

## MACRO-SCALE VARIATIONS OF $p\text{CO}_2$ DISTRIBUTION ALONG THE BELGIAN COAST

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The macro-scale variations of partial pressure of  $\text{CO}_2$  ( $p\text{CO}_2$ ) and related parameters (pH, oxygen, total alkalinity, chlorophyll a and phaeopigments concentrations) were measured in surface water, along the Belgium coast, from January 1996 to July 1996, using a fully automated  $p\text{CO}_2$  equilibrator. The  $p\text{CO}_2$  distribution is dominated by the river input from the Scheldt, that is known to carry highly  $\text{CO}_2$ -rich water. In Winter, the river Scheldt plume is over-saturated in  $\text{CO}_2$  with respect to the atmosphere (around 155%); in Spring and early Summer, important photosynthetic activity, due to the eutrophication, induces under-saturation of  $\text{CO}_2$  near the river mouth (ranging from 70% to 90%). Furthermore, the degradation of phytoplanktonic cells, transported by the residual current, induces the over-saturation in the farthest area of the plume. Thus, from one season to another, the river plume acts either as a source or a sink of atmospheric  $\text{CO}_2$ . On another hand, for all the campaigns, the water outside the river Scheldt plume (Channel water) was under-saturated in  $\text{CO}_2$ . Further research is needed to determine whether this area acts globally as a source or a sink of atmospheric  $\text{CO}_2$ .