

**MAST 467/667: Introduction to Polar Oceanography (Fall 2021)**  
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**Workshop/Homework-10:** Tmax below Mixed Layer

**Data:** Ocean Melts Greenland (OMG) at <https://omg.jpl.nasa.gov/portal/>

**Introduction.** We are more than ready for scientific work. The next step will be to use our bin average profile data of potential temperature, absolute salinity, and potential density to estimate the potential temperature maximum below the surface mixed layer (SML) as defined by the bin above the first stability maximum  $N^2_{\max}$  where

$$N^2(z) = -g/\rho_0 \partial\rho/\partial z$$

**Goal.** Using loops and conditional data assignments within R or MatLab

**Assignment:**

- 1\_What is the depth and salinity of the potential temperature maximum Tmax, below the depth of the first stability maximum?
- 2\_Create a file with latitude, longitude, year, Tmax, D(Tmax), S(Tmax) where D(Tmax) and S(Tmax) are the depth and absolute salinity at the vertical at the subsurface potential temperature maximum.
3. Send me this file as an ascii file for further distribution via our web-site.