

P. Tans

Environmental Research Laboratories
Climate Monitoring and Diagnostics Laboratory (CMDL)
National Oceanic and Atmospheric Administration (NOAA)
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- Education: Doctorandus, Theoretical Physics (1973) (cum laude).
PhD, Experimental Physics (1978), Rijksuniversiteit Groningen. Thesis
adviser: Prof. W.G. Mook. Thesis title: "¹³C and ¹⁴C in Tree Rings and the
Atmospheric CO₂ Increase"
- Employment:
- 8/78-7/79 Postdoc, Scripps Inst. Oceanography, La Jolla, CA, with C.D. Keeling.
8/79-3/85 Staff scientist, Astrophysics Group, Lawrence Berkeley Laboratory, Berkeley.
4/85-2/90 Research Associate, CIRES, University of Colorado, Boulder.
3/90-12/96 Supervisory Physicist, Climate Monitoring and Diagnostics Laboratory, National
Oceanic and Atmospheric Administration, Boulder.
12/96- Chief Scientist, Climate Monitoring and Diagnostics Laboratory.
- Past research: Magnetic impurities in an electron lattice gas; One-dimensional radiative climate
model; High precision ¹⁴C counting; Stable isotopes in tree rings; Radioisotope
detection with a cyclotron; Development of Raman scattering method to detect
minute changes in the ratio of atmospheric O₂ to N₂.
- Present: Biogeochemical cycles; Global climate change; Stable isotope applications;
Atmospheric chemistry and transport; Inverse models; Air-sea exchange of gases;
Development of new generation of accurate and robust gas analyzers
- 7/92-8/00 Professor Adjoint, Department of Chemistry & Biochemistry, University
of Colorado at Boulder.
- 92-93 Committee on Oceanic Carbon, Ocean Studies Board, NRC
95-97 Dec-Cen Panel, Board on Atmospheric Sciences and Climate, NRC
5/97- CIRES fellow
98-99 Working Group drafting a multi-agency U.S. Carbon Cycle Science Plan
96- Associate Editor, Journal of Climate
97- Editorial Advisory Board, Tellus B
- 10/95- Corresponding member, Royal Dutch Academy of Sciences
8/00 Gold Medal, Department of Commerce
6/02- ISI Highly Cited (248 most cited authors in the geosciences 1981-1999)
1/04- Fellow, American Geophysical Union

Other interests and activities:

- Sustainability of the earth's resources
- Sailboat racing (former world & Dutch national champion)

Courses taught: Physical Chemistry 1 & 2, Environmental Chemistry

Patents: Fiber-optic beam splitter
Infrared viewing of subcutaneous vascular structures

Research Support: NOAA Oceanic and Atmospheric Research, NOAA Climate Observations and Services Program, NASA LBA-ECO.

Selected Publications:

- Francey, R. J. and P. P. Tans, Latitudinal variation in oxygen-18 of atmospheric CO₂, **Nature** **327**, 495-497, 1987.
- Tans, P. P., T. J. Conway, and T. Nakazawa, Latitudinal distribution of the sources and sinks of atmospheric carbon dioxide derived from surface observations and atmospheric transport model, **J. Geophys. Res.** **94**, 5151-5172, 1989.
- Tans, P. P., I. Y. Fung, and T. Takahashi, Observational constraints on the global atmospheric carbon dioxide budget, **Science** **247**, 1431-1438, 1990.
- Steele, L.P., E.J. Dlugokencky, P.M. Lang, P.P. Tans, R.C. Martin, and K.A. Masarie, Slowing down of the global accumulation of atmospheric methane during the 1980's, **Nature**, **358**, 313-316, 1992.
- Tans, P.P., J.A. Berry, and R.F. Keeling, Oceanic ¹³C/¹²C observations, a new window on CO₂ uptake by the oceans, **Glob. Biogeochem. Cycles**, **7**, 353-368, 1993.
- Novelli, P.C., K.A. Masarie, P.P. Tans, and P.M. Lang, Recent changes in atmospheric carbon monoxide, **Science**, **263**, 1587-1590, 1994.
- Bender, M.L., P.P. Tans, J.T. Ellis, J. Orchardo, and K. Habfast, A high precision isotope ratio mass spectrometry method for measuring the O₂/N₂ ratio of air, **Geochim. Cosmochim. Acta**, **58**, 4751-4758, 1994.
- Ciais, P., P.P. Tans, M. Trolier, J.W.C. White, and R.J. Francey, A large northern hemisphere terrestrial CO₂ sink indicated by the ¹³C/¹²C ratio of atmospheric CO₂, **Science**, **269**, 1098-1102, 1995.
- Battle, M., M. Bender, T. Sowers, P. Tans, J. Butler, J. Elkins, J. Ellis, T. Conway, N. Zhang, P. Lang, and A. Clarke, Atmospheric gas concentrations over the past century measured in air from firn at the South Pole, **Nature** **383**, 231-235, 1996.
- Tans, P.P., Why carbon dioxide from fossil fuel burning won't go away, in: Perspectives in Environmental Chemistry, edited by D. Macalady, Ch. 12, pp. 271-291, Oxford University Press, New York, 1998.
- Tans, P.P., The CO₂ lifetime concept should be banished, **Climatic Change**, **37**, 487-490, 1997.
- Fan, S., M. Gloor, J. Mahlman, S. Pacala, J. Sarmiento, T. Takahashi, and P. Tans, A large terrestrial sink in North America implied by atmospheric and oceanic carbon dioxide data and models, **Science** **282**, 442-446, 1998.
- Bousquet, Philippe, Philippe Peylin, Philippe Ciais, Corinne le Quere, Pierre Friedlingstein, and Pieter Tans, Regional changes in carbon dioxide fluxes of land and oceans since 1980, **Science** **290**, 1342-1346, 2000.