



INTERCOMPARISON OF THE UAM, IRI-2001 AND ISR ELECTRON DENSITY, ION AND ELECTRON TEMPERATURE DATA FOR THE APRIL 15-20, 2002 PERIOD

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We present the results of a comparison of the electron density, ion and electron temperature values calculated by three versions of the global numerical Upper Atmosphere Model (UAM) and the data obtained by seven incoherent scatter radars during the period of April 15-20, 2002 including days of both geomagnetically quiet (April 15,16) and disturbed (April 17-20) conditions. The empirical ionospheric IRI-2001 model electron density, ion and electron temperature data for this time period have been involved into this comparison as well. A comparison of the ionospheric parameters has been made for three height levels close to 250, 350 and 450 km. The UAM calculations of Ne, Ti, Te have been performed using three versions of neutral constituents: 1) the NRLMSISE-00 neutral composition and temperature data; 2) fully self-consistently with the theoretical neutral composition and temperature results obtained starting from NRLMSISE-00 as an initial condition; 3) the same as in 2) but starting from the steady state theoretical thermosphere solution used as an initial condition at April 15, 2002. In most cases the ISR and IRI-2001 electron density data lie between the UAM values

obtained in the first and third versions of the model calculations. The agreement between the ISR and UAM data is worse for the first version. The differences between the versions 2 and 3 of calculations are significant only for the first two quiet days (April 15 and 16). For disturbed periods starting from April 17 the model results in the versions 2 and 3 are very close to each other and differ significantly from the version 1 results. The IRI-2001 electron density data fit better to the ISR data than those of the UAM at high latitudes but the IRI-2001 ion and electron temperature values are underestimated in comparison with both ISR and UAM data at all locations.

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