

ENERGETIC ELECTRONS INVOLVED IN THE PHYSICAL AND CHEMICAL PROCESSES IN THE MIDDLE ATMOSPHERE

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Relativistic electrons (with energies >150 keV) which originate in the outer radiation belt and detected by the Russian 'Meteor' series of satellites have been correlated with the atmospheric total ozone data compiled by almost 90 stations located around the world within the latitude zone 40° - 70° N. In more than 60% of the stations examined we have detected a clear decrease of the ozone 3-5 days after the electron flux excess. A numerical model has been applied to describe this effect based on relativistic electron initiated nitric oxides creation in the upper mesosphere with subsequent atmospheric transport (both vertical and horizontal) towards the upper stratosphere.