

### Ice mass balance buoys, IMB:

Snow depth measurements from ice mass balance buoys (IMB) from CRREL have been included in the RRDP2. The AWI buoys have no information of snow depths, yet. The observations have been averaged to match satellite scales by using standard EASE grid cells of 50km. If the buoys are left in one grid cell for more than 30 days, a new mean is calculated.

CRREL IMB observations have been collocation with CS2 freeboard heights averaging CS2 data using a 25 km search radius on individual tracks and date of observation plus/minus 14 days.

CRREL IMB observations have been collocation with ENVISAT freeboard heights averaging ENVISAT data using a 50 km search radius on individual tracks and date of observation plus/minus 14 days.

An overview of the buoys included in the RRDP2 is given below.

IMB ID	Start date	End date	CS2	ENVISAT
BUOY-RRDP-N-CRREL_2006B.ascii	2006-04-25	2007-01-20		X
BUOY-RRDP-N-CRREL_2009F.ascii	2009-09-07	2010-03-01		X
BUOY-RRDP-N-CRREL_2011C.ascii	2011-04-12	2011-12-24	X	X*
BUOY-RRDP-N-CRREL_2011M.ascii	2011-09-30	2013-04-22	X	X*
BUOY-RRDP-N-CRREL_2012B.ascii	2012-04-16	2012-10-19	X	
BUOY-RRDP-N-CRREL_2012D.ascii	2012-05-05	2012-11-02	X	
BUOY-RRDP-N-CRREL_2012G.ascii	2012-10-02	2015-03-11	X	
BUOY-RRDP-N-CRREL_2012H.ascii	2012-09-10	2014-01-16	X	
BUOY-RRDP-N-CRREL_2012I.ascii	2012-08-14	2012-12-21	X	
BUOY-RRDP-N-CRREL_2012J.ascii	2012-08-25	2014-11-01	X	
BUOY-RRDP-N-CRREL_2012L.ascii	2012-08-27	2013-09-25	X	
BUOY-RRDP-N-CRREL_2013B.ascii	2013-04-11	2013-12-19	X	
BUOY-RRDP-N-CRREL_2013H.ascii	2013-09-03	2013-12-29	X	
BUOY-RRDP-N-CRREL_2014E.ascii	2014-04-11	2015-02-18	X	

\*Only data north of 81.5N

Data format:

- *Observation ID*
- *Time (YY-MM-DDTHH:MM:SS)*
- *Latitude (dechr)*
- *Longitude (dechr)*
- *CS2 AWI/SICCI freeboard heights (m)*
- *CS2 ESA freeboard heights (m)*
- *ENVISAT SICCI freeboard heights using OSISAF as sea ice types (m)*
- *ENVISAT SICCI freeboard heights using IFREMÉR as sea ice types (m)*
- *IMB CRREL snow depth (m)*
- *W99 snow depth (m)*

- *W99 snow density (kg/m<sup>3</sup>)*
- *NEMO-LIM3 modelled snow depths (m)*