

KIC 005817553

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005817553-01 | OBS | 1040.01 | 4.206080 | 132.253474 | 887.3 | 8.880 | 55.1 | 66.3 | 1.08 | 6306 | 5.75 | 582.48 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 005817553-01 | OBS | FP | 0.00 | 1 | 0 | 1 | 1 | LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH |

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 005817553-01

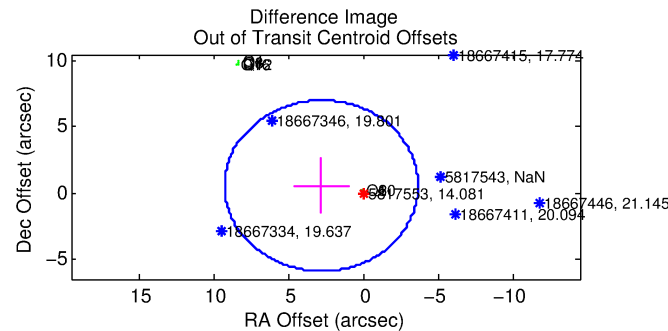
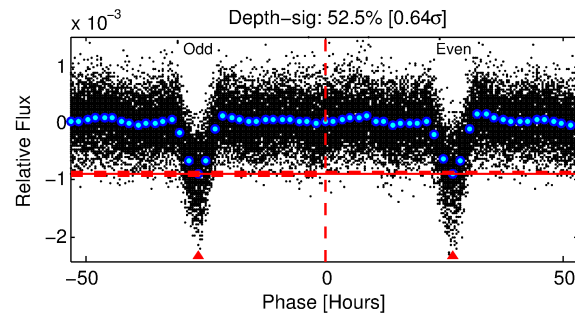
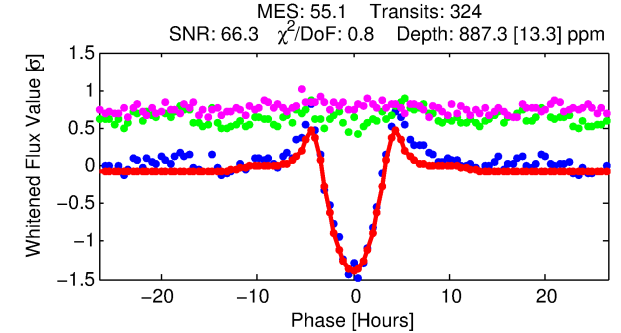
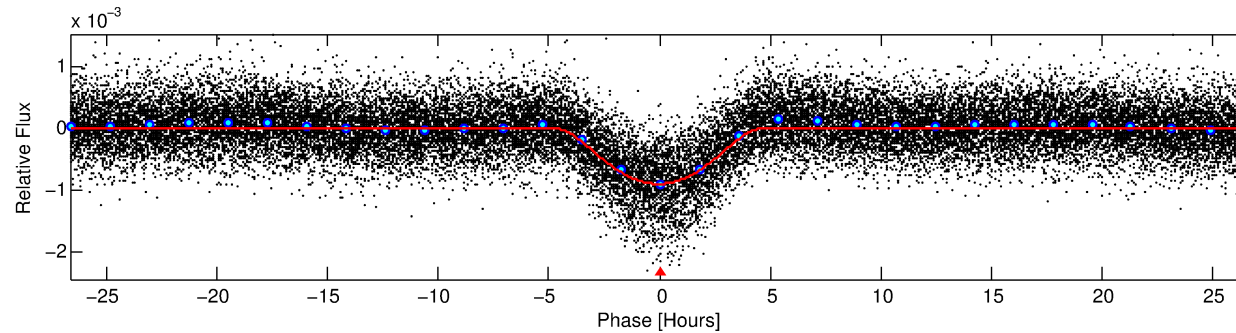
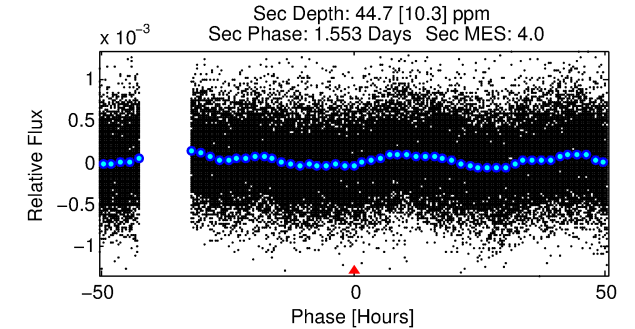
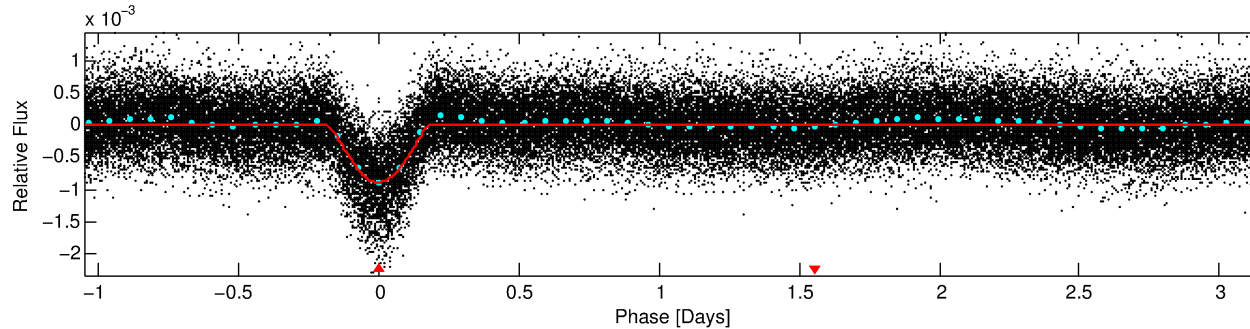
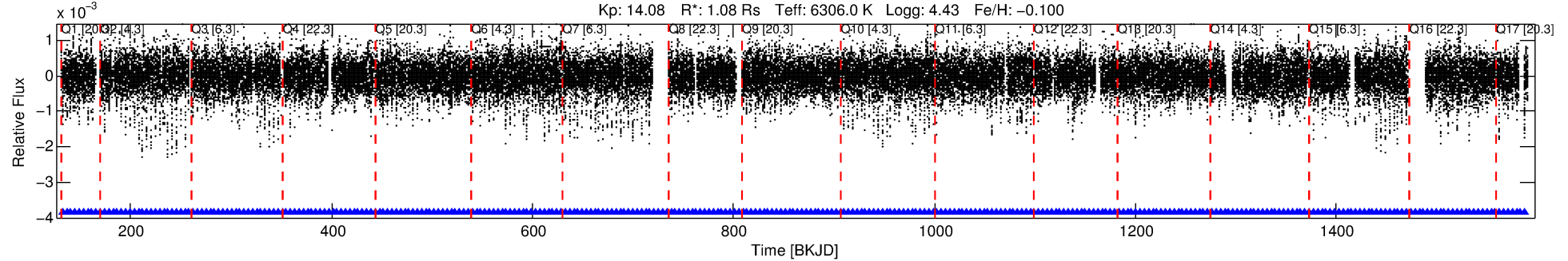
| TCE (1) | KIC | Parent (2) | Parent KIC | $P_1:P_2$ | Dist ($''$) | Δ Row | Δ Col | m_2 | m_1 | D_2/D_1 | Mechanism | Flag | σ_P | σ_T |
|--------------|---------|---------------|------------|-----------|---------------|--------------|--------------|-------|-------|-----------|------------|------|------------|------------|
| 005817553-01 | 5817553 | 005817566-sec | 5817566 | 1:2 | 15.3 | -3 | 3 | 11.68 | 14.08 | 175.65 | Direct-PRF | 0 | 0.50 | 1.04 |

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5817553 Candidate: 1 of 1 Period: 4.206 d
KOI: K01040 Corr: No Ephemeris Match

Kp: 14.08 R*: 1.08 Rs Teff: 6306.0 K Logg: 4.43 Fe/H: -0.100



DV Fit Results:

Period = 4.20608 [0.00001] d
Epoch = 132.2535 [0.0021] BKJD
Rp/R* = 0.0489 [0.0092]
a/R* = 1.57 [0.04]
b = 1.00 [0.01]
Seff = 582.48 [235.23]
Teq = 1253 [126] K
Rp = 5.75 [2.21] Re
a = 0.0531 [0.0144] AU
Ag = 2.10 [1.22] [0.90σ]
Teffp = 2331 [268] K [3.64σ]

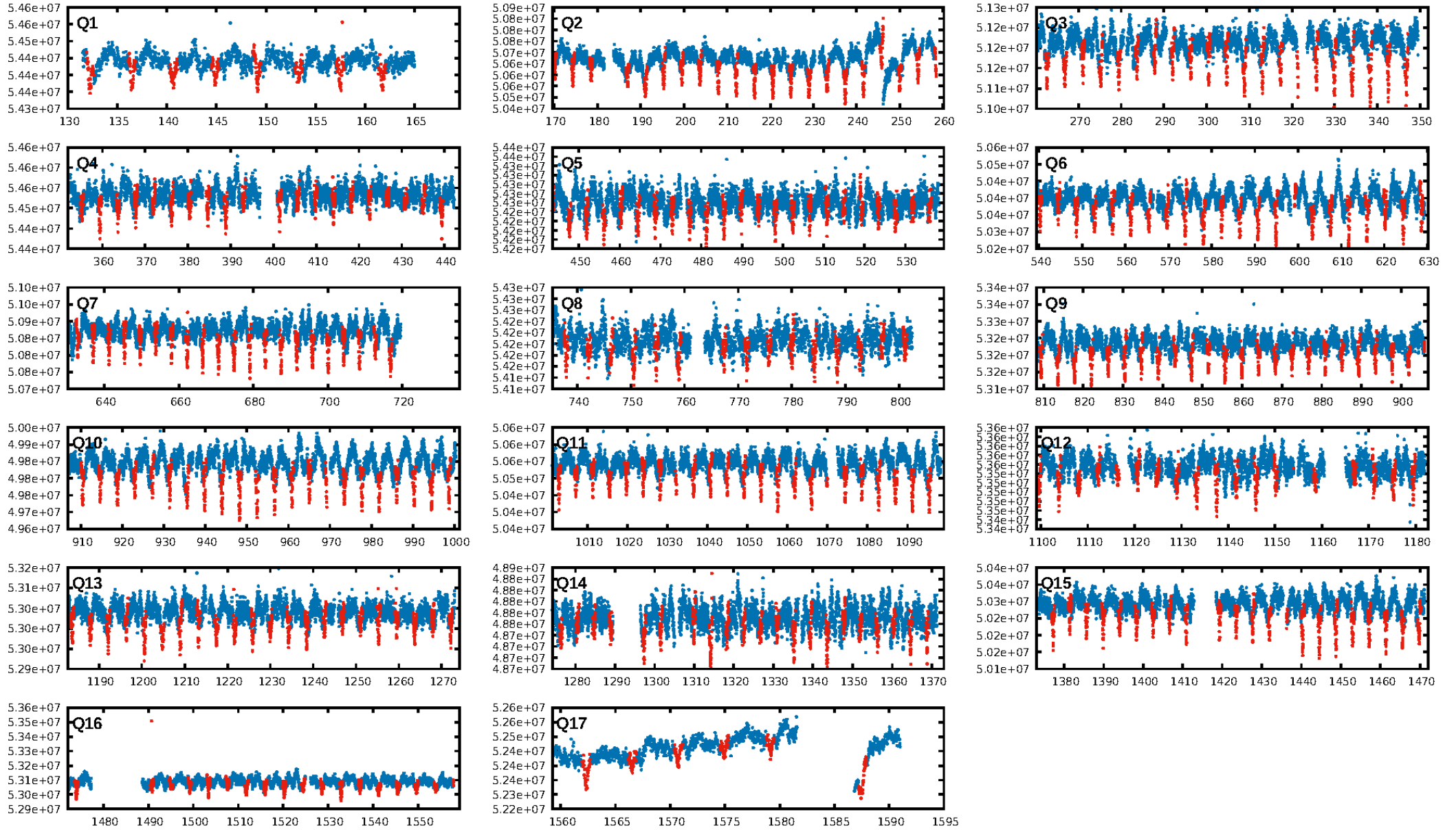
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [310/310]
GhostDiagnostic-chr: -0.5969
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 2.827 arcsec [1.31σ]
KicOffset-rm: 14.379 arcsec [33.42σ]
OotOffset-st: 3/0/4/0 [7]
KicOffset-st: 3/0/4/0 [7]
DiffImageQuality-fgm: 1.00 [7/7]
DiffImageOverlap-fno: 1.00 [17/17]

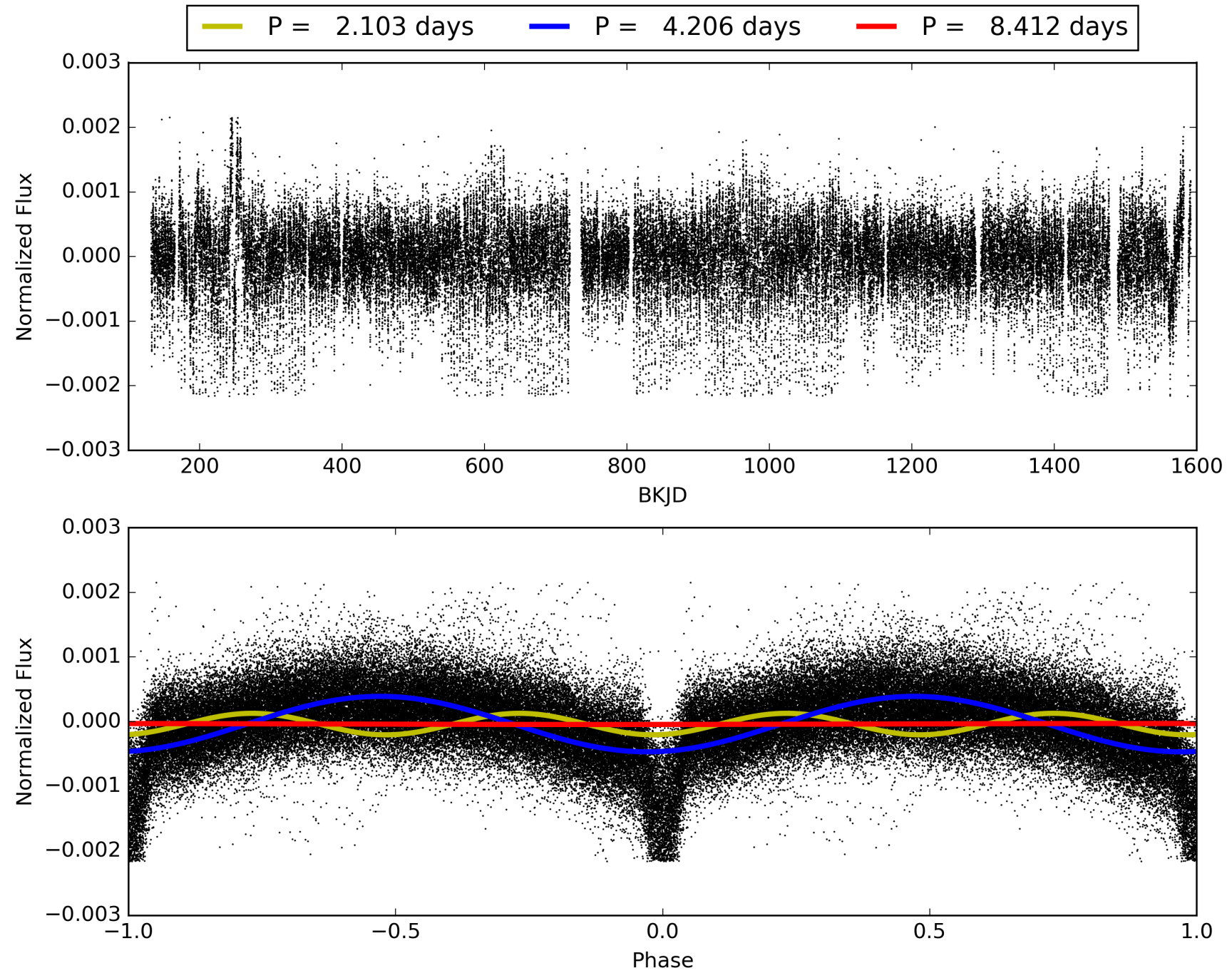
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:03:20 Z

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

TCE 005817553-01, PDC Light Curves

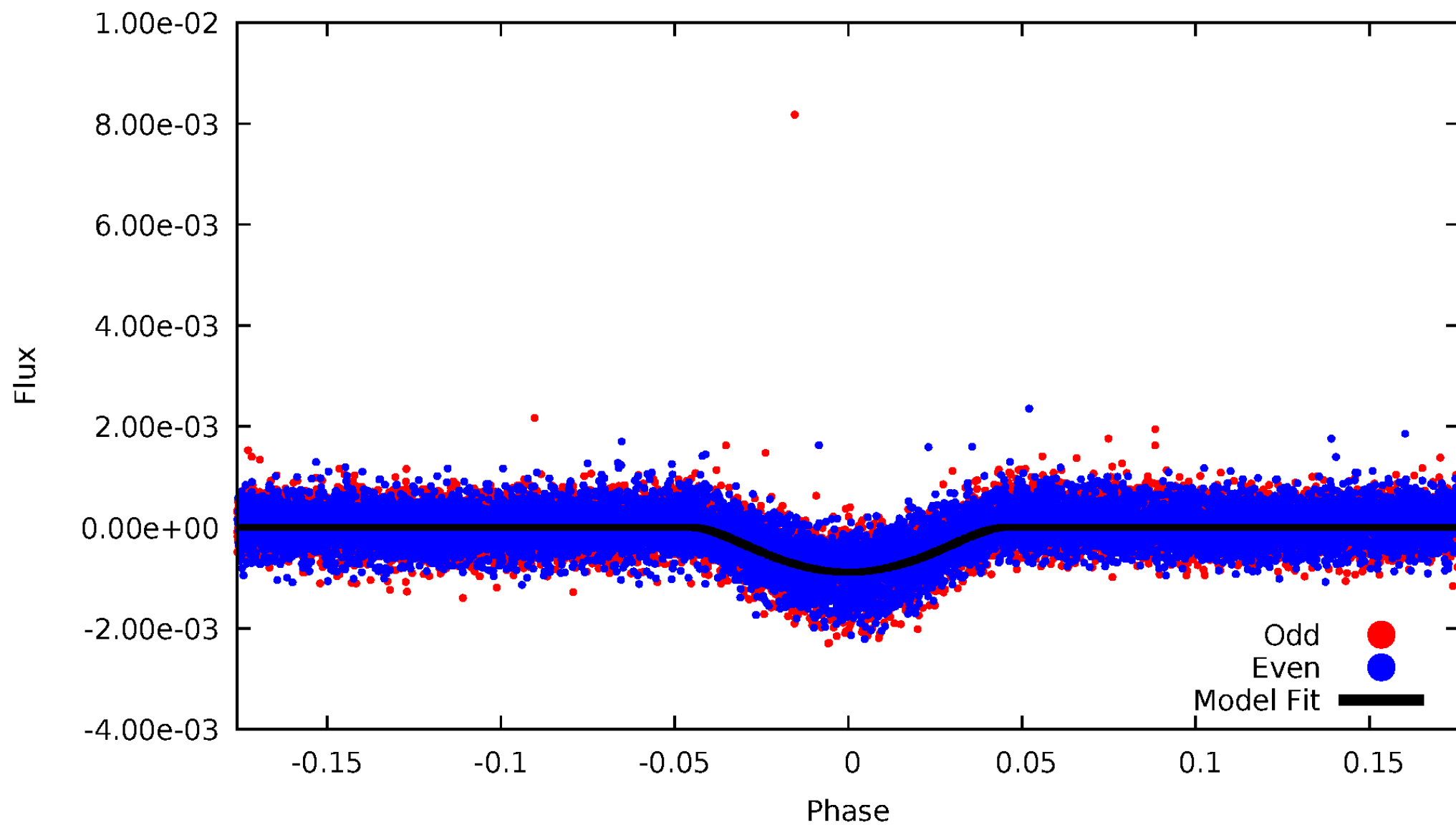


TCE 005817553-01



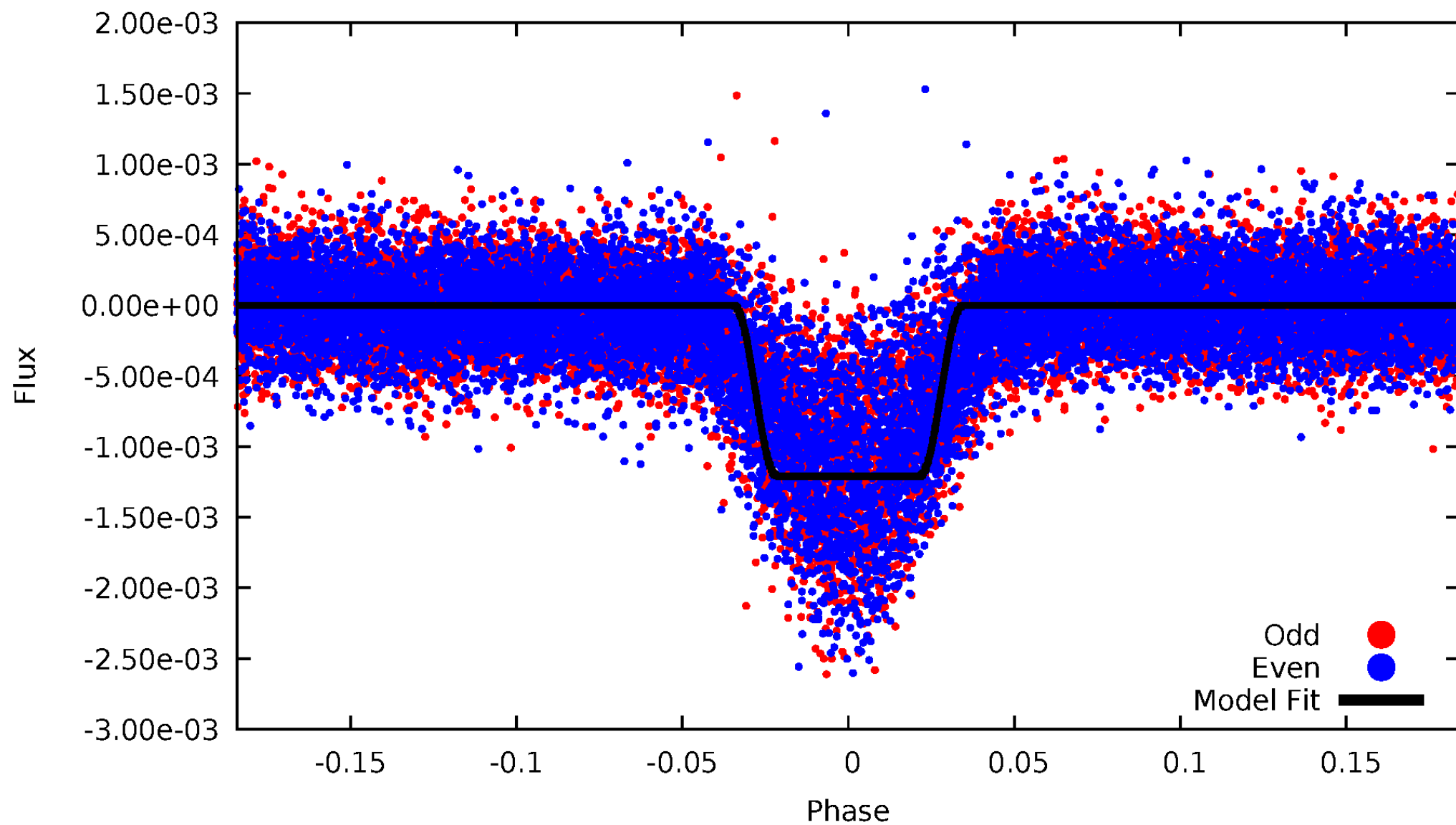
DV Odd/Even

TCE 005817553-01



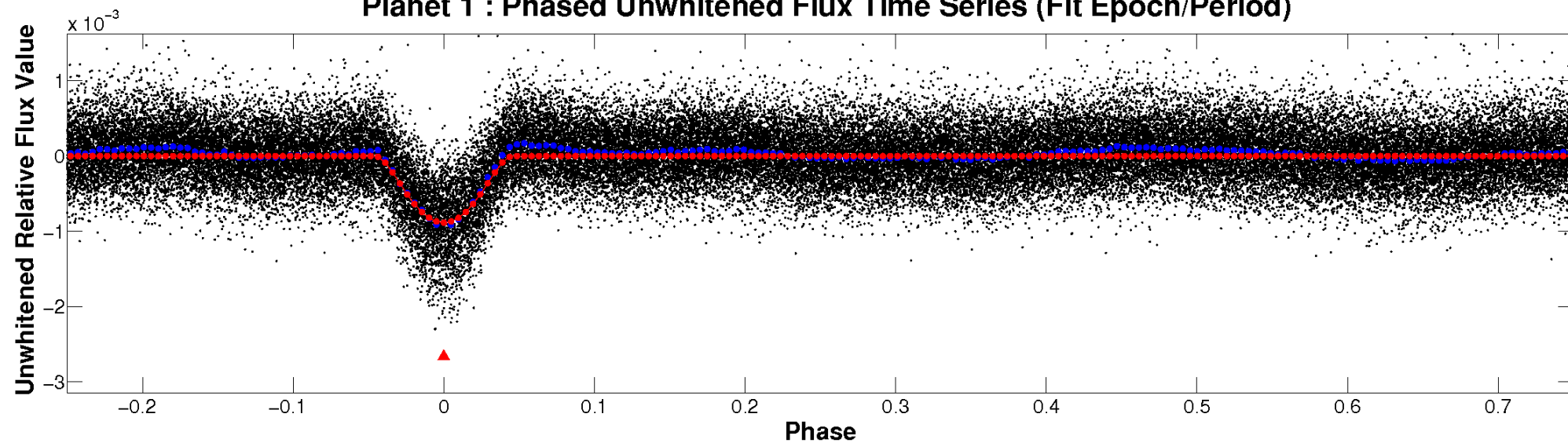
ALT Odd/Even

TCE 005817553-01

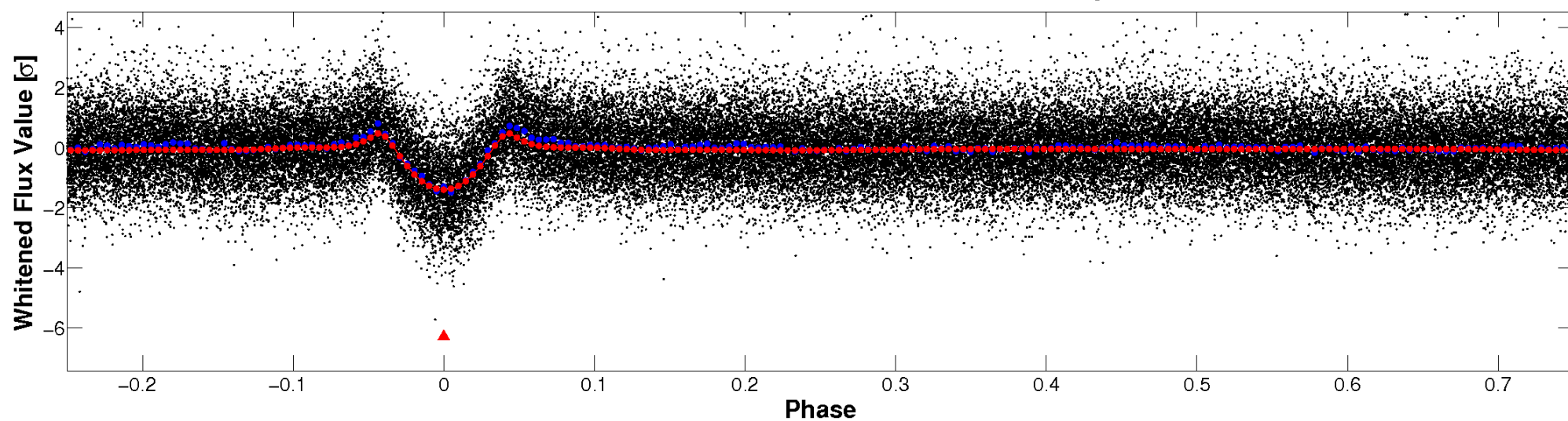


Non-Whitened Vs. Whitened Light Curve

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

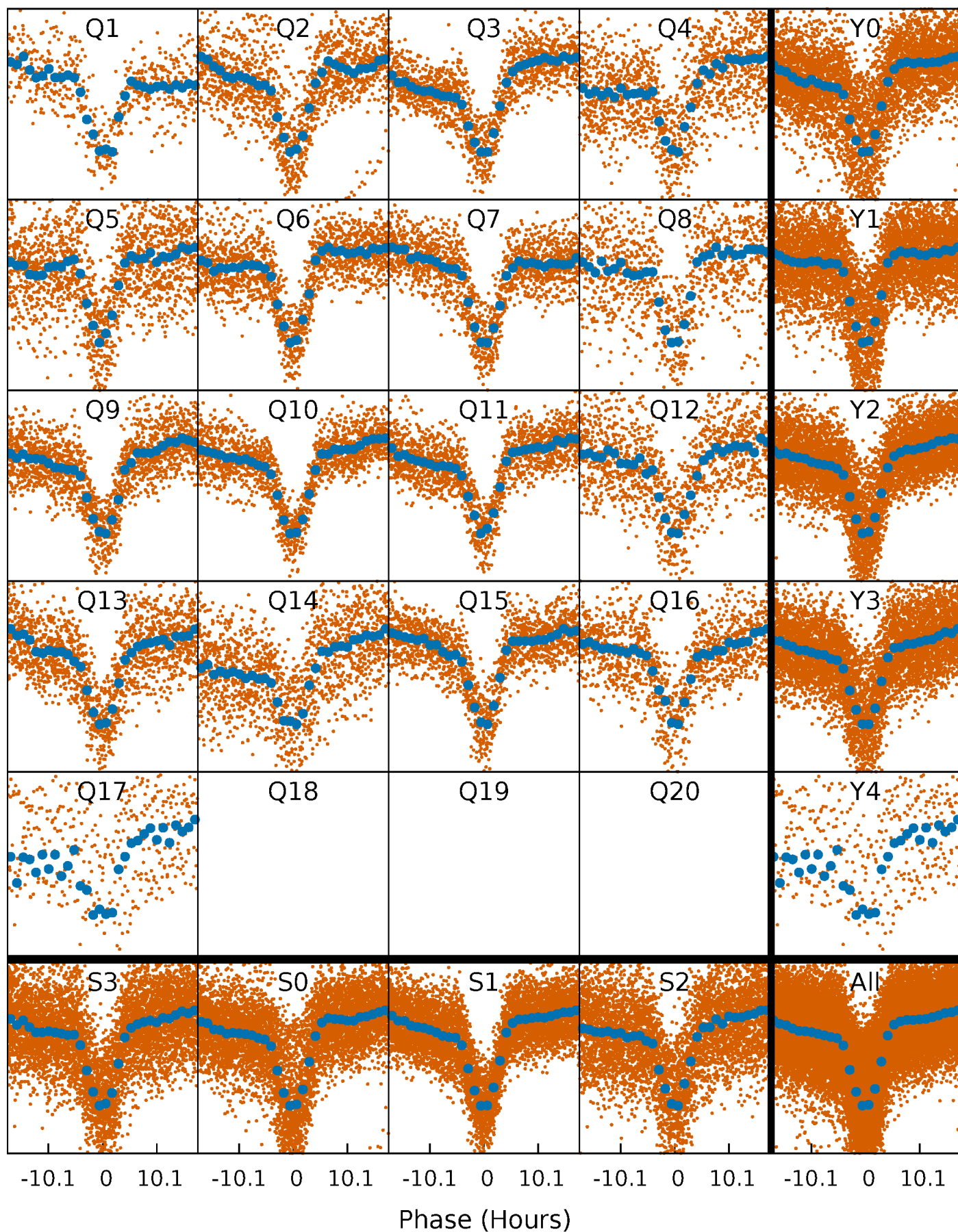


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



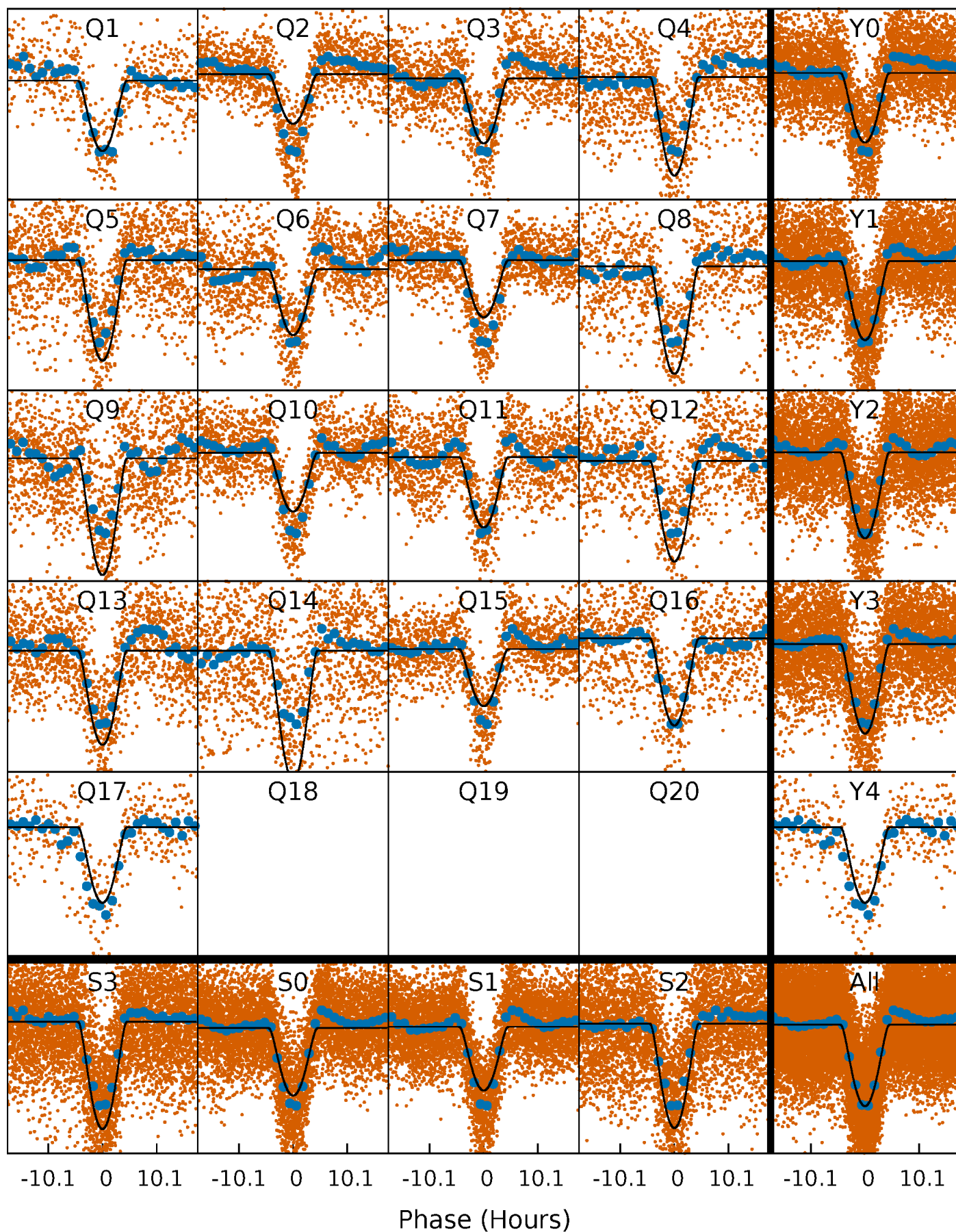
PDC Quarter-Phased Transit Curves

TCE 005817553-01 P= 4.206080 Days $T_0=132.253474$ (BKJD)



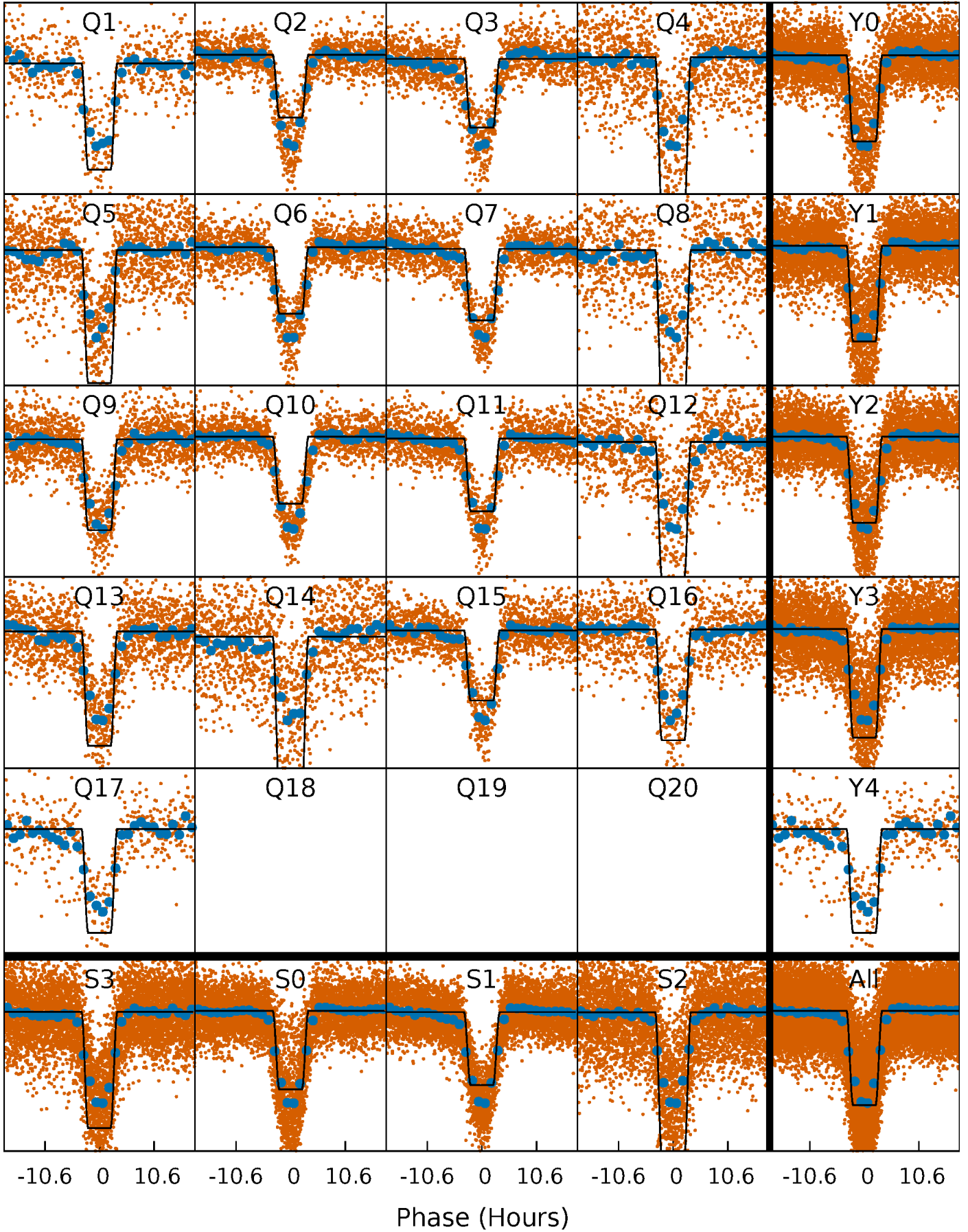
DV Quarter-Phased Transit Curves

TCE 005817553-01 P= 4.206080 Days $T_0=132.253474$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

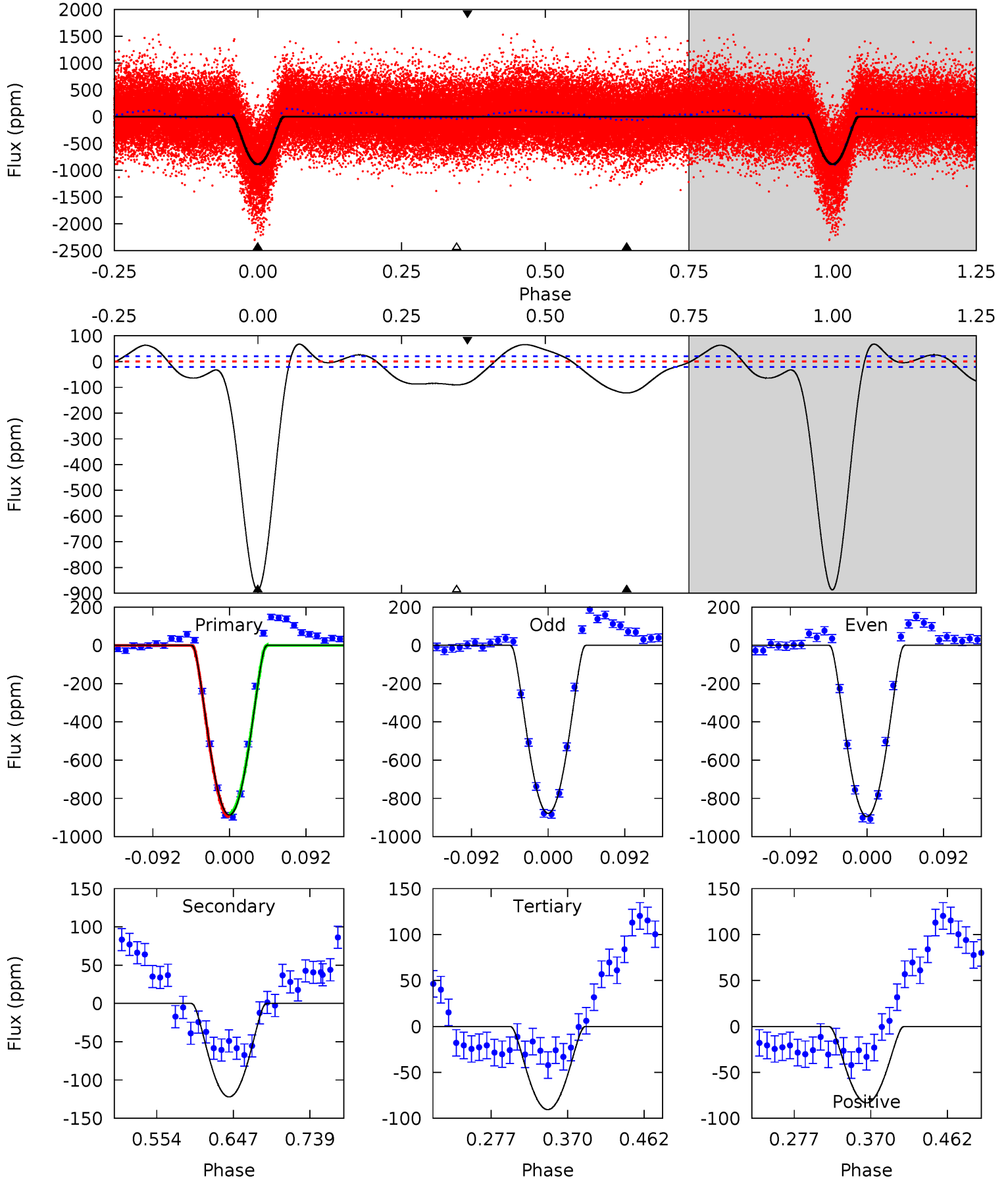
TCE 005817553-01 P= 4.206033 Days $T_0=132.258802$ (BKJD)



DV Model-Shift Uniqueness Test

005817553-01, P = 4.206080 Days, E = 128.047394 Days

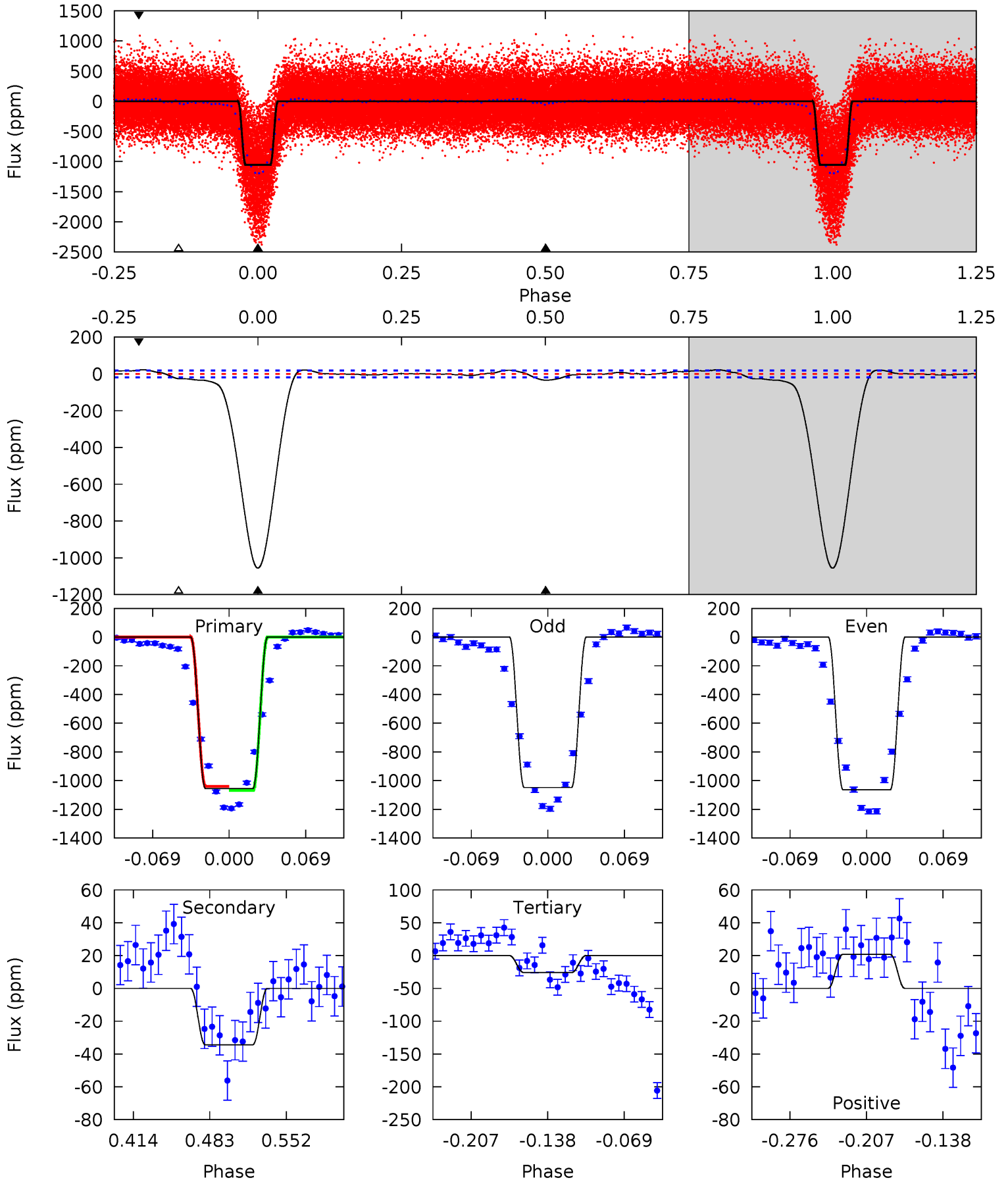
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|-------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 196.0 | 27.0 | 20.0 | -18.4 | 4.58 | 1.68 | 11.3 | 176.0 | 214.5 | 6.97 | 45.4 | 1.92 | 1.04 | 0.07 | 1.72 |



Alt Model-Shift Uniqueness Test

005817553-01, P = 4.206033 Days, E = 128.052769 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 267.4 | 8.72 | 6.59 | 5.24 | 4.64 | 1.82 | 3.60 | 260.8 | 262.1 | 2.13 | 3.48 | 1.92 | 1.00 | 0.02 | 3.67 |



Stellar Parameters For KIC 005817553

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6306^{+168}_{-205} | $4.426^{+0.054}_{-0.202}$ | $-0.100^{+0.250}_{-0.300}$ | $1.076^{+0.361}_{-0.120}$ | $1.126^{+0.156}_{-0.140}$ | $1.272^{+0.368}_{-0.680}$ |
| | +3%/-3% | +1%/-5% | +250%/-300% | +34%/-11% | +14%/-12% | +29%/-53% |
| 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 005817553-01 / KOI 1040.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -122 ± 5 | $5.89^{+1.55}_{-1.13}$ | 1787^{+128}_{-84} | 3472^{+259}_{-216} | $5.350^{+2.785}_{-1.877}$ |
| Alt. | -34 ± 4 | $4.24^{+1.38}_{-1.11}$ | 1780^{+135}_{-82} | 3131^{+324}_{-249} | $2.923^{+2.383}_{-1.277}$ |

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

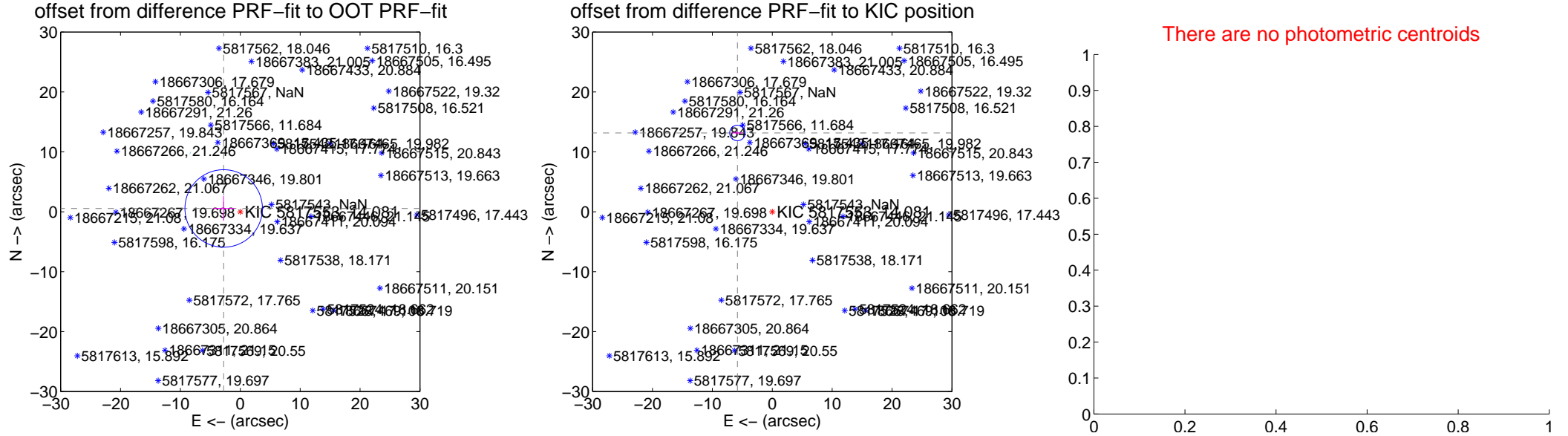
DV Centroid Data

Supplemental centroid analysis for 005817553-01. Kepler magnitude: 14.08. Transit SNR 66.35

There are 7 quarters with good PRF difference image offsets

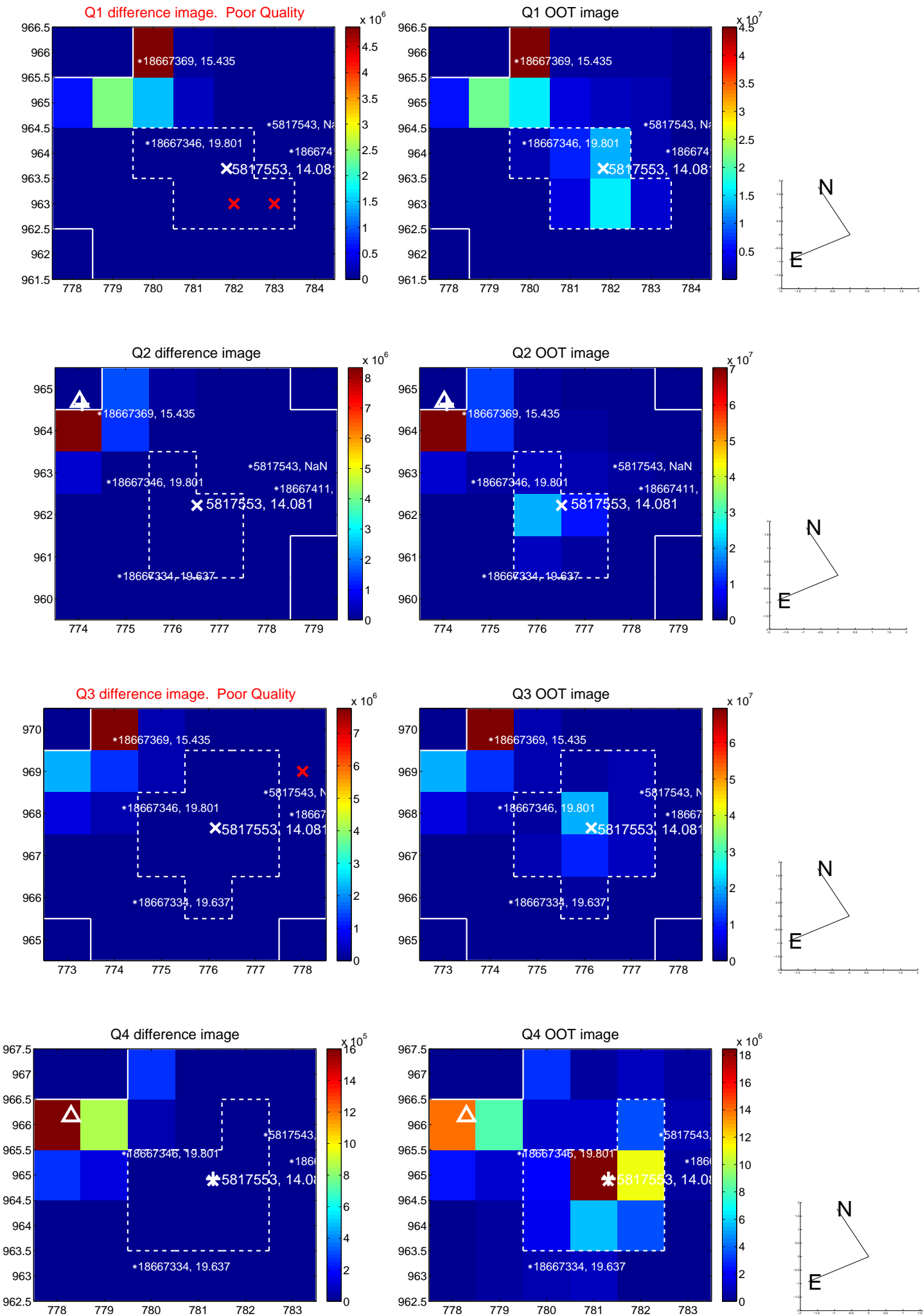
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 2.827 ± 2.156 | 1.31 | 2.773 ± 1.788 | 0.553 ± 2.058 |
| PRF-fit source offset from KIC position | 14.379 ± 0.430 | 33.42 | 5.818 ± 0.914 | 13.149 ± 0.240 |
| photometric centroid source offset | — | — | — | — |

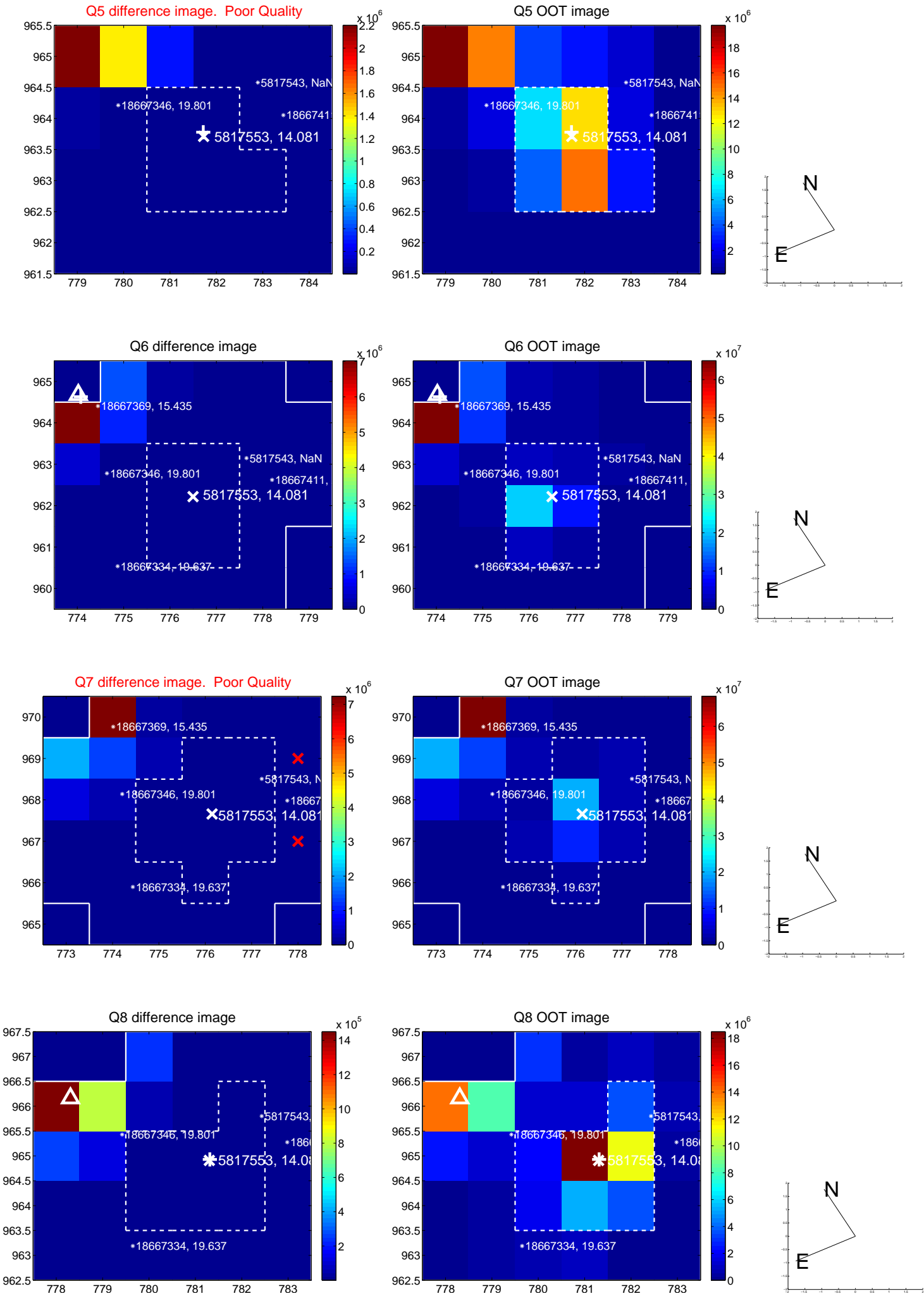


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

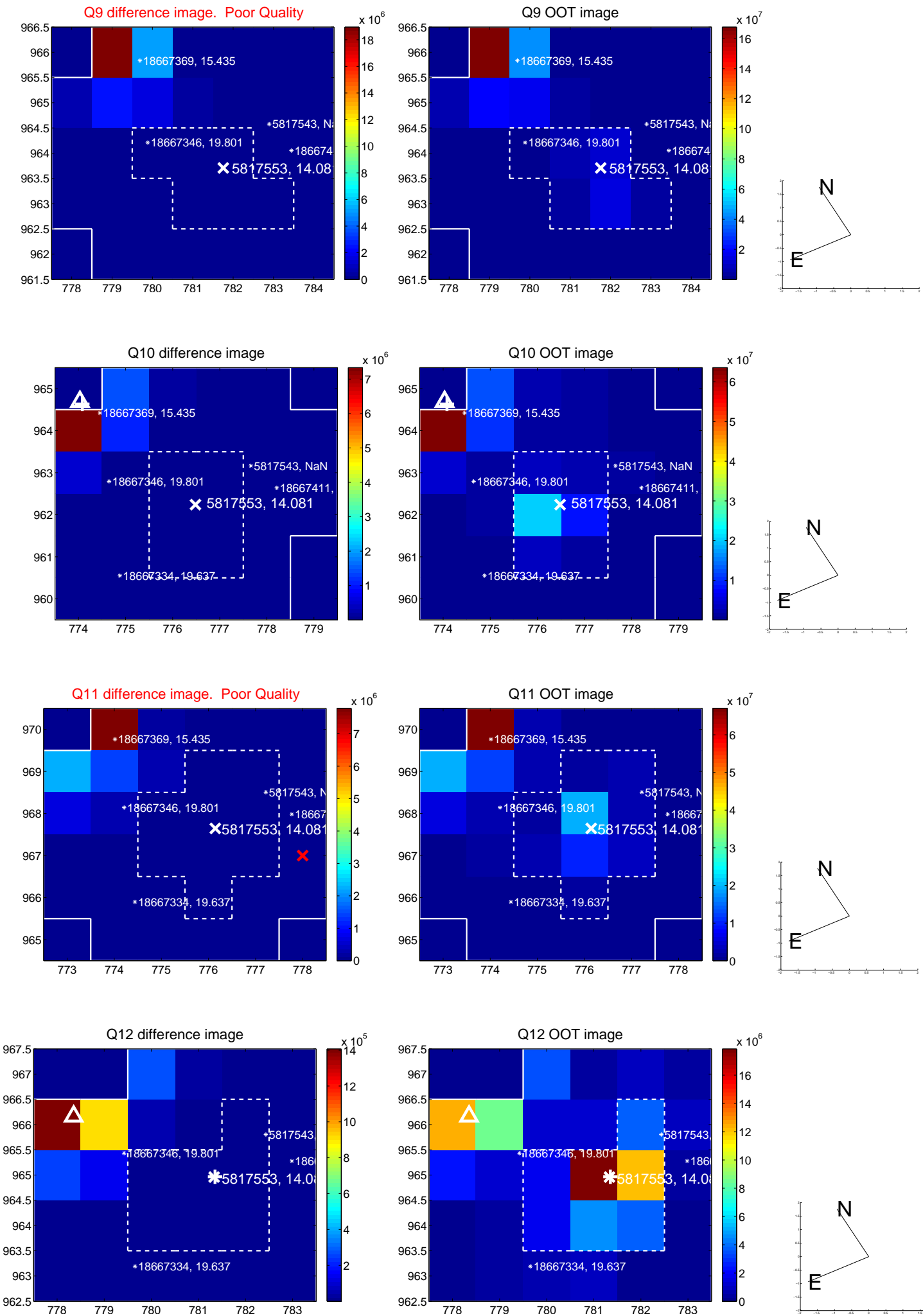
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



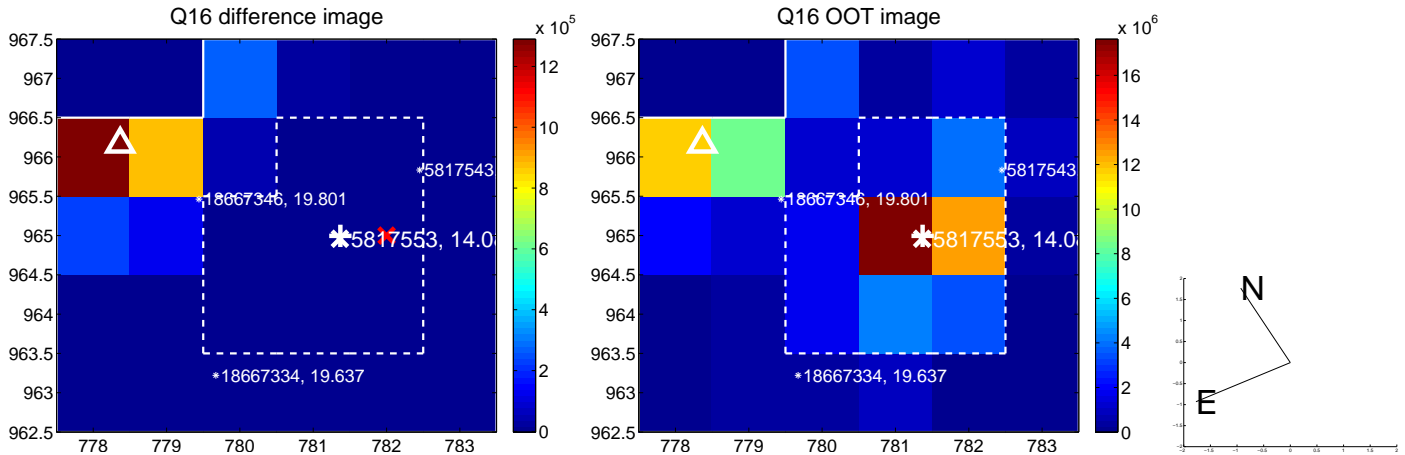
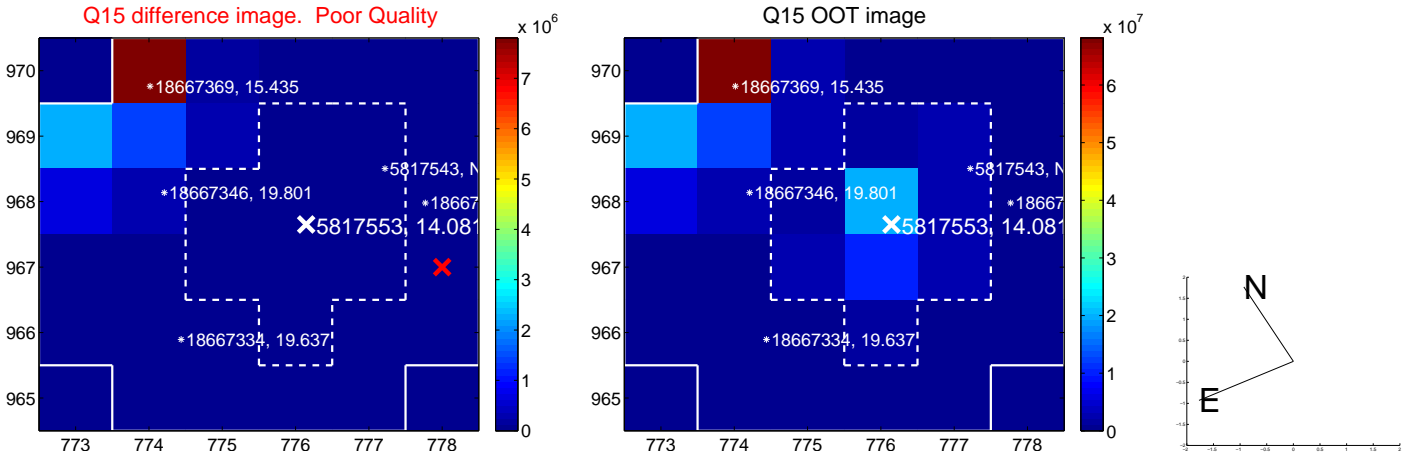
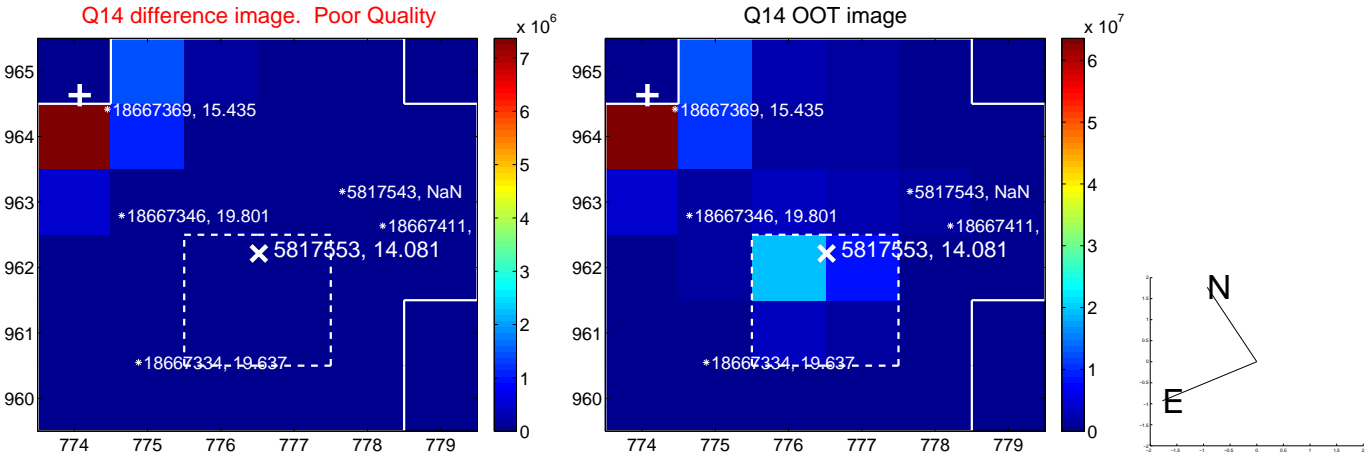
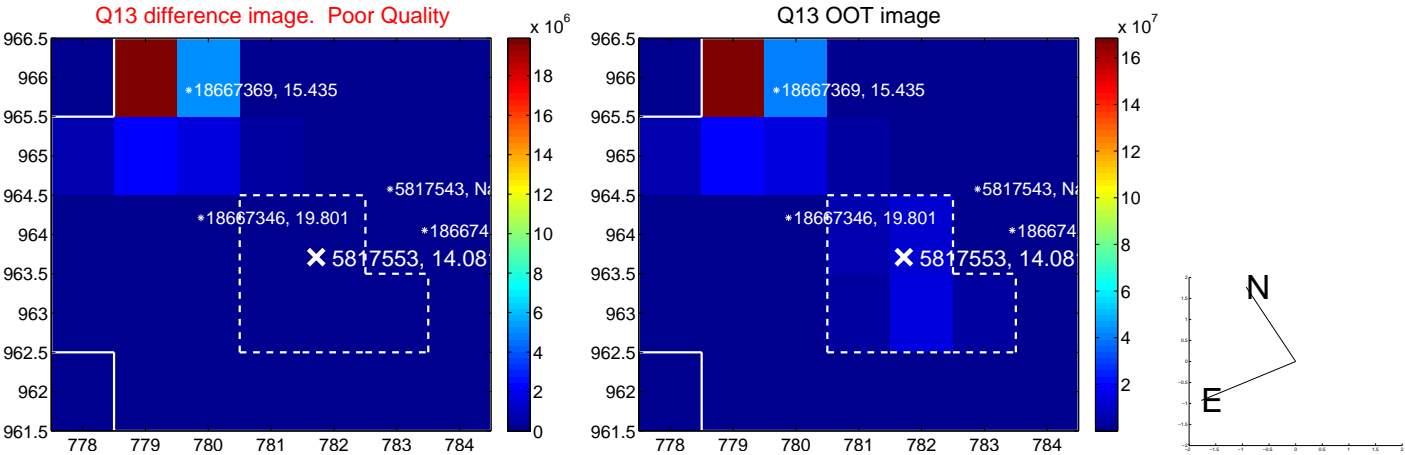
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



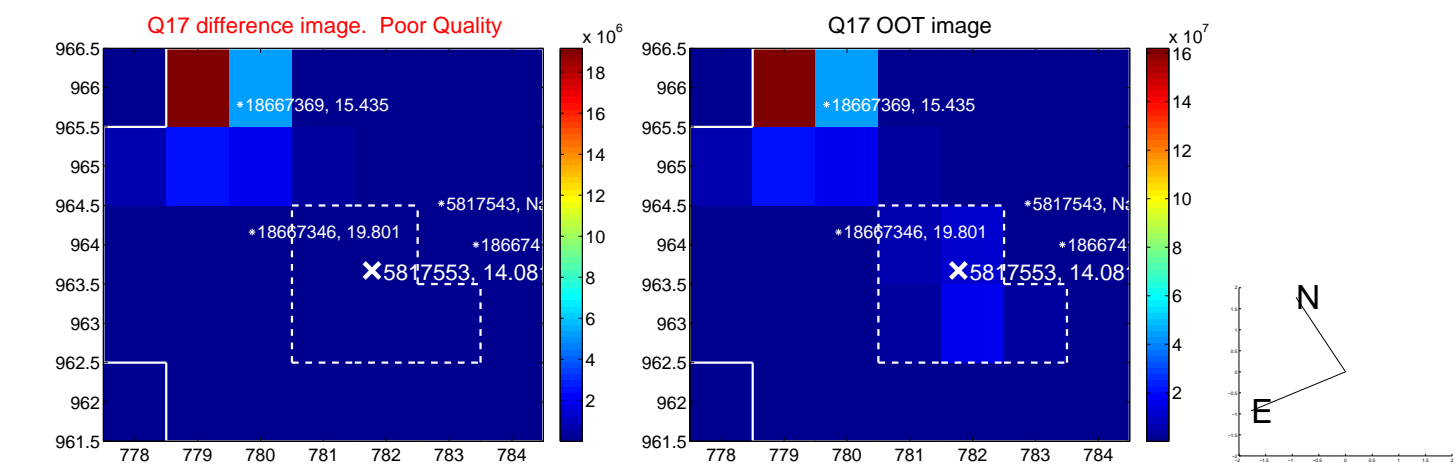
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



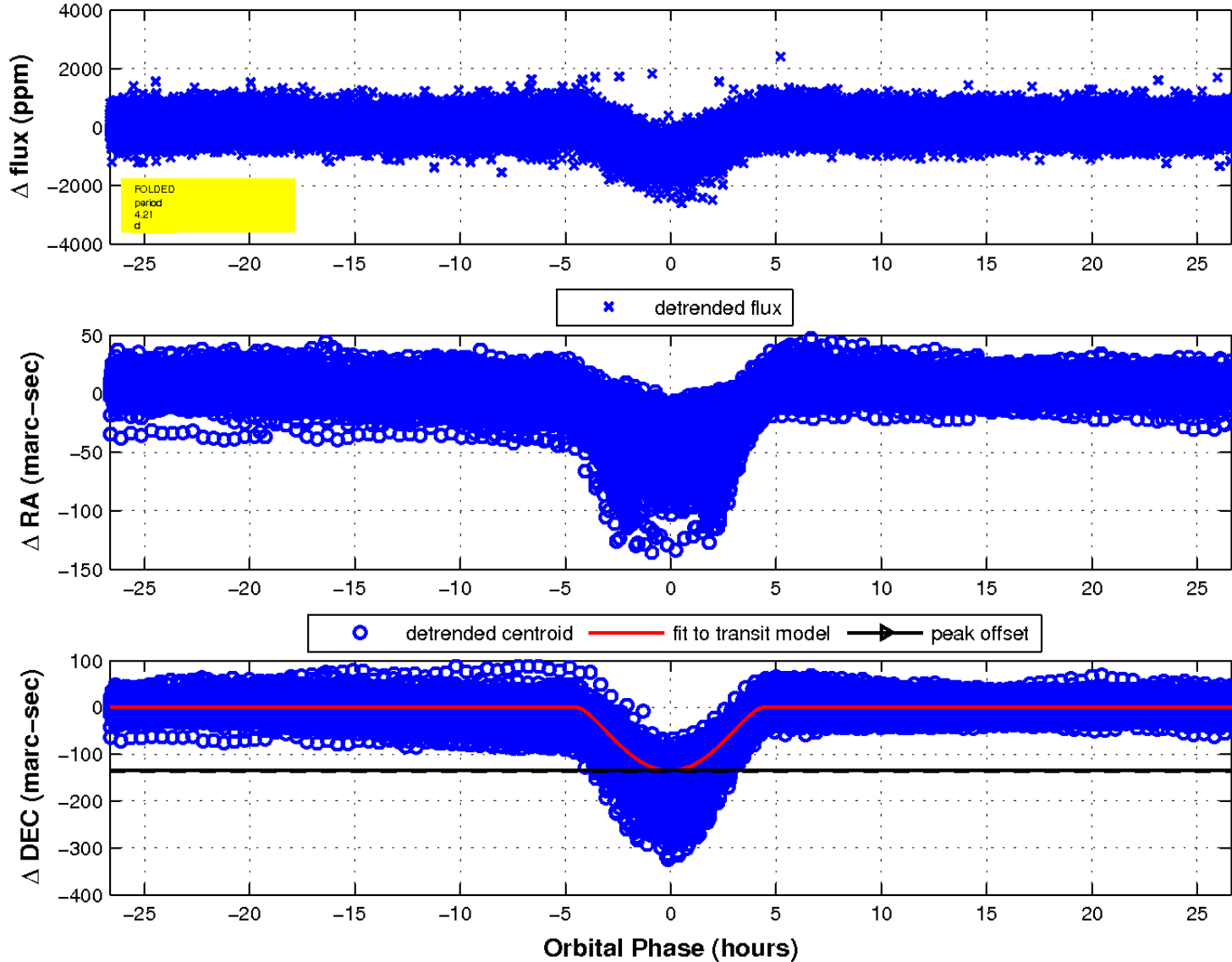
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

