

# KIC 006783562

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006783562-01 | OBS      | No   | 2.087275      | 132.270008   | 13.5        | 14.854           | 8.0  | 7.0  | 1.19                        | 6930            | 0.47                   | 2521.15                |
| 006783562-02 | OBS      | No   | 45.463043     | 140.208363   | 268.3       | 2.129            | 10.9 | 11.8 | 1.19                        | 6930            | 1.98                   | 41.45                  |
| 006783562-03 | OBS      | No   | 36.604208     | 167.620051   | 205.5       | 3.284            | 10.7 | 10.6 | 1.19                        | 6930            | 1.90                   | 55.34                  |
| 006783562-04 | OBS      | No   | 73.411839     | 145.841771   | 249.8       | 5.271            | 8.7  | 12.0 | 1.19                        | 6930            | 2.06                   | 21.88                  |
| 006783562-05 | OBS      | No   | 43.919590     | 136.781372   | 172.5       | 4.090            | 9.6  | 9.2  | 1.19                        | 6930            | 1.75                   | 43.40                  |
| 006783562-06 | OBS      | No   | 45.760610     | 149.174133   | 207.2       | 5.486            | 8.5  | 10.2 | 1.19                        | 6930            | 1.85                   | 41.09                  |
| 006783562-07 | OBS      | No   | 37.685131     | 158.174151   | 157.4       | 2.797            | 9.7  | 8.3  | 1.19                        | 6930            | 1.60                   | 53.23                  |
| 006783562-08 | OBS      | No   | 21.680387     | 136.795370   | 537.9       | 1.500            | 9.6  | -1.0 | 1.19                        | 6930            | 2.79                   | 111.25                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                                                             |
|--------------|----------|------|-------|---|---|---|---|--------------------------------------------------------------------------------------|
| 006783562-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV                                                                               |
| 006783562-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_MEAS                         |
| 006783562-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006783562-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST     |
| 006783562-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS                    |
| 006783562-08 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST                           |

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

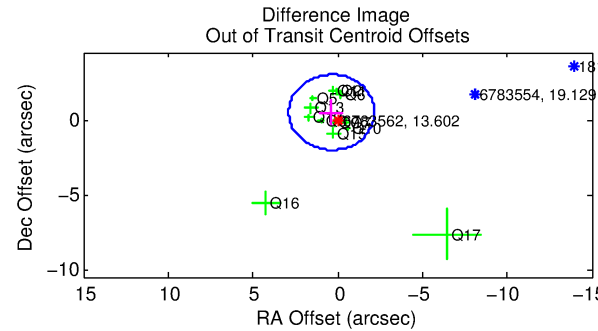
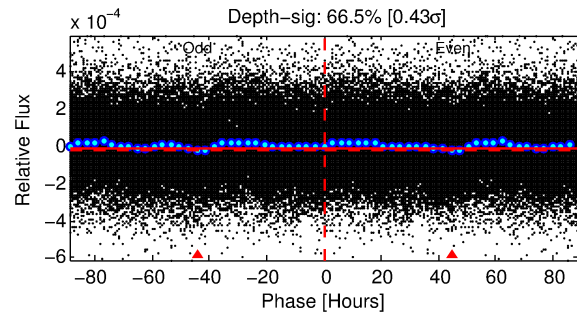
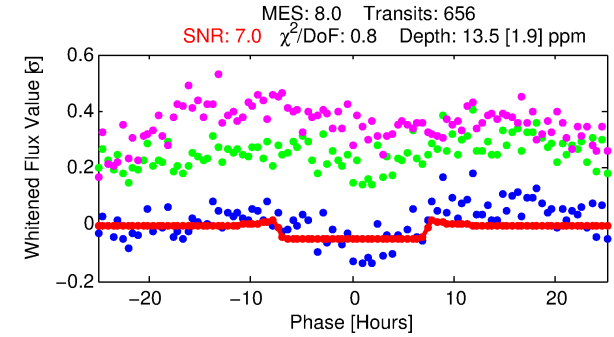
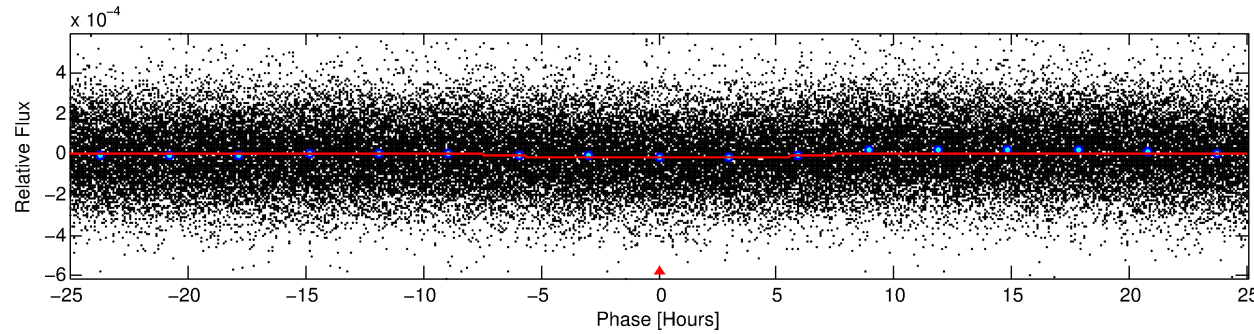
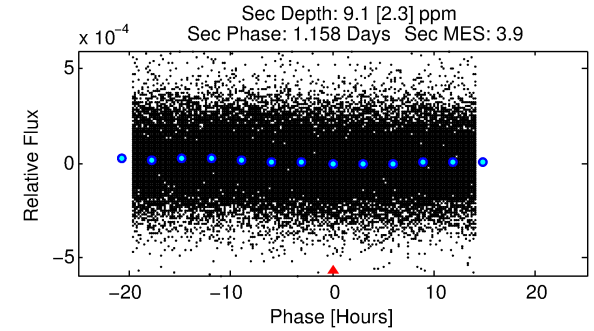
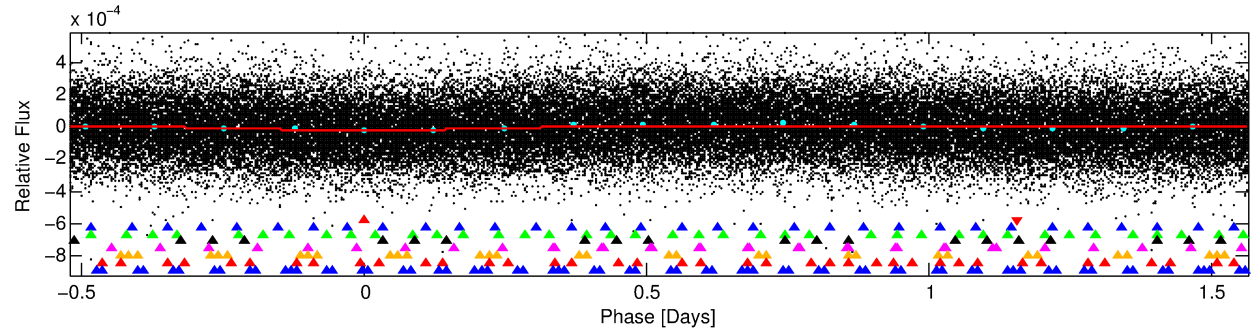
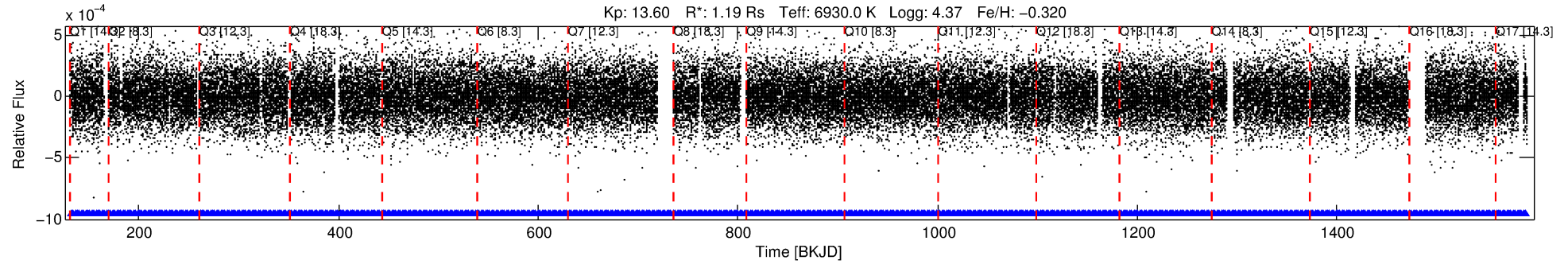
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006783562-01

No Significant Match Found

# DV One-Page Summary

KIC: 6783562 Candidate: 1 of 8 Period: 2.087 d



## DV Fit Results:

Period = 2.08727 [0.00005] d  
Epoch = 132.2700 [0.0120] BKJD  
Rp/R\* = 0.0036 [0.0025]  
a/R\* = 1.13 [1.00]  
b = 0.72 [2.73]  
Seff = 2521.15 [1135.21]  
Teq = 1807 [203] K  
Rp = 0.47 [0.36] Re  
a = 0.0340 [0.0100] AU  
Ag = 26.08 [37.84] [0.66σ]  
Teffp = 6313 [2208] K [2.03σ]

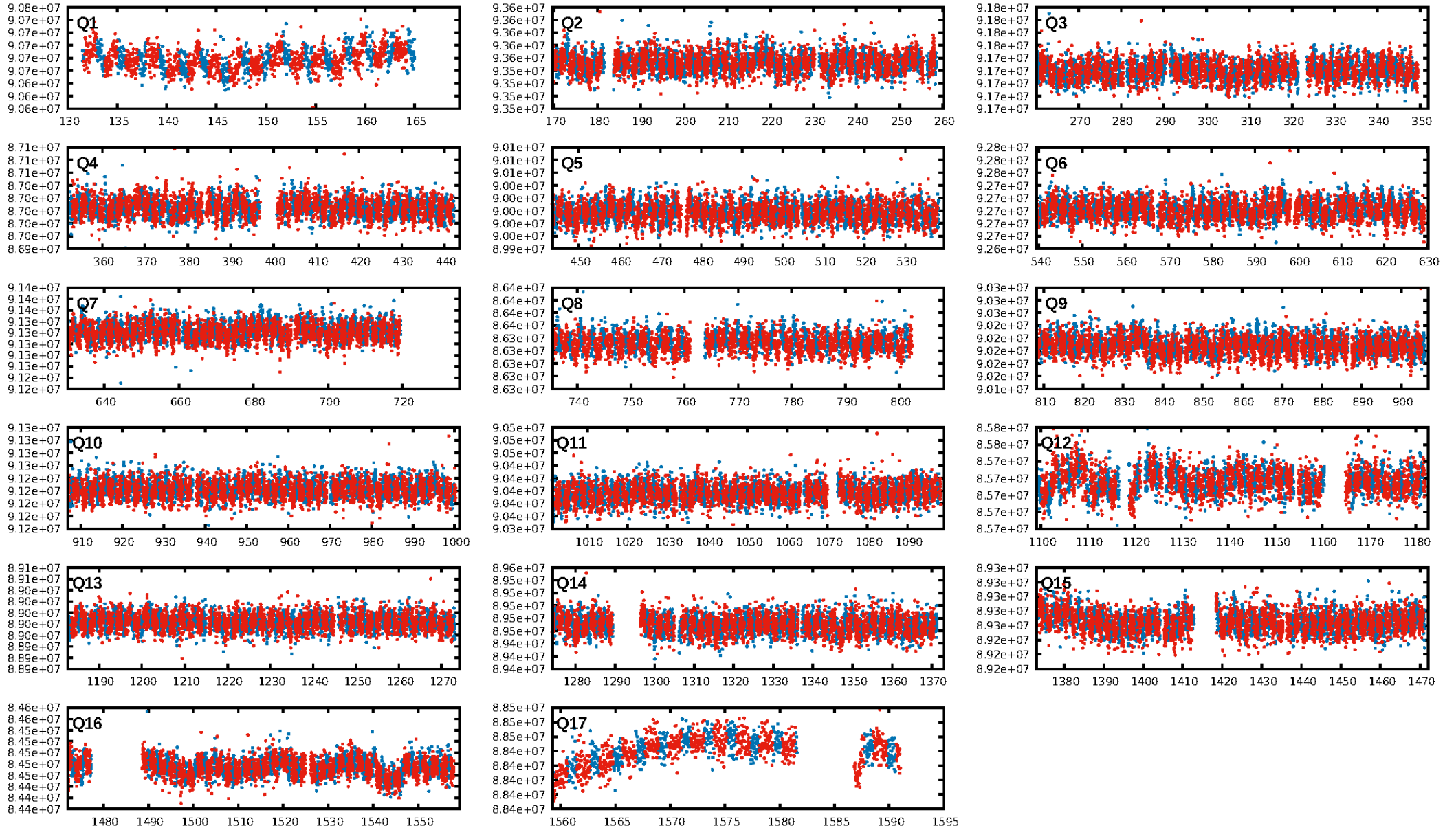
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [31.50σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [626/626]  
GhostDiagnostic-chr: 4.703  
Centroid-sig: 92.1%  
Centroid-so: 0.306 arcsec [0.29σ]  
OotOffset-rm: 0.612 arcsec [0.73σ]  
KicOffset-rm: 0.705 arcsec [0.83σ]  
OotOffset-st: 3/3/3/4 [13]  
KicOffset-st: 3/3/3/4 [13]  
DiffImageQuality-fgm: 0.77 [10/13]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:17:43 Z

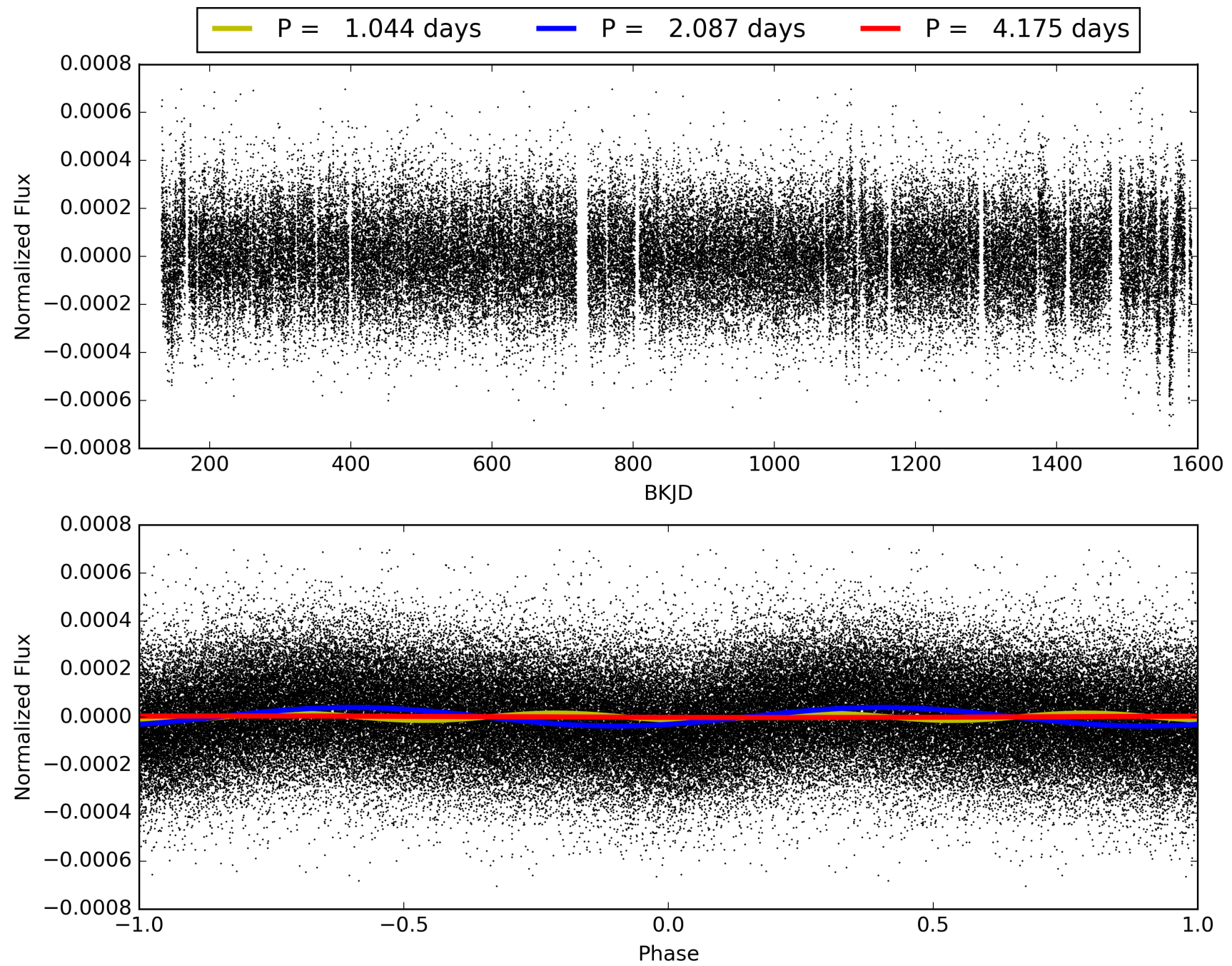
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006783562-01, PDC Light Curves





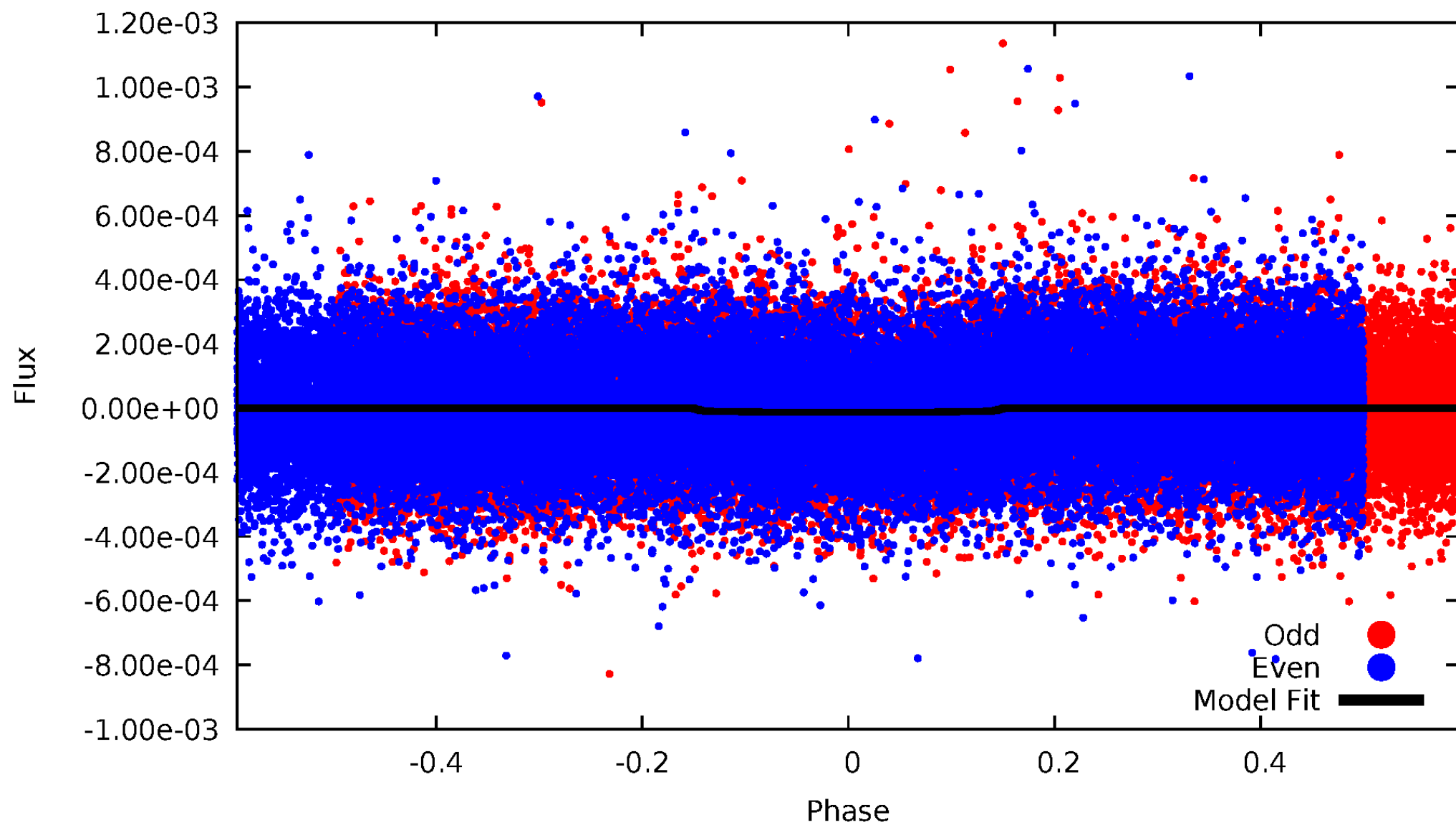
TCE 006783562-01





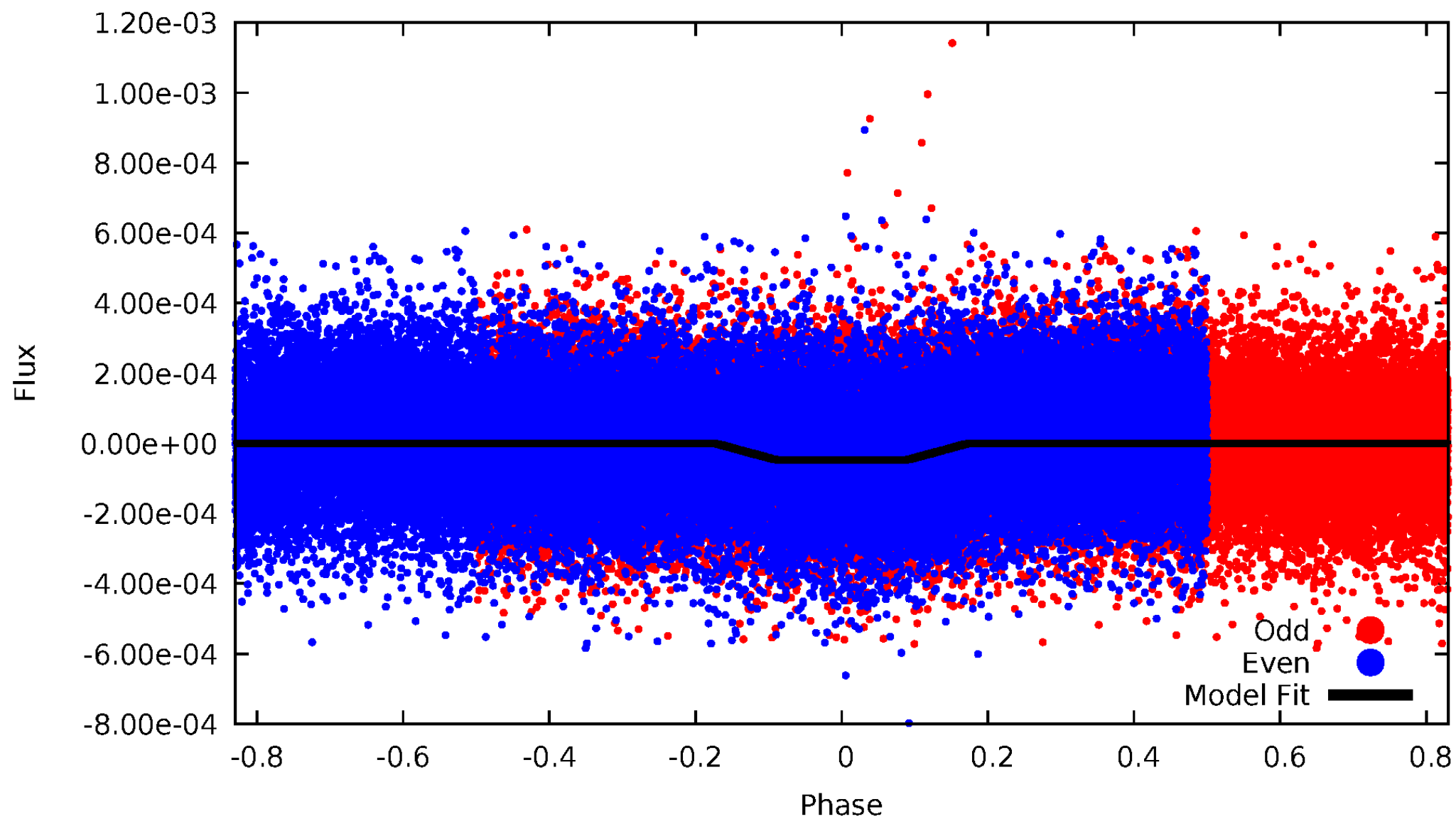
# DV Odd/Even

TCE 006783562-01

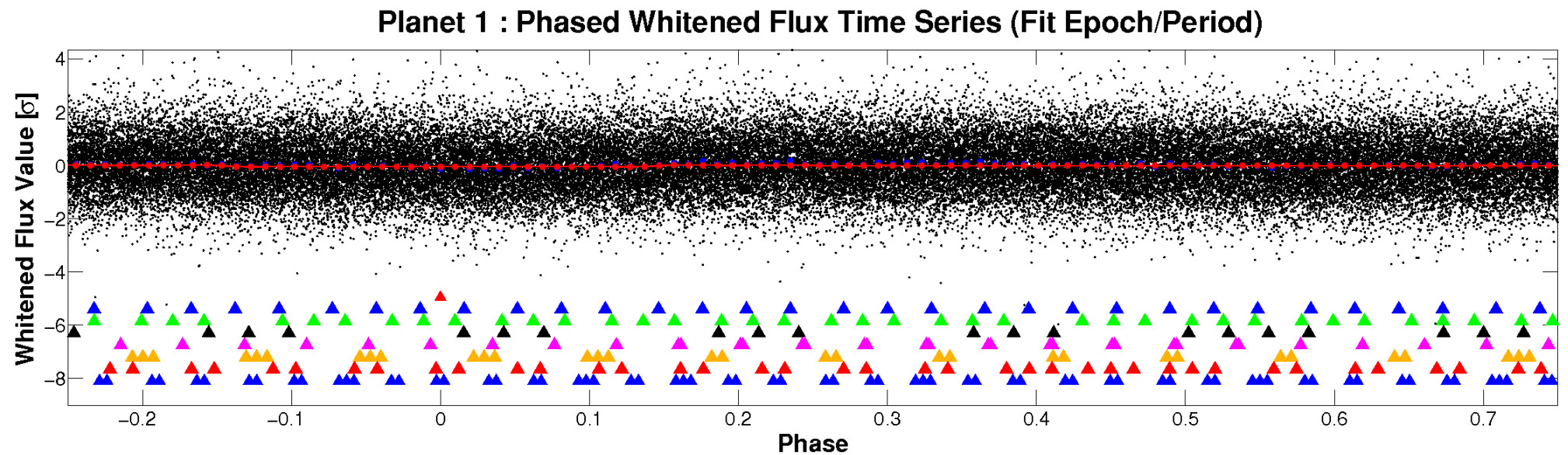
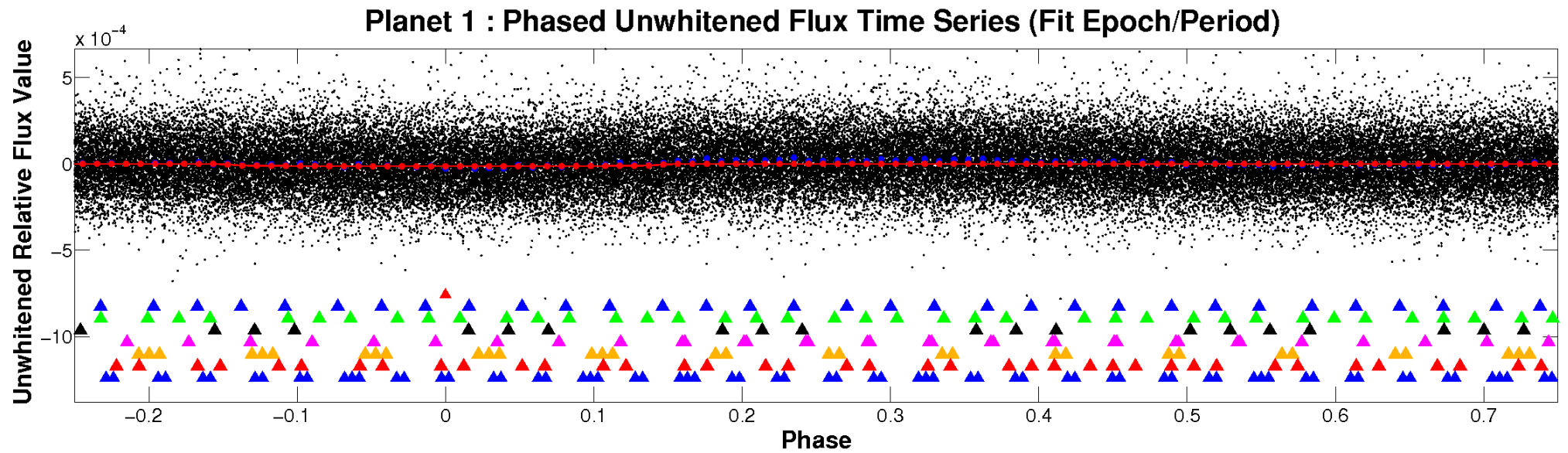


# ALT Odd/Even

TCE 006783562-01



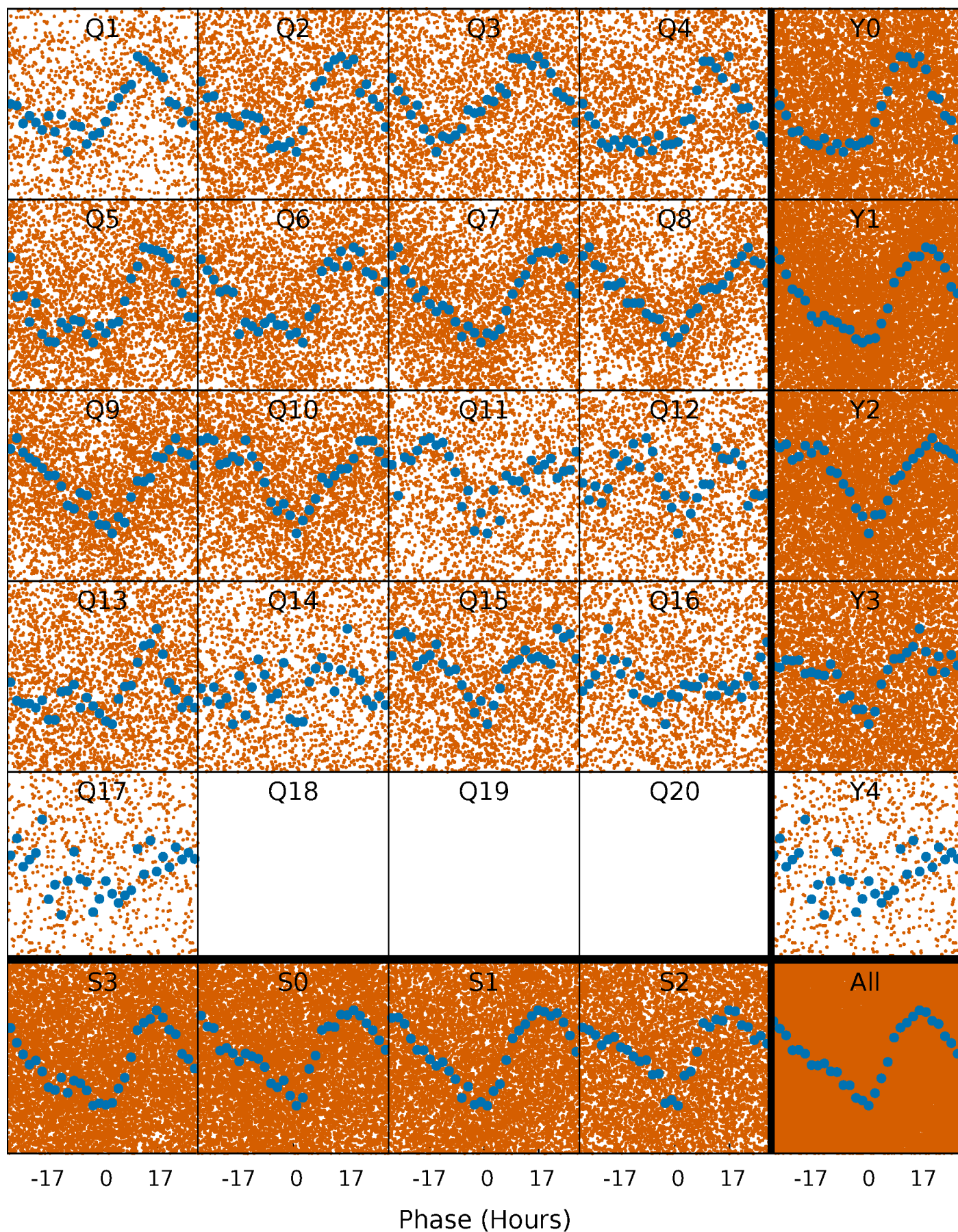
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

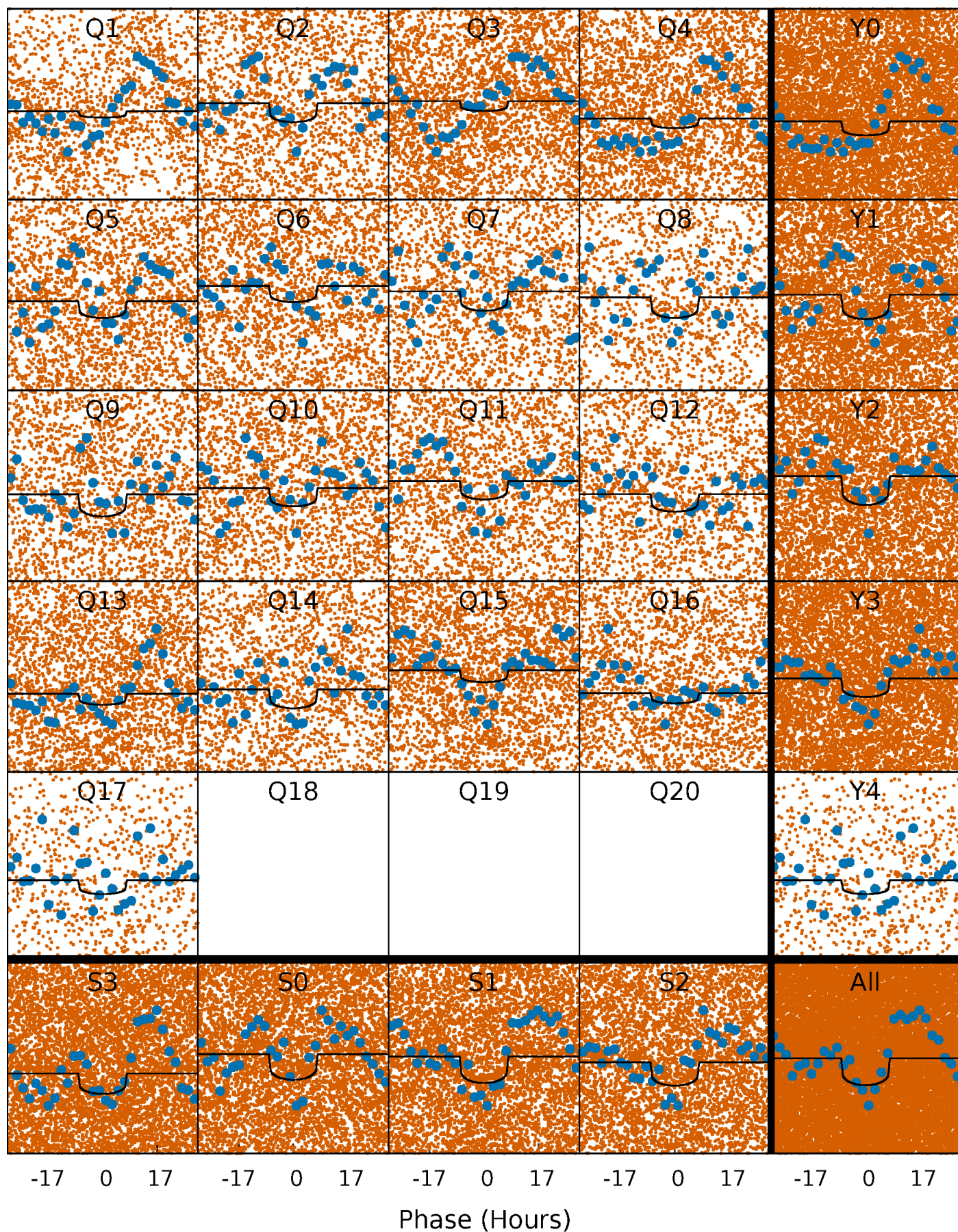
TCE 006783562-01 P= 2.087275 Days  $T_0=132.270008$  (BKJD)





# DV Quarter-Phased Transit Curves

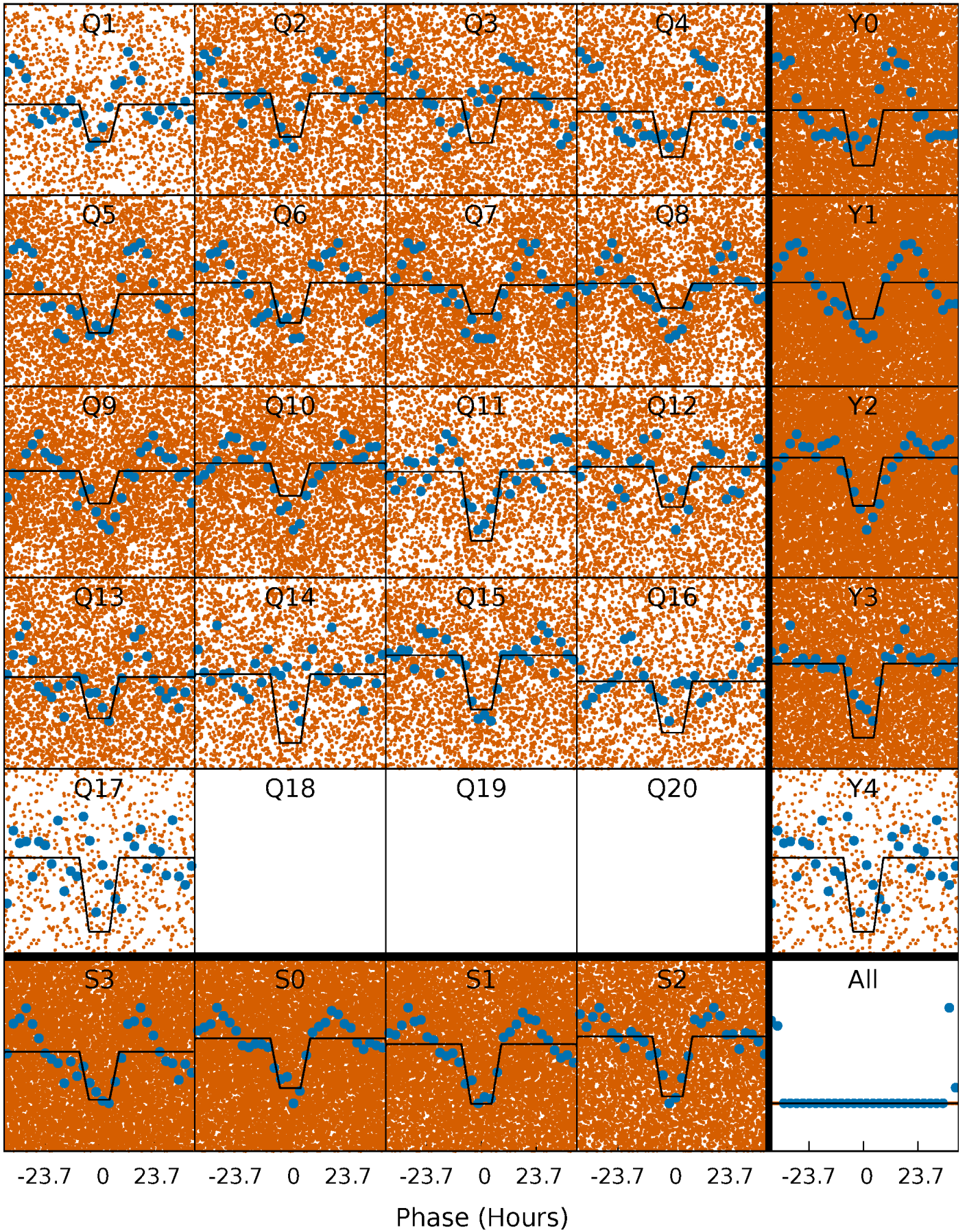
TCE 006783562-01 P= 2.087275 Days  $T_0=132.270008$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 006783562-01 P= 2.087154 Days  $T_0=132.281079$  (BKJD)

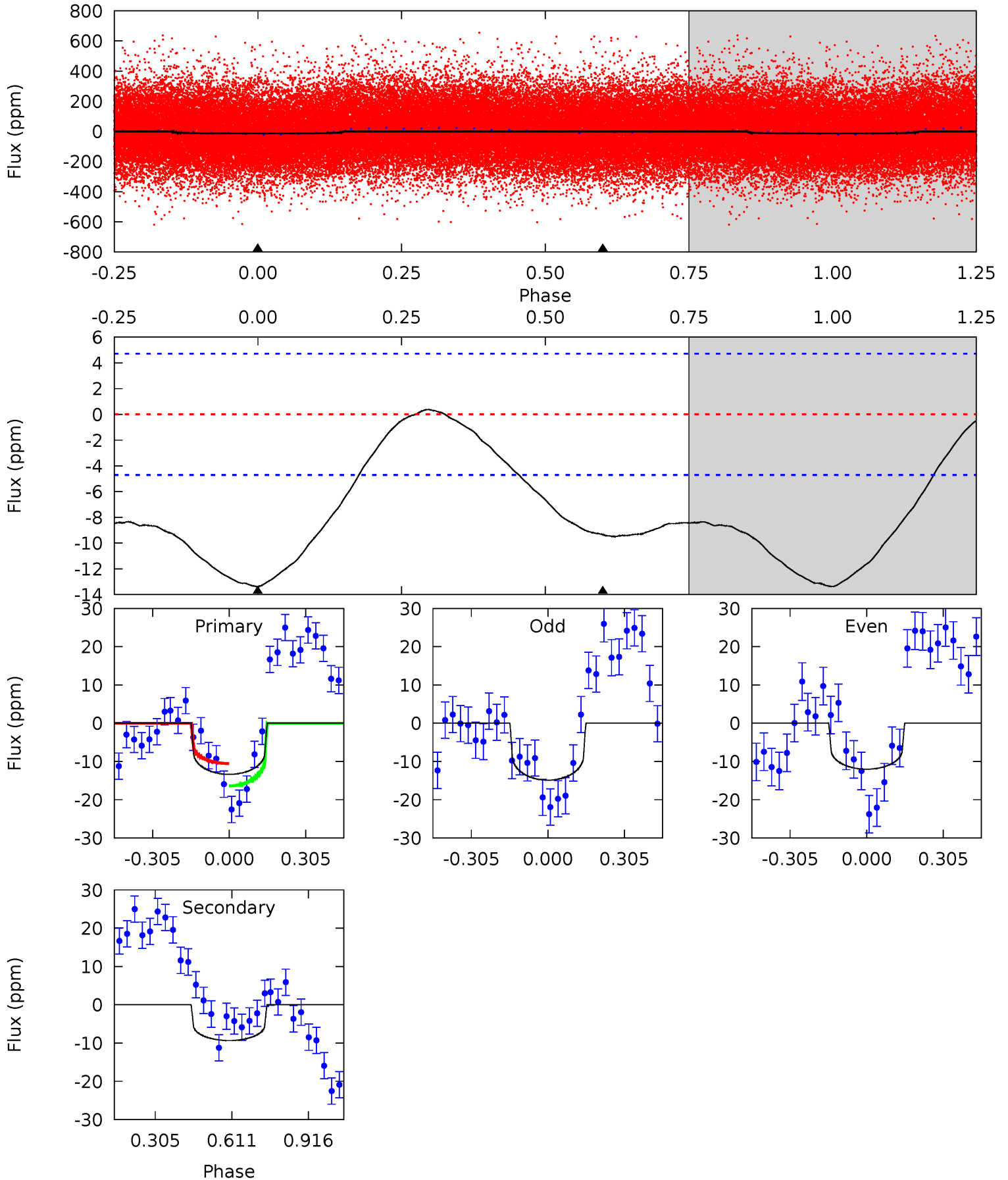




# DV Model-Shift Uniqueness Test

006783562-01, P = 2.087275 Days, E = 130.182733 Days

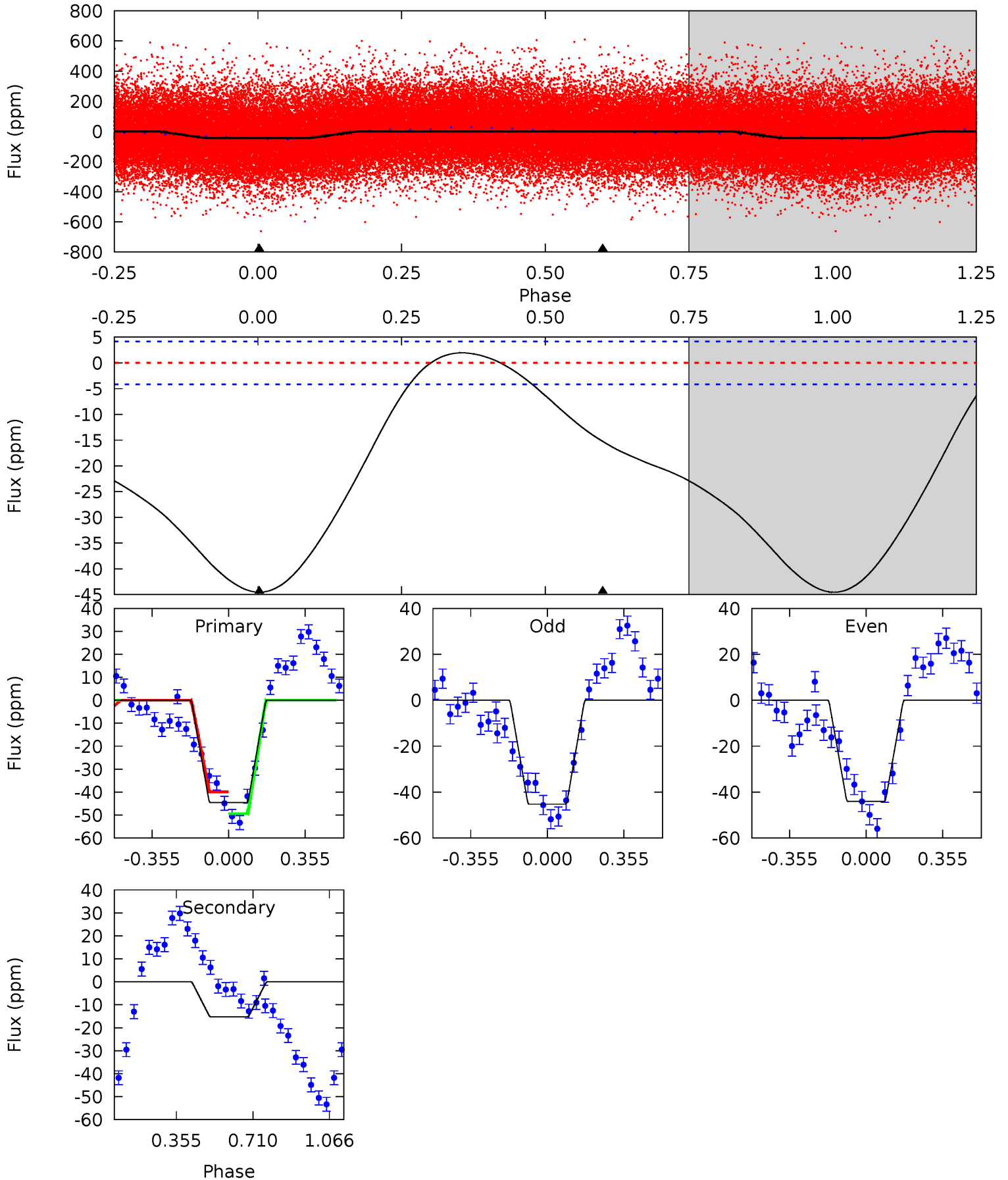
| Pri  | Sec  | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.3 | 8.57 | 0   | 0   | 4.32            | 1.02            | 0.27             | 12.3    | 12.3    | 8.57    | 8.57    | 1.32    | 0.95 | 0.03  | 2.72 |



# Alt Model-Shift Uniqueness Test

006783562-01, P = 2.087154 Days, E = 130.193925 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  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 45.9 | 15.7 | 0   | 0   | 4.29            | 0.92            | 2.58             | 45.9    | 45.9    | 15.7    | 15.7    | 0.66    | 1.06 | 0.04  | 4.77 |



### Stellar Parameters For KIC 006783562

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
|        | $6930^{+192}_{-288}$ | $4.369^{+0.056}_{-0.224}$ | $-0.320^{+0.250}_{-0.350}$ | $1.188^{+0.425}_{-0.142}$ | $1.219^{+0.189}_{-0.154}$ | $1.025^{+0.239}_{-0.556}$                 |
|        | +3%/-4%              | +1%/-5%                   | +78%/-109%                 | +36%/-12%                 | +16%/-13%                 | +23%/-54%                                 |
| 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 006783562-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$   | $A_{\text{obs}}$ |
|---------|-------------|------------------------|----------------------|------------------------|------------------|
| DV      | $-9 \pm 1$  | $0.55^{+0.34}_{-0.31}$ | $2578^{+213}_{-146}$ | $5926^{+3423}_{-1122}$ | $19^{+75}_{-12}$ |
| Alt.    | $-15 \pm 1$ | $0.94^{+0.39}_{-0.34}$ | $2576^{+214}_{-141}$ | $5197^{+1354}_{-669}$  | $11^{+16}_{-5}$  |

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



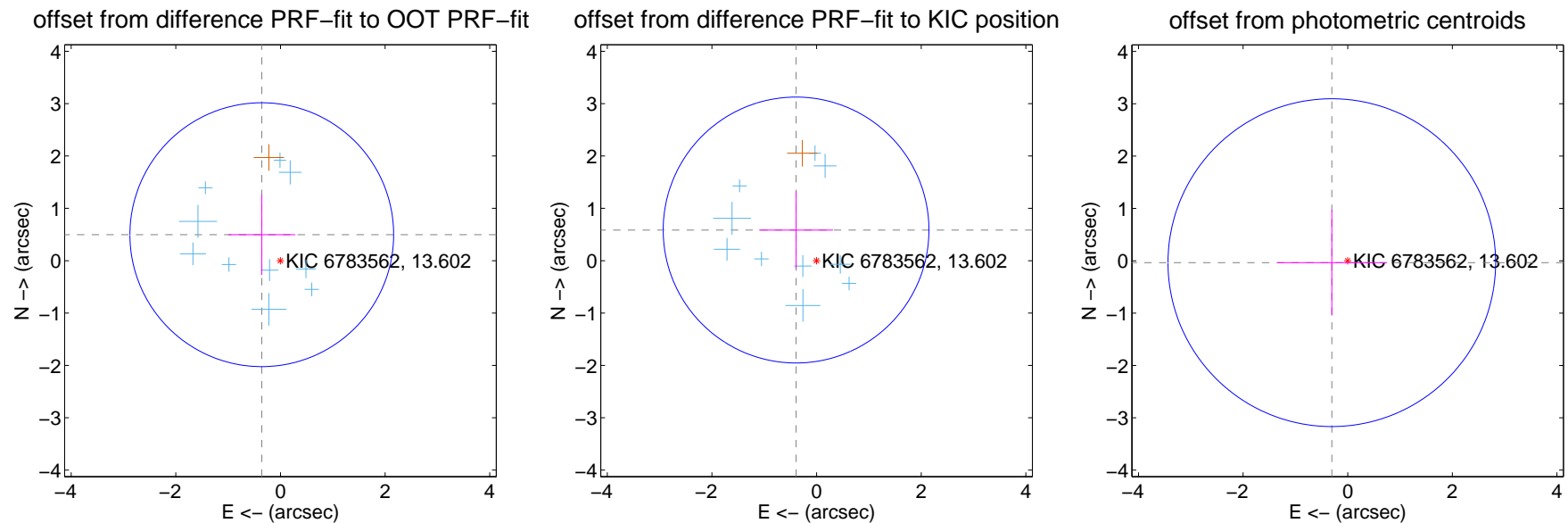
## DV Centroid Data

Supplemental centroid analysis for 006783562-01. Kepler magnitude: 13.60. Transit SNR 7.05

There are 10 quarters with good PRF difference image offsets

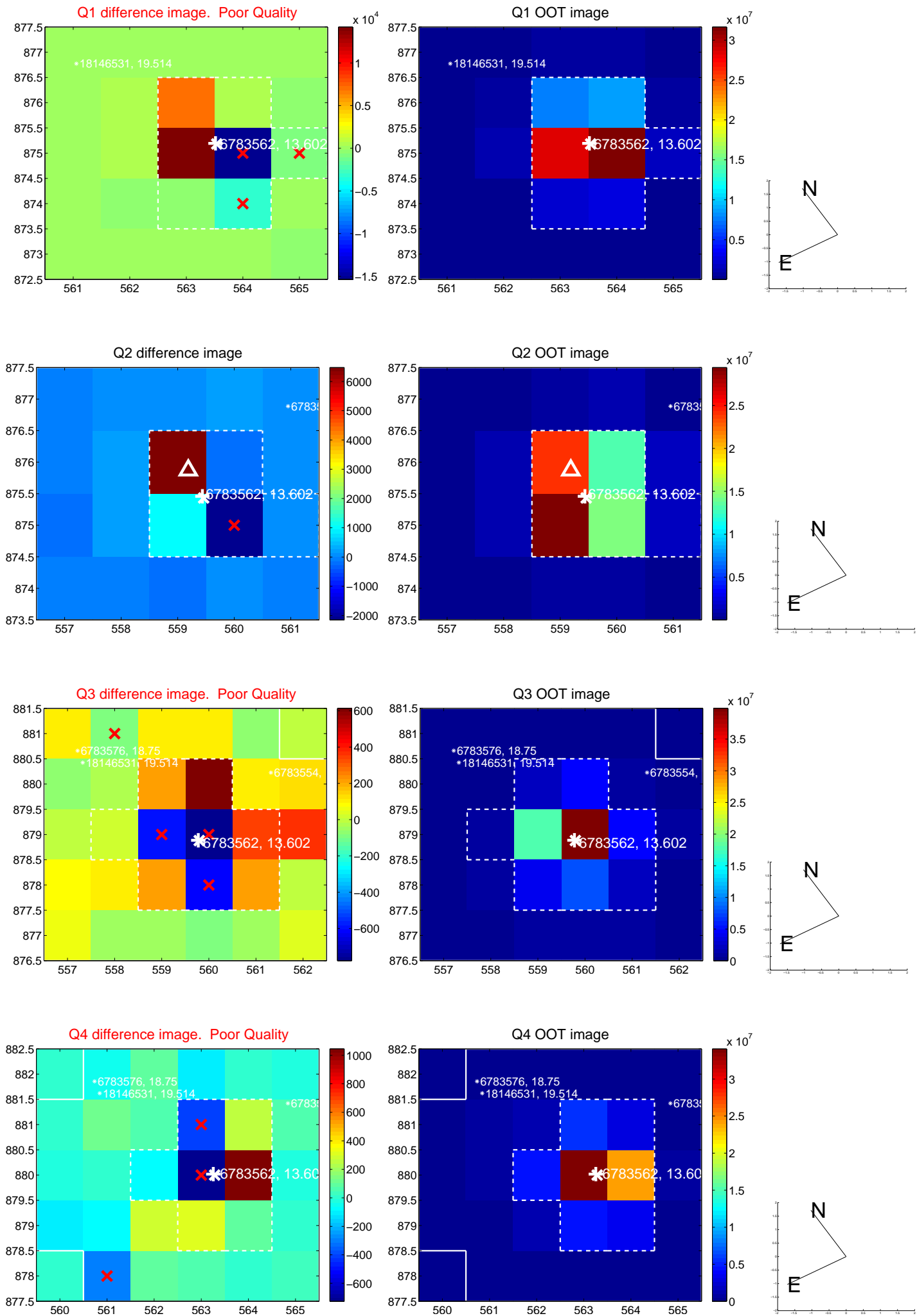
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|-----------------------------------------|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.612 \pm 0.840$  | 0.73                | $0.357 \pm 0.640$ | $0.497 \pm 0.769$ |
| PRF-fit source offset from KIC position | $0.705 \pm 0.847$  | 0.83                | $0.392 \pm 0.705$ | $0.586 \pm 0.738$ |
| photometric centroid source offset      | $0.31 \pm 1.04$    | 0.29                | $0.30 \pm 1.04$   | $-0.04 \pm 1.01$  |

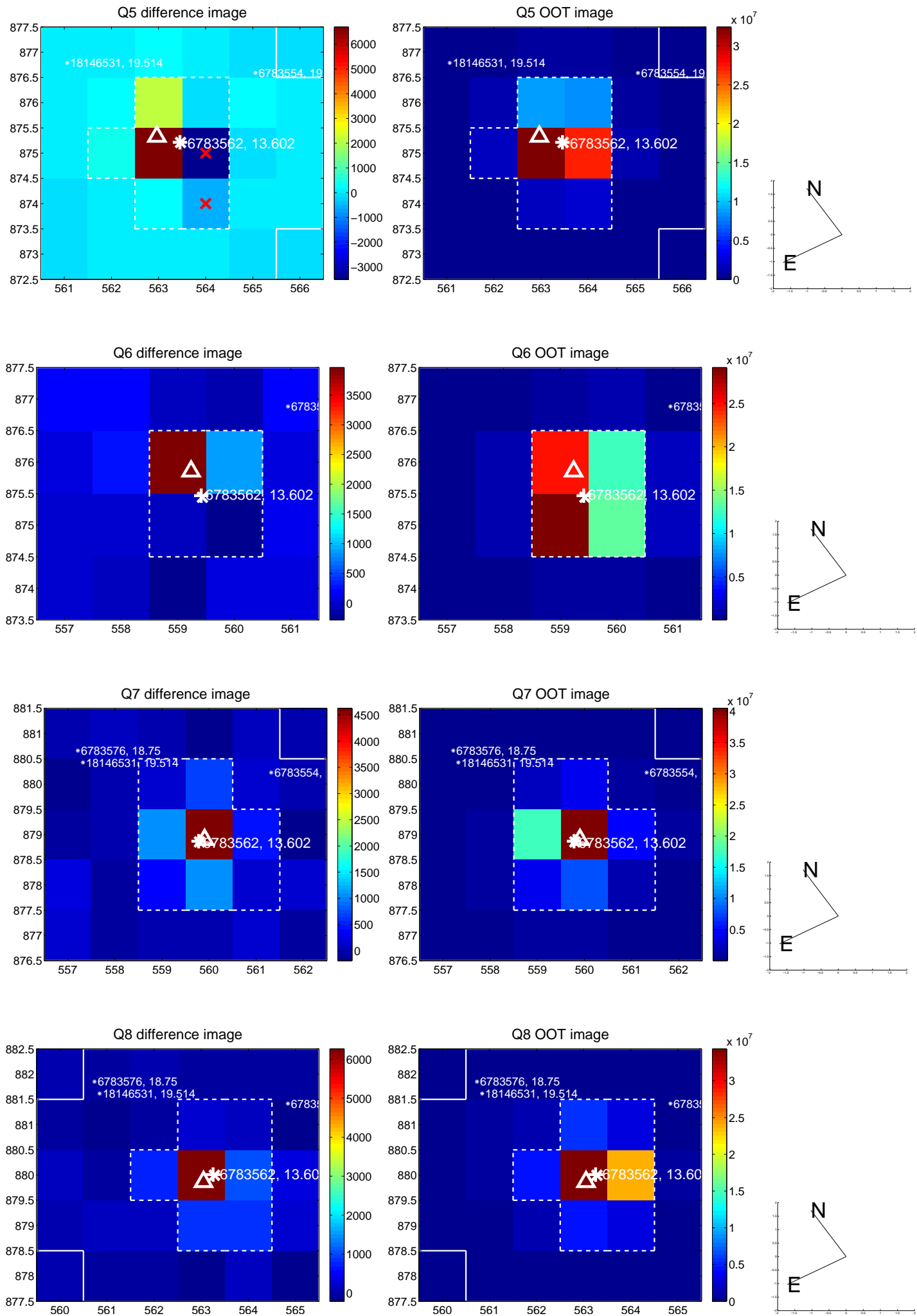


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

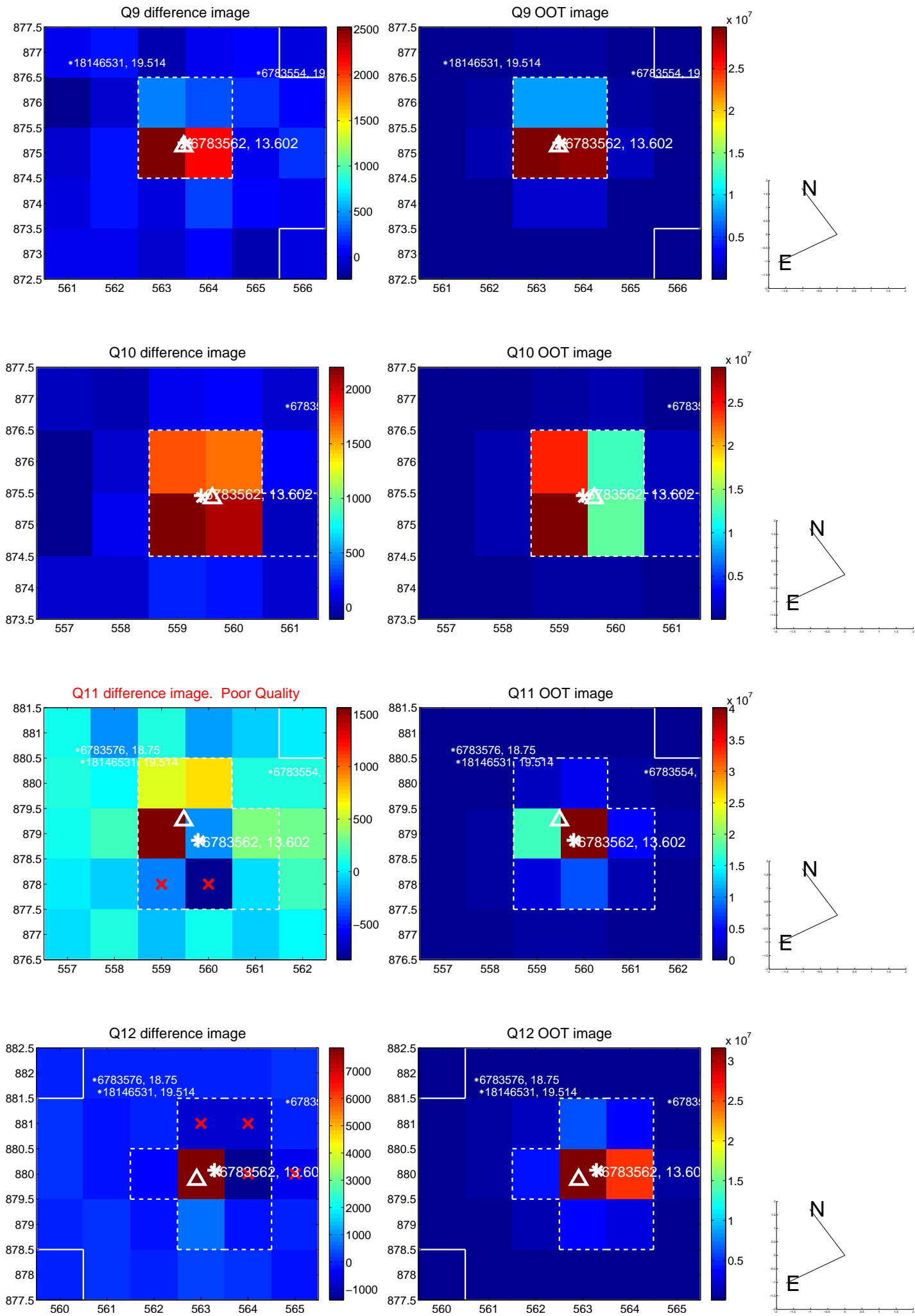


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

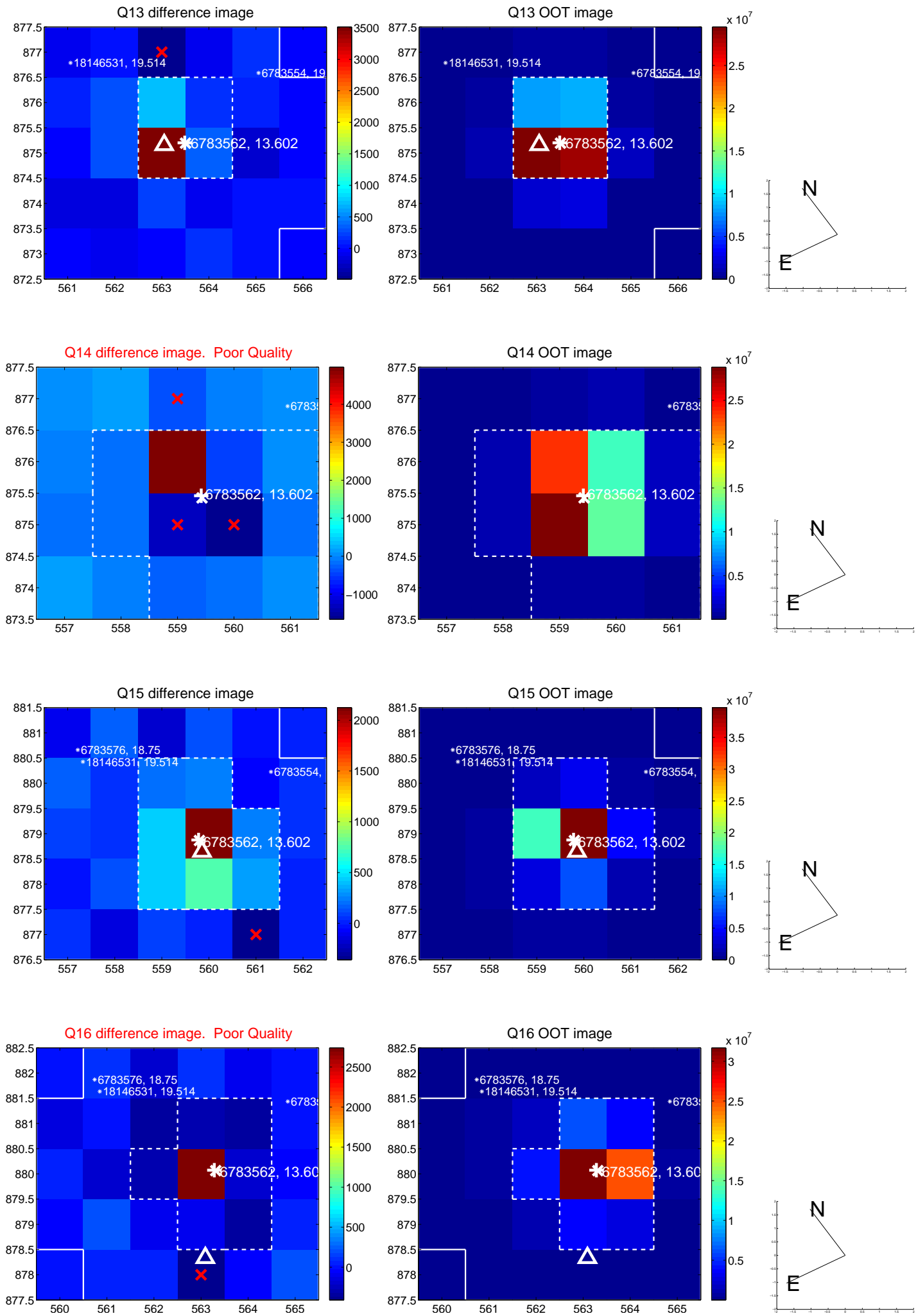




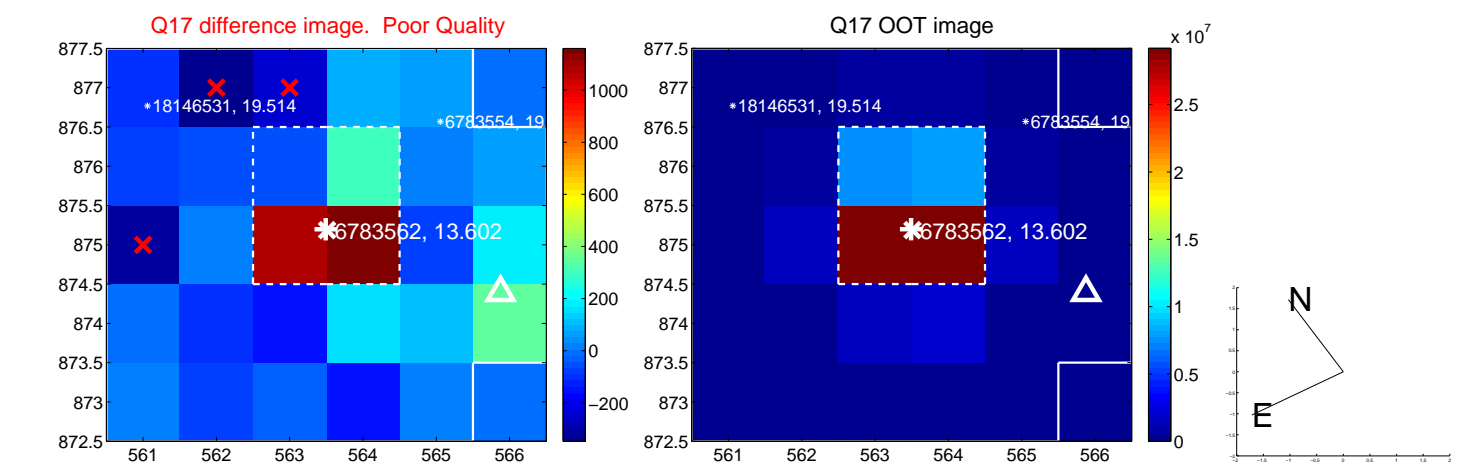
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



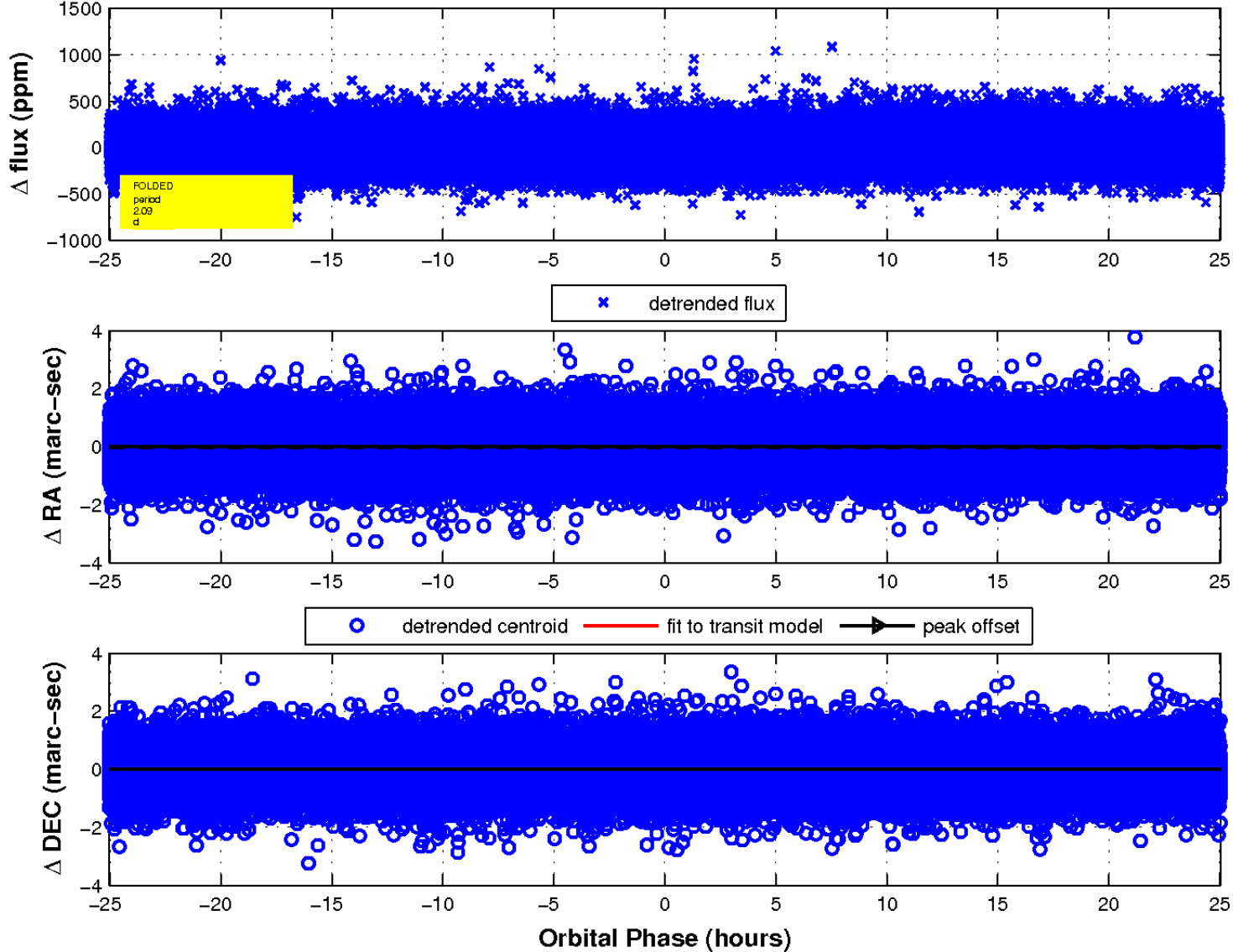
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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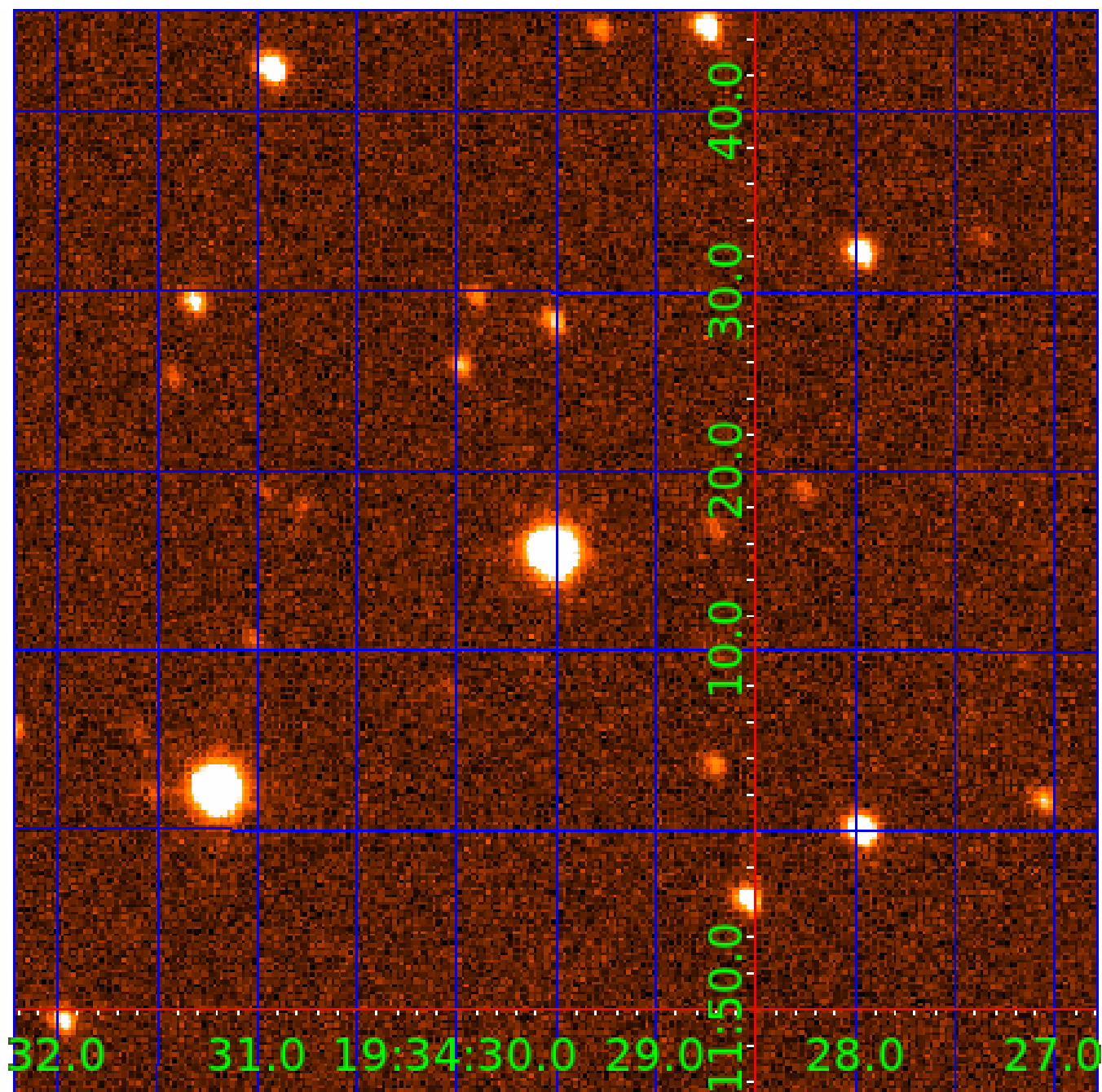


fluxWeightedCentroids, Planet 1 of 8



UKIRT Image

Declination





# KIC 006783562

## Q1-17 DR25 TCE Parameters

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| 006783562-08 | OBS      | No   | 21.680387     | 136.795370   | 537.9       | 1.500            | 9.6  | -1.0 | 1.19                        | 6930            | 2.79                   | 111.25                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                                                             |
|--------------|----------|------|-------|---|---|---|---|--------------------------------------------------------------------------------------|
| 006783562-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV                                                                               |
| 006783562-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_MEAS                  |
| 006783562-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006783562-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST     |
| 006783562-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS                    |
| 006783562-08 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST                           |

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

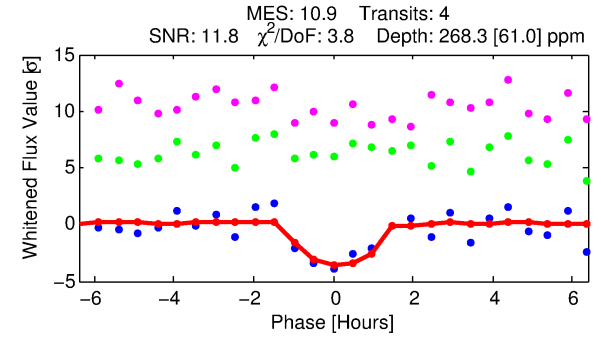
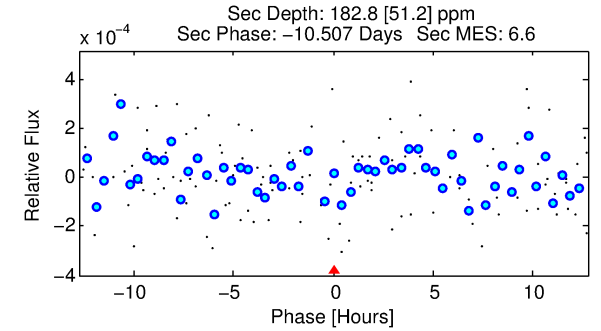
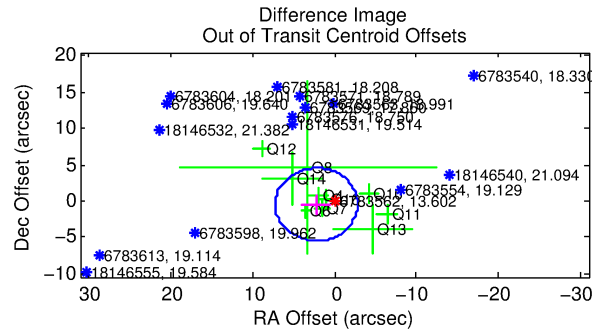
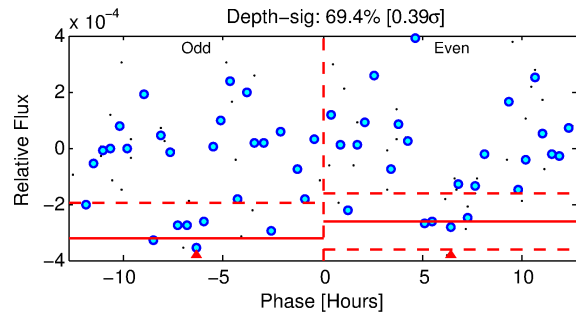
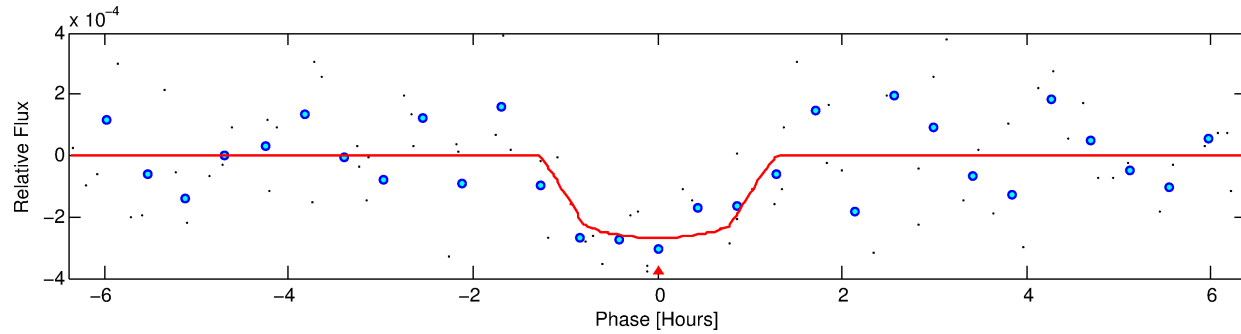
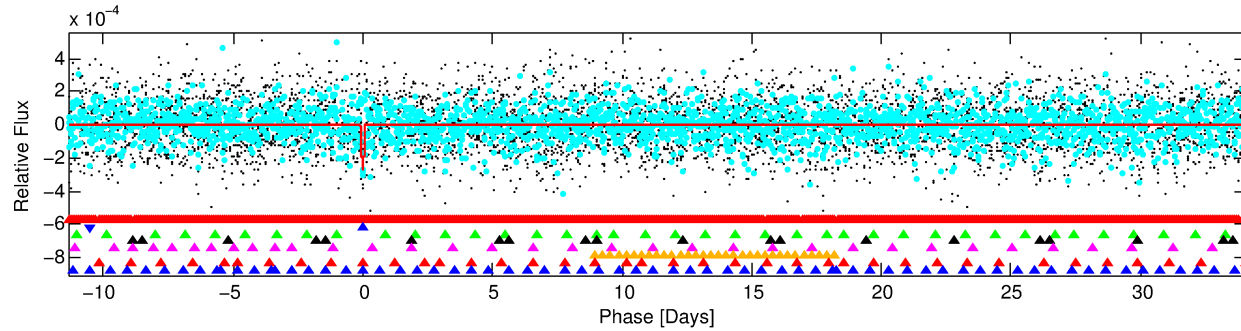
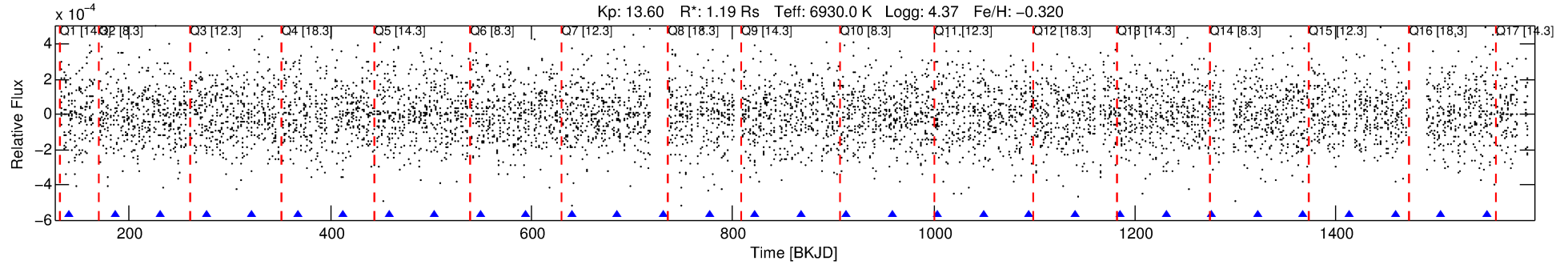
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006783562-02

No Significant Match Found

# DV One-Page Summary

KIC: 6783562 Candidate: 2 of 8 Period: 45.463 d



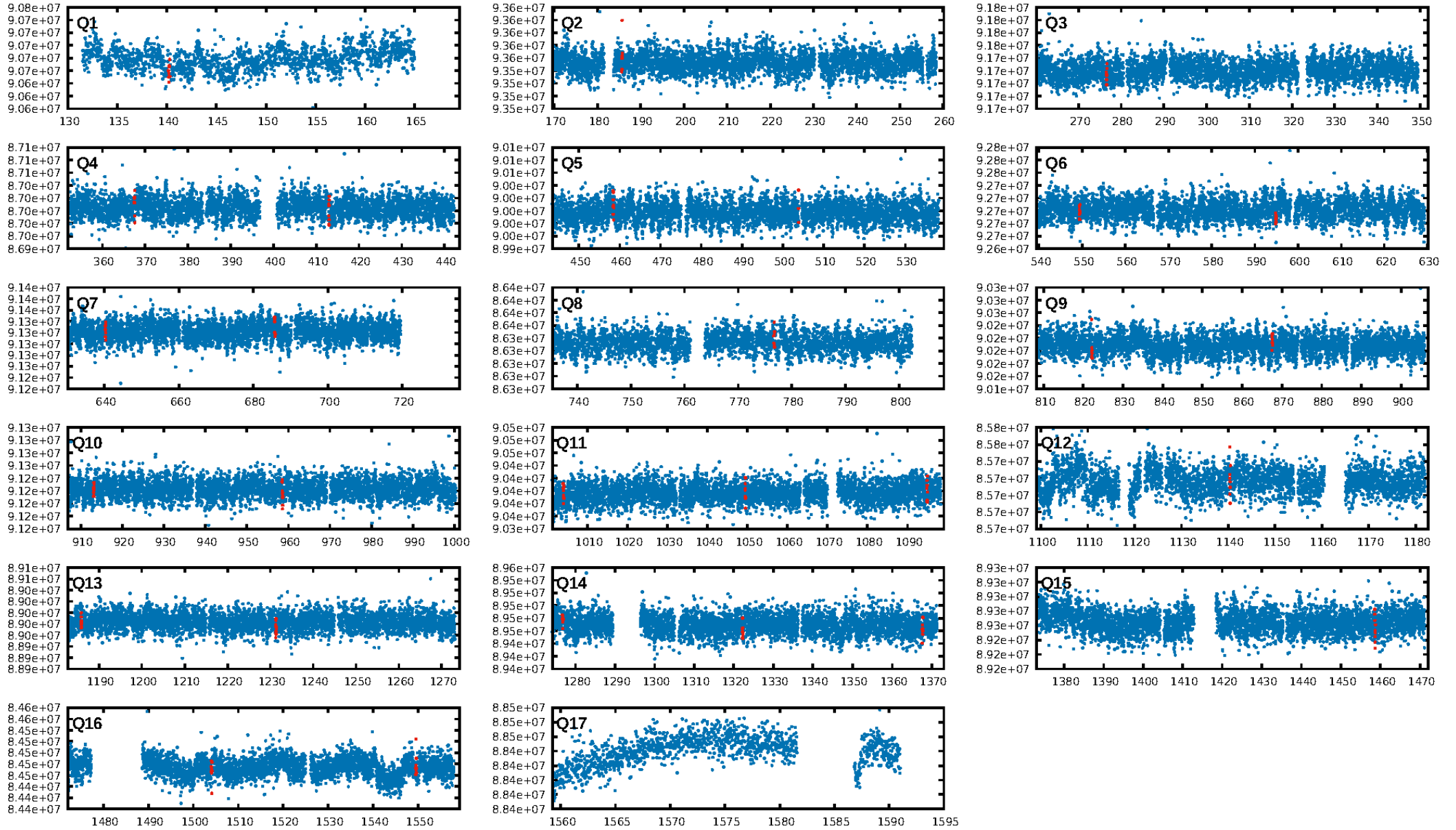
## DV Fit Results:

Period = 45.46304 [0.00096] d  
Epoch = 140.2084 [0.0145] BKJD  
Rp/R\* = 0.0152 [0.0460]  
a/R\* = 162.67 [2770.58]  
b = 0.19 [86.81]  
Seff = 41.45 [18.66]  
Teq = 647 [73] K  
Rp = 1.98 [6.00] Re  
a = 0.2653 [0.0780] AU  
Ag = 1814.42 [10985.69] [0.17 $\sigma$ ]  
Teffp = 6529 [9862] K [0.60 $\sigma$ ]

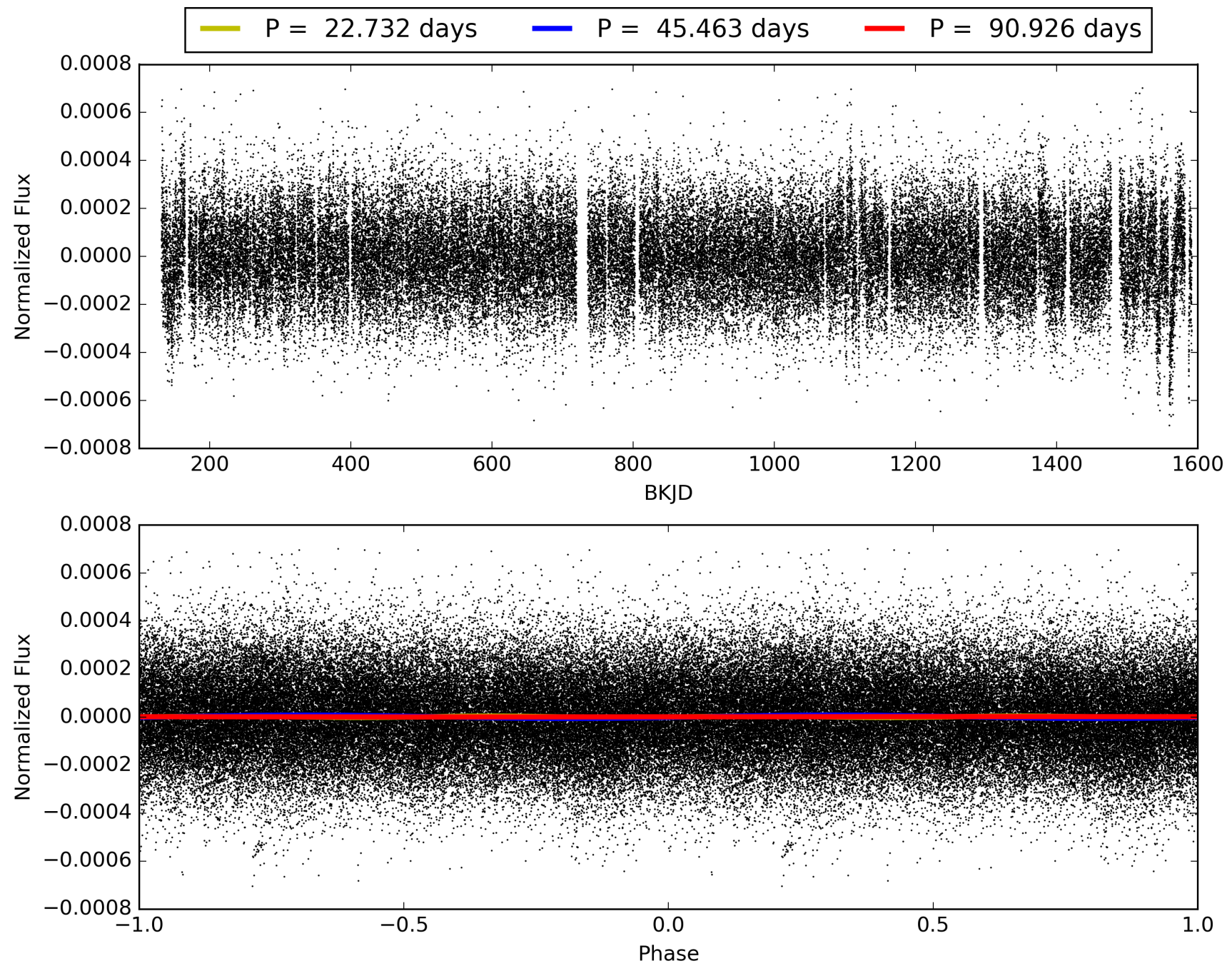
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [8.03 $\sigma$ ]  
LongPeriod-sig: 77.5% [1.21 $\sigma$ ]  
ModelChiSquare2-sig: 75.2%  
ModelChiSquareGof-sig: 56.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.6534  
Centroid-sig: 9.7%  
Centroid-so: 0.724 arcsec [1.14 $\sigma$ ]  
OotOffset-rm: 2.270 arcsec [1.36 $\sigma$ ]  
OotOffset-st: 3/2/4/1 [10]  
KicOffset-rm: 2.300 arcsec [1.37 $\sigma$ ]  
KicOffset-st: 3/2/4/1 [10]  
DiffImageQuality-fgm: 0.10 [1/10]  
DiffImageOverlap-fno: 0.56 [9/16]

# TCE 006783562-02, PDC Light Curves

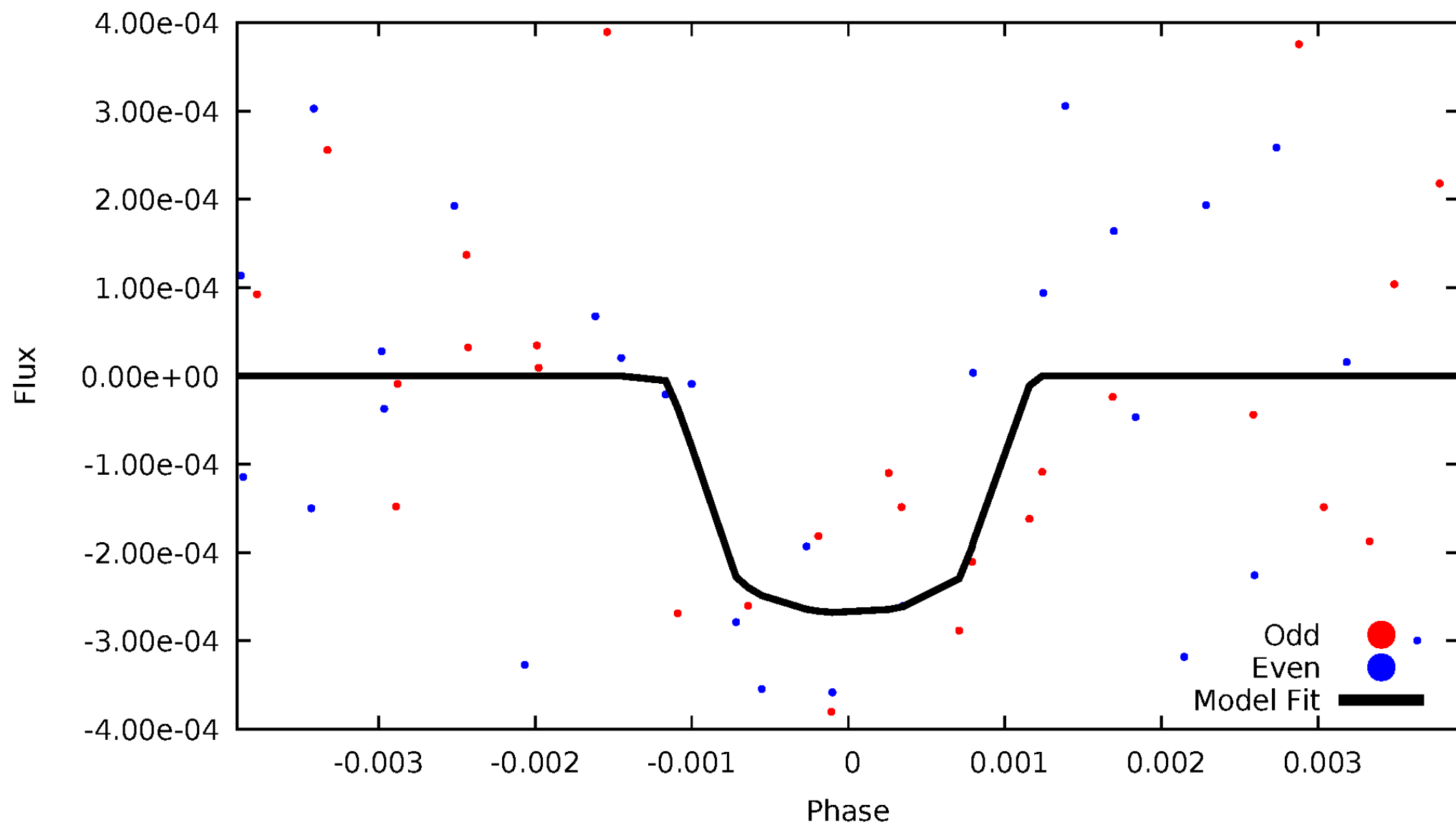


TCE 006783562-02



# DV Odd/Even

TCE 006783562-02





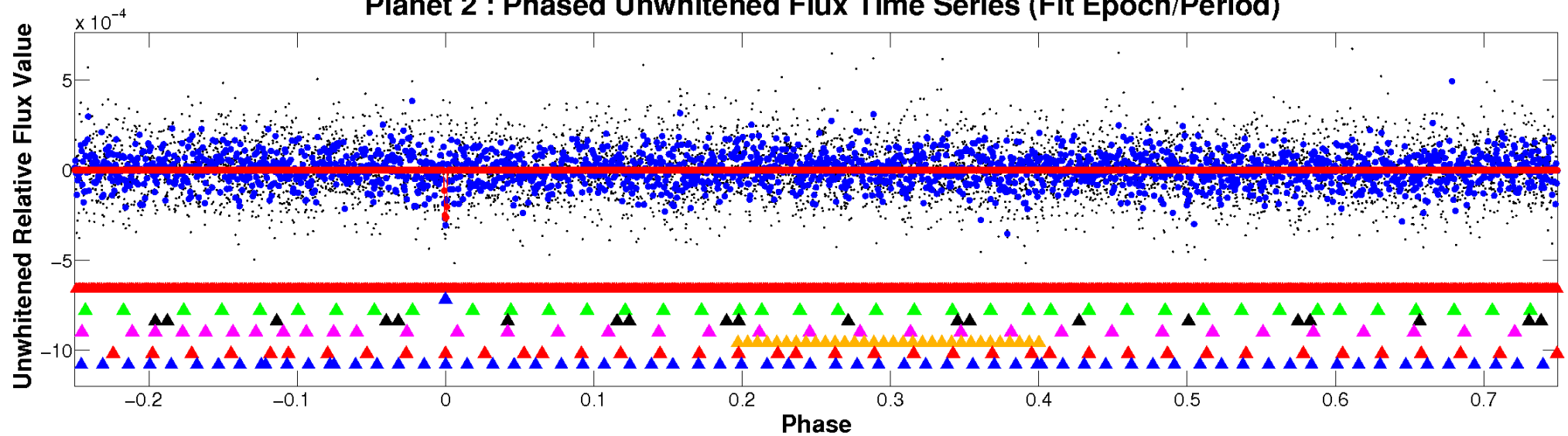


ALT Odd/Even

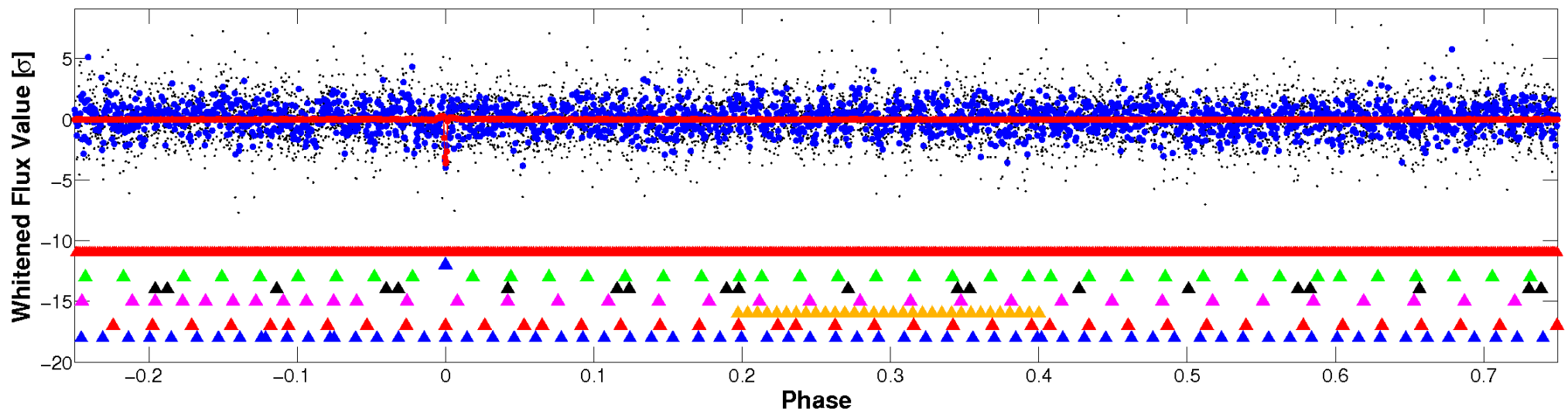
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

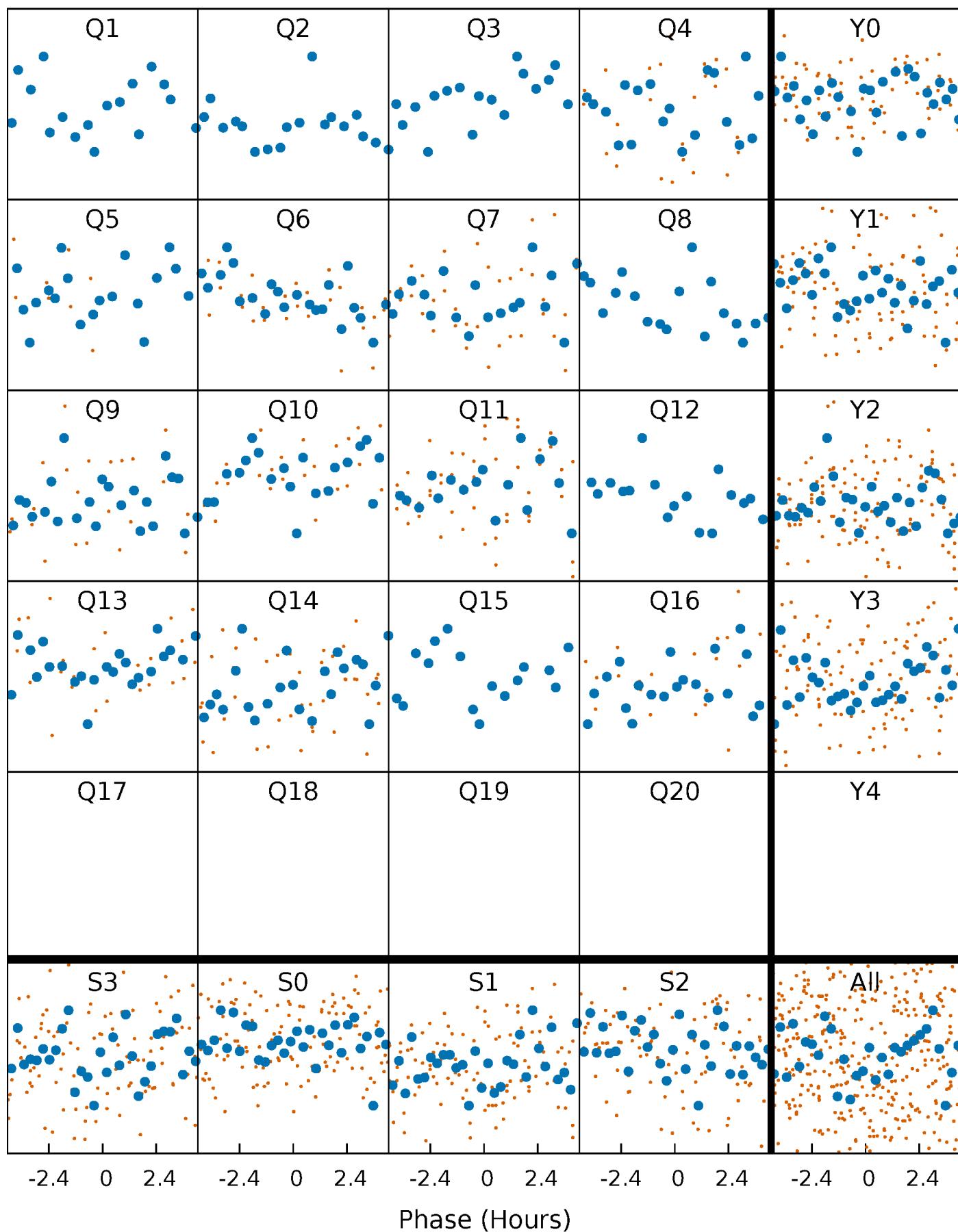


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



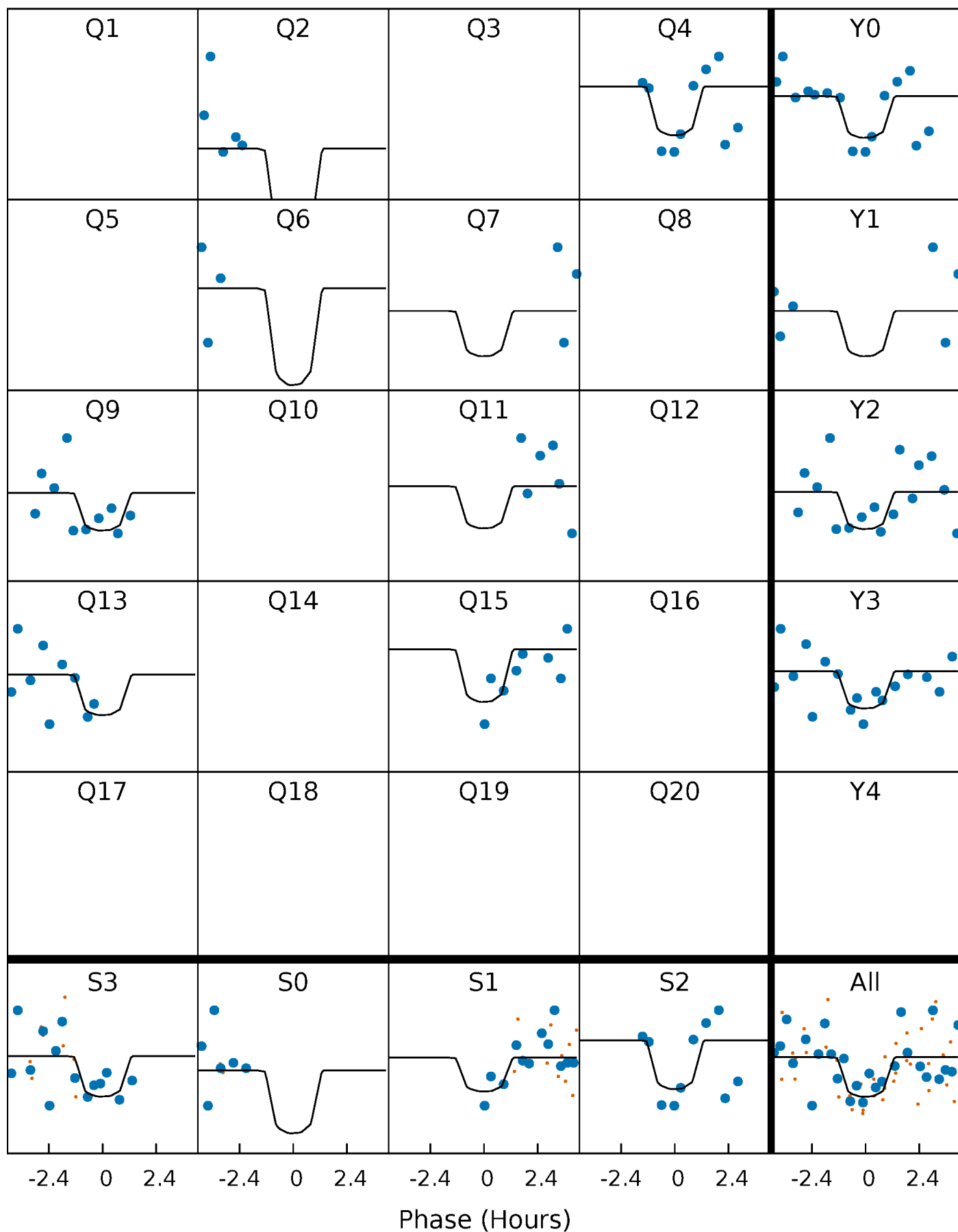
# PDC Quarter-Phased Transit Curves

TCE 006783562-02   P= 45.463043 Days    $T_0=140.208363$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 006783562-02 P= 45.463043 Days  $T_0=140.208363$  (BKJD)



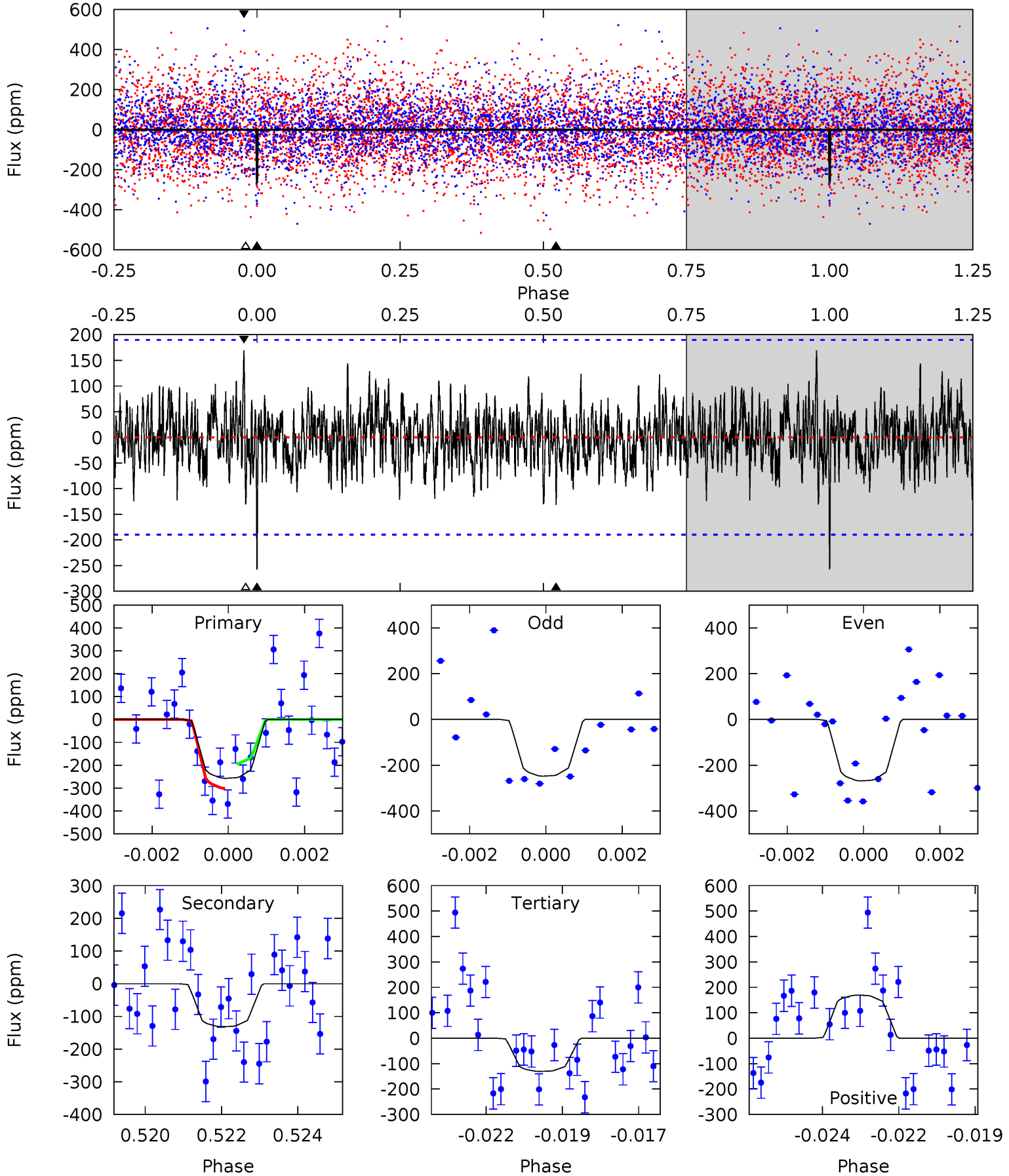


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

006783562-02, P = 45.463043 Days, E = 94.745320 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.19 | 3.67 | 3.65 | 4.73 | 5.29            | 3.03            | 1.23             | 3.54    | 2.46    | 0.03    | -1.05   | 0.29    | 0.98 | 0.40  | 1.50 |



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 006783562

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M$ ( $M_{\odot}$ )       | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-----------------------------------------------|
|        | $6930^{+192}_{-288}$ | $4.369^{+0.056}_{-0.224}$ | $-0.320^{+0.250}_{-0.350}$ | $1.188^{+0.425}_{-0.142}$ | $1.219^{+0.189}_{-0.154}$ | $1.025^{+0.239}_{-0.556}$                     |
|        | +3%/-4%              | +1%/-5%                   | +78%/-109%                 | +36%/-12%                 | +16%/-13%                 | +23%/-54%                                     |
| 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 006783562-02 / KOI

| Detrend | Depth (ppm)   | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)     | $T_{obs}$ (K)         | $A_{obs}$            |
|---------|---------------|------------------------|-------------------|-----------------------|----------------------|
| DV      | $-132 \pm 36$ | $5.07^{+5.54}_{-3.48}$ | $928^{+69}_{-51}$ | $4094^{+2926}_{-895}$ | $188^{+2018}_{-147}$ |
| Alt.    | N/A           | N/A                    | N/A               | N/A                   | N/A                  |

$T_{max}$  = 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

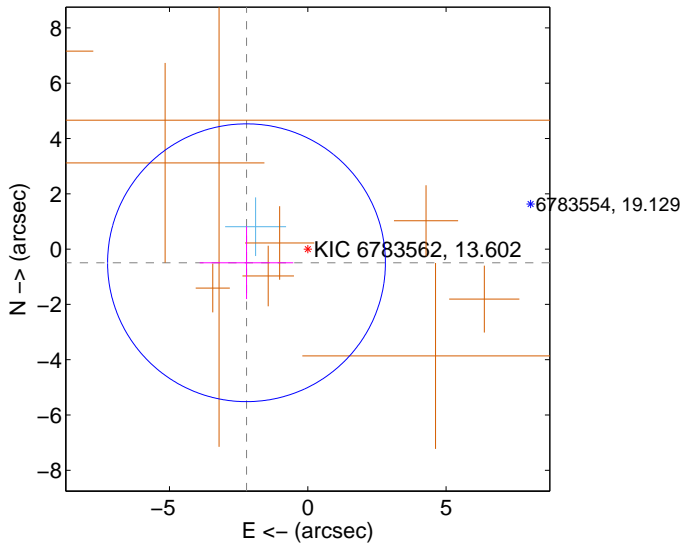
Supplemental centroid analysis for 006783562-02. Kepler magnitude: 13.60. Transit SNR 11.77

There are 1 quarters with good PRF difference image offsets

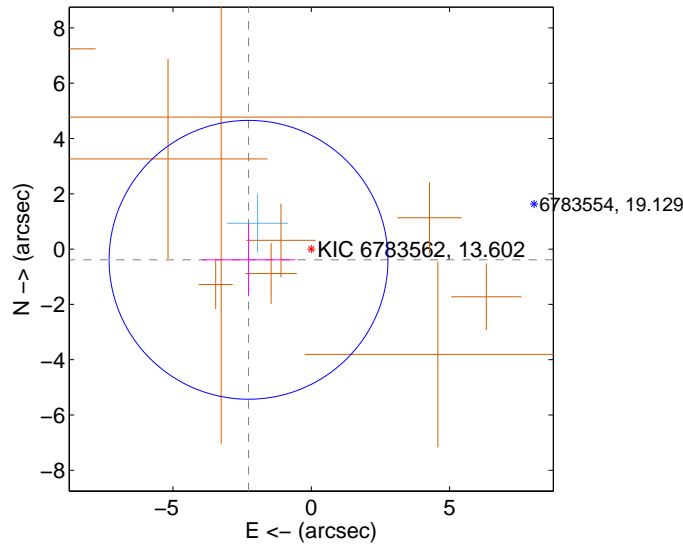
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|-----------------------------------------|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $2.270 \pm 1.674$  | 1.36                | $2.215 \pm 1.690$ | $-0.494 \pm 1.316$ |
| PRF-fit source offset from KIC position | $2.300 \pm 1.680$  | 1.37                | $2.267 \pm 1.690$ | $-0.388 \pm 1.316$ |
| photometric centroid source offset      | $0.72 \pm 0.63$    | 1.14                | $0.41 \pm 0.65$   | $-0.60 \pm 0.62$   |

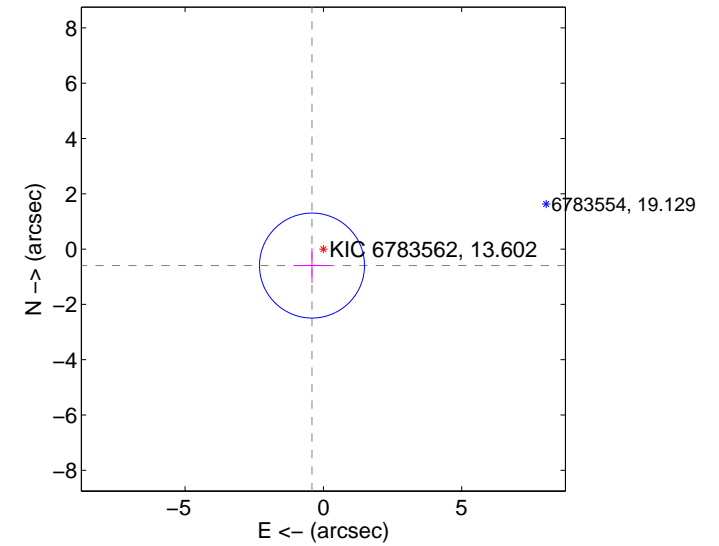
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

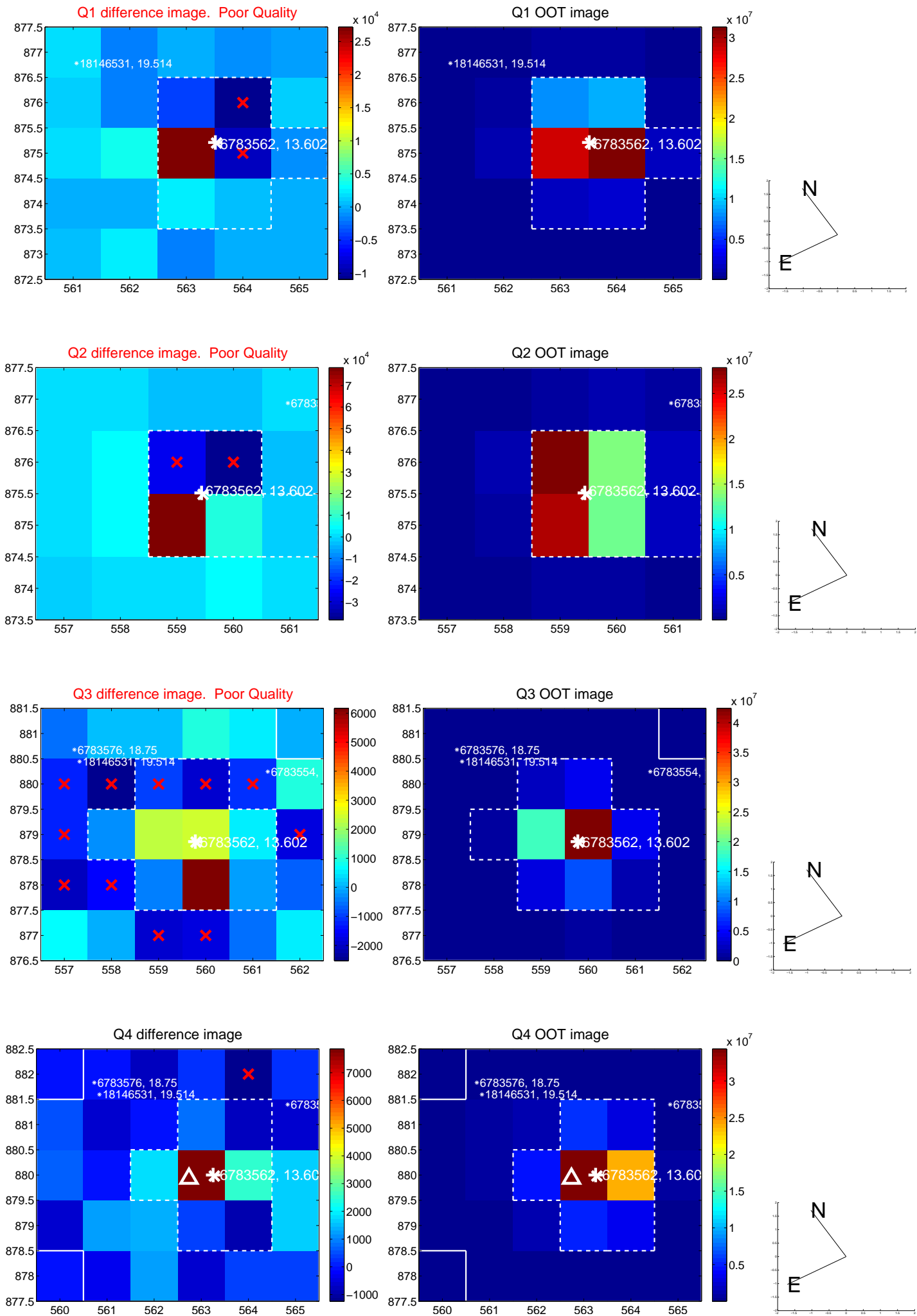


offset from photometric centroids

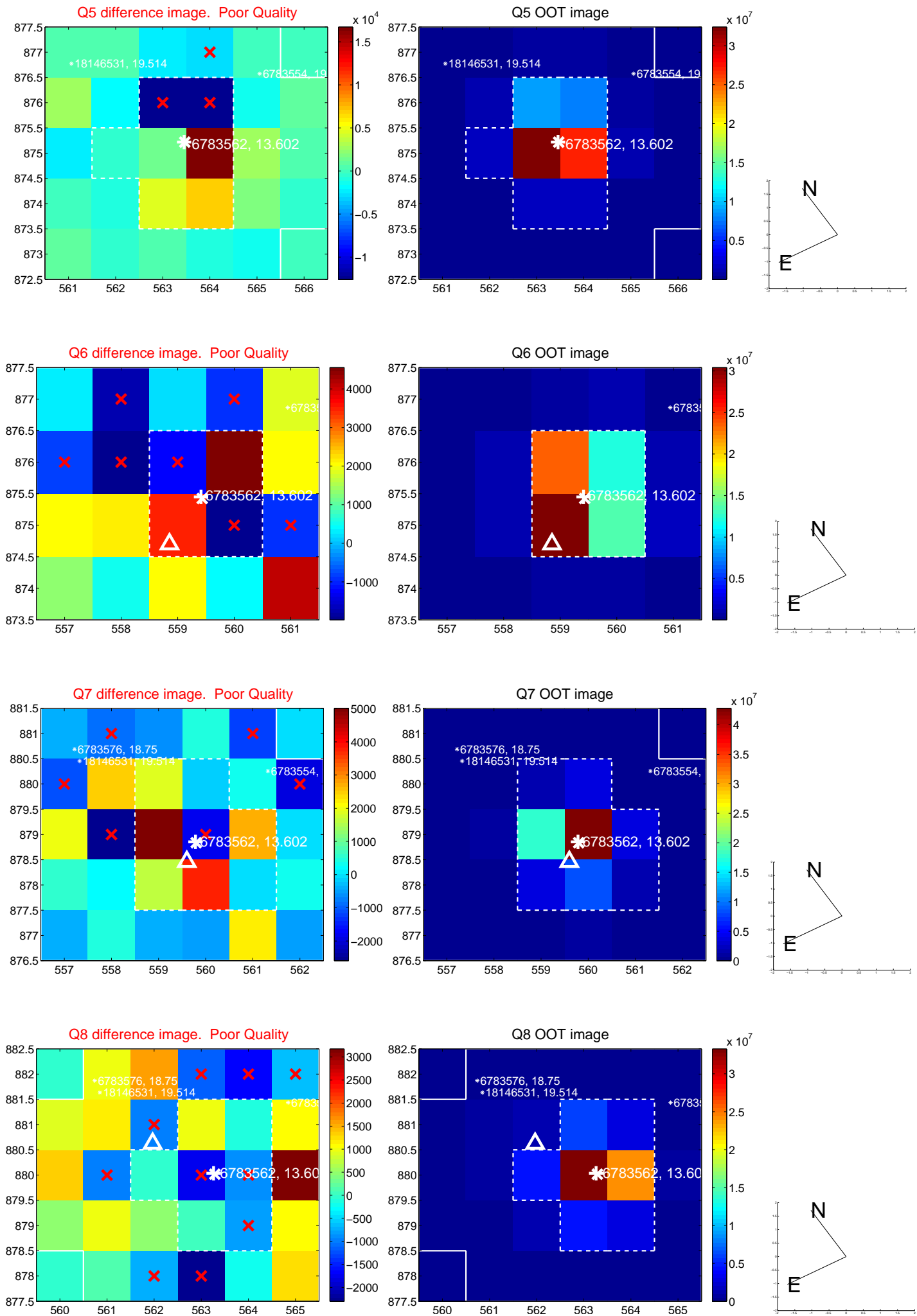


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

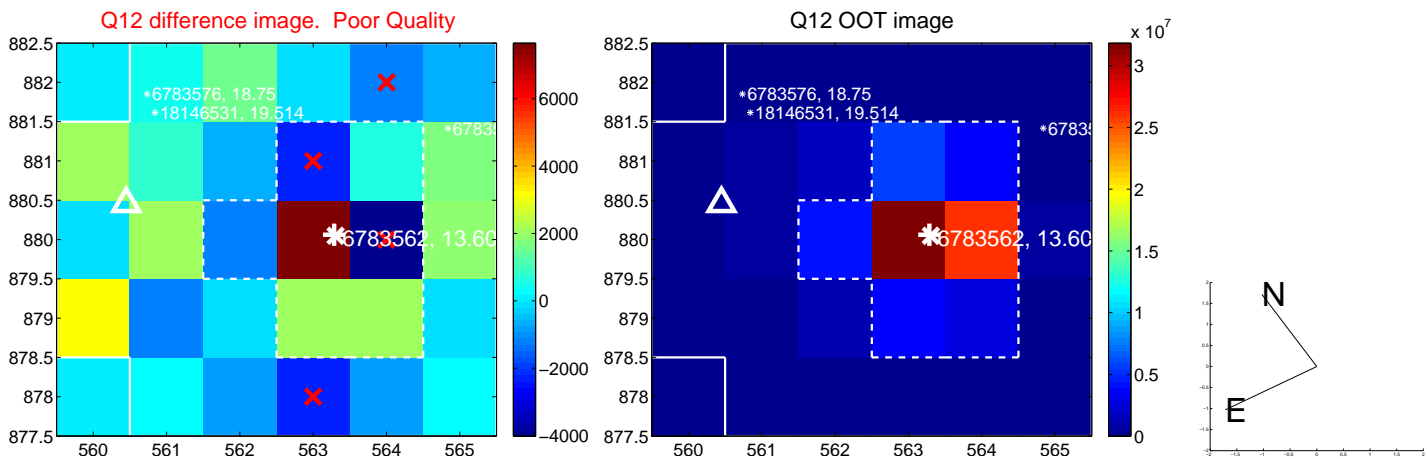
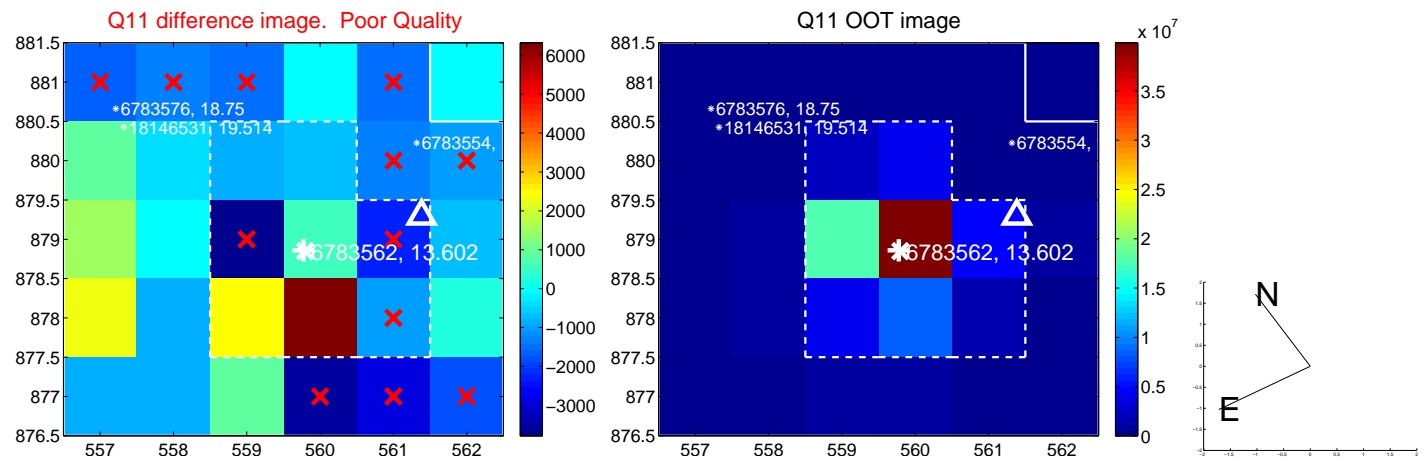
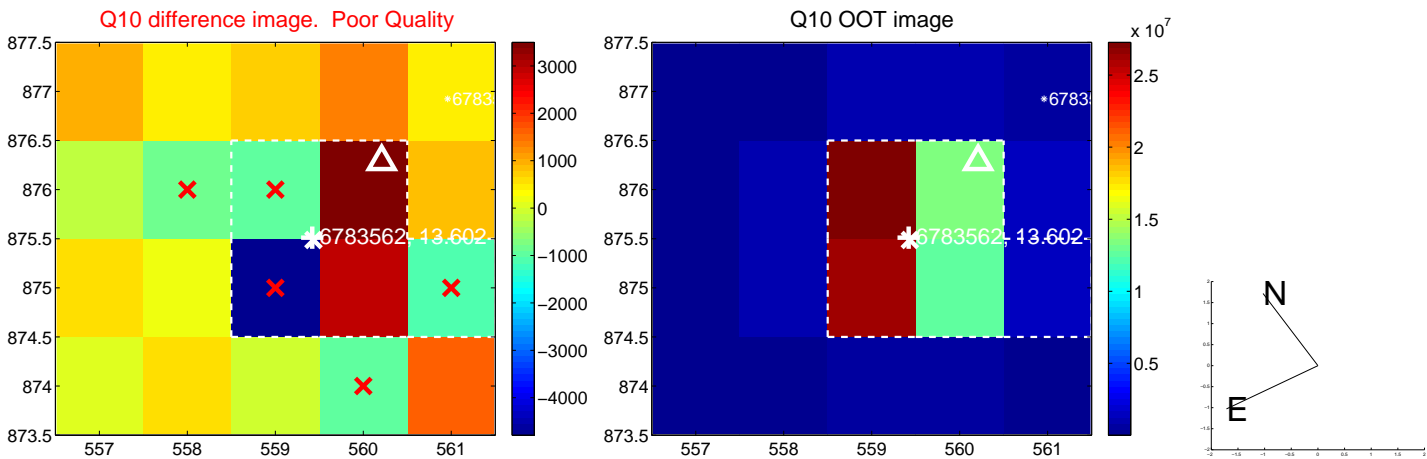
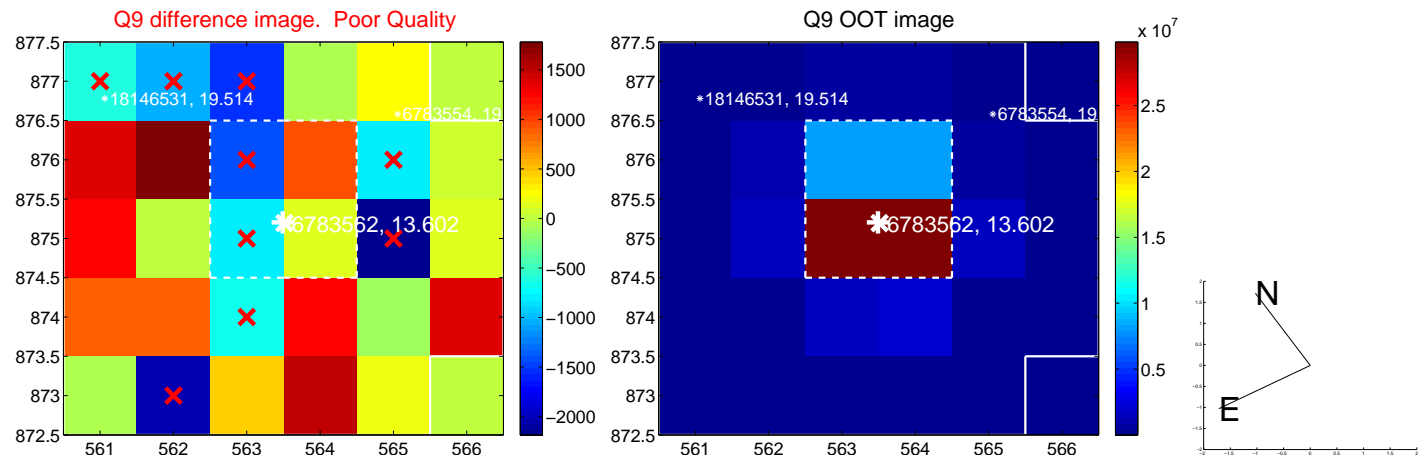
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



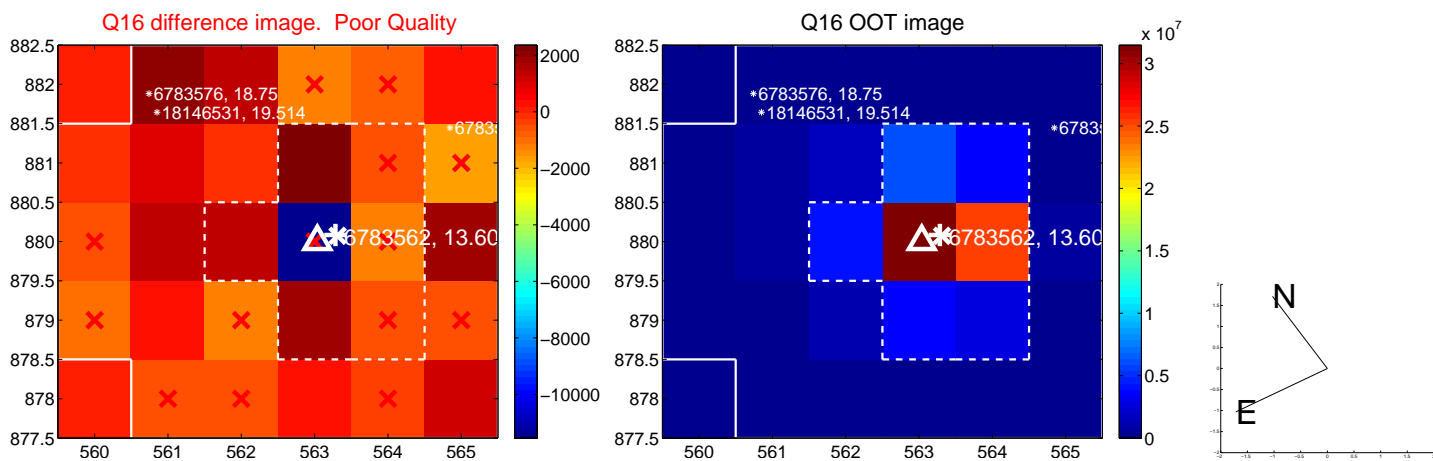
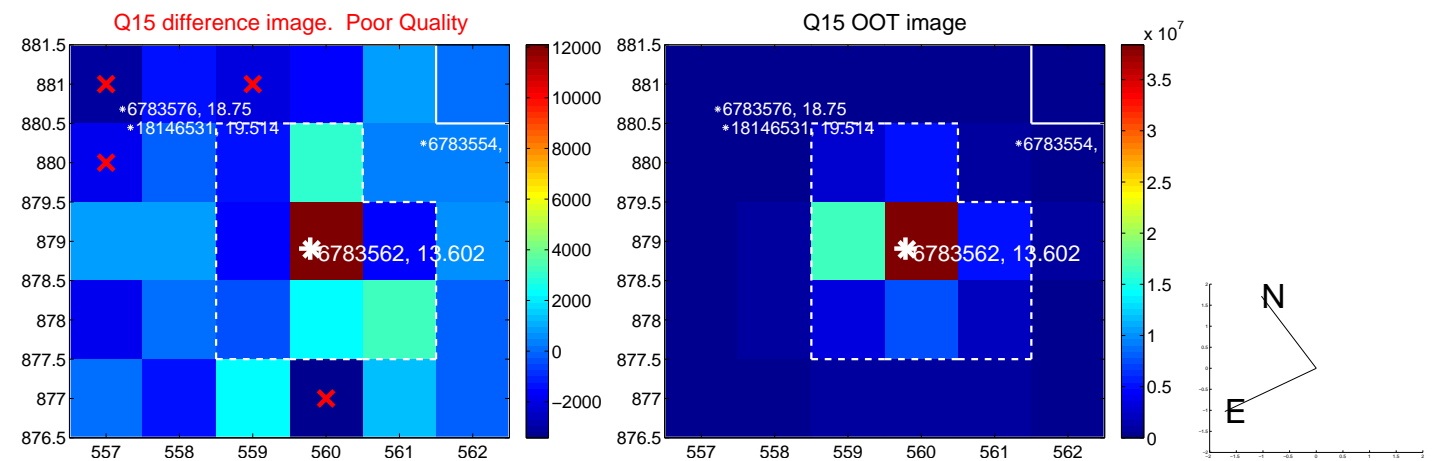
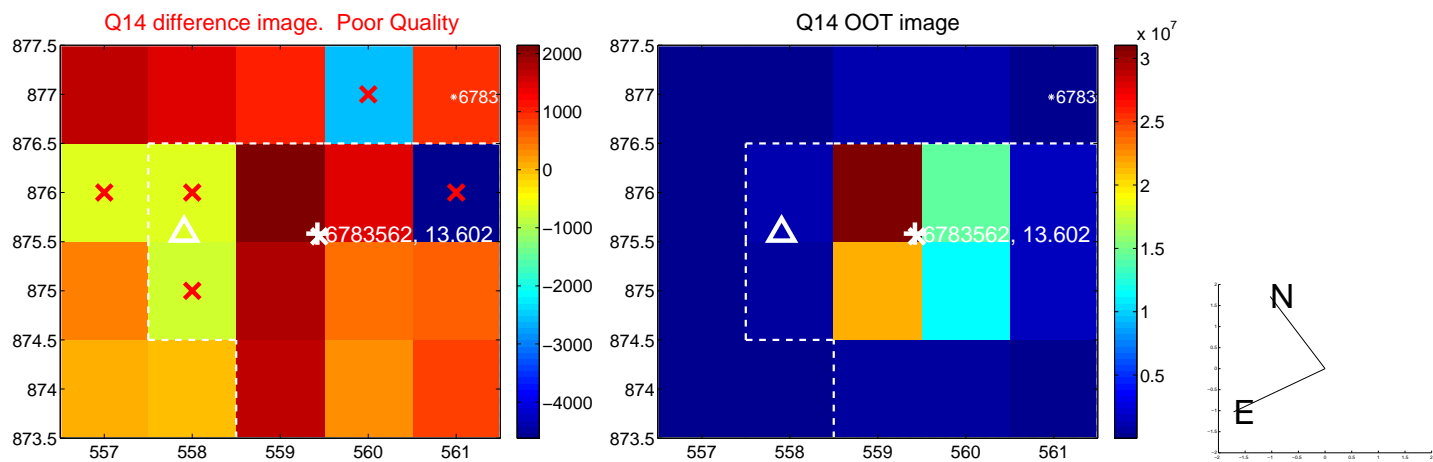
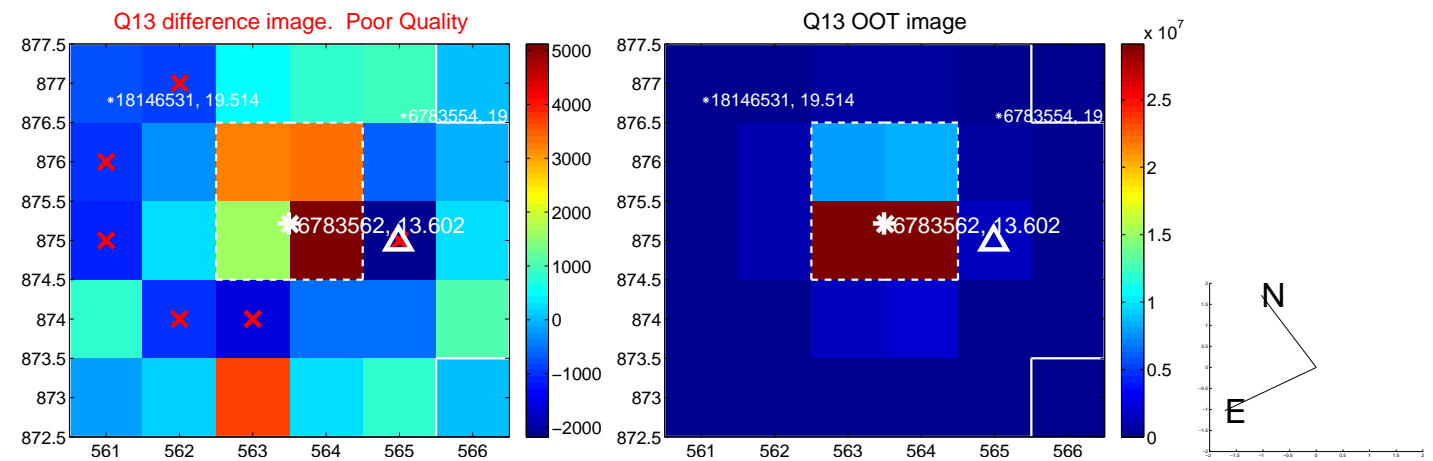
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

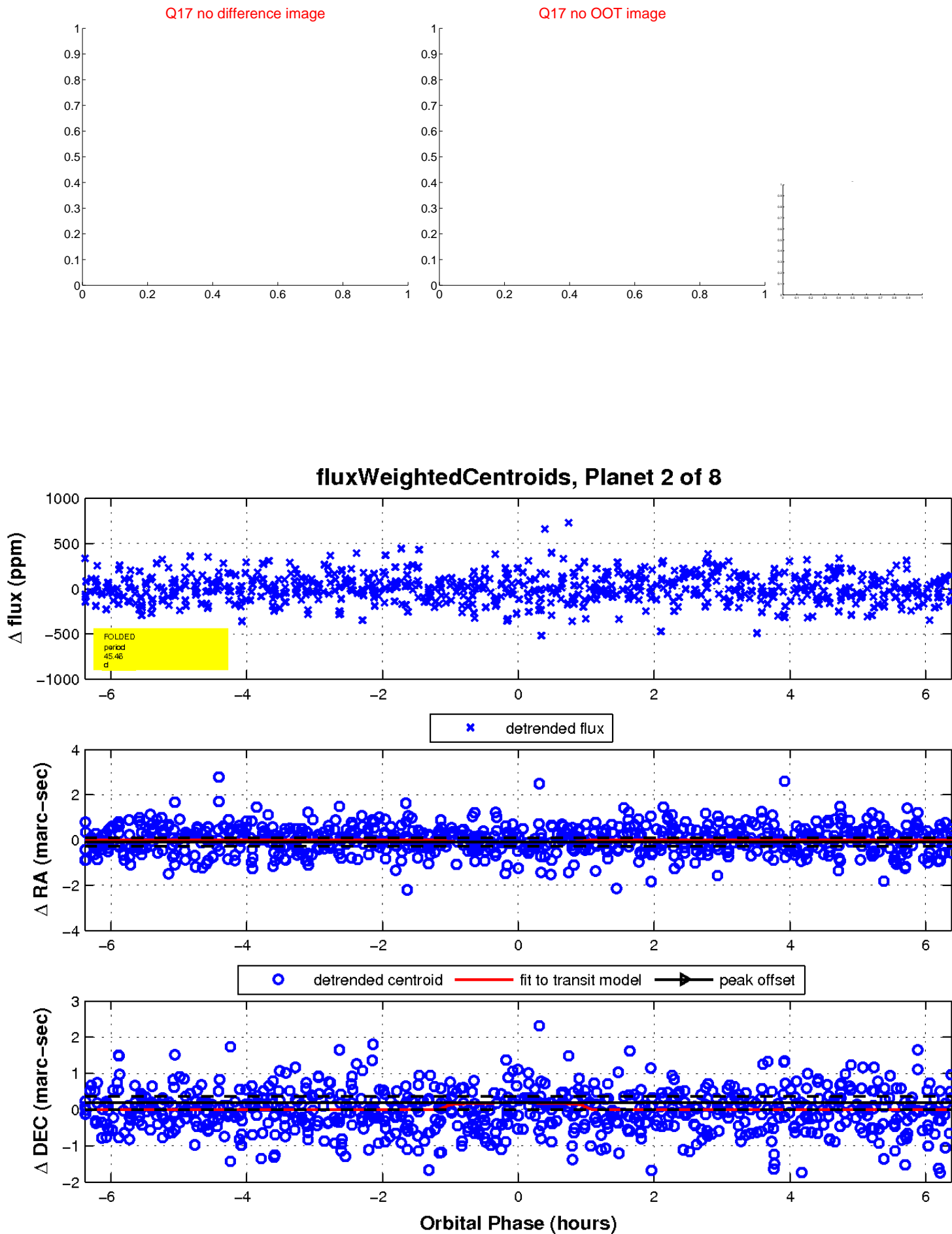


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



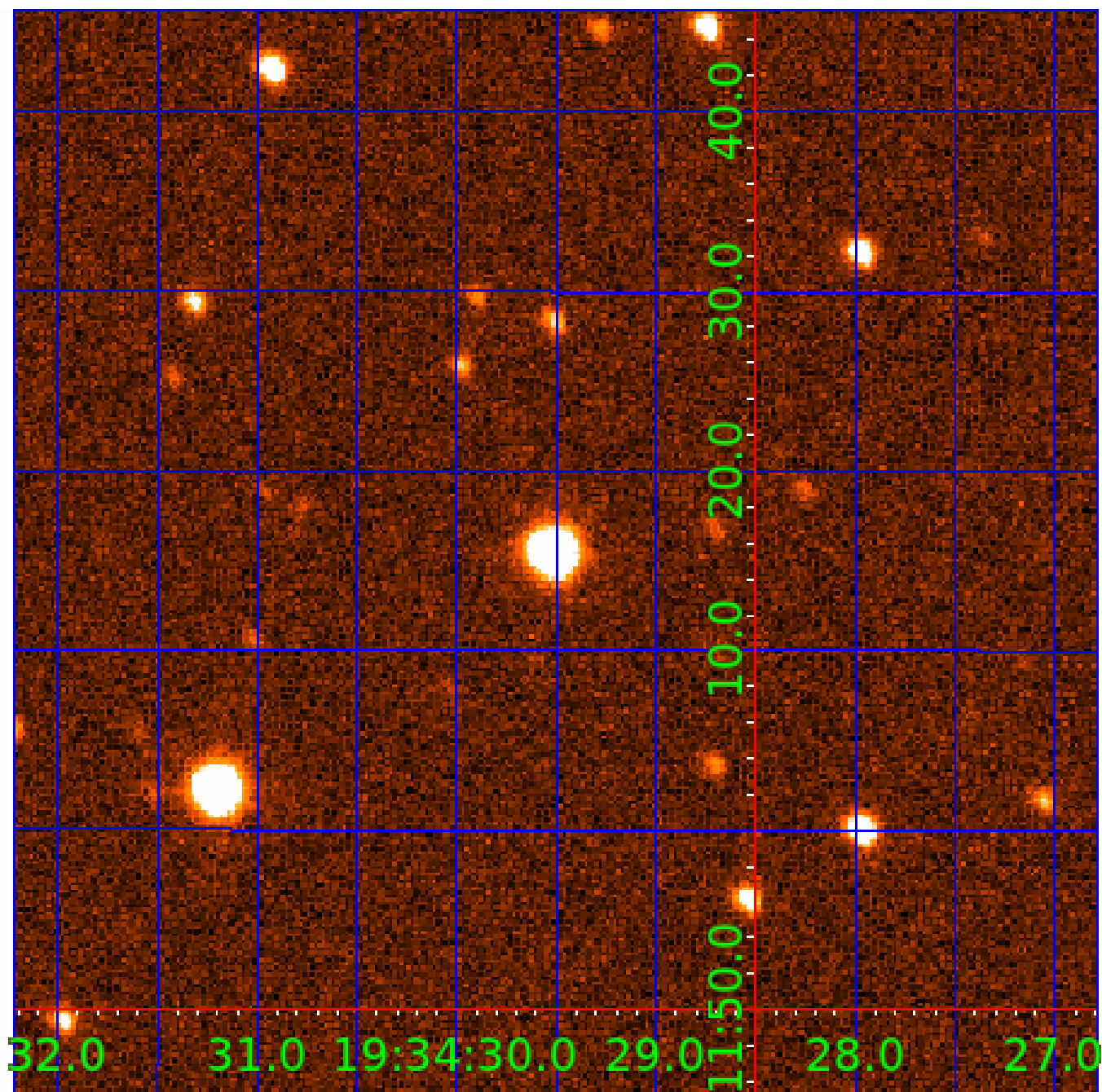


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006783562

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006783562-01 | OBS      | No   | 2.087275      | 132.270008   | 13.5        | 14.854           | 8.0  | 7.0  | 1.19                        | 6930            | 0.47                   | 2521.15                |
| 006783562-02 | OBS      | No   | 45.463043     | 140.208363   | 268.3       | 2.129            | 10.9 | 11.8 | 1.19                        | 6930            | 1.98                   | 41.45                  |
| 006783562-03 | OBS      | No   | 36.604208     | 167.620051   | 205.5       | 3.284            | 10.7 | 10.6 | 1.19                        | 6930            | 1.90                   | 55.34                  |
| 006783562-04 | OBS      | No   | 73.411839     | 145.841771   | 249.8       | 5.271            | 8.7  | 12.0 | 1.19                        | 6930            | 2.06                   | 21.88                  |
| 006783562-05 | OBS      | No   | 43.919590     | 136.781372   | 172.5       | 4.090            | 9.6  | 9.2  | 1.19                        | 6930            | 1.75                   | 43.40                  |
| 006783562-06 | OBS      | No   | 45.760610     | 149.174133   | 207.2       | 5.486            | 8.5  | 10.2 | 1.19                        | 6930            | 1.85                   | 41.09                  |
| 006783562-07 | OBS      | No   | 37.685131     | 158.174151   | 157.4       | 2.797            | 9.7  | 8.3  | 1.19                        | 6930            | 1.60                   | 53.23                  |
| 006783562-08 | OBS      | No   | 21.680387     | 136.795370   | 537.9       | 1.500            | 9.6  | -1.0 | 1.19                        | 6930            | 2.79                   | 111.25                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                                                             |
|--------------|----------|------|-------|---|---|---|---|--------------------------------------------------------------------------------------|
| 006783562-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV                                                                               |
| 006783562-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_MEAS                  |
| 006783562-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006783562-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST     |
| 006783562-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS                    |
| 006783562-08 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST                           |

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

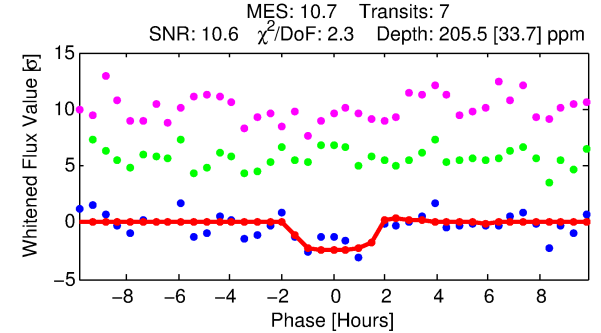
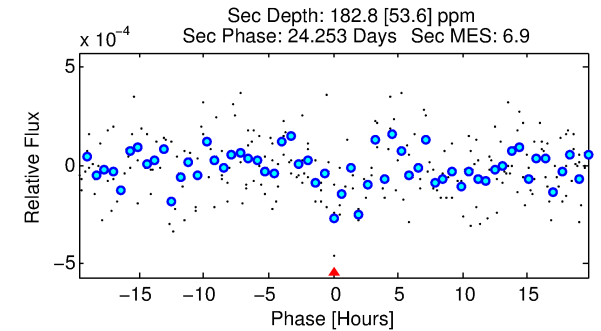
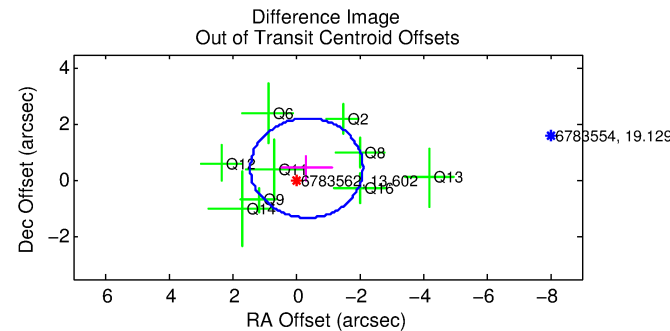
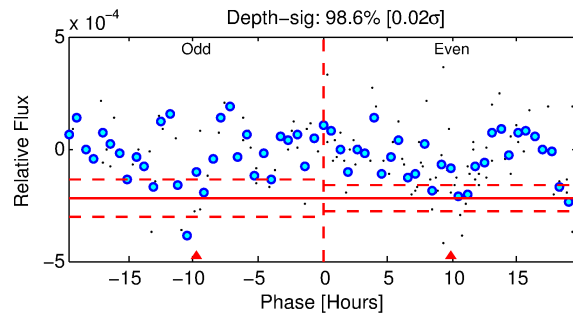
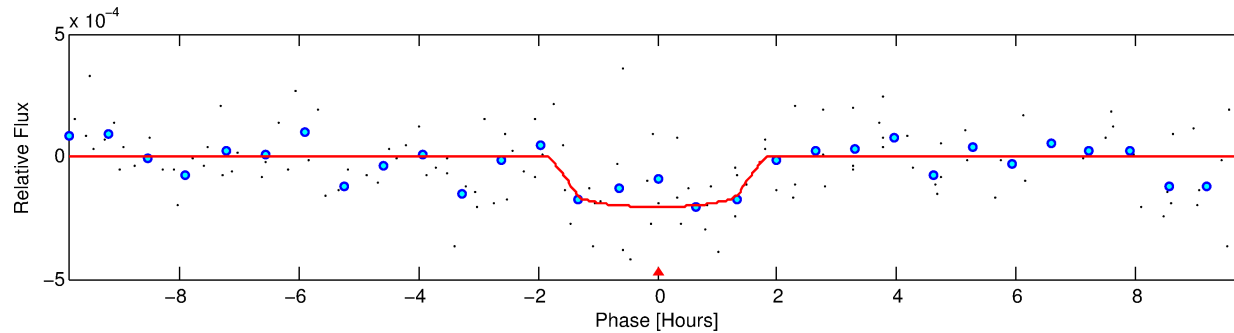
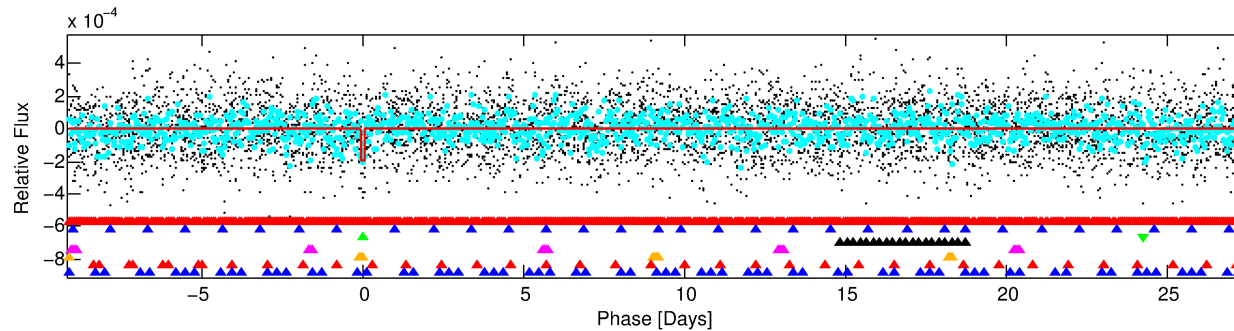
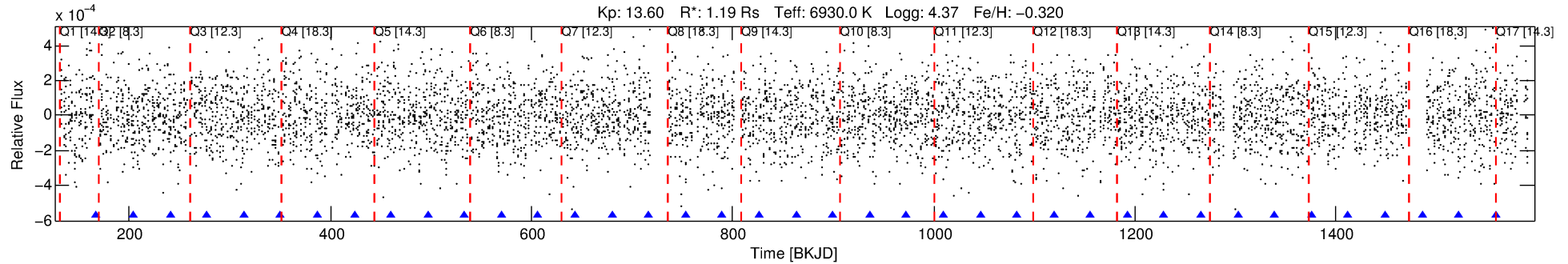
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006783562-03

No Significant Match Found

# DV One-Page Summary

KIC: 6783562 Candidate: 3 of 8 Period: 36.604 d



## DV Fit Results:

Period = 36.60421 [0.00056] d  
Epoch = 167.6201 [0.0123] BKJD  
Rp/R\* = 0.0147 [0.0099]  
a/R\* = 49.93 [197.14]  
b = 0.83 [1.52]  
Seff = 55.33 [24.92]  
Teq = 695 [78] K  
Rp = 1.90 [1.45] Re  
a = 0.2296 [0.0675] AU  
Ag = 1468.63 [2121.07] [0.69σ]  
Teffp = 6656 [2317] K [2.57σ]

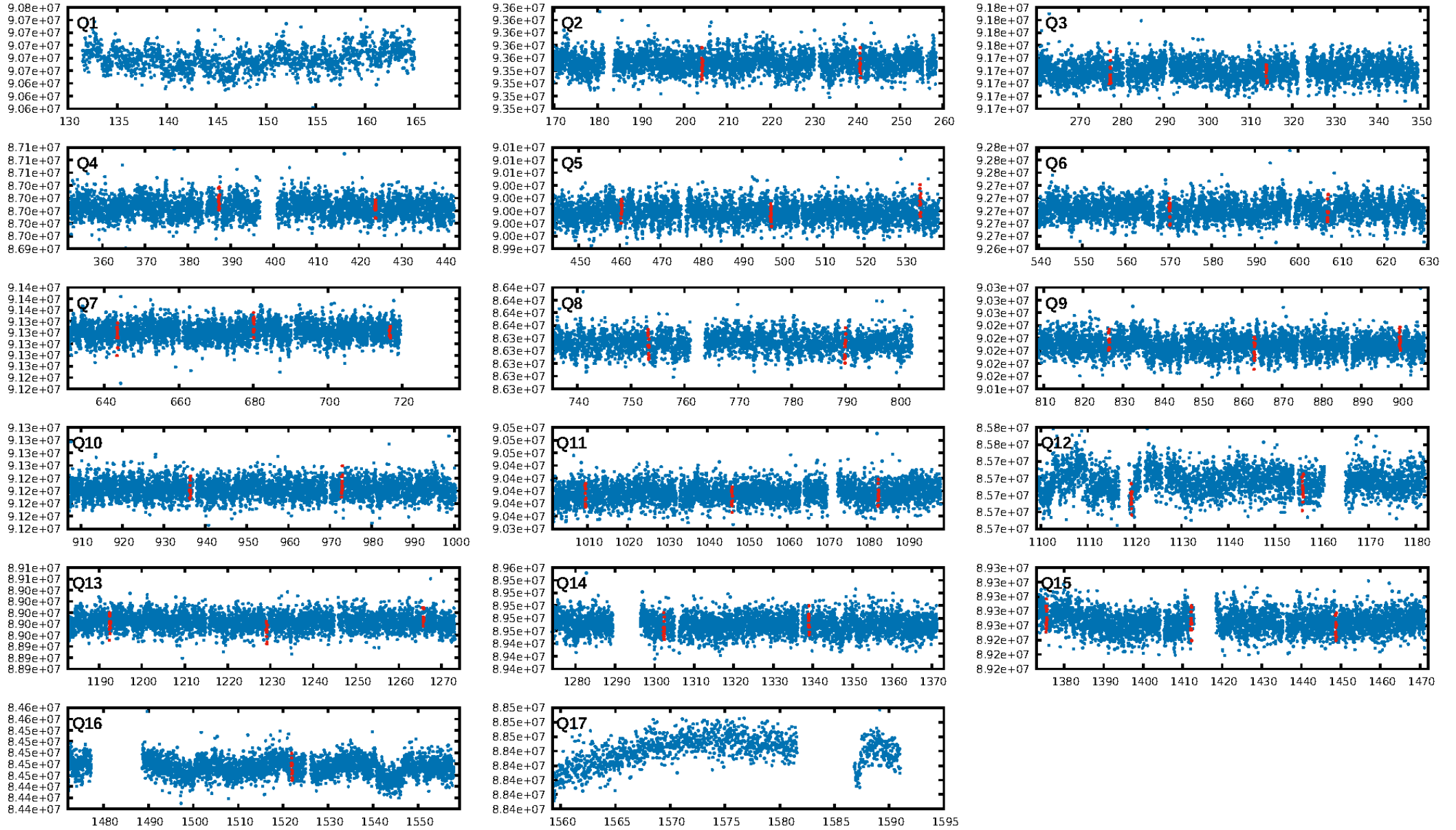
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [99.20σ]  
LongPeriod-sig: 100.0% [6.01σ]  
ModelChiSquare2-sig: 2.6%  
ModelChiSquareGof-sig: 78.2%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
**GhostDiagnostic-chr: 0.8792**  
Centroid-sig: 12.6%  
Centroid-so: 0.666 arcsec [1.08σ]  
OotOffset-rm: 0.571 arcsec [0.97σ]  
KicOffset-rm: 0.622 arcsec [1.14σ]  
OotOffset-st: 3/1/3/2 [9]  
KicOffset-st: 3/1/3/2 [9]  
DiffImageQuality-fgm: 0.67 [6/9]  
DiffImageOverlap-fno: 0.47 [7/15]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:17:58 Z

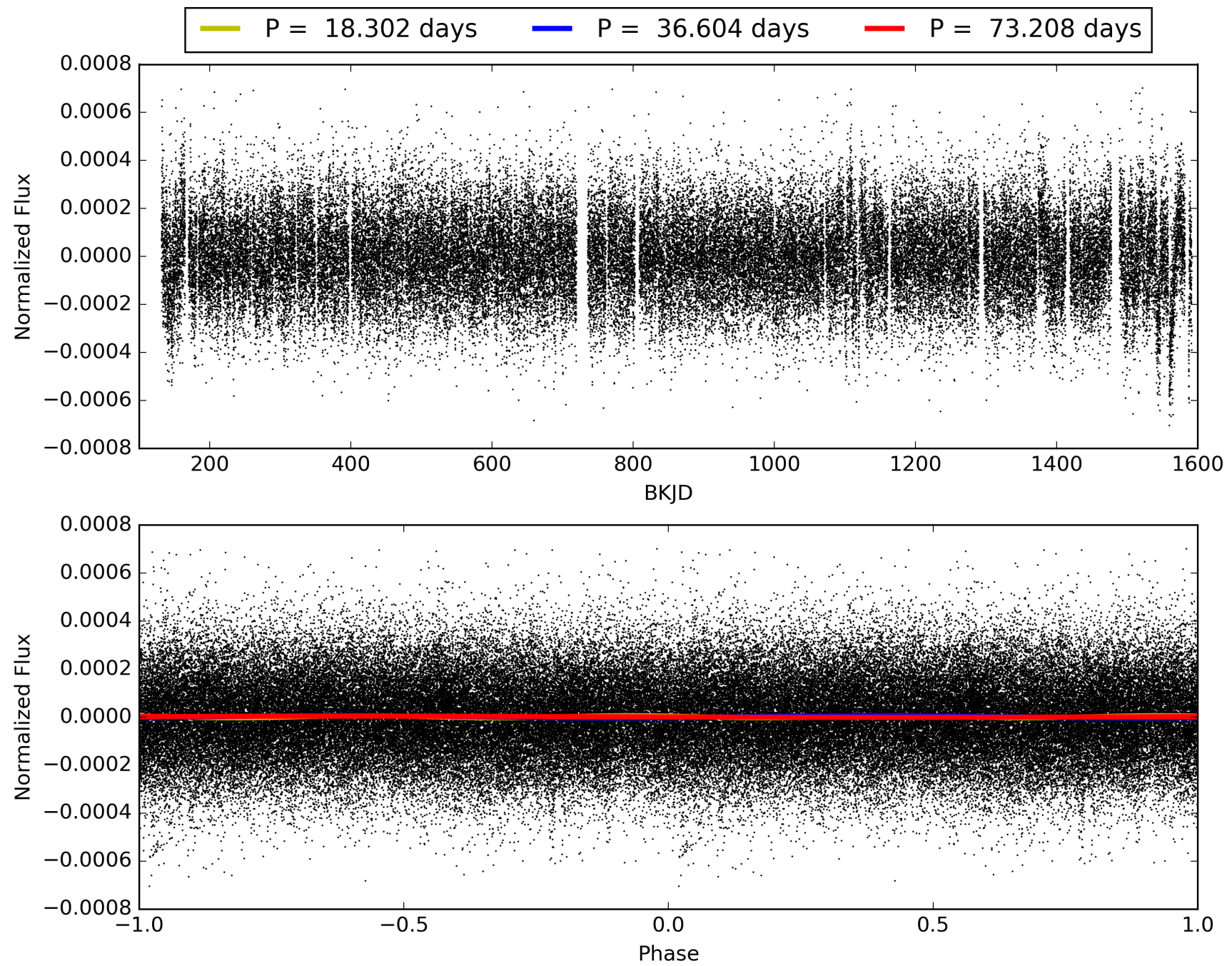
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006783562-03, PDC Light Curves





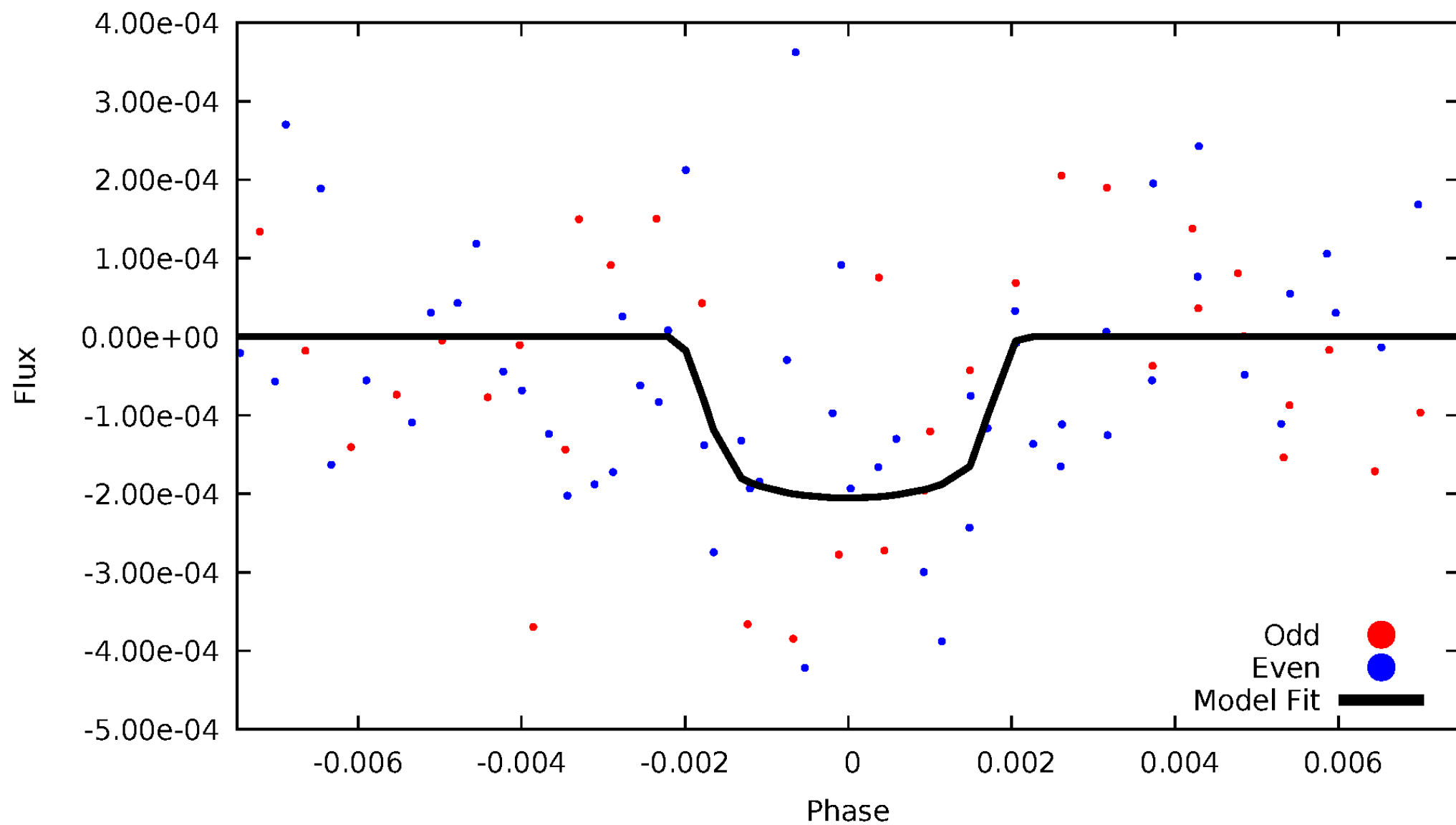
TCE 006783562-03





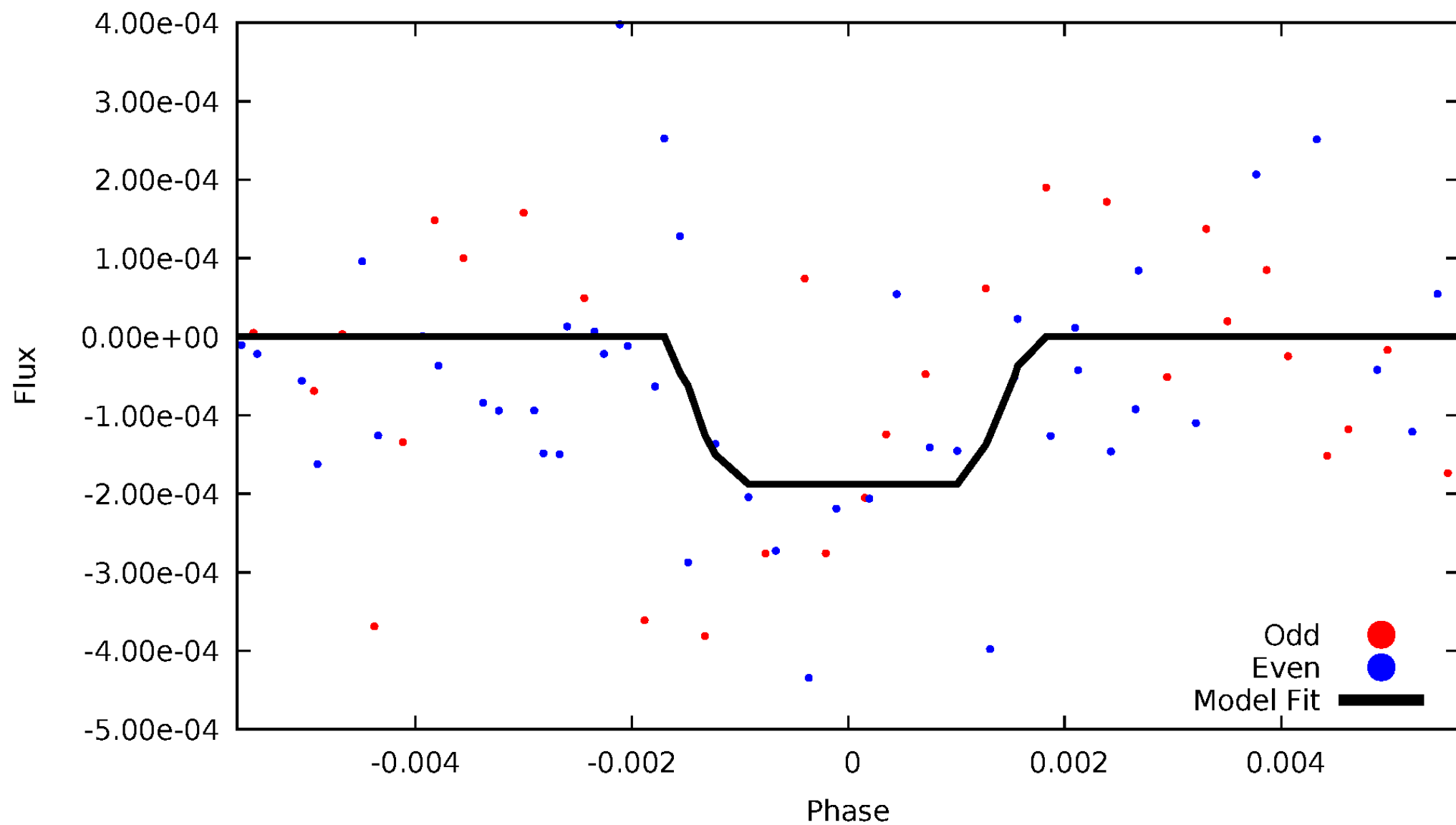
# DV Odd/Even

TCE 006783562-03



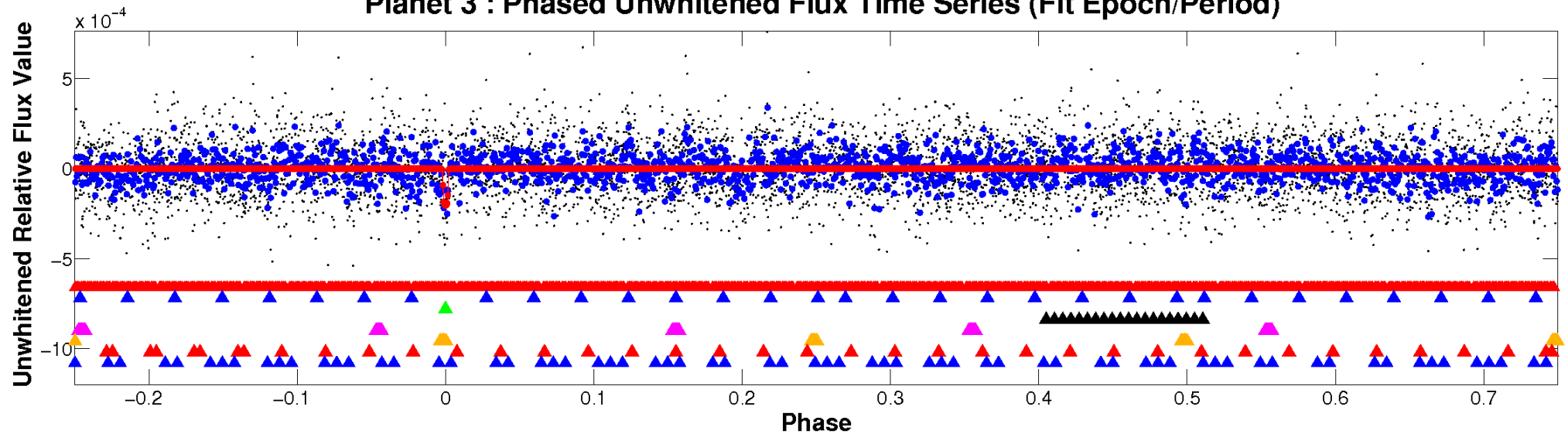
# ALT Odd/Even

TCE 006783562-03

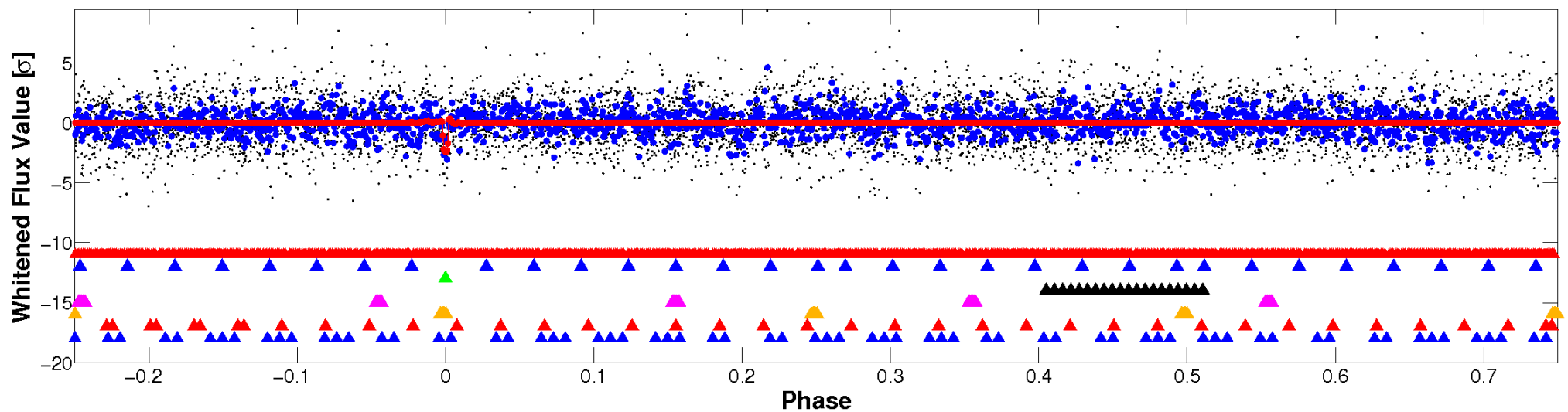


# Non-Whitened Vs. Whitened Light Curve

## Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

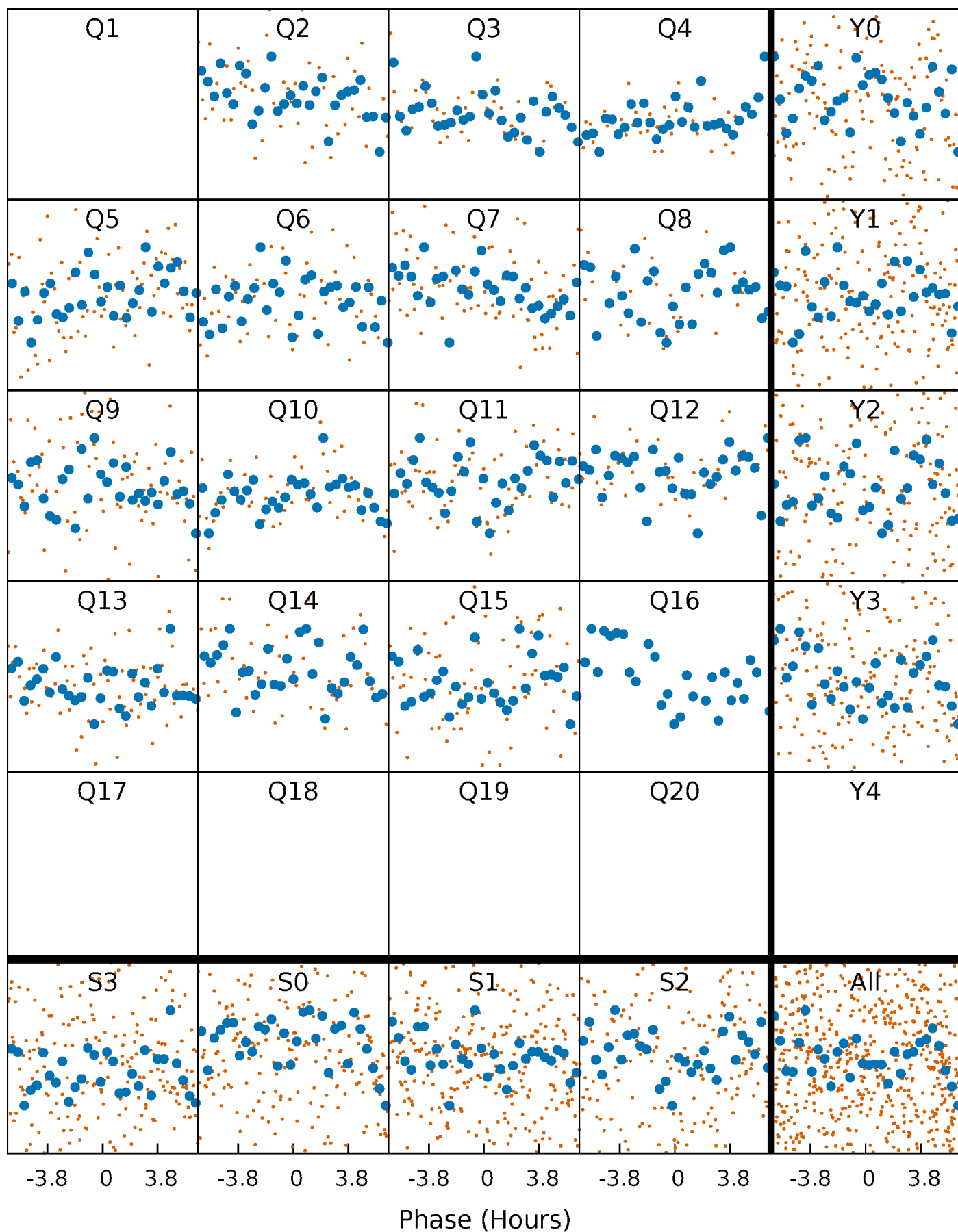


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



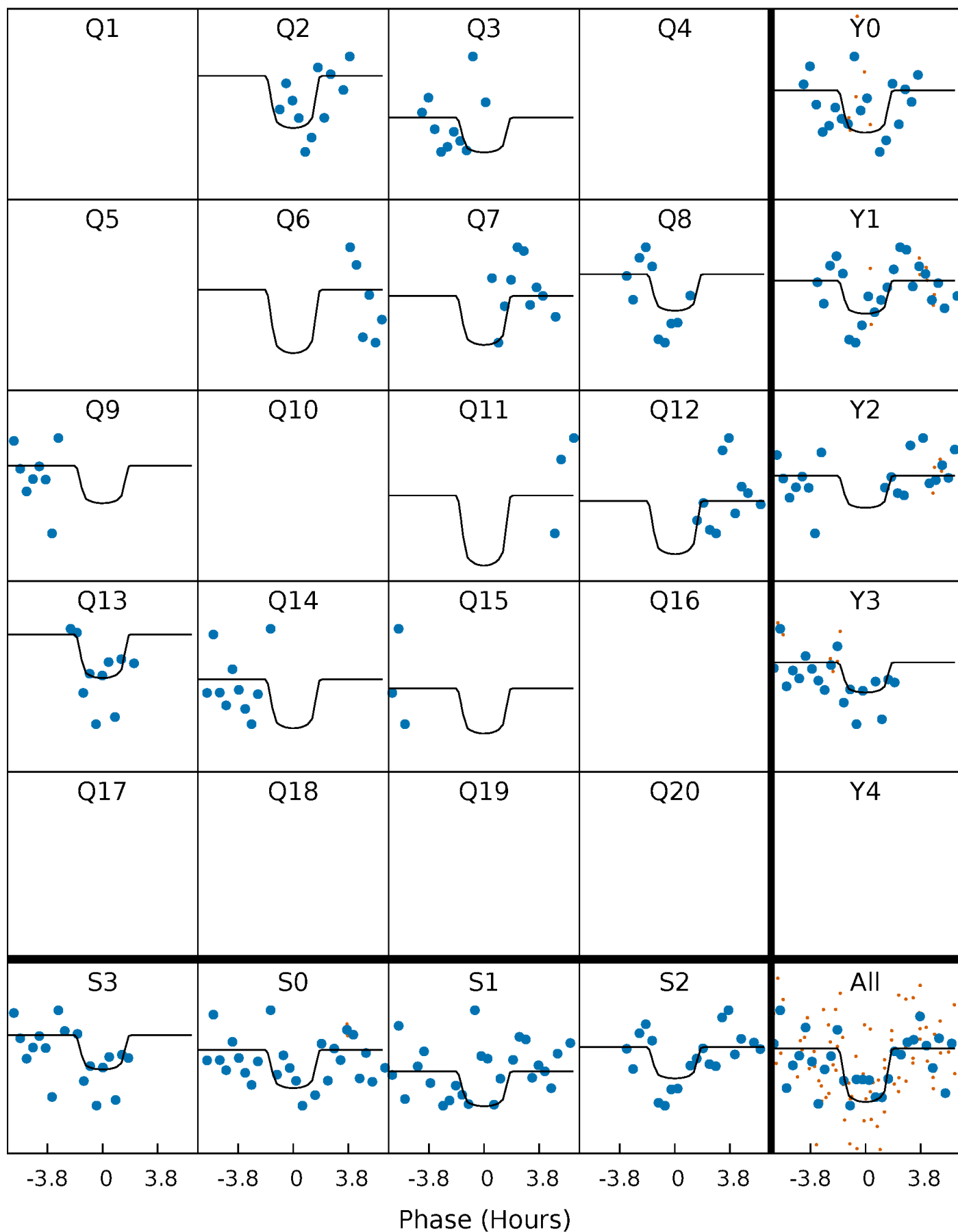
# PDC Quarter-Phased Transit Curves

TCE 006783562-03 P= 36.604208 Days  $T_0=167.620051$  (BKJD)



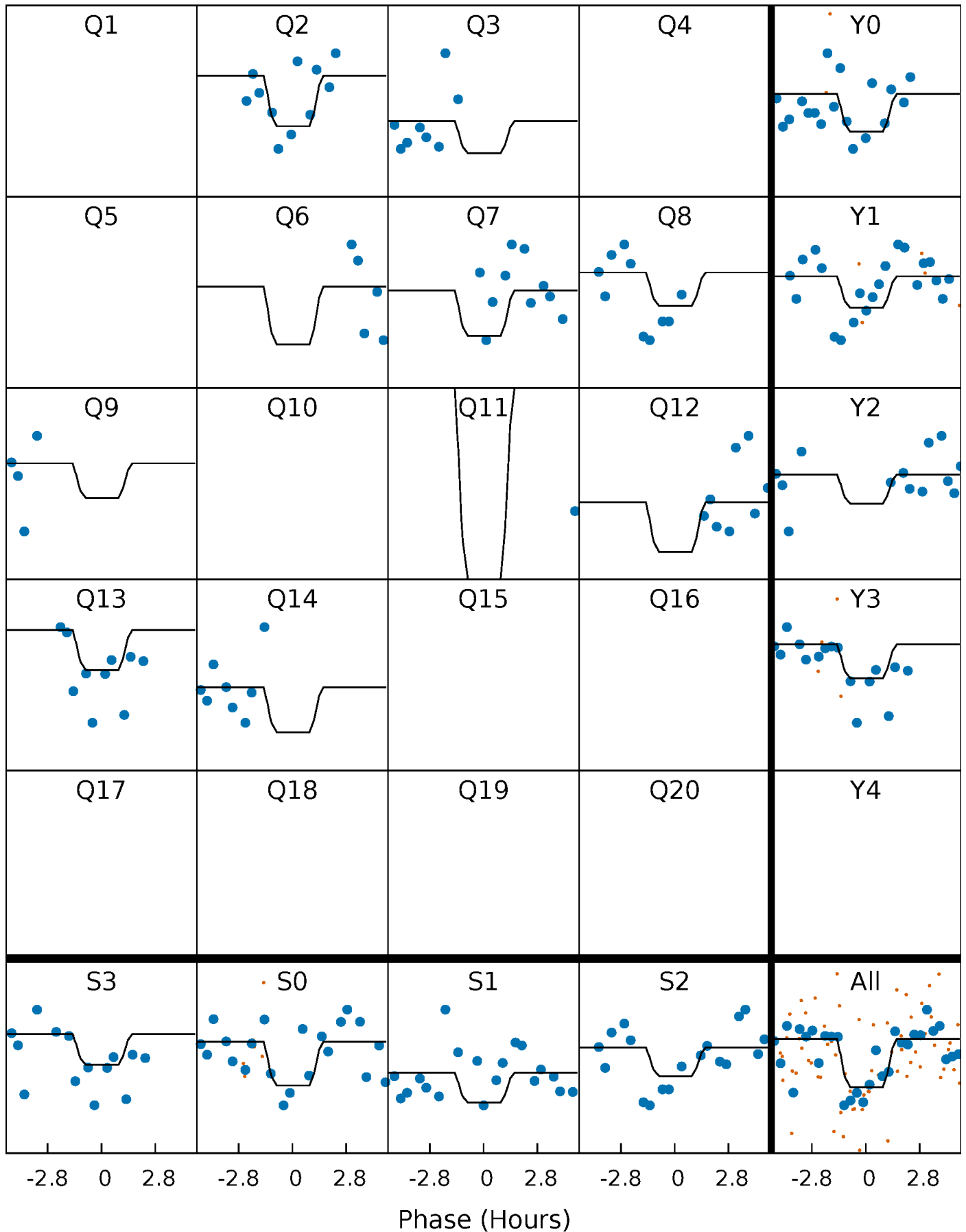
# DV Quarter-Phased Transit Curves

TCE 006783562-03 P= 36.604208 Days  $T_0=167.620051$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006783562-03 P= 36.601911 Days  $T_0=167.680637$  (BKJD)

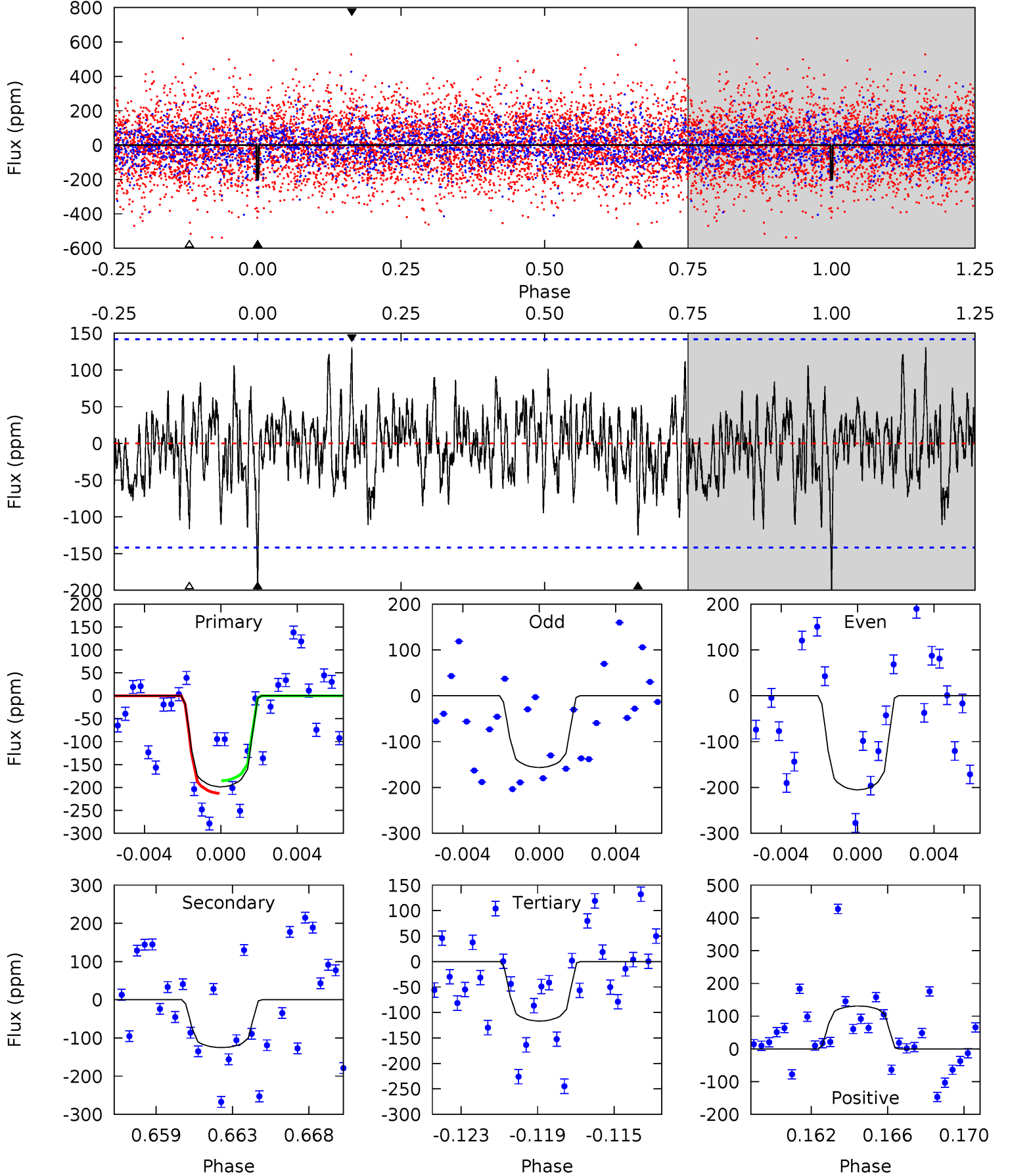




# DV Model-Shift Uniqueness Test

006783562-03, P = 36.604208 Days, E = 131.015843 Days

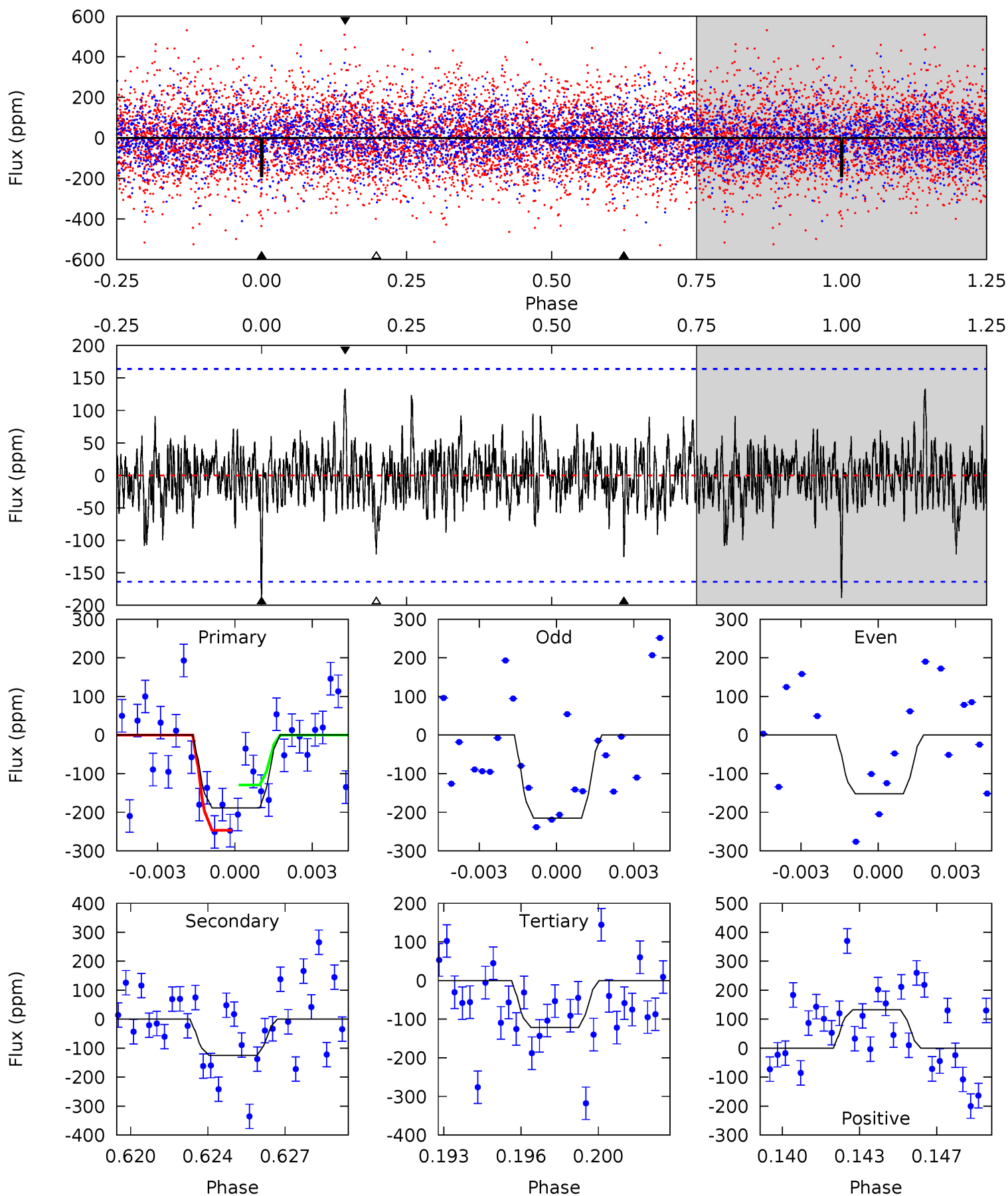
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.27 | 4.57 | 4.27 | 4.79 | 5.19            | 2.86            | 1.42             | 3.00    | 2.48    | 0.30    | -0.22   | 0.86    | 1.03 | 0.40  | 0.50 |



# Alt Model-Shift Uniqueness Test

006783562-03, P = 36.601911 Days, E = 131.078726 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.04 | 4.01 | 3.88 | 4.24 | 5.25            | 2.96            | 1.09             | 2.15    | 1.80    | 0.13    | -0.22   | 0.99    | 0.90 | 0.41  | 1.89 |



### Stellar Parameters For KIC 006783562

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M$ ( $M_{\odot}$ )       | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-----------------------------------------------|
|        | $6930^{+192}_{-288}$ | $4.369^{+0.056}_{-0.224}$ | $-0.320^{+0.250}_{-0.350}$ | $1.188^{+0.425}_{-0.142}$ | $1.219^{+0.189}_{-0.154}$ | $1.025^{+0.239}_{-0.556}$                     |
|        | +3%/-4%              | +1%/-5%                   | +78%/-109%                 | +36%/-12%                 | +16%/-13%                 | +23%/-54%                                     |
| 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 006783562-03 / KOI

| Detrend | Depth (ppm)   | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)     | $T_{obs}$ (K)          | $A_{obs}$            |
|---------|---------------|------------------------|-------------------|------------------------|----------------------|
| DV      | $-125 \pm 27$ | $2.18^{+1.50}_{-1.17}$ | $990^{+87}_{-50}$ | $5720^{+3336}_{-997}$  | $757^{+2766}_{-486}$ |
| Alt.    | $-125 \pm 31$ | $2.00^{+1.35}_{-1.12}$ | $992^{+78}_{-52}$ | $5941^{+3633}_{-1143}$ | $857^{+3584}_{-536}$ |

$T_{max}$  = 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

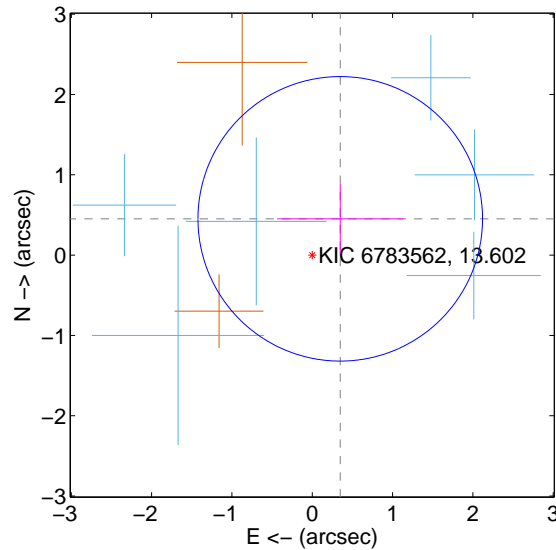
Supplemental centroid analysis for 006783562-03. Kepler magnitude: 13.60. Transit SNR 10.64

There are 6 quarters with good PRF difference image offsets

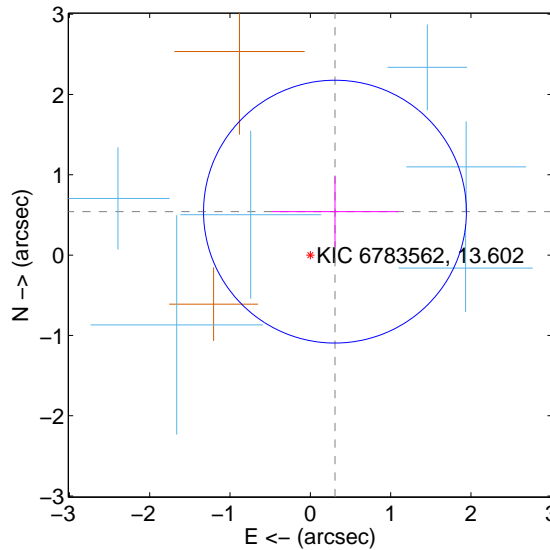
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|-----------------------------------------|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | $0.571 \pm 0.591$  | 0.97                | $-0.349 \pm 0.786$ | $0.452 \pm 0.434$ |
| PRF-fit source offset from KIC position | $0.622 \pm 0.546$  | 1.14                | $-0.307 \pm 0.788$ | $0.541 \pm 0.440$ |
| photometric centroid source offset      | $0.67 \pm 0.62$    | 1.08                | $0.43 \pm 0.63$    | $-0.51 \pm 0.61$  |

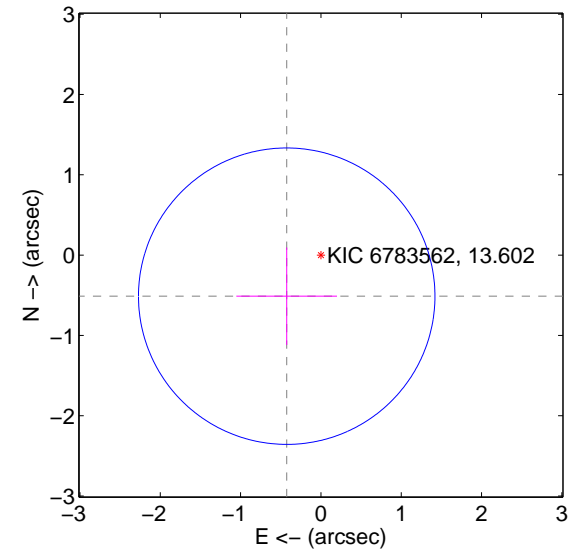
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

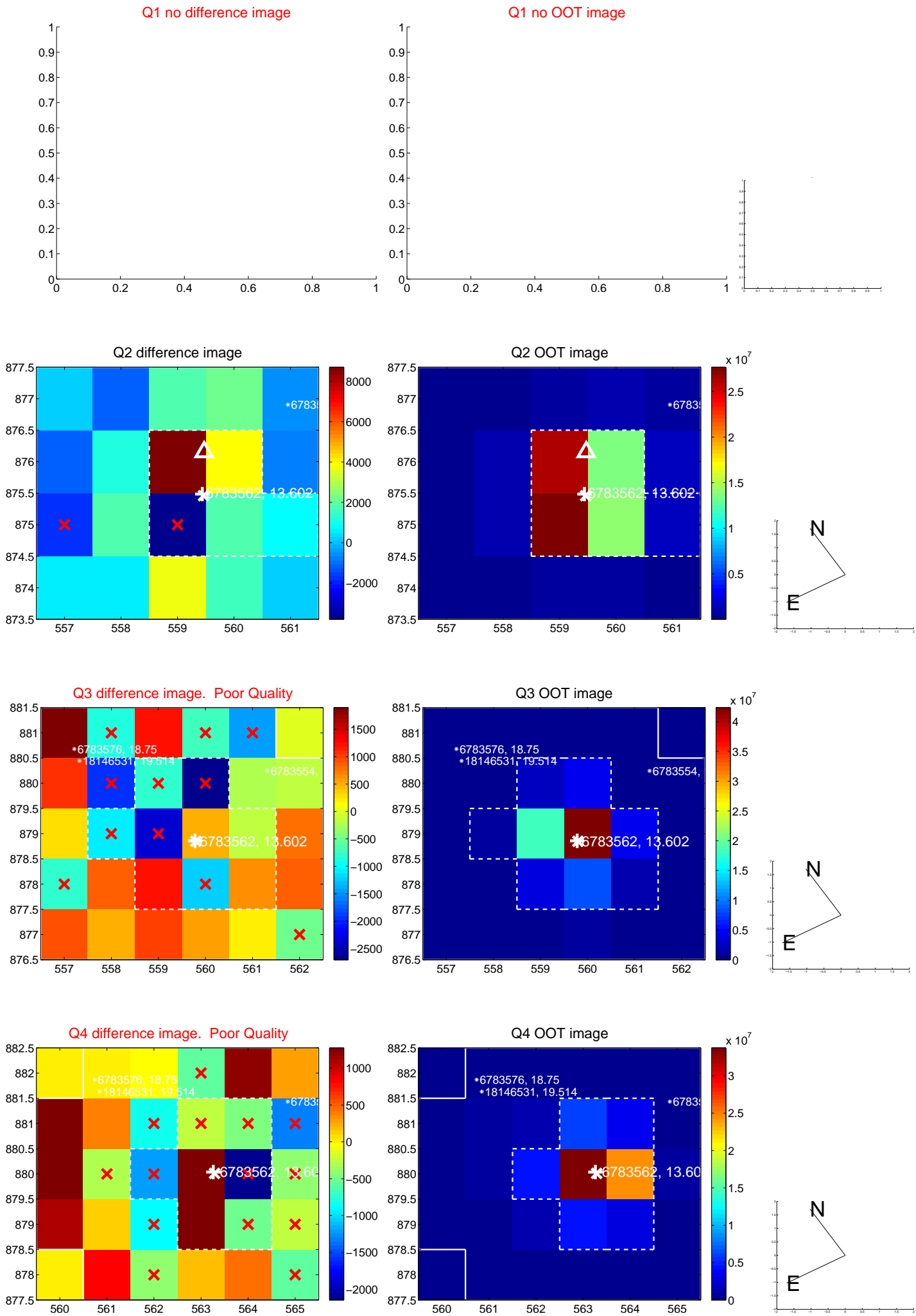


offset from photometric centroids

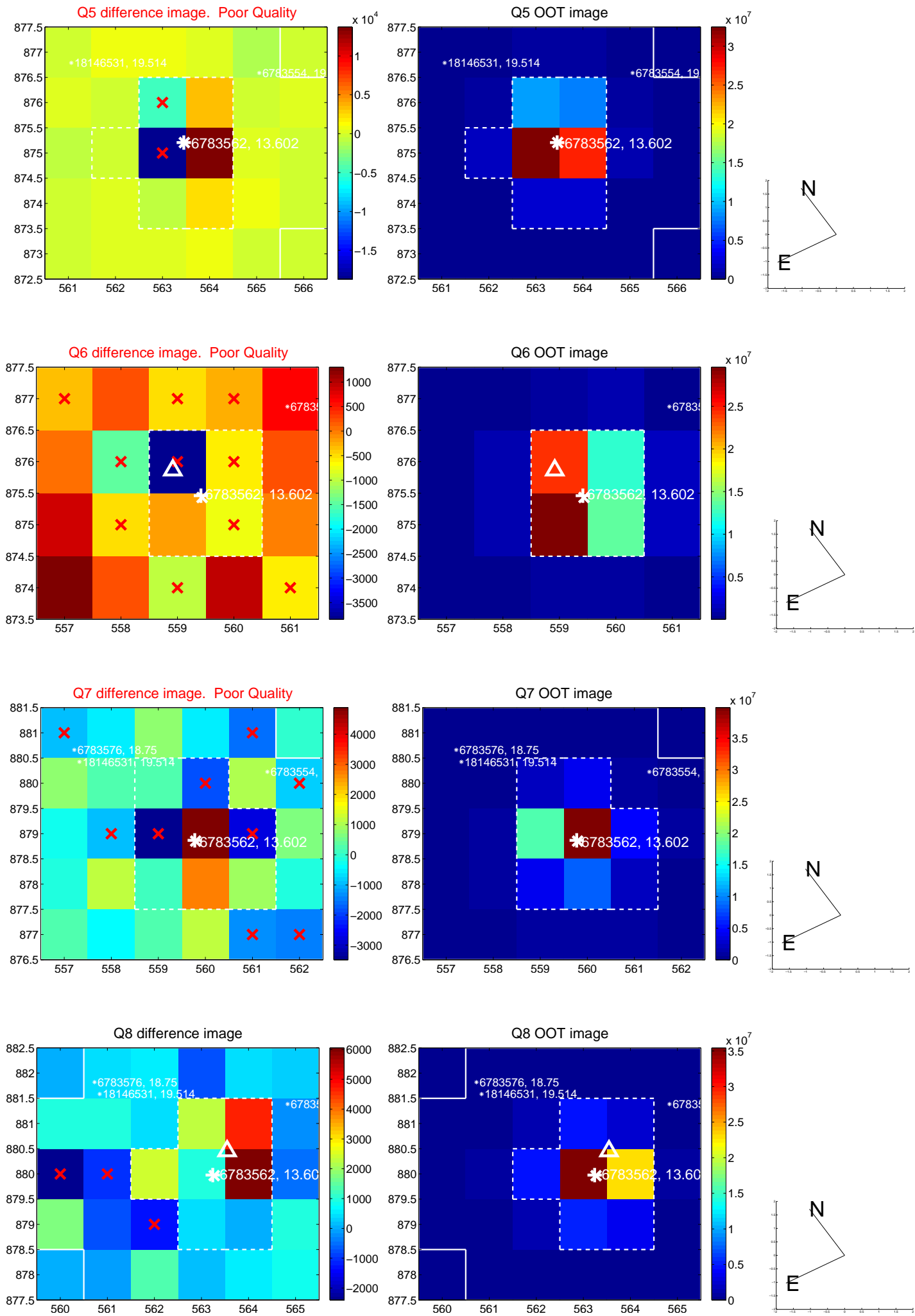


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

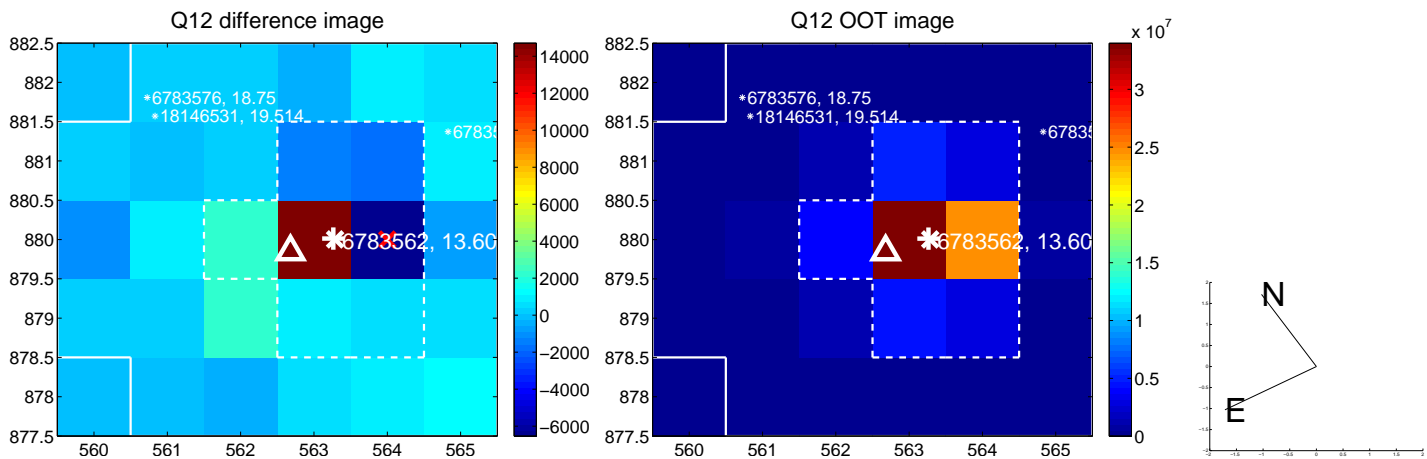
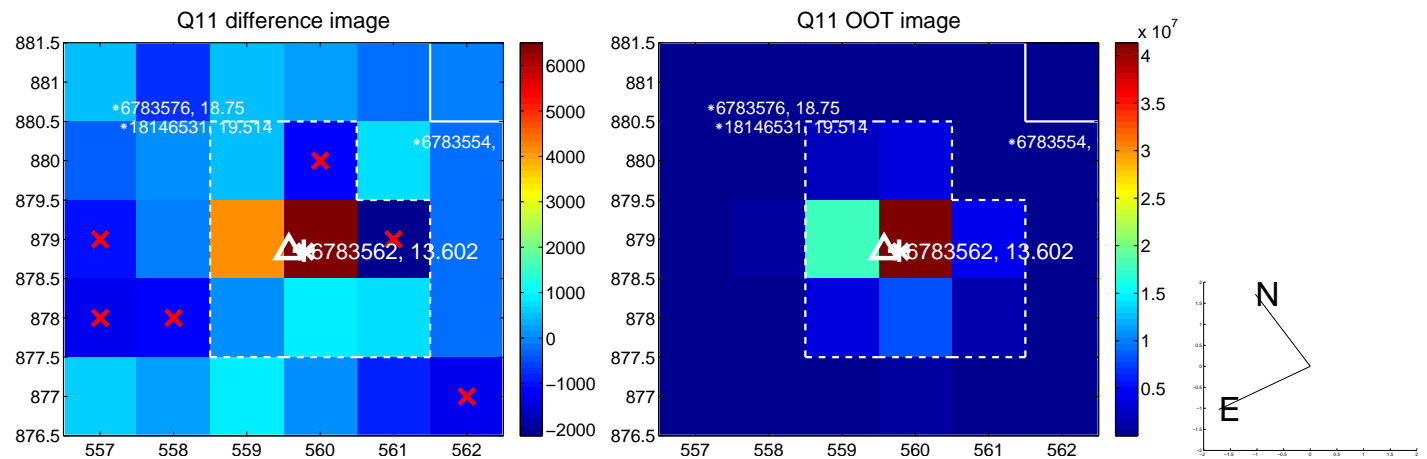
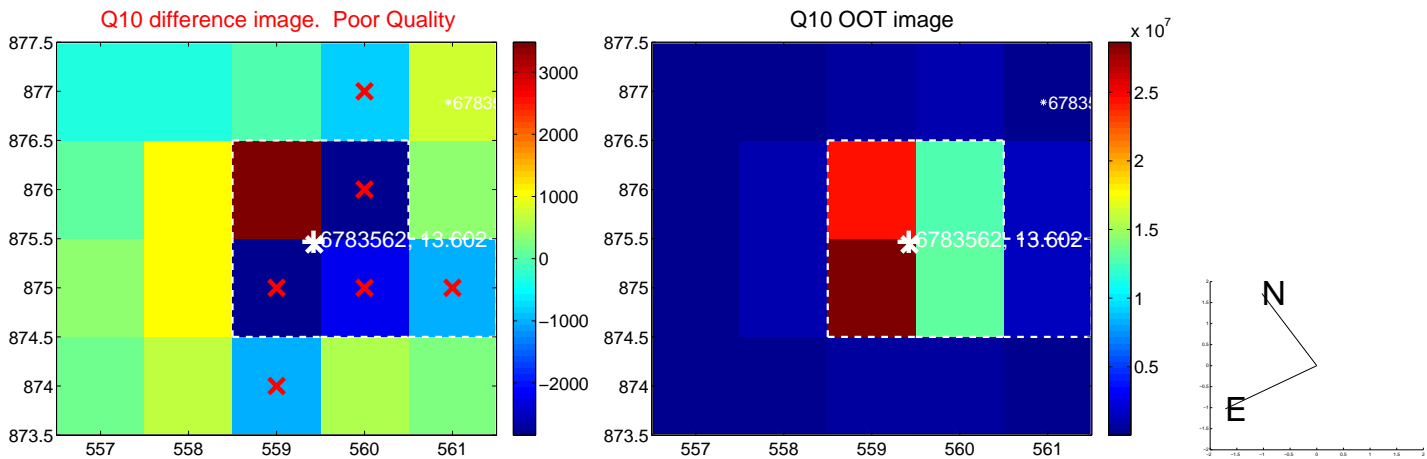
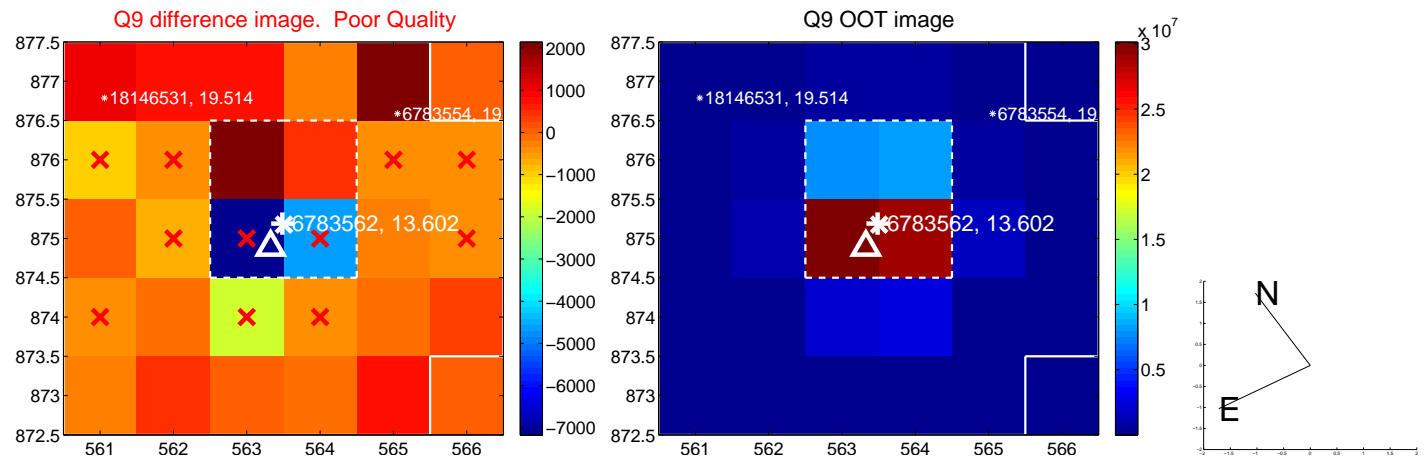


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

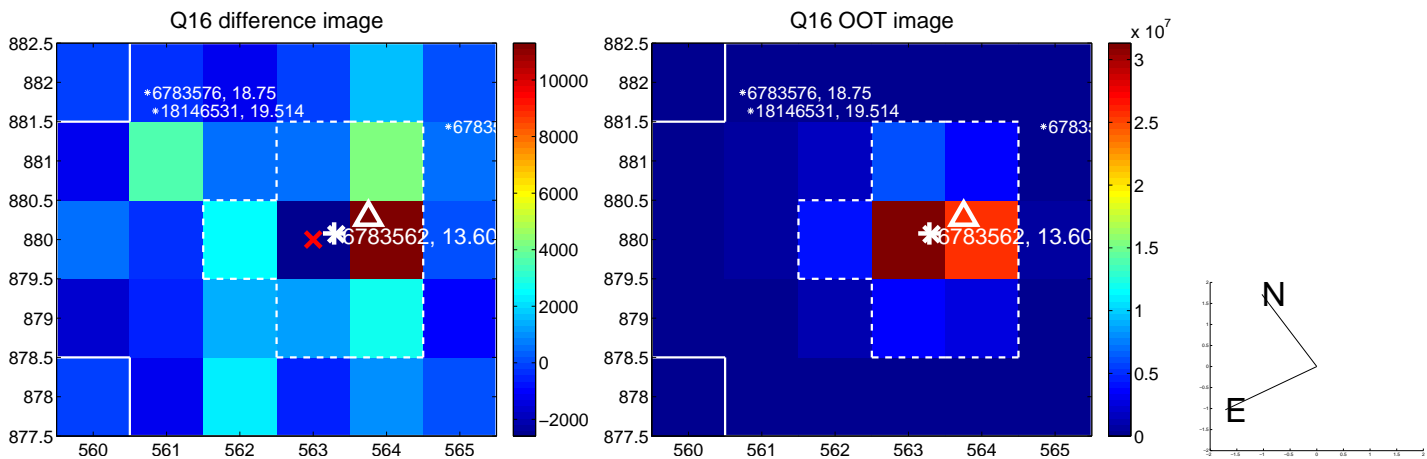
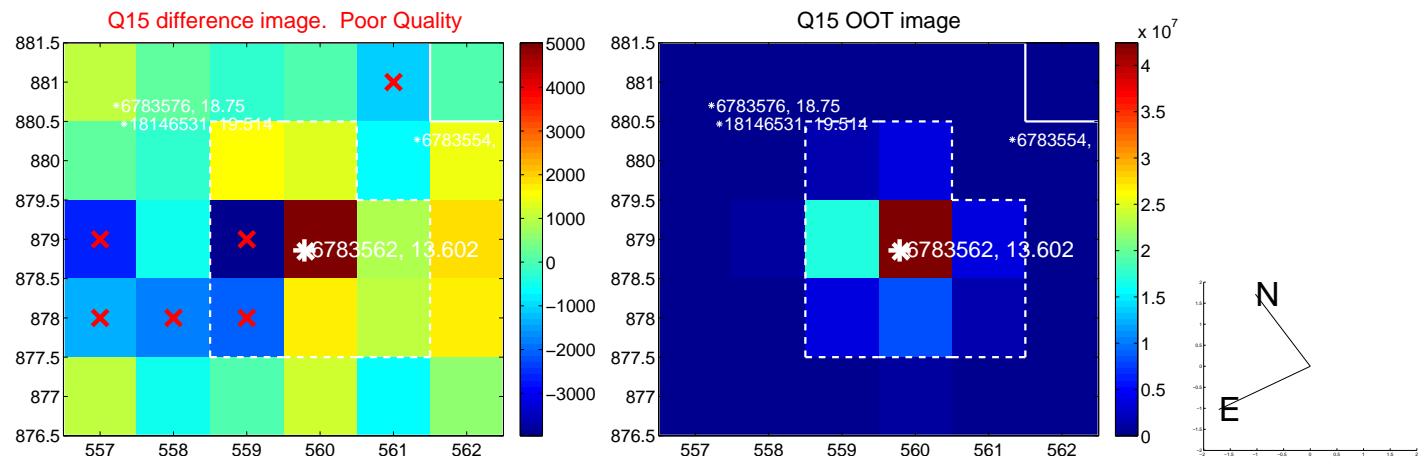
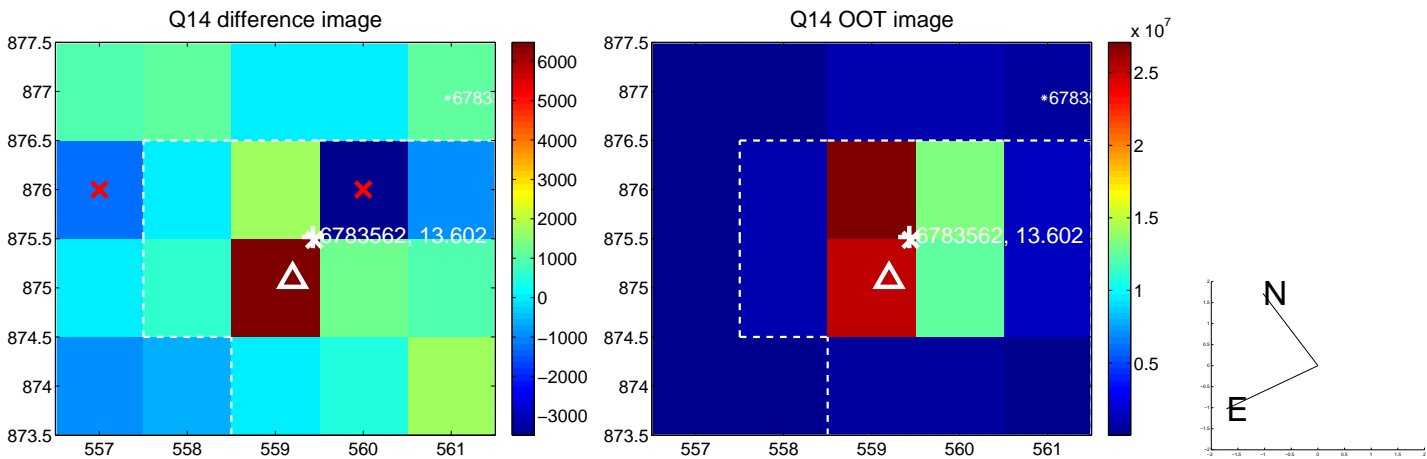
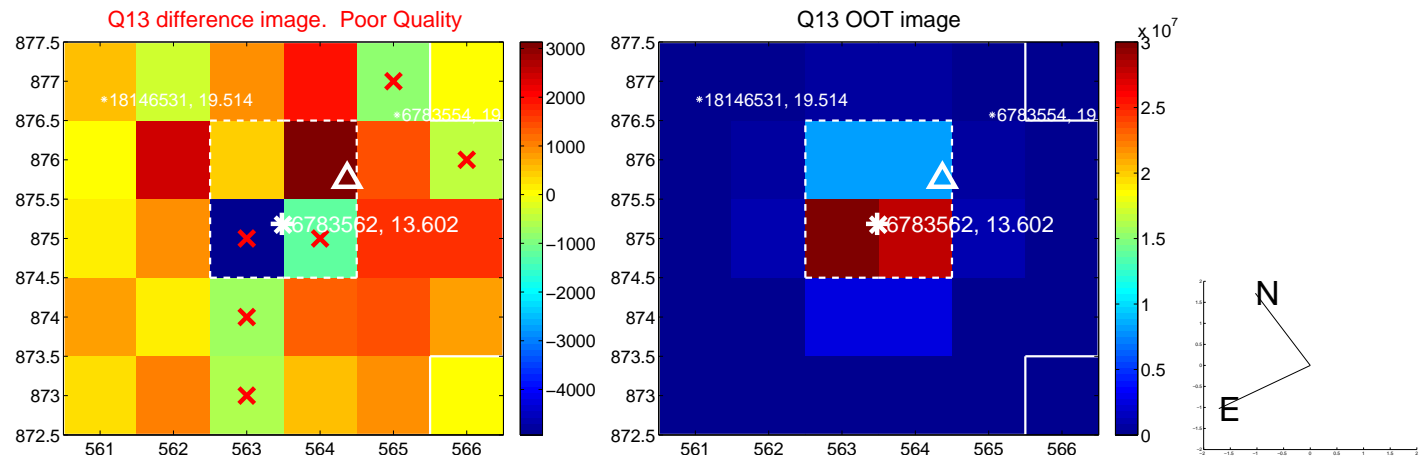




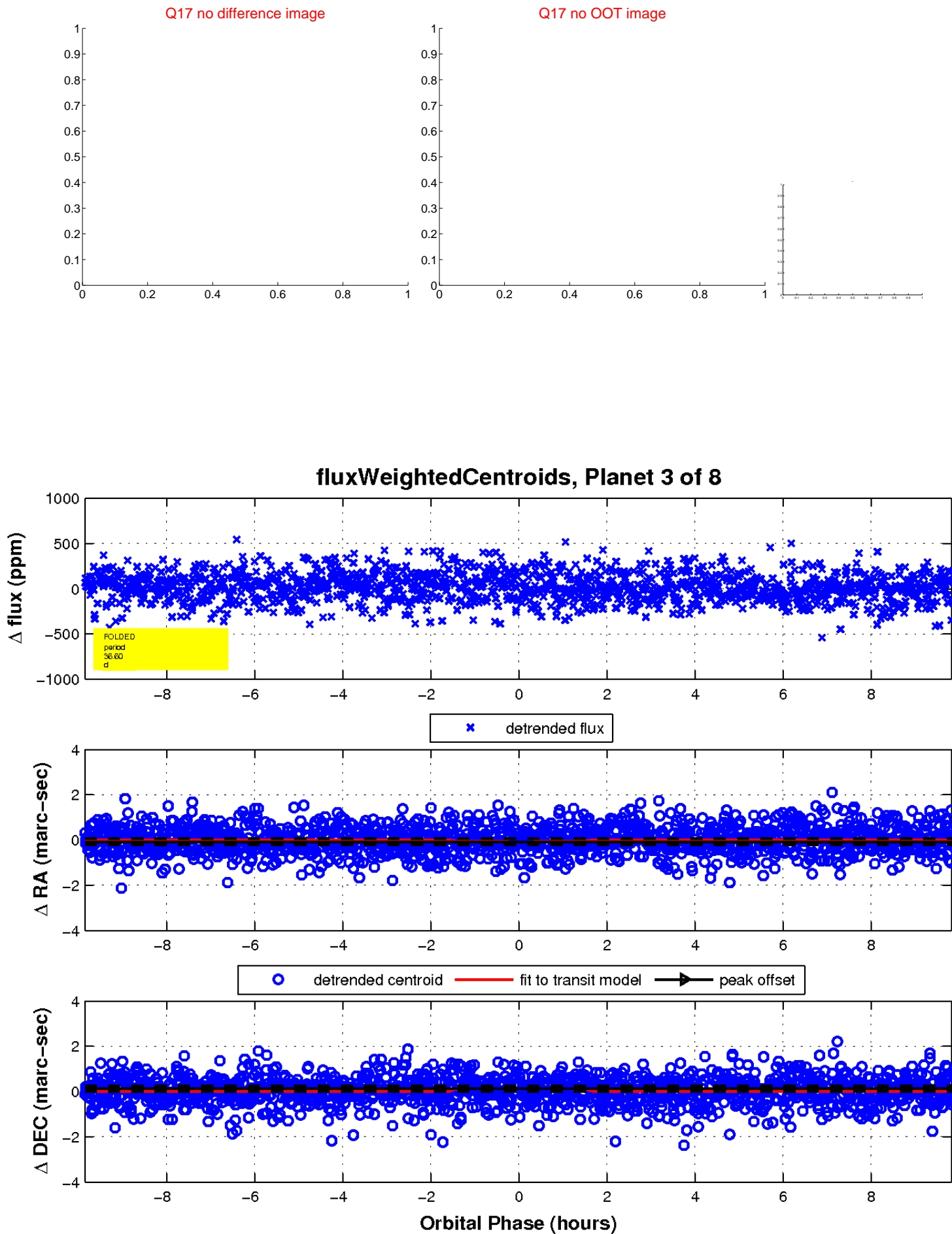
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

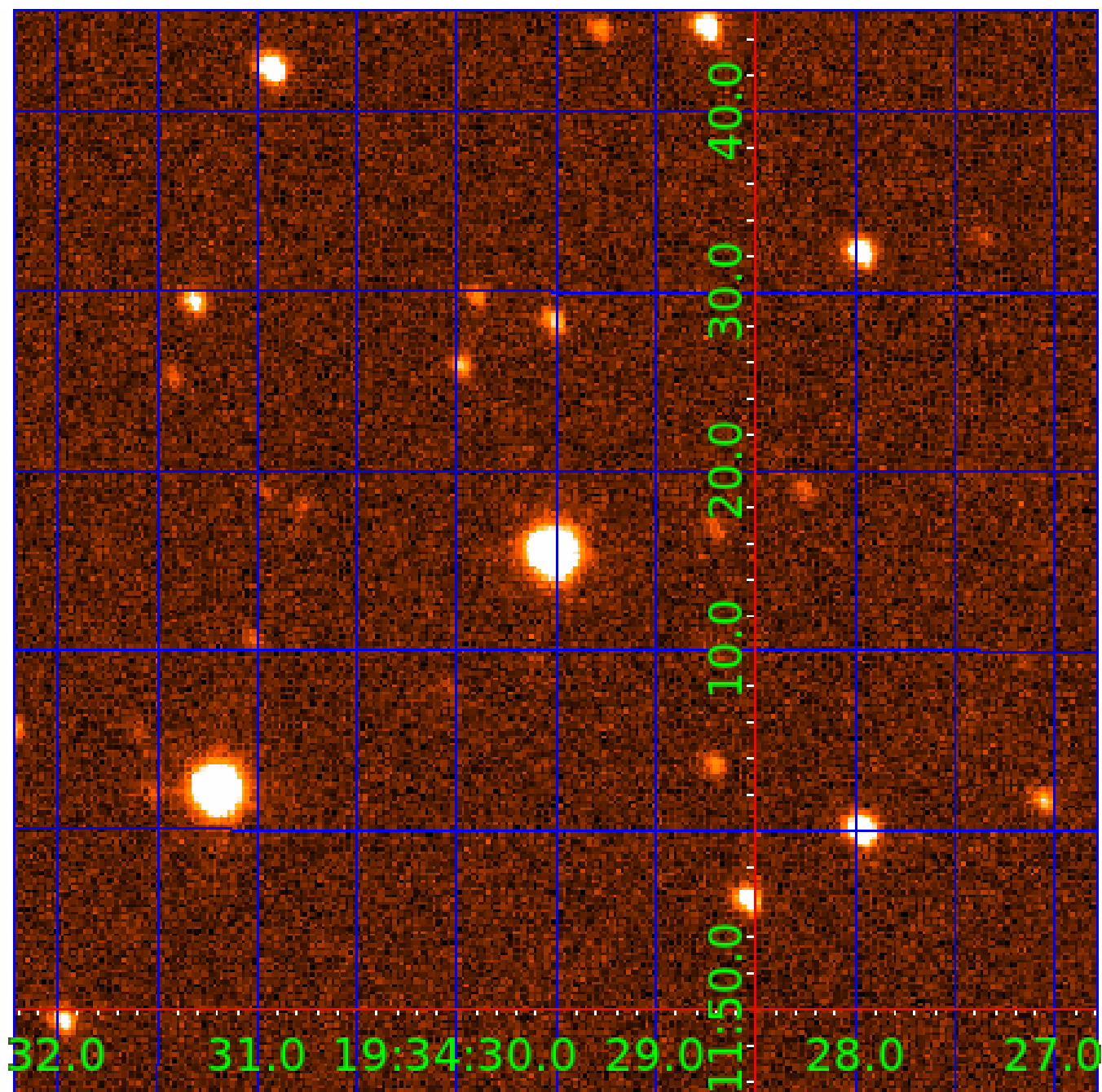


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006783562

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006783562-01 | OBS      | No   | 2.087275      | 132.270008   | 13.5        | 14.854           | 8.0  | 7.0  | 1.19                        | 6930            | 0.47                   | 2521.15                |
| 006783562-02 | OBS      | No   | 45.463043     | 140.208363   | 268.3       | 2.129            | 10.9 | 11.8 | 1.19                        | 6930            | 1.98                   | 41.45                  |
| 006783562-03 | OBS      | No   | 36.604208     | 167.620051   | 205.5       | 3.284            | 10.7 | 10.6 | 1.19                        | 6930            | 1.90                   | 55.34                  |
| 006783562-04 | OBS      | No   | 73.411839     | 145.841771   | 249.8       | 5.271            | 8.7  | 12.0 | 1.19                        | 6930            | 2.06                   | 21.88                  |
| 006783562-05 | OBS      | No   | 43.919590     | 136.781372   | 172.5       | 4.090            | 9.6  | 9.2  | 1.19                        | 6930            | 1.75                   | 43.40                  |
| 006783562-06 | OBS      | No   | 45.760610     | 149.174133   | 207.2       | 5.486            | 8.5  | 10.2 | 1.19                        | 6930            | 1.85                   | 41.09                  |
| 006783562-07 | OBS      | No   | 37.685131     | 158.174151   | 157.4       | 2.797            | 9.7  | 8.3  | 1.19                        | 6930            | 1.60                   | 53.23                  |
| 006783562-08 | OBS      | No   | 21.680387     | 136.795370   | 537.9       | 1.500            | 9.6  | -1.0 | 1.19                        | 6930            | 2.79                   | 111.25                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                                                             |
|--------------|----------|------|-------|---|---|---|---|--------------------------------------------------------------------------------------|
| 006783562-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV                                                                               |
| 006783562-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_MEAS                         |
| 006783562-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006783562-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST     |
| 006783562-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS                    |
| 006783562-08 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST                           |

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

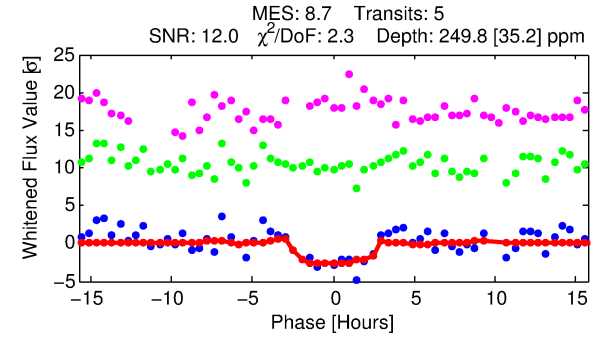
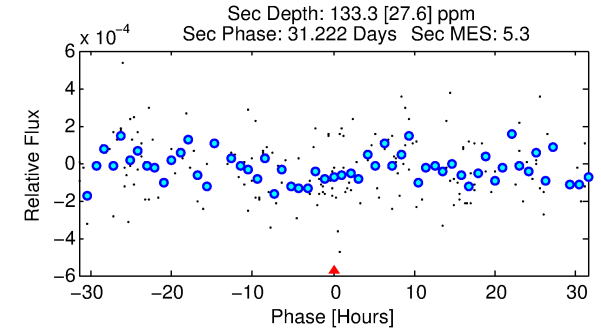
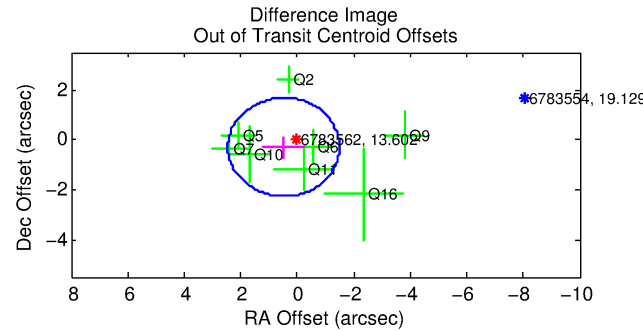
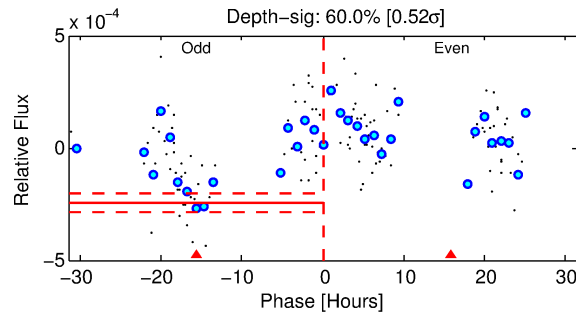
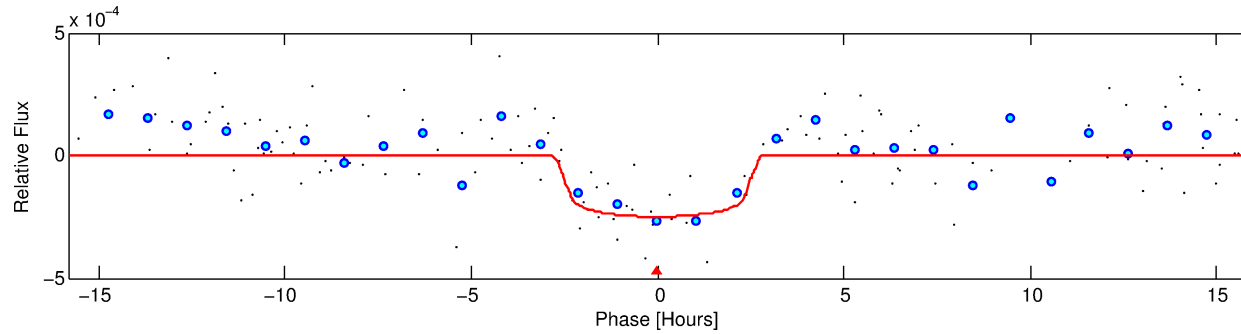
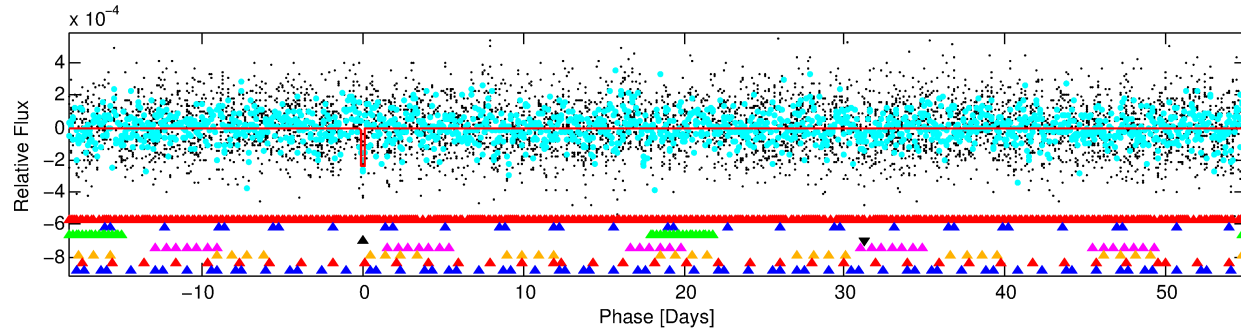
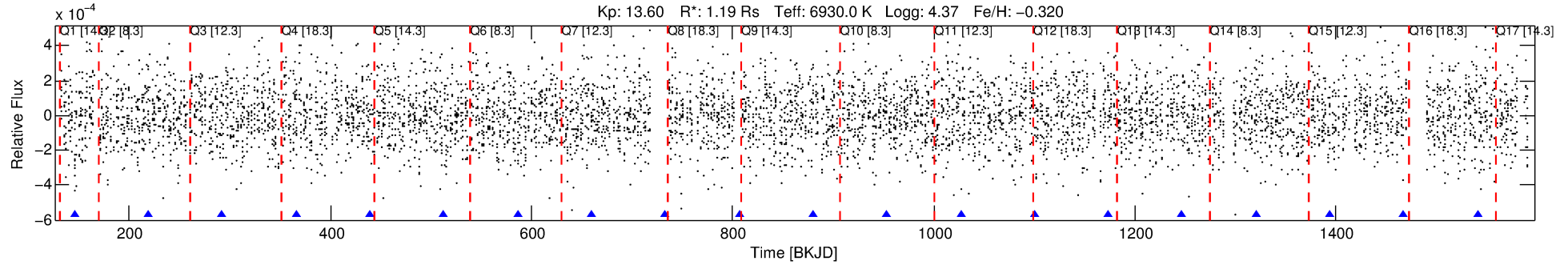
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006783562-04

No Significant Match Found

# DV One-Page Summary

KIC: 6783562 Candidate: 4 of 8 Period: 73.412 d



## DV Fit Results:

Period = 73.41184 [0.00090] d  
Epoch = 145.8418 [0.0120] BKJD  
Rp/R\* = 0.0159 [0.0111]  
a/R\* = 67.72 [282.39]  
b = 0.79 [1.97]  
Seff = 21.88 [9.85]  
Teq = 551 [62] K  
Rp = 2.06 [1.62] Re  
a = 0.3651 [0.1073] AU  
Ag = 2293.75 [3375.69] [0.68σ]  
Teffp = 5901 [2096] K [2.55σ]

## DV Diagnostic Results:

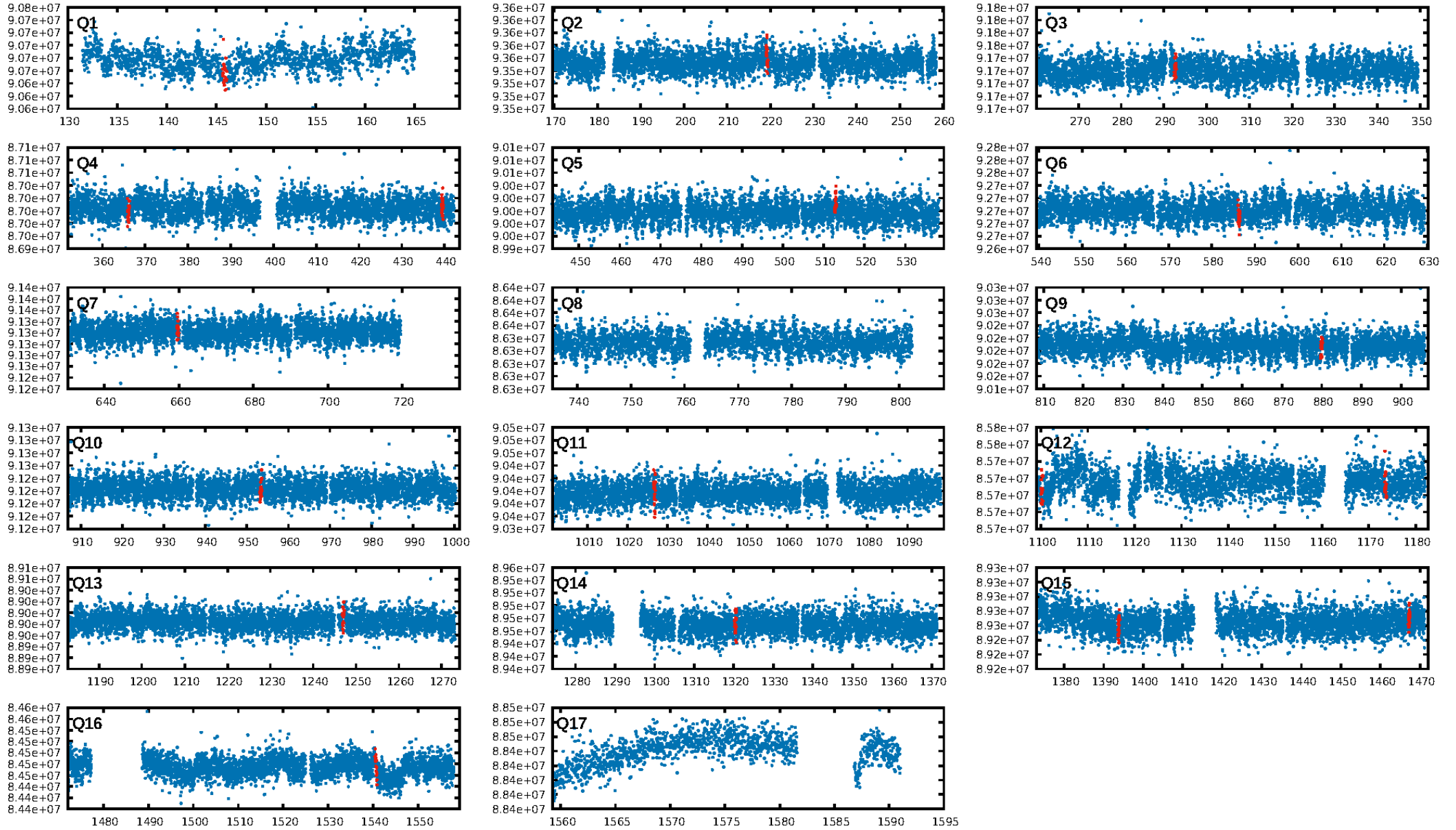
ShortPeriod-sig: 100.0% [87.23σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 62.7%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -15.83  
Centroid-sig: 0.4%  
Centroid-so: 1.336 arcsec [2.37σ]  
OotOffset-rm: 0.567 arcsec [0.86σ]  
KicOffset-rm: 0.553 arcsec [0.78σ]  
OotOffset-st: 3/2/1/2 [8]  
KicOffset-st: 3/2/1/2 [8]  
DiffImageQuality-fgm: 0.38 [3/8]  
DiffImageOverlap-fno: 0.38 [5/13]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:18:01 Z

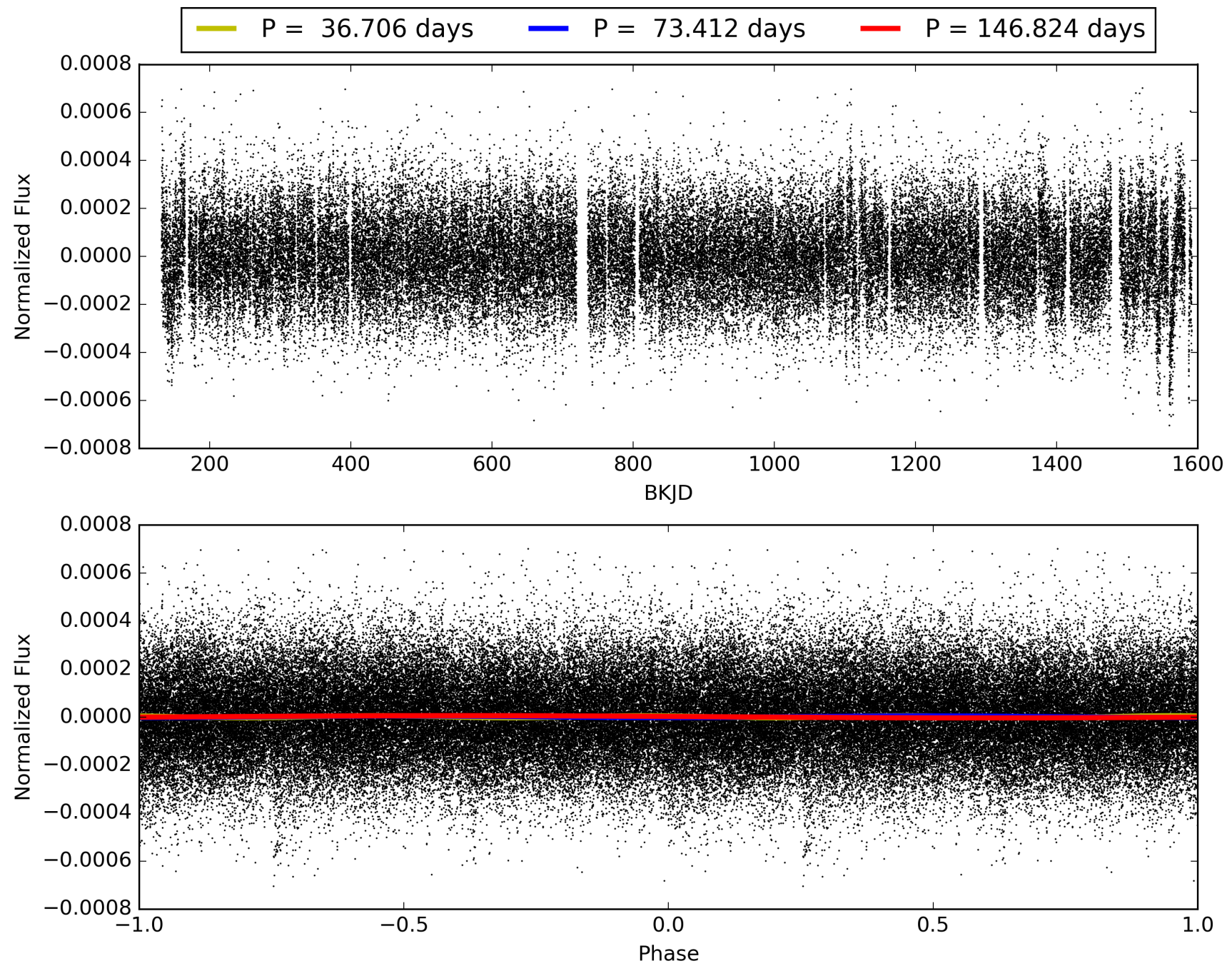
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 006783562-04, PDC Light Curves

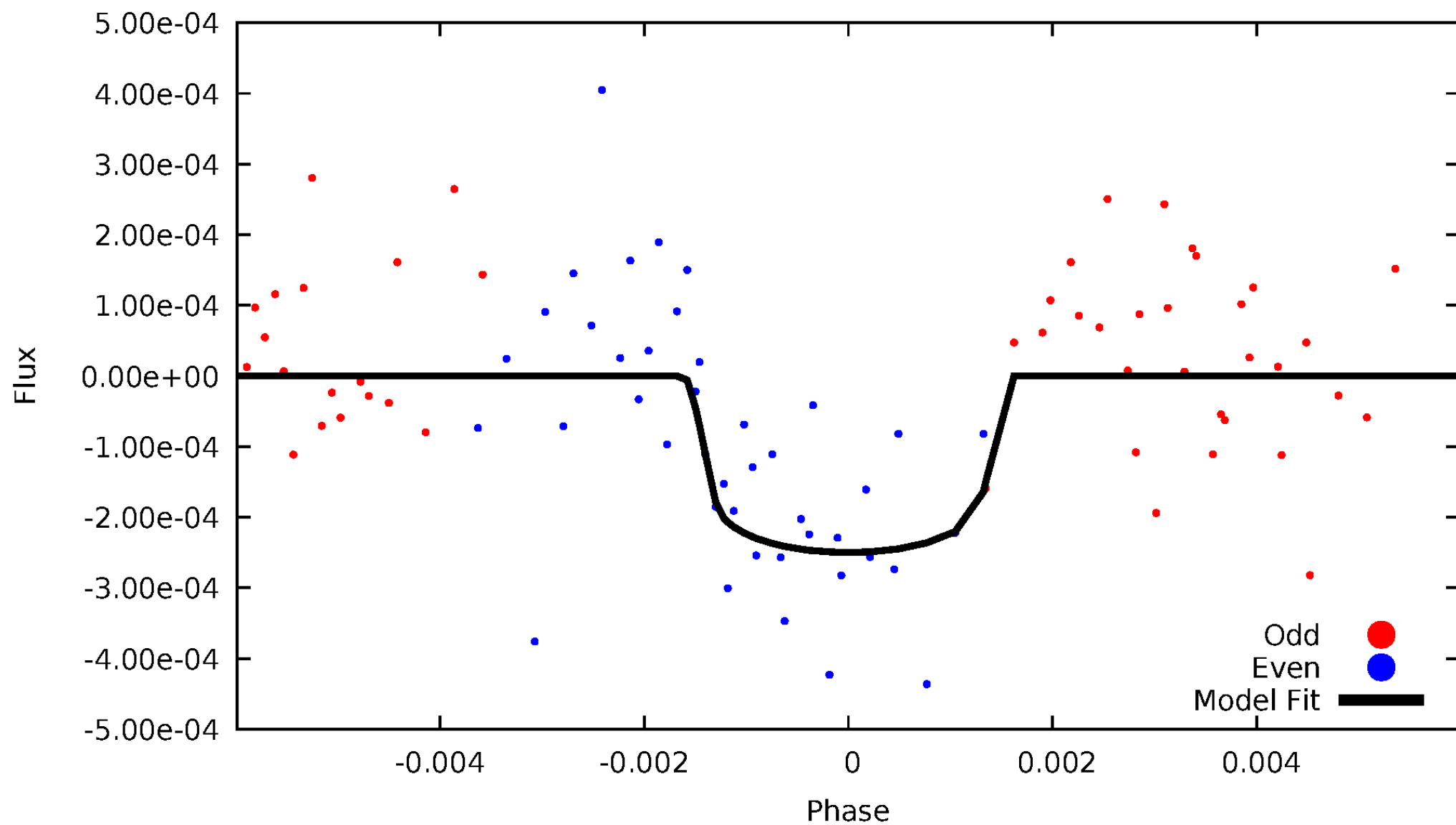


TCE 006783562-04



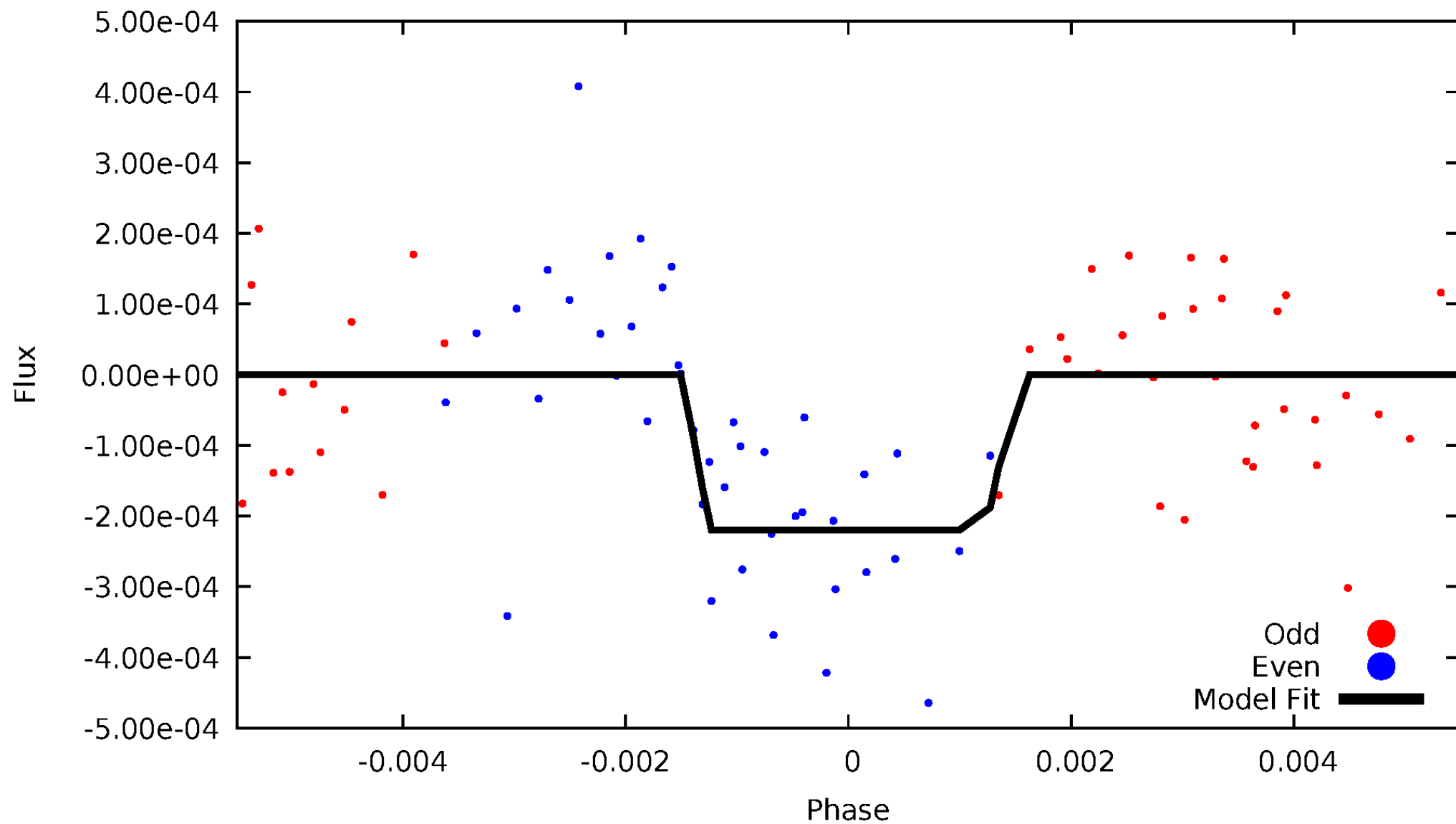
# DV Odd/Even

TCE 006783562-04



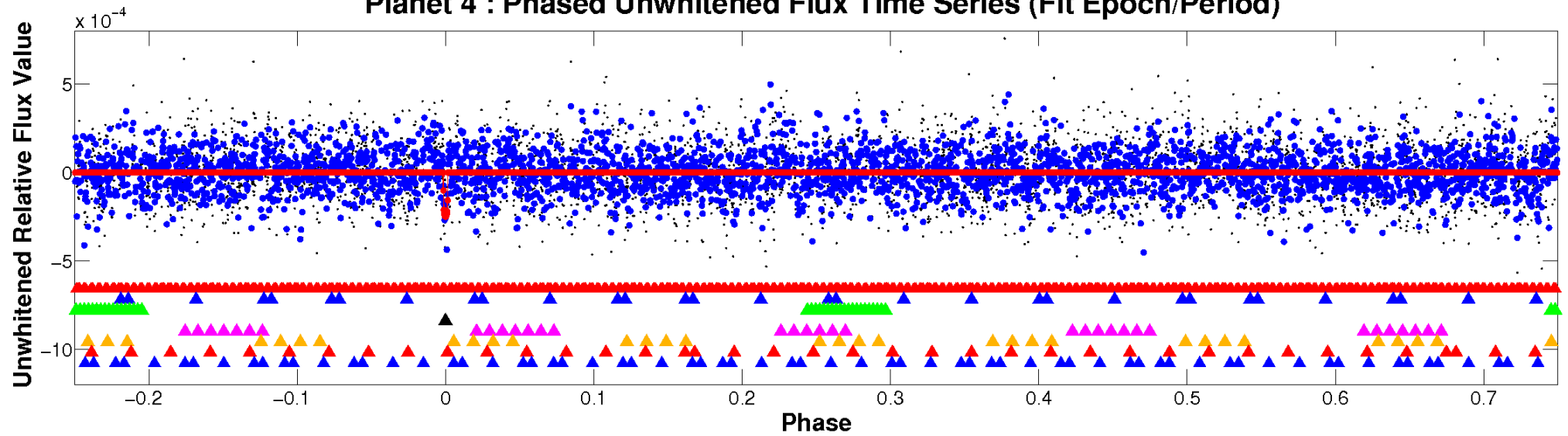
# ALT Odd/Even

TCE 006783562-04

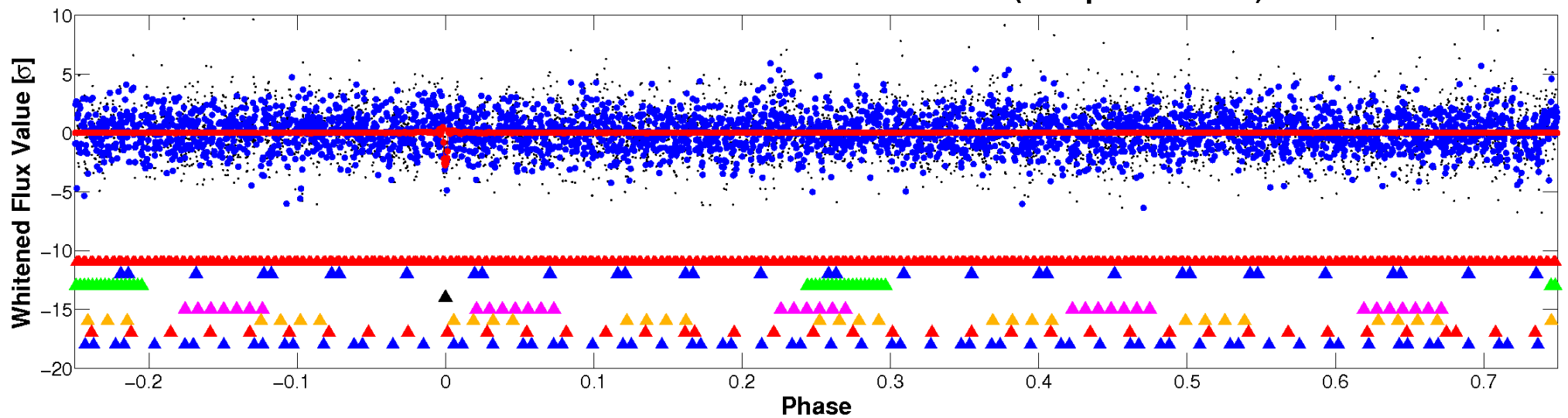


# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

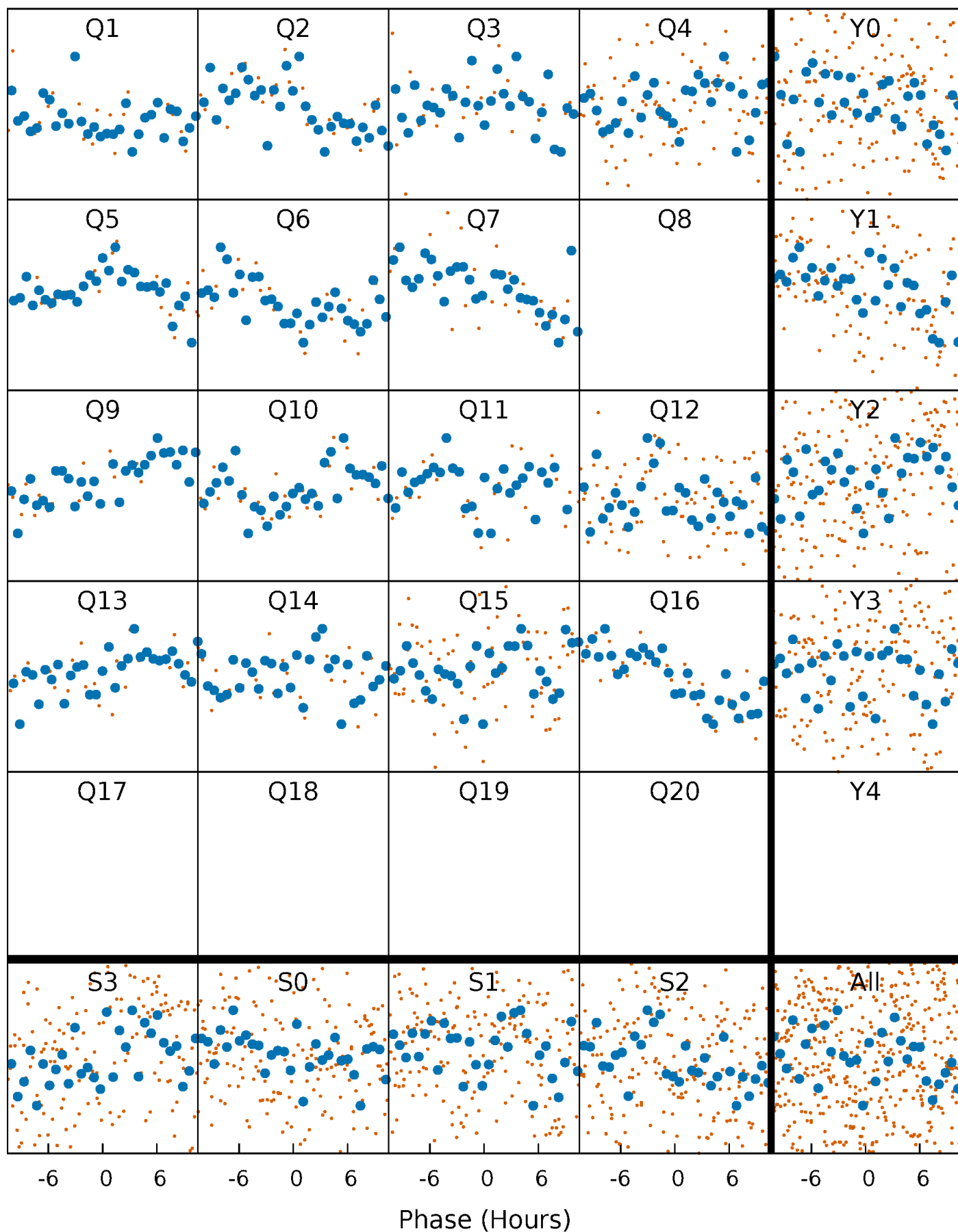


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



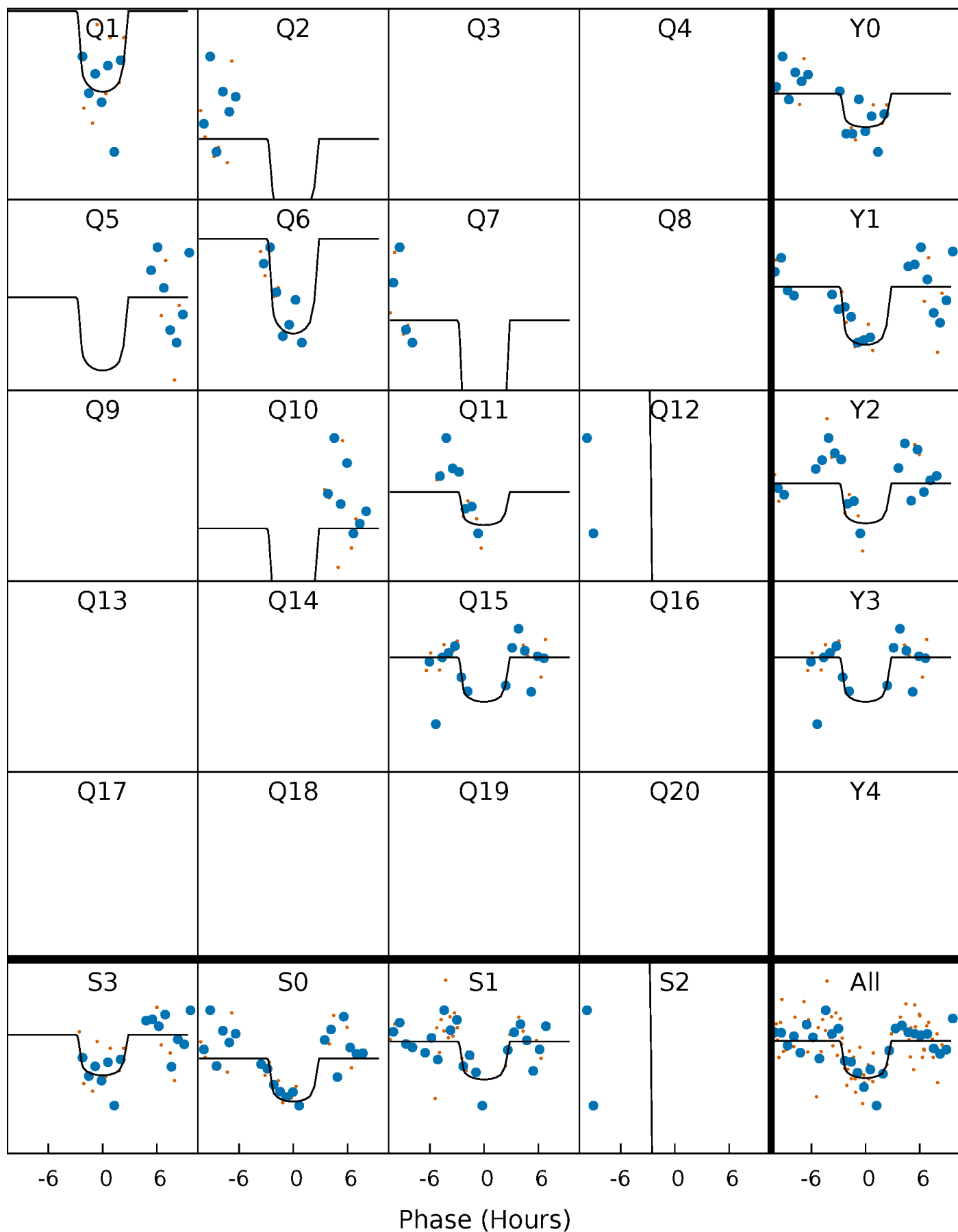
# PDC Quarter-Phased Transit Curves

TCE 006783562-04   P= 73.411839 Days    $T_0=145.841771$  (BKJD)



# DV Quarter-Phased Transit Curves

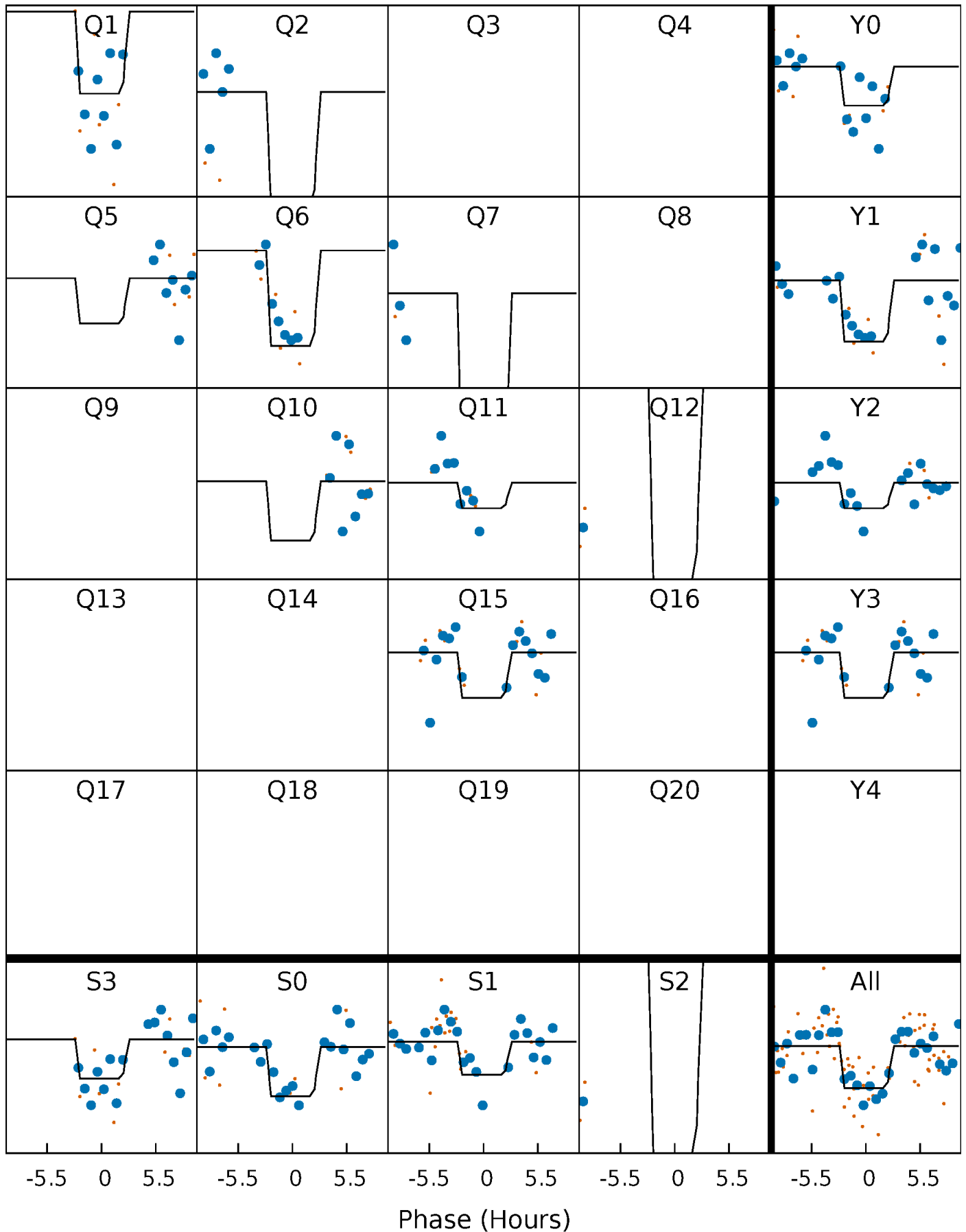
TCE 006783562-04   P= 73.411839 Days    $T_0=145.841771$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

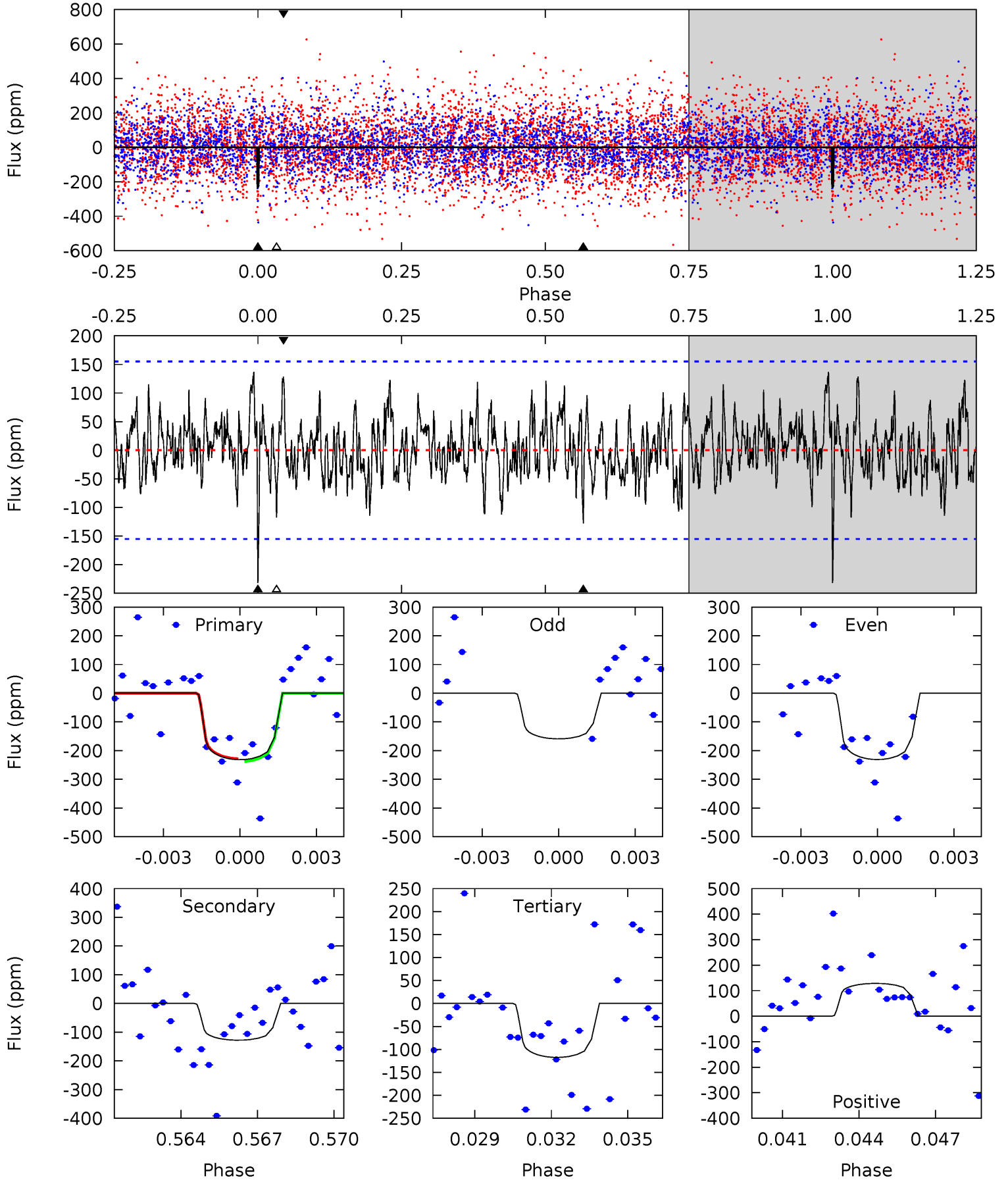
TCE 006783562-04   P= 73.411604 Days    $T_0=145.845371$  (BKJD)



# DV Model-Shift Uniqueness Test

006783562-04, P = 73.411839 Days, E = 72.429932 Days

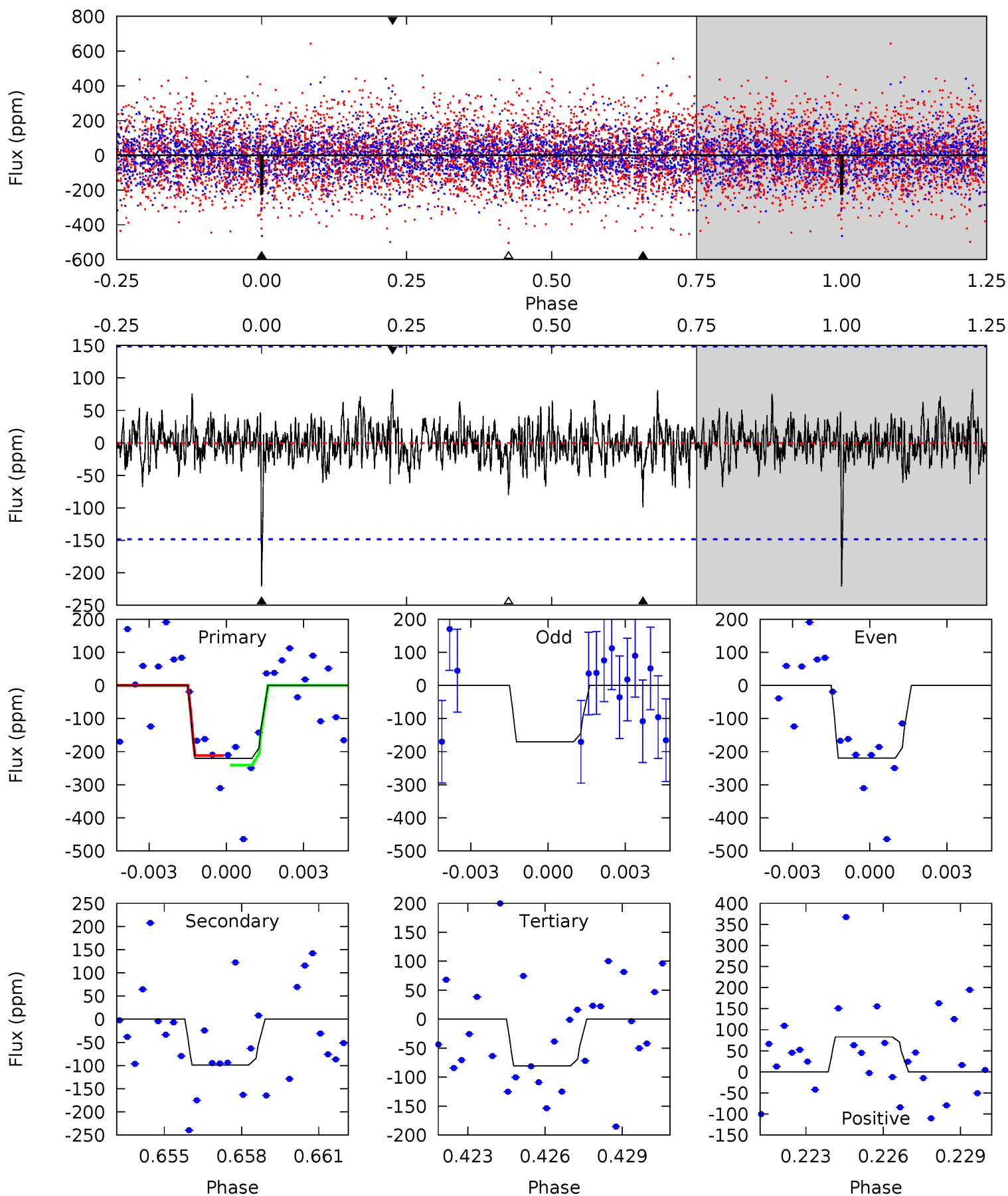
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.85 | 4.33 | 3.98 | 4.35 | 5.26            | 2.98            | 1.49             | 3.87    | 3.49    | 0.36    | -0.02   | 1.13    | 1.02 | 0.37  | 0.15 |



# Alt Model-Shift Uniqueness Test

006783562-04, P = 73.411604 Days, E = 72.433767 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.81 | 3.49 | 2.85 | 2.93 | 5.25            | 2.97            | 0.80             | 4.96    | 4.88    | 0.64    | 0.56    | 0.35    | 1.05 | 0.27  | 0.49 |



### Stellar Parameters For KIC 006783562

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M$ ( $M_{\odot}$ )       | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-----------------------------------------------|
|        | $6930^{+192}_{-288}$ | $4.369^{+0.056}_{-0.224}$ | $-0.320^{+0.250}_{-0.350}$ | $1.188^{+0.425}_{-0.142}$ | $1.219^{+0.189}_{-0.154}$ | $1.025^{+0.239}_{-0.556}$                     |
|        | +3%/-4%              | +1%/-5%                   | +78%/-109%                 | +36%/-12%                 | +16%/-13%                 | +23%/-54%                                     |
| 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 006783562-04 / KOI

| Detrend | Depth (ppm)   | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)     | $T_{obs}$ (K)          | $A_{obs}$              |
|---------|---------------|------------------------|-------------------|------------------------|------------------------|
| DV      | $-128 \pm 30$ | $2.32^{+1.51}_{-1.27}$ | $789^{+60}_{-44}$ | $5564^{+3094}_{-1039}$ | $1617^{+6504}_{-1019}$ |
| Alt.    | $-99 \pm 28$  | $2.24^{+1.45}_{-1.28}$ | $786^{+68}_{-44}$ | $5371^{+3062}_{-1018}$ | $1410^{+6349}_{-935}$  |

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

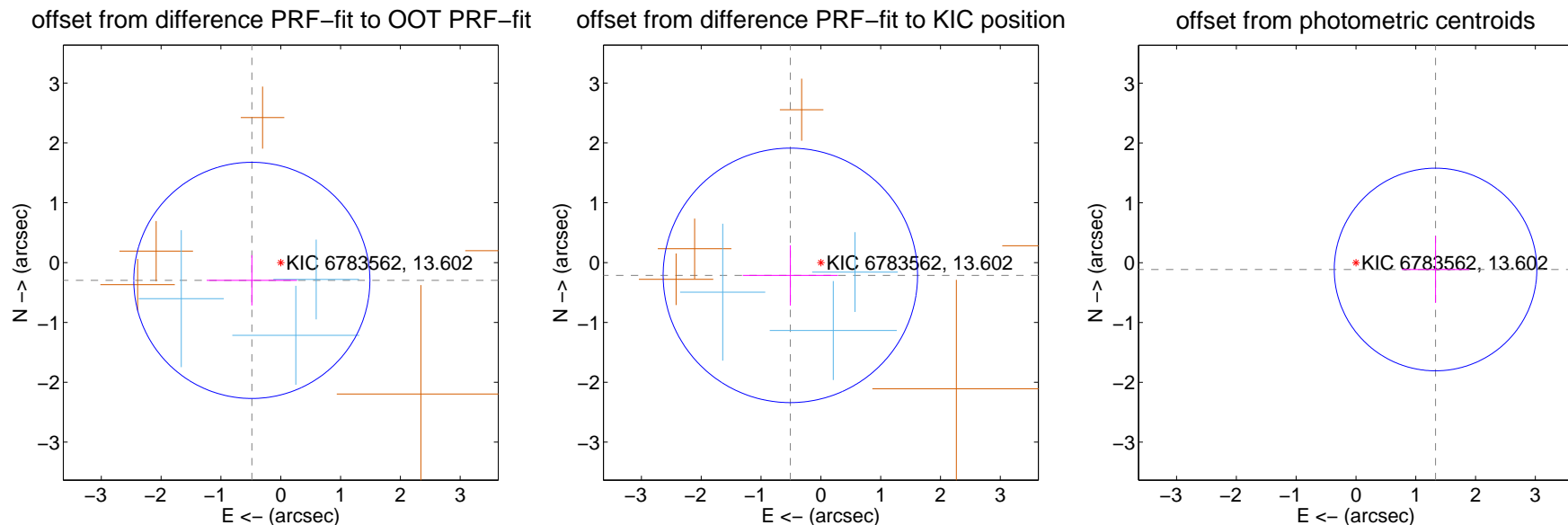
## DV Centroid Data

Supplemental centroid analysis for 006783562-04. Kepler magnitude: 13.60. Transit SNR 11.96

There are 3 quarters with good PRF difference image offsets

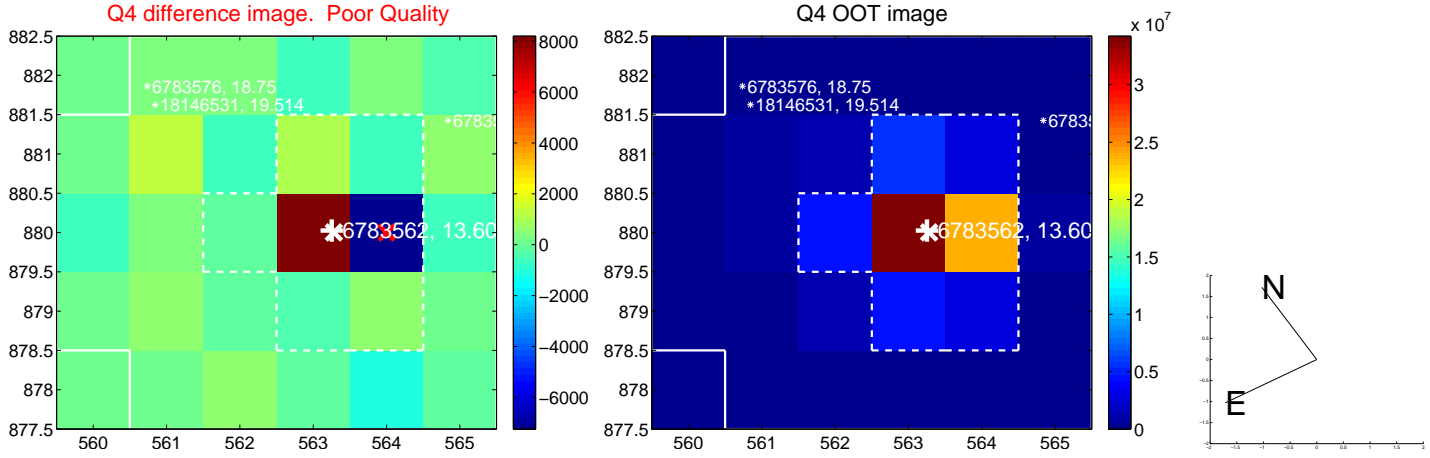
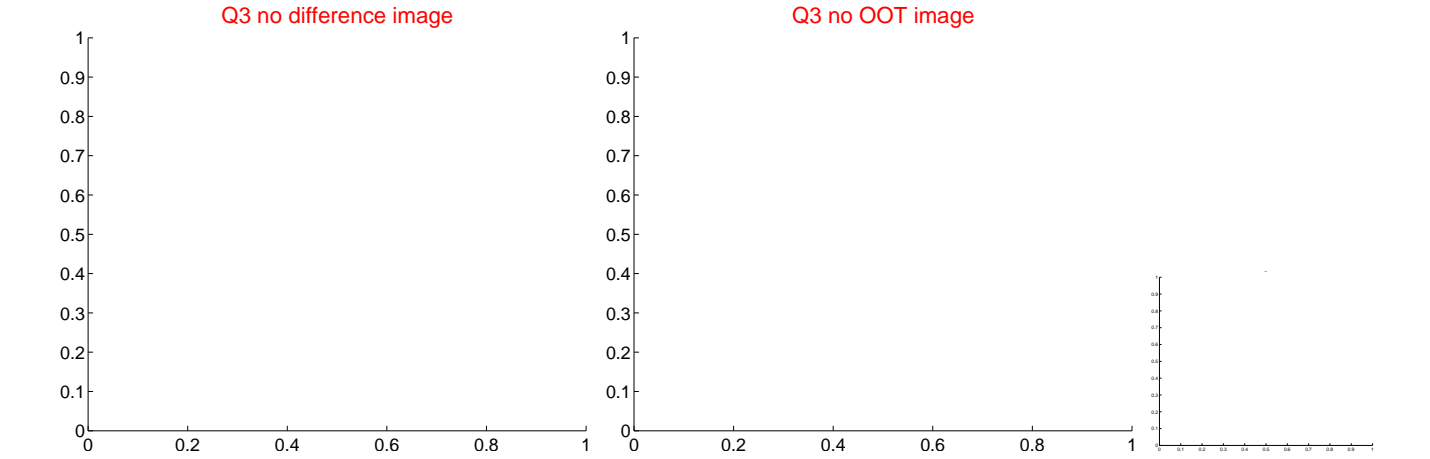
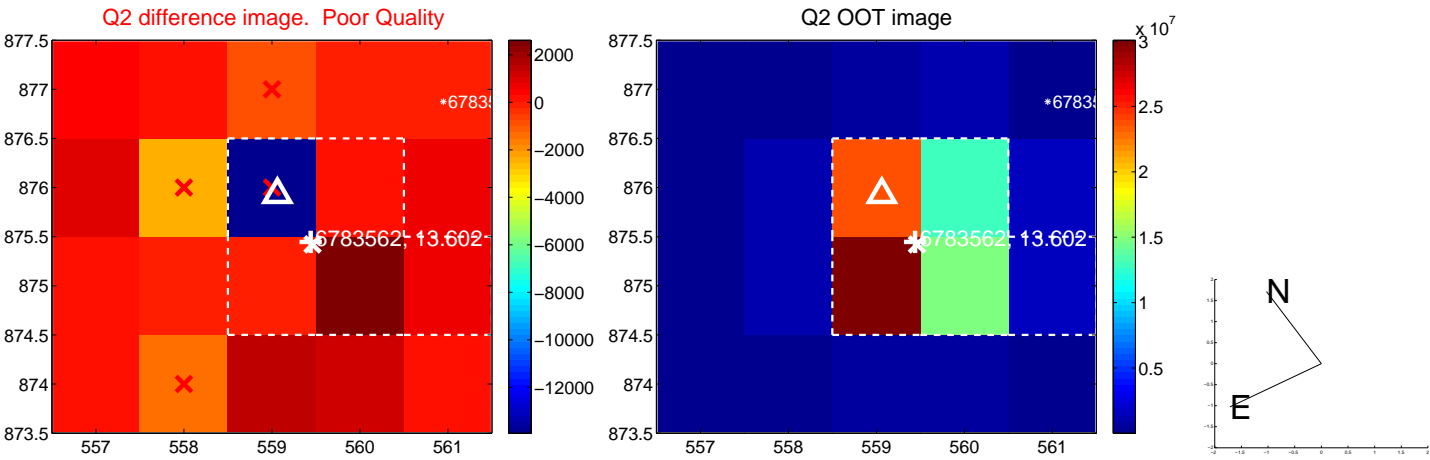
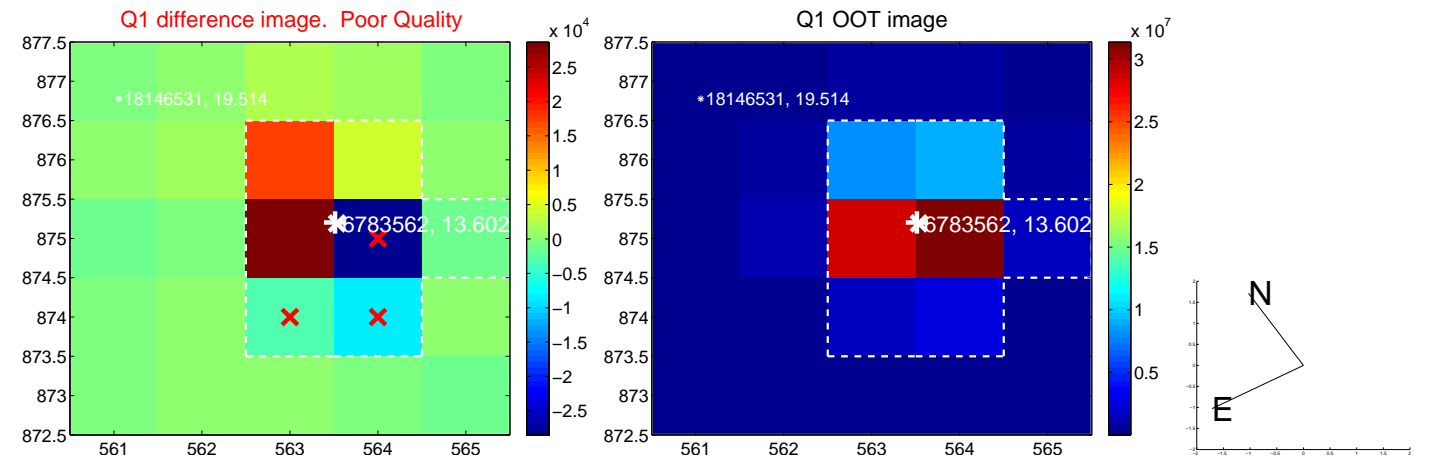
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|-----------------------------------------|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $0.567 \pm 0.658$  | 0.86                | $0.483 \pm 0.755$ | $-0.297 \pm 0.420$ |
| PRF-fit source offset from KIC position | $0.553 \pm 0.709$  | 0.78                | $0.510 \pm 0.794$ | $-0.214 \pm 0.504$ |
| photometric centroid source offset      | $1.34 \pm 0.56$    | 2.37                | $-1.33 \pm 0.56$  | $-0.11 \pm 0.56$   |

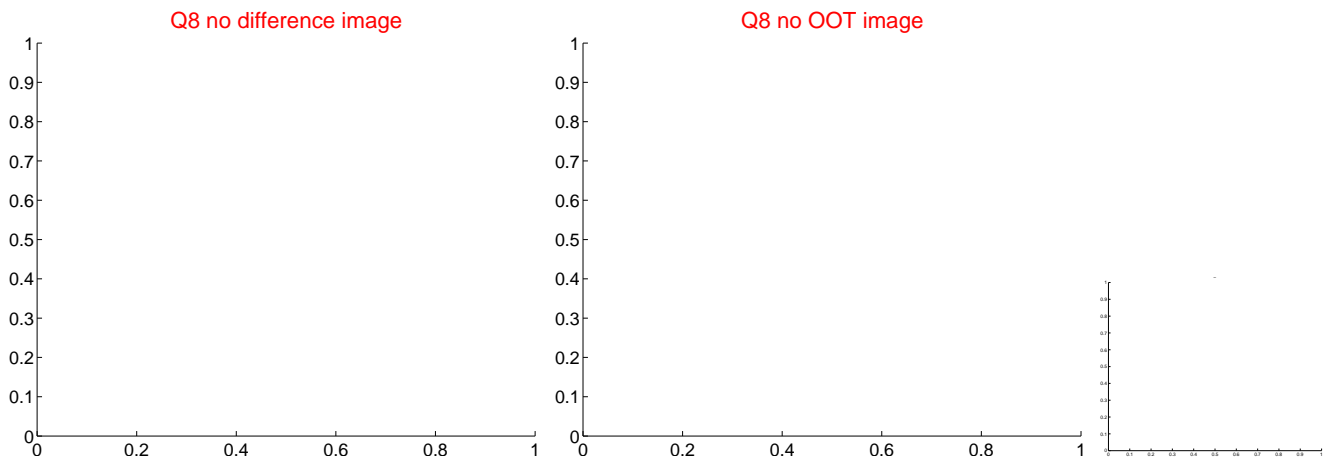
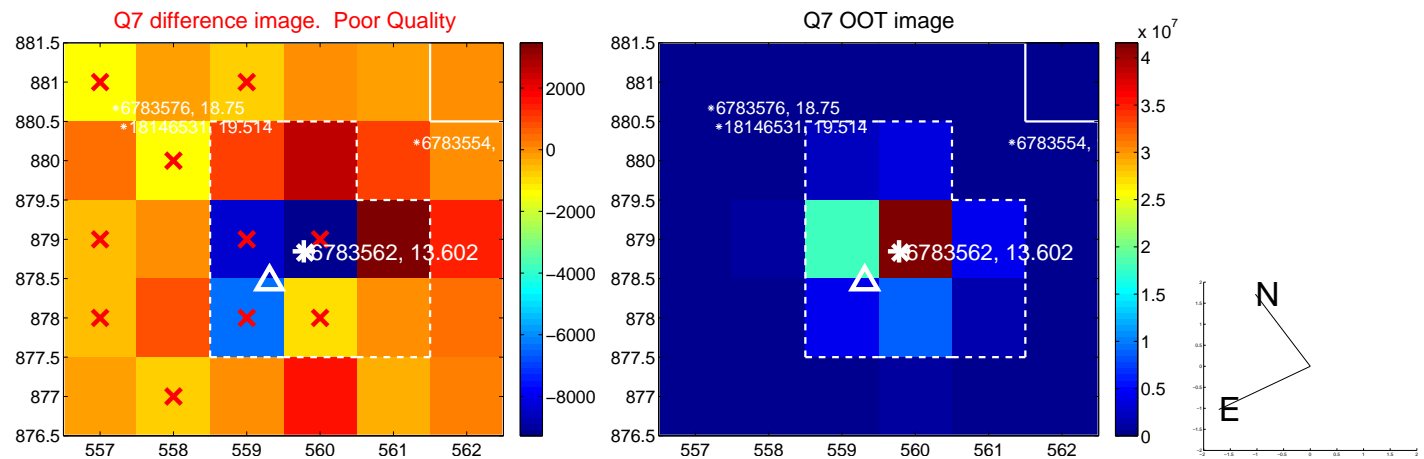
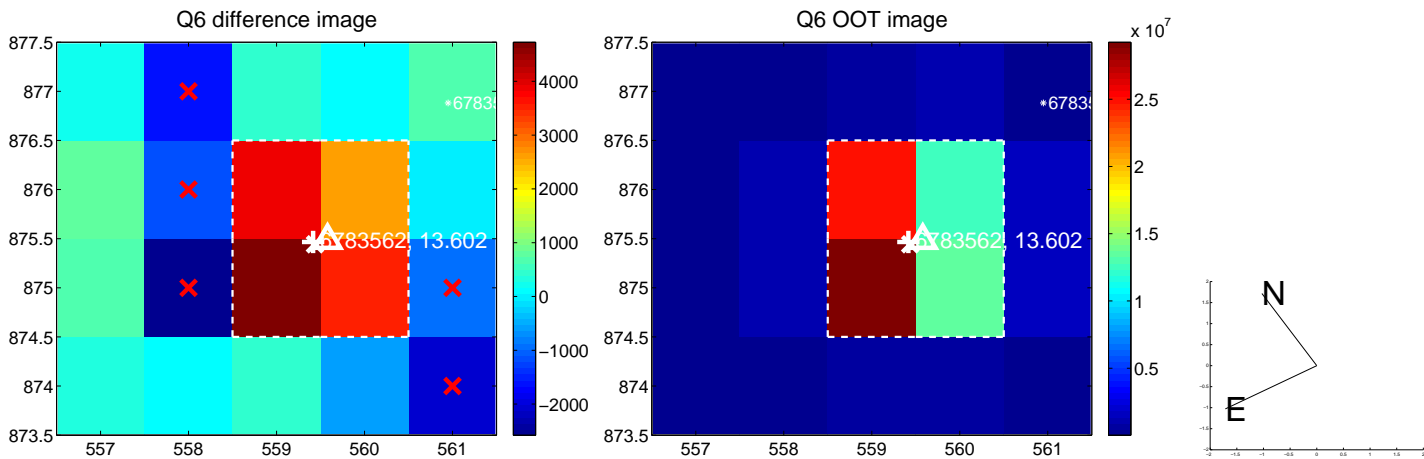
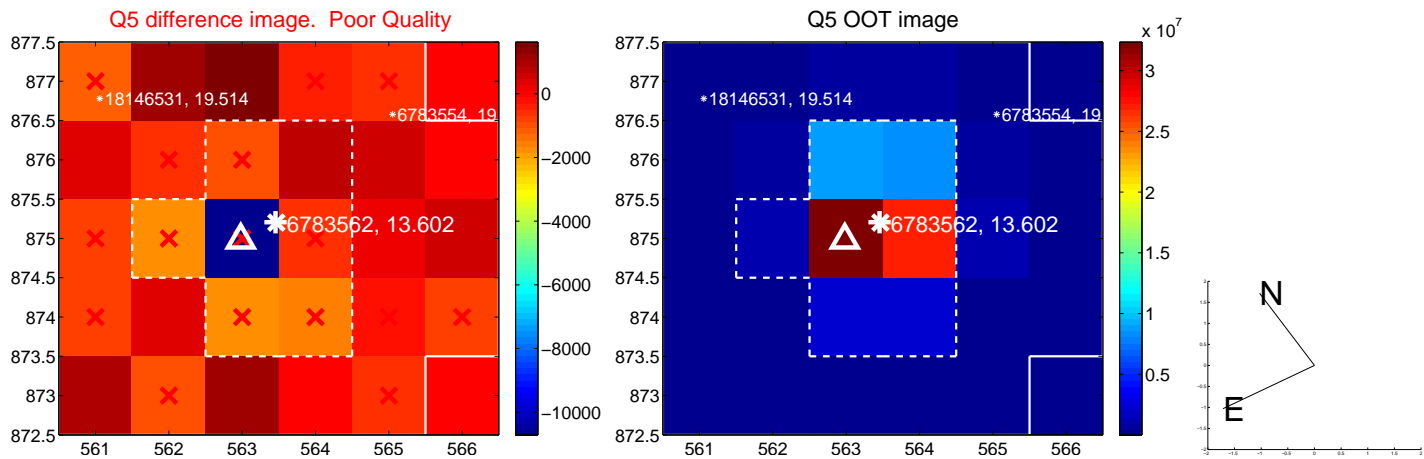


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

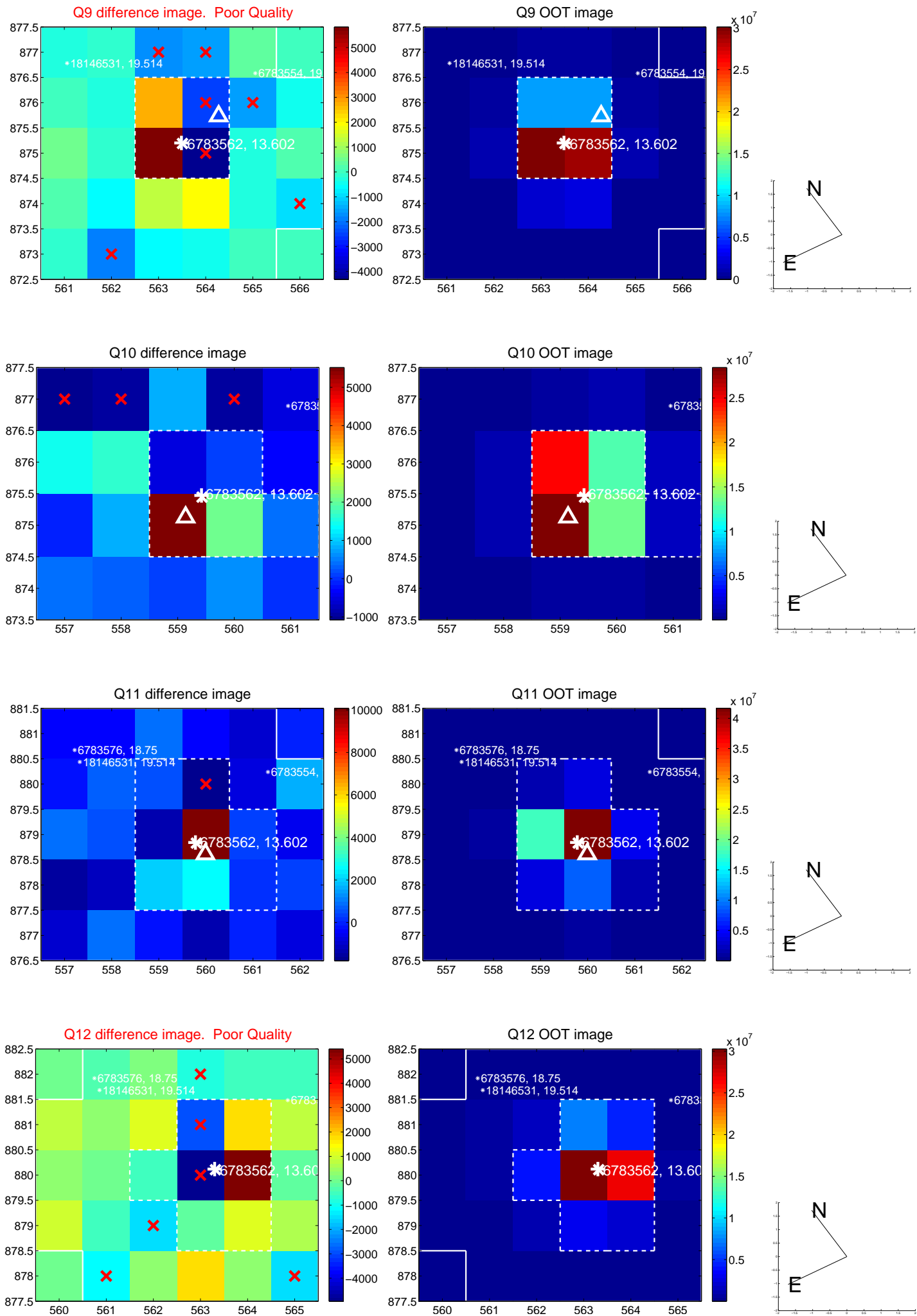


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

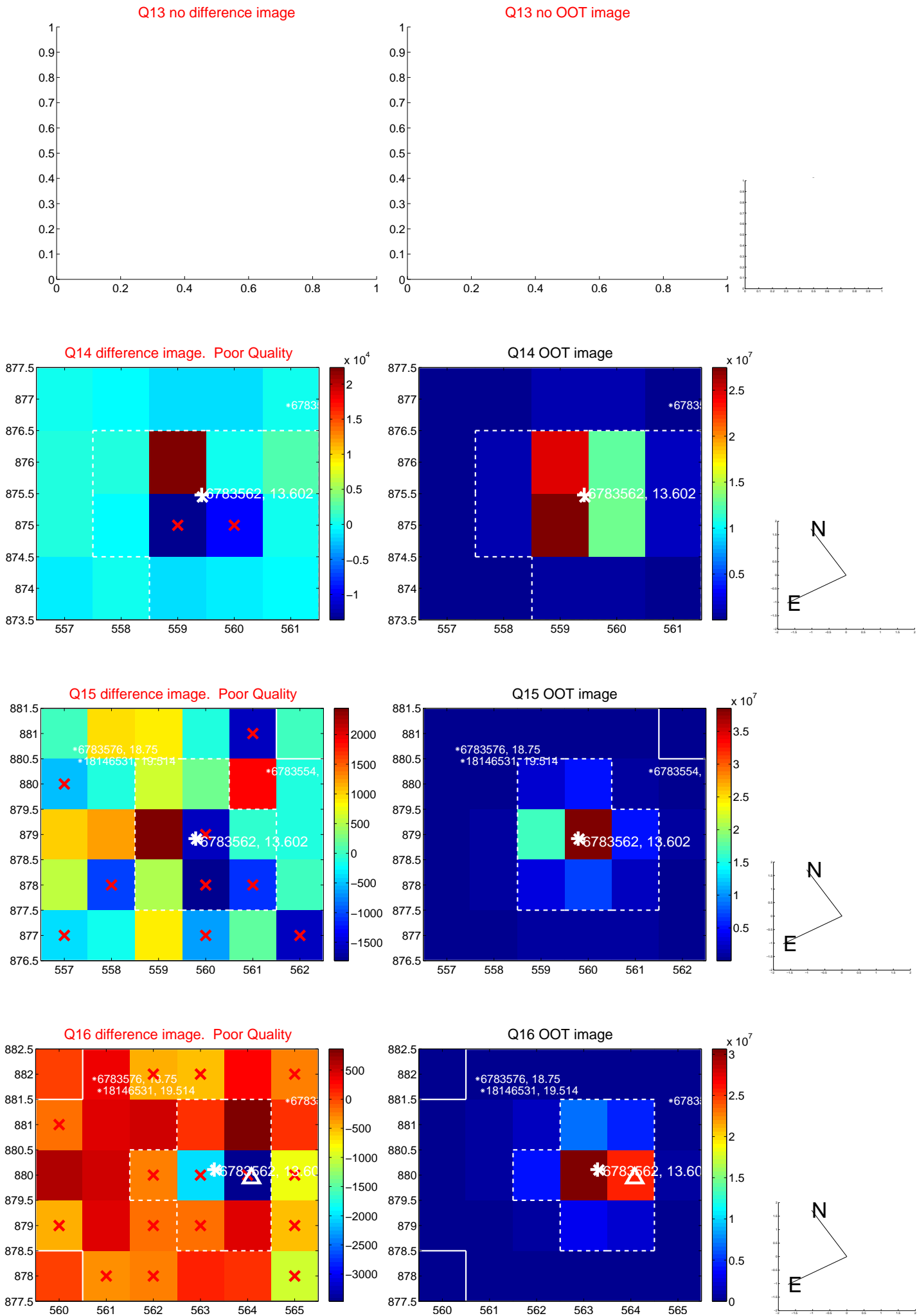




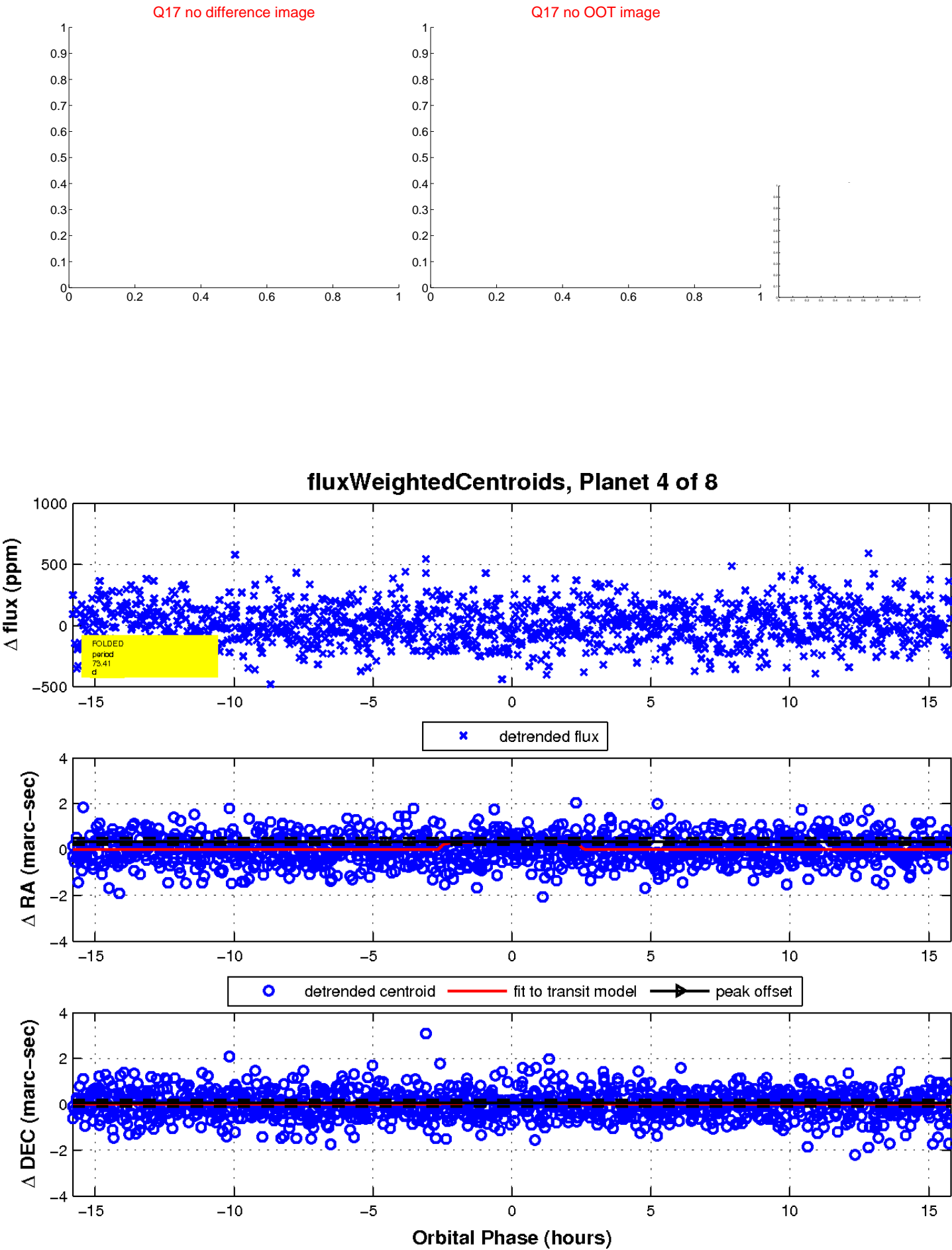
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

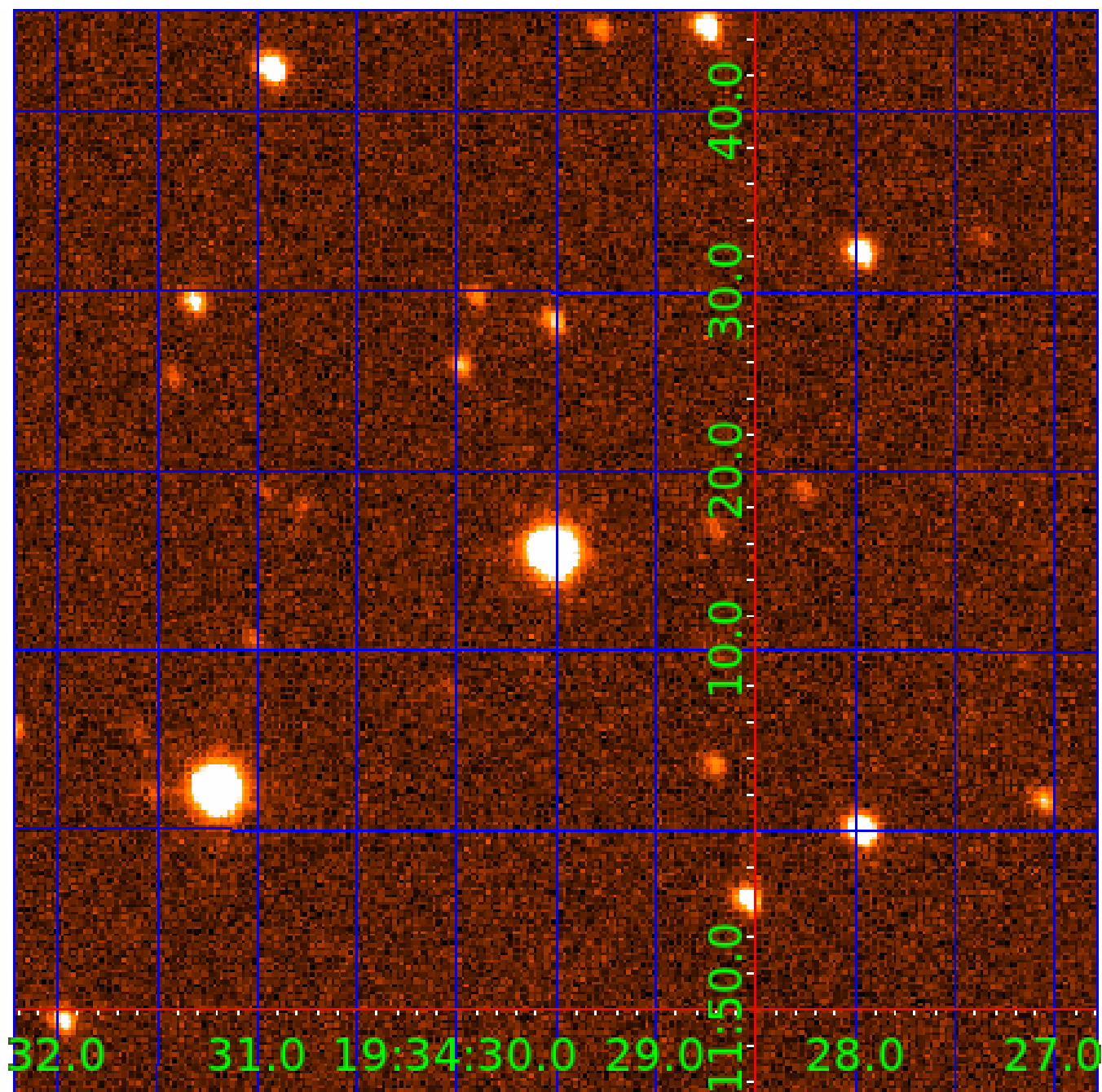


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006783562

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006783562-01 | OBS      | No   | 2.087275      | 132.270008   | 13.5        | 14.854           | 8.0  | 7.0  | 1.19                        | 6930            | 0.47                   | 2521.15                |
| 006783562-02 | OBS      | No   | 45.463043     | 140.208363   | 268.3       | 2.129            | 10.9 | 11.8 | 1.19                        | 6930            | 1.98                   | 41.45                  |
| 006783562-03 | OBS      | No   | 36.604208     | 167.620051   | 205.5       | 3.284            | 10.7 | 10.6 | 1.19                        | 6930            | 1.90                   | 55.34                  |
| 006783562-04 | OBS      | No   | 73.411839     | 145.841771   | 249.8       | 5.271            | 8.7  | 12.0 | 1.19                        | 6930            | 2.06                   | 21.88                  |
| 006783562-05 | OBS      | No   | 43.919590     | 136.781372   | 172.5       | 4.090            | 9.6  | 9.2  | 1.19                        | 6930            | 1.75                   | 43.40                  |
| 006783562-06 | OBS      | No   | 45.760610     | 149.174133   | 207.2       | 5.486            | 8.5  | 10.2 | 1.19                        | 6930            | 1.85                   | 41.09                  |
| 006783562-07 | OBS      | No   | 37.685131     | 158.174151   | 157.4       | 2.797            | 9.7  | 8.3  | 1.19                        | 6930            | 1.60                   | 53.23                  |
| 006783562-08 | OBS      | No   | 21.680387     | 136.795370   | 537.9       | 1.500            | 9.6  | -1.0 | 1.19                        | 6930            | 2.79                   | 111.25                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                                                             |
|--------------|----------|------|-------|---|---|---|---|--------------------------------------------------------------------------------------|
| 006783562-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV                                                                               |
| 006783562-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_MEAS                         |
| 006783562-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006783562-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST     |
| 006783562-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS                    |
| 006783562-08 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST                           |

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

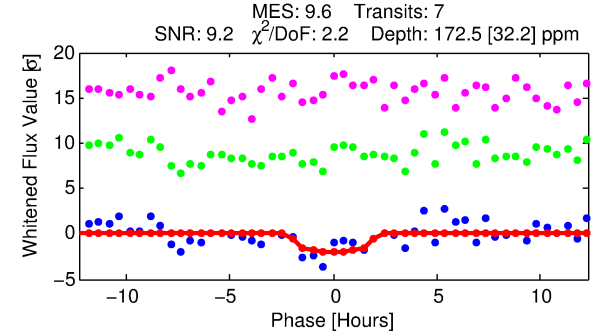
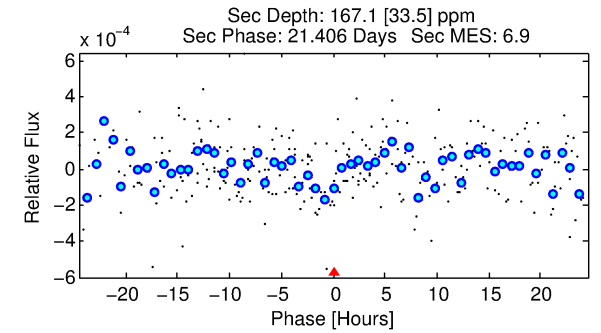
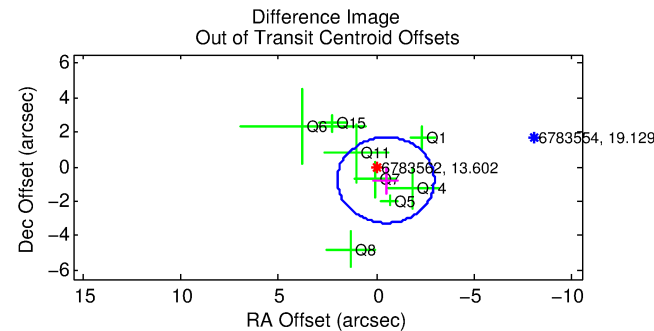
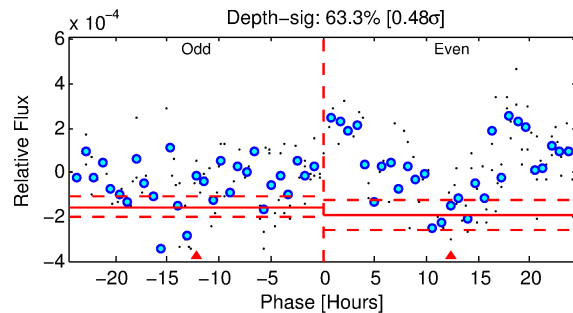
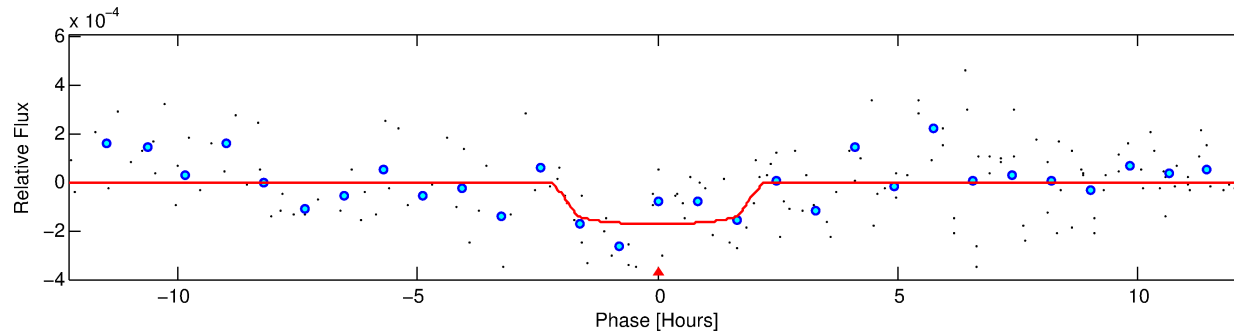
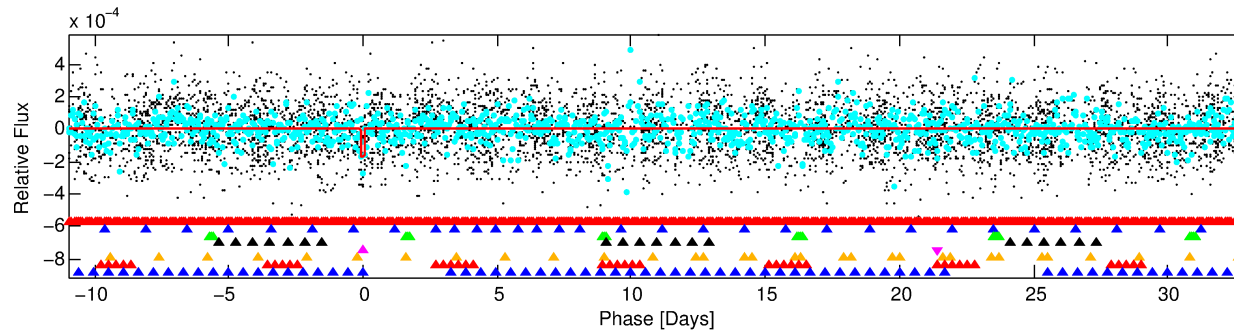
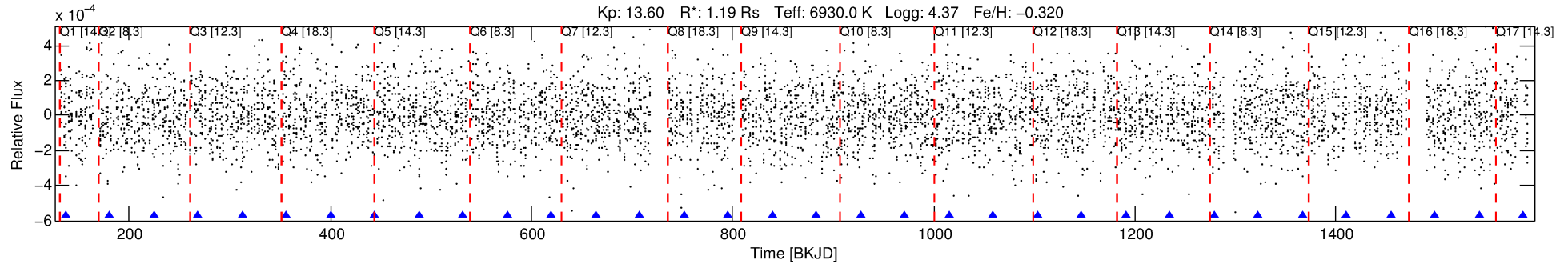
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006783562-05

No Significant Match Found

# DV One-Page Summary

KIC: 6783562 Candidate: 5 of 8 Period: 43.920 d



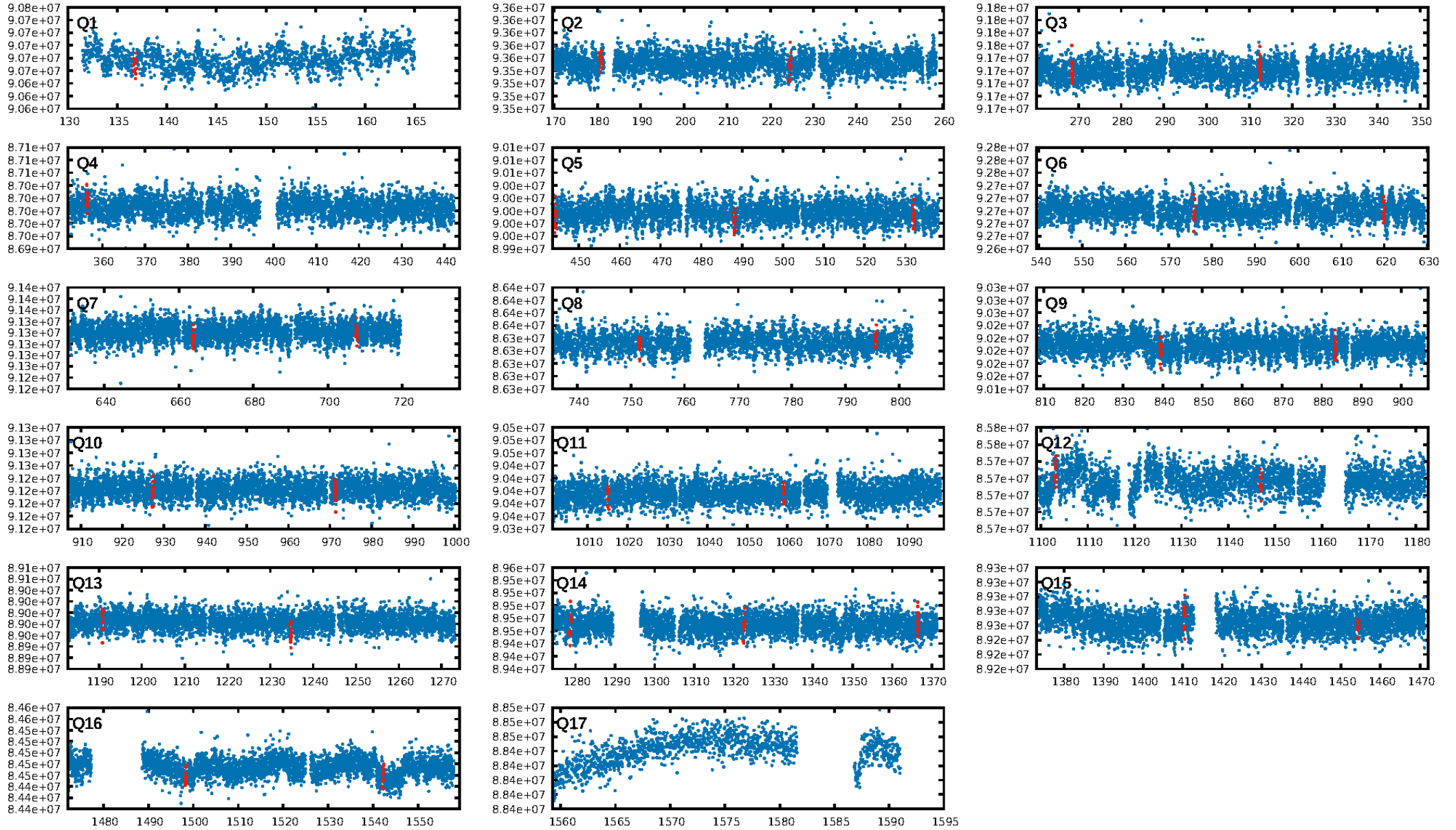
## DV Fit Results:

Period = 43.91959 [0.00072] d  
Epoch = 136.7814 [0.0150] BKJD  
Rp/R\* = 0.0135 [0.0181]  
a/R\* = 45.81 [368.32]  
b = 0.85 [2.74]  
Seff = 43.40 [19.54]  
Teq = 654 [74] K  
Rp = 1.75 [2.43] Re  
a = 0.2592 [0.0762] AU  
Ag = 2005.77 [5443.95] [0.37 $\sigma$ ]  
Teffp = 6772 [4549] K [1.34 $\sigma$ ]

## DV Diagnostic Results:

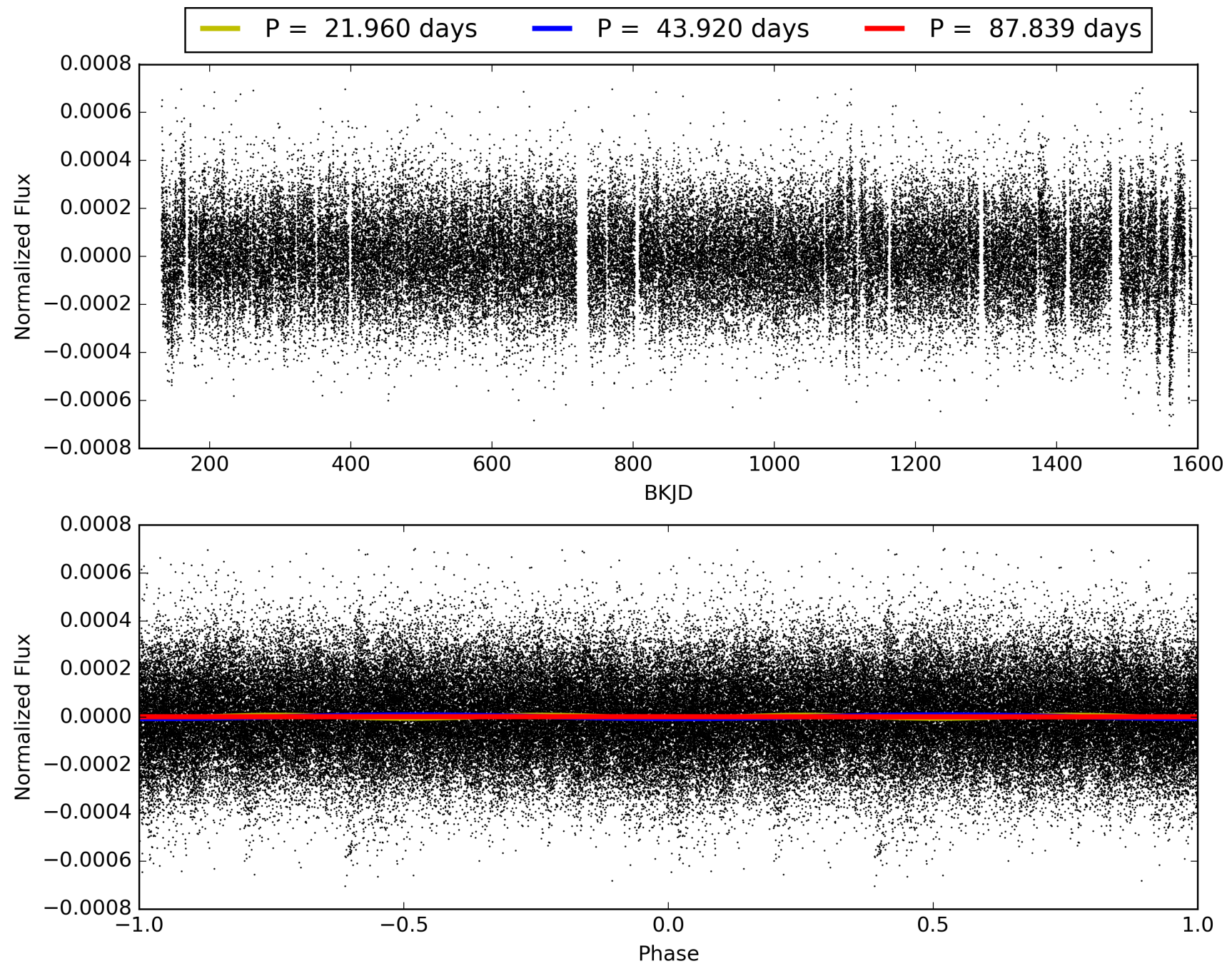
ShortPeriod-sig: 100.0% [30.20 $\sigma$ ]  
LongPeriod-sig: 100.0% [8.03 $\sigma$ ]  
ModelChiSquare2-sig: 63.8%  
ModelChiSquareGof-sig: 97.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
**GhostDiagnostic-chr: 0.1718**  
**Centroid-sig: 0.2%**  
Centroid-so: 1.412 arcsec [2.06 $\sigma$ ]  
OotOffset-rm: 0.916 arcsec [1.11 $\sigma$ ]  
KicOffset-rm: 0.835 arcsec [0.97 $\sigma$ ]  
OotOffset-st: 2/3/1/2 [8]  
KicOffset-st: 2/3/1/2 [8]  
DiffImageQuality-fgm: 0.38 [3/8]  
DiffImageOverlap-fno: 0.38 [6/16]

# TCE 006783562-05, PDC Light Curves



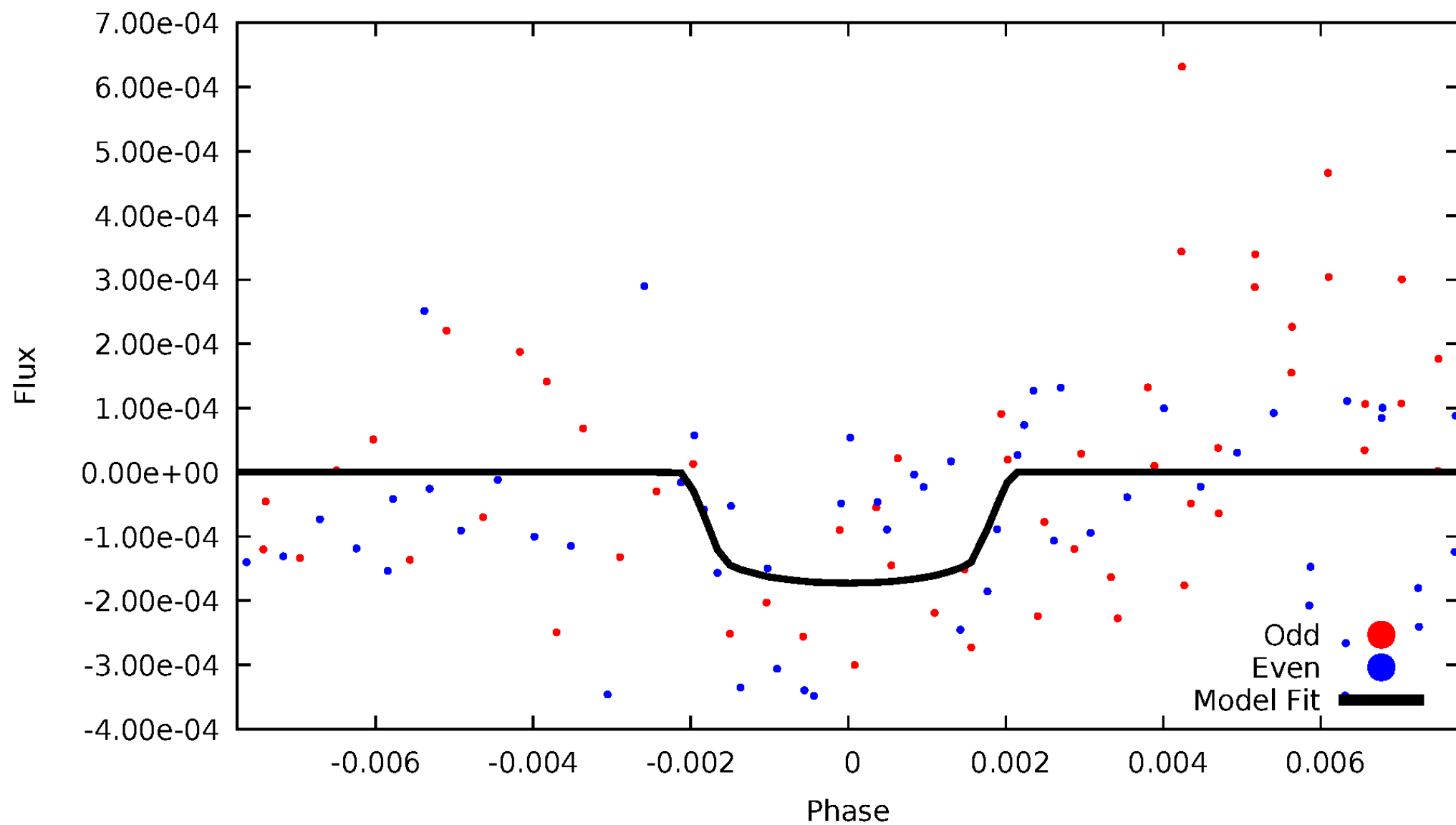


TCE 006783562-05



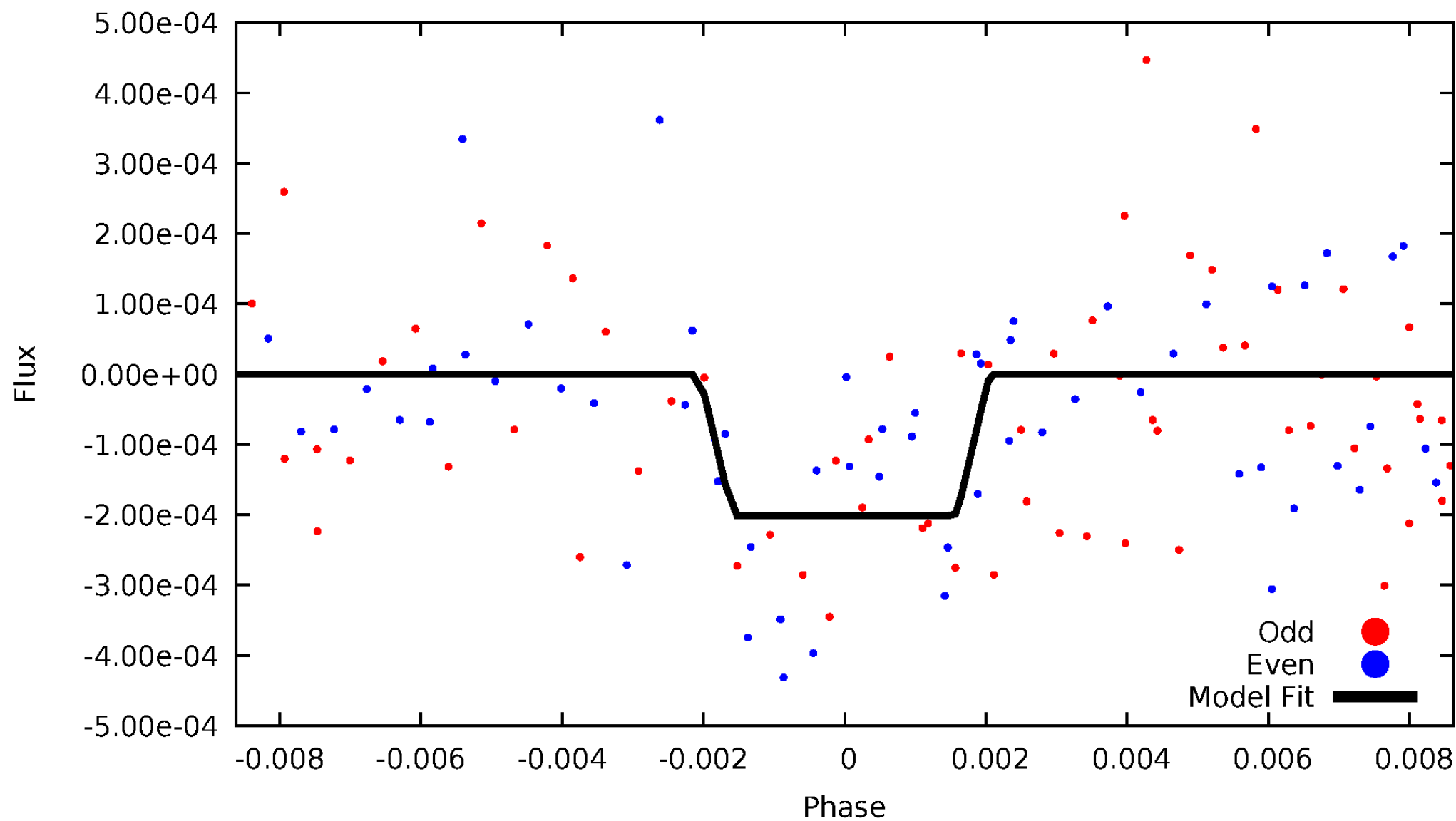
# DV Odd/Even

TCE 006783562-05



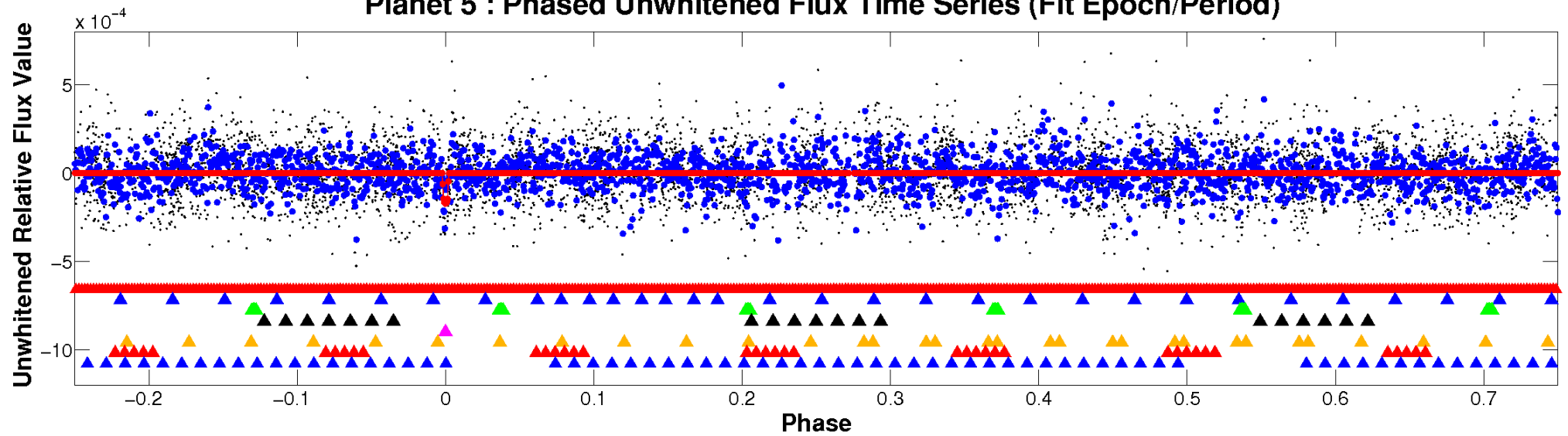
# ALT Odd/Even

TCE 006783562-05

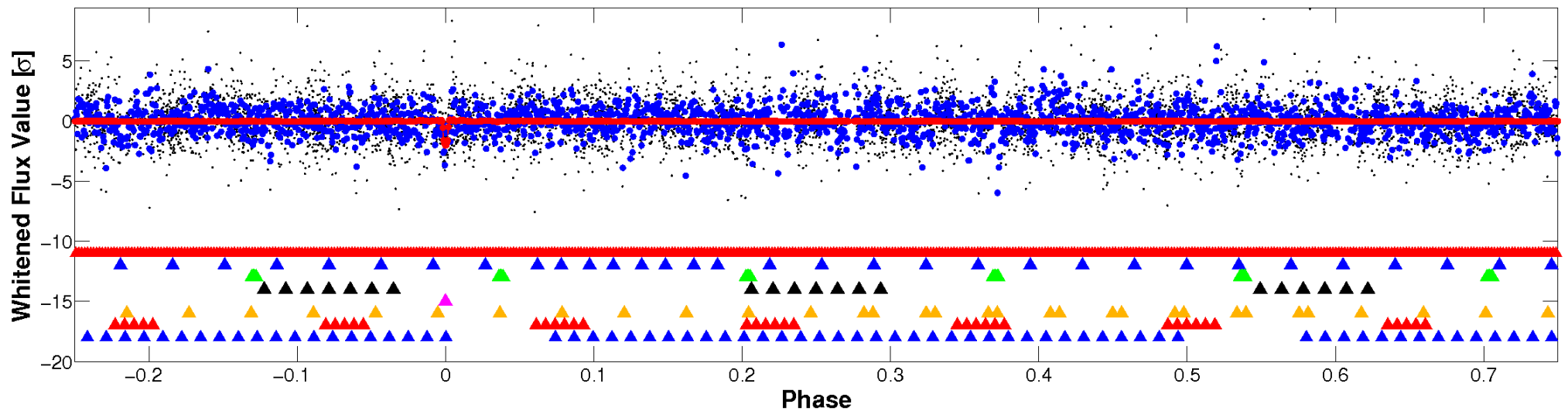


# Non-Whitened Vs. Whitened Light Curve

## Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

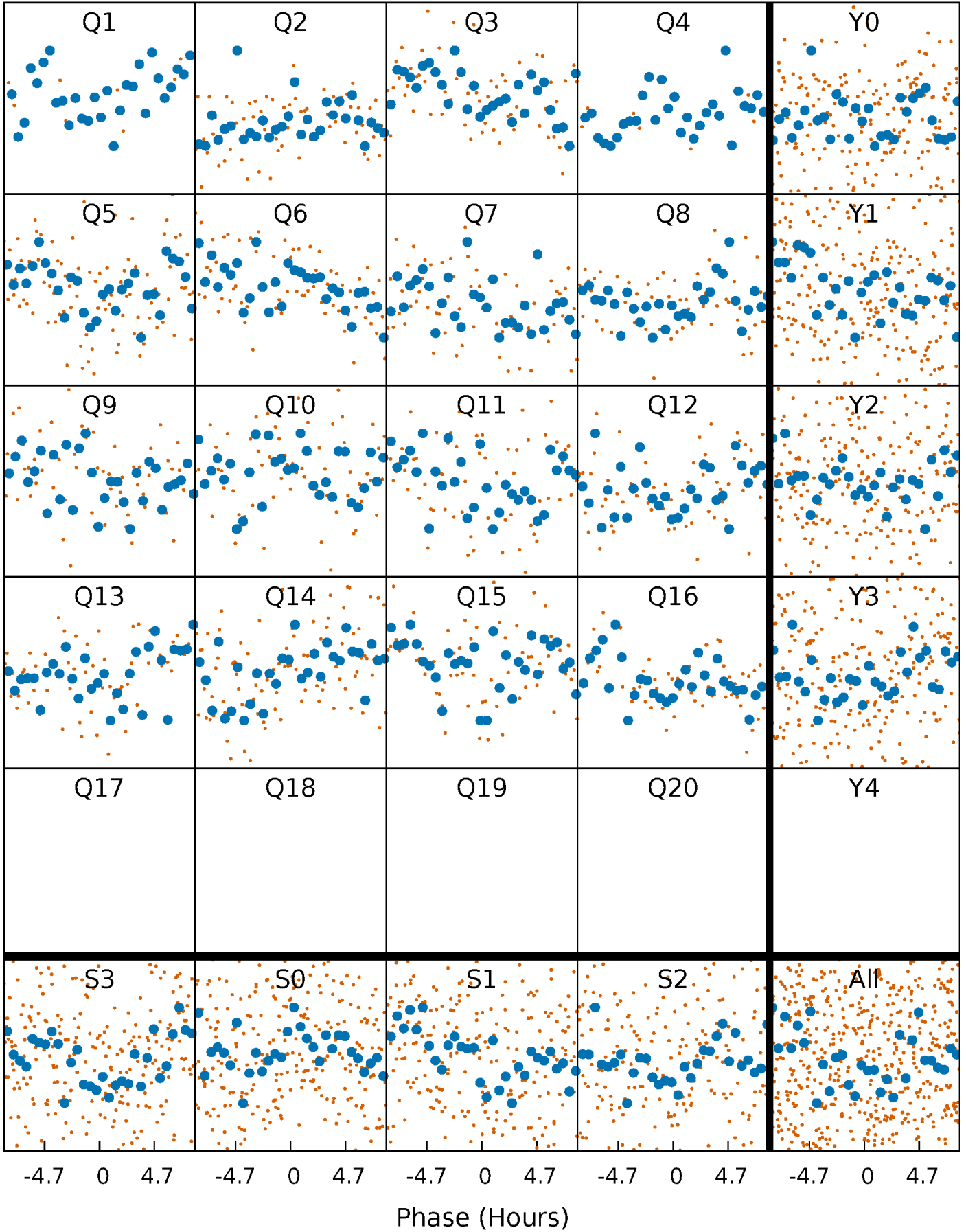


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



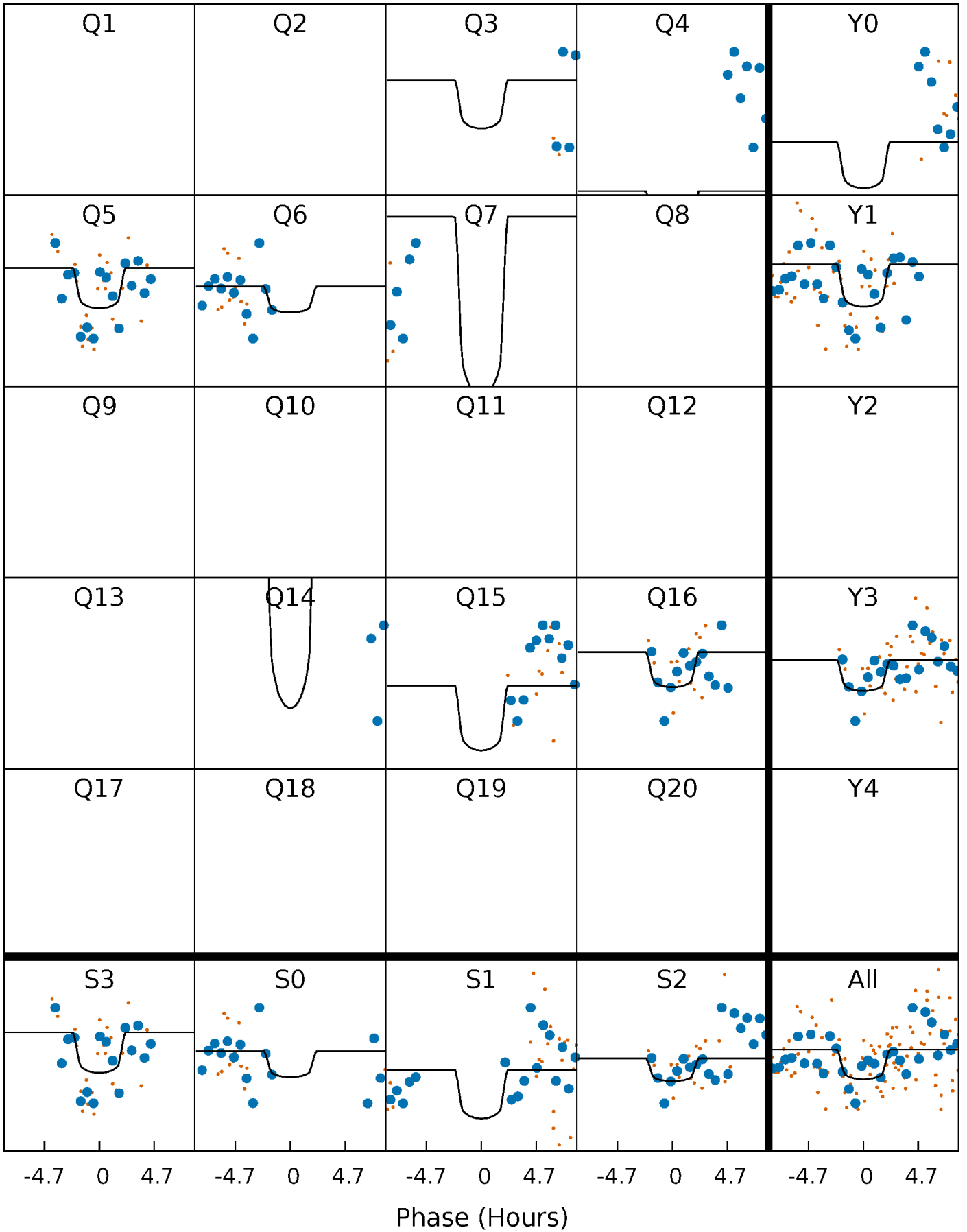
# PDC Quarter-Phased Transit Curves

TCE 006783562-05   P= 43.919590 Days    $T_0=136.781372$  (BKJD)



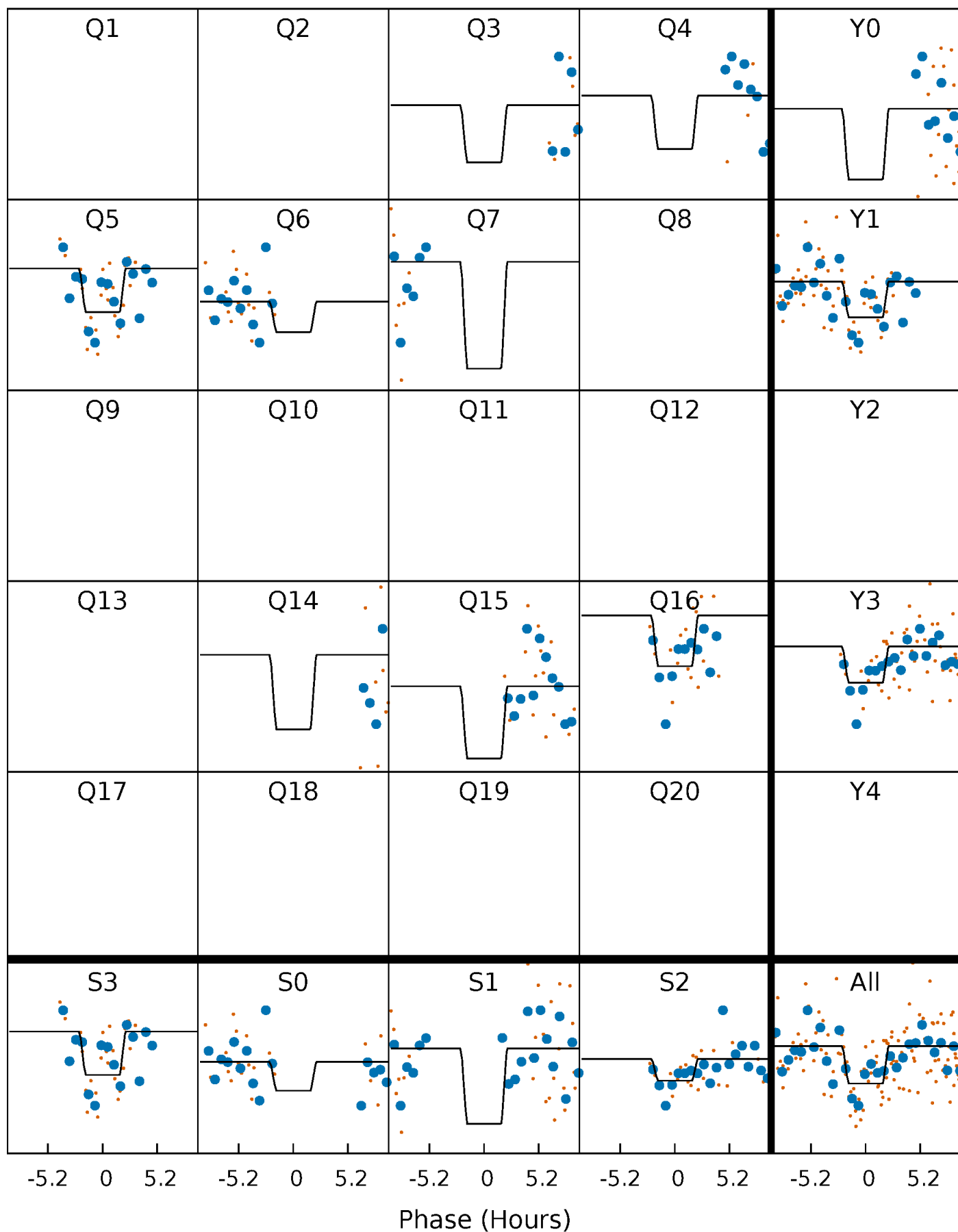
# DV Quarter-Phased Transit Curves

TCE 006783562-05     $P = 43.919590$  Days     $T_0 = 136.781372$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006783562-05   P= 43.920143 Days    $T_0=136.777082$  (BKJD)

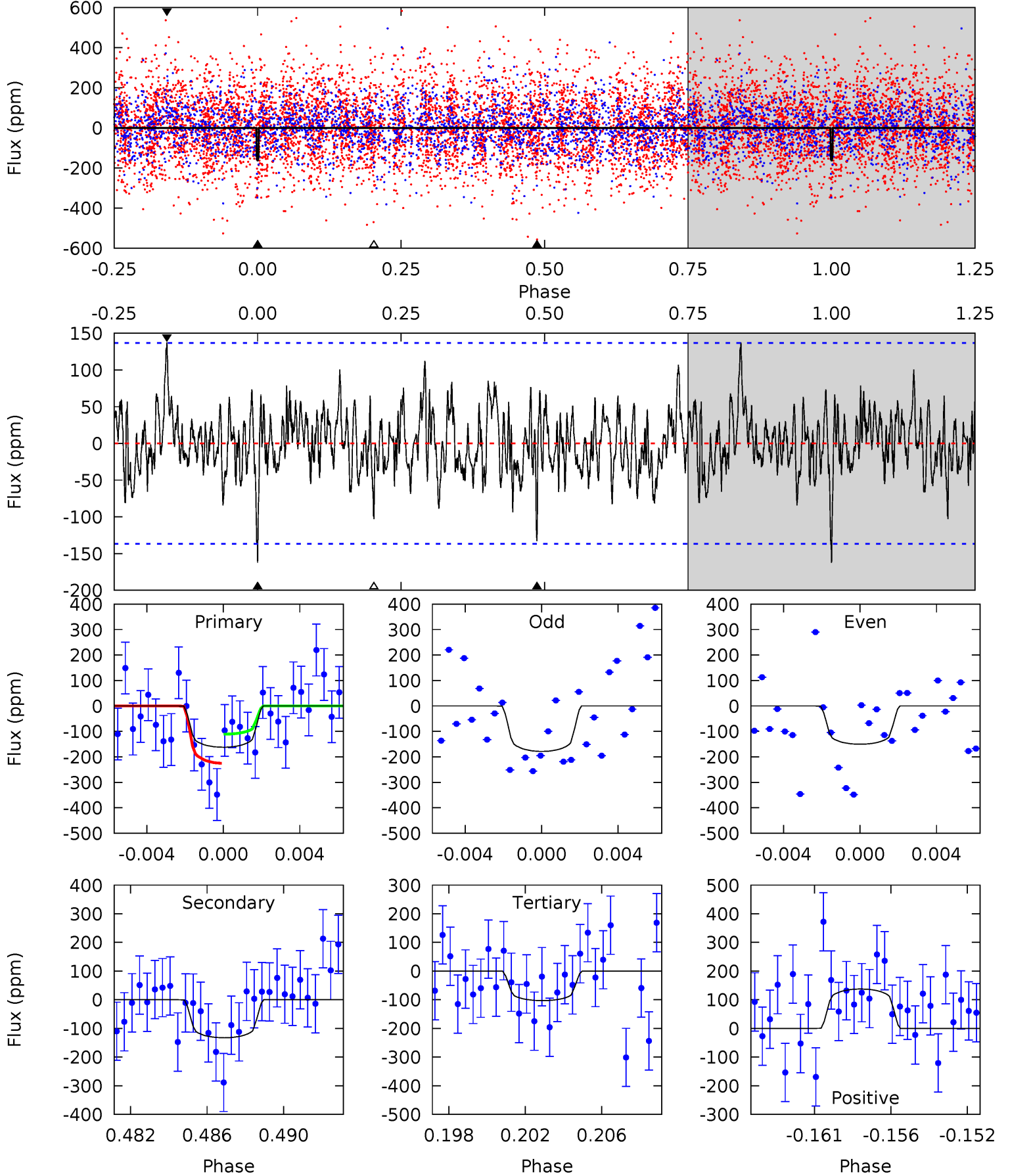




# DV Model-Shift Uniqueness Test

006783562-05, P = 43.919590 Days, E = 92.861782 Days

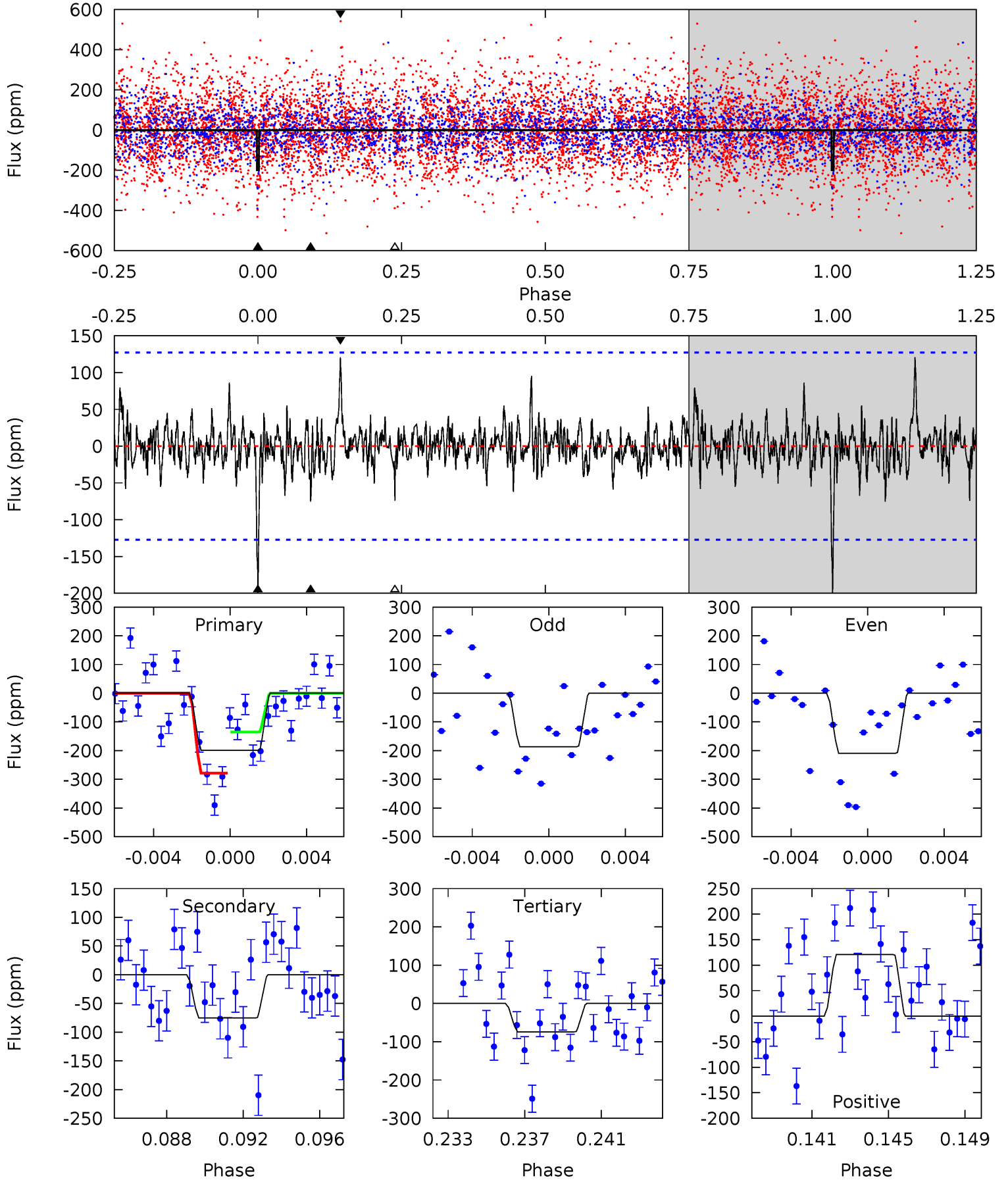
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.16 | 5.04 | 3.91 | 5.22 | 5.19            | 2.87            | 1.39             | 2.25    | 0.94    | 1.13    | -0.19   | 0.53    | 0.96 | 0.46  | 2.16 |



# Alt Model-Shift Uniqueness Test

006783562-05, P = 43.920143 Days, E = 92.856939 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.15 | 3.08 | 3.03 | 4.94 | 5.20            | 2.88            | 0.95             | 5.12    | 3.21    | 0.05    | -1.87   | 0.46    | 1.02 | 0.38  | 2.91 |



### Stellar Parameters For KIC 006783562

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
|        | $6930^{+192}_{-288}$ | $4.369^{+0.056}_{-0.224}$ | $-0.320^{+0.250}_{-0.350}$ | $1.188^{+0.425}_{-0.142}$ | $1.219^{+0.189}_{-0.154}$ | $1.025^{+0.239}_{-0.556}$                 |
|        | +3%/-4%              | +1%/-5%                   | +78%/-109%                 | +36%/-12%                 | +16%/-13%                 | +23%/-54%                                 |
| 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 006783562-05 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$          | $A_{obs}$            |
|---------|---------------|------------------------|-------------------|------------------------|----------------------|
| DV      | $-133 \pm 26$ | $2.62^{+2.16}_{-1.74}$ | $939^{+70}_{-54}$ | $5475^{+4651}_{-1270}$ | $728^{+5403}_{-523}$ |
| Alt.    | $-75 \pm 24$  | $2.64^{+2.42}_{-1.58}$ | $939^{+73}_{-53}$ | $4698^{+2719}_{-974}$  | $371^{+2019}_{-271}$ |

$T_{max}$  = 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

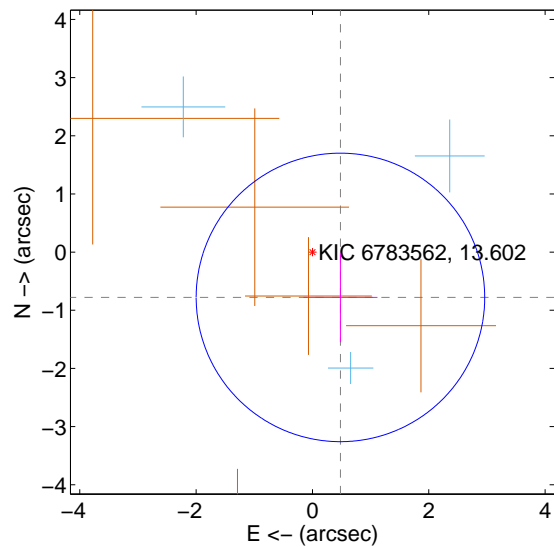
Supplemental centroid analysis for 006783562-05. Kepler magnitude: 13.60. Transit SNR 9.17

There are 3 quarters with good PRF difference image offsets

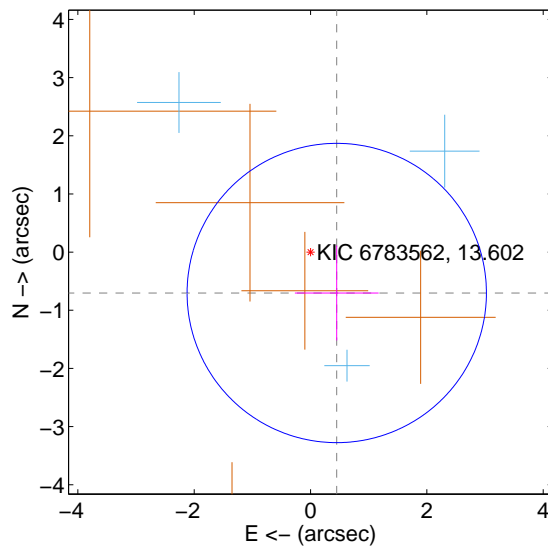
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|-----------------------------------------|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.916 \pm 0.827$  | 1.11                | $-0.481 \pm 0.636$ | $-0.779 \pm 0.769$ |
| PRF-fit source offset from KIC position | $0.835 \pm 0.858$  | 0.97                | $-0.451 \pm 0.720$ | $-0.703 \pm 0.815$ |
| photometric centroid source offset      | $1.41 \pm 0.68$    | 2.06                | $0.40 \pm 0.70$    | $-1.35 \pm 0.68$   |

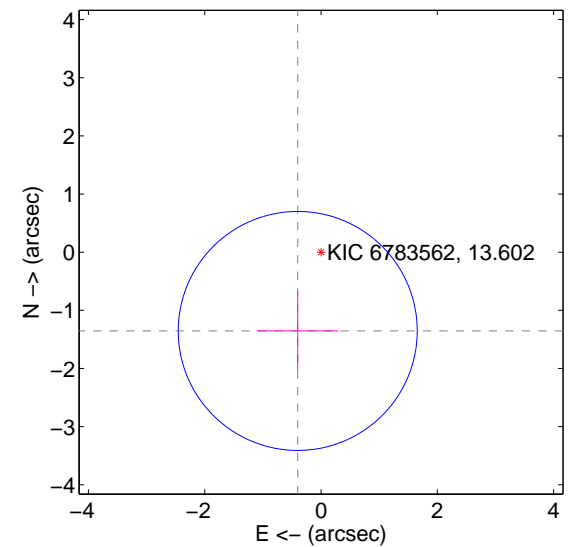
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

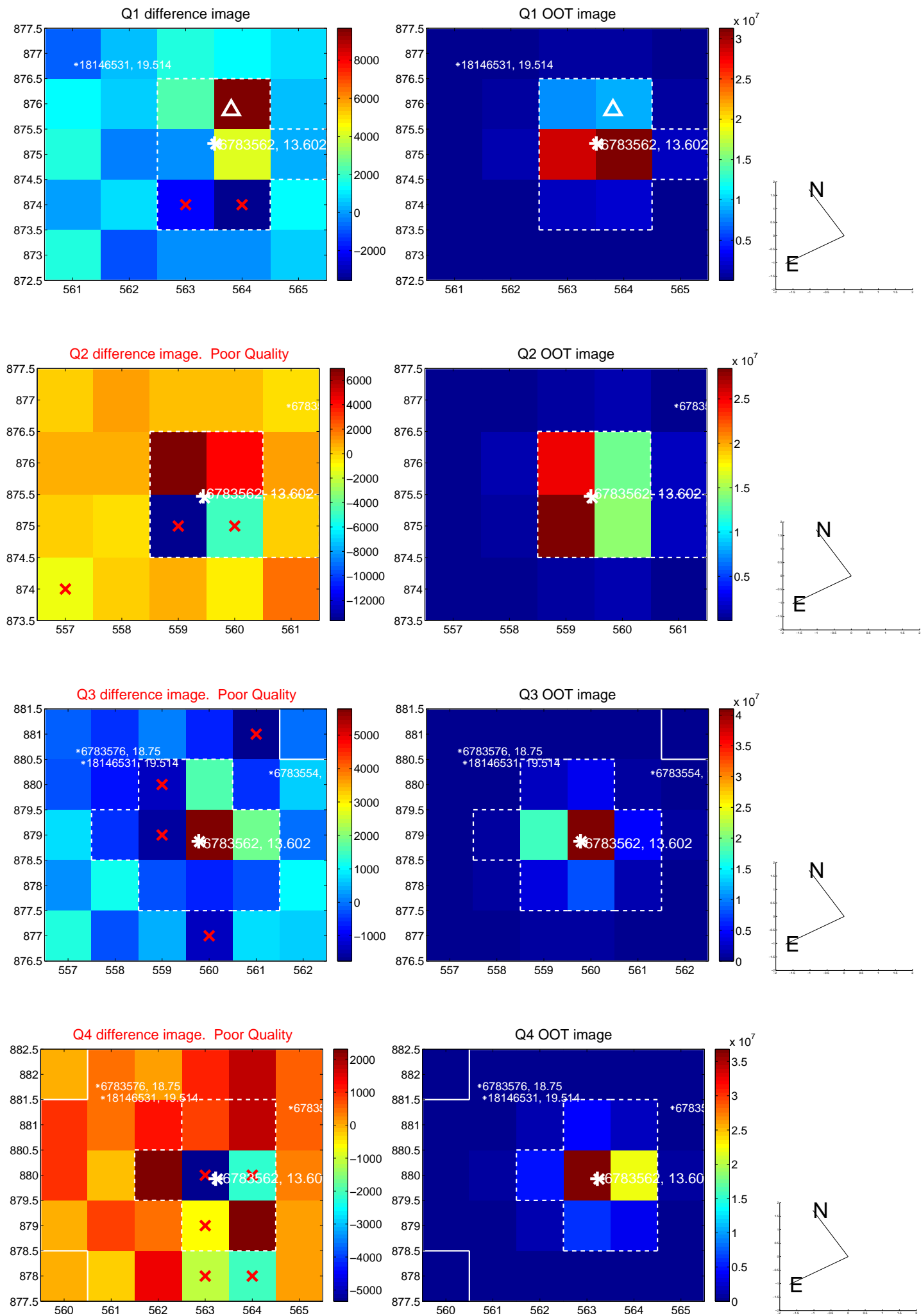


offset from photometric centroids

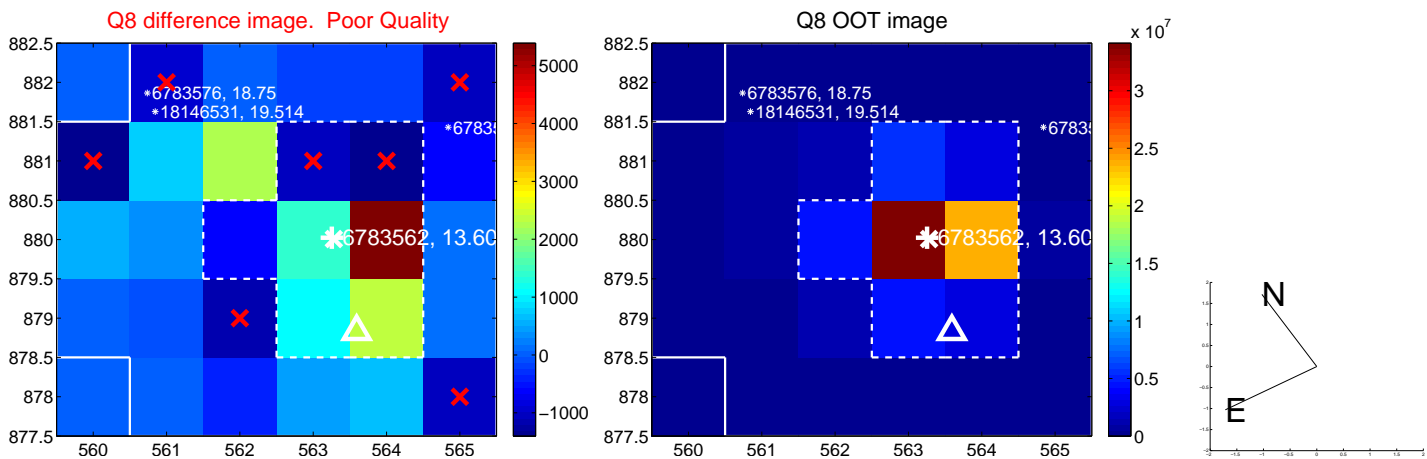
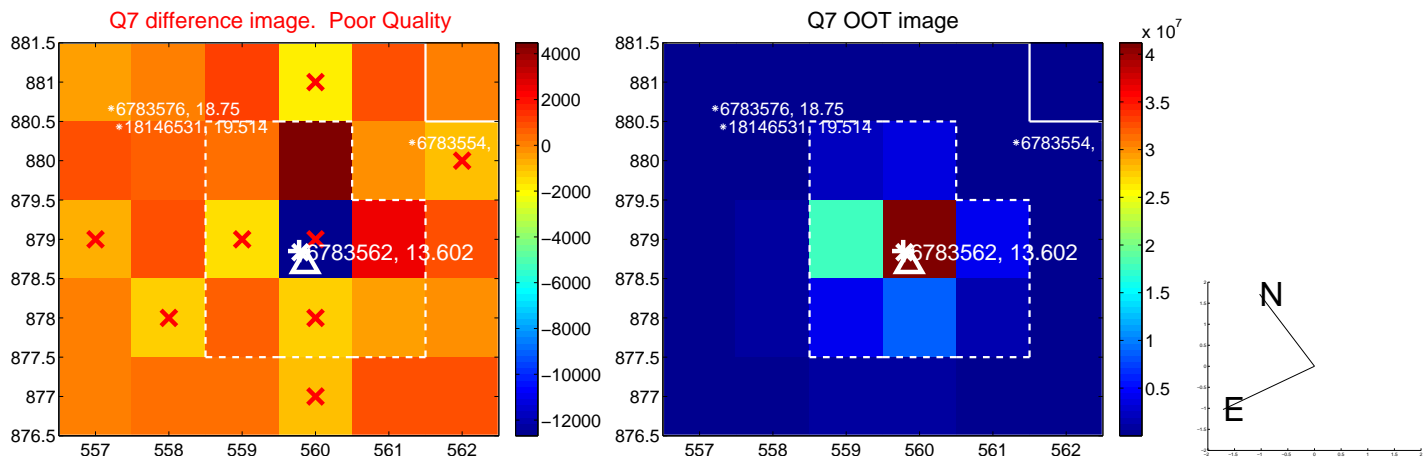
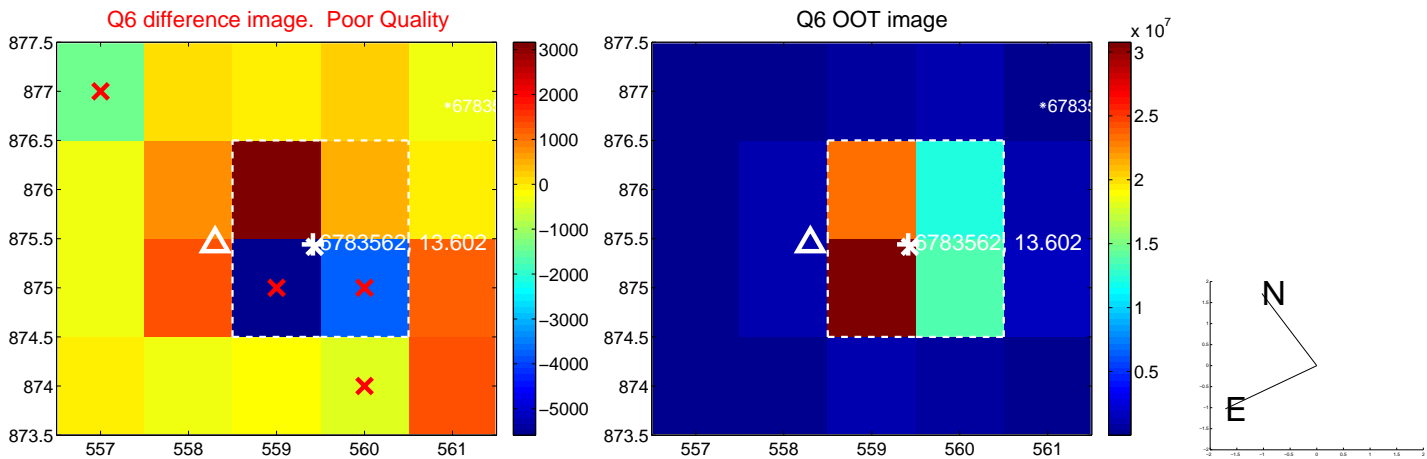
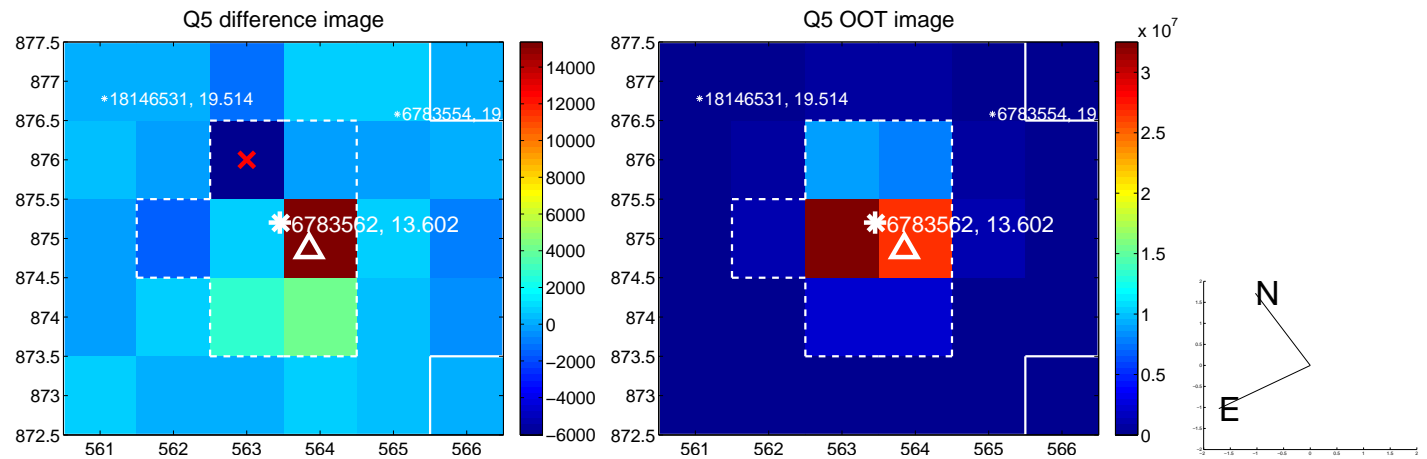


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

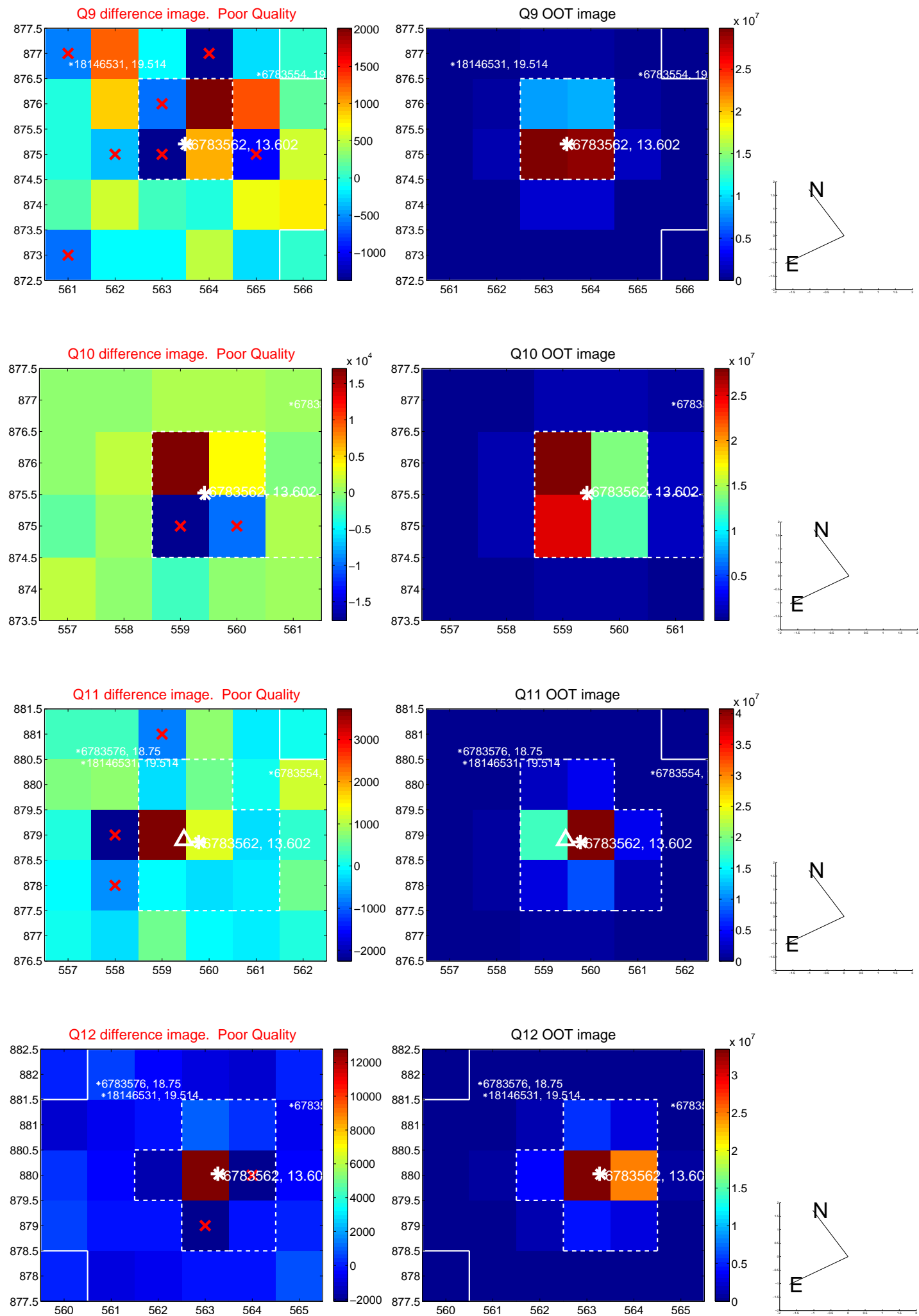
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

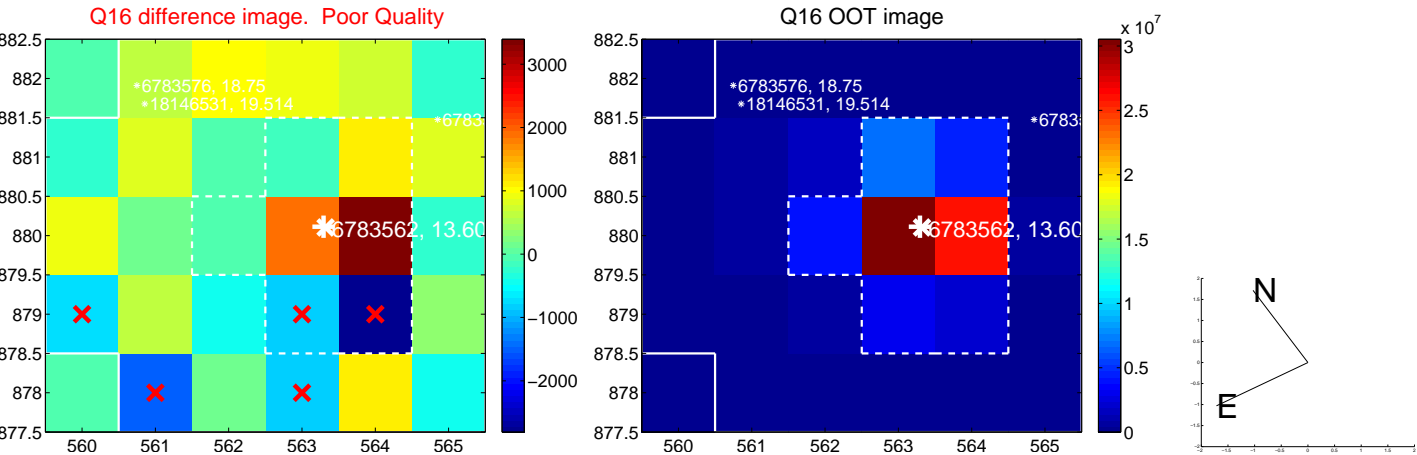
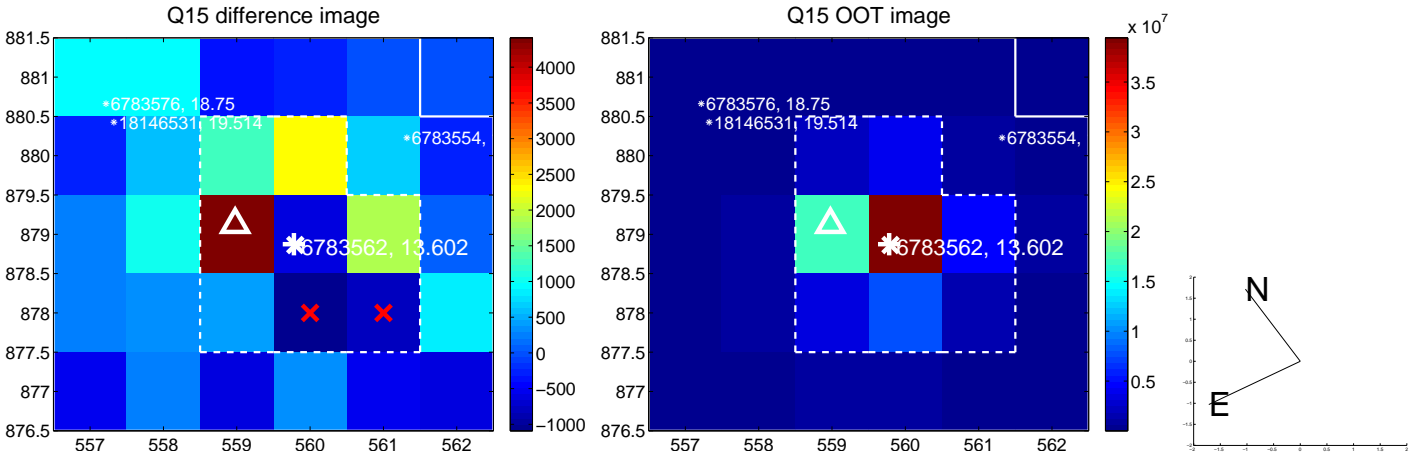
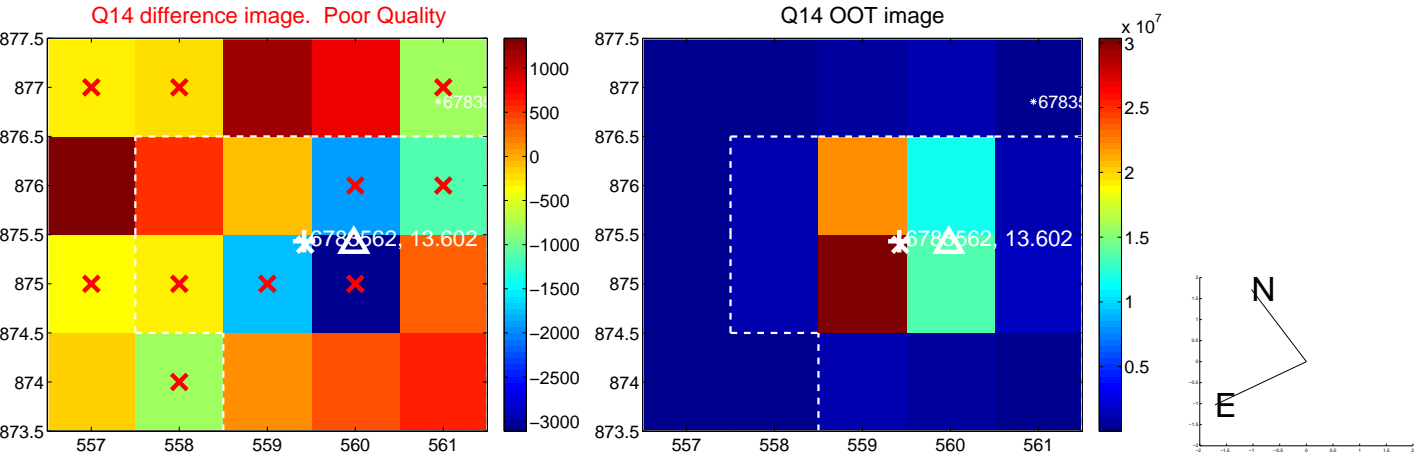
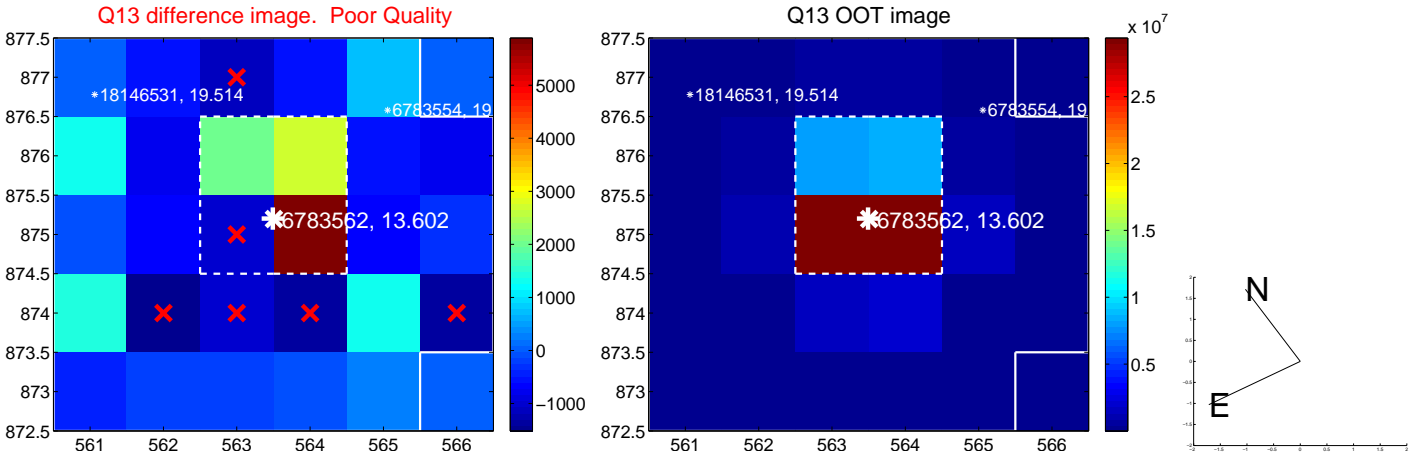


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

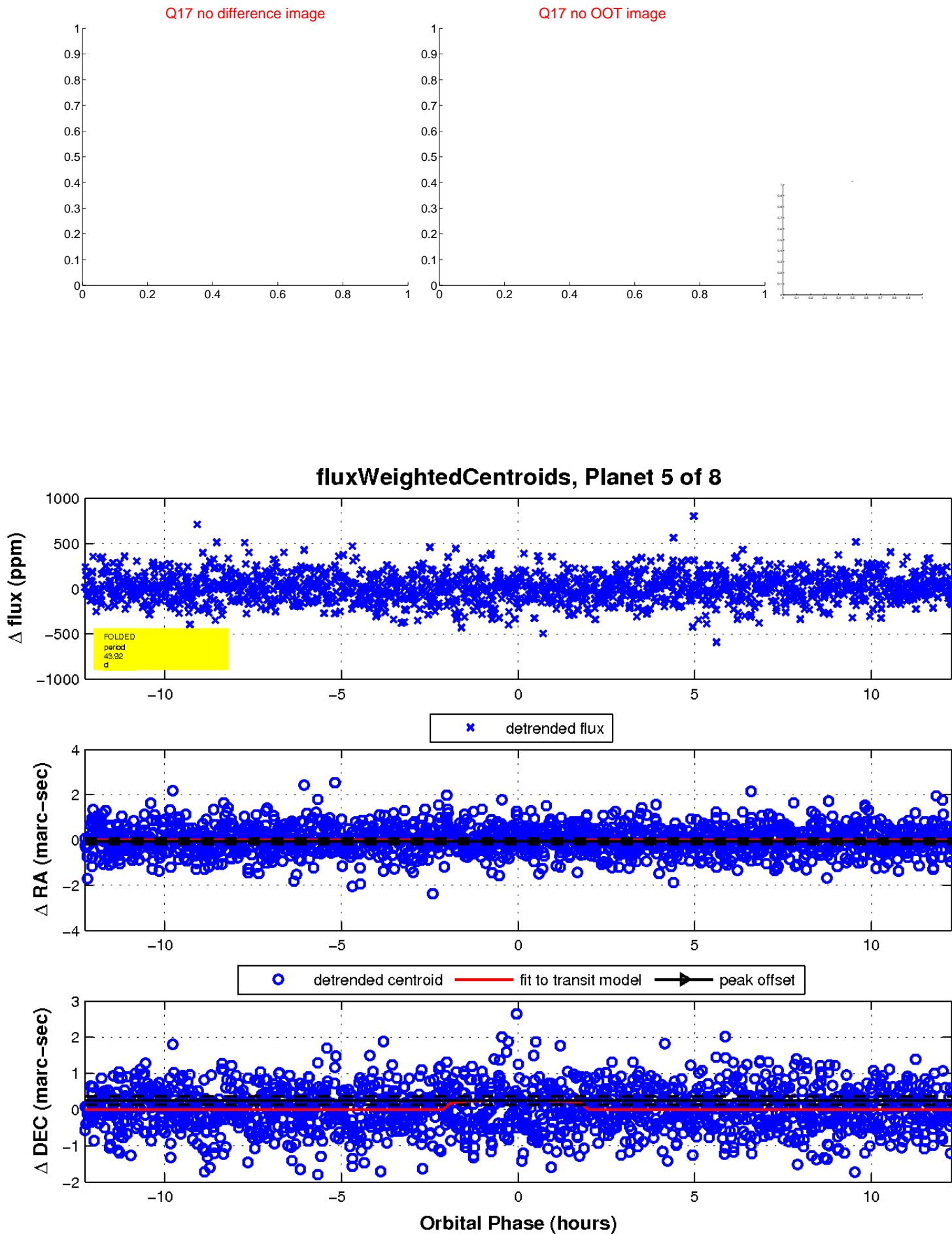




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

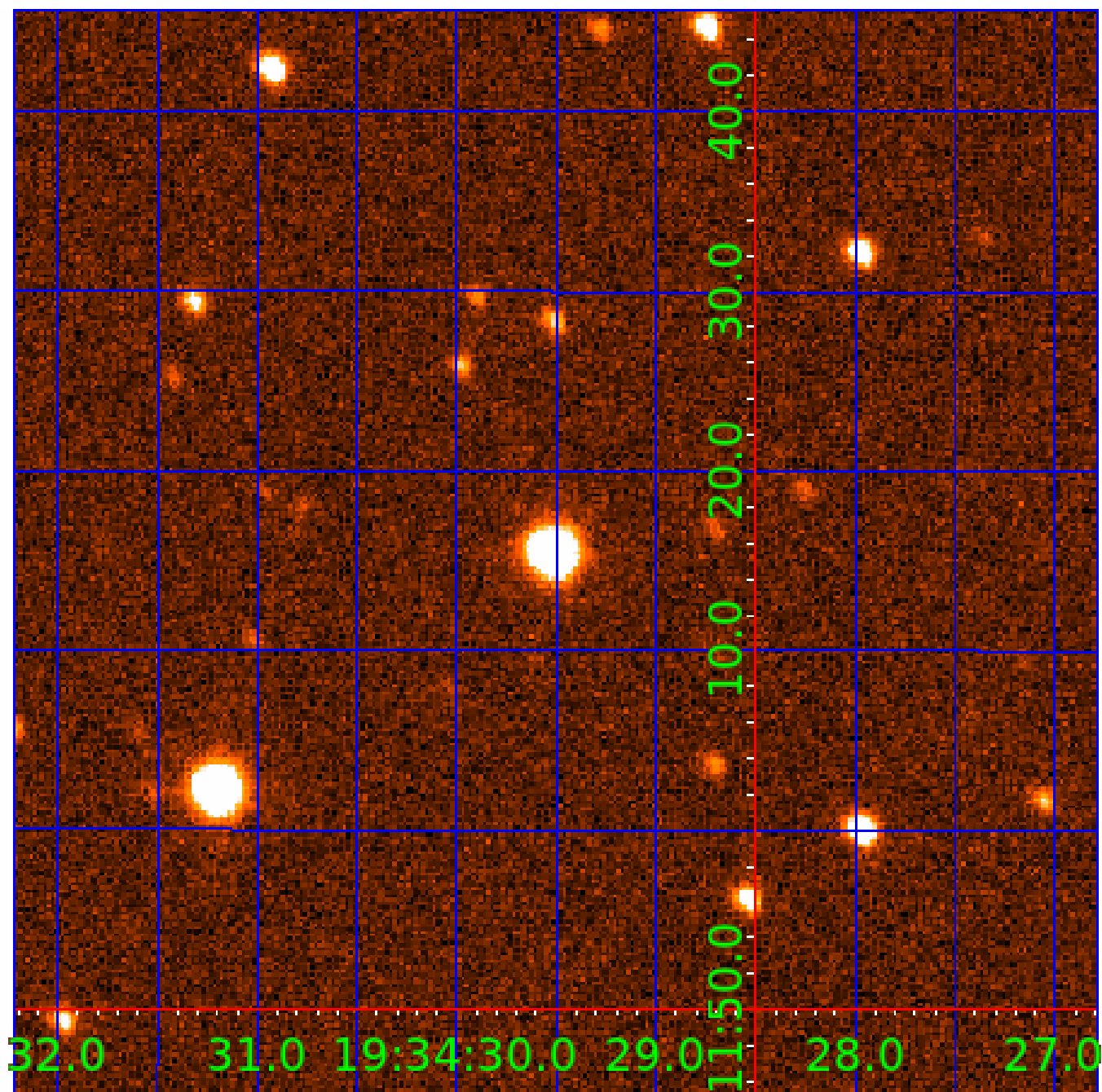


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006783562

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006783562-01 | OBS      | No   | 2.087275      | 132.270008   | 13.5        | 14.854           | 8.0  | 7.0  | 1.19                        | 6930            | 0.47                   | 2521.15                |
| 006783562-02 | OBS      | No   | 45.463043     | 140.208363   | 268.3       | 2.129            | 10.9 | 11.8 | 1.19                        | 6930            | 1.98                   | 41.45                  |
| 006783562-03 | OBS      | No   | 36.604208     | 167.620051   | 205.5       | 3.284            | 10.7 | 10.6 | 1.19                        | 6930            | 1.90                   | 55.34                  |
| 006783562-04 | OBS      | No   | 73.411839     | 145.841771   | 249.8       | 5.271            | 8.7  | 12.0 | 1.19                        | 6930            | 2.06                   | 21.88                  |
| 006783562-05 | OBS      | No   | 43.919590     | 136.781372   | 172.5       | 4.090            | 9.6  | 9.2  | 1.19                        | 6930            | 1.75                   | 43.40                  |
| 006783562-06 | OBS      | No   | 45.760610     | 149.174133   | 207.2       | 5.486            | 8.5  | 10.2 | 1.19                        | 6930            | 1.85                   | 41.09                  |
| 006783562-07 | OBS      | No   | 37.685131     | 158.174151   | 157.4       | 2.797            | 9.7  | 8.3  | 1.19                        | 6930            | 1.60                   | 53.23                  |
| 006783562-08 | OBS      | No   | 21.680387     | 136.795370   | 537.9       | 1.500            | 9.6  | -1.0 | 1.19                        | 6930            | 2.79                   | 111.25                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                                                             |
|--------------|----------|------|-------|---|---|---|---|--------------------------------------------------------------------------------------|
| 006783562-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV                                                                               |
| 006783562-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_MEAS                         |
| 006783562-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006783562-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST     |
| 006783562-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS                    |
| 006783562-08 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST                           |

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

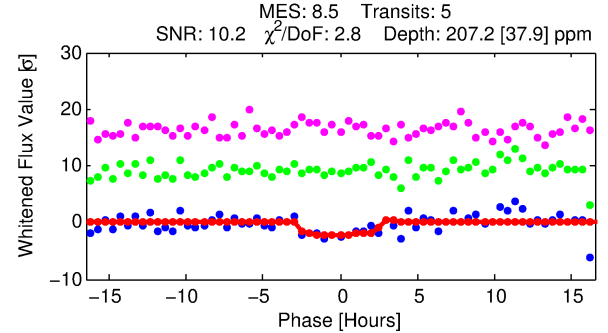
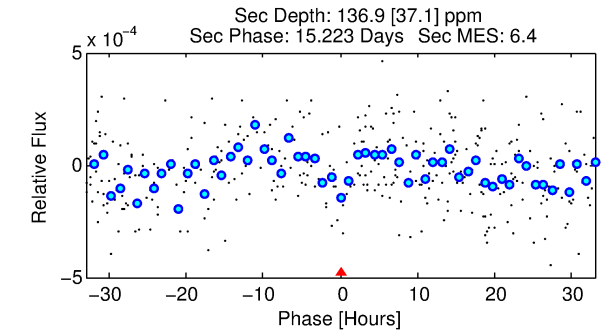
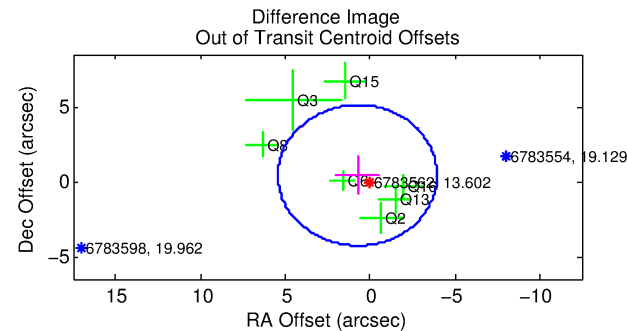
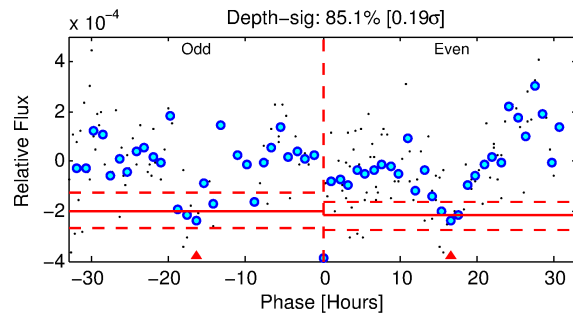
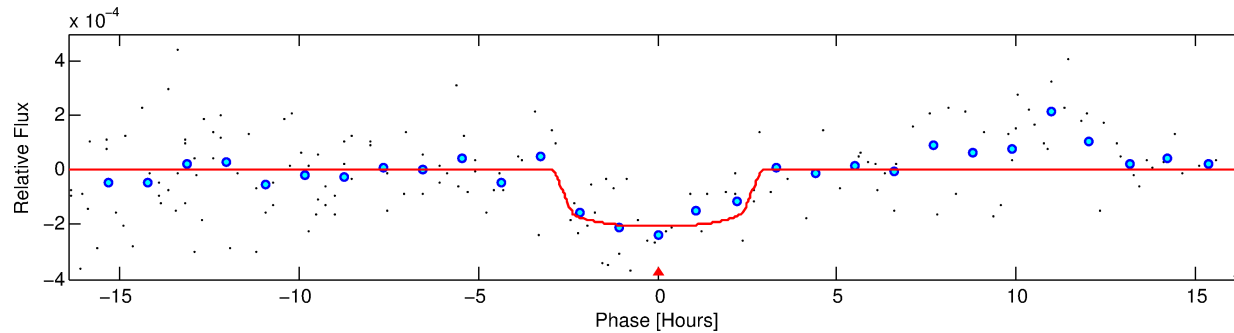
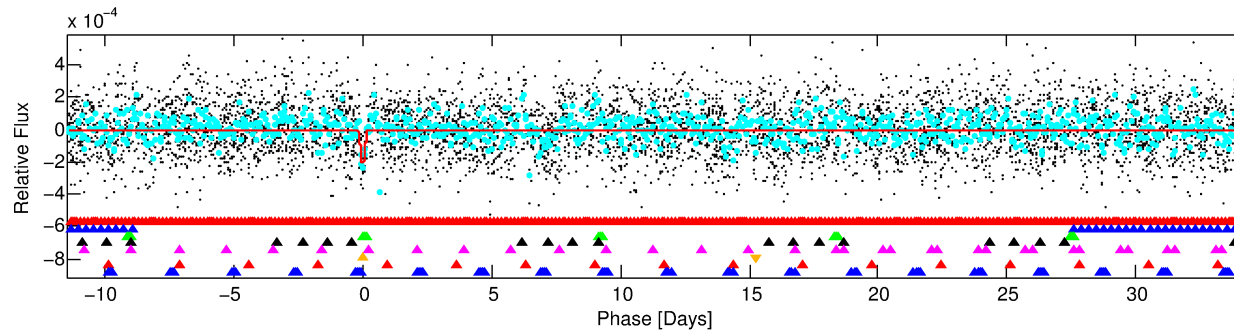
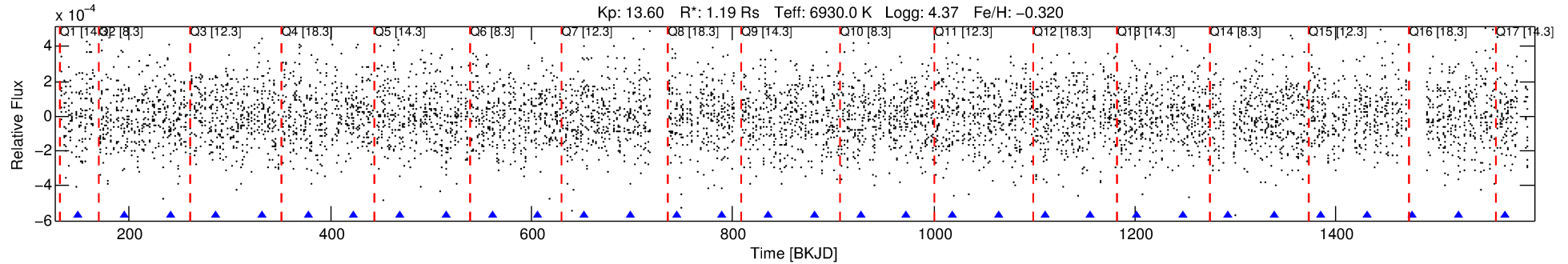
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006783562-06

No Significant Match Found

# DV One-Page Summary

KIC: 6783562 Candidate: 6 of 8 Period: 45.761 d



## DV Fit Results:

Period = 45.76061 [0.00138] d  
Epoch = 149.1741 [0.0222] BKJD  
Rp/R\* = 0.0143 [0.0166]  
a/R\* = 44.54 [310.79]  
b = 0.74 [4.37]  
Seff = 41.09 [18.50]  
Teq = 646 [73] K  
Rp = 1.85 [2.25] Re  
a = 0.2664 [0.0783] AU  
Ag = 1565.48 [3733.65] [0.42 $\sigma$ ]  
Teffp = 6279 [3695] K [1.52 $\sigma$ ]

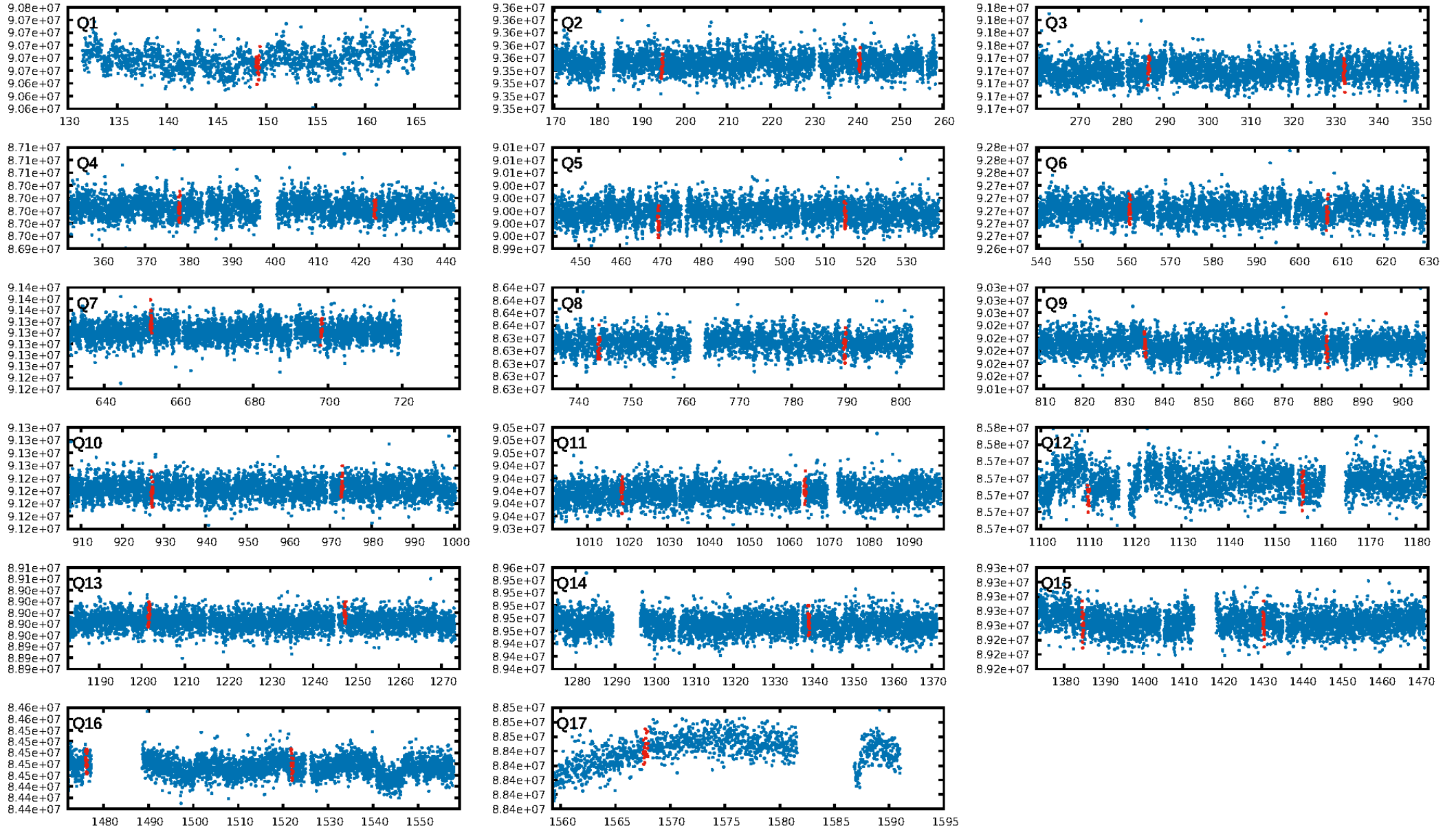
## DV Diagnostic Results:

ShortPeriod-sig: 77.5% [1.21 $\sigma$ ]  
LongPeriod-sig: 100.0% [87.23 $\sigma$ ]  
ModelChiSquare2-sig: 51.3%  
ModelChiSquareGof-sig: 97.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
**GhostDiagnostic-chr: 0.9544**  
Centroid-sig: 0.0%  
Centroid-so: 1.438 arcsec [2.86 $\sigma$ ]  
OotOffset-rm: 0.843 arcsec [0.54 $\sigma$ ]  
KicOffset-rm: 0.945 arcsec [0.74 $\sigma$ ]  
OotOffset-st: 2/2/2/1 [7]  
KicOffset-st: 2/2/2/1 [7]  
DiffImageQuality-fgm: 0.29 [2/7]  
DiffImageOverlap-fno: 0.12 [2/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:18:07 Z

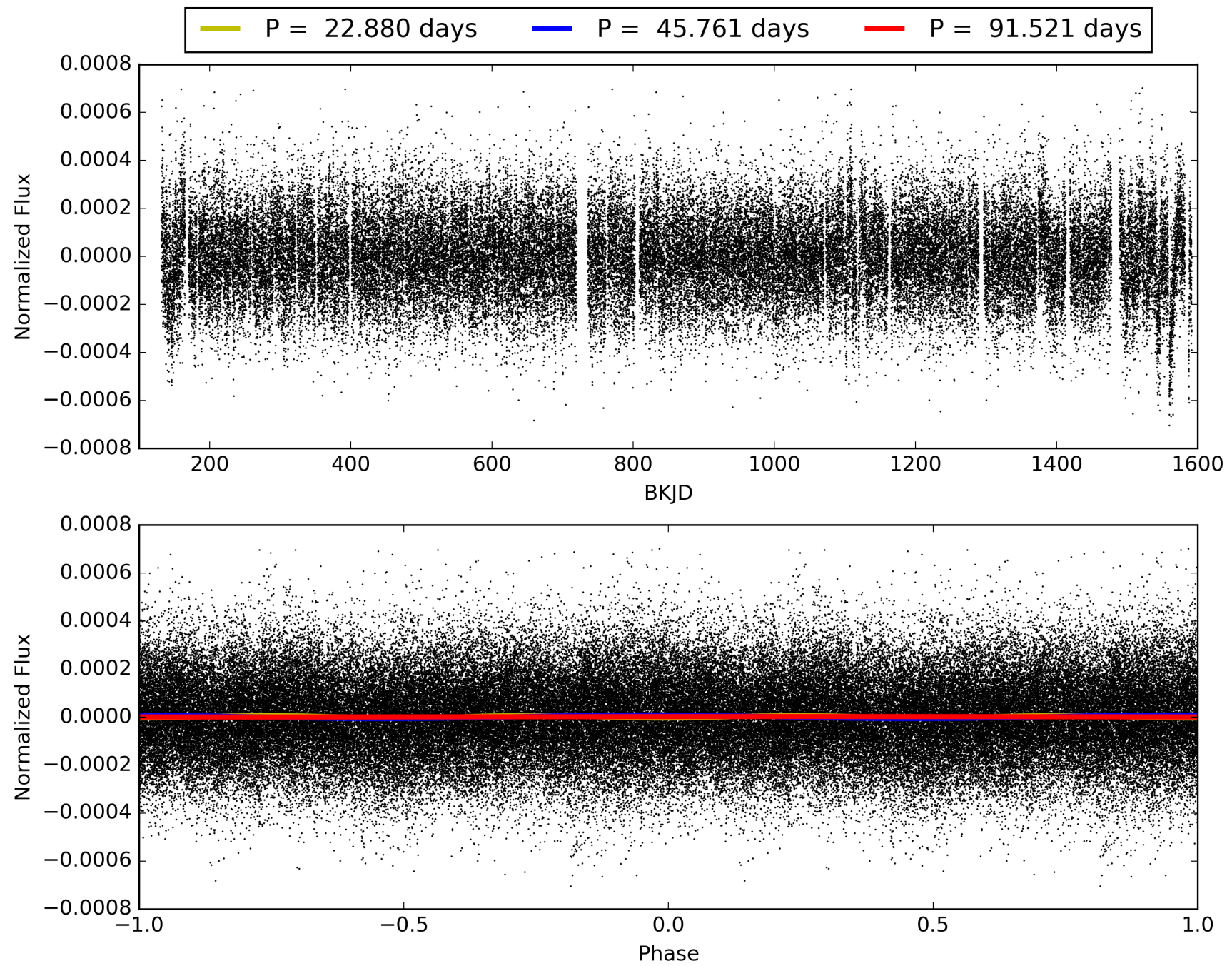
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006783562-06, PDC Light Curves





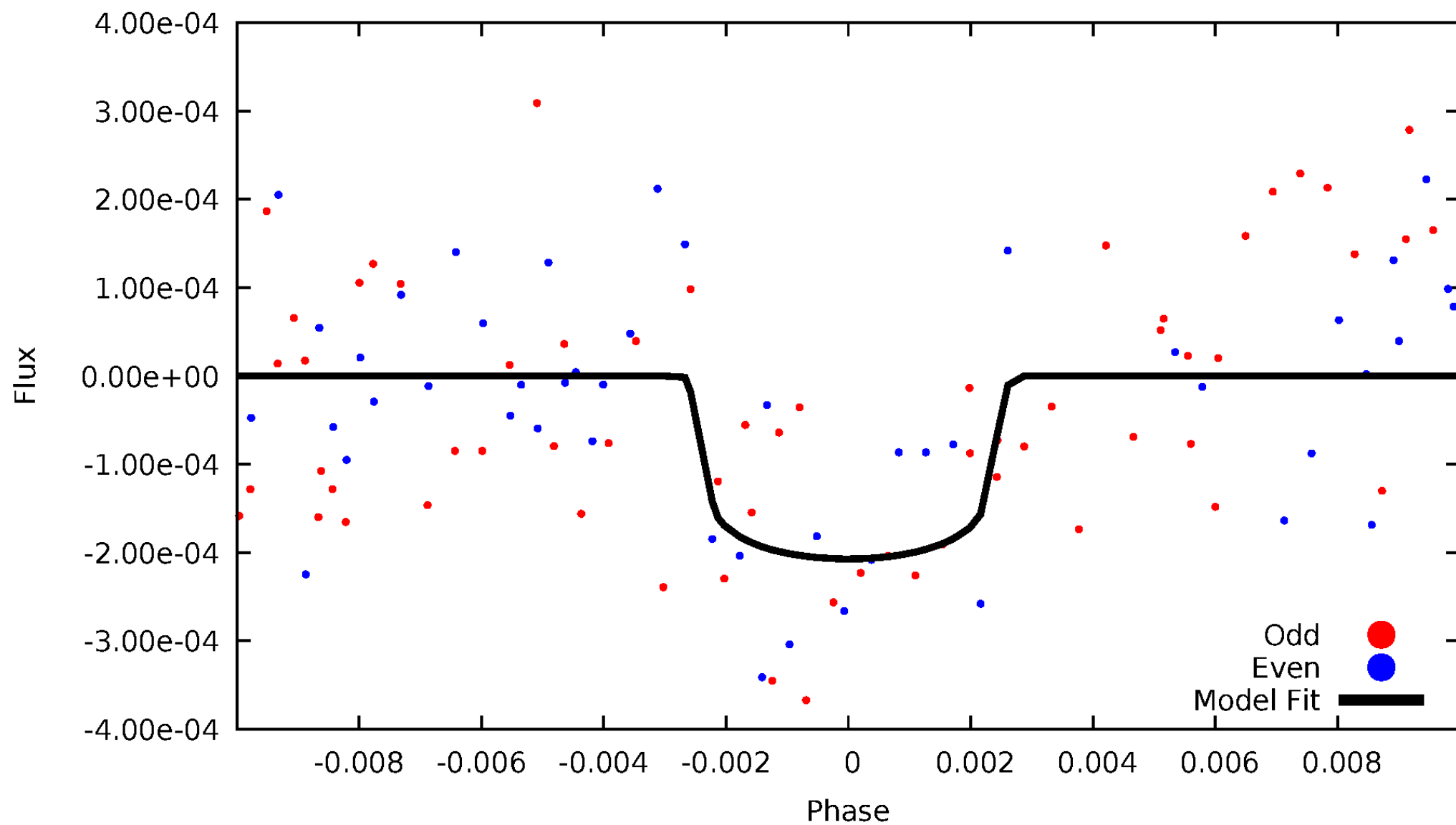
TCE 006783562-06





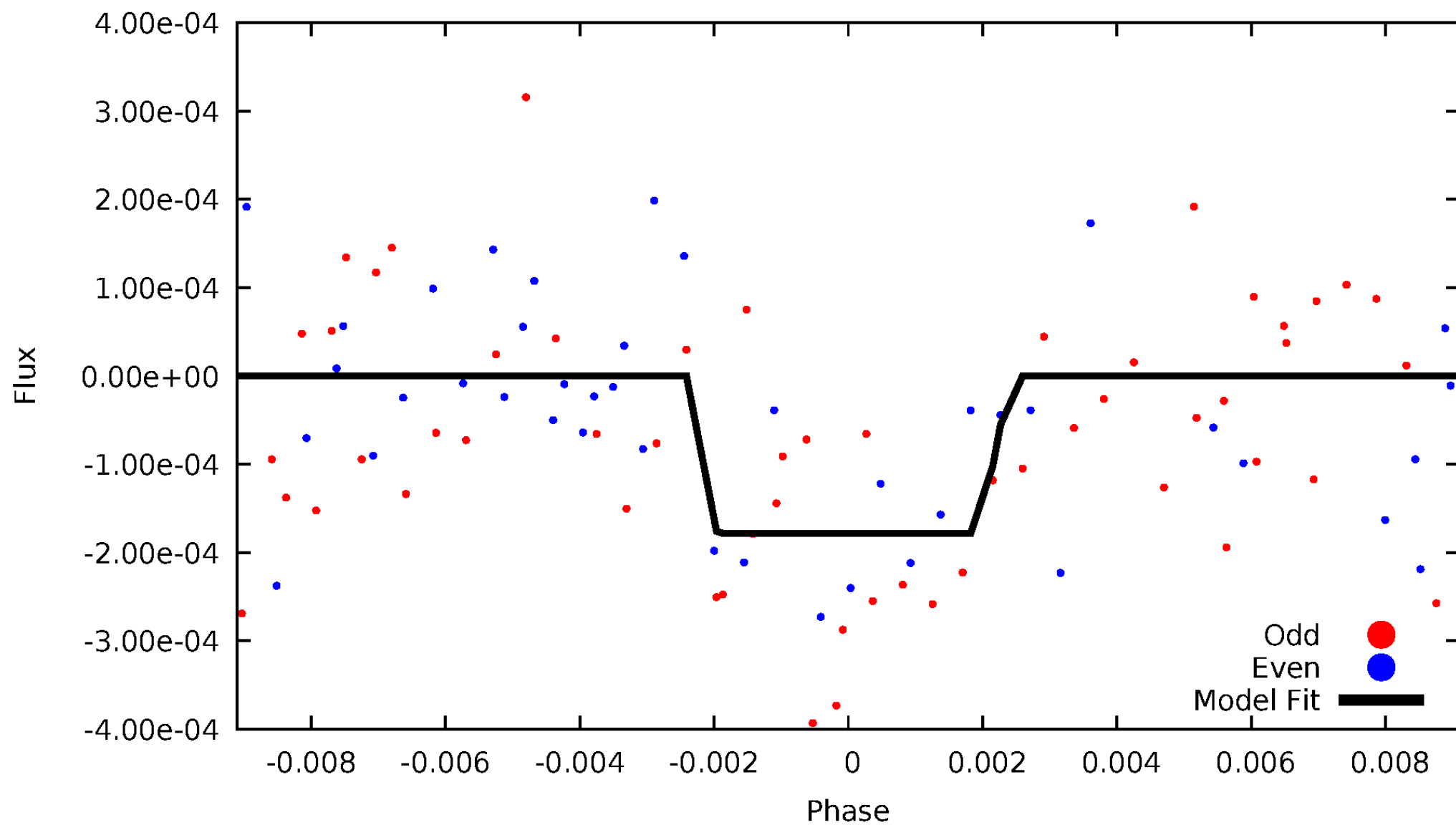
# DV Odd/Even

TCE 006783562-06



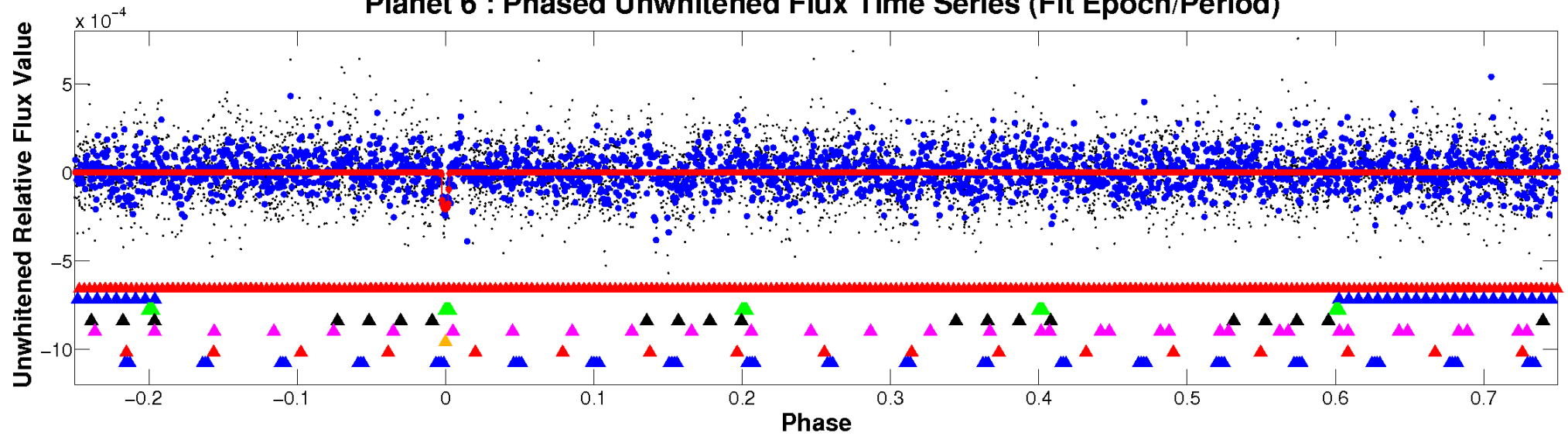
# ALT Odd/Even

TCE 006783562-06

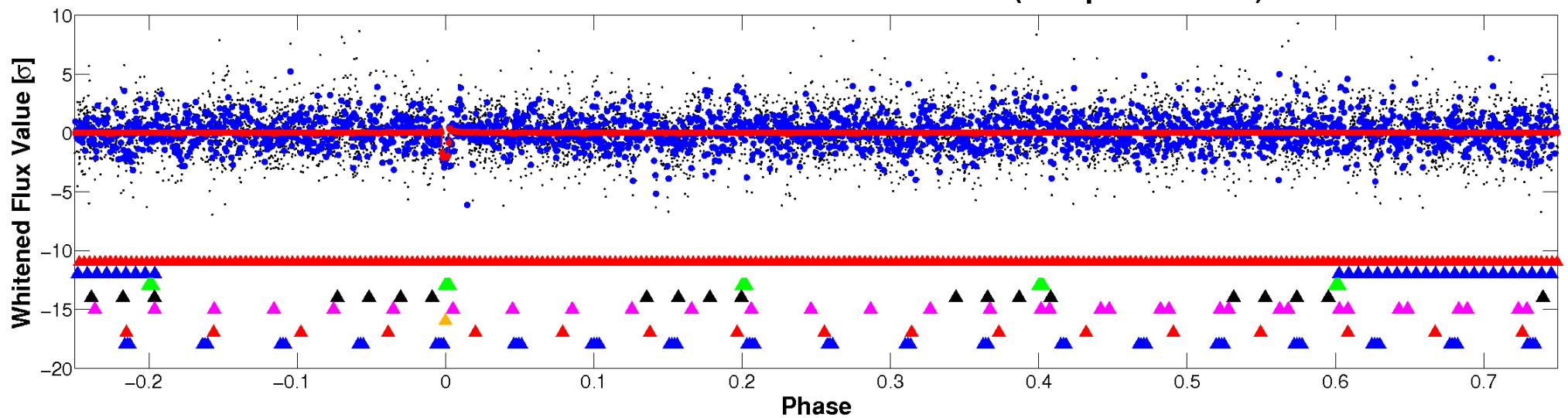


# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

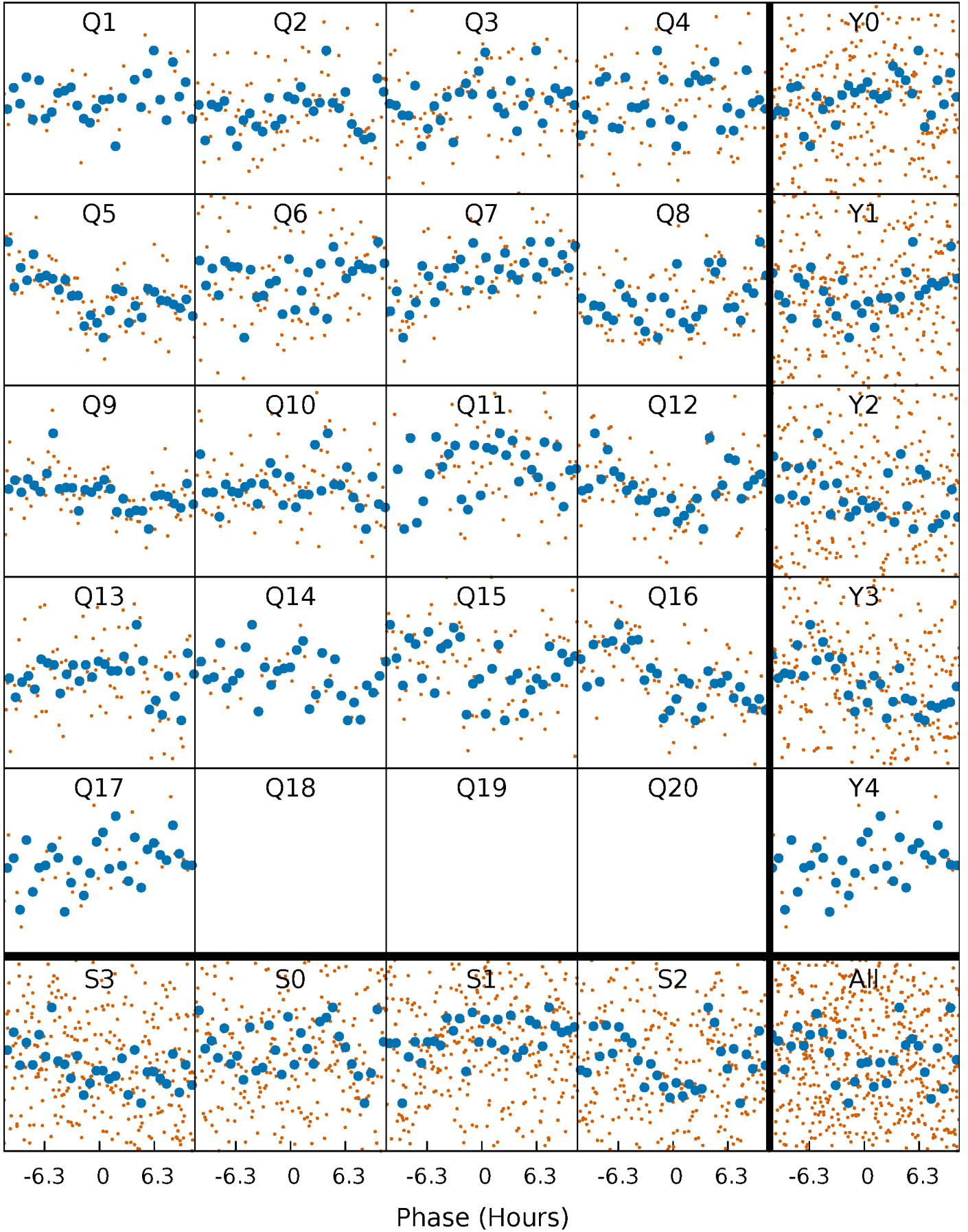


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



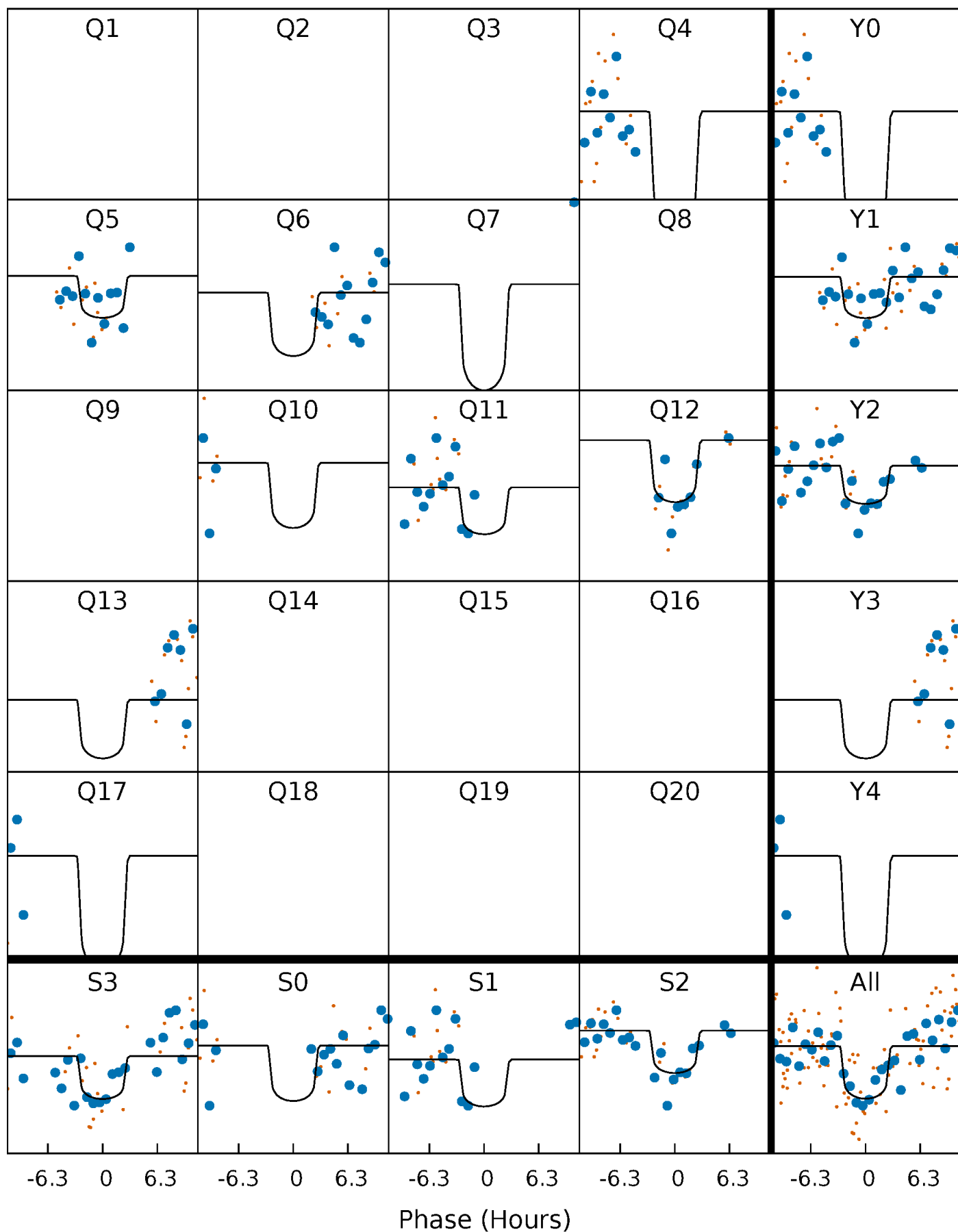
# PDC Quarter-Phased Transit Curves

TCE 006783562-06   P= 45.760610 Days    $T_0=149.174133$  (BKJD)



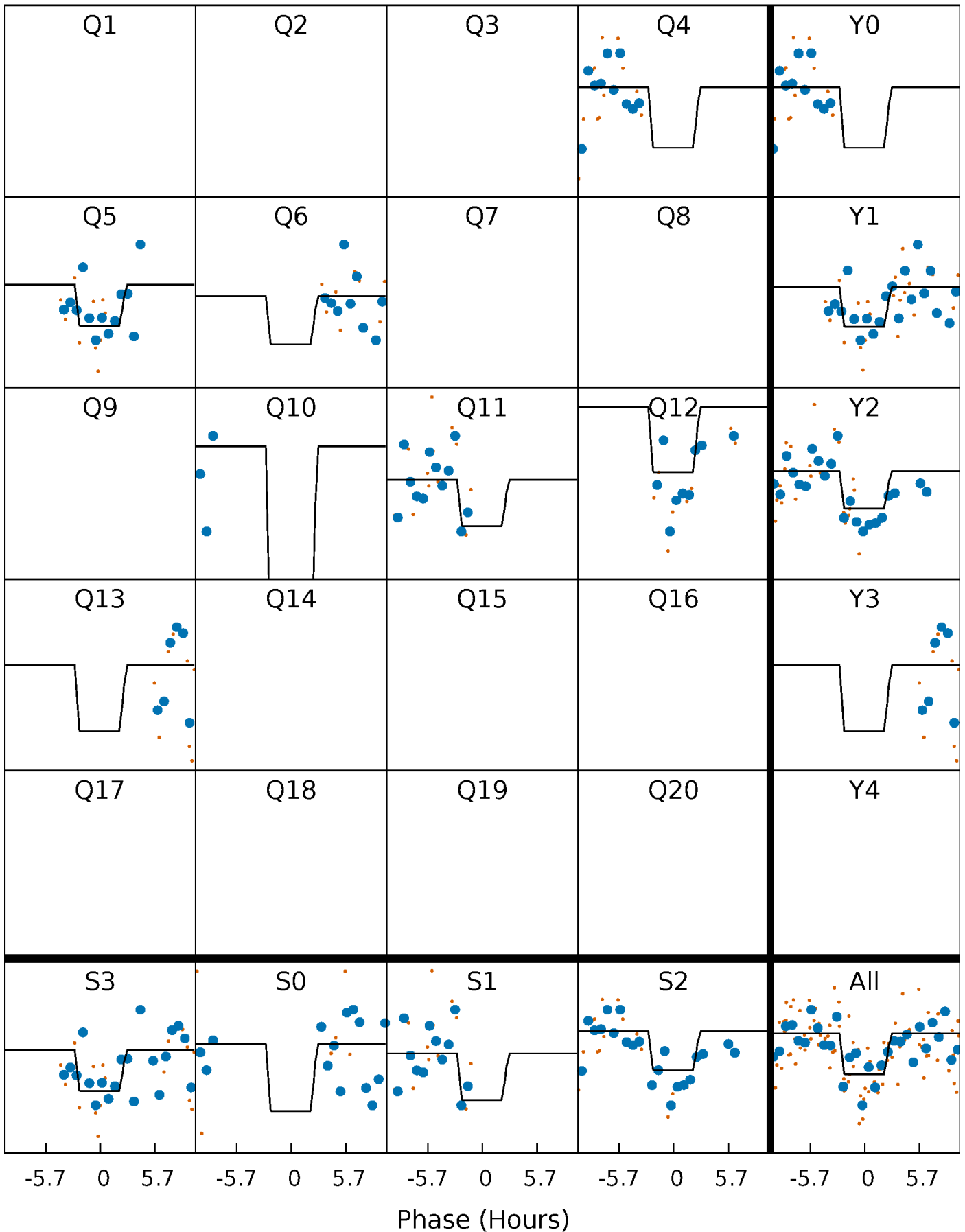
# DV Quarter-Phased Transit Curves

TCE 006783562-06 P= 45.760610 Days  $T_0=149.174133$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

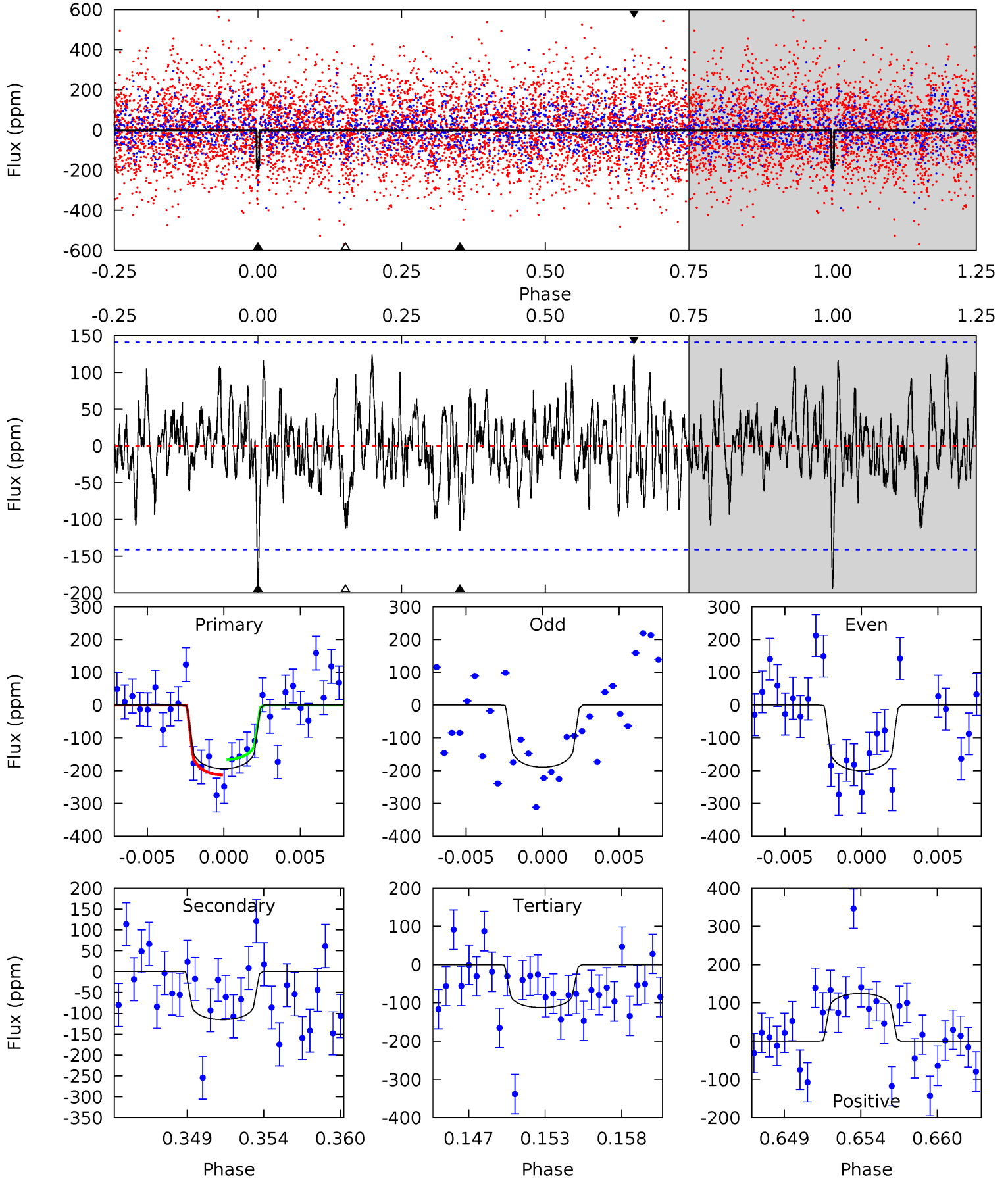
TCE 006783562-06 P= 45.763557 Days  $T_0=149.104900$  (BKJD)



# DV Model-Shift Uniqueness Test

006783562-06, P = 45.760610 Days, E = 103.413523 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.09 | 4.21 | 4.10 | 4.55 | 5.14            | 2.78            | 1.46             | 2.99    | 2.54    | 0.11    | -0.34   | 0.19    | 1.01 | 0.39  | 0.85 |

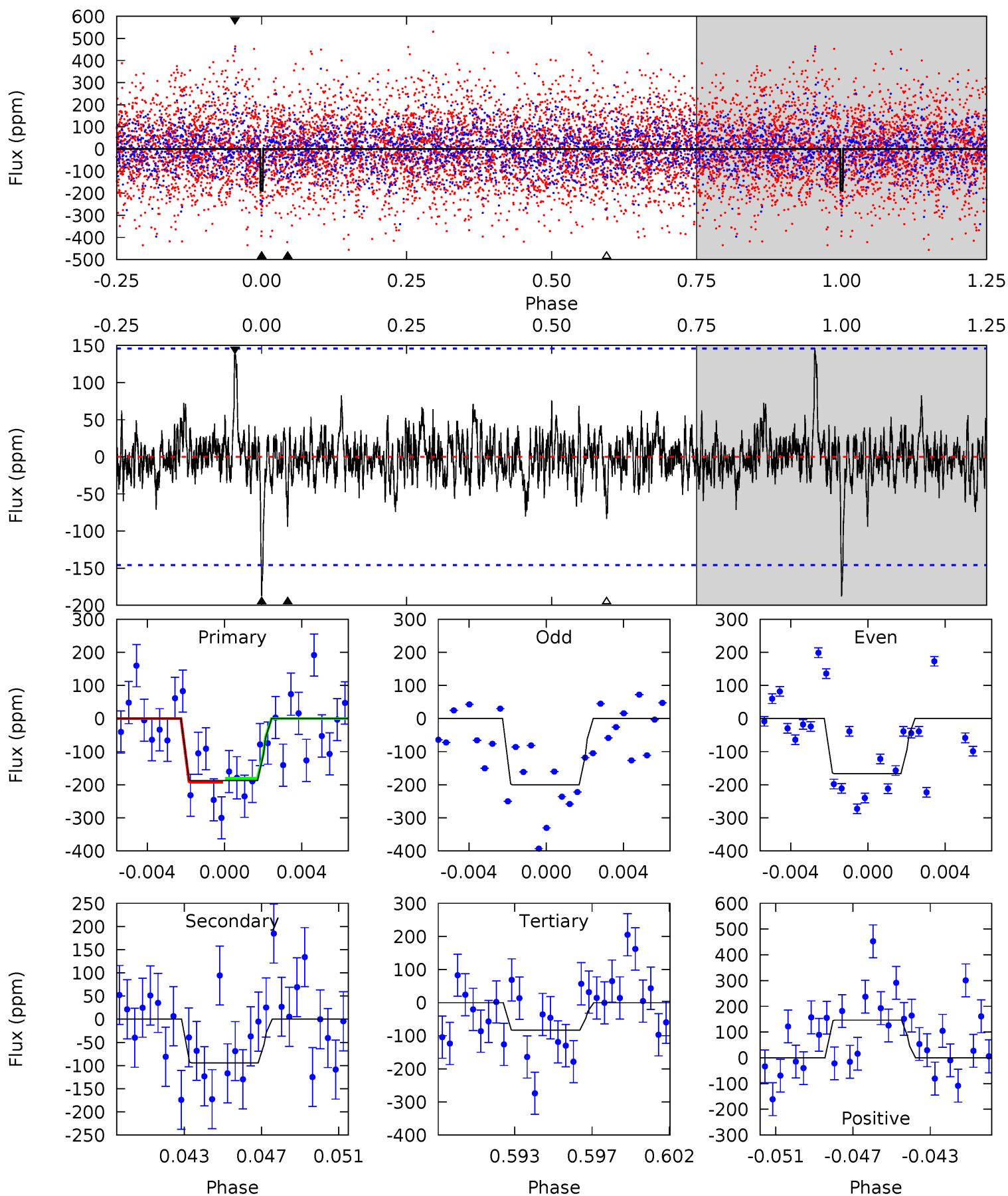




# Alt Model-Shift Uniqueness Test

006783562-06,  $P = 45.763557$  Days,  $E = 103.341343$  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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.68 | 3.35 | 2.97 | 5.21 | 5.19            | 2.86            | 0.90             | 3.71    | 1.47    | 0.38    | -1.86   | 0.59    | 1.08 | 0.44  | 0.21 |



### Stellar Parameters For KIC 006783562

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
|        | $6930^{+192}_{-288}$ | $4.369^{+0.056}_{-0.224}$ | $-0.320^{+0.250}_{-0.350}$ | $1.188^{+0.425}_{-0.142}$ | $1.219^{+0.189}_{-0.154}$ | $1.025^{+0.239}_{-0.556}$                 |
|        | +3%/-4%              | +1%/-5%                   | +78%/-109%                 | +36%/-12%                 | +16%/-13%                 | +23%/-54%                                 |
| 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 006783562-06 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$          | $A_{obs}$            |
|---------|---------------|------------------------|-------------------|------------------------|----------------------|
| DV      | $-115 \pm 27$ | $2.53^{+2.20}_{-1.65}$ | $923^{+75}_{-49}$ | $5237^{+4082}_{-1150}$ | $647^{+5046}_{-453}$ |
| Alt.    | $-94 \pm 28$  | $2.45^{+2.17}_{-1.61}$ | $923^{+70}_{-52}$ | $5059^{+3935}_{-1065}$ | $580^{+4350}_{-419}$ |

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

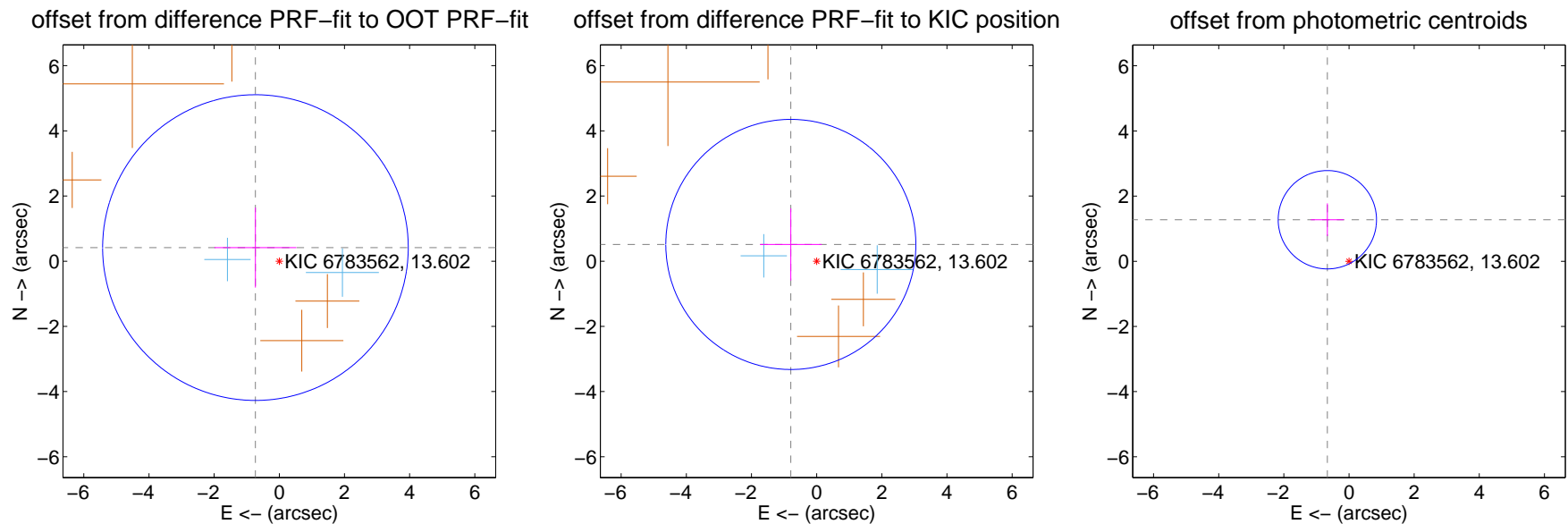
## DV Centroid Data

Supplemental centroid analysis for 006783562-06. Kepler magnitude: 13.60. Transit SNR 10.22

There are 2 quarters with good PRF difference image offsets

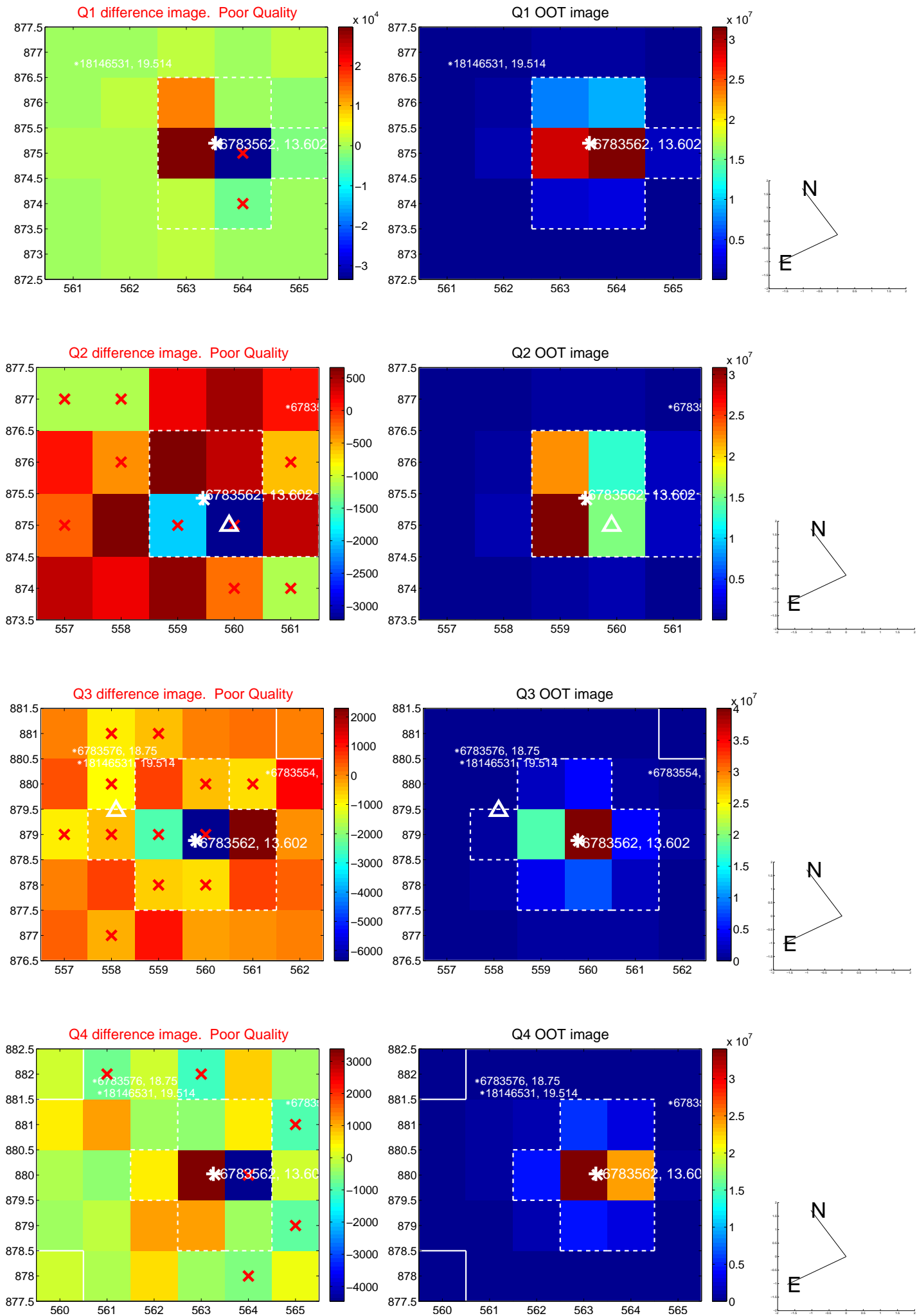
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|-----------------------------------------|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.843 \pm 1.564$  | 0.54                | $0.733 \pm 1.257$ | $0.418 \pm 1.228$ |
| PRF-fit source offset from KIC position | $0.945 \pm 1.279$  | 0.74                | $0.792 \pm 0.948$ | $0.514 \pm 1.106$ |
| photometric centroid source offset      | $1.44 \pm 0.50$    | 2.86                | $0.66 \pm 0.51$   | $1.27 \pm 0.50$   |

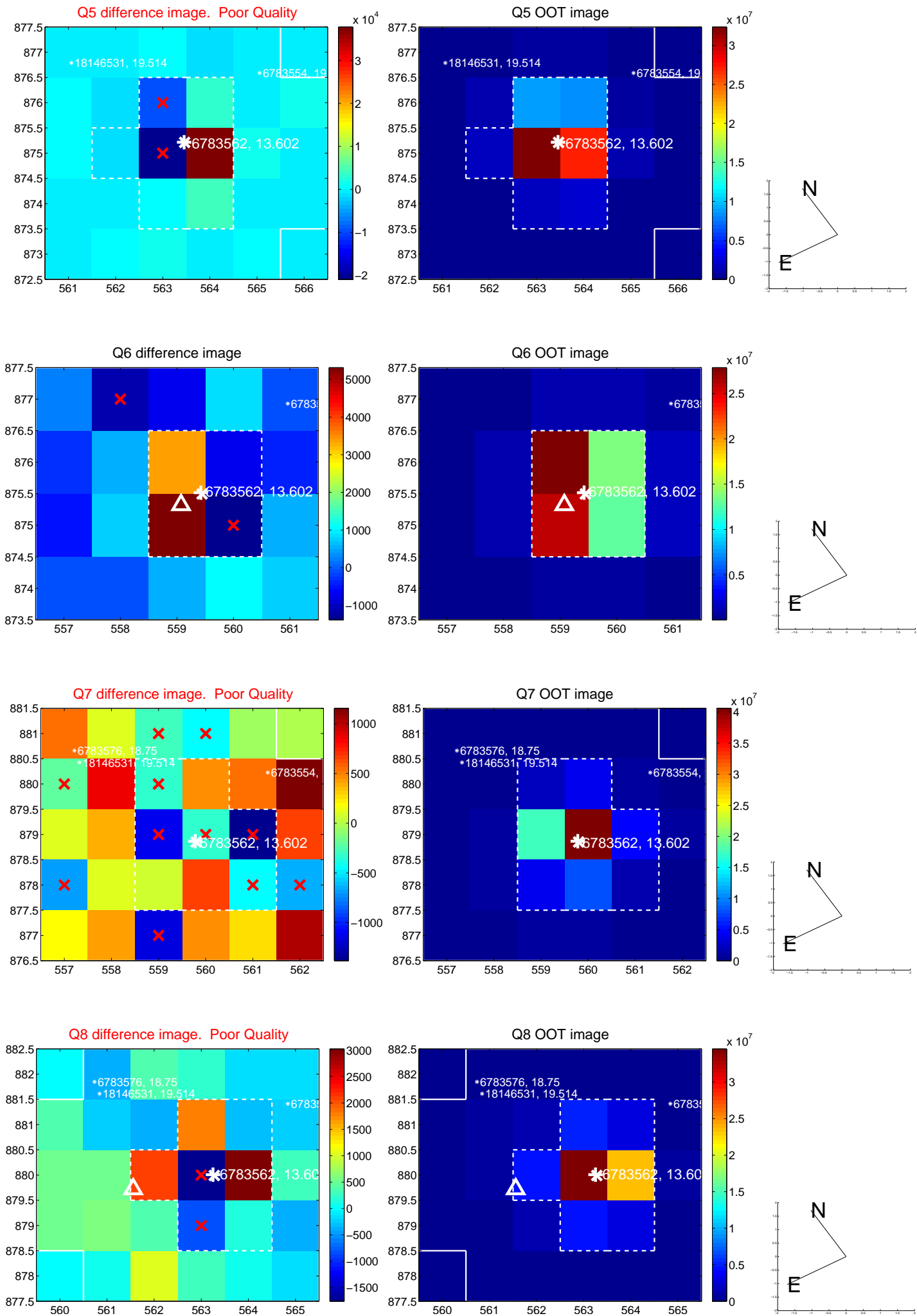


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

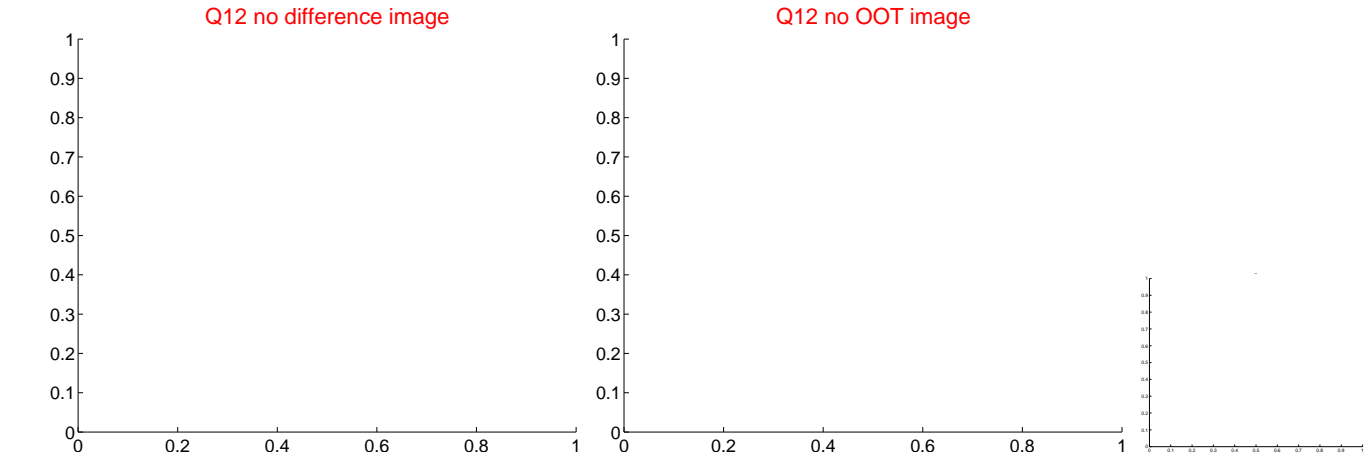
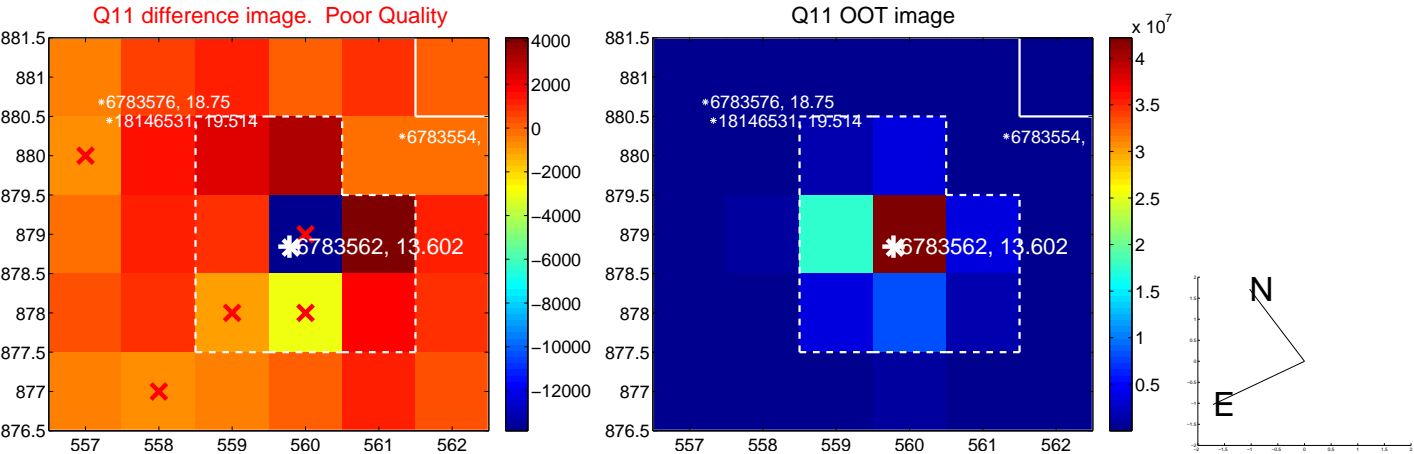
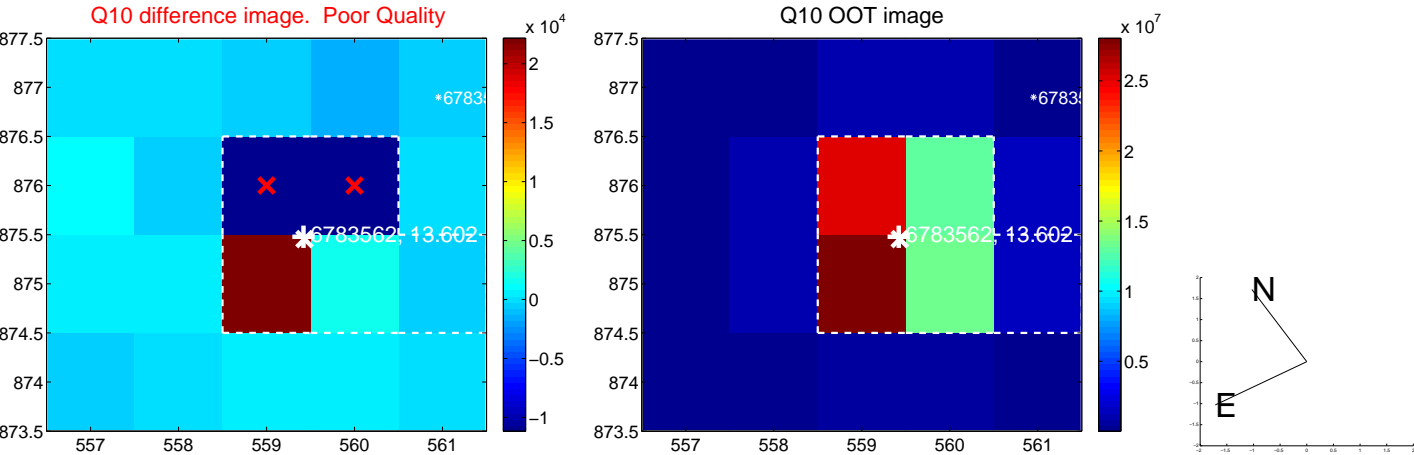
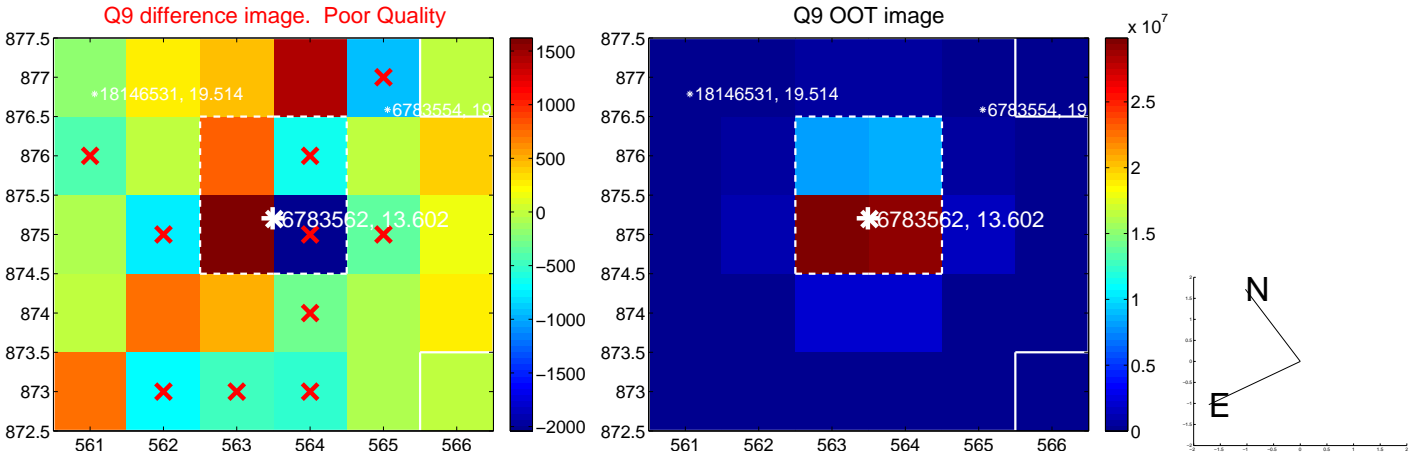
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



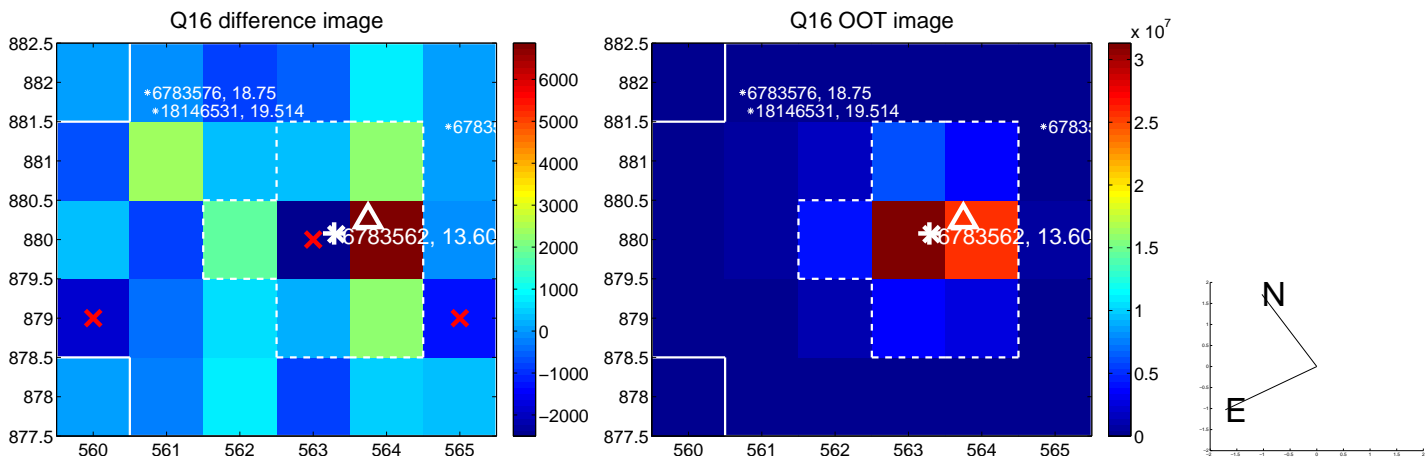
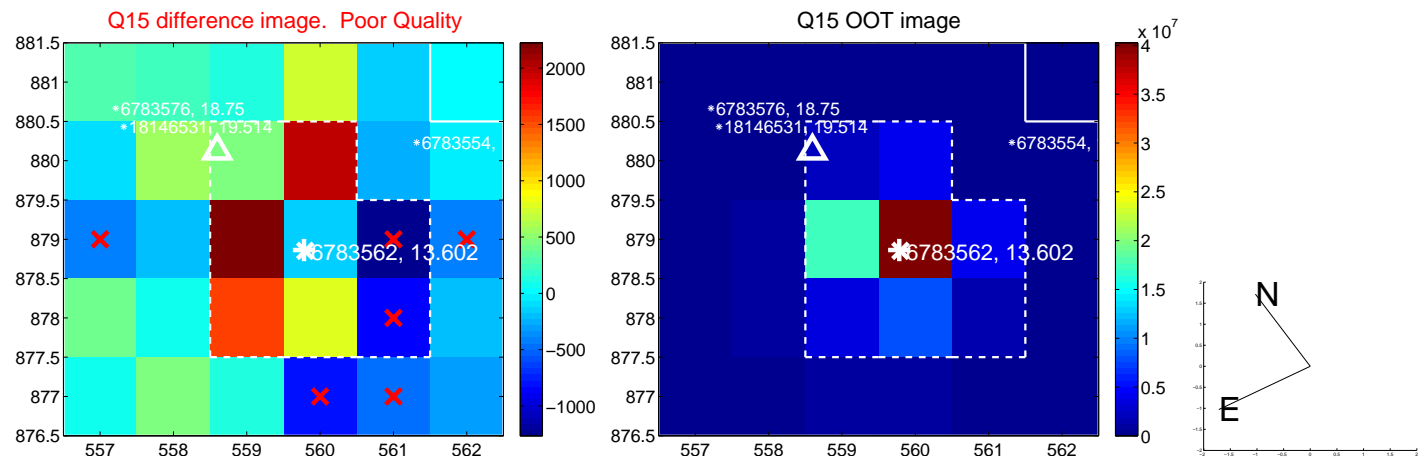
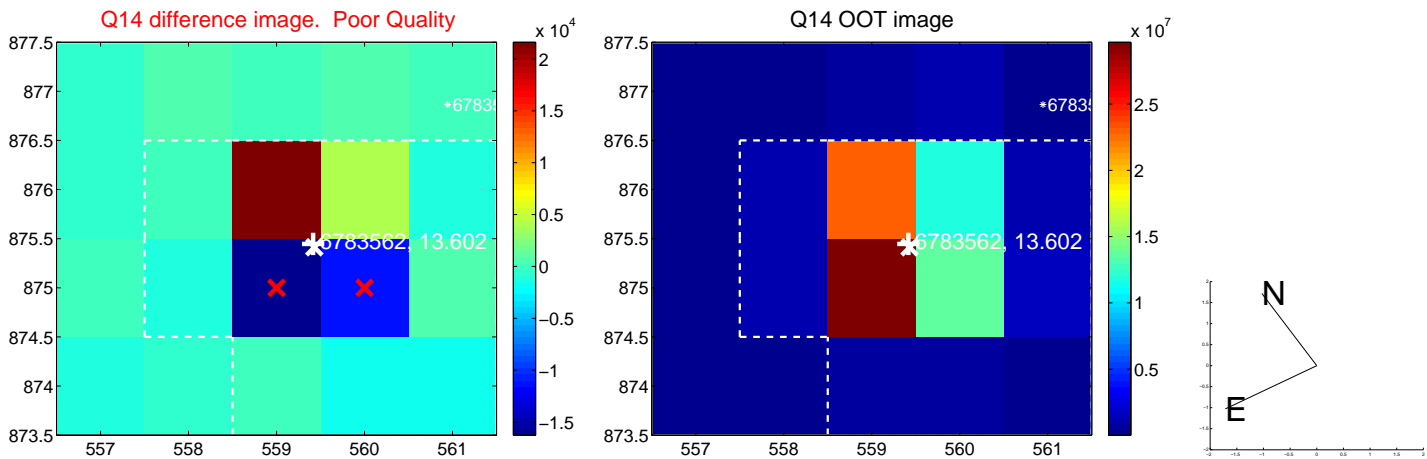
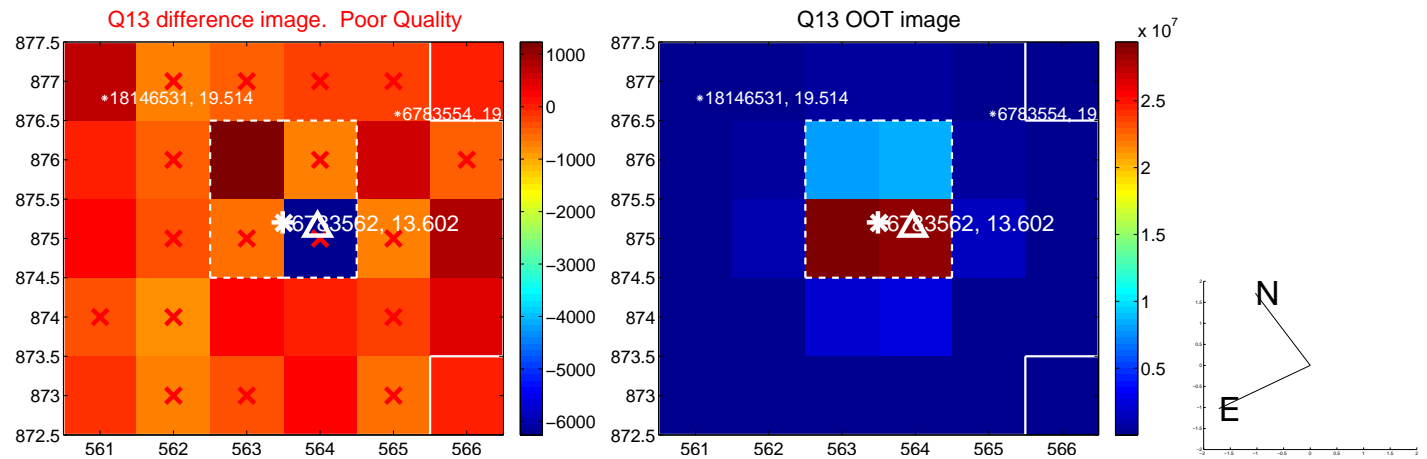
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

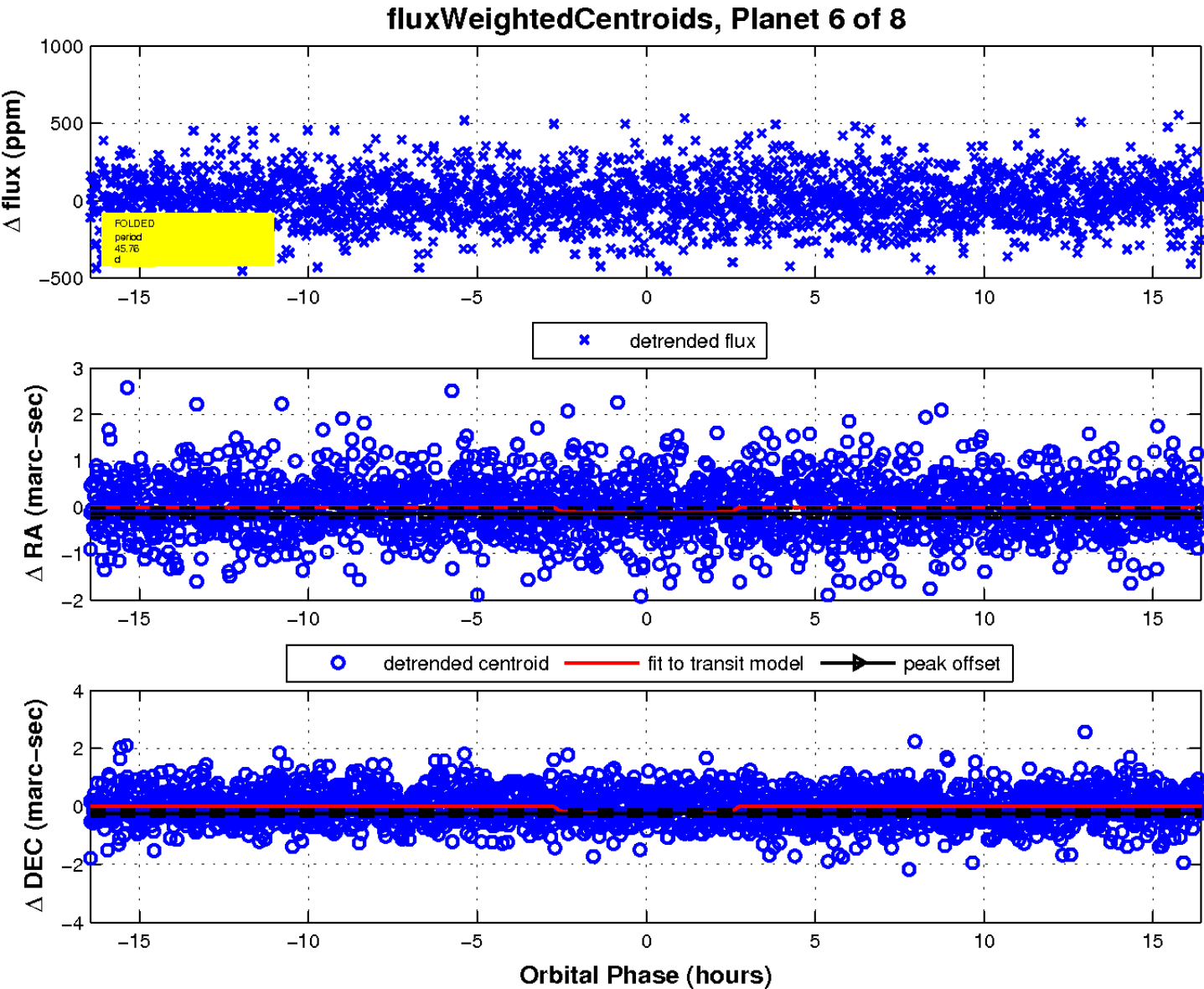
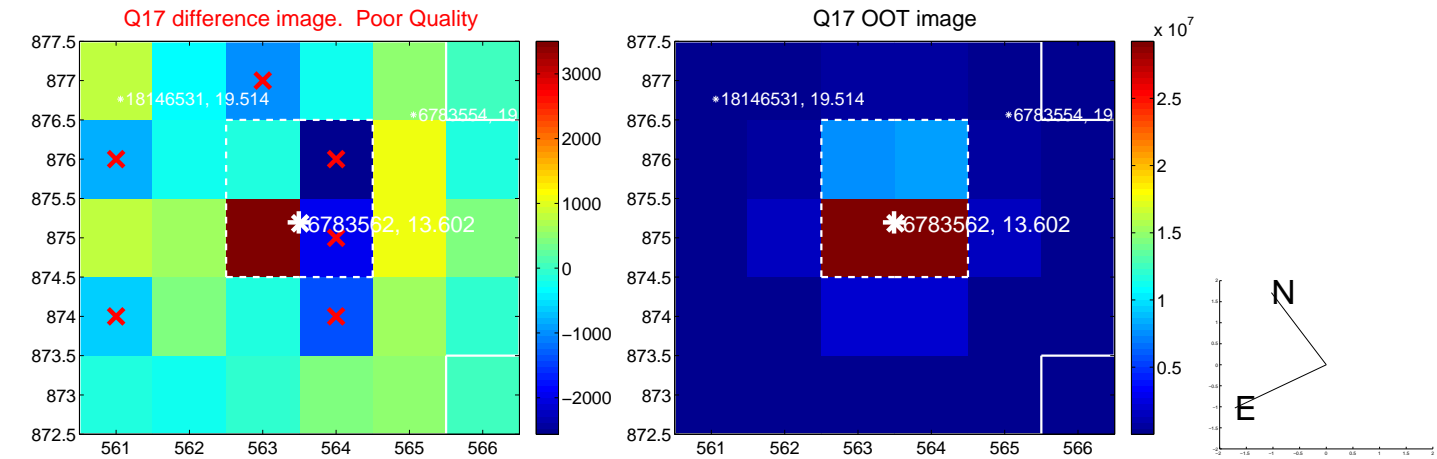


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



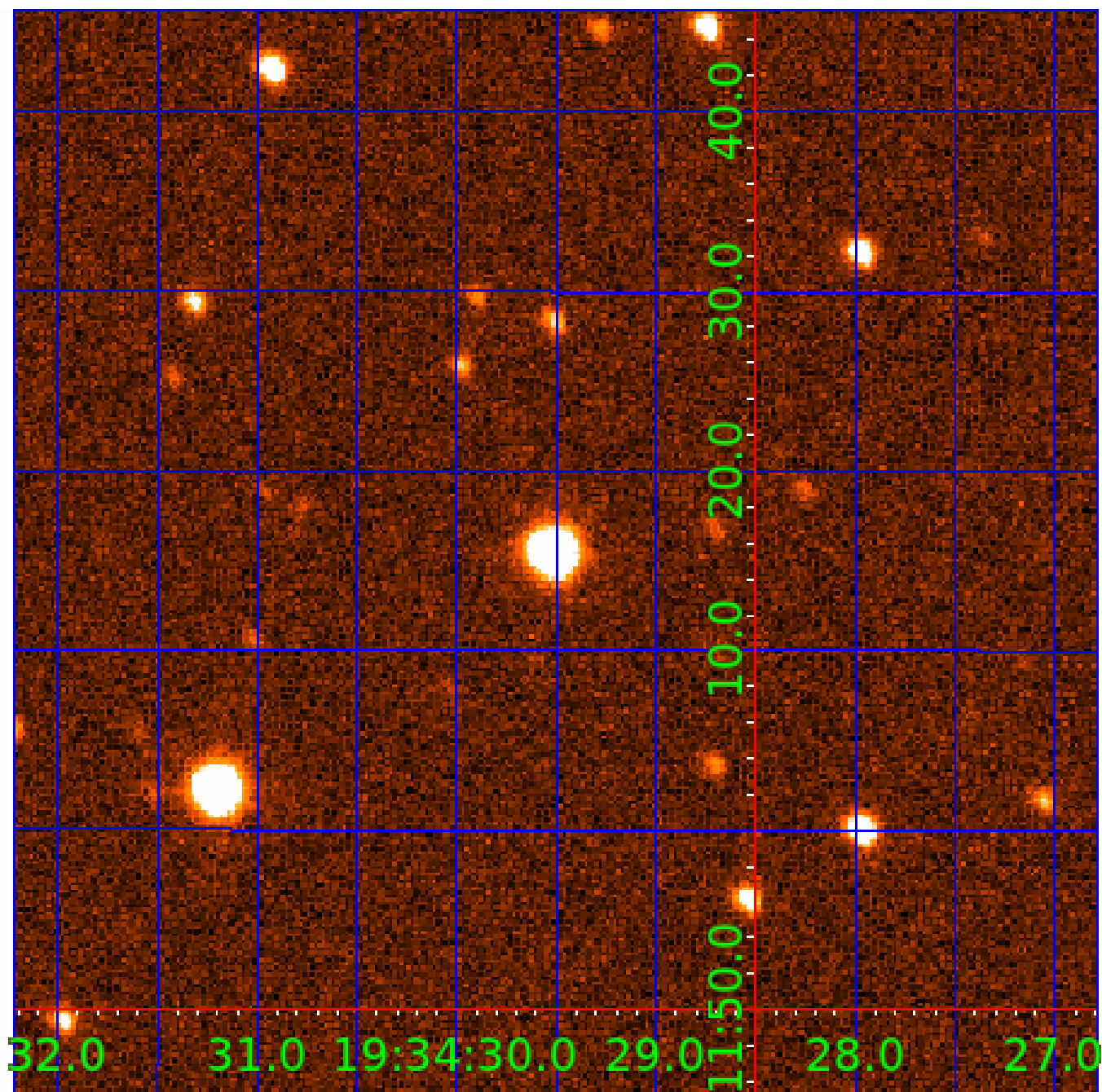


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006783562

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006783562-01 | OBS      | No   | 2.087275      | 132.270008   | 13.5        | 14.854           | 8.0  | 7.0  | 1.19                        | 6930            | 0.47                   | 2521.15                |
| 006783562-02 | OBS      | No   | 45.463043     | 140.208363   | 268.3       | 2.129            | 10.9 | 11.8 | 1.19                        | 6930            | 1.98                   | 41.45                  |
| 006783562-03 | OBS      | No   | 36.604208     | 167.620051   | 205.5       | 3.284            | 10.7 | 10.6 | 1.19                        | 6930            | 1.90                   | 55.34                  |
| 006783562-04 | OBS      | No   | 73.411839     | 145.841771   | 249.8       | 5.271            | 8.7  | 12.0 | 1.19                        | 6930            | 2.06                   | 21.88                  |
| 006783562-05 | OBS      | No   | 43.919590     | 136.781372   | 172.5       | 4.090            | 9.6  | 9.2  | 1.19                        | 6930            | 1.75                   | 43.40                  |
| 006783562-06 | OBS      | No   | 45.760610     | 149.174133   | 207.2       | 5.486            | 8.5  | 10.2 | 1.19                        | 6930            | 1.85                   | 41.09                  |
| 006783562-07 | OBS      | No   | 37.685131     | 158.174151   | 157.4       | 2.797            | 9.7  | 8.3  | 1.19                        | 6930            | 1.60                   | 53.23                  |
| 006783562-08 | OBS      | No   | 21.680387     | 136.795370   | 537.9       | 1.500            | 9.6  | -1.0 | 1.19                        | 6930            | 2.79                   | 111.25                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                                                             |
|--------------|----------|------|-------|---|---|---|---|--------------------------------------------------------------------------------------|
| 006783562-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV                                                                               |
| 006783562-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_MEAS                  |
| 006783562-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006783562-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST     |
| 006783562-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS                    |
| 006783562-08 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST                           |

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

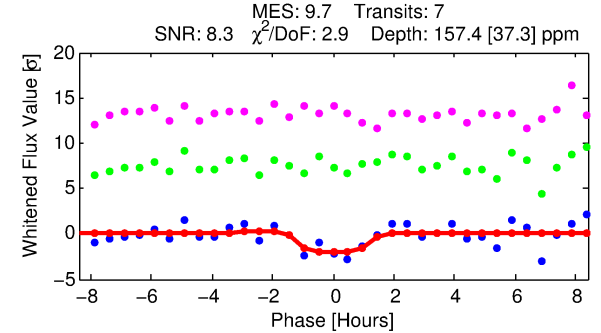
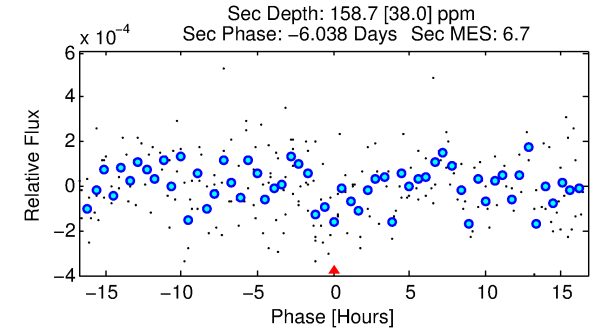
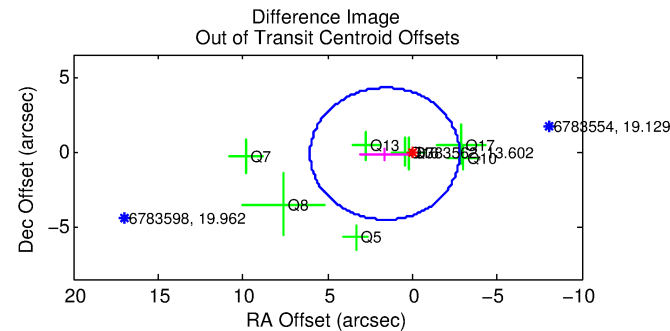
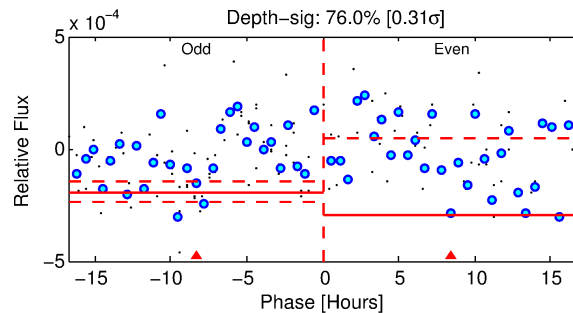
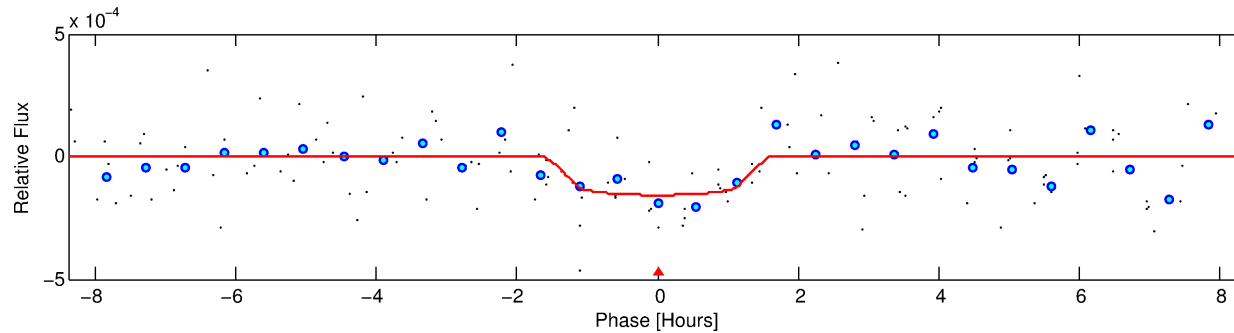
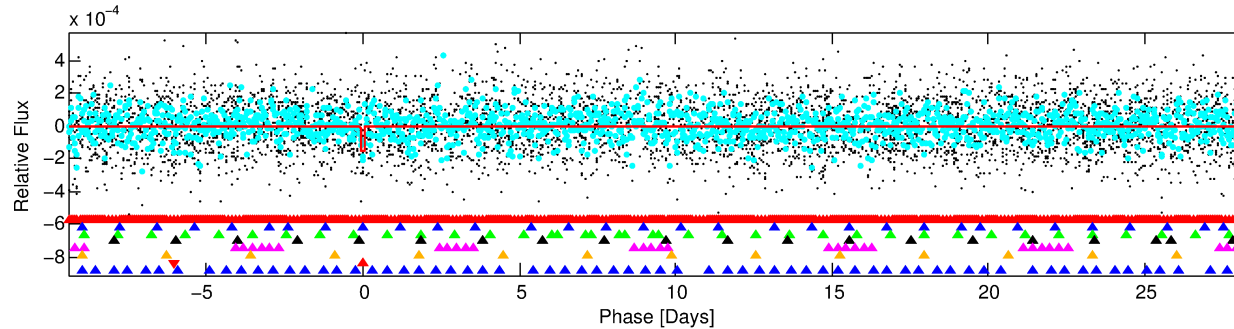
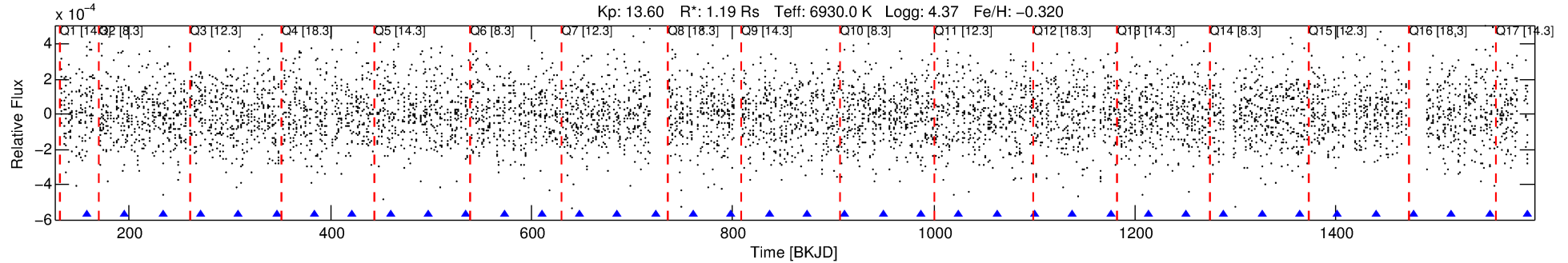
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Ephemeris Match Information For 006783562-07

No Significant Match Found

# DV One-Page Summary

KIC: 6783562 Candidate: 7 of 8 Period: 37.685 d



## DV Fit Results:

Period = 37.68513 [0.00057] d  
Epoch = 158.1742 [0.0110] BKJD  
Rp/R\* = 0.0124 [0.0534]  
a/R\* = 73.86 [1878.07]  
b = 0.71 [17.70]  
Seff = 53.23 [23.97]  
Teq = 689 [78] K  
Rp = 1.60 [6.94] Re  
a = 0.2341 [0.0688] AU  
Ag = 1861.54 [16094.86] [0.12 $\sigma$ ]  
Teffp = 6995 [15104] K [0.42 $\sigma$ ]

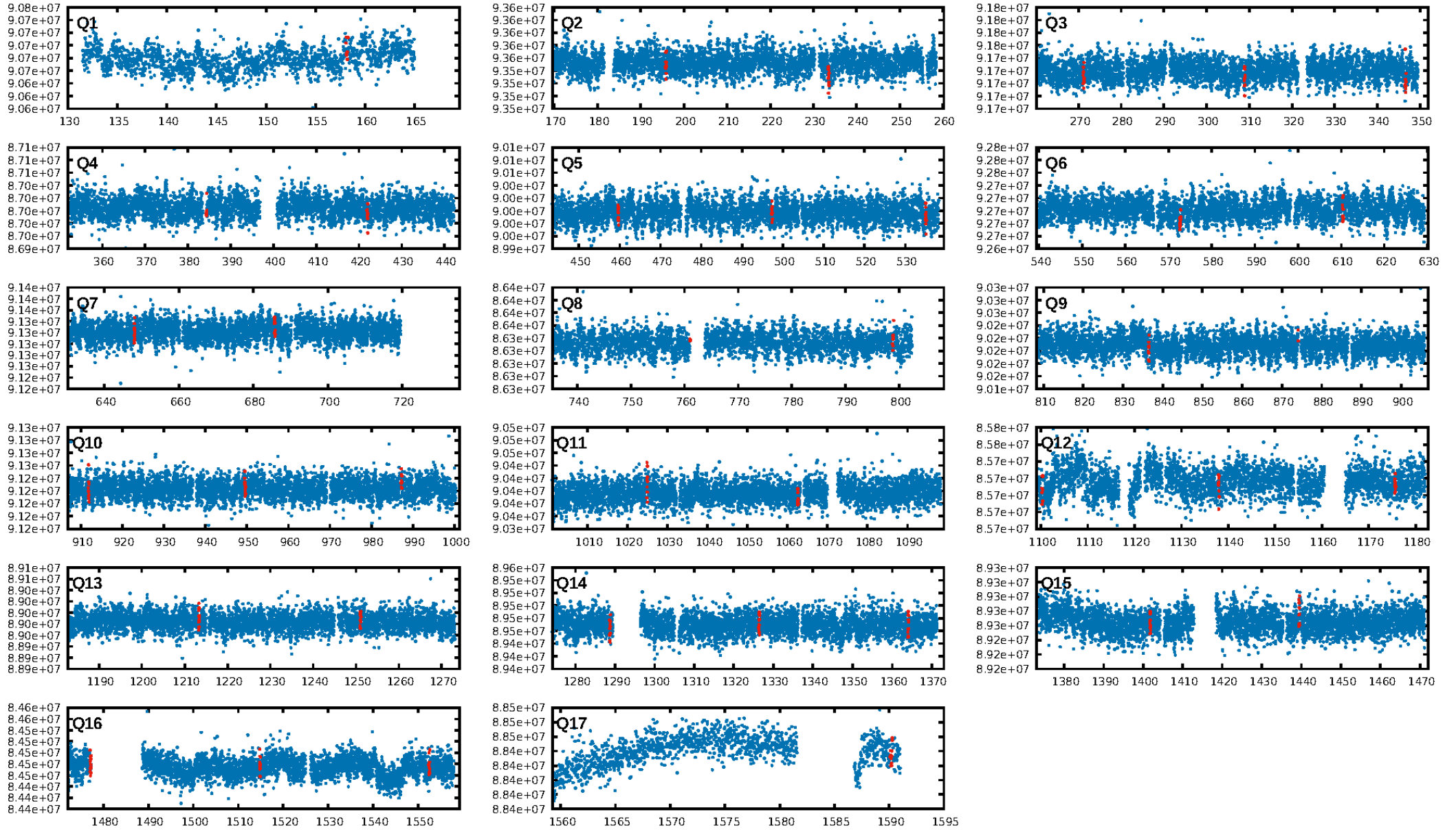
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.01 $\sigma$ ]  
LongPeriod-sig: 100.0% [30.20 $\sigma$ ]  
ModelChiSquare2-sig: 5.8%  
ModelChiSquareGof-sig: 58.3%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 10.08  
Centroid-sig: 42.3%  
Centroid-so: 0.657 arcsec [0.78 $\sigma$ ]  
OotOffset-rm: 1.621 arcsec [1.10 $\sigma$ ]  
OotOffset-st: 1/2/2/3 [8]  
KicOffset-rm: 1.662 arcsec [1.09 $\sigma$ ]  
KicOffset-st: 1/2/2/3 [8]  
DiffImageQuality-fgm: 0.12 [1/8]  
DiffImageOverlap-fno: 0.47 [8/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:18:10 Z

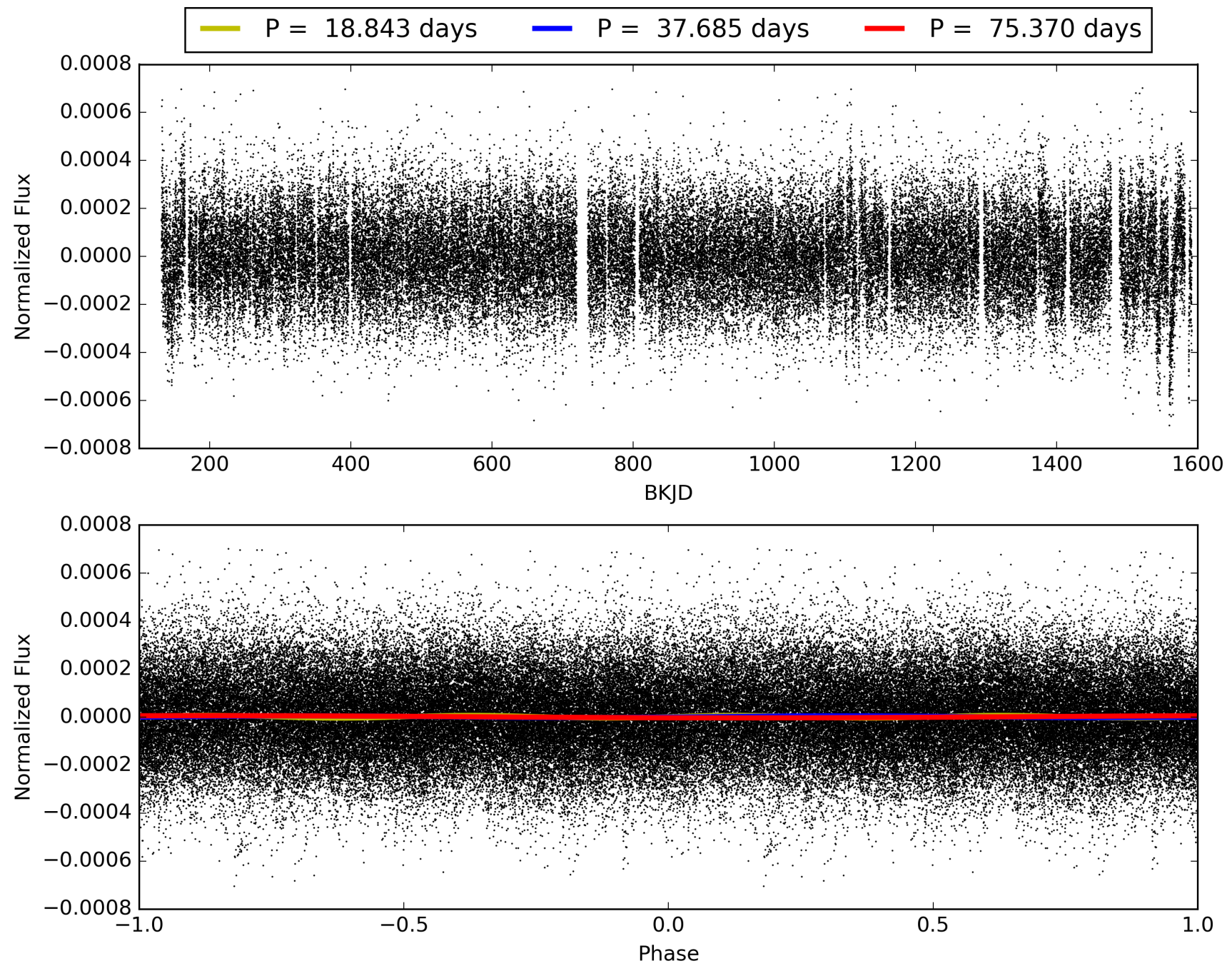
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006783562-07, PDC Light Curves



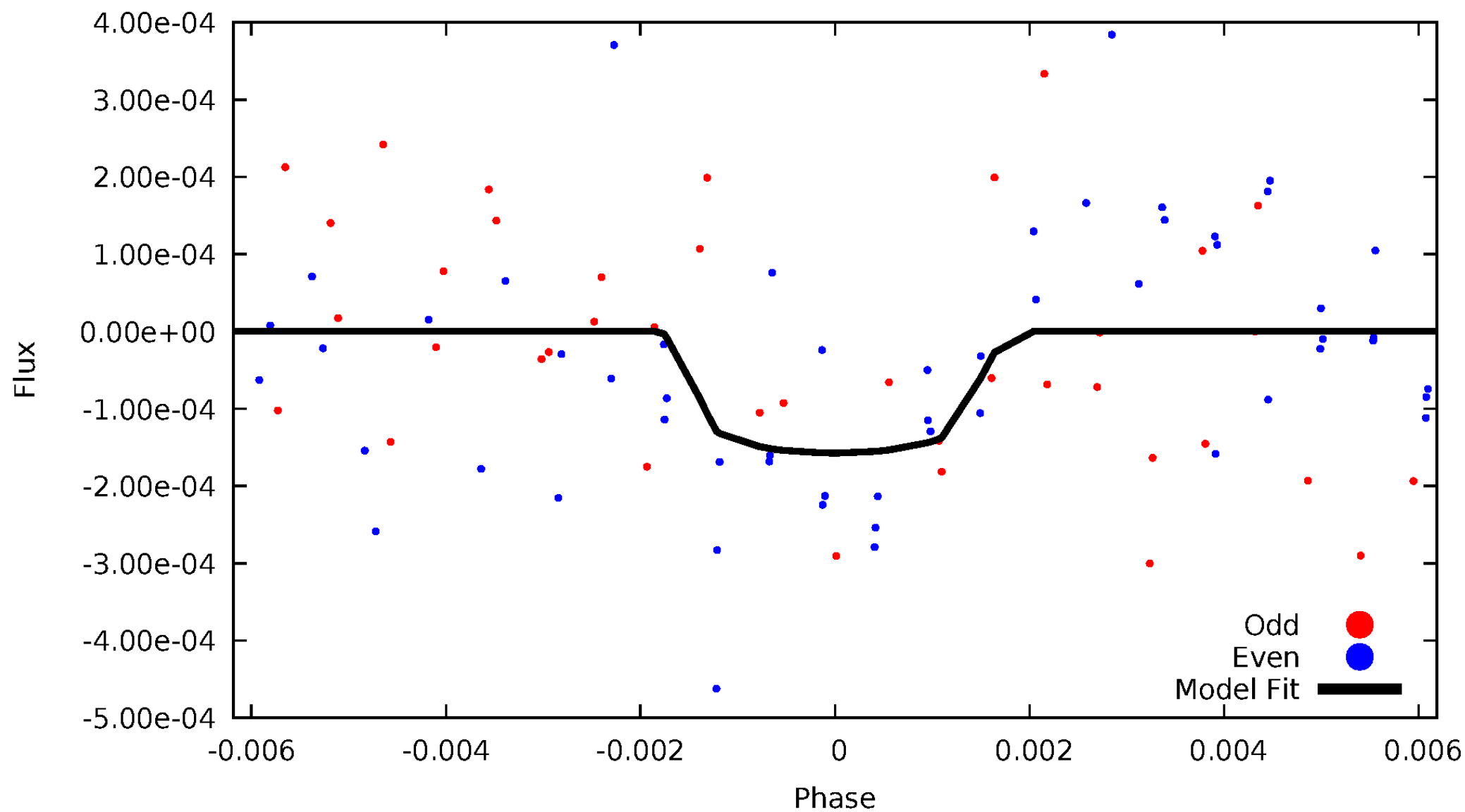


TCE 006783562-07



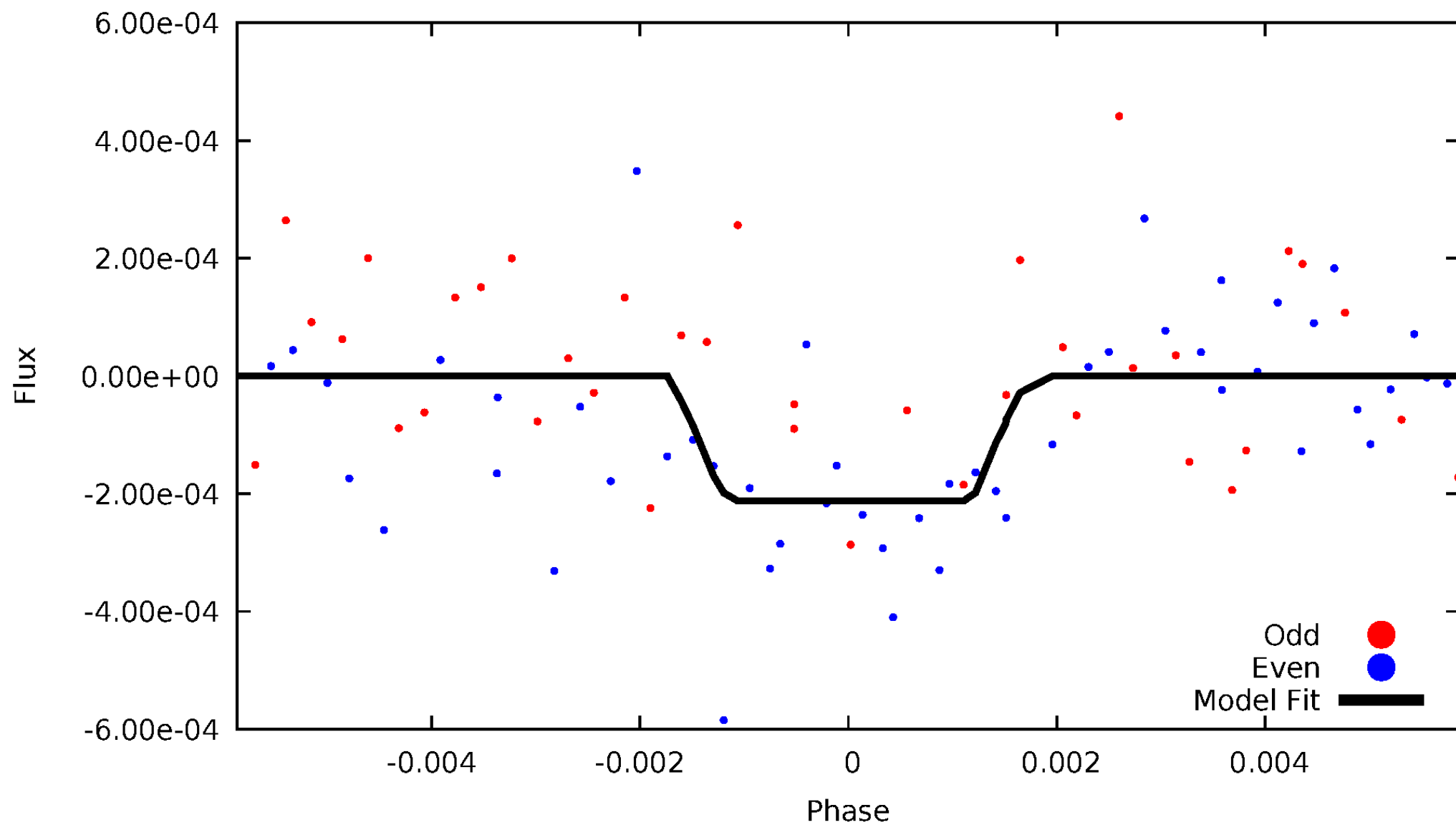
# DV Odd/Even

TCE 006783562-07



# ALT Odd/Even

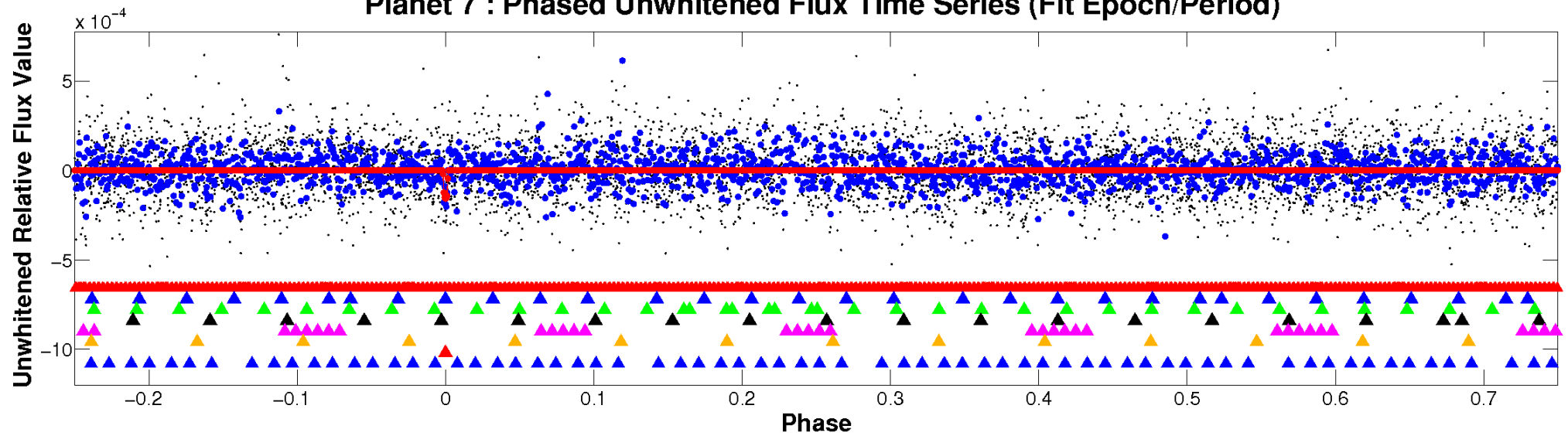
TCE 006783562-07



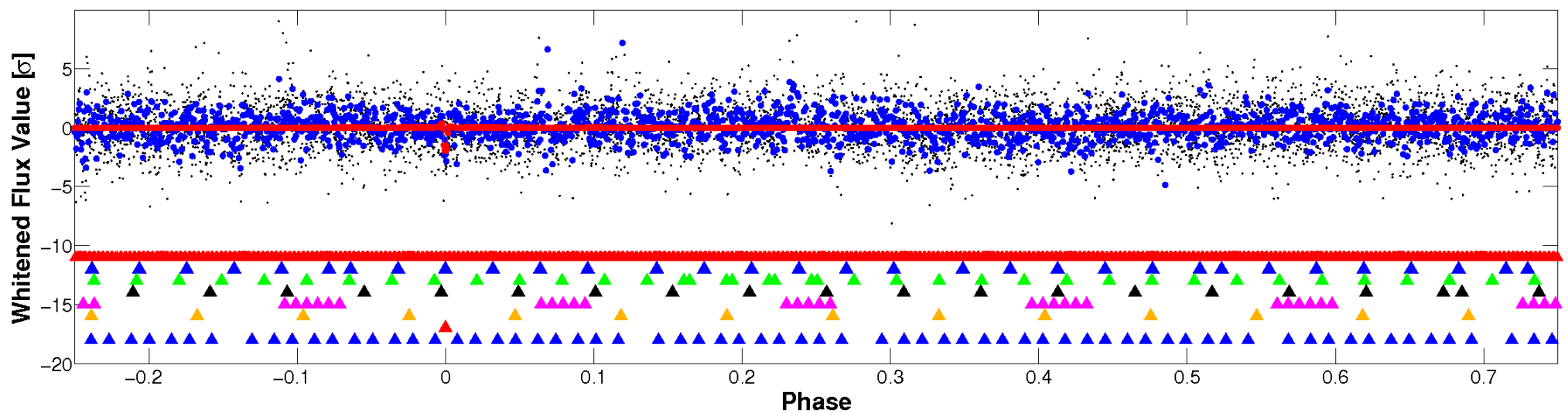


# Non-Whitened Vs. Whitened Light Curve

## Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

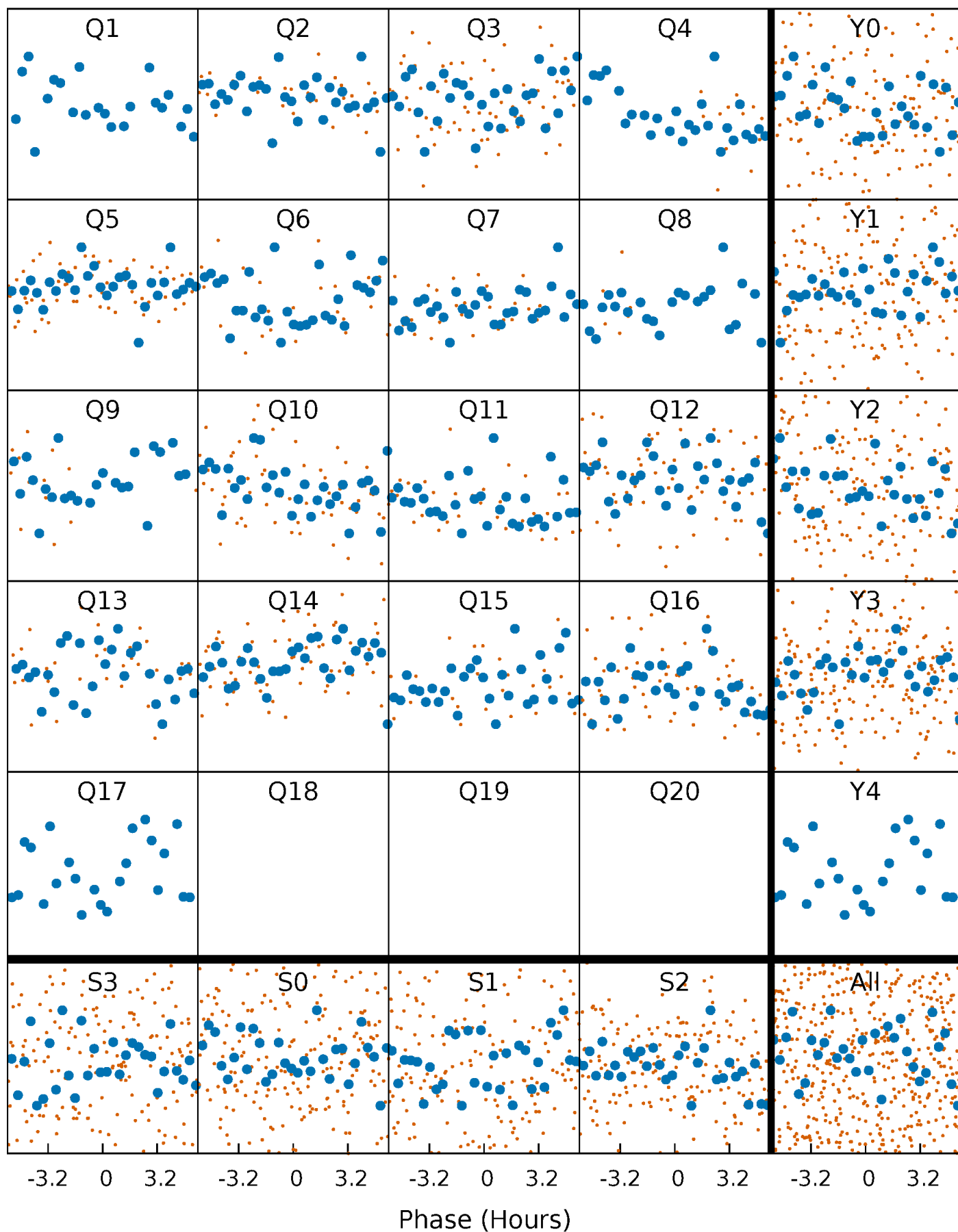


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



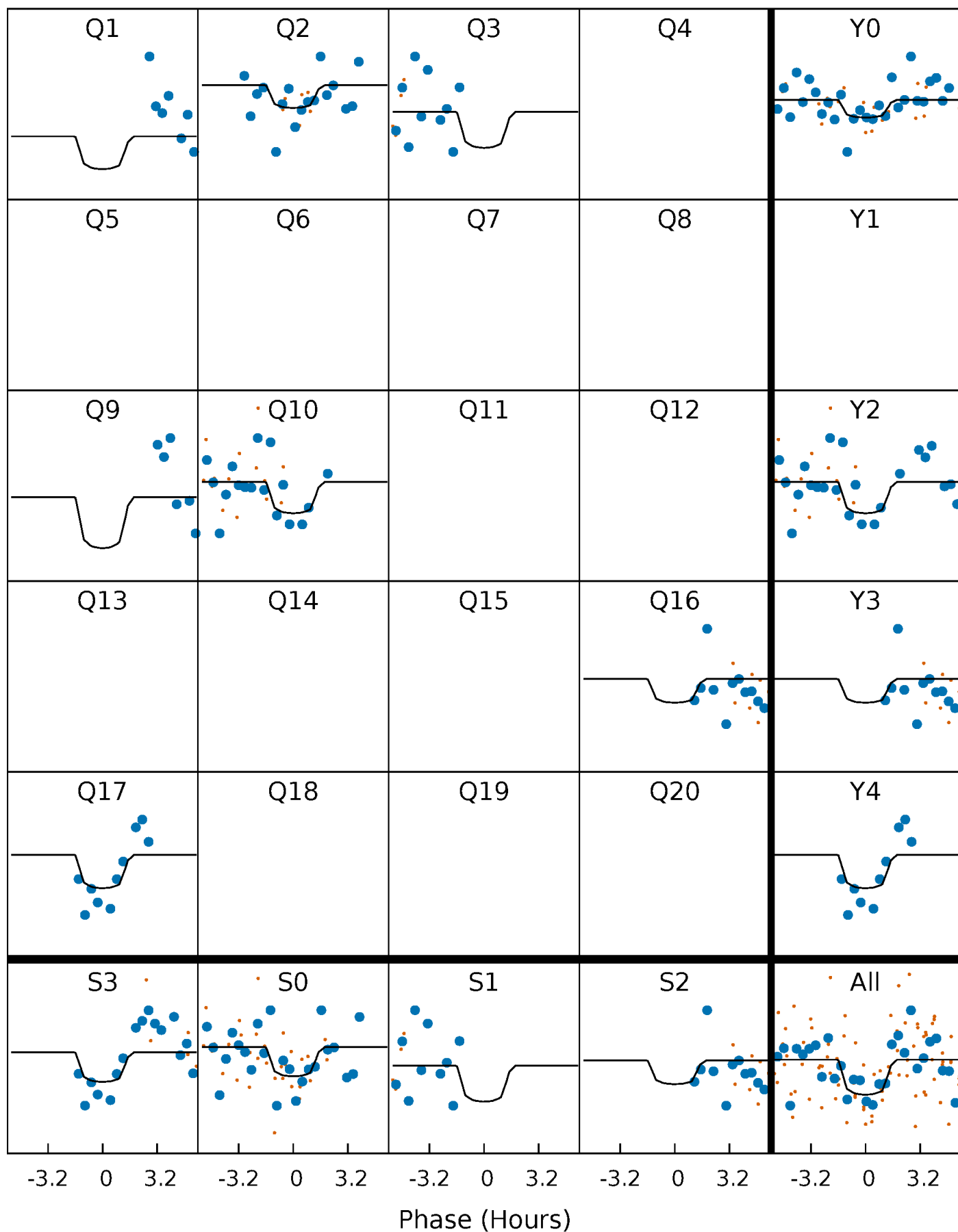
# PDC Quarter-Phased Transit Curves

TCE 006783562-07 P= 37.685131 Days  $T_0=158.174151$  (BKJD)



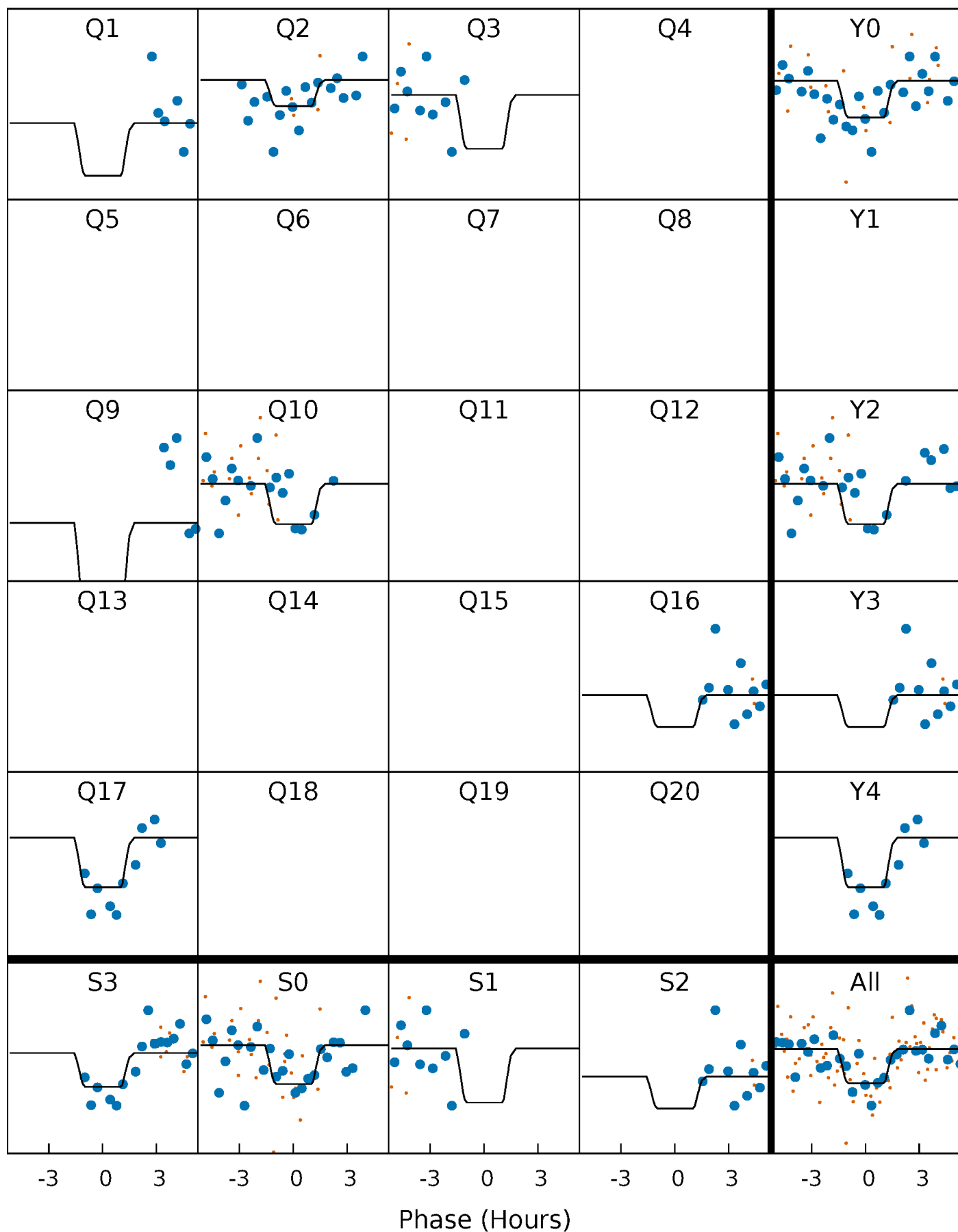
# DV Quarter-Phased Transit Curves

TCE 006783562-07 P= 37.685131 Days  $T_0=158.174151$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

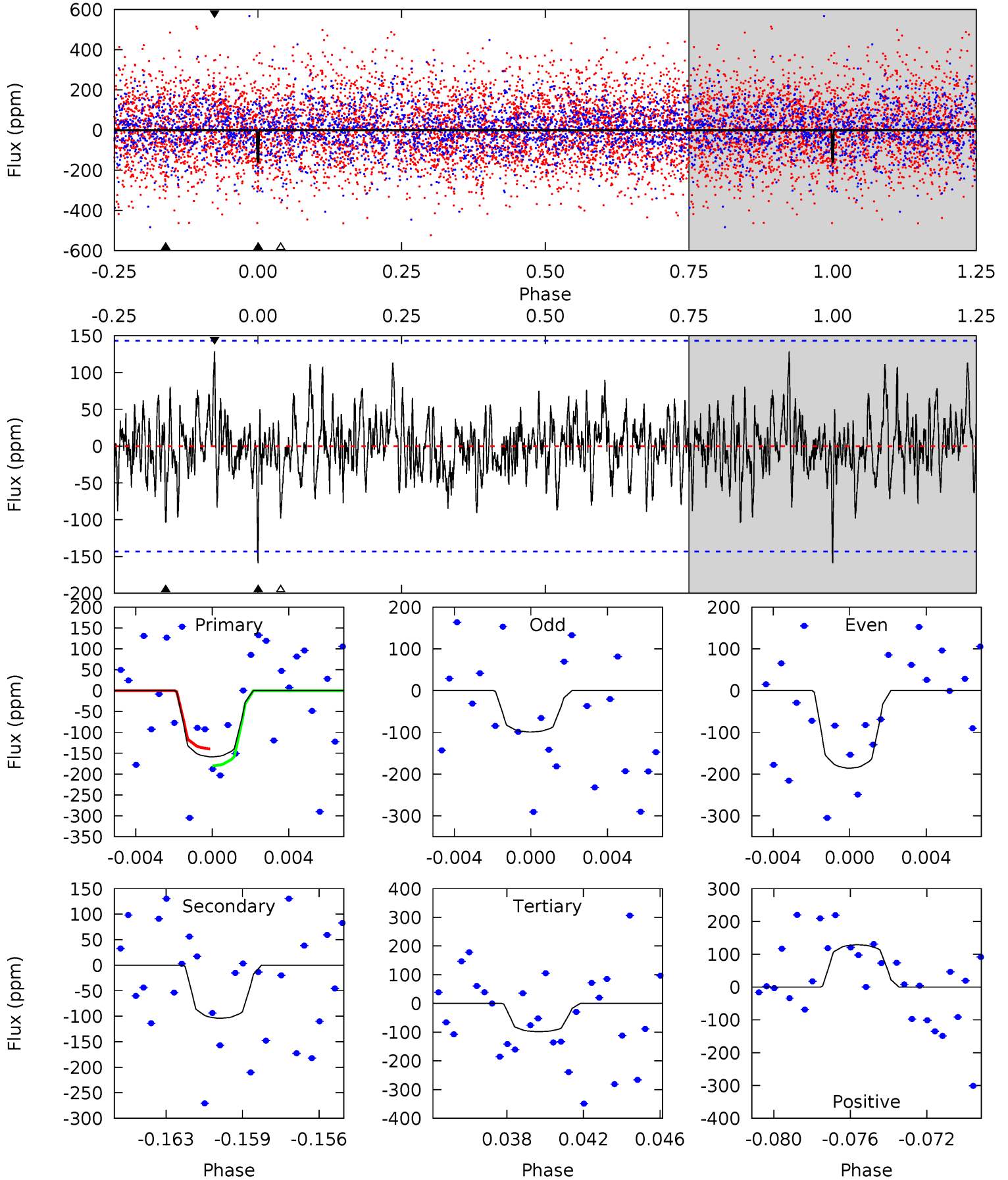
TCE 006783562-07     $P = 37.684672$  Days     $T_0 = 158.174228$  (BKJD)



# DV Model-Shift Uniqueness Test

006783562-07, P = 37.685131 Days, E = 120.489020 Days

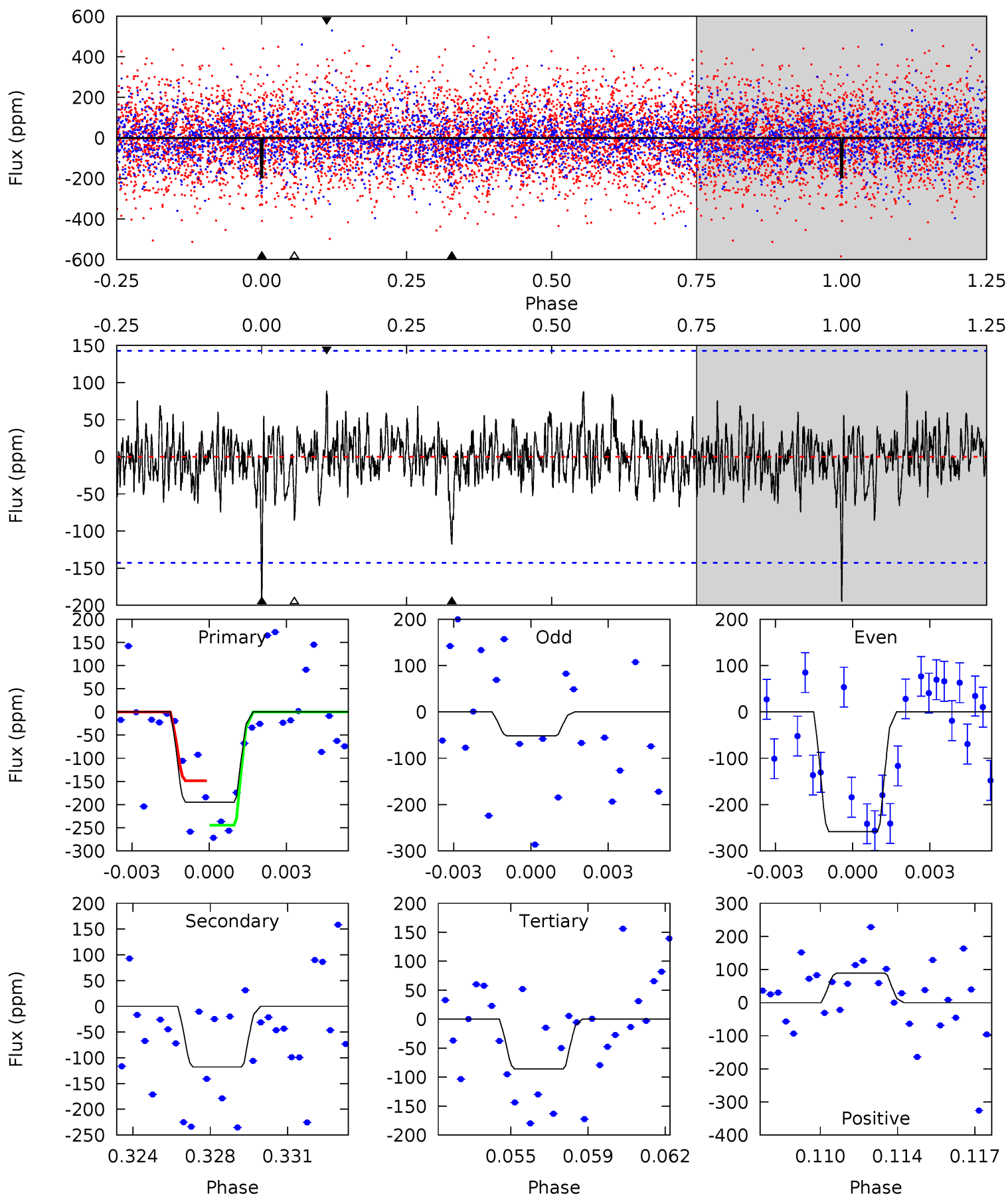
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.78 | 3.79 | 3.58 | 4.69 | 5.21            | 2.89            | 1.23             | 2.21    | 1.09    | 0.21    | -0.90   | 1.52    | 0.89 | 0.45  | 0.74 |



# Alt Model-Shift Uniqueness Test

006783562-07,  $P = 37.684672$  Days,  $E = 120.489556$  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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.14 | 4.31 | 3.14 | 3.25 | 5.23            | 2.92            | 0.97             | 4.00    | 3.89    | 1.17    | 1.06    | 3.62    | 1.01 | 0.31  | 1.76 |



### Stellar Parameters For KIC 006783562

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
|        | $6930^{+192}_{-288}$ | $4.369^{+0.056}_{-0.224}$ | $-0.320^{+0.250}_{-0.350}$ | $1.188^{+0.425}_{-0.142}$ | $1.219^{+0.189}_{-0.154}$ | $1.025^{+0.239}_{-0.556}$                 |
|        | +3%/-4%              | +1%/-5%                   | +78%/-109%                 | +36%/-12%                 | +16%/-13%                 | +23%/-54%                                 |
| 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 006783562-07 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$         | $A_{obs}$           |
|---------|---------------|------------------------|-------------------|-----------------------|---------------------|
| DV      | $-104 \pm 27$ | $5.49^{+6.55}_{-3.70}$ | $984^{+74}_{-56}$ | $3812^{+2038}_{-819}$ | $101^{+795}_{-80}$  |
| Alt.    | $-118 \pm 27$ | $5.83^{+5.37}_{-4.07}$ | $978^{+74}_{-52}$ | $3824^{+2364}_{-732}$ | $103^{+1063}_{-77}$ |

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



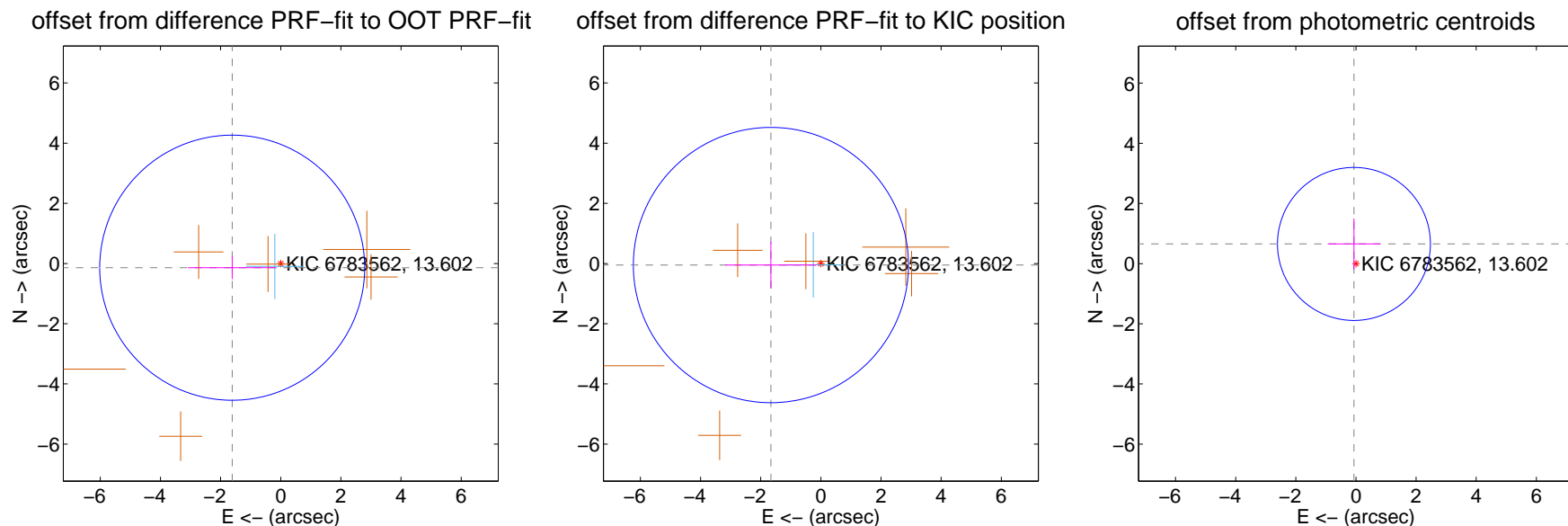
## DV Centroid Data

Supplemental centroid analysis for 006783562-07. Kepler magnitude: 13.60. Transit SNR 8.29

There are 1 quarters with good PRF difference image offsets

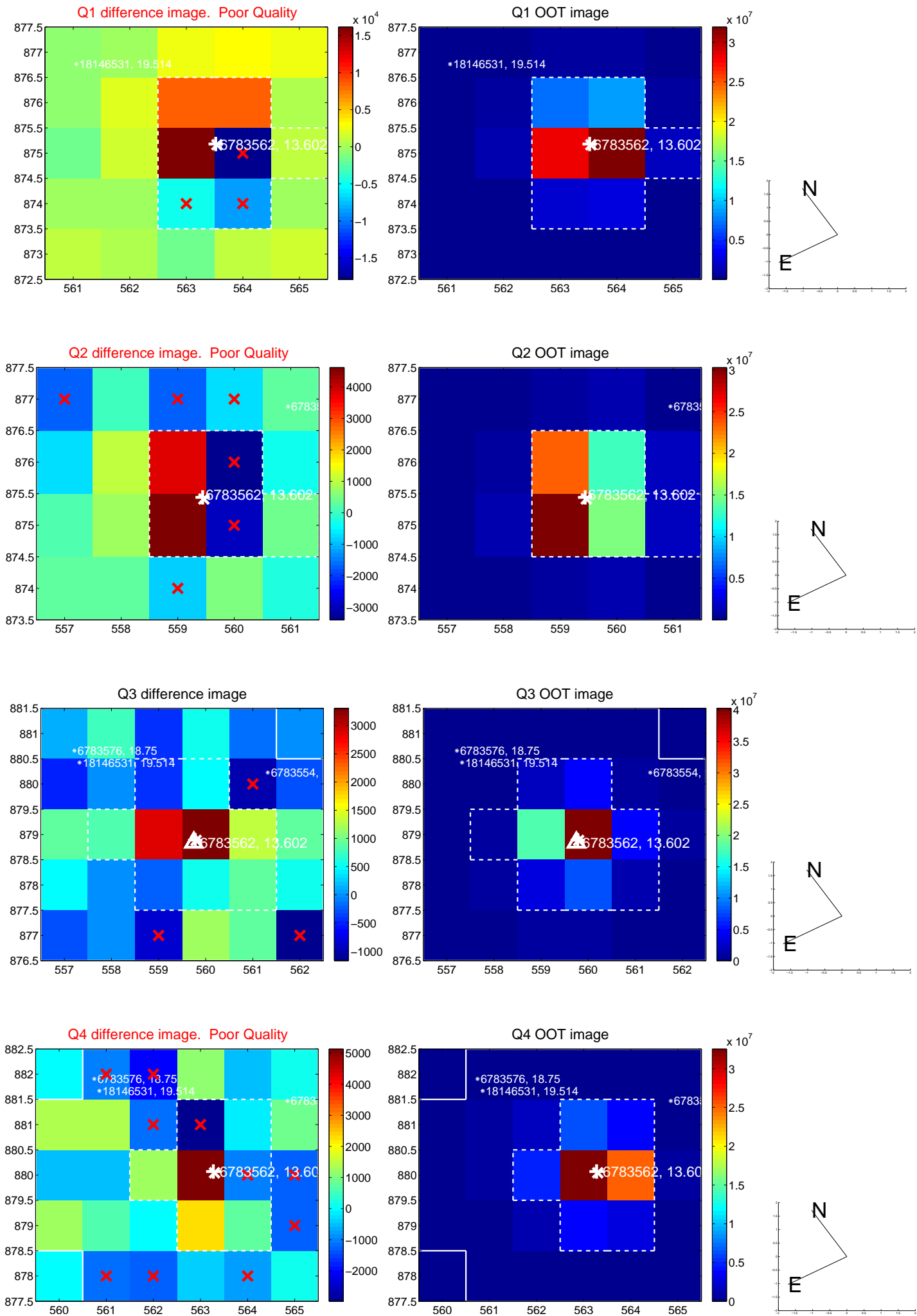
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|-----------------------------------------|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $1.621 \pm 1.468$  | 1.10                | $1.615 \pm 1.473$ | $-0.138 \pm 0.382$ |
| PRF-fit source offset from KIC position | $1.662 \pm 1.525$  | 1.09                | $1.661 \pm 1.512$ | $-0.050 \pm 0.775$ |
| photometric centroid source offset      | $0.66 \pm 0.85$    | 0.78                | $0.07 \pm 0.87$   | $0.65 \pm 0.85$    |

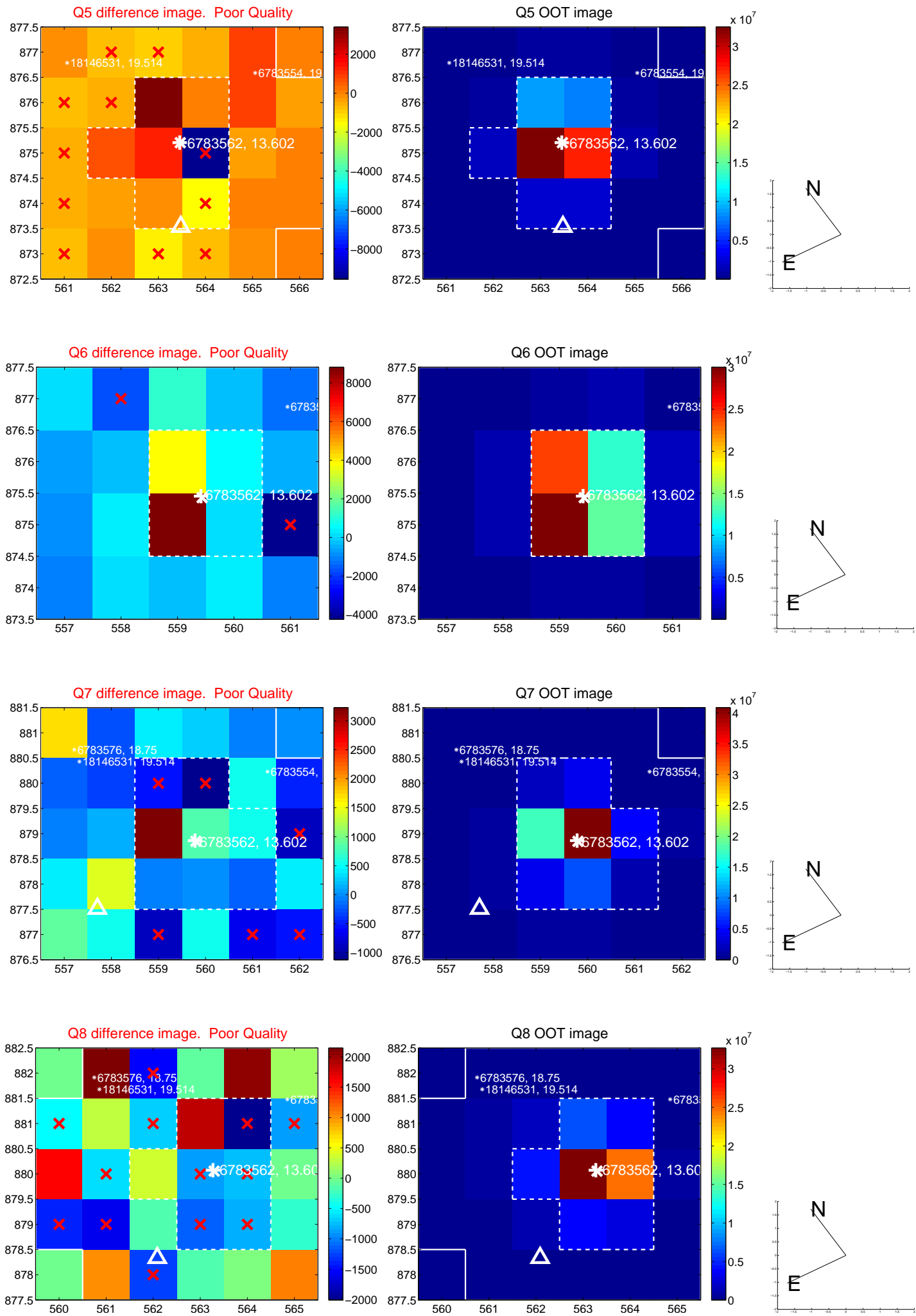


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

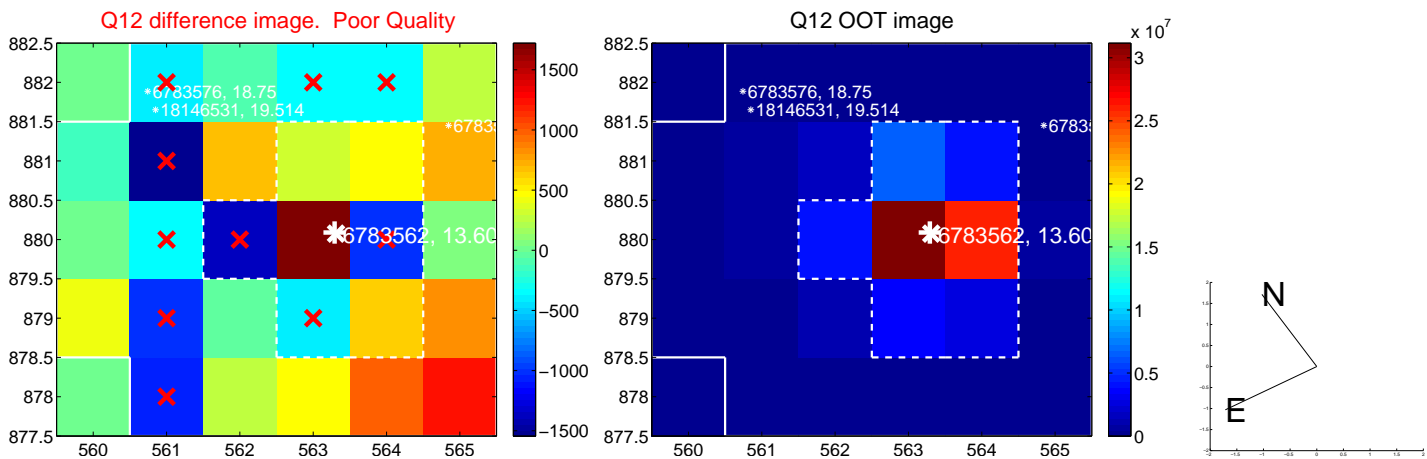
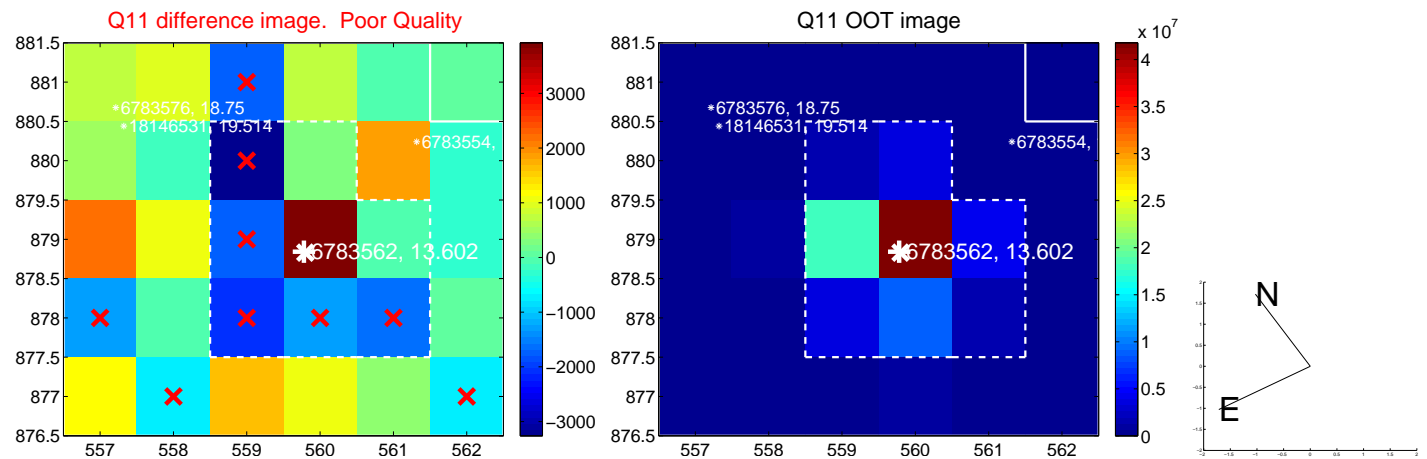
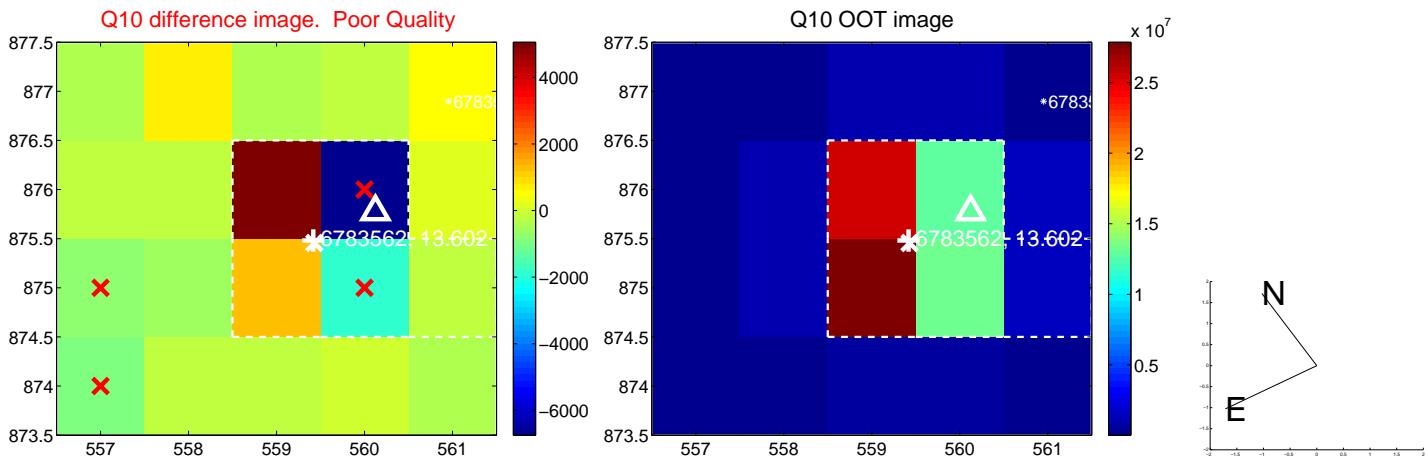
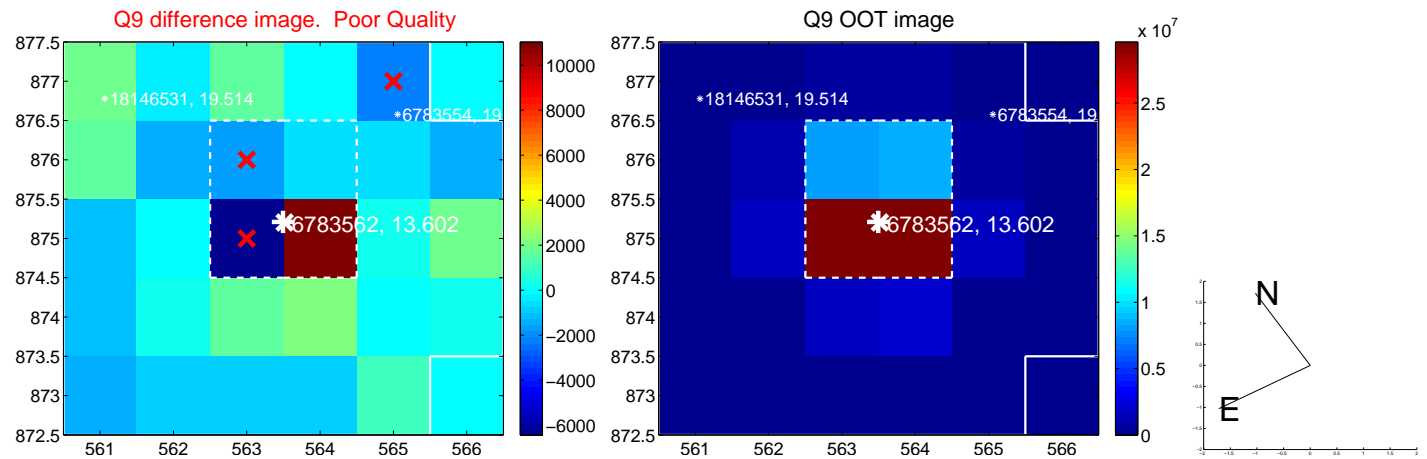
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



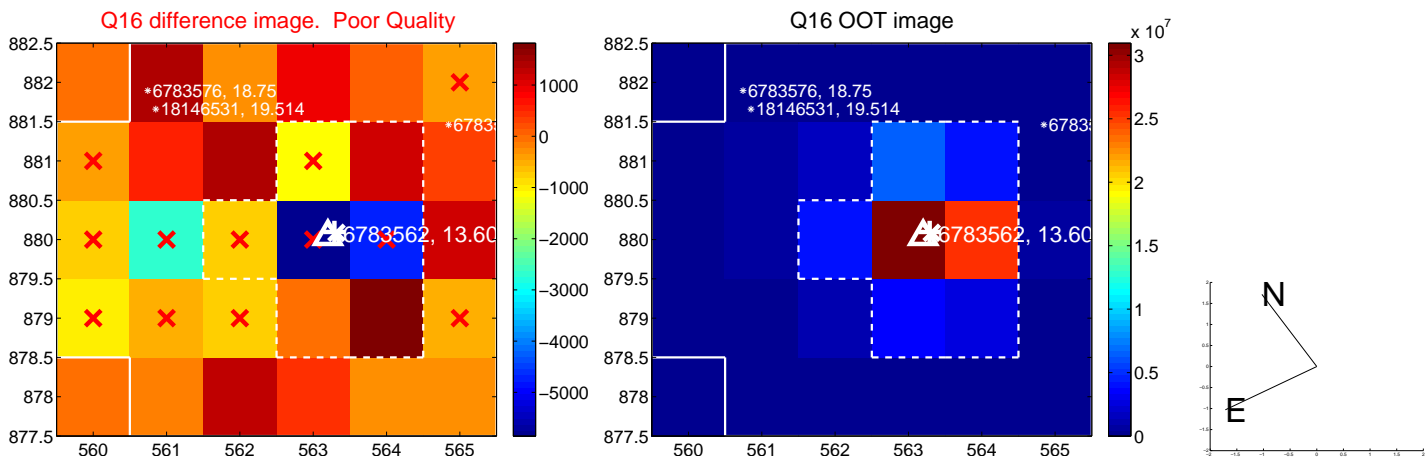
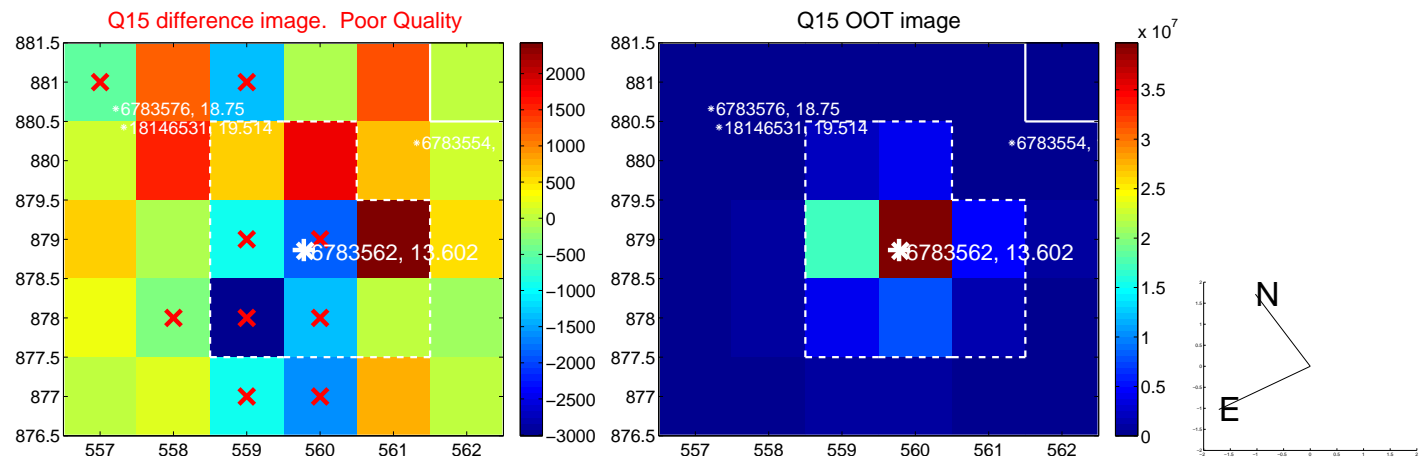
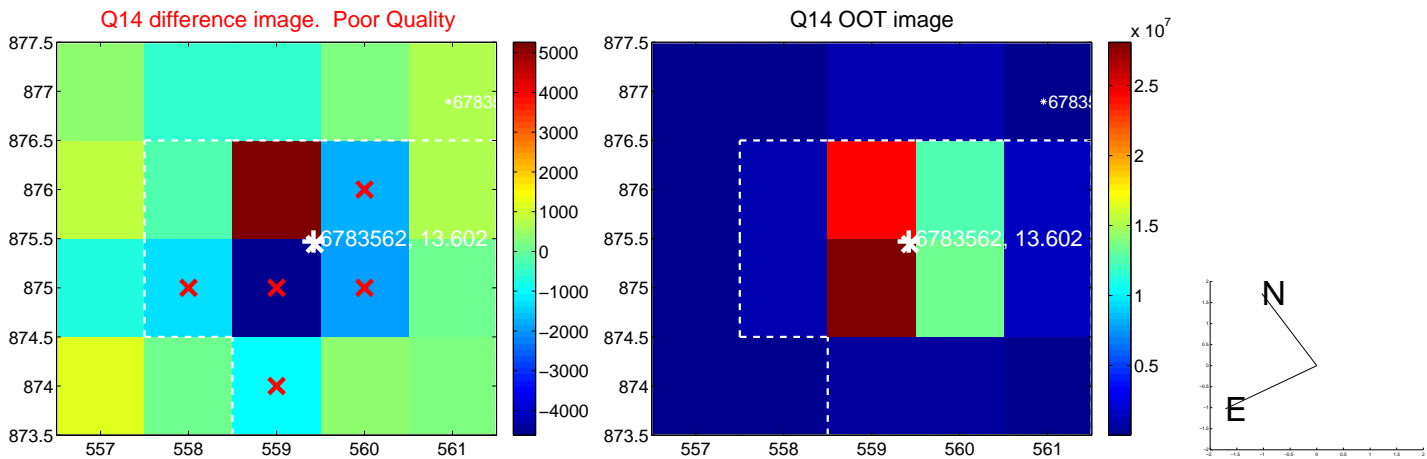
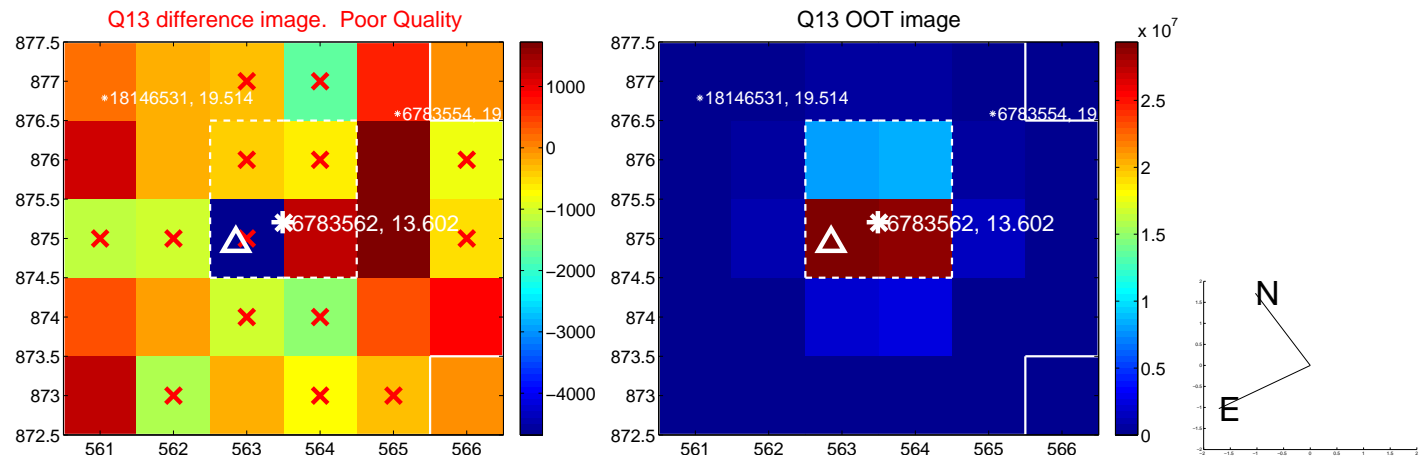
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



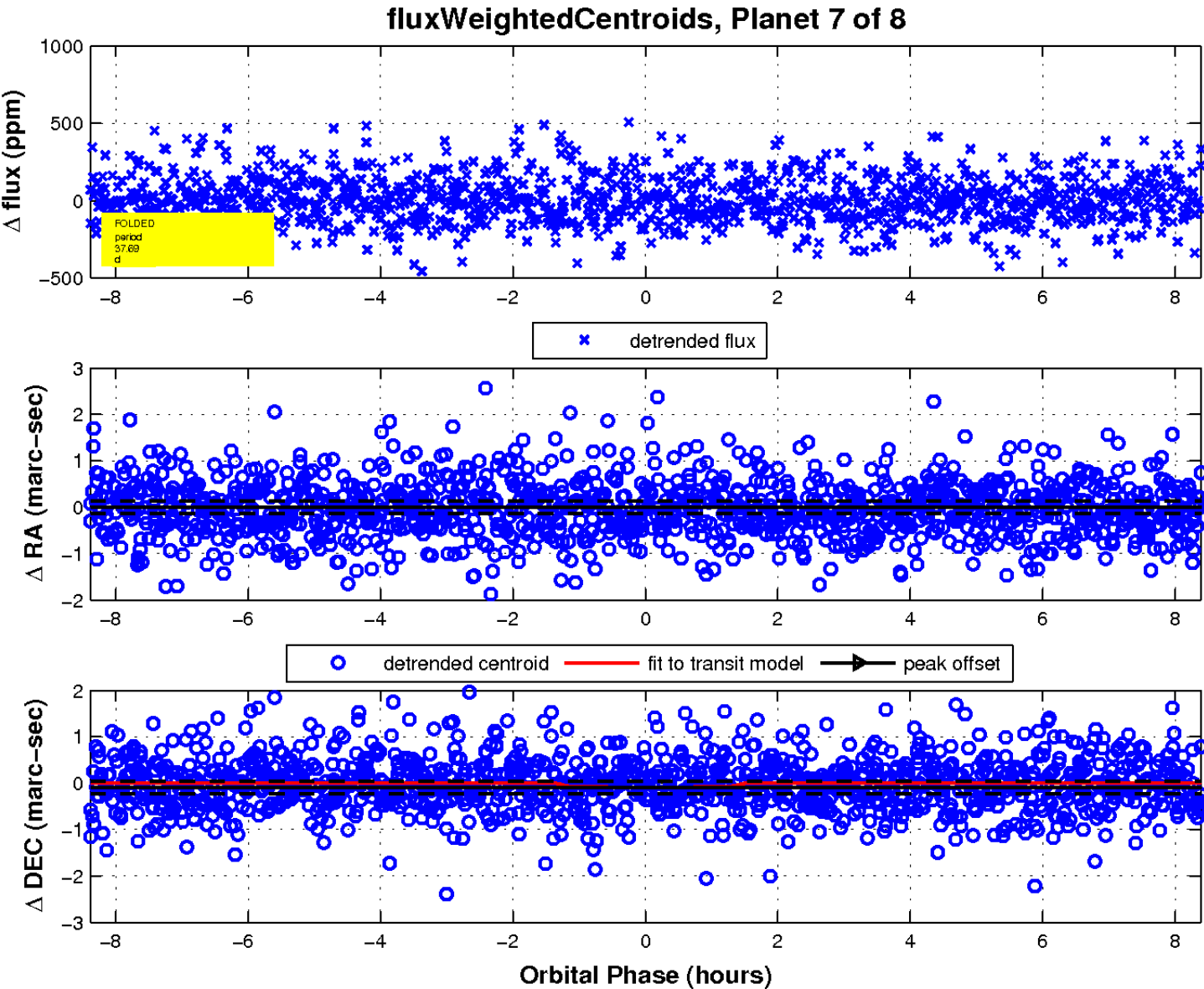
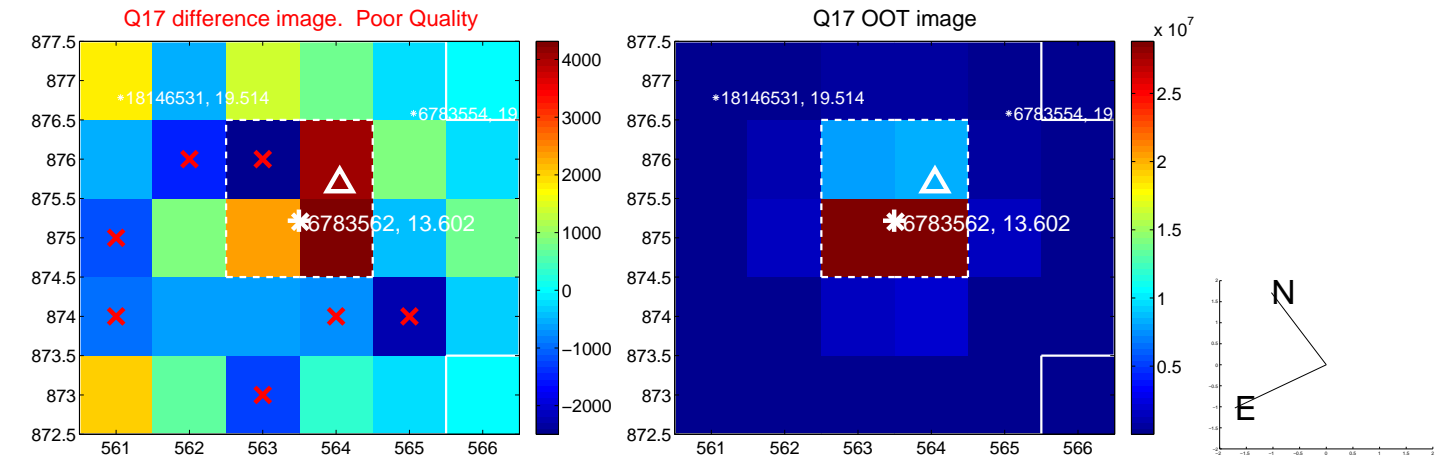
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

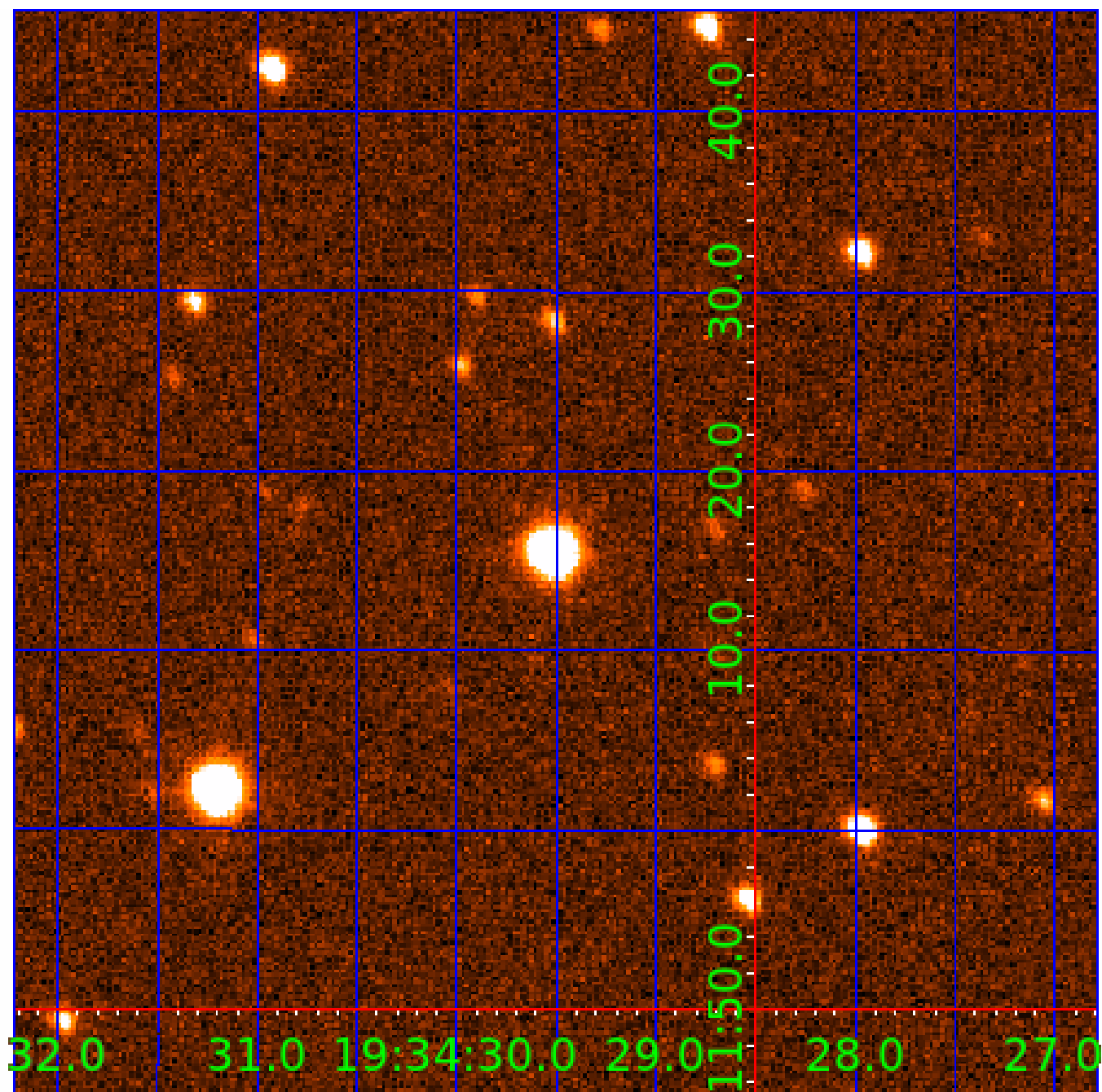


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006783562

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006783562-01 | OBS      | No   | 2.087275      | 132.270008   | 13.5        | 14.854           | 8.0  | 7.0  | 1.19                        | 6930            | 0.47                   | 2521.15                |
| 006783562-02 | OBS      | No   | 45.463043     | 140.208363   | 268.3       | 2.129            | 10.9 | 11.8 | 1.19                        | 6930            | 1.98                   | 41.45                  |
| 006783562-03 | OBS      | No   | 36.604208     | 167.620051   | 205.5       | 3.284            | 10.7 | 10.6 | 1.19                        | 6930            | 1.90                   | 55.34                  |
| 006783562-04 | OBS      | No   | 73.411839     | 145.841771   | 249.8       | 5.271            | 8.7  | 12.0 | 1.19                        | 6930            | 2.06                   | 21.88                  |
| 006783562-05 | OBS      | No   | 43.919590     | 136.781372   | 172.5       | 4.090            | 9.6  | 9.2  | 1.19                        | 6930            | 1.75                   | 43.40                  |
| 006783562-06 | OBS      | No   | 45.760610     | 149.174133   | 207.2       | 5.486            | 8.5  | 10.2 | 1.19                        | 6930            | 1.85                   | 41.09                  |
| 006783562-07 | OBS      | No   | 37.685131     | 158.174151   | 157.4       | 2.797            | 9.7  | 8.3  | 1.19                        | 6930            | 1.60                   | 53.23                  |
| 006783562-08 | OBS      | No   | 21.680387     | 136.795370   | 537.9       | 1.500            | 9.6  | -1.0 | 1.19                        | 6930            | 2.79                   | 111.25                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                                                             |
|--------------|----------|------|-------|---|---|---|---|--------------------------------------------------------------------------------------|
| 006783562-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV                                                                               |
| 006783562-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_MEAS                  |
| 006783562-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006783562-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST     |
| 006783562-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT    |
| 006783562-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS                    |
| 006783562-08 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST                           |

**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.

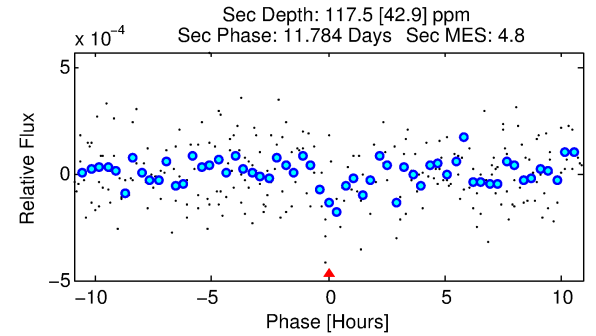
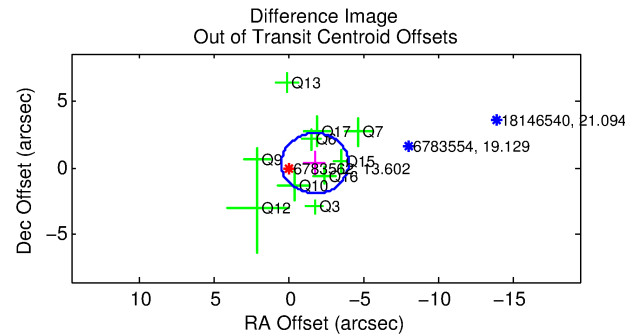
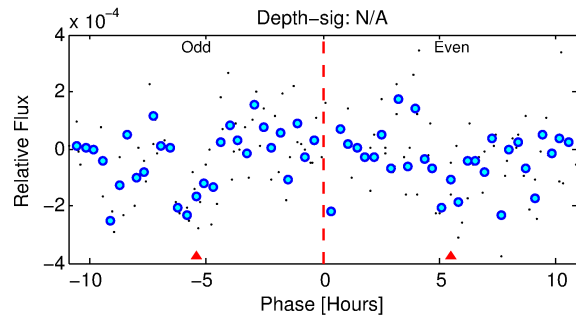
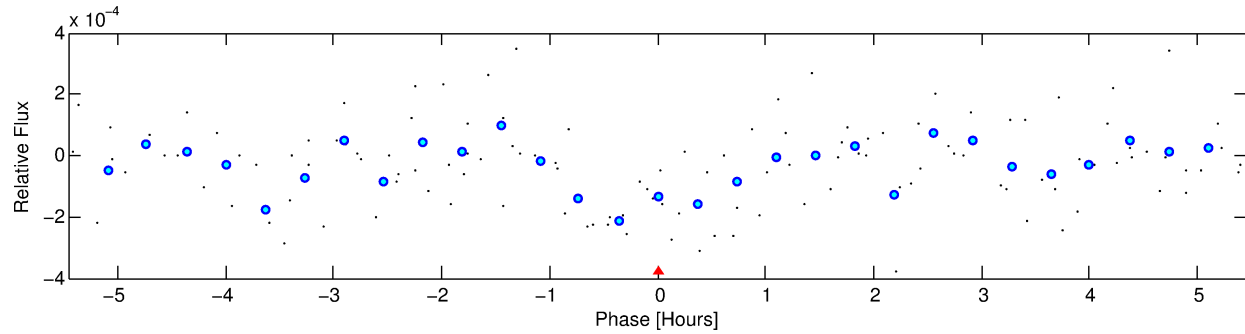
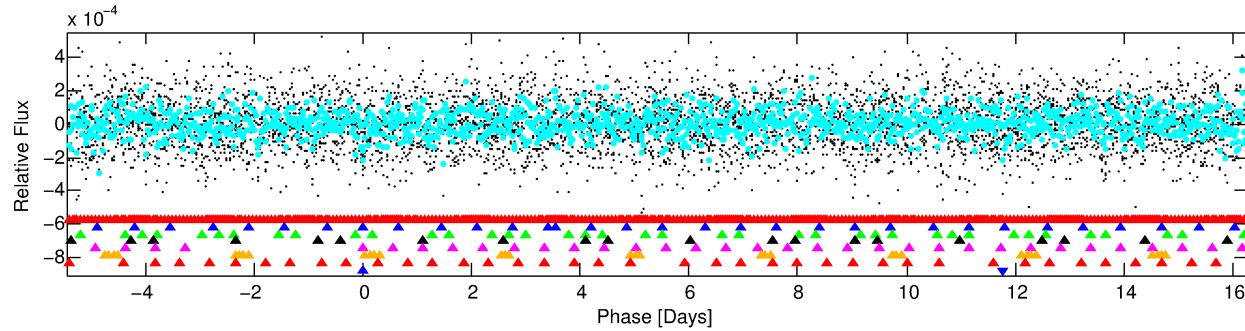
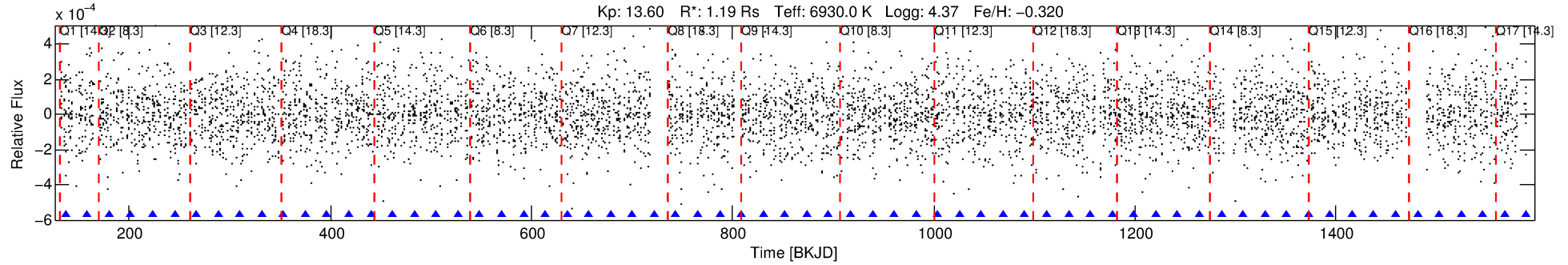
Ephemeris Match Information For 006783562-08

No Significant Match Found



# DV One-Page Summary

KIC: 6783562 Candidate: 8 of 8 Period: 21.680 d



## TPS TCE Results:

Period = 21.68039 d  
Epoch = 136.7954 BKJD

DV fit results are unavailable

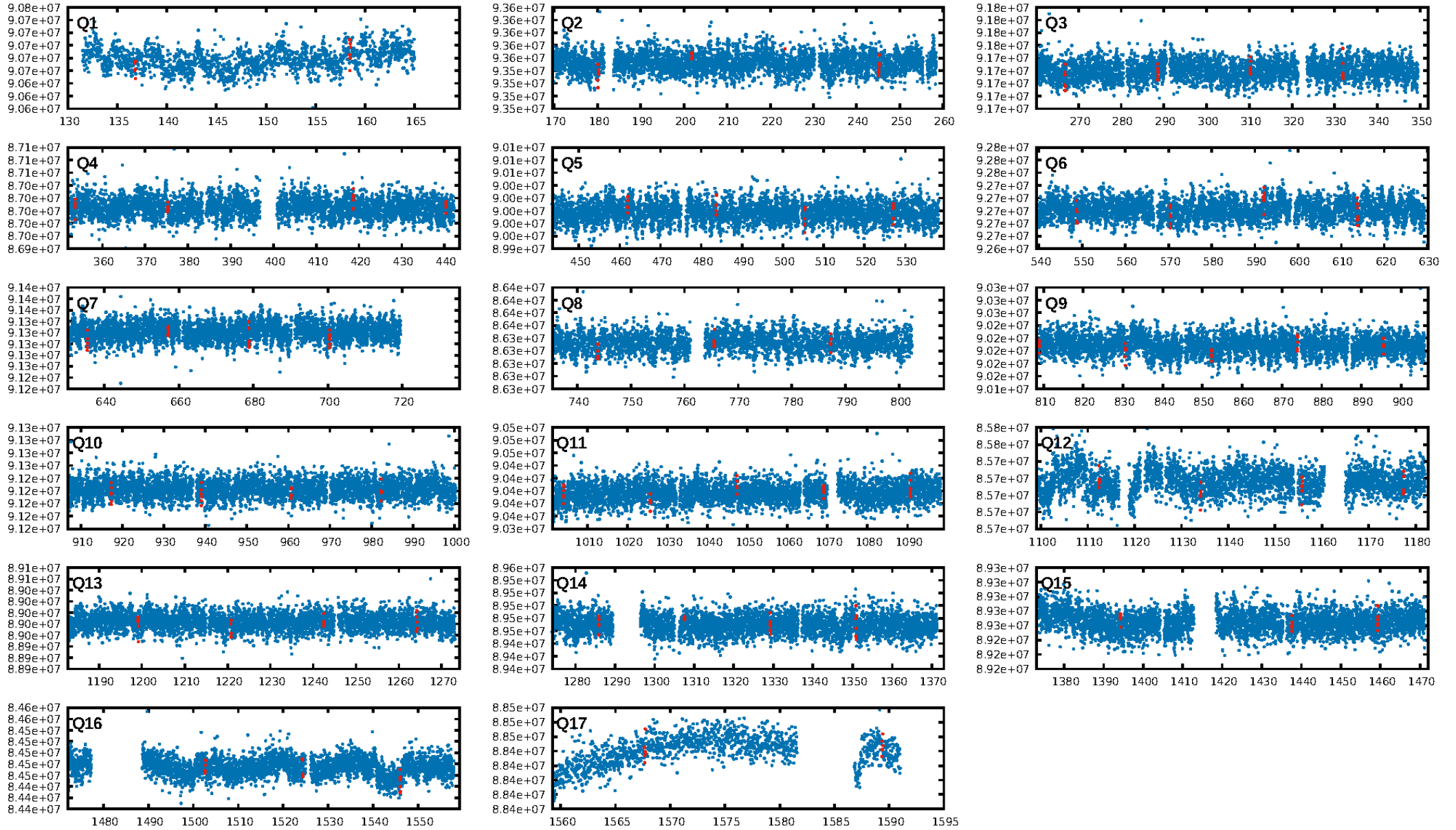
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [31.50 $\sigma$ ]  
LongPeriod-sig: 100.0% [99.20 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: -0.04711  
Centroid-sig: 10.2%  
Centroid-so: 0.820 arcsec [1.32 $\sigma$ ]  
OotOffset-rm: 1.819 arcsec [2.43 $\sigma$ ]  
KicOffset-rm: 1.805 arcsec [2.39 $\sigma$ ]  
OotOffset-st: 2/3/2/3 [10]  
KicOffset-st: 2/3/2/3 [10]  
DiffImageQuality-fgm: 0.30 [3/10]  
DiffImageOverlap-fno: 0.88 [15/17]

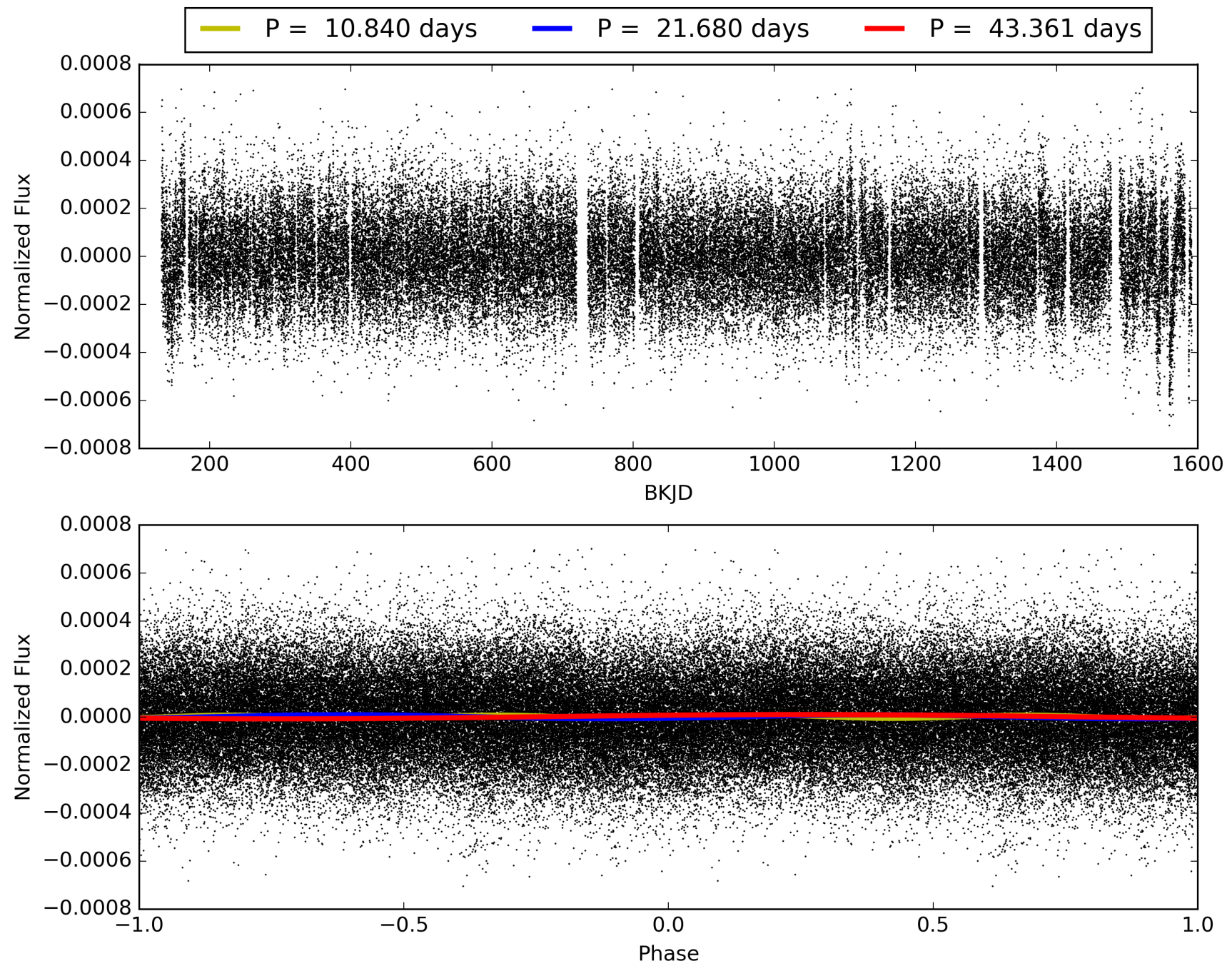
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:18:13 Z

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

# TCE 006783562-08, PDC Light Curves

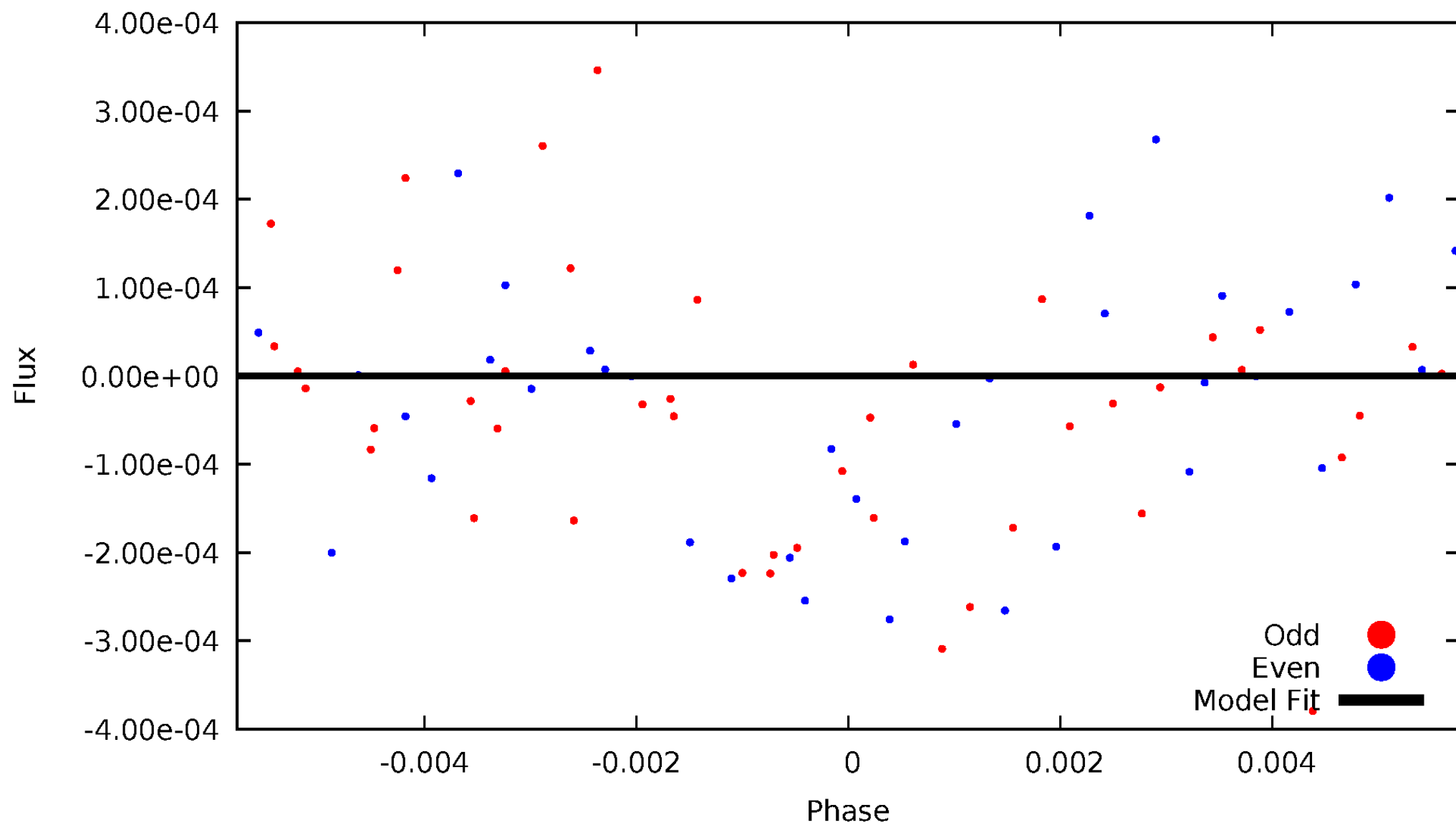


TCE 006783562-08



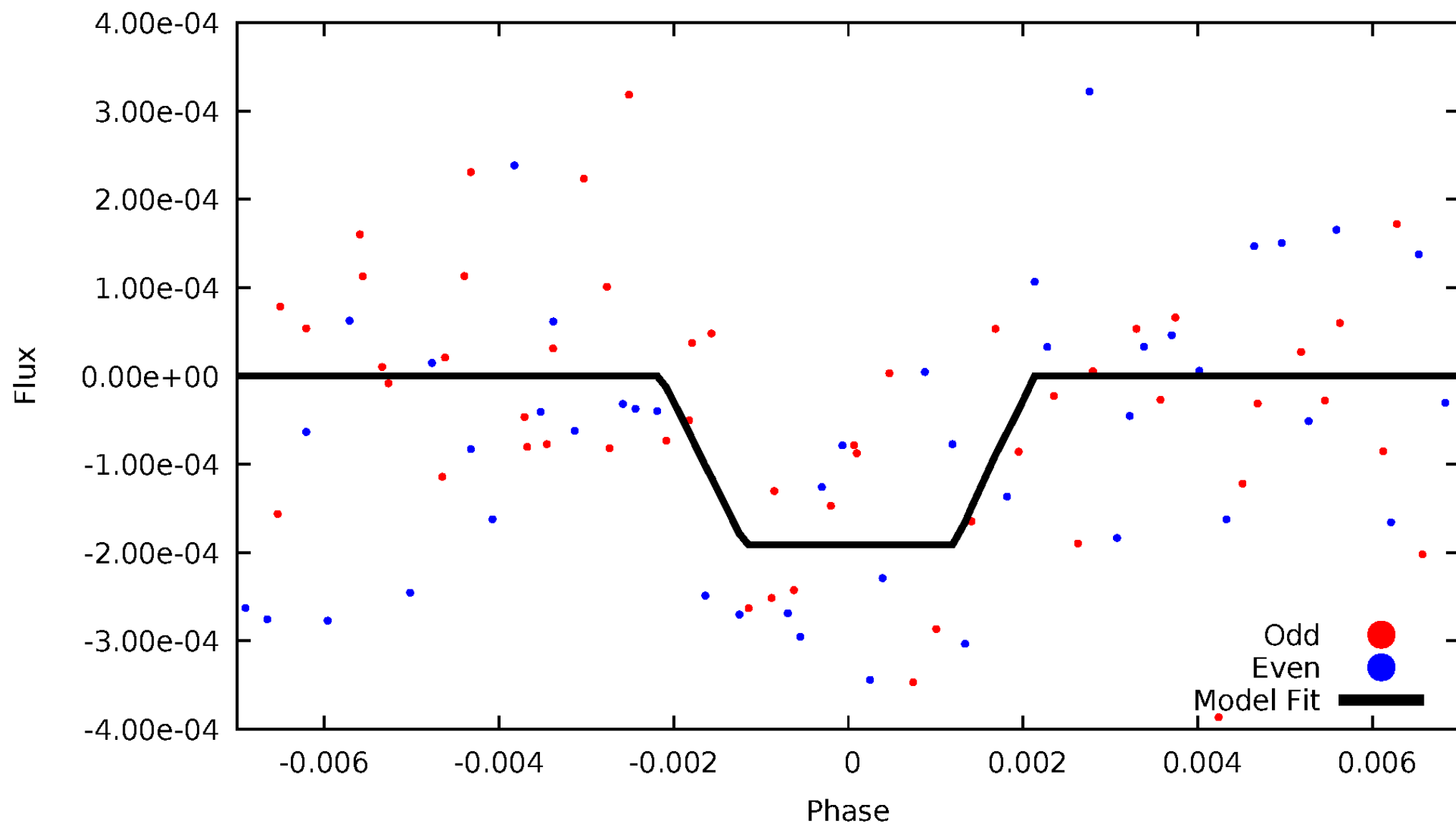
# DV Odd/Even

TCE 006783562-08



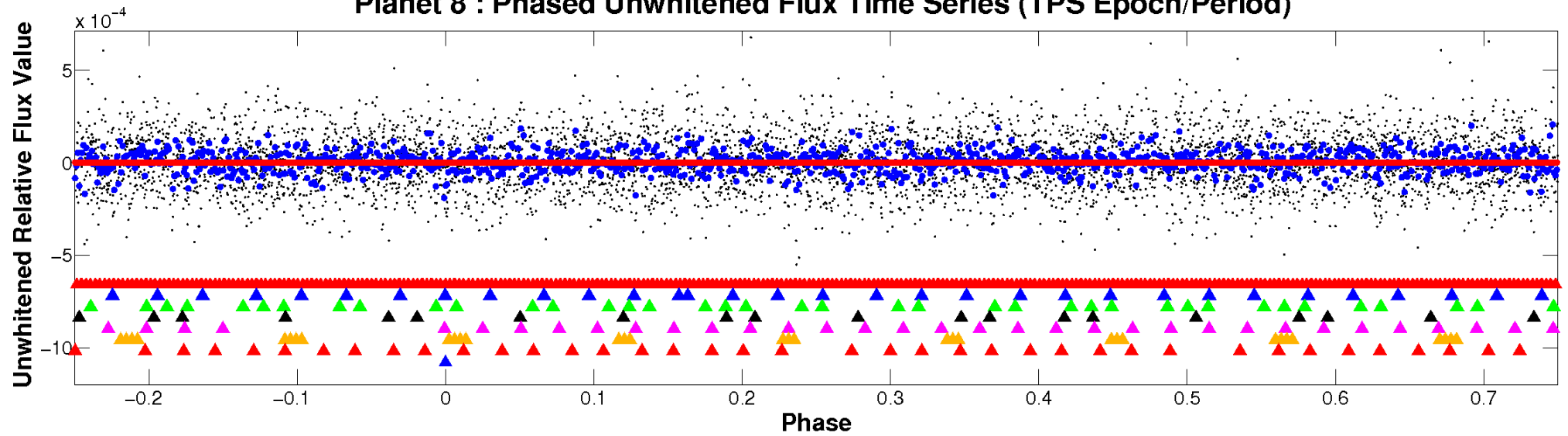
# ALT Odd/Even

TCE 006783562-08

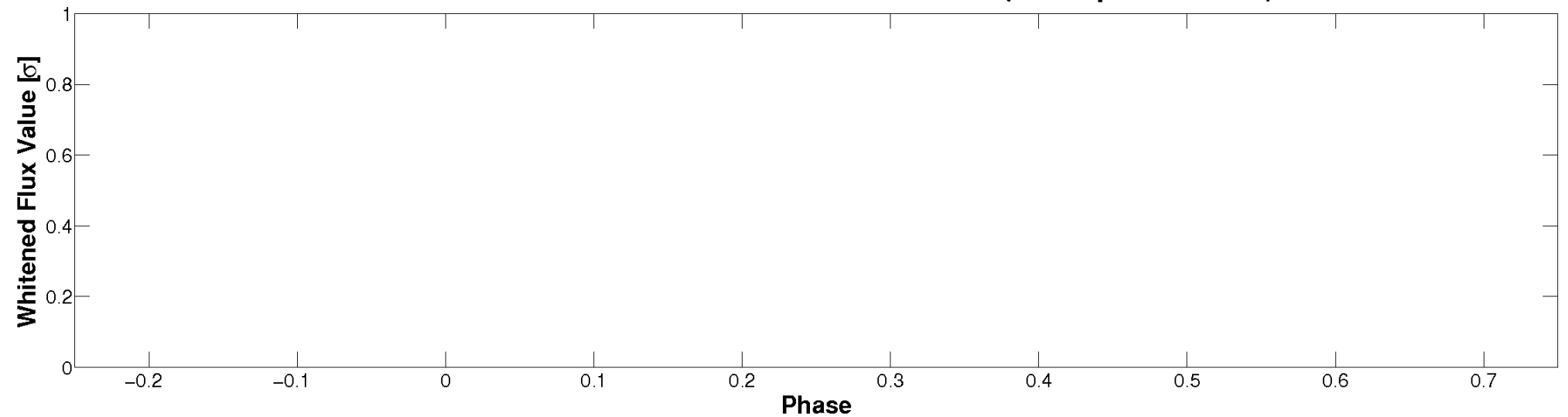


# Non-Whitened Vs. Whitened Light Curve

**Planet 8 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

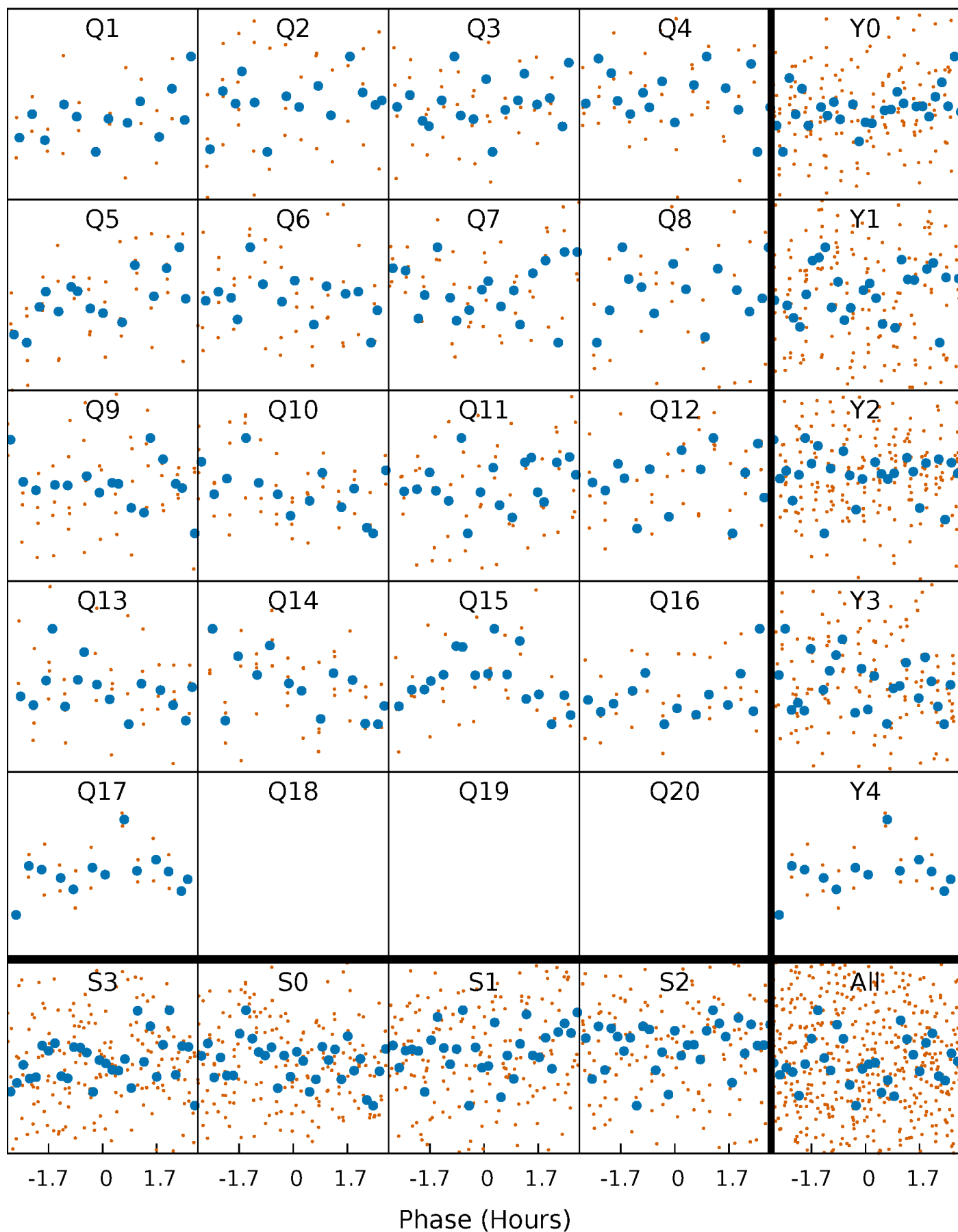


**Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

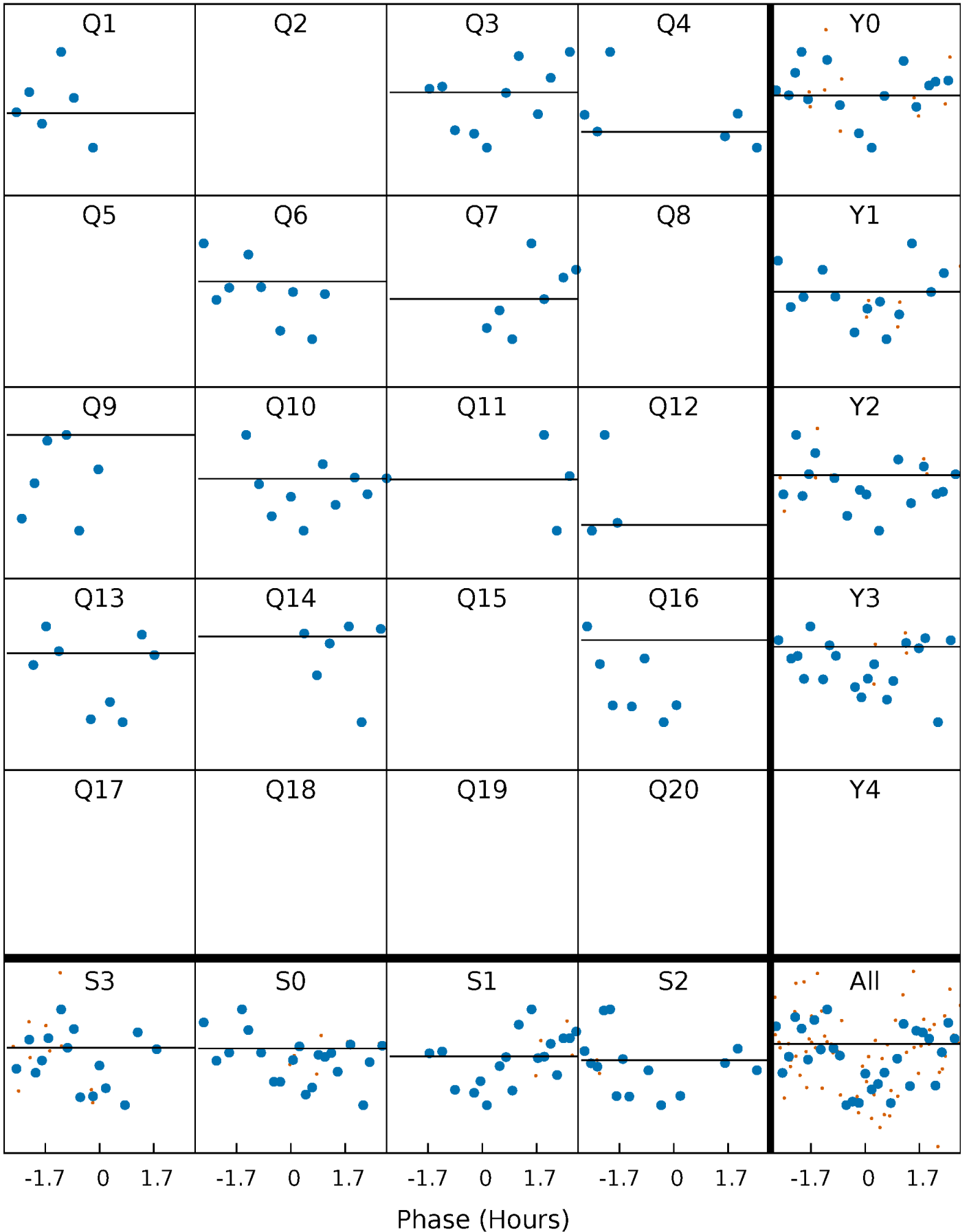
TCE 006783562-08 P= 21.680387 Days  $T_0=136.795370$  (BKJD)





# DV Quarter-Phased Transit Curves

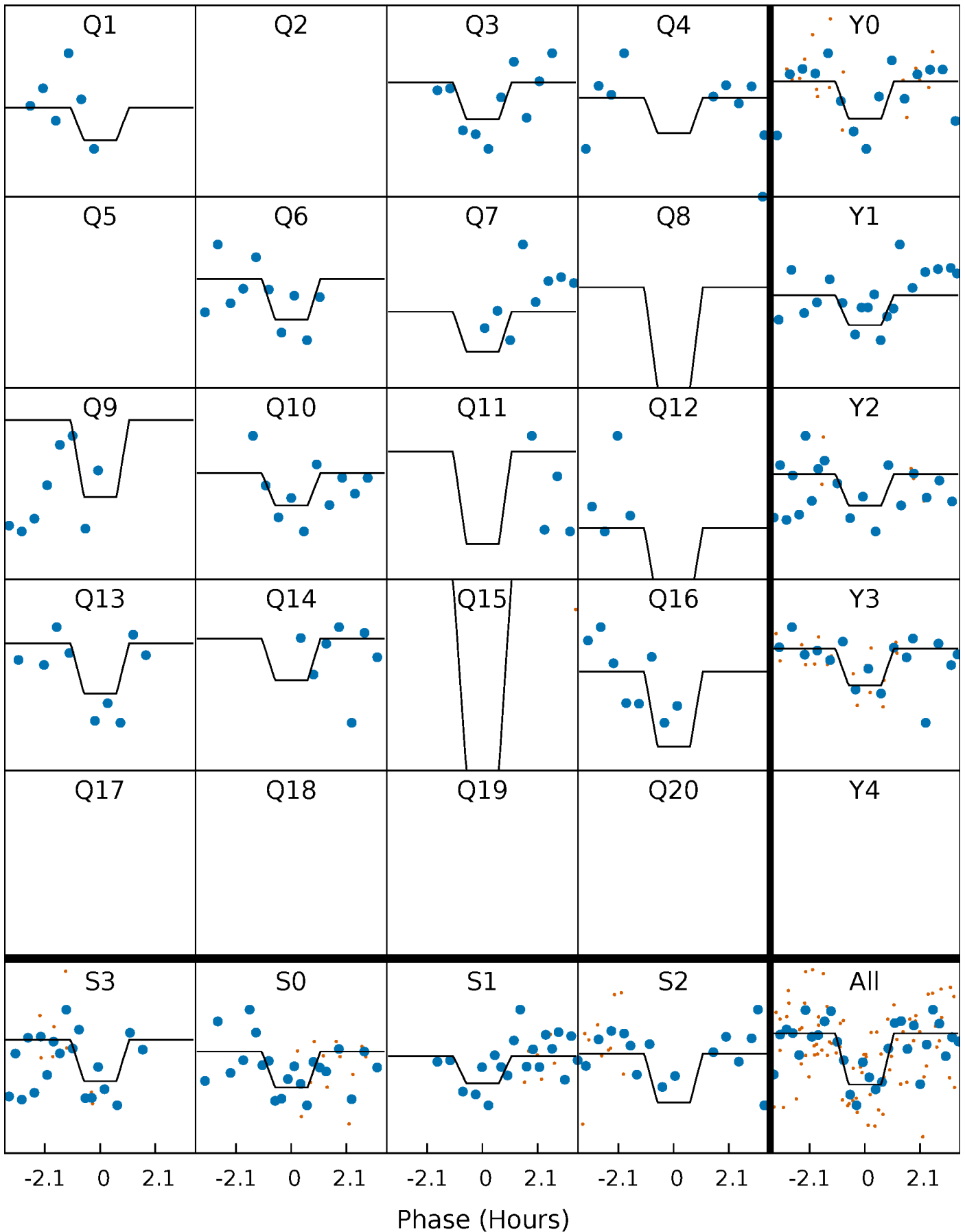
TCE 006783562-08   P= 21.680387 Days    $T_0=136.795370$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

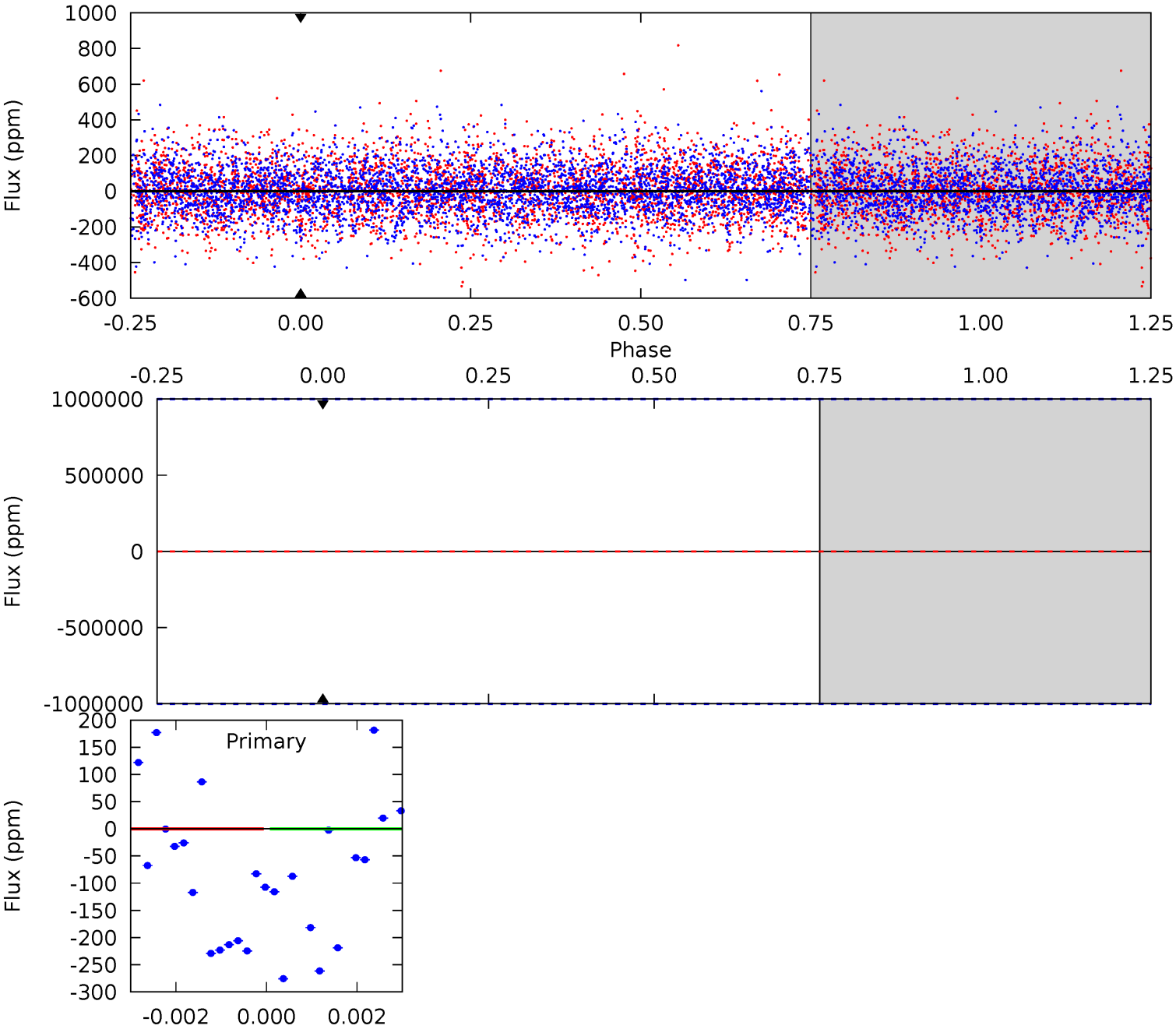
TCE 006783562-08 P= 21.680387 Days  $T_0=136.798453$  (BKJD)



# DV Model-Shift Uniqueness Test

006783562-08, P = 21.680387 Days, E = 115.114983 Days

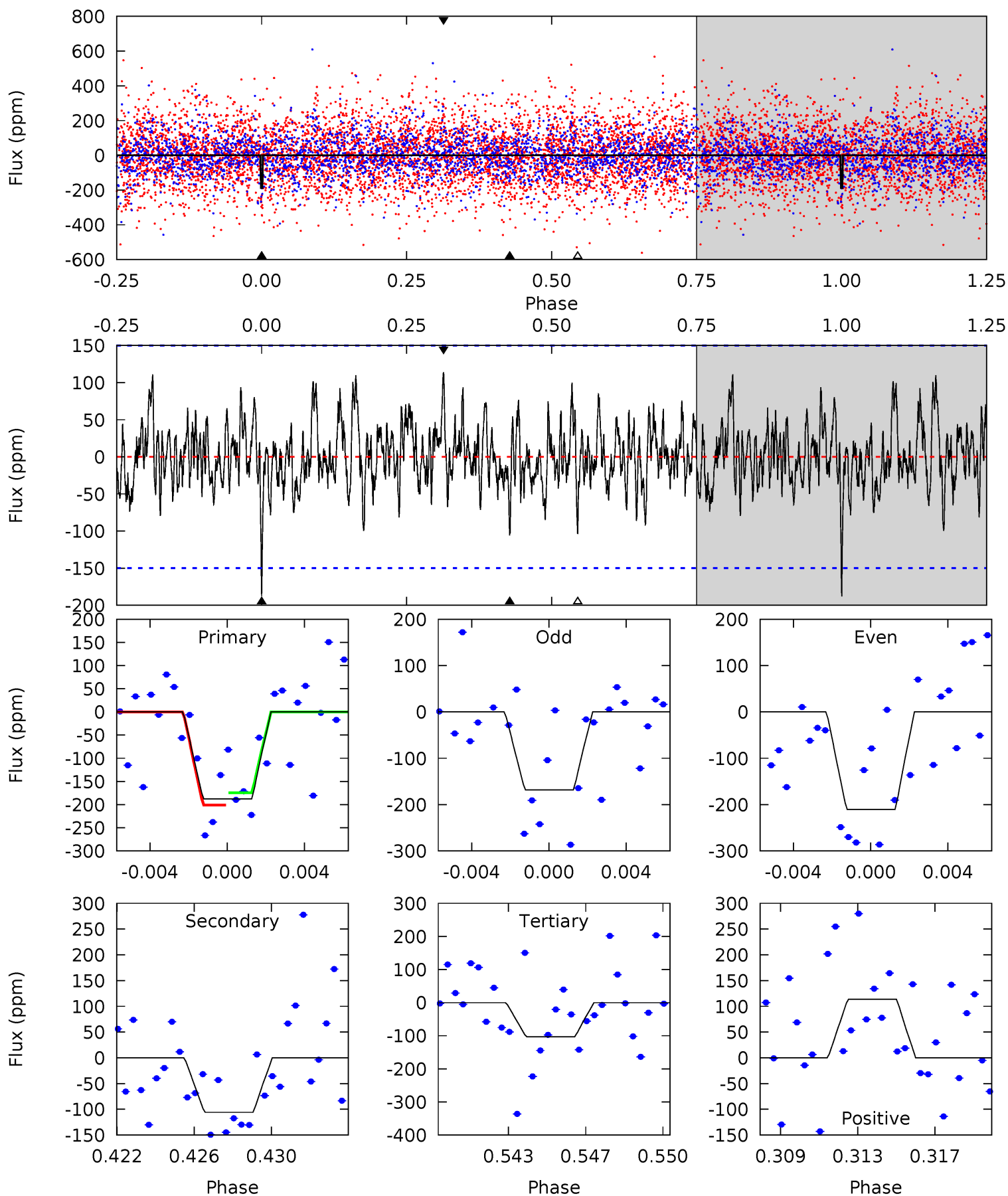
| Pri | Sec | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-----|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|
| 0   | 0   | 0   | 0   | 1.00            | 1.00            | 1.00             | 0       | 0       | 0       | 0       | 0       | 0   | 0     | 0   |



# Alt Model-Shift Uniqueness Test

006783562-08, P = 21.680387 Days, E = 115.118066 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.53 | 3.68 | 3.59 | 3.95 | 5.21            | 2.90            | 1.26             | 2.94    | 2.57    | 0.09    | -0.28   | 0.73    | 0.86 | 0.38  | 0.47 |



### Stellar Parameters For KIC 006783562

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M$ ( $M_{\odot}$ )       | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-----------------------------------------------|
|        | $6930^{+192}_{-288}$ | $4.369^{+0.056}_{-0.224}$ | $-0.320^{+0.250}_{-0.350}$ | $1.188^{+0.425}_{-0.142}$ | $1.219^{+0.189}_{-0.154}$ | $1.025^{+0.239}_{-0.556}$                     |
|        | +3%/-4%              | +1%/-5%                   | +78%/-109%                 | +36%/-12%                 | +16%/-13%                 | +23%/-54%                                     |
| 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 006783562-08 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ )   | $T_{max}$ (K)      | $T_{obs}$ (K)            | $A_{obs}$              |
|---------|-----------------|--------------------------|--------------------|--------------------------|------------------------|
| DV      | $0 \pm 1000000$ | $10.75^{+11.67}_{-7.37}$ | $1181^{+85}_{-63}$ | $4243^{+31287}_{-29066}$ | $82^{+27069}_{-18602}$ |
| Alt.    | $-106 \pm 29$   | $10.13^{+10.83}_{-7.32}$ | $1183^{+92}_{-67}$ | $3160^{+1758}_{-584}$    | $14^{+167}_{-11}$      |

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

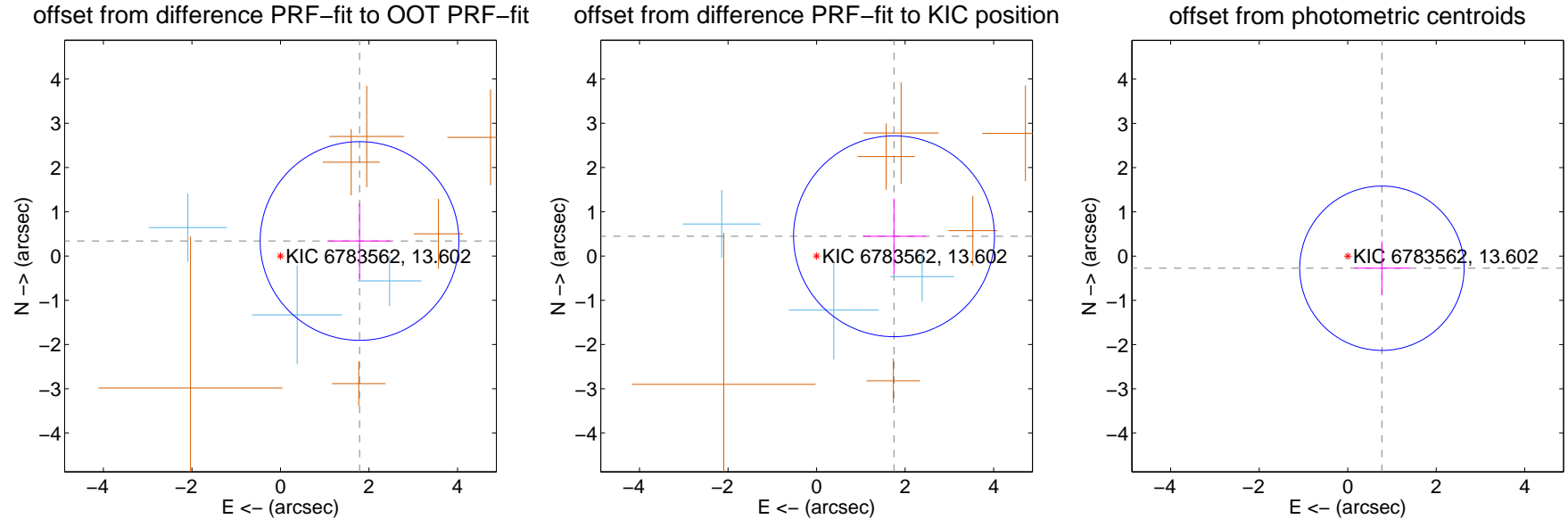
## DV Centroid Data

Supplemental centroid analysis for 006783562-08. Kepler magnitude: 13.60. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

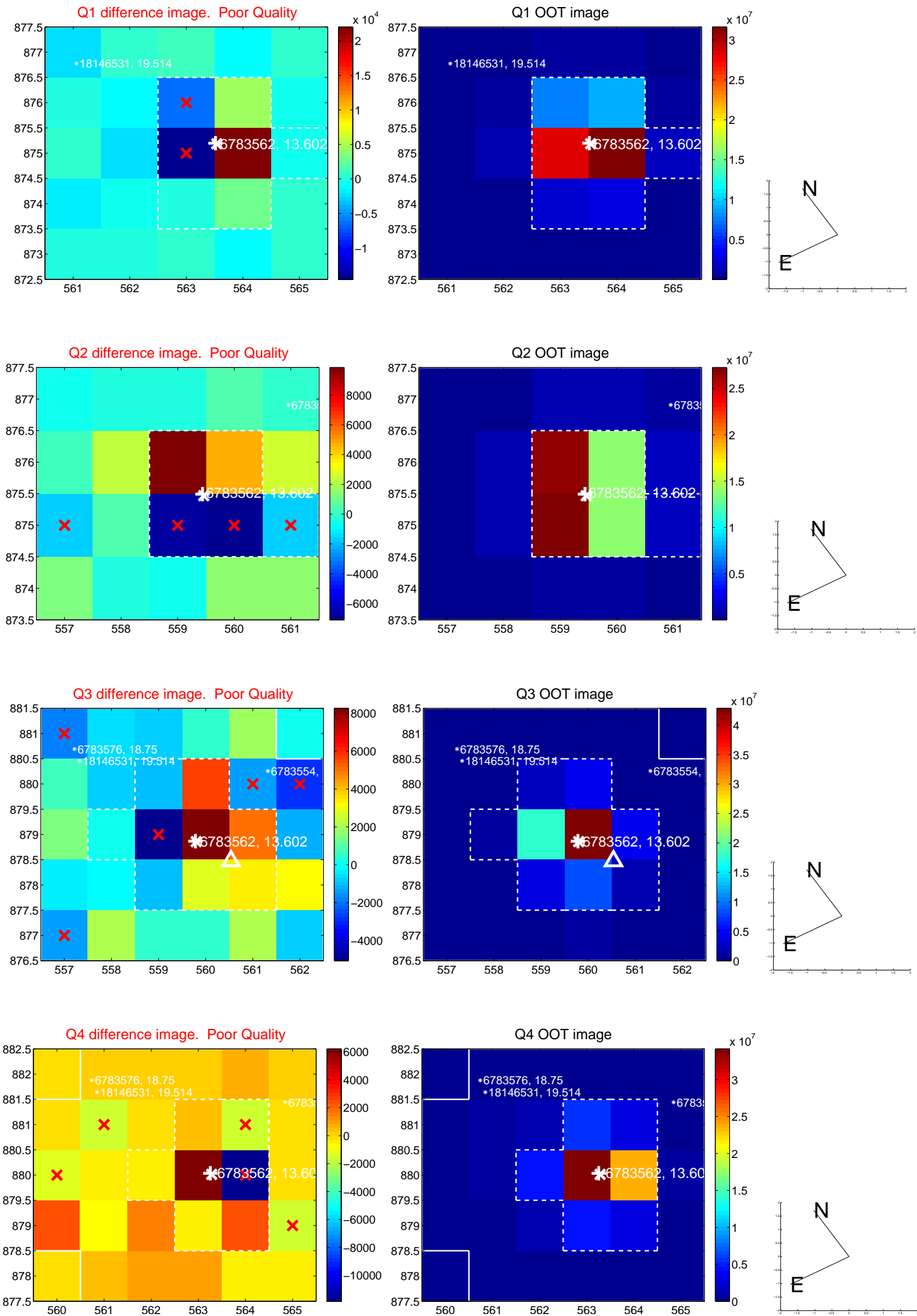
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|-----------------------------------------|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | $1.819 \pm 0.748$  | 2.43                | $-1.787 \pm 0.704$ | $0.340 \pm 0.853$ |
| PRF-fit source offset from KIC position | $1.805 \pm 0.756$  | 2.39                | $-1.749 \pm 0.705$ | $0.446 \pm 0.851$ |
| photometric centroid source offset      | $0.82 \pm 0.62$    | 1.32                | $-0.77 \pm 0.62$   | $-0.27 \pm 0.61$  |

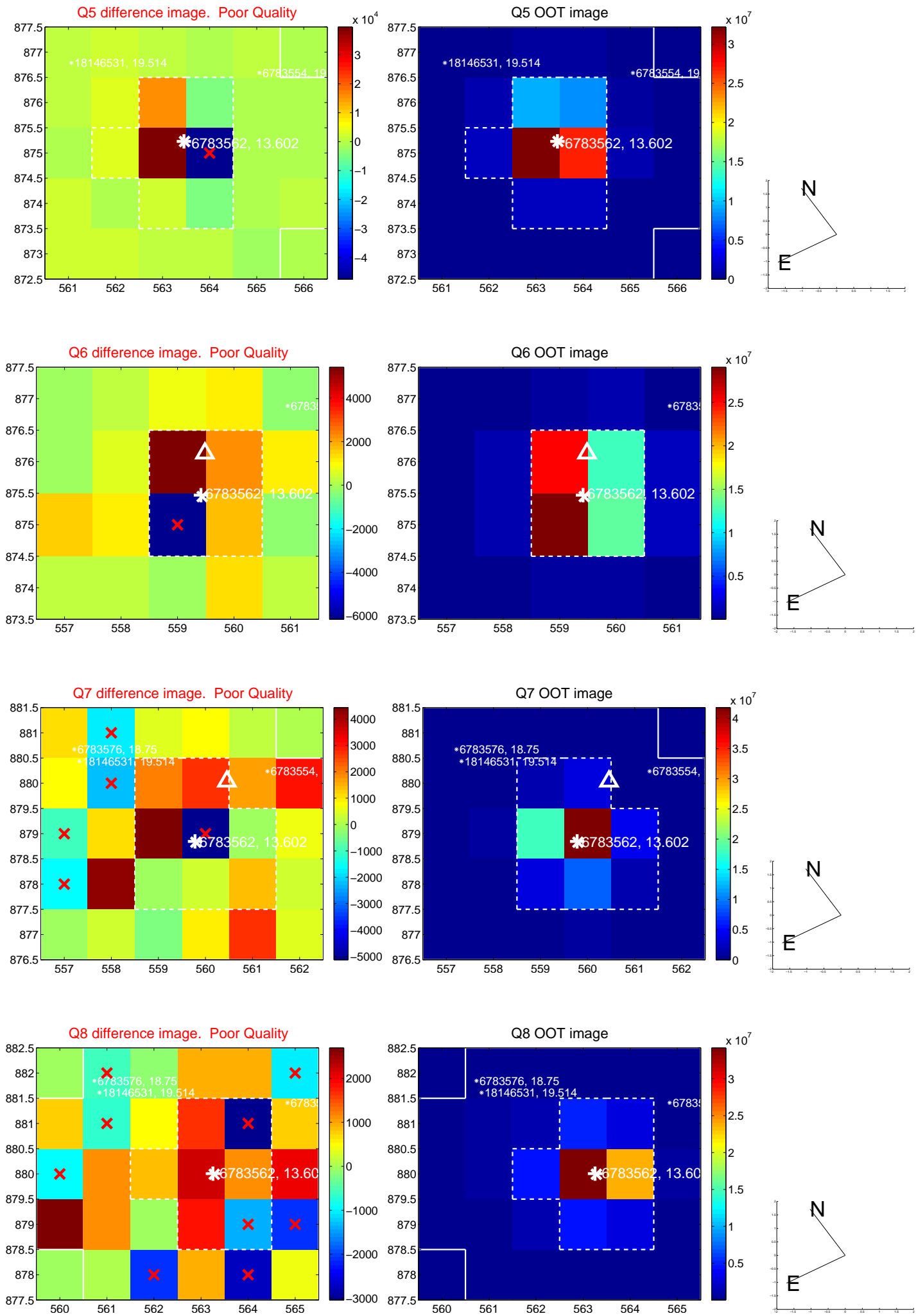


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

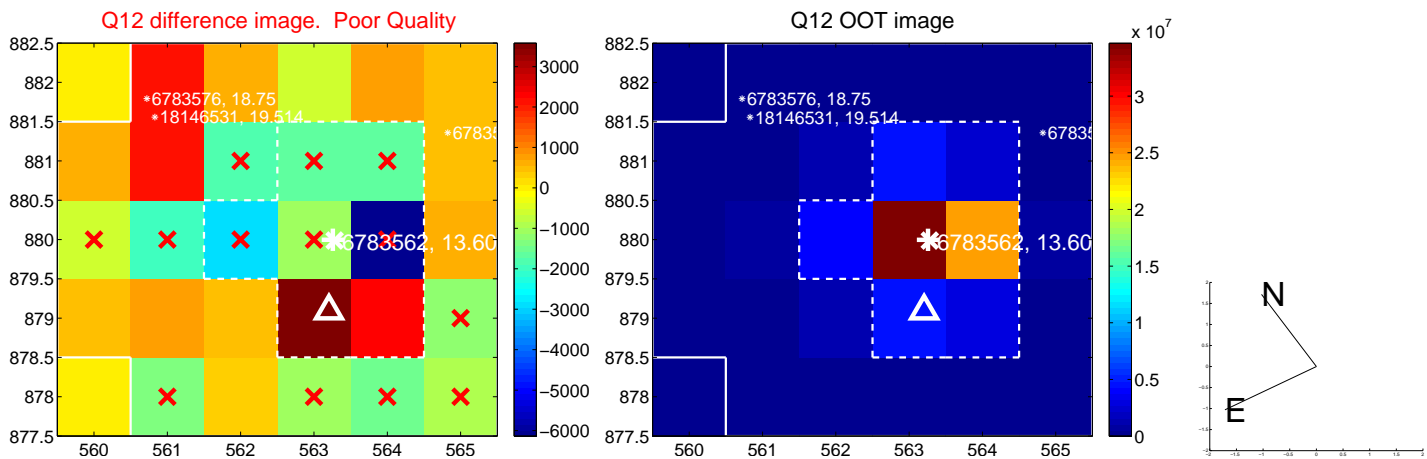
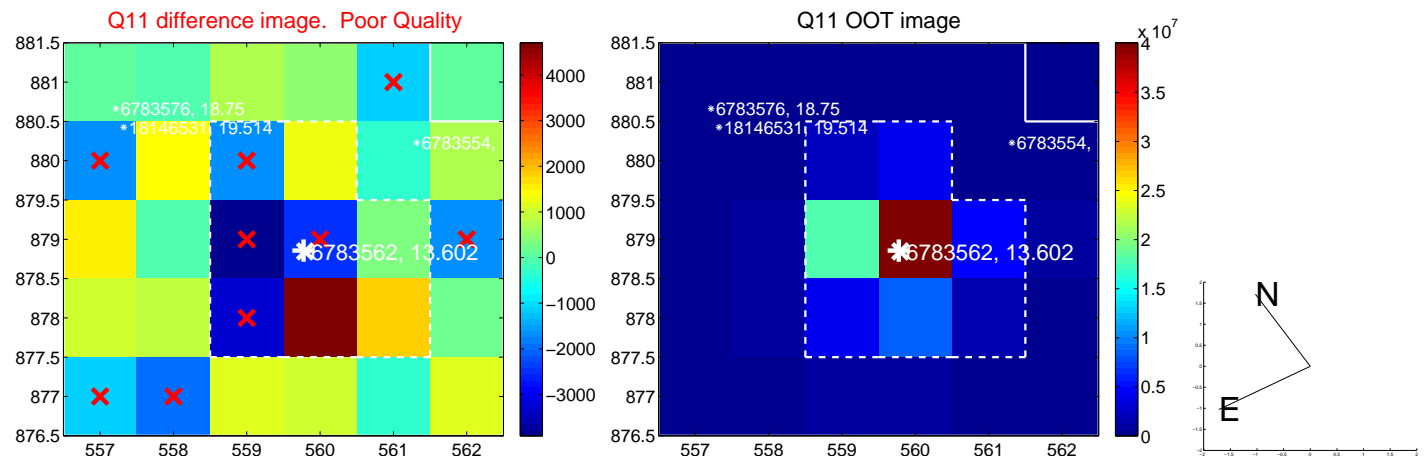
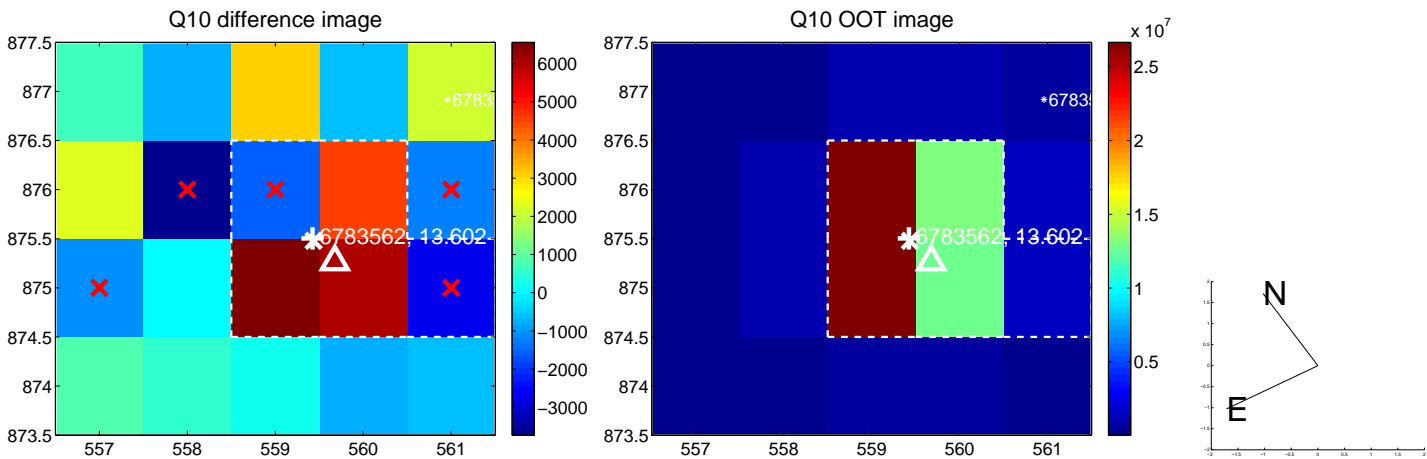
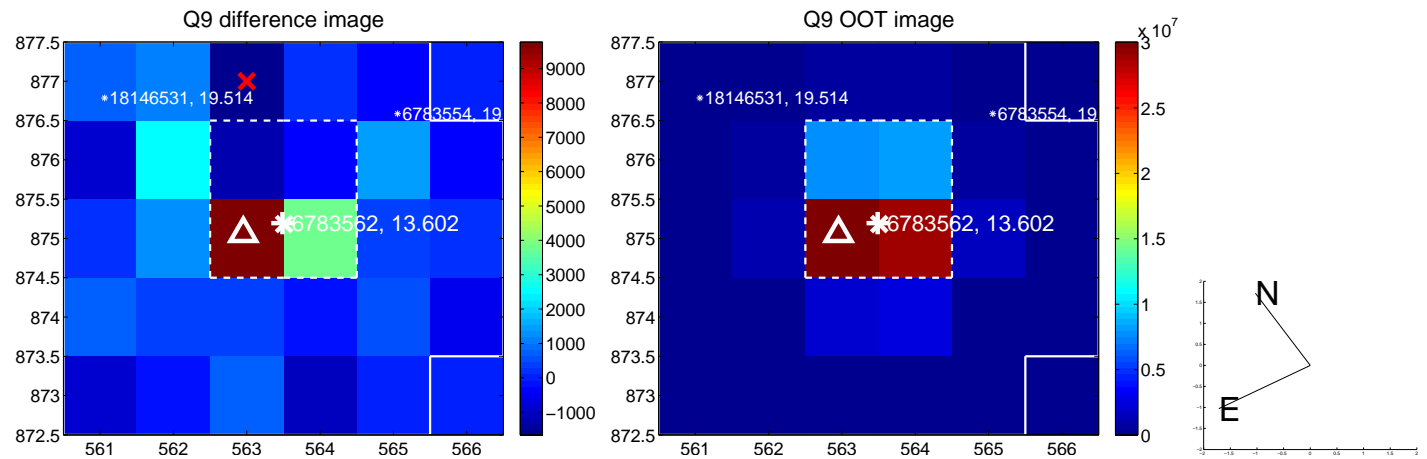
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

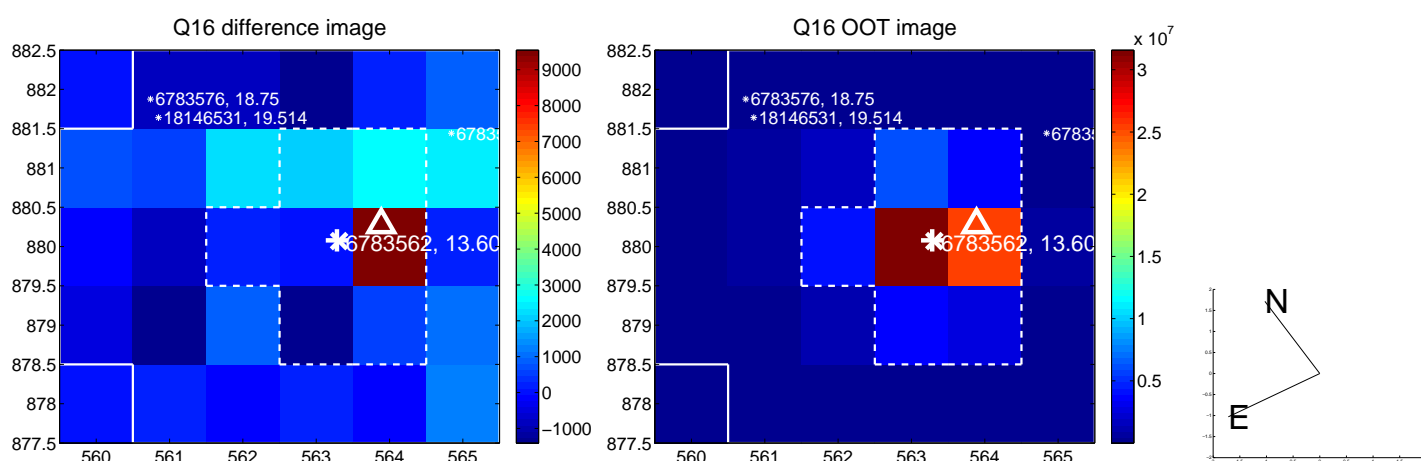
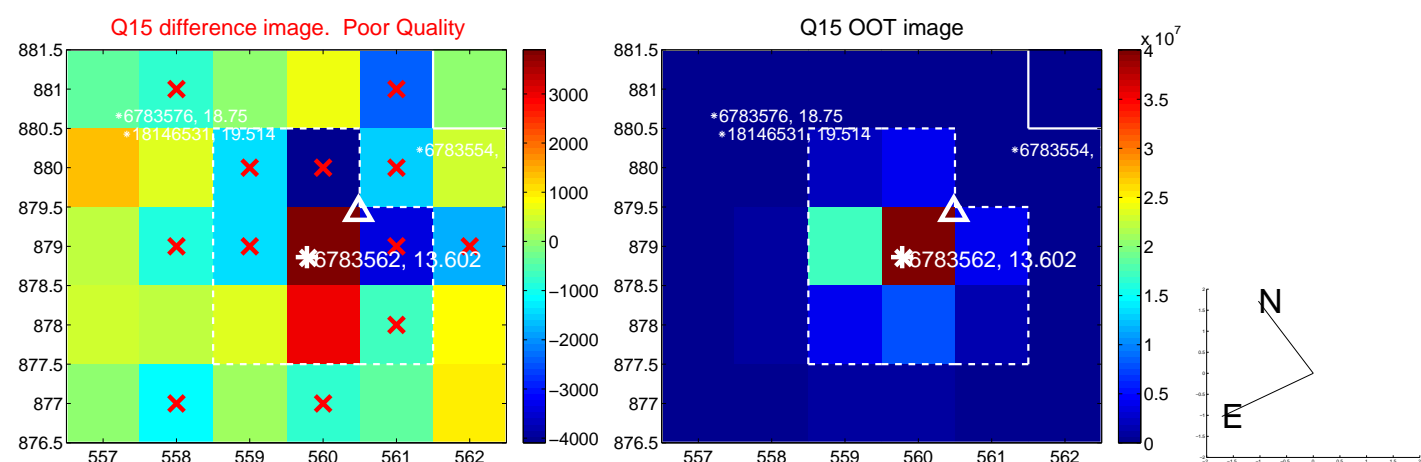
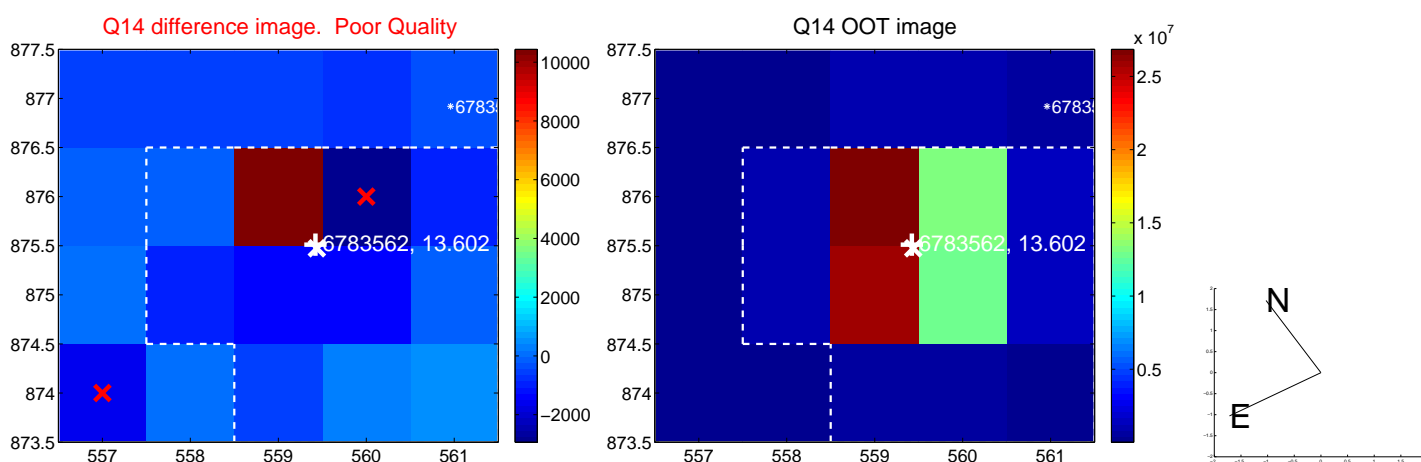
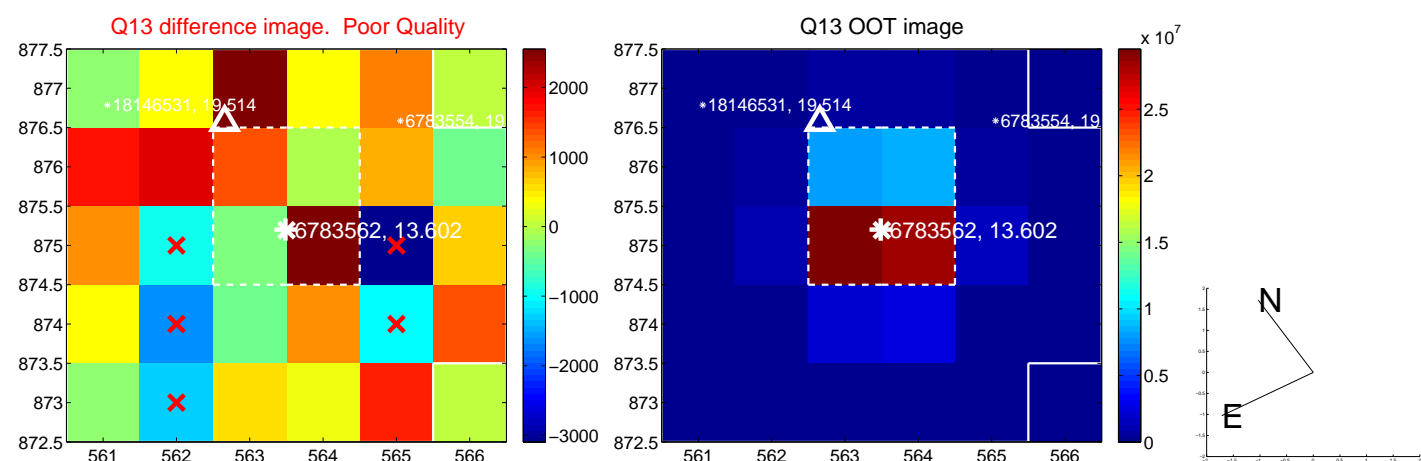


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

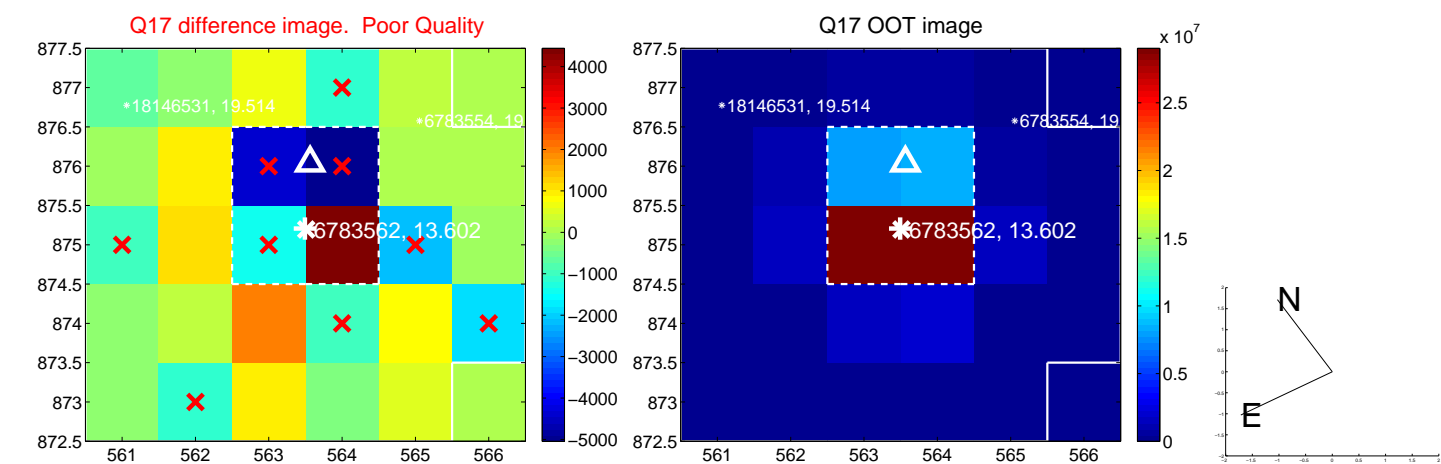




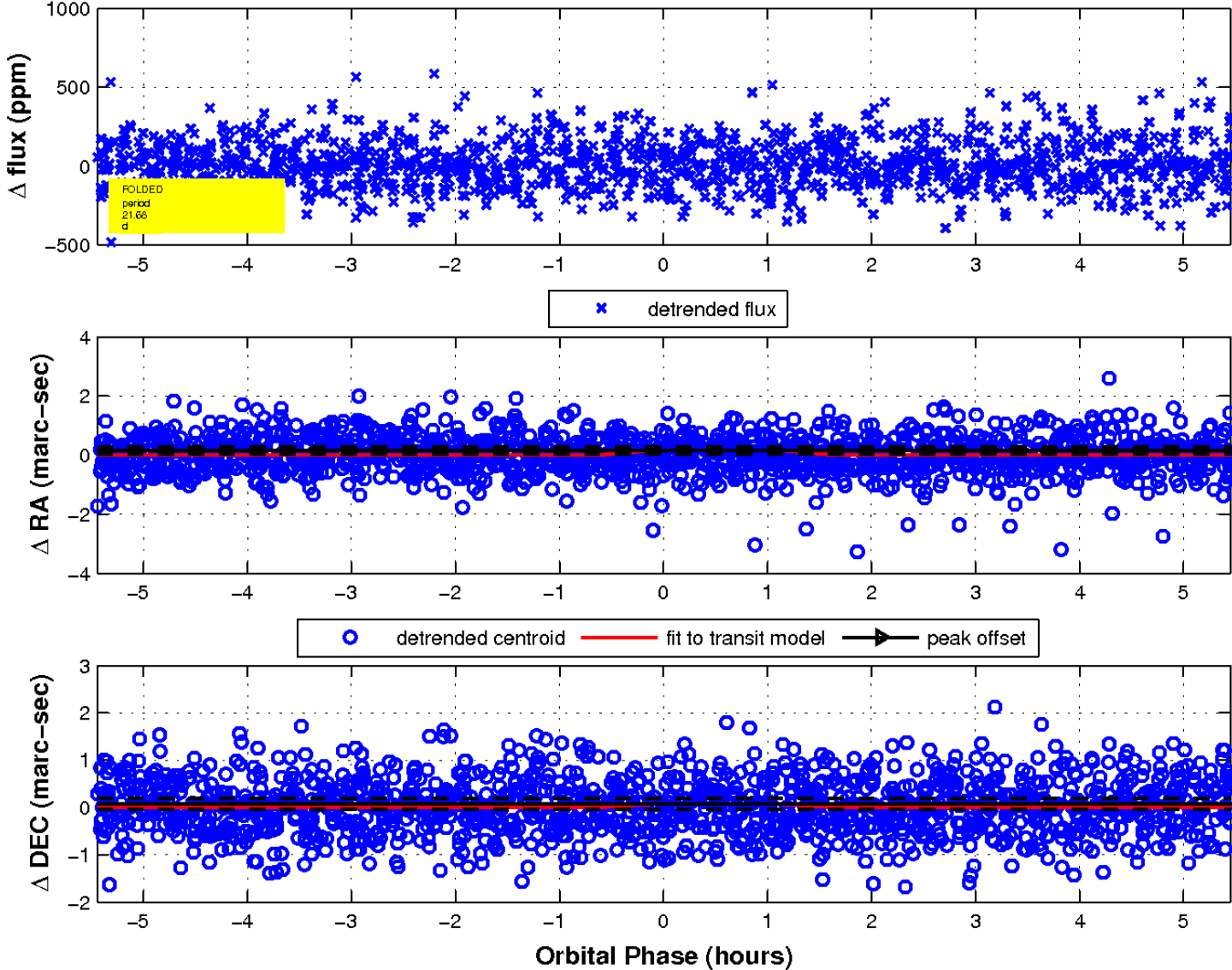
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 8 of 8



UKIRT Image

Declination

