



The relationship between coronal holes and cold air advection in Belgrade region

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In this paper we investigated the relationship between the solar activity and weather on the Earth, especially coronal hole impact. The investigation is based on the assumption that every energy ejection from Sun by the Solar wind has direct effect on weather on the Earth. The Solar wind particles move along the magnetic field lines. After the reconnection among interplanetary and Earth magnetic fields, the particles come in the atmosphere, mostly through polar magnetic funnel. The particles impel the air masses to move by the hydrodynamic pressure in lower and denser layers of atmosphere. Because of Earth magnetic field characteristics, the particles start to eddy like cyclone circulation. There are only a few sunspots in the last year of 23rd Solar cycle so in that period it is easier to notice impact of coronal holes and their opened magnetic field. There was relatively good coronal holes repetitiveness in the period of 27 days of Sun rotation in the first part of 2007. Solar wind characteristics, synoptic situation over the Europe, cold fronts inflow over Belgrade and daily maximum temperatures in Belgrade were analyzed. Results of this analysis showed that there is lawfulness in the appearance of similar synoptic situations and cold air inflow while the same dominated coronal hole exist in a few Sun rotation. Using the noticed lawfulness it can be possible to forecast date, intensity and lasting significant cold air inflow at the quiet Sun. Forecast is possible in the period of active Sun too.