

Landslide along the express highway near Kuromatsunai, southwestern Hokkaido

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A small landslide occurred near Kuromatsunai at 9:55 a.m. on April 13, 1999, in a cutting along the express highway, about 14 km toward Sapporo from the Oshamanbe Interchange (Fig. 1). Fortunately nobody was injured, but a car narrowly escaped being trapped in the slide. The cutting is about 40 m in

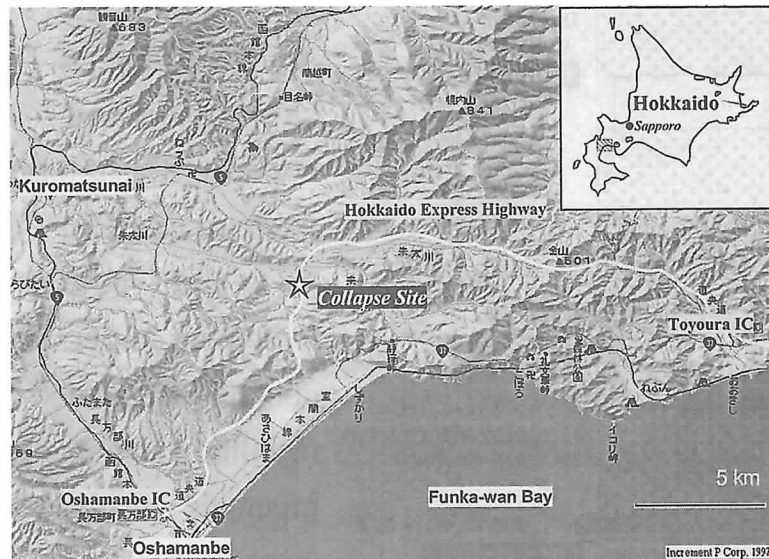


Fig. 1 Index map.

height, with a slope angle of 40 degrees (Fig. 2). Collapse occurred over a length of 65 m, and the volume of the slide was 8,000 cubic meters. The cutting surface was covered by planted grass, but was not cemented. The express highway was

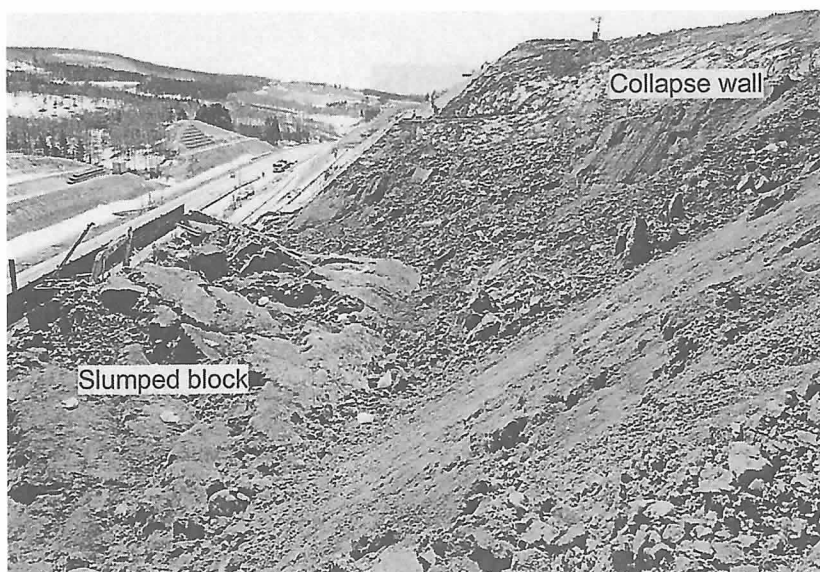


Fig. 2 Oblique view of the collapse site.

only extended a few years ago, and planting made at that time has not matured, and is thus not so effective for stabilization.

The road cut a wide gentle hill in farmland, and a small stream runs through just south of the collapsed cutting. Water

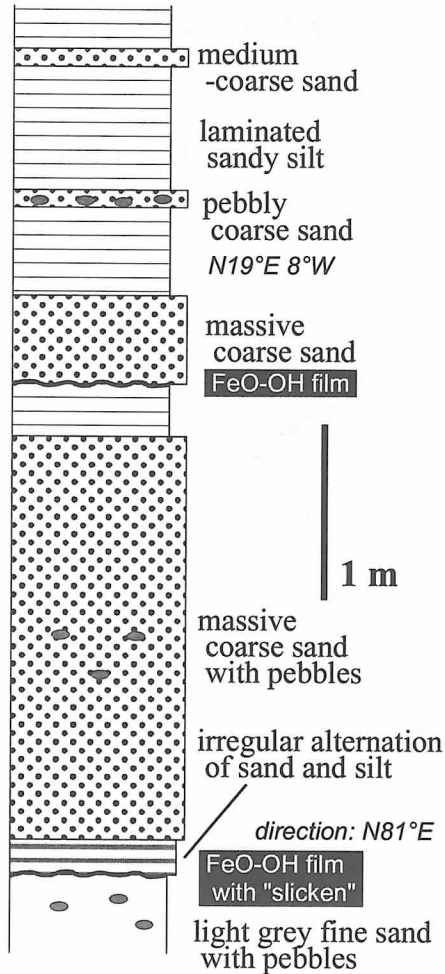


Fig. 3 Geologic column of the collapse wall.

accumulated around the cutting by rapid melting of snow, causing unusually high water pressure. Direct rainfall would also have weakened the cliff.

The cutting passes through Plio-Pleistocene sediments of the Setana Formation, which consists of alternations of well-sorted coastal sand and sandy silt (Fig. 3). Bedding is almost horizontal to slightly inclined toward the road at the point of collapse. Basal parts of the sandy facies contain intercalated films of iron hydro-oxide material (Fig. 4), which suggest localized water saturation overlying impermeable silt horizons. The sands contain well-sorted and well-rounded andesitic to rhyolitic volcanic clastic detritus derived from the mountains nearby. Contrary to news media reports, no volcanic ash is present. As far as we know, the silt horizons were compact and were not weakened, and no thick saturated sand horizons were observed.

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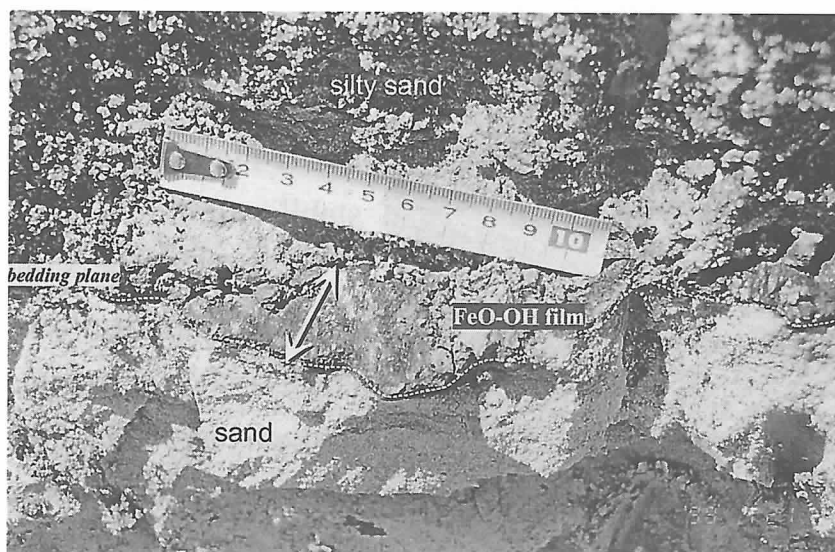


Fig. 4 FeO-OH film observed on a bedding plane of sandy facies cropping at the collapse surface. White arrow shows a "slicken" structure nearly perpendicular to the collapse surface.