

KIC 006836820

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 006836820-01 | OBS | No | 0.893066 | 132.117452 | 453.3 | 2.890 | 9.4 | 3.6 | 1.27 | 6311 | 2.82 | 6610.06 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 006836820-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—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.

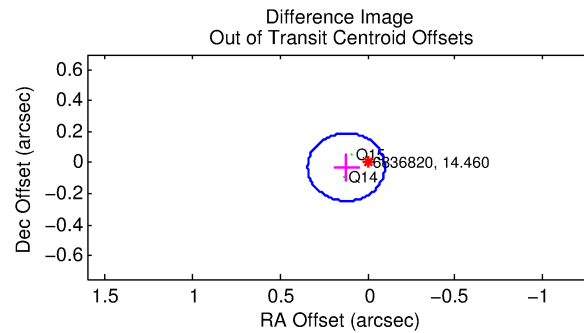
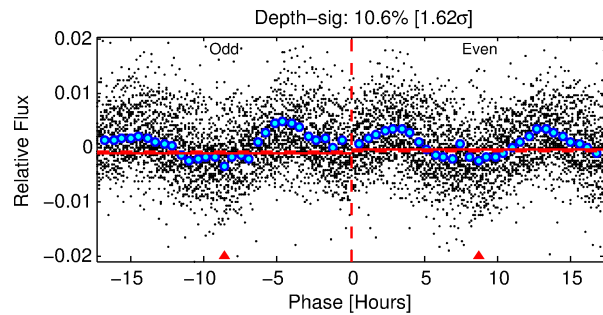
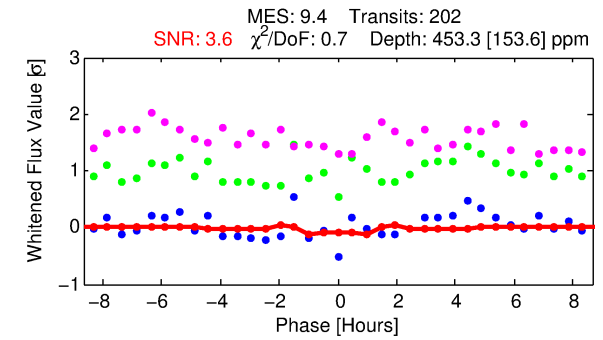
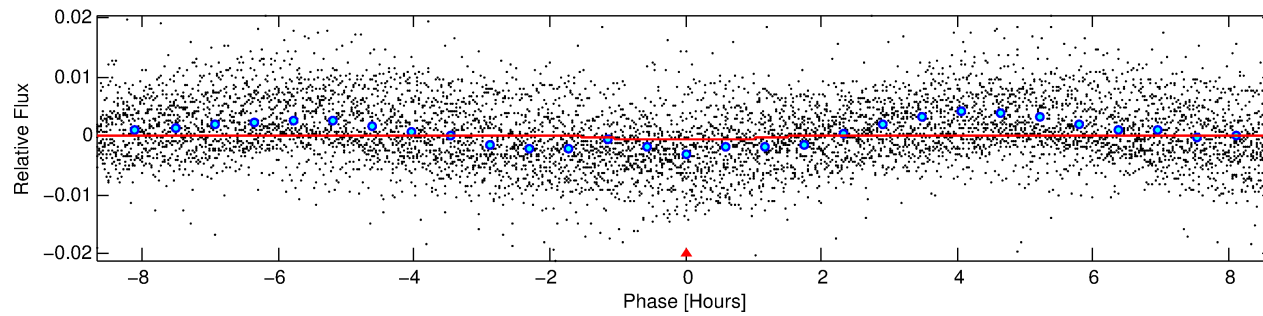
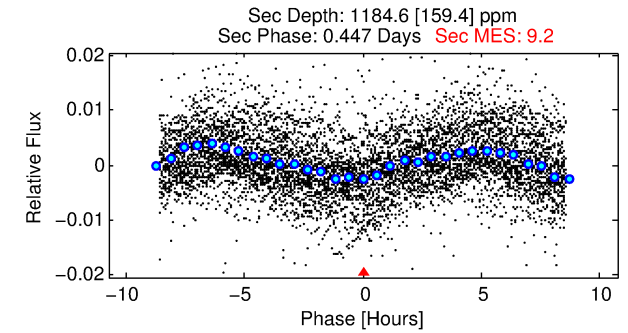
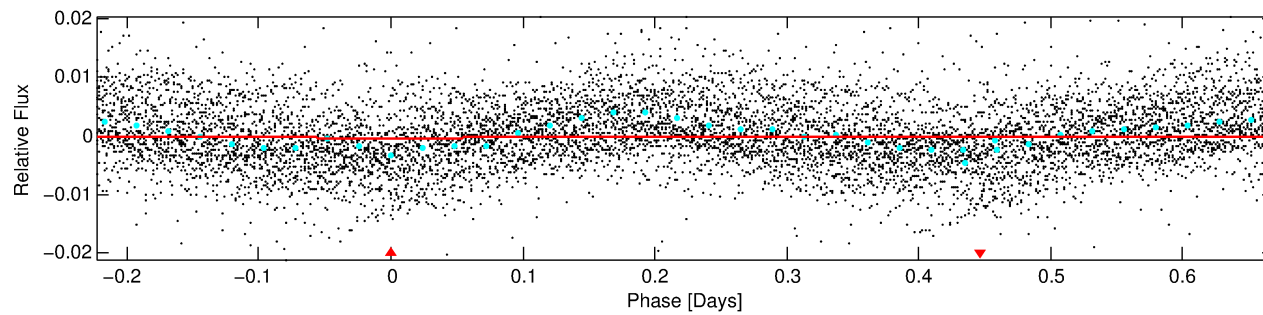
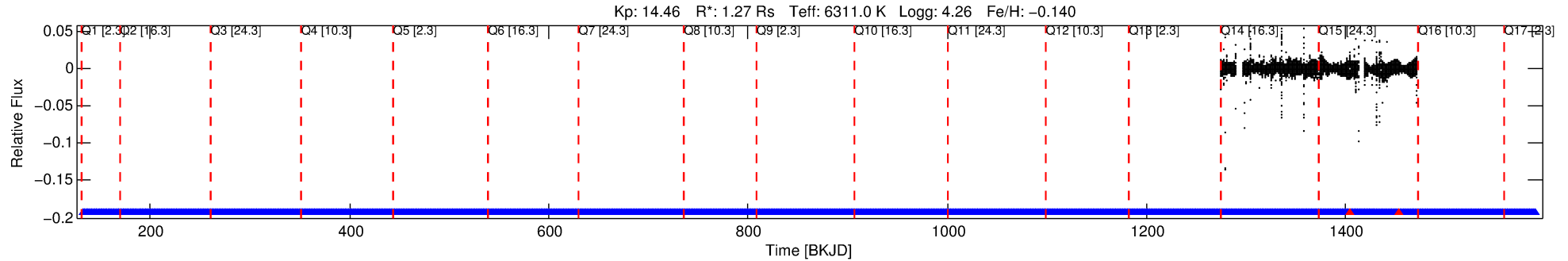
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006836820-01

No Significant Match Found

DV One-Page Summary

KIC: 6836820 Candidate: 1 of 1 Period: 0.893 d



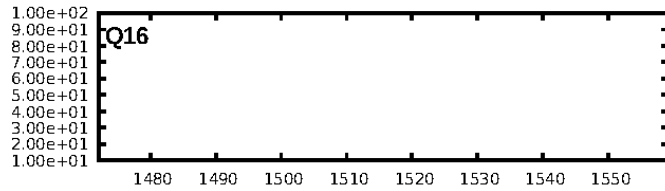
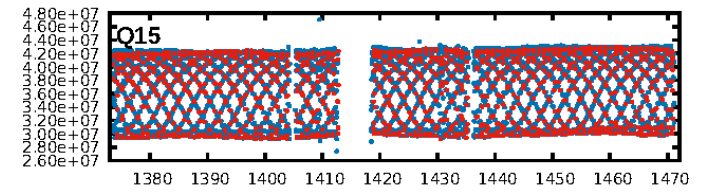
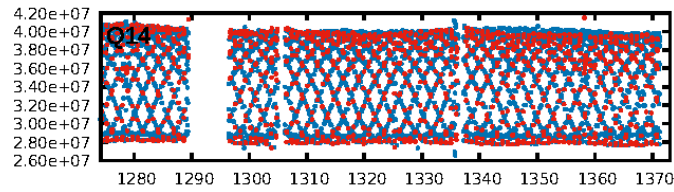
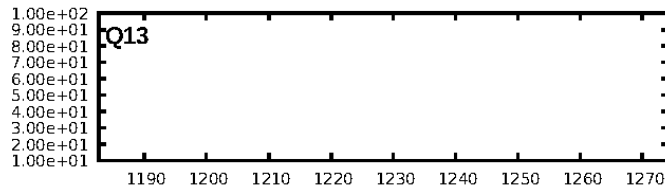
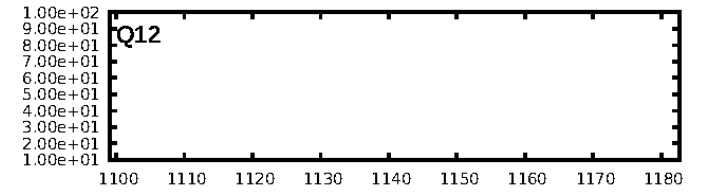
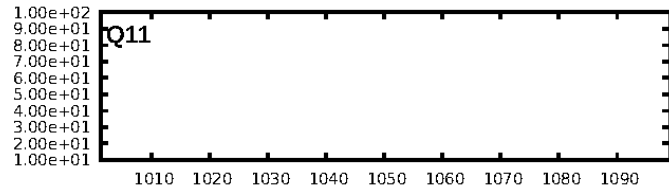
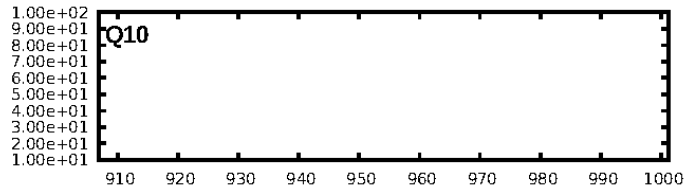
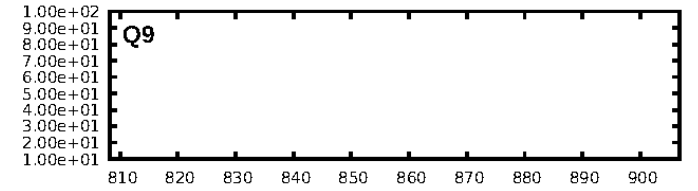
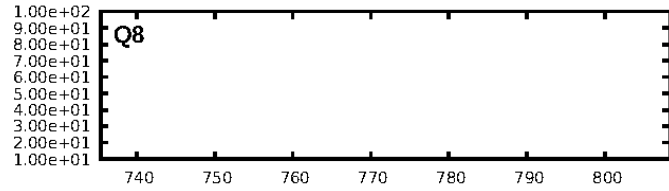
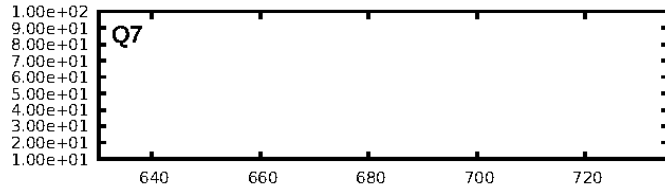
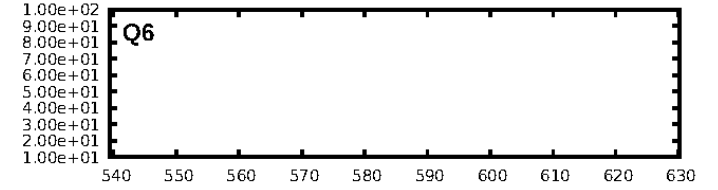
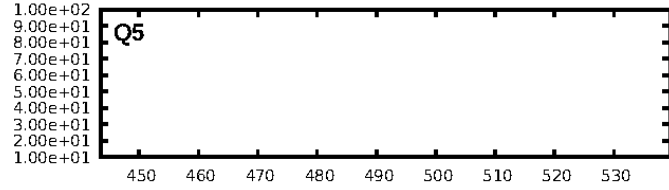
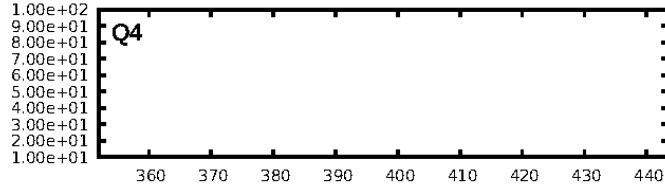
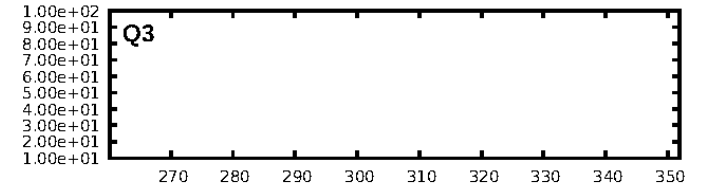
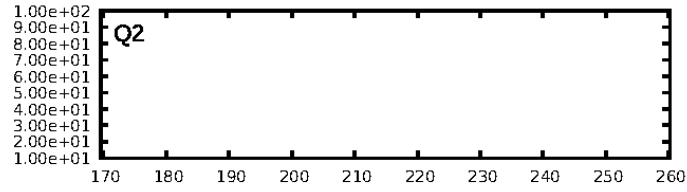
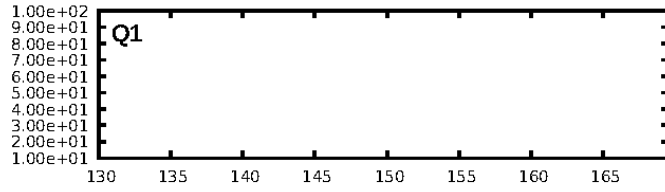
DV Fit Results:

Period = 0.89307 [0.00003] d
Epoch = 132.1175 [0.0046] BKJD
Rp/R* = 0.0203 [0.0265]
a/R* = 2.15 [11.22]
b = 0.56 [8.23]
Seff = 6610.07 [2568.81]
Teff = 2299 [223] K
Rp = 2.82 [3.78] Re
a = 0.0186 [0.0048] AU
Ag = 28.56 [75.38] [0.37 σ]
Teffp = 8217 [5383] K [1.10 σ]

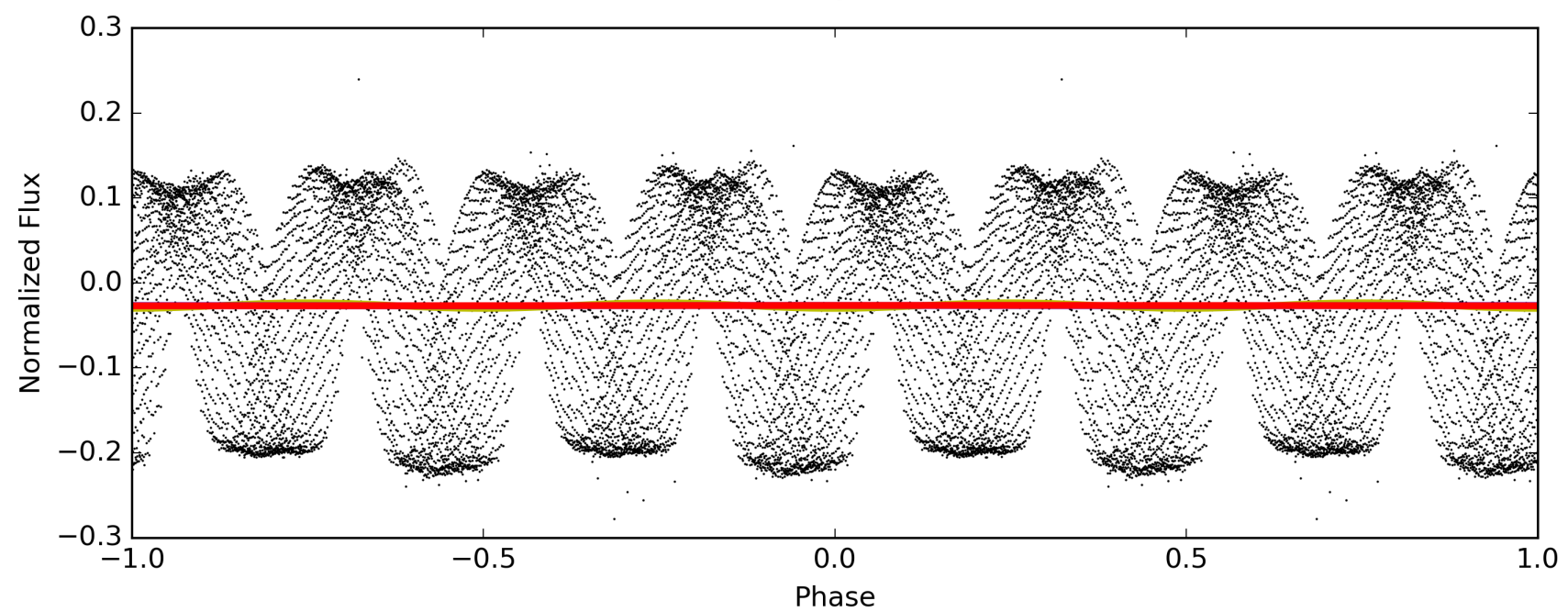
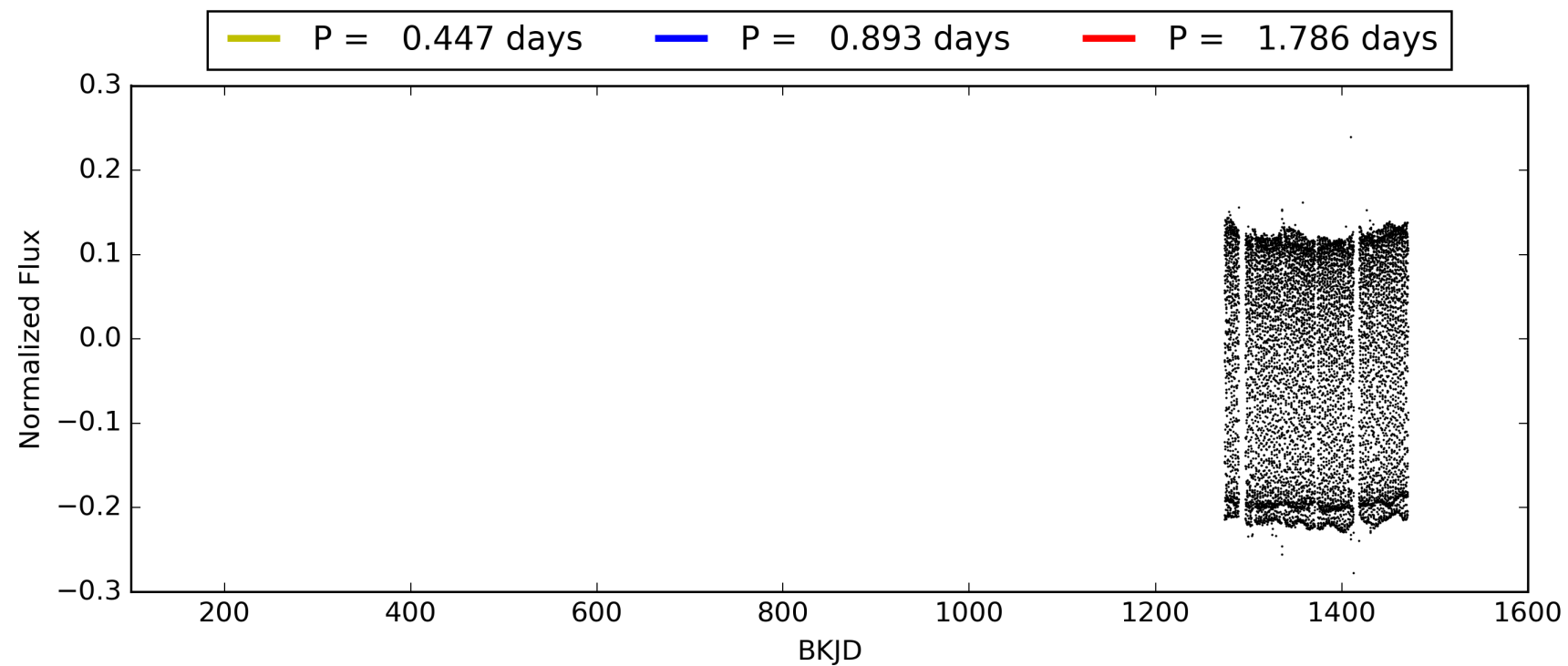
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.63e-22
RollingBand-fgt: 0.99 [200/202]
GhostDiagnostic-chr: -3.165
Centroid-sig: N/A
Centroid-so: 22.758 arcsec [15.92 σ]
OotOffset-rm: 0.126 arcsec [1.72 σ]
KicOffset-rm: 0.186 arcsec [1.73 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 006836820-01, PDC Light Curves

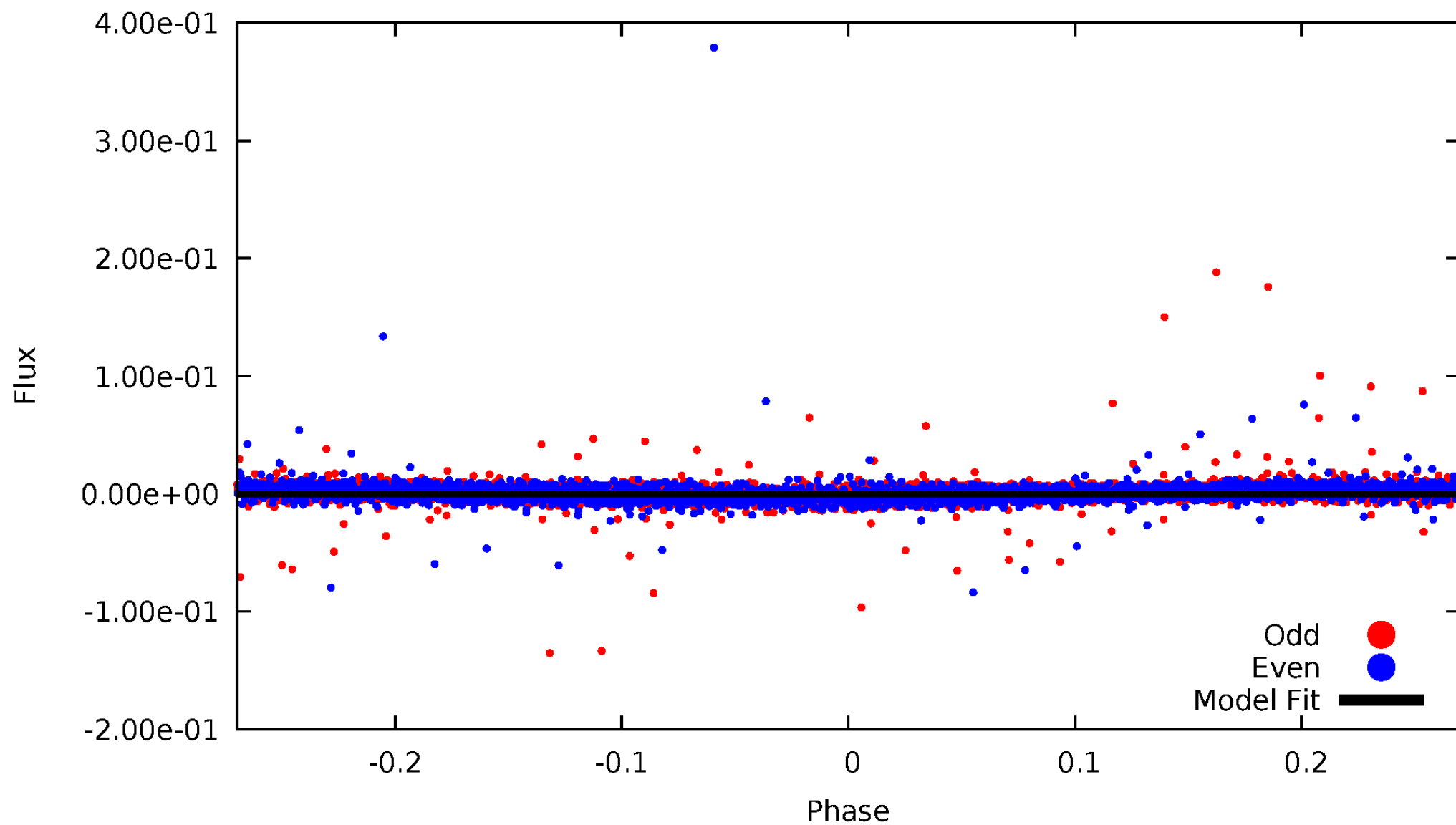


TCE 006836820-01



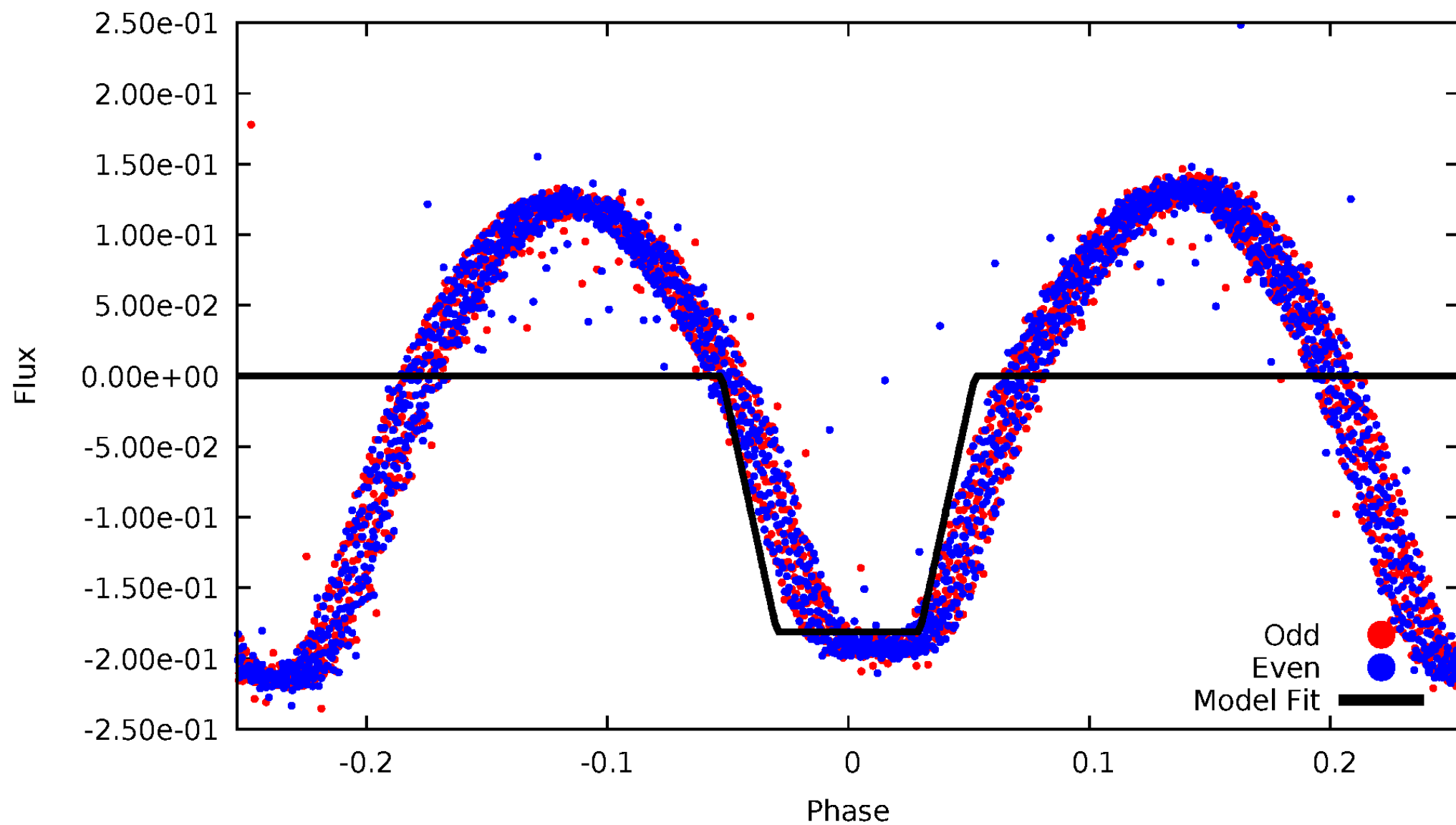
DV Odd/Even

TCE 006836820-01



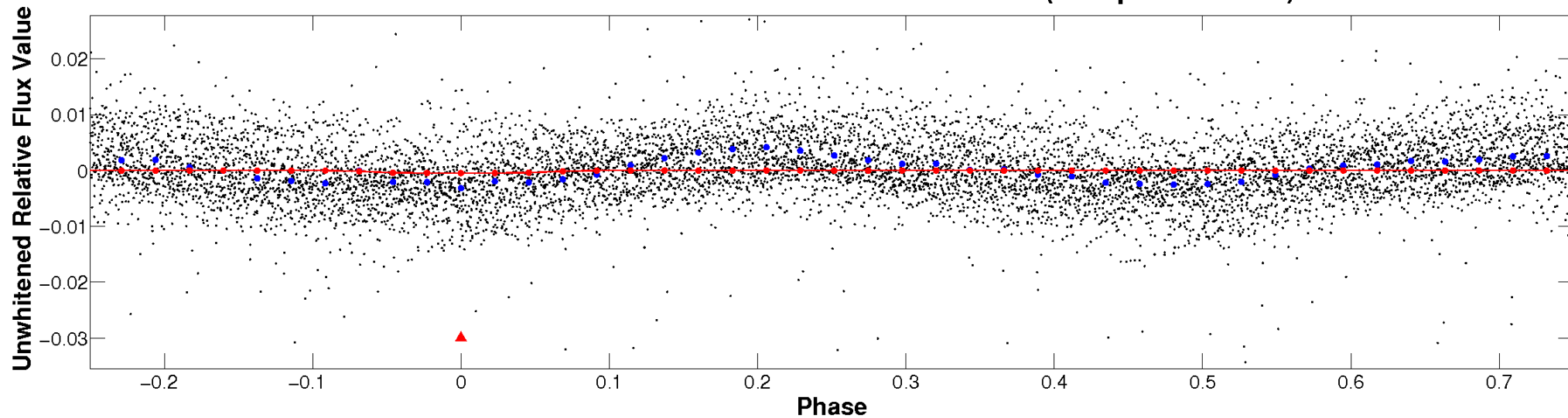
ALT Odd/Even

TCE 006836820-01

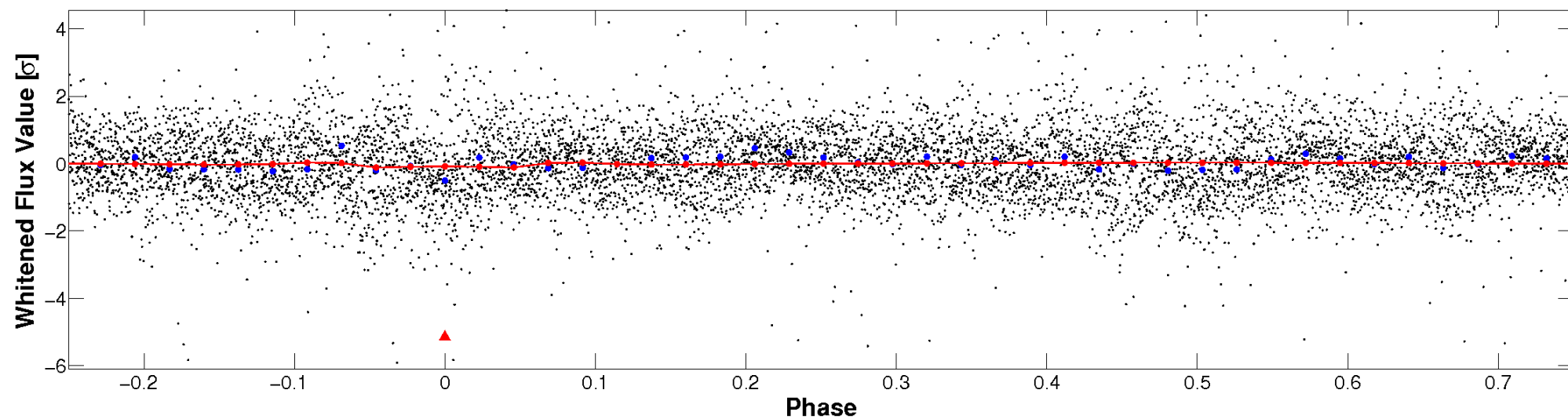


Non-Whitened Vs. Whitened Light Curve

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

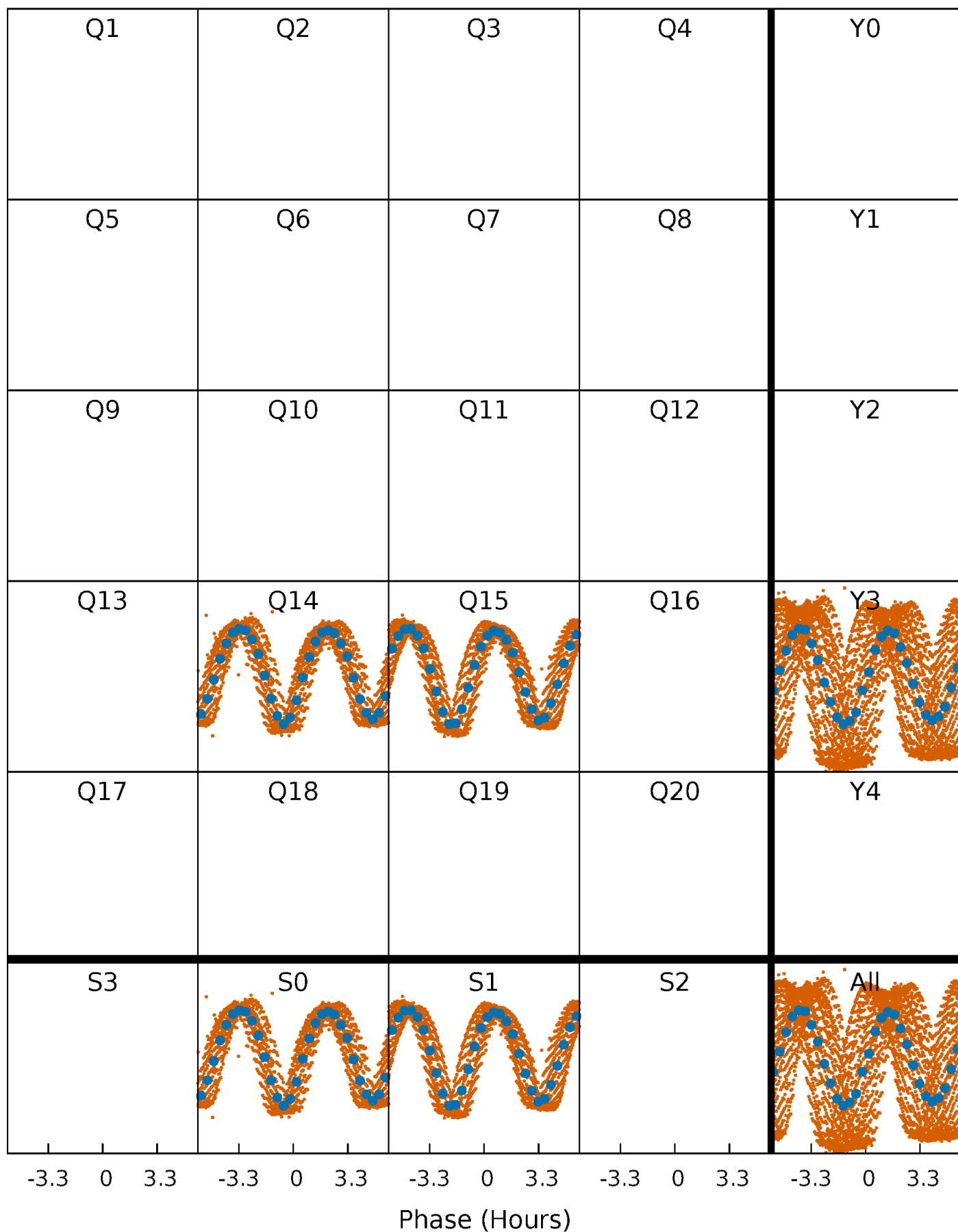


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



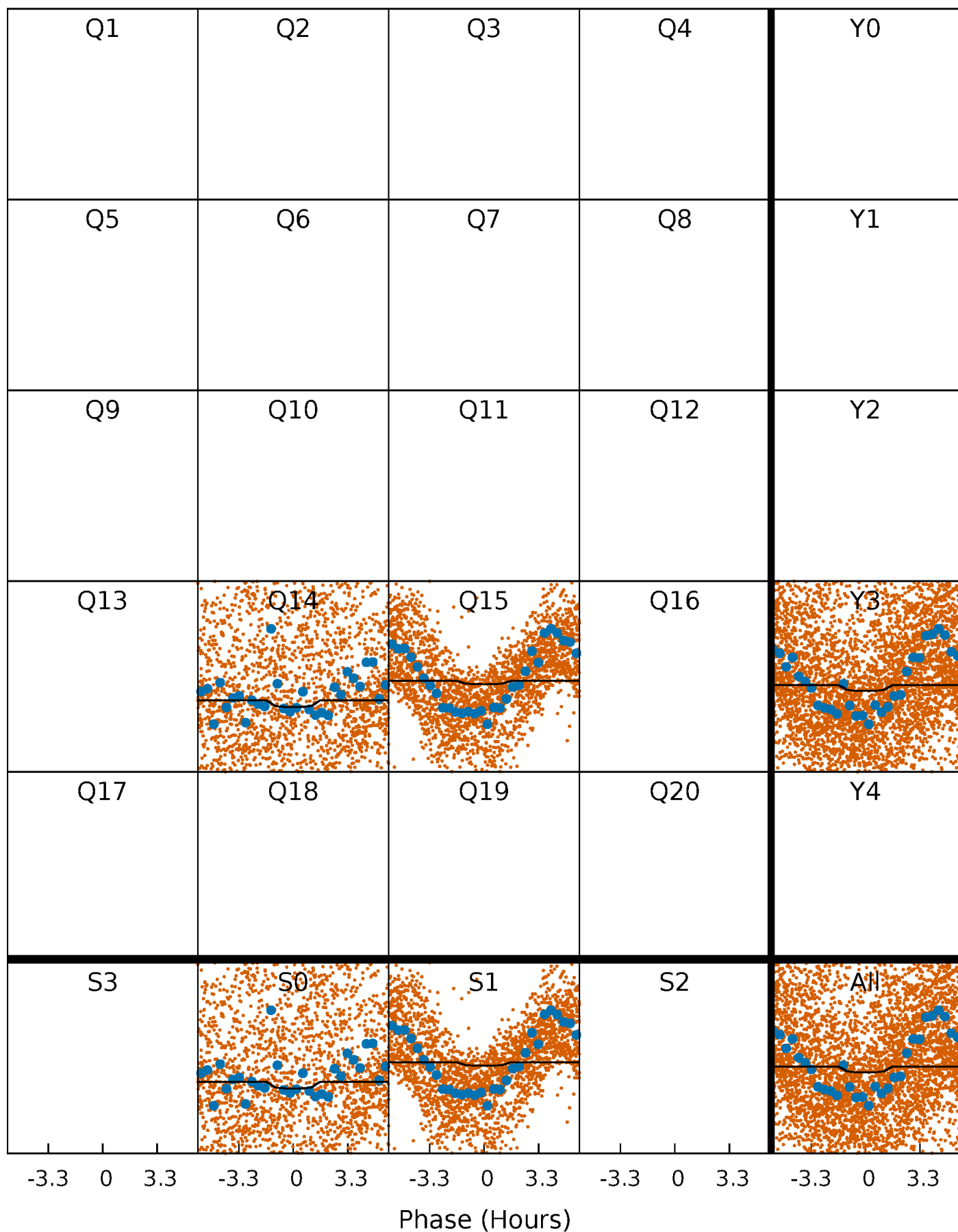
PDC Quarter-Phased Transit Curves

TCE 006836820-01 P= 0.893066 Days $T_0=132.117452$ (BKJD)



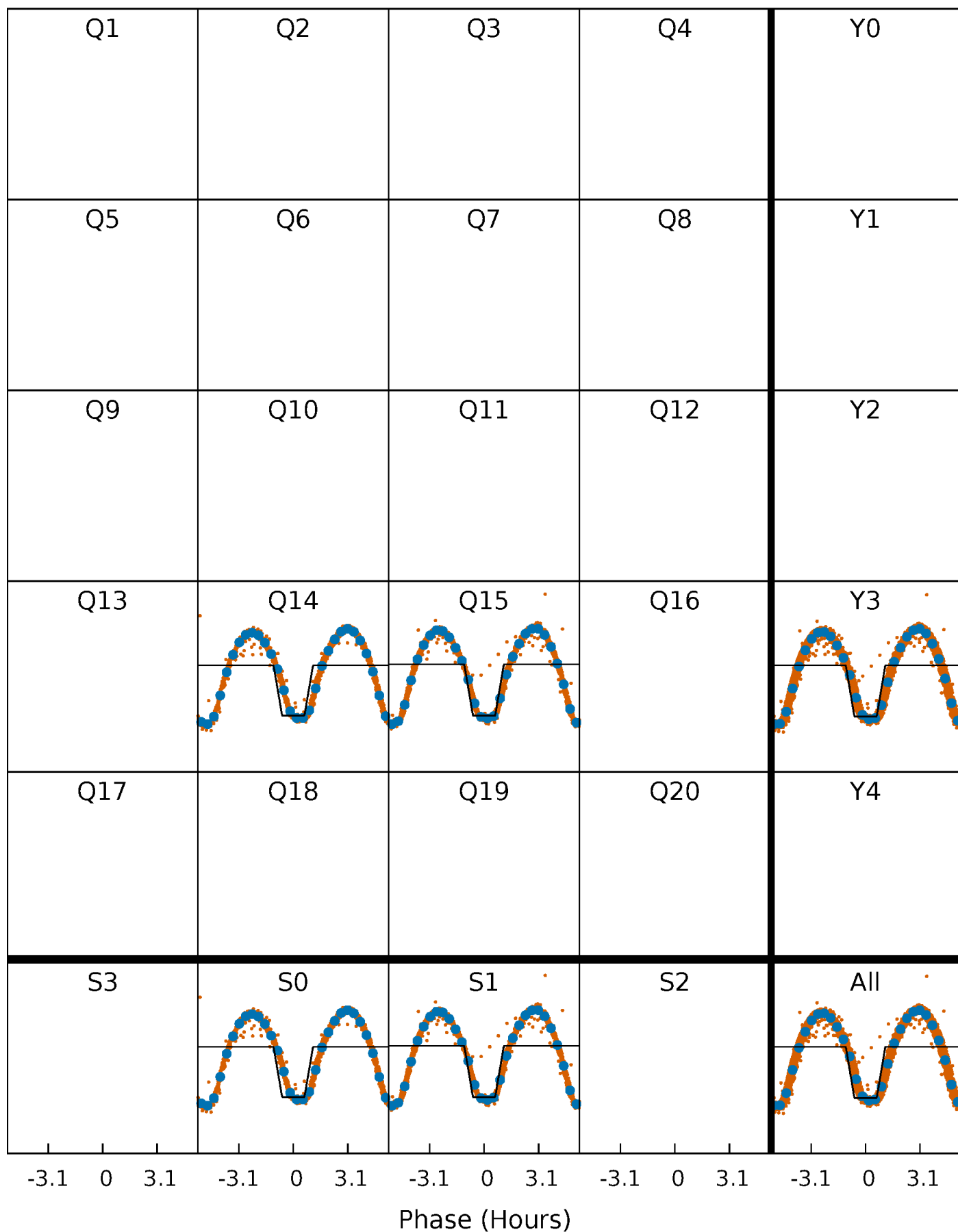
DV Quarter-Phased Transit Curves

TCE 006836820-01 P= 0.893066 Days $T_0=132.117452$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

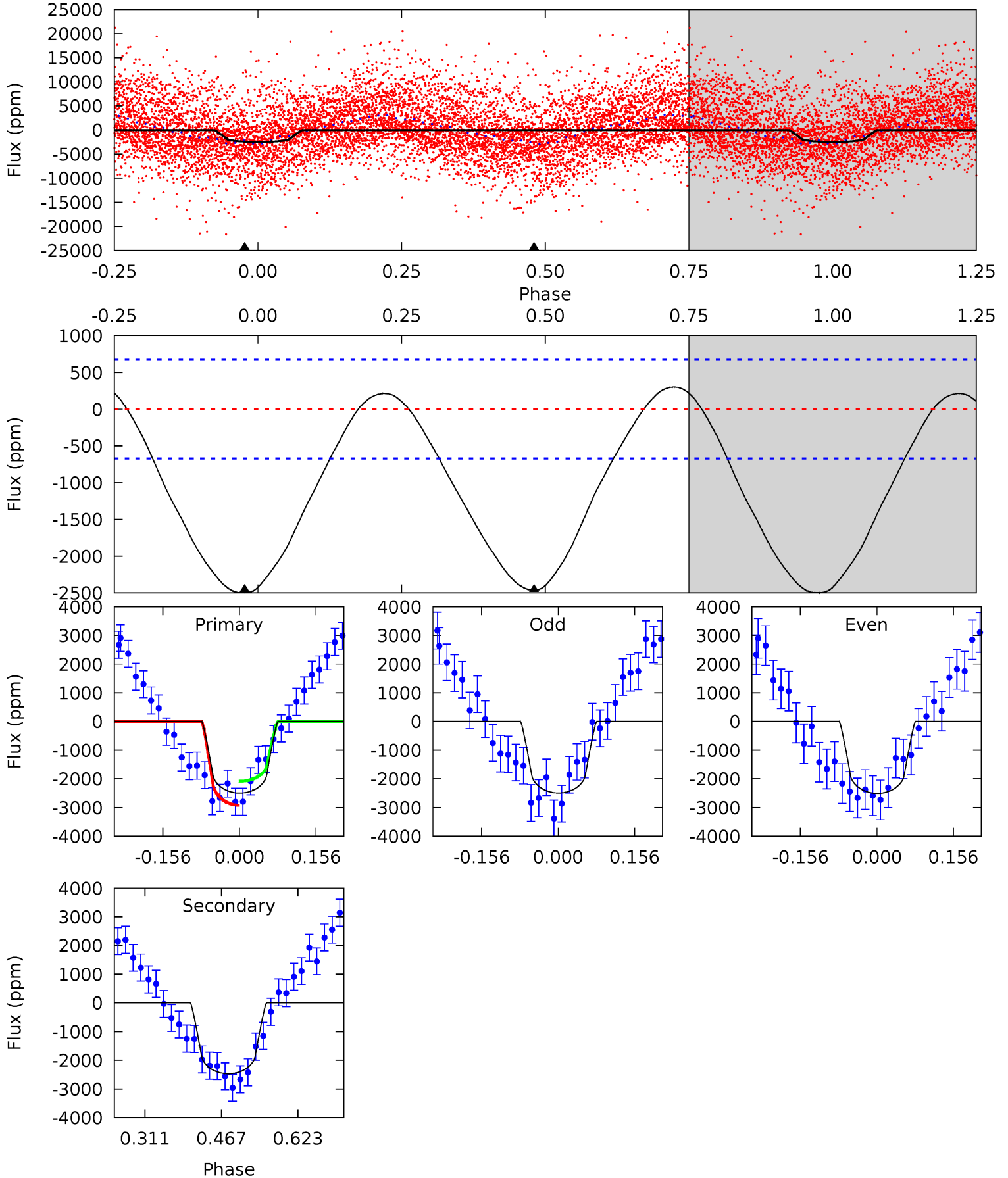
TCE 006836820-01 P= 0.892613 Days $T_0=132.015801$ (BKJD)



DV Model-Shift Uniqueness Test

006836820-01, P = 0.893066 Days, E = 132.117452 Days

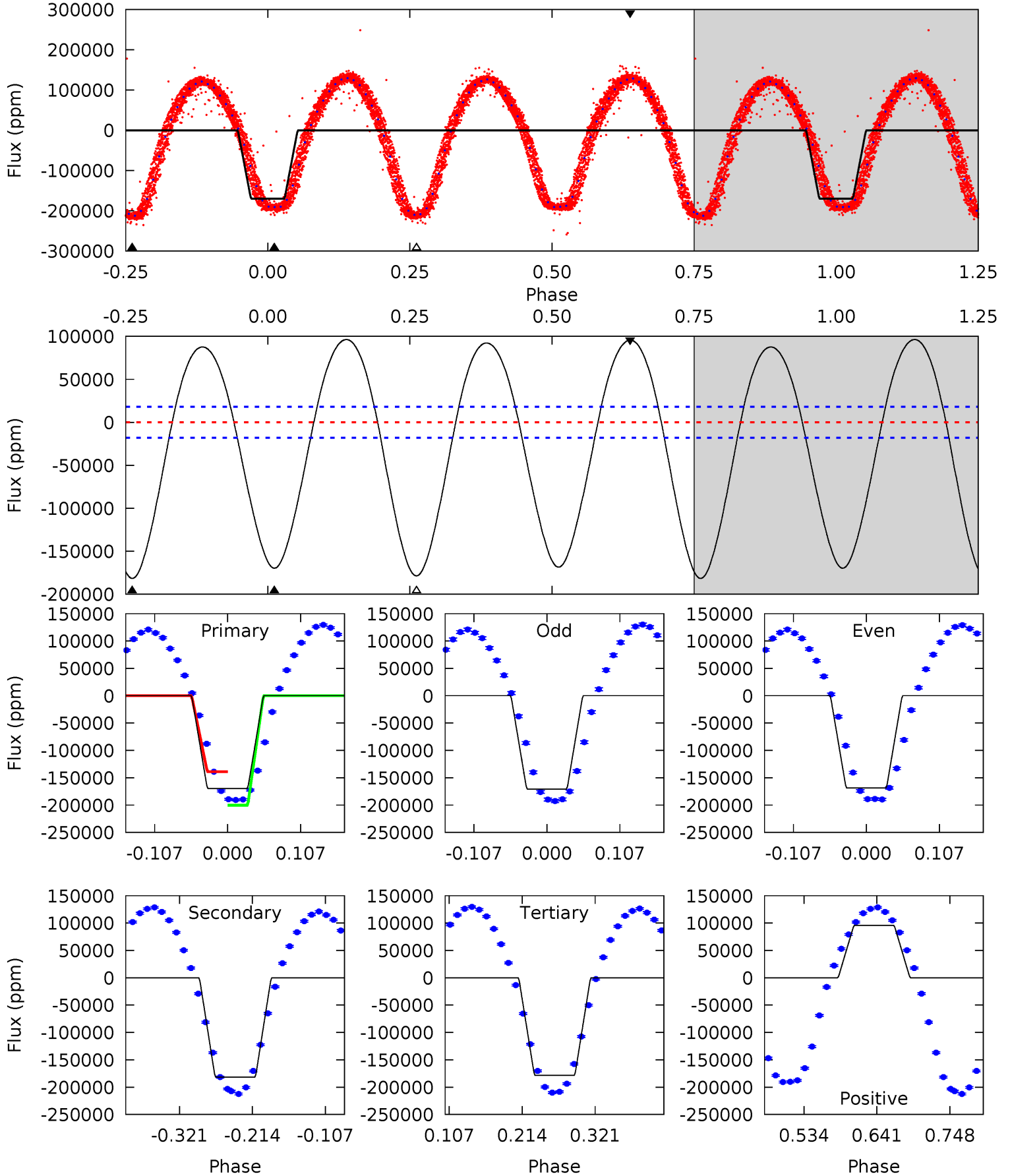
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.6 | 16.4 | 0 | 0 | 4.47 | 1.42 | 1.98 | 16.6 | 16.6 | 16.4 | 16.4 | 0.05 | 0.91 | 0.11 | 2.75 |



Alt Model-Shift Uniqueness Test

006836820-01, P = 0.892613 Days, E = 132.015801 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 42.8 | 45.8 | 45.0 | 24.1 | 4.55 | 1.61 | 24.1 | -2.25 | 18.7 | 0.73 | 21.6 | 0.23 | 0.99 | 0.35 | 8.69 |



Stellar Parameters For KIC 006836820

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6311^{+177}_{-243} | $4.264^{+0.153}_{-0.187}$ | $-0.140^{+0.250}_{-0.300}$ | $1.271^{+0.404}_{-0.249}$ | $1.079^{+0.182}_{-0.136}$ | $0.741^{+0.552}_{-0.360}$ |
| | +3%/-4% | +4%/-4% | +179%/-214% | +32%/-20% | +17%/-13% | +74%/-49% |
| 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 006836820-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------------|--------------------------|----------------------|-------------------------|-------------------|
| DV | -2470 ± 150 | $3.79^{+3.29}_{-2.38}$ | 3214^{+287}_{-205} | 8965^{+13200}_{-2737} | 32^{+222}_{-23} |
| Alt. | -181498 ± 3967 | $58.93^{+10.60}_{-7.26}$ | 3214^{+240}_{-204} | 6580^{+350}_{-297} | 12^{+3}_{-3} |

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

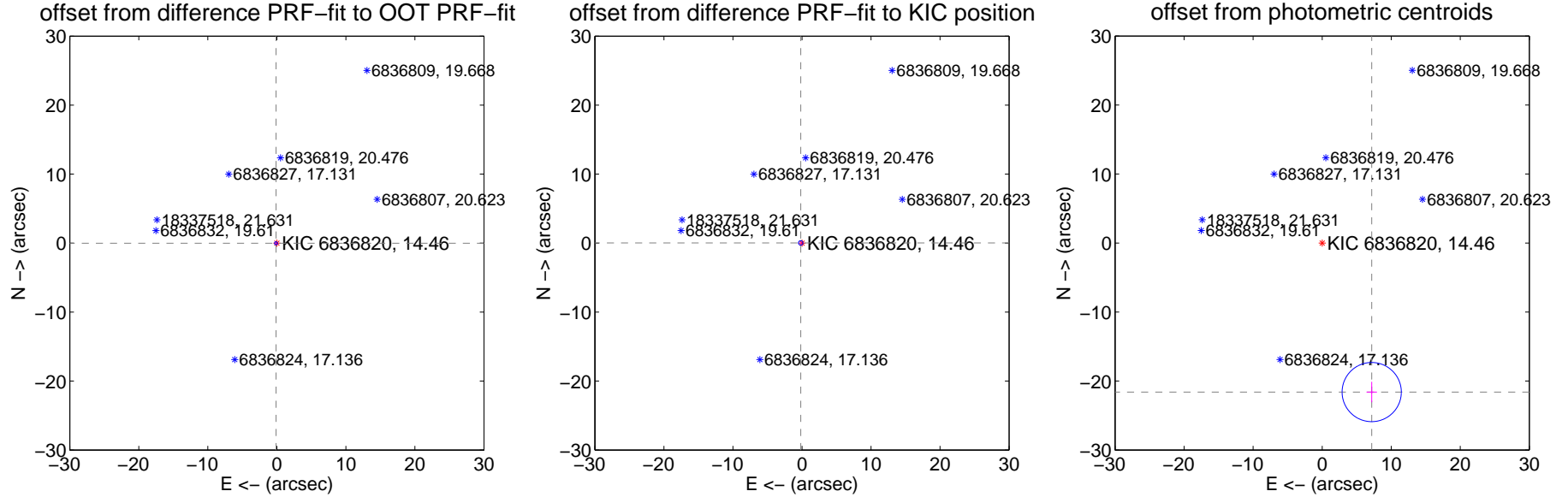
DV Centroid Data

Supplemental centroid analysis for 006836820-01. Kepler magnitude: 14.46. Transit SNR 3.59

There are 1 quarters with good PRF difference image offsets

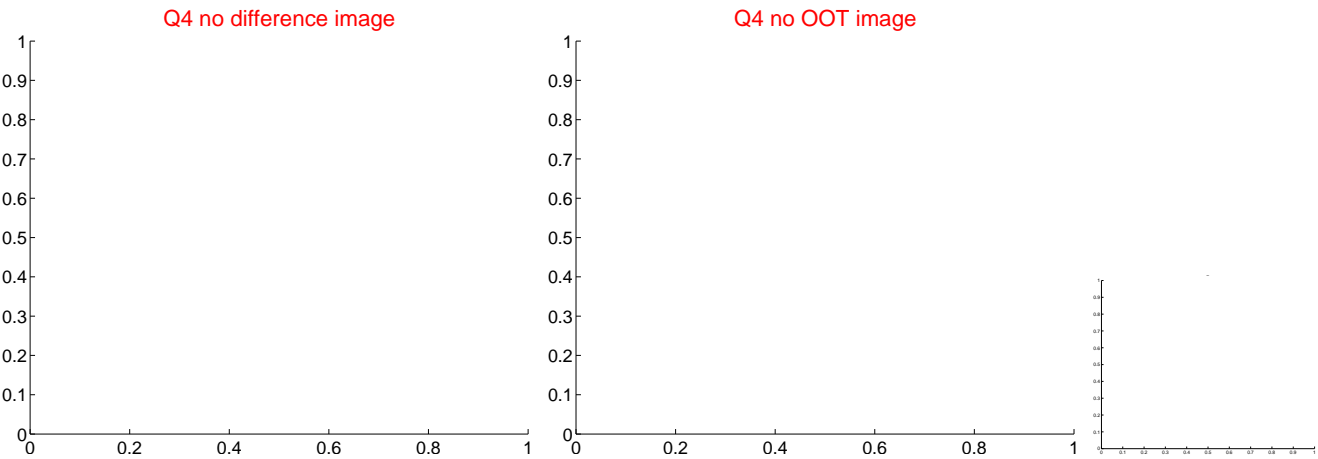
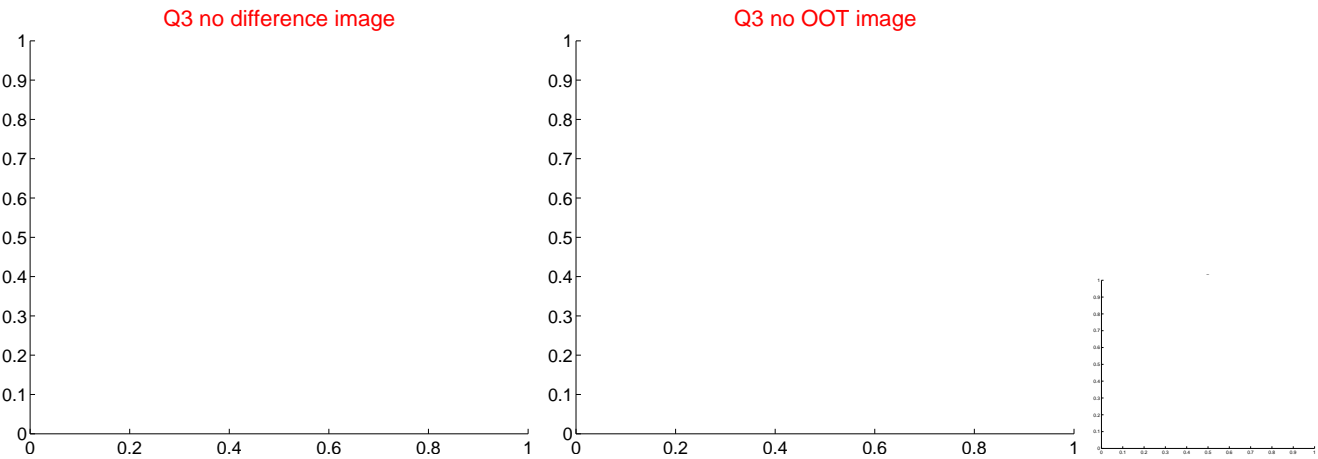
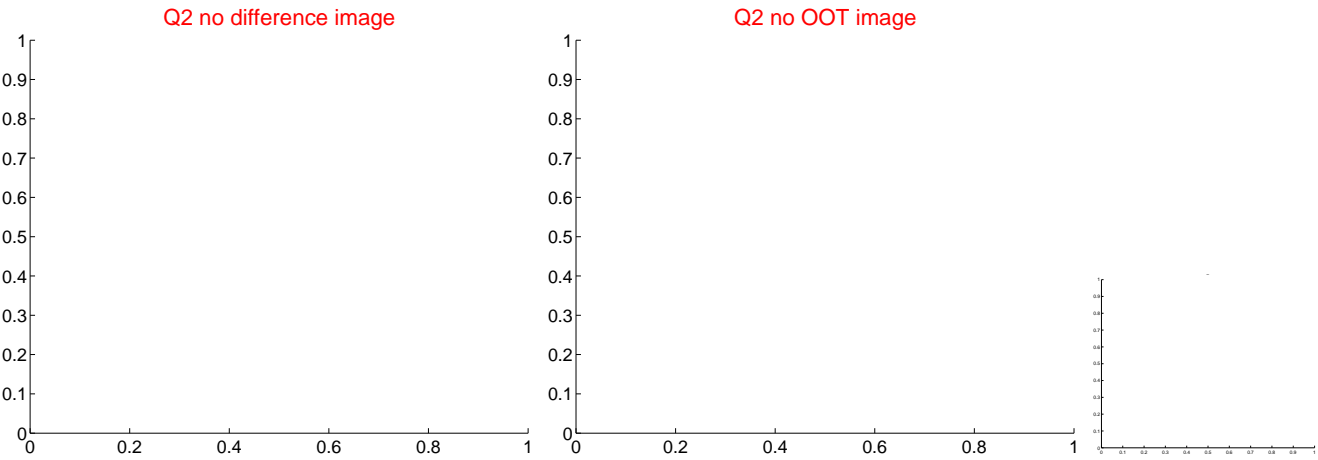
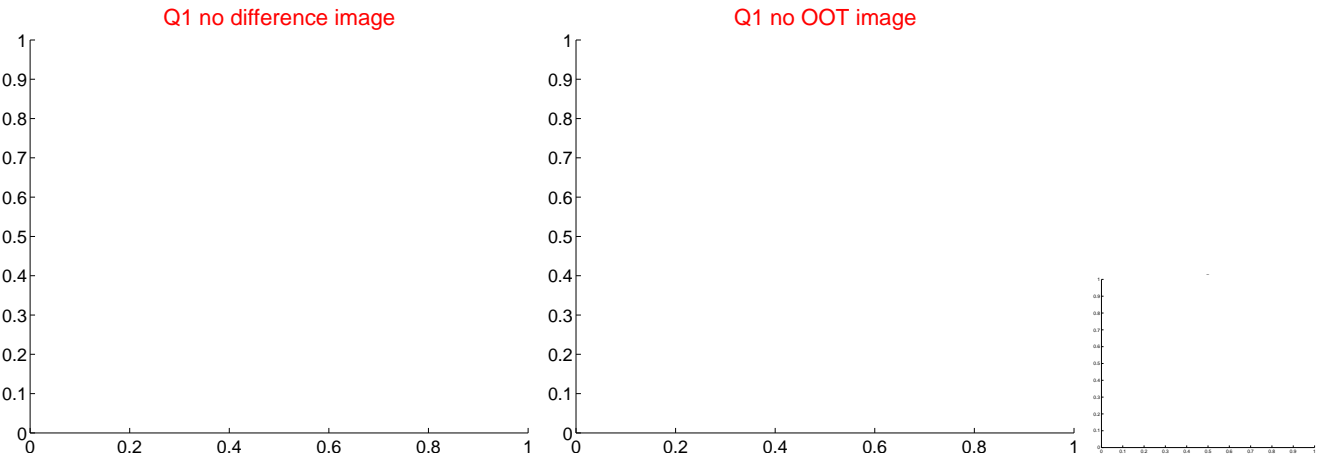
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.126 ± 0.073 | 1.72 | 0.123 ± 0.069 | -0.028 ± 0.087 |
| PRF-fit source offset from KIC position | 0.186 ± 0.107 | 1.73 | 0.184 ± 0.108 | 0.026 ± 0.078 |
| photometric centroid source offset | 22.76 ± 1.43 | 15.92 | -7.17 ± 0.76 | -21.60 ± 1.49 |



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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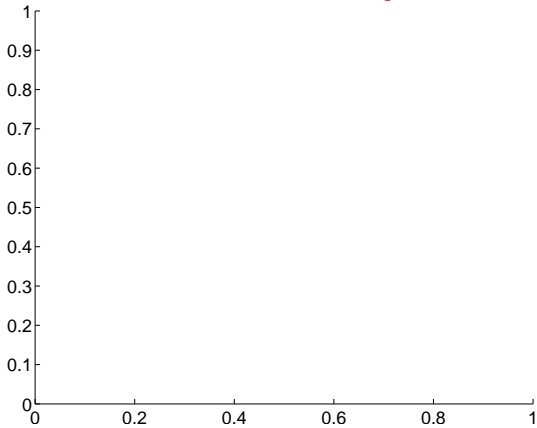


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

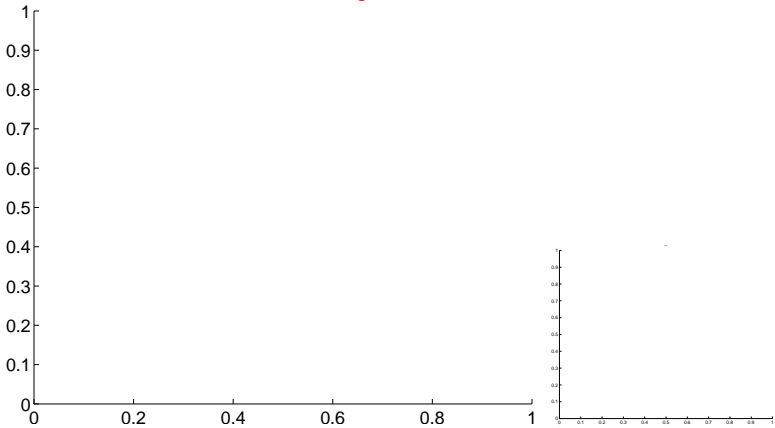


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

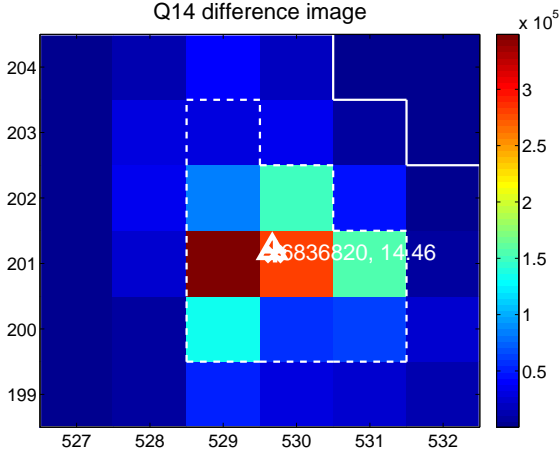
Q13 no difference image



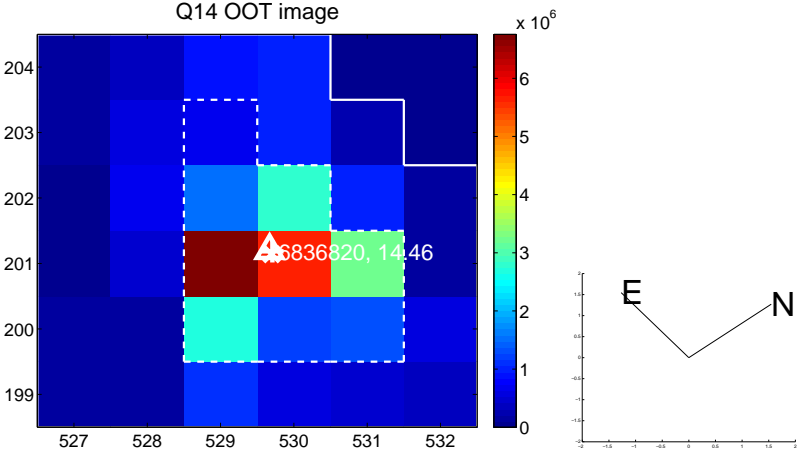
Q13 no OOT image



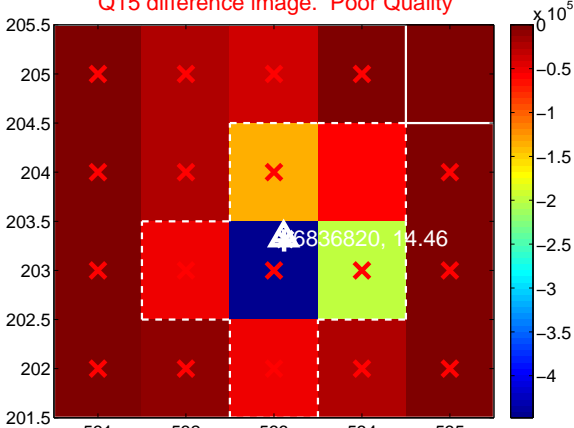
Q14 difference image



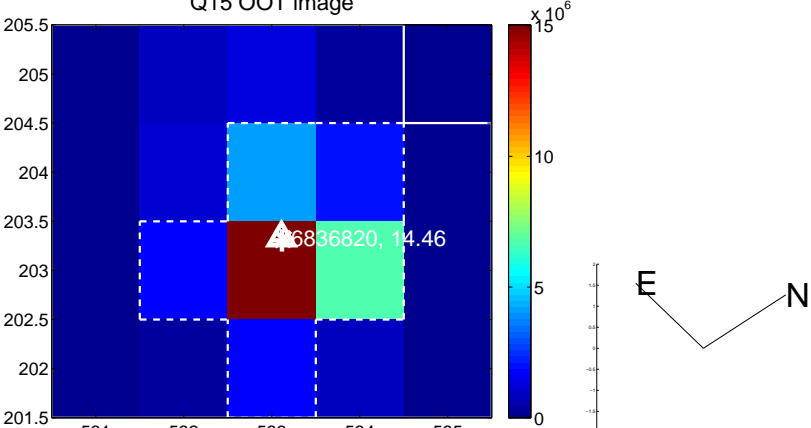
Q14 OOT image



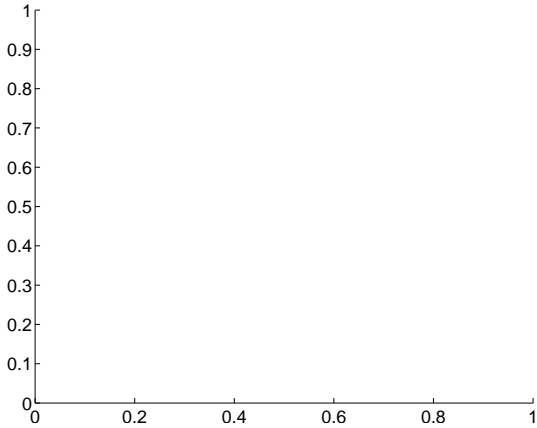
Q15 difference image. Poor Quality



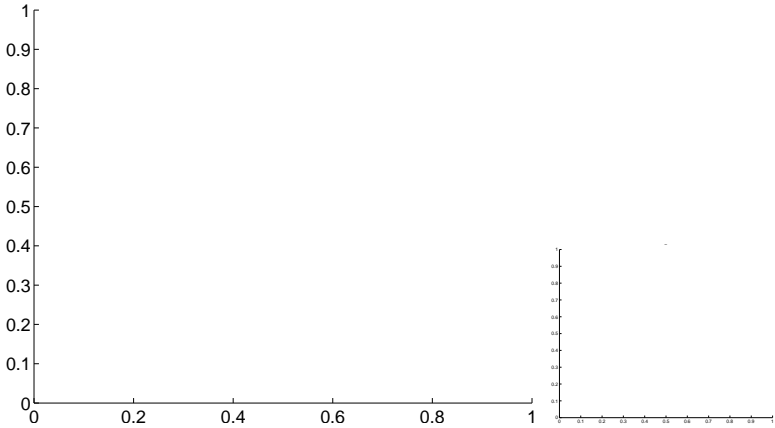
Q15 OOT image



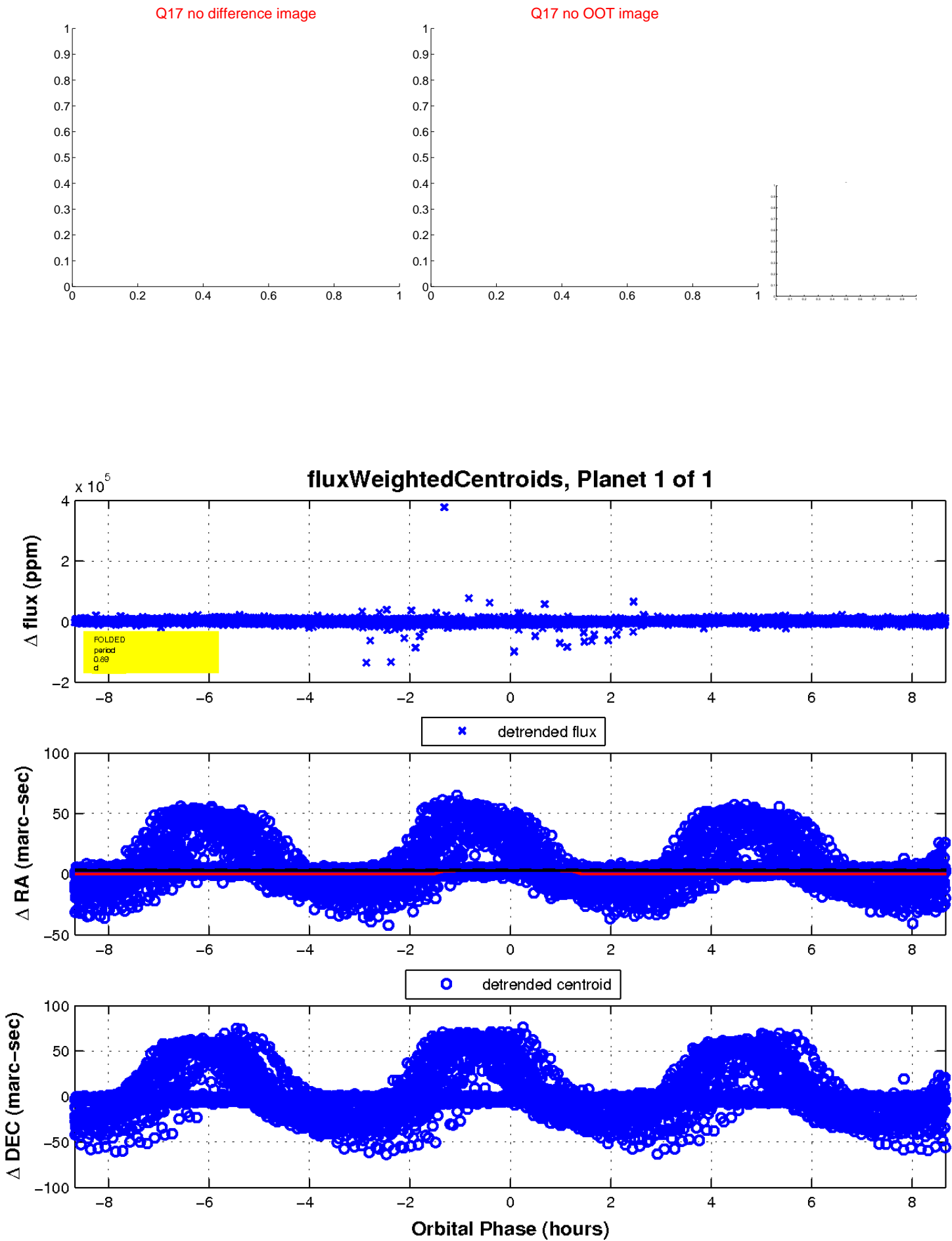
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

