

KIC 004673628

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 004673628-01 | OBS | 4056.01 | 3.951397 | 132.062189 | 364.0 | 0.792 | 16.5 | 22.7 | 0.90 | 5570 | 1.86 | 325.45 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------|
| 004673628-01 | OBS | PC | 0.84 | 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.

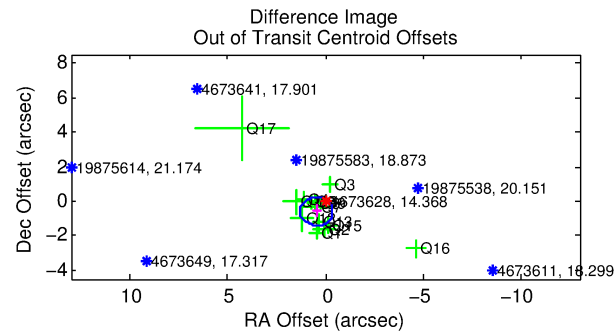
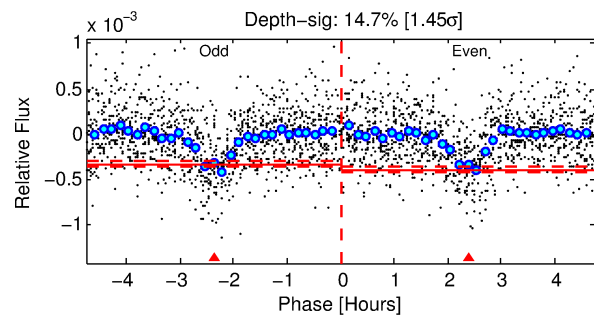
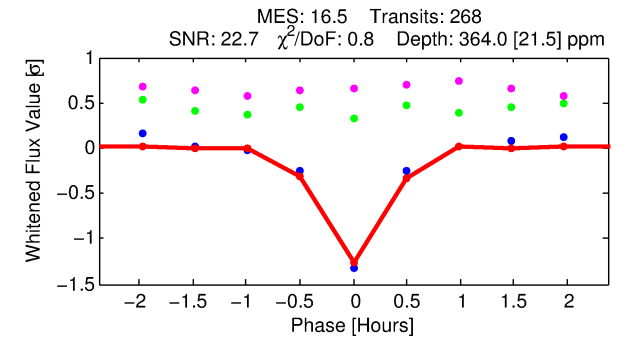
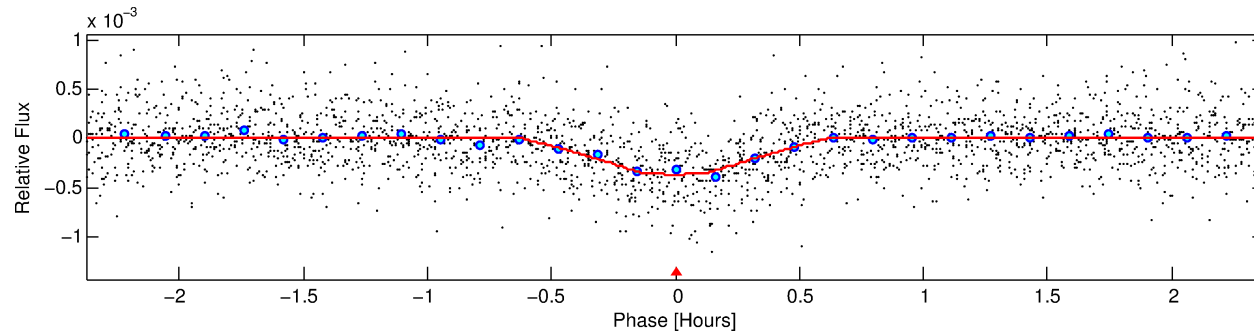
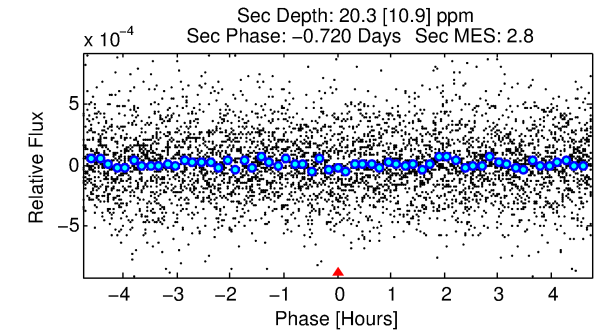
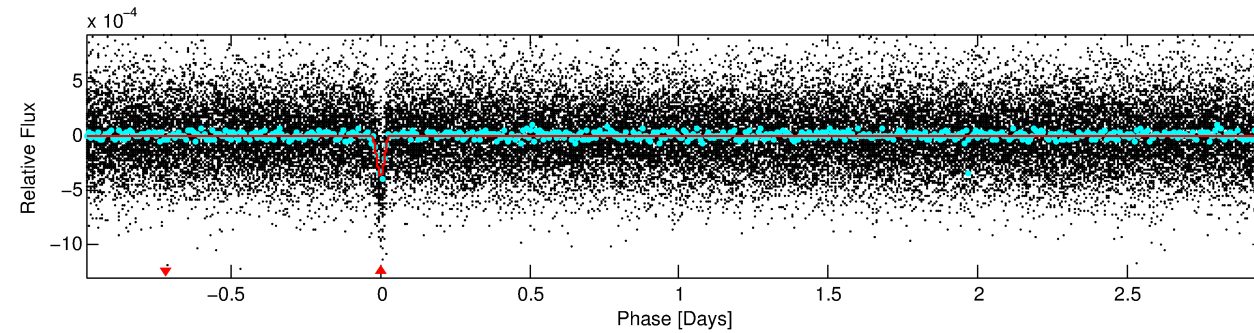
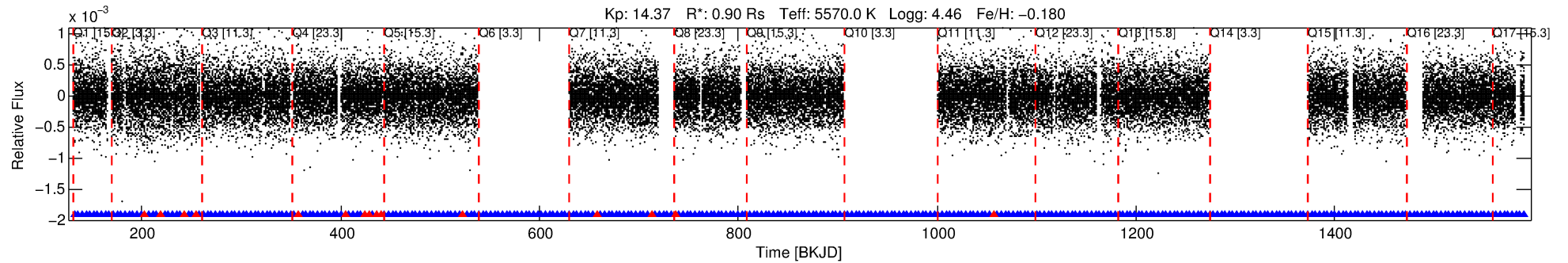
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004673628-01

No Significant Match Found

DV One-Page Summary

KIC: 4673628 Candidate: 1 of 1 Period: 3.951 d
KOI: K04056.01 Corr: 0.879



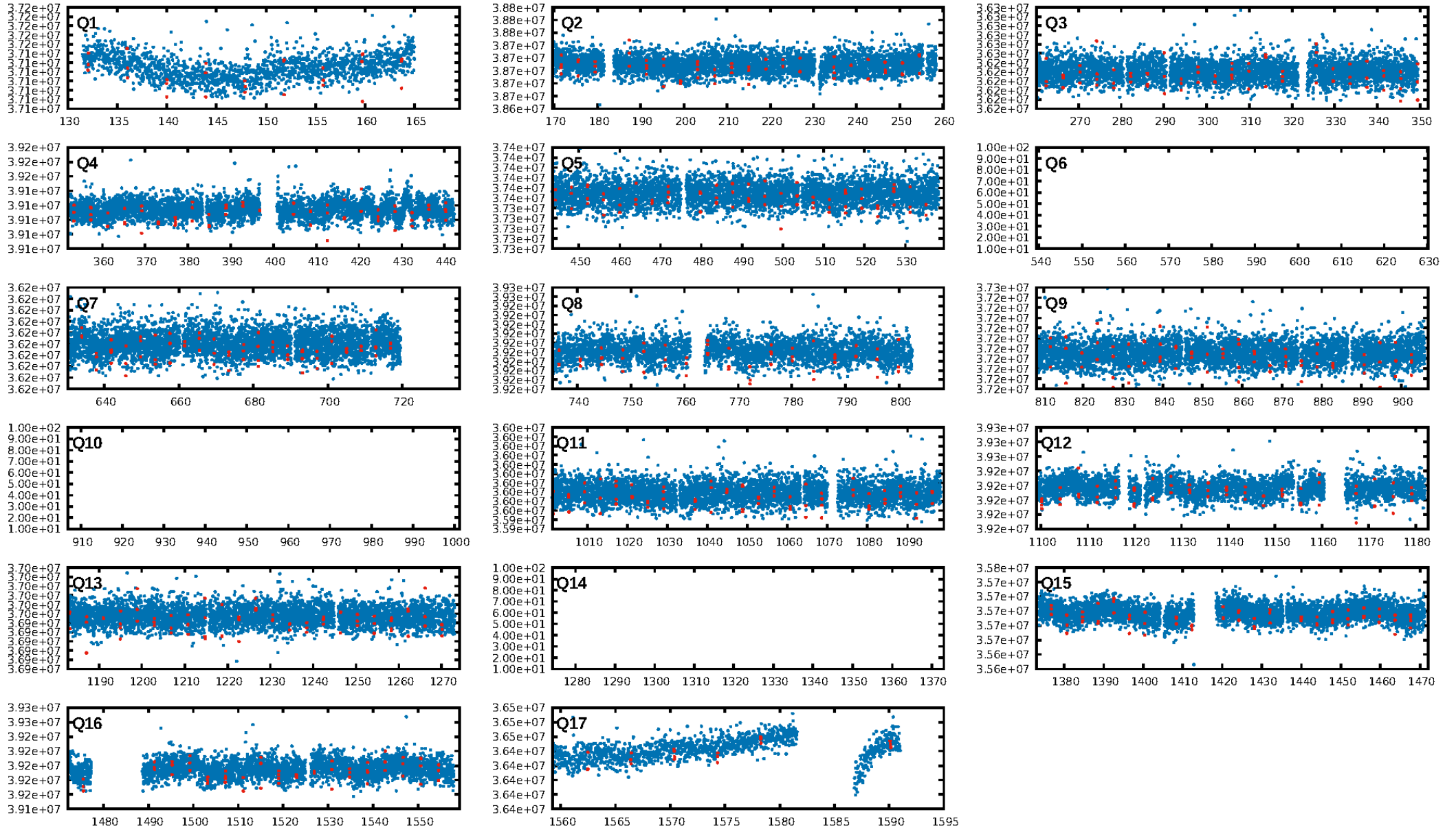
DV Fit Results:

Period = 3.95140 [0.00001] d
Epoch = 132.0622 [0.0008] BKJD
Rp/R* = 0.0190 [0.0054]
a/R* = 28.24 [34.10]
b = 0.70 [0.89]
Seff = 325.45 [106.66]
Teq = 1083 [89] K
Rp = 1.86 [0.70] Re
a = 0.0463 [0.0096] AU
Ag = 6.90 [5.79] [1.02σ]
Teffp = 2714 [536] K [3.00σ]

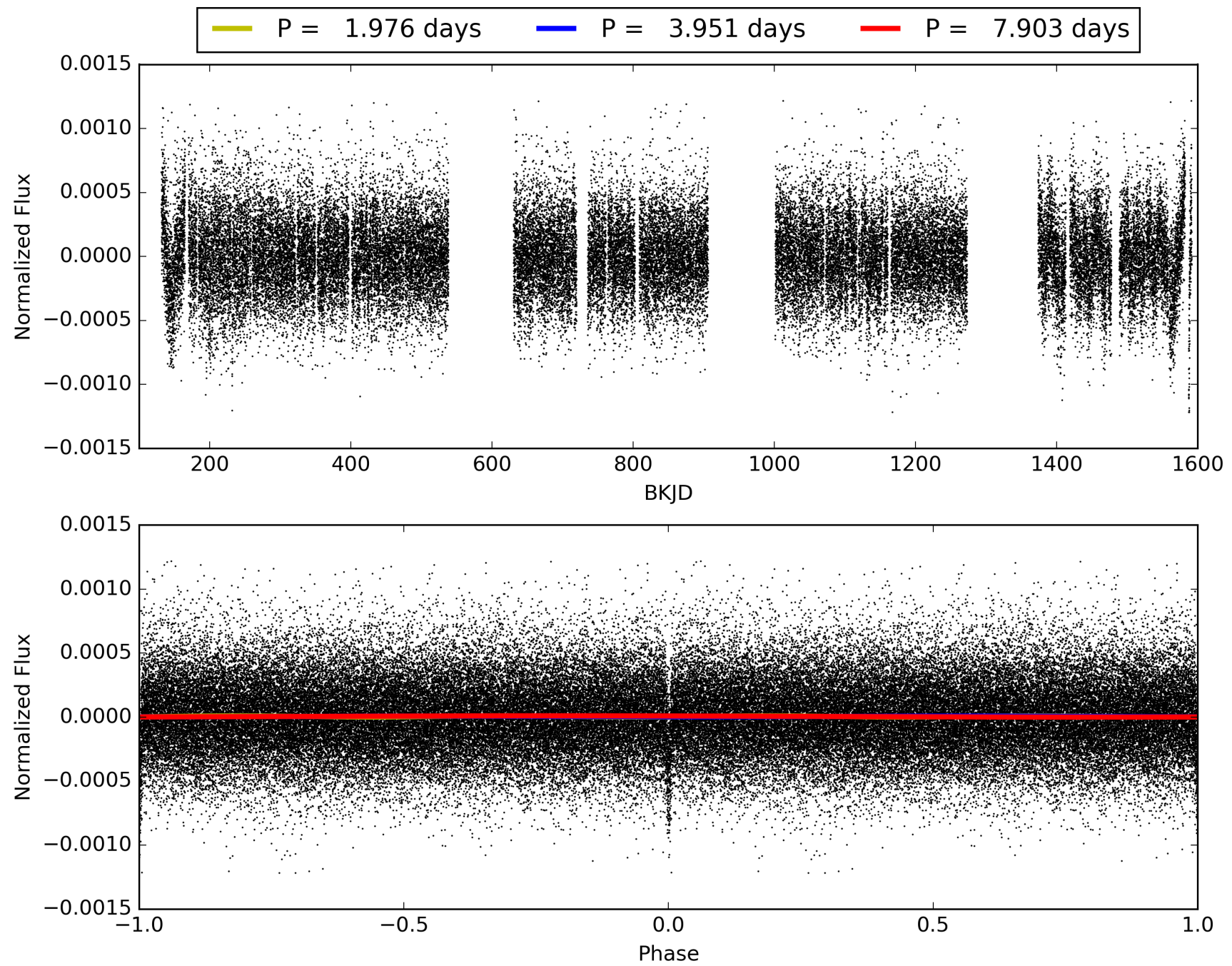
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.05e-59
RollingBand-fgt: 0.94 [238/253]
GhostDiagnostic-chr: -34.21
Centroid-sig: 73.0%
Centroid-so: 0.519 arcsec [0.79σ]
OotOffset-rm: 0.745 arcsec [2.71σ]
KicOffset-rm: 0.672 arcsec [2.35σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.86 [12/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004673628-01, PDC Light Curves

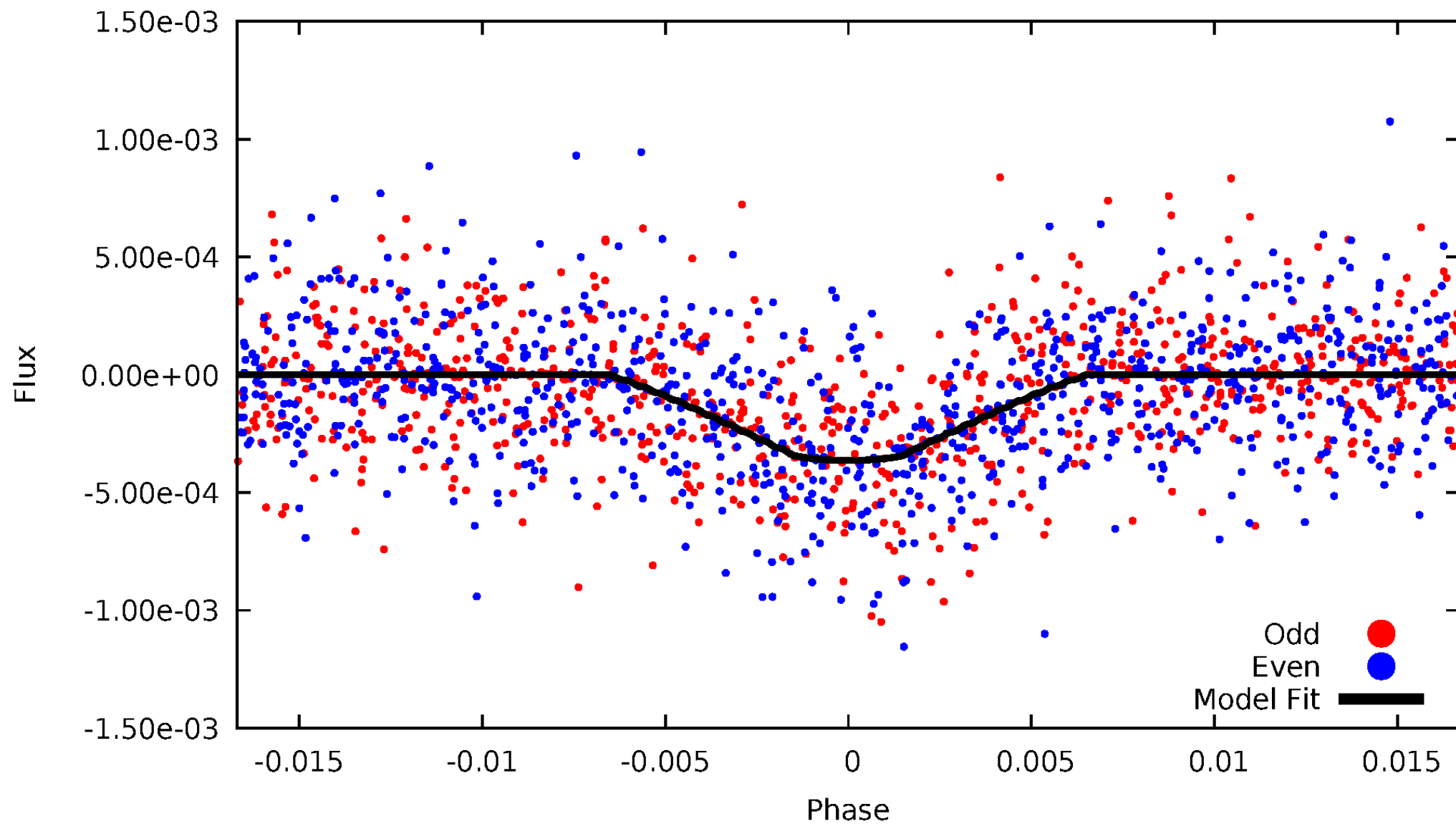


TCE 004673628-01



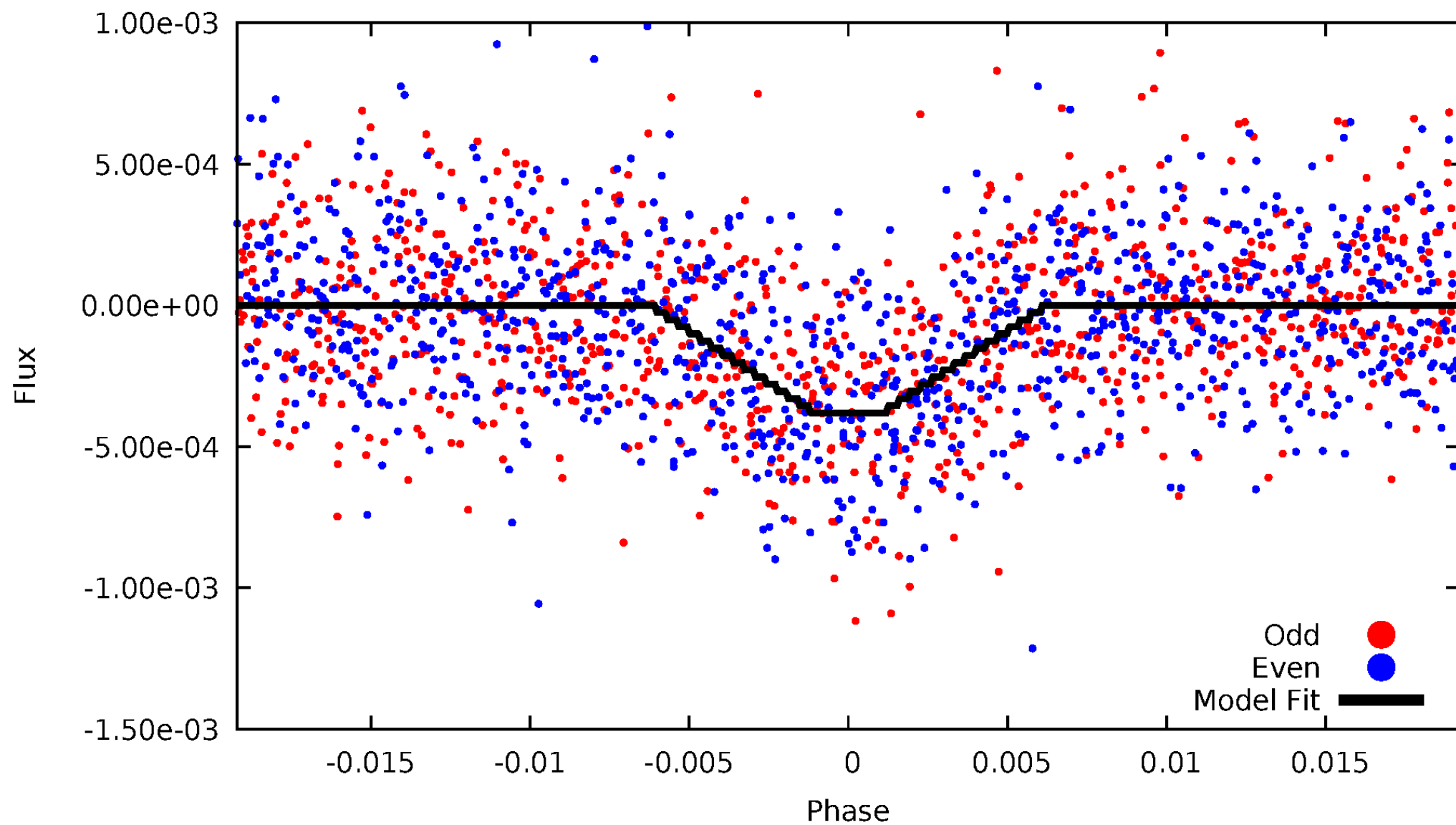
DV Odd/Even

TCE 004673628-01



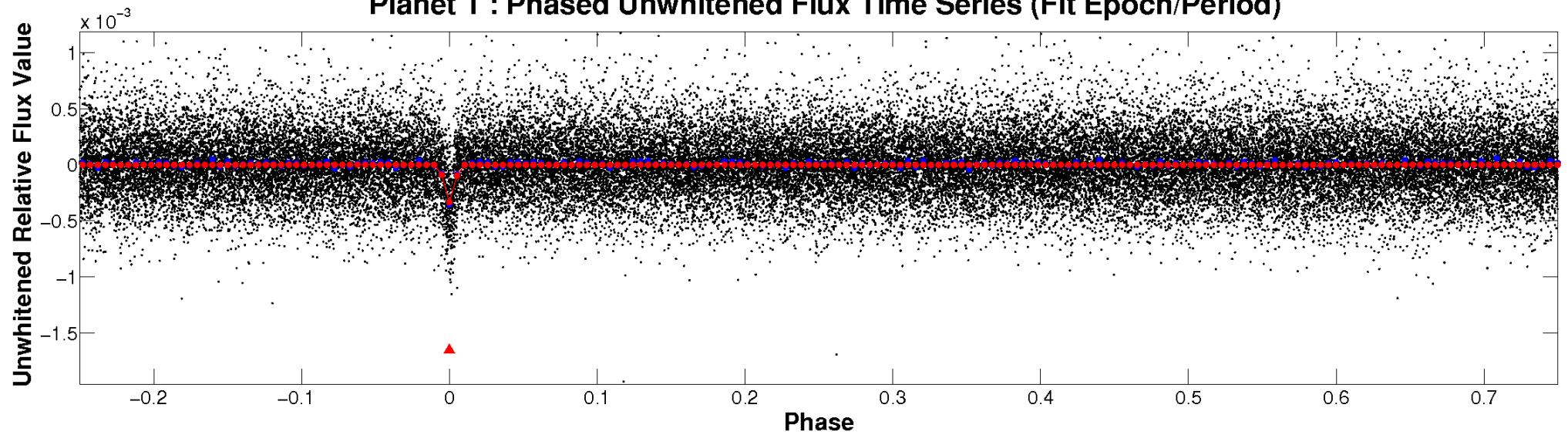
ALT Odd/Even

TCE 004673628-01

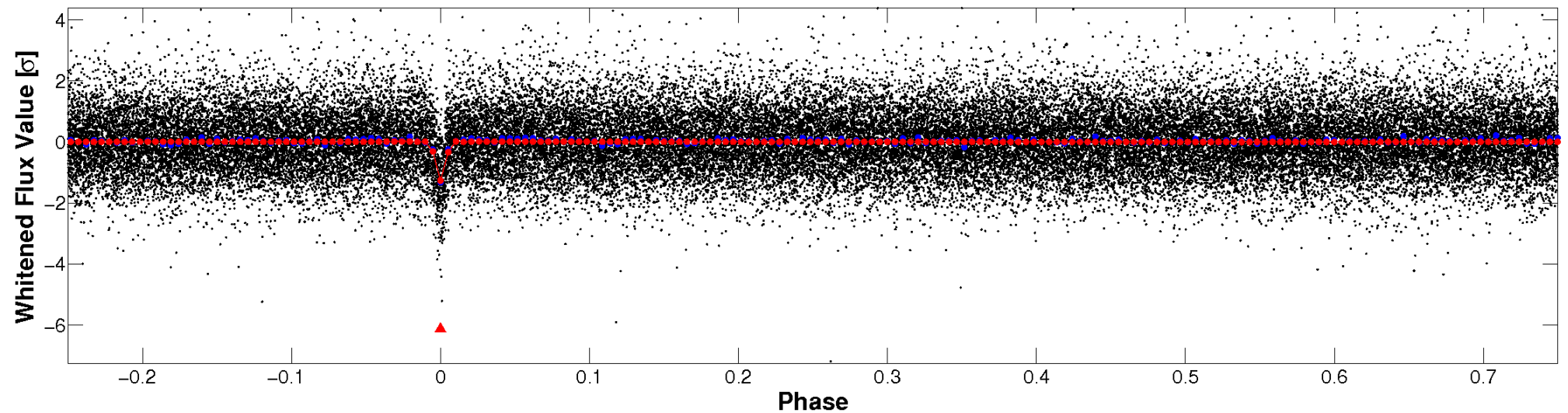


Non-Whitened Vs. Whitened Light Curve

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

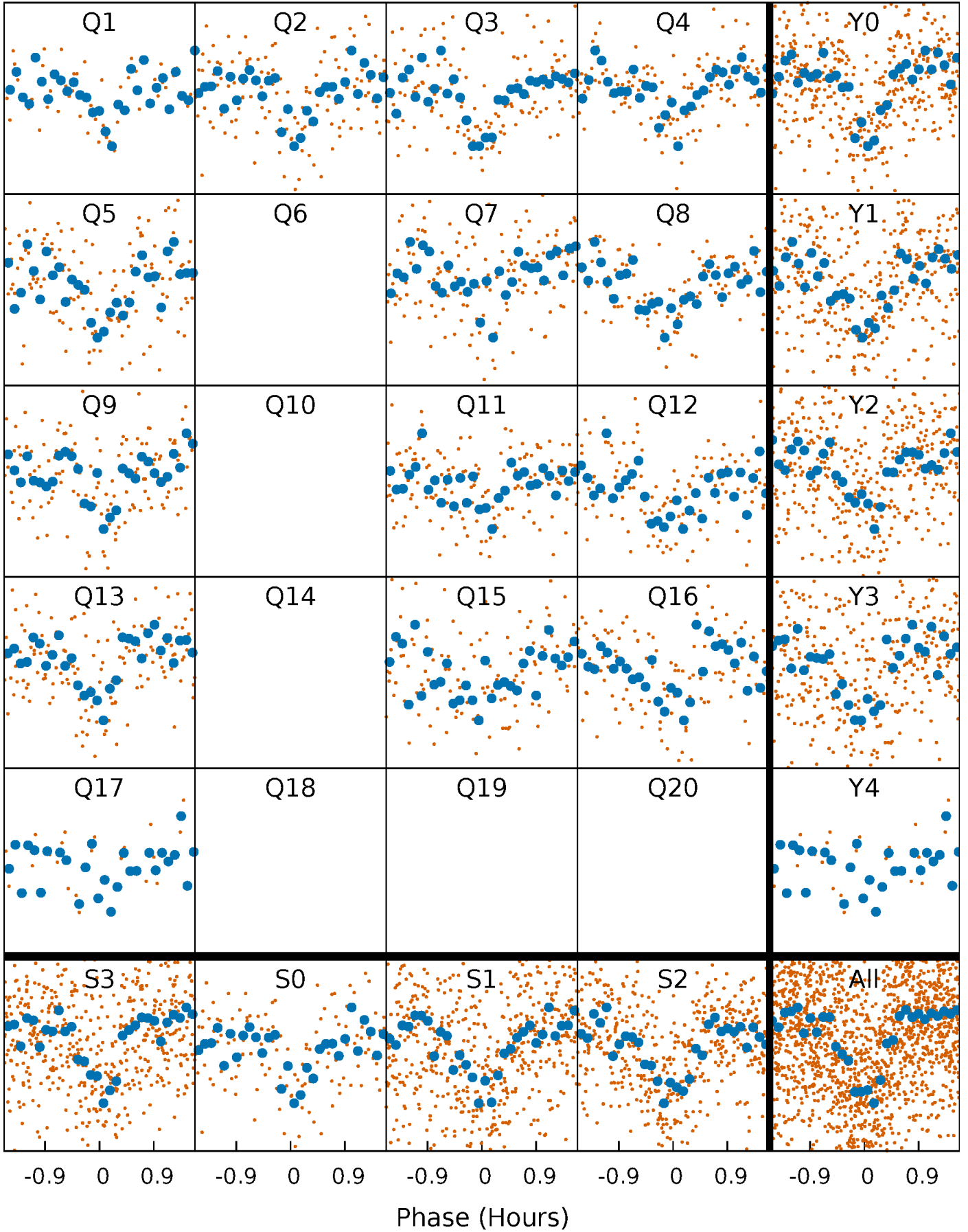


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



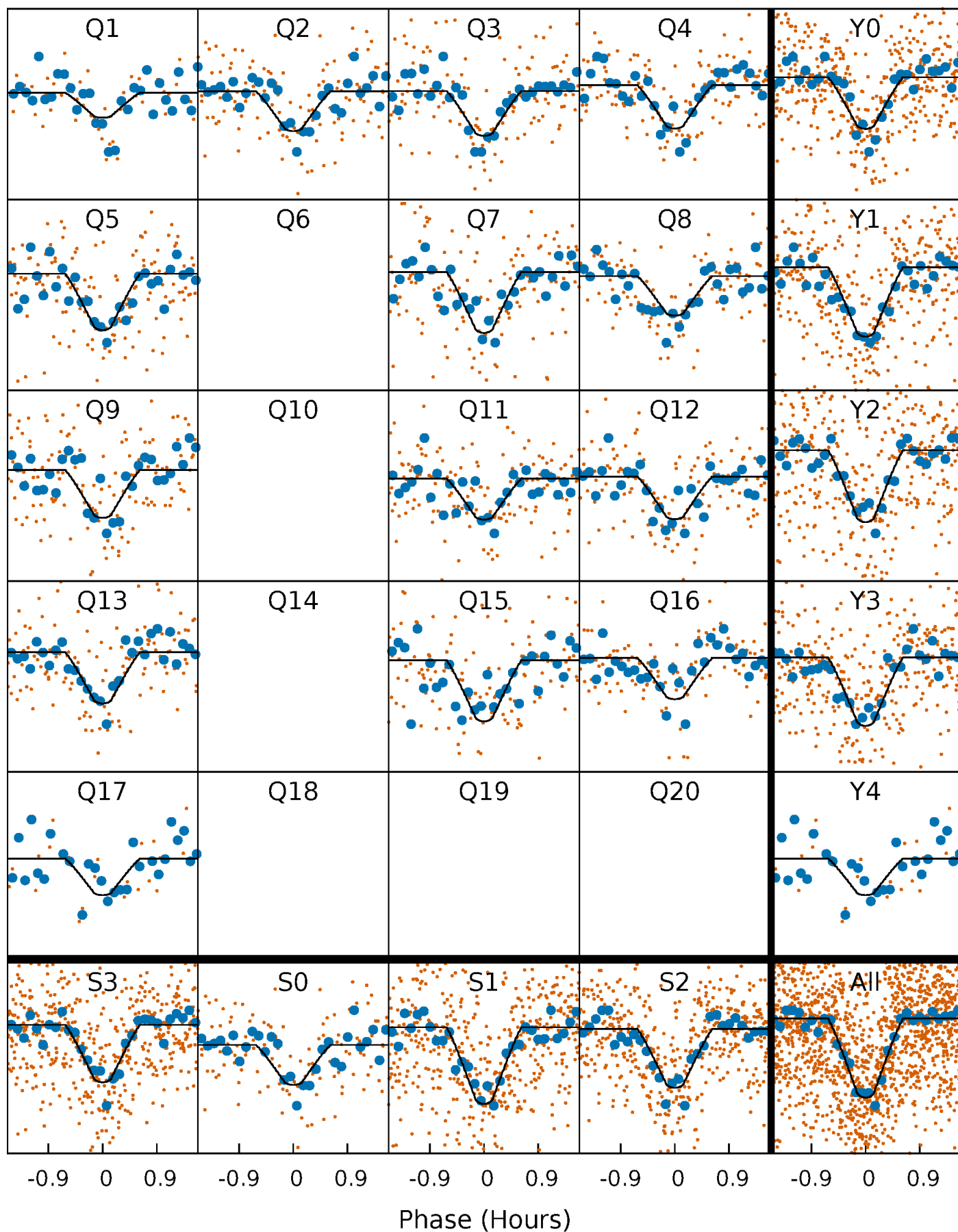
PDC Quarter-Phased Transit Curves

TCE 004673628-01 P= 3.951397 Days $T_0=132.062189$ (BKJD)



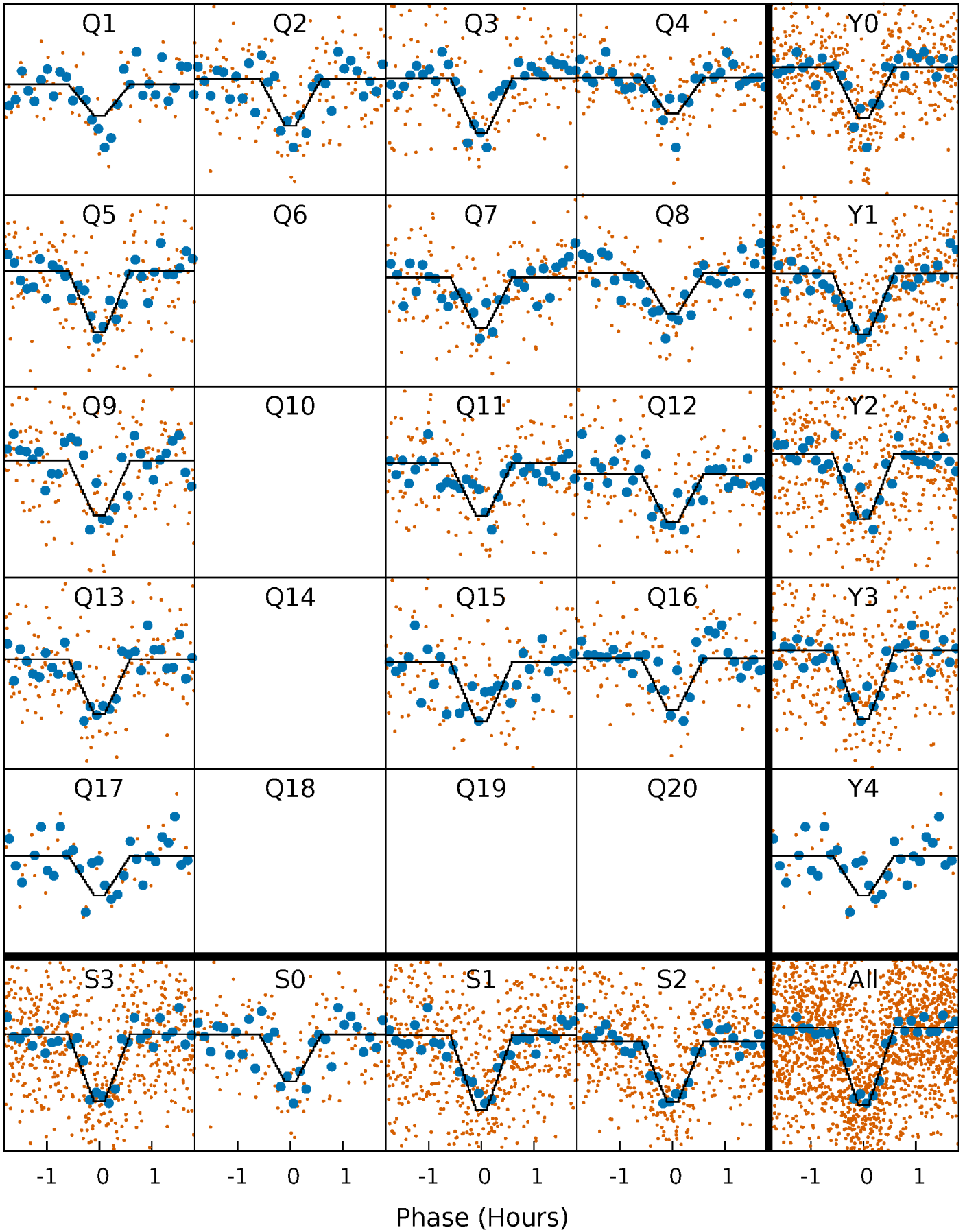
DV Quarter-Phased Transit Curves

TCE 004673628-01 P= 3.951397 Days $T_0=132.062189$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

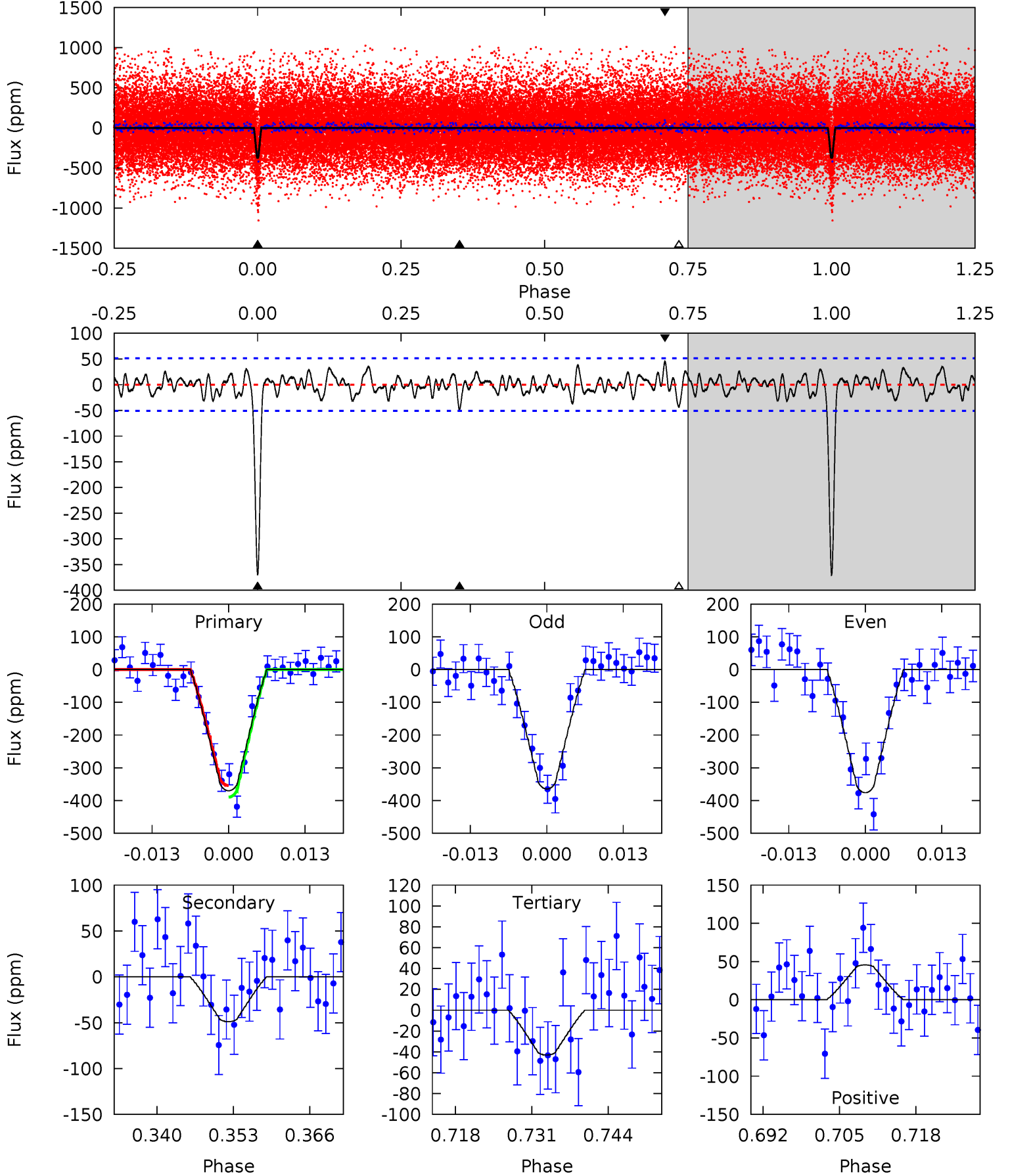
TCE 004673628-01 P= 3.951380 Days $T_0=132.064991$ (BKJD)



DV Model-Shift Uniqueness Test

004673628-01, P = 3.951397 Days, E = 128.110792 Days

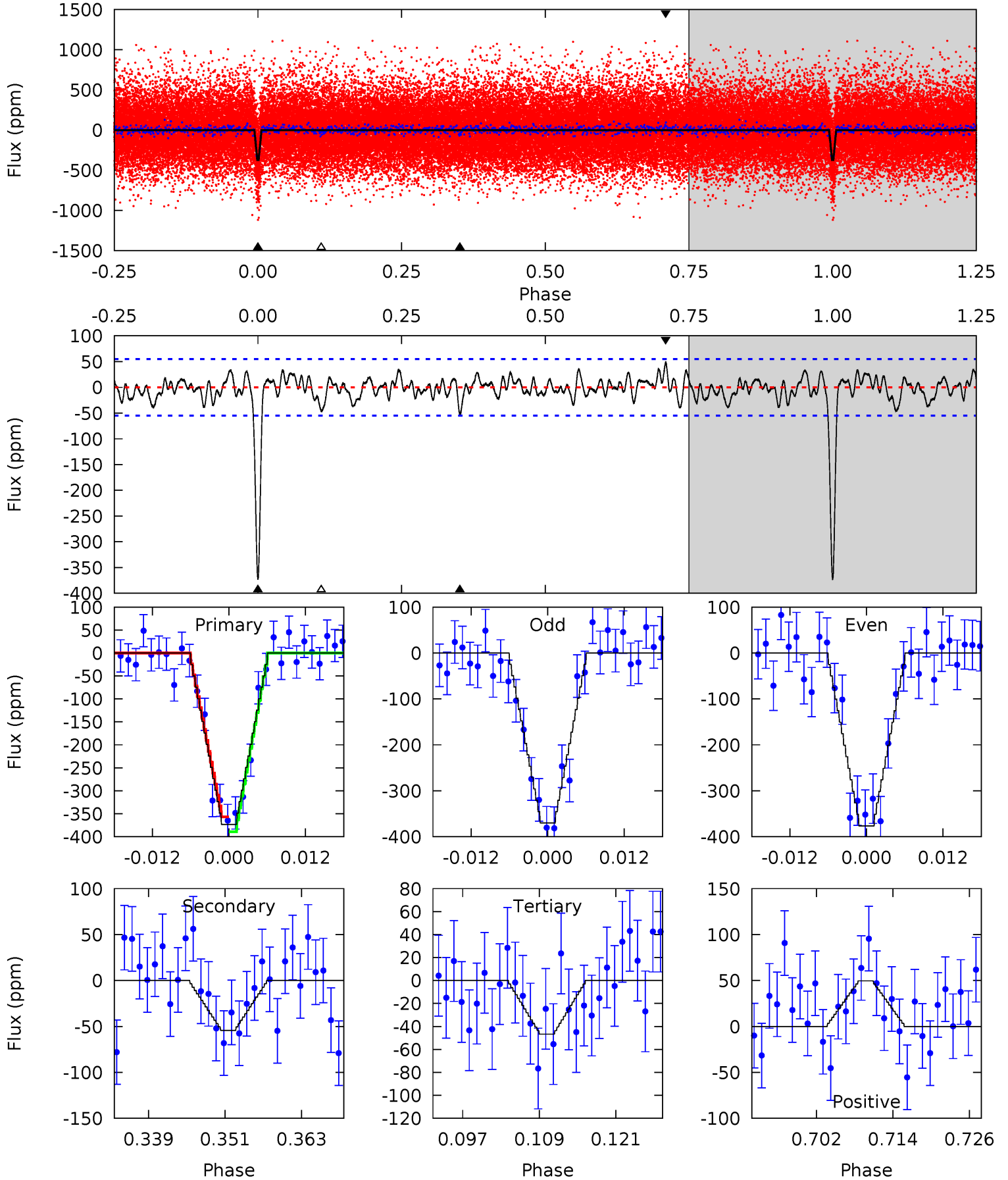
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 36.0 | 4.76 | 4.19 | 4.44 | 4.97 | 2.48 | 1.39 | 31.8 | 31.5 | 0.57 | 0.32 | 0.55 | 0.99 | 0.11 | 1.72 |



Alt Model-Shift Uniqueness Test

004673628-01, P = 3.951380 Days, E = 128.113611 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 33.9 | 4.93 | 4.25 | 4.51 | 4.99 | 2.51 | 1.44 | 29.7 | 29.4 | 0.68 | 0.42 | 0.30 | 1.07 | 0.12 | 1.46 |



Stellar Parameters For KIC 004673628

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5570^{+166}_{-149} | $4.458^{+0.104}_{-0.169}$ | $-0.180^{+0.300}_{-0.300}$ | $0.899^{+0.217}_{-0.117}$ | $0.845^{+0.111}_{-0.074}$ | $1.640^{+0.668}_{-0.730}$ |
| | +3%/-3% | +2%/-4% | +167%/-167% | +24%/-13% | +13%/-9% | +41%/-45% |
| 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 004673628-01 / KOI 4056.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|--------------|------------------------|--------------------|----------------------|-----------------|
| DV | -49 ± 10 | $1.90^{+0.57}_{-0.55}$ | 1531^{+96}_{-84} | 3758^{+499}_{-330} | 16^{+17}_{-7} |
| Alt. | -54 ± 11 | $2.01^{+0.55}_{-0.62}$ | 1528^{+93}_{-76} | 3752^{+493}_{-300} | 16^{+17}_{-6} |

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 $A_{obs} \gg 1.0$

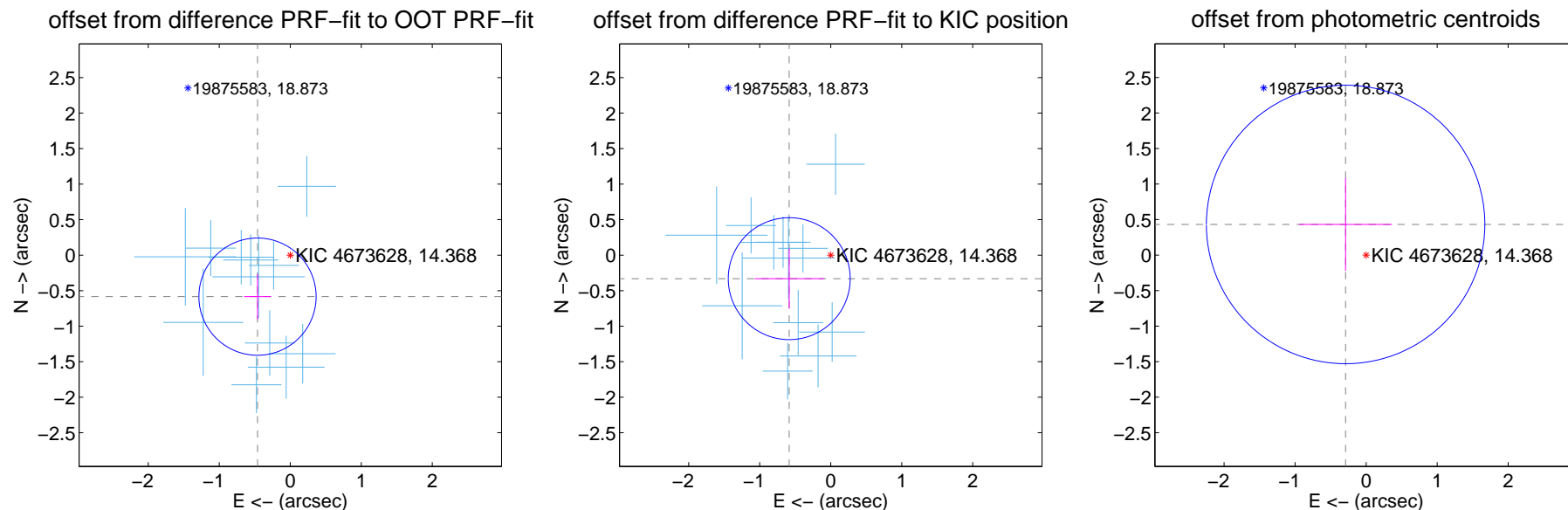
DV Centroid Data

Supplemental centroid analysis for 004673628-01. Kepler magnitude: 14.37. Transit SNR 22.70

There are 12 quarters with good PRF difference image offsets

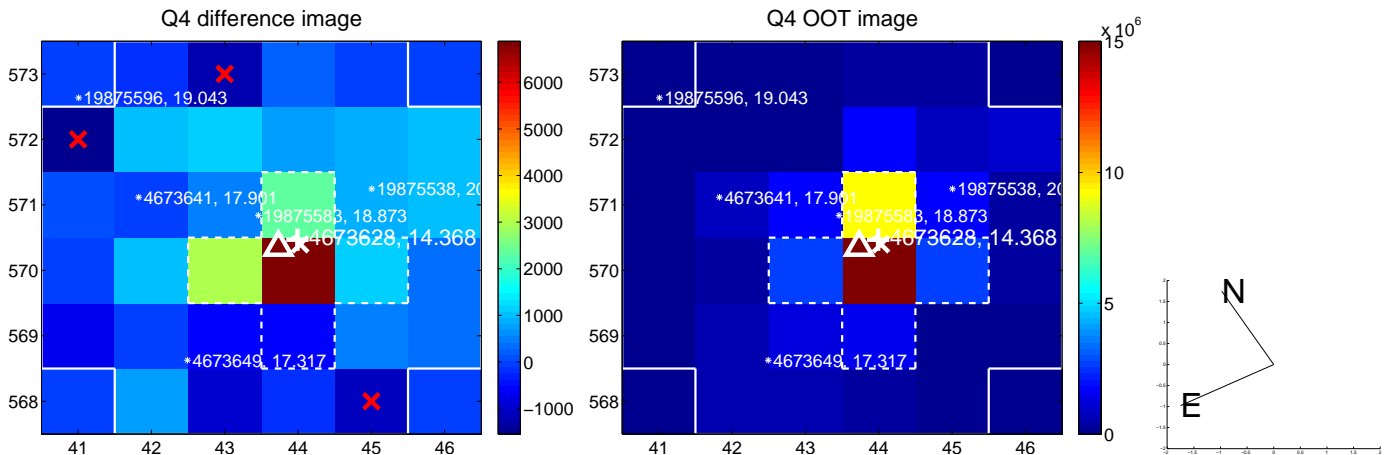
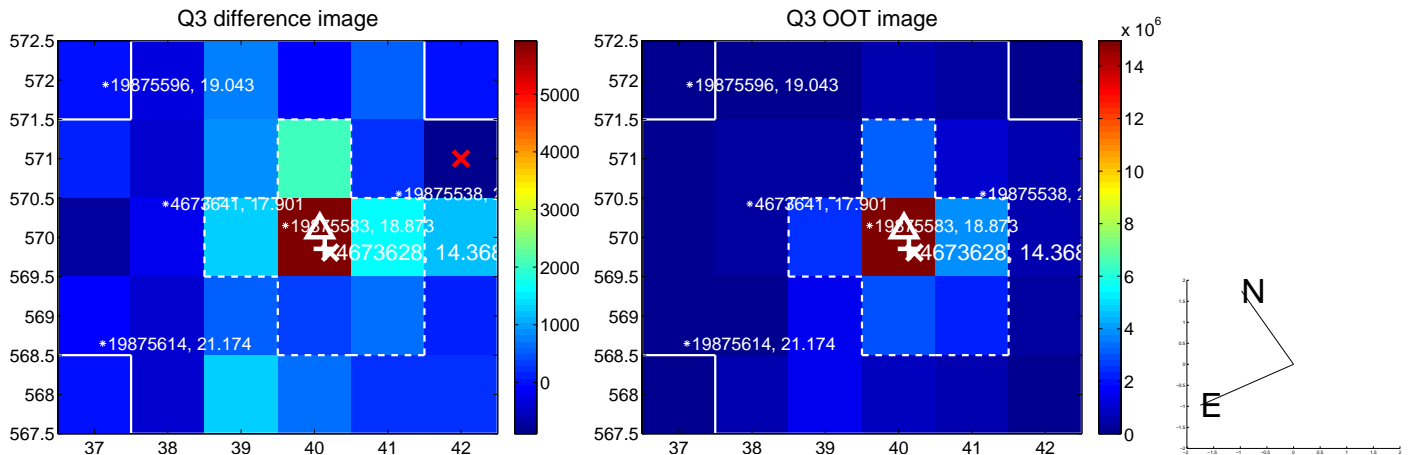
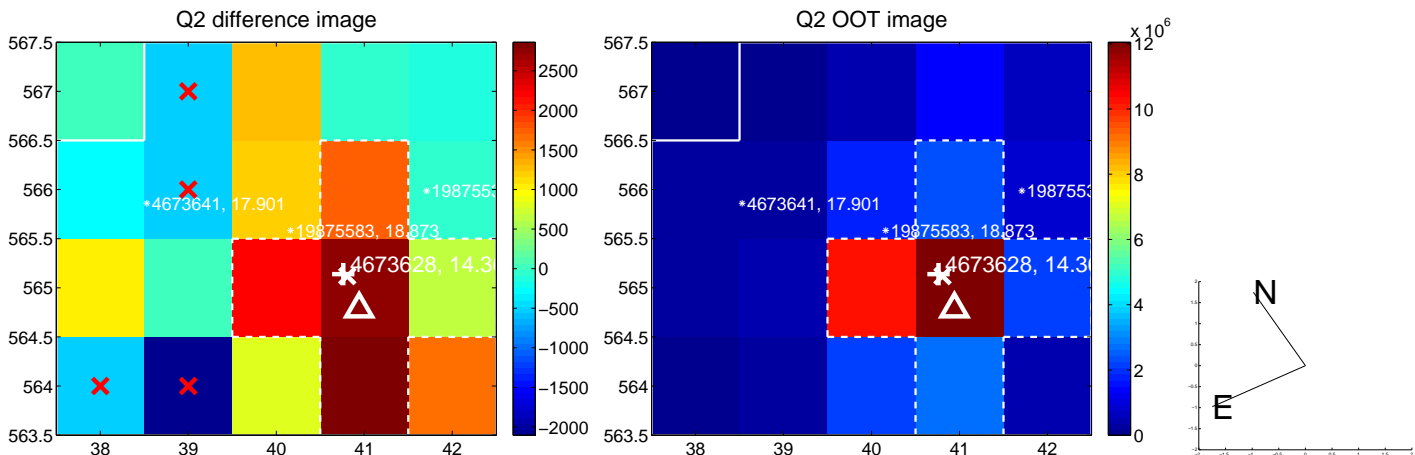
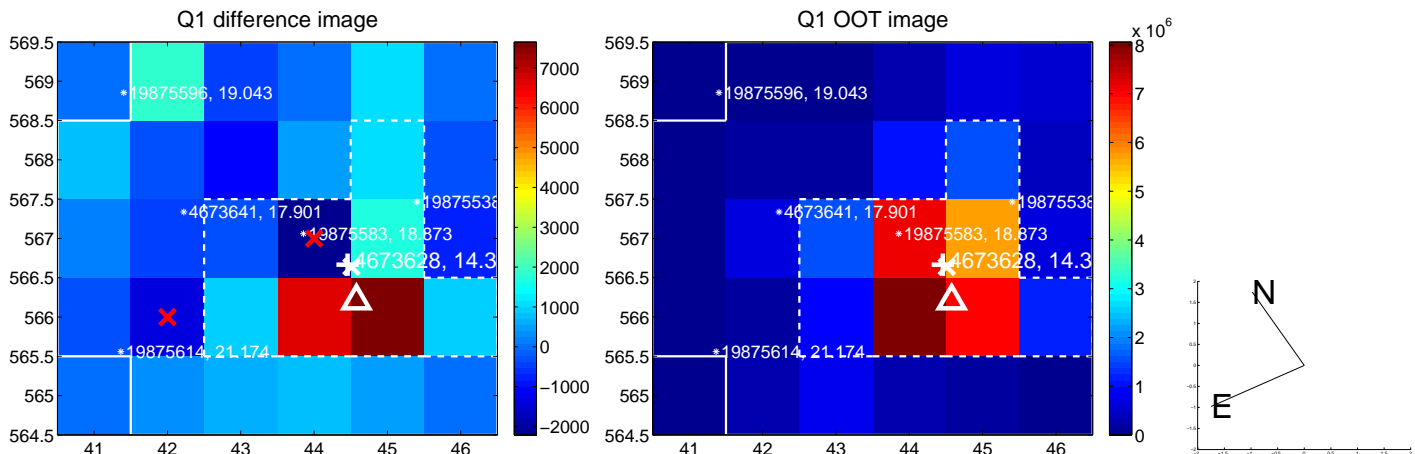
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.745 ± 0.275 | 2.71 | 0.462 ± 0.190 | -0.584 ± 0.317 |
| PRF-fit source offset from KIC position | 0.672 ± 0.286 | 2.35 | 0.585 ± 0.488 | -0.331 ± 0.424 |
| photometric centroid source offset | 0.52 ± 0.65 | 0.79 | 0.29 ± 0.65 | 0.43 ± 0.65 |

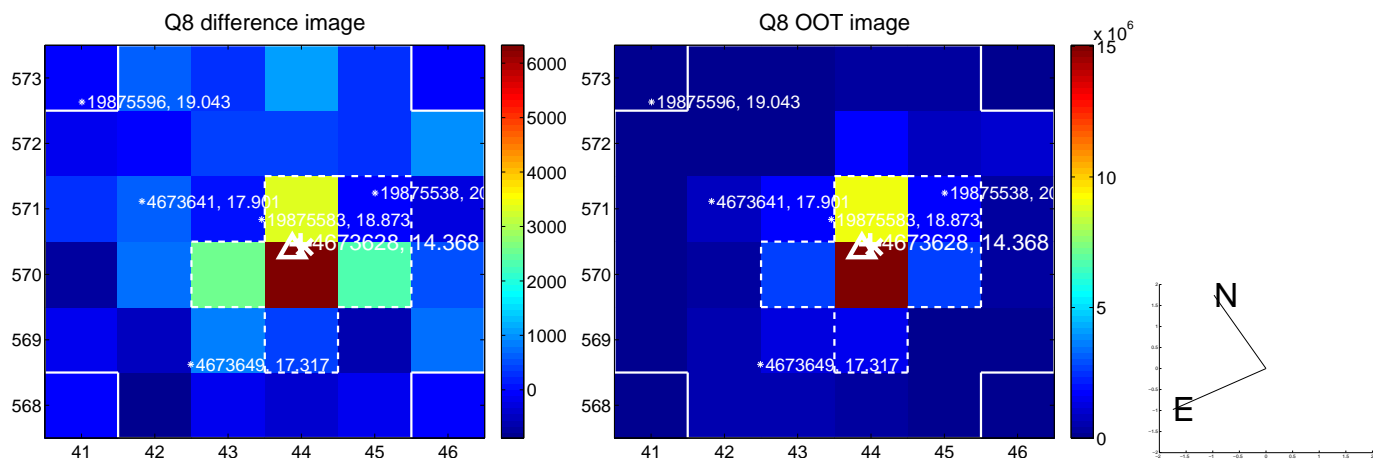
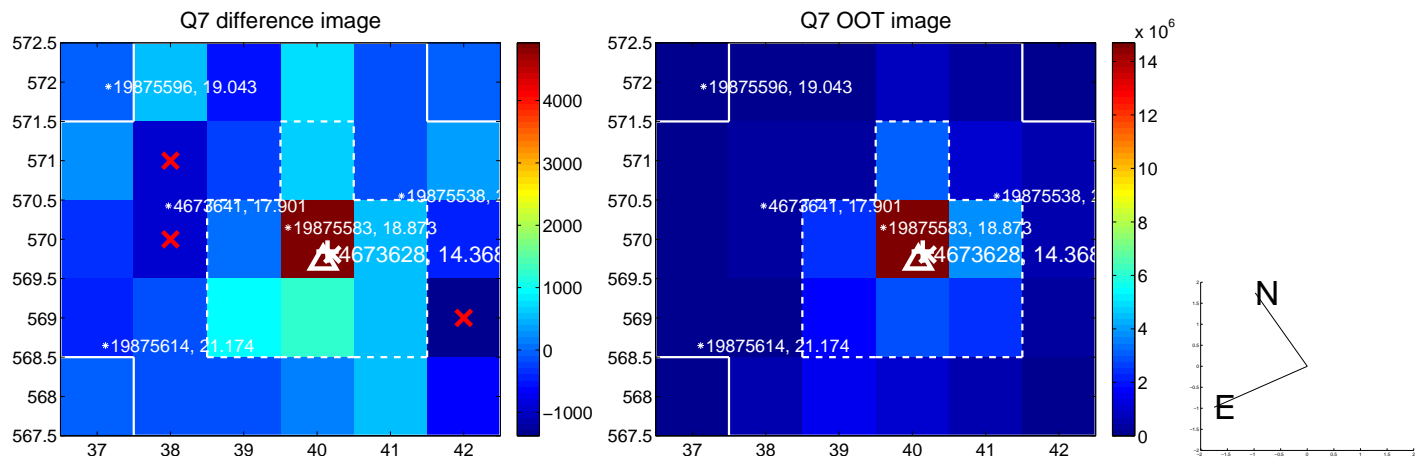
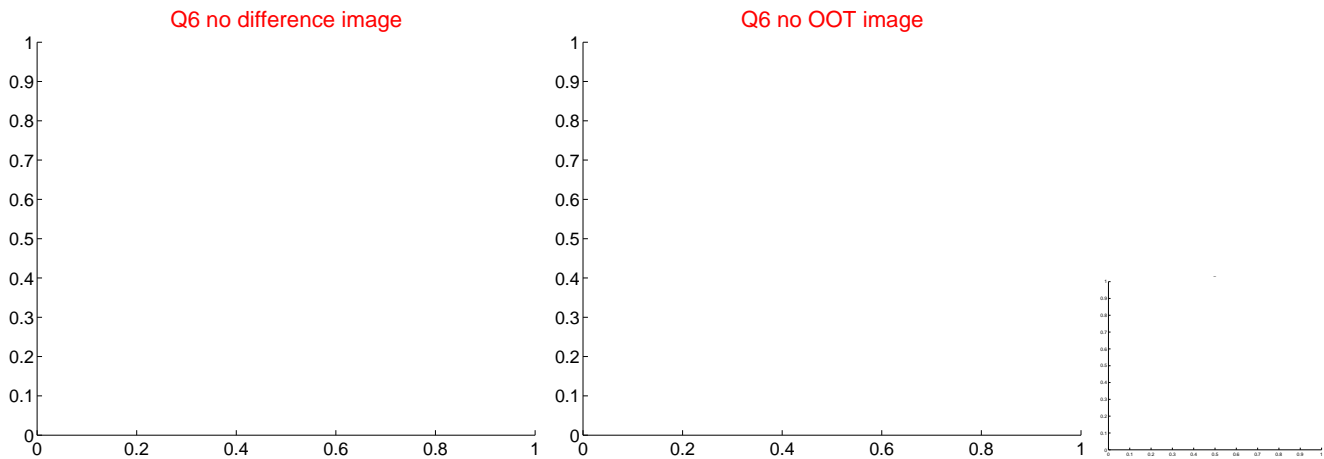
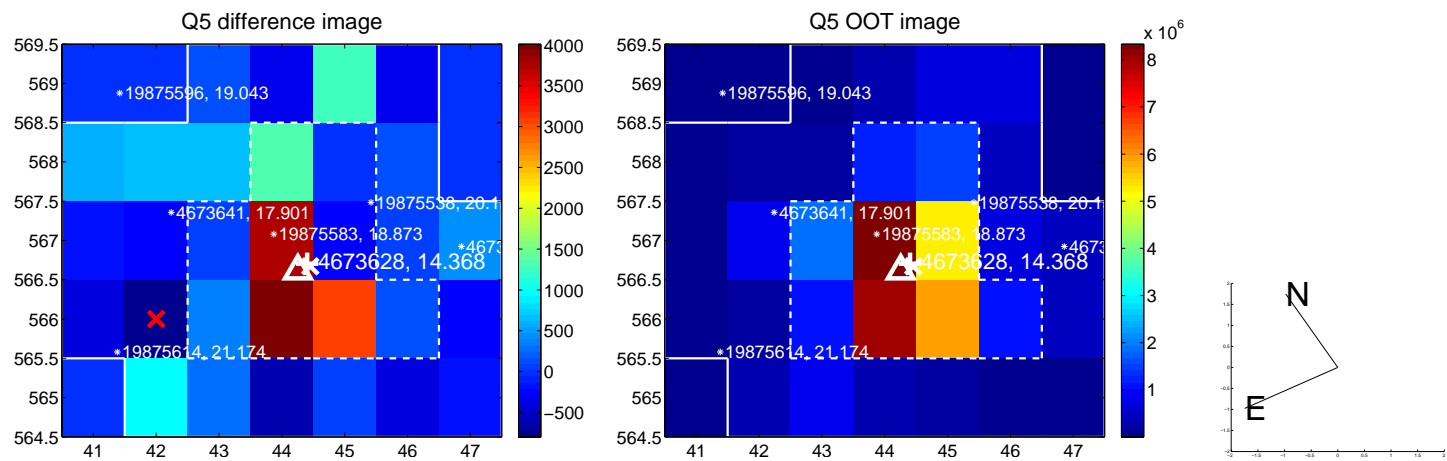


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

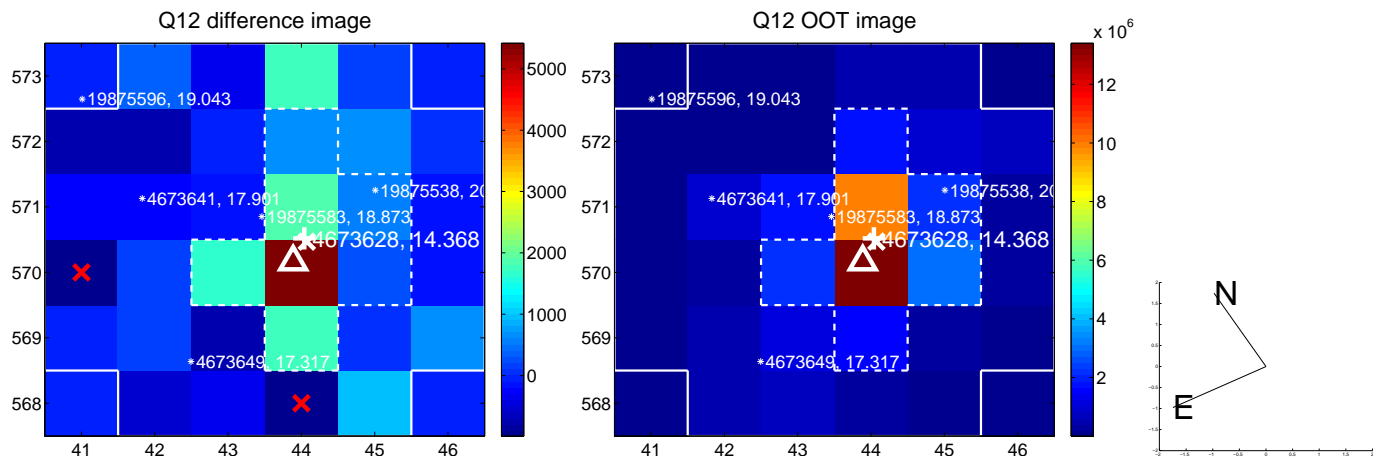
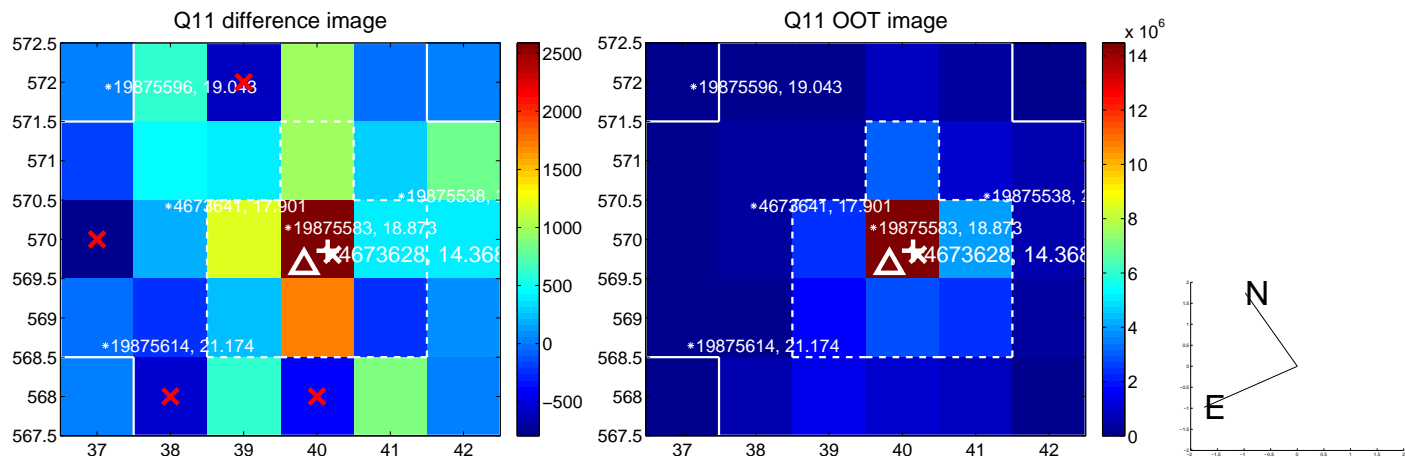
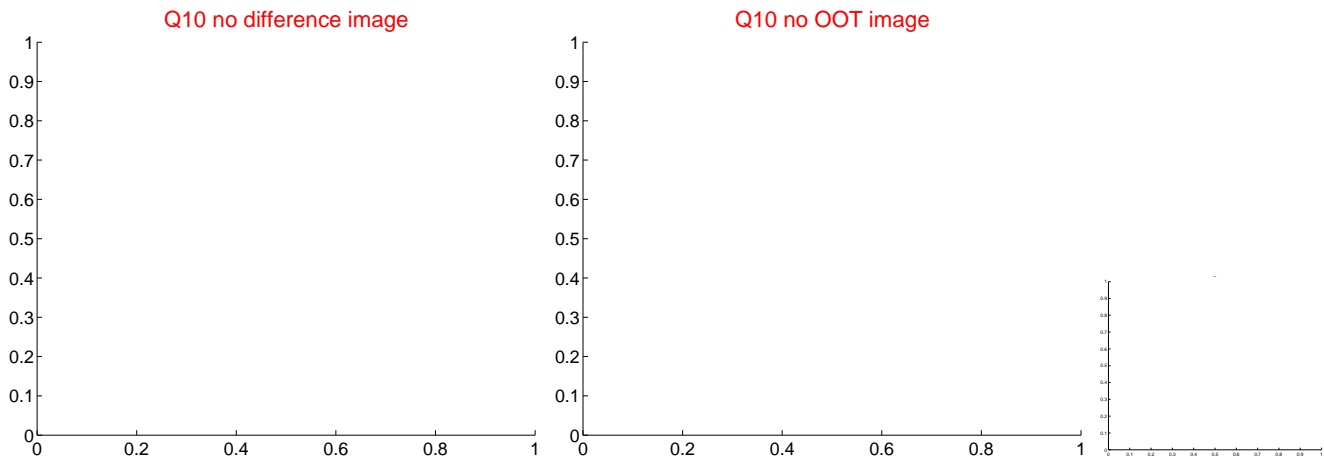
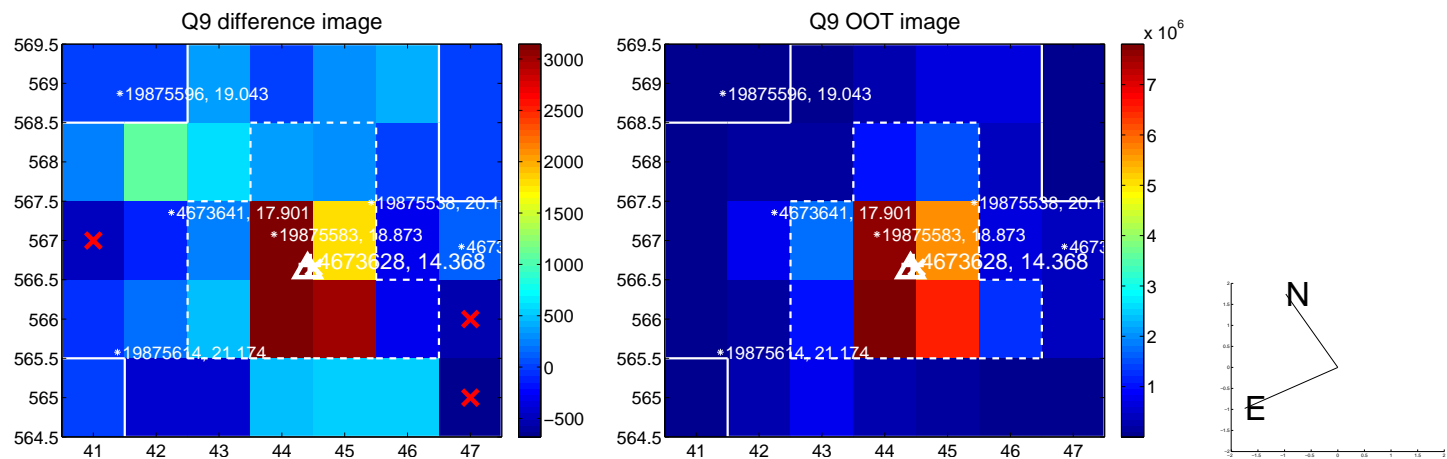
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



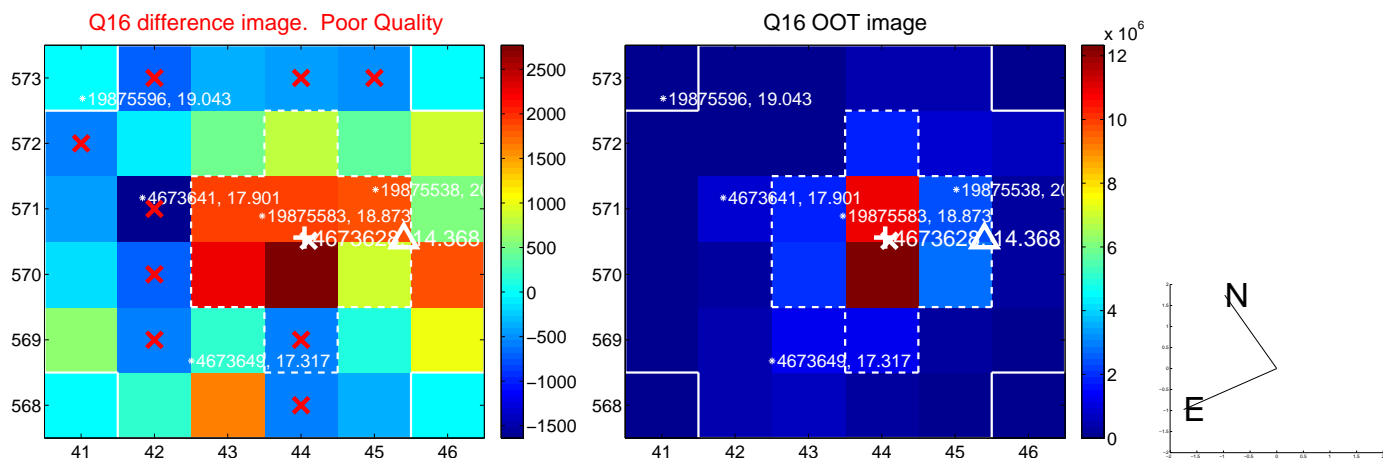
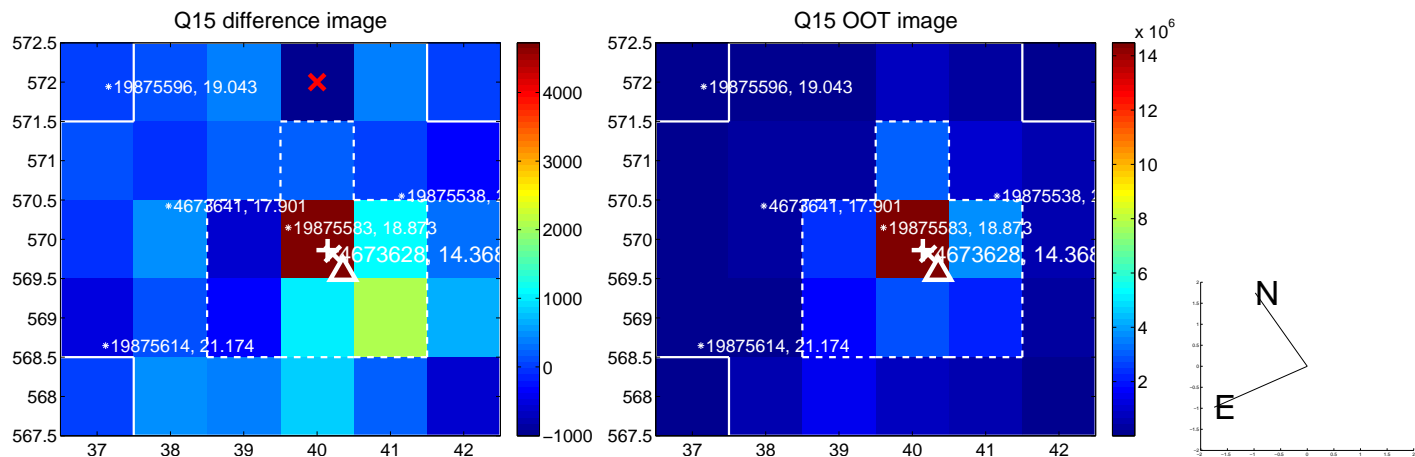
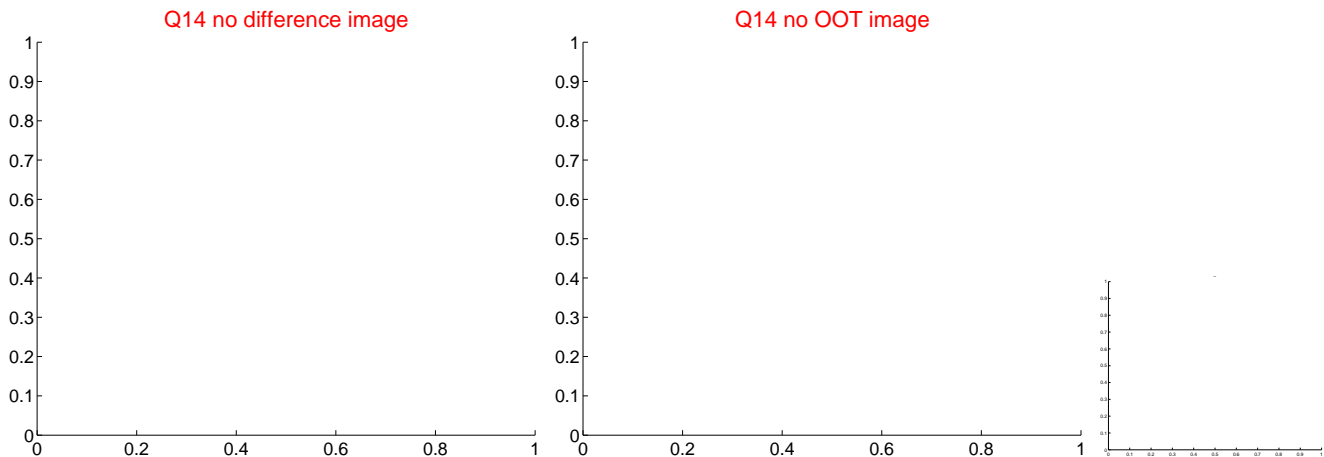
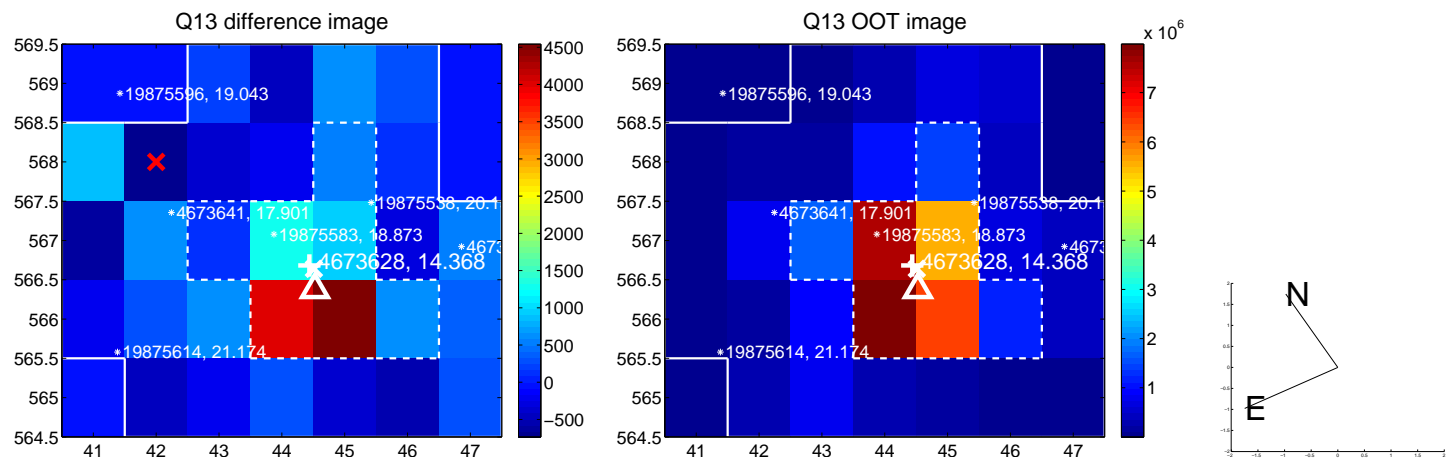
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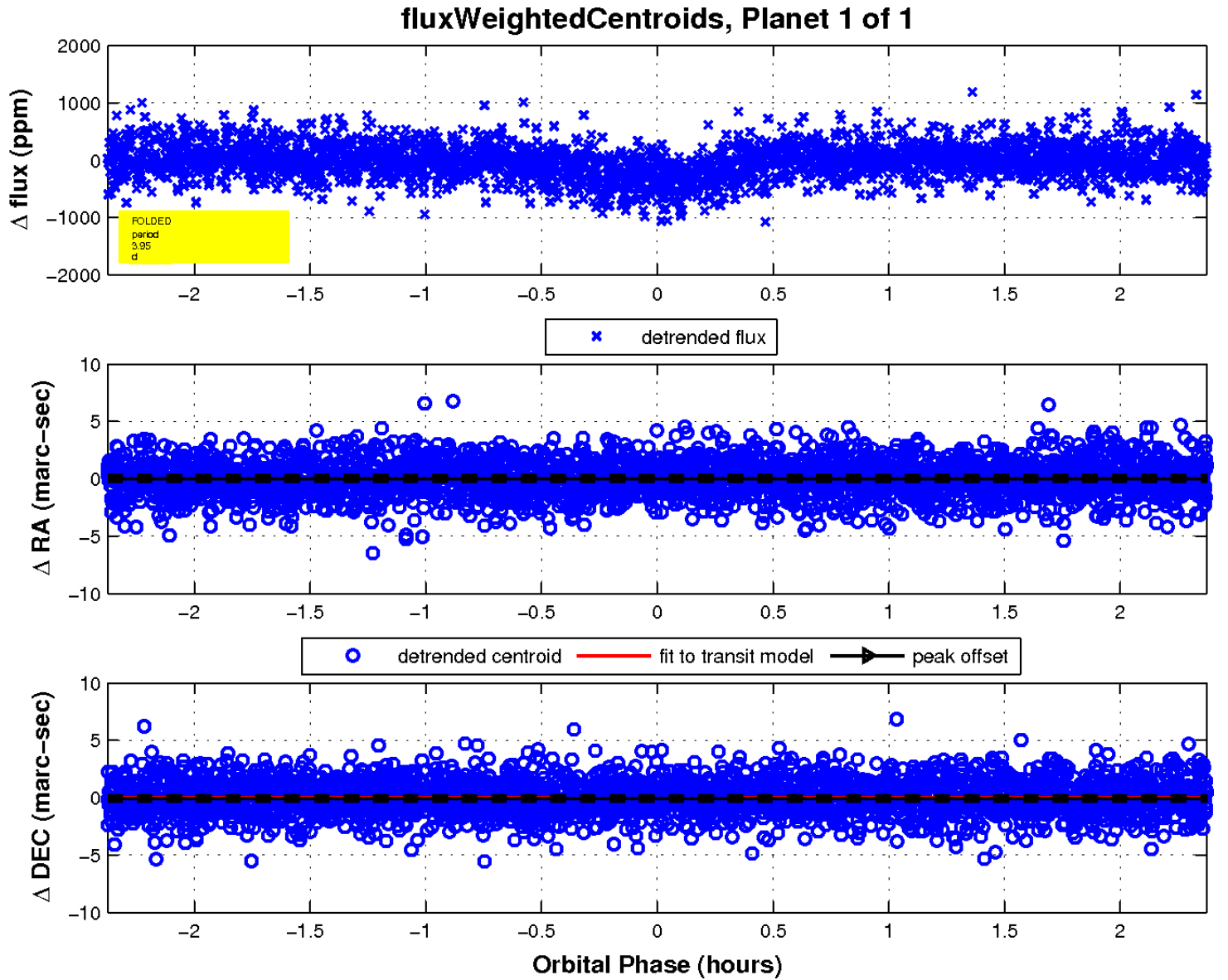
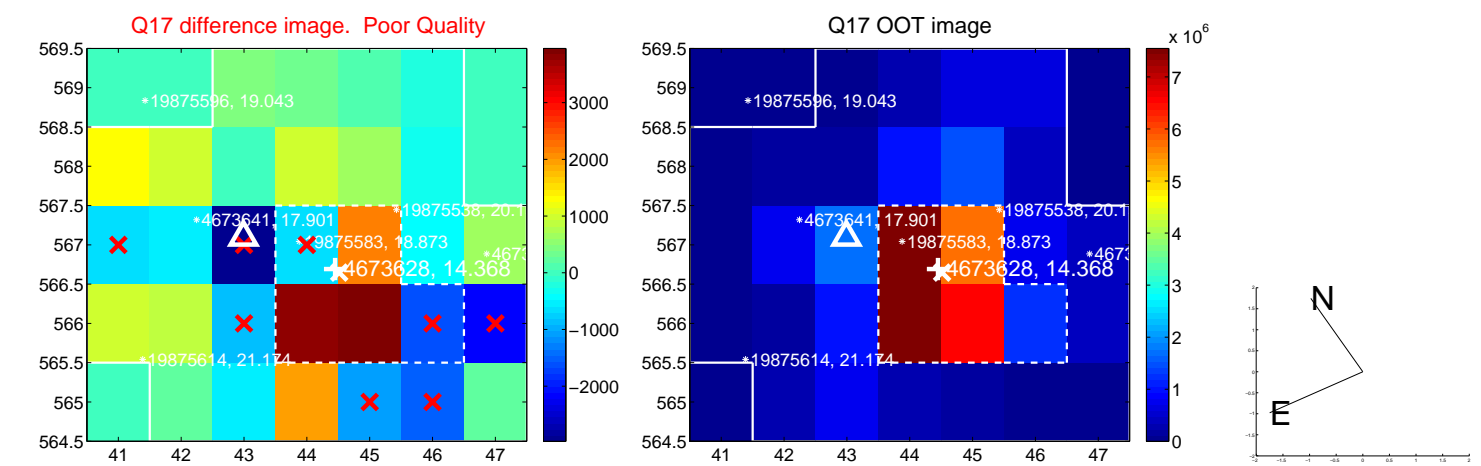
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UKIRT Image

