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23-28 February 2014 / Hawaii Convention Center
Honolulu, Hawaii USA



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Abstract

RECOVER OF TEMPERATURE, SALINITY AND POTENTIAL DENSITY FROM ACOUSTIC REFLECTIVITY IN THE OCEAN

We present the inversion of temperature, salinity and potential density from time and space-coincident acoustic reflectivity and XBT data in the Gulf of Cadiz, NE Atlantic Ocean. This method recovers low frequency content (< 10 Hz) of the impedance from XBTs and the high frequency content (> 10 Hz) from acoustic reflectivity. Afterwards, maps of temperature and salinity are calculated from impedance using the GSW equations of state and an empirical T-S relation obtained with Neural Networks. This method allows to recover the main physical oceanographic parameters in the ocean with accuracies of $\delta T_{sd} = 0.1^\circ\text{C}$, $\delta S_{sd} = 0.09$ and $\delta \rho_{sd} = 0.02\text{kg/m}^3$ for temperature, salinity and potential density respectively, along lateral sections of hundreds of km, covering all the full-depth water column and with vertical and lateral resolutions of 10 m and 100 m, respectively. Acoustic reflectors and inverted potential density are eventually compared to better understanding the contribution of the acoustic reflectivity to the physic observation of the ocean.

Authors

Biescas, B., Institute of Marine Sciences- Spanish Research Council, Spain, biescas@icm.csic.es

Ruddick, B., Dalhousie University, Canada, barry.ruddick@dal.ca

Nedimovic, M., Dalhousie University, Canada, mladen@ldeo.columbia.edu

Sallarès, V., Institute of Marine Sciences- Spanish Research Council

Bornstein, Mojca, G. J., Institute of Marine Sciences- Spanish Research Council

Details

Oral presentation

Session #:012

Date: 2/28/2014

Time: 08:30

Location: 316 A

Presentation is given by student: No



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