

## Curriculum Vitae

### Göran, Gustaf, Anders Björk 560831-2491

Born: August 31, 1956

#### Professional address:

Göteborg University, Department of Oceanography, Earth Sciences Center, Box 460  
SE-405 30 Göteborg, Sweden

#### Degrees:

Fil. Kand. (corresponding to Bachelor of science) in 1981.

Ph. D. in 1990-06-01. Title of thesis: "Studies of the ice conditions and the vertical circulation in the upper Arctic Ocean.

Associate Professor (in Swedish: Docent) in June 1997.

Full Professor in Aug. 2004

#### Professional experience:

- 1982-11-01 – 1983-06-31 Employment (8 month) as a research scientist at the Continental Shelf Research Institute in Trondheim, Norway.
- 1983-07-01– 1986-06-30 Research assistant (20%) and Phd studies Dept. of Oceanography, University of Göteborg.
- 1987-07-01 – 1989-06-31 Employment (50%) as a research assistant at the Dept. of Oceanography, University of Göteborg.
- 1989-07-01 – 1992-06-30 Employment (100%) as a research assistant at Dept. of Oceanography under the project: "Theoretical and observational assessment of the vertical circulation in the Arctic Ocean".
- 1992-07-01 – 1993-06-30 Post Doc. at the Polar Science Center, Univ. of Washington. Collaboration with Prof. Knut Aagaard.
- 1993-07-01 – 1994-06-30 Project employment: "Water circulation and ice conditions in the Polar Seas". Funded by the Swedish Natural Science Research Council (NFR).
- 1994-07-01 – 1998-06-30 Junior Researcher position within the field: "The interaction between climate variations and: circulation and ice conditions of the Arctic Seas.
- 1998-07-01 – 1998-08-15 Summer school teacher in Oceanographic field studies
- 1998-08-15 – 1998-11-20 Project employment "Water exchange and bio-chemical modeling within the fjord system of Orust and Tjörn", funded by the Swedish Environmental Protection Board (SNV).
- 1998-11-21 – 1998-12-21 Project employment in a model verification project for hydrodynamic models applied to the Skagerrak.
- 1999-01-01 – 2001-12-31 Project employment (50%) "The sensitivity of the Arctic Ocean ice cover to variations of the poleward heat transport in the atmosphere", by the Swedish Natural Science Research Council (NFR). Teaching (50%) Dept. of Oceanography, University of Göteborg.
- 2000-01-01 – present Permanent position as a university lecturer at Göteborg University.
- 2002-01-01 – 2005-01-01 Project employment (50%) Variability of the ice-cover and ocean circulation in the Arctic Seas. Funded by the Swedish Research Council. Teaching (50%) Dept. of Oceanography, University of Göteborg.

#### Research interests:

Ocean circulation and ice conditions in the Arctic Seas. Ice thickness distribution and how it relates to deformation processes and thermal forcing. Model studies of the fully coupled system including atmosphere, sea-ice and ocean. Of special interest is to understand how sensitive the ice cover is to variations of climate factors and to find the reason for observed ice thickness variations. A new research field is transport of warm deep water towards the ice shelves in Amundsen Sea, Antarctica.

Coastal upwelling and water exchange in fjords along the Swedish west coast such as the Gullmars fjord and the Orust-Tjörn fjord system. Spreading/retention of fish eggs/larvae in the Kattegat area based on observations and model studies.

## **Committee work**

- 2000-2006 Member of the steering board for the Department of Geosciences, Göteborg University.  
2002-01-01 – 2004-06-01. Member of the program committee for KlimaProg, Research Council of Norway  
2004 Member of the Rapid Climate Change Joint Committee. London, UK.  
2003-2006 Member of the of the Committee for Gender Issues at the Faculty of science, Göteborg University  
2006- Member of the Appointment Board at the Faculty of science, Göteborg University  
2009 Member of the Göteborg University working group for developing a research plan for the strategic venture in Marine environment.  
2009 Lead convenor for the symposia “Arctic Ocean Circulation and Sea ice: present and future” during the MOCA-09 joint IAMAS-IAPSO-IACS assembly in Montreal July 19-29.  
2009-2012 Member of the Committee for Equality Issues at the Faculty of science, Göteborg University  
20130101-20141031 Coordinator for the 180 hp Bachelor program in Marine Science

## **Research projects and external funding:**

- 1993 Water circulation and ice conditions in the Polar Seas. Funded by the Swedish Natural Science Research Council (NFR).  
1994 Water exchange and bio-chemical modeling within the fjord system of Orust and Tjörn, funded by the Swedish Environmental Protection Board (SNV) in collaboration with Dr. Lars Rydberg and Prof. Gösta Walin:  
1999 The sensitivity of the Arctic Ocean ice cover to variations of the poleward heat transport in the atmosphere. Funded for three years by the Swedish Natural Science Research Council (NFR).  
2001-2004 Variability of the ice-cover and ocean circulation in the Arctic Seas. Funded for three years by the Swedish Research Council (VR). (~300 000 SKR per year).  
2004- Cod spawning grounds in Kattegat and hydrographic influence on early life stages, Funded for two years by FORMAS (~420 000 SKR per year)..  
2005-2007 Ice Conditions, heat fluxes and circulation of Atlantic water in the Arctic Ocean, funded for three years by the Swedish Research Council (VR) (~450 000 SKR per year).  
2005- Ice Conditions, heat fluxes and circulation of Atlantic water in the Arctic Ocean, funded for three years by the Swedish Research Council (VR) (~450 000 SKR per year).  
2007 Grant from Knut and Alice Wallenberg foundation together with Prof. Anders Stigebrandt and Assoc. Prof Lars Arneborg: 6.5M SKR for instrumentation to study small scale mixing processes.  
2005-2001- Eu project DAMOCLES (~1 200 000 SEK over 4 years)  
2008- Effects of the natural atmospheric forcing variability on the Arctic Ocean ice cover under different climate regimes. Funded for three years by the Swedish Research Council (VR). (~540 000 SEK year1, ~400000 year2-3).  
2008 Circulation of warm seawater and meltwater from glaciers in Amundsen Sea, West Antarctica, Swedish Research Council (VR) 520000 SEK. Together with Assist. Prof. Anna Wählin.  
2009 -2011 Circulation of warm seawater and meltwater from glaciers in Amundsen Sea, West Antarctica, Oden expeditions 2009-2011. Swedish Research Council (VR) 370000 SEK. Together with Anna Wählin , Lars Arneborg and Bengt Liljebladh.

### Ongoing:

- 2011-01-01 EU project CARBOCHANGE 39000 EUR  
20120101-20161231 part of SWERUS-C3. KAW, total 1963000 SEK  
10140701-20161231-Rymdstyrelsen “Radar remote sensing of sea ice in polar regions” PI: Leif Eriksson Chalmers. 210000 SEK

## **Expeditions**

- 1991 Coordinator for physical oceanography during the expedition "international Arctic Ocean Expedition 1991".

- 1996 Participated in the "Arctic-96" ACSYS cruise with R.V. Polarstern to the Arctic Ocean.
- 2001 Coordinator for the oceanography program during the Swedish ice breaker expedition AO –01 to the Arctic Ocean in summer 2001.
- 2002 Principal investigator for the oceanography program during the Swedish Ice-breaker expedition AO –02 to the Arctic Ocean and East Greenland current in April-June.
- 2005 Principal investigator for the oceanography program during the Beringia 2005 expedition across the Arctic Ocean with I/B Oden.
- 2007 Principal investigator for the oceanography program during the LOMROG 2005 expedition at the Lomosov Ridge are north of Greenland with I/B Oden.
- 2008 Principal investigator for the oceanography program during the International Siberian Shelf Study 2008 (ISSS-08) along the Siberian shelf with the Russian research vessel H/V Yacob Smirnitskyi.
- 2104 Principal investigator for the oceanography program during the expedition Swedish – Russian – US Arctic Ocean Investigation of Climate-Cryosphere-Carbon Interactions (SWERUS-C3) along the outer Siberian shelf summer 2014.

### **Supervision of Ph.D. students (start year - end year)**

- 1995-2000 Olof Liungman (One of two supervisors) Thesis: "Modeling fjord circulation and turbulent mixing"
- 1997- 2003 Johan Söderkvist Thesis: "Sensitivity and variability of the Arctic Ocean ice cover"
- 1998-2002 Peter Winsor Thesis: "Studies of dense shelf water, vertical stratification and sea ice of the Arctic Ocean"
- 20040901- 20130322 Selma Pacariz Thesis: Model studies of fish eggs and larvae transport in the Kattegatt and the North Atlantic
- 20050201- Johanna Nilsson
- 20070601-20121116 Christian Stranne Studies of the Arctic Ocean sea ice cover and hydrothermal heat fluxes
- 20070601 20120608- Irene Wählström (assistant supervisor)
- 2005-2009 Christain Nohr, "Oceanographic studies of the Baltic Sea with emphasis on sea ice and mixing processes (assistant supervisor).

### **Supervision of bachelor/master students (with finished thesis) 1997 Peter Winsor, title of thesis: "A wind-driven coastal polynya model" (30hp)**

- 1998 Helen Anderson, title of thesis: "Geostrophic calculations in the Arctic Ocean" (20hp)
- 1999 Johan Siverklev, title of thesis: "The effects of root structures on water flow in a mangrove swamp" (30hp)
- 2001 Christian Nohr, title of thesis: "A simplified model of sea ice deformation based on the formation direction of leads - a pilot study" (20hp)
- 2003 Markus Klingberg, title of thesis: "Verification study of a circulation model for the Orust and Tjörn fjord system" (15hp)
- 2004 Sara Mattsson, title of thesis: "Circulation and iceformation in Isfjorden Svalbard" (60hp)
- 2006 Jens Erik Engström "Dynamics and characteristics of the fresh water influenced surface layer around Svalbard" (60hp)
- 2007 Angelina Olsson "Hydrography and water exchange in the Sannäsfjord" (30hp)
- 2007 Lena Andren and Therese Harrysson "Klintehamns småbåtshamn – en studie av strömförhållanden, geokemi och sedimentprocesser inför en utbyggnad". (2x30hp) One of three supervisors.
- 2007 Sofia Carlsson "Surface currents and front passages in the northern Kattegat" (30hp)
- 2009 Johanna Nilsson "A survey of dense bottom plumes in the Arctic Ocean" 30hp)
- 2010 Love Råman "Geothermal heating of Canada Basin Deep water" (15hp)
- 2010 Örjan Bäck "En oceanografisk undersökning av Örsviken" (40hp)
- 2011 Vibe Schorup-Kristensen "Wind dependence of anoxia in the Kattegat and the Belt Sea: A model study (30 hp).
- 2011 Camilla Sten "Recent evolution of the polar mixed layer, the cold halocline and Atlantic Layer properties of the Eurasian Basin of the Arctic Ocean, (30hp)
- 2012 Malin Ödalen "oxygen deficiencies and environmental issues related to hydrography in the Sannäs fjord, west coast of Sweden (45hp)
- 2012 Lisa Svenningsson "Validation of two numerical models in Skagerrak" (30 hp)

2012 Magnus Wenzer "Long term oxygen trends in the Skagerak and Kattegat deep water" (15hp)  
 2012 Johanna Elam "A preliminary study of the drainage of the Baltic Ice Lake" (15hp)  
 2012 Maria Nordström "The Effect of Anthropogenic Heat Sources on the Upper Ocean Temperature in the Baltic Sea" (30hp)  
 2013 Bruno Westergren "Characterization of the ocean environment in Fjällbacka harbour (15 hp)  
 2015 Vilhelm Fagerström "Temperature fronts in the Sargasso sea and their influence on the passive transport of European eel larvae (30 hp).

## Teaching

1982-1986 Supervision for students at two one-week and four one-day oceanographic field trips each year. Supervision at two laboratory lessons per year.  
 1991 Five week course "Introduction to Oceanography"  
 1994 Five week course: "Oceanographic models part II"  
 1995 Five week course: "Oceanographic models part II"  
 1995 25/10-3/11 One of three teachers during a training course on: "Nutrient budgets and Models of Marine Systems" at the department of marine science, Chulalongkorn University, Bangkok, Thailand.  
 1996-98 Teacher at three occasions for the five week course. "Oceanographic models part II"  
 1998 One of two teachers at the five week field course: "Case studies"  
 1999 Five week course: "Mathematical methods in geo-science"  
 1999 Five week course: "Geophysical fluid dynamics"  
 1999 10 week course "Marine fluid mechanics"  
 1999 One of two teachers for the five week field course: "Case studies"  
 2000 Five week course "Observation methodology in geoscience"  
 2000 10 week course "Marine fluid mechanics"  
 2000 One of two teachers for the five week field course: "Case studies"  
 2001 Five week course "Observation methodology in geoscience"  
 2001 10 week course "Marine fluid mechanics"  
 2001 One of two teachers for the five week field course: "Case studies"  
 2002 10 week course "Marine fluid mechanics"  
 2003 One of five teachers for the 10 week course: "Pelagic Bio-geo-chemistry"  
 2003 0818-0823 Teaching at the PhD course "Arctic Climate - Ocean and Atmosphere processes and modeling" at Bornö field station sponsored by SWECLIM.  
 2003 10 week course "Marine fluid mechanics"  
 2003 1110-1113 4 days teaching at UNIS (university of Svalbard) "Polynyas and Leads"  
 2004 10 week course "Marine system analysis" (new course, developed most of the material)  
 2004 8 weeks out of 10 for the course "Marine fluid mechanics"  
 2005 5 week course "Marine fluid mechanics"  
 2005 One of three teacher for the five-week field course: "Case studies".  
 2006 0723-0727 Lecturer at the Woods Hole GFD summer school program  
 2006 5 week course "Marine fluid mechanics"  
 2006 Responsible teacher for the five-week course: "Case studies".  
 2007 5 week course "Marine fluid mechanics"  
 2007 Responsible teacher for the five-week course: "Case studies".  
 2008 5 week course "Marine fluid mechanics"  
 2008 Responsible teacher for the five-week course: "Case studies".  
 2009 Invited teacher to Arctic Climate Summer School in Abisko August 17-27, 2009.  
 2009-10 10 week course Marine System Analysis.  
 20100901-20101103 OC710 Marine hydrodynamics (40% of 15 hp).  
 20101101-20110118 OC2610 Marine System Analysis (100% of 15 hp)  
 20110901-20111004 OC710 Marine hydrodynamics. (50% of 15 hp).  
 20111001-20111031 Responsible for 40% of the New 5 week course MAR210 "det fria vattnet I" within the Marine program.  
 20111107-20120118 OC2610 Marine System Analysis (100% of 15 hp)  
 20110627-20110708 Teacher at summer school "Role of sea ice in the climate system" University centre in Svalbard (UNIS) Longyearbyen

20120903-20131102 OC710 Marine hydrodynamics (50% of 15 hp).  
 20121106-20130118 OC2610 Marin System Analysis (100% of 15 hp)  
 2012 MAR102 "Det fria vattnet I" (40% of 7.5 hp)  
 2013 OCN420 Masters course Polar oceanography (100% of 15 hp, new course)  
 2013 MAR106 (20% of 15 hp) , MAR102 (40% of 7.5 hp), OCM100 (50% of 15 hp, new course)  
 2014 OCM200 (40% of 7.5 hp) , MAR210 (10% of 15 hp, new course), MAR106 (20% of 15 hp),  
 OCM100 (40% of 15 hp)

20141220 Introduction to Climate Modeling Module I, Department of Meteorology, Stockholm University (MISU).

### Opponent at dissertations

20090330 Opponent for Jens Engström at Uppsala University Department of Engineering Science. Title of thesis: Hydrodynamic modeling of the energy conversion from ocean waves to electricity ISSN 0349-8352.

### Publications in peer reviewed journals

1. Rydberg, L. and **G. Björk**, Vivassen - water exchange, oxygen- and nutrient conditions, *Vatten*, 43, 65-71, 1987. (in Swedish)
2. **Björk, G.**, A one-dimensional model for the vertical stratification of the upper Arctic Ocean, *J. Phys. Oceanogr.*, 19, 52-67, 1989.
3. **Björk, G.**, and P. A. Lundberg, A re-examination of the seiche period of lake Vättern, *Tellus*, 42A, 615-626, 1990.
4. **Björk, G.**, The vertical distribution of nutrients and oxygen 18 in the upper Arctic ocean, *J. Geophys. Res.*, 95, 16025-16036, 1990.
5. **Björk, G.**, Studies of the ice conditions and the vertical circulation in the upper Arctic Ocean, academic thesis at the Department of Oceanography, University of Göteborg, 1990.
6. **Björk, G.**, On the response of the equilibrium thickness distribution of sea ice to ice export, mechanical deformation, and thermal forcing with application to the Arctic ocean, *J. Geophys. Res.*, 97, 11287-11298, 1992.
7. Anderson L. G., **G. Björk**, O. Holby, E.P. Jones, G. Kattner, K.P. Koltermann, B. Liljebldh, R. Lindergren, B. Rudels, and J. Swift, Water masses and circulation in the Eurasian basin: results from the Oden 91 expedition, *J. Geophys. Res.*, 99, 3273-3283, 1994.  
DOI: 10.1029/93JC02977
8. Becker, P. and **G. Björk**, Residence times in the upper Arctic Ocean, *J. Geophys. Res.*, 101, 28377-28396, 1996.
9. **Björk, G.**, The relation between ice deformation oceanic heat flux and the ice thickness distribution in the Arctic ocean, *J. Geophys. Res.*, 102, 18681-18698, 1997.
10. Rudels, B., **G. Björk**, R. D. Muench, and U. Schauer, Double-Diffusive layering in the Eurasian basin of the Arctic Ocean, *Journal of Marine Systems*, 21(1-4), 3-27, 1999.
11. **Björk, G.**, O. Liungman and L. Rydberg, Net circulation and salinity variations in an open-ended Swedish fjord system, *Estuaries*, 23, 367-380, 2000.
12. Winsor, P., and **G. Björk**, Polynya activity in the Arctic Ocean from 1958 to 1997, *J. Geophys. Res.*, 105, 8789-8803, 2000.
13. Woodgate R. A., K. Aagaard, R.D. Muench, J. Gunn, **G. Björk**, B. Rudels, A. T. Roach, and U. Schauer, The Arctic Ocean boundary current along the Eurasian slope and the adjacent Lomonosov Ridge: Water mass properties, transports and transformation from moored instruments, *Deep Sea Research*, 48, 1757-1792, 2001.
14. Dokken, S. T., P. Winsor, J. Askne, **G. Björk** and T. Markus, ERS SAR characterization of coastal polynyas in the Arctic and comparison with SSM/I and numerical model investigations, *Remote Sensing of Environment*, 80, 1-15, 2001.
15. **Björk G.**, B. G. Gustafsson, and A. Stigebrandt, Upper layer circulation in the Nordic Seas as inferred from the spatial distribution of heat and freshwater content and potential energy, *Polar Research*, 20(2), 161-168, 2001.

16. Schauer U., B. Rudels, P. Jones, L. G. Anderson, R. D. Muench **G. Björk**, J. H. Swift, V. Ivanov, and A-M Larsson, Confluence and redistribution of Atlantic waters in the Nansen, Amundsen and Makarov basins, *Annales Geophysicae*, 20 (2), 257-273, 2002.
17. **Björk G.**, and J. Söderqvist, Dependence of the Arctic Ocean ice thickness distribution on the poleward energy flux in the atmosphere, *J. Geophys. Res.*, 107(C10), 10.1029/2000JC000723, 2002.
18. **Björk, G.**, J. Söderqvist, P. Winsor, A. Nikolopoulos and M. Steele, Return of the cold halocline to the Amundsen Basin of the Arctic Ocean, *Geophys. Res. Lett.*, 29 10.1029, 2002.
19. **Björk, G.** and K. Nordberg, Upwelling along the Swedish west coast during the 20th century, *Continental Shelf Research*, 23, 1143-1159, 2003.
20. Söderqvist J., and **G. Björk**, Ice thickness variability in the Arctic Ocean between 1954-2000, results from a coupled ocean-ice-atmosphere model, *Climate Dynamics*, 22, 57-68, 2004, DOI: 10.1007/s00382-003-0363-z. Published online 28 November, 2003.
21. Anderson L.G., S. Jutterström, S. Kaltin, E.P. Jones, **G. Björk**, Variability in river runoff distribution in the Eurasian Basin of the Arctic Ocean, *J. Geophys. Res.*, 109, C01016, doi:10.1029/2003JC001773, 2004.
22. Filipsson H.L., **G. Björk**, R. Harland, M.R. McQuoid, K. Nordberg, A major change in the phytoplankton composition in a Swedish sill fjord – consequence of engineering work? *Estuarine, Coastal and Shelf Science*, 63, 551-560, 2005.
23. Rudels, B., **G. Björk**, J. Nilsson, P. Winsor, I.lake, Christian Nohr, The interaction between waters from the Arctic Ocean and the Nordic Seas north of Fram Strait and along the East Greenland Current: some results from the Arctic Ocean-02 expedition, *Journal of Marine Systems*, Issues 1-2, 1-30, 2005.
24. **Björk G.** and P. Winsor, The Deep waters of the Eurasian Basin, Arctic Ocean: Geothermal heat flow, mixing and renewal, *Deep Sea Research I*, 53, 1253-1271, 2006.
25. **Björk G.**, M. Jakobsson, B. Rudels, J. H. Swift, L. Anderson, D. A. Darby, J. Backman, B. Coakley, P. Winsor, L. Polyak and M. Edwards, Bathymetry and deep-water exchange across the central Lomonosov Ridge at 88°-89°N, *Deep-Sea Research I*, 54, 1197–1208, 2007.
26. **Björk G.**, C. Nohr, B. G., Gustafsson and A. E. B. Lindberg, Ice dynamics in the Bothnian Bay as inferred from ADCP measurements. *Tellus*, 60A, 178-188, 2008, DOI: 10.1111/j.1600-0870.2007.00282.x.
27. Andersson P. S., D. Porcelli, M. Frank, **G. Björk**, R. Dahlqvist, and Ö. Gustafsson, Neodymium isotopes in seawater from the Barents Sea and Fram Strait Arctic–Atlantic gateways, *Geochimica et Cosmochimica Acta*, 72, 2854-2867, doi:10.1016/j.gca.2008.04.008, 2008.
28. Nilsson, J., **Björk, G.**, Rudels, B., Winsor, P., Torres, D., Liquid freshwater transport and Polar Surface Water characteristics in the East Greenland Current during the AO-02 Oden expedition, *Progress in Oceanography*, 2008, Volume 78, 45-57, doi: 10.1016/j.pocean.2007.06.002.
29. Porcelli D., P. S. Andersson, M. Baskaran, M. Frank, G. Björk, I. Semiletov, The distribution of neodymium isotopes in Arctic Ocean basins, *Geochim. Cosmochim. Acta*, 73, 2645-2659, doi:10.1016/j.gca.2008.11.046, 2009.
30. Nohr C., **G. Björk**, B. G. Gustafsson, A Dynamic Sea Ice Model Based on the Formation Direction of Leads, *Cold Regions Science and Technology*, 58, 36-46, 2009. doi:10.1016/j.coldregions.2009.04.005
31. Frank, M., D. Porcelli, P. Andersson, M. Baskaran, **G. Björk**, P.W. Kubik, B. Hattendorf and D. Guenther, The dissolved Beryllium isotope composition of the Arctic Ocean, *Geochimica et Cosmochimica Acta*, 73, 6114-6133, 2009. doi:10.1016/j.gca.2009.07.010
32. **Björk, G.**, L. Anderson, M. Jakobsson, D. Antony, P. B. Eriksson, B. Eriksson, B. Hell, S. Hjalmarsson, T. Janzen, S. Jutterström, J. Linders, L. Löwemark, C. Marcussen, K. A. Olsson, B. Rudels, E. Sellén, and M. Sölvsten. Flow of Canadian Basin Deep Water in the Western Eurasian Basin of the Arctic Ocean, *Deep Sea Res I*, 57, 577-586 . 2010, doi:10.1016/j.dsr.2010.01.006.
33. Wählin. A, C. Nohr, X. Yuan, **G. Björk**, Inflow of warm Circumpolar Deep Water in the Amundsen Shelf, *Journal Physical Oceanography*, 40, 1427-1434, 2010. Doi:10.1175/2010JPO4431.1
34. Anderson, L.G., T. Tanhua, **G. Björk**, S. Hjalmarsson, E. P. Jones, S. Jutterström, B. Rudels, J. H. Swift, I. Wählstöm, Arctic Ocean shelf – basin interaction, an active continental shelf

- CO<sub>2</sub> pump and its impact on the degree of calcium carbonate solubility *Deep-Sea Research I*, 57, 869-879, 2010. doi:10.1016/j.dsr.2010.03.012
35. Jakobsson, M., J. Nilsson, M. O'Regan, J. Backman, L. Löwemark, J. A. Dowdeswell, L. Mayer, L. Polyak, F. Colleoni, L. G. Anderson, **G. Björk**, D. Darby, B. Eriksson, D. Hanslik, B. Hell, C. Marcussen, E. Sellén, and Å. Wallin, An Arctic Ocean ice shelf during MIS 6 constrained by new geophysical and geological data, *Quaternary Science Reviews*, 3505-3517, 2010. doi:10.1016/j.quascirev.2010.03.015.
  36. Anderson L. G., **G. Björk**, S. Jutterström, I. Pipko, N. Shakhova, I. Semiletov, and I. Wählström. East Siberian Sea, an Arctic region of very high biogeochemical activity *Biogeosciences*, 8, 1745–1754, 2011 [www.biogeosciences.net/8/1745/2011](http://www.biogeosciences.net/8/1745/2011/) /doi:10.5194/bg-8-1745-2011.
  37. Stranne C., and **G. Björk**, On the Arctic Ocean ice thickness response to changes in the external forcing, *Climate Dynamics*, 23, 2011, doi: 10.1007/s00382-011-1275-y,
  38. Wåhlin, A., Muench, R., Arneborg, L., **Björk, G.**, Ha, H. K., Lee, S. H. and Alsén, H., 2012. Some implications of Ekman layer dynamics for cross-shelf exchange in the Amundsen Sea. *Journal of Physical Oceanography*, DOI: 10.1175/JPO-D-11-041.1
  39. Wählström I., A. Omstedt, **G. Björk**, and L. Anderson, Modeling the CO<sub>2</sub> dynamics in the Laptev Sea, *Arctic Ocean: Part I, Journal of Marine Systems*, 102-104, 29-38, 2012, doi: [10.1016/j.jmarsys.2012.05.001](https://doi.org/10.1016/j.jmarsys.2012.05.001).
  40. Arneborg, L., A. K. Wåhlin, **G. Björk**, B. Liljebladh & A. H. Orsi, Persistent inflow of warm water onto the central Amundsen shelf, 2012 *Nature Geoscience*, 2012, doi:10.1038/ngeo1644.
  41. **Björk, G.**, C. Stranne, and K. Borenäs, 2012: The sensitivity of the Arctic Ocean sea ice thickness and its dependence on the surface albedo parameterization. *J. Climate*. **26**, 1355–1370. doi:10.1175/JCLI-D-12-00085.1
  42. Anderson, L. G., P. S. Andersson, **G. Björk**, E. P. Jones, S. Jutterstrom, and I. Wahlstrom Source and formation of the upper halocline of the Arctic Ocean, *J. Geophys. Res.*, 118, 11, pages 410–421, 2013, doi:10.1029/2012JC008291
  43. Wählström, I., Omstedt, A., **Björk, G.**, and Anderson, L.G.: Sensitivity of the CO<sub>2</sub> system to changes in the forcing in the Laptev Sea, *Arctic Ocean: Part II. J. Mar. Syst.*, 111–112, 1–10, doi:10.1016/j.jmarsys.2012.09.001, 2013.
  44. Rudels, B., Schauer, U., **Björk, G.**, Korhonen, M., Pisarev, S., Rabe, B. and Wisotzki, A. (2013): Observations of water masses and circulation in the Eurasian Basin of the Arctic Ocean from the 1990s to the late 2000s, *OS Special Issue: Ice-Atmosphere-Ocean interactions in the Arctic Ocean during IPY: the Damocles project, COPERNICUS GESELLSCHAFT MBH*, 9 (1), pp. 147-169. doi: 10.5194/os-9-147-2013
  45. Börjesson, P., P. Jonsson, S. Pacariz, **G. Björk**, M. I. Taylor, H. Svedäng, Spawning of Kattegat cod (*Gadus morhua*)—Mapping spatial distribution by egg surveys, *Fisheries Research*, 147, 2013, 63–71. doi: 10.1016/j.fishres.2013.04.012
  46. Pacariz, S., **Björk, G.**, Jonsson, P., Börjesson, P., and Svedäng, H. A model study of the large-scale transport of fish eggs in the Kattegat in relation to egg density (2013). – *ICES Journal of Marine Science*, 71 (2): 345-355, doi:10.1093/icesjms/fst144.
  47. Pacariz, S., H. Westerberg, **Björk, G.**, Climate change and passive transport of European eel larvae (2014), *Ecology of Freshwater Fish* 23 (1) 86-94, DOI: 10.1111/eff.12048
  48. Wåhlin, A. K., O. Kalén, L. Arneborg, **G. Björk**, G. K. Carvajal, H. K. Ha, T. W. Kim, S. H. Lee, J. H. Lee, and C. Stranne (2013), Variability of warm deep water inflow in a submarine trough on the Amundsen Sea Shelf, *Journal of Physical Oceanography* 43 (10), 2054-2070, doi: 10.1175/JPO-D-12-0157.1.
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  50. Linders J., G Björk, The melt-freeze cycle of the Arctic Ocean ice cover and its dependence on ocean stratification (2013), *Journal of Geophysical Research: Oceans* 118 (11), 5963-5976. doi:10.1002/jgrc.20409.
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### **Popular articles**

Rydberg L., and G. Björk, Närsalttransporter i Skagerrak och Kattegatt (english translation: Nutrient transports in Skagerrak and Kattegatt), Havsmiljön temanummer: Syrebrist i havet, 2000.

### **Technical reports**

Björk G., Water exchange and stratification in the fjords between Orust and Tjörn and the mainland, Dept. of Oceanography Göteborg university, red series nr 5, 1983. (in Swedish)

Björk G., Water exchange and circulation in the area of Stigfjorden, 1983. (in Swedish)

Björk G., Current measurements in the Askeröfjord during the period 8/14/84 - 11/13/84 and computation of the depth of interleaving for the discharge from Berol Kemi AB.

Liungman, O., L. Rydberg and G. Björk, Data report on measurements of currents, sea levels and hydrography in the Orust Tjörn fjord system, Report, C5 , Earth Sciences Centre Göteborg University, ISSN 1400-383, 1996.

Gustafsson B., G. Björk, S. Evans, B. Hackett and O. Petersen, Validation experiments of Hydrodynamic models applied to the Skagerrak, TemaNord 2000:540, ISBN 92-893-0459-6, 2000.

Nordberg K, L. Bornmalm, I. Cato, L. Arneborg, G. Björk & A. Robijn Sannäsfjorden – en studie av hydrografisk, botten dynamisk och miljökemisk status, Department of Earth Sciences, University of Gothenburg, Rapport 2012 C95.

### **Invited lectures**

1994-09-03 Sensitivity of the Arctic Ocean ice sheet to ice deformation and thermodynamic forcing.

During the workshop: "Arctic Ocean Grand Challenge" sponsored by ESF in Helsinki, Finland.

2001-11-05 Ocean-Ice-Atmosphere interaction – climate sensitivity of the Arctic Ocean Ice cover. At the conference: Progress in Arctic Ocean Research over the past decades 5-7 November 2001, The Royal Swedish Academy of Sciences, Stockholm, Sweden.

2003-05-22 Sensitivity and variability of the Arctic Ocean Ice cover. Bjerknes days 22-33 May 2003, Bergen.

2006-02-21 Presentation during the RIFO seminar series: "Views on research and innovation" at the Swedish parliament. Title: "Arktiska oceanens roll i klimatsystemet"

2007-05-22 Ocean circulation and ice conditions in the Arctic Ocean, SMHI, Norrköping.

Public lecture at the open TELLUS seminar at Gothenburg University, november, 21 2008 "Förändringarna i istäcket och havstemperaturen i Arktis"

2009-09-24 Talk: Arctic Sea Ice in a changing climate, at the IGBP symposium "Planet under pressure" at the Royal Swedish Academy of Sciences, Stockholm.

### **Popular lectures**

Lecture for the IDUN union in Göteborg 25/2-2008. "Aktuell Arktisforskning: stora förändringar och stora mätprojekt"

Public lecture at the Vätterhem union in Jönköping, march 12, 2009, "International Siberian Shelf Study 2008, En forskningsresa i Vegas kölvatten.

Lecture at the "Kungliga Injengörsvetenskaps akademien" IVA Sthlm "Förändringar i istäcke och oceancirkulation i Arktis. 20111115.

Lecture about Tsunamis at the "family day" 2011-11-12 arranged by the Natural Science faculty, GU.

### **Conference convener**

Lead convener for the symposia "Arctic ocean" during the IUGG-IAPSO-IASPEI meeting in Gothenburg 12-26 July 2013.

Lead convener for the symposia "Arctic ocean circulation and sea ice" during the MOCA-09 meeting in Montreal 19-29 July 2009.

Co-Convener for the symposia "Future state of the Arctic and potential impacts" during the IUGG meeting in Melbourne Australia 28 June - 7 July 2011.



## Conference posters/talks with abstract since (1995)

- Björk G. and B. Gustafsson, "A one-dimensional model for the thermohaline circulation in the Nordic Seas", poster at the symposium: "Nordic Seas" in Hamburg, March, 7, 1995.
- Schauer, U., L.G. Anderson, G. Björk, E.P. Jones, R.D. Muench, M. Rhein, B. Rudels, and J. Swift, 1996: Summer 1996 Arctic cruise: Some preliminary results, *Eos*, vol., 77 (suppl), no 46 F410-F411.
- Muench, R.D., B. Rudels, U. Schauer, and G. Björk, Upper Arctic Ocean Waters: A double Diffusive regime, at the Oceanography Society Fifth Scientific Meeting "Ocean Interfaces" April 1.4, 1997, Seattle, WA.
- G. Björk, B. Gustafsson, and A. Stigebrandt, Sensitivity of the present day circulation in the Nordic Seas to changes in the external forcing, extended abstract in the summary report from the ACSYS meeting "Polar processes and global climate", Orcas Island Washington USA, 3-6 November 1997.
- P. Winsor and G. Björk, The deterministic behaviour of wind-driven coastal polynyas, extended abstract in the summary report from the ACSYS meeting "Polar processes and global climate", Orcas Island, Washington USA, 3-6 November 1997.
- Söderkvist, J., and G. Björk, The climate sensitivity of the Arctic Ocean ice cover; some results from a fully coupled atmosphere-ice-ocean model, (poster) European Geophysical society meeting in Nice, 1988.
- Dokken, S. T., P. Winsor, J. Askne, and G. Björk, Temporal variability of polynyas from combined ERS and SSM/I investigations, IGARSS'99, June, 28- July 2, Hamburg, 1999.
- Winsor P. and G. Björk, Polynya activity in the Arctic Ocean from 1958 to 1997, (talk) Ocean Sciences meeting in San Antonio Texas, January 2000.
- Woodgate R., K. Aagaard, R. D. Muench, J. Gunn, G. Björk, B. Rudels, A. Roach, and U. Schauer, Circulation and Transports in the vicinity of the south-eastern Lomonosov Ridge, Ocean Sciences meeting in San Antonio Texas, January 2000.
- Björk G., P. Winsor, J. Nilsson, B. Rudels, C. Nohr, I. Lake, Measurements from the Arctic Ocean 2002 expedition: The under ice freshwater layer of the East Greenland Current. (talk) Chapman Conference on High-Latitude Ocean Processes, L'Estérel, Quebec, Canada, Aug 25-29, 2002.
- P. Winsor, G. Björk, M. Steele and J. Söderkvist, Variability of the cold halocline layer of the Arctic Ocean. (talk) Chapman Conference on High-Latitude Ocean Processes, L'Estérel, Quebec, Canada, Aug 25-29, 2002.
- Nilsson J., G. Björk, I. Lake, C. Nohr, B. Rudels, P. Winsor, (poster) Late winter conditions and freshwater transport in the East Greenland Current: highlights from an icebreaker based survey, EGS-AGU-EUG Joint Assembly, Nice France, 06-11 April 2003.
- Söderkvist J., and G. Björk, Ice thickness variations in the Arctic Ocean during 1954-1990, using a coupled column model, (poster) EGS-AGU-EUG Joint Assembly, Nice France, 06-11 April 2003.
- Björk G. and J. Söderkvist, The Arctic Ocean thickness distribution and how it depends on the poleward heat flux in the atmosphere, (talk) EGS-AGU-EUG Joint Assembly, Nice France, 06-11 April 2003.
- Björk G. Winsor P., The deep waters of the Arctic Ocean: Recent observations and variability, talk at AGU Fall meeting San Francisco Dec. 15, 2004.
- Björk G, L. Anderson, P. Eriksson, S. Hjalmarsson, S. Jutterström, J. Nilsson, and A. Olsson, The passage of Canadian Basin Deep Water over the Lomonosov Ridge and through the Eurasian Basin of the Arctic Ocean: Results from the LOMROG-2007 ice breaker expedition, poster at AGU Fall meeting San Francisco Dec. 15, 2007.
- J. Linders and G. Björk, Impact of ocean stratification on the Arctic Ocean ice cover - investigated by using a coupled 1-D numerical model, European Geosciences Union (EGU) General Assembly Vienna 19-24 April 2009.
- Björk G., C. Stranne and K. Borenäs, On the response of the Arctic Ocean ice thickness to external forcing perturbations, oral presentation European Geosciences, Union (EGU) General Assembly Vienna 8 April 2011.
- Björk G., C. Stranne and K. Borenäs, Has the Arctic Ocean sea ice thickness a natural threshold around 2 meters? IAHS-IAPSO-IASPEI-Joint-assembly, Gothenburg. July 2013.

## **Media presentations**

- 2010-02-25 Interview in SR-P4 regarding plastic garbage in the ocean.
- 2011-04-15 Interview in SVT-Rapport regarding Antarctic research
- 2012-09-02 Interview SR regarding Arctic Sea ice minimum
- 2012-09-06 Interview SR vetenskapsradion regarding Arctic Sea ice minimum