Curriculum Vitae

Personal information

Family name, First name: Laube, Johannes Christian

My research focuses on observations of halogenated and related greenhouse, ozone-depleting and reactive gases for atmospheric chemistry and physics. I have extensive experience in relevant analytical measurement techniques and field campaigns. My standing in this field is reflected in the **number of peer-reviewed publications** (including in Science and Nature GeoSciences - see below), the invitation to serve as **author on three international assessments**, and the fact that **I won two consecutive NERC Research Fellowships** as well as an **ERC Starting Grant worth €1.5M**. I am currently supervising one PostDoc, one technician and two PhD students. From 2016-2018 I was also a member of the **Training Advisory Board** of the Natural Environment Research Council contributing to national scale decisions on postgraduate training directions and funding. More details can be found below.

Education

2008	PhD in Chemistry, Institute for Atmosphere and Environmental Sciences and Institute for Physical Chemistry, Goethe University, Frankfurt, Germany
2004	Diploma in Chemistry, Centre of Excellence for Polysaccharide Research, Schiller University, Jena, Germany

Current and previous positions

Since 2018	Group Leader, Institute for Energy and Climate 7: Stratosphere, Jülich Research Centre, Germany and also Honorary Lecturer, School of Environmental Sciences, University of East Anglia, UK
2008-2018	Independent Researcher, School of Environmental Sciences, University of East Anglia, UK
2004 – 2005	Research Associate, Centre of Excellence for Polysaccharide Research, Schiller University, Jena, Germany

Fellowships and awards

Since 2016	**5-year ERC Starting Grant**, School of Environmental Sciences, University of East Anglia, UK (EXC^{3}ITE - EXploring stratospheric Composition, Chemistry and Circulation with Innovative Techniques), from 12/2018: new host institution, i.e. Institute for Energy and Climate 7: Stratosphere, Jülich Research Centre, Germany
2011 - 2017	**5-year NERC Advanced Research Fellowship**, School of Environmental Sciences, University of East Anglia, UK (Investigating halogenated and related trace gases and their origins, distributions and fate in the atmosphere by using a) novel tools such as isotope ratios, b) continuing pioneering work on the detection of 'new' halocarbons, and c) testing the promising methodologies of adapting two-dimensional gas chromatography and time-of-flight mass spectrometry for atmospheric studies)
2008 – 2011	**3-year NERC Postdoctoral Research Fellowship**, School of Environmental Sciences, University of East Anglia, UK (Systematic search for novel compounds using clean-air ground-based stations around the globe, archived air from remote observatories, firn air samples from polar snow, and samples collected in the upper troposphere onboard aircraft and from stratospheric balloons)
2009	**Winner of the Procter & Gamble Sustainability Price**, Frankfurt University, Germany

Publications

32 peer-reviewed publications (as of 12/2018), and the invitation to serve as **author on three international assessments**:

- The "Assessment on Lifetimes of Stratospheric Ozone-Depleting Substances, Their Replacements, and Related Species", 2013, is an international initiative of SPARC (Stratospheric Processes and Their Role in Climate, a core project of the World Climate Research Programme).
- The "WMO/UNEP 2014 Scientific Assessment of Ozone Depletion" is a requirement of the Montreal Protocol on Substances that Deplete the Ozone Layer (ratified by almost every country in the world) and is composed every 4 years by international experts.

In addition, I am an author on the upcoming "WMO/UNEP 2018 Scientific Assessment of Ozone Depletion".

Five highlighted publications

2010: Laube, JC, Kaiser, J, Sturges, WT, Bönisch, H and Engel, A, Chlorine isotope fractionation in the stratosphere, **Science**, 329 (5996). p. 1167

2013: von Hobe, M, Bekki, S, Borrmann, S, Cairo, F, D'Amato, F, Di Donfrancesco, G, Dornbrack, A, Ebersoldt, A, Ebert, M, Emde, C, Engel, I, Ern, M, Frey, W, Genco, S, Griessbach, S, Grooss, JU, Gulde, T, Gunther, G, Hosen, E, Hoffmann, L, Homonnai, V, Hoyle, CR, Isaksen, ISA, Jackson, DR, Janosi, IM, Jones, RL, Kandler, K, Kalicinsky, C, Keil, A, Khaykin, SM, Khosrawi, F, Kivi, R, Kuttippurath, J, Laube, JC, et al., Reconciliation of essential process parameters for an enhanced predictability of Arctic stratospheric ozone loss and its climate interactions (RECONCILE): activities and results, **Atmos. Chem. Phys.**, 13 (18), 9233-9268

2014: Laube, JC, Newland, MJ, Hogan, C, Brenninkmeijer, CAM, Fraser, PJ, Martinerie, P, Oram, DE, Reeves, CE, Röckmann, T, Schwander, J, Witrant, E, Sturges, WT, Newly detected ozone depleting substances in the atmosphere, **Nature GeoScience**, 7, 266-269

2017: Ray, EA, Moore, FL, Elkins, JW, Rosenlof, KH, Laube, JC, Röckmann, T, Marsh, DR and Andrews, AE: Quantification of the SF_6 lifetime based on mesospheric loss measured in the stratospheric polar vortex, **J. Geophys. Res. Atmos.**, 122, 4626–4638, 2017

2018: Elvidge, EL, Bönisch, H, Brenninkmeijer, CAM, Engel, A, Fraser, PJ, Gallacher, E, Langenfelds, R, Mühle, J, Oram, DE, Ray, EA, Ridley, AR, Röckmann, T, Sturges, WT, Weiss, RF, and Laube, JC, Evaluation of stratospheric age-of-air from CF_4, C_2F_6, C_3F_8, CHF_3, HFC-125, HFC-227ea and SF_6; implications for the calculations of halocarbon lifetimes, fractional release factors and ozone depletion potentials, **Atmos. Chem. Phys.**, 18, 3369-3385, 2018

Selected other peer-reviewed publications

2005: Krentz., DO, Lohmann, C, Schwarz, S, Bratskaya, S, Liebert, T, Laube, J, Heinze, T, Kulicke, WM, Effect of polyelectrolyte structural features on flocculation behavior: Cationic polysaccharides vs. synthetic polycations, Starch-Stärke, 58 (3-4), pp. 161-169

2006: Bratskaya, S, Schwarz, S Laube, J, Liebert, T, Heinze, T, Krentz, O, Lohmann, C, Kulicke, WM, Properties and flocculation efficiency of highly cationized starch derivatives, Macromolecular Materials & Engineering, 290 (8), pp. 778-785

2008: Laube, JC, Engel, A, Bönisch, H, Möbius, T, Worton, DR, Sturges, WT, Grunow, K and Schmidt, U Contribution of very short-lived organic substances to stratospheric

chlorine and bromine in the tropics – a case study, Atmos. Chem. Phys., 8 (23). pp. 7325-7334

2008: Laube, JC and Engel, A, First atmospheric observations of three chlorofluorocarbons. Atmos. Chem. Phys., 8 (17). pp. 5143-5149

2010: Laube, JC, Engel, A, Bönisch, H, Möbius, T, Sturges, WT, Brass, M, Röckmann, T, Fractional release factors of long-lived halogenated organic compounds in the tropical stratosphere. Atmos. Chem. Phys., 10 (3). pp. 1093-1103

2010: Laube, JC, Martinerie, P, Witrant, E, Blunier, T, Schwander, J, Brenninkmeijer, CAM, Schuck, TJ, Bolder, M, Röckmann, T, van der Veen, C, Bönisch, H, Engel, A, Mills, GP, Newland, MJ, Oram, DE, Reeves, CE, Sturges, WT, Accelerating growth of HFC-227ea (1,1,1,2,3,3,3-heptafluoropropane) in the atmosphere. Atmos. Chem. Phys., 10 (13). pp. 5903-5910

2010: Laube, JC, Engel, A, Bönisch, H, Möbius, T, Sturges, WT, Brass, M, Röckmann, T, Corrigendum to Fractional release factors of long-lived halogenated organic compounds in the tropical stratosphere, Atmos. Chem. Phys., 10, 4975-4975

2011: Jones, CE, Andrews, SJ, Carpenter, LJ, Hogan, C, Hopkins, FE, Laube, JC, Robinson, AD, Spain, TG, Archer, SD, Harris, NRP, Nightingale, PD, O'Doherty, SJ, Oram, DE, Pyle, JA, Butler, JH and Hall, BD, Results from the first national UK inter-laboratory calibration for very short-lived halocarbons, Atm. Meas. Techn., 4 (1). pp. 765-787

2012: Laube, JC, Hogan, C, Newland, MJ, Mani, FS, Fraser, PJ, Brenninkmeijer, CAM, Martinerie, P, Oram, DE, Röckmann, T, Schwander, J, Witrant, E, Mills, GP, Reeves, CE and Sturges, WT, Distributions, long term trends and emissions of four perfluorocarbons in remote parts of the atmosphere and firn air, Atmos. Chem. Phys., 12 (9). pp. 4081-4090

2012: Buizert, C., Martinerie, P; Petrenko, VV, Severinghaus, JP, Trudinger, CM, Witrant, E, Rosen, JL, Orsi, AJ, Rubino, M, Etheridge, DM, Steele, LP, Hogan, C, Laube, JC, Sturges, WT, Levchenko, VA, Smith, AM, Levin, I, Conway, TJ, Dlugokencky, EJ, Lang, PM, Kawamura, K, Jenk, TM, White, JWC, Sowers, T, Schwander, J, Blunier, T, Gas transport in firn: multiple-tracer characterisation and model intercomparison for NEEM, Northern Greenland. Atmos. Chem. Phys., 12 (9). pp. 4259-4277.

2012: Oram, DE, Mani, FS, Laube, JC, Newland, MJ, Reeves, CE, Sturges, WT, Penkett, SA, Brenninkmeijer, CAM, Röckmann, T, Fraser, PJ, Long-term tropospheric trend of octafluorocyclobutane (c-C_4F_8 or PFC-318), Atmos. Chem. Phys., 12 (1). pp. 261-269

2012: Zuiderweg, A, Kaiser, J, Laube, JC, Röckmann, T and Holzinger, R (2012) Stable carbon isotope fractionation in the UV photolysis of CFC-11 and CFC-12, Atmos. Chem. Phys., 12 (10). pp. 4379-4385

2012: Sturges, WT, Oram, DE, Laube, JC, Reeves, CE, Newland, MJ, Hogan, C, Martinerie, P, Witrant, E, Brenninkmeijer, CAM, Schuck, TJ and Fraser, PJ, Emissions halted of the potent greenhouse gas SF_5CF_3, Atmos. Chem. Phys., 12 (8). pp. 3653-3658

2012: Witrant, E, Martinerie, P, Hogan, C, Laube, JC, Kawamura, K, Capron, E, Montzka, SA, Dlugokencky, EJ, Etheridge, D, Blunier, T and Sturges, WT, A new multi-gas constrained model of trace gas non-homogeneous transport in firn: evaluation and behaviour at eleven polar sites, Atmos. Chem. Phys., 12 (23). pp. 11465-11483

2013: Laube, JC, Keil, A, Bönisch, H, Engel, A, Röckmann, T, Volk, CM and Sturges, WT, Observation-based assessment of stratospheric fractional release, lifetimes, and ozone depletion potentials of ten important source gases, Atmos. Chem. Phys., 13 (5). pp. 2779-2791

2013: Newland, MJ, Reeves, CE, Oram, DE, Laube, JC, Sturges, WT, Hogan, C, Begley, P, Fraser, PJ, Southern hemispheric halon trends and global halon emissions, 1978-2011,

Atmos. Chem. Phys., 13 (11), pp. 5551-5565

2014: Wisher, A, Oram, DE, Laube, JC, Mills, GP, van Velthoven, P, Zahn, A, Brenninkmeijer, CAM, Very short-lived bromomethanes measured by the CARIBIC observatory over the North Atlantic, Africa and South-East Asia during 2009–2013, Atmos. Chem. Phys., 14, 3557-3570

2014: Buizert, C., Martinerie, P; Petrenko, VV, Severinghaus, JP, Trudinger, CM, Witrant, E, Rosen, JL, Orsi, AJ, Rubino, M, Etheridge, DM, Steele, LP, Hogan, C, Laube, JC, Sturges, WT, Levchenko, VA, Smith, AM, Levin, I, Conway, TJ, Dlugokencky, EJ, Lang, PM, Kawamura, K, Jenk, TM, White, JWC, Sowers, T, Schwander, J, Blunier, T,, Corrigendum to Gas transport in firn: multiple-tracer characterisation and model intercomparison for NEEM, Northern Greenland, Atmos. Chem. Phys., 14, 3571-3572

2014: Kloss, C, Newland, MJ, Oram, DE, Fraser, PJ, Brenninkmeijer, CAM., Röckmann, T, and Laube, JC, Atmospheric Abundances, Trends and Emissions of CFC-216ba, CFC-216ca and HCFC-225ca, Atmosphere, 5, 420-434, 2014

2014: Etminan, M, Highwood, EJ, Laube, JC, McPheat, R, Marston, G, Shine, KP, Smith, KM, Infrared absorption spectra, radiative efficiencies, and global warming potentials of newly-detected halogenated compounds: CFC-113a, CFC-112 and HCFC-133a, Atmosphere, 5, 473-483

2015: Leedham Elvidge, EC, Oram, DE, Laube, JC, Baker, AK, Montzka, SA, Humphrey, S, O'Sullivan, DA, Brenninkmeijer, CAM, Increasing concentrations of CH_2Cl_2 inferred from CARIBIC air samples collected 1998-2012, Atmos. Chem. Phys., 15 (4), 1939-1958

2015: Allin, SJ, Laube, JC., et al., Chlorine isotope composition in chlorofluorocarbons CFC-11, CFC-12 and CFC-113 in firn, stratospheric and tropospheric air, Atmos. Chem. Phys. 15 (12), 6867-6877

2015: Vollmer, MK, Rigby, M, Laube, JC, et al., Abrupt reversal in emissions and atmospheric abundance of HCFC-133a (CF_3CH_2Cl), Geophys. Res. Lett., 42, 8702–8710

2016: Trudinger, CM, Fraser, PJ, Etheridge, DM, Sturges, WT, Vollmer, MK, Rigby, M, Martinerie, P,Mühle, J, Worton, DR, Krummel, PB, Steele, LP, Miller, BR, Laube, JC, Mani, FS, Rayner, PJ, Harth, CM, Witrant, E, Blunier, T, Schwander, J, O'Doherty, S, and Battle, M, Atmospheric abundance and global emissions of perfluorocarbons CF_4, C_2F_6 and C_3F_8 since 1800 inferred from ice core, firn, air archive and in situ measurements, Atmos. Chem. Phys., 16, 11733–11754, 2016

2016: Laube, JC, Hanif, NM, Martinerie, P, Gallacher, E, Fraser, PJ, Langenfelds, R, Brenninkmeijer, CAM, Schwander, J, Witrant, E, Wang, JL, Ou-Yang, CF, Gooch, LJ, E. Reeves, CE, Sturges, WT and Oram, DE, Tropospheric observations of CFC-114 and CFC-114a with a focus on long-term trends and emissions, Atmos. Chem. Phys., 16, 15347–15358, 2016

2017: Oram, DE, Ashfold, MJ, Laube, JC, Gooch, LJ, Humphrey, S, Sturges, WT, Leedham Elvidge, E, Forster, GL, Harris, NRP, Mead, MI, Samah, AA, Phang, SM, Chang-Feng, OY, Lin, NH, Wang, JL, Baker, AK, Brenninkmeijer, CAM, and Sherry, D, A growing threat to the ozone layer from short-lived anthropogenic chlorocarbons, Atmos. Chem. Phys., 17, 11929-11941, 2017

2018: Adcock, K.E., Reeves, C.E., Gooch, L.J., Leedham Elvidge, E.C., Ashfold, M.J., Brenninkmeijer, C.A.M., Chou, C., Fraser, P.J., Langenfelds, R.L., Mohd Hanif, N., O'Doherty, S., Oram, D.E., Ou-Yang, C.-F., Phang, S.M., Samah, A.A., Röckmann, T., Sturges, W.T., and Laube, J.C.: Continued increase of CFC-113a (CCl3CF3) mixing ratios in the global atmosphere: emissions, occurrence and potential sources, Atmos. Chem. Phys., 18, 4737–4751, 2018