



Description of solar cycle variation of O⁺, H⁺, N⁺, and He⁺ in the topside ionosphere

V. Truhlik (1), L. Triskova (2), and J. Smilauer (3)

(1) Institute of Atmospheric physics, Bocni II., 14131 Praha 4 - Sporilov, Czech republic
(vtr@ufa.cas.cz)

Solar cycle variation of the most important parameters characterizing ion composition in the topside ionosphere is studied. For this purpose data from the ACTIVE mission for the maximum of solar cycle 22 (aver F10.7²⁰⁰) completed by available data from the Atmosphere Explorer (AE) satellites for the minimum of the solar cycle 21 (aver F10.7⁸⁵) was processed. For medium solar activity conditions OGO-6 data from the low maximum of the solar cycle 20 (aver F10.7¹⁵⁰) was used. Results from the recently developed empirical model of the ion composition are analyzed and presented, typical vertical profiles from solar maxima and minima are shown. It was found that the logarithm of O⁺, H⁺, He⁺, and N⁺ density in the topside ionosphere at a fixed altitude and latitude is in the first approximation a linear function of the solar activity characterized by daily F10.7. The upper transition height is generally a non linear function of daily F10.7.