

**Abstract for oral presentation at the “Pueo-Nui” workshop that will be held in  
Grenoble, France, May 22-23, 2003.**

**Title:** “Solar System Science with Pueo-Nui”

**Author:** Dr. Christophe Dumas, Jet Propulsion Laboratory, California Institute of Technology

Upgrading Pueo, the adaptive optics (AO) system at the Canada-France-Hawaii telescope (CFHT), from a 19 actuators system to a 100 actuator system, would make possible to image solar system targets at a very high-dynamical range. Pueo-Nui, the CFHT upgraded AO system, will deliver a very stable PSF at near-infrared wavelengths, with an expected Strehl ratio of 90% at K band, as well as diffraction-limited performances at visible wavelengths (R band). Low-contrast features on the surface of planetary bodies like main-belt asteroids or satellites, or the fine cloud structures in the atmosphere of Uranus and Neptune, could be imaged with Pueo-Nui. The nearly perfect Strehl delivered by the system would also allow to study (spectroscopically) the faint inner satellites and rings of the giant planets. The search for satellites of main-belt asteroids could be extended to other categories of small solar system bodies such as Near-Earth-Objects, Trojans and Kuiper-belt objects. The direct benefit to image small solar system bodies at a shorter wavelength range will be to collect images with a spatial resolution 2 to 3 times better than with the present CFHT system, which would dramatically increase our knowledge of their shape, compositional and dynamical parameters. In this talk, I will present a detailed description of solar system science programs that would benefit from this upgrade.