

ITP22 Overview

Deployment Location: 8/6/2008, 17:00 UTC at 82° 0.5'N, 140° 3.2'W

Last Location: 9/3/2010, 23:00 UTC at 72° 37.6' N, 146° 19.7' W

Duration: 758 days

Distance Traveled: 3728 km

Number of profiles: 14 in 7 days

Other instruments: SIMBA-C

ITP22 was deployed on a 3.5 m thick ice floe in the Beaufort Sea as part of the Beaufort Gyre Observing System (BGOS) during the JOIS 2008 cruise on the *CCGS Louis S. St. Laurent*. On the same icefloe, a Scottish Association for Marine Science (SAMS) Ice Mass Balance Array (SIMBA C) was also installed. The ITP operated on a standard sampling schedule of 2 one-way profiles between 7 and 760 m depth each day, but only 13 profiles were transferred in a single burst over a month after the profiler was installed.

ITP 22 Deployment Operations

While the two previous ITPs on the JOIS cruise (21 and 23) were deployed on the way north along the 150° longitude line, ITP 22 was the first deployed on the way south along the 140° line, and was the northernmost ITP deployed from the *Louis* in 2008. The conditions were basically the same as the previous deployments, variable low ceiling and fog. On helicopter reconnaissance, a sturdy-looking ice floe was drilled for thickness (3.52 m), and immediately selected. During the deployment two hours later, it was more difficult to drill the 10.5-inch diameter hole through the last bit because of the drag on the auger blade at the slush ice interface. The deployment took about 2 hours total, and test communications with the profiler from the surface package were normal. In a separate operation, SIMBA-C was installed nearby on the same floe several hours after the ITP was deployed.

ITP22 Data Processing

The 14 profiles that were recovered from the ITP were processed according to the procedures described in the ITP Updated Data Processing Procedures. The processing parameters for ITP 22 are shown in the figures to the right. Despite successful test communications with the profiler on the ice, nothing was heard afterwards from the profiler for the first six weeks until September 20 when the surface package received a ring from the profiler and 14 stored profiles were recovered. No other rings from the profiler were ever received. The small amount of CTD data that was received was excellent quality, but of short duration.

ITP22 Data Description

The ITP profiler was configured to operate with a standard sampling schedule of 2 one-way profiles between 7 and 750 m depth each day. In the surface package, the GPS receiver was powered hourly to obtain locations, and buoy temperature and battery voltage status were recorded. Despite the fact that the profiler only transmitted data for the first 7 days of operation, the surface package continued for over 2 years, however no GPS locations could be obtained for 252 and 45-day periods when the buoy was presumably submerged in ice.

The plots below are of the final, calibrated, edited data (as opposed to the raw data presented on the active instrument pages).

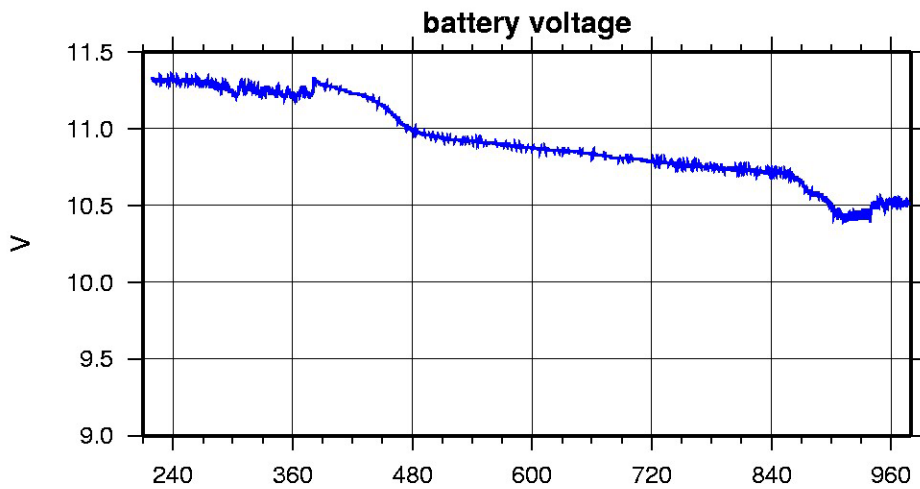
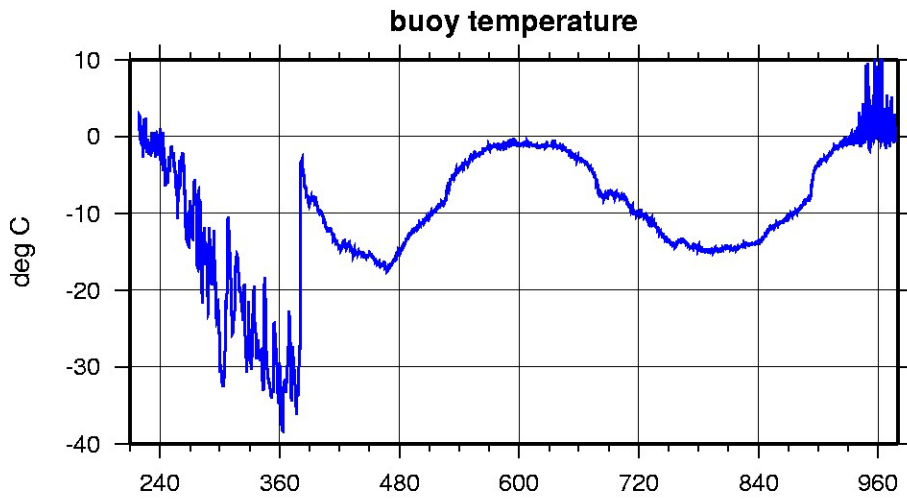
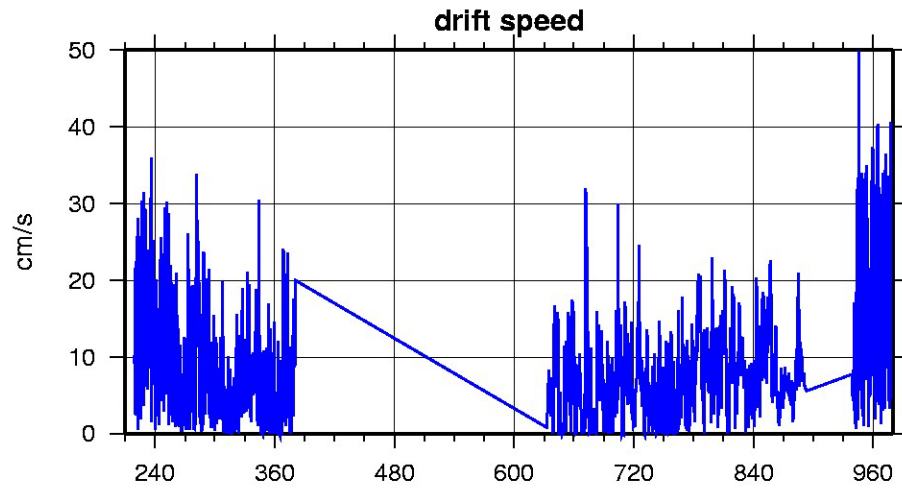
Level II hourly buoy location data in ASCII format: `itp22rawlocs.dat`

Level III 1-Hz processed profile data in MATLAB format: `itp22cormat.tar.Z` or `itp22cormat.zip`

Level III 1-db bin-averaged processed profile data in MATLAB format: `itp22final.mat`

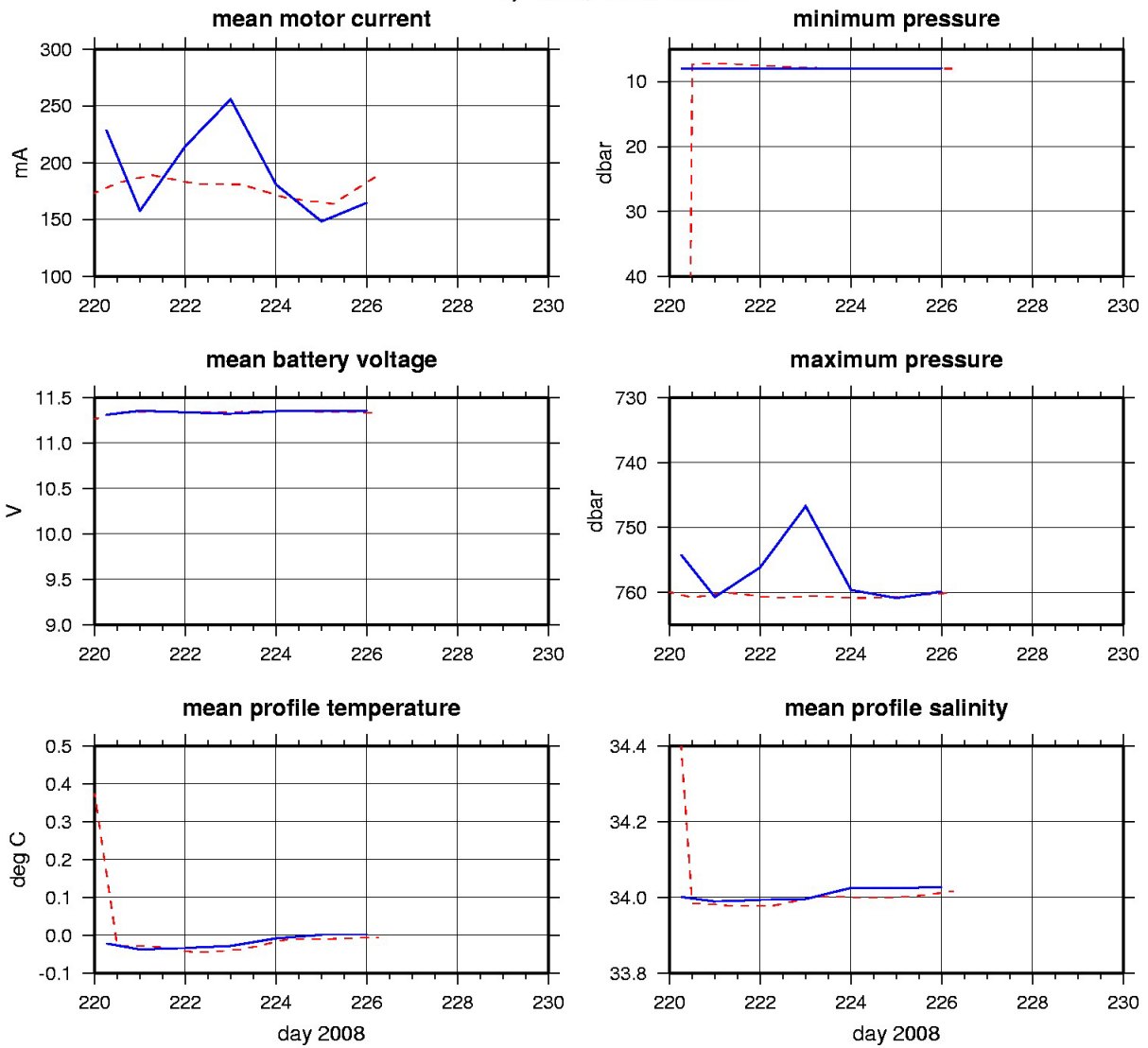
Level III 1-db bin-averaged processed profile data in ASCII format: `itp22final.tar.Z`
or `itp22final.zip`

ITP22 Buoy Status (as of 2010/09/03)

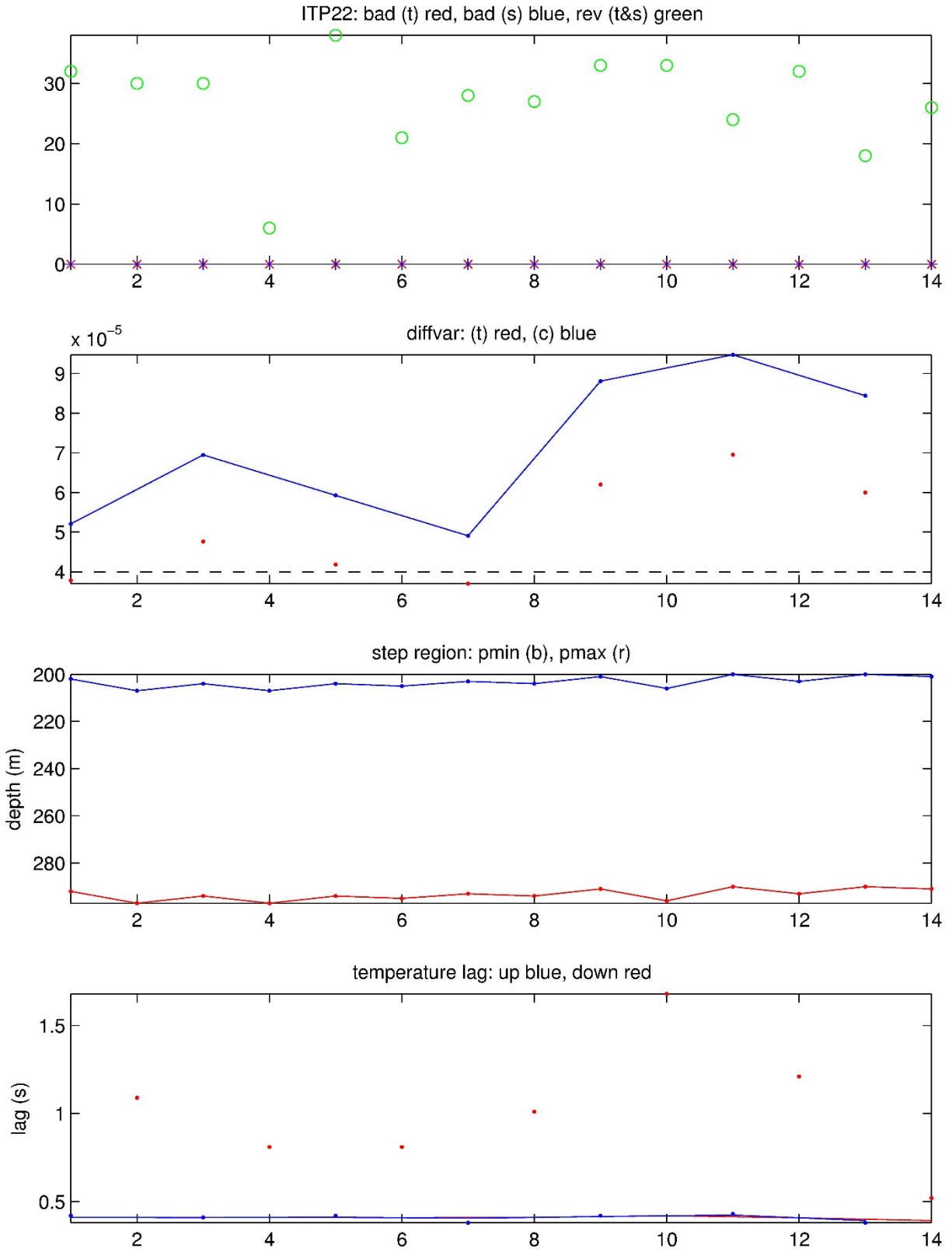


ITP22 Profiler Status (up to profile 14)

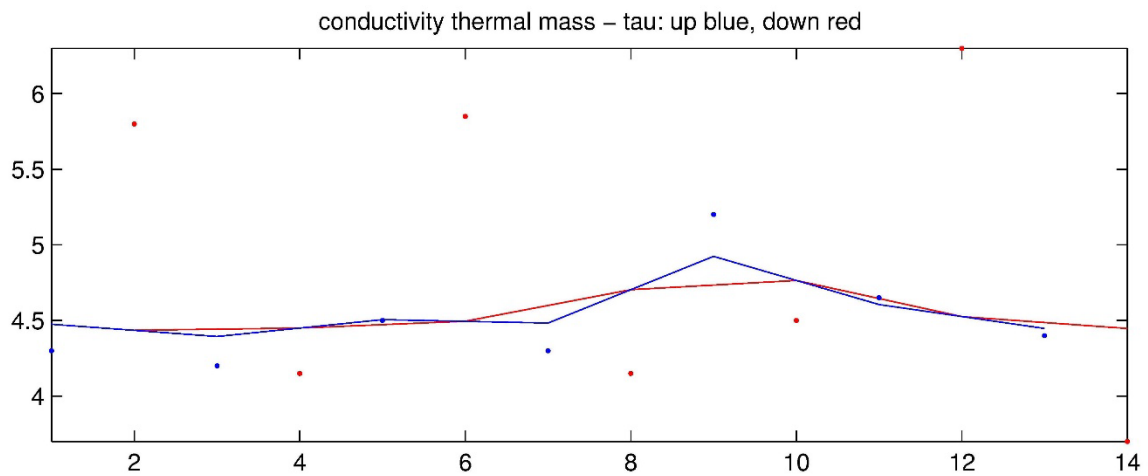
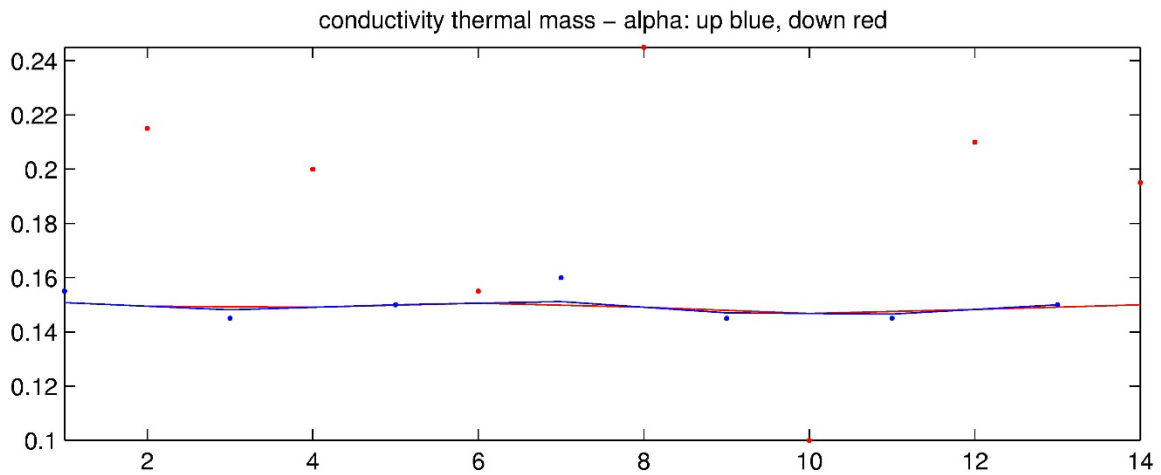
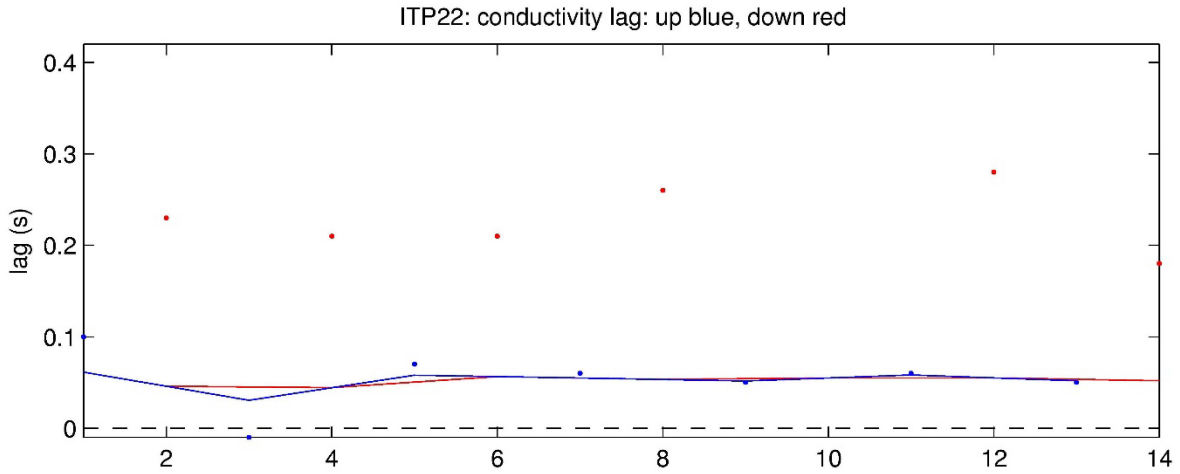
up solid, down dashed



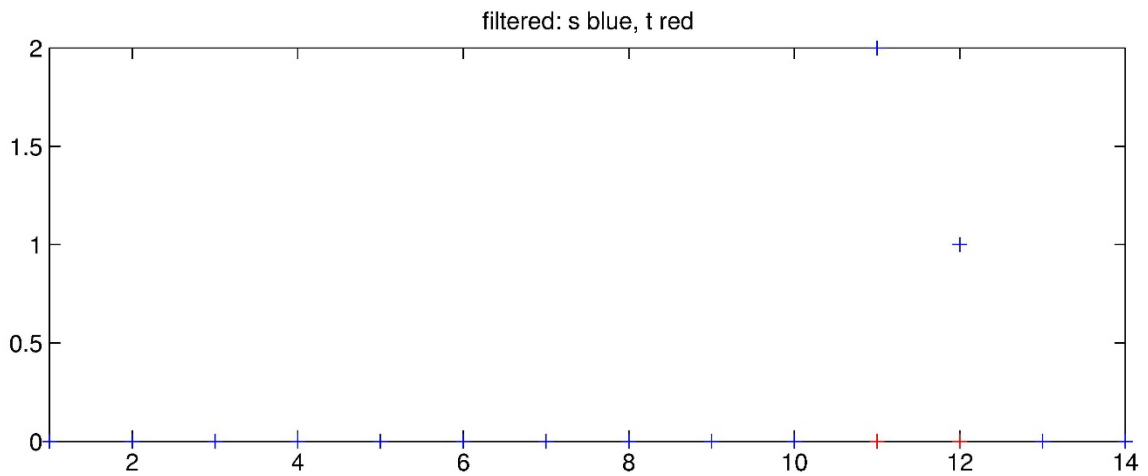
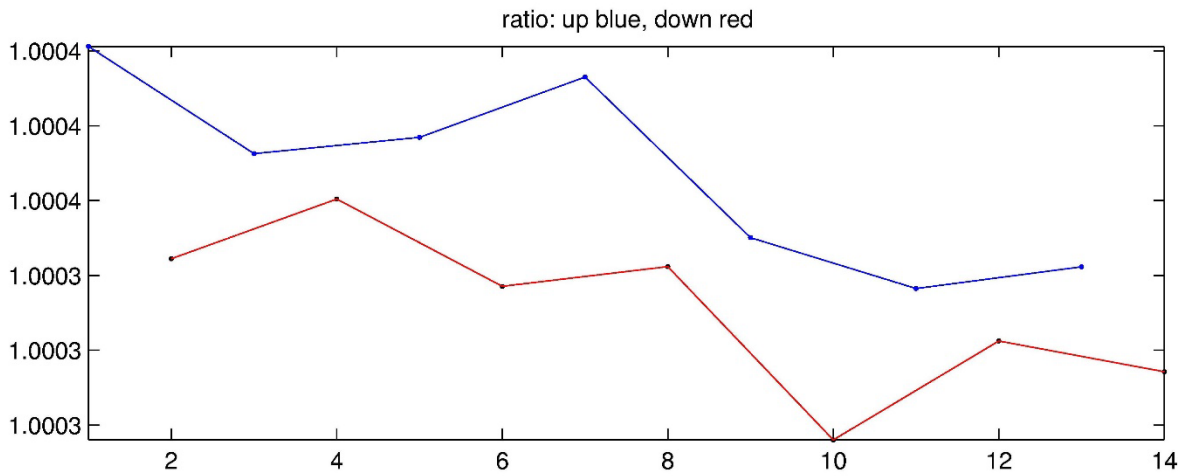
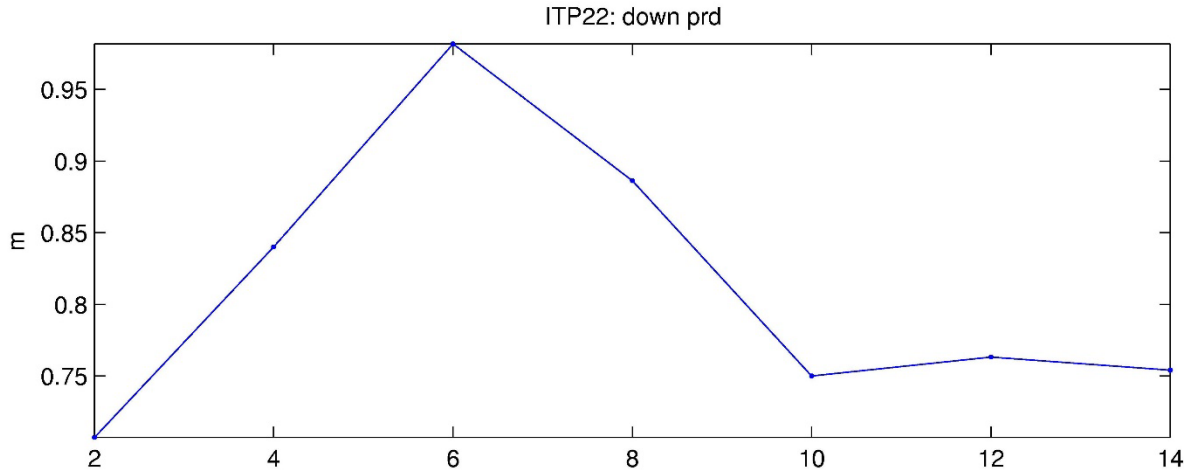
ITP profiler engineering data.



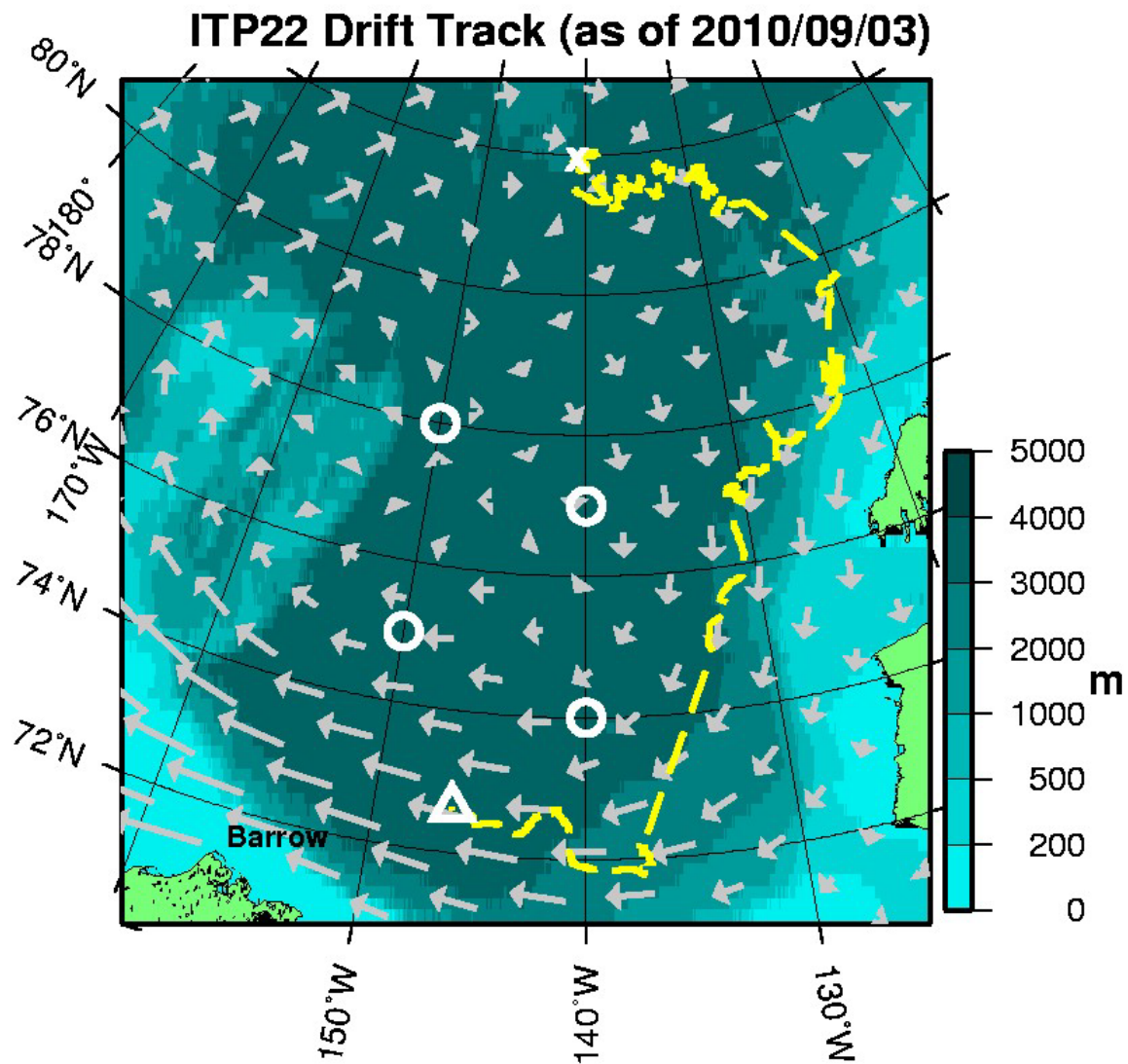
Top: number of bad points removed, Middle: variance of vertical difference of temperature and salinity in step region for up-going profiles, Bottom: temperature lag.



Top: conductivity lag, Middle: conductivity thermal mass amplitude correction, Bottom: conductivity thermal mass lag correction



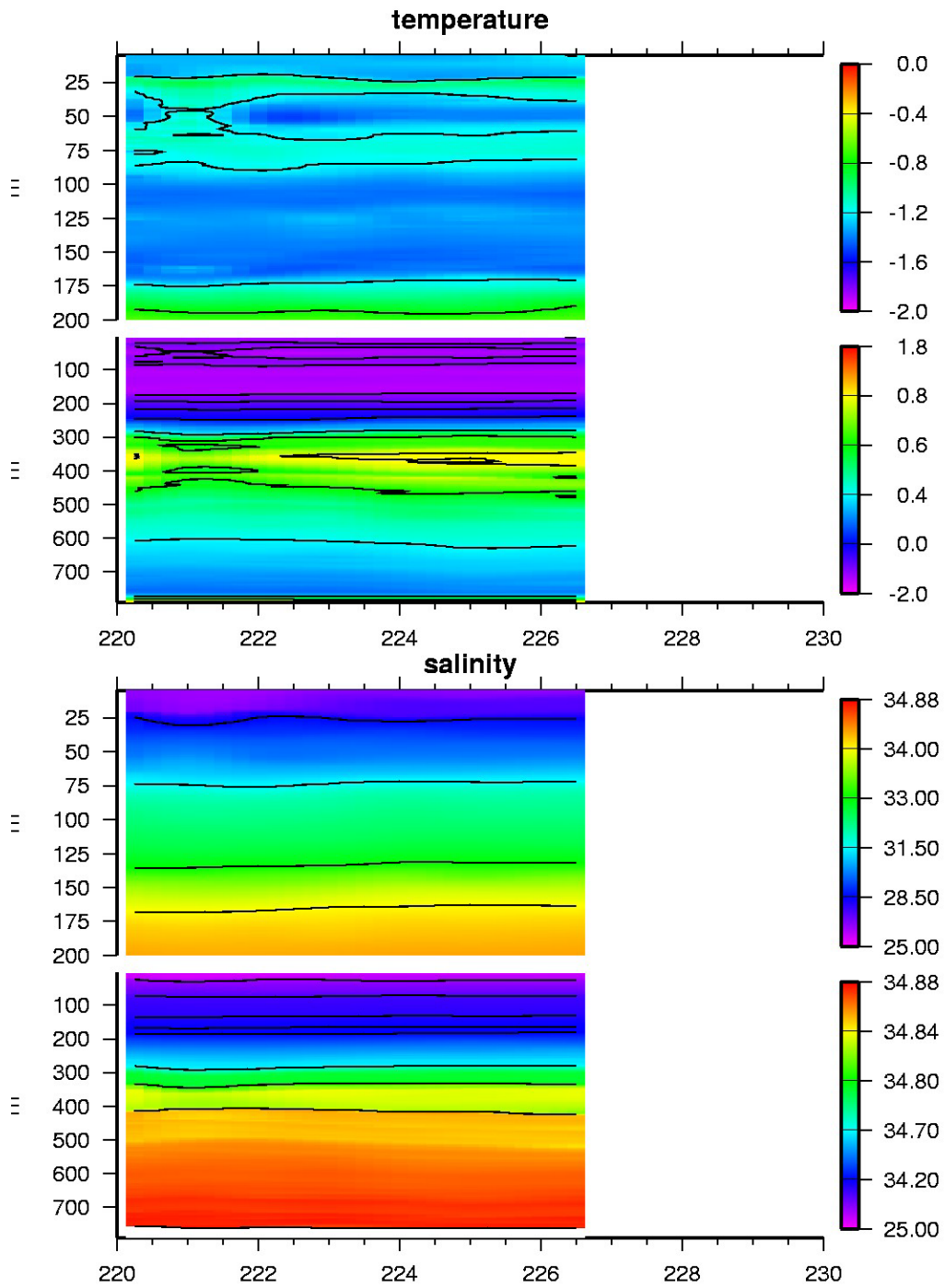
Top: down pressure deviation correction, Middle: salinity ratio adjustment, Bottom: Number of filtered spikes



ITP drift (yellow line), last profile (x), last location (triangle), and annual ice drift from IABP (grey vectors) on IBCAO bathymetry (shading).

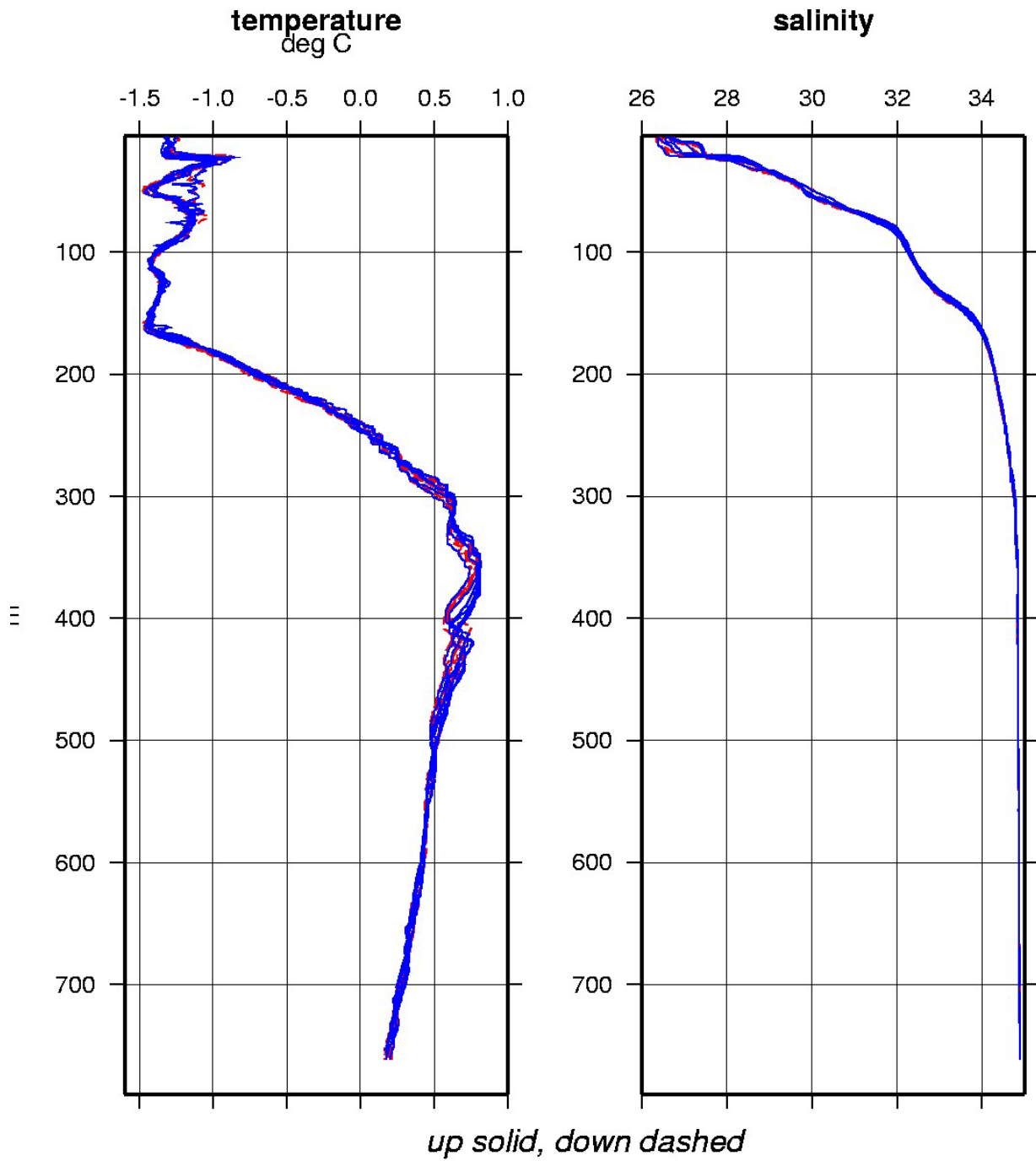
Plot of buoy locations.

ITP22 Up Profile Contours (to profile 13)



day 2008
ITP22 temperature and salinity contours

All ITP22 Profiles (up to profile 13)



Composite plot of ITP temperature and salinity contours.



At 82° N, ITP 22 was the northernmost ITP deployed in the Beaufort Gyre during JOIS 2008. In the distance, the Louis is barely visible through the fog. (Photo by Rick Krishfield)