

KIC 009640285

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 009640285-01 | OBS | No | 4.908449 | 133.689361 | 44.3 | 9.813 | 7.6 | 8.2 | 3.09 | 6666 | 2.81 | 3890.69 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------|
| 009640285-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | SWEET_NTL—LPP_DV |

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

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

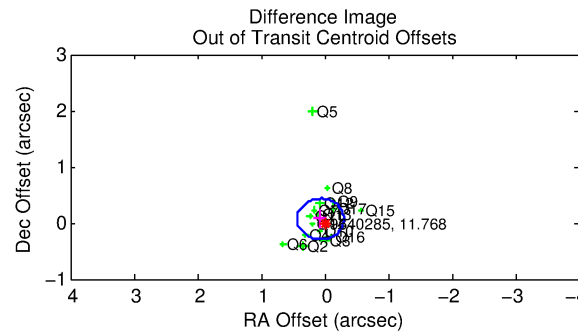
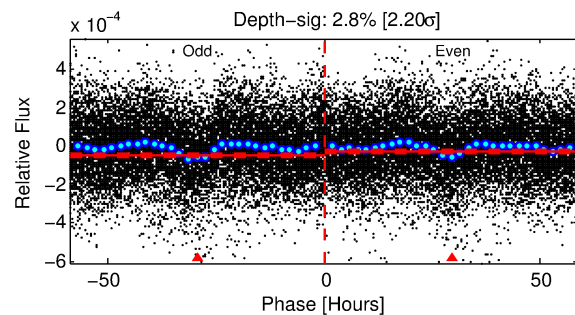
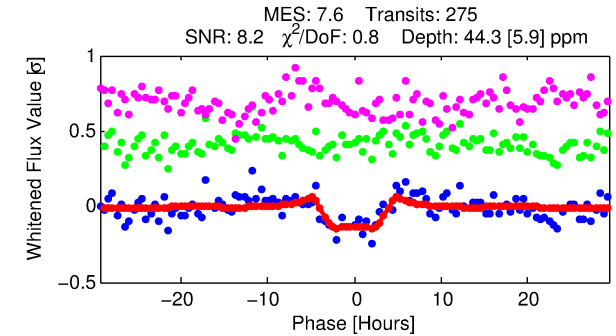
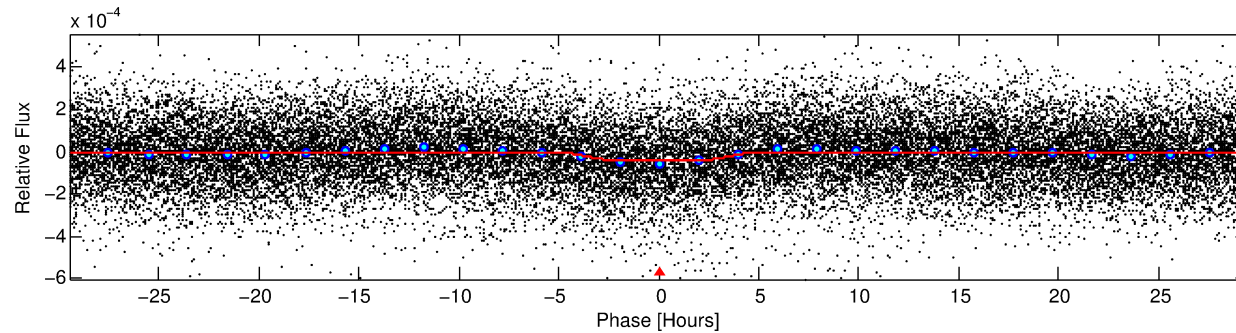
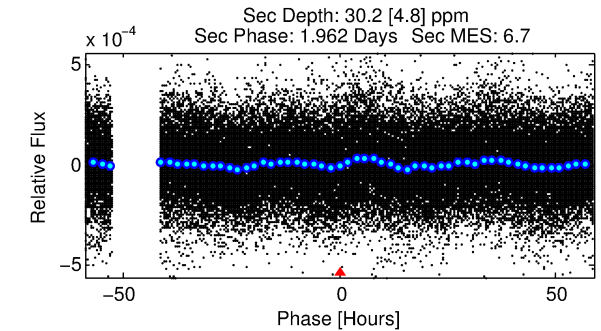
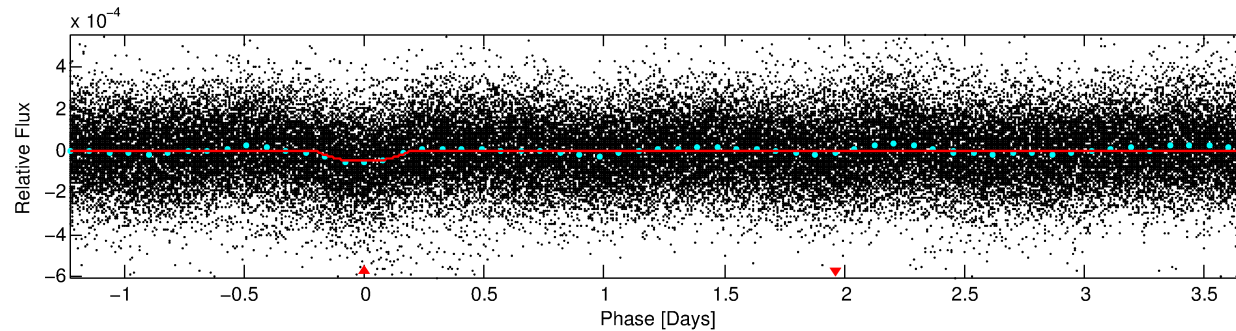
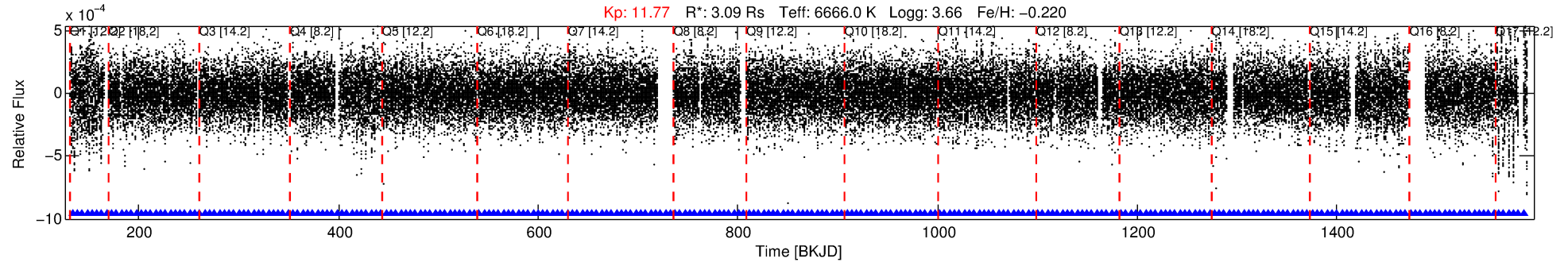
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009640285-01

No Significant Match Found

DV One-Page Summary

KIC: 9640285 Candidate: 1 of 1 Period: 4.908 d



DV Fit Results:

Period = 4.90845 [0.00010] d
Epoch = 133.6894 [0.0160] BKJD
Rp/R* = 0.0083 [0.0006]
a/R* = 1.25 [0.06]
b = 0.99 [0.00]
Seff = 3890.69 [2177.61]
Teq = 2014 [282] K
Rp = 2.81 [1.02] Re
a = 0.0658 [0.0225] AU
Ag = 9.10 [5.38] [1.51σ]
Teffp = 5408 [330] K [7.82σ]

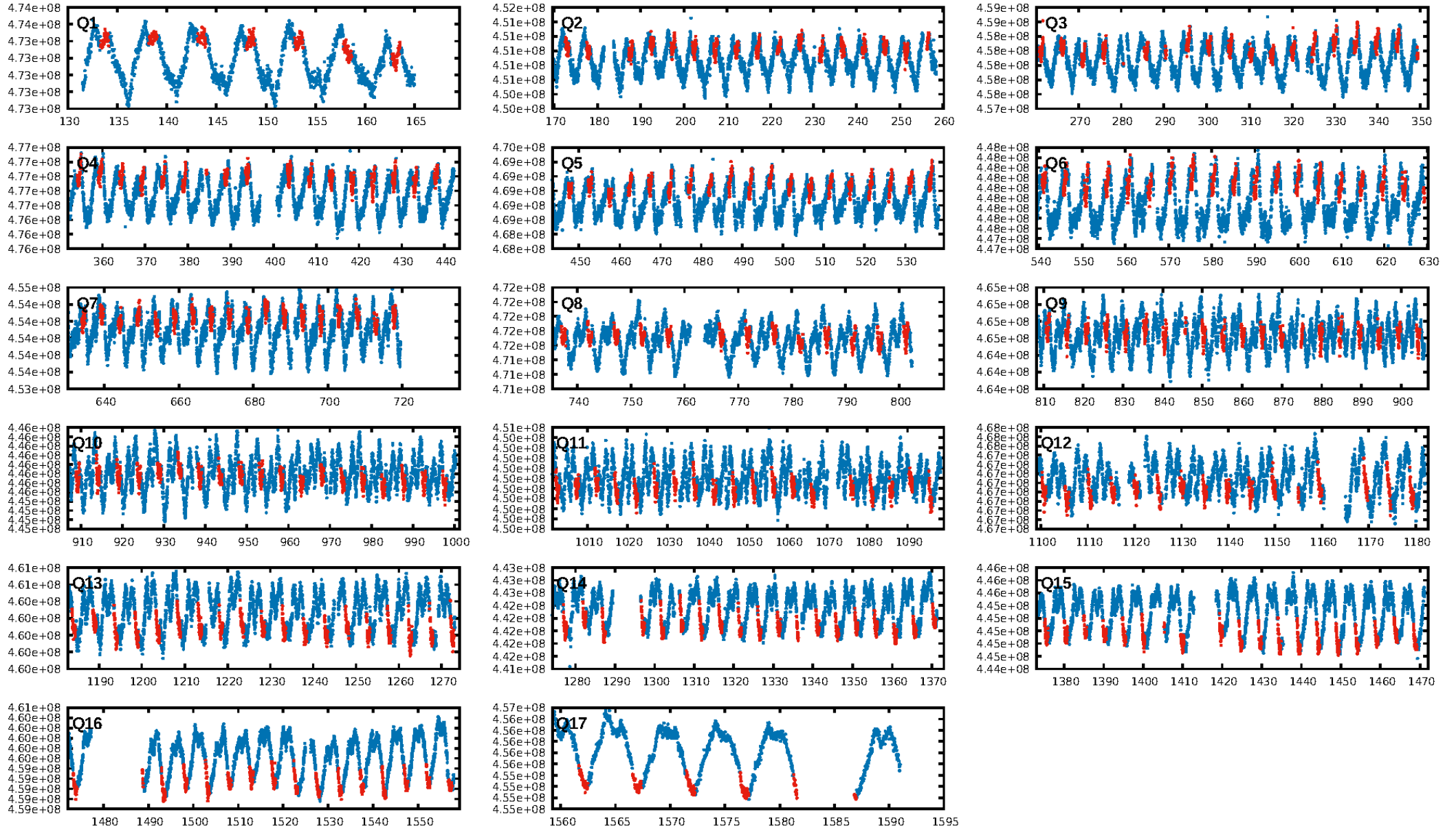
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.58e-11
RollingBand-fgt: 1.00 [263/263]
GhostDiagnostic-chr: 1.169
Centroid-sig: 57.0%
Centroid-so: 0.234 arcsec [0.66σ]
OotOffset-rm: 0.095 arcsec [0.78σ]
KicOffset-rm: 0.106 arcsec [0.75σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [17/17]

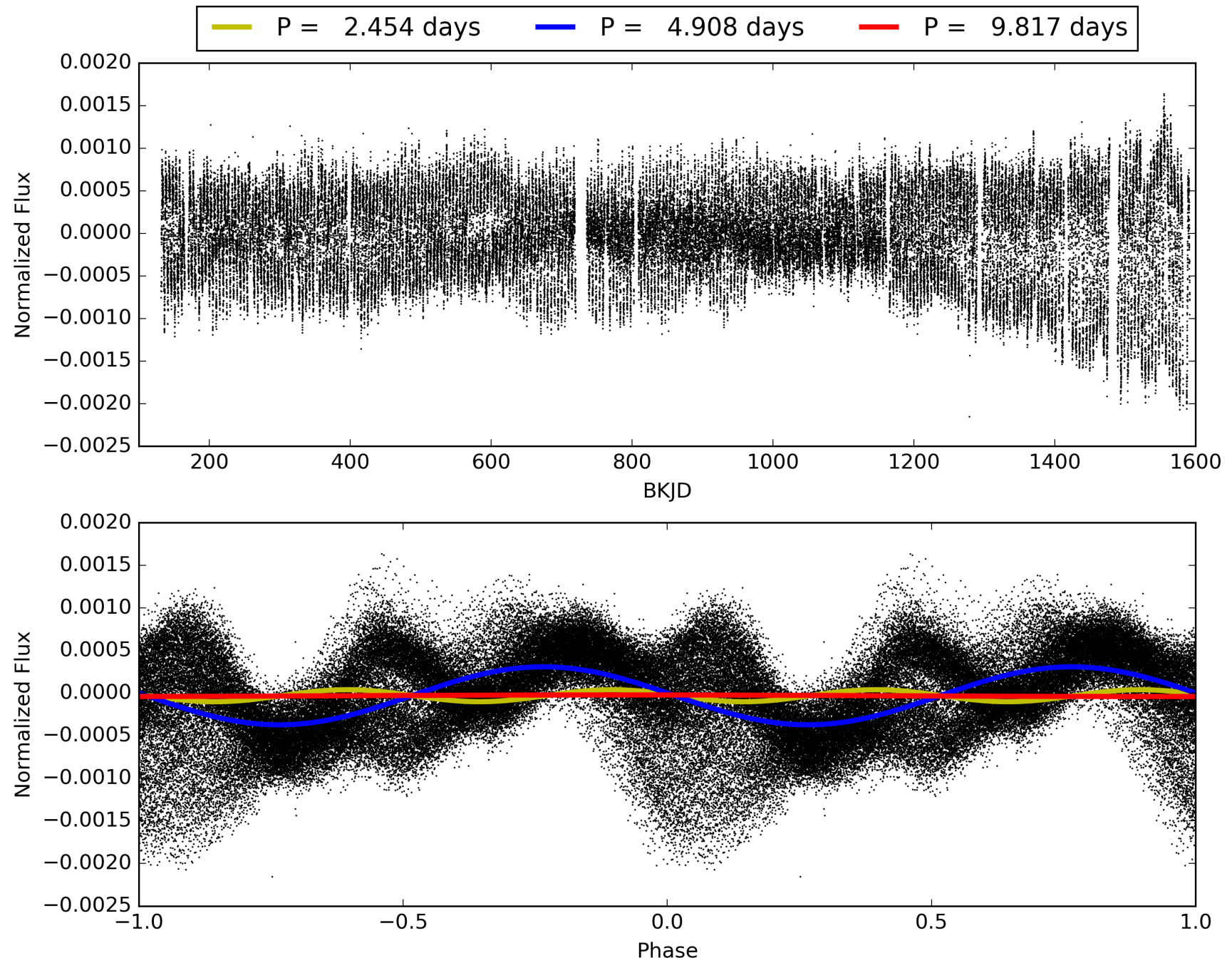
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:44:37 Z

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

TCE 009640285-01, PDC Light Curves

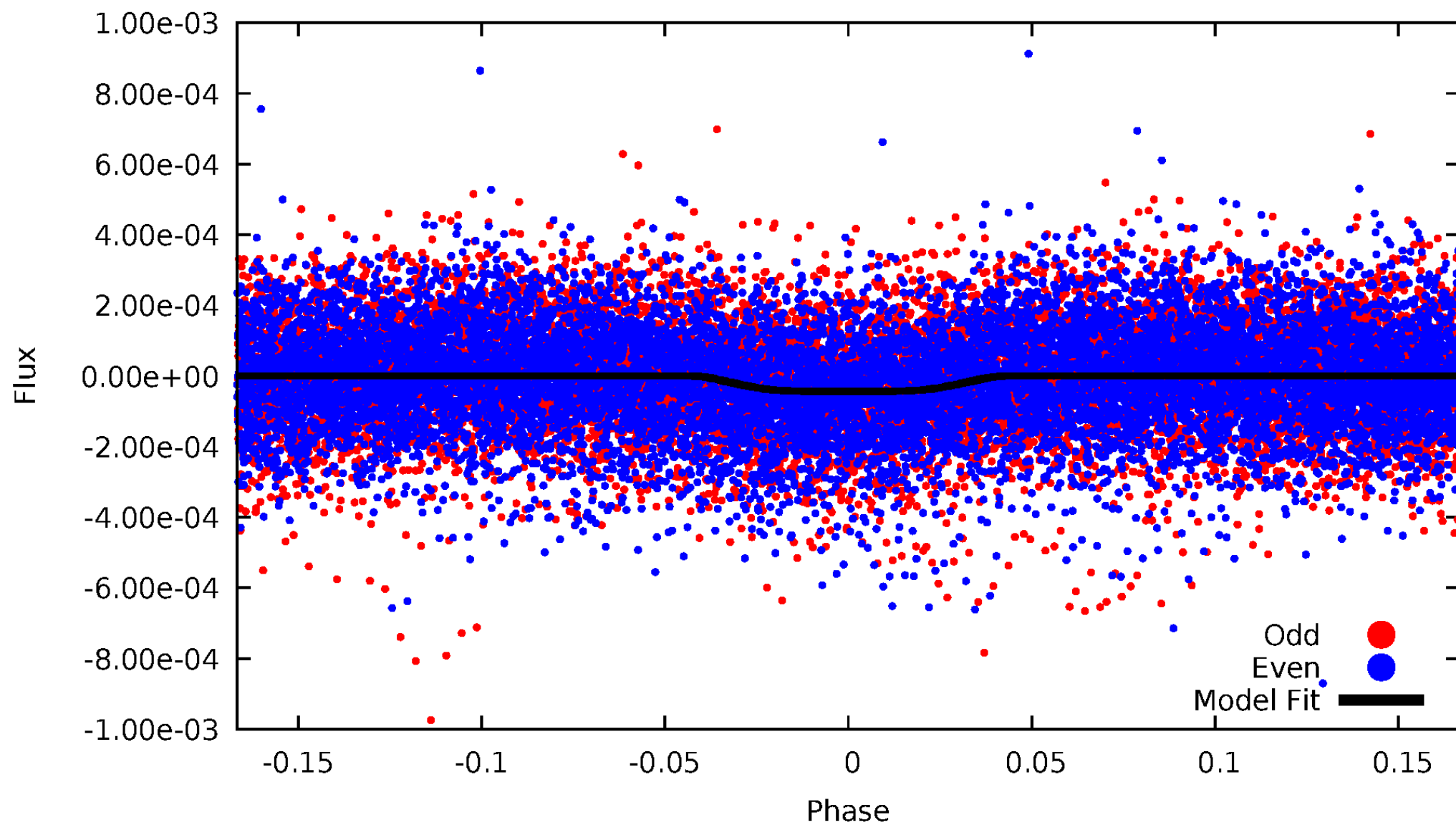


TCE 009640285-01



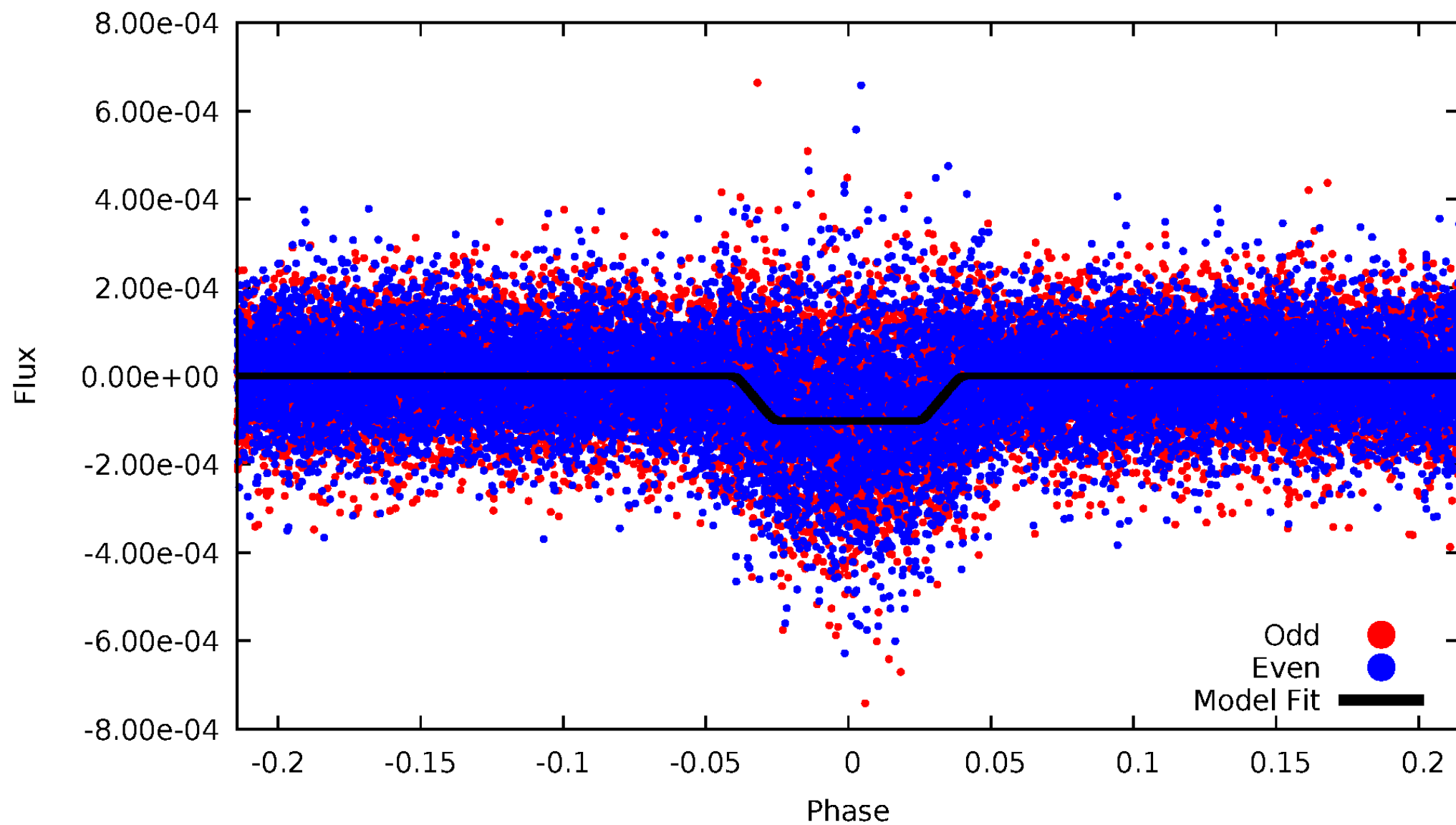
DV Odd/Even

TCE 009640285-01



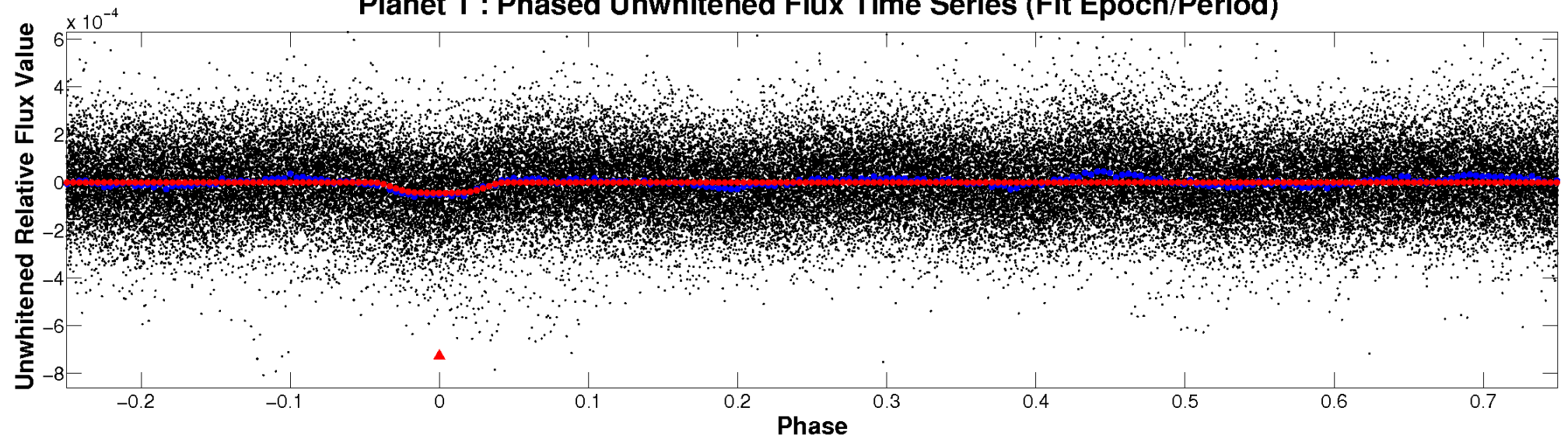
ALT Odd/Even

TCE 009640285-01

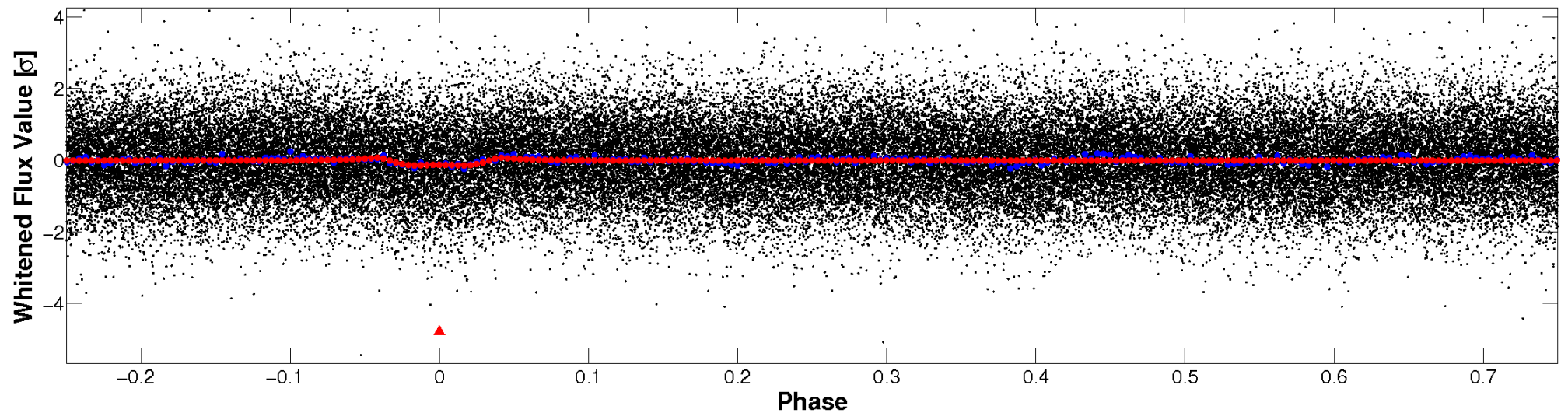


Non-Whitened Vs. Whitened Light Curve

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

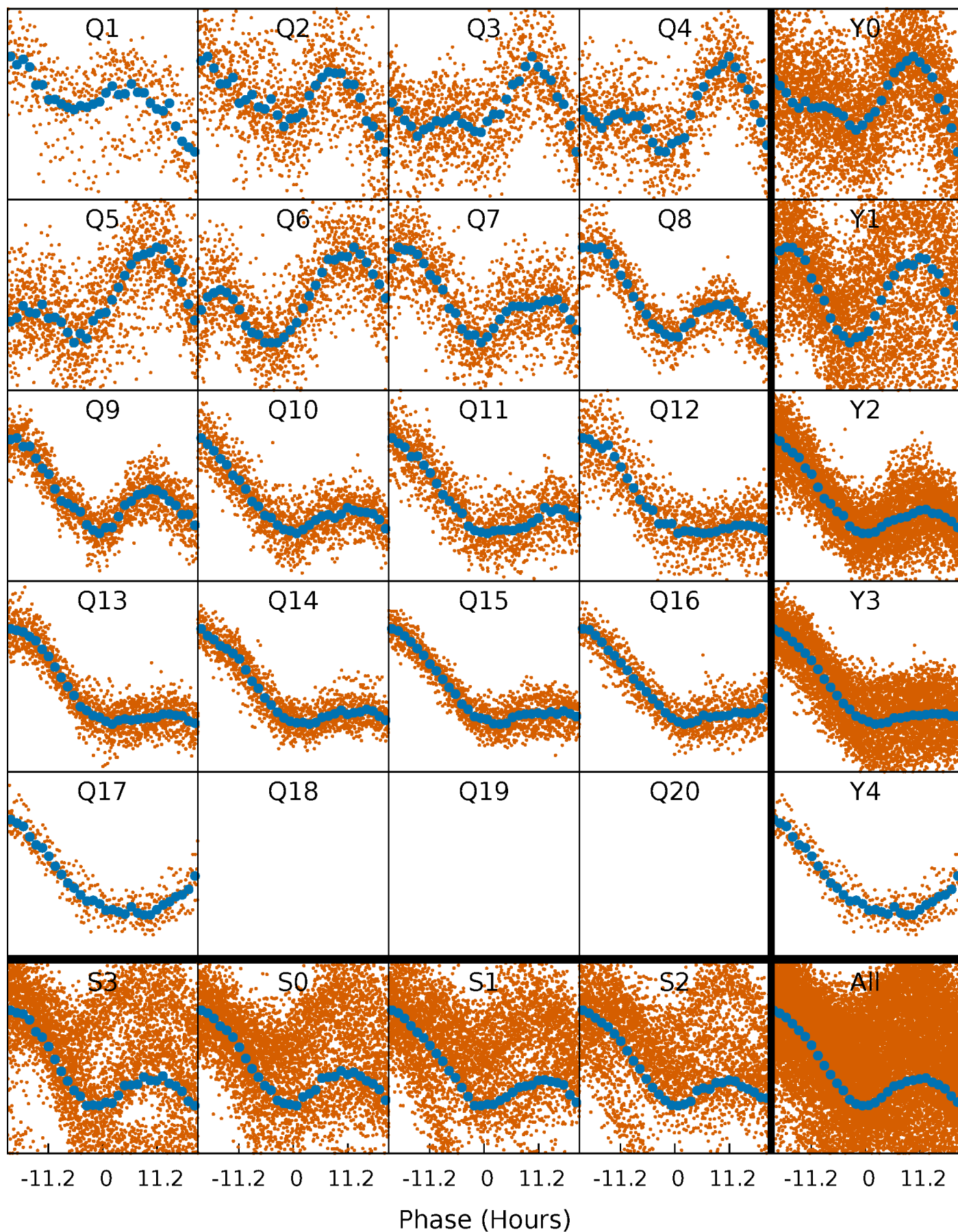


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



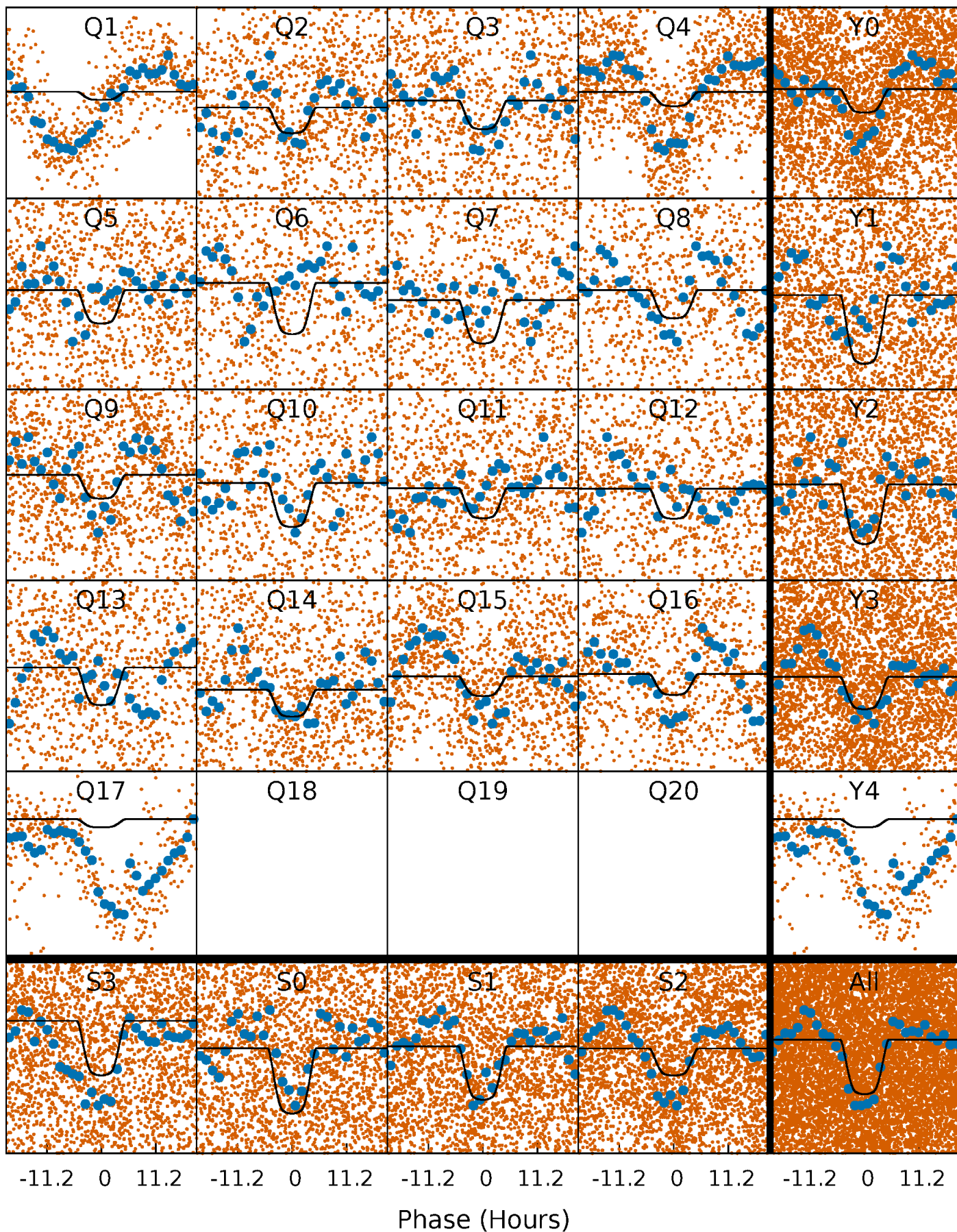
PDC Quarter-Phased Transit Curves

TCE 009640285-01 P= 4.908449 Days $T_0=133.689361$ (BKJD)



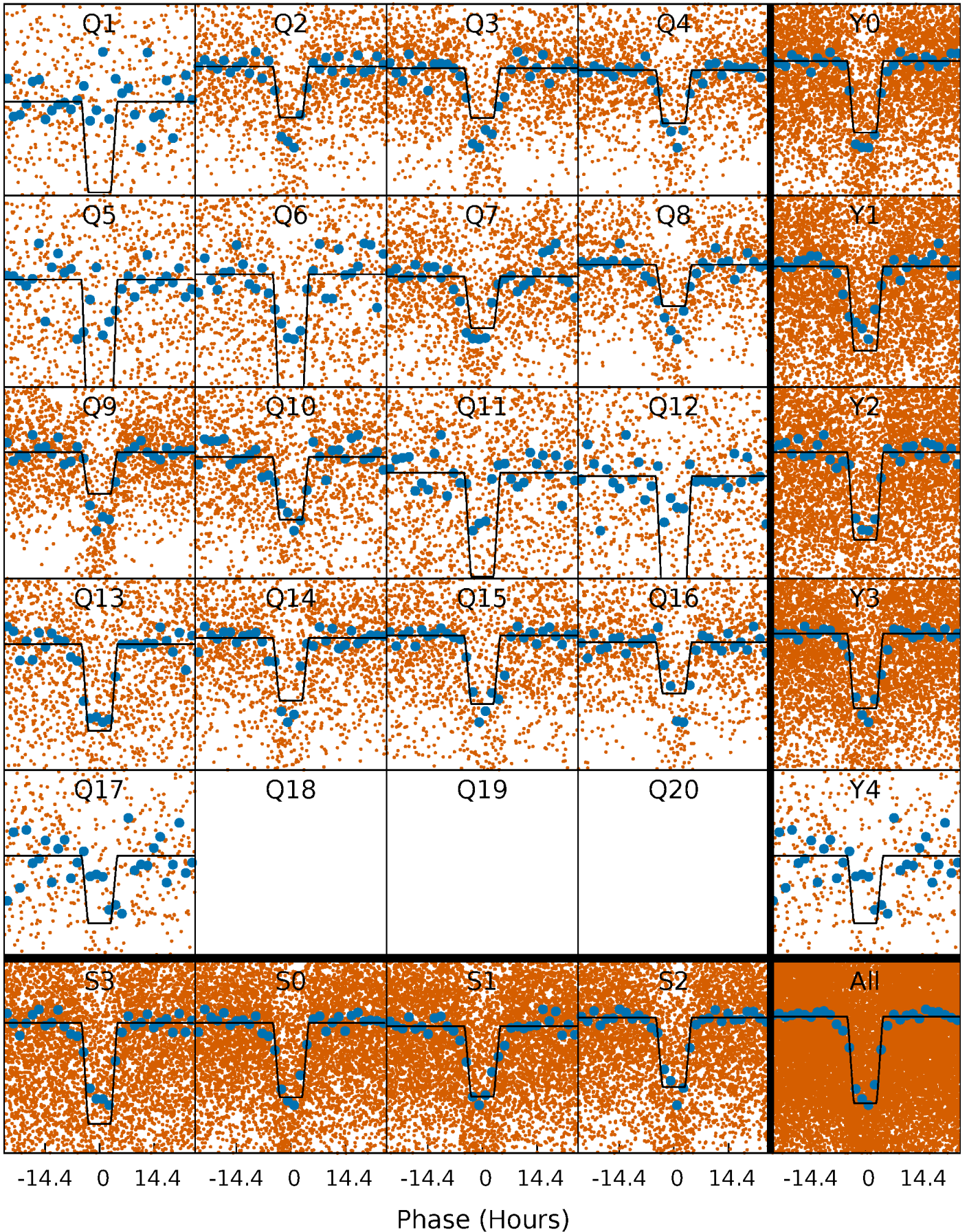
DV Quarter-Phased Transit Curves

TCE 009640285-01 P= 4.908449 Days $T_0=133.689361$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

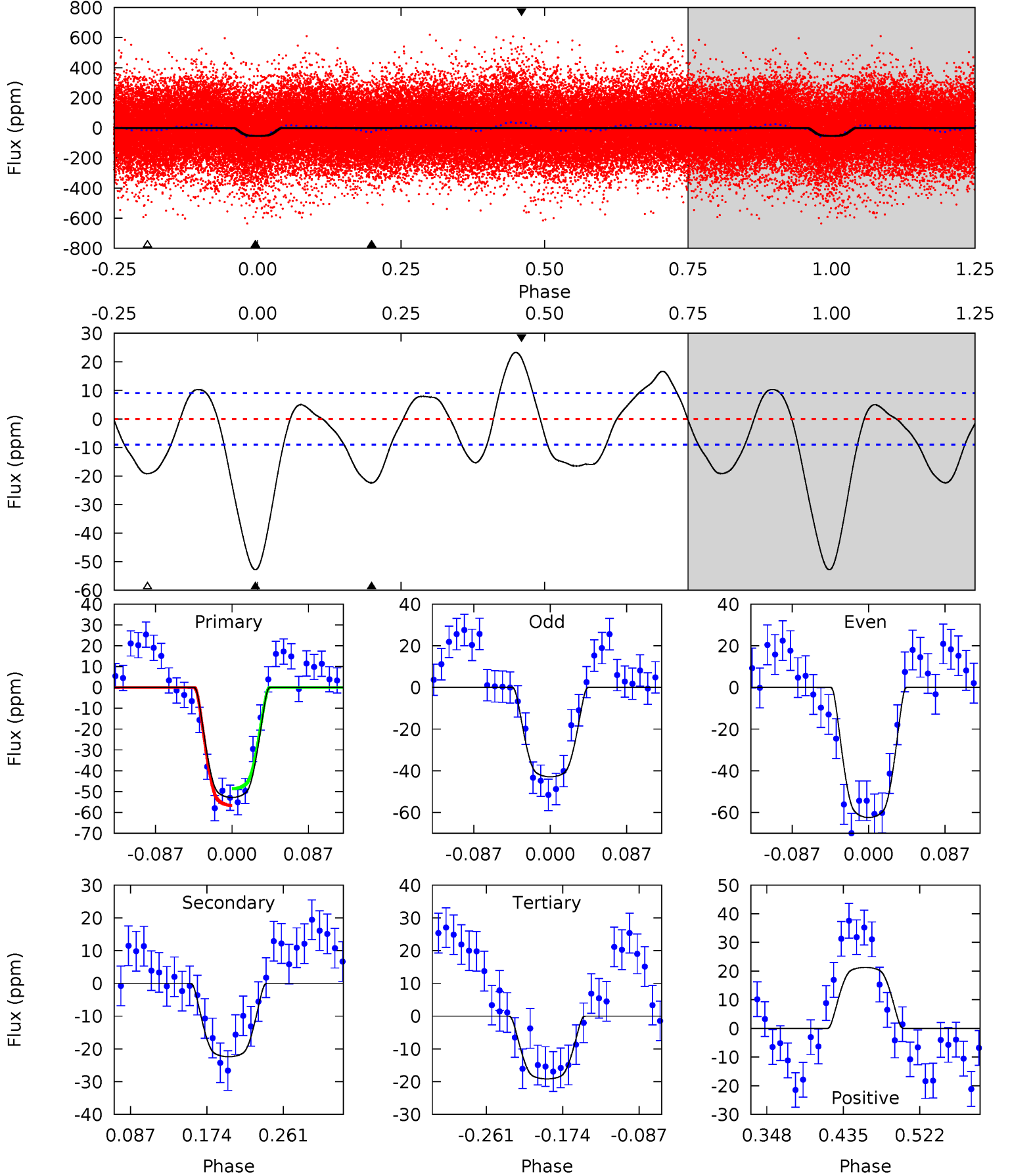
TCE 009640285-01 P= 4.908093 Days $T_0=133.726602$ (BKJD)



DV Model-Shift Uniqueness Test

009640285-01, P = 4.908449 Days, E = 128.780912 Days

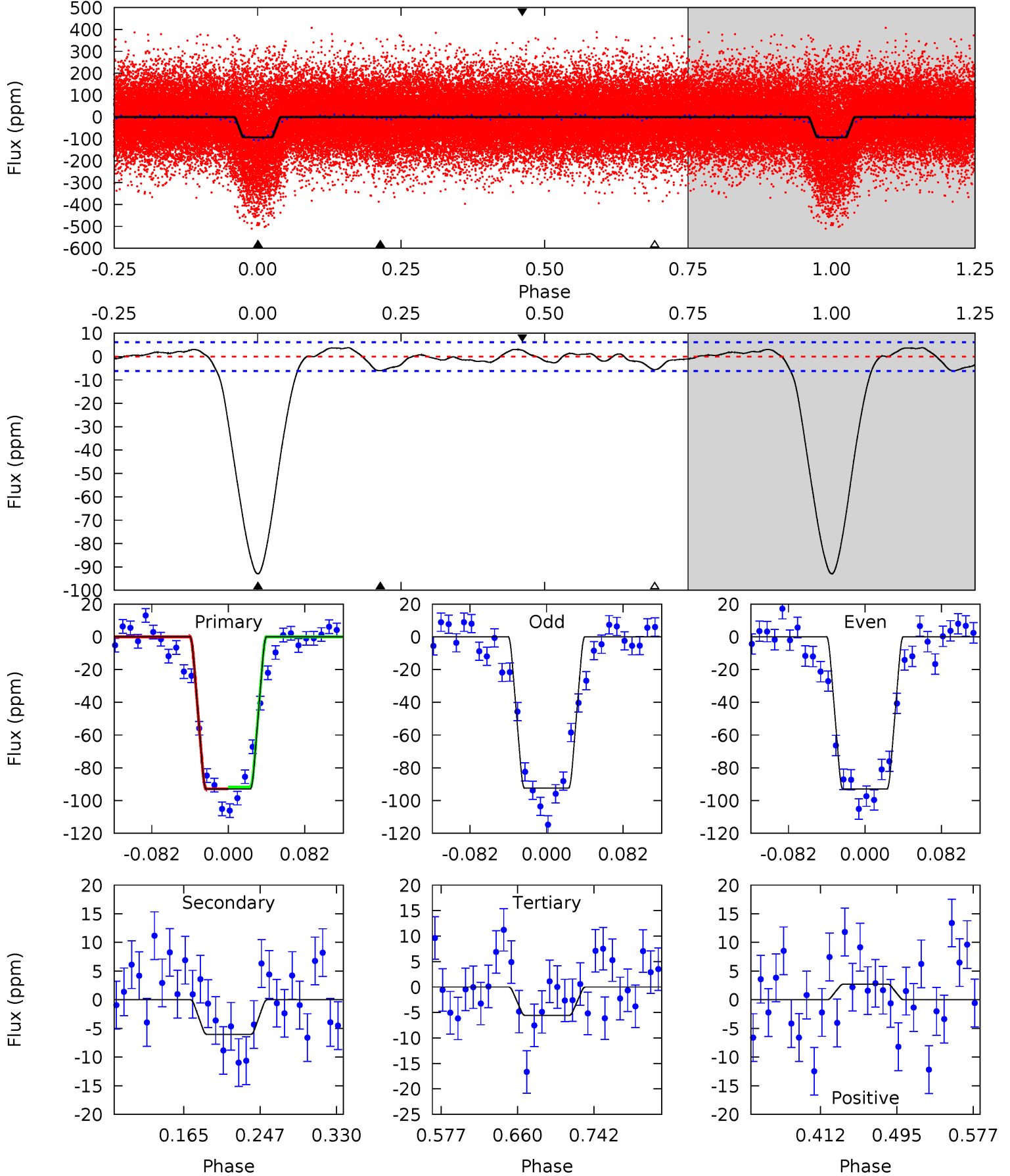
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 26.9 | 11.4 | 9.77 | 10.9 | 4.59 | 1.71 | 6.05 | 17.2 | 16.1 | 1.65 | 0.57 | 4.99 | 1.18 | 0.31 | 2.09 |



Alt Model-Shift Uniqueness Test

009640285-01, P = 4.908093 Days, E = 128.818509 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 69.2 | 4.49 | 4.15 | 2.03 | 4.60 | 1.74 | 1.42 | 65.0 | 67.1 | 0.34 | 2.46 | 0.19 | 1.04 | 0.04 | 0.42 |



Stellar Parameters For KIC 009640285

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6666^{+160}_{-180} | $3.657^{+0.323}_{-0.076}$ | $-0.220^{+0.300}_{-0.250}$ | $3.086^{+0.468}_{-1.093}$ | $1.578^{+0.223}_{-0.334}$ | $0.076^{+0.167}_{-0.019}$ |
| | +2%/-3% | +9%/-2% | +136%/-114% | +15%/-35% | +14%/-21% | +221%/-25% |
| 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 009640285-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -22 ± 2 | $2.67^{+0.42}_{-0.51}$ | 2748^{+147}_{-266} | 5048^{+218}_{-217} | $7.590^{+3.812}_{-1.825}$ |
| Alt. | -6 ± 1 | $3.24^{+0.48}_{-0.62}$ | 2748^{+162}_{-243} | 3567^{+183}_{-224} | $1.414^{+0.689}_{-0.426}$ |

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 $A_{obs} \gg 1.0$

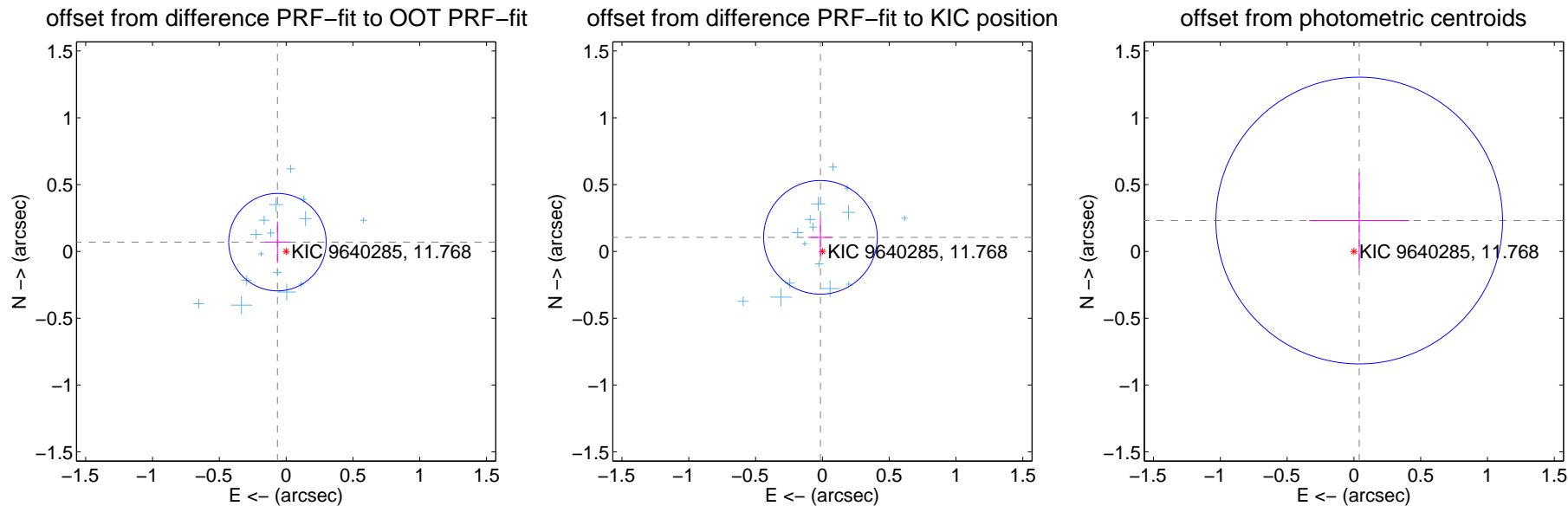
DV Centroid Data

Supplemental centroid analysis for 009640285-01. **Kepler magnitude: 11.77.** Transit SNR 8.18

There are 16 quarters with good PRF difference image offsets

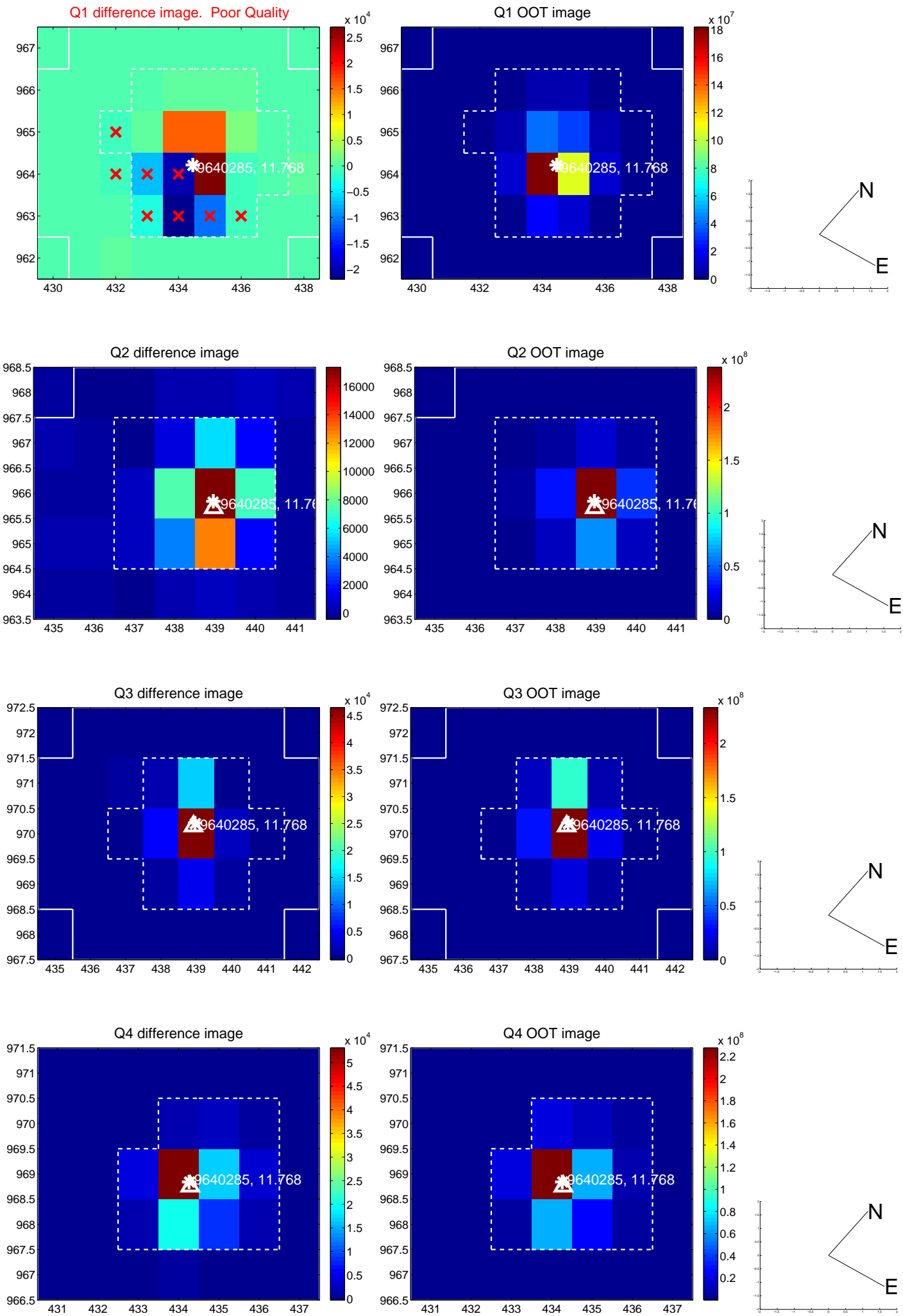
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.095 ± 0.122 | 0.78 | 0.065 ± 0.093 | 0.069 ± 0.155 |
| PRF-fit source offset from KIC position | 0.106 ± 0.142 | 0.75 | 0.014 ± 0.093 | 0.105 ± 0.144 |
| photometric centroid source offset | 0.23 ± 0.36 | 0.66 | -0.04 ± 0.37 | 0.23 ± 0.36 |

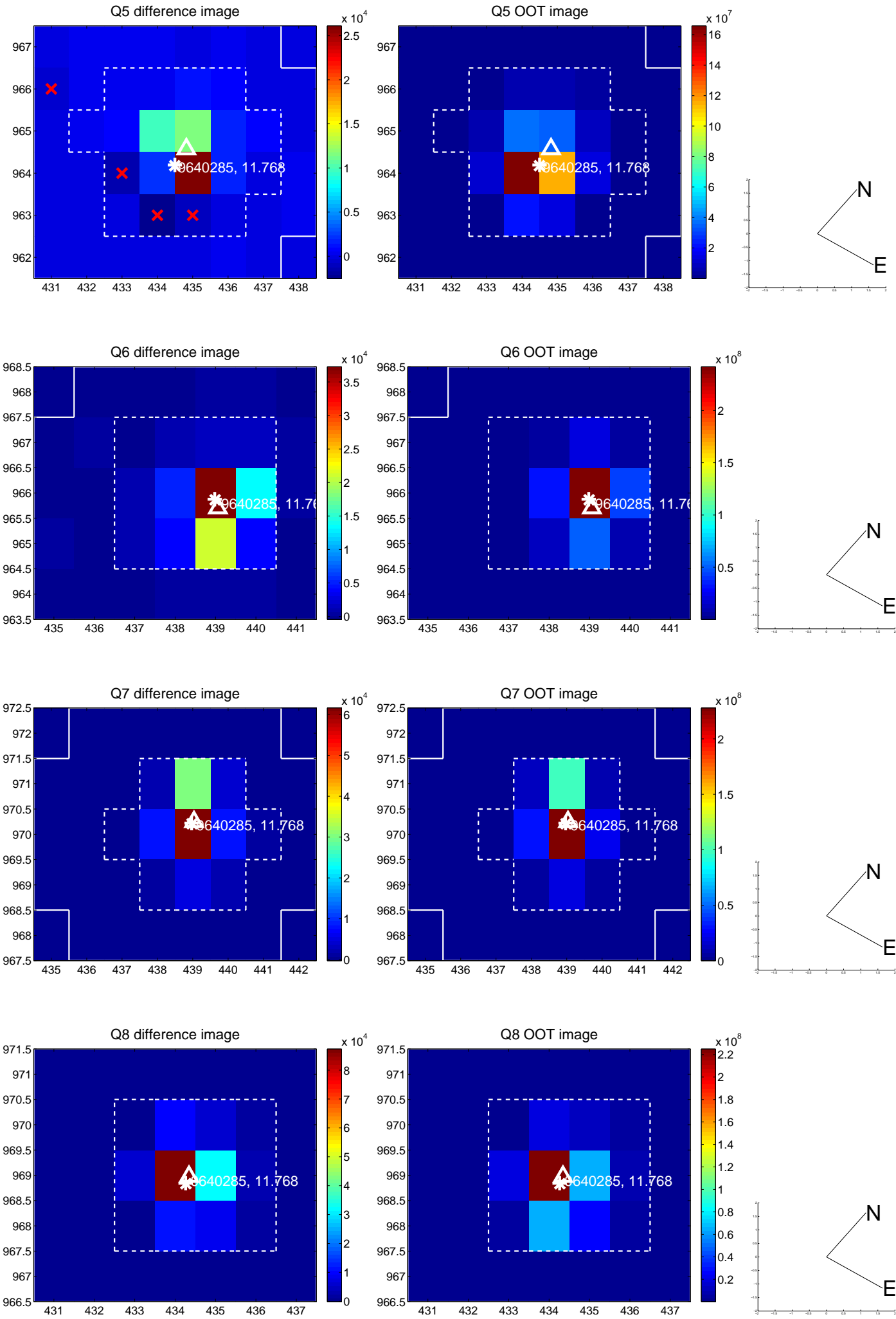


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

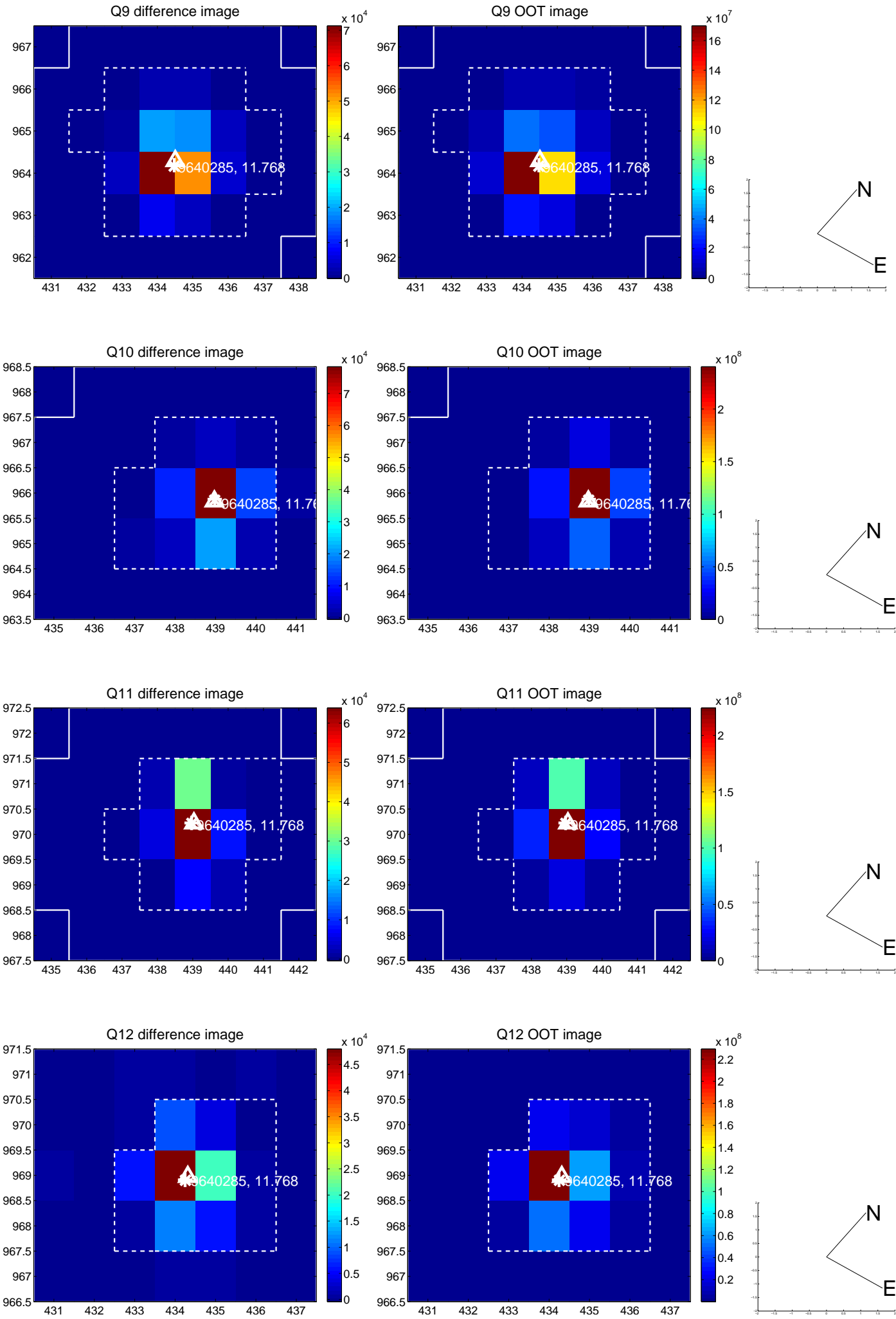
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



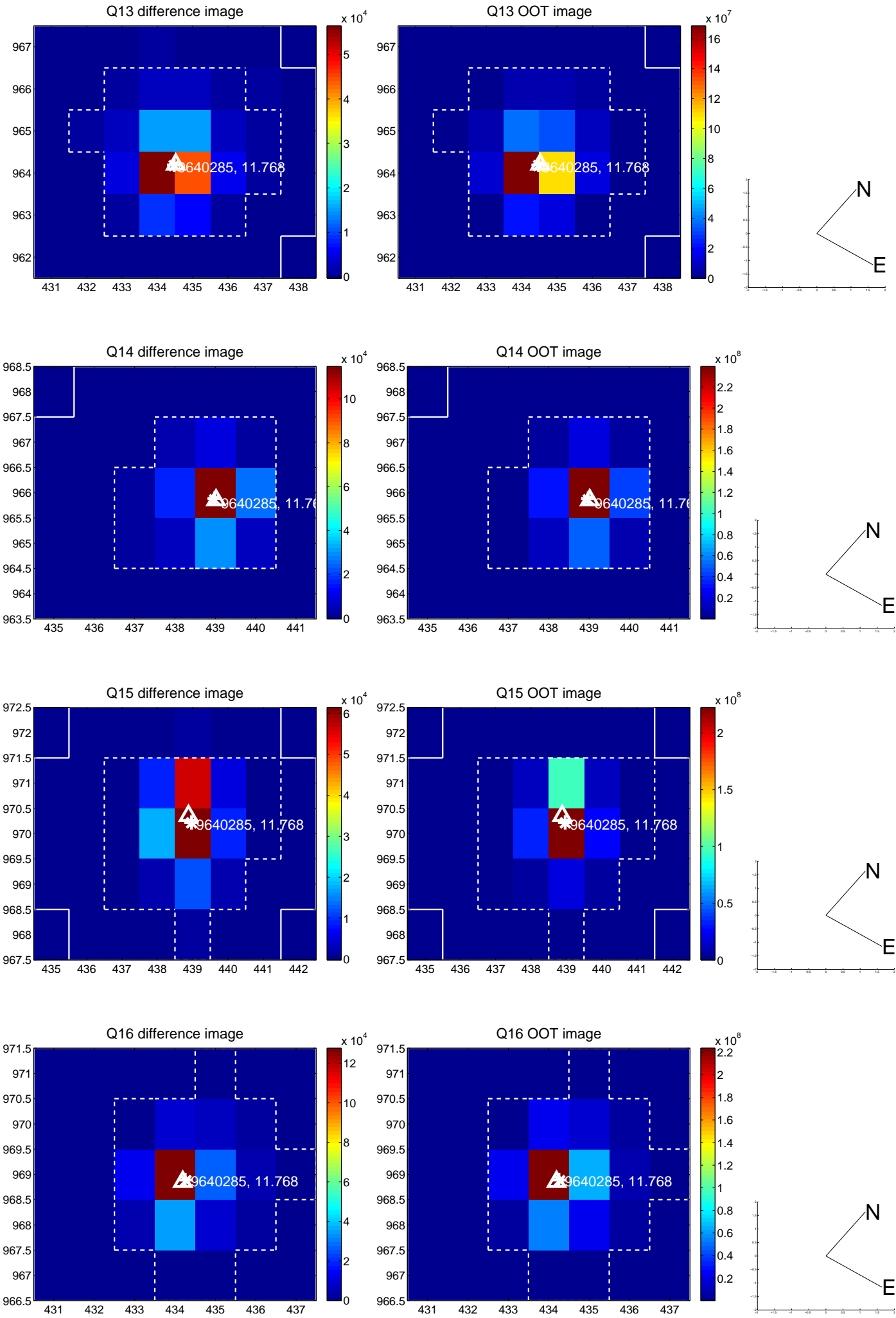
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



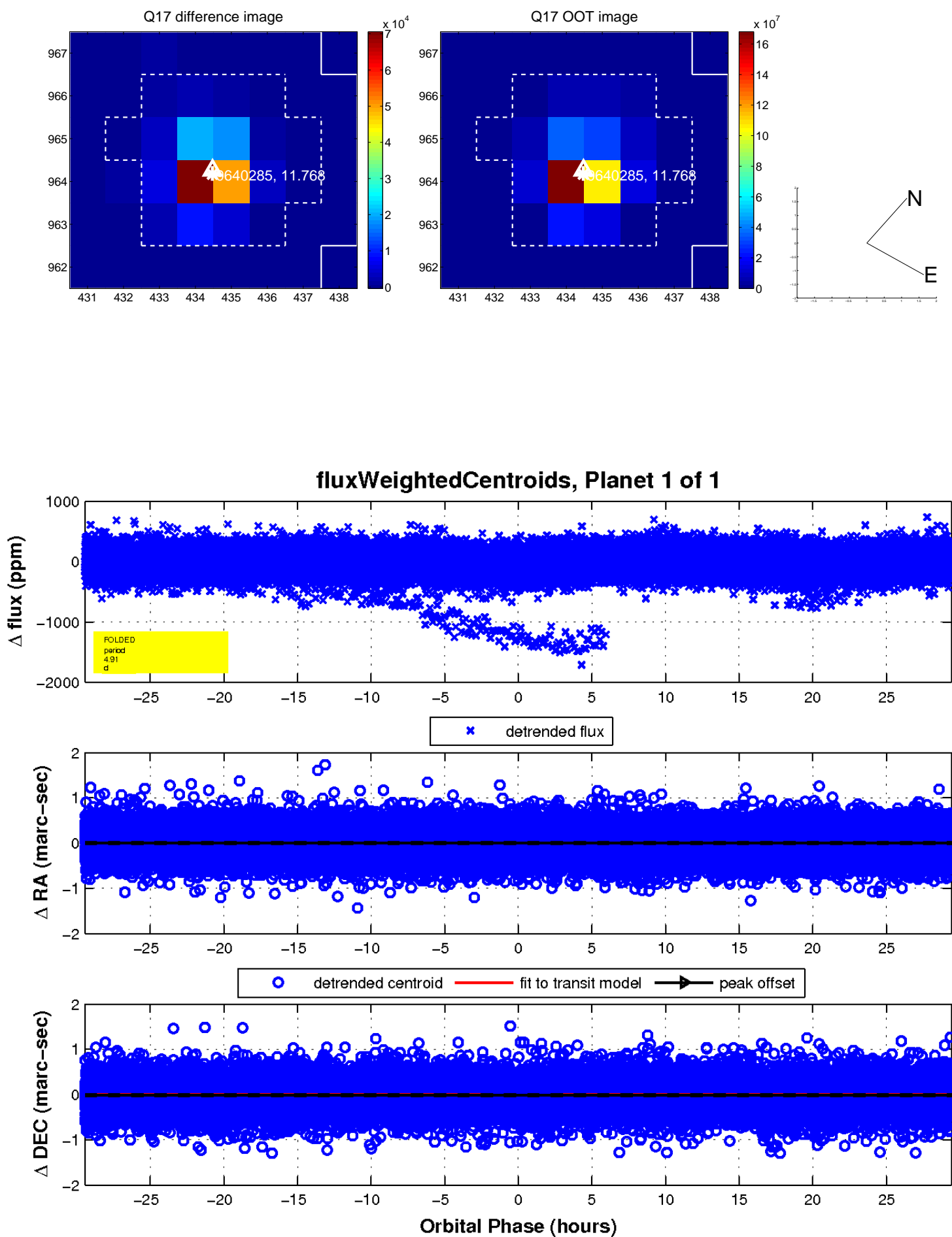
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

