Stephan A. Fueglistaler

Assistant Professor, Department of Geosciences
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Education

2000 – 2002: ETH Zurich, Switzerland. PhD, thesis "Polar stratospheric clouds and Arctic denitrification" (awarded with ETH Medal for outstanding thesis).

1991 – 1995: University of Zurich, Switzerland, Msc., thesis "Tectonic movement in Northwestern Greece observed with space-borne differential SAR (synthetic aperture radar) interferometry".

1985 - 1989: Gymnasium, Zurich, Switzerland. Matura.

Professional Experience

2010 Assistant Professor, Dept. of Geosciences, Princeton University.

2007 – 2010: NERC Advanced Fellow, DAMTP, University of Cambridge, UK.

2006: Visiting scientist, Laboratoire de Météorologie Dynamique, École Normale Supérieure, Paris.

2005 – 2006: Senior scientist, ETH Zurich (with Profs. T. Peter and H. Weissert).

2004 – 2005: Research Associate, U. of Washington, Seattle (with Profs. Q. Fu and J.M. Wallace).

2003 – 2004: SNSF fellowship, U. of Washington, Seattle (with late Prof. J. Holton).

2002 – 2003: PostDoc., ETH Zurich (with Prof. T. Peter).

2000 – 2002: PhD student, ETH Zurich (supervisor Prof. T. Peter).

1997 – 2000: Software engineer, Netcetera AG, Zurich.

1995 – 1997: Project scientist, U. of Zurich.

1992 – 1993: Teaching assistant (Mathematics), U. of Zurich.

1989 – 1992: Truck driver (KIBAG, Zurich) and other part-time jobs, Zurich.

Fellowships and honors

2007: "Editor's citation for excellence in Refereeing" for *J. Geophys. Res.*

2006: NERC Advanced researcher fellowship, University of Cambridge, UK.

2006: Laboratoire de Météorologie Dynamique, École Normale Supérieure, Paris. Visiting scientist.

2005: NASA Goddard Earth Sciences and Technology Center (GEST). Visiting fellowship; declined for family-related reasons.

2003: Swiss National Science Foundation (SNF). Prospective researcher fellowship.

2002: ETH Zürich. Medal for outstanding PhD thesis.

Research grants

2009: "Source and Pathway Sensitivity in Troposphere-to-Stratosphere Transport: An Adjoint-Based Approach", NERC standard grant (310k GBP), Co-investigator (Principal investigator Dr. J.G. Esler, University College London).

2009: "Stratospheric ozone: Halogen Impacts in a Varying Atmosphere" (SHIVA). Member of steering committee, principal investigator and workgroup leader (252k Euro, total project funding 3.5M Euro within EU FP-7; Project coordinator Prof. Dr. K. Pfeilsticker).

2007: "Upper tropospheric humidity at low latitudes", NERC standard grant (200k GBP), Principal investigator.

Research group (2009/2010)

Dr. Jian Du, NERC-funded Post-doctoral research associate.

Dr. Jonathon Wright, EU-funded Post-doctoral research associate.

Tom Flannaghan, PhD student.

Dr. Yu Liu, EU-funded Post-doctoral research associate.

Former students

Patricia Kenzelmann (PhD, 2006-2009, ETHZ, jointly supervised with Prof. Dr. T. Peter).

Martin Scherer (MSc., 2006, ETHZ, jointly supervised with Prof. Dr. J. Staehelin).

Markus Kuster (MSc., 2003, ETHZ, jointly supervised with Prof. Dr. T. Peter).

Other professional activities

Referee (Funding agencies): National Science Foundation (NSF), USA; Agence Nationale de la Recherche (ANR), France.

Referee (Journals): Science, Atmospheric Chemistry and Physics, Journal of Atmospheric Sciences, Journal of Climate, Journal of Geophysical Research, Geophysical Research Letters, Reviews of Geophysics, Climatic Change Letters, Annales Geophysicae and Journal of the Meteorological Society Japan.

PhD committee Ronan James, external examiner (LMD, Paris, defense July 2009).

WAVACS summer school, lecturer (Cargese, September 2009).

Field campaigns

SOLVE/THESEO-2000 (1999/2000), Kiruna, Sweden (mission scientist).

SCOUT-tropical (2005), Darwin, Australia (flight planning).

Projects in industry (1997-2000, selected)

Real-time stock exchange server for Zürcher Kantonalbank, Switzerland (http://www.zkb.ch/).

Websh - A framework for web-applications (http://tcl.apache.org/websh/).

Java-based weather forecast editor for MeteoSwiss, Switzerland.

Peer-reviewed publications

Submitted:

[29] Devasthale, A., and **S. Fueglistaler**, A climatological perspective of deep convection penetrating the TTL during the Indian summer monsoon from the AVHRR and MODIS instruments, *Atmos. Chem. Phys. Disc.*, 10, 2809-2834, 2010.

2010:

[28] Steinwagner, J., **S. Fueglistaler**, G. Stiller, et al., Tropical dehydration processes constrained by the seasonality of stratospheric deuterated water, *Nature Geosc.*, 3, 262-266, doi:10.1038/ngeo822, 2010.

[27] Notholt, J., G. C. Toon, **S. Fueglistaler**, P. O. Wennberg, F. W. Irion, M. McCarthy, M. Scharringhausen, T. Siek Rhee, A. Kleinböhl, and V. Velazco, Trend in ice moistening the stratosphere – constraints from isotope data of water and methane, *Atmos. Chem. Phys.*, 10, 201-207, 2010.

2009:

[26] Heckendorn, P., D. Weisenstein, **S. Fueglistaler,** et al., The impact of geoengineering aerosols on stratospheric temperature and ozone, *Environ. Res. Lett.*, 4, 045108, doi:10.1088/1748-9326/4/4/045108, 2009.

[25] **Fueglistaler, S.**, B. Legras, A. Beljaars, J.-J. Morcrette, A. Simmons, A.M. Tompkins, S. Uppala, The diabatic heat budget of the upper troposphere and lower/mid stratosphere in ECMWF reanalyses, *Q. J. Roy. Meteorol. Soc.*,135, 21-37, 2009.

[24] **Fueglistaler, S.**, A.E. Dessler, T. Dunkerton, I. Folkins, Q. Fu, P.W. Mote, Tropical Tropopause Layer, *Rev. Geophys.*, 47, RG1004, doi:10.1029/2008RG000267, 2009.

[23] Brunner, D., P. Siegmund, P.T. May, et al., The SCOUT-O3 Darwin Aircraft Campaign: rationale and meteorology, *Atmos. Chem. Phys.*, 9, 93-117, 2009.

2008:

[22] Schraner, M., E. Rozanov, C. Schnadt-Poberaj, et al., Technical Note: Chemistry-climate model SOCOL: version 2.0 with improved transport and chemistry/microphysics schemes, *Atmos. Chem. Phys.*, 8, 5957-5974, 2008.

[21] James, R., M. Bonazzola, B. Legras, K. Surbled, **S. Fueglistaler**, Water vapor transport and dehydration above the convective outflow during Asian monsoon, *Geophys. Res. Lett.*, 35, L20810, doi:10.1029/2008GL035441, 2008.

[20] Folkins, I., **S. Fueglistaler**, G. Lesins, and T. Mitovski, A low-level circulation in the tropics, *J. Atmos. Sci.*, 65, 1019-1034, doi:10.1175/2007JAS2463.1, 2008.

[19] Scherer, M., H. Vömel, **S. Fueglistaler**, S. Oltmans, J. Staehelin, Trends and variability of midlatitude stratospheric water vapour deduced from the re-evaluated Boulder balloon series and HALOE, *Atmos. Chem. Phys.*, 8, 1423-1433, 2008.

2007:

[18] Dessler, A.E., T.F. Hanisco, **S. Fueglistaler**, Effects of convective ice lofting on H2O and HDO in the tropical tropopause layer, *J. Geophys. Res.*, 112, D18309, doi:10.1029/2007JD008609, 2007.

2006:

[17] **Fueglistaler, S.** and Q. Fu, The impact of clouds on radiative heating in the tropical lower stratosphere, *J. Geophys. Res.*, 111 (D23), D23202, 10.1029/2006JD007273, 2006.

[16] **Fueglistaler, S.** and M.B. Baker, A modelling study of the impact of cirrus clouds on the moisture budget of the upper troposphere, *Atmos. Chem. Phys.*, 6, 1425-1434, 2006.

[15] Zobrist, B., C. Marcolli, T. Koop, et al., Oxalic acid as heterogeneous ice nucleus in the upper troposphere and its indirect aerosol effect, *Atmos. Chem. Phys.*, 6, 3115-3129, 2006.

2005:

[14] **Fueglistaler, S.** and P.H. Haynes, Control of interannual and longer-term variability of stratospheric water vapor, *J. Geophys. Res.*, 110 (D24), doi:10.1029/2005JD006019, 2005.

[13] **Fueglistaler, S.**, M. Bonazzola, P.H. Haynes, T. Peter, Stratospheric water vapor predicted from the Lagrangian temperature history of air entering the stratosphere in the tropics, *J. Geophys. Res.*, 110 (D8), doi:10.1029/2004JD005516, 2005.

[12] Notholt, J., B. Luo, **S. Fueglistaler**, et al., Influence of tropospheric SO2 emissions on particle formation and the stratospheric humidity, *Geophys. Res. Lett.*, 32, doi:10.1029/2004GL022159, 2005.

2004:

[11] **Fueglistaler, S.**, H. Wernli, T. Peter, Tropical Troposphere-to-Stratosphere Transport Inferred from Trajectory Calculations, *J. Geophys. Res.*, 109, D03108, doi:10.1029/2004JD005516, 2004.

2003:

[10] **Fueglistaler, S.**, S. Buss, B.P. Luo, et al., Detailed modeling of mountain wave PSCs, *Atmos. Chem. Phys.*, 3, 697-712, 2003.

[9] Luo, B.P., T.Peter, **S. Fueglistaler,** et al., Dehydration potential of ultrathin clouds at the tropical tropopause, *Geophys. Res. Lett.*, 30, 1557, doi:10.1029/2002GL016737, 2003.

[8] Luo, B.P., T. Peter, H. Wernli, et al., Ultrathin tropical tropopause clouds (UTTCs): II. Stabilization mechanisms, *Atmos. Chem. Phys.*, 3, 1093-1100, 2003.

[7] Luo, B.P., C. Voigt, **S. Fueglistaler**, T. Peter, Extreme NAT supersaturations in mountain wave PSCs - a clue to NAT formation, *J. Geophys. Res.*, 108, 4441, doi:10.1029/2002JD003104, 2003.

2002:

[6] **Fueglistaler, S.**, B.P. Luo, C. Voigt, K.S. Carslaw, Th. Peter, NAT-rock formation by mother clouds: a microphysical model study, *Atmos. Chem. Phys.*, 2, 93-98, 2002.

[5] **Fueglistaler, S.**, B.P. Luo, S. Buss, et al., Large NAT particle formation by mother clouds: Analysis of SOLVE/THESEO-2000 observations, *Geophys. Res. Lett.*, 29, doi:10.1029/2001GL014548, 2002.

[4] Flentje, H., A. Dörnbrack, A. Fix, et al., Denitrification inside the stratospheric vortex in the winter of 1999-2000 by sedimentation of large nitric acid trihydrate particles, *J. Geophys. Res.*, 107, doi:10.1029/2001JD001015, 2002.

[3] Hu, R.M., K.S. Carslaw, C. Hostetler, et al., Microphysical properties of wave polar stratospheric clouds retrieved from lidar measurements during SOLVE/THESEO 2000, *J. Geophys. Res.*, 107, doi:0.1029/2001JD001125, 2002.

2001:

[2] Höpfner M., T. Blumenstock, F. Hase, et al., Mountain polar stratospheric cloud measurements by ground based FTIR solar absorption spectroscopy, *Geophys. Res. Lett.*, 28, 2189-2192, 2001.

1996:

[1] Small, D., P. Pasquali, **S. Fuglistaler,** A Comparison of Phase to Height Conversion Methods for SAR Interferometry, *Proc. IGARSS* 1996, 1996.

Conference and seminar presentations (selected)

University of Cambridge, Cambridge, 2010 (seminar talk).
University of Oxford, Oxford, 2010 (seminar talk).
WAVACS Summer school, Cargese/Corsica, 2009 (lecturer).
Royal Meteorol. Society, Annual conference, Reading, 2009 (invited talk).
COST/WAVACS meeting, Schliersee, 2009 (overview talk).
University of Leeds, Leeds, 2009 (seminar talk).
Princeton University/NOAA GFDL, Princeton 2009 (2 talks).
EGU, General Assembly, Vienna, 2009 (3 talks).
Leicester, Royal Met. Soc. special interest group Atm. Chemistry, 2009 (invited).
SPARC Water vapor meeting, Toronto, 2009.
ETH Zuerich, 2009 (seminar talk).
Imperial College, London, 2008 (seminar talk).
University of Reading, Reading, 2008 (seminar talk).
SPARC, General Assembly, Bologna, 2008 (invited talk).
AGU, Chapman conference, Santorini,2007 (invited talk).
SCOUT-O3, Annual meeting, Crete, 2007 (invited talk).
MetOffice, Exeter, 2007 (seminar talk).
Forschungszentrum Juelich, 2006 (seminar talk).
IMK Karlsruhe, Karlsruhe, 2006 (seminar talk).
LMD, Paris, 2006 (seminar talk).
ETHZ, Zuerich, 2005 (seminar talk).
University of Washington, Seattle, 2004 (seminar talk).
AGU, Fall meeting, San Francisco, 2004 (invited talk).
EGU, General Assembly, Nice, 2002 (talk).
MAPSCORE/CIPA, Workshop, Rome, 2001 (talk).
SOLVE/THESEO-2000, Science meeting, Palermo, 2000 (talk).