

Basic plots about Sea Ice from Satellite Data

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July 29, 2014

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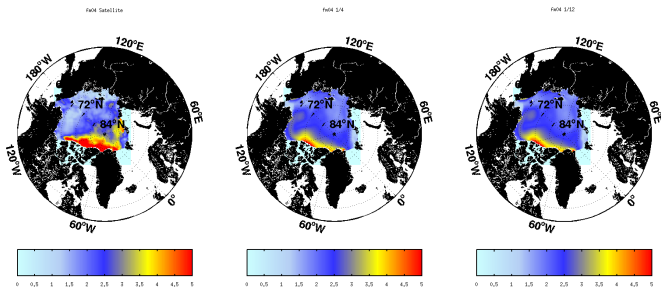
- 1 Sea-Ice Thickness Model VS Satellite
- 2 Sea-Ice Thickness Distribution Model VS Satellite
- 3 Observation Plot

Sea-Ice Thickness Model VS Satellite

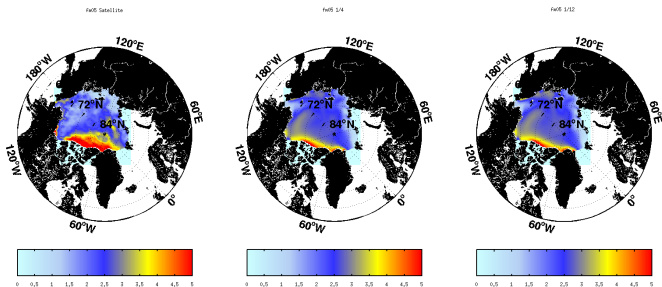
The grid of satellite data is $25km \times 25km$ square in a limited area, there is 140×140 grid points. And there are two situations:

- If the satellite data on a certain point is *NaN* or 0, then I set the model output to Nan or 0) correspondingly.
- If there is a valid data on the point, then I selected the nearest 4 valid points in the model and do interpolation.

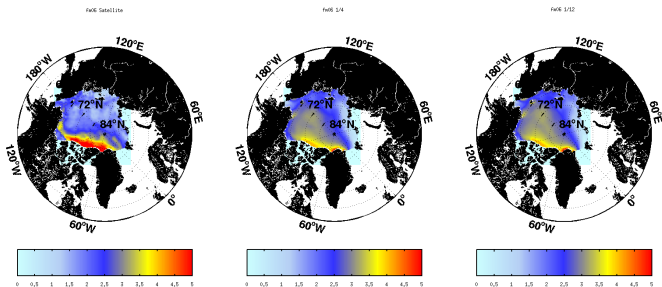
Sea-Ice Thickness on FM04: Satellite, ANHA4, ANHA12



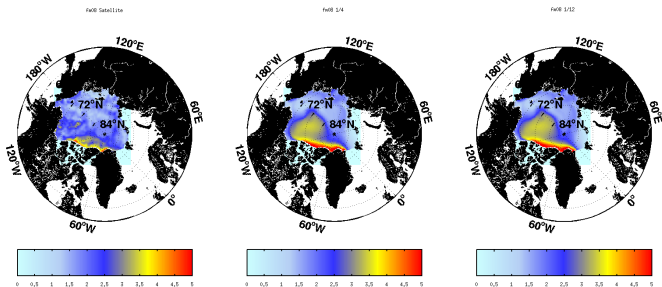
Sea-Ice Thickness on FM05: Satellite, ANHA4, ANHA12



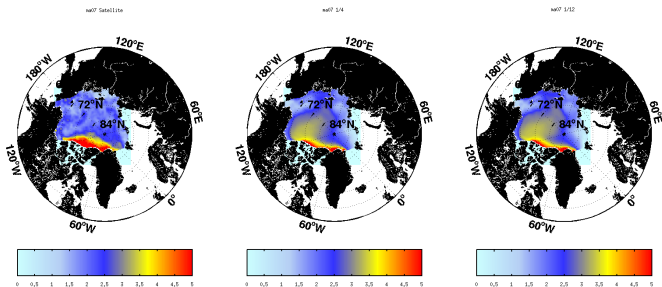
Sea-Ice Thickness on FM06: Satellite, ANHA4, ANHA12



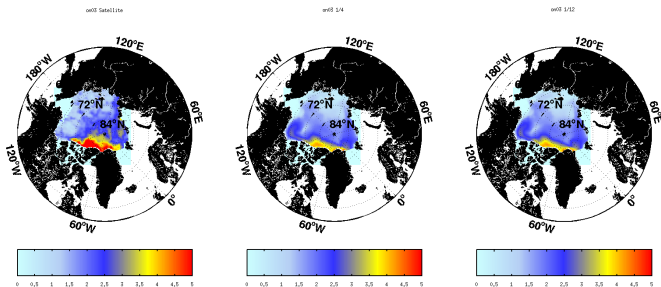
Sea-Ice Thickness on FM08: Satellite, ANHA4, ANHA12



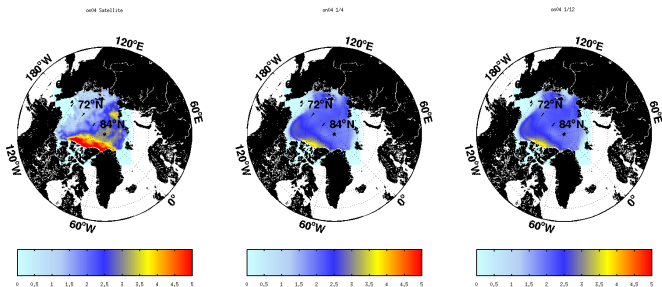
Sea-Ice Thickness on MA07: Satellite, ANHA4, ANHA12



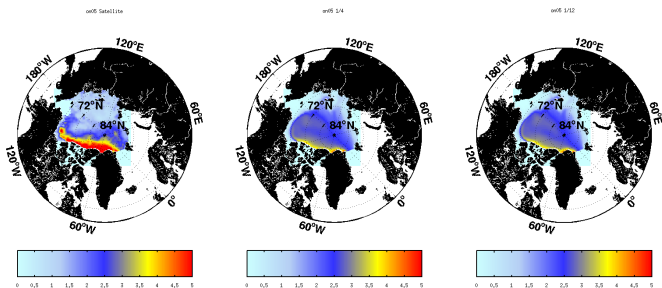
Sea-Ice Thickness on ON03: Satellite, ANHA4, ANHA12



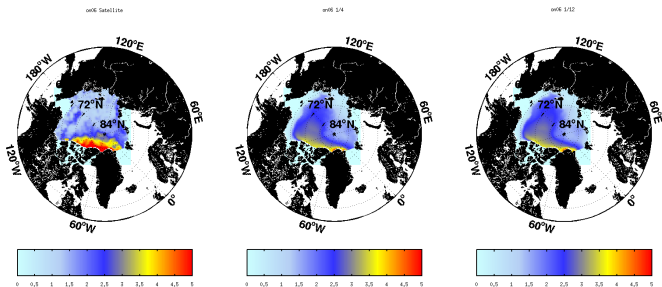
Sea-Ice Thickness on ON04: Satellite, ANHA4, ANHA12



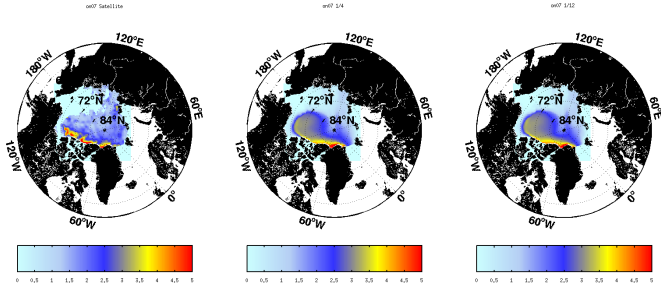
Sea-Ice Thickness on ON05: Satellite, ANHA4, ANHA12



Sea-Ice Thickness on ON06: Satellite, ANHA4, ANHA12



Sea-Ice Thickness on ON07: Satellite, ANHA4, ANHA12



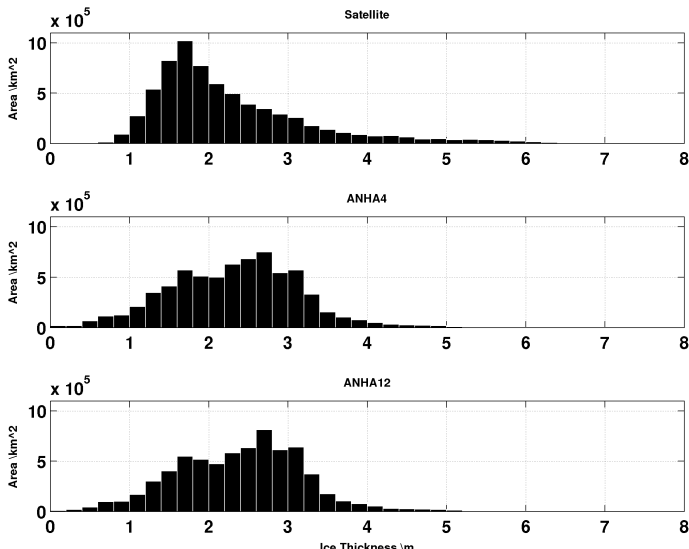
Sea-Ice Thickness Distribution Model VS Satellite

I compared 2 sets of satellite observation with the model output.

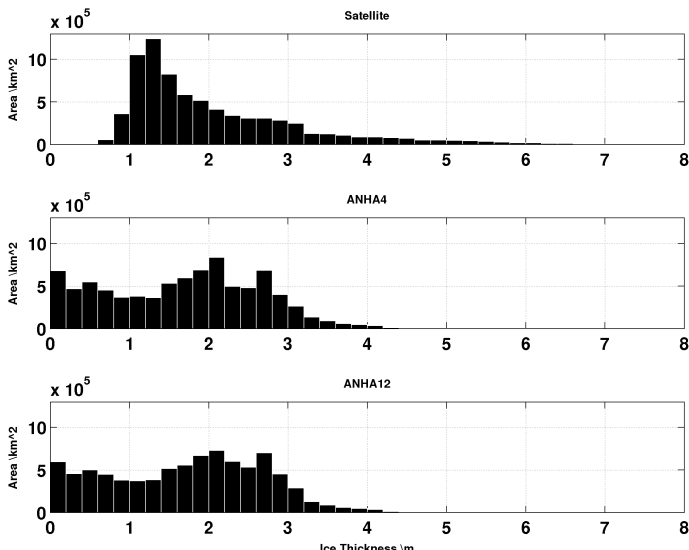
- February and March in 2004, 2005, 2006 and 2008¹
- October and November in 2003, 2004, 2005, 2006 and 2007

¹There is no satellite data on February 2007

Sea-Ice Thickness Distribution on FM 04 05 06 08



Sea-Ice Thickness Distribution on ON 03 04 05 06 07



Observation Plot

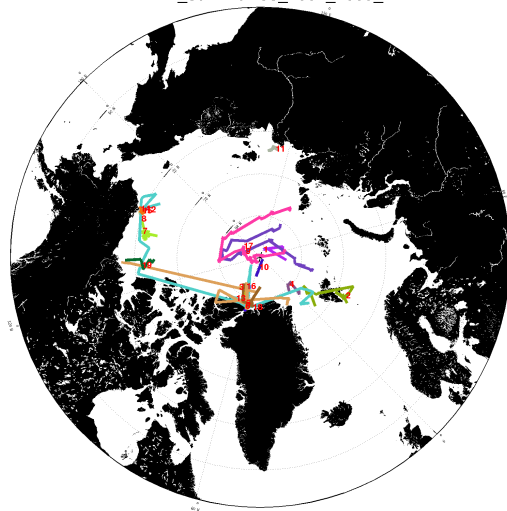
Xinamin and I selected a data set *Unified Sea Ice Thickness Climate Data Record* ² from the website provided by Paul. There are 15 recode there and I plotted the observation location in each individual data, there are mainly two types:

- The first type contains different tracks, including aircraft, satellite and submarine.
- The second type contains observations from several independent sites.

²http://psc.apl.washington.edu/sea_ice_cdr/index.html

Sea-Ice Thickness Distribution on ON 03 04 05 06 07

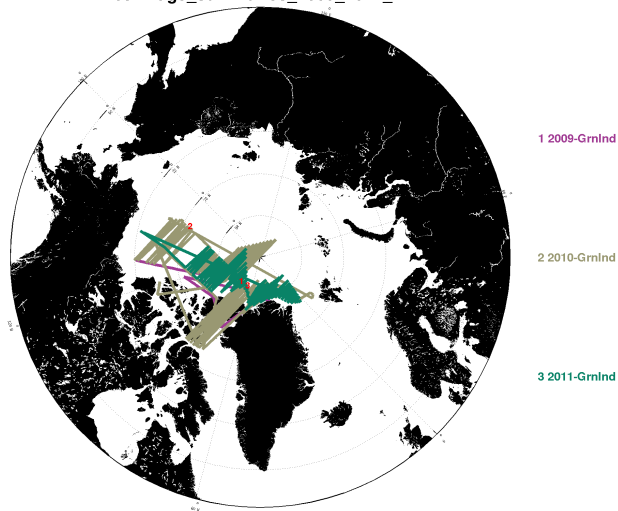
AIR-EM_summaries_2001_2009_v1



- 1 Ark17 2001
- 2 Ark19 2003
- 3 GreenICE04 2004
- 4 Ark20 2004
- 5 GreenICE05 2005
- 6 CryoVex06 2006
- 7 2007_SEDNA 2007
- 8 2007SIZONet 2007
- 9 Ark22 2007
- 10 NP_07 2007
- 11 2008TransDr 2008
- 12 2008SIZONet 2008
- 13 2009PAM-ARC 2009
- 14 2009SIZONet 2009
- 15 2010SIZONet 2010
- 16 2011SIZONet 2011
- 17 Ark26 2011
- 18 2012PAM-ARC 2012
- 19 2013_BREA 2013

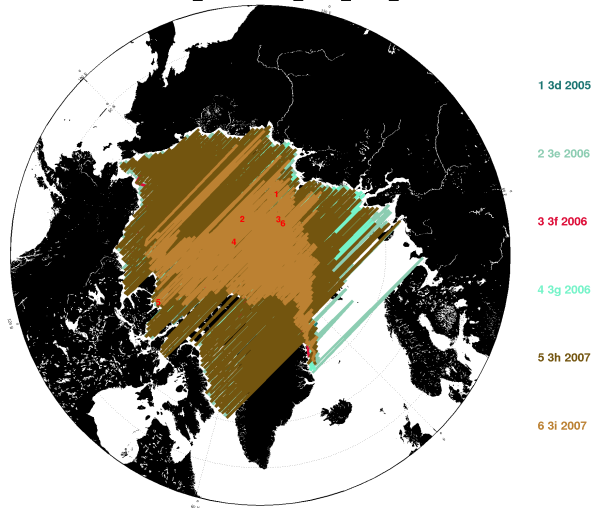
Observation from satellite

IceBridge_summaries_2009_2011_v1



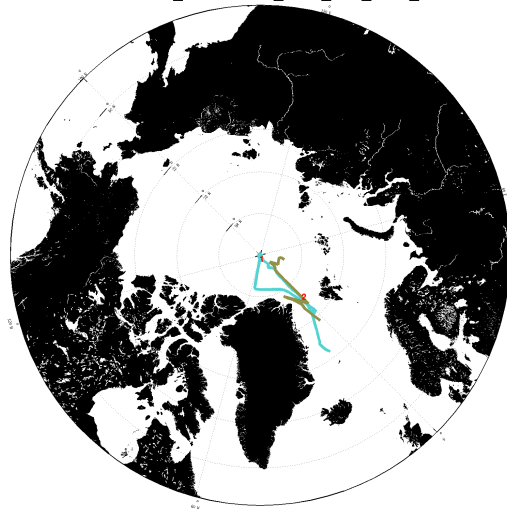
Observation from satellite

ICESAT1-G_summaries_2005_2007_v1



Observation from submarine

UKSUB-AN_summaries_1987_and_1991_v1

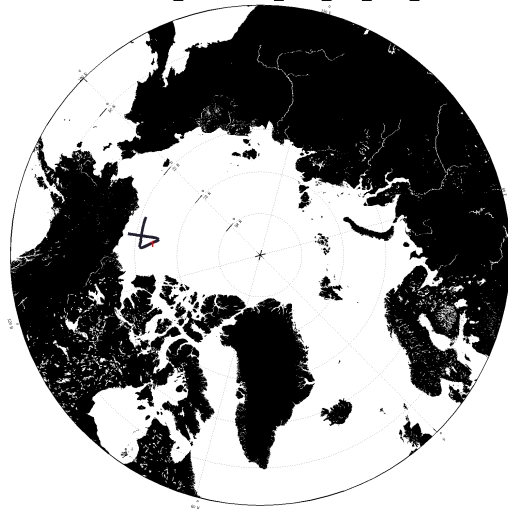


1 UK87 1987

2 UK91 1991

Observation from submarine

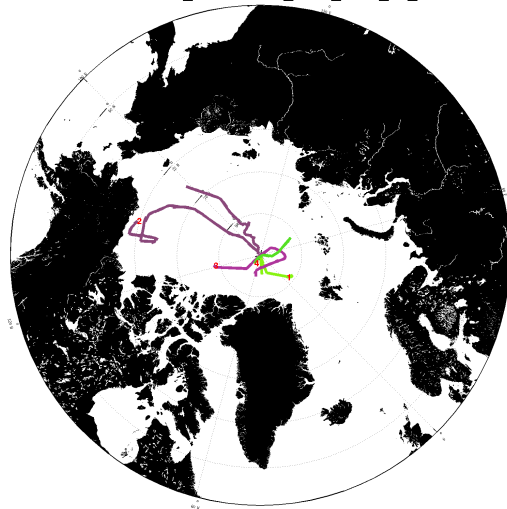
UKSUB-DG_summaries_1987_and_1991_v1



1 UK76 1976

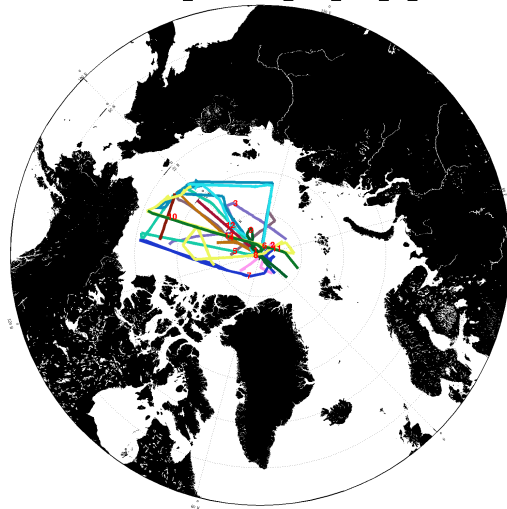
Observation from submarine

USSUB-AN_summaries_1975_2005_v1_1



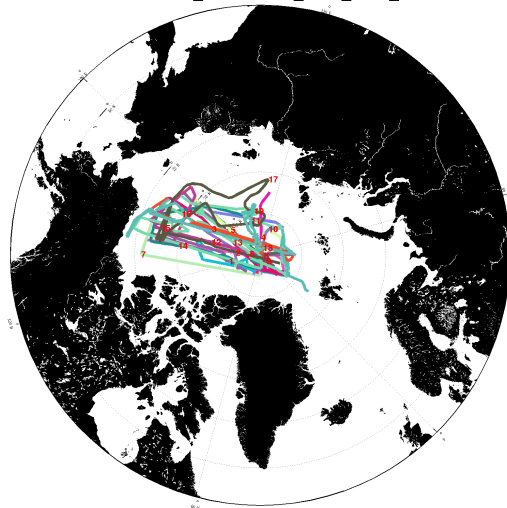
Observation from submarine

USSUB-AN_summaries_1975_2005_v1_2



Observation from submarine

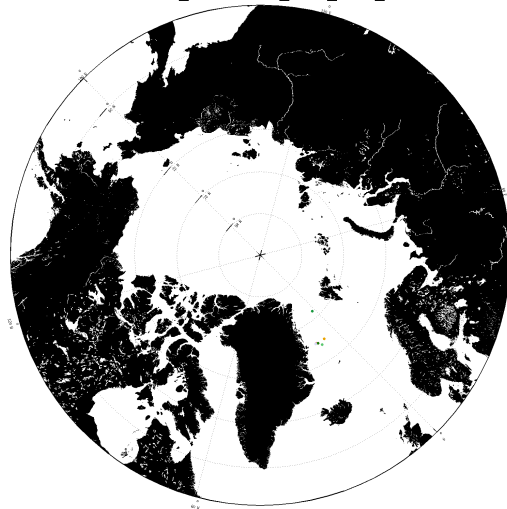
USSUB-DG_summaries_1986_1999_v1



- 1 1986a 1986
- 2 1986b 1986
- 3 1987 1987
- 4 1988a 1988
- 5 1988b 1988
- 6 1989b 1989
- 7 1990 1990
- 8 1991 1991
- 9 1992a 1992
- 10 1992b 1992
- 11 1992g 1992
- 12 1992L 1992
- 13 1993 1993
- 14 1993scx 1993
- 15 1994 1994
- 16 1996scx 1996
- 17 1997scx 1997
- 18 1998scx 1998
- 19 1999scx 1999

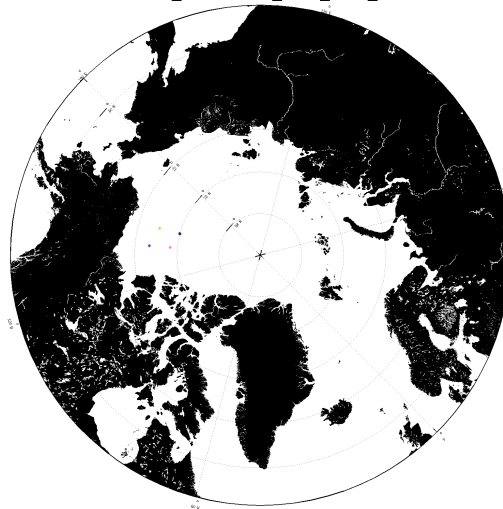
Observation from individual sites

AWI-GS_summaries_1991_2002_v1



Observation from individual sites

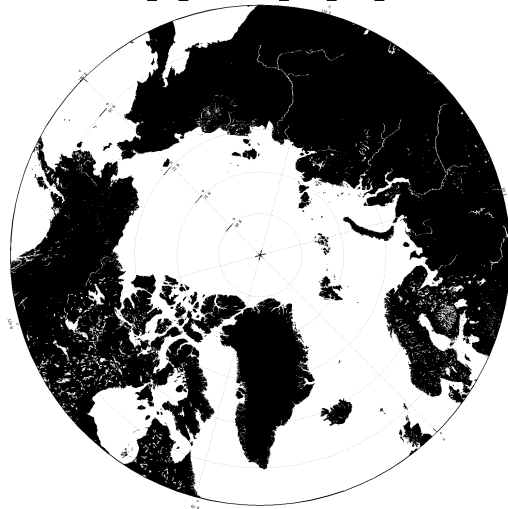
BGEP_summaries_2003_2012_v1



- 1 BGEP_2003A 2003
- 2 BGEP_2003B 2003
- 3 BGEP_2003C 2003
- 4 BGEP_2004A 2004
- 5 BGEP_2004B 2004
- 6 BGEP_2004C 2004
- 7 BGEP_2005A 2005
- 8 BGEP_2005B 2005
- 9 BGEP_2005C 2005
- 10 BGEP_2006A 2006
- 11 BGEP_2006B 2006
- 12 BGEP_2006C 2006
- 13 BGEP_2006D 2006
- 14 BGEP_2007A 2007
- 15 BGEP_2007B 2007
- 16 BGEP_2007C 2007
- 17 BGEP_2007D 2007
- 18 BGEP_2008A 2008
- 19 BGEP_2008B 2008
- 20 BGEP_2008D 2008
- 21 BGEP_2009A 2009
- 22 BGEP_2009D 2009
- 23 BGEP_2010A 2010
- 24 BGEP_2010B 2010
- 25 BGEP_2010D 2010
- 26 BGEP_2011A 2011
- 27 BGEP_2011B 2011
- 28 BGEP_2011D 2011

Observation from individual sites

BIO_LS_summaries_2003_2007_v1



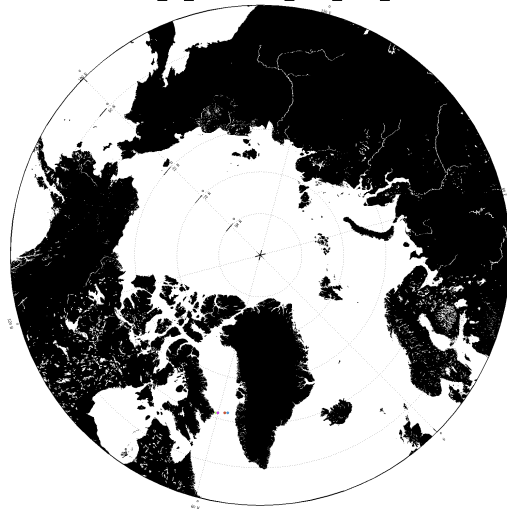
1 1487 2003

2 1574 2005

3 1608 2006

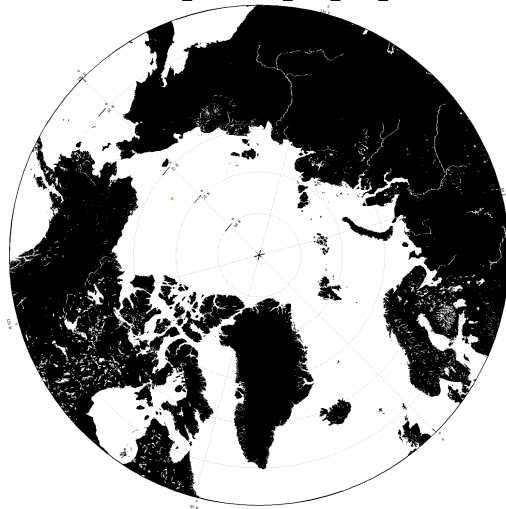
Observation from individual sites

Davis_St_summaries_2006_2008_v1



Observation from individual sites

IOS-CHK_summaries_2003_2005_v1

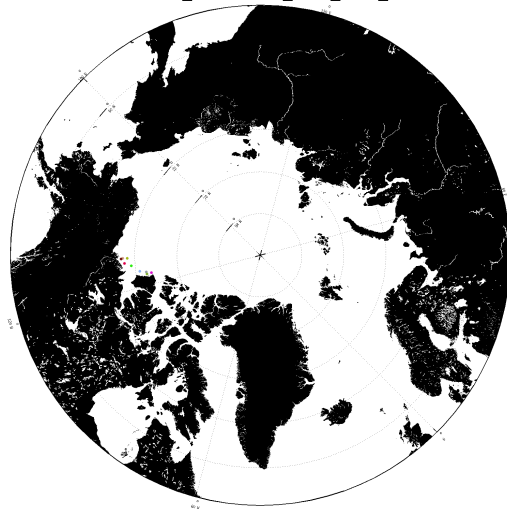


1 AIM-2003 2003

2 AIM-2004 2004

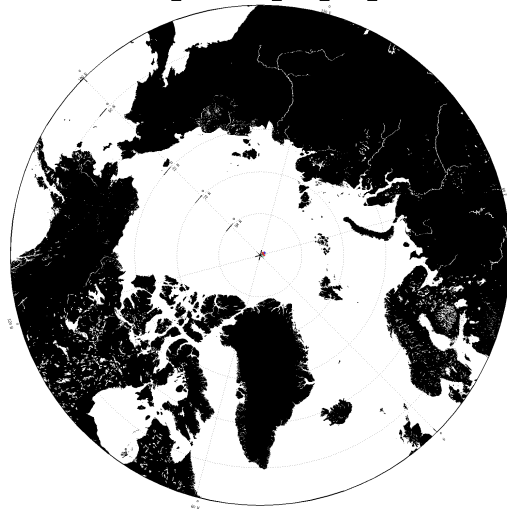
Observation from individual sites

IOS-EBS_summaries_1990_2003_v1



Observation from individual sites

NPEO_summaries_2001_2010_v1



1 NPEO-2001 2001

2 NPEO-2002 2002

3 NPEO-2004 2004

4 NPEO-2005 2005

5 NPEO-2006 2006

6 NPEO-2008 2008