



Summertime total ozone variations over middle and polar latitudes

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The statistical relationship between springtime and summertime ozone over middle and polar latitudes is analyzed using zonally averaged total ozone data. Short-term variations in springtime midlatitude ozone demonstrate only a modest correlation with springtime polar ozone variations. However by early summer, ozone variations throughout the extratropics are highly correlated. Analysis of correlation functions indicates that springtime midlatitude ozone, not polar ozone, is the best predictor for summertime polar ozone. Long-term total ozone trends at middle and high latitudes are also different for spring and nearly identical for summer. About 39% of the observed southern midlatitude ozone decline in December can be attributed to the polar ozone depletion up to November. In the northern hemisphere, the corresponding contribution is about 15%, but the error bars are too large to make an accurate estimate.