

Curriculum vita Nils Gunnar Kvamstø

Geophysical Institute, University of Bergen • PO. Box 7803, N-5020 Bergen, Norway
Phone: +4755582898 • Fax: +4755589883 • E-Mail: Nils.Kvamsto@gfi.uib.no

Education

- Dr.Scient. - **Dynamic meteorology**. Thesis title: "Some aspects of cloud formation and related processes in numerical weather forecast models". Supervised by profs Hilding Sundqvist, Elmer Raustein and Sigbjørn Grønås, University of Bergen December 1992
- Cand.Scient. - **Dynamic meteorology**. Thesis title: "An investigation of diagnostic relations between fractional stratiform cloud cover and other meteorological parameters in numerical weather prediction models". Supervised by Professor Hilding Sundqvist, University of Bergen December 1989
- Cand.Mag. - Applied mathematics, University of Bergen December 1987
- Examen Artium. Arna Gymnas, Naturfaglinja June 1983

Professional experience

- Head of department Geophysical Institute, University of Bergen 01.08.2011
- Deputy head of department Geophysical Institute, University of Bergen 2004 - 2011
- Professor in Meteorology, Geophysical Institute, University of Bergen September 2006
- Adjunct professor, Bjerknes Centre, Uni Research, Bergen 2002 - 2011
- Associate professor in Meteorology, Geophysical Institute, University of Bergen June 1999
- Research scientist, Geophysical Institute, University of Bergen October 1993
- Research consultant, European Centre for Medium range Weather Forecasts (ECMWF) January 1993
- PhD-Student, Geophysical Institute, University of Bergen January 1990

Research interests

- Parametrization of clouds in numerical weather prediction models
- High latitude atmospheric processes and climate
- Numerical climate modelling and climate analysis
- Large-scale atmosphere ocean ice interaction
- Storm tracks and large scale atmospheric variability

Professional Development

- Research Management Course, CBS Executive, Copenhagen. 18.06.20014 – 28.11.2014
Modules: 1) Leadership in the research environment. 2) Leadership through culture and conflict management. 3) Leadership through development and common goals
- Course in University Pedagogics at University of Bergen 2002/2003

Other experience, reviewer and assessment duties

- 18 media contributions. Interviews in newspapers and radio/TV
- 80 oral and poster contributions on scientific conferences
- Reviewer for: Tellus, Climate Research, Journal of Climate, Climate Dynamics
- Assessor for grant applications for Netherlands organizations for Scientific Research and National Science Foundation, USA
- Member of several MSc and PhD assessment committees at Dept. of Geosciences, Univ. Oslo
- Member of Scientific Advisory Board at Nansen Environmental and Remote Sensing Center
- Head of climate modelling and climate analysis group at Geophysical Institute (1999 - 2011)
- Leader of the education board, Geophysical Institute (Programstyret). (2003 – 2009)
- Education programme evaluator (Programsensor), dept. of Geosciences, UiO (2008 - 2011).

Additional qualifications, memberships

- Honorary professor, University of Exeter, UK
- Board member of “SAK Arven etter Nansen” – National research plan for the Barents Sea.
- Secretary of the Bergen Geophysical Society (1992 - 1995), and Geophysical Society of Norway (1996 - 1998)
- Member of the Strategic Committee to develop an overall strategy for marine research at UiB. The work is summarized in the report: “Forslag til strategi for marin forskning og utdanning 2015 – 2020”
- Leader of the Strategic Committee to develop a marine strategy for the Faculty of Natural Sciences (UiB). Report: “Marin strategi for det matematisk-naturvitenskapelige fakultet. Innstilling fra et utvalg 20.08.13.”

- Board member of Nansen-Zhu Centre Beijing and Nansen-Tutu Centre in Cape Town
- Member of national advisor group for Norwegian membership in IIASA (10.05.2014 - 30.06.2017).

Teaching experience

- GFF001 – Introduction to meteorology and oceanography 1998-2011
- GEOF212 – Physical climatology 1998-2011
- GEOF310 – Turbulence in the atmospheric and oceanic mixed/boundary layer 1998-2011
- GEOF110 – Introduction to dynamics in meteorology and oceanography 1998-2011
- GEOF320 – Atmospheric dynamics 1998-2011
- GEOF323 – Local and micro meteorology 1998-2011
- GEOF325 – The atmospheric general circulation 1998-2011

Former MSc candidates

- Lea Svendsen - Atmospheric response to a weakening Atlantic meridional overturning 2010-2012
- Atalel Getu – Estimation of global evapotranspiration 2010-2012
- Andreas Losnegård - Atmospheric response to different SST patterns in the North Atlantic 2009-2011
- Solbjørg Apeland - The response of atmospheric water vapour to doubled CO₂: A model study 2008-2010
- Kristen Ravnstad - Atmospheric response to removal of Southern Hemisphere sea-ice – A model study 2008-2010
- Martin Flügge - Simulated atmospheric response to decreased Antarctic sea-ice extent 2007-2009
- Stig-Arild Fagerli - Extratropical summer storms – variability and relation to sea-surface temperatures 2006-2008
- Michel Dos Santos Mesquita - Tracking Summer Extra-Tropical Storms: A Climatological Overview and Variability in the Northern Hemisphere 2004-2006
- Kristin Breivik - Klimaeffektar av redusert Arktisk sommarisdekke – Ein modellstudie 2002-2006
- Tarjei Breiteig - Vekselvirkninger mellom stratosfæresirkulasjonen og stormbanene i troposfæren 2003-2005

- Frode Korneliussen - Om effekten av sub-gridskala topografi på den generelle sirkulasjonen i en AGCM 2002-2004
- Camilla Albertsen - Simulert sensitivitet til endret årssyklus i det arktiske havisdekket 2001-2005
- Trond Boge - Simulert sensitivitet til endret årssyklus i det arktiske havisdekket 2001-2003
- Ivar Ambjørn Seierstad - Weather Regimes in the Euro-Atlantic - Do they exist? 2000-2002
- Øyvind Byrkjedal - Stormbaner ved ulikt isdekke i Labradorhavet 2000-2002
- Rawshan Ara Muna - Validation of High-resolution Climate Simulation over Northern Europe 1999-2001
- Vibeke Wauters Thyness - Synoptisk aktivitet knyttet til Barents-Oscillasjonen 1999-2001
- Håkon Mjeldstad - Simulated synoptic and intraseasonal variability and its sensitivity to Arctic sea ice cover variations 1998-2000

Former of PhD candidates

- Svetlana Sorokina - Certain Aspects of High-Latitude Climate Variability May 2014
- Tarjei Breiteig - The influence of the ocean and the stratosphere on climate persistence in the North Atlantic region September 2009
- Dag Johan Steinskog - Application of extreme value theory in temperature records in Extra-tropical and Arctic regions December 2008
- Ivar Ambjørn Seierstad - On the relation between large scale flow patterns, storminess and a reduced Arctic sea-ice cover October 2008
- Yongjia Song - Modelling of atmospheric circulation at mid- and high latitudes of the northern hemisphere – evaluation studies using ARPEGE April 2007
- Erik W. Kolstad - Extreme Winds in the Nordic Seas: Polar Lows and Arctic fronts in a changing climate March 2007
- Øyvind Byrkjedal - Aspects on interactions between mid- to high latitude atmospheric circulation and some surface processes June 2006

Scientific publications

- Sorokina, S.A., Li, C., Wettstein, J.J., Kvamstø, N.G. (2015), Observed atmospheric coupling between Barents Sea and the Warm-Arctic Cold-Siberia anomaly pattern, submitted to *J. Clim.*
- Chen, Lei; Tan, Benkui; Kvamstø, Nils G; Johannessen Ola M. (2013), Wintertime cyclone/anticyclone activity over China and its relation to upper tropospheric jets. *Tellus, Series A, Dynamic Meteorology and Oceanography* 66: 21889
- Chen, L., B.K. Tan, N.G. Kvamstø, and O.M. Johannessen (2013), Wintertime Cyclone Activity and Its Relation to Precipitation over China, *Atmospheric and Oceanic Science Letters*, 2013, Vol. 6, No. 5, 387 – 393
- Svendsen, L., N.G. Kvamstø, N. Keenlyside (2013), Weakening AMOC connects Equatorial Atlantic and Pacific interannual variability, *Clim Dyn* DOI 10.1007/s00382-013-1904-8
- Bader, J., Flügge, M., Kvamstø, N.G., Mesquita, M.D.S. and Voigt, A. (2012), Atmospheric winter response to a projected future Antarctic sea-ice reduction: a dynamical analysis, *Clim Dyn*, DOI 10.1007/s00382-012-1507-9
- Kvamstø N.G., Steinskog D.J., Stephenson D.B. and D.B. Tjøstheim, (2011), Trends and extremes in the length of the Arctic melt season, *Int. J. Climatol.*, DOI: 10.1002/joc.3395
- Orsolini, Y. J., Kindem, I.T and N.G. Kvamsto, (2010), On the potential impact of the stratosphere upon seasonal dynamical hindcasts of the North Atlantic Oscillation: a pilot study, *Clim. Dyn.*, doi: 10.1007/s00382-009-0705-6, 2009
- Orsolini, Y. J., and N. G. Kvamsto (2009), Role of Eurasian snow cover in wintertime circulation: Decadal simulations forced with satellite observations, *J. Geophys. Res.*, 114, D19108, doi:10.1029/2009JD012253
- Otterå, O. H., Bentsen, M., Bethke, I., and Kvamstø, N. G (2009), Simulated pre-industrial climate in Bergen Climate Model (version 2): model description and large-scale circulation features, *Geosci. Model Dev. Discuss.*, 2, 507-549
- Orsolini, Y.J., N. G. Kvamstoe, I. T. Kindem, M. Honda and H. Nakamura (2008), Influence of the Aleutian-Icelandic low seesaw and ENSO onto the stratosphere in ensemble winter hindcasts. *J. Met. Soc.*
- Mesquita, M.D.S., N.G. Kvamstø, A. Sorteberg and D. Atkinson (2008), Climatological Properties of Summertime Extra-Tropical Storm Tracks in the Northern Hemisphere. *Tellus*, 60A, DOI:10.1111/j.1600-0870.2008.00305.x

- Kvamstø, N.G., Y. Song, I. Seierstad, A. Sorteberg, D.B. Stephenson (2008), Clustering of cyclones in the ARPEGE general circulation model. *Tellus A* 60, DOI: 10.1111/j.1600-0870.2008.00307.x
- Byrkjedal Ø., I. Esau and N. G. Kvamstø (2007), Sensitivity of simulated wintertime Arctic atmosphere to vertical resolution in the ARPEGE/IFS model. *Clim. Dyn.*, 30(1-2), 687-701, DOI 10.1007/s00382-007-0316-z
- I. A. Seierstad, D. B. Stephenson, N. G. Kvamstø (2007), How useful are teleconnection patterns for explaining variability in extratropical storminess? *Tellus A* 59 (2), 170–181. doi:10.1111/j.1600-0870.2007.00226.x
- Sandvik, A., M. Biryulina, N. G. Kvamstø, J. J. Stamnes, and K. Stamnes (2007), Observed and simulated microphysical composition of arctic clouds: Data properties and model validation, *J Geophys. Res.*, 112, D05205, doi:10.1029/2006JD007351
- Steinskog, D. J., D. Tjøstheim and N. G. Kvamstø (2007), A cautionary note on the use of the Kolmogoroff – Smirnov test. *Mon. Wea. Rev.* 135, 1151 – 1157
- Sorteberg A. and N. G. Kvamstø (2006). The effect of internal variability on anthropogenic climate projections, accepted for publication in *Tellus A*
- Byrkjedal Ø., N. G. Kvamstø, M. Meland and E. Jansen (2006), Simulated climate response in last glacial maximum to changed sea-ice conditions in the Nordic Seas, *Clim. Dyn* , 26, 473-487, doi: 10.1007/s00382-005-0096-2
- Sorteberg A., T. Furevik, H. Drange, and N. G. Kvamstø (2005), Effects of simulated natural variability on Arctic temperature projections. *Geoph. Res. Lett.*, 32, L18708, doi: 10.1029/2005GL023404
- Otterå, O. H., H. Drange, M. Bentsen, N. G. Kvamstø and D. Jiang (2004), Transient response of enhanced freshwater input to the Nordic Seas - Arctic Ocean in the Bergen Climate Model. *Tellus* 56A, 342-361
- Kvamstø, N.G., P. Skeie, D.B. Stephenson, (2004), Large-scale impact of localized Labrador sea-ice changes on the North Atlantic Oscillation. *Int. J. Climatol.* 24, 603-612
- Otterå, O. H., H. Drange, M. Bentsen, N. G. Kvamstø and D. Jiang (2003), The sensitivity of the present day Atlantic meridional overturning circulation to anomalous freshwater input, *Geophys. Res. Lett.*,30(17), 1898 – 1902
- Furevik, T., Bentsen, M., Drange, H., Kindem, I.K.T., Kvamstø, N.G., and Sorteberg, A. (2003), Description and Validation of the Bergen Climate Model: ARPEGE coupled with MICOM, *Clim. Dyn.*, 21, 27-51
- Vikebø, F. T. Furevik, G. Furnes, N.G. Kvamstø, M. Reistad, (2003), Wave Height Variations in the North Sea and the Norwegian Continental Shelf, 1881 - 1999, *Cont. Shelf. Res.*, 23 251-263

- Grønås S. and N.G. Kvamstø (1995), Numerical simulation of synoptic condition and development of Arctic Outbreak Polar Lows. *Tellus*, 47A, 797-814
- Grønås, S., N.G. Kvamstø & E. Raustein (1994), Numerical simulations of the Northern German Storm of 27-28 August 1989. *Tellus*, 46A, 635-650
- Kvamstø, N.G. (1993), An Investigation of the Cumulus Cloudiness Parameterization in Northerly flows in the Norwegian Sea. *Mon. Wea. Rev.* 121. 1434-1449
- Kvamstø, N.G. (1990), An investigation of diagnostic relations between stratiform fractional cloud cover and other meteorological parameters in numerical weather prediction models. *J. Appl. Meteor.* 30. 200-216

Chapters in books

- Iversen, Trond; Benestad, Rasmus; Kvamstø, Nils G., Extremes of precipitation. I: *Extreme weather events in Europe: Preparing for climate change adaptation*. PO Box 43 Blindern, Oslo, Norway: Norwegian Meteorological Institute 2013 ISBN 978-82-7144-100-5. s. 36-46, UiB UiO
- Sorteberg, A., N. G. Kvamstø and Ø. Byrkjedal (2004). Wintertime Nordic Seas Cyclone Variability and its impact on Oceanic Volume Transports into the Nordic Seas. *Climate of the Nordic Seas*, AGU Monograph

Project- and technical reports

- Sorteberg, A. N.G. Kvamstø (2005). The effect of internal variability on anthropogenic climate projections. In: *RegClim General Technical Report No.8*, Norwegian Meteorological Institute, P.O. Box 43, Oslo, Norway
- Kvamstø, N.G. (2001). Karaktersetting av eksamensbesvarelser i Geofysikk. UPED-skrift nr. 1/2001. Universitetspedagogisk utviklingsarbeid i Bergen. Program for Læringsforskning. Universitetet i Bergen. Red. I. Nordmo, pp 61-66.
- Furevik, T., M. Bentsen, H. Drange, N. G. Kvamstø, I. K. Thorstensen-Kindem, (2000). Technical Coupling of ARPEGE/MICOM, In: *RegClim General Technical Report No.5*, pp. 45-58, Norwegian Institute for Air Research, Kjeller, Norway
- Furevik, T., N. G. Kvamstø, M. Bentsen, H. Drange, I. K. Thorstensen Kindem, (2000). Preliminary results from a coupled atmosphere-ocean-sea ice model, *RegClim General Technical Report No.4*, pp. 121-134, Norwegian Institute for Air Research, Kjeller, Norway
- Skeie, P. and Kvamstø, N. G., (2000). Atmospheric response to variations in the Labrador Sea ice-cover as indicated by ensemble simulations with ARPEGE, *RegClim General Technical Report No.4*, pp. 135-138, Norwegian Institute for Air Research, Kjeller, Norway

- Kvamstø, N. G., T. Furevik, M. Bentsen, H. Drange, I. K. Thorstensen-Kindem, P. Skeie, (2000). Atmosphere–Ocean Modelling in Principle Task 4, In: RegClim General Technical Report No.5, pp. 41-44, Norwegian Institute for Air Research, Kjeller, Norway
- Kvamstø, N.G. 1999. Simulated northern hemisphere climate response to perturbed ice and SST conditions in the Arctic. RegClim, Gen. Tech. Rep. No. 2., NILU, P.O. Box 100, N-2007 Kjeller
- Kvamstø, N.G. 1998. Simulation of Nordic climate with a global variable resolution model. Meteorological Rept. Series, University of Bergen 9-1998. Dept. of Geophysics, Univ. of Bergen, Allegaten 70, N-5007 Bergen
- Kvamstø, N.G. and Dandin, P., 1998. Tests with a new radiation and cloud scheme in the ARPEGE climate model. Meteorological Rept. Series, University of Bergen 8-1998. Dept. of Geophysics, Univ. of Bergen, Allegaten 70, N-5007 Bergen
- Kvamstø, N.G. 1995. Cloud parameterization in numerical weather prediction models. International workshop on limited-area and variable resolution models, Beijing, China, 23-27 Oct. 1995. PWPR Rep. series, 7. pp 73-78. World Meteorological Organization, Geneva
- Kvamstø, N.G. 1994. Introduction of a prognostic cloud scheme in the ARPEGE/IFS cycle 11 model. Meteorological Rept. Series, University of Bergen 2-1994. Dept. of Geophysics, Univ. of Bergen, Allegaten 70, N-5007 Bergen
- Kvamstø, N.G. 1993. Synoptic cloudiness validation in the ECMWF model. Tech. Memo. 193, Res. Dep., ECMWF, Reading, England. 30 pp
- Kvamstø, N.G. 1992. Implementation of the "Sundqvist scheme" in the Norwegian Limited Area Model. Meteorological Rept. Series, University of Bergen 2-1992. Dept. of Geophysics, Univ. of Bergen, Allegaten 70, N-5007 Bergen

Popular chronicles

- Kvamstø, N.G. 14.02.14: Klimaargumentet. På Høyden (pahoyden.no) [Internett]
- Kvamstø, N.G. 14.03.12: Verdiskjend vitskapsmann. På Høyden (pahoyden.no) [Internett]
- Grønås, S. & N.G. Kvamstø 05.01.11 Kronikk Klassekampen. Kuldeparadokset
- Wettstein, J. & N.G. Kvamstø (2010) Klima 5-2010. Hvilke prosesser styrer klimavariasjonene?
- Grønås, S. & N.G. Kvamstø 25.10.10. Innlegg i Stavanger Aftenblad. Værvarsling og klimaendring
- Grønås, S. & N.G. Kvamstø 15.09.10 Kronikk BT. Ekstremvær og global oppvarming
- Grønås, S. & N.G. Kvamstø 19.10.10. Innlegg i BT. Underlige uttalelser om været

- Sorteberg, A. & N.G. Kvamstø (2008). Hvor mye vil nedbøren øke i et varmere klima? Klima 4/2008, 36-37
- Grønås, S. & N.G. Kvamstø 23.09.02 Kronikk i BT om klimaendringer og ekstremvær
- Sorteberg, A., Bentsen, M., Drange H., Furevik, T., Kindem, I.T. & N.G. Kvamstø (2002). Lovende resultater for nyutviklet klimamodell. Cicerone 2/02, 16-19
- Grønås, S. & N.G. Kvamstø (2002). Skyldes vårt milde vinterklima "Golfstrømmen"? Cicerone 2/02, 29-31. Sorteberg, A., M. Bentsen, H. Drange, T. Furevik and N. G. Kvamstø (2002): Økt CO₂ gir forandring i sirkulasjonsmønsteret, Cicerone, 3-2002, 30-31
- Kvamstø, N.G. og Furevik, T. En koblet klimamodell. Cicerone 2/00
- Grønås, S., O. Krogsæter, N.G. Kvamstø, P. Skeie & S. Østerhus 1999. Prosesser ved iskanten i Arktis og klimaendringer. Cicerone 4/99
- Kvamstø, N.G., Skartveit, A. 1999. En innføring i skyer og klima. Cicerone 5/99

Invited talks

- "The Barents Sea – A hotspot for Eurasian teleconnection patterns?" 22.04.2014
University of Exeter, UK
- "Weakening AMOC connects Equatorial Atlantic and Pacific interannual variability" Imperial College London 20.11.2012
- "Stormbaner og ekstremvær" Pensjonisstreff, Bymuseet, Bergen 05.11.2012
- "Hvordan dagens klimamodeller er bygget opp", Fysikermøtet 2009, 12.08.2009
Røros. Norsk Fysisk Forening
- "Greenhouse gases and climate change", Jubileumsseminar ved 18.02.2009
Fjordkraft a/s
- Two lectures at Bergen Summer School (UiB) 06.06.2009
- Three lectures at Arctic Summer School (UNIS) 25.06 – 01.07.2008
- "Greenhouse gases and climate change", Senioruniversitetet i 31.03.2009
Loddefjord
- "Statistical connections between extratropical storminess variability and Teleconnection patterns", AGU 2007 Fall Meeting, San Francisco 13.12.2007
- "Arctic climate change - observations and simulations" Department of Meteorology, University of Reading 17.11.2005
- "Simulated response to prescribed changes in Arctic sea-ice cover" 01.05.2003
Alaska University, Fairbanks.
- "Cloud parametrizations in Numerical Weather Prediction models", 04.1995
European Geophysical Society assembly 1995 Hamburg

Research grants and contracts

- ECLISE, EU-FP7, Role: partner, research scientist 2009 - 2011
- EARTHCLIM, NFR, Role: partner, research scientist 2011 - 2013
- NORCLIM, NFR, Role: partner, research scientist 2007 - 2010
- COMPAS, NFR, Role: Project leader 2007 - 2010
- ENSEMBLES, EU – FP6, Role: sub contractor, PhD supervisor 2007 - 2010
- CIRAD, NFR, Role: partner, research scientist 2003 - 2006
- MACESIZ, NFR, Role: partner, research scientist 2003 - 2006
- NAO, NFR, Role: partner, research scientist 2002 - 2005
- BCCR (Bjerknes Centre), NFR CoE, Role: PI 2007 - 2010
- Locus in Climate Modelling, UiB, Role: Project leader 2007 - 2010
- RegClim, NFR, Role: PI 1997 - 2006
- NOCLIM, Nordic Council of Ministers, Role: PI 1993 - 1997