

**Education**

- 1989                      Diploma in Physics, University of Wuppertal
- 1994                      PhD in Physics, University of Wuppertal  
Thesis title: Das CRISTA-Meßsystem: Struktur und Anwendungen
- 2001                      Habilitation in Physics, University of Wuppertal  
Thesis title: Remote Sensing and Modelling of the Earth's Middle  
Atmosphere: Results of the CRISTA Experiment
- 1997 - 1998              Visiting Scientist, National Center for Atmospheric Research  
(NCAR), Boulder, Colorado (12 months)

**Professional Positions**

- 2002 - 2010              Director of Institute of Chemistry and Dynamics of the Geosphere  
(ICG-1), Forschungszentrum Jülich GmbH
- 2010 - 2024              Director of Institute of Energy and Climate Research (IEK-7),  
Forschungszentrum Jülich GmbH
- Since 2024                Director of the Institute of Climate and Energy Systems (ICE-4),  
Forschungszentrum Jülich GmbH
- Since April 2003        Full Professor for Atmospheric Physics,  
Faculty for Mathematics and Natural Science, University of Wuppertal

**Committees and Boards**

- 2022 - 2024              Chair, Scientific Council (WTR) of Forschungszentrum Jülich GmbH
- Since 2022                Board of Directors, Interdisciplinary Centre for Atmosphere and Environment  
at the University of Wuppertal
- 2019 - 2022              Chair, JuDocs Council of Forschungszentrum Jülich (Jülich PhD programme  
with ~1000 PhD students)
- 2020 – 2023              Advisory Council “Klimaschutz NRW” of the state of North Rhine  
Westphalia
- Since 2018                Mission Advisory Group of ESA's Earth Explorer 9 mission FORUM
- 2016 - 2020              Review Board for Atmosphere, Ocean, and Climate, German Science  
Foundation (DFG), Elected Member
- 2012 - 2016              Review Board for Atmosphere and Ocean, German Science Foundation  
(DFG), Elected Member
- Since 2014                Scientific Steering Committee, High Altitude and Long Range Research  
Aircraft (HALO)
- 2017-2019                Management Board of Helmholtz Research Area “Earth and Environment”;  
Permanent Guest

2015 - 2018	Copernicus Medal Award Committee
2015	Chair, Scientific Evaluation Board, DLR Institute for Physics of the Atmosphere (IPA), Oberpfaffenhofen
2015	Review Board of Evaluation of the Leibniz Institute for Tropospheric Research (TROPOS)
2006-2014	Chair, Scientific Advisory Board of Leibniz-Institute for Atmospheric Physics, Kühlungsborn
2006-2013	Board of Trustees of Leibniz-Institute for Atmospheric Physics, Kühlungsborn, Germany
2009-2013	Mission Advisory Group of ESA's Earth Explorer candidate PREMIER
2006-2009	Mission Assessment Group of ESA's Earth Explorer candidate PREMIER
2006	Scientific Advisory Board for Program ATMO at Karlsruhe Institute for Technology (KIT)

### **Other Scientific Leadership**

2023	Scientific Coordinator, HALO research aircraft mission PHILEAS (Alaska)
2019	Scientific Co-Coordinator, HALO research aircraft mission SouthTRAC-Dyn (Argentina)
2017	Scientific Coordinator, HALO research aircraft mission WISE (Ireland)
2015 - 2018	Group Leader, Helmholtz – Chinese Academy of Science (CAS) Joint Research Group “Climatological impact of increasing anthropogenic emissions over Asia”
2010-2011	Coordinator, PREMIER science impact study
2004-2009	Spokesman, Virtual Helmholtz-institute „Centre Tropical Tropopause“

### **PhD supervision**

Since 2003	PhD father (~ 40 PhD students), Second Reviewer (~ 20 PhD students)
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### **Helmholtz-Association (Program-oriented funding)**

Since 2021	Spokesman, Cooperation across Research Fields (CARF) Remote Sensing
2014-2017	Steering Committee of Helmholtz Research Area “Earth and Environment“, Permanent Guest
2014-2020	Deputy-Spokesman, Helmholtz-program „Atmosphere and Climate“
2014-2020	Spokesman, Topic „Composition and Dynamics of the Upper Troposphere and Middle Atmosphere“, Helmholtz program “Atmosphere and Climate”
2013 - 2020	Spokesman (FZJ), for Earth System Knowledge Platform (ESKP)
2009 - 2013	Spokesman, Topic „Composition and Dynamics of the Upper Troposphere and Stratosphere“, Helmholtz-program „Atmosphere and Climate“.
2007-2012	Spokesman, Topic “Chemistry and Dynamics of the Atmosphere“, Helmholtz-network EOS (Earth Observation System)

2010 Steering Committee, Portfolio-Process of Helmholtz Research Area „Earth and Environment“

2004-2008 Spokesman, Topic „Stratosphere and Tropopause Region in a Changing Climate“, Helmholtz-program „Atmosphere and Climate“

### **Forschungszentrum Jülich**

Since 2002 Scientific Council (WTR), Chair since 2021

2022-2023 Search Commission for Chair of Board of Directors

2022 Search Commission for Member of Board of Directors (VS-II)

2020 Acting Director, Institute for Energy and Climate Research (IEK)

2005, 2009, 2010 Acting Director, Institute for Chemistry and Dynamics of the Geosphere (ICG)

2005, 2010, 2020, 2022 Executive Committee (HK) of Science Council

2019-2022 JuDocs Council, Chair (about 1000 PhD students)

Since 2011 Steering Committee HITEC Graduate School (Jülich Helmholtz Graduate School for Energy and Climate)

2011-2013 IT Steering Committee

2005-2008 Chair, Jülich PhD Student Program Board (400 PhD students)

2005-2008 Selection Committee „Günther Leibfried Preis“

2011-2015 Chair, W3 Appointment Committees, Directors IEK-1, IEK-8, IEK-9, IBG-2

2023-2024 W3 Appointment Committee, Director IEK-8

2024 Chair, W3 Appointment Committee, Director IBG-1

### **University of Wuppertal:**

Since 2003 W2/C4 Appointment Committees (3)

2003 – 2013 Habilitation Committees (5)

### **Community Service:**

Since 2008 Guest-Editor, EGU-Journal “Atmospheric Measurement Techniques”

1996, 2000 Editor, Advances in Space Research

2010 DACH conference, Bonn, Organization panel

2013 ESA Living Planet Symposium, Edinburgh, Organization panel

2014 COSPAR, Moscow, Deputy-Organizer

- 2016 ESA ATMOS Conference, Iraklion, Organization panel
- 2010/14/18/22 Reviewer „WMO Scientific Assessment of Ozone Depletion“
- Reviewer for international journals and funding agencies (USA, EU, UK, Schweden, Belgien, Niederlande, India ...)
- Reviewer for national funding agencies (DFG, Humboldt, BMBF, Helmholtz ...)

### Memberships

- German Physical Society (DPG)
- American Geophysical Union (AGU)
- Development Association, Rhenish Institute for Environmental Research (RIU) at University of Cologne

### Awards

- 1994, 1997 ASTRO-SPAS Award of German Space Agency (DARA)
- 1994 ATLAS-3 Award of National Aeronautics and Space Administration (NASA)

### Current Research Interest

- Role of the atmosphere in the climate system
- Transport of atmospheric trace gases incl. pollutants
- Satellite and aircraft instrumentation
- Infrared limb-sounding of the atmosphere

### Publications (statistics)

~200 Peer-reviewed Publications: H= 43 (WOS), H= 51 (Google Scholar) (July 2024)

### Selected Publications

- [1] Riese, M., F. Ploeger, A. Rap, B. Vogel, P. Konopka, M. Dameris, and P. Forster, Impact of uncertainties in atmospheric mixing on simulated UTLS composition and related radiative effects, *J. Geophys. Res.*, 117, D16305, doi:[10.1029/2012JD017751](https://doi.org/10.1029/2012JD017751), 2012.
- [2] Ern, M., P. Preusse, J. C. Gille, C. L. Hepplewhite, M. G. Mlynczak, J. M. Russell III, and M. Riese, Implications for atmospheric dynamics derived from global observations of gravity wave momentum flux in stratosphere and mesosphere, *J. Geophys. Res.*, 116, D19107, doi:[10.1029/2011JD015821](https://doi.org/10.1029/2011JD015821), 2011.
- [3] Höpfner, M., Ungermann, J., Borrmann, S., Wagner, R., Spang, R., Riese, M. et al. Ammonium nitrate particles formed in upper troposphere from ground ammonia sources during Asian monsoons. *Nature Geosciences*, 12, 608–612, <https://doi.org/10.1038/s41561-019-0385-8>, 2019.

- [4] Riese, M., R. Spang, P. Preusse, M. Ern, M. Jarisch, D. Offermann, and K. U. Grossmann, Cryogenic Infrared Spectrometers and Telescopes for the Atmosphere (CRISTA) data processing and atmospheric temperature and trace gas retrieval, *J. Geophys. Res.*, 104, 16,349-16,367, 1999.
- [5] Offermann, D., Grossmann, K. U., Barthol, P., Knieling, P., Riese, M., and Trant, R.: Cryogenic Infrared Spectrometers and Telescopes for the Atmosphere (CRISTA) experiment and middle atmosphere variability, *J. Geophys. Res.* 104, 16311–16325, doi:10.1029/1998JD100047, 1999.
- [6] Riese, M. et al.: 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.
- [7] Riese, M., F. Friedl-Vallon, R. Spang, P. Preusse, C. Schiller, L. Hoffmann, H. Oelhaf, T. von Clarmann, and M. Höpfner, Global Limb Radiance Imager for the Atmosphere (GLORIA): scientific objectives, *Advances in Space Research*, 36, 989 – 995, 2005.
- [8] Charlesworth, E., Ploeger, F., Birner, T. ... and Riese, M., Stratospheric water vapor affecting atmospheric circulation. *Nat Commun* **14**, 3925 <https://doi.org/10.1038/s41467-023-39559-2>, 2023.