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## MPEC 2021-Y15 : 2021 YA

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2021 YA

### Observations:

K21Y00A*	C2021	12	16.21935206	51	03.59	+59	26	22.2	18.41GVEY015703		
K21Y00A	C2021	12	16.22424906	51	02.23	+59	24	54.5	18.29GVEY015703		
K21Y00A	C2021	12	16.22915206	51	00.87	+59	23	26.0	18.51GVEY015703		
K21Y00A	C2021	12	16.23405606	50	59.41	+59	21	57.7	18.69GVEY015703		
K21Y00A	mC2021	12	16.25231706	50	54.18	+59	16	30.3	17.80GVEY015703		
K21Y00A	mC2021	12	16.25267006	50	54.13	+59	16	22.8	18.31GVEY015703		
K21Y00A	mC2021	12	16.25302406	50	54.03	+59	16	16.1	18.51GVEY015703		
K21Y00A	mC2021	12	16.25337806	50	53.95	+59	16	10.2	18.42GVEY015703		
K21Y00A	mC2021	12	16.35278006	50	23.51	+58	46	17.9	18.18GVEY015703		
K21Y00A	mC2021	12	16.35331806	50	23.34	+58	46	07.8	18.73GVEY015703		
K21Y00A	mC2021	12	16.35385706	50	23.13	+58	45	58.5	18.67GVEY015703		
K21Y00A	mC2021	12	16.35439606	50	22.98	+58	45	48.6	18.50GVEY015703		
K21Y00A	KC2021	12	16.40193	06	50	07.97	+58	31	27.5	18.4	GVEY015V21
K21Y00A	KC2021	12	16.40557	06	50	06.91	+58	30	21.6	18.4	GVEY015V21
K21Y00A	KC2021	12	16.40925	06	50	05.80	+58	29	14.7	18.4	GVEY015V21
K21Y00A	KC2021	12	16.41292	06	50	04.70	+58	28	07.5	18.5	GVEY015V21
K21Y00A	C2021	12	16.50970506	49	54.67	+58	00	32.1	18.37oVEY015T05		
K21Y00A	C2021	12	16.51290406	49	53.74	+57	59	33.9	18.37oVEY015T05		
K21Y00A	KC2021	12	16.53251	06	49	35.16	+57	51	54.4	19.1	GVEY015V21
K21Y00A	KC2021	12	16.53606	06	49	34.44	+57	50	50.4	19.2	GVEY015V21
K21Y00A	KC2021	12	16.53966	06	49	33.76	+57	49	45.3	18.9	GVEY015V21
K21Y00A	KC2021	12	16.54326	06	49	33.03	+57	48	40.3	18.7	GVEY015V21
K21Y00A	KC2021	12	16.54687	06	49	32.36	+57	47	35.4	18.6	GVEY015V21
K21Y00A	C2021	12	16.54755306	49	43.59	+57	49	26.2	18.70oVEY015T05		
K21Y00A	C2021	12	16.57529506	49	35.89	+57	41	18.0	18.60oVEY015T05		
K21Y00A	KC2021	12	16.77965	06	49	40.83	+56	41	48.0	17.4	GXEY015J57
K21Y00A	KC2021	12	16.79036	06	49	39.48	+56	39	04.7	18.9	GXEY015J57
K21Y00A	KC2021	12	16.80081	06	49	38.22	+56	36	26.0	18.8	GXEY015J57
K21Y00A	KC2021	12	16.80673006	49	35.36	+56	35	08.6	VEY015203		
K21Y00A	KC2021	12	16.82003106	49	33.33	+56	31	45.9	18.2	GVEY015203	
K21Y00A	KC2021	12	16.82933	06	49	31.69	+56	29	23.6	VEY015204	
K21Y00A	KC2021	12	16.83425906	49	30.87	+56	28	09.7	18.5	GVEY015203	
K21Y00A	KC2021	12	16.84078	06	49	29.74	+56	26	29.7	VEY015204	
K21Y00A	KC2021	12	16.85234	06	49	27.67	+56	23	34.3	18.6	GVEY015204
K21Y00A	pC2021	12	16.85410906	49	26.63	+56	23	16.0	18.5	GVEY015595	
K21Y00A	KC2021	12	16.85714006	49	25.97	+56	22	29.5	18.1	GVEY015595	
K21Y00A	KC2021	12	16.86077606	49	25.28	+56	21	33.9	18.4	GVEY015595	
K21Y00A	KC2021	12	16.87019106	49	25.35	+56	19	03.4	18.6	GZEY015C95	
K21Y00A	KC2021	12	16.87627306	49	25.35	+56	17	20.4	18.8	GXEY015958	
K21Y00A	KC2021	12	16.88130906	49	24.40	+56	16	05.0	18.9	GXEY015958	
K21Y00A	KC2021	12	16.88634306	49	23.53	+56	14	49.3	19.2	GXEY015958	
K21Y00A	KC2021	12	16.88949906	49	20.16	+56	13	38.8	18.7	GVEY015Z99	
K21Y00A	KC2021	12	16.89289906	49	19.60	+56	12	47.3	19.0	GVEY015Z99	
K21Y00A	KC2021	12	16.89633106	49	18.98	+56	11	55.7	19.0	GVEY015Z99	
K21Y00A	KC2021	12	16.89800306	49	20.02	+56	12	04.3	17.6	GZEY015C95	
K21Y00A	KC2021	12	16.89973406	49	18.40	+56	11	04.4	18.8	GVEY015Z99	
K21Y00A	KC2021	12	16.92575806	49	14.40	+56	05	07.6	18.7	GZEY015C95	
K21Y00A	KC2021	12	17.28055806	48	25.34	+54	38	08.8	uEY015H21		
K21Y00A	KC2021	12	17.28335606	48	24.74	+54	37	29.4	18.6	VuEY015H21	
K21Y00A	KC2021	12	17.28615106	48	24.14	+54	36	49.8	18.7	VuEY015H21	
K21Y00A	KC2021	12	17.28894606	48	23.55	+54	36	10.3	18.8	VuEY015H21	

K21Y00A KC2021 12 17.29103806 48 31.34 +54 34 50.7 18.5 GXEY015U55  
 K21Y00A KC2021 12 17.29961806 48 29.81 +54 32 52.5 18.6 GXEY015U55

Observer details:

203 GaiGa Observatory. Observers S. Foglia, G. Galli. Measurer G. Galli.  
 0.36-m f/5.76 Schmidt-Cassegrain + CCD.  
 204 Schiaparelli Observatory. Observer L. Buzzi. 0.84-m f/3.5 reflector + CCD.  
 595 Farra d'Isonzo. Observer E. Pettarin. 0.40-m f/5.15 reflector + CCD.  
 703 Catalina Sky 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, D. Rankin, R. L. Seaman, F. C. Shelly, K. W. Wierzchos. 0.68-m Schmidt + 10K CCD.  
 958 Observatoire de Dax. Observers P. Dupouy, J. B. de Vanssay. Measurer P. Dupouy. 0.43-m f/2.7 reflector + CCD.  
 C95 SATINO Remote Observatory, Haute Provence. Observer J. Jahn. 0.60-m f/3.2 Newtonian reflector + CCD.  
 H21 Astronomical Research Observatory, Westfield. Observer R. Holmes. Measurers T. Linder, R. Holmes, L. Horn. 0.76-m f/3.0 astrograph + CCD.  
 357 Centro Astronomico Alto Turia, Valencia. Observer A. Fornas. Measurers A. Fornas, G. Fornas, E. Arce, V. Mas. 0.43-m f/6.8 reflector + CCD.  
 T05 ATLAS-HKO, Haleakala. Observers L. Denneau, R. Siverd, J. Tonry, H. Weiland. Measurers L. Denneau, N. Erasmus, A. Fitzsimmons, A. Lawrence, J. Robinson, R. Siverd, J. Tonry, H. Weiland. 0.5-m reflector + CCD.  
 U55 Golden Ears Observatory, Maple Ridge. Observer B. Kumar. 0.25-m f/5.5 Ritchey-Chretien + CCD.  
 V21 Cewanee Observatory at DSNM. Observer D. T. Durig. 0.4-m f/8 Ritchey-Chretien + 4656x3520 CCD.  
 Z99 Clixby Observatory, Cleethorpes. Observer A. Mickleburgh. 0.36-m f/8 Schmidt-Cassegrain + CCD.

Orbital elements:

2021 YA Earth MOID = 0.0213 AU  
 Epoch 2022 Jan. 21.0 TT = JDT 2459600.5 Veres  
 M 34.85606 (2000.0) P Q  
 n 0.44083866 Peri. 359.19878 +0.90020669 -0.43529093  
 a 1.7098169 Node 26.61566 +0.39968114 +0.81475643  
 e 0.5016219 Incl. 1.56509 +0.17286671 +0.38300621  
 P 2.24 H 24.17 G 0.15 U 7

Residuals in seconds of arc

211216 703	0.6-	0.1-	211216 V21	0.5+	0.3-	211216 595	0.5-	0.5-
211216 703	0.6-	0.3+	211216 V21	0.3+	0.1-	211216 C95	0.3-	0.3-
211216 703	0.4-	0.1+	211216 V21	0.5+	0.1-	211216 958	0.1-	0.1+
211216 703	0.9-	0.1+	211216 V21	0.1+	0.1-	211216 958	0.5-	0.5+
211216 703	0.5-	1.2+	211216 V21	0.1+	0.3+	211216 958	0.1-	0.2+
211216 703	0.1-	0.2+	211216 T05	0.4+	0.2-	211216 Z99	0.3-	0.2-
211216 703	0.0	0.2-	211216 T05	0.1+	0.0	211216 Z99	0.0	0.2-
211216 703	0.1+	0.3+	211216 J57	0.0	0.2-	211216 Z99	0.1-	0.0
211216 703	0.1+	0.2+	211216 J57	0.5-	0.3-	211216 C95	0.2-	0.4-
211216 703	0.1+	0.1-	211216 J57	0.3+	0.0	211216 Z99	0.1+	0.2+
211216 703	0.3-	0.2+	211216 T03	0.1-	0.0	211216 C95	0.2+	0.6+
211216 703	0.1-	0.1+	211216 T03	0.5+	0.1-	211217 H21	0.1+	0.1+
211216 V21	0.7+	0.1+	211216 T04	0.2+	0.2+	211217 H21	0.0	0.2+
211216 V21	0.7+	0.3+	211216 T03	0.2-	0.0	211217 H21	0.1-	0.0
211216 V21	0.4+	0.3+	211216 T04	0.2+	0.1+	211217 H21	0.1-	0.0
211216 V21	0.1+	0.2-	211216 T04	0.0	0.0	211217 U55	0.1-	0.5-
211216 T05	0.1+	1.0+	211216 595	0.3+	0.3+	211217 U55	0.1+	0.7-
211216 T05	0.4+	1.1-	211216 595	0.5-	0.2-			

Ephemeris:

2021 YA a,e,i = 1.71, 0.50, 2 q = 0.8521  
 Date TT R. A. (2000) Decl. Delta r Elong. Phase V  
 2021 11 17 18 29 39.9 -20 30 58 0.1686 0.8719 42.5 130.0 25.7  
 ...  
 2021 12 02 18 37 29.1 -08 19 00 0.06528 0.9320 33.0 144.8 25.6  
 ...  
 2021 12 10 18 30 27.9 +42 18 10 0.02281 0.9765 68.0 110.8 20.1  
 ...  
 2021 12 16 06 51 25.2 +60 36 39 0.03853 1.0141 140.3 38.3 18.7  
 2021 12 17 06 48 55.1 +55 46 03 0.04426 1.0207 145.0 33.5 18.8  
 2021 12 18 06 47 19.7 +52 02 13 0.05026 1.0273 148.8 29.8 19.0  
 ...  
 2021 12 24 06 43 06.7 +40 34 29 0.08902 1.0683 161.4 17.1 20.0  
 ...  
 2022 01 01 06 40 40.6 +34 52 03 0.1452 1.1259 168.1 10.3 20.9  
 ...  
 2022 01 16 06 40 40.4 +30 26 22 0.2653 1.2385 161.8 14.3 22.6

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