

Springtime Tropospheric Ozone in the Arctic from Surface and Ozone-sonde Observations

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During 2008 a number of campaigns focused on Arctic atmospheric composition and the processes that control it. In conjunction with the Arctic Research of the Composition of the Troposphere from Aircraft and Satellite (ARCTAS) project a network of ozone profiling sites carried out near-daily observations during April 2008 and June-July 2008 using balloon-borne ozonesondes as part of the Arctic Intensive Ozonesonde Network Study (ARCIONS). Many of these intensive measurements were done at locations with multi-year ozonesonde observations providing an opportunity for comparison with the 2008 measurements. A notable difference in the spring of 2008 from the longer term observations was the paucity of boundary layer ozone depletion events at the Arctic Ocean coastal locations (Barrow, Resolute, Eureka). At Barrow, Alaska the 35-year record of surface ozone measurements showed that 2008 had the second-lowest occurrence of these events both for the month of April and the spring season (March-April-May) as a whole. The possible meteorological conditions responsible for this year-to-year variability are investigated.

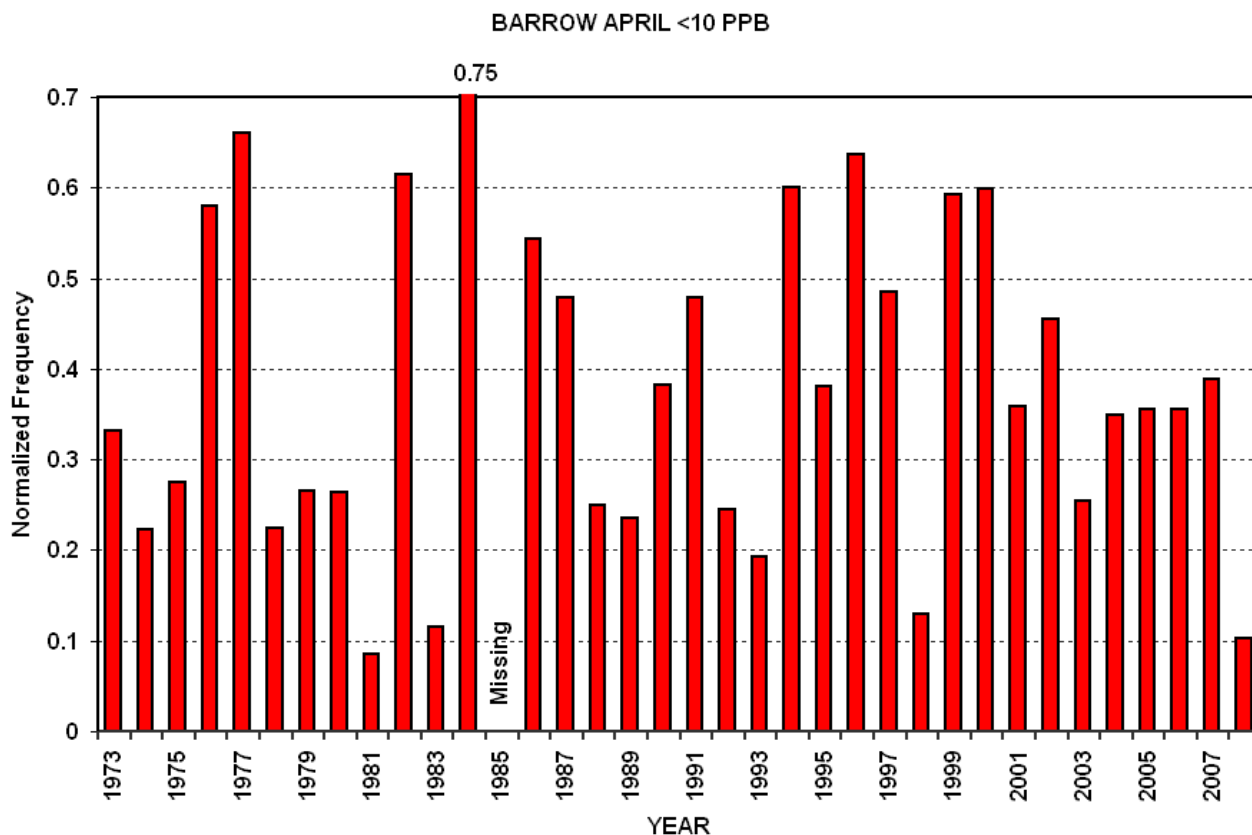


Figure 1. Number of hours with ozone ≤ 10 ppbv normalized to the number of hourly observations during the month of April for the period 1973-2008.