

CURRICULUM VITAE

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Education and employment

01.07.04–present Secondary position at Nansen Environmental and Remote Sensing Center, Bergen.

01.06.03–present Principal engineer at Hydro Research Centre, Bergen.

01.01.01–present: appointed a board Director in Ocean Numerics Ltd., a joint venture between NERSC and the UK based Fugro Geos Ltd.

12.07.00–12.08.00: appointed “professeur associé de 2^{eme} catégorie” at L’École Nationale Supérieure des Mines de Paris (one of the French Grand Écoles in engineering), where he spent four weeks lecturing and working with his french colleagues.

30.05.96–31.07.02: employed as a Professor II in applied mathematics (data assimilation/inverse methods) at the Department of Mathematics, University in Bergen.

01.01.96–01.06.2003: Research Director at NERSC with responsibility for the *Climate and Modelling Group*. This group grew fairly large and was later split into the present *Climate Research Group* and the *Modelling and Data Assimilation Group* managed by GE.

01.04.95–31.12.95: Research Leader at NERSC with responsibility for the *Climate and Modelling Group*.

08.11.92–31.03.96: employed through a post. doc. grant from the Norwegian Research Council (NRC), to continue the work with development of data assimilation methodologies for nonlinear dynamical models. During this period the mandatory military service was also completed working as a scientist in the Norwegian Navy but being located at NERSC.

01.01.90–08.11.92: employed by the NRC as a Dr. Scient. stipendiat working at NERSC. Defended the Dr. Scient. thesis in applied mathematics at the Department of Mathematics, University in Bergen, 08.11.92. The thesis considered the development of data assimilation methods for dynamical models in oceanography.

26.06.89–31.12.89: hired as a scientist at the Nansen Environmental and Remote Sensing Center (NERSC) working with ocean modelling.

19.06.89: completed Cand. Scient. thesis in applied mathematics (plasma dynamics) at the Department of Mathematics, University in Bergen. Grades were (1.4, 1.4) on the final exam and the thesis. Supervisor was Prof. A. H. Øien.

Previous:

Director of Research and Applications, with responsibility for the Modeling and Data Assimilation activities 1996–2003 at the Nansen Environmental and Remote Sensing Center, Bergen, Norway

Professor II at the Department of Mathematics (1996-2003), UiB

The Research Council of Norway, 1993–1995

Post. Dr. fellowship, location at Nansen Environmental and Remote Sensing Center, Bergen, Norway

The Norwegian Research Council for Science and the Humanities, 1990–1992

Three year Ph. D. fellowship, location at Nansen Environmental and Remote Sensing Center, Bergen, Norway

Nansen Environmental and Remote Sensing Center Bergen, Norway, 1989

Working with numerical and mathematical modelling of mesoscale oceanography.

Work experience

Following the completion of the Dr. Scient. thesis GE continued working on formulation and development of mathematical and statistical methodologies for the integration of observations with dynamical models, i.e., so called data assimilation methods. He developed and introduced the now very popular Ensemble Kalman Filter (EnKF) which has received much attention internationally and is being used in research centers worldwide.

Following the post. doc. the research was partly oriented away from theoretical development of assimilation methods towards practical use of the methodologies with realistic ocean circulation models. This required an extensive focus on model system development and a very flexible and advanced ocean circulation model was implemented. The ocean circulation model has been successfully used in international research projects and in several consulting projects for international oil industry.

In particular, GE has developed and executed projects where met-ocean hindcast statistics is derived from validated numerical models for several deep-water exploration areas around the world. These projects have lead to the formation of *Ocean Numerics Ltd.* which is a company tailored towards ocean current hindcasting and forecasting for the off-shore oil industry, see e.g. the web page <http://www.oceannumerics.com/> for further information.

GE has participated in and managed several national and international research projects, while building an internationally recognized group in ocean modelling and data assimilation. In particular he was coordinator of two European Commission funded projects (DIADEM and TOPAZ) which has lead to the development of a preoperational ocean monitoring and forecasting system for the North Atlantic and the Nordic Seas. The system is based on integrated use of observations from several satellite and *in situ* sensors together with ocean circulation models, and has been operated for real time forecasting since September 2000. Work is now ongoing to adapt the forecasting system in Ocean Numerics to develop a capability of delivering forecast products supporting the offshore industry.

GEs research work is summarized in 37 scientific publications in international journals and several reports to clients in industry projects.

Students

Previously supervised 3 Ph. D. students from the University in Bergen

Previously supervised three Cand. Scient. students. from the University in Bergen

Supervising one student for the degree, Ingenieur de la Meteorologie at Ecole Polytechnique, 1997.

Supervising three students from Ecole de Mines de Paris 1999-2001.

Supervising one student from Ecole Superieure de Mecanique de Marseille, 2000.

Currently supervising 2 Ph. D. students

Refereed publications

References

Allen, J. I., M. Eknes, and G. Evensen, An Ensemble Kalman Filter with a complex marine ecosystem model: Hindcasting phytoplankton in the Cretan Sea, *Annales Geophysicae*, 20, 1–13, 2002.

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- Carmillet, V., J.-M. Brankart, P. Brasseur, H. Drange, and G. Evensen, A singular evolutive extended Kalman filter to assimilate ocean color data in a coupled physical-biochemical model of the North Atlantic, *Ocean Modelling*, 3, 167–192, 2001.
- Echevin, V., P. D. Mey, and G. Evensen, Horizontal and vertical structure of the representer functions for sea surface measurements in a coastal circulation model, *J. Phys. Oceanogr.*, 30, 2627–2635, 2000.
- Eknes, M., and G. Evensen, Parameter estimation solving a weak constraint variational formulation for an Ekman model, *J. Geophys. Res.*, 102, 12,479–12,491, 1997.
- Eknes, M., and G. Evensen, An Ensemble Kalman Filter with a 1-D marine ecosystem model, *J. Marine. Sys.*, 36, 75–100, 2002.
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- Evensen, G., The Ensemble Kalman Filter: Theoretical formulation and practical implementation, *Ocean Dynamics*, 53, 343–367, 2003.
- Evensen, G., and H. Drange, Data assimilation for coastal zone monitoring and forecasting, in *Operational Oceanography: The Challenge for European Co-operation*, edited by J. H. Stel, H. W. A. Behrens, J. C. Borst, L. J. Droppert, and J. v.d. Meulen, pp. 516–522, Elsevier Science, 1997.
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- Evensen, G., and A. H. Øien, Neutral plasma solution in a beam generated plasma using a one dimensional fluid model, *Physica Scripta*, 44, 587–595, 1991.

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- Haugen, V. E., O. M. Johannessen, and G. Evensen, Mesoscale modeling study of the oceanographic conditions off the southwest coast of India, *Proceedings of Indian Academy of Sciences (Earth and Planetary Sciences, PORSEC 2000 special issue)*, *111*, 321–338, 2002b.
- Ikeda, M., G. Evensen, and L. Cong, Comparison of sequential updating, Kalman filter and variational methods for assimilating Rossby waves in the simulated Geosat altimeter data into a quasi-geostrophic model, *J. Marine. Sys.*, *6*, 15–30, 1995.
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van Leeuwen, P. J., and G. Evensen, Data assimilation and inverse methods in terms of a probabilistic formulation, *Mon. Weather Rev.*, 124, 2898–2913, 1996.

Technical reports

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Torkildsen, F., D. Salas, and G. Evensen, A granular sea-ice model, *Technical Report 126*, Nansen Environmental and Remote Sensing Center, Edv. Griegsv. 3a, N-5059 Bergen, 1997.

Other

Coordinator of then EC MAST-III DIADEM project during 1998-2001.

Coordinator of then EC FPV TOPAZ project during 2000-2003.

Participant in another 8 EC funded projects.

Coordinator of several research projects funded by among others the Norwegian Research Council (NFR) and the European Space Agency (ESA).