

KIC 010590887

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|------|-----------------------------|-----------------|------------------------|------------------------|
| 010590887-01 | OBS | No | 0.743722 | 131.852825 | 23.5 | 3.127 | 8.5 | 11.2 | 1.45 | 6916 | 0.82 | 13288.51 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 010590887-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

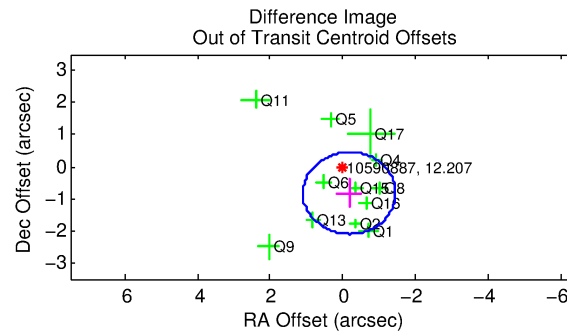
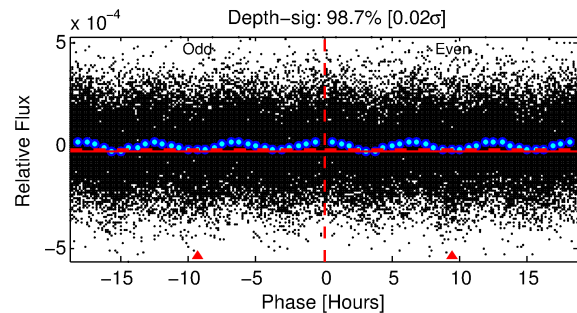
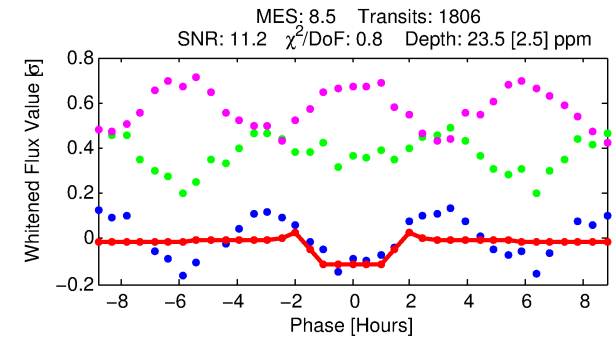
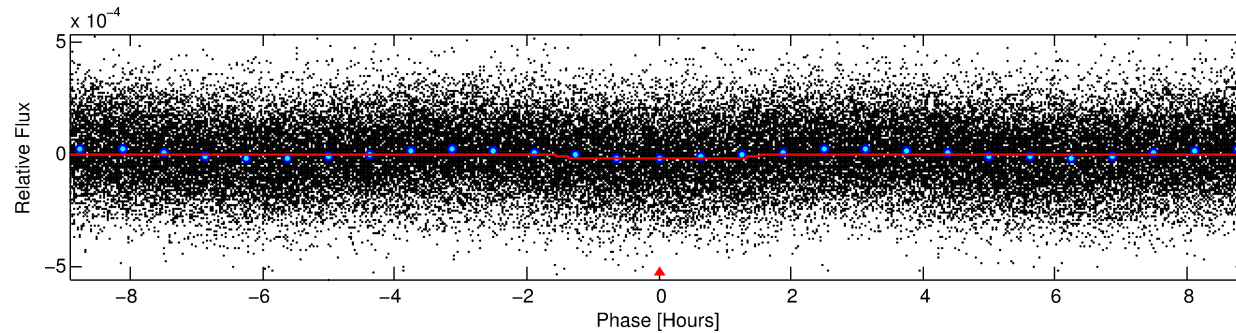
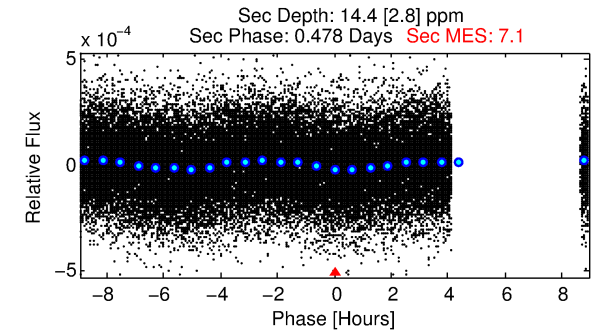
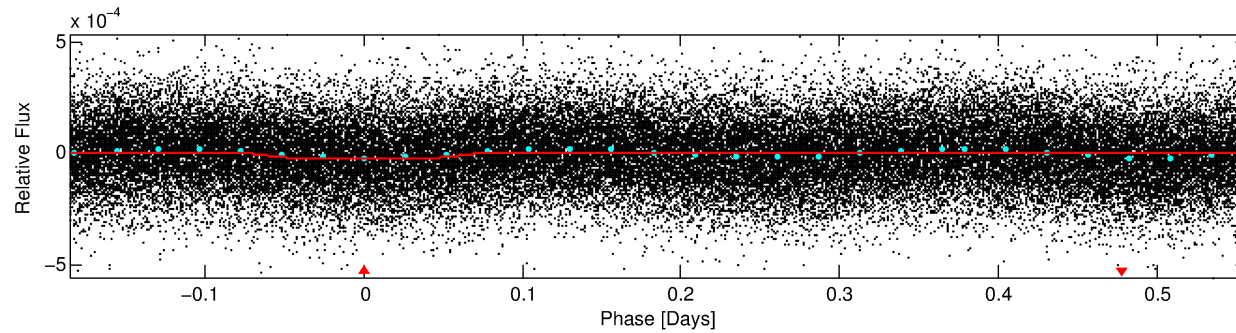
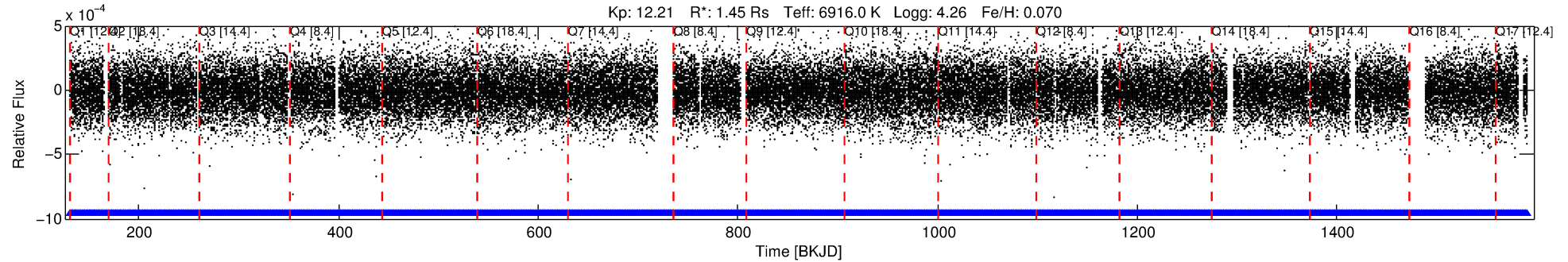
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010590887-01

No Significant Match Found

DV One-Page Summary

KIC: 10590887 Candidate: 1 of 1 Period: 0.744 d



DV Fit Results:

Period = 0.74372 [0.00001] d
Epoch = 131.8528 [0.0023] BKJD
Rp/R* = 0.0052 [0.0013]
a/R* = 1.24 [0.68]
b = 0.90 [0.33]
Seff = 13288.51 [6015.14]
Teff = 2738 [310] K
Rp = 0.82 [0.36] Re
a = 0.0181 [0.0053] AU
Ag = 3.83 [2.66] [1.06σ]
Teffp = 5920 [861] K [3.48σ]

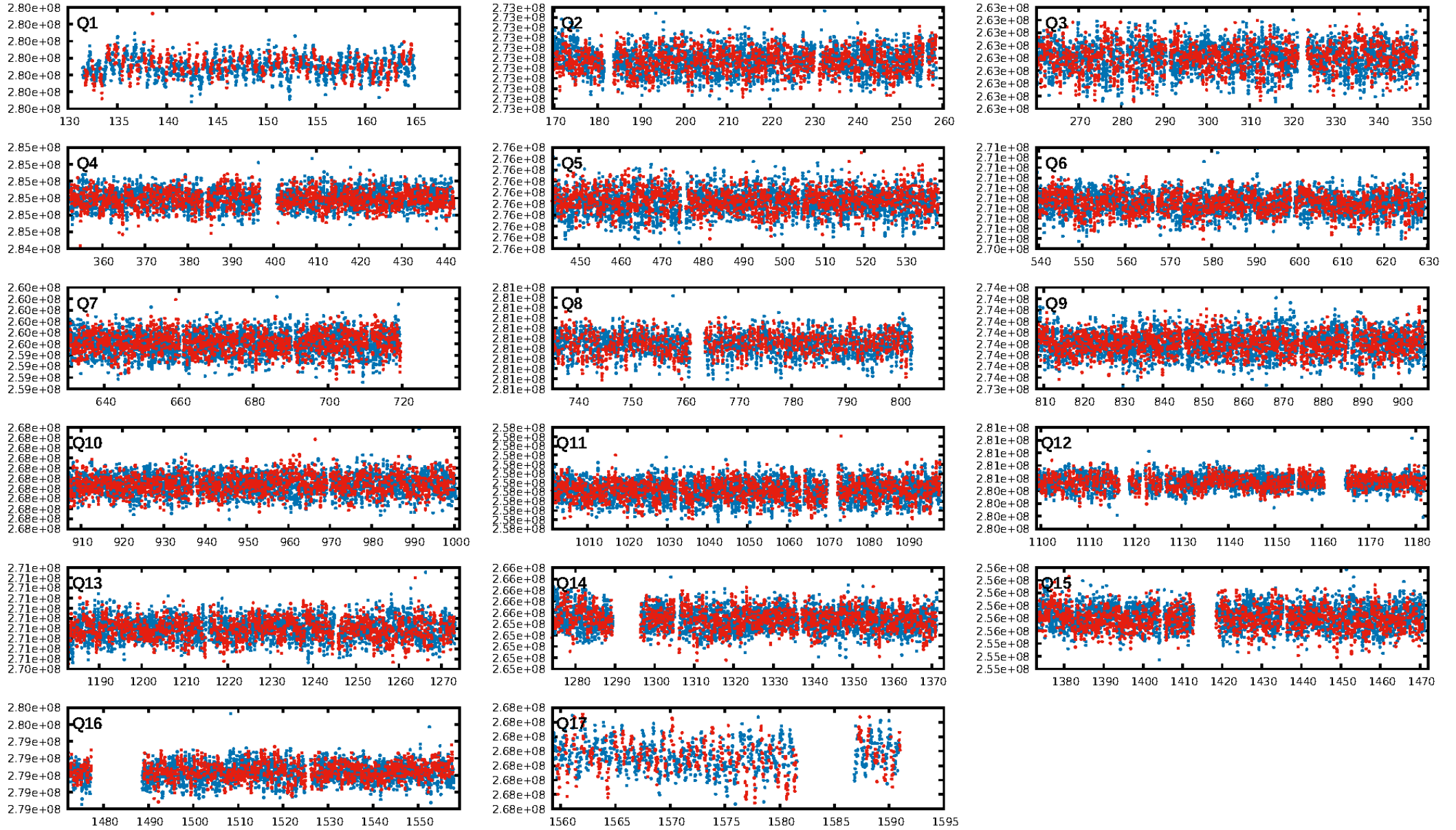
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.51e-11
RollingBand-fgt: 1.00 [1725/1725]
GhostDiagnostic-chr: 1.701
Centroid-sig: 8.2%
Centroid-so: 0.526 arcsec [1.35σ]
OotOffset-rm: 0.844 arcsec [1.99σ]
OotOffset-st: 2/2/3/5 [12]
KicOffset-rm: 0.926 arcsec [2.38σ]
KicOffset-st: 2/2/3/5 [12]
DiffImageQuality-fgm: 0.58 [7/12]
DiffImageOverlap-fno: 1.00 [17/17]

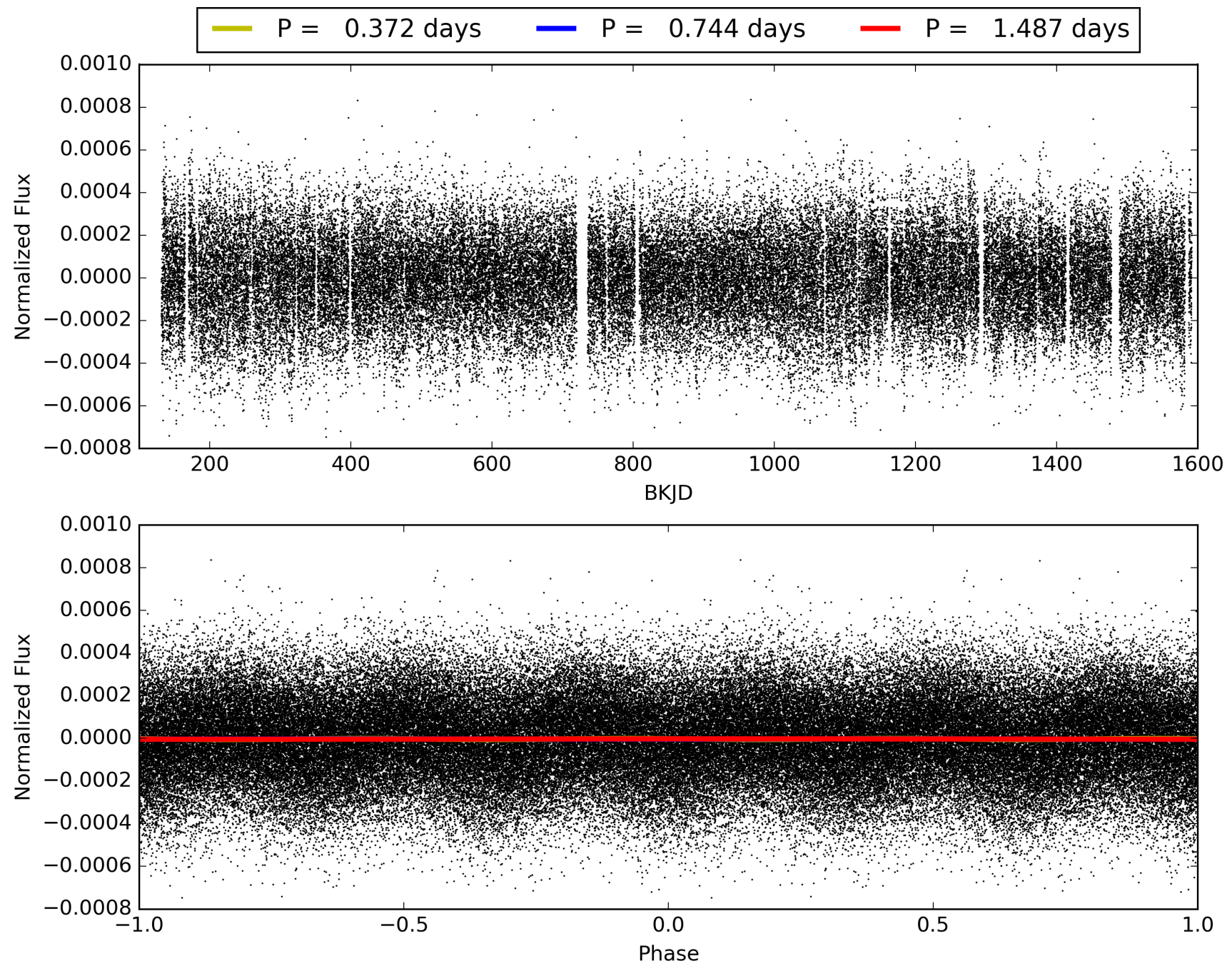
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:05:54 Z

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

TCE 010590887-01, PDC Light Curves

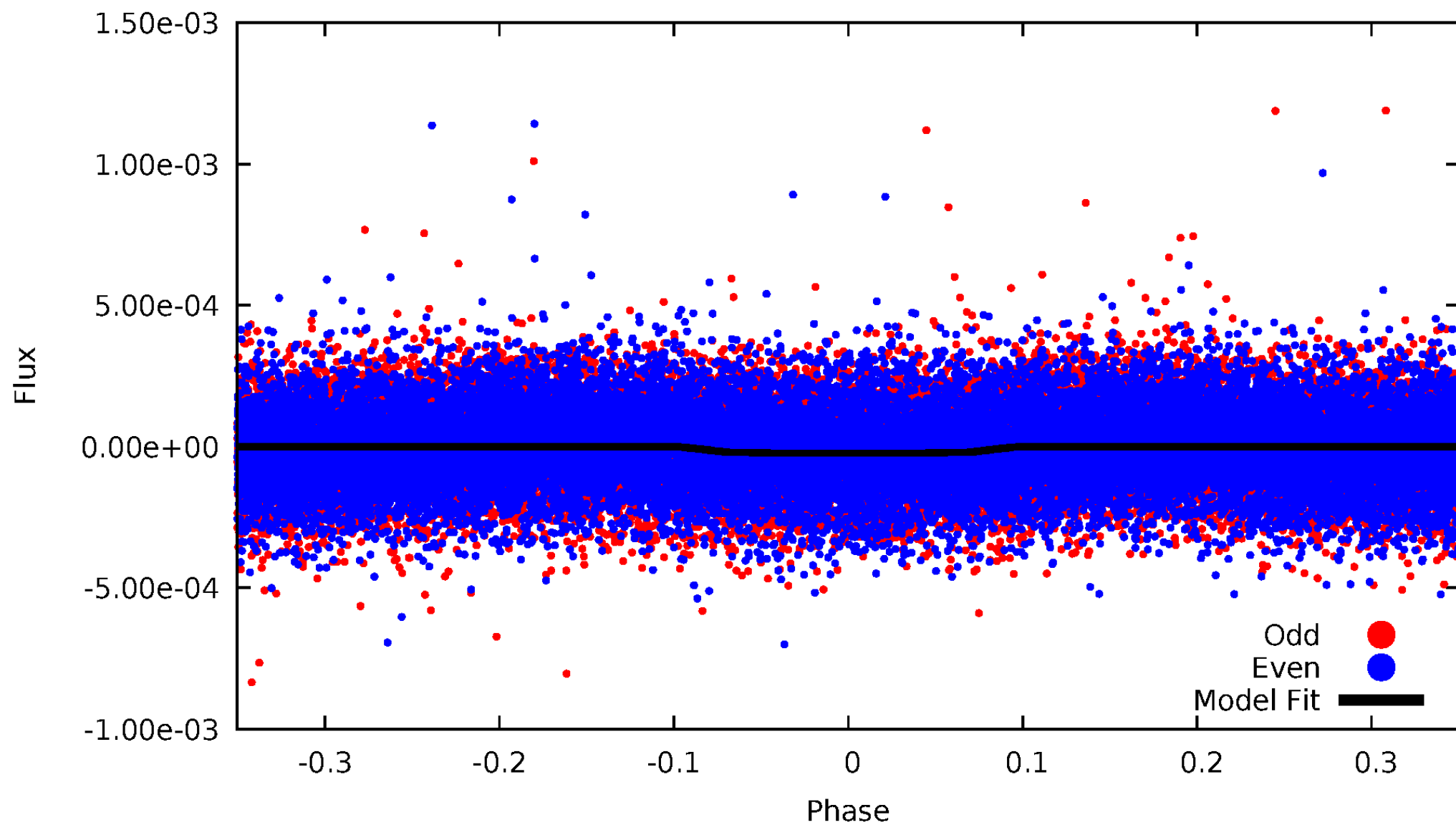


TCE 010590887-01



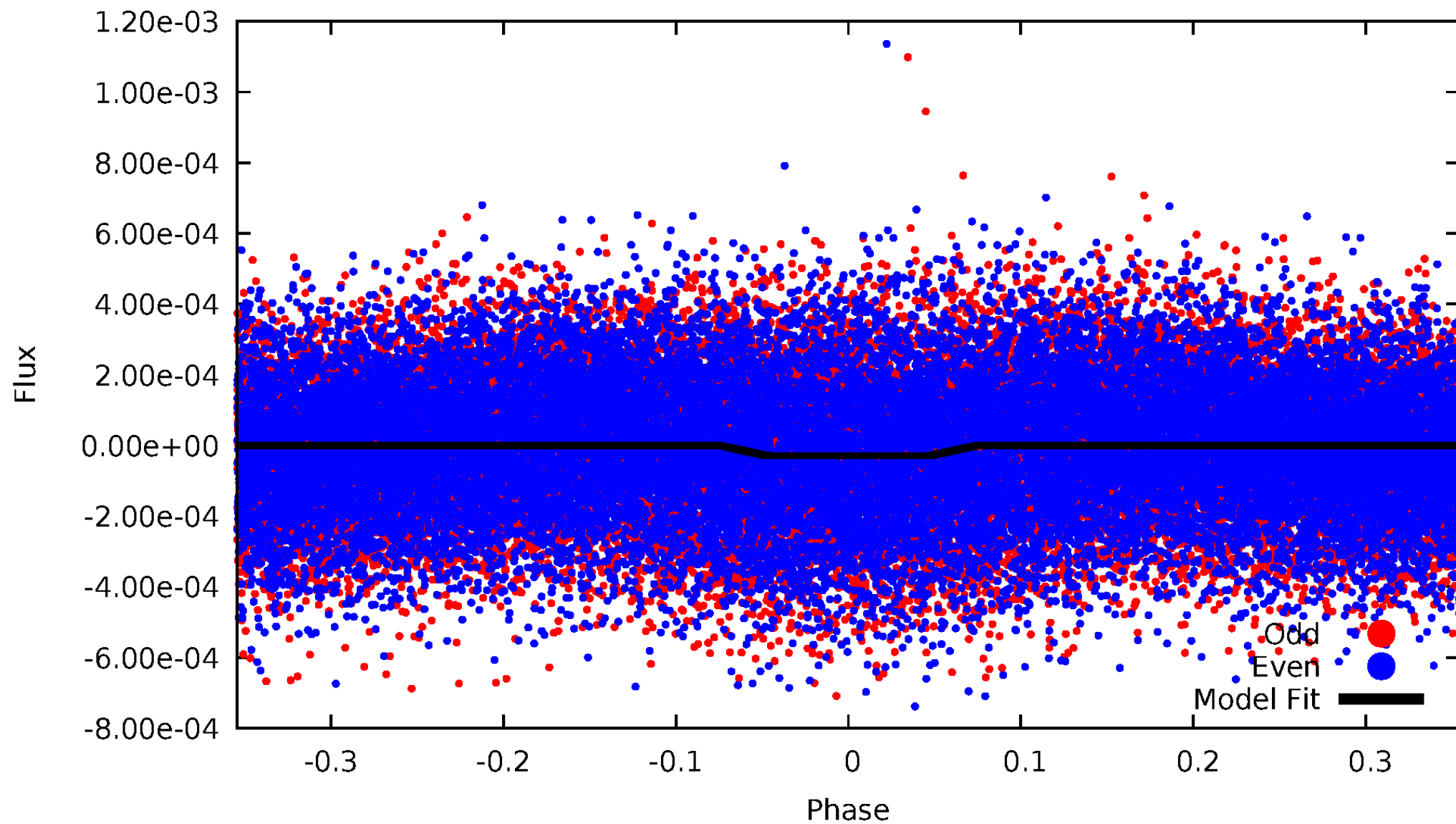
DV Odd/Even

TCE 010590887-01



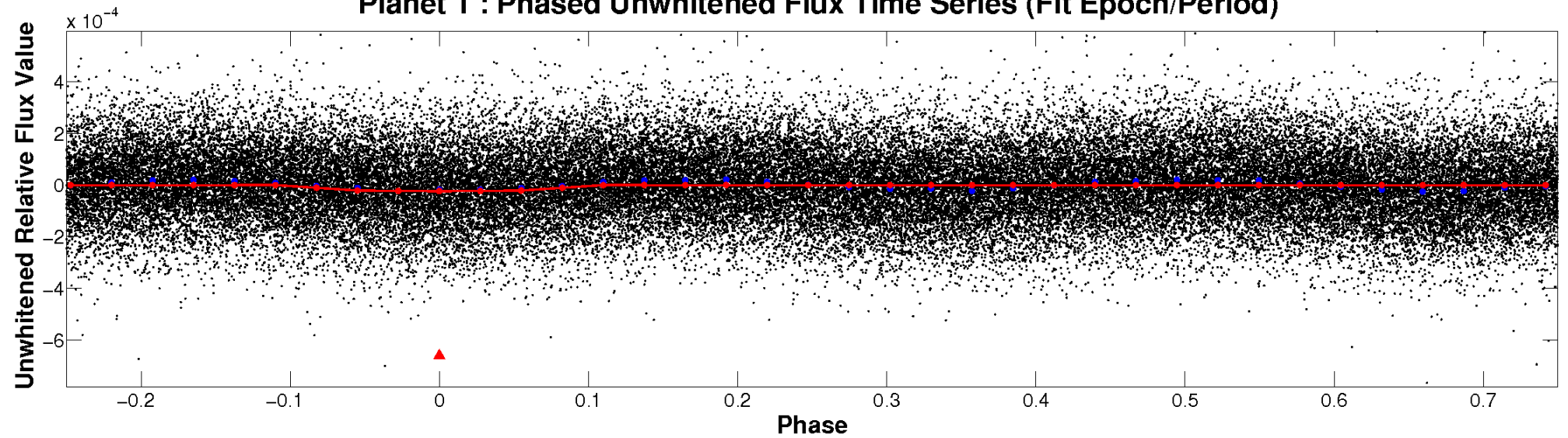
ALT Odd/Even

TCE 010590887-01

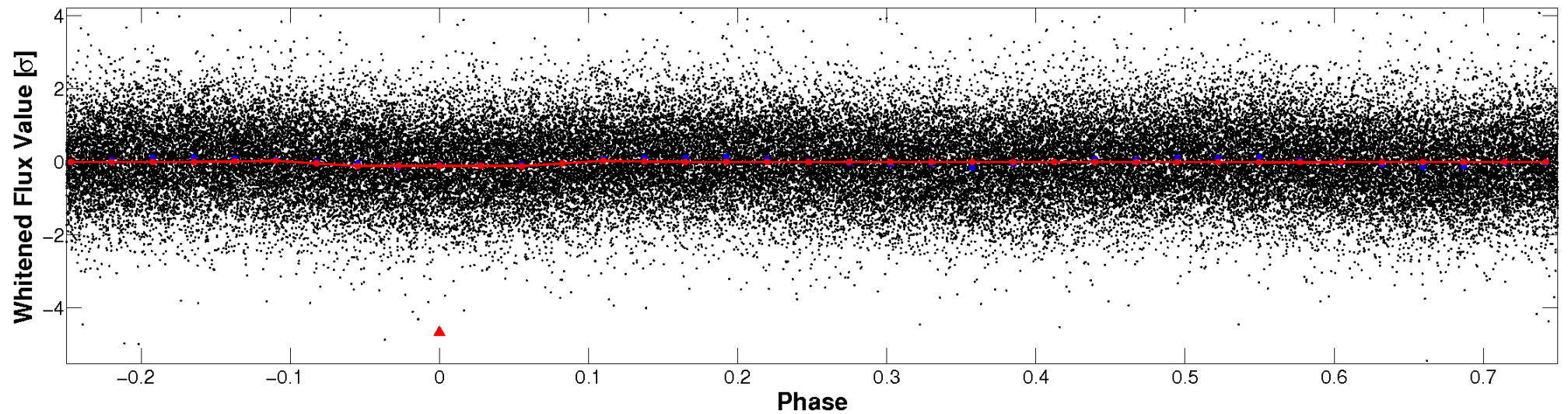


Non-Whitened Vs. Whitened Light Curve

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

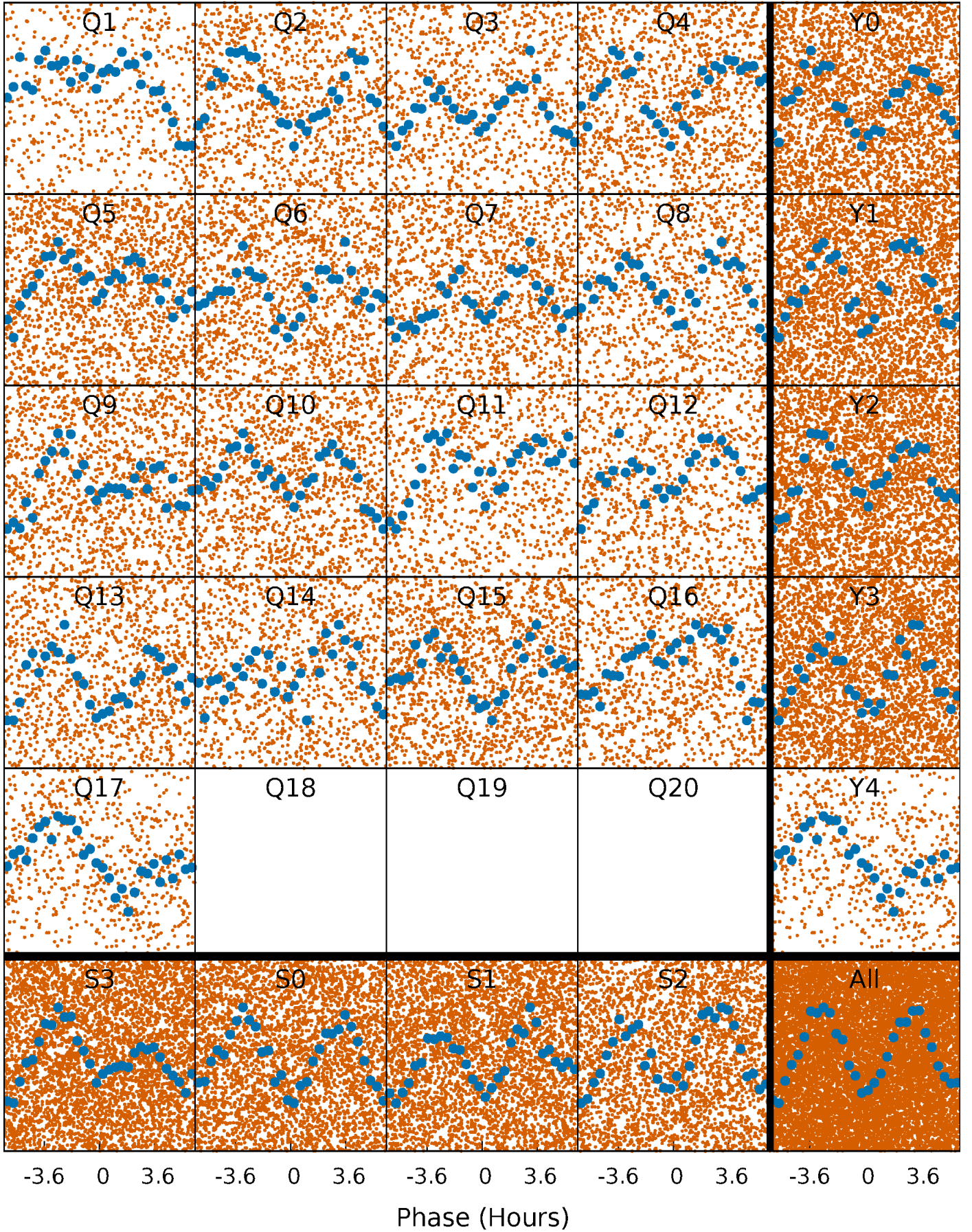


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



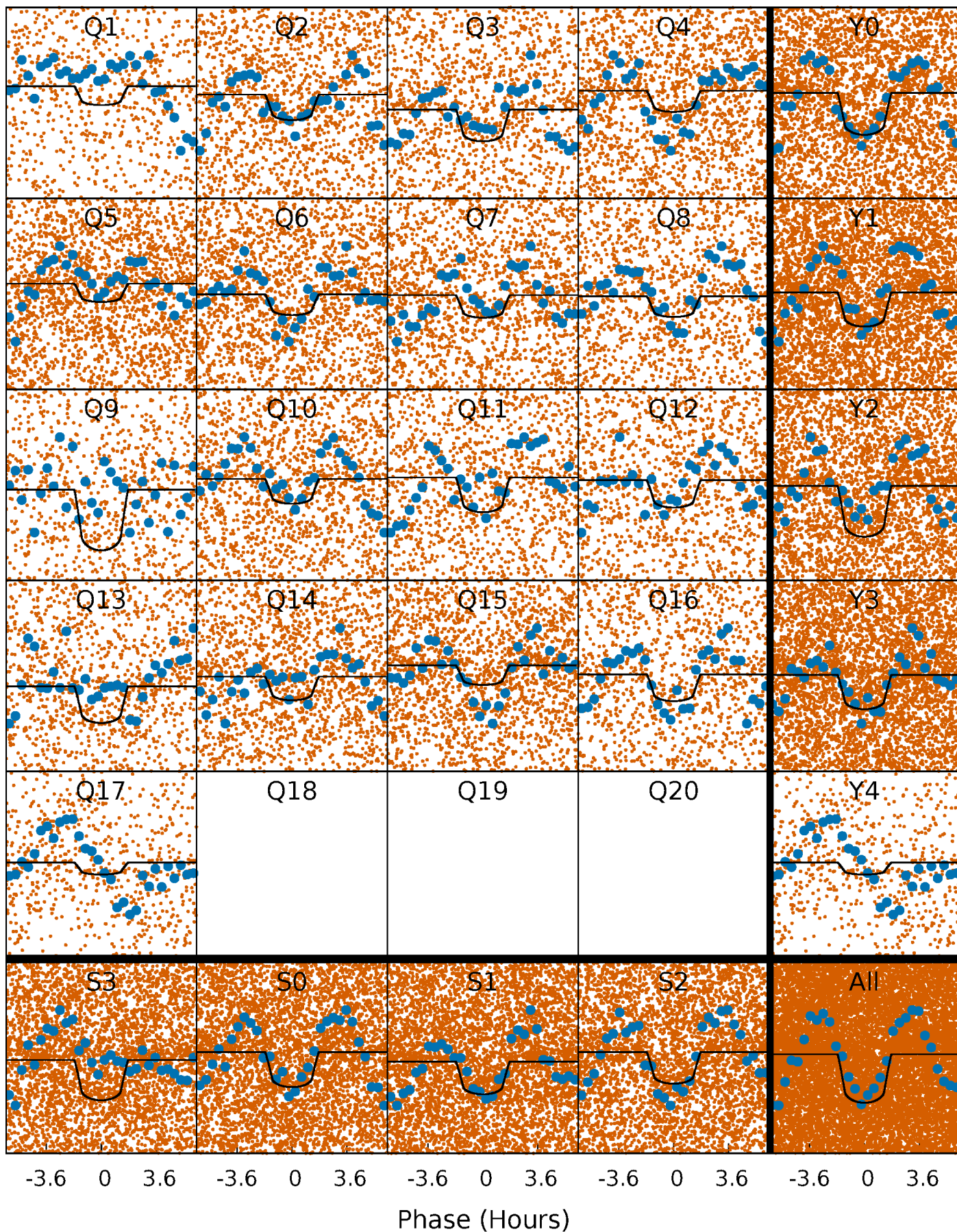
PDC Quarter-Phased Transit Curves

TCE 010590887-01 P= 0.743722 Days $T_0=131.852825$ (BKJD)



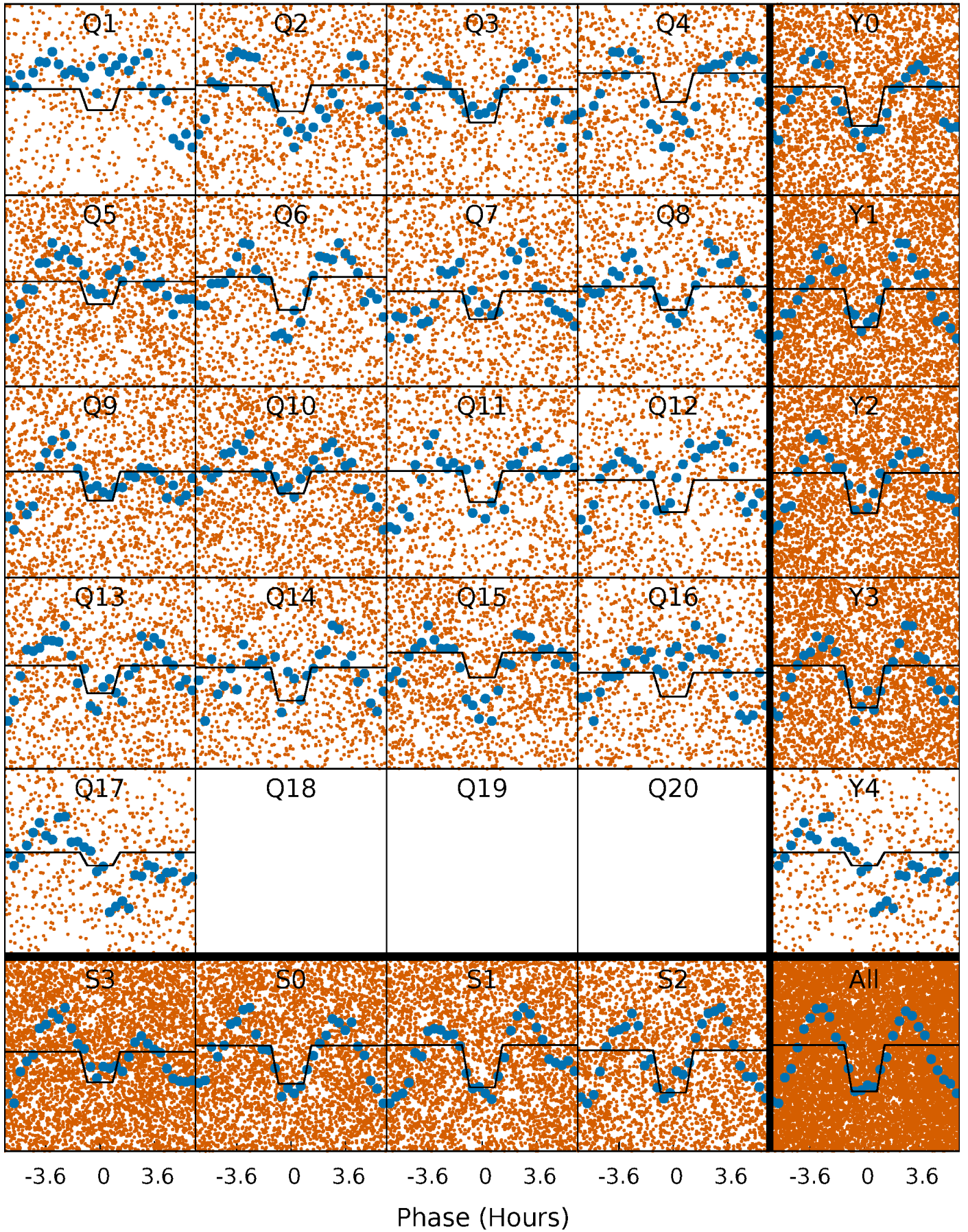
DV Quarter-Phased Transit Curves

TCE 010590887-01 P= 0.743722 Days $T_0=131.852825$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

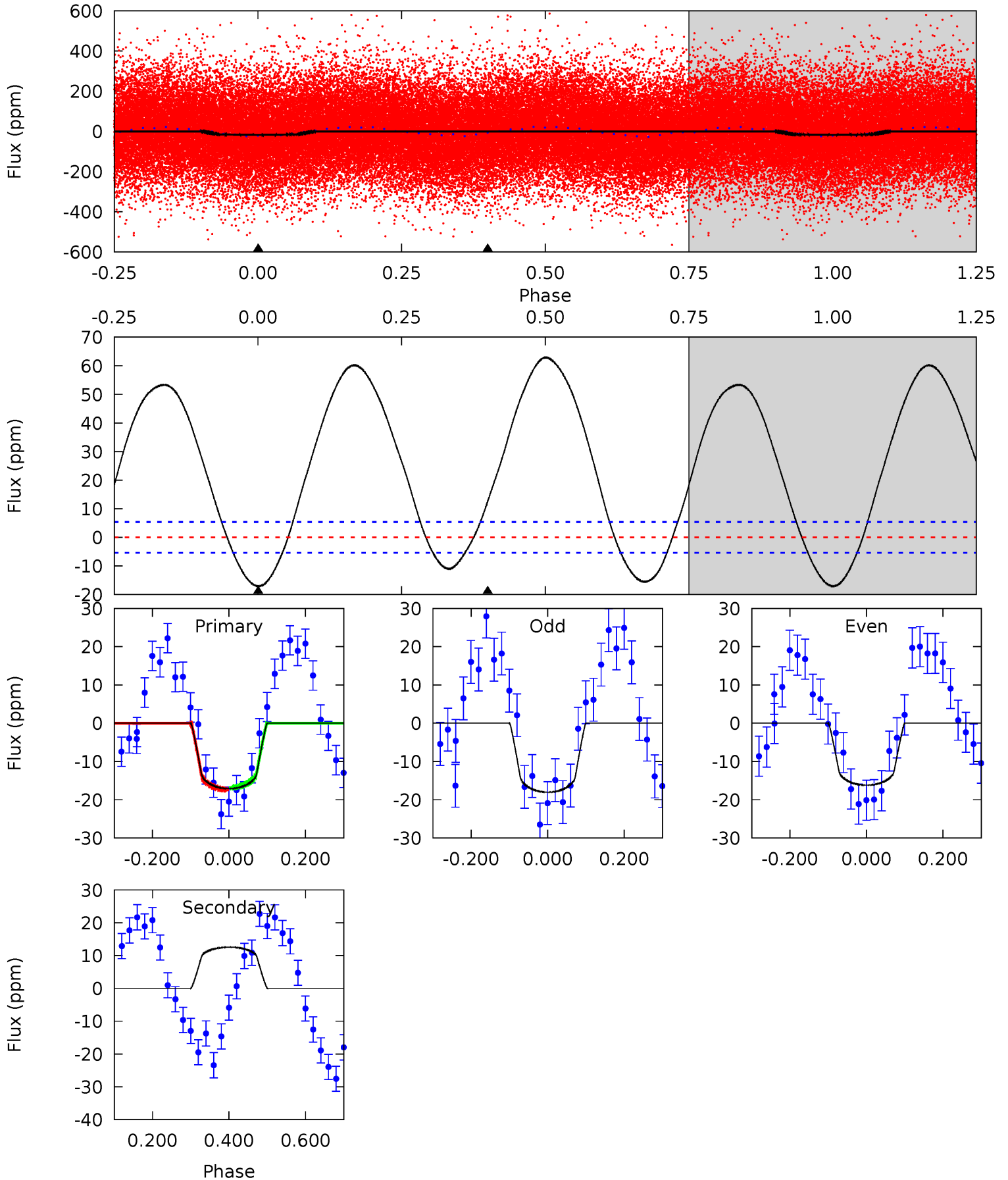
TCE 010590887-01 P= 0.743729 Days $T_0=131.851945$ (BKJD)



DV Model-Shift Uniqueness Test

010590887-01, P = 0.743722 Days, E = 131.109103 Days

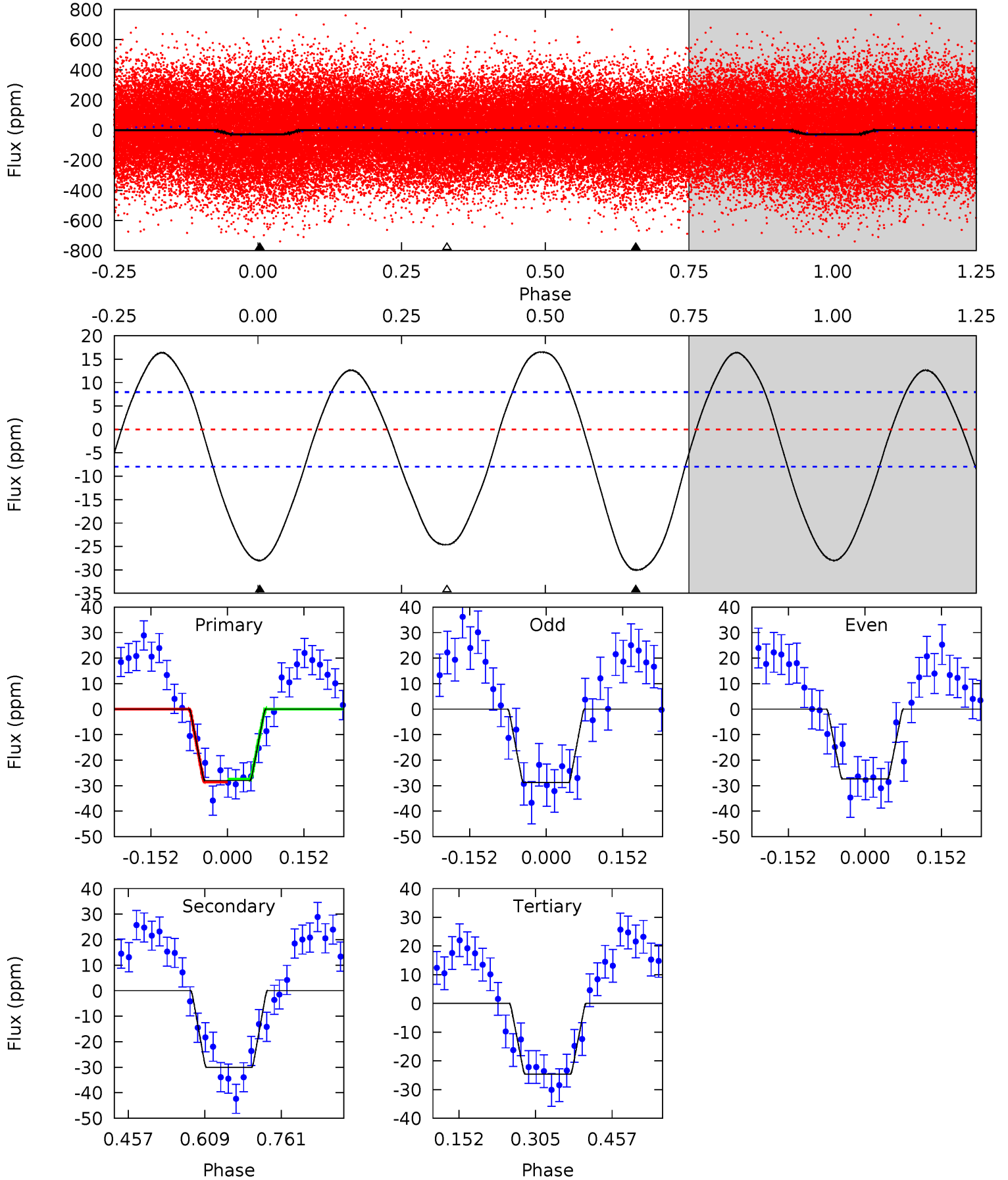
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 14.1 | -10.3 | 0 | 0 | 4.42 | 1.28 | 16.1 | 14.1 | 14.1 | -10.3 | -10.3 | 0.76 | 0.90 | 0.79 | 0.23 |



Alt Model-Shift Uniqueness Test

010590887-01, P = 0.743729 Days, E = 131.108216 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 15.7 | 16.9 | 13.8 | 0 | 4.48 | 1.43 | 8.36 | 1.89 | 15.7 | 3.04 | 16.9 | 0.41 | 1.45 | 0.36 | 0.29 |



Stellar Parameters For KIC 010590887

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 6916^{+193}_{-303} | $4.265^{+0.075}_{-0.225}$ | $0.070^{+0.200}_{-0.350}$ | $1.454^{+0.511}_{-0.219}$ | $1.420^{+0.213}_{-0.213}$ | $0.651^{+0.272}_{-0.364}$ |
| | +3%/-4% | +2%/-5% | +286%/-500% | +35%/-15% | +15%/-15% | +42%/-56% |
| Source | PHO54 | PHO54 | PHO54 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 010590887-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|-----------------------|----------------------------|
| DV | 13 ± 1 | $0.84^{+0.25}_{-0.23}$ | 3884^{+323}_{-240} | -5850^{+576}_{-834} | $-3.105^{+1.261}_{-2.780}$ |
| Alt. | -30 ± 2 | $0.90^{+0.27}_{-0.23}$ | 3889^{+312}_{-236} | 6797^{+1248}_{-774} | $6.548^{+5.082}_{-2.586}$ |

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

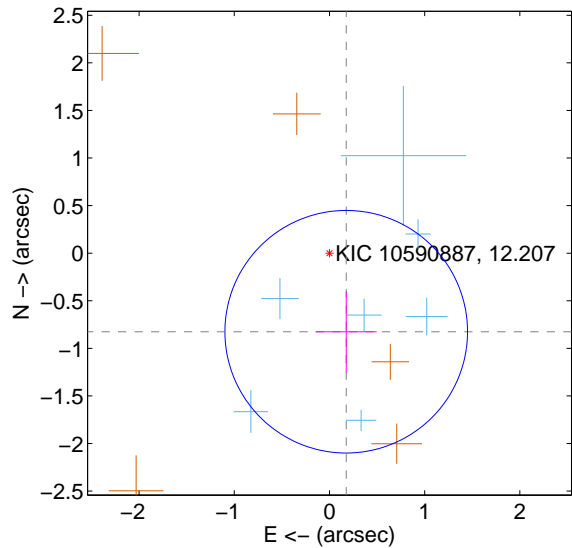
Supplemental centroid analysis for 010590887-01. Kepler magnitude: 12.21. Transit SNR 11.21

There are 7 quarters with good PRF difference image offsets

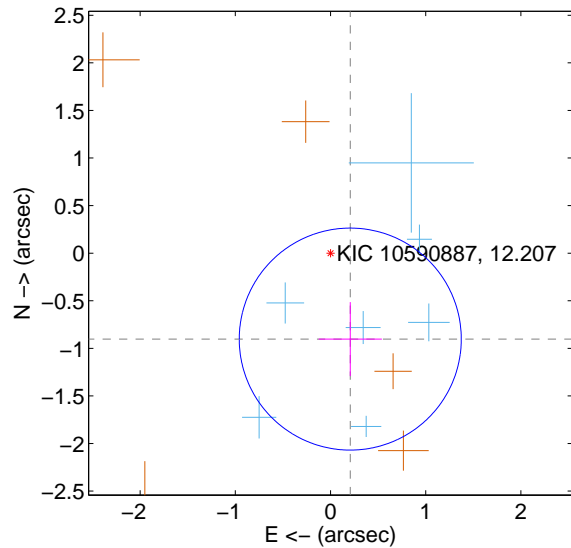
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.844 ± 0.425 | 1.99 | -0.176 ± 0.320 | -0.826 ± 0.426 |
| PRF-fit source offset from KIC position | 0.926 ± 0.389 | 2.38 | -0.208 ± 0.332 | -0.903 ± 0.389 |
| photometric centroid source offset | 0.53 ± 0.39 | 1.35 | -0.01 ± 0.45 | -0.53 ± 0.39 |

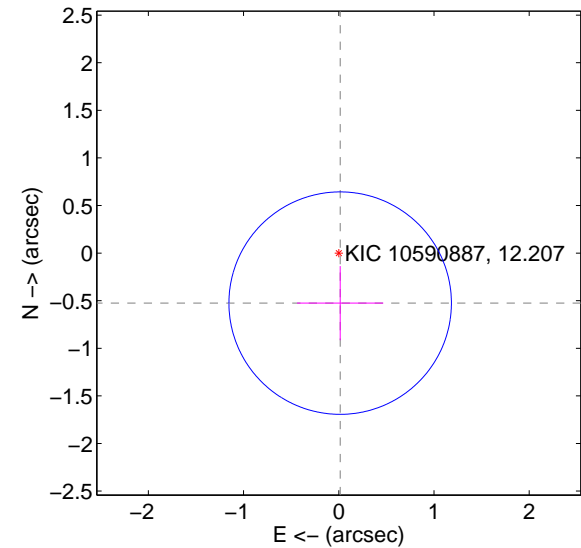
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

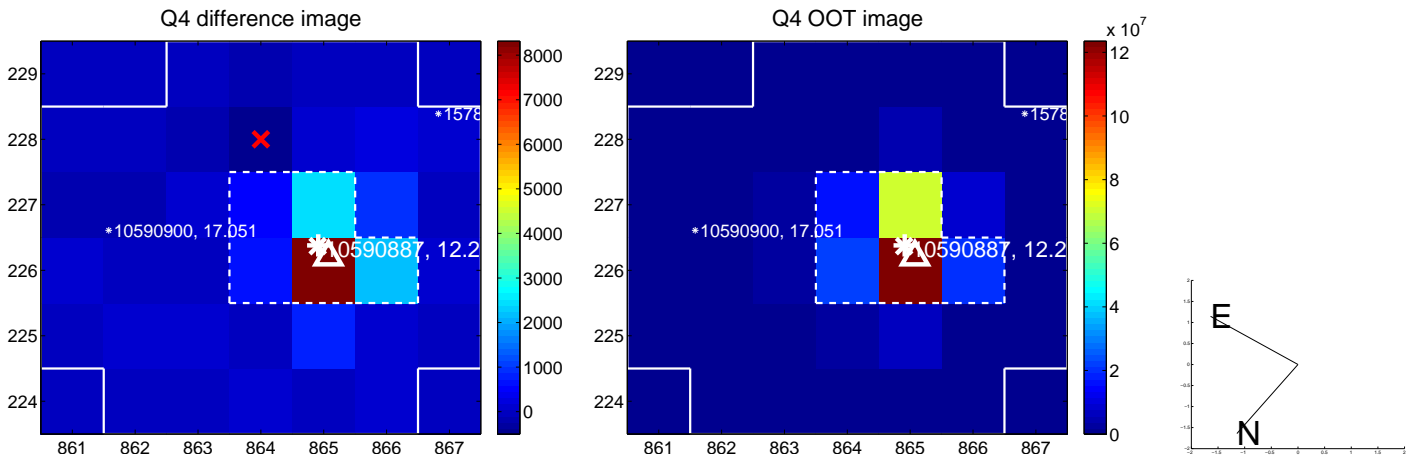
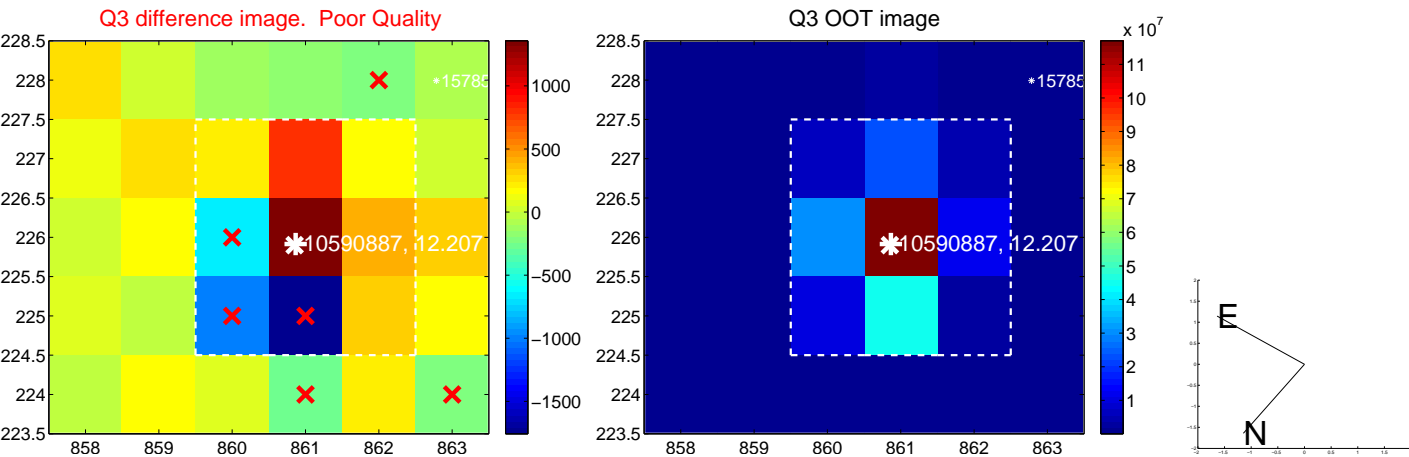
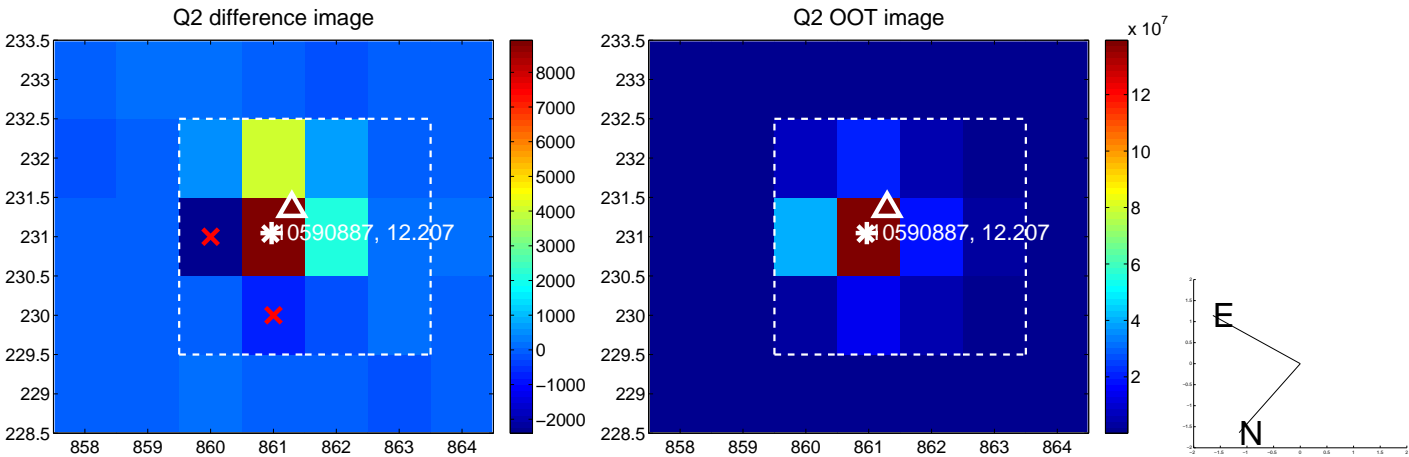
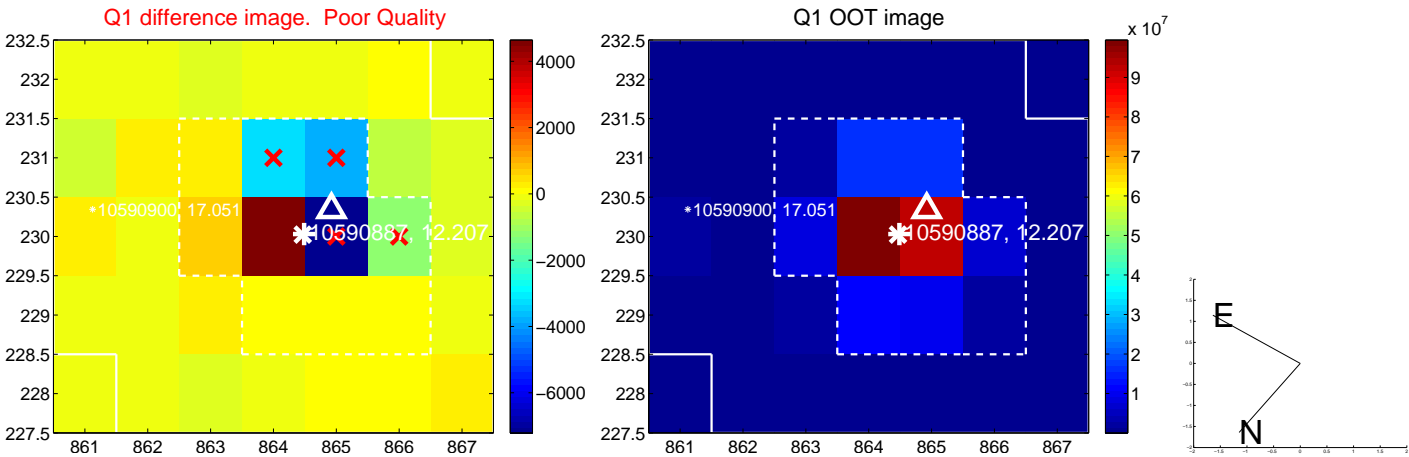


offset from photometric centroids

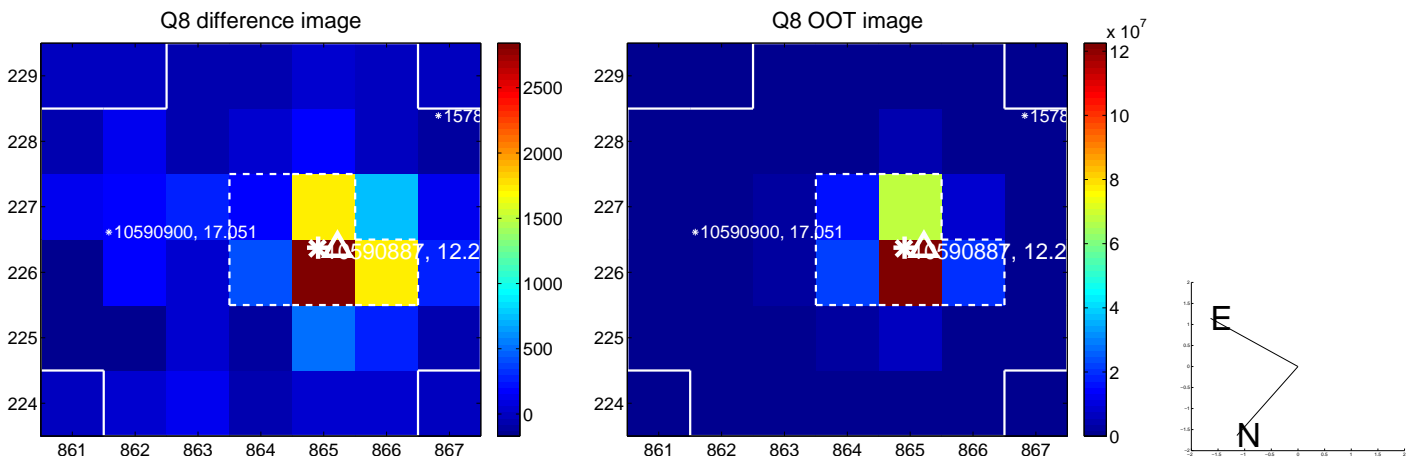
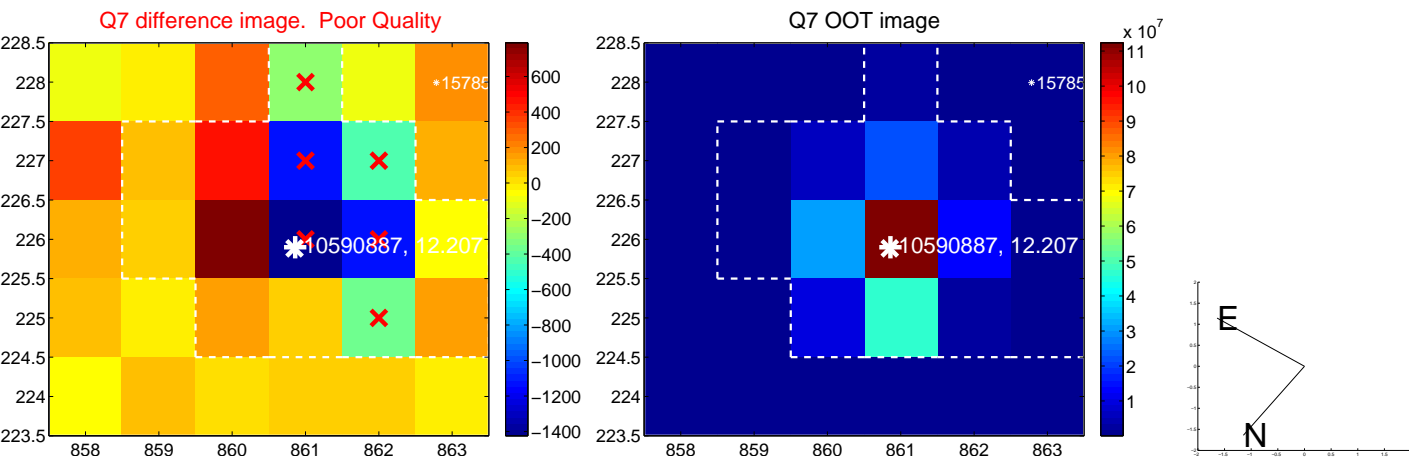
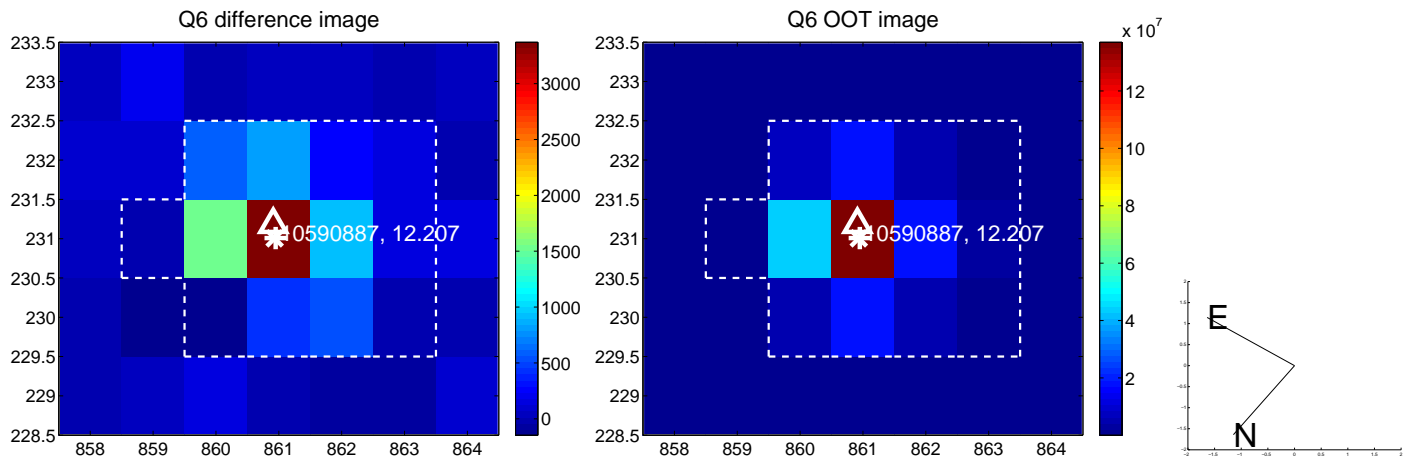
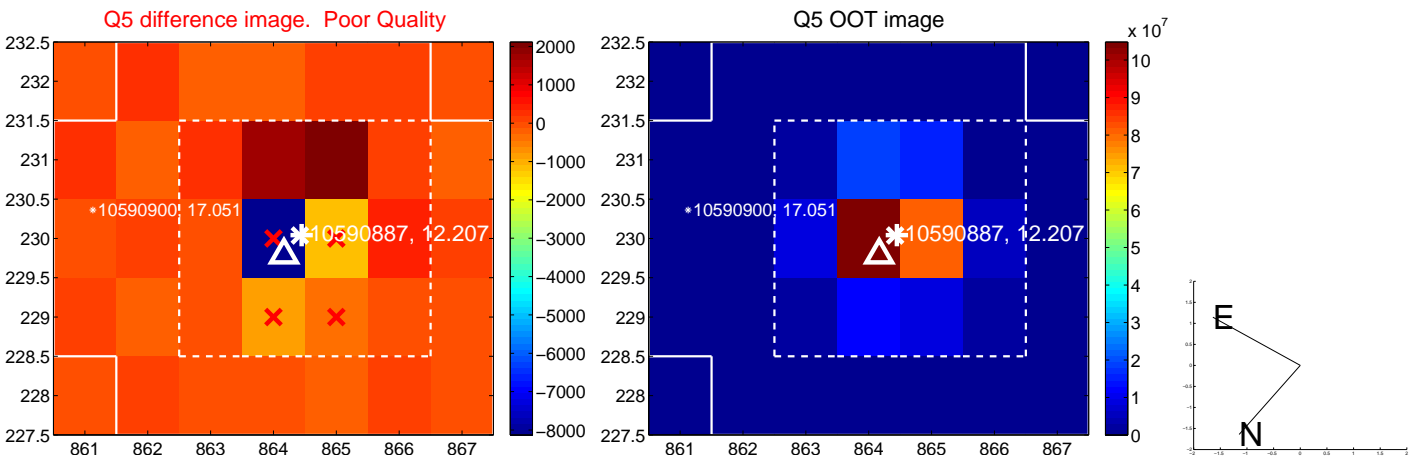


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

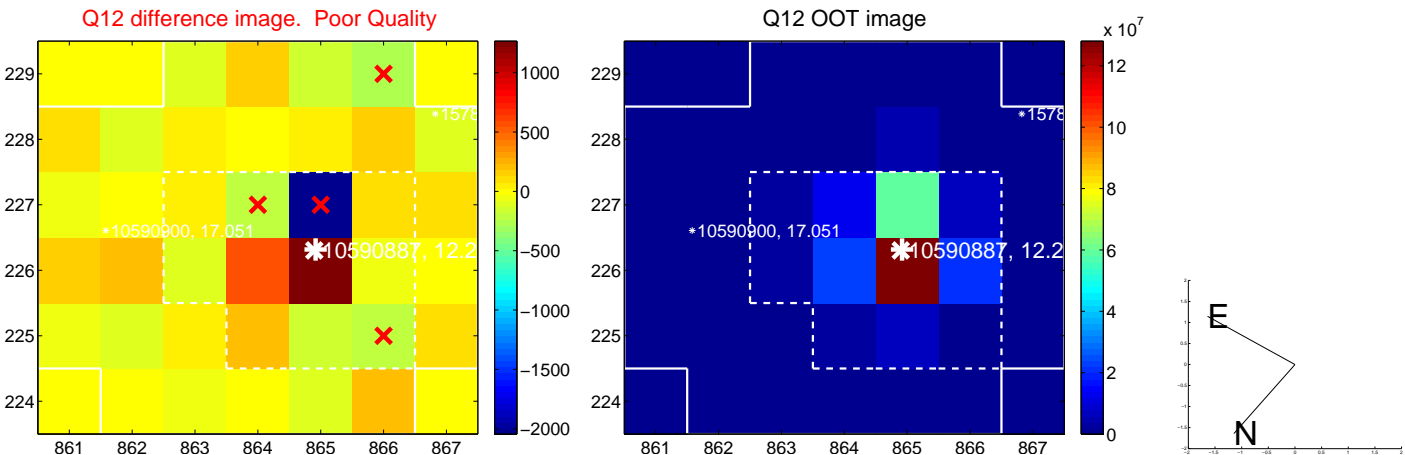
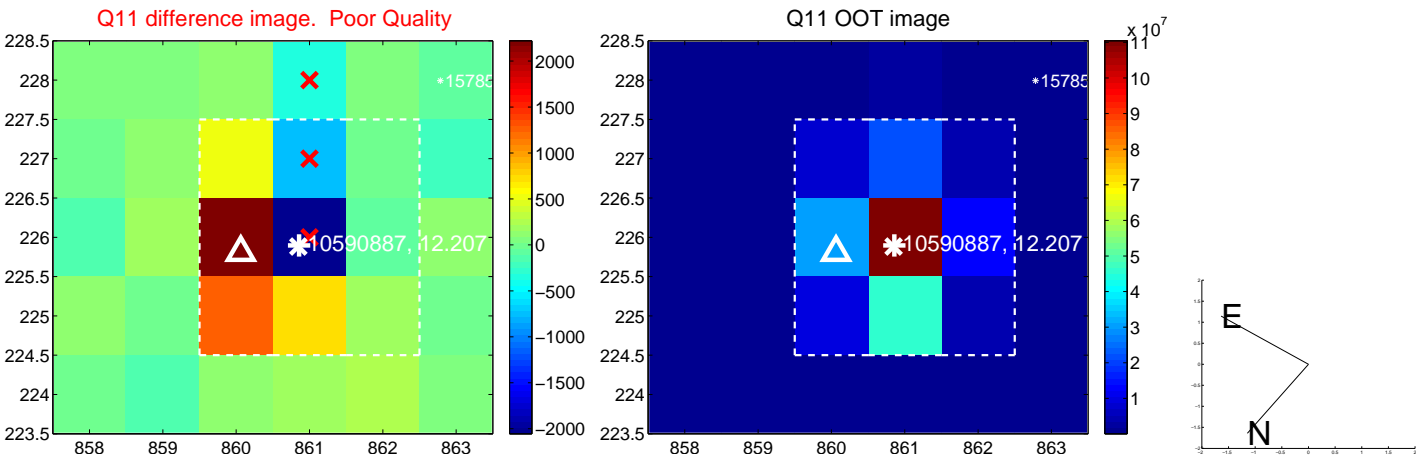
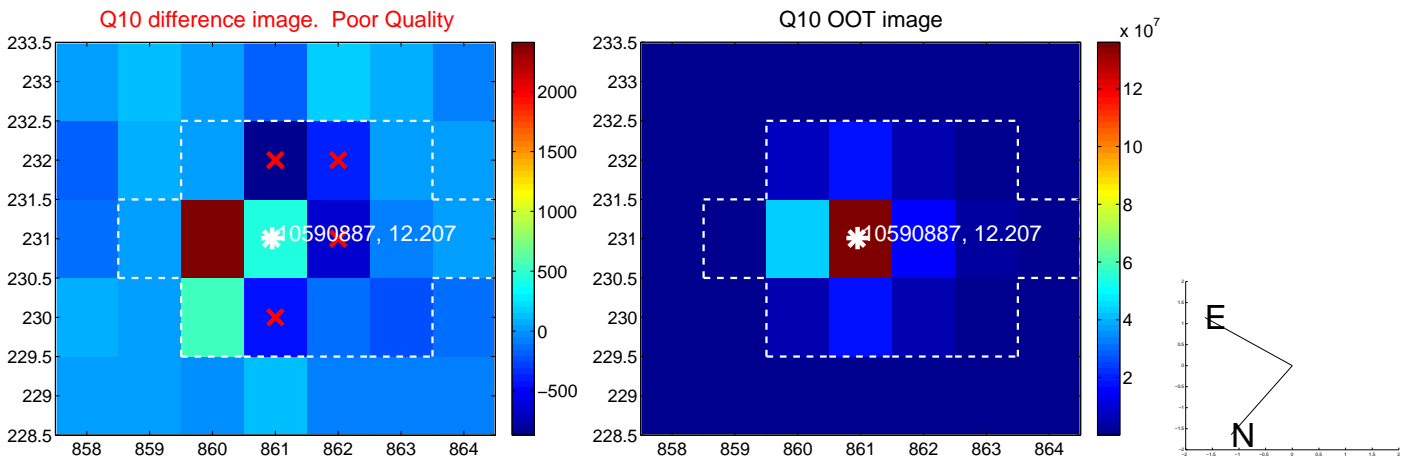
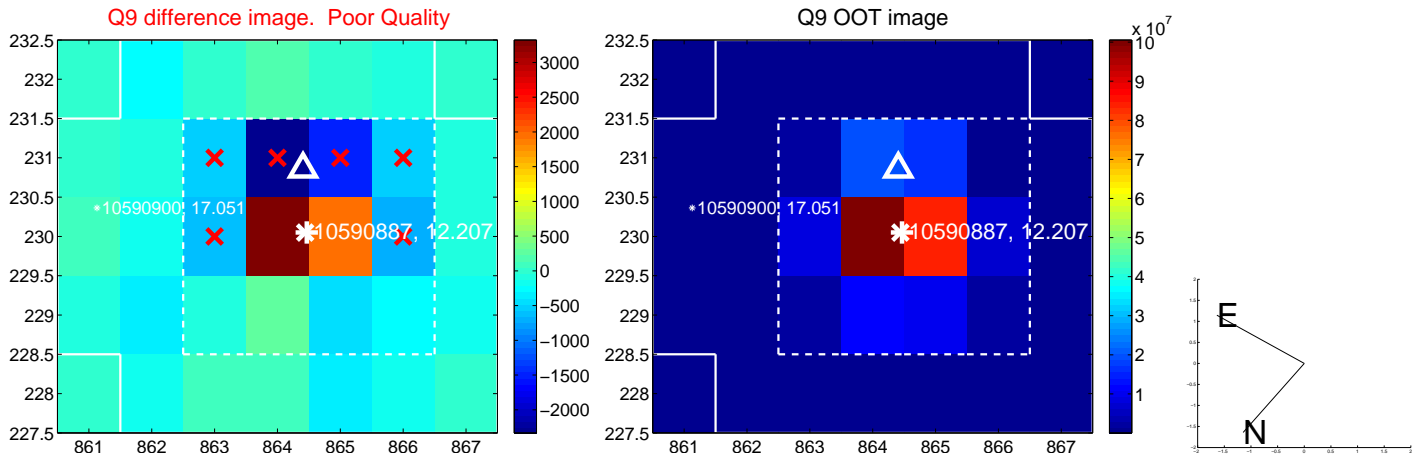
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



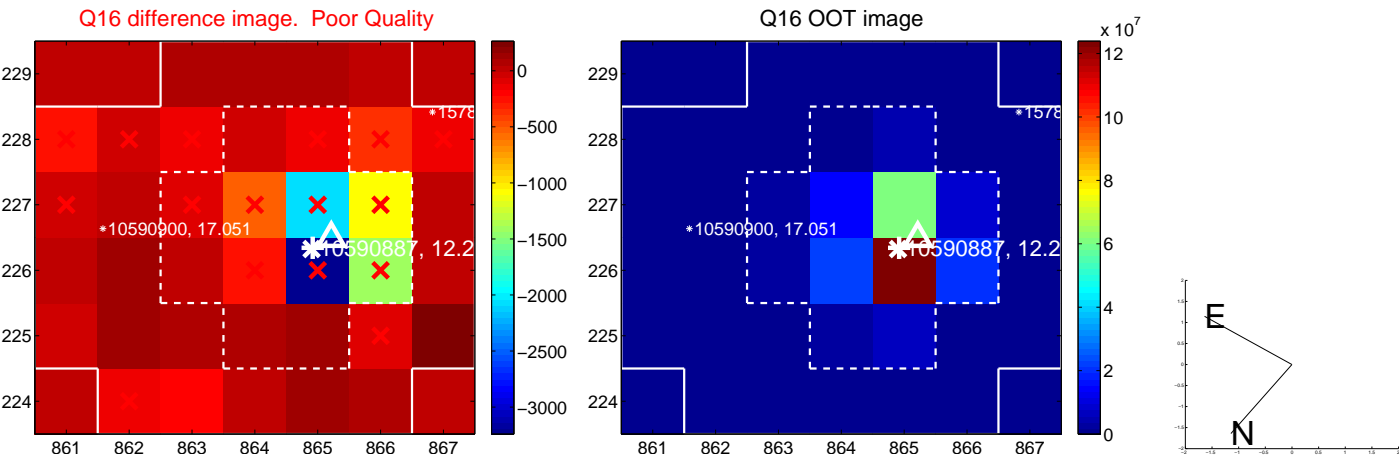
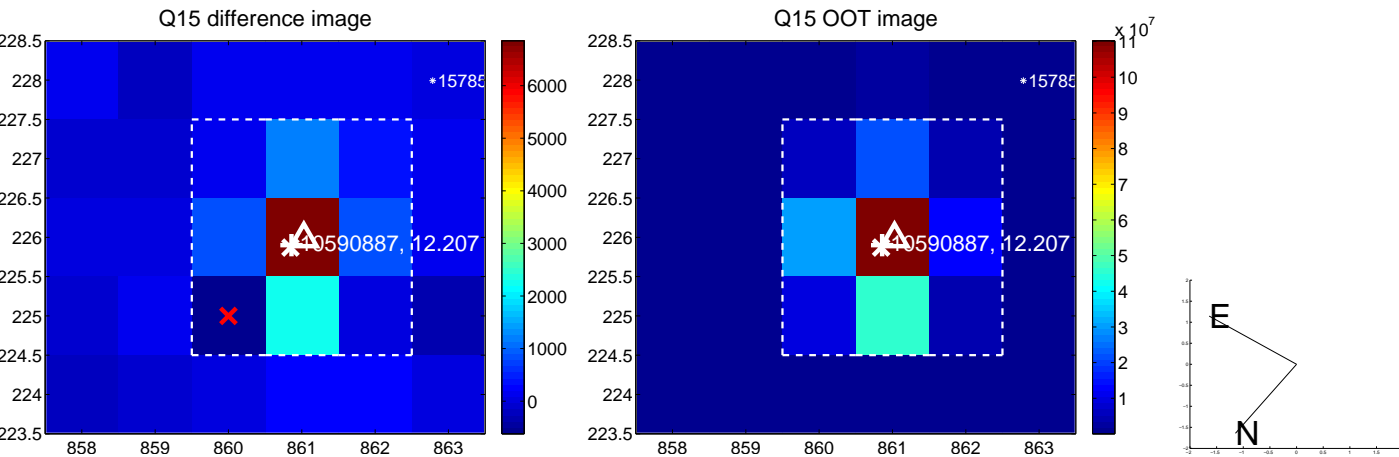
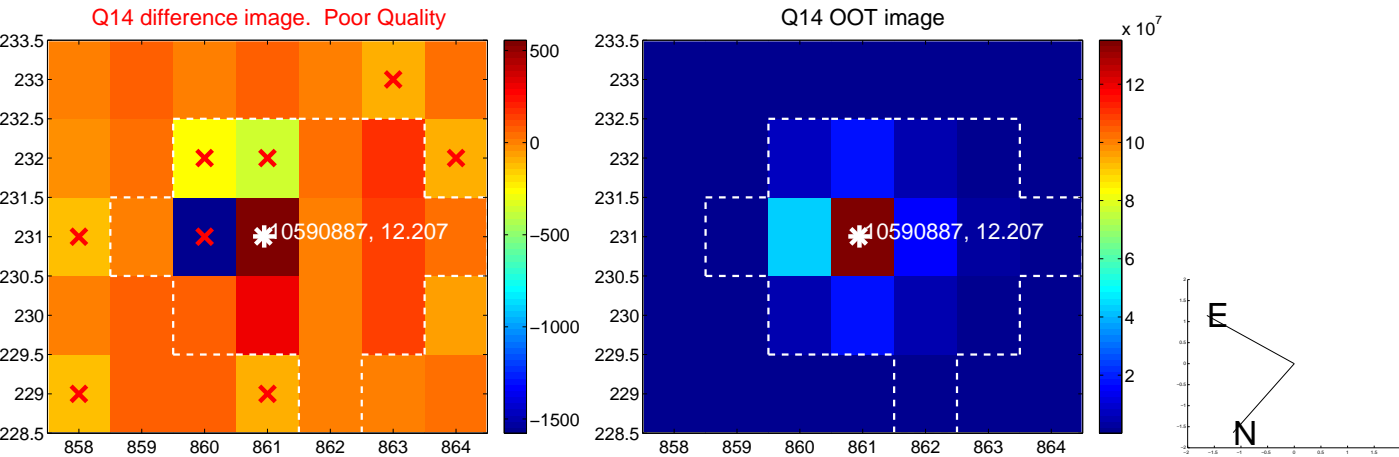
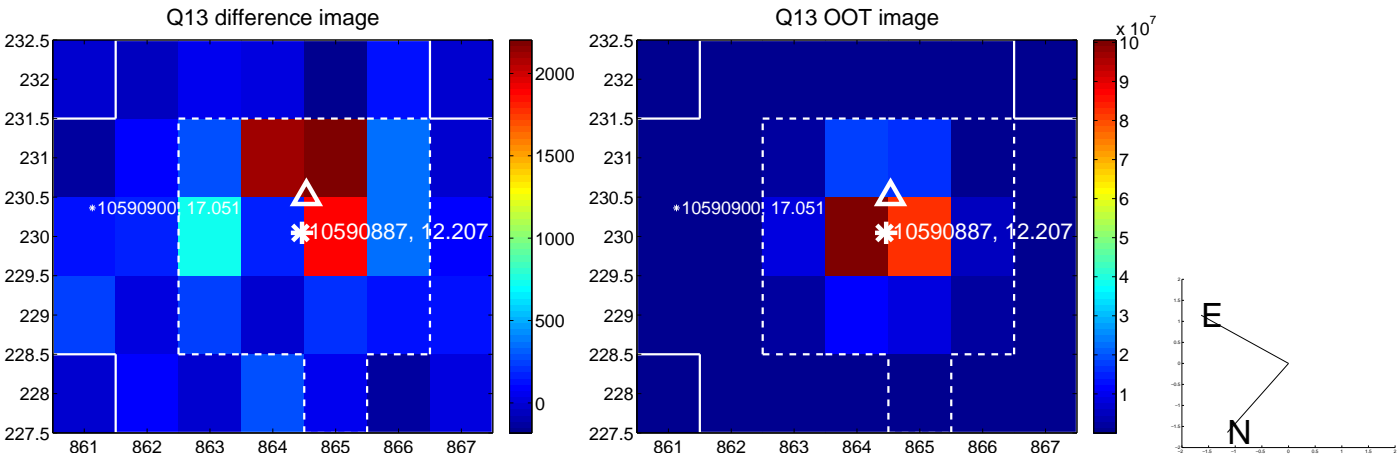
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



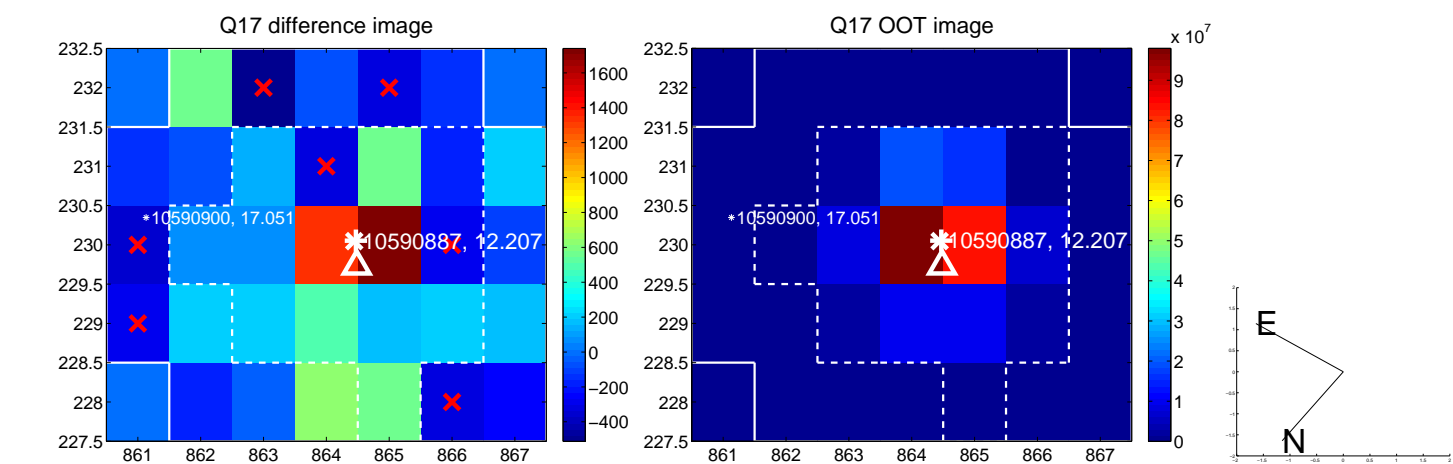
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



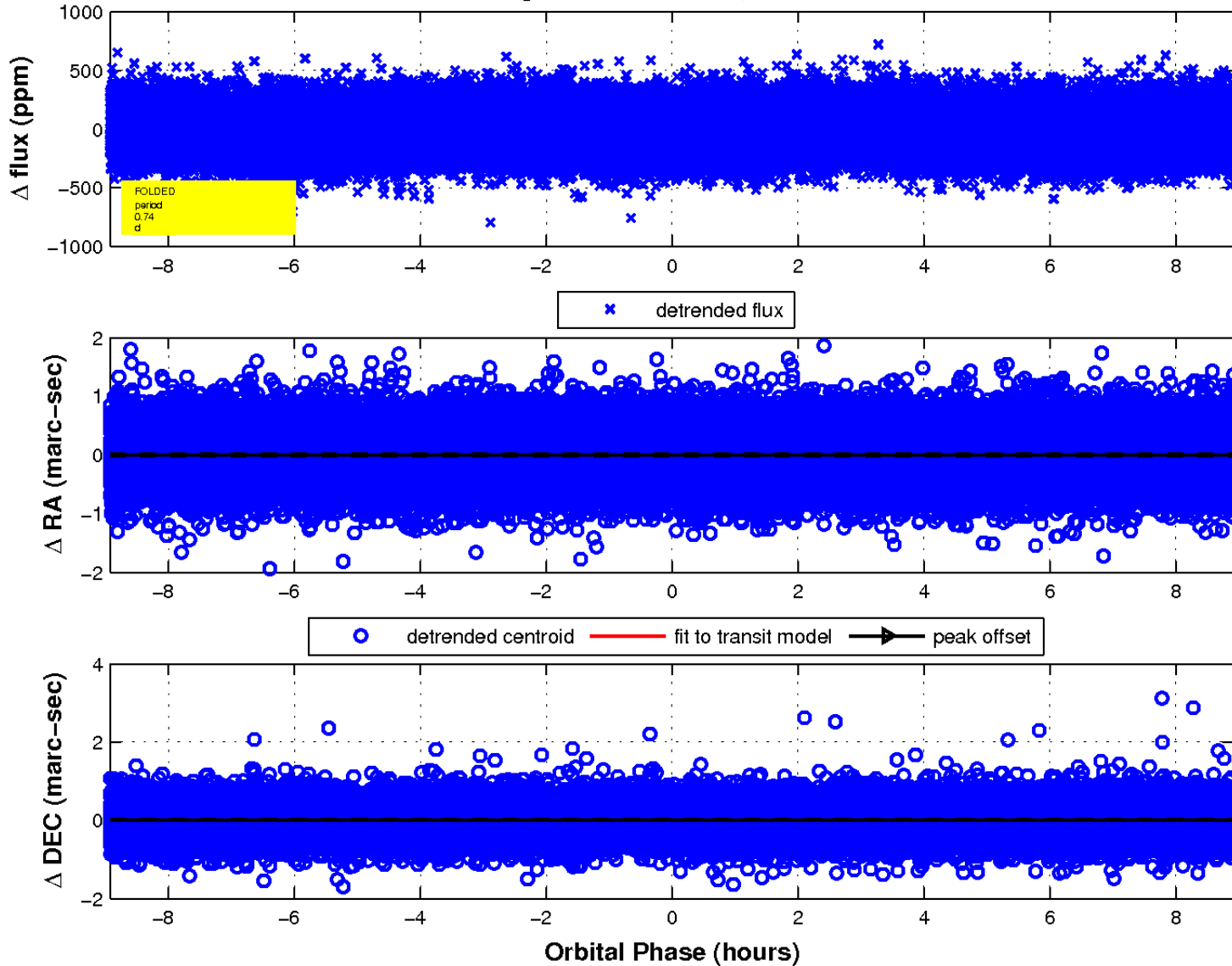
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

