The International Polar Year 2007-09 provided a unique opportunity for Antarctic sea ice research, with near-coincident research voyages by the US and Australian programs to the Bellingshausen Sea and East Antarctica, respectively, during Spring 2007. Both programs employed a range of measurement techniques for in situ and underway observations, including airborne laser altimetry, and focused on a calibration/validation program for NASA’s Ice Cloud and land Elevation Satellite (ICESat), which rescheduled its Geoscience Laser Altimeter System (GLAS) operations to coincide with the timing of the field campaigns. The Bellingshausen Sea ice zone is considerably further south and comprised of thicker, more compact, less mobile, first year sea ice than the East Antarctic sea ice zone which is characterized by thinner, although often highly deformed ice with less snow cover but higher drift rates. The contrast in the two ice regimes has led to some valuable assessments of the relative importance of different processes. In particular, the relationship between ice and snow thickness varies between the two study regions. Negative ice freeboards were common in both east and west Antarctica, as was the formation of flooded layers and snow ice; however an empirical relationship equating mean freeboard to mean snow thickness appears to hold generally for west Antarctica, but not for the heavily ridged areas in east Antarctica. The regional differences in sea ice and snow thickness distributions yield different empirical relationships for converting satellite-derived snow freeboard to ice thickness, and these results are compared with satellite laser altimeter data from ICESat.