Zöger, M.: ML-CIRRUS: The Airborne Experiment on Natural Cirrus and Contrail Cirrus with the High-Altitude Long-Range Research Aircraft HALO, *B. Am. Meteorol. Soc.*, 98, 271–288, <https://doi.org/10.1175/BAMS-D-15-00213.1>, final form published online 10 May 2016, 2017.

- Voigt, C., Dörnbrack, A., Wirth, M., Groß, S. M., Pitts, M. C., Poole, L. R., Baumann, R., Ehard, B., Sinnhuber, B.-M., Woiwode, W., and Oelhaf, H.: Widespread polar stratospheric ice clouds in the 2015–2016 Arctic winter – implications for ice nucleation, *Atmos. Chem. Phys.*, 18, 15 623–15 641, <https://doi.org/10.5194/acp-18-15623-2018>, 2018.
- Weger, M., Heinold, B., Engler, C., Schumann, U., Seifert, A., Föbög, R., Voigt, C., Baars, H., Blahak, U., Borrmann, S., Hoose, C., Kaufmann, S., Krämer, M., Seifert, P., Senf, F., Schneider, J., and Tegen, I.: The impact of mineral dust on cloud formation during the Saharan dust event in April 2014 over Europe, *Atmos. Chem. Phys.*, 18, 17 545–17 572, <https://doi.org/10.5194/acp-18-17545-2018>, 2018.
- Weigel, R., Spichtinger, P., Mahnke, C., Klingebiel, M., Afchine, A., Petzold, A., Krämer, M., Costa, A., Molleker, S., Reutter, P., Szakáll, M., Port, M., Grulich, L., Jurkat, T., Minikin, A., and Borrmann, S.: Thermodynamic correction of particle concentrations measured by underwing probes on fast-flying aircraft, *Atmos. Meas. Tech.*, 9, 5135–5162, <https://doi.org/10.5194/amt-9-5135-2016>, 2016.
- Wendisch, M., Pöschl, U., Andreae, M. O., Machado, L. A. T., Albrecht, R., Schlager, H., Rosenfeld, D., Martin, S. T., Abdelmonem, A., Afchine, A., Araújo, A. C., Artaxo, P., Aufmhoff, H., Barbosa, H. M. J., Borrmann, S., Braga, R., Buchholz, B., Cecchini, M. A., Costa, A., Curtius, J., Dollner, M., Dorf, M., Dreiling, V., Ebert, V., Ehrlich, A., Ewald, F., Fisch, G., Fix, A., Frank, F., Fütterer, D., Heckl, C., Heidelberg, F., Hüneke, T., Jäkel, E., Järvinen, E., Jurkat, T., Kanter, S., Kästner, U., Kenntner, M., Kesselmeier, J., Klimach, T., Knecht, M., Kohl, R., Kölling, T., Krämer, M., Krüger, M., Krisna, T. C., Lavric, J. V., Longo, K., Mahnke, C., Manzi, A. O., Mayer, B., Mertes, S., Minikin, S., Molleker, S., Münch, S., Nillius, B., Pfeilsticker, K., Pöhlker, C., Roiger, A., Rose, D., Rosenow, D., Sauer, D., Schnaiter, M., Schneider, J., Schulz, C., de Souza, R. A. F., Spanu, A., Stock, P., Vila, D., Voigt, C., Walser, A., Walter, D., Weigel, R., Weinzierl, B., Werner, F., Yamasoe, M. A., Ziereis, H., Zinner, T., and Zöger, M.: ACRIDICON-CHUVA Campaign: Studying Tropical Deep Convective Clouds and Precipitation over Amazonia Using the New German Research Aircraft HALO, *B. Am. Meteorol. Soc.*, 97, 1885–1908, <https://doi.org/10.1175/BAMS-D-14-00255.1>, 2016.
- Whalley, L. K., Stone, D., George, I. J., Mertes, S., van Pinxteren, D., Tilgner, A., Herrmann, H., Evans, M. J., and Heard, D. E.: The influence of clouds on radical concentrations: Observations and modelling studies of HO<sub>x</sub> during the Hill Cap Cloud Thuringia (HCCT) campaign in 2010, *Atmos. Chem. Phys.*, 15, 3289–3301, <https://doi.org/10.5194/acp-15-3289-2015>, 2015.
- Woiwode, W., Sumińska-Ebersoldt, O., Oelhaf, H., Höpfner, M., Belyaev, G. V., Ebersoldt, A., Friedl-Vallon, F., Groöb, J.-U., Gulde, T., Kaufmann, M., Kleinert, A., Krämer, M., Kretschmer, E., Kulesa, T., Maucher, G., Neubert, T., Piesch, C., Preusse, P., Riese, M., Rongen, H., Sartorius, C., Schardt, G., Schönfeld, A., Schuettmeyer, D., Sha, M. K., Stroh, F., Ungermann, J., Volk, C. M., and Orphal, J.: Validation of first chemistry mode retrieval results from the new limb-imaging FTS GLORIA with correlative MIPAS-STR observations, *Atmos. Meas. Tech.*, 8, 2509–2520, <https://doi.org/10.5194/amt-8-2509-2015>, 2015.
- Woiwode, W., Dörnbrack, A., Bramberger, M., Friedl-Vallon, F., Haenel, F., Höpfner, M., Johansson, S., Kretschmer, E., Krisch, I., Latzko, T., Oelhaf, H., Orphal, J., Preusse, P., Sinnhuber, B.-M., and Ungermann, J.: Mesoscale fine structure of a tropopause fold over mountains, *Atmos. Chem. Phys.*, 18, 15 643–15 667, <https://doi.org/10.5194/acp-18-15643-2018>, 2018.
- Wolf, K., Ehrlich, A., Hüneke, T., Pfeilsticker, K., Werner, F., Wirth, M., and Wendisch, M.: Potential of remote sensing of cirrus optical thickness by airborne spectral radiance measurements at different sideward viewing angles, *Atmos. Chem. Phys.*, 17, 4283–4303, <https://doi.org/10.5194/acp-17-4283-2017>, 2017.



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# HALO-related Peer-Reviewed Journal-Publications

- Amediek, A. and Wirth, M.: Pointing Verification Method for Spaceborne Lidars, *Remote Sens.*, 9, <https://doi.org/10.3390/rs9010056>, 2017.
- Amediek, A., Ehret, G., Fix, A., Wirth, M., Büdenbender, C., Quatrevalet, M., Kiemle, C., and Gerbig, C.: CHARM-F - a new airborne integrated-path differential-absorption lidar for carbon dioxide and methane observations: measurement performance and quantification of strong point source emissions, *Applied Optics*, 56, 5182–5197, <https://doi.org/10.1364/AO.56.005182>, 2017.
- Baumgardner, D., Brenguier, J. L., Bucholtz, A., Coe, H., DeMott, P., Garrett, T. J., Gayet, J. F., Hermann, M., Heymsfield, A., Korolev, A., Krämer, M., Petzold, A., Strapp, W., Pilewskie, P., Taylor, J., Twohy, C., Wendisch, M., Bachalo, W., and Chuang, P.: Airborne instruments to measure atmospheric aerosol particles, clouds and radiation: A cook's tour of mature and emerging technology, *Atmos. Res.*, 102, 10 – 29, <https://doi.org/10.1016/j.atmosres.2011.06.021>, 2011.
- Baumgardner, D., Avallone, L., Bansemer, A., Borrmann, S., Brown, P., Bundke, U., Chuang, P. Y., Cziczo, D., Field, P., Gallagher, M., Gayet, J.-F., Heymsfield, A., Korolev, A., Krämer, M., McFarquhar, G., Mertes, S., Möhler, O., Lance, S., Lawson, P., Petters, M., Pratt, K., Roberts, G., Rogers, D., Stetzer, O., Stith, J., Strapp, W., Twohy, C., and Wendisch, M.: In situ, airborne instrumentation: Addressing and solving measurement problems in ice clouds, *B. Am. Meteorol. Soc.*, 93, ES29–ES34, <https://doi.org/10.1175/BAMS-D-11-00123.1>, 2012.
- Brenguier, J.-L., Bachalo, W., Chuang, P., Esposito, B. M., Fugal, J., Garrett, T., Gayet, J.-F., Gerber, H., Heymsfield, A., Kokhanovsky, A., Korolev, A., Lawson, R., Rogers, D. C., Shaw, R. A., Strapp, W., and Wendisch, M.: Airborne Measurements for Environmental Research: Methods and Instruments, chap. In *Situ Measurements of Cloud and Precipitation Particles*, pp. 225–301, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany, ISBN: 978-3-527-40996-9, 2013.
- Buchholz, B., Böse, N., and Ebert, V.: Absolute validation of a diode laser hygrometer via inter-comparison with the German national primary water vapor standard, *Appl. Phys. B*, 116, 883–899, <https://doi.org/10.1007/s00340-014-5775-4>, 2014.
- Bühl, J., Alexander, S., Crewell, S., Heymsfield, A., Kalesse, H., Khain, A., Maahn, M., Tricht, K. V., and Wendisch, M.: Ice Formation and Evolution in Clouds and Precipitation: Measurement and Modeling Challenges. Chapter 10: Remote Sensing., *Meteorol. Mon.*, 58, 10.1–10.21, <https://doi.org/10.1175/AMSMONOGRAPHIS-D-16-0015.1>, 2017.
- Bundke, U., Nillius, B., Jaenicke, R., Wetter, T., Klein, H., and Bingemer, H.: The Fast Ice Nucleus Chamber FINCH, *Atmos. Res.*, 90, 180–186, <https://doi.org/10.1016/j.atmosres.2008.02.008>, 2008.
- Cecchini, M. A., Machado, L. A. T., Comstock, J. M., Mei, F., Wang, J., Fan, J., Tomlinson, J. M., Schmid, B., Albrecht, R., Martin, S. T., and Artaxo, P.: Impacts of the Manaus pollution plume on the microphysical properties of Amazonian warm-phase clouds in the wet season, *Atmos. Chem. Phys.*, 16, 7029–7041, <https://doi.org/10.5194/acp-16-7029-2016>, 2016.
- Custard, K. D., Thompson, C. R., Pratt, K. A., Shepson, P. B., Liao, J., Huey, L. G., Orlando, J. J., Weinheimer, A. J., Apel, E., Hall, S. R., Flocke, F., Mauldin, L., Hornbrook, R. S., Pöhler, D., General, S., Zielcke, J., Simpson, W. R., Platt, U., Fried, A., Weibring, P., Sive, B. C., Ullmann, K., Cantrell,
-

- C., Knapp, D. J., and Montzka, D. D.: The  $\text{NO}_x$  dependence of bromine chemistry in the Arctic atmospheric boundary layer, *Atmos. Chem. Phys.*, 15, 10799–10809, <https://doi.org/10.5194/acp-15-10799-2015>, 2015.
- Ewald, F., Kölling, T., Baumgartner, A., Zinner, T., and Mayer, B.: Design and characterization of specMACS, a multipurpose hyperspectral cloud and sky imager, *Atmos. Meas. Tech.*, 9, 2015–2042, <https://doi.org/10.5194/amt-9-2015-2016>, 2016.
- Friedl-Vallon, F., Gulde, T., Hase, F., Kleinert, A., Kulesa, T., Maucher, G., Neubert, T., Olschewski, F., Piesch, C., Preusse, P., Rongen, H., Sartorius, C., Schneider, H., Schönfeld, A., Tan, V., Bayer, N., Blank, J., Dapp, R., Ebersoldt, A., Fischer, H., Graf, F., Guggenmoser, T., Höpfner, M., Kaufmann, M., Kretschmer, E., Latzko, T., Nordmeyer, H., Oelhaf, H., Orphal, J., Riese, M., Schardt, G., Schillings, J., Sha, M. K., Suminska-Ebersoldt, O., and Ungermann, J.: Instrument concept of the imaging Fourier transform spectrometer GLORIA, *Atmos. Meas. Tech.*, 7, 3565–3577, <https://doi.org/10.5194/amt-7-3565-2014>, 2014.
- Giez, A., Mallaun, C., Zöger, M., Dörnbrack, A., and Schumann, U.: Static Pressure from Aircraft Trailing-Cone Measurements and Numerical Weather-Prediction Analysis, *J. Aircraft*, 54, 1728–1737, <https://doi.org/10.2514/1.C034084>, American Institute of Aeronautics and Astronautics (AIAA), 2017.
- Grewe, V., Dahlmann, K., Flink, J., Frömming, C., Ghosh, R., Gierens, K. M., Heller, R., Hendricks, J., Jöckel, P., Kaufmann, S., Kölker, K., Linke, F., Luchkova, T., Lührs, B., van Manen, J., Matthes, S., Minikin, A., Niklaß, M., Plohr, M., Righi, M., Rosanka, S., Schmitt, A. R., Schumann, U., Terekhov, I., Unterstrasser, S., Vázquez-Navarro, M., Voigt, C., Wicke, K., Yamashita, H., Zahn, A., and Ziereis, H.: Mitigating the Climate Impact from Aviation: Achievements and Results of the DLR WeCare Project, *Aerospace*, 4 (3), 1–50, <https://doi.org/10.3390/aerospace4030034>, 2017.
- Guggenmoser, T., Blank, J., Kleinert, A., Latzko, T., Ungermann, J., Friedl-Vallon, F., Höpfner, M., Kaufmann, M., Kretschmer, E., Maucher, G., Neubert, T., Oelhaf, H., Preusse, P., Riese, M., Rongen, H., Sha, M. K., Sumińska-Ebersoldt, O., and Tan, V.: New calibration noise suppression techniques for the GLORIA limb imager, *Atmos. Meas. Tech.*, 8, 3147–3161, <https://doi.org/10.5194/amt-8-3147-2015>, 2015.
- He, K., Xu, T., Förste, C., Petrovic, S., Barthelmes, F., Jiang, N., and Flechtner, F.: GNSS Precise Kinematic Positioning for Multiple Kinematic Stations Based on A Priori Distance Constraints, *Sensors*, 16, 470, <https://doi.org/10.3390/s16040470>, 2016.
- Hollstein, A. and Ruhtz, T.: Method for retrieving the polarization properties of a waveplate assembled in a multispectral, complete polarimeter, *Opt. Lett.*, 34, 2599–2601, <https://doi.org/10.1364/OL.34.002599>, 2009.
- Hollstein, A., Ruhtz, T., Fischer, J., and Preusker, R.: Optimization of system parameters for a complete multispectral polarimeter, *Appl. Opt.*, 48, 4767–4773, <https://doi.org/10.1364/AO.48.004767>, 2009.
- Kiemle, C., Schäfler, A., Wirth, M., Fix, A., and Rahm, S.: Detection and Analysis of Water Vapor Transport by Airborne Lidars, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 6, 1189–1193, <https://doi.org/10.1109/JSTARS.2013.2239609>, 2013.
- Klocke, D., Brueck, M., Hohenegger, C., and Stevens, B.: Rediscovery of the doldrums in storm-resolving simulations over the tropical Atlantic, *Nature Geoscience*, 10, 891–896, <https://doi.org/10.1038/s41561-017-0005-4>, 2017.
- Korolev, A., McFarquhar, G., Field, P. R., Franklin, C., Lawson, P., Wang, Z., Williams, E., Abel, S. J., Axisa, D., Borrmann, S., Crosier, J., Fugal, J., Krämer, M., Lohmann, U., Schlenker, O., and Wendisch, M.: Ice Formation and Evolution in Clouds and Precipitation: Measurement and Modeling Challenges. Chapter 5: Mixed-phase clouds: progress and challenges., *Meteorol. Mon.*, 58, 5.1–5.50, <https://doi.org/10.1175/AMSMONOGRAPHS-D-17-0001.1>, 2017.
- Krämer, M., Twohy, C., Hermann, M., Afchine, A., Dhaniyala, S., and Korolev, A.: Airborne Measurements for Environmental Research: Methods and Instruments, chap. Aerosol and Cloud Particle Sampling, pp. 303–341, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany, ISBN: 978-3-527-40996-9, 2013.
- Krisch, I., Preusse, P., Ungermann, J., Dörnbrack, A., Eckermann, S. D., Ern, M., Friedl-Vallon, F.,

- Kaufmann, M., Oelhaf, H., Rapp, M., Strube, C., and Riese, M.: First tomographic observations of gravity waves by the infrared limb imager GLORIA, *Atmos. Chem. Phys.*, 17, 14937–14953, <https://doi.org/10.5194/acp-17-14937-2017>, 2017.
- Kritten, L., Butz, A., Dorf, M., Deutschmann, T., Kühl, S., Prados-Roman, C., Puķite, J., Rozanov, A., Schofield, R., and Pfeilsticker, K.: Time dependent profile retrieval of UV/vis absorbing radicals from balloon-borne limb measurements – a case study on NO<sub>2</sub> and O<sub>3</sub>, *Atmos. Meas. Tech.*, 3, 933–946, <https://doi.org/10.5194/amt-3-933-2010>, 2010.
- Lelieveld, J., Bourtsoukidis, E., Brühl, C., Fischer, H., Fuchs, H., Harder, H., Hofzumahaus, A., Holland, F., Marno, D., Neumaier, M., Pozzer, A., Schlager, H., Williams, J., Zahn, A., and Ziereis, H.: The South Asian monsoon — pollution pump and purifier, *Science*, 361, 270–273, <https://doi.org/10.1126/science.aar2501>, 2018.
- Meyer, J., Rolf, C., Schiller, C., Rohs, S., Spelten, N., Afchine, A., Zöger, M., Sitnikov, N., Thornberry, T. D., Rollins, A. W., Bozóki, Z., Tátrai, D., Ebert, V., Kühnreich, B., Mackrodt, P., Möhler, O., Saathoff, H., Rosenlof, K. H., and Krämer, M.: Two decades of water vapor measurements with the FISH fluorescence hygrometer: a review, *Atmos. Chem. Phys.*, 15, 8521–8538, <https://doi.org/10.5194/acp-15-8521-2015>, 2015.
- Monte, C., Gutschwager, B., Adibekyan, A., Kehr, M., Ebersoldt, A., Olschewski, F., and Hollandt, J.: Radiometric calibration of the in-flight blackbody calibration system of the GLORIA interferometer, *Atmos. Meas. Tech.*, 7, 13–27, <https://doi.org/10.5194/amt-7-13-2014>, 2014.
- Olschewski, F., Ebersoldt, A., Friedl-Vallon, F., Gutschwager, B., Hollandt, J., Kleinert, A., Monte, C., Piesch, C., Preusse, P., Rolf, C., Steffens, P., and Koppmann, R.: The in-flight blackbody calibration system for the GLORIA interferometer on board an airborne research platform, *Atmos. Meas. Tech.*, 6, 3067–3082, <https://doi.org/10.5194/amt-6-3067-2013>, 2013.
- Peterson, P. K., Simpson, W. R., Pratt, K. A., Shepson, P. B., Frieß, U., Zielcke, J., Platt, U., Walsh, S. J., and Nghiem, S. V.: Dependence of the vertical distribution of bromine monoxide in the lower troposphere on meteorological factors such as wind speed and stability, *Atmos. Chem. Phys.*, 15, 2119–2137, <https://doi.org/10.5194/acp-15-2119-2015>, 2015.
- Pratt, K. A., Custard, K. D., Shepson, P. B., Douglas, T. A., Pöhler, D., General, S., Zielcke, J., Simpson, W. R., Platt, U., Tanner, D. J., Gregory Huey, L., Carlsen, M., and Stirm, B. H.: Photochemical production of molecular bromine in Arctic surface snowpacks, *Nature Geoscience*, 6, 351–356, <https://doi.org/10.1038/ngeo1779>, 2013.
- Rautenhaus, M., Bauer, G., and Dörnbrack, A.: A web service based tool to plan atmospheric research flights, *Geosci. Model Dev.*, 5, 55–71, <https://doi.org/10.5194/gmd-5-55-2012>, 2012.
- Rautenhaus, M., Grams, C. M., Schäfler, A., and Westermann, R.: Three-dimensional visualization of ensemble weather forecasts – Part 2: Forecasting warm conveyor belt situations for aircraft-based field campaigns, *Geosci. Model Dev.*, 8, 2355–2377, <https://doi.org/10.5194/gmd-8-2355-2015>, 2015a.
- Rautenhaus, M., Kern, M., Schäfler, A., and Westermann, R.: Three-dimensional visualization of ensemble weather forecasts – Part 1: The visualization tool Met.3D (version 1.0), *Geosci. Model Dev.*, 8, 2329–2353, <https://doi.org/10.5194/gmd-8-2329-2015>, 2015b.
- Schnitt, S., Orlandi, E., Mech, M., Ehrlich, A., and Crewell, S.: Characterization of Water Vapor and Clouds During the Next-Generation Aircraft Remote Sensing for Validation (NARVAL) South Studies, *IEEE J. Sel. Top. Appl.*, 10, 3114 – 3124, <https://doi.org/10.1109/JSTARS.2017.2687943>, 2017.
- Schumann, U. and Heymsfield, A. J.: On the Life Cycle of Individual Contrails and Contrail Cirrus, *Meteorol. Mon.*, 58, 3.1–3.24, <https://doi.org/10.1175/AMSMONOGRAPHS-D-16-0005.1>, 2017.
- Schumann, U., Fahey, D. W., Wendisch, M., and Brenguier, J.-L.: Airborne Measurements for Environmental Research: Methods and instruments, chap. Introduction to airborne measurements of the earth atmosphere and surface, pp. 1–6, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany, ISBN: 978-3-527-40996-9, 2013.
- Schumann, U., Baumann, R., Baumgardner, D., Bedka, S. T., Duda, D. P., Freudenthaler, V., Gayet, J.-F., Heymsfield, A. J., Minnis, P., Quante, M., Raschke, E., Schlager, H., Vázquez-Navarro, M., Voigt, C., and Wang, Z.: Properties of individual contrails: A compilation of observations and some

- comparisons, *Atmos. Chem. Phys.*, 17, 403–438, <https://doi.org/10.5194/acp-17-403-2017>, 2017.
- Semmling, A., Beckheinrich, J., Wickert, J., Beyerle, G., Schön, S., Fabra, F., Pflug, H., He, K., Schwabe, J., and Scheinert, M.: Sea surface topography retrieved from GNSS reflectometry phase data of the GEOHALO flight mission, *Geophys. Res. Lett.*, 41, 954–960, <https://doi.org/10.1002/2013GL058725>, 2014.
- Tadic, I., Parchatka, U., Königstedt, R., and Fischer, H.: In-flight stability of quantum cascade laser-based infrared absorption spectroscopy measurements of atmospheric carbon monoxide, *Appl. Phys. B-Laser O.*, 123, 146, <https://doi.org/10.1007/s00340-017-6721-z>, 2017.
- Wendisch, M., Pilewskie, P., Bohn, B., Bucholtz, A., Crewell, S., Harlow, C., Jäkel, E., Schmidt, K. S., Shetter, R., Taylor, J., Turner, D. D., and Zöger, M.: *Airborne Measurements for Environmental Research: Methods and Instruments*, chap. Atmospheric Radiation Measurements, pp. 343–411, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany, 2013.

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## Non–Peer–Reviewed Publications

- Abdelmonem, A., Schnaiter, M., Hesse, E., Meyer, J., and Leisner, T.: Particle Habit Imaging and Polar Scattering probe (PHIPS): Better particle edge detection and 3D reconstruction model, ICCP, Leipzig, 2012.
- Amediek, A., Büdenbender, C., Ehret, G., Fix, A., Kiemle, C., Quatrevalet, M., Wirth, M., Hoffmann, D., Kasemann, R., Klein, J., Löhring, J., and Klein, V.: CHARM-F – The Airborne CH<sub>4</sub> and CO<sub>2</sub> IPDA Lidar: Status and Outlook, in International Laser Radar Conference (ILRC) 2012, edited by A. Papayannis, D. Balis, and V. Amiridis, pp. 239–242, International Co-ordination group for Laser Atmospheric Studies, <https://elib.dlr.de/76368/>, 2012.
- Amediek, A., Ehret, G., Fix, A., Wirth, M., Büdenbender, C., Kiemle, C., Loehring, J., and Gerbig, C.: First Airborne Lidar Measurements of Methane and Carbon Dioxide Applying the DLR Greenhouse Gas Sounder CHARM-F, in AGU Fall Meeting, <https://elib.dlr.de/104221/>, 2015.
- Amediek, A., Büdenbender, C., Ehret, G., Fix, A., Gerbig, C., Kiemle, C., Quatrevalet, M., and Wirth, M.: First Airborne Lidar Measurements of Methane and Carbon Dioxide Applying the MERLIN Demonstrator CHARM-F, in EGU General Assembly Conference Abstracts, vol. 18, p. 14600, 2016a.
- Amediek, A., Büdenbender, C., Ehret, G., Fix, A., Kiemle, C., Quatrevalet, M., and Wirth, M.: CHARM-F: The Airborne Greenhouse Gas Lidar as a Demonstrator for Spaceborne Active Remote Sensing Systems, Presentation, DLR Conference On Climate Change 2016, Cologne, Germany, 2016b.
- Amediek, A., Büdenbender, C., and Quatrevalet, M.: CHARM-F: A New Airborne Lidar for the Measurement of Methane and Carbon Dioxide: a Demonstrator for MERLIN, Presentation, ODAS 2016, 16th ONERA-DLR Aerospace Symposium, 21-23 June 2016, Oberpfaffenhofen, Germany, 2016c.
- Amediek, A., Bovensmann, H., Ehret, G., Fix, A., Gerbig, C., and Roiger, A.: CoMet: The Carbon Dioxide and Methane Mission for HALO, Presentation, IAPSO-IAMAS-IGA Joint Assembly, Cape Town, South Africa, 2017a.
- Amediek, A., Büdenbender, C., Ehret, G., Fix, A., Kiemle, C., Quatrevalet, M., and Wirth, M.: Aktive Fernerkundung von Methan und Kohlendioxid in der Erdatmosphäre, Präsentation, Deutscher Luft- und Raumfahrtkongress 2017, München, Germany, 2017b.
- Amediek, A., Ehret, G., Fix, A., Büdenbender, C., Quatrevalet, M., and Kiemle, C.: Performance of CHARM-F - the Airborne Demonstrator for MERLIN, in 28th International Laser Radar Conference, <https://elib.dlr.de/115309/>, Presentation, Proc. International Laser Radar Conference (ILRC) 2017, Bucharest, Romania, 2017c.
- Andrés-Hernández, M. D.: Effect of Megacities on the transport and transformation of pollutants on the Regional and Global scale (EMeRGe): scientific target and overall project structure, Oral presentation, Workshop on the Impacts of Megacity Plumes on the Regional Atmospheric Chemistry in East Asia, Taipei 22 - 26 August, 2016.
- Andrés-Hernández, M. D., Burrows, J. P., Schlager, H., Ziereis, H., Schneider, J., Koppmann, R., Pfeilsticker, K., Platt, U., Zahn, A., Vrekoussis, M., Pozzer, A., Chou, C. K., Wang, P. K., and the EMeRGe team: Effect of Megacities on the Transport and transformation of Pollutants on the Regional to Global Scales (EMeRGe): an overview of the HALO airborne campaigns in Europe and Asia, Oral presentation, IGAC Symposium Japan 25 - 29 September, 2018.
- Barthelmes, F., Förste, C., Petrovic, S., Pflug, H., Lu, B., Liebsch, G., Müller, J., and Schäfer, U.: Experiences from air- and ship-borne gravity missions using a gravimeter Chekan-AM, Presentation at IAG SYMPOSIUM ON TERRESTRIAL GRAVIMETRY: STATIC AND MOBILE MEASUREMENTS,
-

- Saint Petersburg, Russia, 2016.
- Barzaghi, R., Albertella, A., Carrion, D., Barthelmes, F., Petrovic, S., and Scheinert, M.: Testing airborne gravity data in the large-scale area of Italy and adjacent seas. In: Jin S., Barzaghi R. (eds) IGFS 2014., in International Association of Geodesy Symposia (IAG SYMPOSIA, volume 144), Springer, Cham, [https://doi.org/10.1007/1345\\_2015\\_45](https://doi.org/10.1007/1345_2015_45), proc. Int. Gravity Field Service, Shanghai 2014, 2015.
- Böhnisch, H., Hoor, P., Birner, T., and Konopka, P.: HALO - UTLS Workshop, 21-23 September 2011, Glashütten, Germany, SPARC Newsletter, 39, 27–35, 2012.
- Bos, S.: Evaluation of CloudSat observations in the trade regions: A HALO – CloudSat comparison, Tech. rep., Max Planck Institute for Meteorology, 2014.
- Böse, N., Heinonen, M., Smorgon, D., Saathoff, H., Nwaboh, J., Pogány, A., Buchholz, B., and Ebert, V.: METEOMET-1/WP1: Upper air measurements sensors and techniques, Metrology for Meteorology and Climate (MMC 2014), Brdo, Slovenia, 2014.
- Bovensmann, H., Fix, A., Amediek, A., Andersen, T., Borchardt, J., Büdenbender, C., Burrows, J. P., Butz, A., Chen, H., Dandoci, A., Eckl, M., Ehret, G., Ene, D., Fiehn, A., Galkowski, M., Gerbig, C., Hase, F., Heimann, M., Gerilowski, K., Kiemle, C., Kleinschek, R., Kostinek, J., Krautwurst, S., Kud, M., Kuze, A., Jöckel, P., Landgraf, J., Luther, A., Maazallahi, H., Mallaun, C., Marshall, J., Menoud, M., Nečki, J., Pfeilsticker, K., Quatrevalet, M., Rapp, M., Röckmann, T., Roiger, A., Ruhtz, T., Schmidt, M., Stanisavljevic, M., Swolkieñ, J., van der Veen, C., Wildmann, N., Wirth, M., and Zöger, M.: Combining airborne and ground based remote sensing (lidar, spectrometer) as well as in-situ techniques to determine  $CH_4$  emissions of a European  $CH_4$  emission hot spot area - initial results from COMET, Third ICOS Science Conference, Prague, Czech Republic 11-13 September, 2018.
- Broch, S., Gomm, S., Fuchs, H., Hofzumahaus, A., Holland, F., Bachner, M., Bohn, B., Häsel, R., Jäger, J., Kaiser, J., Keutsch, F., Li, X., Lohse, I., Rohrer, F., Thayer, M., Tillmann, R., Wegener, R., Mentel, T. F., Kiendler-Scharr, A., and Wahner, A.: Measurements of  $HO_x$  radicals and the total OH reactivity in the planetary boundary layer over southern Finland aboard the Zeppelin NT airship during the PEGASOS field campaign, Geophys. Res. Abstr. Vol. 16, EGU2014-7399; EGU General Assembly, 2014.
- Buchholz, B. and Ebert, V.: Holistic TDLAS spectrometry: The role of comprehensive housekeeping data for robust quality assurance illustrated by two absolute, airborne TDLAS Hygrometers: SEALDH-II and HAI, Poster, FLAIR 2014 - Field Laser Applications in Industry and Research, Pratolino, Italy, 2014.
- Buchholz, B. and Ebert, V.: Absolute High-Speed Laser Hygrometry: From Aircraft Applications to Primary Validation, Presentation, CLEO conference, San Jose Convention Center, San Jose, California, USA, 2016a.
- Buchholz, B. and Ebert, V.: Absolute Airborne Hygrometry using dTDLAS, Presentation, WMO CIMO-TECO 2016, San Jose Convention Center, Madrid, Spain, 2016b.
- Buchholz, B., Wagner, S., Schrön, A., Smit, H., and Ebert, V.: Simultaneous TDLAS based extractive and in-situ water vapor measurements for research airplanes: Development and validation of an extractive laser hygrometer, HALO SPP UTLS Topical Workshop, Glashütten, 2011.
- Buchholz, B., Böse, N., and Ebert, V.: Towards a Traceable TDLAS Hygrometer for airborne applications, Poster, EUMETRISPECs Stakeholder Workshop, Wolfenbüttel, Germany, 2012.
- Buchholz, B., Afchine, A., Barthel, J., Kallweit, S., Krämer, M., Schiller, C., and Ebert, V.: Calibration-free, high speed, airborne multi-channel TDL spectrometer at 1.4  $\mu\text{m}$  and 2.6  $\mu\text{m}$  for gas-phase and total water detection, Poster, Innovationsforum 2013, Kaiser-Friedrich-Forschungspreis, Goslar, Germany, 2013a.
- Buchholz, B., Afchine, A., Klein, A., Barthel, J., Kallweit, S., Klostermann, T., Krämer, M., Schiller, C., and Ebert, V.: Simultaneous gas-phase and total water detection for airborne applications with a multi-channel TDL spectrometer at 1.4  $\mu\text{m}$  and 2.6  $\mu\text{m}$ , Poster, EGU General Assembly, Vol. 15, EGU2013-7311-2, 2013b.
- Buchholz, B., Afchine, A., Krämer, M., and Ebert, V.: Objectives and contributions of the HAI-Instrument for the ML-CIRRUS campaign in 2014, Presentation, 535th International Wilhelm and Else Heraeus Seminar: ML-CIRRUS Symposium, Bad Honnef, Germany, 2013c.
- Buchholz, B., Afchine, A., Krämer, M., and Ebert, V.: HAI: A novel airborne multi-channel hygrometer

- for fast multi-phase H<sub>2</sub>O quantification: Performance of the HAI instrument during the first flights on the German HALO aircraft, Presentation, AGU Fall Meeting, San Francisco, U.S.A., 2014a.
- Buchholz, B., Afchine, A., Krämer, M., and Ebert, V.: Fast, multi-phase H<sub>2</sub>O measurements on board of HALO: Results from the novel HAI instrument during the first field campaigns, Presentation, EGU General Assembly, Vol. 16, EGU2014-9241, Vienna, Austria, 2014b.
- Bundke, U.: FINCH BIO-IN BIO OPC Detector, DMT Workshop on Depolarization, Boulder, 2011.
- Bundke, U., Nillius, B., Curtius, J., Kok, G., Baumgardner, D., Newton, R., and Keady, P.: Measurements of the depolarization and intrinsic fluorescence properties of different aerosol samples, EGU General Assembly, Vienna, 2011.
- Bundke, U., Reimann, B., Nillius, B., and Curtius, J.: Detection of biological ice nuclei, Bioaerosol Effects on Clouds Workshop, Steamboat Springs, 2012.
- Burrows, J. P.: Observing the Anthropocene from Space: challenges and opportunities, Oral presentation, Workshop on the Impacts of Megacity Plumes on the Regional Atmospheric Chemistry in East Asia, Taipei 22 - 26 August, 2016a.
- Burrows, J. P.: Effect of Megacities on the Transport and Transformation of Pollutants on the Regional to Global Scales, In: ACVE-2016: Atmospheric Composition Validation and Evolution workshop, ESA/ESRIN, 18-20 October, Frascati, Italy, 2016b.
- Burrows, J. P.: Assessing the impact of the anthropocene on atmospheric composition using remote sensing from aircraft and space based instrumentation, IAMAS-iCACGP Annual Meeting, 26 August - 01 September, 2017.
- Burrows et al., J. P.: Observing the changing Anthropocene from satellites and from aircraft: SCIAMACHY/GOME/GOME-2/S5-P and EMERGE, IGAC-ICACGP Joint Assembly, Takamatsu, Japan, 22 - 30 September, 2018.
- Casten, U., Scheinert, M., Kusche, J., Boedecker, G., Hackney, R., Geiger, A., Beyerle, G., Rothacher, M., Dietrich, R., Meyer, U., and Steinhage, D.: Geoscientific earth observation with HALO in the Aegean region (GEOHALO), Poster, EGU General Assembly, Vienna, 15.-20. April, 2007.
- Chrobry, A., Andrés-Hernández, M. D., Kartal, D., and Burrows, J. P.: A modified PerCA instrument for the selective determination of atmospheric concentrations of HO<sub>2</sub> and RO<sub>2</sub> radicals, Poster, EGU General Assembly, Vienna, 2011.
- Costa, A., Afchine, A., Luebke, A., Meyer, J., Dorsey, J.-R., Gallagher, M.-W., Ehrlich, A., Wendisch, M., and Krämer, M.: Classification of Arctic, Mid-Latitude and Tropical Clouds in the Mixed-Phase Temperature Regime, in EGU General Assembly Conference Abstracts, vol. 18 of *EGU General Assembly Conference Abstracts*, p. 14235, 2016.
- Ebert, V.: Absolute optical in situ hygrometers using near infrared diode lasers: Application to combustion and environmental applications, 7th International Conference on Tunable Diode Laser Spectroscopy (TDLS), Zermatt, 2009.
- Ebert, V.: Comparison of spectroscopic measurements of water vapour, WMO-BIPM Workshop on Measurement Challenges for Global Observation Systems for Climate Change Monitoring: Traceability, Stability and Uncertainty, WMO Headquarters, Geneva, 2010.
- Ebert, V., Saathoff, H., Lauer, C., Hunsmann, S., and Wagner, S.: Simultaneous, absolute gas-phase and total water detection during cloud formation studies in the AIDA chamber using a dual 1.37 $\mu$ m TDL-Spectrometer, EGU General Assembly, Vienna, 2008.
- Ebert, V., Lauer, C., Hunsmann, S., Wunderle, K., Skrotzki, J., Saathoff, H., and Wagner, S.: TDL-hygrometer for AIDA simultaneous gas phase + total water measurements, Author meeting SPARC water vapour assessment, SPARC Water Vapour Initiative, Toronto, 2009.
- Ebert, V., Buchholz, B., Afchine, A., and Krämer, M.: Multi-phase water detection on HALO using the HAI-TDLAS-hygrometer, Presentation, 535st International Wilhelm and Else Heraeus Seminar: Water Vapor and Ice in the Atmosphere, Bad Honnef, Germany, 2013.
- Ehret, G., Amediek, A., Wirth, M., Fix, A., Kiemle, C., and Quatrevalet, M.: Quantification of Greenhouse Gas Emission Rates from strong Point Sources by Airborne IPDA-Lidar Measurements: Methodology and Experimental Results, Paper A23N-05 AGU Fall Meeting, San Francisco, 2016.
- Ehret, G., Amediek, A., Fix, A., Wirth, M., Kiemle, C., and Quatrevalet, M.: Quantification of Greenhouse Gas Emission Rates of strong Point Sources by Airborne IPDA-Lidar Measurements, Presenta-

- tion, Proc. International Laser Radar Conference (ILRC) 2017, Bucharest, Romania, 2017.
- Engel, A., Boenisch, H., and TACTS-Team: An overview on the TACTS mission using the new German research aircraft HALO in summer 2012, Presentation, EGU General Assembly, Vol. 15, EGU2013-9191, Vienna, Austria, 2013.
- Fischer, L., Craig, G. C., and Kiemle, C.: Height-resolved scaling properties of water vapor in the mesoscale using airborne lidar, American Geophysical Union, Fall Meeting, 2012.
- Fix, A. and the CoMet team: CoMet: An airborne mission to simultaneously measure CO<sub>2</sub> and CH<sub>4</sub> using lidar, passive remote sensing and in-situ techniques, IG3IS/TRANSCOM workshop, Inverse modelling of greenhouse gas fluxes from atmosphere observations, Lund, Sweden, 17-20 September, 2018.
- Fix, A., Wirth, M., Amediek, A., Büdenbender, C., and Ehret, G.: COMET: a planned airborne mission to simultaneously measure CO<sub>2</sub> and CH<sub>4</sub> columns using airborne remote sensing and in-situ techniques, in AGU Fall Meeting, 2013.
- Fix, A., Wirth, M., and Ehret, G.: Optical parametric devices for airborne and spaceborne lidar applications, in Workshop on Laser Sources for LIDAR Applications, <https://elib.dlr.de/92934/>, 2014.
- Fix, A., Amediek, A., Büdenbender, C., Ehret, G., Quatrevalet, M., Wirth, M., Löhring, J., Kasemann, R., Klein, J., Hoffmann, D., and Klein, V.: Development and First Results of A New Near-ir Airborne Greenhouse Gas Lidar, in Advanced Solid State Lasers 2015, <https://elib.dlr.de/100906/>, 2015a.
- Fix, A., Amediek, A., Büdenbender, C., Ehret, G., Quatrevalet, M., Wirth, M., Löhring, J., Kasemann, R., Klein, J., Hoffmann, D., and Klein, V.: Development and First Results of a new Near-IR Airborne Greenhouse Gas Lidar, in Optics and Photonics for Energy and the Environment 2015, <https://elib.dlr.de/100907/>, 2015b.
- Fix, A., Ehret, G., Bovensmann, H., Gerbig, C., Pfeilsticker, K., and Zöger, M.: Sentinel-5P validation by Comet HALO, in Sentinel-5 Precursor Validation Team (S5PVT) Workshop, <https://elib.dlr.de/101152/>, 29 Sep - 01 Oct 2015, Noordwijk, The Netherlands., 2015c.
- Fix, A., Quatrevalet, M., Witschas, B., Wirth, M., Büdenbender, C., Amediek, A., and Ehret, G.: Challenges and solutions for frequency and energy references for spaceborne and airborne integrated path differential absorption lidars, in 27th International Laser Radar Conference, edited by F. Moshary and B. Gross, <https://elib.dlr.de/98563/>, 2015d.
- Fix, A., Amediek, A., Bovensmann, H., Burrows, J. P., Ehret, G., Gerbig, C., Gerilowski, K., Jöckel, P., Marshall, J., Pfeilsticker, K., Rapp, M., Roiger, A., and Zöger, M.: CoMet: Carbon Dioxide and Methane Mission for HALO, 1st HALO Symposium, 14 - 16 March 2017, Oberpfaffenhofen, Germany, 2017a.
- Fix, A., Amediek, A., Bovensmann, H., Ehret, G., Gerbig, C., Gerilowski, K., Pfeilsticker, K., Roiger, A., and Zöger, M.: CoMet: an airborne mission to simultaneously measure CO<sub>2</sub> and CH<sub>4</sub> using lidar, passive remote sensing and in-situ techniques, Presentation, Proc. International Laser Radar Conference (ILRC) 2017, Bucharest, Romania, 2017b.
- Förste, C. and Scheinert, M.: HALO – a platform for Earth observations and geophysics, Presentation, DFG SPP 1294 Evaluation Colloquium, Oberpfaffenhofen, 11 –12 March, 2010.
- Fricke, C.: Influence of surface albedo inhomogeneities on remote sensing of cirrus optical and micro-physical parameters, ICCP, Leipzig, 2012a.
- Fricke, C.: Influence of surface albedo inhomogeneities on remote sensing of cirrus optical and micro-physical parameters, IRS Berlin, 2012b.
- Galkowski, M., Gerbig, C., Marshall, J., Koch, F.-T., Chen, J., Baum, S., Fix, A., Rothe, M., Liebsch, M., Joeckel, P., Nickl, A., Mertens, M., Kiemle, C., and Team HALO: Airborne in-situ sampling over Europe during CoMet, Third ICOS Science Conference, Prague, Czech Republic 11-13 September, 2018.
- Gebler, A., Schachtschneider, R., and Lesur, V.: Aeromagnetic data acquisition: Handling the wavelengths from 100 to 500 km, Presentation, Workshop "Geodäsie und Geophysik auf fliegenden Plattformen (insbes. HALO)", Potsdam, 8 –9 November, 2012.
- General, S.: Entwicklung eines bildgebenden DOAS-Instrumentes zur flugzeuggestützten Bestimmung von 2- und 3-dimensionalen Spurenstoffverteilungen in der Troposphäre, DPG Frühjahrstagung Dresden, 2011.



- General, S.: An imaging DOAS instrument for airborne studies of 2- and 3-dimensional trace gas distributions in the troposphere, SPP Statuskolloquium, Dresden, 2012.
- Gomm, S., Broch, S., Fuchs, H., Hofzumahaus, A., Holland, F., Bohn, B., Häseler, R., Jäger, J., Kaiser, J., Keutsch, F., Kiendler-Scharr, A., Li, X., Lohse, I., Lu, K., Mentel, T., Rohrer, F., Tillmann, R., Wegener, R., Wolfe, G., and Wahner, A.: LIF measurements of HO<sub>x</sub> radicals in the lower troposphere aboard the Zeppelin NT during the PEGASOS campaign 2012, *Geophys. Res. Abstr.* Vol. 15, EGU2013-5570-1, EGU General Assembly, 2013.
- Gomm, S., Broch, S., Fuchs, H., Hofzumahaus, A., Holland, F., Bohn, B., Häseler, R., Jäger, J., Kaiser, J., Keutsch, F., Li, X., Lu, K., Lohse, I., Rohrer, F., Tillmann, R., Wegener, R., Wolfe, G., Mentel, T. F., Kiendler-Scharr, A., and Wahner, A.: Vertical distribution of HO<sub>x</sub> concentrations driven by boundary layer dynamics, *Geophys. Res. Abstr.* Vol. 16, EGU2014-7982; EGU General Assembly, 2014.
- Grillenberger, A. and Markgraf, M.: The DLR G-REX (GNSS Reflectometry Experiment) receiver - system description and first results, Presentation, Workshop "Geodäsie und Geophysik auf fliegenden Plattformen (insbes. HALO)", Potsdam, 8–9 November, 2012.
- Groß, S., Wirth, M., and Esselborn, M.: Aerosol classification by advanced backscatter lidar techniques, in *Research Topics in Aerospace*, edited by U. Schumann, pp. 477–486, Springer-Verlag Berlin Heidelberg, <https://elib.dlr.de/77749/>, 2012a.
- Groß, S., Wirth, M., and Kiemle, C.: Investigation of cirrus cloud structure by airborne water-vapor DIAL measurements during the HALO TECHNO-Mission, *Proceedings of 9th International Symposium on Tropospheric Profiling, ISTP, L'Aquila*, 2012b.
- Groß, S., Schäfler, A., Wirth, M., Hagen, M., Fix, A., Stevens, B., Hirsch, L., Ament, F., Delanoe, J., Ehret, G., and Rapp, M.: NARVAL - Next-generation Aircraft Remote Sensing for Validation Studies, in *EarthCARE Workshop 2014*, <https://elib.dlr.de/90951/>, 2014.
- Groß, S., Schäfler, A., Wirth, M., and Fix, A.: Airborne differential absorption and high spectral resolution Lidar measurements for cirrus cloud studies, in *ILRC27*, <https://elib.dlr.de/97364/>, 2015.
- Hagen, M., Hirsch, L., Konow, H., Ament, F., Mech, M., Orlandi, E., Crewell, S., Groß, S., Fix, A., and Wirth, M.: Airborne remote sensing of cloud properties with the German research aircraft HALO, Presentation, eRAD 2014, 2014.
- Hernández Pardo, L., Toledo Machado, L. A., and Amore Cecchini, M.: Cloud-top microphysics evolution in the Gamma phase space from a modeling perspective, *Atmospheric Chemistry and Physics Discussions*, 2018, 1–22, <https://doi.org/10.5194/acp-2018-190>, The revised manuscript was not accepted., 2018.
- Heyde, I., Barthelmes, F., and Scheinert, M.: First results of the aerogravity measurements during the geoscientific flight mission GEOHALO over Italy and the adjacent Mediterranean, *Geophys. Res. Abstr.*, 15, EGU2013-8393, 2013.
- Hiranuma, N., Möhler, O., Bingemer, H., Bundke, U., Cziczo, D., Danielczok, A., Ebert, M., Garimella, S., Hoffmann, N., Höhler, K., Kanji, Z., Kiselev, A., Raddatz, M., and Stetzer, O.: Immersion freezing of clay minerals and bacterial ice nucleus, *AIP Conf. Proc.* 1527, 914, 2013.
- Hirsch, L., Kiliani, J., Klingebiel, M., Konow, H., and Luebke, A. E.: The Barbados Cloud Observatory measurements as validation for future satellite missions, Poster, EGU General Assembly, Vienna, 2018.
- Hofzumahaus, A., Rohrer, F., Bachner, M., Bohn, B., Broch, S., Fuchs, H., Gomm, S., Häseler, R., Holland, F., Jäger, J., Kaiser, J., Keutsch, F., Lohse, I., Li, X., Lu, K., Tillmann, R., Wegener, R., Wolfe, G., Mentel, T., Kiendler-Scharr, A., and Wahner, A.: Vertical profiles of trace gases observed on board the Zeppelin NT, 2nd Annual PEGASOS Meeting, Athens, Greece, 4–7 March, 2013.
- Höhler, K., Steinke, I., Boose, Y., Danielczok, A., Funk, R., Garimella, S., Kanji, Z. A., Möhler, O., Rösch, M., and Toprak, E.: Investigations of the ice nucleation ability of natural soil dusts in artificial clouds, 14th Conference on Cloud Physics, Boston, 07–11 July, 2014.
- Hoor, P.: Tracer correlations, mixing and structure of the UTLS, Invited talk, Atmosphärenphysikalisches Kolloquium, FZ Jülich, 2013.
- Hoor, P.: The flushing of the Northern Lower Stratosphere and the Influence of the Monsoon: Results from TACTS/ESMVal 2012, AGU-fall meeting, San Francisco, 2014.
- Hoor, P.: Seasonal contrasts of air mass composition in the extratropical UTLS, AGU general assembly,

- San Francisco, USA, 12 December 2016, 2016a.
- Hoor, P.: Process observations versus global view: Do we understand the UTLS?, Invited talk, IAGOS scientific symposium on atmospheric composition, Manchester, UK, 17 - 19 October 2016, 2016b.
- Hoor, P.: Seasonality of air mass origin in the UTLS from HALO measurements, WMO UTLS meeting, Geneva, 24 May 2016, 2016c.
- Hoor, P.: Von Pol zu Pol: Mit dem Forschungsflugzeug in die Stratosphäre, öffentlicher Vortrag vor Studierenden des Internationalen Studien und Sprachenkollegs, Mainz, 23. Juni 2017, 2017.
- Hoor, P. and Müller, S.: The flushing of the northern lower stratosphere and the influence of the monsoon: Results from TACTS/ESMVal 2012, General assembly of the international union of geophysics, IUGG, Prague, , 24 June - 02 July 2015, 2015.
- Hoor, P. and Tost, H.: Auf und ab in der Atmosphäre: Meteorologie von Aristoteles bis heute., öffentlicher Vortrag, Physik am Samstag, Johannes Gutenberg-Universität Mainz, 21. April 2016, 2016.
- Hoor, P., Müller, S., Bozem, H., Fischer, H., Gute, E., Sprenger, M., Zahn, A., and Engel, A.: Tracer Distribution in the UTLS observed from HALO during TACTS, Invited talk, DACH-Tagung Innsbruck, 2013.
- Höppler, L., Kölling, T., Gödde, F., Gutleben, M., Konow, H., Jakob, M., Zinner, T., Mayer, B., and Groß, S.: Development of a 3D cloud microphysics retrieval combining active remote sensing instruments with the hyperspectral imaging spectrometer specMACS, Poster, EGU General Assembly, Vienna, 2018.
- Horstjann, M., Andrés-Hernández, M. D., Nenakhov, V., and Burrows, J. P.: Sensitive, continuous optical NO<sub>2</sub> detection for airborne peroxy radical measurements, Poster, 11th Science Conference of the International Global Atmosphere Chemistry (IGAC) Project, Halifax, Canada, 2010.
- Hueneke, T., Ludmann, S., and Pfeilsticker, K.: A novel UV/VIS/NIR optical spectrometer for limb and nadir measurements of atmospheric radiation and trace gases, EGU General Assembly, Vienna, 2011.
- Hueneke, T., Ludmann, S., and Pfeilsticker, K.: A novel UV/VIS/NIR optical spectrometer for limb and nadir measurements of atmospheric radiation and trace gases, SPP Statuskolloquium, Dresden, 2012.
- Jäkel, E., Wendisch, M., Ewald, F., and Kölling, T.: Analysis of the Vertical Distribution of the Thermodynamic Phase in Tropical Deep-convective Clouds, in Light, Energy and the Environment, p. HTu2F.1, OSA Proc., <https://doi.org/10.1364/HISE.2016.HTu2F.1>, 2016.
- Kaiser, J., Wolfe, G. M. ., Keutsch, F. N., Ganzeveld, L. N., Broch, S., Bohn, B., Fuchs, H., Gomm, S., Häsel, R., Hofzumahaus, A., Holland, F., Jäger, J., Lu, K., Li, X., Lohse, I., Rohrer, F., Wegener, R., Mentel, T. F., Kiendler-Scharr, A., and Wahner, A.: Structure and evolution of formaldehyde vertical profiles in the Po Valley, Geophys. Res. Abstr. Vol. 16, EGU2014-6739-1; EGU General Assembly, 2014.
- Klepp, C., Ament, F., Bakan, S., Bohn, B., Crewell, S., Groß, S., Fix, A., Hagen, M., Hirsch, L., Jansen, F., Konow, H., Mech, M., Orlandi, E., Pfeilsticker, K., Reichert, M., Schäfler, A., Stevens, B., Wendisch, M., and Wirth, M.: NARVAL North – Remote Sensing of Postfrontal Convective Clouds and Precipitation over the North Atlantic with the Research Aircraft HALO, Poster, EGU 2014, 2014a.
- Klepp, C., Ament, F., Bakan, S., Hirsch, L., and Stevens, B.: NARVAL Campaign Report, Reports on Earth System Science, vol. 164, Max-Planck-Institute for Meteorology, <http://hdl.handle.net/11858/00-001M-0000-0026-A620-1>, 2014b.
- Klingebiel, M., Konow, H., Hirsch, L., Ament, F., and Stevens, B.: HALO cloud radar measurements during NARVAL-II in comparison to CloudSat, Poster, HALO Symposium, Oberpfaffenhofen, 2017.
- Klostermann, T., Wunderle, K., and Ebert, V.: Kalibrationsfreie Messung von H<sub>2</sub>O-Dampf (in-situ und extraktiv) mittels neuer 2.7  $\mu$ m DFB Diodenlaser für flugzeuggetragene Messsysteme, DPG Frühjahrstagungen, Fachverband Umweltphysik, Darmstadt, 2008.
- Klostermann, T., Afchine, A., Barthel, J., Höh, M., Wagner, S., Witzel, O., Saathoff, H., Schiller, C., and Ebert, V.: HAL: A new TDLAS hygrometer for the HALO research aircraft, EGU General Assembly, Vienna, 2010.
- Konow, H. and Ament, F.: From airborne cloud remote sensing observations to cloud regime classification, Poster, EGU General Assembly, Vienna, 2017a.
- Konow, H. and Ament, F.: Cloud Properties from Aircraft Measurements and Model Evaluation during NARVAL, Poster, HALO Symposium, Oberpfaffenhofen, 2017b.

- Konow, H., Albern, N., Ament, F., Bakan, S., Crewell, S., Erdmann, F., Hagen, M., Hirsch, L., Jansen, F., Klepp, C., Mech, M., Orlandi, E., and Stevens, B.: The NARVAL-North campaign : Postfrontal convective cloud research on HALO using the HALO Microwave Package (HAMP), Poster, Climate Symposium 2014, 2014.
- Konow, H., Ament, F., Crewell, S., Hirsch, L., Klepp, C., Mech, M., and Orlandi, E.: NARVAL-North : Comparison of Cloud Properties from Aircraft Measurements with COSMO Simulations, Presentation, EMS 2015, 2015.
- Konow, H., Hansen, A., and Ament, F.: Airborne observations of cloud properties on HALO during NARVAL, Talk, EGU General Assembly, Vienna, 2016.
- Koppmann, R., Krebsbach, M., Bühler, F., Hösen, E., Linke, C., v. Scheidt, M., Spahn, H., and Wintel, J.: Measurement of stable isotope ratios in volatile organic compounds - Improving our knowlegde of atmpsheric processes, HALO UTLS Workshop, Glashütten, 2011.
- Koppmann, R., Linke, C., Krebsbach, M., Spahn, H., and vom Scheidt, M.: Stable carbon isotope ratios in atmospheric methanol, IGAC Conference "Atmospheric Chemistry in the Anthropocene", Beijing, 2012.
- Krämer, M., Rolf, C., Costa, A., Luebke, A., Zöger, M., Buchholz, B., Ebert, V., Smith, J., Herman, R., Baumgardner, D., and Avallone, L.: A microphysics guide to cirrus clouds, Presentation American Meteorological Society, Conference on Cloud Physics, Boston, U.S.A., 2014.
- Krebsbach, M. and Koppmann, R.: MIRAH - Measurements of stable isotope ratios on HALO, HALO Statuskolloquium, Leipzig, 2011.
- Krebsbach, M., Olschewski, F., Knieling, P., Heuser, H.-P., and Koppmann, R.: MIRAH - measurements of stable isotope ratios on HALO, TACTS/SALSA Technical Meeting Frankfurt, 2010.
- Krebsbach, M., Koppmann, R., Bühler, F., Heuser, H.-P., Knieling, P., vom Scheidt, M., and Spahn, H.: Measurements of Stable Carbon Isotope Ratios in Atmospheric VOC on HALO during TACTS and ESMVal, Geophysical Research Abstracts, 15, EGU2013-3853, <http://meetingorganizer.copernicus.org/EGU2013/EGU2013-3853.pdf>, EGU General Assembly, 2013, 2013.
- Krisna, T. C.: Investigating The Life Cycle and Radiation of Deep Convective Clouds using Airborne and Satellite Remote Sensing, Oral presentation, <https://agu.confex.com/agu/fm15/webprogram/Paper79003.html>, AGU Fall Meeting, San Francisco, 14 - 18 December, 2015.
- Krisna, T. C., Ehrlich, A., Wendisch, M., Weigel, R., Borrmann, S., and Mahnke, C.: Remote sensing of vertical profiles of cirrus optical and microphysical properties using optimal estimation and information content theory, Oral presentation, <http://adsabs.harvard.edu/abs/2018EGUGA..2016873C>, 20th EGU General Assembly, EGU2018, Proceedings from the conference held 4-13 April in Vienna, Austria, p.16873, 2018.
- Kühnreich, B., Buchholz, B., Höh, M., Wagner, S., and Ebert, V.: Fiber-coupled extractive multi-pass absorption cell for airborne TDLAS hygrometers, FLAIR 2011 - Field Laser Applications in Industry and Research, Murnau, 2011.
- Kunkel, D.: The tropopause inversion layer at midlatitudes: impact of synoptic- and meso-scale processes and stratosphere troposphere exchange, meteorologisches Kolloquium und Institutsseminar des Instituts für Atmosphäre und Umwelt, Goethe Universität Frankfurt, 01.02.2018, 2018.
- Leiner, J., Schäubel, D., Jeßberger, P., and Voigt, C.: Mass spectrometric measurements of HNO<sub>3</sub> at the ACRIDICON-Zugspitze campaign, Geocycles Symposium, Mainz, 2012.
- Li, X., Häsel, R., Brauers, T., Rohrer, F., Hofzumahaus, A., Bohn, B., Broch, S., Fuchs, H., Gomm, S., Holland, F., Lohse, I., Tillmann, R., Mentel, T. F., Kiendler-Scharr, A., and Wahner, A.: Airborne measurements of nitrous acid and its budget in the planetary boundary layer, EGU General Assembly, Vienna, 2013.
- Li, X., Rohrer, F., Hofzumahaus, A., Brauers, T., Häsel, R., Bohn, B., Broch, S., Fuchs, H., Gomm, S., Holland, F., Jäger, J., Kaiser, J., Keutsch, F. N., Lohse, I., Lu, K., Tillmann, R., Wegener, R., Wolfe, G. M., Mentel, T. F., Kiendler-Scharr, A., and Wahner, A.: Missing gas-phase source of HONO inferred from Zeppelin measurements in the PBL, 3rd Annual PEGASOS Meeting, Athens, Greece, 4 - 6 February, 2014a.
- Li, X., Rohrer, F., Hofzumahaus, A., Brauers, T., Häsel, R., Bohn, B., Broch, S., Fuchs, H., Gomm, S., Holland, F., Jäger, J., Kaiser, J., Keutsch, F. N., Lohse, I., Tillmann, R., Wegener, R., Wolfe, G. M.,

- Mentel, T. F., Kiendler-Scharr, A., and Wahner, A.: Missing gas-phase source of HONO inferred from Zeppelin measurements in the troposphere, *Geophys. Res. Abstr.* Vol. 16, EGU2014-7265-1; EGU General Assembly, 2014b.
- Linke, C., Krebsbach, M., and Koppmann, R.: An improved mathematical procedure to evaluate peaks in complex chromatograms, 5th International Symposium on Isotopomers, Amsterdam, 2010.
- Lohse, I. and Bohn, B.: Airborne measurements of UV spectral actinic radiation with CCD spectroradiometers, 2014 UV workshop (NIWA), Auckland, NZ, 2014.
- Lohse, I., Bohn, B., Bachner, M., Hofzumahaus, A., Holland, F., Rohrer, F., Mentel, T. F., Kiendler-Scharr, A., and Wahner, A.: Photolysis frequency measurements aboard Zeppelin NT during PEGASOS 2012/13, *Geophys. Res. Abstr.* Vol. 16, EGU2014-10867; EGU General Assembly, 2014a.
- Lohse, I., Bohn, B., Werner, F., Ehrlich, A., and Wendisch, M.: Solar radiation measurements aboard the research aircraft HALO, 2014 AGU Fall Meeting, San Francisco, 2014b.
- Luebke, A., Avallone, L., Afchine, A., Borrmann, S., Buchholz, B., Bui, T., Costa, A., Ebert, V., Herman, R. L., Klingebiel, M., Rolf, C., Smith, J., Zöger, M., and Krämer, M.: The dominance of heterogeneous versus homogeneous freezing in cirrus: a comparison of American- and European-based midlatitude datasets, Presentation, American Meteorological Society, Conference on Cloud Physics, Boston, U.S.A., 2014.
- Markgraf, M., Grillenberger, A., Rivas, R., Mumford, P., and Parkinson, K.: The DLR G-REX (GNSS Reflectometry Experiment) Receiver - System description and first results, Poster presentation, Workshop on Reflectometry using GNSS and Other Signals of Opportunity (GNSS+R), Purdue University, West Lafayette, IN, USA, 10 – 11 October, 2012.
- Mech, M., Crewell, S., Peters, G., and Hirsch, L.: HAMP - Erste Retrievalstudien für das Mikrowellen-Paket auf HALO, DACH Meteorologentagung, Bonn, 2010a.
- Mech, M., Crewell, S., Peters, G., Hirsch, L., and Rose, T.: HAMP - the microwave package on the upcoming High Altitude and Long Range Research Aircraft HALO, Oral presentation, 11th Specialist Meeting on Microwave Radiometry and Remote Sensing of the Environment (MicroRad), 2010b.
- Mech, M., Crewell, S., Löhnert, U., and Orlandi, E.: Retrieval of temperature, humidity, and integrated hydrometeor contents from observations with the microwave package HAMP on the High Altitude and Long Range Research Aircraft HALO, Oral presentation, EUMETSAT Meteorological Satellite Conference, Oslo, Norway, 2011a.
- Mech, M., Crewell, S., Peters, G., and Hirsch, L.: HAMP - The microwave package on the High Altitude and Long Range Research Aircraft HALO, 3rd International Workshop on Satellite-Based Snowfall Measurements (IWSSM), Grainau, 2011b.
- Mech, M., Orlandi, E., Ament, F., Crewell, S., Fix, A., Hagen, M., Klepp, C., and Stevens, B.: NARVAL airborne remote sensing of clouds and precipitation for satellite validation with HALO, Poster Presentation at 7th International Precipitation Working Group (IPWG) Workshop, 2014a.
- Mech, M., Orlandi, E., Ament, F., Crewell, S., Hagen, M., Klepp, C., and Stevens, B.: NARVAL Airborne remote sensing of warm and cold clouds for satellite validation with HALO, Oral Presentation at EUMETSAT Meteorological Satellite Conference, Geneva, Switzerland, 2014b.
- Mertes, S.: Investigation of ice particle and cloud drop residues using the counterflow virtual impactor technique onboard the new German research aircraft HALO, 13th Conference on Cloud Physics & 13th Conference on Atmospheric Radiation, Portland, Oregon, USA, 2010.
- Mertes, S., Kästner, U., Schulz, C., Klimach, T., Krüger, M., and Schneider, J.: Characterization of residuals from ice particles and droplets sampled in mid-latitude natural and aviation-influenced cirrus and in tropical deep convective cloud systems during ML-CIRRUS and ACRIDICON, Presentation, EGU General Assembly, European Geosciences Union, Vienna, Austria, 2015.
- Meyer, J., Krämer, M., Afchine, A., Schnaiter, M., Möhler, O., Benz, S., Abdelmonem, A., Schmitt, C., Newton, R., and Baumgardner, D.: Small cloud particle detection at the AIDA chamber and over the UK, ICCP, Leipzig, 2012.
- Meyer, U., Steinhage, D., Scheinert, M., Casten, U., Boedecker, G., and Lauterjung, J.: Geoscientific Applications of the "High Altitude and Long Range Research Aircraft" (HALO), Poster presentation, Dynamic Planet 2005 - Joint Assembly of IAG, IAPSO and IABO, Cairns, 22 – 26 August, 2005.
- Meyer, U., Steinhage, D., Scheinert, M., Casten, U., Boedecker, G., and Lauterjung, J.: Geoscientific

- applications of the “High Altitude and Long Range Research Aircraft” (HALO), Poster presentation, Geodätische Woche, Leipzig, 25 – 27 September, 2007.
- Nghiem, S. V., Shepson, P. B., Simpson, W., Perovich, D. K., Sturm, M., Douglas, T., Rigor, I. G., Clemente-Colón, P., Burrows, J. P., Richter, A., Steffen, A., Staebler, R., Obrist, D., Moore, C., Bottenheim, J., Platt, U., Pöhler, D., General, S., Zielcke, J., Fuentes, J. D., Hall, D. K., Kaleschke, L., Woods, J., Hager, C., Smith, J., Sweet, C. R., Pratt, K., Custard, K., Peterson, P., Walsh, S., Gleason, E., Saito, E., Webster, M., Lieb-Lappen, R., Linder, C., and Neumann, G.: Arctic sea ice reduction and tropospheric chemical processes, in BIONATURE 2013 : The Fourth International Conference on Bioenvironment, Biodiversity and Renewable Energies, ISBN: 978-1-61208-261-5, 2013.
- Nillius, B., Bingemer, H., Jaenicke, R., Reimann, B., and Bundke, U.: Measurements and new model calculations for the airborne Fast Ice Nuclei Chamber FINCH-HALO, IAC, Helsinki, 2010.
- Nillius, B., Bingemer, H., Klein, H., Curtius, J., and Bundke, U.: Ambient measurements of ice nuclei with a new version of the Fast Ice Nuclei Chamber FINCH-HALO, EGU General Assembly, Vienna, 2011.
- Nillius, B. H., Bingemer, Curtius, J., and Bundke, U.: Ambient and laboratory measurements of ice nuclei and their biological fraction with the Fast Ice Nuclei Chamber FINCH-HALO, ICCP, Leipzig, 2012.
- Nwaboh, J. A., Buchholz, B., Werhahn, O., and Ebert, V.: Temperature dependence, pressure shift and broadening coefficients of H<sub>2</sub>O at 1.4 μm for atmospheric H<sub>2</sub>O monitoring, The 23rd International Conference on High Resolution Molecular Spectroscopy (HRMS), Bologna, Italy, 2014a.
- Nwaboh, J. A., Pogány, A., Buchholz, B., Böse, N., Pratzler, S., and Ebert, V.: Laser hygrometer for measurements of H<sub>2</sub>O in air amount fractions in the 1 to 40000 μmol/mol range, Metrology for Meteorology and Climate (MMC 2014), Brdo, Slovenia, 2014b.
- Oelhaf, H., Braun, M., Friedl-Vallon, F., Groß, J.-U., Höpfner, M., Johansson, S., Preusse, P., Sinnhuber, B.-M., Ungermann, J., Woiwode, W., and the POLSTRACC Team: The Arctic UTLS in winter & spring: Chemical and dynamical aspects as derived from GLORIA observations during the POLSTRACC mission, Talk, sPARC UTLS workshop, Mainz, 2018.
- Orlandi, E., Mech, M., Crewell, S., and Lammert, A.: Active and passive microwave retrieval algorithm for hydrometeor concentration profiles: Application to the HAMP instrument, Poster, AGU fall meeting, San Francisco, 2012a.
- Orlandi, E., Mech, M., Crewell, S., Lammert, A., Seifert, A., and Hirsch, L.: Retrieval development and test for HAMP, the HALO microwave package, Poster, 12th Specialist Meeting on Microwave Radiometry and Remote Sensing of the Environment (MicroRad), 2012b.
- Orlandi, E., Holm, E., Mech, M., and Crewell, S.: Influence of ECMWF background error covariances on the retrieval of temperature and humidity by the HAMP radiometer, Poster, 13th Specialist Meeting on Microwave Radiometry and Remote sensing of the Environment (MicroRad), Pasadena, California, 2014a.
- Orlandi, E., Mech, M., Crewell, S., Ament, F., and Klepp, C.: Sensor synergy to detect clouds and precipitation: Results of the first HALOHAMP flight campaign, Poster, 13th specialist meeting on microwave radiometry and remote sensing of the environment (MicroRad), Pasadena, California, 2014b.
- Petrovic, S., Pflug, H., and Barthelmes, F.: Schiffsgravimetrie und Fluggravimetrie mit dem CHEKAN-AM, Presentation, Workshop “Geodäsie und Geophysik auf fliegenden Plattformen (insbes. HALO)”, Potsdam, 8 – 9 November, 2012.
- Petrovic, S., Barthelmes, F., and Pflug, H.: Airborne and shipborne gravimetry at GFZ with emphasis on the GEOHALO project, in International Association of Geodesy Symposia, Springer Berlin Heidelberg, Proc. IAG General Assembly, Potsdam 2013, 2015.
- Pogány, A., Klein, A., Buchholz, B., and Ebert, V.: Measurement and validation of water vapor line strengths in the 1.4-2.7 μm range by high sensitivity TDLAS, The 23rd International Conference on High Resolution Molecular Spectroscopy (HRMS), Bologna, Italy, 2014.
- Ribaud, J.-F., Machado, L. A. T., and Biscaro, T.: X-band dual-polarization radar-based hydrometeor classification for Brazilian tropical precipitation systems, Atmos. Meas. Tech. Discuss., 2018, 1–64, <https://doi.org/10.5194/amt-2018-174>, A revision of this manuscript was accepted for the journal Atmos. Meas. Tech. and is expected to appear in due course., 2018.

- Riese, M., Hoor, P., Kunkel, D., Kaufmann, M., and WISE-Team: Wave-driven Isentropic Exchange (WISE): Campaign overview and first results, Talk, SPARC UTLS workshop, Mainz, 2018a.
- Riese, M., Hoor, P., Kunkel, D., Kaufmann, M., and WISE-Team: Wave-driven Isentropic Exchange (WISE): Campaign overview and first results, Invited talk, EGU Wien, 2018b.
- Rolf, C., Krämer, M., Spelten, N., Afchine, A., Groß, J.-U., Ungermann, J., Suminska-Ebersoldt, O., GLORIA-Team, Ebert, V., Buchholz, B., Schlager, H., Bönisch, H., and Engel, A.: Antarctic stratospheric dehydration/rehydration observations during the HALO-ESMVal mission, Presentation, 535th International Wilhelm and Else Heraeus Seminar: Water Vapor and Ice in the Atmosphere, Bad Honnef, Germany, 2013.
- Ruhtz, T., Preusker, R., Hollstein, A., von Bismarck, J., Starace, M., and Fischer, J.: URMS/AMSSP (Universal Radiation Measurement System/Airborne Multi-Spectral Sunphoto- and Polarimeter), SPIE Remote Sensing Conference, 2009.
- Schäfler, A., Craig, G., Wernli, H., Dörnbrack, A., Böttcher, M., Ehrlich, A., Hagen, M., Hirsch, L., Mech, M., Quinting, J., Rautenhaus, M., Reitenbuch, O., Wirth, M., and Groß, S.: Campaign Implementation Plan for the deployment of HALO and Falcon in NAWDEX (North Atlantic Waveguide and Downstream Impact Experiment), [http://www.pa.op.dlr.de/nawdex/documents/NAWDEX\\_Campaign\\_Implementation\\_Plan\\_v4.pdf](http://www.pa.op.dlr.de/nawdex/documents/NAWDEX_Campaign_Implementation_Plan_v4.pdf), 2016.
- Scheinert, M.: GEOHALO - Geowissenschaftliche Erdbeobachtung mit HALO im östlichen Mittelmeer, Presentation, DFG SPP1294 Statuskolloquium, Dresden, 15 – 16 March, 2012a.
- Scheinert, M.: Progress in the measurement and improvement of the gravity field in Antarctica, Presentation, XXXII SCAR Meeting and Open Science Conference, Portland (Oregon, USA), 13 –25 July, 2012b.
- Scheinert, M.: Gravity and geoid in Antarctica, Presentation, DOMECAir Experimenters Meeting, ESTEC, Noordwijk, 06 September, 2012c.
- Scheinert, M.: Überblick HALO, DFG-SPP1294, Geowissenschaften auf HALO, Presentation, Workshop "Geodäsie und Geophysik auf fliegenden Plattformen (insbes. HALO)", Potsdam, 8/9 November, 2012d.
- Scheinert, M.: GEOHALO: Geodätisch-geophysikalische Befliegung des Mittelmeeres, Presentation, Workshop "Geodäsie und Geophysik auf fliegenden Plattformen (insbes. HALO)", Potsdam, 8/9 November, 2012e.
- Scheinert, M.: ANTHALO: geodätisch-geophysikalische Befliegung der Antarktis, Oral presentation, Workshop "Geodäsie und Geophysik auf fliegenden Plattformen (insbes. HALO)", Potsdam, 8/9 November, 2012f.
- Scheinert, M.: The geodetic-geophysical flight mission GEOHALO to acquire measurements of the gravity and magnetic fields, of GNSS remote sensing and of laser altimetry over the Mediterranean, Geophys. Res. Abstr., 15, EGU2013-5160-1, 2013.
- Scheinert, M. and Barthelmes, F.: ANTHALO - geodätisch-geophysikalische Befliegung der Antarktis, Presentation, Kolloquium DFG-SPP 1294 "HALO", Frankfurt/M, 22/23 October, 2009.
- Scheinert, M., Barthelmes, F., Lesur, V., Geiger, A., Schwabe, J., Petrovic, S., Pflug, H., Gebler, A., Heyde, I., Meyer, U., and Steinhage, D.: Geoscientific research with the "High Altitude and Long Range Research Aircraft" - the GEOHALO project, Presentation, Intl. Workshop "Aerogravimetry: Technology and Applications", Dresden, 04/05 June, 2009a.
- Scheinert, M., Schwabe, J., Barthelmes, F., Petrovic, S., Pflug, H., Lesur, V., Gebler, A., and Geiger, A.: GEOHALO - Geowissenschaftliche Erdbeobachtung mit HALO im östlichen Mittelmeerraum, Presentation, Kolloquium DFG-SPP 1294 "HALO", Frankfurt/M, 22/23 October, 2009b.
- Scheinert, M., Schwabe, J., Dietrich, R., Barthelmes, F., Färste, C., Petrovic, S., Pflug, H., Lesur, V., Gebler, A., Geiger, A., Wickert, J., Stosius, R., Beyerle, G., Semmling, M., Heyde, I., Meyer, U., Blindow, N., Markgraf, M., Rivas, R., and Jenett, M.: Geoscientific Research with the New German "High Altitude and Long Range Research Aircraft" (HALO), Poster presentation, 2nd Intl. Symp. of the International Gravity Field Service, Fairbanks, 20 – 22 September, 2010.
- Scheinert, M., Schwabe, J., Dietrich, R., Barthelmes, F., Färst, C., Petrovic, S., Pflug, H., Lesur, V., Gebler, A., Geiger, A., Wickert, J., Beyerle, G., Semmling, M., Geber, T., Ribo, S., Rius, A., Cardellach, E., Heyde, I., Meyer, U., Blindow, N., Markgraf, M., Rivas, R., and Grillenberger, A.:

- The application of the new German "High Altitude and Long Range Research Aircraft" (HALO) for airborne geodesy and geophysics, Poster presentation, XXV IUGG General Assembly "Earth on the Edge: Science for a Sustainable Planet", Melbourne, 27 June - 08 July, 2011a.
- Scheinert, M., Schwabe, J., Dietrich, R., Barthelmes, F., Färste, C., Petrovic, S., Pflug, H., Lesur, V., Gebler, A., Geiger, A., Wickert, J., Beyerle, G., Semmling, M., Geber, T., Ribo, S., Rius, A., Cardellach, E., Heyde, I., Meyer, U., Blindow, N., Markgraf, M., Riva, R., and Grillenberger, A.: The application of the new German "High Altitude and Long Range Research Aircraft" (HALO) for airborne geodesy and geophysics, Poster presentation, Intl. Symp. on Antarctic Earth Sciences - ISAES XI, Edinburgh, 10 – 16 July, 2011b.
- Scheinert, M., Eberlein, L., Barthelmes, F., Pflug, H., Gebler, A., Schachtschneider, R., Heyde, I., Markgraf, M., Rivas, R., Ribo, S., Geiger, A., Grillenberger, A., Mietner, C., Deppe, J., Petrovic, S., Schwabe, J., Lesur, V., Färste, C., Wickert, J., Cardellach, E., Rius, A., and Fabra, F.: GEOHALO: Geodetic-geophysical flight mission over the Mediterranean using the "High Altitude and Long Range Research Aircraft" (HALO), Presentation, IAG Symp. "Gravity, Geoid and Height Systems" (GGHS 2012), Venice, 9–12 October, 2012.
- Scheinert, M., Petrovic, S., Heyde, I., Barthelmes, F., Semmling, M., Pflug, H., Gebler, A., Eberlein, L., Schachtschneider, R., Markgraf, M., Rivas, R., Ribo, S., Geiger, A., Grillenberger, A., Mietner, C., Deppe, J., Schwabe, J., Lesur, V., Förste, C., Beyerle, G., Wickert, J., Cardellach, E., Rius, A., and Fabra, F.: The geodetic-geophysical flight mission GEOHALO: Results of airborne gravimetry and further geodetic products, Presentation, IAG Scientific Assembly, Potsdam, 1 –6 September, 2013a.
- Scheinert, M., Petrovic, S., Heyde, I., Barthelmes, F., Semmling, M., Pflug, H., Gebler, A., Eberlein, L., Schachtschneider, R., Markgraf, M., Rivas, R., Ribo, S., Geiger, A., Grillenberger, A., Mietner, C., Deppe, J., Schwabe, J., Lesur, V., Förste, C., Beyerle, G., Wickert, J., Cardellach, E., Rius, A., and Fabra, F.: From Germany to Antarctica: Airborne geodesy and geophysics and the utilization of the research aircraft HALO, Presentation, AGU Fall Meeting, San Francisco, 9 –13 December, 2013b.
- Schenk, L. P., Mertes, S., Kästner, U., Frank, F., Nillius, B., Bundke, U., Rose, D., Schmidt, S., Schneider, J., Worringer, A., Kandler, K., Ebert, M., Curtius, J., and Stratmann, F.: Characterization and first results of an ice nucleating particle measurement system based on counterflow virtual impactor technique, *Atmos. Meas. Technol. Disc.*, 7, 10585–10617, <https://doi.org/10.5194/amtd-7-10585-2014>, 2014.
- Schlager, H., Arnold, F., Roiger, A., Aufmhoff, H., Baumann, R., and Sailer, T.: CI-ITMS - Messungen zum Import asiatischer Emissionen in die UTLS bei POLARCAT und HALO-TECHNO, DFG SPP 1294 Statuskolloquium, Leipzig, 2011.
- Schlager, H., Arnold, F., Aufmhoff, H., Baumann, R., Priola, L., Roiger, A., Sailer, T., Wirth, M., and Schumann, U.: HALO aircraft measurements of East Asian anthropogenic SO<sub>2</sub> import into the lower stratosphere by a warm conveyor belt uplift, EGU General Assembly, Vienna, 2012a.
- Schlager, H., Arnold, F., Aufmhoff, H., Baumann, R., Priola, L., Roiger, A., Sailer, T., Wirth, M., and Schumann, U.: Import of East Asian SO<sub>2</sub> into the lower stratosphere by a warm conveyor belt event: First measurements with the research aircraft HALO, IGAC - Atmospheric Chemistry in the Anthropogenic, Beijing, 2012b.
- Schlager, H., Arnold, F., Roiger, A., Aufmhoff, H., Baumann, R., and Sailer, T.: First detection of East Asian pollution import into the lowermost stratosphere by warm conveyor belt uplift, AMS, 92 Annual Meeting, New Orleans, 2012c.
- Schmidt, J., Wendisch, M., Curtius, J., Scheinert, M., and Sinnhuber, B.-M.: Über den Wolken, Artikel in "Forschung - Das Magazin der Deutschen Forschungsgemeinschaft", [http://www.dfg.de/download/pdf/dfg\\_magazin/wissenschaft\\_oeffentlichkeit/forschung\\_magazin/2018/forschung\\_2018\\_02.pdf](http://www.dfg.de/download/pdf/dfg_magazin/wissenschaft_oeffentlichkeit/forschung_magazin/2018/forschung_2018_02.pdf), 2018.
- Schnaiter, M., Kaye, P. H., Hirst, E., Ulanowski, Z., and Wagner, R.: Exploring the surface roughness of small ice crystals by measuring high resolution angular scattering patterns, <http://dx.doi.org/10.1478/C1V89S1P084>, 2011.
- Schnaiter, M., Abdelmonem, A., Möhler, O., Skrotzki, J., Wagner, R., Ulanowski, Z., and Schmitt, C.: Surface roughness properties of small ice crystals - A laboratory study at the cloud simulation chamber AIDA, ICCP, Leipzig, 2012a.

- Schnaiter, M., Abdelmonem, A., and Wagner, R.: Microphysical and depolarization properties of small ice crystals - A laboratory study at the cloud simulation chamber AIDA, ICCP, Leipzig, 2012b.
- Schwabe, J., Eberlein, L., and Scheinert, M.: Flugzeugvermessung: Bestimmung der Basisvektoren für Polar-5 und HALO, Presentation, Workshop "Geodäsie und Geophysik auf fliegenden Plattformen (insbes. HALO)", Potsdam, 8/9 November, 2012.
- Semmling, M., Beyerle, G., Beckheinrich, J., Gerber, T., Wickert, J., and Schön, S.: Studies on specular GNSS reflections, Presentation, Workshop "Geodäsie und Geophysik auf fliegenden Plattformen (insbes. HALO)", Potsdam, 8/9 November, 2012a.
- Semmling, M., Beyerle, G., Ge, M., Dick, G., Wickert, J., and Schön, S.: An inverse method for airborne ocean altimetry based on specular GNSS reflections, Poster presentation, Workshop on Reflectometry using GNSS and Other Signals of Opportunity (GNSS+R), Purdue University, West Lafayette, IN, USA, 10/11 October, 2012b.
- Semmling, M., Beyerle, G., Schön, S., Beckheinrich, J., Wickert, J., and Scheinert, M.: Airborne GNSS Reflectometry for Sea Surface Height Estimation as part of the GEOHALO Mission, in Book of Abstracts, p. 270, 2013.
- Sinnhuber, B.-M., Oelhaf, H., and the POLSTRACC Team: Arctic ozone loss in the lowermost stratosphere: Observations from the POLSTRACC campaign and implications, Talk, SPARC UTLS workshop, Mainz, 2018.
- Skrotzki, J., Lauer, C., Saathoff, H., Wagner, S., and Ebert, V.: Simultaneous, absolute in situ water-vapor and extractive total-water detection in cold ice clouds using a dual 1.37  $\mu\text{m}$  TDL-Spectrometer, FLAIR 2009 - Field Laser Applications in Industry and Research, Grainau, 2009.
- Smit, H., Rolf, C., Krämer, M., Petzold, A., Spelten, N., Rohs, S., Neis, P., Maser, R., Buchholz, B., Ebert, V., Tatrai, D., Bozoki, Z., Finger, F., and Klingebiel, M.: Development and Evaluation of Novel and Compact Hygrometer for Airborne Research (DENCHAR): In-flight performance during AIRTOSS-I/II research aircraft campaigns, Poster, MOZAIC 20th Anniversary Conference, Toulouse, France, 2014a.
- Smit, H., Rolf, C., Krämer, M., Petzold, A., Spelten, N., Rohs, S., Neis, P., Maser, R., Buchholz, B., Ebert, V., Tatrai, D., Bozoki, Z., Finger, F., and Klingebiel, M.: Development and Evaluation of Novel and Compact Hygrometer for Airborne Research (DENCHAR): In-Flight Performance During AIRTOSS-I/II Research Aircraft Campaigns, Poster, EGU General Assembly, Vol. 16, EGU2014-9420, Vienna, Austria, 2014b.
- Spahn, H., Krebsbach, M., Wegener, R., Hösen, E., Wintel, J., and Koppmann, R.: Stable carbon isotope measurements aboard a Zeppelin: Results of two field campaigns and an outlook to future airborne  $^{13}\text{C}$ -measurements, 5th International Symposium on Isotopomers, Amsterdam, 2010.
- Spahn, H., Linke, C., Krebsbach, M., Koppmann, R., and vom Scheidt, M.: Stable carbon isotope ratios in atmospheric methanol, 6th International Symposium on Isotopomers, Washington, 2012.
- Thayer, M., Kaiser, J., Keutsch, F., Bachner, M., Broch, S., Bohn, B., Fuchs, H., Gomm, S., Häsel, R., Hofzumahaus, A., Holland, F., Jäger, J., Li, X., Lohse, I., Rohrer, F., Tillmann, R., Wegener, R., Mentel, T., Kiendler-Scharr, A., and Wahner, A.: Airship-based observations of formaldehyde in the planetary boundary layer over rural Finland, Geophys. Res. Abstr. Vol. 16, EGU2014-16622; EGU General Assembly, 2014.
- Tost, H. and Hoor, P.: Von der Atmosphärenforschung zur Wettervorhersage: Flugzeugmessungen und Modellierung, physik am Samstag, 07. April 2018, Johannes Gutenberg-Universität Mainz, 2018.
- Tricoli, U. and Pfeilsticker, K.: Scattering of electromagnetic radiation based on numerical calculation of the T-matrix through its integral representation, in Proc. SPIE 9232, International Conference on Optical Particle Characterization (OPC 2014), doi 10.1117/12.2063545, 2014.
- Ungermann, J., Krasauskas, L., Höpfner, M., Friedl-Vallon, F., and Ploeger, F.: A case study of water vapour in-mixing into the LS from GLORIA measurements acquired during the WISE campaign, Talk, SPARC UTLS workshop, Mainz, 2018.
- Voigt, C., Dörnbrack, A., Wirth, M., Groß, S. M., Baumann, R., Ehard, B., Pitts, M. C., Poole, L. R., Sinnhuber, B. M., and Oelhaf, H.: Widespread persistent polar stratospheric ice clouds in the Arctic, Atmospheric Chemistry and Physics Discussions, 2016, 1–27, <https://doi.org/10.5194/acp-2016-1082>, The revised manuscript was not accepted., 2016.



- vom Scheidt, M., Volk, C. M., and Wintel, J.: Entwicklung des PERTRAS-GC zur In-situ-Messung von PFCs und anderen Spurengasen, DPG Frühjahrstagung, Dresden, 2011.
- von Bismarck, J., Ruhtz, T., Starace, M., Hollstein, A., Preusker, P., and Fischer, J.: Aerosol remote sensing applications for airborne multiangle, multispectral shortwave radiometers, EGU General Assembly, Vienna, 2010.
- von Bismarck, J., Doerffer, R., and Fischer, J.: Validation report for MOMO with raman scattering effects, Tech. rep., ESA Project, 2011.
- Wegener, R., Brauers, T., Broch, S., Fuchs, H., Gomm, S., Häsel, R., Hofzumahaus, A., Holland, F., Jäger, J., Kaiser, J., Keutsch, F., Li, X., Lu, K., Rohrer, F., and Wolfe, G.: Overview of observed VOCs and OH reactivity, 3rd Annual PEGASOS Meeting, Athens, Greece, 4 – 6 February, 2014a.
- Wegener, R., Jäger, J., Hofzumahaus, A., Bohn, B., Broch, S., Fuchs, H., Gomm, S., Häsel, R., Holland, F., Kaiser, J., Keutsch, F., Li, X., Lohse, I., Lu, K., Rohrer, F., Thayer, M., Tillmann, R., Wolfe, G., Mentel, T., Kiendler-Scharr, A., and Wahner, A.: Airborne VOC measurements on board the Zeppelin NT by fast GC/MS, 1st VDI-expert Forum on Atmospheric Chemistry - NMVOCs, NO<sub>x</sub>, O<sub>3</sub>, and the EU thematic Strategy on Air Pollution, Bonn, Germany, 19/20 November, 2014b.
- Wegener, R., Jäger, J., Hofzumahaus, A., Rohrer, F., Bohn, B., Brauers, T., Broch, S., Gomm, S., Häsel, R., Holland, F., Kaiser, J., Keutsch, F., Li, X., Lohse, I., Lu, K., Tillmann, R., Wolfe, G., Mentel, T., Kiendler-Scharr, A., and Wahner, A.: Total OH reactivity measurements aboard the Zeppelin NT during the PEGASOS Campaigns 2012 and 2013: Contributions of substance classes to the total OH reactivity, 1st OH Reactivity Specialists Uniting Meeting (ORSUM), Mainz, Germany, 13 – 15 October, 2014c.
- Wendisch, M. and Curtius, J.: Die wundersame Welt der Wolken, Physik Journal 16, 7, pp. 43–47, [http://www.pro-physik.de/details/physikjournalArticle/10562294/Die\\_wundersame\\_Welt\\_der\\_Wolken.html](http://www.pro-physik.de/details/physikjournalArticle/10562294/Die_wundersame_Welt_der_Wolken.html), 2017.
- Wenk, A.-K., Wegener, R., Hofzumahaus, A., and Wahner, A.: Development of a fast GC/MS-system for airborne measurements of volatile organic compounds, EGU General Assembly, Vienna, 2010.
- Wintel, J., Hösen, E., Hembeck, L., Bühler, F., Krebsbach, M., and Koppmann, R.: Characterization of a gas chromatograph isotope ratio spectrometer, 5th International Symposium on Isotopomers, Amsterdam, 2010.
- Wintel, J., Hösen, E., Bühler, F., Heuser, H.-P., Knieling, P., Koppmann, R., Krebsbach, M., Linke, C., and Spahn, H.: Stable carbon isotope ratios of toluene in the boundary layer and the lower troposphere, EGU General Assembly, Vienna, 2012.
- Wirth, M., Amediek, A., Büdenbender, C., Ehret, G., Fix, A., Kiemle, C., Quatrevalet, M., Hoffmann, D., Löhring, J., Klein, V., and Schöggel, R.: CHARM-F: An airborne Integrated Path Differential Absorption (IPDA) LIDAR for the simultaneous measurement of CO<sub>2</sub> and CH<sub>4</sub> Columns, in AGU Fall Meeting, <https://elib.dlr.de/75025/>, 2011.
- Wirth, M., Fix, A., Groß, S., Kiemle, C., and Ehret, G.: WALES, the Airborne Demonstrator for a Water Vapor Differential Absorption LIDAR in Space, in EUMETSAT Climate Symposium, <https://elib.dlr.de/91821/>, 2014.
- Xu, J., Schreier, F., Kenntner, M., Fix, A., and Trautmann, T.: Retrieval of Atmospheric Temperature from Airborne Microwave Radiometer Observations, in ATMOS 2015, edited by ESA, vol. 735 of SP, pp. 1–4, ESA, <https://elib.dlr.de/97248/>, 2015.



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# Theses

- Aderhold, O.-A. F.: Auswertung flugzeuggetragener DOAS-Messungen mit der Skalierungsmethode: Fallbeispiel anhand von NO<sub>2</sub> in Luftmassen des südasiatischen Monsuns, Master thesis, University of Heidelberg, Heidelberg, Germany, 2016.
- Albern, N.: Wolken über dem Nordatlantik: Vergleich von flugzeuggetragenen Messungen eines Lidars, Wolkenradars und Mikrowellenradiometers während NARVAL-Nord, Bachelor thesis, Universität Hamburg, 2014.
- Bounin, J.: Investigation of the temperature-dependent characteristics of the HALO mini-DOAS spectrometer and improvement of the spectral imaging properties, Bachelor thesis, University of Heidelberg, Heidelberg, Germany, 2015.
- Brands, M.: Aufbau eines flugzeuggetragenen Einzelpartikel-Aerosolmassenspektrometers, Ph.D. thesis, Universität Mainz, 2009.
- Braun, M.: Untersuchung von De- und Nitrifizierung in der untersten Stratosphäre und oberen Troposphäre mittels GLORIA-Messungen im arktischen Winter 2015/16, Masterarbeit, Karlsruhe Institute of Technology, Karlsruhe, Germany, 2017.
- Brauner, P.: Charakterisierung des Eiskeimzählers FINCH und Feldmessungen mit FINCH, Masterarbeit, Goethe-Universität Frankfurt am Main, 2018.
- Broch, S.: Ein neues LIF-Instrument für Flugzeug- und bodengebundene Messungen von OH- und HO<sub>2</sub>-Radikalen in der Troposphäre, Ph.D. thesis, Universität Wuppertal, 2011.
- Buchholz, B.: Entwicklung, Primärvalidierung und Feldeinsatz neuartiger, kalibrierungsfreier Laser-Hygrometer für Forschungsflugzeuge, Ph.D. thesis, Technische Universität Darmstadt, 2014.
- Cazenave, Q.: Development and evaluation of multisensor methods for EarthCare mission based on A-Train and airborne measurements, Ph.D. thesis, Université de Versailles Saint-Quentin-en-Yvelines / Université Paris-Saclay, France, 2018.
- Cecchini, M. A.: Aerosol and thermodynamic effects on the formation and evolution of Amazonian clouds observed by aircraft measurement, Ph.D. thesis, Instituto Nacional de Pesquisas Espaciais, São José dos Campos, Brasil, 2017.
- Chrobry, A.: Development and laboratory characterization of a sampling system for airborne measurements of peroxy radicals using chemical amplification, Ph.D. thesis, Universität Bremen, 2013.
- Deuschmann, T.: Atmospheric radiative transfer modelling with Monte Carlo methods, Diploma thesis, University of Heidelberg, Heidelberg, Germany, 2009.
- Deuschmann, T.: On modeling elastic and inelastic polarized radiation transport in the Earth atmosphere with Monte Carlo methods, Ph.D. thesis, Universität Leipzig, 2015.
- Doppler, L.: Radiative transfer code development. Applications to the estimation of the radiative impact of aerosols, Ph.D. thesis, Université Pierre et Marie Curie, Paris and Freie Universität Berlin, 2013.
- Erdmann, F.: Properties of satellite observed North Atlantic cloud regimes evaluated by cloud radar measurements aboard the HALO research aircraft, Bachelor thesis, Universität Hamburg, 2014.
- Ewald, F.: Retrieval of vertical profiles of cloud droplet effective radius using solar reflectance from cloud sides, Ph.D. thesis, Ludwig-Maximilians-Universität München, <https://edoc.ub.uni-muenchen.de/20532/>, 2016.
- Fischer, L.: Statistical characterisation of water vapour variability in the troposphere, a height-resolved analysis using airborne lidar observations and COSMO-DE model simulations, Ph.D. thesis, Ludwig-Maximilians-Universität München, 2013.
-

- Frank, F.: Charakterisierung des Eiskeimzählers FINCH, Promotion, Johann Wolfgang Goethe-Universität Frankfurt am Main, 2017.
- General, S.: Development of the Heidelberg Airborne Imaging DOAS Instrument (HAIDI), A novel remote sensing device for the investigation of two and three-dimensional trace gas distributions in the troposphere, Ph.D. thesis, University of Heidelberg, Heidelberg, Germany, 2014.
- Gödde, F.: Detecting Clouds in the Presence of Sun glint: An Approach Using Spectral Water Vapor Absorption, Master's thesis, Ludwig-Maximilians-Universität München, 2018.
- Gomm, S.: Luftgestützte Messung von HO<sub>x</sub>-Radikalkonzentrationen mittels Laser-induzierter Fluoreszenz auf einem Zeppelin NT: Untersuchung der atmosphärischen Oxidationsstärke der unteren Troposphäre, Ph.D. thesis, Universität Wuppertal, 2014.
- Großmann, K.: Reactive halogen species in the western Pacific, Diploma thesis, University of Heidelberg, Heidelberg, Germany, 2010.
- Großmann, K.: Aircraft-borne DOAS limb observations of UV/visible absorbing trace gas species over Borneo: Implications for the photochemistry of iodine, volatile organic oxide degradation, and lightning-produced radicals, Ph.D. thesis, University of Heidelberg, Heidelberg, Germany, 2014.
- Gutleben, M.: Nature and Extent of Shallow Marine Convection in Subtropical Regions, Analysis of airborne and spaceborne LIDAR-Data over the North Atlantic Ocean, Master's thesis, University of Innsbruck, Austria, 2016.
- Hafermann, S.: Entwicklung und Anwendung von Messinstrumenten für spezifische Hydroperoxid-Messungen in der Troposphäre, Ph.D. thesis, Universität Mainz, 2016.
- Hans, I.: Entwicklung eines Verfahrens zur Charakterisierung eines multispektralen Polarimeters, Master's thesis, Freie Universität Berlin, 2012.
- He, K.: GNSS kinematic position and velocity determination for airborne gravimetry, Ph.D. thesis, Technische Universität Berlin, <http://dx.doi.org/10.14279/depositonce-4372>, 2015.
- Henkel, P.: Meereshöhenbestimmung und Ableitung der mittleren Meeresoberflächentopographie mittels Laseraltimetrie der GEOHALO-Mission, Master's thesis, TU Dresden (Institut für Planetare Geodäsie), 2014.
- Hollstein, A.: Entwicklung und Aufbau eines Flugzeug gestützten multispektralen Polarimeters zur Fernerkundung des Atmosphäre, Master's thesis, Freie Universität Berlin, 2008.
- Hollstein, A.: Vector radiative transfer and its application to the remote sensing of aerosols and hydrosols, Ph.D. thesis, Freie Universität Berlin, 2012.
- Hottmann, B.: Der Peroxid-Monitor HYPHOP: Charakterisierung und Anwendung bei OMO-Asia, Diploma thesis, Universität Mainz, 2016.
- Hüneke, T.: Aufbau und Charakterisierung eines sechsfach-miniDOAS-Spektrographen für das Forschungsflugzeug DLR-HALO, Diploma thesis, University of Heidelberg, Heidelberg, Germany, 2011.
- Hüneke, T.: The scaling method applied to HALO measurements: Inferring absolute trace gas concentrations from airborne limb spectroscopy under all sky conditions, Ph.D. thesis, University of Heidelberg, Heidelberg, Germany, 2016.
- Jäger, J.: Airborne VOC measurements on board the Zeppelin NT during the PEGASOS campaigns in 2012 deploying the improved Fast-GC-MSD System, Ph.D. thesis, Universität zu Köln, 2014.
- Javed, U.: The sensitivity of the photostationary state of NO<sub>x</sub> and its implication for the oxidation capacity in a semi-rural and boreal forest region, Ph.D. thesis, Universität Mainz, 2015.
- Jeßberger, P.: In situ Messungen von HONO und Eispartikeln im Nachlauf von Flugzeugen – Charakterisierung des Flugzeug-Effektes, Ph.D. thesis, Universität Mainz, 2013.
- Johansson, S.: Analysis of the unusually cold Arctic winter 2015/16 lowermost stratosphere by airborne and satellite observations and atmospheric models, Ph.D. thesis, Karlsruhe Institute of Technology, Karlsruhe, Germany, 2019.
- Kartal, D.: Characterization and optimization of a dual channel PERCA for the investigation of the chemistry of peroxy radicals in the upper troposphere, Ph.D. thesis, Universität Bremen, 2009.
- Kenntner, M.: A Novel Limb and Nadir DOAS Optical Spectrometer for the German research aircraft HALO - Feasibility and Validation, Diploma thesis, University of Heidelberg, Heidelberg, Germany, 2013.
- Klostermann, T.: Entwicklung und Erprobung des 'Hygrometer for Atmospheric Investigations' (HAI),

- Ph.D. thesis, Universität Wuppertal, Schriften des Forschungszentrums Jülich, Reihe Energie und Umwelt/Energy and Environment, Vol. 113, ISBN: 978-3-89336-723-8, 2011.
- Kluge, F.: Auswertung flugzeuggetragener DOAS Messungen von C<sub>2</sub>H<sub>2</sub>O<sub>2</sub>, CH<sub>2</sub>O, NO<sub>2</sub>, O<sub>3</sub> und O<sub>4</sub> über dem Amazonas-Regenwald während der ACRIDICON-CHUVA Messkampagne, Master thesis, Universität Heidelberg, Heidelberg, 2018.
- Knapp, M.: Optische und Elektronische Charakterisierung des HALO mini-DOAS Instruments sowie eine Analyse der Unsicherheit in der Blickrichtung für die Skalierungsmethode, Bachelor thesis, University of Heidelberg, Heidelberg, Germany, 2016.
- Knecht, M.: Simulation of radiative field modification due to tropical clouds, Master thesis, University of Heidelberg, Heidelberg, Germany, 2015.
- Kobak, R.: Kalibrierung des optischen Partikelzählers in FINCH, Bachelorarbeit, Goethe-Universität Frankfurt am Main, 2015.
- Kohl, R.: Flugzeugmesskampagne ML-Cirrus: Untersuchung von eisnukleierenden Eigenschaften von Aerosolpartikeln in Zirrusbewölkung, Masterarbeit, Johann Wolfgang Goethe-Universität Frankfurt am Main, 2015.
- Kölling, T.: Characterization, calibration and operation of a hyperspectral sky imager, Master's thesis, Ludwig-Maximilians-Universität München, 2015.
- Kretschmer, E.: Modelling of the Instrument Spectral Response of Conventional and Imaging Fourier Transform Spectrometers, Ph.D. thesis, Université Laval, Québec, Canada, 2014.
- Kreycey, S.: Investigation of the stratospheric bromine chemistry by balloon-borne spectroscopic observations and photochemical modelling: A case study of J(BrONO<sub>2</sub>) / k[BrO][NO<sub>2</sub>], Ph.D. thesis, University of Heidelberg, Heidelberg, Germany, 2012.
- Krisch, I.: Tomographic observations of gravity waves with the infrared limb imager GLORIA, Ph.D. thesis, Bergische Universität Wuppertal, 2018.
- Krisna, T. C.: Airborne Passive Remote Sensing of Optical Thickness and Particle Effective Radius of Cirrus and Deep Convective Clouds, Ph.D. thesis, University of Leipzig, Leipzig, Germany, 2019.
- Lang, T.: Die tropische Zirkulation: Momentaufnahme einer Subsidenzzone, Bachelor thesis, Universität Hamburg, Fachbereich Geowissenschaften, Meteorologisches Institut, 2016.
- Linke, C.: Entwicklung und Anwendung von Analysemethoden und Auswertalgorithmen zur Untersuchung von Verhältnissen stabiler Kohlenstoffisotope in atmosphärischen leichtflüchtigen organischen Verbindungen, Ph.D. thesis, Bergische Universität Wuppertal, 2012.
- Liu, Y.: Investigation of the amplification efficiency of gases other than CO for the measurement of atmospheric peroxy radicals by chemical amplification, Master thesis, University of Bremen, 2016.
- Loh, A.: Faraday-Rotationspektroskopie zum Nachweis vom Hydroperoxyradikal mittels eines neuartigen Infrarotlasers, Master's thesis, Universität Bremen, 2014.
- Lohse, I.: Spektrale aktinische Flussdichten und Photolysefrequenzen - Untersuchungen in der atmosphärischen Grenzschicht und der freien Troposphäre, Ph.D. thesis, Universität zu Köln, 2015.
- Mayer, A.: Transport und statische Stabilität in der UTLS - Datenanalyse zu flugzeuggetragenen Messkampagnen, Master thesis, Johannes Gutenberg Universität Mainz, 2018.
- Meyer, J.: Ice Crystal Measurements with the New Particle Spectrometer NIXE-CAPS, Ph.D. thesis, Schriften des Forschungszentrums Jülich, Reihe Energie und Umwelt/Energy and Environment, Vol. 160, ISBN: 978-3-89336-840-2, 2012.
- Molleker, S.: Charakterisierung von optischen Partikelspektrometern und in-situ Messungen zur Mikrophysik der polaren Stratosphärenwolken, Ph.D. thesis, Universität Mainz, 2014.
- Mönch, F.: Konzeption, Durchführung und Auswertung der photogrammetrischen Vermessung eines Flugzeugs, Diploma theses, TU Dresden (Institut für Photogrammetrie und Fernerkundung und Institut für Planetare Geodäsie), 2012.
- Müller, S.: Untersuchung von Mischungs- und Transportprozessen in der oberen Troposphäre / unteren Stratosphäre basierend auf in-situ Spurengasmessungen, Ph.D. thesis, Johannes-Gutenberg Universität Mainz, Mainz, 2015.
- Münch, S.: Flugzeuggestützte Messungen von eisbildenden Partikeln über dem Regenwald des Amazonas mit FINCH, Masterarbeit, Johann Wolfgang Goethe-Universität Frankfurt am Main, 2015.
- Müsse, J.: Approaches to forecasting postfrontal precipitation events over the North Atlantic, Master's

- thesis, Universität Hamburg, 2012.
- Nenakhov, V.: Optische Rückkopplung eines Resonators hoher Güte auf 409nm Diodenlaser, Master's thesis, Universität Bremen, 2010.
- Nenakhov, V.: Entwicklung und Optimierung einer NO<sub>2</sub>-CRDS-Messmethode für den Flugeinsatz vom PeRCEAS (Peroxy Radical Chemical Enhancement and Absorption Spectroscopy) Instrument., Ph.D. thesis, University of Bremen, to be submitted, 2018.
- O'Brien, K.: Application of a novel air-borne mini-DOAS instrument for UV/visible limb observations during the POLARCAT GRACE 2008 research campaign, Diploma thesis, University of Heidelberg, Heidelberg, Germany, 2010.
- Pavicic, S.: Der Wolkenbedeckungsgrad während der Messkampagne NARVAL-2, Bachelor thesis, Ludwig-Maximilians-Universität München, 2018.
- Polonik, P.: The Influence of Biomass Burning in the Amazon on Cloud Microphysical Properties - Interpretation of Observations with a Numerical Model, Master's thesis, Ludwig-Maximilians-Universität München, 2017.
- Prados-Roman, C.: Aircraft-borne spectroscopic limb measurements of trace gases absorbing in the UV-A spectral range: investigations of bromine monoxide in the Arctic troposphere, Phd thesis, University of Heidelberg, Heidelberg, Germany, 2010.
- Raecke, R.: Charakterisierung des Heidelberger mini-DOAS-Spektrographen auf dem Forschungsflugzeug DLR-HALO, Bachelor thesis, University of Heidelberg, Heidelberg, Germany, 2010.
- Reichert, M.: Messung und Charakterisierung von Nahinfrarot-Spektren mit dem Instrument 'HALO mini-DOAS' und Vergleich mit Strahlungstransportsimulationen unter Berücksichtigung von Flüssigwasser und Eis, Diplomarbeit, Universität Heidelberg, 2014.
- Roiger, A.: Biomass burning pollution in the summer time Arctic atmosphere: development and deployment of a novel airborne CI-ITMS instrument for PAN detection, Ph.D. thesis, University of Heidelberg, Heidelberg, Germany, 2011.
- Roth, A.: Untersuchungen von Aerosolpartikeln und Wolkenresidualpartikeln mittels Einzelpartikel-Massenspektrometrie und optischen Methoden, Ph.D. thesis, Universität Mainz, 2014.
- Ruhtz, T.: Beiträge zur Messung des in der Atmosphäre gestreuten Sonnenlichtes, Ph.D. thesis, Freie Universität Berlin, 2009.
- Safadi, L.: Efficiency of the Chemical Amplification Technique for the Measurement and Speciation of Different Mixtures of Peroxy Radicals, Master's thesis, Universität Bremen, 2013.
- Scalone, L.: Retrieval of Cirrus Optical Properties in the near-IR spectral range within the NASA ATTREX Project, Phd thesis, University of Heidelberg, Heidelberg, Germany, 2017.
- Schmale, J.: Aircraft-based in-situ aerosol mass spectrometry: Chemical characterization and source identification of submicron particulate matter in the free and upper troposphere and lower stratosphere, Ph.D. thesis, Universität Mainz, 2011.
- Schnitt, S.: Aufbau und Kalibrierung eines abbildenden Spektrometers, Bachelor thesis, Freie Universität Berlin, 2013.
- Schnitt, S.: Evaluation of tradewind cloud properties using a passive airborne microwave radiometer during the NARVAL campaign, Master thesis, Universität Köln, 2016.
- Schreiner, B.: Aircraft-borne measurements of nitrogen dioxide, formaldehyde, and nitrous acid in the lower and middle troposphere during the EMeRGe-EU campaign, Master's thesis, Universität Heidelberg, Heidelberg, 2018.
- Schubert, T.: Auswertung von optischen Polarisationsmessungen während der SoRPiC Flugmesskampagne zur Identifikation der Wolkenphase, Master's thesis, Freie Universität Berlin, 2014.
- Schulte, I.: Electronic characterisation of the airborne HALO mini-DOAS instrument and recording and simulation of reference spectra, Bachelor thesis, University of Heidelberg, Heidelberg, Germany, 2013.
- Schulz, C.: Secondary organic aerosol in the pristine Amazonian atmosphere: Chemical properties, formation pathways, and interactions with clouds, Ph.D. thesis, Johannes Gutenberg University Mainz, Mainz, Germany, 2019.
- Schwab, F.: NO<sub>2</sub>-Messungen mit dem HALO mini-DOAS während der OMO-Kampagne: Vergleich mit HORUS und dem photolytischen Gleichgewicht, Bachelor thesis, University of Heidelberg, Heidelberg, Germany, 2017.

- Schwarz, U.: Derivation of cloud geometry with imaging spectral and geometric measurements, Master's thesis, Ludwig-Maximilians-Universität München, 2016.
- Sha, M. K.: Characterization and Optimization of the new Imaging Fourier Transform Spectrometer GLORIA, Ph.D. thesis, Karlsruhe Institute of Technology, Karlsruhe, Germany, <https://publikationen.bibliothek.kit.edu/1000038372>, 2013.
- Spahn, H.: Untersuchungen der Verhältnisse stabiler Kohlenstoffisotope in atmosphärisch relevanten VOC in Simulations- und Feldexperimenten, Ph.D. thesis, Bergische Universität Wuppertal, 2009.
- Stammer, P.: Water Vapor Retrieval in the Upper Troposphere and Lower Stratosphere Using Airborne Measurements of Spectral Solar Irradiance, Master's thesis, University of Leipzig, [http://home.uni-leipzig.de/strahlen/web/publications/theses/Mthesis\\_Stammer\\_2018.pdf](http://home.uni-leipzig.de/strahlen/web/publications/theses/Mthesis_Stammer_2018.pdf), 2018.
- Starache, M.: Addition of a Near-Infrared Radiometer to a Visible Spectrum Sun Photometer for Aerosol Remote Sensing, Master's thesis, Freie Universität Berlin, 2012.
- Stecher, L.: Höhenprofile des Tröpfchenradius während der ACRIDICON-CHUVA Kampagne 2014 - Vergleich von MODIS und specMACS Daten, Bachelor thesis, Ludwig-Maximilians-Universität München, 2016.
- Tadic, I.: Flugzeuggetragenen Spurengasmessungen während OMO-EU, Bachelor thesis, Universität Mainz, 2015.
- Testorp, S.: Calibration and Characterization of the Airborne Multi-Spectral Sunphoto- & Polarimeter AMSSP, Master's thesis, Freie Universität Berlin, 2014.
- Thürkow, M.: Sonnenstandsberechnung, Vergleich verschiedener Berechnungen des Sonnenstandes in Abhängigkeit von Position und Zeit, Master's thesis, Freie Universität Berlin, 2009.
- Tricoli, T.: Electromagnetic scattering with the GDT-matrix method: An application to irregular ice particles in cirrus, Ph.D. thesis, University of Heidelberg, Heidelberg, Germany, 2015.
- vom Scheidt, M.: Entwicklung einer Messmethode zur Detektion von perfluorierten Kohlenwasserstoffen mittels GC-M, Master's thesis, Universität Wuppertal, 2009.
- vom Scheidt, M.: Charakterisierung und Einsatz eines flugzeuggetragenen Messinstruments zur Messung von CO<sub>2</sub>, Master's thesis, Universität Wuppertal, 2010.
- vom Scheidt, M.: Entwicklung und Charakterisierung eines GC/MS-Systems für zeitlich hochaufgelöste Flugzeugmessungen, Ph.D. thesis, Universität Wuppertal, 2013.
- vom Scheidt, M.: Charakterisierung und Einsatz des Luftprobensammlers MIRA zur Untersuchung von Verhältnissen stabiler Kohlenstoffisotope in atmosphärischen flüchtigen organischen Verbindungen, Ph.D. thesis, Universität Wuppertal, 2014.
- von Bismarck, J.: Entwicklung und Aufbau eines flugzeuggestützten Radiometers zum Messen der Zenitstrahlendichte für die Fernerkundung atmosphärischer Aerosole, Master's thesis, Freie Universität Berlin, 2009.
- Weimar, J.: Detection characteristics of VIS spectrometers of the airborne HALO mini-DOAS instrument and their influence on the retrieval of trace gas abundances, Bachelor thesis, University of Heidelberg, Heidelberg, Germany, 2014.
- Werner, B.: Spectroscopic UV/vis limb measurements from aboard the NASA Global Hawk: Implications for the photochemistry and budget of bromine in the tropical tropopause layer, Ph.D. thesis, University of Heidelberg, Heidelberg, Germany, 2015.
- Wintel, J.: Charakterisierung eines GC-IRMS, Master's thesis, Bergische Universität Wuppertal, 2009.
- Wolf, K.: Flugzeuggetragene Fernerkundung von Cirren mittels zweier unabhängiger Spektrometersysteme, Master's thesis, Universität Leipzig, 2015.
- Wolff, S.: Bestimmung der Emissionsraten von CH<sub>4</sub>- und CO<sub>2</sub>-Punktquellen mit flugzeuggetragenem Lidar, Master's thesis, Ludwig-Maximilians-Universität München, 2018.
- Zielke, J.: Polar Tropospheric Halogens, Ph.D. thesis, University of Heidelberg, Heidelberg, Germany, 2015.