

EGU2020-18867

<https://doi.org/10.5194/egusphere-egu2020-18867>

EGU General Assembly 2020

© Author(s) 2020. This work is distributed under the Creative Commons Attribution 4.0 License.



Making Use and Sense of 75,000 Forecasts of the Sea Ice Drift Forecast Experiment (SIDFEx)

Helge F. Goessling¹ and the SIDFEx Team*

¹Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Climate Science / Climate Dynamics, Bremerhaven, Germany (helge.goessling@awi.de)

*A full list of authors appears at the end of the abstract

The Sea Ice Drift Forecast Experiment (SIDFEx) is a Year of Polar Prediction (YOPP) community effort to solicit, collect, and analyze sea ice drift forecasts, based on various methods, on a regular basis. SIDFEx is inspired by research and operational needs to forecast future positions of assets drifting in Arctic sea ice. Beside a number of sea-ice buoys of the International Arctic Buoy Programme, current targets include the MOSAiC drift campaign main site (and distributed network) for which consensus forecasts are delivered every six hours. A systematic assessment of real drift forecasting capabilities across operational and research forecast systems is meant to improve our physical understanding of sea ice and to identify and resolve model shortcomings.

Since the launch of SIDFEx in 2017, thirteen groups have started contributing drift forecasts to SIDFEx on a regular basis. Most groups derive their 2-days to seasonal-range forecasts by means of diagnostic tracking based on prediction drift fields of coupled or uncoupled general circulation models. Some groups submit ensembles of drift trajectories instead of single (deterministic) trajectories, and several groups submit their forecasts in real-time. We present results from around 75,000 individual forecasts, how they have been used for real-time support of the MOSAiC Arctic drift campaign since autumn 2019, and what they reveal about current models' capabilities to forecast sea-ice drift and deformation.

SIDFEx Team:

Helge F. Goessling (1), Laurent Bertino (2), Ed Blockley (3), Wendy Ermold (4), Robert Grumbine (5), Yukie Hata (6), Jennifer Hutchings (7), Frank Kauker (1), Thomas Krumpfen (1), Jean-François Lemieux (6), François Massonnet (8), E. Joseph Metzger (9), Malte Müller (10), Michael W. Phelps (11), Thomas Rackow (1), Till A. S. Rasmussen (12), Simon F. Reifenberg (1,13), Ignatius Rigor (4), Axel Schweiger (4), Greg Smith (6), Amy Solomon (14,15), Nick Szapiro (16), Steffen Tietsche (17), Jinlun Zhang (4); 1) Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany, 2) Nansen Environmental and Remote Sensing Center, Bergen, Norway, 3) Met Office Hadley Centre, FitzRoy Road, Exeter, UK, 4) University of Washington, Applied Physics Laboratory, Polar Science Center, US, 5) National Centers for Environmental Prediction, USA, 6)

Environment and Climate Change Canada, Canada, 7) Oregon State University, College of Earth, Ocean, and Atmospheric Sciences, USA, 8) Université catholique de Louvain, Belgium, 9) Naval Research Laboratory, Ocean Sciences Division, Stennis Space Center, MS, USA, 10) Norwegian Meteorological Institute, Norway, 11) Perspecta, Inc., Stennis Space Center, MS, USA, 12) Danish Meteorological Institute, Denmark, 13) Johannes Gutenberg-Universität Mainz, Germany, 14) Cooperative Institute for Research in the Environmental Sciences, University of Colorado, Boulder, CO, USA, 15) Earth System Research Laboratory, National Oceanic and Atmospheric Administration, Boulder, CO, USA, 16) University of Oklahoma School of Meteorology, USA, 17) European Centre for Medium-Range Weather Forecasts, UK.

How to cite: Goessling, H. F. and the SIDFEx Team: Making Use and Sense of 75,000 Forecasts of the Sea Ice Drift Forecast Experiment (SIDFEx), EGU General Assembly 2020, Online, 4–8 May 2020, EGU2020-18867, <https://doi.org/10.5194/egusphere-egu2020-18867>, 2020

SIDFEx Team: Helge F. Goessling (1), Laurent Bertino (2), Ed Blockley (3), Wendy Ermold (4), Robert Grumbine (5), Yukie Hata (6), Jennifer Hutchings (7), Frank Kauker (1), Thomas Krumpen (1), Jean-François Lemieux (6), François Massonnet (8), E. Joseph Metzger (9), Malte Müller (10), Michael W. Phelps (11), Thomas Rackow (1), Till A. S. Rasmussen (12), Simon F. Reifenberg (1,13), Ignatius Rigor (4), Axel Schweiger (4), Greg Smith (6), Amy Solomon (14,15), Nick Szapiro (16), Steffen Tietsche (17), Jinlun Zhang (4); 1) Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany, 2) Nansen Environmental and Remote Sensing Center, Bergen, Norway, 3) Met Office Hadley Centre, FitzRoy Road, Exeter, UK, 4) University of Washington, Applied Physics Laboratory, Polar Science Center, US, 5) National Centers for Environmental Prediction, USA, 6) Environment and Climate Change Canada, Canada, 7) Oregon State University, College of Earth, Ocean, and Atmospheric Sciences, USA, 8) Université catholique de Louvain, Belgium, 9) Naval Research Laboratory, Ocean Sciences Division, Stennis Space Center, MS, USA, 10) Norwegian Meteorological Institute, Norway, 11) Perspecta, Inc., Stennis Space Center, MS, USA, 12) Danish Meteorological Institute, Denmark, 13) Johannes Gutenberg-Universität Mainz, Germany, 14) Cooperative Institute for Research in the Environmental Sciences, University of Colorado, Boulder, CO, USA, 15) Earth System Research Laboratory, National Oceanic and Atmospheric Administration, Boulder, CO, USA, 16) University of Oklahoma School of Meteorology, USA, 17) European Centre for Medium-Range Weather Forecasts, UK.