



MONITORING REPORT

**KROSSÁRJÖKULL OUTLET GLACIER  
AND  
LANDEYJARSANDUR BEACH**

Report for measurements done on  
18<sup>th</sup> of September, 2025 by

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## **Krossárjökull outlet glacier**

Krossárjökull outlet glacier originates from the western side of Mýrdalsjökull Ice Cap, which is mainly confined on top of and within the caldera of Katla volcano. Ice from the western part of the caldera of Katla supplies Krossárjökull, along with Tungnakvíslarjökull and Merkurjökull. The outlet glacier cascades down a steep slope from the caldera rim of Katla and is heavily fractured due to this. Krossárjökull outlet glacier is one of the smallest outlet glaciers from Mýrdalsjökull and has retreated extensively during the last 2-3 decades. The outlet glacier is now confined in a narrow valley in a single lobe but used to be split into two east of Teitstungna, as it reached the mountain of Stóristandur. It has now retreated past this split and has left behind a large dead ice field in front of the glacial outlet. The glacial river Krossá flows from the glacier and has reworked some of the material that the glacier has left behind.

### **Objectives of Monitoring Krossárjökull outlet glacier**

The objective of the monitoring program of Krossárjökull outlet glacier is to document the retreat rate of the glacier by doing biannual measurements of the glacial snout. The measurements are carried out by using two GTS-6 TopCon GPS devices with accuracy of  $\pm 5$  mm. One is used as a base station and the other for measurements.

Along with measuring, photos and drone photos are taken of the glacier itself and the environment in front of it. Those photos will then be used to monitor the environmental changes in front of a retreating glacier. The aerial photographs taken with a drone are used to map out parts of the glacier that were inaccessible during measurements.

Another objective is to map out the dead ice field in front of the glacial snout. The reason for the measurements is to increase the understanding of the evolution of a dead ice field in front of a rapidly retreating outlet glacier and to map out the large-scale environmental impact of the long-term melting of the dead ice in the field.

### **Field work on the 18<sup>th</sup> of September 2025**

On the 18<sup>th</sup> of September 2025, a field measurement was carried out on Krossárjökull outlet glacier and at Landeyjarsandur beach, west of Landeyjarhöfn harbour.

The measurements at Krossárjökull involved measurements of the dead ice field in front of the glacial snout and an exposed piece of glacial ice near the river and an active ice cave. The measurements at Landeyjarsandur beach consisted of one profile next to the shipwreck, which was being measured for the first time. The results of the field work can be seen on the figures below.

On figure 1 and 2, the measurements and the drawn lines of ice and dead ice from the drone aerial photographs can be seen. The dead ice field in front of the glacier is extensive, and it was difficult to locate the boundary between dead ice and active glacier ice. The water level in the river was high, and crossing was therefore difficult. Due to that, it was therefore decided to mainly map the dead ice field. The dead ice field was easily accessible but due to limited time and risk rock falls, a relatively short parts of the dead ice was mapped using the gps and then larger parts drawn from aerial photographs.

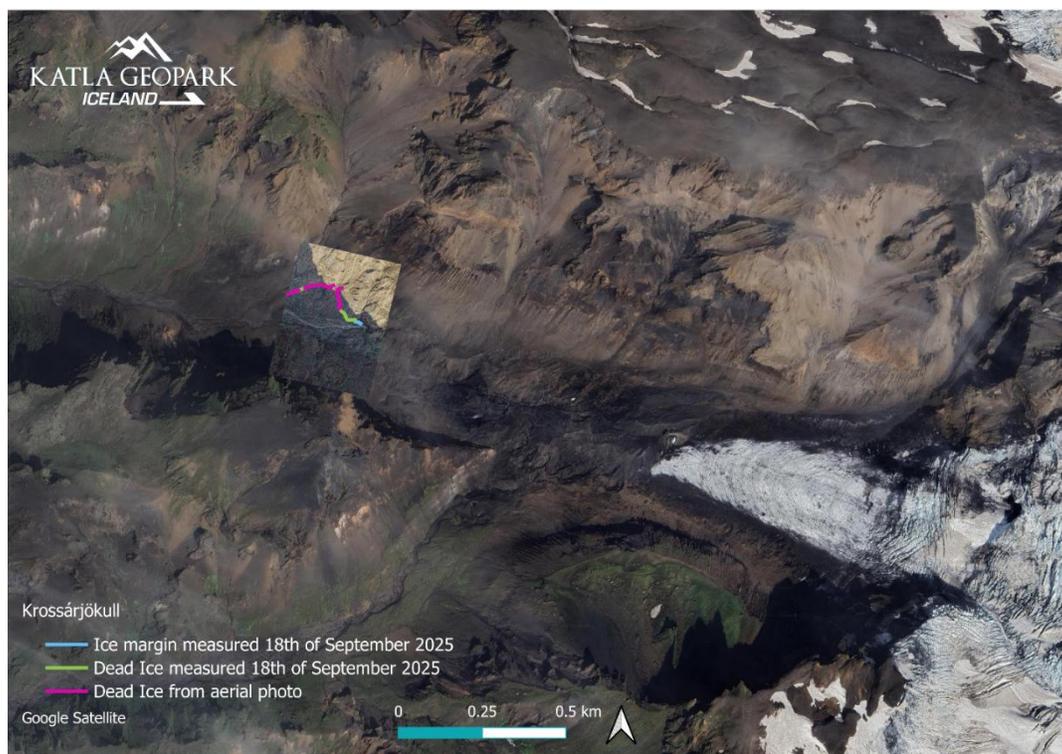


Figure 1 shows the measured lines for the ice margin and the dead ice, along with the line for the dead ice drawn from drone photographs.



Figure 2 shows the measured lines for the ice margin and the dead ice, along with the line for the dead ice drawn from drone photographs.

The measurements at Landeyjafjara beach involved the measurement of a new beach profile there, profile 2. This profile is about 1,2 km west of the Landeyjarhöfn harbor (figure 3), close to a shipwreck and faces the nearby Vestmannaeyjar islands.

With the first measurement of profile 2, it will serve as a baseline for future measurements of the profile and is the first results of the measurements of morphological changes of the coastline at Landeyjarfjara. The location of the profile can be seen on figures 3 and 4, and the results of the measurement on figure 6. Due to this being the first measurement of this profile, the changes in beach width and volume cannot be calculated until the next measurement of the profile.

The measurement of the profile took place during a relatively high ocean level, meaning that the measurements only extended down to the upper part of the beach face. The profile is somewhat unusual in that it has a very uneven berm, which is caused by the presence of the remains of the ship Sigurður Gísli VE 127, which was damaged in fire in 1974. A blowout hole has formed around the shipwreck, which has caused the dip in the berm as seen on figure 5. The upper part of the beach face is also very steep, but as this is the first measurement, no conclusion can be drawn from that.

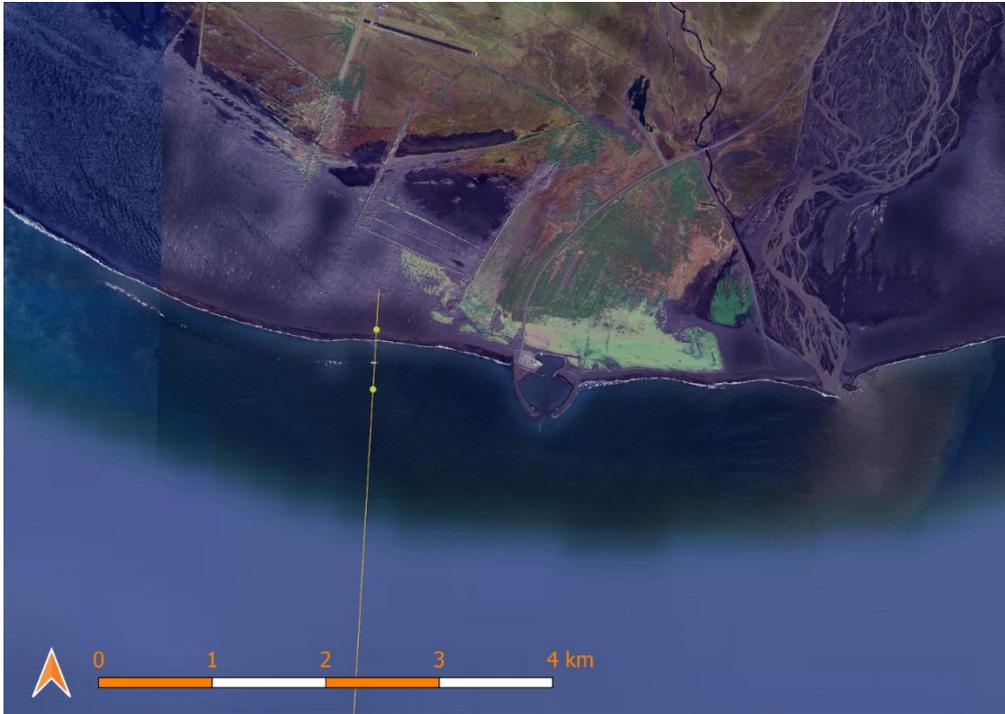


Figure 3 shows the location of the measured profile, profile 2. The profile is just west of the Landeyjarhöfn harbor and Markarfljót river.

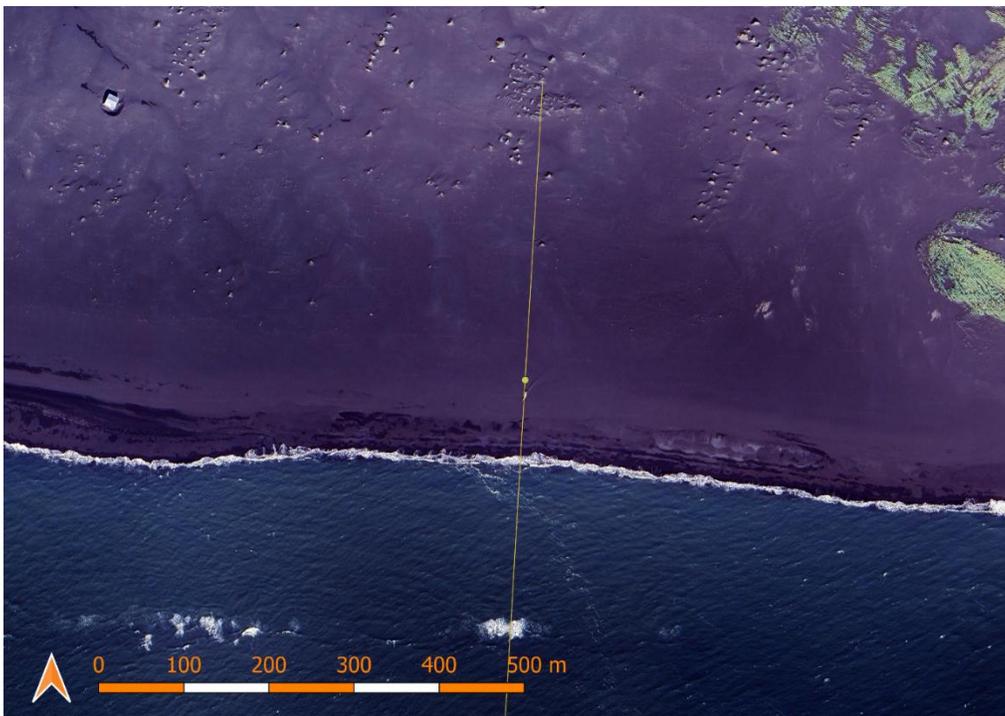


Figure 4 shows the location of the measured profile, profile 2. The wreck of the ship Sigurður Gísli VE 127 can be seen as a white dot just south of the yellow marker for the profile line.

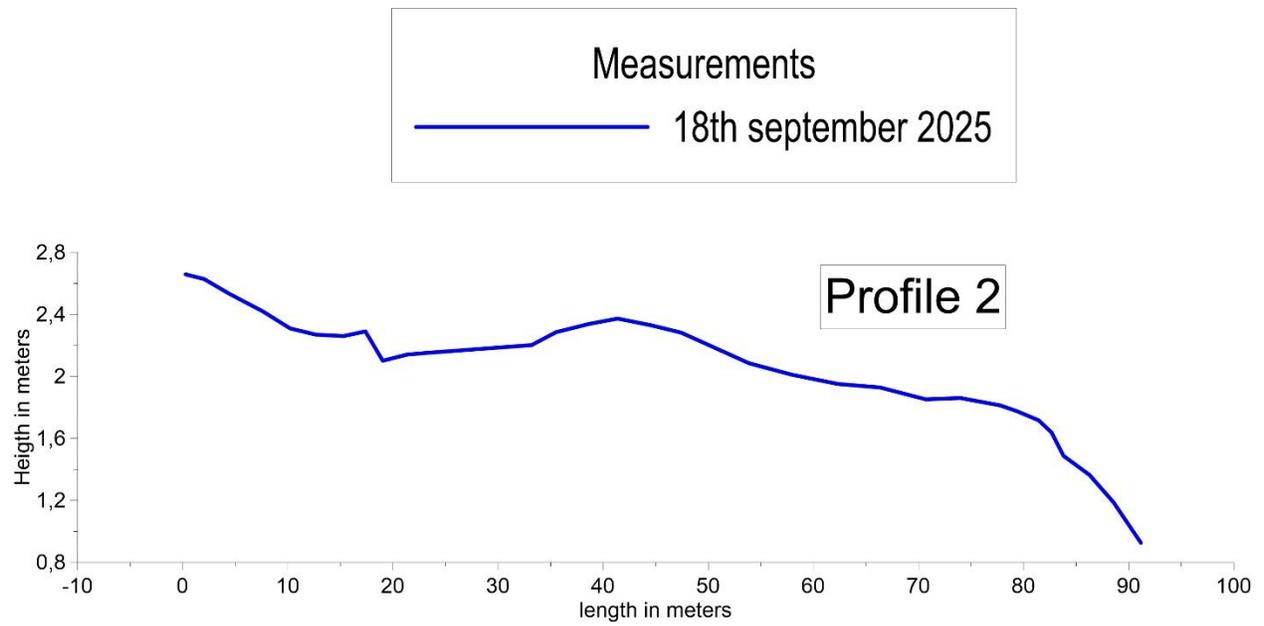


Figure 5 shows the measured profile at profile 2. As it was the first time the profile was measured, there is no reference to previous measurements.