



Ground-based Observations of the Ring Plane Crossings of Uranus

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In 2007, the rings of Uranus appeared edge-on as seen from Earth for the first time since their 1977 discovery. Three ring plane crossings (RPX) occur over a ~9.5 months period: 3 May 2007, 16 August 2007, and 20 February 2008. The Sun crossed the ring plane on 7 December 2007 (equinox). We observed the first two Earth crossings and the solar crossing; the third earth crossing is unobservable due to solar conjunction. We will present observations obtained with the 10-m Keck, 8-m VLT and 5-m Palomar telescopes, including RPX on August 16, as well as times when we observed the dark (unlit) face of the rings (May-August, December) and the lit side under small ring inclination angles (August-September). Our first ground-based image of the dark side of the rings of Uranus revealed a system that differs radically from what has been seen before. We saw a broad, undulating cloud of faint dust permeating the ring system. The dust showed essentially no correlation with the well-known narrow rings, and also showed almost no correlation with the embedded dust rings imaged by Voyager. The distribution of dust within the Uranian ring system appears to have changed significantly since the 1986 Voyager flyby.