

KIC 005438802

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005438802-01 | OBS | No | 477.684730 | 403.829950 | 199.0 | 9.457 | 7.8 | 7.2 | 0.81 | 5577 | 1.25 | 0.43 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|-----------------------------|
| 005438802-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL |

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

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

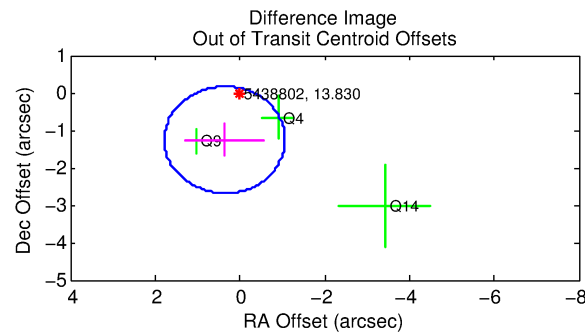
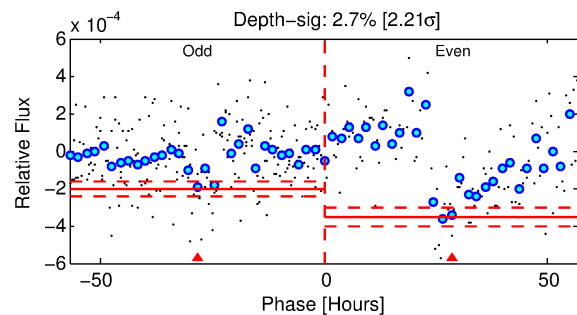
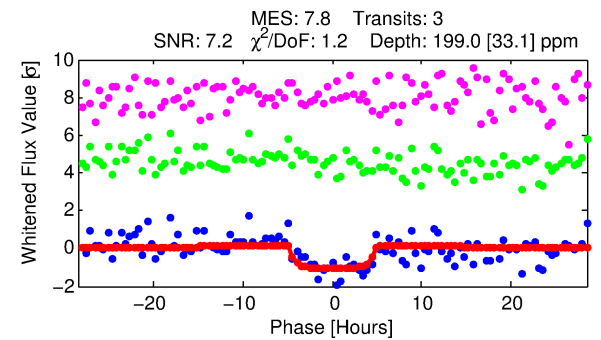
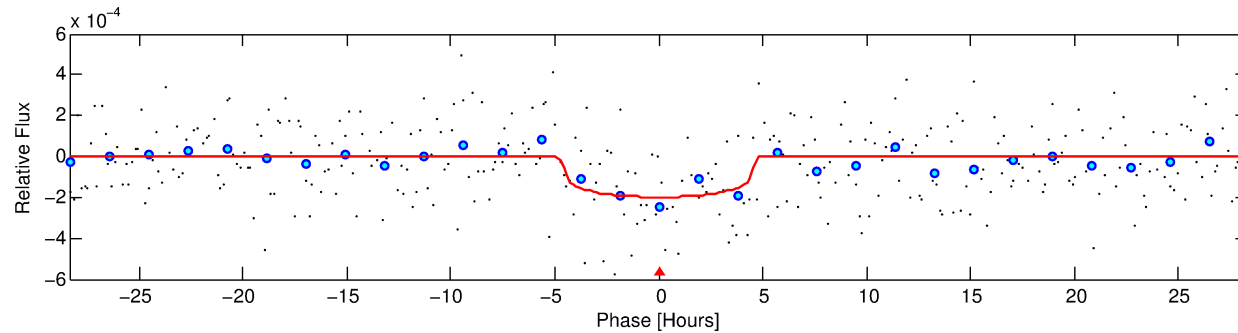
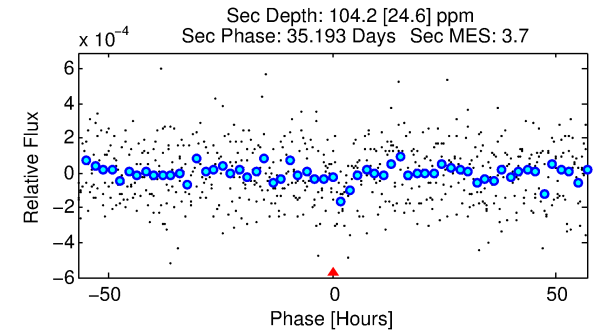
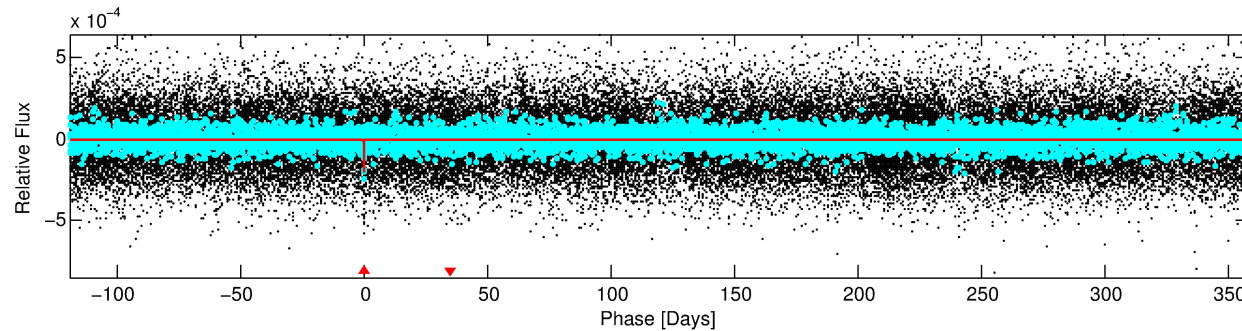
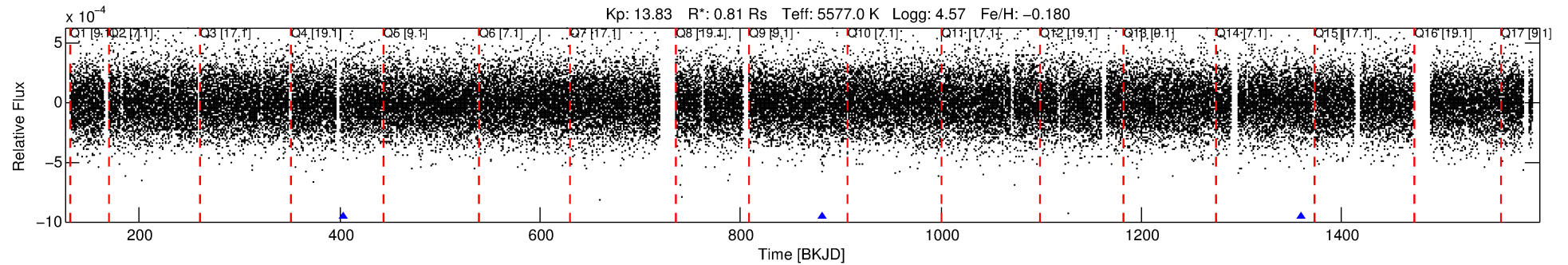
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005438802-01

No Significant Match Found

DV One-Page Summary

KIC: 5438802 Candidate: 1 of 1 Period: 477.685 d



DV Fit Results:

Period = 477.68473 [0.01632] d
Epoch = 403.8299 [0.0201] BKJD
Rp/R* = 0.0142 [0.0134]
a/R* = 252.90 [1035.95]
b = 0.77 [2.15]
Seff = 0.43 [0.13]
Teq = 206 [15] K
Rp = 1.25 [1.22] Re
a = 1.1510 [0.2234] AU
Ag = 48551.60 [93606.65] [0.52σ]
Teffp = 4731 [2260] K [2.00σ]

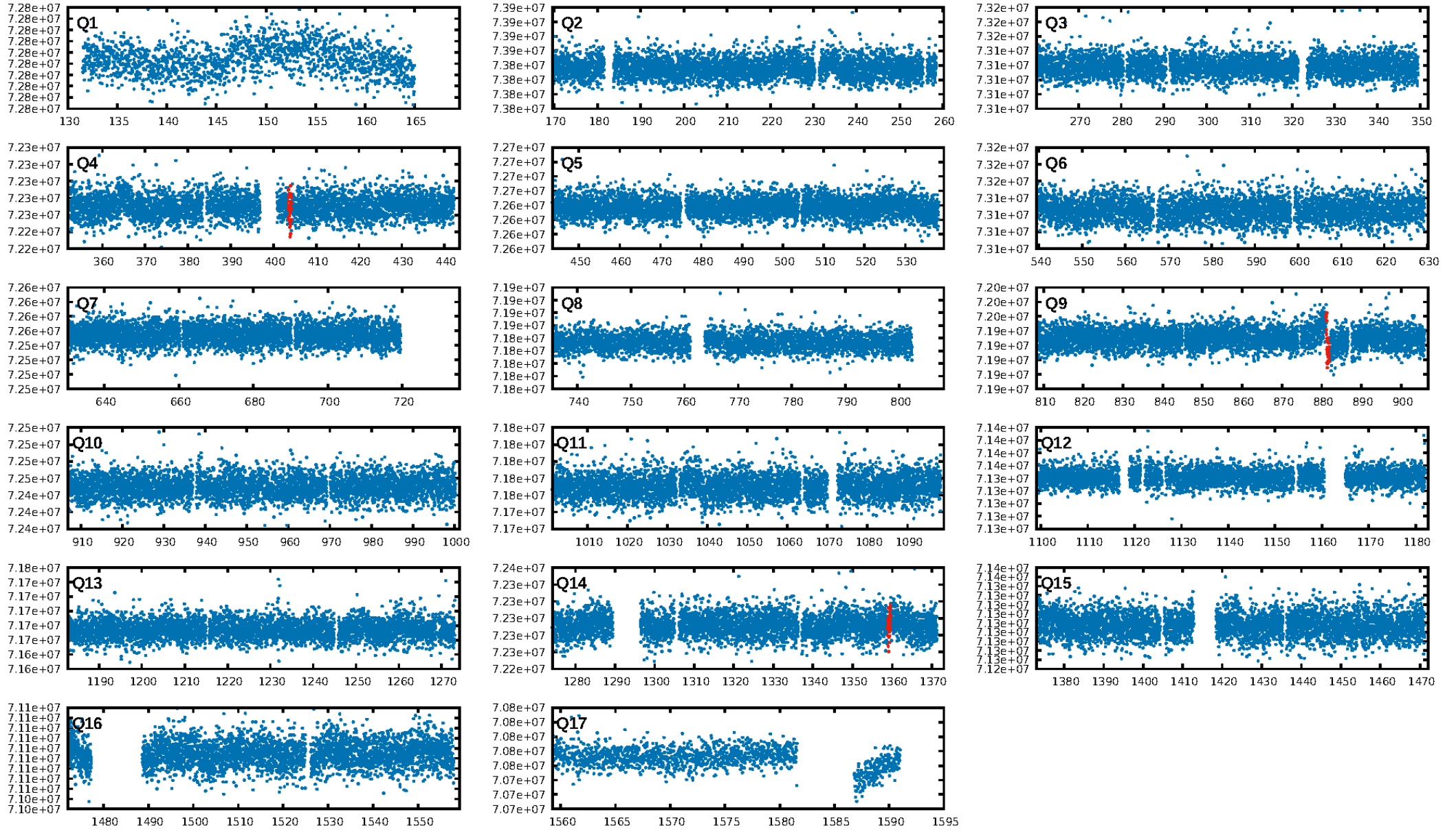
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.8%
ModelChiSquareGof-sig: 78.4%
Bootstrap-pfa: 3.91e-18
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.506
Centroid-sig: 25.4%
Centroid-so: 1.884 arcsec [1.19σ]
OotOffset-rm: 1.307 arcsec [2.76σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-rm: 1.363 arcsec [2.76σ]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

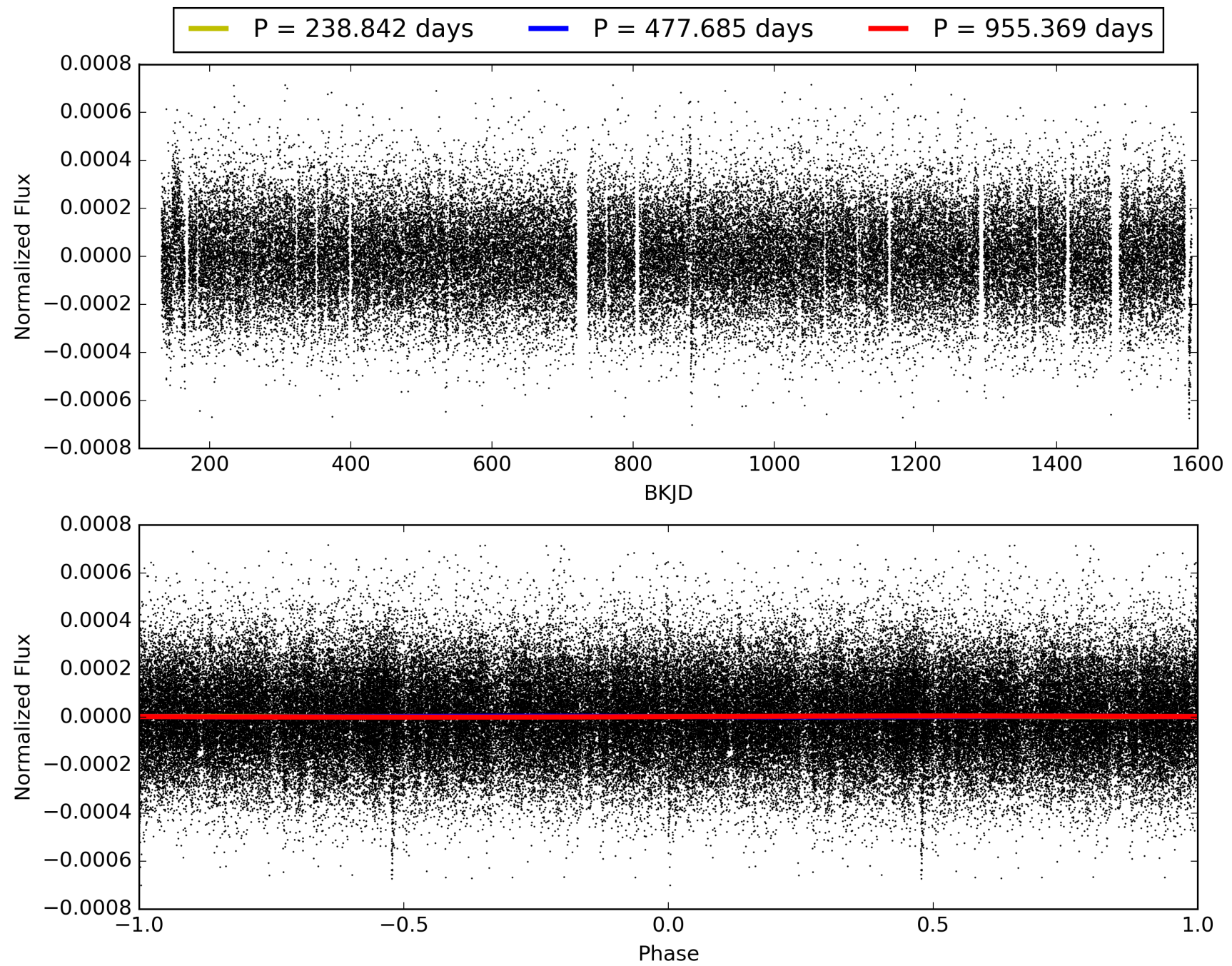
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:26:20 Z

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

TCE 005438802-01, PDC Light Curves

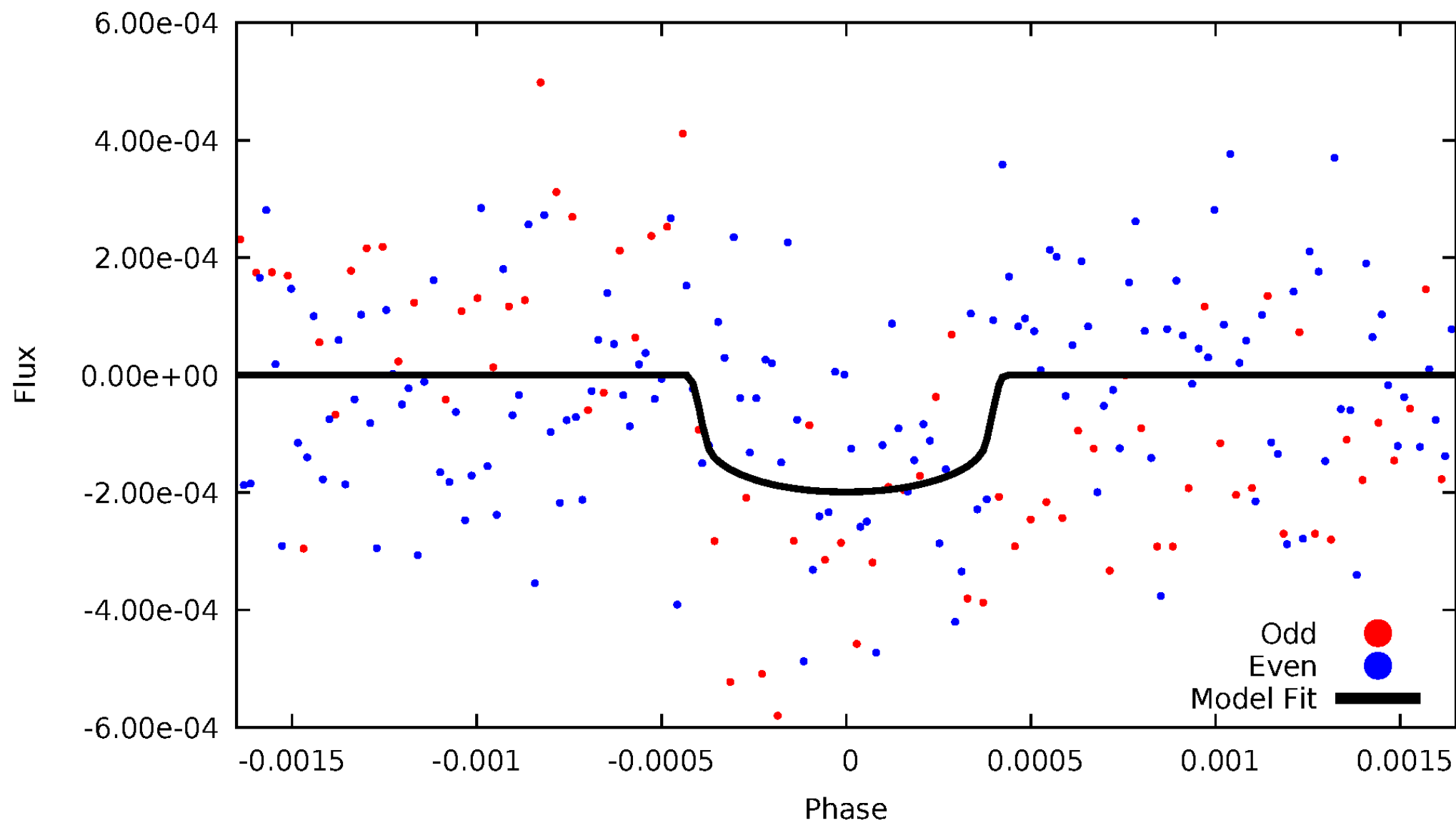


TCE 005438802-01



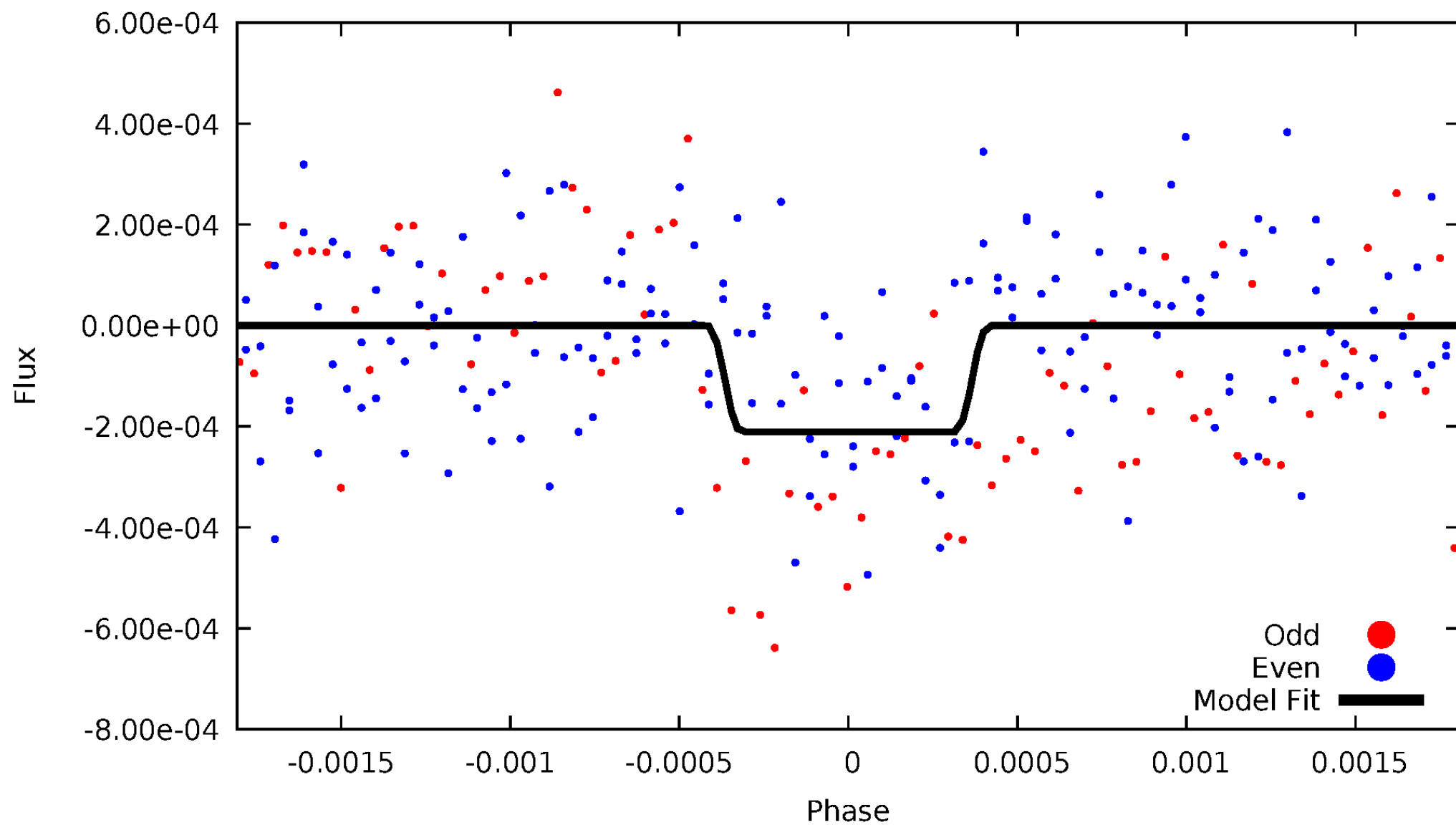
DV Odd/Even

TCE 005438802-01



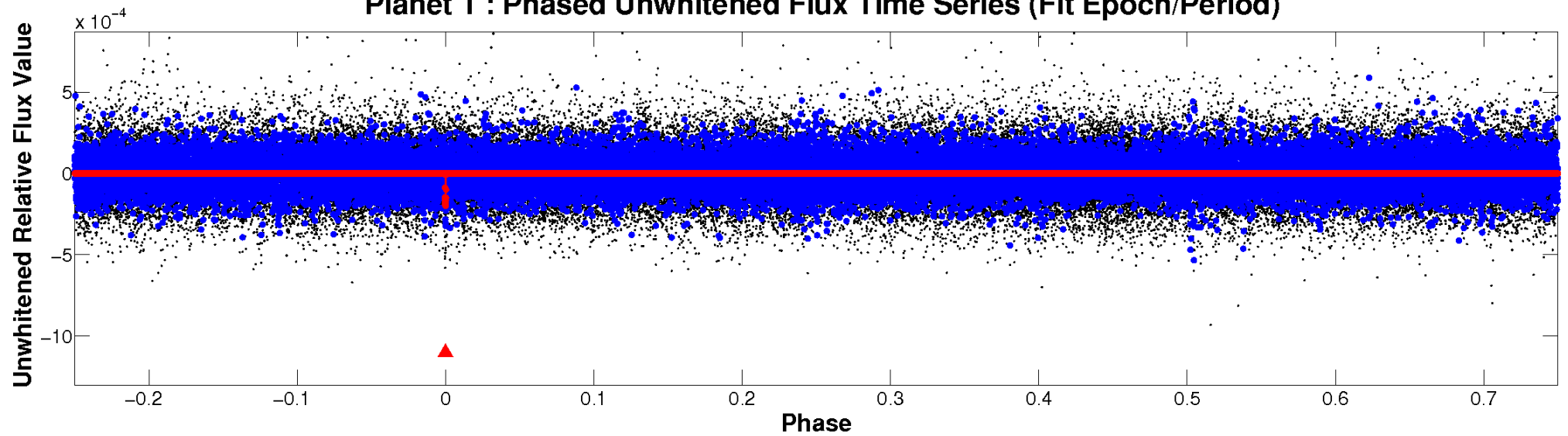
ALT Odd/Even

TCE 005438802-01

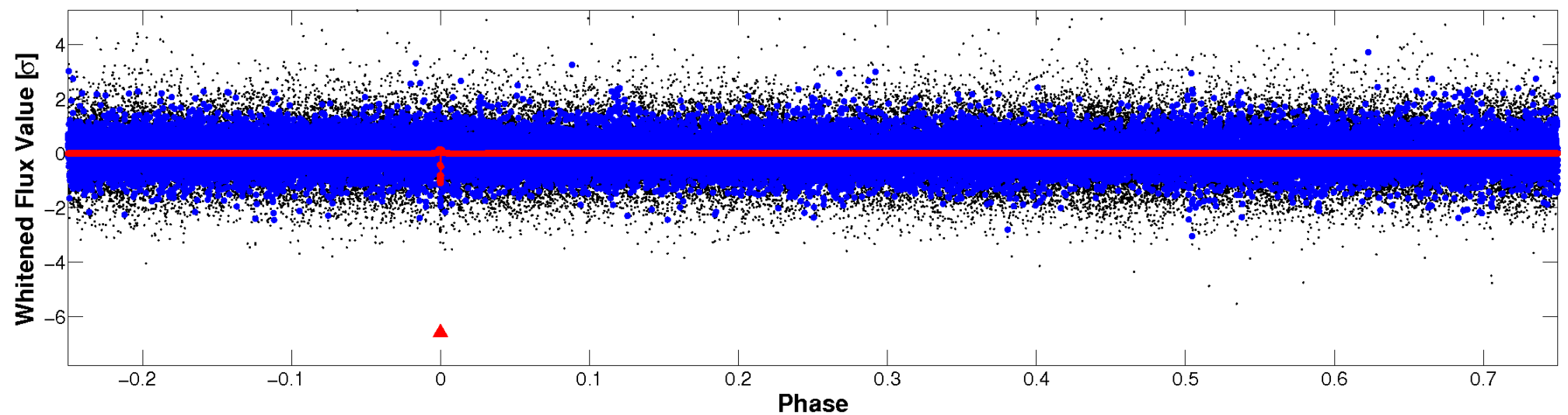


Non-Whitened Vs. Whitened Light Curve

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

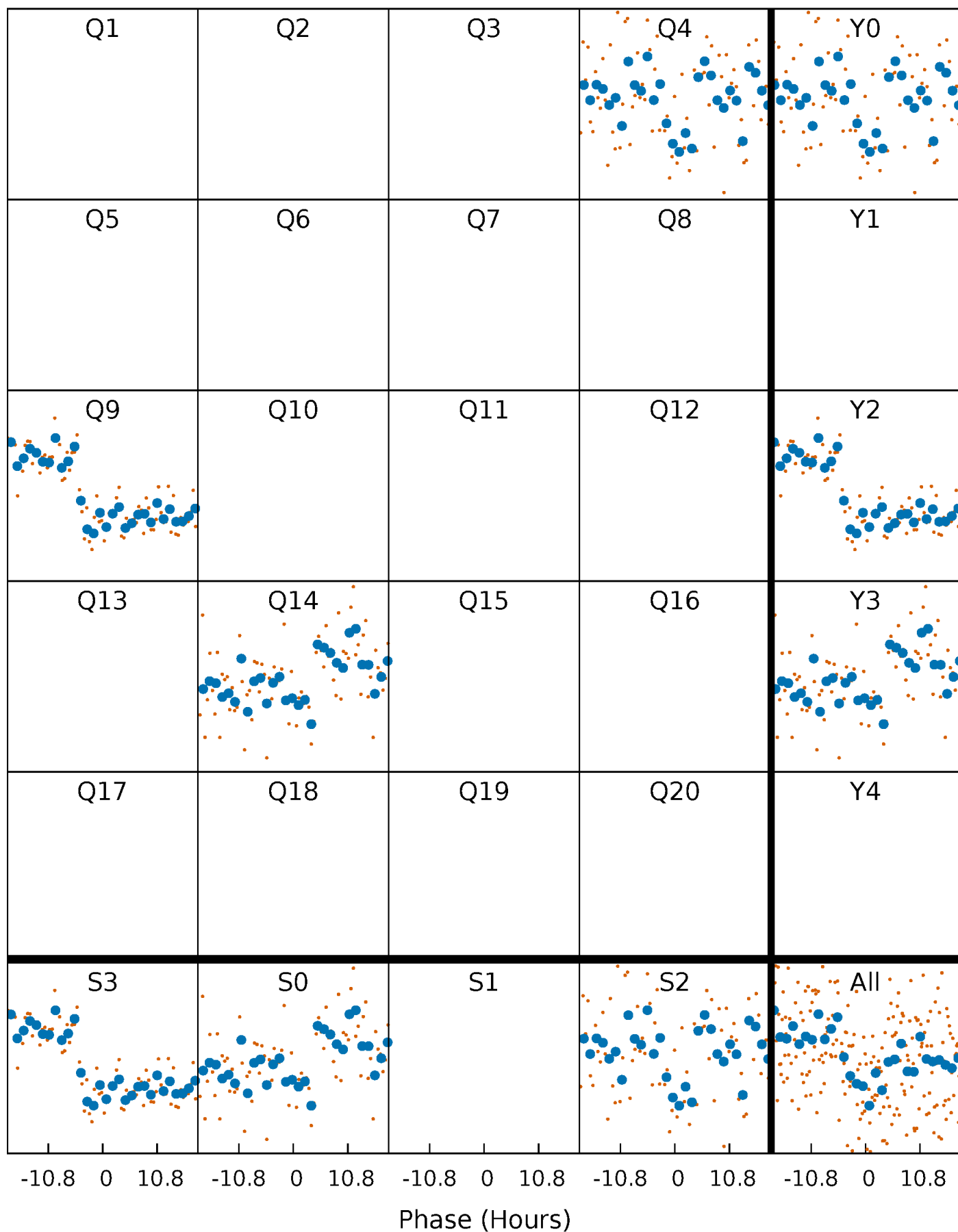


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 005438802-01 P=477.684730 Days $T_0=403.829950$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 005438802-01 $P=477.684730$ Days $T_0=403.829950$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

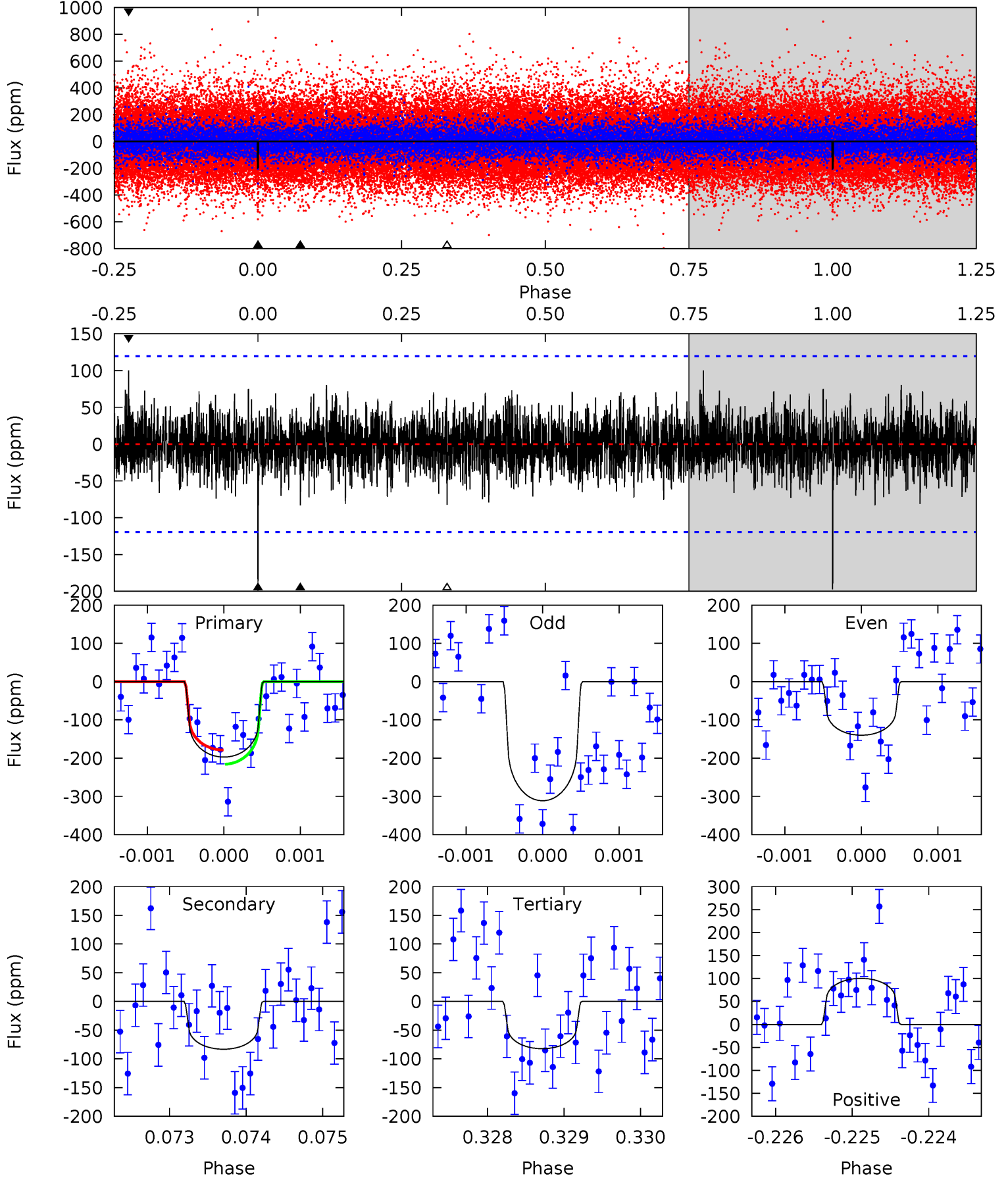
TCE 005438802-01 P=477.688955 Days $T_0=403.841124$ (BKJD)



DV Model-Shift Uniqueness Test

005438802-01, P = 477.684730 Days, E = 403.829950 Days

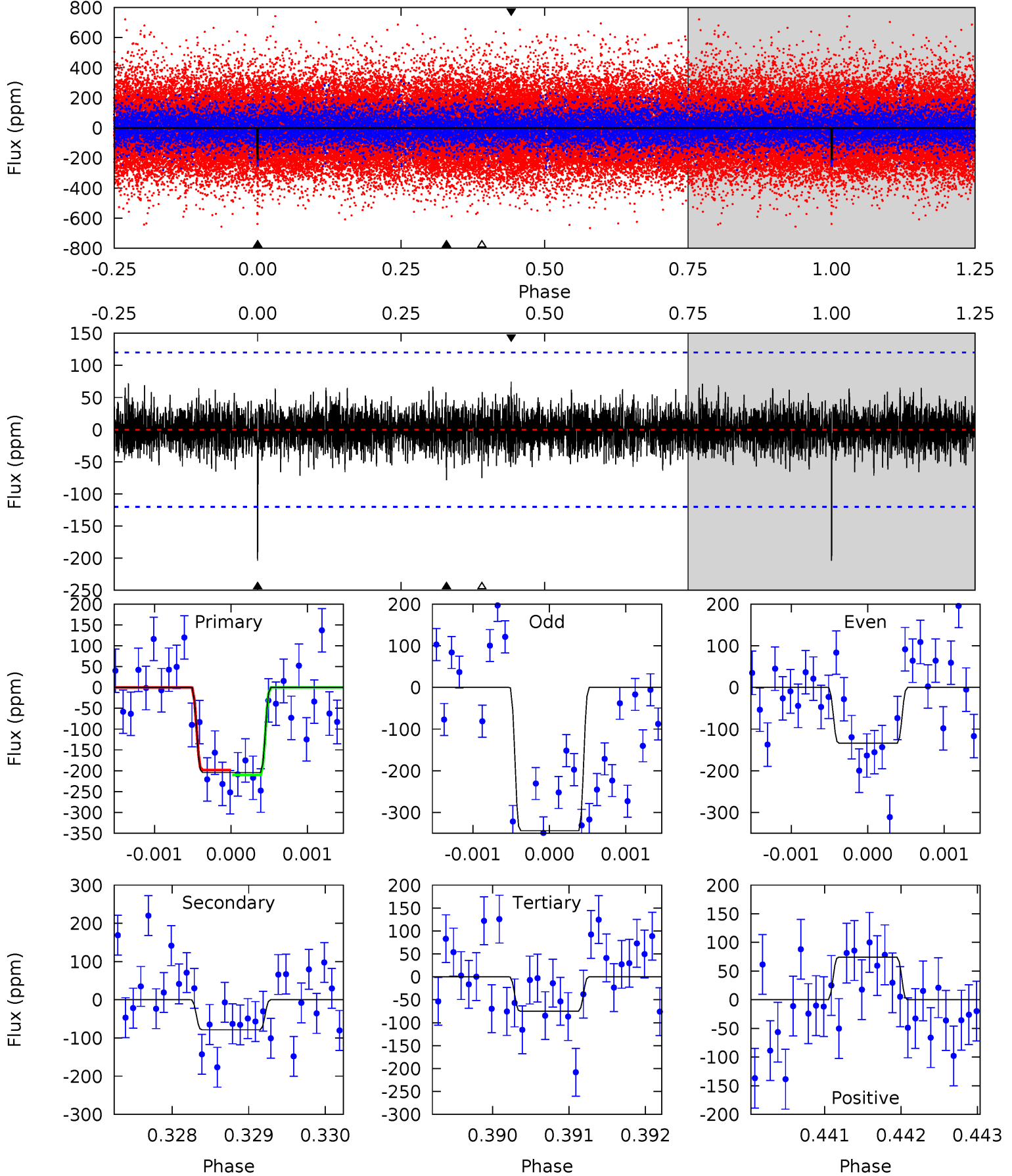
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.04 | 3.82 | 3.77 | 4.60 | 5.48 | 3.34 | 1.12 | 5.27 | 4.44 | 0.04 | -0.78 | 3.70 | 1.33 | 0.34 | 0.85 |



Alt Model-Shift Uniqueness Test

005438802-01, $P = 477.688955$ Days, $E = 403.841124$ Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.31 | 3.59 | 3.42 | 3.40 | 5.49 | 3.35 | 0.92 | 5.89 | 5.92 | 0.16 | 0.19 | 4.54 | 1.31 | 0.27 | 0.26 |



Stellar Parameters For KIC 005438802

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|--|
| | 5577^{+149}_{-149} | $4.573^{+0.038}_{-0.152}$ | $-0.180^{+0.300}_{-0.300}$ | $0.808^{+0.188}_{-0.075}$ | $0.900^{+0.081}_{-0.102}$ | $2.401^{+0.469}_{-1.043}$ |
| | +3%/-3% | +1%/-3% | +167%/-167% | +23%/-9% | +9%/-11% | +20%/-43% |
| 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 005438802-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|-----------------------|----------------------------|
| DV | -83 ± 22 | $1.52^{+1.19}_{-0.96}$ | 294^{+17}_{-12} | 4342^{+2352}_{-831} | $25762^{+160898}_{-18356}$ |
| Alt. | -79 ± 22 | $1.56^{+1.19}_{-0.97}$ | 293^{+15}_{-11} | 4201^{+2291}_{-742} | $21542^{+141890}_{-14861}$ |

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

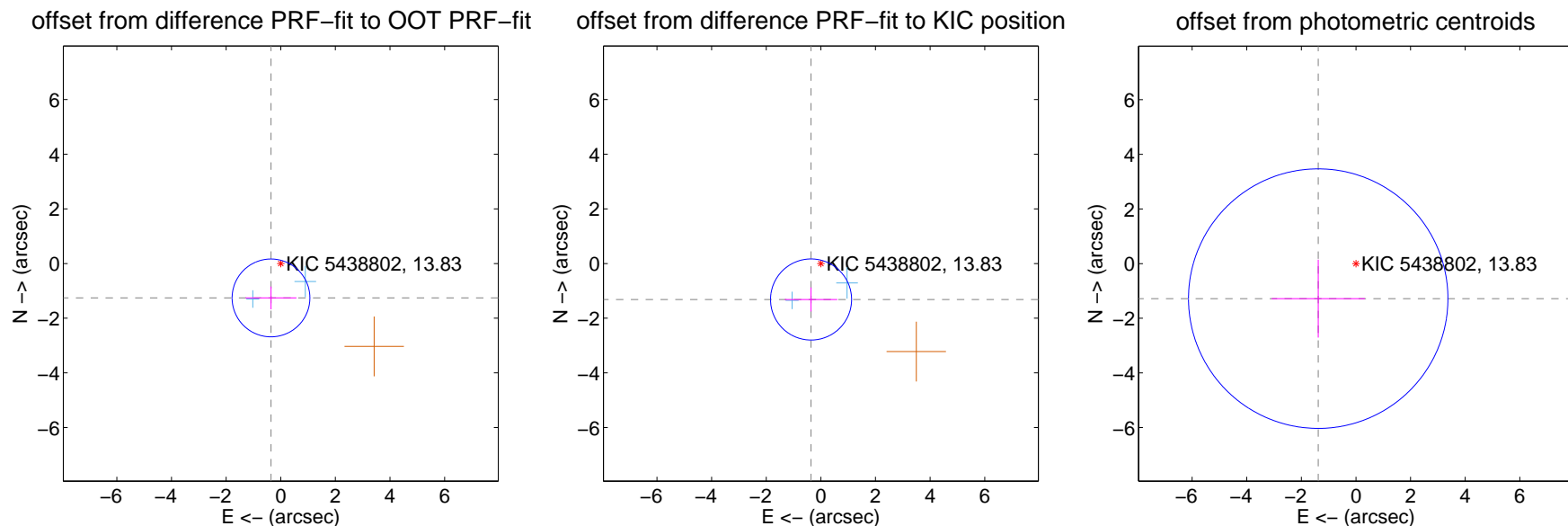
DV Centroid Data

Supplemental centroid analysis for 005438802-01. Kepler magnitude: 13.83. Transit SNR 7.22

There are 2 quarters with good PRF difference image offsets

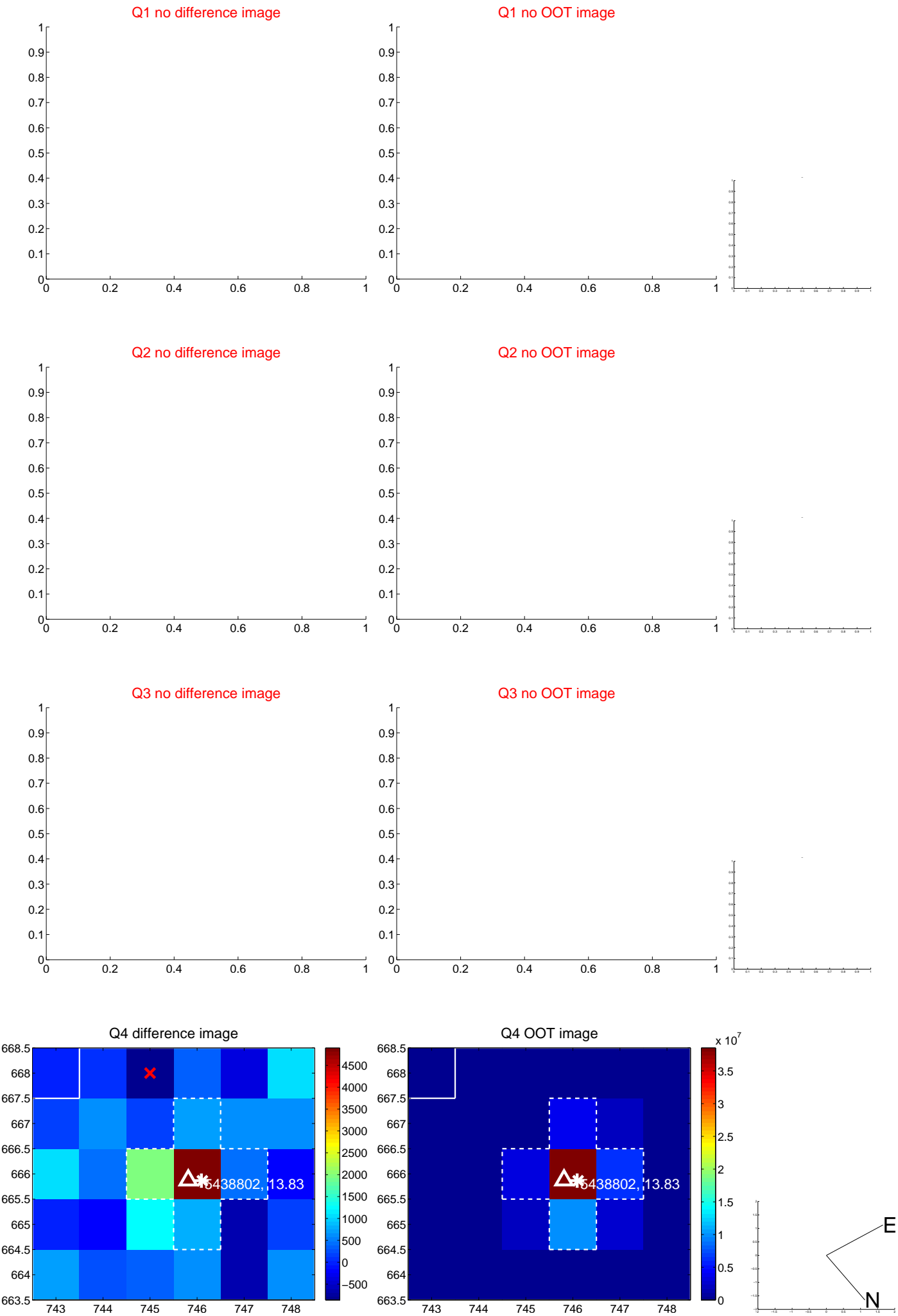
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 1.307 ± 0.474 | 2.76 | 0.357 ± 0.932 | -1.257 ± 0.416 |
| PRF-fit source offset from KIC position | 1.363 ± 0.494 | 2.76 | 0.359 ± 0.961 | -1.315 ± 0.440 |
| photometric centroid source offset | 1.88 ± 1.58 | 1.19 | 1.38 ± 1.71 | -1.28 ± 1.43 |



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.

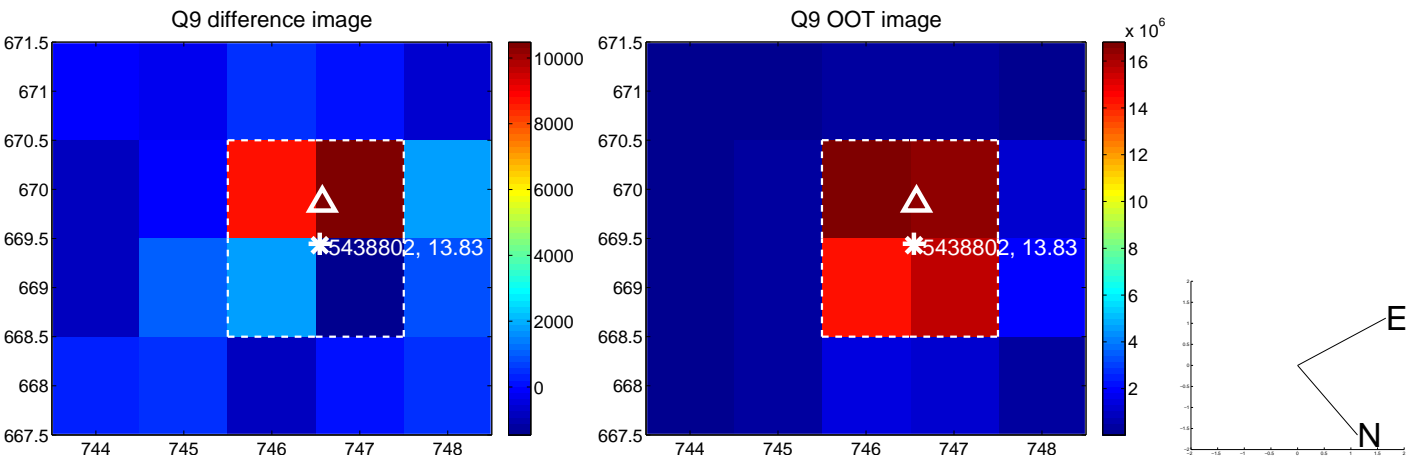
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



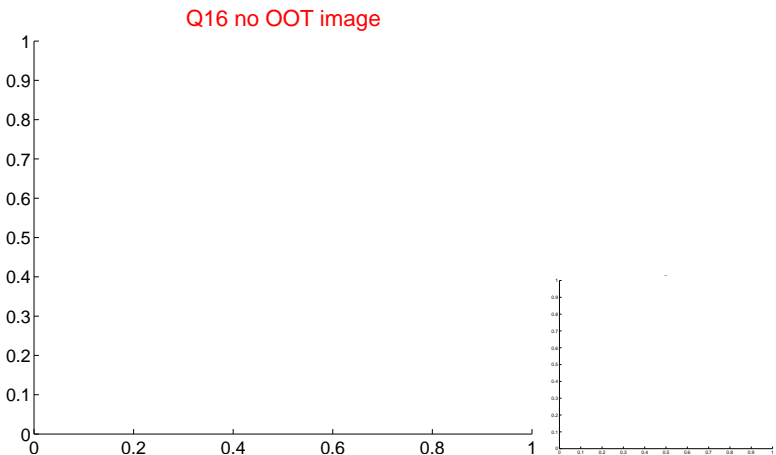
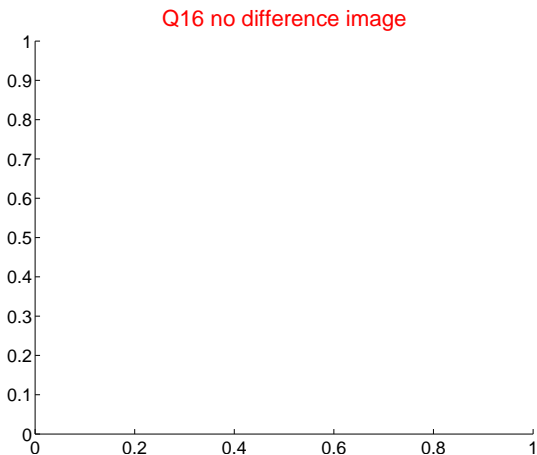
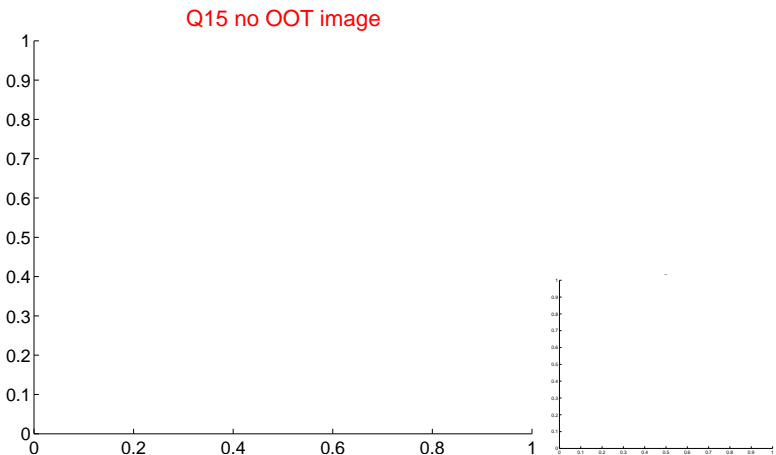
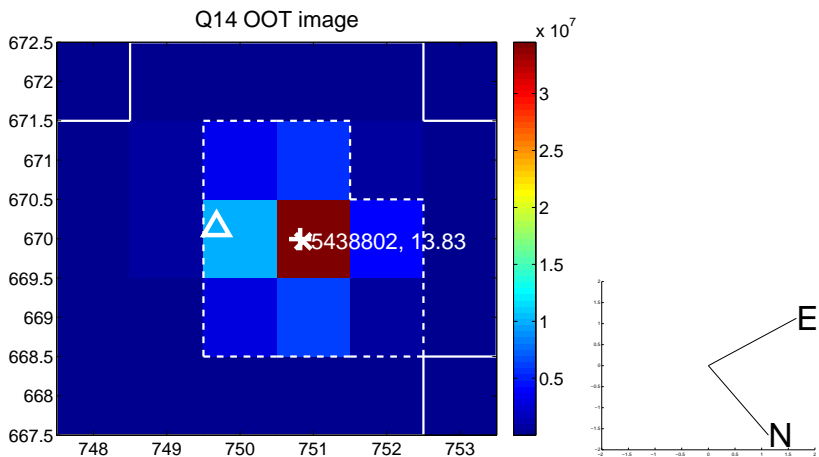
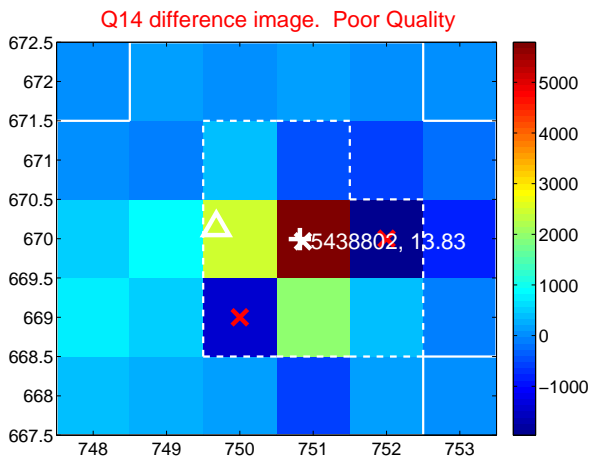
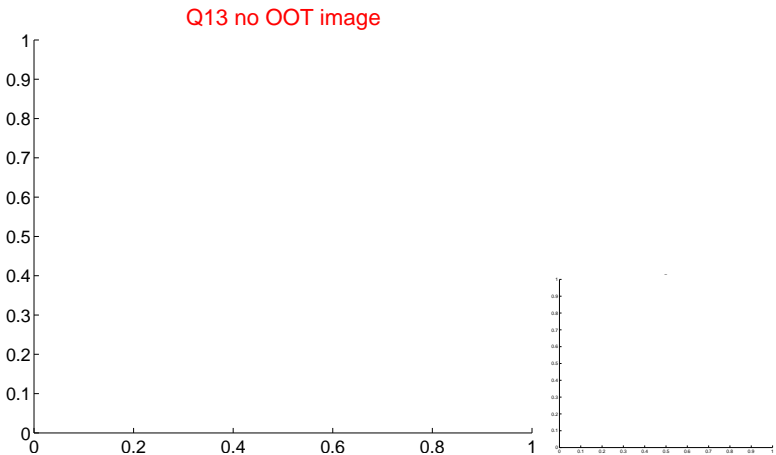
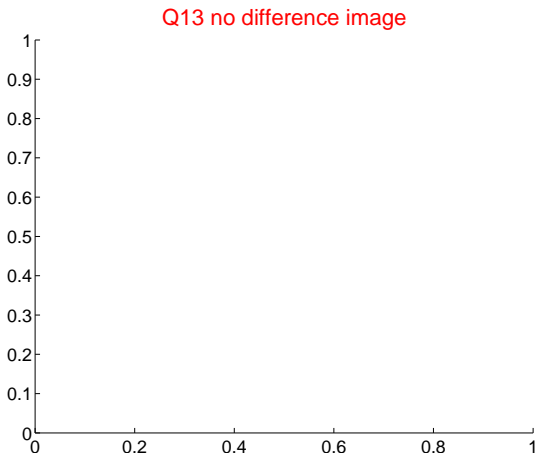
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



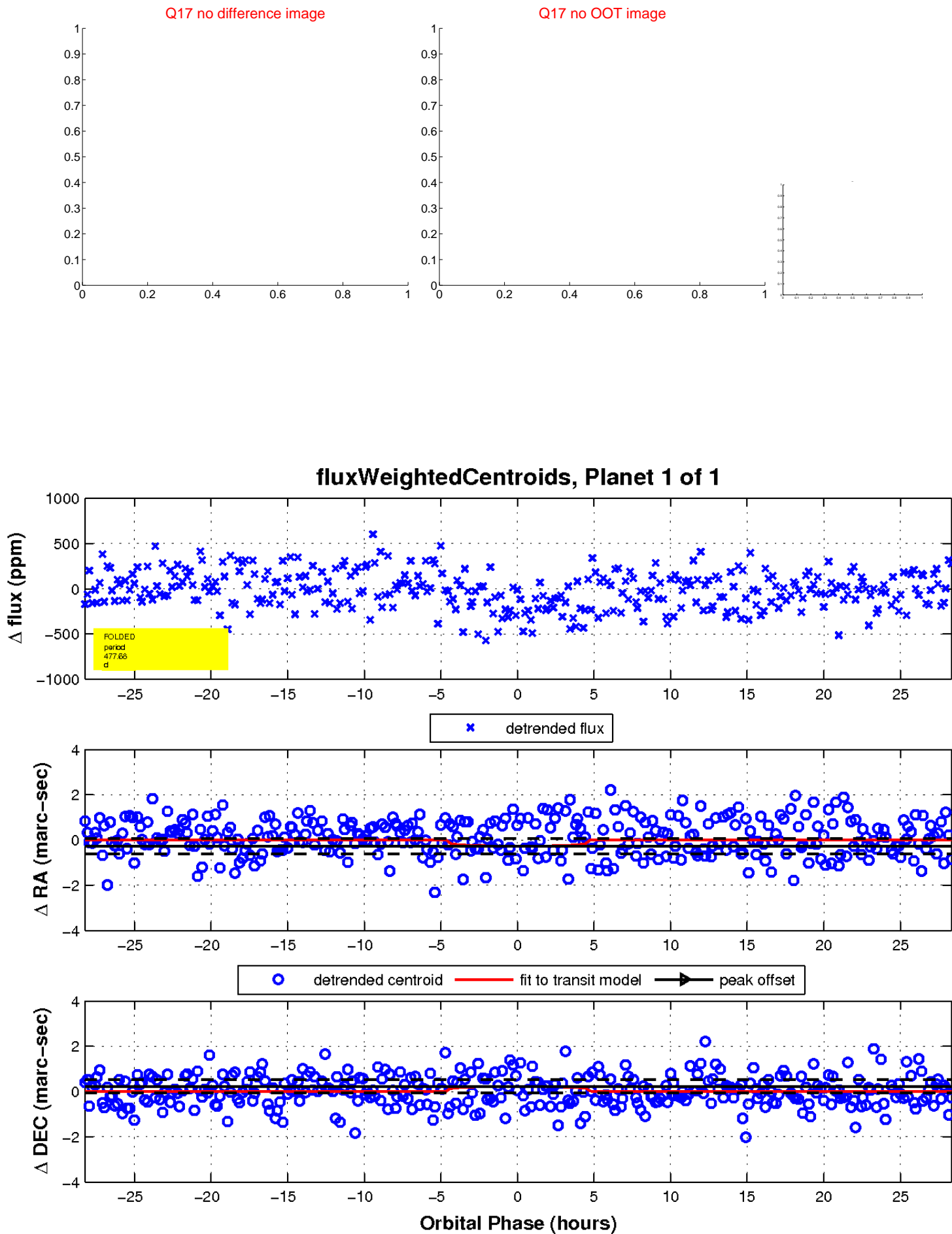
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

