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Symposium C2.1 "Ozone Variations of Solar Origin"

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Out of 17 scheduled papers (four of them solicited papers), 16 papers have been presented. Peak attendance at the session was over 50.

The first part of the symposium dealt with the solar cycle and 27-day solar rotation effect on ozone via changes of solar UV radiation. Modeling (Williams et al.) succeeded fairly well to reproduce height profile of the solar UV 27-day variation-induced effect in ozone. The effect of solar cycle UV changes on total ozone has been simulated and found to be comparable with effects of volcanic origin (Zadorozhny). Data from Hohenpeissenberg show that the peak of the solar cycle effect on ozone occurs 10-12 km above the tropopause, then it weakens towards the upper stratosphere and again rises to the stratopause (Zerefos).

The next topic was the behaviour of solar UV, particularly the UV-B radiation. The solar cycle variation of solar UV-B radiation itself is 1-2% (Rottman et al.). During the solar eclipse of August 1999, the direct UV-B radiation in shadow in Europe decreased substantially and become weaker than the diffused UV-B radiation which almost did not change.

The other topic were effects of geomagnetic storms and energetic particles on ozone. Strong geomagnetic storms may evoke total ozone changes in Antarctic up to 10-15% (Storini et al.). At middle latitudes, the main source of total ozone response to geomagnetic storms seams to be storm-induced changes of atmospheric circulation (Belinskaya et al.). When the magnetopause is substantially shifted towards the Earth, the high latitude ozone content decreases (Makarova). The October 1989 solar proton event impact on ozone, nitric oxide density and the lower ionosphere ionization has fairly well been simulated by a system of 1-D models (Krivolutsky et al.). The maximum of the solar proton event effect in the middle atmosphere moves considerably in height from event to event in dependence on spectral shape of proton flux and it has different heights for different minor constituents (Krivolutsky). The effect of Forbush decreases of galactic cosmic ray flux on total ozone at higher middle latitudes is similar to that of geomagnetic storms and it is probably of dynamic origin (Lastovicka).

Kim et al. described technique and results of rocket measurements in the South Korea.

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