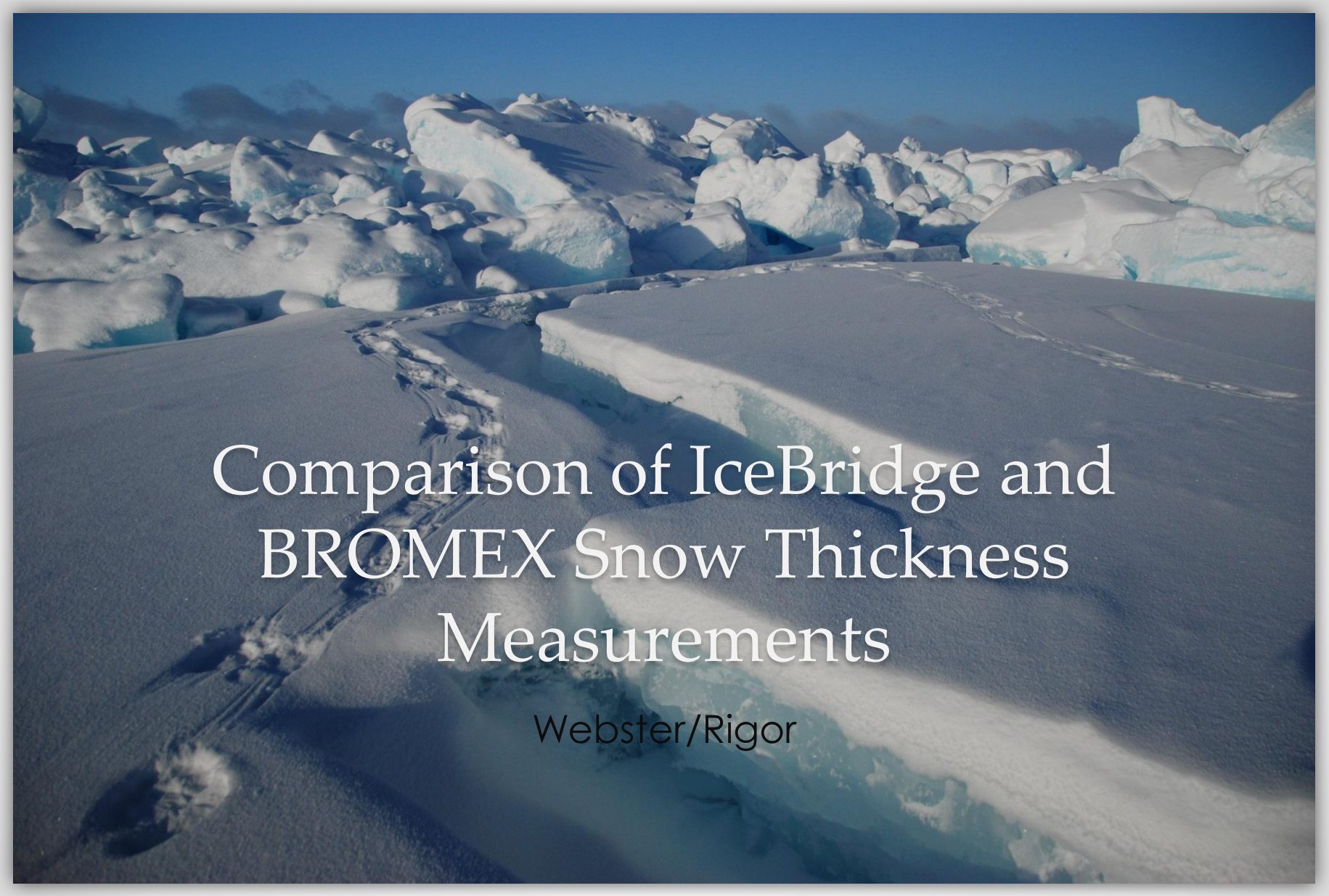
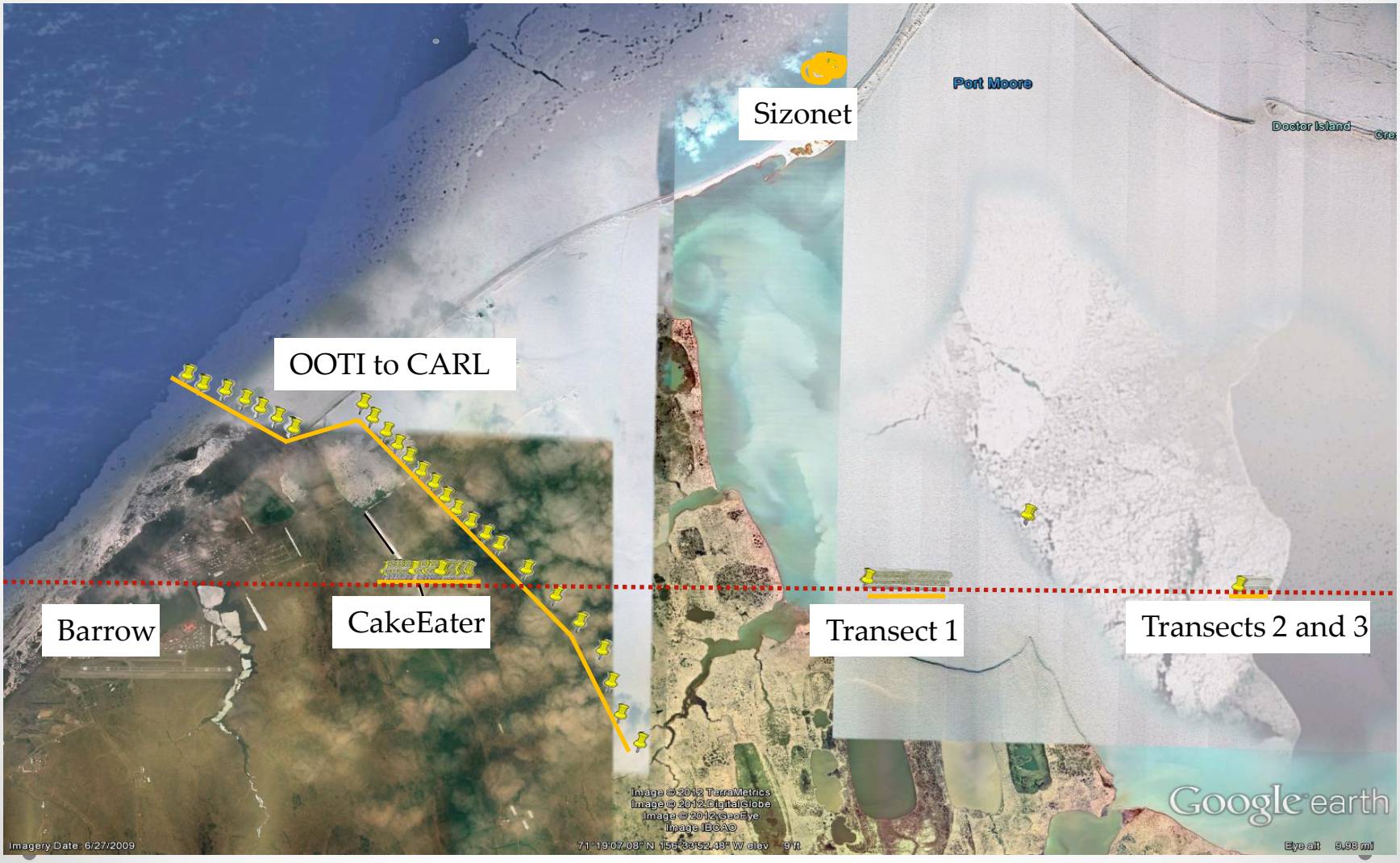


Comparison of IceBridge and BROMEX Snow Thickness Measurements

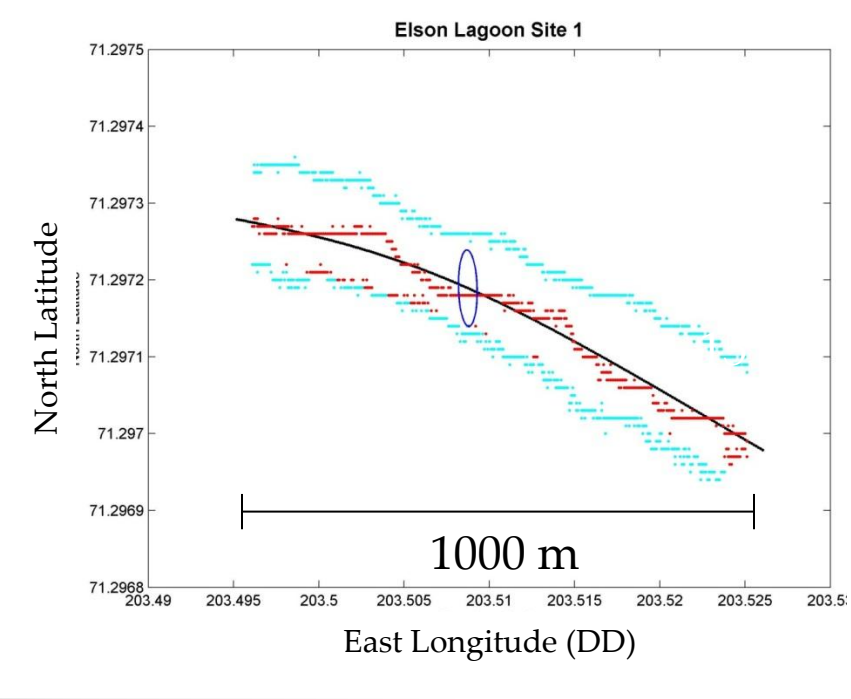
Webster/Rigor

BRomine Ozone Mercury EXperiment (BROMEX):

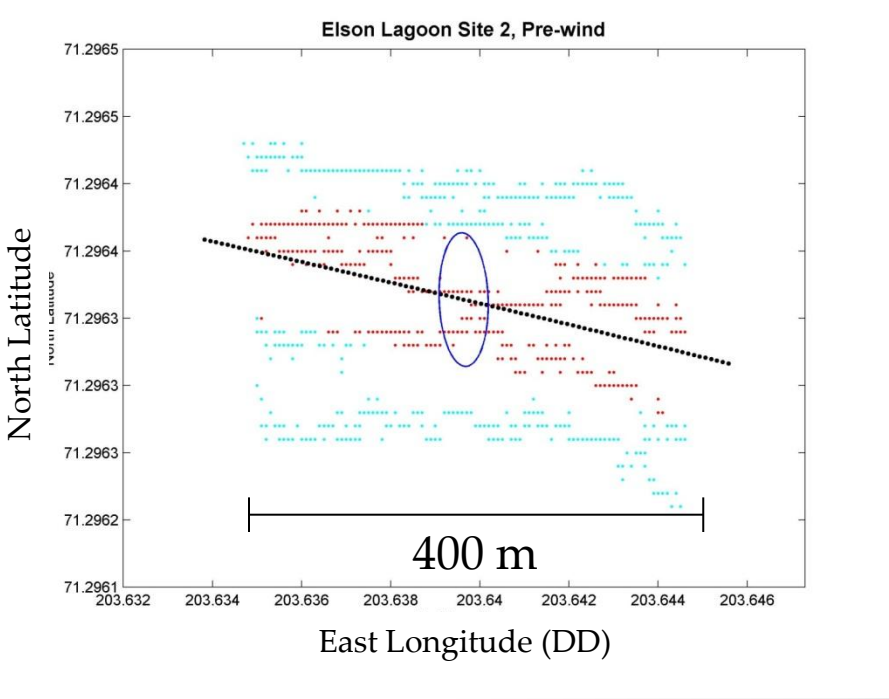


In Situ Measurements:

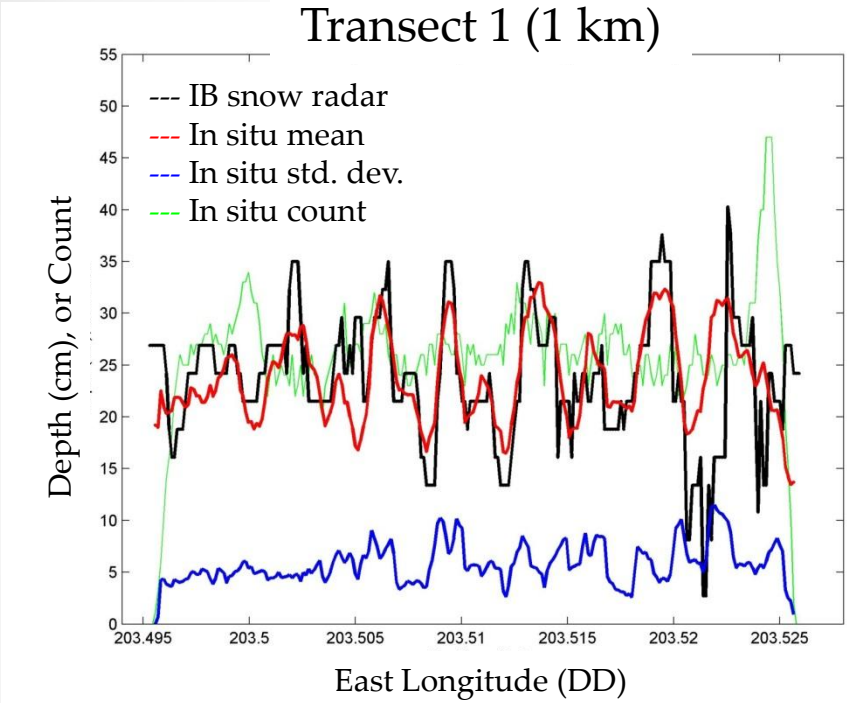
Transect 1

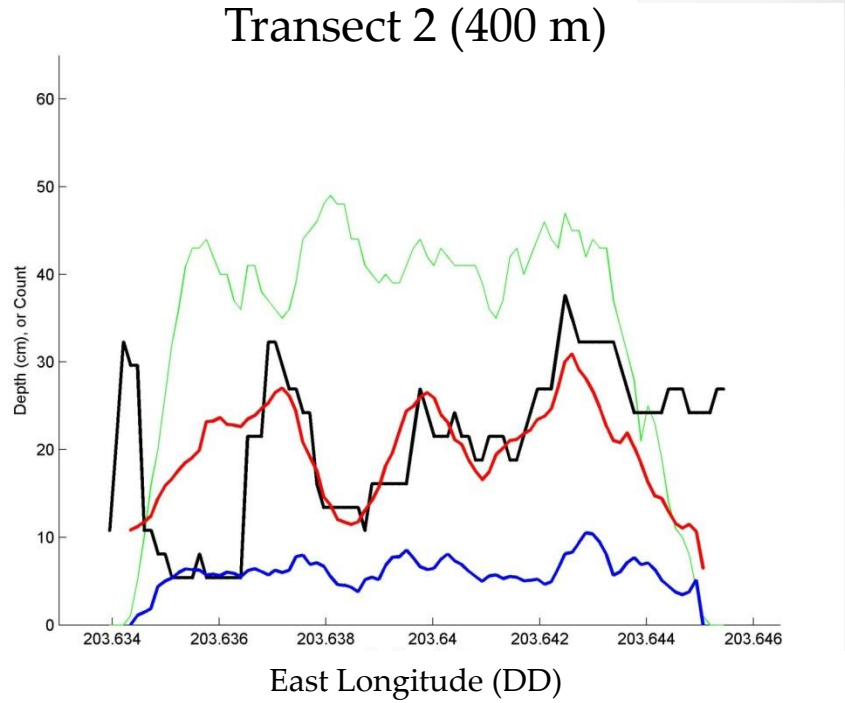


Transect 2



Snow Radar and In Situ Comparison:





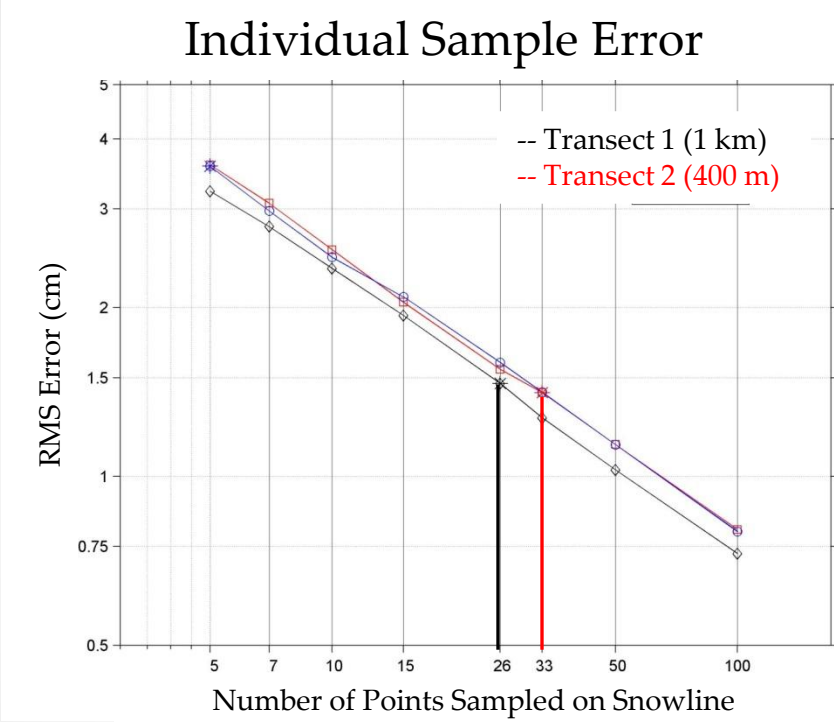
T1	Mean	Std. Dev.
In Situ	23.8	5.8
Snow Radar	23.6	6.2

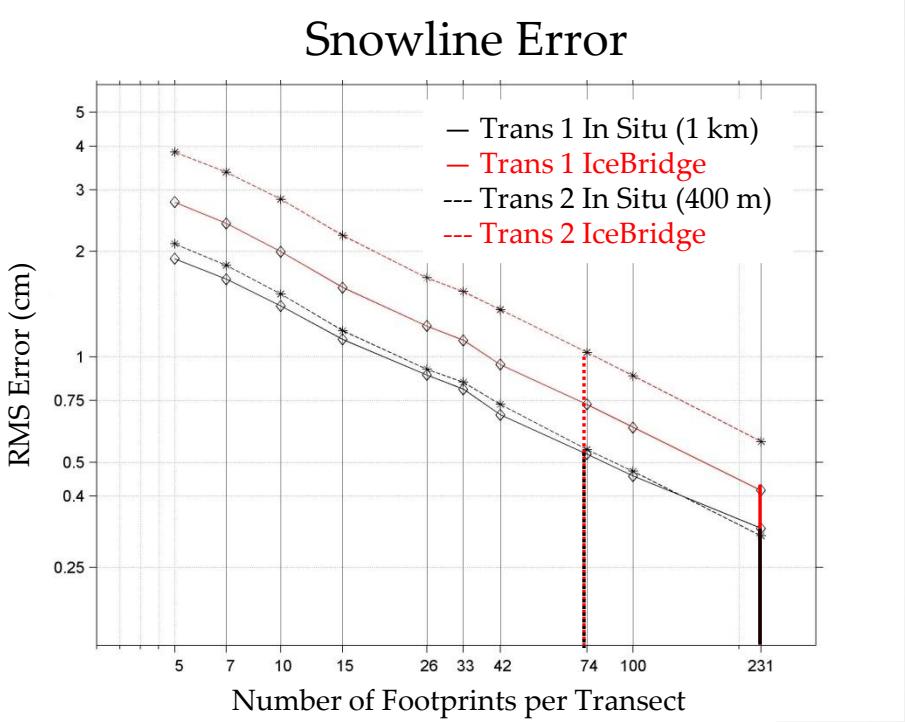
$$\sigma * \sqrt{234} = \pm 2.0\ cm$$

T2	Mean	Std. Dev.
In Situ	19.8	5.1
Snow Radar	20.5	8.6

$$\sigma * \sqrt{84} = \pm 6.9\ cm$$

More Error Analysis

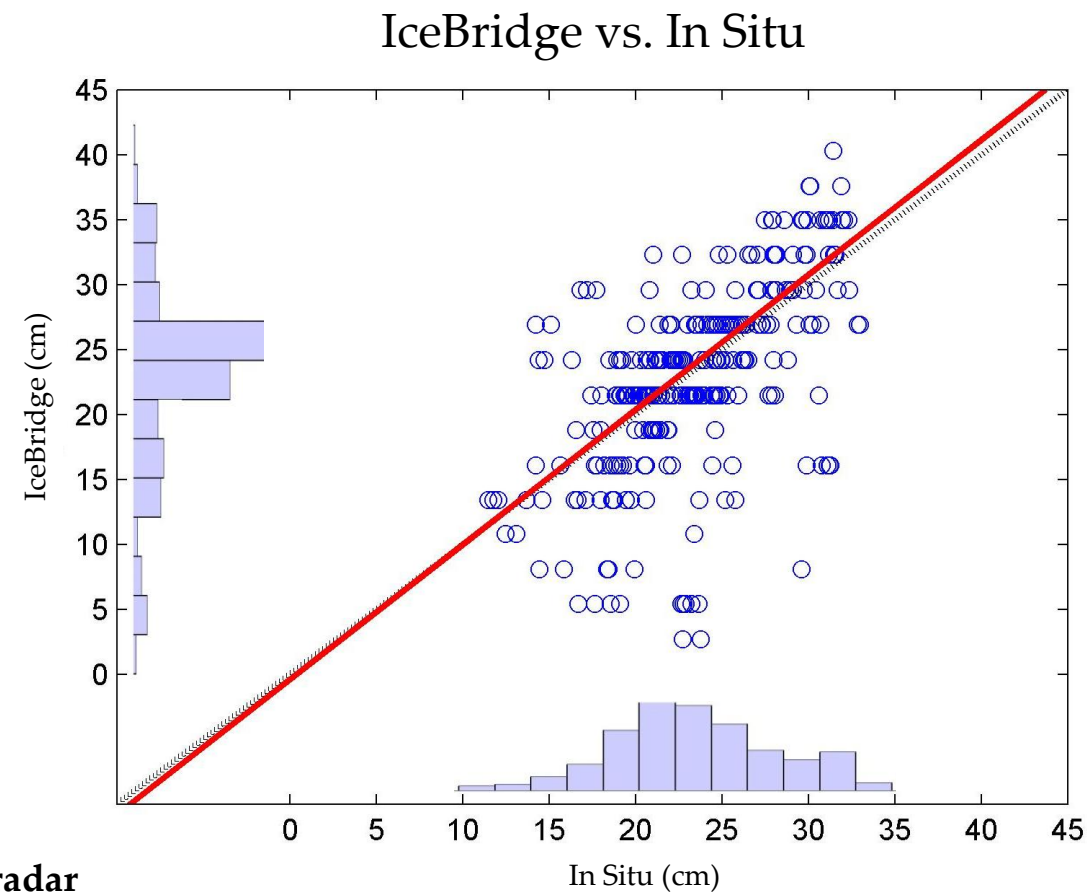




IceBridge and In Situ (**per footprint**)
±0.3 cm in situ instr. accuracy.
±1.5 cm in situ uncertainty.
±0.4 cm in situ cold-induced uncertainty for a mean depth of 21.8 cm.

IceBridge and In Situ (**per 1 km snowline**)
±0.3 cm In Situ uncertainty.
±0.4 cm IceBridge uncertainty.

Final Comparison…



~8,500 in situ points and ~300 radar footprints later… the differences are smaller than the uncertainties.

y = 1.05x – 0.73, R = 0.69