

Joint analysis of the seasonal and spatial variability of carbon dioxide, methane and nitrous oxide in the Scheldt estuary.

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Since January 2009, we have carried out monthly surveys in the Scheldt estuary to measure the partial pressure of carbon dioxide (pCO₂), methane (CH₄) and nitrous oxide (N₂O). Measurements of pCO₂ were carried out underway with an equilibrator coupled to an infra-red gas analyser, while the concentration of CH₄ and N₂O were carried out with a gas chromatograph on discrete samples. The dynamic range of seasonal changes and horizontal spatial gradients of these three green house gases (GHGs) are one to two orders of magnitude higher than in the open ocean. The drivers of the seasonal and spatial gradients of these GHGs are discussed, among which primary production (in the tidal river and the marine zone), nitrification (in the oligohaline zone), etc...

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