



ASSA *NEO-Watch*

Bulletin No.1



Asteroid 2004 BL86 fly-by visible from Southern Africa Observing Guide

Summary

Southern African observers will have a ring-side seat to watch the passing of a small chunk of solar system real estate on the evening of January 26. The rock in question is the Apollo-type asteroid 357439 (2004 BL86), first discovered on 2004 January 30 by the LINEAR team at Socorro, New Mexico. Its flyby at a distance of only 0.008 AU (1.2 mio km) is the closest of any of the known asteroids until 2027 when 1999 AN10 will approach to within only 1 lunar diameter of earth.

Highlights

- Closest approach to earth at 16h19 UT on January 26 (ie during daylight hours)
- Distance at time of closest approach 0.0080 AU (3.1 lunar distances).
- Brightest magnitude attained, $V = 9.0$ (event visible in small telescopes) at opposition early morning of January 27.
- Angular velocity at closest approach = $2.7^\circ/\text{hr}$.
- Asteroid passes through open cluster Messier 48, centred around 18h15 UT and less than 10' of the centre of the cluster.

Observations required

- CCD imaging over as wide a period as possible
- Astrometry of images to give timing accurate to 0.00001 day, Right Ascension to 0s.01, and Declination to 0".1.
- The asteroid is close enough that its parallax can be used to determine its distance accurately based on accurate astrometric measurements.
- Brightness measurements from the images to determine any brightness variations, light-curve period and amplitude, geometry and rotation rate.
- Spectroscopy to determine the spectral type and infer composition.

Visibility for Southern Africa

Minor planet 2004 BL86 is a potentially hazardous asteroid (PHA) for which currently little is known. From its absolute magnitude of 18.9 a diameter of about 0.5 km is inferred. Currently the actual size, shape, rotation rate, pole orientation and composition are all unknown. The asteroid is bright enough and well placed for observation from Southern Africa and represents a wonderful opportunity for Southern African amateurs to contribute to a greater understanding of this PHA.

The following table gives the positions of the asteroid during the evening hours of January 26: red columns are details for Johannesburg and blue columns are details for Cape Town. Note all times are UT.

Time UT	mv	Johannesburg			Cape Town		
		RA	Dec	Alt	RA	Dec	Alt
1800	9.7	08 13 59.8	-06 10 14	30	08 13 59.9	-06 07 49	21
1900	9.6	08 16 42.7	-03 36 01	41	08 16 45.6	-03 33 44	31
2000	9.5	08 19 19.8	-01 03 16	51	08 19 25.4	-01 01 07	40
2100	9.5	08 21 52.1	+01 27 15	58	08 22 00.0	+01 29 17	47
2200	9.4	08 24 20.5	+03 54 52	60	08 24 30.2	+03 56 49	51
2300	9.3	08 26 46.2	+06 18 56	56	08 26 56.9	+06 20 52	50
0000	9.3	08 29 10.0	+08 38 55	47	08 29 21.2	+08 40 52	45

You can also generate your own ephemeris or plot the path of 2004 BL86 using the following orbital elements:

T	2014 Dec 20.14655
q	0.896784
e	0.403074
i	23.74363
node	126.72037
peri	311.25498

If you are interested in participating in this initiative and contributing to the ASSA NEO-Watch or for further information or guidance, please contact us.

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