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Very high foEs – reality or oblique reflections?

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Very high values of foEs have sometimes been reported. These values, as well as all other ionogram-scaled values, are derived from ionograms under the assumption of vertical reflection of sounding radio waves. In the past it was impossible to check validity of this assumption. However, modern digisondes provides also information about the angle of reflection via skymaps, which allow determine clearly oblique reflection. To test the assumption of vertical reflection for very high values of foEs, five summers (June-August, 2005-2009, deep solar activity minimum) from station Pruhonice are chosen. All hourly values of foEs $\geq$ 6.0 MHz are selected from this data set, altogether 153 hourly values. Out of them for 89 values foEs $\geq$ 7 MHz, for 44 values foEs $\geq$ 8 MHz, for 18 values foEs $\geq$ 9 MHz and no event occurred for foEs $\geq$ 10 MHz. These high values of foEs occur essentially in 2009, 2008 and 2005, whereas only one event occurs in 2007 and none in 2006. As for diurnal variation, a pronounced maximum occurs at 09-10 LT (LT = UT + 1 hour) and minimum at 02-04 LT (no events). Very preliminary results show that at least some of these high values of foEs are effects of oblique reflections, real values being slightly to substantially lower. More detailed information and more than preliminary results will be presented at the meeting.