

KIC 007200359

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007200359-01 | OBS | No | 0.566767 | 131.896521 | 16.9 | 4.957 | 7.5 | 6.3 | 1.06 | 6260 | 0.51 | 8035.41 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 007200359-01 | OBS | FP | 0.00 | 1 | 0 | 1 | 1 | LPP_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_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.

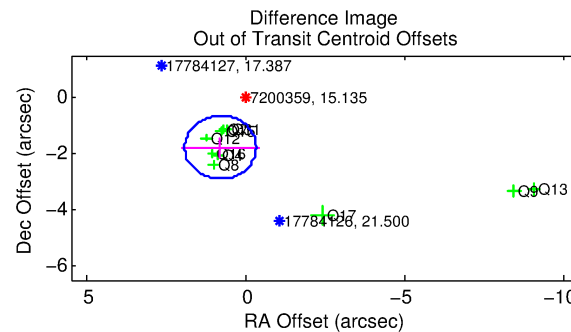
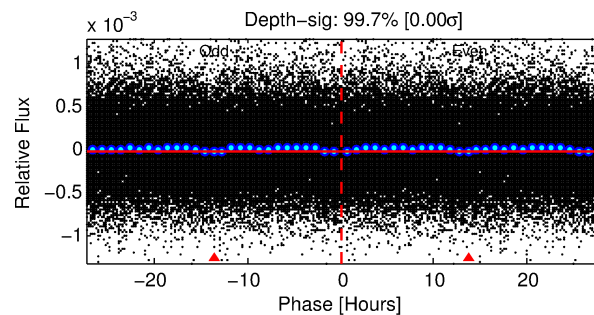
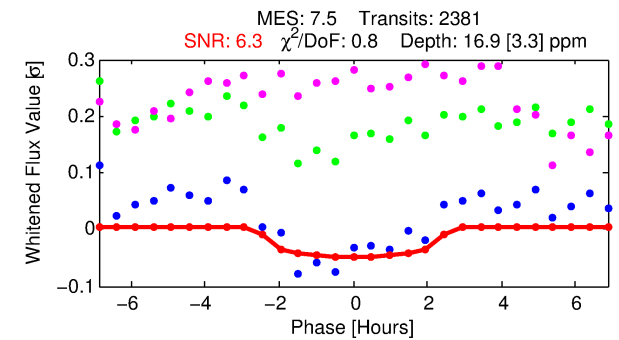
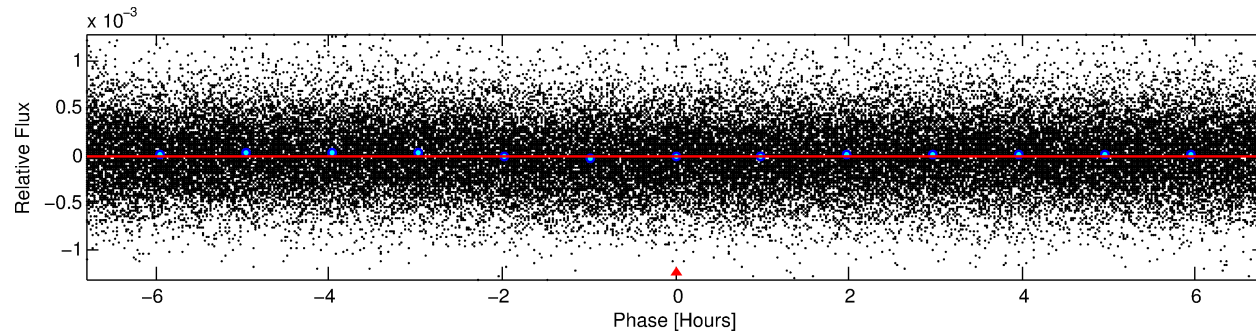
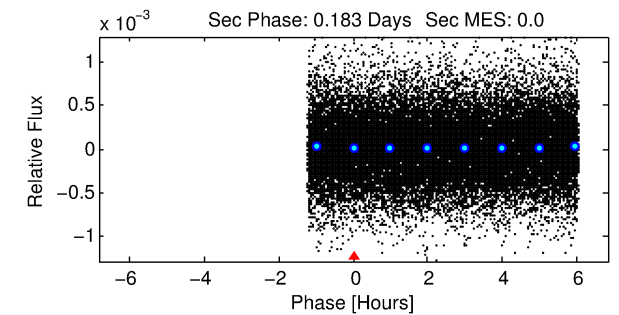
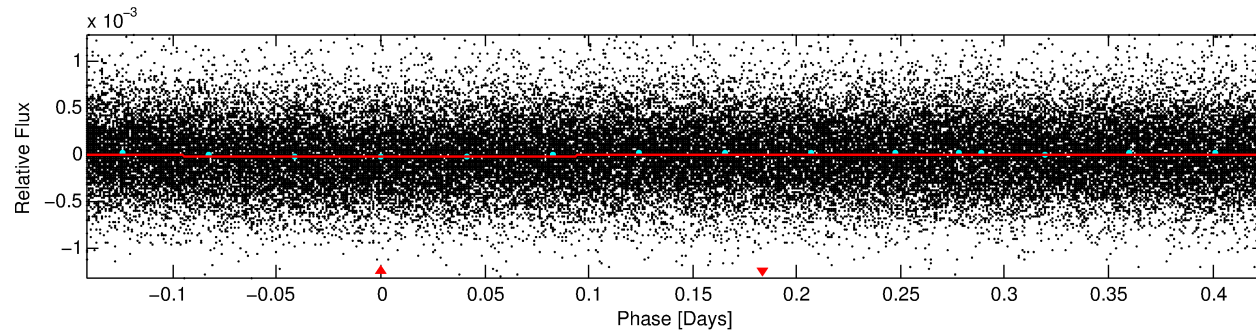
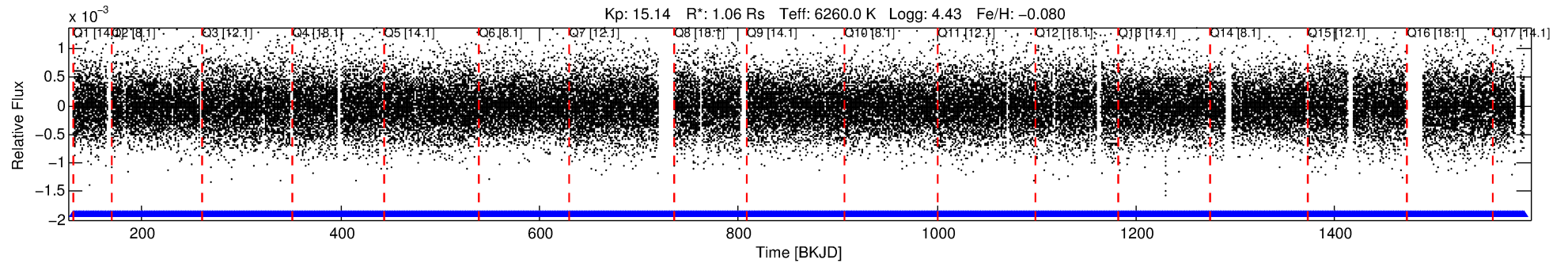
Ephemeris Match Information For 007200359-01

| 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 |
|--------------|---------|------------|------------|--------------------------------|---------------|--------------|--------------|----------------|----------------|--------------------------------|------------|------|------------|------------|
| 007200359-01 | 7200359 | RR-Lyr-pri | 7198959 | 1:1 | 1116.2 | 141 | 242 | 7.86 | 15.13 | 36664.00 | Direct-PRF | 0 | 3.82 | 19.10 |

Notes: P₁:P₂ 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. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ 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: 7200359 Candidate: 1 of 1 Period: 0.567 d



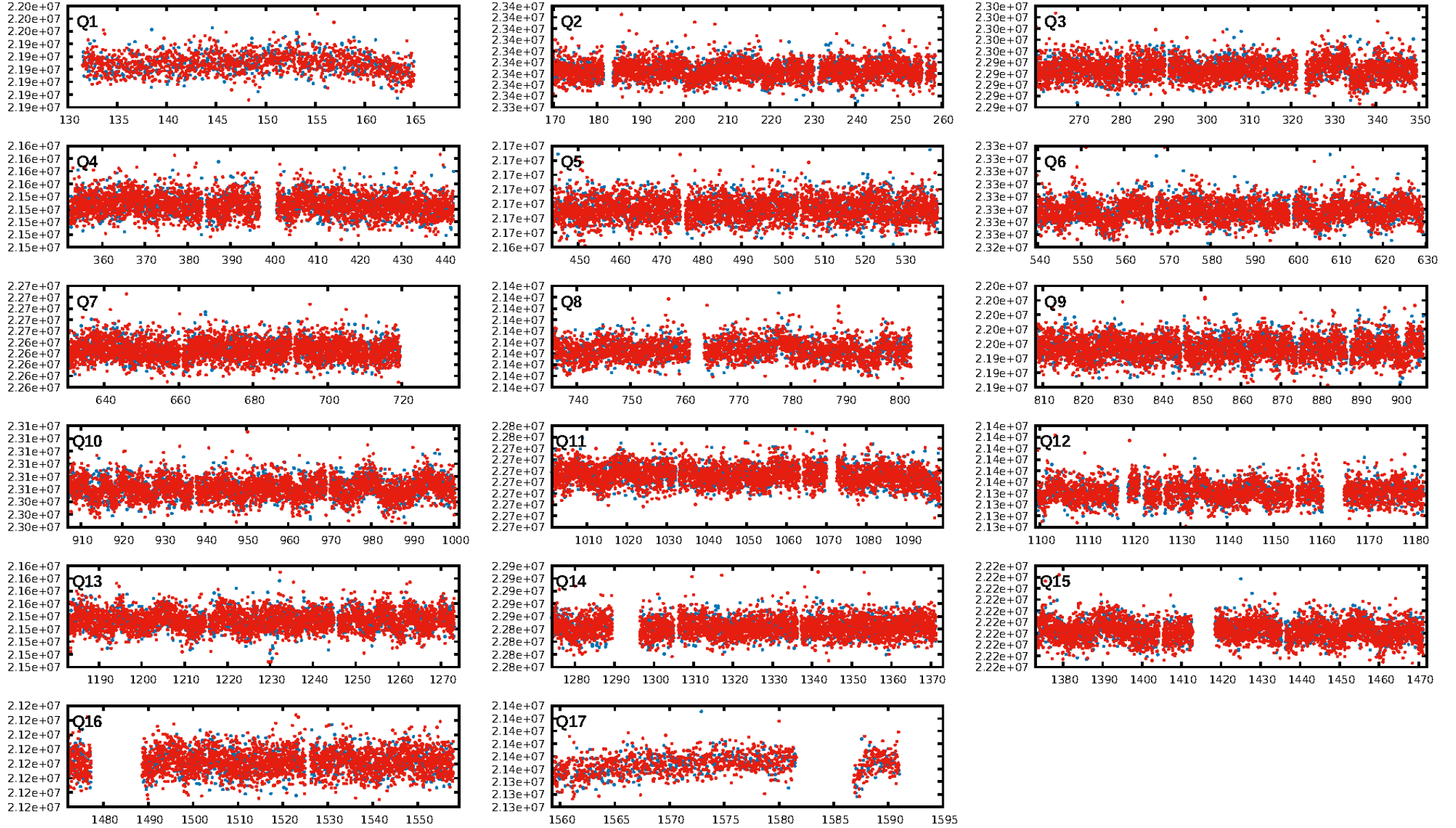
DV Fit Results:

Period = 0.56677 [0.00002] d
Epoch = 131.8965 [0.0086] BKJD
Rp/R* = 0.0044 [0.0055]
a/R* = 1.02 [0.33]
b = 0.90 [1.48]
Seff = 8035.41 [2897.60]
Teq = 2414 [218] K
Rp = 0.51 [0.65] Re
a = 0.0139 [0.0032] AU
Ag = N/A
Teffp = N/A

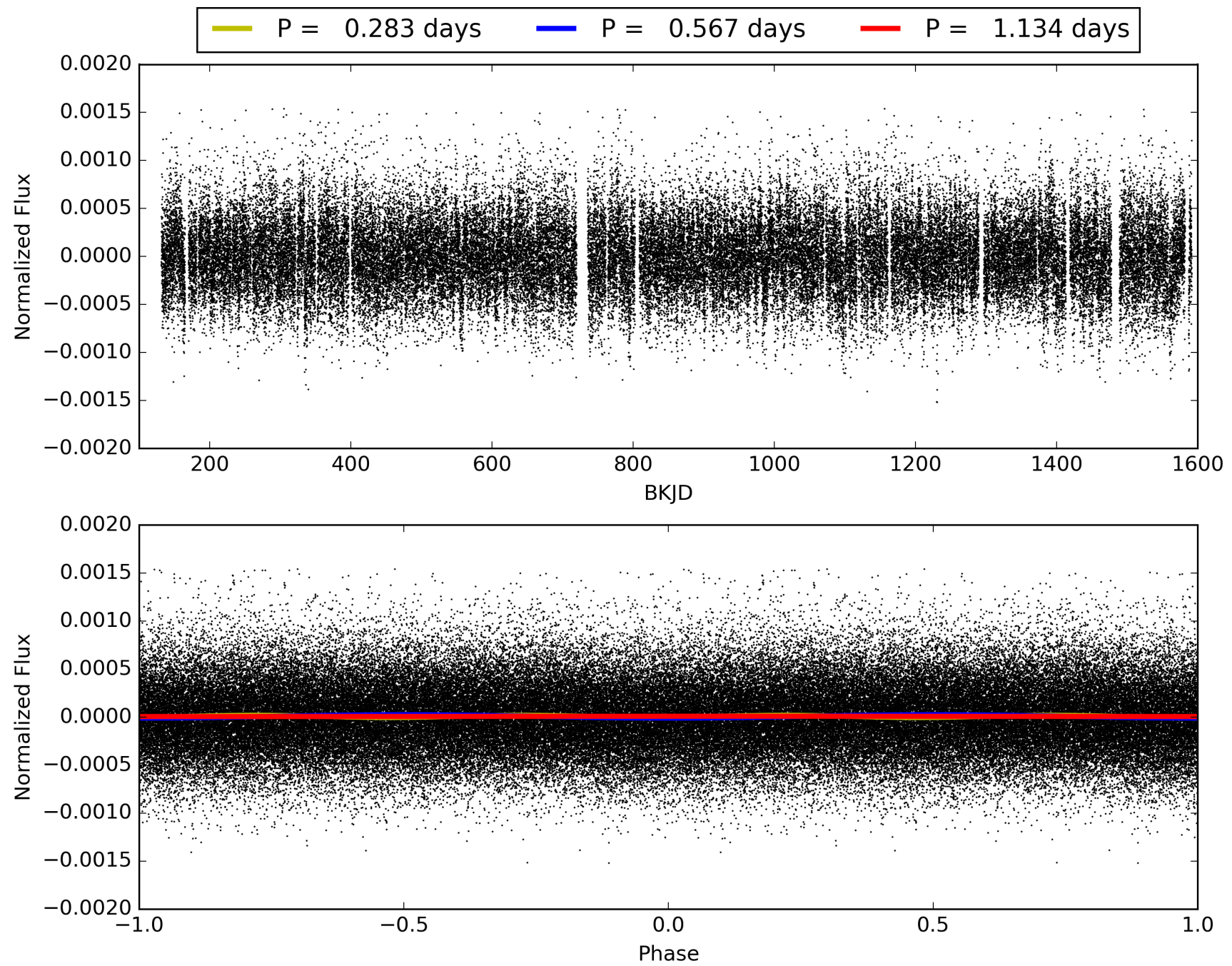
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2274/2274]
GhostDiagnostic-chr: 0.3182
Centroid-sig: 1.8%
Centroid-so: 4.556 arcsec [1.97 σ]
OotOffset-rm: 1.946 arcsec [5.19 σ]
KicOffset-rm: 2.060 arcsec [6.85 σ]
OotOffset-st: 0/4/4/3 [11]
KicOffset-st: 0/4/4/3 [11]
DiffImageQuality-fgm: 0.55 [6/11]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007200359-01, PDC Light Curves

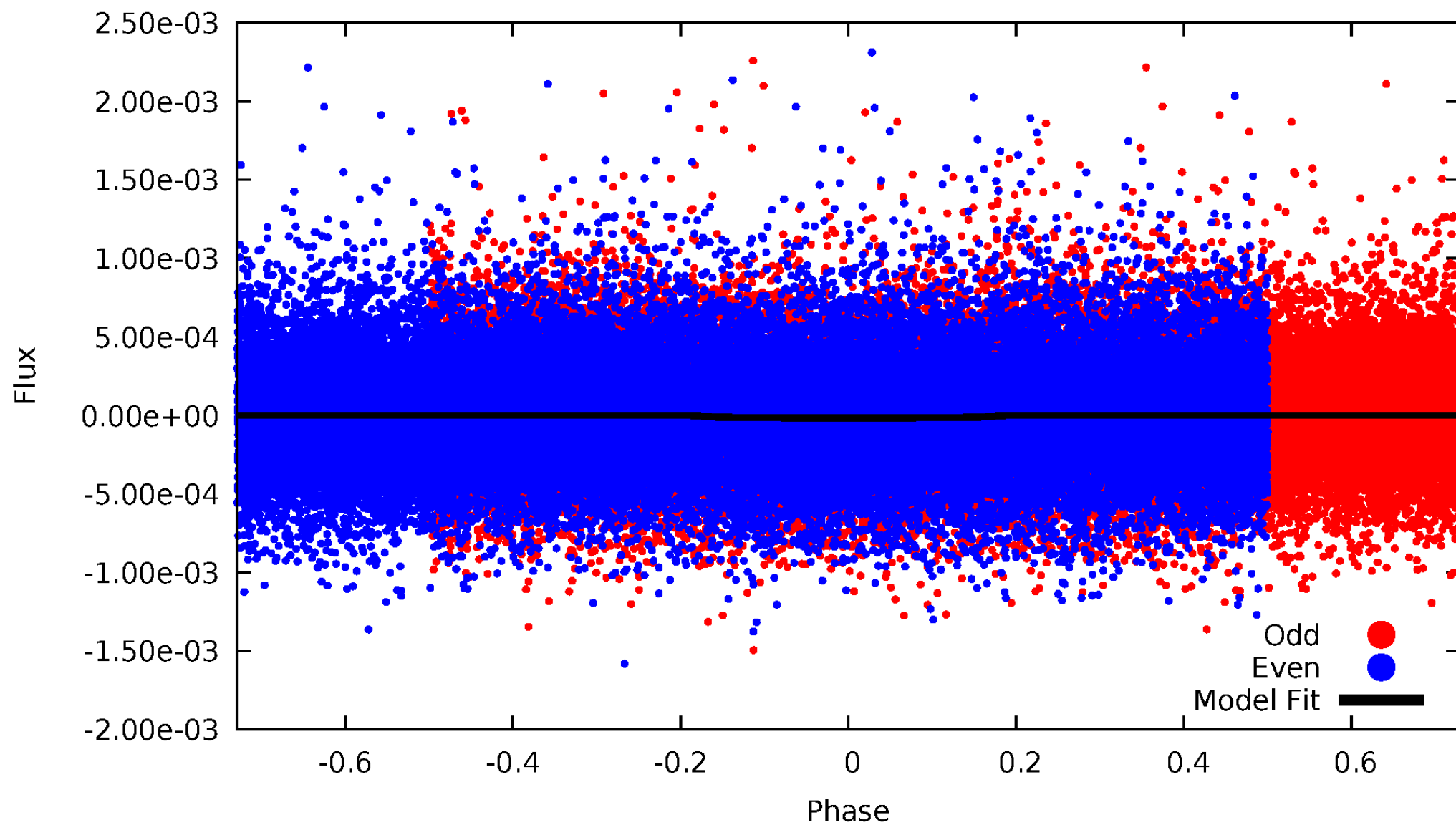


TCE 007200359-01



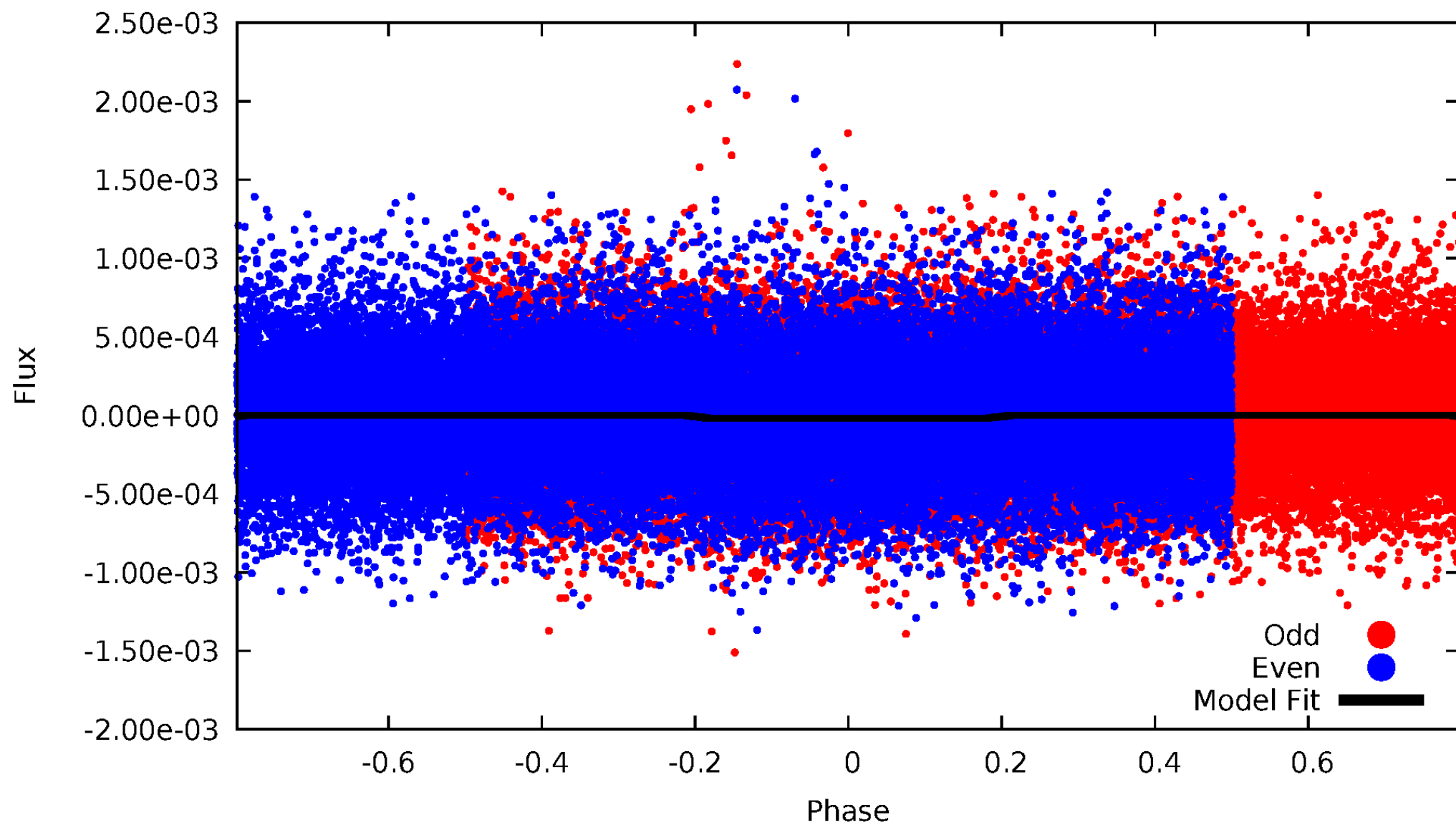
DV Odd/Even

TCE 007200359-01

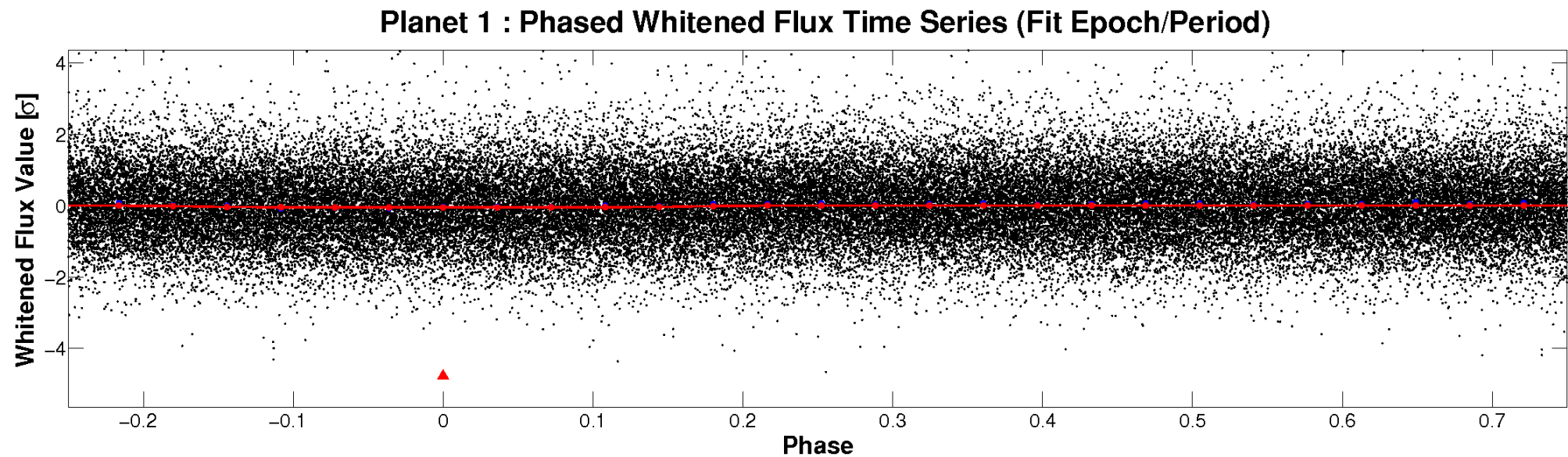
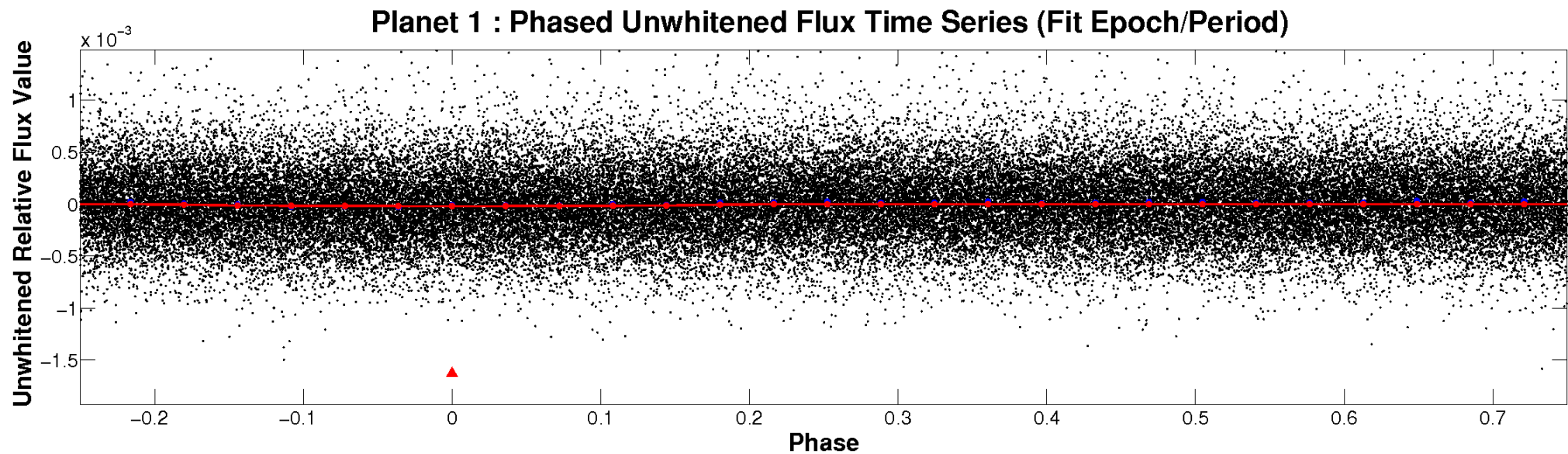


ALT Odd/Even

TCE 007200359-01

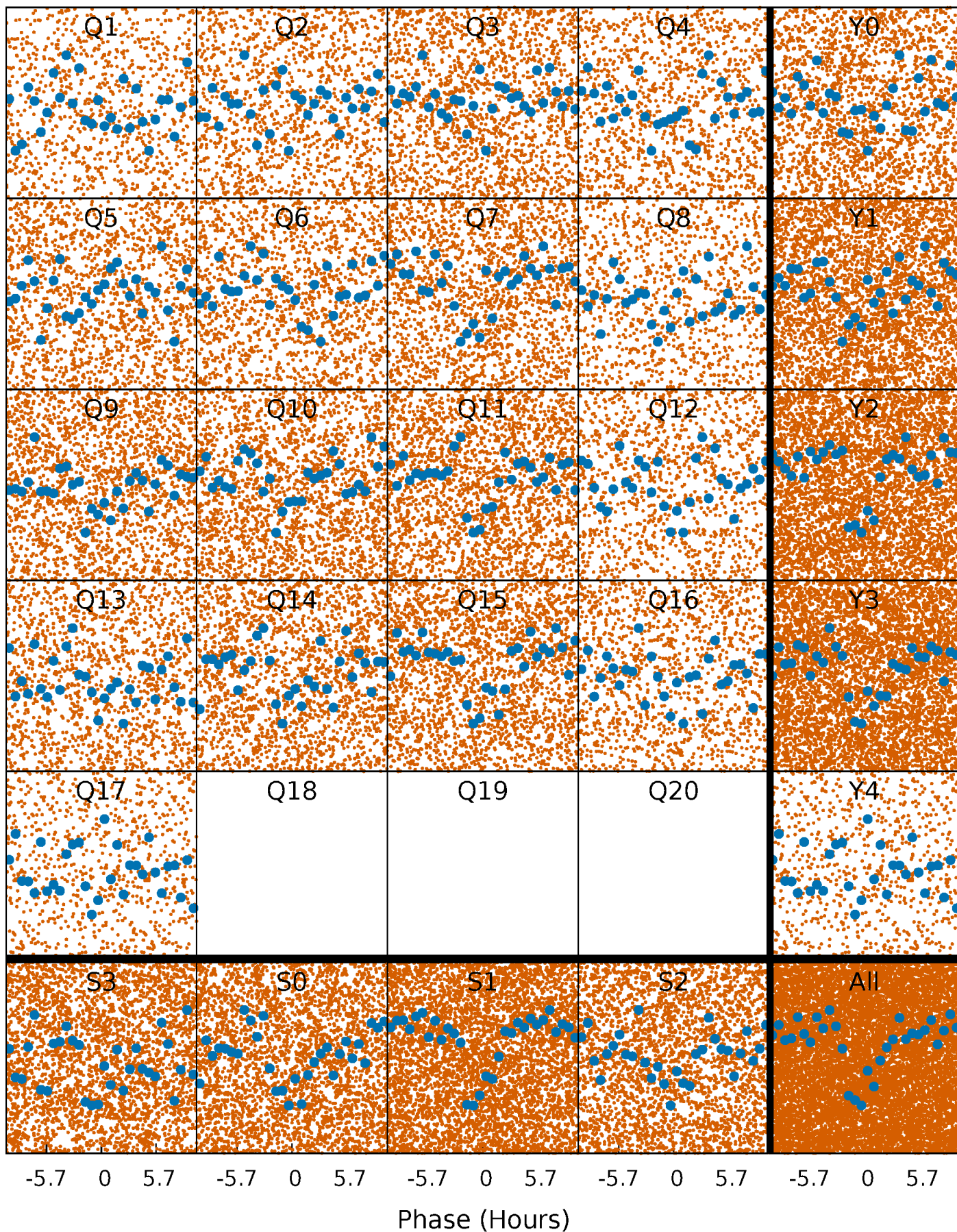


Non-Whitened Vs. Whitened Light Curve



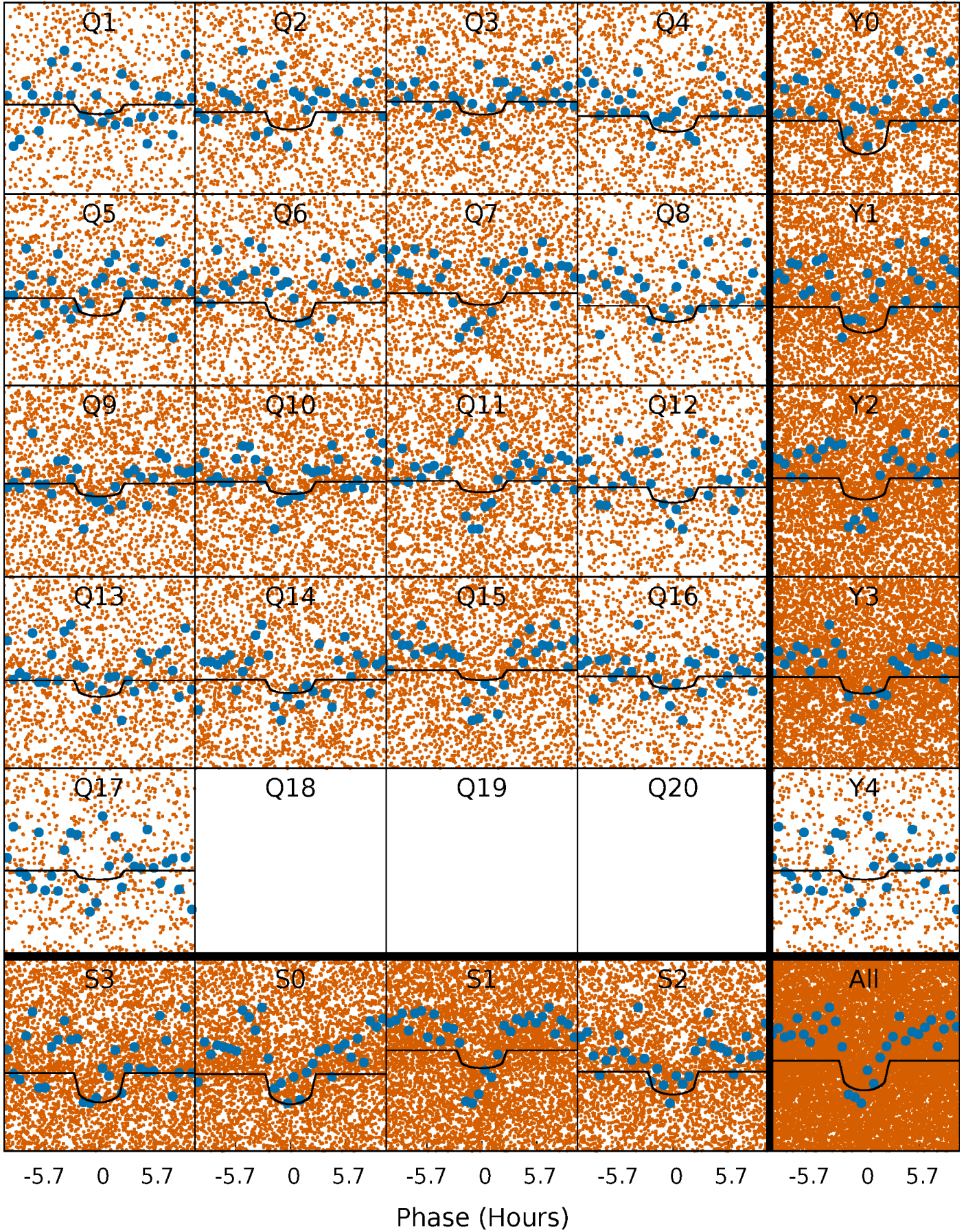
PDC Quarter-Phased Transit Curves

TCE 007200359-01 P= 0.566767 Days $T_0=131.896521$ (BKJD)



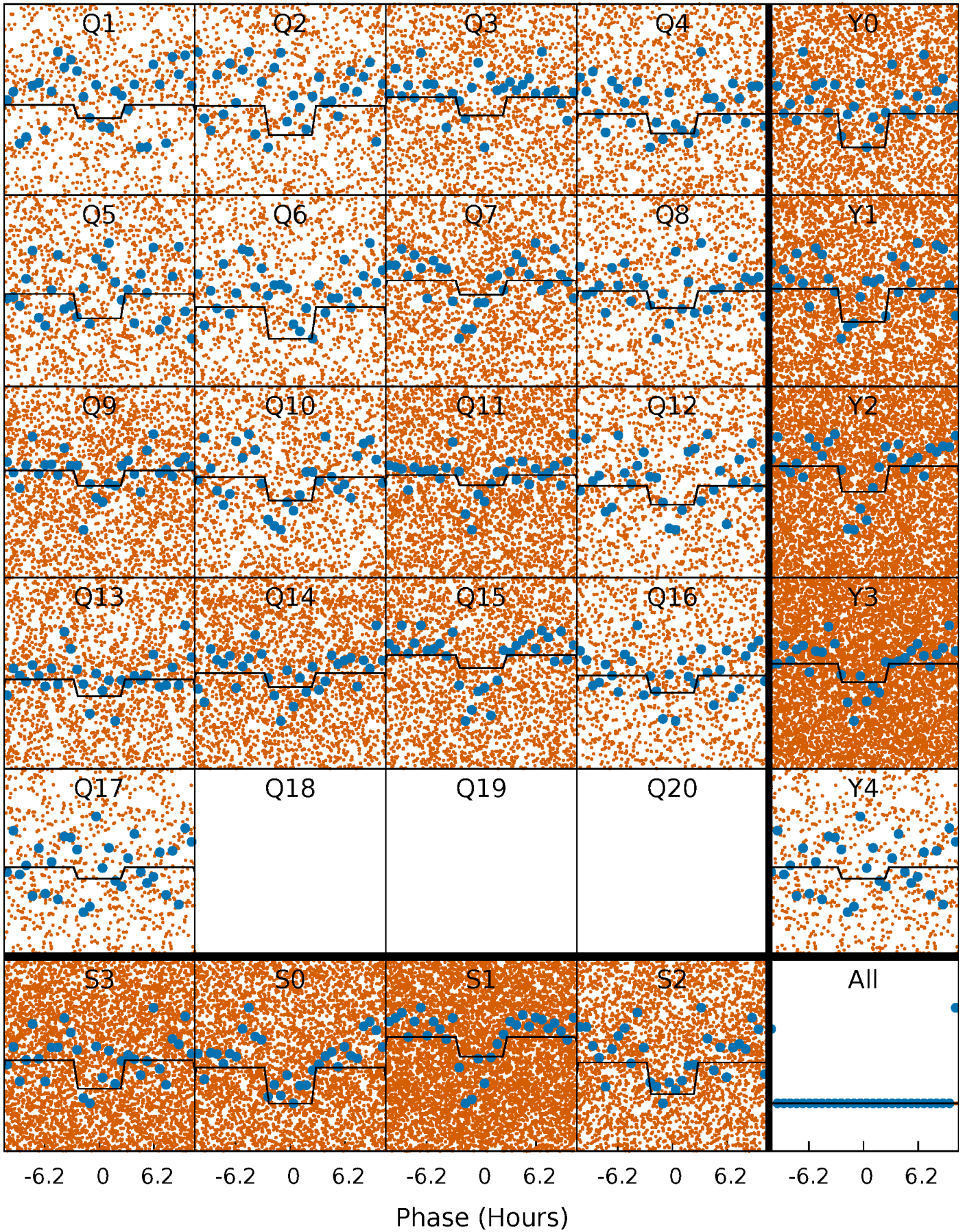
DV Quarter-Phased Transit Curves

TCE 007200359-01 P= 0.566767 Days $T_0=131.896521$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

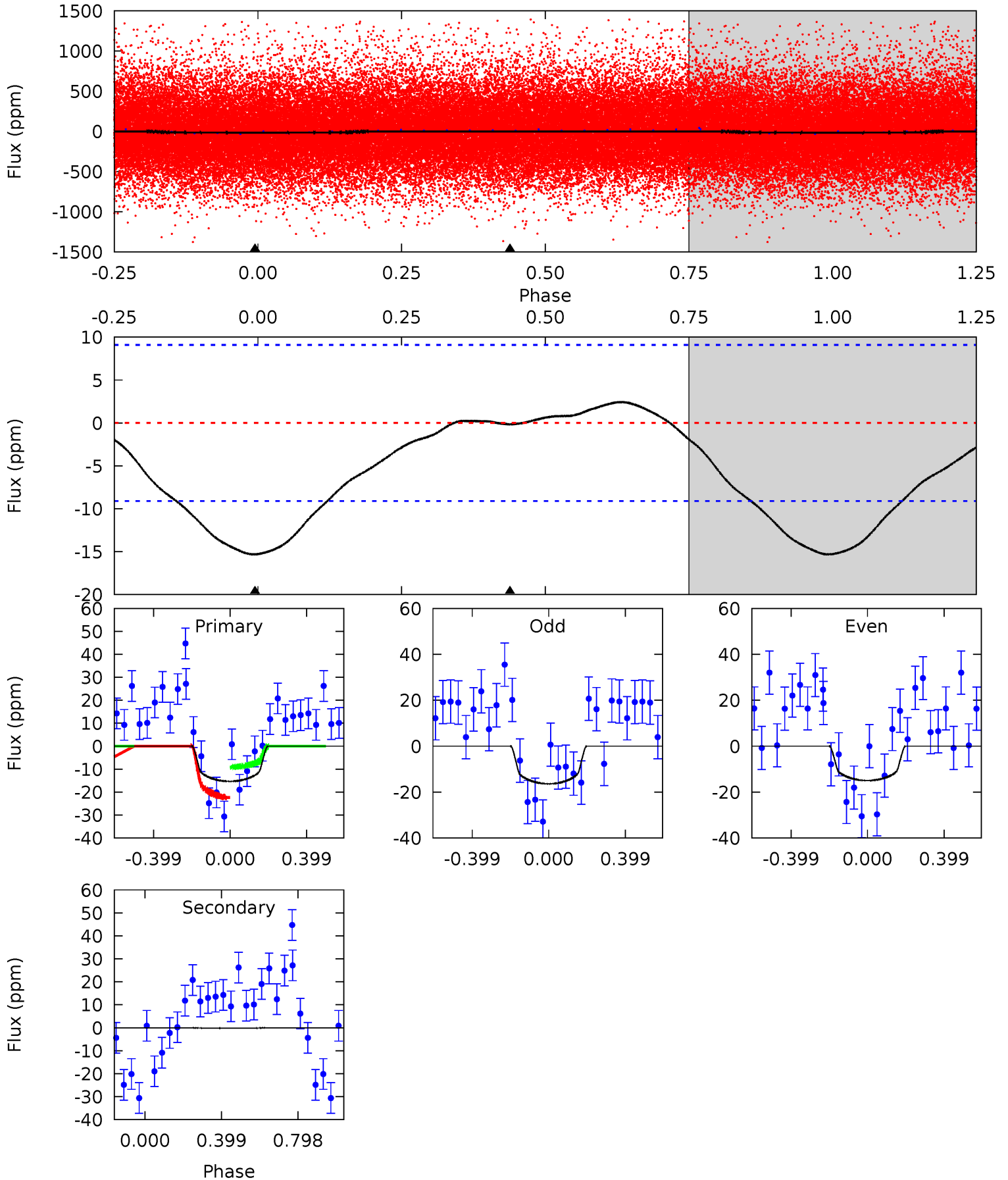
TCE 007200359-01 P= 0.566775 Days $T_0=131.899664$ (BKJD)



DV Model-Shift Uniqueness Test

007200359-01, P = 0.566767 Days, E = 131.329754 Days

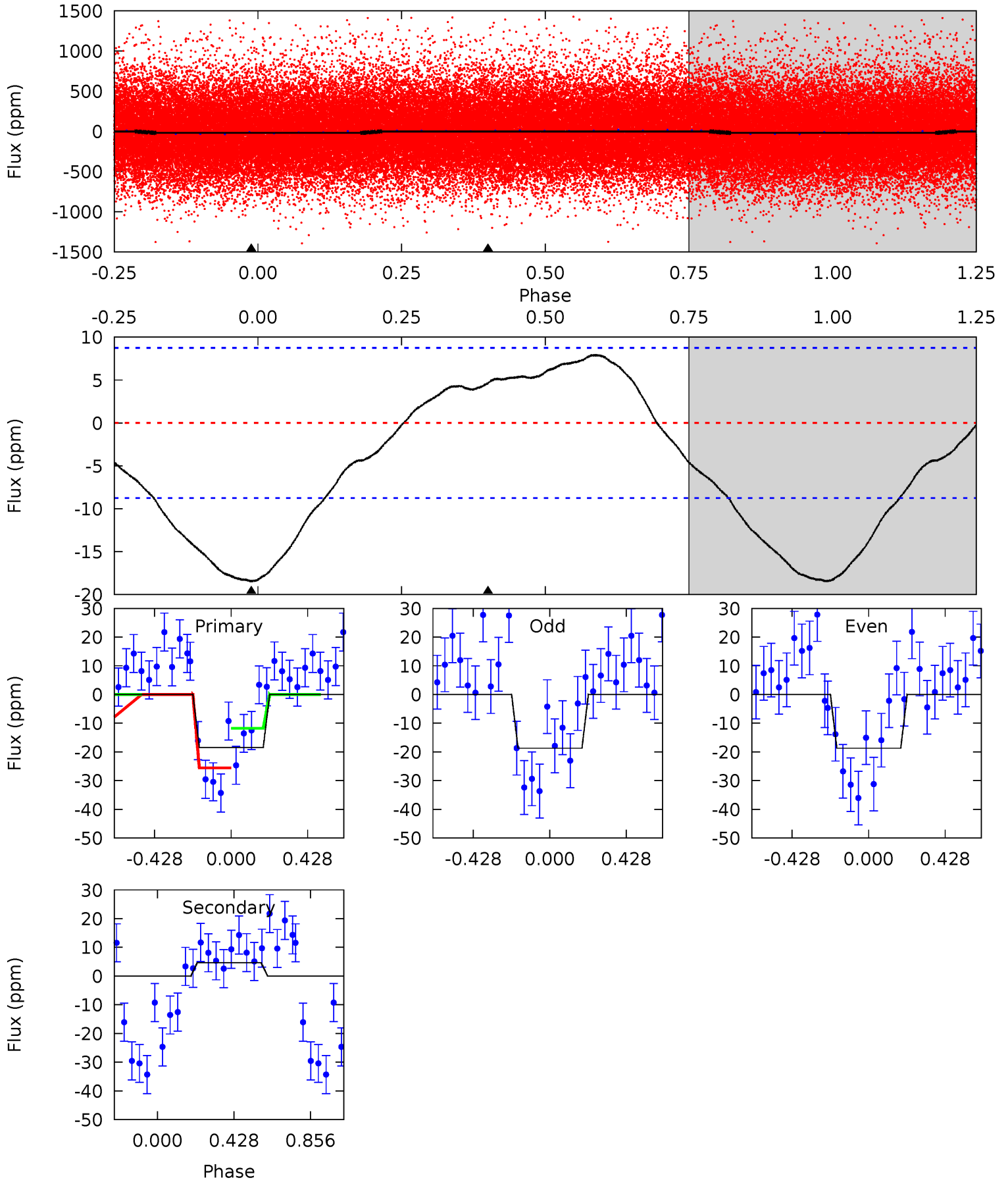
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.19 | 0.08 | 0 | 0 | 4.27 | 0.84 | 0.66 | 7.19 | 7.19 | 0.08 | 0.08 | 0.33 | 0.98 | 0.14 | 3.13 |



Alt Model-Shift Uniqueness Test

007200359-01, P = 0.566775 Days, E = 131.332889 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.96 | -2.25 | 0 | 0 | 4.25 | 0.79 | 1.39 | 8.96 | 8.96 | -2.25 | -2.25 | 0.00 | 1.10 | 0.30 | 3.37 |



Stellar Parameters For KIC 007200359

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6260^{+174}_{-217} | $4.433^{+0.060}_{-0.180}$ | $-0.080^{+0.250}_{-0.300}$ | $1.063^{+0.296}_{-0.106}$ | $1.118^{+0.145}_{-0.145}$ | $1.310^{+0.408}_{-0.647}$ |
| | +3%/-3% | +1%/-4% | +312%/-375% | +28%/-10% | +13%/-13% | +31%/-49% |
| 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 007200359-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV | -0 ± 2 | $0.70^{+0.60}_{-0.45}$ | 3417^{+226}_{-167} | -3309^{+7058}_{-705} | $0.019^{+0.857}_{-0.614}$ |
| Alt. | 5 ± 2 | $0.72^{+0.57}_{-0.47}$ | 3420^{+240}_{-160} | -4207^{+532}_{-2080} | $-0.854^{+0.621}_{-6.537}$ |

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

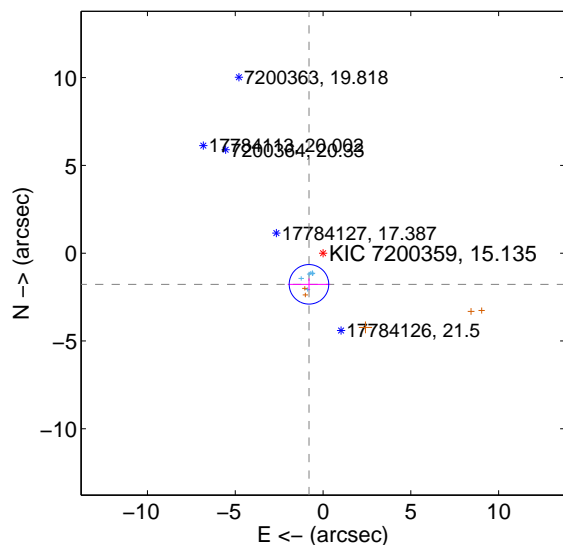
Supplemental centroid analysis for 007200359-01. Kepler magnitude: 15.13. Transit SNR 6.27

There are 6 quarters with good PRF difference image offsets

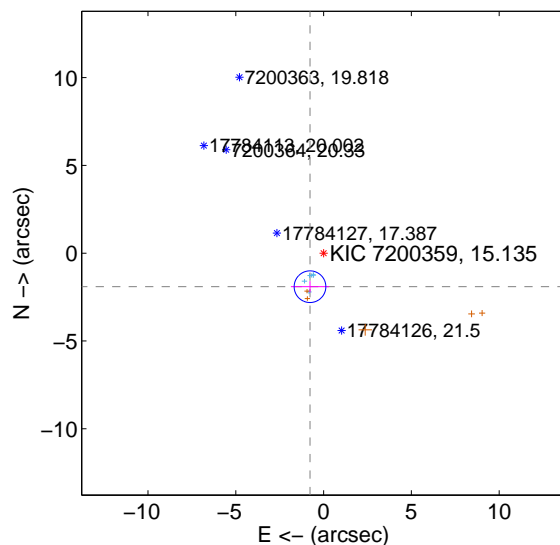
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 1.946 ± 0.375 | 5.19 | 0.801 ± 1.210 | -1.774 ± 0.333 |
| PRF-fit source offset from KIC position | 2.060 ± 0.301 | 6.85 | 0.774 ± 1.087 | -1.909 ± 0.323 |
| photometric centroid source offset | 4.56 ± 2.31 | 1.97 | -4.31 ± 2.32 | 1.47 ± 2.17 |

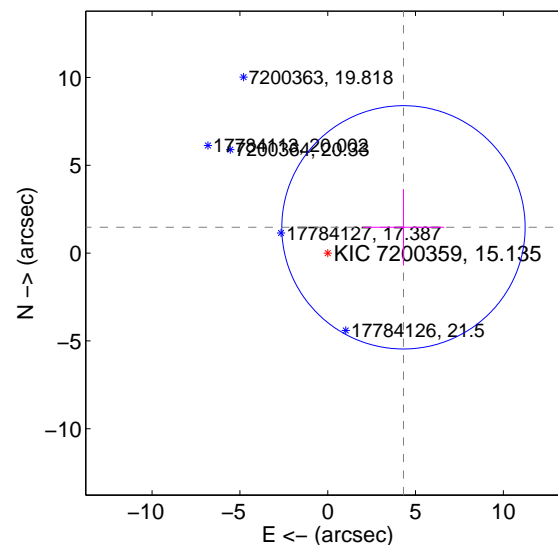
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

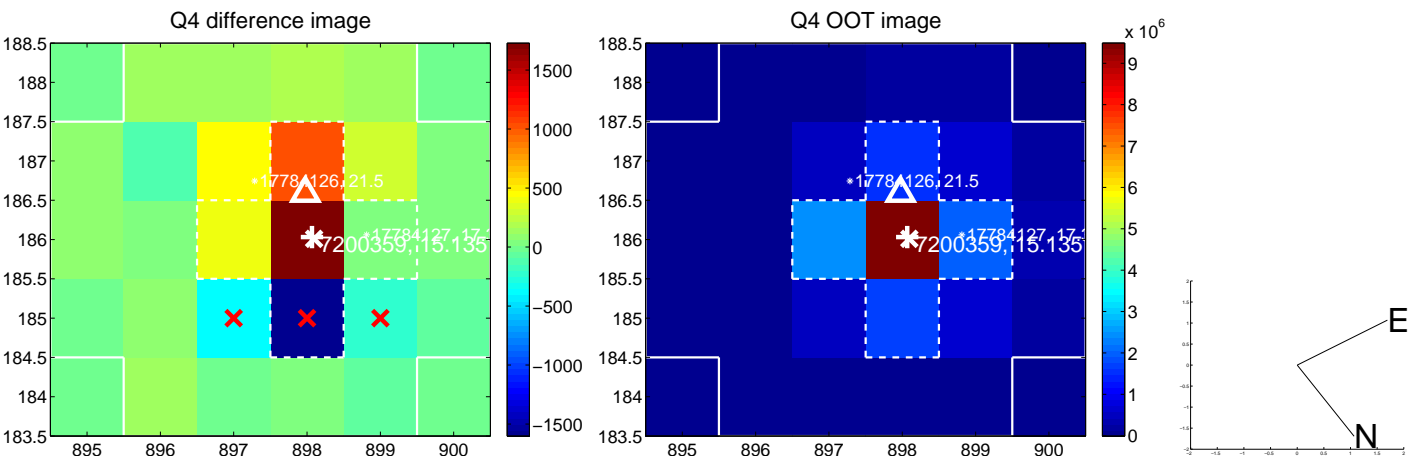
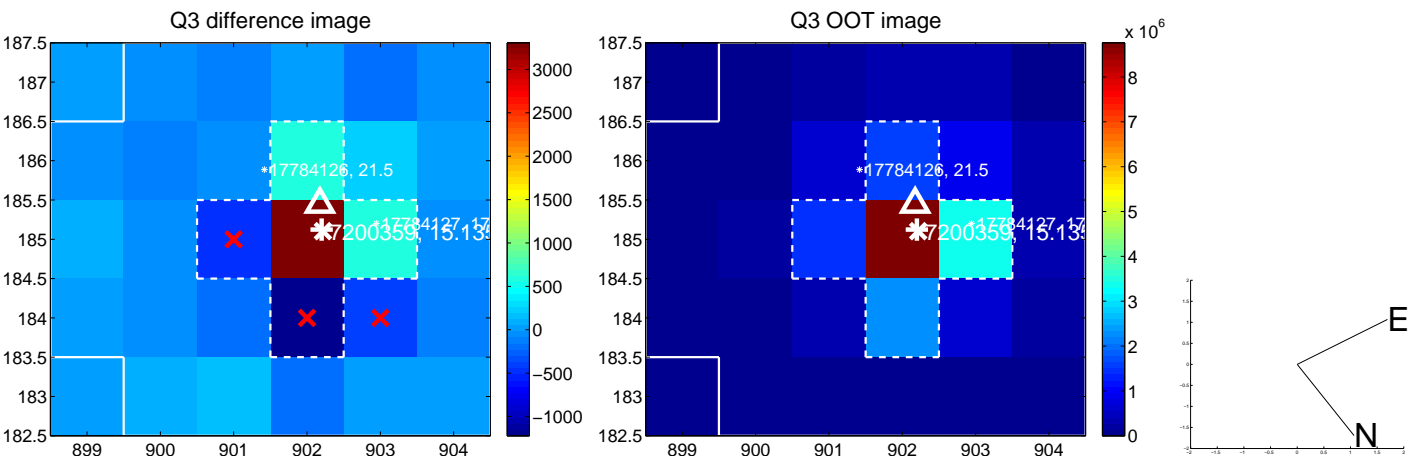
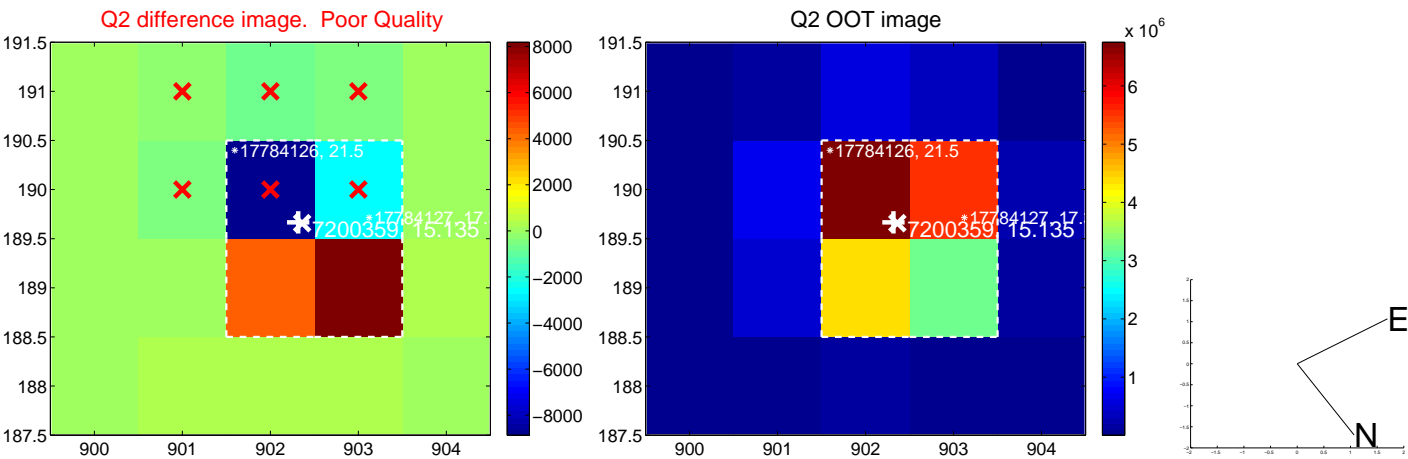
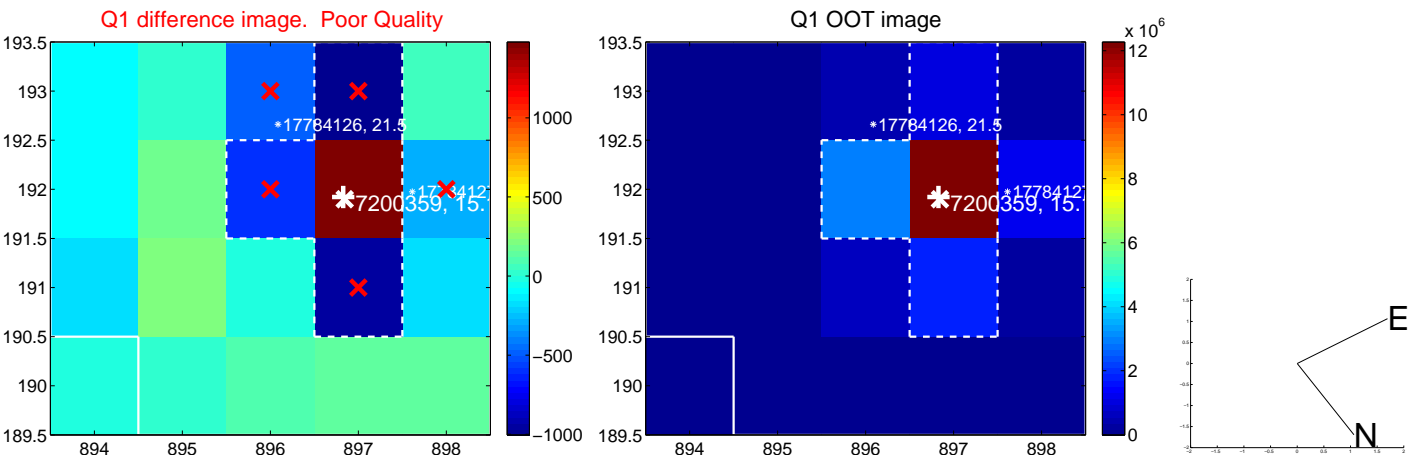


offset from photometric centroids

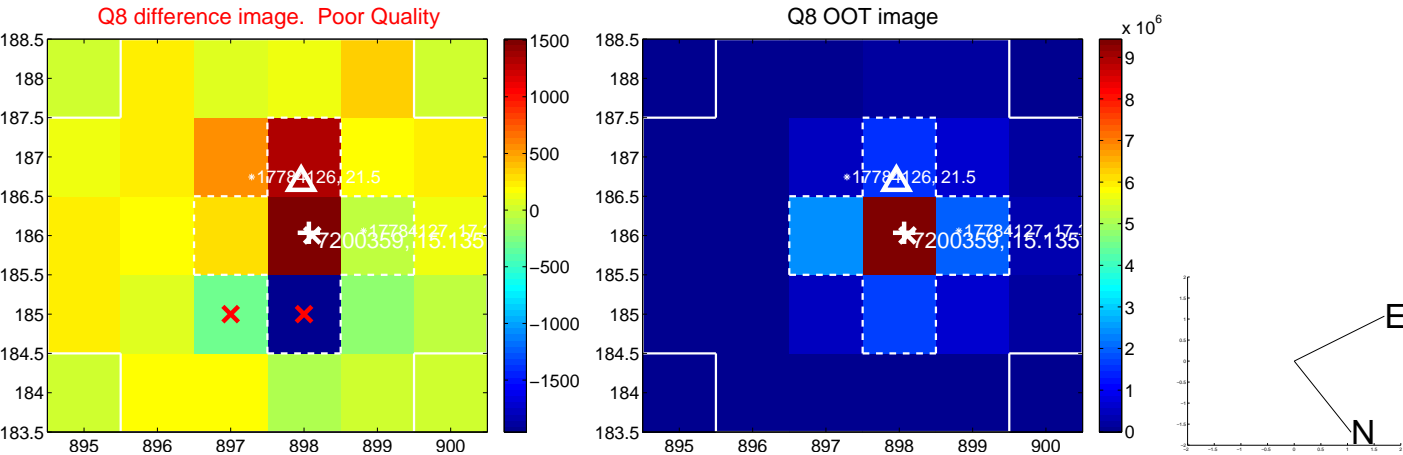
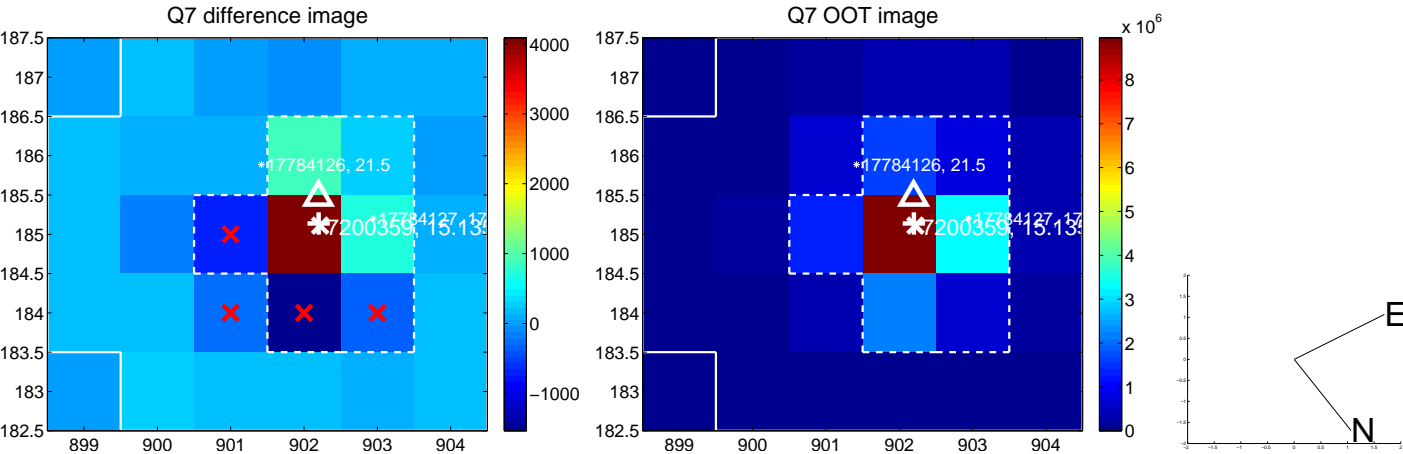
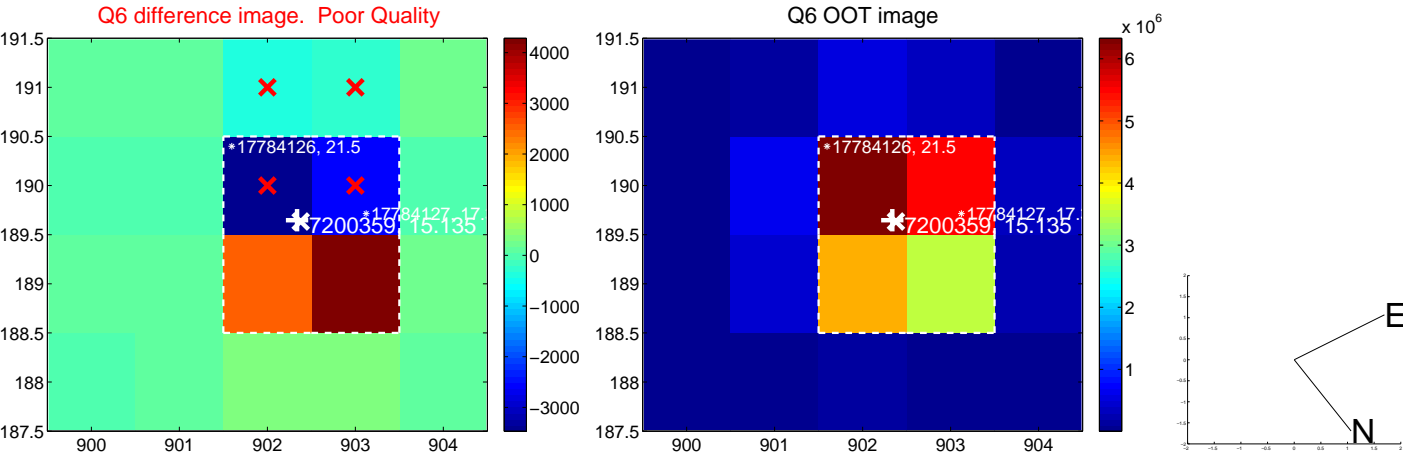
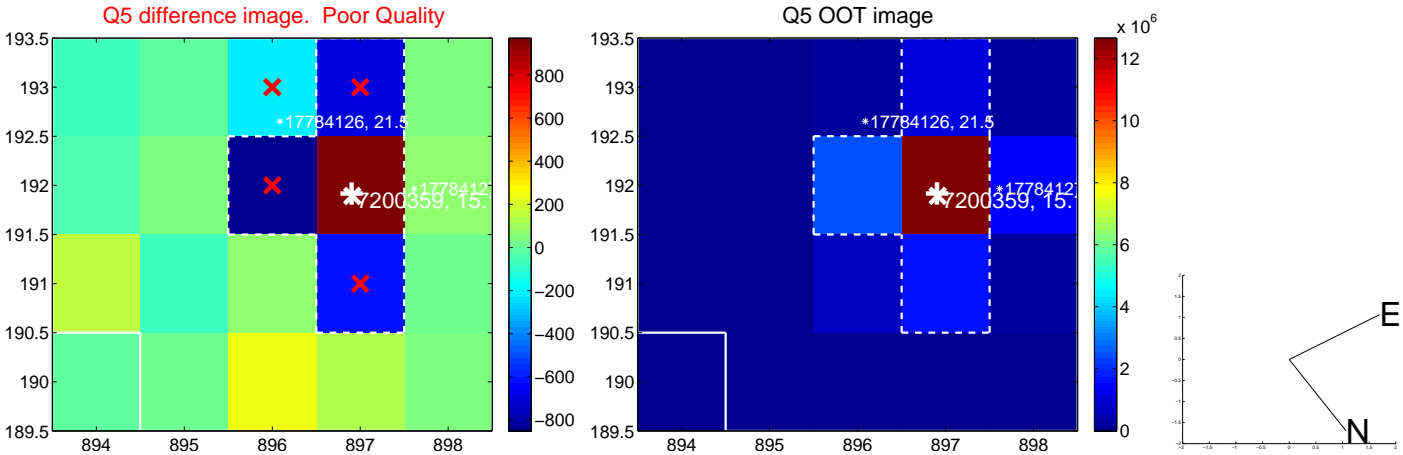


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

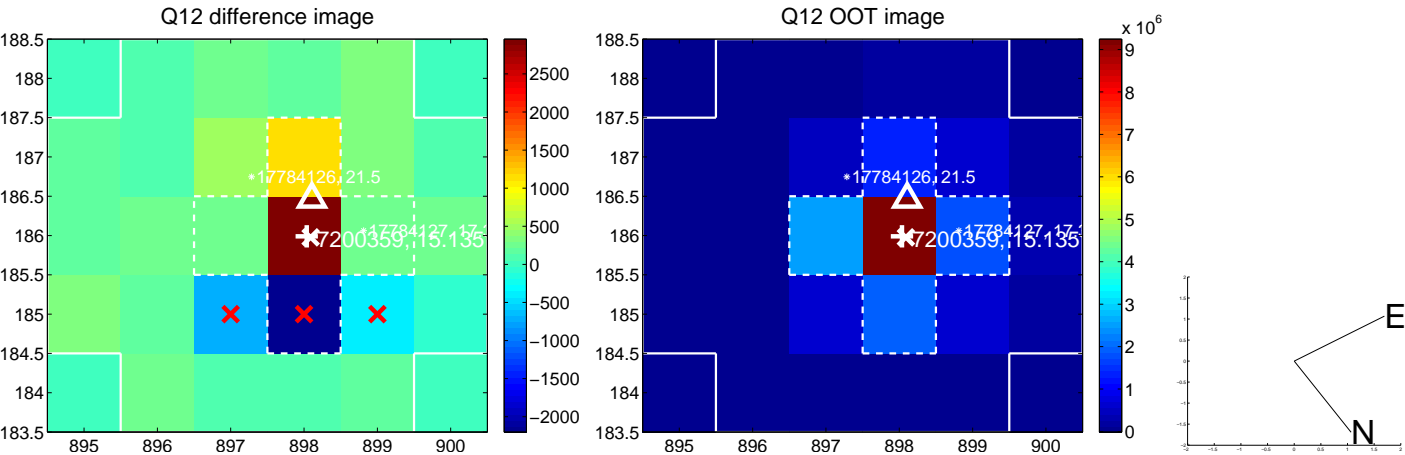
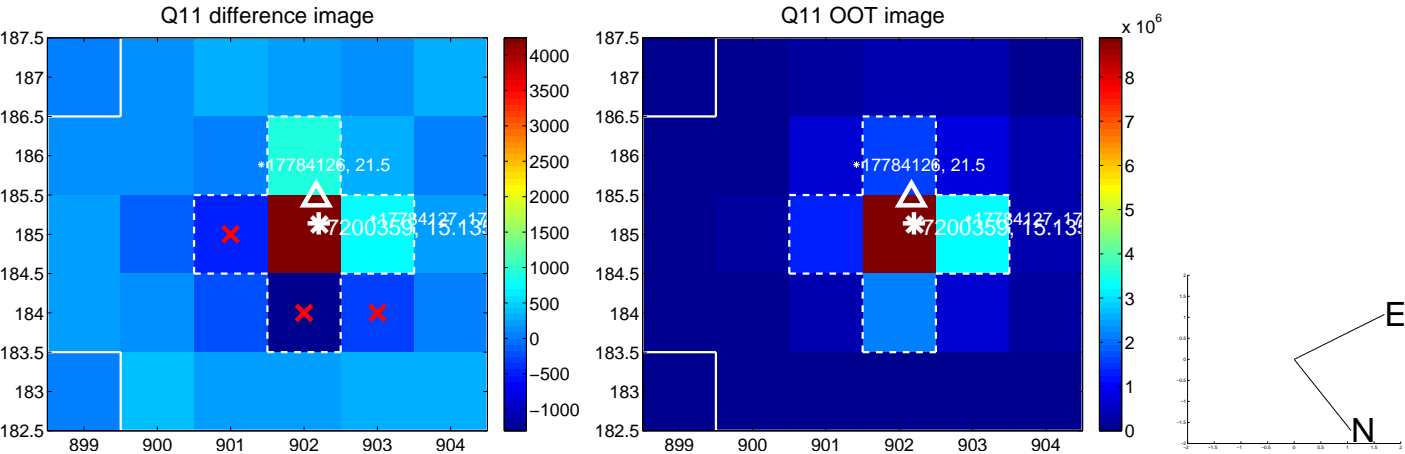
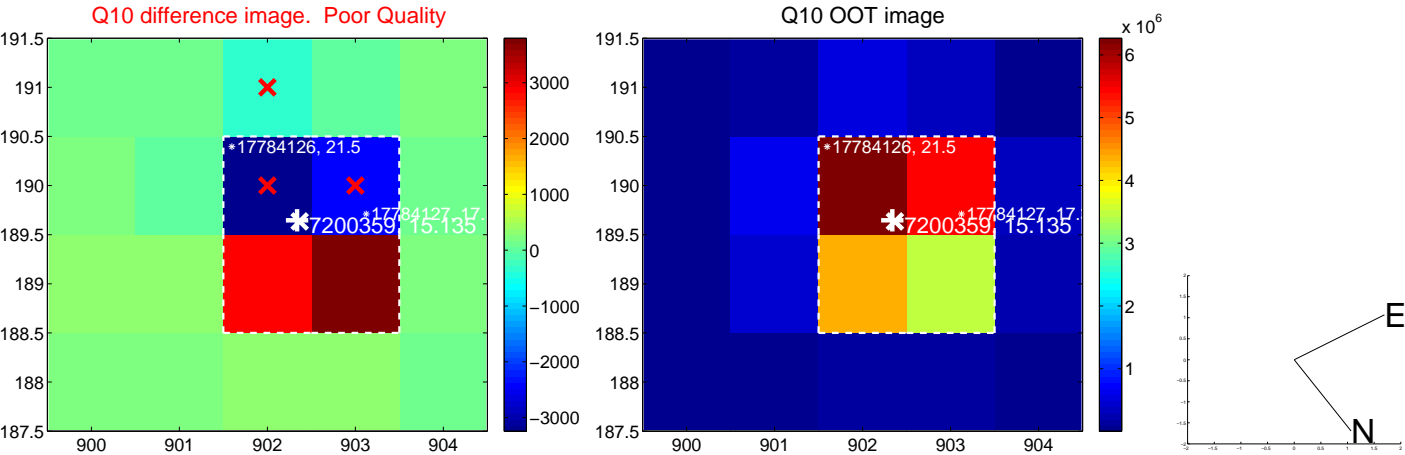
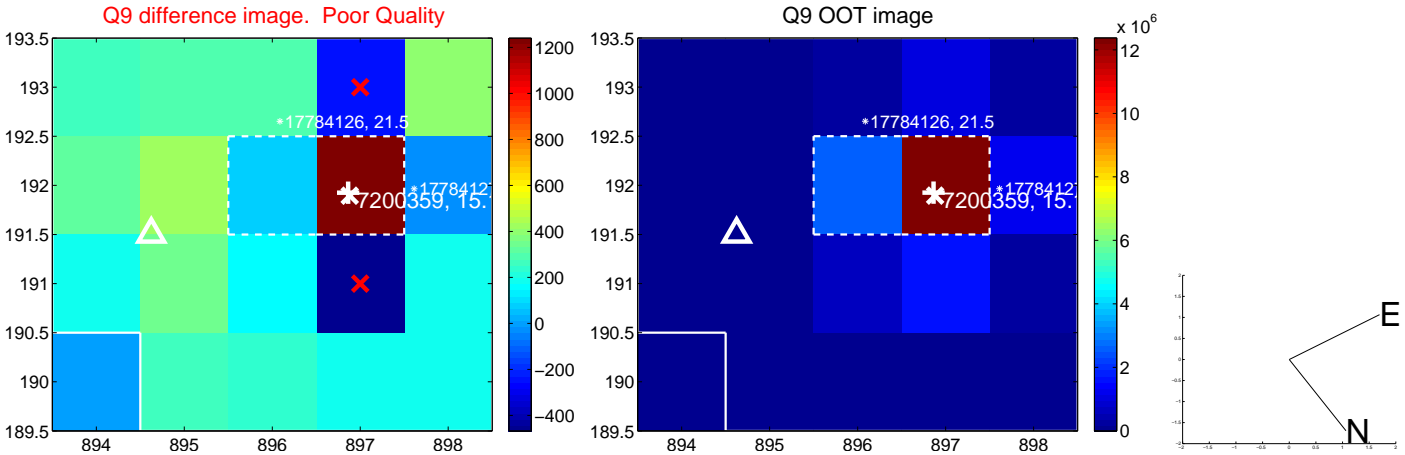
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



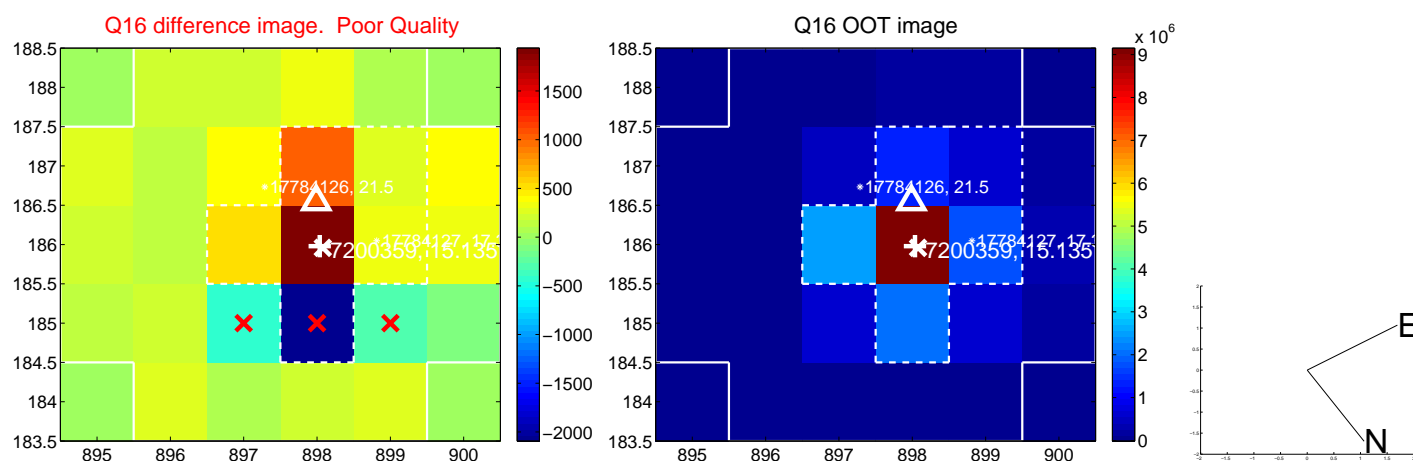
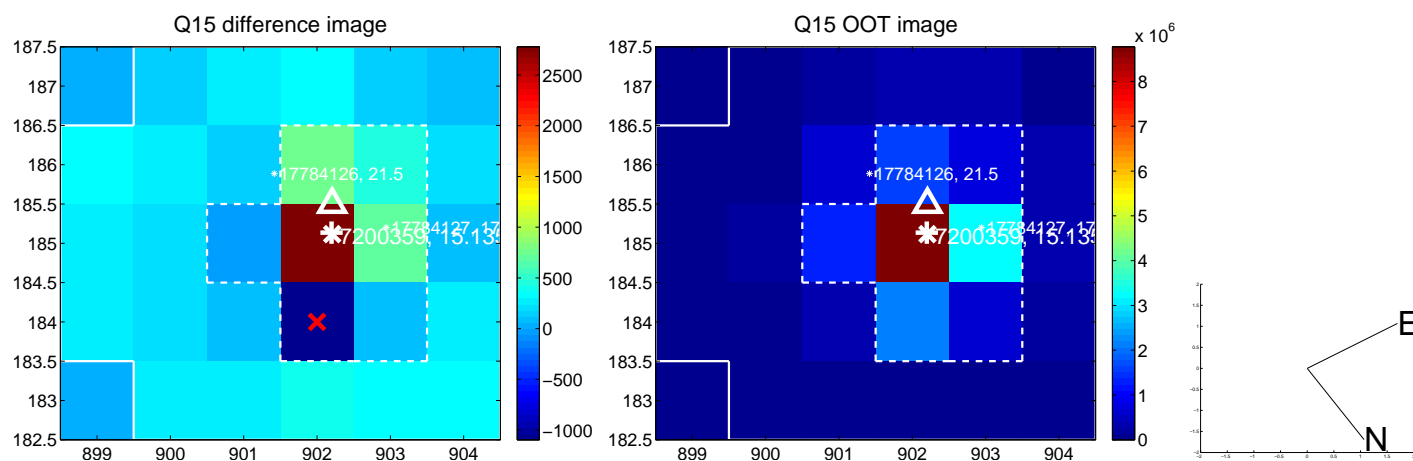
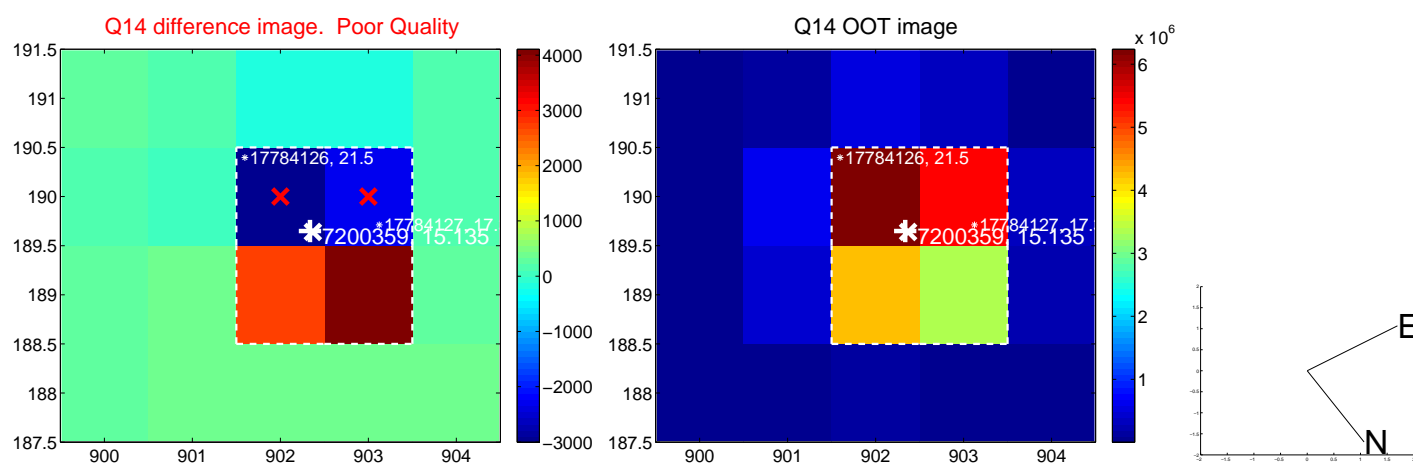
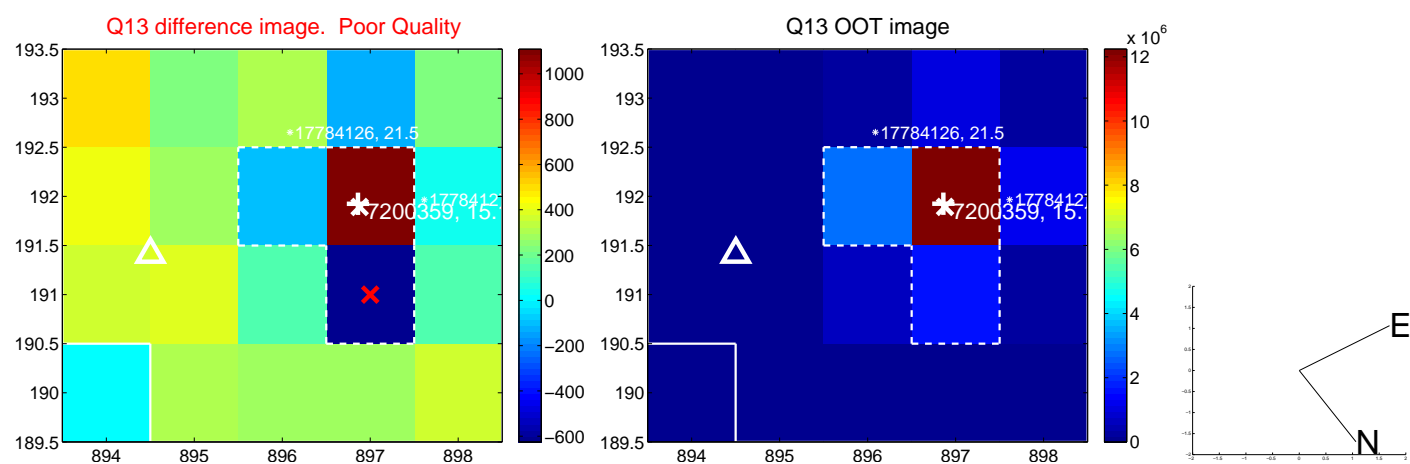
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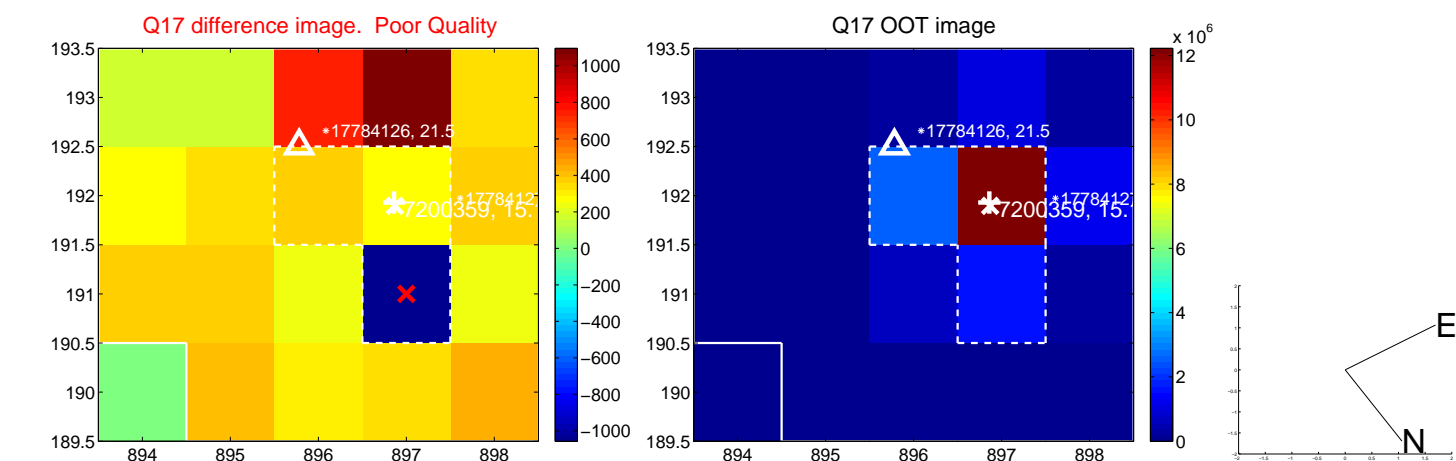
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



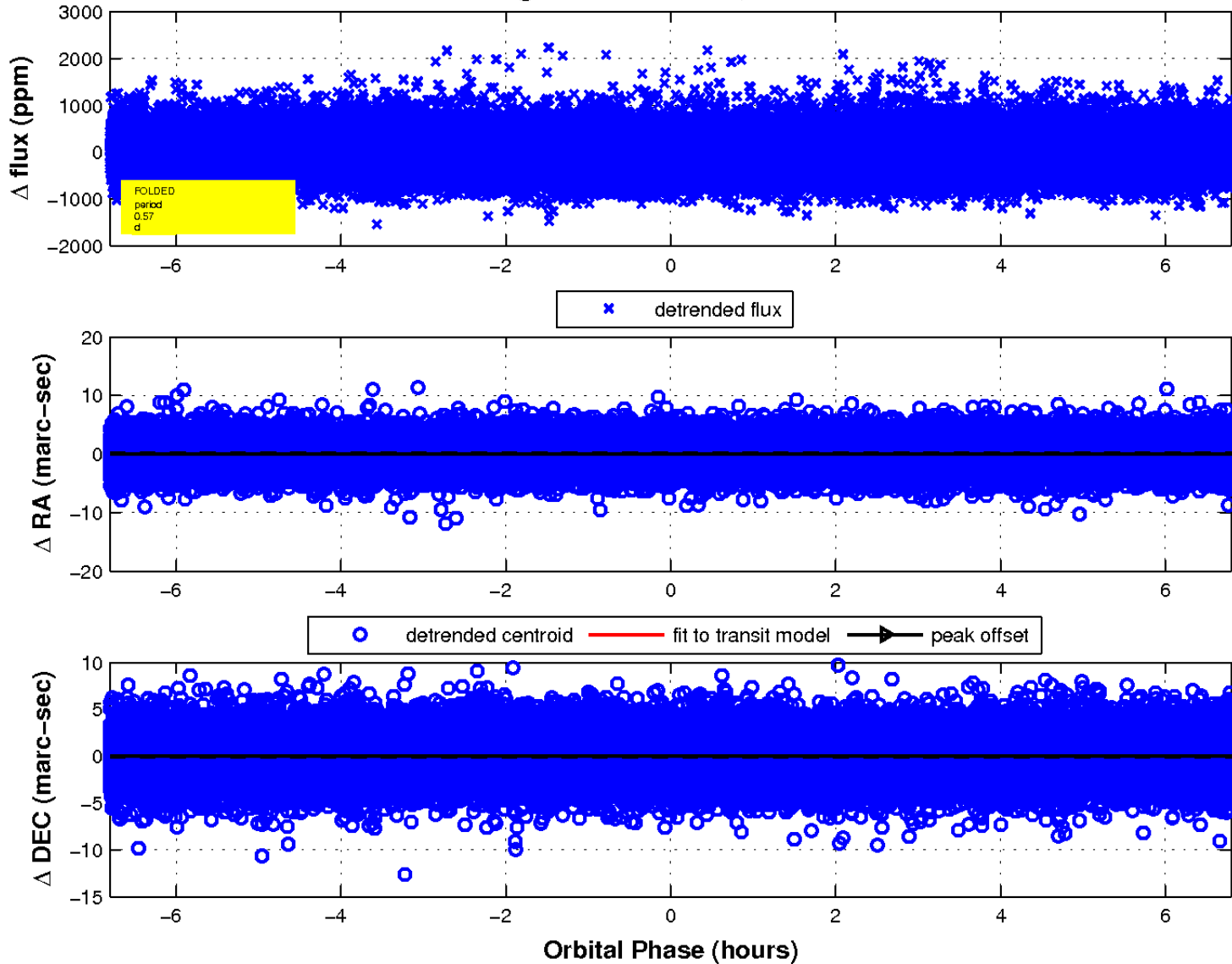
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

