ANNULAR SOLAR ECLIPSE ON A SATELLITE PICTURE

By J. P. DE JONGH and G. P. KÖNNEN
Royal Netherlands Meteorological Institute, De Bilt, Netherlands

ON 29 April 1976 an annular solar eclipse took place. At 0730 hrs, about an hour before the shadow of moon passed over the Earth, a picture was received at the Royal Netherlands Meteorological Institute from NOAA-4, one of the weather satellites. After reception the picture was converted electronically to a stereographic projection and is shown in Fig. 1. In the picture the sunglint can be seen in the eastern part of the Mediterranean near to Cyprus.

During the next orbit of the satellite, some two hours later, at 0937 hrs, the centre of the shadow of the moon was over the Sahara. Over this area the eclipse was annular and the illumination from the sun at that part of the

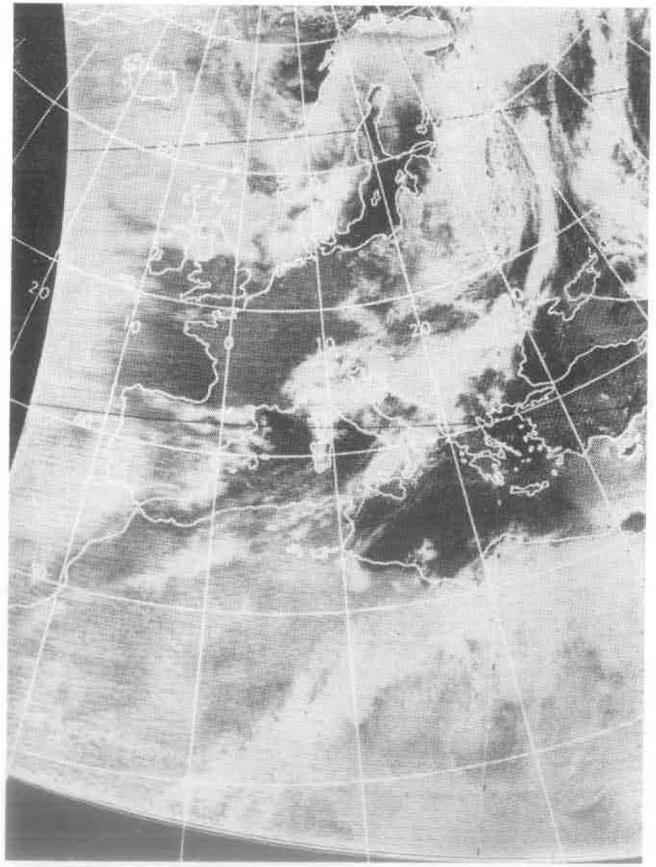

Fig. 1. Satellite picture of the Earth taken by NOAA-4 on 29 April 1976 at 0730 hrs, one hour before the solar eclipse began

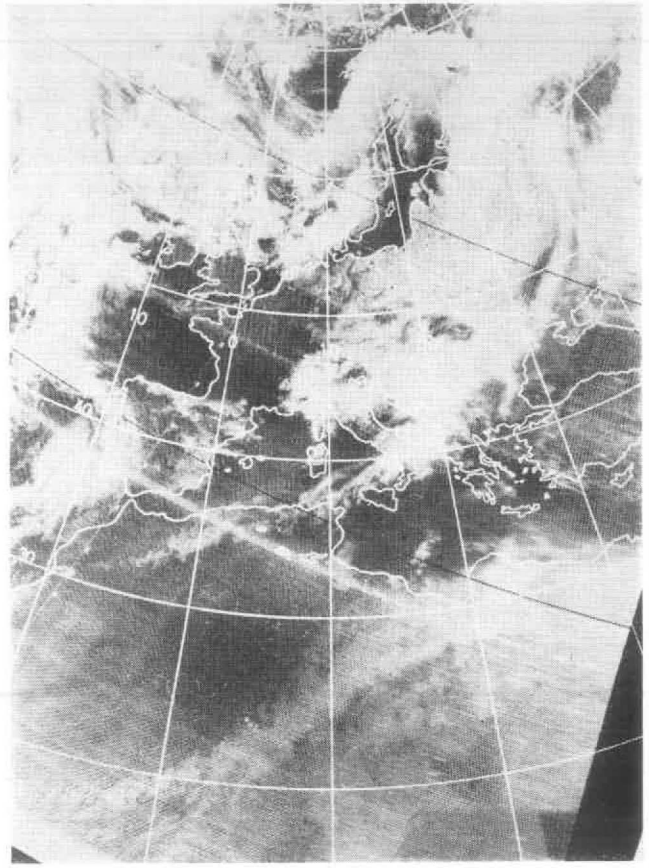

Fig. 2. Satellite picture of the same area as Fig. 1, one orbit later. The black spot in the Sahara is the darkest part of the moon's shadow

Earth's surface had decreased by more than a factor of ten. In the photograph taken on this orbit, Fig. 2, the darkest part of the moon's shadow over the Sahara can be seen as a dark spot. During the next orbit of the satellite the moon's shadow was over the Caspian Sea and since the track of the satellite was further west, it was not observed on the satellite photographs.

The effects of this eclipse differ from those of a total eclipse where the light intensity drops by two further additional orders of magnitude (Sharp *et al.*, 1971) producing a distinct black spot.

REFERENCE

SHARP, W. E., SILVERMAN, S. M., and LLOYD, J. W. F. 1971 Summary of sky brightness measurements during eclipses of the sun. *Appl. Opt.*, **10**, pp. 1207–1210