LOW PERIHELION NEAR-EARTH ASTEROIDS. H. Campins[1], Y. Fernandez[1], M. Kelley[1], J. Licandro[2], K. Hargrove[1], J. de León[2], N. Pinilla-Alonso[2] and A. Morbidelli[3]. [1]University of Central Florida, USA (campins@physics.ucf.edu), [2]Instituto de Astrofísica de Canarias, Spain. [3]Observatoire Astronomique de la Cote d'Azur, France.

Introduction: This is a progress report on a project to characterize the surface composition (and other properties such as radius, albedo and thermal inertia) of a sample of low perihelion Near−Earth Asteroids (NEAs), using spectroscopy in the 0.3 to 2.5 micron region (groundbased) and in the 7 to 14 micron region (Spitzer). NEAs with low perihelion distances represent a unique laboratory in which to study the effects of thermal processing on asteroid surfaces. We will study the mineral and organic composition of our targets and we will search for correlations between their spectral characteristics and other properties such as size, albedo, rotational and orbital properties. Understanding how asteroid surfaces change as a result of exposure to high temperatures will help constrain models of the compositional and thermal environment in the region of the protoplanetary disk where asteroids formed. Part of the motivation to study these low perihelion NEAs comes from the results of our recent study of 3200 Phaethon [1], where we found indications that the surface mineralogy of this low perihelion NEA may have been altered by the perihelion thermal pulse. More specifically, the only two meteorite samples that showed approximately the same spectral shape (in the visible and near-infrared) as Phaethon, had been heated. One is a sample of the CI meteorite Ivuna heated in the laboratory to about 1000 K, and the other a sample of the unusual CI/CM meteorite Yamato-86720 that seems to have been naturally heated to about 800-900 K. The source of the thermal processing in the Yamato-86720 sample is unknown; could it be that its parent body had at one point a low perihelion orbit? These initial results suggests that other low perihelion NEAs may also show the effects of thermal processing on their surfaces.

Progress: Spitzer observations of our 25 targets started in 2007 and groundbased spectroscopy will start in July 2008.

Reference:

[1] Licandro, J. Campins, H. Mothé-Diniz, T. Pinilla-Alonso, N. de León, J. (2007) *Astron. & Astrophys., 461,* 751–757.