



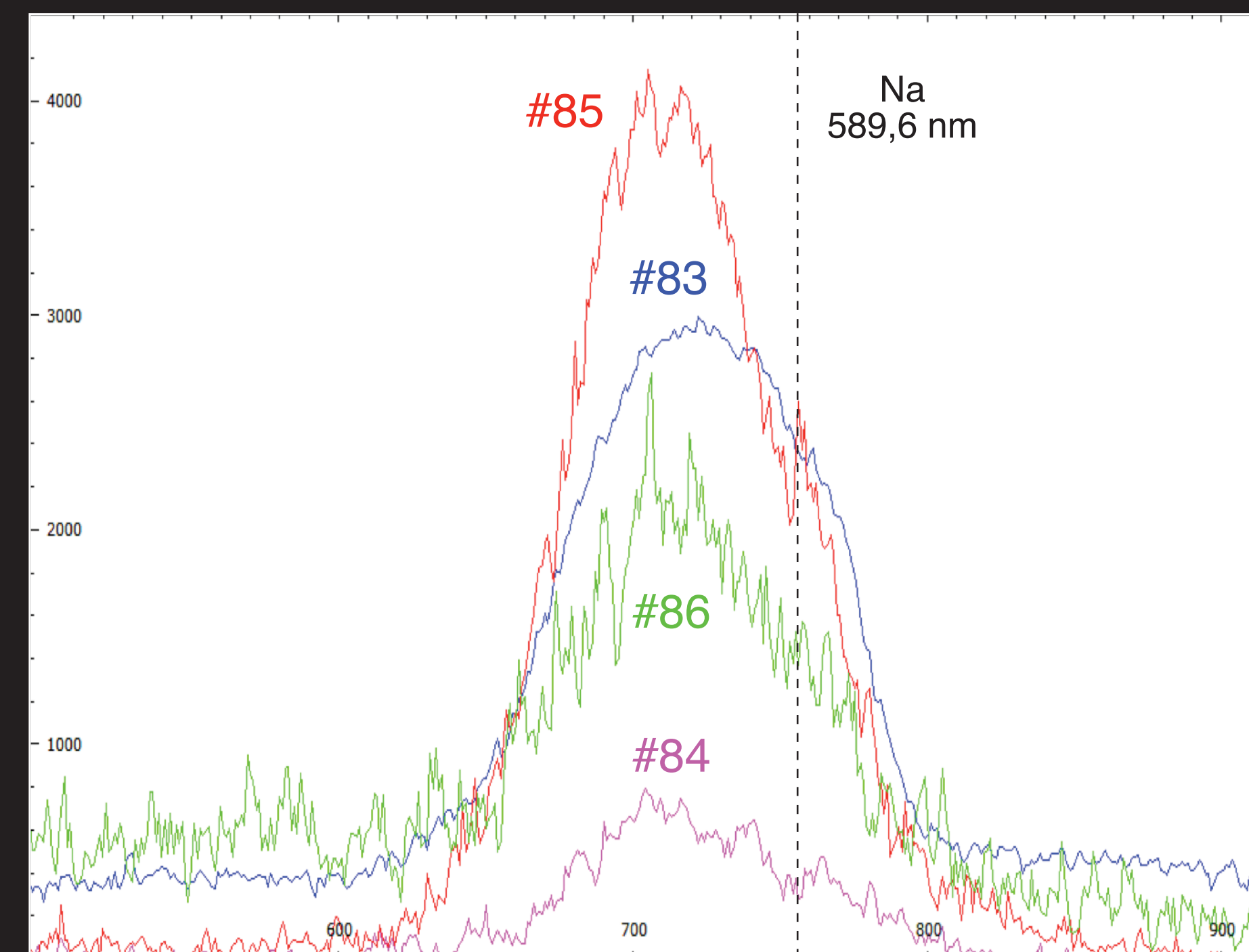
Transformation and birth processes of the transient luminous phenomena's in the low atmosphere of the Hessdalen valley, Norway – Z189 EGU2013–12725



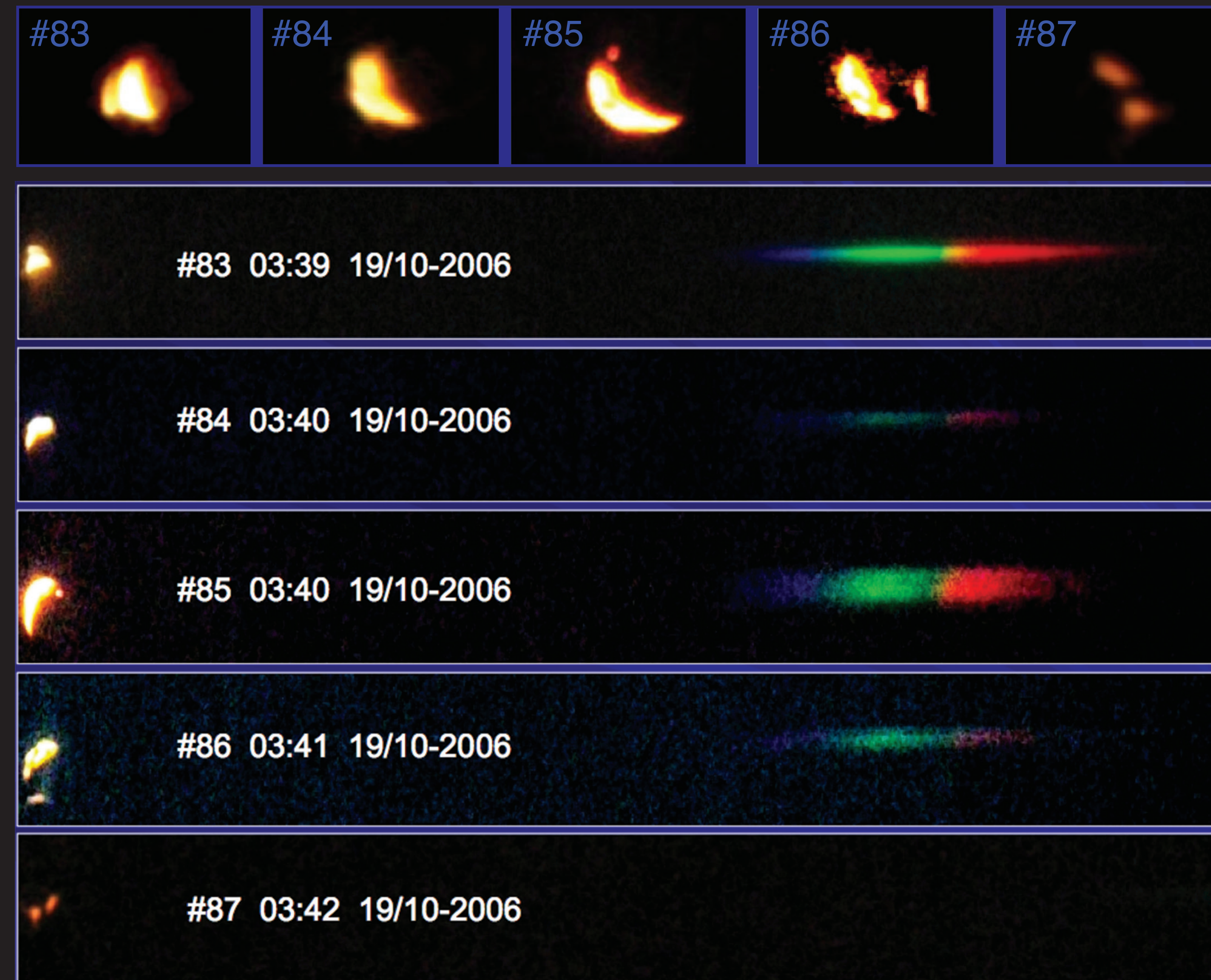
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Transient luminous phenomena has been observed in the atmosphere over the Hessdalen valley for more than 100 years, and has been under permanent scientific investigation since 1998. Today Norwegian, Italian and French researchers have installed different types of monitoring equipment to observe the earth's magnetic field, electromagnetic radiation in different bands, radioactive radiation, electrical resistance in the ground, ultrasound, and seismic activity. The valley has also been surveilled by radar and optical spectrometers. So far no electromagnetic radiation correlates strongly to the lights. The phenomenon is characterized by its horizontal unpredictable movement, different colors (blue, white, yellow and red), intense optical radiation, no sound, high speed and seen by radar while optical invisible. The phenomena have been seen touching ground, without leaving burning marks. The Hessdalen valley has mines with iron, zinc and copper ore, penetrated by several deep mineshafts.

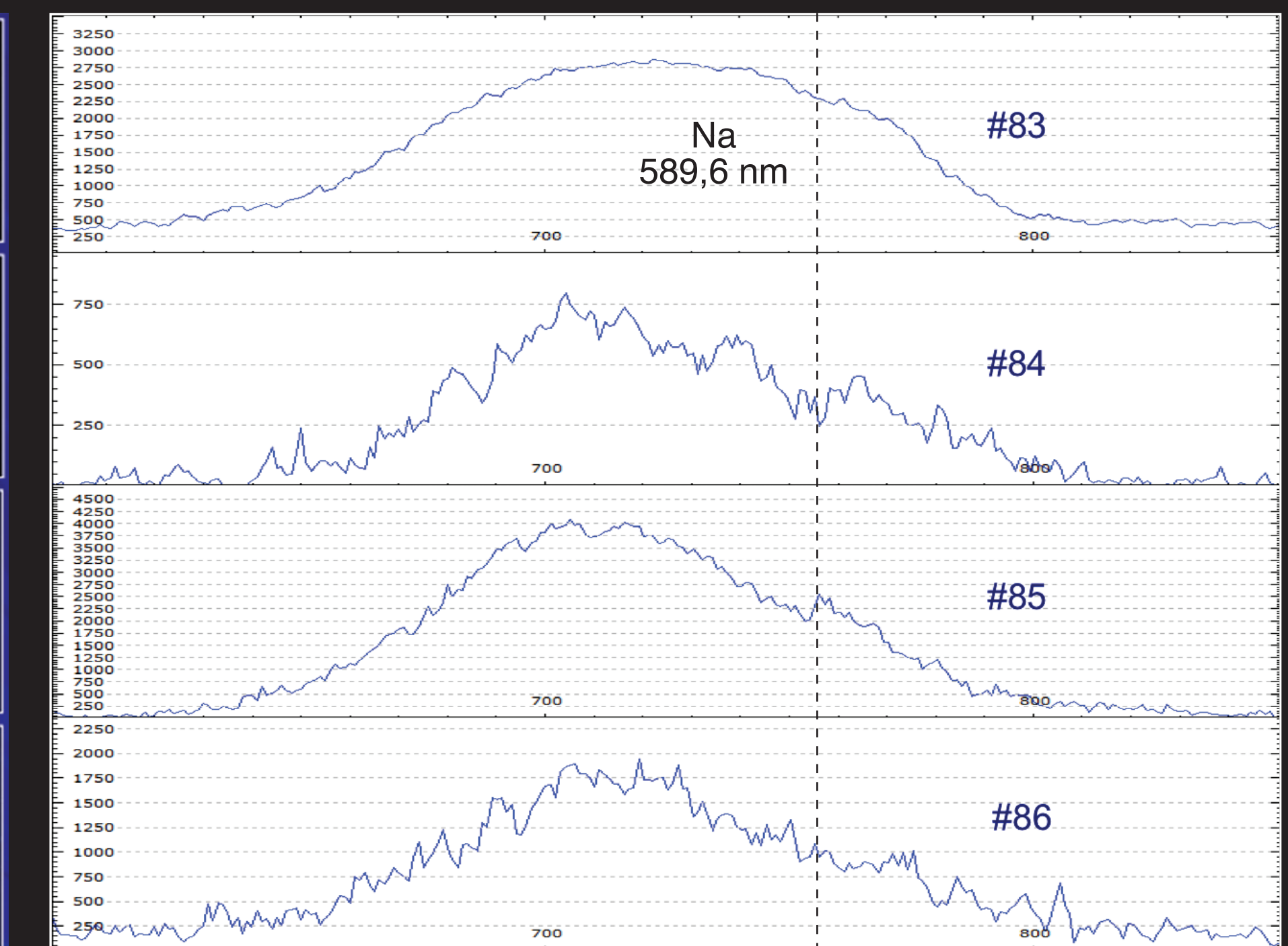
No exact birthplace has been located and the phenomenon seems to emerge "out of thin air" anywhere in the valley. Activity coupled to mineshafts has not been observed. In September 2006 a birth and transformation process was observed and several optical spectrums was obtained. The phenomena appears as 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 losing energy.



Spectral plot of light #83 – #84 – #85 – #86 showing that the phenomena radiates most strongly when a transformation/dividing process starts up, as seen with light #83 & #85. Light intensity in picture #87 is so low that no optical spectrum was possible to detect.



The pictures is shot from lake Øyungen SE towards NW using a Nikon D70 Camera with a zoom lens fixed on 63mm, f3,5 and exposure time 30sec. The lens is equipped with a transmission grating and the camera is fixed on a tripod. Weather conditions are good, no wind and no rain. At 03:39 the light shows up over the Øyungen Lake in front of Rauhovdet mountain. The transformation process starts at 03:3 and the light intensity pulsates strongly two times before the light is divided in two red lights indicating a thermal process.



Normalized spectral plot of light #83 – #84 – #85 – #86 showing sign of spectrum breaking up when intensity is low, indicating that the phenomenon changes density in light #84 & #86, indicating transformation between plasma and gas state. Light intensity in picture #87 is so low that no optical spectrum was possible to detect.