Leopoldina
Nationale Akademie
der Wissenschaften

Curriculum Vitae Professor Dr Peter Schlosser

Name: **Peter Schlosser**

Research Priorities: Circulation patterns in bodies of water, consequences of climate change for oceans, environmental technology, sustainable development, paleoclimatology

Peter Schlosser's research covers earth and environmental sciences, environmental engineering, and sustainable development. He primarily studies the dynamic of the natural water cycle in oceans, groundwater and continental bodies of water as well as the effects of disturbances to these systems relative to their sustainability.

Academic and Professional Career

2019 - 2021	Director, Julie Ann Wrigley Global Institute of Sustainability, Arizona State University, Tempe, USA
since 2018	Professor, School of Sustainability, Arizona State University, Tempe, USA
since 2015	Professor of Geophysics, Earth and Environmental Engineering Department, Columbia University, New York City, USA
since 2012	Deputy Director, The Earth Institute, Columbia University, New York City, USA
since 2007	Research Director, The Earth Institute, Columbia University, New York City, USA
1999 - 2014	Vinton Professor of Earth and Environmental Engineering, Columbia University, New York City, USA
1998 - 1999	Professor, School of Engineering and Applied Science, Columbia University, New York City, USA
1994	Visiting Professor, University of Washington, Seattle, USA
since 1993	Senior Staff, Lamont-Doherty Earth Observatory, Palisades, USA

since 1993	Professor, Earth and Environmental Sciences Department, Columbia University, New York City, USA
1992	Tenure, Columbia University, New York City, USA
1989 - 1992	Associate Professor, Columbia University, New York City, USA
1986 - 1989	Research Assistant, Institute of Environmental Physics, Heidelberg University, Heidelberg, Germany
1985	PhD in Physics, Heidelberg University, Heidelberg, Germany
1981 - 1986	Research Associate, Institute of Environmental Physics, Heidelberg University, Heidelberg, Germany
1981	Diploma in Physics, Heidelberg University, Heidelberg, Germany
1975 - 1981	Degree in Physics, Heidelberg University, Heidelberg, Germany

Functions in Scientific Societies and Committees

2022	Dean, College of Global Futures, Arizona State University, Tempe, USA
2022	Member, Ethical Framework for Climate Intervention Advisory Board, American Geophysical Union, USA
since 2021	Chairperson, Strategic Evaluation Committee, Research Field Earth and Environment, Helmholtz Association of German Research Centres, Bonn, Germany
since 2021	Member, Science Council, Conservation International, Washington D.C., USA
since 2021	Member, Board, American Geophysical Union (AGU), USA
2021	Chairperson, Development Board, American Geophysical Union, USA
2020	Chairperson, Scientific Advisory Committee, German Marine Research Alliance
2019	Co-Chairperson, The Earth League
2019	Member, College of Fellows Frontiers Committee, AGU, USA
2019	Member, Board, Carbon Collect Limited, Dublin, Ireland
2019	Member, Board, McDowell Sonoran Conservancy, Scottsdale, USA
2019	Chairperson, Strategic Evaluation Committee, Research Field Earth and Environment, Helmholtz Association, Bonn, Germany
since 2015	Dean, Earth and Environmental Engineering Department, Columbia University, New York City, USA
2009 - 2015	Founding Dean, Earth Institute Faculty, Columbia University, New York City, USA
2004 - 2012	Associate Director, The Earth Institute, Columbia University, New York City, USA

2000 - 2003 Dean, Earth and Environmental Engineering Department, Columbia University, New York City, USA

2000 - 2003 Associated Chairperson, Henry Krumb School of Mines, Columbia University, New York City, USA

Project Coordination, Membership in Collaborative Research Projects

1989 - 1991 Applicant, Subproject "14-C Measurements in the Circumpolar Current and in the Weddell Sea in the Framework of METEOR-Mission 11/5" („14C-Messungen im Zirkumpolarstrom und in der Weddell-See im Rahmen der METEOR-Fahrt 11/5"), Priority Programme (SPP) 511, German Research Foundation (DFG)

1988 - 1991 Applicant, Subproject "Study of Deep Water Formation in the Greenland Sea via measurement of trace substances -METEOR-Mission Nr 8" („Untersuchung der Tiefenwasserbildung in der Grönlandsee mittels Spurenstoffmessungen – Meteor-Fahrt Nr. 8"), SPP 511, DFG

Honours and Awarded Memberships

2021 Distinguished Global Futures Scientist, Global Futures Scientists and Scholars, Arizona State University, Tempe, USA

since 2016 Member, German National Academy of Sciences Leopoldina, Germany

2012 Printing of groundwater dating publication as „Benchmark Paper", IAHS

2011 Fellow, The Explorers Club, New York City, USA

2011 Fellow, American Association for the Advancement of Science (AAAS), USA

2007 Fellow, AGU, USA

1994 Vetlesen Fellow, University of Washington, Seattle, USA

Research Priorities

Peter Schlosser's research covers earth and environmental sciences, environmental engineering, and sustainable development. He primarily studies the dynamic of the natural water cycle in oceans, groundwater and continental bodies of water as well as the effects of disturbances to these systems relative to their sustainability.

Peter Schlosser examines natural circulation patterns in bodies of water and asks how they are altered by human interference and disturbance. For his research, he tracks the paths of trace elements and trace gases (isotopes, chemical compounds) in water, in particular in oceans and in groundwater. He observes their distribution in order to gain insights and information about the

movements and formation rates of water masses as well as about their mixing processes. The results reveal, among other things, discoveries about the consequences of pollution, for example when harmful substances enter the water after an oil tanker accident. He uses models to analyse the physics of the circulation and to predict water movements on the basis of these analyses.

With his research team, Peter Schlosser studies, for example, how deep waters form at high latitudes in the ocean. His studies provided the initial evidence for a dramatic decrease in deep water formation in the Greenland Sea. The results show how sensitive the processes in the oceans are in relation to one another and how abruptly they react to disturbances and climate changes. In other studies, he was able to demonstrate evidence for an excess of the noble gases helium and neon in ocean water due to the melting ice sheets in Antarctica. This allows for a calculation of the melting rate for ice sheets.

Together with his team, Peter Schlosser works to find ways to alleviate the adverse effects of these disturbances. His research contributes to the basic understanding of ocean circulation and provides insights into the role of oceans in climate variability. In further projects, he examines the climate history of the earth (paleoclimatology) as well as the exchange of gases between the atmosphere and the oceans or continental bodies of water.