

JÖRG HAARPAINNER, PhD

Senior Research Scientist in Earth Observation

at NORCE – Norwegian Research Centre AS (formerly Norut) in Tromsø, Norway, working on the application of satellite-borne SAR for operational monitoring. I started my research career in polar research using active microwave sensors during my PhD at the Norwegian Polar Institute and then at the national ice services in the US and Norway. Currently, I am focusing on the terrestrial application of synthetic aperture radar (SAR), specifically on forest, land cover and change monitoring with a strong interest in sustainable development. I have been involved in several projects on tropical regions in regard to REDD (Reduce Emission of Deforestation and Forest Degradation) and in GEO's Global Forest Observation Initiative (GFOI), leading the SAR processing, analysis and the service delivery to end users in Africa and South-America in EU FP7 and ESA projects. I was and wish to continue as a member of the Candidate Copernicus ROSE-L Mission Advisory Group.

PERSONAL INFORMATION

Home: Vårliveien 23

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Born in 1971 in Tönisvorst (Germany)

German nationality, living abroad since 1987 (France, Norway, Australia, USA, Poland)

PROFESSIONAL EXPERIENCE

- Since 2019 **NORCE – Norwegian Research Centre AS (former Norut)**
Senior scientist on earth observation in the “Climate” Department.
- 2005-2019 **Norut - Northern Research Institute, Tromsø (Norway)**
Senior scientist in the department of earth observation
- Project management and acquisition currently with focus on REDD, forest land cover monitoring, ARD.
 - R&D and capacity building on SAR application on tropical forest for REDD (MRV systems), land cover and vegetation.
 - R&D on SAR and scatterometer remote sensing of snow and sea ice.
 - Algorithm development for operational monitoring.
 - Certified UAV pilot.
 - PhD project supervision in tropical forest monitoring.
- Recent projects:** *Intertidal zone mapping with Sentinel-1/2* (Lead, Norwegian Environment Agency, 2019-2020), *SAR-4-Africa* (Lead, ESA, 2018-2019), *NorthState-TromsSAR* (Lead, FramCentre Tromsø Terrestrial Flaggskip, 2017), *SAR for REDD* (Lead, ESA DUE Innovator III, 2015-2017), *NorthState* (EU FP7, 2013-2016), *Tanzanian-Norwegian Cooperation* (WP leader, Norwegian Embassy in Dar-Es-Salaam, 2011-2015), *ReCover* (WP leader, EU FP7, 2010-2013), *SAMBA-CAR-ReCover* (Lead, PhD project, Norwegian Research Council, 2012-2015).
- 2003-2004 **Norwegian Meteorological Institute, Tromsø (Norway)**
Researcher for the operational ice service.
- R&D on remote sensing of sea ice and climate change (SAR and scatterometry).
 - Algorithm development for operational monitoring and advising the ice analysts.
 - Scientific contribution to ICEMON (ESA project).
 - Guest lecturer at the University Centre in Svalbard (Norway).
- 2002-2003 **National Ice Center (NIC), Washington DC (USA)**
Post-Doc/Visiting Scientist of Univ. Corporation of Atmospheric Research (NASA/NOAA grant).
- R&D on QuikScat satellite scatterometry (QS) for sea ice and climate change research.
 - Implementation of QS in the operational sea ice analysis.
 - Contribution to implement QS in the EUMETSAT O&SI SAF.
 - Participation in the ICEX ice camp in the Beaufort Sea (April 2003).
- 2001 **Cooperative Research Centre for Greenhouse Accounting, Canberra, Australia (5 months).**
Assistant to the Education Manager.
- Preparation, organisation and coordination of professional short courses about carbon accounting in sinks based on the Kyoto Protocol and the IPCC Special Report “Land-use, land-use change and forestry”.
 - Bibliographic research, outlining of the course plan, organisation of venue and fieldwork.
 - Compilation of course material and interactive CD-ROM “How to measure forest carbon”.
- 1997 - 2001 **Norwegian Polar Institute, Tromsø (Norway) and Longyearbyen (Svalbard, 1997-1998)**
PhD fellow supported by grants of the EU (MAST3) and the Norwegian Research Council (ALV)
- PhD project on polynya and ice formation modelling combined with remote sensing and in-situ data.
 - Oceanographic cruises, fieldwork on sea ice, proposal writing and reporting to EU and NFR.
- 1996 **Laboratory for Atmospheric Optics (LOA), Lille, France (4 months training)**
- 1995 **Eurocopter Deutschland GmbH, Munich, Germany (2 months training)**

EDUCATION

University of Versailles - St.Quentin-En-Yvelines, France

- 1997-2001** PhD in Physical Methods for Remote Sensing with distinction “Très honorable avec félicitation du jury”
- 1997-1998 Sea-Ice-Air Interaction, Polar Oceanography & Polar Meteorology (University Courses on Svalbard)
- 1995-1996 “Diplôme d’Études Approfondies” in Physical Methods for Remote Sensing” (Masters)
- 1994-1995 "Maîtrise" in Applied Physics (Masters), Option: Telecommunication
- 1993-1994 "Licence" in Applied Physics, Option: Signal processing
- 1991-1993 Basic science studies (Mathematics and Physics) "DEUG A" (Bachelor)
- 1991 “Baccalauréat international en science”, Lycée de Sèvres, France

Computing: Proficiency in general computer use, PC and LINUX
 Programming in IDL, some Fortran and C++
 Image and data processing software (ENVI, PCI, ERDAS Imagine), GIS (ArcGIS)

Continuing Education

- Fall 2005 International Sustainable Development (University of Tromsø, Norway)
- Aug. 2004 2nd ENVISAT Summer-School “Earth System Monitoring and Modelling” (ESA ESRIN, I-Frascati)
- Summer 2002 Sustainable International Development (US Dep. for Agriculture (USDA), Washington DC, USA)
- Fall 2001 Managing and Developing Teams (Canberra Institute of Technology, Australia)
- Nov. 2001 How to measure forest carbon – A short course (CRC for Greenhouse Accounting, Australia)

LANGUAGES

- German:** Mother tongue
- English:** Fluent - working language, resident in Australia (1 year) and in the US (15 months)
- French:** Fluent - resident in France from 1987 to 1997
- Norwegian:** Fluent - resident in Norway since 1997
- Polish:** Advanced beginner - accomplished Level A0 and A1 at IKO language school, Warszawa, Poland
- Russian:** Beginner - 2-month stay in Kazakhstan in 1996 and one course at USDA (fall 2002)
- Spanish:** Beginner - 2 weeks intensive course in September 2003 and 1 semester at Folkeuniversitetet Tromsø

MISCELLANEOUS

- Member of ESA’s ESA L-band SAR Mission Advisory Group (2018-2019)
 - Reviewer for Journal of Geophysical Research, IEEE GRSL & JSTARS)
 - Board member of Vestre Hansmark Borettslag (2009-2011)
 - Board member of Norrøna Barnehave AS (2011-2015)
 - Member of the Norwegian Red Cross Rescue Team (1st Aid certified and Mountain Rescue Course): 2005-2006
 - Basketball trainer for under-10 and under-12 age group (Tromsø Storm Ungdom): 2015-2017
- 09/2007-05/2008 Parental leave in Warszawa, Poland
- 1999/2000 Organiser of the men’s rowing team and basketball team at the Norwegian Polar Institute
- 1997,'98 Safety Courses at UNIS (first aid, shooting, handling of snow-mobile and rubber boat)
- 1992 One month night-work in the Photo-laboratory Brunniger, Munich

HOBBIES

- Travelling - Visited continents and countries: Africa (Dem. Rep. Congo, Gabon, Morocco, Senegal, South Africa, Sultanate of Oman, Tanzania, Tunisia, UAE), America (Brazil, Colombia, Cuba, Ecuador, Peru, USA), Asia (China, Iran, Japan, Kazakhstan, Kyrgyzstan, Pakistan, Thailand), Europe (most countries), Oceania (Australia, New Zealand)
- Outdoor activities: Skiing, hiking, sea kayaking, SCUBA diving
- Indoor activities: Basketball, squash

SCIENTIFIC PUBLICATIONS, PRESENTATIONS & REPORTS

2019

- Davidson, M., M. Chini, W. Dierking, S. Djavidnia, **J. Haarpaintner**, G. Hajduch, G.V. Laurin, M. Lavalle, C. Lopez Martinez, T. Nagler, N. Pierdicca, and B. Su. (2019). Copernicus L-band SAR Mission Requirements Document. *European Space Agency doc. ESA-EOPSM-CLIS-MRD-3371*, July 2019.
- Haarpaintner, J.** (2019). *D3.1 - Initial ASARD Product Report, Delivery 3.1 of ESA EO4SD project SAR-4-Africa*, April 2019.
- Haarpaintner, J.**, and C. Davids (2019). Satellite-Based Intertidal-Zone Mapping from Sentinel-1&2. *Preliminary Project Report to the Norwegian Environment Agency*.
- Haarpaintner, J.**, and H. Hindberg (2019). Multi-Temporal and Multi-Frequency SAR Analysis for Forest Land Cover Mapping of the Mai-Ndombe District (Democratic Republic of Congo). *Remote Sensing, submitted revised version*
- Haarpaintner, J.**, H. Hindberg, T.G. Yitayew, B.D. Killough, R. Mathieu, L. Mane, B. Gessesse Awoke, S. Ofori-Ampofo, E. Boamah (2019). Time-Series and Applications of Advanced Sentinel-1 Analysis Ready Data for Africa (SAR-4-Africa). *Presentation at VH-RODA and CEOS WGCV SAR 2019 workshop, Frascati, Italy, 18–22 November 2019*.
- Haarpaintner, J.**, H. Hindberg, T.G. Yitayew, B.D. Killough, R. Mathieu, L. Mane, B. Gessesse Awoke, S. Ofori-Ampofo, E. Boamah (2019). Time-Series and Applications of Advanced Sentinel-1 Analysis Ready Data for Africa (SAR-4-Africa). *Presentation at joint meeting of Pecora-21 and ISRSE-38, Baltimore (MD), USA, 6-10 Oct. 2019*.
- Haarpaintner, J.**, B.D. Killough, S. Ofori-Ampofo, and E. Boamah (2019). Galamsey Monitoring with Sentinel-1 in Ghana. *Presentation at joint meeting of the Pecora-21 and ISRSE-38, B Submitted revised version altimore (MD), USA, 6-10 Oct. 2019*.
- Haarpaintner, J.**, B. Killough, R. Mathieu, L. Mane, B. Gessesse Awoke (2019). Advanced Sentinel-1 Analysis Ready Data for Africa. *Presentation at 'ESA Living Planet Symposium 2019', Milan, Italy, 13-17 May 2019*.
- Pierdicca, N., M. Davidson, M. Chini, W. Dierking, S. Djavidnia, **J. Haarpaintner**, G. Hajduch, G. Vaglio Laurin, M. Lavalle, C. Lopez Martinez, T. Nagler, and B. Su (2019). The Copernicus L-band SAR Mission ROSE-L (Radar Observing System for Europe). *Presentation at SPIE Remote Sensing conference, Palais de la Musique et des Congrès, Strasbourg, France, 9 - 12 September 2019*.

2018

- Haarpaintner, J.** (2018). Monitoring Forest/Land Cover and Forest Cover Change in Tropical Rainforest in DRC. In "GFOI R&D Programme - Technical Progress Report", *Global Forest Observations Initiative, 41-43*, http://www.gofcgold.wur.nl/documents/GFOI/gfoi-rd-progressreport_17apr2018.pdf.
- Haarpaintner, J.**, B. D. Killough, S. Ampofo Ofori and E.O. Boamah (2018). Advanced Sentinel-1 Analysis Ready Data for the Ghana Open Data Cube and Environmental Monitoring. *Presentation at 7th BIOGEO-SAR, Oberpfaffenhofen, Germany, 12-15 Nov. 2018*.
- Haarpaintner, J.** (2018). ESA DUE – Innovator III SAR for REDD - D2.3 Final Report (FR). *NORUT Report 5/2018, ISBN 978-82-7492-405-5, ISSN 2535-3004, Norut - Northern Research Institute, Tromsø, Norway, 22 March.2018*.
- Haarpaintner, J.**, (2018). Forest and forest loss mapping from ALOS to ALOS-2 in the Mai-Ndombe District, DRC. *Presentation at the 3rd ALOS-2 PI Workshop, Tokyo, Japan, 22-25 Jan. 2018*.
- Haarpaintner, J.** (2018). Comparison of single (C/L-band) and multi-frequency SAR-based tropical forest mapping in the Mai Ndombe district, DRC. *Presentation at ForestSAT 2018, University of Maryland, College Park, MD, USA, 2-5 October 2018*.
- Haarpaintner, J.**, & H. Tømmervik (2018). Sentinel-1 CSAR Forest Land Cover Mapping of Troms County. *Poster at ForestSAT 2018, University of Maryland, College Park, MD, USA, 2-5 October 2018*.
- Trier, Ø.D., A-B. Salberg, **J. Haarpaintner**, D. Aarsten, T. Gobakken, and E. Næsset. (2018) Multi-sensor forest vegetation height mapping methods for Tanzania, *European Journal of Remote Sensing, 51(1), 587-606, DOI: 10.1080/22797254.2018.1461533*.

2017

- Haarpaintner, J.**, A. Mazinga, and L. Mane (2017). Sentinel-1 Forest Land Cover Classification and Forest Change of the Mai-Ndombe District, D.R. Congo. *Poster at the Worldcover 2017 Conference, ESA/ESRIN, Frascati, Italy, 14-16 March 2017*.
- Haarpaintner, J.**, & H. Hindberg (2017). D2.1 – Product Delivery Report (PDR), *Delivery 2.1 for ESA DUE – Innovator III project "SAR for REDD", 4 Apr 2017*.
- Haarpaintner, J.** & C. Singa (2017). D2.2 – Product Validation Report (PVR), *Delivery 2.2 for ESA DUE – Innovator III project "SAR for REDD", 18 Apr 2017*.
- Haarpaintner, J.** (2017). D2.3 – Final Report (FR), *Delivery 2.3 for ESA DUE – Innovator III project "SAR for REDD", version 1.0 24 Apr 2017*.
- Haarpaintner, J.** & H. Tømmervik (2017). NorthState TromSAR - Climate Variability in SAR Land Cover Monitoring. Report in Research Database, Fram Centre, <http://www.ifram.no/db.343156.no.html?lid=436.9d85d5fe2a30b13501bb4975ad1ed032>.
- Haarpaintner, J.** (2017). Forest and Forest Loss Mapping with SAR from the ENVISAT/ALOS era to the Sentinel-1/ALOS-2 present in the Mai-Ndombe District, DRC. *Presentation at ISRSE-37, Tshwane, South Africa, 8-12 May 2017*.
- Haarpaintner, J.** (2017). Validation of SAR-based forest land cover and forest change maps and detectability of slash-and-burn activities in the Kwamouth region, Mai-Ndombe District, DRC. *Presentation at ISRSE-37, Tshwane, South Africa, 8-12 May 2017*.
- Ørka, H.O., V. Strimbu, **J. Haarpaintner** and T. Gobakken (2017). Mapping conifer trees by means of remote sensing, Final project report. *NMBU - Norges miljø- og biovitenskapelige universitet, 31 pages, version 1. December 2017*.
- Ørka, H.O., V. Strimbu, **J. Haarpaintner** and T. Gobakken (2017). Mapping natural forest by means of remote sensing. Final project report. *NMBU - Norges miljø- og biovitenskapelige universitet, 35 pages, version 1. December 2017*.

2016

- Davids, C., R. Storvold, **J. Haarpaintner**, and K. Árnason (2016). Simulation of Sentinel-2A Red Edge Bands with RPAS Based Multispectral Data. *Proc. 'Living Planet Symposium 2016', Prague, Czech Republic, 9–13 May 2016 (ESA SP-740, August 2016, ISBN 978-92-9221-305-3, ISSN 1609-042X)*.
- Haarpaintner, J.** (2016). SAR for REDD+ in the Mai Ndombe District (DRC). *Proc. 'Living Planet Symposium 2016', Prague, Czech Republic, 9–13 May 2016 (ESA SP-740, August 2016, ISBN 978-92-9221-305-3, ISSN 1609-042X)*.
- Haarpaintner, J.**, C. Davids, et al. (2016). Boreal Forest Landcover Mapping in Iceland and Finland using Sentinel-1A. *Proc. 'Living Planet Symposium 2016', Prague, Czech Republic, 9–13 May 2016 (ESA SP-740, August 2016, ISBN 978-92-9221-305-3, ISSN 1609-042X)*.
- Haarpaintner, J.** (2016). Project Management Plan (PMP) – Update April 2016, *Delivery for ESA DUE – Innovator III project "SAR for REDD", 7 Apr 2016*.
- Haarpaintner, J.** (2016). SAR for REDD (leaflet), *Delivery for ESA DUE – Innovator III project "SAR for REDD", 3 Jun 2016*.

- **Haarpaintner, J.** (2016). D1.1 - Requirement Baseline (RB), *Delivery 1.1 for ESA DUE – Innovator III project “SAR for REDD”*, 3 Nov 2015.
- **Haarpaintner, J.** (2016). D1.2 – Technical Specifications (TS), *Delivery 1.2 for ESA DUE – Innovator III project “SAR for REDD”*, 31 Mar 2016.
- **Haarpaintner, J.** (2016). D1.3 – Product Validation Plan (PVP), *Delivery 1.3 for ESA DUE – Innovator III project “SAR for REDD”*, 31 May 2016.
- **Haarpaintner, J.** (2016). Mid-Term Review Progress Report (MTR-201606), *Delivery for ESA DUE – Innovator III project “SAR for REDD”*, 6 Jun 2016.
- **Haarpaintner, J.** (2016). SAR for REDD. *Presentation at GFOI Plenary Meetings, Frascati, Italy, 22-26 February 2016.*
- **Haarpaintner, J.** (2016). SAR FOR REDD+: Supporting GFOI R&D priorities using Synthetic Aperture Radar - SAR for REDD. *Presentation at GEO European projects’ workshop, Berlin, Germany, 31 May – 2 Jun 2016.*
- Reiche, J., R. Lucas, A.L. Mitchell, J. Verbesselt, D.H. Hoekman, **J. Haarpaintner**, J.M. Kellndorfer, A. Rosenqvist, E.A. Lehmann, C.E. Woodcock, F.M. Seifert and M. Herold (2016). Combining satellite data for better tropical forest monitoring. *Nature Climate Change* 6(2),120-122, DOI: 10.1038/nclimate2919.
- Trier, Ø. D., A.B. Salberg, **J. Haarpaintner**, D. Aarsten, T. Gobakken, and E. Næsset (2016). Automatic multi-sensor forest vegetation height mapping methods for Tanzania. *Norsk Regnesentral, Oslo, NR-notat, (SAMBA/04/16), 44pages.*

2015

- **Haarpaintner, J.** (2015). SAR for REDD+ - Providing Synthetic Aperture Radar Processing Capabilities to REDD Countries. *Presentation at BMZ-DLR International Conference on MRV of REDD, Bonn, Germany, 21-22 Sep 2015.*
- **Haarpaintner, J.** (2015). SAR for REDD+. *Presentation at 6th International Workshop on Retrieval of Bio- & Geo-physical Parameters from SAR Data for Land Applications, ESA/ECSAT, Harwell, Oxfordshire, UK, 17-19 November 2015.*
- **Haarpaintner, J.**, C. Davids, H. Hindberg, E. Zahabu, and R.E. Malimbwi (2015). Forest and Forest Change Mapping with C- and L-band SAR in Liwale, Tanzania. *Proceedings of the 36th International Symposium on Remote Sensing of Environment, 11 – 15 May 2015, Berlin, Germany, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-7/W3, 391-395, doi:10.5194/isprsarchives-XL-7-W3-391-2015, 2015.*
- **Haarpaintner, J.**, D. de la Fuente Blanco, F. Enßle, P. Datta, A. Mazinga, C. Singa & L. Mane (2015). Tropical Forest Remote Sensing Services for the Democratic Republic of Congo inside the EU FP7 ‘ReCover’ Project (Final Results 2000-2012). *Proceedings of the 36th International Symposium on Remote Sensing of Environment, 11 – 15 May 2015, Berlin, Germany Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-7/W3, 397-402, doi:10.5194/isprsarchives-XL-7-W3-397-2015, 2015.*
- Häme, T., T. Mutanen, Y. Rauste, O. Antropov, M. Molinier, S. Quegan, E. Kantzas, A. Mäkelä, F. Minunno, J.A. Benediktsson, N. Falco, K. Árnason, R. Storvold, **J. Haarpaintner**, V. Elsakov, J. Rasinmäki (2015). Enabling intelligent Copernicus Services for Carbon and Water Balance Modelling of Boreal Forest Ecosystems – North State. *Proceedings of the IEEE International Geoscience and Remote Sensing Symposium 2015, 26-31 July, Milan, Italy, 2048-2051, DOI: 10.1109/IGARSS.2015.7326203.*
- Häme, T., T. Mutanen, Y. Rauste, O. Antropov, M. Molinier, S. Quegan, E. Kantzas, A. Mäkelä, F. Minunno, J. A. Benediktsson, N. Falco, K. Árnason, R. Storvold, **J. Haarpaintner**, V. Elsakov, and J. Rasinmäki (2015). Enabling intelligent Copernicus Services for Carbon and Water Balance Modelling of Boreal Forest Ecosystems – North State. *Proceedings of the 36th International Symposium on Remote Sensing of Environment, 11–15 May 2015, Berlin, Germany, ISRSE36-710-1.*

2014

- Desclée, B., Ph. Mayaux, M. Hansen, P. Lola Amani, C. Sannier, B. Mertens, T. Häusler, R. Ngamabou Siwe, H. Poilvé, V. Gond, M. Rahm, **J. Haarpaintner**, and J-P. Kibambe Lubamba, “Chapter 1. Evolution of forest cover at a national and regional scale and drivers of change”, pp. 21-46 in *“The Forests of the Congo Basin - State of the Forest 2013.”* by C. de Wasseige, J. Flynn, D. Louppe, F. Hiol Hiol, and Ph. Mayaux (eds.), Weyrich Édition, Belgium, 328 p., Legal deposit: D/2014/8631/42, ISBN: 978-2-87489-299-8, 2014.
- **Haarpaintner, J.**, T. Kattenborn, and F. Enssle, Field data collection with Remotely Piloted Aerial Systems (RPAS). *Presentation at 1st Regional Workshop on Forest Monitoring -SE Asia Initiative GEO GFOI.* Chiang Mai, Thailand, 27-30 Jan 2014.
- **Haarpaintner, J.**, Science Based Remote Sensing Services to Support REDD and Sustainable Forest Management in the Tropical Region – ReCover. *Presentation at Copernicus Day at the Norwegian Space Center, Oslo, Norway, 27 Mai 2014.*
- **Haarpaintner, J.**, F. Enßle and S.A. Solbø, Geo-referenced aerial photography and tropical forest parameters from a low cost RC quadcopter in the Democratic Republic of Congo. *Presentation at 2nd Workshop of Special Interest Group on Forestry, 34th EARSel Symposium, Warsaw, Poland, 17-18 June 2014.*
- **Haarpaintner, J.**, M. Kohling, F. Enßle, P. Datta, A. Mazinga, and J. Likunda, Validation of optical and SAR satellite-based forest maps with field data in the Mai Ndombe district, Dem. Rep. of Congo. *Poster presentation at the “ForestSAT2014” conference, Riva Del Garda, Italy, 4-7 Nov. 2014.*
- Solberg, S., T.P. Lohne, **J. Haarpaintner**, M. Kohling, M. Zortea, Ø.D. Trier. Monitoring deforestation and forest carbon stocks in Tanzania with satellite data. *Presentation at CCIAM, Morogoro, Tanzania, 1-3 April 2014.*

2013

- **Haarpaintner, J.**, Up-scaling ground reference observations with low cost aerial photography from a small quadcopter - 1st experience from the Democratic Republic of Congo. *Presentation at 8th Regional Workshop “Community-based Monitoring”, Tena, Ecuador, 16-19 July 2013.*
- **Haarpaintner, J.**, ”D310.4 Assessment Report on Future Data and Products Requirements”, *Delivery nr. D310.4 of EU FP7 Project “ReCover”, VTT Technical Research Centre of Finland, Espoo, Finland, 6 Nov 2013.*
- **Haarpaintner, J.**, and F. Enssle, Potential Support for Forest Biomass Inventories from Remotely Piloted Aerial Systems (RPAS). Oral presentation at 9th Regional Workshop on Forest Monitoring GEO GFOI “Methods for Biomass Estimation and Forest-Cover Mapping in the Tropics”, GFOI/SilvaCarbon, Bogota & Leticia, Colombia, 2-7 December 2013.
- **Haarpaintner, J.**, T. Häme, J. Reiche, F. Enßle, and D. Pedrazzani, ”D230.3 Report from User Training and Workshops”, *Delivery nr. D230.3 of EU FP7 Project “ReCover”, VTT Technical Research Centre of Finland, Espoo, Finland, 6 Nov 2013.*
- **Haarpaintner, J.**, M. Kohling, D. Pedrazzani, F. Enßle, and L. Mane, “Improving the Tropical Forest Remote Sensing Services for the Dem. Rep. of Congo inside the EU FP7 “RECOVER” Project”, *Oral presentation at the ESA Living Planet Symposium 2013, Edinburgh, UK, 09-13 Sep. 2013.*
- **Haarpaintner, J.**, T. Mutanen, T. Häme, D. Pedrazzani, J. Haikonen, J. Reiche, and M. Herold, ”D310.5 Assessment Report on Cost/Benefit and Market Analysis”, *Delivery nr. D310.5 of EU FP7 Project “ReCover”, VTT Technical Research Centre of Finland, Espoo, Finland, 7 Nov 2013.*

- **Haarpaintner, J.**, J. Reiche, and T. Häme, "D310.3 Service Assessment Report v1.0", *Delivery nr. D310.3 of EU FP7 Project "ReCover"*, VTT Technical Research Centre of Finland, Espoo, Finland, 7 Nov 2013.
- Häme, T., L. Sirro, E. Cabrera, **J. Haarpaintner**, F. Enssle, J. Hämäläinen, B. de Jong, F. Paz Pellat, D. Pedrazzani, J. Reiche, "ReCover: A Concept for Tropical Forest Assessment for REDD", Oral presentation and article in *"Proceedings of the ESA Living Planet Symposium 2013, Edinburgh, UK, 09-13 Sep. 2013, ESA SP-722. 2-13, p.17"*
- Kohling, M., and **J. Haarpaintner**, "Temporal Variability of SAR Backscatter over Tropical Regions in Tanzania, The Democratic Republic of Congo and Colombia", *Poster at the ESA Living Planet Symposium 2013, Edinburgh, UK, 09-13 Sep. 2013.*
- Malnes, E., M. Eckerstorfer, **J. Haarpaintner**, M. Hreinn Jonsson, and H. Grimsdottir, Applicability of C-band SAR data for characterization of avalanche risk. Poster and article in *"Proceedings of the ESA Living Planet Symposium 2013, Edinburgh, UK, 09-13 Sep. 2013, submitted.*
- Musampa, C., and **J. Haarpaintner**, "GFOI/GEO FCT Briefing - Democratic Republic of Congo", *Oral presentation at GEO FCT Science and Data Summit #4, Sydney, Australia, 4-6 Feb. 2013.*

2012

- Einzmann, K., **J. Haarpaintner**, and Y. Larsen, "Forest Monitoring in Congo Basin with combined use of SAR C- & L-band", *Proceedings of the IEEE International Geoscience and Remote Sensing Symposium 2012, 22-27 July, Munich, Germany, IEEE Catalog Number CFP12IGA-USB, ISBN 978-1-4673-1158-8, pp. 6573-6576, 2012.*
- **Haarpaintner, J.**, K. Einzmann, D. Pedrazzani, M.T. Mateos San Juan, M. Gómez Giménez, J. Heinzel, F. Enßle, and L. Mane, "Tropical Forest Remote Sensing Services for the Democratic Republic of Congo case inside the EU FP7 'ReCover' project (1st iteration)", *Proceedings of the IEEE International Geoscience and Remote Sensing Symposium 2012, 22-27 July, Munich, Germany, IEEE Catalog Number: CFP12IGA-USB, ISBN: 978-1-4673-1158-8, pp. 6392-6395, 2012.*
- **Haarpaintner, J.**, M. Herold, J. Reiche, T. Häme, and B. de Jong, "D230.1 Assessment Report on User Needs in Capacity Development in regard to space-borne forest monitoring", *Delivery nr. D230.1 of EU FP7 Project "ReCover"*, VTT Technical Research Centre of Finland, Espoo, Finland, 2 Apr. 2012.
- **Haarpaintner, J.**, J. Reiche, M. Herold, T. Häme, and B. de Jong, "D230.2 Report from User Training and Workshops", *Delivery nr. D230.2 of EU FP7 Project "ReCover"*, VTT Technical Research Centre of Finland, Espoo, Finland, 2 Apr. 2012.
- **Haarpaintner, J.**, J. Reiche, and T. Häme, "D310.1 Service Assessment Report", *Delivery nr. D310.1 of EU FP7 Project "ReCover"*, VTT Technical Research Centre of Finland, Espoo, Finland, 2 Jul. 2012.
- **Haarpaintner, J.**, "D310.2 Assessment Report on Future Data and Products Requirements", *Delivery nr. D310.2 of EU FP7 Project "ReCover"*, VTT Technical Research Centre of Finland, Espoo, Finland, 2 Jul. 2012.
- **Haarpaintner, J.**, and T. Häme "Development de services de télédétection pour soutenir REDD et la gestion forestière durable dans les régions tropicales – ReCover", *Oral presentation at "GEO-RDC Atelier de Coordination sur la Surveillance des Forêts et Inventaire de Carbone Forestier"*, organized by Group on Earth Observation and the Ministry of Environment, Nature Conservation and Tourism of the Dem. Rep. Congo, 12-14 Juin 2012, Kinshasa, Dem. Rep. Congo, 2012.
- **Haarpaintner, J.**, Ø. Due Trier, and J. Otieno, "GEO FCT Product Development Team report – Tanzania", *Oral presentation at the GEO-FCT Science & Data Summit #3, Arusha, Tanzania, 6-10 Feb. 2012.*
- Häme, T., L. Sirro, E. Cabrera, **J. Haarpaintner**, J. Heinzel, J. Hämäläinen, B. de Jong, F. Paz Pellat, D. Pedrazzani, J. Reiche, "Chapter 8: ReCover: Services for the Monitoring of Tropical Forest to Support REDD+", in *"Let's Embrace Space, vol. II"* by Schulte-Braucks, R., P. Breger, H. Bischoff, S. Borowiecka, S. Sadiq (eds.), Publication office of the European Union, ISBN 978-92-79-22207-8, doi: 10.2769/31208, pp. 106-114, 2012.
- Hindberg, H. and **J. Haarpaintner**, "Validation of Ice-Ocean SAR Discrimination Algorithm", *Norut Report 9/2012*, Norut, Tromsø, Norway, ISSN 1890-5226, 2012.
- Pedrazzani, D., M.T. Mateos San Juan, M. Gómez Giménez, **J. Haarpaintner**, K. Einzmann, and L. Mane, "Potential applications of Sentinel-2 data to forest monitoring services in support to REDD activities: The Democratic republic of Congo case within ReCover Project", *Proceedings of the Sentinel-2 Preparatory Symposium, ESA-ESRIN, Frascati, Italy, 23-27 April 2012.*

2011

- **Haarpaintner, J.**, E. Malnes, H. Hindberg, and Y. Larsen, "Tropical Forest Monitoring with Synthetic Aperture Radar (SAR)". *Presentation at LiDAR/GEO FCT Project kick-off meeting, Dar Es Salaam, Tanzania, 2-5 May 2011.*
- Pedersen, G., **J. Haarpaintner**, and Ø. Due Trier, "GEO FCT Product Development Team Report Tanzania", *Presentation at GEO-FCT Science & Data Summit #2, UN-FAO, Rome, Italy, 8-10 Feb. 2011.*

2010

- **Haarpaintner, J.**, An ice-ocean discrimination algorithm for dual-polarized synthetic aperture radar imagery. *Proc. 'ESA Living Planet Symposium', Bergen, Norway 28 June – 2 July 2010, ESA SP-686, Dec. 2010.*
- **Haarpaintner, J.**, Hindberg, H., Larsen, Y., Malnes, E., Johansen, B., GEO FCT Product Development Team Report: Tanzania – Preliminary SAR study. *Presentation at the GEO-FCT Science & Data Summit, Woods Hole Research Center, Woods Hole, MA, USA, May 11-12, 2010.*
- **Haarpaintner, J.**, L. Mane, and R. Almeida-Filho., Norut – OSFAC Cooperation Project: Complement existing optical rainforest monitoring of the Congo Basin with cloud penetrating synthetic aperture radar (SAR). Poster at the *COMIFAC Carbon Monitoring Workshop, Feb 2-4 2010, Brazzaville, Republic of Congo, 2010.*
- Rotschky, G., T.V. Schuler, **J. Haarpaintner**, J. Kohler, E. Isaksson. Spatio-temporal variability of snow melt on Svalbard during the period 2000-2008 derived from QuikScat/SeaWinds scatterometry. *Polar Research*, 30, 5963, 2011.

2009

- **Haarpaintner, J.**, Adapting the ice-ocean SAR discrimination algorithm to dual-polarized Radarsat-2 imagery. *NORUT Report 06-2009*, 55 p., ISSN 1890-5226, ISBN 978-82-7492-214-3, Northern Research Institute, Tromsø, Norway, March 2009.
- **Haarpaintner, J.**, R. Almeida-Filho, Y.E. Shimabukuro, E. Malnes, and I. Lauknes, Comparison of Envisat ASAR deforestation monitoring in Amazônia with Landsat-TM and ALOS PALSAR images. *Anais XIV Simpósio Brasileiro de Sensoriamento Remoto*, Natal, Brasil, 25-30 Apr 2009, INPE, 5857-5864, 2009.
- **Haarpaintner, J.**, E. Malnes, R. Almeida-Filho, Y.E. Shimabukuro, and I. Lauknes, Operational SAR Monitoring: From Snow to Tropical Rainforest. Oral presentation and paper in *Proceedings of the 33rd International Symposium on Remote Sensing of Environment*, Stresa, Italy, 4-8 May 2009, 4 pages, 2009.

2008

- **Haarpaintner, J.**, SATHAV - ShipIce 2007: Improving the ice-ocean discrimination in SAR imagery. *NORUT Report 03-2008*, 30 p., ISSN 1890-5226, ISBN 978-82-7492-201-3, Northern Research Institute, Tromsø, Norway, 2008.
- Rotschky, G., J. Kohler, E. Isaksson, **J. Haarpaintner**, 2008. Spatio-temporal variability of snow melt on Svalbard derived from spaceborne scatterometer data. *Poster presentation at SCAR/IASC IPY Open Science Conference*, St. Petersburg, Russia, 8-11 July, 2008.
- Solberg, R. (ed.), E. Malnes (ed.), J. Amlien, F. Danks, **J. Haarpaintner**, K.-A. Høgda, B. E. Johansen, S.R. Karlsen, and H. Koren, State of the art for tropical forest monitoring by remote sensing - A review carried out for the Ministry for the Environment of Norway and the Norwegian Space Centre. NR-Report nr. 1020, ISBN 978-82-539-0530-3, Norsk Regnesentral, Oslo, Norway, Sep 2008.

2007

- **Haarpaintner, J.**, and G. Spreen, Use of enhanced-resolution QuikSCAT/SeaWinds data for operational ice services and climate research: sea ice edge, type, concentration, and drift. *IEEE Trans. Geosci. Remote Sensing.*, 45(10), 3131-3137, 2007.
- **Haarpaintner, J.**, E. Malnes, and I. Lauknes, Uttesting av metoder for snødekningskartlegging med SAR. *NORUT Report 03-2007*, 29 p., ISSN 1503-1705, Northern Research Institute, Tromsø, Norway, 2006.
- **Haarpaintner, J.**, E. Malnes, I. Lauknes, S.R. Karlsen, K.-A. Høgda, and R. Storvold, Active microwave remote sensing of sea ice & snow for operational services & climate research. *Invited presentation at Norway-Japan Symposium on Polar, Space, and Climate Research*, Tokyo, Japan, 29-30 May 2007.
- **Haarpaintner, J.**, and S. Solbø, Automatic ice-ocean discrimination in SAR imagery. *NORUT Report 06-2007*, 28 p., ISSN 1503-1705, ISBN 978-82-7747-150-5, Northern Research Institute, Tromsø, Norway, 2007.
- Karlsen, S.R., E. Malnes, **J. Haarpaintner**, and R. Solberg, Mapping and modelling the snowmelt and greening pattern in southern Norway by combining microwave and optical remote sensing sensors. In *Proceedings of IEEE International Geoscience and Remote Sensing Symposium*, IGARSS 2007, Barcelona, Spain, 23-28 July 2007, pp. 1279 - 1282, 2007.
- Rotschky, G., J. Kohler, E. Isaksson, **J. Haarpaintner**, and N. Thieme, Spatio-temporal variability of snow cover in Svalbard derived from a combination of spaceborne scatterometer, glaciological ground truth and meteorological data. *Eos Trans. AGU*, 88(52) Fall meet. Suppl., Abstract C23A-0934, 2007.

2006

- **Haarpaintner, J.**, Arctic-Wide Operational Sea Ice Drift from Enhanced Resolution QuikScat/SeaWinds Scatterometry and its Validation. *IEEE Trans. Geosci. Remote Sensing*, 44(1), 102-107, 2006.
- **Haarpaintner, J.**, E. Malnes, and Y. Larsen, R. Storvold, and I. Lauknes, Vannstandsmålinger i kraftmagasiner. *NORUT Report 04-2006*, 33 p., ISSN 1503-1705, Northern Research Institute, Tromsø, Norway, 2006.
- **Haarpaintner, J.**, E. Malnes, and I. Lauknes, Metoder for snødekningskartlegging med SAR. *NORUT Report 06-2006*, 39 p., ISSN 1503-1705, Northern Research Institute, Tromsø, Norway, 2006.
- **Haarpaintner, J.**, E. Malnes, and I. Lauknes, On the parameterization of the snow detection algorithm from multi-temporal synthetic aperture radar - a case study. *Presentation at Alpine*Snow*Workshop*, Munich, Germany, 5-6 October, 2006.
- **Haarpaintner, J.**, and M. Porcires, Use of enhanced-resolution QuikScat/SeaWinds data for operational ice services and climate research: sea ice edge, type, concentration and drift. In *Proceedings of IEEE International Geoscience and Remote Sensing Symposium*, IGARSS 2006, Denver, Colorado, USA, 31 July - 4 August 2006, pp. 4115-4118, 2006.
- Malnes E., **J. Haarpaintner**, R. Solberg, J. Amlien, H. Koren, and R. Hall, Nordic large-scale medium resolution multisensor snow cover area monitoring. *Presentation at Alpine*Snow*Workshop*, Munich, Germany, 5-6 October, 2006.
- Pettinato S., E. Malnes, and **J. Haarpaintner**, Snow cover maps with satellite borne SAR - A new approach in harmony with fractional optical SCA retrieval algorithms. In *Proceedings of IEEE International Geoscience and Remote Sensing Symposium*, IGARSS 2006, Denver, Colorado, USA, 31 July - 4 August 2006, pp. 735-738, 2006.
- Solberg, R., H. Koren, E. Malnes, **J. Haarpaintner**, and I. Lauknes, An approach for multisensor harmonization in snow cover area mapping. In *Proceedings of IEEE International Geoscience and Remote Sensing Symposium*, IGARSS 2006, Denver, Colorado, USA, 31 July - 4 August 2006, 2171-2175, 2006.
- Spreen, G, S. Kern, D. Stammer, R. Forsberg, and **J. Haarpaintner**, Satellite-based estimates of sea ice volume flux through Fram Strait. *Ann. Glaciol.*, 44, 321-328, 2006.

2005

- **Haarpaintner, J.**, Arctic-Wide Operational Sea Ice Drift from Enhanced Resolution QuikScat/SeaWinds Scatterometry and its Validation. *Poster presentation at the 1st CliC International Science Conference*, Beijing, China, 11-15 April 2005.
- **Haarpaintner, J.**, Operational Ice Drift from Enhanced Resolution QuikScat/Seawinds and ENVISAT ASAR Global Mode data. *Presentation at the RGPS meeting*, Seattle, WA, USA, 22-23 February 2005.
- **Haarpaintner, J.**, Sea ice edge, concentration and drift monitored in near-real time by enhanced resolution QuikScat/SeaWinds scatterometry. *Poster presentation and abstract at the SIMBA workshop*, Seattle, WA, USA, 28 Feb – 2 Mar 2005.

2004

- **Haarpaintner, J.**, R.T. Tonboe, D.G. Long, and M.L. Van Woert, Automatic detection and validity of the sea ice edge: an application of enhanced resolution QuikScat/SeaWinds data. *IEEE Trans. Geosci. Remote Sensing*, 42(7), 1433-1443, 2004.
- **Haarpaintner, J.**, and M. Porcires, On the Sea Ice Concentration from enhanced resolution QuikScat/Seawinds data. *Presentation at the European Geosciences, 1st General Assembly Union*, Nice, France, 25-30 April 2004.
- Skogseth, R., P.M. Haugan, and **J. Haarpaintner**, Ice and brine production in Storfjorden from four winters of satellite and in situ observation and modeling. *J. Geophys. Res.*, 109(C10), 2004.

2003

- **Haarpaintner, J.**, R.T. Tonboe, D.G. Long, M.L. Van Woert, and K. R. Dedrick, Refinement of the Seawinds/QuikScat sea ice edge. *Presentation at "Progress in Understanding the Arctic Climate System" - ACSYS Final Science Conference*, St. Petersburg, Russia, 11-14 November 2003.
- Zyryanov, D., **J. Haarpaintner**, and R. Korsnes, Numerical modelling of the Storfjorden (Svalbard) polynya development due to wind stress: role of the sea ice rheology and damping forces. *Polar Res.*, 22(2), 235-245, 2003
- Zyryanov, D., **J. Haarpaintner**, and R. Korsnes, Storfjorden (Svalbard): Modeling of the polynya development and sea ice ridging process. *Modeling Identification and Control J.*, Vol. 24, N 1, 2003.
- Tonboe, R. and **J. Haarpaintner**, Implementation of QuikScat/SeaWinds data in the EUMETSAT Ocean & Sea Ice ice product. *Technical Report - Danish Meteorological Institute*, No. 03-13, 41 pages, Copenhagen, Denmark, 2003.

2002

- **Haarpaintner, J.** Sea ice classification of ERS-2 SAR images based on a nested-correlation ice tracking algorithm. In *Ice in the Environment, Proceedings of the 16th International Symposium on Ice, International Association of Hydraulic Engineering and Research, Dunedin, New Zealand, Vol. 2, 407-414, 2002.*

2001

- **Haarpaintner, J.** (ed.), How to measure Forest carbon – A short course. On *CD-Rom, Cooperative Research Centre for Greenhouse Accounting, Canberra, Australia, 14-16 November 2001.*
- **Haarpaintner, J.**, Brine formation through ice production in Storfjorden, Svalbard, estimated by ERS-2 SAR imagery and simple ice drift and ice formation models. *Ph.D.-thesis, 178 pages, University of Versailles - St.Quentin-En-Yvelines, Versailles, France, 2001.*
- **Haarpaintner, J.**, J.-C. Gascard, and P. M. Haugan, Ice production and brine formation in Storfjorden. *J. Geophys. Res.*, 106(C7), 14,001-14,013, 2001.
- **Haarpaintner, J.**, P. M. Haugan, and J.-C. Gascard, Interannual variability of the Storfjorden ice cover and ice production observed by ERS-2 SAR. *Ann. Glaciol.*, 33, 430-436, 2001.
- **Haarpaintner, J.**, J. O'Dwyer, J.-C. Gascard, P. M. Haugan, U. Schauer, and S. Østerhus, Seasonal transformation of water masses, circulation and brine formation observed in Storfjorden. *Ann. Glaciol.*, 33, 437-443, 2001.
- Kaleschke, L., C. Lüpkes, T. Vihma, **J. Haarpaintner**, A. Bochert, J. Hartmann, G. Heygster, SSM/I Sea Ice Remote Sensing for Mesoscale Ocean-Atmosphere Interaction Analysis. *Canadian Journal of Remote Sensing – Focus Issue on Ice and Icebergs*, 27(5), 526-537, 2001.

2000

- **Haarpaintner, J.**, J.-C. Gascard, C. Kergomard, and P.M. Haugan, Sea ice dynamics observed by ERS-2 SAR imagery and ARGOS buoys in Storfjorden, Svalbard. In *Proceedings of IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2000, Honolulu, Hawaii, 24-28 July 2000, vol.2, pp. 467-469, 2000.*
- **Haarpaintner, J.**, P. M. Haugan, and J.-C. Gascard, Interannual variability of the Storfjorden ice cover and ice production observed by ERS-2 SAR. *Poster presentation at the International Symposium on sea ice and its interactions with the ocean, atmosphere and biosphere*, Fairbanks, Alaska, 19-23 June 2000.
- **Haarpaintner, J.**, J. O'Dwyer, J.-C. Gascard, P. M. Haugan, U. Schauer, and S. Østerhus, Seasonal transformation of water masses, circulation and brine formation observed in Storfjorden. *Presentation at the International Symposium on sea ice and its interactions with the ocean, atmosphere and biosphere*, Fairbanks, Alaska, 19-23 June 2000.

1999

- **Haarpaintner, J.**, The Storfjorden polynya: ERS-2 SAR observations and overview. *Polar Res.*, 18(2), 175-182, 1999.