



## **The rockslide in the Askja caldera on the 21st of July 2014.**

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A large rockslide fell on the 21st of July 2014 in the Askja Caldera in the northeastern highlands of Iceland. This rockslide is the largest rockslide that have fell in Iceland since the settlement of the island more than 1100 years ago. The slide was initiated in the Suðurbotnar area in the southeastern rim of the caldera and fell into the Öskjuvatn Lake. The lake is about 12 km<sup>2</sup>, 3,5 to 2,5 km in diameter and up to 220 m deep. The slide caused a 20-30 m high Tsunami wave in the lake. Earth tremors where observed in nearby seismic stations giving the exact time of the slide at 23:24.

No one witnessed the rockslide but members of a rescue team located about 15 km from the site saw a strange looking cloud or a plume rising from the lake at around 23:27. This cloud was most likely a steam column rising from the high thermal area in the rockslide scar.

The scar of the rockslide is about 900 m wide and about 350 m above the surface of the lake, at 1056 m a.s.l. The movement of the slide is a rotational slide, but the location of the lower boundary is presently not known. In the volume calculations it is assumed that the lake surface is the lower sliding plane boundary giving the size of the slide somewhere between 20-50 million m<sup>3</sup>. If the sliding plane is on the other hand below the lake surface the volume of the slide is higher.

The lake level rose at least 1 m after the slide indicating the at least 12 million m<sup>3</sup> of debris fell into the lake.

By combining maps of the lake bottom from 2012 and again shortly after the rockslide, considerable changes have occurred on the lake floor. A well-formed debris tong can be seen extending from the Suðurbotnar shoreline about 2000 m northwest into the lake down to 150 m depth. This gives the total run out length of the rockslide of 3100 m.

Indications of movements prior to the slide obtained from photographs show that slow movement of the slide mass had already begun few years before the slide. It is likely that thick snow cover and rapid melting the days before the slide may have initiated the slide.