Search engine for the outer solar system objects with image composition

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A survey of the minor bodies in the outer regions of our solar system was carried out using the Suprime-Cam attached to the 8.2-m Subaru telescope on Mauna Kea on 22 and 25 February 2001. Seven areas, covering the total of 1.4 square deg of the sky, were thereby scanned: five of them were observed with about a 25 R-mag limit, while the remaining two(0.4 square deg area of the sky) with much deeper imaging reaching down to a 26 R-mag limit. In order to facilitate our survey, we developed an efficient computer code to detect unknown objects based on an improved shift-and-add method, whose validity was then confirmed by the fact that it could successfully locate the two EKBOs(2001DM108 and 2001DN108) that had been detected through our preliminary analysis. With our computer code, we could discover three more new EKBOs, viz., 2001DO108, 2001DP108, and DQ108 in addition to 2001 DM108 and 2001DN108, which are now officially designated as discovered for the reason that they have been detected in two nights of observation. The present survey have succeeded in finding altogether 14 EKBOs(5 as discovered and 9 as detected) within the 0.4 square deg region of the sky observed with a R-mag limit down to 26.