

Viewing the May 31 annular eclipse in Iceland

From Dr T. Saemundsson

The 2002 February issue of the *Journal* contained a paper by Peter Macdonald describing the annular solar eclipse of 2003 May 31. One sentence caught my attention because it seemed somewhat misleading. The sentence is as follows (p. 30, bottom): 'The eclipse is annular at two capitals – Thorshavn and Reykjavik – the latter enjoying virtually the maximum duration.'

As it happens, Reykjavik will not experience the annular phase at all. Even if the sky is clear, the Sun will be hidden behind the mountain Esja to the northeast of town.



According to Macdonald, the altitude of the Sun in Reykjavik at mid-eclipse will be 1° , but this is

a round figure which neglects refraction. Allowing for refraction, the actual figure is close to 1.7° . Even so, the eclipse will not be visible from any point within the town limits. The only place in the near vicinity where the annular phase can be seen (weather permitting) is the extreme part of the Seltjarnarnes peninsula, to the west of Reykjavik proper. To establish this with certainty, I found it necessary to take a theodolite to various points and measure the relevant angles.

As shown in Macdonald's paper and other publications, the central line of the eclipse crosses western Iceland. Judging from inquiries that I have received, many people take this to mean that western Iceland would be the best place to observe the phenomenon. This assumption is erroneous. Other things being equal, an observer would be much better off in north-east Iceland because the Sun will be higher in the sky, up to 5° in altitude. Furthermore, from that part of the country the whole eclipse should be visible, including the beginning of the partial phase which cannot be seen in the south and west (except the far northwest). The duration of the annular phase is about the same over the whole country, from a minimum of 3 min. 34 sec. in the east to a maximum of 3 min. 37 sec. in the northwest.

From an aesthetic point of view it could be argued that the eclipse should look best at the central line where the centres of the Sun and Moon appear to coincide. However, even in the extreme northeast of Iceland, the centre of the Moon will appear no more than $12''$ from the centre of the Sun. This is only 1% of the Sun's radius. If the Moon were central, the uncovered part of the radius would be 6%, so an offset of 1% will hardly be offending to the eye.

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The reality of 'light pollution'

From the Director of the Aurora Section

Recent discussions in the *Journal* on the effects of light pollution on the night sky remind me of a demonstration of its effects that brought home the problem to me with great clarity.

My colleagues and I were staying in the town of Lokoja at the confluence of the rivers Niger and Benue in Nigeria, for the purpose of carrying out water supply surveys in nearby villages. There was considerable light pollution from the town and from the perimeter lights around the yard of the hotel situated on higher ground. The sky and such stars as could be seen resembled the view from any urban situation in the UK.

The sudden onset of a district power cut plunged everything into total blackness, there being no Moon. As if by magic the cloudless sky was covered with a blaze of stars. So clear and so many were they that it was impossible at first to identify the known constellations familiar to British observers. I lay down flat on my back in the yard and just gazed at the show, giving my colleagues a commentary on what was to be seen.

In the course of about an hour the electricity supply was restored and the pollution of light returned us to normal urban conditions. The contrast between town conditions and the unadulterated clear tropical sky was the best example of the effects of light pollution that I have met with so far.

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