OPTICAL OBSERVATIONS OF NEA 162173 (1999 JU3) DURING THE 2011-2012 M.-J. Kim[1,2], Y.-J. Choi[2], H.-K. Moon[2], M. Ishiguro[3], S. Mottola[4], M. Kaplan[5], D. Kuroda[6], D. Warjurkar[3], J. Takahashi[7] and Y.-I. Byun[1], [1]Yonsei University (50 Yonsei-ro, Seoul 120-749, South Korea), [2]Korea Astronomy and Space Science Institute (776 Daedukdaero, Daejeon 305-348, South Korea, yjchoi@kasi.re.kr), [3]Seoul National University (1 Gwanak-ro, Seoul 151-742, South Korea), [4]German Aerospace Center (DLR; Rutherfordstrasse 2, 12489 Berlin, Germany), [5]Akdeniz University (Fen Fakultesi, Dumlupinar Bulvari, Kampus, 07058 Antalya, Turkey), [6]Okayama Astrophysical Observatory, NAOJ (Asaguchi, Okayama 719-0232, Japan), [7]Nishi-Harima Astronomical Observatory (407-2 Nishigaichi, Sayo-gun, Hyogo 679-5313, Japan),

Introduction: Near-Earth asteroid 162173 (1999 JU3) is the primary target of JAXA's Hayabusa-2 mission and also a backup target of NASA's OSIRIS-Rex mission not only because of its accessibility but also because of the first C-type asteroid for exploration missions[1]. The lightcurve related physical properties of this object were investigated during the 2011-2012 apparition, since it was the last chance to gather ground-based data before the launch of Hayabusa-2 which is scheduled in July 2014, with backup launch opportunities in December 2014, June and December 2015.

Observations: Observations of 1999 JU3 were carried out for 13 nights during the apparition in 2011 and 012, with 1-2m class telescopes; University of Hawaii (UH) 2.2m telescope in Hawaii, USA, the Calar Alto (CA) Astronomical Observatory 1.2m telescope in Almeria, Spain, the Nish-Harima Astronomical Observatory Nayuta 2m telescope in Sayo, Japan, the Tubitak Ulusal Gozlemevi (TUG) 1m telescope in Bakirlitepe, Turkey and the Himalayan Chandra 2m telescope (HCT) in Hanle, India. We organized the telescopes in differenent time zone to perform consecutive observations and made time-series observations with the Johnson R filter. All images were analyzed using standard CCD data reduction procedures.

Results: We derived a synodic rotational period of 7.625 ± 0.003 hr which is corresponding with the axis ratio a/b = 1.12. This is consistent with the period of 7.6272 ± 0.0072 hr when 2007-2008 apparition[2]. The absolute magnitude H_R = 18.69 ± 0.07 mag and the phase slope of G = -0.09 ± 0.03 were also obtained based on the observations made during the 2011-2012 apparition.

References:

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