은 그 크기와 밀접한 관련이 있는 것으로 알려져 있으며, 이들의 회전율 분포에 대한 통계적 접근방식으로 소행성의 생성과 진화에 관한 중요한 변수들을 연구할 수 있다. 이 연구에서 검출한 소행성들의 위치좌표를 MPC(Minor Planet Center)의 소행성 자료와 비교해 본 결과, 대부분 아직 공식적으로 보고되지 않은 것으로 밝혀졌다. 또한 이들의 회전주기를 측정한 결과 수십 분에서 수 시간 정도로 다양하게 나타나고 있고, 또 6.5미터 대형망원경의 집광력을 감안할 때 매우 작은 소행성들을 포함할 것이므로, 기존의 소행성의 회전율과 크기의 상관관계를 검증하고 나아가 확장할 수 있을 것으로 기대된다.

[SS-03] Population Model of Main Belt Asteroids by Debiasing Method

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Understanding the inner solar system's evolution requires the study of the main asteroid belt structure and the population of asteroids. This is also necessary in order to estimate the probability of asteroid collisions with Earth. We are trying to build a four dimensional asteroid population model, i.e. functions of semi-major axis, eccentricity, inclination, and absolute magnitude, on a large set of observational data from major survey programs. All asteroid survey observations, however, are subjected to very severe observational biases. These biases originate not only from the asteroid orbits in relation to Earth's location, but also from the luminosity function and the distribution of observed angular velocity on the sky plane. We carefully define the bias function for each major survey program based on the observational data and pointing history kindly provided by the Minor Planet Center. Our study is based on the data from LINEAR, Catalina, SPACEWATCH, etc between 2003 and 2008. This is by far the largest data analyzed together for this purpose. Interim results will be reported for observational bias functions and populations of main belt asteroids.

[SS-04] The Interplanetary Dust Cloud Revealed by AKARI IRC All-Sky Survey Observations

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The AKARI's all-sky survey in six wavebands provides us with a priceless set of data for studying the global and local structures of the interplanetary dust cloud complex. We are currently analyzing the 9 and 18 μm band data taken by the Infrared Camera aboard AKARI. The zodiacal emission (ZE) dominates the sky brightness in these bands. This talk details the data reduction procedure and presents the resulting maps of the ZE brightness distribution. A careful comparison of the observed ZE maps with the ones synthesized with the model of Kelsall et al. (1998) suggests needs to revise their dust density profiles of the IRAS bands. We also found that the seasonal brightness variations of the north and south ecliptic poles cannot be fully reproduced by currently available models of the interplanetary dust cloud. Fourier-filtered brightness maps are prepared to resolve small-scale structures in the ZE distribution near the ecliptic plane. These will reveal new features of the faint dust bands discovered by Infrared Astronomical Satellite.

[SS-05] Retrieval of Emissivity and Temperature of the Local Interplanetary Dusts

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We analyzied AKARI IRC pointing observations(IRC02) which were carried out at around perihelion and aphelion positions along the ecliptic with both NIR/MIR-S and MIR-L. By applying Lambda-differentiation method, we retrieved mean volume emissivity of the local interplanetary dusts(IPDs) at 6 IR wavelengths. The IPD temperature and mean volumetric absorption cross-section were also determined after making color correction. This is the first direct measurement of mean volume emissivity and temperature of the local IPDs. We will also discuss heliocentric distance variations of temperature and emissivity which will give some constraints to the power-law exponents in the relation for the dust temperature and IPD density.

[SS-06] Photometric Observation of Jupiter Family Comet 17P/Holmes