

KIC 009592621

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 009592621-01 | OBS | 8286.01 | 191.037762 | 153.906077 | 1459.5 | 3.857 | 7.5 | 7.0 | 0.90 | 5440 | 3.63 | 1.59 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|----------------|
| 009592621-01 | OBS | PC | 0.19 | 0 | 0 | 0 | 0 | CENT_FEW_DIFFS |

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

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

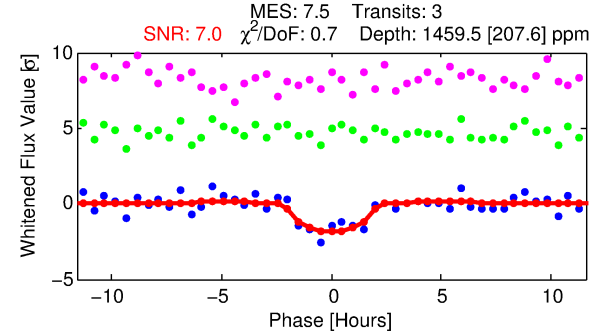
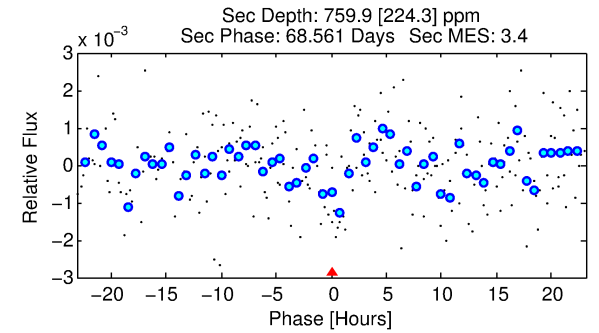
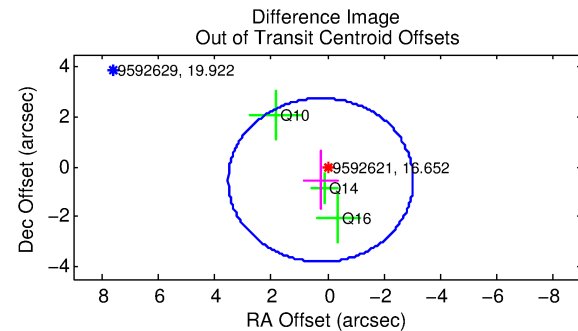
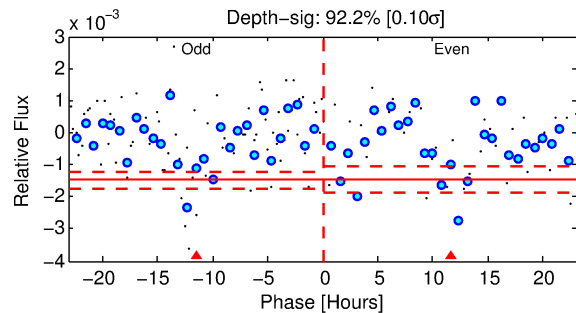
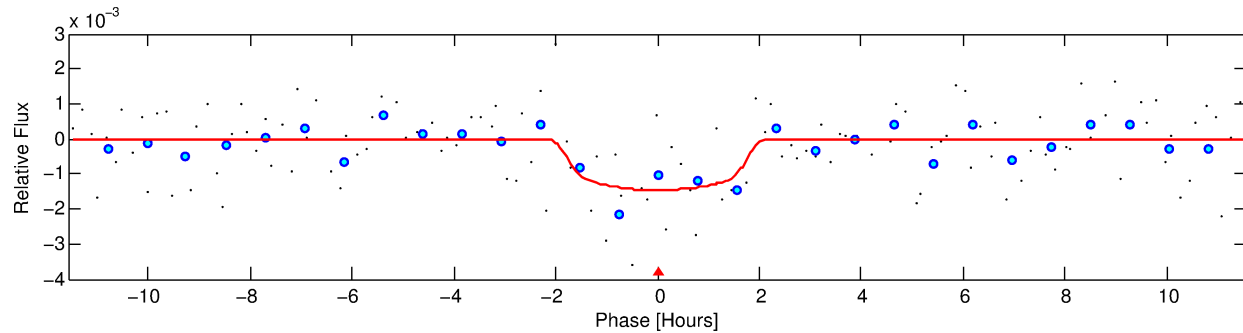
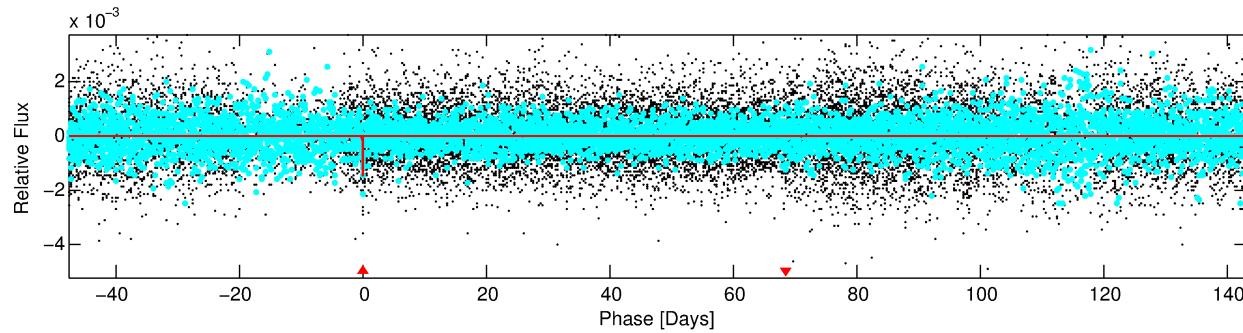
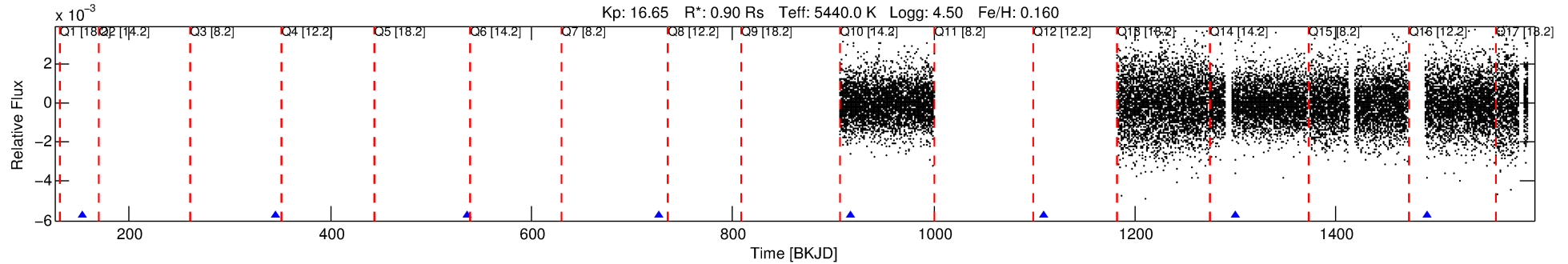
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009592621-01

No Significant Match Found

DV One-Page Summary

KIC: 9592621 Candidate: 1 of 1 Period: 191.038 d



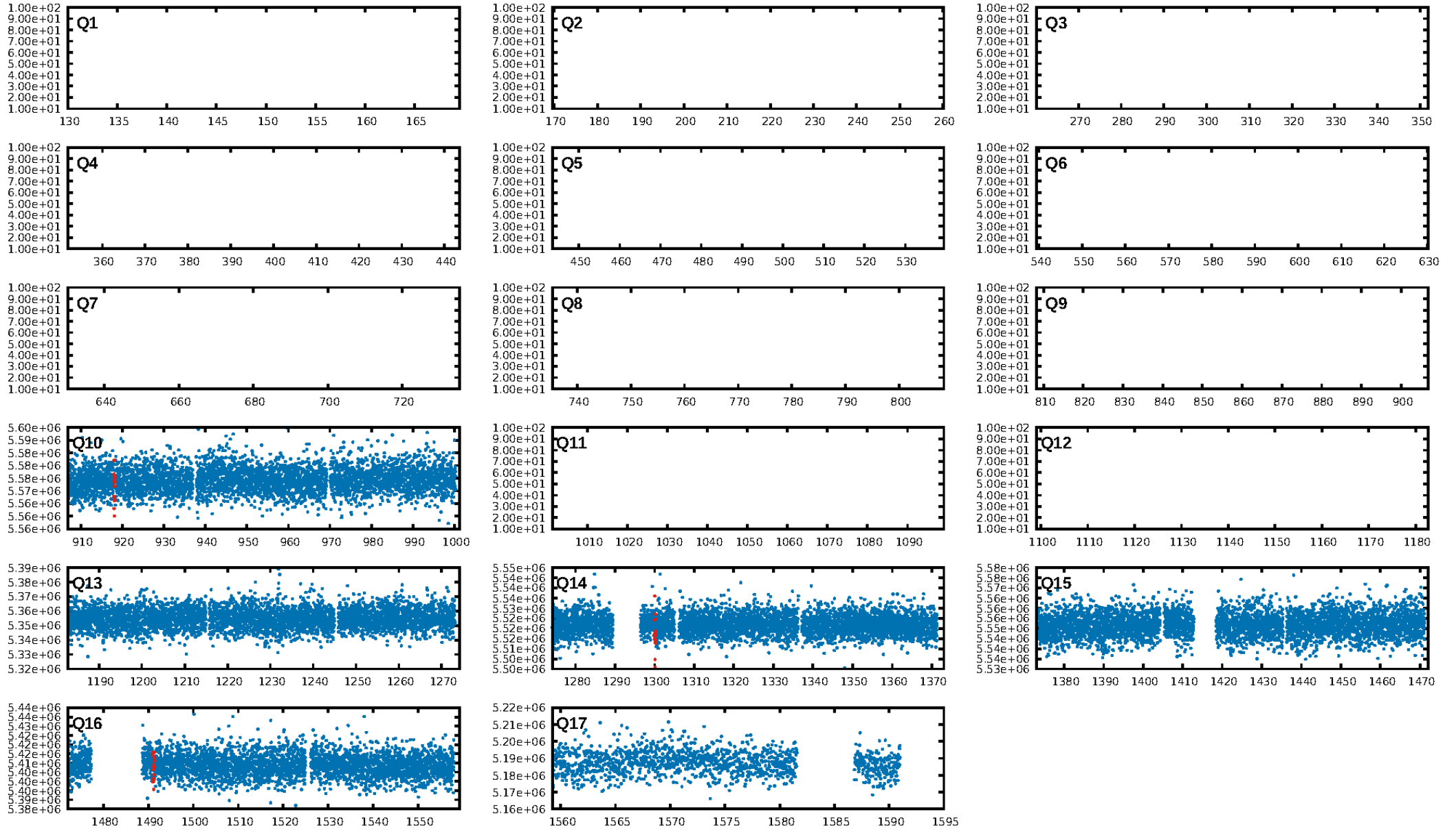
DV Fit Results:

Period = 191.03776 [0.00576] d
Epoch = 153.9061 [0.0335] BKJD
Rp/R* = 0.0369 [0.1169]
a/R* = 301.13 [3648.73]
b = 0.66 [10.38]
Seff = 1.59 [0.52]
Teq = 286 [23] K
Rp = 3.63 [11.52] Re
a = 0.6338 [0.1281] AU
Ag = 12731.08 [80727.79] [0.16 σ]
Teff = 4700 [7443] K [0.59 σ]

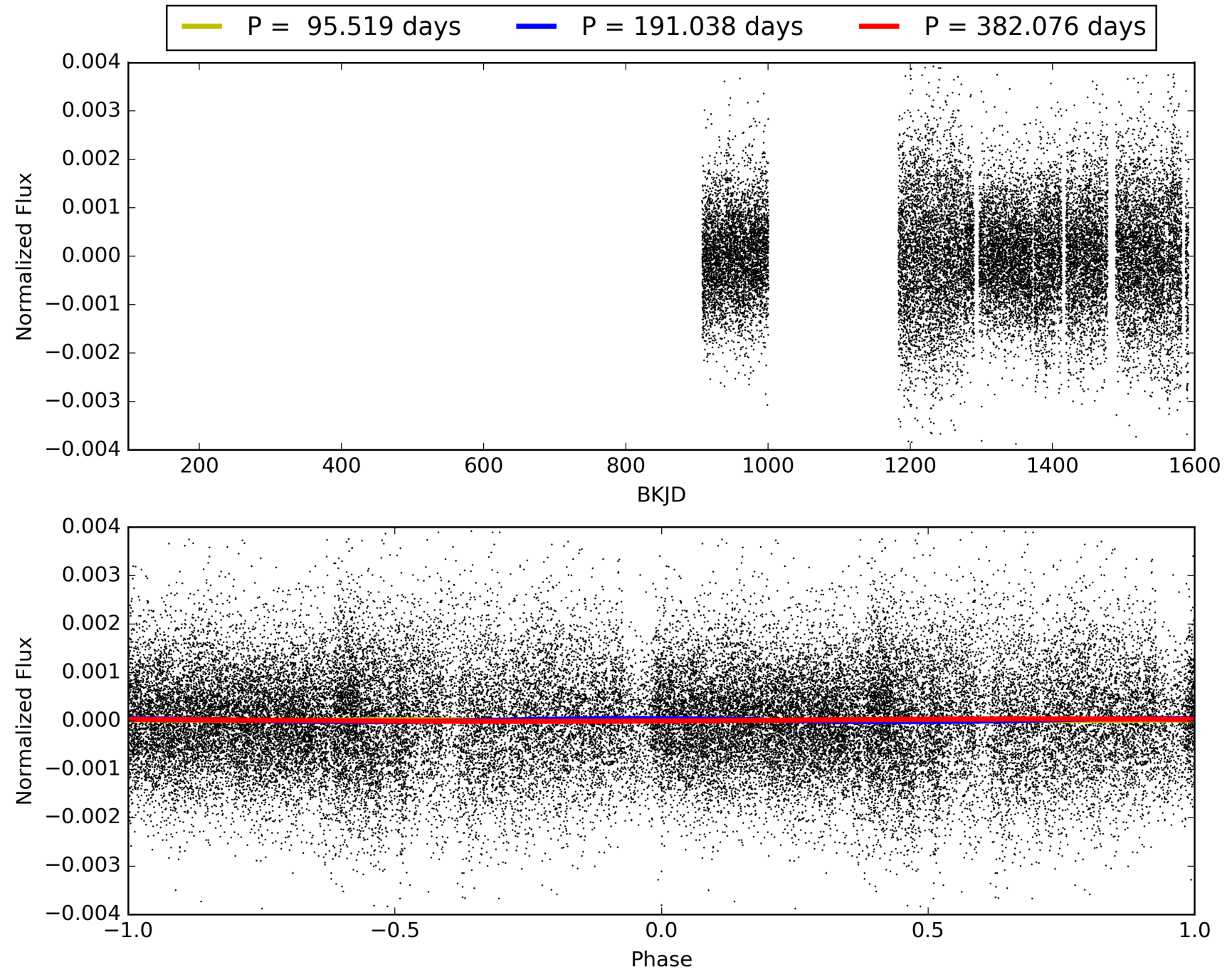
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 83.9%
ModelChiSquareGof-sig: 98.4%
Bootstrap-pfa: 6.46e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -18.86
Centroid-sig: 6.6%
Centroid-so: 3.000 arcsec [1.22 σ]
OotOffset-rm: 0.590 arcsec [0.54 σ]
OotOffset-st: 2/0/1/0 [3]
KicOffset-rm: 0.629 arcsec [0.54 σ]
KicOffset-st: 2/0/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 009592621-01, PDC Light Curves

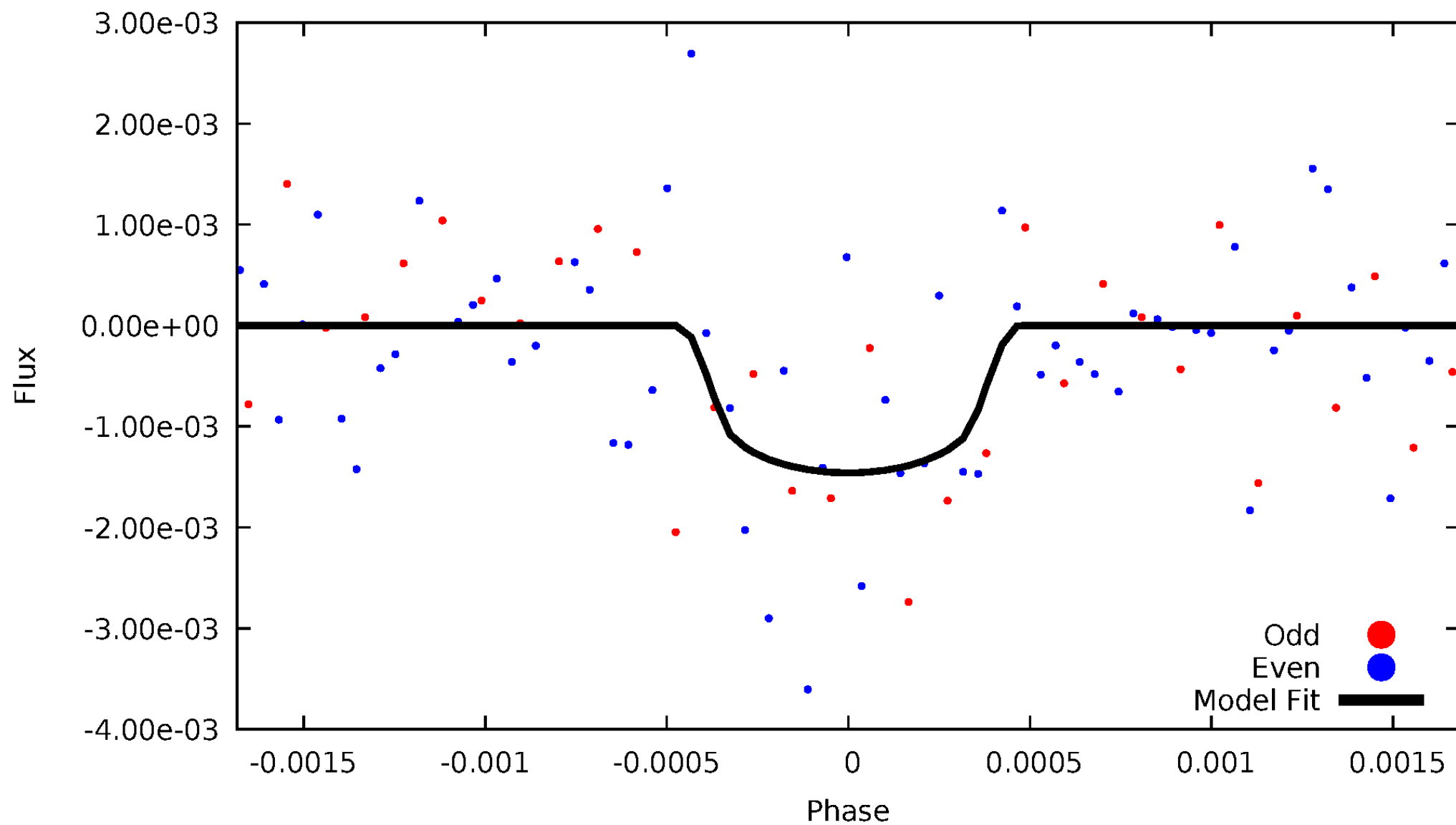


TCE 009592621-01



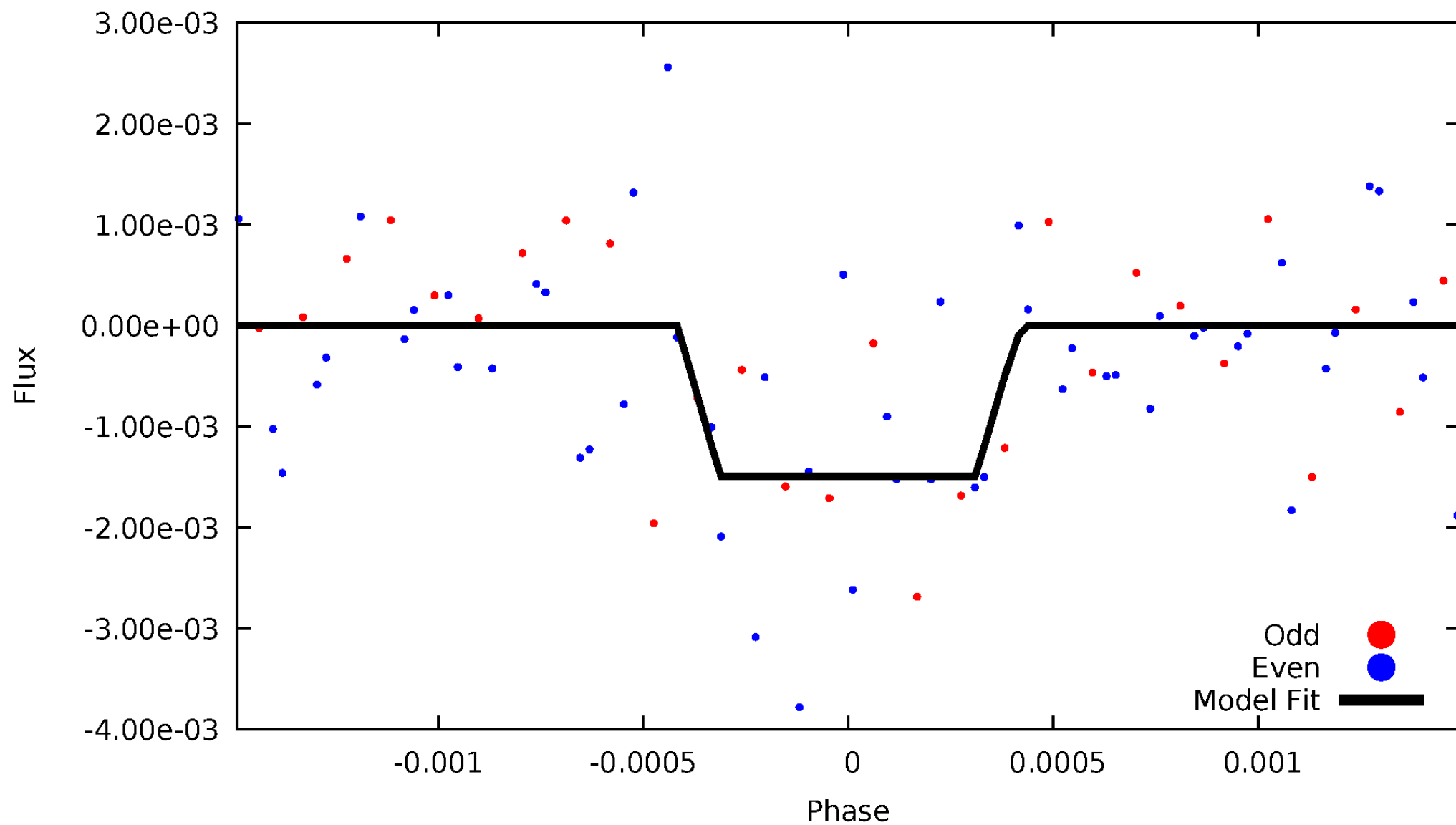
DV Odd/Even

TCE 009592621-01

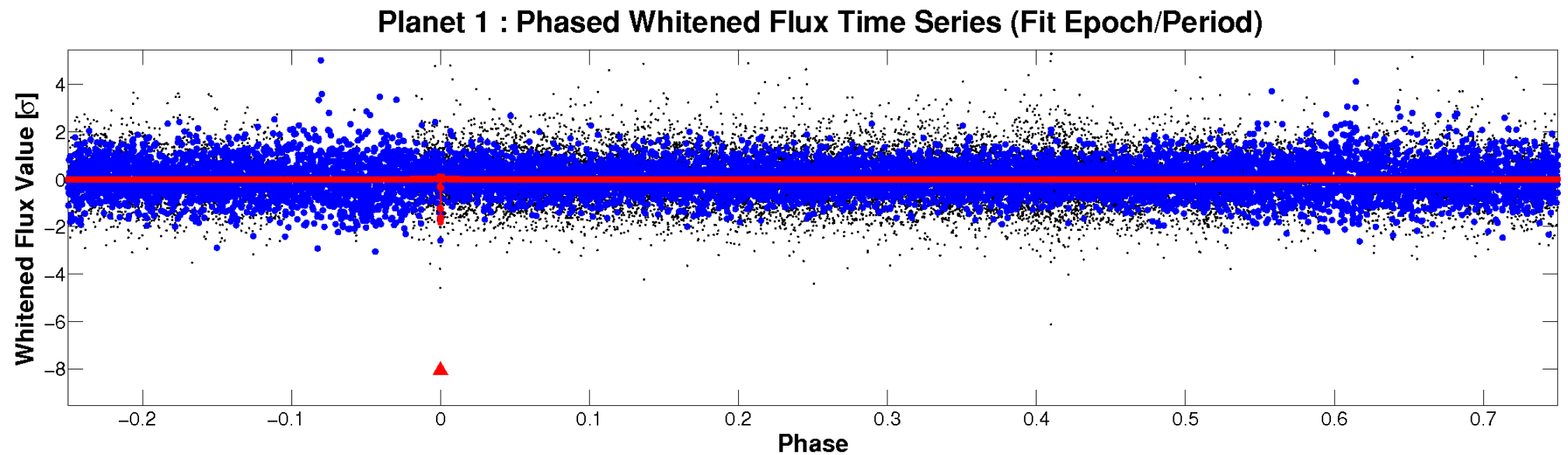
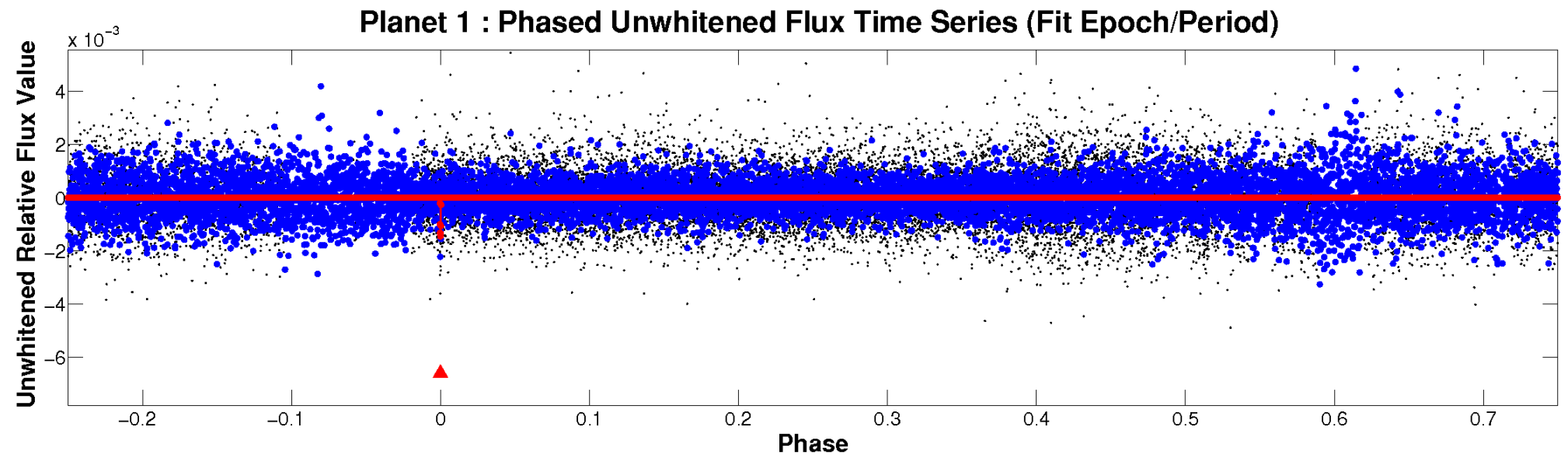


ALT Odd/Even

TCE 009592621-01

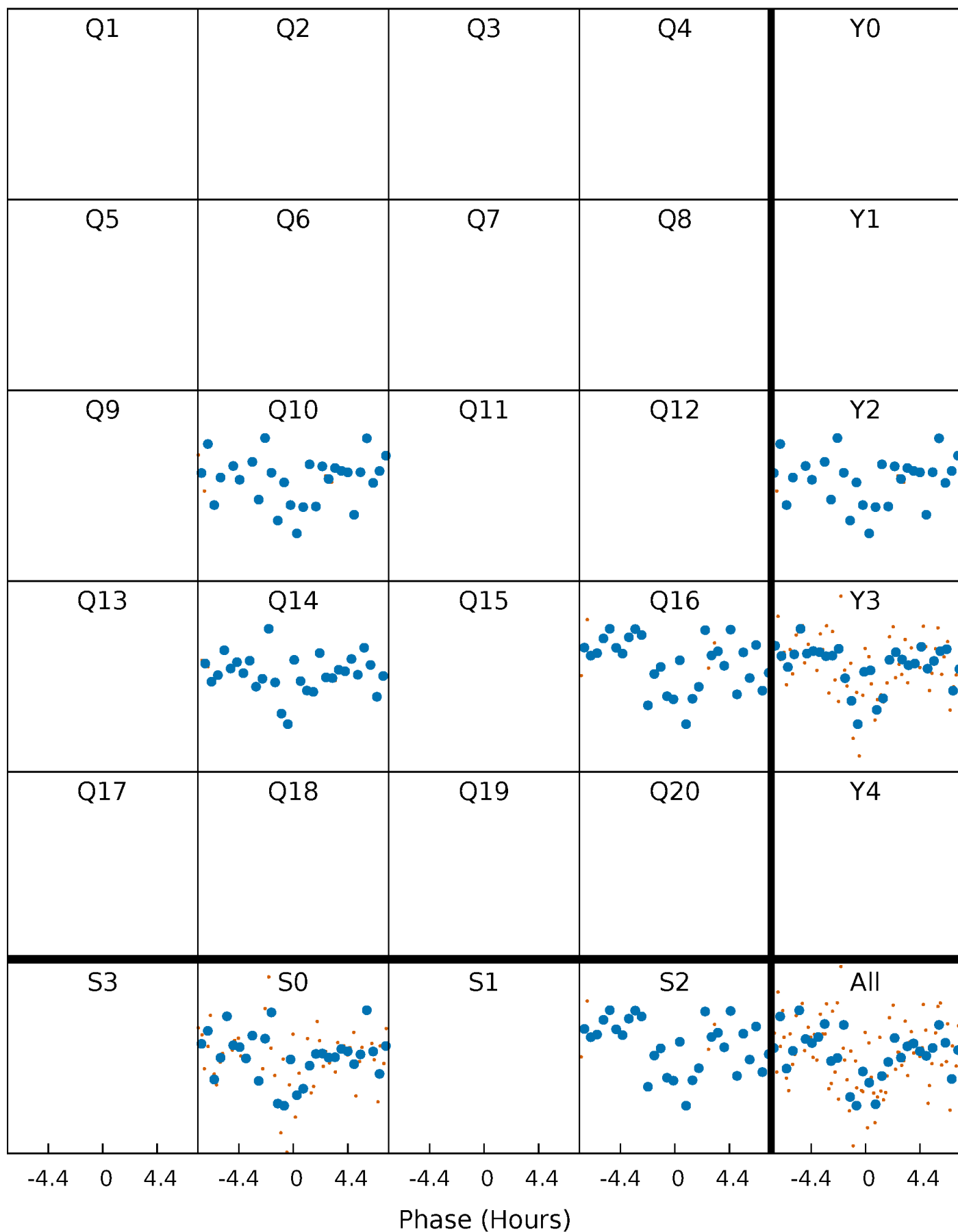


Non-Whitened Vs. Whitened Light Curve



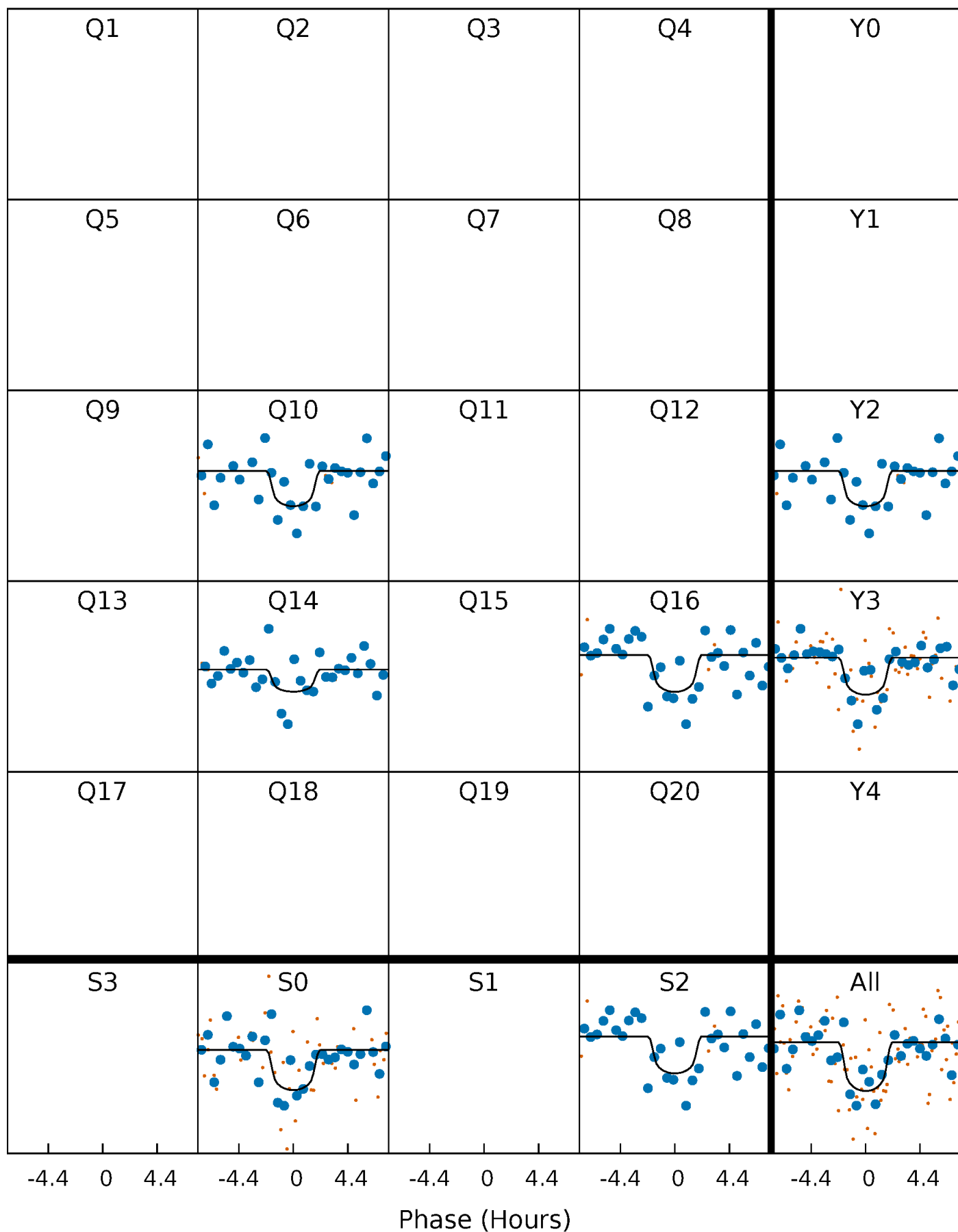
PDC Quarter-Phased Transit Curves

TCE 009592621-01 P=191.037762 Days $T_0=153.906077$ (BKJD)



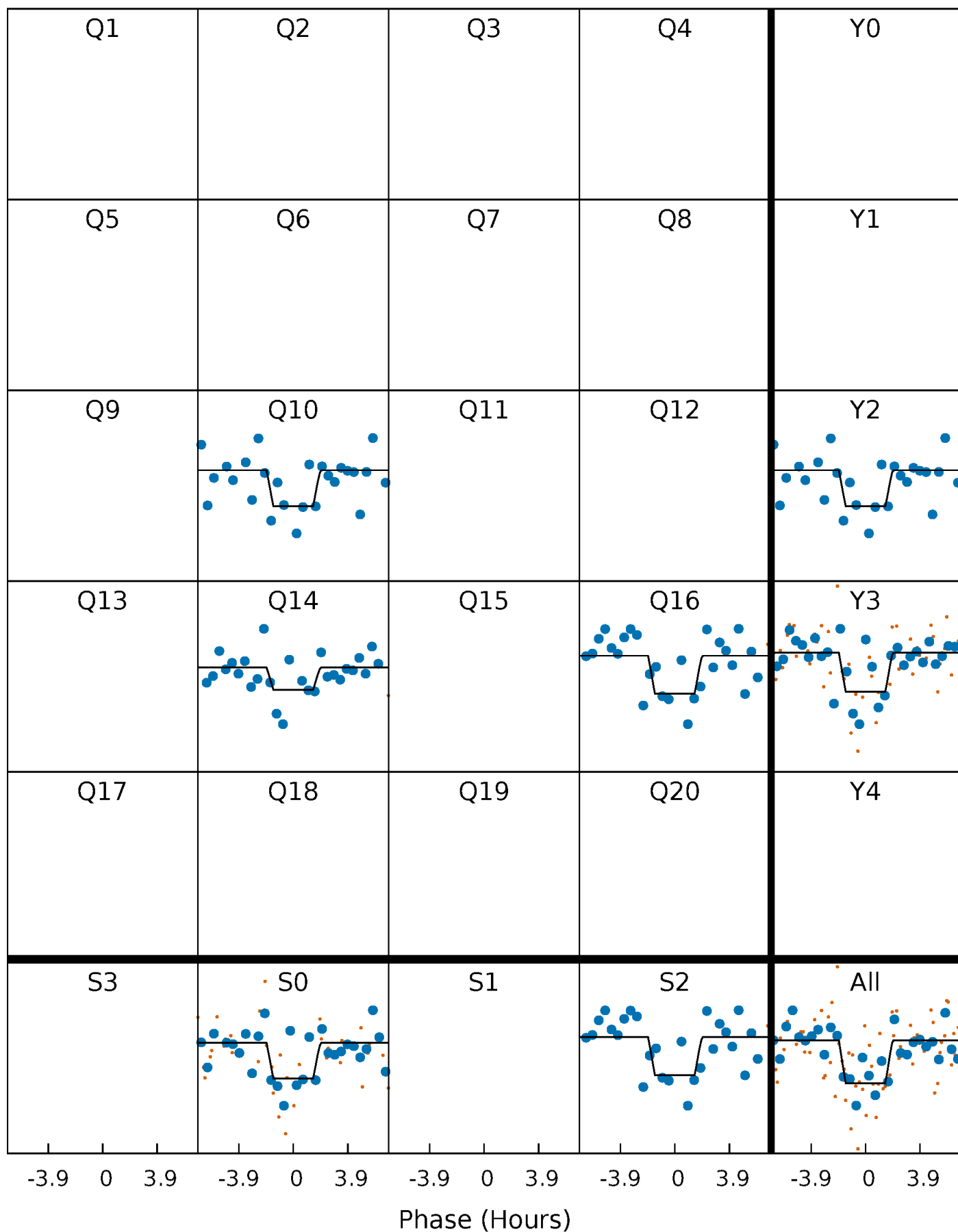
DV Quarter-Phased Transit Curves

TCE 009592621-01 P=191.037762 Days $T_0=153.906077$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

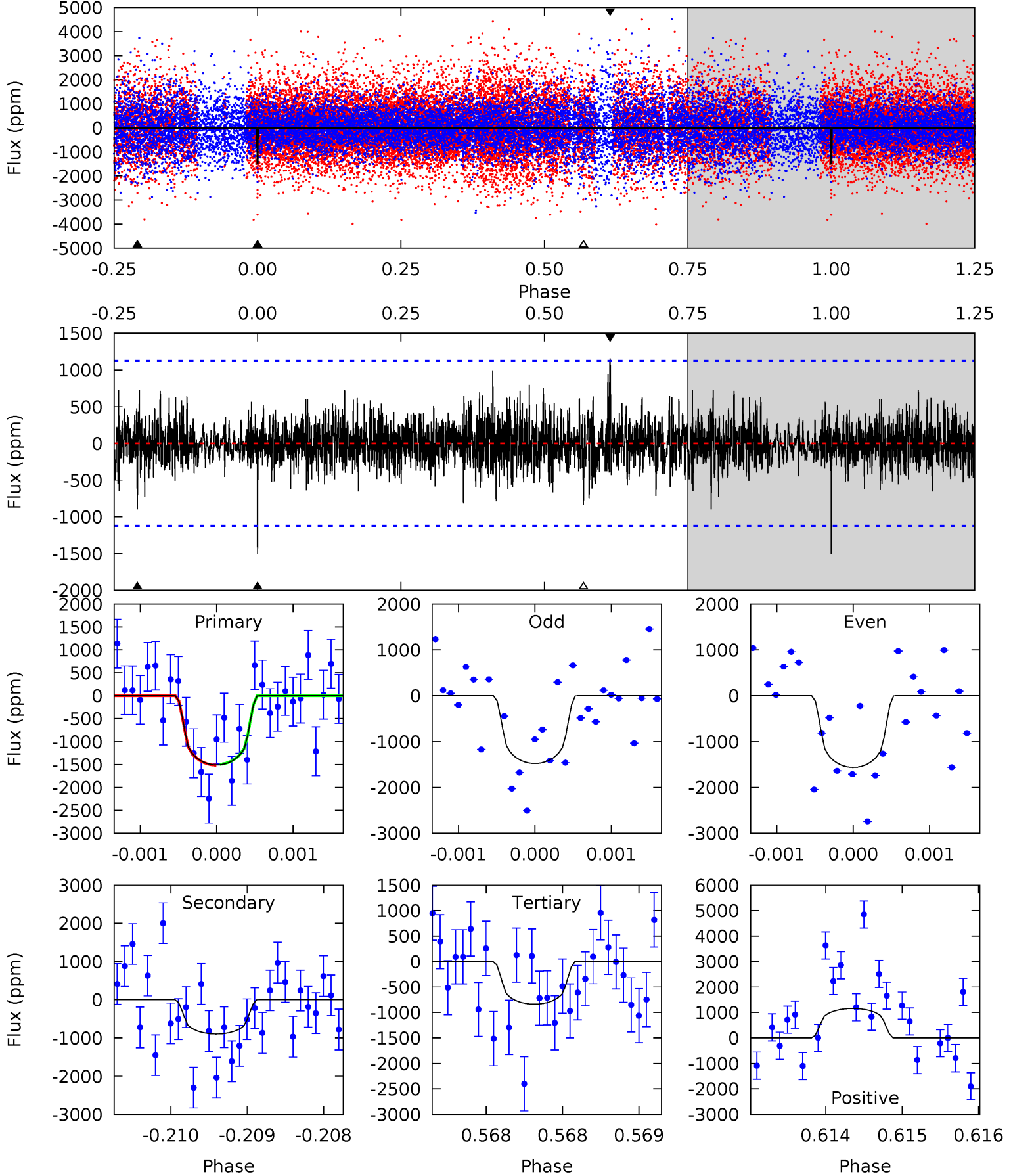
TCE 009592621-01 P=191.036018 Days $T_0=153.917982$ (BKJD)



DV Model-Shift Uniqueness Test

009592621-01, P = 191.037762 Days, E = 153.906077 Days

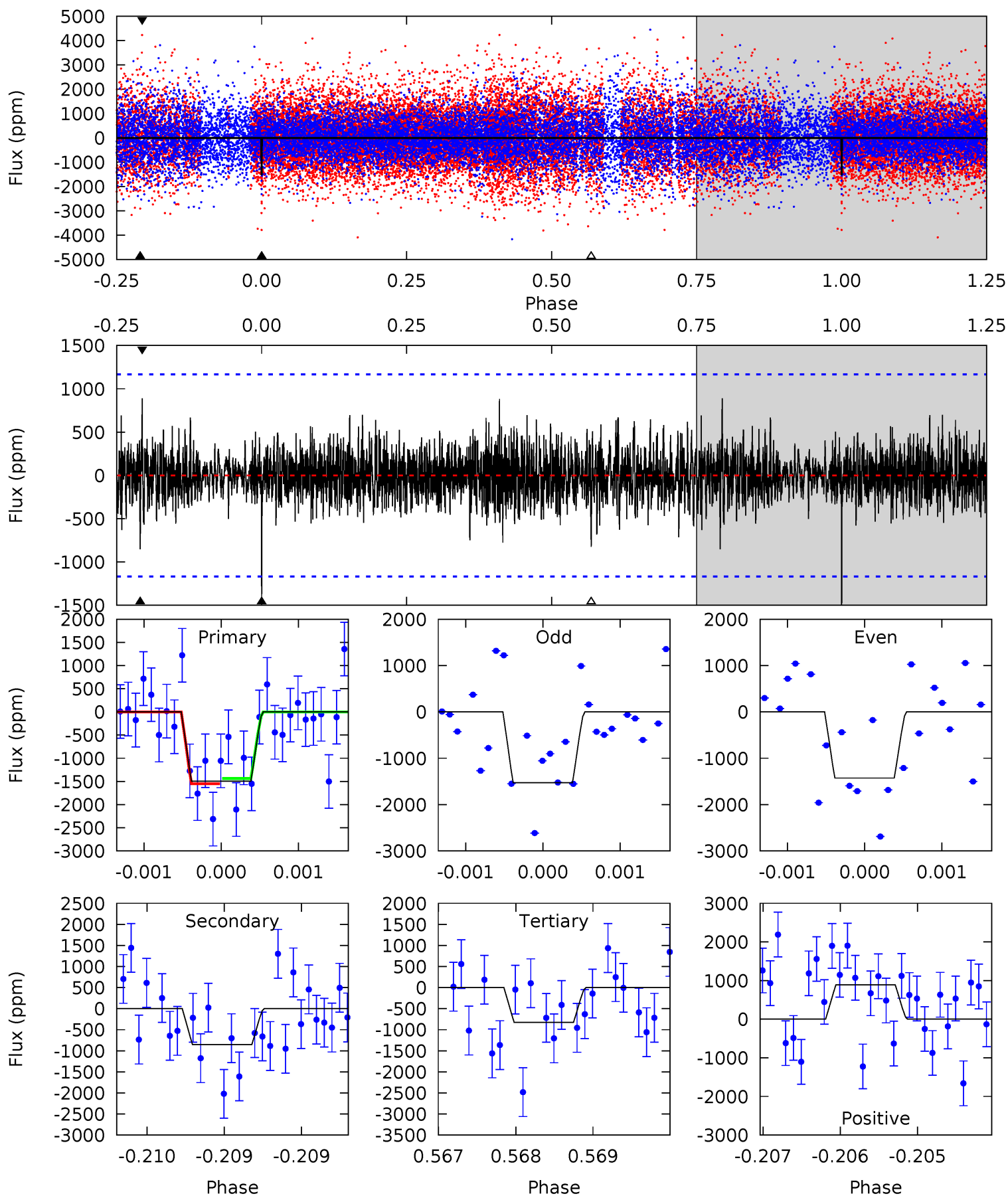
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.36 | 4.37 | 4.09 | 5.64 | 5.47 | 3.33 | 1.10 | 3.28 | 1.72 | 0.29 | -1.27 | 0.19 | 0.98 | 0.43 | 0.04 |



Alt Model-Shift Uniqueness Test

009592621-01, P = 191.036018 Days, E = 153.917982 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.04 | 4.01 | 3.88 | 4.18 | 5.49 | 3.35 | 0.98 | 3.15 | 2.85 | 0.12 | -0.17 | 0.21 | 1.05 | 0.37 | 0.26 |



Stellar Parameters For KIC 009592621

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5440^{+180}_{-180} | $4.497^{+0.055}_{-0.165}$ | $0.160^{+0.250}_{-0.300}$ | $0.901^{+0.213}_{-0.091}$ | $0.931^{+0.082}_{-0.090}$ | $1.790^{+0.498}_{-0.776}$ |
| | +3%/-3% | +1%/-4% | +156%/-188% | +24%/-10% | +9%/-10% | +28%/-43% |
| Source | KIC0 | 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 009592621-01 / KOI 8286.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|----------------|-------------------------|-------------------|-----------------------|-------------------------|
| DV | -896 ± 205 | $10.52^{+9.30}_{-7.32}$ | 407^{+23}_{-20} | 3427^{+1790}_{-587} | 1765^{+16239}_{-1279} |
| Alt. | -852 ± 212 | $9.75^{+9.79}_{-6.27}$ | 407^{+26}_{-19} | 3496^{+1666}_{-683} | 1937^{+14136}_{-1480} |

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

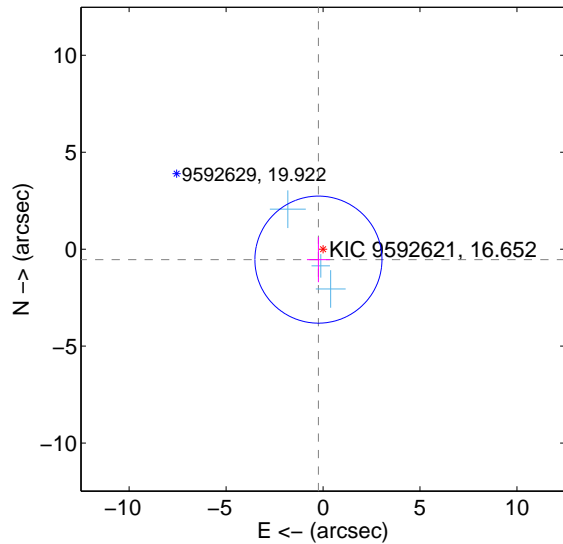
Supplemental centroid analysis for 009592621-01. Kepler magnitude: 16.65. Transit SNR 7.03

There are 3 quarters with good PRF difference image offsets

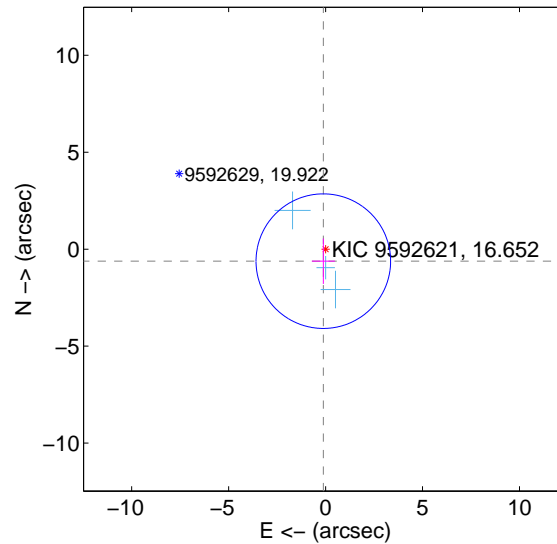
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.590 ± 1.092 | 0.54 | 0.238 ± 0.593 | -0.540 ± 1.165 |
| PRF-fit source offset from KIC position | 0.629 ± 1.157 | 0.54 | 0.117 ± 0.596 | -0.618 ± 1.172 |
| photometric centroid source offset | 3.00 ± 2.47 | 1.22 | 1.58 ± 2.32 | 2.55 ± 2.52 |

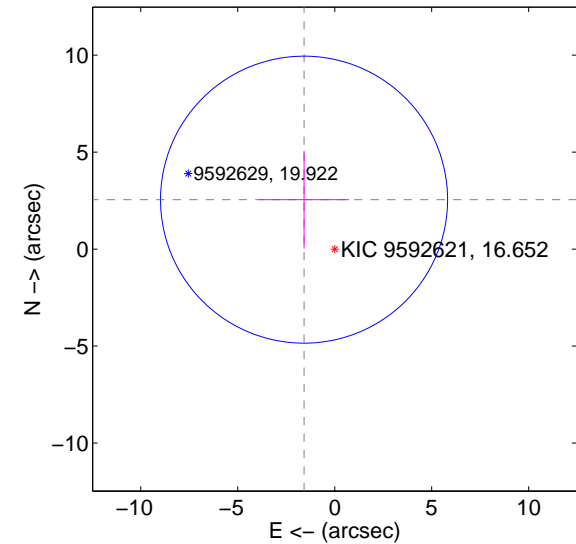
offset from difference PRF-fit to OOT PRF-fit



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.

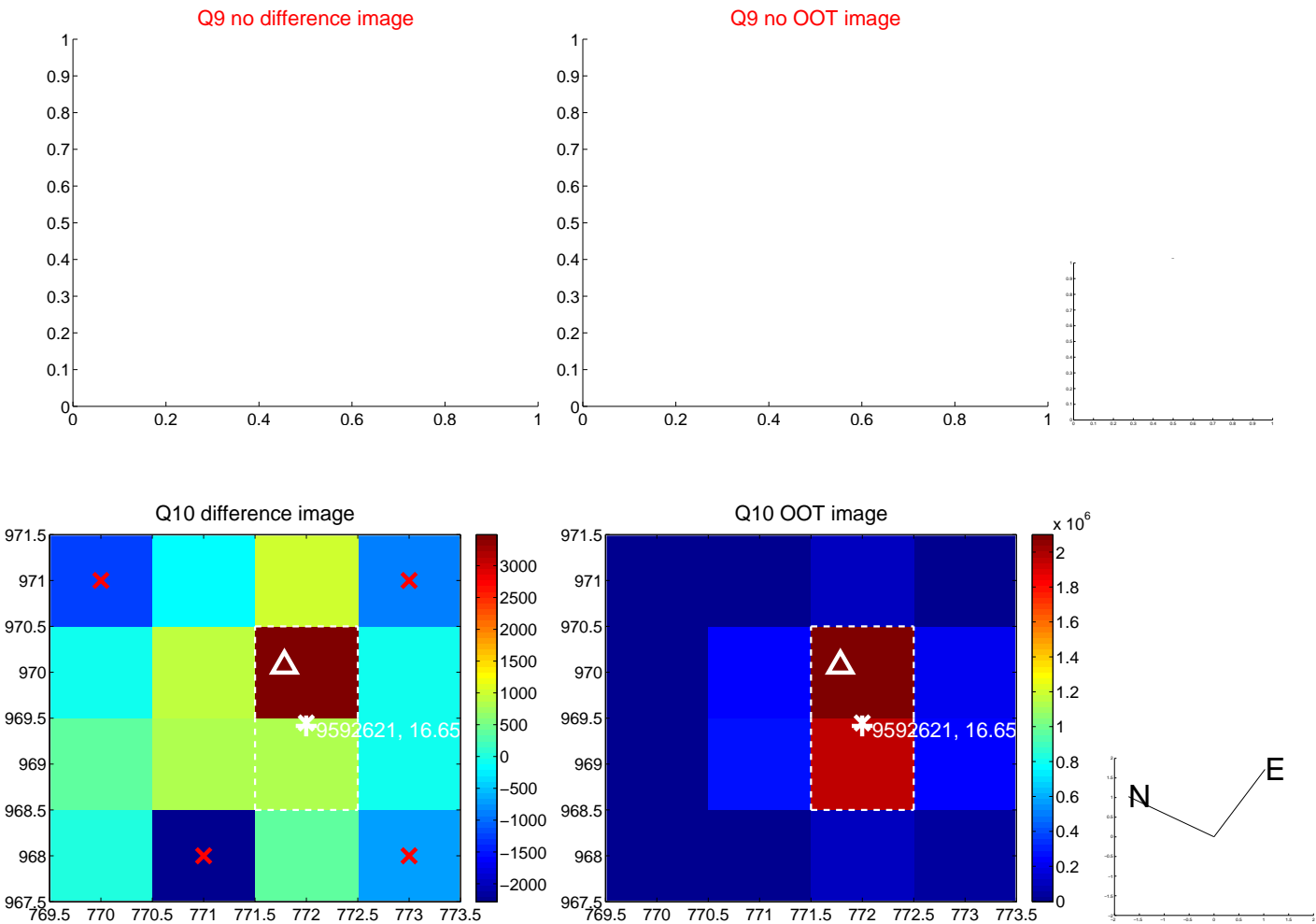
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



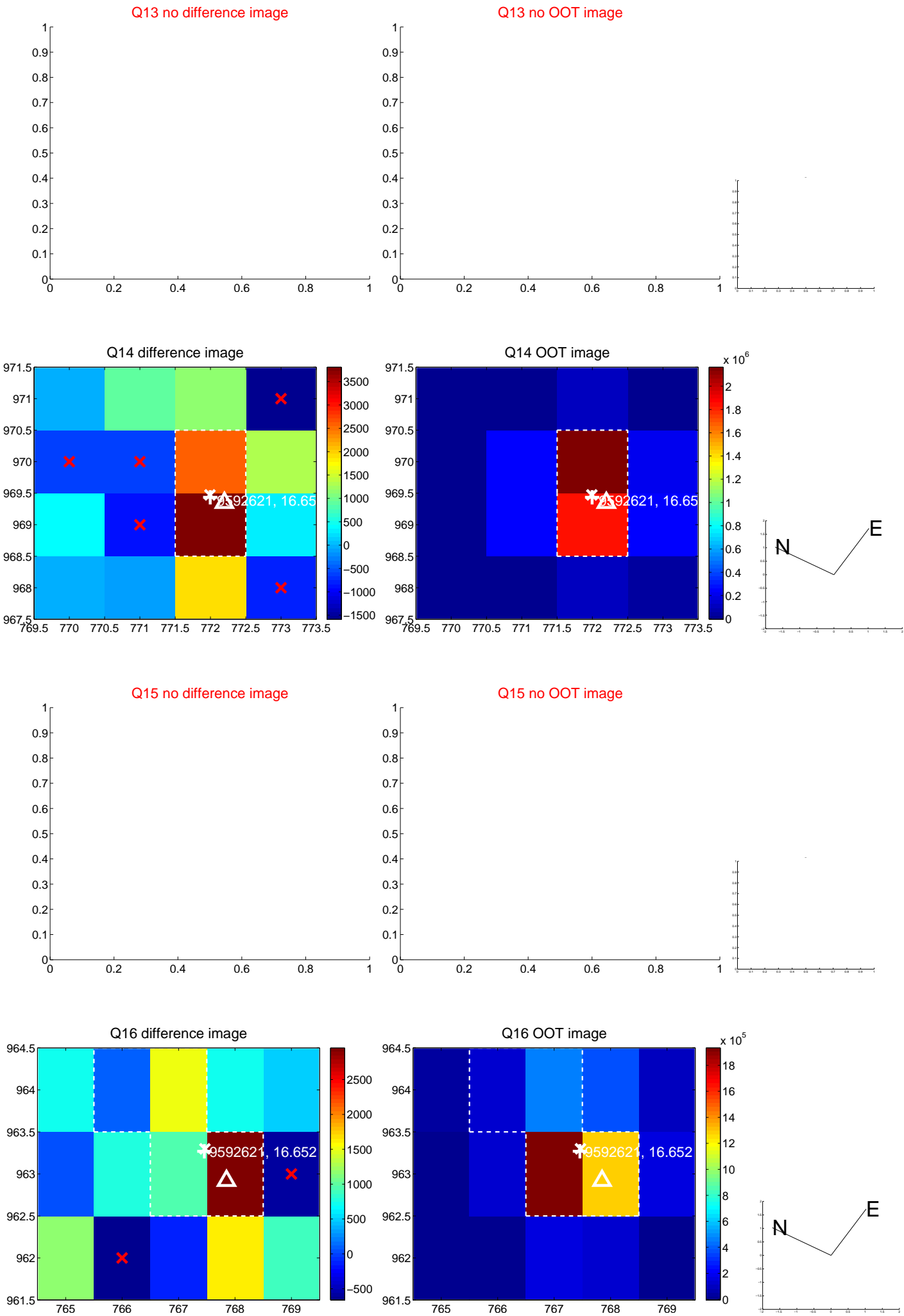
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



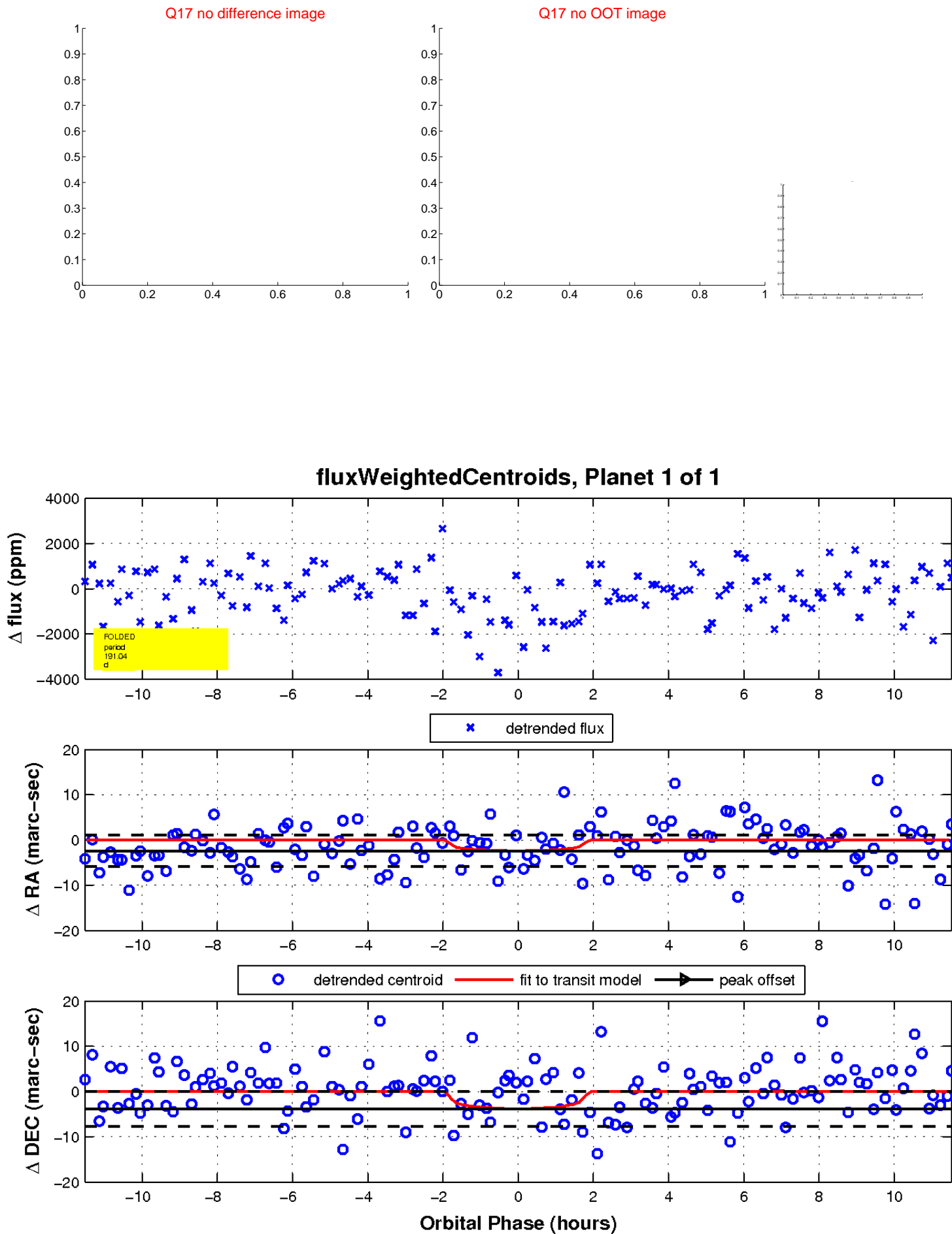
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

