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The characteristics of Polar Water on the East Greenland shelf as viewed in measurements, climatology and a numerical model

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In Summer of 2000, the use of a new kind of mooring, where the instruments are protected using an about 40m long tube, made it possible to acquire near surface time series of temperature and salinity on the mostly ice covered continental shelf of East Greenland. Such measurements, all of which are still ongoing, are now available at three latitudes: 63^{o}N, 74^{o}N and 79^{o}N. In each of these regions we will compare the measurements with climatology (WOA and PHC) and the coupled ice-ocean model NAOSIM. Some of our findings are:
As not much data ware available in these regions in earlier years, specially not in winter, a comparison with climatology shows large differences. Even the annual means show a difference of up to 1^{o}C in temperature.
The seasonal cycle can be explained to a large part with local/regional ice formation and melting, as there is a good correlation between salinity and ice cover as seen by satellites. In some regions advection also plays a significant role.
The amplitude and form of the seasonal cycle at 74^{o}N is represented well in the model, although the low salinity cap does not reach as deep in the model as in the observations.

We will present these and further results and also discuss the reasons for the differences found.