

CURRICULUM VITAE OF JOHANNES (JOS) LELIEVELD

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Education

- B.Sc. in Biology, University of Leiden, the Netherlands, 1980
- Doctoral Degree from Mathematics and Natural Sciences Faculty, University of Leiden, 1984, including one year Mathematics at the Free University of Amsterdam
- Ph.D. in Atmospheric Physics and Chemistry (supervisor Paul J. Crutzen), Physics and Astronomy Faculty, University of Utrecht, 1990

Professional experience

- 1984-1987: Research scientist
Geosens B.V., Atmospheric Research Department, Rotterdam, the Netherlands
- 1987-1993: Research scientist
Max Planck Institute for Chemistry, Atmospheric Chemistry Department, Mainz
- 1993-1995: Professor in Air Quality, Chair Air Quality Department
University of Wageningen
- 1996-2000: Professor in Atmospheric Physics and Chemistry
University of Utrecht
- 2000-present: Director of Atmospheric Chemistry Department
Max Planck Institute for Chemistry, Mainz
- 2004-2007, 2010-2013: Managing director of the Max Planck Institute for Chemistry
- 2008-present: Part-time professor at the Cyprus Institute, Nicosia

Extended visits

- August 1991-January 1992:
International Meteorological Institute, University of Stockholm
- June 1992-September 1992:
Center for Clouds, Chemistry and Climate, University of California, San Diego

Research fields

- Ozone photochemistry and self-cleaning mechanism of the atmosphere
- Role of reactive gases and aerosols in biogeochemical cycles and climate
- Global and regional atmospheric chemistry, air quality and climate change

Teaching experience

- Introduction air quality (lectures University of Wageningen, 1993-1995)
- Atmospheric chemistry (lectures Universities of Wageningen and Utrecht, 1994-2000)
- Climate processes and global change (lectures University of Wageningen 1994-1995)
- Planetary atmospheres (lectures University of Utrecht 1997-2000)
- Atmospheric chemistry introduction (lectures University of Mainz, 2002-2005)
- Atmospheric chemistry methods (lectures University of Mainz, 2003-2005)
- Organization and contributions to summer schools, lecture series and Capita Selecta
- Supervisor of 51 PhD dissertations (since 1995)

Honors and achievements

- J.W. van Oostrom Meyjes prize 1994, Royal Netherlands Society for Gas Production
- Editor's citation for excellence in refereeing 2000, Journal of Geophysical Research
- Professor of the year 2000, University of Utrecht
- Highly cited researcher, ISI Web of Knowledge, since 2001
- Professor in atmospheric physics, Johannes Gutenberg University Mainz, 2002
- Harold Schiff lecturer, York University, Toronto, 2002
- Distinguished lecturer, Weizmann Institute, Israel, 2005
- Citation Academy of Athens, Greece, for achievements in ozone research, 2007
- Hubert Curien lecturer at the Cyprus Institute, 2008
- European Research Council advanced research grant, 2008
- Institute professor at the Cyprus Institute, 2010
- Professor in geophysics and distinguished scientist, King Saud University, Riyadh, 2010
- Yuval Ne'eman distinguished lecturer in geophysics, Tel Aviv University, 2010
- Presidential plaque for the advancement of science in the Republic of Cyprus, 2013
- Election German National Academy of Sciences – Leopoldina, 2015
- Doctor Honoris Causa, School of Science and Engineering, University of Crete, 2016
- Election International Silk Road Academy of Sciences, China, 2016
- Fellow of the Royal Society of Chemistry, UK, 2017

Service and memberships

- American Geophysical Union (since 1987)
- American Meteorological Society (since 1991)
- Center for Clouds, Chemistry and Climate, Scripps Institution of Oceanography, University of California, San Diego (since 1992)
- Committee on Atmospheric Chemistry and Global Pollution of the International Association of Meteorology and Atmospheric Sciences (1994-2002)
- Editorial Board of Water, Air and Soil Pollution (1995-2005)
- Advisory Board of Tellus B (since 1996)

- Editorial Board of Journal of Atmospheric Chemistry (since 1996)
- Advisory Board Institute for Tropospheric Research (IFT), Leipzig (1996-2003)
- Associate Editor of Journal of Geophysical Research, Atmospheres (1997-2001)
- Director of the international research school COACH (Cooperation on Oceanic, Atmospheric and climate Change studies) (1997-2000)
- Science Panel on Stratospheric Ozone Research of the European Union (1997-2003)
- Professor in Atmospheric Physics, Johannes Gutenberg University, Mainz (since 2002)
- Spokesperson of the International Max Planck Research School for Atmospheric Physics and Chemistry, now Max Planck Graduate School (since 2002)
- Chairman Science Panel on Atmospheric Research of the EU Commission (2003-2005)
- Program Committee Earth Observations of the DLR Space Agency (2003-2008)
- Scientific Steering Committee of the HALO research aircraft (since 2003)
- Deputy Spokesperson of the Excellence Cluster “Geocycles: time and space in the Earth sciences”, Johannes Gutenberg University, Mainz (2005-2008)
- Scientific-Technical Committee of the Executive Board, Karlsruhe Institute of Technology, Chair Advisory Board of the Atmosphere and Climate Program (since 2006)
- Board COSMOS network (Community Earth System Models) (2007-2012)
- Board of the Netherlands Institute for Space Research, SRON (2008-2012)
- Steering Committee Max Planck Graduate Center Mainz (since 2008)
- Editorial Board of Earth System Dynamics (since 2010)
- Selection and Evaluation Committee, Institute for Basic Science, South Korea (since 2013)
- German National Academy of Sciences – Leopoldina (since 2015)
- European Geosciences Union, life member (since 2015)
- International Silk Road Academy of Sciences, China (since 2016)
- Royal Society of Chemistry, UK (since 2017)

Publications

1. Lelieveld, J., F.W. Jansen and J.R.D. Stoute (1986) Radioactivity measurements in the Netherlands by aircraft after the Chernobyl accident. Geosens/ECN, Rotterdam.
2. Beilke, S., R. Berg, A.H. Blommers, W. Grosch, F.W. Jansen and J. Lelieveld (1986) Air sampling flights at low altitudes along the border between the Federal Republic of Germany and its neighbours. Procs. COST 611, Stresa, Italy, pp. 685-703, D. Reidel Publ. Co., Dordrecht.
3. Lelieveld, J., F.W. Jansen and J.F. den Tonkelaar (1987) Assessment of transboundary mass fluxes of air pollutants by aircraft measurements: A preliminary survey with reference to a case study. *Atmos. Environ.* 21, 2133-2143.
4. Lelieveld, J. and G. Helas (1987) Luchtverontreiniging in de troposfeer. Meulenhoff, Amsterdam.
5. de Boer, R.J. and J. Lelieveld (1987) Aircraft measurements in ozone research. In: R. Guicherit, J. van Ham and A.C. Posthumus (eds.) Ozon: fysische en chemische veranderingen in de atmosfeer en de gevolgen, pp. 45-48, Kluwer, Deventer.
6. Lelieveld, J., A.H. Blommers and F.W. Jansen (1987) Messungen des Flusses von Luftverunreinigungen entlang ausgewählter Grenzabschnitte. UBA Bericht 10404221/01, Umweltbundesamt, Berlin.
7. Lelieveld, J. (1988) The calculation of transboundary and deposition fluxes of SO₂ and sulfate by means of aircraft measurements. *Water, Air, Soil Pollut.* 38, 199-209.
8. Lelieveld, J. and F.W. Jansen (1988) Het schatten van transporten van luchtverontreinigingen met behulp van meetvliegtuigen. *Lucht en Omgeving* 5, 50-54.
9. Beilke, S., W. Fricke, J. Lelieveld and F.W. Jansen (1988) Air sampling flights at low altitudes along the border between the Federal Republic of Germany and its neighbours: An assessment of transboundary mass fluxes of air pollutants. In: S. Beilke, J. Morelli and G. Angeletti (eds.) Field measurements and their interpretation. Air Pollution Research Report 14, pp. 245-254, CEC, Brussels.
10. Lelieveld, J. (1989) Die Bestimmung grenzüberschreitenden Transports von Luftverunreinigungen bei Smogwetterlagen mit Hilfe von Messflugzeugen. In: VDI (ed.) Fluggestützte Messungen von Luftverunreinigungen. VDI-RdL Band 9, pp. 45-56, Düsseldorf.
11. Lelieveld, J. (1989) The role of clouds in the photochemistry of the background troposphere. In: A. Ebel, F.M. Neubauer, E. Raschke and P. Speth (Eds.) Mitteilungen aus dem Institut für Geophysik und Meteorologie der Universität zu Köln. Heft 61, pp. 117-121, Universität zu Köln.
12. Lelieveld, J., P.J. Crutzen and H. Rodhe (1989) Zonal average cloud characteristics for global atmospheric chemistry modeling. Report CM-76. International Meteorological Institute Stockholm.
13. Lelieveld, J., F.W. Jansen and H. van Dop (1989) Assessment of pollutant fluxes across

- the frontiers of the Federal Republic of Germany on the basis of aircraft measurements. *Atmos. Environ.* **23**, 939-951.
14. Lelieveld, J. (1989) Transboundary air pollution: several years of measurements. In: L.J. Brasser and W.C. Mulder (eds.) *Man and his ecosystem*, pp. 37-42, Elsevier Science Publishers, Amsterdam.
 15. Lelieveld, J. and P.J. Crutzen (1990) Influences of cloud photochemical processes on tropospheric ozone. *Nature* **343**, 227-233.
 16. Lelieveld, J. (1990) The role of clouds in tropospheric photochemistry. Ph.D. Thesis, University of Utrecht, The Netherlands.
 17. Lelieveld, J. and P.J. Crutzen (1991) Climate discussion and fossil fuels. *Eur. Mag. Oil and Gas* **4**, 11-15.
 18. Lelieveld, J. and P.J. Crutzen (1991) The role of clouds in tropospheric photochemistry. *J. Atmos. Chem.* **12**, 229-267.
 19. Lelieveld, J. and P.J. Crutzen (1992) Indirect chemical effects of methane on climate warming. *Nature* **355**, 339-342.
 20. Galloway, J.N., J.E. Penner, C.S. Atherton, J.M. Prospero, H. Rodhe, R.S. Artz, Y.J. Balkanski, H.G. Bingemer, R.A. Brost, S. Bürgermeister, G.R. Carmichael, J.S. Chang, R.J. Charlson, S. Cober, W.G. Ellis, C.J. Fischer, J.M. Hales, D.R. Hastie, T. Iversen, D.J. Jacob, K. John, J.E. Johnson, P.S. Kasibhatla, J. Langner, J. Lelieveld, H. Levy, F. Lipschultz, J.T. Merrill, J.L. Moody, J. Pinto, A.A.P. Pszenny, P.A. Spiro, L. Tarrason, S.M. Turner and D.M. Whelpdale (1992) Sulfur and nitrogen levels in the North Atlantic Ocean's atmosphere: A synthesis of field and modeling results. *Global Biogeochem. Cycles* **6**, 77-100.
 21. Lelieveld, J. and J. Heintzenberg (1992) Sulfate cooling effect on climate through in-cloud oxidation of SO₂. *Science* **258**, 117-120.
 22. Isaksen, I.S.A., Y.-P. Lee, R. Atkinson, H. Sidebottom, J.A. Fuglestvedt, C. Johnson, J. Lelieveld and A.M. Thompson (1992) WMO/UNEP Scientific Assessment of Ozone Depletion: Tropospheric processes, pp. 5.1-5.25, World Meteorological Organization, Geneva.
 23. Sander, R., J. Lelieveld and P.J. Crutzen (1992) Model calculations of the nighttime aqueous phase oxidation of S(IV) in an orographic cloud. In: J. Peeters (ed.) *Chemical mechanisms describing tropospheric processes*. Air pollution Research Report 45, pp. 285-290, CEC, Brussels.
 24. Lelieveld, J. (1992) Cloud modelling in the study of global tropospheric photochemistry. Procs. WMO workshop on cloud microphysics and applications to global change. WMP Report No. 19, WMO/TD - No. 537, pp. 19-24, Geneva.
 25. Langner, J., T.S. Bates, R.J. Charlson, A.D. Clarke, P.A. Durkee, J. Gras, J. Heintzenberg, D.J. Hofmann, B. Huebert, C. Leck, J. Lelieveld, J.A. Ogren, J. Prospero,

- P.K. Quinn, H. Rodhe and A.G. Ryaboshapko (1993) The global atmospheric sulfur cycle: An evaluation of model predictions and observations. Report CM-81, International Meteorological Institute Stockholm.
26. Lelieveld, J. and P.J. Crutzen (1993) Methane emissions into the atmosphere: An overview. In: A.R. van Amstel (ed.) Methane and nitrous oxide: methods in national emissions inventories and options for control, pp. 17-25, IPCC/RIVM, Bilthoven.
 27. Crutzen, P.J., F.J. Dentener, M. Kanakidou, J. Lelieveld and P.H. Zimmermann (1993) A global three-dimensional study of the fate of HCFCs and HFC-134a in the troposphere. SPA-AFEAS, Washington, DC.
 28. Lelieveld, J. (1993) Modelling of heterogeneous chemistry in the global troposphere. In: J.T. Kiehl (ed.) Clouds and climate, pp. 423-446, National Center for Atmospheric Research, Boulder.
 29. Lelieveld, J. (1993) Multiphase processes in the atmospheric sulfur cycle. In: R. Wollast, F.T. Mackenzie and L. Chou (eds.) Interactions of C, N, P and S biogeochemical cycles and global change. NATO ASI Series I4, pp. 305-331, Springer-Verlag, Berlin.
 30. Lelieveld, J., P.J. Crutzen and C. Brühl (1993) Climate effects of atmospheric methane. *Chemosphere* 26, 739-768.
 31. Charlson, R.J. and J. Lelieveld (1993) Multiphase atmospheric chemistry: Implications for climate. In: R.G. Prinn (ed.) Global Atmospheric-Biospheric Chemistry, pp. 57-69, Plenum Press, New York.
 32. Crutzen, P.J., J. Lelieveld and C. Brühl (1994) Oxidation processes in the atmosphere and the role of human activities: Observations and model results. *Adv. Environ. Sci. Technol.* 28, 63-93.
 33. Lelieveld, J. (1994) Modeling of heterogeneous chemistry in the global troposphere. In: G. Bidoglio and W. Stumm (eds.) Chemistry of aquatic systems: local and global perspectives, pp. 73-95, Kluwer Academic Publ., Dordrecht.
 34. Lelieveld, J. and P.J. Crutzen (1994) Role of deep cloud convection in the ozone budget of the troposphere. *Science* 264, 1759-1761.
 35. Volz-Thomas A., M.O. Andreae, W.L. Chameides, R.G. Derwent, I.E. Galbally, J. Lelieveld, S.A. Penkett, B.A. Ridley, M.O. Rodgers, M. Trainer, G. Vaughan, X. Zhou (1994) WMO/UNEP Scientific Assessment of Ozone Depletion: Tropospheric Ozone, pp. 5.1-5.29, World Meteorological Organization, Geneva.
 36. Lelieveld, J. (1994) Klimateffekten door gebruik van verschillende fossiele brandstoffen. *Tijdschrift voor Gas, KVG*, 22-29.
 37. Lelieveld, J. und P.J. Crutzen (1994) Emissionen klimawirksamer Spurengase durch die Nutzung von Öl und Erdgas. *Energiewirtschaftliche Tagesfragen* 7, 435-440.
 38. Dentener, F.J., P.J. Crutzen and J. Lelieveld (1994) Chemical reactions in clouds:

- consequences for the global budget of O₃. In: G. Angeletti and G. Restelli (eds.) Physicochemical behaviour of atmospheric pollutants, pp. 14-17, Reidel Publ. Co., Dordrecht.
39. Lelieveld, J. and L. Bengtsson (1995) Study of the indirect and direct climate influences of anthropogenic trace gas emissions. In: I. Troen (ed.) Global change: Climate change and climate change impacts Symposium in Copenhagen, pp. 87-99, CEC, Brussels.
 40. Hov, Ø., J. Lelieveld, G. Brasseur, J. Fuglestad, D. Hauglustaine, J.E. Johnson, I. Karol, A. Ravishankara, F. Stordal (1995) Chemical modeling. In: W.C. Wang and I.S.A. Isaksen (eds.) Atmospheric ozone as a climate gas. NATO ASI Series, pp. 19-38, Springer-Verlag, Berlin.
 41. Meijer, E.W., J.P. Beck en J. Lelieveld (1995) Milieueffecten van vliegverkeer in de troposfeer en stratosfeer. *Lucht 12*, 134-138.
 42. Sander, R., J. Lelieveld and P.J. Crutzen (1995) Modelling of the nighttime nitrogen and sulfur chemistry in size resolved droplets of an orographical cloud. *J. Atmos.Chem.* *20*, 89-116.
 43. Lelieveld, J. and R. van Dorland (1995) Model simulations of ozone chemistry changes in the troposphere and consequent radiative forcings of climate during industrialization. In: W.C. Wang and I.S.A. Isaksen (eds.) Atmospheric ozone as a climate gas. NATO ASI Series, pp. 227-258, Springer-Verlag, Berlin.
 44. Bregman, A., P.F.J. van Velthoven, F.G. Wienhold, H. Fischer, T. Zenker, A. Waibel, A. Frenzel, F. Arnold, G.W. Harris, M.J.A. Bolder and J. Lelieveld (1995) Aircraft measurements of O₃, HNO₃, and N₂O in the winter Arctic lower stratosphere during STREAM-I. *J. Geophys. Res.* *100*, 11245-11260.
 45. Lelieveld, J., P.J. Crutzen, H. Graßl, J. Heintzenberg, R. Jaenicke, Y.J. Kaufman, J.T. Kiehl, J.E. Penner, H. Rodhe, I. Schult and I. Tegen (1995) Magnitudes, geographical variations and uncertainties of properties of tropospheric and stratospheric aerosols and their forcing. In: R.J. Charlson and J. Heintzenberg (eds.) Aerosol forcing of climate, pp. 335-348, Wiley-Interscience, Chichester.
 46. Roelofs, G.-J. and J. Lelieveld (1995) Distribution and budget of O₃ in the troposphere calculated with a chemistry-general circulation model. *J. Geophys. Res.* *100*, 20983-20998.
 47. Ganzeveld, L.N. and J. Lelieveld (1995) Dry deposition parameterization in a chemistry-general circulation model and its influence on the distribution of chemically reactive trace gases. *J. Geophys. Res.* *100*, 20999-21012.
 48. Feichter, J., E. Kjellström, H. Rodhe, F. Dentener, J. Lelieveld and G.-J. Roelofs (1996) Simulation of the tropospheric sulfur cycle in a global climate model. *Atmos. Environ.* *30*, 1693-1707.
 49. Waibel, A.E., M. Welling, H. Fischer, A. Bregman, B. Scheeren, M.J.A. Bolder and J. Lelieveld (1996) Correlations of N₂O, CO, O₃, and NO_y in the winter Arctic lower

- stratosphere during the STREAM-II campaign, February 1995. In: J.A. Pyle, N.R.P. Harris and G.T. Amanatidis (eds.) *Polar Stratospheric ozone*, Proc. Third European symposium on solar stratospheric ozone, Schliersee, Germany.
50. Lelieveld, J. (1996) Der antropogene Treibhauseffekt - Was ist das eigentlich? *Gas, Wasser, Wärme* 96, 273-278.
 51. Holton, J.R. and J. Lelieveld (1996) The dynamics of stratosphere-troposphere mass exchange and the control of tropospheric ozone. In: P.J. Crutzen and V. Ramanathan (eds.) *Clouds, Chemistry and Climate*, pp. 173-190, NATO ASI Series. Springer Verlag, Berlin.
 52. Dentener, F.J., G.R. Carmichael, Y. Zhang, J. Lelieveld and P.J. Crutzen (1996) The role of mineral aerosol as a reactive surface in the global troposphere. *J. Geophys. Res.* 101, 22869-22889.
 53. Lelieveld, J. (1997) Hoe veranderlijk is "global change"? *Meteorologica* 6, 4-9.
 54. Lelieveld, J., P.J. Crutzen, D.J. Jacob and A.M. Thompson (1997) Modeling of biomass burning influences on tropospheric ozone. In: B.W. van Wilgen, M.O. Andreae, J. Goldammer and J.A. Lindesay (eds.) *Fire in southern African savannas: Ecological and atmospheric perspectives*, pp. 217-238, Witwatersrand University Press, Johannesburg.
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 56. Bregman, A., F. Arnold, V. Bürger, H. Fischer, A. Krieger, J. Lelieveld, B. Scheeren, P. Siegmund, J. Ström, A. Waibel and W. Wauben (1997) In situ trace gas measurements in the summer lower stratosphere during STREAM: implications for O₃ production. *J. Atmos. Chem.* 26, 275-310.
 57. Roelofs, G.-J. and J. Lelieveld (1997) Model study of the influence of cross-tropopause O₃ transports on tropospheric O₃ levels. *Tellus* 49B, 38-55.
 58. Roelofs, G.-J., J. Lelieveld, D. Kley and H. Smit (1997) Ozone production and transports in the tropical Atlantic region during the biomass burning season. *J. Geophys. Res.* 102, 10637-10651.
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- In: A. Ebel, R. Friedrich and H. Rodhe (eds.) Tropospheric modelling and emission estimation, pp. 380-391, Springer Verlag, Berlin.
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 65. Lelieveld, J., P.J. Crutzen and F.J. Dentener (1998) Changing concentration, lifetime and climate forcing of atmospheric methane. *Tellus 50B*, 128-150.
 66. Ganzeveld, L., J. Lelieveld and G.-J. Roelofs (1998) A dry deposition parameterization for sulfur oxides in a chemistry and general circulation model. *J. Geophys. Res.* **103**, 5679-5694.
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 69. Houweling, S., F. Dentener and J. Lelieveld (1998) The impact of non-methane hydrocarbon compounds on tropospheric photochemistry. *J. Geophys. Res.* **103**, 10673-10696.
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 72. Roelofs, G.J., J. Lelieveld and J. Feichter (1998) Model simulations of the changing distribution of ozone and its radiative forcing of climate: past, present and future. Max-Planck-Institute for Meteorology, Report No. 283, Hamburg.
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