

Moving Object Detection Engine

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Our group are searching the minor bodies in the outer solar system (Edgeworth-Kuiper Belt Object) using Kiso Schmidt telescope with 2kCCD from early 1999. To carry out moving objects, we taken 3 images at the same position with interval of about 1 hour. It is possible to find moving objects with our eyes, but its methods has many uncertainly and times. We made program package(MODE) for auto-detection the moving objects to find these objects more fast and accurately.

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These objects are first detected by D. Jewitt and J. Luu (Nature, 362, 730-732 1993) as 1992QB1, listed over 200 objects now.

These are more smaller than Pluto fainter than 22 magnitude. Our purpose is to find the largest such object likes Pluto size, using very largh field of view with Schmidt telescope attached 2kCCD. This system limited at 21 magnitude.

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First, do general reduction procidure such as correcting bias and dividing flat field. And to get the list of all objects in taken fields, using the software for source extraction (SExtractor, E. Bertin and S. Arnouts A and Ap, 117, 393-404 1996).

Next, we caryy out a list of candidate of moving objects, after removing fixed objects such as fixed stars and galaxies, etc. . Its list include many dummy candidate of sky condition variation . We should reject these object using sky background sigma error.

Finally, we pick up moving object has same moving rate and direction.

In our makeup these programs, we find the two useful programs as to correct telescope pointing error and to find very slow moving objects such as neighbor white dwarf.