

Family name	Given name	Title
PETTERSSON	Lasse Herbert	Director, int. cooperation
Positions and Appointments		
<ul style="list-style-type: none"> • Director, international cooperation and marketing, Nansen Environmental and Remote Sensing Center, Bergen, Norway (<i>since 1997</i>). • Acting Head of Administration @ NERSC (<i>2012-2014</i>). • Leading scientist @ NERSC, responsible for bio-optical oceanographic research (<i>since 2001</i>). • Director Terra Orbit AS (<i>1992-1994</i>). • Board member/Vice-President; Scientific Foundation Nansen International Environmental and Remote Sensing Center (NIERSC), St. Petersburg, Russia (<i>1993-2014</i>). • Chairman of Board; Nansen Environmental Research Centre-India (NERCI), Cochin, India (<i>since 2014</i>). • Board member; Nansen Bangladesh Centre for Coastal, Ocean and Climate Studies, Dhaka, Bangladesh (<i>2011-2016</i>). • Board member; Norsk klimastiftelse, Bergen Norway (<i>since 2014</i>). • Board member, TerraOrbit AS, Bergen (<i>since 2015</i>). 		
Academic and professional qualifications		
<ul style="list-style-type: none"> • Cand. Mag. in physical oceanography, University of Oslo (<i>1984</i>). Thesis: "<i>Airborne spectrometry - a tool for monitoring of water quality.</i>" • Course in Leadership and Management for leaders in academic institutions (AFF, <i>2013-14</i>). • Training course for NERSC leader group in Scientific leadership (AFF, <i>2015</i>) 		
Summary		
<p>LHP has University education in physical oceanography and main research interests are within studies and monitoring of harmful algae blooms, waters quality and marine ecosystems. LHP was leading the marine and coastal optical remote sensing research at the Nansen Center. LHP has 31 years of experience with research and applications of satellite Earth observation data for marine and sea ice environmental and climate studies and applications. He has extensive experience in international project management funded by Research Council of Norway, European Commission, European Space Agency, industry and other agencies.</p> <p>LHP has published 65 referee publications, seven books, several book contributions, teaching material, more than 140 technical client reports and 32 popular scientific publications.</p> <p>LHP has extensive experience in international scientific and educational cooperation, in particular with Russia (<i>since 1992</i>), with India (<i>1998</i>) and Bangladesh (<i>2011</i>).</p>		
Selected research activities and projects		
<p>2017-: Project leader <i>Arctic cooperation between Norway, Russia, India, China and US in satellite Earth observation and Education (ARCONOR)</i> - research and higher education related to sea ice, environment, climate change, and operational conditions in the Arctic Ocean focusing on the Northern Sea Route.</p> <p>2012-2016: NERSC task leader for FP7 project <i>Towards COast to COast NETworks of marine protected areas (from the shore to the high and deep sea), coupled with sea-based wind energy potential (CoCoNET)</i>.</p> <p>2013-2016: Deputy project leader for bilateral NORRUS project <i>CLIMate variability and change in the Eurasian ARctic in the 21st century</i>, funded by Research Council of Norway.</p> <p>2012-2015: Deputy project leader for bilateral INDNOR project <i>INDIA-CLIM: Decadal to multi-decadal</i></p>		

variability in the Indian Monsoon Rainfall and teleconnection with Atlantic Multidecadal Oscillation (AMO), funded by Research Council of Norway.

2012-2015: Co-coordinator of EC FP7 INCOLAB project *Indo-European research facilities for studies of marine ecosystem and climate in India (INDO-MARECLIM)*.

2011-2014: Project scientist for ESA Climate Change Initiative project on “Sea ice”.

2010-2013: Project leader for NERSC contribution to EC FP7 AQUAMAR- *Marine water quality services*.

2006-2009: Project leader for NERSC contribution to EC FP6 “*Water Risk management in Europe (WARMER)*”.

2006-2009: Leader of the NERSC contribution to the ESA GMES project “*MarCoast - Marine and Coastal Information Services*” and the matching Norwegian *SatOcean* project funded by the Norwegian Space Centre.

2004-2007: Project co-ordinator for ESA project *EO-WINDFARM: Design and integration of an EO-Based Information Service for planning, constructing and operation wind farms*.

2005: Deputy project coordinator for “*Climate and Environmental Change in the Arctic (CECA)*” – the project was elected laureate of the EC Descartes Research prize for excellence in scientific collaborative research for 2005.

2001-2005: Project co-ordinator the EC RDT project “*HABILE – Harmful Algae Bloom Initiation and Prediction in Large European Marine Ecosystems*”, Research Council of Norway project “*Integrating modelling and remote sensing for algae bloom monitoring in Norwegian Waters (MORAN)*” and the ESA GMES application project (*ROSES*) and ENVISAT MERIS validation project for Norwegian coastal waters.

2000 - 2003: Project coordinator of the EC project on “*Estimation of Primary Production for Fisheries Management (PROOF)*”. Deputy project coordinator on two EC INCO Copernicus-2 projects with extensive Russian participation - “*Sustainable management of the ecosystem and marine living resources in the White Sea (WHITESEA)*” and “*Simulation scenarios for potential radioactive spreading in the 21st century from rivers and external sources in the Russian Arctic coastal zone (RADARC)*”. Project leader on the Norwegian Space Centre project “*Fisheries, Earth Observation and Modelling (FJOMP)*”.

1998 - 2000: Project leader on service development and operational demonstration of use of ocean colour data for monitoring of algae blooms on Norwegian waters and Applications of EO data and models in fisheries statistics and management. Project leader for the ESA study “*DeciDe for Near Real-time use of Ocean Color Data in Hazard Management of Toxic Algae Blooms*”(13662/99/I-DC).

1998-99: Project leader for the EC project “*Arctic Demonstration and Exploratory Voyage - ARCDEV*” on ship navigation in the Kara Sea. Project leader for a European and Russian Space Agencies study on a market survey for satellite earth observation data in the Russian Federation.

Since 1998: Responsible for the establishment, development, implementation, and operations of regular satellite monitoring of harmful algae blooms in Norwegian waters for scientific and operational use, presented at the web <http://HAB.nersc.no>.

Since 1997: Coordination and supervision (6) of Russian 25 Ph.D. students to their dissertation under the Nansen Fellowship programme in St. Petersburg.

Organisation and teaching @ Student Research Schools

2016: Organizer of and lecturer at INDO-Norwegian research school; *Operational Oceanography: Indian Ocean circulation and sea level variation*, for 31 international (Asia, Africa and Europe) post-graduate students. Hyderabad, India.

2015: Organizer of and lecturer at Nansen-NVP summer school; *Arctic Ocean Governance a multifunctional challenge*, for 18 post-graduate students. Longyearbyen, Svalbard.

2014: Organizer of and lecturer at winter school *Coastal and Ocean processes in the Bay of Bengal in a changing climate and their impacts on society* for 30 south Asian post-graduate students in Cox’s Bazar, Bangladesh.

2014: Lecturer at and organizer of EU FP7 EuRuCAS research school *Land Hydrology and Cryosphere of the Arctic and Northern Eurasia in the changing climate*, Repino, Russia.

2013: Organizer of and lecturer at EU FP7 Indo-MARECLIM research school *Climate Change and Variability, Marine Ecosystems and Coastal Zone Management*, for 35 Indian and European students. Bolgatty Island, Kochi, India.

2013: Organizer of and lecturer at Nansen-NVP summer school; *Shipping in Arctic Water: The interaction of sea ice, ship technology, climate change, economy and other operational conditions*, for 30 post-graduate students. Longyearbyen, Svalbard.

2011: Organizer of and lecturer at Nansen-NVP summer school; *Impact of climate change on resources, maritime transport and geopolitics in the Arctic and the Svalbard area – a contribution to the 150 years anniversary of Fridtjof Nansen*, for 30 post-graduate students. Longyearbyen, Svalbard.

2010: Organizer of and lecturer at winter school *Indian Ocean; Challenges in Meteorology and oceanography* for 46 post-graduate Indian students in Cherrai, Kerala, India.

2008: Organizer of and lecturer at research school *Climate Teleconnection between low and high latitudes*, October 2008, Beijing, China.

2007: Organizer of and lecturer at international summer school on *High northern climate*, Peterhof, Russia.

PhD. and Master student supervision

2014-: M. Nashad, Nansen Fellowship @ NERCI/Cochin University of Science and Technology, Cochin, India: *Monitoring and modelling of Harmful algal blooms along the South West coast of India.*

2014-: Dmitry Kondrik, Nansen Fellowship @ NIERSC/ Arctic and Antarctic Research Institute, St. Petersburg: *Dynamic of inorganic carbon production by E. huxley in polar and sub-polar seas of the Northern hemisphere under influence of atmospheric and oceanographic processes.*

2010-2013: Dmitry Petrenko, Nansen Fellowship @ NIERSC/Roshydromet University, St. Petersburg: *Investigation of spatial and temporal dynamics of primary productivity and trophy in the Arctic seas in light of ongoing climate change.*

2009-2014: Dr. Madhavan Narayanan, Nansen Fellowship @ Institute of Remote Sensing, Anna University Chennai, India: *Species specific potential fishing zone mapping using neural network and satellite derived ocean parameters.*

2008-2013: Dr. Evugeny Morosov, Nansen Fellowship @ NIERSC/ Roshydromet University, St. Petersburg: *Algorithms for determination of chlorophyll a and total suspended matter concentrations and identification of microalgae *Lepidodinium chlorophorum* and *Emiliania huxleyi* from satellite data in the Bay of Biscay.*

2007: Ms. Sónia Cristina, Master, Erasmus MUNDUS – European Joint Master in Water and Coastal Management, University of Bergen. *Quality assessment of satellite image of chlorophyll-a using in situ data in two systems: The Skagerrak between Norway and Denmark and the Coast of Santa Catarina, Brazil.*

2002-2007: Dr. Anton Korosov, Ph.D. Roshydrological State University Saint Petersburg, May 2007. *Development and application of the procedure of comprehensive remote sensing for studying water processes in seas and large lakes.*

2006: Dr. Are Folkestad, Ph.D. Geophysical Institute, University of Bergen, February 2006. *Satellite monitoring of algal blooms in Norwegian coastal waters.*

2002-2006: Dr. Maged S. Kamal Guerguess, Saint Petersburg State University, February 2006. *Analysis of the variability of water masses in the Eastern Mediterranean Sea based on in situ and remote sensing data.*

1998-2002: Dr. Wahid Moufaddal, Ph.D. Saint Petersburg State University, January 2002: *Monitoring of environmental changes of the coastal zone between South Ras-Shuquir and Safaga, Red Sea Egypt using Landsat satellite imagery.*

1997-2000: Dr. Anton Lyaskovskiy, Ph.D. Saint Petersburg State University, June 2000: *Solution of forward and inverse problems relating to remote sensing of natural waters.*

1990: Supervising the Diploma Thesis for two students from Bergen Technical University College (Bergen Ingeniør Høyskole).

Awards

1993: The National Aeronautics and Space Administration (NASA) Group Achievements Award for the Topex/Poseidon Mission Design, February 1993.

1992&94: NASA Jet Propulsion Laboratory Certificate of Appreciation for the contribution to the success for the Topex/Poseidon Mission.

Selected publications (chronological)

- Pozdnyakov, D., L.H. Pettersson and A. Korosov (in print, 2017): Exploring the marine ecology from space: Experience from Russian-Norwegian cooperation. Book in Nansen Centers polar series no. 7. Springer Remote Sensing/Photogrammetry doi: 10.1007/978-3-319-30075-7.
- Kondrik, D., D. Pozdnyakov and L.H. Pettersson (accepted, 2017): Particulate inorganic carbon production within *huxleyi* blooms in subpolar and polar seas: A satellite time series study (1998-2013). International Journal of Remote Sensing
- Davy, R., N. Gnatiuk, L.H. Pettersson and L.P. Bobylev (accepted, 2017): Climate change impacts on wind energy potential in the European domain with a focus on the Black Sea. Renewable & Sustainable Energy Reviews.
- Kondrik, D., D. Pozdnyakov and L.H. Pettersson (2016): *Coccolithophore blooms at high latitudes as observed from space: Developed methodologies and results of their application*. ESA SP, 2016. SP-740.
- Morosov, E.A., D. Kondrik, A. Fedorova, D. Pozdnyakov, D.L. Tang and L.H. Pettersson (2015): *A space borne assessment of cyclone impact on Barents Sea surface temperature and chlorophyll*. International Journal of Remote Sensing, 2015 Vol. 36 (7), p. 1921-1941.
- Pettersson, L. H. and Pozdnyakov, D. V., 2012: *Monitoring of harmful algal blooms*. Springer –Praxis Publishing, Book in Nansen Centers polar series no. 6, pp. 310, ISBN 978-3-540-22892-9. 2012.
- Johnsen, G., M.A. Moline, L.H. Pettersson, J. Pinckney, D.V. Pozdnyakov, E.S. Egeland and O.M. Schofield: *Chapter 14. Optical monitoring of phytoplankton bloom pigment signatures*. In the book *Phytoplankton Pigments: Updates on Characterization, Chemotaxonomy and Applications in Oceanography*, Editors; Suzanne Roy, Einar Skarstad Egeland, Carole Llewellyn and Geir Johnsen. Cambridge University Press. ISBN: 9781107000667. 2011.
- Bratbak, Gunnar, Stéphan Jacquet, Aud Larsen, Lasse H. Pettersson, Andrey F. Sazhin and Runar Thyrhaug: *The plankton community in Norwegian coastal waters - abundance, composition, spatial distribution and diel variation*. Continental Shelf Research, doi:10.1016/j.csr.2011.06.014, 2011.
- Hessen, Dag O., JoLynn Carroll, Berit Kjeldstad, Anton A. Korosov, Lasse H. Pettersson, Dmitry Pozdnyakov and Kai Sørensen: *Input of organic carbon as determinant of nutrient fluxes, light climate and productivity in the Ob and Yenisey estuaries*. Estuarine, Coastal and Shelf Science, Vol. 88 (2010) pp 53-62. doi:10.1016/j.ecss.2010.03.006.
- Johannessen, O.M., V.A. Volkov, L.H. Pettersson, V.S. Maderich, M.J. Zheleznyak, Y. Gao, L.P. Bobylev, A.V. Stepanov, I.A. Neelov, V.P. Tishkov, S.P. Nielsen: *Radioactivity and Pollution in the Nordic Seas and Arctic Region: Observations, Modelling and Simulations*. Nansen Center's Polar Series no. 5, Springer –Praxis Publishing, 408 pp., ISBN: 978-3-540-24232-, March 2010.
- Korosov A. A., Morosov, Eu.A. Pozdnyakov D. V., Pettersson L. H. and Grassl H., 2009: *Spaceborn identification and mapping of Coccolithophorid blooms in the Bay of Biscay* (in Russian). Earth observation and remote sensing, Russian Academy of Sciences, Moscow, No. 3 pp 67-78.
- Gao, Y., Helge Drange, Ola M. Johannessen and Lasse H. Pettersson, 2009: *Sources and pathways of ⁹⁰Sr in the North Atlantic–Arctic region: present day and global warming*, J. Environ. Radioact. (2009), 100 (5); 375-395, doi:10.1016/j.jenvrad.2009.01.003.
- Johnsen, Geir, Zsolt Volent, Egil Sakshaug, Fred Sigernes and Lasse Pettersson: *Chapter 6: Remote sensing in the Barents Sea*. p. 139-166. In the book "Ecosystem Barents Sea", Egil Sakshaug, Geir Johnsen og Kit Kovacs (eds.), Tapir Academic Press, Trondheim 587 pp., ISBN: 9788251924610.
- Korosov A. A., Pozdnyakov D. V., Folkestad A., Pettersson L. H., Sørensen K., Shuchman R. *Semi-empirical Algorithm for the Retrieval of Ecology-Relevant Water Constituents in Various Aquatic Environments*. Algorithms. 2009; 2(1), 470-497.; doi:10.3390/a2010470.
- Robinson, I.S., D. Antoine, M. Darecki, P. Gorringe, L.H. Pettersson, K. Ruddick, R. Santoleri, H. Siegel, P. Vincent, M.R. Wernand, G. Westbrook and G. Zibordi, I.S. Robinson, D. Antoine, M. Darecki, P. Gorringe, L.H. Pettersson, K. Ruddick, R. Santoleri, H. Siegel, P. Vincent, M.R. Wernand, G. Westbrook and G. Zibordi, 2008: *Remote Sensing of Shelf Sea Ecosystems - State of the Art and Perspectives*. European Science Foundation, Marine Science Board Position Paper no. 12. February 2008, ISBN 2-912049-77-6.
- Korosov, A. A., D. V. Pozdnyakov, L. H. Pettersson, and H. Grassl (2007): *Satellite data based study of seasonal and spatial variations of water temperature and water quality parameters in Lake Ladoga*. J. Appl. Remote Sens., No. 1 Vol. 1, 2007, DOI: 10.1117/12.791126.
- Pozdnyakov, D. V., O. M. Johannessen, A. A. Korosov, L. H. Pettersson, H. Grassl, and M. W. Miles (2007), *Satellite evidence of ecosystem changes in the White Sea: A semi-enclosed arctic marginal shelf sea,*

Geophys. Res. Lett., 34, L08604, doi:10.1029/2006GL028947.

Folkestad, A., L.H. Pettersson, and D. Durand, 2007: *Inter-comparison of ocean colour data products during algal blooms in the Skagerrak*, International Journal of Remote Sensing, Vol.28, Nos.3-4, February 2007, pp. 569-592. DOI:10.1080/01431160600821044

Johannessen, J.A., B. Hackett, E. Svendsen, H. Sjøiland, L.P. Røed, N. Winther, J. Albrechtsen, D. Danielsen, L. Pettersson, M. Skogen and I. Bertino, 2007: *Chapter 11: Operational oceanography – challenges and potential. In The Norwegian Coastal Current – oceanography and climate*. Edited by R. Sætre. Tapir academic press, Trondheim, Norway. ISBN: 987-82-519-2184-8.

Johannessen O. M., V. Yu. Alexandrov, I. Ye. Frolov, S. Sandven, L. H. Pettersson, L. P. Bobylev, K. Kloster, V. G. Smirnov, E. Yu. Mironov and N. G. Babich. *Remote Sensing of Sea Ice in the Northern Sea Route: Studies and Applications*. Nansen Centers polar series no.4, Springer-Praxis, 2006, pp. 472, ISBN: 3-540-24448-4.

Johannessen, J.A, L.H. Pettersson, T. Eldevik, D. Durand, G. Evensen, N. Winther and Ø. Breivik, 2006: *Chapter 6: Coastal Physical and Biochemical Processes*. In The Manual of Remote Sensing, 3rd edition, vol. 6: Remote Sensing of the Marine Environment, Editor: James F.R. Gower, 360 pp., American Society of Photogrammetry and Remote Sensing, ISBN 1-57083-080-0.

Filatov, N.N. D.V. Pozdnyakov, O.M. Johannessen, L.H. Pettersson and L.P. Bobylev, 2005: *White Sea – its marine environment and ecosystem dynamics influenced by global change*. Nansen Centers polar series no.3, Springer-Praxis, 2006, pp. 472, ISBN: 3-540-20541-1.

Johannessen, O.M., L. Bengtsson, M.W. Miles, S.I. Kuzmina, V. Semenov, G.V. Alekseev, A.P. Nagurny, V.F. Zakharov, L.P. Bobylev, L.H. Pettersson, K. Hasselmann, H.P. Cattle: *Arctic Climate Change – Observed and Modelled Temperature and Sea Ice*. Tellus, Dynamic meteorology and oceanography, Series A: Vol.56A, no. 3, pp. 1-18, May 2004.

Johannessen, O.M., A.M. Volkov, L.P. Bobylev, V.D. Grishenko, S. Sandven, L.H. Pettersson, V.V. Melentyev, V. Asmus, O.E. Milekhin, V.A. Krovotyntsev, V.G. Smirnov, V. Alexandrov, G. Duchossois, V. Kozlov, G. Kohlhammer and G. Solaas, 2000: *ICEWATCH - Real-time Sea ice Monitoring in the Northern Sea Route (a Cooperative earth observation project between the Russian and European Space Agencies)*. Earth Obs. Rem. Sens., Vol. 16, No. 2, pp. 269-281, Harwood Academic Publishers.

Johannessen, O.M., L.H. Pettersson, L.P. Bobylev, I.A. Neelov, A.V. Kouraev, R.A. Shuchman, V.A. Volkov, V.K. Donchenko, V.V. Ratoskuev and K. Hasselmann, 1997: *Developments Toward a Risk Management Tool for Simulations of Marine Transport of Radioactivity in the oceans - A case study from the Kara Sea*. In Field Screening Europe. Editors: J. Gottlieb, H. Hötzl, K. Huck and R. Niesser. Kluwer Academic Publishers. ISBN 0-7923-4782-X, The Netherlands, 1997.

Johannessen, O.M., L.H. Pettersson, L.P. Bobylev, V.V. Ratoskuev, E.V. Shalina and V.A. Volkov, 1997: *The slumbering bear of the Kara Sea - Use of a Marine Information System for Radionuclear Risk Management in the Kara Sea*. GIS Europe, Issue 6, May, 1997, pp. 20-22.

Selected reports (chronological)

Pettersson, Lasse, Gülizar Özyurt Tarakcioğlu, Joanna Staneva, Ahmet Cevdet Yalçiner, Evgeny Lemesko, Ayşe Duha Metin, Vladimir Malinovsky, Aleksandr Korinenko, Anton Korosov (2015): *Report on the field measurements of currents in the Black Sea*. Under FP7 project Towards COast to COast NETWORKS of marine protected areas (from the shore to the high and deep sea), coupled with sea-based wind energy potential (CoCoNET) (GA 287844). CoCoNET deliverable D10.3 NERSC Technical report no. 346. 31st May 2015.

Pettersson, L. H. and Korosov, A.K., 2014: *Vår oppblomstring av planteplankton i Barentshavet*. I van der Meer, G.I., Skotte, G., Ottersen, G., Franzen, S., Jørgensen, N.M., Frie, A.K., Lorentsen, S.-H., Selvik, I., Svensen, H.I. 2014. Forvaltningsplan Barentshavet – rapport fra overvåkingsgruppen 2014. Fisken og havet, særnr. 1b-2014. 115 s., Havforskningsinstituttet

Pettersson, Lasse H; Abu Syed, Md.: *Coastal and ocean processes in the Bay of Bengal in a changing climate and their impacts on society – Final Summer school Report*. NERSC Special report no. 91 2014.

Dagestad, Knut-Frode, Lasse H. Pettersson, Vladimir Kudryavtsev and Dmitry Akimov, 2008: *Surface wind and wind profiles in the North Sea based on satellite data*, NERSC Tech.Rep. #292 for NORDWIND AS/StatKraft, May, 2008.

Pettersson, Lasse H., Thierry Ranchin, Charlotte, Hasager, Han Wensink, Luc Dewilde and Morten Stette, 2007: *EO based information products for windfarm management*; Project reports and Promotional material (CD-ROM). NERSC Special Report no. 78. ESA ESRIN EO-Windfarm project no. 17736/03/I-IW, 14th December 2007.

Pettersson, Lasse H., Julian I. Allan, Per Andersen, Francisco G. Figueras, Steve Groom, Seppo Kaitala, Bengt Karlson, Torbjørn Lorentzen, Peter Miller, Lars J. Naustvoll, Andreas Neumann, Morten Skogen, Tapani Stipa, Einar Svendsen and Richardo Torres, 2005: *Harmful Algal Bloom Initiation and Prediction in Large European Marine Ecosystems – HABILE, Final Scientific Report*, under EC FP5 contract EVK3-CT2001-00063. NERSC Tech. Report # 259 (summary of all

deliverables), May 2005.

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Year of birth	Country of Birth		Nationality
1957	Norway		Norwegian
European Community Languages spoken			
English			
Currently working for			Since
Nansen Environmental and Remote Sensing Center, Bergen, Norway			1986