

## Silvia Henning

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**Dr. Silvia Henning**

Leibniz-Institut für  
Troposphärenforschung e.V.  
Permoserstraße 15  
04318 Leipzig

**Telefon:** +49 341 2717-7321

**Mail:** [henning@tropos.de](mailto:henning@tropos.de)

**Raum:** 001 (Geb. 23.3)

**ResearcherID**

ORCID

**Funktion**

Wissenschaftliche Mitarbeiterin

**Abteilung:**

Abteilung Experimentelle Aerosol und Wolkenphysik

**Forschungsgebiete & Arbeitsschwerpunkte:**

Wolkenmikrophysik und Aerosol-Wolken-Wechselwirkungen

## Laufende Projekte:

- **VACCINE** (Variation der antarktischen Wolkenkondensationskern- (CCN) und Eiskeim- (INP) Konzentrationen und Eigenschaften an NEumayer III im Vergleich zu deren Werten in der Arktis an der Forschungsstation Villum)
- **ACORES** (Vertikale Verteilung von Wolkenkondensationskernen in mariner Umgebung)
- **ACE-SPACE** (Südlicher Ozean als Messort für vom Menschen unbeeinflusste Atmosphäre)
- **ACTRIS** (CCN Messungen an der TROPOS Feldstation Melpitz)

## Abgeschlossene Projekte:

- Hyroskopisches Partikelwachstum unterhalb des Gefrierpunktes
- HCCT-2010 (Hill Cap Cloud Thuringia 2010)
- **HaChi** (Haze in China)
- **LExNO**
- **CLACE** (Cloud and Aerosol Characterization Experiment at Jungfrauoch, CH)
- **ACE-2** (In-situ Messungen von Aerosolanzahlgrößenverteilungen Mt. Fóia, Pt)

## Lebenslauf (CV)

### Berufserfahrung

seit 02/2005 Wissenschaftliche Mitarbeiterin am Leibniz-Institut für Troposphärenforschung e.V.; Thema: In-situ Untersuchung von Aerosolpartikeln / Wolkenkondensationskeimen in Labor- und Feldexperimenten

04/2003–12/2004 Postdoc an der Universität Kopenhagen, Dänemark. Thema: Untersuchung verschiedener Aerosole hinsichtlich ihres Beitrags zur Wolkenbildung

01/1999–03/2003 Wissenschaftliche Mitarbeiterin am Paul Scherrer Institut in Villigen, Schweiz. Thema: Physikalische und chemische Charakterisierung atmosphärischen Aerosols am GAW Standort Jungfrauoch (3580m asl)

### Bildungsweg

10/2002 Promotionsabschluss als Dr. phil. nat. an der Universität Bern, Schweiz.

01/1999-10/2002 Doktorand am Paul Scherrer Institut und der Universität von Bern, Schweiz.

12/1998 Abschluss als Diplom-Meteorologin.

11/1997-11/1998 Diplomarbeit am Leibniz-Institut für Troposphärenforschung e.V., Leipzig, Deutschland.

10/1993-12/1998 Diplomstudium der Meteorologie, Universität Leipzig, Deutschland.

### Gremien/Mitgliedschaften

seit 07/1999 Mitglied der German Aerosol Foundation (GAeF)

## Publikationen:

### 2021

Tatzelt, C., **S. Henning**, A. Welti, A. Baccharini, M. Hartmann, M. Gysel-Beer, M. van Pinxteren, R. L. Modini, J. Schmale, and F. Stratmann (2021), Circum-Antarctic abundance and properties of CCN and INP, Atmos. Chem. Phys. Discuss. [preprint], doi: doi.org/10.5194/acp-2021-700.

Landwehr, S., M. Volpi, F. A. Haumann, C. M. Robinson, I. Thurnherr, V. Ferracci, A. Baccharini, J. Thomas, I. Gorodetskaya, C. Tatzelt, **S. Henning**, R. L. Modini, H. J. Forrer, Y. Lin, N. Cassar, R. Simó, C. Hassler, A. Moallemi, S. E. Fawcett, N. Harris, R. Airs, M. H. Derkani, A. Alberello, A. Toffoli, G. Chen, P. R. Ros, M. Zamanillo, P. Cortés-Greus, L. Xue, C. G. Bolas, K. C. Leonard, F. Perez-Cruz, D. Walton, and J. Schmale (2021), Biogeochemistry and Physics of the Southern Ocean-Atmosphere System Explored With Data Science, Earth Syst. Dynam. Discuss. [preprint], in review, doi: doi.org/10.5194/esd-2021-16.

Baccharini, A., J. Dommen, K. Lehtipalo, **S. Henning**, R. L. Modini, M. Gysel-Beer, U. Baltensperger, and J. Schmale (2021), Low-volatility vapors and new particle formation over the Southern Ocean during the Antarctic Circumnavigation Expedition, Earth and Space Science Open Archive doi: <https://www.essoar.org/doi/10.1002/essoar.10506899.1>.

Siebert, H., et al. (2020), Observations of aerosol, cloud, turbulence, and radiation properties at the top of the marine boundary layer over the Eastern North Atlantic Ocean: The ACORES campaign, Bull. Am. Meteorol. Soc., 1-59, doi:10.1175/bams-d-19-0191.1.

Moallemi, A., S. Landwehr, C. Robinson, R. Simó, M. Zamanillo, G. Chen, A. Baccharini, M. Schnaiter, **S. Henning**, R. L. Modini, M. Gysel-Beer, and J. Schmale (2021), Sources, Occurrence and Characteristics of Fluorescent Biological Aerosol Particles Measured Over the Pristine Southern Ocean, Journal of Geophysical Research: Atmospheres, 126(11), e2021JD034811, doi: doi.org/10.1029/2021JD034811.

## 2020

Genz, C., R. Schrödner, B. Heinold, **S. Henning**, H. Baars, G. Spindler, and I. Tegen (2019), Estimation of Cloud Condensation Nuclei number concentrations and comparison to in-situ and lidar observations during the HOPE experiments, *Atmos. Chem. Phys. Discuss.*, 2019, 1-24, doi:10.5194/acp-2019-742.

Gong, X. D., H. Wex, J. Voigtlander, K. W. Fomba, K. Weinhold, M. van Pinxteren, **S. Henning**, T. Müller, H. Herrmann, and F. Stratmann (2020), Characterization of aerosol particles at Cabo Verde close to sea level and at the cloud level - Part 1: Particle number size distribution, cloud condensation nuclei and their origins, *Atmospheric Chemistry and Physics*, 20(3), 1431-1449, doi:10.5194/acp-20-1431-2020.

Regayre, L. A., J. Schmale, J. S. Johnson, C. Tatzelt, A. Baccharini, **S. Henning**, M. Yoshioka, F. Stratmann, M. Gysel-Beer, and K. S. Carslaw (2019), The value of remote marine aerosol measurements for constraining radiative forcing uncertainty, *Atmos. Chem. Phys. Discuss.*, 2019, 1-11, doi:10.5194/acp-2019-1085.

Welti, A., et al. (2020), Ship-based measurements of ice nuclei concentrations over the Arctic, Atlantic, Pacific and Southern Ocean, *Atmos. Chem. Phys. Discuss.*, 2020, 1-22, doi:10.5194/acp-2020-466.

## 2019

Schmale, J., et al. (2019), Overview of the Antarctic Circumnavigation Expedition: Study of Preindustrial-like Aerosols and Their Climate Effects (ACE-SPACE), *Bull. Am. Meteorol. Soc.*, 100(11), 2260-2283, doi:10.1175/bams-d-18-0187.1.

Kecorius, S., et al. (2019), New particle formation and its effect on CCN abundance in the summer Arctic: a case study during PS106 cruise, *Atmos. Chem. Phys. Discuss.*, 2019, 1-41, doi:10.5194/acp-2019-600.

## 2018

Schmale, J., et al. (2018), Long-term cloud condensation nuclei number concentration, particle number size distribution and chemical composition measurements at regionally representative observatories, *Atmospheric Chemistry and Physics*, 18(4), 2853-2881, doi:10.5194/acp-18-2853-2018.

Herenz, P., H. Wex, **S. Henning**, T. B. Kristensen, F. Rubach, A. Roth, S. Borrmann, H. Bozem, H. Schulz, and F. Stratmann (2018), Measurements of aerosol and CCN properties in the Mackenzie River delta (Canadian Arctic) during spring-summer transition in May 2014, *Atmospheric Chemistry and Physics*, 18(7), 4477-4496, doi: 10.5194/acp-18-4477-2018.

Dusing, S., B. Wehner, P. Seifert, A. Ansmann, H. Baars, F. Ditas, **S. Henning**, N. Ma, L. Poulain, H. Siebert, A. Wiedensohler, and A. Macke (2018), Helicopter-borne observations of the continental background aerosol in combination with remote sensing and ground-based measurements, *Atmospheric Chemistry and Physics*, 18(2), 1263-1290, doi: 10.5194/acp-18-1263-2018.

## 2017

Schmale, J., et al. (2017), Data Descriptor: Collocated observations of cloud condensation nuclei, particle size distributions, and chemical composition, *Scientific Data*, 4, doi:10.1038/sdata.2017.3.

Reddington, C. L., et al. (2017), The Global Aerosol Synthesis And Science Project (GASSP): Measurements and Modeling to Reduce Uncertainty, *Bull. Am. Meteorol. Soc.*, 98(9), 1857-1877, doi: 10.1175/bams-d-15-00317.1.

## 2016

Wex, H., K. Dieckmann, G. C. Roberts, T. Conrath, M. A. Izaguirre, S. Hartmann, P. Herenz, M. Schäfer, F. Ditas, T. Schmeissner, **S. Henning**, B. Wehner, H. Siebert, and F. Stratmann (2016), Aerosol arriving on the Caribbean island of Barbados: Physical properties and origin, *Atmos. Chem. Phys.*, 16(22):14107-30, 2016

## 2014

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, doi: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, doi:10.5194/acp-14-7859-2014, 2014.

## 2013

Wu, Z. J., Poulain, L., **Henning, S.**, Dieckmann, K., Birmili, W., Merkel, M., van Pinxteren, D., Spindler, G., Müller, K., Stratmann, F., Herrmann, H. and Wiedensohler, A. (2013) Relating particle hygroscopicity and ccn activity to chemical composition during the HCCT-2010 field

## 2012

**Henning, S.**, Ziese, M., Kiselev, A., Saathoff, H., Möhler, O., Mentel, T., Buchholz, A., Spindler, C., Michaud, V., Monier, M., Sellegri, K. and Stratmann, F. (2012) Hygroscopic growth and droplet activation of soot particles: uncoated, succinic or sulfuric acid coated. *Atmospheric Chemistry and Physics* 11, 4525–4537.

## 2011

Deng, Z. Z., Zhao, C. S., Ma, N., Liu, P. F., Ran, L., Xu, W. Y., Chen, J., Liang, Z., Liang, S., Huang, M. Y., Ma, X. C., Zhang, Q., Quan, J. N., Yan, P., **Henning, S.**, Mildenerger, K., Sommerhage, E., Schafer, M., Stratmann, F. and Wiedensohler, A. (2011) Size-resolved and bulk activation properties of aerosols in the north china plain. *Atmospheric Chemistry and Physics* 11, 3835–3846.

Liu, P. F., Zhao, C. S., Gobel, T., Hallbauer, E., Nowak, A., Ran, L., Xu, W. Y., Deng, Z. Z., Ma, N., Mildenerger, K., **Henning, S.**, Stratmann, F. and Wiedensohler, A. (2011) Hygroscopic properties of aerosol particles at high relative humidity and their diurnal variations in the north china plain. *Atmospheric Chemistry and Physics* 11, 3479–3494.

Ma, N., Zhao, C. S., Nowak, A., Muller, T., Pfeifer, S., Cheng, Y. F., Deng, Z. Z., Liu, P. F., Xu, W. Y., Ran, L., Yan, P., Gobel, T., Hallbauer, E., Mildenerger, K., **Henning, S.**, Yu, J., Chen, L. L., Zhou, X. J., Stratmann, F. and Wiedensohler, A. (2011) Aerosol optical properties in the north china plain during hachi campaign: an in-situ optical closure study. *Atmospheric Chemistry and Physics* 11, 5959–5973.

## 2010

**Fors, E. O.**, Rissler, J., Massling, A., Svenningsson, B., Andreae, M. O., Dusek, U., Frank, G. P., Hoffer, A., Bilde, M., Kiss, G., Janitsek, S., Henning, S., Facchini, M. C., Decesari, S. and Swietlicki, E. (2010) Hygroscopic properties of amazonian biomass burning and european background hulis and investigation of their effects on surface tension with two models linking h-tdma to ccnc data. *Atmospheric Chemistry and Physics* 10, 5625–5639.

**Henning, S.**, Wex, H., Hennig, T., Kiselev, A., Snider, J., Rose, D., Dusek, U., Frank, G. P., Pöschl, U., Kristensson, A., Bilde, M., Tillmann, R., Kiendler-Scharr, A., Mentel, T. F., Walter, S., Schneider, J., Wennrich, C. and Stratmann, F. (2010) Soluble mass, hygroscopic growth and droplet activation of coated soot particles during LExNo. *Journal of Geophysical Research Atmospheres* 115, doi:10.1029/2009JD012626.

**Kiselev, A.**, Wennrich, C., Stratmann, F., Wex, H., Henning, S., Mentel, T. F., Kiendler-Scharr, A., Schneider, J., Walter, S. and Lieberwirth, I. (2010) Morphological characterization of soot aerosol particles during lacis experiment in november (lexno). *Journal of Geophysical Research-Atmospheres* 115.

**Snider, J. R.**, Wex, H., Rose, D., Kristensson, A., Stratmann, F., Hennig, T., Henning, S., Kiselev, A., Bilde, M., Burkhart, M., Dusek, U., Frank, G. P., Kiendler-Scharr, A., Mentel, T. F., Petters, M. D. and Poschl, U. (2010) Intercomparison of cloud condensation nuclei and hygroscopic fraction measurements: Coated soot particles investigated during the lacis experiment in november (lexno). *Journal of Geophysical Research-Atmospheres* 115.

**Stratmann, F.**, Bilde, M., Dusek, U., Frank, G. P., Hennig, T., Henning, S., Kiendler-Scharr, A., Kiselev, A., Kristensson, A., Lieberwirth, I., Mentel, T. F., Poschl, U., Rose, D., Schneider, J., Snider, J. R., Tillmann, R., Walter, S. and Wex, H. (2010) Examination of laboratory-generated coated soot particles: An overview of the lacis experiment in november (lexno) campaign. *Journal of Geophysical Research-Atmospheres* 115.

**Wex, H.**, McFiggans, G., Henning, S. and Stratmann, F. (2010) Influence of the external mixing state of atmospheric aerosol on derived ccn number concentrations. *Geophysical Research Letters* 37, doi:10.1029/2010GL043337.

## 2009

**Juranyi, Z.**, Gysel, M., Duplissy, J., Weingartner, E., Tritscher, T., Dommen, J., Henning, S., Ziese, M., Kiselev, A., Stratmann, F., George, I., Baltensperger, U. (2009) Influence of gas-to-particle partitioning on the hygroscopic and droplet activation behaviour of alpha-pinene secondary organic aerosol *Phys. Chem. Chem. Phys.*, 11, 8091-8097.

## 2008

**Cozic, J.**, Verheggen, B., Weingartner, E., Crosier, J., Bower, K. N., Flynn, M. J., Coe, H., Henning, S., Steinbacher, M., Henne, S., Coen, M. C., Petzold, A. and Baltensperger, U. (2008) Chemical composition of free tropospheric aerosol for PM1 and coarse mode at the high alpine site Jungfraujoch. *Atmospheric Chemistry and Physics* 8, 407–423.

## 2007

**Coen, M. C.**, Weingartner, E., Nyeki, S., Cozic, J., Henning, S., Verheggen, B., Gehrig, R. and Baltensperger, U. (2007) Long-term trend analysis of aerosol parameters at the high alpine site Jungfraujoch. *Journal of Geophysical Research* p. doi: 10.1029/2006JD007995.

**Wex, H.**, Ziese, M., Kiselev, A., Henning, S. and Stratmann, F. (2007b) Deliquescence and hygroscopic growth of succinic acid particles measured with LACIS. *Geophysical Research Letters* 34, doi: 10.1029/2007GL030185.

**Wex, H.**, Hennig, T., Salma, I., Ocskay, R., Kiselev, A., Henning, S., Massling, A., Wiedensohler, A. and Stratmann, F. (2007a) Hygroscopic growth and measured and modeled critical super-saturations of an atmospheric HULIS sample. *Geophysical Research Letters* 34, doi:10.1029/2006GL028260.

## 2005

**Henning, S.**, Rosenørn, T., D'Anna, B., Gola, A. A., Svenningsson, B. and Bilde, M. (2005) Cloud droplet activation and surface tension of mixtures of slightly soluble organics and inorganic salt. *Atmospheric Chemistry and Physics* 5, doi:10.5194/acp-5-575-2005.

**Hinz, K. P.**, Trimbom, A., Weingartner, E., Henning, S., Baltensperger, U. and Spengler, B. (2005) Aerosol single particle composition at the Jungfraujoch. *Journal of Aerosol Science* 36, 123–145.

## 2004

**Coen, M. C.**, Weingartner, E., Schaub, D., Hueglin, C., Corrigan, C., Henning, S., Schwikowski, M. and Baltensperger, U. (2004) Saharan dust events at the Jungfraujoch: detection by wavelength dependence of the single scattering albedo and first climatology analysis. *Atmospheric Chemistry and Physics* 4, 2465–2480.

**Henning, S.**, Bojinski, S., Diehl, K., Ghan, S., Nyeki, S., Weingartner, E., Wurzer, S. and Baltensperger, U. (2004) Aerosol partitioning in natural mixed-phase clouds. *Geophysical Research Letters* 31, doi:10.1029/2003GL019025.

**Sorjamaa, R.**, Svenningsson, B., Raatikainen, T., Henning, S., Bilde, M. and Laaksonen, A. (2004) The role of surfactants in Köhler theory reconsidered. *Atmospheric Chemistry and Physics* 4, 2107–2117.

## 2003

**Henning, S.**, Weingartner, E., Schwikowski, M., Gäggeler, H. W., Gehrig, R., Hinz, K.-P., Trimbom, A., Spengler, B. and Baltensperger, U. (2003) Seasonal variation of the water soluble ions of the aerosol at the high-alpine site Jungfraujoch (3580 m asl). *J. Geophys. Res.* 108, 10.1029/2002JD002439.

**Nessler, R.**, Bukowiecki, N., Henning, S., Weingartner, E., Calpini, B. and Baltensperger, U. (2003) Simultaneous dry and ambient measurements of aerosol size distributions at the Jungfraujoch. *Tellus* 55B, 808–819.

## 2002

**Henning, S.**, Weingartner, E., Schmidt, S., Wendisch, M., Gäggeler, H. W. and Baltensperger, U. (2002) Size-dependent aerosol activation at the high-alpine site Jungfraujoch (3580m asl). *Tellus* 54B, 82–95.

**Silva, A. M.**, Bugalho, M. L., Costa, M. J., von Hoyningen Huene, W., Schmidt, T., Heintzenberg, J. and Henning, S. (2002) Aerosol optical properties from columnar data during ACE-2 at the south coast of Portugal. *J. Geophys. Res.* 107, 10.1029/2002JD002196.

**Henning, S.** (2002) Aerosol and Cloud Microphysics at the High-Alpine Site Jungfraujoch (3580 m asl). Phd, University of Berne, Switzerland.

## 1998

**Henning, S.** (1998) Aerosolgrößenverteilungen im Übergangsbereich zwischen freier Troposphäre und planetarer Grenzschicht. Diplom, University of Leipzig, Germany.

## Researcher IDs

- ResearcherID
- OrcidID

### **Leibniz-Institut für Troposphärenforschung e.V. (TROPOS)**

Permoserstraße 15  
04318 Leipzig

Telefon: ++49 (341) 2717 7060  
Telefax: ++49 (341) 2717 99 7060

**Folgen Sie uns auf Twitter:**  
@TROPOS\_de



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