



## **Transformation and birth processes of the transient luminous phenomena's in the low atmosphere of the Hessdalen valley, Norway.**

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Transient luminous phenomena has been observed in and over the Hessdalen valley for over 100 years. These phenomena's has been nicknamed "Hessdalen phenomena's", HP, and has been under permanent scientific investigation since 1998, when Norwegian, Italian and later French researchers installed different types of monitoring equipment in the valley. The earth's magnetic field, electromagnetic radiation in different bands, radioactive radiation, electrical resistance in the ground, ultrasound, and seismic activity are some of the signals/parameters that has been monitored. The valley has also been surveillanced by radar, optical spectrometers and automatic video recording devices. So far no electromagnetic radiation, except in the optical band, has been detected that can be coupled to the HP. The phenomenon is characterized by its horizontal movement, intense optical radiation when a transformation process occurs, different colours where white/yellow dominates, no sound, high speed, unpredictable flight patterns, seen by radar while optical invisible and often observed with continuous optical spectrum. The phenomena have been seen touching ground, without leaving burning marks and flying in higher altitudes over the valley apparently ignoring wind/weather conditions.

The Hessdalen valley is located in the middle of Norway and is famous for its mines with iron, zinc and copper ore. Big deposits of ore still reside inside the valley, and the mountains are penetrated by several mineshafts, some has depth down to 1000m. No exact birthplace has been located and the phenomenon seems to emerge "out of thin air" anywhere in the valley. Any activity coupled to mineshafts has not been observed. In September 2006 a birth and transformation process was observed and several optical spectrums was obtained. The phenomena appear as a big white light possibly not more than some hundred meters above the ground in a desolated area. The phenomenon starts a transformation process dividing itself into two light balls where the light-intensity increases and showing a continuous optical spectrum. Later on the light intensity decreases and the continuous optical spectrum is broken up and emission lines appearing, as if the phenomenon goes from a plasma to a gas state. The process ends up when two round light balls are formed, with low optical intensity and red colour, showing sign of a thermal process loosing energy. This observation is to be documented and analyzed.