

An Analysis of the Meteorological Conditions Associated with Ozone Depletion Events in the Ross Island Region

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Near-surface ozone depletion events regularly occur during the austral spring in the Ross Island region, Antarctica. Recently, a network of five low-power ozone sensors was installed co-located with the University of Wisconsin automatic weather stations in the Ross Island region. The meteorology of the region plays a role in the activation and long-range transport of the bromine necessary for the ozone depletion. Ozone observations from Arrival Heights (McMurdo Station) are studied with a focus on the meteorology related to the ozone loss. Observations from automatic weather stations are evaluated to identify common patterns in relation to ozone depletion events. Analyzing the numerical weather prediction output of the Antarctic Mesoscale Prediction System completes the study of the meteorology in the region. Selected events are presented highlighting the different types of ozone depletion events and the associated meteorology. The cumulative results of these meteorological analyses provide a better understanding of the conditions frequently associated with the ozone depletion events of the Ross Island region.