

KIC 002578811

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-----|------|-----------------------------|-----------------|------------------------|------------------------|
| 002578811-01 | OBS | 4948.01 | 6.209672 | 135.260211 | 41.0 | 2.788 | 9.0 | 10.1 | 46.17 | 3861 | 37.55 | 0.00 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 002578811-01 | OBS | FP | 0.00 | 0 | 0 | 1 | 0 | PLANET_IN_STAR—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.

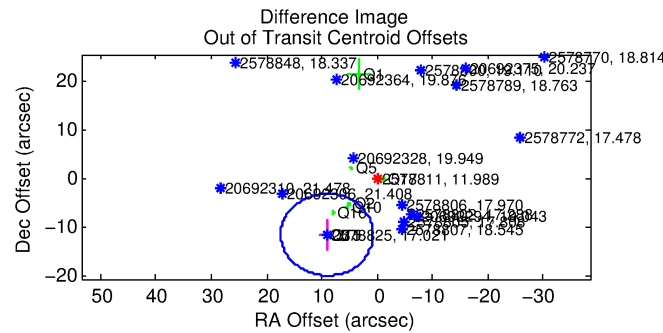
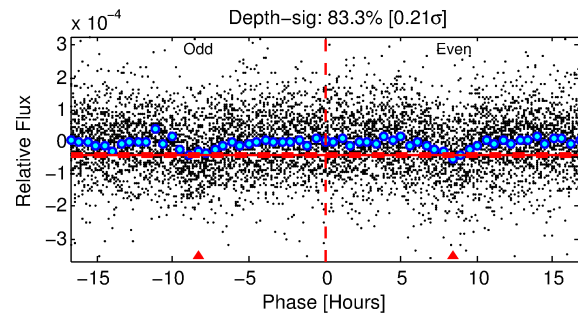
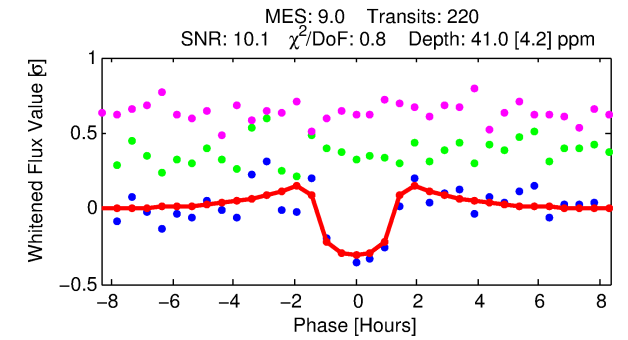
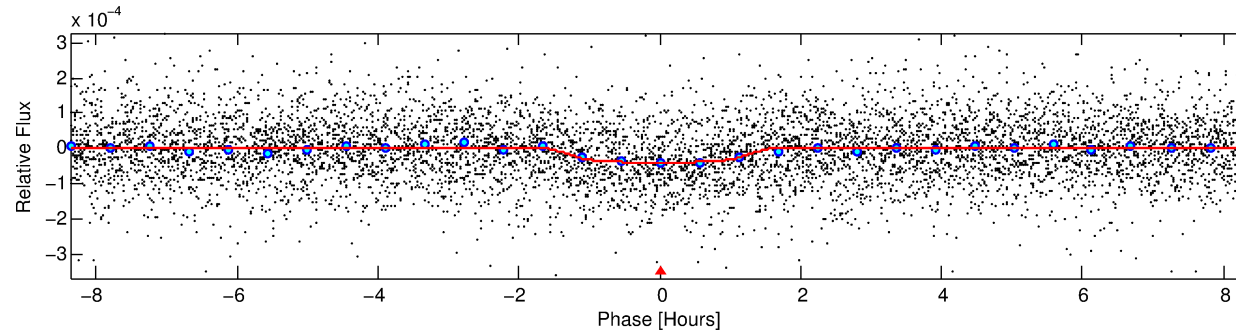
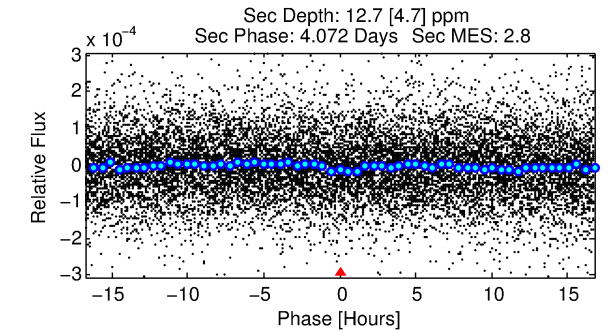
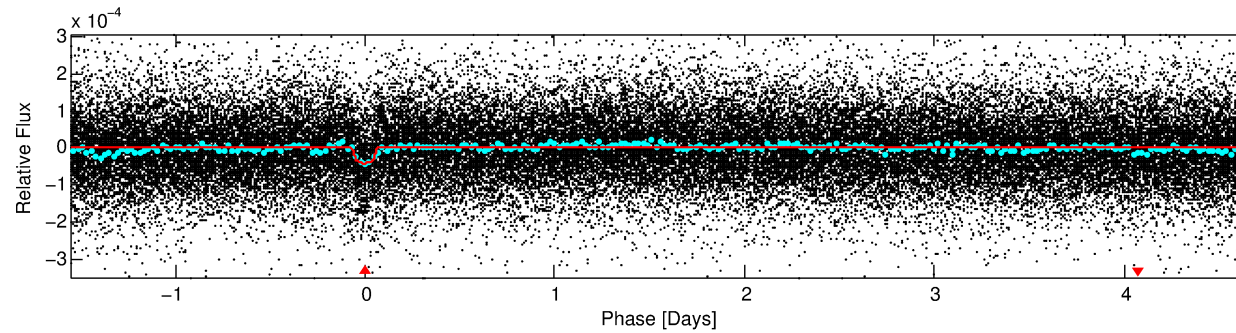
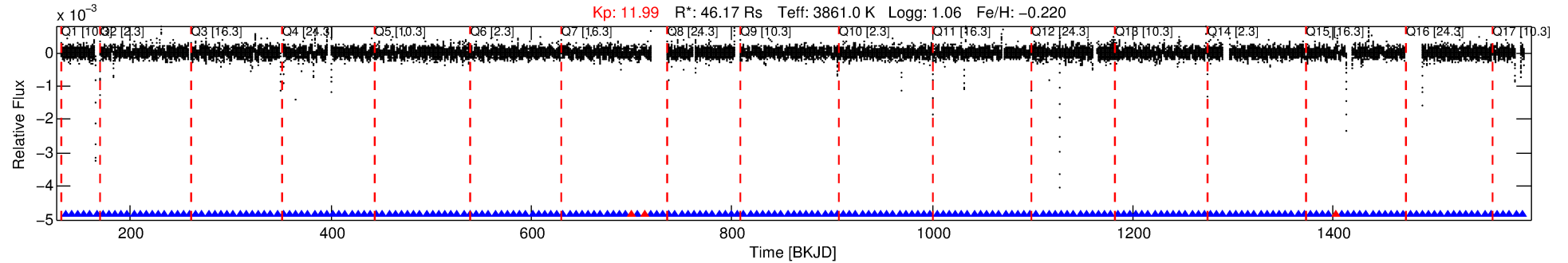
Ephemeris Match Information For 002578811-01

No Significant Match Found

DV One-Page Summary

KIC: 2578811 Candidate: 1 of 1 Period: 6.210 d

KOI: K04948.01 Corr: 0.970



DV Fit Results:

Period = 6.20967 [0.00003] d
Epoch = 135.2602 [0.0040] BKJD
Rp/R* = 0.0075 [0.0038]
a/R* = 7.70 [12.55]
b = 0.90 [0.36]
Seff = N/A
Teq = N/A
Rp = 37.55 [21.72] Re
a = N/A
Ag = N/A
Teff = N/A

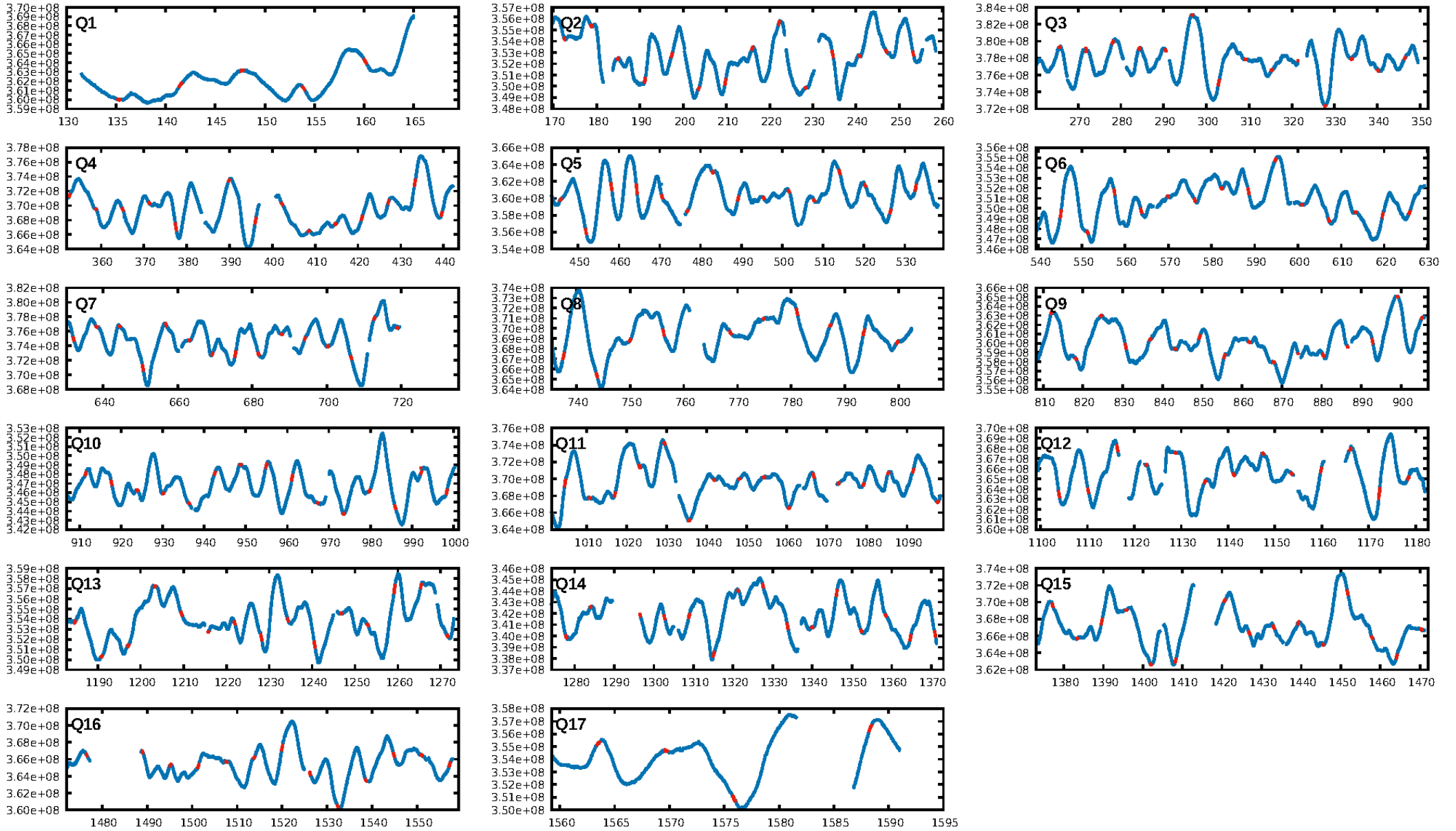
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.60e-11
RollingBand-fgt: 0.99 [208/211]
GhostDiagnostic-chr: 0.02291
Centroid-sig: 0.0%
Centroid-so: 15.086 arcsec [14.48 σ]
OotOffset-rm: 14.631 arcsec [5.25 σ]
KicOffset-rm: 14.615 arcsec [5.13 σ]
OotOffset-st: 2/4/1/3 [10]
KicOffset-st: 2/4/1/3 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 1.00 [17/17]

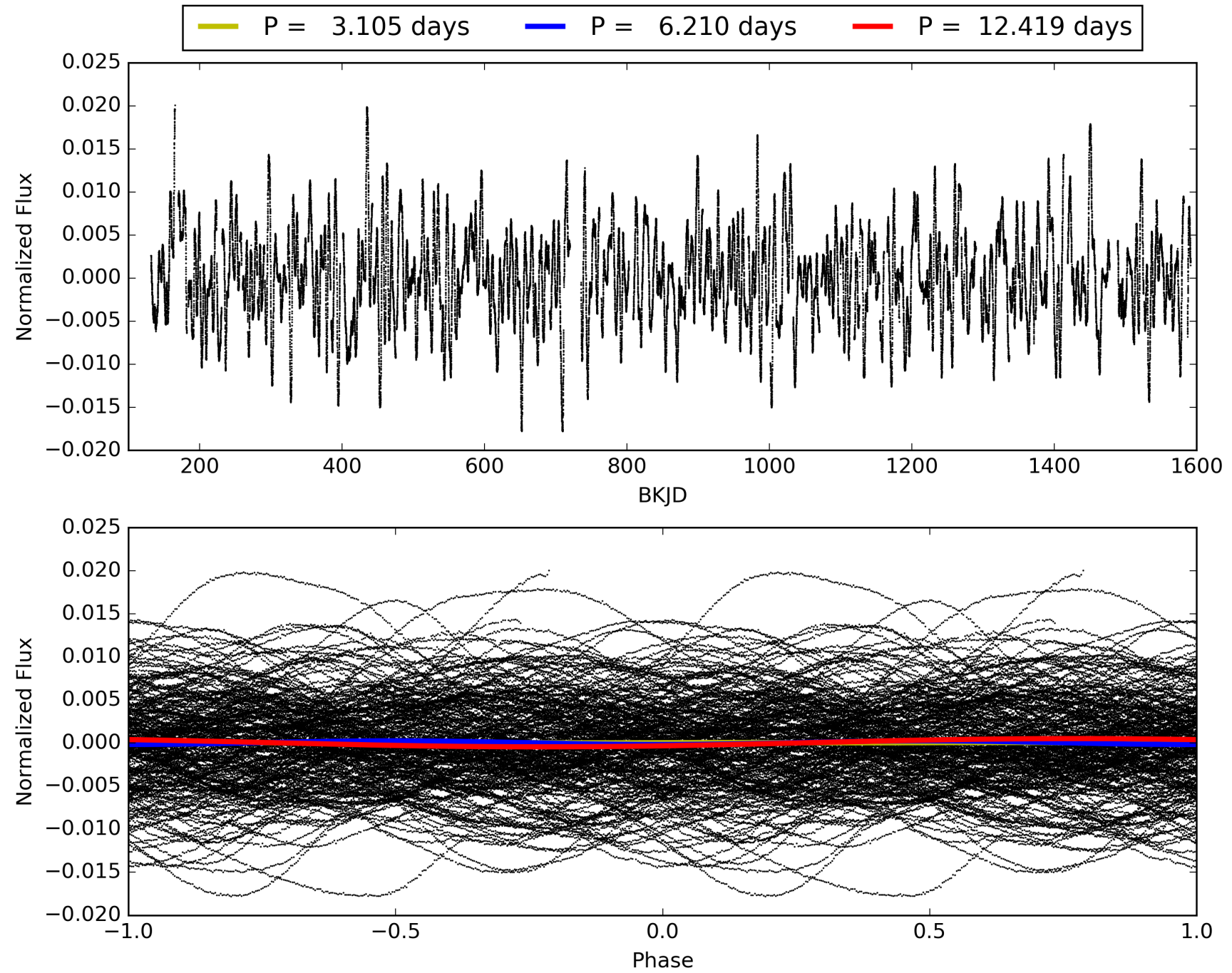
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:05:01 Z

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

TCE 002578811-01, PDC Light Curves

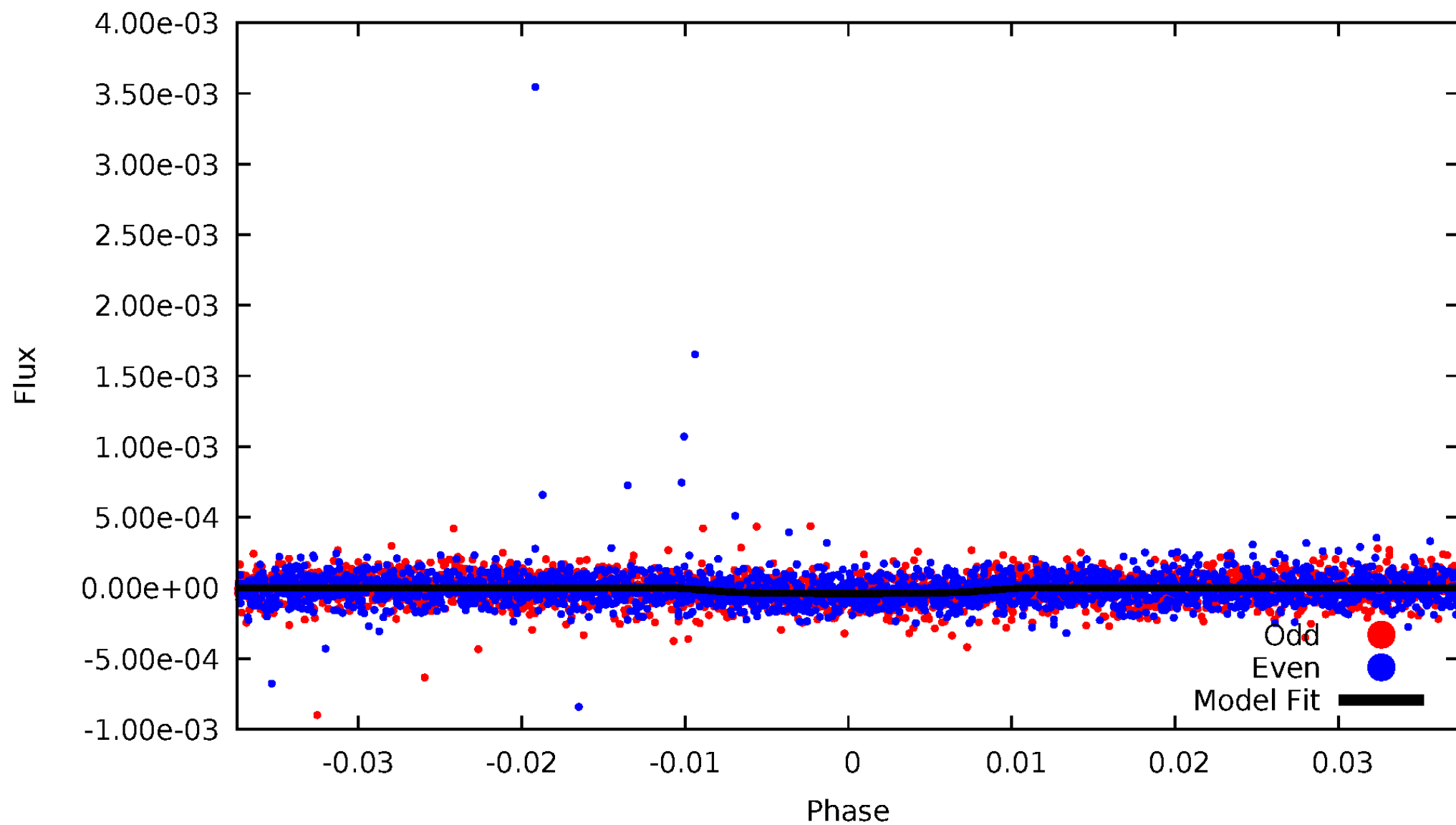


TCE 002578811-01



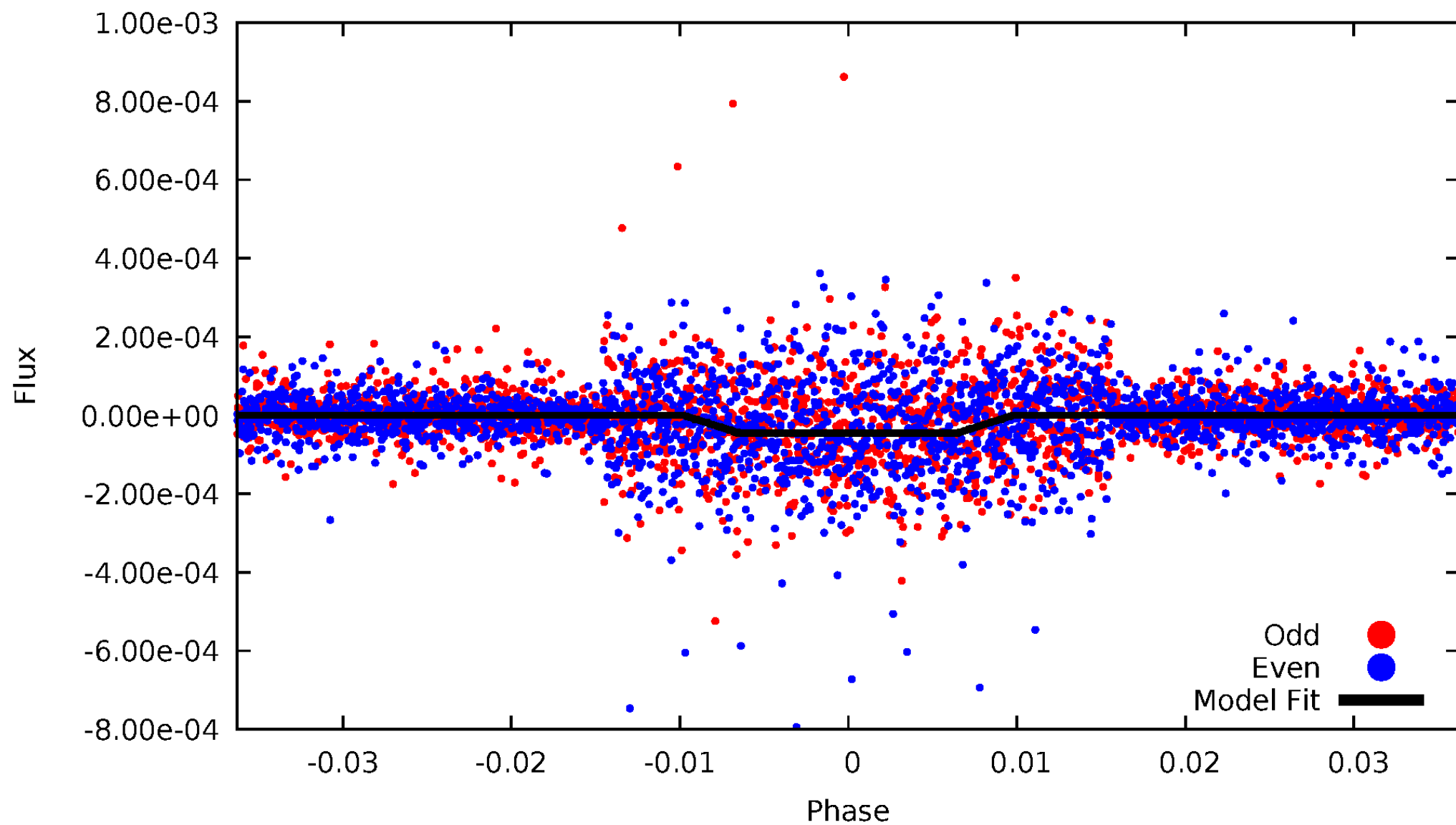
DV Odd/Even

TCE 002578811-01



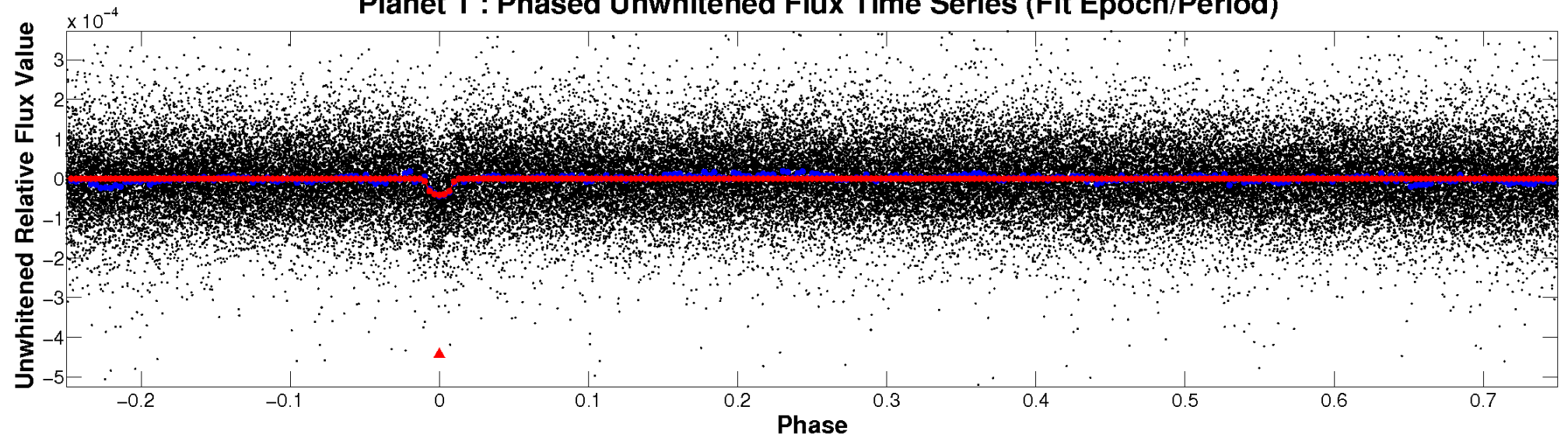
ALT Odd/Even

TCE 002578811-01

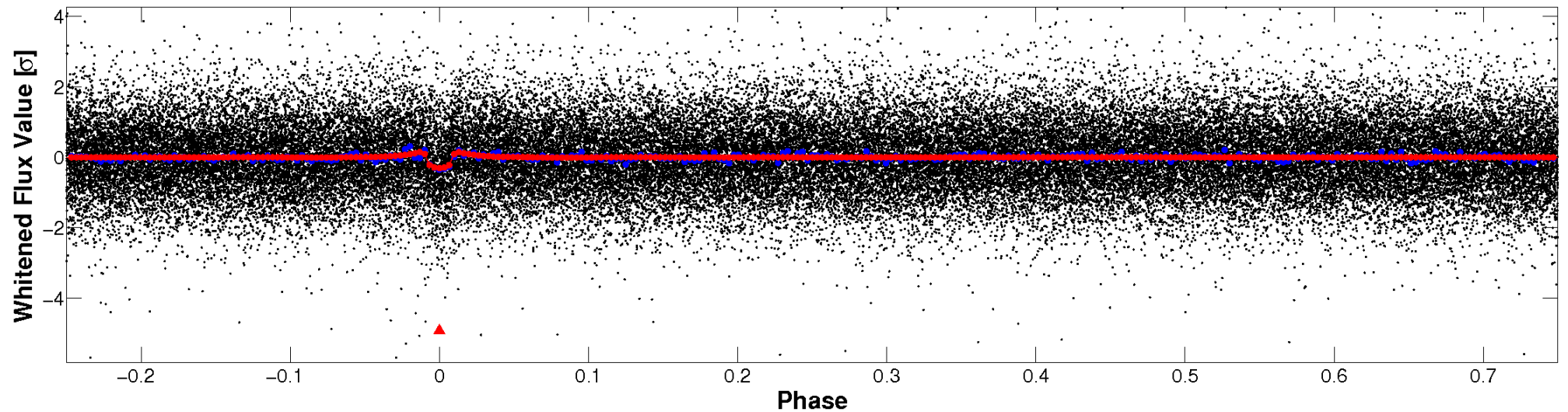


Non-Whitened Vs. Whitened Light Curve

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

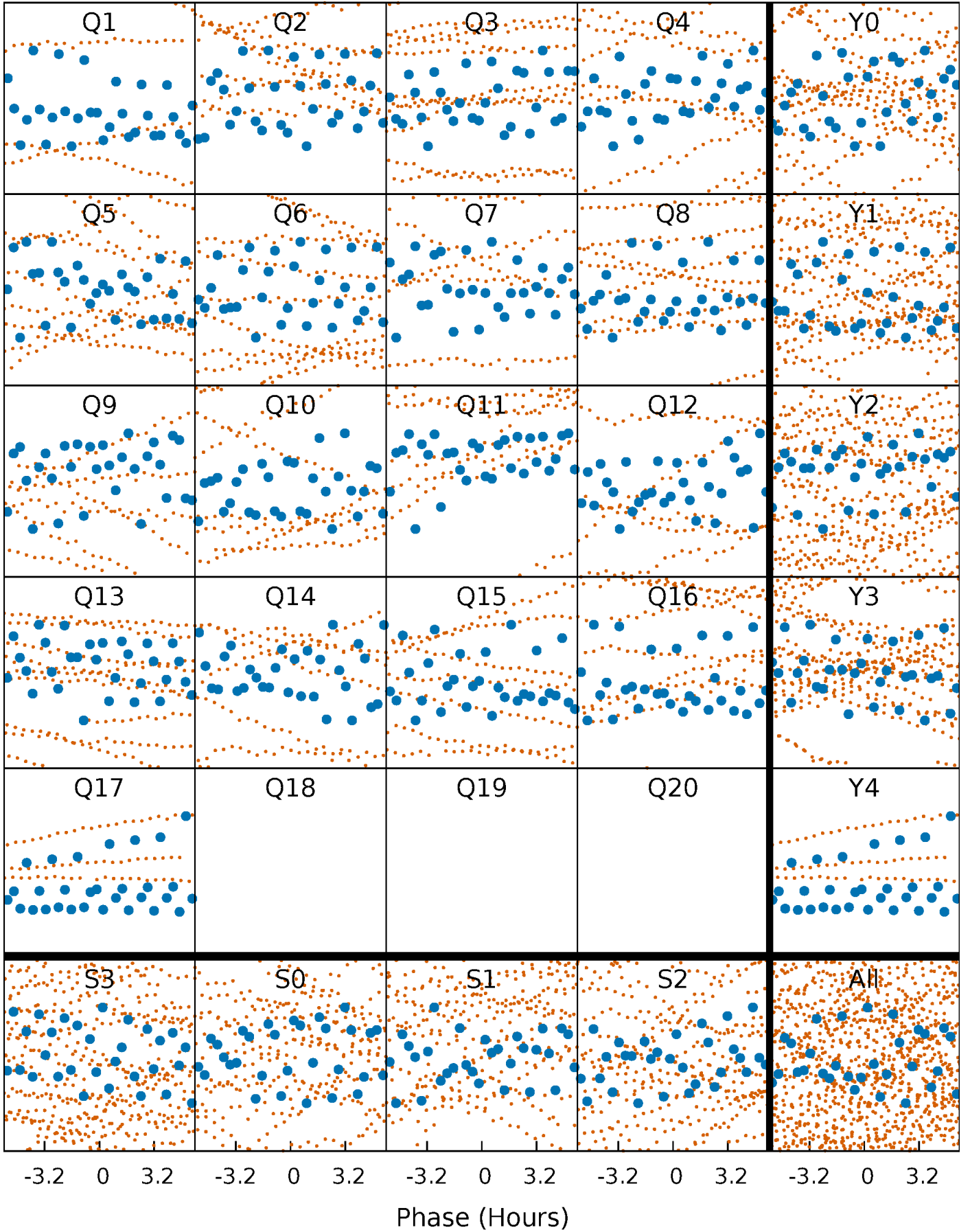


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



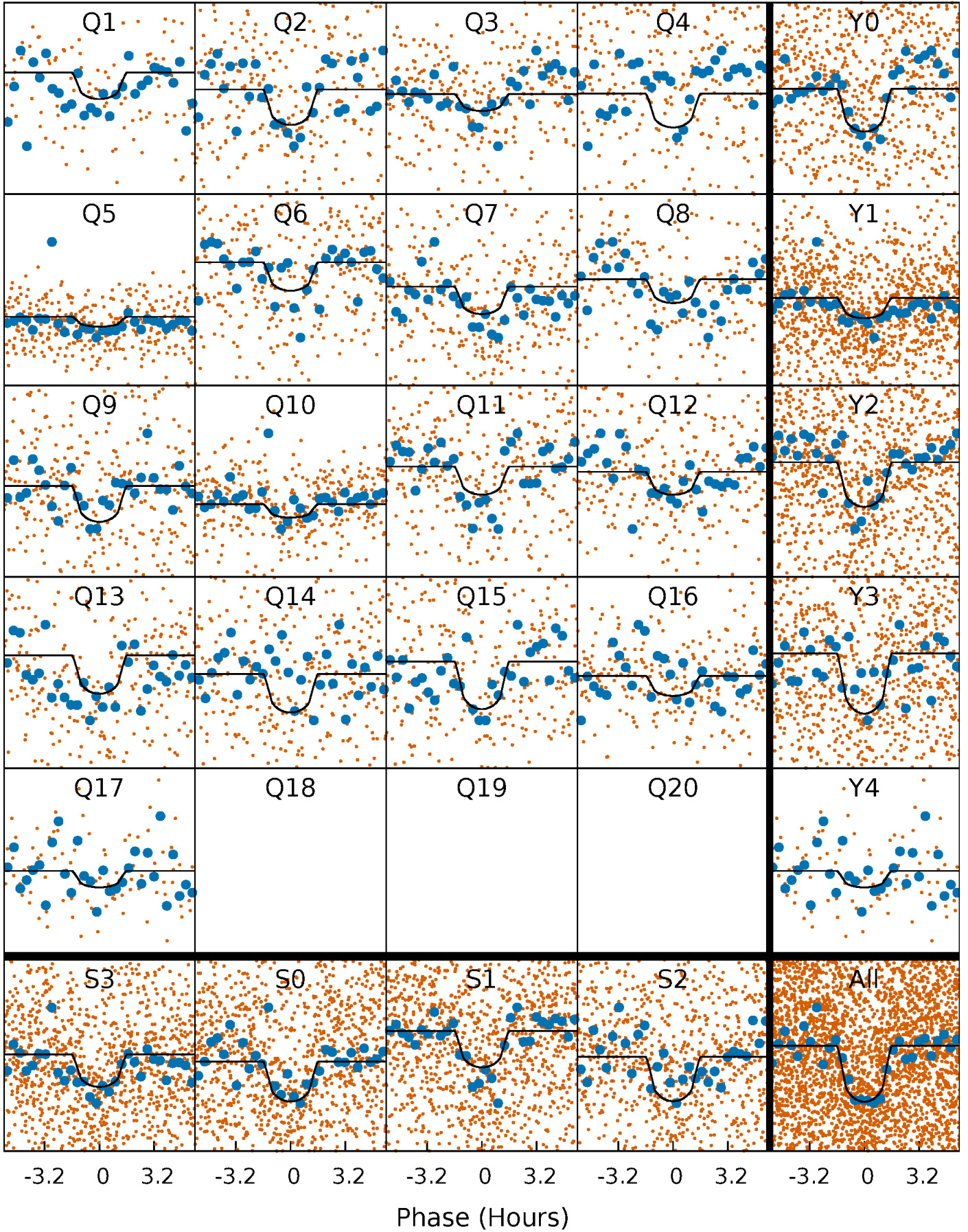
PDC Quarter-Phased Transit Curves

TCE 002578811-01 P= 6.209672 Days $T_0=135.260211$ (BKJD)



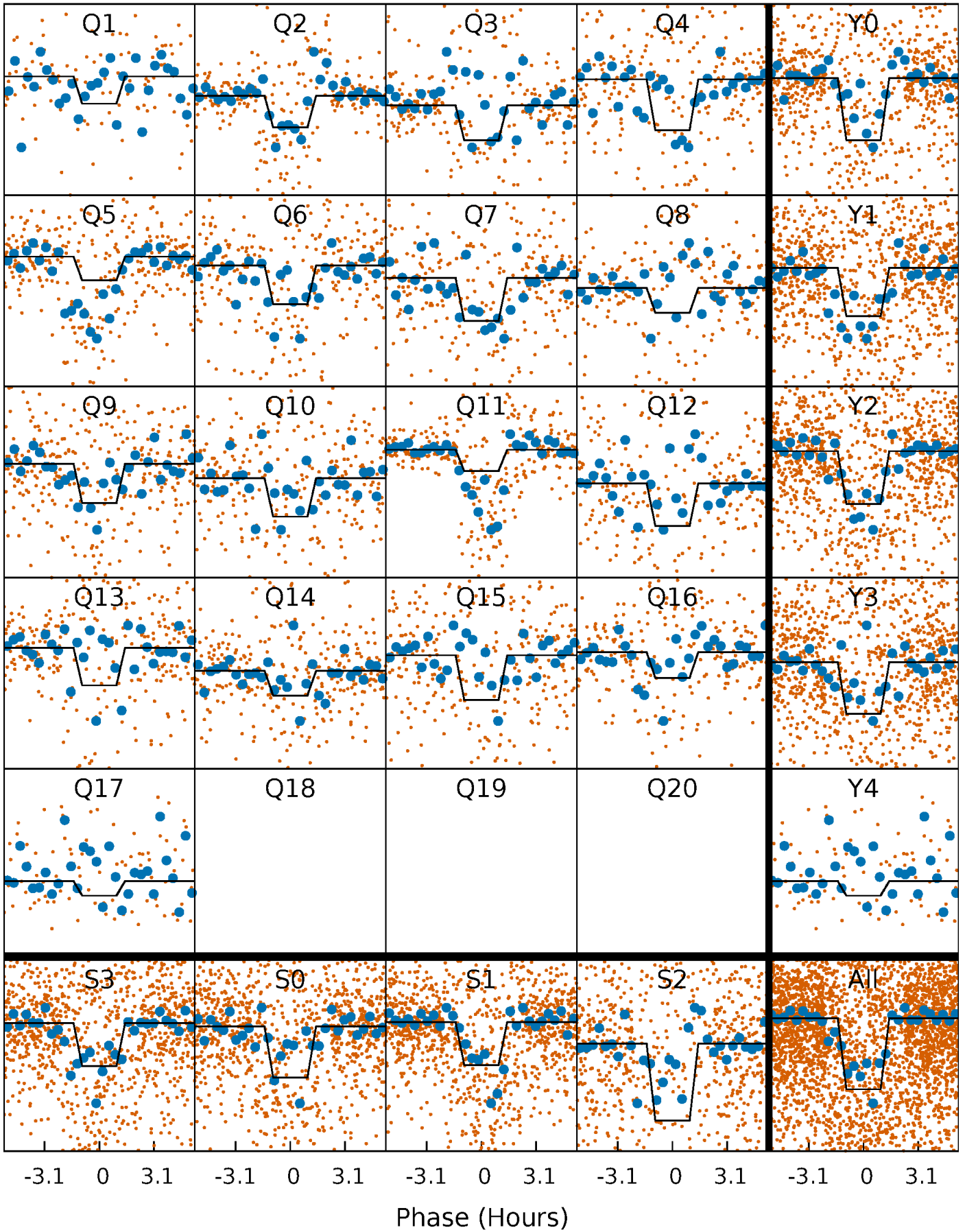
DV Quarter-Phased Transit Curves

TCE 002578811-01 P= 6.209672 Days $T_0=135.260211$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

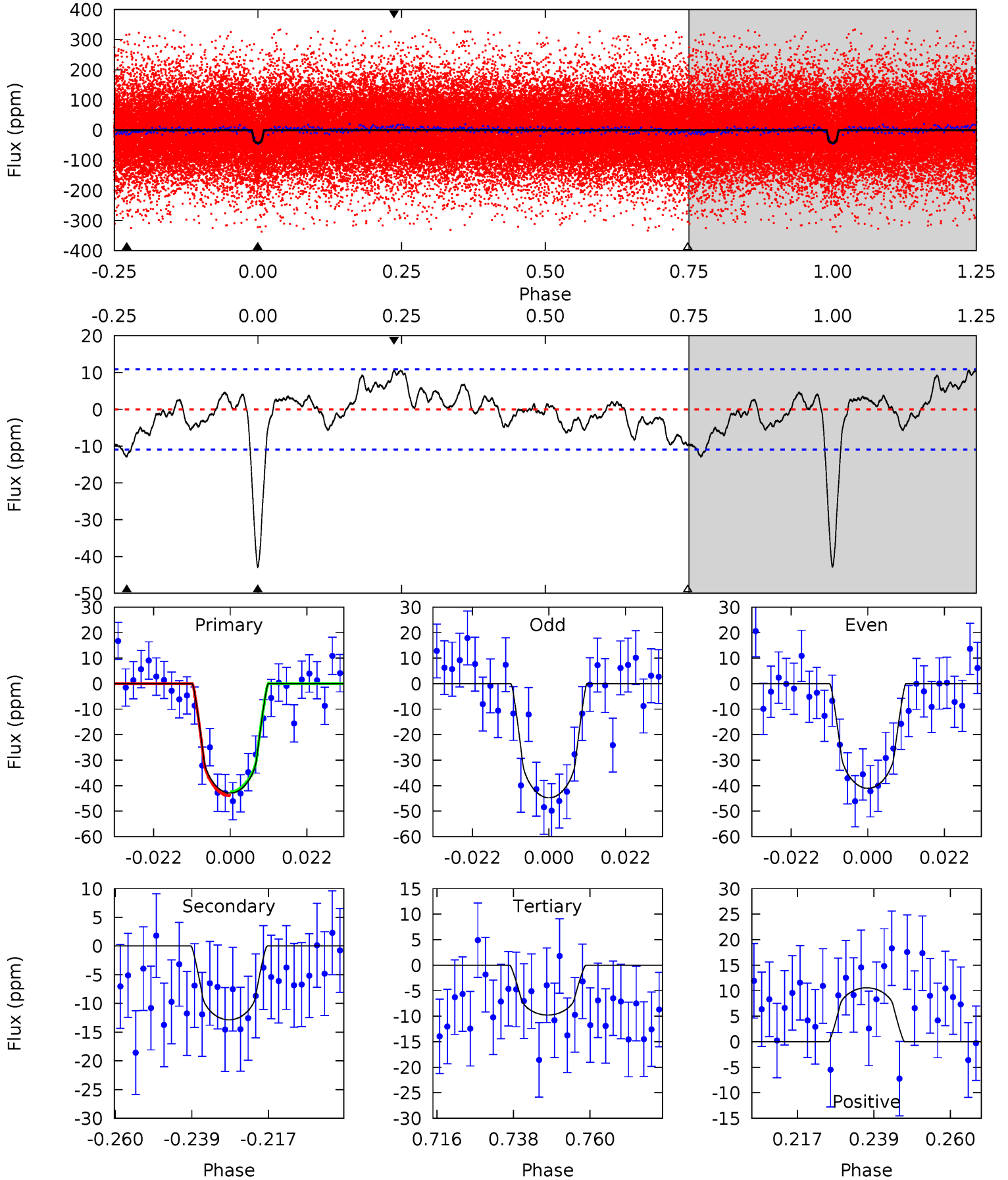
TCE 002578811-01 P= 6.209548 Days $T_0=135.269281$ (BKJD)



DV Model-Shift Uniqueness Test

002578811-01, P = 6.209672 Days, E = 129.050539 Days

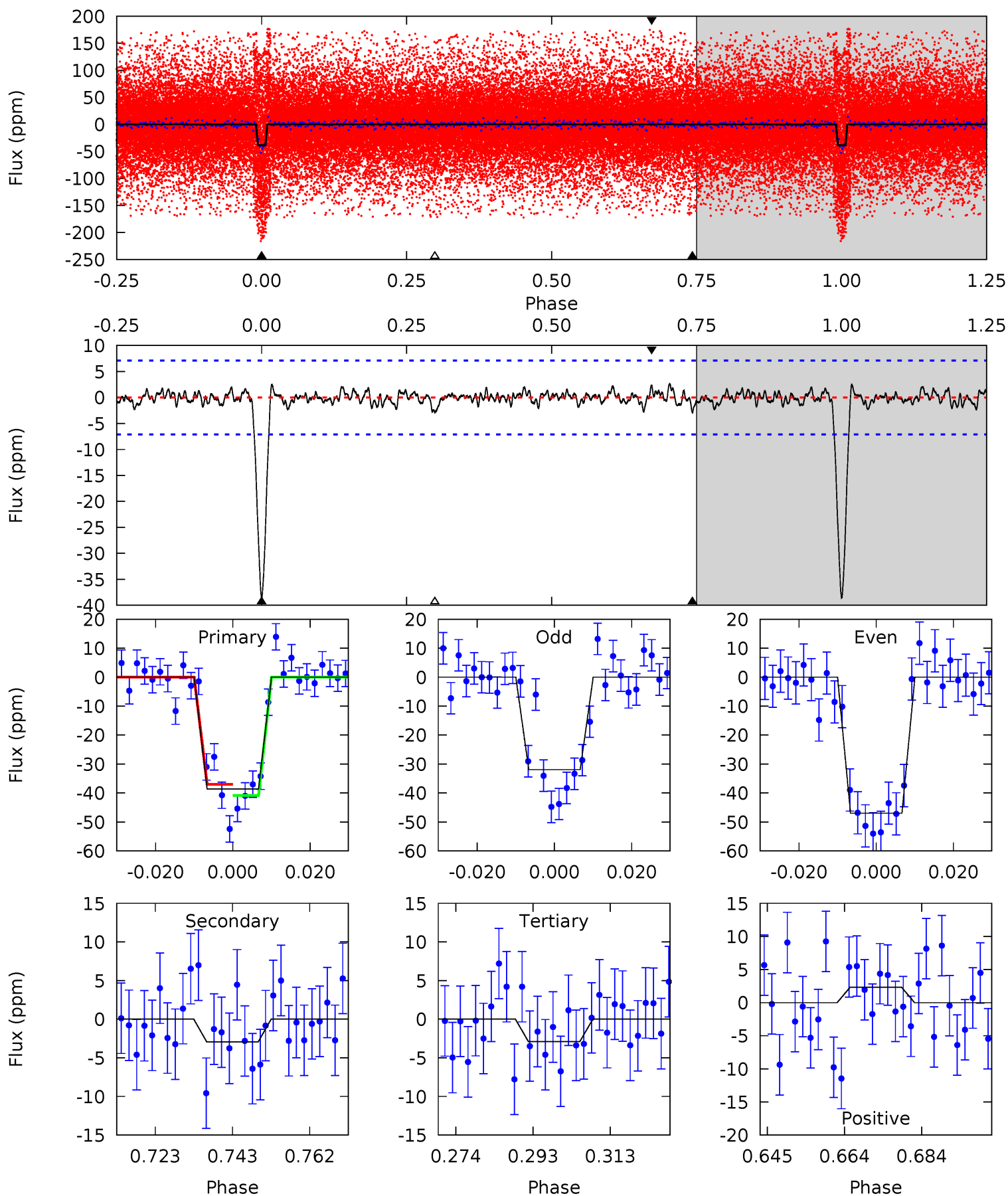
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 19.1 | 5.74 | 4.37 | 4.72 | 4.88 | 2.30 | 1.88 | 14.8 | 14.4 | 1.37 | 1.02 | 0.84 | 0.95 | 0.20 | 0.33 |



Alt Model-Shift Uniqueness Test

002578811-01, P = 6.209548 Days, E = 129.059733 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 26.6 | 2.03 | 2.00 | 1.61 | 4.90 | 2.34 | 0.63 | 24.6 | 24.9 | 0.03 | 0.43 | 5.17 | 0.91 | 0.06 | 1.32 |



Stellar Parameters For KIC 002578811

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|---------------------|---------------------------|----------------------------|-----------------------------|---------------------------|---|
| | 3861^{+70}_{-40} | $1.060^{+0.030}_{-0.030}$ | $-0.220^{+0.150}_{-0.100}$ | $46.169^{+13.083}_{-1.454}$ | $0.893^{+0.552}_{-0.031}$ | $0.000^{+0.000}_{-0.000}$ |
| | +2%/-1% | +3%/-3% | +68%/-45% | +28%/-3% | +62%/-3% | +10%/-24% |
| Source | SPE74 | AST71 | SPE74 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 002578811-01 / KOI 4948.01

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|---------------------------|----------------------|-----------------------|---------------------------|
| DV | -13 ± 2 | $37.62^{+18.51}_{-17.48}$ | 6404^{+144}_{-96} | -4773^{+182}_{-137} | $0.021^{+0.048}_{-0.011}$ |
| Alt. | -3 ± 1 | $34.69^{+18.77}_{-17.62}$ | 6421^{+150}_{-108} | -4843^{+118}_{-127} | $0.005^{+0.016}_{-0.004}$ |

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 $A_{obs} \gg 1.0$

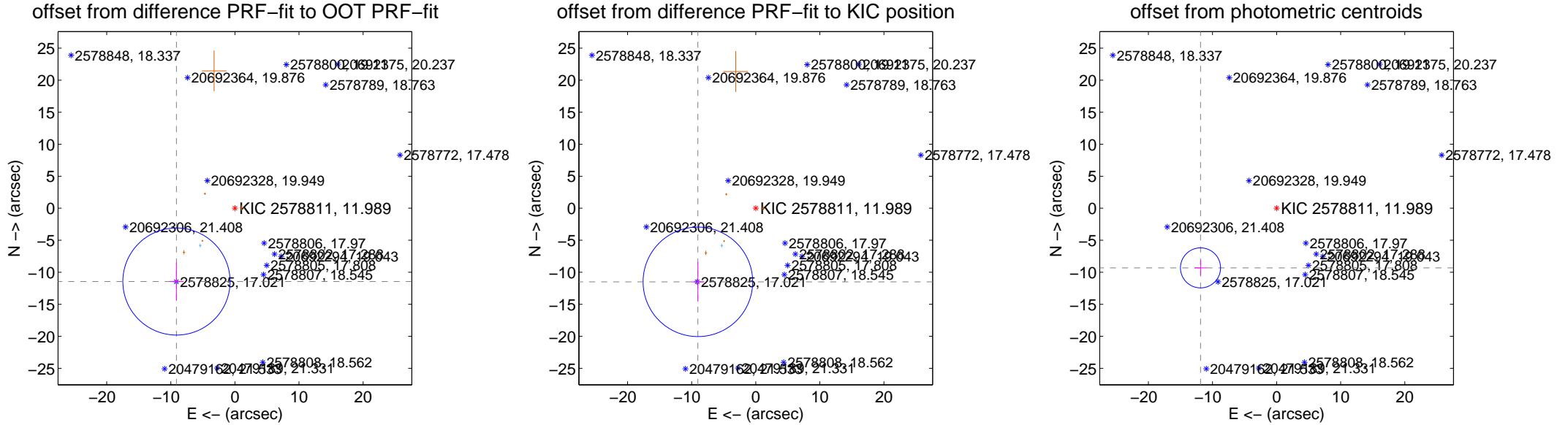
DV Centroid Data

Supplemental centroid analysis for 002578811-01. **Kepler magnitude: 11.99.** Transit SNR 10.07

There are 5 quarters with good PRF difference image offsets

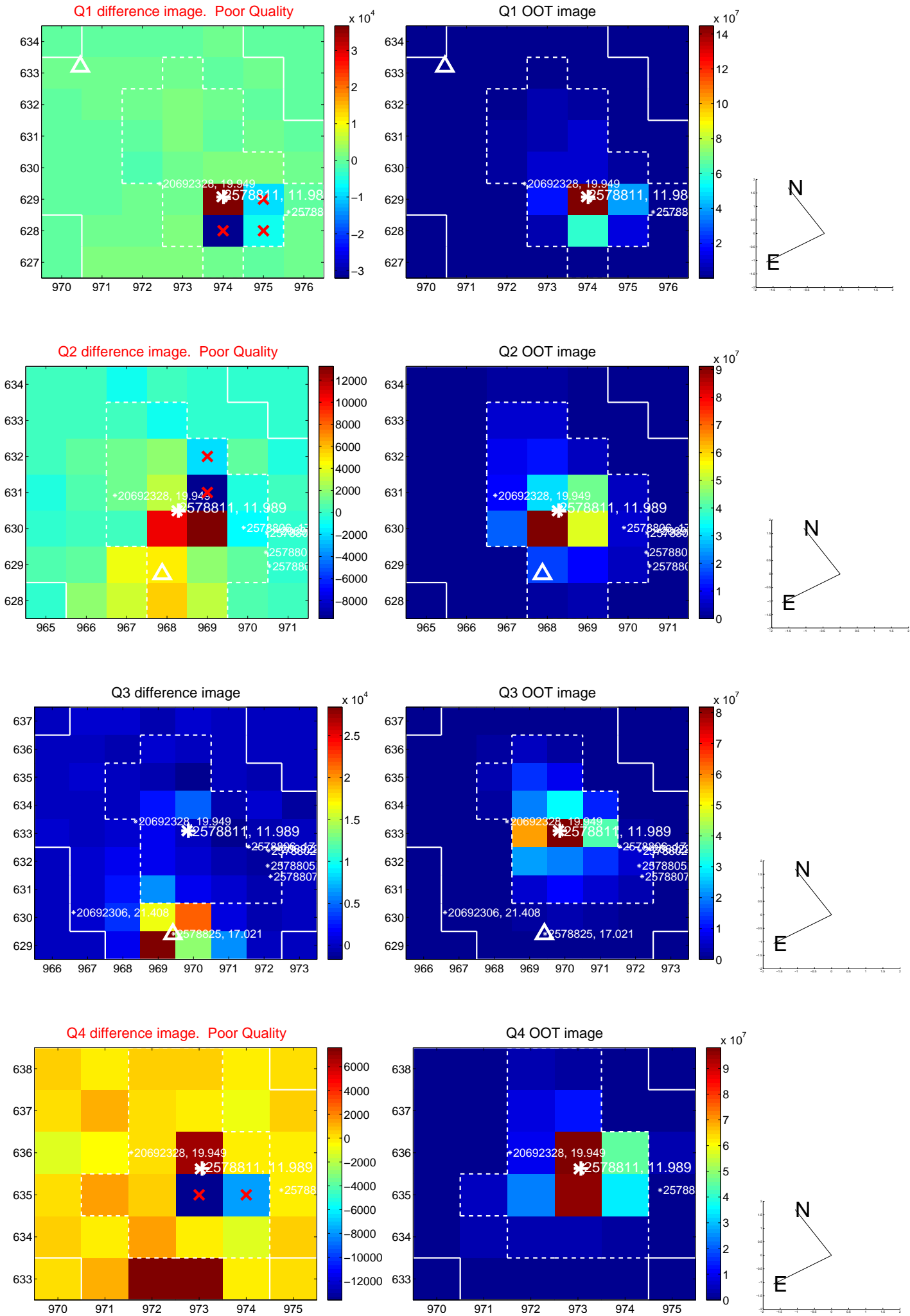
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------------------------|---------------------|-------------------|---------------------|
| PRF-fit source offset from OOT | 14.631 ± 2.788 | 5.25 | 9.117 ± 1.090 | -11.443 ± 2.971 |
| PRF-fit source offset from KIC position | 14.615 ± 2.849 | 5.13 | 9.028 ± 0.991 | -11.494 ± 3.081 |
| photometric centroid source offset | 15.09 ± 1.04 | 14.48 | 11.87 ± 0.94 | -9.31 ± 1.18 |

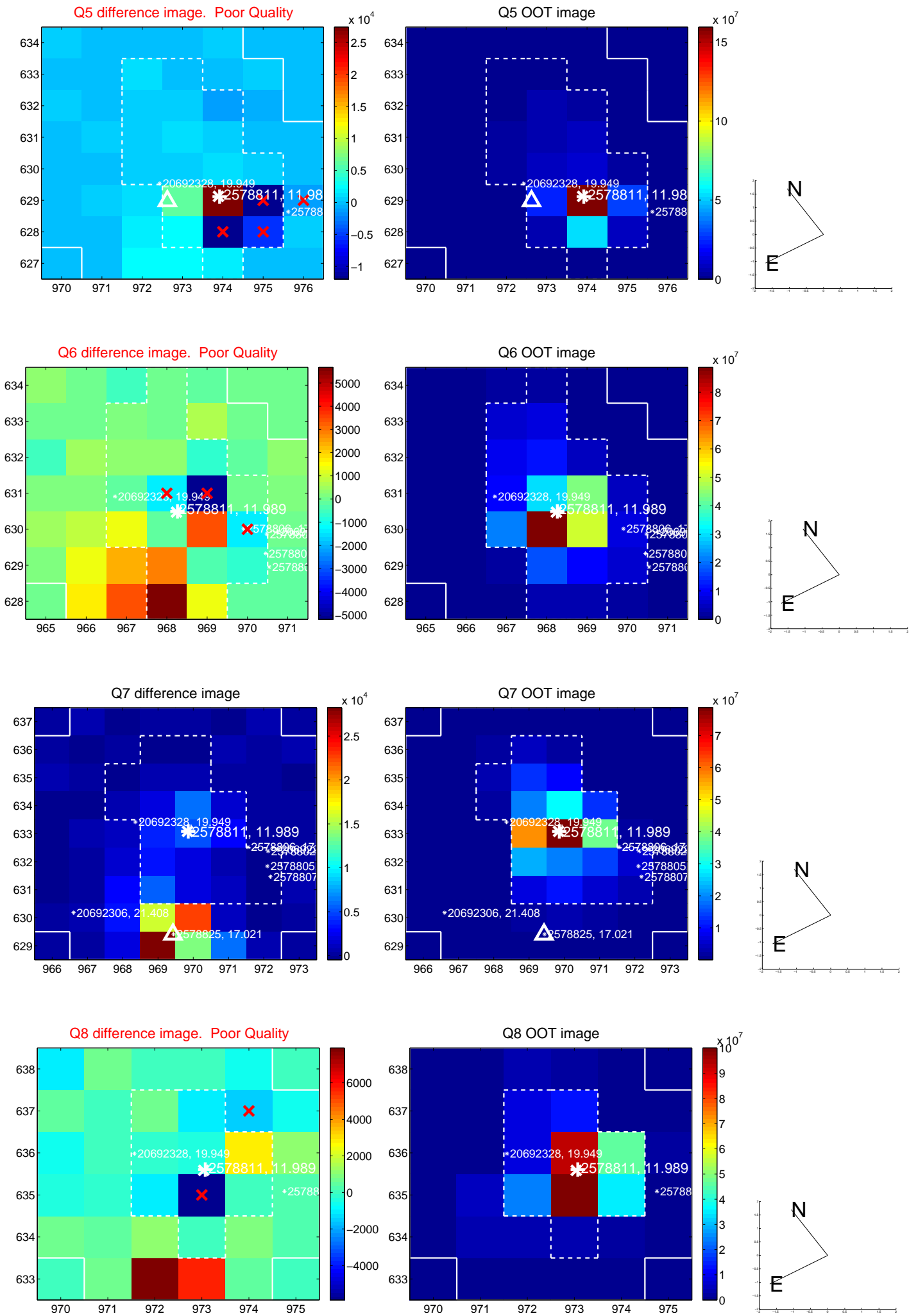


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

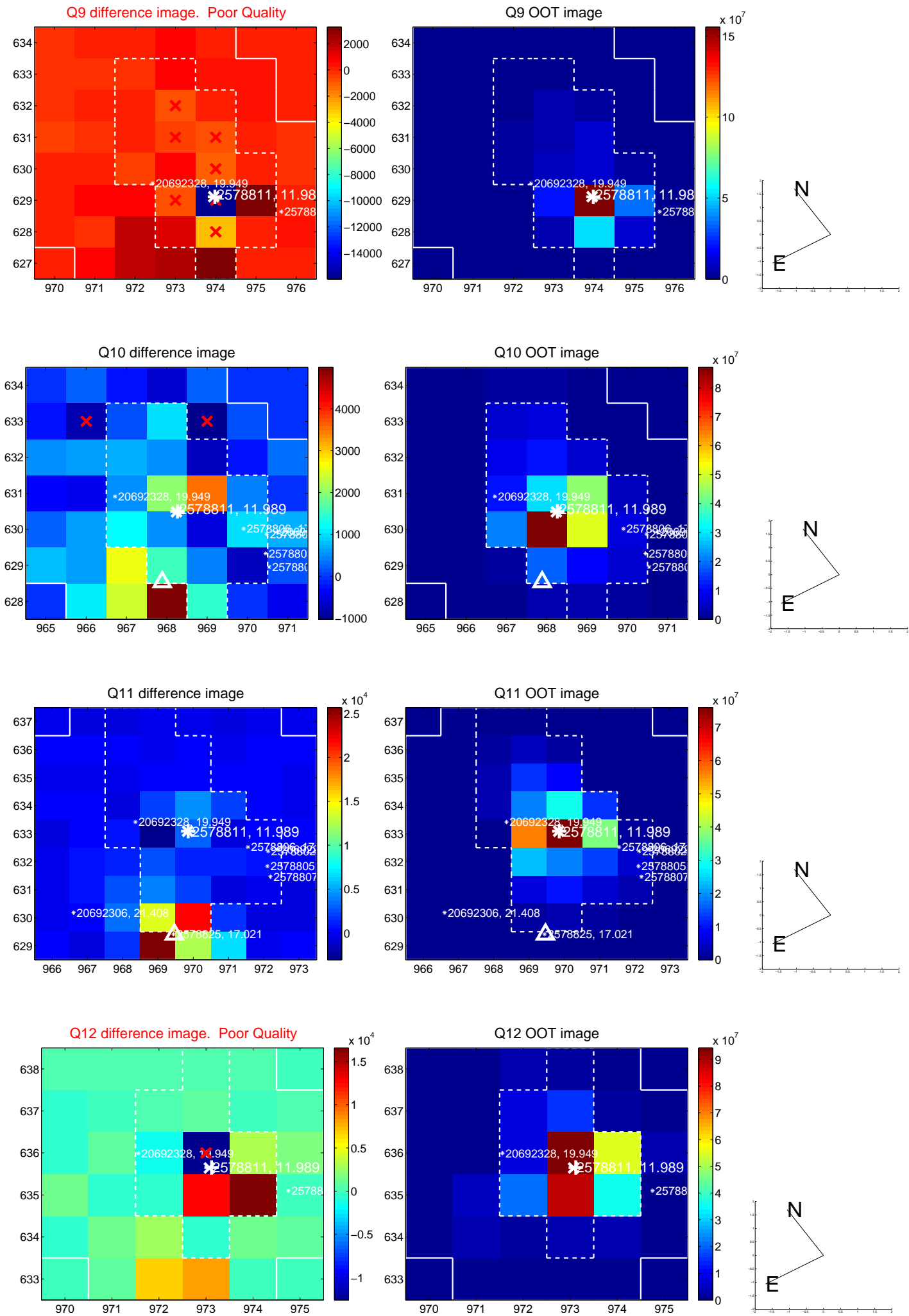
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



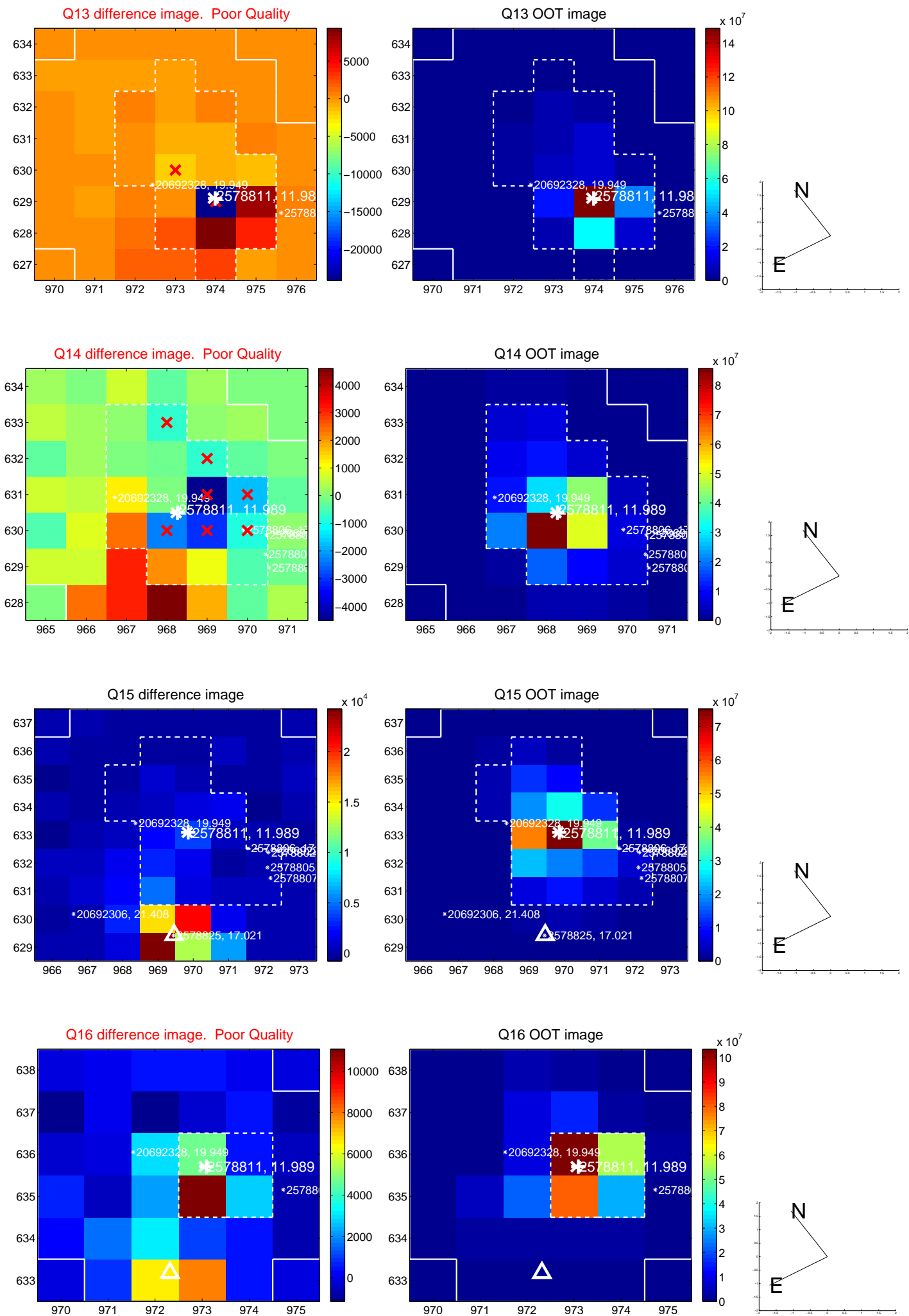
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



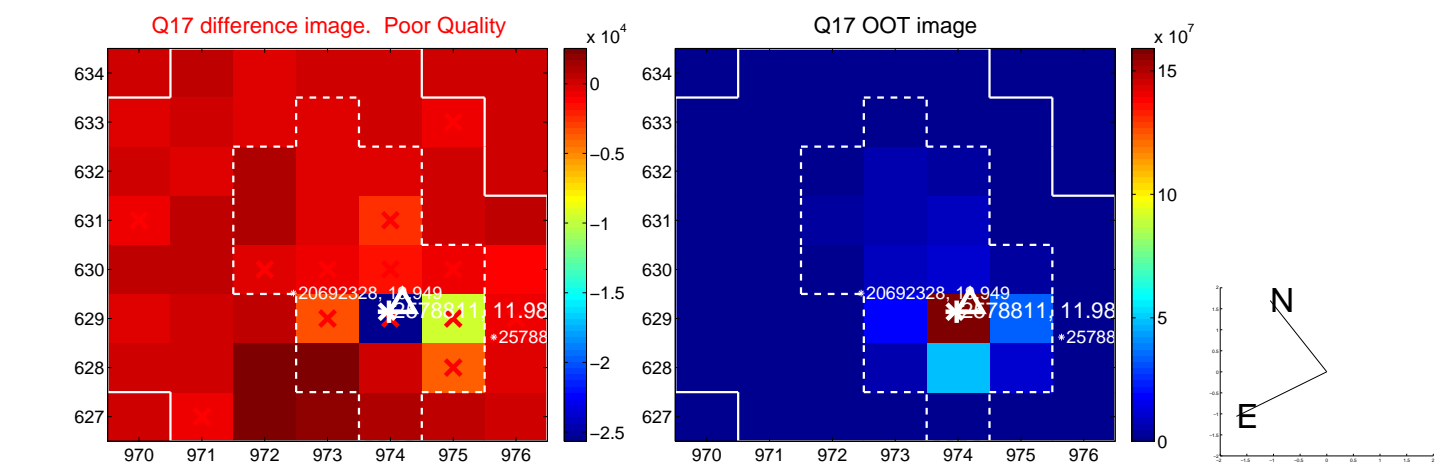
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



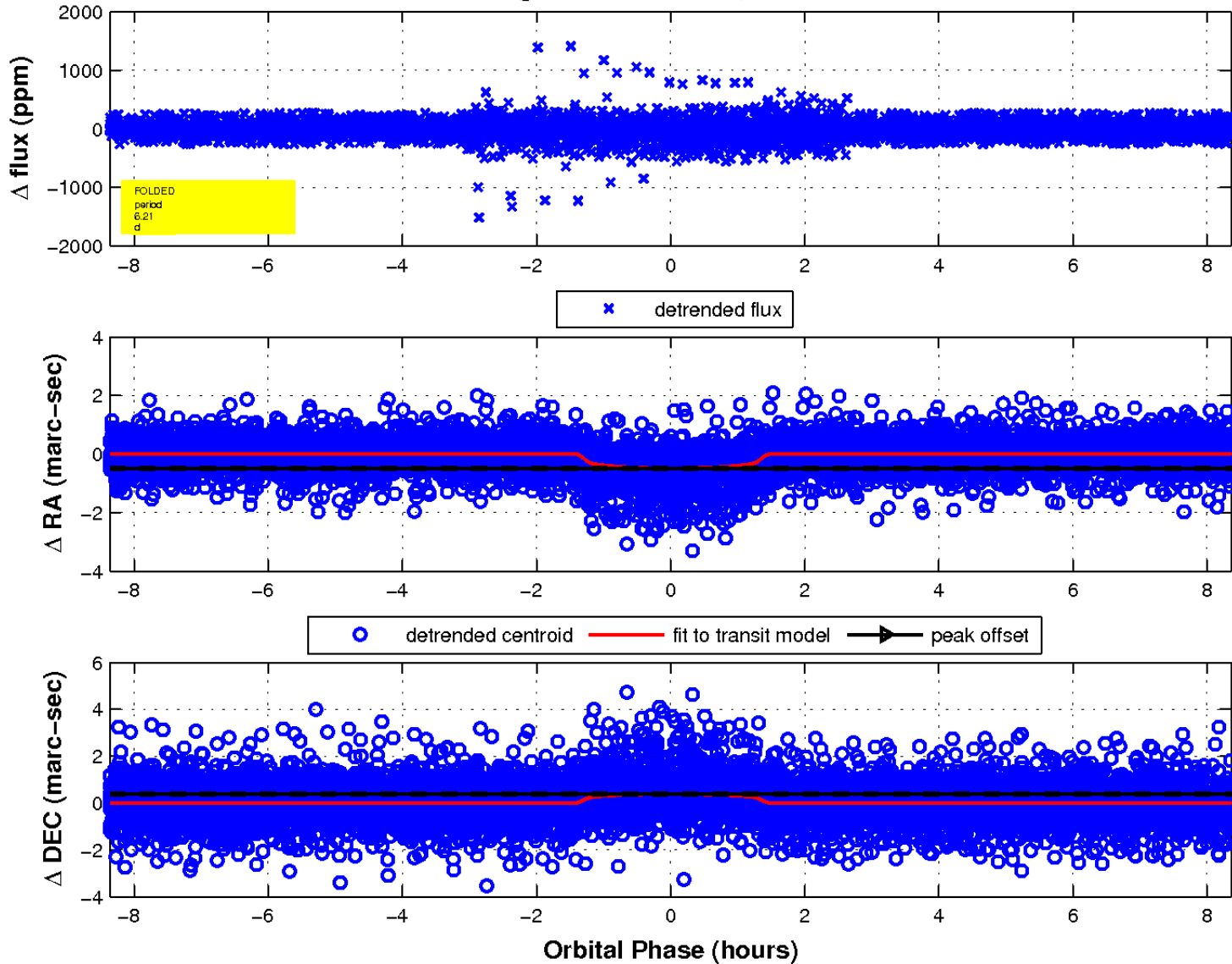
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

