

**High Latitude Dynamics Workshop 23-27 March, 2015, Rosendal, Norway**
**Final Agenda v6 20-March-2015**

| <b>Sunday</b>        |                                     | <b>All day</b>  | <b>Arrival and hotel check in</b> |                           |  |
|----------------------|-------------------------------------|---|-----------------------------------|---------------------------|--|
| 21:15                |                                     |   | <b>Dinner</b>                     |                           |  |
| <b>Monday</b>        | <b>Session</b>                      | <b>Speaker</b>  | <b>Chair</b>                      | <b>Rapporteurs</b>        |  |
| 8:15 - 8:45          | <b>Opening and Welcome</b>          | T. Spengler   |                                   |                           |  |
| 8:30                 | (:30) <b>Polar Predictability 1</b> | Thomas Jung AWI 24 The WWRP Polar Prediction Project  | <i>James Doyle</i>                | <i>Chris Fairless</i>     |  |
| 9:00                 | (:30)                               | Jørn Kristiansen Met Norway 167 Short-range NWP in the polar regions: Status and developments at Met Norway   |                                   |                           |  |
| 9:30                 | (:15)                               | Hanneke Luijting Norwegian Meteorological Institute 84 Forecasting Polar Lows with an on-demand EPS system  |                                   |                           |  |
| 9:45                 | (:15)                               | Teresa Valkonen Norwegian Meteorological Institute 111 Impact of ASCAT scatterometer winds on the numerical forecasting of polar lows   |                                   |                           |  |
| <b>10:00 - 10:30</b> |                                     | <b>Break</b>  |                                   |                           |  |
| 10:30                | (:30) <b>Polar Predictability 2</b> | James Doyle Naval Research Laboratory 43 Multi-Scale Predictability Characteristics of Polar Lows and Cyclones  | <i>Jørn Kristiansen</i>           |                           |  |
| 11:00                | (:15)                               | Roger Randriamampianina Norwegian Meteorological Institute 134 The impact of observations on the quality of numerical weather forecasting over the Arctic   |                                   |                           |  |
| 11:15                | (:15)                               | Sarah Keeley European Centre for Medium-range Weather Forecasts 159 Impact of using a dynamic-thermodynamic sea ice model on ECMWF ensemble forecasts   |                                   |                           |  |
| 11:30                | (:15)                               | François Massonnet Université catholique de Louvain (UCL), Belgium / Catalan Institute of Climate Sciences (IC3), Barcelona 69 Impact of high-resolution on seasonal skill, reliability and predictability in the global EC-Earth simulations                     |                                   |                           |  |
| 11:45                | (:15)                               | Steffen Tietsche NCAS/Department of Meteorology, University of Reading 136 Simulated Arctic Ocean heat budget in seasonal to interannual predictions  |                                   |                           |  |
| <b>12:00 - 13:30</b> |                                     | <b>LUNCH</b>  |                                   |                           |  |
| 13:30                | (:30) <b>Polar Predictability 3</b> | Jun Inoue National Institute of Polar Research 41 Arctic Research Collaboration for Radiosonde Observing System Experiment  | <i>Thomas Jung</i>                | <i>François Massonnet</i> |  |
| 14:00 - 14:30        |                                     | Discussion (30 min)   |                                   |                           |  |
| 14:30                | (:30) <b>Coupled Processes 1</b>    | Timo Vihma Finnish Meteorological Institute 178 Air moisture, clouds and net precipitation in the Arctic: processes, changes and research challenges  |                                   |                           |  |
| <b>15:00 - 15:30</b> |                                     | <b>Break</b>  |                                   |                           |  |
| 15:30                | (:15) <b>Coupled Processes 2</b>    | Ola Persson CIRES/University of Colorado/NOAA/ESRL 129 Atmosphere-Ice-Ocean Interactions During Summer Melt and Early Autumn Freeze-up: Observations from the ACSE Field Program  | <i>Jun Inoue</i>                  | <i>Dom Salisbury</i>      |  |
| 15:45                | (:15)                               | Rune Graversen Department of Physics and Technology, University of Tromsø 150 Arctic warming induced by atmospheric transport of water vapour   |                                   |                           |  |
| 16:00                | (:15)                               | Tsubasa Kohyama University of Washington 64 The role of stationary Rossby waves in explaining Antarctic sea ice variability   |                                   |                           |  |
| 16:15                | (:15)                               | Alice DuVivier CIRES/University of Colorado at Boulder 19 Analysis of wintertime mesoscale winds and their impact on the oceans around southeastern Greenland   |                                   |                           |  |
| 16:30                | (:15)                               | Thor Erik Nordeng Norwegian Meteorological Institute 83 The sea west of Spitzbergen, a cradle for polar low developments  |                                   |                           |  |
| 16:45 - 17:00        |                                     | Discussion (15 min)   |                                   |                           |  |
| <b>17:15 - 19:30</b> |                                     | <b>Icebreaker</b>   |                                   |                           |  |
| <b>19:30</b>         |                                     | <b>Dinner</b>   |                                   |                           |  |
| <b>Tuesday</b>       | <b>Session</b>                      | <b>Speaker</b>  | <b>Chair</b>                      | <b>Rapporteurs</b>        |  |
| 8:30                 | (:30) <b>Coupled Processes 3</b>    | Chris Fairall NOAA ESRL Physical Sciences Division 175 Parameterization and Measurement of Surface Turbulent Fluxes at High Latitudes   | <i>John Cassano</i>               | <i>Alice DuVivier</i>     |  |
| 9:00                 | (:15)                               | Christof Lüpkes Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung 63 A parametrization of atmospheric transfer coefficients over fractional sea ice cover accounting for the stability dependence of form drag by floe and melt pond edges |                                   |                           |  |

|  |       |                               |  |                    |                    |
|--|-------|-------------------------------|--|--------------------|--------------------|
| 9:15                                     | (:15) |                               | Amelie Tetzlaff Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung 60 The impact of leads in sea ice on the atmospheric boundary layer: results from the aircraft campaign STABLE 2013 in the Northern Fram Strait |                    |                    |
| 9:30                                     | (:30) |                               | Michael Tjernström Stockholm University 176 The role of clouds in shaping Arctic climate   |                    |                    |
| <b>10:00 - 10:30 Break</b>               |       |                               |  |                    |                    |
| 10:30                                    | (:15) | <b>Coupled Processes 4</b>    | Georgia Sotiropoulou Department of Meteorology, Stockholm University 101 The thermodynamic structure of summer Arctic stratocumulus and the dynamic coupling to the surface  | Chris Fairall      | Tsubasa Koyama     |
| :45                                      | (:15) |                               | Joseph Sedlar Stockholm University 88 Observed structure of static mixing dependence on liquid condensate and vertical velocity within Arctic mixed-phase clouds   |                    |                    |
| 11:00                                    | (:30) |                               | Andrew Roberts Naval Postgraduate School 172 A new tool to develop and evaluate high resolution coupled atmosphere-ice-ocean physics for the next generation of global Earth System Models   |                    |                    |
| <b>11:30 - 12:00 Discussion (30 min)</b> |       |                               |  |                    |                    |
| <b>12:00 - 14:00 LONG LUNCH</b>          |       |                               |  |                    |                    |
| 14:00                                    | (:15) | <b>Coupled Processes 5</b>    | Christopher Horvat Harvard University 180 The Floe Size Distribution of Sea Ice  | Michael Tjernström | Amelie Tetzlaff    |
| 14:15                                    | (:15) |                               | Einar Olason NERSC 103 Heat fluxes through leads in modelled sea ice   |                    |                    |
| 14:30                                    | (:15) |                               | Andreas Preußner Dept. of Environmental Meteorology, University of Trier 79 Thin-ice dynamics and ice production in Storfjorden, Svalbard, based on MODIS thermal infrared imagery   |                    |                    |
| 14:45                                    | (:15) |                               | Sascha Willmes University of Trier 77 A quasi-daily pan-Arctic lead product derived from MODIS thermal infrared imagery  |                    |                    |
| <b>15:00 - 15:30 Break</b>               |       |                               |  |                    |                    |
| 15:30                                    | (:15) | <b>Coupled Processes 6</b>    | Ian Brooks University of Leeds 104 In situ measurements of surface exchange over the Arctic Ocean  | Timo Vihma         | Chris Horvat       |
| 15:45                                    | (:15) |                               | Igor Ezau Nansen Environmental and Remote Sensing Centre 26 Planetary boundary layer depth as an essential climate variable  |                    |                    |
| 16:00                                    | (:15) |                               | Bert Rudels Finnish Meteorological Institute 76 Arctic Ocean stability, cooling, freshwater input and sea ice melt   |                    |                    |
| 16:15                                    | (:15) |                               | Aleksi Nummelin Geophysical Institute, University of Bergen 143 Arctic Runoff, ocean stratification and vertical heat fluxes   |                    |                    |
| <b>16:30 - 17:00 Discussion (30 min)</b> |       |                               |  |                    |                    |
| <b>17:00 - 19:00 Poster Session 1</b>    |       |                               |  |                    |                    |
| <b>19:30 Dinner</b>                      |       |                               |  |                    |                    |
| <b>Wednesday</b>                         |       |                               |  |                    |                    |
|  |       | <b>Session</b>                | <b>Speaker</b>   | <b>Chair</b>       | <b>Rapporteurs</b> |
| 8:30                                     | (:30) | <b>Coupled Processes 7</b>    | John Cassano University of Colorado 47 Observing the polar atmospheric boundary layer with unmanned aerial vehicles  | Andrew Roberts     | Irene Suomi        |
| 9:00                                     | (:15) |                               | Matthew Shupe CIRES / University of Colorado and NOAA 117 Enhancing process understanding in the coupled Arctic atmosphere-ocean-ice system through MOSAiC   |                    |                    |
| <b>9:15 - 9:30 Discussion (15 min)</b>   |       |                               |  |                    |                    |
| 9:30                                     | (:30) | <b>Extreme Events 1</b>       | Günther Heinemann University Trier 30 Katabatic winds and polynya formation  |                    |                    |
| <b>10:00 - 10:30 Break</b>               |       |                               |  |                    |                    |
| 10:30                                    | (:15) | <b>Extreme Events 1 contd</b> | Svenja Kohnemann University of Trier 33 Low-Level Jets and Orographic Effects in the Nares Strait: Model simulations of the ABL over the North Water polynya and comparison with aircraft data   | Günther Heinemann  | Annick Terpstra    |
| 10:45                                    | (:30) |                               | Ian Renfrew University of East Anglia 139 Orographic flows in the polar regions  |                    |                    |
| 11:15                                    | (:15) |                               | Andrew Elvidge University of East Anglia 144 Foehn warming distributions in non-linear and linear flow regimes: A focus on the Antarctic Peninsula   |                    |                    |
| 11:30                                    | (:15) |                               | Elisabeth Schlosser Inst. of Meteorology and Geophysics Univ. Innsbruck 46 An extreme precipitation event in coastal Antarctica - a study with Polar WRF   |                    |                    |
| 11:45                                    | (:15) |                               | Erik Kolstad Uni Research / Bjerknes Centre for Climate Research 102 Extreme small-scale wind episodes over the Barents Sea — when, where and why?   |                    |                    |
| <b>12:00 - 13:00 LUNCH</b>               |       |                               |  |                    |                    |
| 13:00                                    | (:15) | <b>Extreme Events 2</b>       | Richard Moore Norwegian Meteorological Institute, University of Oslo 133 Can Analyses of Polar Low Energetics Provide Insight into Observed Structure?   | Thomas Spengler    | Dmitry Chechen     |

|                      |       |  |  |   |
|----------------------|-------|--|--|---|
| 13:15                | (:15) | Marie Vicomte LMD 70 On associations between surface conditions and polar lows   |  |   |
| 13:30                | (:15) | Andrew Carleton Dept. of Geography and Earth and Environmental Systems Institute, Penn State University 85 Cold-air mesocyclone ("polar low") associations with upper ocean and atmosphere variables in the sub-antarctic, according to teleconnection phases. |  |   |
| 13:45                | (:15) | Maxence Rojo Laboratoire de Météorologie Dynamique 62 Polar low tracks over the Nordic Seas: a 14 winter climatological analysis.  |  |   |
| <b>14:00 - 14:30</b> |       | <b>Break</b>   | (Please prepare for outing departure during break)   |   |
| 14:30                | (:30) | <b>Extreme Events 3</b>  | Thomas Spengler, UiB, Polar Low Development in forward and reverse shear Arctic moist-baroclinic environments  | <i>Ian Renfrew</i> <i>Denis Sergeev</i> |
| 15:00                | (:15) |  | Christopher Fairless University of Manchester 126 A climatology of North Atlantic polar lows and their phase space derived from thermal wind and thermal asymmetry |   |
| 15:15                | (:15) |  | Annick Terpstra University of Bergen 72 Influence of Surface Fluxes on Polar Low Development: Idealised Simulations  |   |
| 15:30 - 15:50        |       |  | Discussion (~20 min)   |   |

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|--------------|--|-----------------------|--|--|
| <b>16:00</b> |  | <b>Sunndal outing</b> | Bus leaves hotel   |  |
| <b>16:30</b> |  |                       | Bus arrives for Hiking   |  |
|              |  |                       | Intro to geology and geomorphology of the arealnge Aarseth, University of Bergen |  |
| <b>18:30</b> |  |                       | Aperitif and folk music  |  |
| <b>19:30</b> |  |                       | Bus leaves Sunndal   |  |
| <b>20:00</b> |  |                       | Bus arrives hotel  |  |

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|--------------|--|--------------------------|--|--|
| <b>20:15</b> |  | <b>Conference dinner</b> |  |  |
|--------------|--|--------------------------|--|--|

| Thursday             | Session | Speaker  | Chair                     | Rapporteurs           |
|----------------------|---------|--|---------------------------|-----------------------|
| 8:45                 | (:15)   | <b>Large scale processes 1</b>   |                           |                       |
|                      |         | Martin King Uni Research Climate; Bjerknes Centre for Climate Research 110 Atmospheric mechanisms related to the autumn sea ice and winter circulation link in the Northern Hemisphere                               | <i>James Screen</i>       | <i>Chris Fairless</i> |
| 9:00                 | (:15)   |  |                           |                       |
|                      |         | Kelly McCusker University of Victoria / Canadian Centre for Climate Modelling and Analysis 132 Isolating the Impact of human-induced Arctic Sea Ice Loss on the Atmosphere   |                           |                       |
| 9:15                 | (:15)   |  |                           |                       |
|                      |         | Stephen Outten Nansen Environmental and Remote Sensing Centre 179 Role of Sea Ice Reduction in Eurasian Wintertime Cooling   |                           |                       |
| 9:30                 | (:15)   |  |                           |                       |
|                      |         | Ruth Petrie NCAS-Climate, University of Reading 50 Summertime atmospheric circulation response to Arctic sea ice loss in uncoupled and coupled simulations   |                           |                       |
| 9:45                 | (:15)   |  |                           |                       |
|                      |         | Yvan ORSOLINI Norwegian Institute for Air Research (NILU) 164 Impact of snow cover and sea ice on sub-seasonal to seasonal predictions in the Arctic   |                           |                       |
| <b>10:00 - 10:30</b> |         | <b>Break</b>   |                           |                       |
| 10:30                | (:30)   | <b>Large scale processes 2</b>   |                           |                       |
|                      |         | Jennifer Francis Marine and Coastal Sciences, Rutgers University 127 Rapid Arctic warming and extreme weather events in mid-latitudes: Are they connected?   | <i>Sharon Stammerjohn</i> | <i>Kelly McCusker</i> |
| 11:00                | (:30)   |  |                           |                       |
|                      |         | James Screen University of Exeter 37 The impact of Arctic warming on midlatitude weather: Can it? Has it? Will it?   |                           |                       |
| 11:30 - 12:00        |         |  | Discussion (30 min)       |                       |
| <b>12:00 - 14:00</b> |         | <b>LUNCH</b>   |                           |                       |
| 14:00                | (:15)   | <b>Large scale processes 3</b>   |                           |                       |
|                      |         | Heini Wernli ETH Zurich 154 The impact of extratropical cyclones and associated moist airstreams on Arctic summer anticyclones   | <i>Jennifer Francis</i>   |                       |
| 14:15                | (:15)   |  |                           |                       |
|                      |         | Harald Sodemann University of Bergen 171 Synoptically driven extremes of poleward moisture transport   |                           |                       |
| 14:30                | (:15)   |  |                           |                       |
|                      |         | Vladimir Semenov A.M. Obukhov Institute of Atmospheric Physics RAS 181 Atmospheric model simulations forced with realistic Arctic sea ice anomalies: implications for the recent cold winters and related mechanisms |                           |                       |
| <b>14:45 - 15:00</b> |         | <b>Explanation of breakout groups and goals</b>  |                           |                       |
| <b>15:00 - 17:00</b> |         | <b>Breakout groups (with coffee)</b>   |                           |                       |
|                      |         | 1. YOPP - Ian Renfrew/Richard Moore (discussion leaders)<br>2. MOSAIC - Matthew Shupe/Michael Tjernström (discussion leaders)<br>3. Large-scale processes - James Screen/Jennifer Francis (discussion leaders)       |                           |                       |
| <b>17:00 - 19:00</b> |         | <b>Poster Session 2</b>  |                           |                       |
| <b>19:30</b>         |         | <b>Dinner</b>  |                           |                       |

| Friday        | Session                              | Speaker  | Chair   | Rapporteurs |
|---------------|--------------------------------------|--|---|-------------|
| 8:30          | (:30) <b>Large scale processes 4</b> | Sharon Stammerjohn INSTAAR/University of Colorado Boulder 184 Polar Sea Ice Changes over the Last 36 Years   | <i>Paul Hezel</i>   |             |
| 9:00          | (:15)                                | Ingrid Husøy Onarheim Geophysical Institute, University of Bergen 157 Loss of sea ice during winter north of Svalbard  |   |             |
| 9:15          | (:15)                                | Scott Hosking British Antarctic Survey 151 Climate variability over West Antarctica: What has happened and what's to come  |   |             |
| 9:30          | (:15)                                | Fumiaki Ogawa RCAST/University of Tokyo 119 Role of the Mid-latitude Oceanic Front in the Ozone-induced Climate Change in the Southern Hemisphere as Revealed in Aqua Planet Experiments |   |             |
| 9:45 - 10:00  |                                      | Discussion (15 min)  |   |             |
| 10:00 - 10:30 | <b>Break</b>                         |  |   |             |
| 10:30 - 11:00 | <b>Breakout summaries in plenary</b> |  | <i>Thomas Spengler, Ian Renfrew, John Cassano, Paul Hezel</i> |             |
| 11:00 - 11:30 | <b>Plenary discussion</b>            |  |   |             |
| 11:30 - 11:45 | <b>WRAPUP and CLOSE</b>              |  |   |             |
| 12:00 - 13:00 | <b>Lunch</b>                         |  |   |             |
| 14:25         | <b>Ferry departure from hotel</b>    |  |   |             |

### Tuesday Poster Session

|                           |   |
|---------------------------|---|
| 1.02 Polar Predictability | Tiina Nygård Finnish Meteorological Institute 68 Humidity inversions – a key to understand polar clouds better?   |
| 1.03 Polar Predictability | Eivind Støylen MET Norway 165 A tracking algorithm for forecasting Polar Lows   |
| 1.04 Coupled Processes    | Janna Abalichin Institut für Meteorologie/Freie Universität Berlin 123 SEA ICE DISTRIBUTION AND ATMOSPHERIC FORCING IN THE SOUTHERN HEMISPHERE                        |
| 1.05 Coupled Processes    | Stephan Paul University of Trier 39 Long-term statistics of coastal polynyas in the Weddell-Sea using satellite-based thin-ice retrievals                             |
| 1.06 Coupled Processes    | Alexandra Weiss British Antarctic Survey BAS Cambridge 71 Boundary layer in the Antarctic sea ice zone  |
| 1.07 Coupled Processes    | Richard Jones University of East Anglia 147 An evaluation of the latest generation of meteorological reanalysis products in the Amundsen Sea, Antarctica.             |
| 1.09 Coupled Processes    | Irene Suomi Finnish Meteorological Institute 141 Wind gusts over Arctic sea ice   |
| 1.1 Coupled Processes     | Barbara Brooks National Centre for Atmospheric Science 105 Interactions between Arctic clouds, boundary-layer structure, and surface conditions over the Arctic Ocean |
| 1.11 Coupled Processes    | Jamie Rae Met Office Hadley Centre, United Kingdom 113 Arctic Cyclones and Sea Ice in HadGEM3   |
| 1.12 Coupled Processes    | Peggy Achtert Institute for Climate and Atmospheric Science, University of Leeds, Leeds, UK 107 Observations of the Arctic boundary layer during ACSE 2014            |
| 1.13 Coupled Processes    | Andrey Debolskiy Moscow State University 115 Evaluation of convective boundary layer parameterizations based on LES data  |
| 1.14 Coupled Processes    | John Prytherch University of Leeds 106 Wave state and surface turbulent exchange over low fractional ice cover  |
| 1.15 Coupled Processes    | Dominic Salisbury University of Leeds 86 Evaluating surface flux parameterizations over Arctic sea ice  |

### Thursday Poster Session

|                            |  |
|----------------------------|--|
| 2.01 Extreme events        | Dmitry Chechin Obukhov Institute of Atmospheric Physics 67 Low-level baroclinicity and the ABL evolution during cold-air outbreaks in high latitudes: a simple model                                 |
| 2.02 Extreme events        | Clio Michel Geophysical Institute, University of Bergen 156 Environmental Conditions for Polar Lows in the Nordic Seas   |
| 2.03 Extreme events        | Tobias Wolf Nansen Environmental and Remote Sensing Center 124 Atmosphere, ocean, ice interaction during the 'Great Arctic Cyclone of 2012'  |
| 2.04 Extreme events        | Denis Sergeev University of East Anglia 87 Structure and dynamics of a shear-line polar low during a cold-air outbreak over the Norwegian Sea  |
| 2.05 Large scale processes | Kazutoshi Sato The Graduate University for Advanced Studies 44 Influence of the Gulf Stream on the Barents Sea ice retreat and Eurasian coldness during early winter                                 |
| 2.06 Large scale processes | Raymond Sellevold Universitetet i Bergen 99 Investigating the potential influence of anomalous heating related to Arctic amplification on wintertime stationary wave activity: an idealized approach |
| 2.07 Large scale processes | Tido Semmler Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research 51 Fast atmospheric response to a sudden thinning of Arctic sea ice  |
| 2.08 Large scale processes | Erlend Møster Knudsen University of Bergen 137 A wilder and wetter future?: Insights from two CMIP5 models   |
| 2.09 Large scale processes | Mauzy Pauline Laboratoire de Météorologie Dynamique 146 Exploring Stratospheric-Tropospheric dynamical coupling associated with stratospheric warmings events.                                       |
| 2.11 Large scale processes | Linling Chen NERSC 160 What's the difference between these winters?  |