

VISIBLE AND NEAR-INFRARED COLORS OF KBOS FROM THE SECOND ESO LARGE PROGRAM

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We report the visible and near-infrared photometric results from October 2006 through September 2007 for 23 objects, 9 of which have never been previously observed, obtained in the framework of a second ESO Large Program (PI=M.A. Barucci) devoted to observe KBOs and Centaurs with different techniques. All observations were performed at the European Southern Observatory 8m Very Large Telescope, UT1 and UT2 at the Paranal Observatory in Chile; visible and near-infrared observations were carried out simultaneously when possible. We report colors and show plots of reflectivities. We determine taxonomic types when sufficient data is available and verify the types for previously observed objects. Classification was performed with G-mode analysis expanded by Fulchignoni et al. [1] using the Barucci classification system [2] using two to five color data per object.

The Barucci taxonomy for KBOs [2], created from a large homogeneous sample and based on the same methods used for asteroids (multivariate statistical analysis and principal components), is a four class system ranging from a neutral color, BB, to intermediate red colors, BR and IR, to very red, RR. We classify 18 of the 23 objects in our sample: six BB, five BR, two RR and five falling in two or more categories due to insufficient data. Three objects (83982, 119951, 2003 UZ117) had only one color and were therefore unclassifiable. Two objects (26375, 145452) did not fall within the range of the 4 taxonomic groups.

Four objects that had been previously observed and classified, changed classes: 26375 (1999 DE9), 28978 (Ixion), 32532 (Thereus), and 47932 (2000 GN171). Two objects, 47932 (2000 GN171) and 54598 (Bienor), had absolute magnitude values $H_v(1,1,0)$ that were significantly different from previously published results. For 47932 and Bienor, large lightcurve amplitudes [3,4] can explain the variable $H_v(1,1,0)$ magnitude and the classification change of 47932.

References: [1] Fulchignoni, M., et al. (2000) *Icarus*, 146, 204-212. [2] Barucci, M.A., et al. (2005) *Astron. J.*, 130, 1291-1298. [3] Sheppard S. S. and Jewitt D. (2002) *Astron. J.*, 124, 1757-1775. [4] Ortiz, J., et al. (2002) *Astron. Astrophys.*, 388, 661-666.