A geological challenge

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In the Valais area of Switzerland is the Aletsch Glacier, the longest in the Alps. Over many years, constantly and increasingly, this glacier is melting away. As it disappears, the pressure that it used to apply to the mountains on either side diminishes, and the mountains are slowly cracking, crumbling, and moving inwards towards the valley where the glacier has been for many thousands of years. This has created a challenge for the Swiss engineers. After taking many measurements over a long period, including using satellite images, they can predict the rate of movement. There are many sensors in place and other measures to ensure that the operation of the cable car that serves the area, will always be safe.

On a recent trip I stayed at Riederalp, and took the cable car up to Moosfluh, to see the Glacier. The operation runs in two sections. As the cabins run through the middle station, you can see that this is also in two sections, with the upper part having the ability to move sideways by a half metre. The succeeding pylons can also be moved – by 1.5m, 4.5m, and 6.5m respectively. The remaining pylon, and the whole top station can be moved up to 11m horizontally and 9m vertically! This is because they are in a more volatile zone that is moving steadily towards the glacier valley. These two are fitted with GPS devices to constantly record the movement. By being able to "skew" the cable car infrastructure to the North West in small stages, the plan is that it will continue to be useable for the next 25 years.

The pylons are mounted on concrete plinths that have rails in them, enabling the pylons to be slid sideways. I couldn't believe that the substantial top station (all 81-tonnes of it) could be moved, so I had to clamber around to see underneath – yes, it is on skids which make this possible! Standing on the look-out point to photograph the magnificent glacier, I could see that areas are taped off, as unsafe. Incredibly, there are fissures, about 4 to 6 inches wide, zig-zagging across the mountainside, evidence of the movement that is taking place. This is a consequence of global warming that I had never imagined. It is a tribute to the talented engineers of Doppelmayr and Garaventa that this ingenious solution has been found.

HEADER PHOTGRAPH: The top station for the Aletsch Glacier cable car.

FAR LEFT: One of the pylons.

LEFT: The substantial base of one of the pylons showing the rails for future movement.

All photos, (except diagram): Ron Smith taken 24th June 2017