



## **Infrasound and wideband electric field measurements during Hessdalen Science camp 2010**

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Brief luminous phenomena are observed since at least 25 years in the low atmosphere above the Hessdalen valley. The valley is located in the middle of Norway, 120 km southeast of Trondheim at latitude 62°41' North and longitude 11°12' East between two mountain ranges, at an altitude of 600 m. This phenomenon, still unexplained, appears like a glowing light ball with dimensions ranging from decimetres up to 30 m. The glow is brighter than high magnitude stars. It may be localised in a single point and lasts less than one second or may move inside the valley during several seconds or even tens of seconds. Since the mid of 1980's, camera observations and radar measurements have given qualitative and quantitative observations which complement the observations reported by Hessdalen Valley inhabitants.

Each year, since 2000, a Science camp took place in Hessdalen in the beginning of September. During the last camp, from 6th to 13th, 2010, different instruments were installed by Norwegian, Italian and French institutes. CEA participated for the first time to this camp with electric field and infrasound measurements. Such experiment was motivated by previous radar echoes related to camera observations, demonstrating the presence of ionisation inside the luminous ball. Electric field or infrasound are then expected, as other transient luminous events, like sprites inside the middle atmosphere, are sources of such emissions. Two different experiments were thus installed by CEA: an infrasound array (4 microbarometers arranged in a quasi equilateral triangle of 200 m side, with one sensor in the middle) and a wideband (1 kHz – 5 MHz) electric-field antenna (electric field signal of 80 ms is recorded automatically each 5 seconds to detect possible electric field radiation). During the week, a fish-eye camera, from Østfold University College, hold on the top of a mountain, caught several events including a long one (< 30 s). We will show in the paper, first results obtained at the same time as these luminous events.