

KIC 007116561

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|------|-----------------------------|-----------------|------------------------|------------------------|
| 007116561-01 | OBS | No | 0.566799 | 131.628399 | 62.5 | 5.212 | 8.9 | 10.9 | 0.82 | 5435 | 0.69 | 3083.70 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---------------------------------------|
| 007116561-01 | OBS | FP | 0.00 | 1 | 0 | 1 | 1 | LPP_DV—LPP_ALT—HALO_GHOST—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.

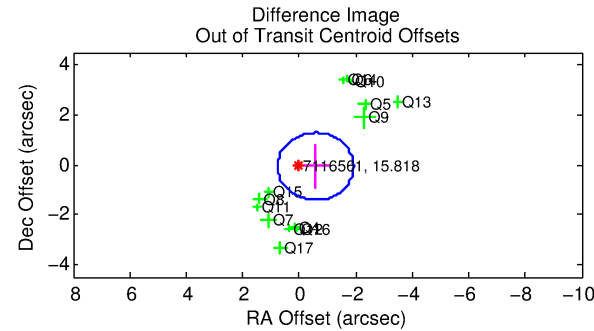
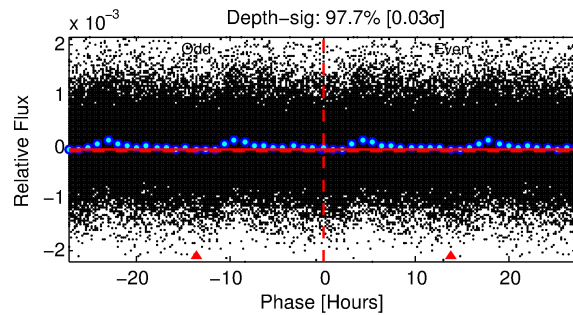
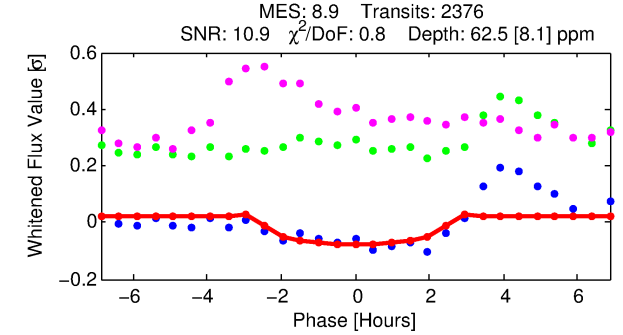
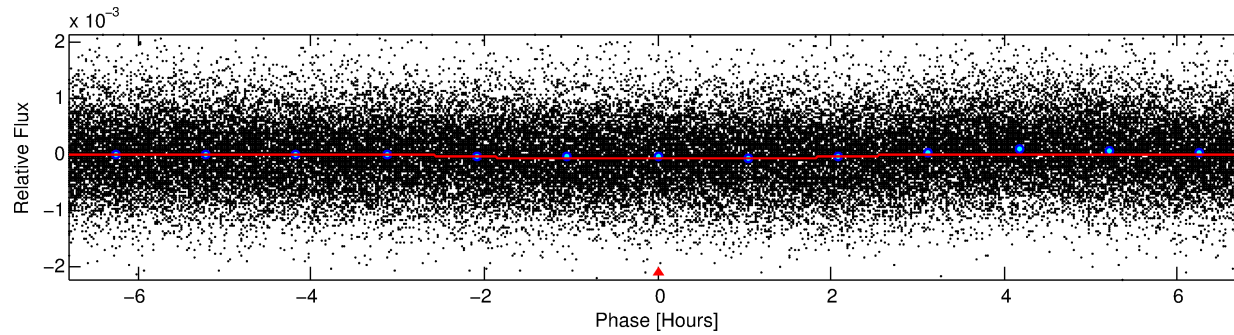
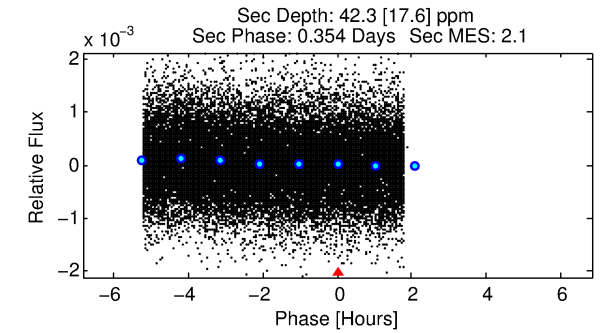
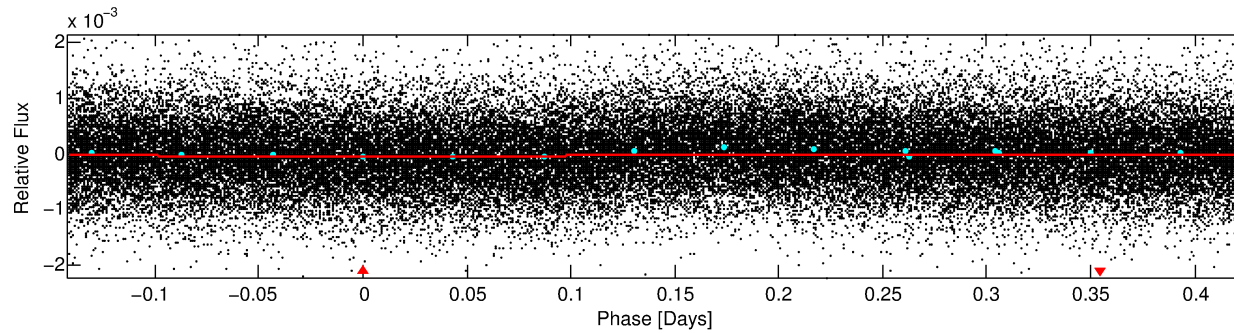
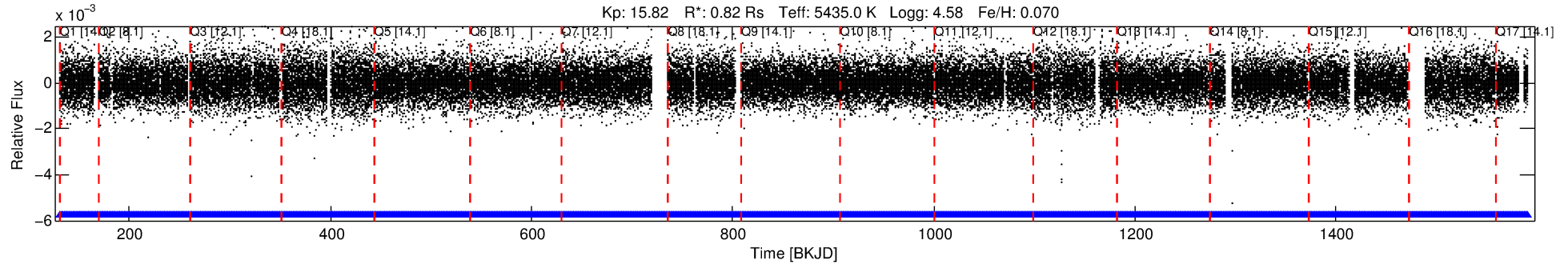
Ephemeris Match Information For 007116561-01

| 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 |
|--------------|---------|------------|------------|-----------|---------------|--------------|--------------|-------|-------|-----------|------------|------|------------|------------|
| 007116561-01 | 7116561 | RR-Lyr-pri | 7198959 | 1:1 | 371.3 | 90 | -25 | 7.86 | 15.82 | 9893.60 | Direct-PRF | 0 | 0.30 | 14.03 |

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: 7116561 Candidate: 1 of 1 Period: 0.567 d



DV Fit Results:

Period = 0.56680 [0.00001] d
Epoch = 131.6284 [0.0044] BKJD
Rp/R* = 0.0077 [0.0049]
a/R* = 1.05 [0.21]
b = 0.70 [1.88]
Seff = 3083.70 [814.24]
Teq = 1900 [125] K
Rp = 0.70 [0.46] Re
a = 0.0131 [0.0020] AU
Ag = 8.29 [11.20] [0.65σ]
Teff = 4986 [1666] K [1.85σ]

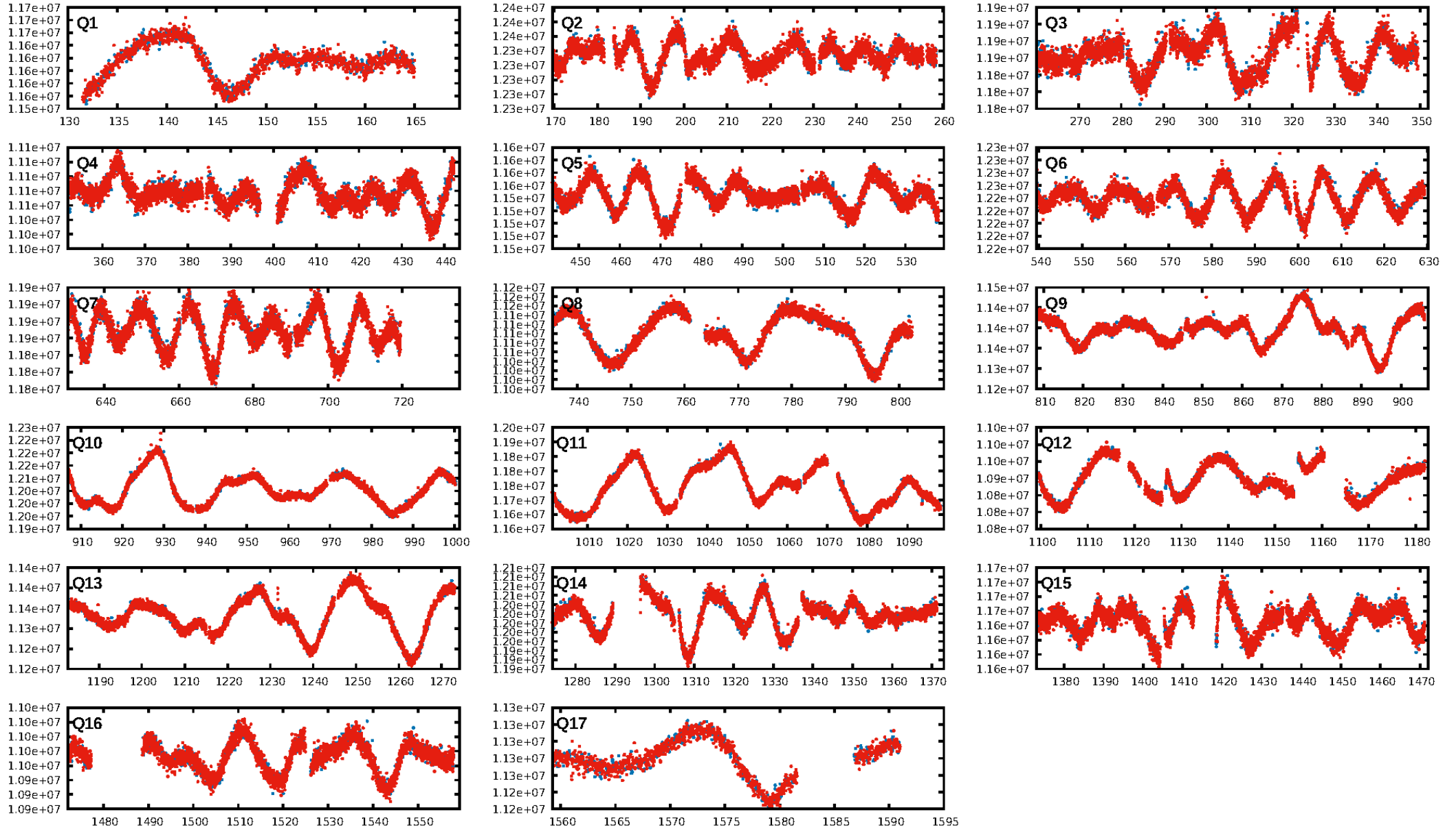
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2269/2269]
GhostDiagnostic-chr: 0.1628
Centroid-sig: 0.0%
Centroid-so: 5.819 arcsec [6.16σ]
OotOffset-rm: 0.584 arcsec [1.30σ]
KicOffset-rm: 0.593 arcsec [1.25σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.43 [6/14]
DiffImageOverlap-fno: 1.00 [17/17]

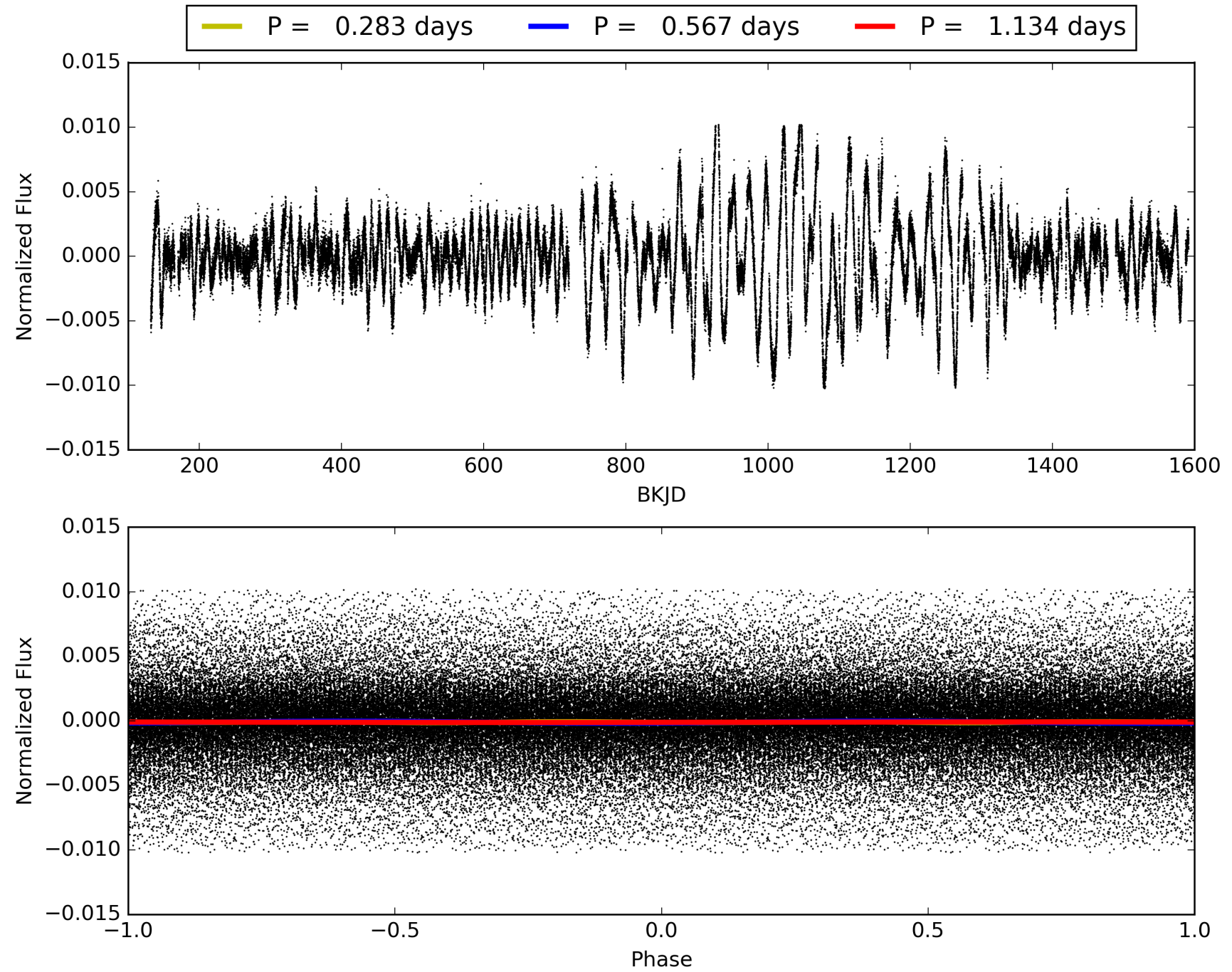
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:04:52 Z

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

TCE 007116561-01, PDC Light Curves

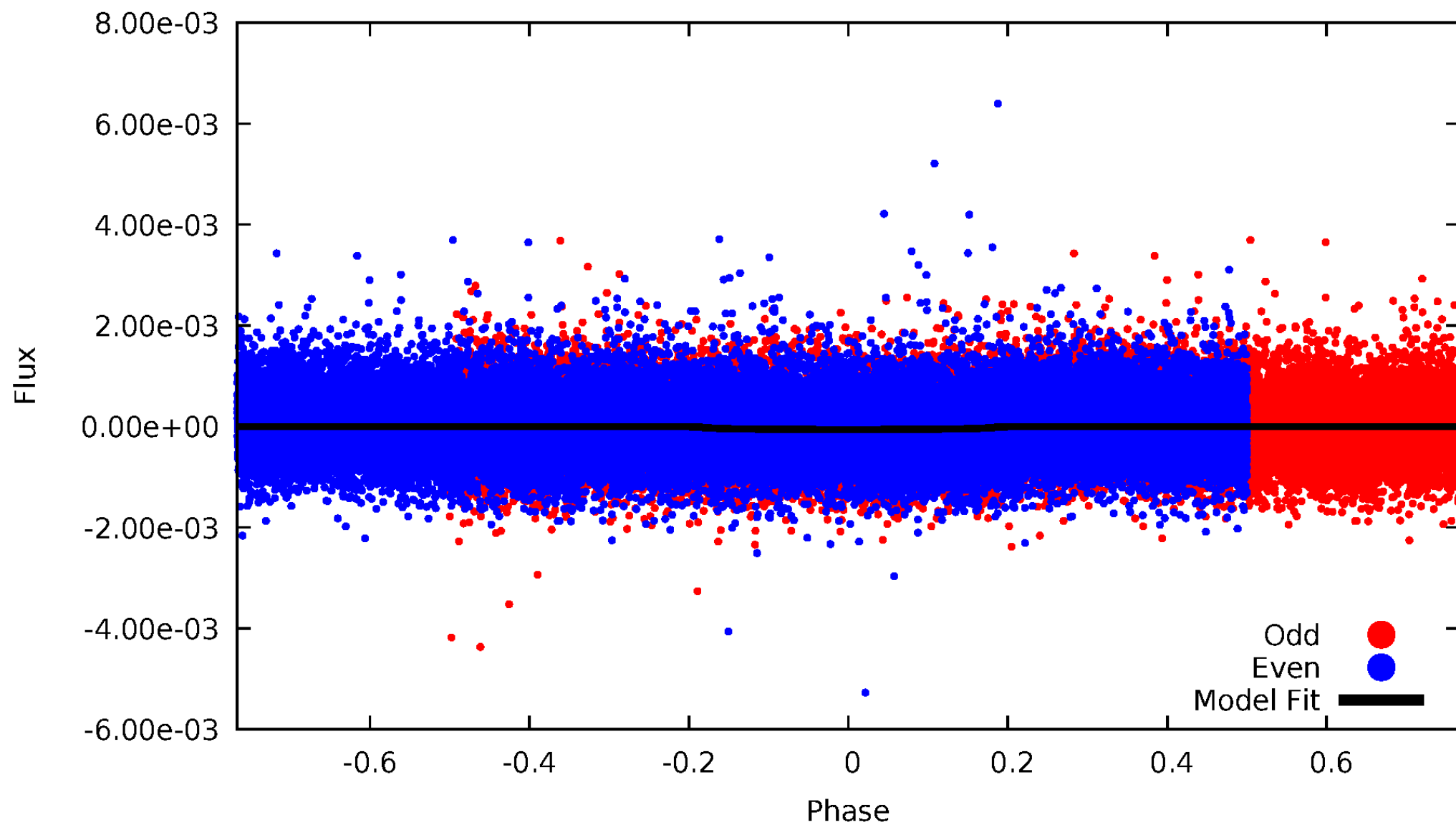


TCE 007116561-01



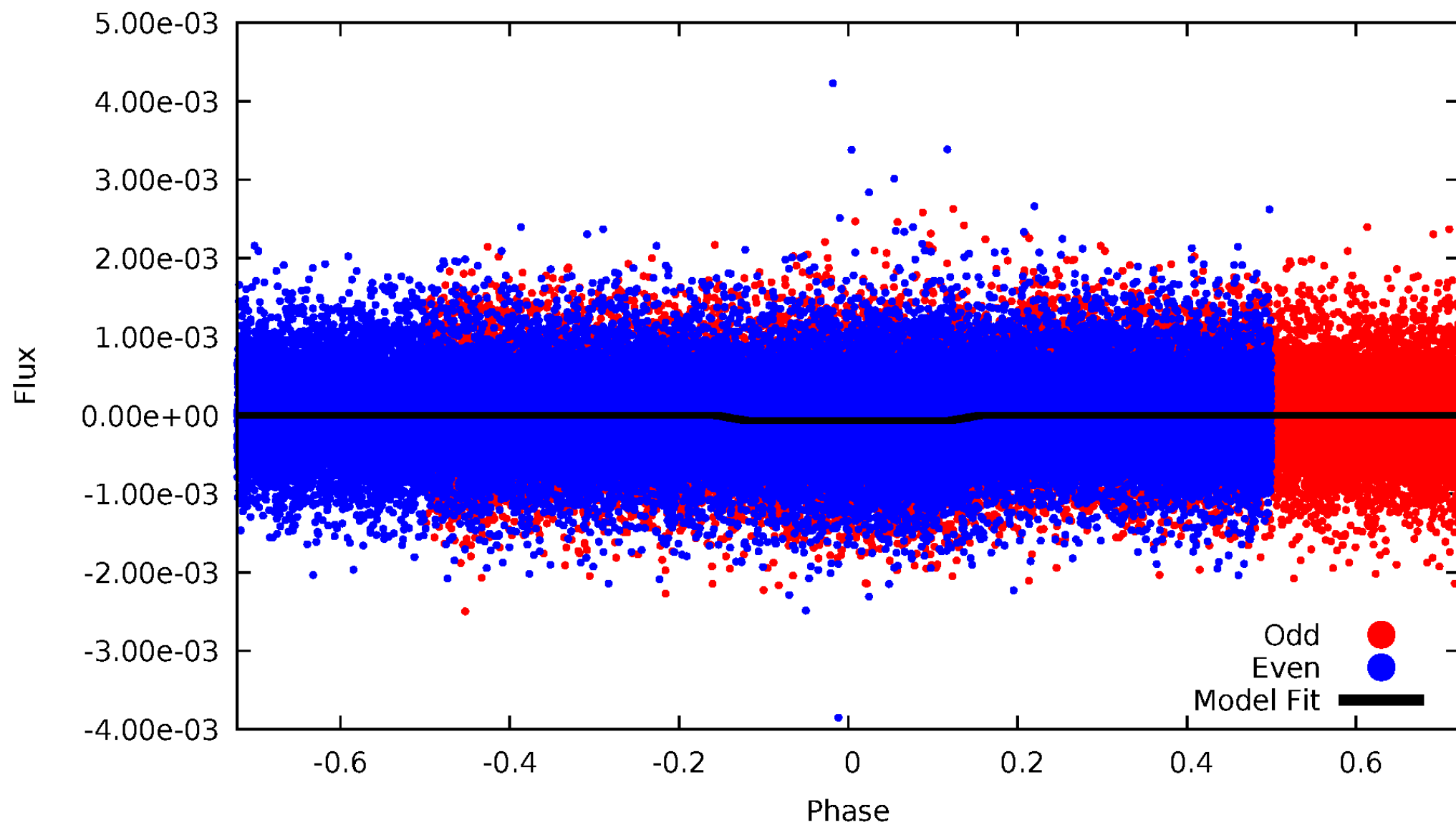
DV Odd/Even

TCE 007116561-01

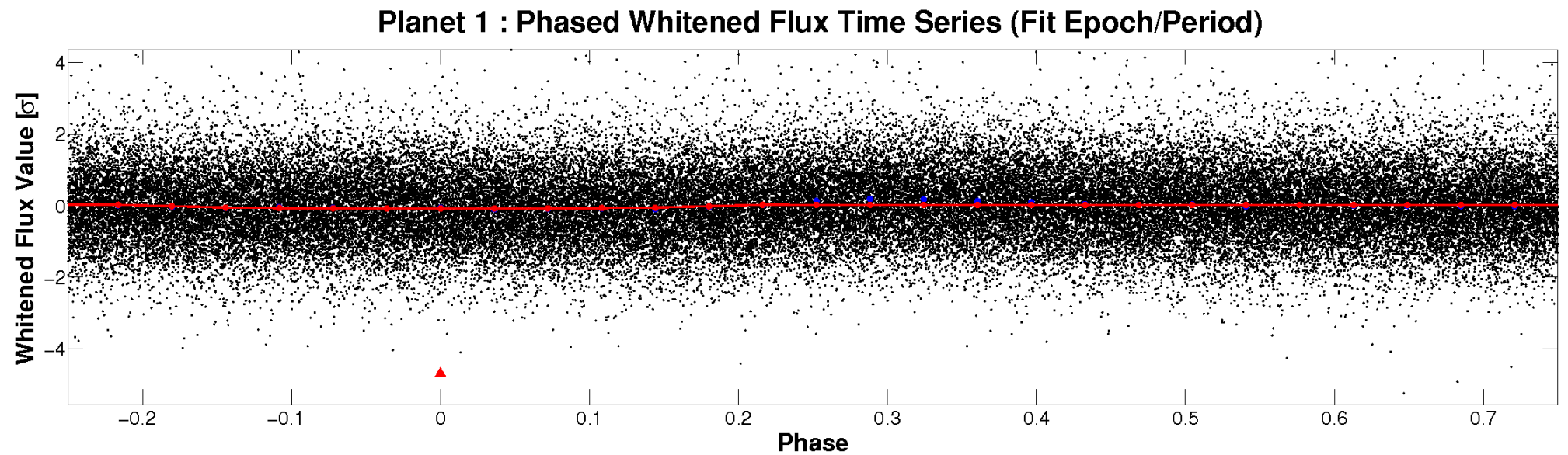
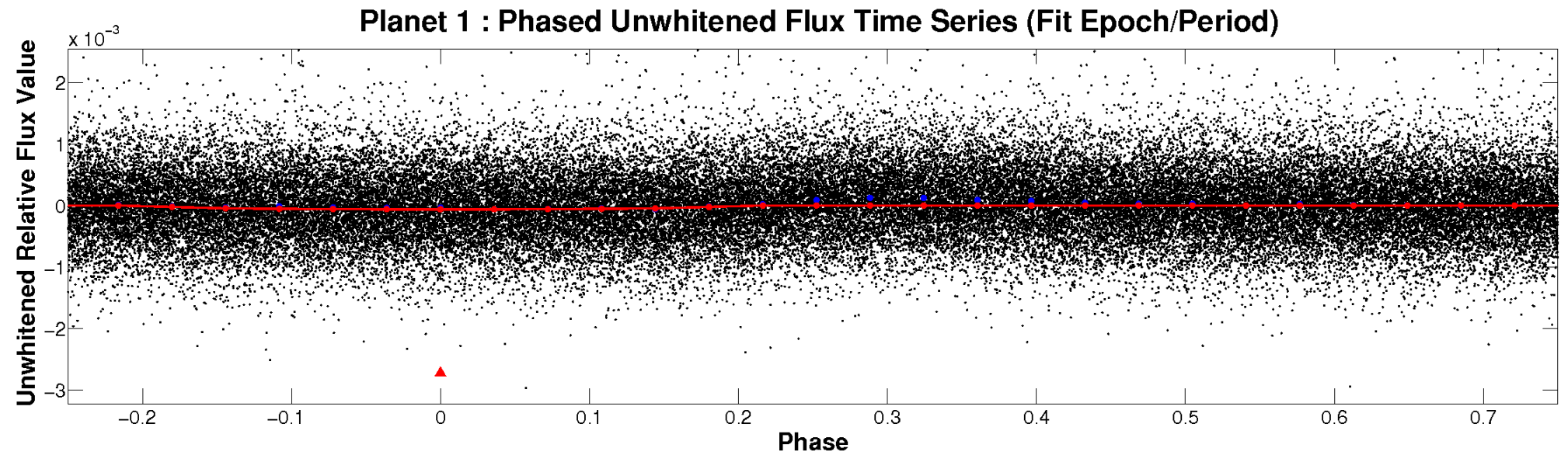


ALT Odd/Even

TCE 007116561-01

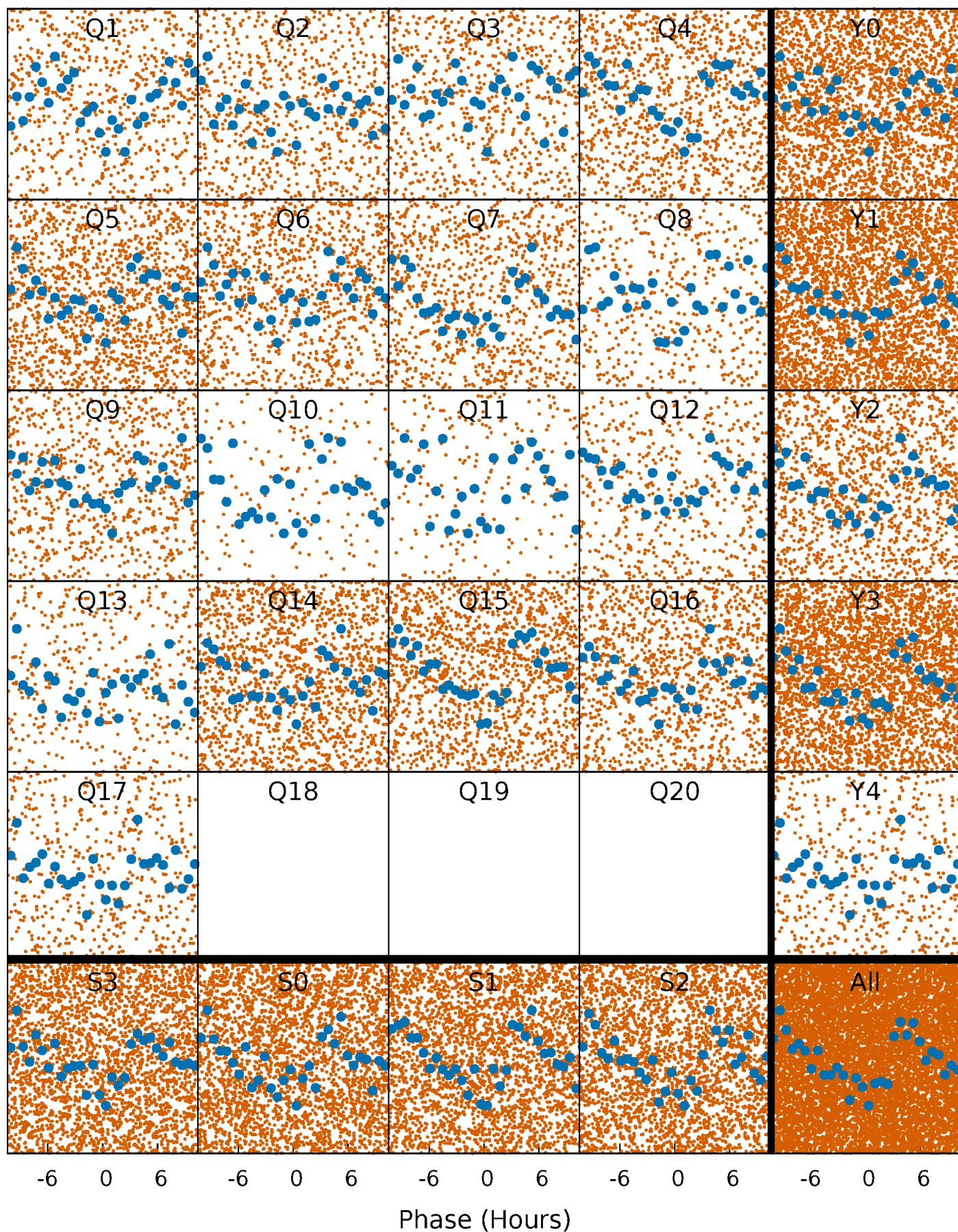


Non-Whitened Vs. Whitened Light Curve



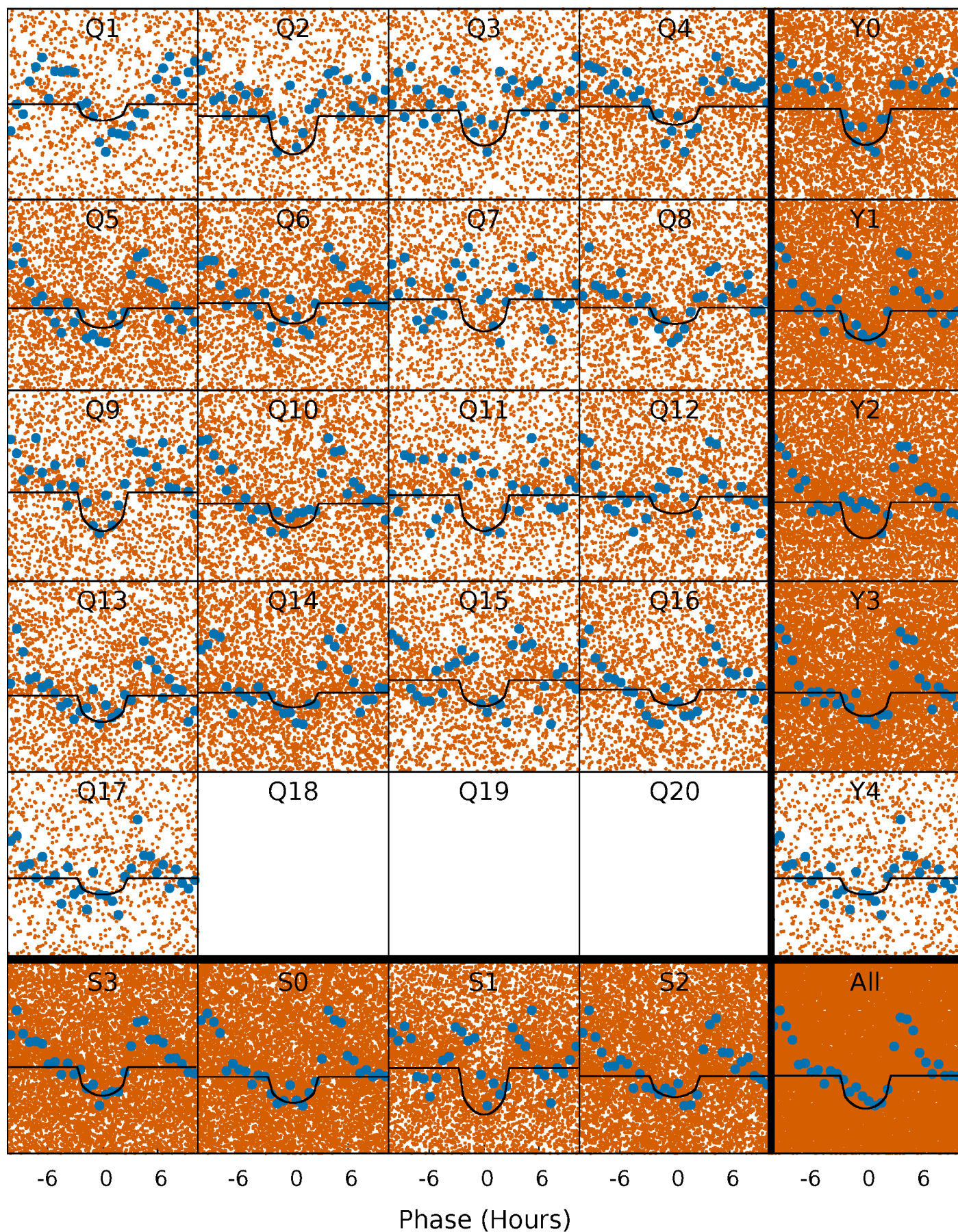
PDC Quarter-Phased Transit Curves

TCE 007116561-01 P= 0.566799 Days $T_0=131.628399$ (BKJD)



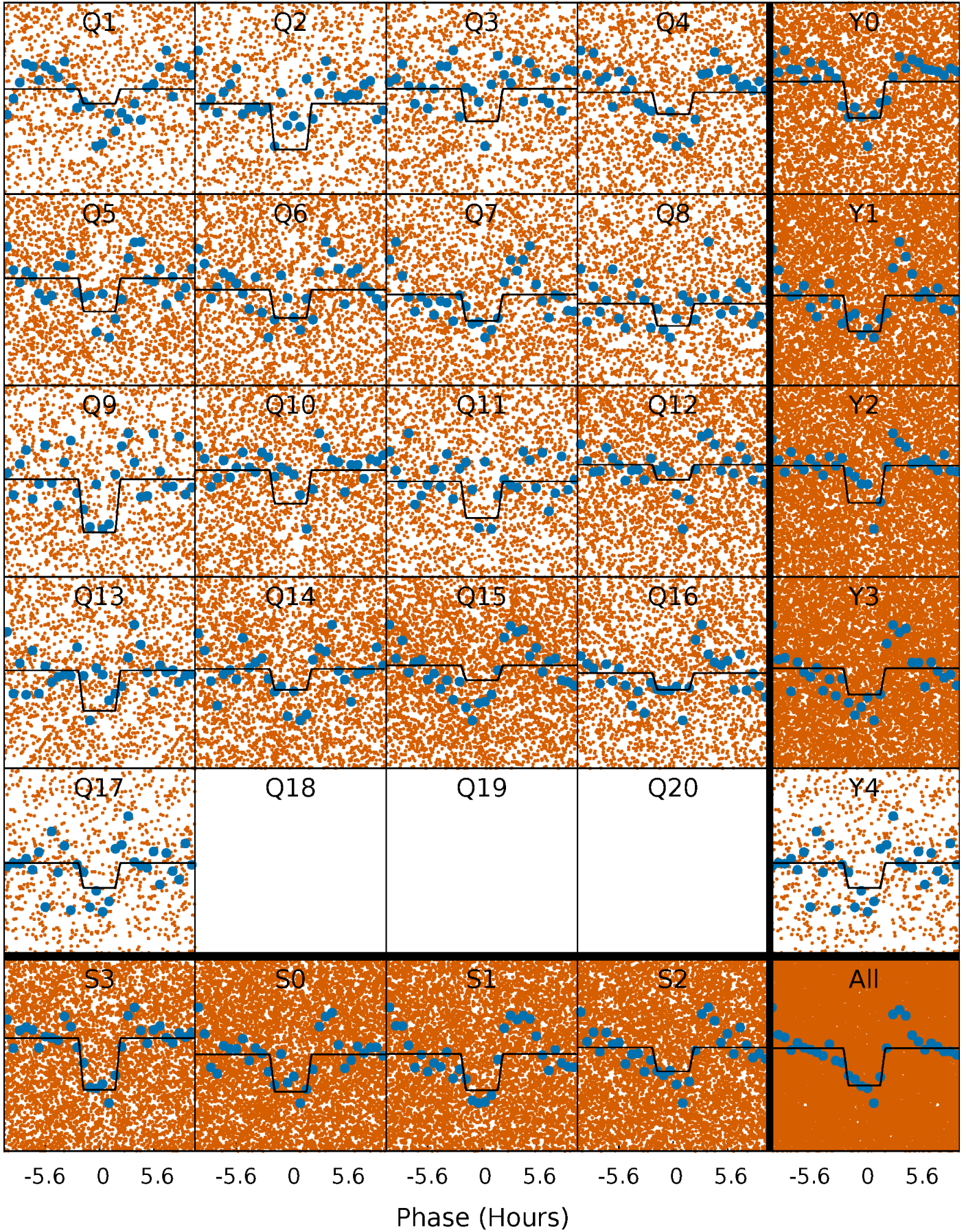
DV Quarter-Phased Transit Curves

TCE 007116561-01 P= 0.566799 Days $T_0=131.628399$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

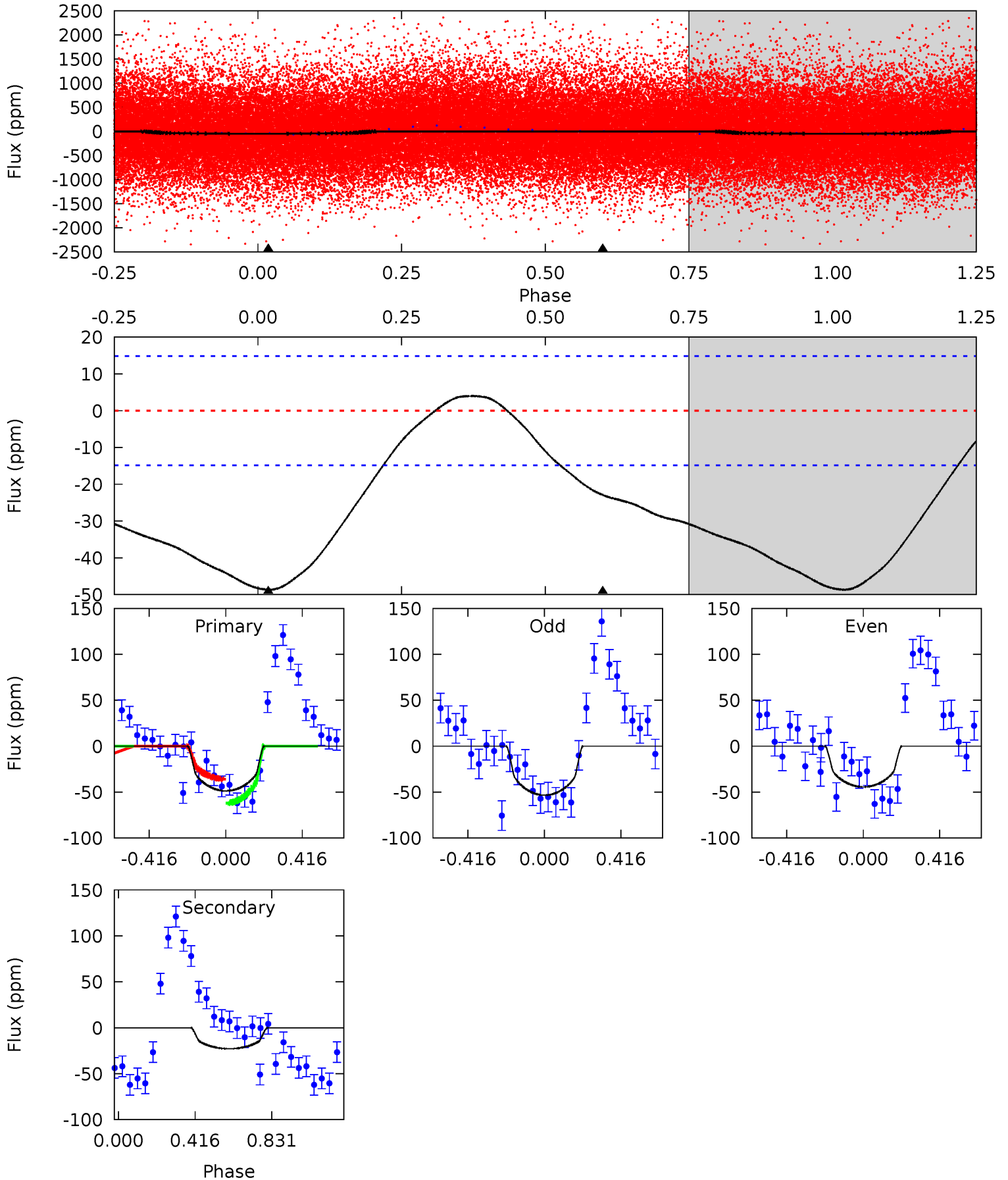
TCE 007116561-01 P= 0.566814 Days $T_0=131.637033$ (BKJD)



DV Model-Shift Uniqueness Test

007116561-01, P = 0.566799 Days, E = 131.061600 Days

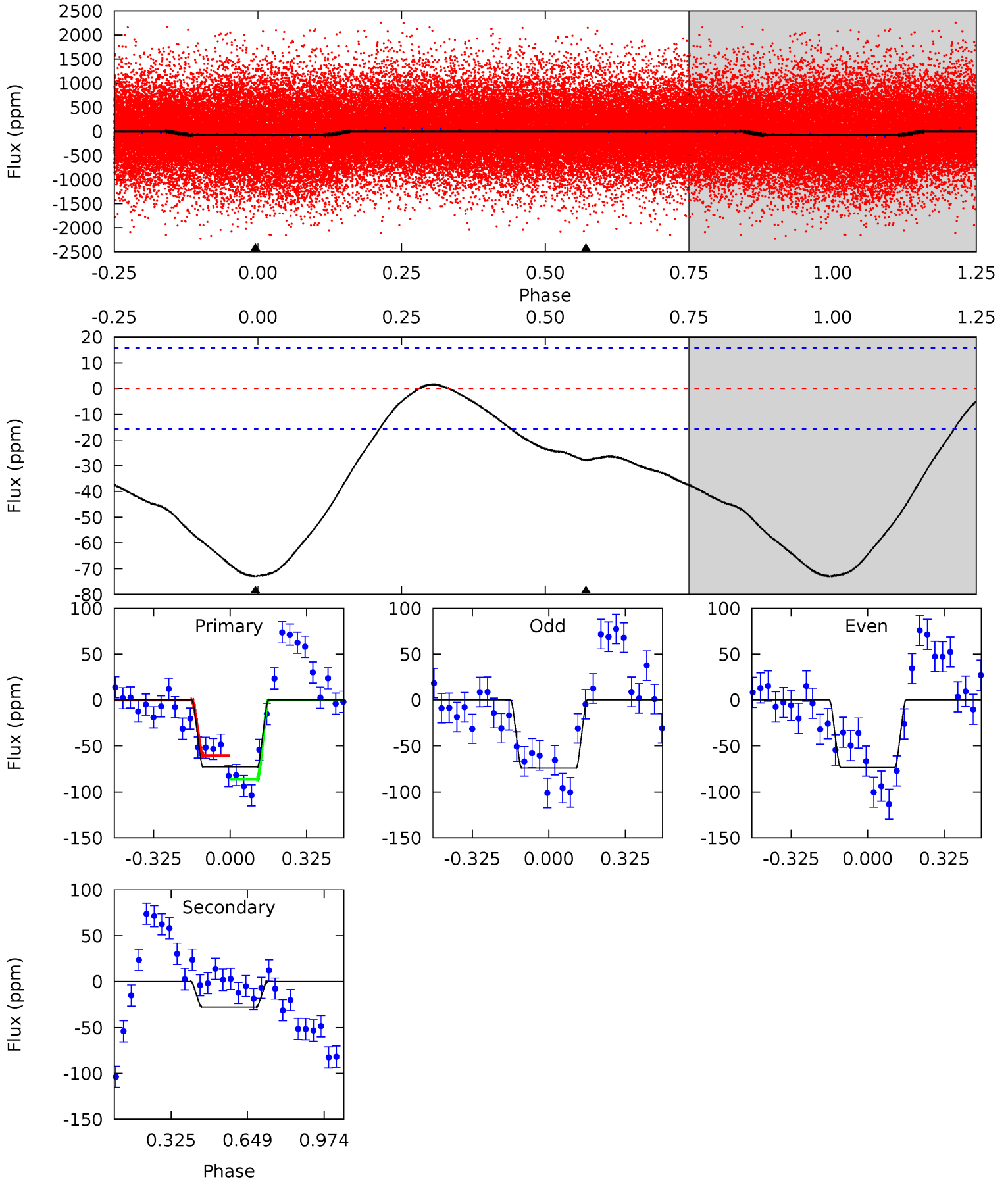
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.9 | 6.57 | 0 | 0 | 4.26 | 0.81 | 0.92 | 13.9 | 13.9 | 6.57 | 6.57 | 1.29 | 0.98 | 0.08 | 3.73 |



Alt Model-Shift Uniqueness Test

007116561-01, P = 0.566814 Days, E = 131.070219 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.0 | 7.63 | 0 | 0 | 4.31 | 0.99 | 0.85 | 20.0 | 20.0 | 7.63 | 7.63 | 0.10 | 1.02 | 0.02 | 3.46 |



Stellar Parameters For KIC 007116561

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5435^{+160}_{-177} | $4.578^{+0.032}_{-0.128}$ | $0.070^{+0.250}_{-0.300}$ | $0.824^{+0.147}_{-0.073}$ | $0.937^{+0.065}_{-0.114}$ | $2.358^{+0.401}_{-0.888}$ |
| | +3%/-3% | +1%/-3% | +357%/-429% | +18%/-9% | +7%/-12% | +17%/-38% |
| 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 007116561-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|-----------------------|----------------------------|
| DV | -23 ± 3 | $0.73^{+0.47}_{-0.36}$ | 2701^{+119}_{-108} | 4314^{+1473}_{-745} | $3.855^{+10.801}_{-2.381}$ |
| Alt. | -28 ± 4 | $0.80^{+0.42}_{-0.40}$ | 2698^{+124}_{-113} | 4364^{+1678}_{-723} | $4.058^{+12.531}_{-2.400}$ |

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 $A_{\text{obs}} \gg 1.0$

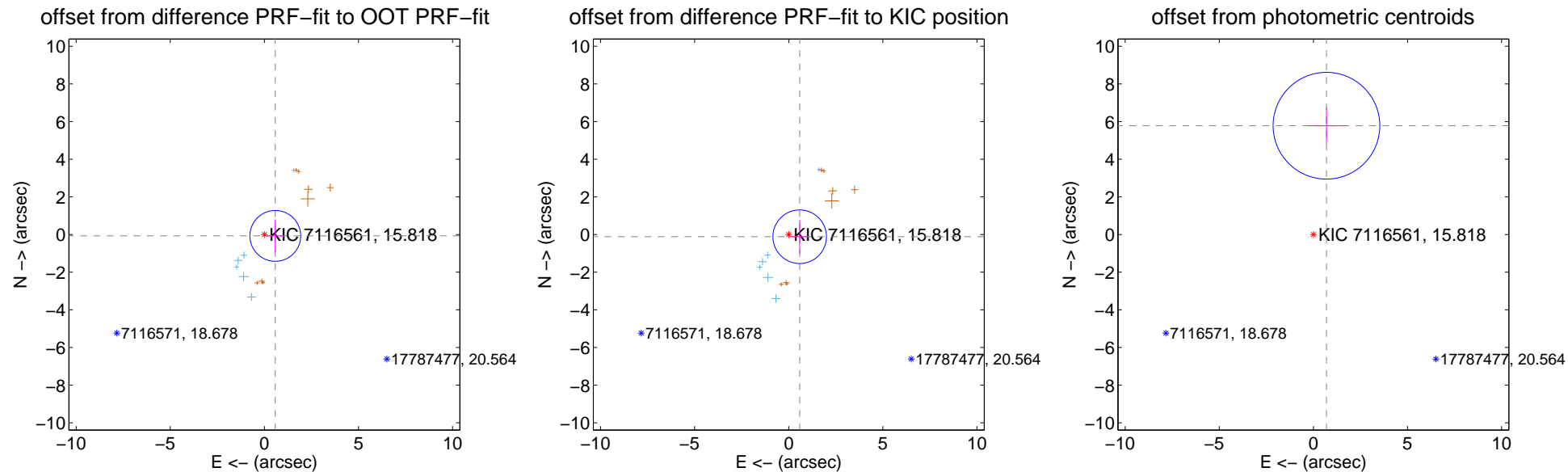
DV Centroid Data

Supplemental centroid analysis for 007116561-01. Kepler magnitude: 15.82. Transit SNR 10.88

There are 6 quarters with good PRF difference image offsets

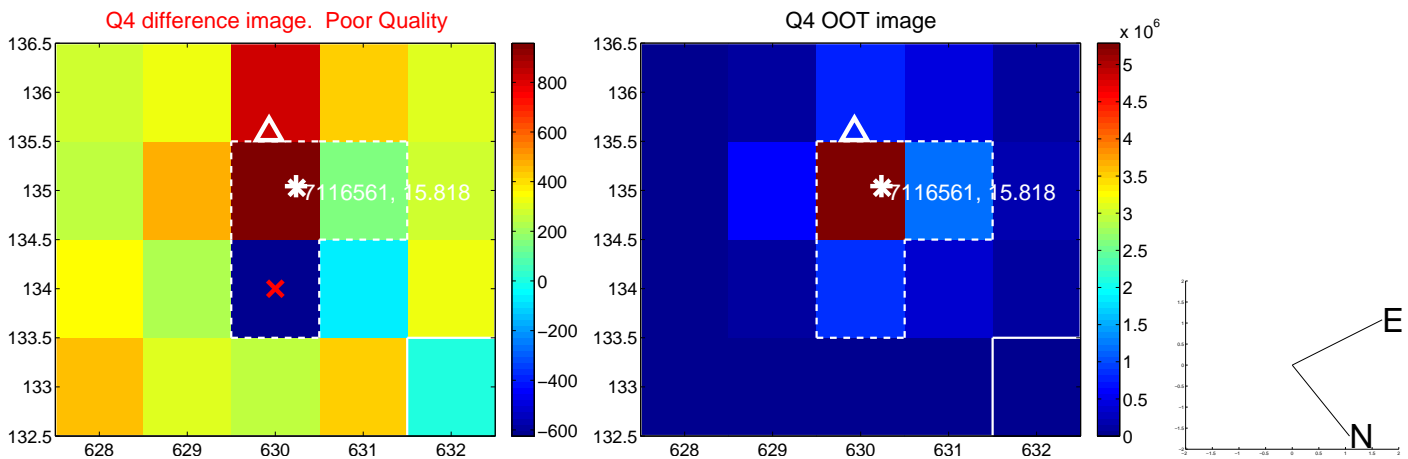
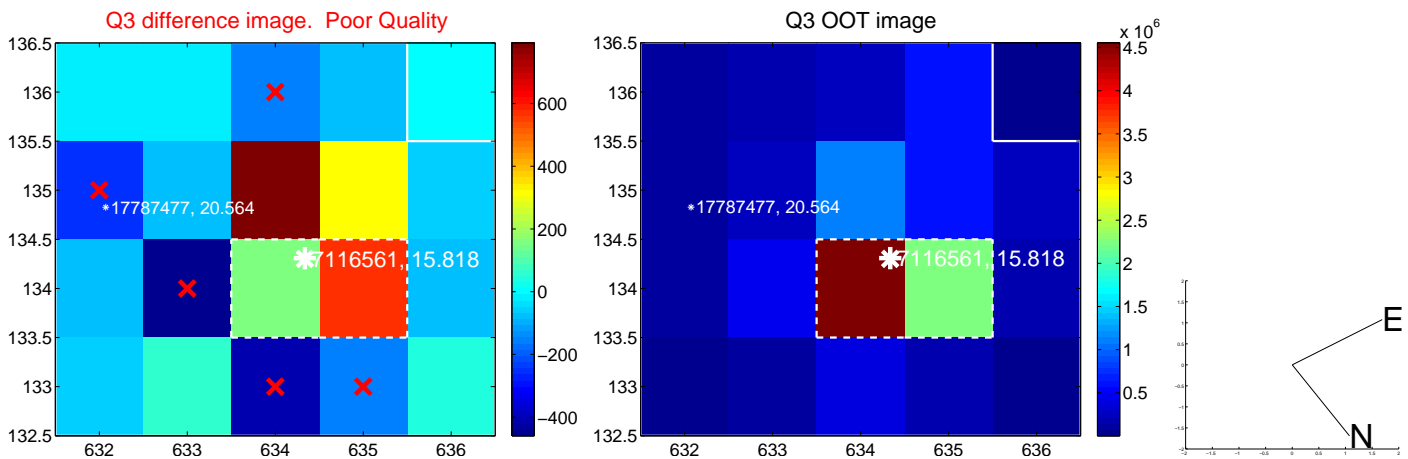
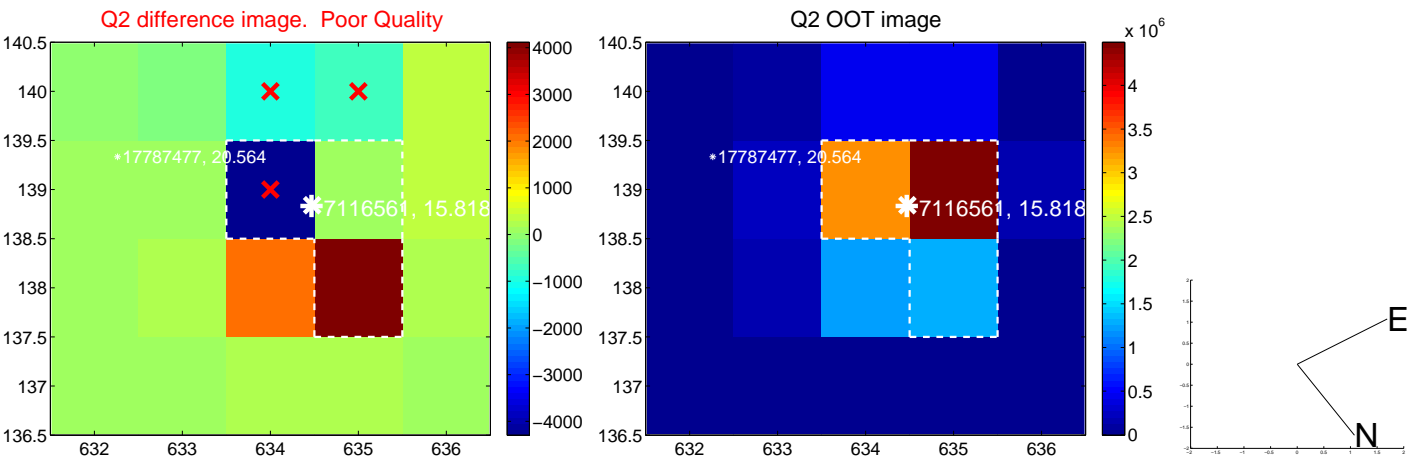
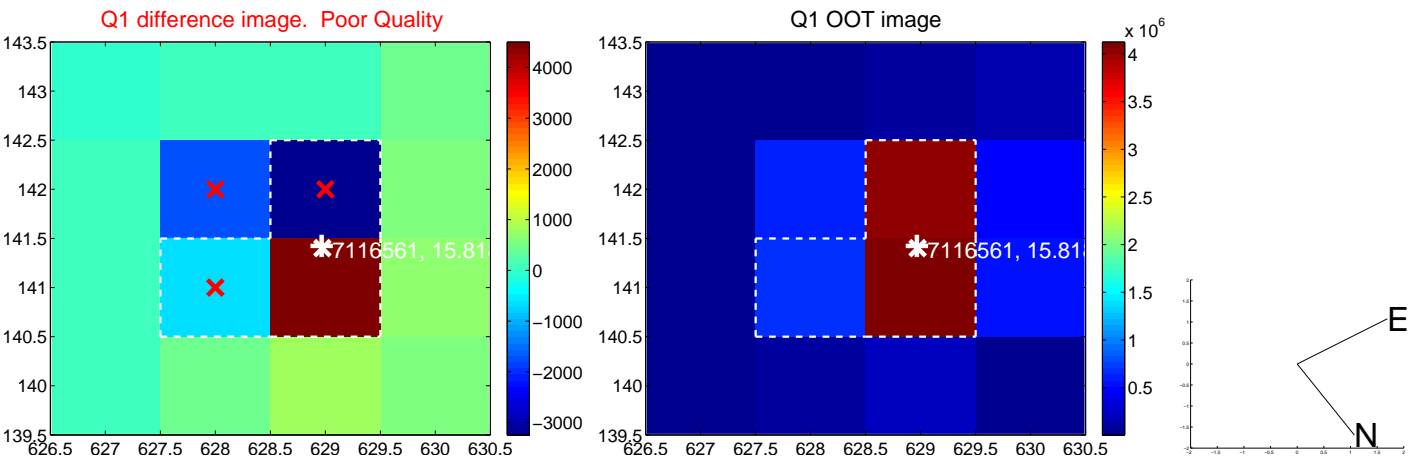
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.584 ± 0.450 | 1.30 | -0.580 ± 0.440 | -0.073 ± 0.878 |
| PRF-fit source offset from KIC position | 0.593 ± 0.474 | 1.25 | -0.582 ± 0.449 | -0.117 ± 0.890 |
| photometric centroid source offset | 5.82 ± 0.94 | 6.16 | -0.69 ± 1.01 | 5.78 ± 0.94 |

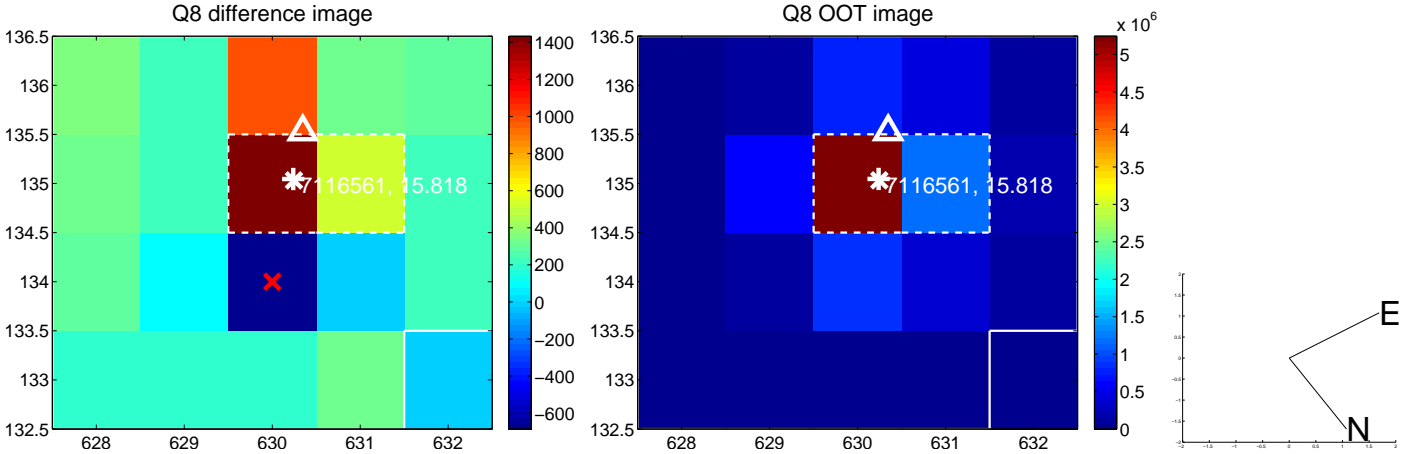
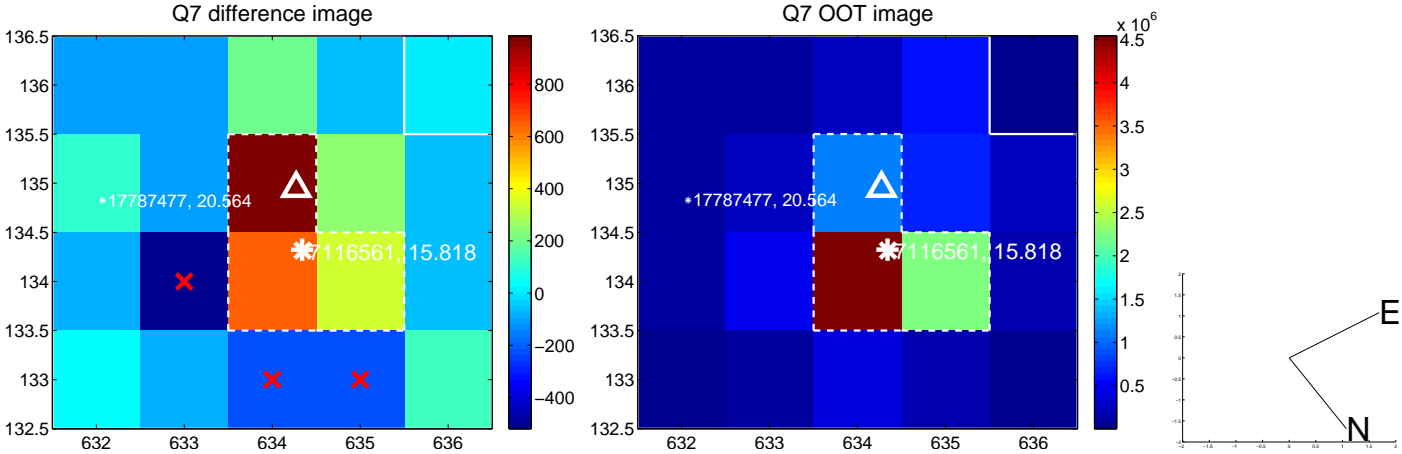
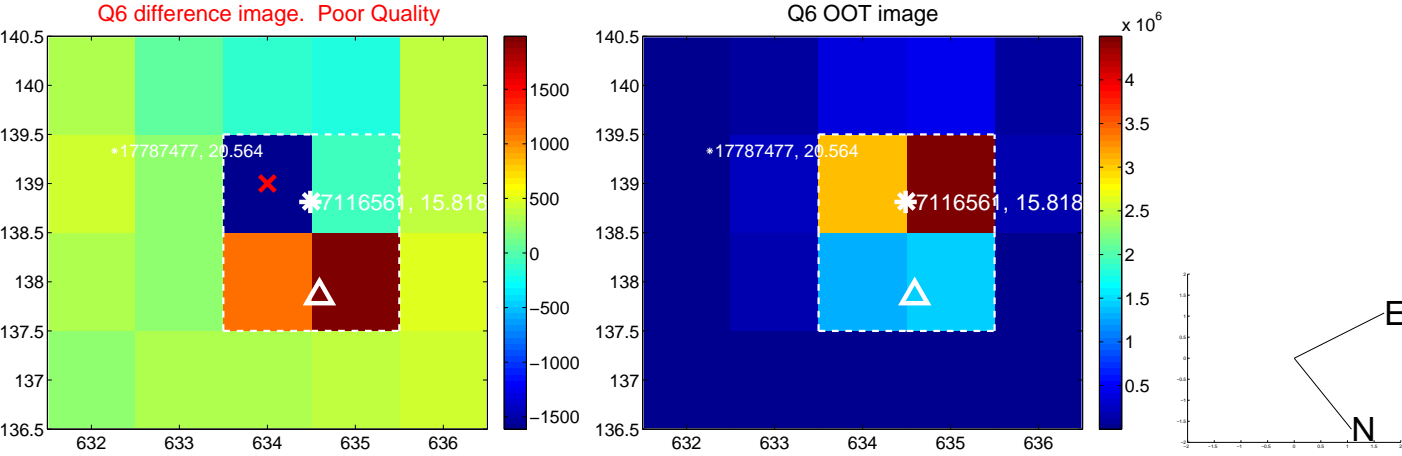
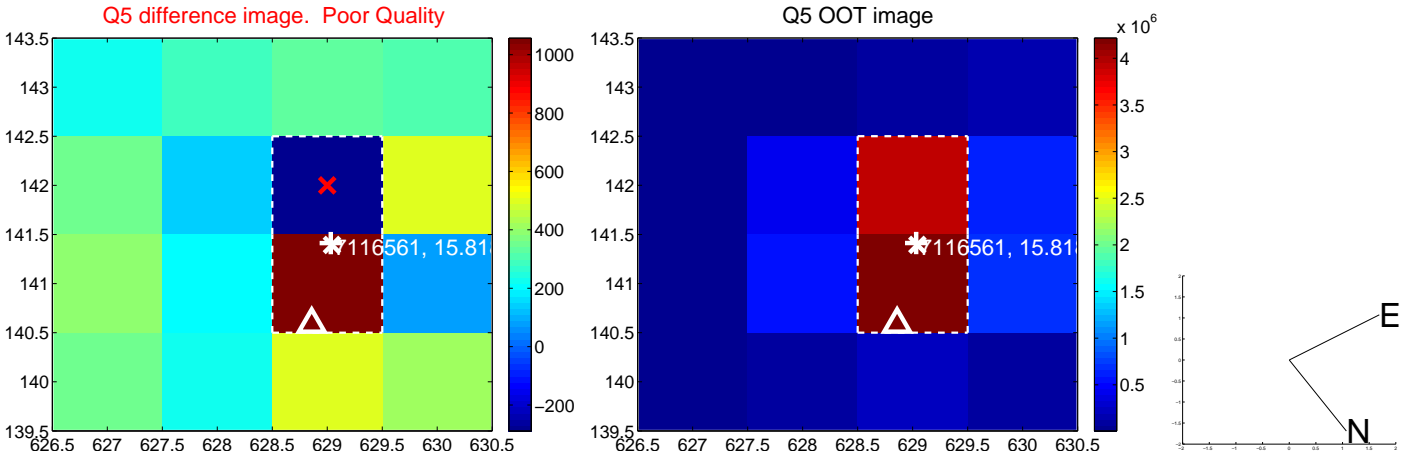


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

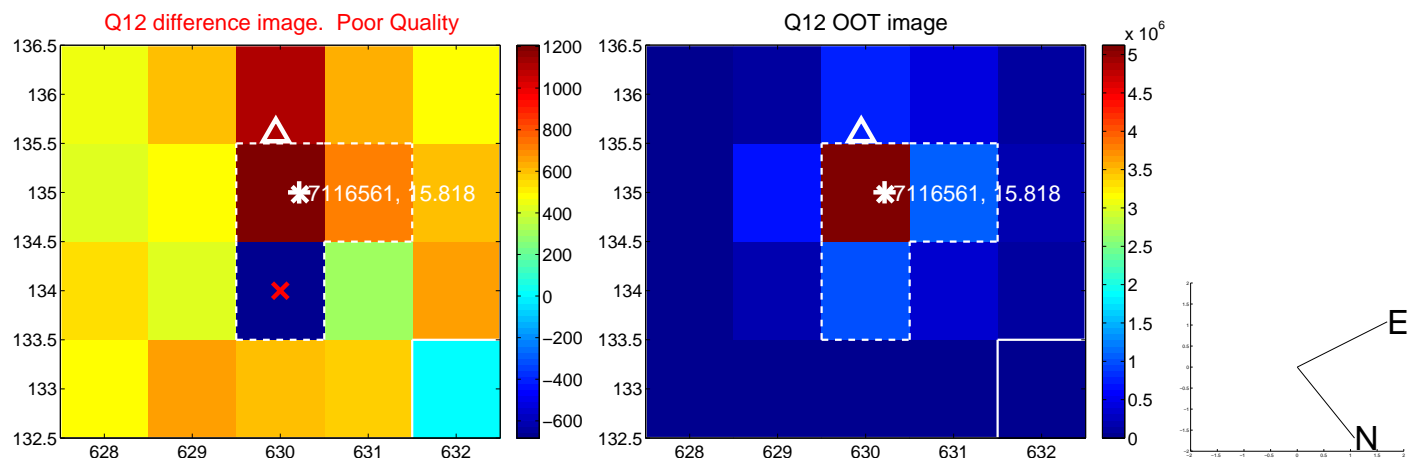
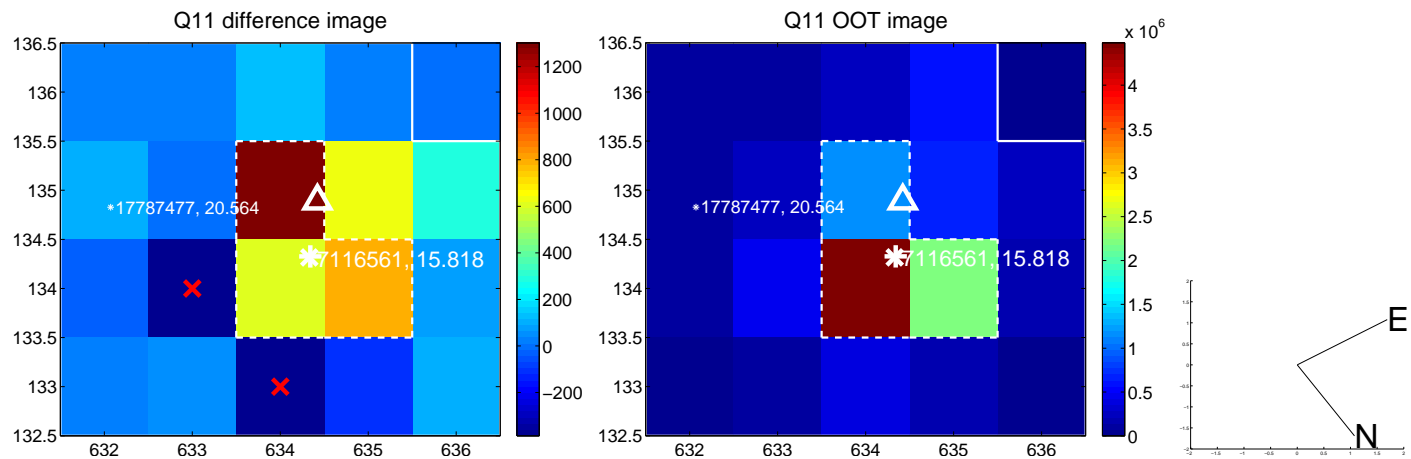
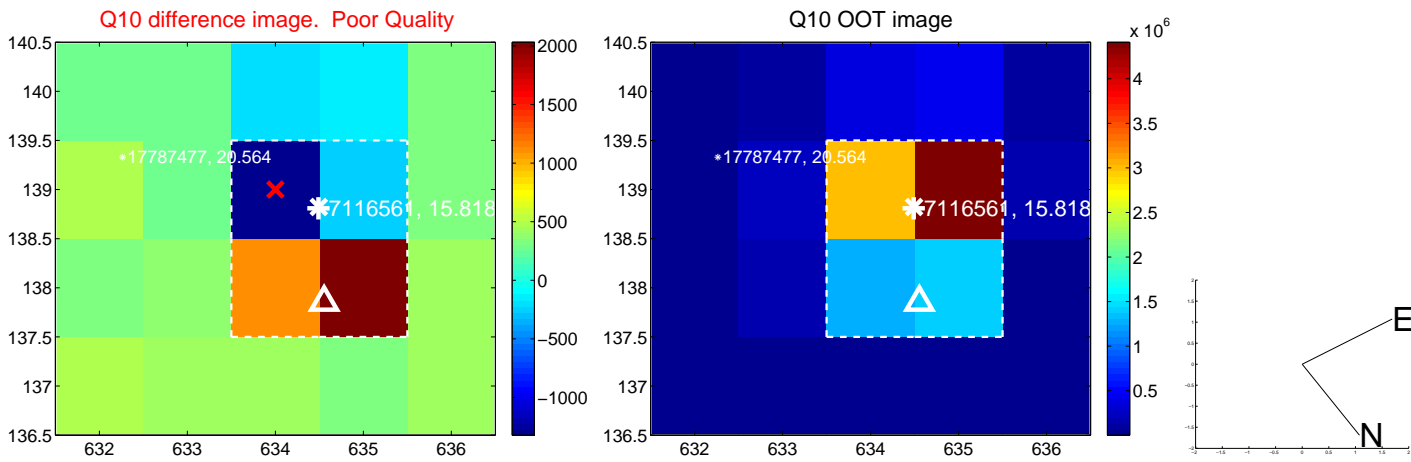
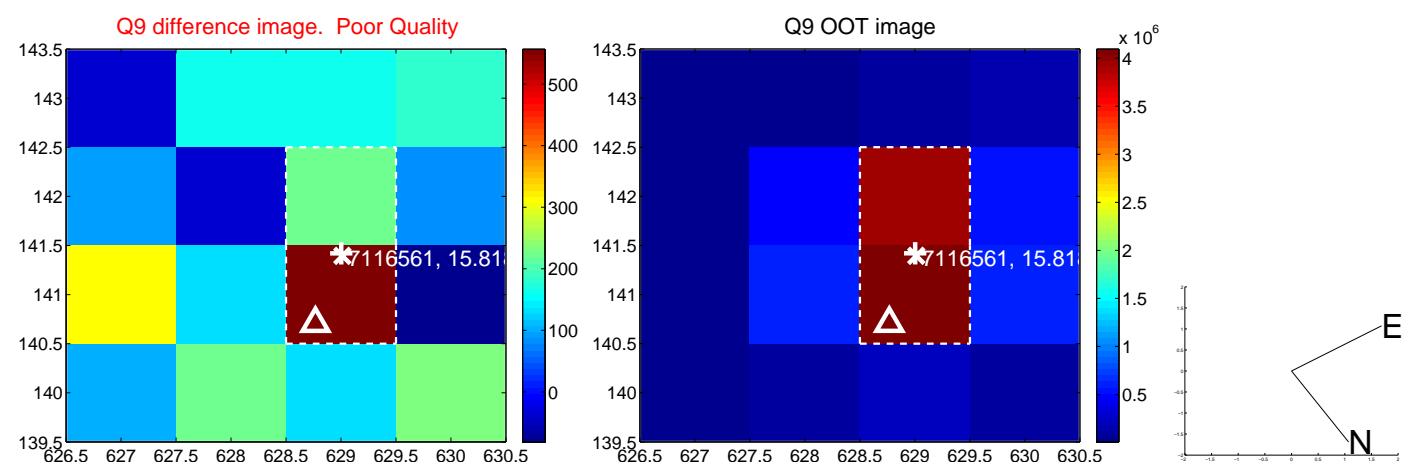
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



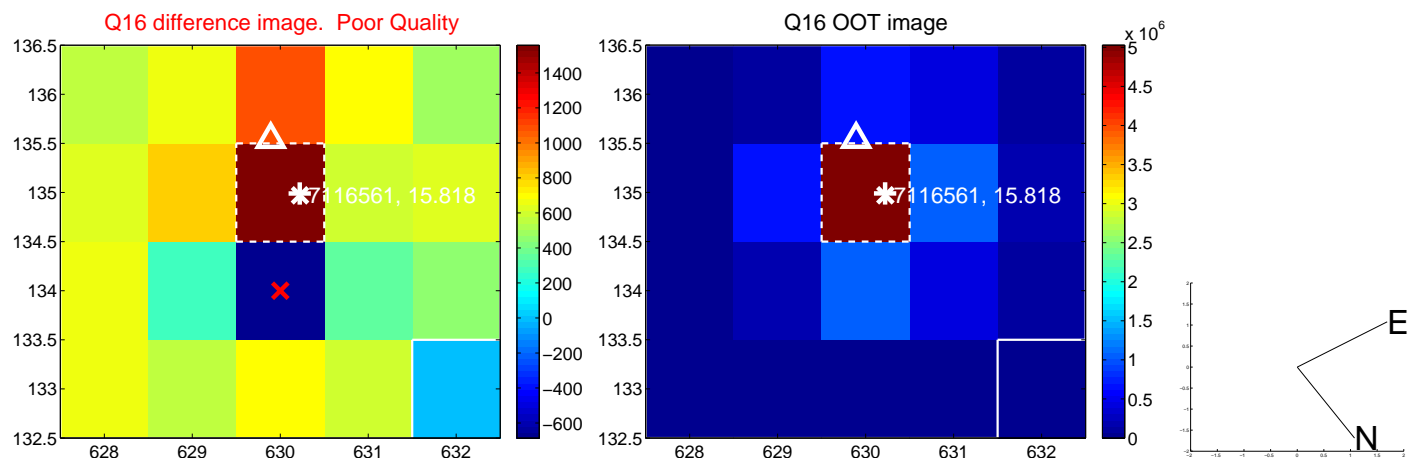
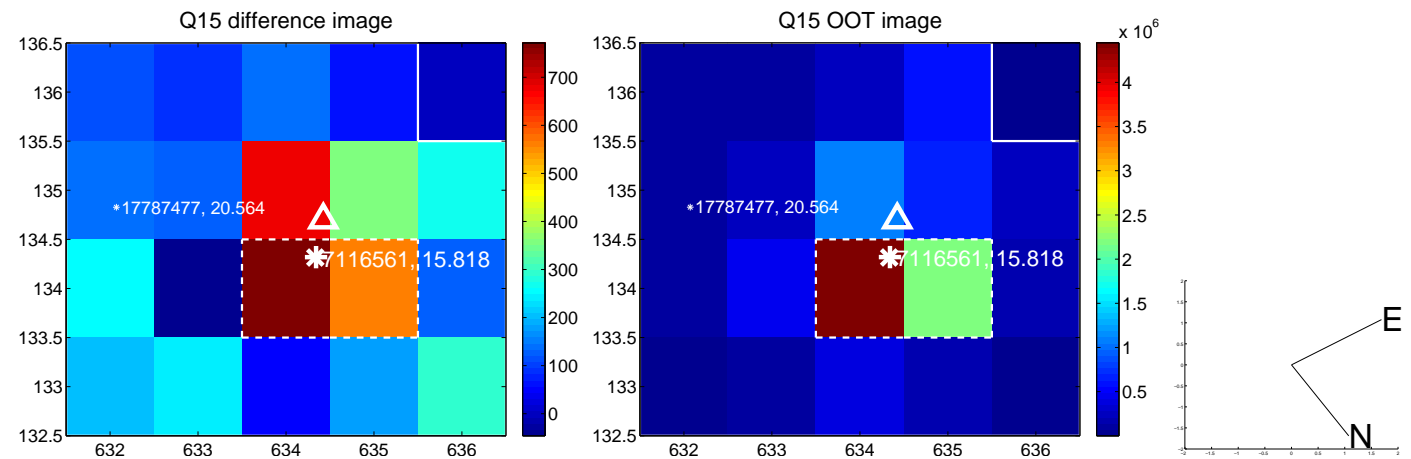
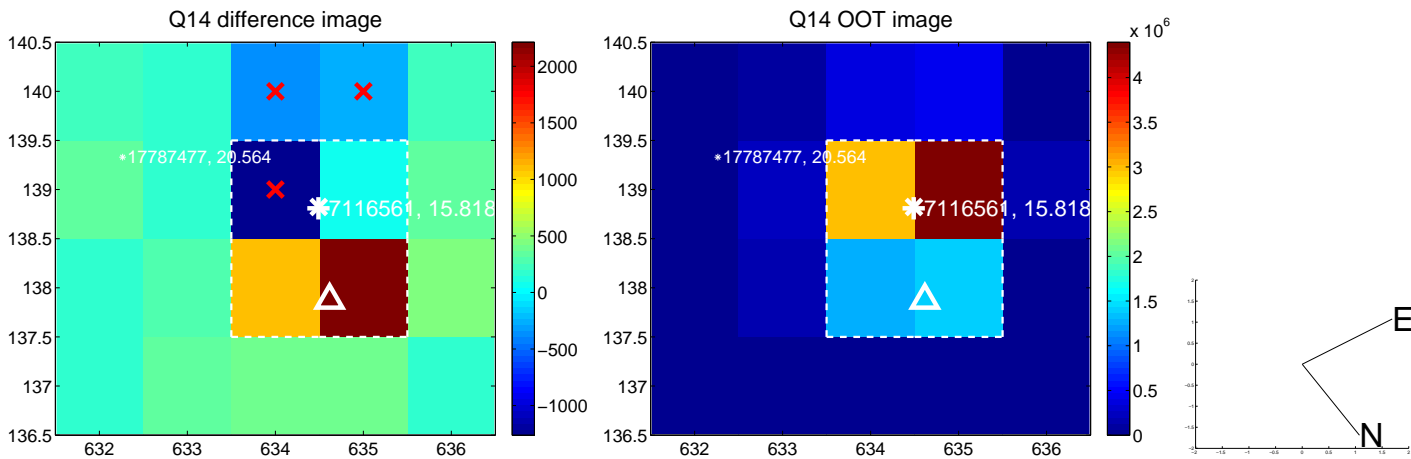
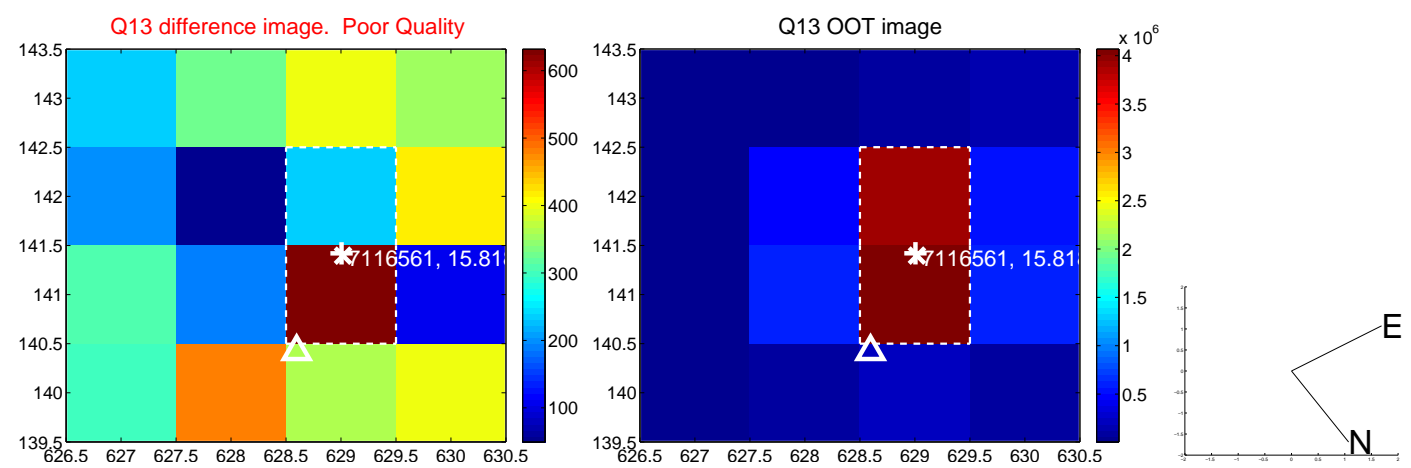
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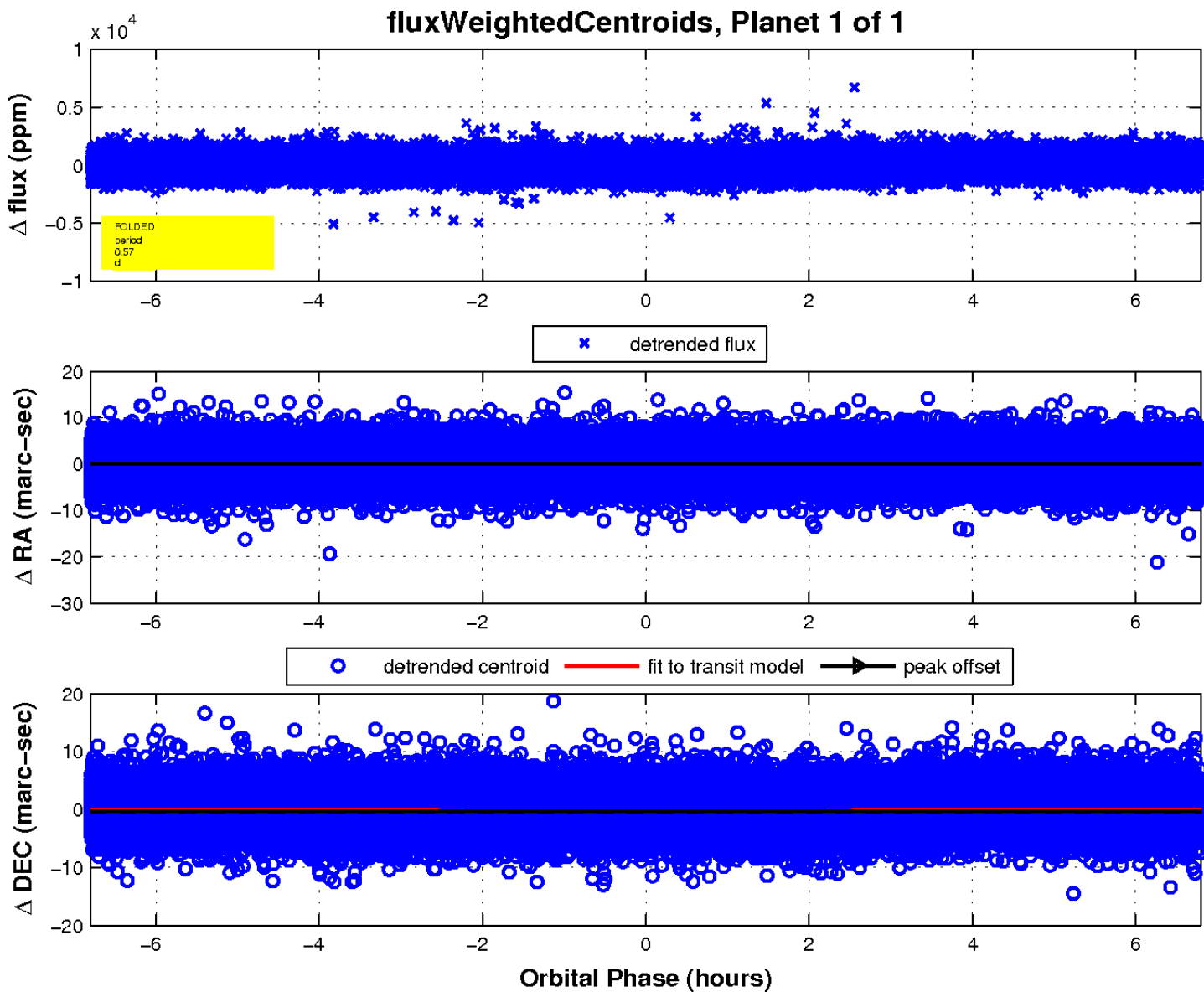
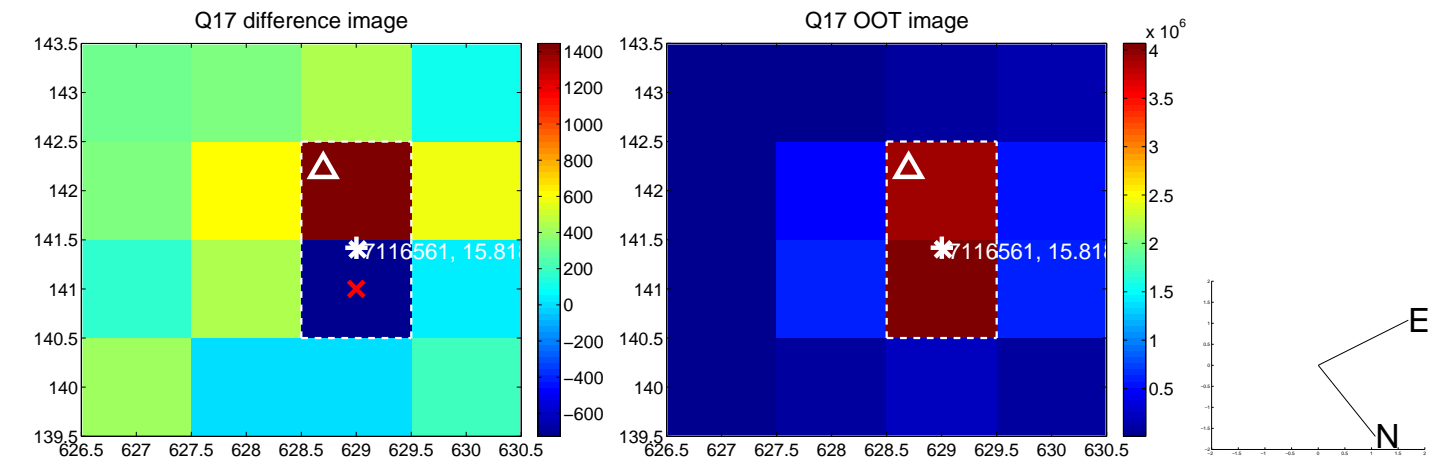
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

