Results of a visual quality check of the daily data files of the OSI-450a and OSI-430a sea ice concentration product using the ncview software by Stefan Kern, Integrated Climate Data Center (ICDC), Center for Earth System Research and Sustainability (CEN), University of Hamburg, Germany, in March 2023

Checked period: 1979-2022;

Three different kinds of artifacts / quality issues are listed as the date YYYY-MM-DD when they occur.

1. Artifacts in the sea-ice concentration distribution due to interpolation
2. Artifacts in the sea-ice concentration due to other (unknown) reasons
3. Spurious sea-ice concentration (of size approximately > 4 grid cells) over open water

Comment regarding 3:

In the northern hemisphere, there are the following regions that show spurious sea ice concentrations possibly due to a mixture of unaccounted weather influence and land spillover – mostly when land masses are separated by 1-2 grid cells only, and often but not exclusively during summer.

- Baltic Sea
- White & Pechora Seas
- Canadian Archipelago
- Gulf of St. Lawrence
- Between Sachalin & Hokkaido
- Tartarskii Strait
- Northwestern Sea of Okhotsk – here especially in July, large areas!
- Hudson Bay – here especially in August

Southern Hemisphere

Type 1:

1979-07-29 / 1979-08-16

1981-06-06 / 1981-06-10

1982-08-02 / 1982-08-06

1983-04-15 / 1983-06-28

1985-07-19 to 1985-07-23

1987-05-30

1989-07-21

1990-08-14 to 1990-08-16 / 1990-08-24 / 1990-11-12

Type 2:

1986-06-22 until 1986-11-07: Many grid cells with spurious sea-ice concentration values; sea-ice concentration distribution looks like containing speckle noise

2022-08-22: General overall dip in sea-ice concentration values, also visible in the raw sea-ice concentration and the error layers.

Type 3:

1979: 03-27, 04-12, 05-16, 09-03

1980: 03-15, 03-31, 04-22

1984: 11-17, 11-19, 11-21

1988: 08-26, 11-26, 11-29, 12-31

1989: 06-25, 10-26

1990: 01-29, 03-29, 03-30

2000: 10-28, 11-18

2001: 08-28

2012: 02-05

2019: 03-13

2021: 02-21

2022: 12-13

Northern Hemisphere

Type 1:

1979-02-11 / 1979-03-23 / 1979-06-11 to 1979-06-17

1984-09-14 / 1984-11-23

1985-01-12 / 1985-03-03 / 1985-03-31

1986-03-28 / 1986-08-27 / 1986-09-16

1987-05-30

1990-11-03

Type 2:

1980-10-11 / 1980-10-27 / 1983-10-22 / 1983-12-19 / 1986-06-22 to 1986-10-31: Many grid cells with spurious sea-ice concentration values; sea-ice concentration distribution looks like containing speckle noise

2011 summer / 2020 summer: The interpolation of the polar observation hole has once in a while a speckle-like appearance

2018-09-16 and 09-18: sea ice concentration and error values go artificially up.

2022-08-22: General overall dip in sea-ice concentration values, also visible in the raw sea-ice concentration and the error layers.

Type 3: (I distinguish between Pacific and Atlantic side; if no side is given it is the Atlantic side; dates given in **bold font** denote a comparably **large area** and/or particularly **high** values of spurious SIC)

1979:

06-27, 06-29, 07-27

1980:

Pacific side: 03-05

Atlantic side: 01-21, 04-16, 04-18, 06-09

1981:

01-03, 03-12, 03-14, 03-18, 03-20, 04-01, 04-25, 06-24

1982:

01-18, 01-28

1983:

Pacific side: 05-29, 05-31

Atlantic side: 01-07, 02-16, 03-12, 07-24

1984:

03-28, 03-30, 04-13, 11-17, **11-19**

1985:

Pacific side: 04-04

Atlantic side: 01-06, 01-22, 03-19, 06-19, 07-25

1986:

01-29

1987:

03-13, 07-14, 07-15, 08-01, [08-03, 08-04, 08-12, 08-16, 08-17, 08-21 – all Hudson Bay], 10-03

1988:

01-26, 02-13, 02-21, 02-22, 02-26, 02-28, 03-08??, **03-19**, 03-20, 04-09, 04-21, 05-03, 05-18, 05-26, 06-11, 06-27, 06-29, 07-30, 12-04, 12-14

1989:

Pacific side: 04-25, 05-23

Atlantic side: 01-03, 01-21, 01-27, 01-29, 02-23, **02-24**, **02-25**, 03-16, 04-08, 04-23, 06-12, 06-21, 06-23, 06-29, 07-13, 07-22

1990:

Pacific side: 11-02, **12-01**, 12-02, 03-13, 04-14, 04-23, 04-28, 04-29, 04-30

Atlantic side: 01-09, **02-24**, 03-21, 04-05, 04-12, 04-17, 04-20, 05-30, 06-28, 08-21, 08-23, 08-24, 08-31

1991:

Pacific side: 01-12, 01-15, **04-17**, 04-18

Atlantic side: 01-21, 02-10, 02-13, **03-03**, 03-26, 03-31, 04-14, 04-16, 04-25, 04-26, 05-08, 05-25, 06-16

1992:

01-15, 01-24, 01-25, 04-19, 04-26, 04-28, 04-30,

1993:

Pacific side: 04-24, 07-29

Atlantic side: 01-17, 02-19, 03-01, 03-03, 03-18, 05-02??, 07-31, [08-12, 08-21 – Hudson Bay]

1994:

01-29, **02-03**, 02-24, 03-11, 03-12, 03-19, 03-30, 04-02, 04-08, 04-28, 05-06, 05-28, 07-04, 09-01, 09-16, 11-05, 12-24

1995:

02-25, 03-18, 03-25, 03-27, 04-21, 06-08, 06-09, 06-19, 07-24, 07-30, **08-19**, 08-28, 08-30

1996:

01-20, 01-28, 02-13, 03-07, 03-08, 03-09, **03-22**, **03-24**, 03-25, **04-10**, 04-11, 04-15, **04-28**, 05-05, 07-15, 07-20

1997:

01-27, 02-16, 03-10, 03-11, 04-02, **04-09**, 04-13, 04-29, 05-26, 06-17, 07-29

1998:

Pacific side: **04-13**, 05-25, [07-14 to 07-18 – Sea of Okhotsk]

Atlantic side: 01-08, 01-16, 01-20, **01-25**, 02-06, 02-08, 02-15, 03-20, **03-22**, 04-04, 04-06, 04-07, **04-10**, 04-30, 06-30

1999:

Pacific side: 03-15, 05-20, 05-28

Atlantic side: 01-10, 02-05, 02-15, 02-23, 02-27, 03-05, 03-12, **03-29**, 04-10, 04-13, 04-14, 04-24, 05-22, 05-27, 11-12

2000:

Pacific side: 01-06, 01-13, **05-28**

Atlantic side: 01-05, 01-16, 02-11, 02-15, 03-10, **03-17**, 03-18, **07-06**, **11-19**

2001:

02-06, 02-24, 03-06, 03-14, 03-31, 04-14, 04-17, 04-29, 05-31, 12-18

2002:

Pacific side: 03-29, 04-24

Atlantic side: 02-08, 02-18, 04-06, **04-29**, **08-15**, 10-01, 10-02

2003:

Pacific side: 05-07, **08-21**, **08-22**

Atlantic side: 01-02, 01-07, 01-20, 01-27, 02-03, 02-11, **02-24**, 03-11, 05-29, 06-28, 06-29, 10-18

2004:

Pacific side: 04-20, 04-25, 05-29, 12-04

Atlantic side: **03-12**, 03-17, **03-18**, 03-23, 04-12, **04-15**

2005:

Pacific side: 04-07, 04-20, 04-28

Atlantic side: **01-17**, 01-23, 01-28, 02-04, 02-05, 02-06, 02-11, 02-20, 03-02, 03-11, 03-13, 03-29, **03-30**, 04-26, 06-11, **07-18** – Hudson Bay, **07-19**, **07-20**, 07-28, **08-04** – Hudson Bay

2006:

Pacific side: 03-28, 04-13, 04-20, 04-23, 11-12

Atlantic side: **01-05**, **01-06**, 01-07, 01-15, 01-26, 02-01, 03-03, 03-09, 04-03, 04-07, 04-10, 04-17, 04-20, 04-22, 04-27, 06-19, 06-28, 06-30, 07-09, **07-19**, 07-22, 08-01 – Hudson Bay, 08-11, 08-13 – Hudson Bay

2007:

Pacific side: 05-27

Atlantic side: 01-02, 01-06, 01-08, 01-21, **02-02**, **03-12**, 03-19, 03-26, 05-20, 07-15, [**07-22**, **07-25** – Hudson Bay], 07-28, 08-29

2008:

Pacific side: **04-23**, 04-26, 05-06, 12-17

Atlantic side: 01-12, 01-23, 01-28, 02-14, 02-27, 03-03, 03-17, 03-29, 04-02, 04-13, 04-19, 05-14, 07-07, 07-10, 07-11, 07-26, 07-29, [08-21, 08-22, 08-23 – Hudson Bay], 12-08

2009:

Pacific side: 04-21

Atlantic side: 01-02, 01-14, 02-01, 02-20, 03-04, 03-30, 04-04, 04-08, 04-09, 06-24, 06-25, **06-26**, 07-08, 07-30, 08-05

2010:

Pacific side: 02-25, 03-20, 12-03

Atlantic side: 01-18, 02-12, 03-25, 05-03, 05-04, 06-25, 06-30, 07-13, 07-16, 07-22, **08-24** – Hudson Bay, 08-26, 09-04, 10-10, 12-29

2011:

Pacific side: 02-17, 04-27, 12-03

Atlantic side: 01-19, 01-21, 01-24, 01-27, 03-24, 04-01, 04-28, 05-29, 06-19, 06-29

2012:

Pacific side: 04-21, 04-27

Atlantic side: 01-03, 02-09, 02-25, 03-28, 04-25, 04-26, 04-27, 05-10, 07-09, **07-10**, 07-18, **07-27**, 07-28, **08-17** – Hudson Bay, 08-18, 11-26

2013:

Pacific side: 03-19, 04-21

Atlantic side: 01-31, 02-01, 02-04, 02-09, 03-14, 03-22, **04-06**, 04-26, **08-08** – Hudson Bay, 10-11, 10-12

2014:

Pacific side: 02-04, 02-13, 05-16

Atlantic side: 01-12, **01-16**, 01-22, 02-14, 02-20, **03-31**, 04-01, 04-09, 04-23, 04-25, 07-24, 07-27, 07-29, 08-08 – Hudson Bay, 08-28, **09-14**, **09-21**, 12-08, **12-25**

2015:

Pacific side: **04-02**, 04-03, 04-19, 04-20, 05-30, 05-31, 12-03

Atlantic side: 01-04, 01-27, 02-02, 02-07, **02-12**, 02-19, **03-27**, 03-28, 04-28??, **07-08**, 07-16, 09-19

2016:

Pacific side: 02-13, **04-16**, 04-17, 12-22

Atlantic side: 01-11, 01-18, **02-18**, **02-19**, 02-25, 02-27, 03-05, 03-18, 03-22, **04-02**, 04-10, 04-15, 04-21, 05-06, 06-09, 06-29, **06-30**, 07-15, 08-09 – Hudson Bay, 08-22, 12-17

2017:

01-04, 02-14, 03-15, 03-16, 04-24, 06-19, **06-20**, **06-24**, 07-12, 07-19, 07-22

2018:

Pacific side: 03-08, 04-14, 12-04

Atlantic side: 01-04, 01-14, 01-24, **01-30**, 02-11, 03-10, 03-22, 03-28, 04-08, **04-29**, 05-01, 06-01, 06-05, 07-26, 08-10, 08-11 – Hudson Bay, 08-30, 12-19, 12-23

2019:

Pacific side: 03-11, 05-22

Atlantic side: 01-19, 02-14, 04-15, **04-16**, 04-23, 04-25, 06-03, 06-12, **06-22**, 06-23, 07-02, **07-07**, **07-27**, **08-19** – Hudson Bay, 09-07, **09-19** – Hudson Bay, 12-15

2020:

Pacific side: 01-07, 04-01

Atlantic side: 01-05, 01-12, **02-07**, 03-05, 03-21, 04-11, 04-12, 04-19, **04-28**, 06-26, **06-30**, 07-11, 07-12, ß7-13, 08-15 – Hudson Bay

2021:

Pacific side: **03-21**, 04-12, 04-14, 04-16, 04-17, 04-18, **04-29**, 05-16

Atlantic side: 01-02, 01-10, 02-17, 03-19, 03-27, 04-03, 04-13, 04-27, 04-29, 04-30, **06-23**, **06-24**, **06-28**, 07-06, **07-17**, 08-12, [**08-15**, 08-17, **08-21** – Hudson Bay], 09-04, **10-25**??

2022:

Pacific side: 03-26, 04-26

Atlantic side: 01-04, 01-14, **01-15**, 01-16, 01-29, 01-30, 02-05, **02-14**, 02-18, 02-20, 04-04, 05-22, 06-11, 06-24, 07-14, 07-29, [08-09, 08-30 – Hudson Bay]