

Accepted Manuscript

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PII: S0079-6611(17)30154-4

DOI: <https://doi.org/10.1016/j.pocean.2018.01.009>

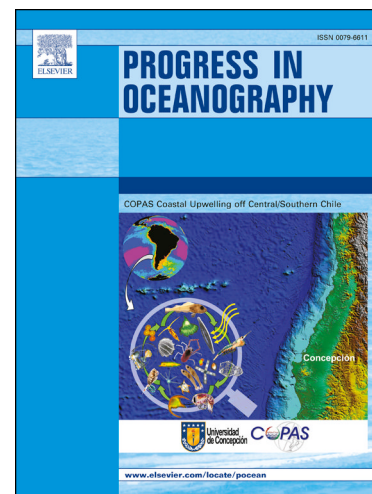
Reference: PROOCE 1901

To appear in: *Progress in Oceanography*

Received Date: 26 April 2017

Revised Date: 14 December 2017

Accepted Date: 16 January 2018



Please cite this article as: Carracedo, L.I., Pérez, F.F., Gilcoto, M., Velo, A., Padín, A., Rosón, G., Role of the circulation on the anthropogenic CO₂ inventory in the North-East Atlantic: A climatological analysis, *Progress in Oceanography* (2018), doi: <https://doi.org/10.1016/j.pocean.2018.01.009>

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Role of the circulation on the anthropogenic CO₂ inventory in the North-East Atlantic: a climatological analysis

L.I. Carracedo^{1,2}, F.F. Pérez², M. Gilcoto², A. Velo², A. Padín², G. Rosón¹

¹ Physical Oceanography Group (GOFUVI), Faculty of Marine Sciences, Universidade de Vigo (Spain), Campus Lagoas-Marcosende, 36200, Vigo, Spain, Tel: (+34) 986 81 40 70.

² Oceanology Group, Instituto de Investigaciones Marinas, CSIC, Eduardo Cabello 6, 36208 Vigo, Spain, Tel: (+34) 986 231 930.

Corresponding author: Lidia I. Carracedo Segade (lcarracedo@uvigo.es)

Keywords: Anthropogenic CO₂; Carbon storage; Air-sea CO₂ uptake; Water masses; Overturning; Gulf of Cadiz; North-East Atlantic

Highlights:

- North-East Atlantic climatology-based C_{ant} storage rate of 0.020 ± 0.003 Pg-C yr⁻¹
- C_{ant} import (43 ± 14 kmol s⁻¹) driven by the upper overturning circulation limb
- Net C_{ant} advection contributes to 60% of the C_{ant} storage rate
- Atmospheric C_{ant} uptake contributes to 40% of the C_{ant} storage rate
- $78 \pm 30\%$ of the annual air-sea CO₂ uptake is of anthropogenic nature (21 ± 10 kmol s⁻¹)

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