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Existence of electric/magnetic signals related to unknown luminous lights observed in Hessdalen valley (Norway)?

J. Zlotnicki, P. Yvetot, and F. Fauquet
CNRS, UMR6524-OPGC, Aubiere, France (jacques.zlotnicki@wanadoo.fr)

J. Zlotnicki1, P Yvetot1, F. Fauquet2, E. Strand3 and B. Hauge3

1: CNRS; UMR6524-OPGC-UPB, France
Email : jacques.zlotnicki@wanadoo.fr // jacques.zlotnicki@opgc.univ-bpclermont.fr
2: OPGC-UPB, 24 av des Landais, 63177 Aubière cedex, France
3: Østfold University College, Norway

Hessdalen valley, in Norway, is a north-south elongated basin of about 20 km by 10 km (latitude: 62°50'N, longitude: 11°12'E) in which few inhabitants are permanently living. Since several decades, scarce observations made mainly during night time have point out transient luminous lights, called Hessdalen phenomena ('HP'). Østfold University College was the first pioneer research centre which started to install visual and geophysical monitoring systems able to track the unknown lights (http://www.hessdalen.org/). The characteristics of the HP can be summarized as followed. They can appear in the low atmosphere, remain quite fixed and suddenly move up at a speed of several hundreds of km/s, for disappearing on the ground or in one the numerous lakes located in the area. The duration can be of a very seconds to a tens of minutes or more. The HP can be white, blue-white flashing lights, yellows or white lights and have different shapes with sizes up to some cubic metres. From 80 observations per month in the 1980's, the number has sharply decreased to about 20 per year nowadays. In 2010, French Research Centres started cooperation with Østfold University College and the Istituto di Radio Astronomia of Bologna (http://www.ira.inaf.it/). The objectives are to study radio emission in the frequency band 1 kHz to 5 MHz (see Farges et al., EGU 2012) and the possible disturbances of the electromagnetic (EM) field recorded at two remote stations located in the valley. The two EM stations are located a tens of kilometres apart along the valley axis. In the northern FIN station, a fluxgate magnetometer (resolution of 1/100 nT), two orthogonal induction coils (frequency band: 7 Hz - 8 kHz, resolution 1/100,000 nT), and two horizontal electric lines (few mV resolution) record the magnetic and electric fields, respectively. In addition, a vertical seismometer is linked to the multi-parameter FIN station. At the south OYU station, two induction coils and horizontal electric lines are set. All data are recorded at 40 Hz.
We present the morphology of the EM field in the area which can define the background noise and the morphological evolution of the EM field along the axis of the valley. Some of the EM variations appear to be phase-delay of several minutes between the two stations which lead to suspect important distortions brought by superficial geological structures (mineral deposits?), some electrical current channelling and the local tectonics. During the last 2010-2011 winter campaign, only few observations by eyes were reported. During these periods, no large magnetic or electric signal was clearly identified.