OIB sea ice products status

Product status

Campaign	Status	Comments
2009 Arctic	Done	
2010 Arctic	Done	
2011 Arctic	Done	
2012 Arctic	In progress	DMS processing done for about half the flights, awaiting snow radar data, new MY ice mask to replace AMSR-E (OSI-SAF)
2009 Antarctic	In progress	DMS processing nearly finished, snow radar quality issues (coherent noise), will process to freeboard
2010 Antarctic	Will begin after 2012 Arctic and 2009 Antarctic	
2011 Antarctic		

Product timeline

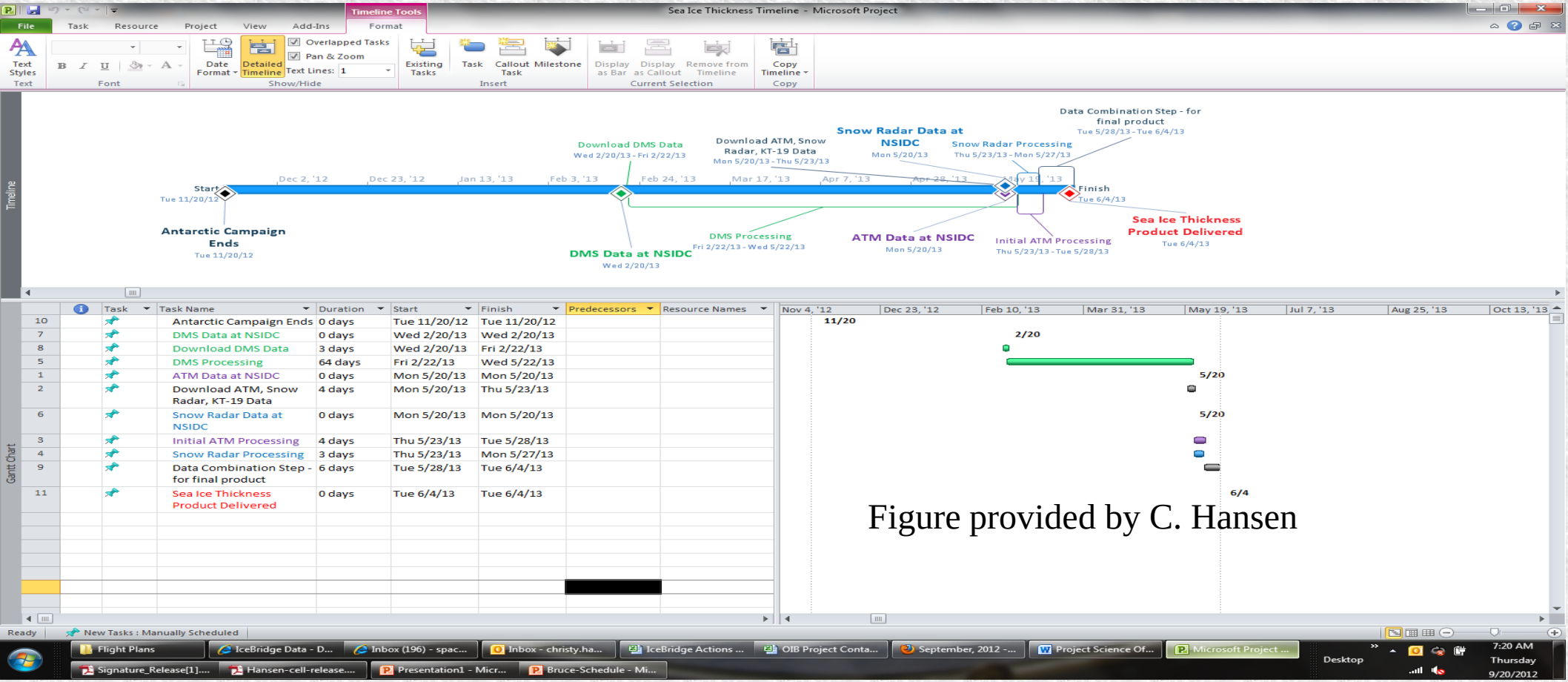


Figure provided by C. Hansen

ASSUMPTIONS

1. DMS delivers data to NSIDC ~ 3 months after campaign, though often earlier
2. ATM and Snow Radar deliver ~ 6 months post campaign
3. It takes ~ 3 full months to process DMS data using existing processes
4. It takes ~ 2-4 days to process ATM and Snow Radar Data
5. DMS, Snow Radar, and ATM data can be processed in parallel
6. Final data combination step takes ~ 6 days
7. **Sea Ice Thickness Data Product Delivery = ~ 7 months, if steps above are followed**

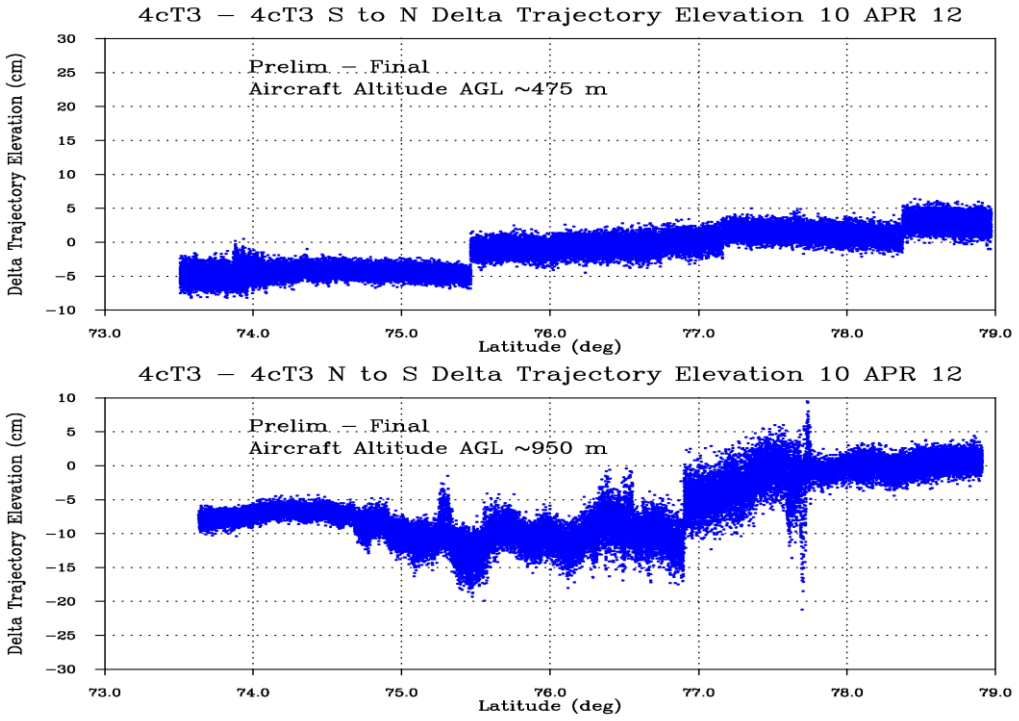
Quick-look product evaluation

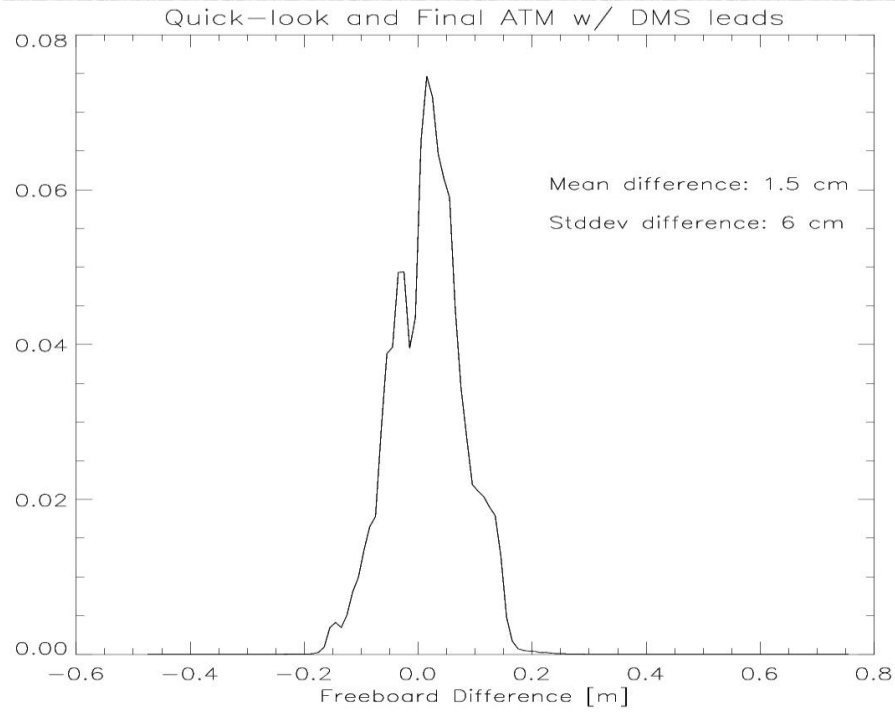
To date, 4 flights used for freeboard evaluation, but still need final snow radar data

- Error sources under investigation
  1. Freeboard errors due to quick look ATM processing (next slide)
  2. Use of KT19 rather than DMS for lead identification
  3. Differences in snow radar data (awaiting final snow radar data for analysis)

Most significant error source so far is #2 with varying freeboard biases found between 0-10 cm, will implement a new processing method to eliminate biases using DMS images to manually quality check all KT19 derived leads

Errors due to quick look ATM elevation processing





Detailed report by Bob Swift from the ATM team describing errors due to trajectory data. Overall, the quick look ATM elevation data added an additional 6 cm uncertainty to the retrieved freeboard. Acceptable level of error for the quick look product.

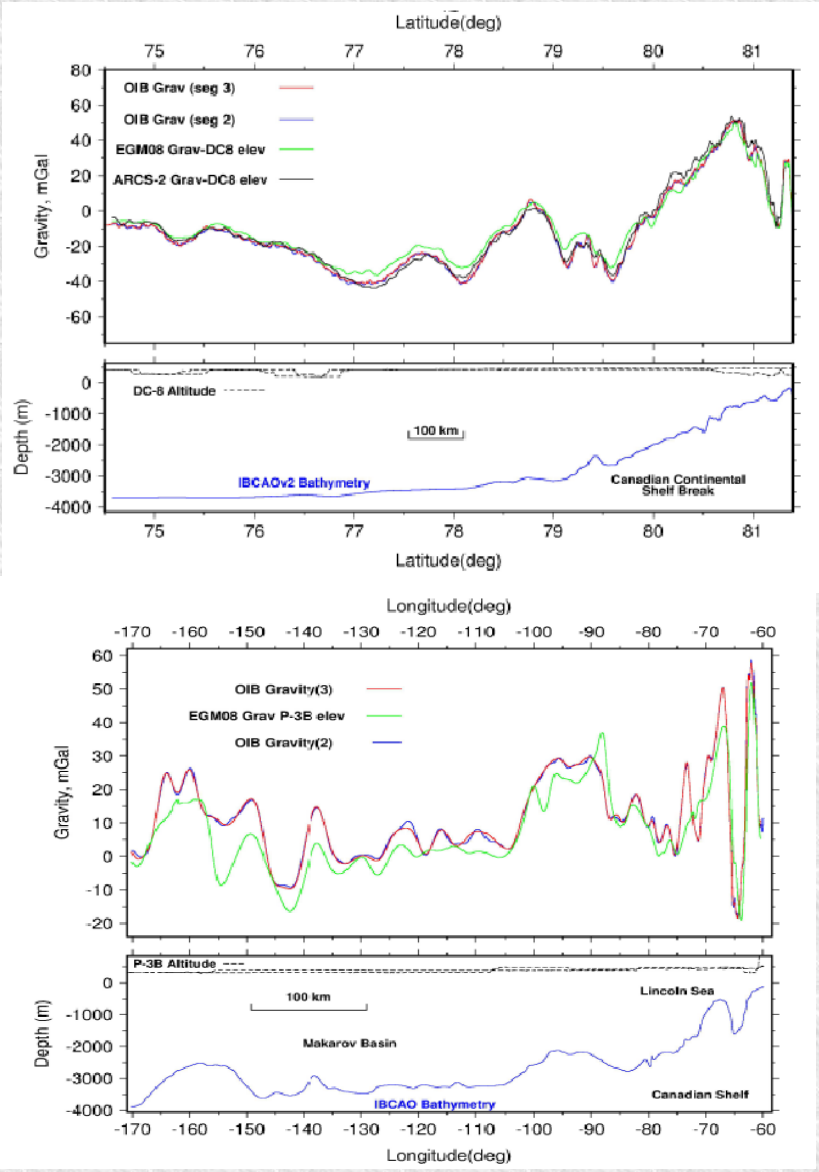
Sea ice products improvements: potential version 2 processing

Dynamic atmospheric correction to replace static inverse barometer: Mog2D-G High Resolution barotropic model

Better quantification of uncertainties from in-situ validation experiments

Replacement of EGM08 geoid with high resolution altimetric mean sea surface height data set as a 'pseudo-geoid'

V2 processing would be fast (a few weeks for entire data set) since the DMS lead processing step does not need to be repeated



Figures from McAdoo et al., JGR, in press.