[PSO-07] New Strategy for Fast Achievement of the Spaceguard Goal

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Several survey programs have been competing to contribute to the NASA Spaceguard goal of detecting 90% of all Near Earth Asteroids (NEAs) bigger than 1 km in diameter. While these large NEAs are serious potential threat to Earth and its human civilization, the best estimate today is that the goal will not be reached before 2015 and nearly 9% of such NEAs will remain undetected for very long time beyond that. New programs of more powerful survey capability are under planning.
We propose a new and more efficient observational strategy with existing survey facilities, and verify its effectiveness by our 10 year realistic simulations focusing on the ecliptic region where most NEAs inhibit. Our hybrid-type search strategy incorporates deep ecliptic plane survey with wide area search in coordination among Lincoln Near Earth Asteroid Research (LINEAR), Catalina Sky Survey (CSS), and other existing major surveys. This approach enables us we to meet the Spaceguard goal most quickly in the next couple of years. Moreover, our simulations indicate that the proposed survey strategy can discover 94 to 95% of kilometer class NEOs in the next decade. This corresponds to 3 to 4% improvements compared to the best estimate for present surveys.

[PSO-08] Variations of OH and O_2 Airglow Geights Inferred from the OH and O_2 Temperatures and Meteor Trail Diffusion Coefficients over King Sejong Station, Antarctica

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The temperatures and intensities of the OH(6-2) and O_2(0-1) airglows have been measured with a spectral airglow temperature imager (SATI) since February 2002 at King Sejong Station, Antarctica. Recently a meteor radar was installed at this station in March 2007, providing simultaneous meteor trail diffusion coefficients around the OH and O_2 airglow layers. Although the peak emission heights of OH and O_2 airglows have been measured to be 87±2km and 94±2km from rocket experiments, the heights and their nightly variations are not known especially over southern polar regions. In this study, we investigated correlations of OH and O_2 temperatures from the SATI and diffusion coefficients from the meteor radar every 15 minutes. The altitudes at which the best correlations are found are considered to be the airglow heights. The determined heights and their variations over night will be compared with those obtained at low latitude stations.