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Mechanisms affecting the vertical mixing of surface emissions and byproducts from the surface of the Antarctic Plateau

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Recent investigations of atmospheric chemical processes over the high Antarctic Plateau using ground-based and aircraft measurements carried out from 2003 through 2005 have revealed high concentrations of NO trapped near the surface as well as, on occasion, high levels aloft 500 to 1000m above the surface (together with high levels of HNO3). We will examine various processes that can lead to redistribution of such constituents in the vertical such as the diurnal cycle of mixing as well as synoptic effects associated with quasi-geostrophic vertical motions and frontal lifting interacting with katabatic winds.