

# KIC 007008211

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007008211-01 | OBS      | 2102.01 | 187.747243    | 157.350923   | 1586.9      | 6.000            | 16.0 | 17.5 | 0.75                        | 5303            | 3.20                   | 1.20                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|------------|
| 007008211-01 | 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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007008211-01

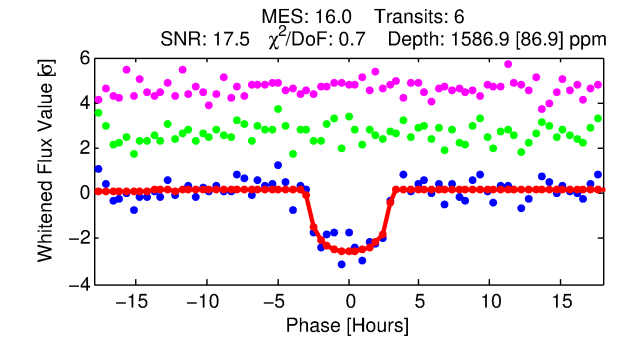
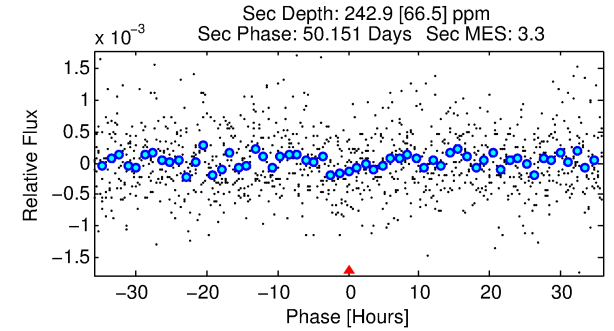
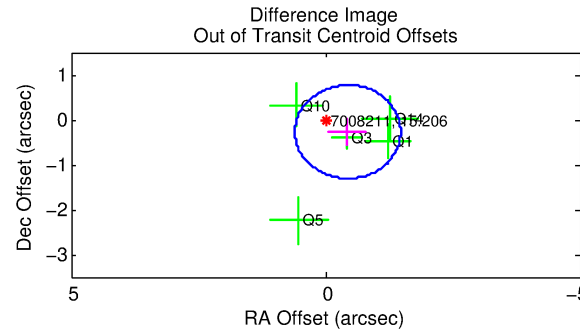
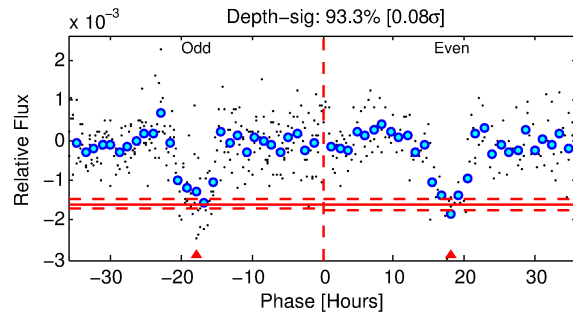
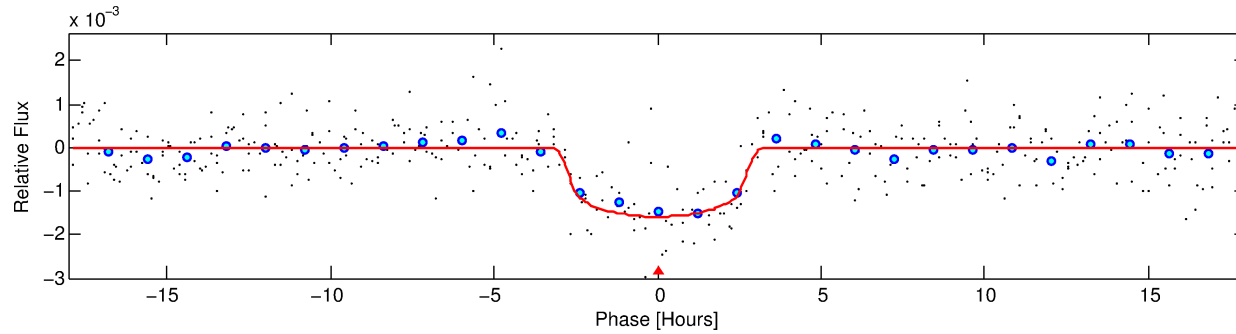
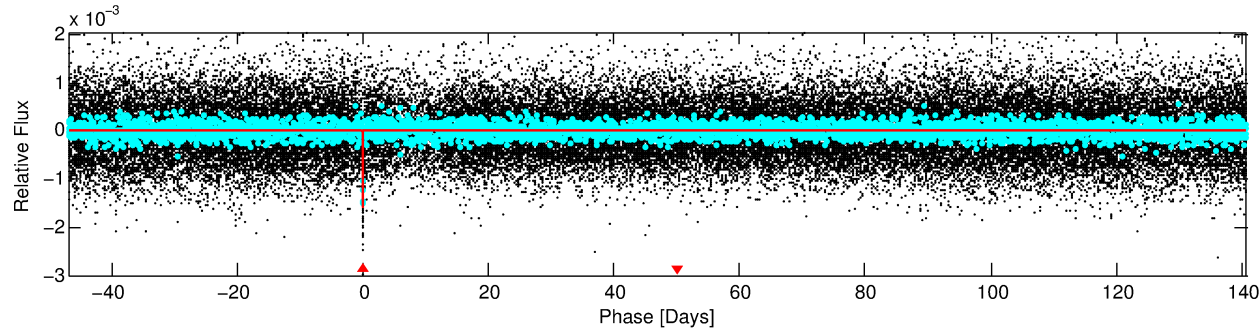
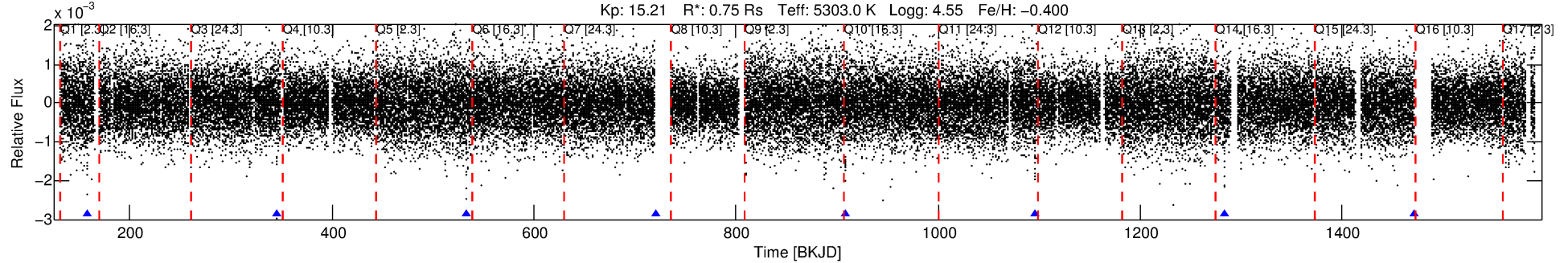
No Significant Match Found

# DV One-Page Summary

KIC: 7008211 Candidate: 1 of 1 Period: 187.747 d

KOI: K02102.01 Corr: 0.954

Kp: 15.21 R\*: 0.75 Rs Teff: 5303.0 K Logg: 4.55 Fe/H: -0.400



## DV Fit Results:

Period = 187.74724 [0.00145] d  
Epoch = 157.3509 [0.0057] BKJD  
Rp/R\* = 0.0389 [0.0109]  
a/R\* = 183.68 [203.30]  
b = 0.70 [0.82]  
Seff = 1.20 [0.25]  
Teq = 267 [14] K  
Rp = 3.20 [1.00] Re  
a = 0.5789 [0.0629] AU  
Ag = 4376.34 [2799.61] [1.56σ]  
Teffp = 3355 [536] K [5.76σ]

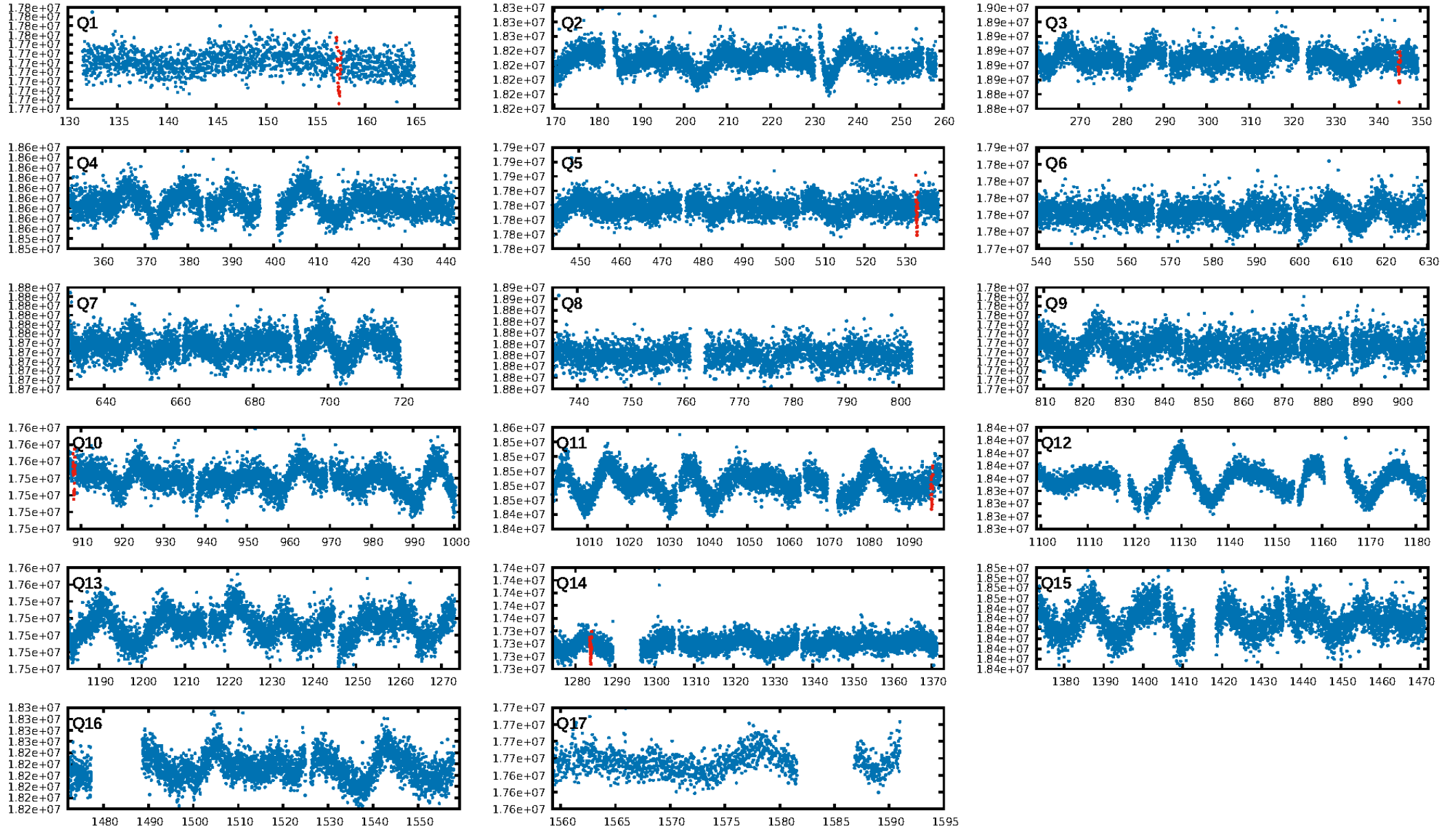
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.35e-53  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 5.01  
Centroid-sig: 12.2%  
Centroid-so: 0.330 arcsec [0.41σ]  
OotOffset-rm: 0.514 arcsec [1.48σ]  
KicOffset-rm: 0.597 arcsec [1.62σ]  
OotOffset-st: 2/1/0/2 [5]  
KicOffset-st: 2/1/0/2 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 1.00 [5/5]

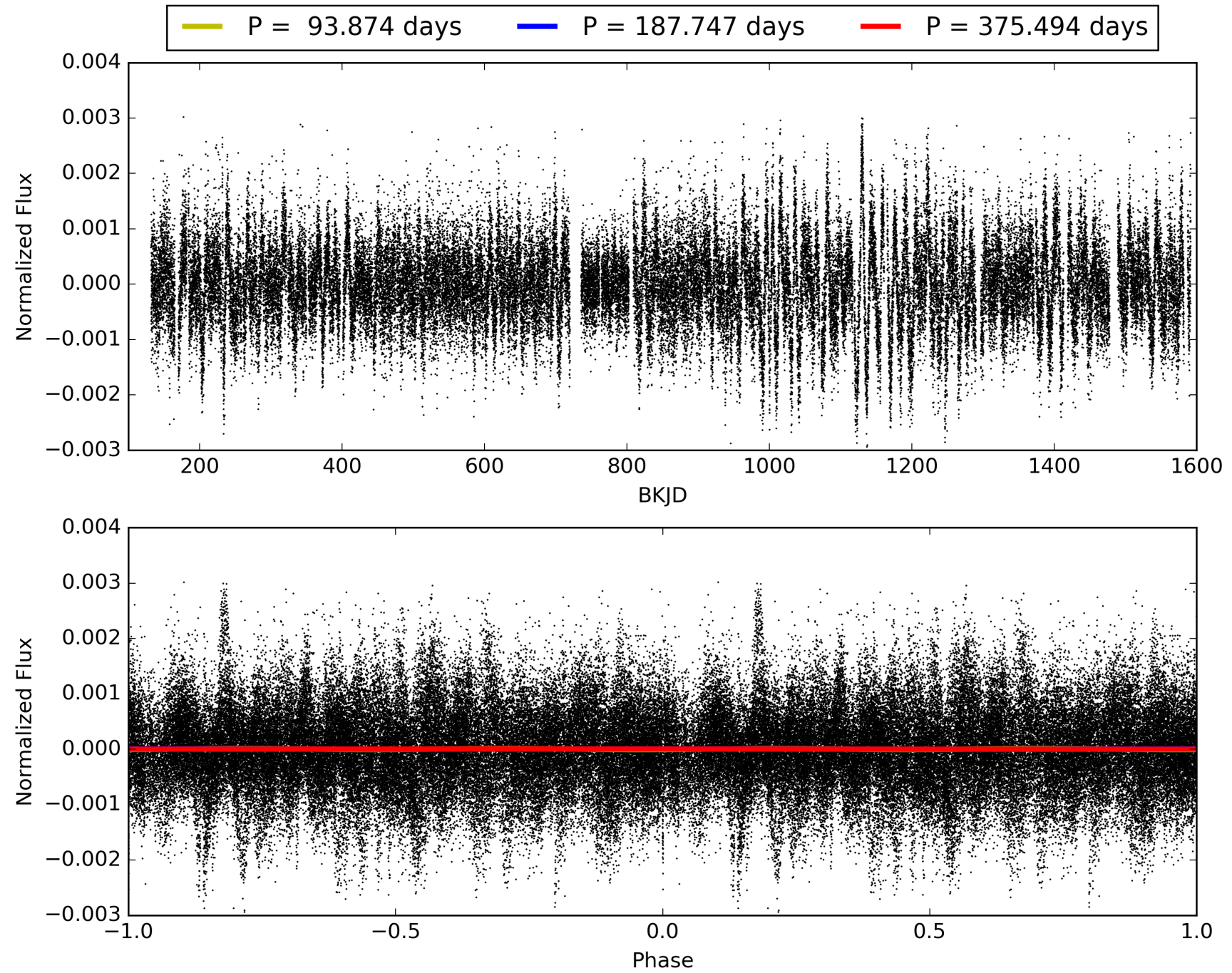
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:47:48 Z

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

# TCE 007008211-01, PDC Light Curves

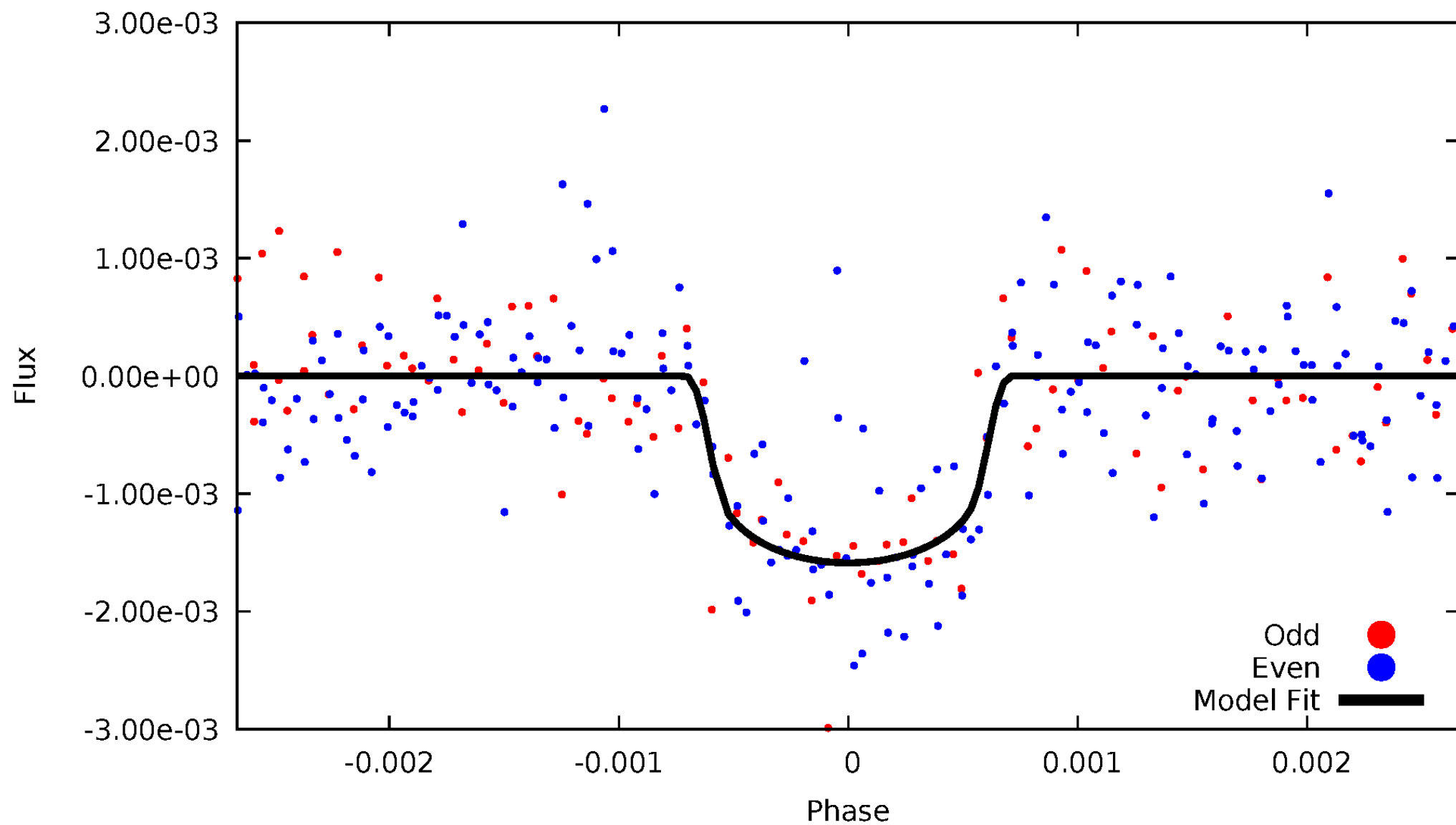


TCE 007008211-01



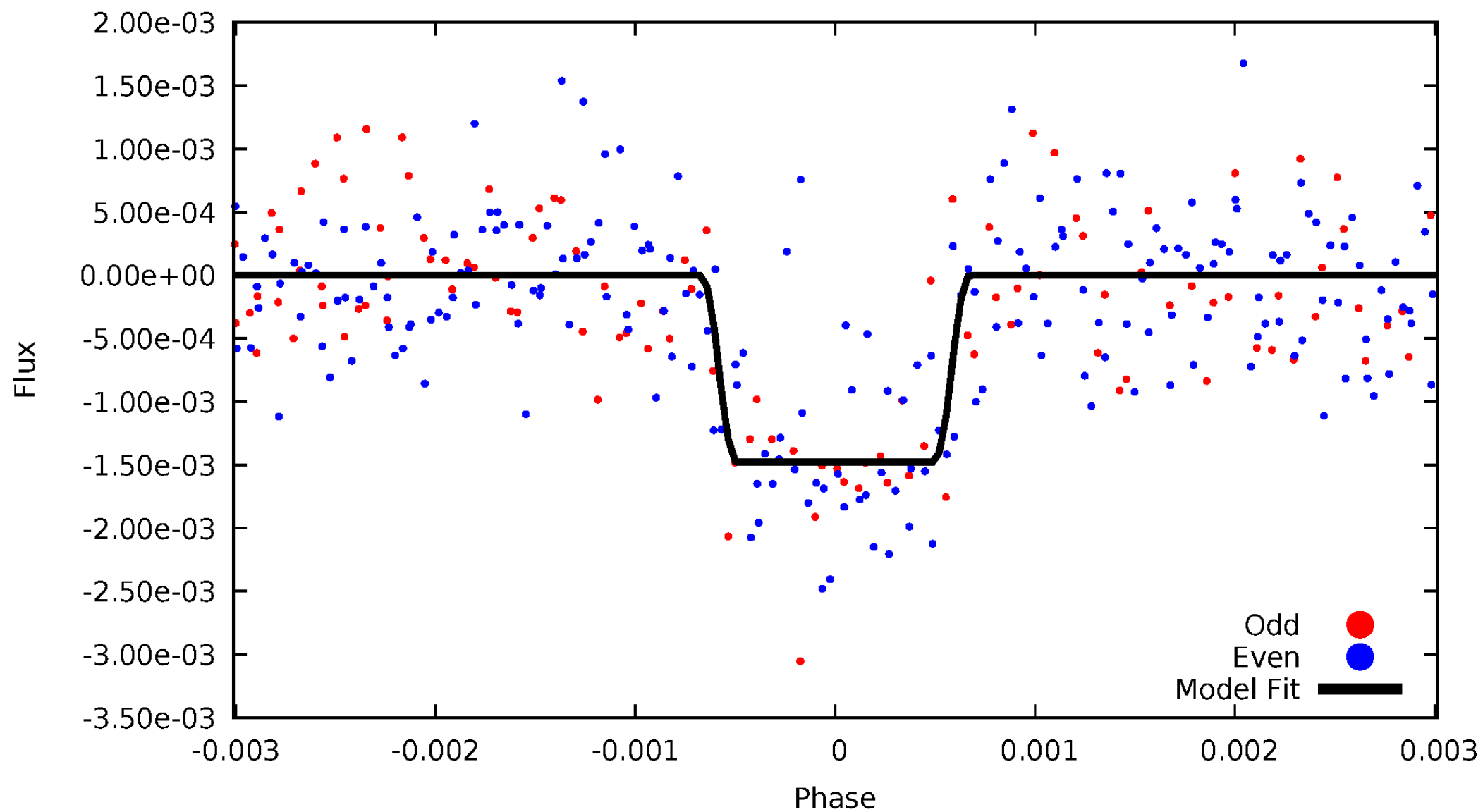
# DV Odd/Even

TCE 007008211-01



# ALT Odd/Even

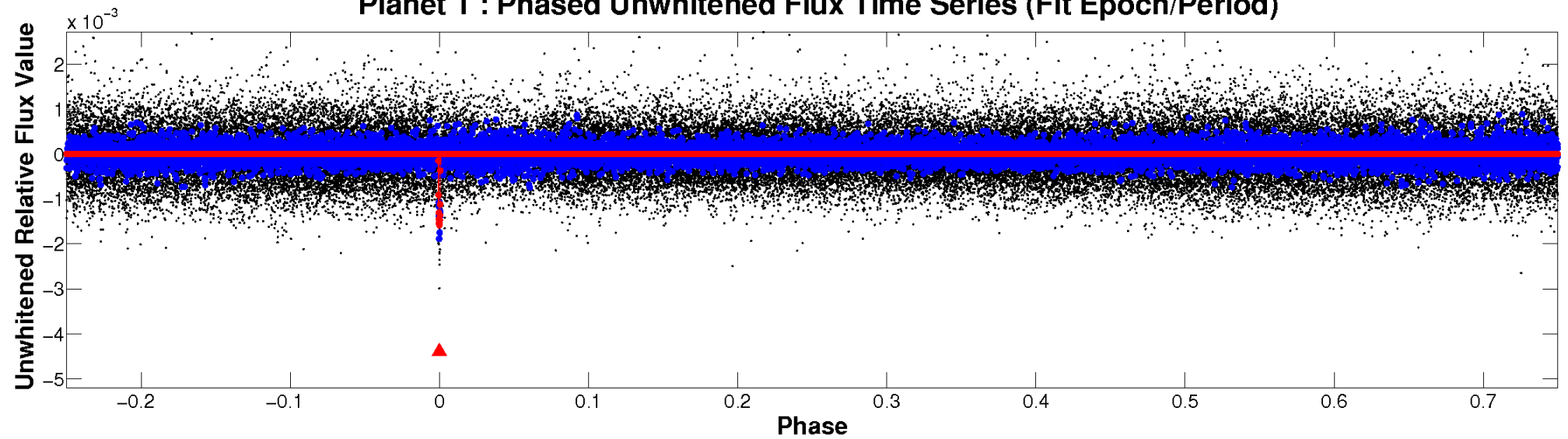
TCE 007008211-01



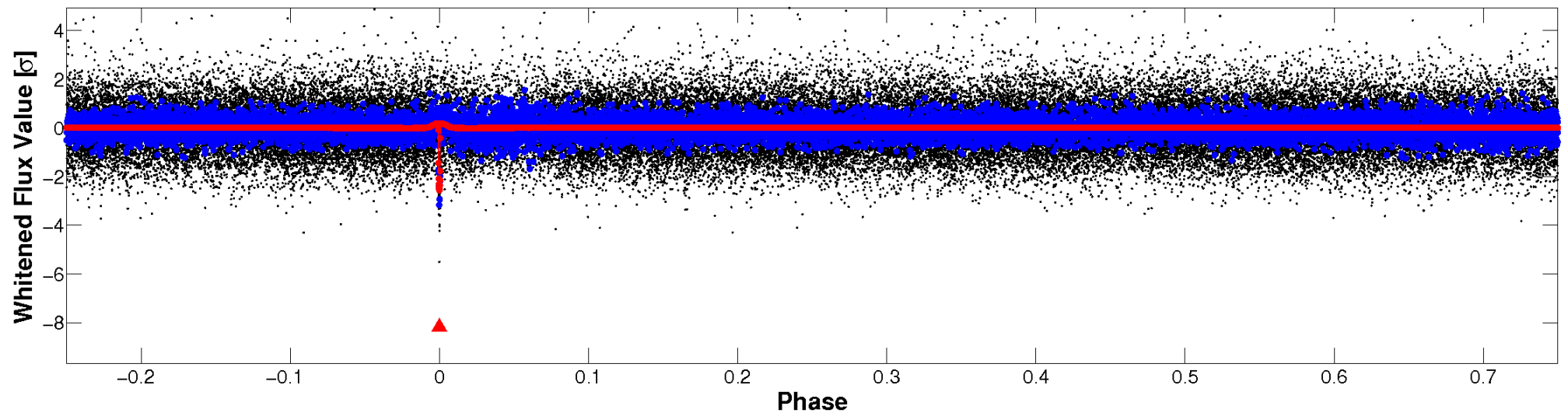


# Non-Whitened Vs. Whitened Light Curve

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

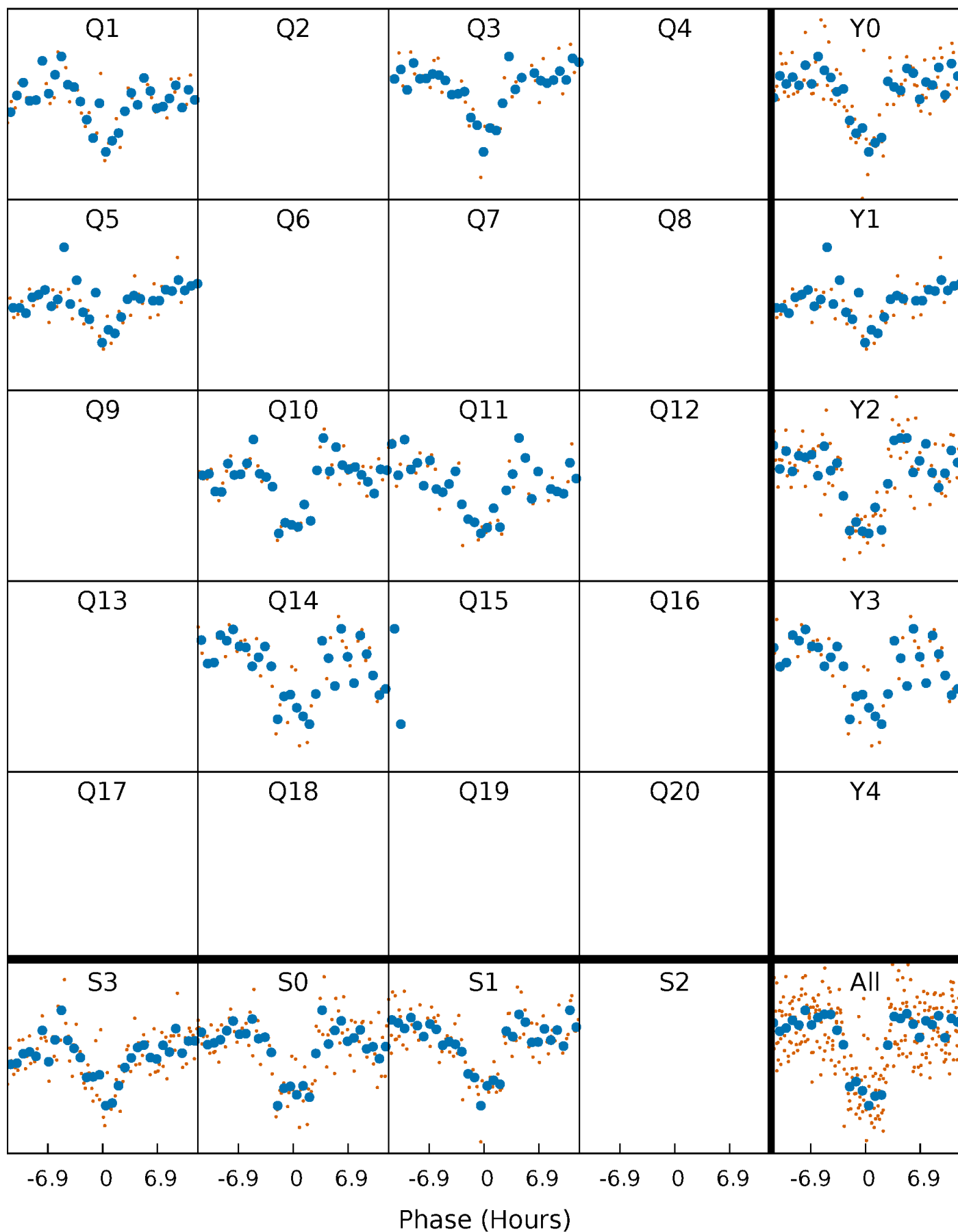


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

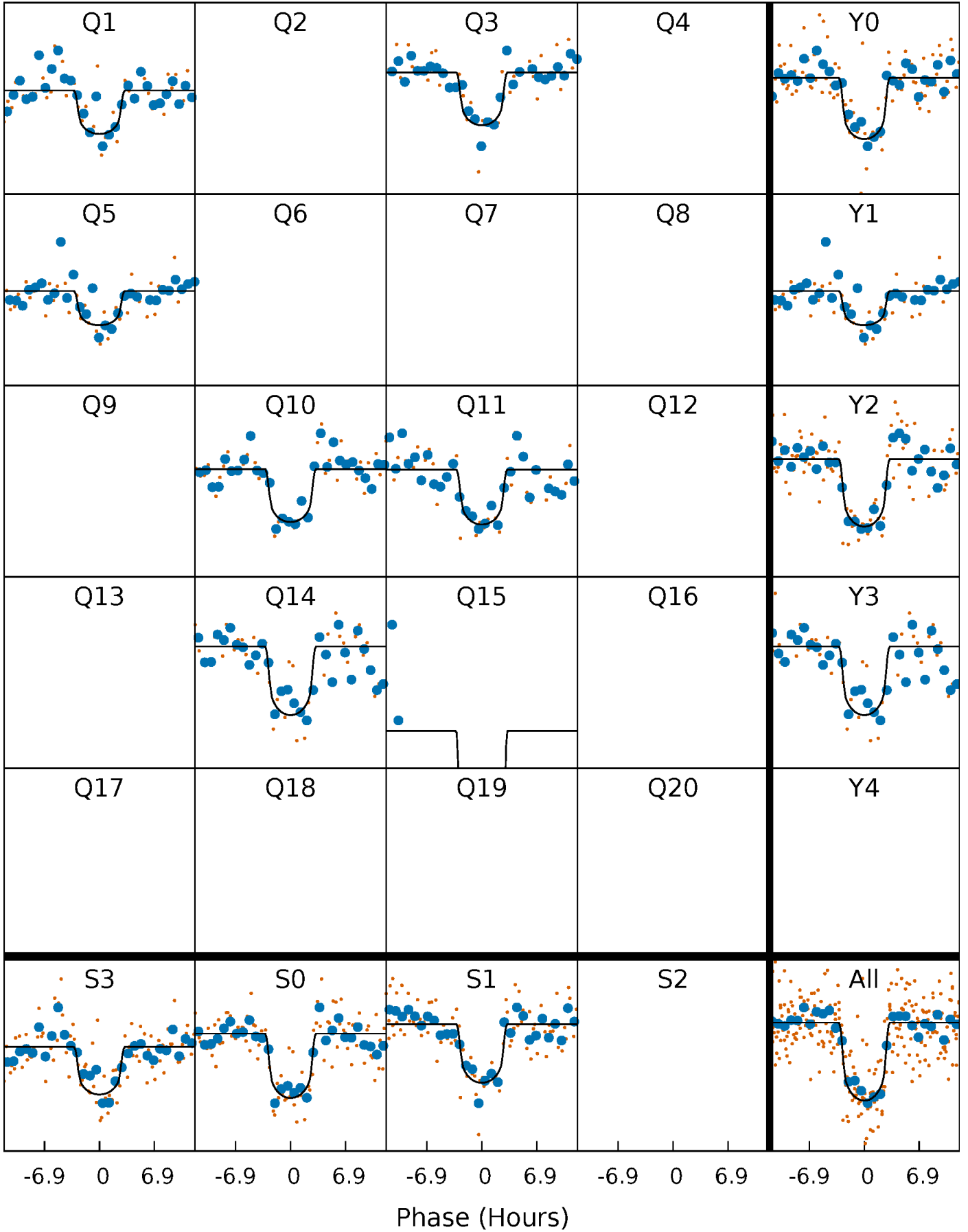
TCE 007008211-01 P=187.747243 Days  $T_0=157.350923$  (BKJD)





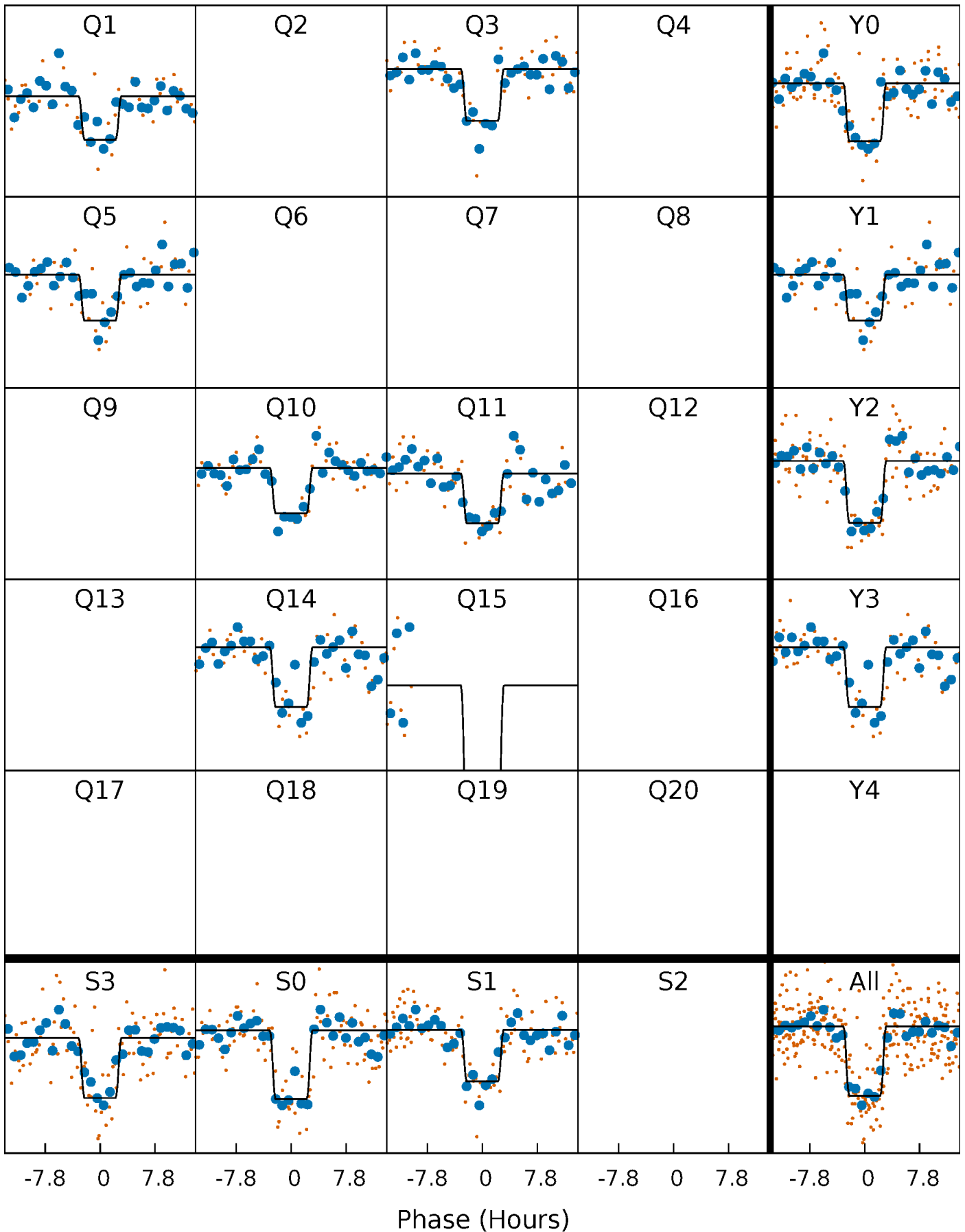
# DV Quarter-Phased Transit Curves

TCE 007008211-01 P=187.747243 Days  $T_0=157.350923$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

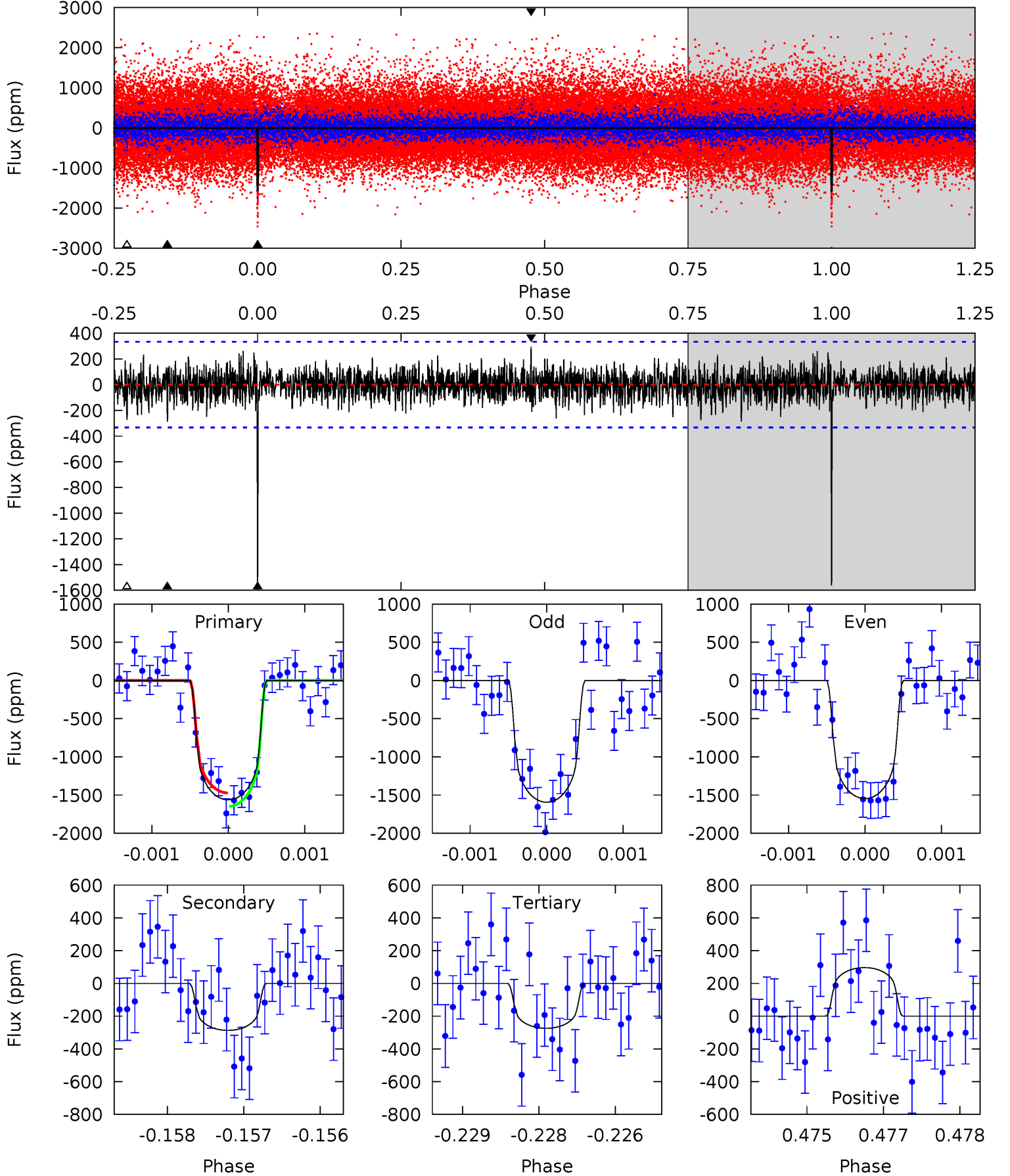
TCE 007008211-01 P=187.740318 Days  $T_0=157.374367$  (BKJD)



# DV Model-Shift Uniqueness Test

007008211-01,  $P = 187.747243$  Days,  $E = 157.350923$  Days

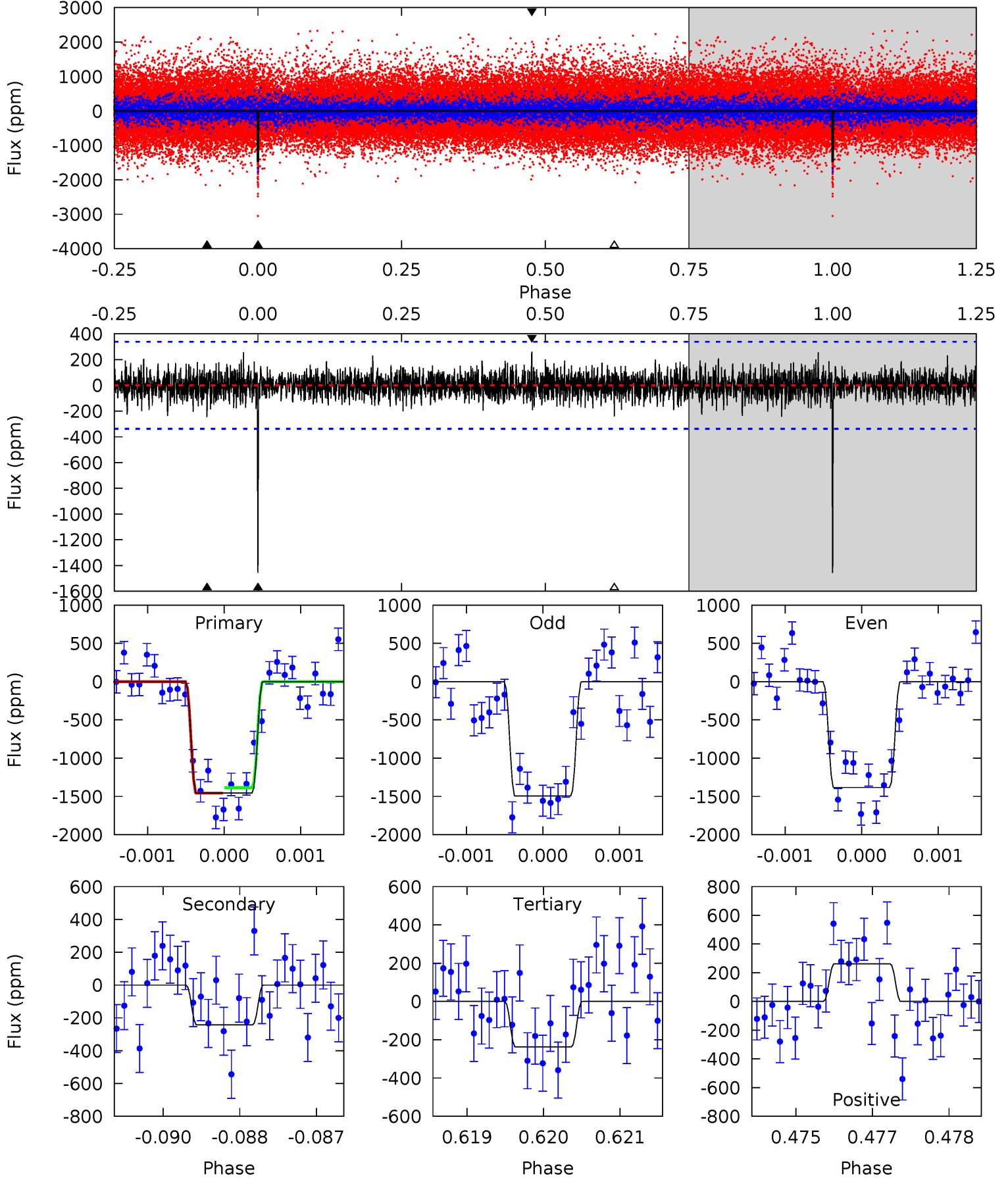
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 25.3 | 4.65 | 4.44 | 4.80 | 5.39            | 3.19            | 1.25             | 20.8    | 20.5    | 0.20    | -0.15   | 0.38    | 1.00 | 0.16  | 1.41 |



# Alt Model-Shift Uniqueness Test

007008211-01, P = 187.740318 Days, E = 157.374367 Days

| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 23.2 | 3.87 | 3.79 | 4.18 | 5.40            | 3.21            | 1.05             | 19.4    | 19.0    | 0.09    | -0.31   | 0.85    | 1.01 | 0.15  | 0.57 |



### Stellar Parameters For KIC 007008211

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M$ ( $M_{\odot}$ )       | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5303^{+193}_{-171}$ | $4.550^{+0.075}_{-0.075}$ | $-0.400^{+0.300}_{-0.300}$ | $0.753^{+0.104}_{-0.076}$ | $0.734^{+0.101}_{-0.050}$ | $2.424^{+0.810}_{-0.608}$                     |
|        | +4%/-3%              | +2%/-2%                   | +75%/-75%                  | +14%/-10%                 | +14%/-7%                  | +33%/-25%                                     |
| Source | PHO16                | PHO16                     | PHO16                      | DSEP                      |                           |   |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007008211-01 / KOI 2102.01

| Detrend | Depth (ppm)   | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)     | $T_{obs}$ (K)        | $A_{obs}$              |
|---------|---------------|------------------------|-------------------|----------------------|------------------------|
| DV      | $-287 \pm 62$ | $3.18^{+0.93}_{-0.89}$ | $373^{+19}_{-16}$ | $3846^{+527}_{-345}$ | $5218^{+5330}_{-2165}$ |
| Alt.    | $-243 \pm 63$ | $3.18^{+0.94}_{-0.96}$ | $373^{+18}_{-16}$ | $3748^{+525}_{-363}$ | $4422^{+4775}_{-2002}$ |

$T_{max}$  = 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  $A_{obs} \gg 1.0$

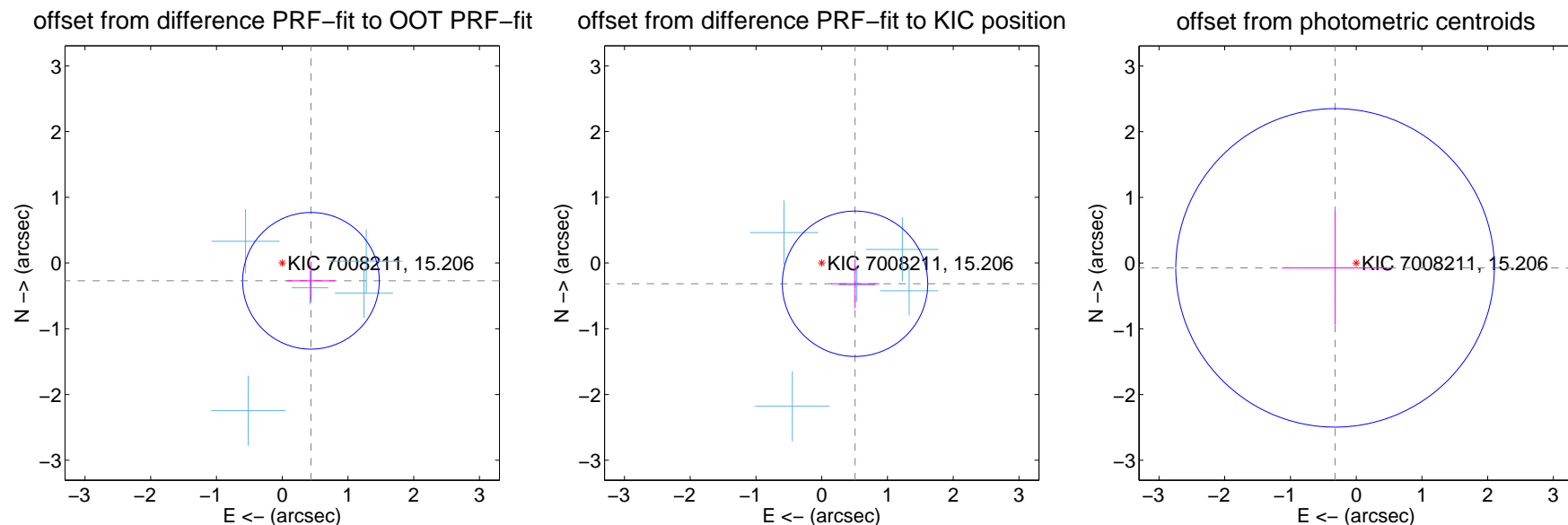
## DV Centroid Data

Supplemental centroid analysis for 007008211-01. Kepler magnitude: 15.21. Transit SNR 17.50

There are 5 quarters with good PRF difference image offsets

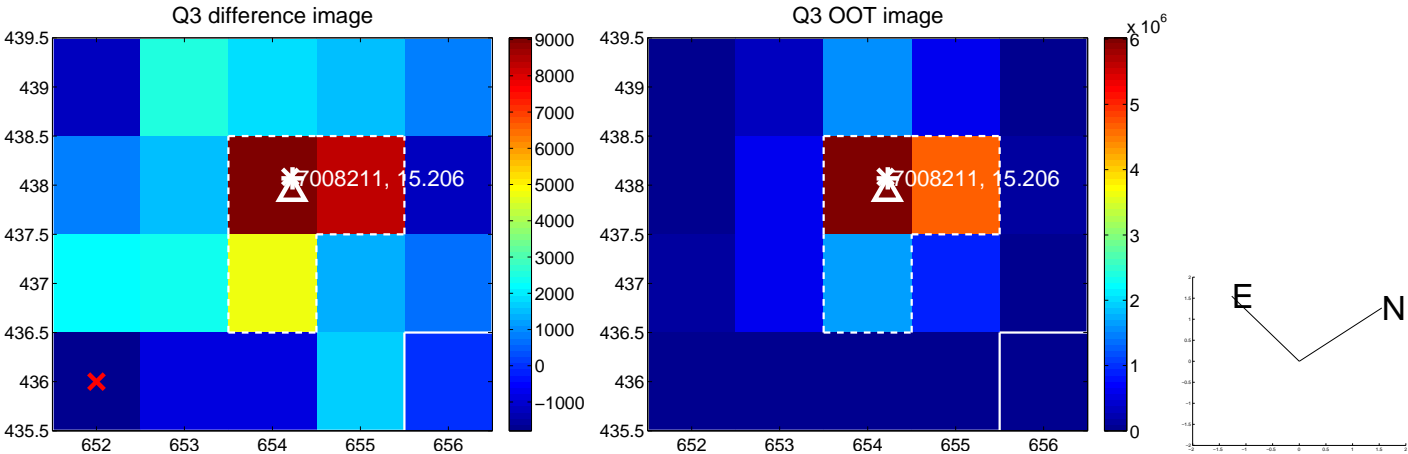
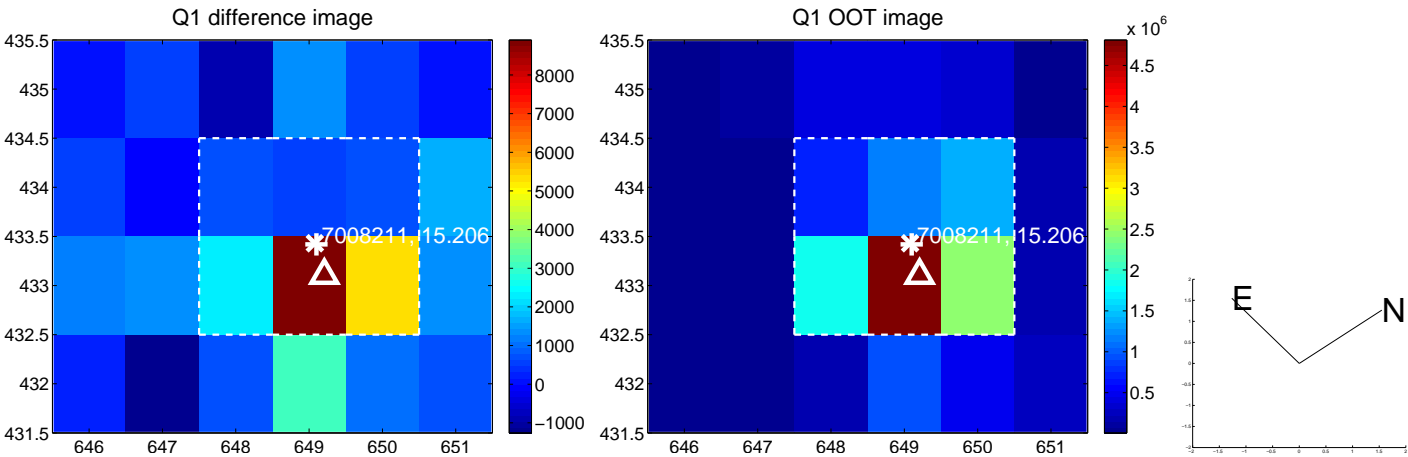
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.514 \pm 0.346$  | 1.48                | $-0.437 \pm 0.366$ | $-0.270 \pm 0.290$ |
| PRF-fit source offset from KIC position | $0.597 \pm 0.369$  | 1.62                | $-0.507 \pm 0.367$ | $-0.315 \pm 0.371$ |
| photometric centroid source offset      | $0.33 \pm 0.81$    | 0.41                | $0.32 \pm 0.80$    | $-0.07 \pm 0.86$   |



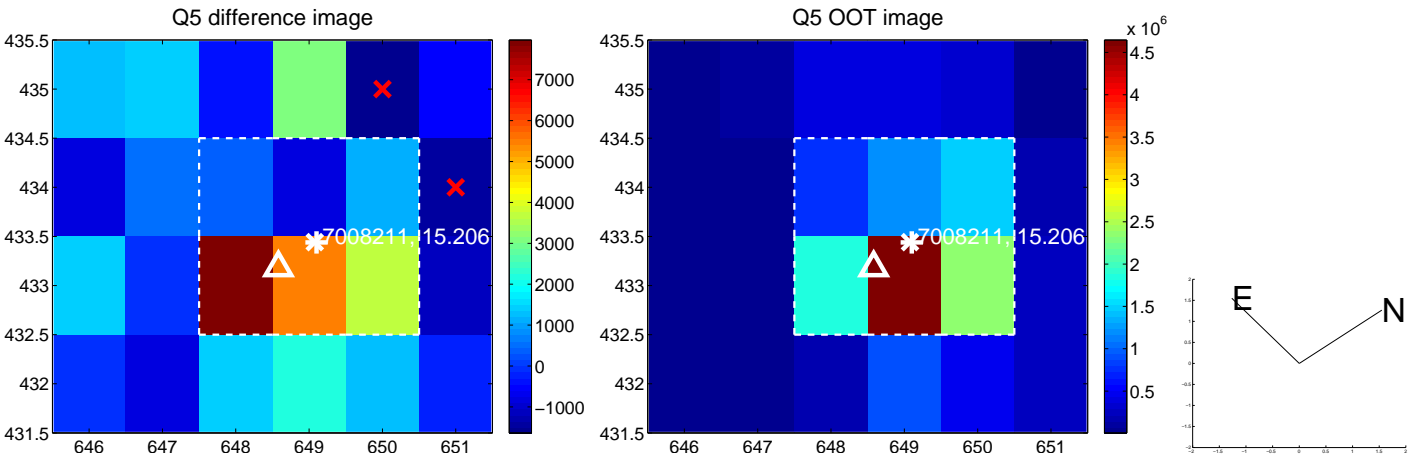
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

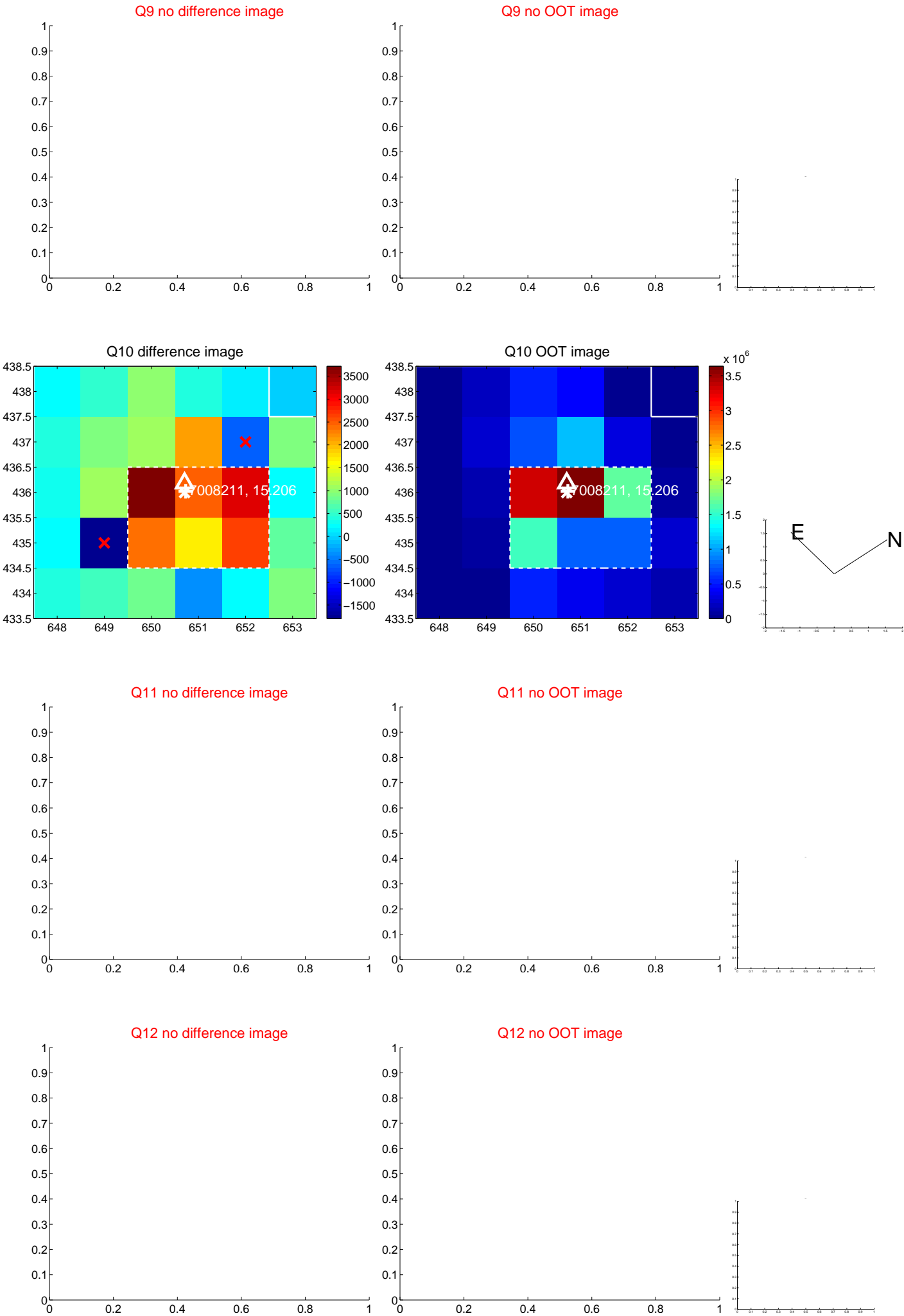




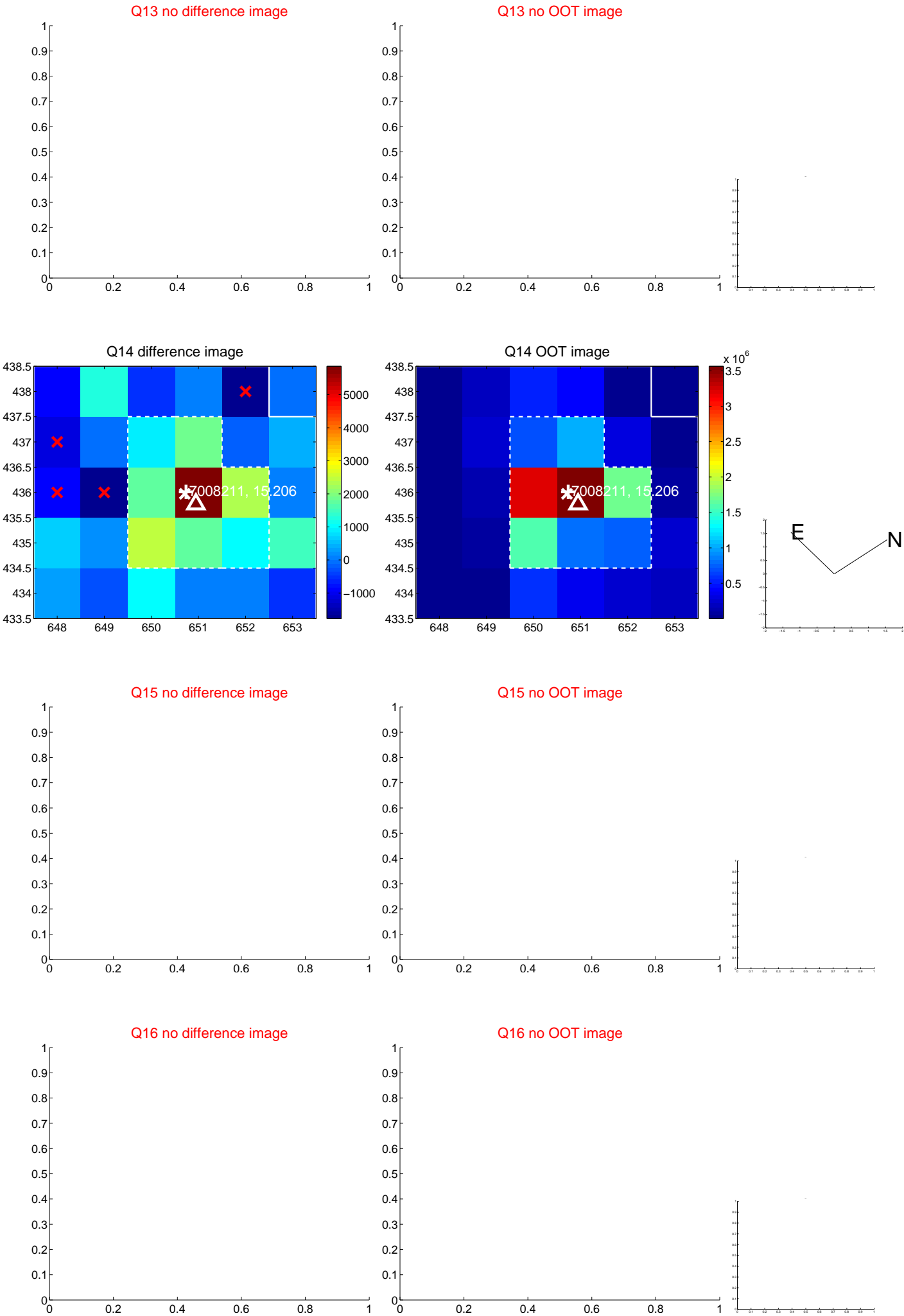
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



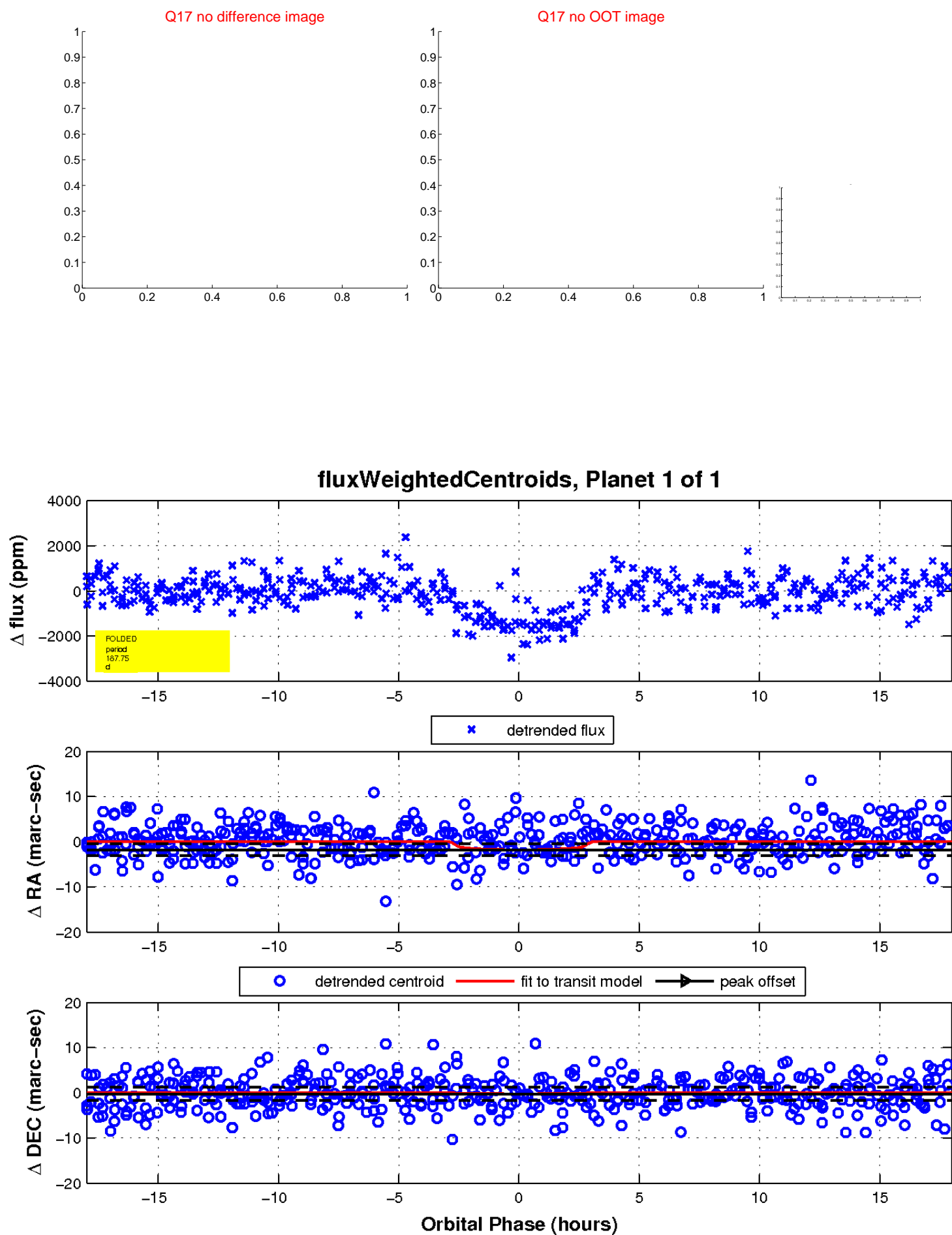
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

