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# K2-36c off schedule: large transit timing offsets revealed by the URANIA Pro-Am team in ExoClock

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The K2-36 planetary system consists of two planets in very tight orbits around a young, magnetically active K-dwarf star, thus representing one of the best studied systems of planets within the radius gap, with the inner super-Earth K2-36b and the outer sub-Neptune K2-36c being particularly well-suited for studies of photo-evaporation effects. Although both precise radii and masses of K2-36c can be reliably measured via K2 photometry and HARPS-N spectroscopy, accurate long-term transit ephemerides are still based on a relatively sparse data set consisting of mid-times spanning over a decade.

In the ExoClock project, that uses space lightcurves and literature timings, supplemented with extensive Pro-Am network ground-based observations to derive updated transit ephemerides for Ariel targets, K2-36c is currently marked as an ALERT object. The ExoClock model recently published by Kokori et al. (2025) uses the period of P=5.341051 ± 4.8 × 10 -5 days and mid-transit time of T_0 =2456866.249±0.0013 BJDTDB for K2-36c. At present, however, K2-36c shows an unusually large observed-minus-calculated (O-C) difference of -108.1±2.4 minutes that is dominated by the effect of two recent observations made by URANIA team members in 2025.

In this work we present the analysis of two new transit observations obtained with the IAC80 telescope at Teide Observatory and the 1.23m telescope at Calar Alto Observatory, and we re-evaluate the transit timings of K2-36c on the basis of the complete data set, including K2 space photometry, ground-based light curves and literature mid-times. Our preliminary timing analysis confirms a large negative O-C of more than 100 minutes with respect to the current ExoClock ephemeris and motivates a detailed investigation of the origin of this offset in the context of the K2-36 system, which will be presented in full at the conference.