

PHOTOMETRY OF ASTEROIDS 191 KOLGA AND 1200 IMPERATRIX

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(Received: 28 September Revised: 1 October)

River Oaks Observatory began operating in the spring of 2000. The first asteroids studied for lightcurves prior to incorporating photometric filters were 191 Kolga and 1200 Imperatrix. Kolga was found to have a long period lightcurve with a most likely period of 27.80 ± 0.05 hours and amplitude of approximately 0.5 magnitudes. Imperatrix was found to rotate in 13.34 ± 0.11 hours with an amplitude of 0.23 magnitudes.

The River Oaks Observatory was built to replace a smaller one in which was located in more light polluted skies. The site and equipment were chosen to produce lightcurves with much lower noise than those done from the former site. The two asteroids present here were chosen from the "CALL" web site List of Potential Lightcurve Targets (Warner 2000). Kolga was observed first on the dates 5/23, 5/24, 6/7, 6/8, and 7/6/2000 Universal time through phase angles of 5.4 to 14.5 degrees. After observing only one inflection point in five nights the asteroid was dropped from study. A best fit of the data which was calibrated only with Hubble Guide Star magnitudes and without filtration is a period of 27.848 hours. By shifting the calibration slightly a fit can also be made for 27.76 hours, yielding an estimate of 27.80 ± 0.05 hours. Other solutions could be made but this general range seems the most likely with the limited portion of the curve observed and assuming two peaks and two troughs per period. Single night lightcurves were converted to reduced magnitudes at zero phase angle using a phase coefficient of 0.20 which worked reasonably well in constructing the composite curve.

Asteroid 1200 Imperatrix was observed on the dates 8/4, 8/5, and 8/6/2000 Universal time. As with asteroid 191 no filtration was done and calibration was only to Hubble Guide Stars. The observations spanning phase angles of 2.5 to 2.9 degrees were converted to reduced magnitudes at zero phase angle with a phase coefficient of 0.20. The composite curve has a best fit for a 13.34 hour period with an uncertainty of 0.11 hours for this period solution. The full amplitude of the lightcurve was observed to be 0.23 magnitudes this opposition.

Acknowledgments:

The submission of 191 Kolga was partly a response to a suggestion that incomplete light curves are better than no lightcurves. Magnitude conversions to reduced magnitude at zero phase angle were done with math contained in Batrakov (1992) which referenced the Minor Planet Circulars #10193 and 10194.

References

- Batrakov, Y.V. (1992). "Ephemerides of Minor Planets"
Warner, B. (2000). "Potential Lightcurve Targets". <http://www.minorplanetobserver.com/astlc/targets>.

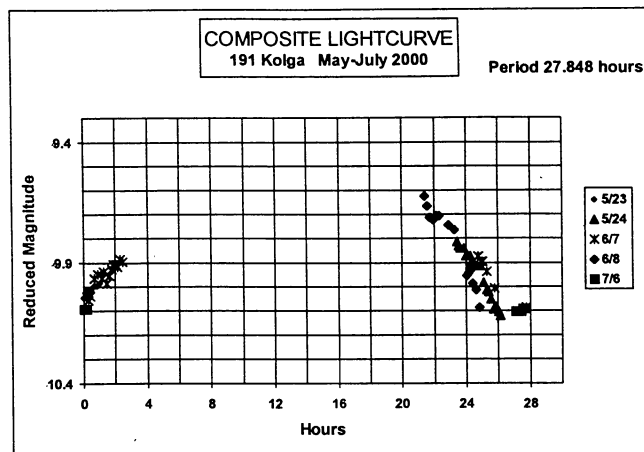


Figure 1 191 Kolga Lightcurve

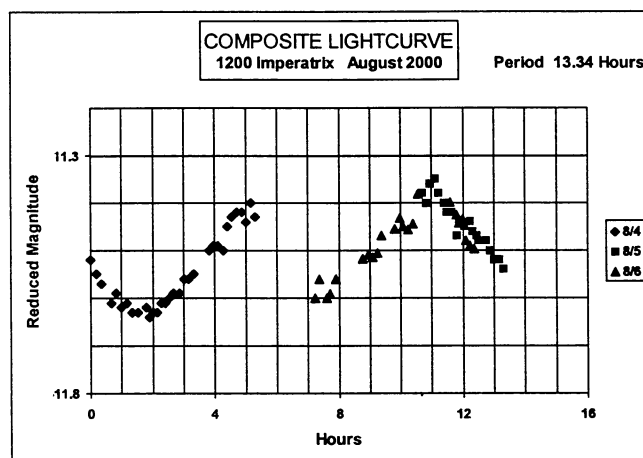


Figure 2 1200 Imperatrix Lightcurve

MINOR PLANETS AT UNUSUALLY FAVORABLE ELONGATIONS IN 2001

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(Received: 23 October)

A list is presented of minor planets which are much brighter than usual at their 2001 apparitions. Moderately close approaches within 0.356 A. U. of planets 719 Albert, 1916 Boreas, and two of (5587) 1990 SB, are especially noteworthy.

The minor planets in the lists which follow will be much brighter at their 2001 apparitions than at their average distances at maximum elongation. Many years may pass before these planets will be again as bright as in 2001. Observers are encouraged to give special attention to those which lie near the limit of their equipment.

Minor planet 719 Albert, missing from the time of its discovery in 1911 until the year 2000, will experience maximum elongation from