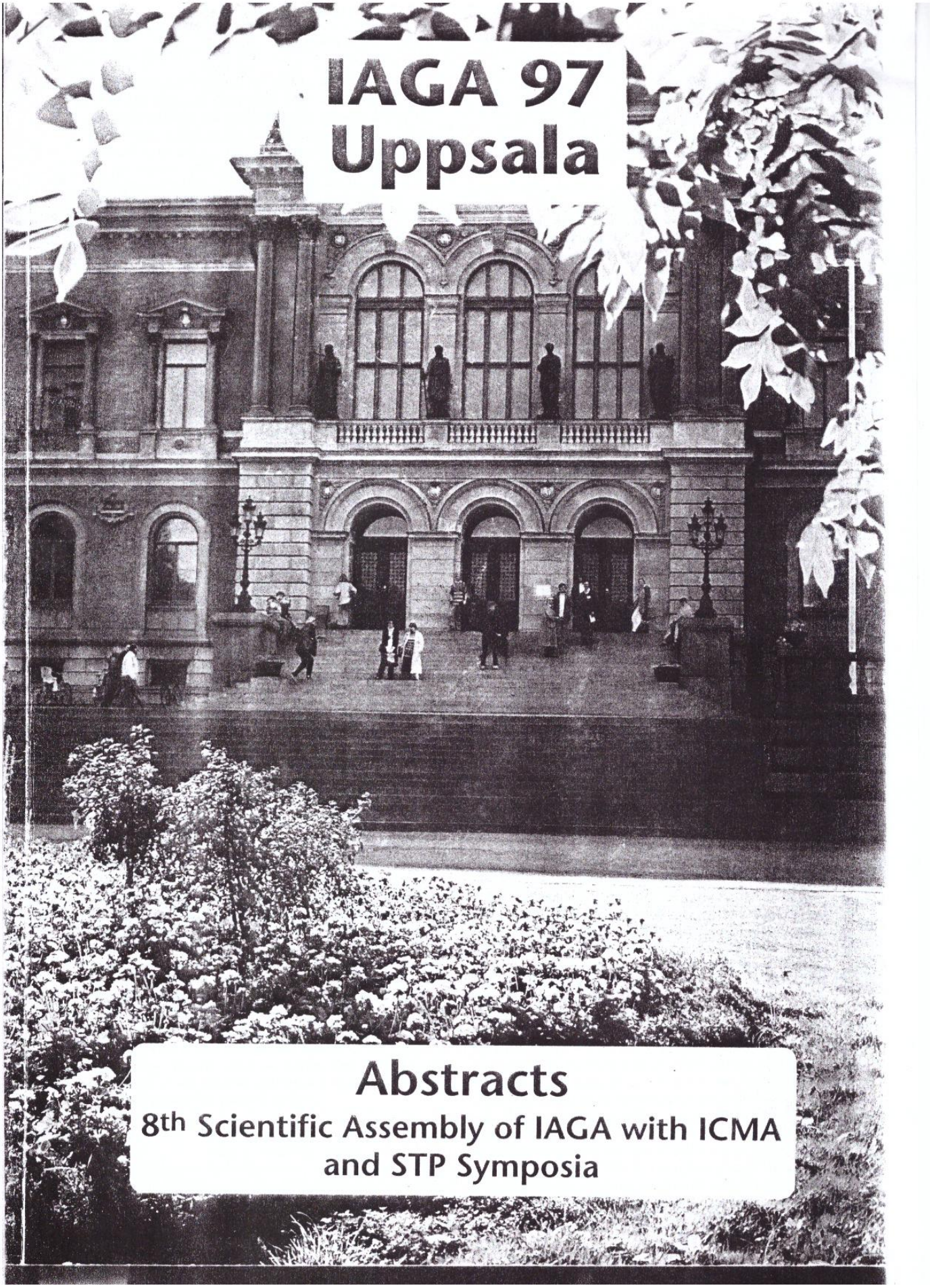

IAGA 97 Uppsala

Abstracts

8th Scientific Assembly of IAGA with ICMA and STP Symposia

atmospheric electric field variations on the lower boundary of the ionosphere using the experimental values of the effective electron collision frequency. We found, that the electric field to be E>0.25 V/m in approximately 70% cases. Our results correspound to undisturbed ionospheric and atmospheric conditions. Under disturbed conditions, the magnitude of E was approximately two times larger than the undisturbed one.

So these facts must be taken into account in the research of ionospheric processes, meteorological and propagation effects.

Acknowledgments. The authors have been supported by Science and Technology Center in Ukraine Grant N471.

Aug. 11, POSTER #02

Electron Collision Frequency Variations in the Lower Ionospheric D-Region During Magnetic Storm

A M Gokov and O F Tyrnov (Department of Space Radio Physics, Kharkiv State University, 4 Svobody Sq., 310077, Kharkiv, Ukraine)

Using a partial reflection technique it was found increasing of the electron collision frequency by more than 50% at the lower ionospheric D-region (z<70 km) at the time of precipitating charged particles during magnetic storms. Our observations have been made during 3 magnetic storms in 1984-1985 in the vicinity of Kharkiv. The precipitation of charged particles was observed during 3-7 days after the magnetic storms. At these events there were observed intensive partially-reflected signals from the heights of z=55-70 km. It was found the electron density to become severaltimes larger. The paper presents calculations of flow intensities of precipitating charged particles and ion-production velocities, made for these heights.

Acknowledgments. The authors have been supported by Science and Technology Center in Ukraine Grant N471.

Aug. 11, POSTER #03

Effects of Geomagnetic Storms on the Mesospheric Electric Fields

A M Zadorozhny and A A Tyutin (Novosibirsk State University, Pirogova 2, Novosibirsk, 630090, Russia)

More than twenty rocket measurements of vertical electric fields in the middle atmosphere were carried out during the last two decades using the field mill technique. The experiments were taken under different geomagnetic conditions both in the Northern Hemisphere at middle and polar latitudes and in the Southern Hemisphere at higher middle latitudes, part of them coincided with geomagnetic storms. Distinct dependence of height profile of vertical electric field strength on geomagnetic disturbance level was observed in the polar mesosphere. When geomagnetic activity is on the increase the mesospheric maximum of the electric field appears more distinct, it rises to higher altitudes and its strength at maximum increases too. During a very strong geomagnetic storm on October, 1989 (Kp = 8+), the electric field strength at higher middle latitudes went up to about 12 V/m. The fields as great as those obtained in this experiment have never been previously observed in the mesosphere. We discuss here too some possible causes for simultaneous increase of the electric field and conductivity in the mesosphere observed in our experiments during geomagnetic storms.