

KIC 007031659

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007031659-01 | OBS | No | 0.566749 | 131.861055 | 5.0 | 5.417 | 9.0 | 6.6 | 1.47 | 6161 | 0.33 | 14411.84 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|----------------------------------|
| 007031659-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 1 | LPP_DV—CENT_FEW_MEAS—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.

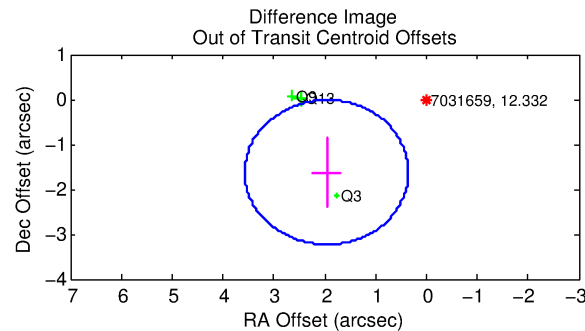
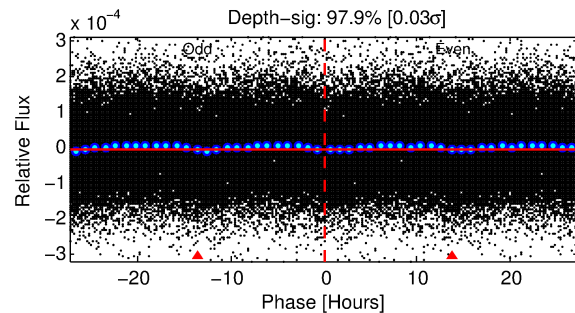
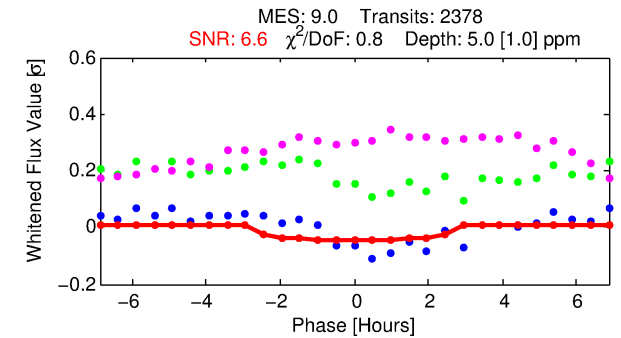
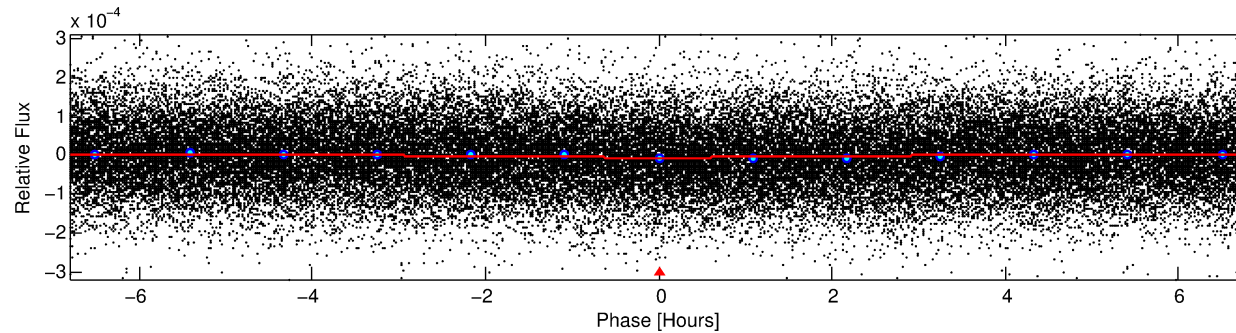
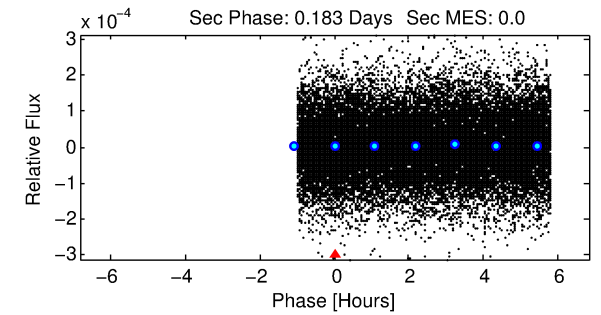
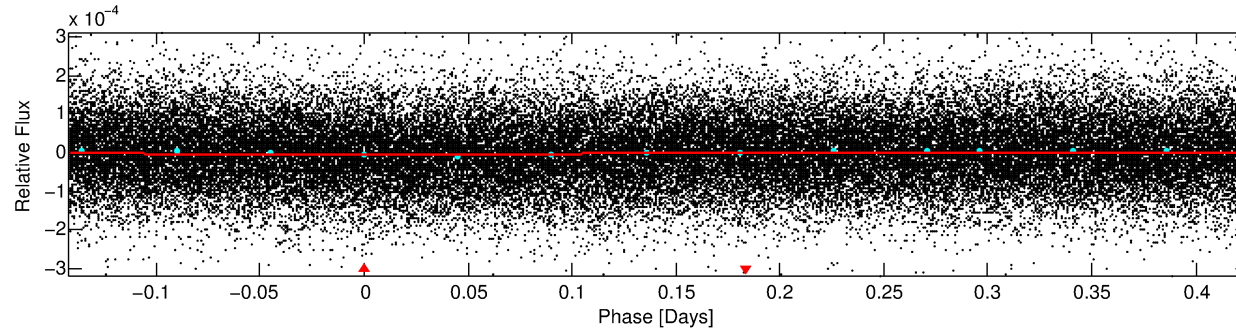
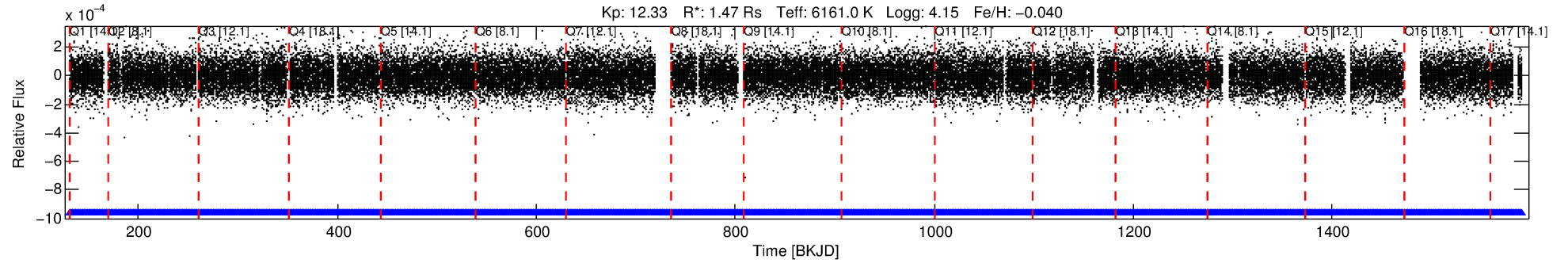
Ephemeris Match Information For 007031659-01

| 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 |
|--------------|---------|------------|------------|-----------|---------------|--------------|--------------|-------|-------|-----------|------------|------|------------|------------|
| 007031659-01 | 7031659 | RR-Lyr-pri | 7198959 | 1:1 | 1124.8 | 137 | -248 | 7.86 | 12.33 | 124660.00 | Direct-PRF | 0 | 0.32 | 22.28 |

Notes: $P_1:P_2$ 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. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 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: 7031659 Candidate: 1 of 1 Period: 0.567 d



DV Fit Results:

Period = 0.56675 [0.00002] d
Epoch = 131.8611 [0.0078] BKJD
Rp/R* = 0.0021 [0.0028]
a/R* = 1.05 [0.65]
b = 0.31 [20.16]
Seff = 14411.84 [5215.96]
Teq = 2794 [253] K
Rp = 0.33 [0.46] Re
a = 0.0139 [0.0030] AU
Ag = N/A
Teffp = N/A

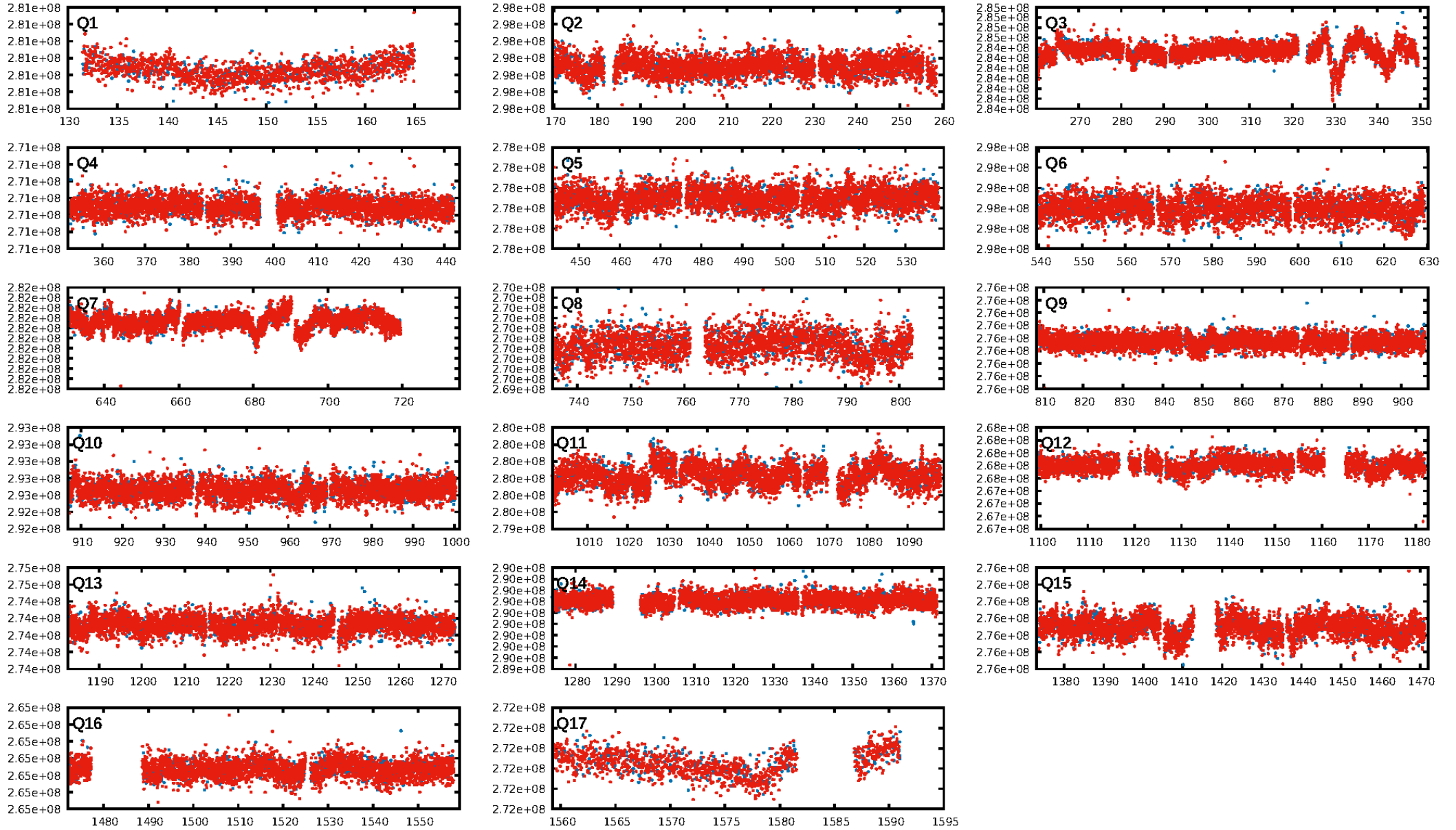
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2272/2272]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 2.549 arcsec [4.76σ]
KicOffset-rm: 2.669 arcsec [5.09σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [17/17]

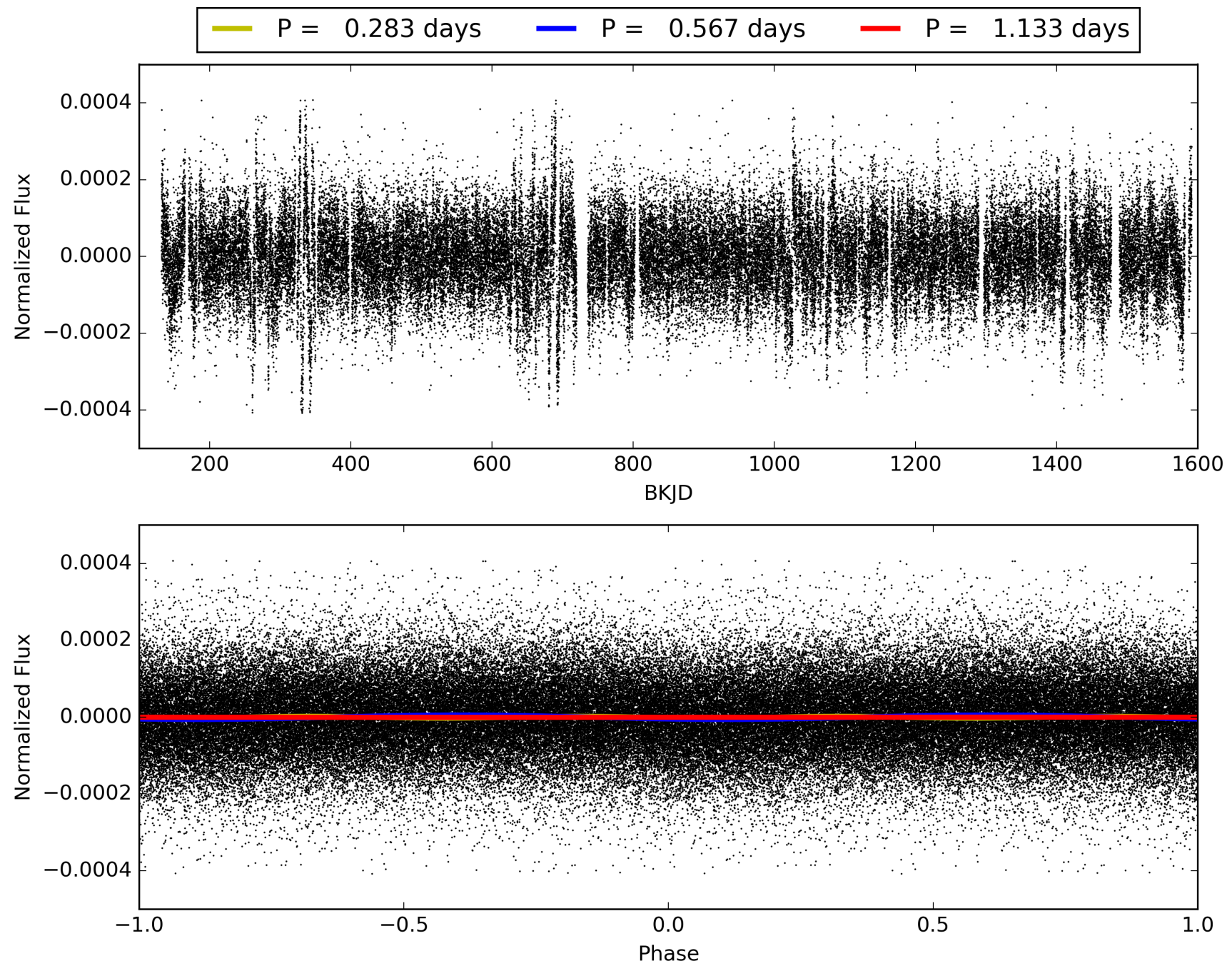
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:08:56 Z

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

TCE 007031659-01, PDC Light Curves

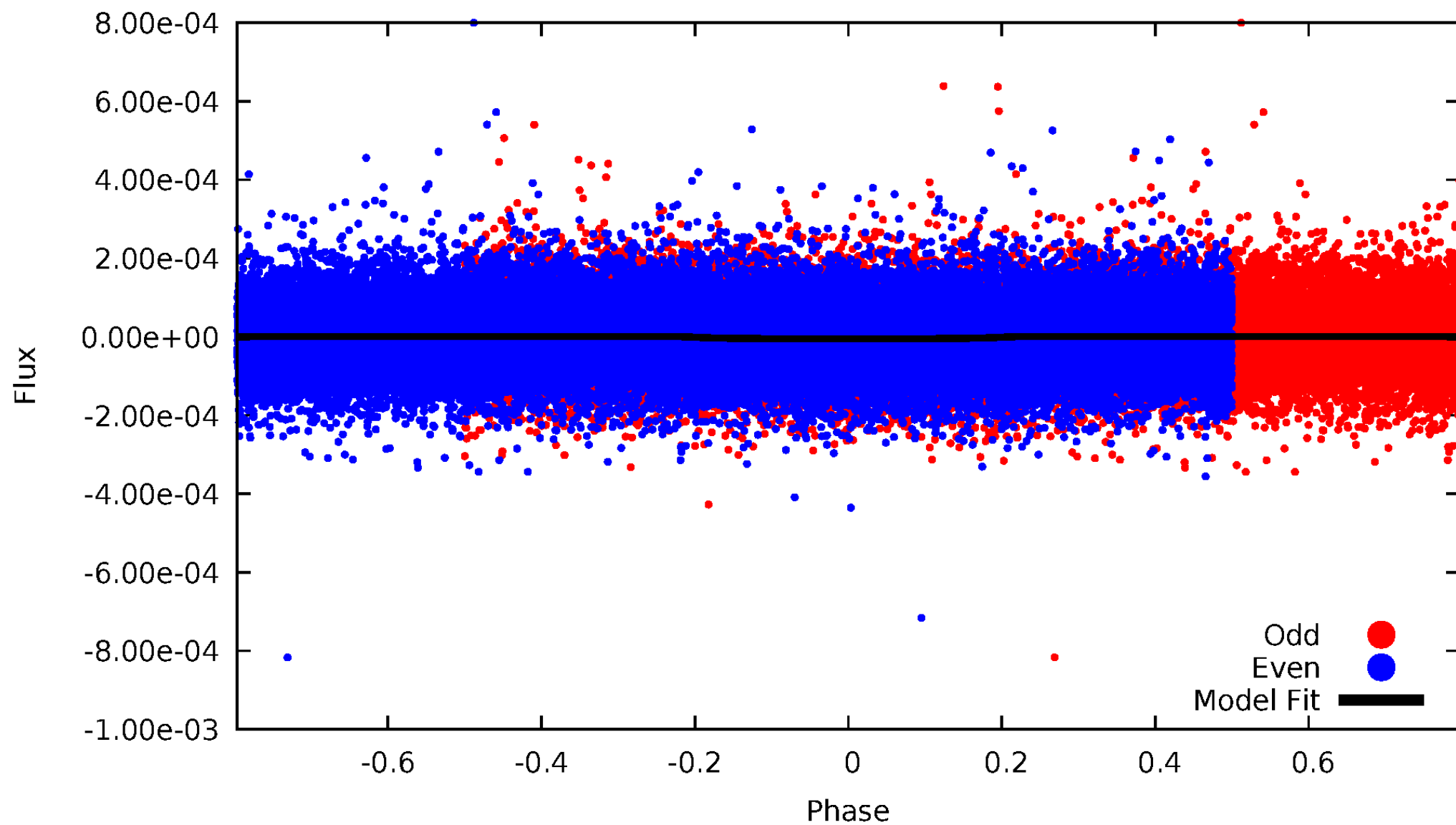


TCE 007031659-01



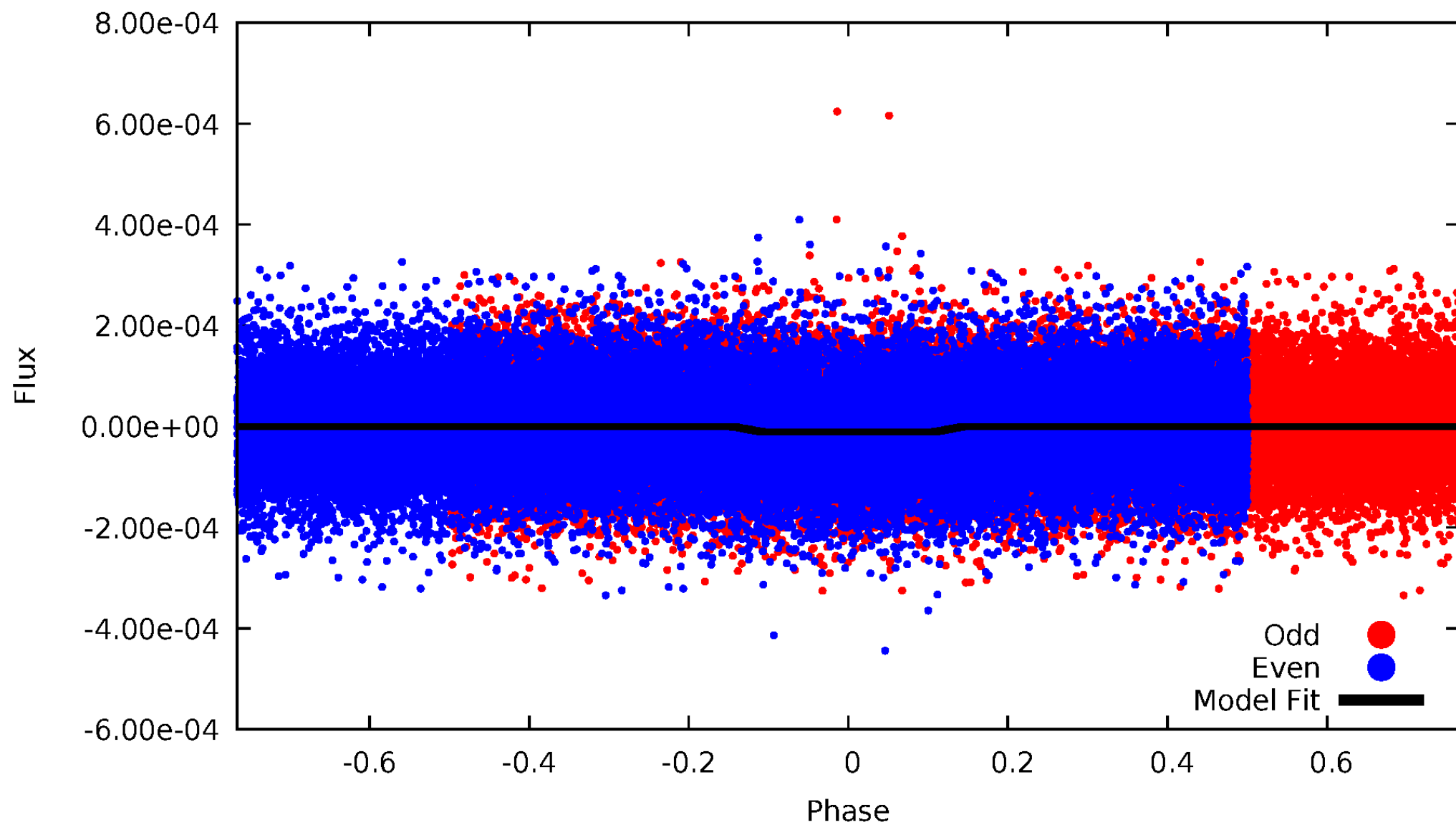
DV Odd/Even

TCE 007031659-01

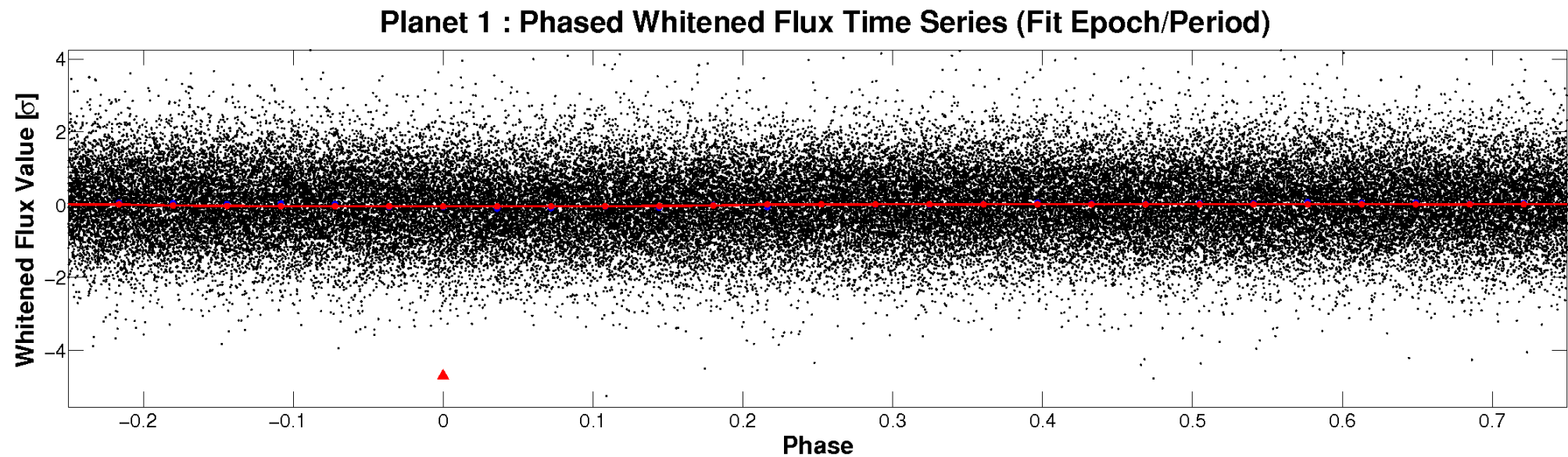
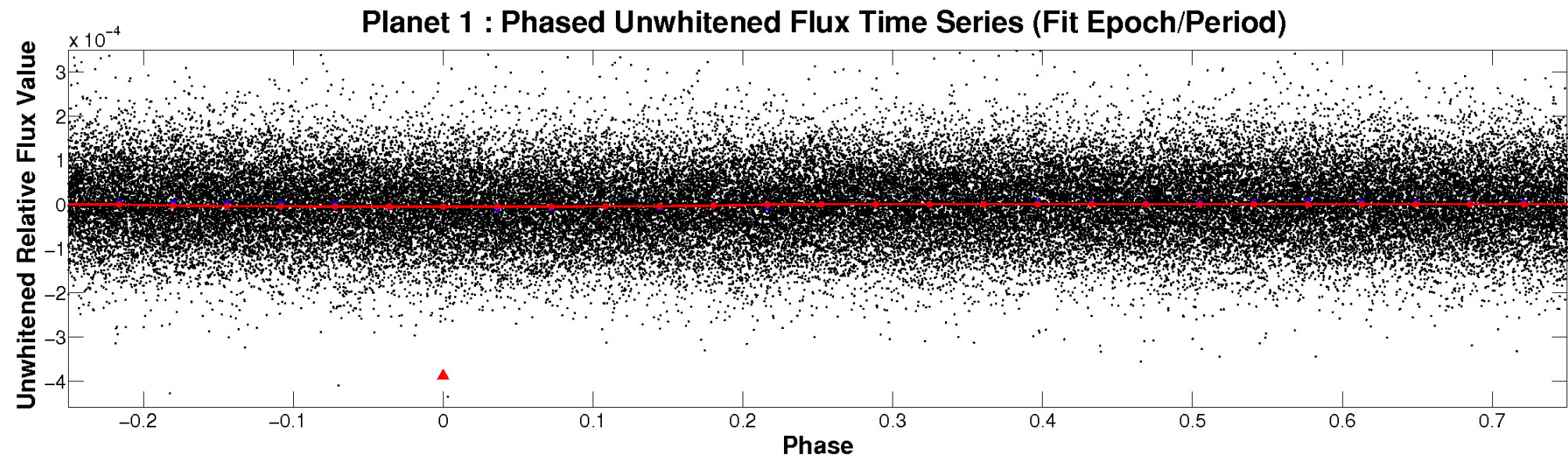


ALT Odd/Even

TCE 007031659-01

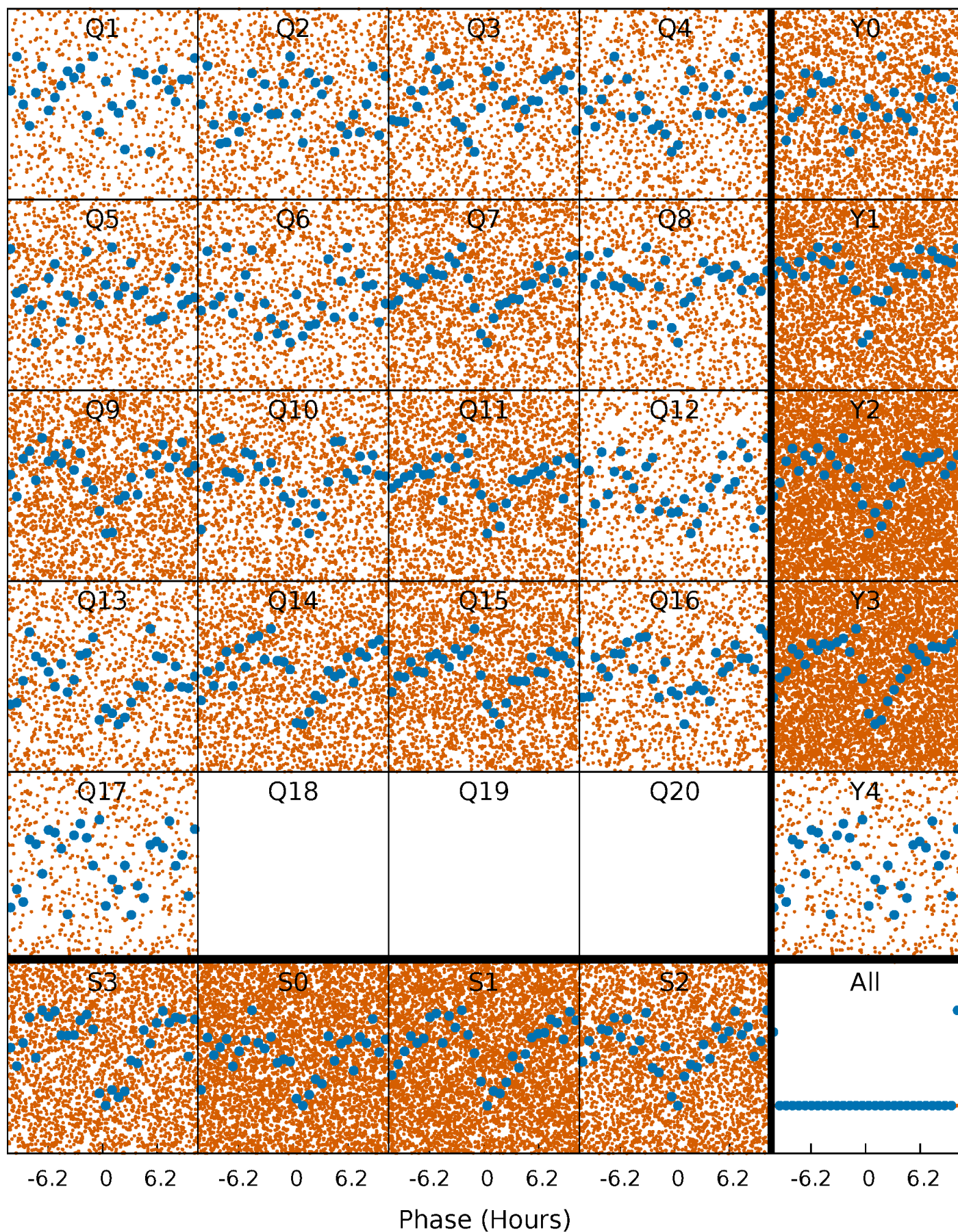


Non-Whitened Vs. Whitened Light Curve



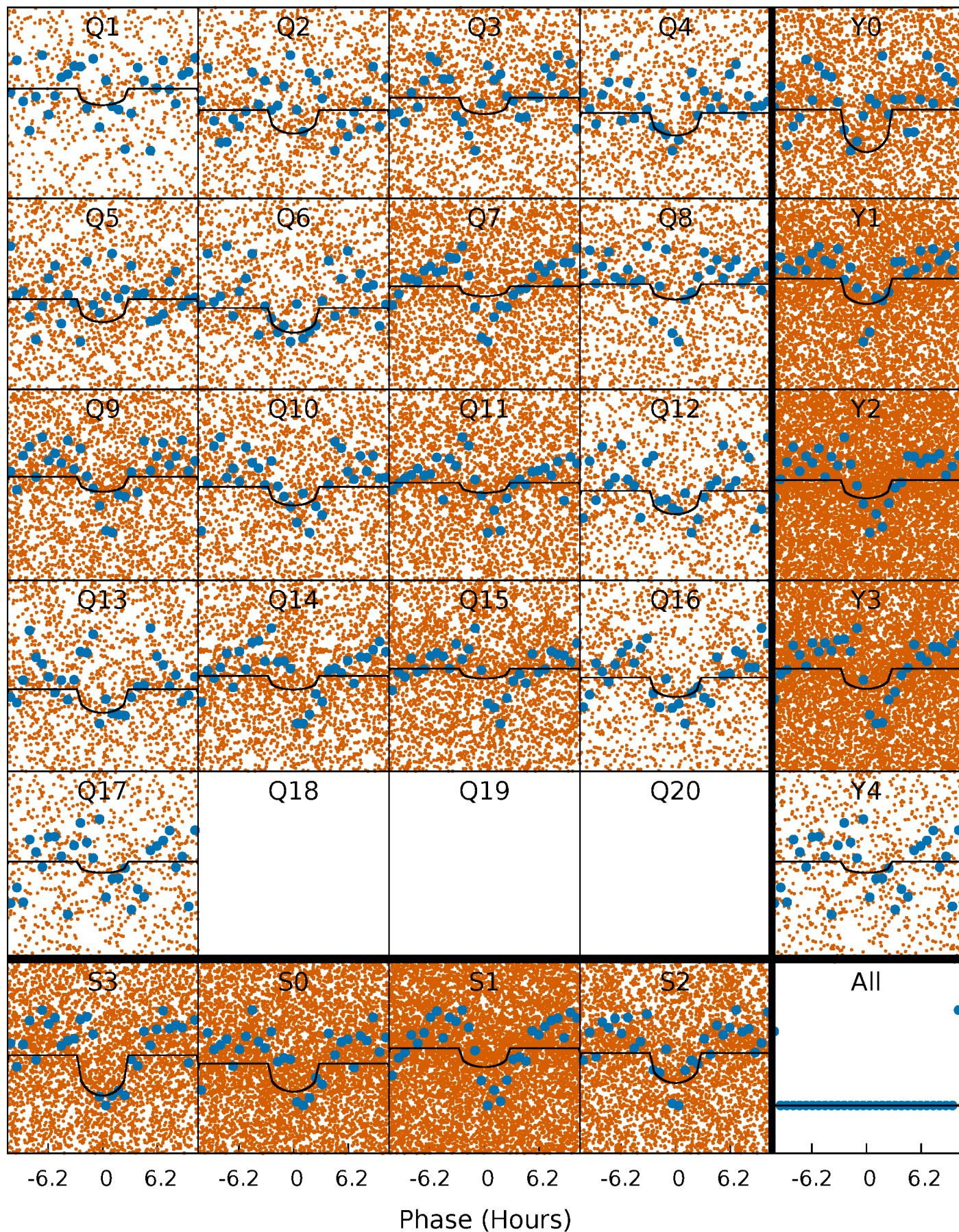
PDC Quarter-Phased Transit Curves

TCE 007031659-01 P= 0.566749 Days $T_0=131.861055$ (BKJD)



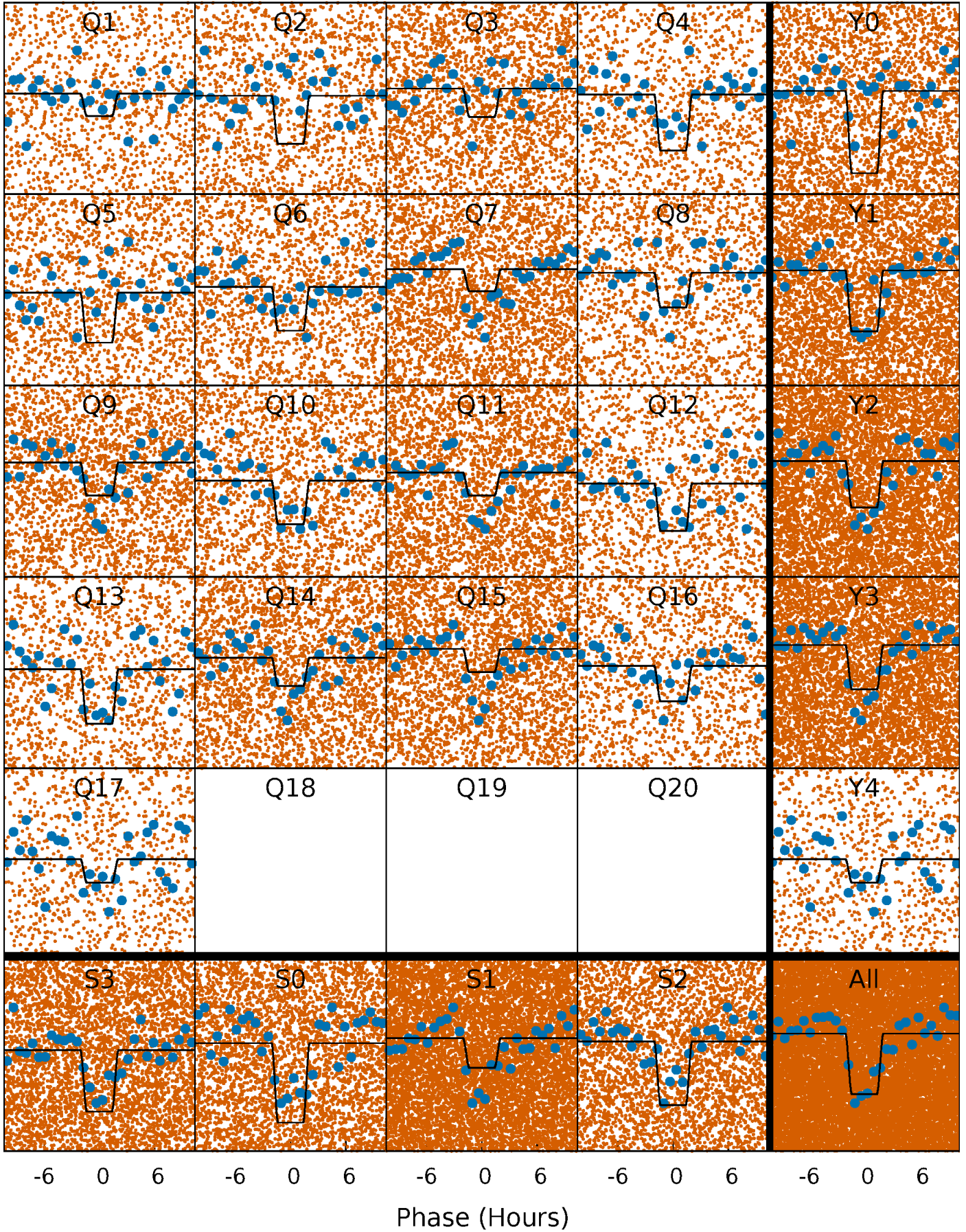
DV Quarter-Phased Transit Curves

TCE 007031659-01 P= 0.566749 Days $T_0=131.861055$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

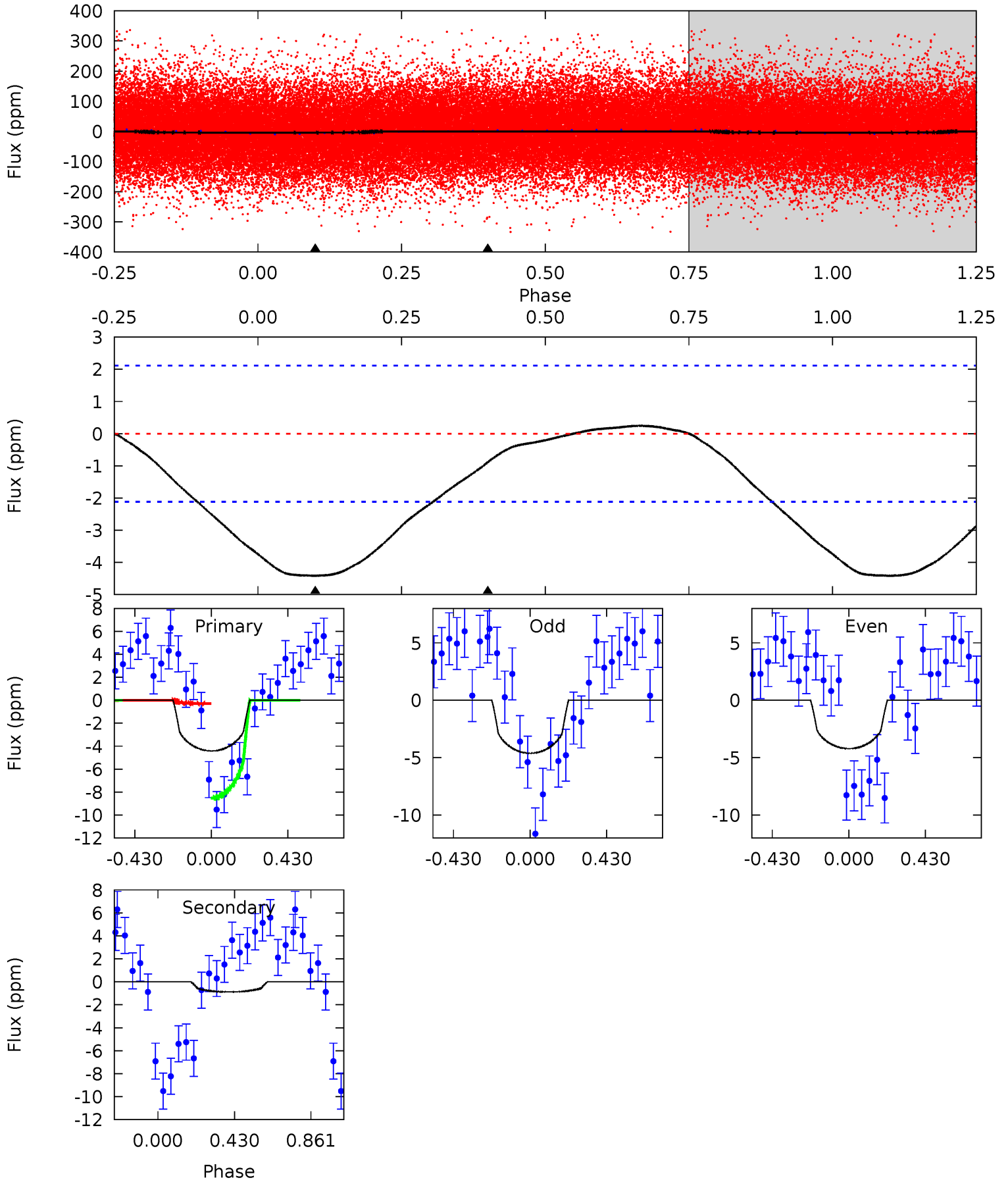
TCE 007031659-01 P= 0.566795 Days $T_0=131.832408$ (BKJD)



DV Model-Shift Uniqueness Test

007031659-01, P = 0.566749 Days, E = 131.294306 Days

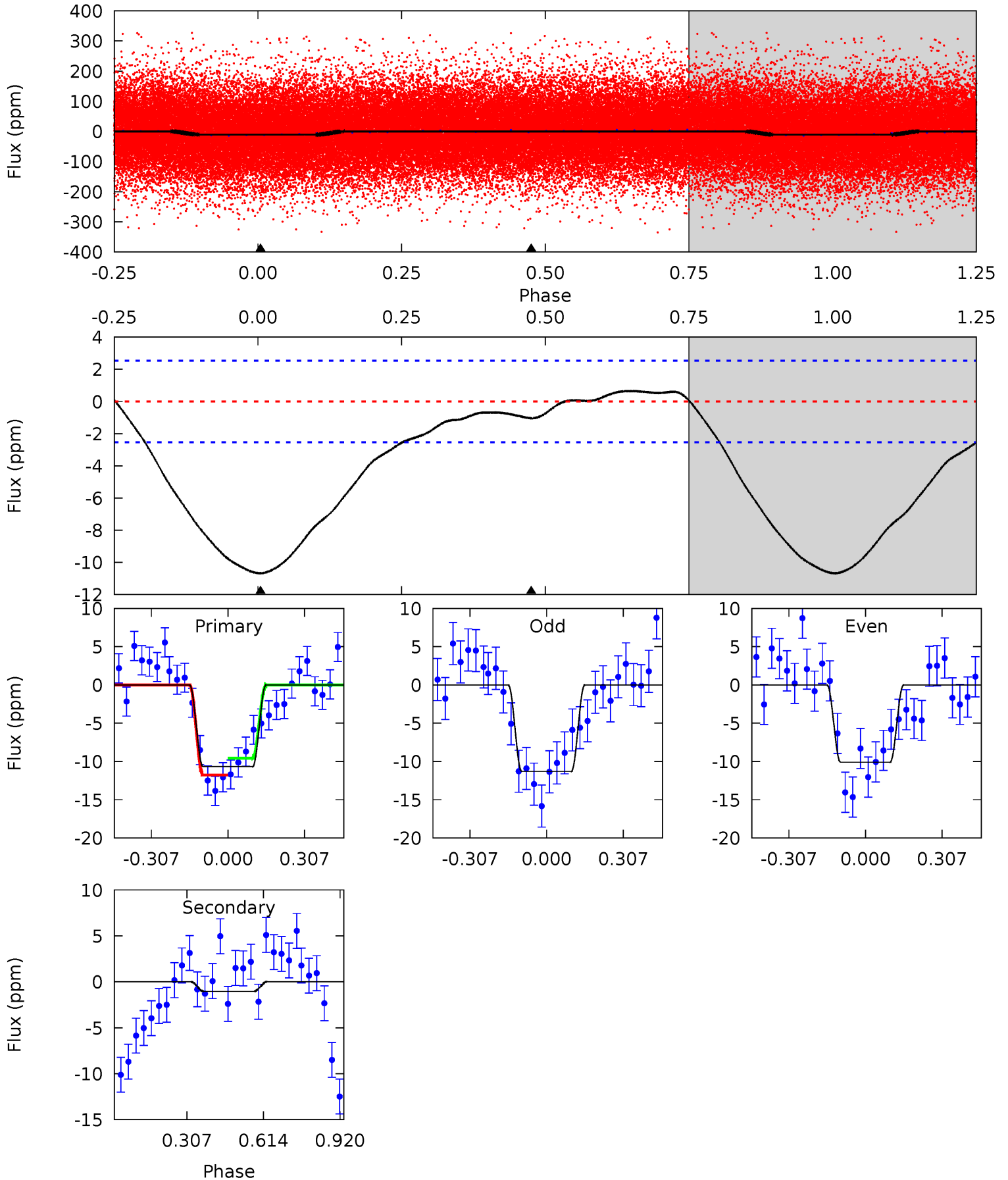
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.86 | 1.78 | 0 | 0 | 4.25 | 0.79 | 0.46 | 8.86 | 8.86 | 1.78 | 1.78 | 0.41 | 1.00 | 0.05 | 8.41 |



Alt Model-Shift Uniqueness Test

007031659-01, P = 0.566795 Days, E = 131.265613 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 18.2 | 1.78 | 0 | 0 | 4.32 | 1.02 | 2.23 | 18.2 | 18.2 | 1.78 | 1.78 | 1.03 | 1.09 | 0.06 | 1.88 |



Stellar Parameters For KIC 007031659

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|--------------------------------------------------|
| | 6161^{+167}_{-186} | $4.152^{+0.198}_{-0.132}$ | $-0.040^{+0.250}_{-0.300}$ | $1.471^{+0.342}_{-0.342}$ | $1.119^{+0.175}_{-0.143}$ | $0.495^{+0.525}_{-0.188}$ |
| | +3%/-3% | +5%/-3% | +625%/-750% | +23%/-23% | +16%/-13% | +106%/-38% |
| Source | PHO1 | FLK73 | 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 007031659-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|---------------------------|
| DV | -1 ± 0 | $0.47^{+0.41}_{-0.32}$ | 3864^{+238}_{-250} | 2990^{+2644}_{-6416} | $0.387^{+3.061}_{-0.301}$ |
| Alt. | -1 ± 1 | $0.61^{+0.43}_{-0.35}$ | 3882^{+252}_{-263} | -2521^{+7163}_{-988} | $0.273^{+1.282}_{-0.208}$ |

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

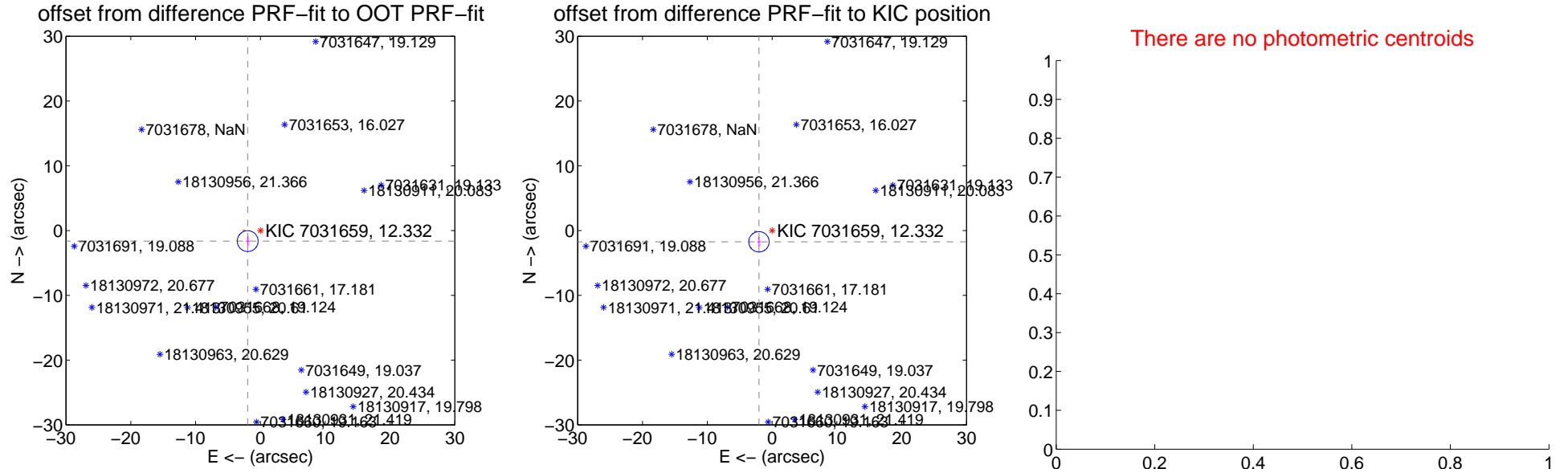
DV Centroid Data

Supplemental centroid analysis for 007031659-01. Kepler magnitude: 12.33. Transit SNR 6.57

There are 1 quarters with good PRF difference image offsets

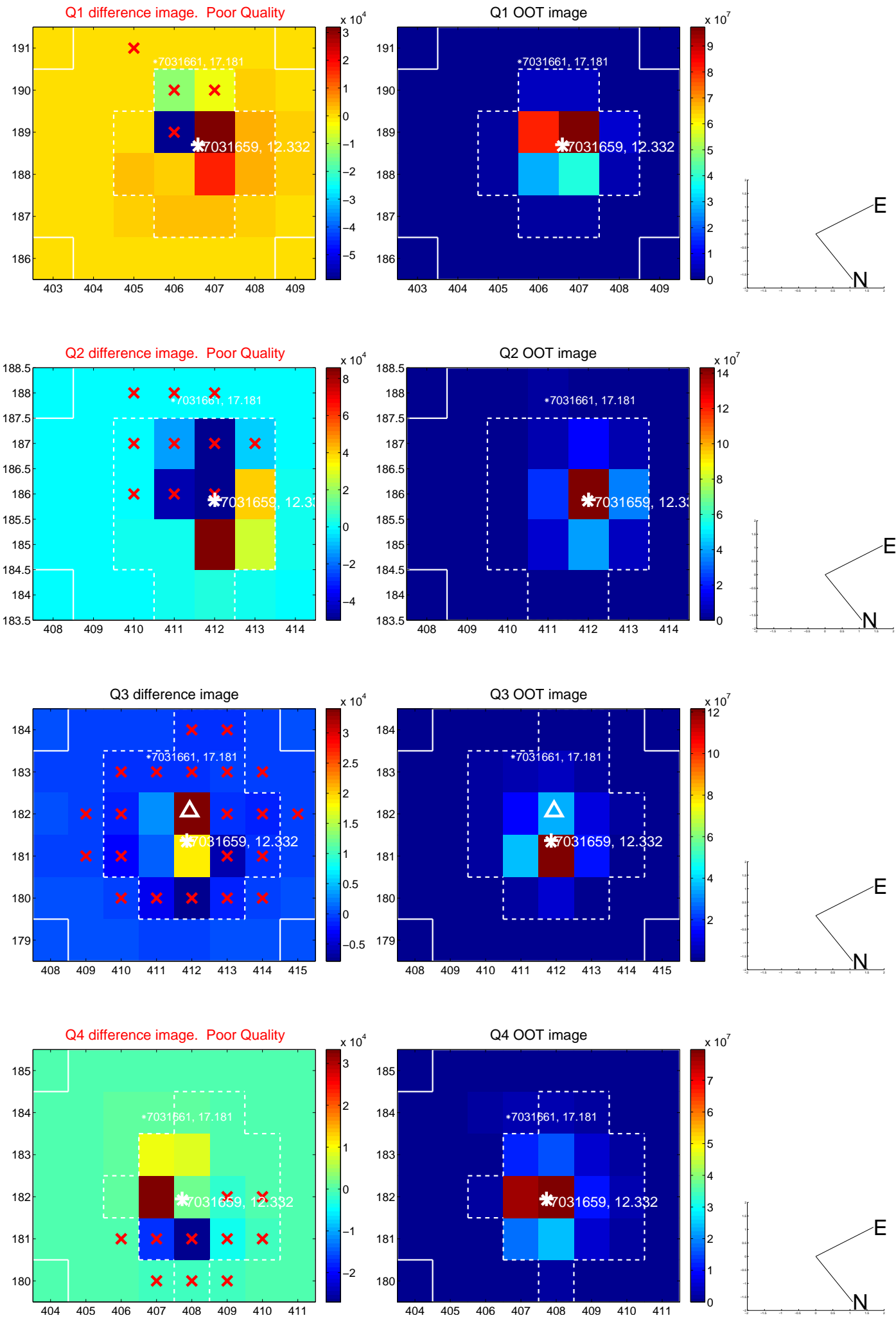
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|-----------------------------------------|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 2.549 ± 0.536 | 4.76 | 1.962 ± 0.288 | -1.627 ± 0.765 |
| PRF-fit source offset from KIC position | 2.669 ± 0.524 | 5.09 | 2.030 ± 0.273 | -1.733 ± 0.741 |
| photometric centroid source offset | — | — | — | — |

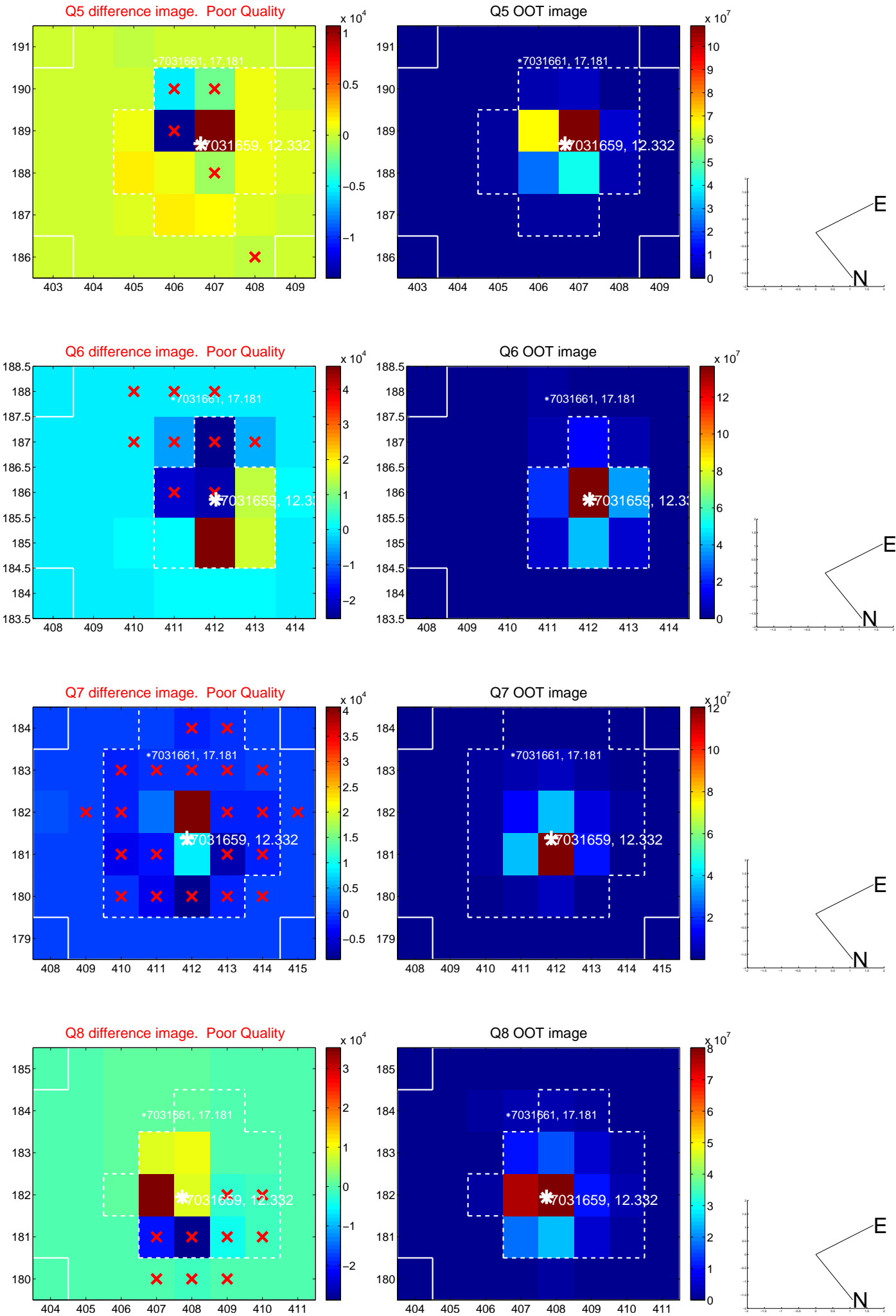


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

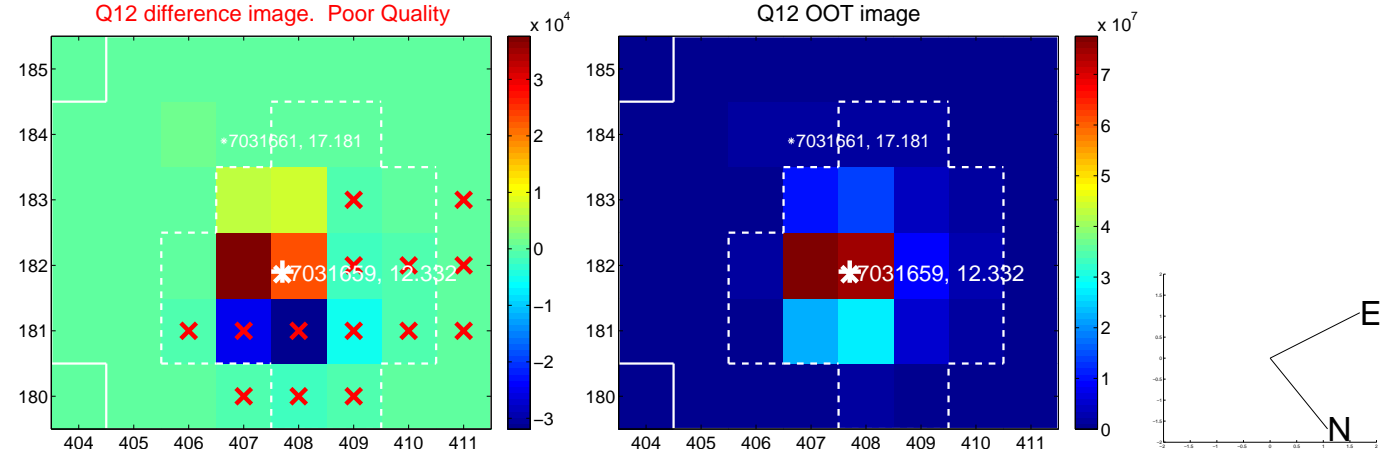
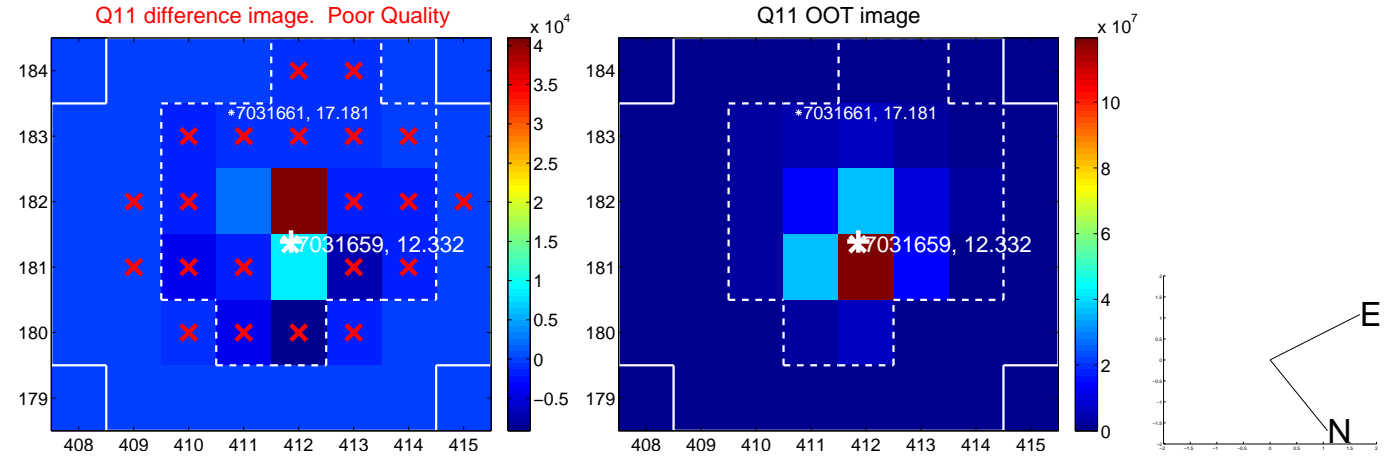
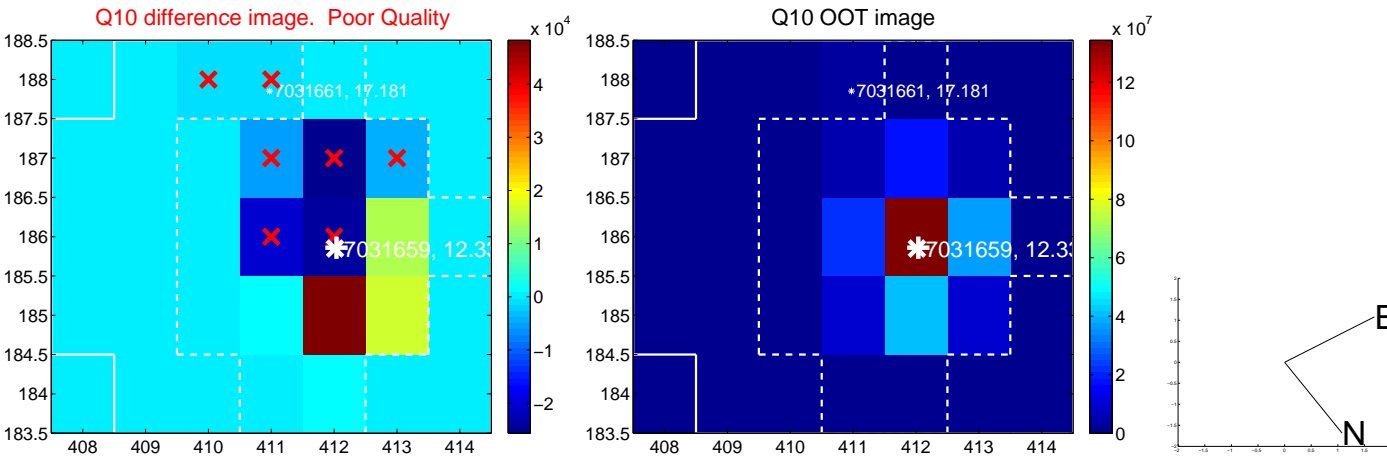
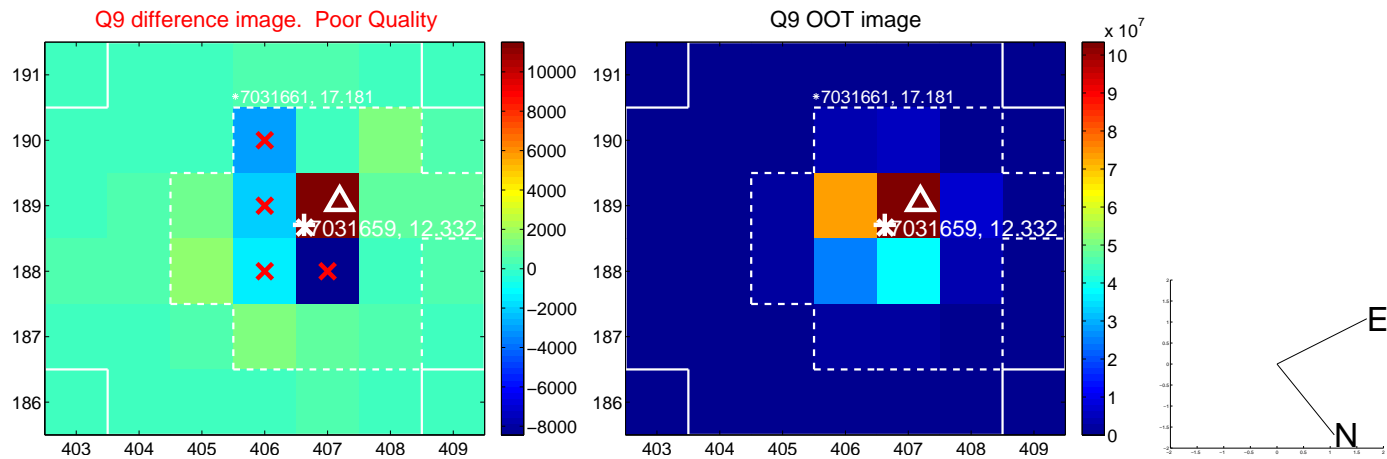
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



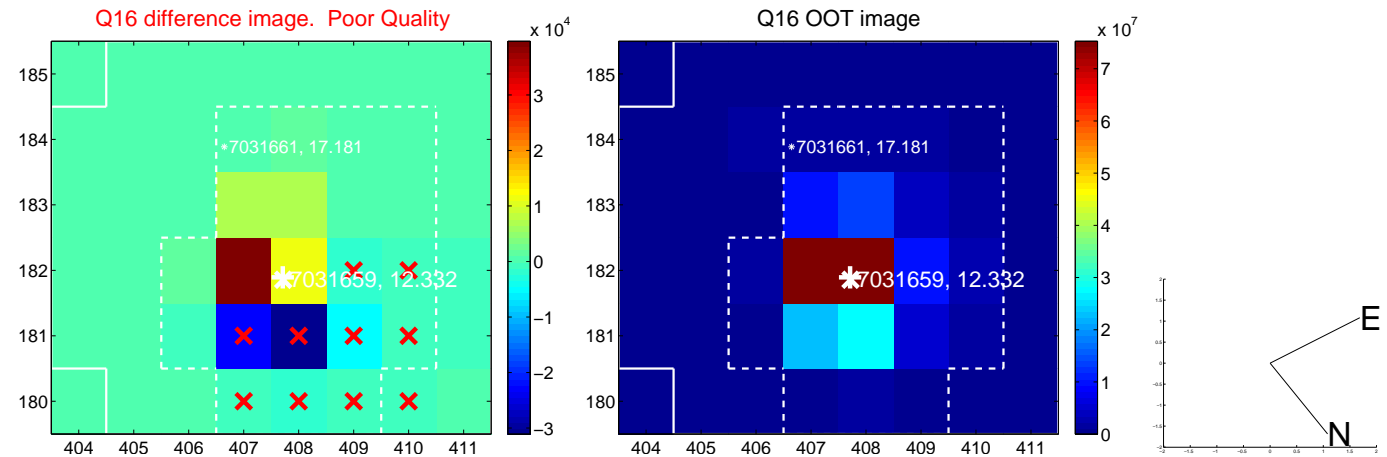
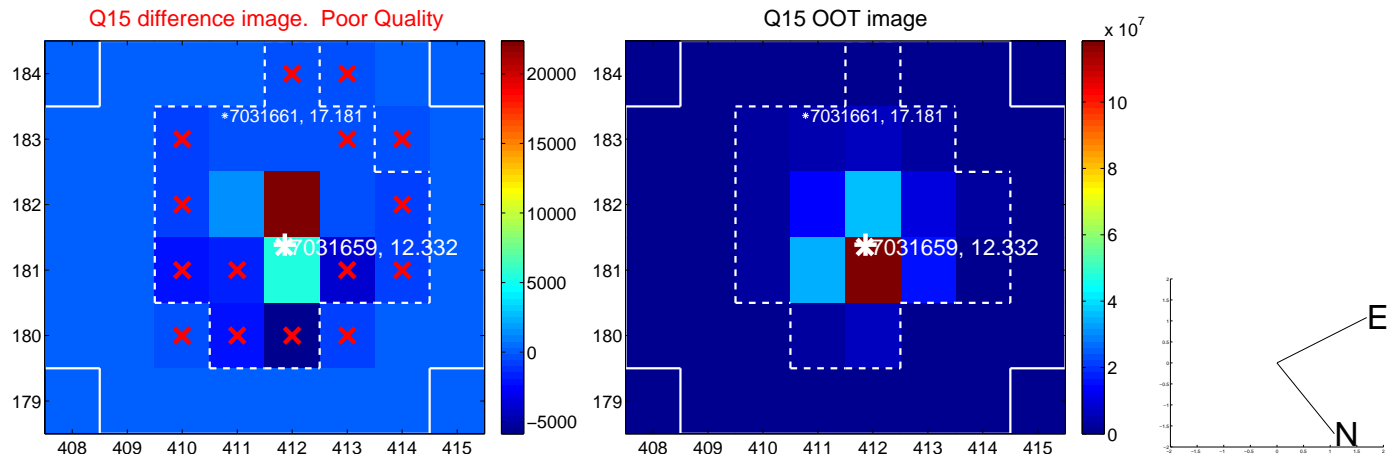
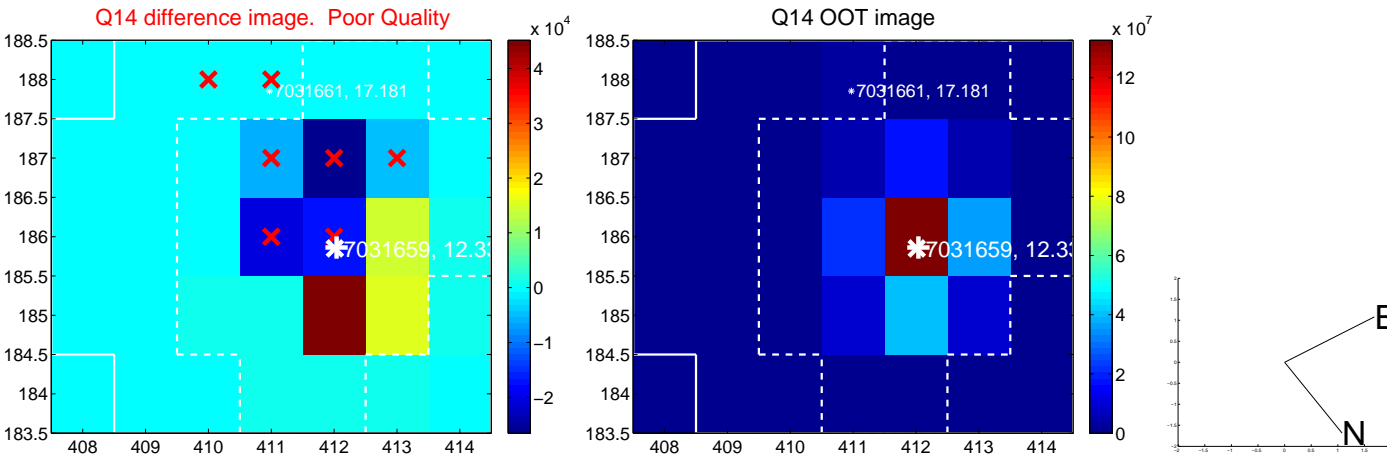
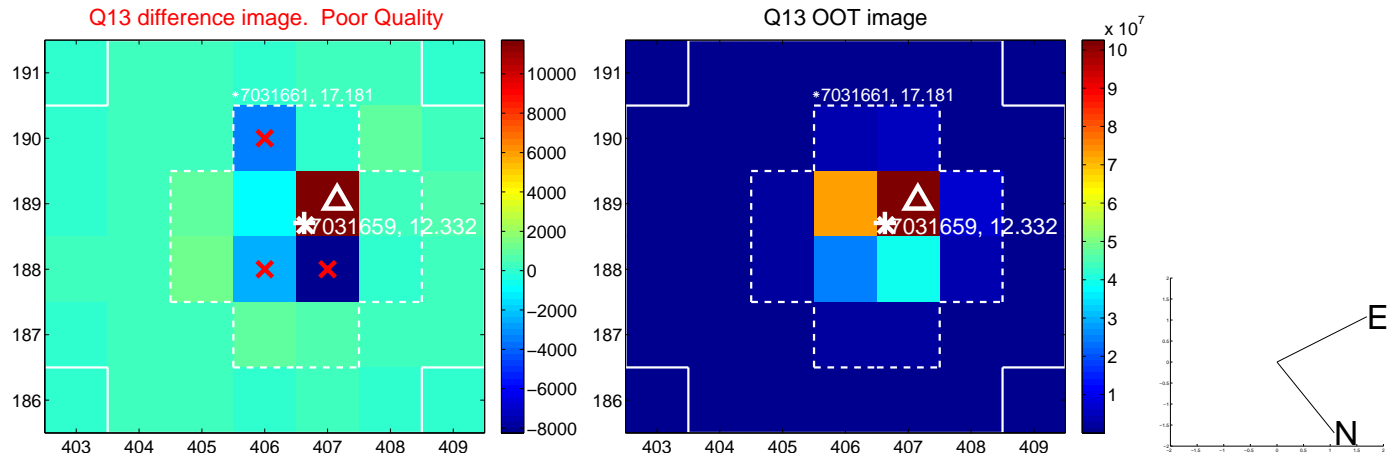
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



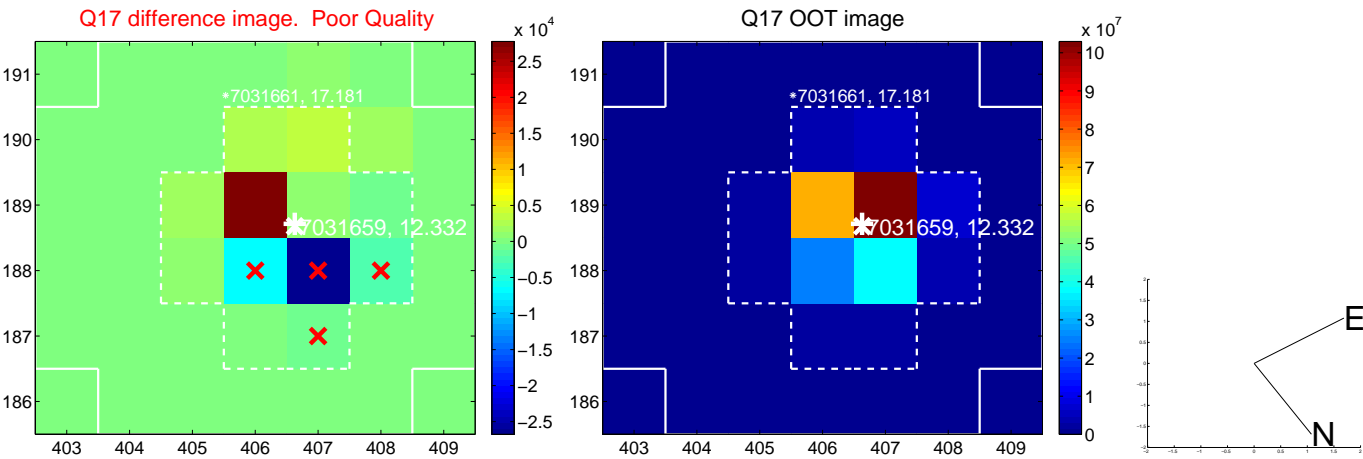
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

