

# Curriculum Vitae

Dr Lars Boehme

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## PERSONAL INFORMATION

**Birth** May 5, 1975 in Wilhelmshaven, Germany

**Citizenship** german

**Family status** married

**Children** 2

## ACADEMIC EDUCATION

**Nov. 2008** Doctor of Philosophy, University of St Andrews, Scotland, UK, Advisors: M. Fedak (SMRU) and M. Meredith (BAS)  
(Thesis: *The Frontal System of the Antarctic Circumpolar Current: Marine Mammals as Ocean Explorers.*)

**12/2004-11/2007** PhD candidate at Sea Mammal Research Unit, University of St Andrews, St Andrews, UK  
*Activities:* Using data obtained from CTD tags deployed on southern elephant seals and other sources to observe changes of water masses in the Southern Ocean. Developing methods to check the quality of CTD data.

**Oct. 2003** Diplom in Physical Oceanography, Christian-Albrechts Universität Kiel, Germany, Advisor: U. Send  
(Diploma thesis: *Quality Control of Profiling Float Data in the Subpolar North Atlantic*)

**1996-2003** Christian-Albrechts Universität Kiel, Germany, Undergraduate and graduate program in Physical Oceanography.

## PROFESSIONAL EXPERIENCE

**12/2007-present** Research Fellow at Sea Mammal Research Unit, University of St Andrews, St Andrews, UK

- Activities:*
- Variability of the Antarctic Circumpolar Current
  - Develop CTD satellite tags for marine mammals

**01/2007-03/2007** Oceanographic Watch Keeper for British Antarctic Survey, Cambridge, UK

- Activities:*
- Verify CTD satellite tags against ship-based measurements.
  - Deploying satellite tags on weddell seals and southern elephant seals

**11/2003-11/2004** Research Scientist at Leibniz-Institut for Marine Sciences, Kiel, Germany

- Activities:*
- Developing methods for quality control of float data.
  - Using float data to observe changes of water masses.

## RESEARCH GRANTS

- 2009** A Novel Temperature and Salinity Dataset for Northern High Latitude Seas (ATLAS) NERC: £ **25k**  
 PI: S. Josey (NOC), CO-I: M. Meredith (BAS)  
 role: collaborating scientists
- 2009** Ocean processes over the Weddell Sea shelf using seal tags AFI: £**500k**  
 PI: K. Nicholls (BAS), M. Fedak (SMRU),  
**CO-I: L. Boehme (SMRU)**
- 2007** SAVEX: South Atlantic Variability Experiment NERC: £**500k**  
 PI: M. Fedak (SMRU), CO-I: M. Meredith (BAS)  
 role: named staff, major role in develop, formalise and writing the proposal

## STIPENDS AND AWARDS

- 2010** IPY Oslo Stipend to early career polar scientists  
 Reduced conference fees and free accommodation
- 2006** Best oral presentation at postgraduate conference  
 School of Biology, University of St Andrews

**FIELD EXPERIENCE**

- Sep./Nov. 2009** Husvik, South Georgia, Responsibility: Deploying satellite tags on southern elephant seals
- Jan./Mar. 2009** Husvik, South Georgia, Responsibility: Deploying satellite tags on southern elephant seals
- Sep./Nov. 2008** Husvik, South Georgia, Responsibility: Deploying satellite tags on southern elephant seals
- Jan./Mar. 2008** Husvik, South Georgia, Responsibility: Deploying satellite tags on southern elephant seals
- Jan./Mar. 2007** RRS Ernest Shackleton 036, Weddell Sea, Responsibility: CTD, Deploying satellite tags on weddell seals and southern elephant seals
- Jan./Feb. 2005** Husvik, South Georgia, Responsibility: Deploying satellite tags on southern elephant seals
- Dec. 2004 /Jan. 2005** RRS James Clark Ross 116, Scotia Sea, Responsibility: Satellite Relay Data Loggers
- Aug./Sep. 2004** RRS Charles Darwin 161, North Atlantic, Responsibility: Moorings, CTD, ADCP
- Jun./Jul. 2004** FS Meteor M62/1a, Atlantic, Responsibility: PIES
- Jun. 2002** FS Alkor, Baltic Sea, Responsibility: CTD, ADCP
- Jan./Feb. 2002** RV l'Atalante, Atlantic, Responsibility: CTD, Salinometer
- Jan. 2001** FS Poseidon P267, North Atlantic, Responsibility: CTD, Salinometer
- Oct./Nov. 1999** FS Meteor M45/5b, Canary Islands, Responsibility: CTD
- Aug./Sep. 1999** FS Poseidon P255/1, North Atlantic, Responsibility: CTD, Salinometer
- Jun./Jul. 1999** FS Meteor M45/2, North Atlantic, Responsibility: CTD
- Sep. 1998** FS Alkor, Baltic Sea, Responsibility: CTD

## OTHERS

- Computer skills** Platforms: UNIX, Linux, Windows (95/98, NT, XP)  
Programs: MATLAB, StarOffice, MS Office  
Languages: FORTRAN, L<sup>A</sup>T<sub>E</sub>X, HTML
- Other skills** Home Office personal licence holder, Animals (Scientific Procedures) Act 1986.  
Medical Certificate for Service at Sea (Other services)  
Certificate for training according to chapter VI, Section A-VI, 1.1 to 1.7 of STCW Code A (9h45) ('survival at sea')  
Licence to operate any motor-equipped yacht.  
Radiotelephone Operator's Restricted Certificate for marine VHF  
Radioamateur licence class 1 (CEPT) with callsign DL9LB and MM0DWF  
Radioamateur licence for the British Antarctic Territory with callsign VP8DIF  
Diving Skills: Nitrox Diver (BSAC), Sports Diver (BSAC)  
Guiding: Lecturer and Zodiac driver on several cruise ships in the Arctic and Antarctic
- Languages** German (native), English (fluent), French (rudimentary)
- Memberships** American Geophysical Union (AGU), European Geosciences Union (EGU), Association of Polar Early Career Scientists (APECS), Radio Society of Great Britain (RSGB), GMDX Group, Kingdom Amateur Radio Society (KARS)

## REVIEWED PUBLICATIONS

- Boehme, L.**, P. L. Lovell, M. Biuw, F. Roquet, J. Nicholson, S. E. Thorpe, M. Meredith and M. A. Fedak, 2009: Animal-borne CTD-Satellite Relay Data Loggers for real-time oceanographic data collection., *Ocean Science*, 5, 685-695
- Nicholls K. W., **Boehme, L.**, M. Biuw and M. A. Fedak, 2008: Wintertime ocean conditions over the southern Weddell Sea continental shelf, Antarctica., *Geophysical Research Letters*, 35, L21605, doi: 10.1029/2008GL035742
- Boehme, L.**, M. P. Meredith, S. E. Thorpe, M. Biuw and M. Fedak, 2008: The ACC frontal system in the South Atlantic: monitoring using merged Argo and animal-borne sensor data., *Journal of Geophysical Research*, 113, C09012, doi: 10.1029/2007JC004647
- Boehme, L.**, S.E. Thorpe, M. Biuw, M. Fedak and M.P. Meredith, 2008: Monitoring Drake Passage with elephant seals: Frontal structures and snapshots of transport. *Limnology & Oceanography*, 53, 2350-2360
- Charrassin, J.-B., M. Hindell, S. R. Rintoul, F. Roquet, S. Sokolov, M. Biuw, D. Costa, **L. Boehme**, P. Lovell, R. Coleman, R. Timmermann, A. Meijers, M. Meredith, Y.-H. Park, F. Bailleul, M. Goebel, Y. Tremblay, C.-A. Bost, C. R. McMahon, I. C. Field, M. A. Fedak, and C. Guinet, 2008: Southern Ocean frontal structure and sea-ice formation rates revealed by elephant seals. *Proceedings of the National Academy of Science*, Vol. 105, no. 33, pp 11634-11639 doi: 10.1073/pnas.0800790105
- Biuw, M., **L. Boehme**, C. Guinet, M. Hindell, D. Costa, J-B. Charrassin, F. Roquet, F. Bailleul, M. Meredith, S. Thorpe, Y. Tremblay, B. McDonald, Y-H. Park, S. Rintoul, N. Bindoff, M. Goebel, D. Crocker, P. Lovell, J. Nicholson, F. Monks and M.A. Fedak, 2007, Variations in behaviour and condition of a Southern Ocean top predator in relation to in-situ oceanographic conditions. *Proceedings of the National Academy of Science*, August 21, 2007, Vol 104, No. 34, pp 13705-13710 doi: 10.1073/pnas.0701121104
- Boehme, L.** and U. Send, 2005: Objective analyses of hydrographic data for referencing profiling float salinities in highly variable environments., *Deep Sea Research Part II*, Vol 52/3-4, pp 651-664, doi: 10.1016/j.dsr2.2004.12.014.
- Boehme, L.**, 2003: Quality Control of Profiling Float Data in the subpolar North Atlantic. Diploma thesis, Christian-Albrechts-Universität Kiel, 79pp.

## CONFERENCE PRESENTATIONS

- Boehme et al.** (*L Boehme, M A Fedak, S Thorpe, M Meredith*)  
The ACC frontal system in the South Atlantic, detailed insights from animal-borne sensors and Argo floats. Oral presentation, *International Polar Year: Oslo Science Conference*, Oslo, Norway, June, 2010.
- The MEOP partners** (*The MEOP partners*)  
The MEOP Project: Marine Mammals Exploring the Oceans Pole to Pole. Oral presentation, *International Polar Year: Oslo Science Conference*, Oslo, Norway, June, 2010.

**Fedak and Boehme** (*M. Fedak and L. Boehme*)

Post-moult and post-breeding foraging movements of Southern elephant seals from South Georgia in relation to individual, bathymetric and oceanographic features: results from MEOP UK. Oral presentation, *International Polar Year: Oslo Science Conference*, Oslo, Norway, June, 2010.

**Close et al.** (*S. Close, A. Naveira Garabato, E. McDonagh, L. Boehme, B. King, M. Fedak*)

Southern Ocean Variability from Seal-Mounted Sensors and Argo Floats. Oral presentation, *International Polar Year: Oslo Science Conference*, Oslo, Norway, June, 2010.

**Fedak et al.** (*M. A. Fedak, M. Bester, M. Biuw, D. P. Costa, L. Boehme, C. Guinet, M. Hammill, K. Kovacs, C. Lydersen, M. Muelbert, O. Anders Nøst, J. Ploetz, G. Stenson, A. Rosing-Asvid, M. Hindell*)

MEOP: An Example Of A Large-Scale Investigation Of Marine Animal Habitats. Poster, *AGU 2010 Ocean Sciences Meeting*, Portland, USA, February, 2010.

**Fedak et al.** (*M. A. Fedak and L. Boehme*)

Post-moult and post-breeding foraging movements of southern elephant seals from South Georgia in relation to sex, bathymetry and oceanographic features: results from MEOP UK. Oral presentation, *18th Biennial Conference on the Biology of Marine Mammals*, Quebec, Canada, October, 2009.

**Meredith et al.** (*M. P. Meredith, K. Nicholls, I. A. Renfrew, L. Boehme, M. Biuw, M. A. Fedak*)

Seasonal evolution of the upper-ocean adjacent to the South Orkney Islands, Southern Ocean: results from a "lazy biological mooring". Poster, *18th Biennial Conference on the Biology of Marine Mammals*, Quebec, Canada, October, 2009.

**Roquet et al.** (*F. Roquet, J.-B. Charrassin, Y.-H. Park, M. Fedak, M. Biuw, L. Boehme, C. Guinet*)

On the quality of hydrographic data collected in the Southern Ocean by instrumented elephant seals. Oral presentation, *EGU General Assembly 2009*, Abstract EGU2009-8895, Vienna, Austria, April, 2009.

**Charrassin et al.** (*J.B. Charrassin, S. R. Rintoul, F. Roquet, M. Hindell, S. Sokolov, L. Boehme, D. Costa, R. Timmerman, R. Coleman, C. Guinet, the SEaOS Team*)

Elephant seals reveal Southern Ocean frontal structure and sea ice formation rates. Oral presentation, *EGU General Assembly 2008*, Abstract EGU2008-A-04236, Vienna, Austria, April, 2008.

**Nicholls et al.** (*K. Nicholls, L. Boehme, M. Biuw, M., M. Fedak*)

Wintertime oceanographic data from the southern Weddell Sea using tagged Weddell seals. Oral presentation, *EGU General Assembly 2008*, Abstract EGU2008-A-06245, Vienna, Austria, April, 2008.

**Biuw et al.** (*M. Biuw, K. Nicholls, L. Boehme, M. Fedak*)

Ice and shine: How ice movements and day-length influence the dive and haulout patterns of Weddell seals. Oral presentation, *17th Conference on the Biology of Marine Mammals*, Cape Town, South Africa, September, 2007.

**Patterson et al.** (*T. A. Patterson, M. Biuw, M. V. Bravington, L. Boehme, D. P. Costa, C. Guinet, M. Fedak, M. Hindell*)

State space methods for modelling habitat-dependent movement of southern elephant

seals. Oral presentation, *17th Conference on the Biology of Marine Mammals*, Cape Town, South Africa, September, 2007.

**Thompson et al.** (*D. Thompson, L. Boehme, C. Blight, M. Fedak, D. Bowen, M. Hammill, G. Stenson*)

How many seals were there? Effects of ice ages on the size and distribution of grey seal populations. Oral presentation, *17th Conference on the Biology of Marine Mammals*, Cape Town, South Africa, September, 2007.

**Photopoulos et al.** (*T. Photopoulos, M. Biuw, L. Thomas, L. Boehme, M. Fedak*)

Behavioural changes of a long-ranging diver in response to in situ oceanographic characteristics: Inferences from highly compressed data. Oral presentation, *17th Conference on the Biology of Marine Mammals*, Cape Town, South Africa, September, 2007.

**Boehme et al.** (*L. Boehme, M. Biuw, C. Guinet, D. Costa, M. Hindell, M. Fedak*)

Mapping changes of the condition of elephant seals in physical-oceanographic rather than geographic space. Poster, *17th Conference on the Biology of Marine Mammals*, Cape Town, South Africa, September, 2007.

**Charrassin et al.** (*J.-B. Charrassin, M. Hindell, F. Roquet, M. Biuw, D. Costa, S. Rintoul, L. Boehme, R. Coleman, A. Meijers, Y.-H. Park, M. Meredith, M. Fedak, F. Bailleul, Y. Tremblay, C.-A. Bost, P. Lovell, C. McMahon, I. Field, C. Guinet*)

Elephant seals collect new hydrographic data at high latitudes in the Southern Ocean. Poster, *17th Conference on the Biology of Marine Mammals*, Cape Town, South Africa, September, 2007.

**Boehme et al.** (*L. Boehme, M. Meredith, S. Thorpe, E. M. Biuw, M. Fedak*)

The dynamic frontal system around South Georgia, Southern Ocean. Oral presentation, *Challenger Conference for Marine Science*, Oban, Scotland, September, 2006.

**Biuw et al.** (*M. Biuw, L. Boehme, M. Hindell, C. Guinet, M. Fedak*)

Impacts of environmental change on population trends in a large Southern Ocean predator, the southern elephant seal (*Mirounga leonina*). Oral presentation, *Challenger Conference for Marine Science*, Oban, Scotland, September, 2006.

**Boehme et al.** (*L. Boehme, E. M. Biuw, M. Fedak, M. Meredith, S. Thorpe*)

A circumpolar snapshot of the Southern Ocean by animal-borne sensors. Oral presentation, *Geophysical Research Abstracts*, Vol. 8, Abstract EGU06-A-07559, Vienna, Austria, April, 2006.

**Fedak et al.** (*M. Fedak, P. Lovell, J. Nichol森, E. M. Biuw, L. Boehme, K. Kovacs*)

Enlisting marine mammals as oceanographic explorers: unique CTD profilers for IPY. Poster, *Geophysical Research Abstracts*, Vol. 8, Abstract EGU06-A-08935, Vienna, Austria, April, 2006.

**Biuw et al.** (*E. M. Biuw, L. Boehme, C. Guinet, J. Charrassin, M. Hindell, D. Costa, M. Fedak*)

Oceanographic influences on animal behaviour: The movements and diving behaviour of Southern elephant seals in a physical context. Oral presentation, *Eos Trans. AGU*, 87(36), Ocean Sci. Meet. Suppl., Abstract OS14D-06, Honolulu, USA, February, 2006.

**Boehme et al.** (*L. Boehme, M. Meredith, S. Thorpe, E. M. Biuw, M. Fedak*)

The ACC Frontal System around South Georgia, Southern Ocean. Oral presentation,

*Eos Trans. AGU*, 87(36), Ocean Sci. Meet. Suppl., Abstract OS14D-03, Honolulu, USA, February, 2006.

**Boehme et al.** (*L. Boehme, P. Lovell, E. M. Biuw, S. Thorpe, M. Meredith, M. Fedak*)  
Remote Quality Control of Hydrographic Data From Animal-Borne Sensors. Poster, *Eos Trans. AGU*, 87(36), Ocean Sci. Meet. Suppl., Abstract OS15G-02, Honolulu, USA, February, 2006.

**Biuw et al.** (*E. M. Biuw, M. Hindell, J.-B. Charrassin, L. Boehme, T. Patterson, F. Bailleul, D. P. Costa, C. Guinet, M. Fedak*)  
Down to Detail: The Movement and Diving Behaviour of Southern Elephant Seals in a Physical Context Revealed By New Oceanographic Instruments. Oral presentation, *16th Biennial Conference on the Biology of Marine Mammals*, San Diego, USA, December, 2005.

**Fedak et al.** (*M. Fedak, M. Meredith, S. Rintoul, Y.-H. Park, L. Boehme, J.-B. Charrassin, D. P. Costa, M. Hindell, N. Bindoff, C. Guinet, M. E. Biuw*)  
the SEaOS project: Southern Elephant seals as Oceanographic Samplers. Poster, *16th Biennial Conference on the Biology of Marine Mammals*, San Diego, USA, December, 2005.

**Boehme, L. and T. Avsic** Evolution and spreading of Labrador Sea Water in the subpolar North Atlantic over the last decade. Poster, *CLIVAR Workshop*, Kiel, Germany, September, 2004.

**Boehme, L. and U. Send** Quality Control of Profiling Floats in the North Atlantic. Poster, *EGU 2004, 1st General Assembly*, Nice, France, April, 2004.

**Desaubies, Y., C. Grit, Y. Izenic, U. Send and L. Boehme** Experience of delayed mode quality control for float salinity data in the Atlantic. Oral presentation, *First Argo Science Workshop*, Tokyo, Japan, November, 2003.

**The GyroScope Team** GyroScope: Development of a real time in situ observing system in the North Atlantic Ocean, by an array of Lagrangian profiling floats . Poster, *First Argo Science Workshop*, Tokyo, Japan, November, 2003.

## UNREVIEWED PUBLICATIONS

- Boehme, L., M. Biuw, M. Fedak, K. Nicholls, S. Thopre, and M. Meredith, 2008,**  
Animals as exploratory underwater vehicles. in Proceedings of the International Workshop on Autonomous Underwater Vehicle Science in Extreme Environments held at the Scott Polar Research Institute, K.J. Collins and G. Griffiths, eds., London: Society for Underwater Technology, pp 55-62.
- Boehme, L., 2004** , Argo Quality Control in Highly Variable Enviroments. Argonautics, 5, 2-3.
- The GyroScope Team, 2004** Report on Sensor Behaviour. Deliverable No.19 for GyroScope Project European Commission Contract.
- The GyroScope Team, 2004** Seasonal evolution of the thermocline structure of the upper waters in the eastern subpolar gyre. Deliverable No.26 for GyroScope Project European Commission Contract.

## OTHER PRESENTATIONS

More than 30 presentations at seminars, workshops and meetings.

More than 10 public talks.

## REFERENCES

1. Prof. Dr. Michael Fedak  
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