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Results from the ANTCI 2005 Antarctic Plateau Airborne Study

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Over the last decade there has been growing evidence that polar regions during the early spring and summer months can display very diverse chemistry, particularly as it relates to the snow (e.g., Domine
ánd Shepson [2002] and references therein). Among the more prominent species identified in this new chemistry are the nitrogen oxides [Honrath et al., 1999, 2000; Jones et al., 2000; Davis et al., 2001, 2004; Beine et al., 2002]. Because of their influence in controlling atmospheric oxidant levels our ability to interpret reactive nitrogen levels in ice cores potentially could provide important new insights about the planet's past atmosphere, particularly as it relates to its oxidizing capacity. The purpose of this study was to better determine the areal characteristics of boundary layer NOx over the Antarctic plateau and to ascertain the degree of chemical coupling of this species with other trace gases. It was designed to investigate the emerging paradigm of plateau HOx−NOx chemistry which views the plateau's near surface atmosphere during the Austral spring/summer months as a highly reactive chemical cauldron.