

EGU2020-267

<https://doi.org/10.5194/egusphere-egu2020-267>

EGU General Assembly 2020

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Glider observations of the Northwestern Iberian Margin during an exceptional summer upwelling season

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We present results from a 2 month deployment of an ocean glider over the Northwestern Iberian Margin. Glider observations during the exceptionally strong 2010 summer upwelling season resolved the evolution of physical and biogeochemical variables during two upwelling events. Upwelling brought low oxygen Eastern North Atlantic Central Water from 190 m depth onto the shelf up to a depth of 50 m. During the two observed periods of upwelling, equatorward transport over the shelf increased from $0.13 (\pm 0.04)$ Sv to $0.18 (\pm 0.08)$ Sv and a poleward jet developed over the shelf-break. The persistent upwelling favourable winds maintained equatorward flow on the outer shelf for two months with no reversals during relaxation periods, a phenomenon not previously observed. During upwelling, near surface chlorophyll a concentration increased by more than 6 mg m^{-3} . Dissolved oxygen concentration in the near surface increased by more than $40 \text{ } \mu\text{mol kg}^{-1}$, 6 days after the chlorophyll a maximum.

This was the first and, to date, only deployment of a glider over the North West Iberian Margin. A single glider was able to occupy a cross shelf section for two months, without the need for a costly ship based campaign. This presentation highlights some of the challenges of using gliders to study shelf break regions.