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Discovery of the secondary eclipse of HAT-P-11 b *(Corrigendum)*

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1. Reported ephemeris

Our reported mid-transit time T_0 contains a shift when compared to other data sets. After checking our analysis we found an error in the correction of the *Kepler* BJD times. In the original article we wrote that our determined T_0 is given in $\mathrm{BJD_{UTC}}$. However, this is only true for *Kepler* data up to release 19. For data releases after this (data release 20/21 onwards), the reported times in the *Kepler* data are correctly given in $\mathrm{BJD_{TDB}}$[1]. We checked the *Kepler* data we used and confirm that all the *Kepler* data has times in $\mathrm{BJD_{TDB}}$. Thus, our reported T_0 is in $\mathrm{BJD_{TDB}}$ as well.

We have changed Table 1 and Fig. 1 of the original paper and include the new versions in this corrigendum. The only difference is that we have not applied the subtraction of $\Delta t = 66.184$ s to T_{ref} of Sanchis-Ojeda & Winn to convert it into $\mathrm{BJD_{UTC}}$, and we now correctly state that our value of T_0 is given in $\mathrm{BJD_{TDB}}$; we note that the actual numerical value of T_0 does not change. The other results in our original paper are not affected by this correction.

2. Difference to T_{ref}

In Sect. 3.1 of the original paper we speculate on the origin of the time difference of about two minutes between T_0 and T_{ref}; however, we were not able to provide a convincing answer to this inconsistency. After correction for our mistake concerning the time system, this difference ΔT between T_0 and T_{ref} is reduced by $\Delta t = 66.184$ s to $\Delta T = 64.17$ s. We believe the remaining difference ΔT is caused by the fact that T_{ref} as given by Sanchis-Ojeda & Winn (2011) is reported to be in $\mathrm{BJD_{TDB}}$ but is actually $\mathrm{BJD_{UTC}}$. In this case we would have to correct T_{ref} by adding Δt to convert it into $\mathrm{BJD_{TDB}}$, and ΔT would reduce to approximately −2 s. This assumption is reasonable because

Table 1. Reference and revised ephemeris.

Parameter	Value
Reference ephemeris[a]	
Reference epoch T_{ref} ($\mathrm{BJD_{TDB}}$)[b]	2 454 957.812464
Reference period P_{ref} (days)	4.8878049
Revised ephemeris[c]	
Mid-transit time T_0 ($\mathrm{BJD_{TDB}}$)	$2\,454\,957.8132067^{+0.0000053}_{-0.0000052}$
Orbital period P_p (days)	$4.887802443^{+0.000000034}_{-0.000000030}$

Notes. [(a)] Taken from Sanchis-Ojeda & Winn (2011). [(b)] Please see discussion of T_{ref} in Sect. 2. [(c)] Computed from the measurements presented in Fig. 1.

Sanchis-Ojeda & Winn published their paper in 2011, before the *Kepler* release notes 19 had been published; therefore, the problem of erroneous *Kepler* times was not yet known and the headers of the *Kepler* data files incorrectly stated that the times were in $\mathrm{BJD_{TDB}}$[2].

With this correction, the time shift of about one minute for early transit numbers in Fig. 1 virtually vanishes. Thus, we conclude that T_{ref} is most likely $\mathrm{BJD_{UTC}}$; however, we have not changed this in Table 1 to be consistent with the table in Sanchis-Ojeda & Winn (2011) from whence this value is taken.

References

Sanchis-Ojeda, R., & Winn, J. N. 2011, ApJ, 743, 61

[1] http://archive.stsci.edu/kepler/release_notes/release_notes20/DataRelease_20_20130502.pdf, Sect. 3.1

[2] We contacted Joshua Winn, who confirmed that this conclusion is plausible (Winn 2017, priv. comm.). When writing their paper Sanchis-Ojeda & Winn (2011), they had no reason to suspect any problems with the *Kepler* time stamps.

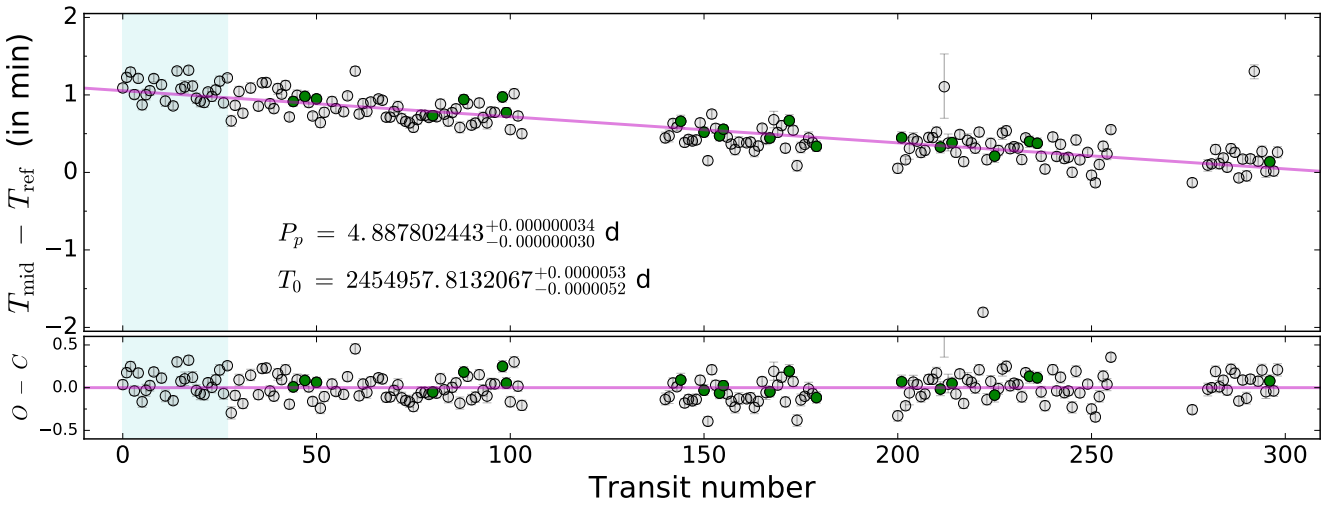

Fig. 1. Measurements of mid-transit times from 206 *Kepler* transits. The (magenta) line represents a first-order polynomial fit to the error-weighted measurements. The *lower panel* shows the residuals with outliers removed. See caption and text of original paper for more detailed explanations.