→ MWBS | MAPPING WATER BODIES FROM SPACE 2015 CONFERENCE

Summary for high latitude session

Annett Bartsch and Stefan Hagemann

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WB at high latitudes

- summer as well as winter conditions

- Lake properties of interest:
  - Extent: dynamics
  - Ice properties: freezing and melting dates, grounded versus floating ice, bubbles (related to methane emissions)
  - Water quality, such as surface water body temperature, water colour
  - water level & time series of water depth with uncertainty information

WB at high latitudes

- change detection is challenging in the Arctic
  - small lakes
  - year to year and seasonal variations - trends?
  - frequent cloud cover

- Landsat
  - abundance of lakes can be determined circumpolar
  - dynamics regionally, but not on object basis. E.G. summer trend analyses approach via reflectance itself
- SAR
  - proven applicable for winter and summer dynamics but not sufficient data to go circumpolar

WB at high latitudes

- Spatial and temporal resolution, thematic content
  - Spatial distribution of water bodies at high resolution (1-30m) with uncertainty information/ time stamp
  - Separation of seasonal and inter-annual variability from the long-term component
  - seasonal and inter-annual variability itself important for process understanding -> weekly
  - Distinction between lakes, rivers and wetlands (peatlands, fens, …)

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Requirements for Monitoring of Permafrost in Polar Regions - A community white paper in response to the WMO Polar Space Task Group (PSTG). - 2014

Document available online on WMO and CliC webpages