

LEIF G. ANDERSON

Born: May 25, 1951; male, Swedish nationality

Address

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Current position, since June 2018: Professor emeritus, University of Gothenburg

Academic degrees

1985: Docent (Associate Professor), University of Gothenburg

1981: PhD-degree, in Chemistry, University of Gothenburg: *Some novel photometric techniques. Application to the study of the seawater carbonate system.* Supervisor, Prof. David Dyrssen

1975: Fil. Kand, the Faculty of Science, University of Gothenburg

Previous positions

2000 – 2018: Professor, University of Gothenburg

1995 – 2002: Professor II, Geophysical Institute, University of Bergen, Norway

1993 – 1999: University Lecturer, Department of Analytical and Marine Chemistry, University of Gothenburg

1987 – 1993: Associate professor in Chemical Oceanography, Department of Analytical and Marine Chemistry, University of Gothenburg

1983 – 1987: Research assistant, Department of Analytical and Marine Chemistry, University of Gothenburg

1982 – 1983: Natural Science Research Council, Post Doctoral Fellowship at Bedford Institute of Oceanography, Canada

1981 – 1982: Research assistant, Department of Analytical and Marine Chemistry, University of Gothenburg

Parental leave: a few months during each of the years 1990 and 1992

Research interest

Much of my research interests involve the oceanic carbon cycle; the transformation of carbon, the fluxes within the ocean, the air-sea fluxes and the oceanic sequestering of anthropogenic carbon dioxide as well as its impact on Ocean Acidification. During these studies I have to a large degree worked in high latitude oceans, at both hemispheres, but also investigations of Swedish coastal water have been included

Of special interest are also the investigation of the Arctic Ocean, and the use of chemical tracers to understand water mass distribution and circulation

Parallel to the above investigations I am continuously working on the development of analytical chemical tools for the investigation of the oceans

Funding records and cruise expeditions

Research grants to a sum of over 12 million US\$ from the Swedish Research Council, Swedish Research Council Formas, the Swedish National Space Board, the Knut and Alice Wallenberg Foundation, the Marianne and Marcus Wallenberg Foundation, the Hasselblad Foundation, the Sahlen Foundation, and the European Union framework programs 5 to 7

Field experience: Participated in more than 20 major oceanographic expeditions, adding in total to more than 2 years. On several occasions have I acted as chief scientists or expedition leader.

Supervision of PhD-students

Awarded doctorates: Adam Ulfsbo, 2014, Irené Wählström 2012, Sofia Hjalmasson 2009, Sara Jutterström 2006, Emil Jeanson 2005, Staffan Kaltin 2003, Agneta Fransson 2000, Melissa Chierici 1998, Kristina Olsson 1997, Roger Lindegren 1993, Mats Ohlson 1991, Deputy supervisor for Moa Edman 2013.

Co-supervisor of graduate students at the Geophysical Institute, University of Bergen: Eva Falck, awarded 1999, Ingunn Skjelvann 1999, Are Olsen 2002

Supervision of Post-Docs

2015: Tim Stöven, visiting from GEOMAR, Kiel, Germany

2004 – 2005, 2005: Miroslav Nitishinsky, visiting from Arctic and Antarctic Research Institute, St. Petersburg, Russia

2000 – 2001: Eva Falck, visiting from Geophysical Institute, University of Bergen, Norway

Distinctions, honours and awards

2017: The Finn Malmgren price, awarded by Uppsala University: *For his research in climate and oceanography with focus on the role of the oceans in the global carbon cycle*

2013: IASC MEDAL AWARD: *For his pioneering work on the functioning of the Arctic Ocean and his groundbreaking scientific contributions to understanding the chemistry and carbon cycle of this very special ocean system*

2009: Elected fellow of the Royal Society of Arts and Sciences in Göteborg

2004: Elected fellow of the Royal Swedish Academy of Sciences

2000: King Carl Gustaf's Environmental Grant: *For the study of the Carbon Cycle in Polar Seas*

1993: Alfred Wallin price, given by the Royal Society of Arts and Sciences in Göteborg, Sweden

National and international assignments of importance (last 10 years)

2019 – 2022; Member of the board of the KK Foundation

2018 – Scientific coordinator of the Wallenberg Academy Fellows 2016 network group

2018 – 2019: Swedish representative in the international Governing Council of Future Earth

2017: Member of the evaluation board of Norwegian Polar Research, appointed by the Res. Council of Norway

2017 – 2019: Chair of the board of ICOS Sweden

2016 – 2019: Chair of the board of the foundation *Future Earth Sweden*

2013 – 2016: Elected 1:st Vice President of the Royal Swedish Academy of Sciences

2017 – 2019: Deputy Chair of the Environmental Committee of the Royal Swedish Academy of Sciences

2013 – 2016: Chair of the Swedish National Committee for Global Environmental Change

2013 – 2016: Chair of the Crafoord board of the Royal Swedish Academy of Sciences

2013: Member of the organizing committee of the Arctic Observing Summit 2013, Vancouver

2011 – 2013 & 2016-2018: Member of the lead writing team of the Arctic Ocean Acidification assessment, organized by AMAP

2012: Chairing the evaluation panel of the Mistra Arctic Futures in a Global Context programme

2010 – 2016: Member of the board of the SSEESS at the Royal Swedish Academy of Sciences

2009 – 2013: Swedish delegate in the Marine Working group of International Arctic Science Committee

2008 – 2014: Member of the Scientific Advisory Board of the Alfred Wegener Institute for Polar and Marine Research, Germany

2006 – 2009: Head of the Department of Chemistry, University of Gothenburg; deputy head 2003-2006

2006 – 2016: Chairmen of the Environmental Committee of the Royal Swedish Academy of Sciences

2004 – 2010: Chairmen of the Stockholm Water Prize Nominating Committee of the Stockholm International Water Institute

Invited oral presentations at international conferences (selected from a total of around 25 invitations the last ten years)

2018: Impact of thawing permafrost on the Arctic Ocean, Norges Vitenskapsakademi for Polarforskning, Oslo, 26 November 2018.

2018: 'Havsförurning i Arktiska Oceanen', Swedish Agency for Marine and Water Management, Gothenburg, 10 September 2018.

2018: 'The carbon system of the Arctic Ocean, from the rim to the deep basins', SMHI, Gothenburg, 2 March 2018

2018: 'Synoptic Arctic Survey: A Fundament for Future Arctic Research', Keynote presentation at the Norwegian Academy of Science and Letters: International Polar Ocean Day, Oslo, 31 January 2018

2017: 'Acidification of the Arctic Ocean, the basis for AMAP Arctic Ocean Acidification case studies', Finnish-Swedish scientific Arctic MPA networks workshop Helsinki, 21-22 September 2017

2017: 'Utilizing chemical signatures to study the Arctic Ocean', MISU, Stockholm University, 10 January 2017

2016: 'What can chemical signatures tell us about the interaction between the East Siberian Seas and deep Arctic Ocean?' Tomsk Polytechnical University, Russia, 23 November 2016

2016: 'Changes in the Arctic Ocean Carbon Cycle during the last decades', Workshop on: Time series analysis in environmental science and applications to climate change, Tromsø, Norway, 11 November 2016

- 2015: 'Transformation and fluxes of carbon in a changing Arctic Ocean and its impact on ocean acidification', Dalhousie University, Halifax, Canada
- 2013: 'Changes in observed Arctic Ocean Acidification during the last decades', Arctic Ocean Acidification Conference, Bergen, Norway
- 2013: 'Utilizing chemical signatures to study the Arctic Ocean', Arctic Science Summit Week, Krakow, Poland
- 2013: 'Biochemical Responses and Feedbacks to the Climate System', introduction and discussion leader at the Gordon Research Conference in Polar Marine Sciences, Ventura, USA
- 2012: 'Transformation and fluxes of carbon in a changing Arctic Ocean and its impact on ocean acidification, the Atlantic view', Ocean Carbon & Biogeochemistry Summer Workshop WHOI, USA
- 2011: 'The role of the biological pump as a driver for air-sea CO₂ flux in a changing Arctic Ocean', Science Symposium of the Arctic Science Summit Week, Seoul, South Korea
- 2011: 'On the trail of greenhouse gases - the changing role of the ocean in the climate system. Climate Change Seminar Series, University of the West Indies, Kingston, Jamaica
- 2010: 'How to plan (and implement) international collaboration in Arctic Ocean sciences, based on multiple platforms'. Keynote presentation at the ART Implementation Workshop, Winnipeg, Canada

Bibliometric data (per July 4 2019)

Peer reviewed publications: 125 in journals and 27 book/report chapters
H-index 53 with a total of 9348 citations (Google Scholar)

Ten selected publications

- Qi, D., L. Chen, B. Chen, Z. Gao, W. Zhong, R.A. Feely, **L.G. Anderson**, H. Sun, J. Chen, M. Chen, L. Zhan, Y. Zhang, W.-J. Cai., Increase in acidifying water in the western Arctic Ocean. *Nature Climate Change*, DOI: 10.1038/NCLIMATE3228, 2017. Citations: 29.
- Anderson, L.G.**, J. Ek, Y. Ericson, C. Humborg, I. Semiletov, M. Sundbom, A. Ulfsbo., Export of calcium carbonate corrosive waters from the East Siberian Sea. *Biogeosciences*, 14, 1–13, doi:10.5194/bg-14-1811-2017, 2017. Citations: 8.
- Semiletov, I., I. Pipko, Ö. Gustafsson, **L.G. Anderson**, V. Sergienko, S. Pugach, O. Dudarev, A. Charkin, A. Gukov, L. Bröder, N. Shakhova, Acidification in the East Siberian Arctic Shelf driven by a permafrost-released carbon translocation and seawater freshening. *Nature Geoscience*, 18 April, DOI: 10.1038/NEGO2695, 2016. Citation: 58.
- Tremblay, J.-E., **L.G. Anderson**, P. Matrai, P. Coupel, S. Bélanger, C. Michel, M. Reigstad, Global and local drivers of nutrient supply, primary production and CO₂ drawdown in the changing Arctic Ocean, *Prog. Ocean.*, 139, 171-196, doi.org/10.1016/j.pocean.2015.08.009, 2015. Number of citations: 74.
- Anderson, L.G.**, and R.M.W. Amon, DOC in the Arctic Ocean, in *Biogeochemistry of Marine Dissolved Organic Matter, 2nd edition*, edited by Dennis A. Hansell and Craig A. Carlson. pp. 609-633, Burlington, Academic Press, 2014. Citations: 73.
- Anderson, L.G.**, P. Andersson, G. Björk, E.P. Jones, S. Jutterström, I. Wählström, Source and formation of the upper halocline of the Arctic Ocean, *J. Geophys. Res.*, 118, 410-421, doi:10.1029/2012JC008291, 2013. Number of citations: 49.
- Anderson L.G.**, T. Tanhua, G. Björk, S. Hjalmarsen, E. P. Jones, S. Jutterström, B. Rudels, J. H. Swift, I. Wählström, Arctic Ocean shelf – basin interaction, an active continental shelf CO₂ pump and its impact on the degree of calcium carbonate dissolution, *Deep Sea Res.*, 1 57, 869–879 doi:10.1016/j.dsr.2010.03.012, 2010. Citations: 70.
- Anderson L.G.**, S. Jutterström, S. Hjalmarsen, I. Wählström and I.P. Semiletov, Out-gassing of CO₂ from Siberian Shelf Seas by terrestrial organic matter decomposition, *Geophys. Res. Lett.*, 36, L20601, doi:10.1029/2009GL040046, 2009. Citations: 81.
- Anderson, L.G.**, E. Falck, E.P. Jones, S. Jutterström, and J.H. Swift, Enhanced uptake of atmospheric CO₂ during freezing of seawater: a field study in Storfjorden, Svalbard, *J. Geophys. Res.*, 109, C06004, doi:10.1029/2003JC002120, 2004. Citations: 94.
- Anderson, L.G.**, G. Björk, O. Holby, G. Kattner, P.K. Koltermann, E.P. Jones, B. Liljeblad, R. Lindegren, B. Rudels, and J. Swift, Water Masses and Circulation in the Eurasian Basin: Results from the Oden 91 North Pole Expedition. *J. Geophys. Res.*, 99, 3273-3283, 1994. Citations: 216.