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# Longpath-DOAS measurements of BrO on the westcoast of Ireland

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Reactive halogen species (RHS) are of great importance since they influence the atmospheric ozone chemistry. The involved processes are not fully understood yet. Two field campaigns were undertaken at the west coast of Ireland at Mace Head research station and the Martin Ryan Institute (Carna, County Galway) respectively between August and September of 2007. During both campaigns the RHS $BrO$ was investigated by active Differential Optical Absorption Spectroscopy (DOAS) in the marine boundary layer. Expecting very low concentrations of $BrO$, a low detection limit is necessary. By using a special strategy and an optimized configuration of the instruments, noise was significantly reduced compared to earlier investigations. Boundary layer $BrO$ was detected at peak concentrations of $(6,9 \pm 1,7)$ ppt at both measurement sites in the late afternoon and early morning. Furthermore there was an ozone depletion event on August 24th from 40 ppb down to 10 ppb connected with high $IO$ concentrations at the Martin Ryan Institute. At Mace Head diurnal profiles of $BrO$ were measured for 8 days. An anticorrelation with Ozone concentrations was found. During the same period $BrO$ also exceeded the detection limit during three nights reaching levels up to $(3 \pm 1,2)$ ppt. Possible causes of this observation are discussed.