CRYOSPHERIC ACTIVITIES IN ASIA

Russian Federation

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GLOBAL CRYOSPHERE WATCH (GCW)
CryoNet Asia Workshop
Second Session

Salekhard, Russian Federation
2-5 February 2016
Pyramid of observations to synthesis

- **Observations**: satellite information, land-based, coastal and marine stations, ships, buoys
- **Diagnostic products**
- **Numerical and empirical models**
- **Synthesis Services, climate**
Types of cold regions observations provided by Roshydromet

- Routine synoptic observations at weather stations (SYNOP code)
  - Surface meteorology including components of radiation balance
  - Snow thickness and type of cover
- Routine synoptic observations at coastal stations (KNo2 code)
  - Ice conditions, fast thickness
- CLIMAT code
  - Snow cover height
- Land-based observatories with integrated measurements
  - GAW
  - BSRN
  - GCW
  - Etc
- Ship-borne and drifting platforms observations
  - Integrated observations of sea ice and snow on sea parameters
Routine snow height in SYNOP

2016-02-02 00Z Snow height (cm)
http://cliware.meteo.ru

Climat temp Jan 2016
Marine observational network of Russian Federation

In a total 235 marine coastal stations and posts

Observational network includes:

- Coastal observational network
- Shipborne network – regular and expeditionary
- Stationary and drifting buoys, drifters, profilers
- Ice drifting stations
- UAVs
- Satellite receiving network
- Pollution monitoring network
Marine observational network: integrated sites

- Tiksi observatory
- Bolshevik island
- Russian research center on Spitsbergen
- Lean air pavilion
- Ice base Cape Baranova
- Russian research center on Spitsbergen
- Cape Baranova meteo site
Marine observational network: NP stations

Scheme of drift for NP stations during 1937-1991

Scheme of drift for NP stations during 2002-2013

Marine observational network: NP stations

Scheme of drift for NP stations during 1937-1991

Scheme of drift for NP stations during 2002-2013
Marine observational network: shipborne expeditions
Marine observational network: best practices

Cape North Pole drifting station

North Pole drifting station

UAV
Monitoring of the Arctic and Antarctic marine environment, short, medium and long-term forecasting, operational support at sea and are the prime AARI responsibilities since 1920s.

Several operational and scientific departments are supporting RCC functions.

AARI is supporting the WMO “Global Digital Sea Ice Data Bank” project integrating together with NSIDC the national ice services sea ice climatology based on ice charting.
Arctic climate monitoring & PRCC-N

Smother (365 days) daily ice extent values and linear trends for Arctic and Southern Ocean for 1978-2013

Sea surface salinity and ice edge in June 1969 (top) and 1987 (bottom). Salinity - NOAA NODC, ice edge - HadSST

Maximal $T_{AW}$ in the Arctic Basin

Summer air temperature based on 41 stations

Winter air temperature based on 41 stations


1 Пр. Фрама
2 Жел. Св. Анны
3 83°N 90°E
4 80°N 120°E
5 81°N 150°E
6 Сев. Поляс

Global Cryosphere Watch

Arctic climate monitoring & PRCC-N
August 3rd 10-days period sea ice extent for the Western Eurasian, Eastern and total Eurasian Seas.
CryoNet – a key for validation & interpretation of satellite products

Sentinet-1A, 2016-01-31