

Suddenly the TV goes off, the Internet stops working, one cannot use Facebook. 20 degree of power supply and unexpectedly ...

Polish power grids are in many cases quite age, e.g. more than a half of the 220 kV in the air power lines owned by PSE Operator SA has more than 40 years. This branch requires huge investments. During last couple of years we could read in the newspapers, or the Internet, that Poland threatens to collapse in the electricity supply. Last year, in August they reached us this news: *"Today, on Monday August 10, the so-called 20 level of power supply is valid in the 10:00-17:00. According to the Council of Ministers, in these hours Polish Power Grid, which is the operator of the entire system can apply to industrial customers reducing the supply and consumption of electricity. At the same time, this means that exhausted other remedies that could move from the Poland risk of melting of reserve capacity in power below the level of threatening over the whole country power failures, or blackouts."* (Justin Piszczatowska on <http://wysokienapiecie.pl> [accessed 07/09/2016]). And the situation could be even worse, because in Poland is paid too little attention to the impact of space weather on our energy critical infrastructure. Not only the northern countries such as Sweden, are engaged in research of geomagnetically induced currents, but they do it as well in Spain or in Greece.

We are so dependent on electronics. An interruption in the supply of electricity, caused by the violent phenomena occurring on the Sun, and affecting our geosphere, is a real threat. Not only would cease to operate heating and lighting in homes and workplaces, but we couldn't also do shopping, as it would not work payment terminals, ATMs and cash registers. Examples of difficulties can be multiplied, but it is not a fragment of science-fiction story, but the most realistic possibility.

Sun is the central star of the Solar System, its activity increases approximately every 11 years. When it gains a maximum phase of its activity then is able to produce and dispose into interplanetary space huge amounts of matter and energy. And these, in turn, may affect our planet. The effects of solar activity may be pleasing to the eyes as a beautiful aurora, like this that we were able to observe in Poland on December 21, 2015. However, they can also increase the possibility of creation of geomagnetically induced currents and cause interference, such as the recent failure on November 4, 2015 when Swedish airports were paralyzed (as a cause of sudden phenomena occurring on the Sun).

Scientists all over the World are trying to anticipate these events by analyzing solar activity parameters and geomagnetic indexes. Our goal is to establish a set of characteristics of the failure of critical infrastructure in Poland, which are related with rapid changes in the Earth's vicinity.