

OBSERVATIONS OF ENERGETIC PARTICLE PRECIPITATION EFFECTS UPON THE MIDDLE ATMOSPHERE

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This paper will give an overview of what we have recently learned about the impact of Energetic Particle Precipitation (EPP) on the polar middle atmosphere, the area of the Earth's atmosphere covered by altitudes from about 20 to 120 km (stratosphere - mesosphere - lower-thermosphere). Much new information of the EPP impact on the polar middle and upper atmosphere has been gained in the recent years thanks to new kinds of observations becoming available. Of key role have been especially the observations made from satellite platforms such as the European Space Agency's Envisat satellite and the utilisation of ground based measurements, such as Very Low Frequency (VLF) radio waves, in novel ways.

The focus of this presentation will be particularly on observations of the effects of EPP on the chemical composition, such as ozone, NO_x, and HO_x, and dynamics of the polar middle and upper atmosphere.

Energetic particle precipitation, mesosphere, stratosphere, NO_x, ozone

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