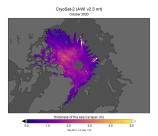
## CryoSat-2 NRT issues remain

Gridded sea-ice thickness from near-real time CryoSat-2 data in October displays a few orbits with large thickness values in the Russian Arctic (see figure below). These are the result of an anomaly in the processing chain/input data and are under investigation. A temporary solution is to omit the orbits entirely from the daily orbit data until a fix has been developed.

The offline reprocessed (rep) CryoSat-2 data is not affected.

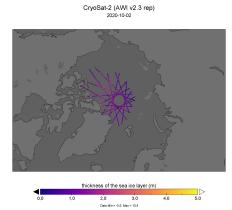


Gridded CryoSat-2 near-real time data from October 2020. Individual orbits in the Russian Arctic stand out with unrealistically high thicknesses

CryoSat-2 (AWI v2.3 nrt)
2020-10-02

thickness of the sea ice layer (m)

Daily (incomplete and partially errornous) orbit data from CryoSat-2 nearreal time (NRT) data

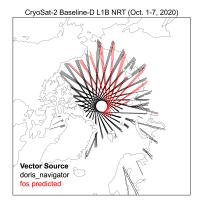


Daily (complete) orbit data from CryoSat-2 offline reprocessed (REP) data

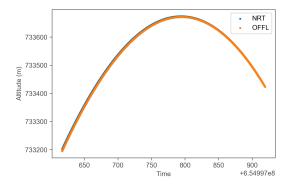
## **Update 04 Nov 2020**

The source of the issue has been identified as imprecise satellite altitude values (I1b parameter `alt\_20\_ku`) since some orbits rely on the predicted orbits ('vector\_source: fos predicted') instead of observed ('vector\_source: doris\_navigator'). Both orbit solutions differ from the final solution in the offline reprocessed L1b data ('vector\_source: doris\_precise'), but the altitude of the predicted orbit may vary in the orders of several meters with respect to the final solution. For some orbits this effect is non-linear and negatively effects the estimation of the sea-level anomaly which in turn impacts freeboard and thickness.

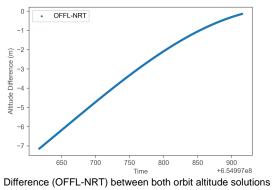
As a fix, orbit data with ('vector\_source: fos predicted') will be excluded from the processing leading to reduced data availability in the Russian Arctic.



CryoSat-2 NRT L1b orbit trajectory color-coded with source of orbit solution (global attribute `vector\_source` in netCDF files)



Altitude field (alt\_20\_ku) vs. time (time\_20\_ku) for one orbit (absolute orbit number: 55588) compared for NRT and OFFL products. The orbit corresponds to the anomalous freeboard values in the figures above.



## \*Used data files:

- CS\_NRT\_\_SIR\_SARN1B\_20201002T234620\_20201002T2351 18\_D001.nc
   CS\_OFFL\_SIR\_SAR\_1B\_20201002T234620\_20201002T2351 22\_D001.nc