



Human impact on the natural geophysical phenomena: Pc1 electromagnetic activity

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“Mankind may already be influencing natural ULF geomagnetic activity and pulsations over the wide areas of the world. This threat can only grow worse in the future ...”. These prophetic words were told by Fraser-Smith a quarter of century ago. But it seems that they are already forgotten by many. The main purpose of our report is to restore the interest of geophysical society to this highly interesting and very important problem. First of all we concentrated our attention on the natural electromagnetic waves in the Pc1 frequency range (0.2-5 Hz). It is well known that Pc1 waves are spontaneously excited due to the instability of energetic ions in the magnetosphere of the Earth. Following the work of Fraser-Smith (1981) we have studied the so called weekend effect. We examined the weekend effect by using the ground based observations of Pc1 over the period 1957-1995. We concluded that the weekly cycle in the Pc1 wave activity is a real geophysical phenomenon. It is evidently human in origin. The difference in the numbers of Pc1 wave trains between weekdays and weekends is about 10%. In addition we have revised other manifestations of the human impact on the environment. In conclusion we make an attempt to understand the physical mechanisms which lead to the modifications of geophysical media due to the human activity with useful and deleterious consequences. The work was partly supported by RFBR grants 03-05-64361, 03-05-64545, 04-05-64265.