

# KIC 005391911

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005391911-01 | OBS      | 5157.01 | 0.782047      | 131.899199   | 108.2       | 1.233            | 17.8 | 20.2 | 20.24                       | 4475            | 26.29                  | 0.00                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                      |
|--------------|----------|------|-------|---|---|---|---|-------------------------------|
| 005391911-01 | OBS      | PC   | 0.56  | 0 | 0 | 0 | 0 | PLANET_IN_STAR—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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005391911-01

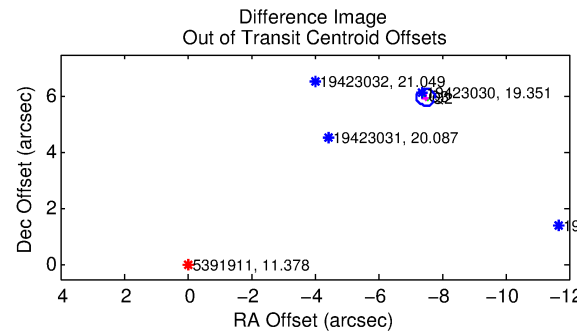
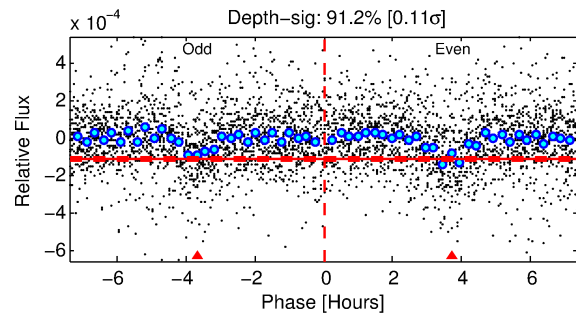
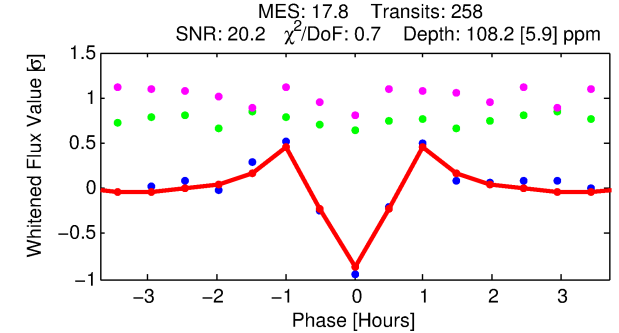
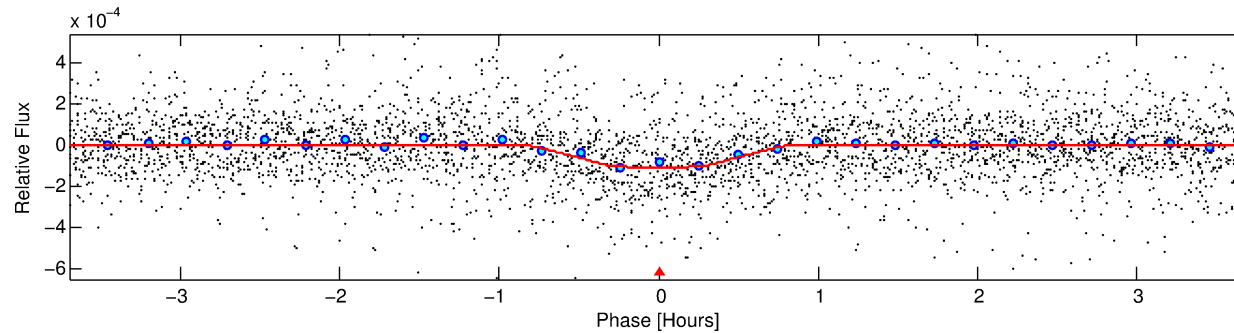
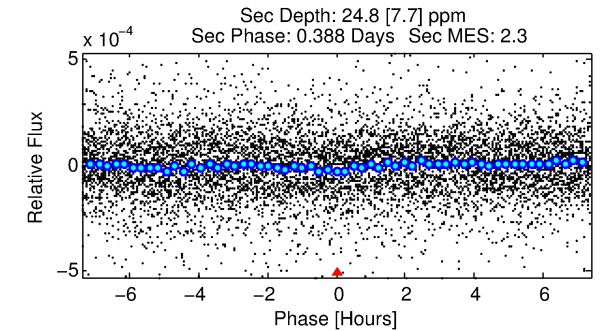
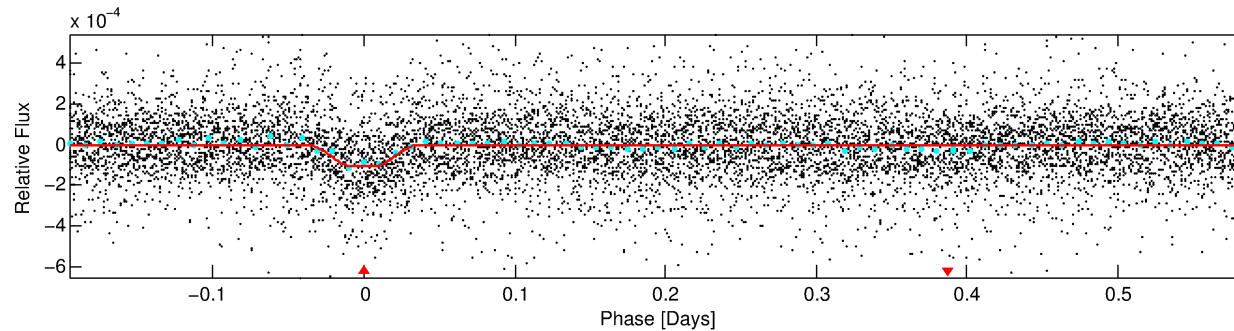
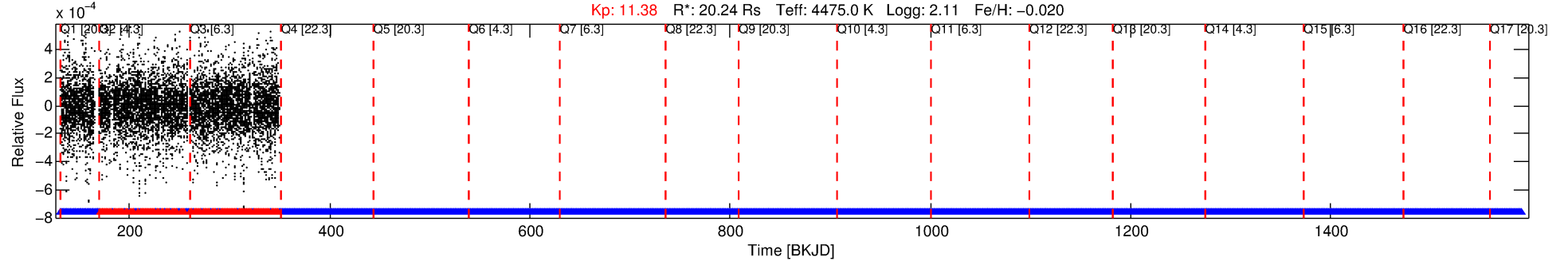
No Significant Match Found

# DV One-Page Summary

KIC: 5391911 Candidate: 1 of 1 Period: 0.782 d

KOI: K05157 Corr: No Ephemeris Match

Kp: 11.38 R\*: 20.24 Rs Teff: 4475.0 K Logg: 2.11 Fe/H: -0.020



## DV Fit Results:

Period = 0.78205 [0.00001] d  
Epoch = 131.8992 [0.0008] BKJD  
Rp/R\* = 0.0119 [0.0038]  
a/R\* = 2.42 [2.28]  
b = 0.90 [0.25]  
Seff = N/A  
Teq = N/A  
Rp = 26.29 [10.11] Re  
a = N/A  
Ag = N/A  
Teff = N/A

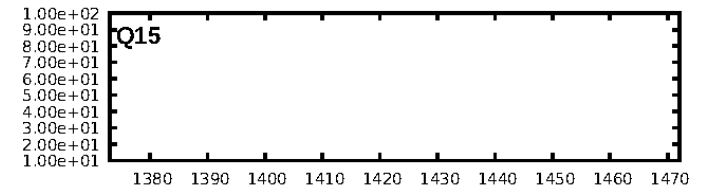
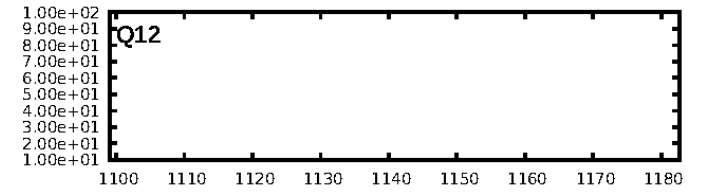
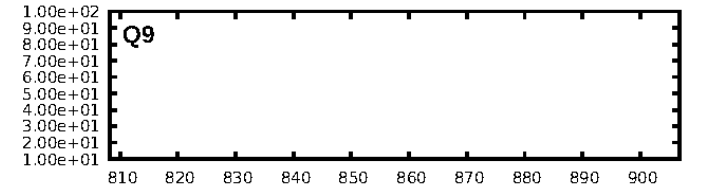
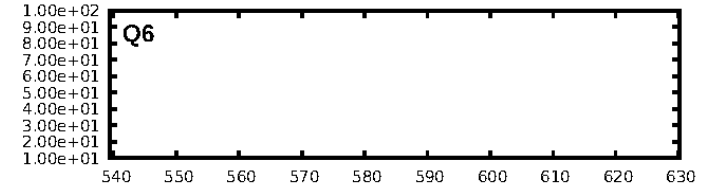
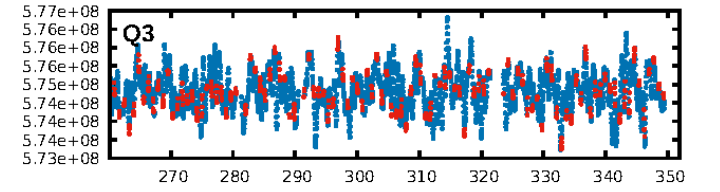
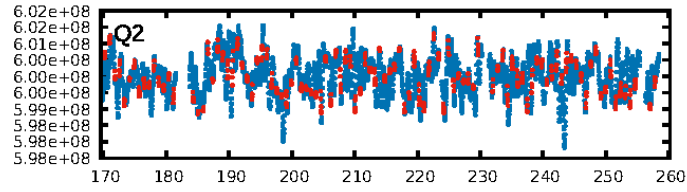
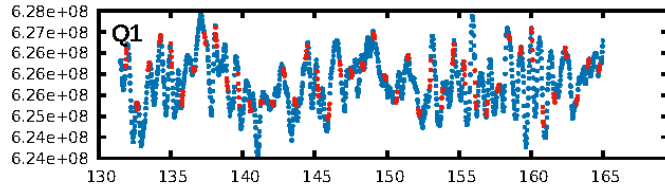
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.62e-82  
RollingBand-fgt: 0.33 [72/215]  
GhostDiagnostic-chr: 1.643  
Centroid-sig: 0.0%  
Centroid-so: 3.802 arcsec [7.70σ]  
OotOffset-rm: 9.572 arcsec [99.88σ]  
KicOffset-rm: 9.474 arcsec [106.35σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

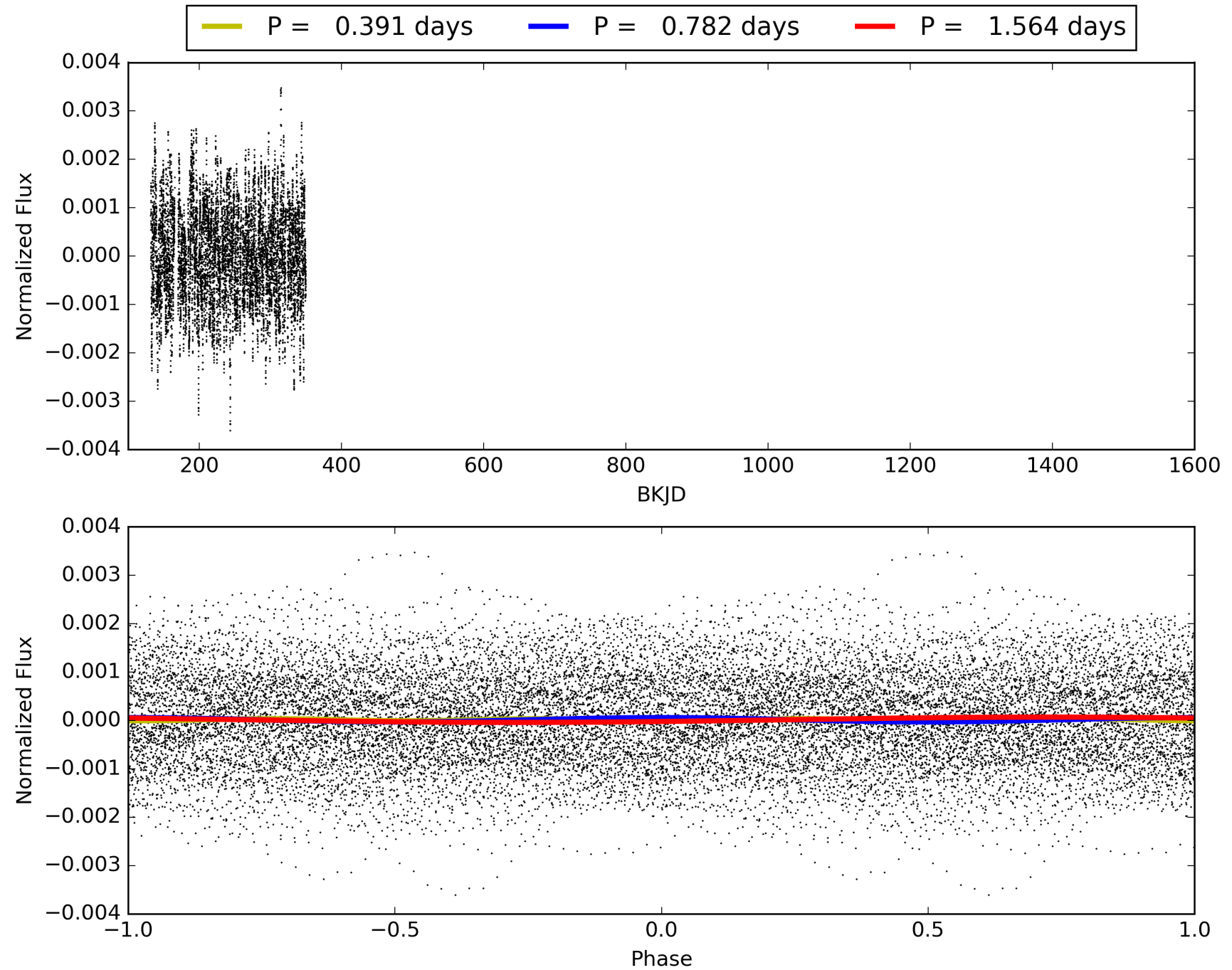
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:44:43 Z

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

# TCE 005391911-01, PDC Light Curves

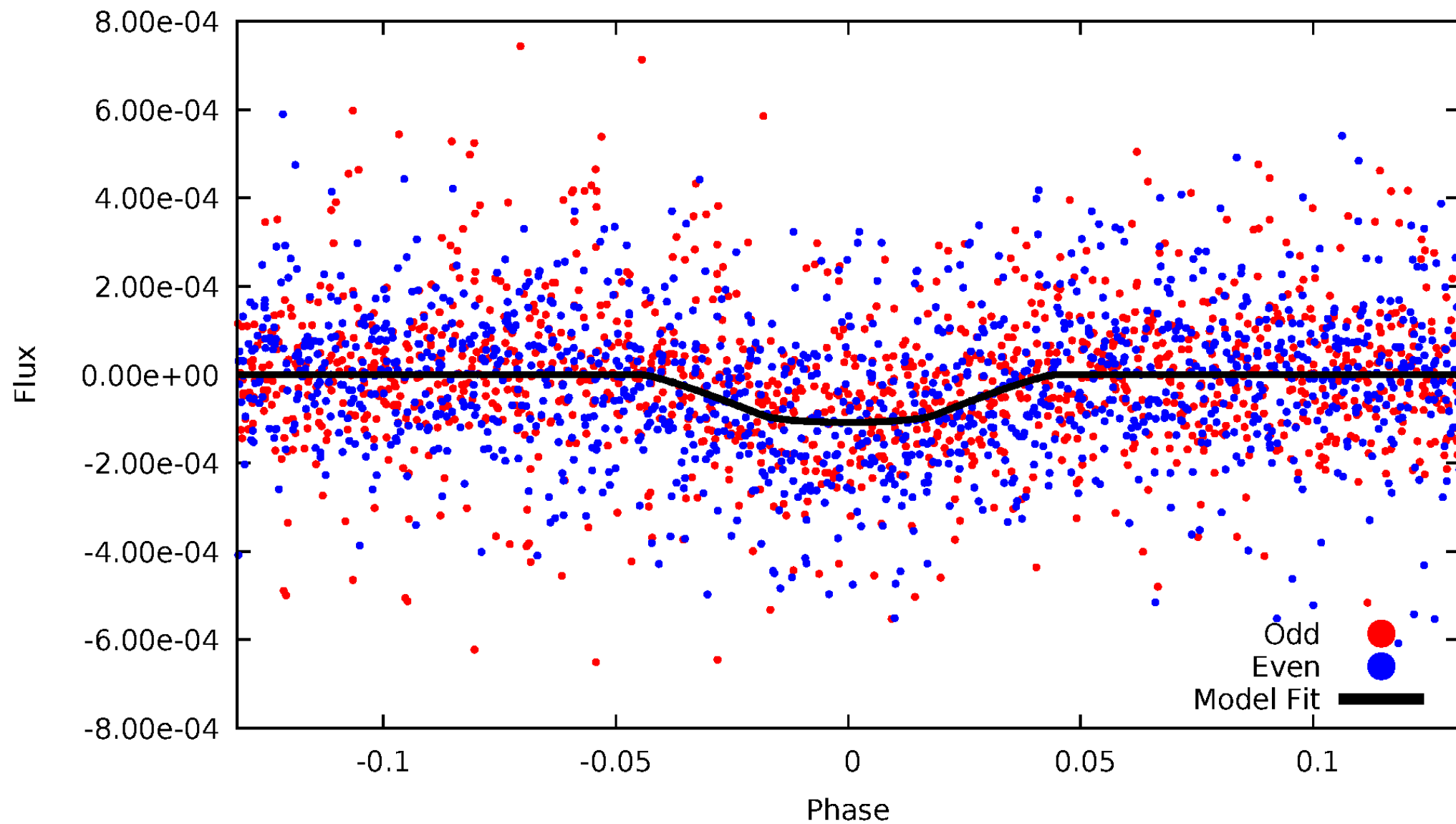


# TCE 005391911-01



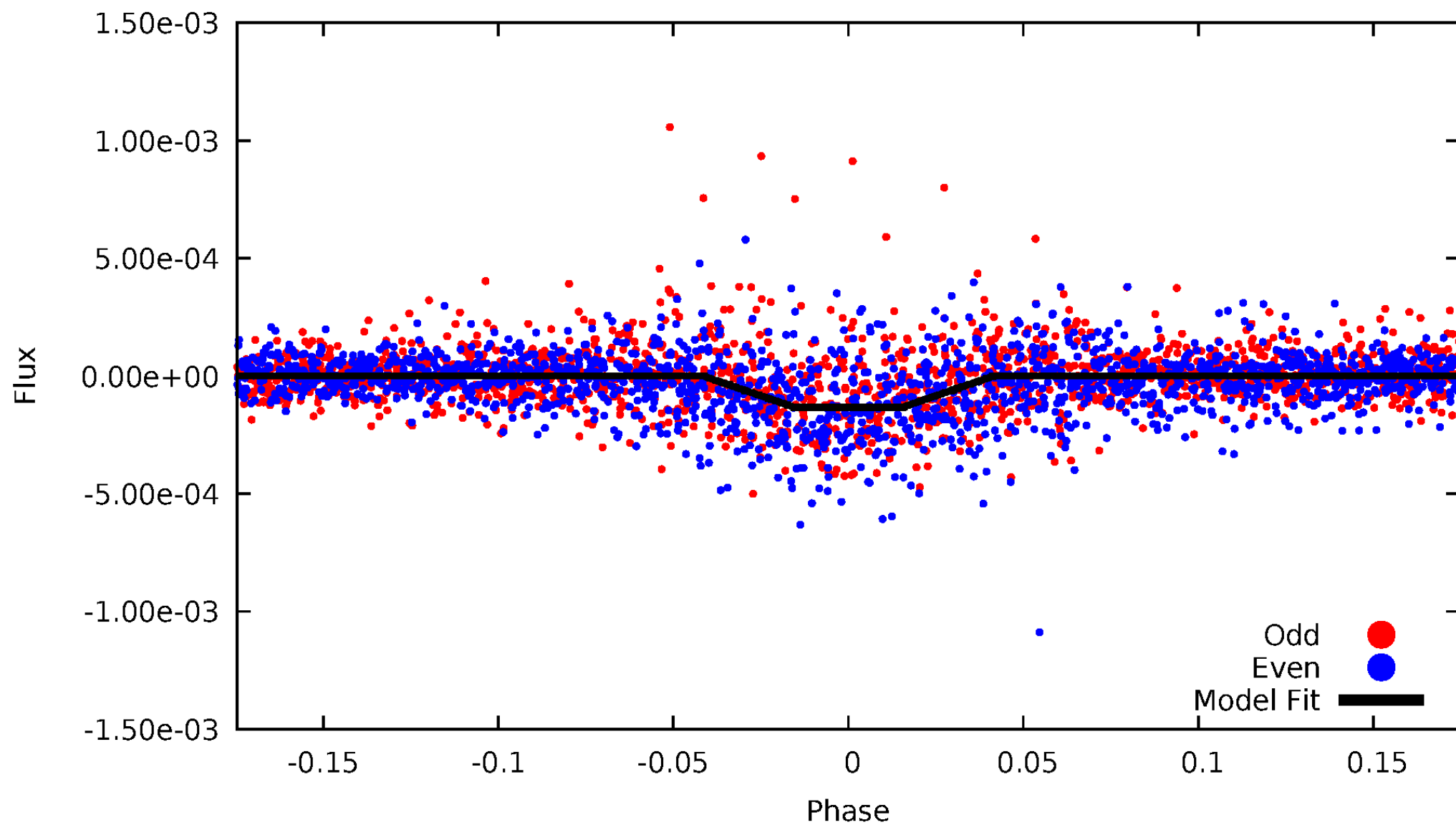
# DV Odd/Even

TCE 005391911-01



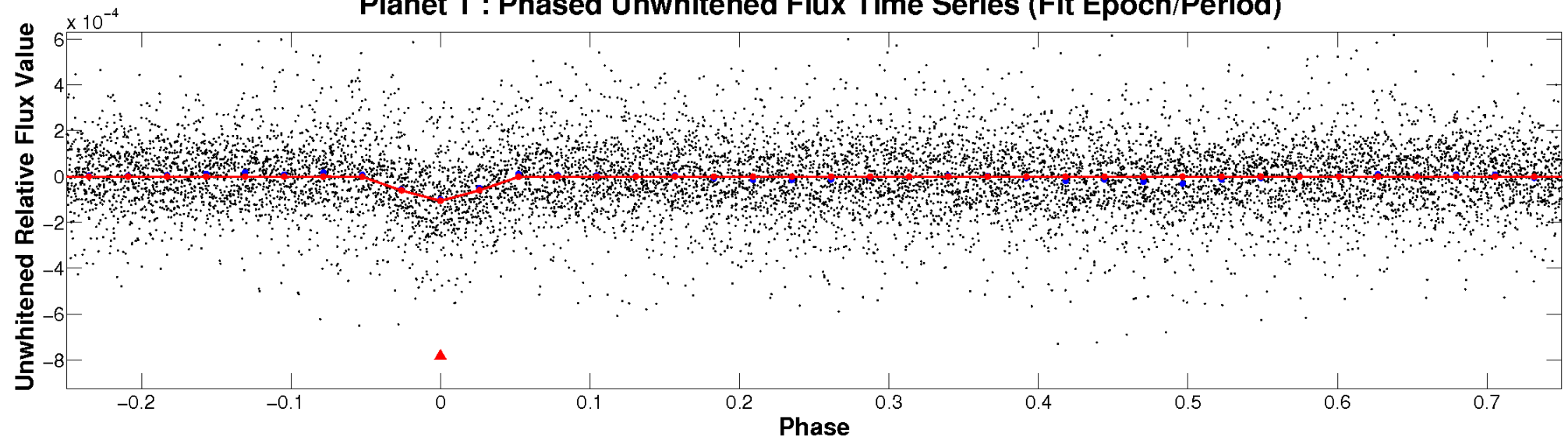
# ALT Odd/Even

TCE 005391911-01

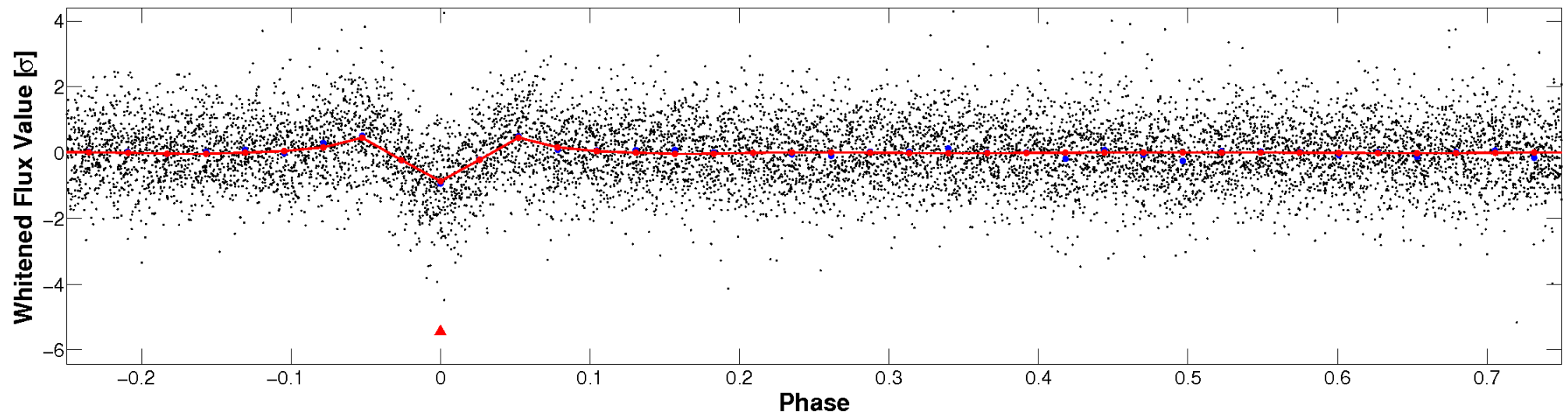


# Non-Whitened Vs. Whitened Light Curve

## 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

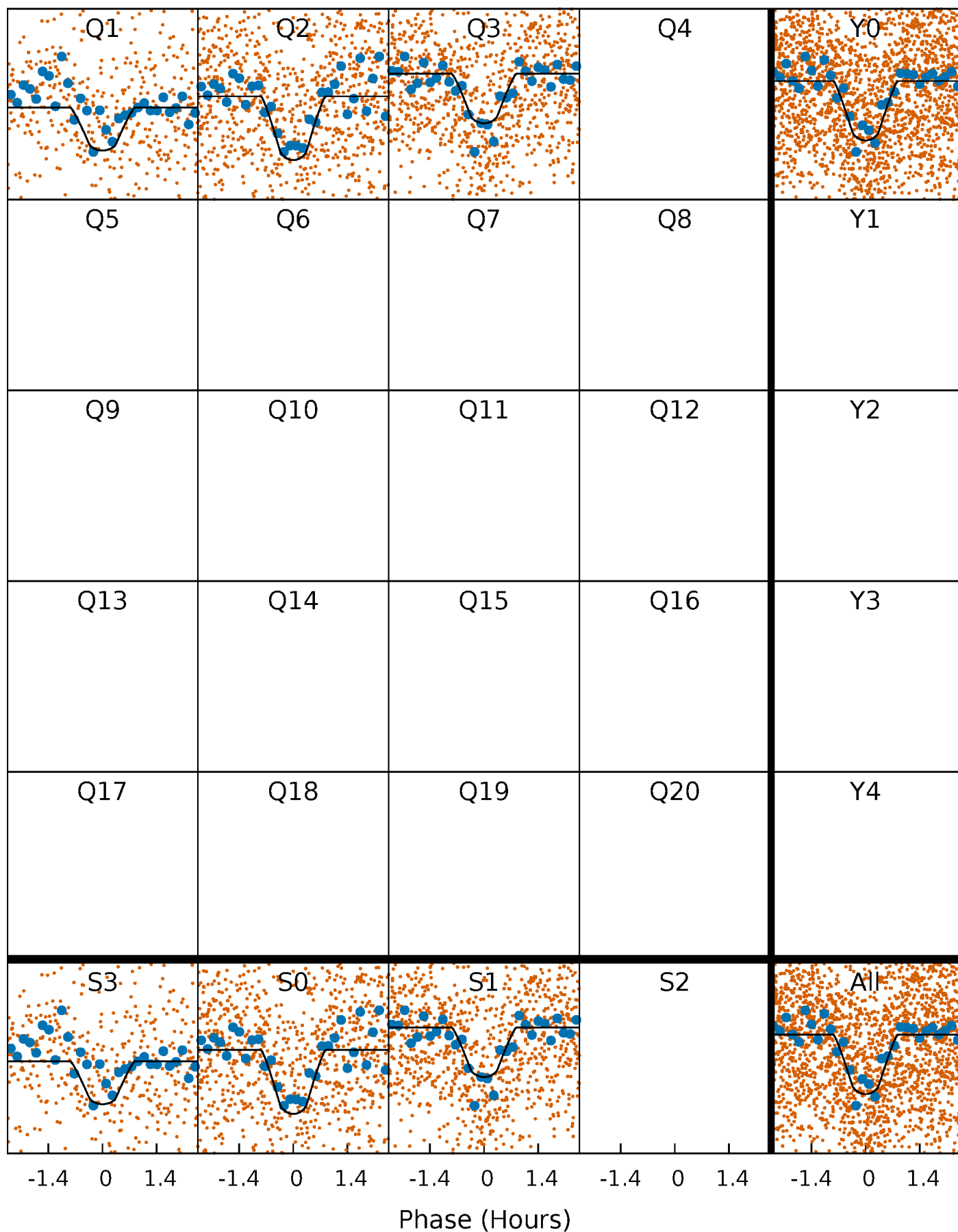
TCE 005391911-01   P= 0.782047 Days    $T_0=131.899199$  (BKJD)





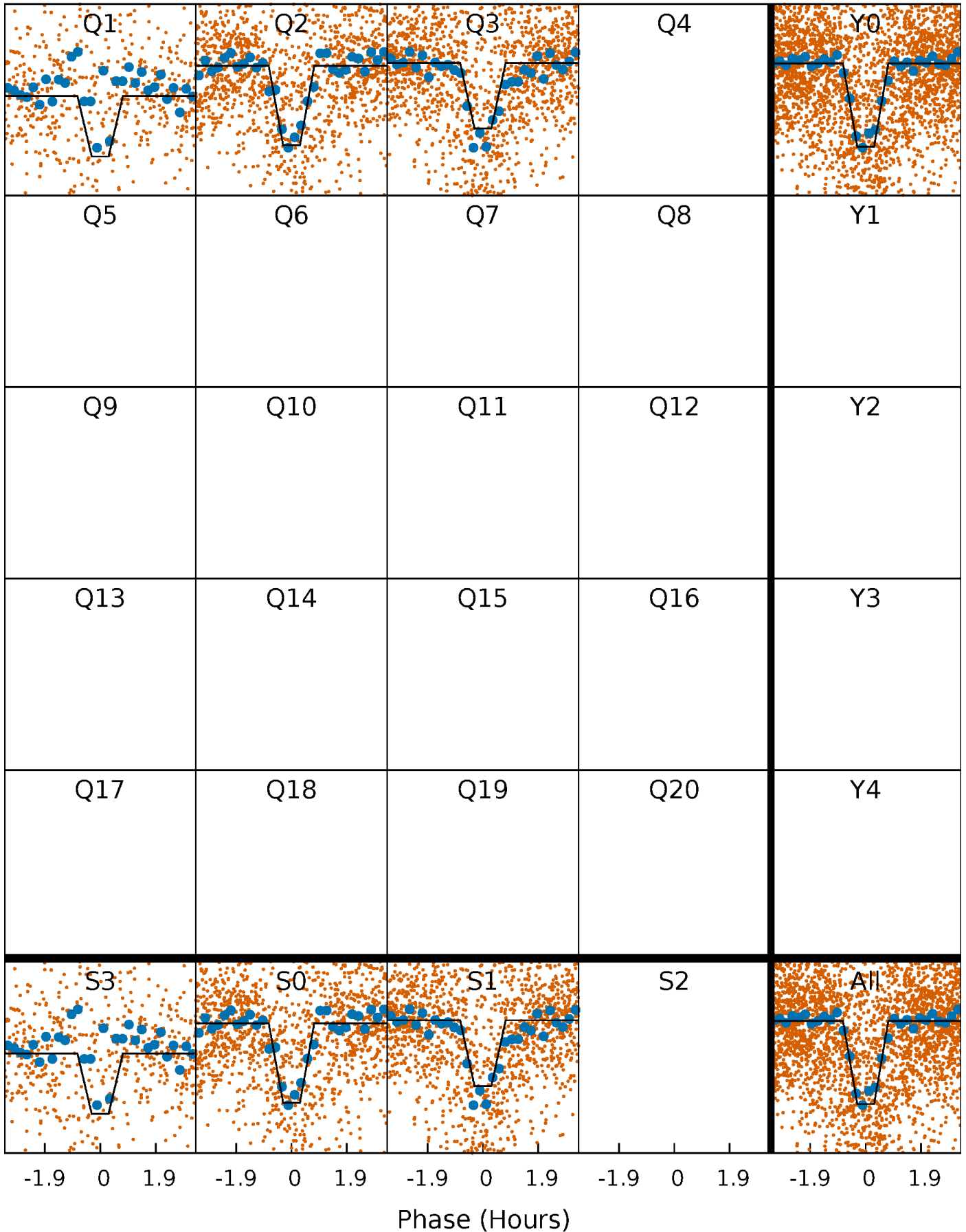
# DV Quarter-Phased Transit Curves

TCE 005391911-01   P= 0.782047 Days    $T_0=131.899199$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

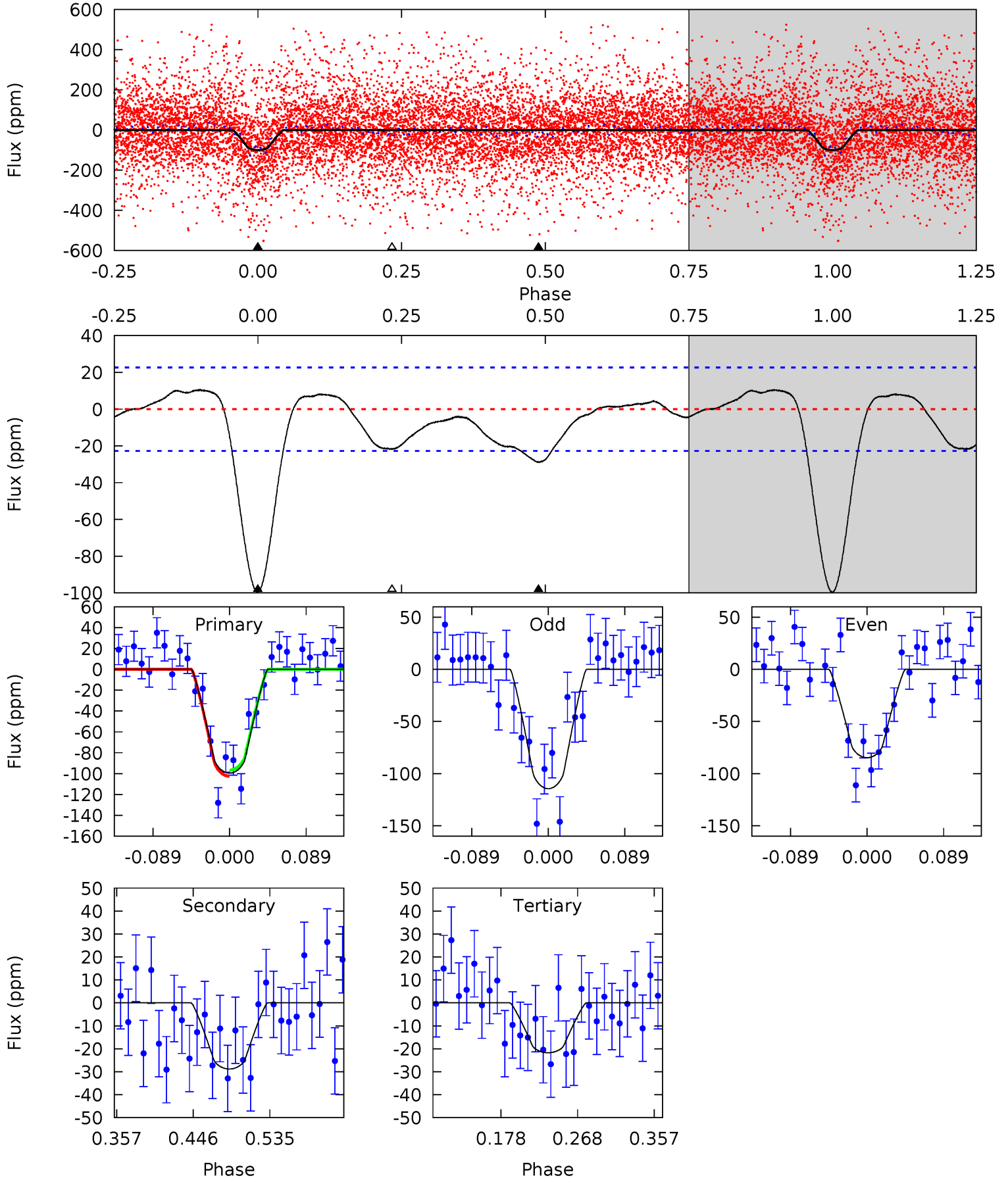
TCE 005391911-01   P= 0.782072 Days    $T_0=131.895977$  (BKJD)



# DV Model-Shift Uniqueness Test

005391911-01, P = 0.782047 Days, E = 131.117152 Days

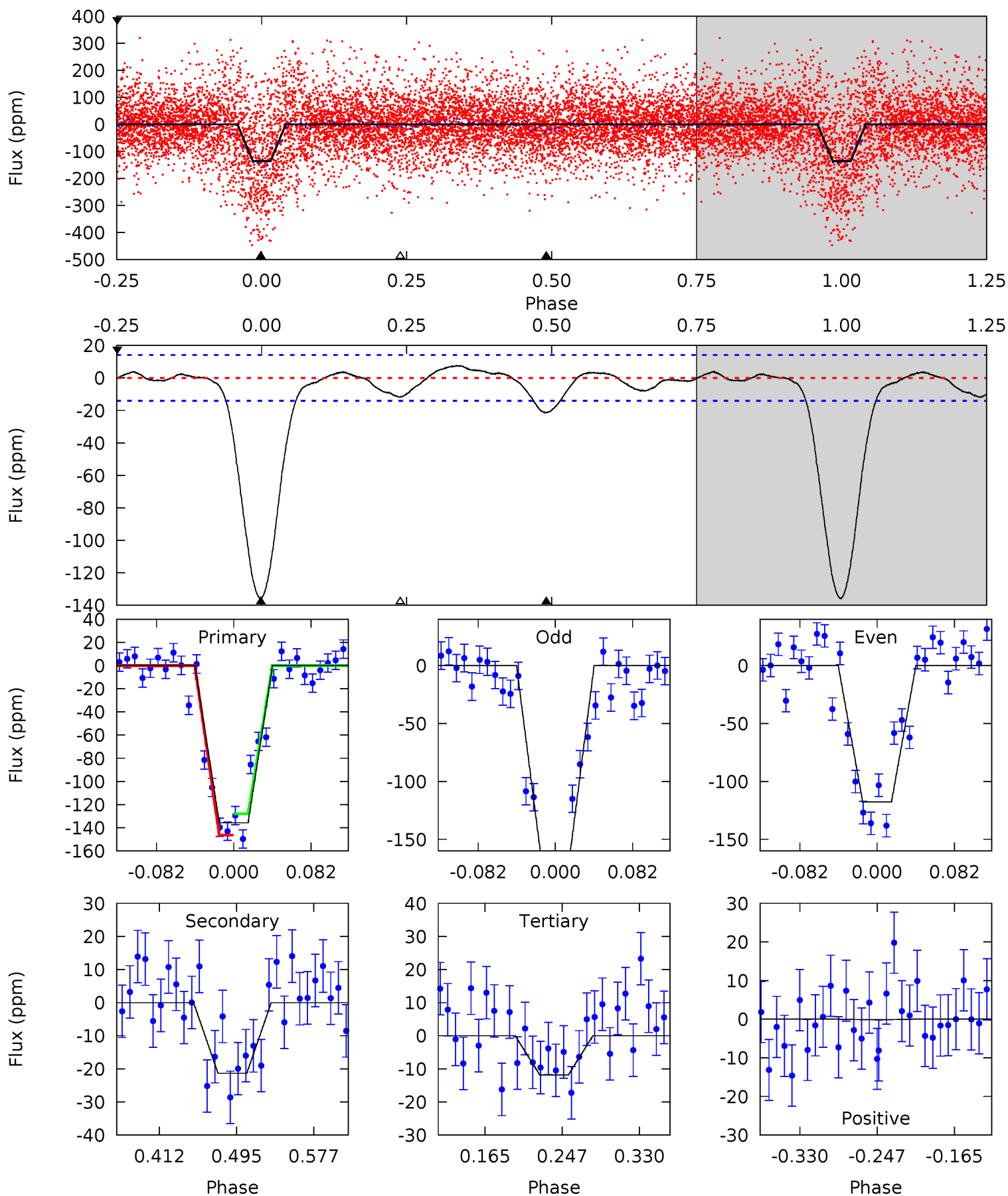
| Pri  | Sec  | Ter  | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.1 | 5.82 | 4.39 | 0   | 4.59            | 1.70            | 1.76             | 15.7    | 20.1    | 1.43    | 5.82    | 3.03    | 1.03 | 0.10  | 0.60 |



# Alt Model-Shift Uniqueness Test

005391911-01, P = 0.782072 Days, E = 131.113905 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  |
|------|------|------|-------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 44.2 | 6.95 | 3.85 | -0.03 | 4.60            | 1.74            | 1.45             | 40.4    | 44.3    | 3.11    | 6.99    | 7.68    | 0.89 | 0.05  | 2.99 |



### Stellar Parameters For KIC 005391911

|        | $T_{\text{eff}}(K)$ | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$            | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|----------------------------|----------------------------|---------------------------|---|
|        | $4475^{+47}_{-74}$  | $2.113^{+0.033}_{-0.027}$ | $-0.020^{+0.100}_{-0.150}$ | $20.237^{+1.098}_{-4.392}$ | $1.939^{+0.175}_{-0.700}$ | $0.000^{+0.000}_{-0.000}$                 |
|        | +1%/-2%             | +2%/-1%                   | +500%/-750%                | +5%/-22%                   | +9%/-36%                  | +32%/-8%                                  |
| Source | SPE74               | AST9                      | SPE74                      | DSEP                       |                           |   |

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

### Secondary Eclipse Parameters for KIC 005391911-01 / KOI 5157.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$      | $T_{max} (K)$        | $T_{obs} (K)$         | $A_{obs}$                 |
|---------|-------------|-------------------------|----------------------|-----------------------|---------------------------|
| DV      | $-29 \pm 5$ | $26.10^{+9.37}_{-8.41}$ | $8614^{+153}_{-189}$ | $-6685^{+225}_{-167}$ | $0.010^{+0.012}_{-0.005}$ |
| Alt.    | $-21 \pm 3$ | $25.19^{+8.19}_{-7.81}$ | $8619^{+152}_{-203}$ | $-6709^{+216}_{-154}$ | $0.008^{+0.009}_{-0.004}$ |

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

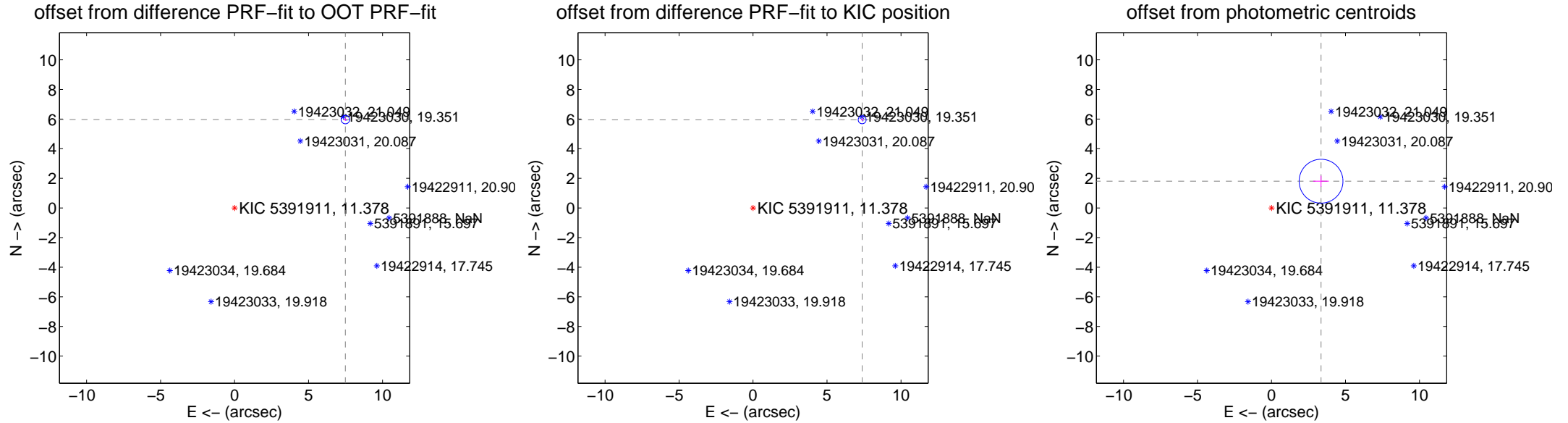
## DV Centroid Data

Supplemental centroid analysis for 005391911-01. **Kepler magnitude: 11.38.** Transit SNR 20.23

**There are 2 quarters with good PRF difference image offsets**

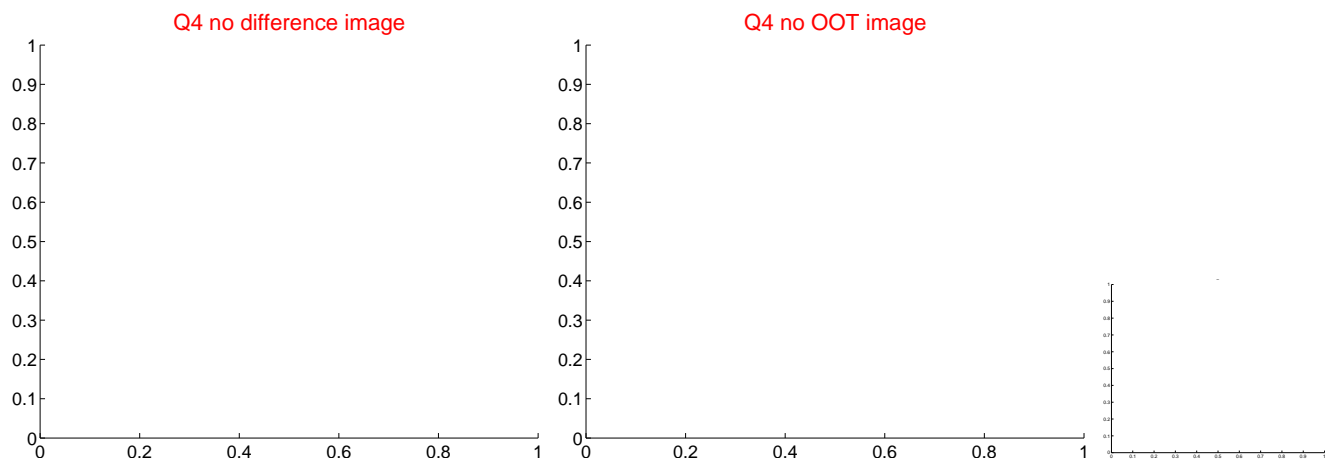
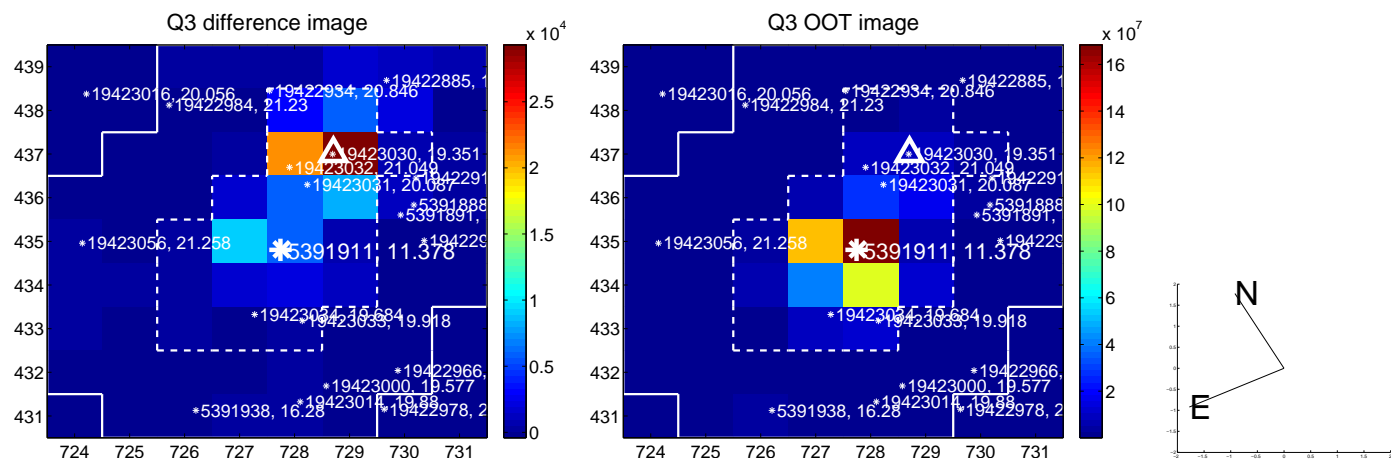
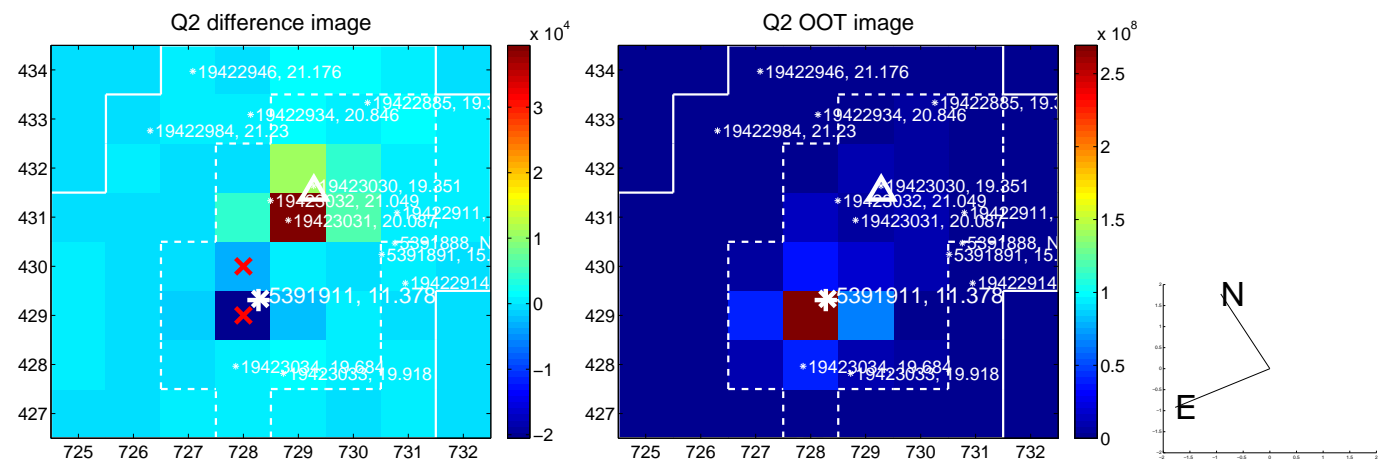
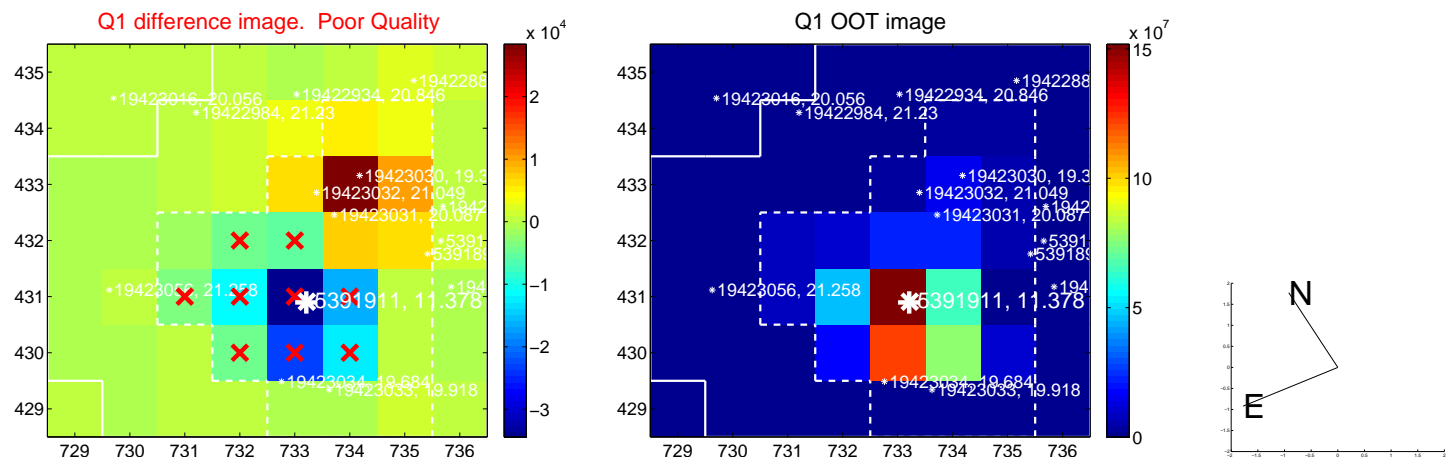
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

|   | Distance in arcsec                  | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|---|-------------------------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | <b><math>9.572 \pm 0.096</math></b> | <b>99.88</b>        | $-7.486 \pm 0.098$ | $5.965 \pm 0.092$ |
| PRF-fit source offset from KIC position | <b><math>9.474 \pm 0.089</math></b> | <b>106.35</b>       | $-7.372 \pm 0.078$ | $5.951 \pm 0.104$ |
| photometric centroid source offset      | <b><math>3.80 \pm 0.49</math></b>   | <b>7.70</b>         | $-3.35 \pm 0.52$   | $1.81 \pm 0.37$   |



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.





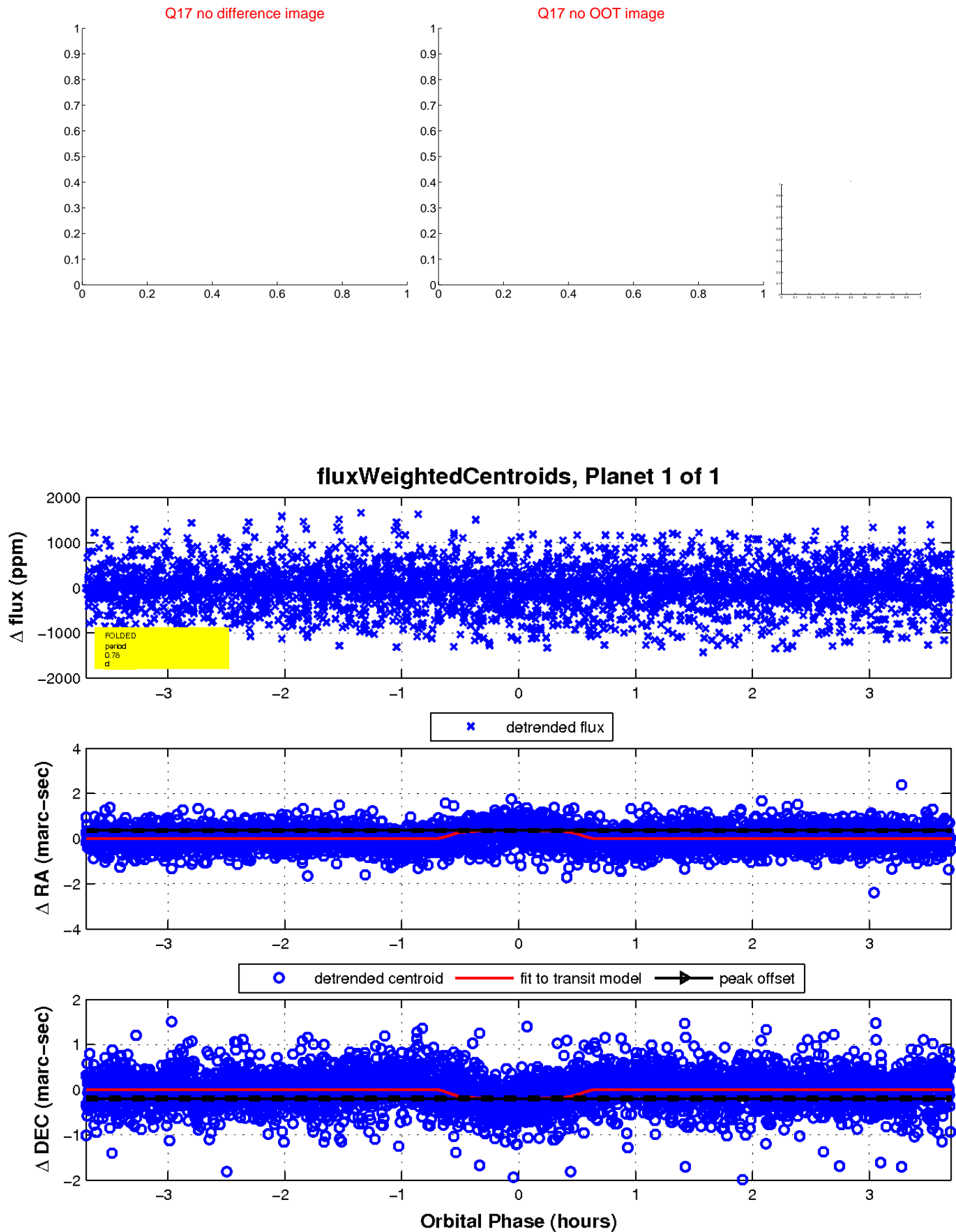
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

