

## Outer Solar System Survey using Subaru Telescope

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We have carried out a survey of the outer solar system using Subaru Telescope with its prime focus camera "Suprime-Cam" on 6, 7 October and 4 December, 2002. A single field near the invariable plane had continuously integrated. The limiting magnitude was  $r' = 28.0$  for SDSS  $r'$ -band. The searched area was 0.23 square degrees, which is 10 times larger than previous searches by ground-based telescopes with comparable depth and 100 times larger than previous search by space telescope. 12 TNOs (Trans-Neptunian Objects) were detected. Our major scientific goals were to reveal the spatial distribution of TNO beyond 50 AU from the Sun, and the size distribution of TNO smaller than the size of 100 km. Several models were proposed to explain the orbital distributions of classical TNOs, and each model predict different picture for distant TNOs. The spatial distribution of TNO beyond 50 AU will be a severe test for these models. The size distribution of TNO is the products of collisional and accretional history of planetesimal. None of the object was detected beyond 50 AU from the Sun in our datasets. Our observation revealed the size distribution of TNO cannot be explained with a single power law distribution. While the power law index of larger TNOs is -4.2, the power law index of TNO smaller than 80 km is -3.6.