GLOBAL DECREASES IN TOTAL OZONE DURING THE WINTER MONTHS (ABSTRACT)

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Global network of total ozone measurements by Dobson spectrophotometer shows ozone decrease in recent years. At midlatitudes of the Northern Hemisphere, ozone loss was significant during the winter months of 1983 and 1985. In some regions, there is a positive correlation between the annual mean of total ozone amounts and the solar cycle.

CHEMICAL COMPONENTS OF MARINE AEROSOL OVER THE ANTARCTIC SEA (ABSTRACT)

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Fifty-eight samples were collected over the Antarctic Sea between December 3 and 31 in 1987. The sampling was carried out on board the research vessel "SHIRASE" by a medium volume sampler, which can be automatically operated every 12 h at the sampling rate of 150 l/min. The samples were analyzed for Na, Mg, Al, K, Ca, V, Mn, Fe, Ni, Cu, Zn, Sr, Mo, Ag, Cd, Ba and Pb for ICP-AES, and for NH_4^+, Cl^-, NO_3^- and SO_4^{2-} by ion chromatography. It is considered that aerosol derived from the crust has a concentration on the order of 10 ng/m^3 over the Antarctic Sea. This estimated value is about 1/10 that over the East China Sea near Japan. The excess sulfate aerosol has a concentration on the order of 100 ng/m^3 over that sea. Thus, the excess sulfate aerosol was defined as follows:

$$(\text{excess } SO_4 = SO_4 - 0.25 \times Na)_{\text{in weight}}$$

Because of the mole ratio between excess SO_4^{2-} and Na, which was comparable to the amount of Cl loss on a mole basis, it must be present the combination as Na_2SO_4. It is considered that Cl loss is due to the reaction of sea salt aerosol with sulfate aerosol even over the Antarctic Sea.