

KIC 007418507

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007418507-01 | OBS | No | 0.514065 | 132.113537 | 5.8 | 1.351 | 7.8 | 3.1 | 2.19 | 6776 | 0.62 | 42278.83 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 007418507-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |

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

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

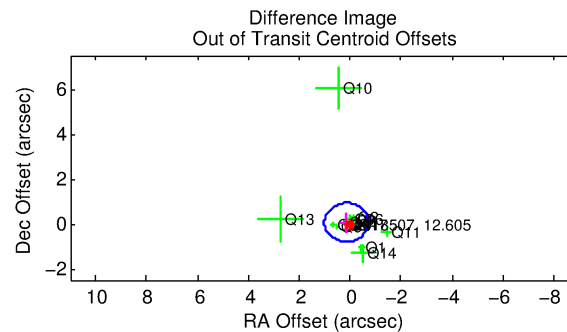
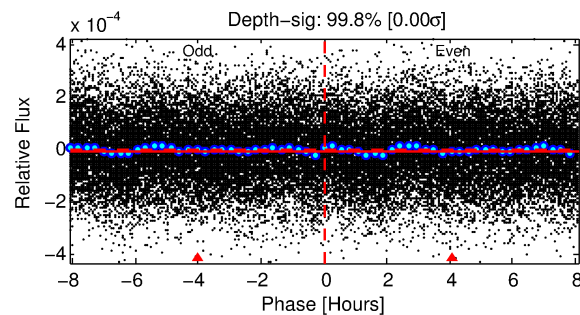
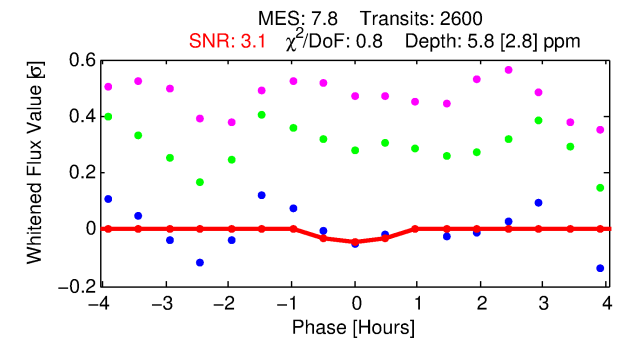
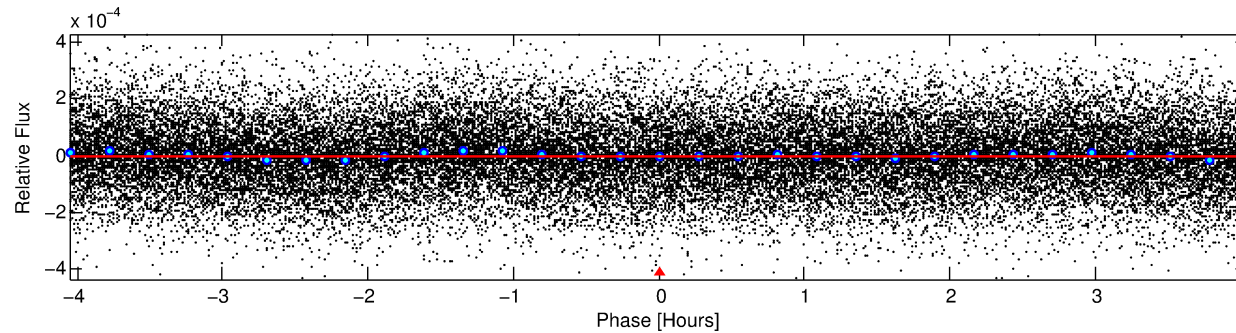
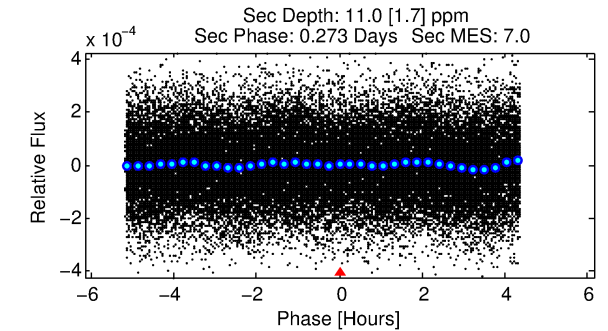
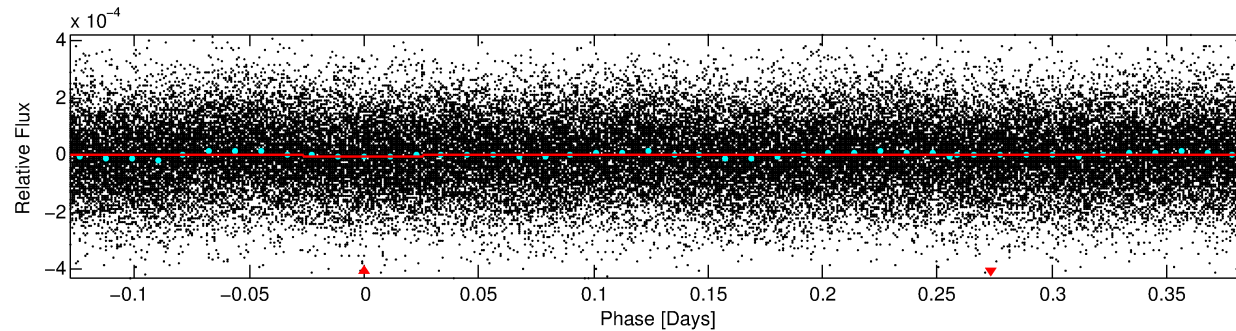
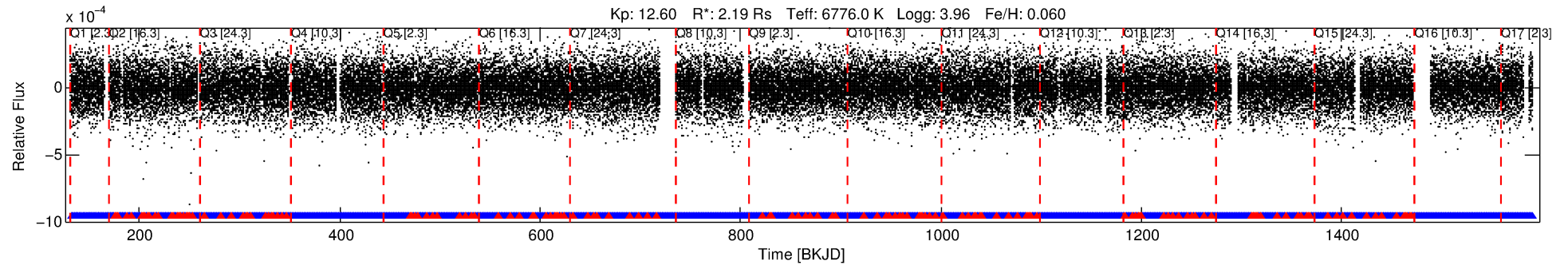
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007418507-01

No Significant Match Found

DV One-Page Summary

KIC: 7418507 Candidate: 1 of 1 Period: 0.514 d



DV Fit Results:

Period = 0.51406 [0.00004] d
Epoch = 132.1135 [0.0060] BKJD
Rp/R* = 0.0026 [0.0010]
a/R* = 1.59 [1.73]
b = 0.90 [0.38]
Seff = 42278.83 [22092.58]
Teq = 3656 [478] K
Rp = 0.62 [0.32] Re
a = 0.0147 [0.0046] AU
Ag = 3.40 [3.16] [0.76σ]
Teffp = 7675 [1544] K [2.49σ]

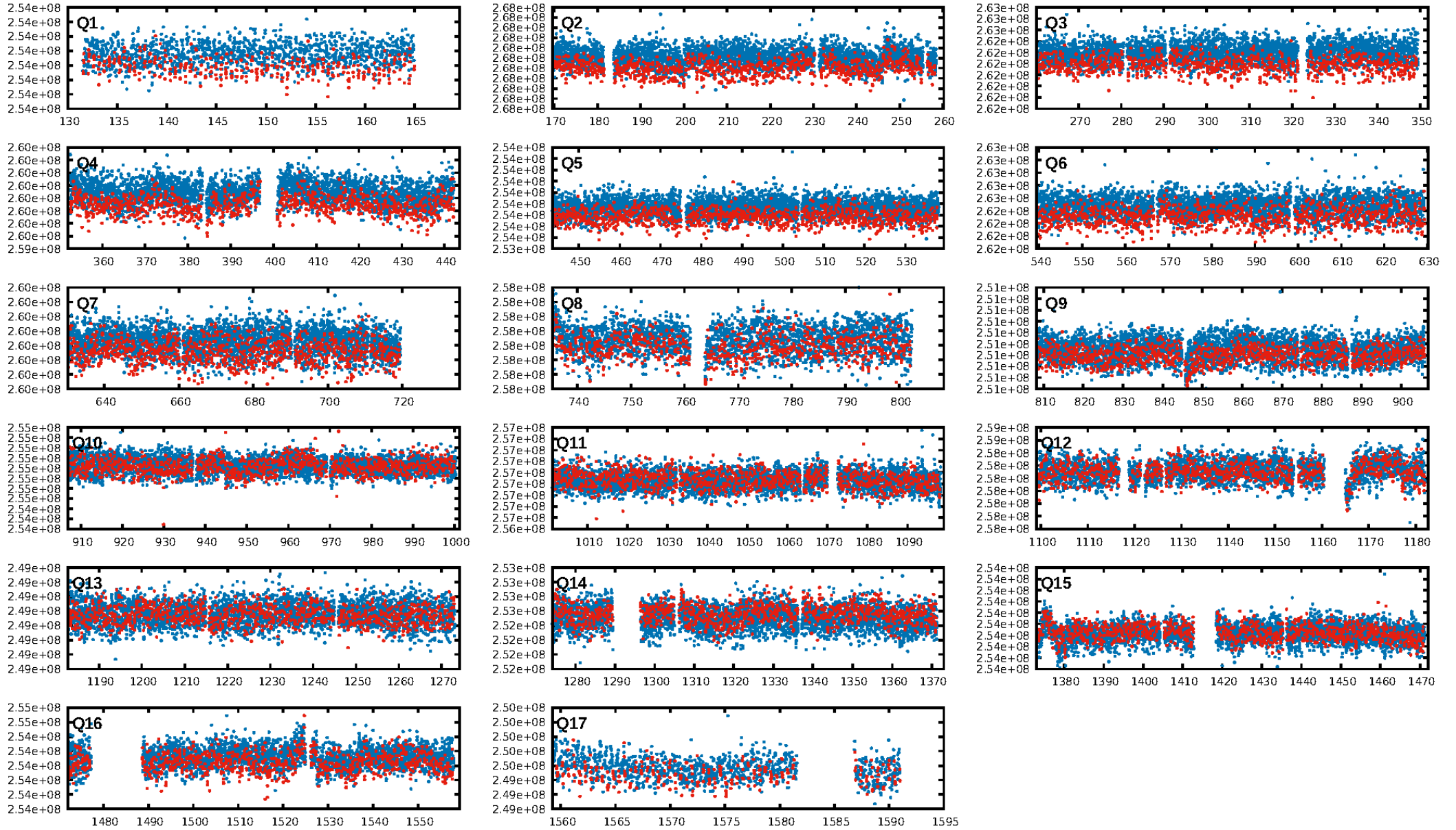
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.10e-66
RollingBand-fgt: 0.94 [2323/2482]
GhostDiagnostic-chr: 0.4421
Centroid-sig: 0.0%
Centroid-so: 7.739 arcsec [2.75σ]
OotOffset-rm: 0.164 arcsec [0.57σ]
KicOffset-rm: 0.186 arcsec [0.64σ]
OotOffset-st: 4/3/3/5 [15]
KicOffset-st: 4/3/3/5 [15]
DiffImageQuality-fgm: 0.80 [12/15]
DiffImageOverlap-fno: 1.00 [17/17]

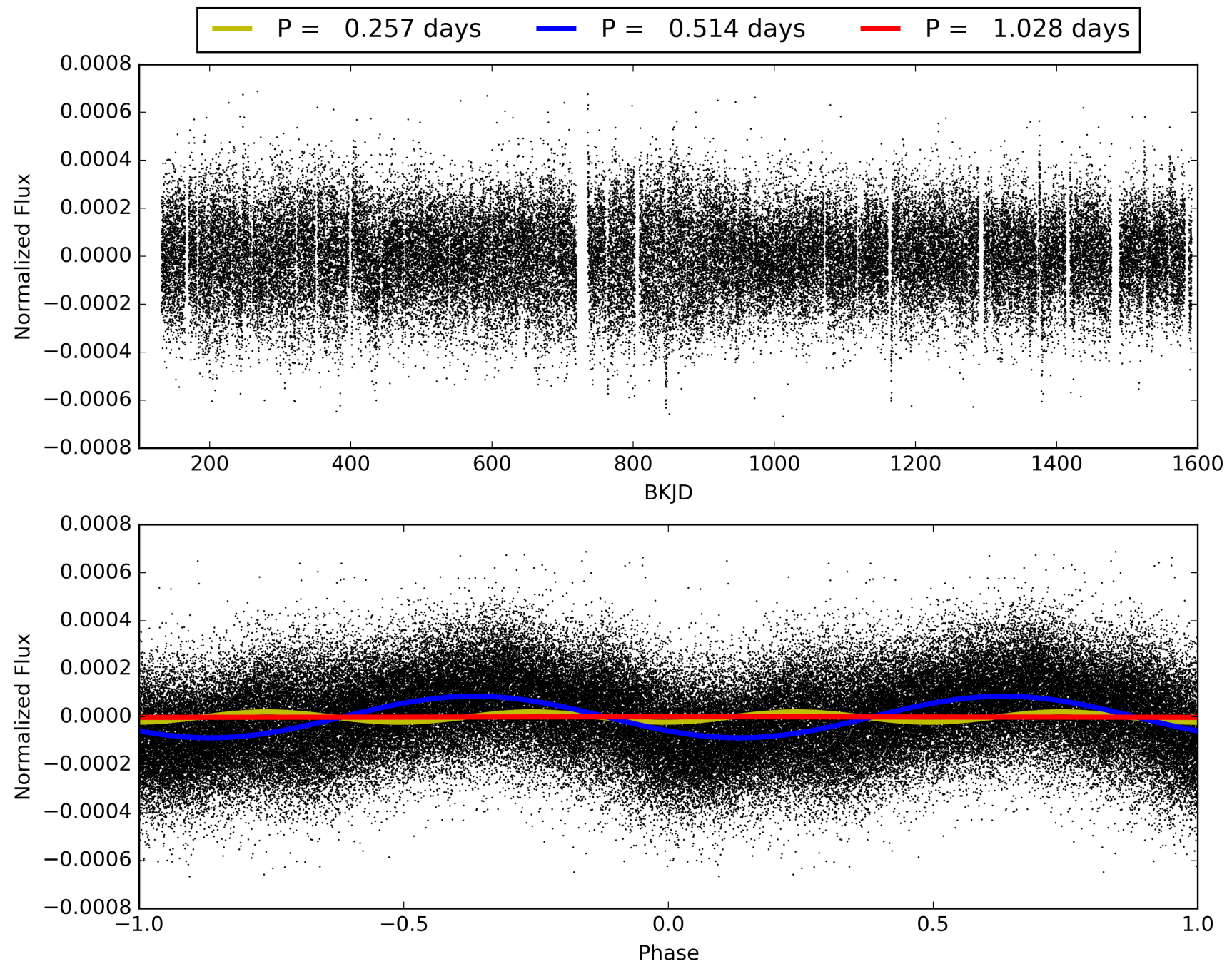
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:15:34 Z

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

TCE 007418507-01, PDC Light Curves

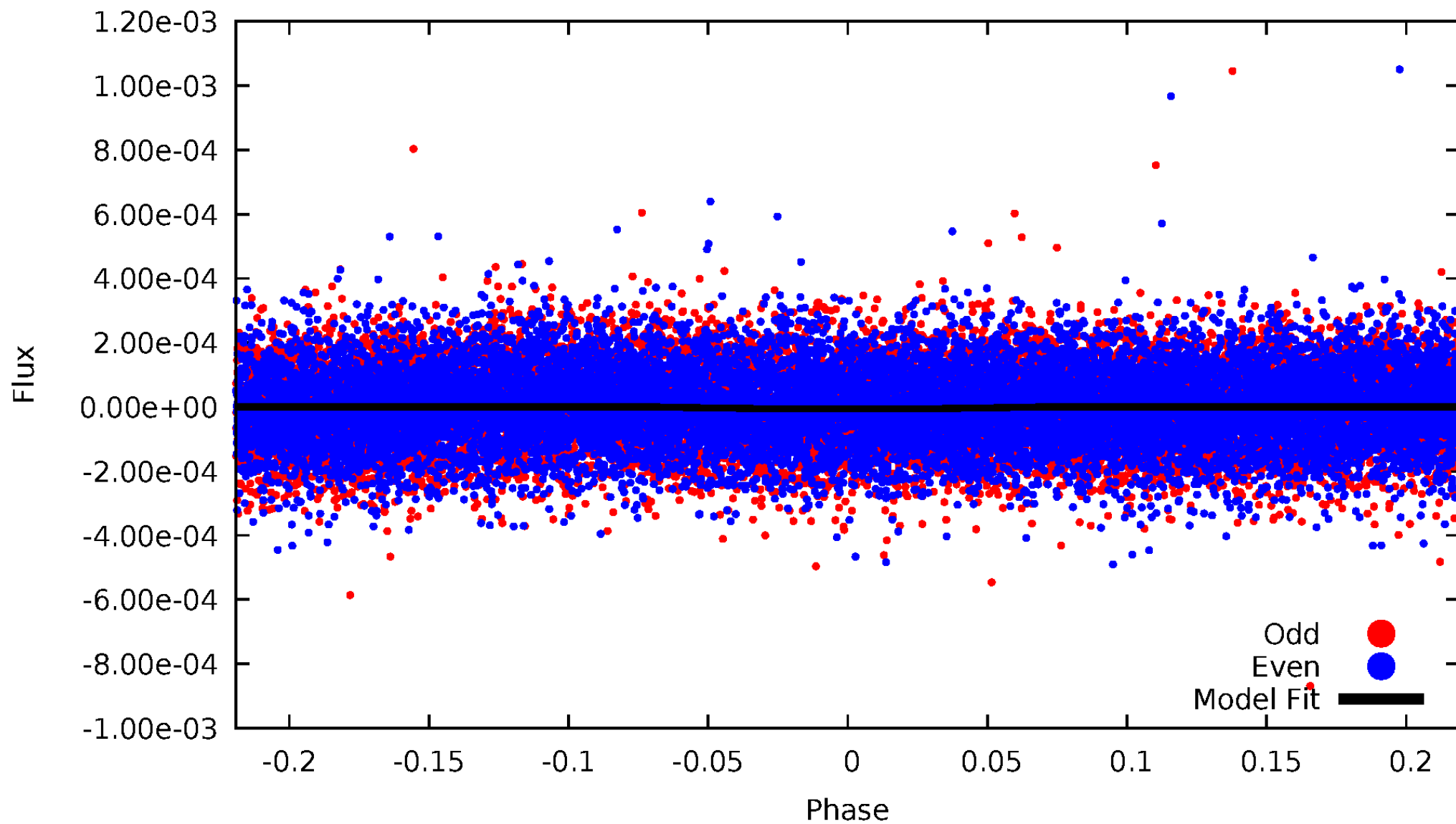


TCE 007418507-01



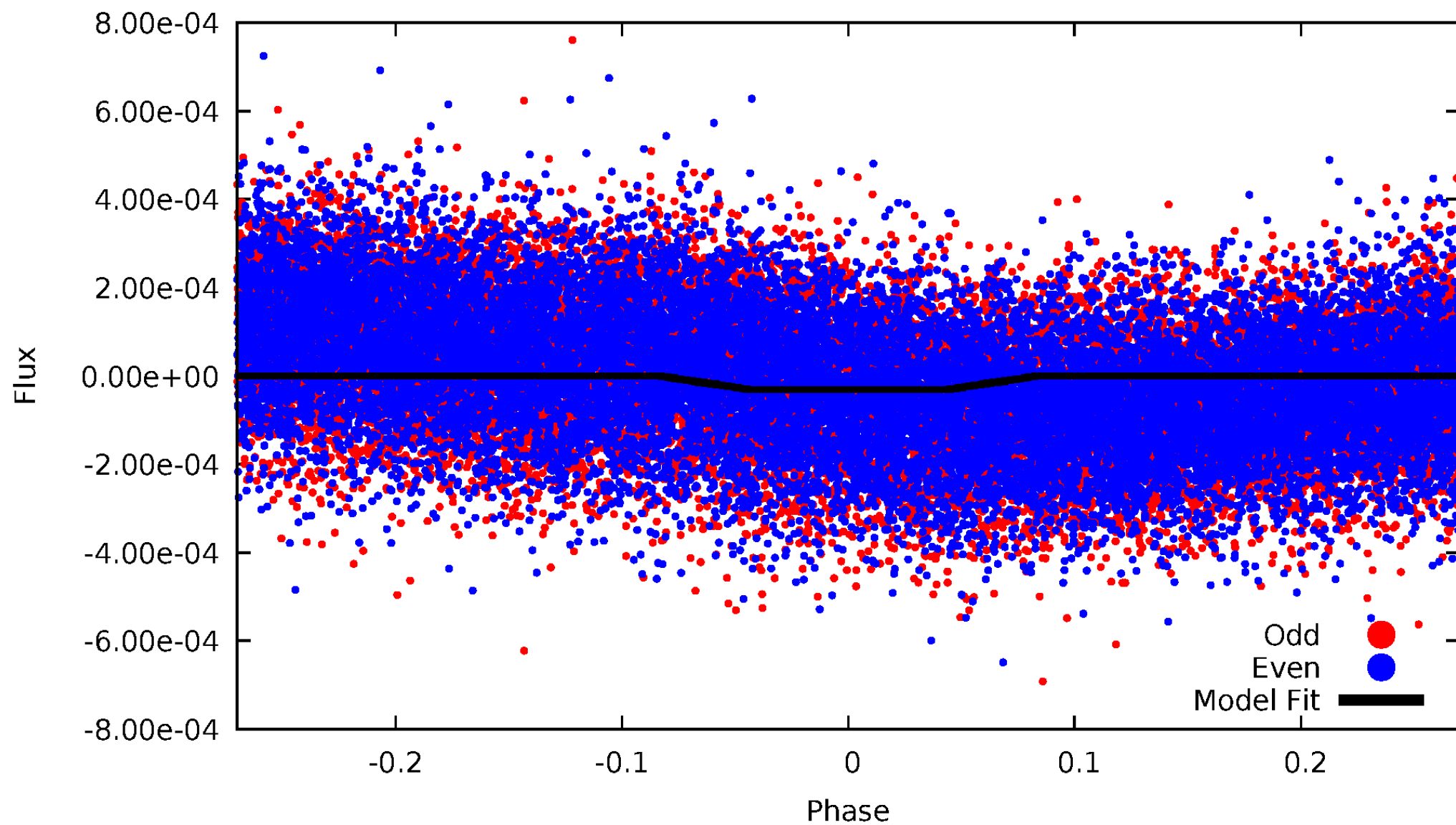
DV Odd/Even

TCE 007418507-01



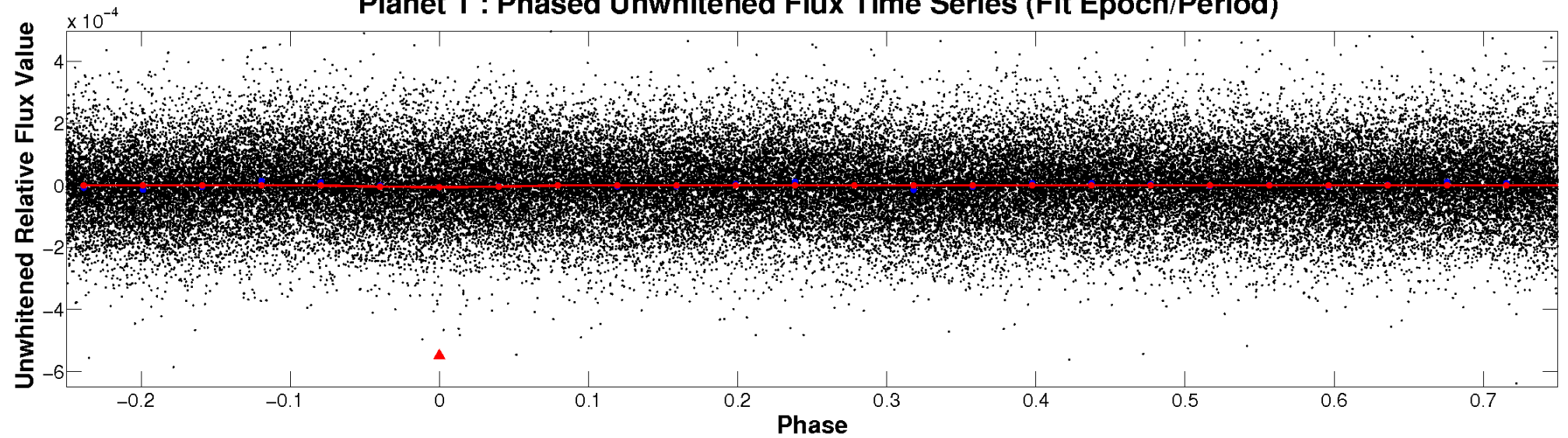
ALT Odd/Even

TCE 007418507-01

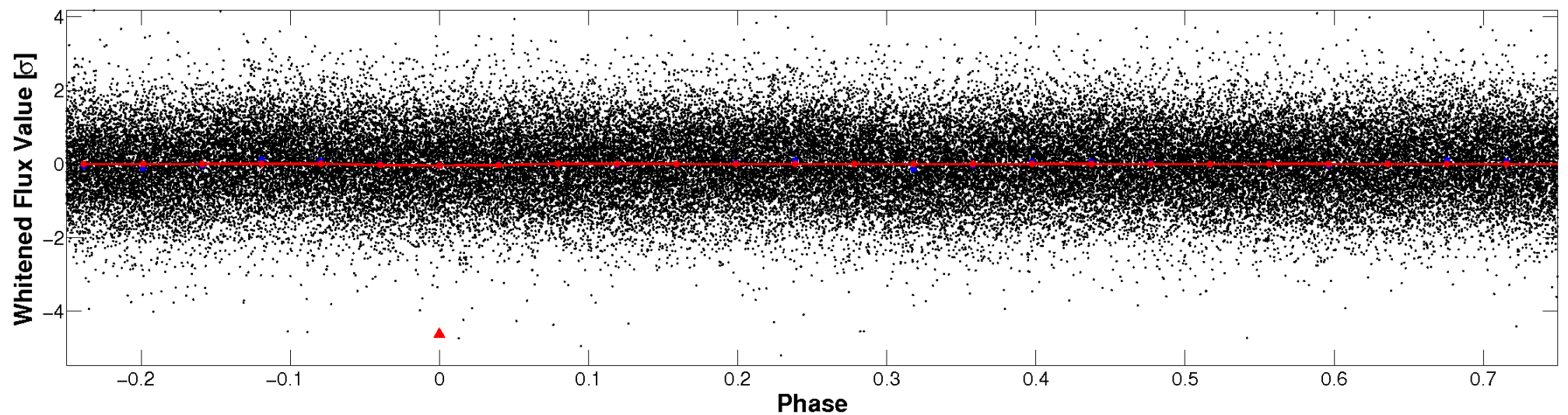


Non-Whitened Vs. Whitened Light Curve

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

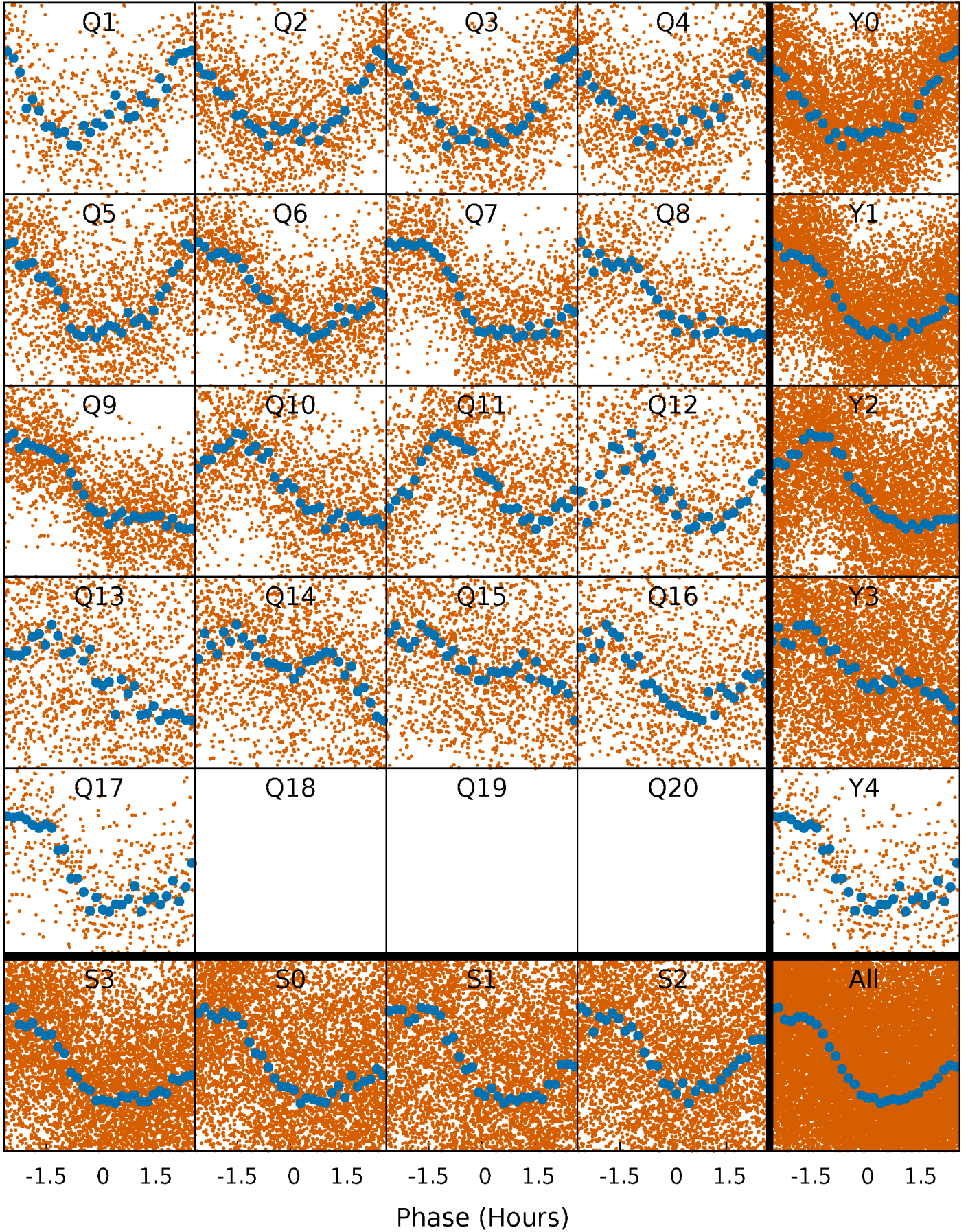


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



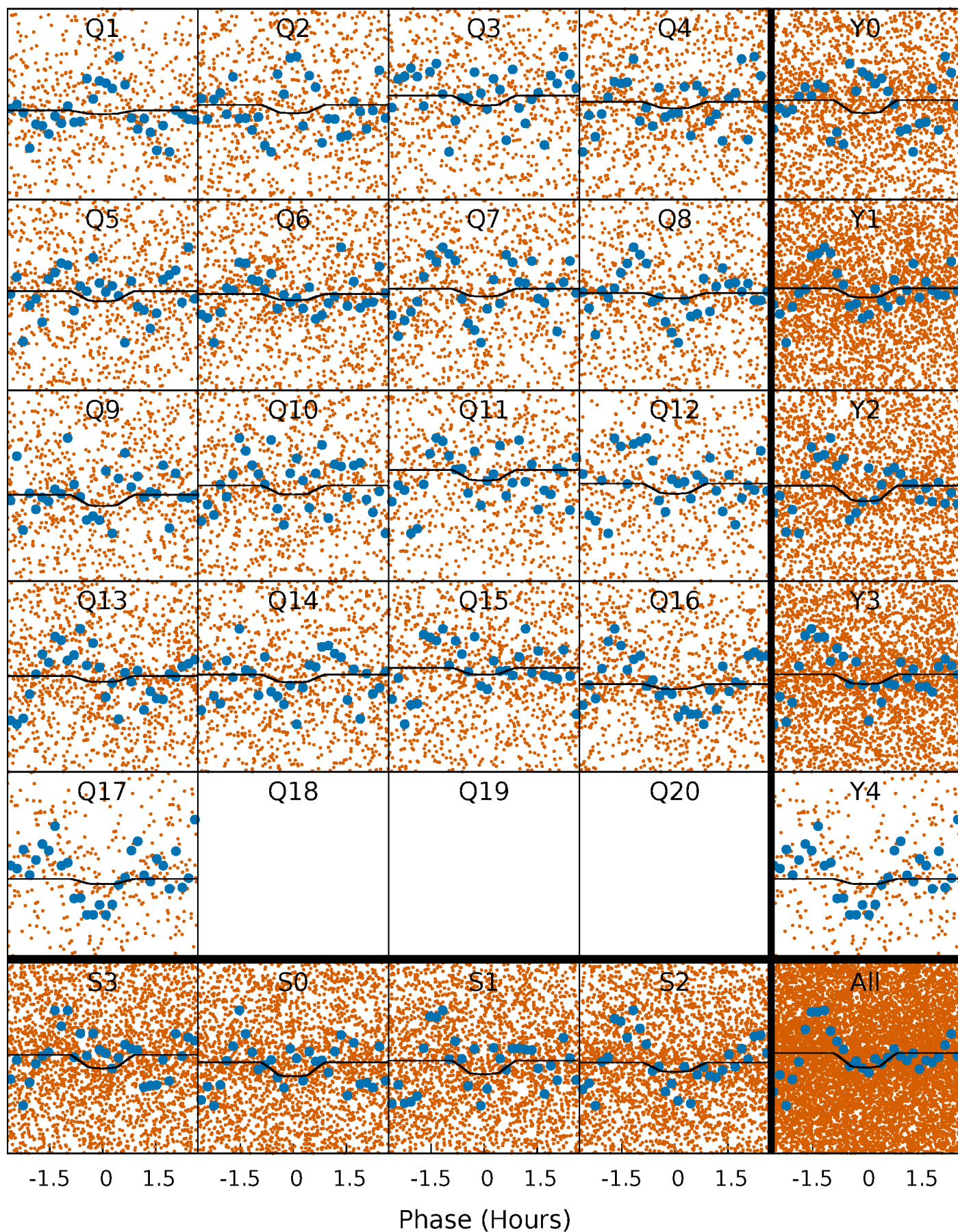
PDC Quarter-Phased Transit Curves

TCE 007418507-01 P= 0.514065 Days $T_0=132.113538$ (BKJD)



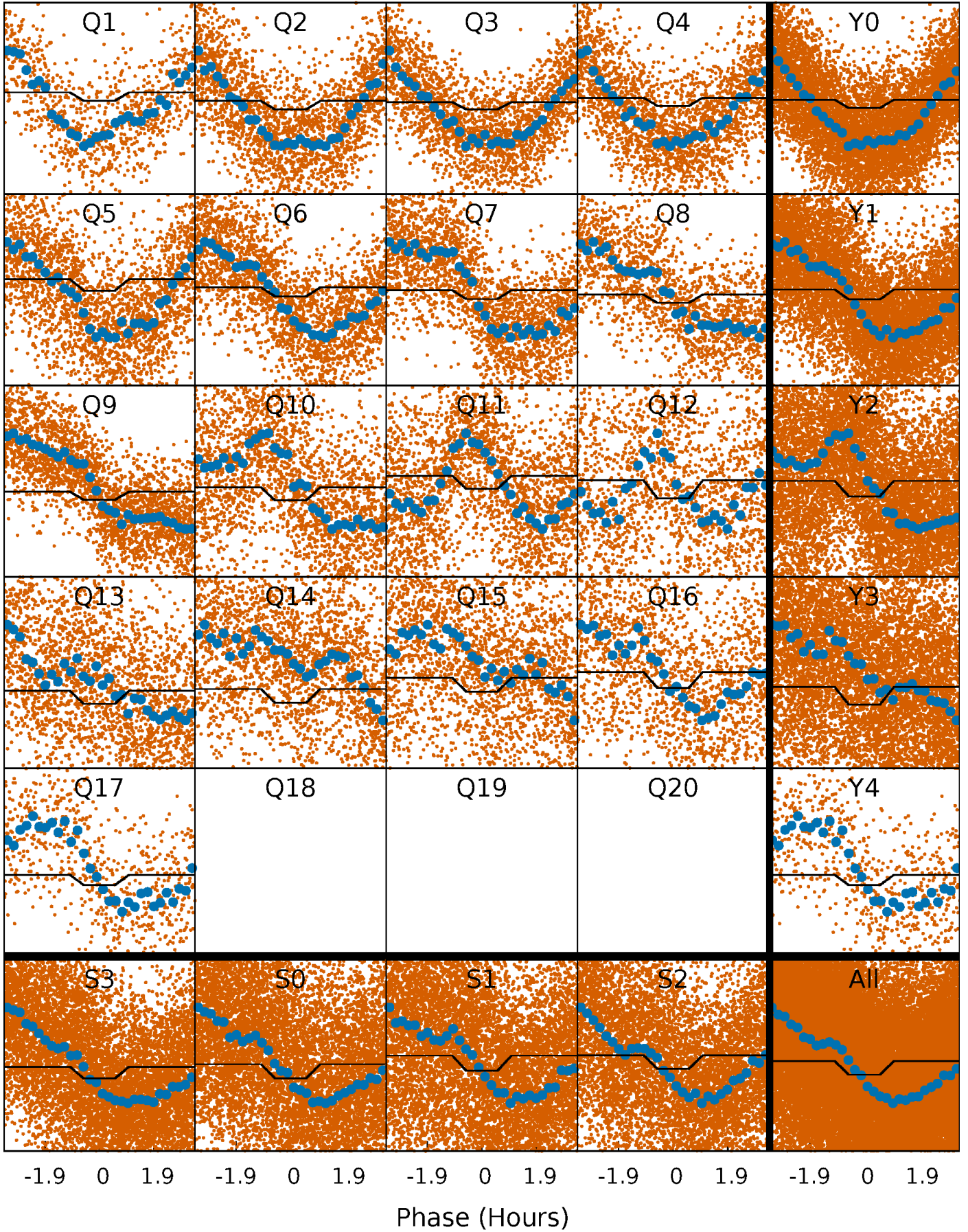
DV Quarter-Phased Transit Curves

TCE 007418507-01 P= 0.514065 Days $T_0=132.113538$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

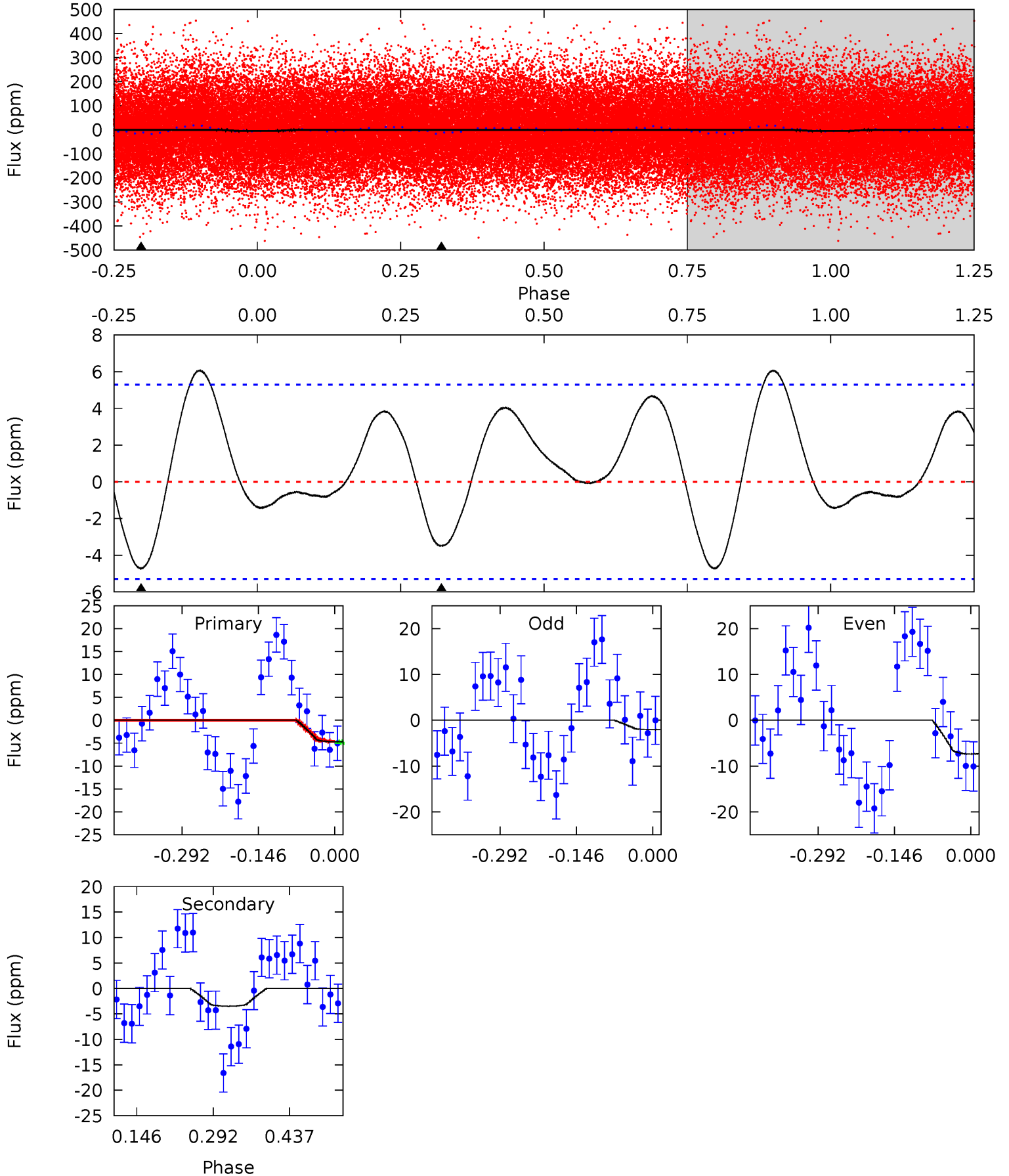
TCE 007418507-01 P= 0.514062 Days $T_0=132.097005$ (BKJD)



DV Model-Shift Uniqueness Test

007418507-01, P = 0.514065 Days, E = 131.085408 Days

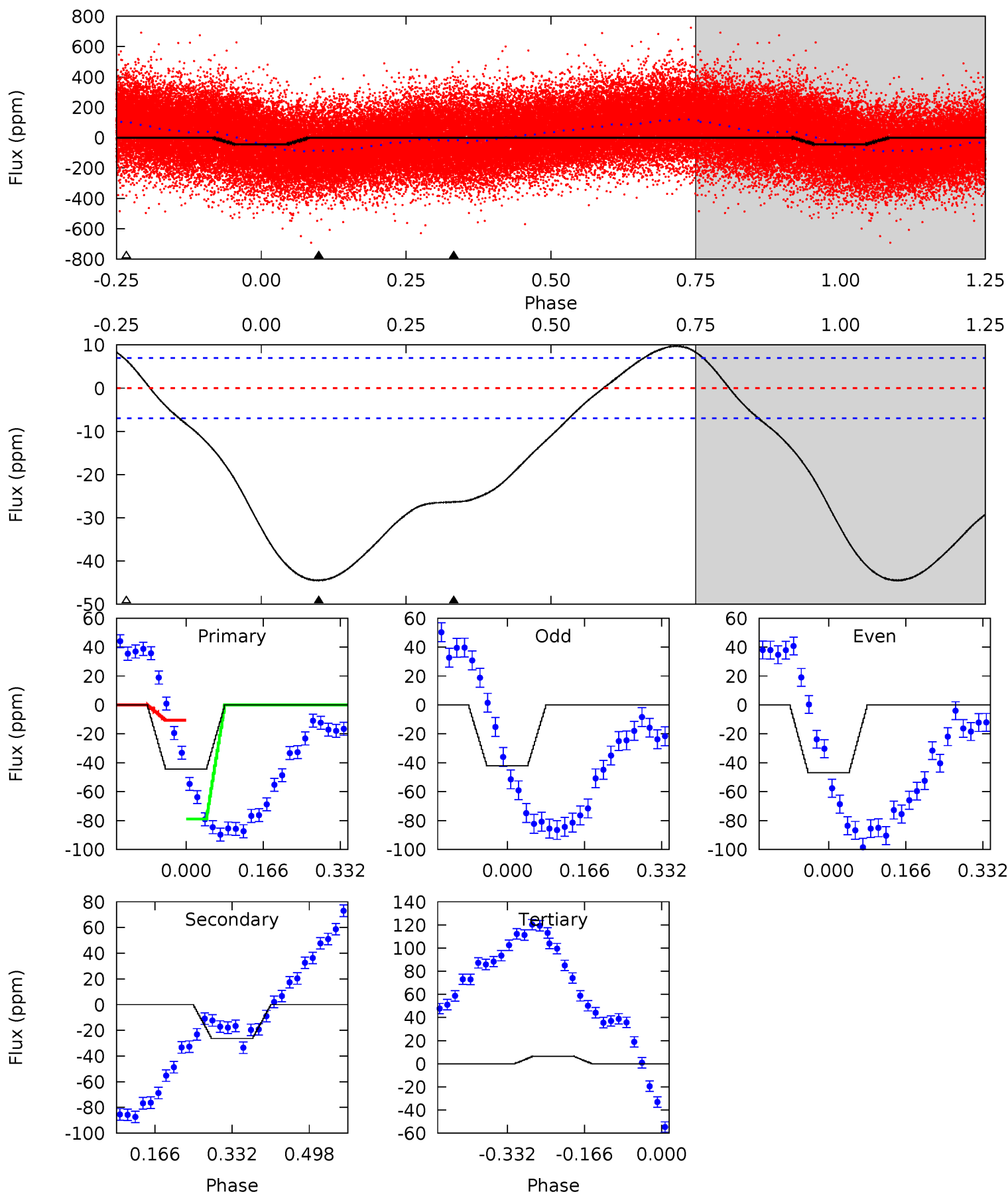
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.00 | 2.96 | 0 | 0 | 4.49 | 1.45 | 0.93 | 4.00 | 4.00 | 2.96 | 2.96 | 2.27 | 1.09 | 0.56 | 0.09 |



Alt Model-Shift Uniqueness Test

007418507-01, P = 0.514062 Days, E = 131.068881 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 28.4 | 16.8 | -4.12 | 0 | 4.46 | 1.39 | 4.83 | 32.5 | 28.4 | 21.0 | 16.8 | 1.55 | 1.13 | 0.18 | 22.0 |



Stellar Parameters For KIC 007418507

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|--|
| | 6776^{+189}_{-283} | $3.957^{+0.286}_{-0.154}$ | $0.060^{+0.250}_{-0.350}$ | $2.193^{+0.616}_{-0.753}$ | $1.586^{+0.207}_{-0.336}$ | $0.212^{+0.405}_{-0.091}$ |
| | +3%/-4% | +7%/-4% | +417%/-583% | +28%/-34% | +13%/-21% | +191%/-43% |
| Source | PHO54 | PHO54 | PHO54 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 007418507-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|---------------------------|
| DV | -3 ± 1 | $0.58^{+0.28}_{-0.23}$ | 5046^{+381}_{-479} | 5299^{+1939}_{-1319} | $1.147^{+2.100}_{-0.669}$ |
| Alt. | -26 ± 2 | $1.26^{+0.34}_{-0.29}$ | 5013^{+424}_{-434} | 6214^{+803}_{-624} | $1.937^{+1.277}_{-0.719}$ |

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 $A_{\text{obs}} \gg 1.0$

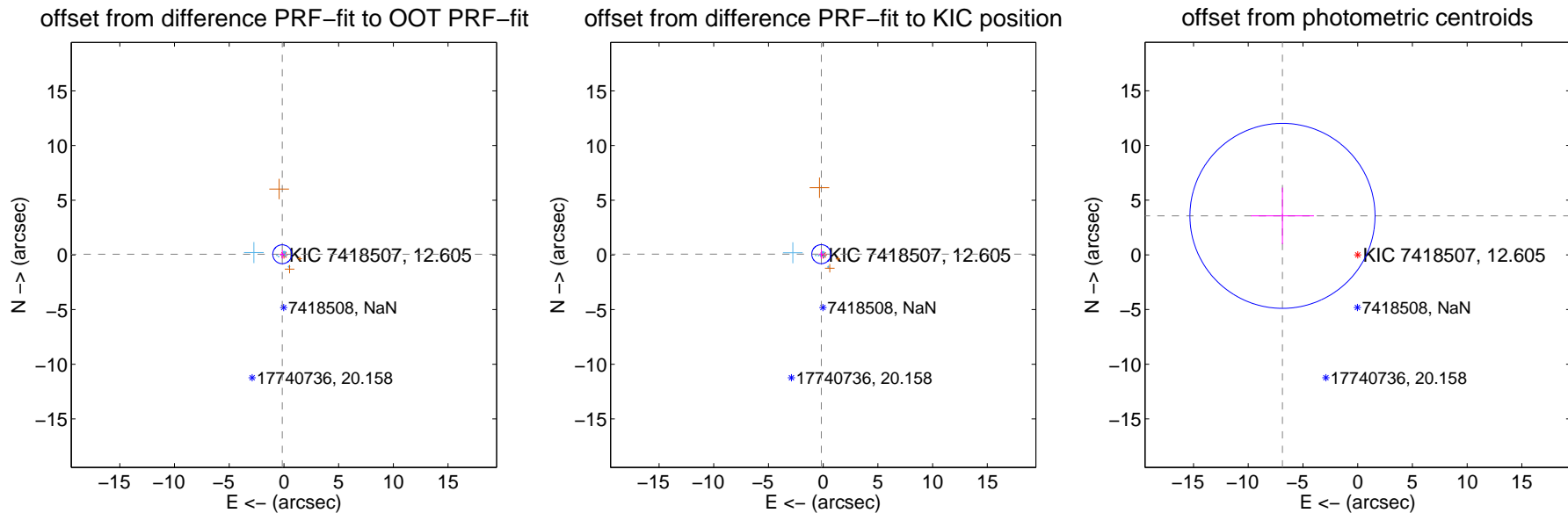
DV Centroid Data

Supplemental centroid analysis for 007418507-01. Kepler magnitude: 12.61. Transit SNR 3.12

There are 12 quarters with good PRF difference image offsets

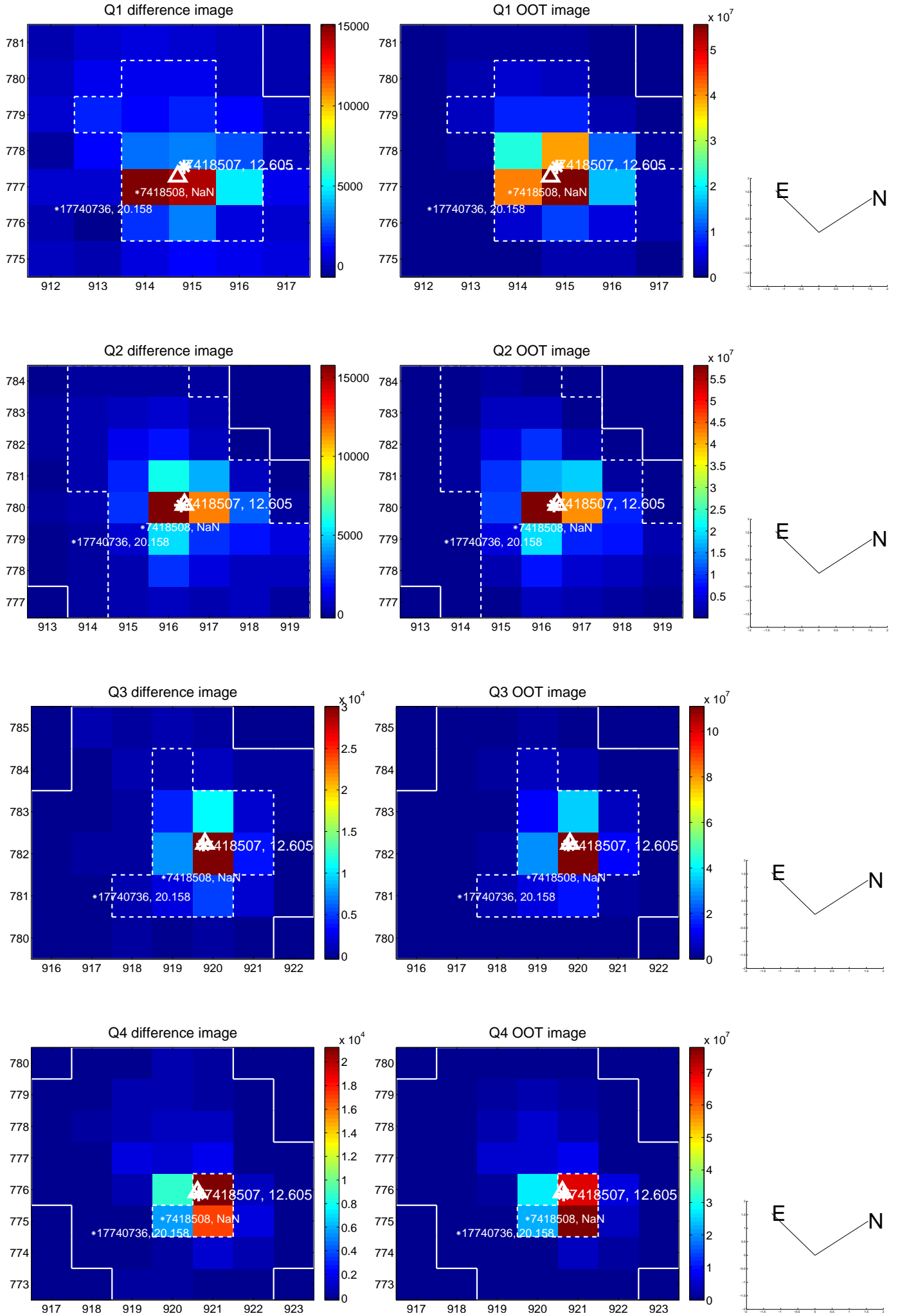
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.164 ± 0.288 | 0.57 | 0.152 ± 0.241 | 0.060 ± 0.397 |
| PRF-fit source offset from KIC position | 0.186 ± 0.289 | 0.64 | 0.174 ± 0.230 | 0.067 ± 0.421 |
| photometric centroid source offset | 7.74 ± 2.82 | 2.75 | 6.87 ± 2.88 | 3.56 ± 2.58 |

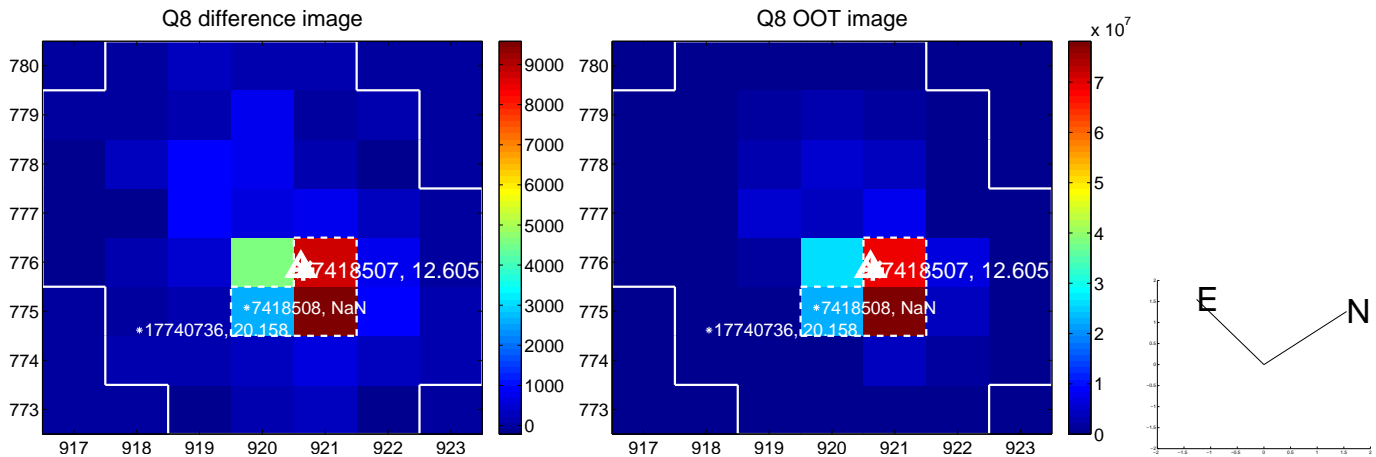
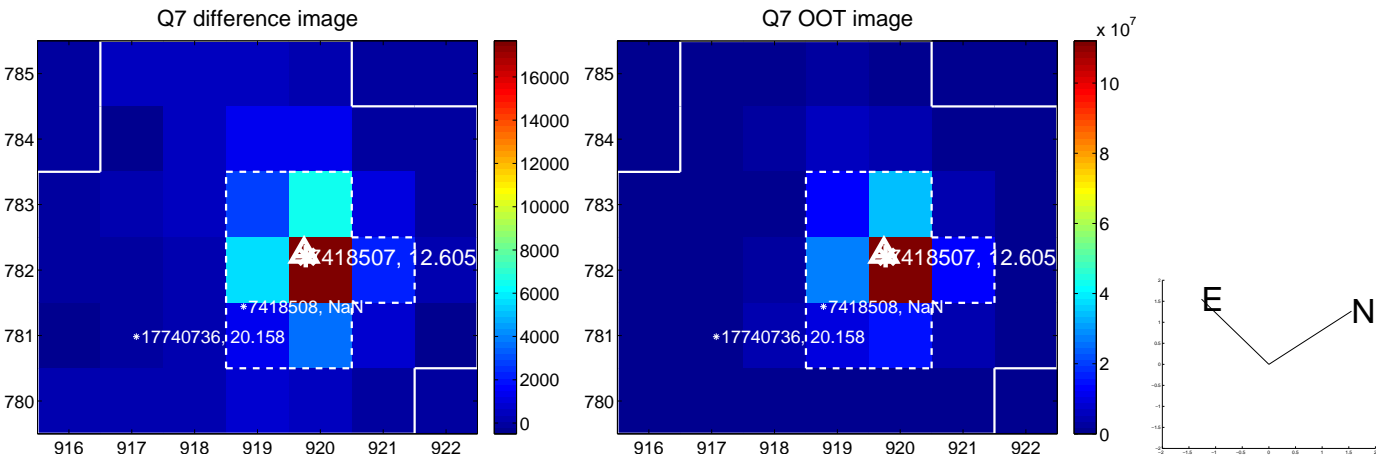
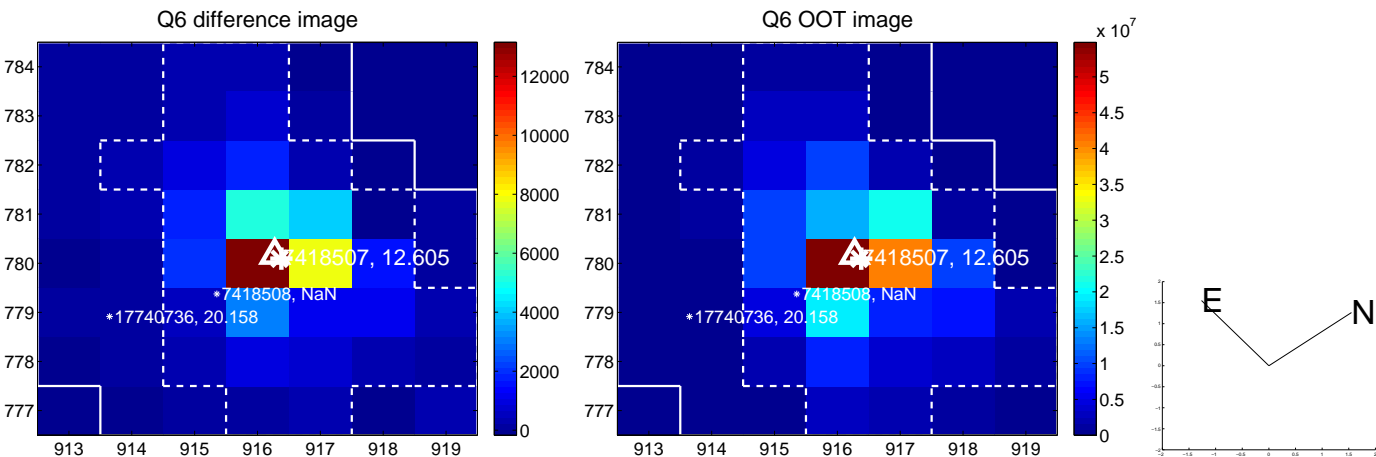
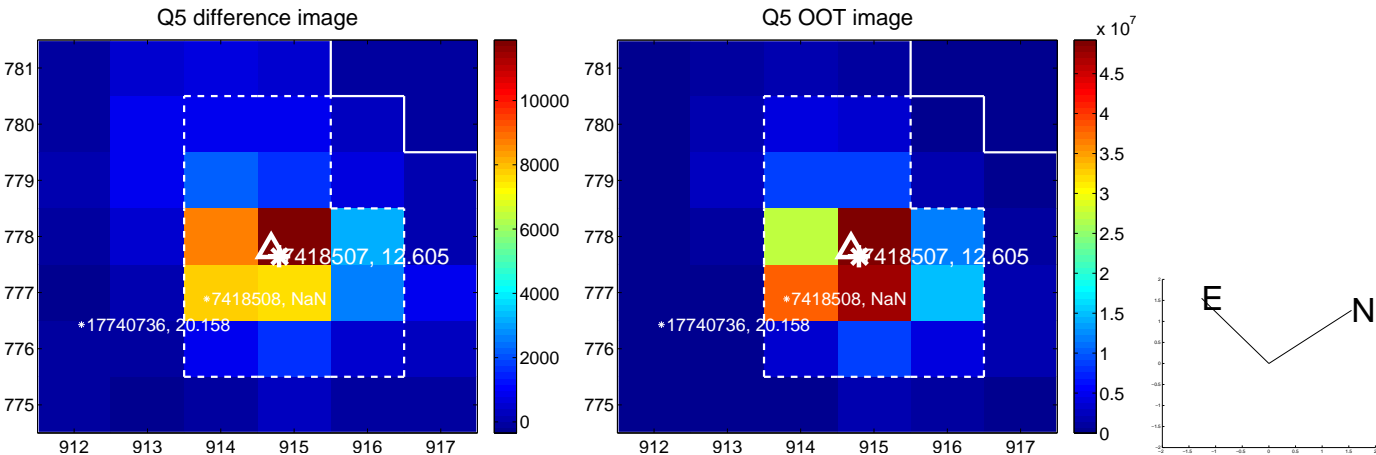


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

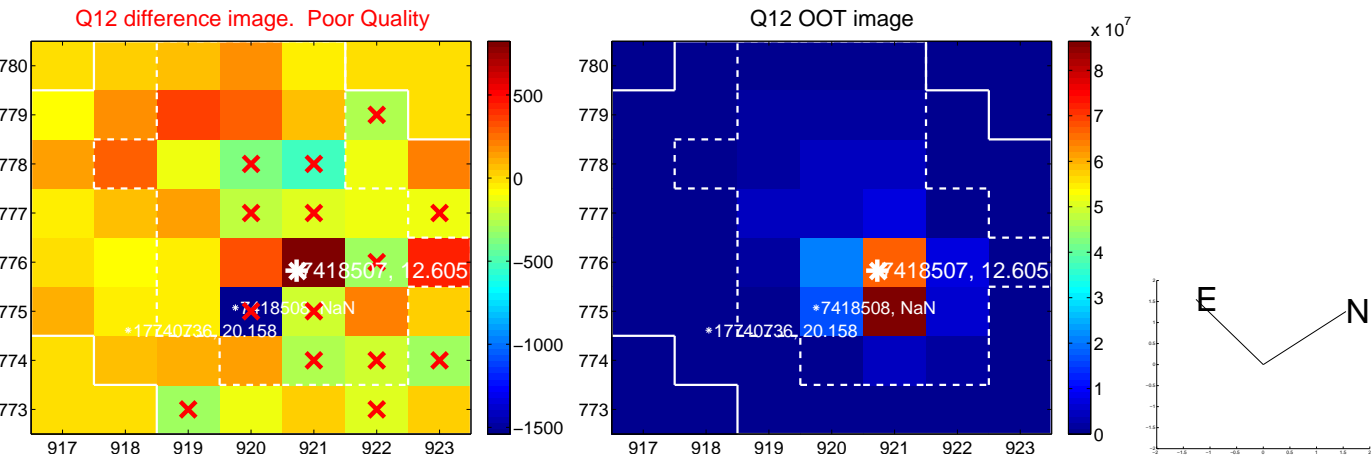
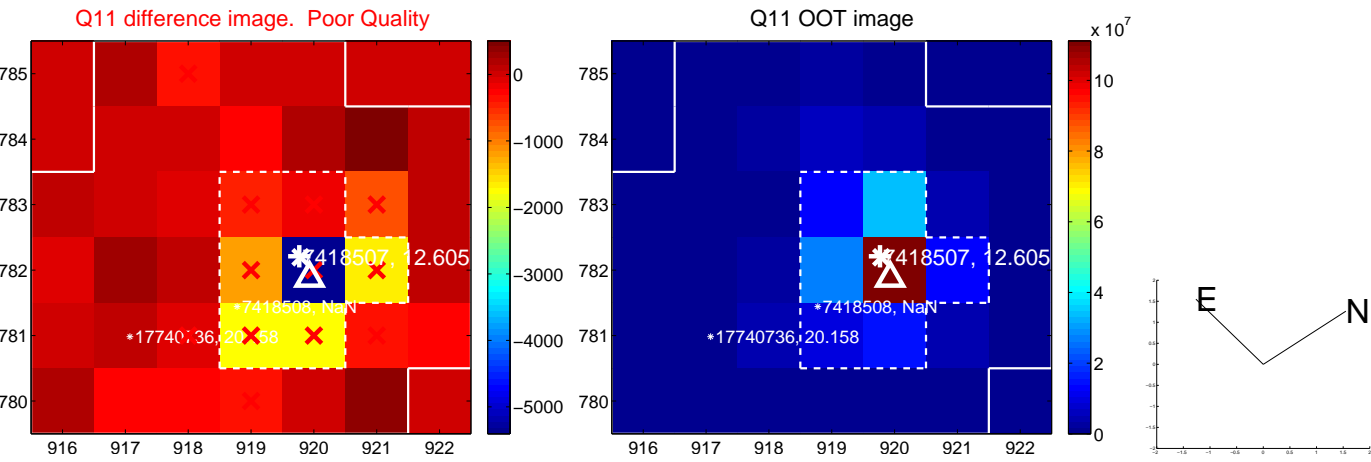
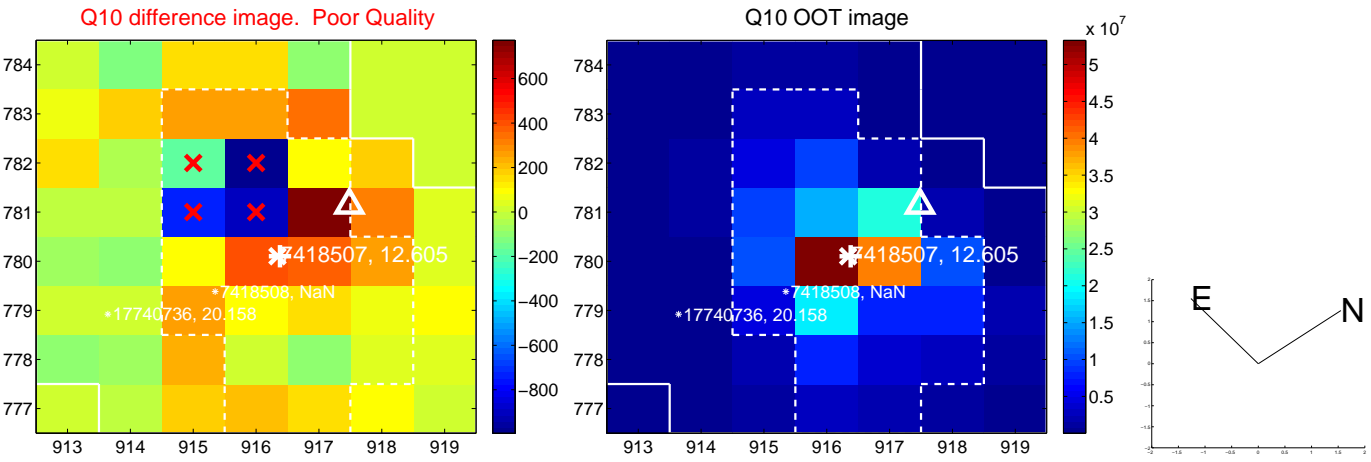
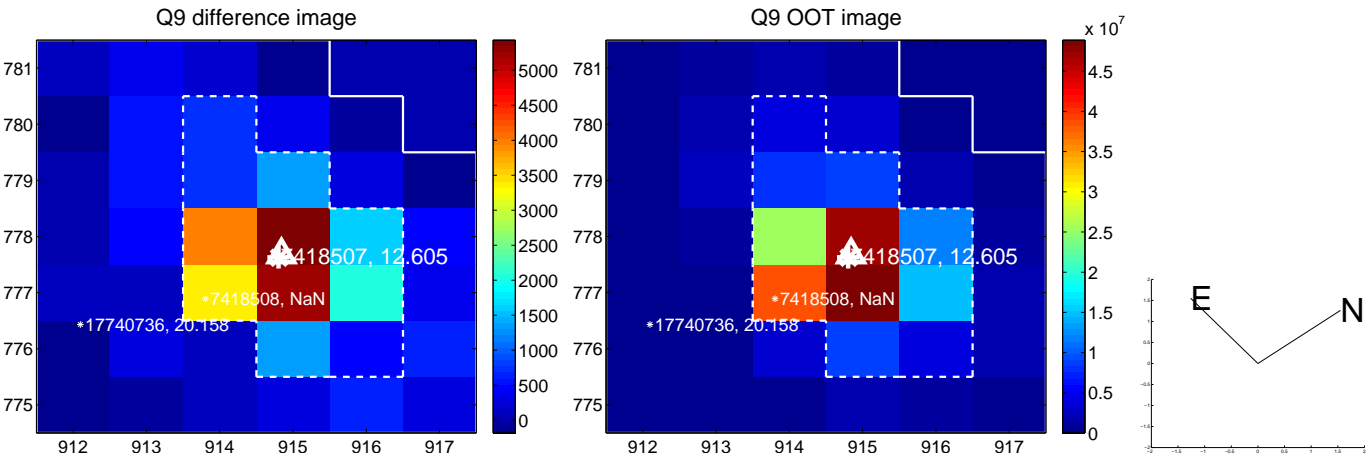
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



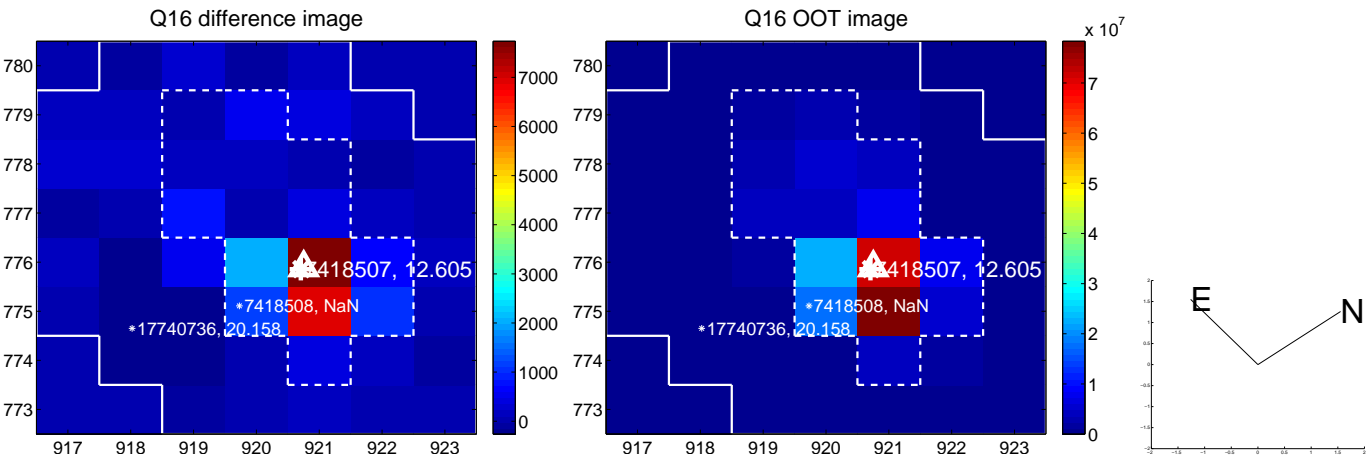
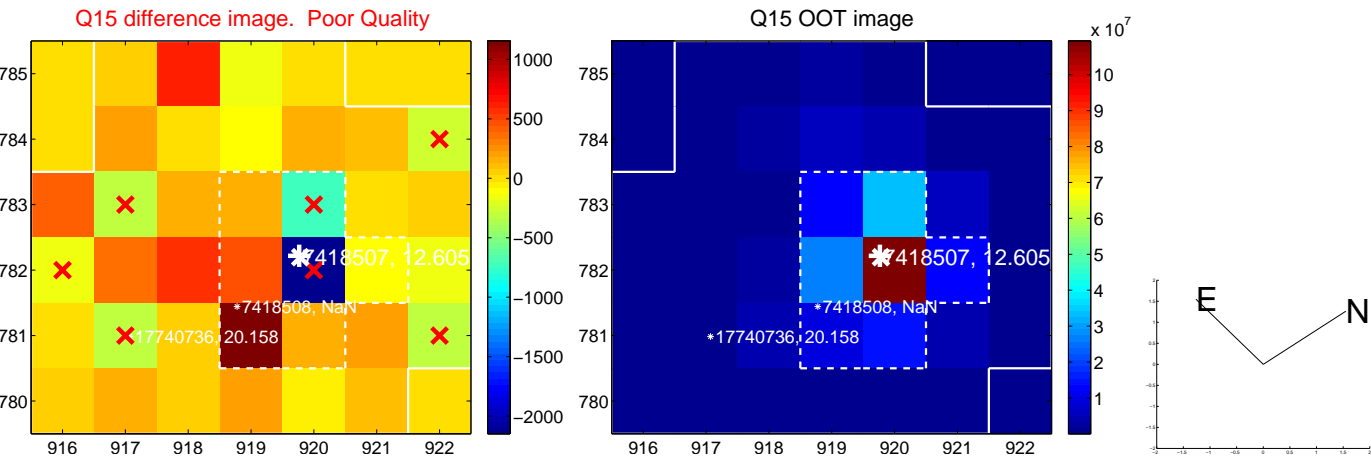
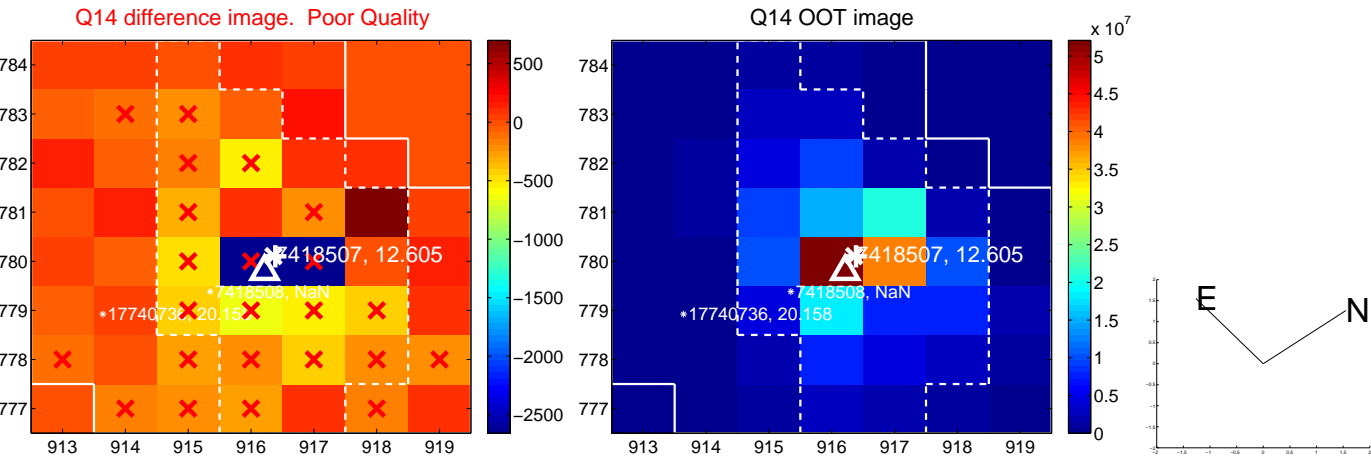
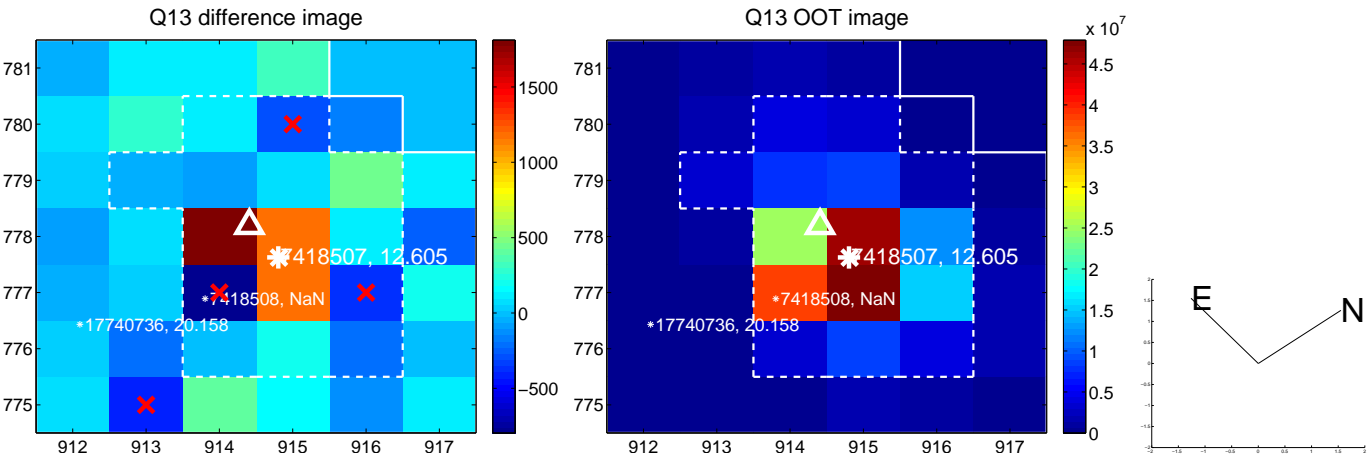
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



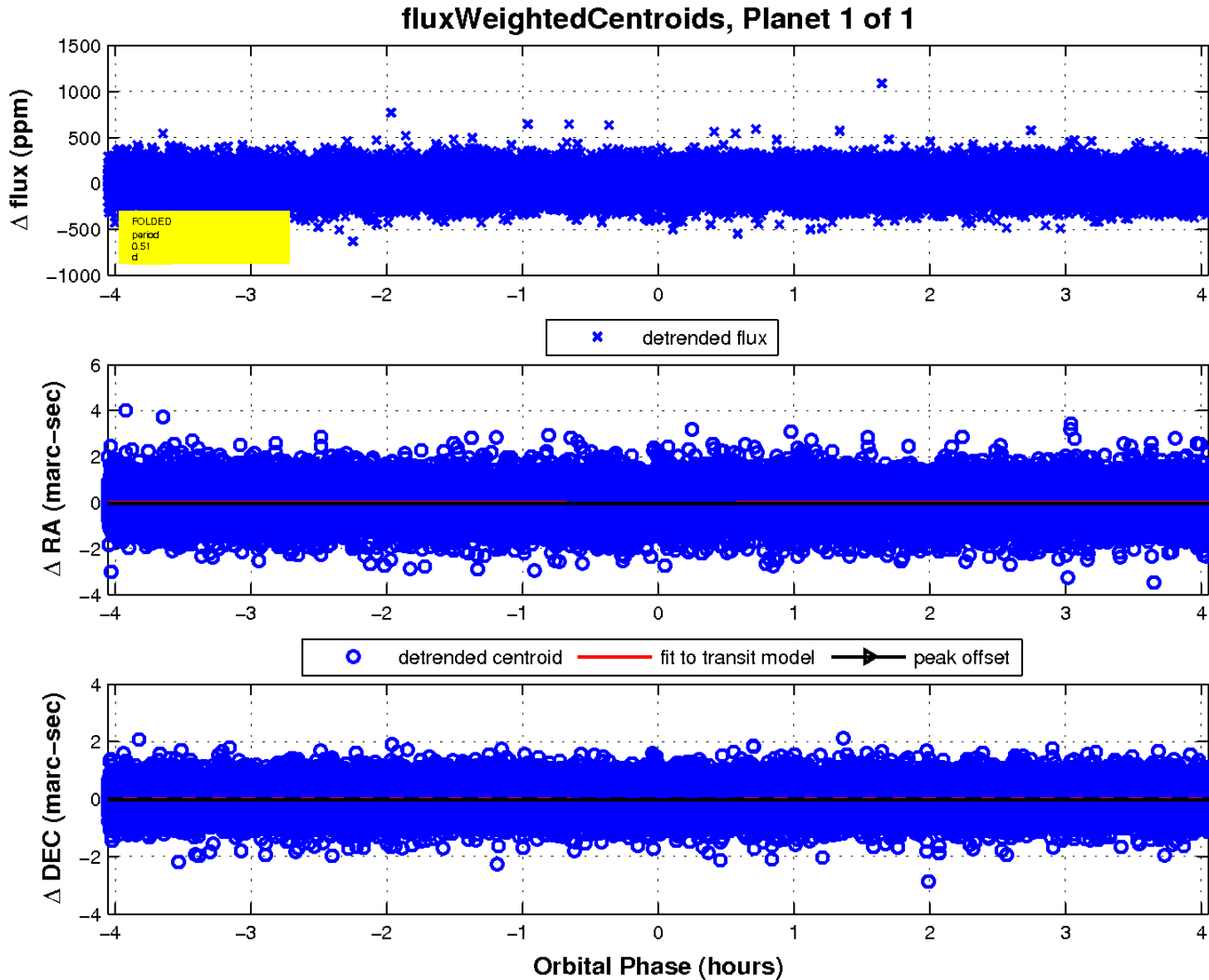
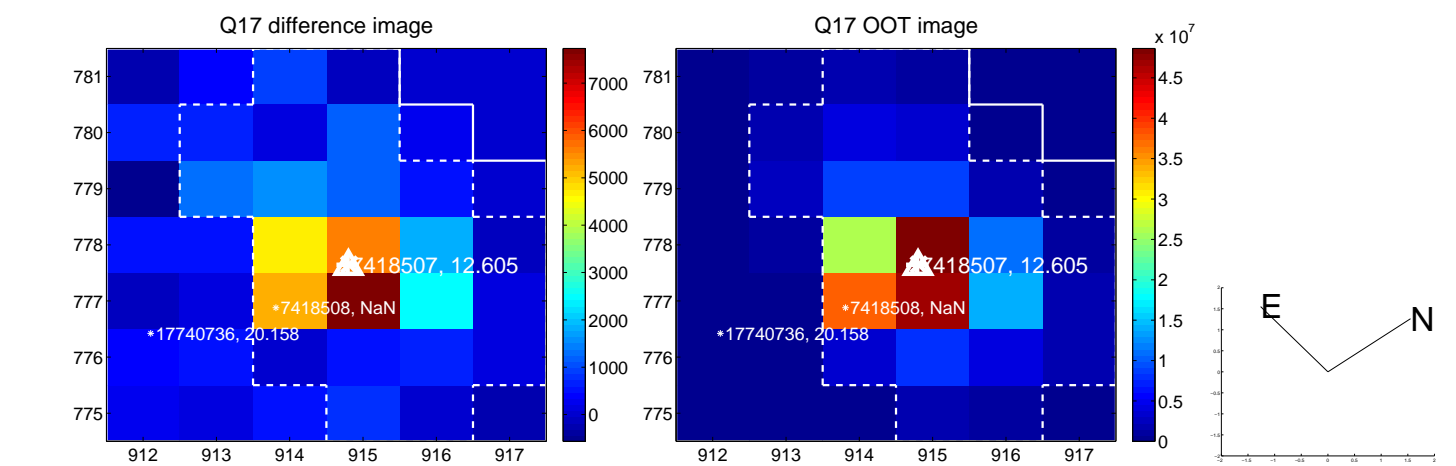
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

