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# Kim Pilegaard

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**Date of Birth** 24 August 1950, Frederiksberg, Denmark

**Education**

**Ph.D. (Lic. scient.)** June 1978
University of Copenhagen, Institute of Plant Ecology
Biological Monitoring of Air Pollution (method development and applications)

**Master of Science (Cand. scient.)** June 1975
University of Copenhagen
Biology (environmental sciences)

**High school** June 1969
Efterslægtsselskabets skole

**Post Education**

**External courses:** Situational leadership (2003); Leadership in practice (2002–2005); Workplace Safety (2002); Statistical modelling and advanced programming (1999); Ecotoxicology (1983); University teaching techniques (1977).

**Internal courses:** Speech training; Marketing; Project leadership; Presentation technique; Personal Development.

**Professional experience**

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|---|---|
| **Professor**, Technical University of Denmark (DTU) | 2012-date |
| **Adjunct Professor**, University of Copenhagen | 2006-date |
| **Head of Division**, Risø National Laboratory | 2005-2011 |
| **Head of Programme**, Risø National Laboratory | 2001-2005 |
| **Senior Scientist**, Risø National Laboratory | 1992-2001 |
| **Scientist**, Risø National Laboratory | 1981-1992 |
| **Post. Doc.**, University of Copenhagen | 1978-1981 |
| **Ph.D. student**, University of Copenhagen | 1975-1978 |
| **Teaching Assistant**, University of Copenhagen | 1972-1975 |

**Research profile** My research has been centered around biosphere–atmosphere exchange in terrestrial ecosystems. The first 10 years mainly dealt with spread and deposition of heavy metals from indus-

trial activities such as power plants, steel works and mining (Greenland), including environmental assessments. The next 10 years were centered on aspects of acid rain and atmospheric chemistry. During this phase I started working with micro-meteorology and implemented flux measurement methods of nitrogen oxides and ozone. During the last decade the main emphasis has been on greenhouse gas exchange including long-term measurements of $CO_2$ fluxes and effects of climate change. My main contribution to the international research community is long-term flux measurements of $CO_2$ over different ecosystems. The data and results have been made available to the international research community through the NASA-funded organisation FLUXNET.

**Research output**

- 112 papers in peer reviewed journals (including 5 papers in Nature Journals).
- ISI citation index: 107 papers, cited 15,158 times, citations/paper: 141.66, h-index: 44 (June, 2019).
- 1 paper cited 2011 times, 30 papers cited $\geq$ 100 times.
- 12 book chapters.

**Academic Honours**

Norbert Gerbier–Mumm International Award 2004
For paper by Law et al. 2002 (see list of publications).

Norbert Gerbier–Mumm International Award 2011
For paper by Yi et al. 2010 (see list of publications).

Thomson Reuters: Highly Cited Researcher 2002-2012. 2014

**Teaching**

Teaching at bachelor, master and Ph.D. level in ecology, terrestrial ecology, ecophysiology, global climate change, greenhouse gas exhange and industrial ecology.

**Supervision and mentorship**

Since the main part of my carrier has been at the Risø National Laboratory (a research institution without students), I have supervised relativily few Ph.D. students. However, I have been external examiner of Ph.D. theses at many universities in Europe (See under "Censorship").

**Ph.D. students:**

- Patrik Fauser (1995-1998): Particulate Air Pollution, with emphasis on Traffic Generated Aerosols.
- Shoa Yao (2008): Metabolic Engineering of Ethanol Production in Thermoanaerobacter mathranii BG1.
- Xiaoru Hou (2008-2011): Development of industrial yeast for second generation bioethanol production.
- Tinghong Chang (2008-2011): Improvement of thermophilic bacteria for ethanol production from lignocellulose.
- Andreas Brændholt (2014-2017): Partioning forest soil respiration into autotrophic and heterotrophic respiration.
- Aikaterini Efthymiou (2014-2015 (moved to KU)): PSM-solubilization of Inorganic phosphorus in gasified waste products: molecular mechanisns and role of AMF in P transfer to plants.
- Nelly Raymond (2014-2015 (moved to KU)): SM-solubilization of inorganic phosphorus in gasified waste products: optimization of the performance and persistence of biofertilizers in different soil/crop systems.

**Committees**

**Bundesministerium für Bildung und Forschung** (Germany): Project evaluation for AFO2000 (German Programme on Atmospheric Research (2000–2006)).

**Danish Center for Atmospheric Research (DCAR)**: Chairman of working group on effects.

**Danish Polar Center**: AMAP (Arctic Monitoring and Assessment Programme) steering groups on terrestrial environment and air pollution.

**Direktoratet for Fødevare Erhverv**: Programme committee for the research programme "Jordbruget i et ressourcemæssigt helhedsperspektiv".

**International Geosphere–Biosphere Programme**: Member of Danish National Committee 2007 -, Chairman 2012 –.

**EU**: Project evaluation under FP4 and FP5. Evaluation of Marie Curie applications. External observer on the GRAMINAE project.

**European Science Foundation**: Member of steering committee for Scientific Programmes and COST actions: Stable Isotopes in Biospheric-Atmospheric Exchange (SIBAE); Advancing the integrated monitoring of trace gas exchange between biosphere and atmosphere (ABBA); The terrestrial biosphere in the Earth system (TERRABITES). Evaluation of applications for programmes and fellowships.

**EUROTRAC-2**: Steering committee for Biosphere Atmosphere Exchange (BIATEX-2).

**Fonds Wetenschappelijk Onderzoek (FWO), Flandern, Belgium**: Evaluation of research proposals.

**Hungarian Scientific Research Fund (OTKA)**: Evaluation of research proposal.

**Ministry of the Environment**: Environmental consequences of coal-fired power plants. Environmental assessment of cadmium. Evaluation of projects under Nordic Council of Ministers (MIL-3).

**Ministry of Greenland**: Assessment of air pollution around lead mine in Maarmorilik. Assessment of proposals for mining columbium and tantalum.

**Ministry of Research** : International evaluation of Danish environmental research. National strategy for agricultural research (working group on forest and landscape). Advisory group for EU Environment and Climate Research Programme (FP7) and for Horizon 2020 (Climate action, environment, resource efficiency and raw materials).

**Norges Forskningsråd** (Norwegian Research Council): Evaluation of research proposals.

**The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning**: Evaluation of research proposals.

**Censorship**

**Technical University of Denmark**: Courses in air pollution. Project and masters theses.

**University of Copenhagen**: Courses in ecology and plant physiology. Project and masters theses. Ph.D. theses.

**University of Jena, Germany**, **University of Lund, Sweden**, **University of Helsinki, Finland**, **University of Manchester, Great Britain**, **Swedish University of Agricultural Sci-**

**ences, Sweden**, and **Norwegian University of Life Sciences, Norway**: Ph. D. theses.

**Consultancy** Greenex A/S; DOPCO A/S; NKT A/S; Hecla Mining Corporation.

**Referee** Agricultural and Forest Meteorology; Agriculture, Ecosystems & Environment; Ambio; Atmospheric Chemistry and Physics; Atmospheric Environment; Atmospheric Measurement Techniques; Biogeochemistry; Biogeosciences; Biosystems Engineering; Boreal Environmental Research; Canadian Journal of Forest Research; Journal of Environmental Management; Environmental Pollution; Environmental Science and Technology; Forest Ecology and Management; Geophysical Research Letters; Global Biogeochemical Cycles; Global Change Biology; Journal of Environmental Quality; Journal of Geophysical Research; Nature; Oecologia; PLOS ONE; Proceedings of the Royal Society; Soil Biology and Biochemistry; Tellus; Tree Physiology; Water, Air and Soil Pollution.

**Editor** Editor of 3 special issues of Biogeosciences.

**Major recent research projects**

**RINGO**, EU 2017–2022
Readiness of ICOS for necessities of integrated carbon observations.
Making non-$CO_2$-GHG eddy covariance measurements operational.

**ICOS/DK**, Ministry of Higher Education and Science 2016–2021
Integrated Carbon Observation System (ICOS).
Danish node.

**ISOFLUX**, FNU 2013–1017
Partitioning forest ecosystem respiration
by application of novel isotope laser spectroscopy.

**InGOS**, EU 2011–2015
Improving the observational capacities for non-$CO_2$ GHG's.
Accurate GHG concentration measurements from tall tower.

**GHG-Europe,** EU 2010–2013
Greenhouse gas management in European land use systems.
Role of nitrogen in GHG balance for European forests.

**ICOS,** EU and FI 2008–2012
Preparation of Danish participation in ESFRI project ICOS.
Integrated carbon observation system.

**2G Bioethanol**, The Danish National Advanced Technology Foundation 2008-2010
Platform for second generation bioethanol.
Pretreatment and fermentation of biomass.

**IMECC,** EU 2007–2011
Infrastructure for Measurement of the European Carbon Cycle.
$CO_2$ flux measurements in beech forest.

**NitroEurope-IP,** EU 2006–2011
Integrated European research into the nitrogen cycle
Flux measurements in forests.

**ACCENT,** EU Networks of Excellence 2004–2009

Atmospheric composition change.
Member of steering committee of subproject BIAFLUX.
Organized Workshop on flux methodology, Risø April 2005.

**CARBOEUROPE-IP,** EU 2004–2009
The role of the European continent in the global carbon cycle.
Flux measurements in forest and grassland.

**CLIMAITE,** Willum Kann-Rasmussen Foundation 2004–2012
Climate change effects on biological processes and natural ecosystems.

**GREENGRASS,** EU 2001–2004
Sources and Sinks of Greenhouse Gases from managed European Grasslands and Mitigation Strategies.
$CO_2$ exchange over grassland.

**NOFRETETE,** EU 2001–2004
Nitrogen oxides emissions from European forest ecosystems.
NO emission from forest floor; $NO_2$ exchange over forest.

**CARBOEUROFLUX,** EU 2000–2003
An investigation on Carbon and Energy exchanges of terrestrial ecosystems in Europe.
$CO_2$ exchange over forest, soil respiration.

**CORE,** EU 2000–2003
Climate Atmosphere Interactions.
Continuous field measurements for observations of atmospheric compounds and properties.

**FOREXNOX-II,** EU 2000–2003
Exchange of ozone and nitrogen oxides at the forest atmosphere interface.
Flux divergence of NO, $NO_2$ and $O_3$.

**Centre for Sustainable Land Use and Management of Contaminants, Carbon and Nitrogen,** 1997–2001
Danish Environmental Research programme
Effects of Land Use and Organic Waste Application on Carbon and Nitrogen Fluxes.

**EUROFLUX,** EU 1996–1999
Long term carbon dioxide and water vapour fluxes of European forests and interactions with the Climate System.
$CO_2$ exchange over forest, soil respiration.

**BEMA-II,** EU 1996–1997
Biogenic Emission in the Mediterranean Area.
Exchange of $O_3$, NO and $NO_2$ over orange orchard.

**Centre for Terrestrial Ecosystem Research,** 1992–1997
Danish Environmental Research programme.
Nitrogen fluxes in coniferous ecosystems.

**FOREXNOX-I,** EU 1992–1995
Fluxes of NO, $NO_2$ and $O_3$ over forest.

**TRACT,** EU 1990–1992
Transport of Pollutants over Complex Terrain.
Exchange of $O_3$, NO and $NO_2$ over re-grown wheat.