

KIC 008023590

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008023590-01 | OBS | No | 370.087854 | 472.678354 | 145.5 | 8.250 | 8.0 | 7.5 | 1.24 | 5721 | 1.78 | 1.57 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 008023590-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—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.

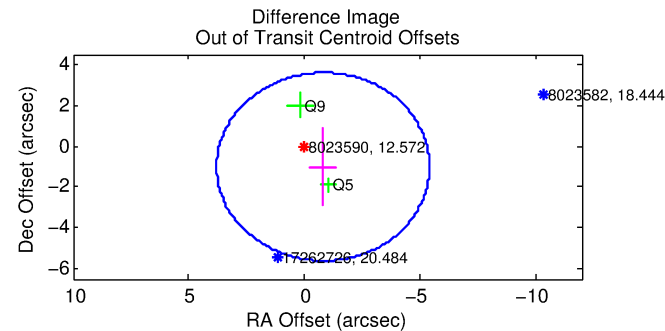
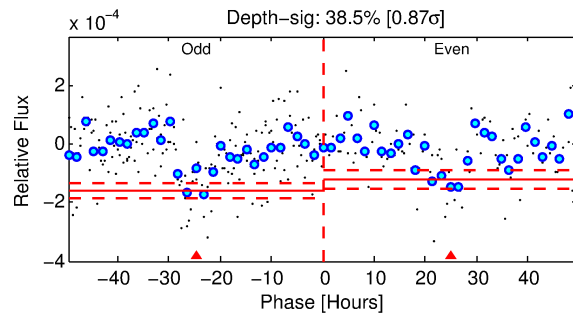
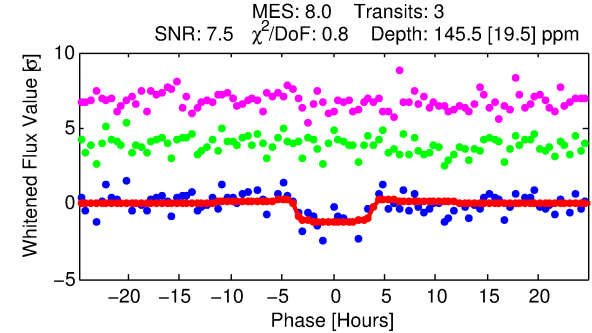
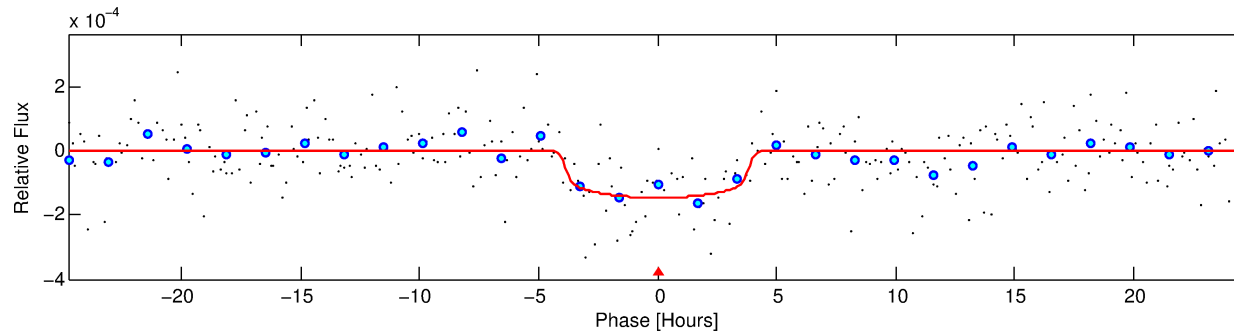
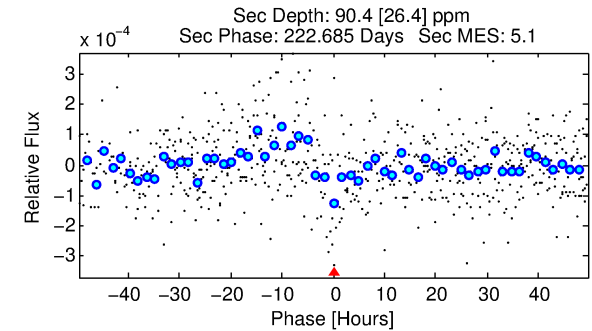
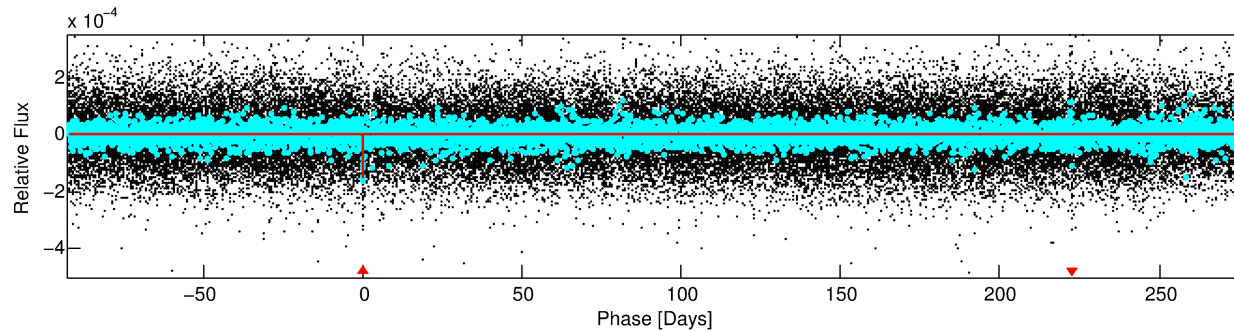
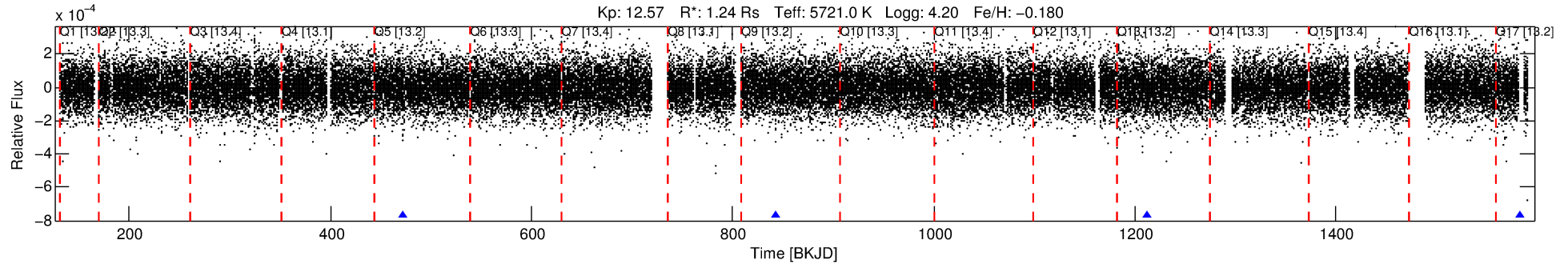
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008023590-01

No Significant Match Found

DV One-Page Summary

KIC: 8023590 Candidate: 1 of 1 Period: 370.088 d



DV Fit Results:

Period = 370.08785 [0.01047] d
Epoch = 472.6784 [0.0139] BKJD
Rp/R* = 0.0131 [0.0036]
a/R* = 160.84 [202.75]
b = 0.90 [0.28]
Seff = 1.58 [0.66]
Teq = 286 [30] K
Rp = 1.78 [0.67] Re
a = 0.9702 [0.2470] AU
Ag = 14844.78 [10993.73] [1.35σ]
Teffp = 4875 [762] K [6.02σ]

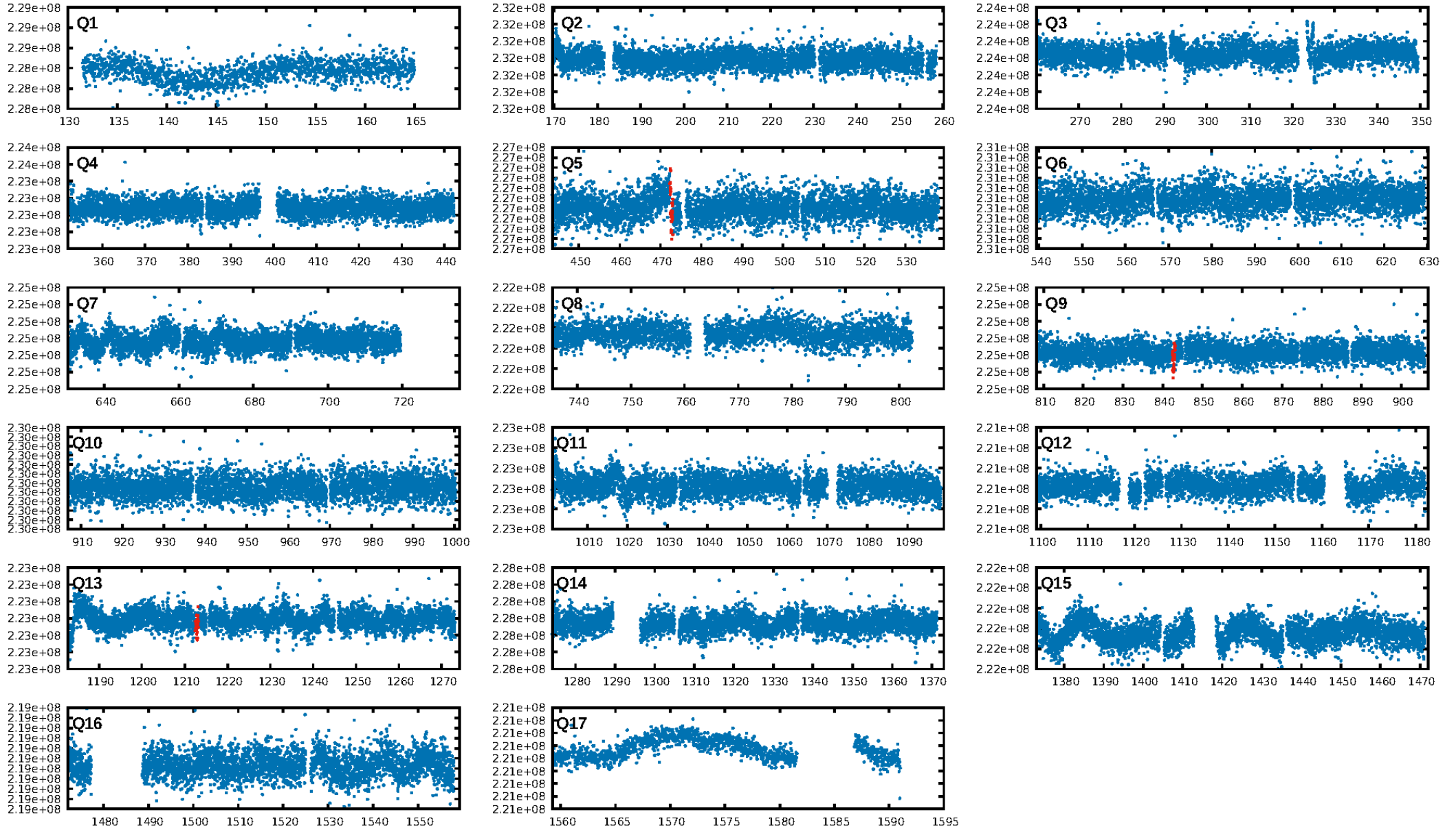
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 59.3%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 9.76e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 7.023
Centroid-sig: 2.4%
Centroid-so: 2.355 arcsec [1.50σ]
OotOffset-rm: 1.291 arcsec [0.84σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-rm: 1.296 arcsec [0.80σ]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

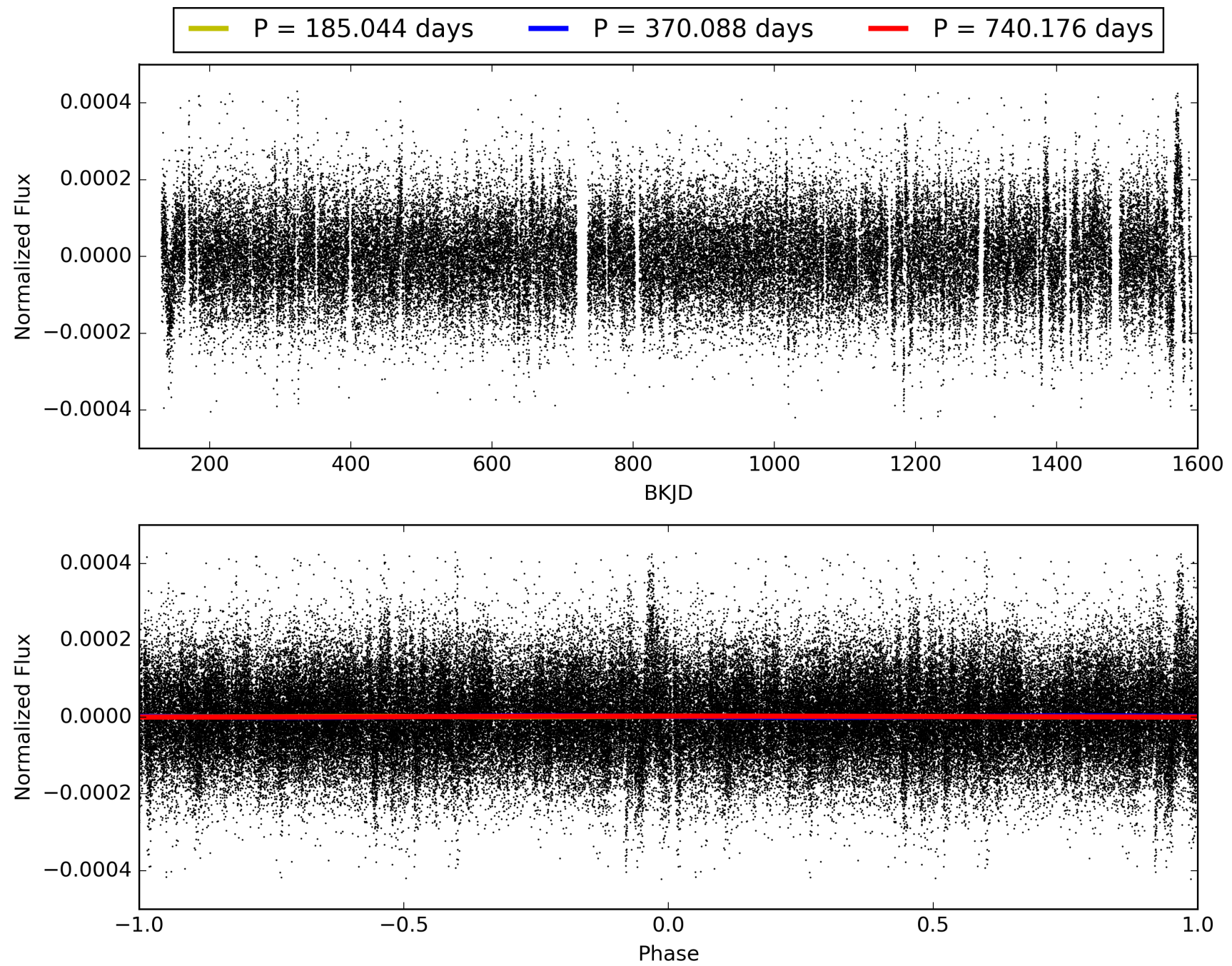
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:37:57 Z

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

TCE 008023590-01, PDC Light Curves

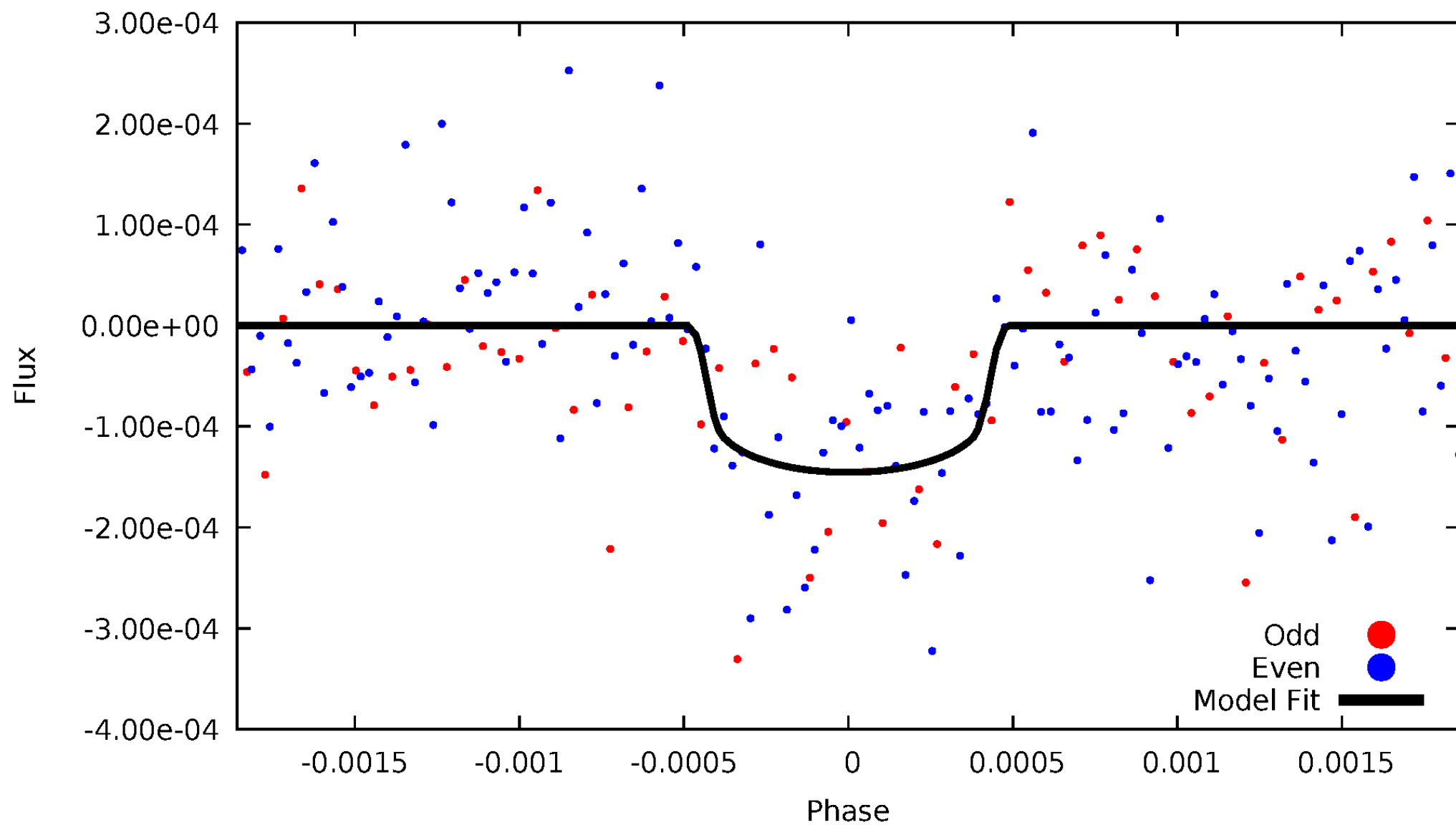


TCE 008023590-01



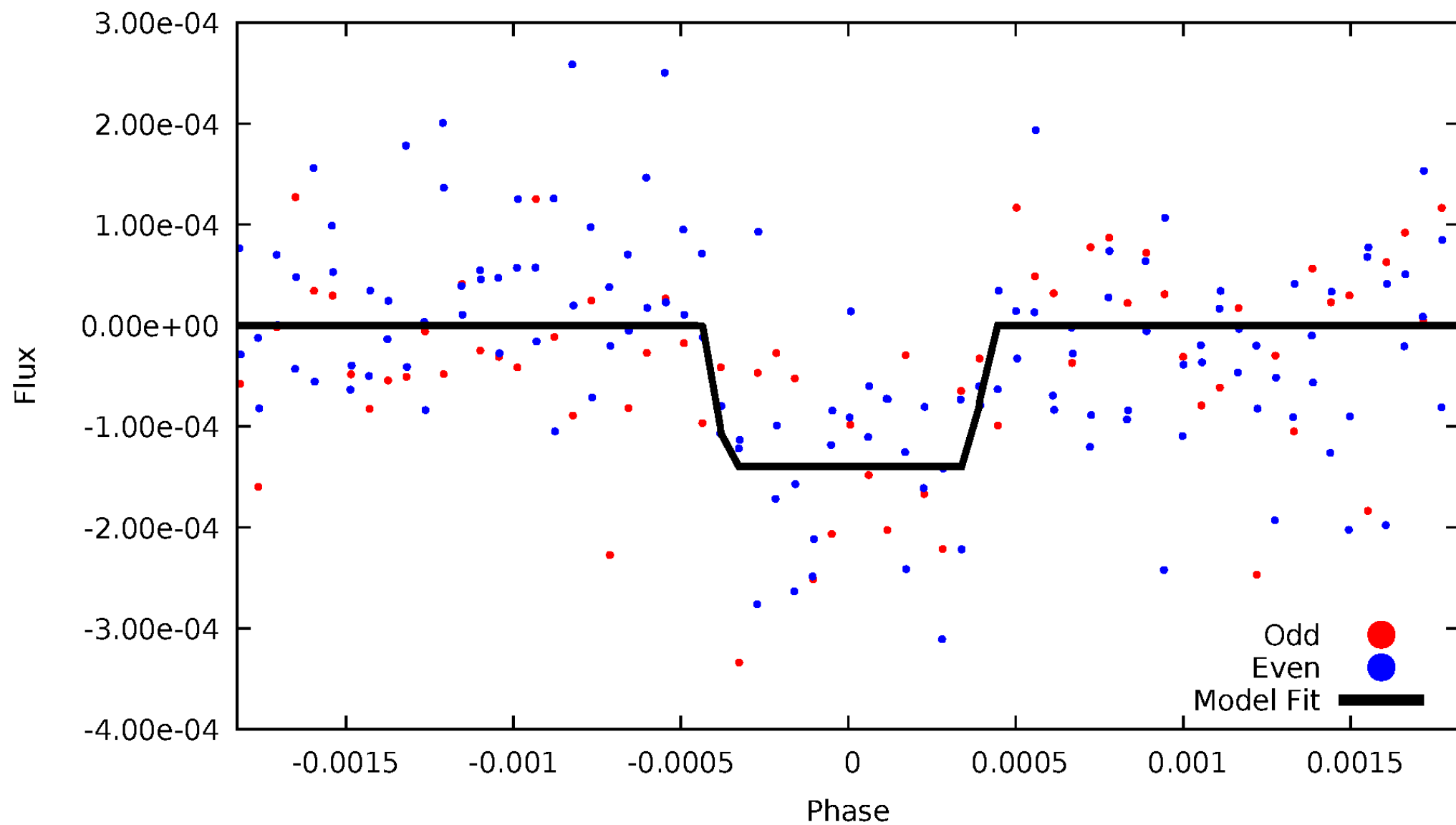
DV Odd/Even

TCE 008023590-01

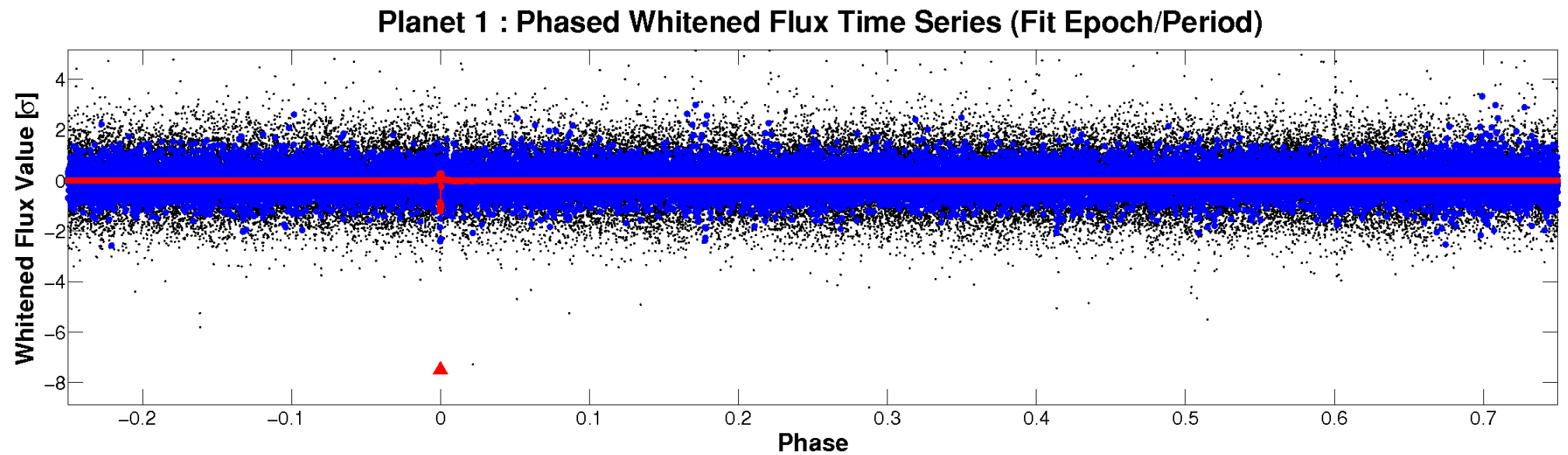
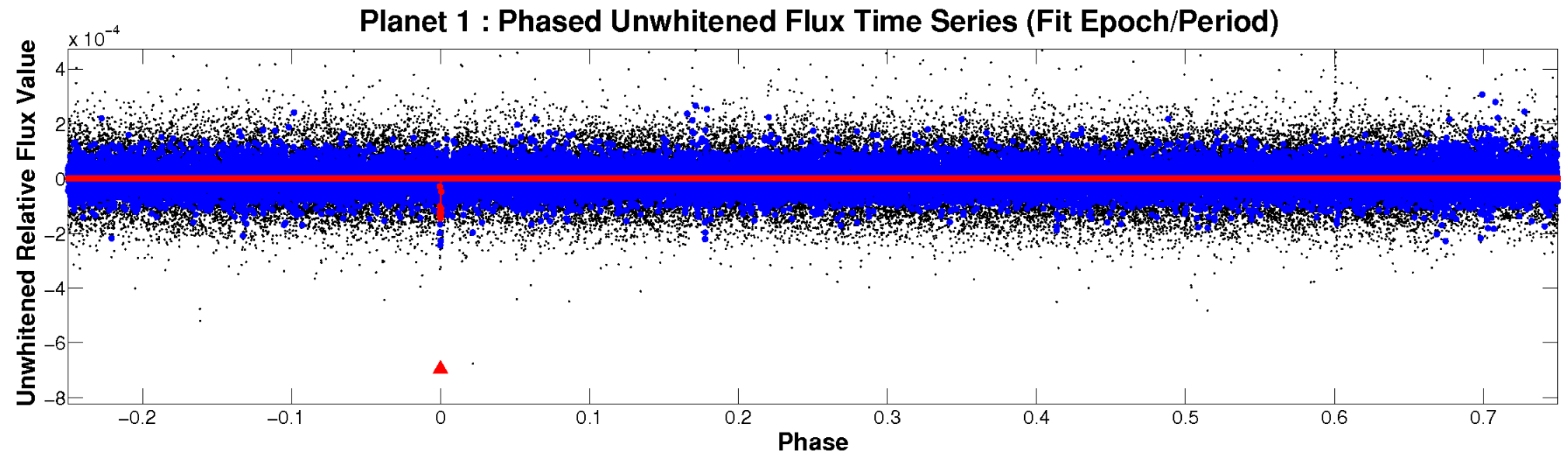


ALT Odd/Even

TCE 008023590-01

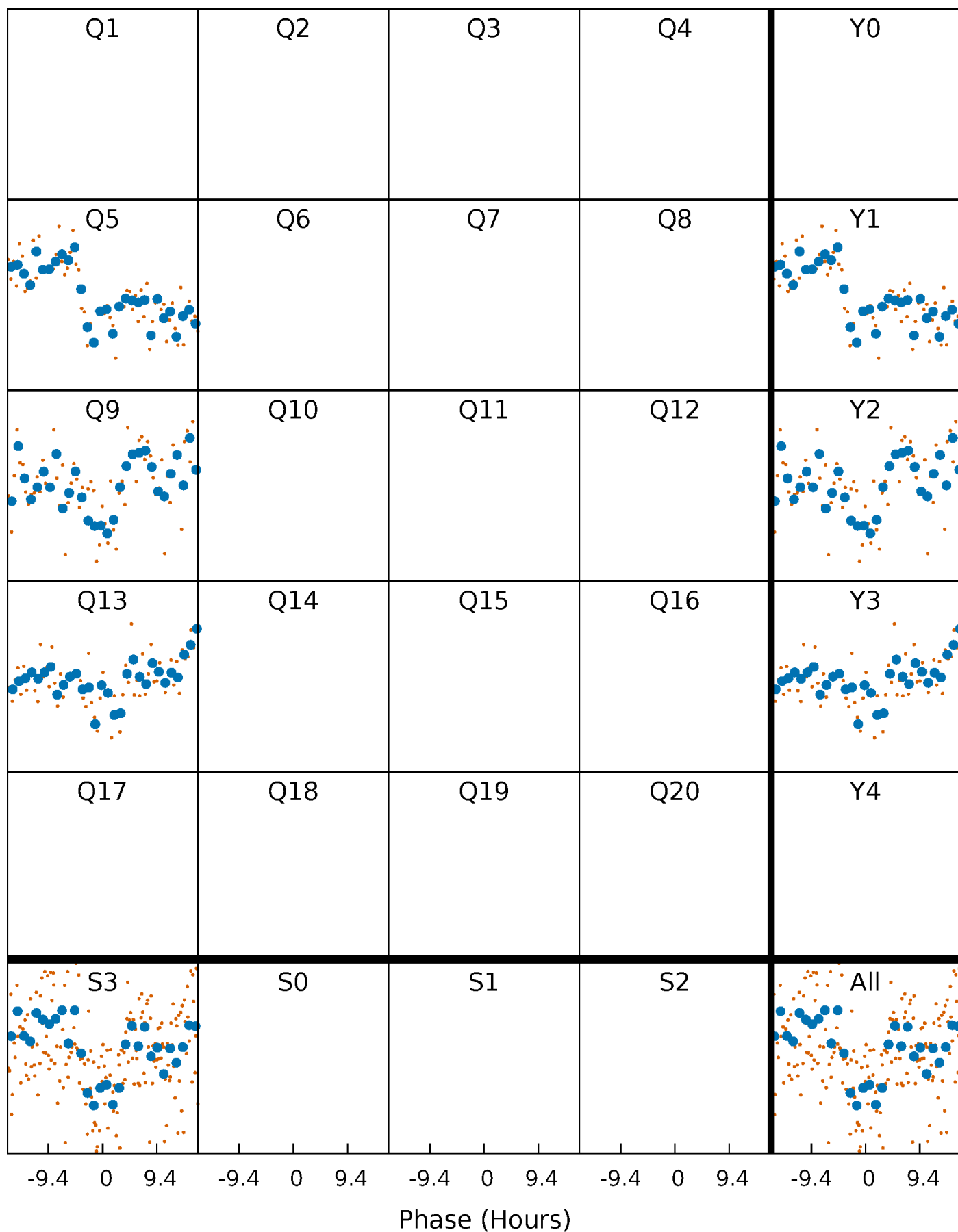


Non-Whitened Vs. Whitened Light Curve



PDC Quarter-Phased Transit Curves

TCE 008023590-01 P=370.087854 Days $T_0=472.678354$ (BKJD)



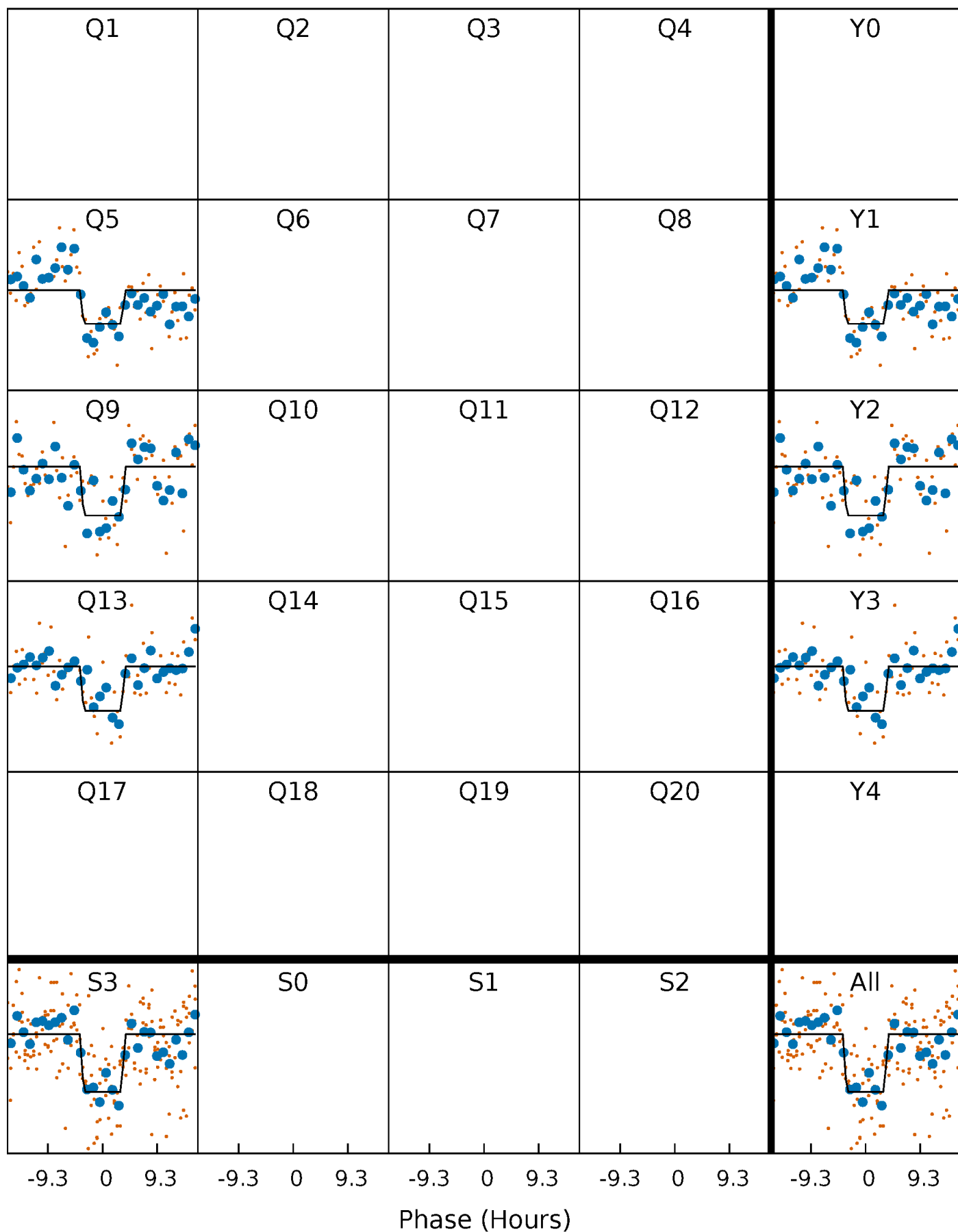
DV Quarter-Phased Transit Curves

TCE 008023590-01 $P=370.087854$ Days $T_0=472.678354$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

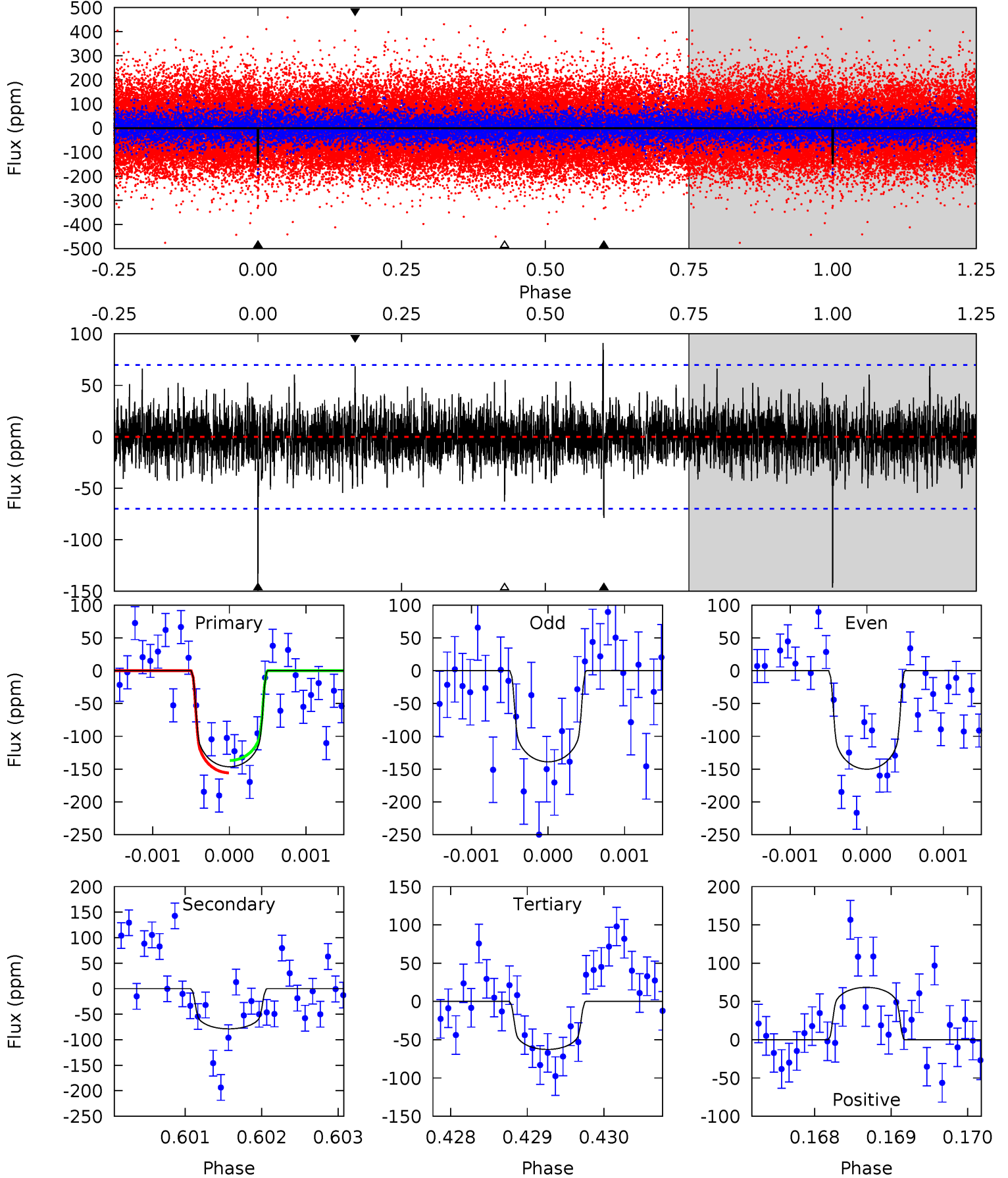
TCE 008023590-01 P=370.092639 Days $T_0=472.669131$ (BKJD)



DV Model-Shift Uniqueness Test

008023590-01, P = 370.087854 Days, E = 102.590500 Days

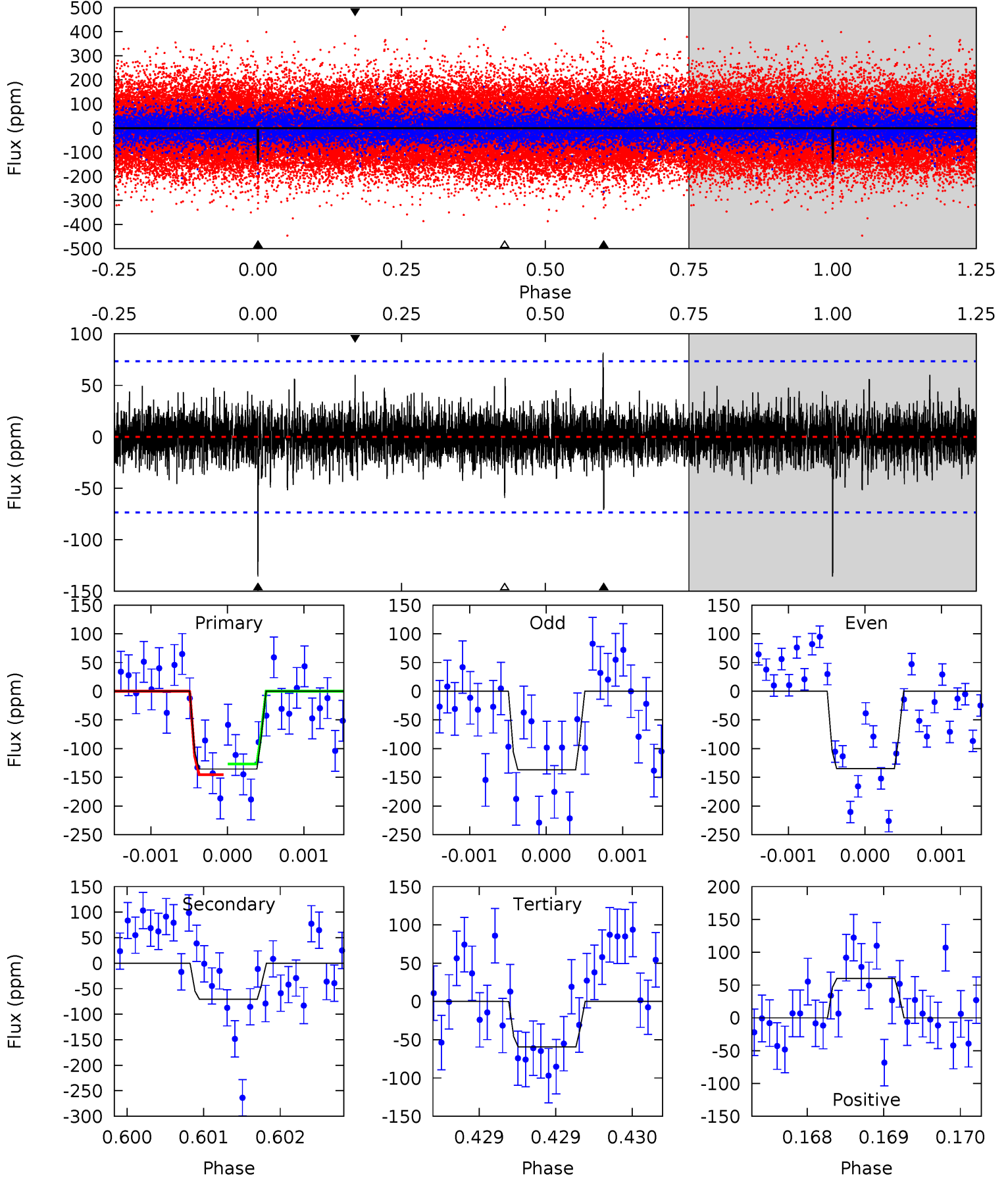
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.4 | 6.15 | 4.90 | 5.35 | 5.46 | 3.30 | 1.27 | 6.55 | 6.10 | 1.25 | 0.80 | 0.41 | 1.05 | 0.38 | 0.74 |



Alt Model-Shift Uniqueness Test

008023590-01, P = 370.092639 Days, E = 102.576492 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.1 | 5.28 | 4.42 | 4.49 | 5.47 | 3.33 | 1.04 | 5.69 | 5.63 | 0.86 | 0.80 | 0.08 | 0.99 | 0.38 | 0.70 |



Stellar Parameters For KIC 008023590

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5721^{+144}_{-130} | $4.198^{+0.241}_{-0.130}$ | $-0.180^{+0.300}_{-0.250}$ | $1.243^{+0.272}_{-0.326}$ | $0.889^{+0.136}_{-0.063}$ | $0.653^{+0.821}_{-0.277}$ |
| | +3%/-2% | +6%/-3% | +167%/-139% | +22%/-26% | +15%/-7% | +126%/-42% |
| Source | PHO1 | FLK73 | 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 008023590-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|--------------|------------------------|-------------------|----------------------|--------------------------|
| DV | -79 ± 13 | $1.75^{+0.53}_{-0.50}$ | 395^{+26}_{-29} | 4791^{+697}_{-467} | 13604^{+13841}_{-5756} |
| Alt. | -71 ± 13 | $1.61^{+0.52}_{-0.56}$ | 395^{+27}_{-29} | 4889^{+850}_{-521} | 14381^{+18628}_{-6427} |

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

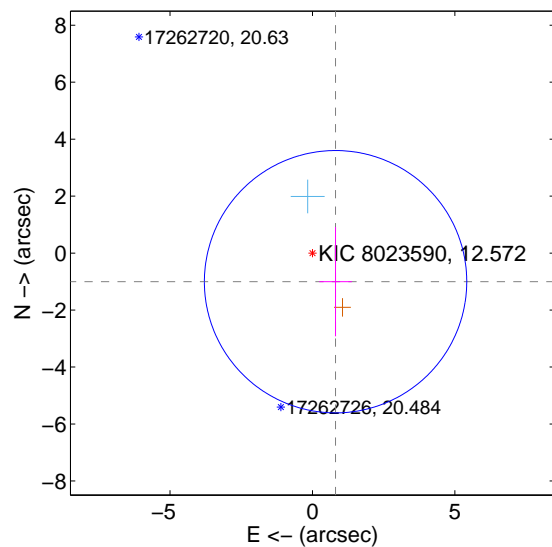
Supplemental centroid analysis for 008023590-01. Kepler magnitude: 12.57. Transit SNR 7.49

There are 1 quarters with good PRF difference image offsets

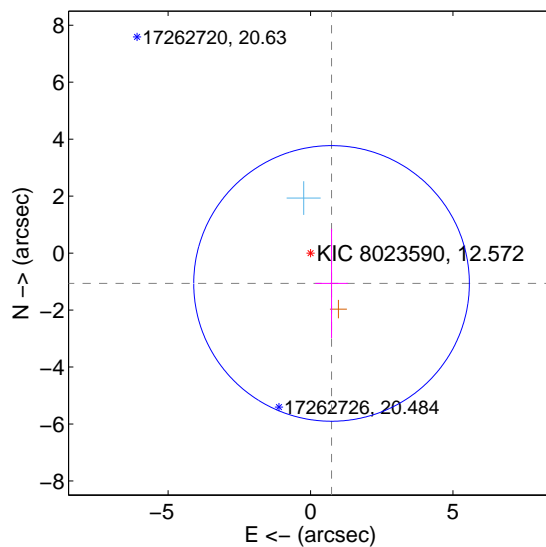
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 1.291 ± 1.535 | 0.84 | -0.812 ± 0.573 | -1.004 ± 1.918 |
| PRF-fit source offset from KIC position | 1.296 ± 1.613 | 0.80 | -0.738 ± 0.573 | -1.065 ± 1.921 |
| photometric centroid source offset | 2.36 ± 1.57 | 1.50 | 0.14 ± 1.91 | 2.35 ± 1.57 |

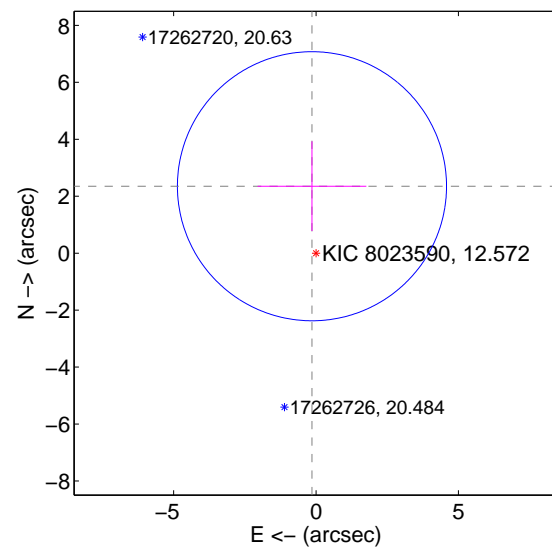
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

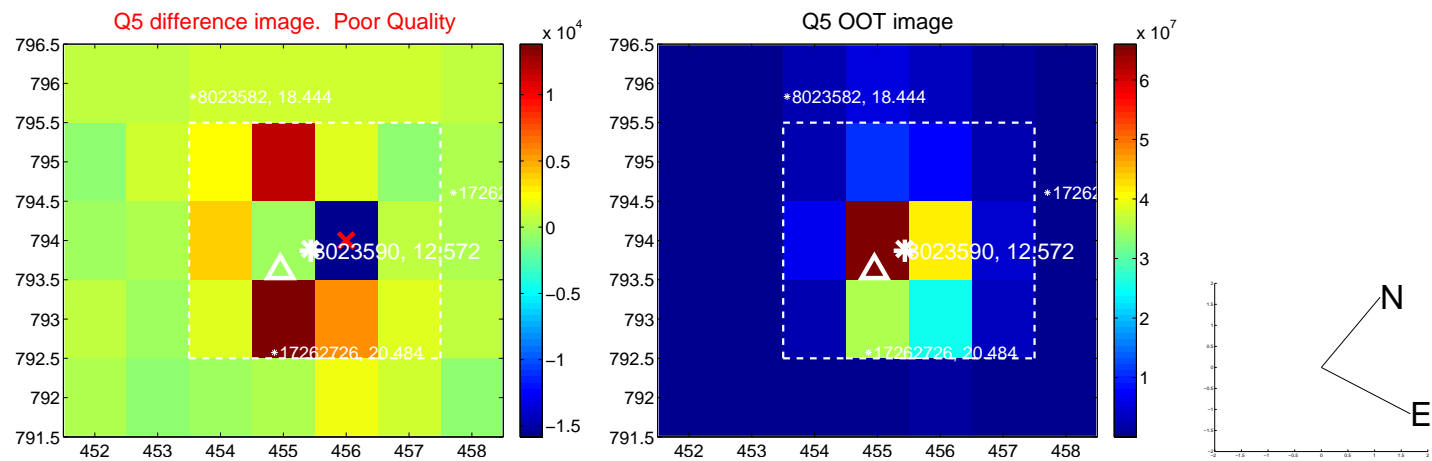


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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.

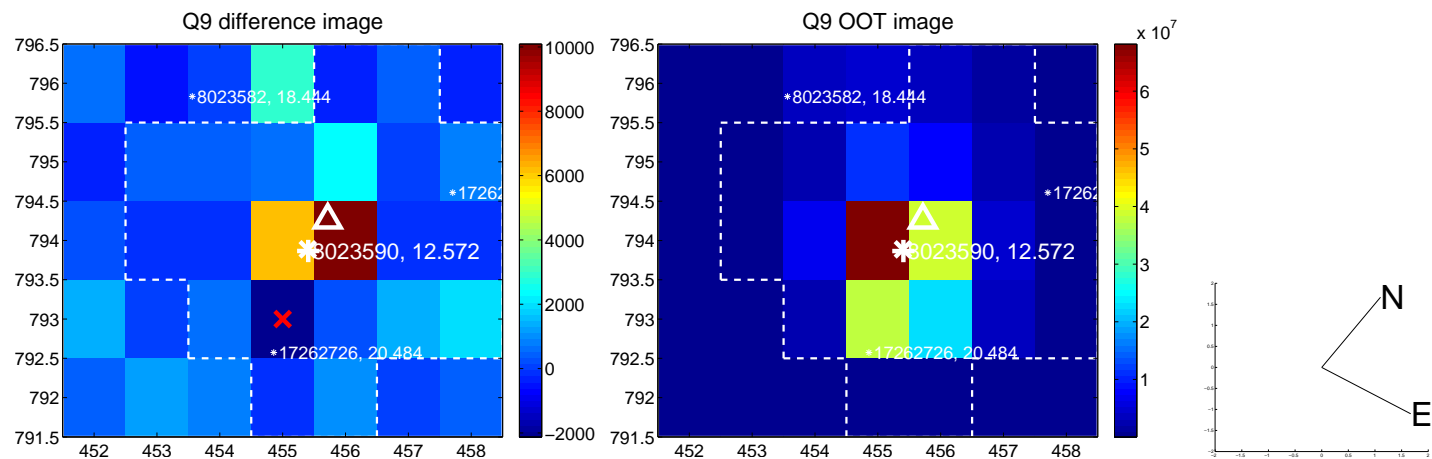
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



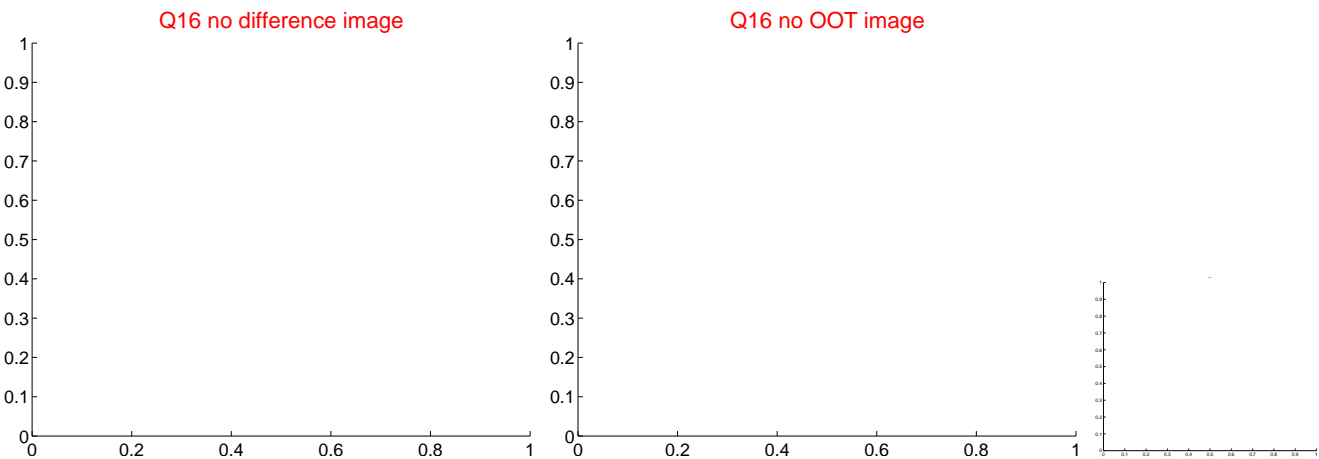
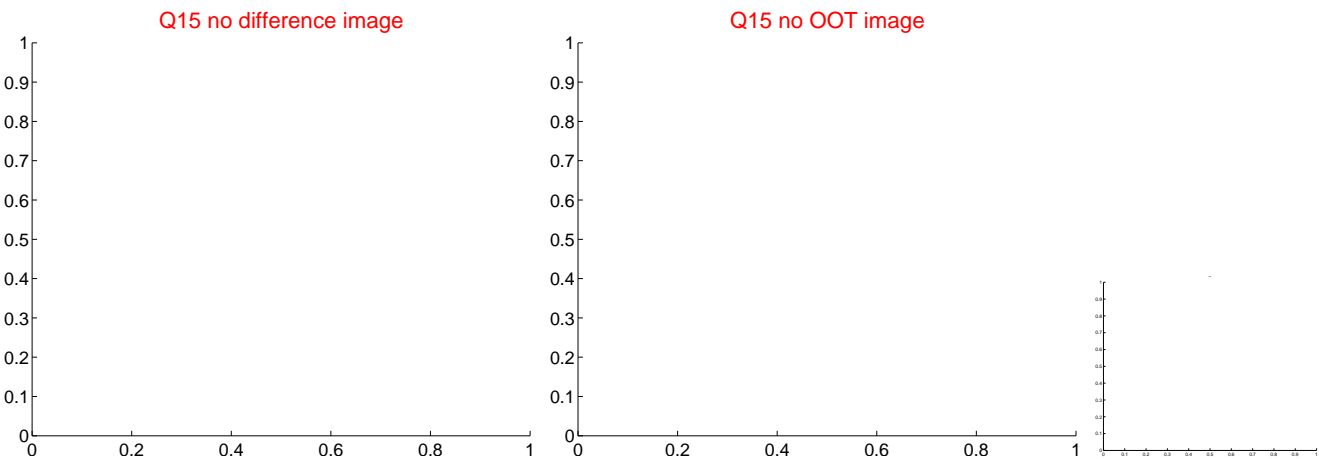
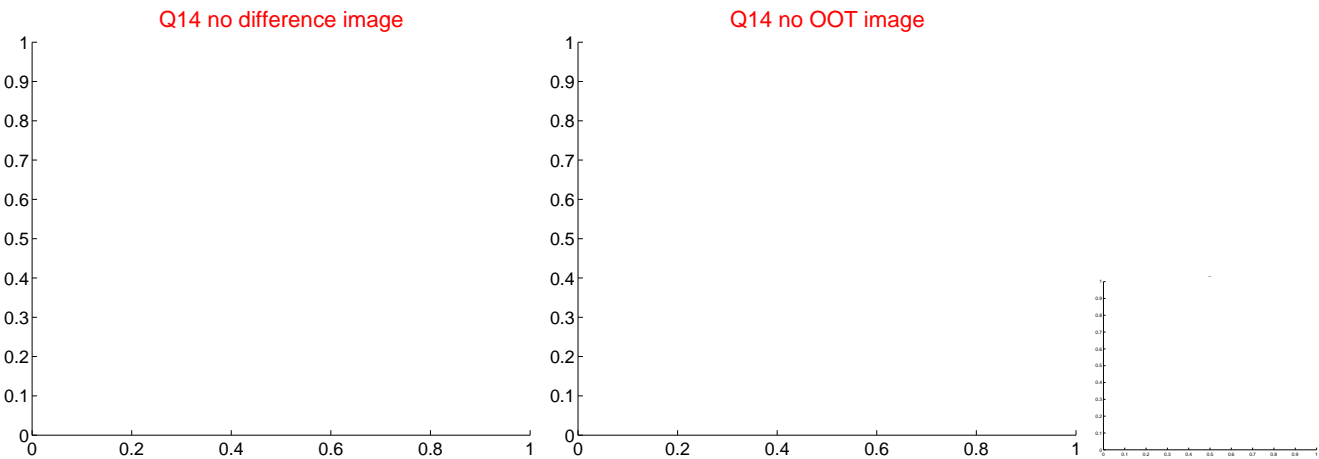
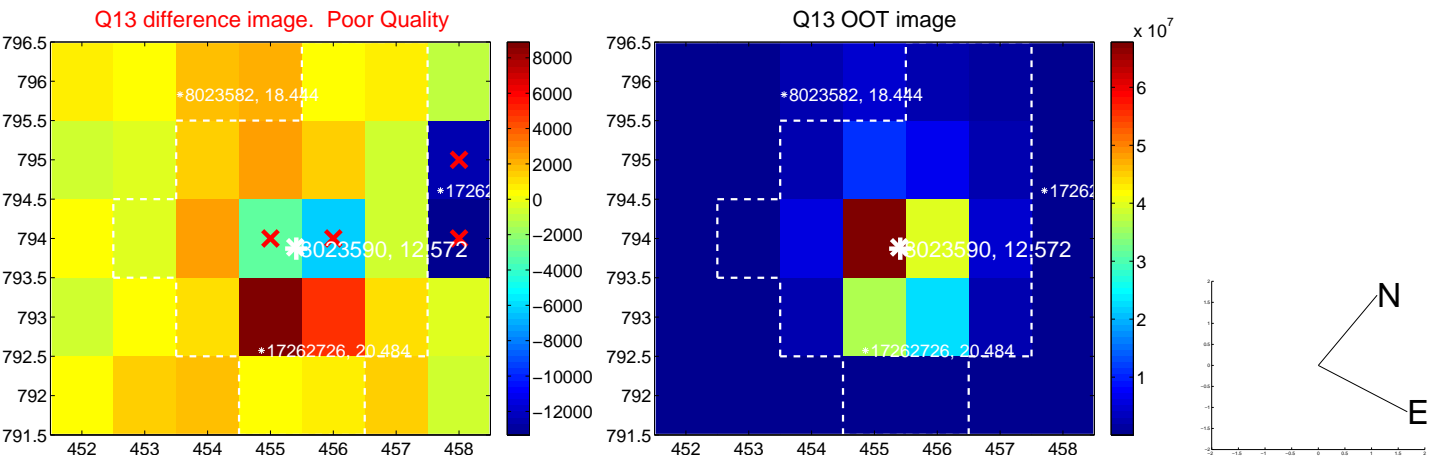
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



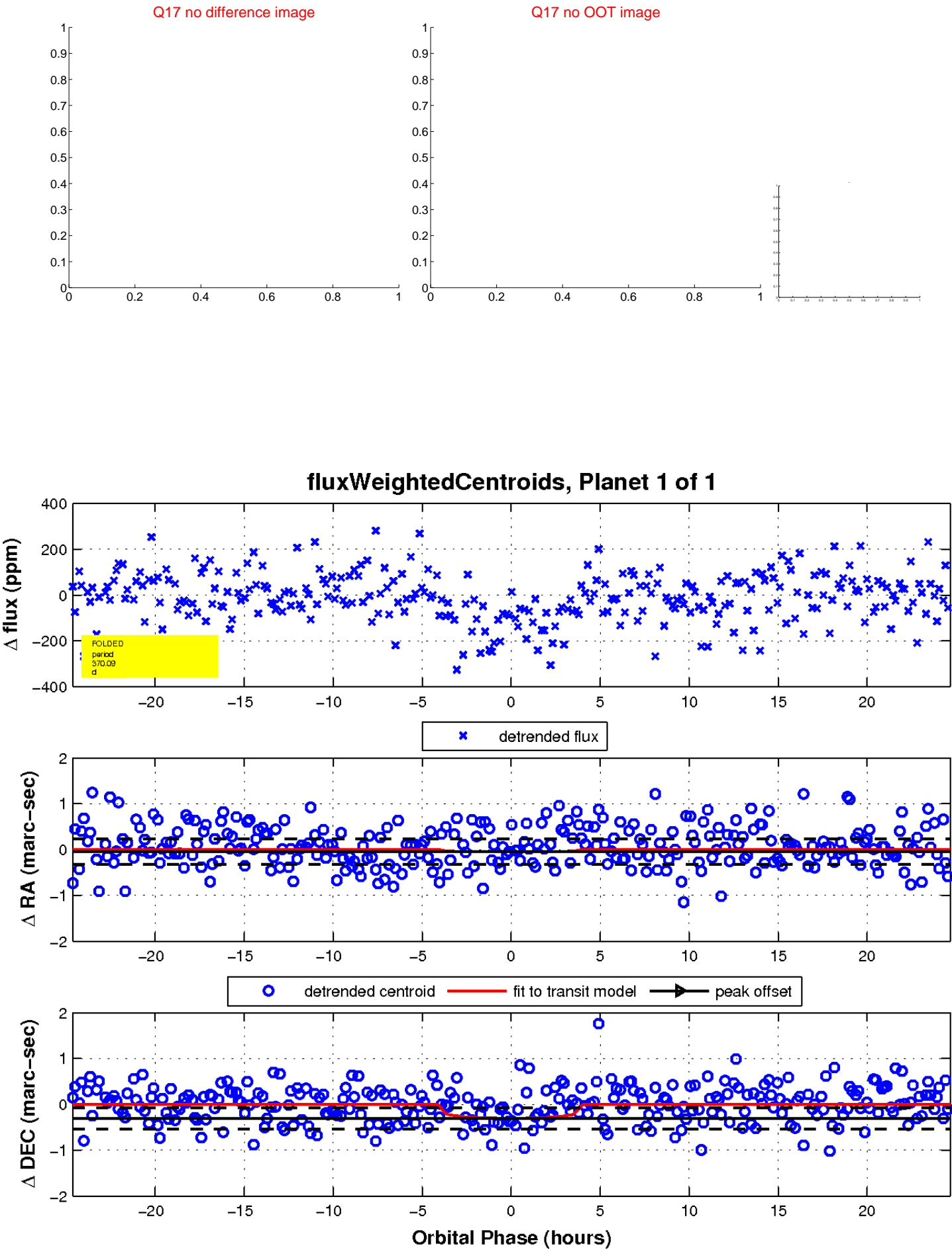
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image

Declination

