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Title **The 3/4 July 2010 Pluto Stellar-Occultation Observations**

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Abstract Continuing our monitoring of Pluto's atmospheric temperature and pressure, previously shown by us to be increasing (Elliot et al., Nature 424, 165, 2003; Pasachoff et al., AJ 129, 1718, 2005) and subsequently found by us to be leveling off (Elliot et al., AJ 134, 1, 2007), we report on a stellar occultation by Pluto of UCAC2 mag=15.3, observed from South America and Africa on 4 July 2010 UT. Success was achieved with a 0.45 m at Cerro Calan using one of our POETS (Portable Occultation, Eclipse, and Transit System; Souza et al. PASP 118, 1550, 2006), a 1.0 SMARTS (Small and Medium Aperture Research Telescope System) at Cerro Tololo, four 0.6 m telescopes of PROMPT (Panchromatic Robotic Optical Monitoring and Polarimetry Telescopes) on Cerro Tololo, and TRAPPIST's (TRansiting Planets and Planetesimals Small Telescope) 0.6-m telescope on La Silla in Chile; the 0.35 m telescope of U. Ponta Grossa, Brazil; and the 0.75-m ATOM (Automatic Telescope for Optical Monitoring), Namibia, using POETS. Winds prevented opening the 6.5 m Magellan/Clay telescope on Las Campanas, Chile, with its own frame-transfer camera, and clouds obscured the 1.9 m telescope at Sutherland, South Africa, which had POETS. With shadow velocity 23.6 km/s, it was a rapid event: maximum occultation <2 minutes.

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