Annular Solar Eclipse, Western Australia, Feb 16th 1999

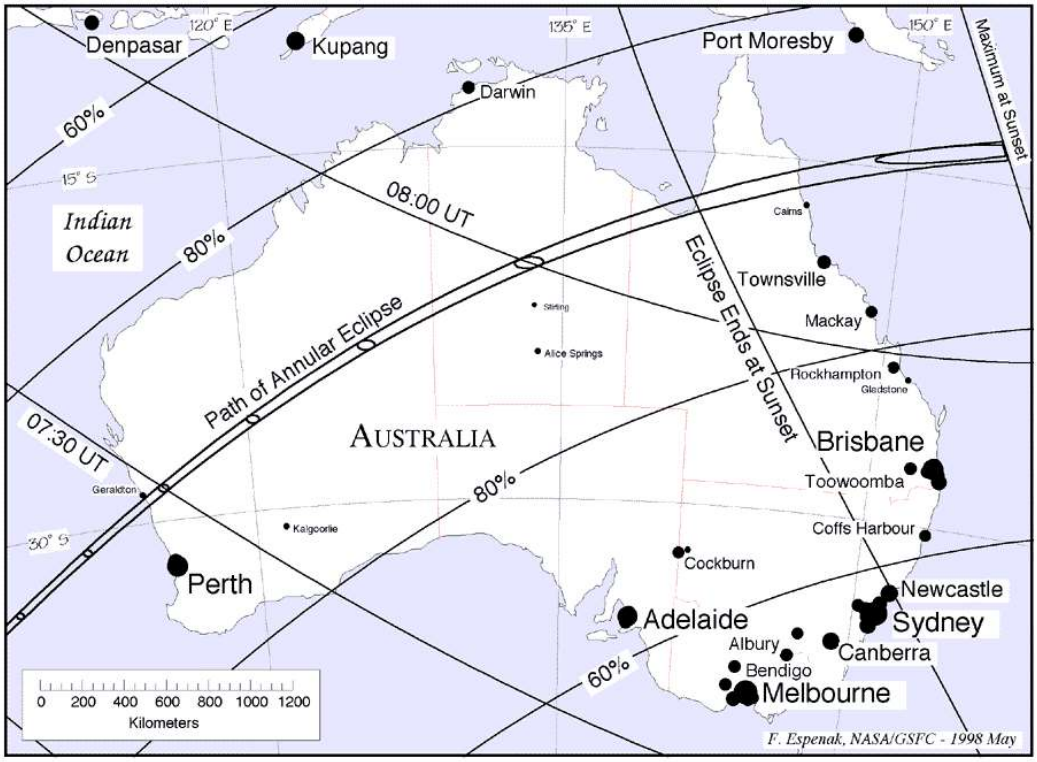
by Derek Hatch

This is a brief report on the annular eclipse that occurred on Feb 16th 1999, as observed from Australia.

Since 1980 I have attended and successfully observed 4 total solar eclipses and my preference at eclipses are the prominences, chromosphere and Baily's Beads. Normally I would not consider going to an annular eclipse as there is nothing too spectacular to see, or so I thought!

Last year I happened upon a book titled "The Cambridge Eclipse Photography Guide" by Jay Pasachoff & Michael Covington. In it are a couple of photos taken at an annular eclipse in 1984 which clearly show prominences, chromosphere and Baily's Beads. The magnitude of the eclipse was 0.9979. Annulars over 99% don't happen too frequently but fortunately this year's eclipse was a maximum of 0.9928 and was still 0.9903 as it crossed the coast of Western Australia so it seemed an ideal opportunity. The next 99% annular is on 10 Jun 2002 but unfortunately is over the Northern Pacific Ocean with no land coverage. After that the next candidates are on 08 Apr 2005 (South Pacific & Central America) and then 26 Feb 2017 (Argentina, South Atlantic & Angola).

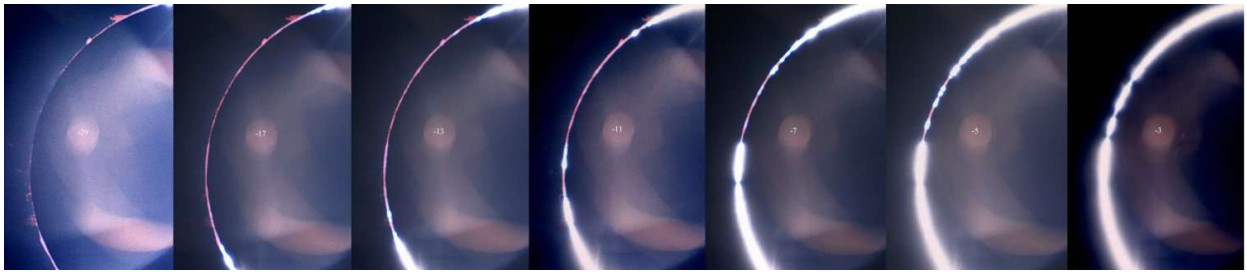
FIGURE 3: THE ANNULAR SOLAR ECLIPSE OF 1999 FEBRUARY 16 THROUGH AUSTRALIA



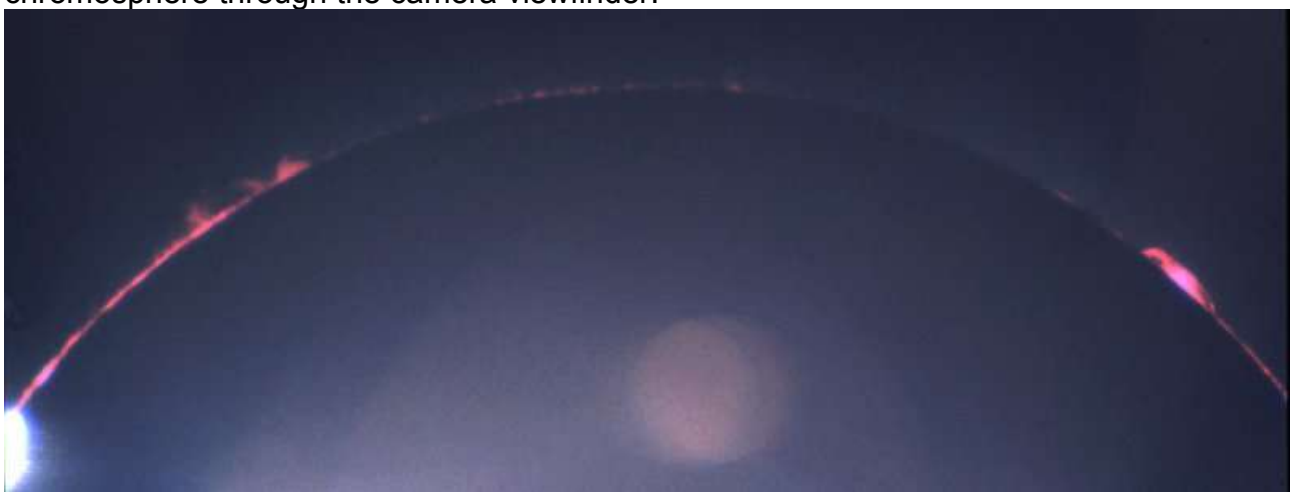
The path of annularity crossed the Western Australian coast approx. 240 miles North of Perth between the towns of Geraldton and Dongara (see illustration on previous page). I flew out to Perth the weekend before the eclipse and drove up to the site in a hire car on the morning of the eclipse, which was due to start at 2pm local time. Where the eclipse centreline crossed the coast was not easily accessible by car and further inland was just open fields either side of the main road out of Perth. Therefore I chose a spot about 6km North of the centreline where a track led down to the ocean at a place called "Flat Rocks".

The equipment I used comprised a Canon EX-1 camcorder fitted with a 600mm mirror lens and Mylar filter and a TeleVue Pronto 70mm refractor plus x3 Barlow lens and x3 converter to give a solar image 43mm in diameter. These were fitted to a small German equatorial mount driven by a synchronous motor running off the car battery.

The eclipse started just after 2pm and by 3.10pm (18 mins before 2nd contact) the light had dropped quite dramatically. It continued to fall but never got as dark as at a total eclipse. After 3rd contact I took the time to observe the horizon and the shadow cast by the Moon was very visible but appeared to lighten slightly in the centre more like a cylinder of shadow than a solid cone. The annular phase was due to last 48 seconds but as I was not on the centreline it was shorter. From the video I have estimated that it only lasted about 25 seconds.



My aim was to track the progress of the eclipse with the video camera and to photograph any prominences etc. through the Pronto without any filters. I took two cameras, one for second contact and the other for third contact. As it turned out I got lots of pictures of the 30 seconds leading up to second contact and actually saw the prominences and chromosphere through the camera viewfinder.



Problems changing cameras over (and the shortened annularity) resulted in me missing third contact but I still recorded some large prominences. The photographs are spoiled somewhat by stray light producing internal reflections, probably within the x3 converter, which reduce the contrast of the images.