

A new sea ice climate data record for climate studies

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<http://nsidc.org/data/g02202.html>

<http://www.ncdc.noaa.gov/cdr/>

What is a climate data record (CDR)?

A report by the National Research Council of the U.S. National Academies of Science (NRC, 2004) described a climate data record (CDR) as “a time series of measurements of sufficient length, consistency, and continuity to determine climate variability and change.” Other characteristics include data quality information, full documentation, including metadata and processing software, and full reproducibility.

How have NSIDC and NOAA addressed CDR requirements for sea ice concentration datasets?

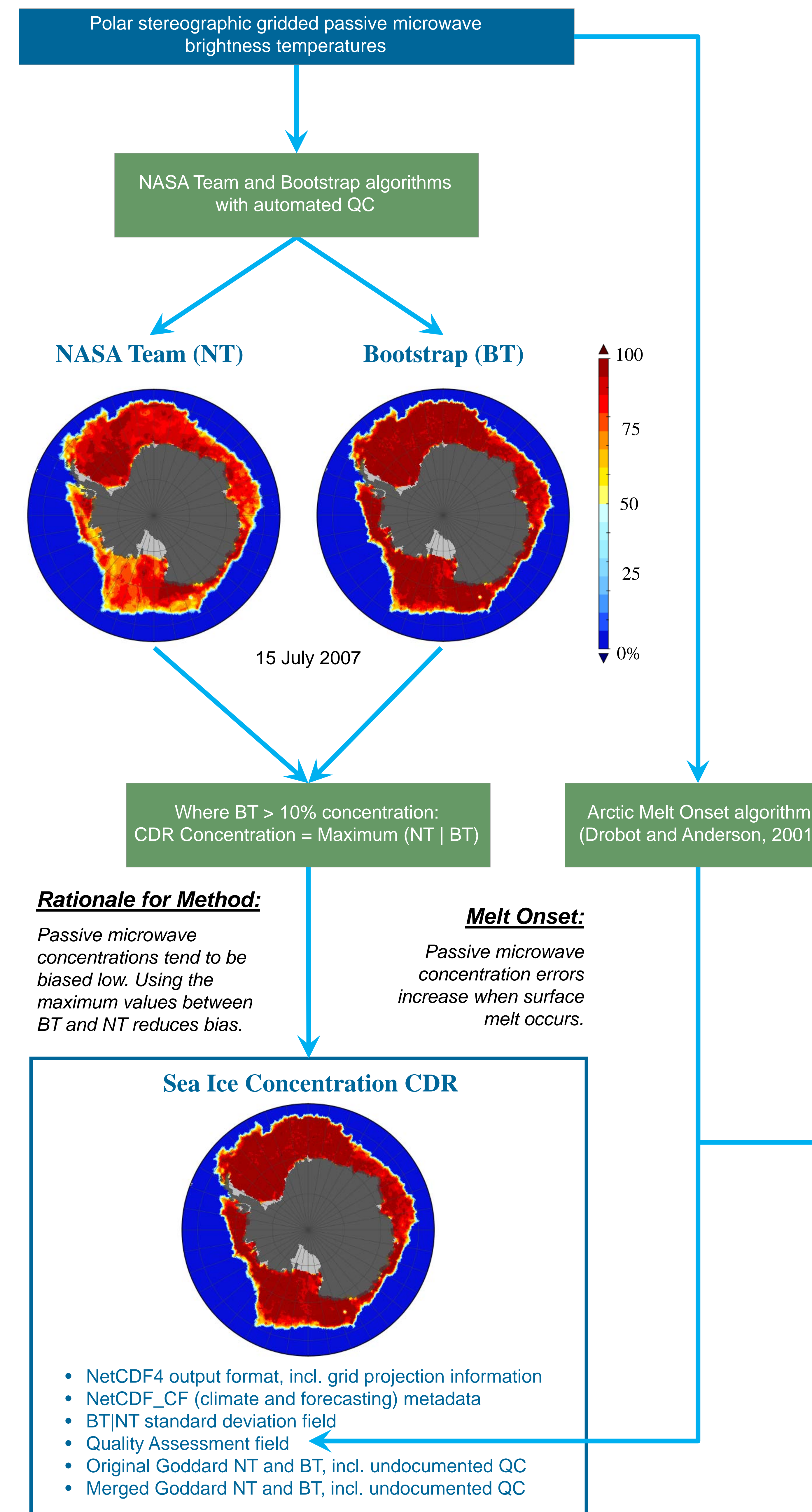
In response, NOAA created a Climate Data Record Program, under whose auspices NSIDC has created a passive microwave sea ice concentration CDR (Meier et al., 2011), building on earlier products developed by scientists at NASA Goddard Space Flight Center and processed at Goddard and NSIDC. The NSIDC/NOAA sea ice CDR, released in September 2011, now meets the CDR requirements.

CDR Criteria	NSIDC/NOAA Climate Data Record	NSIDC/Goddard NASA Team	NSIDC/Goddard Bootstrap
Long-term record	✓	✓	✓
Consistently processed	✓	✓	✓
Continuous and regularly updated	✓	✓	✓
Complete metadata	✓		
Self-describing data format	✓		
Grid-cell data quality information	✓		
Reproducible processing	✓		

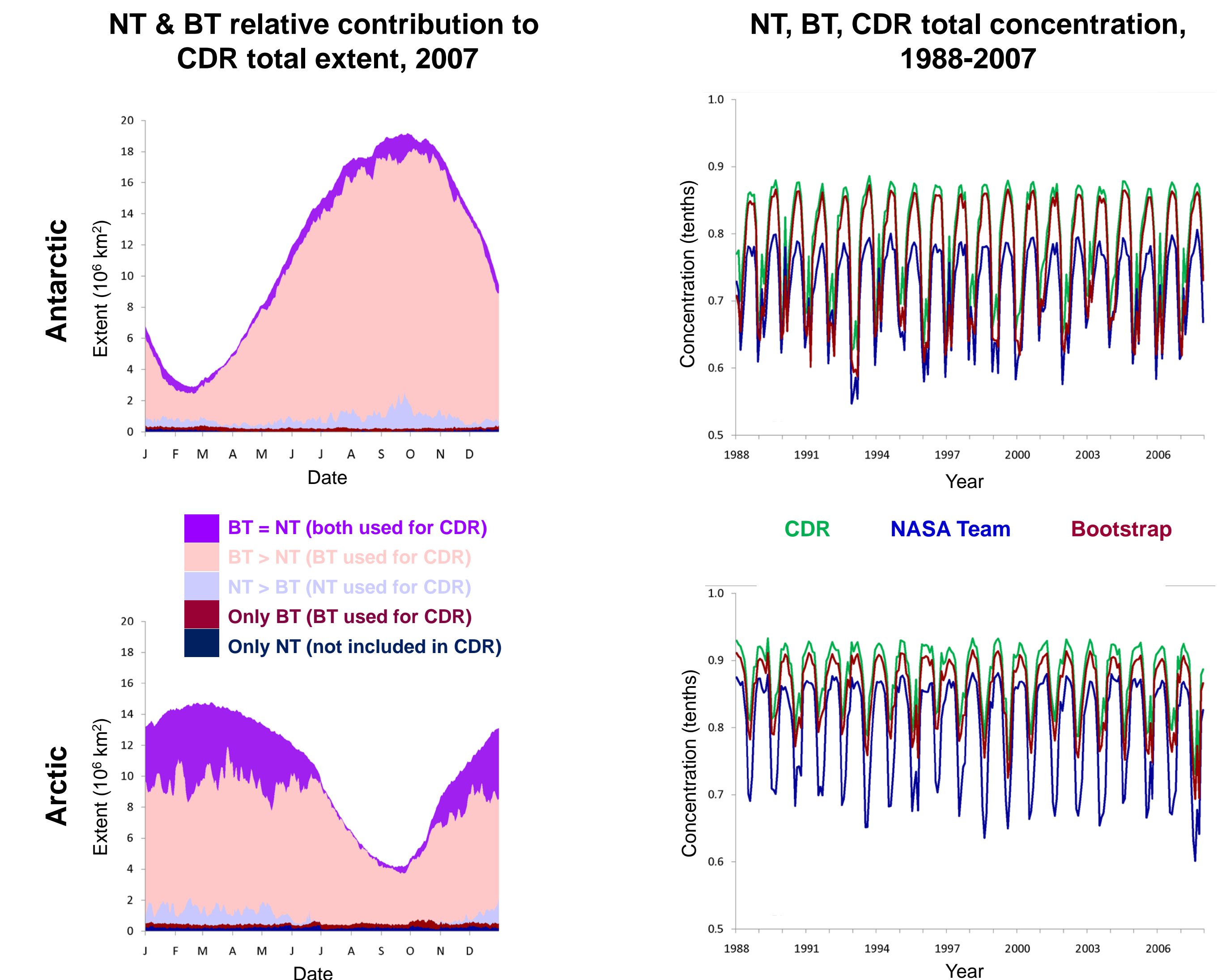
References

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Creating the Sea Ice Concentration CDR

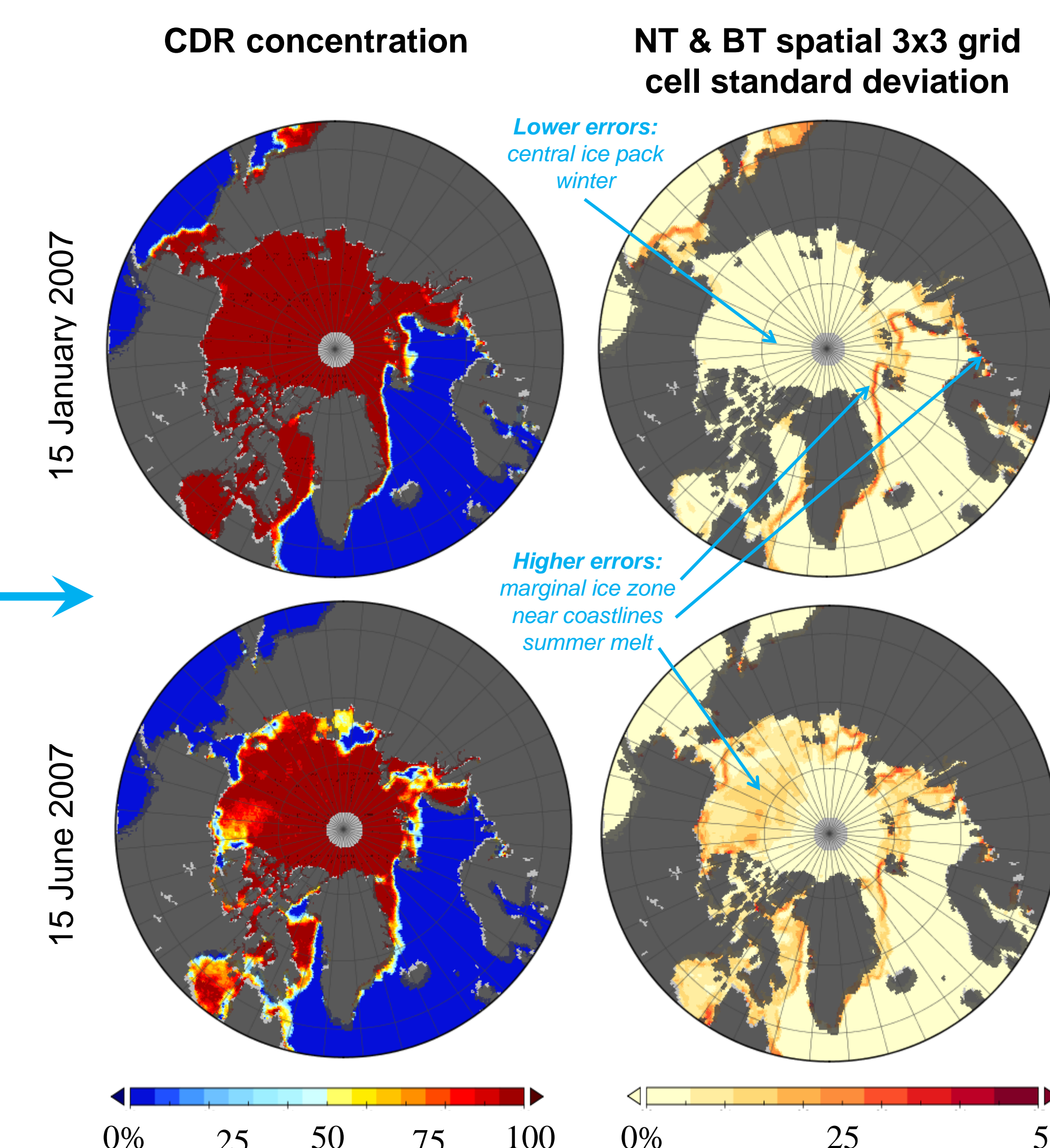


Comparison of CDR, NASA Team (NT), and Bootstrap (BT)



The relative contribution of the NASA Team and Bootstrap concentrations depends on conditions. The CDR product yields higher ice overall concentrations and thus less bias.

CDR data quality information



1. Standard deviation:

A field of spatial standard deviation of both NT and BT indicate areas of high spatial variation and/or disagreement between NT and BT – both are regimes where the errors tend to be high.

2. Quality assessment: (not shown)

A QA field is also provided to indicate source (NT or BT) for CDR, and near-coastal, low concentration, melt (Arctic-only) regions.