

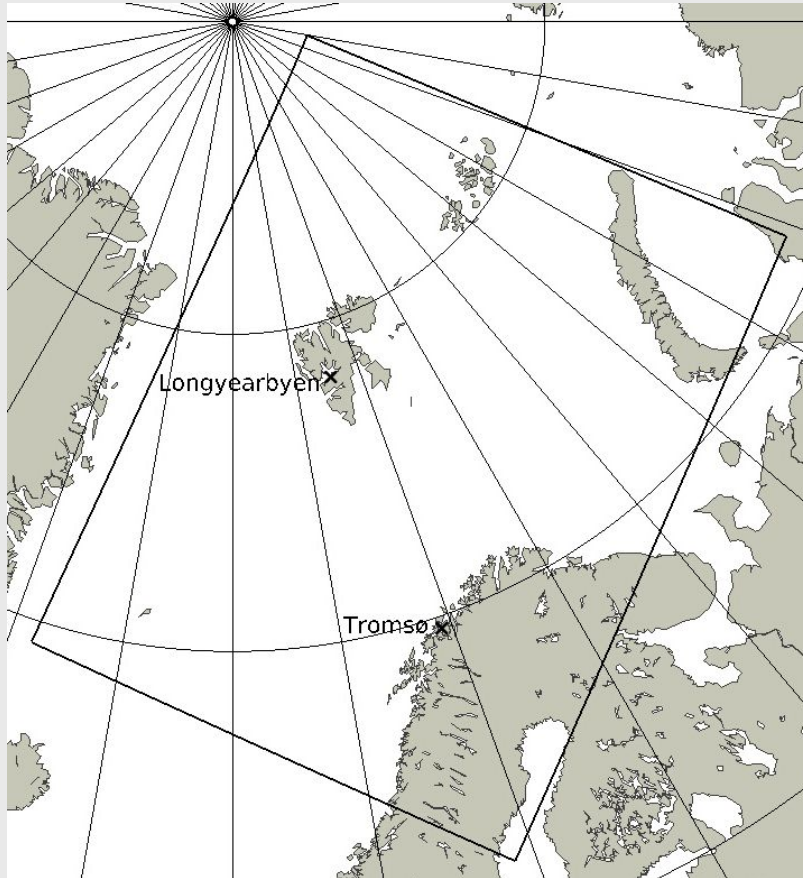


Meteorologisk
institutt

Storm forecast using AROME-Arctic mesoscale model

Ida Fossli

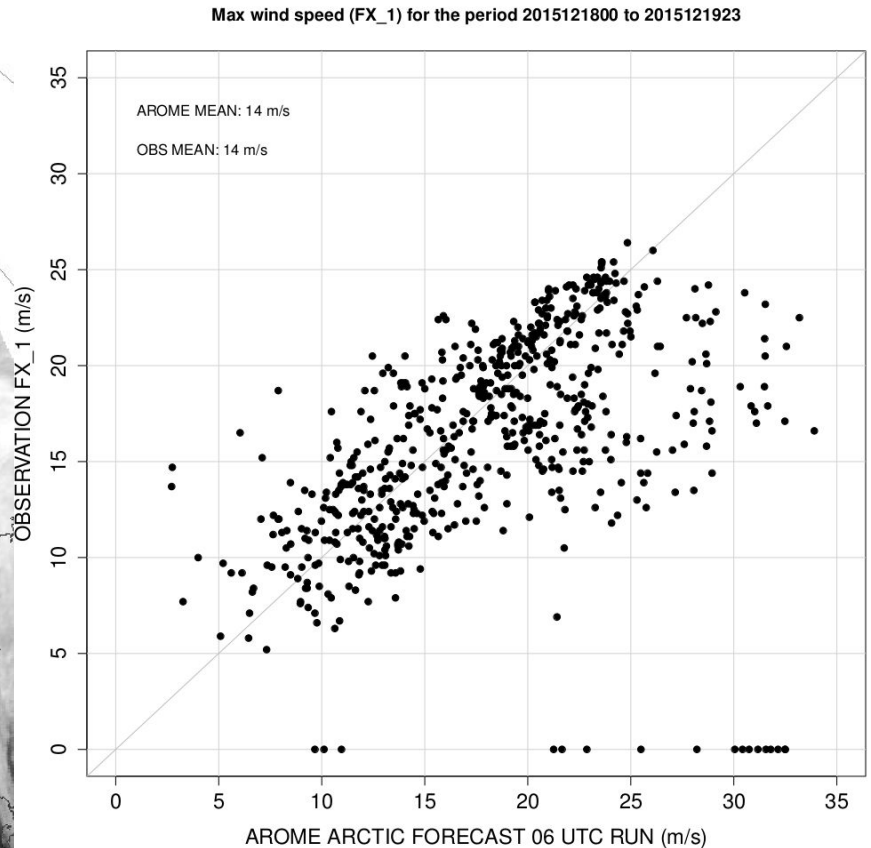
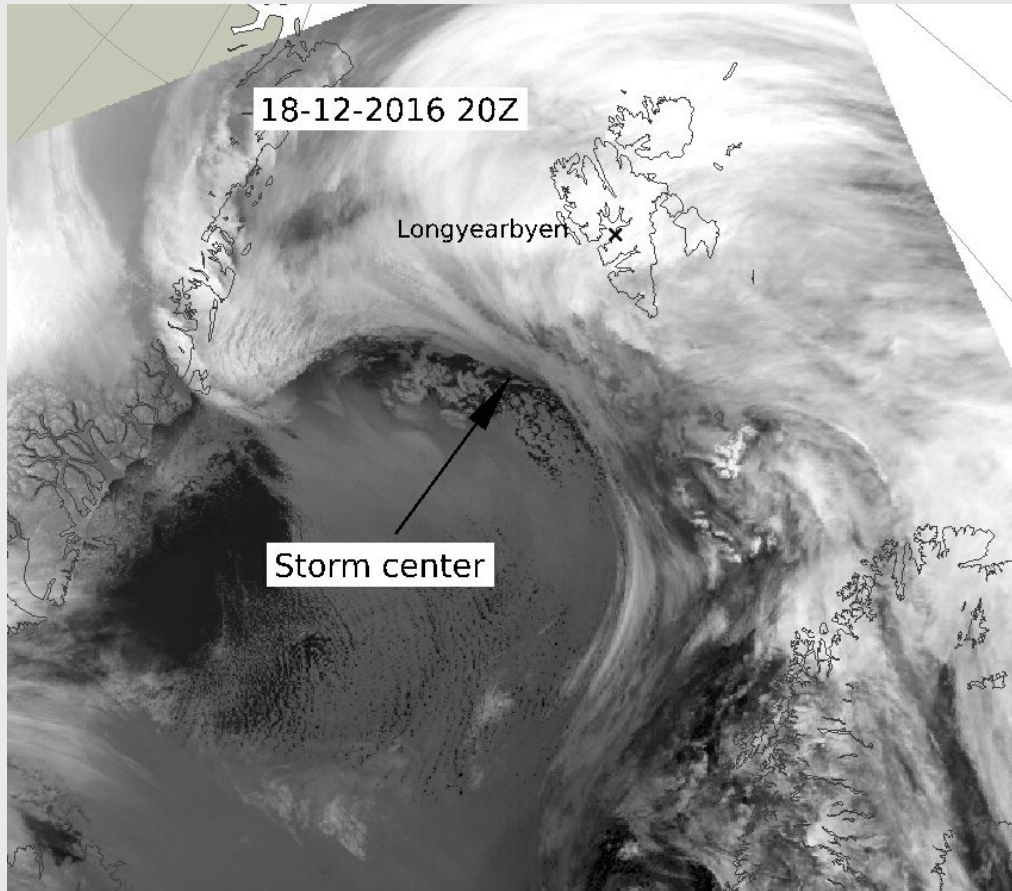
AROME-Arctic



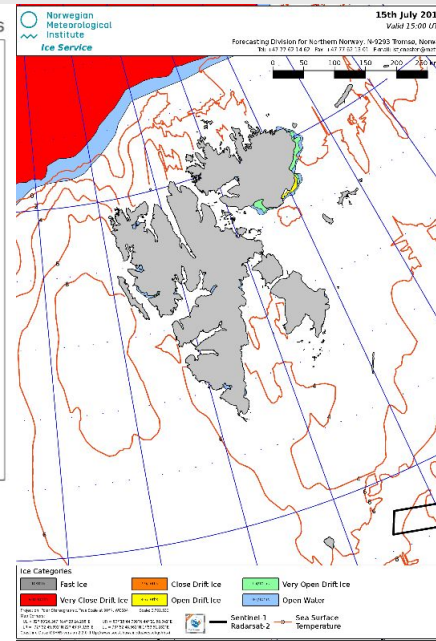
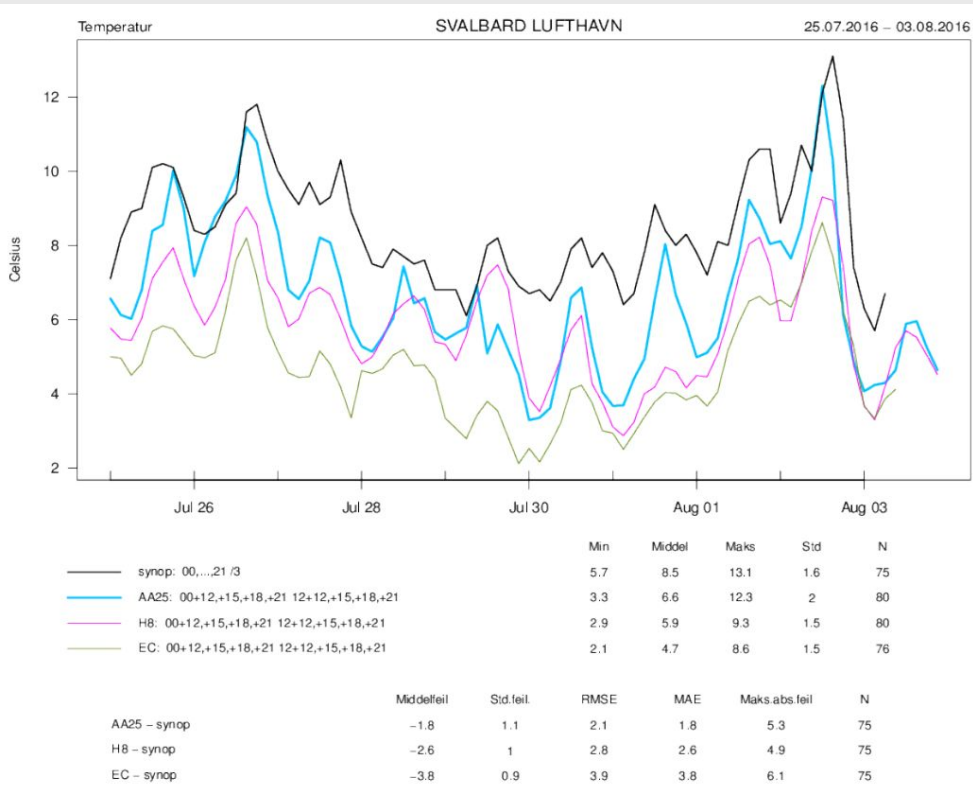
Regional non-hydrostatic NWP model operated daily by MET Norway

- Harmonie cycle 38h1.2
- AROME physical parametrization
- 2.5km/65levels/10 hPa top
- Domain with 750x960 gridpoints
- Hourly boundaries from ECMWF
- Forecast length 66 hours
- ECOCLIMAP-2
- Surface assimilation (t2m, th2m, snow)
- 3DVAR (conventional, ATOVS, GNSS, ASCAT)
- 3-hours cycling
- SURFEX for surface modelling
- Simple Ice Scheme (SICE) for sea ice parametrization

Svalbard Storm 18-19 December 2015



Ongoing development: sea ice representation

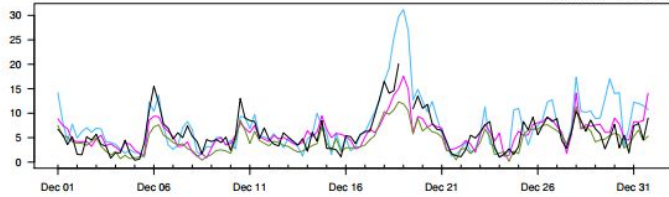


AROME-Arctic SST (red) and SIC (blue)

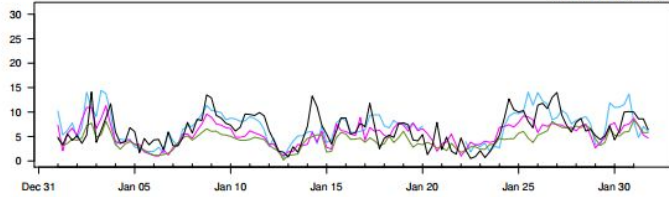
AROME-Arctic: Verification

SVALBARD LUFTHAVN

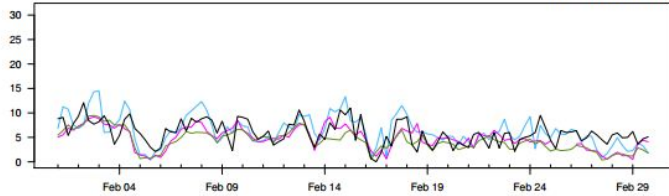
01.12.2015 - 31.12.2015



01.01.2016 - 31.01.2016



01.02.2016 - 29.02.2016



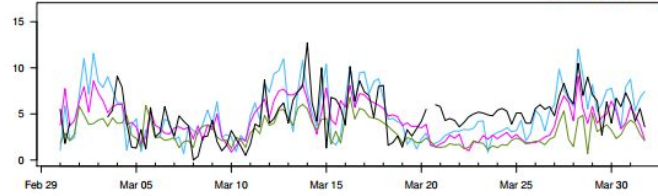
01.12.2015 - 29.02.2016

	Min	Mean	Max	Std	N
synop: 00,06,12,18	0	6.1	20.1	3.1	362
AA25: 12+18,+24,+30,+36	0.4	7	31.2	4.2	356
Hirlam8: 12+18,+24,+30,+36	0.5	5.4	17.5	2.6	360
ECMWF: 12+18,+24,+30,+36	0.2	4.4	12.3	2.2	364

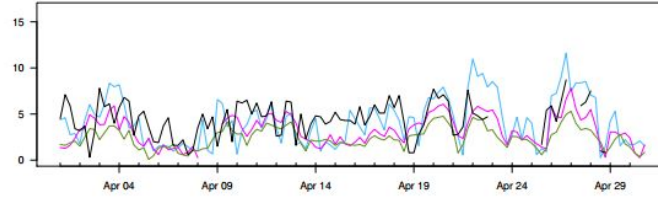
	ME	SDE	RMSE	MAE	Max.abs.err.	N
AA25 - synop	0.7	2.9	3	2.2	12	354
Hirlam8 - synop	-0.7	2.5	2.6	2	7.4	358
ECMWF - synop	-1.7	2.2	2.8	2.2	8.4	362

SVALBARD LUFTHAVN

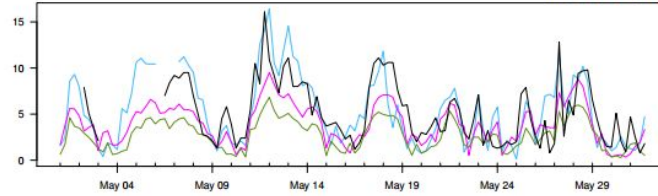
01.03.2016 - 31.03.2016



01.04.2016 - 30.04.2016



01.05.2016 - 31.05.2016



01.03.2016 - 31.05.2016

	Min	Mean	Max	Std	N
synop: 00,06,12,18	0	4.9	16.1	2.6	321
AA25: 12+18,+24,+30,+36	0.1	4.9	16.4	3.1	362
Hirlam8: 12+18,+24,+30,+36	0.3	3.8	9.5	2	364
ECMWF: 12+18,+24,+30,+36	0.1	2.8	6.8	1.4	368

	ME	SDE	RMSE	MAE	Max.abs.err.	N
AA25 - synop	0	2.4	2.4	1.9	9.1	316
Hirlam8 - synop	-1	2.1	2.3	1.9	7.9	317
ECMWF - synop	-2.1	2.1	2.9	2.4	10.2	321