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Atmospheric CO2 and O2 measurements from 2000 - 2008 at Lutjewad station, the Netherlands

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We present long term data series of O2 and CO2 for Lutjewad atmospheric measurement station. Lutjewad is situated at the Wadden Sea coast of the Netherlands, at 6º21'E, 53º24'N, 1m a.s.l. The Lutjewad measurement station comprises a 60 meter tall tower as well as a laboratory. Since the end of 2000 periodic air samples are taken from 60 m using a flask autosampler (Neubert et al., 2004) with remote-control. This sampler fills 2.5 litre flasks with dried air at a specified time interval. The flasks are analyzed in the lab for concentrations of CO2, CH4 and CO, as well as for O2 and carbon isotopes.

Flask results of this period of 8 years will be presented at the conference together with a comparison with the flask data from the new sea based measurement station F3 in the North Sea (4º 44'E, 54º51'N) where samples have been collected since the June 2006. In the latter station, continuous measurements of O2 and CO2 have been started in September 2008.

The combination of CO2 and O2 observations gives a powerful tool for the partitioning of sea and land uptake of CO2. In our specific case, our measurements, combined with atmospheric transport models, will give further insight in the role of the North Sea in the carbon balance of Northern Europe.

Reference:
Neubert, R.E.M., Spijkervet, L.L., Schut, J.K., Been, H.A., & Meijer, H.A.J. (2004). A computer-controlled continuous air drying and flask sampling system. Journal of Atmospheric and Oceanic Technology, 21(4), 651-659.