

KIC 004912650

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 004912650-01 | OBS | 5098.01 | 100.346884 | 152.823970 | 351.8 | 8.592 | 10.8 | 11.0 | 0.80 | 5180 | 1.71 | 2.63 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------|
| 004912650-01 | OBS | PC | 0.92 | 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.

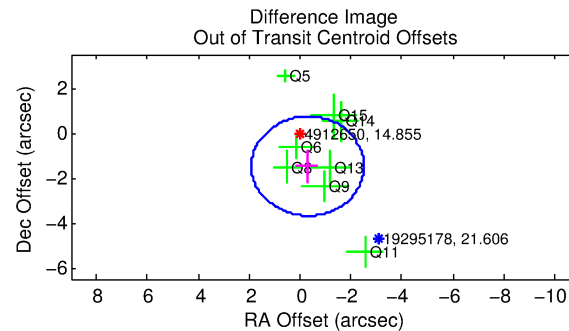
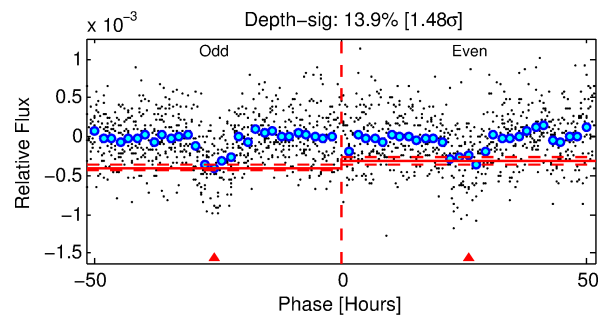
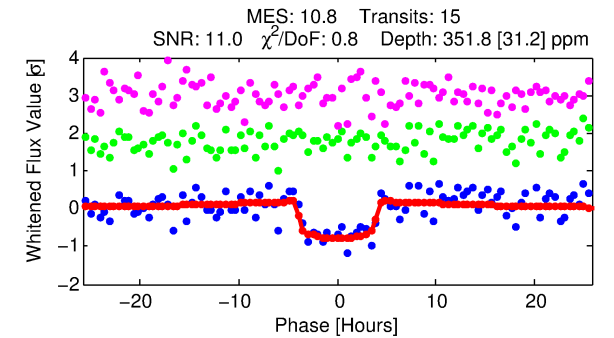
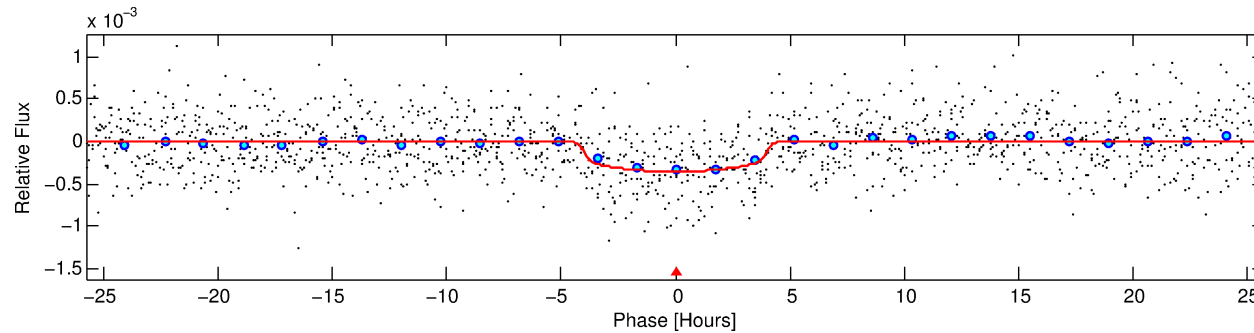
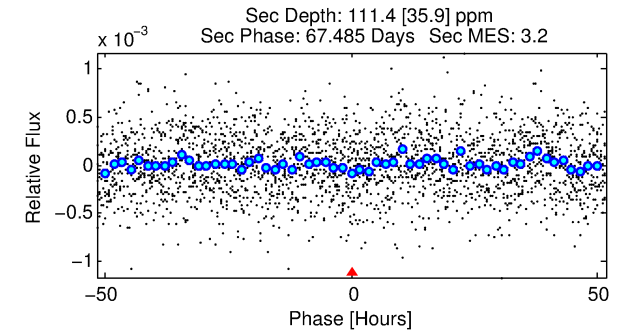
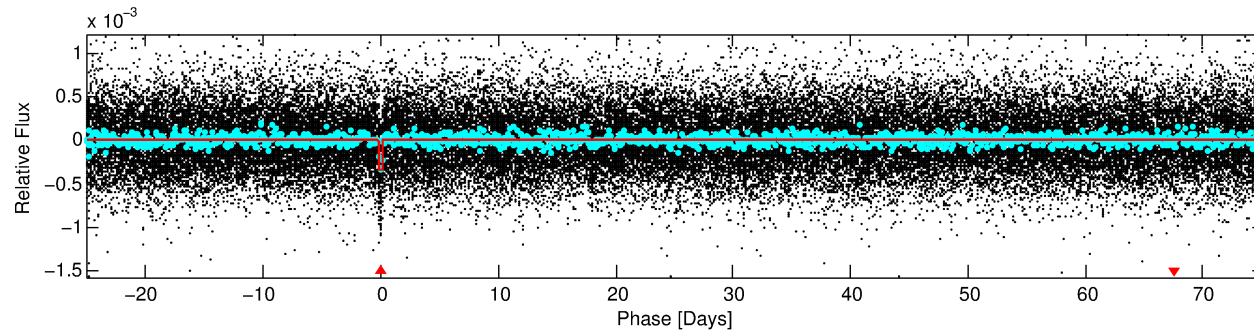
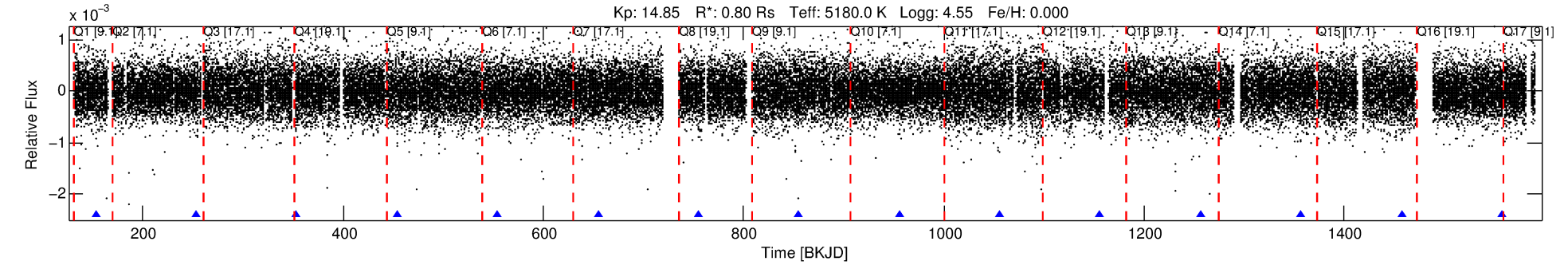
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004912650-01

No Significant Match Found

DV One-Page Summary

KIC: 4912650 Candidate: 1 of 1 Period: 100.347 d
KOI: K05098.01 Corr: 0.955



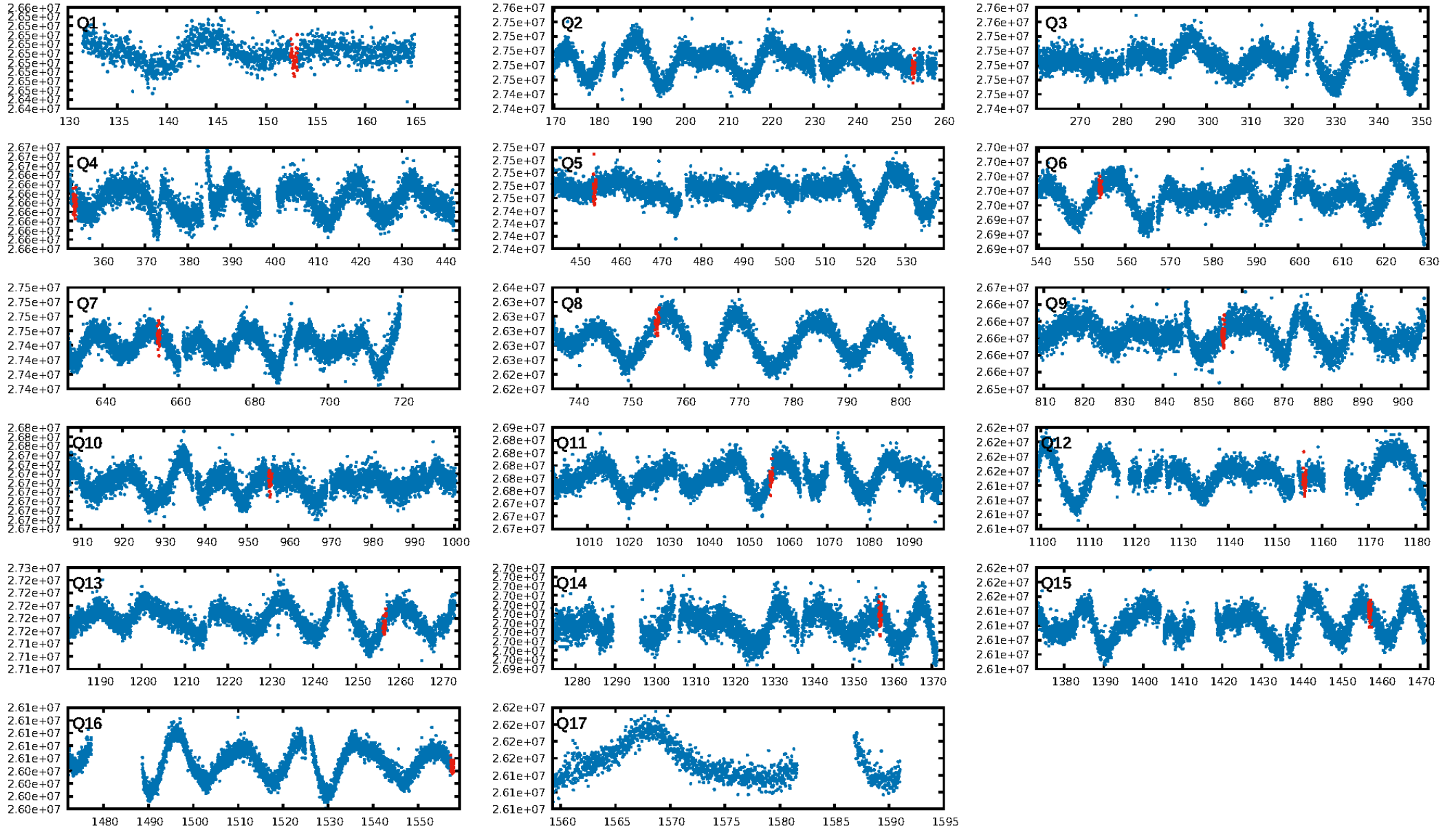
DV Fit Results:

Period = 100.34688 [0.00142] d
Epoch = 152.8240 [0.0117] BKJD
Rp/R* = 0.0195 [0.0055]
a/R* = 53.22 [57.31]
b = 0.83 [0.42]
Seff = 2.63 [0.32]
Teff = 325 [10] K
Rp = 1.70 [0.49] Re
a = 0.3964 [0.0242] AU
Ag = 3312.00 [2172.79] [1.52 σ]
Teffp = 3808 [623] K [5.59 σ]

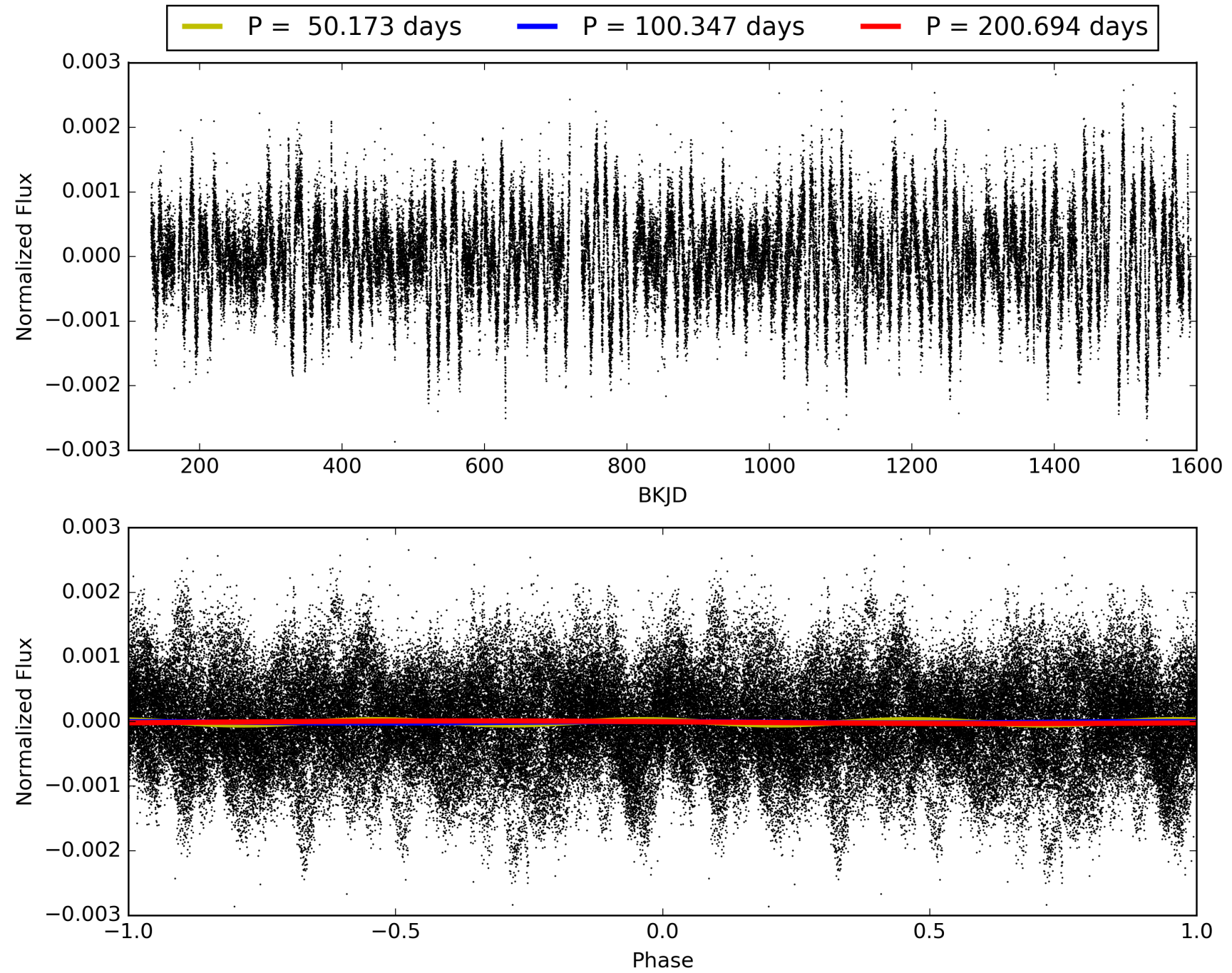
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 64.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.60e-21
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: 1.207
Centroid-sig: 93.5%
Centroid-so: 0.271 arcsec [0.28 σ]
OotOffset-rm: 1.505 arcsec [2.04 σ]
KicOffset-rm: 1.698 arcsec [2.46 σ]
OotOffset-st: 2/2/1/3 [8]
KicOffset-st: 2/2/1/3 [8]
DiffImageQuality-fgm: 0.75 [6/8]
DiffImageOverlap-fno: 1.00 [12/12]

TCE 004912650-01, PDC Light Curves

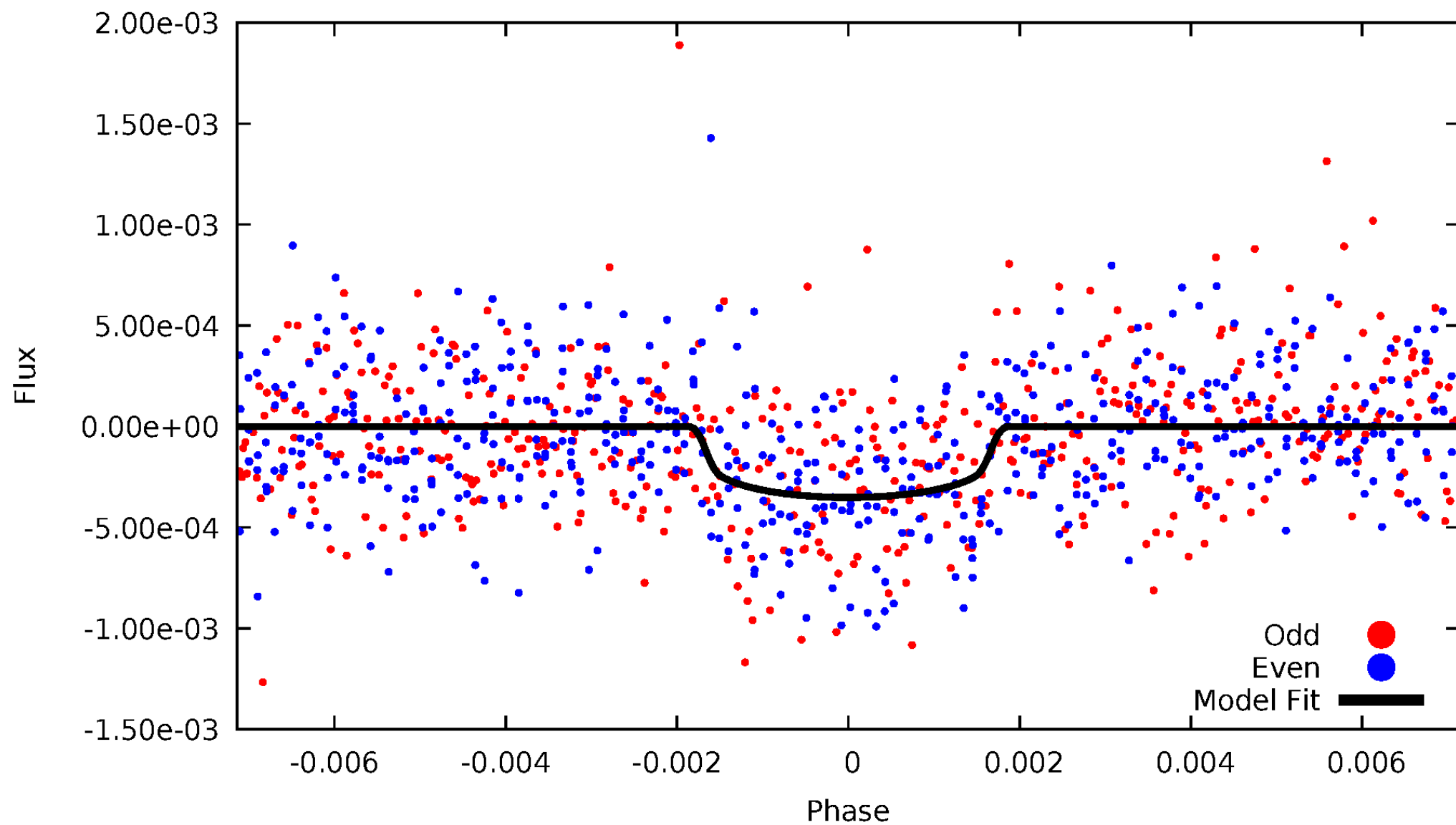


TCE 004912650-01



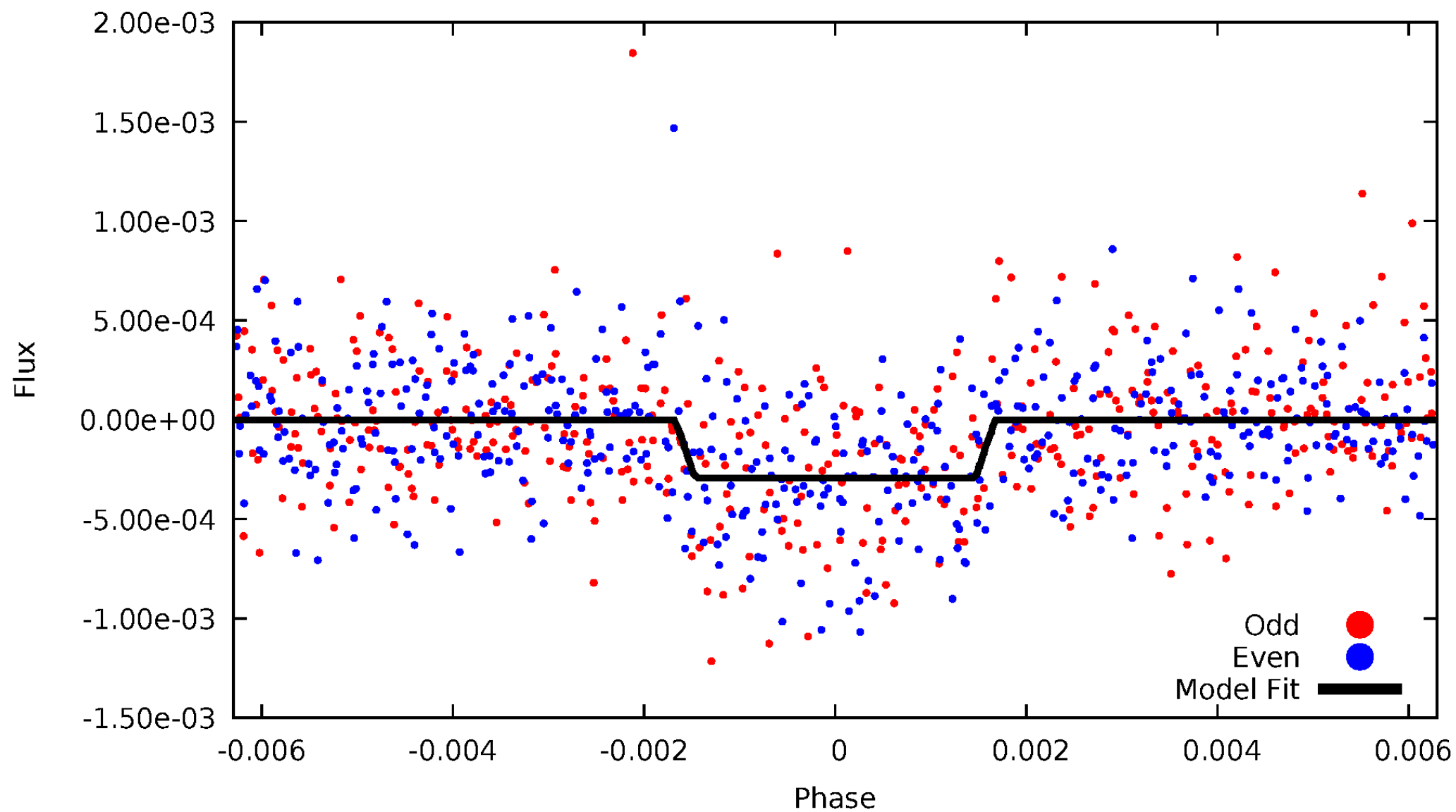
DV Odd/Even

TCE 004912650-01



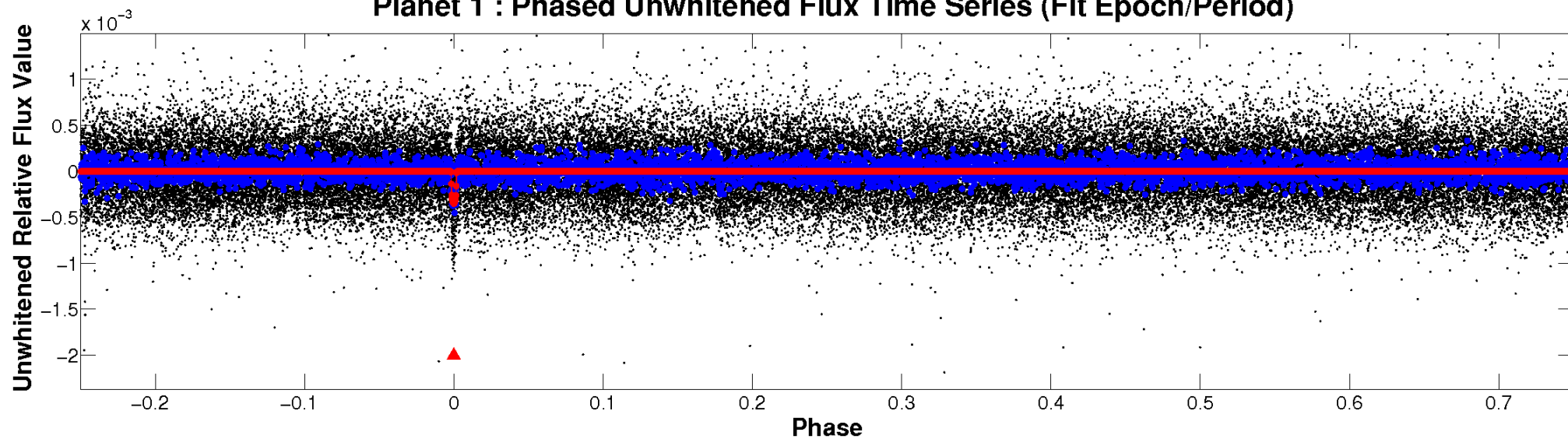
ALT Odd/Even

TCE 004912650-01

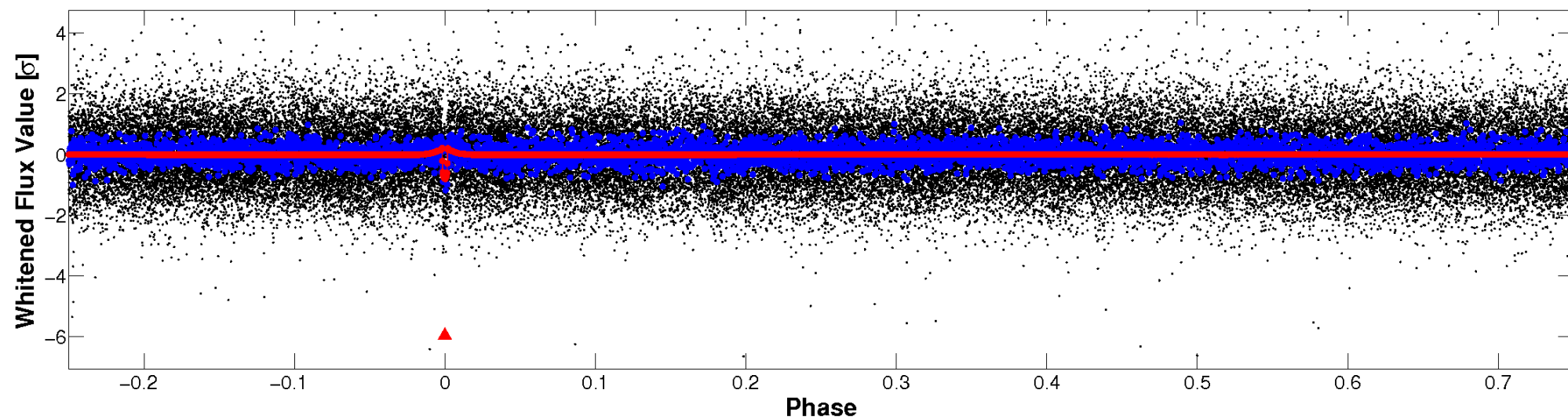


Non-Whitened Vs. Whitened Light Curve

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

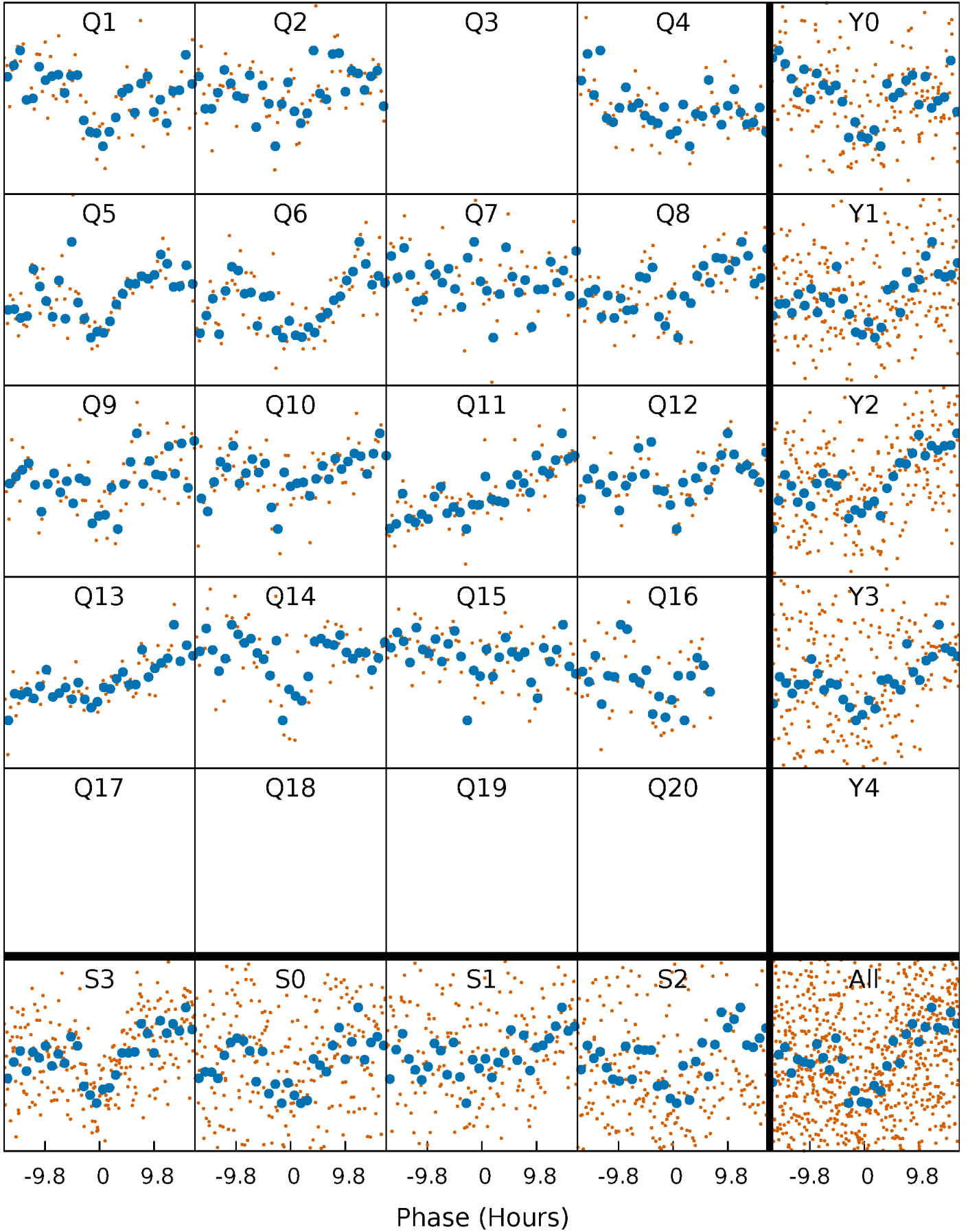


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



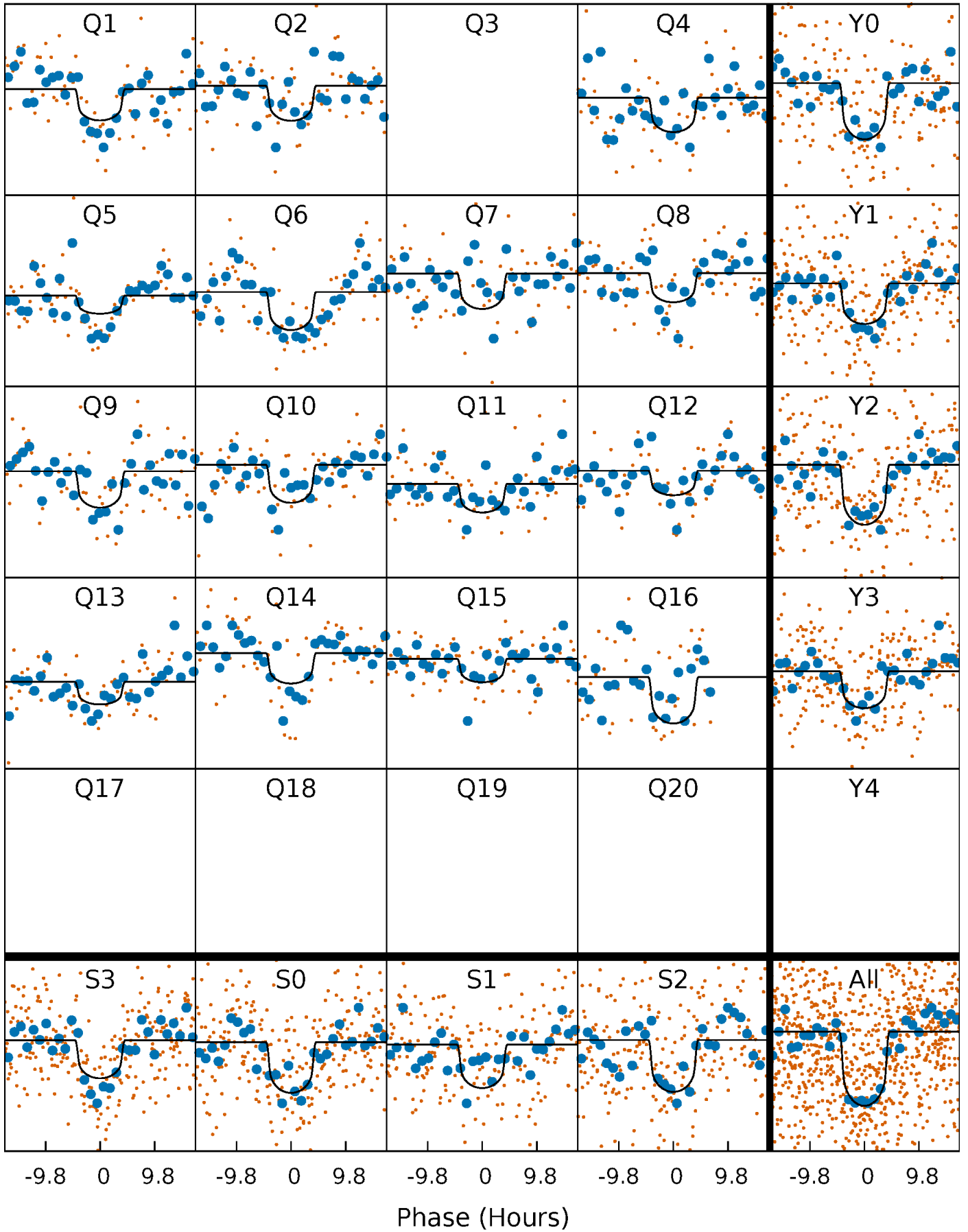
PDC Quarter-Phased Transit Curves

TCE 004912650-01 P=100.346884 Days $T_0=152.823970$ (BKJD)



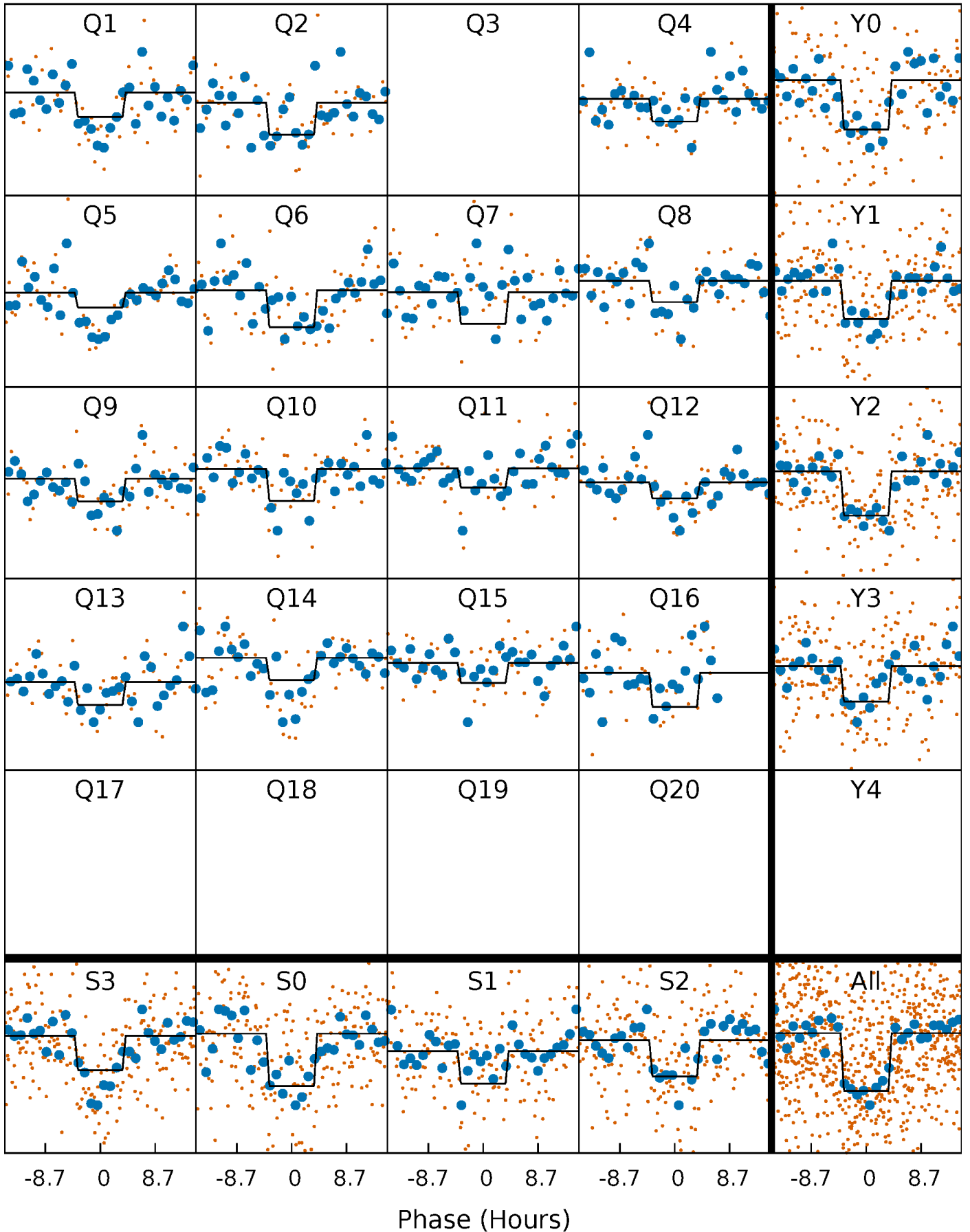
DV Quarter-Phased Transit Curves

TCE 004912650-01 P=100.346884 Days $T_0=152.823970$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

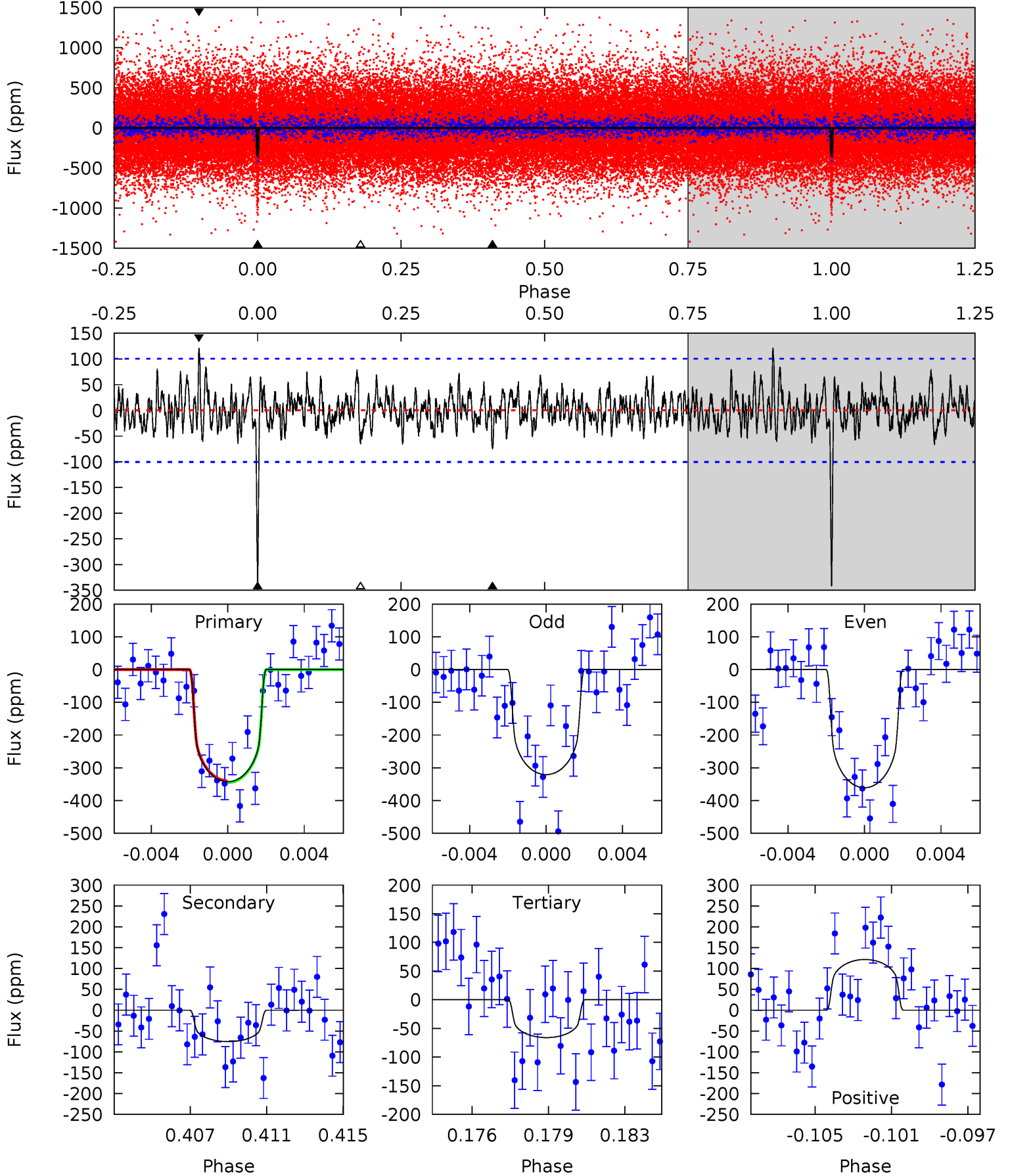
TCE 004912650-01 P=100.345972 Days $T_0=152.841218$ (BKJD)



DV Model-Shift Uniqueness Test

004912650-01, $P = 100.346884$ Days, $E = 52.477086$ Days

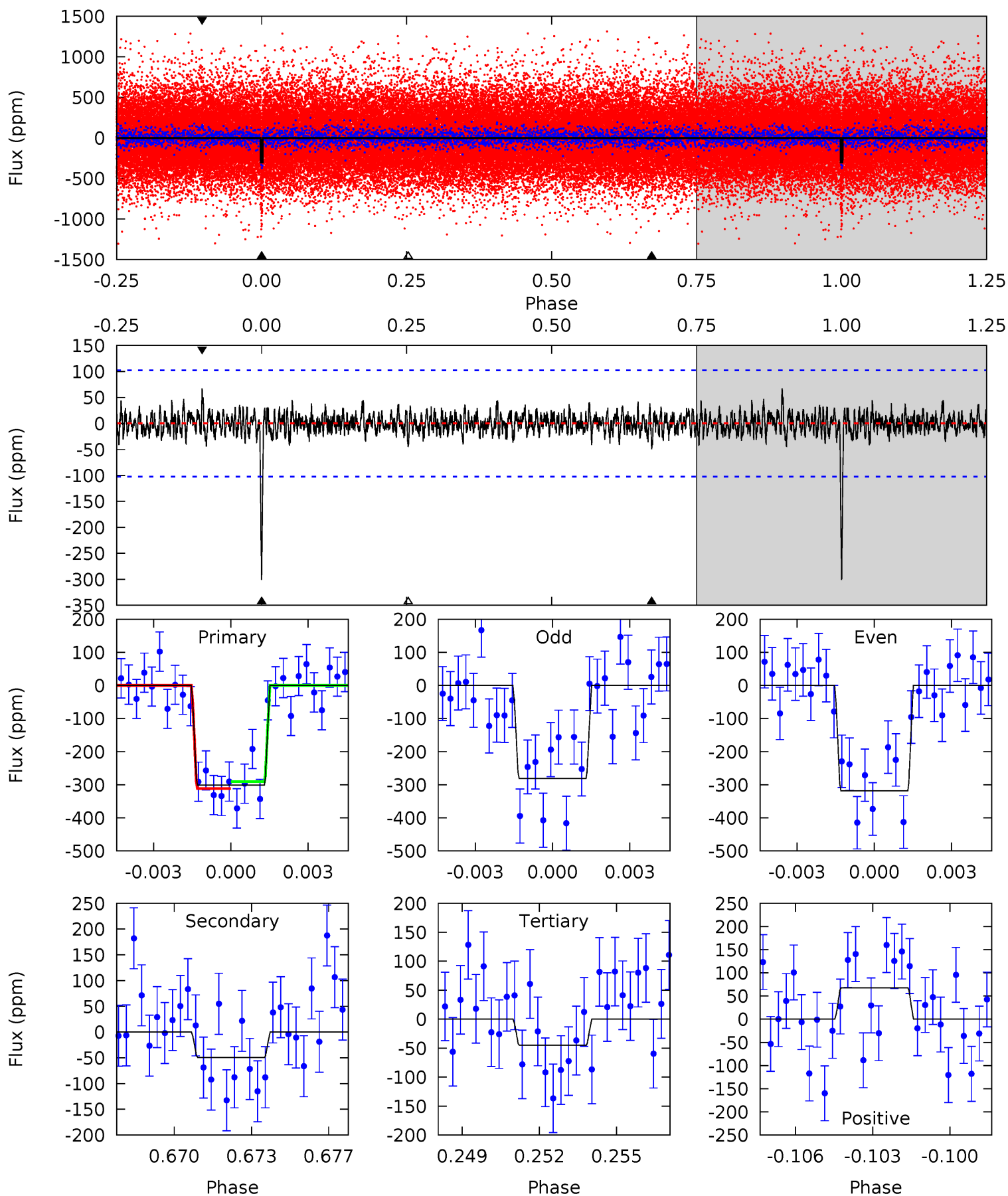
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 17.8 | 3.92 | 3.43 | 6.31 | 5.21 | 2.90 | 1.40 | 14.4 | 11.5 | 0.49 | -2.40 | 1.04 | 1.04 | 0.26 | 0.14 |



Alt Model-Shift Uniqueness Test

004912650-01, $P = 100.345972$ Days, $E = 52.495246$ Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 15.4 | 2.51 | 2.31 | 3.45 | 5.23 | 2.94 | 0.79 | 13.1 | 11.9 | 0.21 | -0.94 | 0.96 | 1.18 | 0.18 | 0.54 |



Stellar Parameters For KIC 004912650

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5180^{+103}_{-103} | $4.548^{+0.041}_{-0.054}$ | $0.000^{+0.150}_{-0.150}$ | $0.800^{+0.054}_{-0.043}$ | $0.825^{+0.046}_{-0.046}$ | $2.267^{+0.354}_{-0.399}$ |
| | +2%/-2% | +1%/-1% | +inf%/-inf% | +7%/-5% | +6%/-6% | +16%/-18% |
| Source | SPE57 | SPE57 | SPE57 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 004912650-01 / KOI 5098.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|--------------|------------------------|-------------------|----------------------|-----------------------|
| DV | -75 ± 19 | $1.72^{+0.50}_{-0.52}$ | 454^{+12}_{-12} | 3786^{+542}_{-367} | 2152^{+2445}_{-998} |
| Alt. | -49 ± 20 | $1.51^{+0.51}_{-0.49}$ | 454^{+12}_{-12} | 3663^{+587}_{-406} | 1817^{+2498}_{-981} |

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 $A_{obs} \gg 1.0$

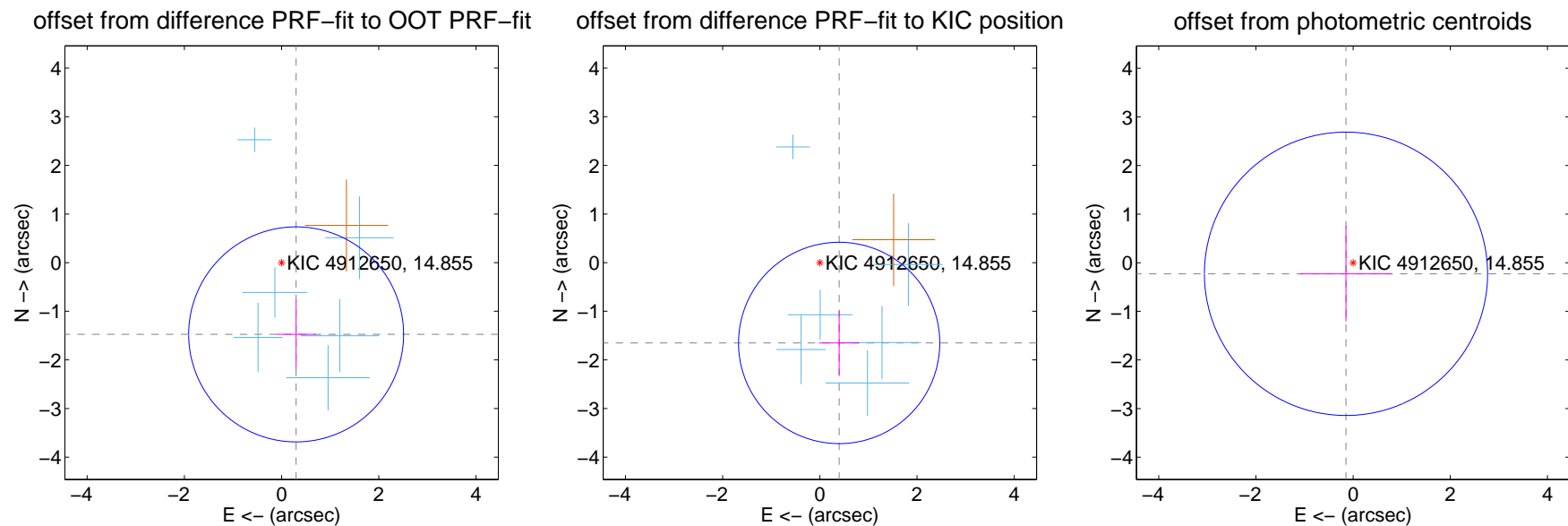
DV Centroid Data

Supplemental centroid analysis for 004912650-01. Kepler magnitude: 14.86. Transit SNR 11.01

There are 6 quarters with good PRF difference image offsets

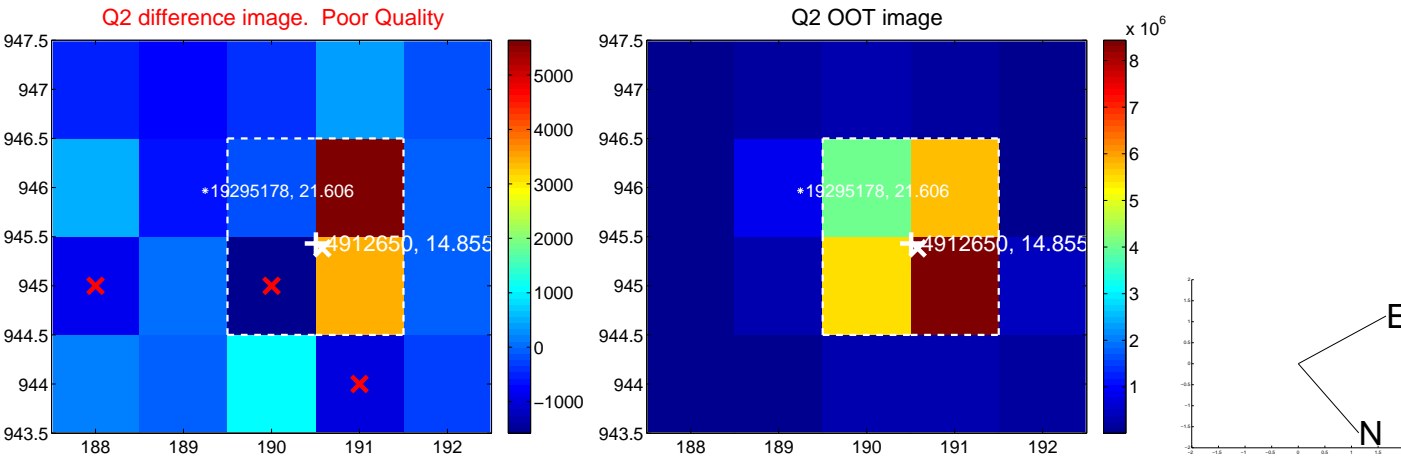
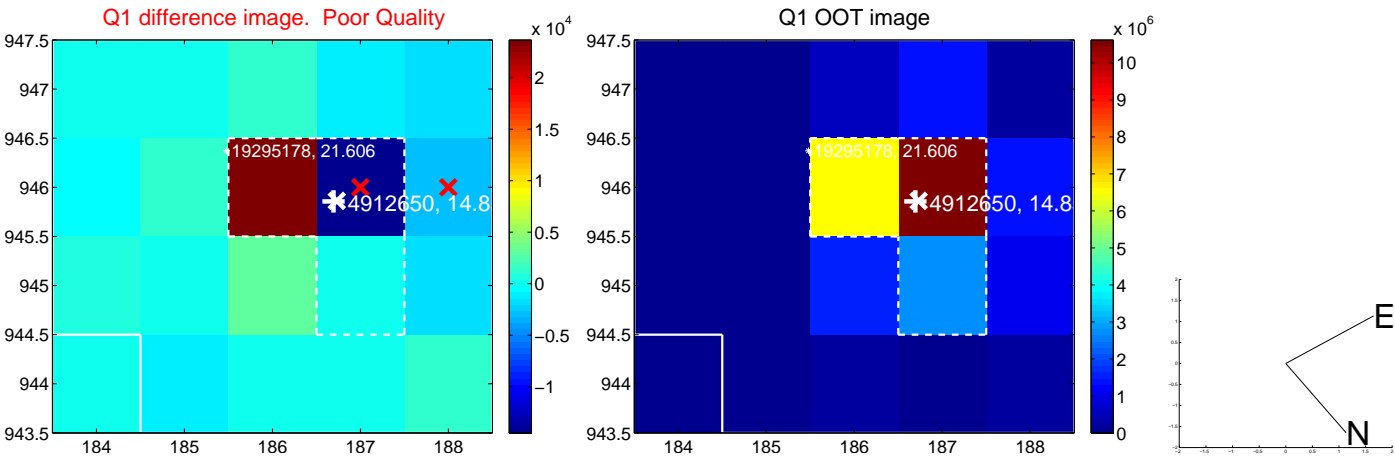
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 1.505 ± 0.737 | 2.04 | -0.299 ± 0.404 | -1.475 ± 0.712 |
| PRF-fit source offset from KIC position | 1.698 ± 0.690 | 2.46 | -0.397 ± 0.413 | -1.651 ± 0.656 |
| photometric centroid source offset | 0.27 ± 0.97 | 0.28 | 0.15 ± 0.95 | -0.23 ± 0.98 |

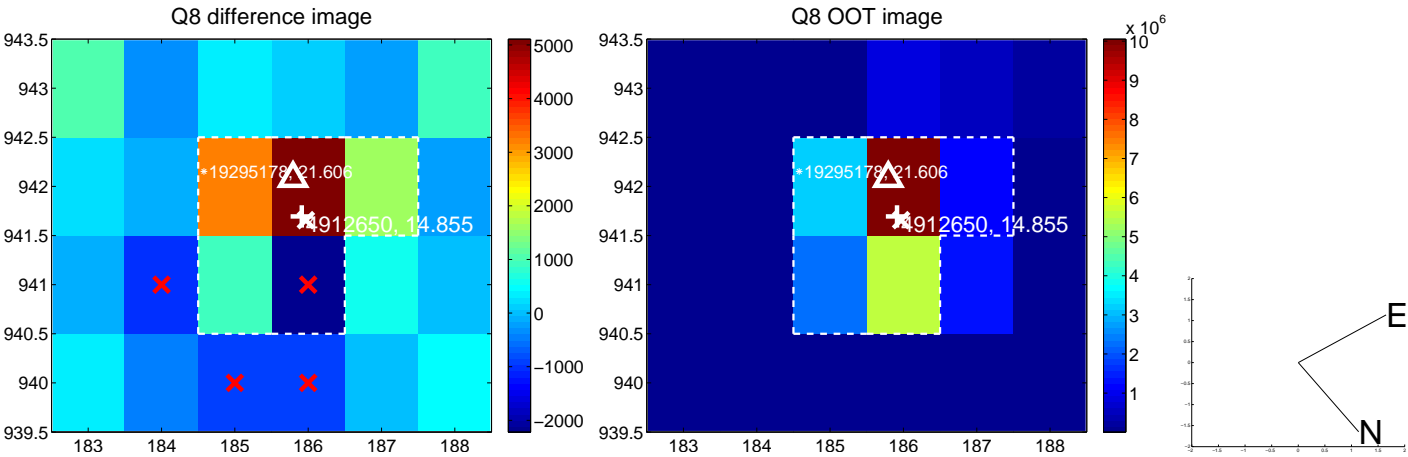
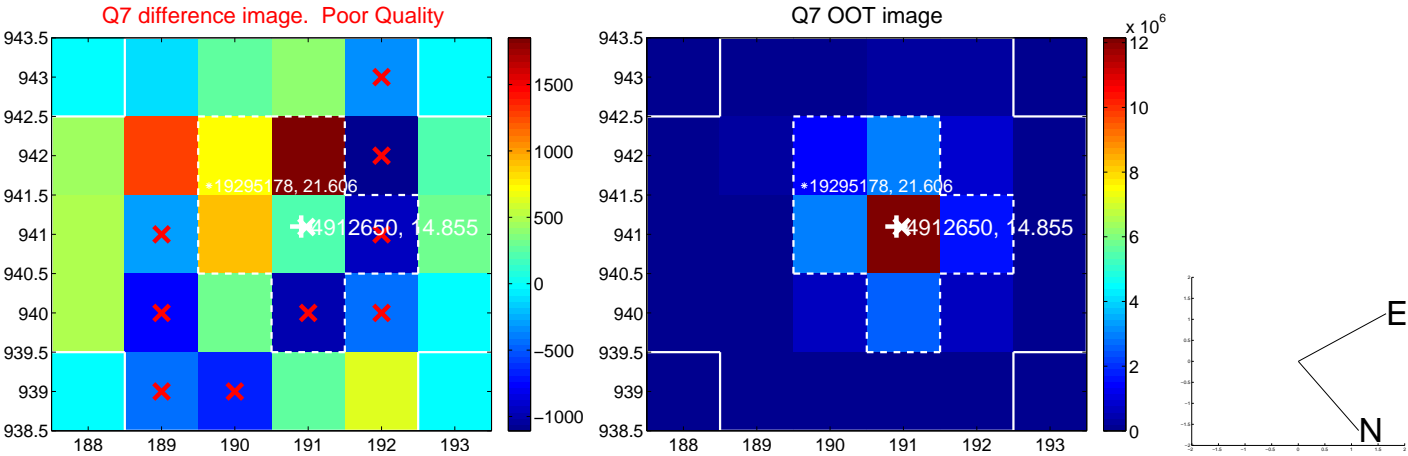
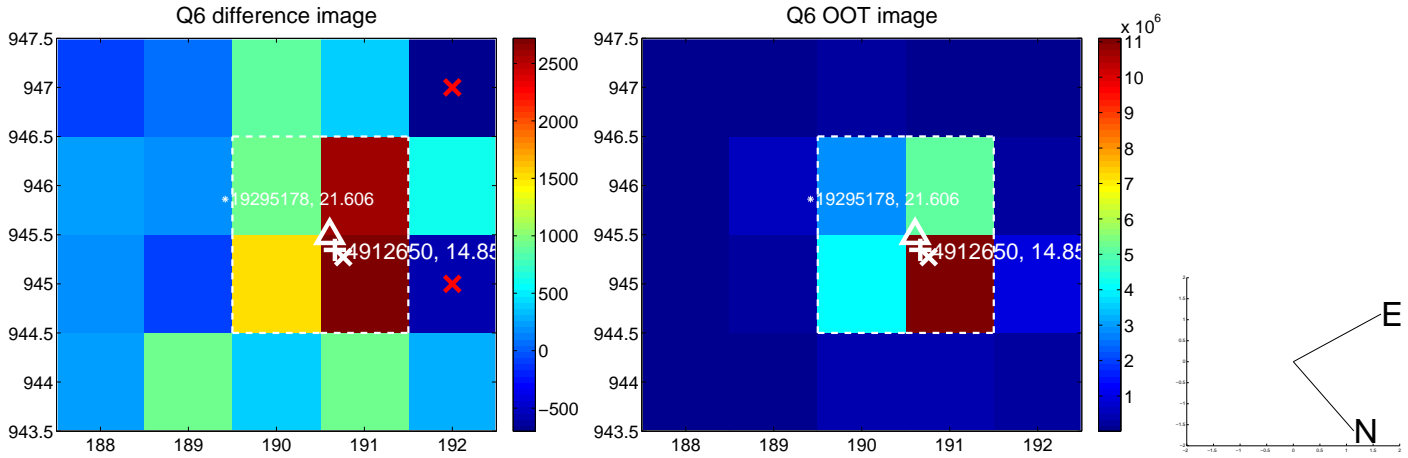
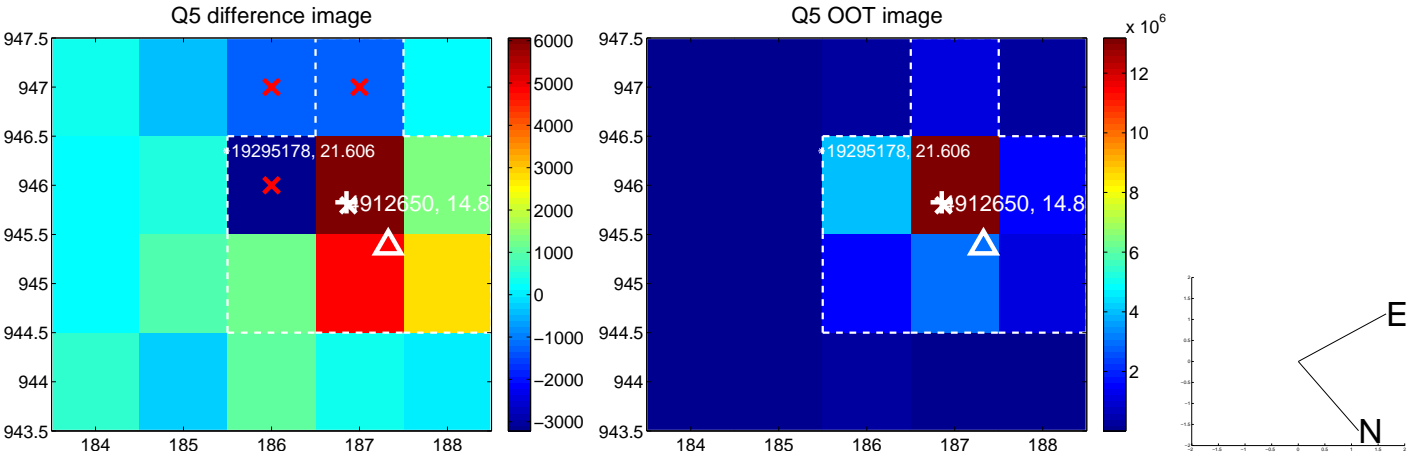


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

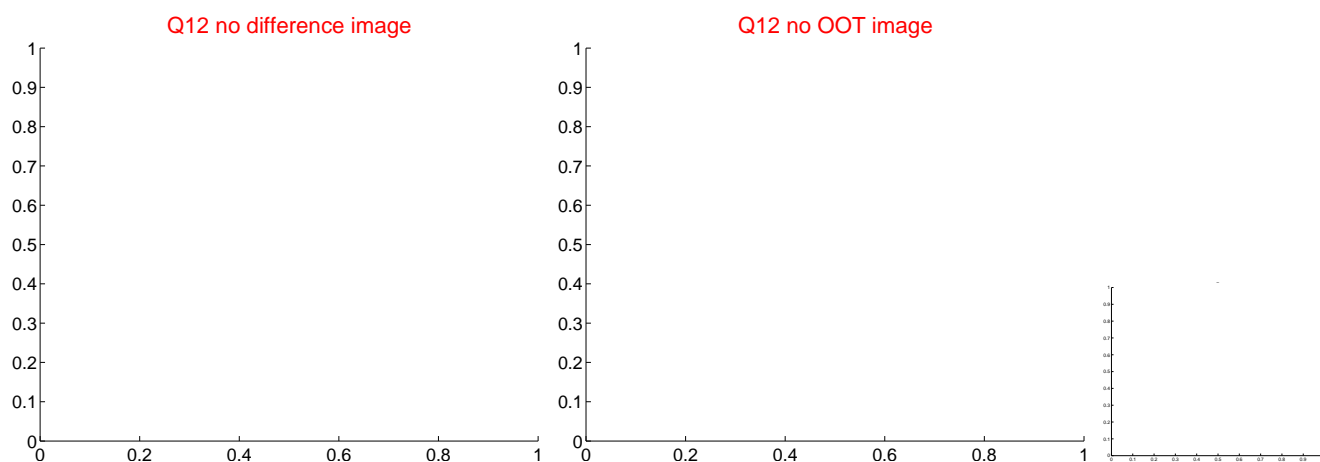
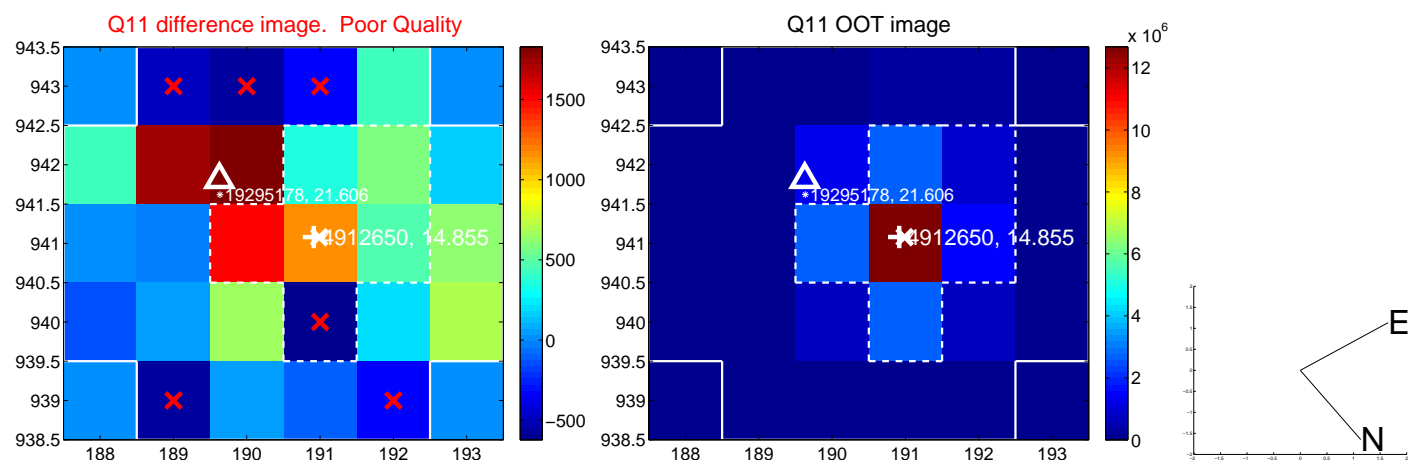
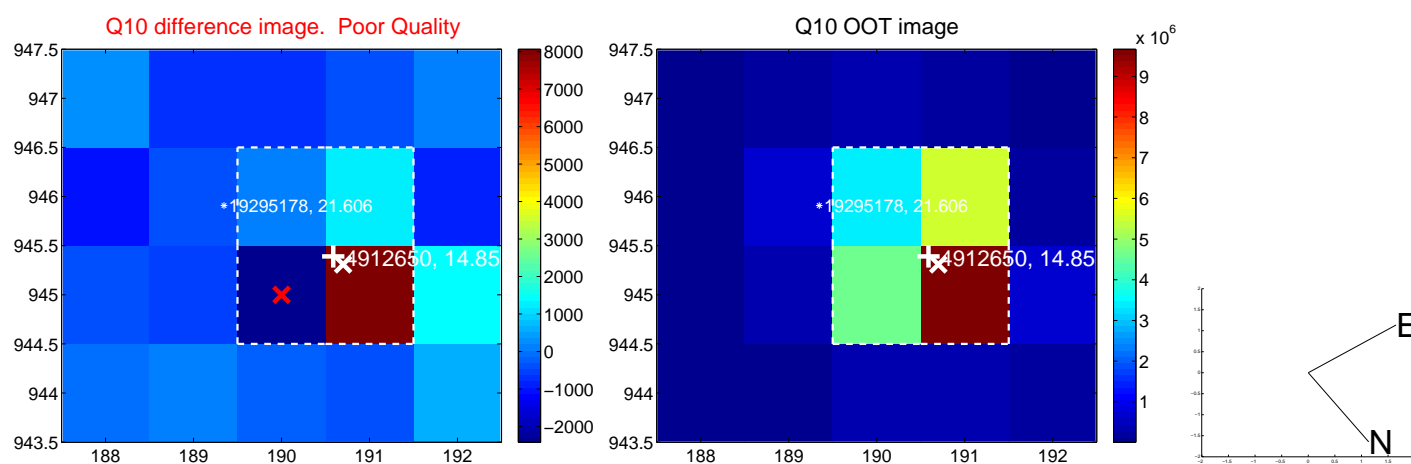
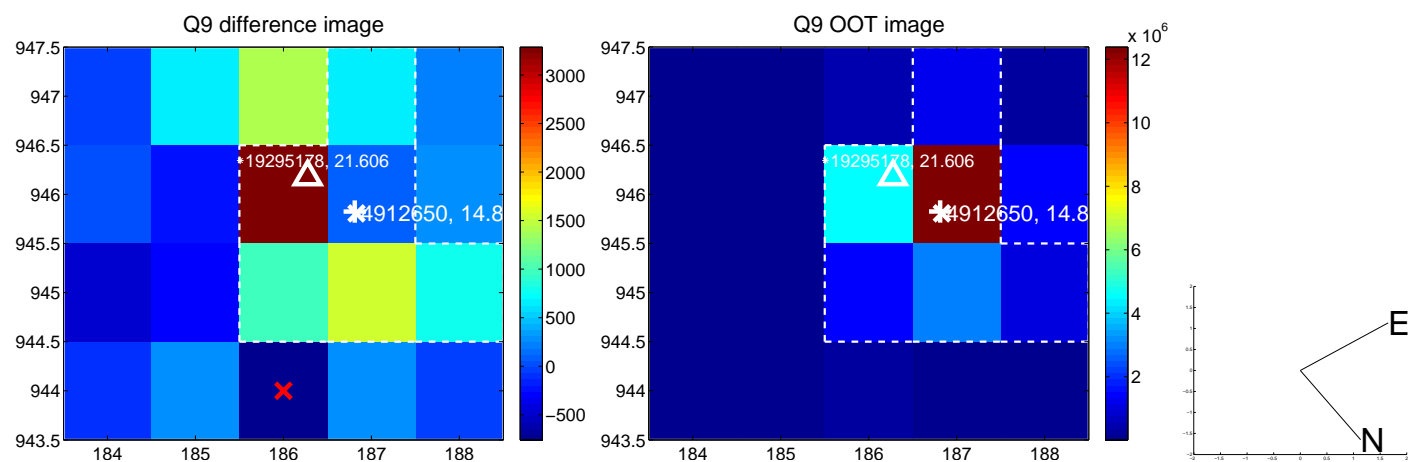
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



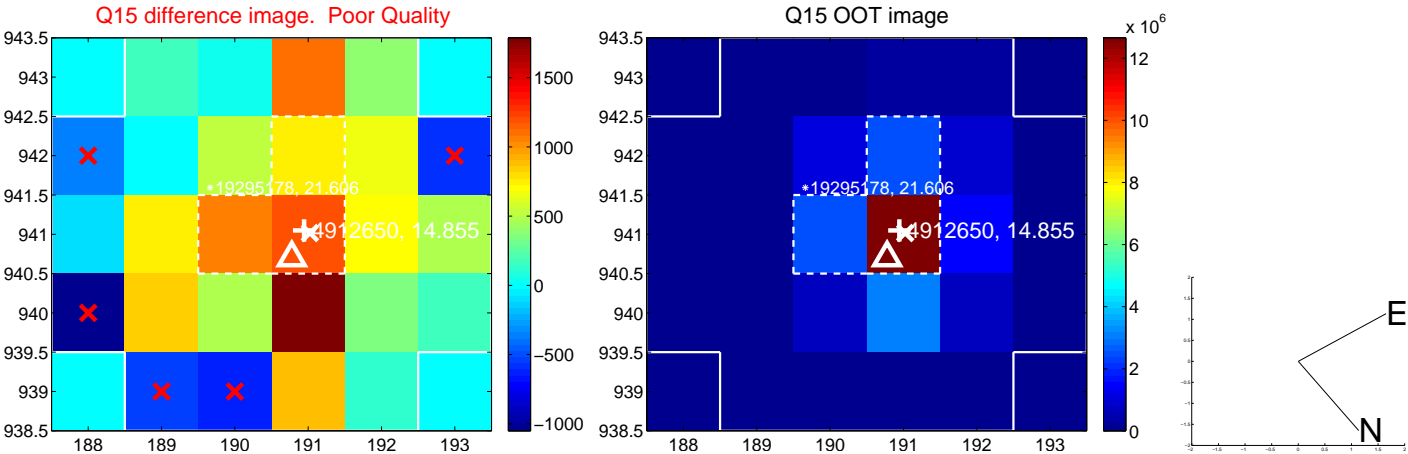
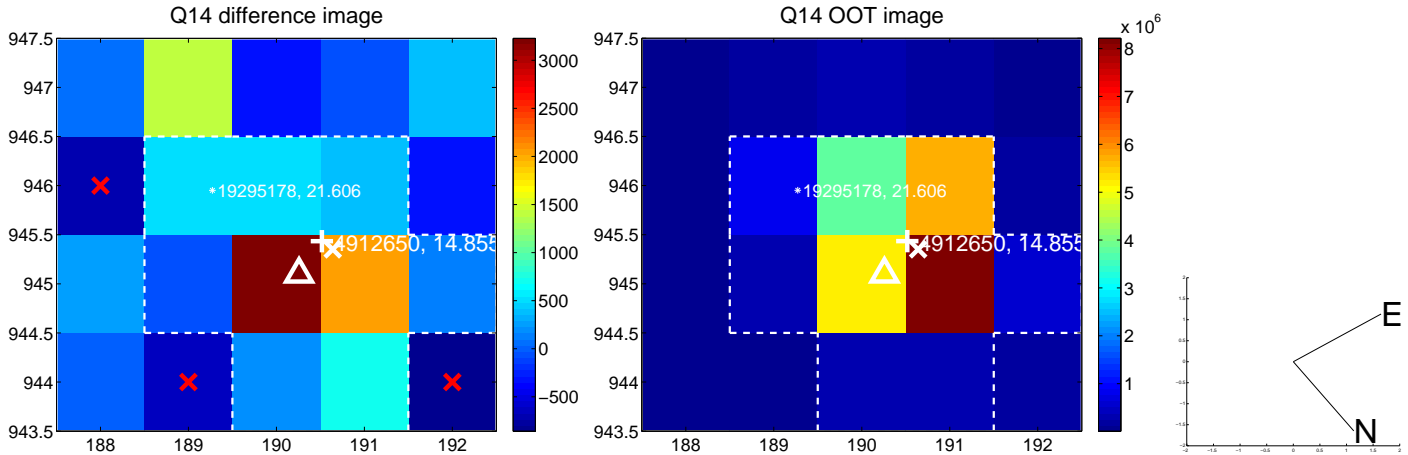
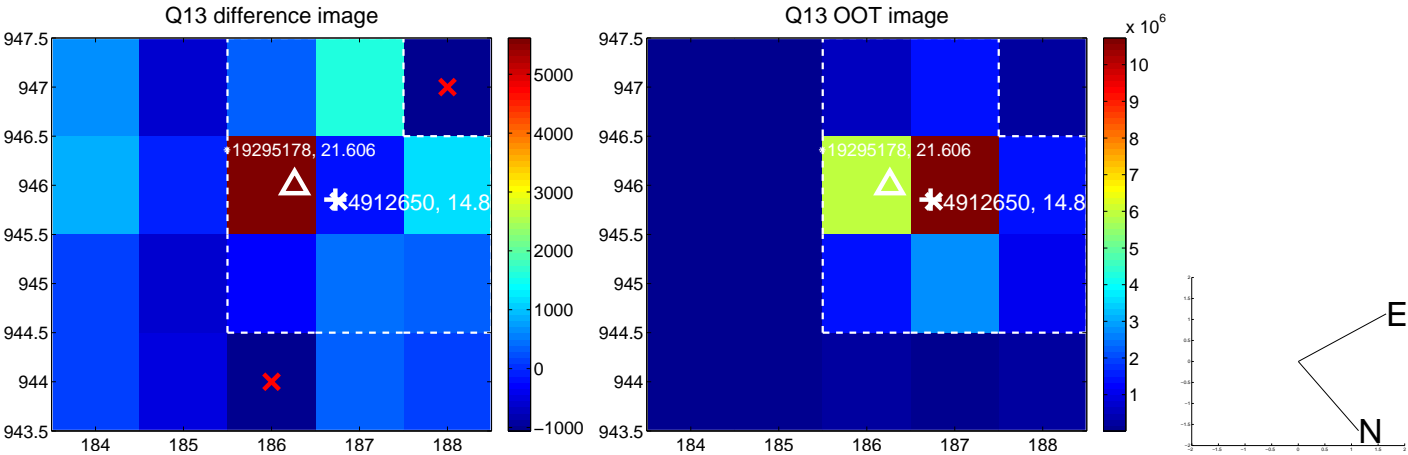
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



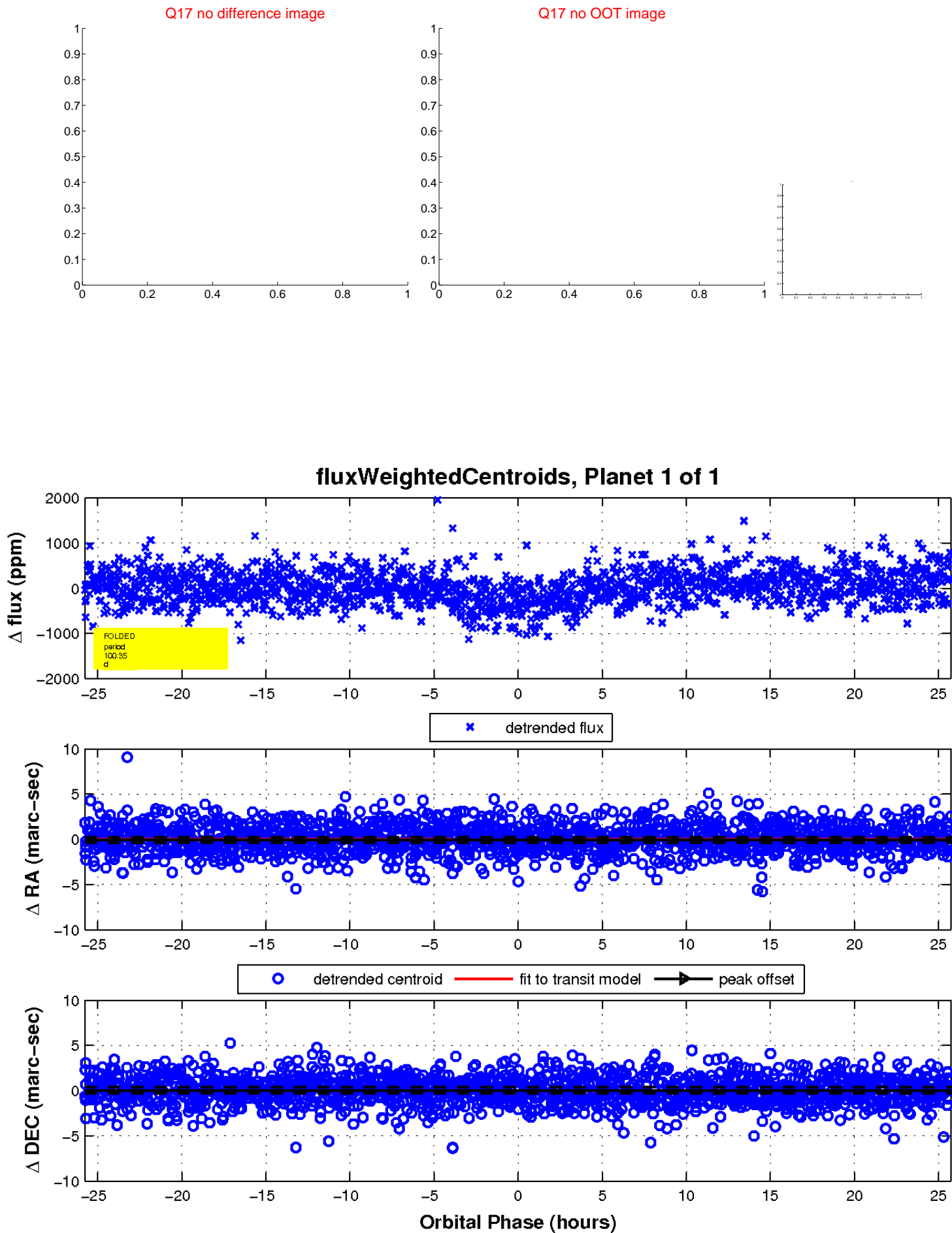
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

