



Discovery of the Pc1 pearl waves by Eyvind Sucksdorff

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Eyvind Sucksdorff (1899-1955) was an enthusiastic scientist who came to the director of Sodankylä Geophysical Observatory (SGO) in 1927. He continued magnetic measurements, which were started in 1913 when SGO was established. Many acknowledged geophysicists, including la Cour, Chapman, Bartels and Störmer, visited at the observatory during his era. Sucksdorff's personal interest was magnetic pulsations. Before the Second International Polar Year (SIPY) in 1932-1933 SGO acted as test station of the new La-Cour magnetometers.

During the SIPY, Sucksdorff observed events with a periodically modulated amplitude in the registration of the new La-Cour quick-run magnetometers. He interpreted these events to be due to short period oscillations and called them "rapid micropulsations" or "pearl necklace" due to the shape of the signal in the registration. From the "pearl necklaces" he estimated the upper bound of the oscillation to be 2-3 seconds. Sucksdorff realized that the quick-run registration system constructed by La Cour was able to record even a weak external forcing on the suspended magnet due to magnetic pulsations close to the magnet's eigenperiod. Sucksdorff did not know the accurate values of the eigenperiods of the systems (h, d and z components of the magnetometer). Later measurements have shown that they were 2-3 seconds. Nowadays the pearl pulsations discovered by Sucksdorff are one subgroup of pc1 magnetic pulsations.

Sucksdorff published his observations in 1936 in the December issue of the terrestrial magnetism and atmospheric electricity. In his paper Sucksdorff studied both the annual and diurnal distributions of the new pulsations. He also compared Sodankylä observations with those obtained at a nearby station. Comparisons of the records made in Stockholm, Copenhagen and Sodankylä revealed for the first time the global features of Pc1 pulsations. Sucksdorff did not present any explanation for the pearl pul-

sations he had observed. However, he e.g. excluded lightning as a source because of the characteristic of the pearls in the recordings.

It is interesting that Leiv Harang from the Auroral Observatory at Tromsø, Norway published his analysis of rapid registrations made in Tromsø in 1932-36 in the same issue of the terrestrial magnetism and atmospheric electricity in 1936. He used the name "vibrations" for his short period oscillations.