

The Minor Planet Electronic Circulars contain information on unusual minor planets and routine data on comets. They are published on behalf of Division F of the International Astronomical Union by the Minor Planet Center, Smithsonian Astrophysical Observatory, Cambridge, MA 02138, U.S.A.

Prepared using the Tamkin Foundation Computer Network

MPC@CFA.HARVARD.EDU

URL <https://www.minorplanetcenter.net/> ISSN 1523-6714

2020 SM1

Observer details:

- 104 San Marcello Pistoiese. Observers P. Bacci, M. Maestripieri. Measurers P. Bacci, L. Tesi, G. Fagioli. 0.60-m reflector + CCD.
- 160 Castelmartini. Observers M. Jaeger, E. Prosperi, S. Prosperi. Measurer E. Prosperi. 0.36-m f/10.2 Schmidt-Cassegrain + CCD.
- 595 Farra d'Isonzo. Observers E. Pettarin, S. Aschi. Measurer E. Pettarin. 0.40-m f/5.15 reflector + CCD.
- 970 Chelmsford. Observer N. James. 0.28-m f/10.0 Schmidt-Cassegrain + CCD.
- B49 Paus Observatory, Sabadell. Observer J. Camarasa. 0.30-m f/4 reflector + CCD.
- G96 Mt. Lemmon Survey. Observer K. W. Wierzchos. Measurers E. J. Christensen, G. A. Farneth, D. C. Fuls, A. R. Gibbs, A. D. Grauer, H. Groeller, R. A. Kowalski, S. M. Larson, G. J. Leonard, T. A. Pruyne, D. Rankin, R. L. Seaman, F. C. Shelly, K. W. Wierzchos. 1.5-m reflector + 10K CCD.
- I41 Palomar Mountain--ZTF. Observers B. T. Bolin, V. Bhalerao, C. M. Copperwheat, K. P. Deshmukh, C.-Y. Hsu, Z.-Y. Lin, J. Purdum, K. Sharma, C. Zhai, Z. T. F. Collaboration. Measurers B. T. Bolin, D. A. Duev, H.-W. Lin, F. J. Masci, Q.-Z. Ye. 1.2-m f/2.4 Schmidt.
- I52 Steward Observatory, Mt. Lemmon Station. Observer G. J. Leonard. Measurers E. J. Christensen, G. A. Farneth, D. C. Fuls, A. R. Gibbs, A. D. Grauer, H. Groeller, R. A. Kowalski, S. M. Larson, G. J. Leonard, T. A. Pruyne, D. Rankin, R. L. Seaman, F. C. Shelly, K. W. Wierzchos. 1.0-m reflector + CCD.
- K78 Iota Scorpii Observatory, La Spezia. Observer G. Scarfi. 0.40-m f/6 Ritchey-Chretien + CCD.
- K87 Dettelbach Vineyard Observatory. Observer B. Haeusler. 0.3-m f/5.7 Schmidt-Cassegrain + CCD.
- K88 GINOP-KHK, Piszkesteto. Observer K. Sarneczky. 0.60-m Schmidt + CCD.
- L01 Visnjan Observatory, Tican. Observers K. Korlevic, V. Dobos, D. Pujagic, I. Lyon. Measurer K. Korlevic. 1.0-m f/2.9 reflector + CCD.
- L04 ROASTERR-1 Observatory, Cluj-Napoca. Observer L. Hudin. 0.3-m f/5 reflector + CCD.
- L18 QOS Observatory, Zalistci. Observer Y. V. Tanasiychuk. Measurer A. M. Kozhukhov.
- Z99 Clixby Observatory, Cleethorpes. Observer A. Mickleburgh. 0.36-m f/8 Schmidt-Cassegrain + CCD.

Orbital elements:

2020 SM1

Epoch 2020 May 31.0 TT = JDT 2459000.5

Earth MOID = 0.0028 AU

M	322.01382	(2000.0)	P	Q
n	0.83807076	Peri. 284.30881	+0.09669348	+0.99526170
a	1.1141635	Node 351.22087	-0.88541989	+0.08132097
e	0.2345738	Incl. 3.84093	-0.45462291	+0.05330157
P	1.18	H 26.2	G 0.15	U 7

Residuals in seconds of arc

200919 I41	1.0+	0.7-	200919 K88	0.2-	0.8-	200919 L18	0.4-	0.7-
200919 I41	0.8+	0.4-	200919 595	0.2+	0.0	200919 970	0.2+	0.0
200919 G96	1.0-	0.1-	200919 595	0.1+	0.0	200919 L01	0.1+	0.1+

200919 G96	0.6-	0.1-	200919 595	0.1+	0.3+	200919 L01	0.1-	0.0
200919 I41	0.8+	0.4-	200919 L18	0.4-	0.3+	200919 L01	0.1-	0.0
200919 I41	1.0+	0.3-	200919 L18	1.0-	1.4+	200919 L01	0.0	0.0
200919 G96	0.4-	0.3-	200919 L18	0.7-	0.2+	200919 L01	0.1-	0.0
200919 G96	0.8-	0.1-	200919 104	0.1-	0.1-	200919 L04	0.1+	0.0
200919 I41	1.1-	2.2+	200919 Z99	0.3-	0.2-	200919 L01	0.4+	0.1+
200919 I41	0.7-	2.1+	200919 Z99	0.3-	0.2-	200919 L01	0.1-	0.1+
200919 I52	0.1-	0.1-	200919 104	0.0	0.0	200919 L01	0.1+	0.0
200919 I52	0.1-	0.0	200919 B49	0.7-	0.3+	200919 160	0.2-	0.0
200919 I52	0.1-	0.3-	200919 Z99	0.1-	0.1+	200919 L01	0.2+	0.1+
200919 I52	0.1-	0.3-	200919 L18	0.3+	1.7-	200919 K87	0.1+	0.0
200919 I52	0.6+	0.3-	200919 Z99	0.2-	0.2+	200919 160	0.1-	0.1+
200919 I52	0.3+	0.3-	200919 B49	0.3-	0.3-	200919 L04	0.3+	0.0
200919 I52	0.2+	0.1-	200919 Z99	0.1-	0.2+	200919 160	0.2+	0.0
200919 I52	0.4+	0.4-	200919 L18	0.3-	0.5-	200919 160	0.4+	0.1+
200919 595	0.1+	0.1+	200919 Z99	0.0	0.1-	200919 K87	0.0	0.1+
200919 K88	0.4-	0.3+	200919 K78	0.2+	0.2-	200919 160	0.1+	0.0
200919 K88	0.2+	0.2+	200919 L04	0.3+	0.4+	200919 K87	0.5+	0.1-
200919 595	0.4+	0.2+	200919 B49	0.4-	0.7+	200919 K78	0.6+	0.0
200919 K88	0.2+	0.5-	200919 970	0.1+	0.1+			
200919 K88	0.8+	0.3-	200919 104	0.1+	0.1-			

Ephemeris:

2020 SM1		a, e, i = 1.11, 0.23, 4					q = 0.8528				
Date	TT	R. A. (2000)			Decl.		Delta	r	Elong.	Phase	V
2020 08 20		11 33	54.8	-11 25	31	0.1274	0.9088	33.8	141.7	28.6	
...											
2020 09 04		11 47	57.7	-12 14	00	0.05569	0.9578	23.9	154.8	29.3	
...											
2020 09 12		12 16	31.0	-09 28	21	0.02041	0.9872	19.4	160.2	28.7	
...											
2020 09 18		21 19	35.4	+23 57	08	0.0075211	1.0104	136.7	43.0	17.3	
2020 09 19		22 11	33.7	+21 00	04	0.01142	1.0143	147.7	31.9	17.9	
2020 09 20		22 35	45.5	+19 13	27	0.01558	1.0182	152.7	26.9	18.4	
...											
2020 09 26		23 15	18.6	+15 43	39	0.04169	1.0419	160.0	19.2	20.4	
...											
2020 10 04		23 27	11.4	+14 25	34	0.07800	1.0736	159.4	19.2	21.8	
...											
2020 10 19		23 38	57.1	+13 10	32	0.1527	1.1324	151.3	25.0	23.5	