

Lake and river ice Products based on SAR



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Ice products



Variable	Developed by	Provider	Resolution	Sensor type	Status
LIE	Norut	Norut	10-100m	Multi-sensor [RS2,Sentinel-1]	Experimental
RIE	Norut	Norut	1-50m	SAR [(Radarsat-2,TSX,CSK, S1) LS8&S2 also suitable	Experimental



Lake ice detection with SAR



- Norut has tested RS-2 SCNA dual-pol mode for lake ice detection
- Processing chains are ready to be used with Sentinel-1 data when available
- Note: S1 will not deliver dual.pol data in initial phase.

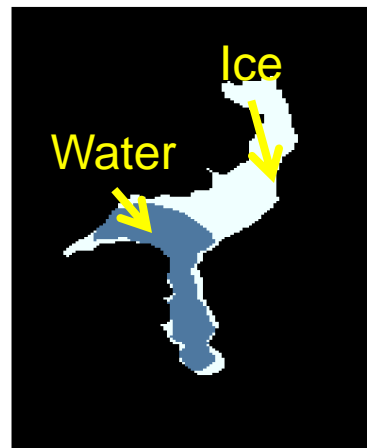
Sar image HH on 20131231



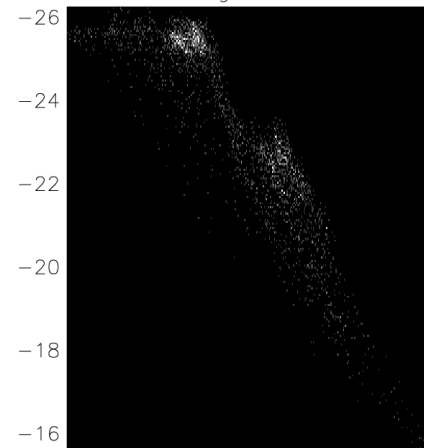
Sar image HV on 20131231



Classified lakeice



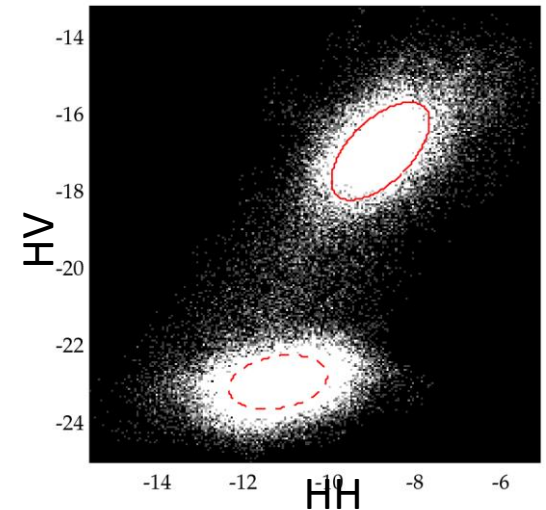
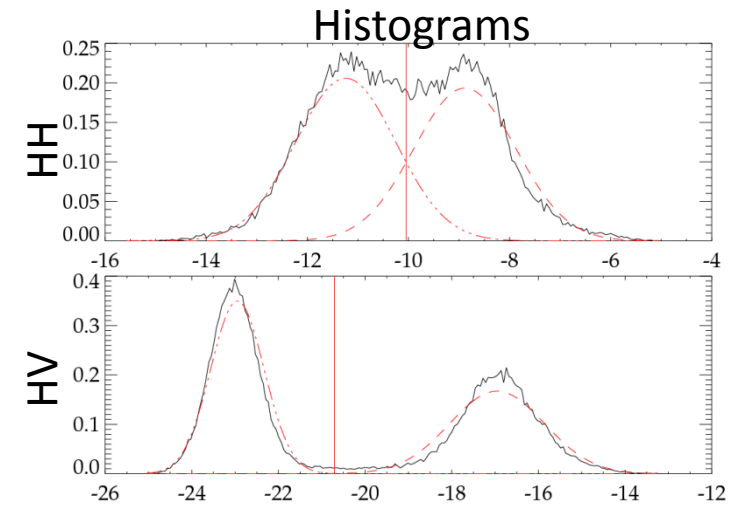
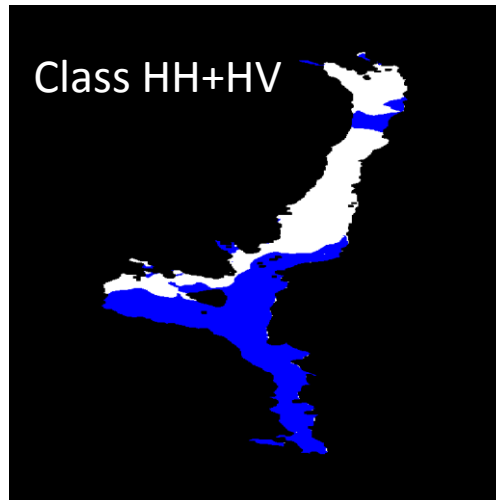
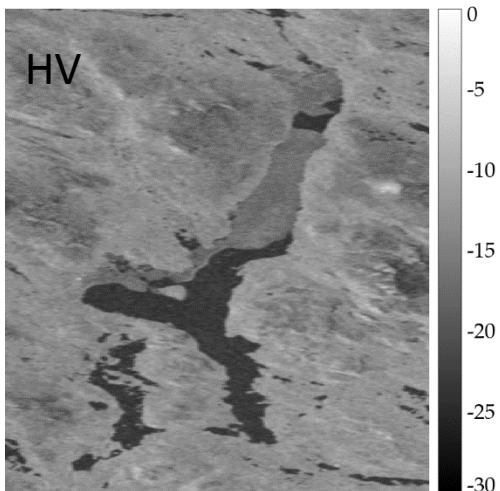
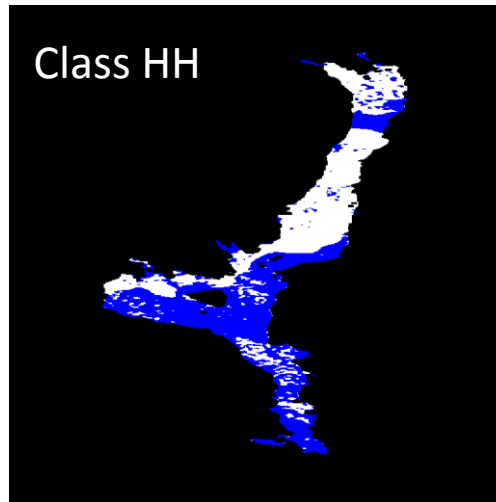
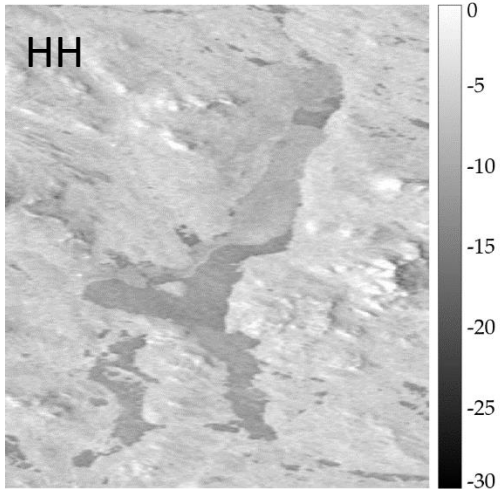
2D histogram of data



PM
January
23-25
2013,



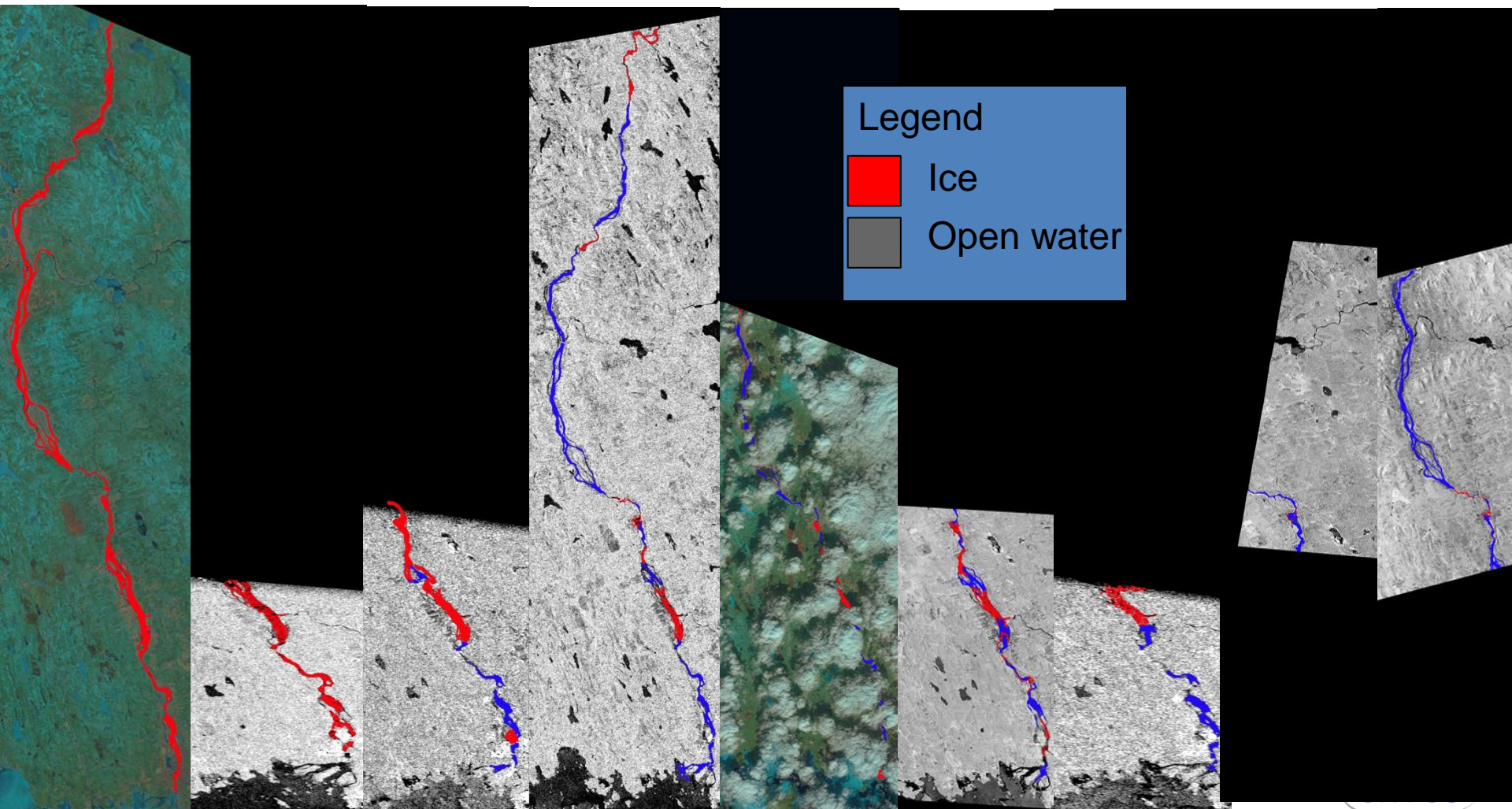
Femunden May 16th 2013



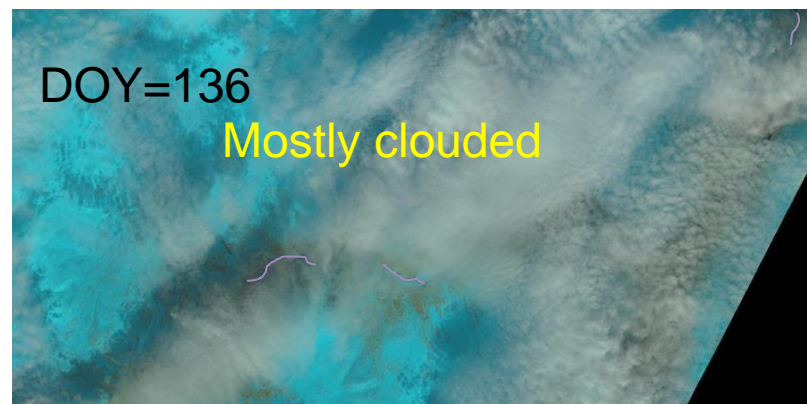
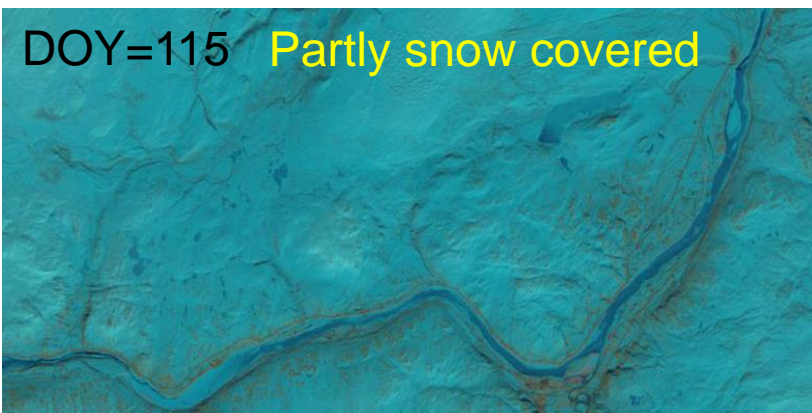
Torneriver: Ice breakup



25.04 28.04 01.05 02.05 02.05 03.05 04.05 05.05 07.05



Landsat-8 Tana river



Tana River –classified time series

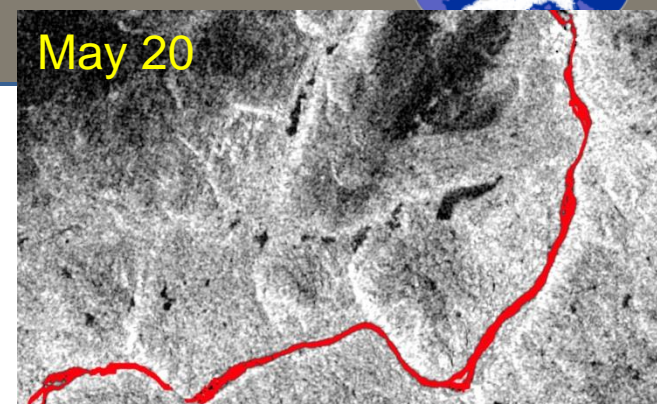
May 10



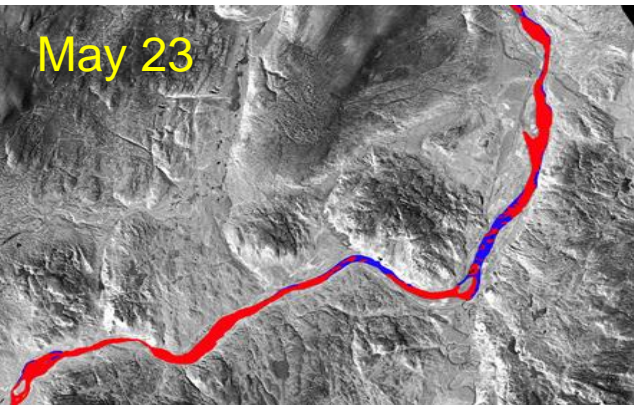
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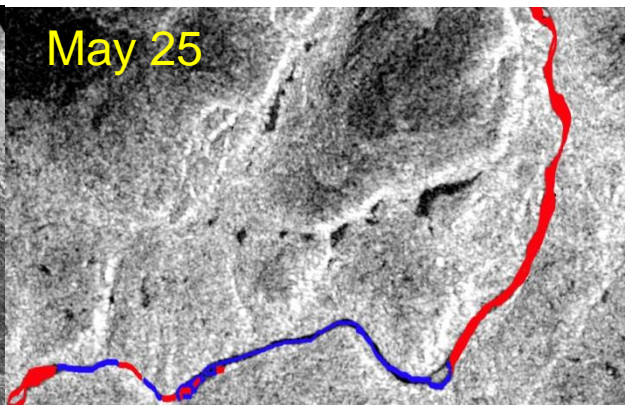
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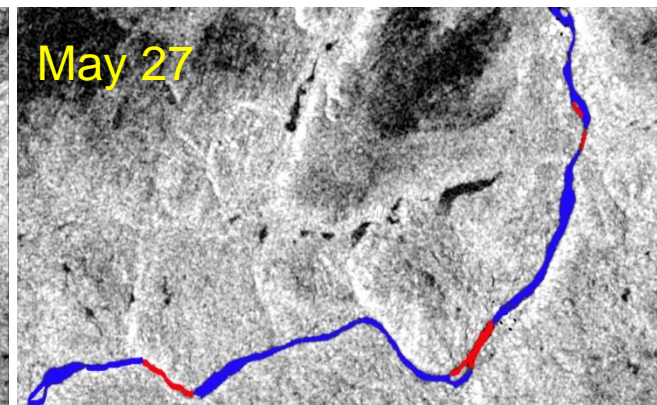
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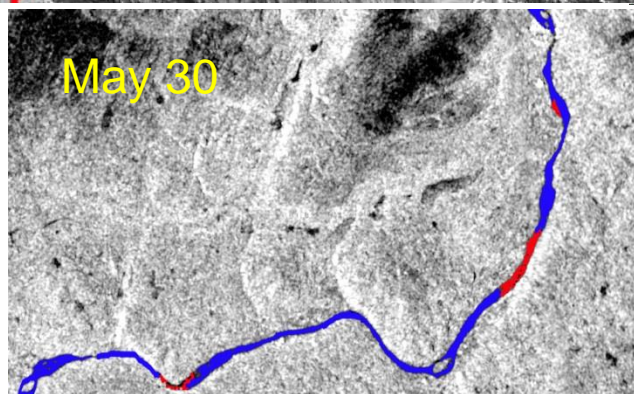
May 25



May 27



May 30



Legend



Ice



Open water

- Lake demonstrated for some selected Norwegian and Finnish lakes
- Lake ice: Potential shown, dual pol data are needed, limited capabilities due to low coverage during period
- River ice: Demonstrated in Torneo (2013 and 2014) and Tana (2015)
- Both products: Can be operationalized if interest is expressed and funding can be secured