

KIC 004077252

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 004077252-01 | OBS | 5038.01 | 0.534115 | 131.804035 | 53.7 | 1.235 | 18.2 | 34.1 | 2.43 | 10747 | 2.04 | 218695.30 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 004077252-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 0 | MOD_SEC_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST |

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.

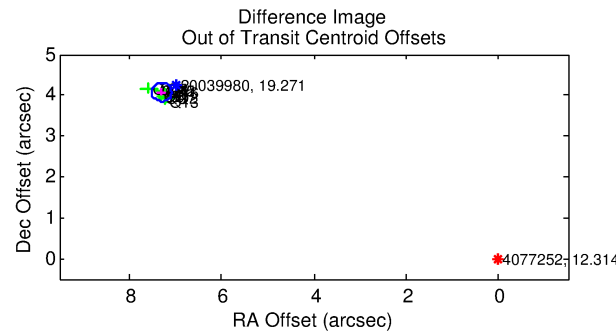
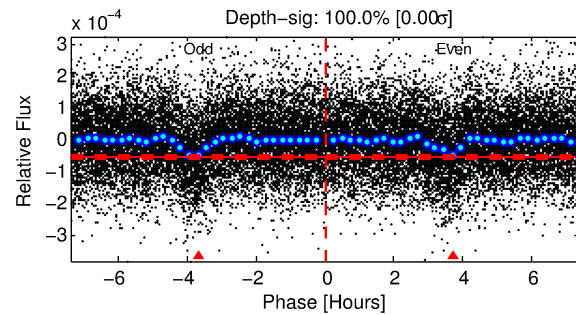
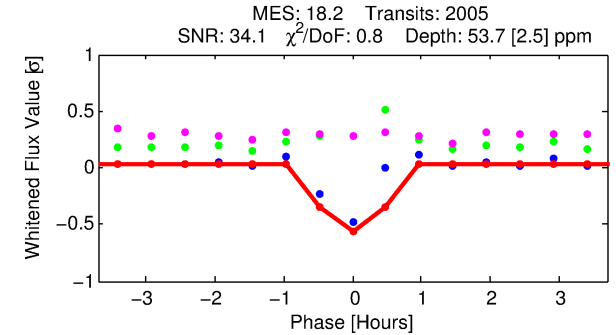
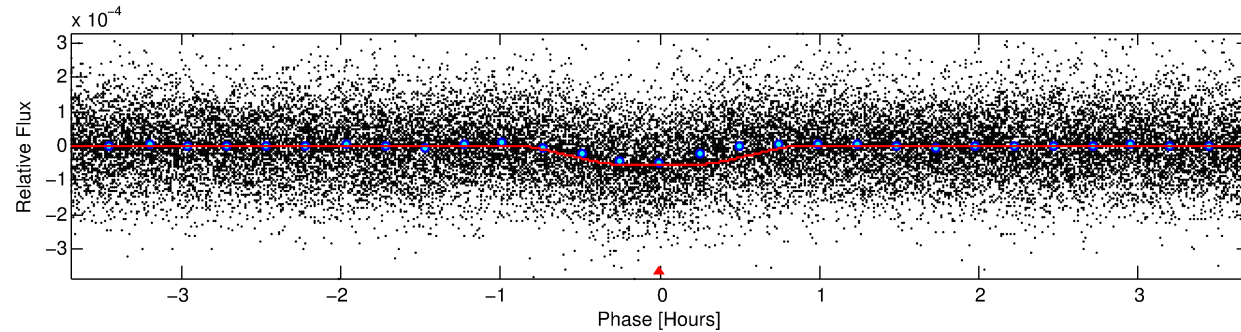
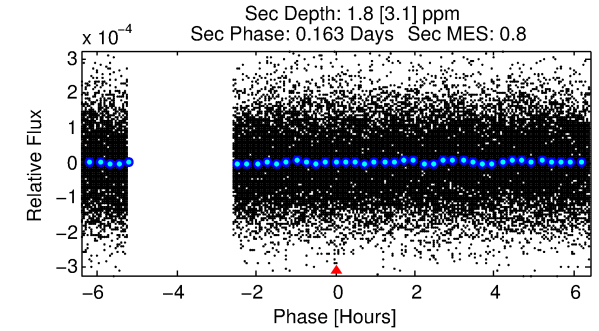
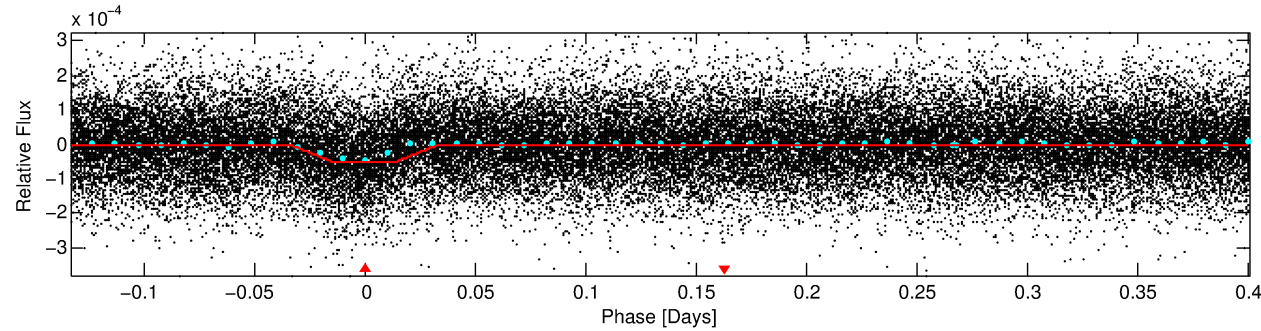
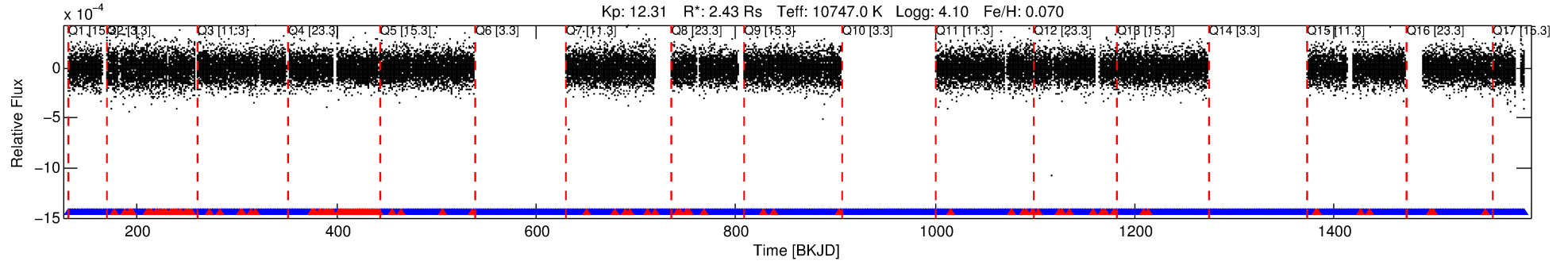
Ephemeris Match Information For 004077252-01

No Significant Match Found

DV One-Page Summary

KIC: 4077252 Candidate: 1 of 1 Period: 0.534 d
KOI: K05038.01 Corr: 0.812

Kp: 12.31 R*: 2.43 Rs Teff: 10747.0 K Logg: 4.10 Fe/H: 0.070



DV Fit Results:

Period = 0.53411 [0.00000] d
Epoch = 131.8040 [0.0006] BKJD
Rp/R* = 0.0077 [0.0006]
a/R* = 1.77 [0.70]
b = 0.90 [0.13]
Seff = 218695.30 [97339.84]
Teq = 5514 [614] K
Rp = 2.04 [0.75] Re
a = 0.0180 [0.0052] AU
Ag = 0.08 [0.13] [-6.86σ]
Teff = 4506 [1896] K [-0.51σ]

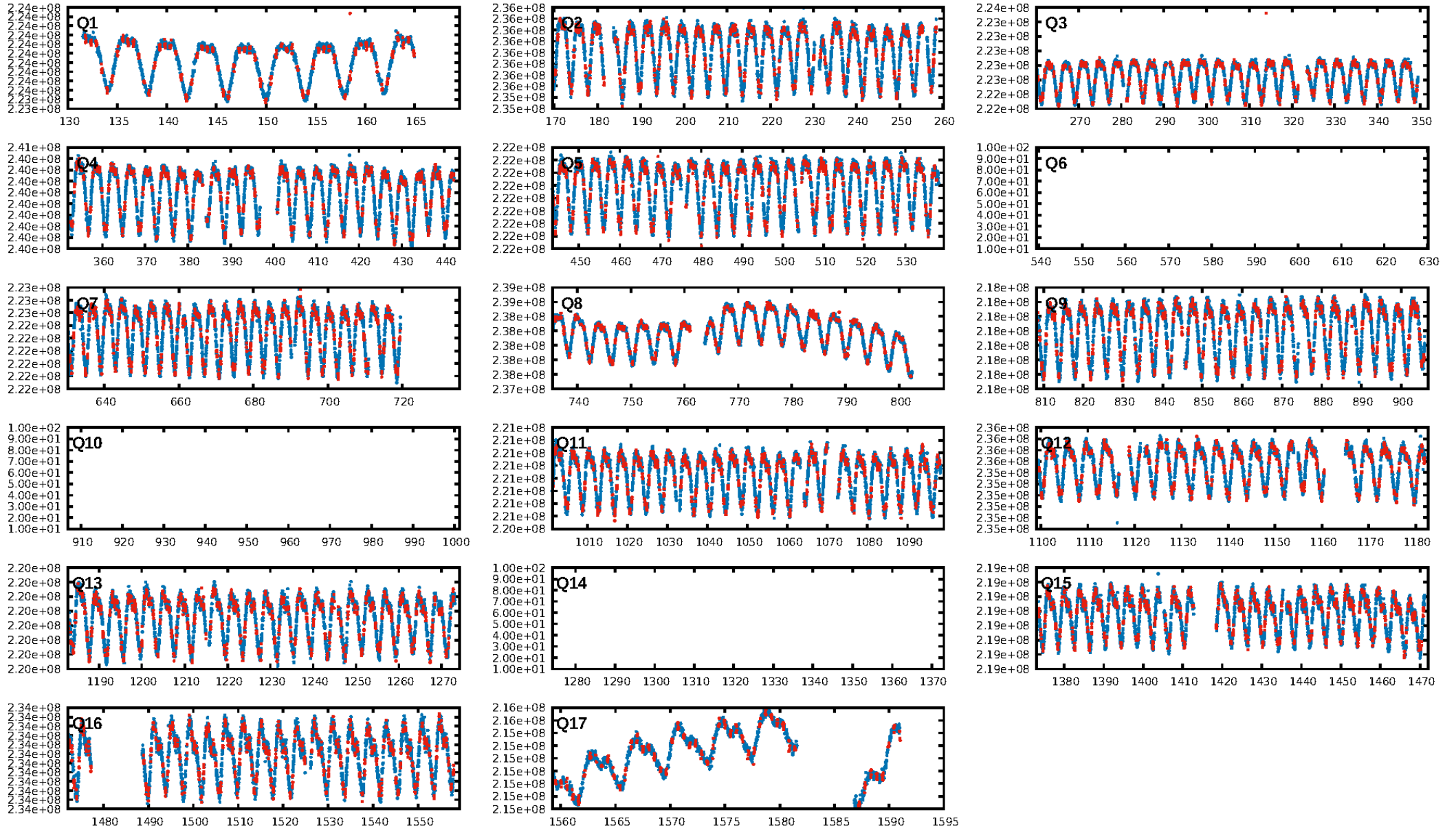
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.15e-65
RollingBand-fgt: 0.91 [1729/1892]
GhostDiagnostic-chr: -0.2431
Centroid-sig: 0.0%
Centroid-so: 4.950 arcsec [12.29σ]
OotOffset-rm: 8.355 arcsec [112.70σ]
KicOffset-rm: 8.265 arcsec [102.25σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

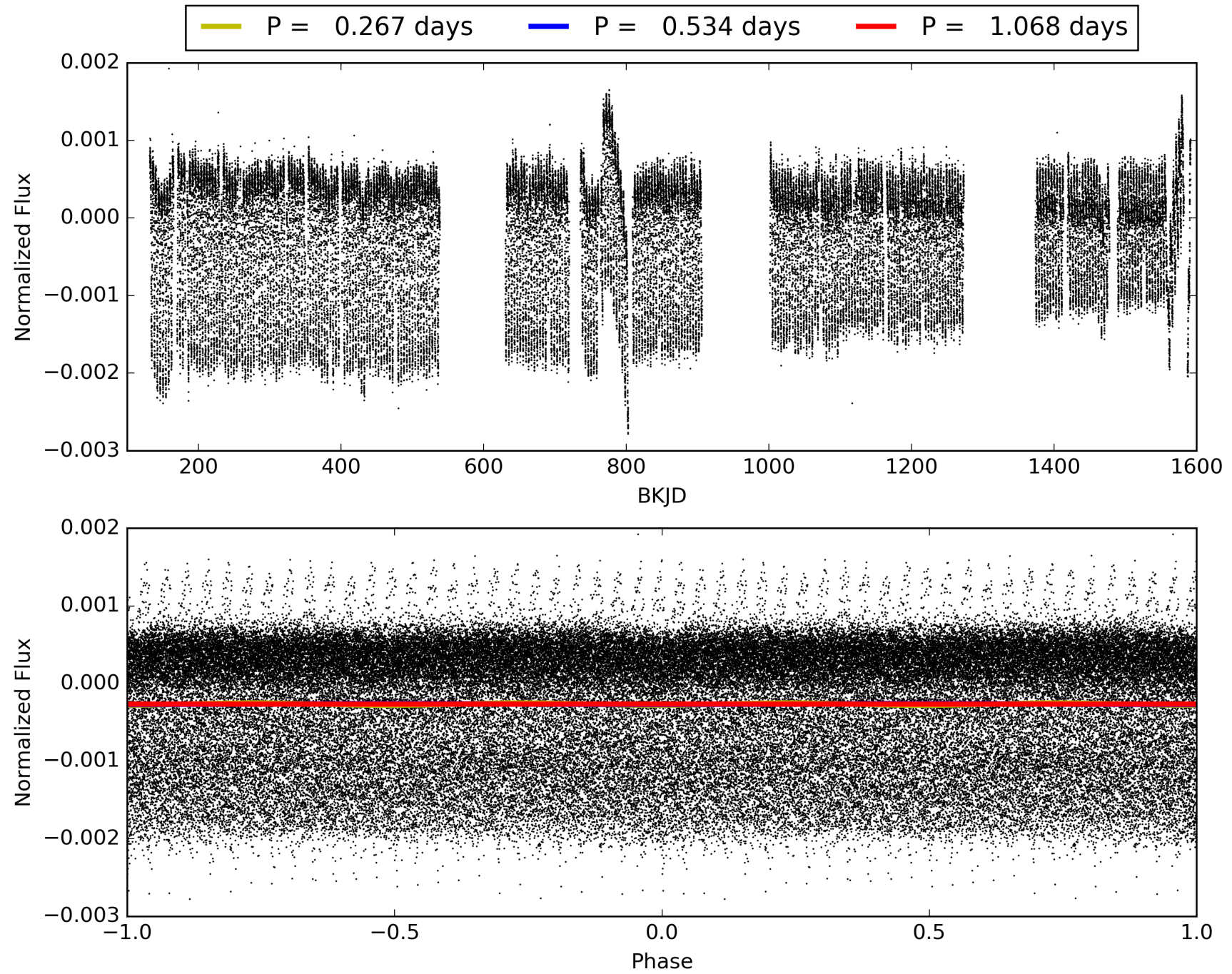
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:32:27 Z

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

TCE 004077252-01, PDC Light Curves

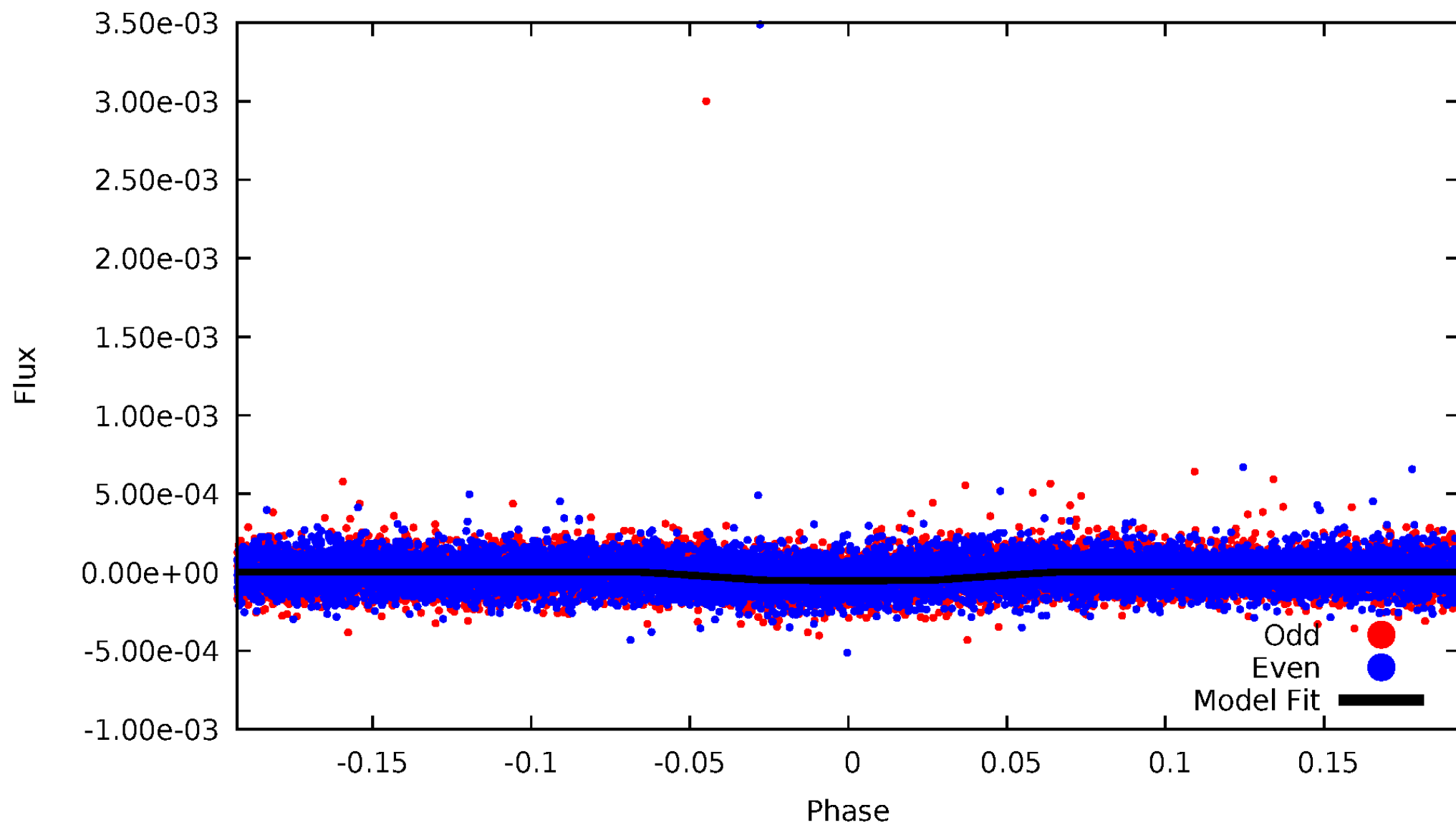


TCE 004077252-01



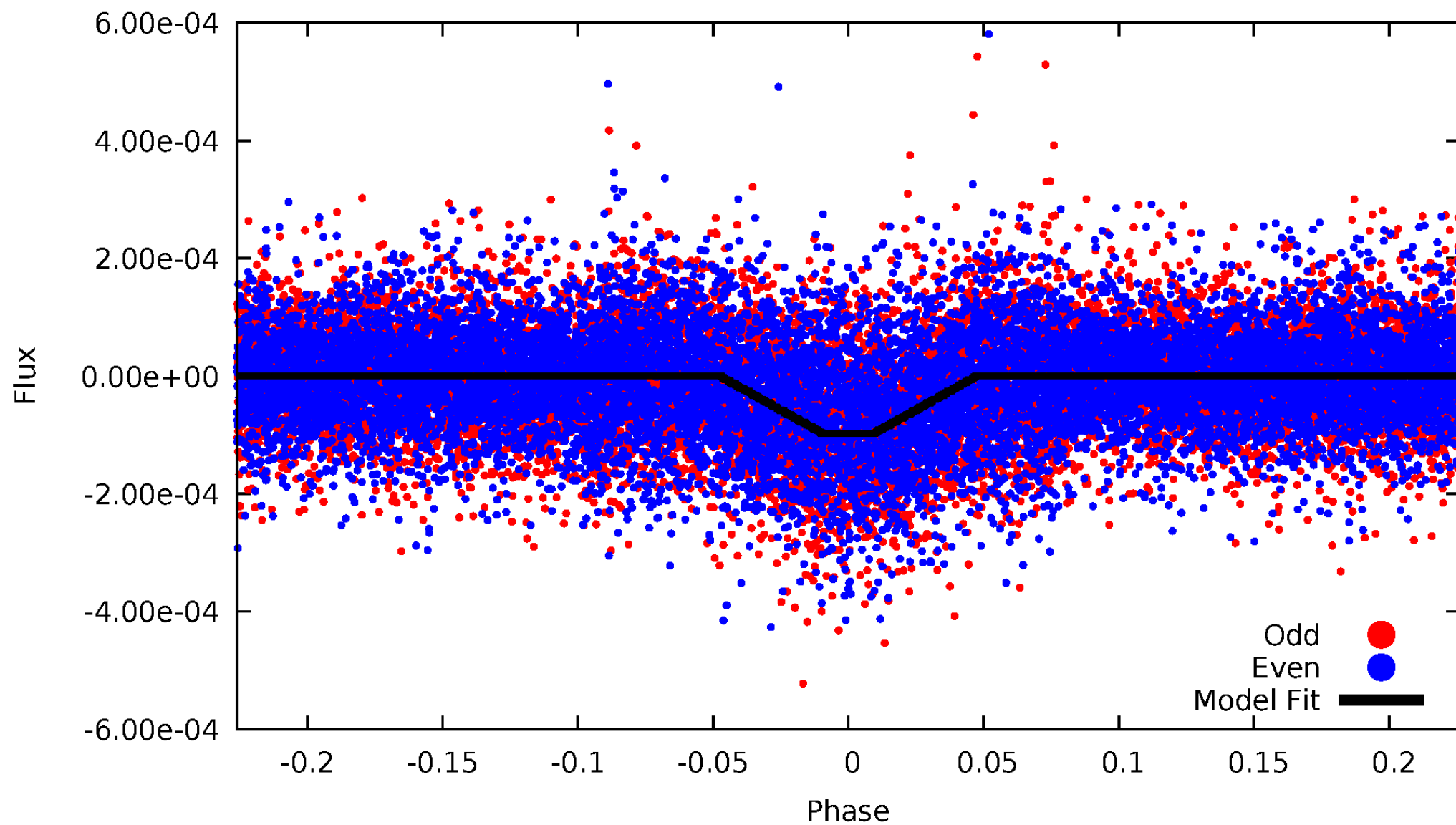
DV Odd/Even

TCE 004077252-01



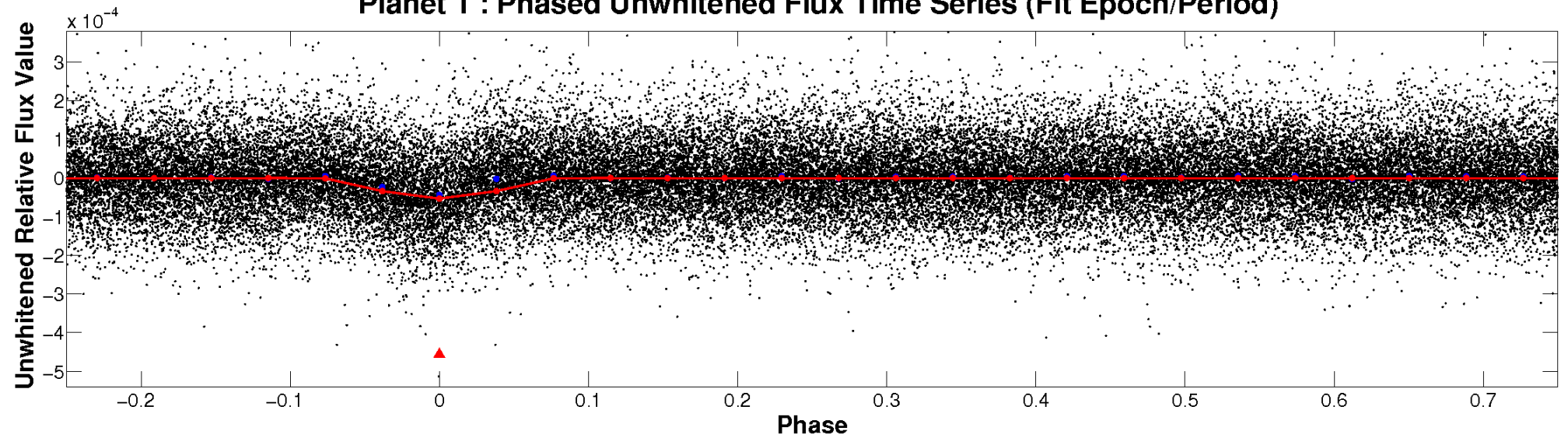
ALT Odd/Even

TCE 004077252-01

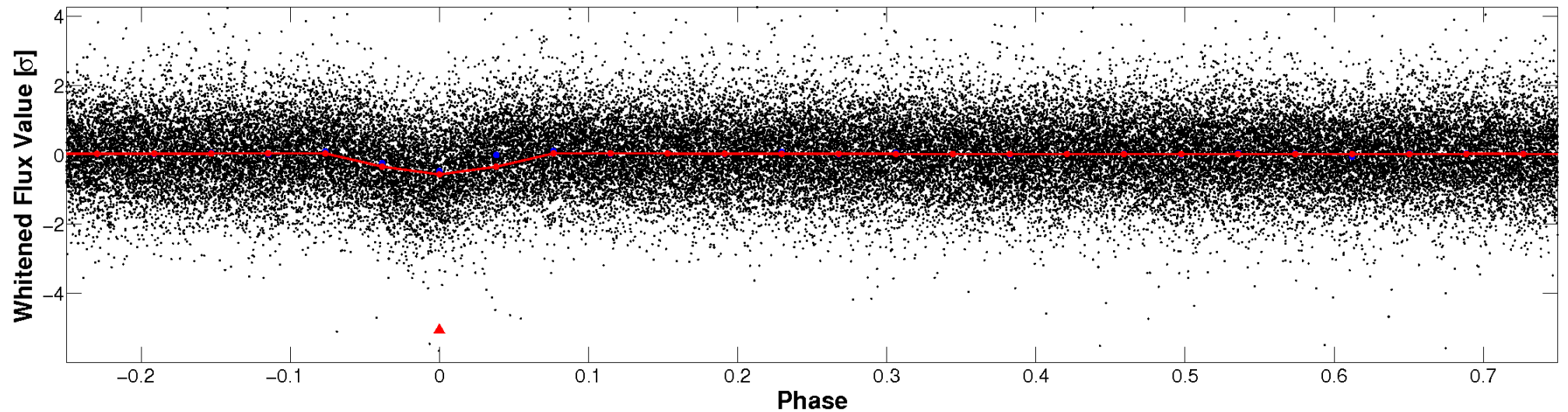


Non-Whitened Vs. Whitened Light Curve

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

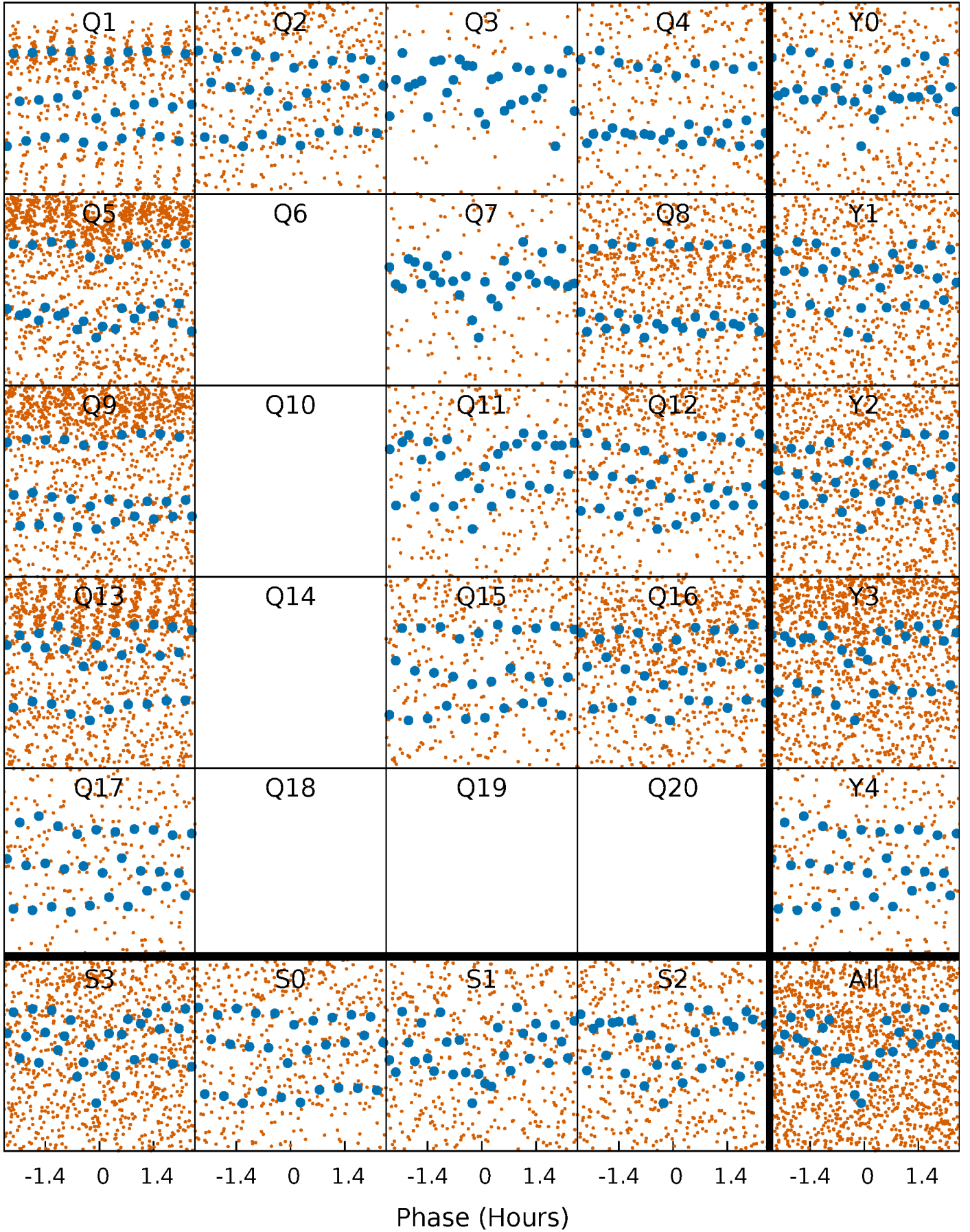


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



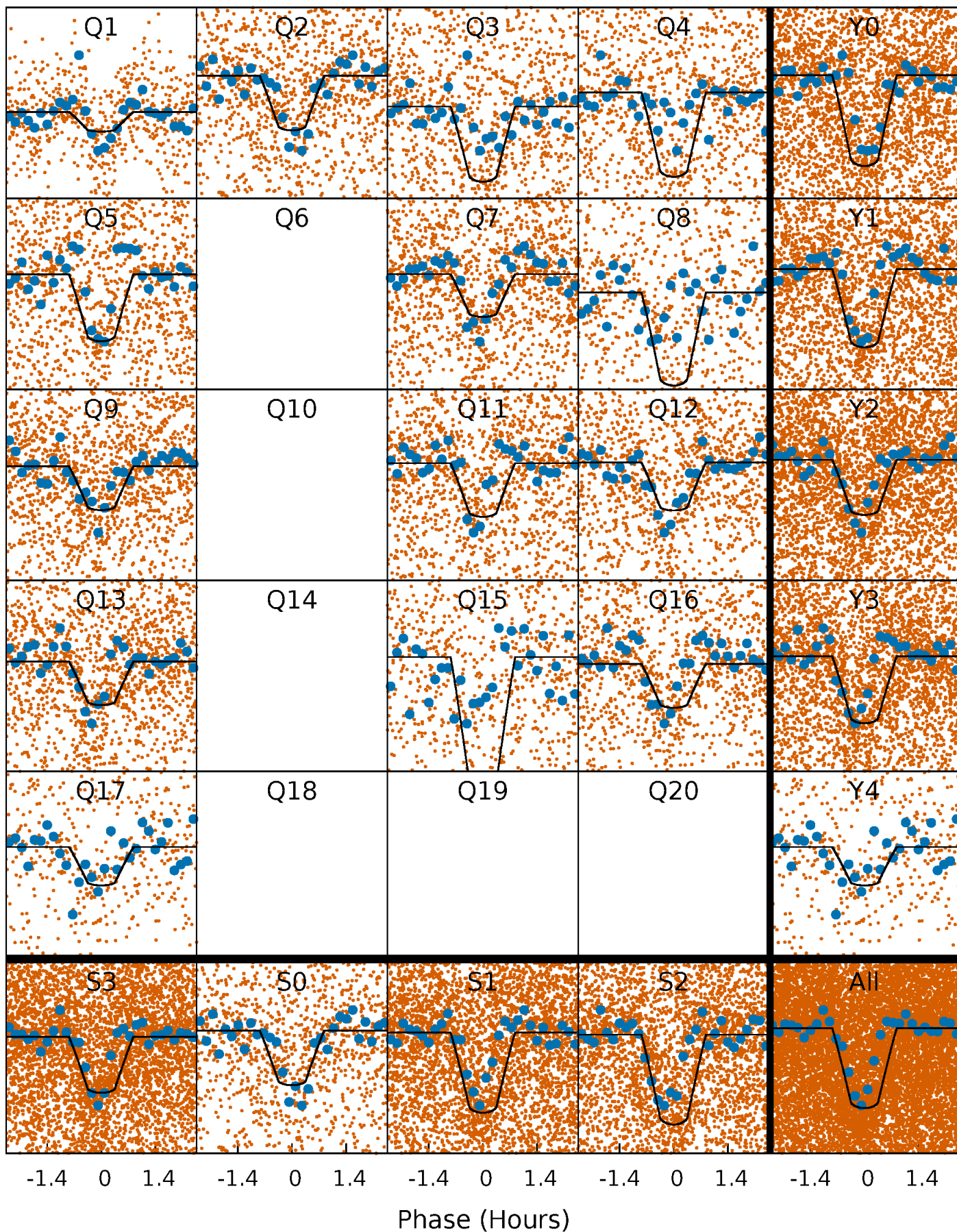
PDC Quarter-Phased Transit Curves

TCE 004077252-01 P= 0.534115 Days $T_0=131.804035$ (BKJD)



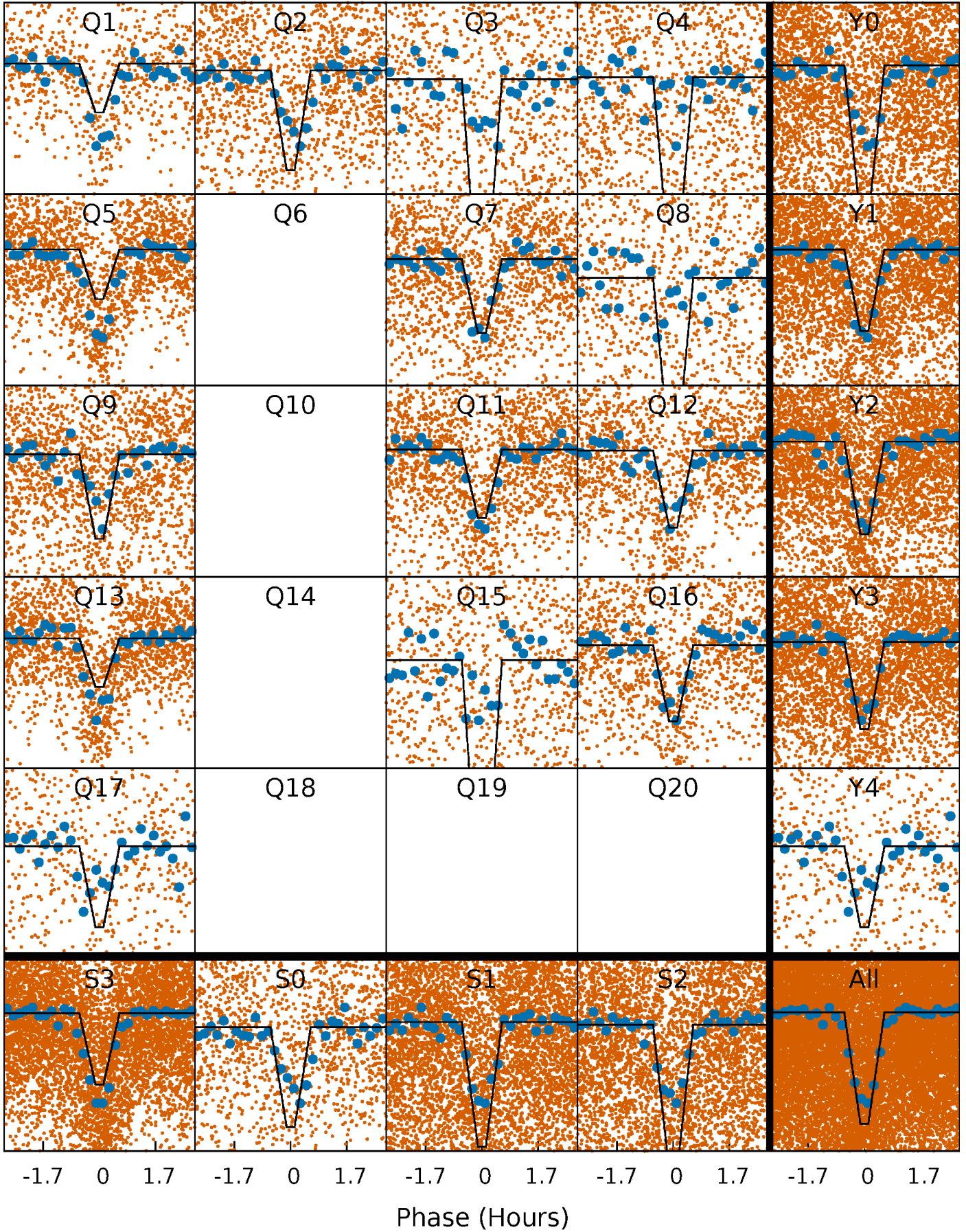
DV Quarter-Phased Transit Curves

TCE 004077252-01 P= 0.534115 Days $T_0=131.804035$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

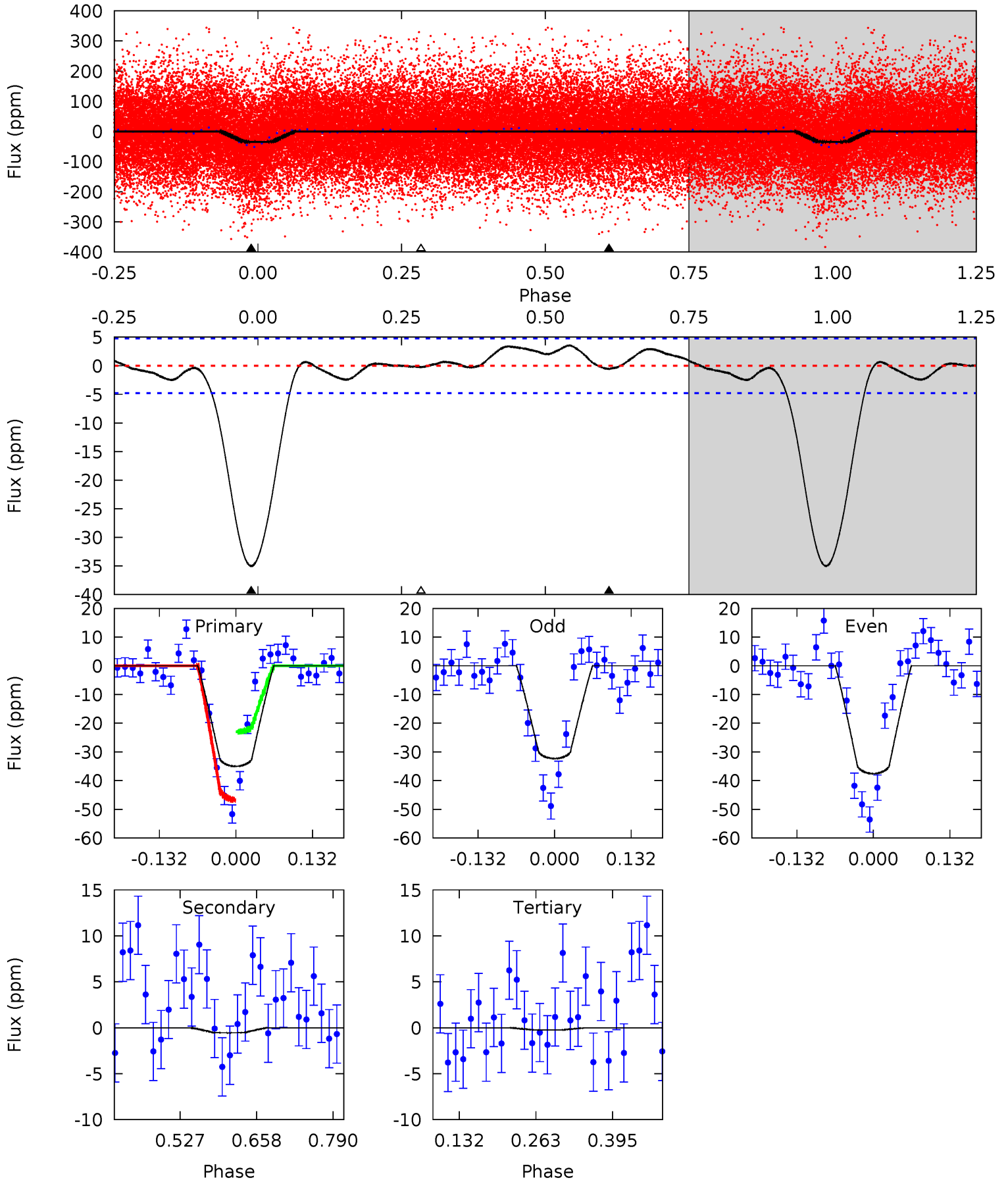
TCE 004077252-01 P= 0.534111 Days $T_0=131.803603$ (BKJD)



DV Model-Shift Uniqueness Test

004077252-01, P = 0.534115 Days, E = 131.269920 Days

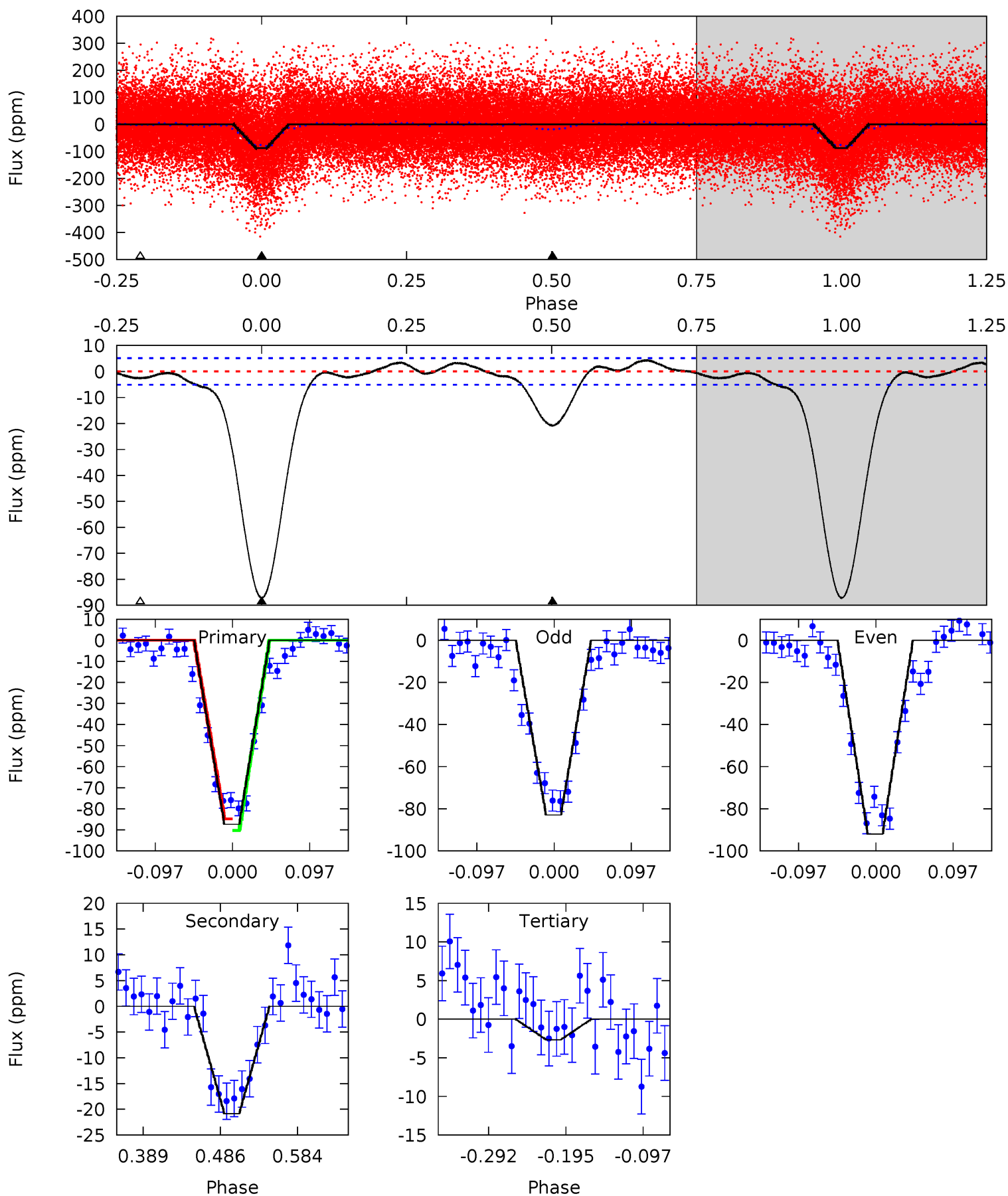
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 33.0 | 0.52 | 0.23 | 0 | 4.51 | 1.51 | 1.44 | 32.7 | 33.0 | 0.29 | 0.52 | 2.48 | 0.95 | 0.09 | 11.1 |



Alt Model-Shift Uniqueness Test

004077252-01, P = 0.534111 Days, E = 131.269492 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 78.1 | 18.6 | 2.37 | 0 | 4.57 | 1.66 | 1.98 | 75.7 | 78.1 | 16.3 | 18.6 | 4.03 | 1.03 | 0.05 | 2.48 |



Stellar Parameters For KIC 004077252

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|-----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 10747^{+331}_{-478} | $4.100^{+0.215}_{-0.215}$ | $0.070^{+0.050}_{-0.600}$ | $2.432^{+0.875}_{-0.716}$ | $2.718^{+0.348}_{-0.597}$ | $0.266^{+0.352}_{-0.154}$ |
| | +3%/-4% | +5%/-5% | +71%/-857% | +36%/-29% | +13%/-22% | +132%/-58% |
| Source | KIC0 | 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 004077252-01 / KOI 5038.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|-----------------------|---------------------------|
| DV | -1 ± 1 | $2.04^{+0.43}_{-0.33}$ | 7715^{+739}_{-638} | -5604^{+504}_{-528} | $0.022^{+0.049}_{-0.042}$ |
| Alt. | -21 ± 1 | $2.63^{+0.54}_{-0.44}$ | 7698^{+769}_{-650} | 5331^{+504}_{-942} | $0.533^{+0.196}_{-0.167}$ |

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 $A_{obs} \gg 1.0$

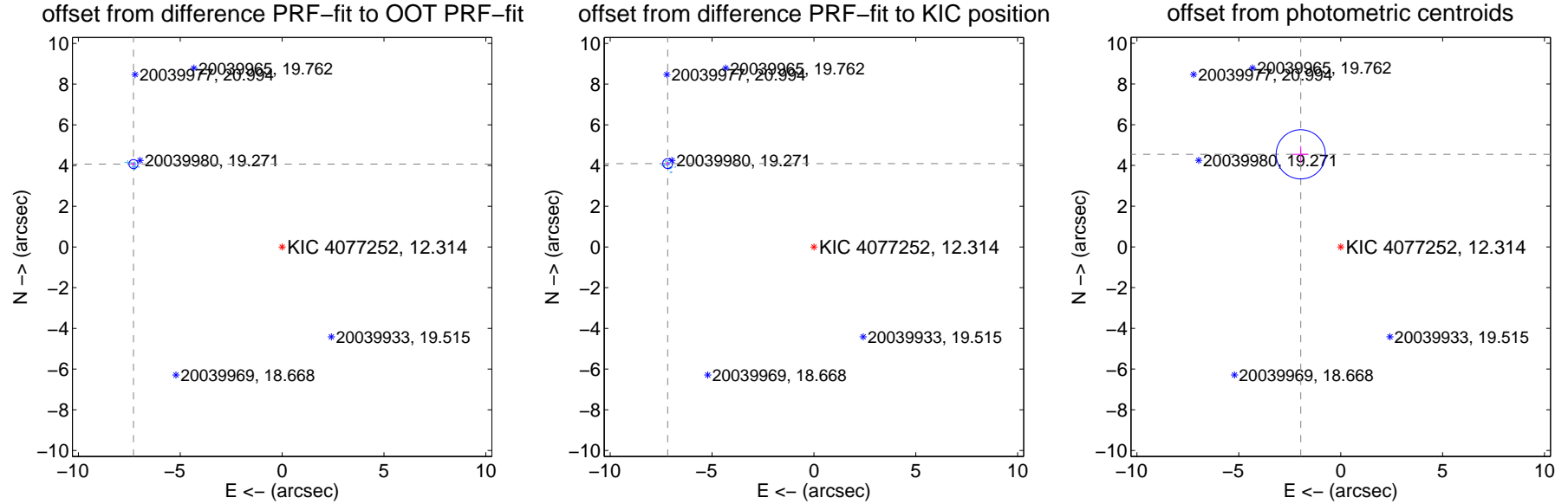
DV Centroid Data

Supplemental centroid analysis for 004077252-01. Kepler magnitude: 12.31. Transit SNR 34.11

There are 14 quarters with good PRF difference image offsets

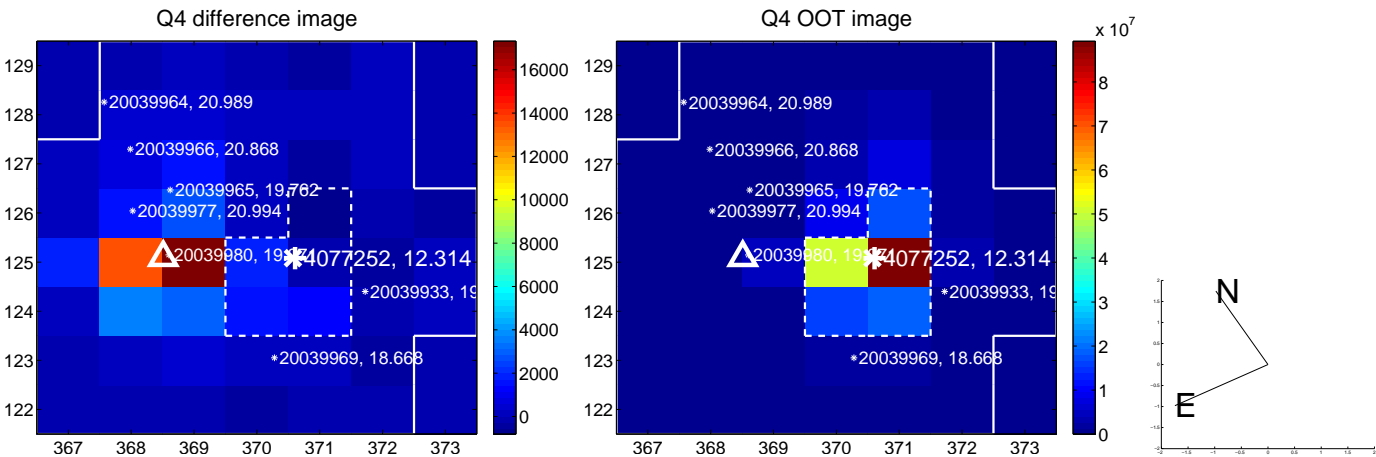
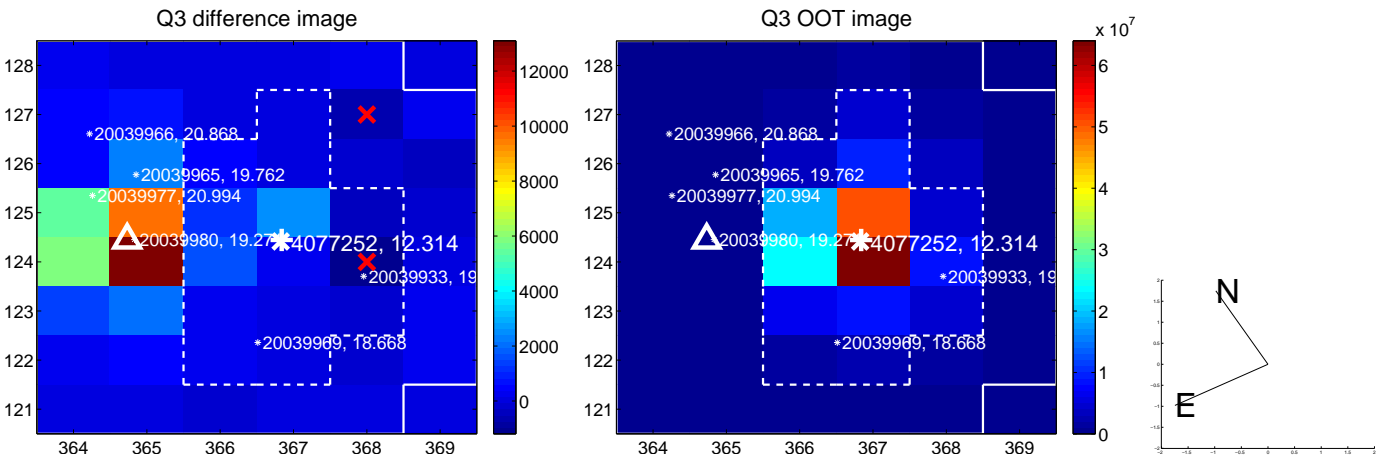
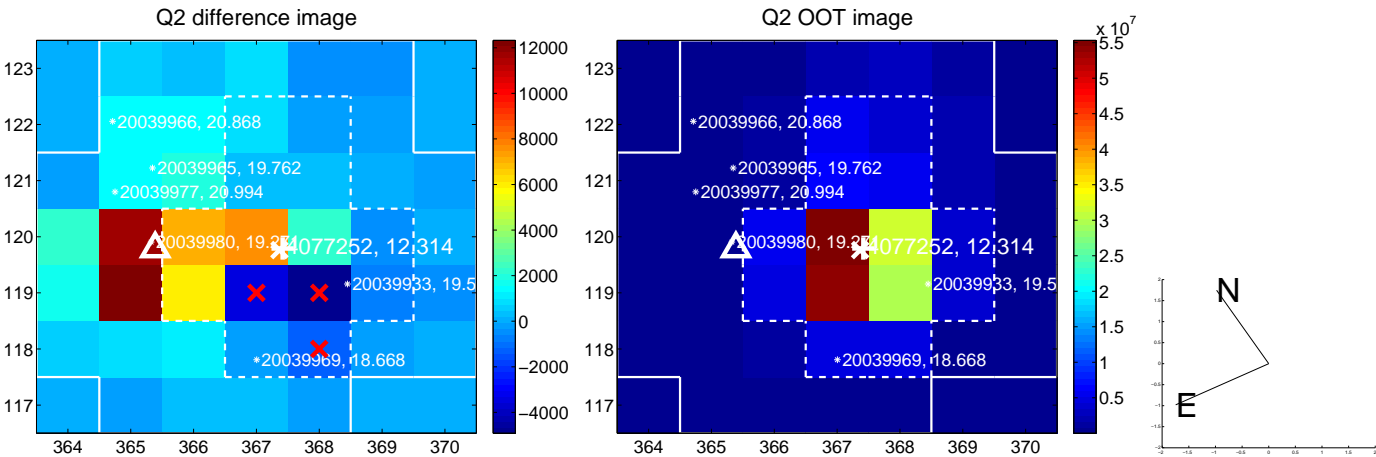
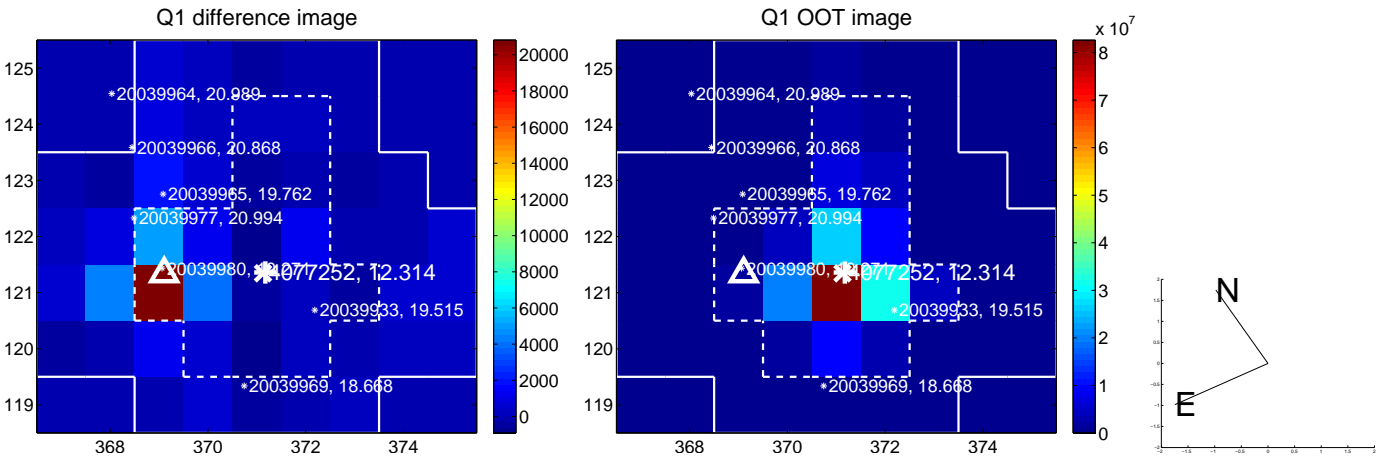
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 8.355 \pm 0.074 | 112.70 | 7.296 \pm 0.073 | 4.072 \pm 0.071 |
| PRF-fit source offset from KIC position | 8.265 \pm 0.081 | 102.25 | 7.178 \pm 0.075 | 4.096 \pm 0.079 |
| photometric centroid source offset | 4.95 \pm 0.40 | 12.29 | 1.96 \pm 0.39 | 4.55 \pm 0.41 |

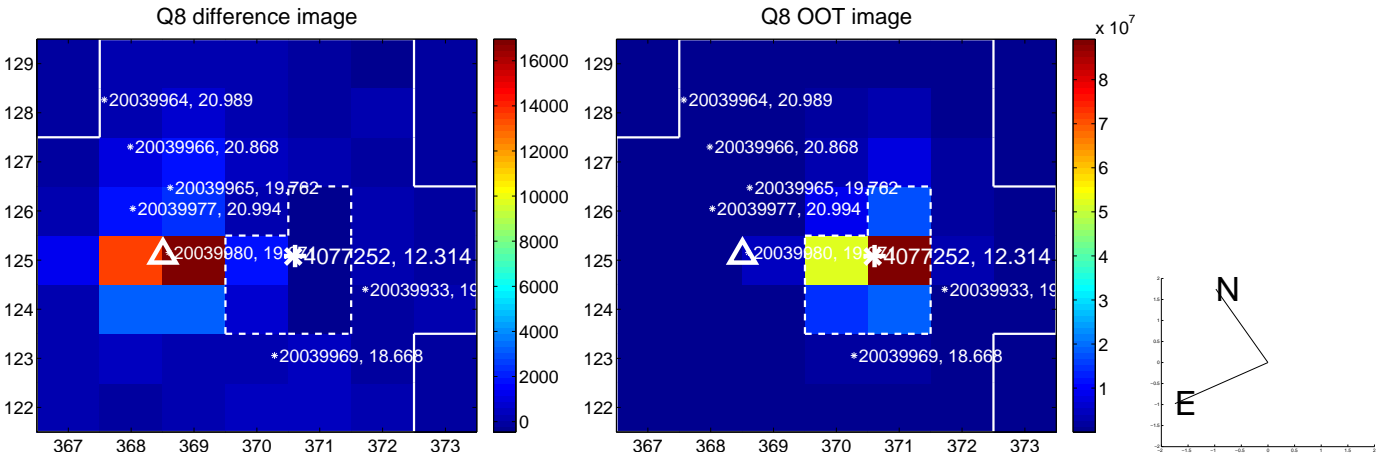
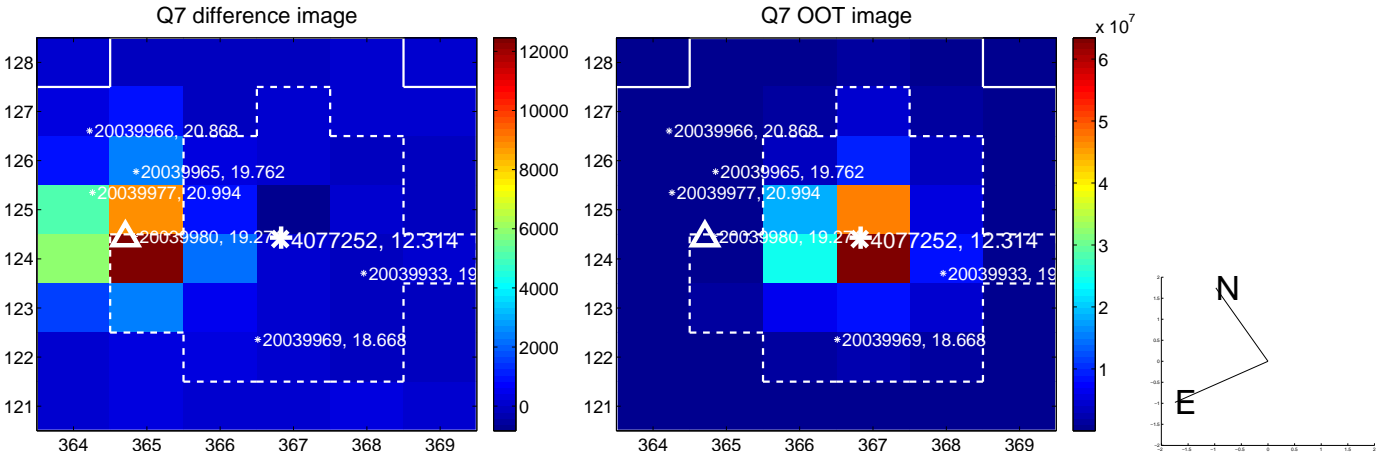
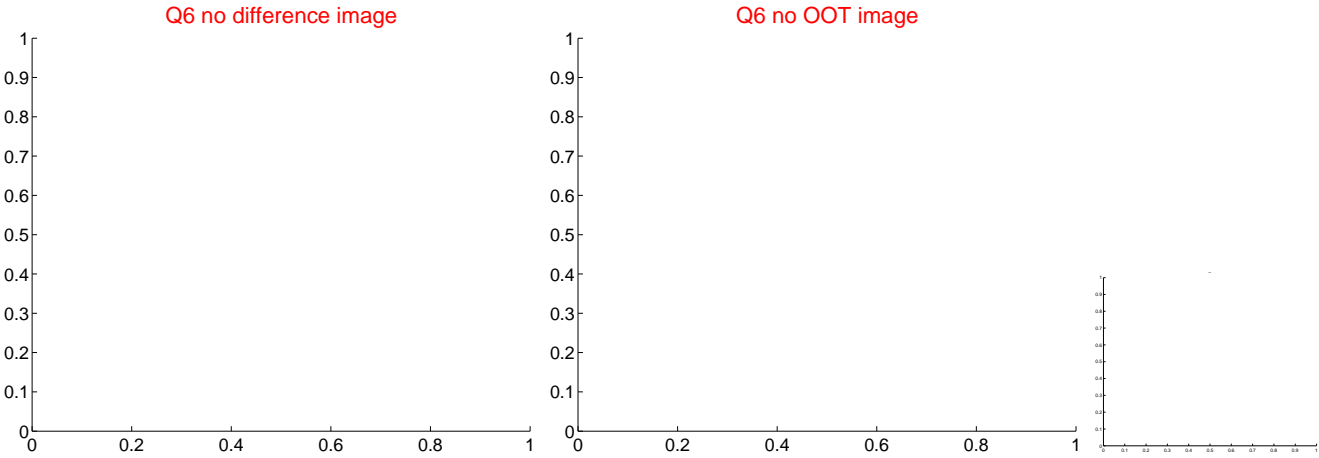
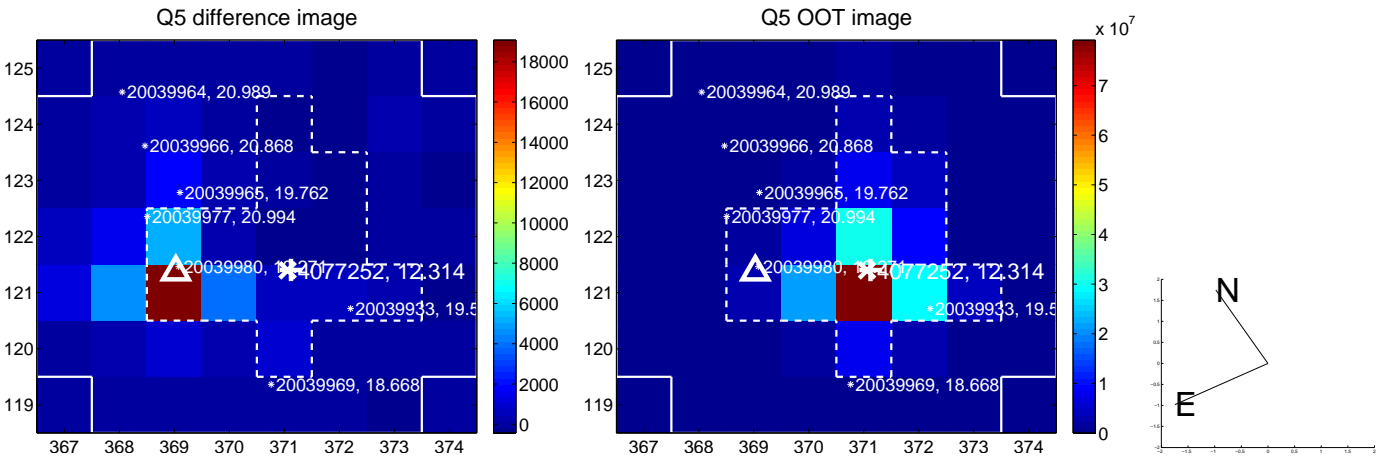


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

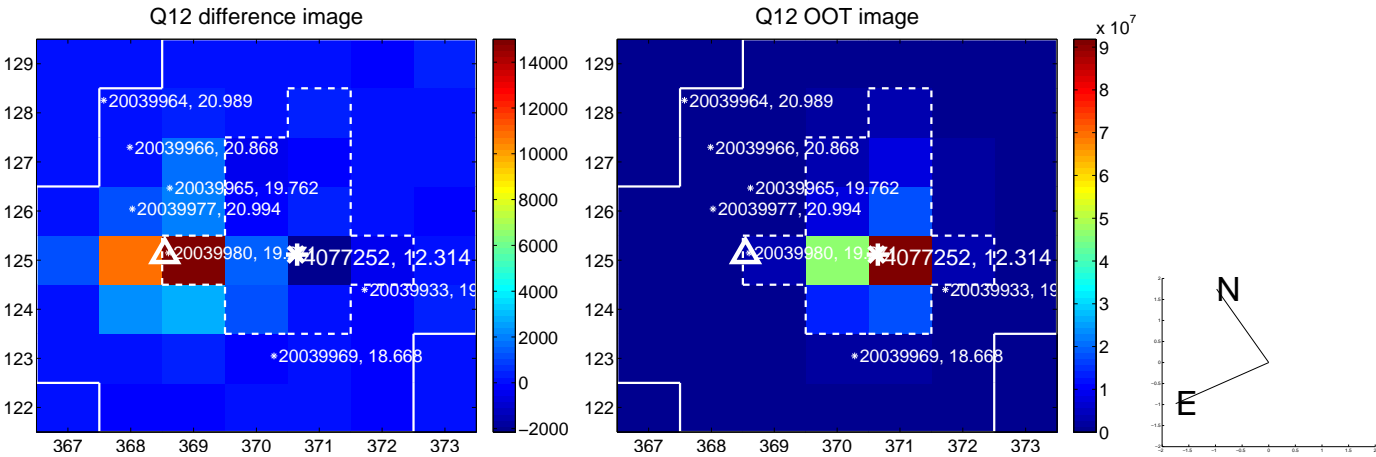
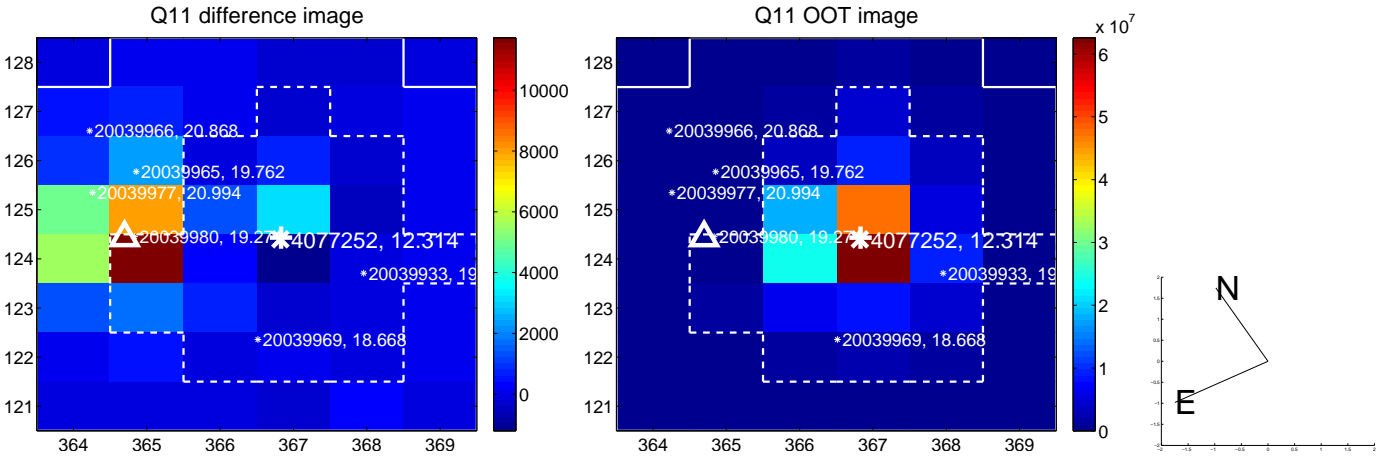
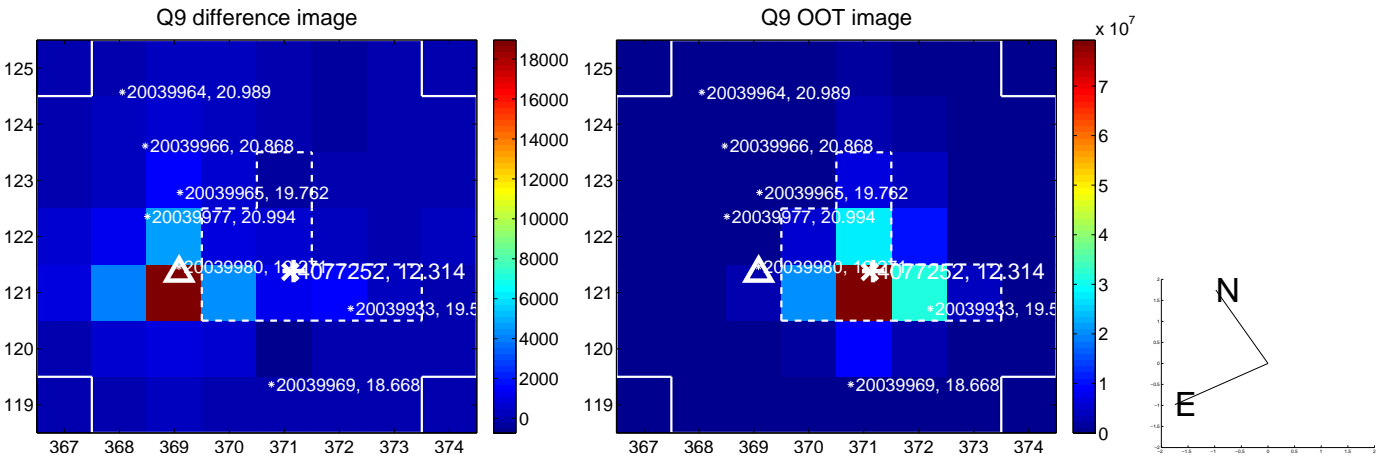
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



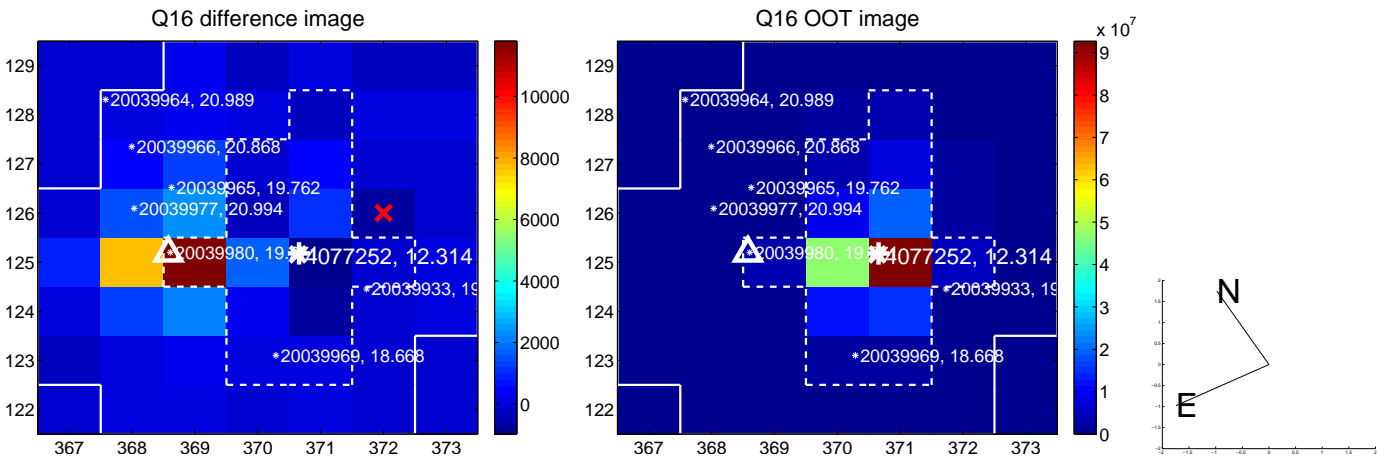
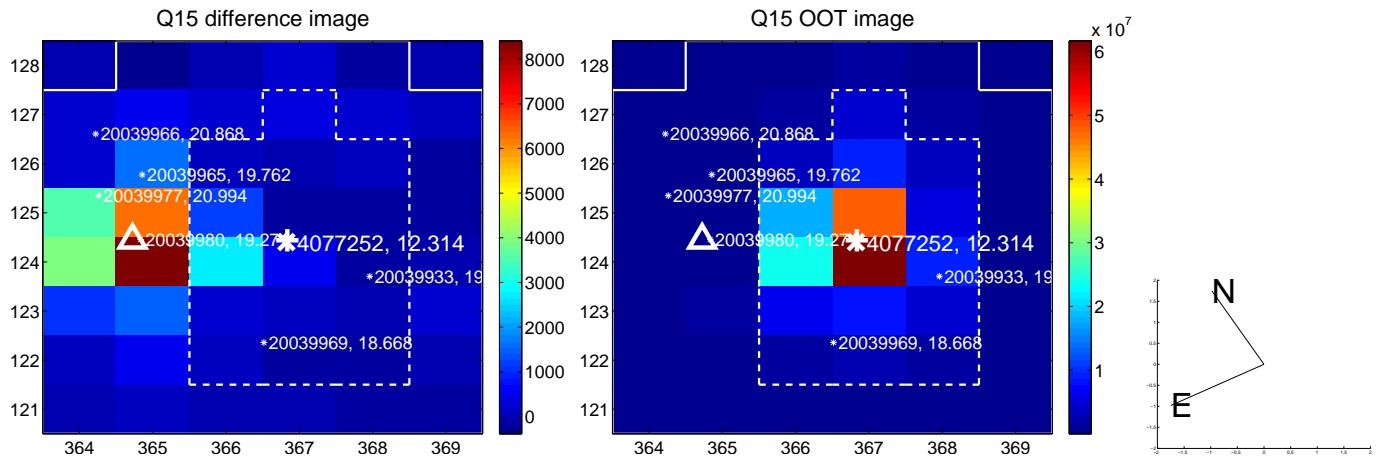
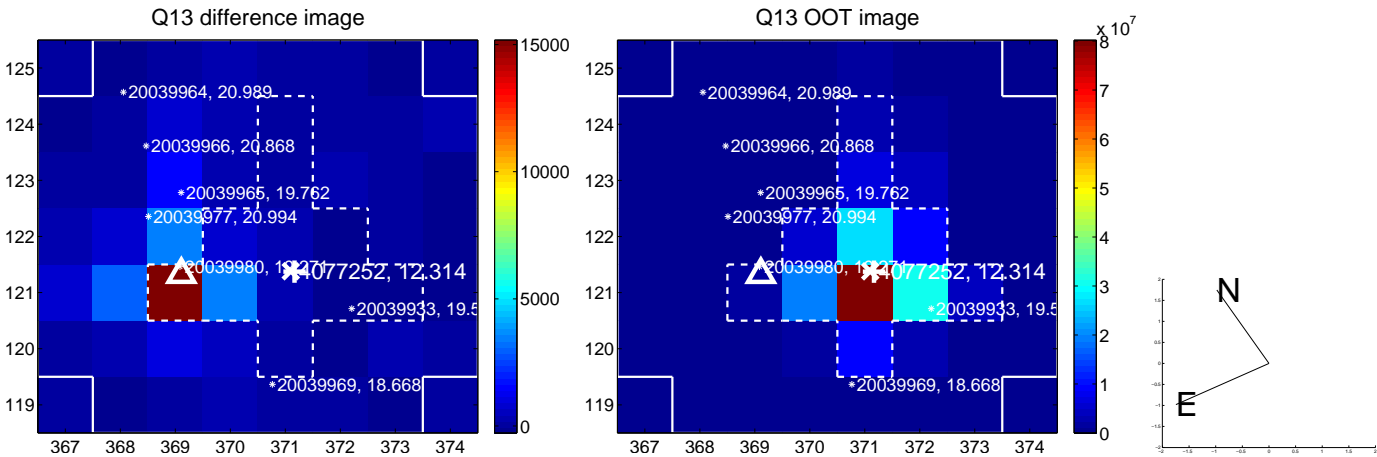
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



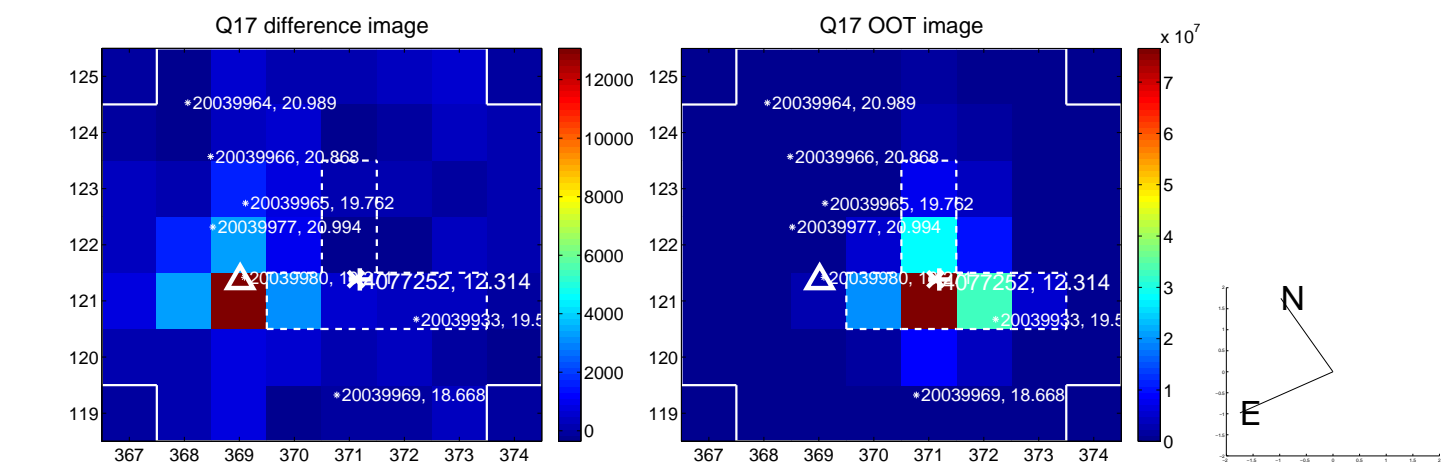
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



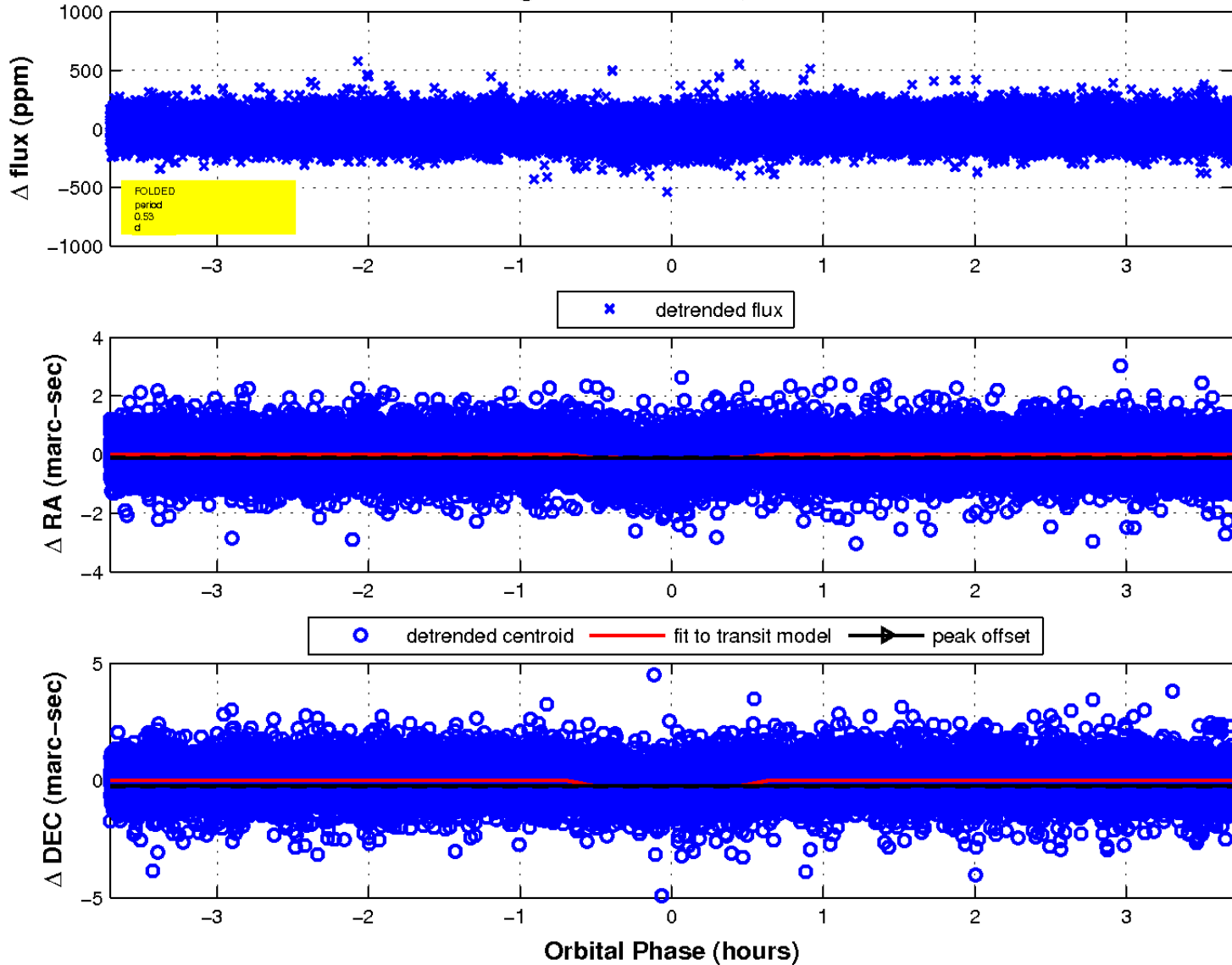
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

