

Peer-reviewed journals

2020

- Fraser, A. D., Massom, R. A., Ohshima, K. I., **Willmes**, S., Kappes, P. J., Cartwright, J., and Porter-Smith, R. (2020). High-resolution mapping of circum-Antarctic landfast sea ice distribution, 2000–2018, *Earth Syst. Sci. Data Discuss.*, <https://doi.org/10.5194/essd-2020-99>, in review.
- Hartmann, M., Adachi, K., Eppers, O., Haas, C., Herber, A., Holzinger, R. Hünnerbein, A., Jäkel, E., Jentzsch, C., van Pinxteren, M., Wex, H., **Willmes**, S., Stratmann, F. (2020). Wintertime airborne measurements of ice nucleating particles in the high Arctic: a hint to a marine, biogenic source for Ice Nucleating Particles. *Geophys. Res. Lett.*, 0094-8276.
- Reiser, F. **Willmes**, S. and Heinemann, G. (2020). A new algorithm for daily sea ice lead identification in the Arctic and Antarctic winter from thermal-infrared satellite imagery. *Remote Sensing, Special Issue: Polar Sea Ice: Detection, Monitoring and Modeling*, 12(12), 1957; <https://doi.org/10.3390/rs12121957>.

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- Reiser, F., **Willmes**, S., Hausmann, U. and Heinemann, G. (2019). Predominant Sea-ice fracture zones in the Southern Ocean and their relation to bathymetry. *Geophysical Research Letters*, 46, doi: 10.1029/2019GL084624
- Heinemann, G., Glaw, L. and **Willmes**, S. (2019). A satellite-based climatology of wind-induced surface temperature anomalies for the Antarctic. *Remote Sensing*, 11(13), 1539; doi:10.3390/rs11131539
- Preusser, A., Ohshima, K., Iwamoto, K., **Willmes**, S. and Heinemann, G. (2019). Retrieval of wintertime sea-ice production in Arctic polynyas using thermal infrared and passive microwave remote sensing data. *Journal of Geophysical Research: Oceans*, 124, doi:10.1029/2019JC014976

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- Hellmer, H., Rhein, M., Heinemann, G. and 36 others (2016). Meteorology and oceanography of the Atlantic sector of the Southern Ocean—a review of German achievements from the last decade. *Ocean Dynamics*, doi:10.1007/s10236-016-0988-1
- Preußner, A., Heinemann, G., **Willmes**, S. and Paul, S. (2016). Circumpolar polynya regions and ice production in the Arctic: Results from MODIS thermal infrared imagery for 2002/2003 to 2014/2015 with a regional focus on the Laptev Sea. *The Cryosphere*, 10, 3021-3042, doi:10.5194/tc-10-3021-2016
- Gutjahr, O., Heinemann, G., Preußner, A., **Willmes**, S. and Drüe, C. (2016). Quantification of ice production in Laptev Sea polynyas and its sensitivity to thin-ice parameterizations in a regional climate model. *The Cryosphere*, 10, 2999-3019, doi: 10.5194/tc-10-2999-2016
- Arndt, S., **Willmes**, S., Dierking, W. and Nicolaus, M. (2016). Timing and regional patterns of snowmelt on Antarctic sea ice from passive microwave satellite observations. *J. Geophys. Res. Oceans*, 121, doi:10.1002/2015JC011504
- Willmes**, S. and Heinemann, G. (2016). Sea-ice wintertime lead frequencies and regional characteristics in the Arctic, 2003-2015. *Remote Sensing, Special Issue: Sea Ice Remote Sensing and Analysis*, 8(1), 4; doi:10.3390/rs8010004

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- Preußner, A., Heinemann, G., **Willmes**, S. and Paul, S. (2015). Multi-Decadal variability of Thin-Ice Dynamics and Ice Production in the North Water Polynya by means of Passive Microwave and Thermal Infrared Satellite Imagery. *Remote Sensing, Special Issue: Sea Ice Remote Sensing and Analysis*, 7(12), 15844-15867; doi:10.3390/rs71215807
- Zakharova, E.A., Fleury, S., Guerreiro, K., **Willmes**, S., Rémy, F., Kouraev, A.V. and Heinemann, G. (2015). Sea Ice Leads Detection Using SARAL/AltiKa Altimeter. *Marine Geodesy*, 38(S1), 522-533, doi:10.1080/01490419.2015.1019655
- Paul, S., **Willmes**, S., Preusser, A. and Heinemann, G. (2015). Long-term coastal-polynya dynamics in the Southern Weddell Sea from MODIS thermal-infrared imagery, *The Cryosphere*, 9, 2027–2041, doi:10.5194/tc-9-2027-2015
- Willmes**, S. and Heinemann, G. (2015). Pan-Arctic lead detection from MODIS thermal infrared imagery. *Annals of Glaciology* 56(69), 29-37, doi:10.3189/2015AoG69A615

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- Willmes, S.**, C. Haas, M. Nicolaus, and J. Bareiss (2009), Satellite microwave observations of the interannual variability of snowmelt on sea ice in the Southern Ocean, *Journal of Geophysical Research*, 114, C03006, doi:10.1029/2008JC004919.
- Nicolaus, M., C. Haas and **S. Willmes**, 2009. Evolution of first- and second-year snow properties on sea ice in the Weddell Sea during late spring. *Journal of Geophysical Research*, 114, D17109, doi:10.1029/2008JD011227.

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- Haas, C., Nicolaus, M., **Willmes, S.**, Worby, A. and Flinspach, D. (2008). Sea ice and snow thickness and physical properties of an ice floe in the western Weddell Sea and their changes during spring warming. *Deep Sea Research II*, 55(8-9), Special Issue: Ice Station Polarstern (ISPOL): Results of interdisciplinary studies on a drifting ice floe in the western Weddell Sea, 963-974.
- Nicolaus, M., Haas, C., **Willmes, S.** and Bareiss, J. (2006). Differences of snow melting on Arctic and Antarctic sea ice during spring and summer. *Annals of Glaciology*, 44, 147-153.
- Willmes, S.**, Bareiss, J., Haas, C. and Nicolaus, M. (2006). The importance of diurnal processes for the seasonal cycle of sea-ice microwave brightness temperatures during summer in the Weddell Sea. *Annals of Glaciology*, 44, 297-302.

Other:

- S. Kern and **S. Willmes**. Sea-ice parameters from satellite remote sensing, In: Barale, V. and Gade, M. (Eds.), *Remote Sensing of the Asian Seas*, Springer, 2019.
- Willmes, S.**, Heinemann, G. und Preußner, A.. Arctic Polynyas. In: Brümmer, B. (Ed.), Prozesse im arktischen Klimasystem, promet, 102, Zeitschrift des Deutschen Wetterdienstes, Januar 2019.
- Heinemann, G., Braun, M. Brey, T., Damaske, D., Melles, M., Rhein, M., **Willmes, S.** (Hrsg.), 2017: Polarforschungsagenda 2030 - Status und Perspektiven der deutschen Polarforschung. Statusbericht des Deutschen Nationalkomitees SCAR/IASC der DFG, 160 pp.
- Willmes, S.**, Heinemann, G. and Helbig A., 2015. Kryosphäre – Gegenwart und Zukunft. In: Lozán, J. L., H. Grassl, D. Kasang, D. Notz & H. Escher-Vetter (Hrsg.). Warnsignal Klima: Das Eis der Erde (Kap. 1.2).
- Dierking, W., Linow, S., Wesche, C., Rack, W., Hoppmann, M. and **Willmes, S.**, 2013. TSX-Data for Studies of Snow on Ice Sheets and Sea Ice - Preliminary Results, 5. TerraSAR-X / 4. Tandem-X Science Team Meeting.

Selected conference contributions (talks and posters):

- Willmes, S., Heinemann, G., Preußner, A., 2018: On the potential of thermal-infrared satellite imagery for high-resolution sea-ice monitoring during wintertime. EUMETSAT 2018 - Meteorological Satellite Conference 17 - 21 September 2018, Tallinn, Estonia.
- Willmes, S., Heinemann, G., Reiser, F., 2018: Spatial and Temporal Patterns of Arctic and Antarctic Sea-ice Leads, 2003 - 2016. SCAR/IASC Open Science Conference, June 2018, Davos, Switzerland.
- Willmes, S. and G. Heinemann. Sea-ice wintertime lead frequencies and regional characteristics in the Arctic, 2003-2015. *Arctic Frontiers*, Tromsø, Norway, January 2018.
- Willmes, S. (invited) and G. Heinemann. Sea-ice wintertime lead frequencies and regional characteristics in the Arctic, 2003-2015. ESA/JAXA Workshop on Remote Sensing of Sea, Tokyo, Japan, January 2017.
- Willmes, S. and G. Heinemann. Sea-ice wintertime lead frequencies and regional characteristics in the Arctic, 2003-2015. AGU Fall meeting 2015, San Francisco, USA, December 2015.
- Willmes, S. and G. Heinemann. A quasi-daily pan-Arctic lead product from MODIS thermal infrared imagery. High Latitude Dynamics workshop. Bergen, Norway, March 2015.
- Willmes, S. (invited). Satellite remote sensing of Polar Regions. German-Turkish "Antarctic Science Program" workshop. Istanbul, Turkey, June 2014.
- Willmes, S. and G. Heinemann. Pan-Arctic lead detection from MODIS thermal infrared imagery. International Symposium on Sea Ice. Hobart, Australia, March 2014.

Publication list
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University Trier, Germany

- Willmes, S., M. Nicolaus, G. Heinemann, R. Timmermann, M. Hoppmann, S. Paul, P. Hunkeler and U. Baltés. Sea Ice Mass Balance influenced by Ice Shelves: The SIMBIS project - objectives and preliminary results. Int. German Polar Conference. Hamburg, Germany, February 2013.
- Willmes, S., S. Adams, D., Schröder and G. Heinemann, 2012: Seasonal Ice Production within Polynyas of the Laptev Sea. IPY conference. Montréal, Canada, July 2012.
- Willmes, S., M. Nicolaus and C. Haas. Hemispheric contrasts in the seasonal evolution of snowmelt on sea ice. IGS International Symposium on Sea Ice. Tromsø, Norway, June 2010.
- Willmes, S., C. Haas and M. Nicolaus, 2009: High Radar-backscatter Regions on Antarctic Sea Ice and their Relation to Sea-ice and Snow Properties and Meteorological Conditions. IAMAS/IAPSO/IACS Joint Assembly: Our Warming Planet. Montréal, Canada, July 2009.
- Willmes, S., C. Haas, J. Bareiss and M. Nicolaus. Satellite microwave observations of the inter-annual variability of snowmelt on sea ice in the Southern Ocean. AGU Fall meeting 2008, San Francisco, USA, December 2008.
- Willmes, S., C. Haas, J. Bareiss and M. Nicolaus. Satellite microwave observations of the inter-annual variability of snowmelt on sea ice in the Southern Ocean. European Geosciences Union (EGU). Vienna, Austria, April 2008.
- Willmes, S. (invited). Sea-ice monitoring through remote sensing. IMPETUS/APECS workshop "Techniques in Polar Ocean Observation and Monitoring". St. Petersburg, Russia, November 2008.