

# KIC 007281664

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007281664-01 | OBS      | No   | 0.566752      | 131.865466   | 47.6        | 3.590            | 14.6 | 8.3 | 0.83                        | 5827            | 0.58                   | 4170.01                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                     |
|--------------|----------|------|-------|---|---|---|---|--|
| 007281664-01 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 1 | LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH |

**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.

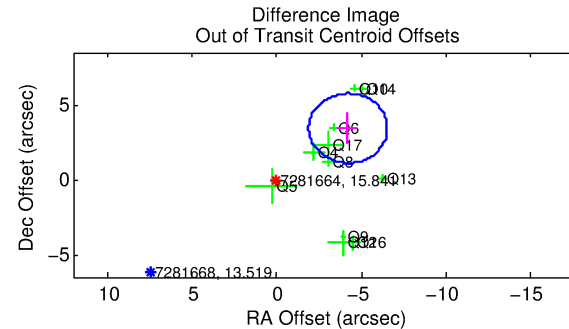
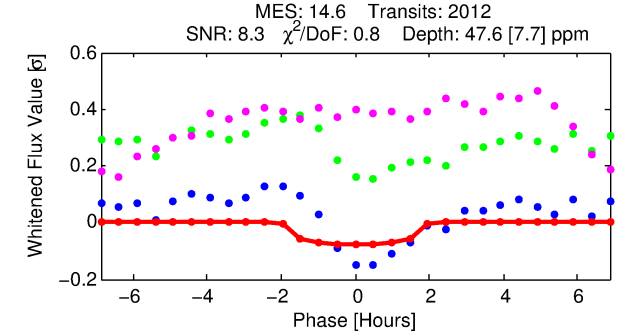
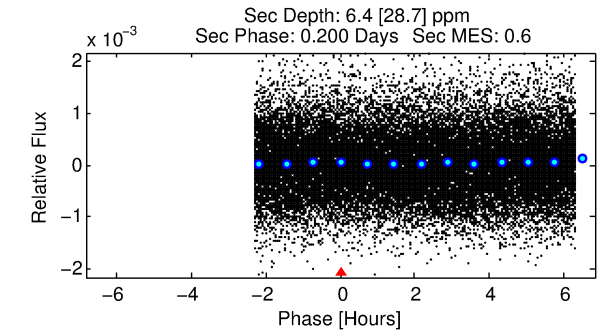
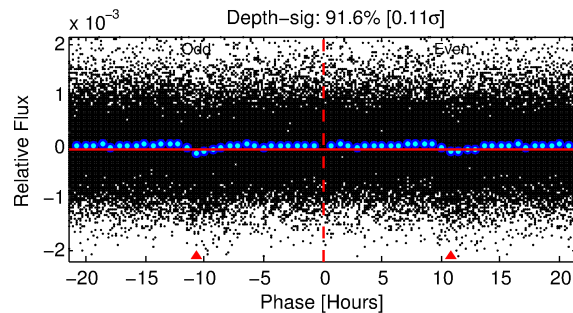
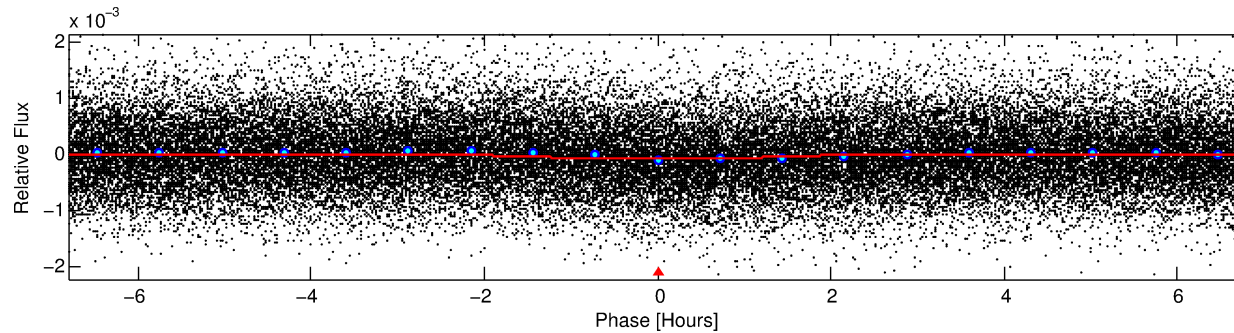
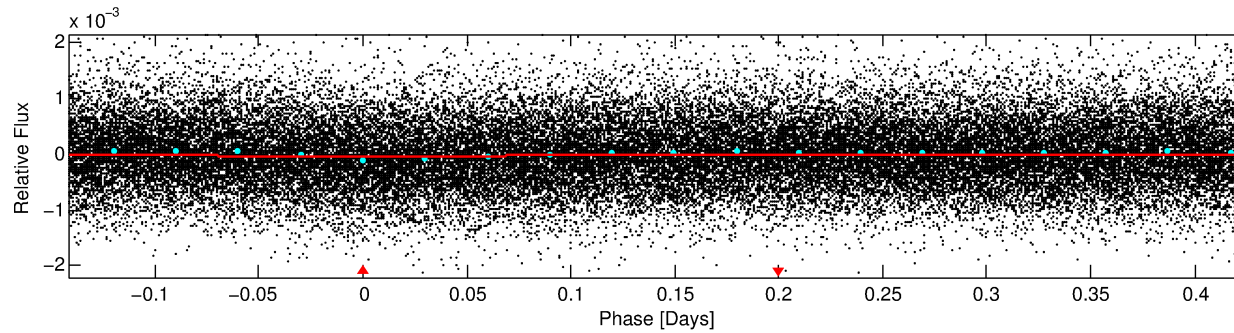
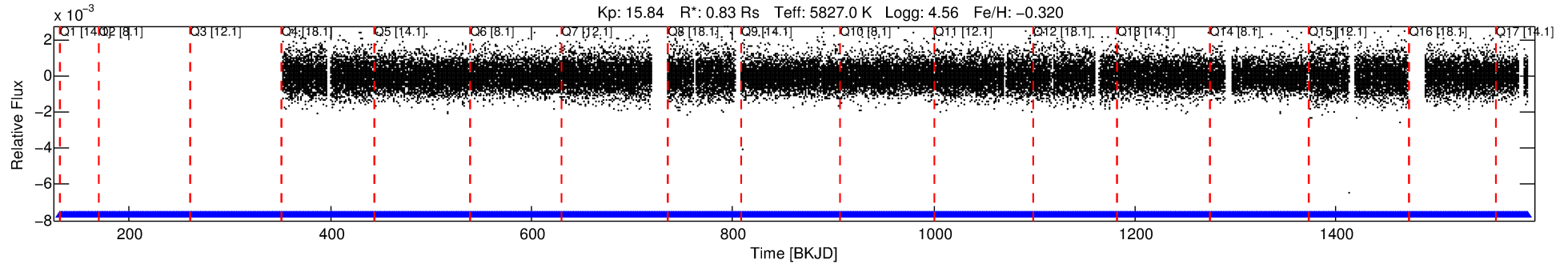
## Ephemeris Match Information For 007281664-01

| TCE (1)      | KIC     | Parent (2) | Parent KIC | P <sub>1</sub> :P <sub>2</sub> | Dist ( $''$ ) | $\Delta$ Row | $\Delta$ Col | m <sub>2</sub> | m <sub>1</sub> | D <sub>2</sub> /D <sub>1</sub> | Mechanism  | Flag | $\sigma_P$ | $\sigma_T$ |
|--------------|---------|------------|------------|--------------------------------|---------------|--------------|--------------|----------------|----------------|--------------------------------|------------|------|------------|------------|
| 007281664-01 | 7281664 | RR-Lyr-pri | 7198959    | 1:1                            | 805.1         | 85           | 183          | 7.86           | 15.84          | 12985.00                       | Direct-PRF | 0    | 0.78       | 21.89      |

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 7281664 Candidate: 1 of 1 Period: 0.567 d



## DV Fit Results:

Period = 0.56675 [0.00001] d  
Epoch = 131.8655 [0.0052] BKJD  
Rp/R\* = 0.0064 [0.0086]  
a/R\* = 1.31 [3.37]  
b = 0.43 [12.08]  
Seff = 4170.01 [1354.70]  
Teq = 2049 [166] K  
Rp = 0.58 [0.78] Re  
a = 0.0130 [0.0026] AU  
Ag = 1.77 [9.26] [0.08 $\sigma$ ]  
Teffp = 3656 [4768] K [0.34 $\sigma$ ]

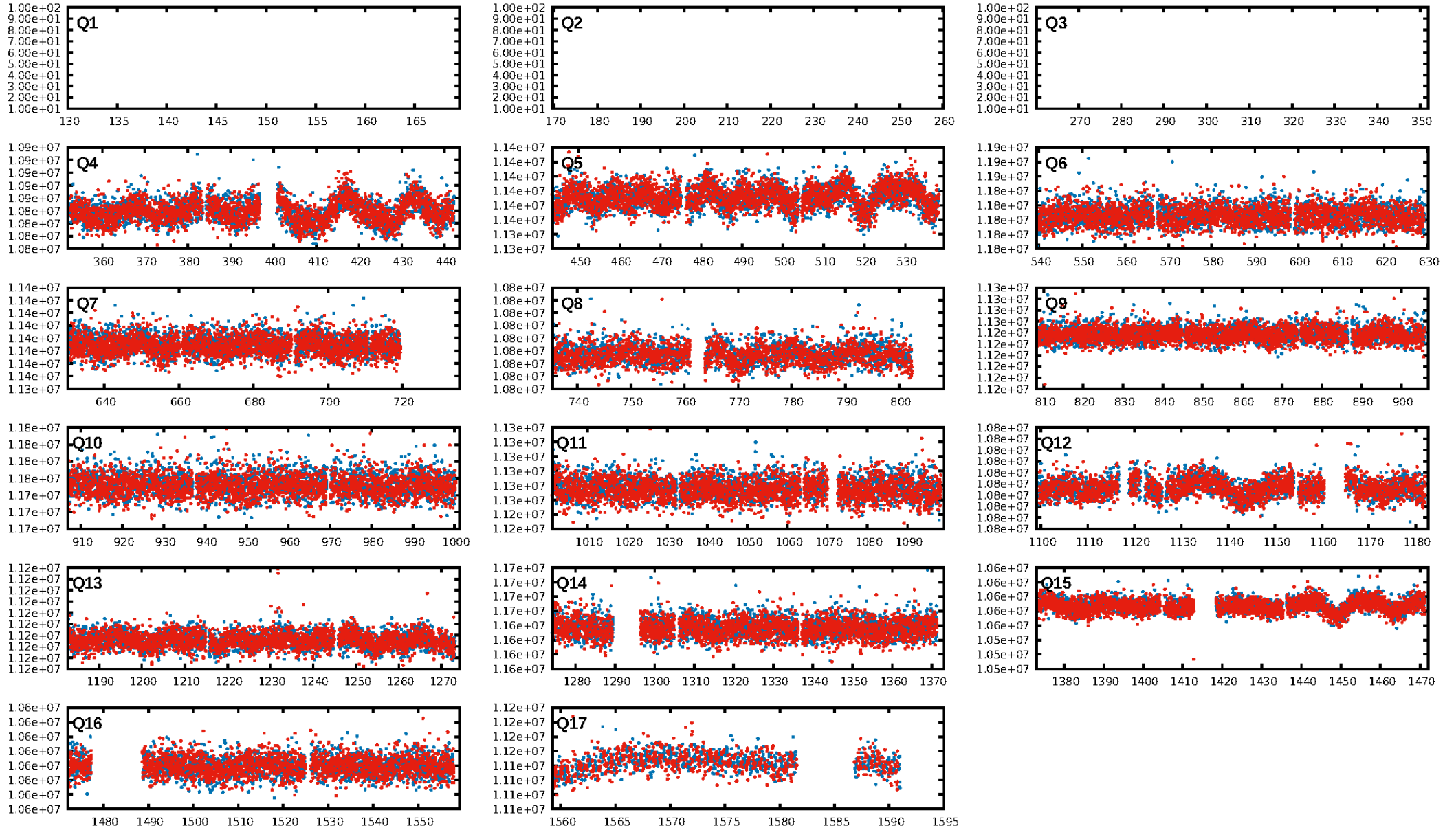
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.17e-34  
RollingBand-fgt: 1.00 [1965/1965]  
**GhostDiagnostic-chr: 0.03805**  
Centroid-sig: 0.0%  
Centroid-so: 2.407 arcsec [2.51 $\sigma$ ]  
**OotOffset-rm: 5.427 arcsec [7.01 $\sigma$ ]**  
**KicOffset-rm: 2.595 arcsec [6.55 $\sigma$ ]**  
**OotOffset-st: 3/0/4/4 [11]**  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.00 [0/14]  
DiffImageOverlap-fno: 1.00 [14/14]

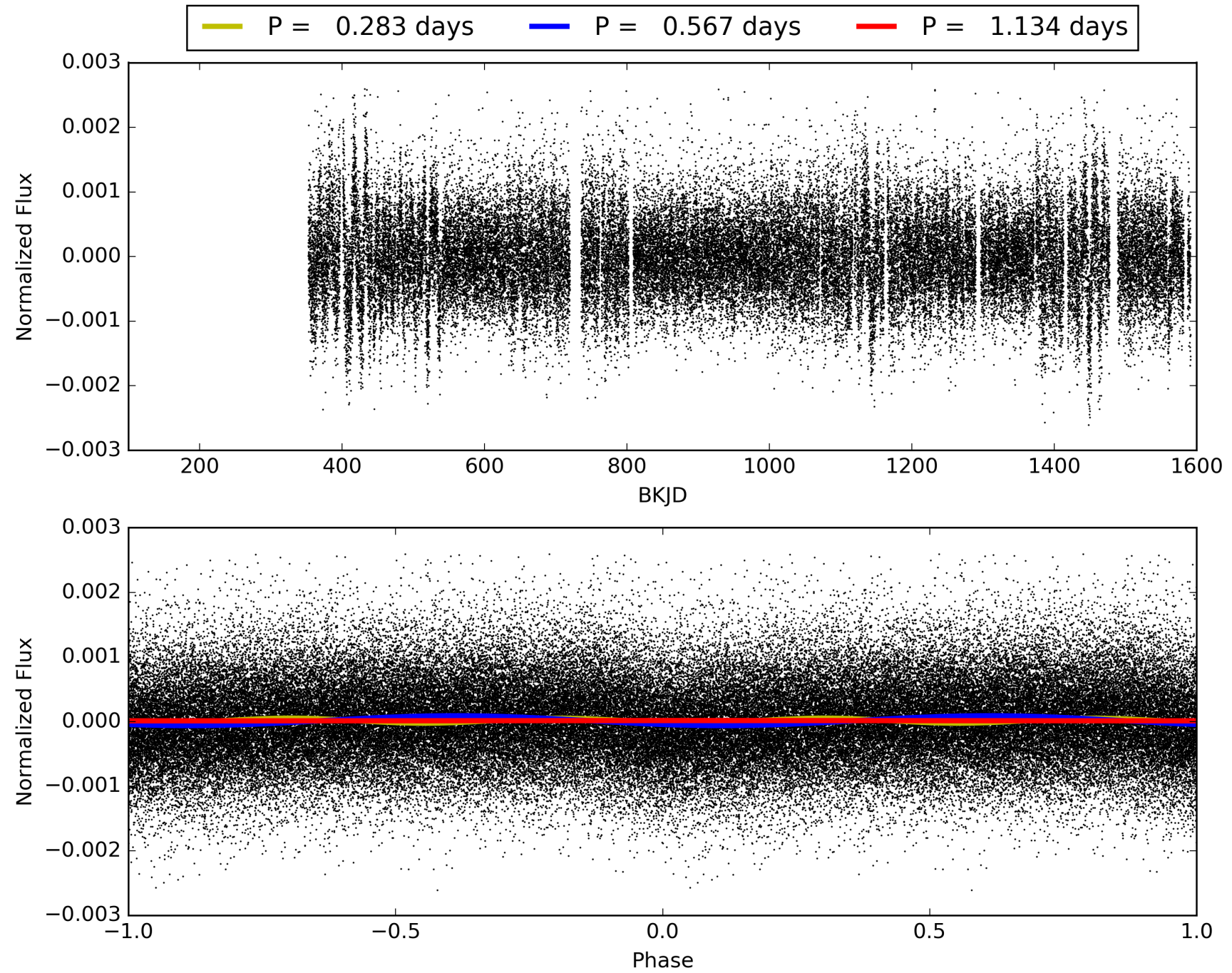
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:38:37 Z

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

# TCE 007281664-01, PDC Light Curves



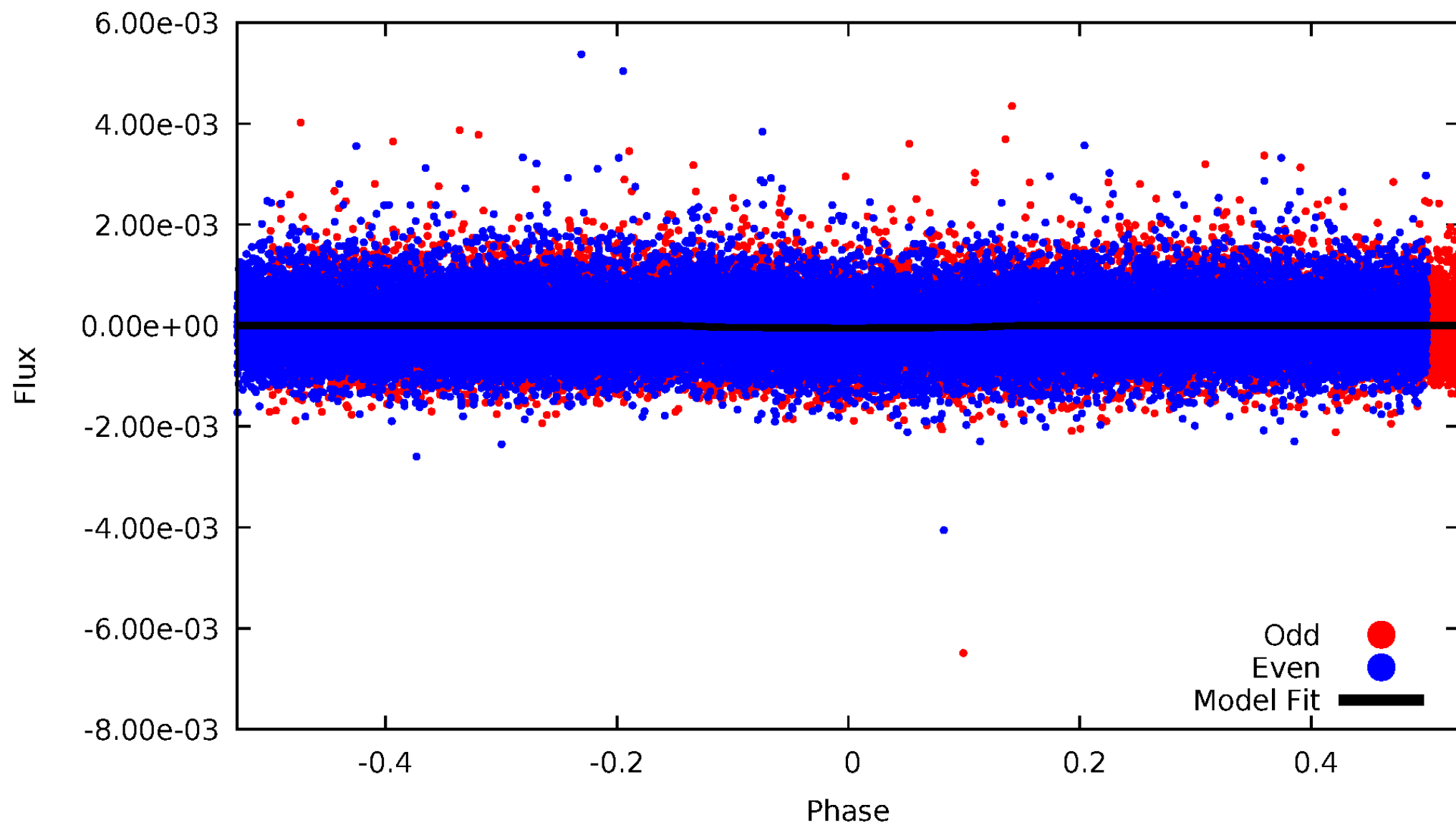
# TCE 007281664-01





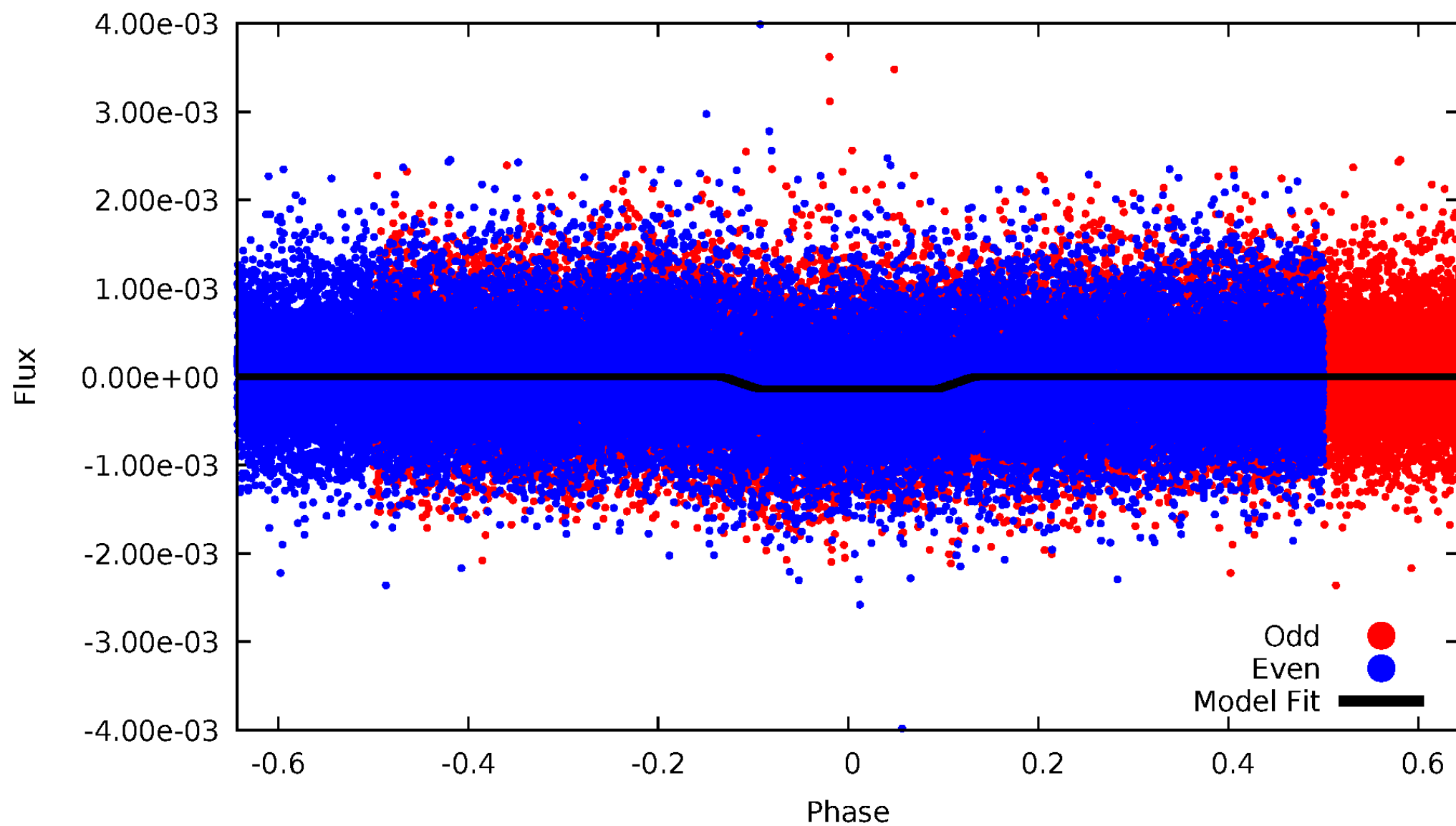
# DV Odd/Even

TCE 007281664-01

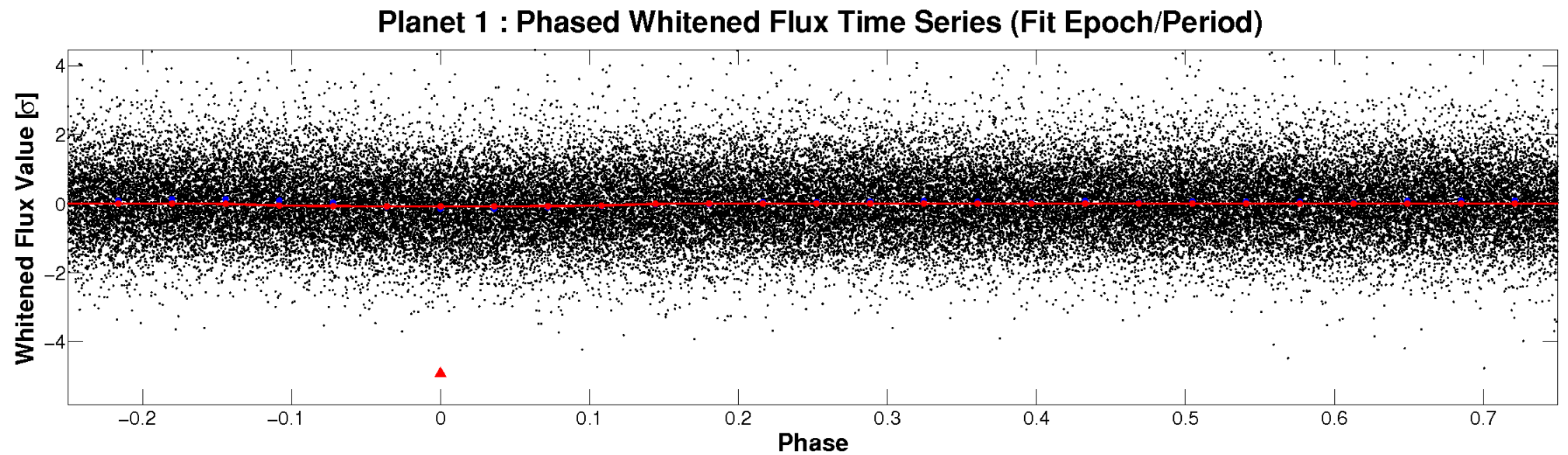
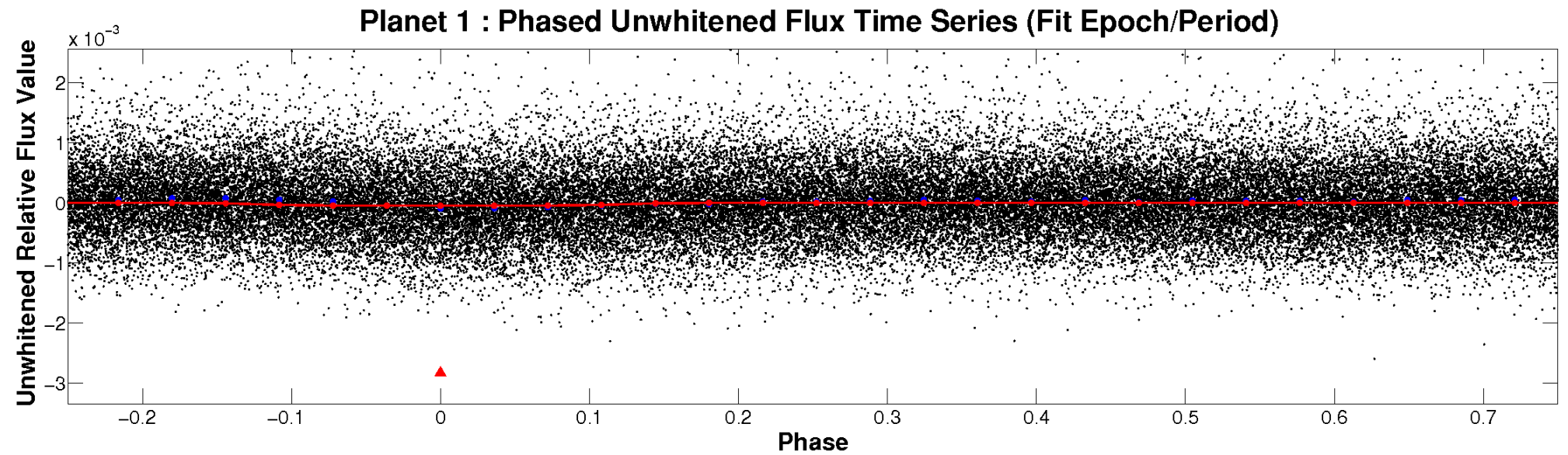


# ALT Odd/Even

TCE 007281664-01

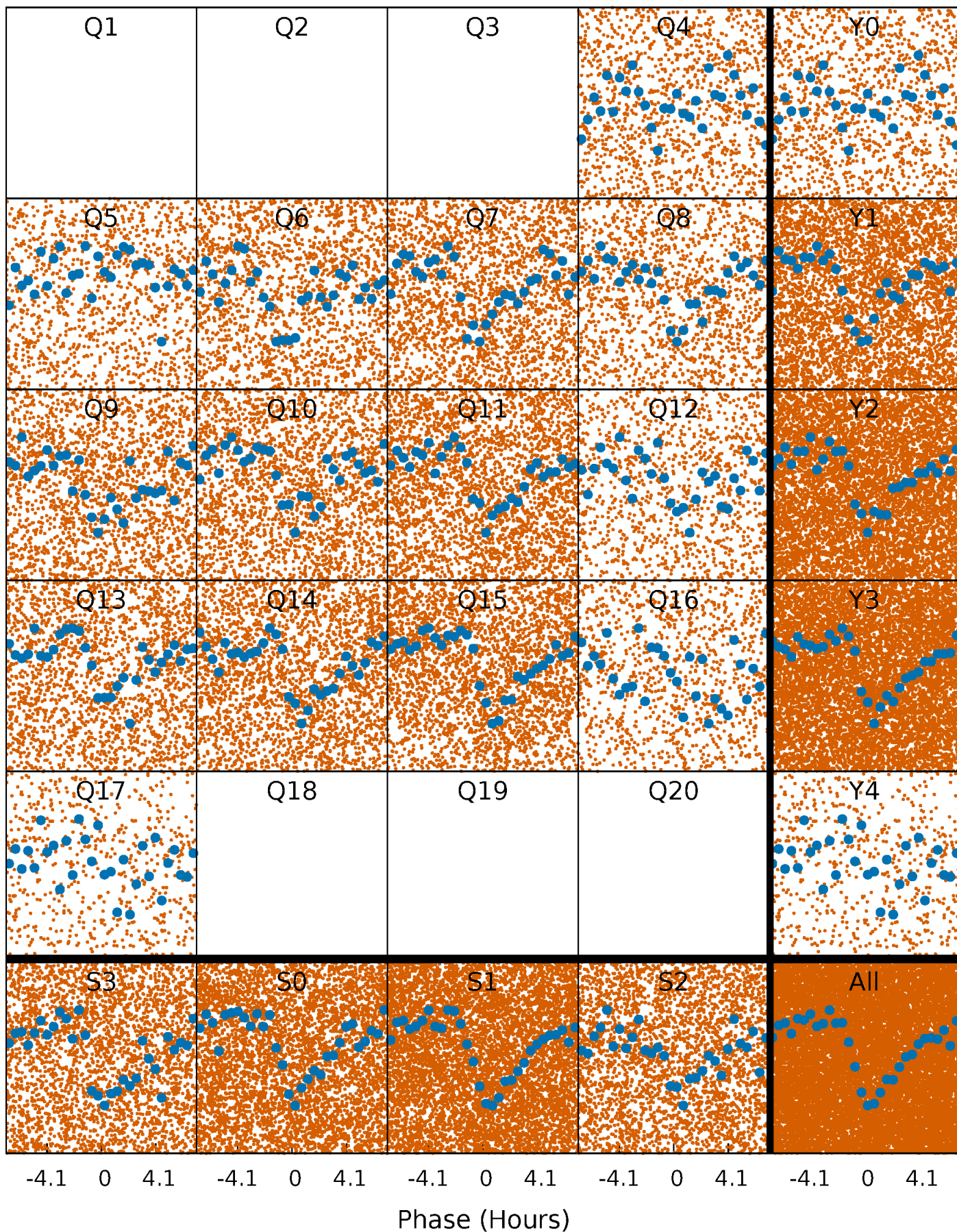


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

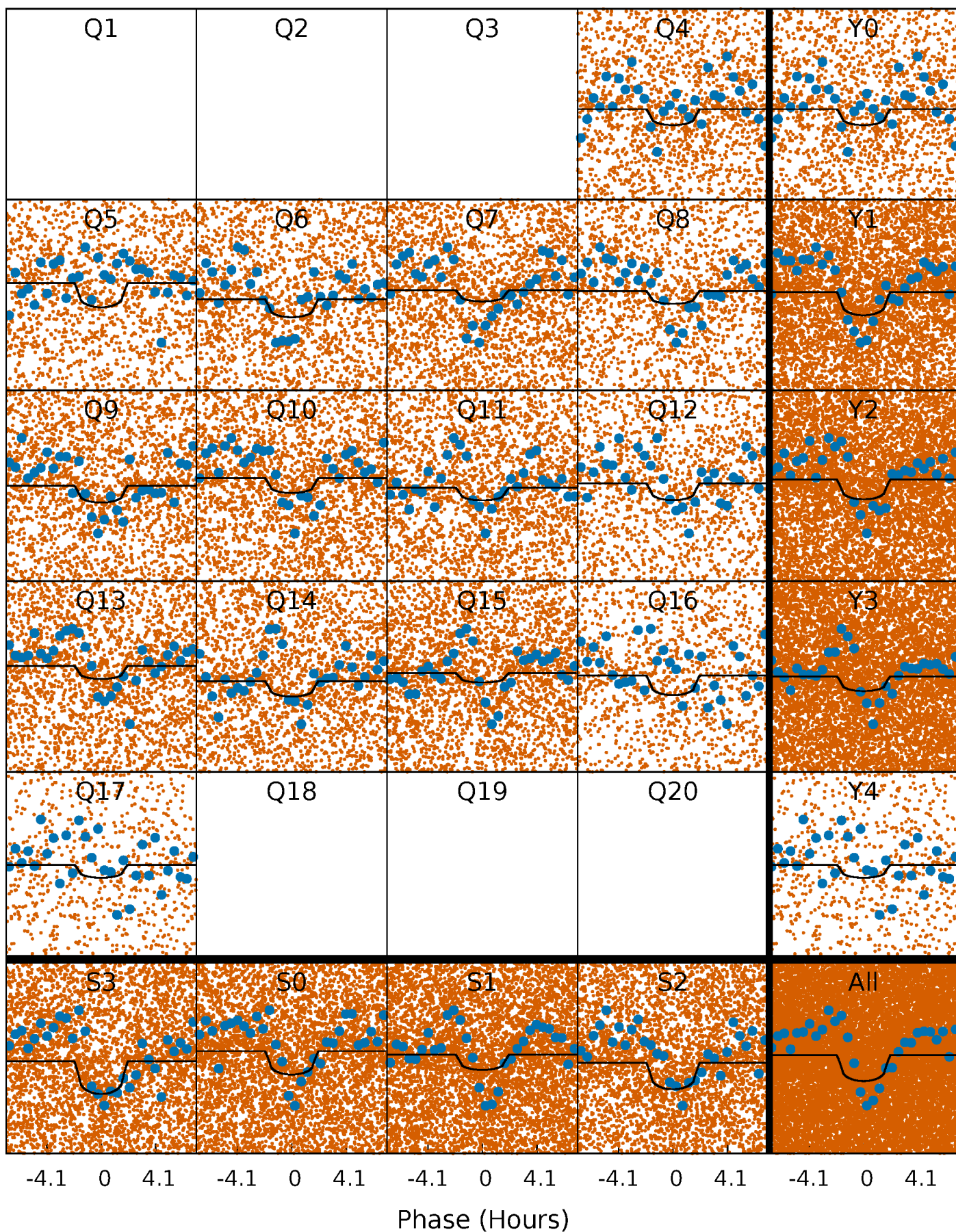
TCE 007281664-01 P= 0.566752 Days  $T_0=131.865466$  (BKJD)





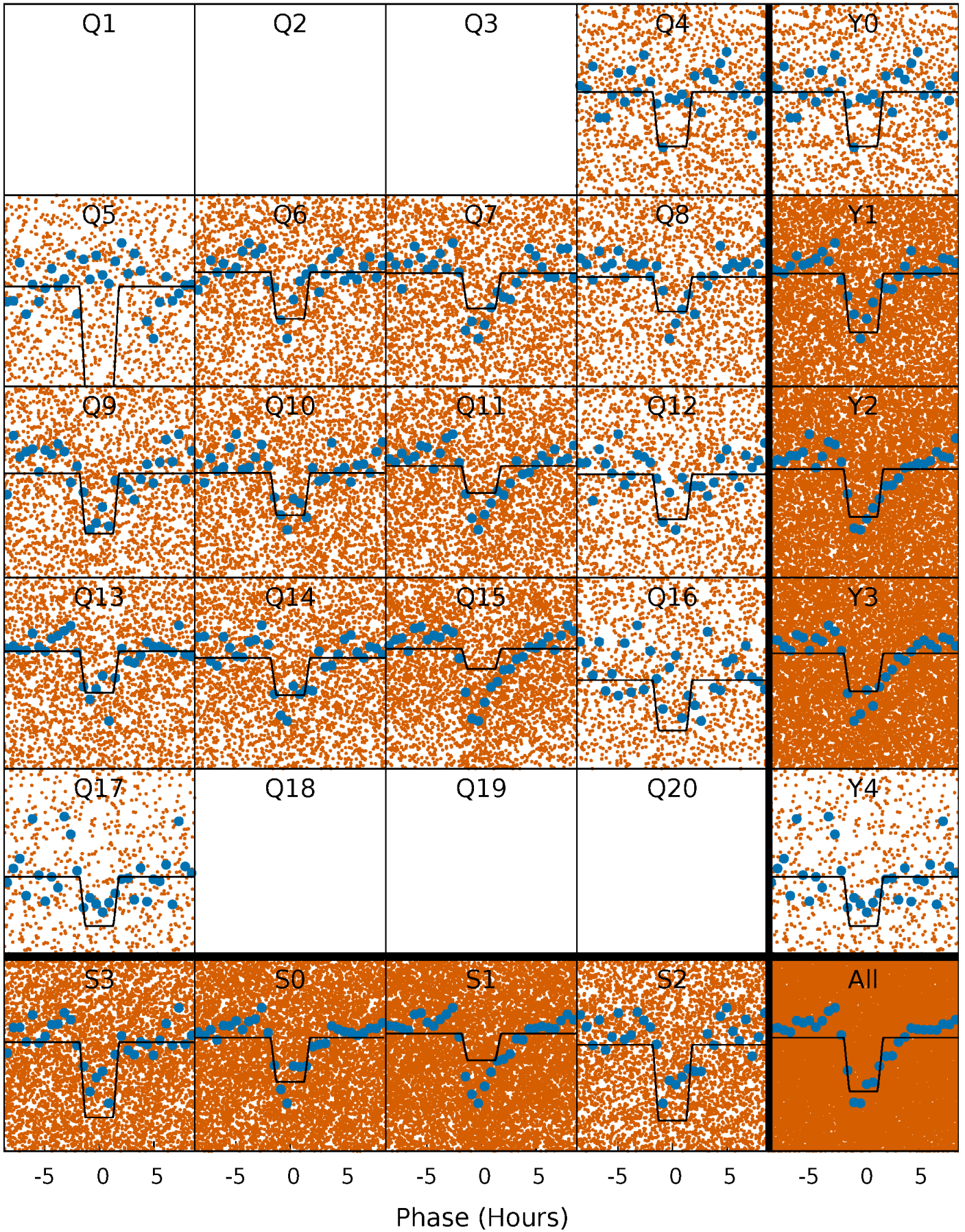
# DV Quarter-Phased Transit Curves

TCE 007281664-01 P= 0.566752 Days  $T_0=131.865466$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007281664-01 P= 0.566795 Days  $T_0=131.828605$  (BKJD)

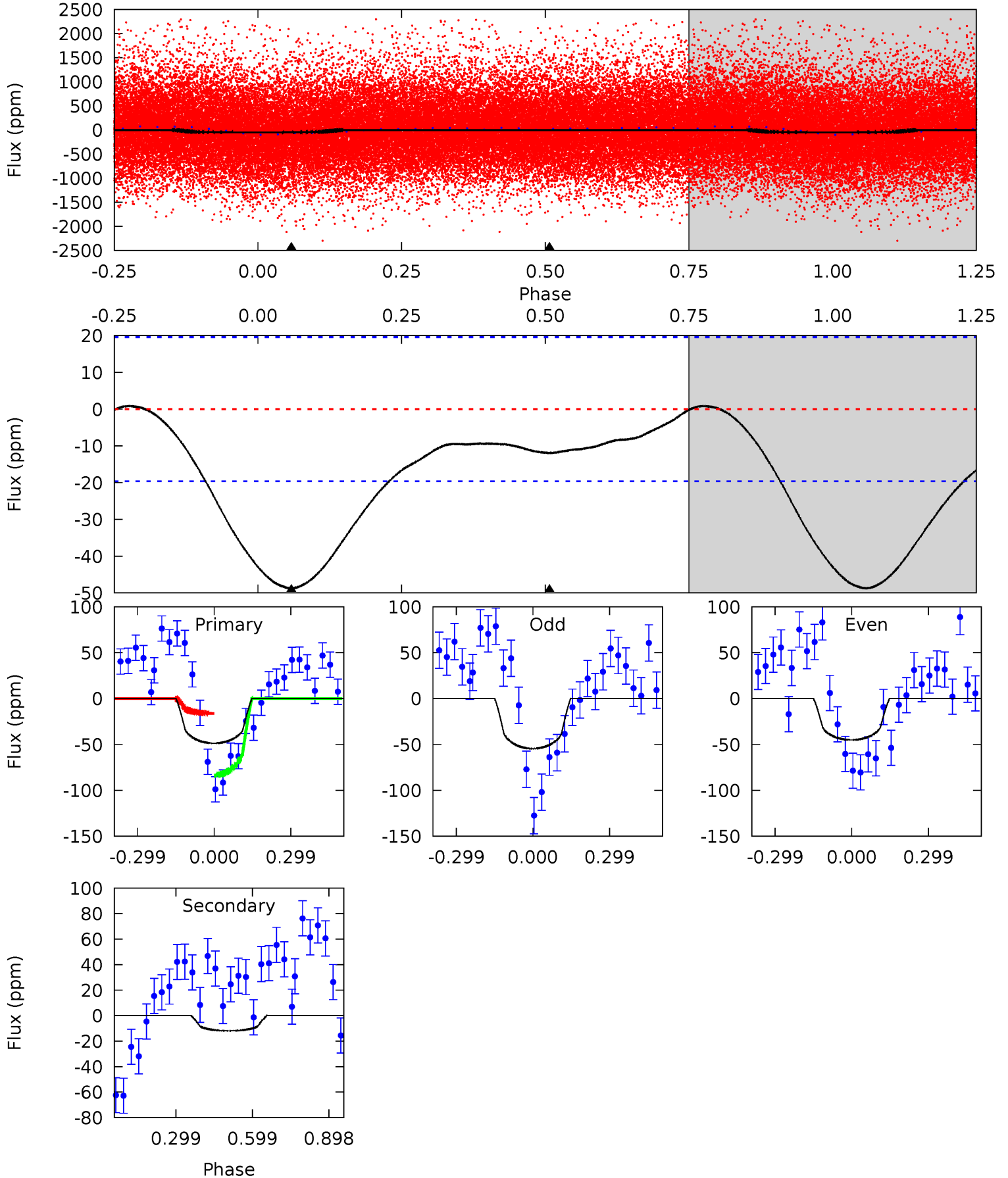




# DV Model-Shift Uniqueness Test

007281664-01, P = 0.566752 Days, E = 131.865466 Days

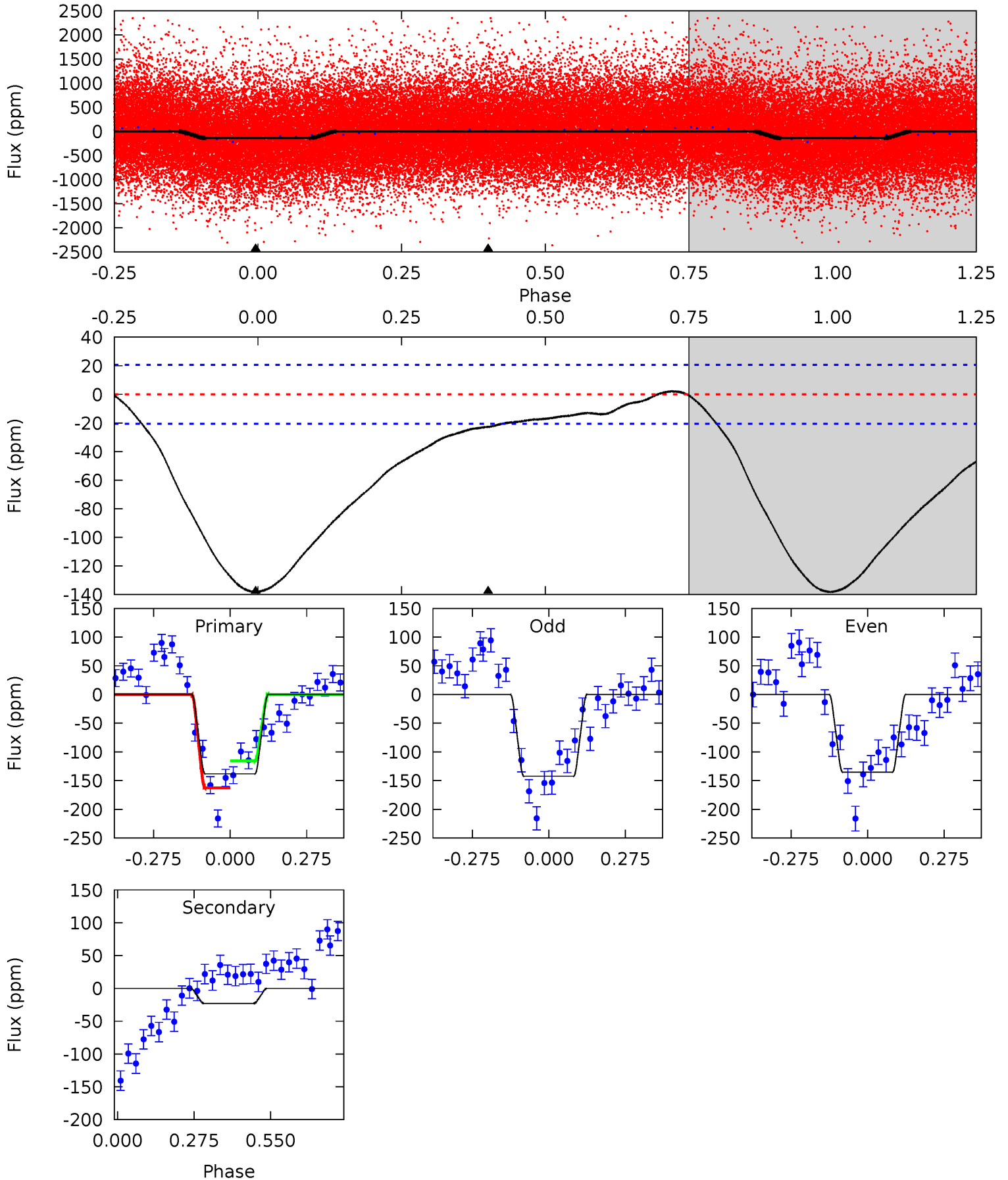
| Pri  | Sec  | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.8 | 2.64 | 0   | 0   | 4.33            | 1.04            | 0.23             | 10.8    | 10.8    | 2.64    | 2.64    | 1.06    | 0.95 | 0.02  | 7.44 |



# Alt Model-Shift Uniqueness Test

007281664-01, P = 0.566795 Days, E = 131.828605 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  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 29.1 | 4.81 | 0   | 0   | 4.35            | 1.09            | 0.61             | 29.1    | 29.1    | 4.81    | 4.81    | 0.76    | 0.99 | 0.01  | 5.04 |





### Stellar Parameters For KIC 007281664

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5827^{+183}_{-203}$ | $4.564^{+0.040}_{-0.160}$ | $-0.320^{+0.300}_{-0.300}$ | $0.826^{+0.199}_{-0.071}$ | $0.917^{+0.101}_{-0.111}$ | $2.295^{+0.498}_{-1.024}$                 |
|        | +3%/-3%              | +1%/-4%                   | +94%/-94%                  | +24%/-9%                  | +11%/-12%                 | +22%/-45%                                 |
| 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 007281664-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$   | $A_{\text{obs}}$           |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV      | $-12 \pm 5$ | $0.87^{+0.66}_{-0.60}$ | $2913^{+164}_{-122}$ | $3714^{+2299}_{-1024}$ | $1.374^{+11.018}_{-0.949}$ |
| Alt.    | $-23 \pm 5$ | $1.17^{+0.80}_{-0.66}$ | $2915^{+168}_{-134}$ | $3758^{+1550}_{-875}$  | $1.483^{+5.959}_{-0.965}$  |

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

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

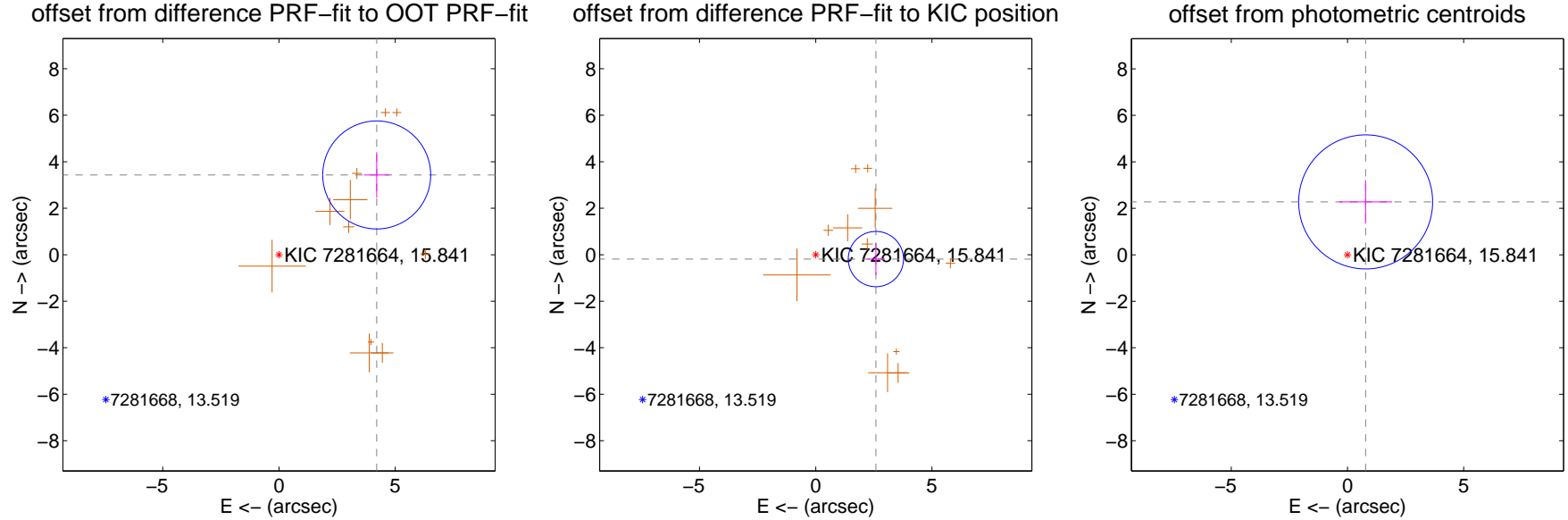
## DV Centroid Data

Supplemental centroid analysis for 007281664-01. Kepler magnitude: 15.84. Transit SNR 8.28

There are 0 quarters with good PRF difference image offsets

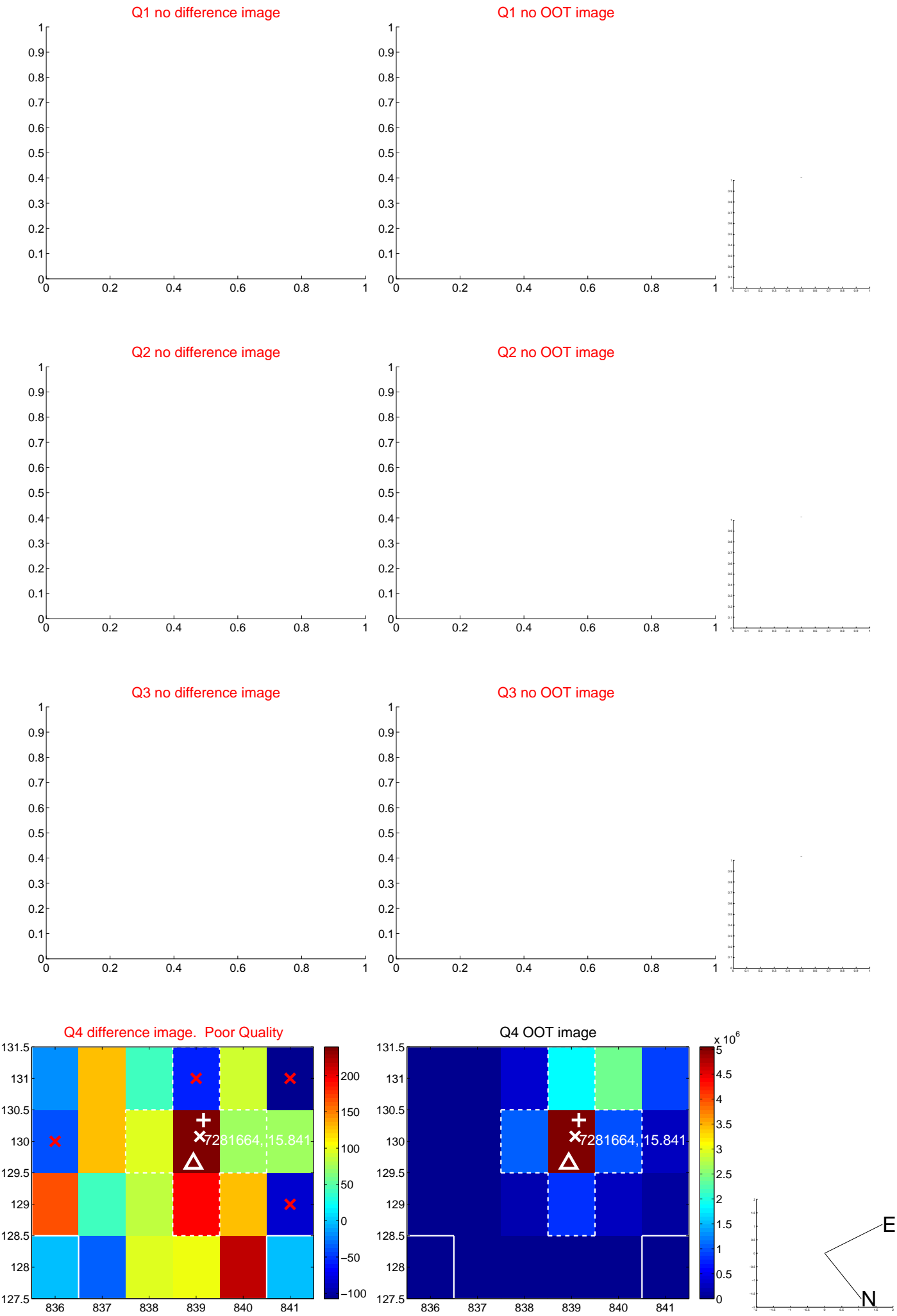
The direct PRF centroid is offset from the target star catalog position by about 0.63 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $5.427 \pm 0.774$  | 7.01                | $-4.205 \pm 0.551$ | $3.431 \pm 0.979$  |
| PRF-fit source offset from KIC position | $2.595 \pm 0.396$  | 6.55                | $-2.589 \pm 0.375$ | $-0.187 \pm 0.683$ |
| photometric centroid source offset      | $2.41 \pm 0.96$    | 2.51                | $-0.78 \pm 1.14$   | $2.28 \pm 0.94$    |

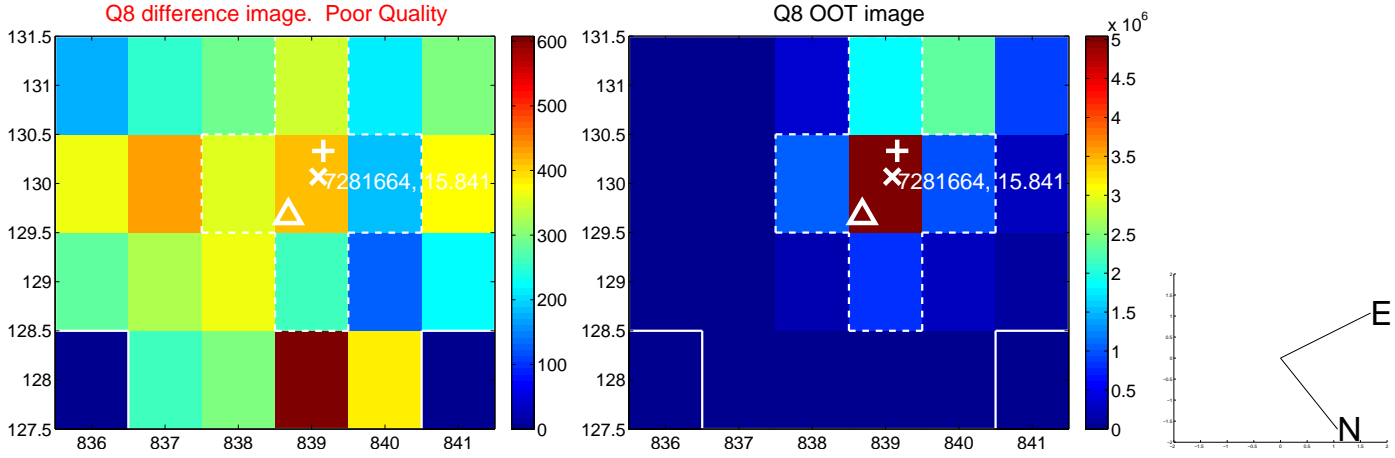
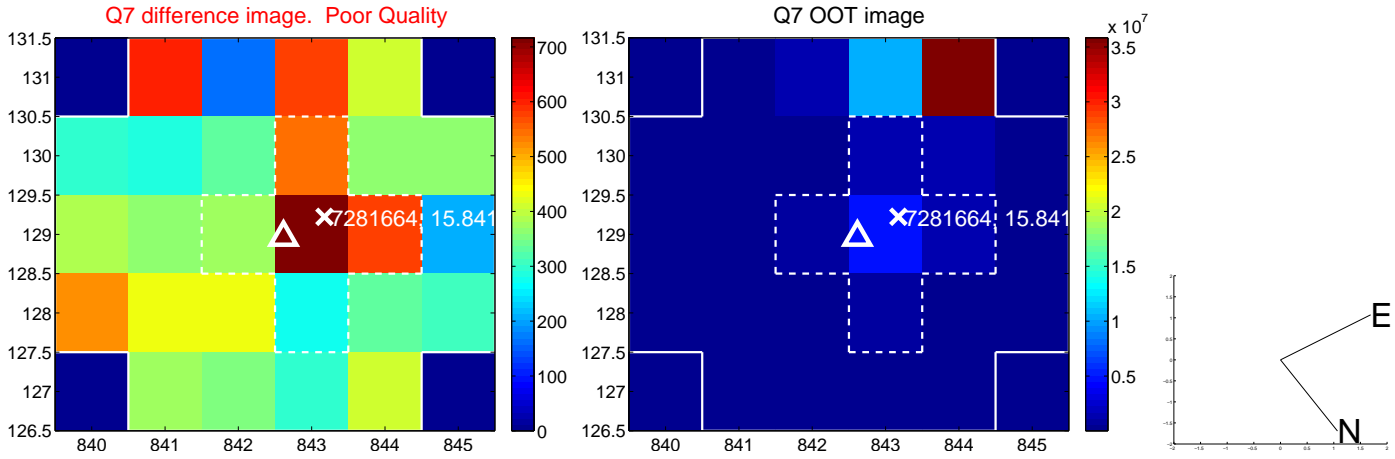
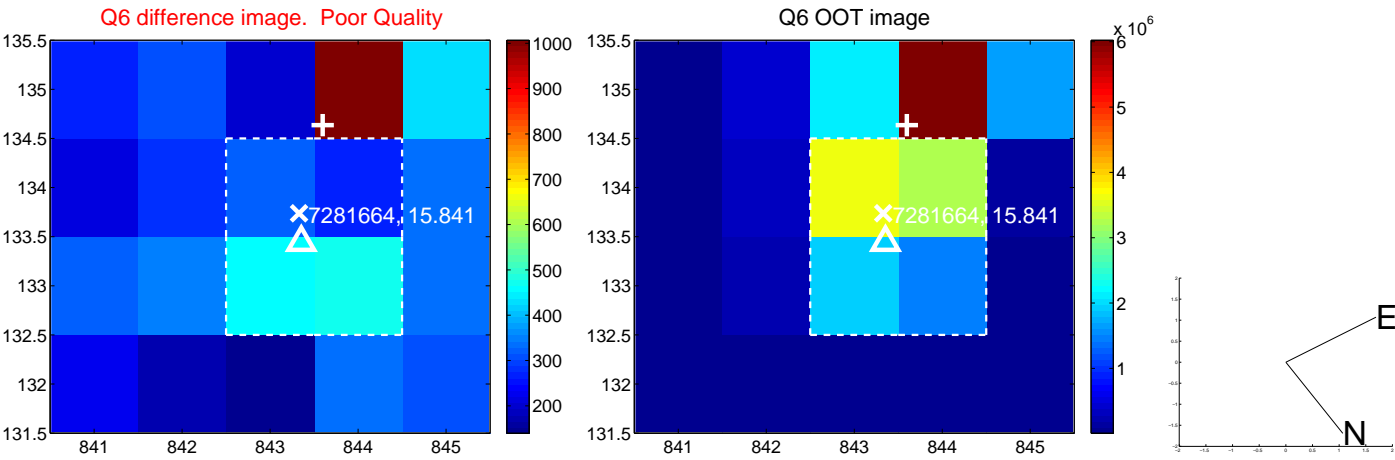
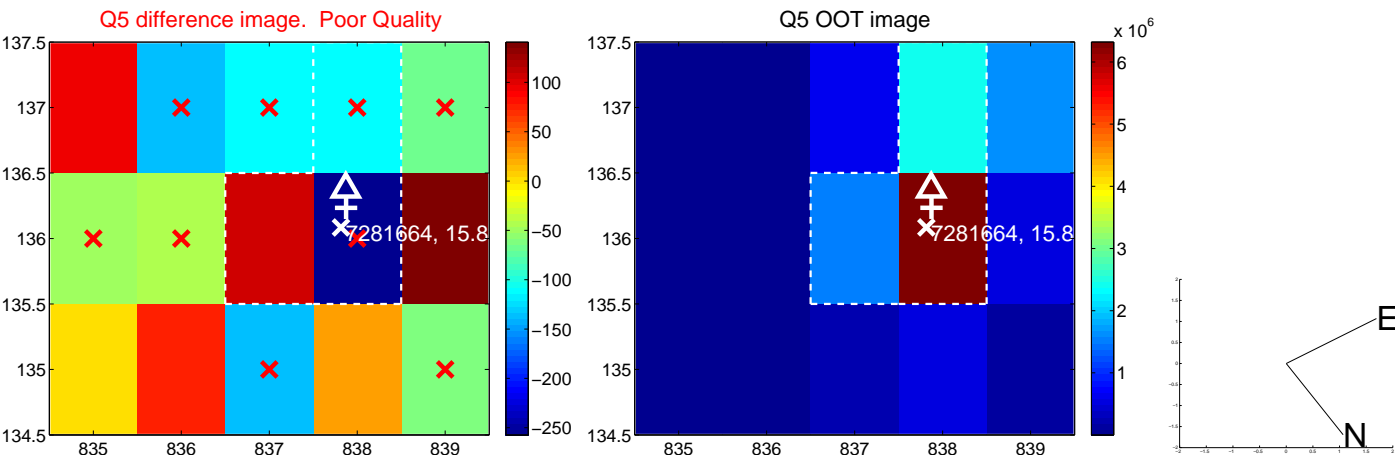


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

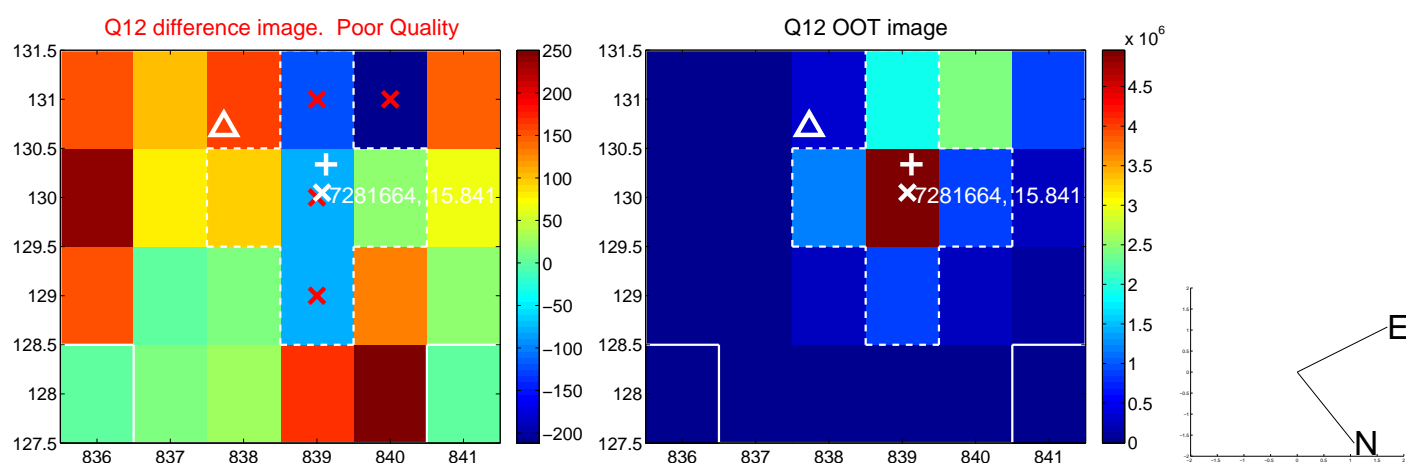
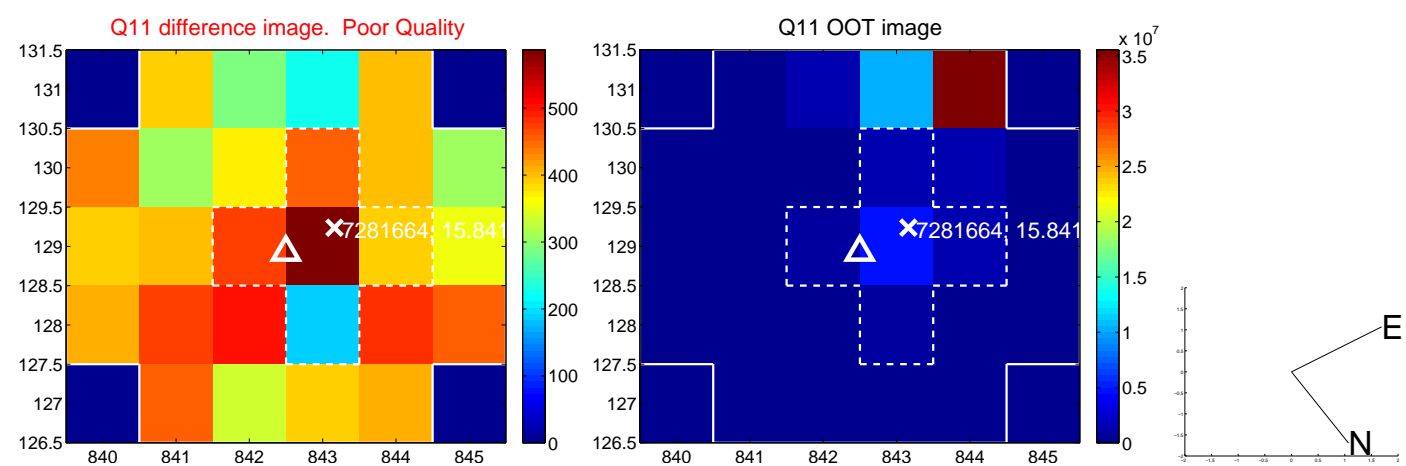
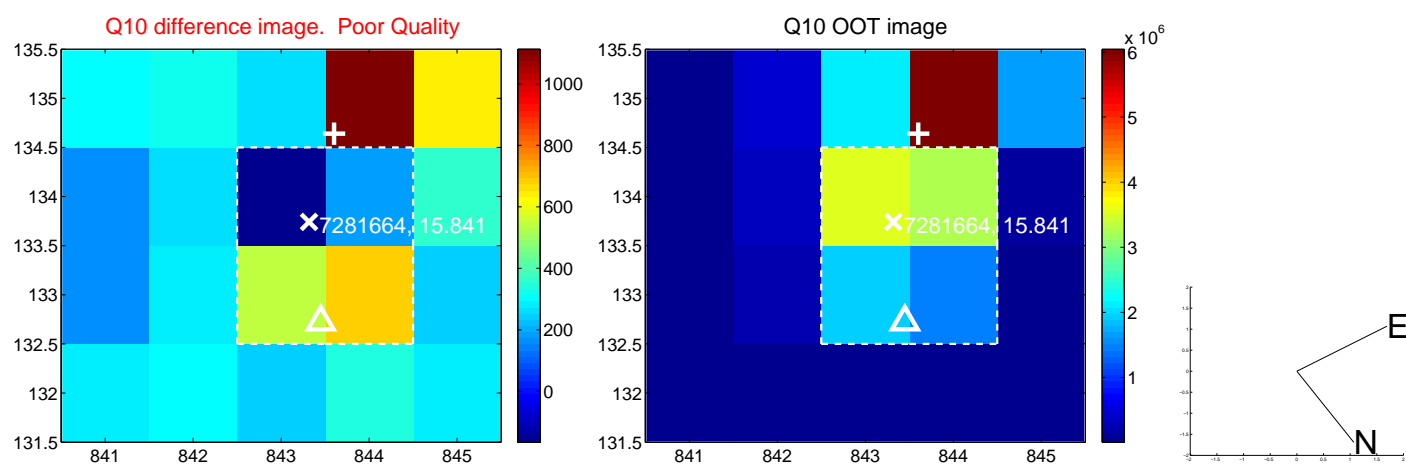
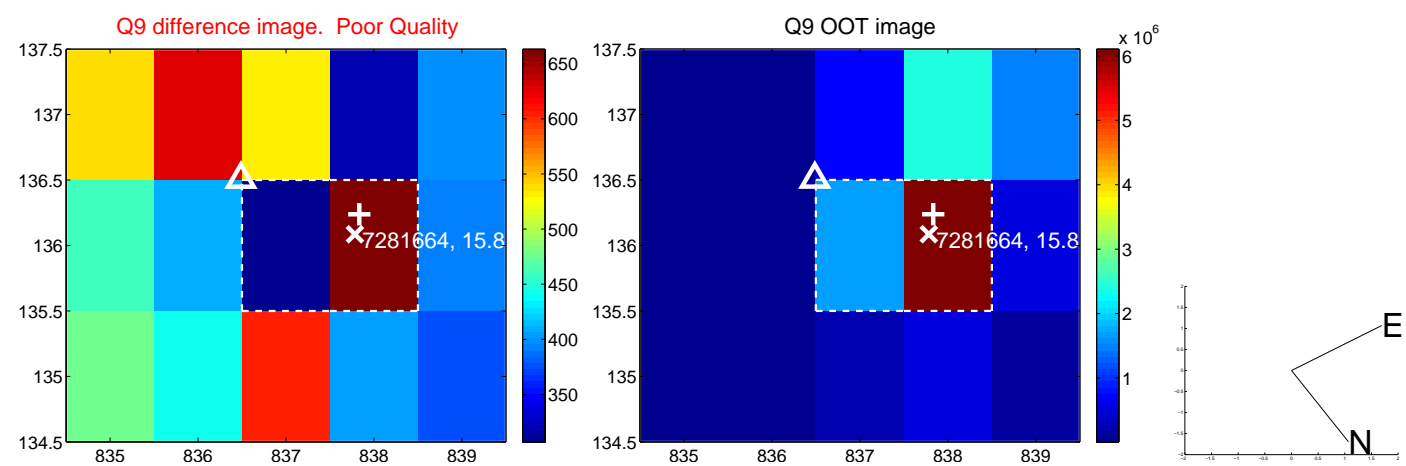


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

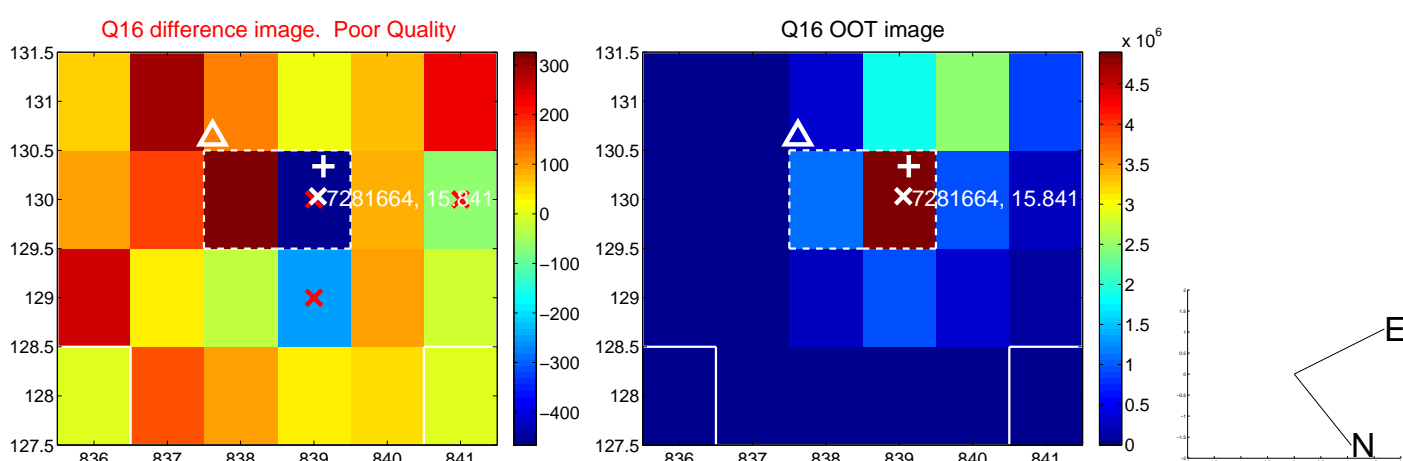
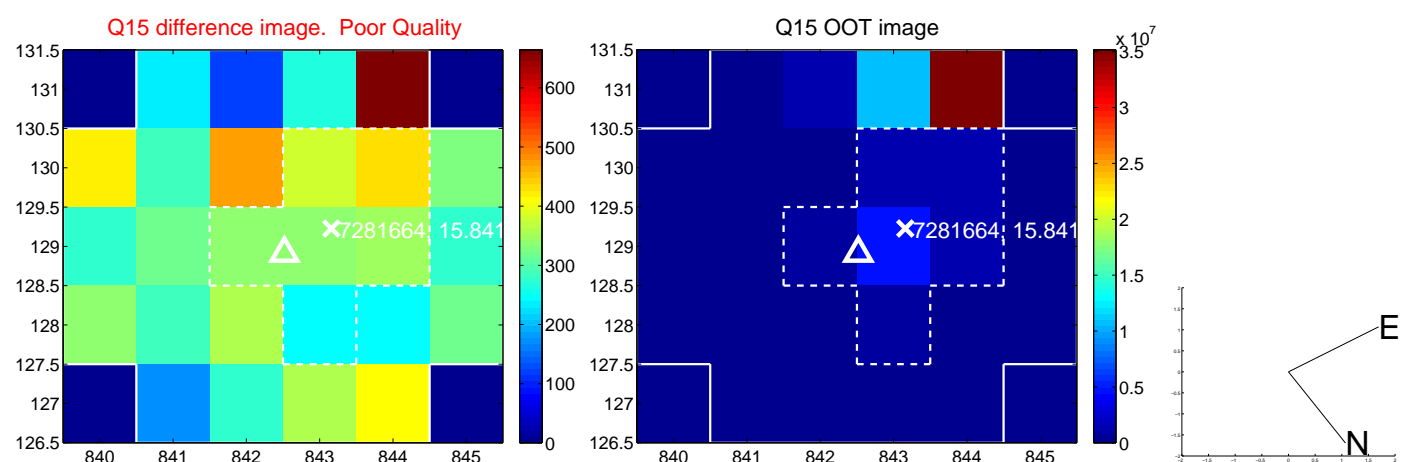
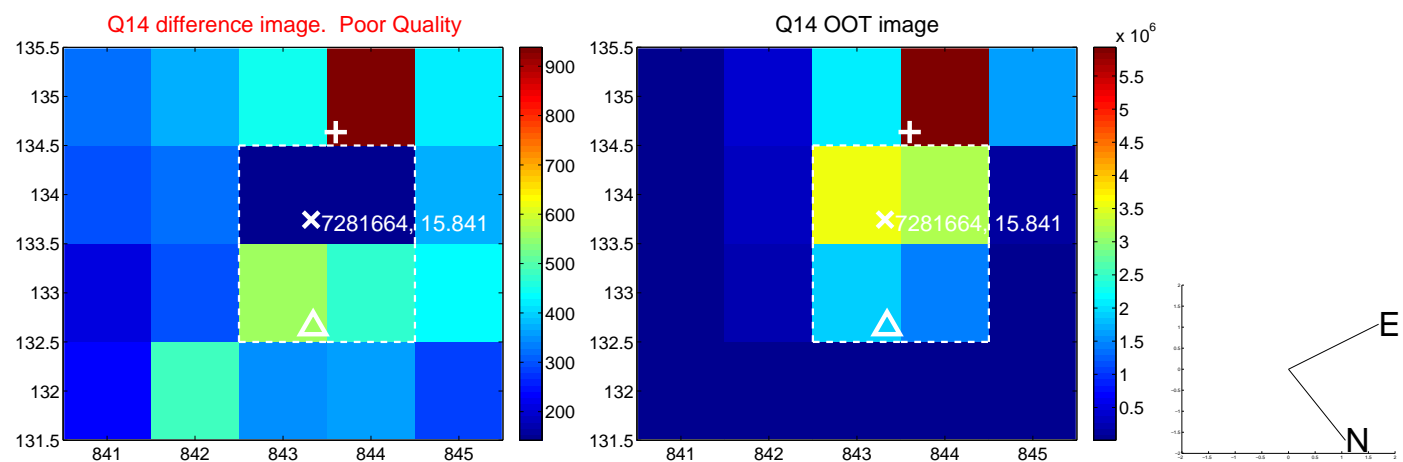
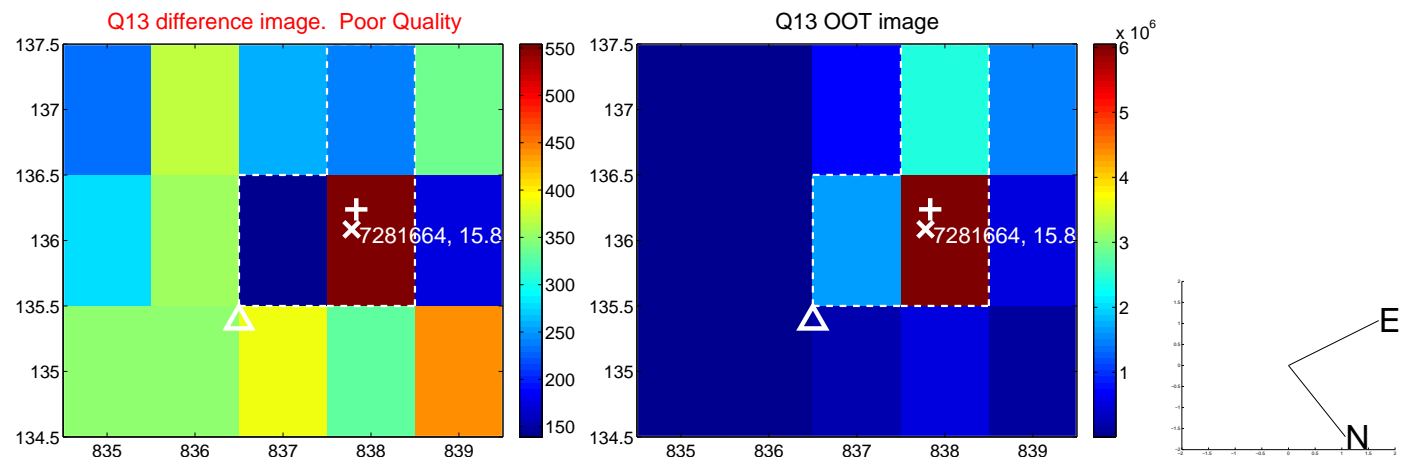




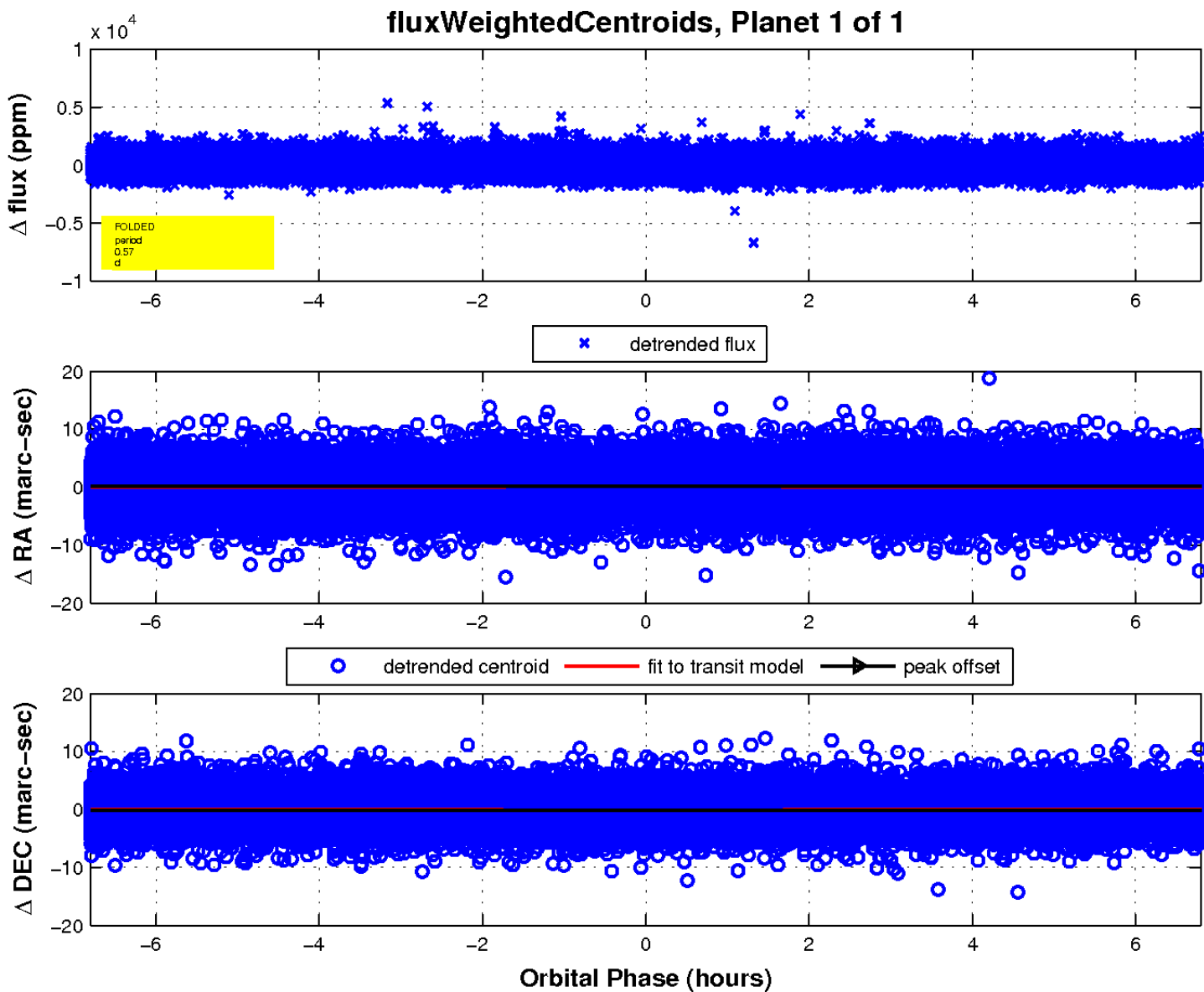
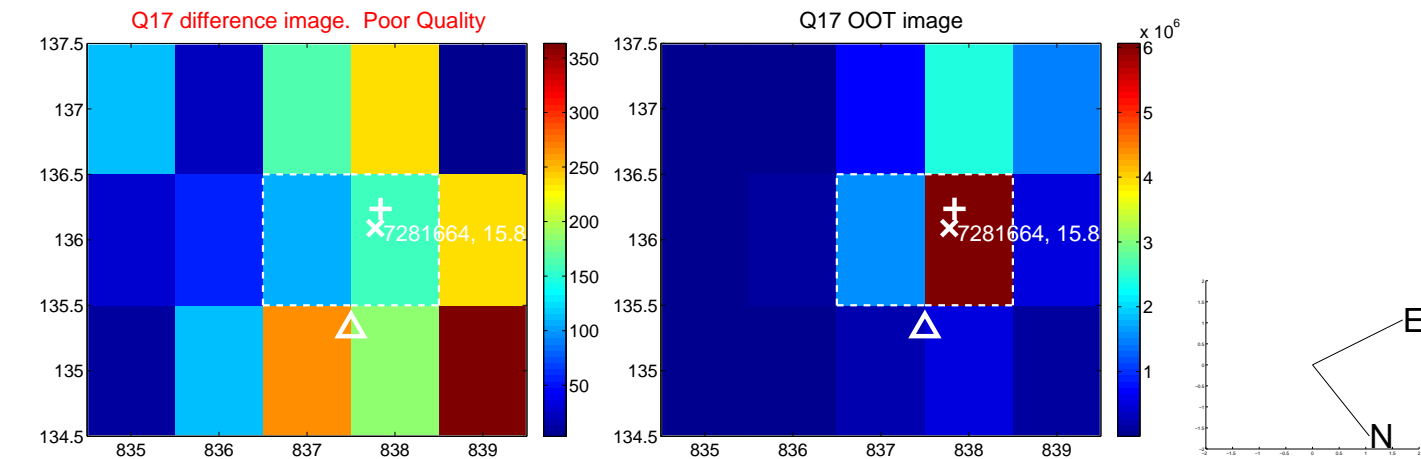
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

