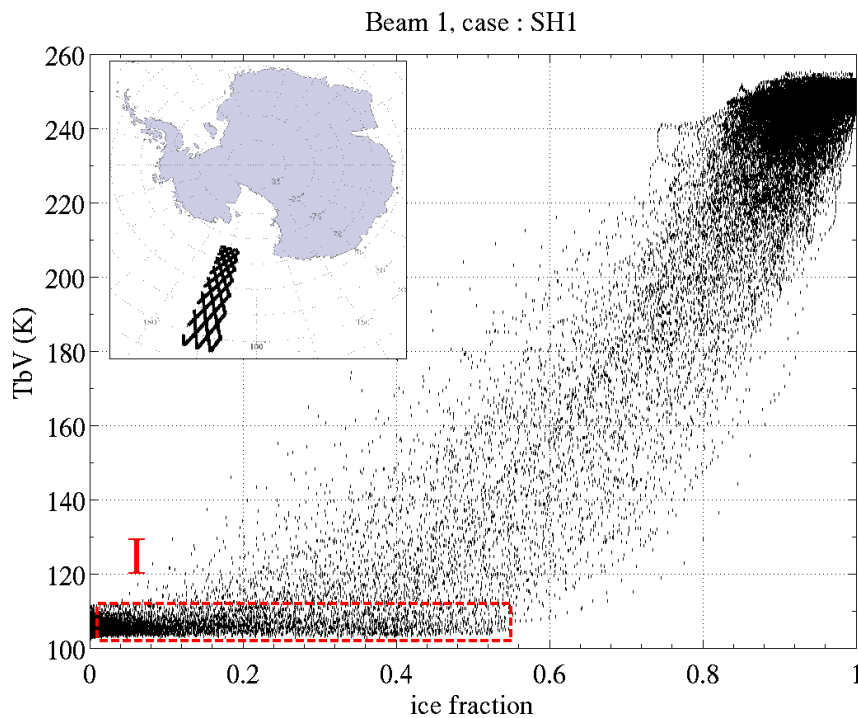


# Improved sea ice fraction model: Objective and Status

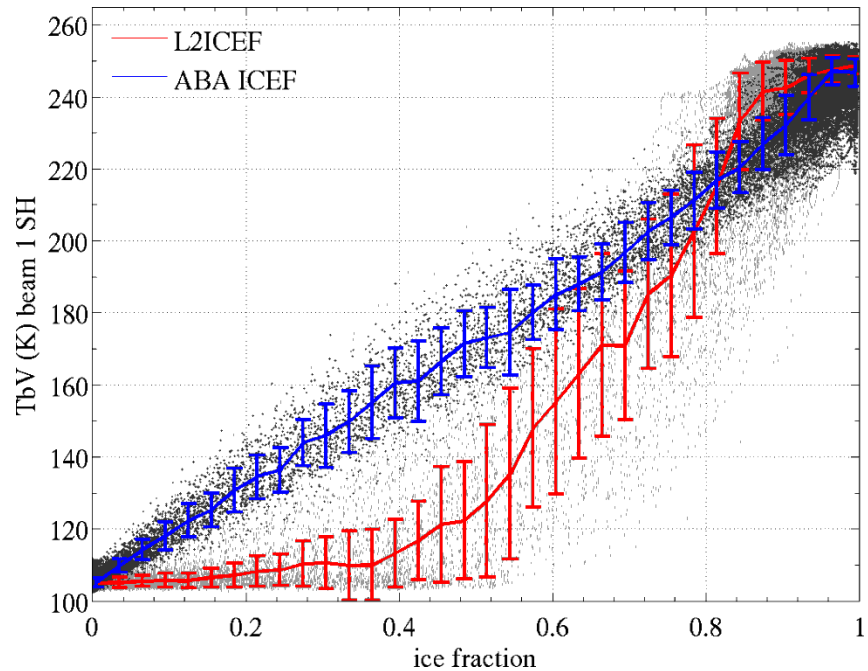
E. Dinnat, L. Brucker  
2017-01

Aquarius Cal/Val Meeting, Santa Rosa, CA

# Objective: provide improved sea ice fractions to L2 product



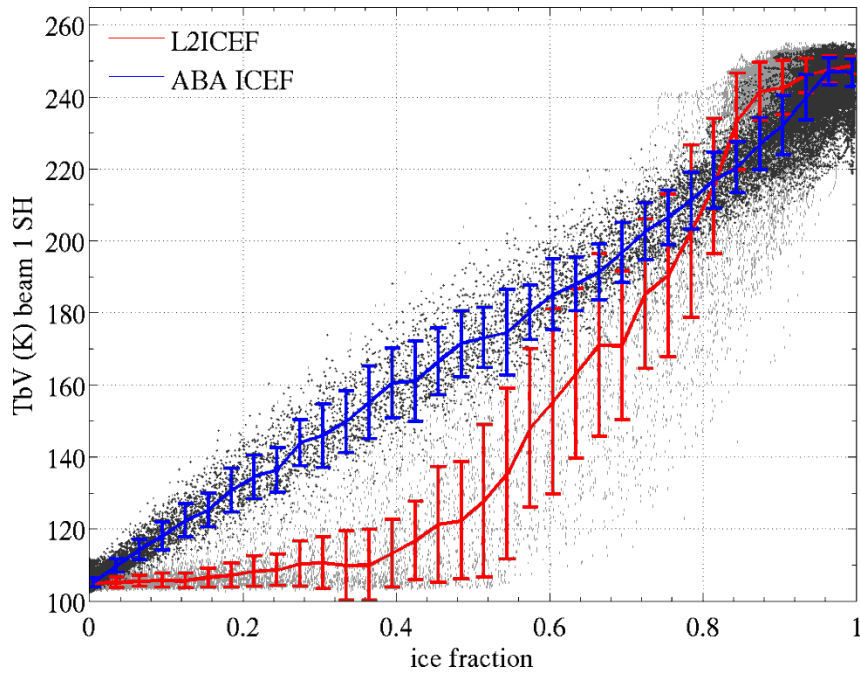
L2 Ice fractions (NOAA) result in scattered and highly non linear relationship with Aquarius Tb.



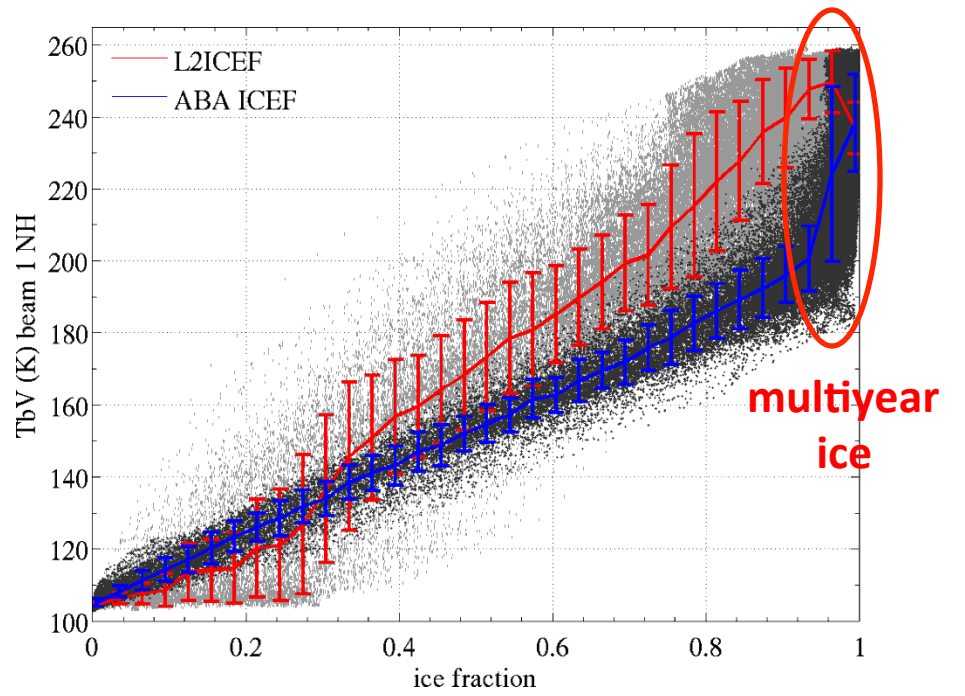
ABA Ice Fractions (AMSR2 Bootstrap algorithm) result in largely reduced scattered and strong linearity with Aquarius Tb.

# NH & SH

Southern hemisphere



Northern hemisphere



# Status

- New model validated and documented:  
Dinnat, E. P., and L. Brucker. 2016. "Improved Sea Ice Fraction Characterization for L-Band Observations by the Aquarius Radiometers." IEEE Transactions on Geoscience and Remote Sensing.
- Ancillary data acquired and reformatted for simulator:
  - AMSRE-Bootstrap: Start – 10/04/2011
  - SSMIS-Bootstrap: 10/05/2011 – 07/02/2012 & [05/10/2013 – 05/14/2013]\*
  - AMSR2-Bootstrap: 07/03/2012 – end (excl. \*)
- Status: computations started ~ 18,000 / 21,000 orbits computed
  - Estimated time for completion initial run: 01/15/2017
  - Additional short runs may be needed to fill gaps in ice concentration products that are not yet identified

# Next step: sea ice correction

Empirical correction for ice contamination on TB to improve coastal SSS

Tb vs ICEF derived empirically for NH/SH, summer/winter:

SLOPES (COLUMNS 2-5) AND SLOPE RATIOS (COLUMNS 6-9) OF THE LINEAR REGRESSION OF AQUARIUS TB AS A FUNCTION OF ABA ICEF IN KELVINS PER 0.01 FRACTION, COMPUTED FOR ICEF BETWEEN 0.1 AND 0.8

Channel	Slope TB/ICEF (K/%)				Slope Ratio					
	NH		SH		NH		SH		winter SH/NH	summer SH/NH
	winter	summer	winter	summer	winter/summer	winter/summer	winter/summer	winter/summer		
V1	1.229	0.994	1.33	1.08	1.24	1.23	1.08	1.09		
V2	1.258	1.004	1.297	1.042	1.25	1.24	1.03	1.04		
V3	1.206	0.964	1.232	1.009	1.25	1.22	1.02	1.05		
H1	1.287	1.054	1.421	1.164	1.22	1.22	1.10	1.10		
H2	1.386	1.131	1.476	1.196	1.23	1.23	1.06	1.06		
H3	1.442	1.174	1.53	1.277	1.23	1.20	1.06	1.09		

**But** TB\_ice varies largely, and depends on ice type etc ...

