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ASTEROID LIGHTCURVE ANALYSIS AT THE OAKLEY SOUTHERN SKY OBSERVATORY: 2009 AUGUST-NOVEMBER

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Photometric data for 24 asteroids were collected over 22 nights of observing during 2009 August through November at the Oakley Southern Sky Observatory. The asteroids were: 1654 Bojeva, 2013 Tucape1, 2216 Kerch, 2219 Mannucci, 3045 Alois, 3422 Reid, 3819 Robinson, 5832 Martaprincipe, 5914 Kathywhaler, 6066 Hendricks, 6734 Benzenberg, (7774) 1992 UU2, (9199) 1993 FO1, 10094 Eijikato, 11064 Dogen, 13123 Tyson, (13709) 1998 QE13, (14162) 1998 TV1, (19732) 1999 XF165, (20762) 2000 EE6, (27181) 1999 CX1, (29251) 1992 UH4, (29742) 1999 BQ12, and (55760) 1992 BL1.

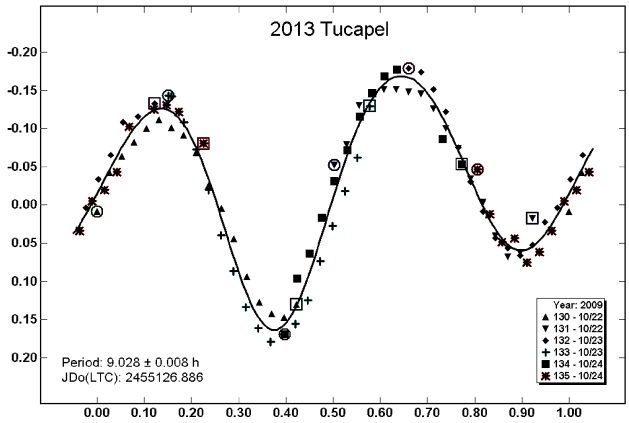
Twenty-four asteroids were observed from the Oakley Southern Sky Observatory in New South Wales, Australia, near Coonabarabran on the nights of 2009 August 10-15, 17-18, and 26-27; October 7-9 and 20-24; and November 9-11, and 14. We were able to find lightcurves for 15 asteroids, none of which had previously published periods. We were unable to determine a period from our data on the remaining 9 asteroids.

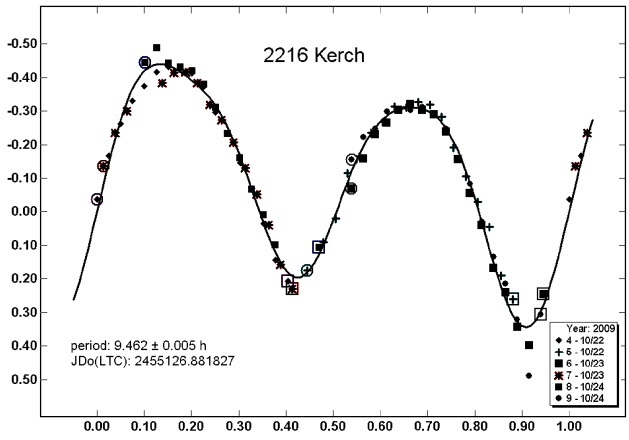
Asteroids were selected based on their position in the sky about one hour after sunset. Throughout the selection, asteroids without previously published periods were given higher priority than asteroids with known periods. For the 22 nights of observing, a 0.5-m f/8.4 Ritchey-Chretien optical tube assembly mounted on a Paramount ME was used with a Santa Barbara Instrument Group STL-1001E CCD camera and a clear filter. The image scale was 1.2 arcseconds per pixel. Exposure times varied between 90 and 240 seconds. Calibration of the images was done using master twilight flats, darks, and bias frames. All calibration frames were created using *CCDSoft*. *MPO Canopus* was used to measure the processed images.

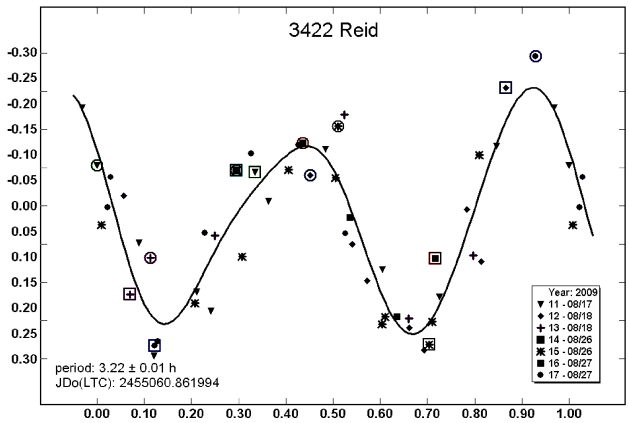
As far as we are aware, these are the first reported lightcurves for those 15 asteroids where we found a period and amplitude. No repeatable pattern was found for 1654 Bojeva, 2219 Mannucci, 3045 Alois, 3819 Robinson, 5832 Martaprincipe, 5914 Kathywhaler, 6734 Benzenberg, (13709) 1998 QE13, or (14162) 1998 TV1. Our data for these asteroids were so noisy that we feel comfortable publishing only the amplitudes. Results from the asteroids are listed in the table below.

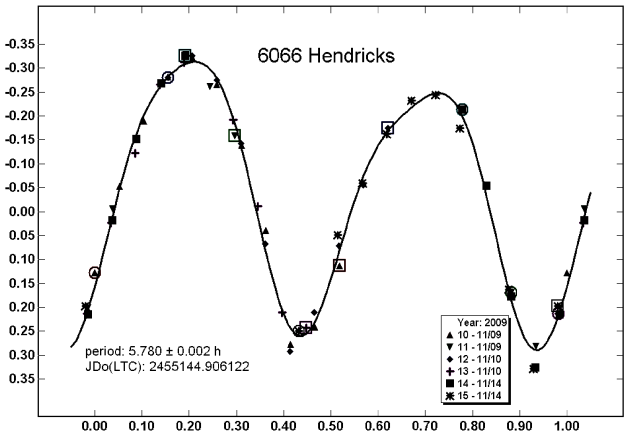
Acknowledgement

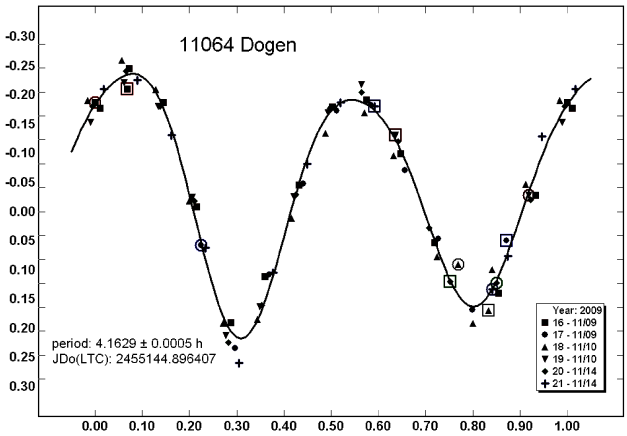
Construction of the Oakley Southern Sky Observatory was funded by a grant from the Oakley Foundation and by a generous donation made by Niles Noblitt.

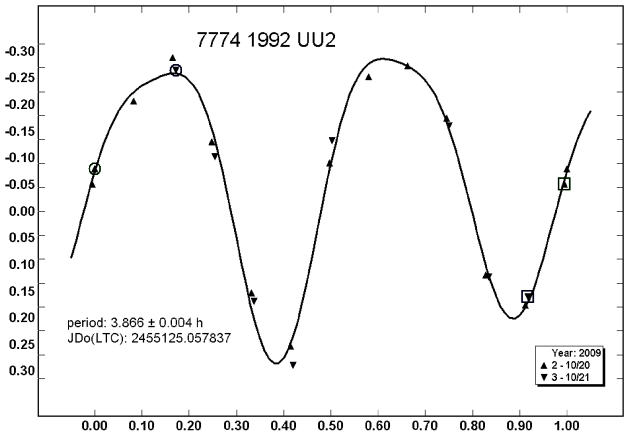


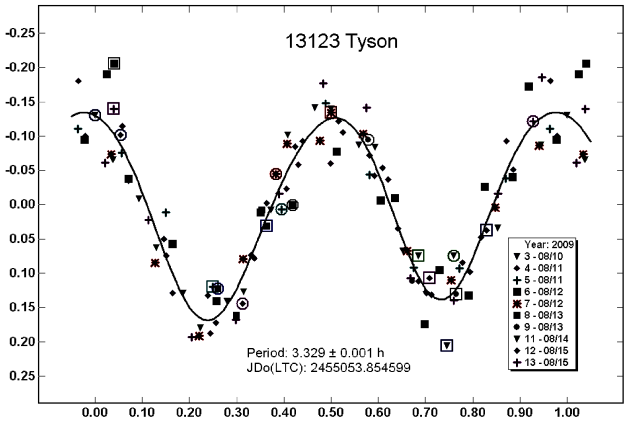


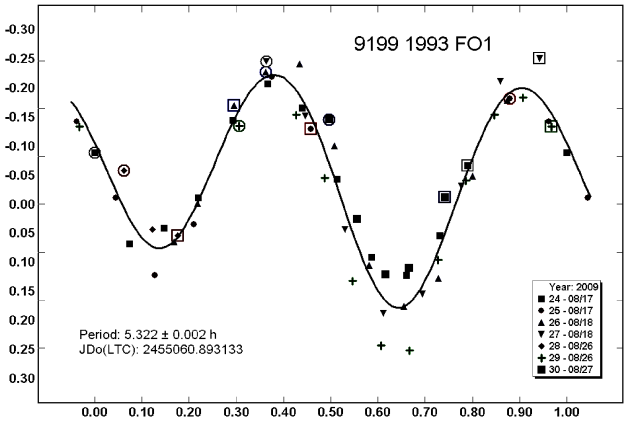


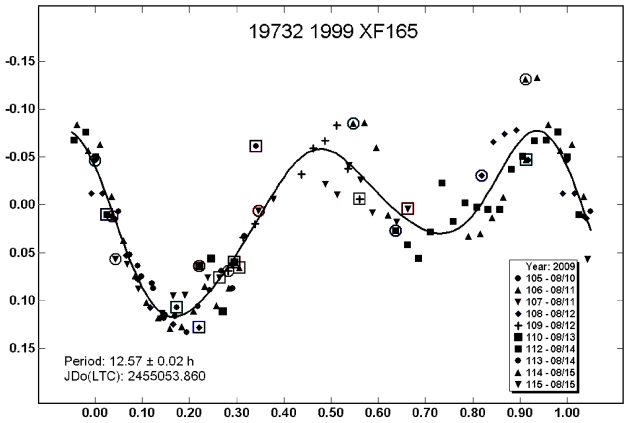


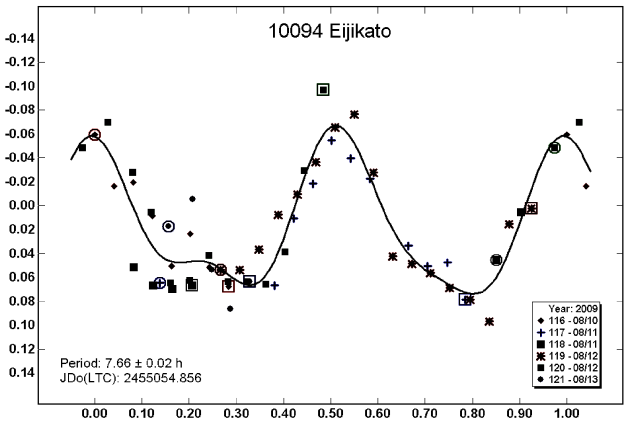


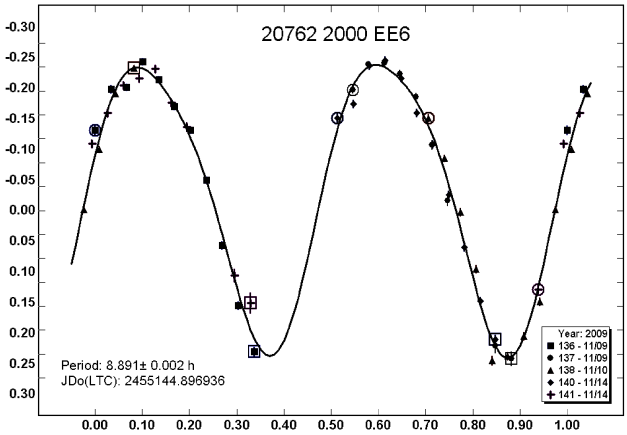


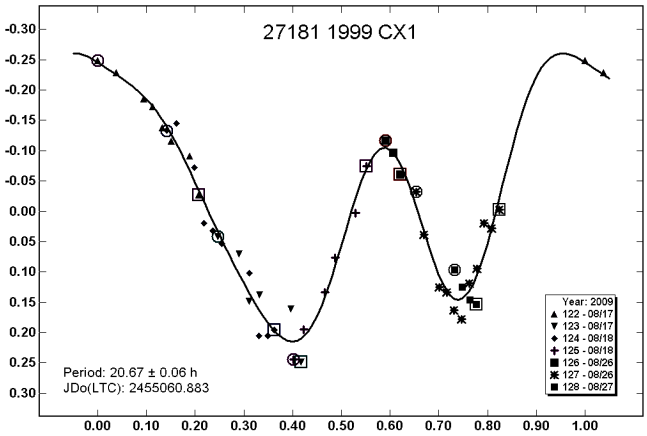


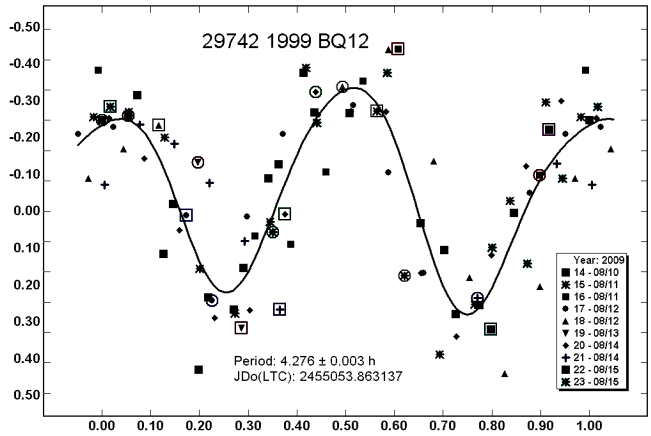


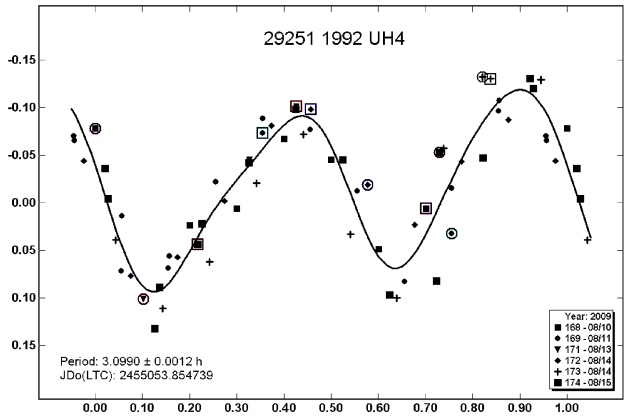


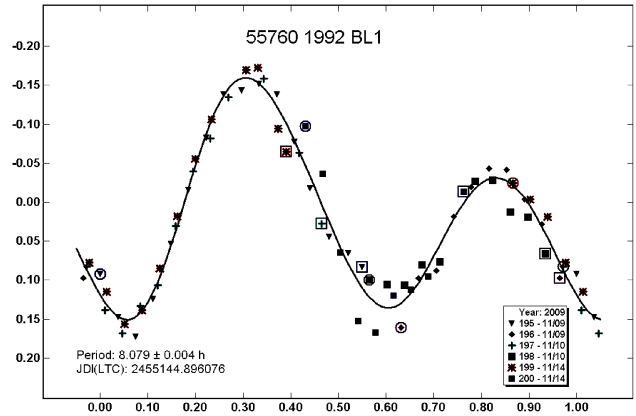












Number	Name	Dates mm/dd 2009	Data Points	Period	P. E. (h)	Amp (mag)	A. E. (mag)
1654	Bojeva	8/17-18, 8/26-27	51			0.10	0.02
2013	Tucapel	10/22-24	97	9.028	0.008	0.34	0.04
2216	Kerch	10/22-24	97	9.462	0.005	0.85	0.05
2219	Mannucci	8/17-18, 8/26-27	69			0.30	0.05
3045	Alois	8/17-18, 8/26-27	57			0.52	0.04
3422	Reid	8/17-18, 8/26-27	52	3.22	0.01	0.29	0.02
3819	Robinson	10/22-24	86			0.31	0.04
5832	Martaprincipe	11/9-10, 11/14	54			0.16	0.06
5914	Kathywhaler	8/14-15, 8/17-18	79			0.22	0.04
6066	Hendricks	11/9-10, 11/14	56	5.780	0.002	0.63	0.02
6734	Benzenberg	08/11-13	44			0.19	0.07
7774	1992 UU2	10/20-21	21	3.866	0.004	0.54	0.04
9199	1993 FO1	8/17-18, 8/26-27	58	5.322	0.002	0.47	0.03
10094	Eijikato	8/10-13	60	7.66	0.02	0.13	0.04
11064	Dogen	11/9-10, 11/14	78	4.1629	0.0005	0.48	0.05
13123	Tyson	8/10-15	118	3.329	0.001	0.35	0.02
13709	1998 QE13	10/22-24	87			0.47	0.04
14162	1998 TV1	10/7-9, 10/20-21	32			0.24	0.03
19732	1999 XF165	8/10-15	107	12.57	0.02	0.19	0.03
20762	2000 EE6	11/9-10, 11/14	53	8.891	0.002	0.46	0.01
27181	1999 CX1	8/17-18, 8/26-27	48	20.67	0.06	0.45	0.05
29251	1992 UH4	8/10-11, 8/13-15	63	3.0990	0.0012	0.26	0.04
29742	1999 BQ12	8/10-15	92	4.276	0.003	0.70	0.05
55760	1992 BL1	11/9-10, 11/14	73	8.079	0.004	0.32	0.03