

Astrometric observations of the Potentially Hazardous Asteroid (52768) 1998 OR2 near its maximum approach to Earth

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Our team presents astrometric measurements of the PHA (52768) 1998 OR2 obtained close to its maximum approach to Earth.

The observations were made from Observatorio Planetario Moche, located in Trujillo, Peru (Long. 79 00 39.2 W, Lat. 08 06 47.9 S, Alt. 48 m), on April 23, 24, 25 and 29, 2020. It is important to note that April 29's measurements were obtained approximately 5 hours before the asteroid's closest approach to Earth.

A Celestron NexStar 11 GPS telescope and a ZWO ASI 071MC camera (without filter) were used. In addition, Dimension 4 software was employed to synchronize our time with special purpose Internet Time Servers.

A total of 240 images were obtained, of which 19 were selected for presenting better ellipticity and FWHM values.

The astrometric measurements were made with the **Astrometrica** software, using between 13 and 31 field stars identified by means of the Gaia DR1 catalog. Table 1 shows the best results obtained.

Here is a gif animation of the (52768) 1998 OR2 passage, on April 29, 2020.

<https://drive.google.com/file/d/1T7zlw5ffUQw0qNOOj2KBpMGeY7pPbBHv/view>

Table 1

Object	Date (UTC, Mid-exposure)	RA(J2000)	DEC(J2000)
(52768) 1998 OR2	C2020 04 29.20376	10 40 27.554	-21 20 48.76
(52768) 1998 OR2	C2020 04 29.20076	10 40 24.692	-21 19 49.88
(52768) 1998 OR2	C2020 04 29.12068	10 39 09.479	-20 53 18.80
(52768) 1998 OR2	C2020 04 29.11284	10 39 02.224	-20 50 41.74
(52768) 1998 OR2	C2020 04 29.10812	10 38 57.915	-20 49 07.54
(52768) 1998 OR2	C2020 04 25.11184	09 43 08.801	+00 08 52.78
(52768) 1998 OR2	C2020 04 25.11068	09 43 08.052	+00 09 12.22
(52768) 1998 OR2	C2020 04 25.08606	09 42 53.031	+00 15 55.77
(52768) 1998 OR2	C2020 04 25.08493	09 42 52.389	+00 16 14.24
(52768) 1998 OR2	C2020 04 25.08443	09 42 52.058	+00 16 22.64
(52768) 1998 OR2	C2020 04 25.08431	09 42 51.967	+00 16 24.89
(52768) 1998 OR2	C2020 04 24.17167	09 32 54.565	+04 14 15.51
(52768) 1998 OR2	C2020 04 24.17123	09 32 54.302	+04 14 22.25
(52768) 1998 OR2	C2020 04 24.17103	09 32 54.208	+04 14 25.10
(52768) 1998 OR2	C2020 04 24.16678	09 32 51.765	+04 15 28.41
(52768) 1998 OR2	C2020 04 24.16660	09 32 51.651	+04 15 31.54
(52768) 1998 OR2	C2020 04 24.16652	09 32 51.627	+04 15 32.61
(52768) 1998 OR2	C2020 04 24.16639	09 32 51.541	+04 15 34.59
(52768) 1998 OR2	C2020 04 23.10457	09 22 32.152	+08 24 03.92