Karst springs can be found at the foot of Tsjebysjovfjellet on Hornsund Fjord (Pulina 1977; Leszkiewicz 1982) in the northeastern corner of the study area. Gåshamnøyra plain, a large extramarginal sandur located west of the massif, was formed by streams from both Gåsbreen glacier and the valley south of the glacier's front edge. These streams flow across the glacier's marginal zone built mainly of dead ice undergoing rapid melting.

Non-glacial rivers and lakes play an important part in the western Sørkapp Land water system. This is not true elsewhere in Spitsbergen. The rivers and lakes in western Sørkapp Land are supplied directly by atmospheric precipitation – including snow patches, which thaw before the following winter – and an active layer of permafrost. This is especially true of the northern part of the study area due to a complete lack of glaciers there. The largest body of fresh and clean water is Svartvatnet lake (Fig. 6), which is found in a deep glacial erosion trough. The lake's water table is found at an altitude of 72 m above sea level. The lake contains a population of *Salvelinus alpinus* L. salmonoid fish (Gullestad, Klemetsen 1997). Two streams flow into the lake: (1) a main stream, which flows from the snow patch located in the pass (at almost 200 m) between the Lidfjellet and Kovalevskifjellet massifs, and (2) a lateral stream flowing from Kovalevskidalen valley. The entire Lisbetdalen valley is drained by the Listbetelva, which is the only permanent river in the northern part of the study area, flowing across Kulmstranda plain. The next river, the Lidelva, flows from Liddalen valley and along the southern edge of Hornsundneset plain to the sea. The two rivers are up to 0.5 m deep. Several small streams located between the two rivers flow from the slopes of the Struvefjella across the coastal plains to the sea. Their gradient is relatively large (ca. 100 m per 1.5–3.0 km on the plains). Both aforementioned plains are mostly dry, as they consist of rocky terraces with thin and fragmented marine gravel cover. Numerous shallow lakes (up to 1 m deep), permanent near the coast and seasonal closer to the mountains, have been created due to the damming of water by new and old raised coastal ridges, often found on the sandstone layers, which dip towards the interior of the land (Fig. 4). The exceptions are two small lakes in glacial troughs: Savitsjvatnet lake on the highest part of Kulmstranda plain and an unnamed lake with fish in the pass between the Sergeijevfjellet and Lidfjellet massifs.

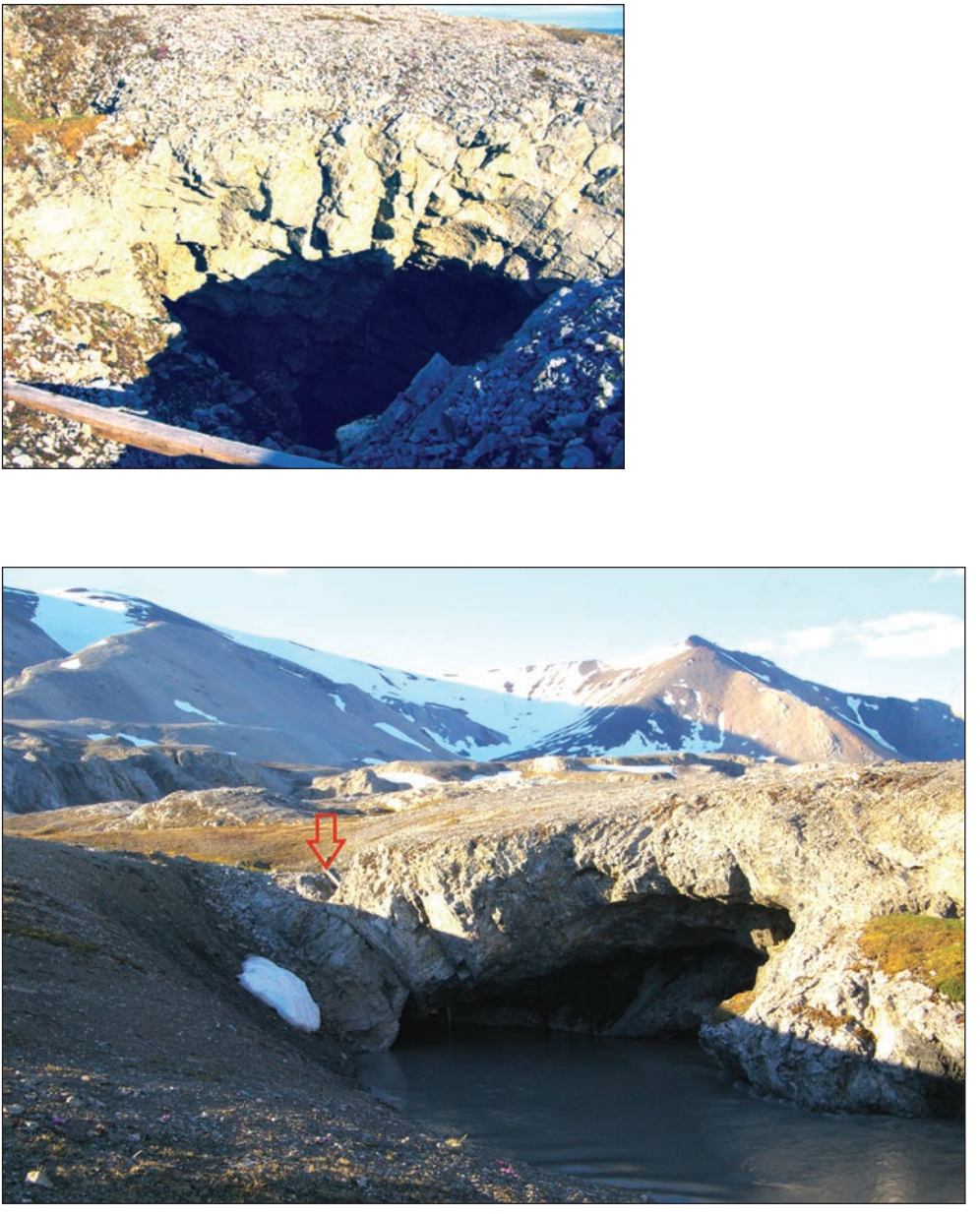

Fig. 7. Outlet of a large underground karst channel on the Olsokflya plain coast with the Trollosen karst spring and one of the karst holes (1 m in diameter, enlarged in the upper photo and marked with a red arrow in the lower photo), which developed above the channel after 1986 as a result of intensifying karst processes. Photo: J. Dudek, 2008

The Slaklielva river flows through Slaklidalen valley located along the eastern boundary of the study area. The river splits up into two streams at the valley outlet and flows to the sea along the northern edge of Breinesflya plain, ca. 1 km south of Lidelva. Wiederfjellet mountain slopes are drained by other streams, which flow across the plain. Only Slaklielva stream and a stream flowing from Wiederdalen are supplied partly by small glaciers. All the streams are supplied by the active layer of permafrost because the plain is covered by thick fine-grained deposits. Numerous swamps and the slow outflow of water are caused by the small gradient of the plain (50 m per 3–4 km) and large areas of moss tundra (Fig. 5). The rivers are up to 1 m deep. There are several small lakes located more than 1.5 km from the sea in the southern part of the plain.

The wide braided channel of the Vinda glacial river cuts off the Breinesflya plain from the southeast. The Vinda river flows out of Bungebreen glacier's marginal zone. The largest river in western Sørkapp Land, the Bungeelva, flows out of Bungebreen glacier to the south and across its marginal zone and drains the Tørrflya coastal plain from the east.

There are several surprisingly small superficial streams, first of all pro-glacial streams, across the plain's narrow neck between Vitkovskibreen glacier's front moraine and the sea (0.5–1.0 km) behind the Bungeelva river. There are virtually no streams on the karst lowlands of Bjørnbeinflya and Olsokflya.

Water from Vitkovskibreen glacier and Hilmarfjellet massif flows via underground karst channels across the plain to the sea (Pulina 1977). There is a very large karst spring (several m^3/s), Trollosen, in the outlet of the biggest channel on the sea coast (Fig. 7).

There are two concentrations of thermo-mineral springs, up to 16.5°C, with H_2S and CO_2 (Werenskiöld 1920; Liestøl 1976; Pulina 1977; Krawczyk, Pulina 1991): in Bjørnbeinflya, where they supply a few small and very shallow lakes, and in Olsokflya. The small Luktvatnet lake (which means smelly), near the Olsokbreen's lateral moraine, may be supplied in a similar manner.

There are few melt-water (thaw) lakes and, closer to the glacier, pro-glacial streams in the Olsokbreen glacier's extensive marginal zone, in the southeastern corner of the study area.

Water circulation in the study area is described by Pociask-Karteczka (1990).