

KIC 012556735

Q1-17 DR25 TCE Parameters

| TCE | Run Type | KOI? | Period (Days) | Epoch (BKJD) | Depth (ppm) | Duration (Hours) | MES | SNR | R_{\star} (R_{\odot}) | T_{\star} (K) | R_p (R_{\oplus}) | S_p (S_{\oplus}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 012556735-01 | OBS | No | 665.568645 | 235.344045 | 566.1 | 13.800 | 7.3 | 7.3 | 0.86 | 5268 | 2.14 | 0.27 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 012556735-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—INCONSISTENT_TRANS—CENT_FEW_DIFFS |

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

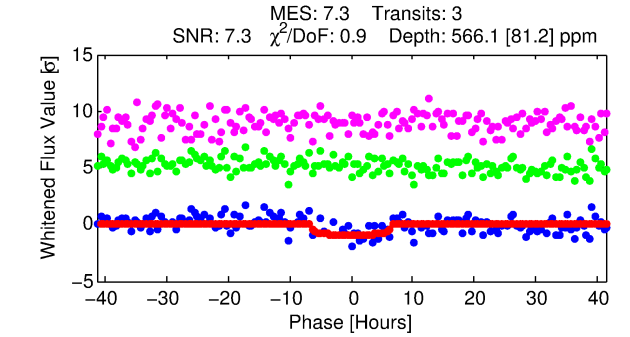
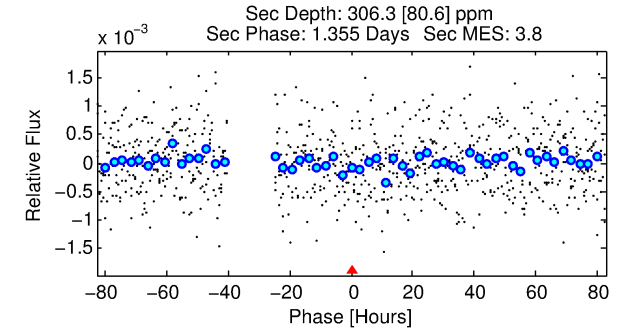
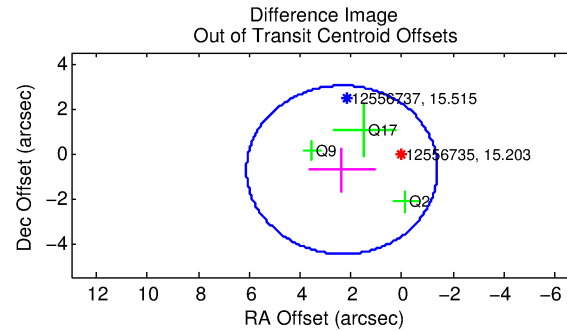
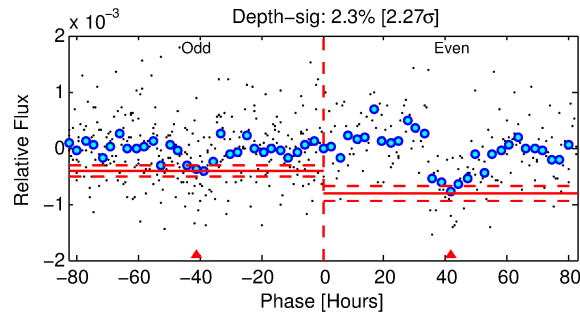
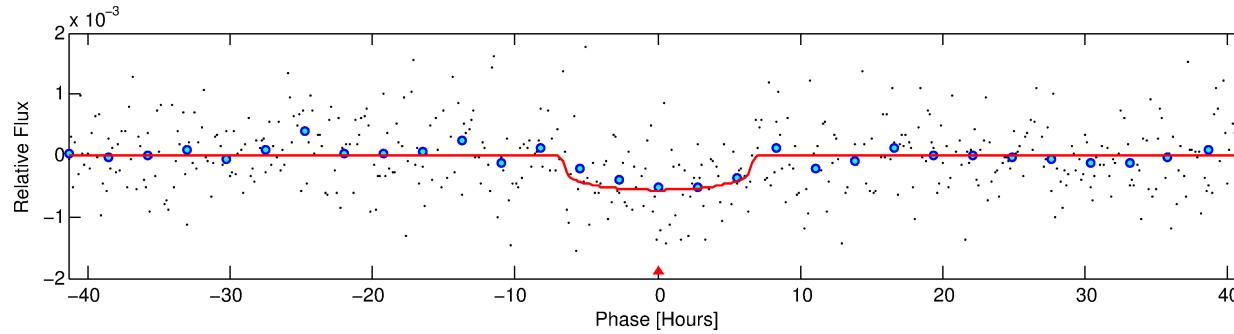
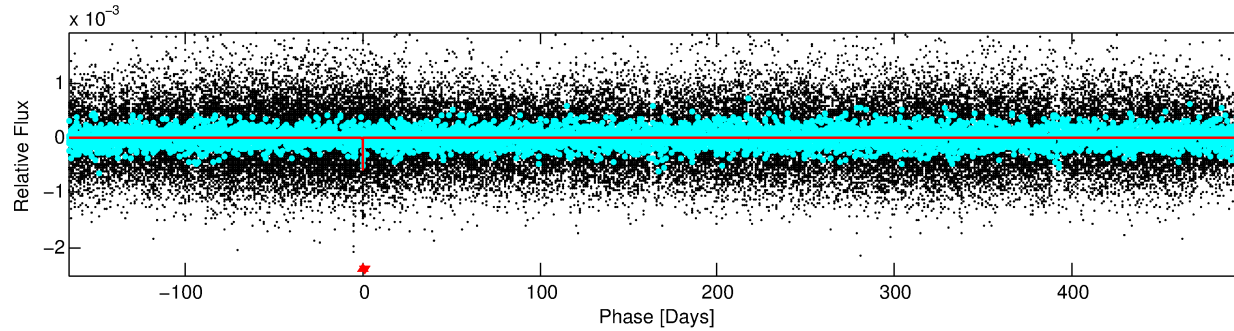
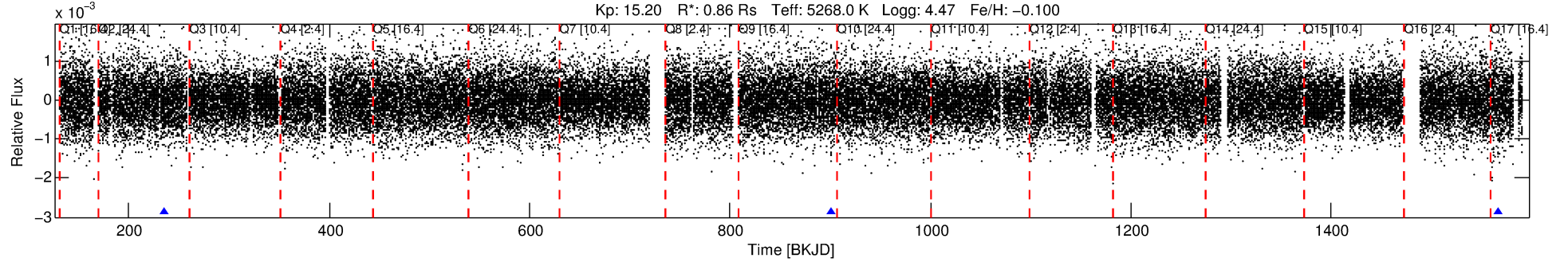
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012556735-01

No Significant Match Found

DV One-Page Summary

KIC: 12556735 Candidate: 1 of 1 Period: 665.569 d



DV Fit Results:

Period = 665.56864 [0.02034] d
Epoch = 235.3440 [0.0230] BKJD
Rp/R* = 0.0229 [0.0191]
a/R* = 291.82 [927.99]
b = 0.65 [2.89]
Seff = 0.27 [0.07]
Teq = 183 [12] K
Rp = 2.14 [1.81] Re
a = 1.3766 [0.1963] AU
Ag = 69906.14 [119307.33] [0.59 σ]
Teffp = 4610 [1954] K [2.26 σ]

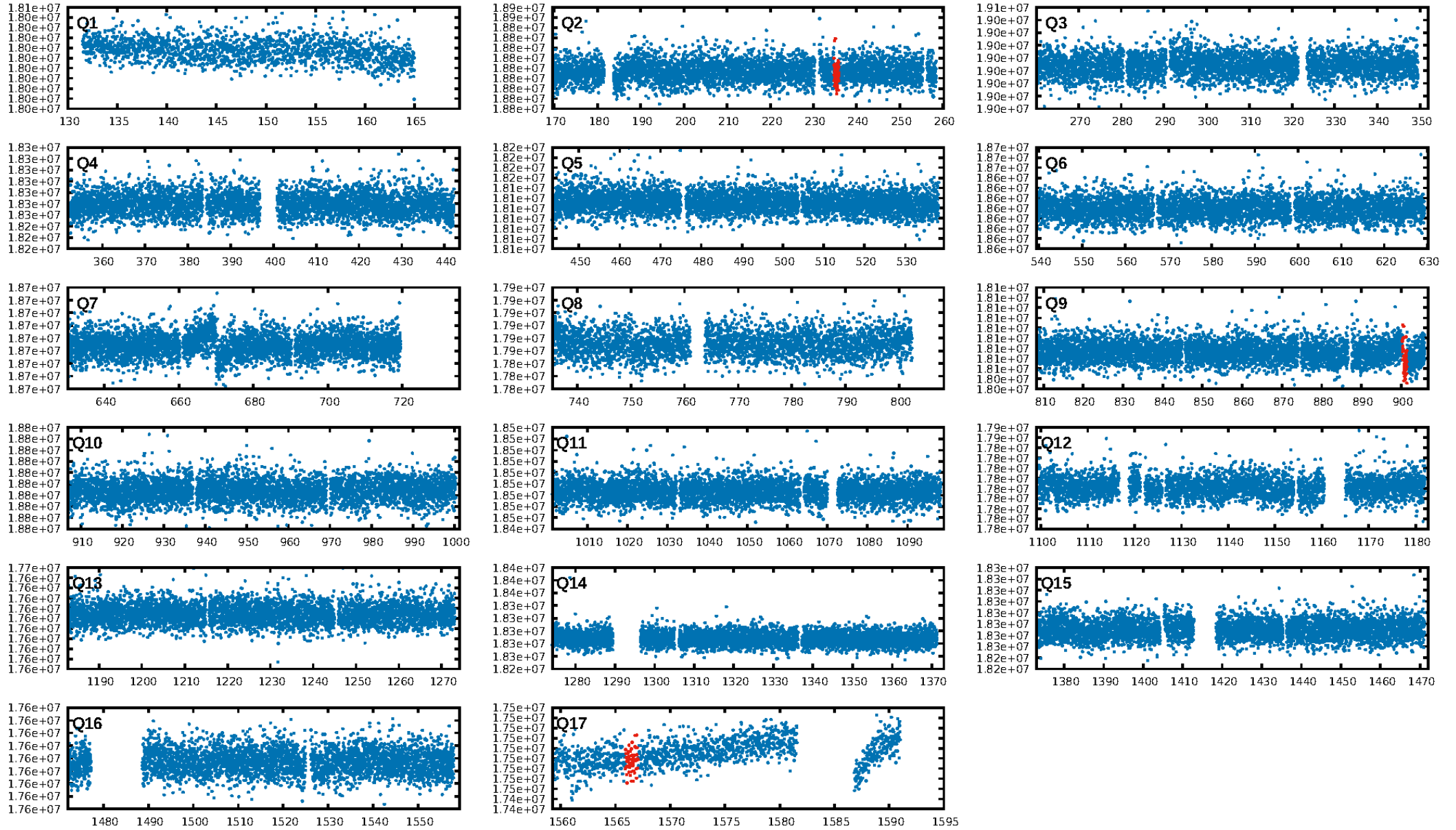
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 11.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.32e-15
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.8461
Centroid-sig: 0.8%
Centroid-so: 3.565 arcsec [1.84 σ]
OotOffset-rm: 2.457 arcsec [1.96 σ]
KicOffset-rm: 2.365 arcsec [1.91 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

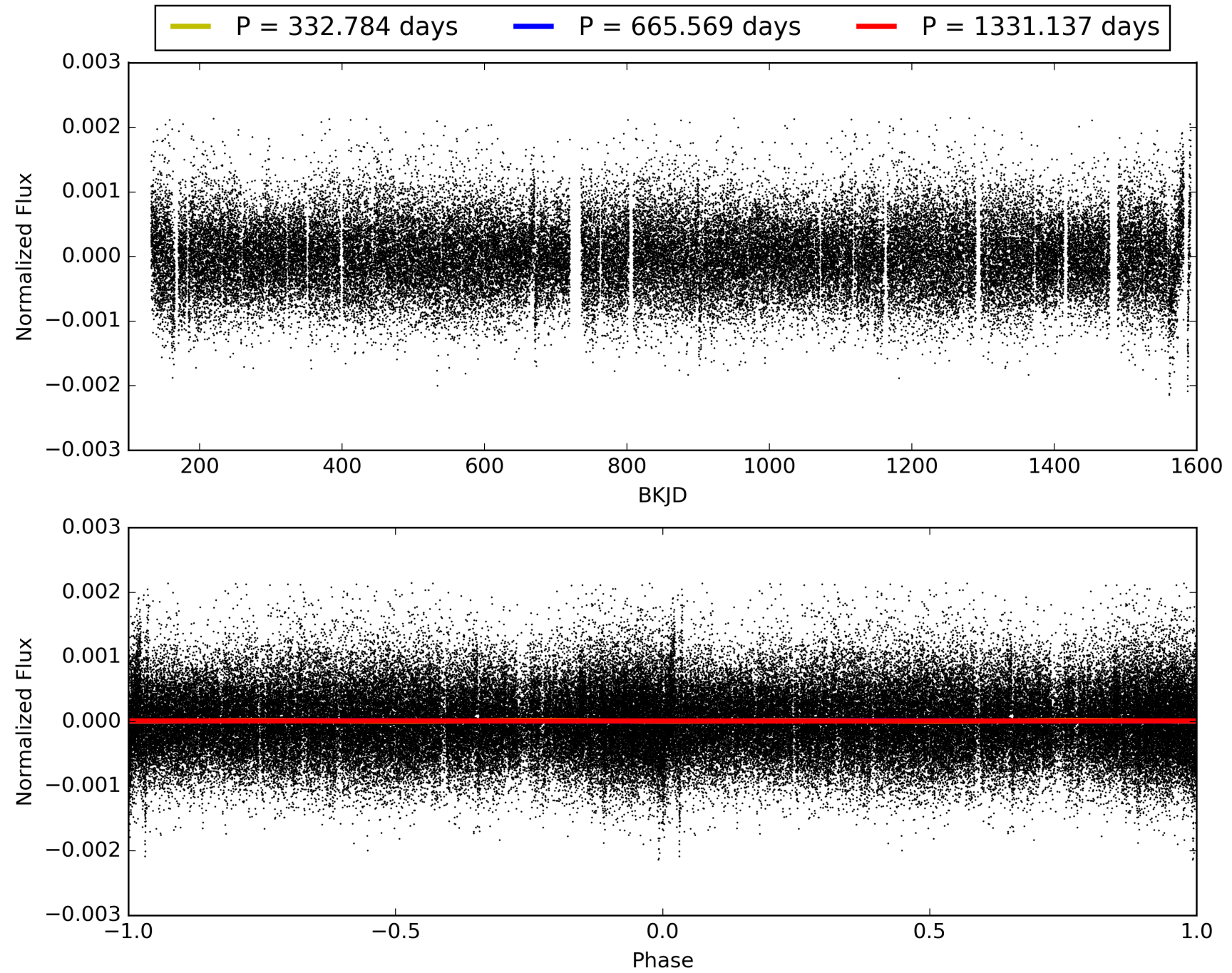
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:44:14 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 012556735-01, PDC Light Curves

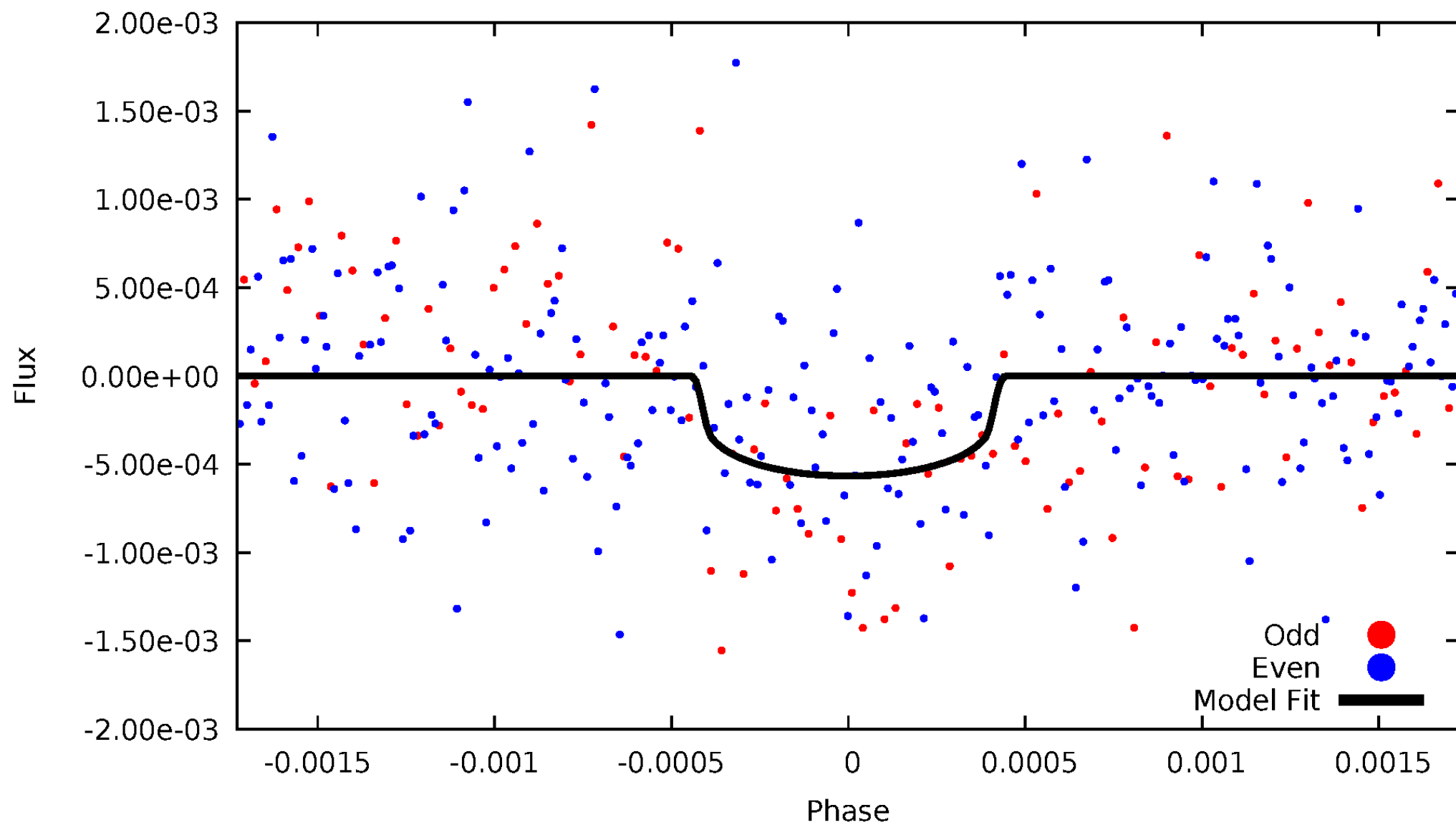


TCE 012556735-01



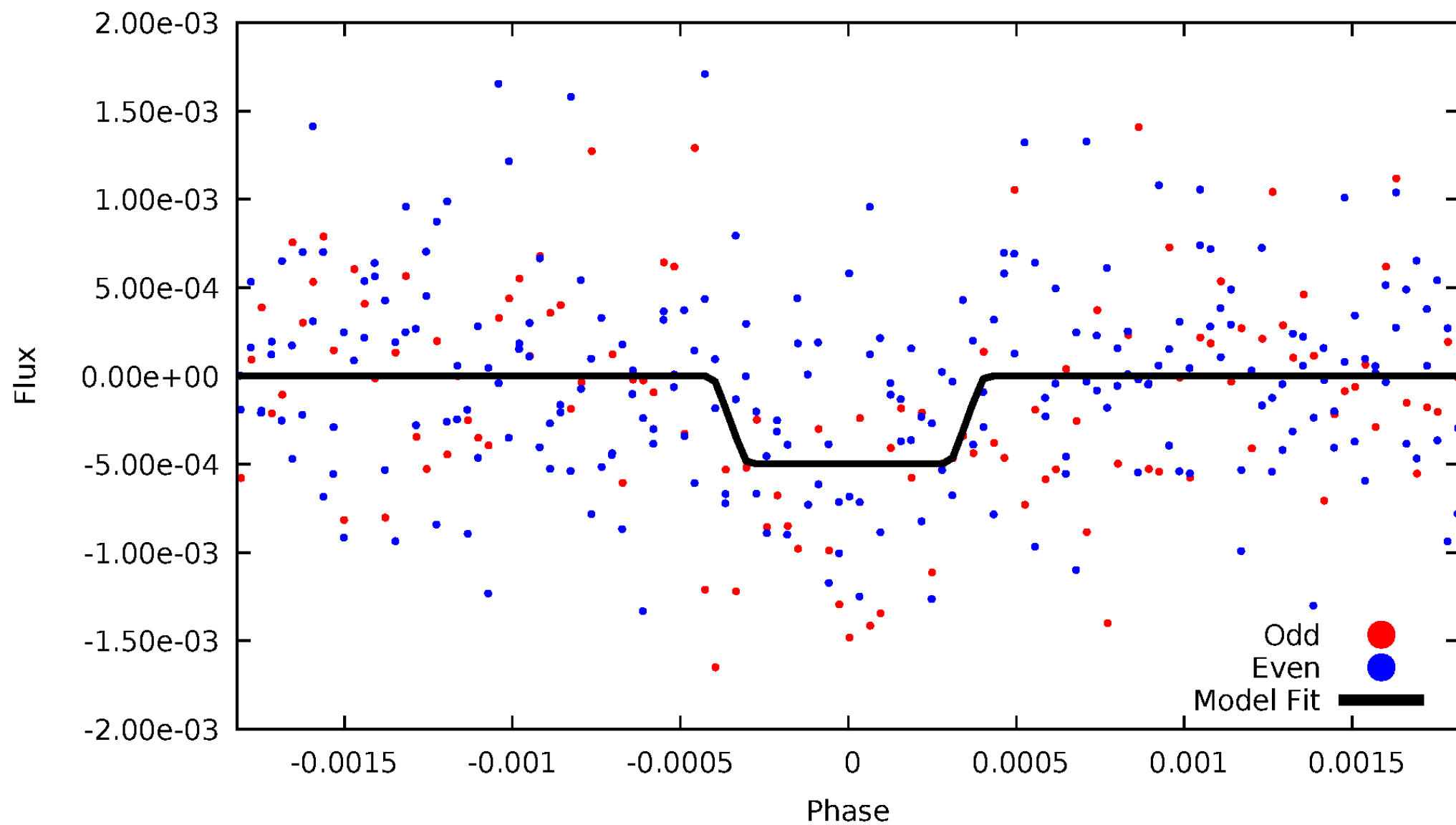
DV Odd/Even

TCE 012556735-01



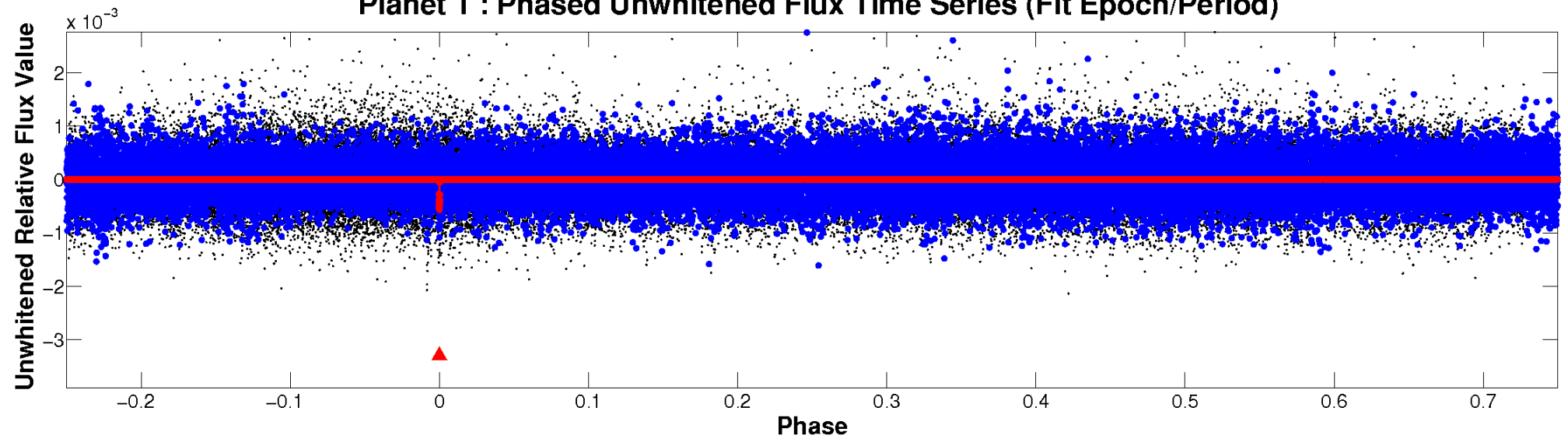
ALT Odd/Even

TCE 012556735-01

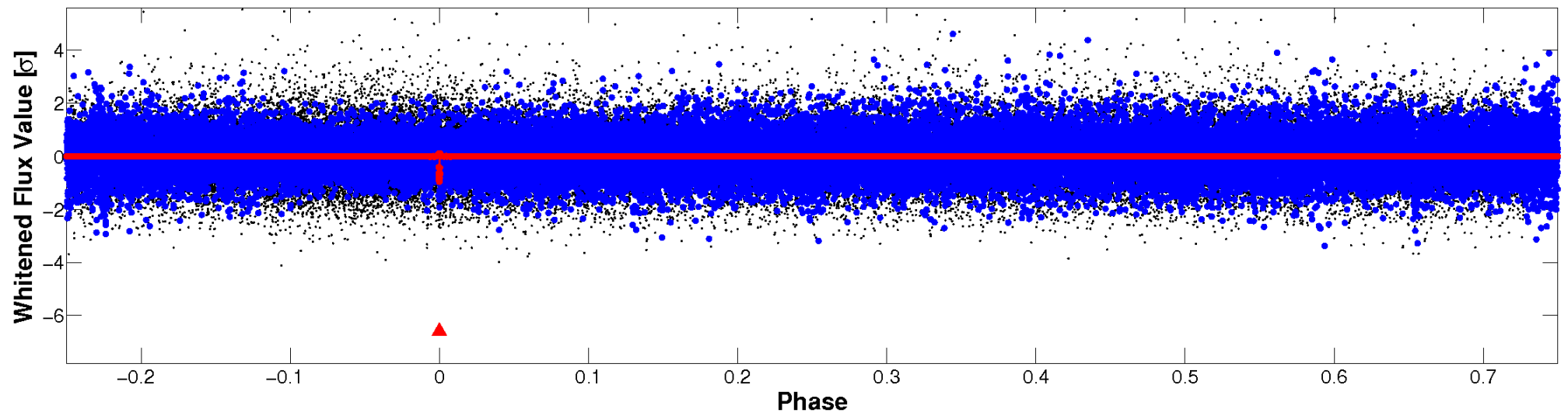


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 012556735-01 $P=665.568645$ Days $T_0=235.344045$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 012556735-01 P=665.568645 Days $T_0=235.344045$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

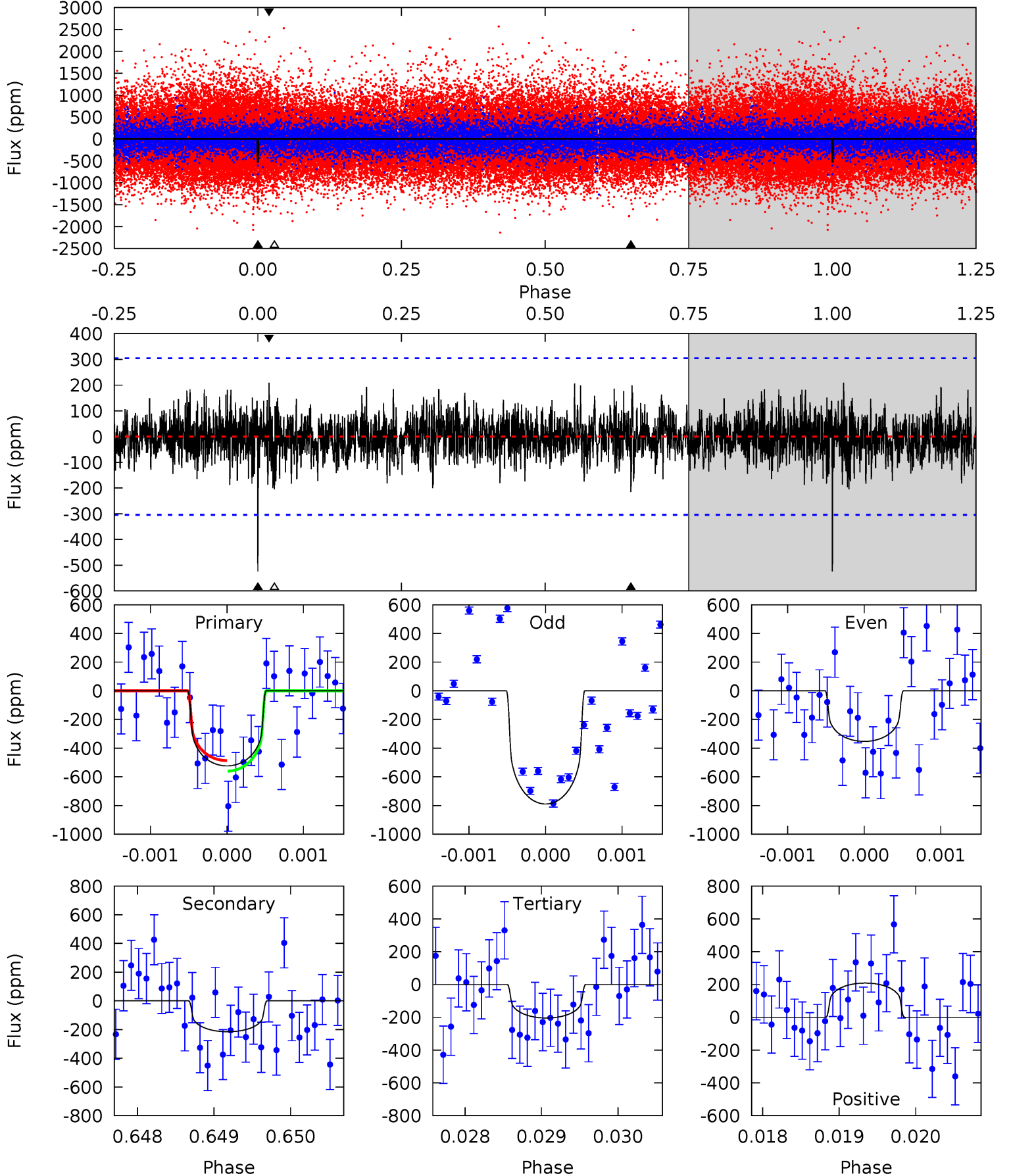
TCE 012556735-01 P=665.521049 Days $T_0=235.416335$ (BKJD)



DV Model-Shift Uniqueness Test

012556735-01, P = 665.568645 Days, E = 235.344045 Days

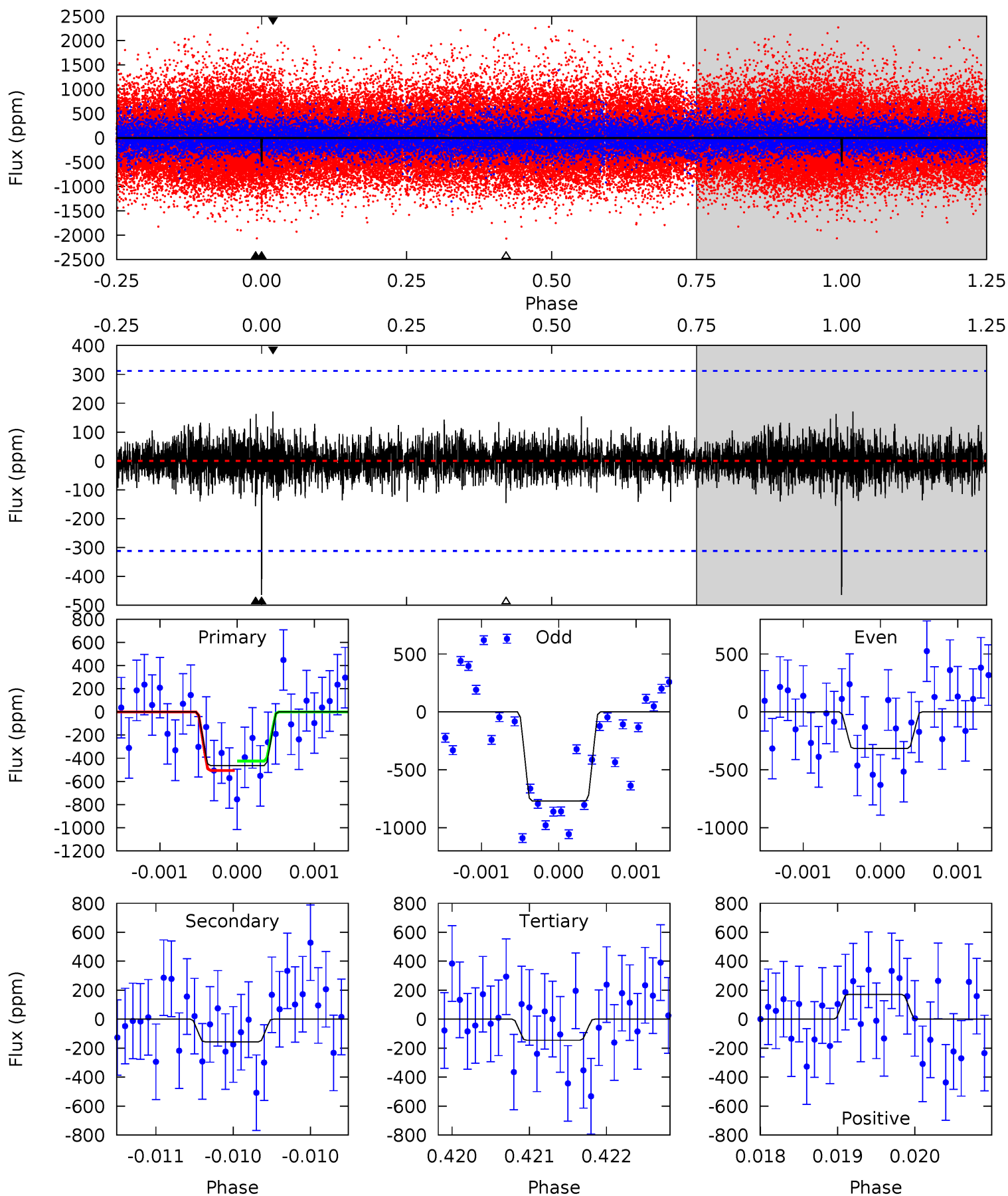
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.42 | 3.87 | 3.68 | 3.75 | 5.48 | 3.33 | 1.08 | 5.74 | 5.66 | 0.20 | 0.12 | 3.72 | 1.37 | 0.28 | 0.67 |



Alt Model-Shift Uniqueness Test

012556735-01, P = 665.521049 Days, E = 235.416335 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.16 | 2.75 | 2.56 | 3.01 | 5.49 | 3.35 | 0.73 | 5.61 | 5.16 | 0.19 | -0.26 | 3.79 | 1.06 | 0.27 | 0.72 |



Stellar Parameters For KIC 012556735

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5268^{+158}_{-158} | $4.467^{+0.120}_{-0.132}$ | $-0.100^{+0.300}_{-0.300}$ | $0.857^{+0.129}_{-0.117}$ | $0.785^{+0.112}_{-0.060}$ | $1.755^{+0.797}_{-0.645}$ |
| | +3%/-3% | +3%/-3% | +300%/-300% | +15%/-14% | +14%/-8% | +45%/-37% |
| Source | PHO1 | KIC0 | KIC0 | DSEP | | |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 012556735-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|-------------------|-----------------------|----------------------------|
| DV | -215 ± 56 | $2.41^{+1.67}_{-1.36}$ | 257^{+14}_{-13} | 4152^{+1817}_{-697} | $37823^{+160020}_{-25356}$ |
| Alt. | -156 ± 57 | $2.39^{+1.78}_{-1.44}$ | 257^{+13}_{-14} | 3928^{+1935}_{-681} | $25665^{+159885}_{-17650}$ |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

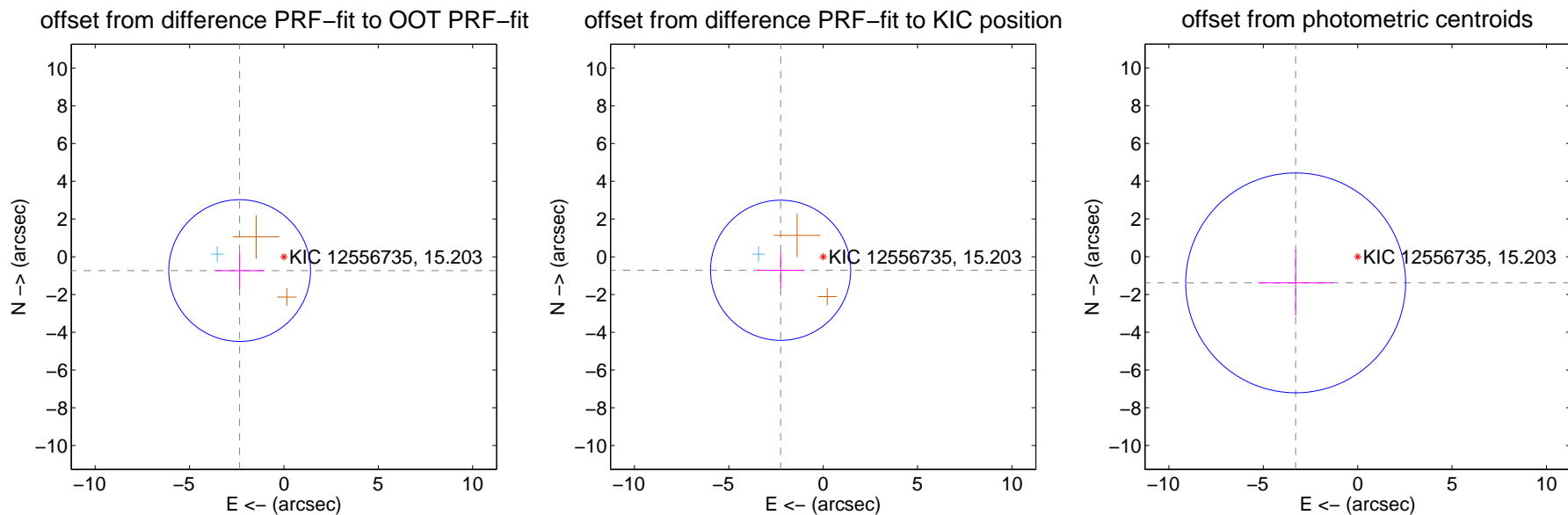
DV Centroid Data

Supplemental centroid analysis for 012556735-01. Kepler magnitude: 15.20. Transit SNR 7.28

There are 1 quarters with good PRF difference image offsets

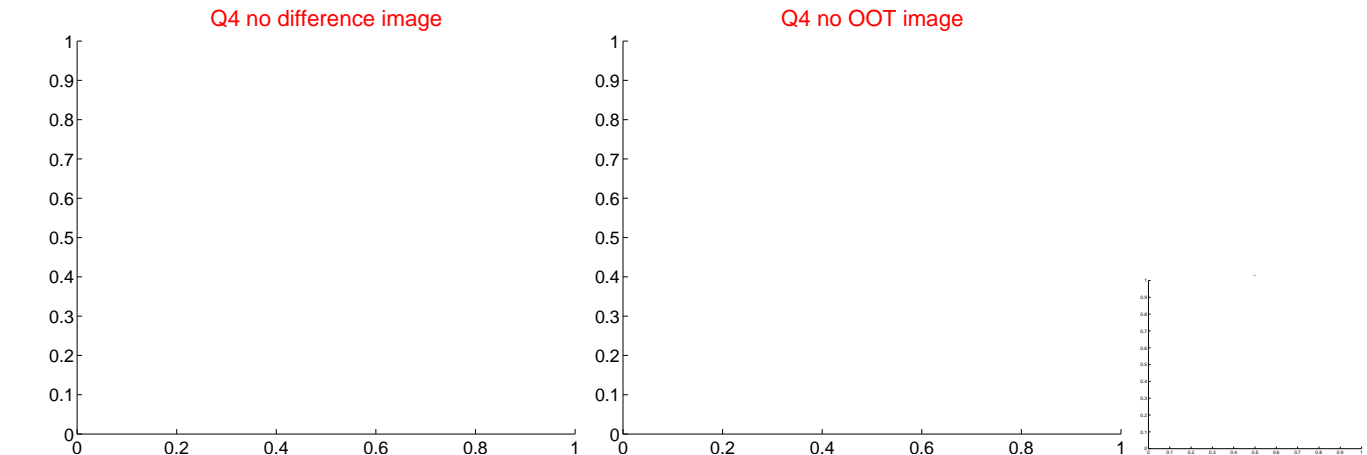
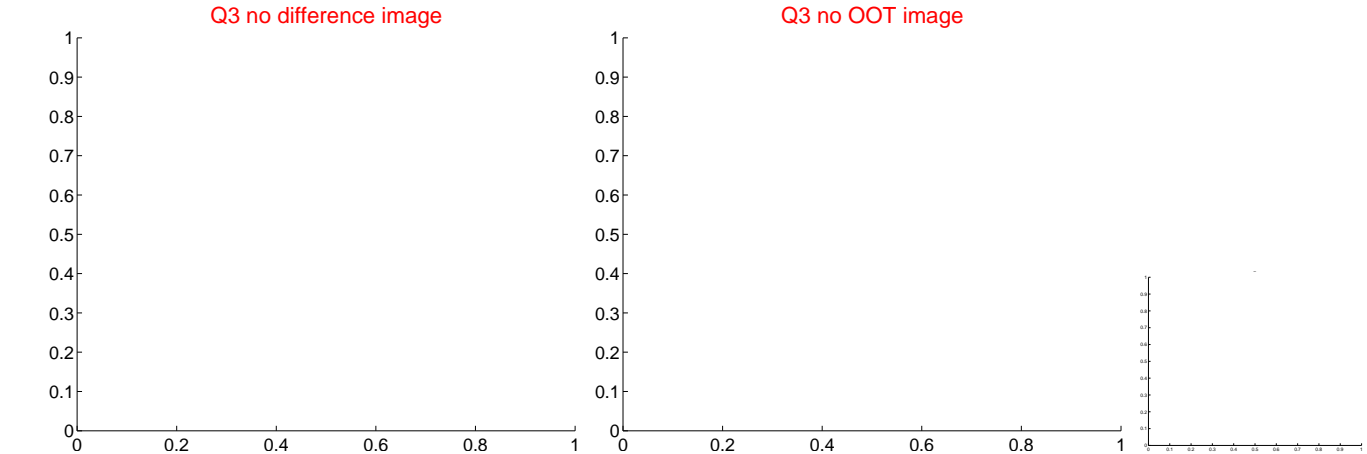
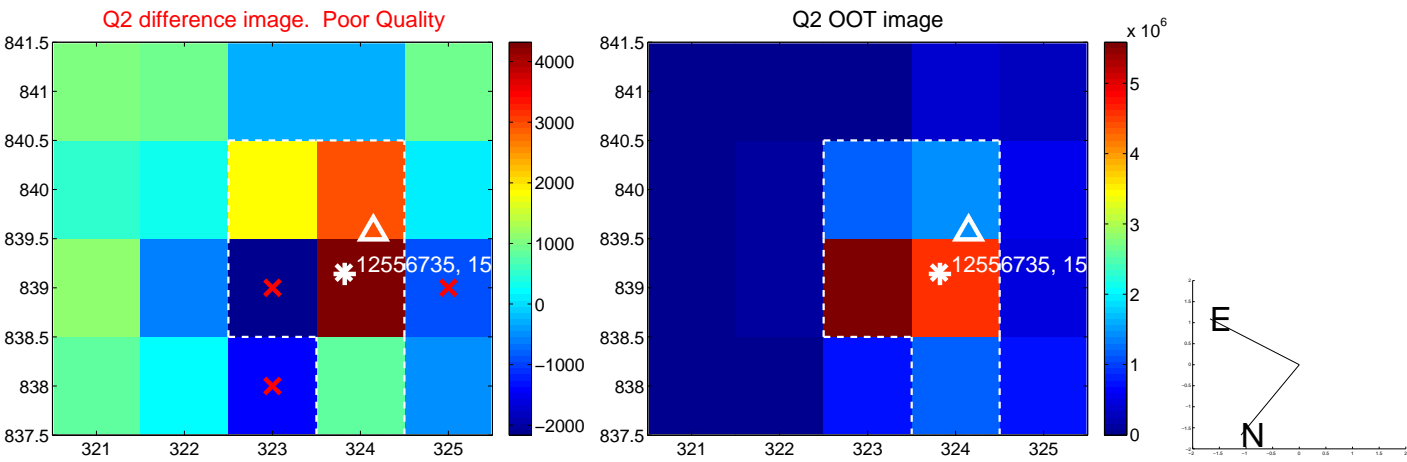
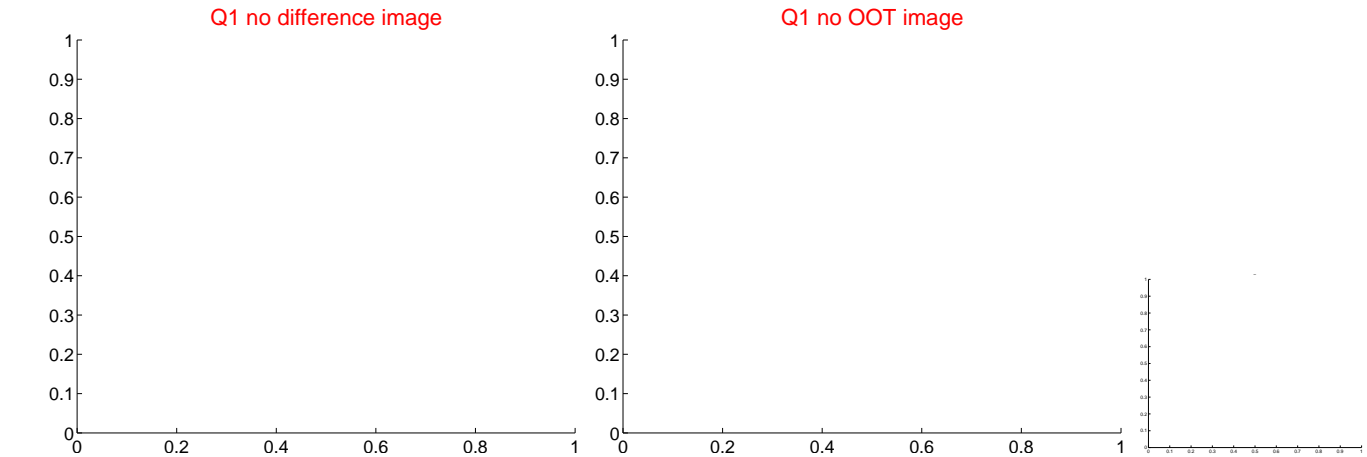
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 2.457 ± 1.252 | 1.96 | 2.346 ± 1.276 | -0.731 ± 0.965 |
| PRF-fit source offset from KIC position | 2.365 ± 1.238 | 1.91 | 2.255 ± 1.262 | -0.715 ± 0.965 |
| photometric centroid source offset | 3.57 ± 1.94 | 1.84 | 3.29 ± 1.97 | -1.39 ± 1.74 |



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

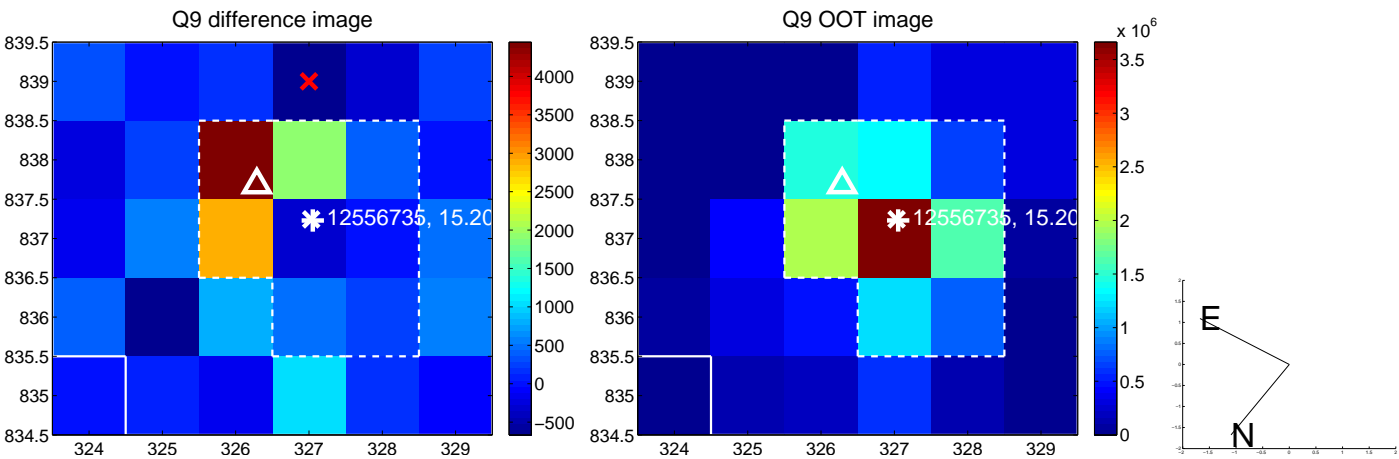
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



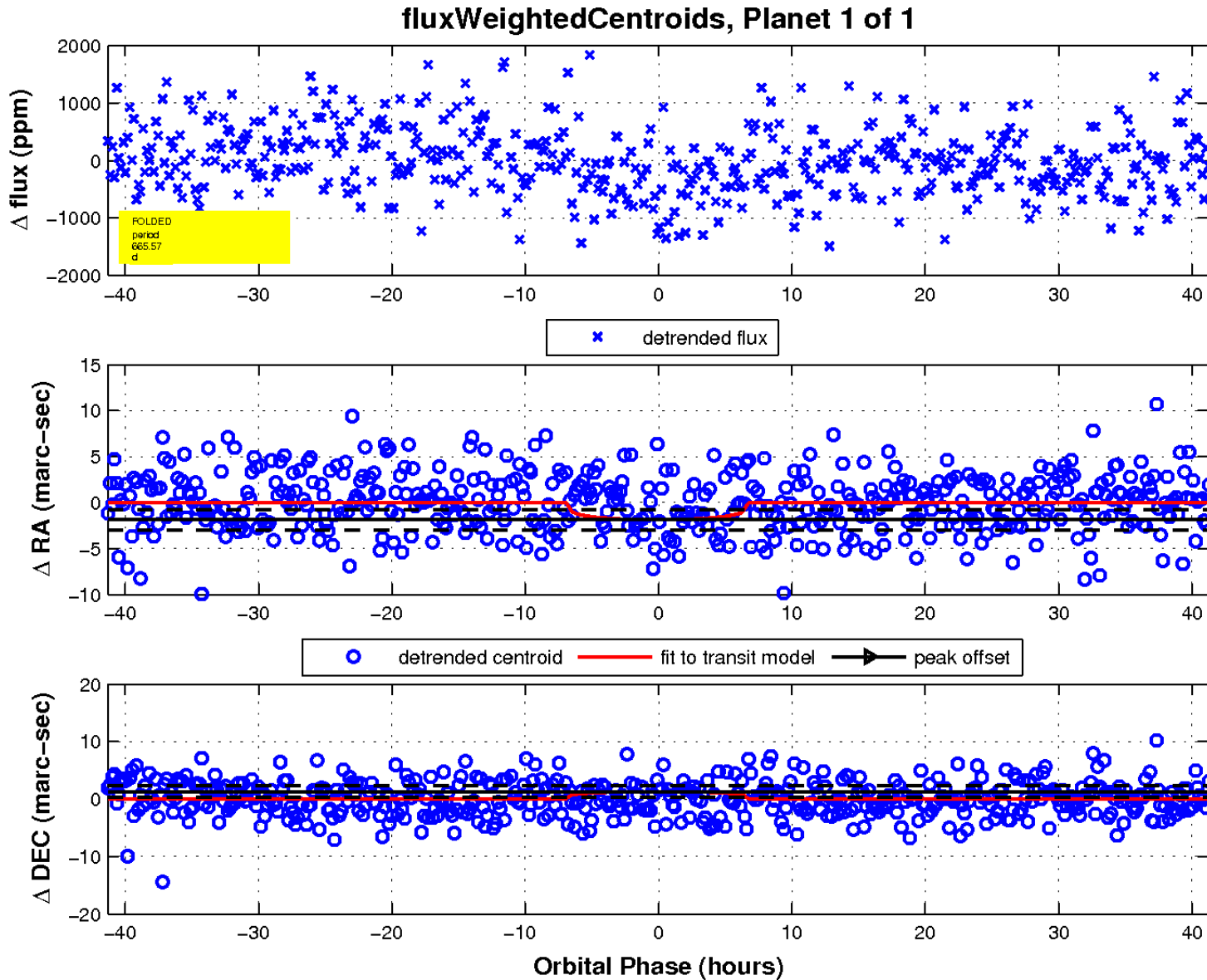
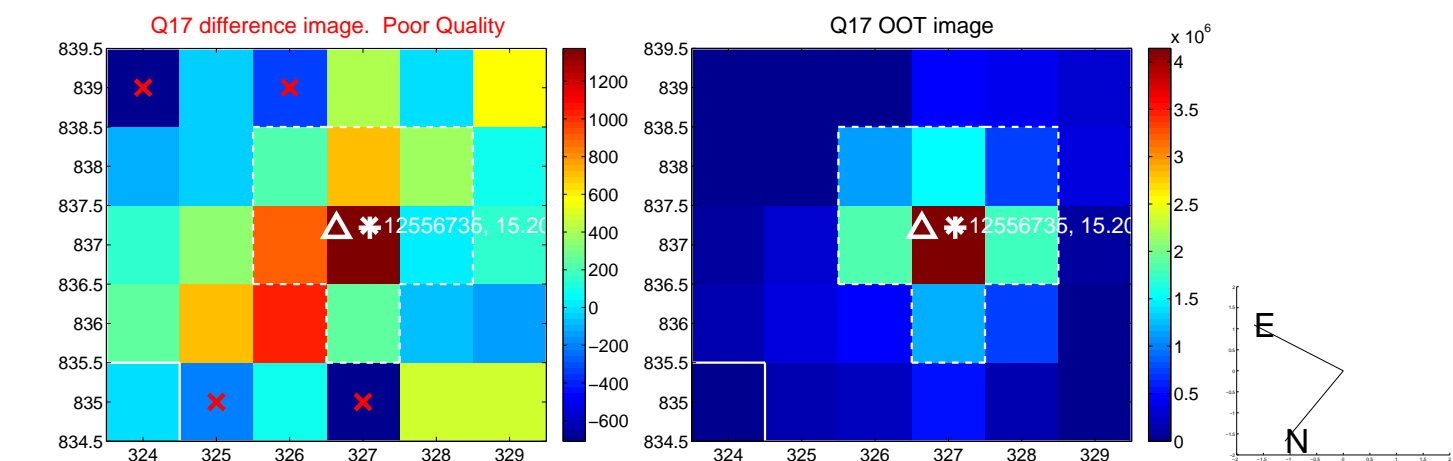
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

