

KIC 002853780

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 002853780-01 | OBS | 2081.01 | 6.214152 | 132.251208 | 170.8 | 10.414 | 31.5 | 35.9 | 3.15 | 5295 | 4.65 | 1219.66 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------|
| 002853780-01 | OBS | PC | 0.88 | 0 | 0 | 0 | 0 | NO_COMMENT |

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

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

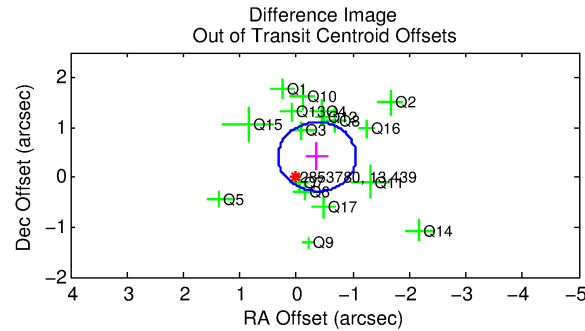
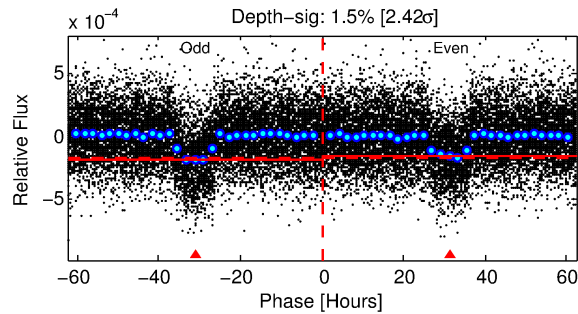
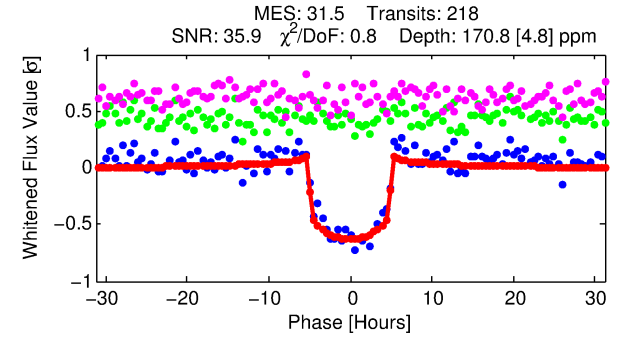
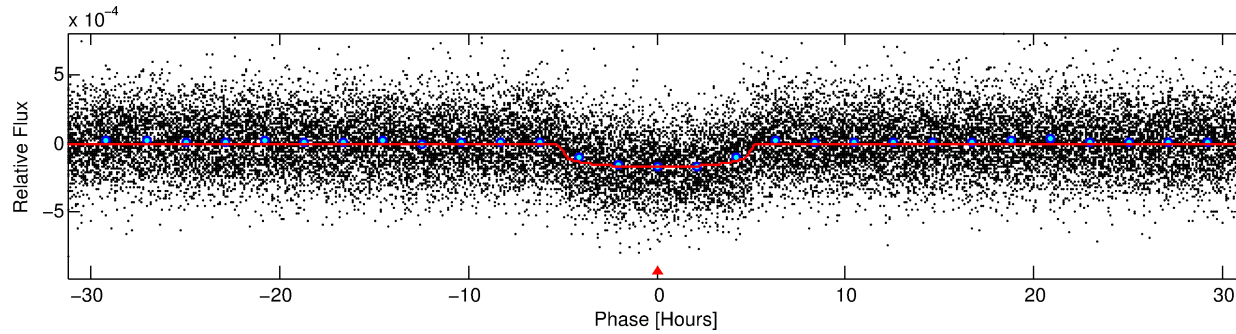
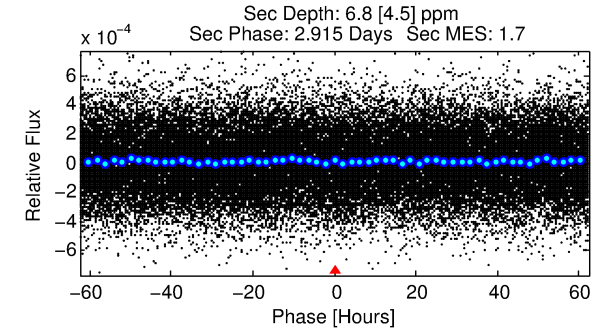
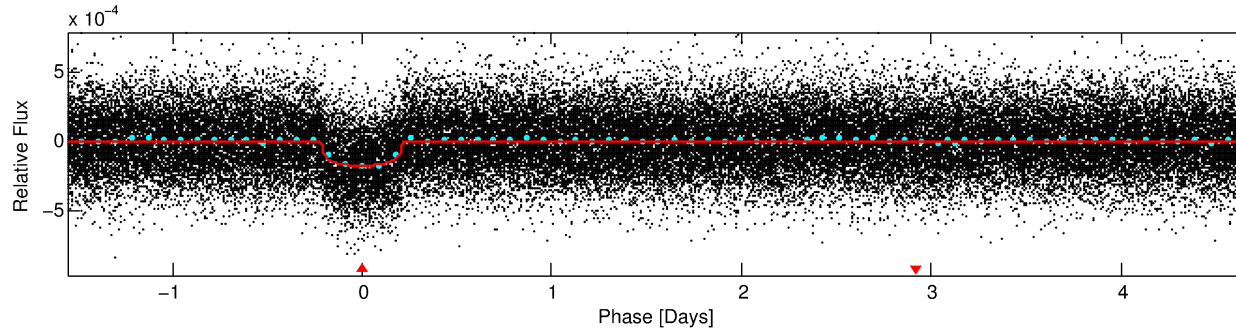
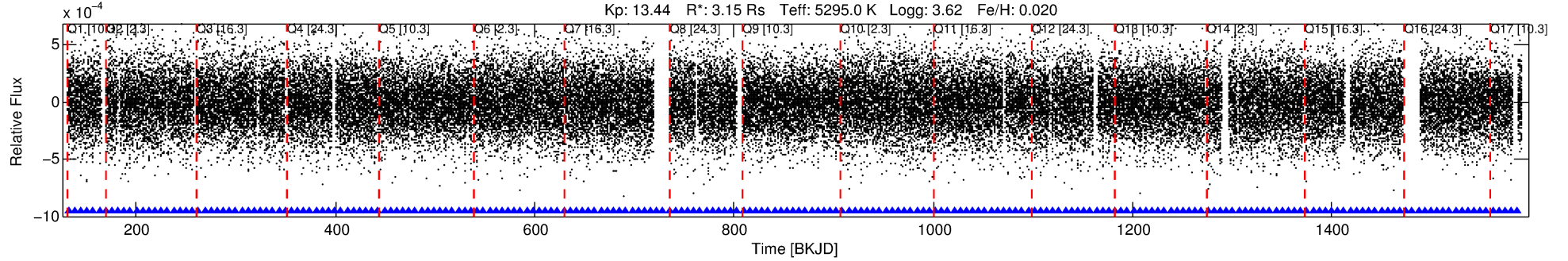
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002853780-01

No Significant Match Found

DV One-Page Summary

KIC: 2853780 Candidate: 1 of 1 Period: 6.214 d
KOI: K02081.01 Corr: 0.985



DV Fit Results:

Period = 6.21415 [0.00003] d
Epoch = 132.2512 [0.0034] BKJD
Rp/R* = 0.0135 [0.0013]
a/R* = 2.85 [0.98]
b = 0.82 [0.16]
Seff = 1219.66 [1678.45]
Teq = 1507 [518] K
Rp = 4.65 [3.24] Re
a = 0.0757 [0.0600] AU
Ag = 1.00 [1.53] [-0.00σ]
Teffp = 2328 [407] K [1.25σ]

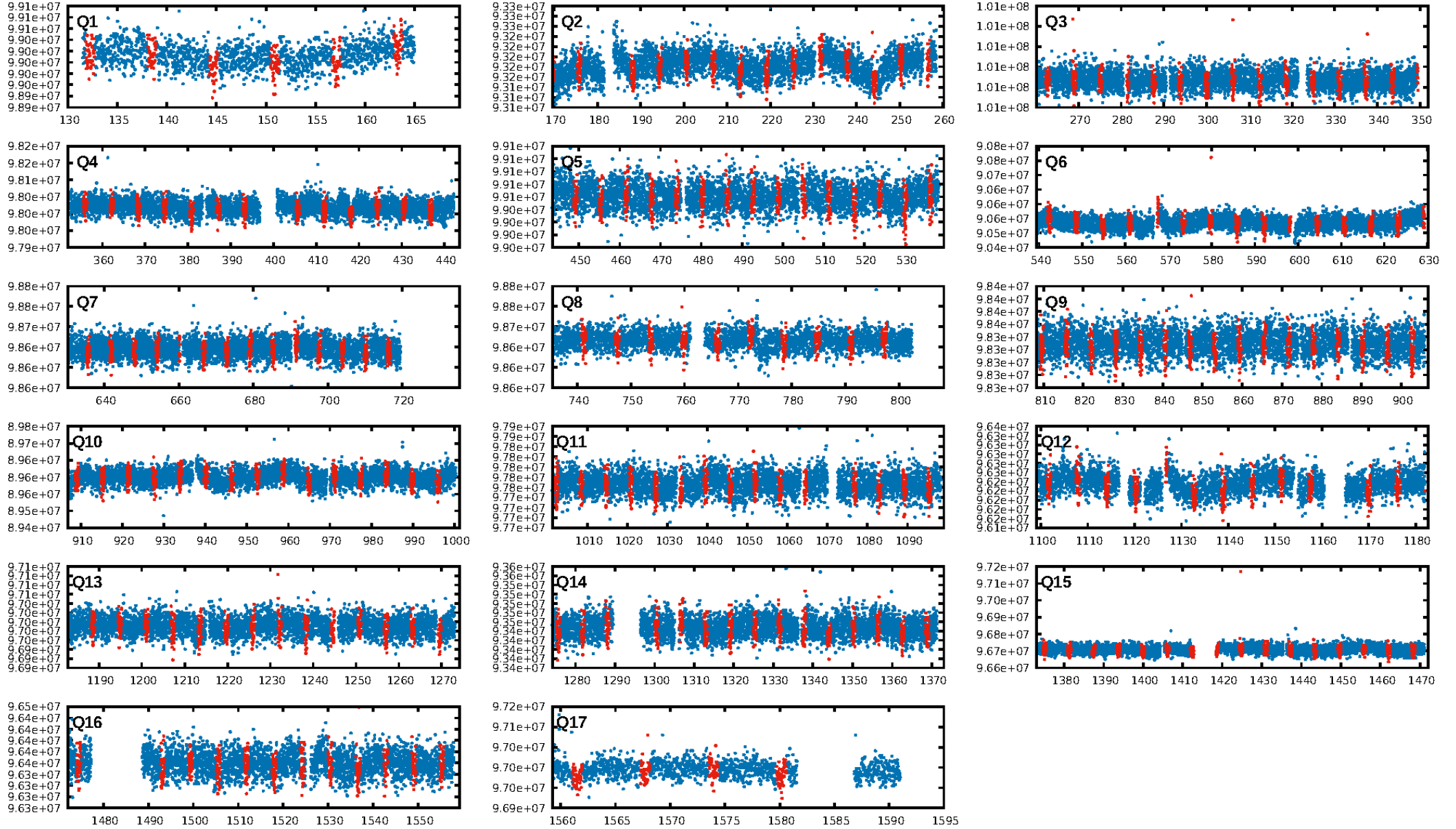
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.22e-187
RollingBand-fgt: 1.00 [208/208]
GhostDiagnostic-chr: 1.966
Centroid-sig: 25.6%
Centroid-so: 0.721 arcsec [2.22σ]
OotOffset-rm: 0.549 arcsec [2.38σ]
KicOffset-rm: 0.494 arcsec [2.17σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.88 [15/17]
DiffImageOverlap-fno: 1.00 [17/17]

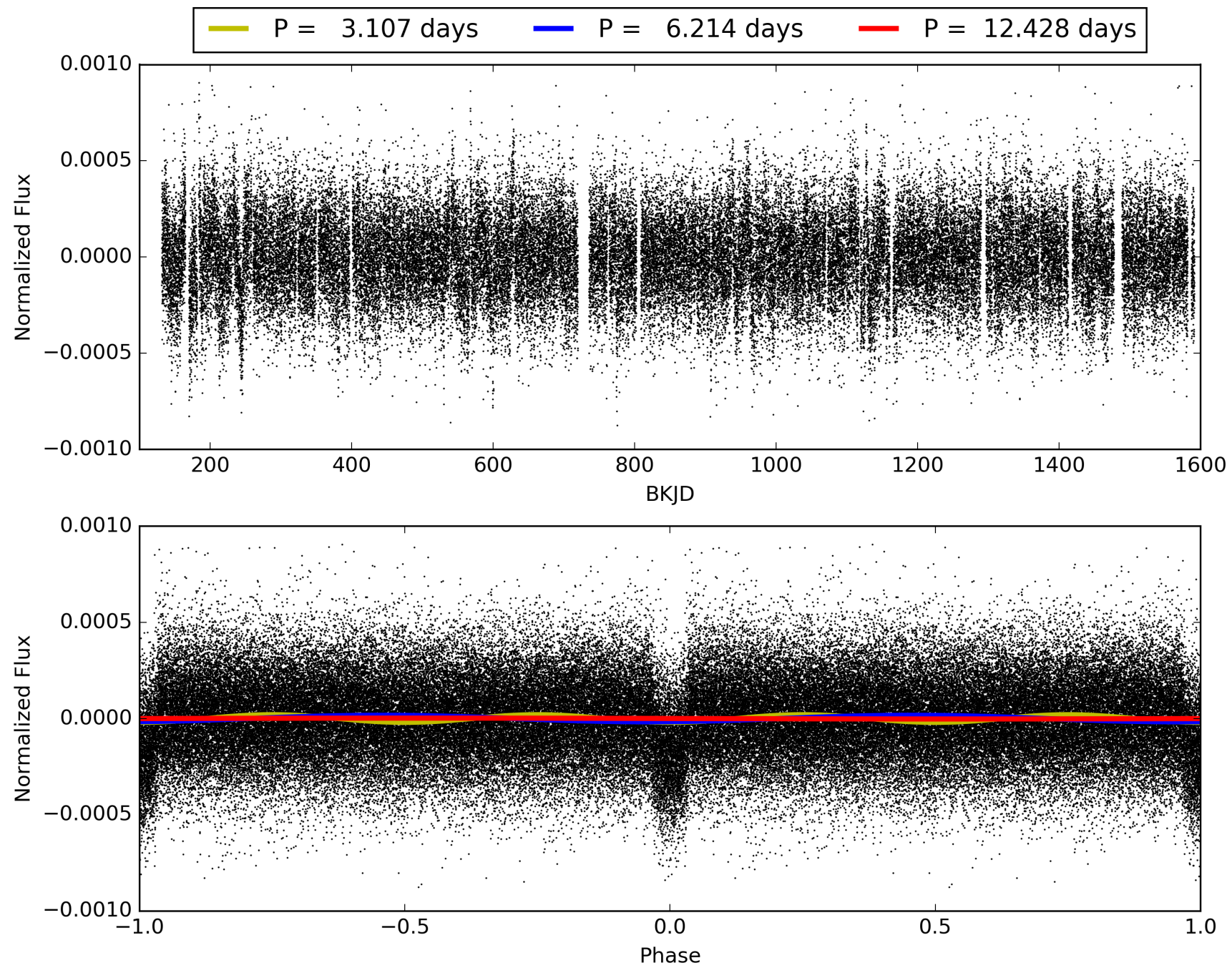
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:12:17 Z

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

TCE 002853780-01, PDC Light Curves

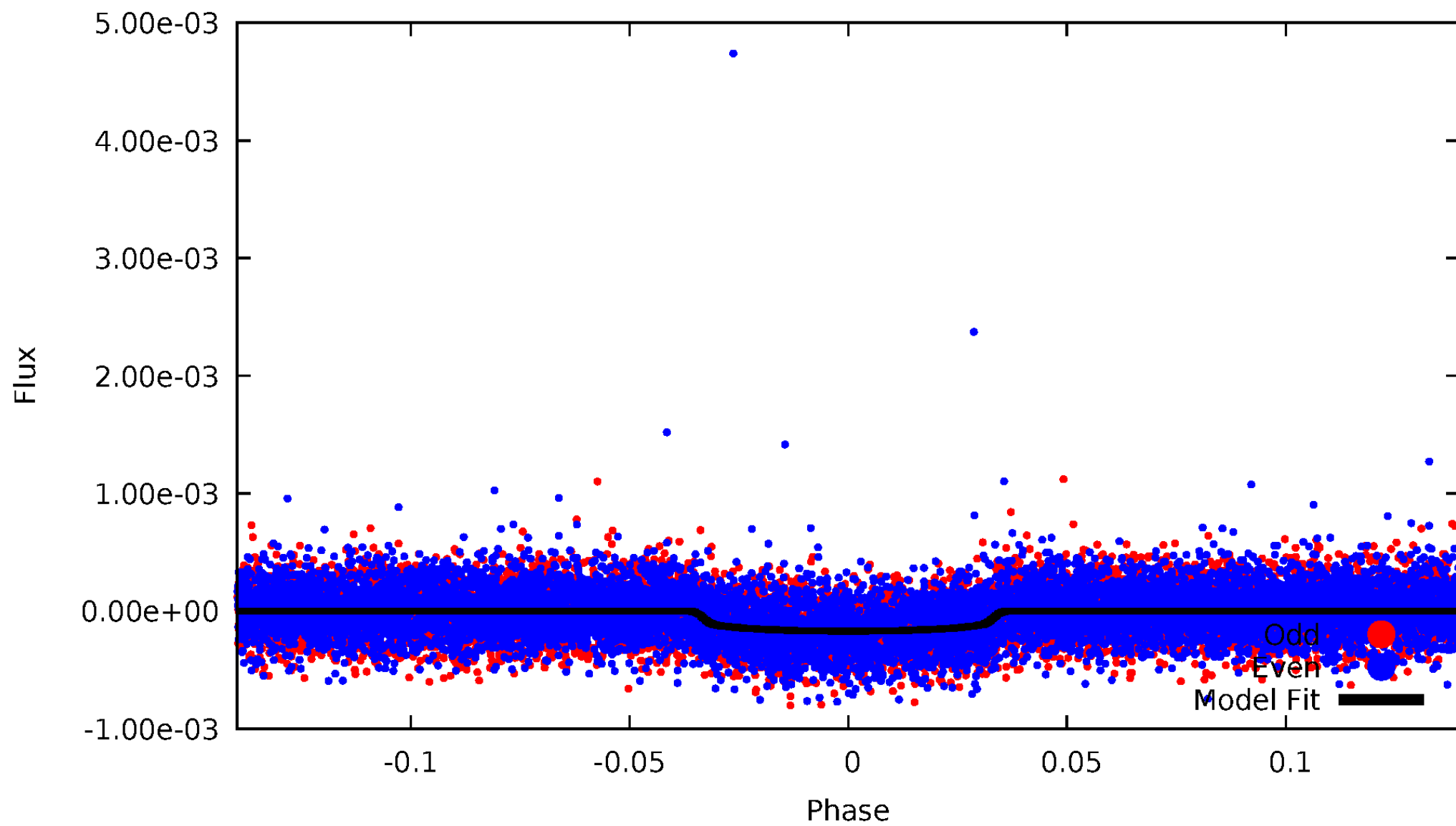


TCE 002853780-01



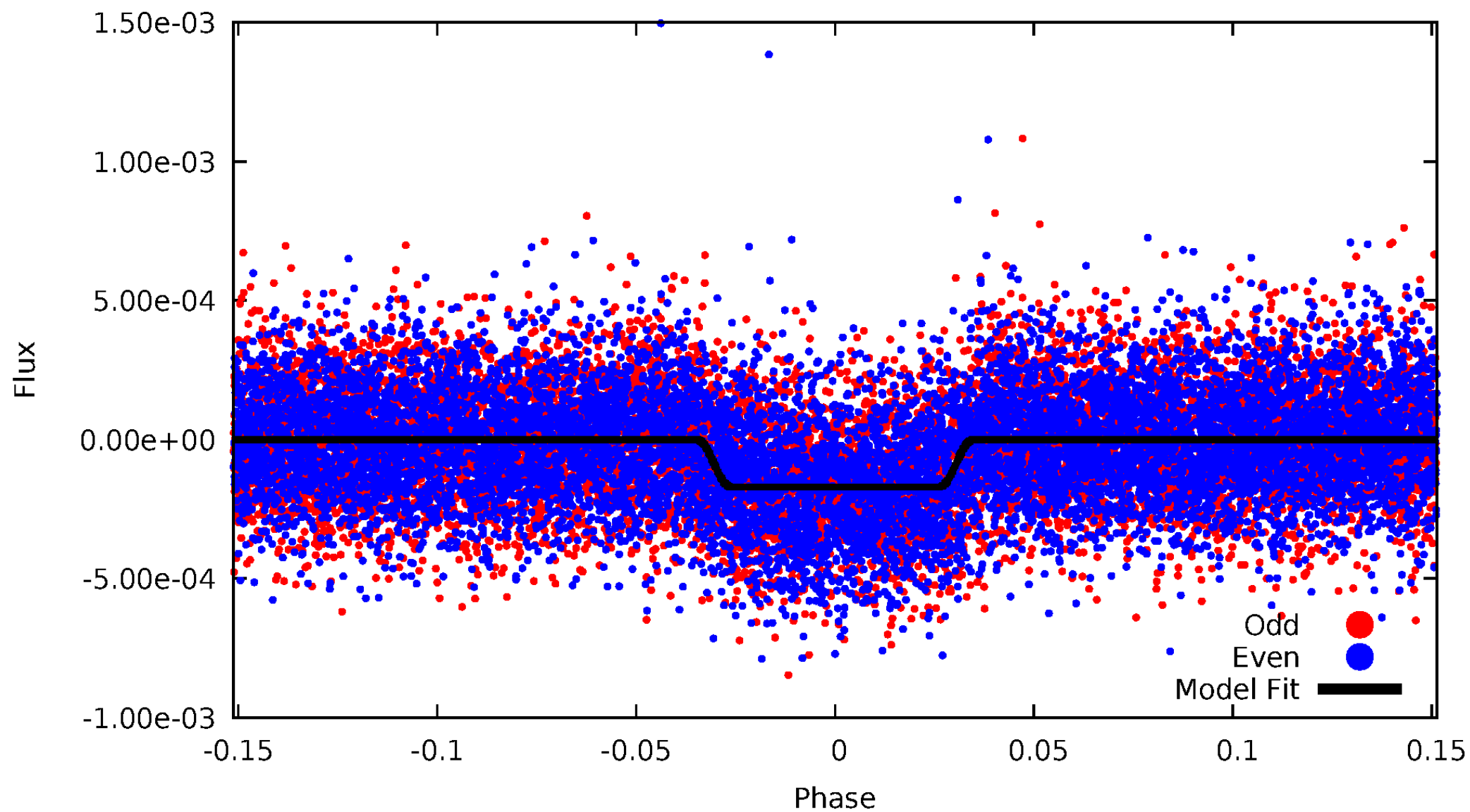
DV Odd/Even

TCE 002853780-01



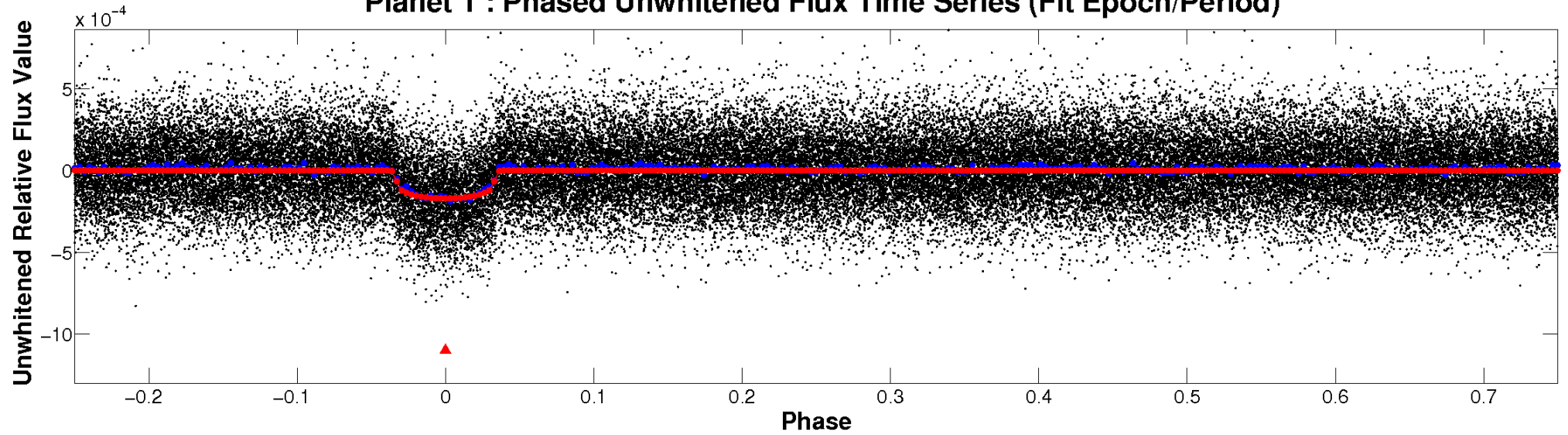
ALT Odd/Even

TCE 002853780-01

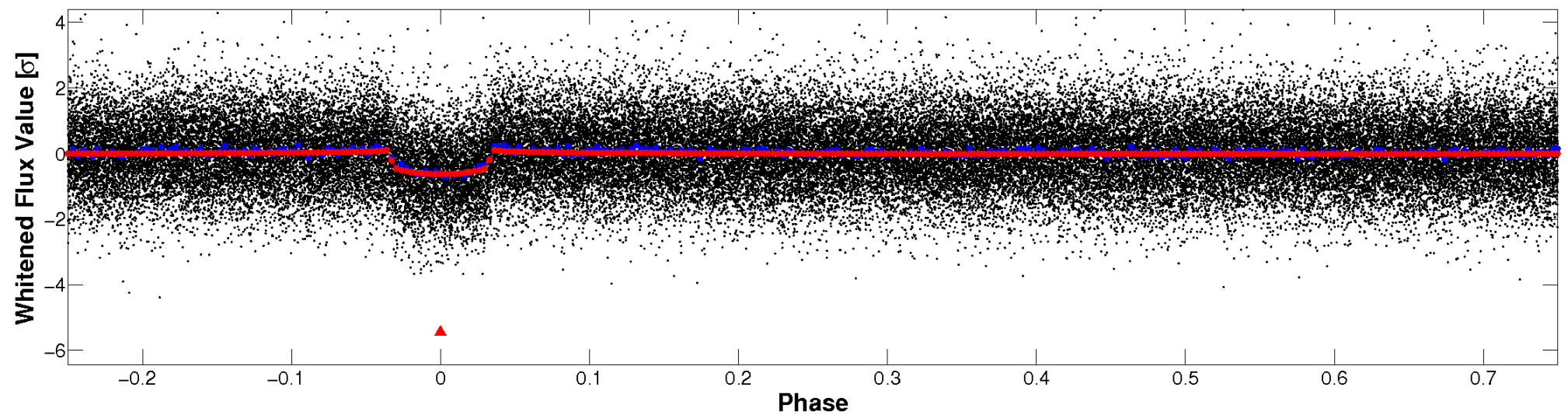


Non-Whitened Vs. Whitened Light Curve

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

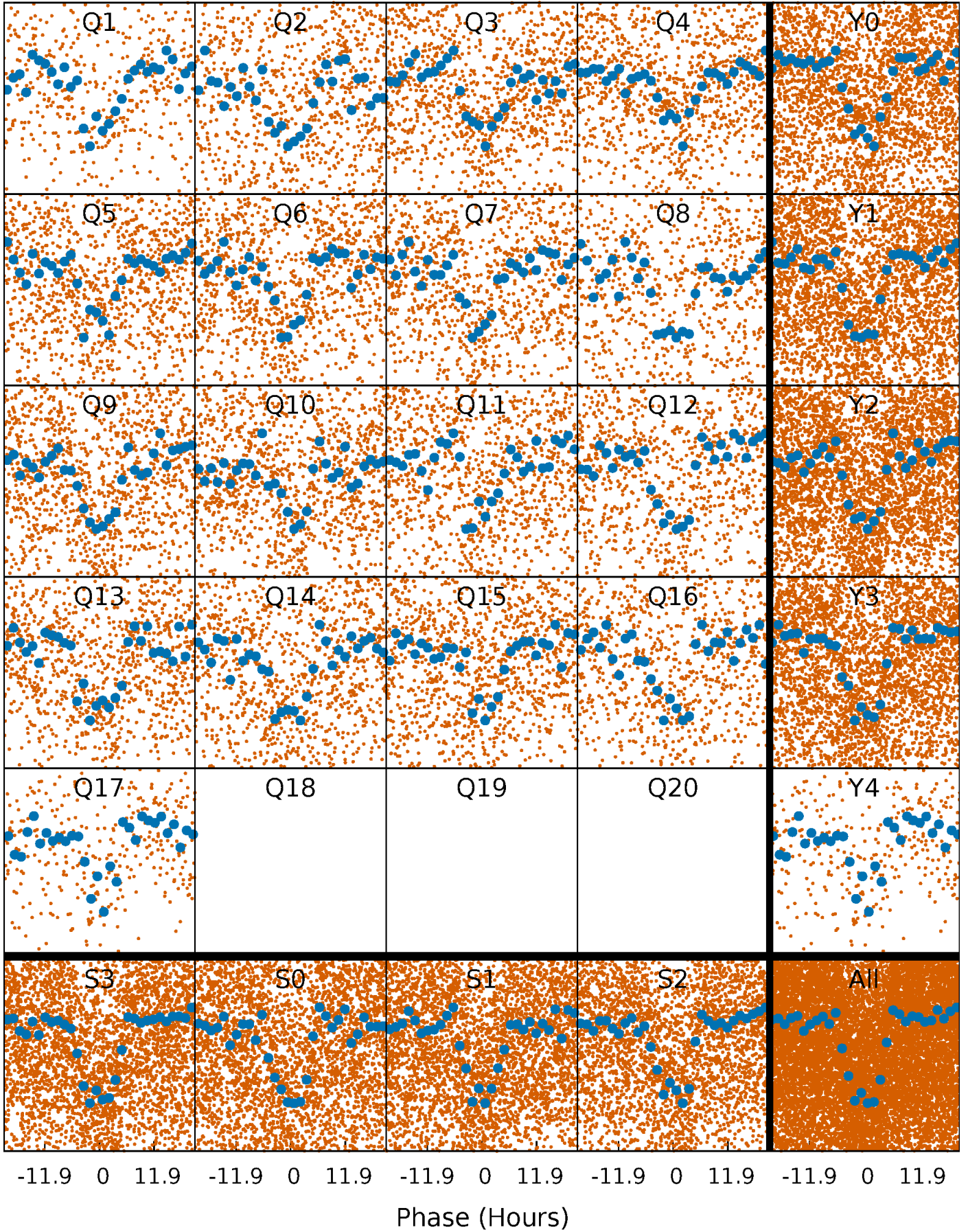


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



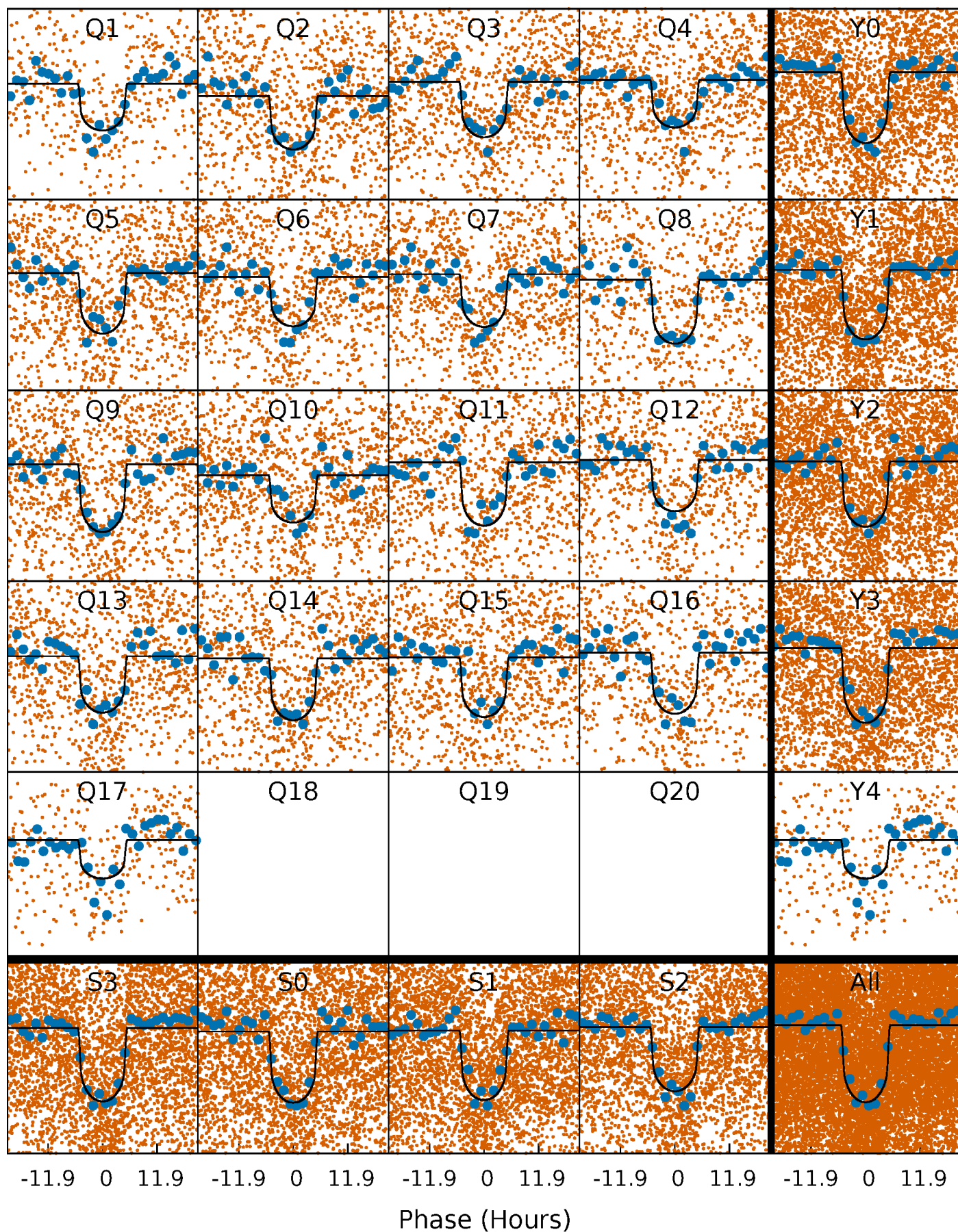
PDC Quarter-Phased Transit Curves

TCE 002853780-01 P= 6.214152 Days $T_0=132.251208$ (BKJD)



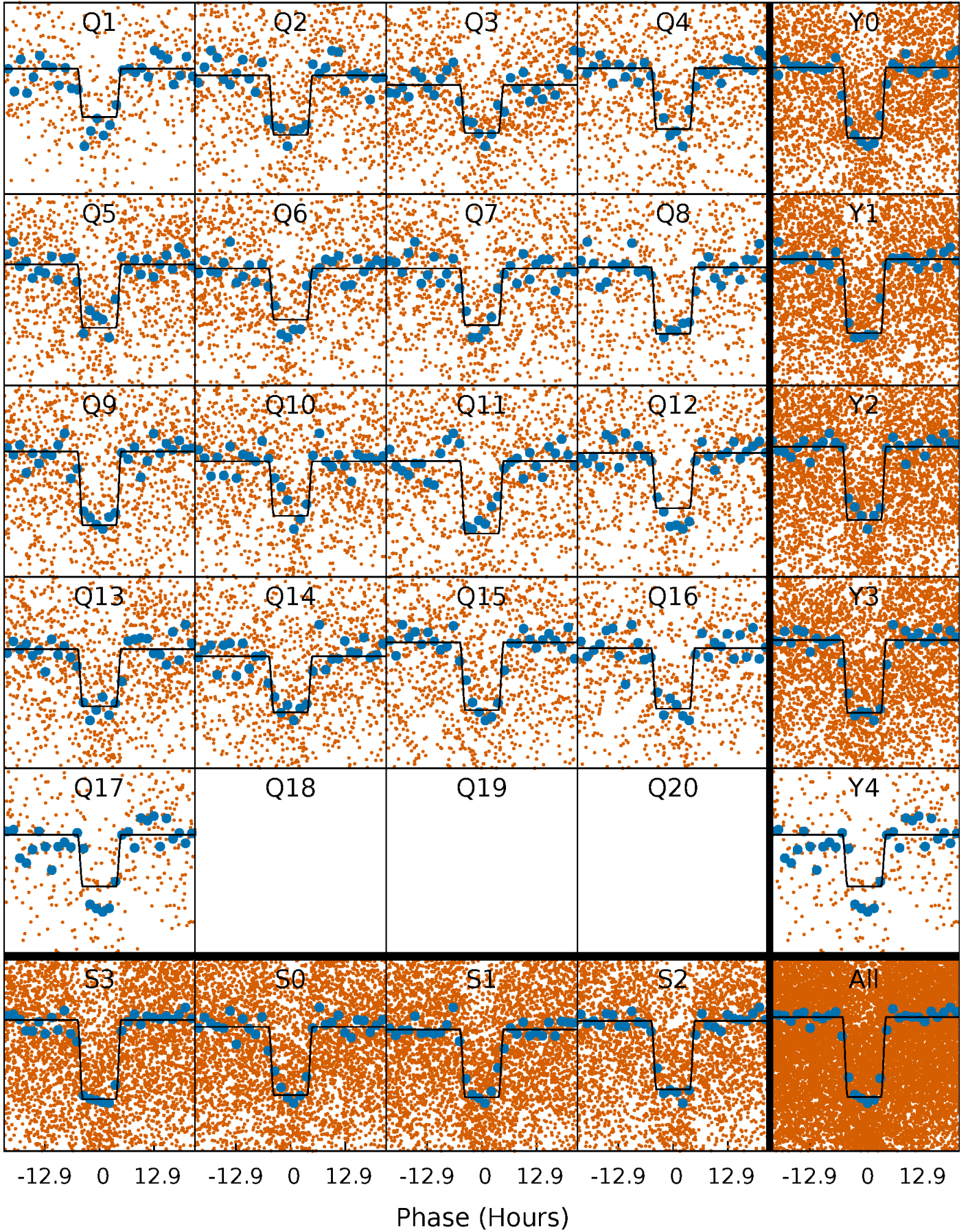
DV Quarter-Phased Transit Curves

TCE 002853780-01 P= 6.214152 Days $T_0=132.251208$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

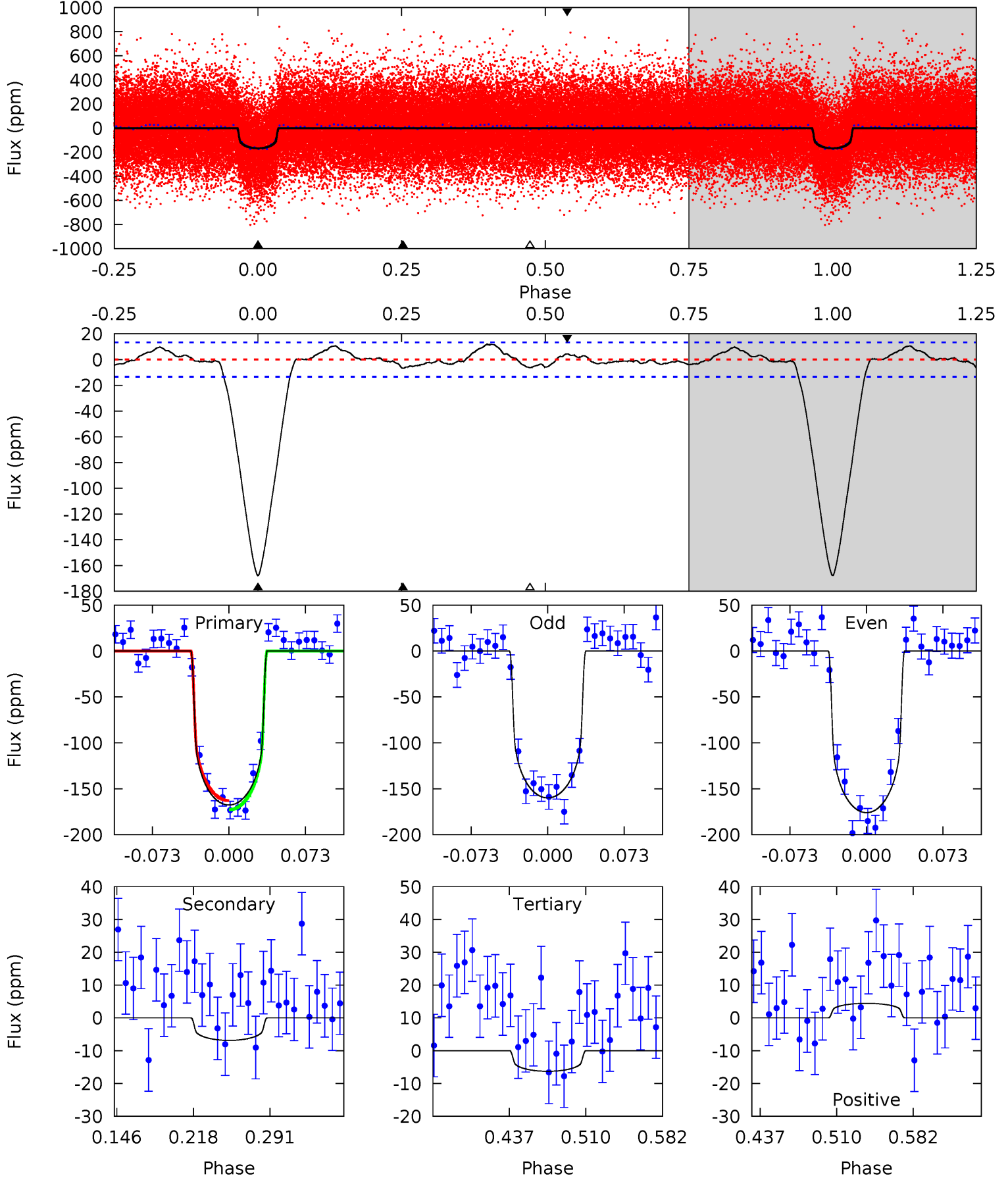
TCE 002853780-01 P= 6.213994 Days $T_0=132.269173$ (BKJD)



DV Model-Shift Uniqueness Test

002853780-01, P = 6.214152 Days, E = 126.037056 Days

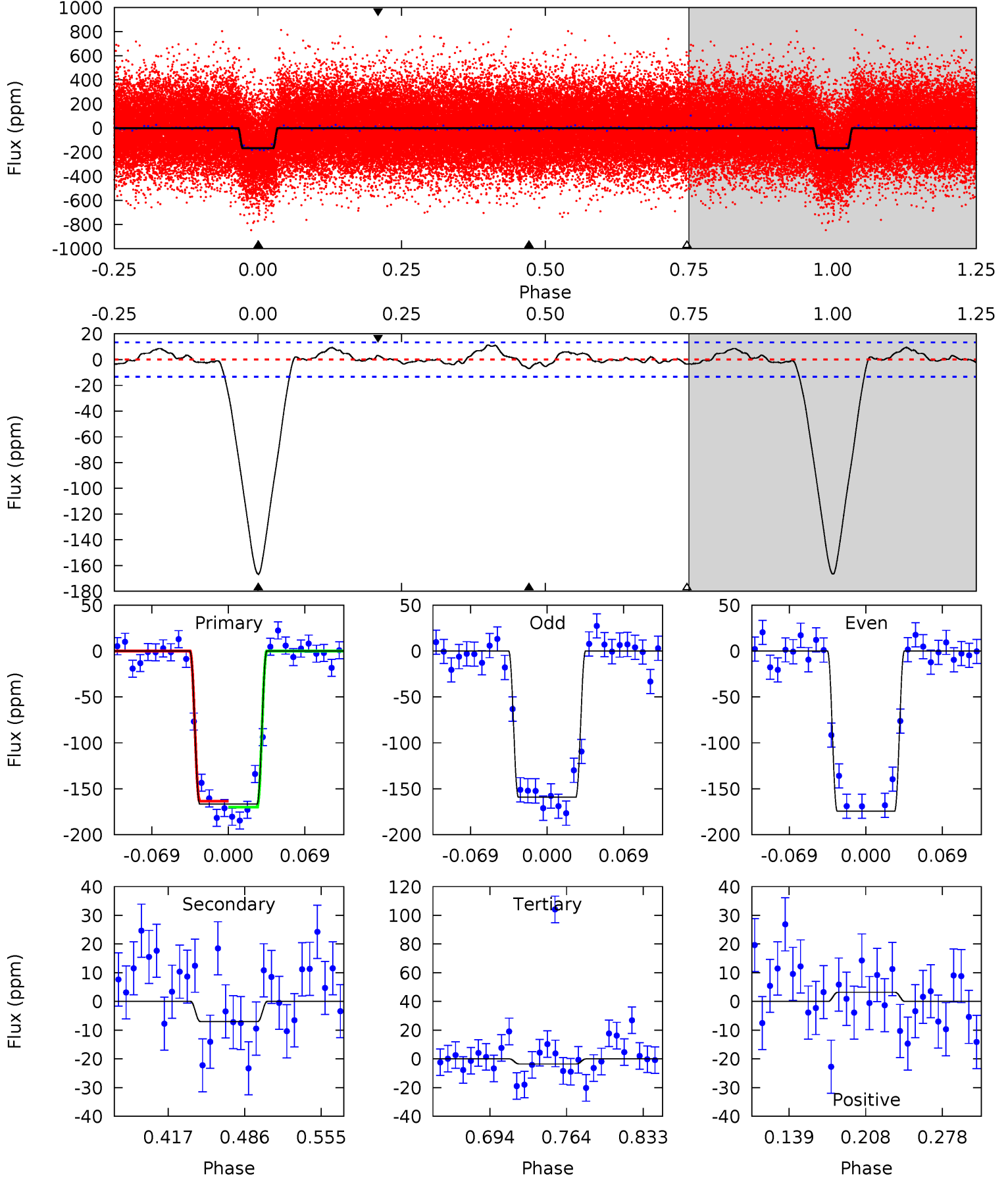
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 58.4 | 2.39 | 2.19 | 1.54 | 4.63 | 1.79 | 1.55 | 56.2 | 56.9 | 0.20 | 0.85 | 2.79 | 1.02 | 0.07 | 1.74 |



Alt Model-Shift Uniqueness Test

002853780-01, P = 6.213994 Days, E = 126.055179 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 58.1 | 2.43 | 1.23 | 1.11 | 4.64 | 1.82 | 1.17 | 56.9 | 57.0 | 1.20 | 1.32 | 2.64 | 1.01 | 0.06 | 1.13 |



Stellar Parameters For KIC 002853780

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5295^{+184}_{-184} | $3.617^{+0.840}_{-0.210}$ | $0.020^{+0.300}_{-0.300}$ | $3.152^{+0.933}_{-2.176}$ | $1.501^{+0.245}_{-0.573}$ | $0.068^{+1.450}_{-0.037}$ |
| | +3%/-3% | +23%/-6% | +1500%/-1500% | +30%/-69% | +16%/-38% | +2148%/-55% |
| 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 002853780-01 / KOI 2081.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -7 ± 3 | $4.36^{+1.15}_{-1.58}$ | 2064^{+208}_{-381} | 2861^{+226}_{-332} | $1.095^{+1.469}_{-0.529}$ |
| Alt. | -7 ± 3 | $4.31^{+1.08}_{-1.55}$ | 2064^{+217}_{-401} | 2883^{+240}_{-350} | $1.199^{+1.641}_{-0.624}$ |

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

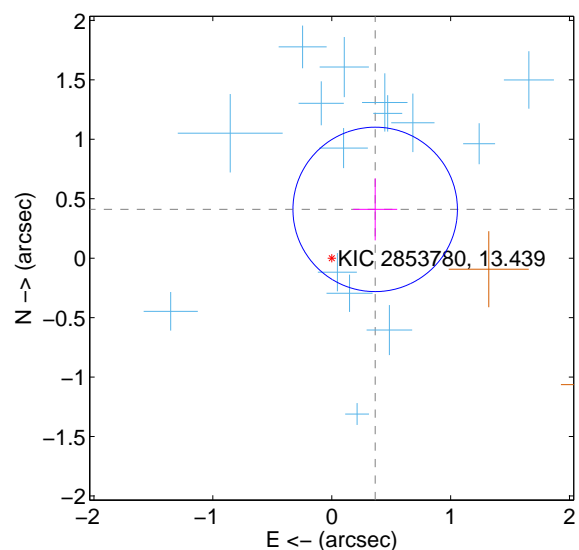
Supplemental centroid analysis for 002853780-01. Kepler magnitude: 13.44. Transit SNR 35.85

There are 15 quarters with good PRF difference image offsets

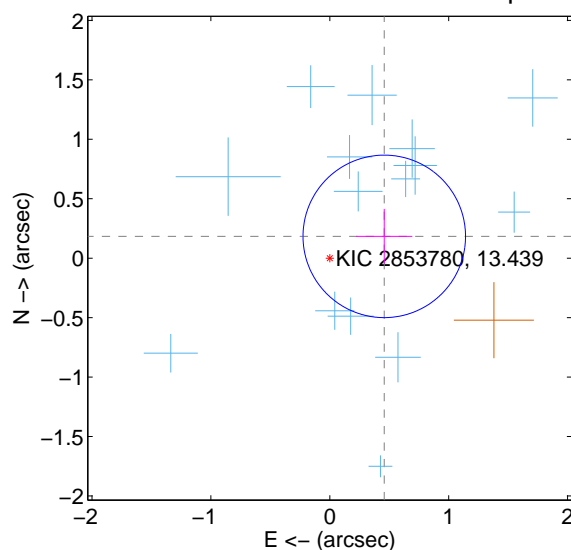
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.549 ± 0.230 | 2.38 | -0.365 ± 0.185 | 0.410 ± 0.261 |
| PRF-fit source offset from KIC position | 0.494 ± 0.228 | 2.17 | -0.458 ± 0.236 | 0.183 ± 0.231 |
| photometric centroid source offset | 0.72 ± 0.32 | 2.22 | -0.24 ± 0.25 | -0.68 ± 0.33 |

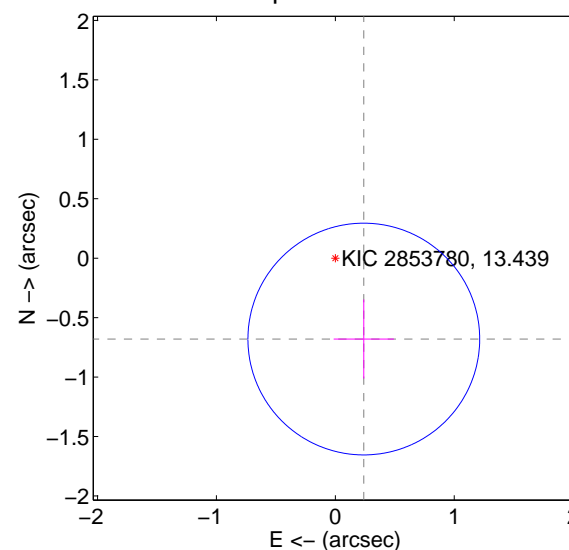
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

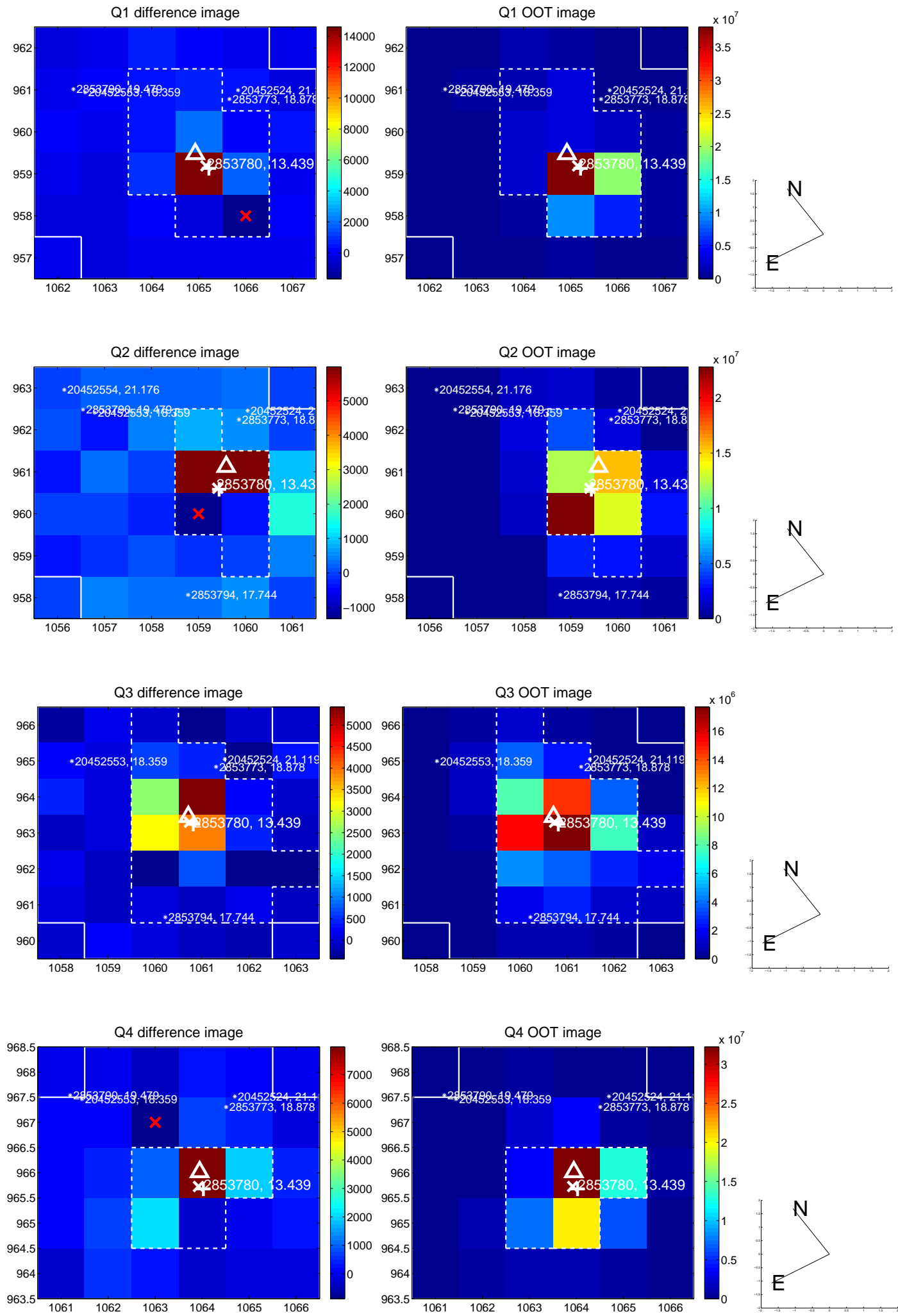


offset from photometric centroids

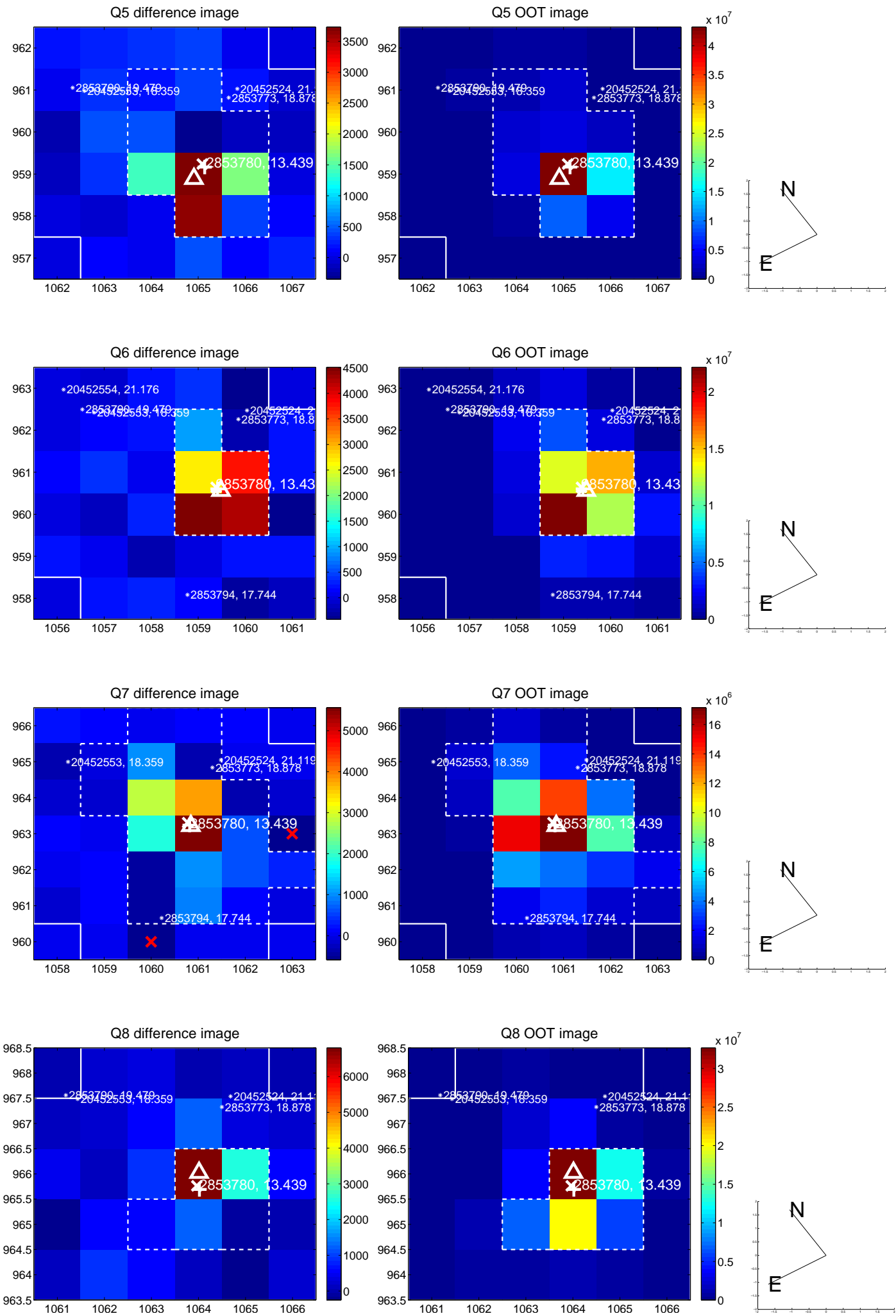


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

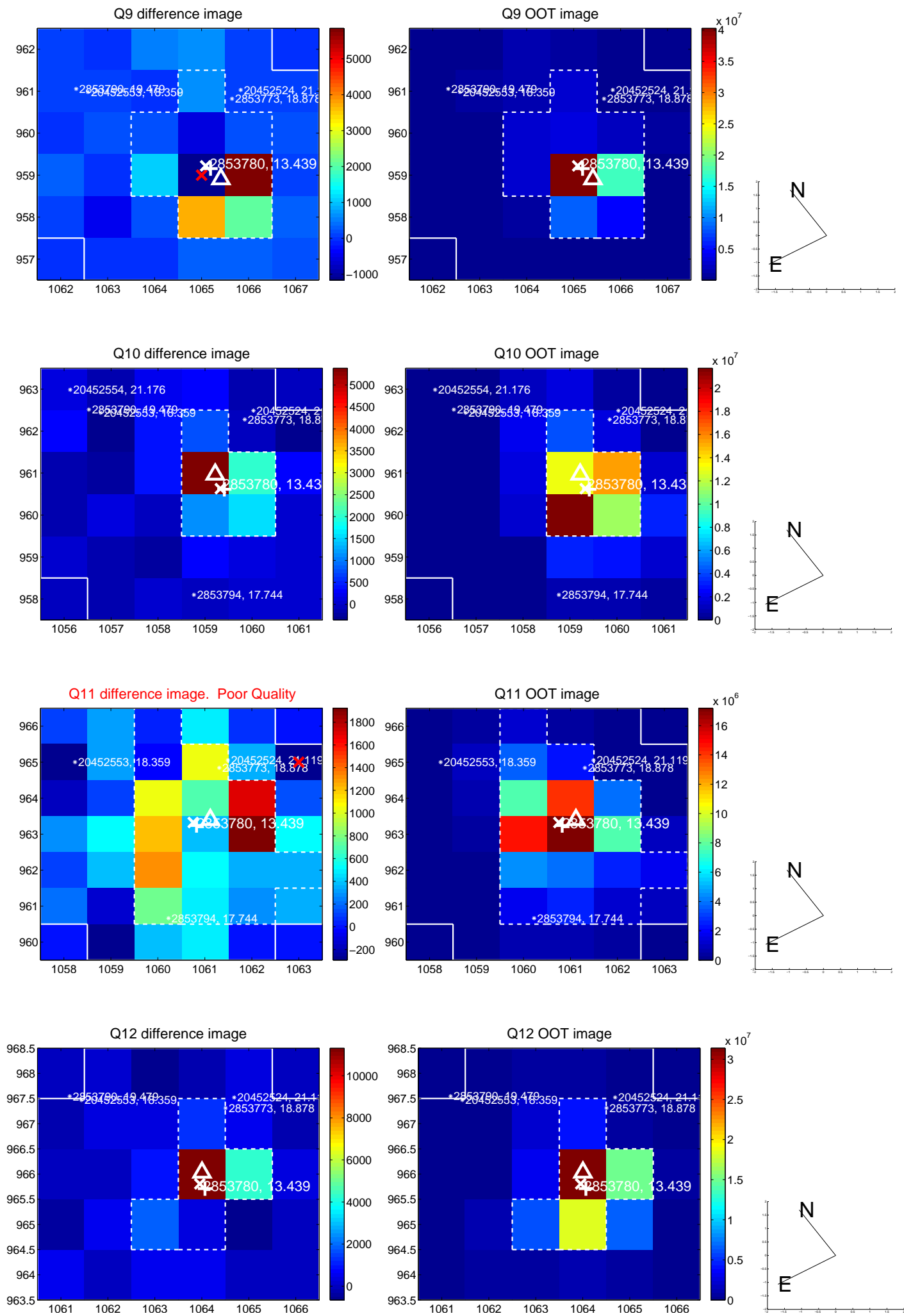
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



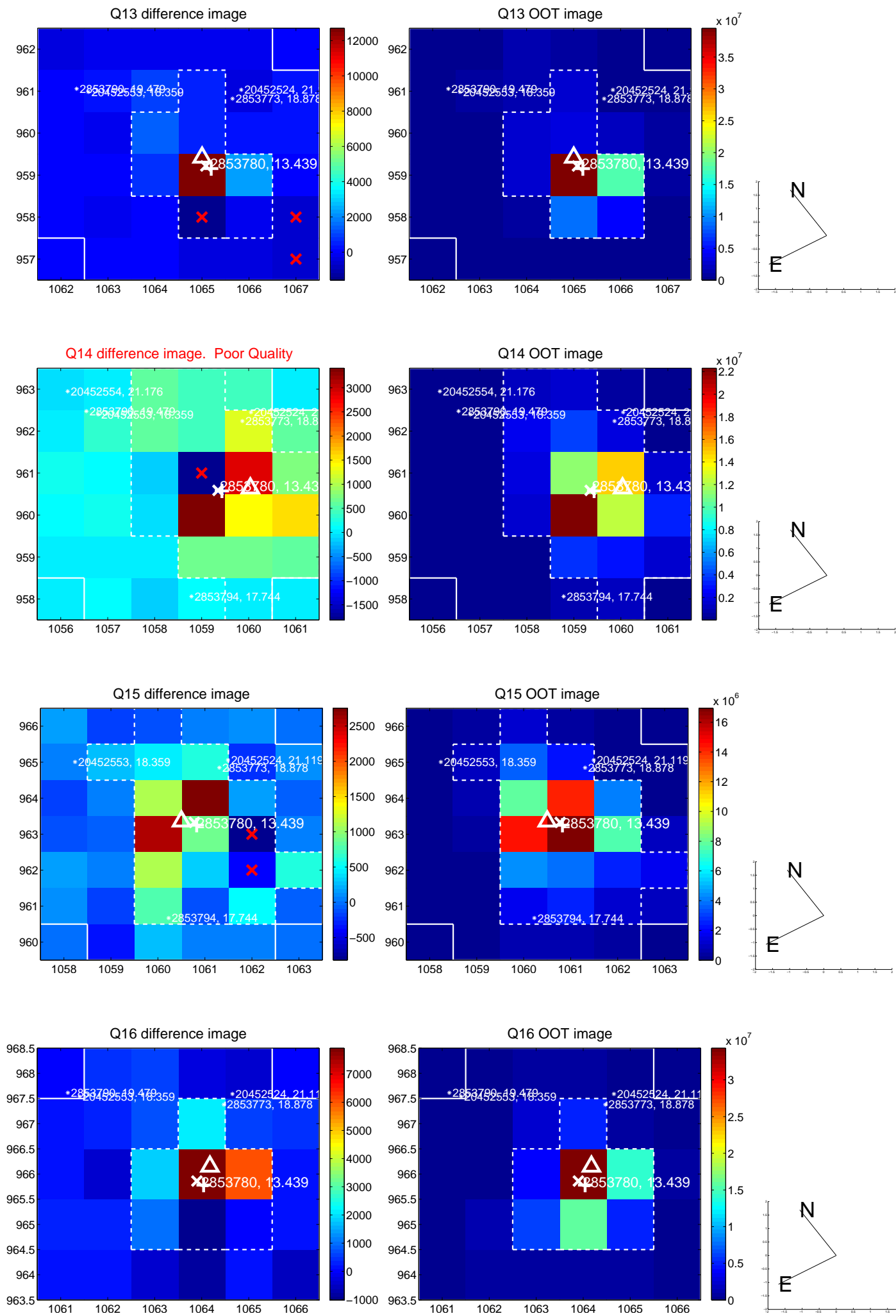
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



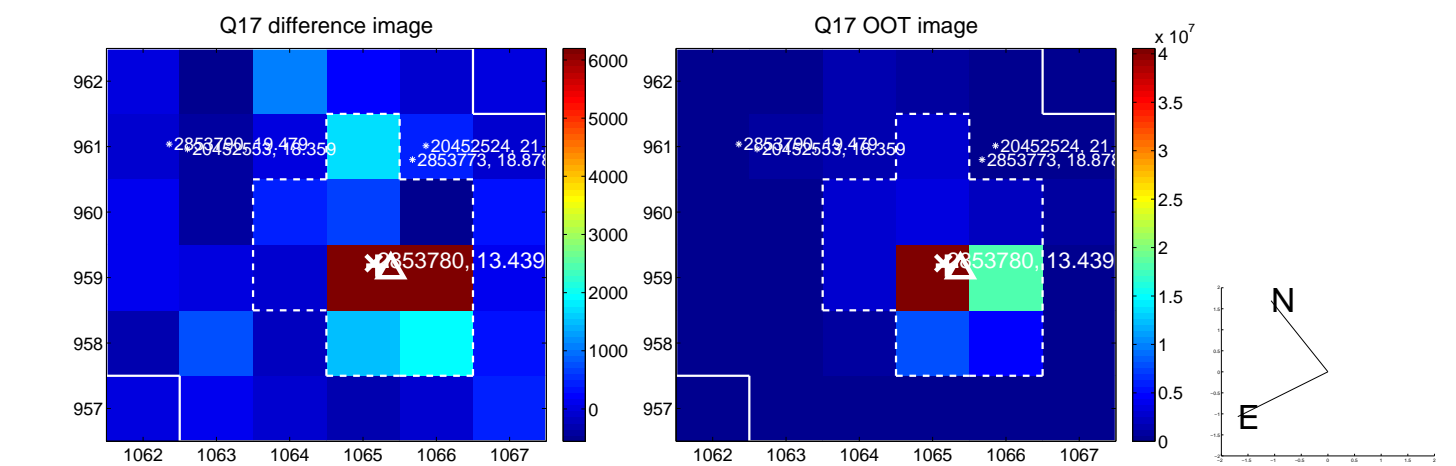
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



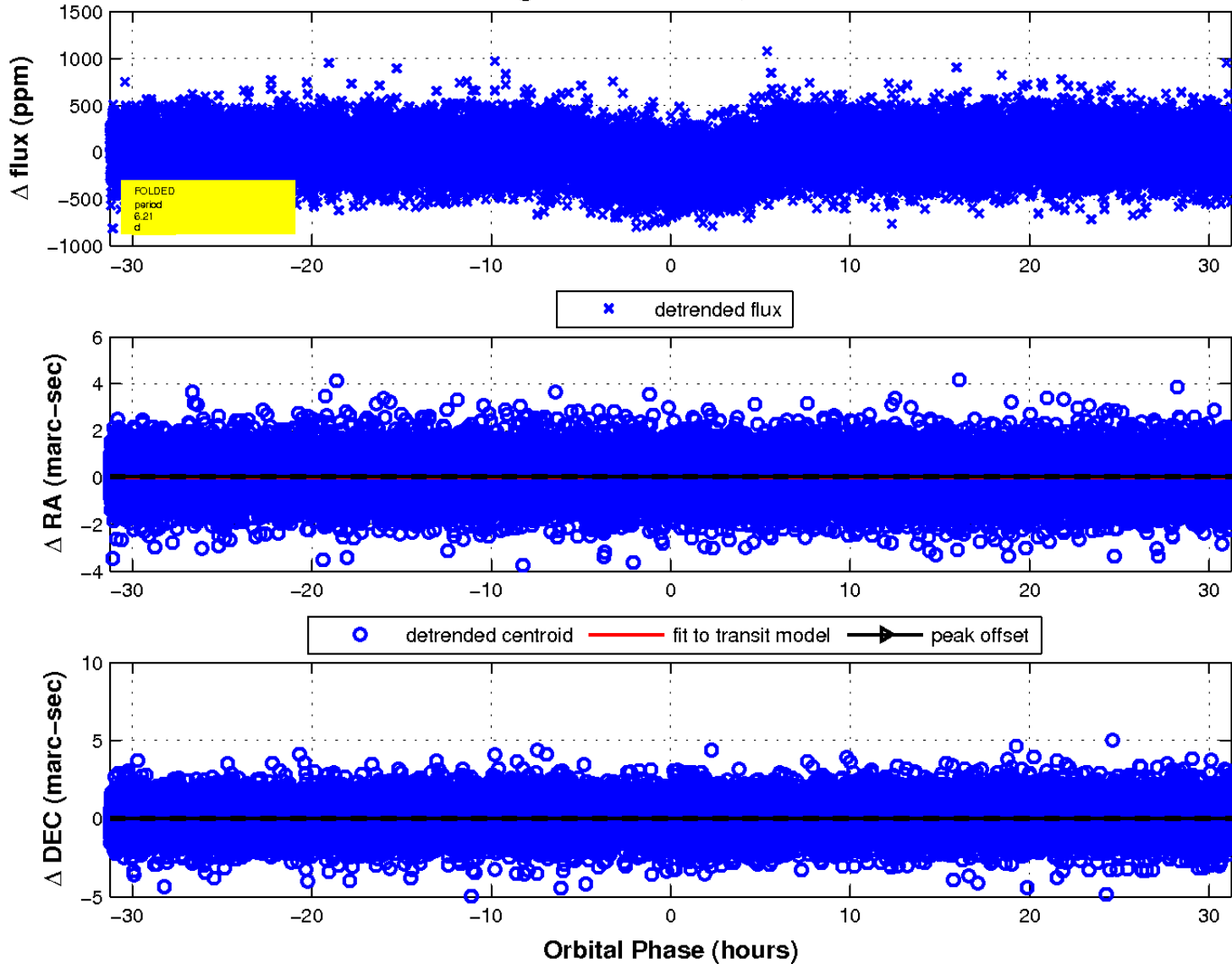
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

