



## **Long-term trends in E-sporadic layer frequency parameters**

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At presented work significant trends of critical frequency of E-sporadic layer ( $f_oE_s$ ), blanketing frequency of Es layer ( $f_bE_s$ ) and semitransparent range of E-sporadic layer ( $dfE_s = f_oE_s - f_bE_s$ ) were detected on the basis of analysis of long-term variations above parameters for 22 midlatitude ionosphere sounding stations located in northern hemisphere. For season-averaged values of  $f_bE_s$  parameter statistically significant positive trends are prevail for all considered ionosphere sounding stations, whereas for season-averaged values of  $dfE_s$  negative trends are prevail. For season-averaged values of  $f_oE_s$  both positive and negative statistically significant trends are observed. As values of  $f_oE_s$  parameter is present oneself a sum ( $f_oE_s = f_bE_s + dfE_s$ ), we supposed, that sign of  $f_oE_s$  parameter trends have determinated by interrelation of  $f_bE_s$  and  $dfE_s$  trends magnitudes. Regional variability of sign of  $f_oE_s$  season-averaged values trends are revealed : negative trends of  $f_oE_s$  are prevail in Russia and positive trends - in West Europe. Also were revealed that magnitude of trends of night-time values of above E-sporadic layer parameters mostly exceed magnitudes of trends of light-time values. However, differences of revealed trends magnitudes for various seasons are not systematical. Attempt to explain of revealed trends reasons were made.