Geophysical Research Abstracts, Vol. 7, 01634, 2005
SRef-ID: 1607-7962/gra/EGU05-A-01634

Statistical model of ozone laminae characteristics

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In this paper we deal with statistical model of the following ozone laminae characteristics in each month from January to May: the number of laminae per profile, ozone amount in laminae per profile, ozone amount in one lamina. We use 17 proxies which include long-term trend (time), teleconnection patterns, solar activity, potential vorticity and the amount of ozone depleted species. We use step-wise regression to find the most important proxies which influence the behavior of laminae characteristics. This model is applied to the ozone sounding stations, which have sufficiently large number of observations in each month: 6 stations in European middle latitudes, 4 stations in high latitudes of the Northern Hemisphere, 3 stations in middle latitudes of the USA and 1 station in Japan. Our model is able to explain 60-80 % of total variance of ozone laminae characteristic on the majority of stations. The most important proxies for European stations are: total ozone, potential vorticity, trend, West Pacific teleconnection pattern and North Atlantic Oscillation.