# Report page ExoTIC-ISM

## W17_G102_lc_9281.txt - 190

### Input parameters:

Number of systematic models: 50
Wavelength mid point = 9303.380057335056
Wavelength half width = 154.5351082113657

**Planet parameters:**

$Rp/R* = 0.12169232$
Epoch (MJD) = 58021.48064883803
Inclination (deg) = 87.34635
Eccentricity = 0.0
Omega (deg) = 0.0
Period (days) = 3.73548535
$a/R* = 7.0780354$

**Stellar parameters:**

FeH (dex) = -0.25
Teff (K) = 6550.0
log(g) (cgs) = 4.2

### Output parameters:

**Limb-darkening coefficients:**

$C1 = 0.8643852298273977$
$C2 = -0.7924457545331808$
$C3 = 0.7737023887137273$
$C4 = -0.27827136730216206$

**Top five systematic models by their weight**

Check the chi-squared values and the AIC evidence for reasonable fits.
If the chi-squared values far exceed the DOF then it is likely that the input data contains additional noise, double check the spectral extraction.
Model numbers = [48 46 49 47 45]
DOF = [38. 40. 37. 39. 41.]
Chi-squared = [86.38994157 88.80003043 86.37686223 88.68050607 91.31313151]
AIC evidence = [306.22889575 306.02385132 305.73543542 305.5836135 305.26730078]
Weights = [0.28103558678551593 0.22893471410532923 0.17157508341288297
0.1474072335525049 0.10743503445603529]
SDNR = [268.61123252 272.29078103 268.58724664 272.12561435 276.20271807]

**Top model Noise Statistics:**

White noise = 0.0003539970649813295
Red noise = 0.00014343145699937922
Beta = 1.6464417075624553
If the red-noise is significant it means the data is poorly fit by any of the systematic models. It is recommended that the input lightcurves are checked for additional noise sources.

# Marginalised parameters:

If None, parameter was not fit for.

Rp/R* = 0.12138881384450279 +/- 0.0003607064395267967
Epoch (MJD) = 58021.48047435298 +/- 0.0003538345868323028
Inclination (rad) = None +/- None
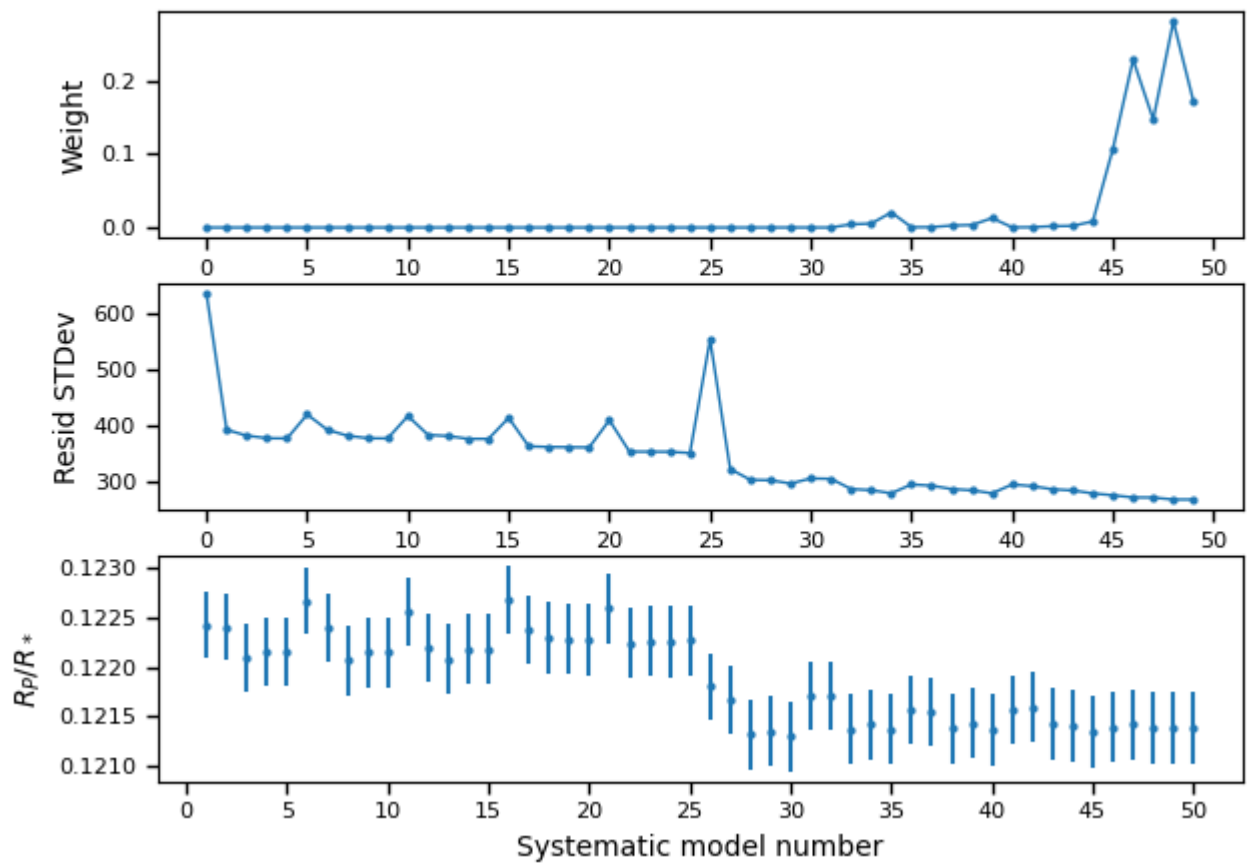Inclination (deg) = None +/- None
System density (Ms+Mp/R^3) = None +/- None
a/R* = None +/- None

# Systematics



*Top:* Evidence-based weight associated with each systematic model when fit with the data. *Middle:* Standard deviation of the residuals after correcting for each systematic model. *Bottom:* Radius ratio

measured from the transit depth when the light curve has been corrected using each systematic model. *If present, grey crosses mark discarded systematic models (poor AIC evidence).*

## Lightcurves

First vs. best model
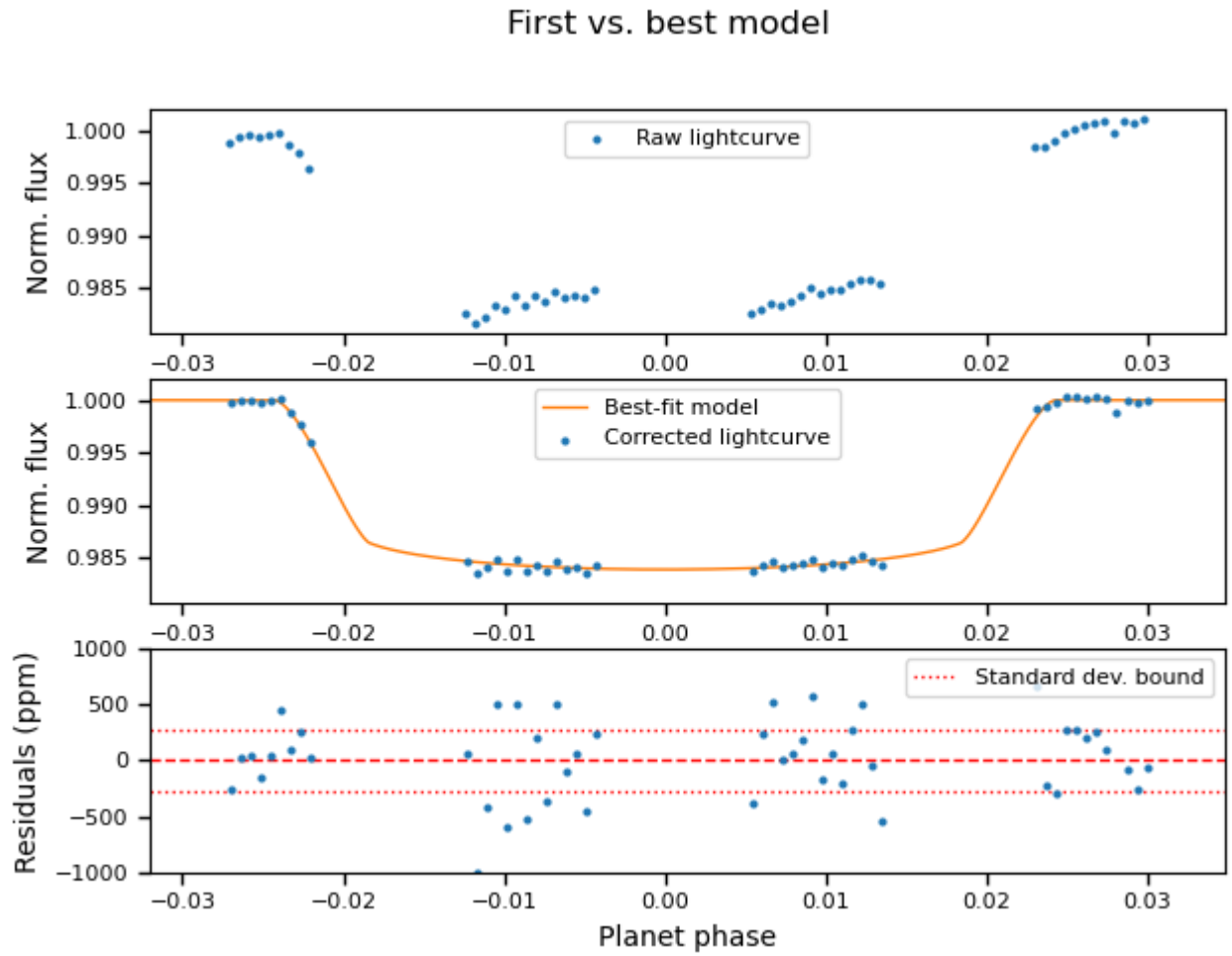


*Top:* Input lightcurve with no systematic model correction applied. *Middle:* Lightcurve corrected by highest weight systematic model plotted with the smooth planetary transit model centred on the mid-transit time. *Bottom:* Residuals and uncertainties associated with the middle panel lightcurve. The upper and lower standard deviation bounds are shown in dotted lines relative to zero.