

KIC 005427596

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005427596-01 | OBS | No | 188.134294 | 162.854557 | 117.3 | 2.219 | 18.9 | 9.5 | 1.58 | 6499 | 1.96 | 8.64 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005427596-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED |

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

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

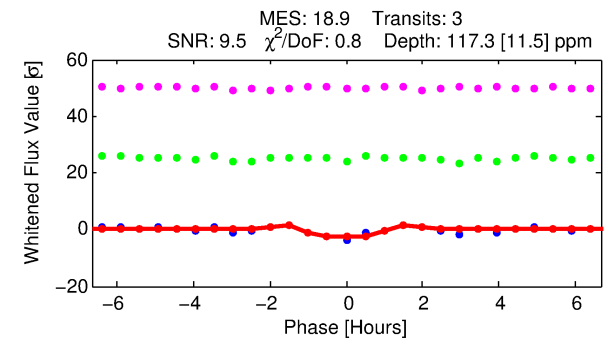
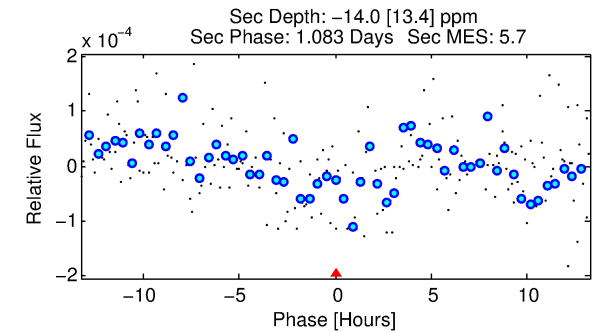
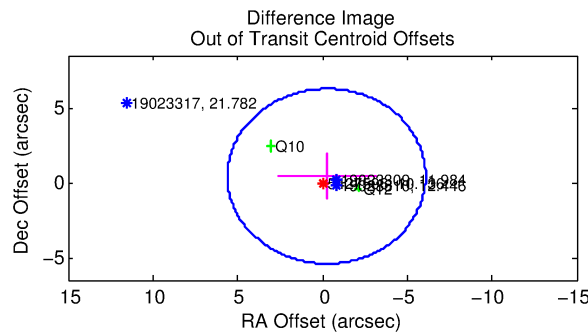
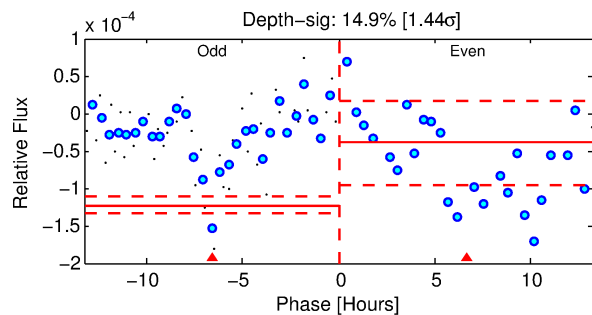
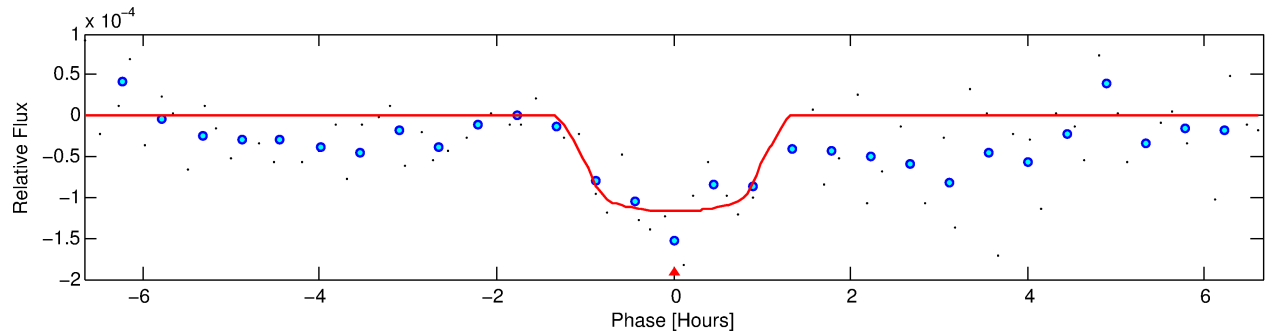
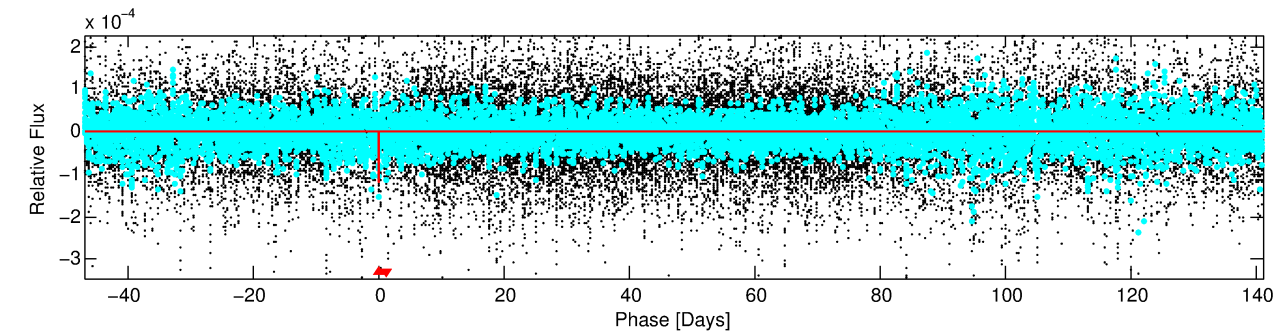
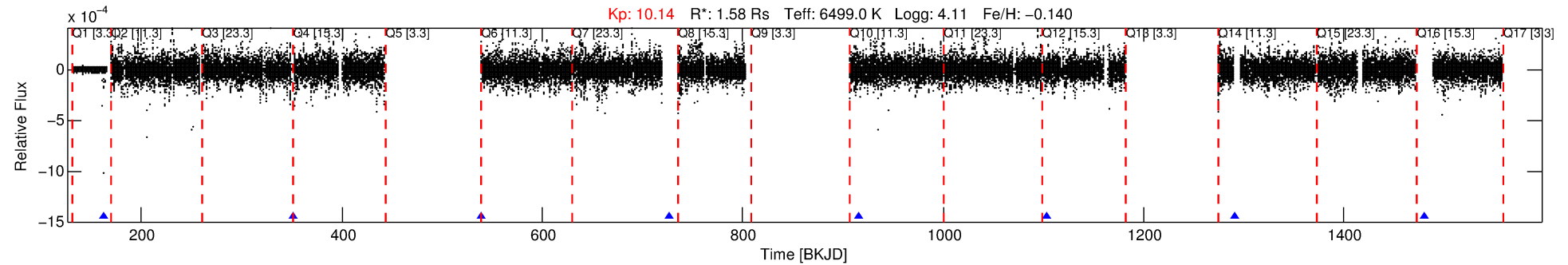
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005427596-01

No Significant Match Found

DV One-Page Summary

KIC: 5427596 Candidate: 1 of 1 Period: 188.134 d



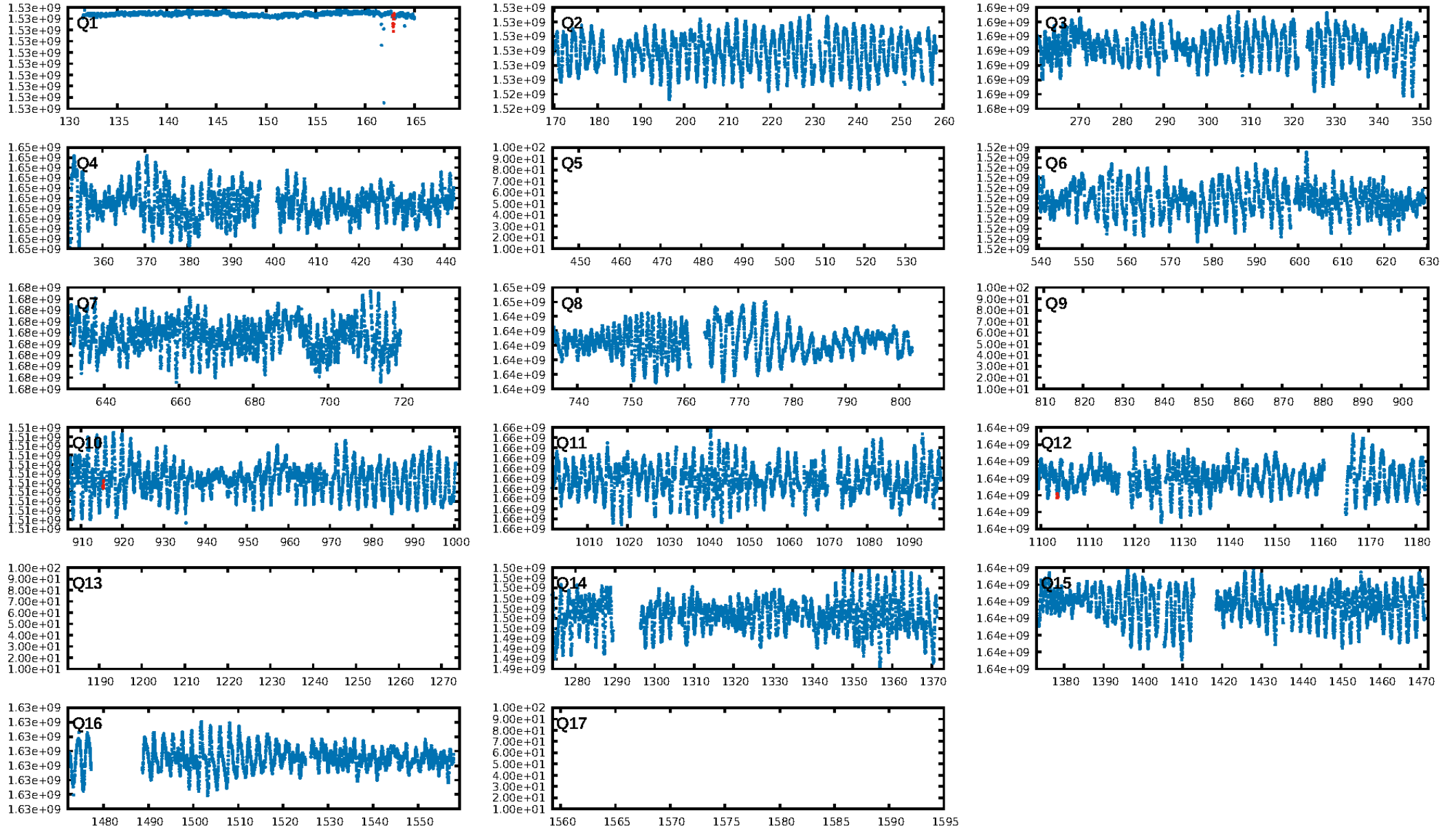
DV Fit Results:

Period = 188.13429 [0.00144] d
Epoch = 162.8546 [0.0020] BKJD
 $R_p/R^* = 0.0113$ [0.0096]
 $a/R^* = 340.27$ [1614.36]
 $b = 0.86$ [1.42]
 $\text{Seff} = 8.64$ [3.01]
 $T_{\text{eq}} = 437$ [38] K
 $R_p = 1.96$ [1.71] R_e
 $a = 0.6808$ [0.1452] AU
 $\text{Ag} = \text{N/A}$
 $\text{Teff} = \text{N/A}$

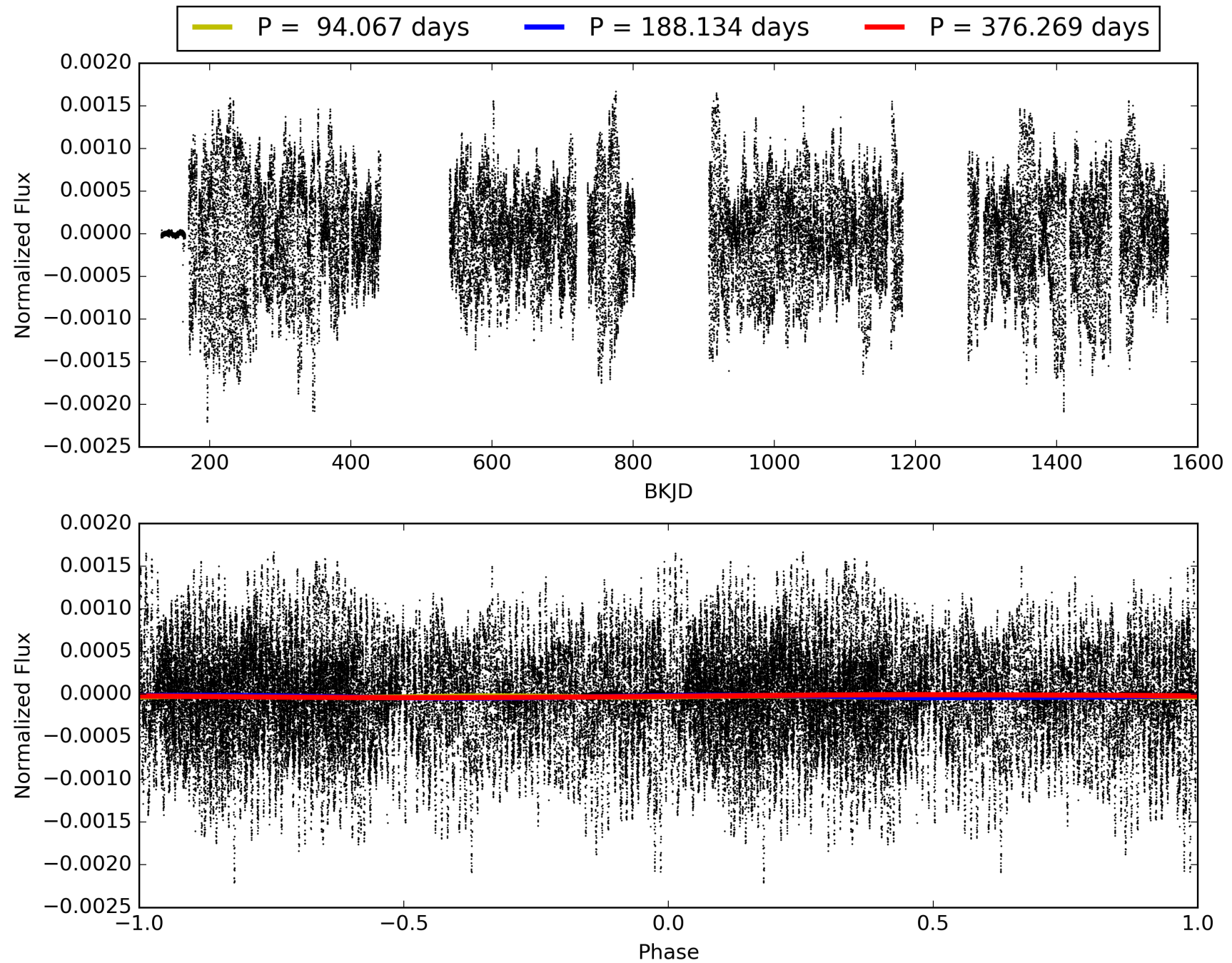
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 50.1%
ModelChiSquareGof-sig: 98.1%
Bootstrap-pfa: 8.40e-47
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: N/A
Centroid-sig: 2.9%
Centroid-so: 4.196 arcsec [1.56 σ]
OotOffset-rm: 0.488 arcsec [0.25 σ]
KicOffset-rm: 1.145 arcsec [0.55 σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 005427596-01, PDC Light Curves

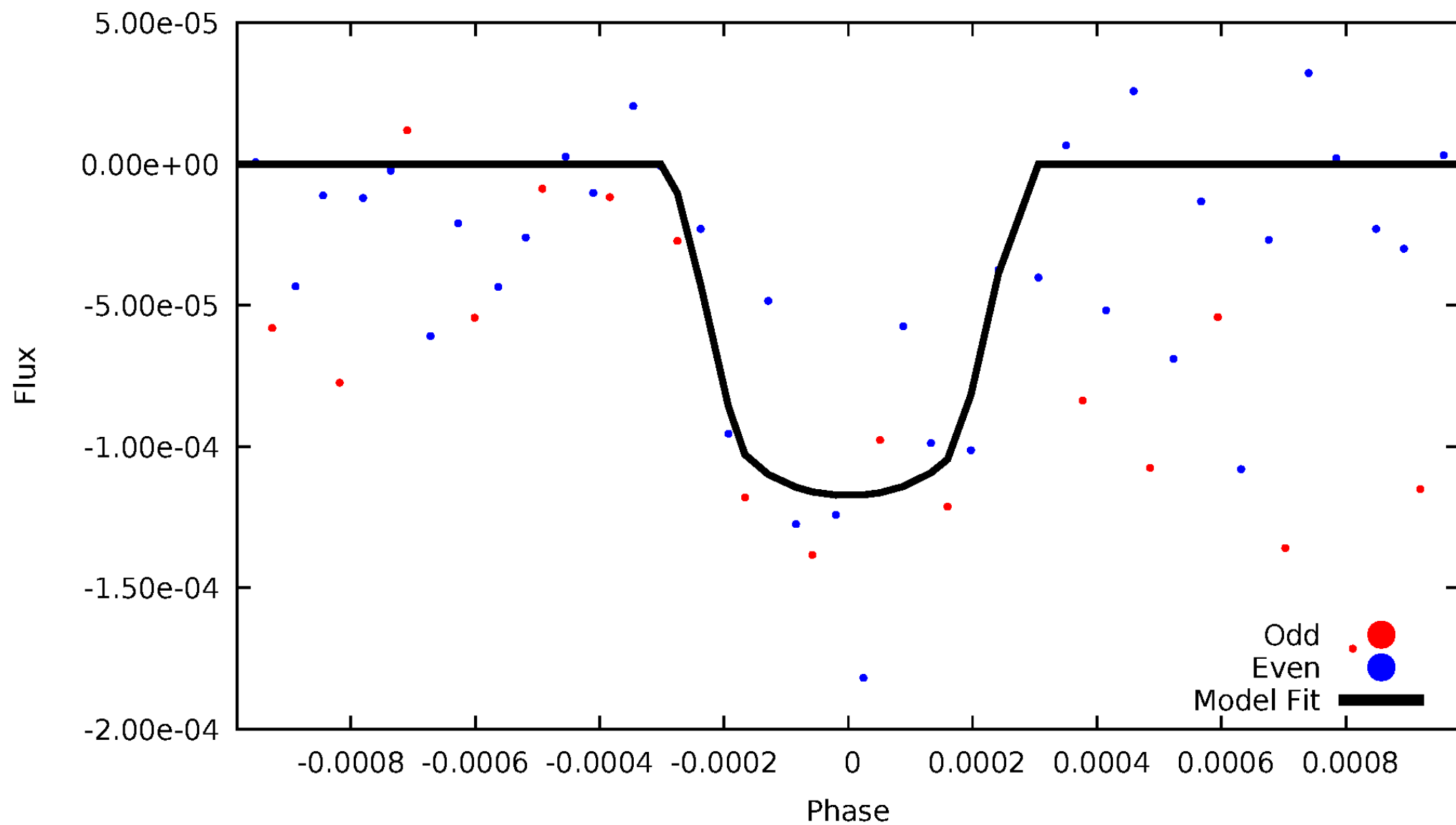


TCE 005427596-01



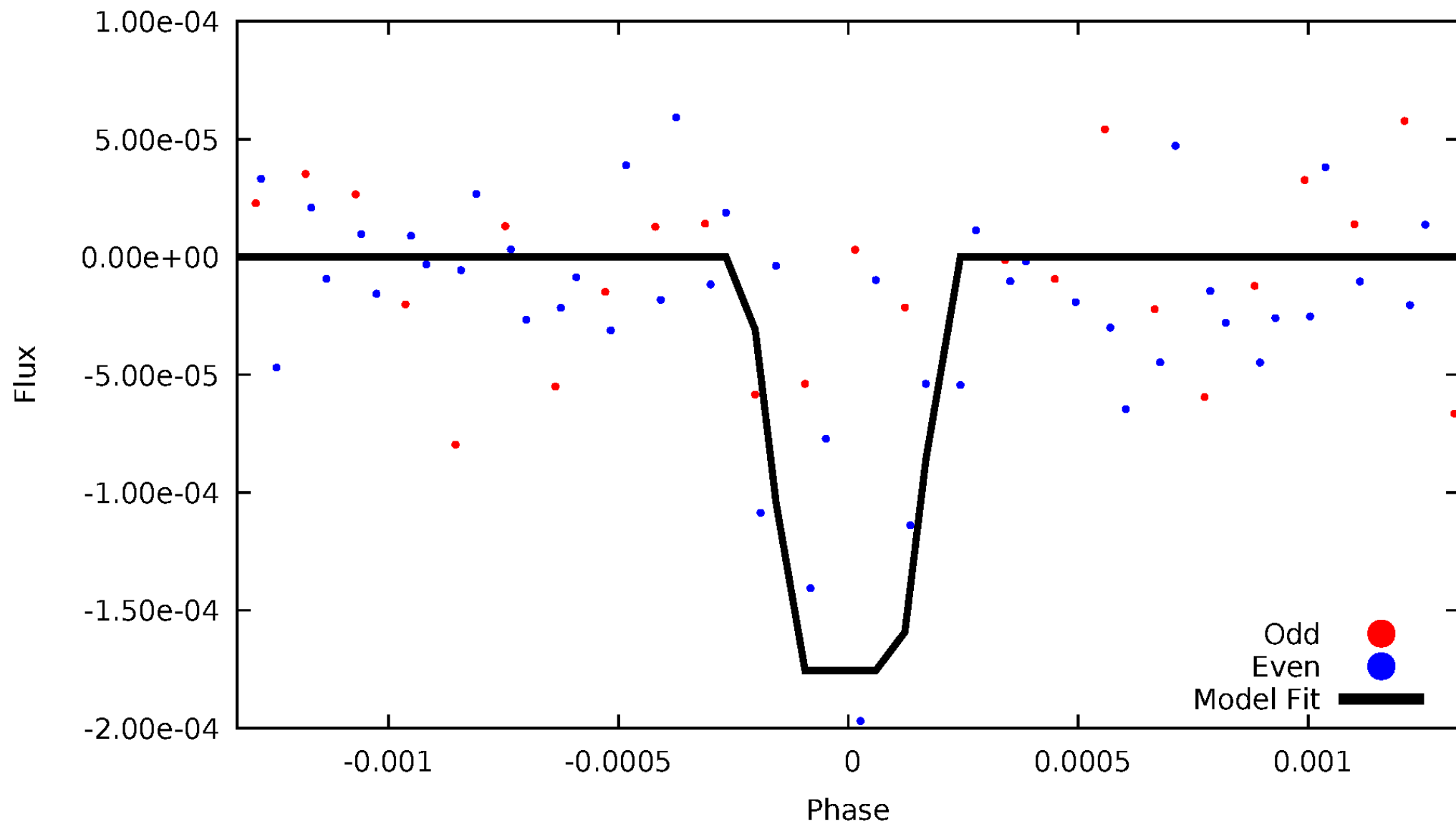
DV Odd/Even

TCE 005427596-01

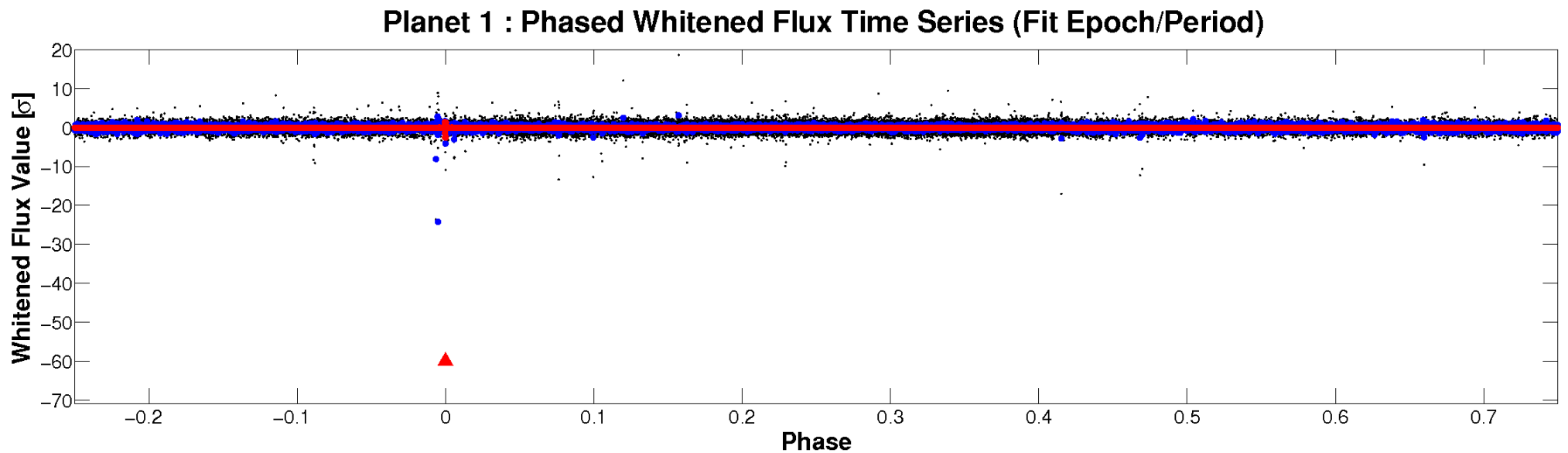
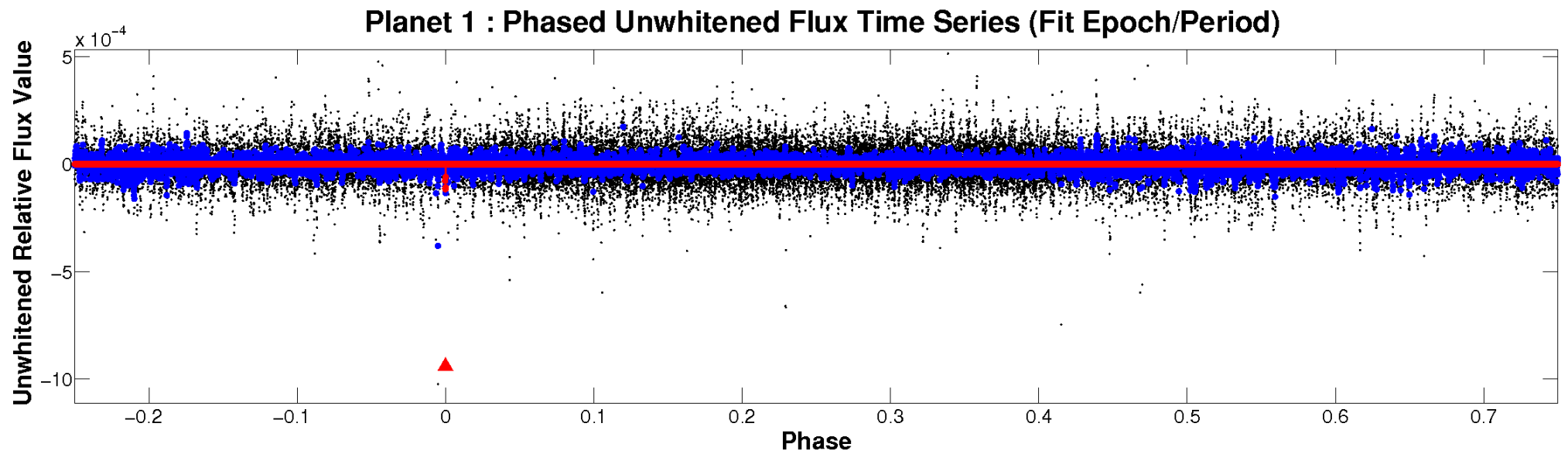


ALT Odd/Even

TCE 005427596-01

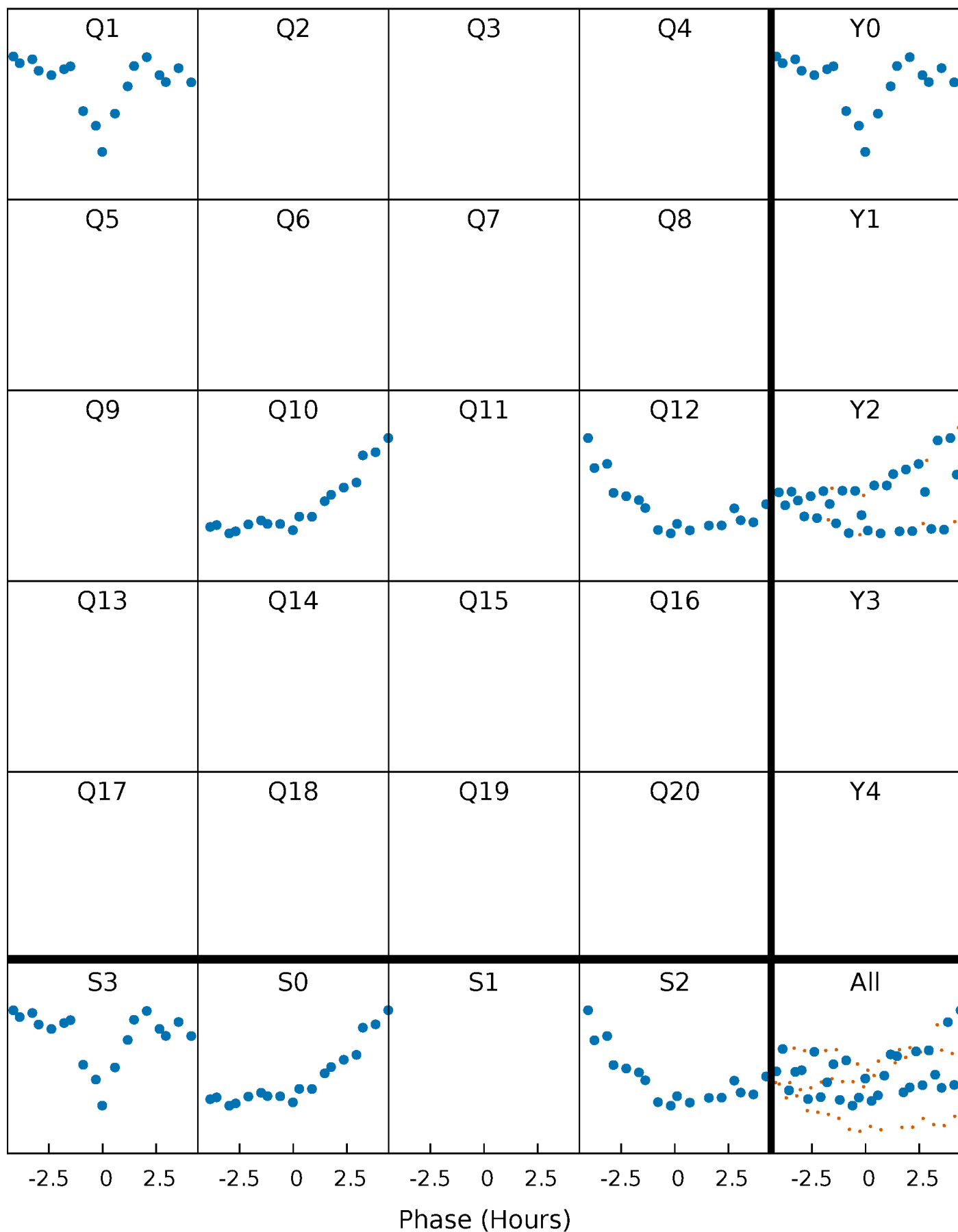


Non-Whitened Vs. Whitened Light Curve



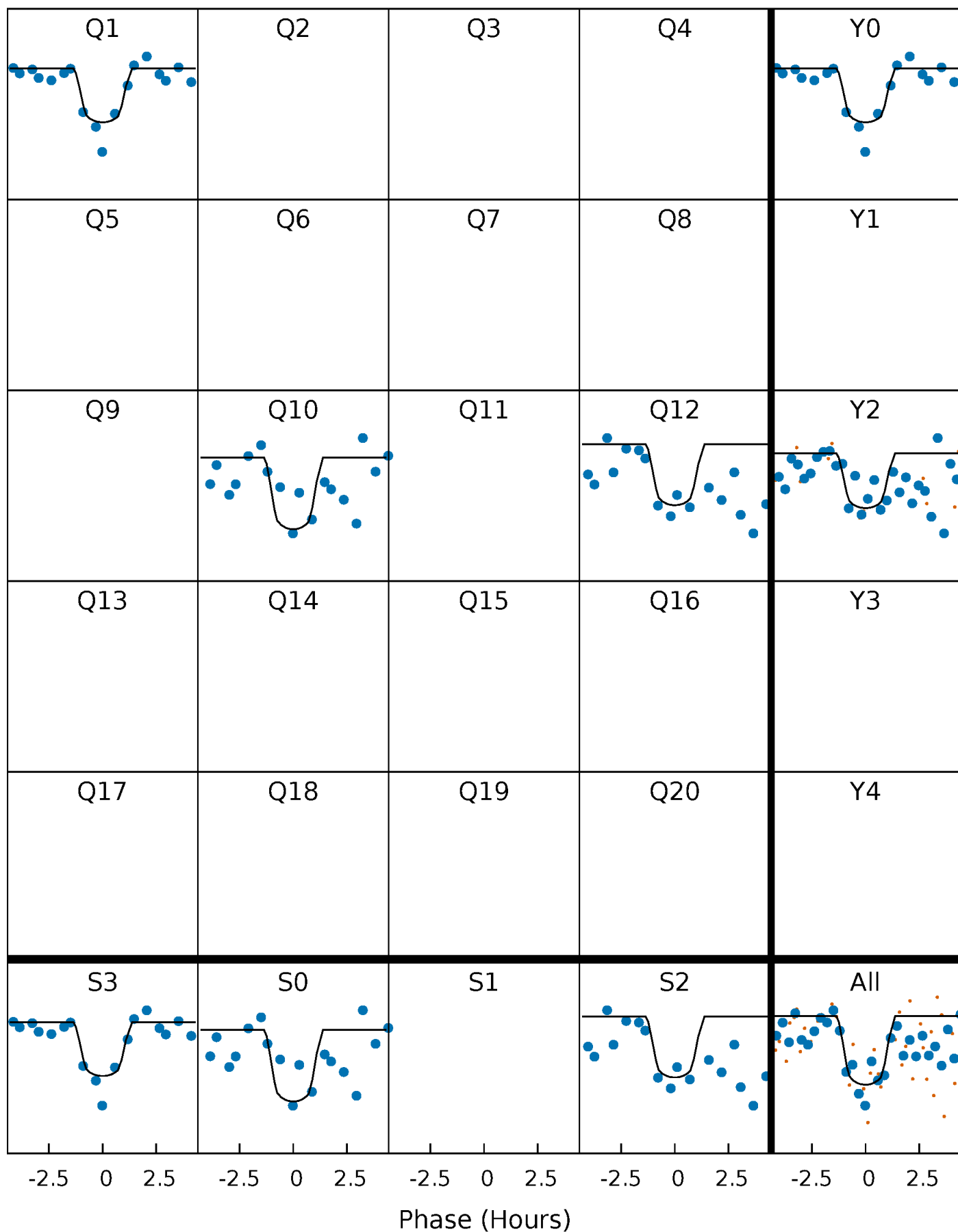
PDC Quarter-Phased Transit Curves

TCE 005427596-01 P=188.134294 Days $T_0=162.854557$ (BKJD)



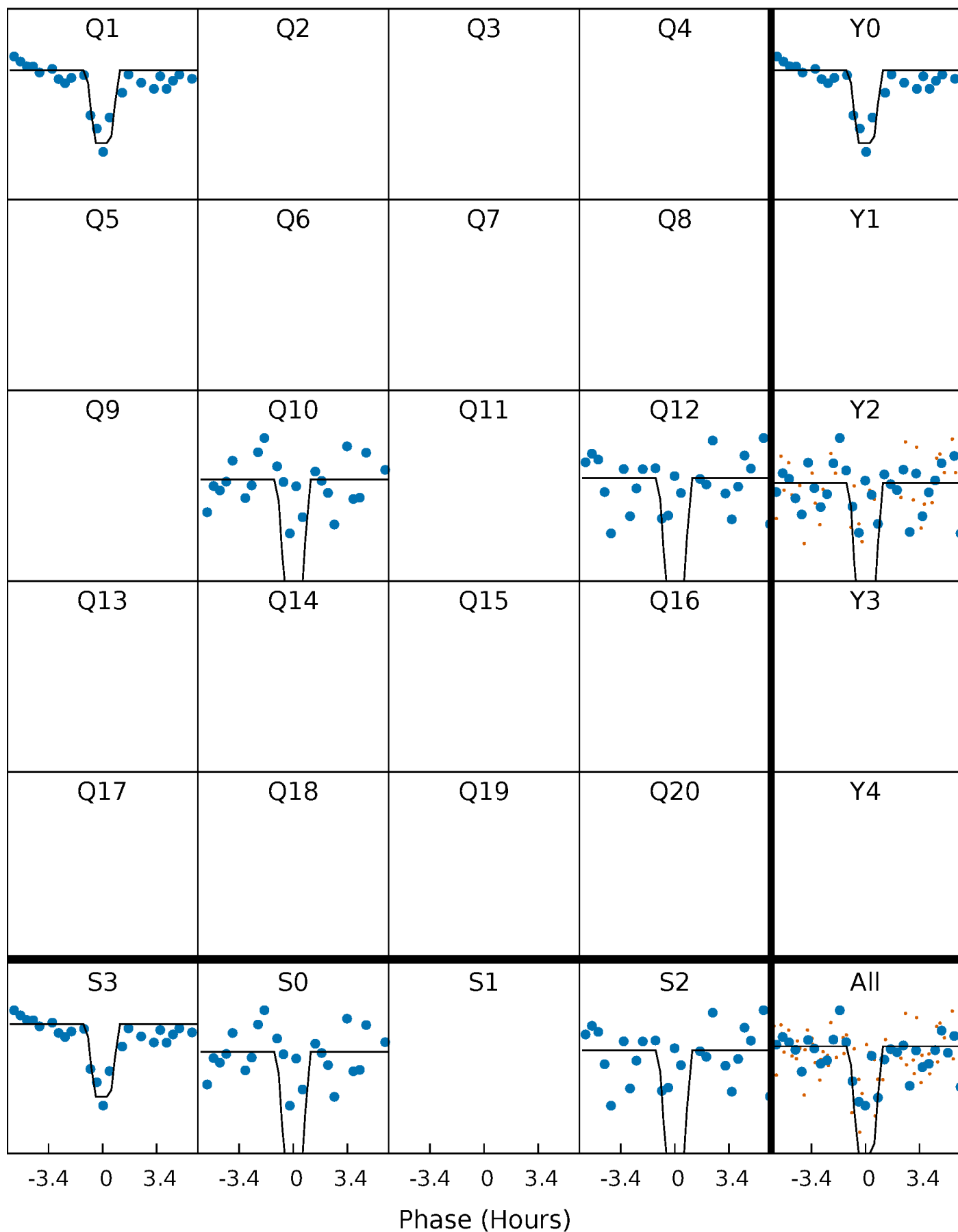
DV Quarter-Phased Transit Curves

TCE 005427596-01 $P=188.134294$ Days $T_0=162.854557$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

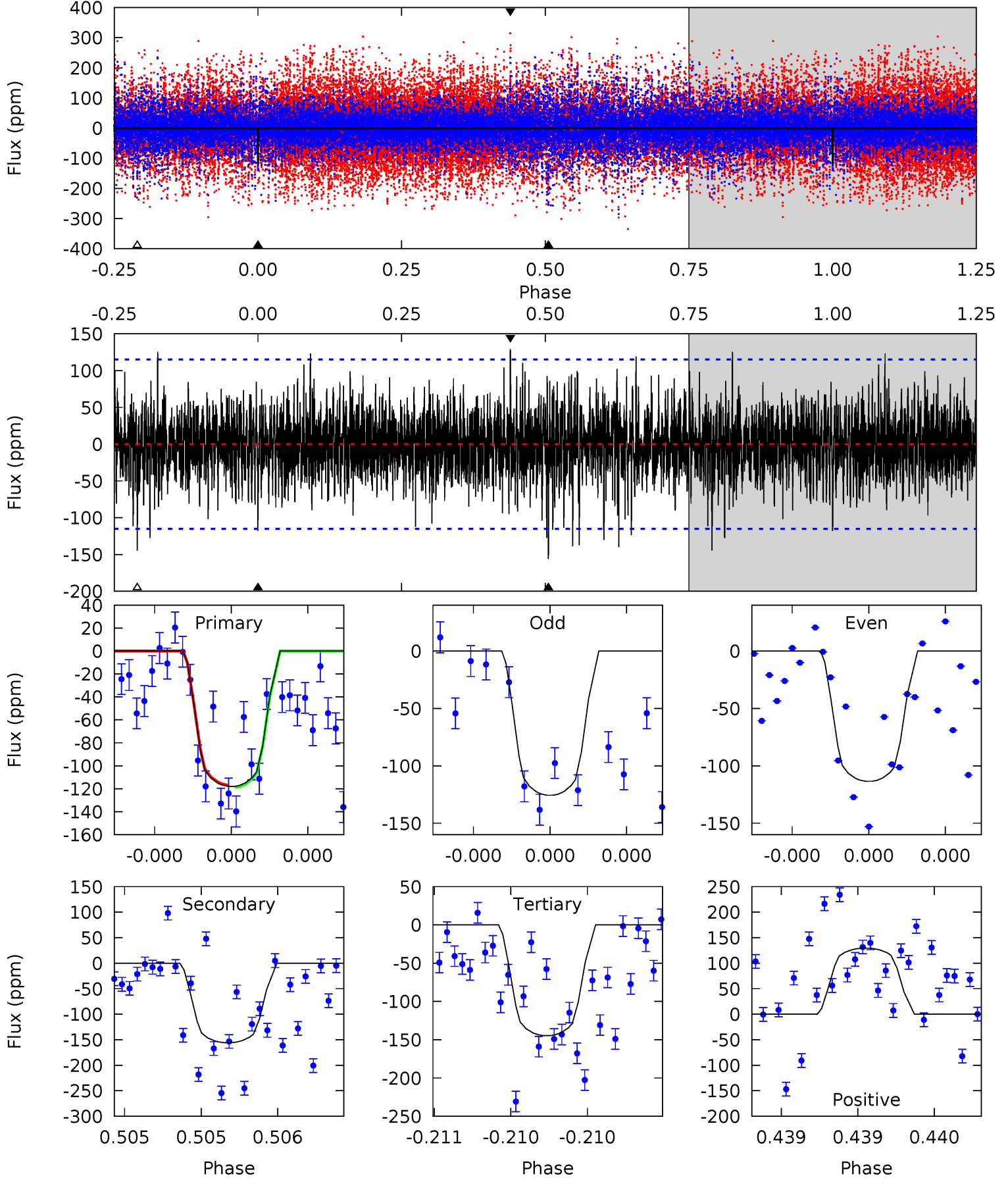
TCE 005427596-01 P=188.135739 Days $T_0=162.854165$ (BKJD)



DV Model-Shift Uniqueness Test

005427596-01, P = 188.134294 Days, E = 162.854557 Days

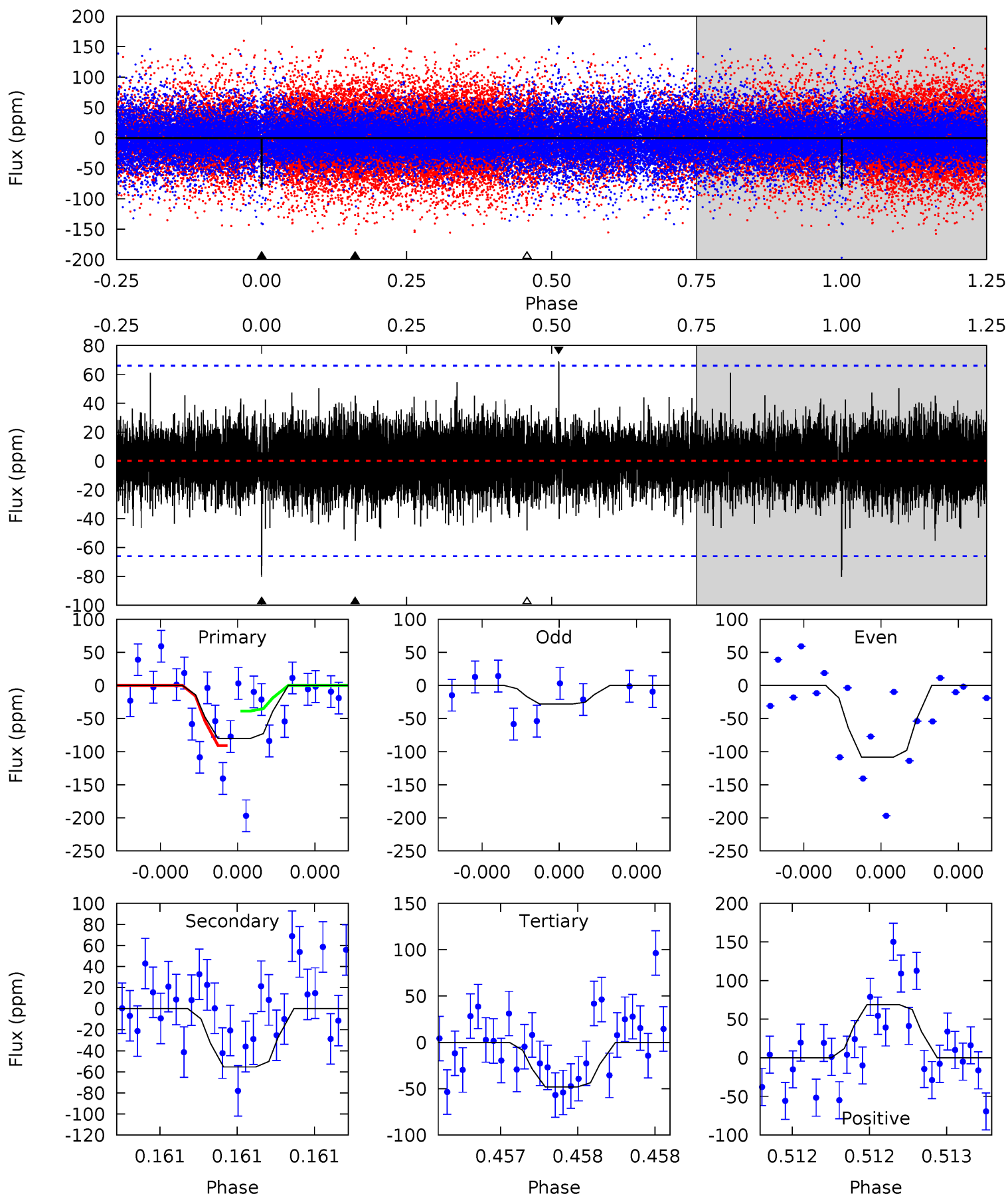
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.72 | 7.56 | 7.02 | 6.28 | 5.58 | 3.49 | 1.54 | -1.30 | -0.56 | 0.54 | 1.28 | 0.28 | 0.93 | 0.45 | 0.05 |



Alt Model-Shift Uniqueness Test

005427596-01, P = 188.135739 Days, E = 162.854165 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.84 | 4.72 | 4.09 | 5.87 | 5.62 | 3.56 | 1.11 | 2.75 | 0.97 | 0.62 | -1.15 | 3.14 | 1.81 | 0.46 | 2.11 |



Stellar Parameters For KIC 005427596

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6499^{+142}_{-168} | $4.114^{+0.192}_{-0.128}$ | $-0.140^{+0.250}_{-0.250}$ | $1.583^{+0.366}_{-0.366}$ | $1.185^{+0.193}_{-0.145}$ | $0.421^{+0.434}_{-0.157}$ |
| | +2%/-3% | +5%/-3% | +179%/-179% | +23%/-23% | +16%/-12% | +103%/-37% |
| 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 005427596-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|-------------------|------------------------|-------------------------|
| DV | -156 ± 21 | $2.19^{+1.61}_{-1.45}$ | 607^{+36}_{-40} | 6433^{+6428}_{-1437} | 8331^{+64257}_{-5511} |
| Alt. | -55 ± 12 | $2.44^{+1.58}_{-1.41}$ | 607^{+38}_{-38} | 4828^{+2416}_{-893} | 2423^{+11202}_{-1617} |

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

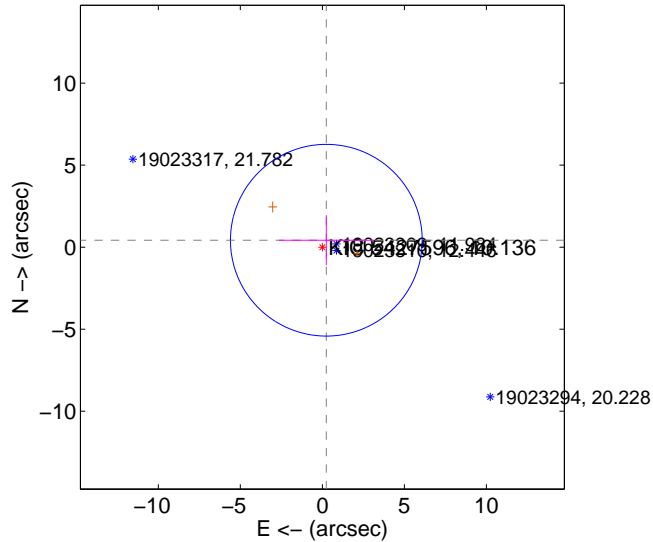
Supplemental centroid analysis for 005427596-01. **Kepler magnitude: 10.14.** Transit SNR 9.51

There are 0 quarters with good PRF difference image offsets

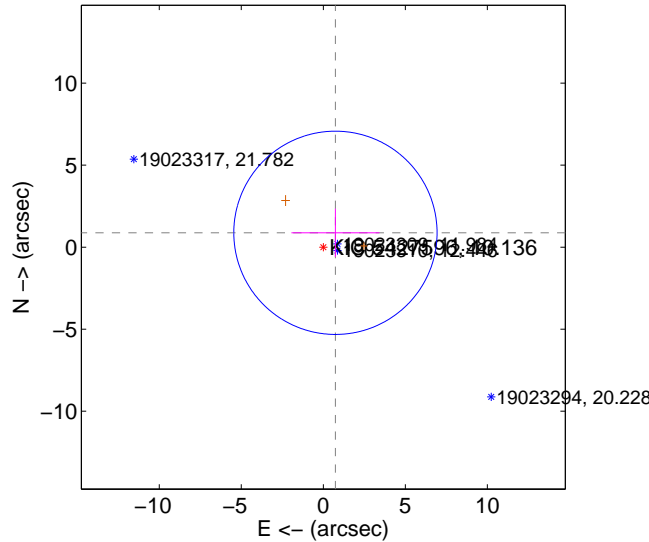
The direct PRF centroid is offset from the target star catalog position by about 0.60 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.488 ± 1.948 | 0.25 | -0.243 ± 2.887 | 0.424 ± 1.518 |
| PRF-fit source offset from KIC position | 1.145 ± 2.065 | 0.55 | -0.739 ± 2.684 | 0.875 ± 1.472 |
| photometric centroid source offset | 4.20 ± 2.70 | 1.56 | -0.84 ± 2.75 | -4.11 ± 2.70 |

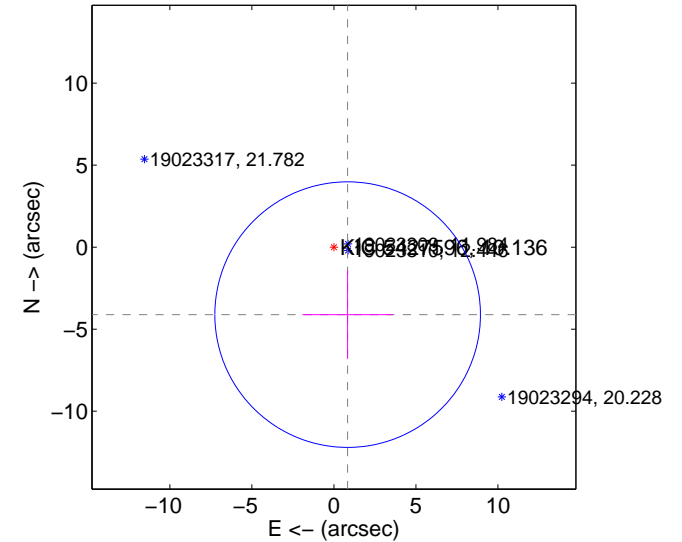
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

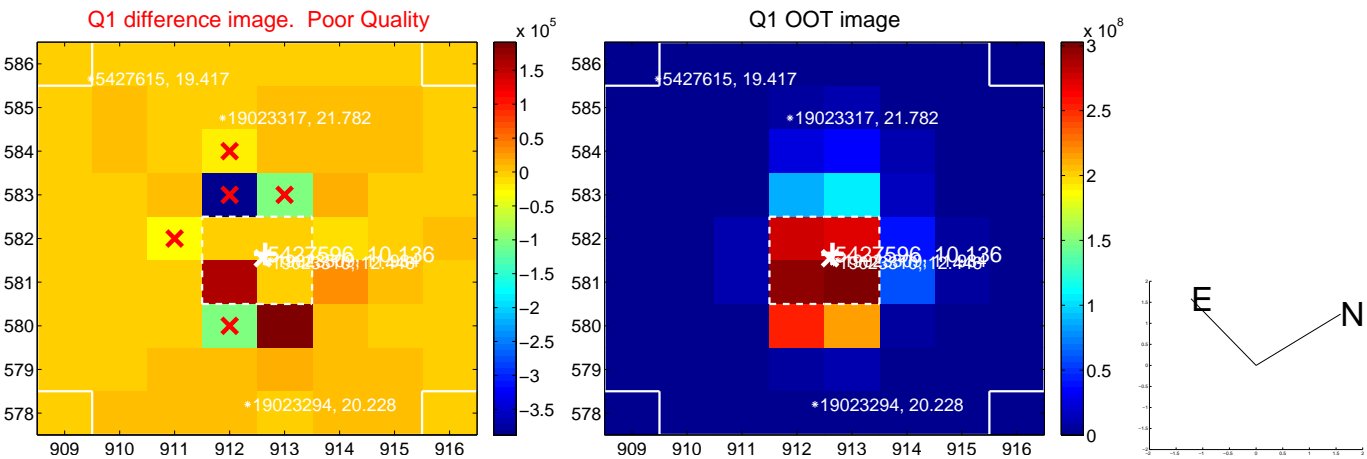


offset from photometric centroids



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: 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.

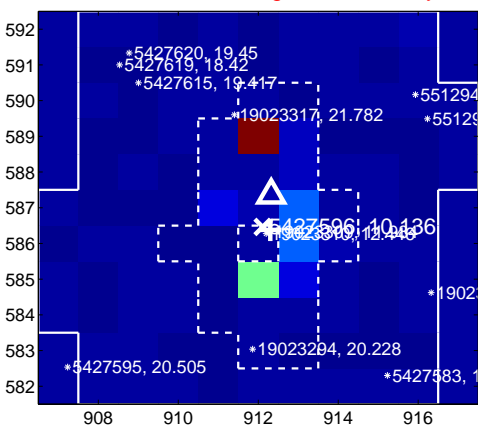
Q9 no difference image



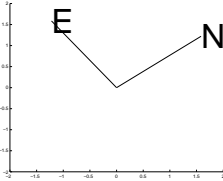
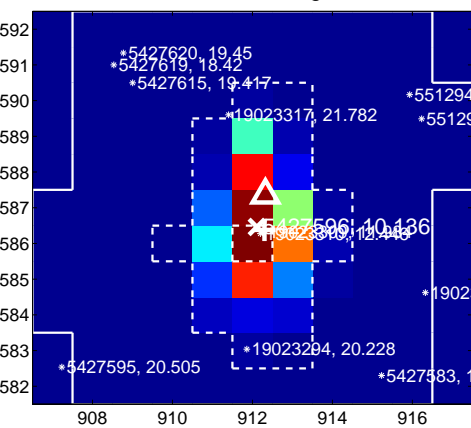
Q9 no OOT image



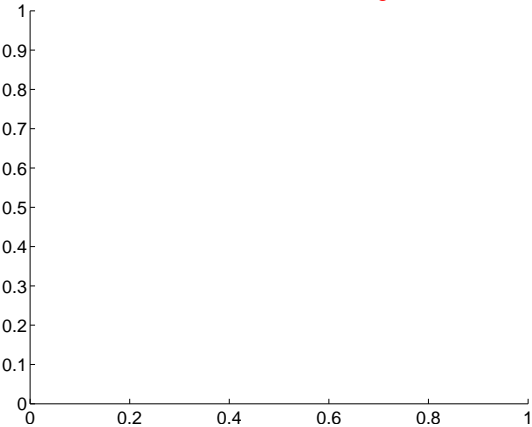
Q10 difference image. Poor Quality



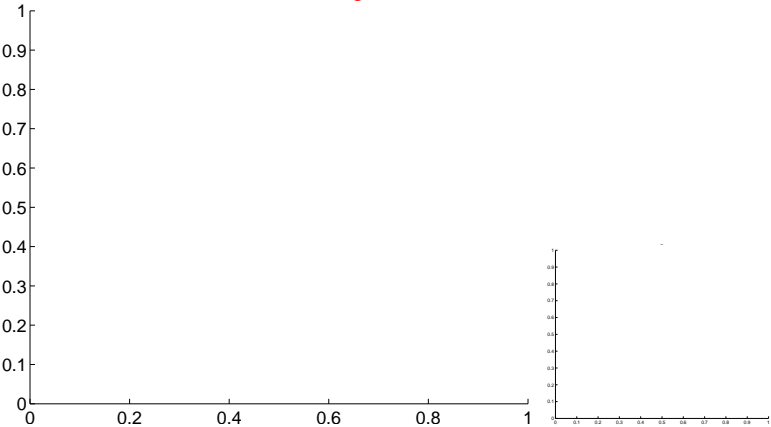
Q10 OOT image



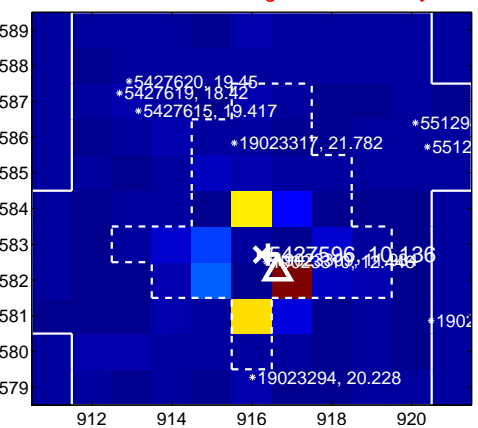
Q11 no difference image



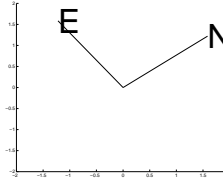
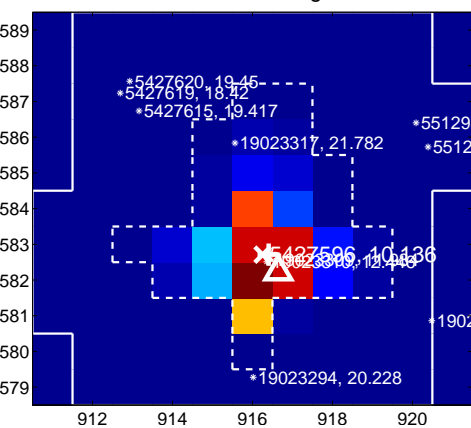
Q11 no OOT image



Q12 difference image. Poor Quality



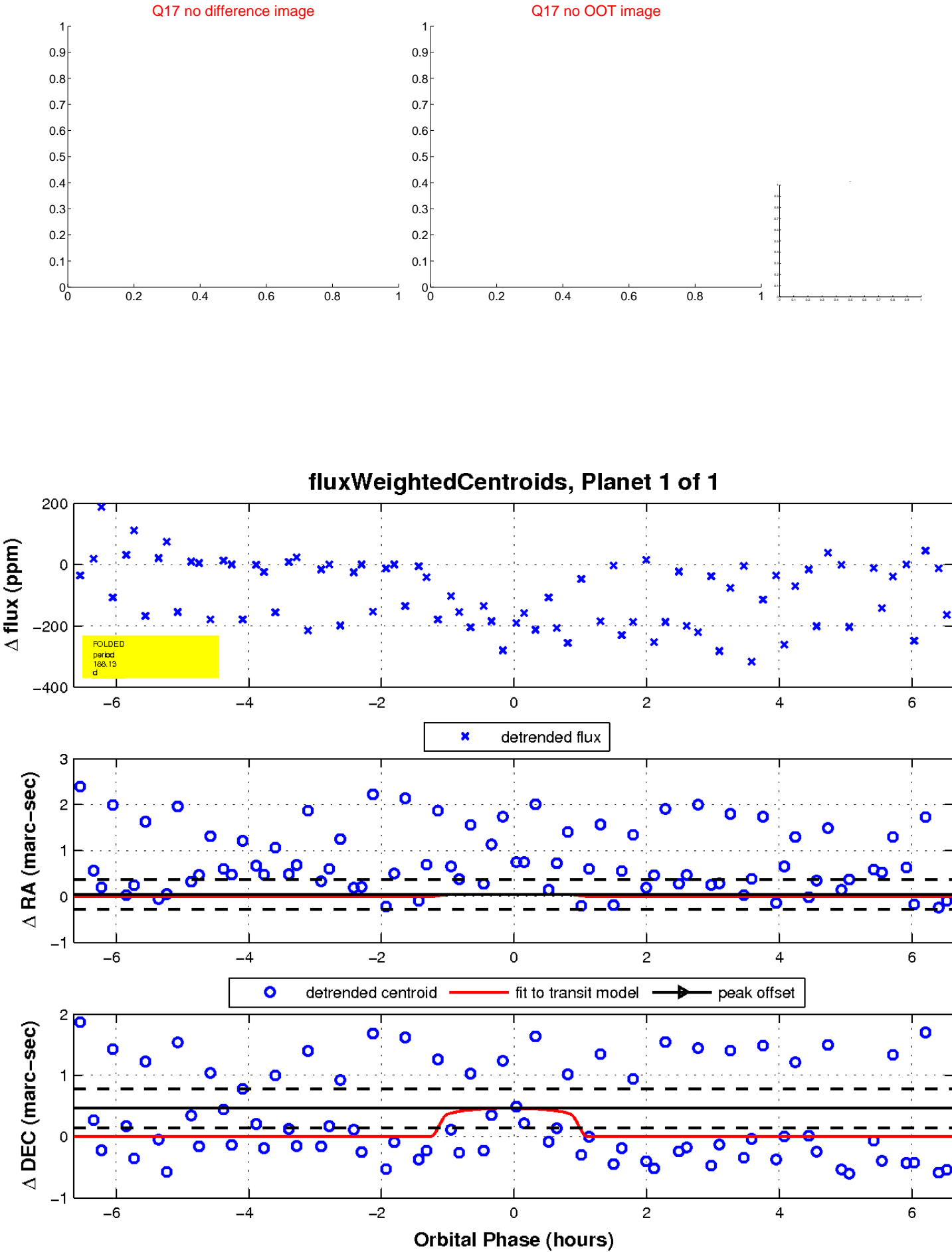
Q12 OOT image



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.



UKIRT Image

Declination

