

## Peer-reviewed journals

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### 2016

- 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

### 2015

- 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
- Hoppmann, M., Nicolaus, M., Paul, S., Hunkeler, P., Heinemann, G., **Willmes**, S., Timmermann, R., Böbel, O., Schmidt, T., Kühnel, M., König-Langlo, G. and Gerdes, R. (2015). Ice platelets below Weddell Sea landfast sea ice, *Annals of Glaciology*, 56(69), 175-190, doi: 10.3189/2015AoG69A678.
- Paul, S., **Willmes**, S., Gutjahr, O. and Heinemann, G. (2015). Spatial Feature Reconstruction of Cloud-Covered Areas in Daily MODIS Composites, *Remote Sensing*, 7(5), 5042-5056, doi:10.3390/rs70505042
- Paul, S., **Willmes**, S., Hoppmann, M., Hunkeler, P.A., Wesche, C., Nicolaus, M., Timmermann, R., Heinemann, G. (2015). The impact of early-summer snow properties on Antarctic landfast sea-ice X-band backscatter, *Annals of Glaciology*, 56(69), 263-273, doi: 10.3189/2015AoG69A715.

### 2014

- Preußner, A., **Willmes**, S., Heinemann, G., and Paul, S. (2014). Thin-ice dynamics and ice production in the Storfjorden polynya for winter-seasons 2002/2003–2013/2014 using MODIS thermal infrared imagery, *The Cryosphere*, 9, 1063-1073, doi: 10.5194/tc-9-1063-2015.
- Willmes**, S., Haas, C. and Nicolaus, M. (2014). The microwave emissivity variability of snow covered first-year sea ice from late winter to early summer: A model study. *The Cryosphere*, 8, doi:10.5194/tc-8-891-2014

## 2013

- Jardon, F., Vivier, F., Bouruet-Aubertot, P., Lourenco, A., Cuypers, Y., **Willmes**, S. (2013). Ice Production in Storfjorden (Svalbard) estimated from a model based on AMSR-E observations: impact on water mass properties. *Journal of Geophysical Research: Oceans*, 119, 377-393, doi: 10.1002/2013JC009322.
- Bauer, M., Schröder, D., Heinemann, G., **Willmes**, S. and Ebner, L. (2013). Quantifying polynya ice production in the Laptev Sea with the COSMO model. *Polar Research* 32, 0, DOI: 10.3402/polar.v32i0.20922.
- Adams, S., **Willmes**, S., Schröder, D., Heinemann, G., Bauer, M., Krumpen, T. (2013). Improvement and sensitivity analysis of thermal thin-ice retrievals. *IEEE Transactions on Geoscience and Remote Sensing* 99, doi 10.1109/TGRS.2012.2219539.

## 2012

- Krumpen, T., Janout, M., Hodges, K.I., Gerdes, R., Girard-Arduin, F., Hölemann, J.A., and **Willmes**, S. (2012). Variability and trends in Laptev Sea ice outflow between 1992–2011. *The Cryosphere*, 6, 1–40.

## 2011

- Willmes**, S., Adams, S., Schroeder, D. and Heinemann, G. (2011). Spatiotemporal variability of sea-ice coverage, polynya dynamics and ice production in the Laptev Sea between 1979 and 2008. *Polar Research* 2011, 30, 5971, doi: 10.3402/polar.v30i0.5971
- Willmes**, S., Haas, C. and Nicolaus, M. (2011). High radar-backscatter regions on Antarctic sea ice and their relation to sea-ice and snow properties and meteorological conditions. *Int. Journal of Remote Sensing*, 32, doi:10.1080/01431161003801344
- Kern, S., Ozsoy-Cicek, B., **Willmes**, S., Nicolaus, M., Haas, C. and Ackley, S. (2011). An intercomparison between AMSR-E snow depth and satellite C- and Ku-Band radar backscatter data for Antarctic sea ice. *Annals of Glaciology*, 52 (57), 279-290.

## 2010

- Dmitrenko I.A., Kirillov, S.A., Krumpen, T., Makhotin, M., Abrahamsen, E.P., **Willmes**, S., Bloskhina, E., Hölemann, J.A., Kassens, H. and Wegner, C. (2010). Wind-driven diversion of summer river runoff preconditions the Laptev Sea coastal polynya hydrography: Evidence from summer-to-winter hydrographic records of 2007-2009. *Continental Shelf Research*, 30 (15), 1656-1664.
- Bauch, D., Hölemann, J., **Willmes** S., Gröger, M., Novikhin, A., Nikulina, A., Kassens, H. and Timokhov, L., (2010). Changes in distribution of brine waters on the Laptev Sea shelf in 2007. *Journal of Geophysical Research*, 115(C11008), doi:10.1029/2010JC006249.
- Willmes**, S., Krumpen, T., Adams, S., Rabenstein, L., Haas, C., Hendricks, S., Heinemann, G. and Hölemann, J. (2010). Cross-Validation of polynya monitoring methods from multi-sensor satellite and airborne data: A case study. *Canadian Journal of Remote Sensing*, 36 Supplement S1, S196-S210.

## 2009

- 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.

## 2008 and earlier

- 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:

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- 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):

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- 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.
- 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.