

## Miska Samuli Luoto

Living in Helsinki, Finland

Born in 1970, Helsinki, Finland

Family with Anu Luoto and two kids

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### Current position

11/2009 – Professor in physical geography

University of Helsinki

### Degrees

12/2009 Docent, physical geography, University of Oulu

12/2002 Docent, physical geography, University of Helsinki

12/2000 PhD, geography, University of Turku

05/1996 MSc, geography, University of Helsinki

### Impact (ISI Web of Science; Google Scholar)

h-index: 41; 51

Citations: 6695; 10660

Number of scientific articles: 160; 187

Highly cited 2011 (ISI Web of Science)

Highly cited articles: 5 (ISI Web of Science)

Most cited physical geographer in Finland (28.9.2018)

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### Funding and grants

2016 –

Principal investigator

Light Detecting and Ranging (LiDAR) technology for earth observation

Faculty of Science, University of Helsinki, 192 500 €

2015 – 2018

Principal investigator

Geomorphic sensitivity of the Arctic region: geohazards and infrastructure

Academy of Finland, 424 432 €

2014 – 2017

Principal investigator

Machine learning in palaeoclimatology: increasing the sensitivity and robustness of climatic reconstructions

Academy of Finland, 397 417 €

2015 – 2016

Principal investigator

Viiankiaapa biotopes

AA Sakatti Mining Oy, 56 512 €

2011 – 2014

Principal investigator

Impacts of climate change on Arctic vegetation and biodiversity

Academy of Finland, 250 000 €

2011

Principal investigator

Climate research infrastructure

University of Helsinki, 25 900 €

2007 – 2010

Principal investigator

The potentiality of RS and GIS in biodiversity modelling  
Academy of Finland, 247 000 €

2006 – 2007

Northern land use and land cover

University of Oulu, 260 000 €

2007

GIS research infrastructure

University of Oulu, 20 000 €

2006

Biodiversity and climate change: efficiency of the network of nature reserves and grazed meadows in maintaining species populations

Ministry of Environment, 30 000 €

2005 – 2006

Identification of high nature value farmland in Finland

Ministry of Agriculture and Forestry, 30 000 €

2003 – 2006

Landscape ecological approach for the management of biodiversity of agricultural areas

Ministry of Agriculture and Forestry; Ministry of Environment, 300 000 €

2004 The infrastructure of spectral field measurements

Academy of Finland, 128 000 €

2002 – 2004

The use of remote sensing data in modelling biodiversity in agricultural landscapes

Academy of Finland, 100 000 €

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### Awards

2009 Professor grant, University of Helsinki, 10 000 €

2007 Professor grant, University of Oulu, 8000 €

## Supervision

7 postdoctoral researchers (2009 – ), University of Helsinki, University of Oulu

12 on-going PhD projects, University of Helsinki

9 on-going MSc projects, University of Helsinki

21 graduated PhD students (2006 – ), University of Helsinki, University of Turku, University of Oulu

120 graduated MSc students (2001 – ), University of Helsinki, University of Turku, University of Oulu

## Referee experience

6 times as a PhD referee and dissertation opponent in Finland, Estonia and Switzerland (2004 –)

Peer reviewer for scientific journals, e.g., *Climatic Change*, *Ecography*, *Journal of Biogeography*, *Ecological Modelling*, *Journal of Applied Ecology*, *Landscape Ecology*, *Biodiversity and Conservation*, *Journal of Vegetation Science*, *Conservation Biology*, *Plant Ecology*, *Diversity and Distributions*, *Terra*, *Global Change Biology*, *Finnish Environment*, *Remote Sensing of Environment*, *Geomorphology*, *Polar Biology*, *Landscape and Urban Planning*, *Proceeding of the Royal Society, London Series B, Biology, Permafrost and Periglacial Processes*.

## Administrational responsibilities

03/2017 – Member of the faculty council, Faculty of science, University of Oulu

01/2013 – Vice-director of the Doctoral Program in Geosciences, University of Helsinki

01/2015 – Vice-director of the Master's Program in Geography, University of Helsinki

01/2015 – Vice-director of the Candidate Program in Geography, University of Helsinki

01/2014 – 12/2017 Member of the steering group of the Dept. of Geosciences and Geography, University of Helsinki

01/2014 – 12/2017 Member of the department council Dept. of Geosciences and Geography, University of Helsinki

10/2007 – 10/2009 Member of the department council Dept. of Geography, University of Oulu

01/2006 – 10/2007 Director of the Research Program Northern Land Use and Land Cover, University of Oulu

## International network

170 collaborators from Australia, Belgium, China, Denmark, Finland, France, Israel, Italy, Germany, Luxembourg, Netherlands, Spain, Switzerland, Norway, Portugal, France, Spain, Sweden, U.K. and U.S.A (see publication list).

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## International projects

2010 – 2012

Nordic Council of Ministers Climate and Biodiversity network

Global change impacts on sub-arctic palusa mires and greenhouse gas feedbacks to the climate system

2008 – 2011

EC FP6 Project ECOCHANGE

Challenges in assessing and forecasting biodiversity and ecosystem changes in Europe

2004 – 2009

EC FP6 Integrated Project ALARM

Assessing large scale environmental risks with tested method

2008 – 2010

EC FP6 Project MACIS

Minimization of and Adaptation to Climate change Impacts on biodiversity

2004 – 2009

EC FP6 A network of Excellence: ALTER-Net

A Long-Term Biodiversity, Ecosystem and Awareness Research Network

WP 6: 'Forecasting changes in biodiversity'

2007 – 2009

LAPBIAT

Lapland Atmosphere-Biosphere Facility – Improving the Human Research Potential and the Socio-Economic Knowledge Base

2004 – 2009

EC FP6 A network of Excellence: ALTER-Net

A Long-Term Biodiversity, Ecosystem and Awareness Research Network

WP 3: 'Drivers and pressures of biodiversity'

2006 – 2009

Nordic Council of Ministers PALSALARM

2001 – 2004

EC FP5 Earth Observation for Natura 2000 (EON 2000)

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### Publication highlights

- Niittynen, P, Heikkinen, R.K. & Luoto, M. (2018). Snow cover is a neglected driver of Arctic biodiversity loss. *Nature Climate Change* (in press).
- Aalto, J., Karjalainen, O., Hjort, J., & Luoto, M. (2018). Statistical forecasting of current and future circum-Arctic ground temperatures and active layer thickness. *Geophysical Research Letters*, 45, 4889-4898.
- Virkkala, A. M., Virtanen, T., Lehtonen, A., Rinne, J., & Luoto, M. (2018). The current state of CO2 flux chamber studies in the Arctic tundra: a review. *Progress in Physical Geography*, 42, 162-184.
- Salonen, J. S., Helmens, K. F., Brendryen, J., Kuosmanen, N., Väiliranta, M., Goring, S., ... & Luoto, M. (2018). Abrupt high-latitude climate events and decoupled seasonal trends during the Eemian. *Nature Communications*, 9(1), 2851.
- Aalto, J., Harrison, S., and Luoto, M. (2017) Statistical modelling predicts almost complete loss of major periglacial processes in Northern Europe by 2100. *Nature Communications* 8, 515.
- Tallavaara, M., Luoto, M., Korhonen, N., Järvinen, H., & Seppä, H. (2015) Human population dynamics in Europe over the Last Glacial Maximum. *Proceedings of the National Academy of Sciences* 112, 8232-8237.
- Soininen, J. & Luoto, M. (2014) Predictability in species distributions: a global analysis across organisms and ecosystems. *Global Ecology and Biogeography* 23, 1264-1274.
- Luoto, M. & Heikkinen, R.K. (2008) Disregarding topographical heterogeneity biases species turnover assessments based on bioclimatic models. *Global Change Biology* 14, 483-494.
- Heikkinen, R.K., Luoto, M., Araújo, M.B., Virkkala, R., Thuiller, W. & Sykes, M. (2006) Methods and uncertainties in bioclimatic envelope modelling under climate change. *Progress in Physical Geography* 30, 751-777.
- Luoto, M., Pöyry, J., Heikkinen, R.K. & Saarinen, K. (2005) Uncertainty of bioclimate envelope models based on geographical distribution of species. *Global Ecology and Biogeography* 14, 575-584.

### Completed PhD projects

- Pasi Valkama (5/2018), Department of Geoscience and Geography, University of Helsinki: *Impacts of agricultural water protection measures on erosion, phosphorus and nitrogen loading based on high-frequency on-line water quality monitoring*
- Annina K. Niskanen (3/2018), Department of Geoscience and Geography, University of Helsinki: *The spatial modelling of high-latitude plant richness and refugia in a changing environment*
- Virpi Pajunen (3/2018), Department of Geoscience and Geography, University of Helsinki: *The effects of local, catchment and climatic factors on the reliability of microbial bioindicators: diatoms in fluvial ecosystems*
- Maija Taka (3/2017), Department of Geoscience and Geography, University of Helsinki: *Key drivers of stream water quality along an urban-rural transition – a watershed scale perspective*
- Heidi Mod (5/2016), Department of Geoscience and Geography, University of Helsinki: *Biotic interactions in driving biodiversity: insights into spatial modelling*
- Sanna Varanka (1/2016), Faculty of Science, University of Oulu: *Multiscale influence of environmental factors on water quality in boreal rivers. Application of spatial-based statistical modelling*
- Tua Nylén (5/2015), Department of Geoscience and Geography, University of Helsinki: *Drivers of ecological and geomorphological patterns in the complex beach system*
- Juha Aalto (1/2015), Department of Geoscience and Geography, University of Helsinki: *New perspectives on climate, Earth surface processes and thermal hydrological conditions in high latitude systems*
- Suvi Ponnikas (2/2014), Department of Biology, University of Oulu: *Conservation biology of the endangered raptors in Finland*
- Ossi Kotavaara (12/2012), Department of Geography, University of Oulu: *Accessibility, population change and scale dependency – Exploring geospatial patterns in Finland, 1880–2009*
- Janne Alahuhta (8/2011), Department of Geography, University of Oulu: *Patterns of aquatic macrophytes in the boreal region: implications for spatial scale issues and ecological assessment*
- Miia Parviainen (6/2011), Department of Geography, University of Oulu: *Habitat suitability modeling of boreal biodiversity: predicting plant species richness and rarity*
- Salla Kaartinen (4/2011), Department of Biology, University of Oulu: *Space use and habitat selection of the wolf (Canis lupus) in human-altered environment in Finland*

- Katja Kangas (11/2009), Department of Biology, University of Oulu: *Recreation and tourism induced changes in northern boreal environments*
- Mathieu Marmion (3/2009), Department of Geography, University of Oulu: *New insights into the uncertainty of spatial models in physical geography*
- Sonja Kivinen (11/2007), Department of Geography, University of Turku: *Regional patterns of biological diversity in boreal agricultural environments*
- Sari Partanen (11/2007), Department of Geography, University of Oulu: *The spatiotemporal changes of aquatic macrophytes in Finland during the past 50 years based on aerial photographic data*
- Henna Piha (12/2006), Department of Ecology and Systematics, University of Helsinki: *Effects of agriculture on amphibian populations*
- Jan Hjort (5/2006), Department of Geography, University of Helsinki: *Environmental factors affecting the occurrence of periglacial landforms in Finnish Lapland: a numerical approach*
- Tuuli Toivonen (3/2006), Department of Geography, University of Turku: *Landscape information in quantitative biogeography: In search of a balance between resolution and extent*