

# KIC 008097825

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|--------|--------|-----------------------------|-----------------|------------------------|------------------------|
| 008097825-01 | OBS      | 6963.01 | 1.468422      | 132.167577   | 113834.5    | 6.524            | 6156.8 | 2772.7 | 0.96                        | 5539            | 35.72                  | 1399.69                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 008097825-01 | OBS      | FP   | 0.00  | 0 | 1 | 0 | 0 | SWEET_EB—DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT |

**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.

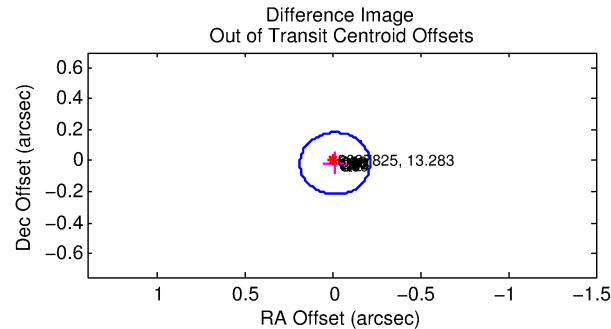
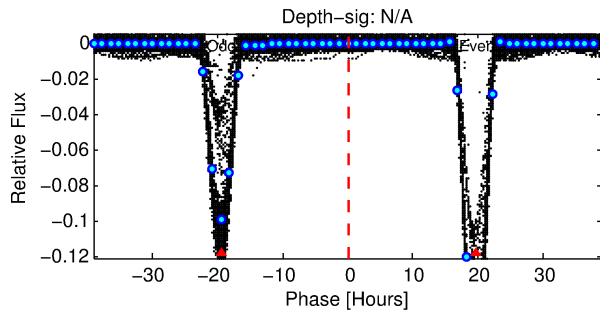
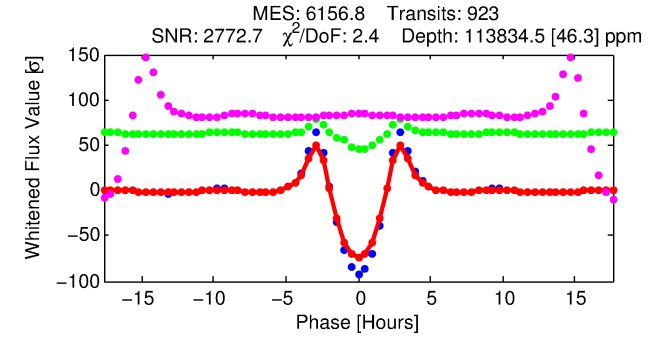
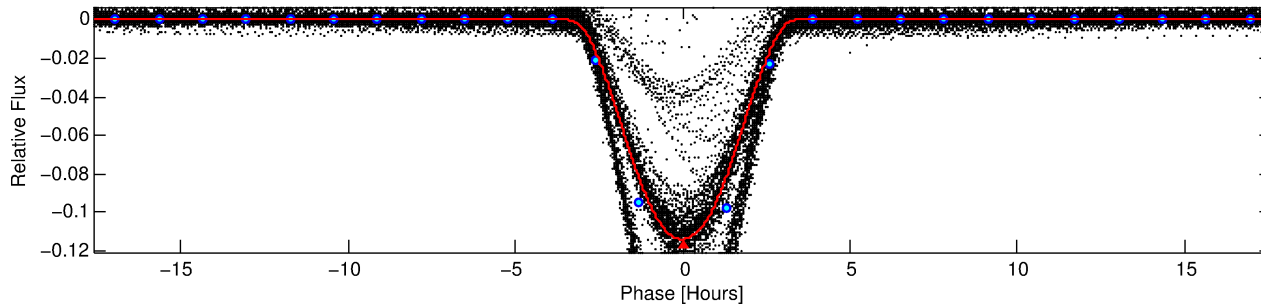
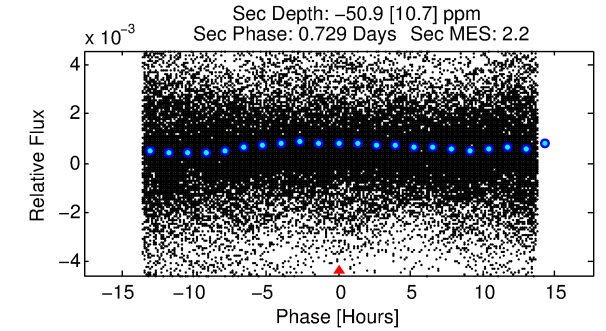
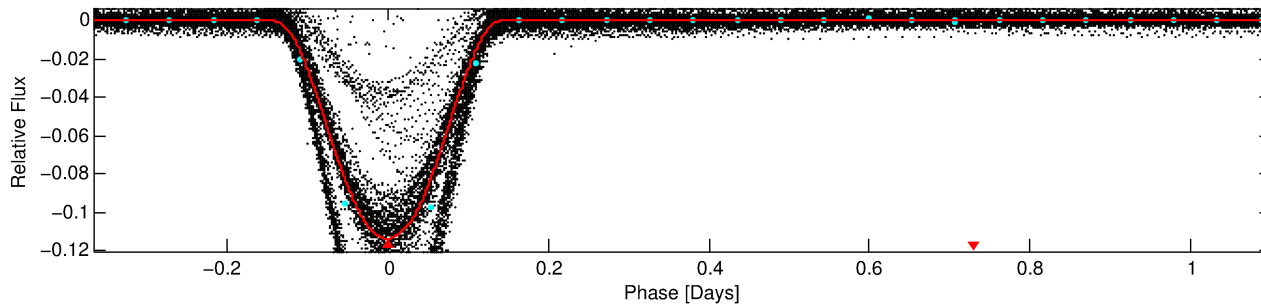
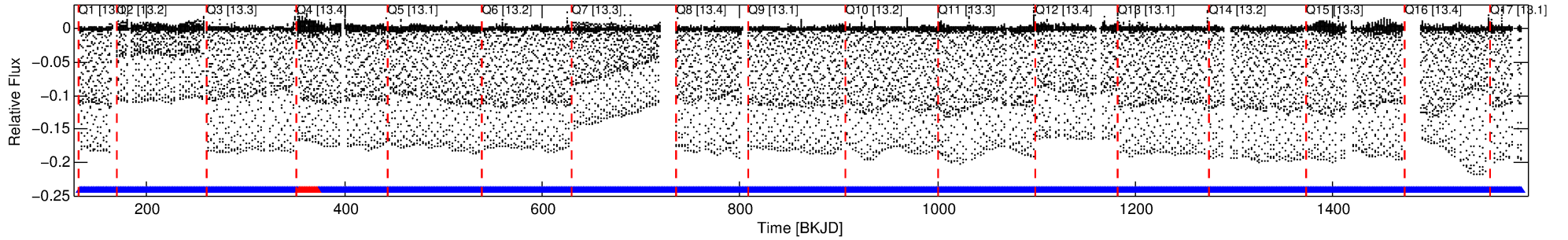
## Ephemeris Match Information For 008097825-01

No Significant Match Found

# DV One-Page Summary

KIC: 8097825 Candidate: 1 of 1 Period: 1.468 d  
KOI: K06963.01 Corr: 0.989

Kp: 13.28 R\*: 0.96 Rs Teff: 5539.0 K Logg: 4.38 Fe/H: -0.220



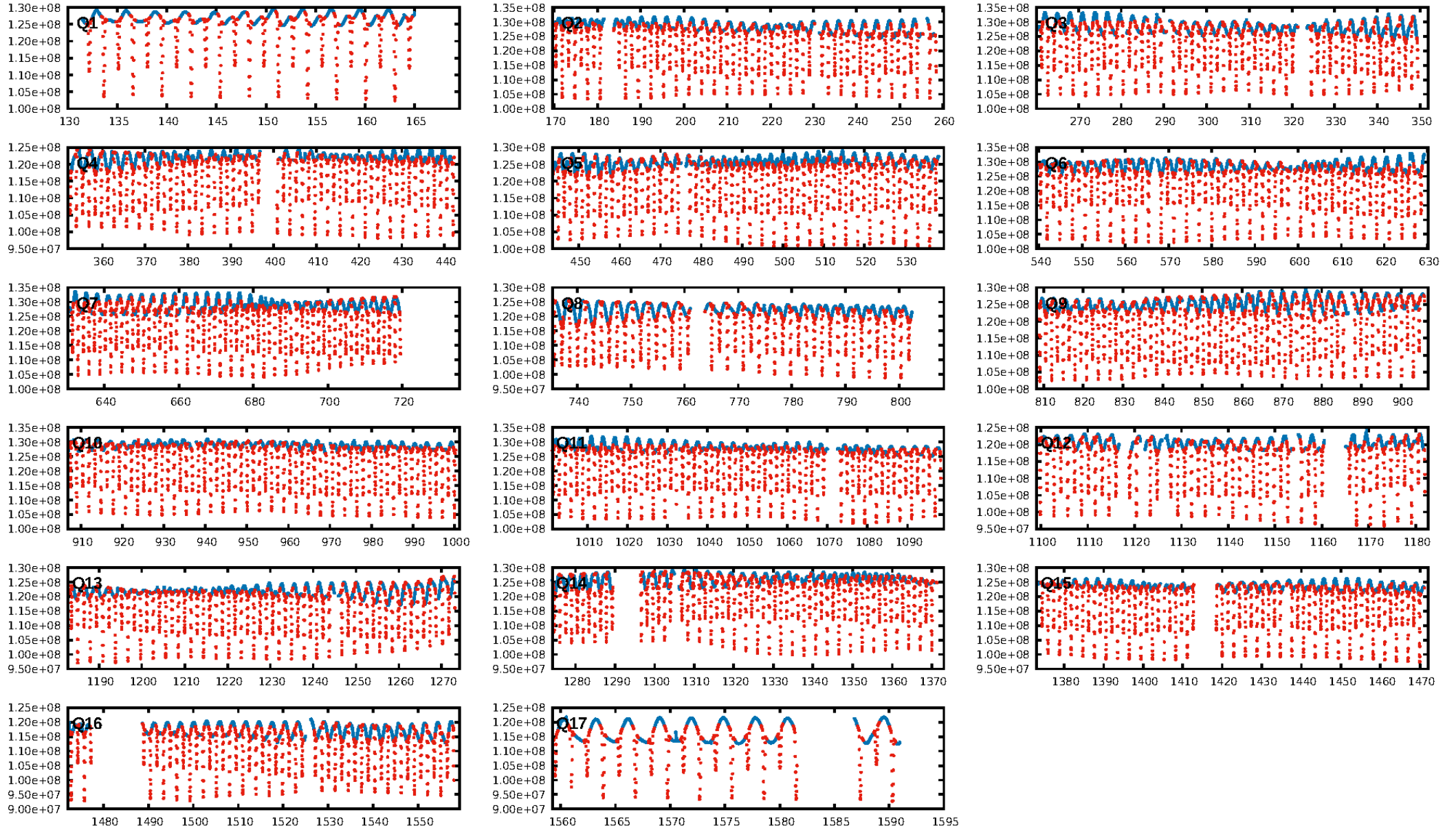
## DV Fit Results:

Period = 1.46842 [0.00000] d  
Epoch = 132.1676 [0.0000] BKJD  
Rp/R\* = 0.3413 [0.0001]  
a/R\* = 2.20 [0.00]  
b = 0.69 [0.00]  
Seff = 1399.69 [624.86]  
Teff = 1560 [174] K  
Rp = 35.72 [12.22] Re  
a = 0.0235 [0.0069] AU  
Ag = N/A  
Teffp = N/A

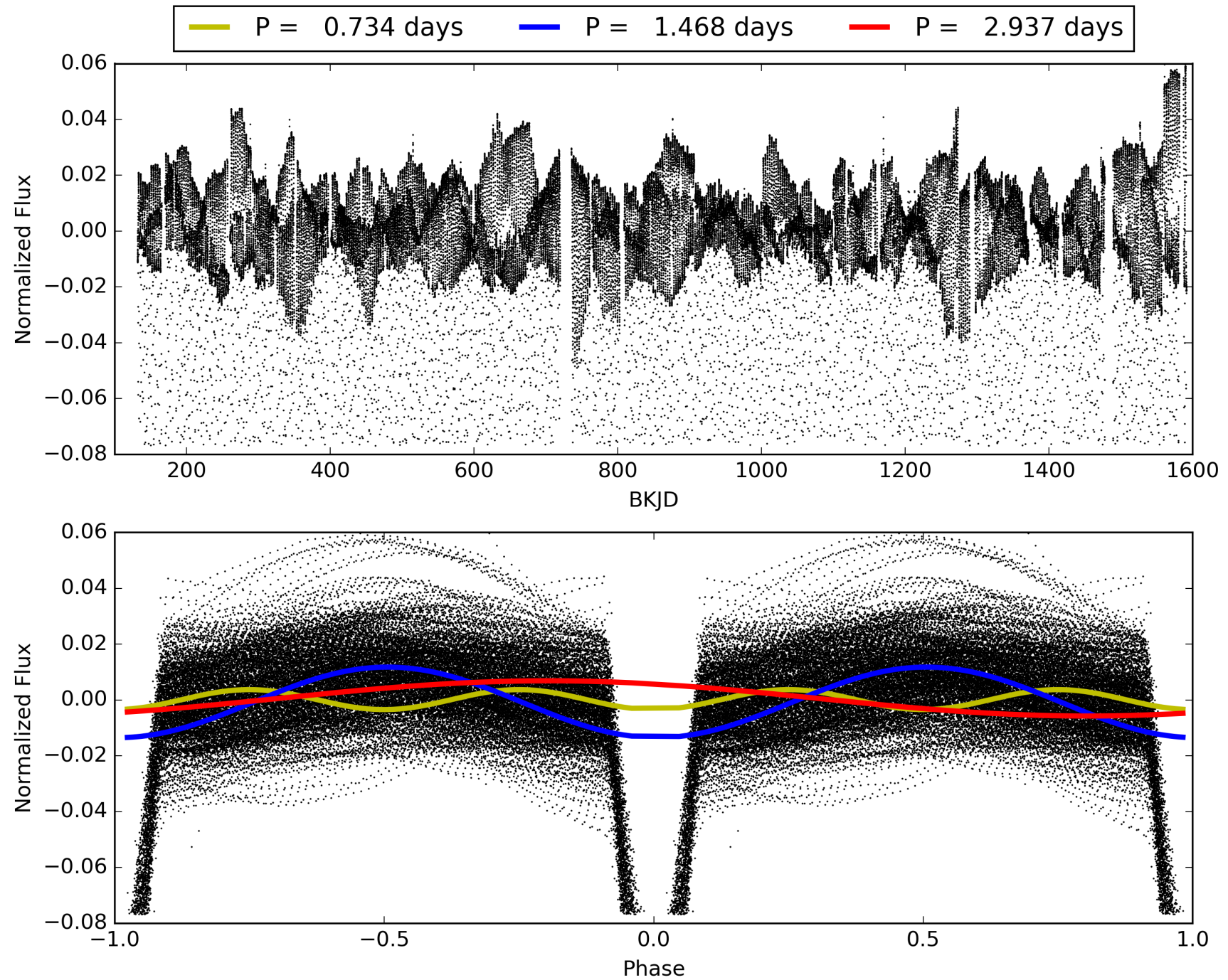
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [867/881]  
GhostDiagnostic-chr: 1.252  
Centroid-sig: 0.0%  
Centroid-so: 0.030 arcsec [53.02σ]  
OotOffset-rm: 0.022 arcsec [0.32σ]  
KicOffset-rm: 0.053 arcsec [0.78σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008097825-01, PDC Light Curves

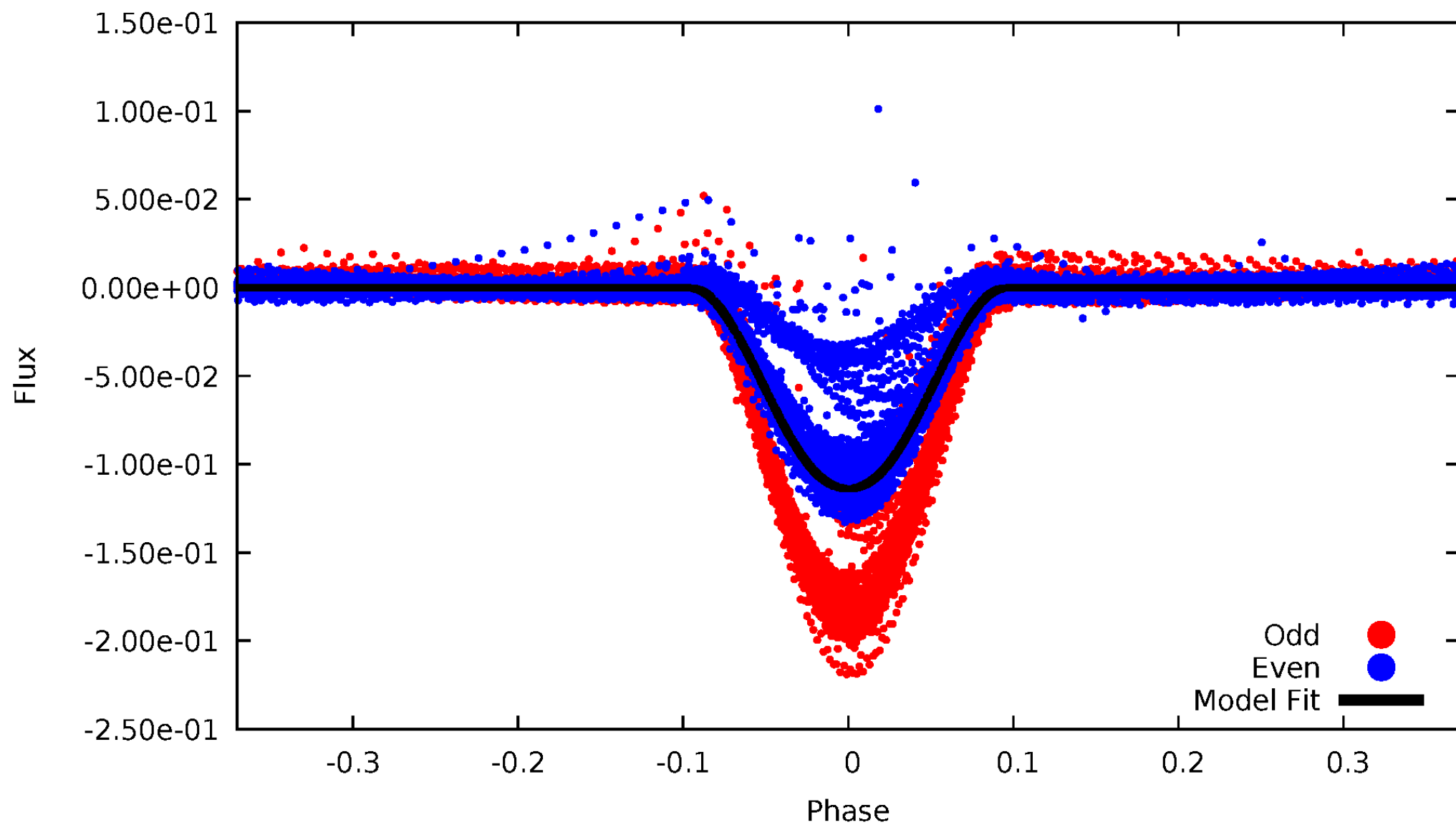


TCE 008097825-01



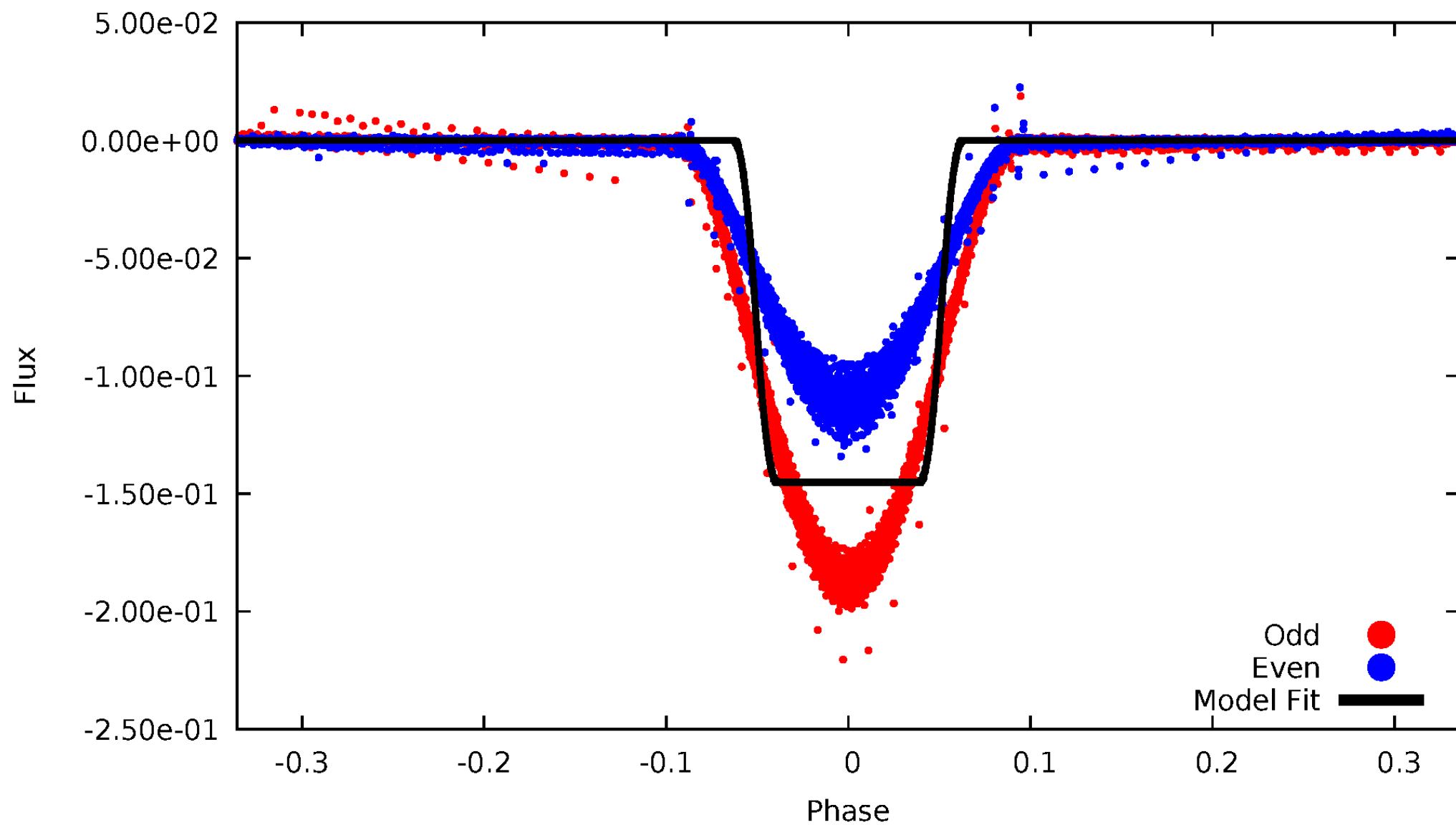
# DV Odd/Even

TCE 008097825-01



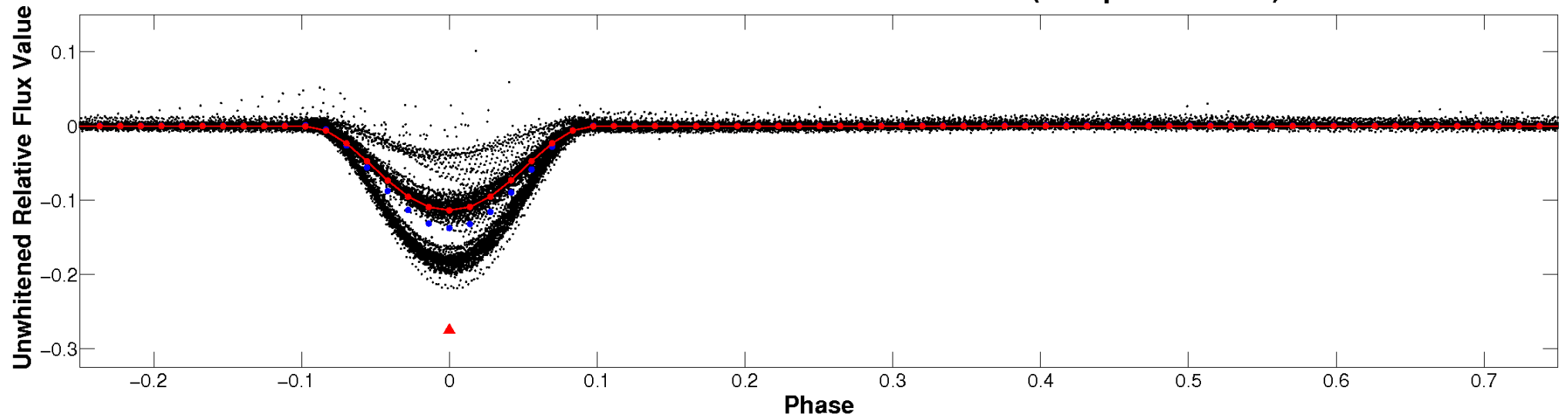
# ALT Odd/Even

TCE 008097825-01

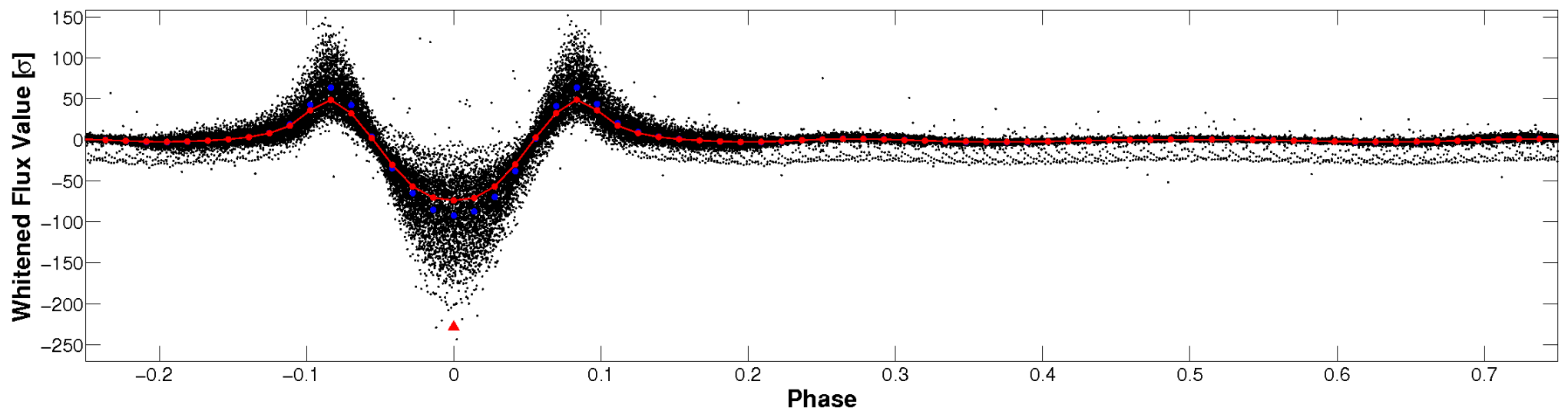


# Non-Whitened Vs. Whitened Light Curve

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

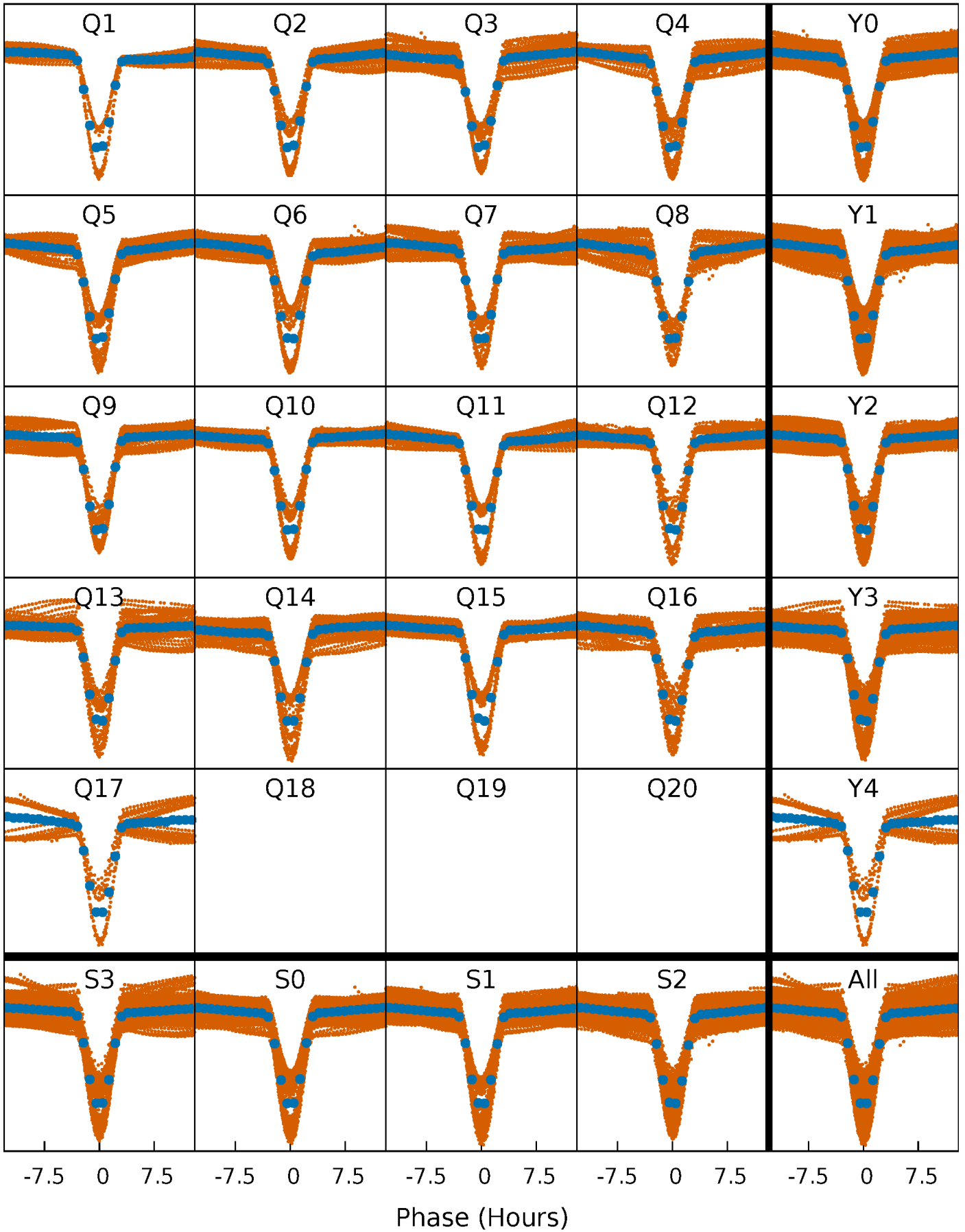


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



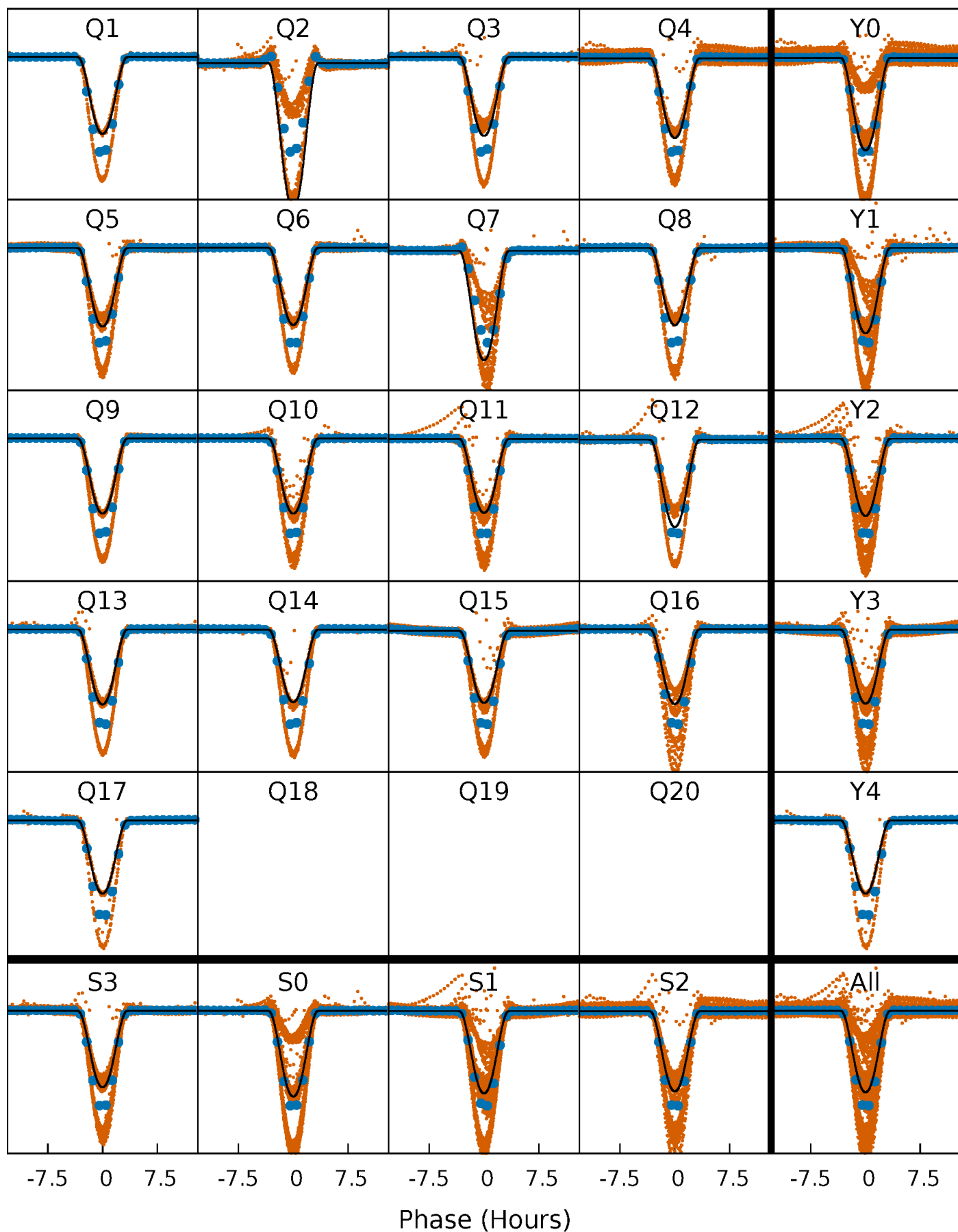
# PDC Quarter-Phased Transit Curves

TCE 008097825-01 P= 1.468422 Days  $T_0=132.167577$  (BKJD)



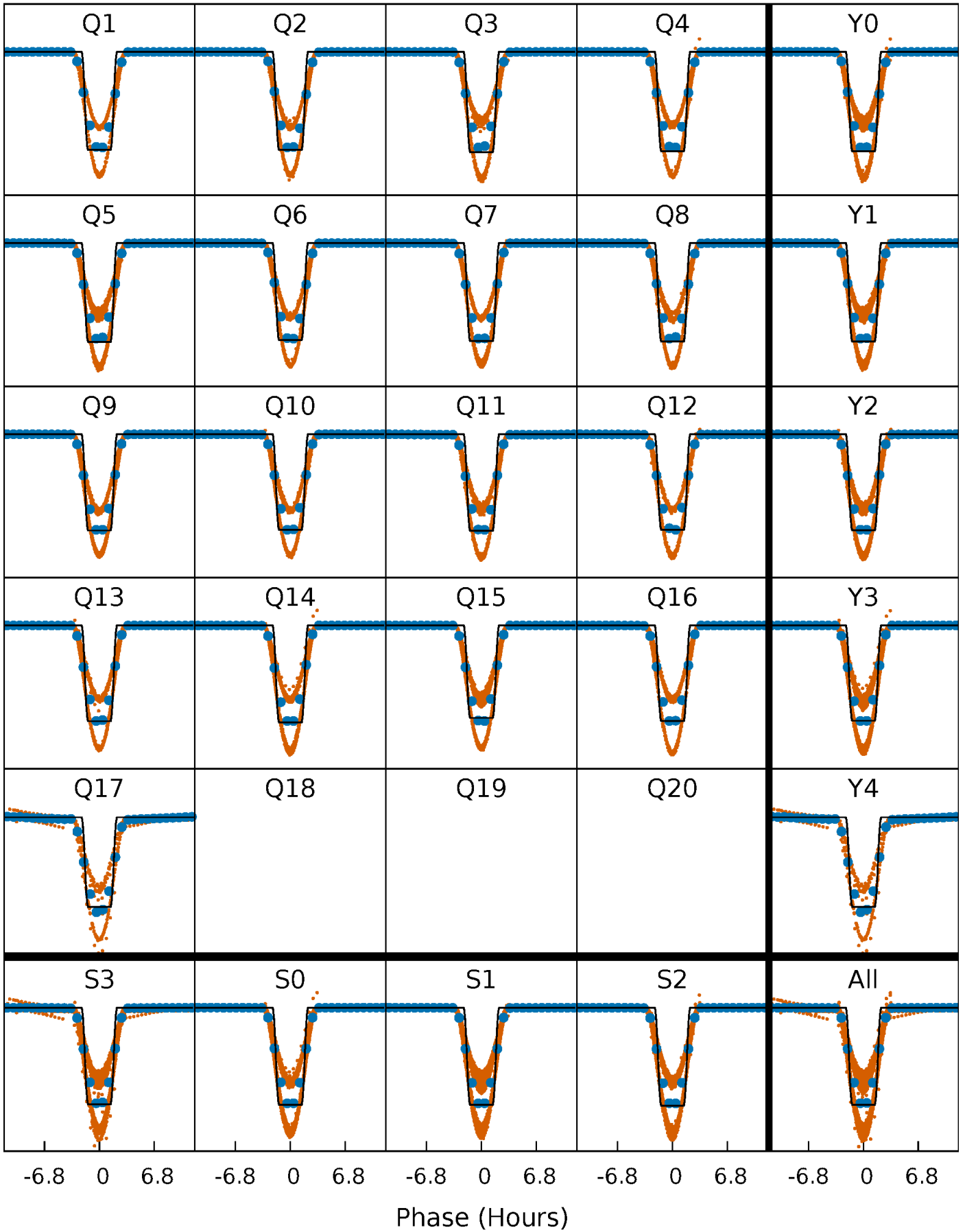
# DV Quarter-Phased Transit Curves

TCE 008097825-01 P= 1.468422 Days  $T_0=132.167577$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

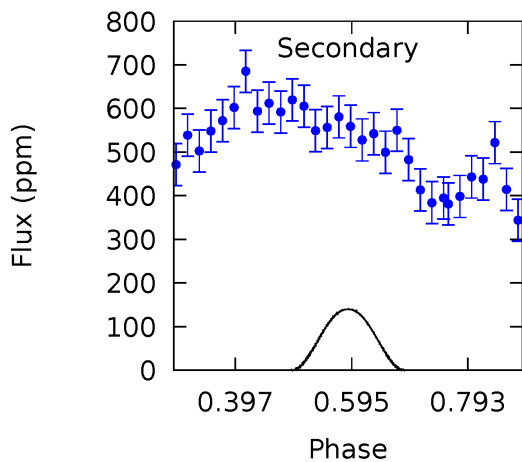
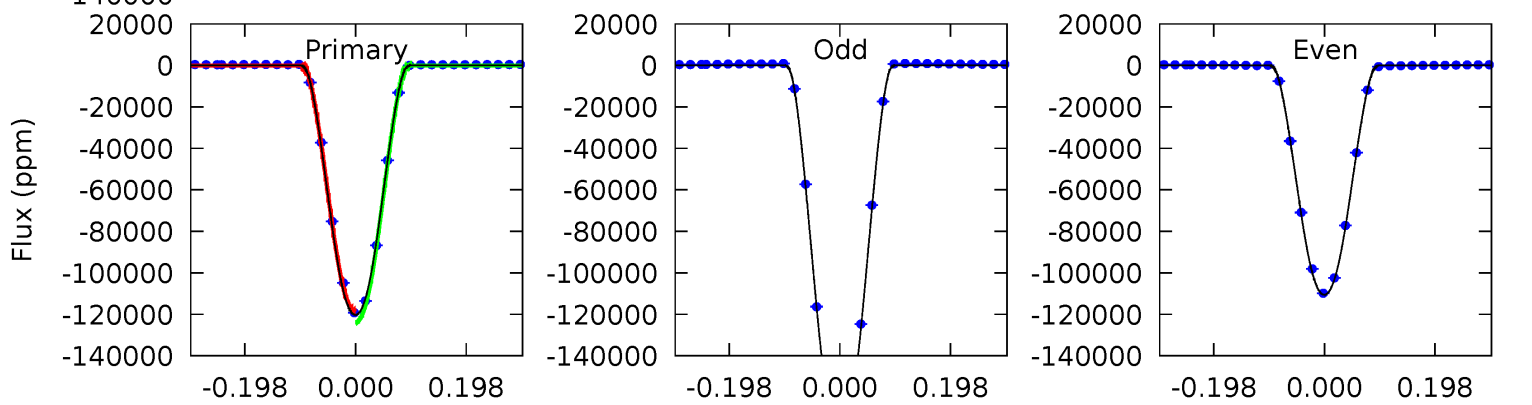
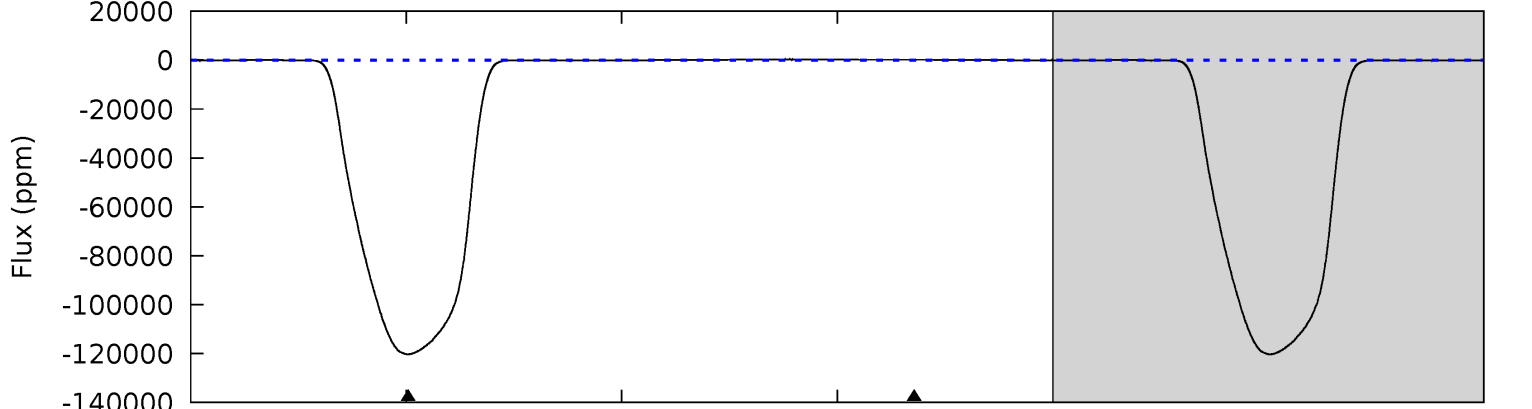
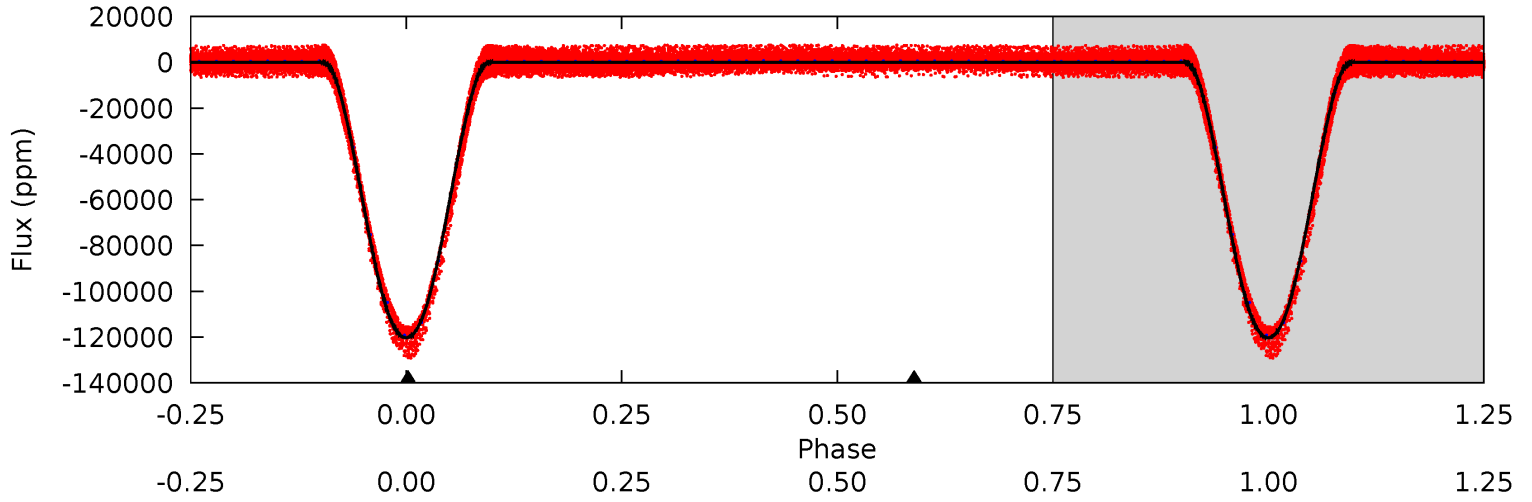
TCE 008097825-01     $P = 1.468429$  Days     $T_0 = 132.164054$  (BKJD)



# DV Model-Shift Uniqueness Test

008097825-01, P = 1.468422 Days, E = 130.699155 Days

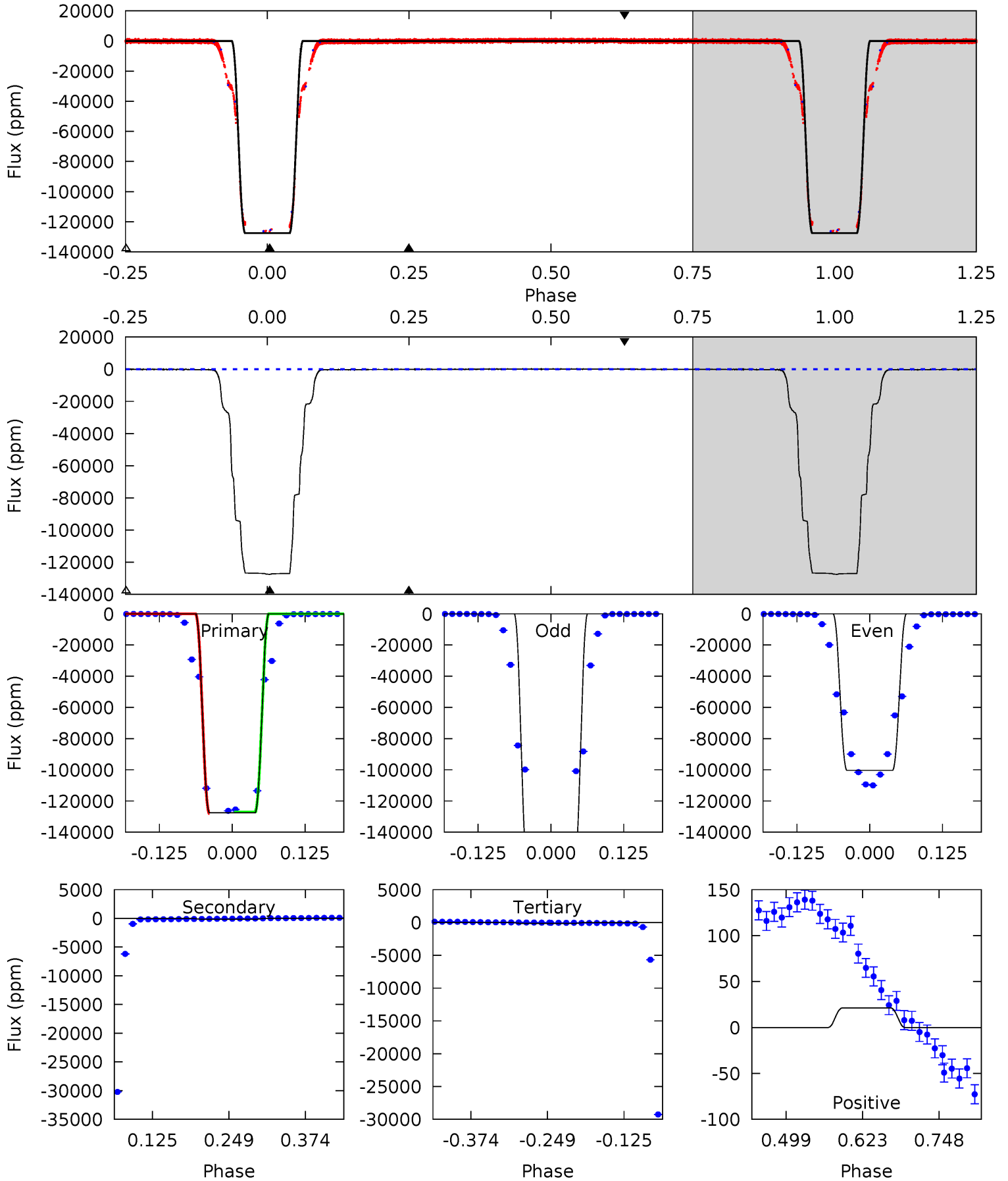
| Pri  | Sec   | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT |
|------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 4800 | -5.58 | 0   | 0   | 4.42            | 1.29            | 3.91             | 4800    | 4800    | -5.58   | -5.58   | 1871    | 1.12 | 0.00  | 0   |



# Alt Model-Shift Uniqueness Test

008097825-01, P = 1.468429 Days, E = 130.695625 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 |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 6227 | 8.10 | 7.68 | 1.04 | 4.52            | 1.54            | 4.76             | 6219    | 6225    | 0.42    | 7.06    | 4288    | 1.11 | 0.00  | 0   |



### Stellar Parameters For KIC 008097825

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5539^{+149}_{-149}$ | $4.381^{+0.180}_{-0.240}$ | $-0.220^{+0.300}_{-0.250}$ | $0.959^{+0.328}_{-0.187}$ | $0.807^{+0.122}_{-0.061}$ | $1.288^{+0.981}_{-0.749}$                 |
|        | +3%/-3%              | +4%/-5%                   | +136%/-114%                | +34%/-19%                 | +15%/-8%                  | +76%/-58%                                 |
| Source | PHO1                 | 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 008097825-01 / KOI 6963.01

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$      | $T_{max} (K)$        | $T_{obs} (K)$         | $A_{obs}$                  |
|---------|---------------|-------------------------|----------------------|-----------------------|----------------------------|
| DV      | $140 \pm 25$  | $36.39^{+7.45}_{-4.28}$ | $2204^{+198}_{-166}$ | $-2647^{+93}_{-116}$  | $-0.032^{+0.010}_{-0.013}$ |
| Alt.    | $-166 \pm 20$ | $40.35^{+7.74}_{-4.81}$ | $2201^{+182}_{-157}$ | $-2577^{+104}_{-117}$ | $0.031^{+0.011}_{-0.009}$  |

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

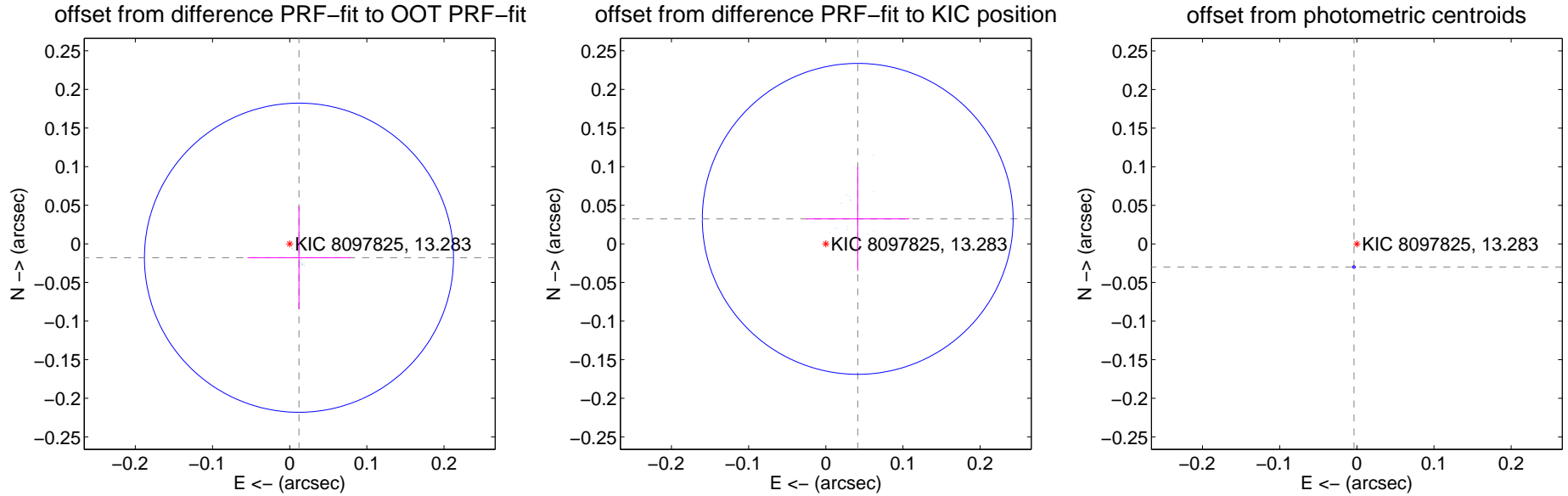
## DV Centroid Data

Supplemental centroid analysis for 008097825-01. Kepler magnitude: 13.28. Transit SNR 2772.75

There are 17 quarters with good PRF difference image offsets

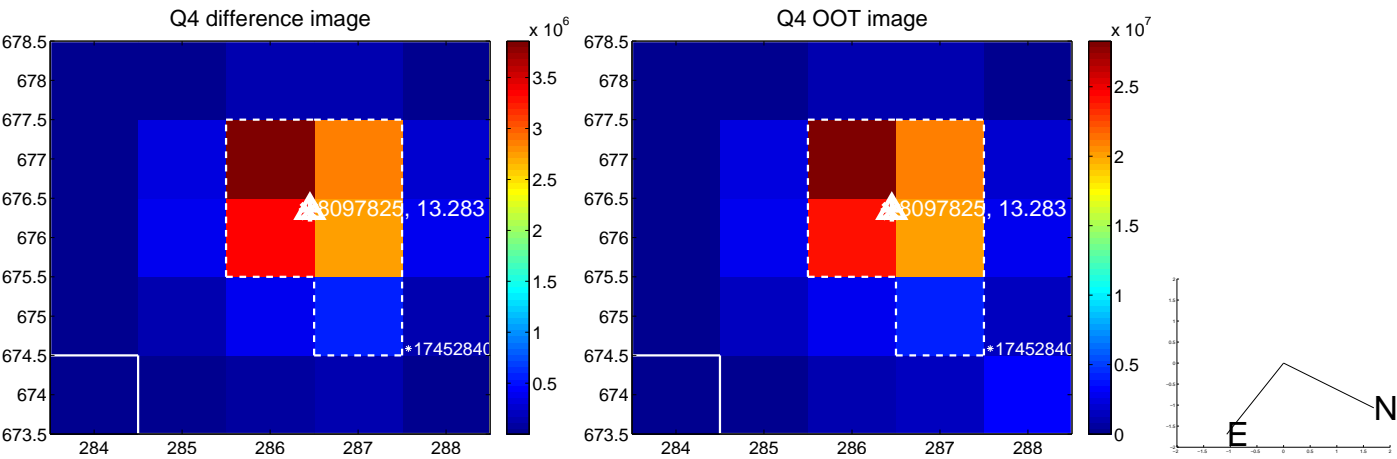
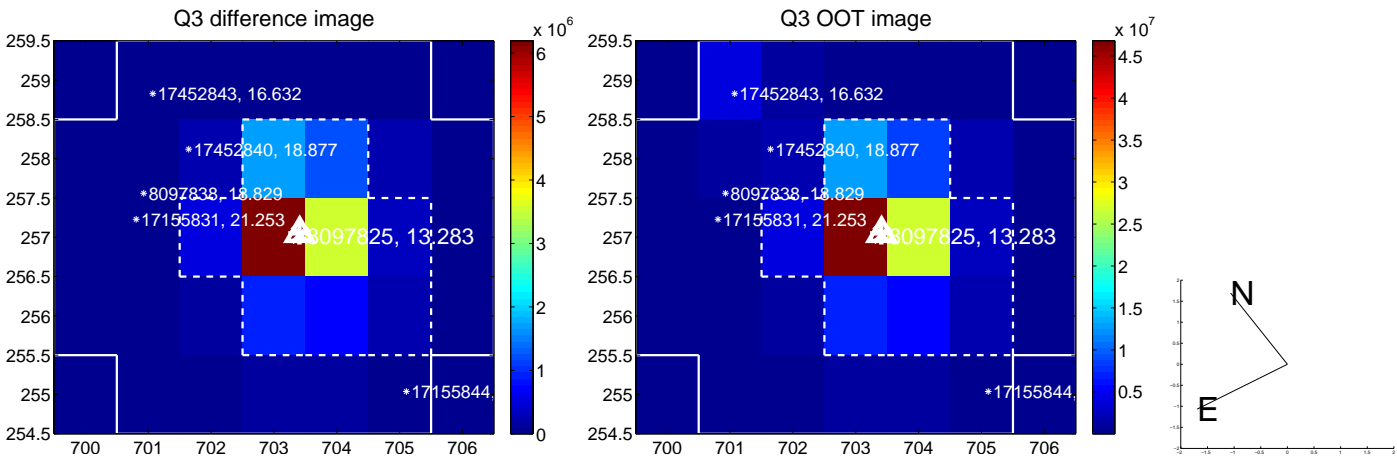
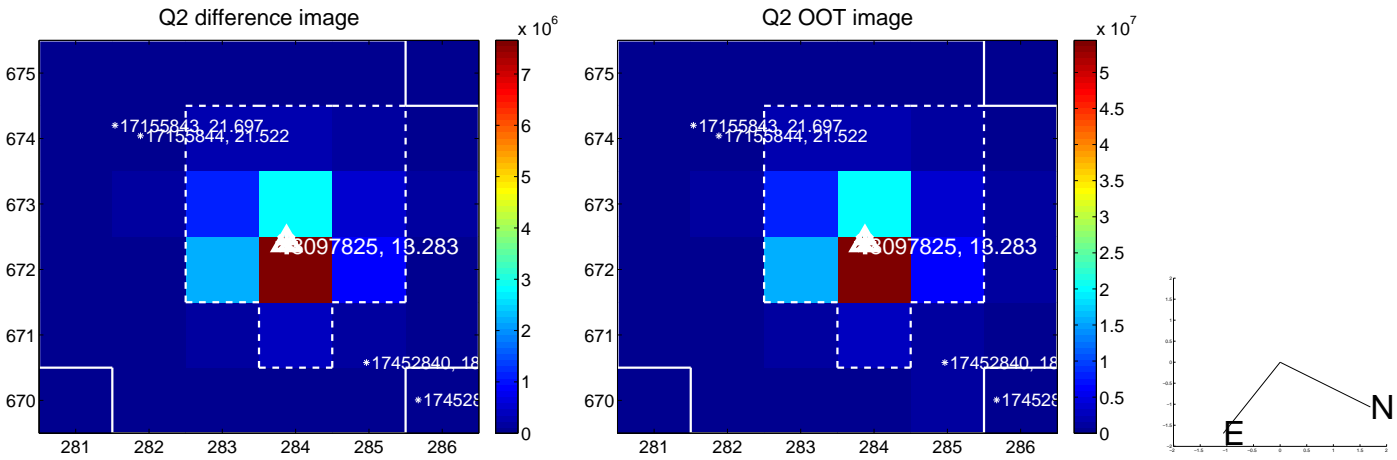
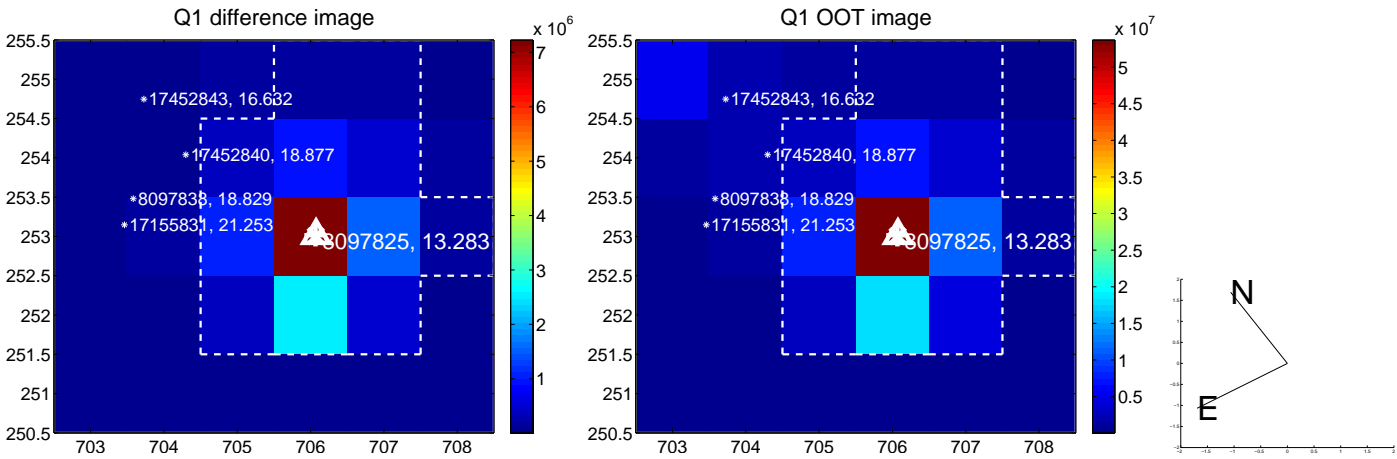
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.022 \pm 0.067$  | 0.32                | $-0.012 \pm 0.067$ | $-0.018 \pm 0.067$ |
| PRF-fit source offset from KIC position | $0.053 \pm 0.067$  | 0.78                | $-0.041 \pm 0.067$ | $0.032 \pm 0.067$  |
| photometric centroid source offset      | $0.03 \pm 0.00$    | 53.02               | $0.00 \pm 0.00$    | $-0.03 \pm 0.00$   |

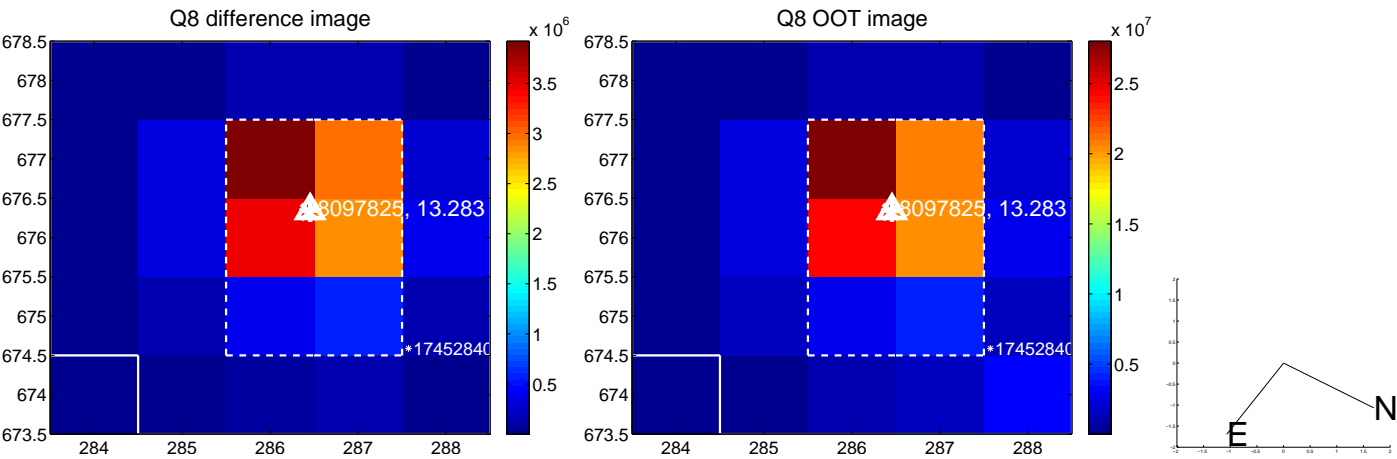
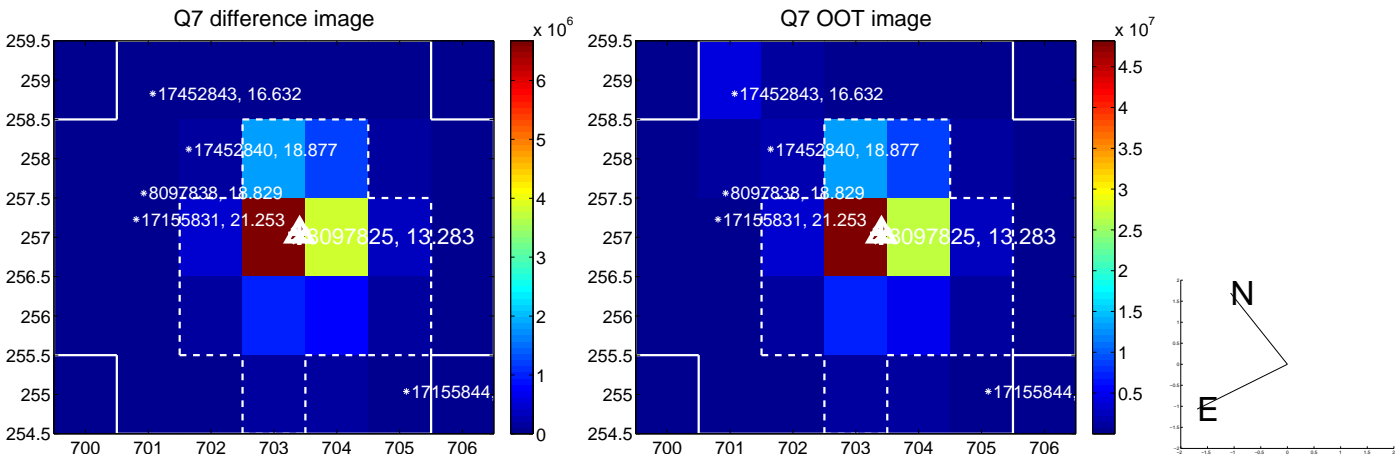
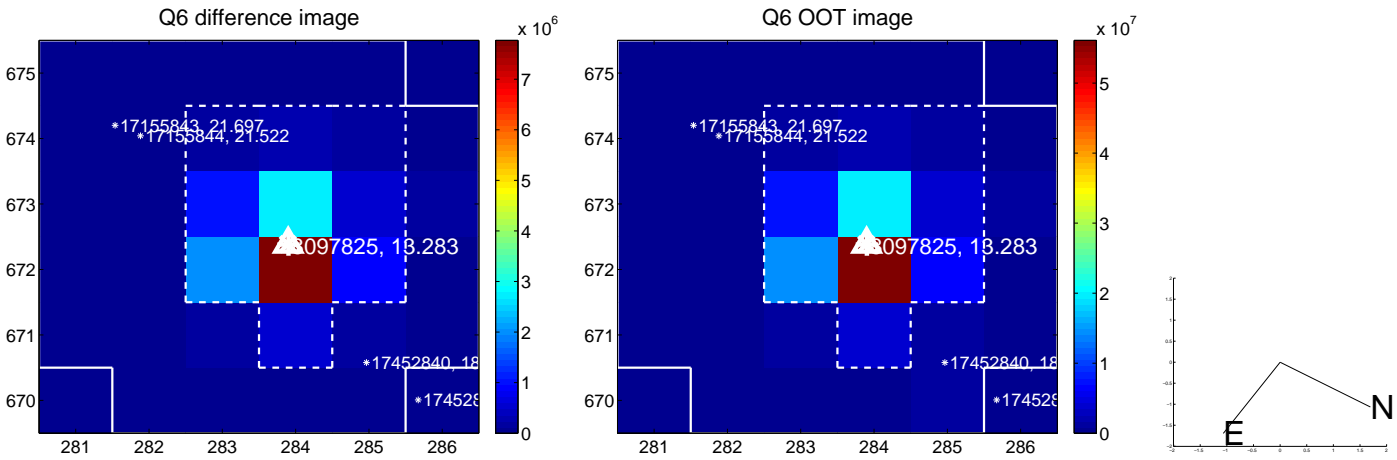
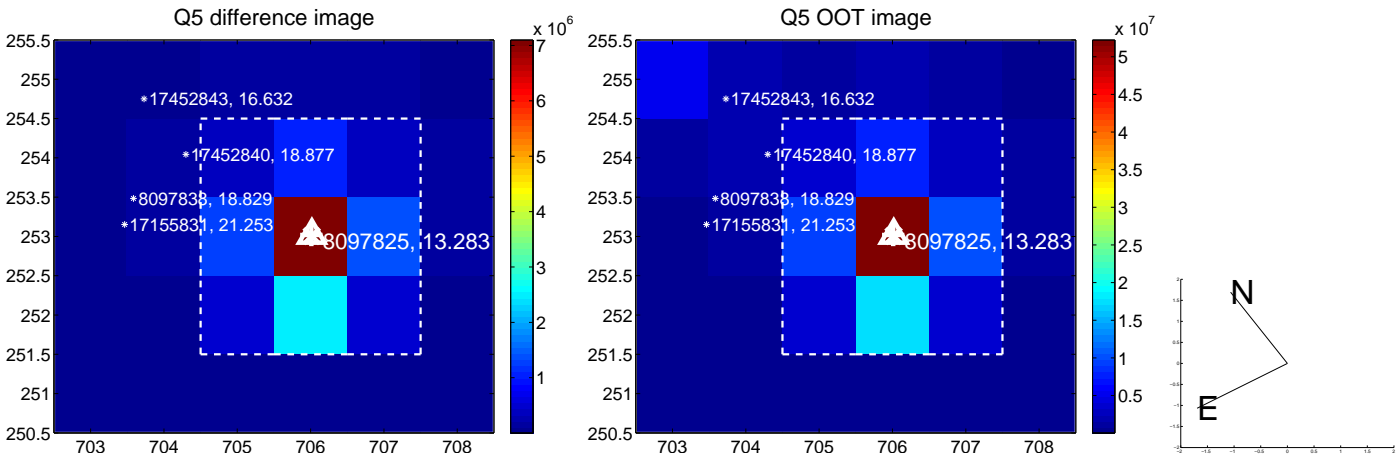


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

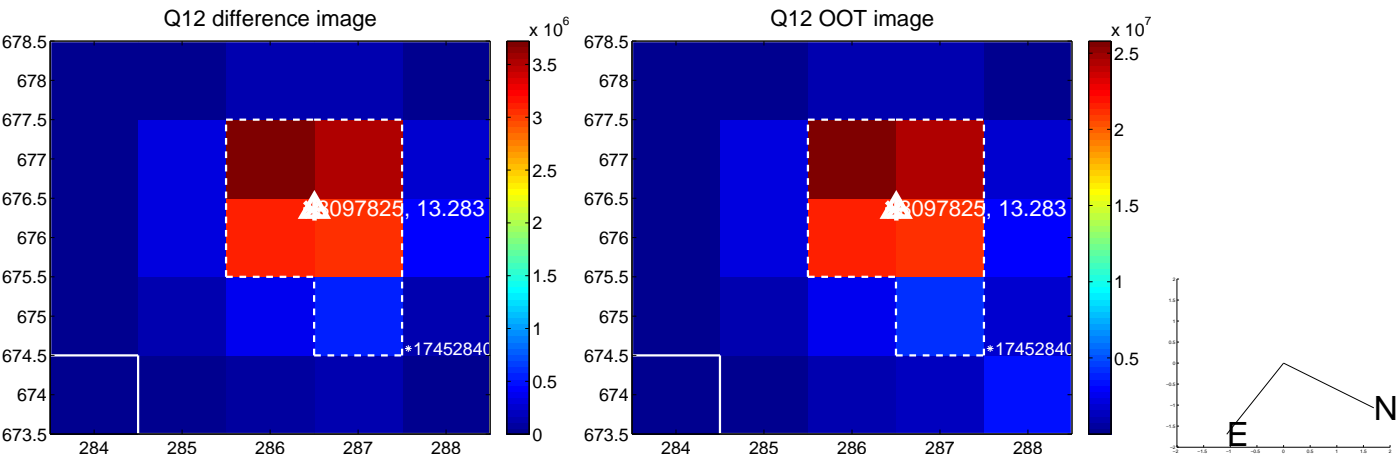
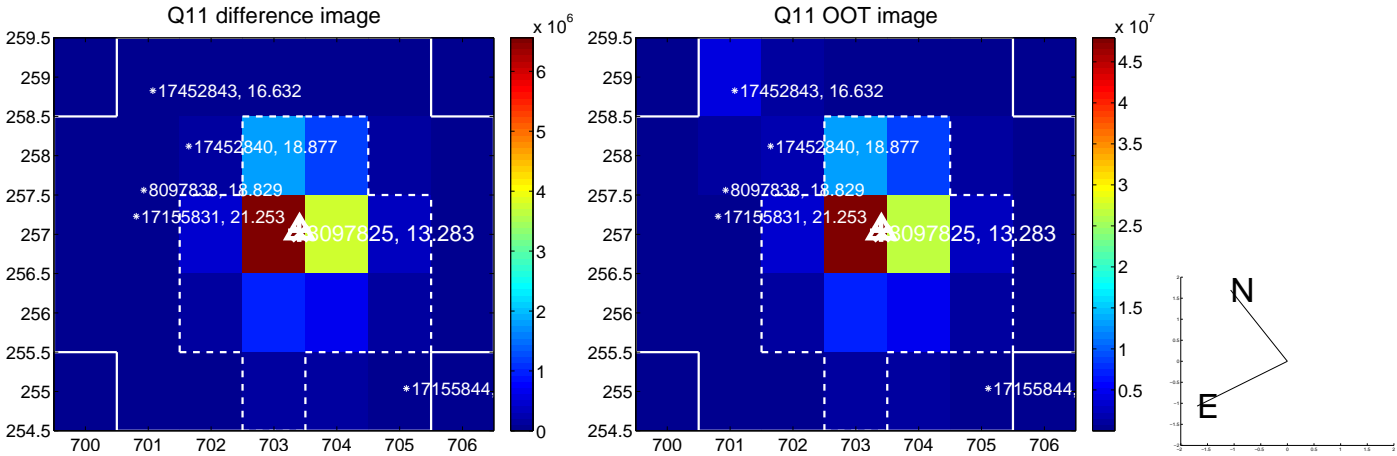
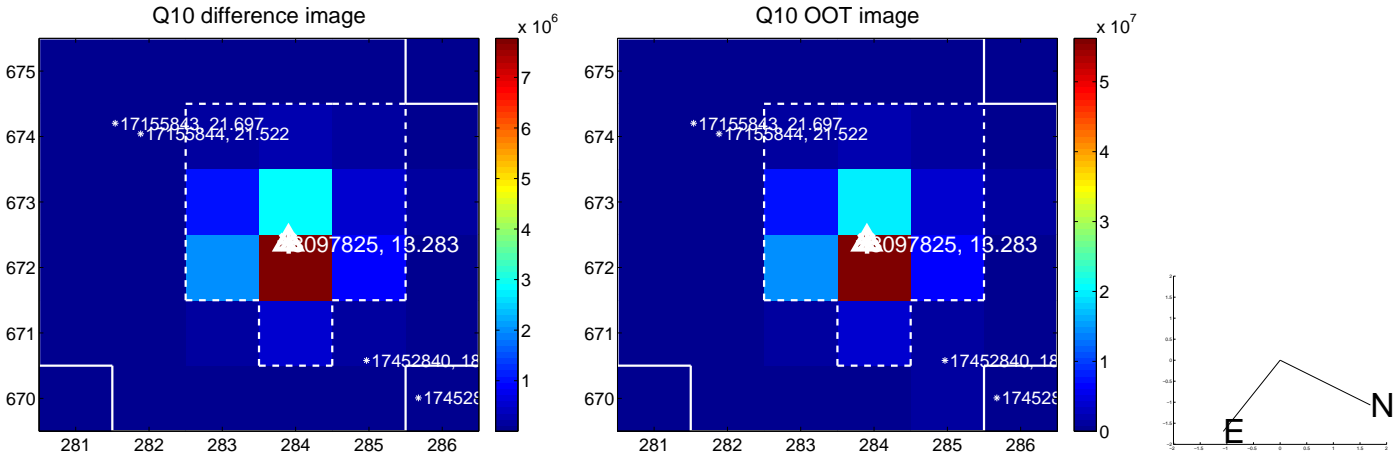
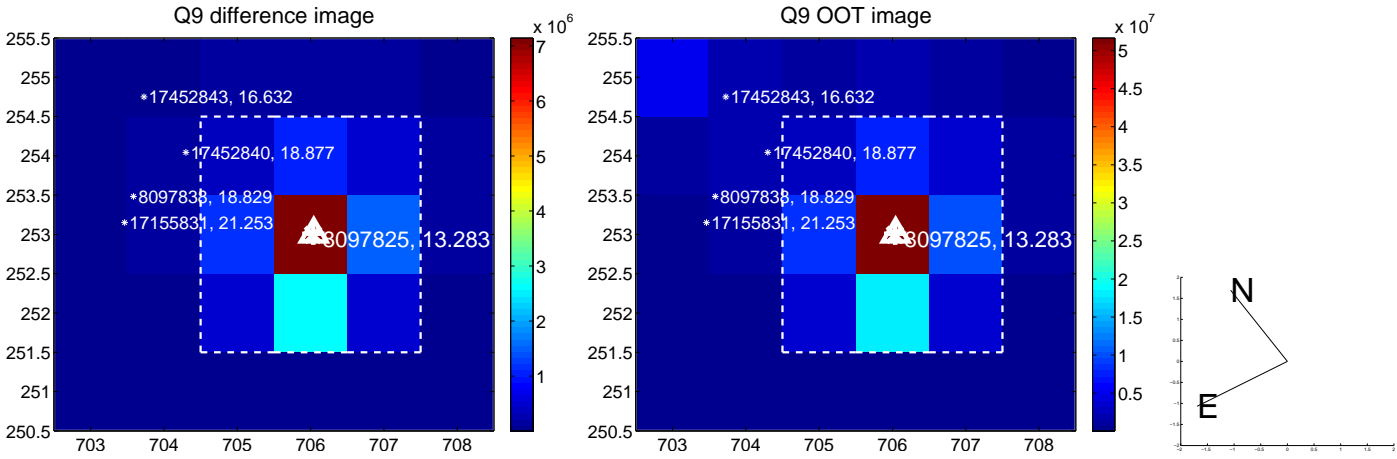
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



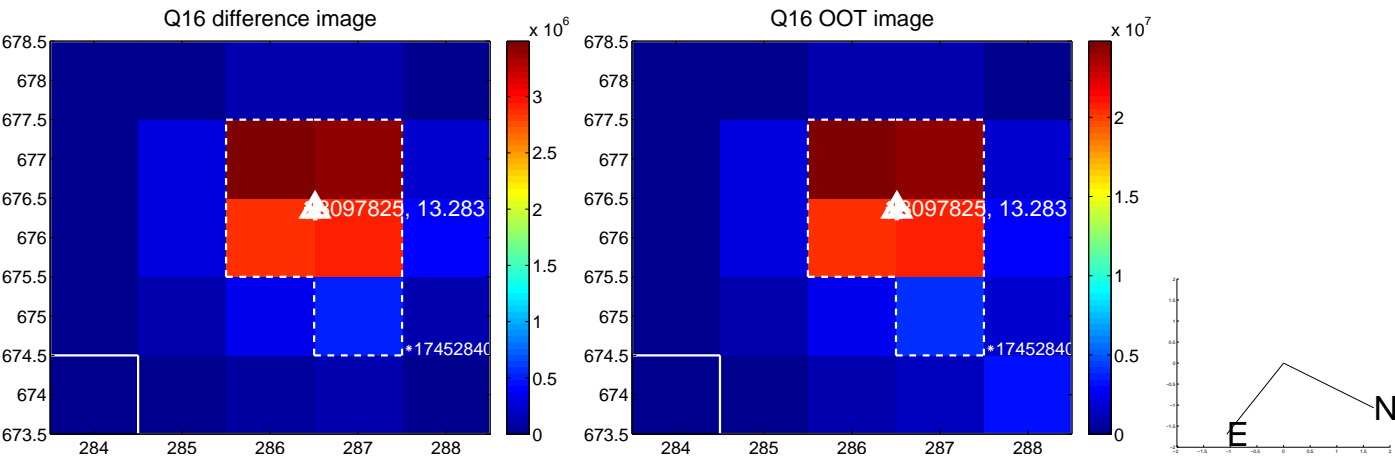
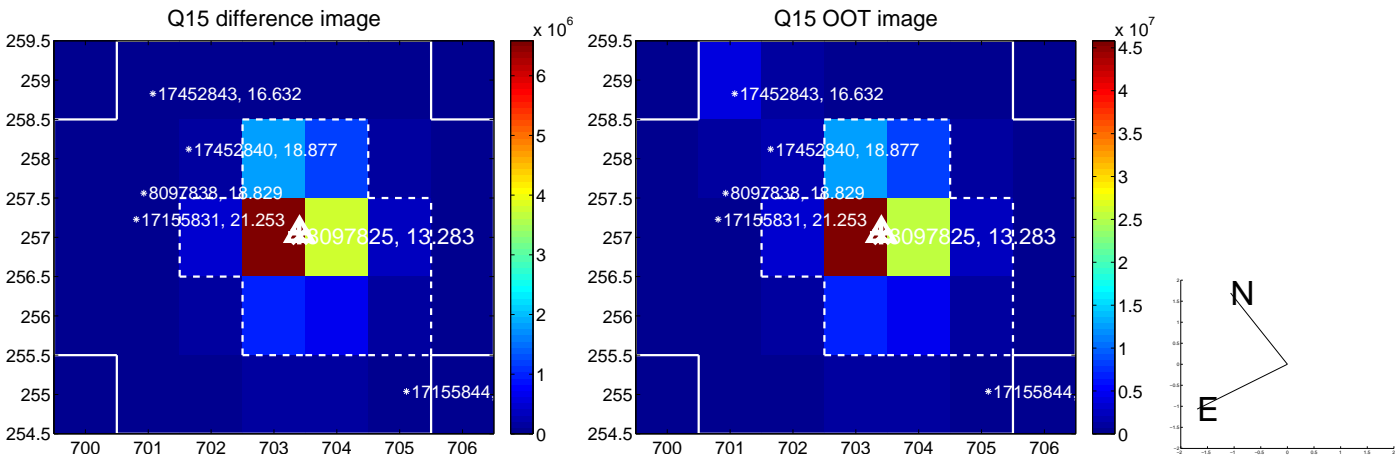
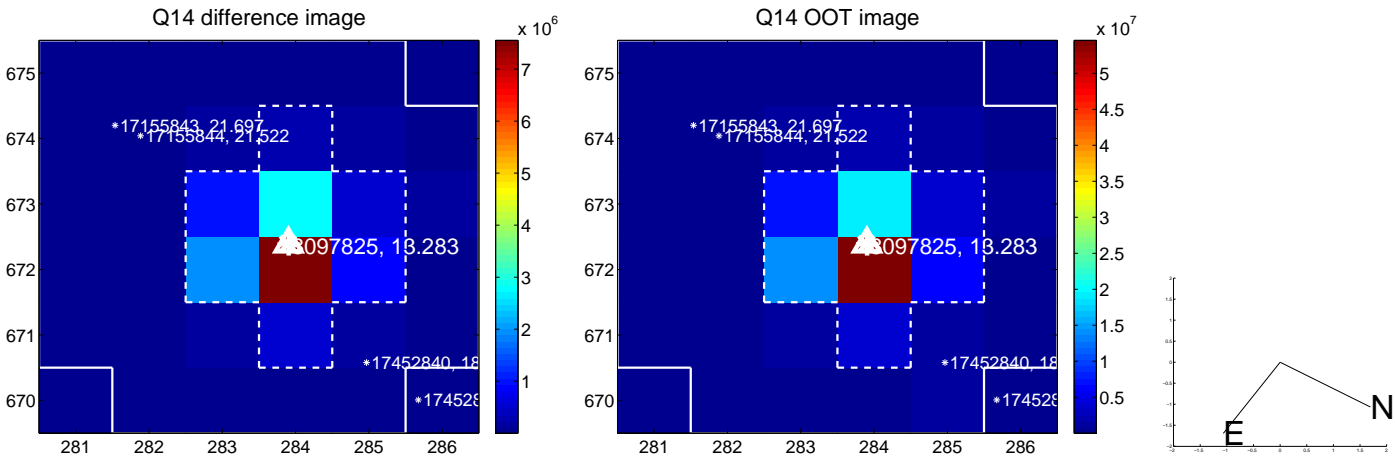
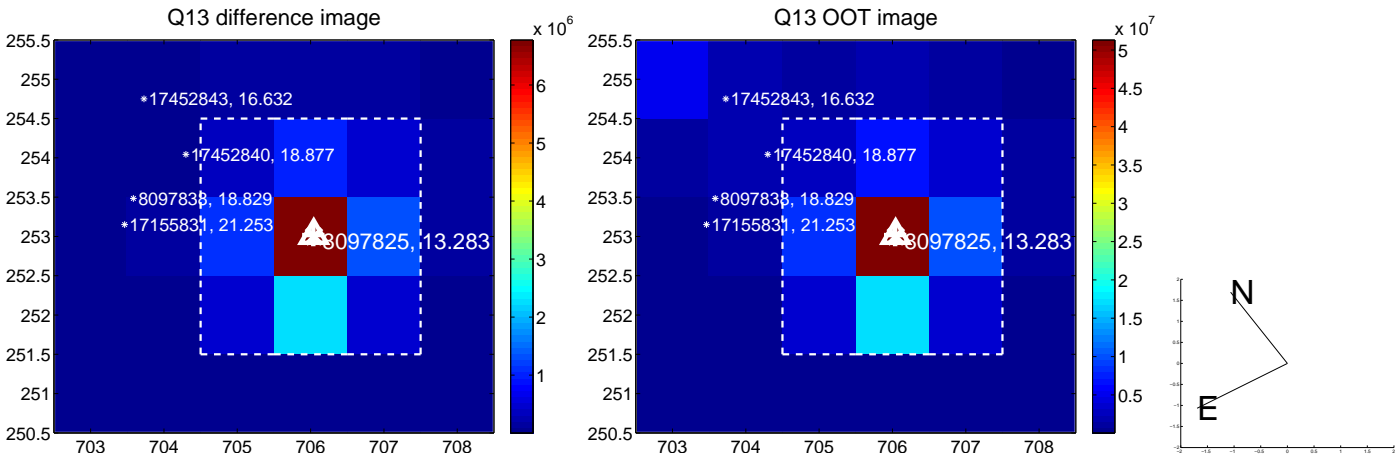
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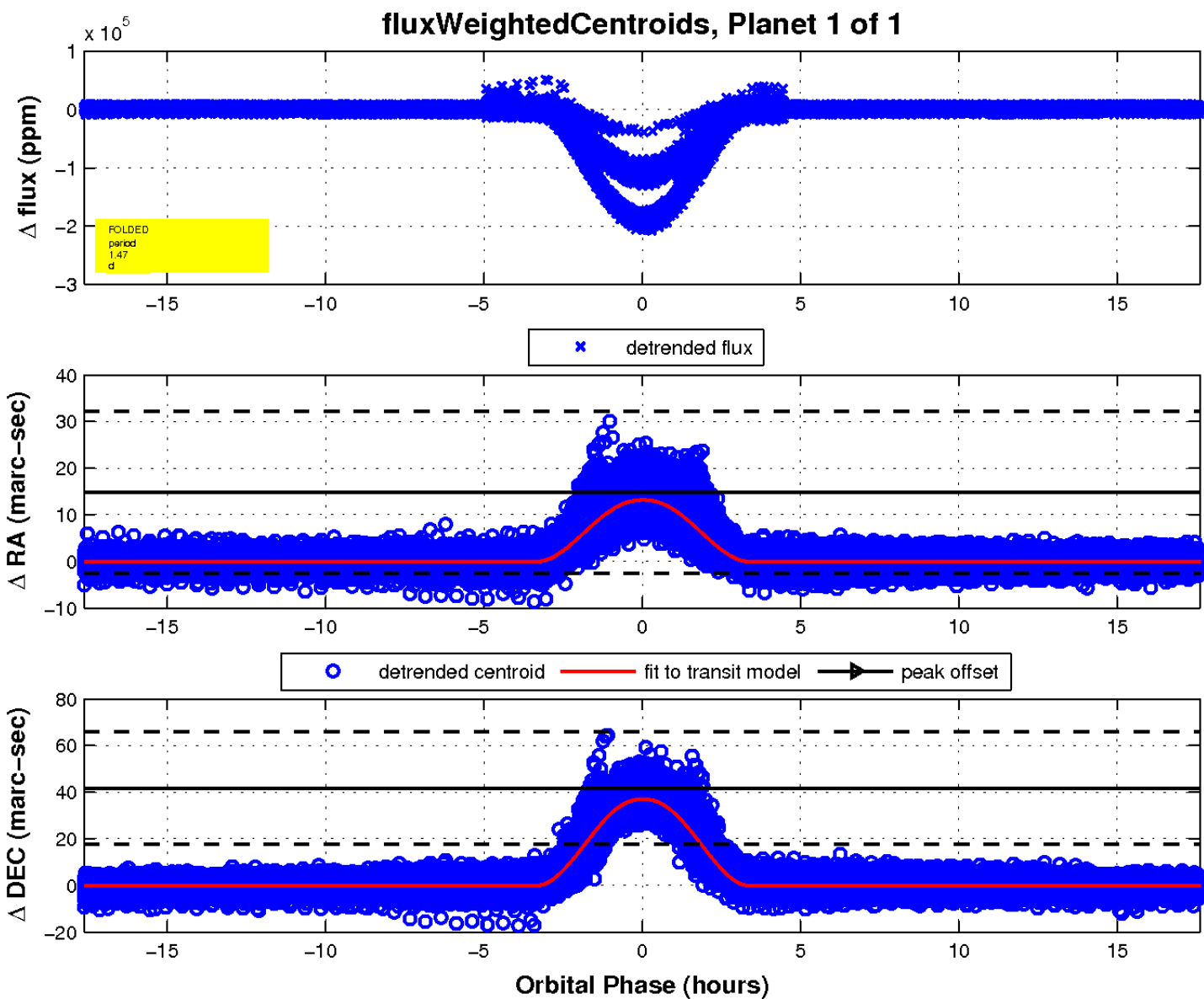
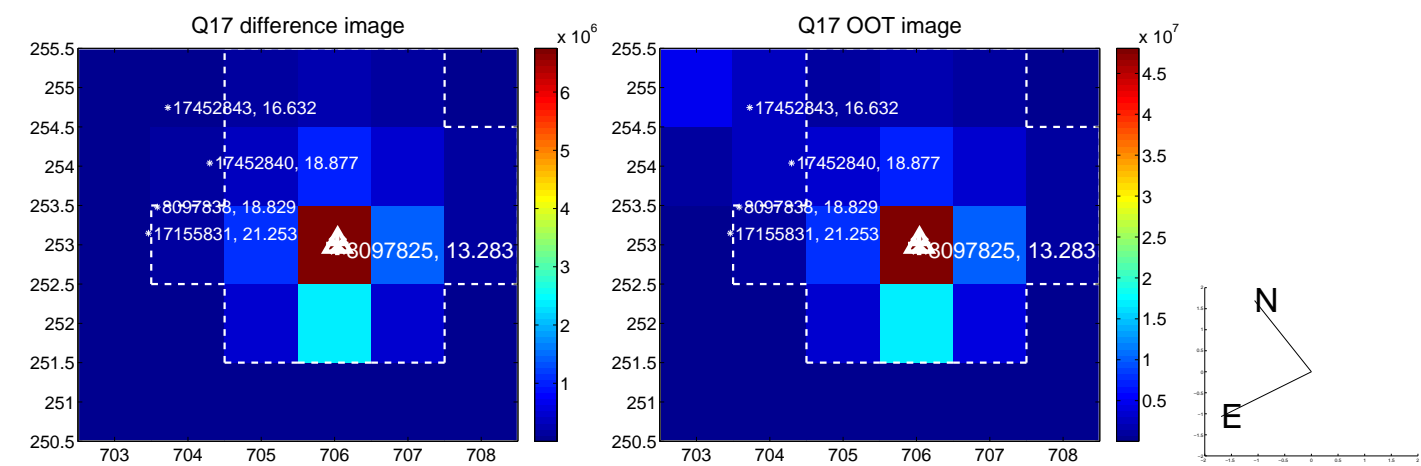
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

