Strokkur, Iceland

Even if Iceland is only seen in day-trips off a cruise ship, the one essential is the Golden Circle, from Reykjavik out to Thingvellir, Gulfoss and Geysir. And the highlight is at Geysir, for performances of Strokkur.

Geysir itself, the classic geothermal waterspout after which all others in the world are named (though distorted to *geyser*), was the original great tourist attraction in this part of the Icelandic wilderness, throwing water over 30 m into the air. But the intervals between its eruptions steadily increased through the 1800s, until it was barely once a month. Subsequently, eruptions were induced by dropping soap into the vent, but this very un-green practice has now been stopped. Since Geysir's hydrology was modified during an earthquake in 2000, it has again become active on a daily basis, but normally only as modest overflow cycles, though fountains a few metres high do occur occasionally.

Compensation is provided in grand style, by Strokkur, which lies only 100 m from Geysir. This reliably erupts every 5-10 minutes, hurling a burst of water 10-20 m high. It is a magnificent sight, a classic geyser eruption and a tourist winner. While anyone's great geyser tour may justifiably focus on America's Yellowstone, Strokkur probably ranks as the world's finest single geyser because of the unique way in which each eruption starts - with "the dome".

Every geyser eruption relies on the "flashing" of steam, whereby water turns instantly to steam when its confining pressure decreases past a critical limit. This pressure decline is created by the steady geothermal heating of the groundwater in the conduits that feed up to the geyser; some high pressure steam is created, but the heated and expanded water also declines in density. Both these changes force water up and out of the geyser conduits, until the reduced pressure in the system allows more water to flash into steam - and so starts the rapid chain reaction that appears as an eruption. Vent overflow of water is the classic sign of an impending geyser eruption, and is normally followed by little squirts and fountains that rapidly build up into the full-height water spout.

But some freak of its hydrology allows Strokkur to be different. The arrival of its flashing steam is not in dribs and drabs, but is in one great mass - which can be seen rising through the vent pool, and then lifting its surface into a perfect green dome, before this bursts at the top to create the big fountain. The rise of the dome of water lasts for only a second or two, before it is breached, but there is no other sight like it.

From month to month, the interval eruption can vary by a few minutes; so can the eruption height and the amount of steam that may partly hide the view; but Strokkur is always both mesmerising and beautiful.

Tony Waltham

A sequence of images showing the initial stages of a Strokkur eruption, where the mass of steam bubbles rise through the vent pool and lift the water into a smooth dome, before bursting upwards to drive more water to the full eruption height (which goes way off the top of the photograph).