



An inverse model to estimate the origin of the Canary Current in Autumn 2009

M. D. Pérez-Hernández (1), A. Hernández-Guerra (1), E. Fraile-Nuez (2), I. Comas-Rodríguez (1), V. Benítez-Barrios (2), J. F. Domínguez-Yáñez (2), and P. Vélez-Belchí (2)

(1) Instituto Universitario de Oceanografía y Cambio Global, Universidad de Las Palmas de Gran Canaria, 35017 Las Palmas de Gran Canaria, Spain. (lola_ph@hotmail.com), (2) Instituto Español de Oceanografía, General Gutiérrez 4, Santa Cruz de Tenerife, Spain.

The origin of the Canary Current and its pathway during the fall season is estimated from an inverse model applied to the hydrographic data of a survey carried out in fall 2009 in the geographical area of 28.7-37.0° N, 9.1-24.5° W. The cruise consisted of 81 CTD stations in which, dissolved oxygen, nitrate, phosphates and silicates, were obtained too. The Azores Current System is located in the meridional range 33.50-36.25° N at 24.5° W. This System transports eastward 7.2 ± 0.5 Sv in the thermocline layers and 1.1 ± 0.8 Sv at intermediate layers. The Azores Current intermediate water mass has the highest portion of SAIW in the region, while the Azores Countercurrent intermediate waters mass is mainly formed of MW. The Canary Current extends from 22.25 to 18.50° W at 28.7° N, the westernmost position ever observed. This current transports southward -6.2 ± 0.6 Sv in the thermocline layers and -2.0 ± 0.8 Sv at intermediate layers. The intermediate water mass carried by the Canary Current shows a relative minimum of all nutrients and a relative maximum of salinity and oxygen which indicates that is formed by a contribution of SAIW to the surrounding mixed MW-AAIW waters. All this, together with the non-existence of a southward flow at the northern transect caused by the Portugal Current, suggests that in autumn, the Canary Current is being purely fed by the Azores Current System.