Arctic Summer Cloud Ocean Study 2008 - CTD data

This data set contains profiles of pressure, temperature, salinity, potential density and dissipation rate of TKE obtained during the Arctic Summer Cloud Ocean Study (ASCOS). The experiment consisted of a cruise in the high Arctic from Aug 1 - Sept 9 2008 on the swedish ice breaker Oden and contained a long ice drift, in which the Oden was moored to and drifted passively with an ice floe. More information on the project is found at www.ascos.se

The CTD data was obtained using an MSS90L s/n 33 (for information on instrument see the manufacturer website, http://www.isw-wasser.com) which was deployed through the ice, roughly 100m from the ship.
The ice at the deployment site was about 1.8 m thick. In the period Aug 15 - 31 Aug 2008, in total 345 profiles were obtained, most of them down to 500m. Some profiles are shallower due to various interruptions, issues with power supplies etc. Sampling interval is roughly one hour, however in periods were conditions did not allow personnel on the ice, no profiles were obtained.

Measurements of temperature, salinity, potential density and dissipation rate of TKE are averaged in 1m depth bins.
From the ice drift there is one single CTD profile available from the ship mounted SeaBird CTD. This profile is compared with MSS profile number 37 which was taken 8.5 minutes after the start of the CTD profile. This comparison shows that the MSS has a relative constant offset in salinity of S = 0.02 psu and after the initial processing, all MSS salinities are corrected with this offset.

All profiles are contained in the Matlab data structure MSS_ASCOS.mat, vertically averaged in 1m bins. Data structure is explained below.

If you want to use this data in your work you are free to do so, but please contact me prior to submission and make sure to include a proper acknowledgement.

For further information or questions, please contact anders.sirevaag@bjerknes.uib.no.

Bergen, 7 July 2009

Data are contained in the file MSS_ASCOS.mat

>> load MSS_ASCOS.mat
>> whos
```
 Name       Size              Bytes  Class

 MSS        1x1             6909148  struct array
 header     2x1                 500  cell array
```

Grand total is 863734 elements using 6909648 bytes

\>> header

header =

   'This is CTD data obtained with the MSS profiler during the ASCOS experiment, Aug-Sept 2008.'
   'For more information, please consult the accompanying README.txt or anders.sirevaag@bjerknes.uib.no'

Parameters are:
\>> MSS

MSS =

   decday: [345x1 double] - Decimal day of 2008
    latlon: [345x2 double] - Latitude (N) and longitude (E)
        P: [500x345 double] - Pressure (dbar)
        T: [500x345 double] - Temperature (degC)
        S: [500x345 double] - Salinity (psu)
   SIGTH: [500x345 double] – Potential density anomaly (pot. dens. – 1000 kg m^{-3})
   epsilon: [500x345 double] - Dissipation rate of TKE (W kg^{-1})

Time of each profile is given of decimal day of 2008 (UTC), where decday 1.5 equals Jan 1 12.00 (UTC).
Position of profiles is obtained from an automatically logging GPS at the deployment site and e.g. position of the first profile is:

\>> MSS.latlon(1,:)

ans =

  87.4650   -5.9930

which is 87.465N and 5.993W.