



## **An overview of year-round NO<sub>x</sub> measurements during the CHABLIS campaign: can sources and sinks estimates unravel observed diurnal cycles?**

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Recent field studies in polar regions have unequivocally ascertained the role of snow-pack photochemistry as a source of NO<sub>x</sub>. This finding has important repercussions for the oxidative capacity of the troposphere overlying and downwind of snow-covered regions, since NO<sub>x</sub> precursors control tropospheric ozone and free radical chemistries.

Here, we present year-round measurements of NO and NO<sub>2</sub> from the CHABLIS campaign conducted at Halley, coastal Antarctica. The paper investigates seasonal changes in NO<sub>x</sub> abundance and partitioning during the 2004/05 vernal/autumnal equinoxes, and summer solstice.

The regional context of the data set is established by comparing our observations with other available polar tropospheric NO<sub>x</sub> records, from coastal and continental Arctic and Antarctic stations.

In order to elucidate the timing of the observed daily mean diurnal cycles for each season, we employ various methodologies to evaluate upper limits for the NO<sub>x</sub> sources and sinks strength.