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Theme Session S

THE SLOPE CURRENT OFF THE WEST IBERIAN COAST IN AUTUMN

António Jorge da Silva
Instituto Hidrográfico, Rua das Trinas, 49, 1296 LISBOA CODEX, PORTUGAL

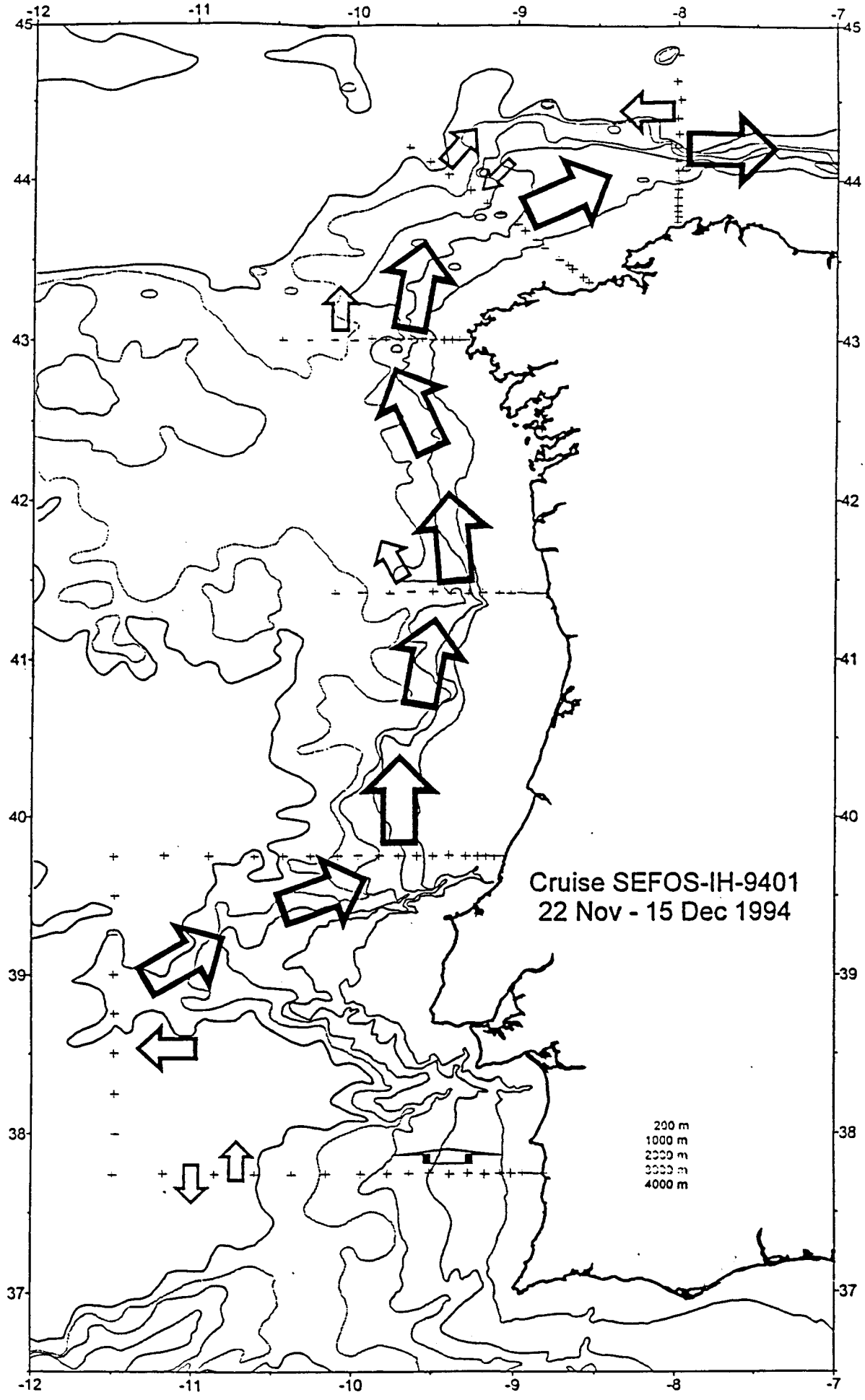
Cruise SEFOS-IH-9401, carried out on board the *R/V Almeida Carvalho*, was a contribution to the SEFOS Standard Sections (Turrell et al., 1995) observational system which was designed to monitor the European Slope Current. Combined with adequately associated current measurements, it will hopefully assist interpreting the variability in the different phases of the life cycle of shelf edge related fish stocks.

CTD observations were carried out to a maximum pressure level of ca. 1800 dbar, or near bottom. Geostrophic currents were obtained relative to 1350 dbar and the calculations extrapolated onto the upper slope and shelf (Reid and Mantyla, 1976). The 1350 dbar reference level represents a compromise between the deepest possible one and the lowest vertical shear (Defant method - Defant, 1941), particularly in the station pairs closest to the slope, the ones that will be determinant for the extrapolation.

No filtering was performed prior to the calculations and some of the eddy-like structures that were obtained may therefore be unreal. The extrapolations were carried out onto the innermost station pairs of each section, but the subsequent computations of volume transports were stopped at the shelf edge, and after removal of artifacts caused by software.

Geostrophy revealed a 20-30 km wide jet, identifiable at the surface and 500-600 dbar deep, usually with a subsurface velocity maximum (sometimes in excess of 60 cm s^{-1}), present from Section 2 northwards. In Section 2 such high velocities bare correspondence with direct observations of current of 40-50 cm s^{-1} at 100-150 m above a 900 m bottom depth.

A high salinity core is seen to be associated with the northward current and a progressive shelf edge trapping, from Section 2 onward, with a 0.1 decrease of core salinity every 180 km. Between Sections 1 and 2, 210 km apart, the salinity drop was, however, much larger. This may have been caused by the more sluggish motion between Sections 1 and 2, that allowed the mixing processes to develop. Alternatively, a great deal of recirculation might have taken place in the Tagus Abyssal Plain, and a significant part of the water that fed the Slope Current could have come from offshore north of 38° 30' N.



Note: The arrows in this scheme are merely pictoric, and have no equivalence in volume transport