

KIC 008301878

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 008301878-01 | OBS | 3301.01 | 20.710566 | 140.903600 | 149.9 | 3.109 | 10.1 | 10.6 | 0.90 | 5631 | 1.49 | 36.26 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------|
| 008301878-01 | OBS | PC | 1.00 | 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.

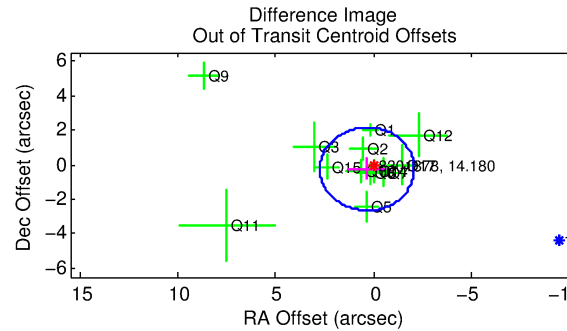
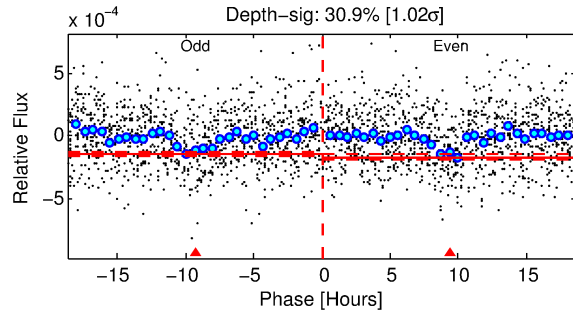
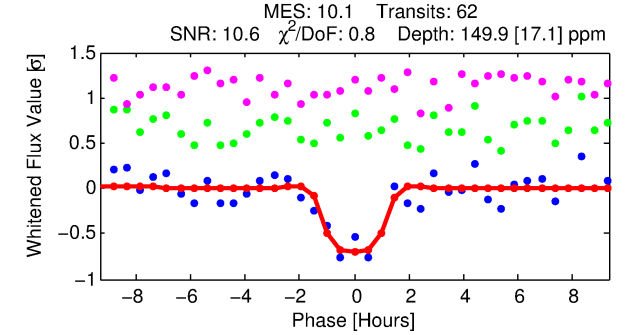
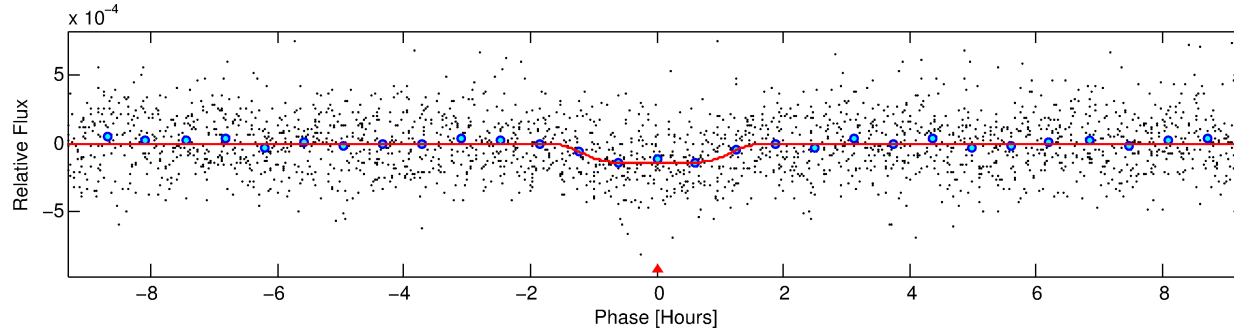
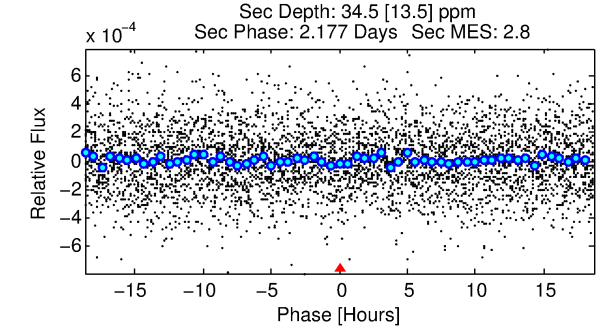
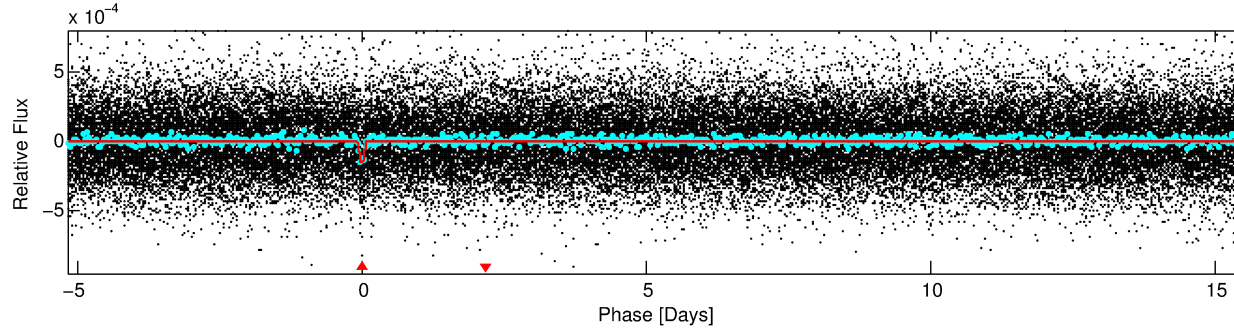
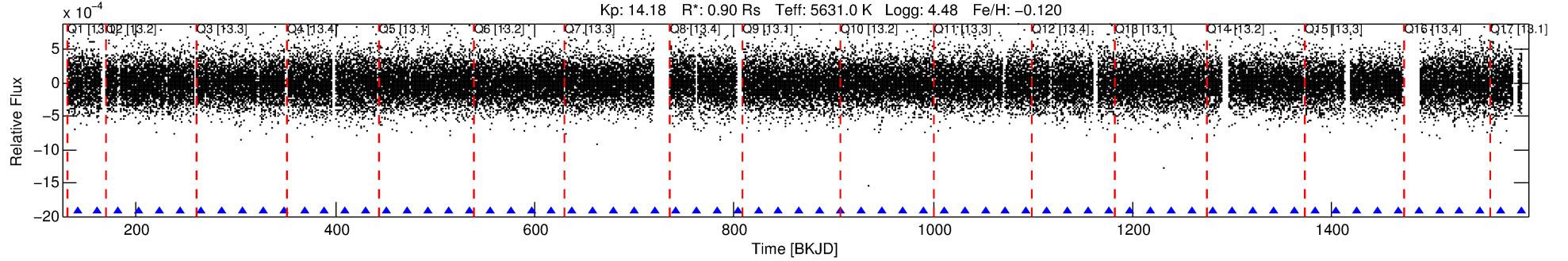
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008301878-01

No Significant Match Found

DV One-Page Summary

KIC: 8301878 Candidate: 1 of 1 Period: 20.711 d
KOI: K03301.01 Corr: 0.904



DV Fit Results:

Period = 20.71057 [0.00017] d
Epoch = 140.9036 [0.0070] BKJD
Rp/R* = 0.0151 [0.0017]
a/R* = 14.75 [6.10]
b = 0.97 [0.02]
Seff = 36.26 [12.49]
Teq = 626 [54] K
Rp = 1.49 [0.43] Re
a = 0.1420 [0.0318] AU
Ag = 172.90 [95.50] [1.80σ]
Teffp = 3508 [407] K [7.02σ]

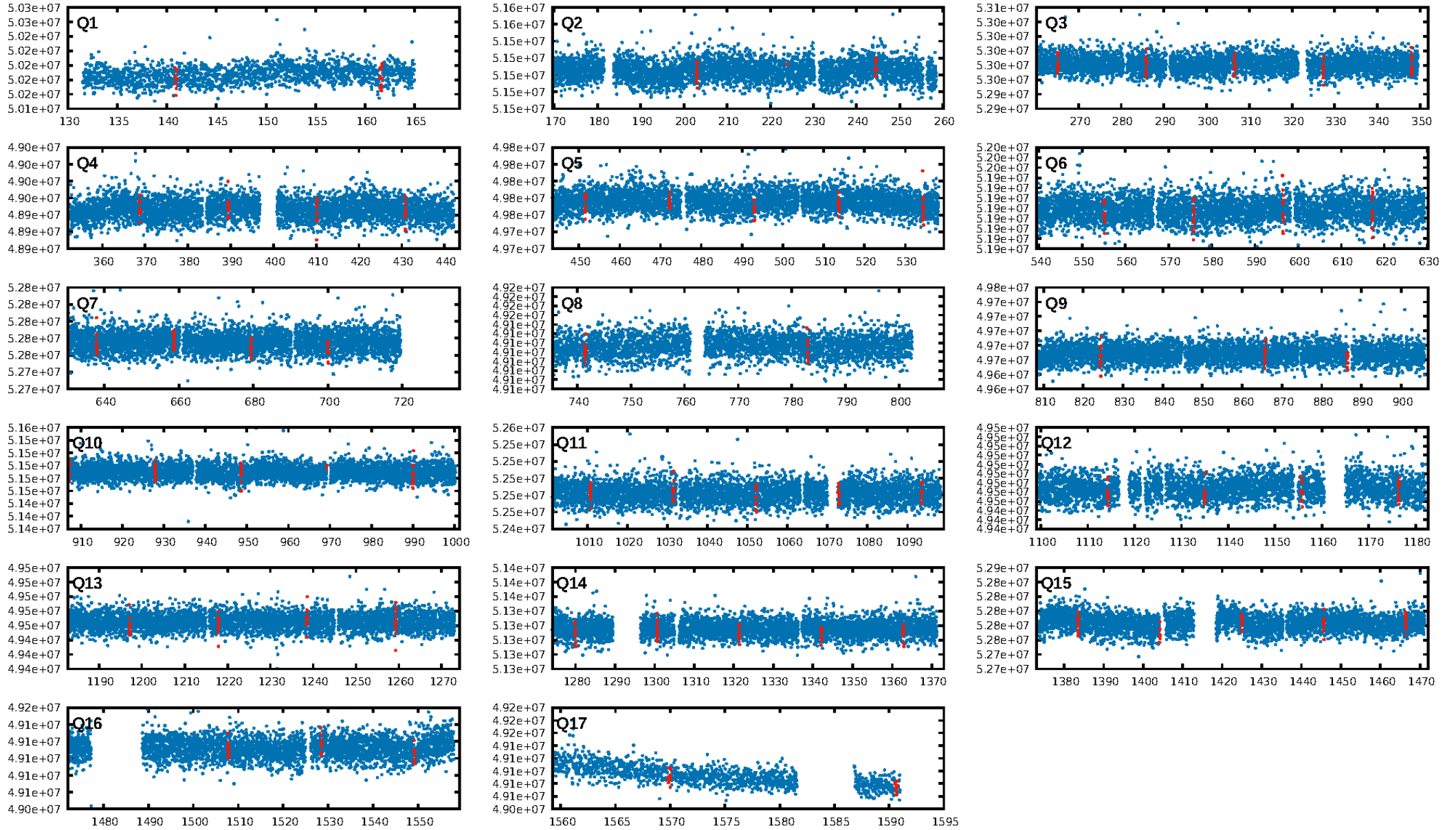
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.82e-24
RollingBand-fgt: 1.00 [58/58]
GhostDiagnostic-chr: 3.189
Centroid-sig: 97.0%
Centroid-so: 0.205 arcsec [0.17σ]
OotOffset-rm: 0.417 arcsec [0.52σ]
KicOffset-rm: 0.712 arcsec [1.04σ]
OotOffset-st: 4/4/1/4 [13]
KicOffset-st: 4/4/1/4 [13]
DiffImageQuality-fgm: 0.69 [9/13]
DiffImageOverlap-fno: 1.00 [17/17]

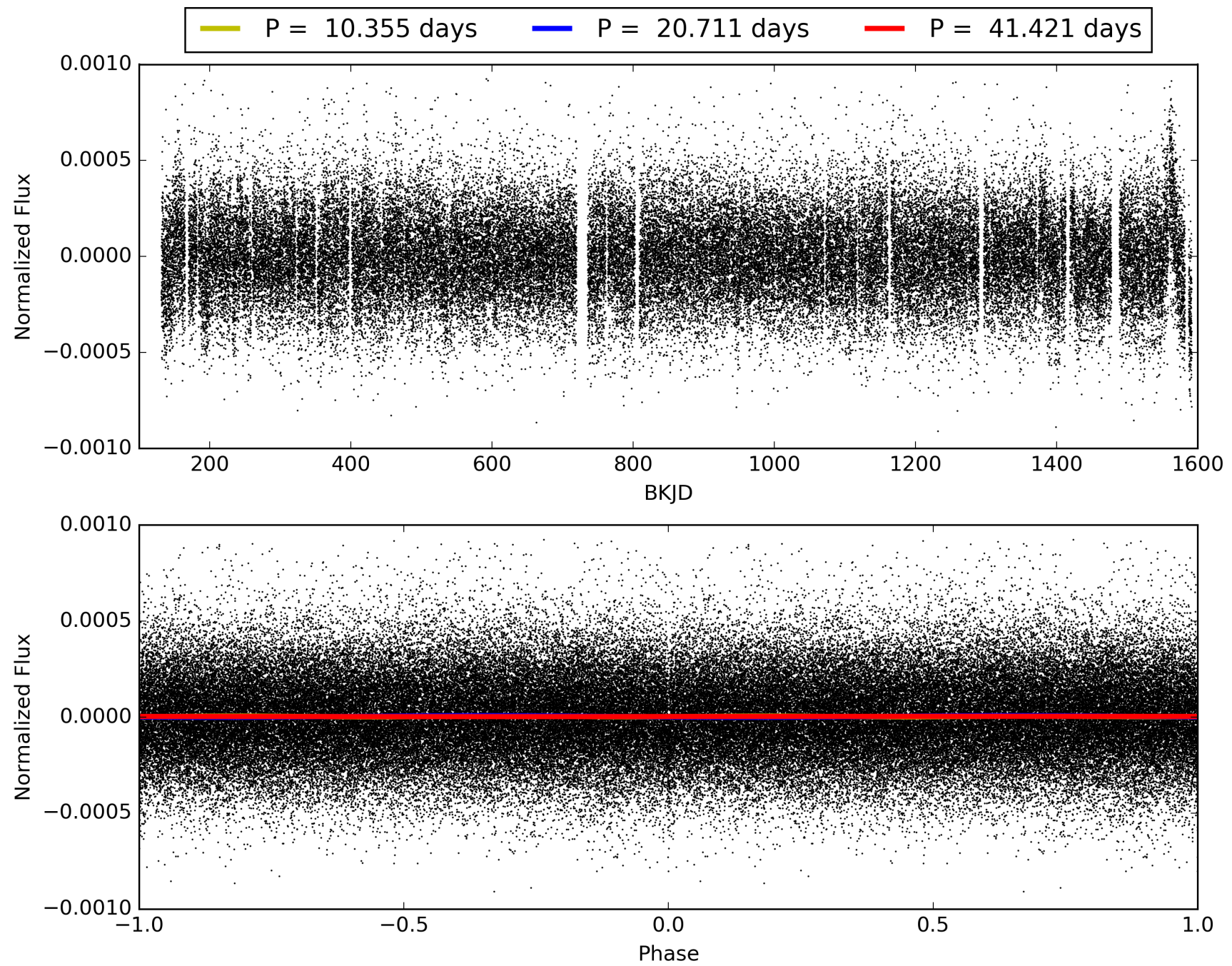
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:25:21 Z

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

TCE 008301878-01, PDC Light Curves

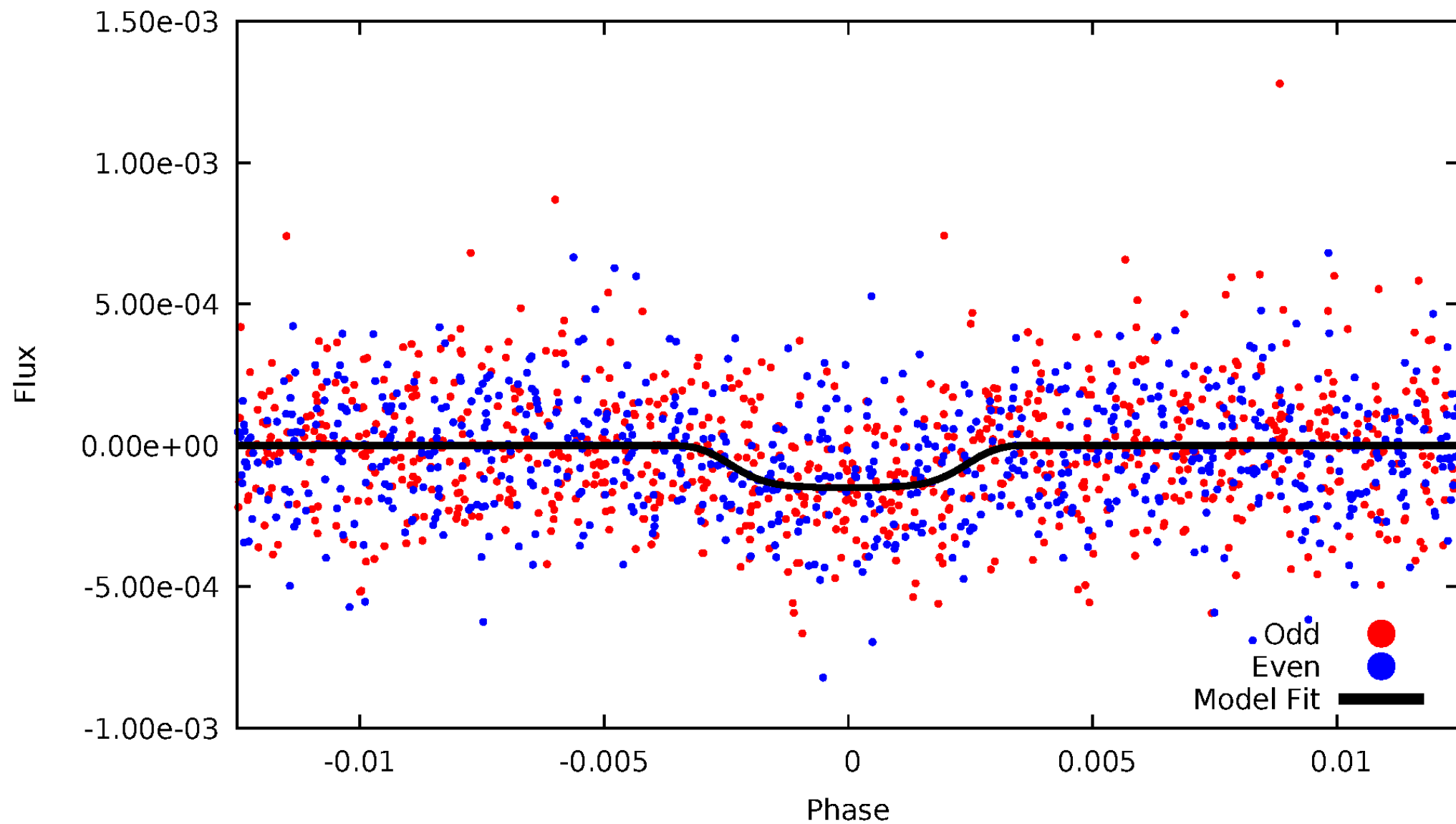


TCE 008301878-01



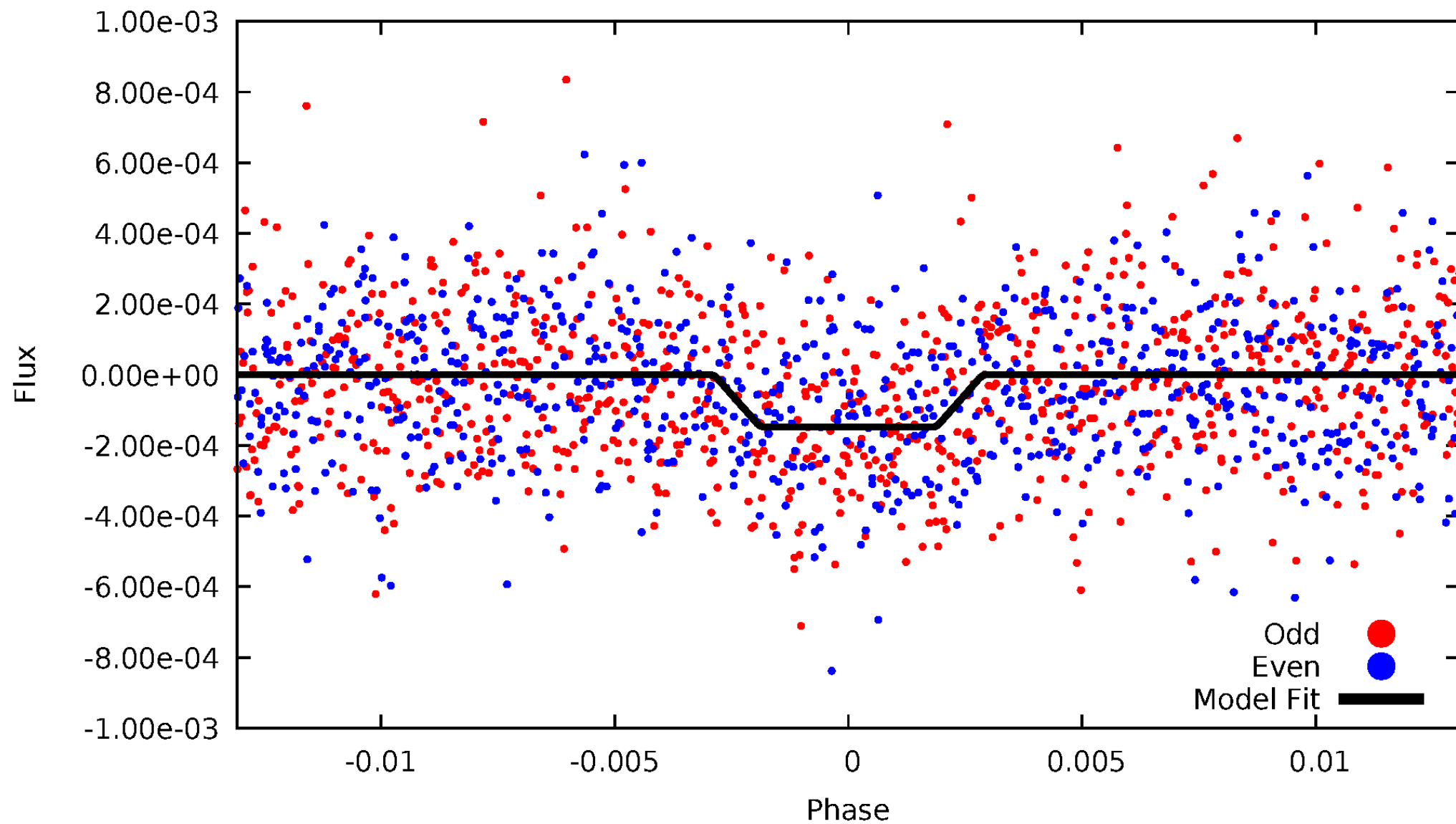
DV Odd/Even

TCE 008301878-01

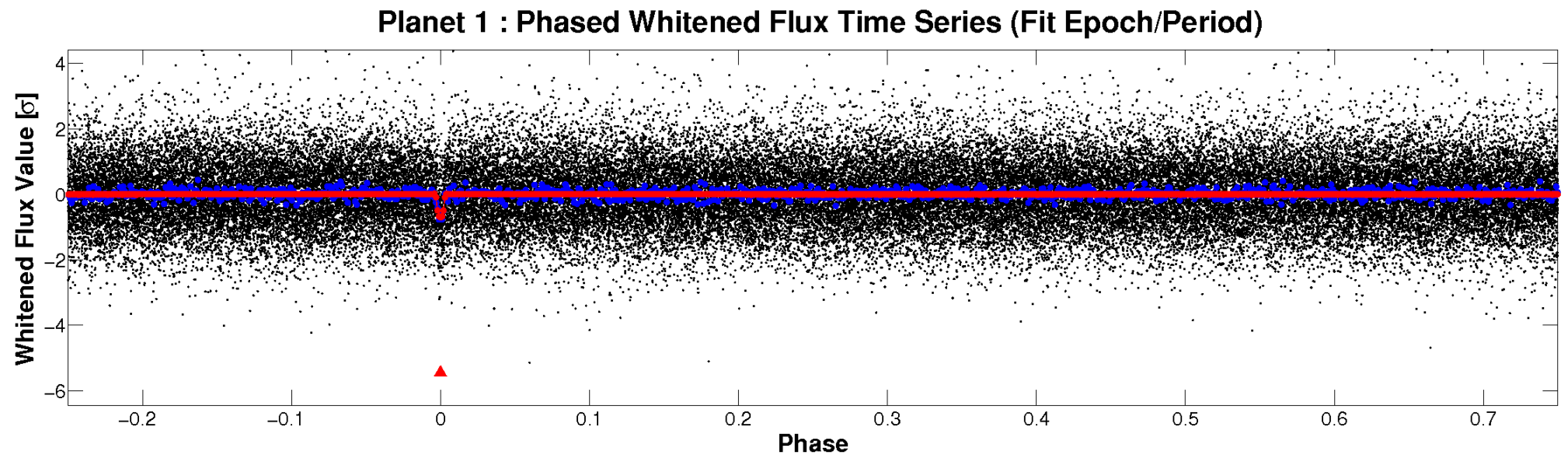
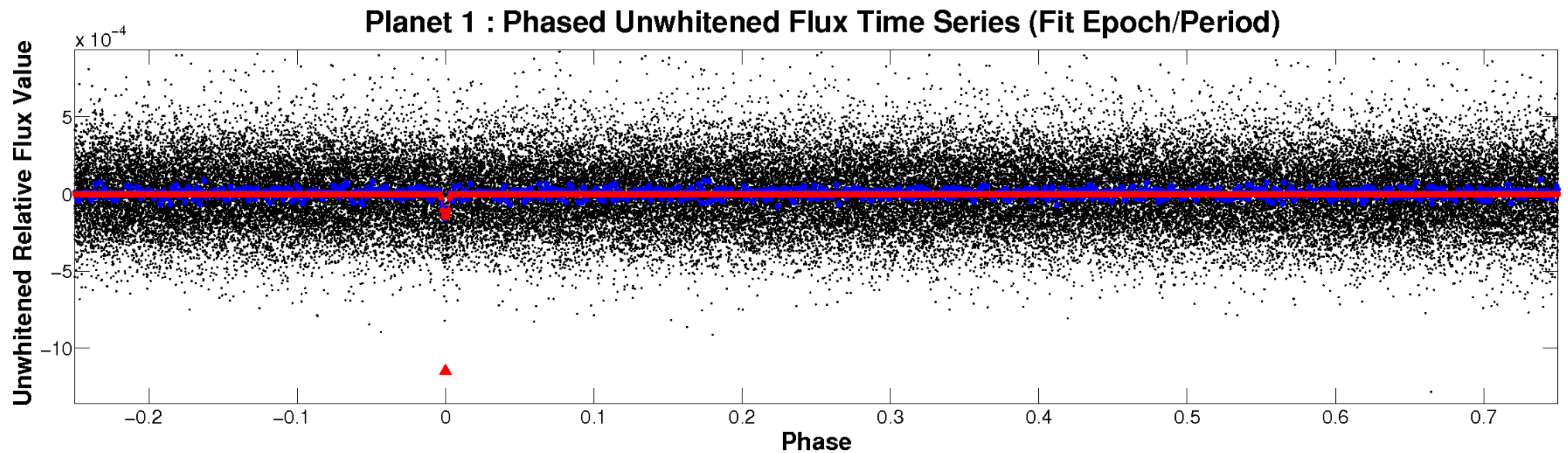


ALT Odd/Even

TCE 008301878-01

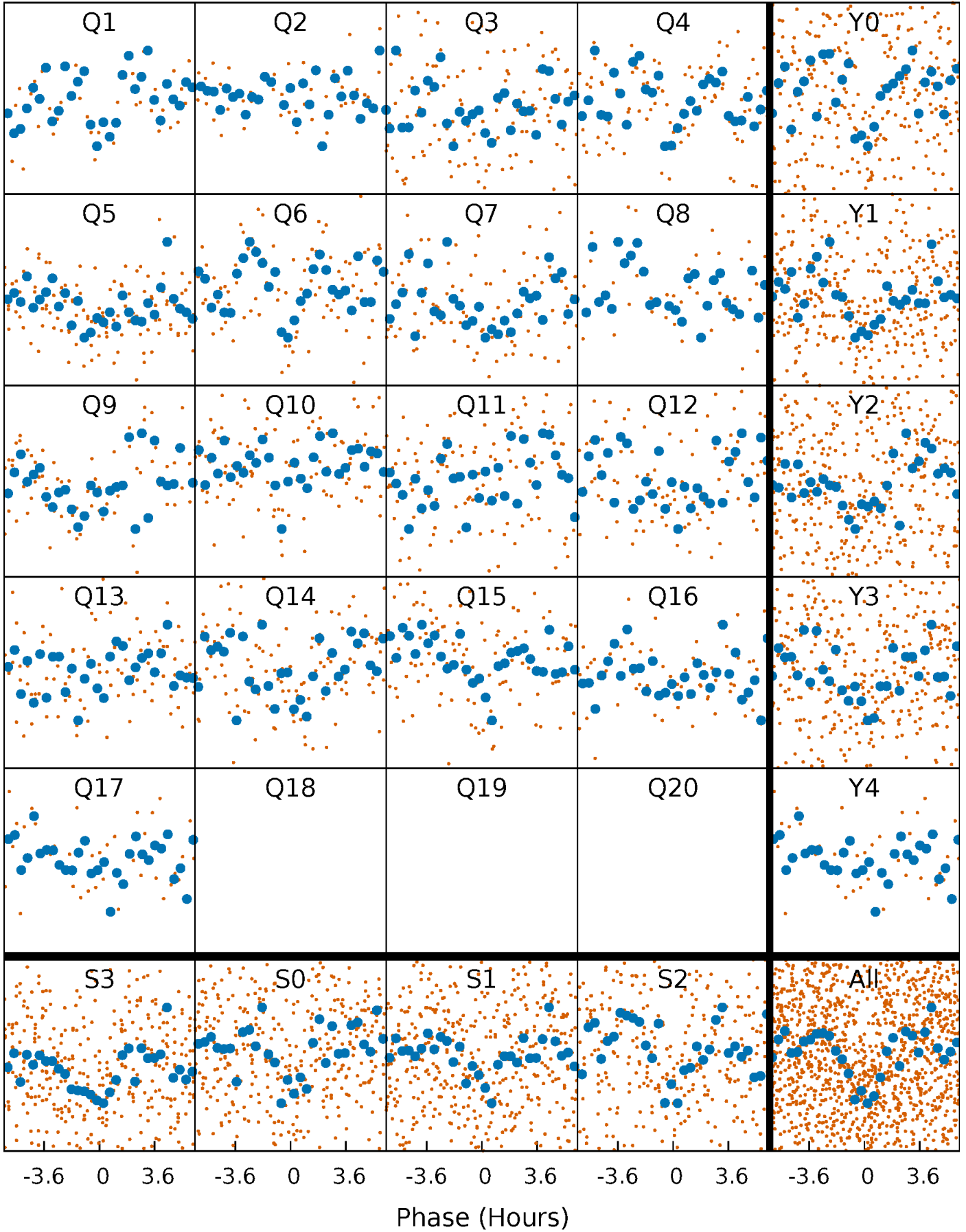


Non-Whitened Vs. Whitened Light Curve



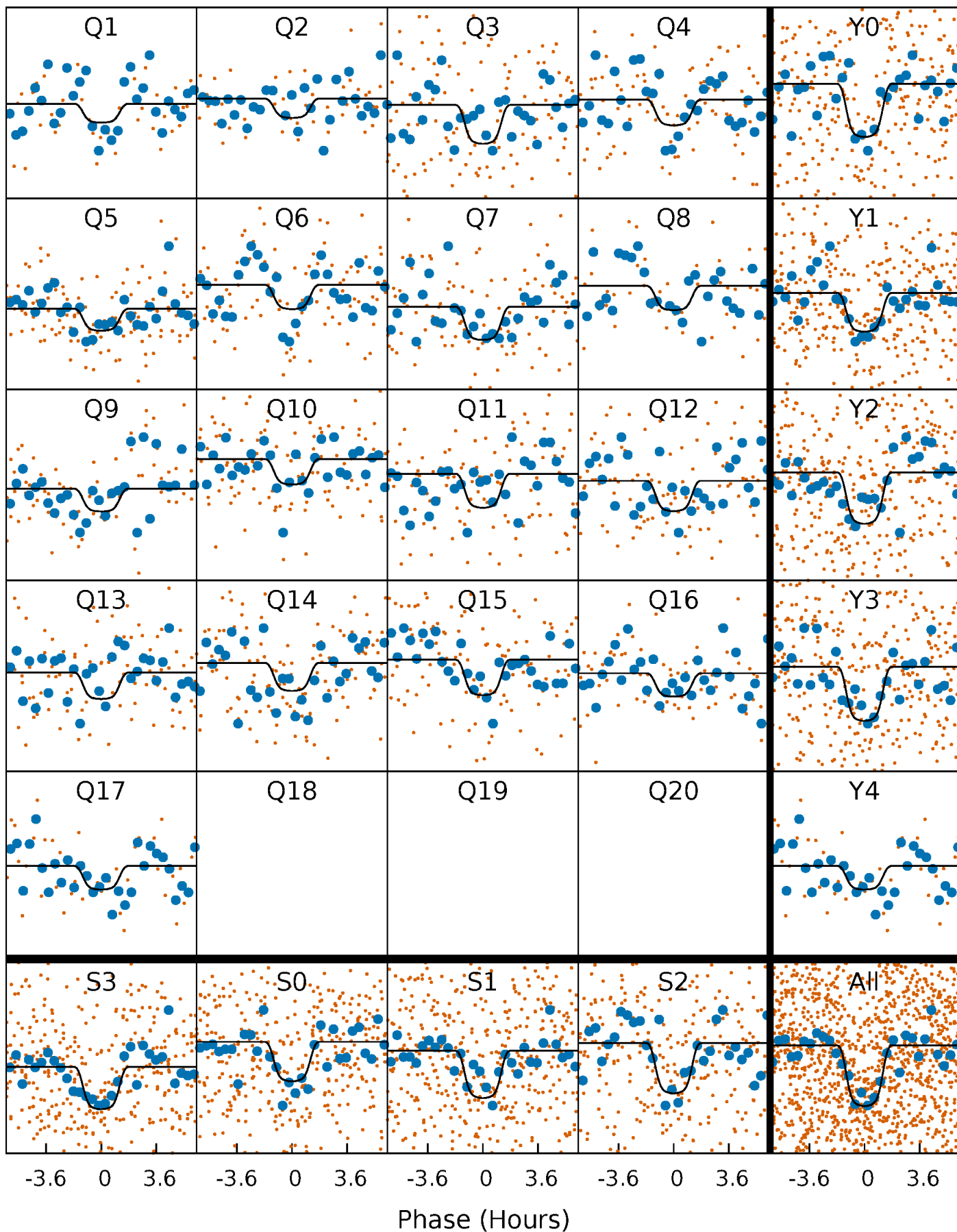
PDC Quarter-Phased Transit Curves

TCE 008301878-01 P= 20.710566 Days $T_0=140.903600$ (BKJD)



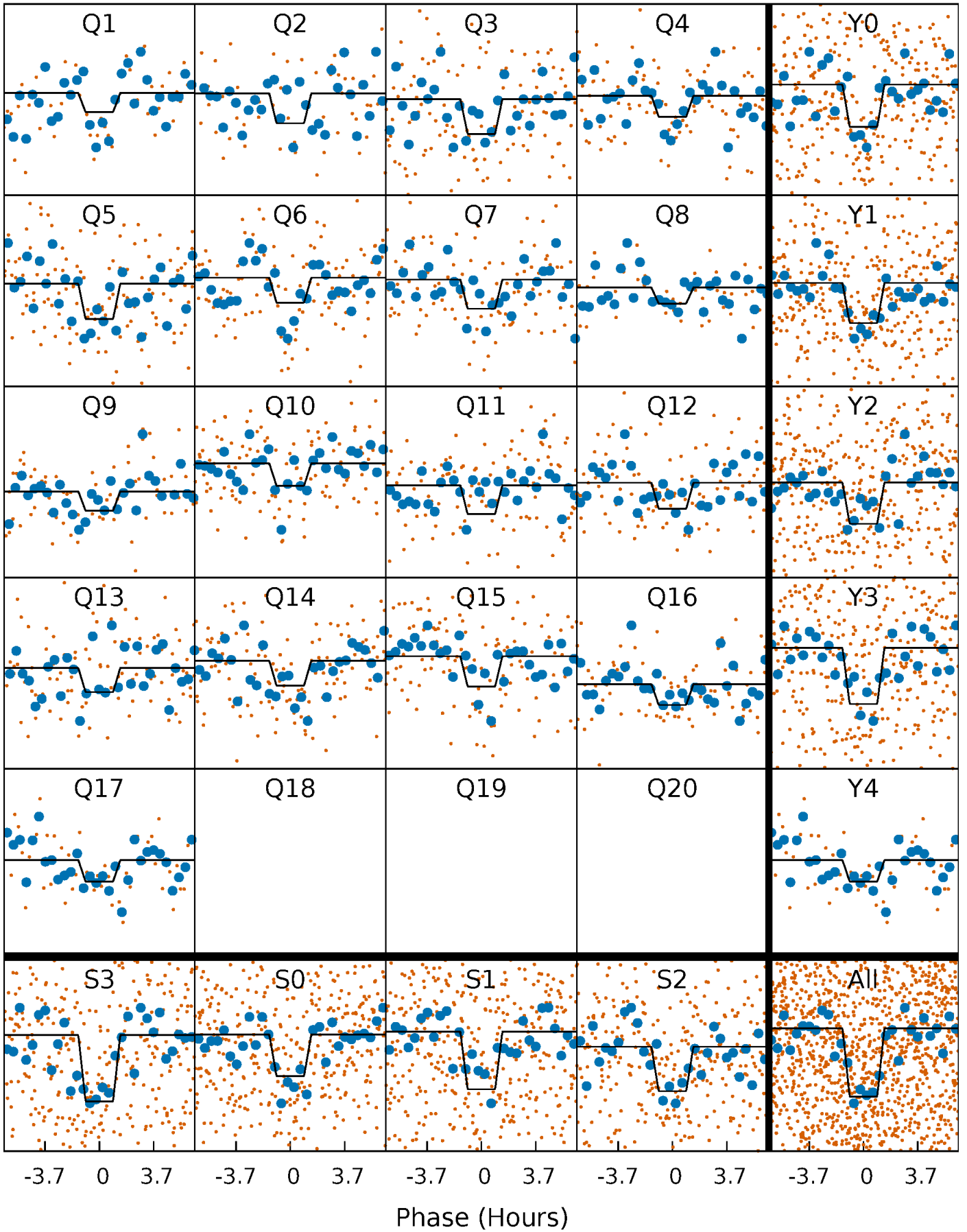
DV Quarter-Phased Transit Curves

TCE 008301878-01 P= 20.710566 Days $T_0=140.903600$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

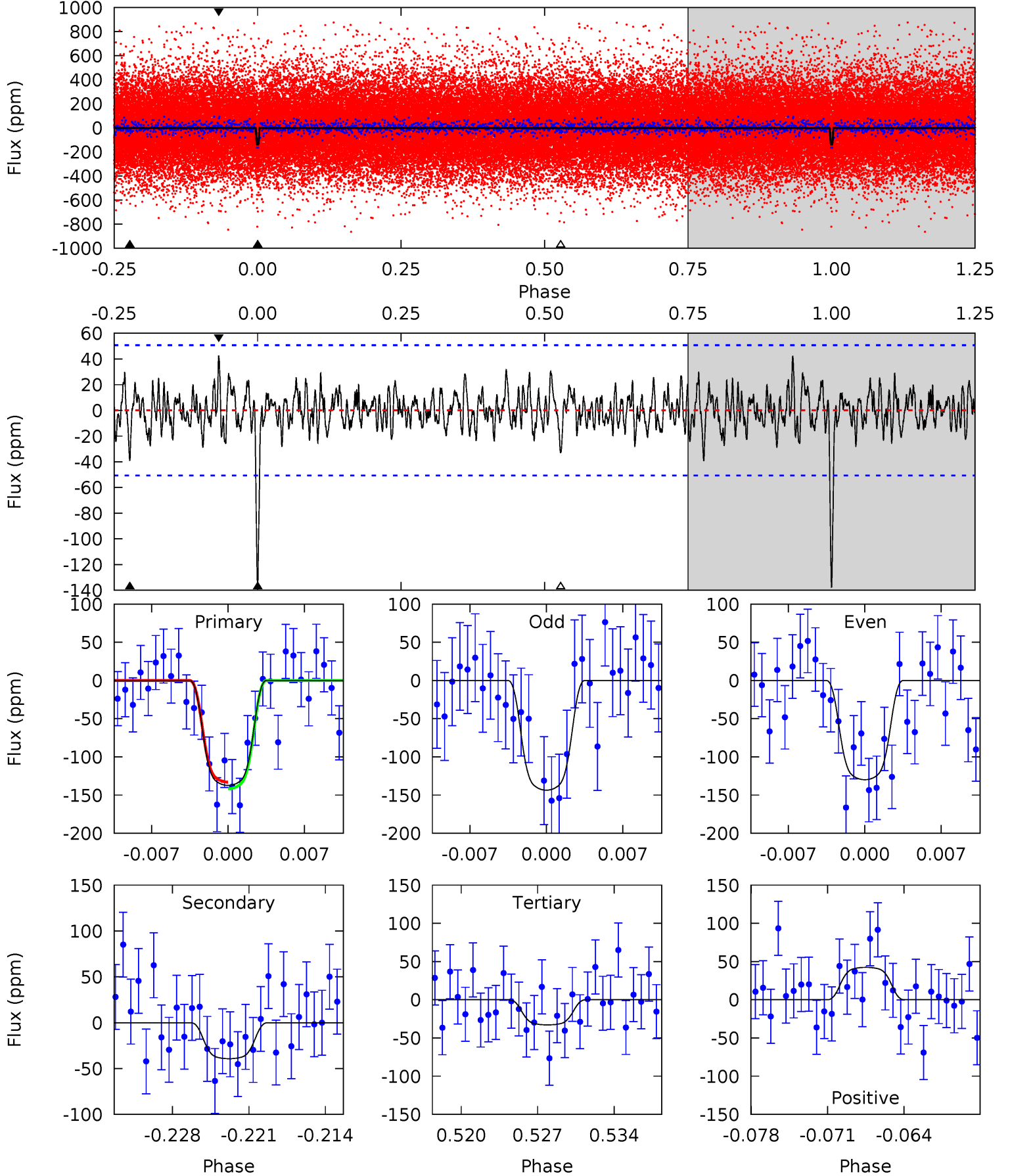
TCE 008301878-01 P= 20.710450 Days $T_0=140.906582$ (BKJD)



DV Model-Shift Uniqueness Test

008301878-01, $P = 20.710566$ Days, $E = 120.193034$ Days

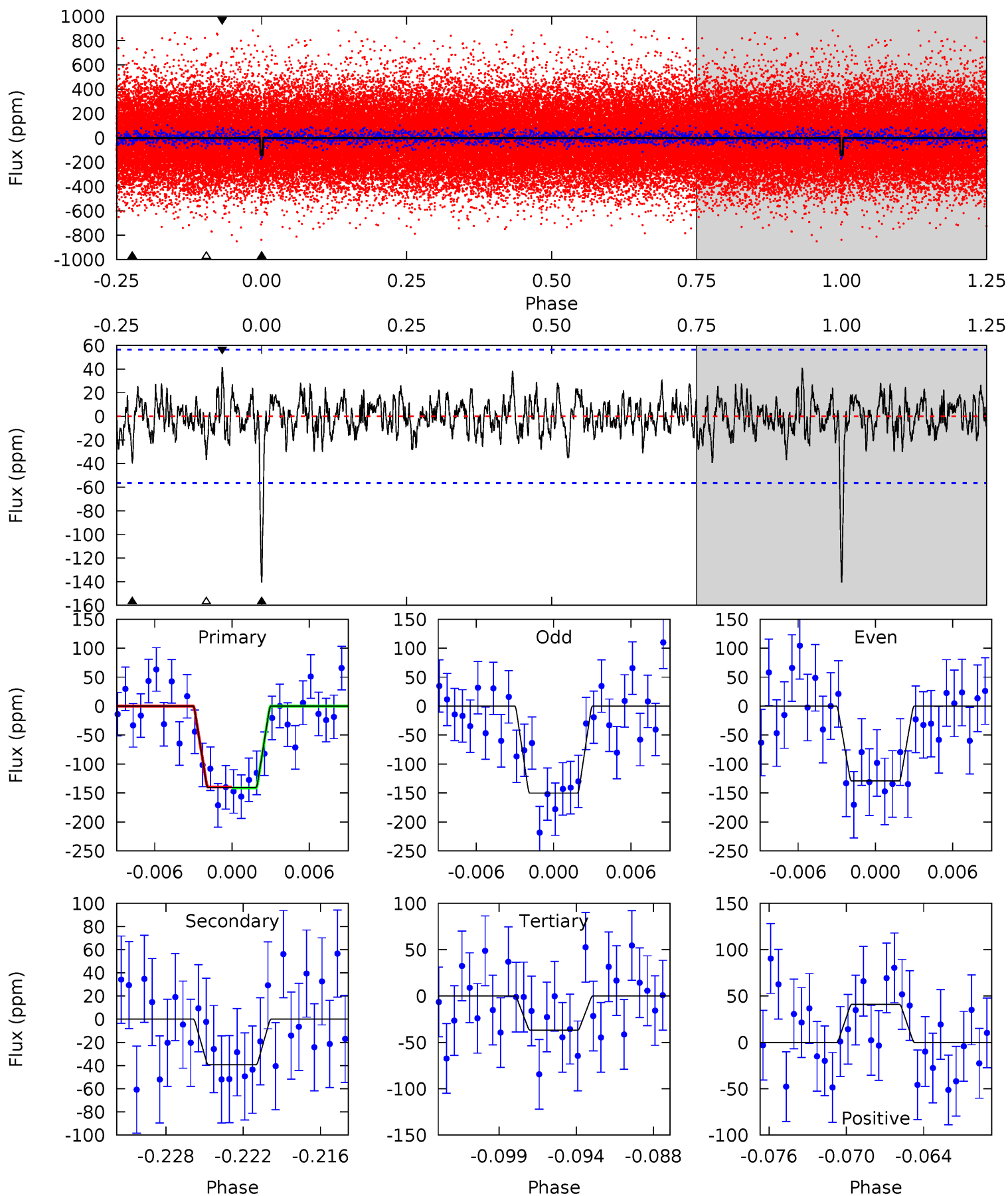
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.8 | 3.94 | 3.30 | 4.25 | 5.09 | 2.69 | 1.17 | 10.5 | 9.53 | 0.64 | -0.31 | 0.69 | 1.10 | 0.24 | 0.44 |



Alt Model-Shift Uniqueness Test

008301878-01, P = 20.710450 Days, E = 120.196132 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.8 | 3.56 | 3.34 | 3.71 | 5.13 | 2.76 | 1.09 | 9.42 | 9.05 | 0.22 | -0.16 | 0.95 | 1.09 | 0.23 | 0.07 |



Stellar Parameters For KIC 008301878

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5631^{+169}_{-152} | $4.478^{+0.075}_{-0.175}$ | $-0.120^{+0.300}_{-0.300}$ | $0.901^{+0.242}_{-0.104}$ | $0.890^{+0.104}_{-0.083}$ | $1.713^{+0.644}_{-0.805}$ |
| | +3%/-3% | +2%/-4% | +250%/-250% | +27%/-12% | +12%/-9% | +38%/-47% |
| 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 008301878-01 / KOI 3301.01

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|--------------|------------------------|-------------------|----------------------|---------------------|
| DV | -39 ± 10 | $1.53^{+0.26}_{-0.22}$ | 887^{+52}_{-44} | 3942^{+256}_{-243} | 183^{+81}_{-63} |
| Alt. | -39 ± 11 | $1.24^{+0.24}_{-0.20}$ | 888^{+52}_{-41} | 4255^{+376}_{-321} | 281^{+149}_{-113} |

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 $A_{obs} \gg 1.0$

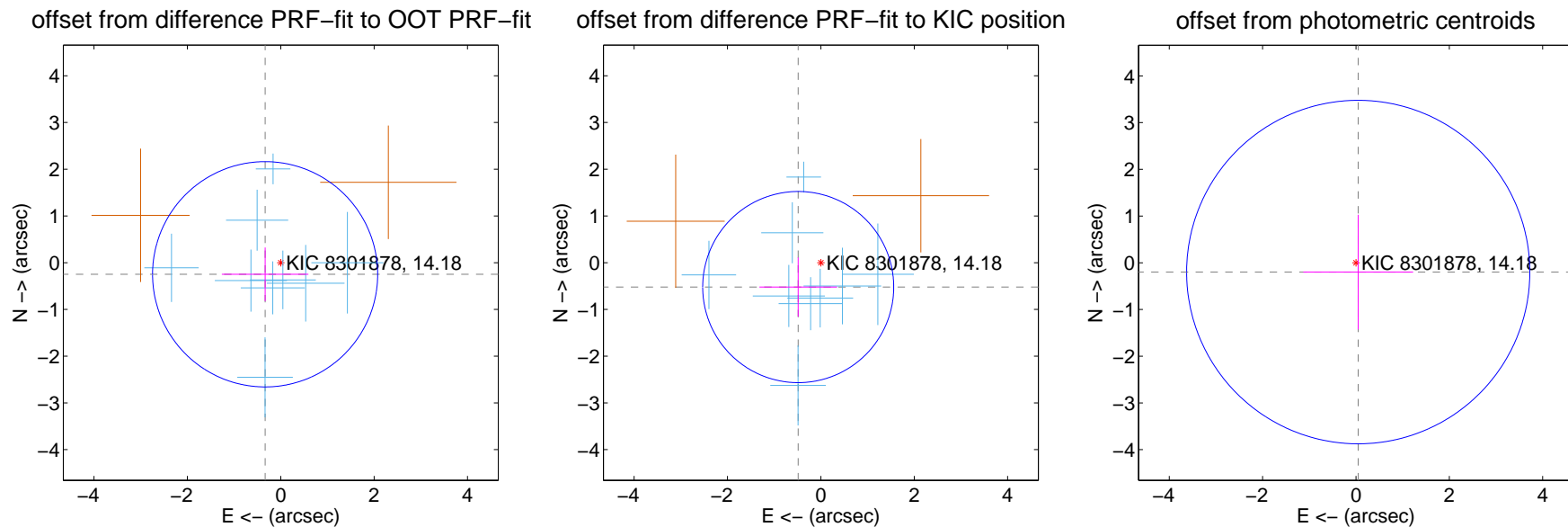
DV Centroid Data

Supplemental centroid analysis for 008301878-01. Kepler magnitude: 14.18. Transit SNR 10.64

There are 9 quarters with good PRF difference image offsets

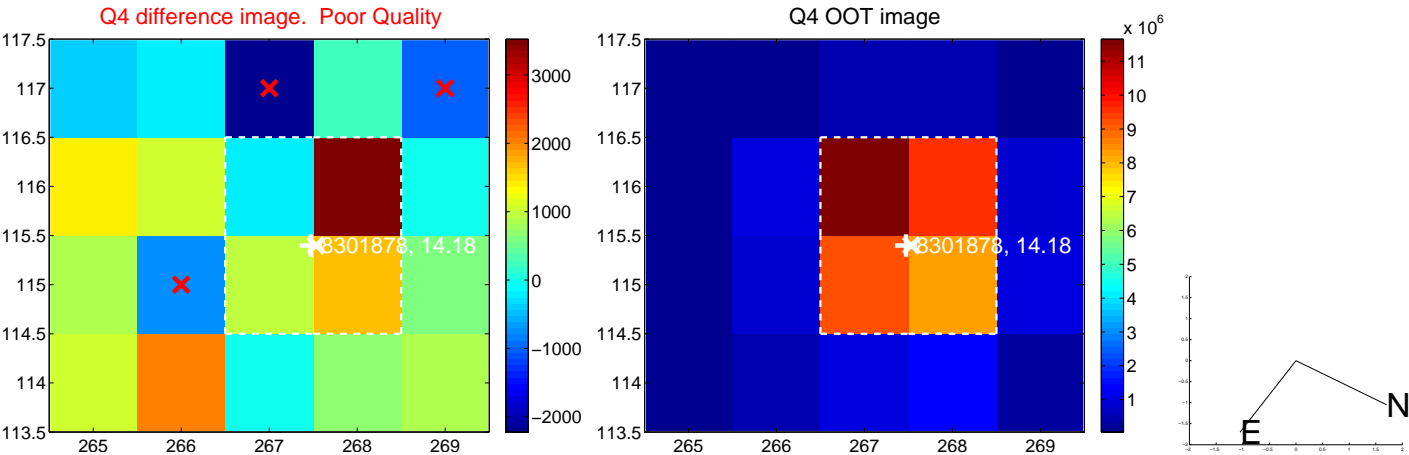
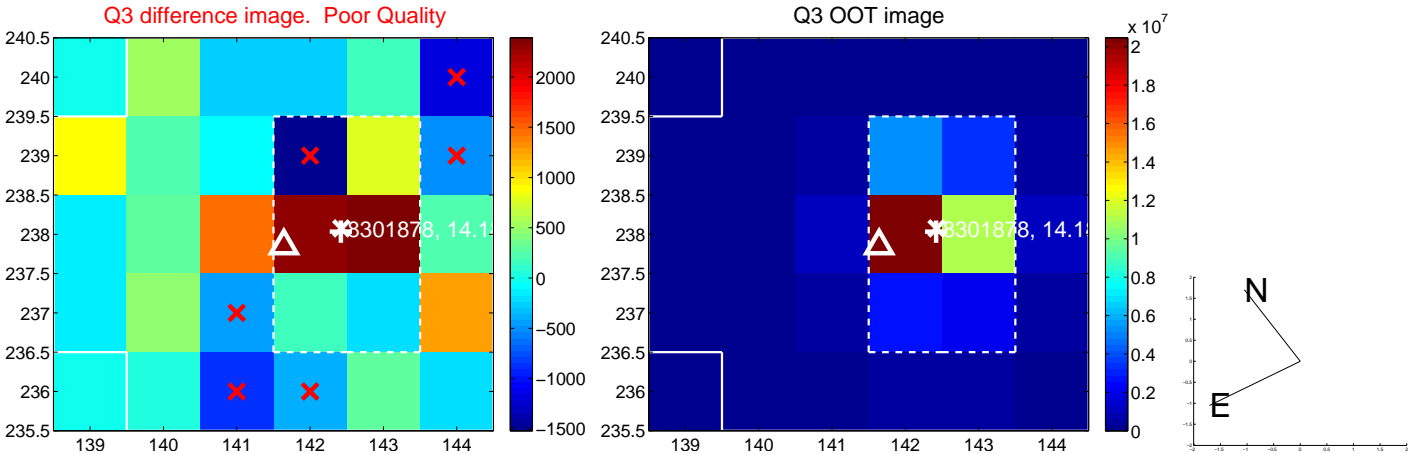
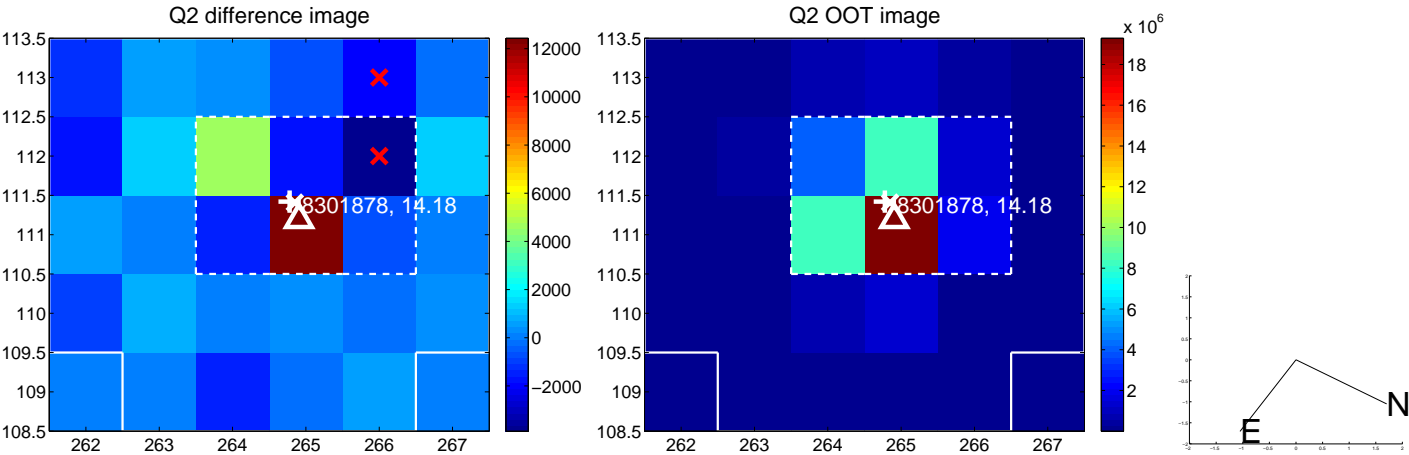
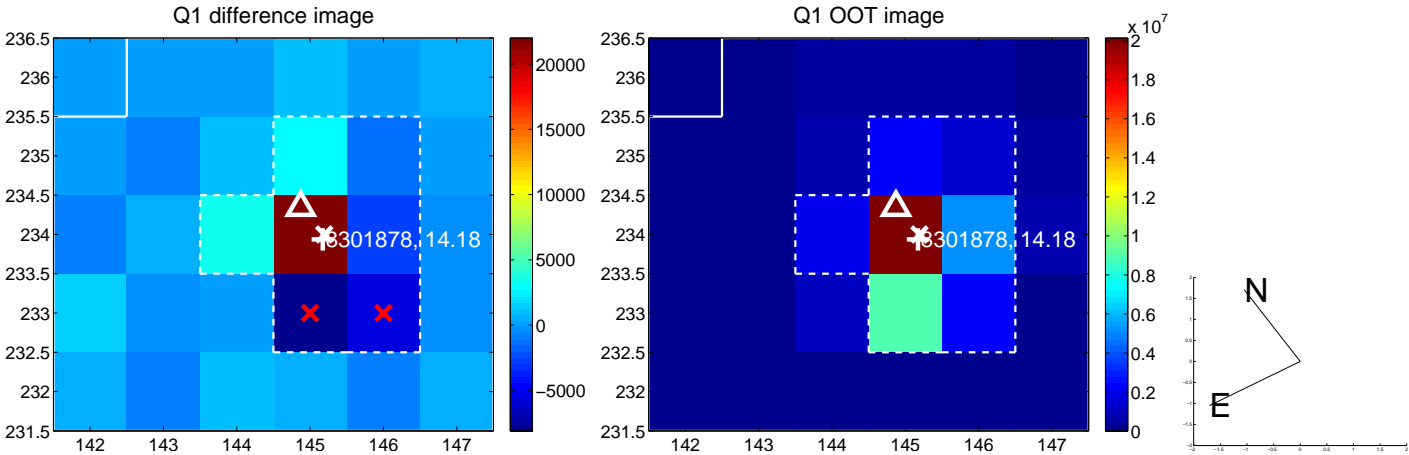
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.417 ± 0.803 | 0.52 | 0.335 ± 0.927 | -0.248 ± 0.574 |
| PRF-fit source offset from KIC position | 0.712 ± 0.682 | 1.04 | 0.485 ± 0.832 | -0.522 ± 0.632 |
| photometric centroid source offset | 0.20 ± 1.23 | 0.17 | -0.05 ± 1.18 | -0.20 ± 1.23 |

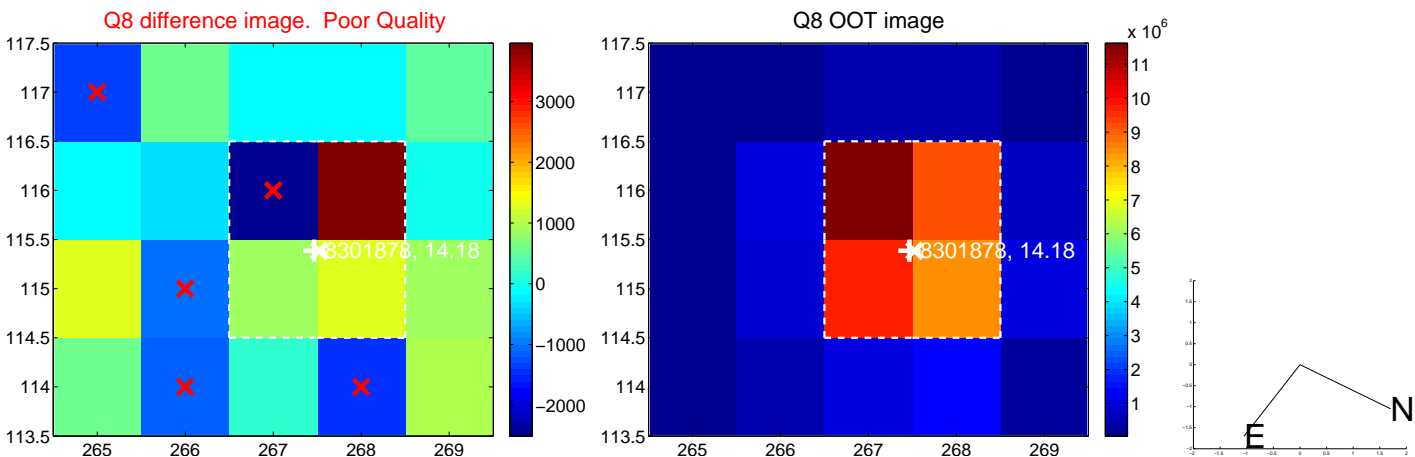
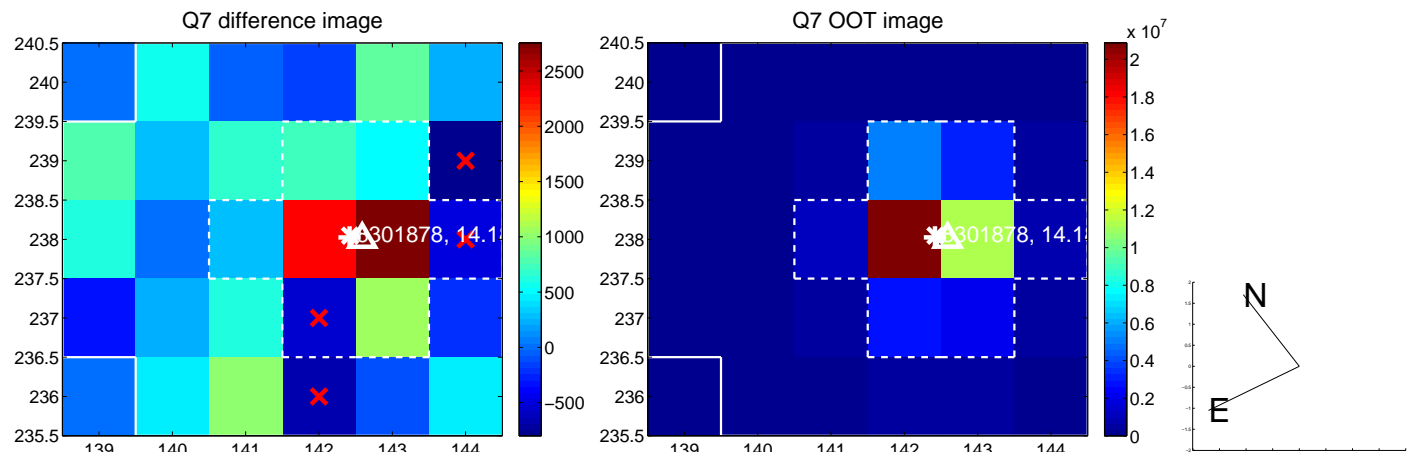
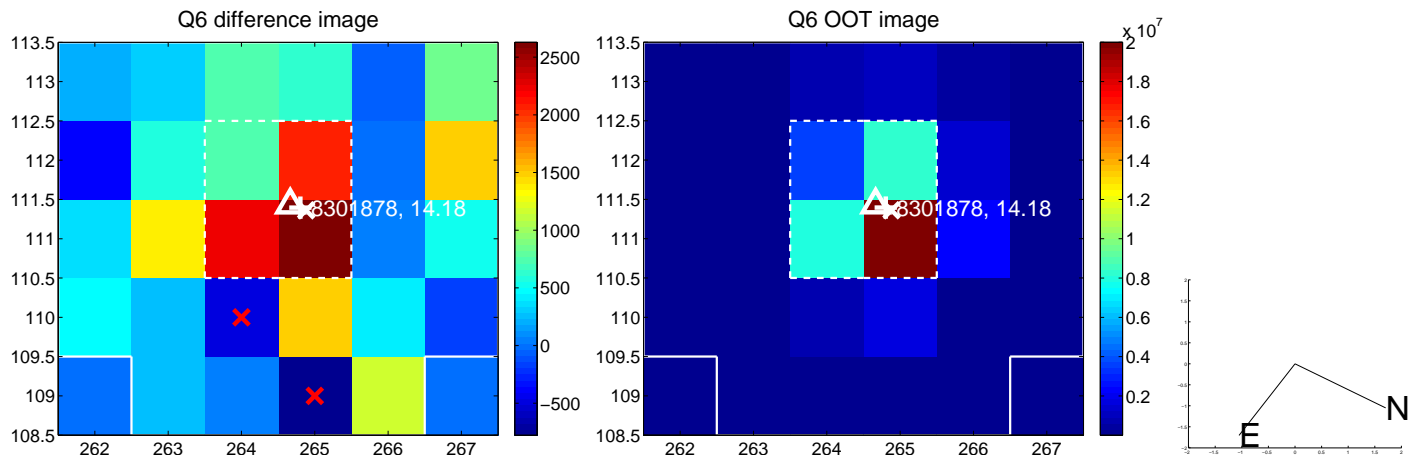
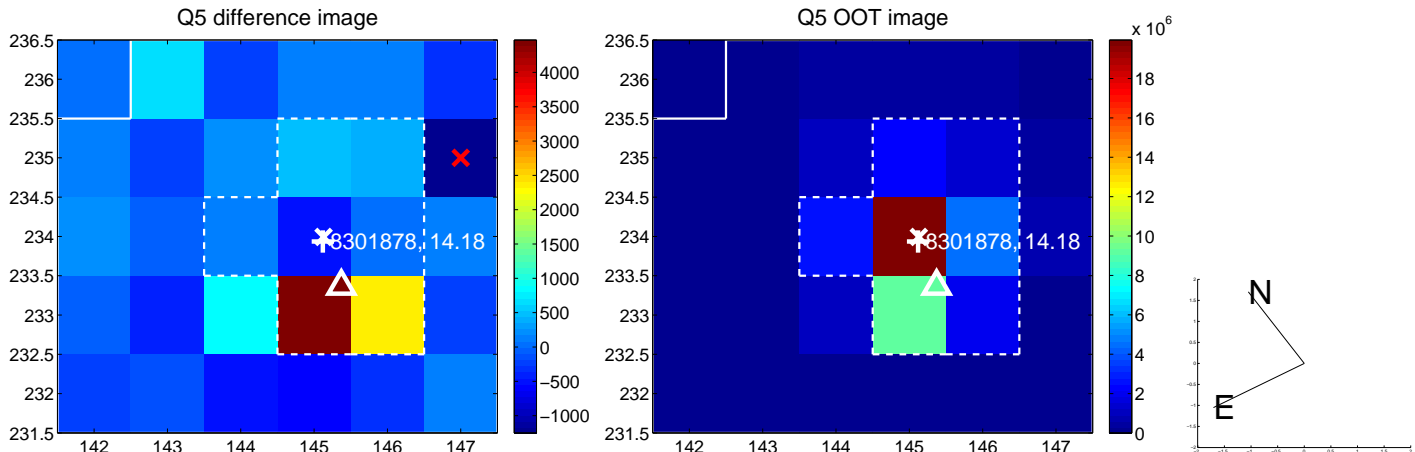


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

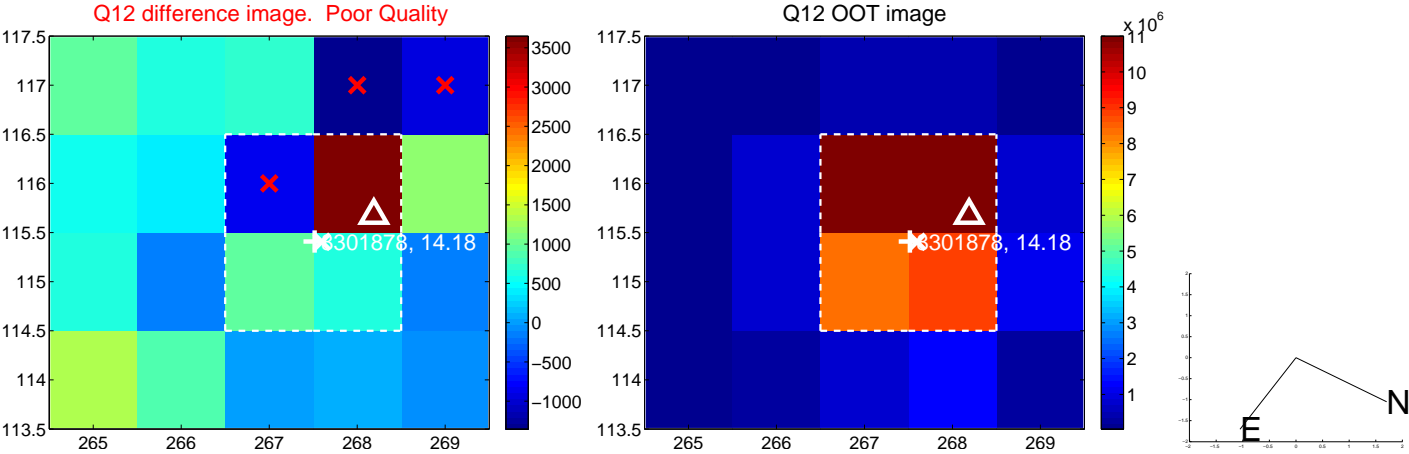
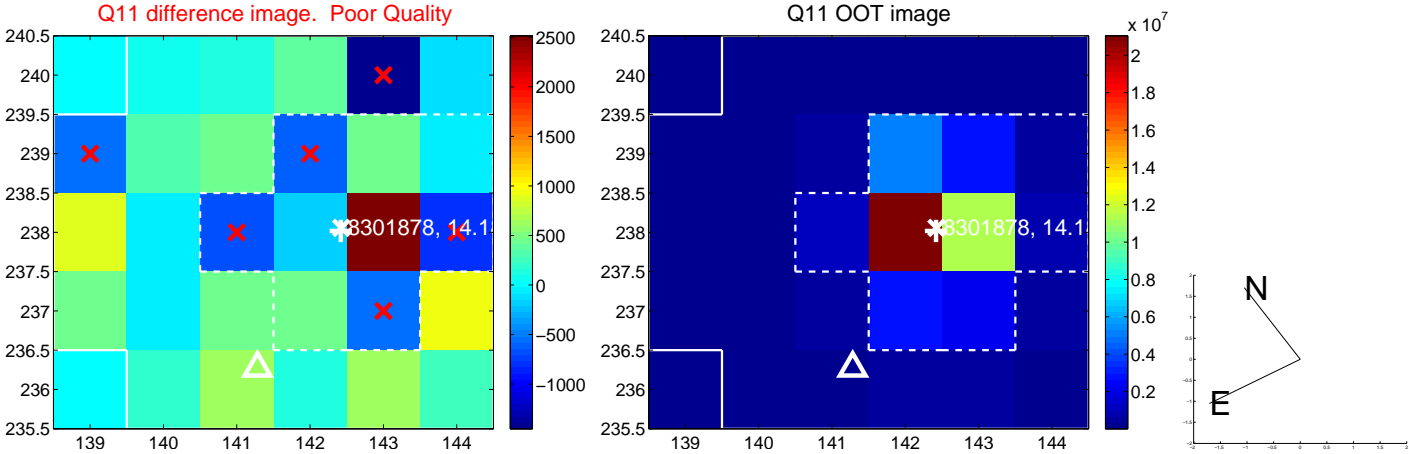
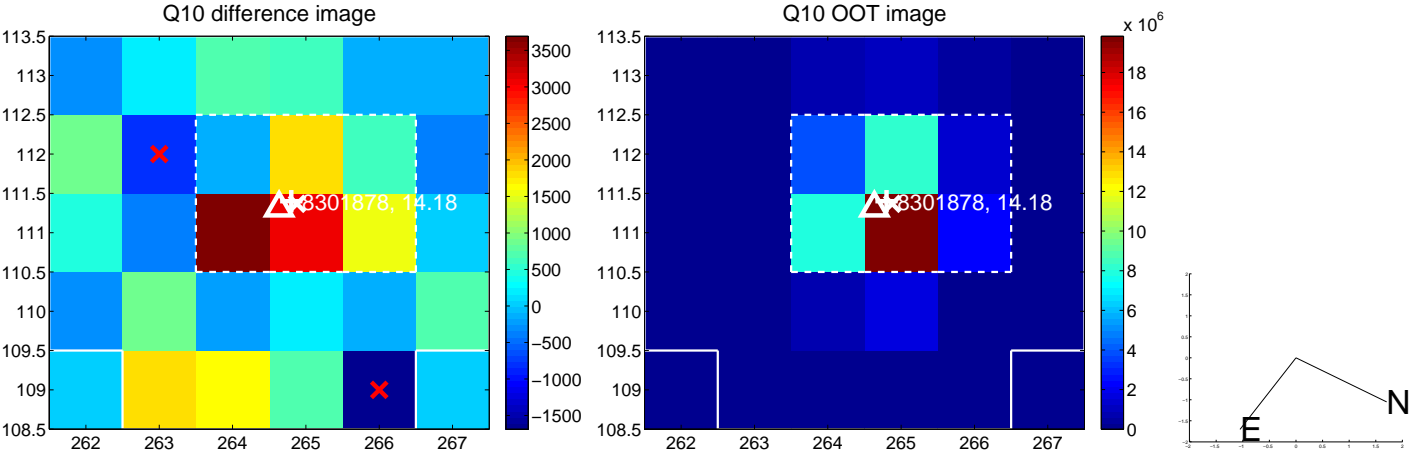
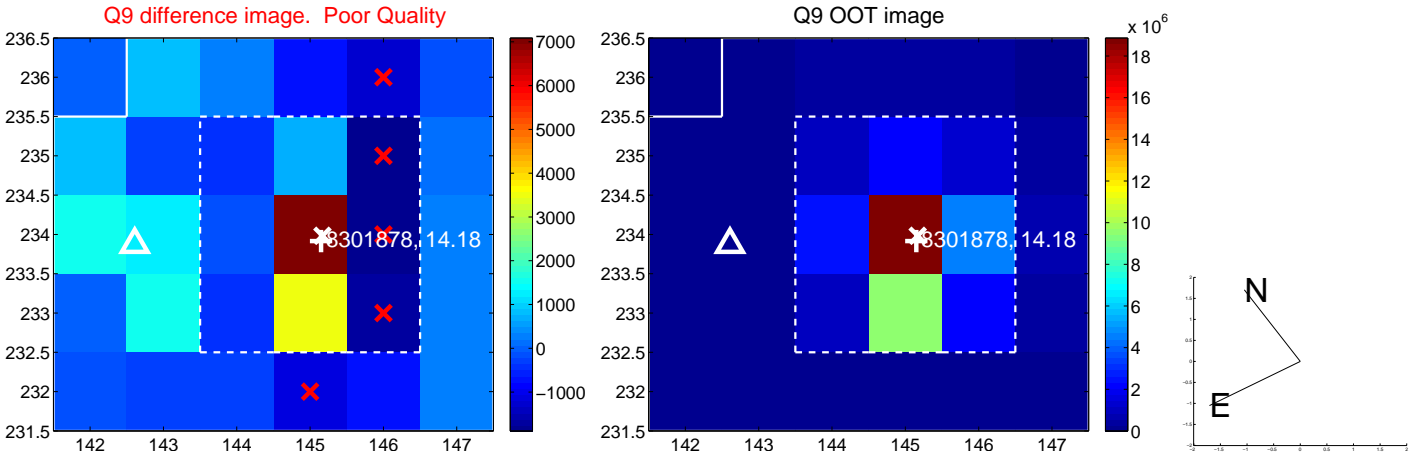
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



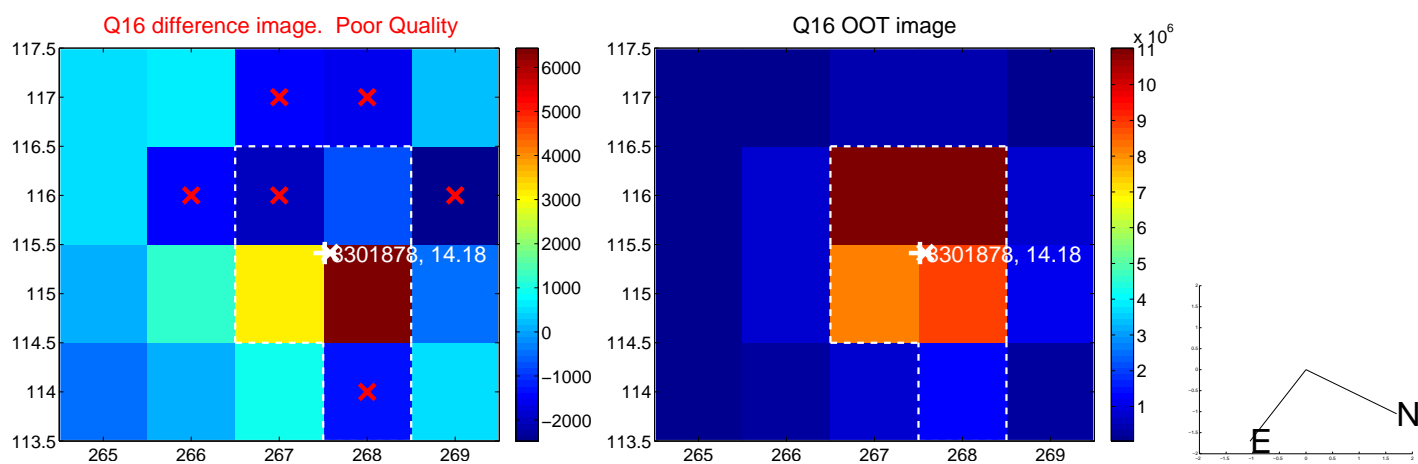
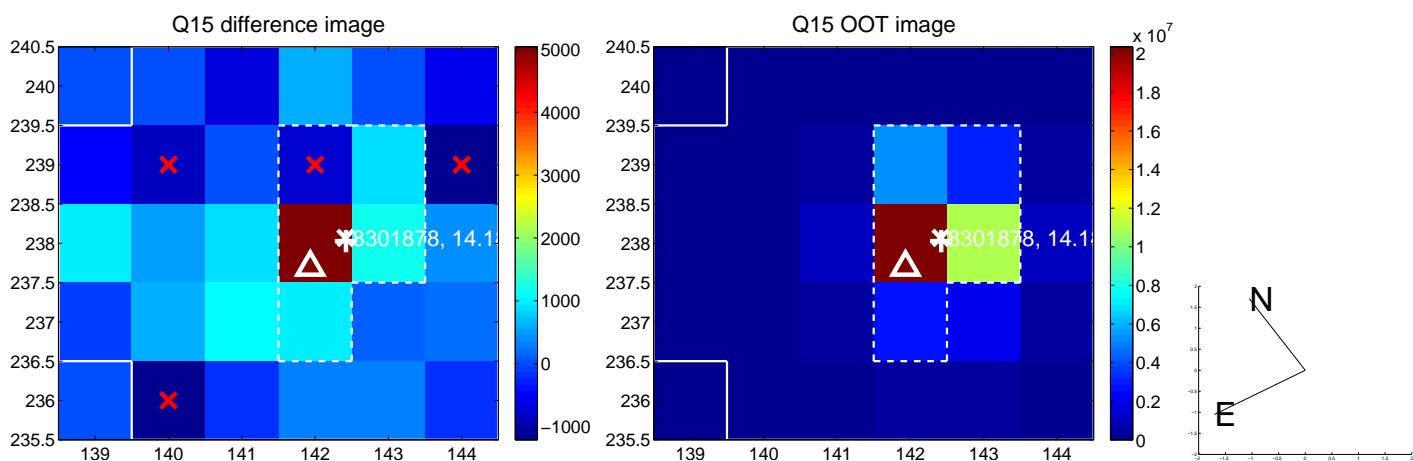
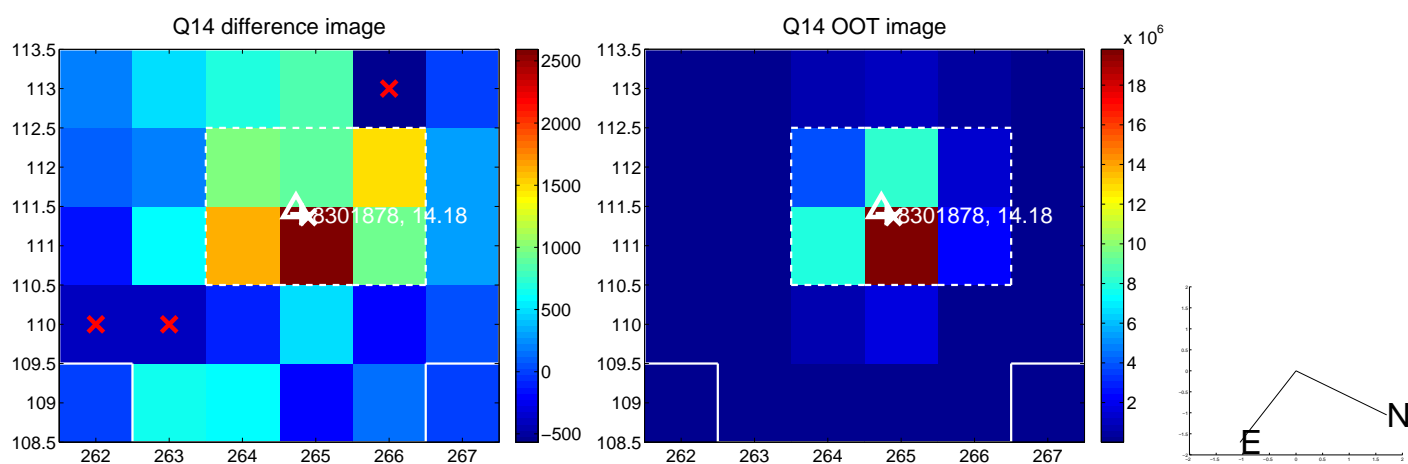
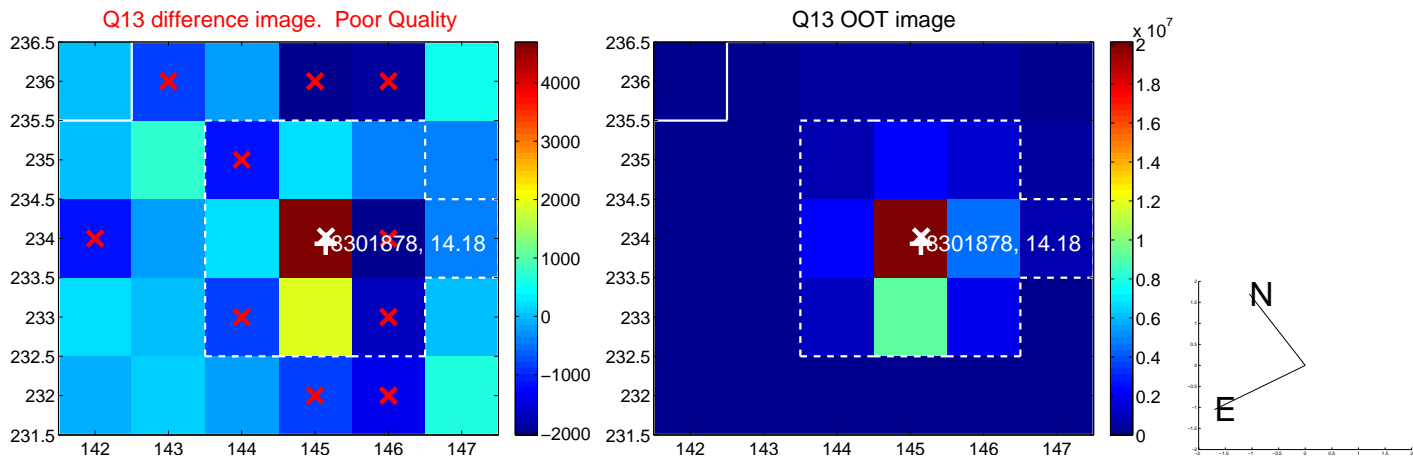
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



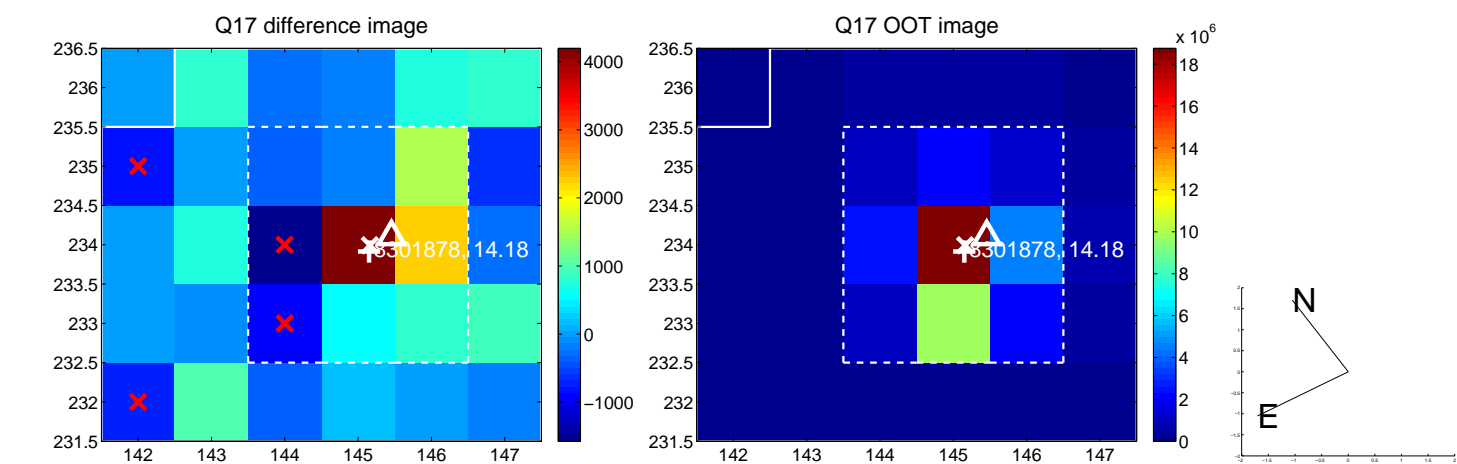
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



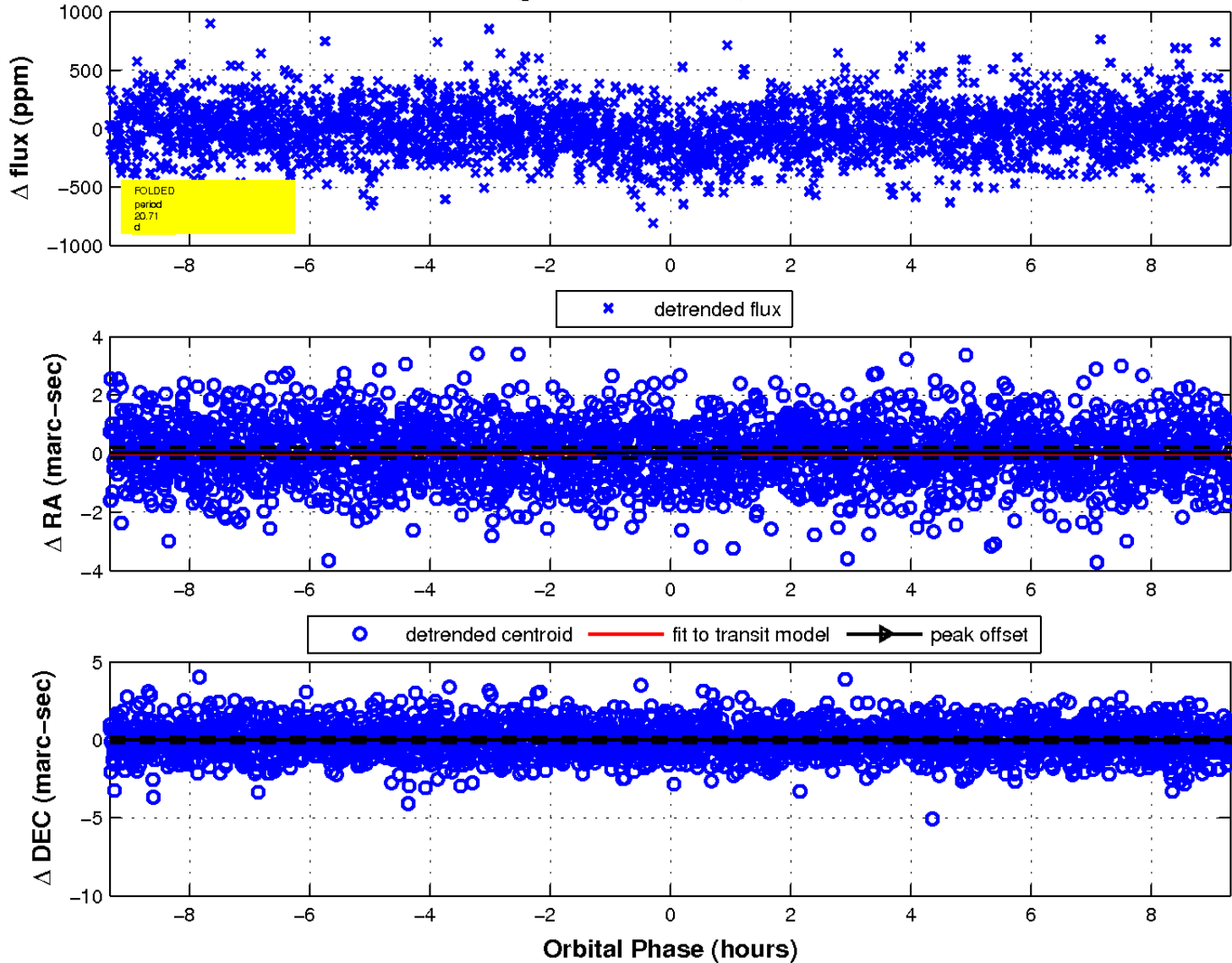
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

