
***Curriculum Vitae*, Alastair D. Jenkins**

EDUCATION:

1977: Ph.D., University of Aberdeen, Scotland. Dissertation: “Noctilucent clouds: structure and dynamics”.

1975: M.Sc., University of Aberdeen. Dissertation: “A critical survey of the aeronomical effects, up to 120 km altitude, of the temperature structure of the atmosphere.”

1974: B.A. (First Class Honours), University of Cambridge, in Natural Sciences (Physics—theoretical option).

PROFESSIONAL EXPERIENCE:

2002–: **Senior Scientist** at UniResearch and the Geophysical Institute, University of Bergen.

From summer 2009, conducting studies on the interface between the atmospheric boundary layer, wind waves, and fine-scale hydrodynamics within the Norwegian Centre for Offshore Wind Energy (NORCOWE), contributing to NORCOWE work packages 1 (wind and ocean conditions), 4 (wind farm optimisation), and 5 (common themes). Specific topics of study include integration of numerical wave and atmospheric boundary models, and evaluating the performance of boundary-layer observations from moving measurement platforms.

Scientific coordinator and research scientist in the strategic project on atmosphere–ocean interaction at the Geophysical Institute (2006–2010), funded by the Research Council of Norway (NFR). Work involves coupled theoretical and modelling studies of the atmospheric boundary layer coupled to near-surface hydrodynamics and the surface wave field, applying a modified version of the GOTM general ocean turbulence model, developed at the Baltic Sea Research Institute Warnemünde, and supervision of a doctoral student on a project which studies the heat flux and energy balance in the Nordic seas, the Barents Sea in particular. Also conducting studies of the interaction of the marine and atmospheric boundary layer and air-sea interface within the NFR projects ArcChange and BIAC.

In April 2010, organized and chaired a three-day scientific workshop in Bergen on atmosphere–ocean interaction, with approximately 30 participants from the USA, European Union, Russia, and Norway.

Completed work within the project ProClim (Polar Ocean Climate Processes), funded by the NFR (project leader Professor P. M. Haugan, project period 2003-2008). Running coupled models of the atmosphere (mesoscale, MM5 and WRF), and ocean—sea ice system (ROMS model), in collaboration with the Institute of Marine Research (Dr. Paul Budgell), to estimate brine rejection and bottom-water formation in the Arctic.

Collaboration with the French Naval Hydrographic Service on developing coupled models for the interaction of the atmosphere, ocean, and surface waves, under at French–Norwegian AURORA cooperation project, funded by the Research Council of Norway and the French Ministry of Foreign Affairs. His published work on air-sea interaction from the late 1980s and early 1990s has met with revived interest. Has also been instrumental in developing collaboration between the Bjerknes Centre, the Antarctic research group at the University of Bergen Geophysical Institute, and LSCE–CEA/CNRS, Gif-sur-Yvette, France, on simple climate models and processes in the Antarctic.

Host for visiting fellow Dr. Kirill L. Yegorov of the Russian State Hydrometeorological Institute under the Fellowship Programme 2004/2005 for cooperation between Norway and Northwestern Russia, October–November 2005. Project: Modelling and parameterization of the processes in the horizontally homogeneous boundary layers of the atmosphere and the ocean near the air–sea interface.

Host for the following Bjerknes Visiting Scientists: Dr. John A. T. Bye, University of Melbourne; Professor Hans Burchard, and Dr. Joachim Dippner, Baltic Sea Research Institute, University of Rostock; Dr. Didier Paillard, LSCE–CEA/CNRS, Gif-sur-Yvette, France.

Acting Scientific Co-ordinator for the Norwegian Ocean Climate Project (NOClim), 2002 September–December.

1999–2002: Senior Scientist at the Norwegian Meteorological Institute, Bergen, Norway

Statistical analysis of extreme waves, wave duration statistics, analysis of extreme wave crests, and evaluation of a model for nonlinear wave–wave interaction, within the E.U. project MAXWAVE.

Comparison of measurements and model results for water level in Norwegian waters.

Organisation of Unix computer systems within the Meteorological Institute Bergen office, and within the E.U. HF radar project EuroROSE.

Modelling of the near-surface ocean temperature profile and heat flux within the NFR project at NERSC, 'Studies of surface processes which influence climate' (see below).

1994–1999: Senior Scientist at Nansen Environmental and Remote Sensing Center, Bergen.

Project co-ordinator for the European Commission project COASTMON, integrating satellite observations of coastal areas with geographical information systems 1997–1999.

Principal investigator of the NFR project 'Studies of surface processes which influence climate', 1999–2002.

Principal Investigator at the Nansen Centre for the following E.U. Fourth Framework projects, 1996–1998:

- MAST-III: Pre-Operational Modelling in the Seas of Europe;
- Environment and Climate: Concerted Action for the Study of the Ocean Thermal Skin.

Co-investigator for ESA AO project 'Quantitative studies of mesoscale upper ocean and atmospheric boundary layer processes with the integrated use of ERS-1/2 SAR and other satellite sensors'.

Principal Investigator for the NFR project 'SAR Analysis and Modelling for Ocean Monitoring'.

1987–1993: Senior Research Scientist at IBM Bergen Scientific Centre (BSC).

Development of analytical and numerical models for near-surface ocean currents, wind-wave generation and air–sea momentum flux, and wave breaking.

1982–1987: Research Scientist at the Department of Oceanography at the Continental Shelf Institute (I.K.U.), Trondheim, Norway.

Analysis of ocean current data. Development of models for near-surface ocean currents, which are now (2003) receiving revived attention (see **2002-**: above). Investigation of sea-floor 'pock-marks'. Investigation of short-period oscillations in ocean currents. Analysis of wave duration statistics.

1979–82:

Research Associate at Department of Offshore Engineering, Heriot–Watt University, Edinburgh, Scotland.

Investigation of numerical models (finite element) for tidal circulation and tidally induced Lagrangian residual flow.

1978–79:

Support Meteorologist with Imcos Marine Ltd., Aberdeen. Preparation of weather and sea-state forecasts for offshore oil operations.

MEMBERSHIP OF INTERNATIONAL COMMITTEES

Member of COST/European Science Foundation Working Group 735 on air–sea gas flux, 2007 to date.

STIPENDS:

Lecture course on marine physics at the Research Institute of Aquaculture No. 3, Nha Trang, Vietnam.

2004 June and 2008 Oct: Visiting Scientist at the Baltic Sea Research Institute, Warnemünde.

1999 Nov: Visiting Scientist at the Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod.

1989 Sept–Nov: Visiting Scientist at the Ocean Technology Group, The University of Sydney, Australia.

GUEST LECTURES

Lecture course on marine physics at the Research Institute of Aquaculture No. 3, Nha Trang, Vietnam, July 2005.

Has held guest lectures at the University of Bergen (Geophysical Institute, Mathematical Institute), LSCE CEA/CNRS (Gif-sur-Yvette), IFREMER (Brest), the University of Tokyo, the Memorial University of Newfoundland, the University of Miami, the U.S. Institute of Naval Oceanography, the University of Hamburg, the Baltic Sea Research Institute, Warnemünde, the Russian State Hydrometeorological Institute, and the Proudman Oceanographic Laboratory.

MEMBERSHIP OF PROFESSIONAL SOCIETIES:

Member of the following societies: Norwegian Geophysical Society, Bergen Geophysical Society, Norwegian Physical Society, American Geophysical Union, International Society of Offshore and Polar Engineers (ISOPE), Royal Economic Society, and the International Society of Ecological Economics.

REVIEW OF GRANT PROPOSALS AND MANUSCRIPTS FOR SCIENTIFIC JOURNALS:

Reviewed grant proposals for the Deutsche Forschungsgemeinschaft, the National Science Foundation, the UK Natural Environment Research Council, the Israel Science Foundation, and the Canadian Foundation for Climate and Atmospheric Sciences.

Has reviewed manuscripts for the following publications: *Journal of Physical Oceanography*, *Journal of Fluid Mechanics*, *Deep-Sea Research*, *Entropy*, *Continental Shelf Research*, *Journal of Marine Systems*, *Journal of Geophysical Research—Oceans*, *IEEE Journal of Oceanic Engineering*, *Ocean Modelling*, *Radio Science*, *The Global Atmosphere and Ocean System*, *Annales Geophysicae*, *International Journal of Offshore and Polar Engineering*, *Lebanese Science Journal*, *Environmental Fluid Mechanics*, *ISOPE conference proceedings*, and *Proceedings of the Rogue Waves Symposium 2000*.

SUPERVISION OF DOCTORAL STUDENTS

Currently supervising four doctoral students, in the following topics: (i) atmosphere–ocean interaction in the Nordic Seas; (ii) numerical atmosphere modelling and model coupling; (iii) extreme wave statistics; (iv) turbulence modelling.

TEACHING, SEMINARS, ETC.

Seminar series on atmosphere–ocean interaction at the Geophysical Institute, University of Bergen, 2006 to date.

Lecture course on marine physics at the Research Institute of Aquaculture No. 3, Nha Trang, Vietnam, July 2005.

Organizer of informal seminar series on turbulence at the Geophysical Institute, University of Bergen, since 2002.

External Examiner for dr.scient. defence at the University of Oslo (Geophysical Institute, Mathematical Institute), and the University of Bergen.

External Examiner for undergraduate, master’s and diploma courses at the Norwegian Technical University (Institute of Mathematics and Statistics) and the University of Bergen (Geophysical Institute), and the University of Sydney (Ocean Technology).

Lecture courses in radar remote sensing (Geophysical Institute, University of Bergen, 1994–1998), and in meteorology at Heriot-Watt University (1980–1982).

Laboratory classes in physics at the University of Aberdeen, 1974–1977.

SELECTED PUBLICATIONS

Peer-reviewed publications

- [1] Fabrice Ardhuin, Alastair D. Jenkins, and Konstadinos A. Belibassakis. Commentary on ‘The Three-Dimensional Current and Surface Wave Equations’ by George Mellor. *Journal of Physical Oceanography*, 38:1340-1350, 2008
- [2] Alastair D. Jenkins. The interaction of ocean surface processes, waves, and turbulence in the adjacent boundary layers. In: *Transport at the Air–Sea Interface*. Springer Verlag, 2007, pp. 145-158.
- [3] Alastair D. Jenkins. Interaction of waves, surface currents, and turbulence: the application of surface-following coordinate systems. *Journal of Ocean University of China*, 6:319-331, 2007.
- [4] C. Tang, W. Perrie, A. D. Jenkins, B. M. DeTracey, Y. Hu, B. Toulany, and P. C. Smith. Observation and modelling of surface currents on the Grand Banks — A study of the wave effects on surface currents. *Journal of Geophysical Research—Oceans*, doi:10.1029/2006JC004028, 2007.
- [5] Alastair D. Jenkins and John A. T. Bye. Some aspects of the work of V. W. Ekman. *Polar Record*, 42:15–22, 2006.

- [6] J. A. T. Bye and A. D. Jenkins. Drag coefficient reduction at very high wind speeds. *Journal of Geophysical Research*, 111, doi:10.1029/2005JC003114, 2006.
- [7] Benoit Cushman-Roisin and Alastair D. Jenkins. On a non-local parameterisation for shear turbulence and the uniqueness of its solutions. *Boundary-Layer Meteorology*, 118:69–82, 2006.
- [8] L. H. Smedsrud, P. Budgell, A. D. Jenkins, and B. Ådlandsvik. Fine-scale sea-ice modelling of the Storfjorden polynya, Svalbard. *Annals of Glaciology*, 44:73–79, 2006.
- [9] F. Ardhuin and A. D. Jenkins. On the interaction of surface waves and upper ocean turbulence. *Journal of Physical Oceanography*, 36:551–557, 2005.
- [10] F. Ardhuin and A. D. Jenkins. On the effect of wind and turbulence on ocean swell. In *Proceedings of The Fifteenth (2005) International Offshore and Polar Engineering Conference, Seoul, Korea, June 19-24, 2005*, volume 3, pages 429–434. The International Society of Offshore and Polar Engineers, 2005.
- [11] Alastair D. Jenkins and Brian Ward. A simple model for the short-time evolution of near-surface current and temperature profiles. *Deep-Sea Research II*, 52:1202–1214, 2005, doi:10.1016/j.dsr2.2005.03.005.
- [12] Alastair D. Jenkins and Brian Ward. Reply to: Comment on the paper: A simple model for the short-time evolution of near-surface current and temperature profiles. *Deep-Sea Research II*, 52:1218–1219, 2005. doi:10.1016/j.dsr2.2005.03.003.
- [13] Alastair D. Jenkins. Lagrangian and surface-following coordinate approaches to wave-induced currents and air–sea momentum flux in the open ocean. *Annales Hydrographiques, 6^e Série*, 3(772):4–1–4–6, 2004.
- [14] Fabrice Ardhuin, Alastair Jenkins, Danièle Hauser, Ad Reniers, and Bertrand Chapron. Waves and operational oceanography. *Annales Hydrographiques, 6^e Série*, 3(772):2–1–2–5, 2004.
- [15] Alastair D. Jenkins and Fabrice Ardhuin. Interaction of ocean waves and currents: How different approaches may be reconciled. In *Proc. 14th Int. Offshore & Polar Engng Conf., Toulon, France, May 23–28, 2004*, pages 105–111. Int. Soc. of Offshore & Polar Engrs, 2004.
- [16] Fabrice Ardhuin, Alastair Jenkins, Danièle Hauser, Ad Reniers, and Bertrand Chapron. Waves and operational oceanography. *EOS, Transactions, American Geophysical Union*, 86(4):37–40, 2005.
- [17] Alastair D. Jenkins. Wave duration/persistence statistics, recording interval, and fractal dimension. *International Journal of Offshore and Polar Engineering*, 12(2):109–113, 2002.
- [18] Alastair D. Jenkins and Owen M. Phillips. A simple formula for nonlinear wave–wave interaction. *International Journal of Offshore and Polar Engineering*, 11:81–86, 2001.
- [19] Alastair D. Jenkins. Geometrical and kinematic properties of breaking waves in the framework of a stationary flow approximation. In M. Olagnon and G. Athanassoulis, editors, *Rogue Waves 2000: Proceedings of Workshop, Brest, 29–30 November 2000*, pages 221–226, Brest, 2001. Ifremer.
- [20] M. Bentsen, G. Evensen, H. Drange, and A. Jenkins. Coordinate transformation on a sphere using conformal mapping. *Monthly Weather Review*, 127:2733–2740, 1999.
- [21] Alastair D. Jenkins and Kristian B. Dysthe. The effective film viscosity coefficients of a thin floating fluid layer. *Journal of Fluid Mechanics*, 344:335–337, 1997.
- [22] A. D. Jenkins and S. J. Jacobs. Wave damping by a thin layer of viscous fluid. *Physics of Fluids*, 9(5):1256–1264, 1997.
- [23] A. D. Jenkins. A quasi-stationary irrotational solution for a breaking wave crest. In M. A. Donelan, W. H. Hui, and W. J. Plant, editors, *The Air–Sea Interface. Proceedings of the Symposium on the Air–Sea Interface, Radio and Acoustic Sensing, Turbulence and Wave Dynamics, Marseilles, France, 1993 June 24–30*, pages 247–252, Miami, Florida, U.S.A., 1996. The Rosenstiel School of Marine and Atmospheric Sciences, University of Miami.
- [24] A. D. Jenkins. A stationary potential-flow approximation for a breaking-wave crest. *Journal of Fluid Mechanics*, 280:335–347, 1994.
- [25] A. D. Jenkins. A simplified quasilinear model for wave generation and air-sea momentum flux. *Journal of Physical Oceanography*, 23(9):2001–2018, 1993.

- [26] A. D. Jenkins. A quasi-linear eddy-viscosity model for the flux of energy and momentum to wind waves, using conservation-law equations in a curvilinear coordinate system. *Journal of Physical Oceanography*, 22(8):843–858, 1992.
- [27] A. D. Jenkins. The use of a wave prediction model for driving a near-surface current model. *Deutsche Hydrographische Zeitschrift*, 42(3–6):133–149, 1989.
- [28] A. D. Jenkins. A Lagrangian model for wind and wave induced near-surface currents. *Coastal Engineering*, 11:513–526, 1987.
- [29] Alastair D. Jenkins. Wind and wave induced currents in a rotating sea with depth-varying eddy viscosity. *Journal of Physical Oceanography*, 17(7):938–951, 1987.
- [30] Alastair D. Jenkins. A theory for steady and variable wind and wave induced currents. *Journal of Physical Oceanography*, 16:1370–1377, 1986.
- [31] Alastair D. Jenkins. Simulation of turbulent dispersion using a simple random model of the flow field. *Applied Mathematical Modelling*, 9:239–245, 1985.
- [32] Alastair D. Jenkins. Evaluation of tidal residual currents in a wide estuary, using a finite element method. *International Journal of Numerical Methods in Fluids*, 3:61–70, 1983.
- [33] Alastair D. Jenkins. High resolution ciné and television observations of noctilucent clouds. *Meteorological Magazine*, October 1978.

Reports

- [1] Alastair D. Jenkins. Forskningsveiledning ved Geofysisk institutt, universitetet i Bergen [research supervision at the Geophysical Institute, University of Bergen]. Term Paper, course ‘Research Supervision at Master’s and Ph.D. Level’, 2005.

Published abstracts

- [1] Alastair D. Jenkins. Steady f -plane circulation in basins with saddle-point bathymetry, 2005. *Geophysical Research Abstracts*, 7, 09961. Presented at European Geosciences Union General Assembly, Vienna, Austria, 2005 April 24–29.
- [2] J. A. T. Bye and A. D. Jenkins. Drag coefficient reduction at very high wind speeds, 2005. *Geophysical Research Abstracts*, 7, 10034. Presented at European Geosciences Union General Assembly, Vienna, Austria, 2005 April 24–29.
- [3] A. D. Jenkins and F. Ardhuin. Coordinate system formulations for integrated atmosphere–wave–ice–ocean modelling. *Geophysical Research Abstracts*, 6, 2004. 06375. Poster presented at EGU 1st General Assembly, Nice, 2004 April 25–30.
- [4] F. Ardhuin, A. Jenkins, and R. Baraille. The case for integrated wave–circulation operational forecasting. *Geophysical Research Abstracts*, 6, 2004. 03698. Presented at EGU 1st General Assembly, Nice, 2004 April 25–30.

Popular science

- [1] A. D. Jenkins. Monsterbølger: myte eller virkelighet? En utfordring til sjøfarende og matematikere. Lecture, Fagleg-pedagogisk dag, Bergen, 2007-02-02.
- [2] L. H. Smedsrud, P. Budgell, A. D. Jenkins, and B. Ådlandsvik. Detaljerte modellresultater av sjøisen ved Svalbard. *Cicerone*, No. 6, pp. 30-31, 2006.
- [3] P. M. Haugan, S. S. Hjøllø, and A. D. Jenkins. Hav og klima i samspill. *Cicerone*, No. 5, 29–31, 2003.