



Dettifoss waterfall, Iceland

A vertical wall of falling water is a dramatic reminder of the forces of erosion, and few come better than Dettifoss. The river of Jokulsa a Fjollum is the largest meltwater outlet from the northern side of Vatnajokull, Iceland's largest ice cap. It drains north across the barren interior plateau of basalt and sand, and then drops into the Jokulsargljufur canyon, which has been formed by some ten kilometres of headward retreat from the coastal cliffs. Dettifoss is the knick-point waterfall, 44 metres high and 100 metres wide. With a mean flow of 220 cubic metres per second (and a peak flow of over 1000), it is the most powerful waterfall in Europe; only the Rheinfall has a larger flow, but that is a stepped cascade just 20 metres high. Cut into horizontal, Pleistocene, basalt lavas, Dettifoss lies on a fault that crosses the river channel obliquely. It is therefore better seen from the western side, as in this image; visitors can walk down to a rock ledge where the cascade is crashing into the canyon directly in front of them. The water is grey with its sediment load; this is partly rock flour derived from the ice cap, and partly the pyroclastic dust of Iceland's interior that is blown by the winds until it is trapped in a river or lake. The footpath to the waterfall, from the 'car park' on the nearby dirt road, crosses a dry rocky channel that remains from the far greater meltwater river that flowed in the late Pleistocene. Dettifoss is the highlight of a dramatic experience, where the sheer power of a great river tells what erosion is all about. It captures just a glimpse of the scale of denudation that has fashioned landscapes over the millennia; it makes geology come alive.

© *Photograph and text by Tony Waltham Geophotos*