[구SO-21] 2006 Fragmentation of Comet 73P/Schwassmann-Wachamann 3B Observed with SUBARU/Suprime-Cam

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The fragmentation of the split comet 73P/Schwassmann-Wachmann 3 B was observed with the prime focus camera Suprime-Cam attached to the Subaru 8.2 m telescope, revealing dozens of mini-fragments (Fuse et al. 2007). We analyzed their Subaru/Suprime-Cam images observed in V and R-band, and detected no less than 154 mini-comets. Most of them were located toward southwest and three were close to the projected orbit of the fragment 'B'. We applied the synchrone-syndyne analysis, which is modified for the analysis of rocket force, to the spatial distribution of a number of mini-fragments. It is found that most of these mini-comets were ejected from the fragment 'B'by an outburst occurred early April 2006. The ratio of the rocket force to the solar gravity is approximately 10-100 times larger than that exert on the fragment 'B'.

From the dynamical properties and the aperture photometry, we estimate the radius of ~10 m. No significant color variation was found; the mean color index V-R=0.50±0.07 is slightly redder than the solar color and similar to that of the main fragment 'C', which suggests that these mini-fragments were detected mainly through the sunlight scattered by dust particles and the nuclei's surfaces. We put the upper limit on the mass lost by the fragmentation occurred in early April of 2-10%.

[구SO-22] Orbital Elements of Comet C1490 Y1 and the Quadrantid Shower

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The Quadrantid shower is observed in early January each year and one of most intense showers. However, the origin of the meteors has been unknown up to present. It was Hasegawa who first suggested that comet C1490 Y1 is likely to be origin of the shower from the historical records of East Asia. Here we recalculate preliminary orbital elements of comet C1490 Y1 from *Jo-Seon-Wang-Jo-Sil-Lok* using a modified Gauss method and a Monte Carlo technique. Our result shows that comet C1490 Y1 was a periodic one and its orbital elements well agree with those of the Quadrantids and of the asteroid 2003 EH1 at the year of 1491: Tp=2265652.833 days (8.33 Jan. 1491), q=0.768 AU, e=0.831, a=4.531 AU, ω=164°.637, Ω=281°.952, and i=71°.263 for the epoch J2000.0. This implies that comet C1490 Y1 is the origin of Quadrantid showers and the parent body of the asteroid 2003 EH_1.