

KIC 010990917

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010990917-01 | OBS | 1643.01 | 11.045944 | 136.448335 | 311.9 | 5.203 | 22.2 | 22.6 | 1.02 | 6093 | 2.13 | 135.03 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------|
| 010990917-01 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |

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

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

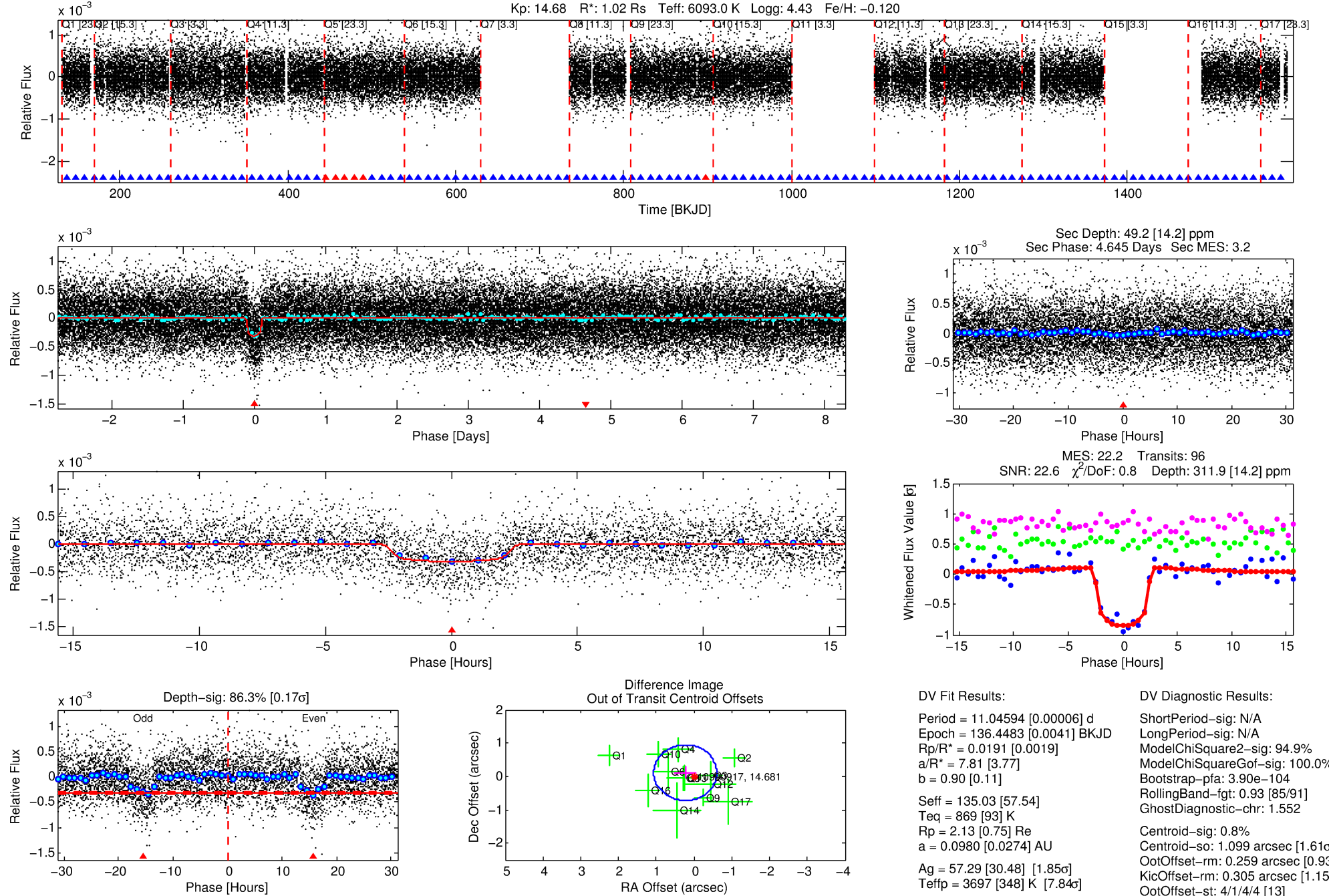
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010990917-01

No Significant Match Found

DV One-Page Summary

KIC: 10990917 Candidate: 1 of 1 Period: 11.046 d
KOI: K01643.01 Corr: 0.960



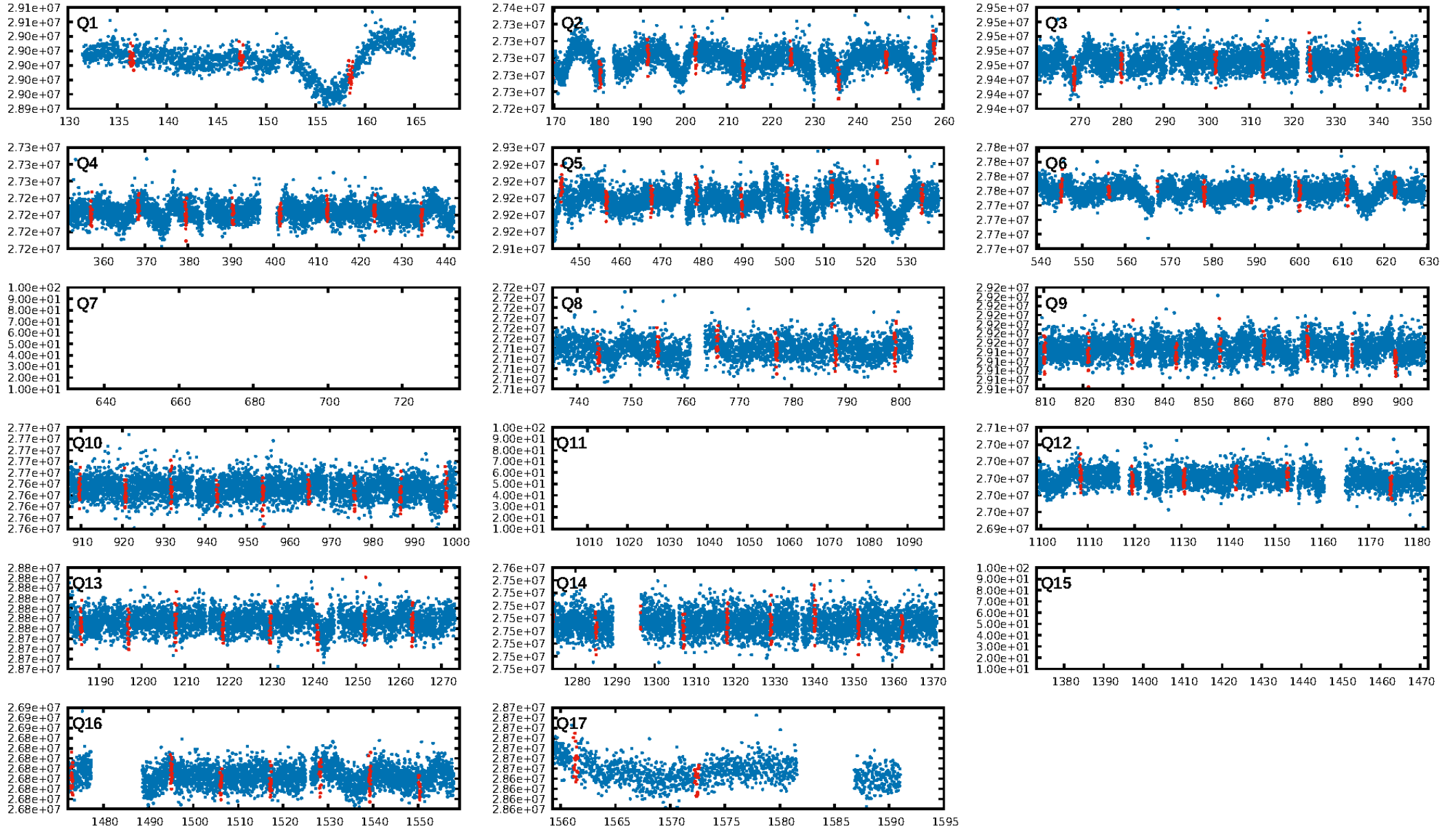
DV Fit Results:

Period = 11.04594 [0.00006] d
Epoch = 136.4483 [0.0041] BKJD
Rp/R* = 0.0191 [0.0019]
a/R* = 7.81 [3.77]
b = 0.90 [0.11]
Seff = 135.03 [57.54]
Teff = 869 [93] K
Rp = 2.13 [0.75] Re
a = 0.0980 [0.0274] AU
Ag = 57.29 [30.48] [1.85 σ]
Teffp = 3697 [348] K [7.84 σ]

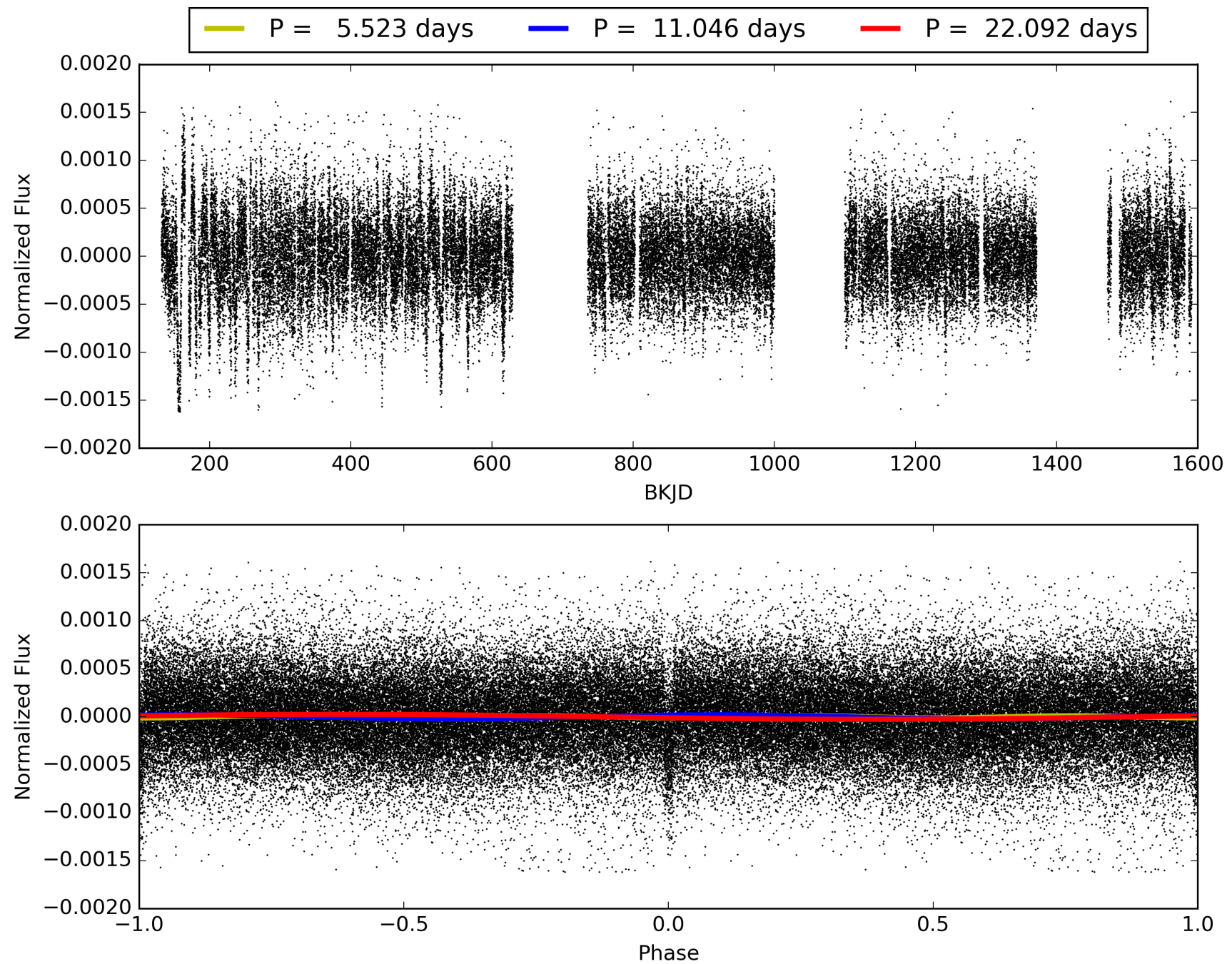
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 94.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.90e-104
RollingBand-fgt: 0.93 [85/91]
GhostDiagnostic-chr: 1.552
Centroid-sig: 0.8%
Centroid-so: 1.099 arcsec [1.61 σ]
OotOffset-rm: 0.259 arcsec [0.93 σ]
KicOffset-rm: 0.305 arcsec [1.15 σ]
OotOffset-st: 4/1/4/4 [13]
KicOffset-st: 4/1/4/4 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 010990917-01, PDC Light Curves

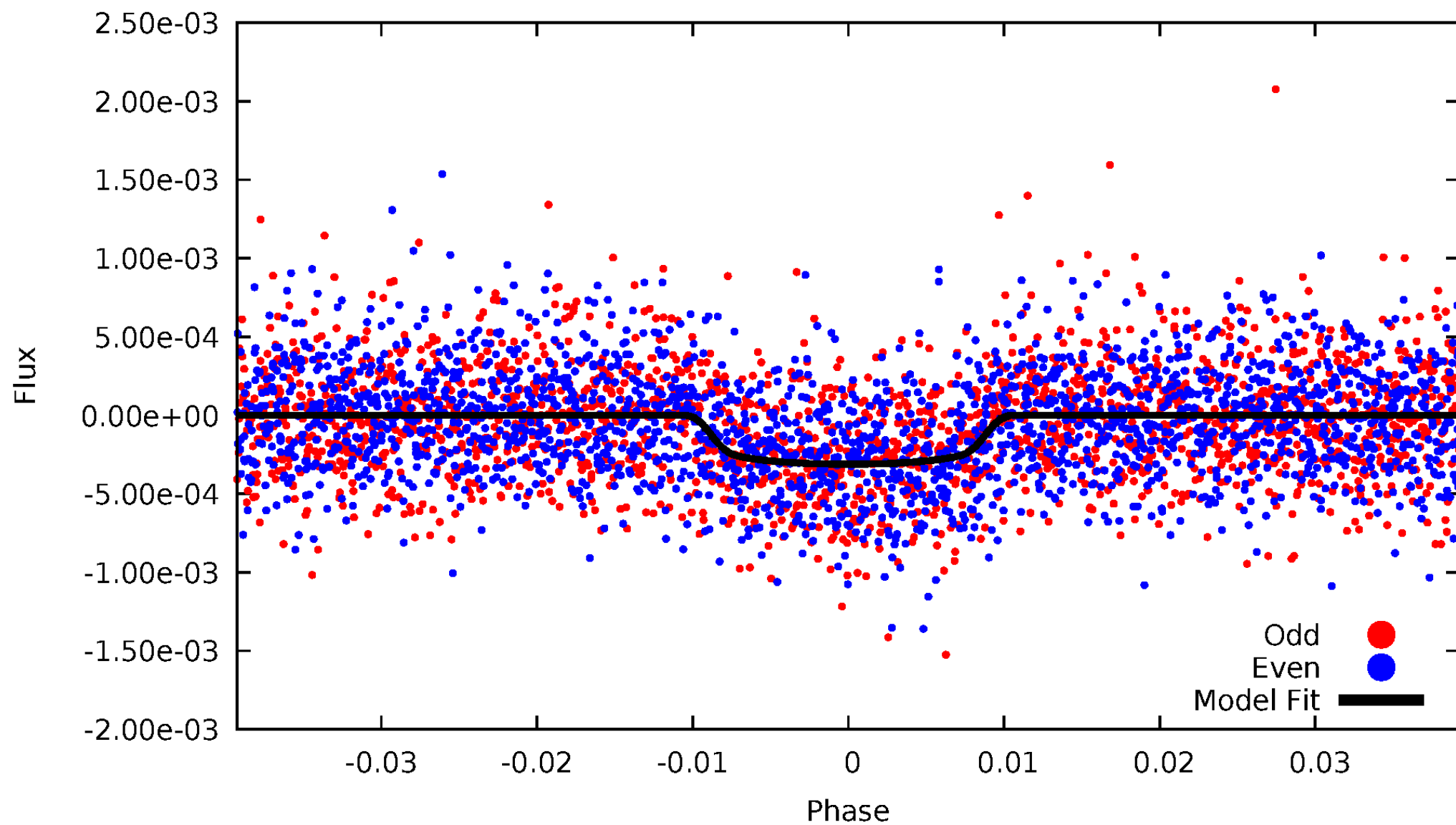


TCE 010990917-01



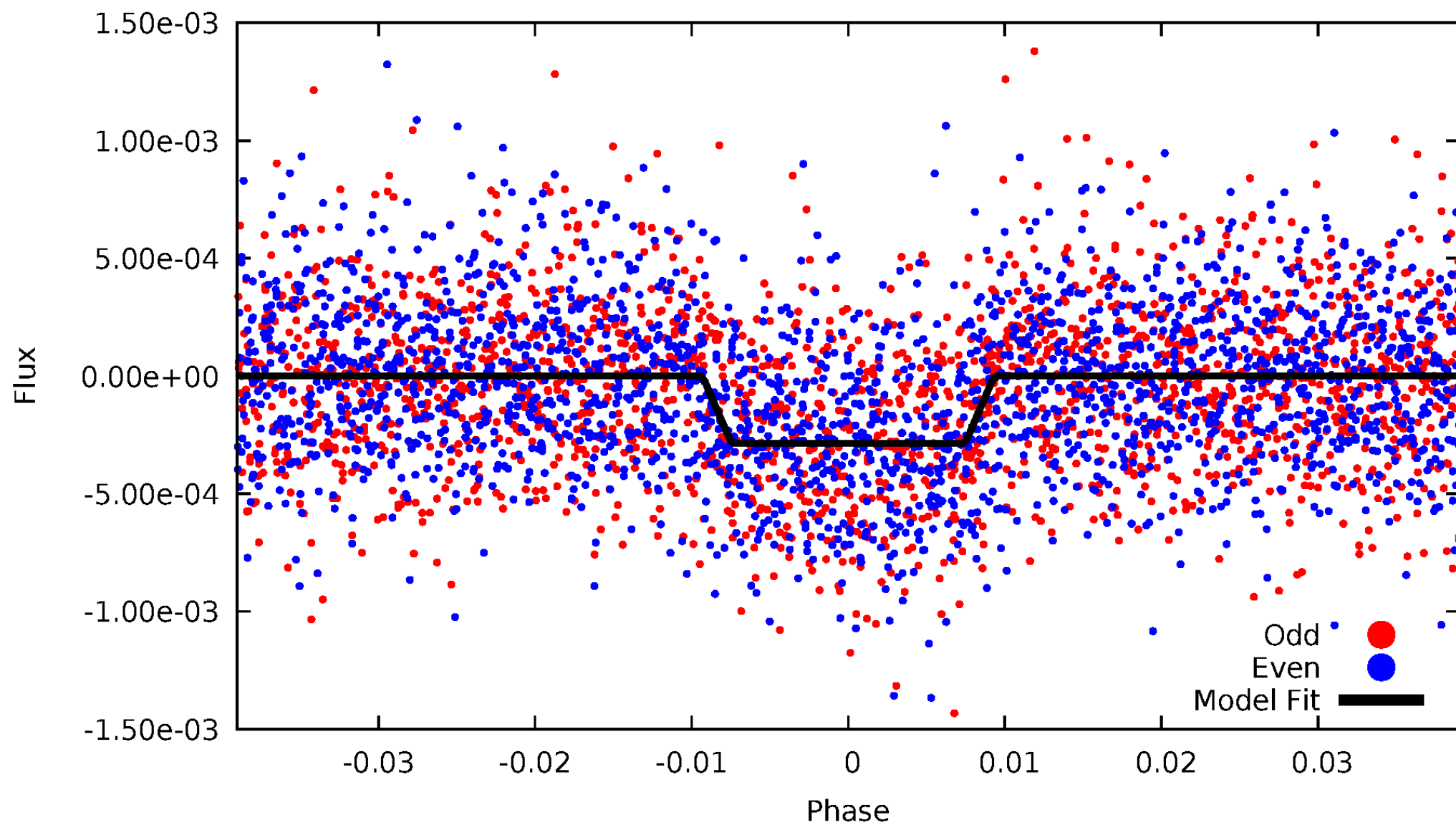
DV Odd/Even

TCE 010990917-01

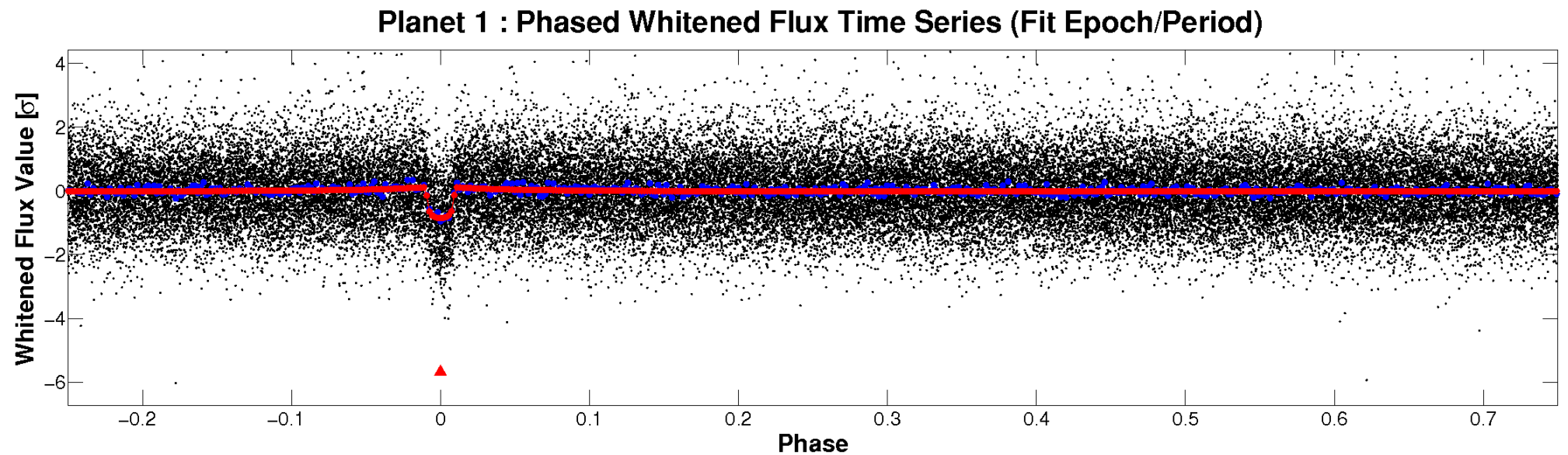
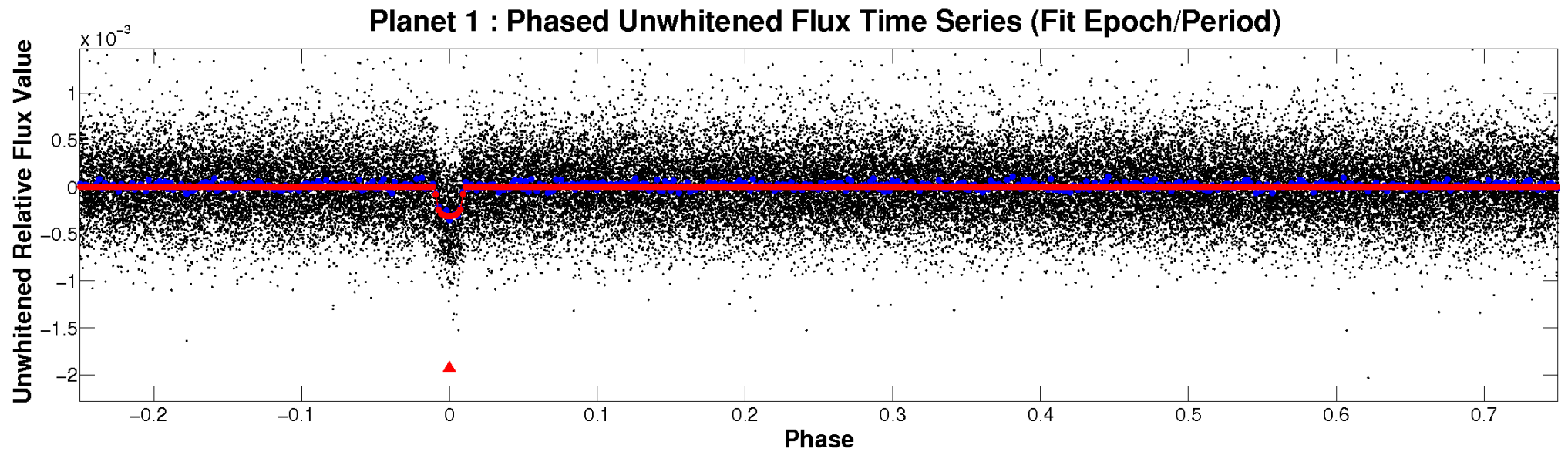


ALT Odd/Even

TCE 010990917-01

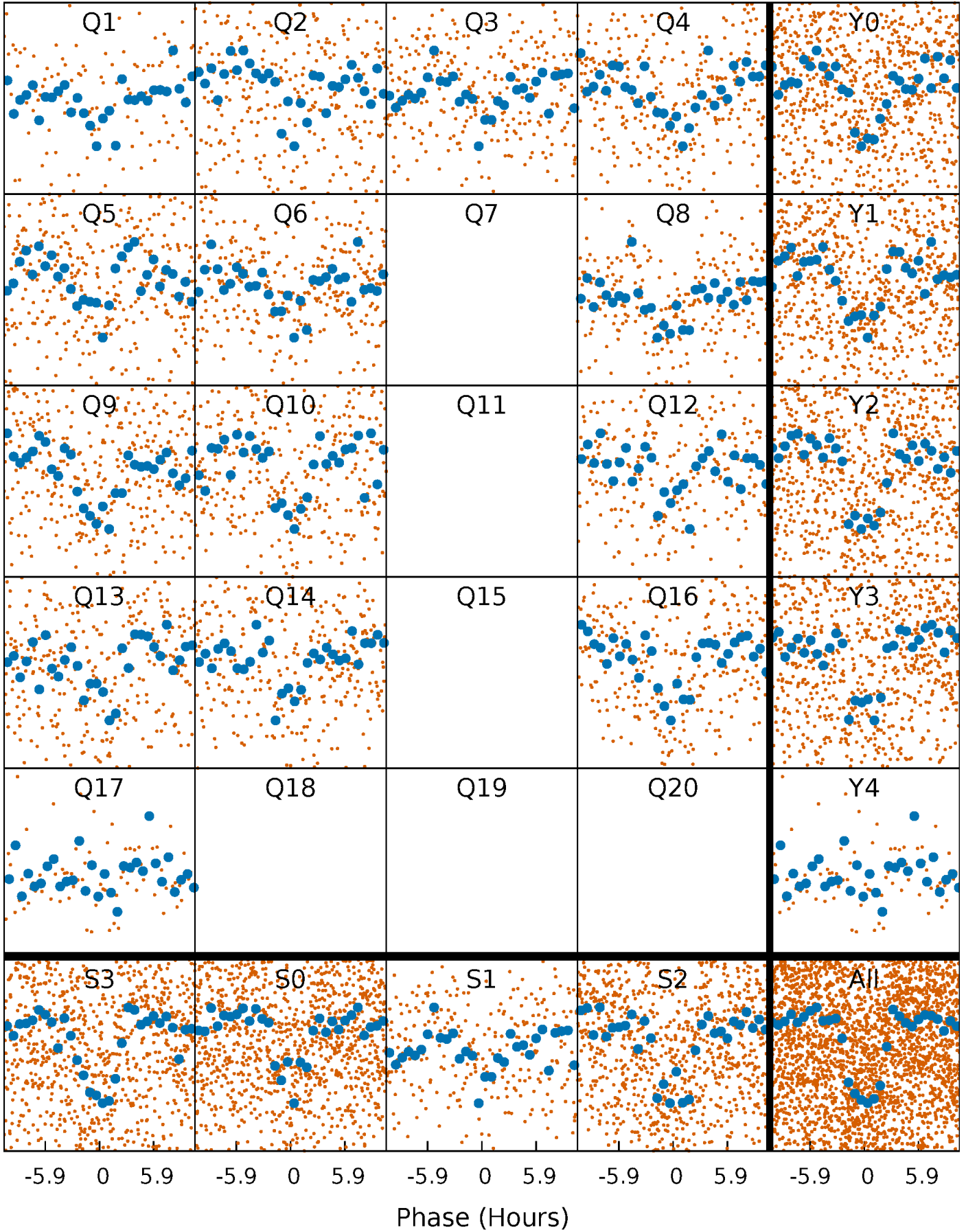


Non-Whitened Vs. Whitened Light Curve



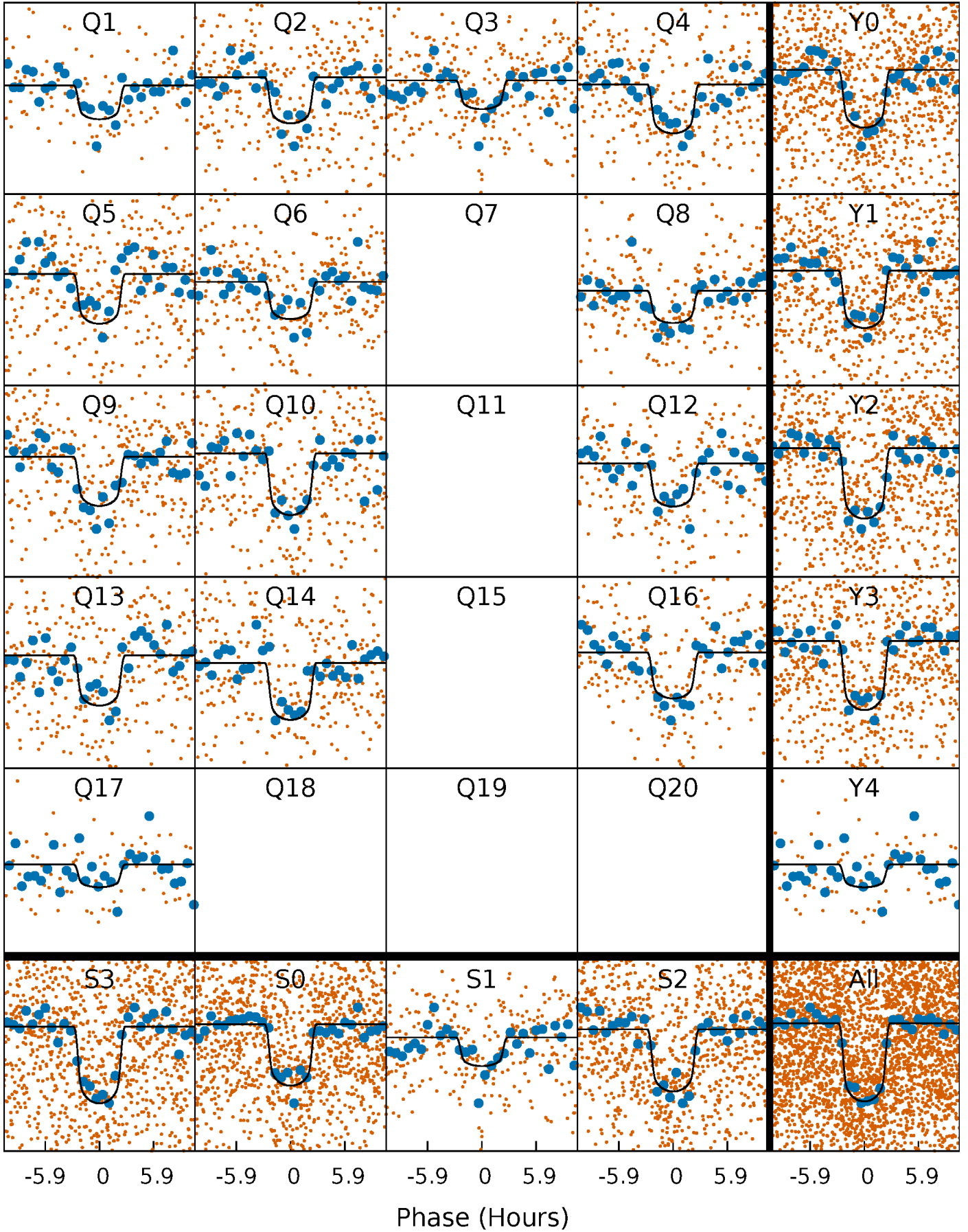
PDC Quarter-Phased Transit Curves

TCE 010990917-01 P= 11.045944 Days $T_0=136.448335$ (BKJD)



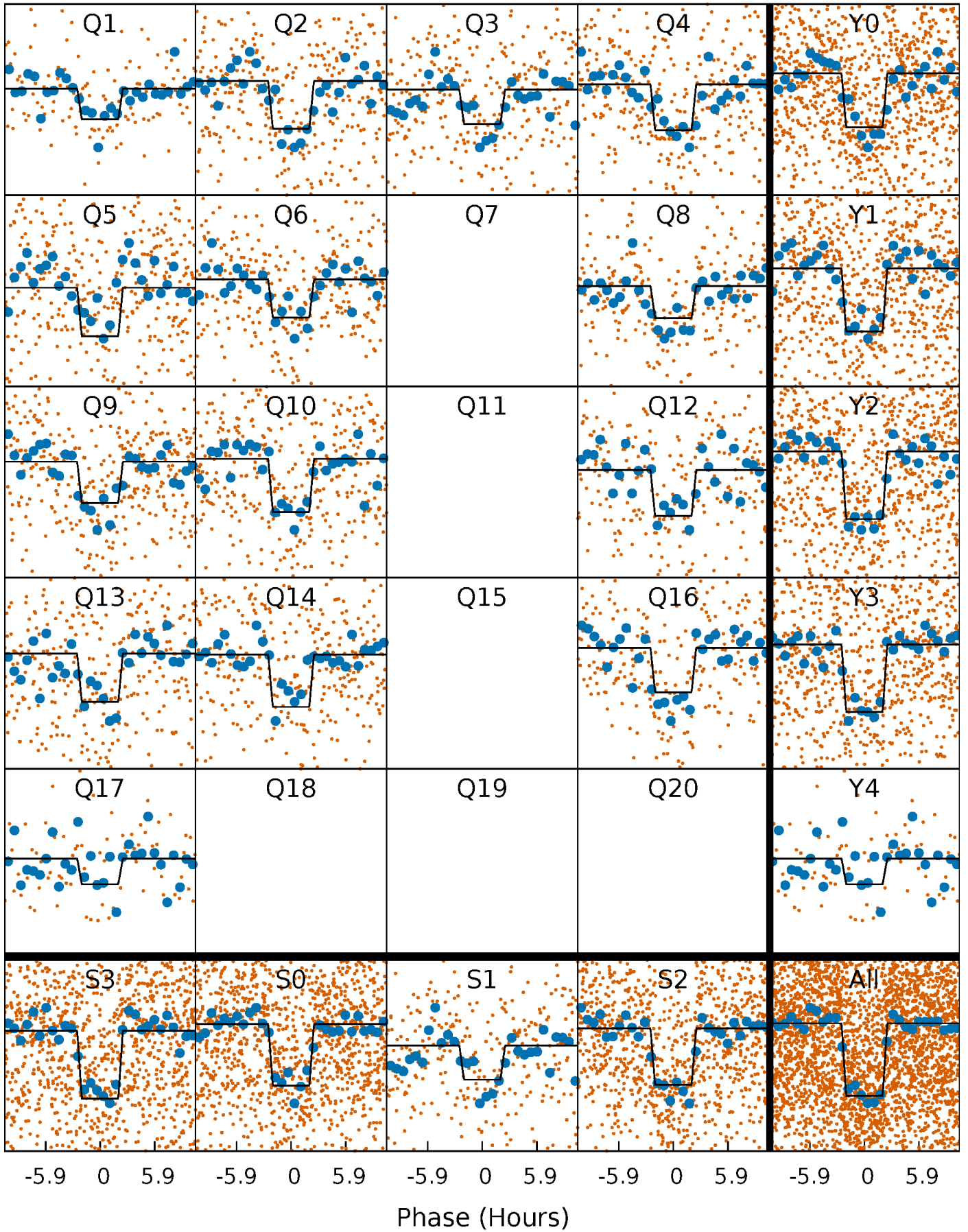
DV Quarter-Phased Transit Curves

TCE 010990917-01 P= 11.045944 Days $T_0=136.448335$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

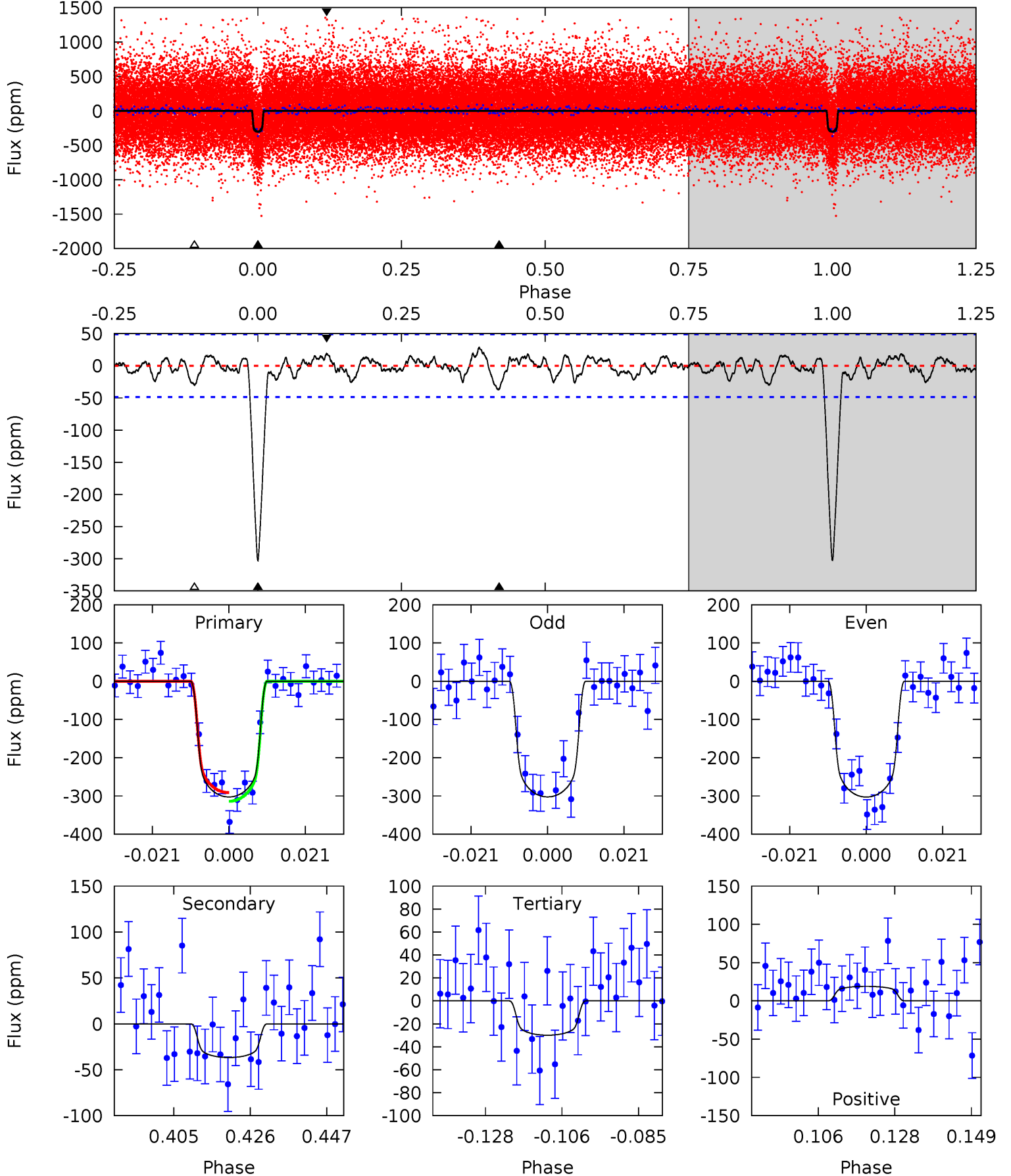
TCE 010990917-01 P= 11.046043 Days $T_0=136.440960$ (BKJD)



DV Model-Shift Uniqueness Test

010990917-01, P = 11.045944 Days, E = 125.402391 Days

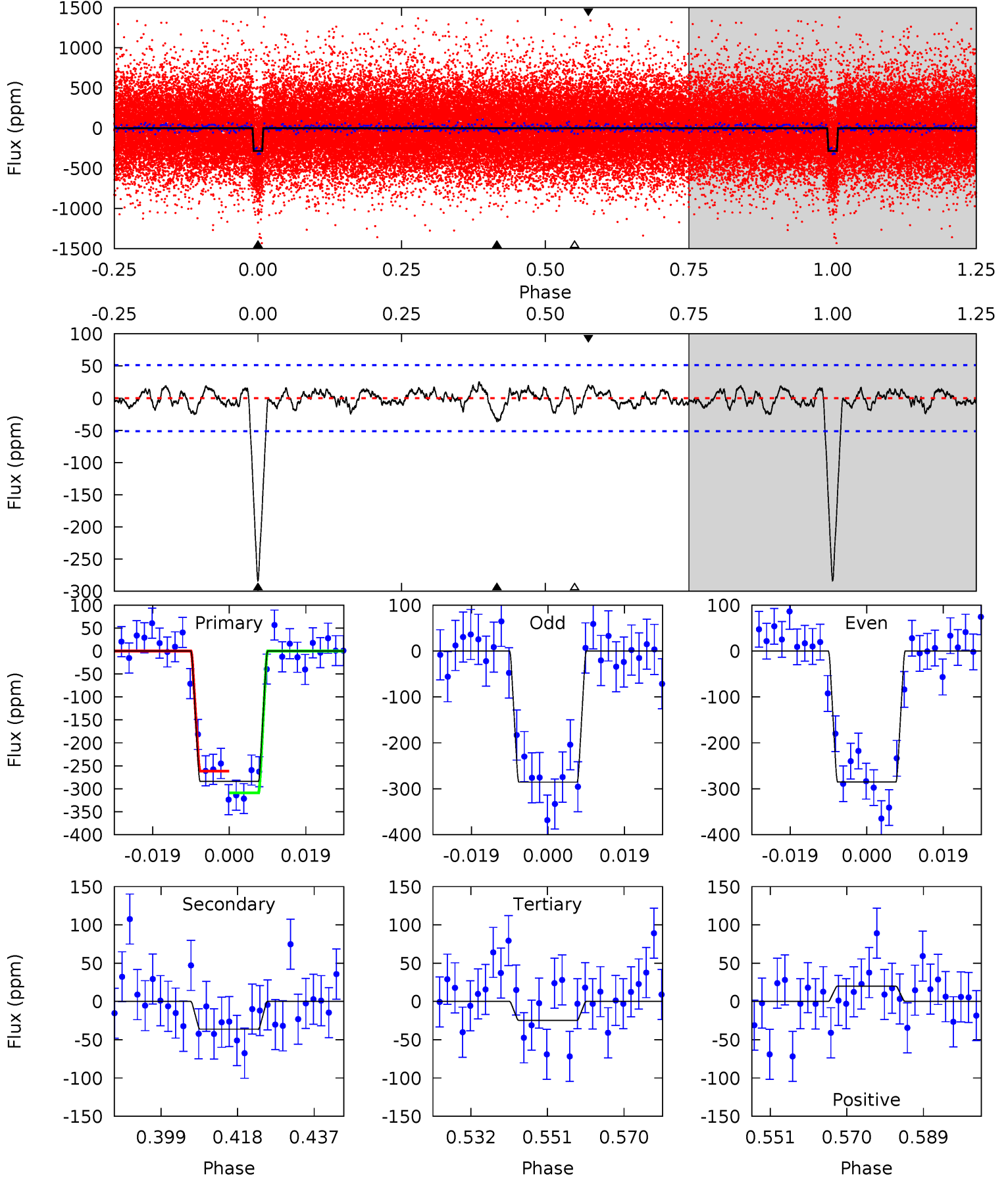
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 30.3 | 3.68 | 3.00 | 1.90 | 4.88 | 2.30 | 1.09 | 27.3 | 28.4 | 0.68 | 1.78 | 0.02 | 0.95 | 0.09 | 1.15 |



Alt Model-Shift Uniqueness Test

010990917-01, P = 11.046043 Days, E = 125.394917 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 27.1 | 3.45 | 2.35 | 1.90 | 4.90 | 2.35 | 0.93 | 24.7 | 25.2 | 1.10 | 1.55 | 0.01 | 0.90 | 0.08 | 2.28 |



Stellar Parameters For KIC 010990917

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6093^{+180}_{-217} | $4.429^{+0.072}_{-0.217}$ | $-0.120^{+0.250}_{-0.300}$ | $1.025^{+0.345}_{-0.115}$ | $1.025^{+0.153}_{-0.126}$ | $1.340^{+0.496}_{-0.694}$ |
| | +3%/-4% | +2%/-5% | +208%/-250% | +34%/-11% | +15%/-12% | +37%/-52% |
| 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 010990917-01 / KOI 1643.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|----------------------|------------------|
| DV | -37 ± 10 | $2.18^{+0.40}_{-0.27}$ | 1231^{+89}_{-61} | 3792^{+231}_{-226} | 38^{+18}_{-13} |
| Alt. | -36 ± 10 | $1.97^{+0.39}_{-0.32}$ | 1232^{+95}_{-64} | 3959^{+277}_{-279} | 48^{+27}_{-18} |

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

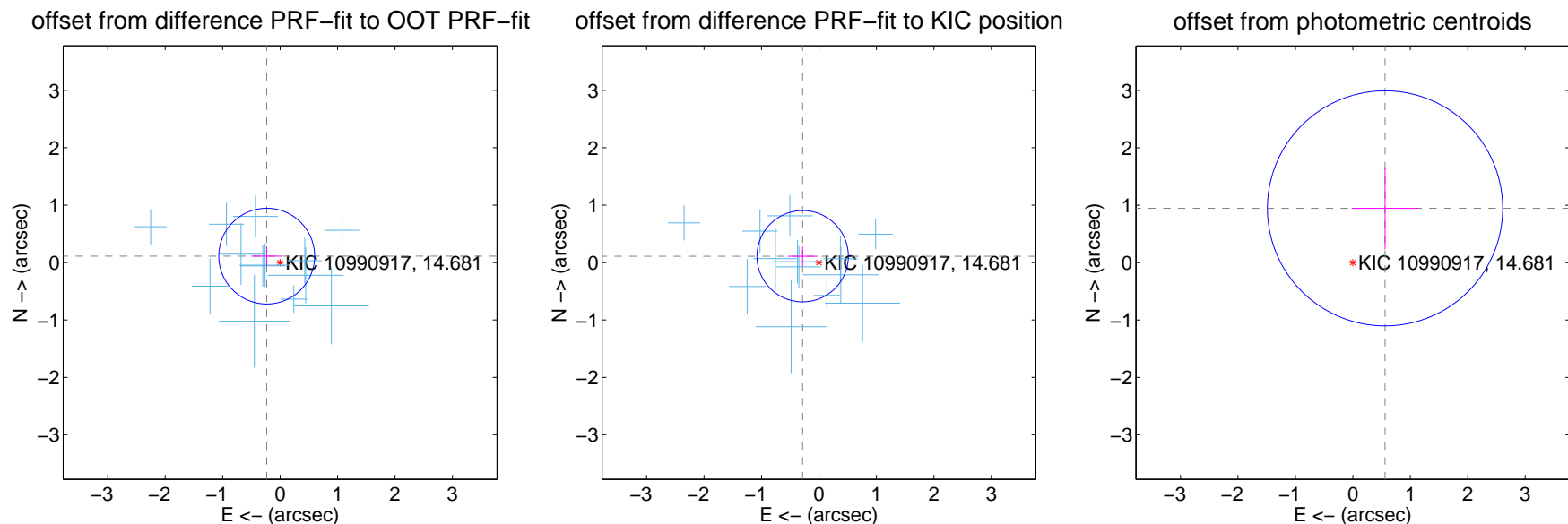
DV Centroid Data

Supplemental centroid analysis for 010990917-01. Kepler magnitude: 14.68. Transit SNR 22.58

There are 13 quarters with good PRF difference image offsets

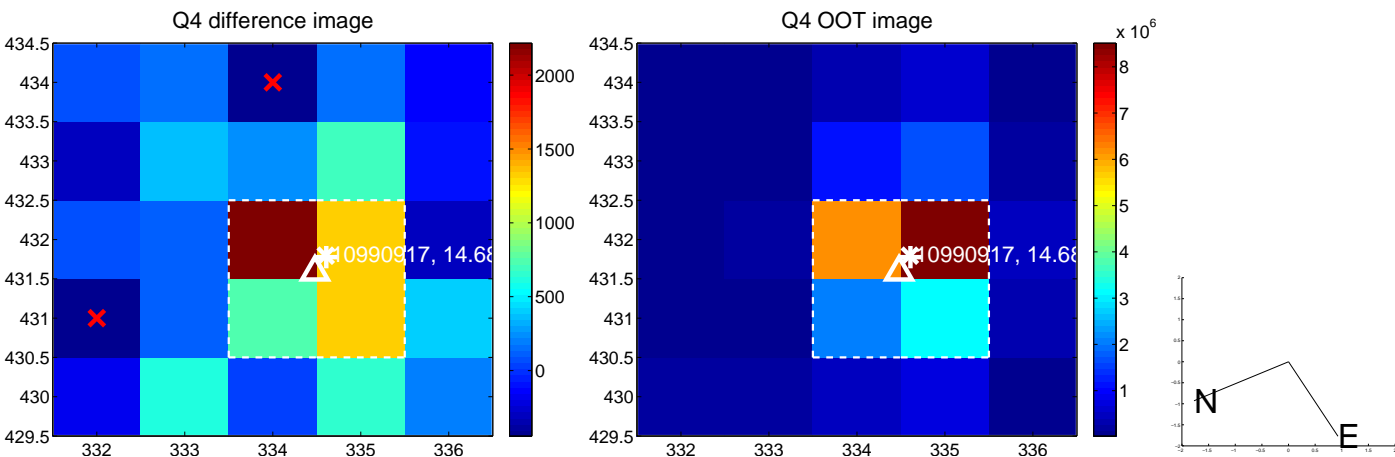
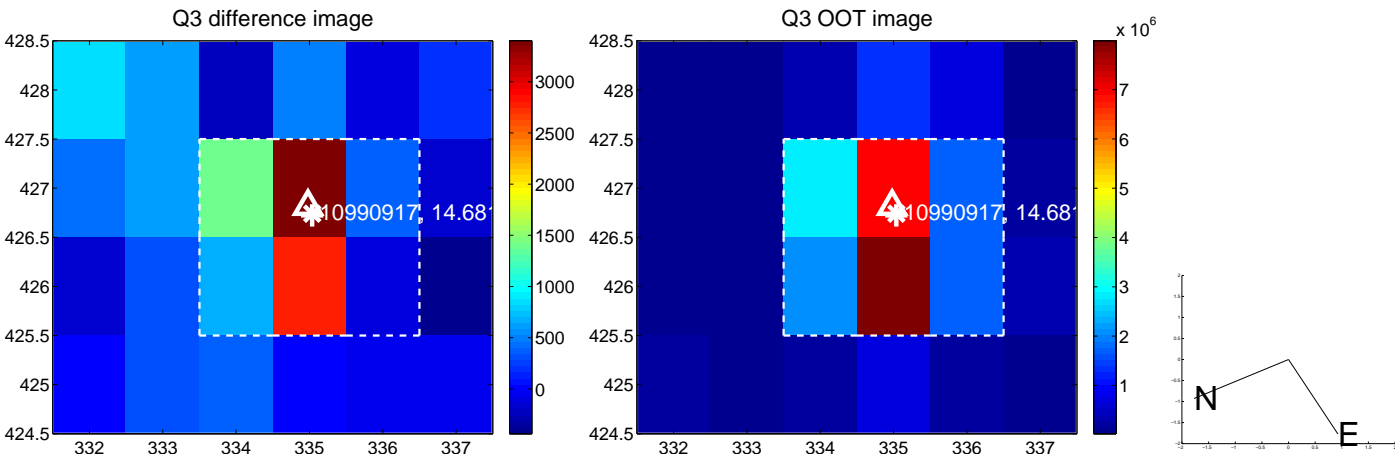
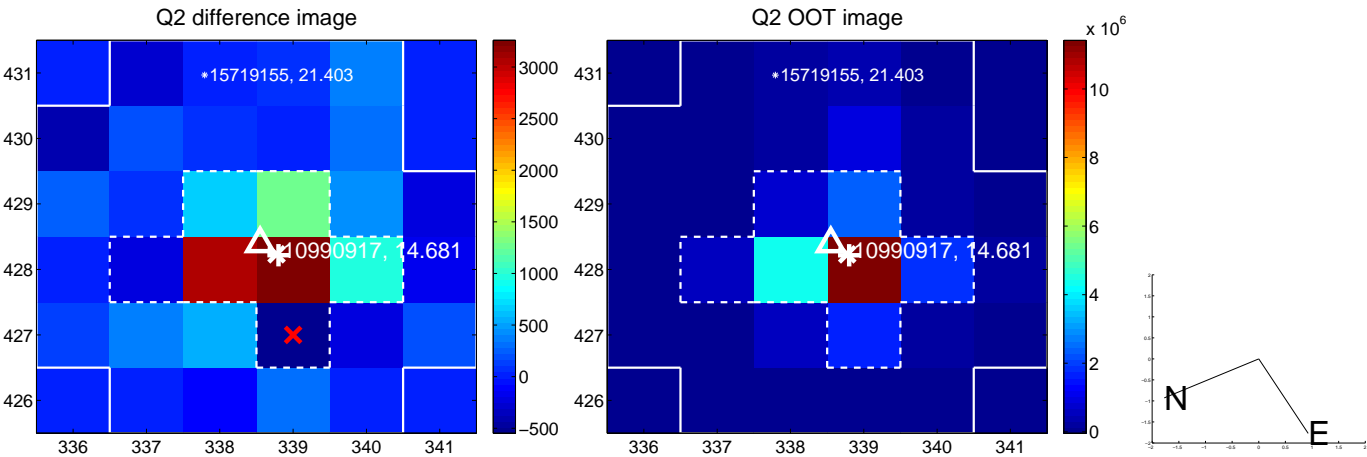
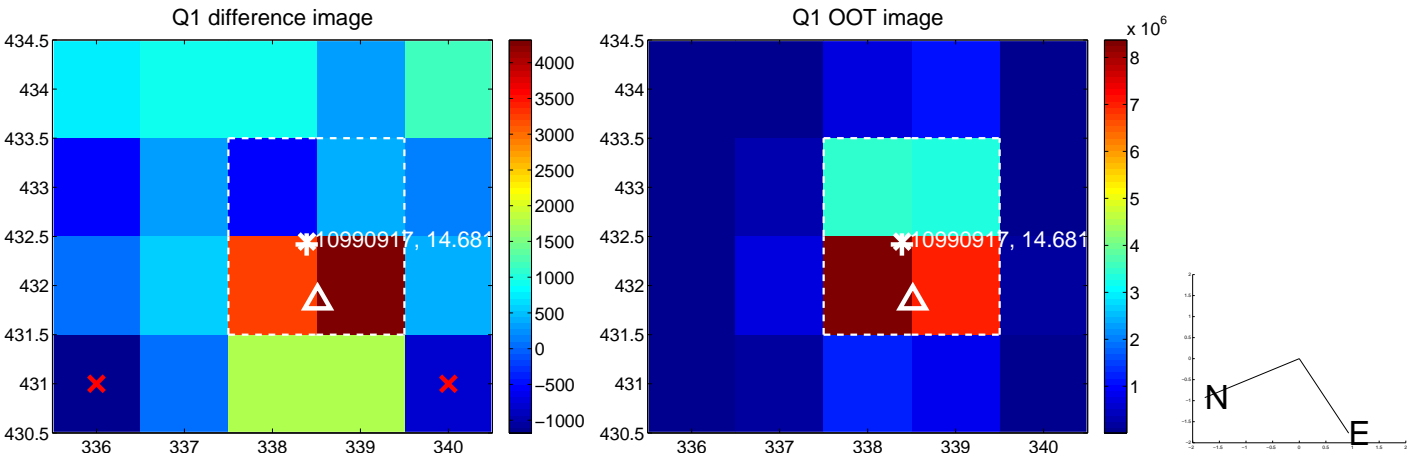
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.259 ± 0.278 | 0.93 | 0.233 ± 0.271 | 0.112 ± 0.171 |
| PRF-fit source offset from KIC position | 0.305 ± 0.265 | 1.15 | 0.284 ± 0.259 | 0.110 ± 0.166 |
| photometric centroid source offset | 1.10 ± 0.68 | 1.61 | -0.56 ± 0.58 | 0.95 ± 0.72 |

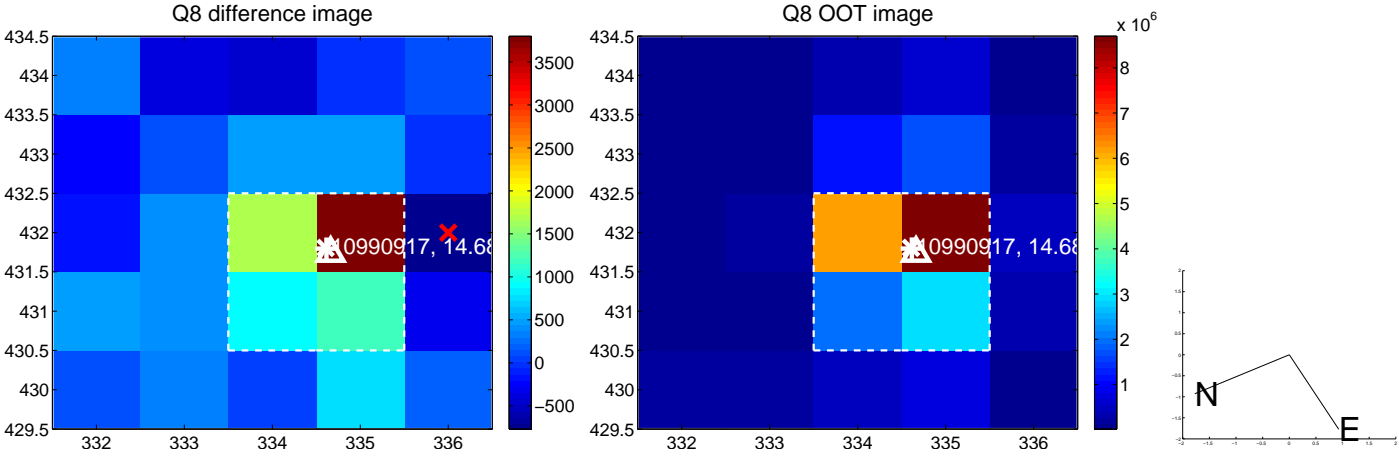
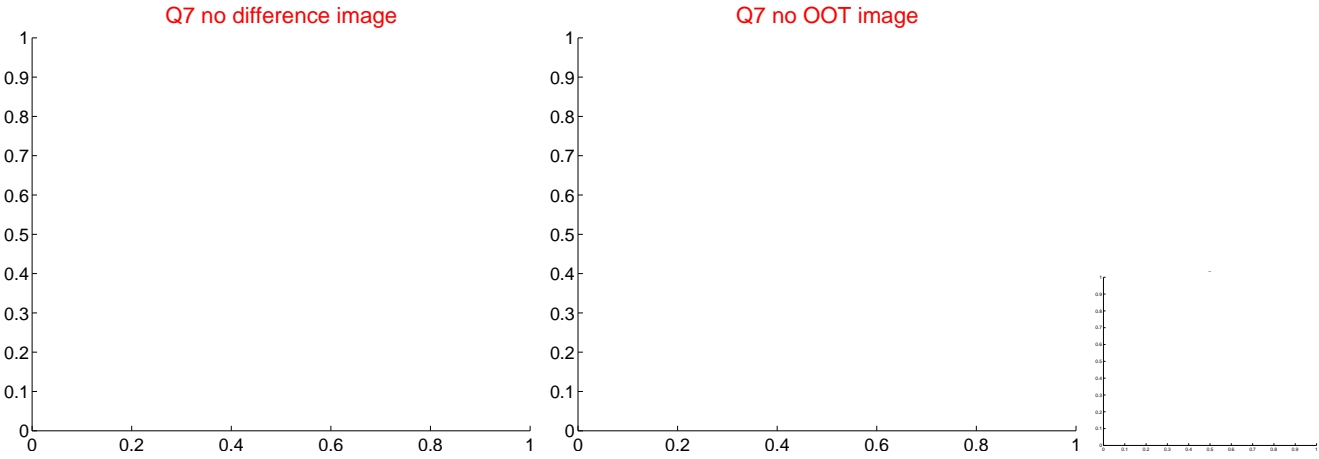
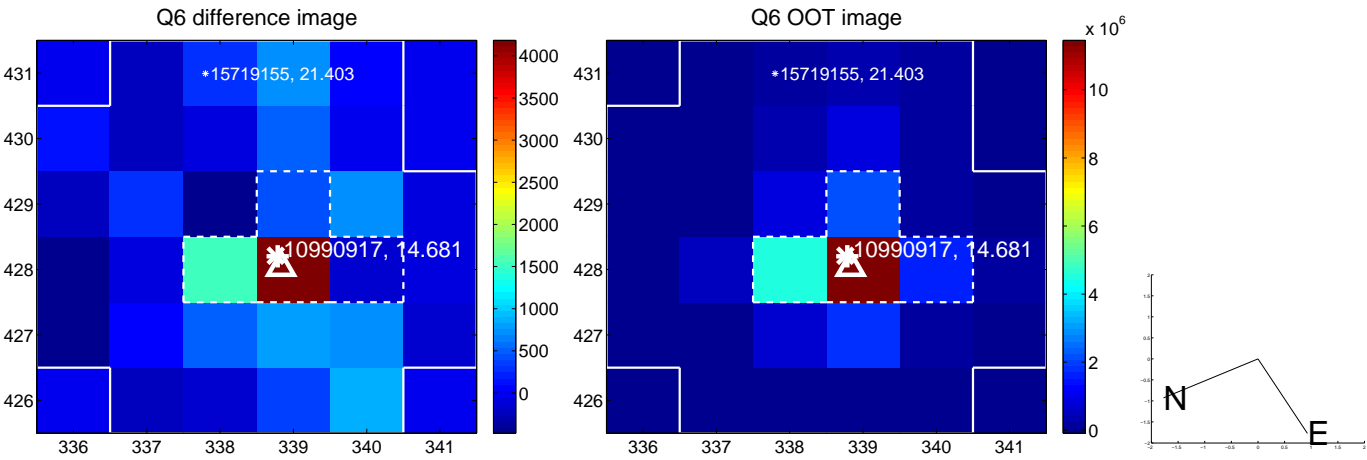
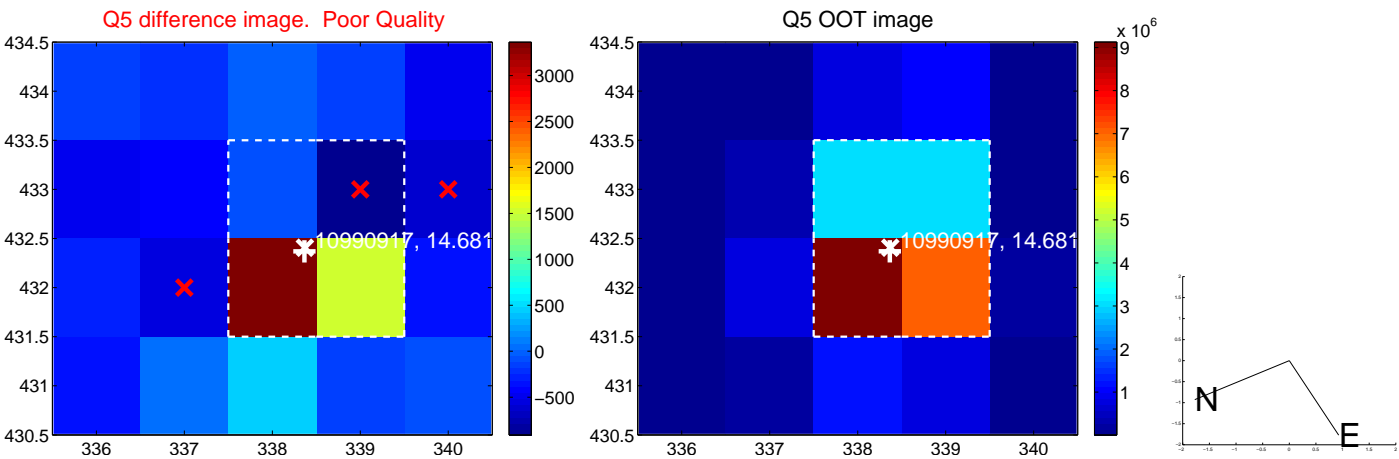


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

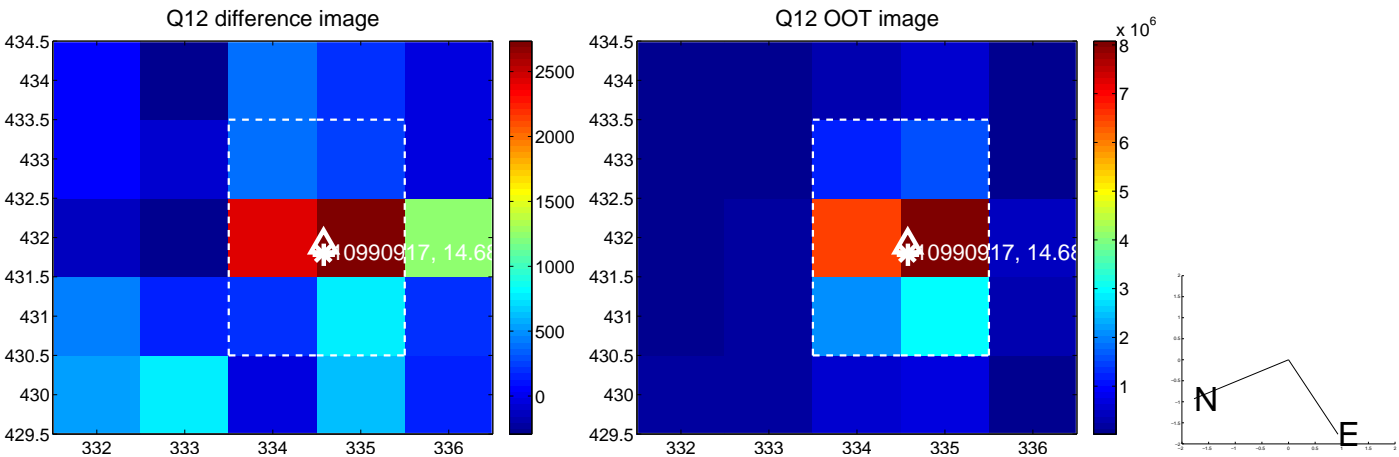
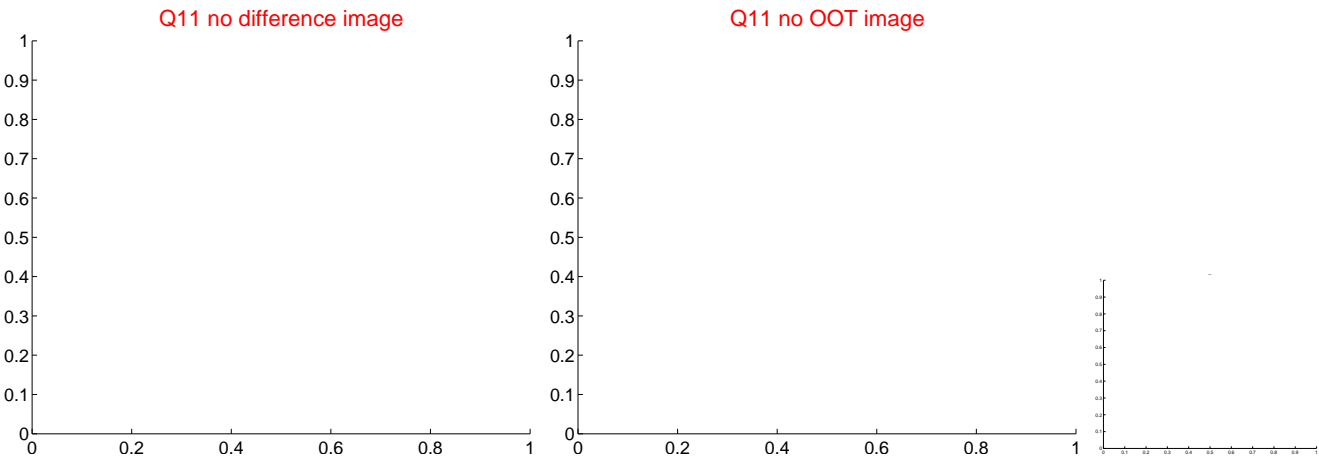
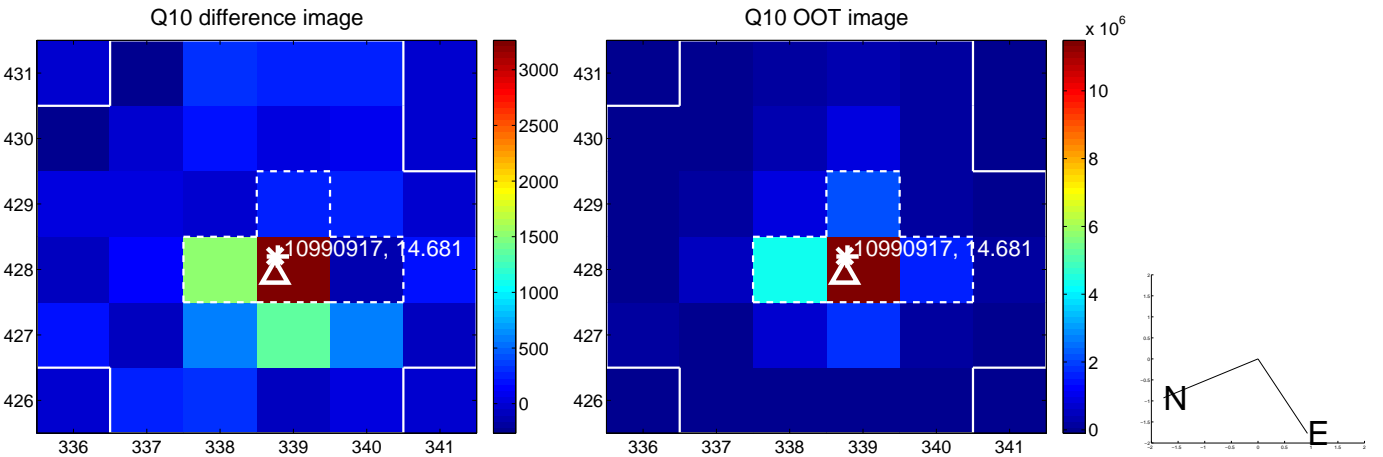
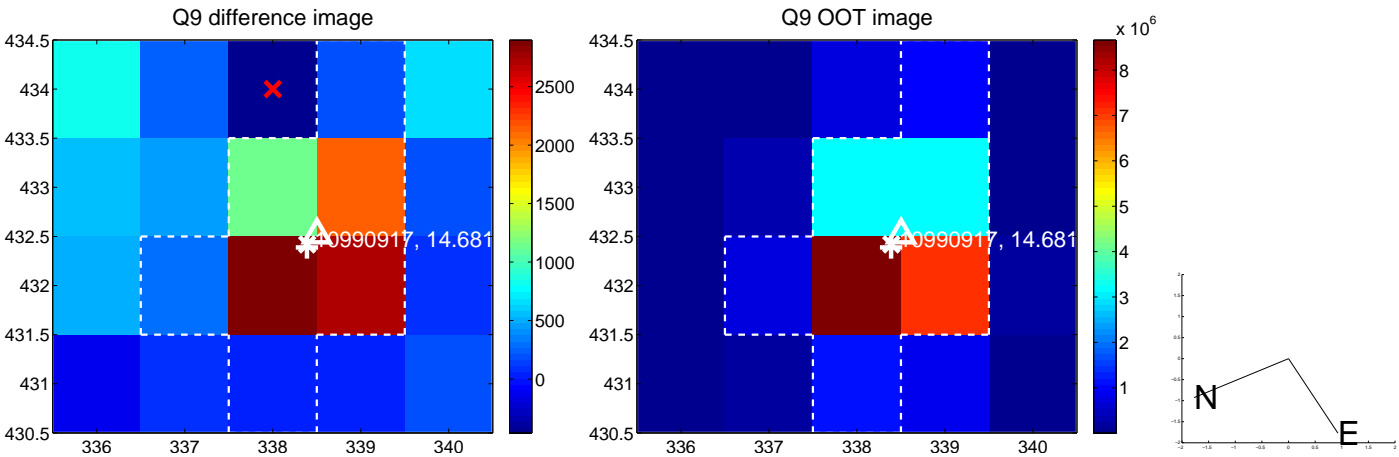
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



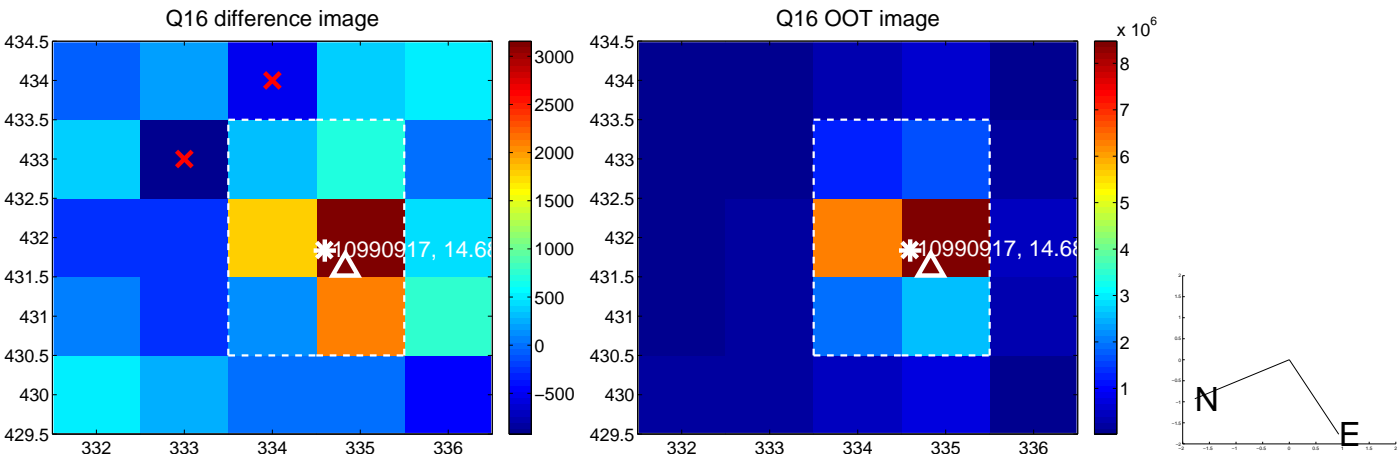
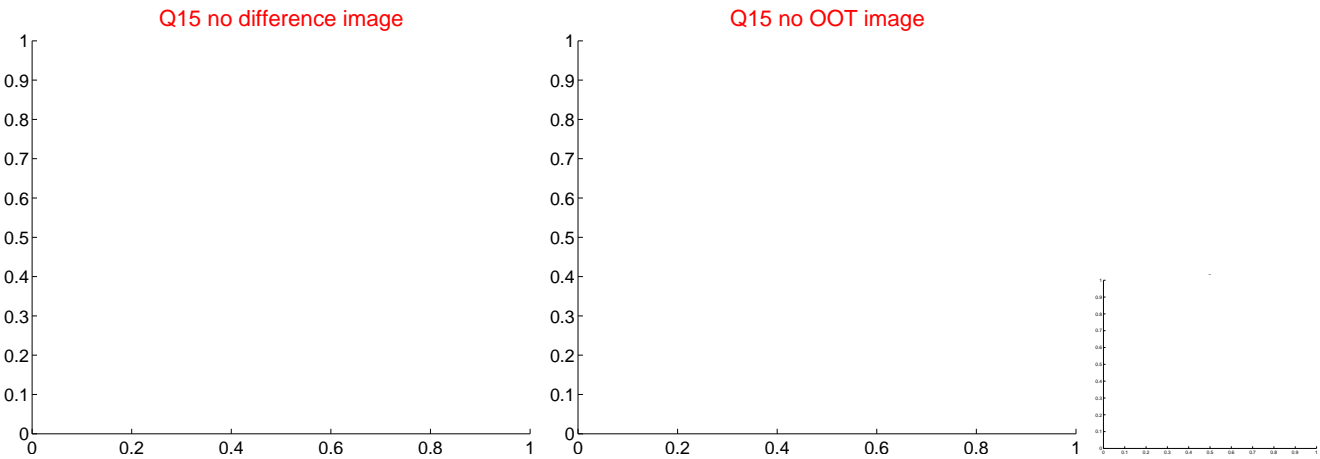
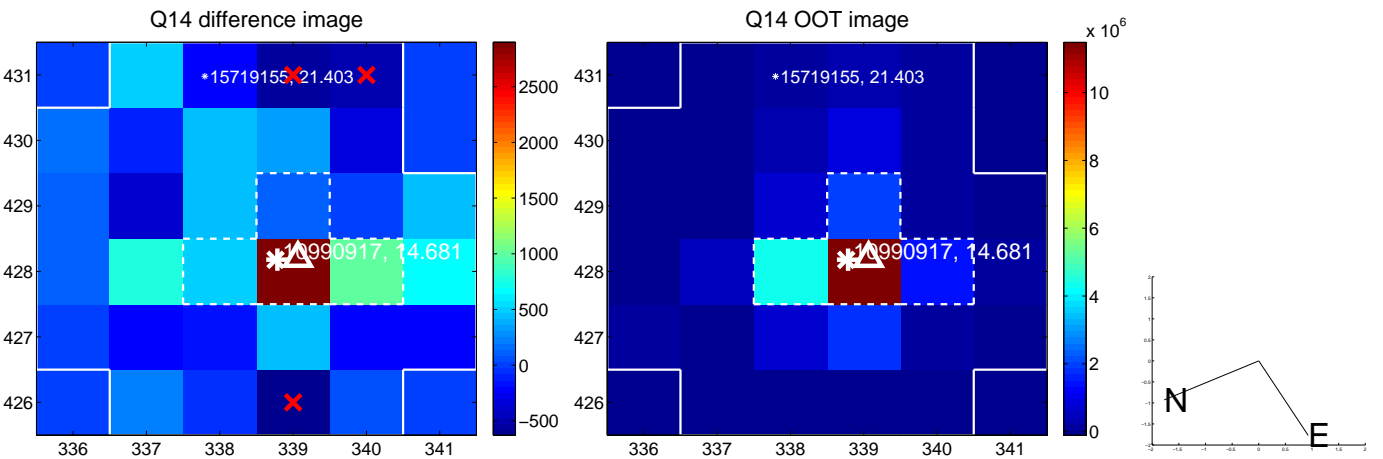
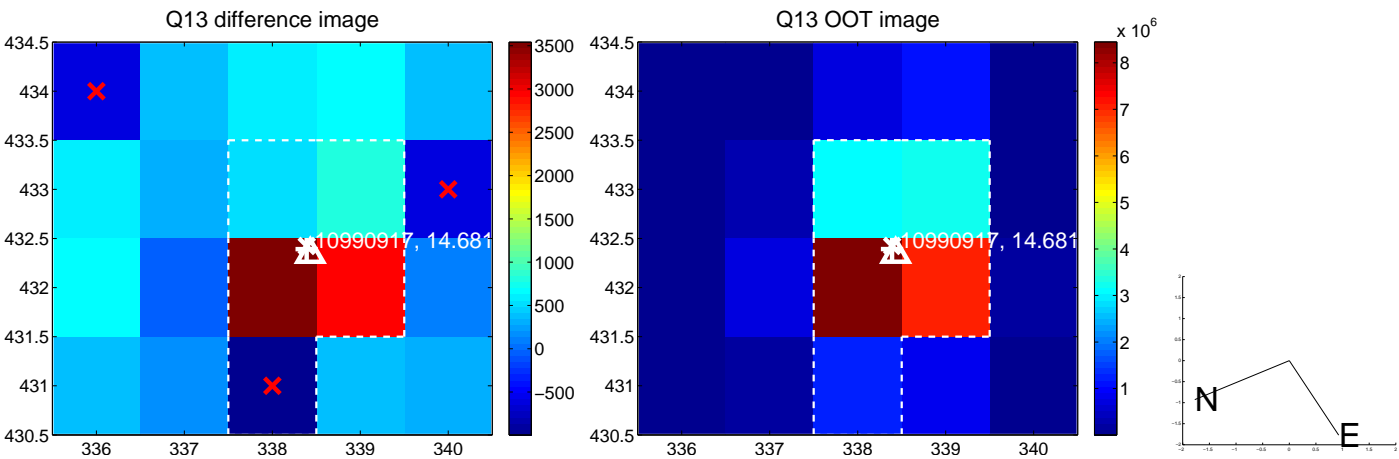
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



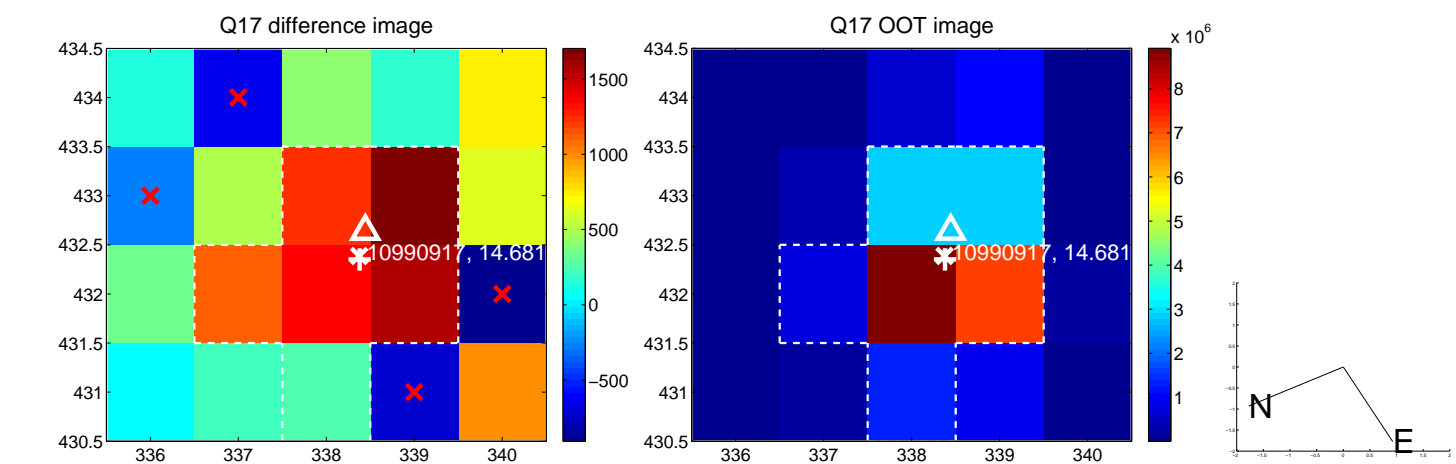
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



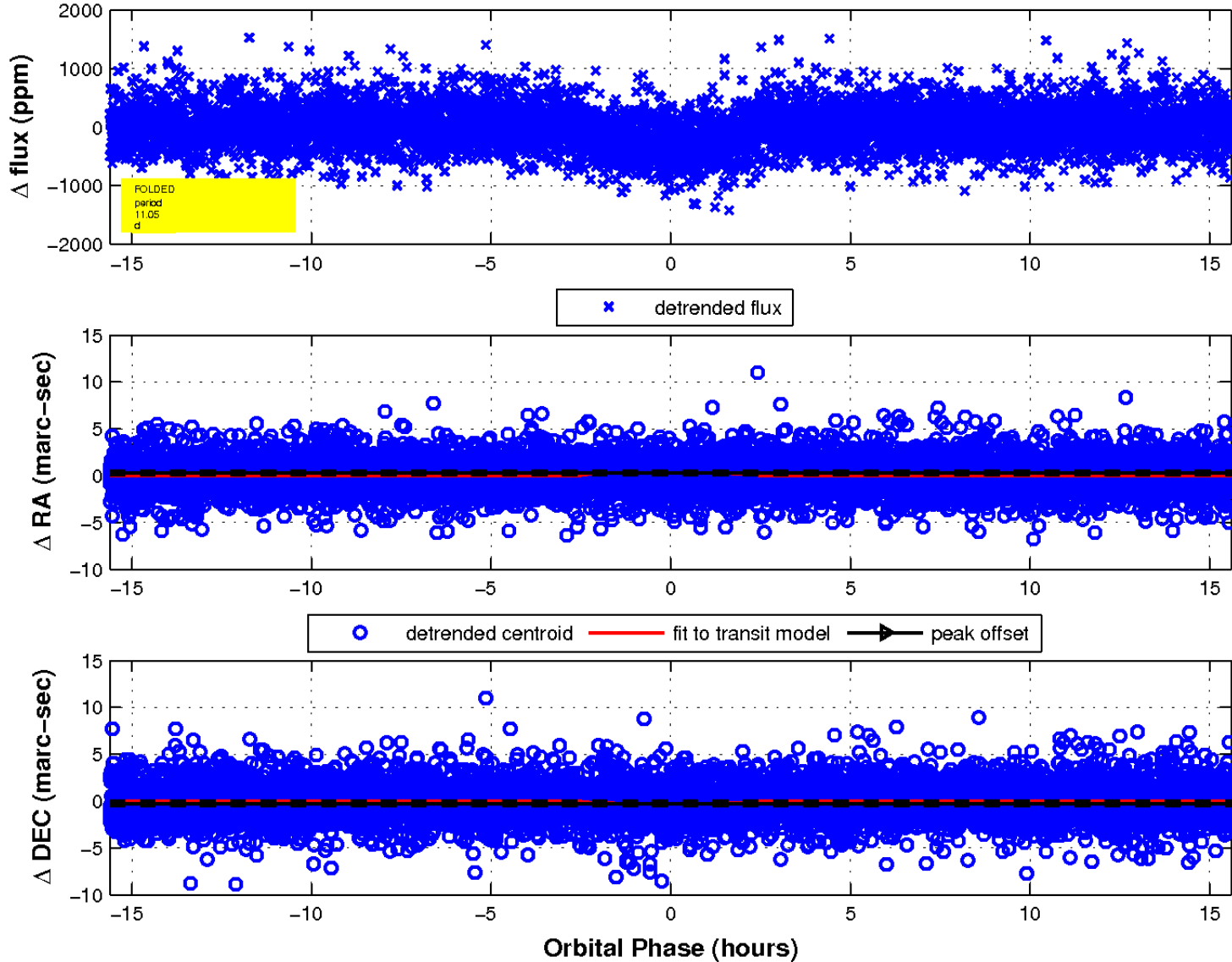
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

