

Figure 6-8. FANS II Deep Diagra

6.1.3 FANS III

The FANS III campaign took place in July, with summer conditions rather well established and a low river runoff. According to Salat et al. (2002), the average Ebro runoff ten days before the campaign was 133 m³/s, which resulted in that the lowest surface salinity values were higher than the ones recorded in FANS II. Surface salinity values ranged from 37.1 to 37.9. The CIW (S < 37.8) was found between 5 and 25 m depth, while the CSHW was found from the surface down to depths slightly greater than 100 m. Comparing the on-shelf and the off-shelf diagrams (Figure 6-10 and Figure 6-11), the presence of CSLW shows clearly as a branch of higher salinity above the WIW. This water mass is found in the most seaward casts in the southern half of the study area, at depths shallower than 100 m. Below this water masses laid the WIW with slightly different ranges than those reported previously in the literature (Θ : [12.9oC – 13.3oC], S: [38.2 – 38.45]), from around 100 to 250 m. Finally the LIW (whose core was at around 450 m depth) and the WMDW occupy the deepest regions (Figure 6-12).

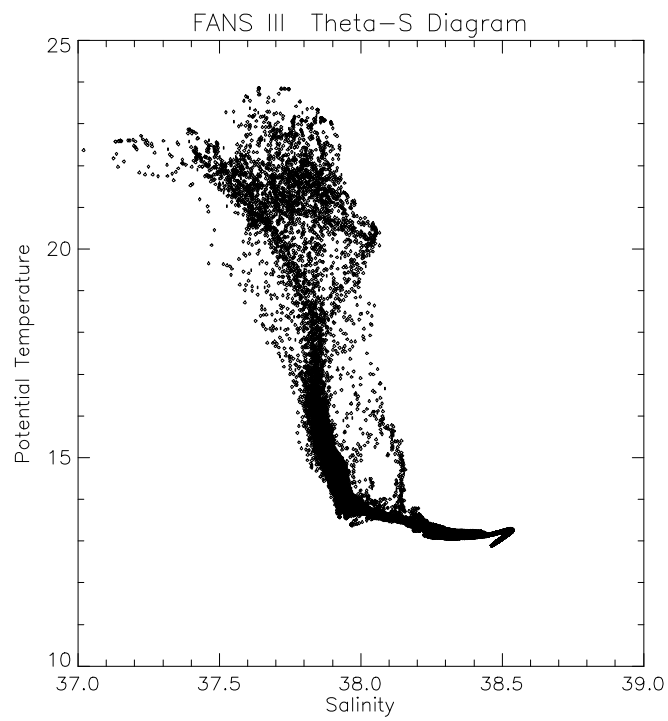


Figure 6-9. FANS III Complete Diagram

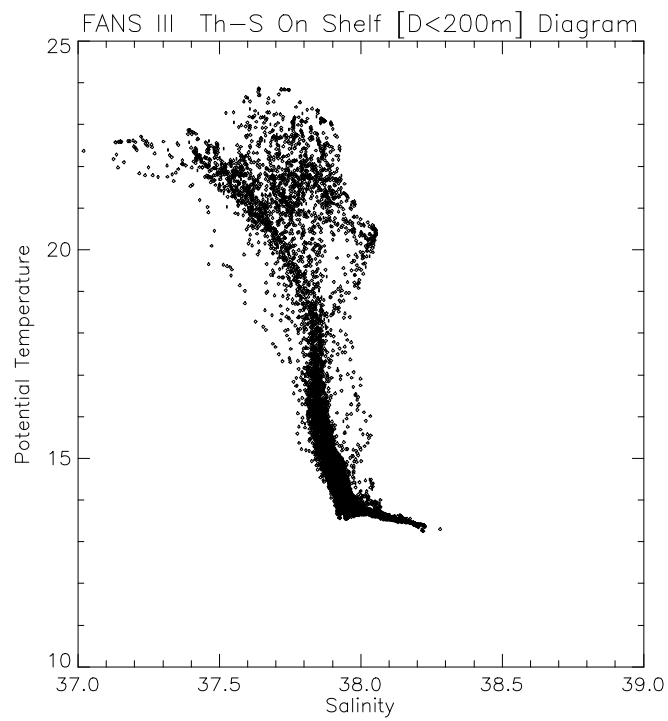


Figure 6-10. FANS III On Shelf Diagram

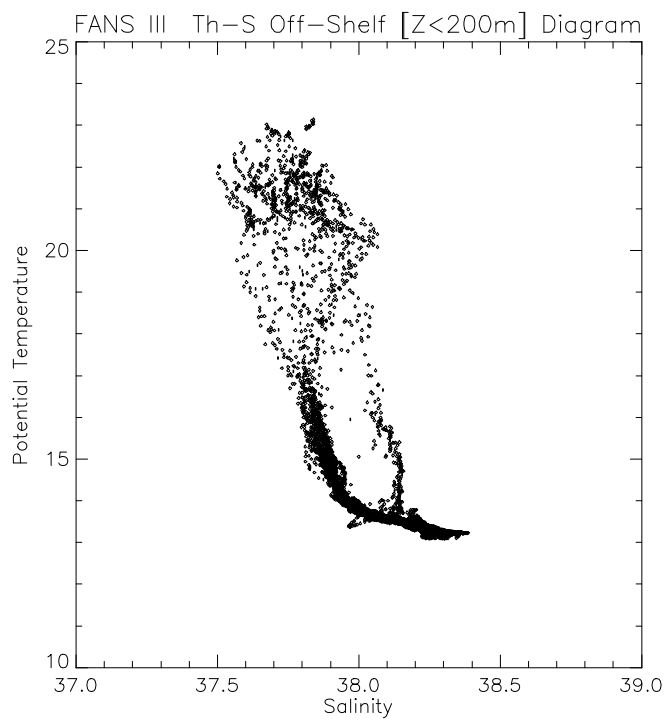


Figure 6-11. FANS III Off Shelf Diagram

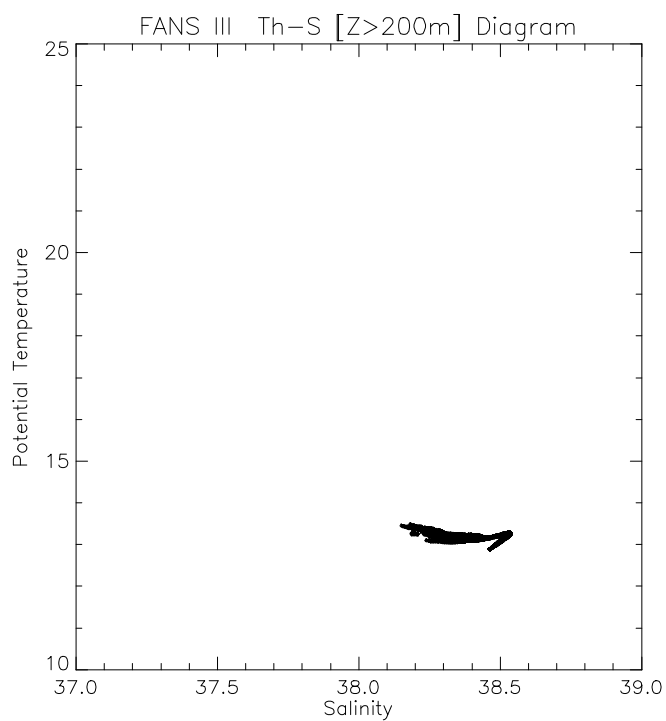


Figure 6-12. FANS III Deep Diagram

6.1.4 MEGO 94

During the ten days previous to the campaign, the Ebro River outflow was 529 m³/s, which is rather low for winter. Larger outflows were reported during the previous December and the first days of January.

The overall $\Theta - S$ diagram (Figure 6-13) that results from this campaign differs significantly from the FANS II one, even though they both belong to the same season. While the FANS II one has a resembling “M” shape, the MEGO 94 one looks more like a “V”.

The surface salinity ranges mostly from 35.8 to 38, with few points of lower salinity near the river mouth. CIW is found in the upper 30 m and, even though not evident in the diagram, it is only associated to the freshwater plume. The temperature values are higher than in FANS II and do not present inversions in the vertical. Comparing Figure 6-14 and Figure 6-15 it is clear that all the CIW is restricted to the shelf area. Shelf waters occupy the rest of the surface domain down to depths of around 200 m. The CSHW with the lowest temperatures correspond to stations in the northern region. A line appears in the diagram which seems to join this low temperature region with the relatively high LIW region, distorting the characteristic pattern and temperature range of the WIW found in the other campaigns, as is clearly shown in Figure 6-15 and Figure 6-16.

The LIW is found around 400 m with a temperature maximum higher than the observed in the FANS campaigns. The lowest temperatures recorded during the cruise were not as cold as in the FANS campaigns because the sampled area was shallower than 1000 m.

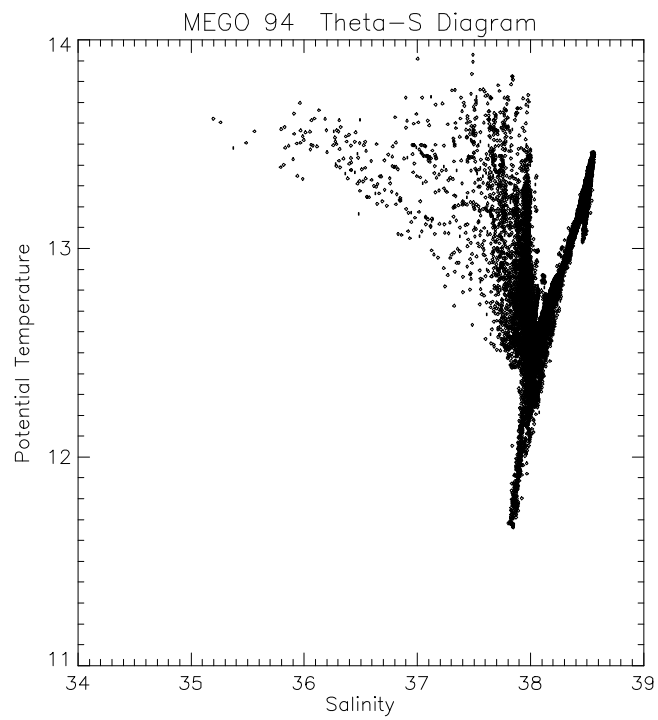


Figure 6-13. MEGO 94 Complete Diagram

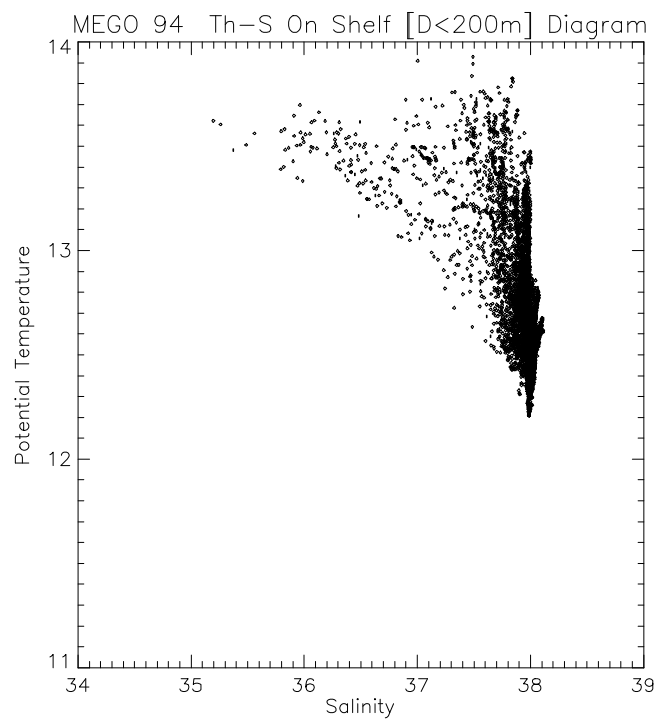


Figure 6-14. MEGO 94 On Shelf Diagram

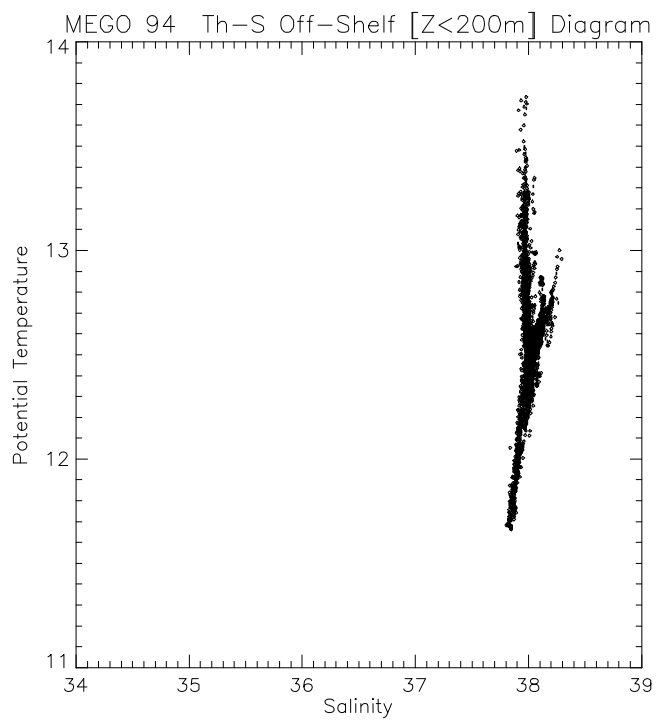


Figure 6-15. MEGO 94 Off Shelf Diagram

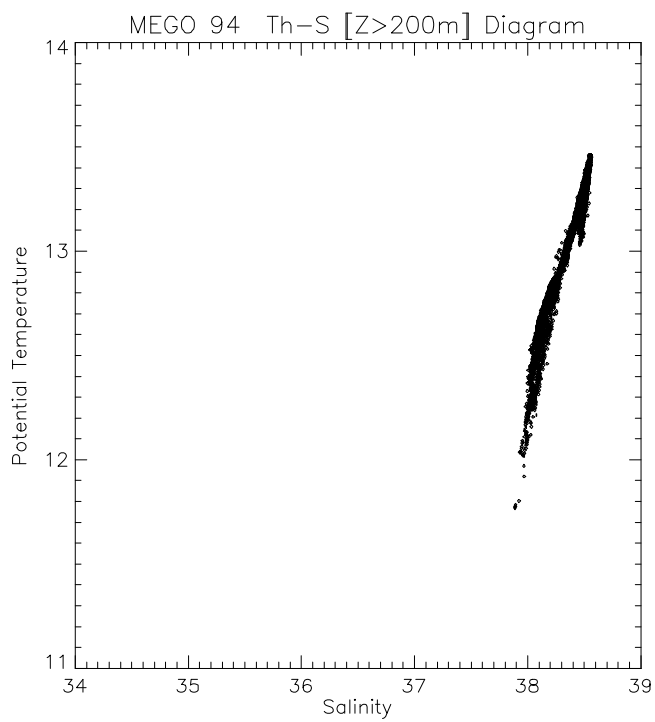


Figure 6-16. MEGO 94 Deep Diagram