

# KIC 006606481

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006606481-01 | OBS      | No   | 2.062860      | 131.510854   | 15.0        | 14.824           | 7.8  | 7.4  | 1.20                        | 6551            | 0.49                   | 2059.41                |
| 006606481-03 | OBS      | No   | 59.728174     | 147.161243   | 430.3       | 20.482           | 11.8 | 11.0 | 1.20                        | 6551            | 4.79                   | 23.16                  |
| 006606481-04 | OBS      | No   | 44.654730     | 136.804552   | 133.2       | 6.266            | 10.2 | 6.7  | 1.20                        | 6551            | 1.63                   | 34.14                  |
| 006606481-05 | OBS      | No   | 34.883059     | 163.824645   | 185.3       | 1.427            | 9.5  | 9.5  | 1.20                        | 6551            | 1.73                   | 47.45                  |
| 006606481-06 | OBS      | No   | 14.157855     | 143.959628   | 154.6       | 1.301            | 8.3  | 9.2  | 1.20                        | 6551            | 2.24                   | 157.90                 |
| 006606481-07 | OBS      | No   | 42.655509     | 157.218044   | 201.1       | 2.626            | 8.6  | 8.6  | 1.20                        | 6551            | 1.92                   | 36.29                  |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 006606481-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS  |
| 006606481-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS                         |
| 006606481-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006606481-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—MOD_NONUNIQ_DV—HALO_GHOST   |
| 006606481-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT                                 |
| 006606481-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_KIC_POS  |

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

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

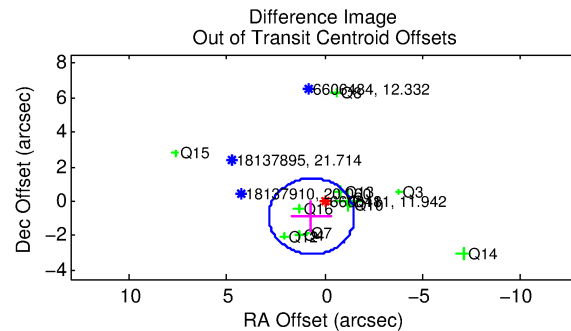
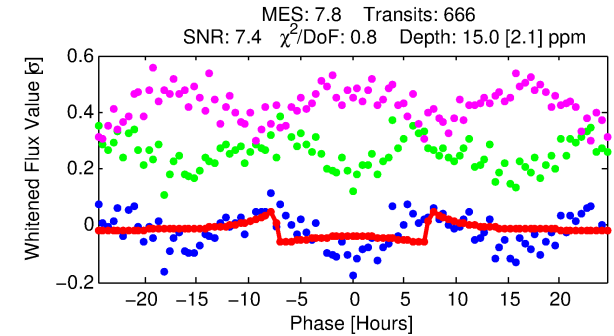
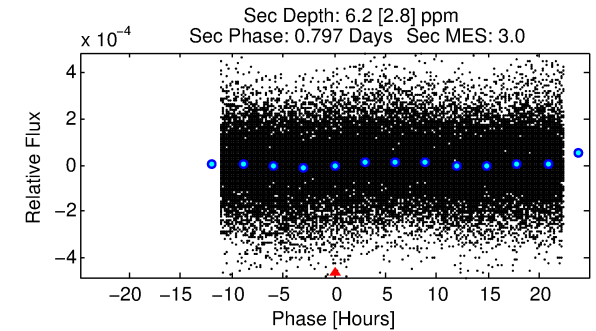
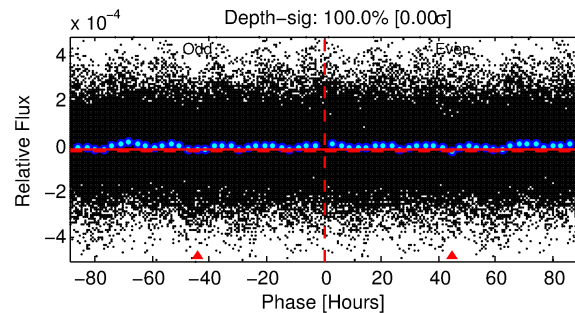
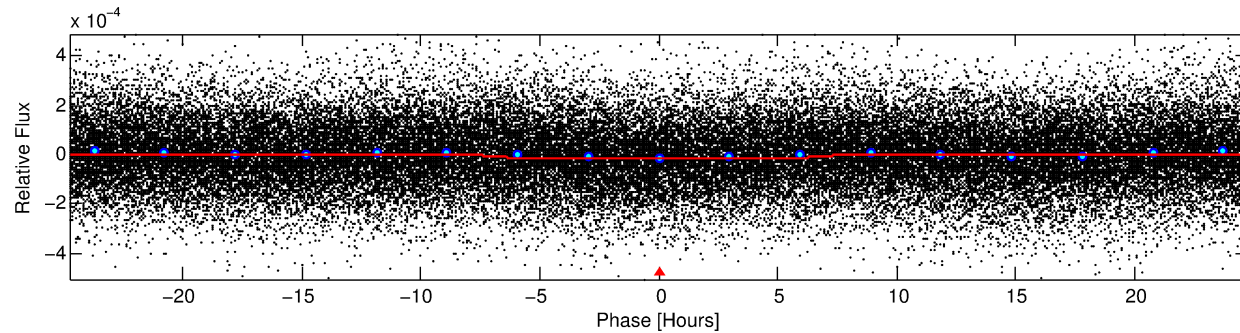
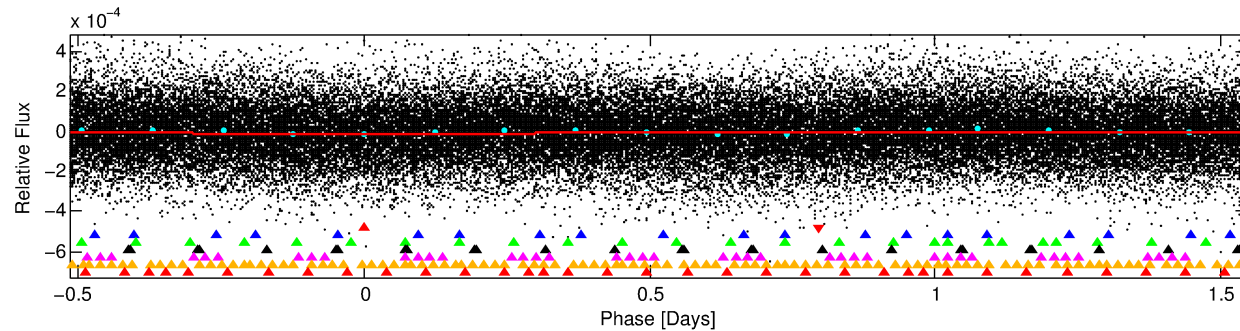
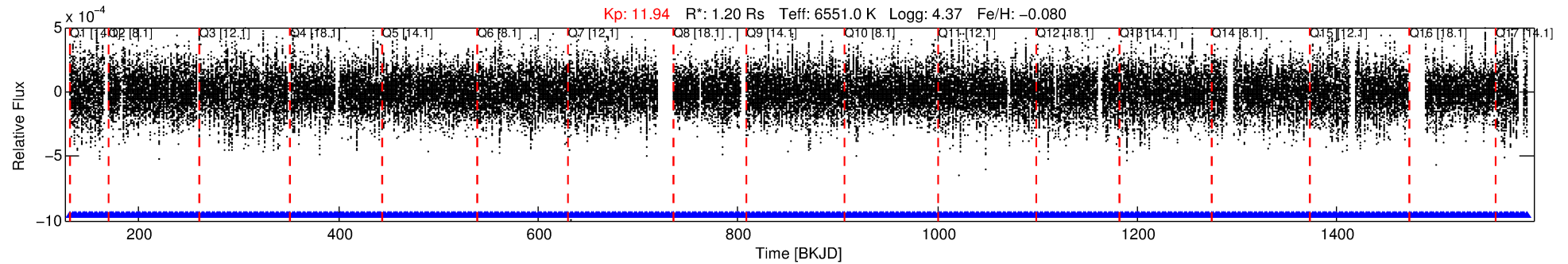
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006606481-01

No Significant Match Found

# DV One-Page Summary

KIC: 6606481 Candidate: 1 of 7 Period: 2.063 d



## DV Fit Results:

Period = 2.06286 [0.00003] d  
Epoch = 131.5109 [0.0061] BKJD  
Rp/R\* = 0.0038 [0.0016]  
a/R\* = 1.13 [0.57]  
b = 0.70 [1.68]  
Seff = 2059.41 [872.91]  
Teq = 1718 [182] K  
Rp = 0.50 [0.27] Re  
a = 0.0338 [0.0098] AU  
Ag = 15.97 [16.24] [0.92 $\sigma$ ]  
Teff = 5309 [1247] K [2.85 $\sigma$ ]

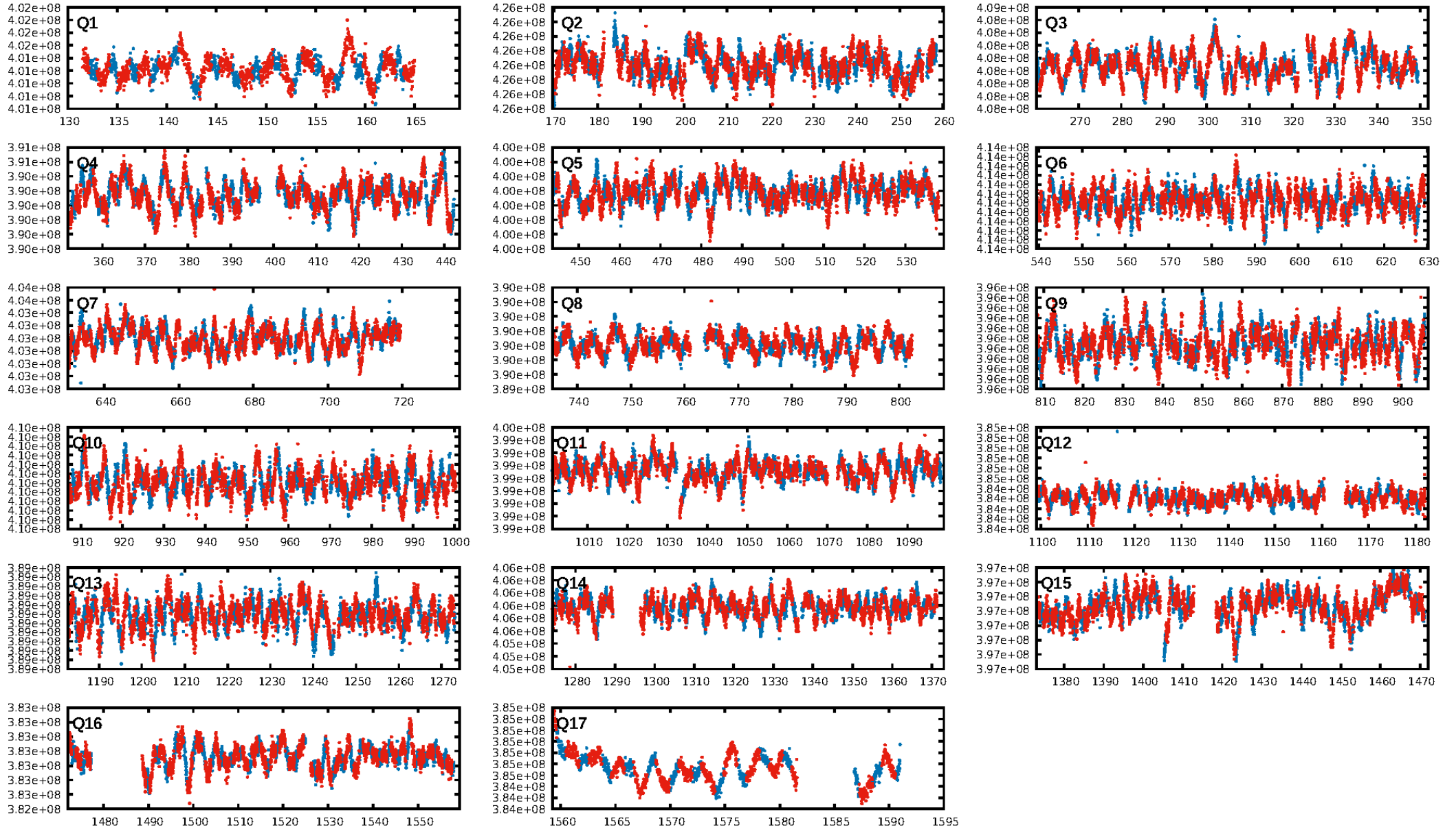
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [19.51 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 2.34e-12**  
RollingBand-fgt: 1.00 [635/635]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 1.103 arcsec [1.51 $\sigma$ ]  
KicOffset-rm: 0.428 arcsec [0.40 $\sigma$ ]  
OotOffset-st: 2/4/4/1 [11]  
KicOffset-st: 2/4/4/1 [11]  
DiffImageQuality-fgm: 0.36 [4/11]  
DiffImageOverlap-fno: 1.00 [17/17]

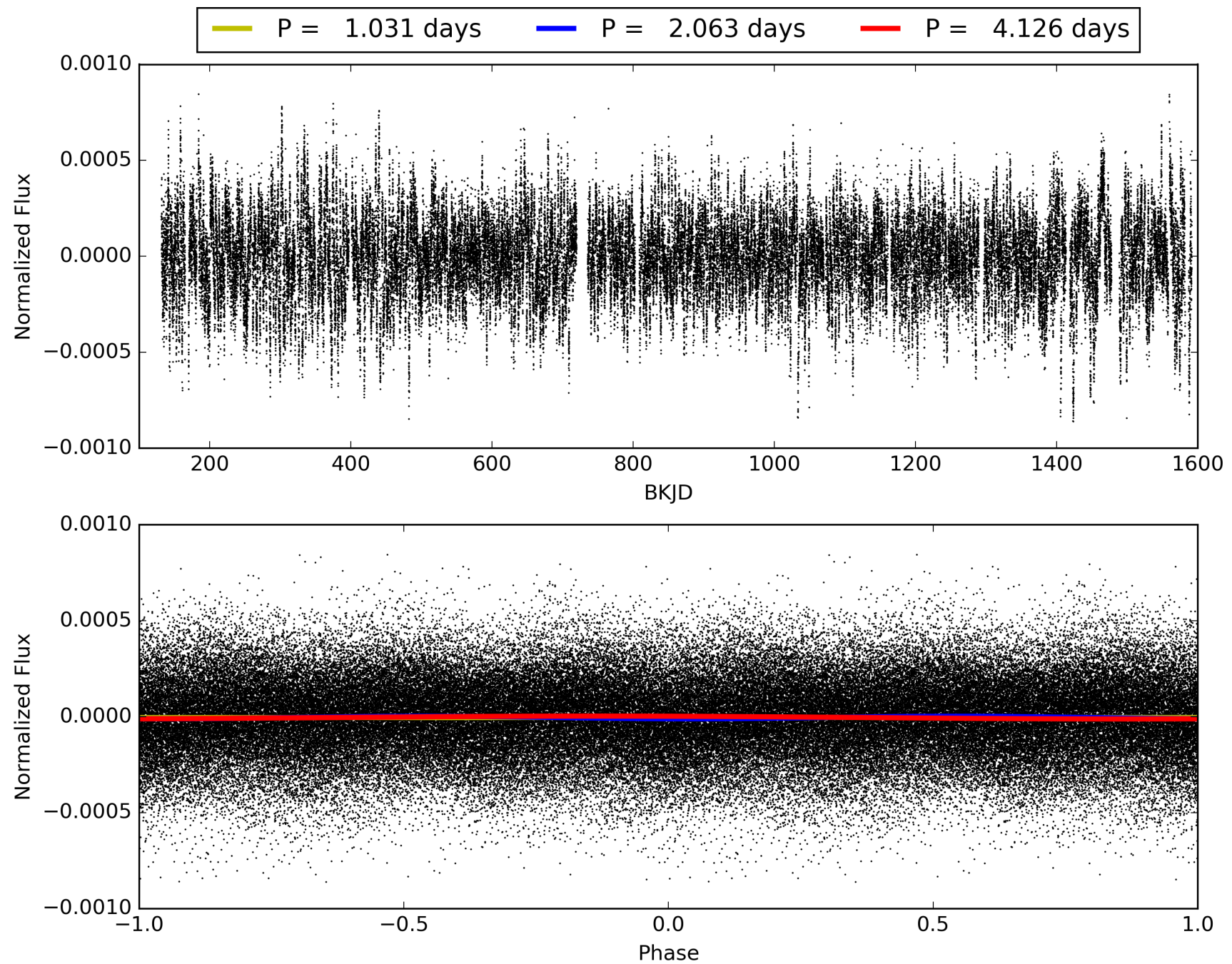
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006606481-01, PDC Light Curves

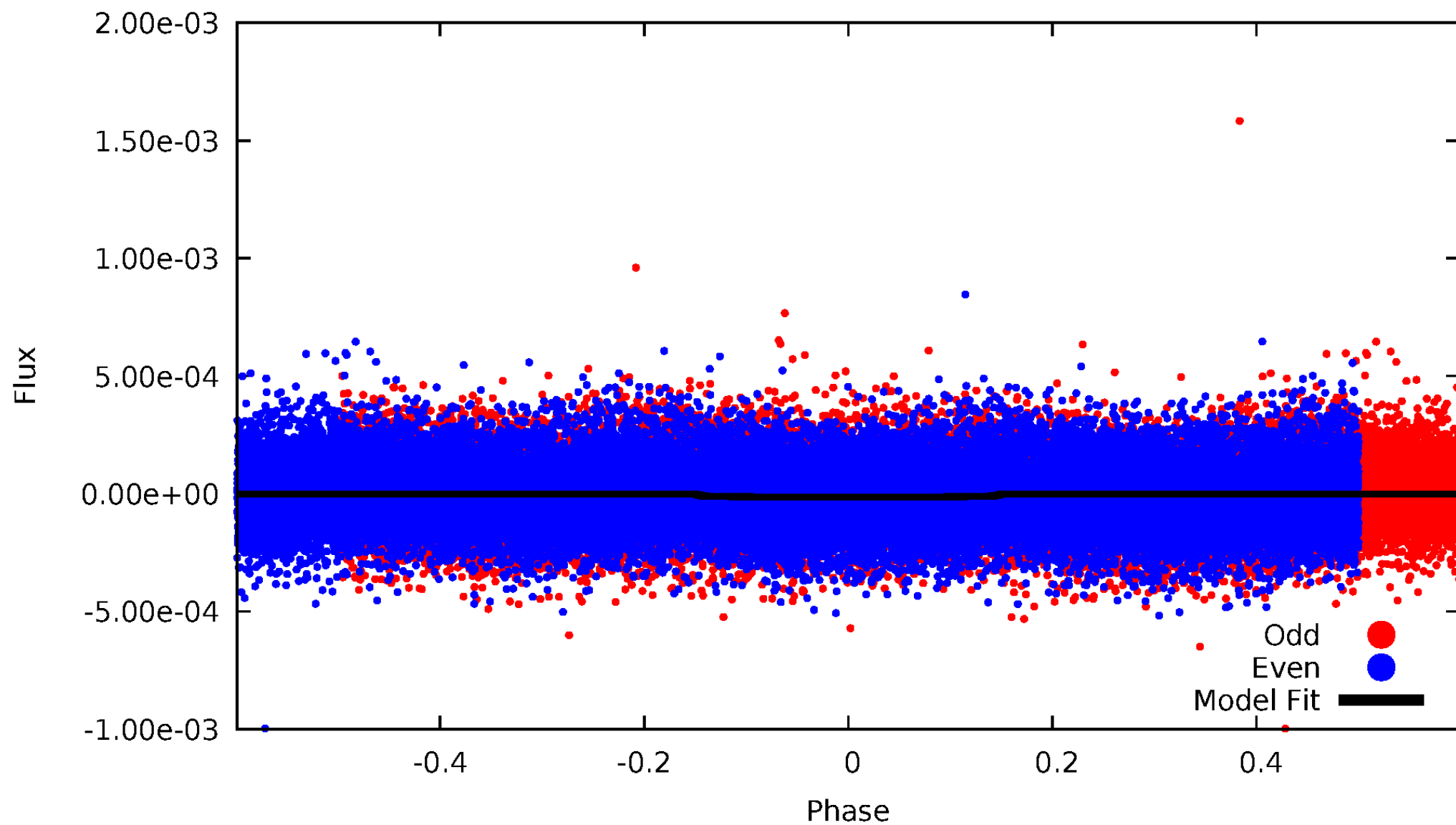


TCE 006606481-01



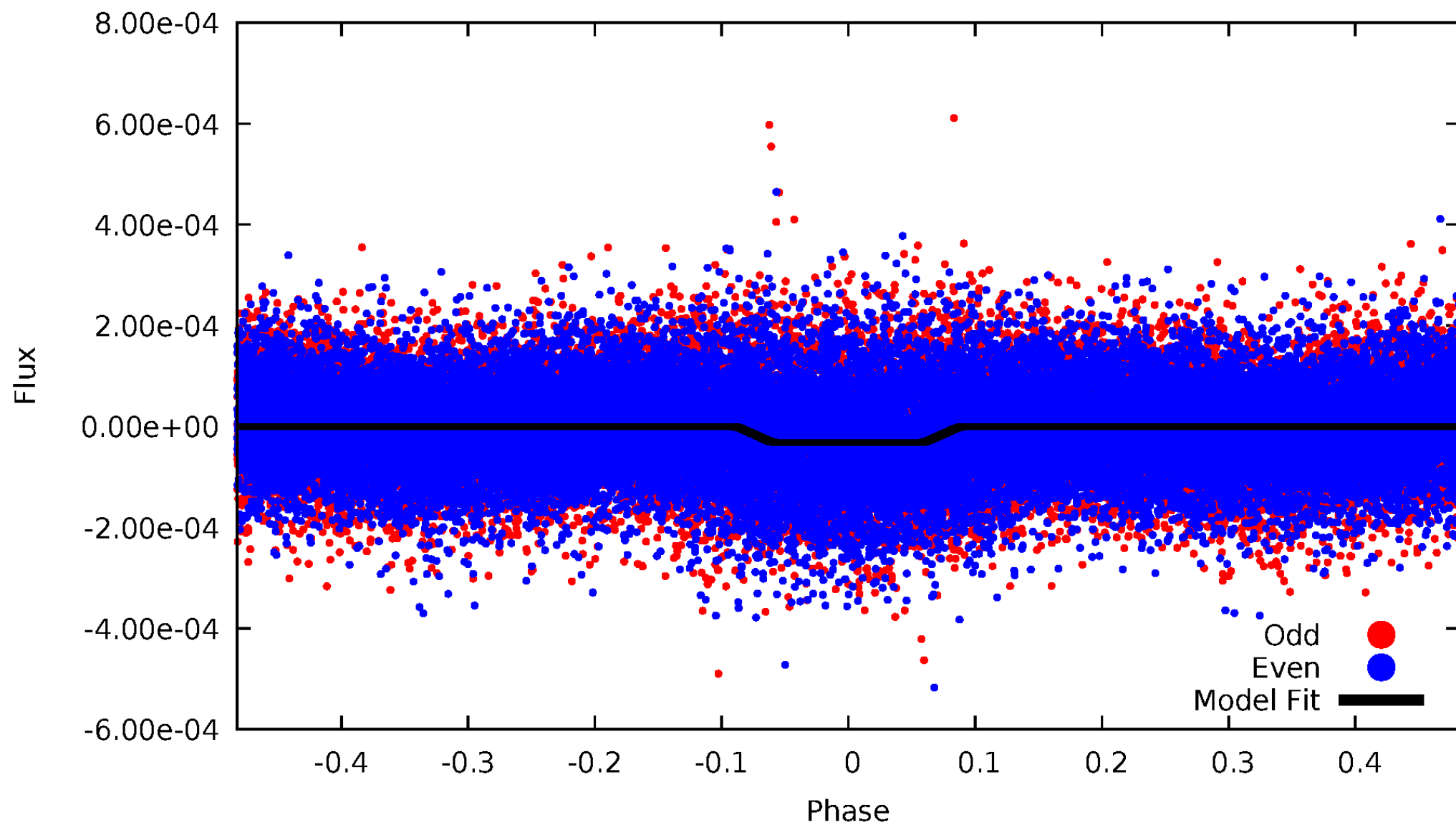
# DV Odd/Even

TCE 006606481-01

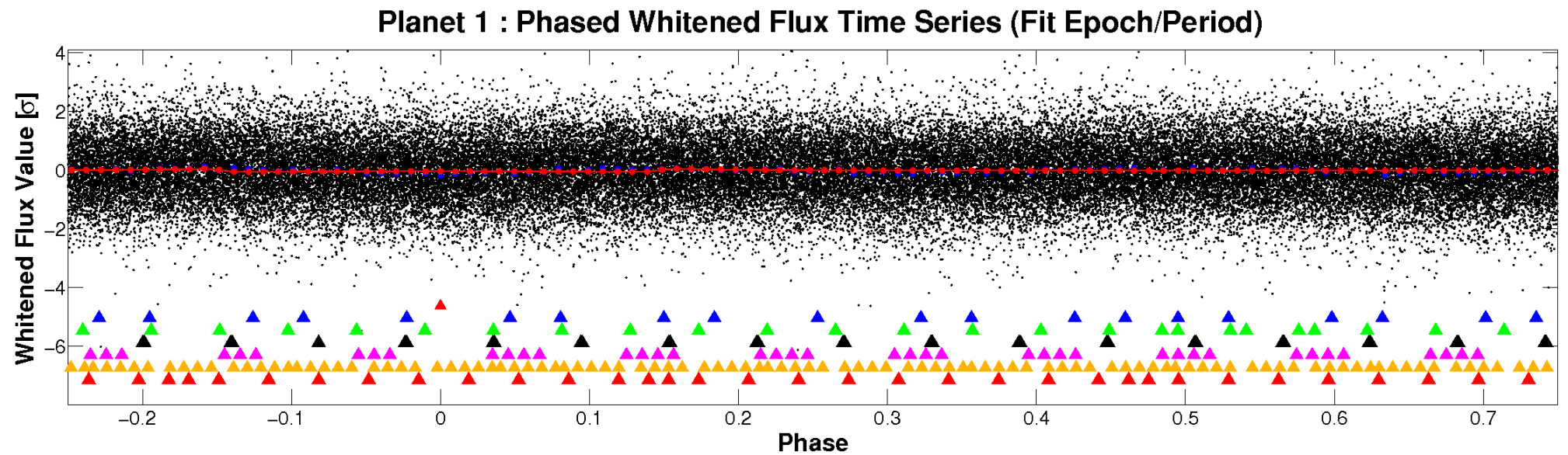
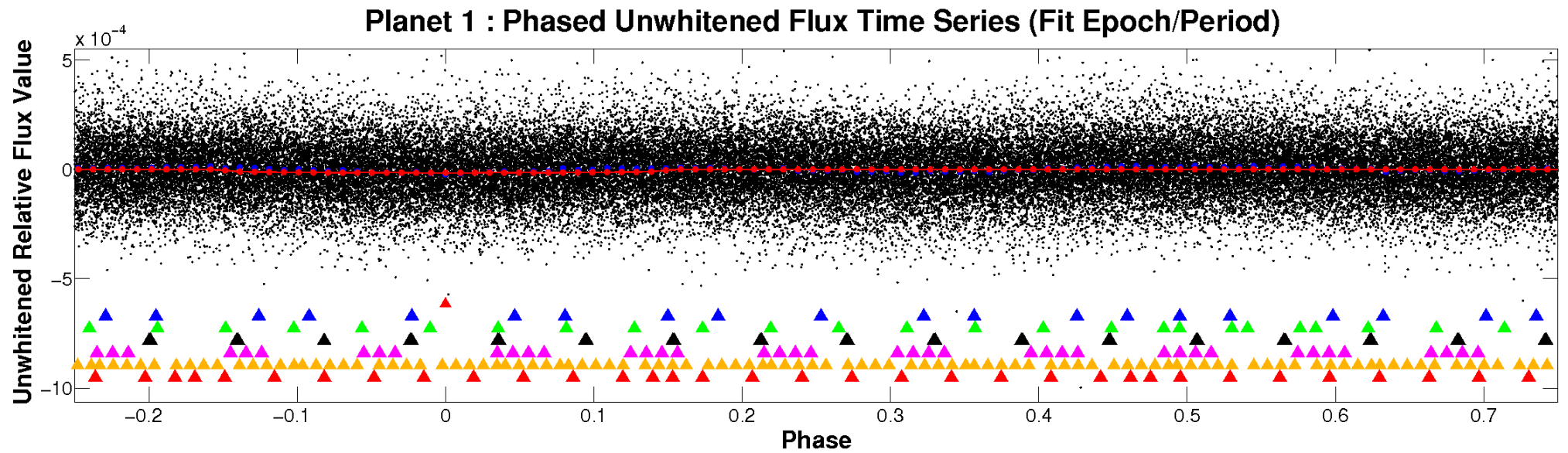


# ALT Odd/Even

TCE 006606481-01

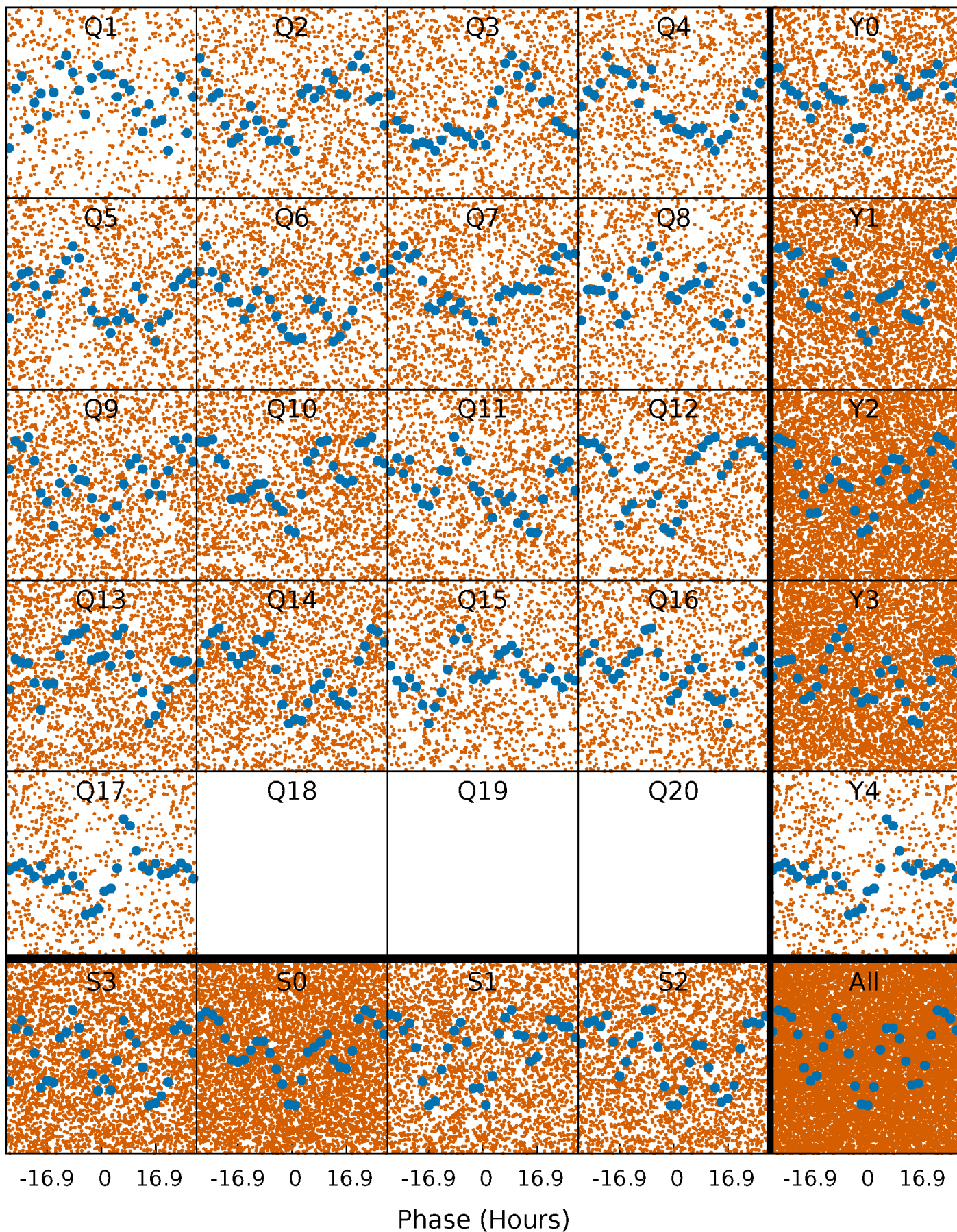


# Non-Whitened Vs. Whitened Light Curve



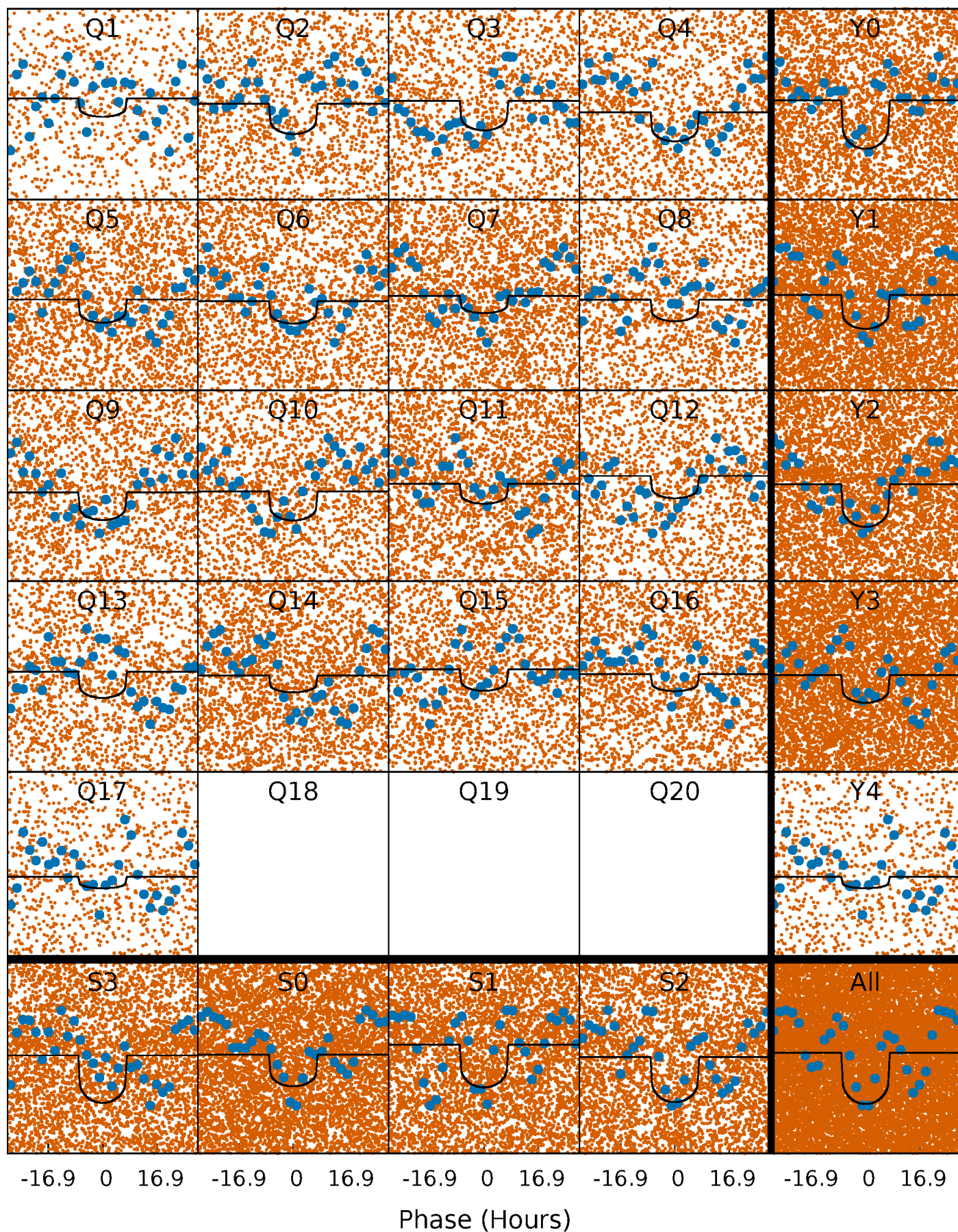
# PDC Quarter-Phased Transit Curves

TCE 006606481-01 P= 2.062860 Days  $T_0=131.510854$  (BKJD)



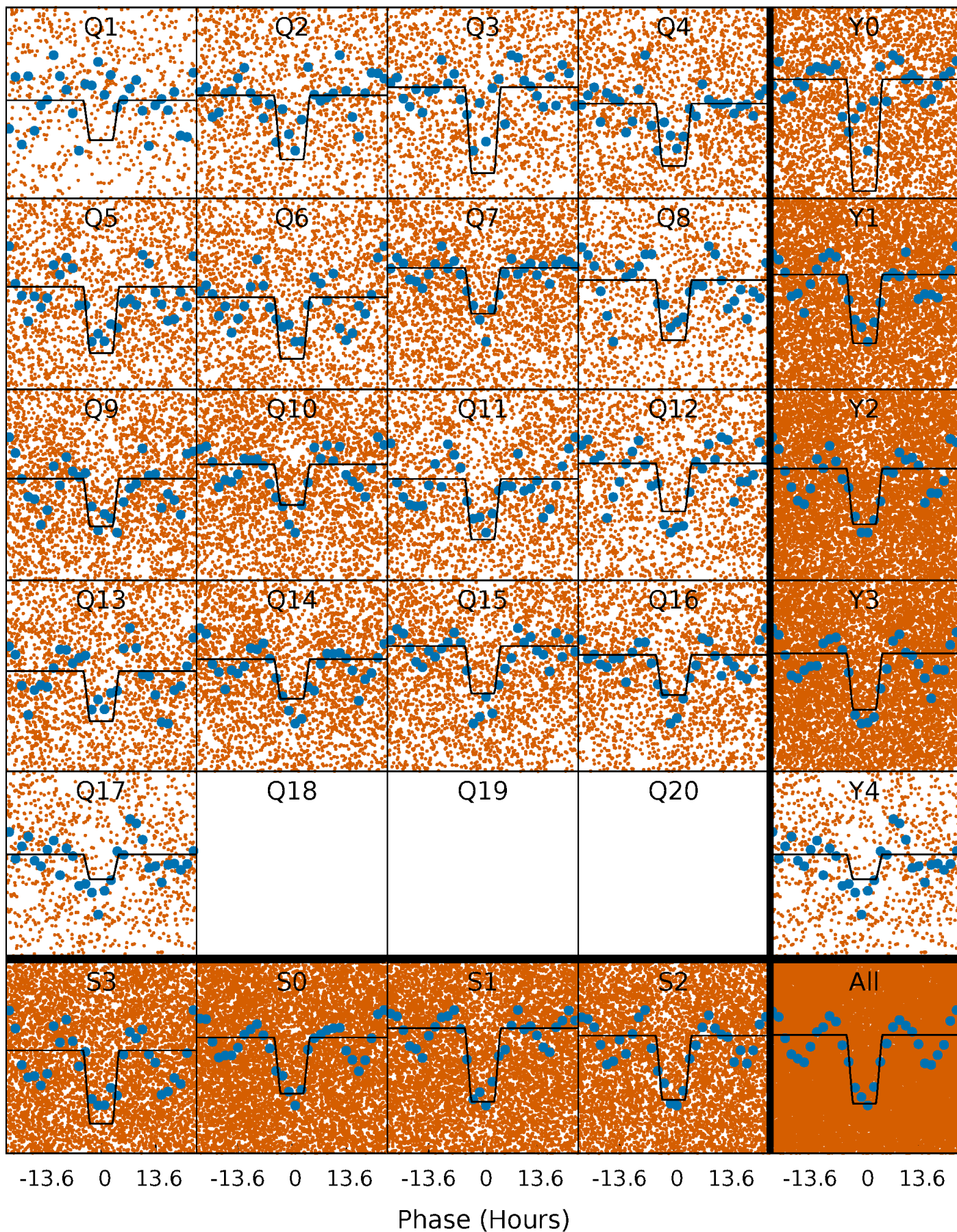
# DV Quarter-Phased Transit Curves

TCE 006606481-01 P= 2.062860 Days  $T_0=131.510854$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

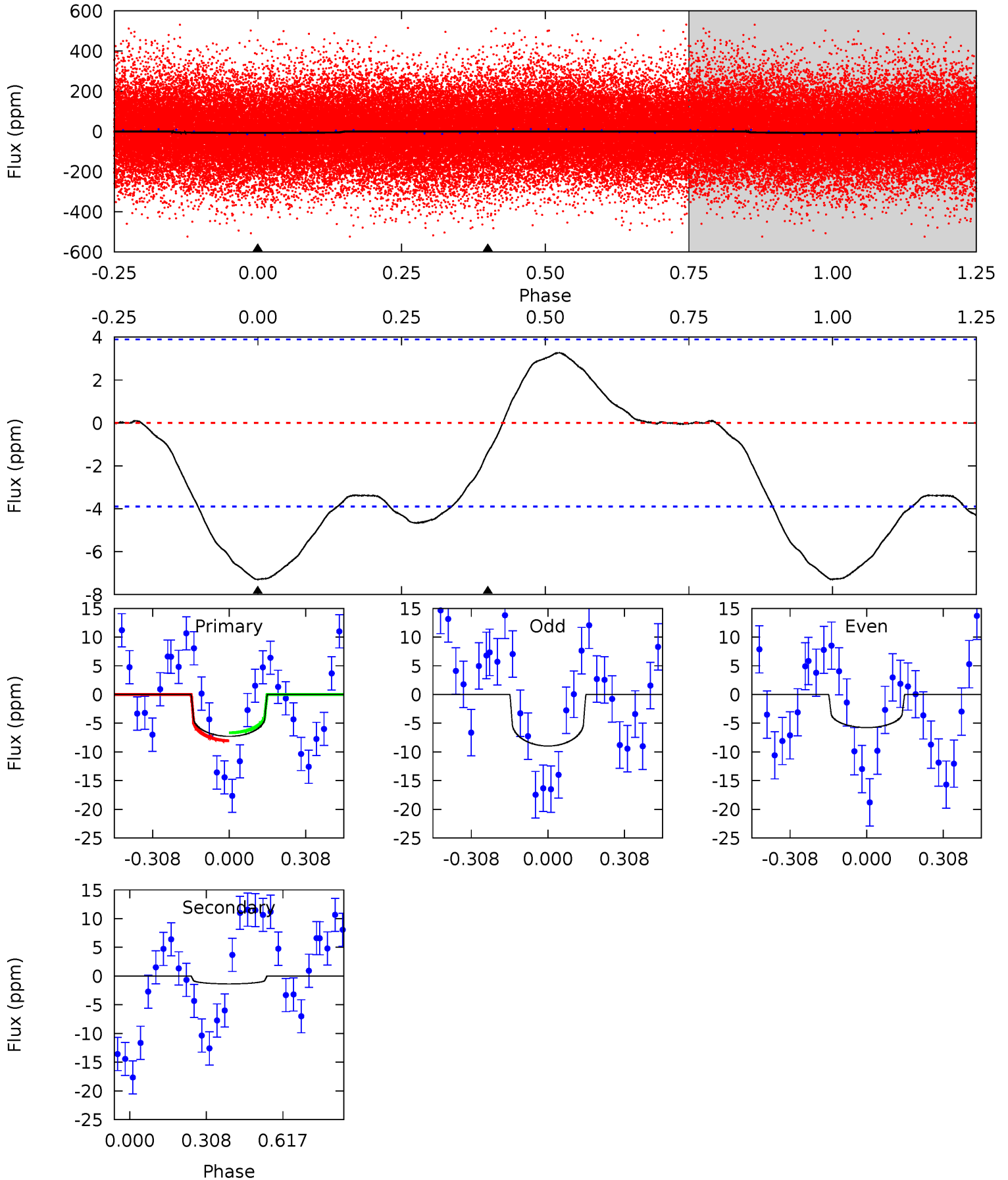
TCE 006606481-01 P= 2.062825 Days  $T_0=131.511772$  (BKJD)



# DV Model-Shift Uniqueness Test

006606481-01, P = 2.062860 Days, E = 131.510854 Days

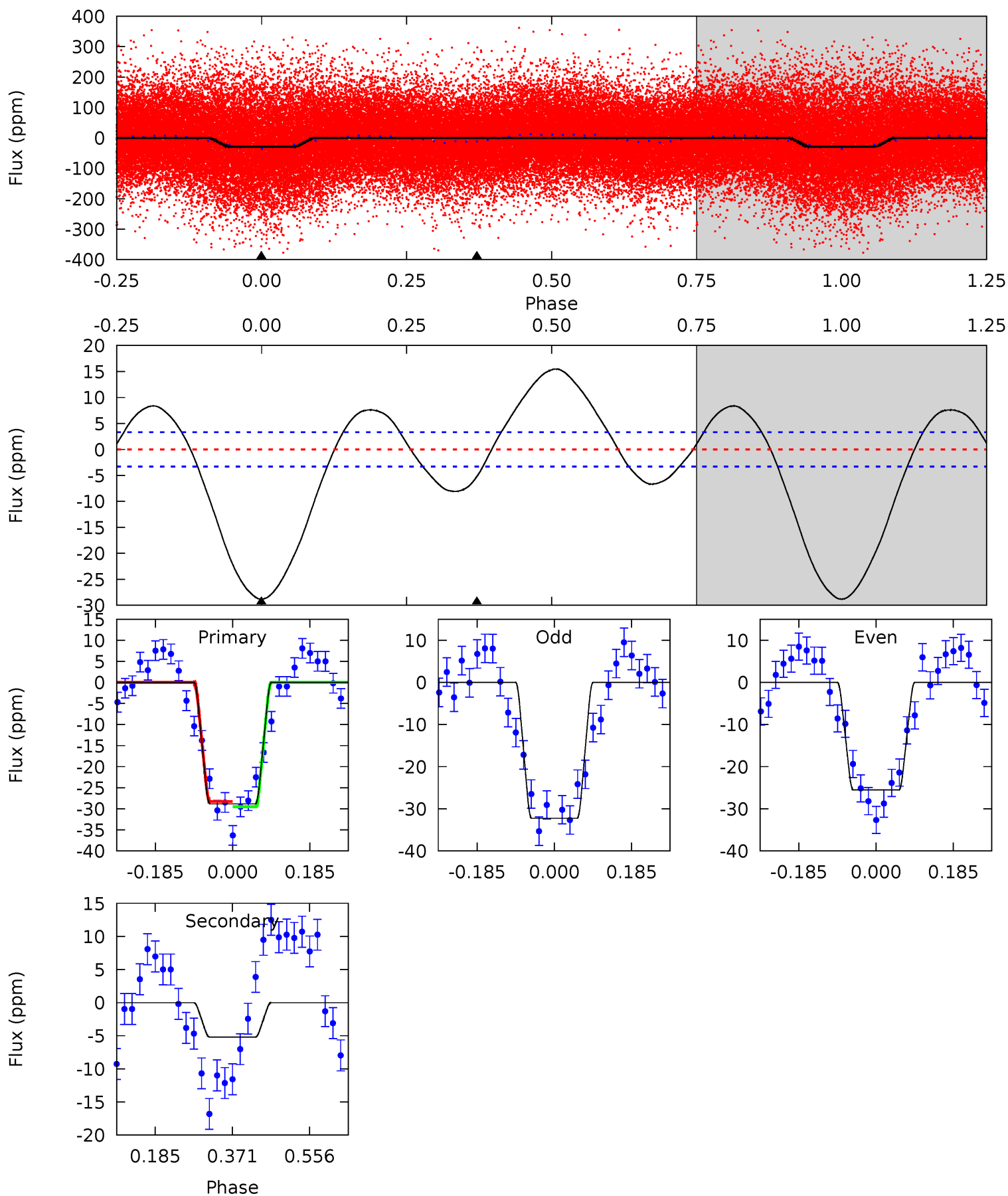
| Pri  | Sec  | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.09 | 1.52 | 0   | 0   | 4.32            | 1.02            | 0.09             | 8.09    | 8.09    | 1.52    | 1.52    | 1.78    | 0.73 | 0.31  | 0.75 |



# Alt Model-Shift Uniqueness Test

006606481-01, P = 2.062825 Days, E = 131.511772 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  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 38.8 | 7.01 | 0   | 0   | 4.43            | 1.32            | 7.31             | 38.8    | 38.8    | 7.01    | 7.01    | 4.52    | 0.93 | 0.35  | 0.84 |



### Stellar Parameters For KIC 006606481

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6551^{+145}_{-194}$ | $4.367^{+0.054}_{-0.216}$ | $-0.080^{+0.250}_{-0.300}$ | $1.195^{+0.423}_{-0.141}$ | $1.215^{+0.173}_{-0.173}$ | $1.003^{+0.292}_{-0.533}$                 |
|        | +2%/-3%              | +1%/-5%                   | +312%/-375%                | +35%/-12%                 | +14%/-14%                 | +29%/-53%                                 |
| 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 006606481-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{max} (K)$        | $T_{obs} (K)$        | $A_{obs}$                 |
|---------|-------------|------------------------|----------------------|----------------------|---------------------------|
| DV      | $-1 \pm 1$  | $0.51^{+0.24}_{-0.21}$ | $2453^{+167}_{-120}$ | $3852^{+936}_{-900}$ | $2.883^{+6.564}_{-2.118}$ |
| Alt.    | $-5 \pm 1$  | $0.78^{+0.26}_{-0.22}$ | $2453^{+189}_{-121}$ | $4286^{+622}_{-381}$ | $5.253^{+4.719}_{-2.334}$ |

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

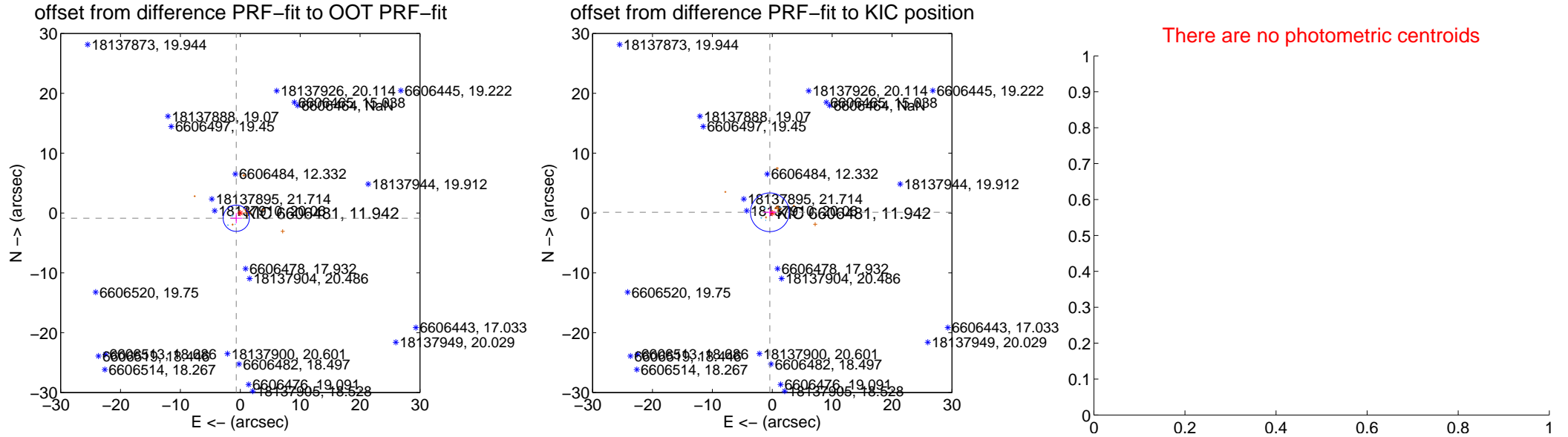
## DV Centroid Data

Supplemental centroid analysis for 006606481-01. **Kepler magnitude: 11.94.** Transit SNR 7.45

There are 4 quarters with good PRF difference image offsets

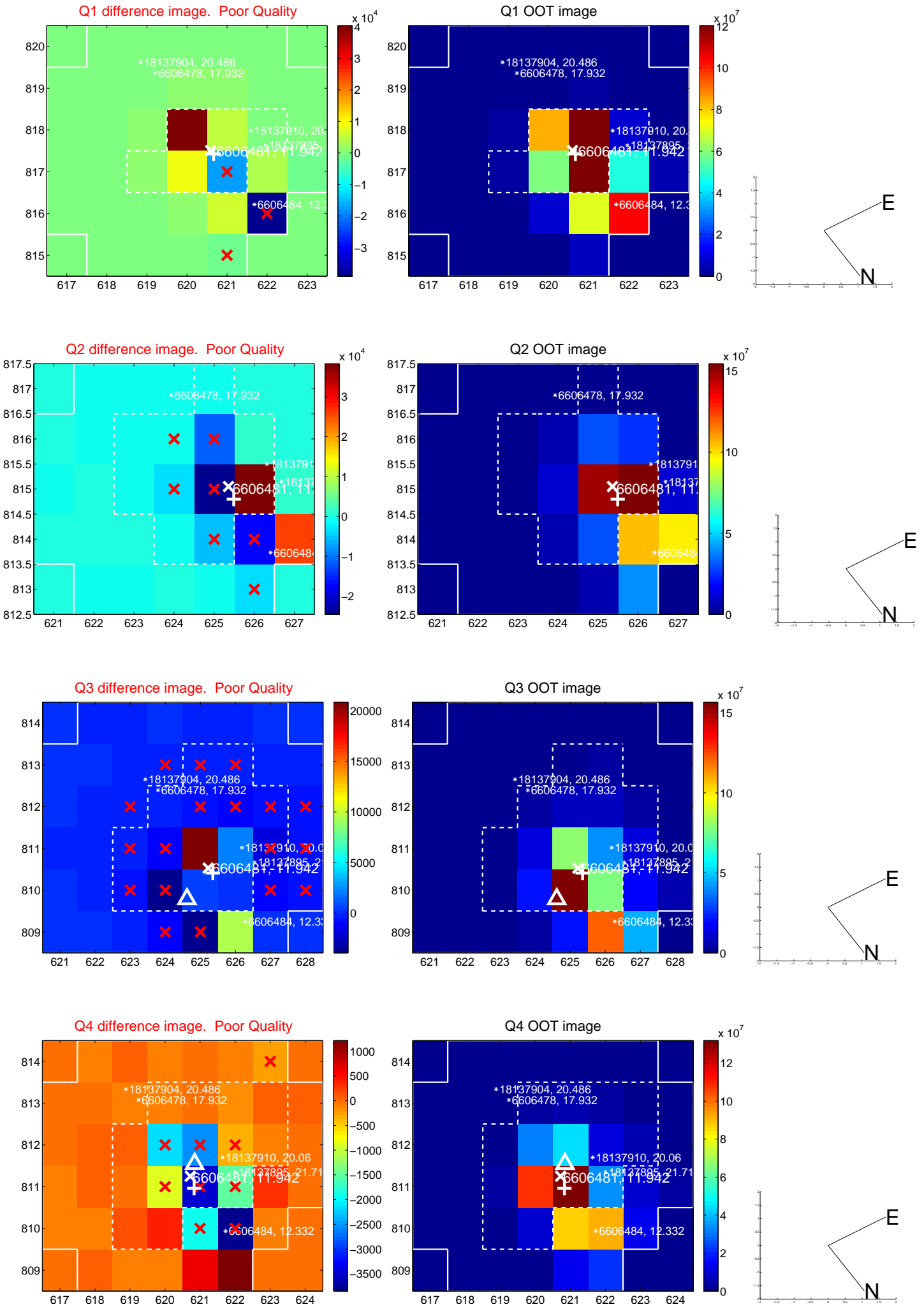
The direct PRF centroid is offset from the target star catalog position by about 1.26 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $1.103 \pm 0.731$  | 1.51                | $0.672 \pm 0.974$ | $-0.874 \pm 0.850$ |
| PRF-fit source offset from KIC position | $0.428 \pm 1.079$  | 0.40                | $0.410 \pm 1.064$ | $0.123 \pm 0.686$  |
| photometric centroid source offset      | —                  | —                   | —                 | —                  |

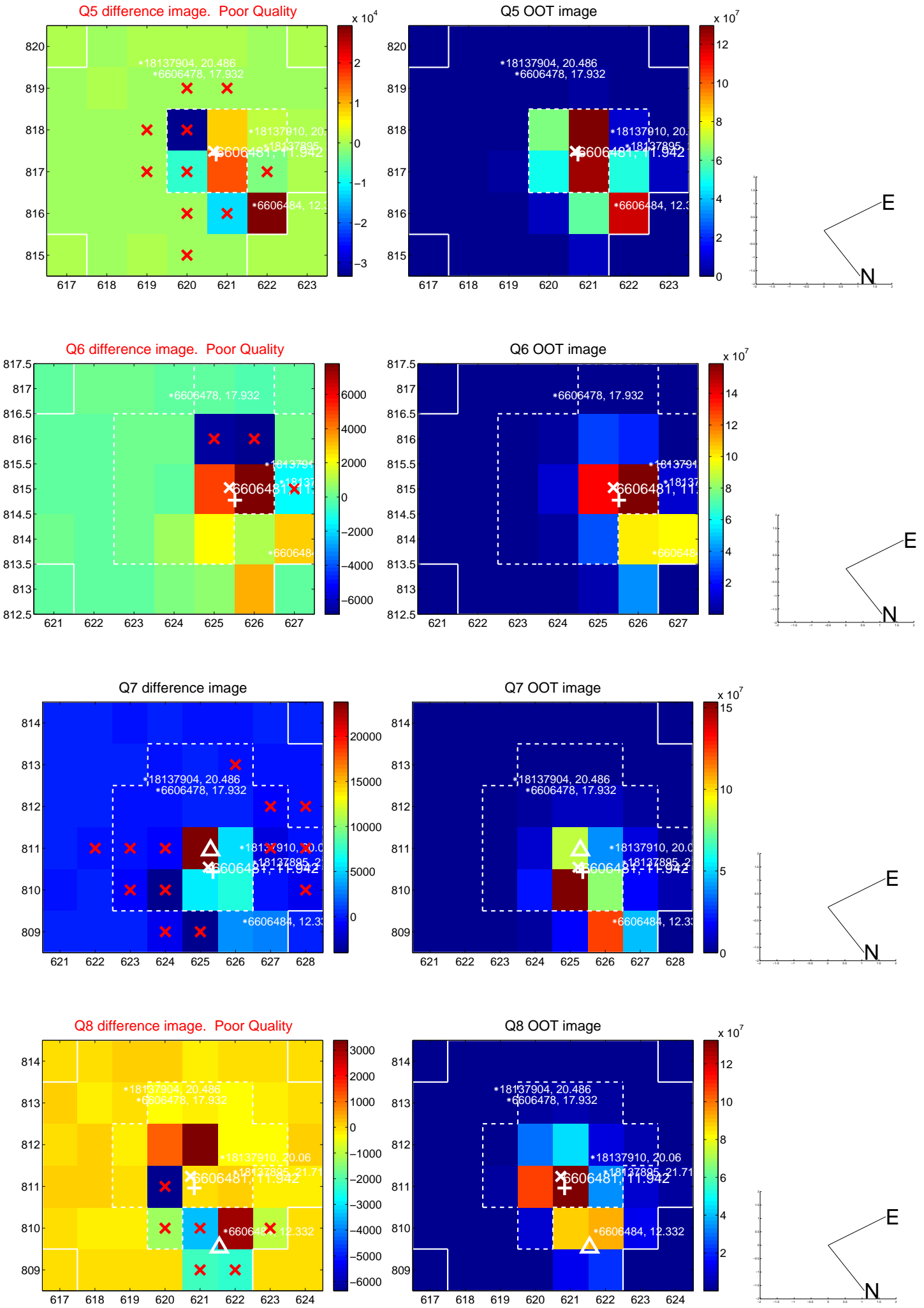


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

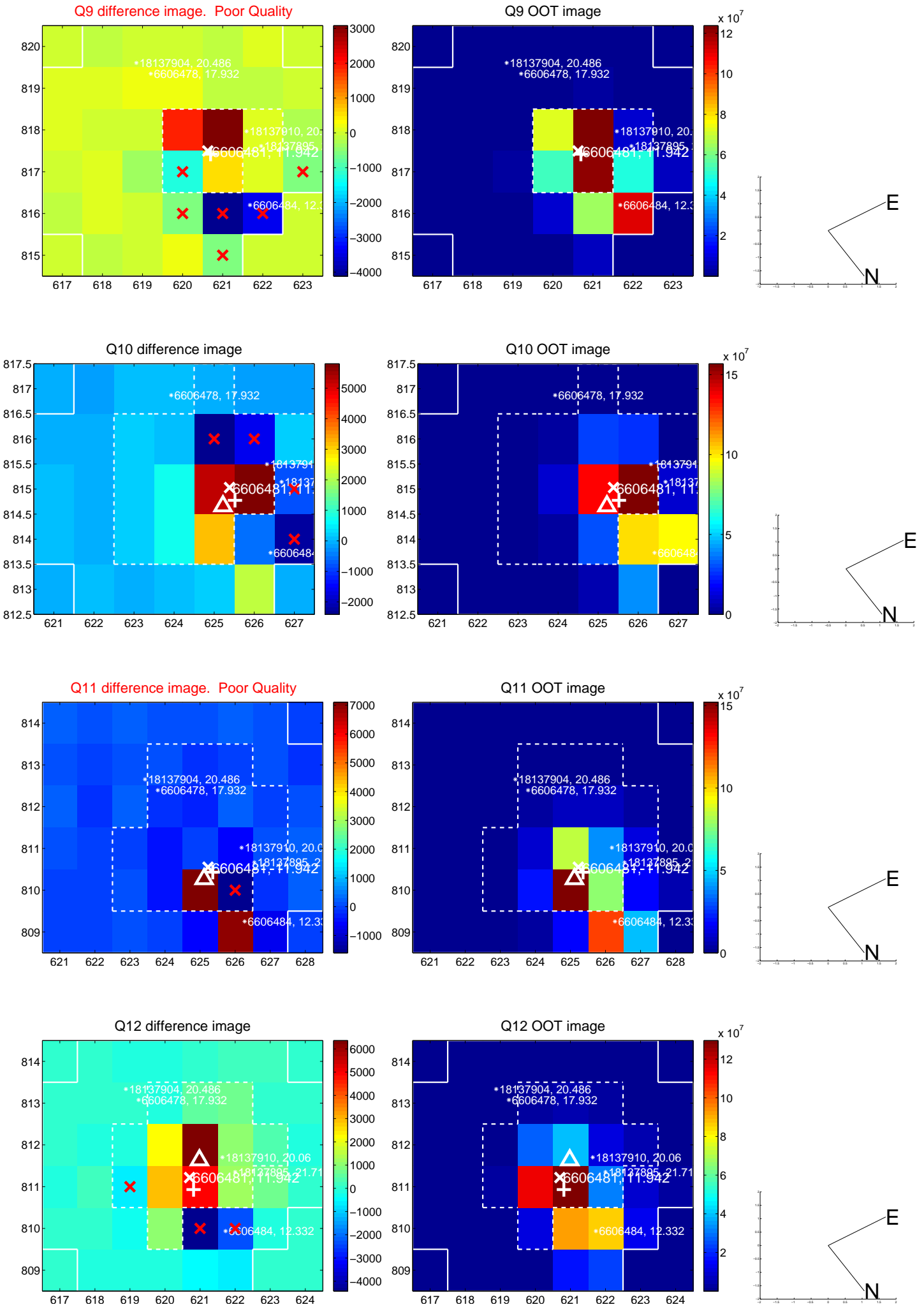
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



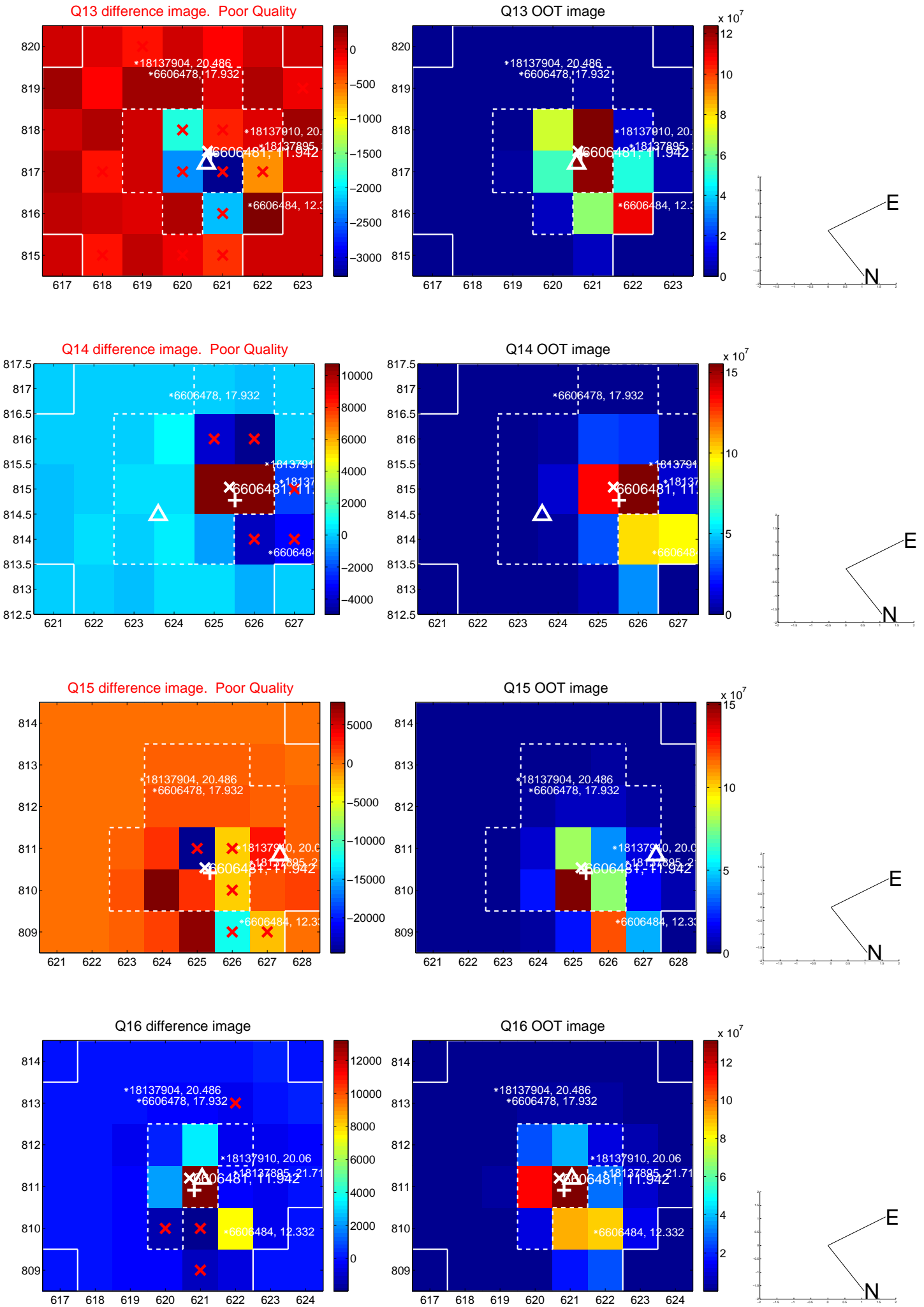
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



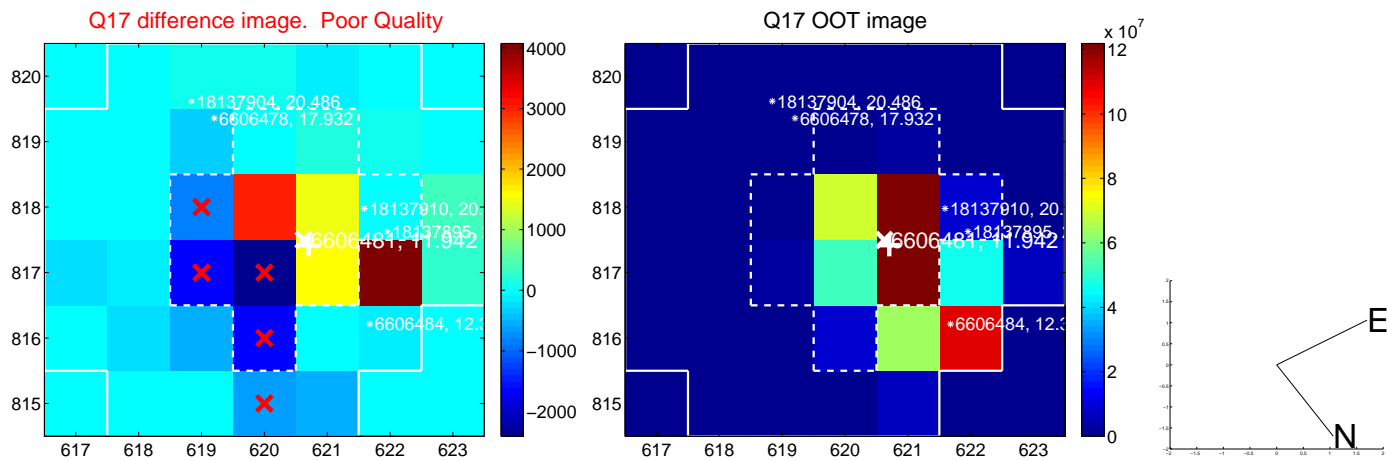
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



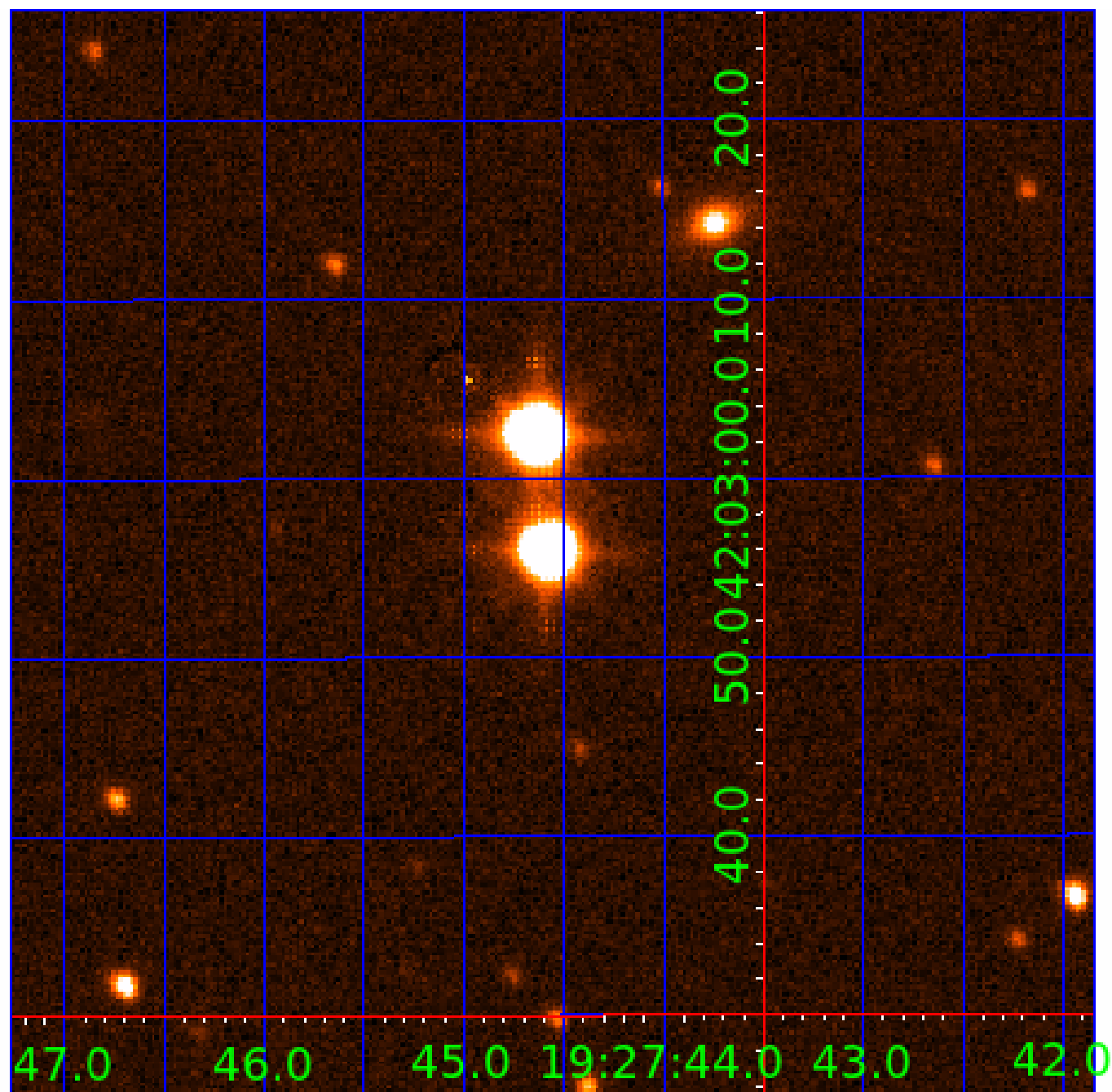
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



# KIC 006606481

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006606481-01 | OBS      | No   | 2.062860      | 131.510854   | 15.0        | 14.824           | 7.8  | 7.4  | 1.20                        | 6551            | 0.49                   | 2059.41                |
| 006606481-03 | OBS      | No   | 59.728174     | 147.161243   | 430.3       | 20.482           | 11.8 | 11.0 | 1.20                        | 6551            | 4.79                   | 23.16                  |
| 006606481-04 | OBS      | No   | 44.654730     | 136.804552   | 133.2       | 6.266            | 10.2 | 6.7  | 1.20                        | 6551            | 1.63                   | 34.14                  |
| 006606481-05 | OBS      | No   | 34.883059     | 163.824645   | 185.3       | 1.427            | 9.5  | 9.5  | 1.20                        | 6551            | 1.73                   | 47.45                  |
| 006606481-06 | OBS      | No   | 14.157855     | 143.959628   | 154.6       | 1.301            | 8.3  | 9.2  | 1.20                        | 6551            | 2.24                   | 157.90                 |
| 006606481-07 | OBS      | No   | 42.655509     | 157.218044   | 201.1       | 2.626            | 8.6  | 8.6  | 1.20                        | 6551            | 1.92                   | 36.29                  |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 006606481-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS  |
| 006606481-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS                         |
| 006606481-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006606481-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—MOD_NONUNIQ_DV—HALO_GHOST   |
| 006606481-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT                                 |
| 006606481-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_KIC_POS  |

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

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

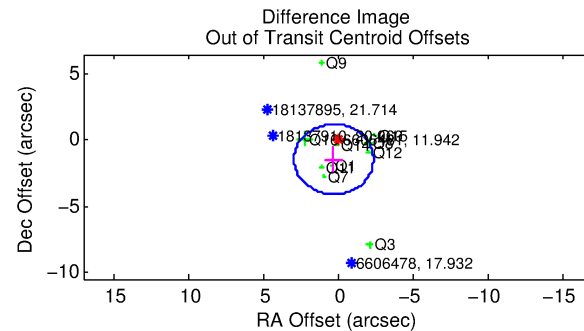
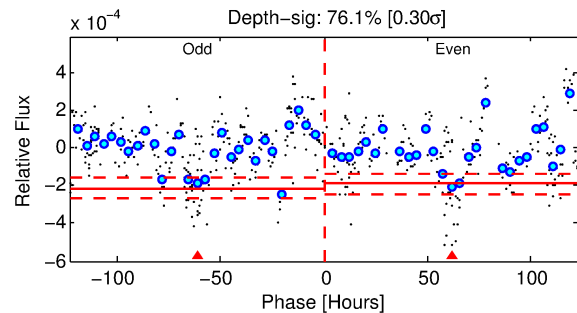
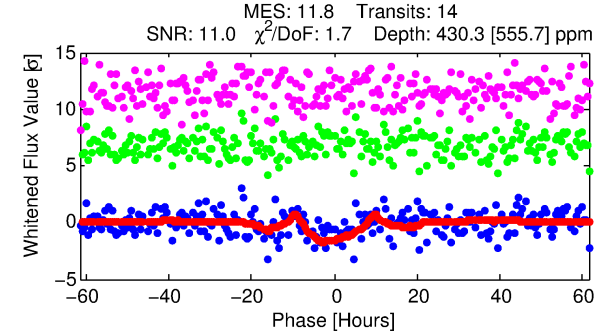
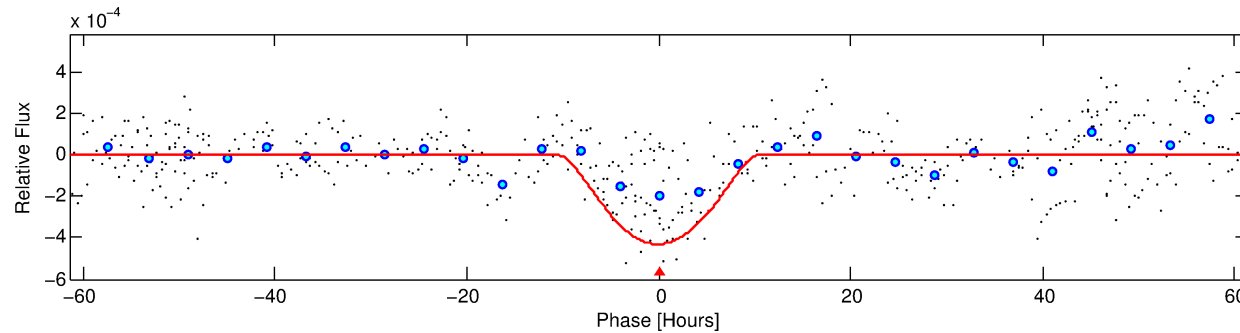
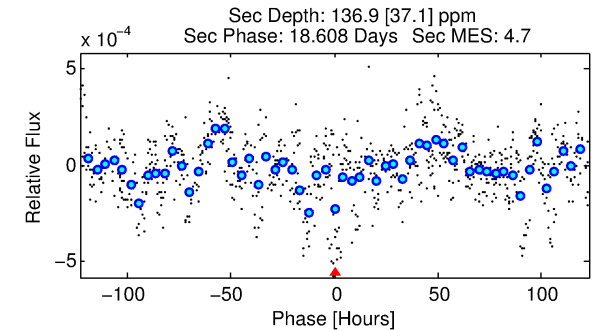
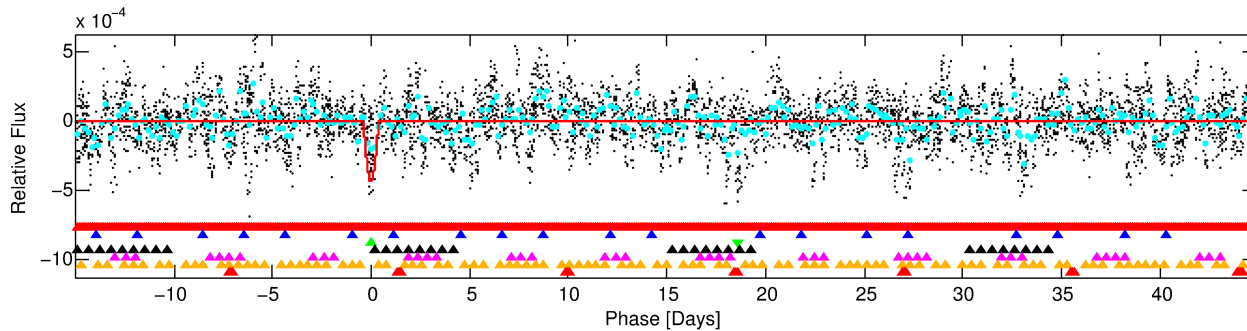
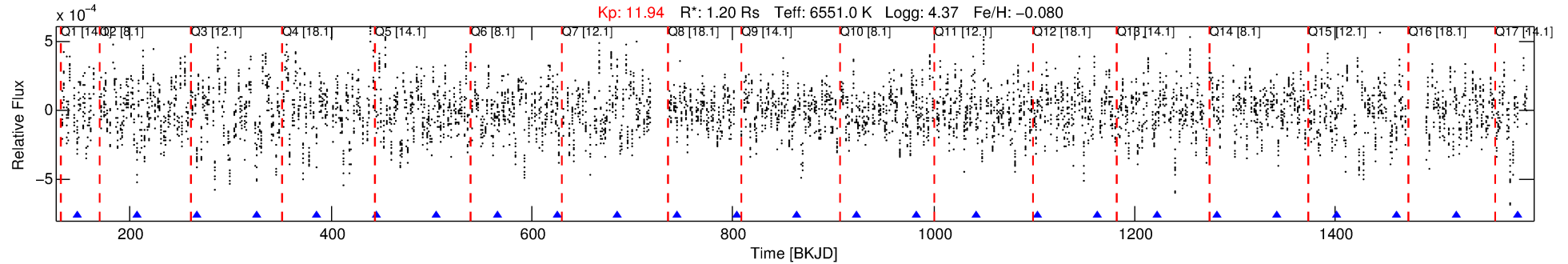
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## Ephemeris Match Information For 006606481-03

No Significant Match Found

# DV One-Page Summary

KIC: 6606481 Candidate: 3 of 7 Period: 59.728 d



## DV Fit Results:

Period = 59.72817 [0.01873] d  
Epoch = 147.1612 [0.0560] BKJD  
Rp/R\* = 0.0367 [0.0716]  
a/R\* = 6.18 [3.21]  
b = 1.00 [0.07]  
Seff = 23.16 [9.82]  
Teq = 559 [59] K  
Rp = 4.79 [9.49] Re  
a = 0.3190 [0.0920] AU  
Ag = 333.64 [1311.21] [0.25σ]  
Teffp = 3696 [3614] K [0.87σ]

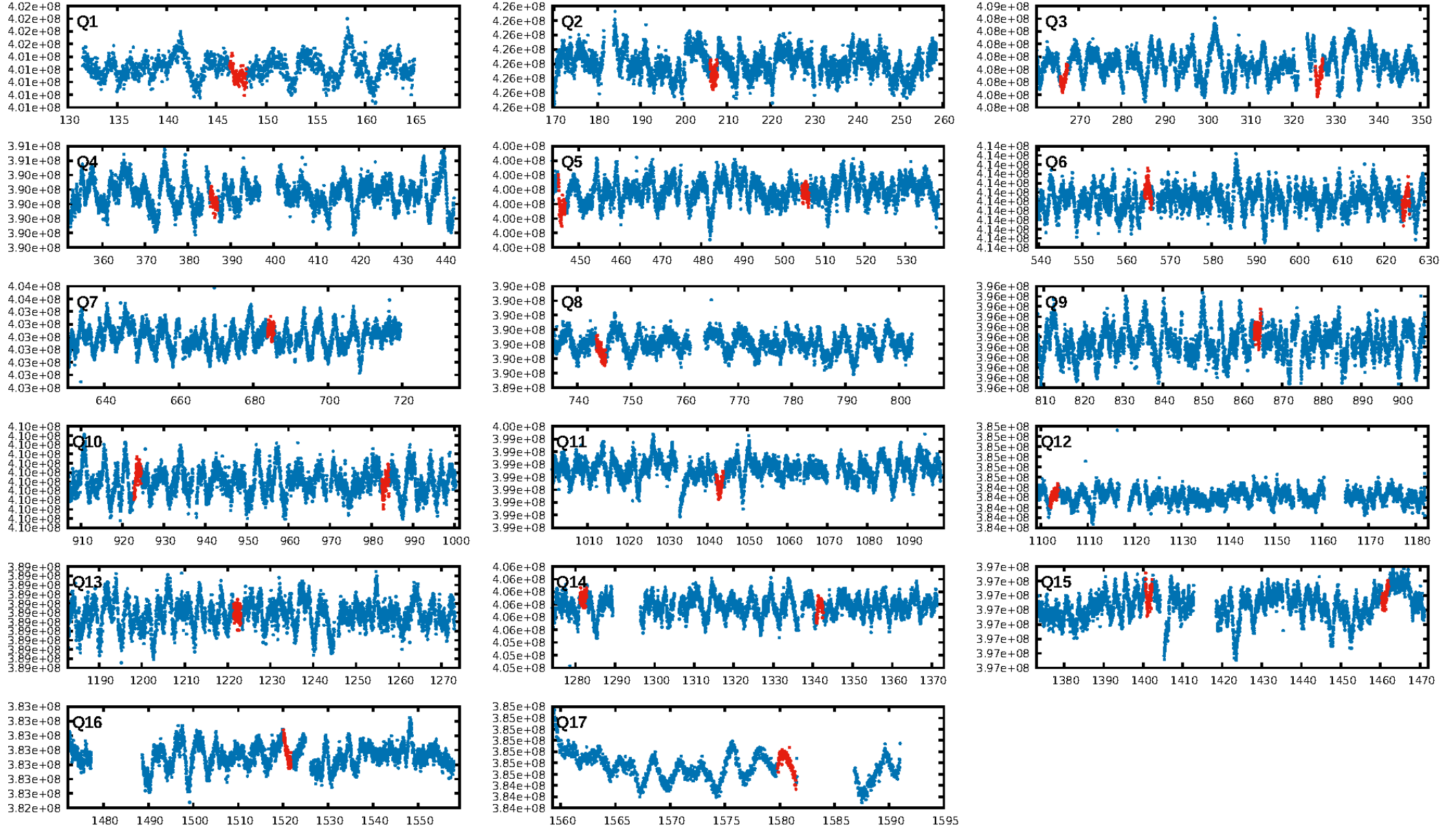
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [16.89σ]  
LongPeriod-sig: 100.0% [14.86σ]  
ModelChiSquare2-sig: 63.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.47e-16  
RollingBand-fgt: 1.00 [12/12]  
GhostDiagnostic-chr: 0.3012  
Centroid-sig: 4.4%  
Centroid-so: 1.959 arcsec [6.17σ]  
OotOffset-rm: 1.459 arcsec [1.65σ]  
KicOffset-rm: 0.766 arcsec [0.88σ]  
OotOffset-st: 1/4/3/2 [10]  
KicOffset-st: 1/4/3/2 [10]  
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DiffImageOverlap-fno: 0.00 [0/14]

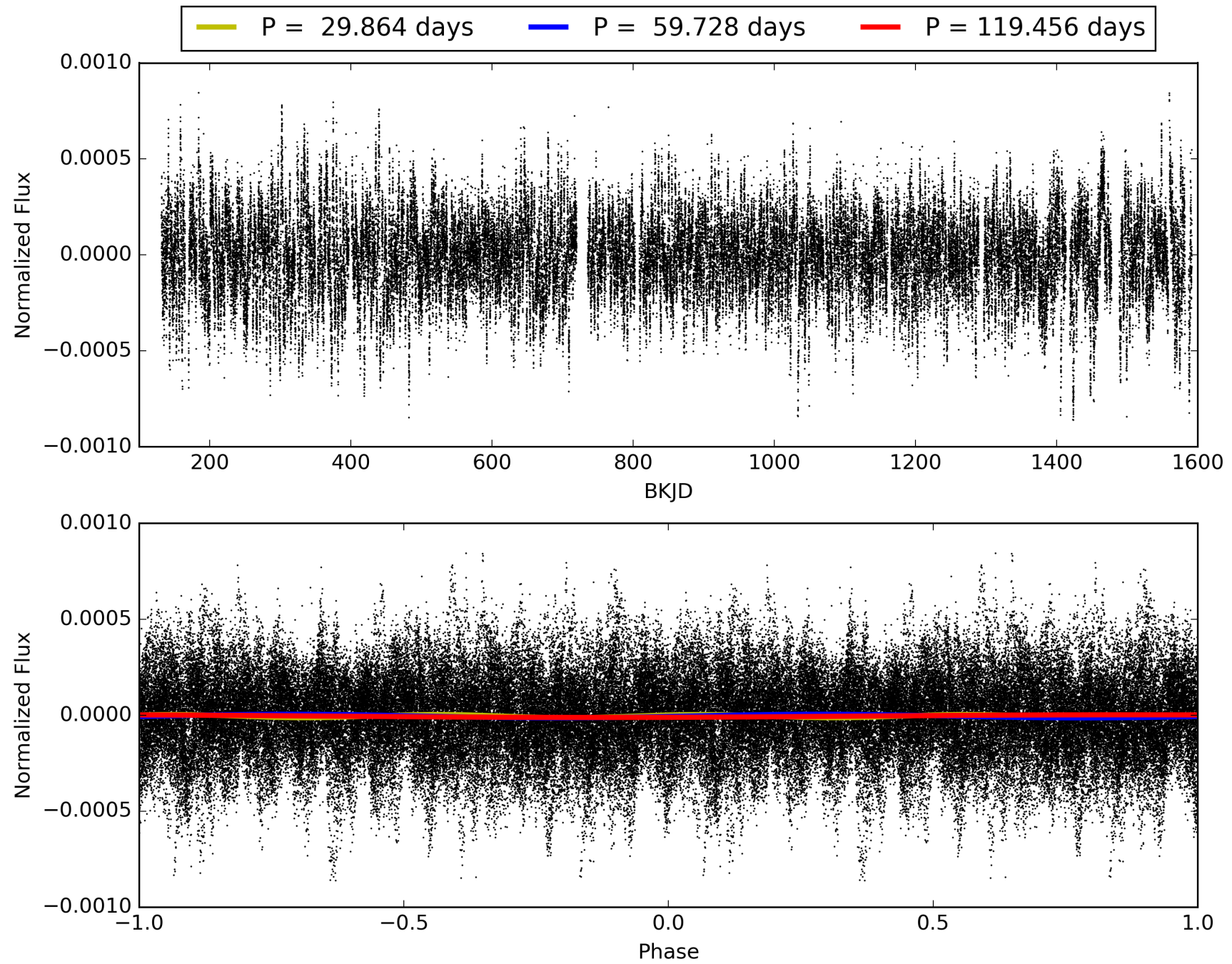
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006606481-03, PDC Light Curves

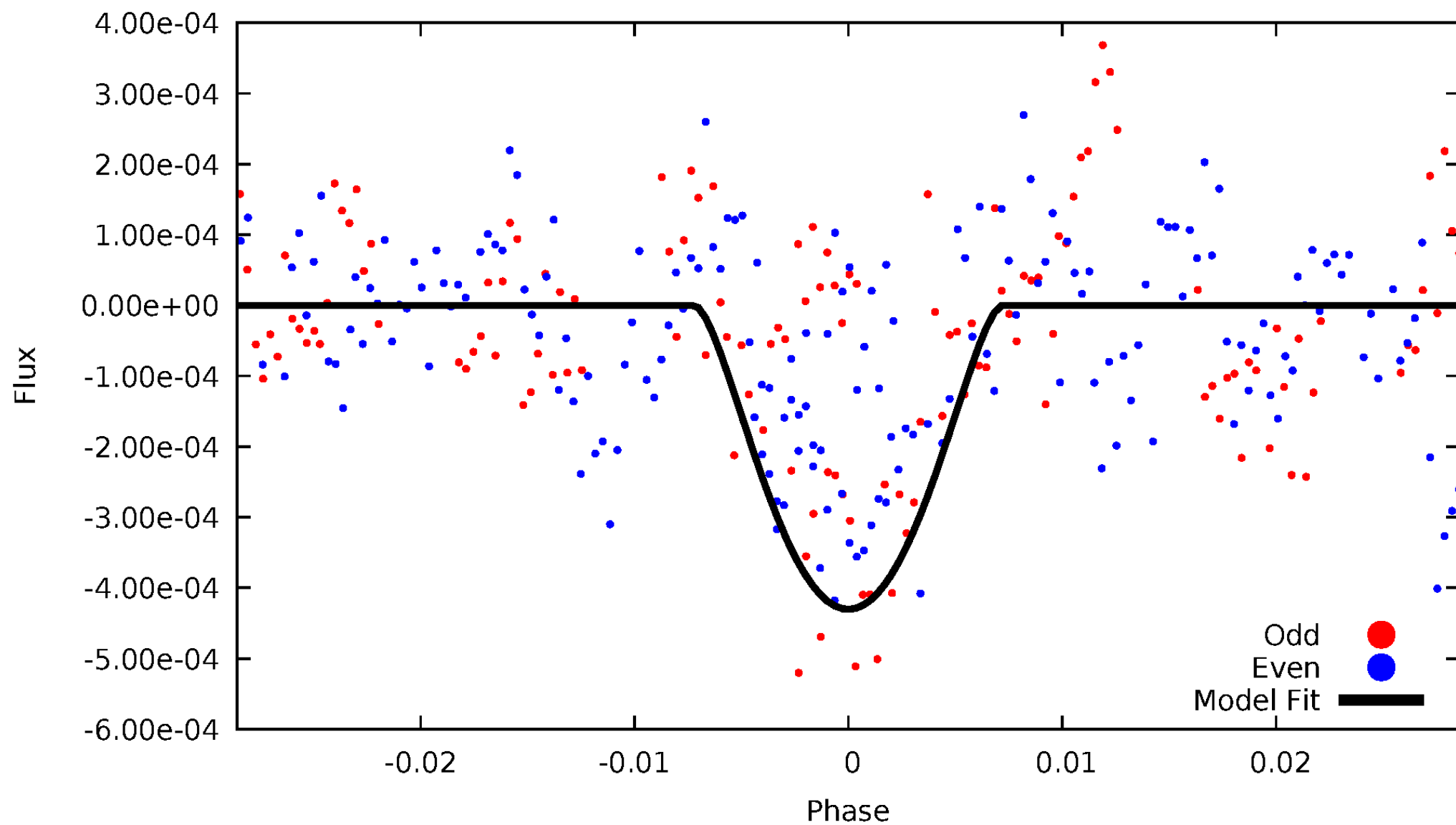


TCE 006606481-03



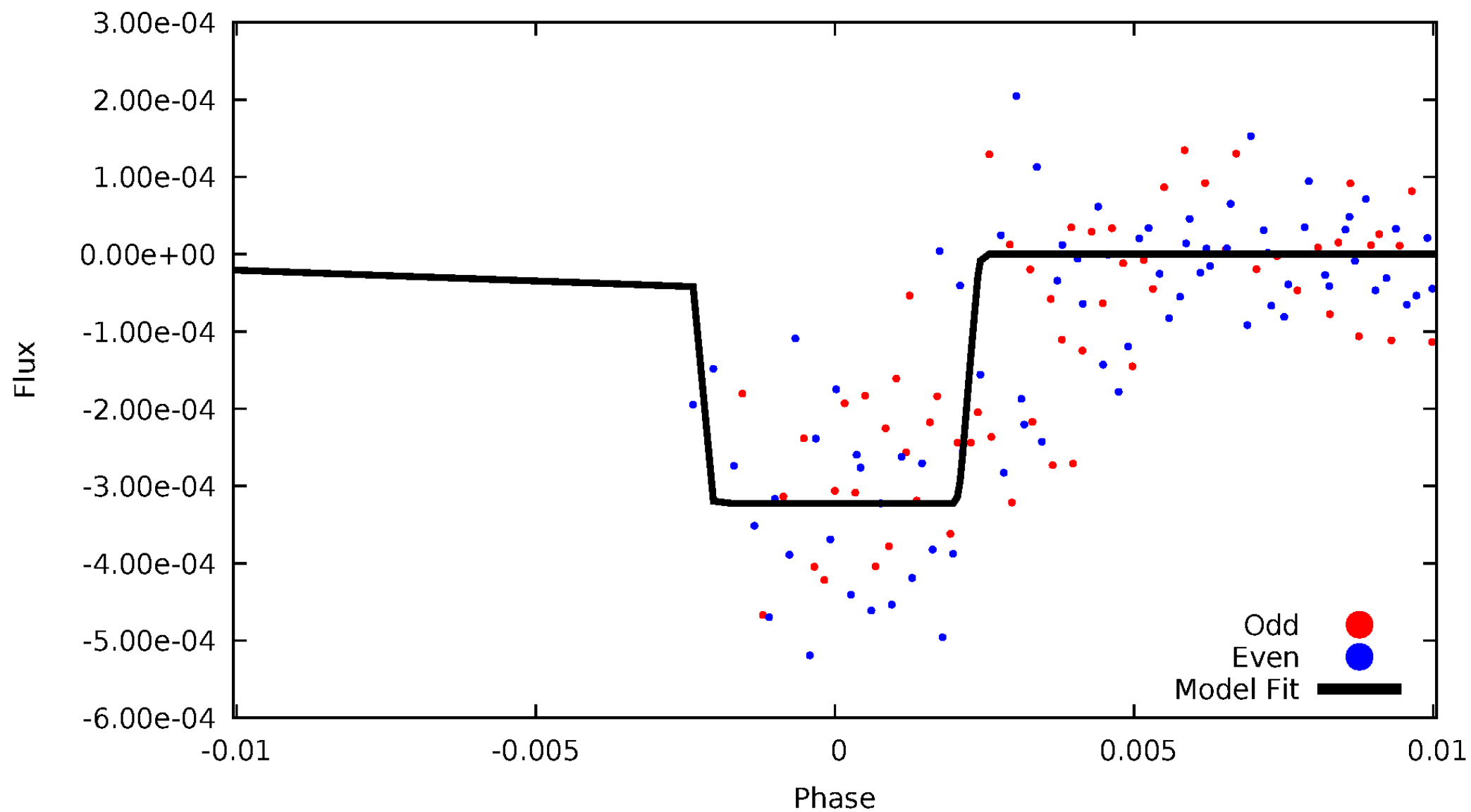
# DV Odd/Even

TCE 006606481-03



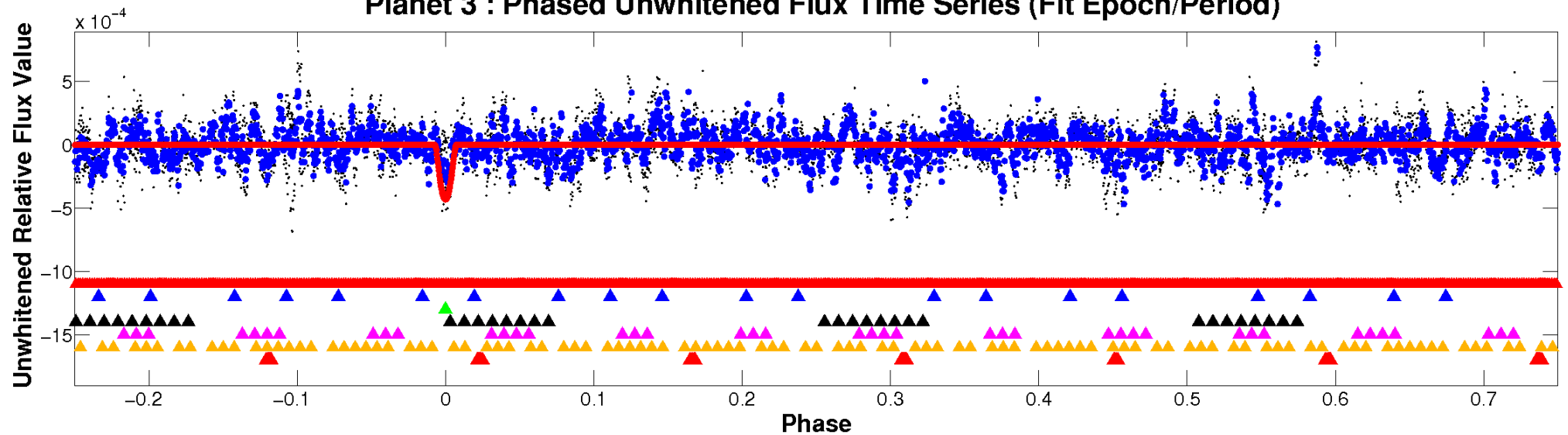
# ALT Odd/Even

TCE 006606481-03

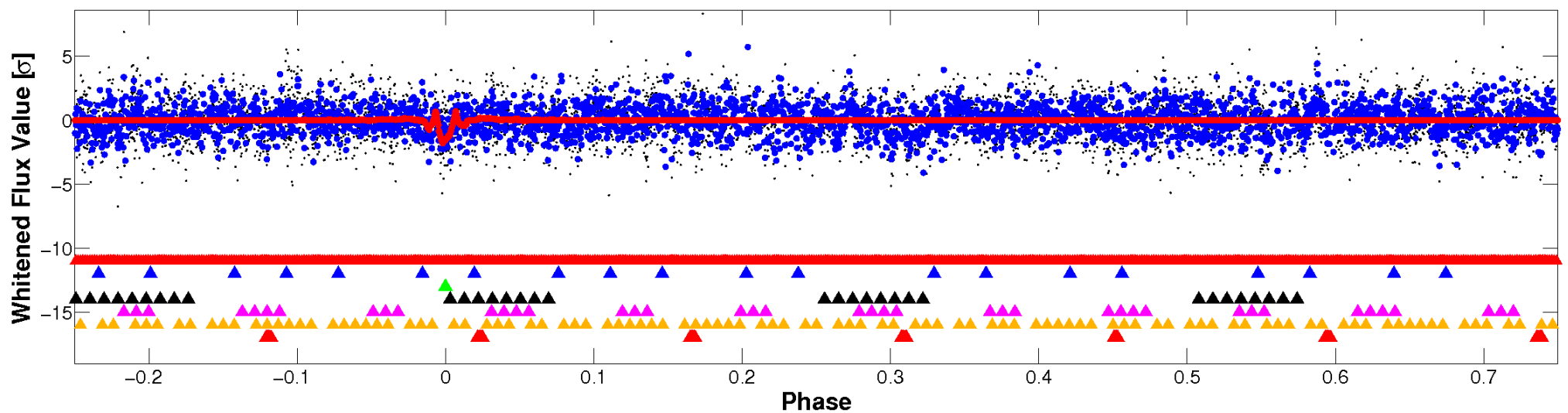


# Non-Whitened Vs. Whitened Light Curve

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

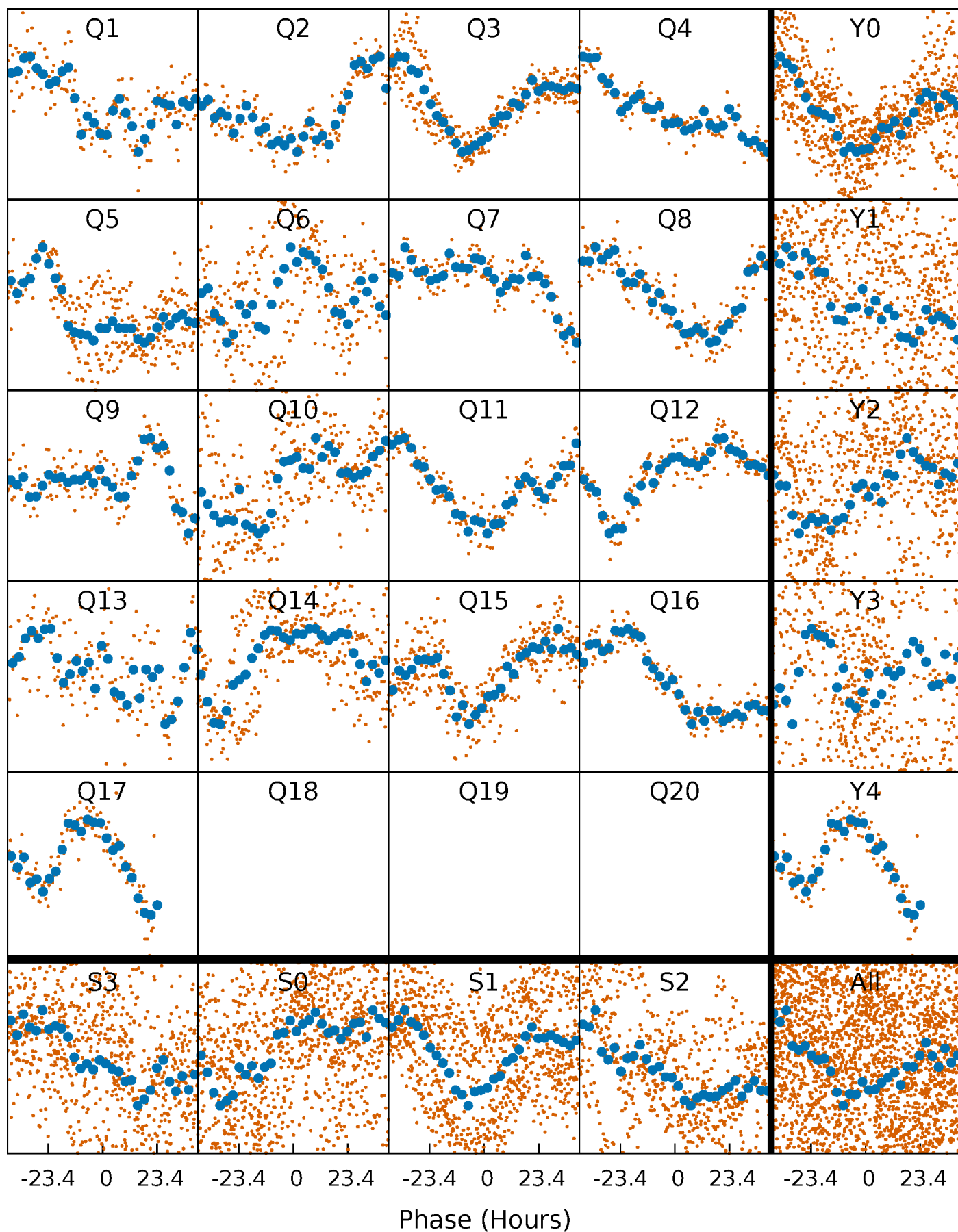


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



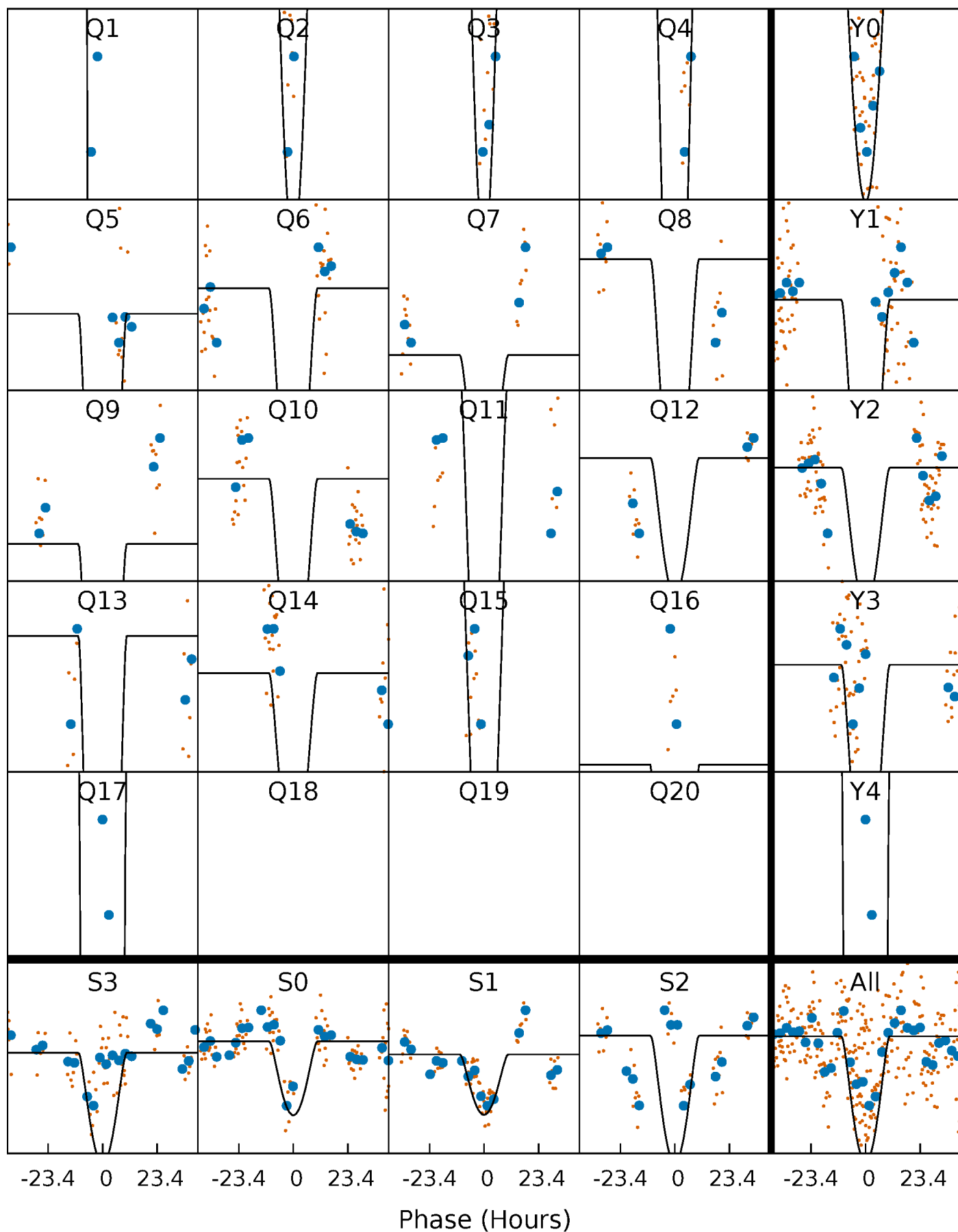
# PDC Quarter-Phased Transit Curves

TCE 006606481-03     $P = 59.728174$  Days     $T_0 = 147.161243$  (BKJD)



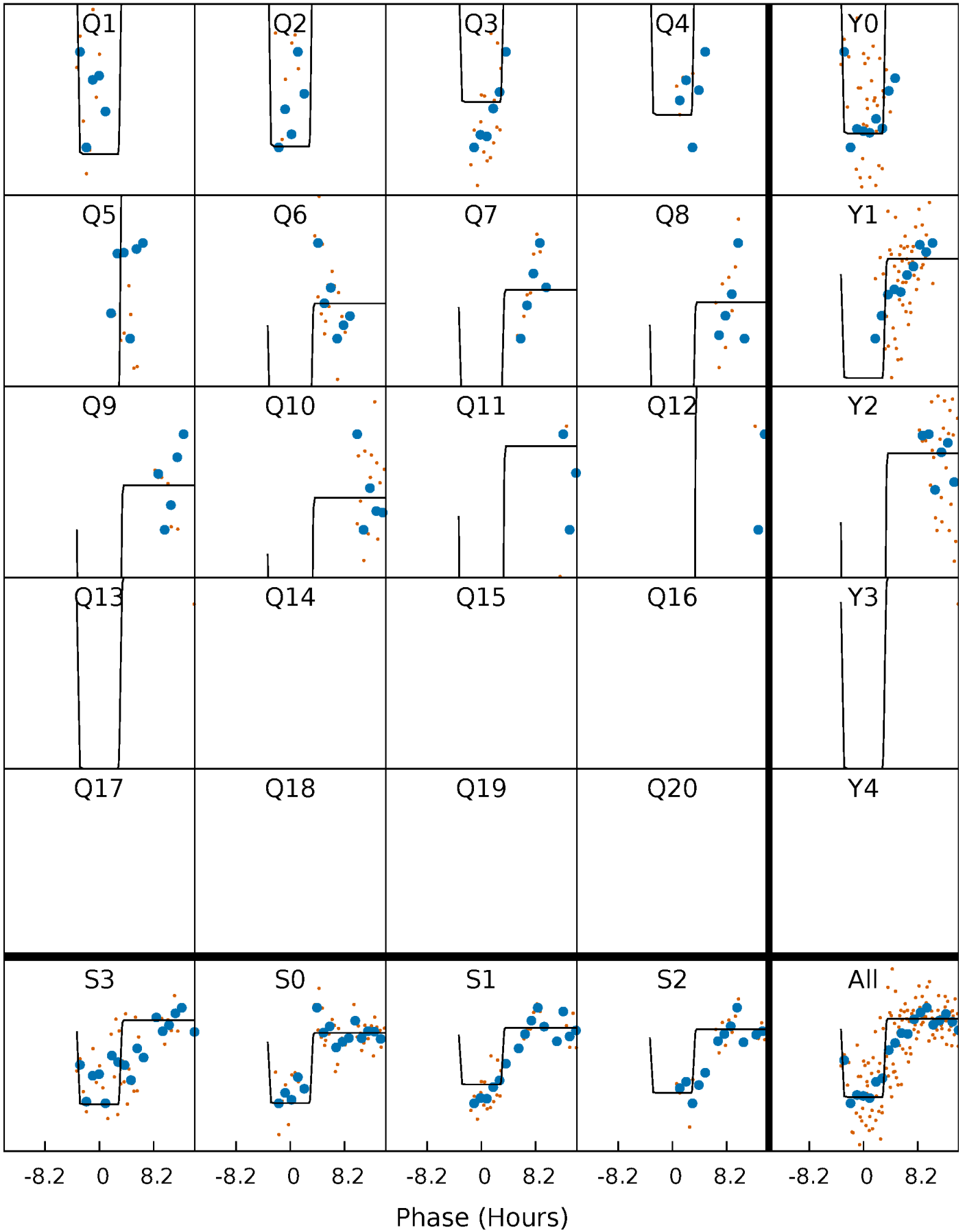
# DV Quarter-Phased Transit Curves

TCE 006606481-03   P= 59.728174 Days    $T_0=147.161243$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

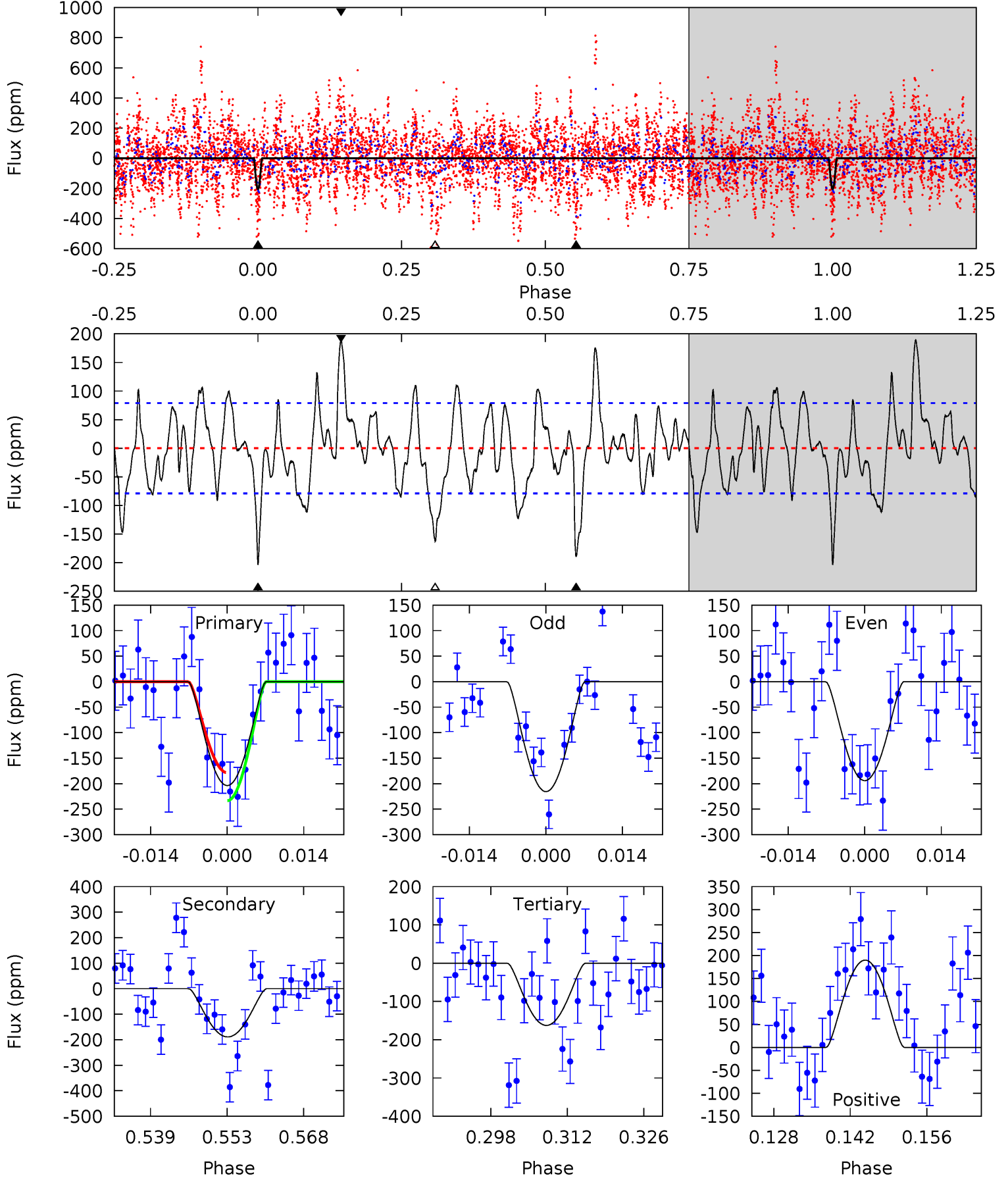
TCE 006606481-03   P= 59.781640 Days    $T_0=147.041247$  (BKJD)



# DV Model-Shift Uniqueness Test

006606481-03, P = 59.728174 Days, E = 87.433069 Days

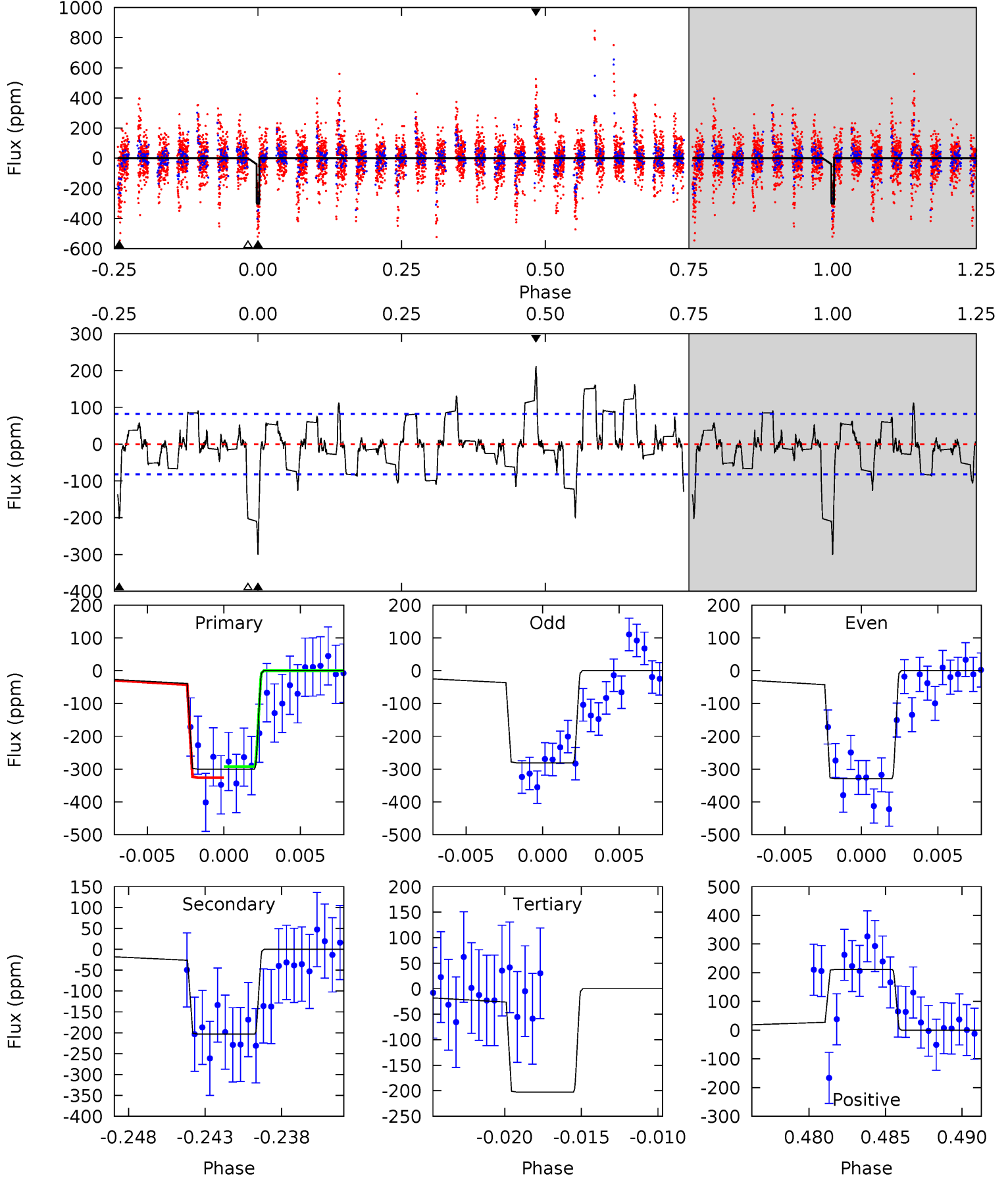
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM   | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-------|-------|------|
| 12.8 | 11.9 | 10.2 | 11.9 | 4.96            | 2.45            | 3.78             | 2.58    | 0.86    | 1.66    | -0.06   | 0.67    | -2.87 | 0.48  | 1.73 |



# Alt Model-Shift Uniqueness Test

006606481-03, P = 59.781640 Days, E = 87.259607 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 18.9 | 12.8 | 12.7 | 13.3 | 5.16            | 2.81            | 2.81             | 6.14    | 5.59    | 0.03    | -0.52   | 1.43    | 0.96 | 0.41  | 0.98 |



### Stellar Parameters For KIC 006606481

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6551^{+145}_{-194}$ | $4.367^{+0.054}_{-0.216}$ | $-0.080^{+0.250}_{-0.300}$ | $1.195^{+0.423}_{-0.141}$ | $1.215^{+0.173}_{-0.173}$ | $1.003^{+0.292}_{-0.533}$                 |
|        | +2%/-3%              | +1%/-5%                   | +312%/-375%                | +35%/-12%                 | +14%/-14%                 | +29%/-53%                                 |
| 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 006606481-03 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$         | $A_{obs}$            |
|---------|-------------|------------------------|-------------------|-----------------------|----------------------|
| DV      | -189±16     | $8.67^{+8.44}_{-5.21}$ | $796^{+61}_{-37}$ | $3494^{+1403}_{-611}$ | $137^{+740}_{-101}$  |
| Alt.    | -203±16     | $7.58^{+7.98}_{-5.19}$ | $798^{+58}_{-40}$ | $3720^{+2219}_{-721}$ | $196^{+1714}_{-150}$ |

$T_{max}$  = 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

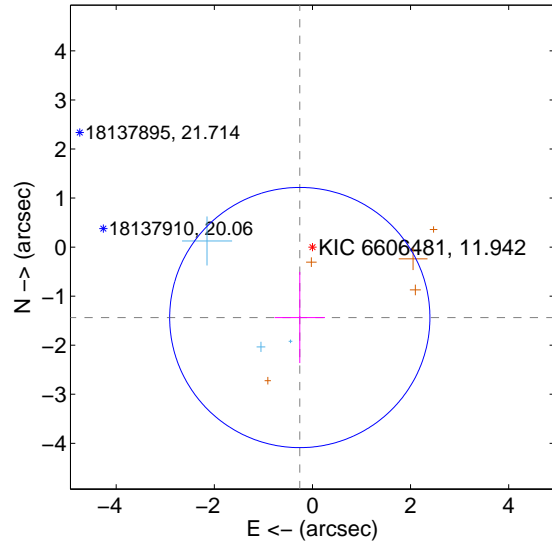
Supplemental centroid analysis for 006606481-03. **Kepler magnitude: 11.94.** Transit SNR 10.96

There are 4 quarters with good PRF difference image offsets

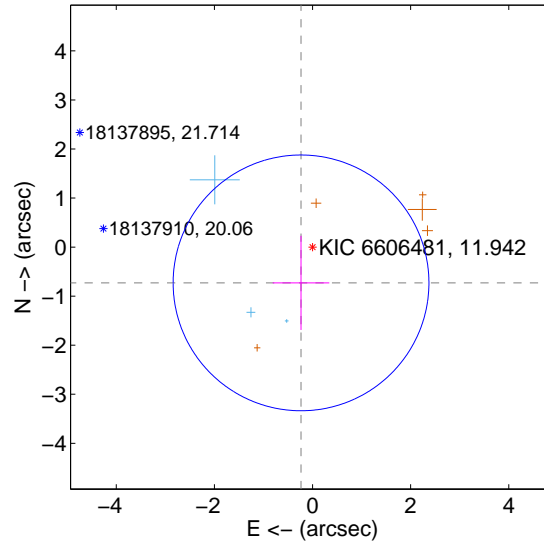
The direct PRF centroid is offset from the target star catalog position by about 1.26 arcsec

|   | Distance in arcsec                | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|-----------------------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $1.459 \pm 0.884$                 | 1.65                | $0.258 \pm 0.515$ | $-1.436 \pm 0.927$ |
| PRF-fit source offset from KIC position | $0.766 \pm 0.869$                 | 0.88                | $0.234 \pm 0.577$ | $-0.730 \pm 0.959$ |
| photometric centroid source offset      | <b><math>1.96 \pm 0.32</math></b> | <b>6.17</b>         | $0.36 \pm 0.09$   | $1.93 \pm 0.32$    |

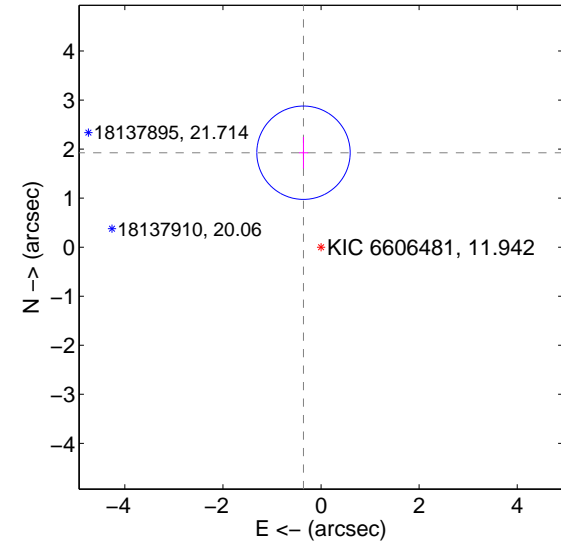
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

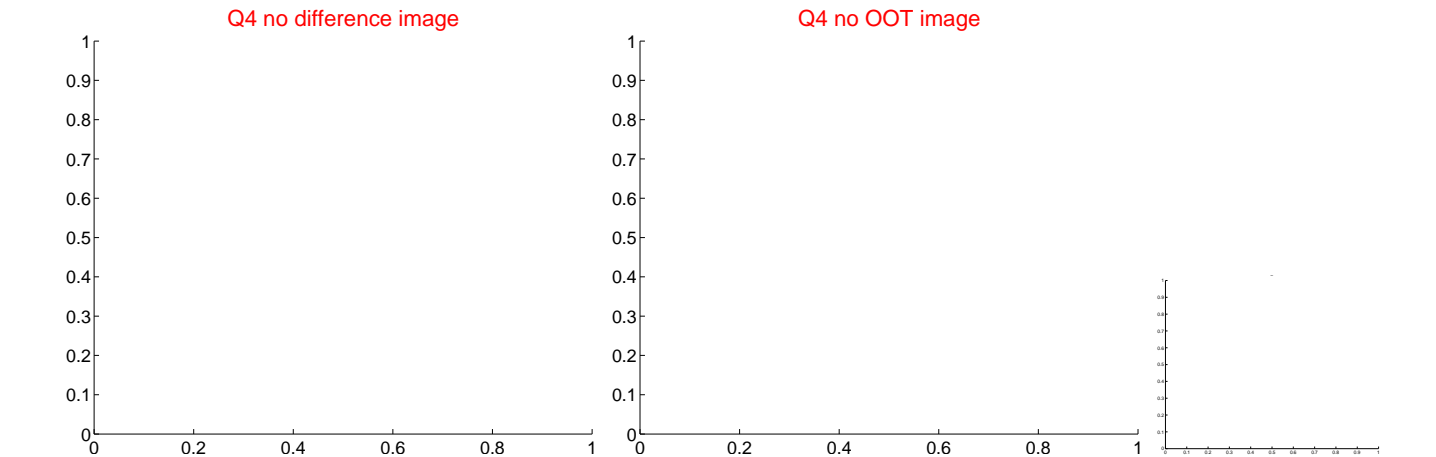
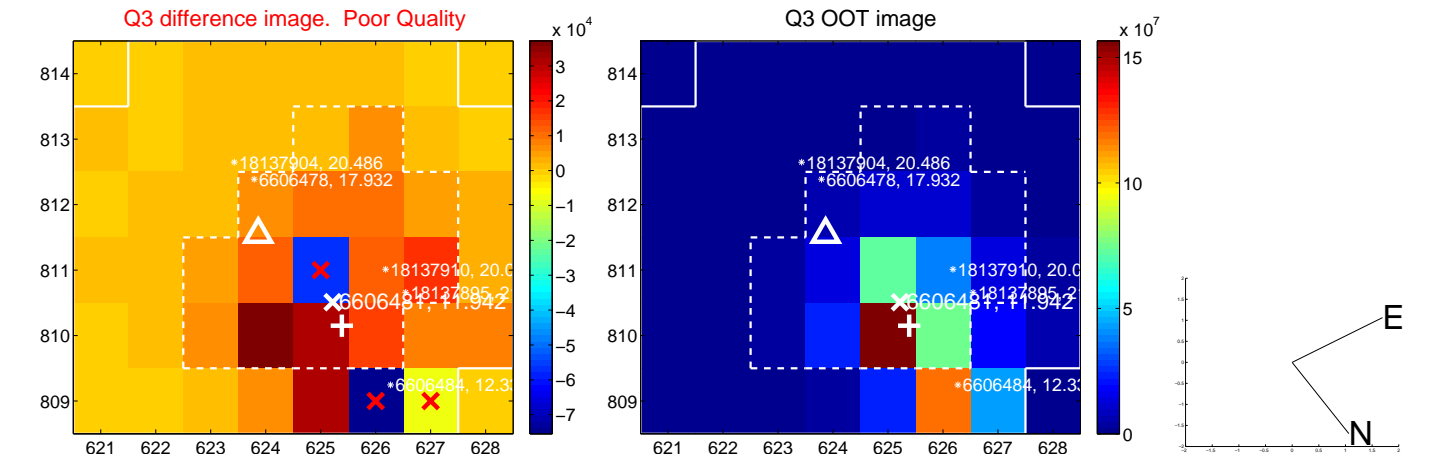
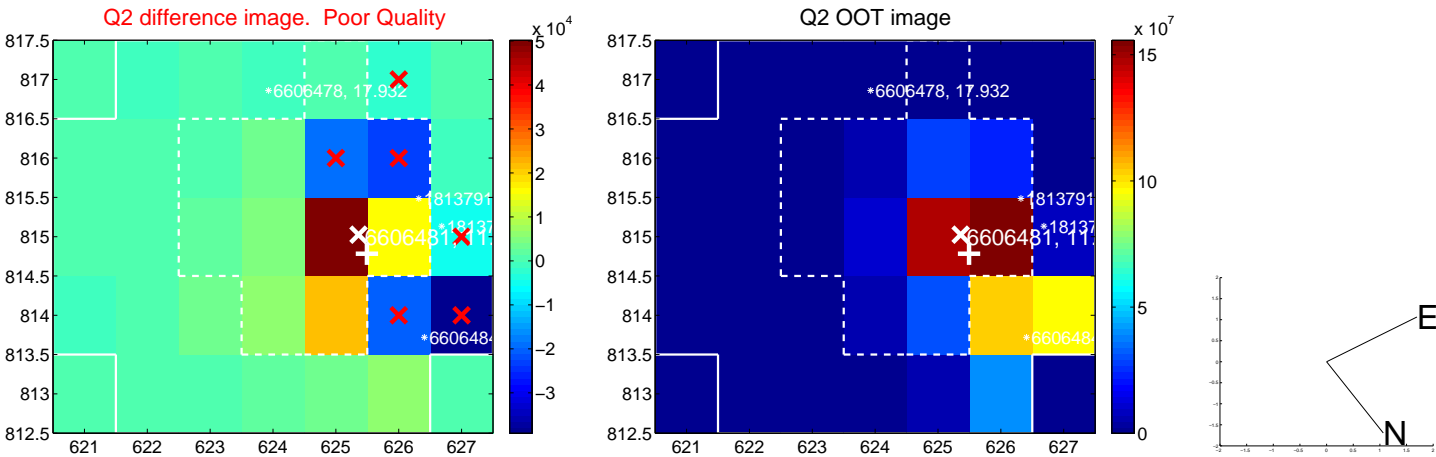
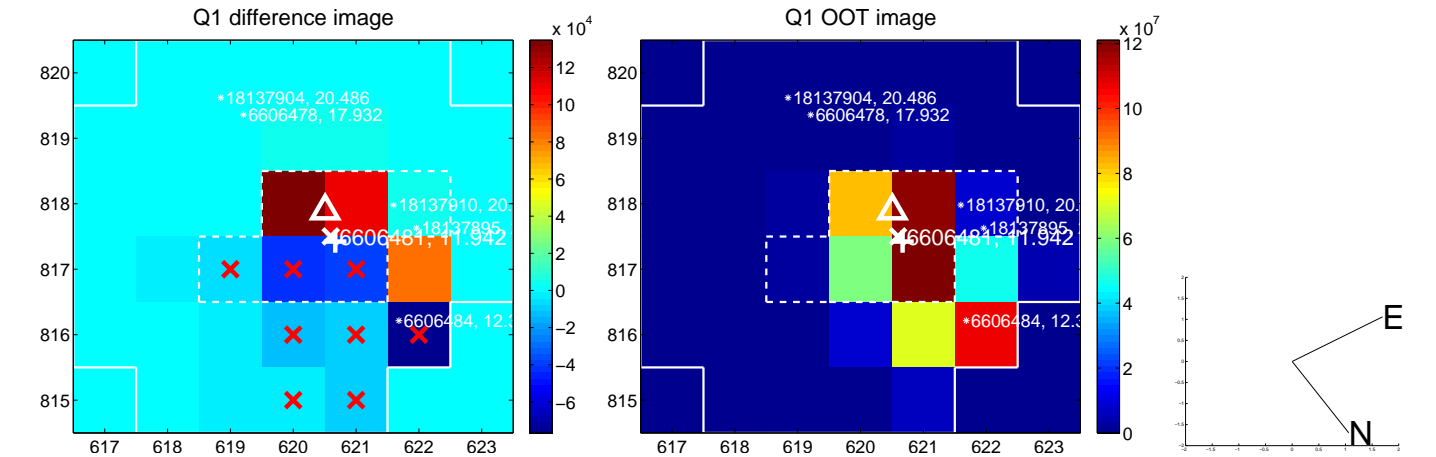


offset from photometric centroids



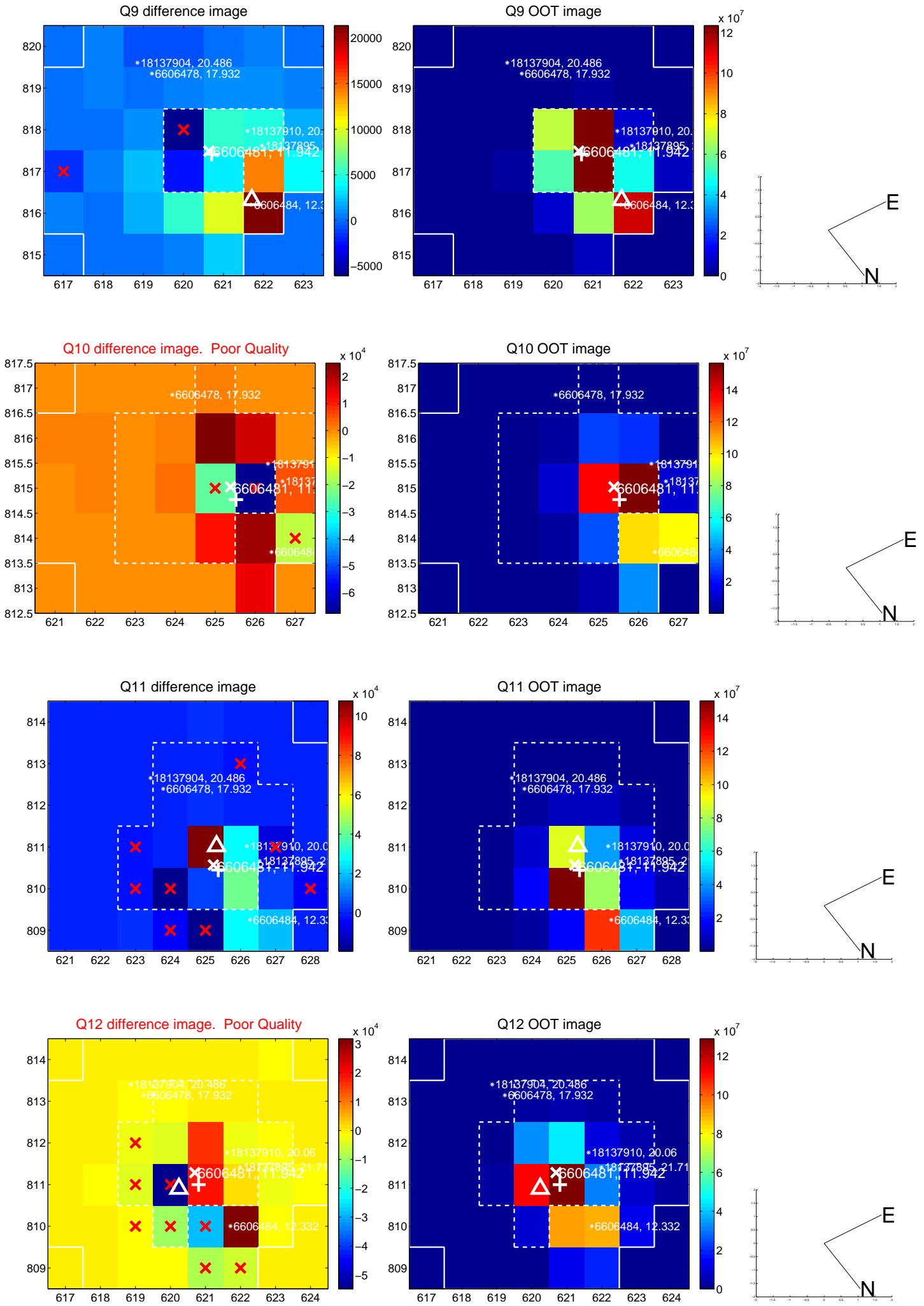
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

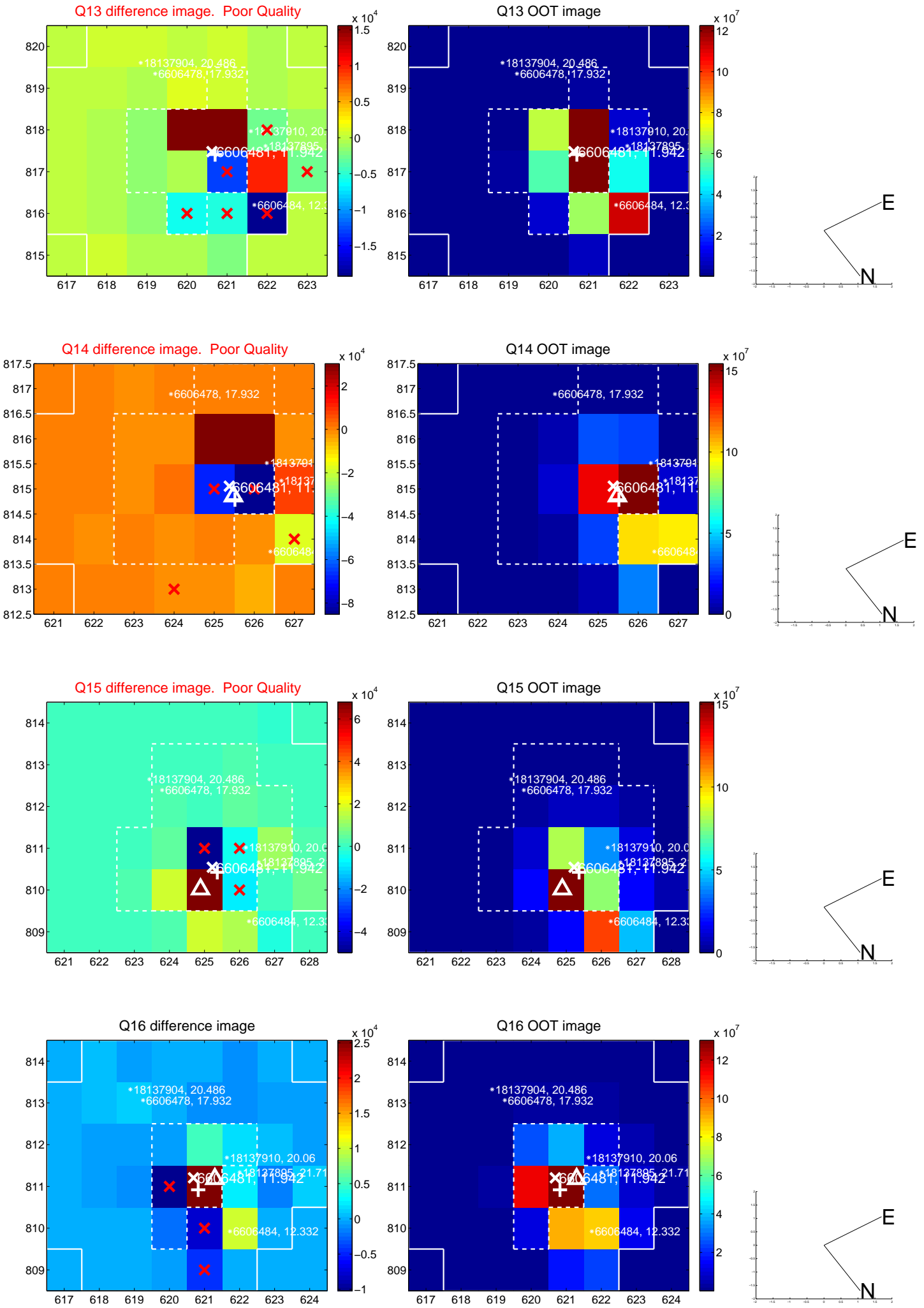




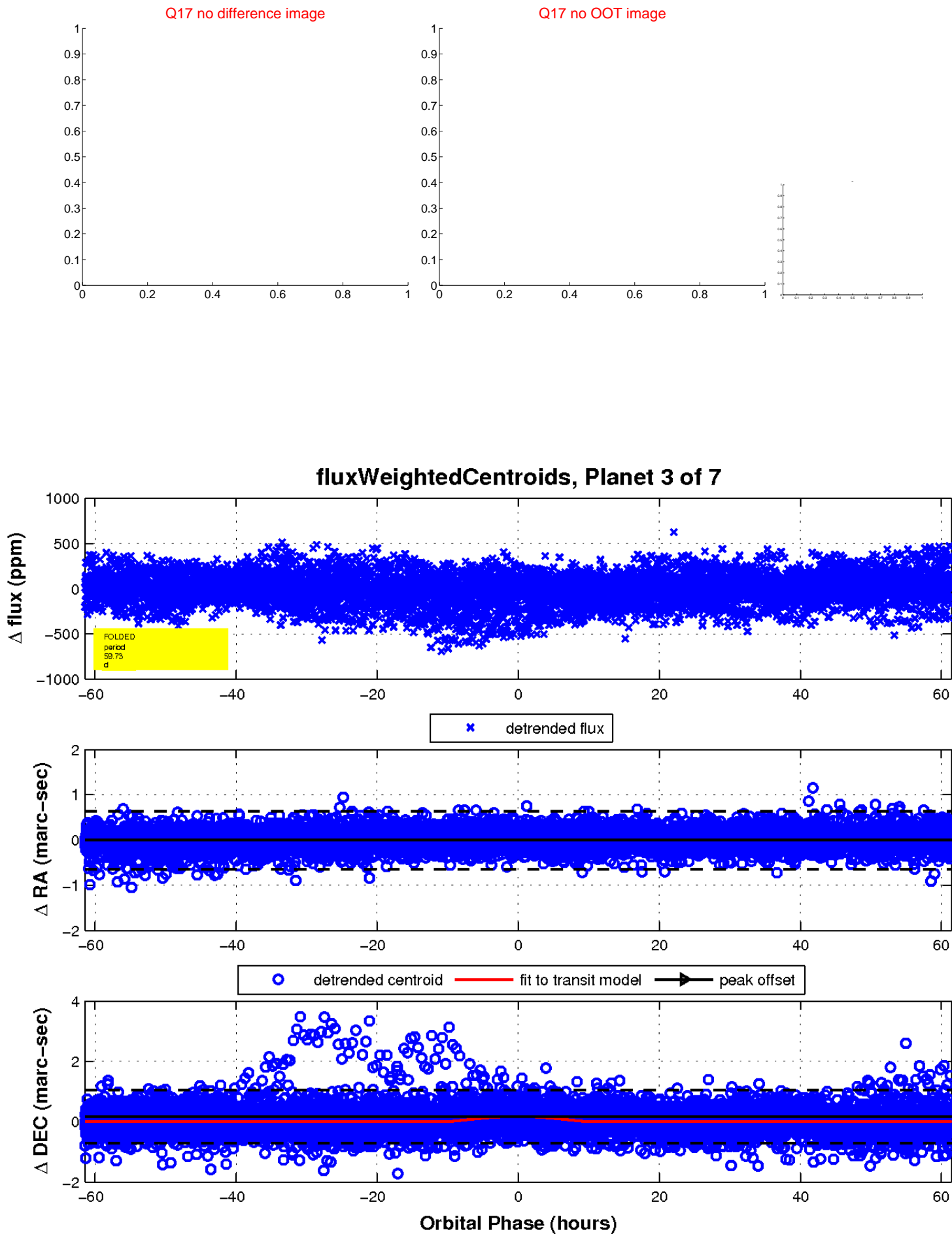
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

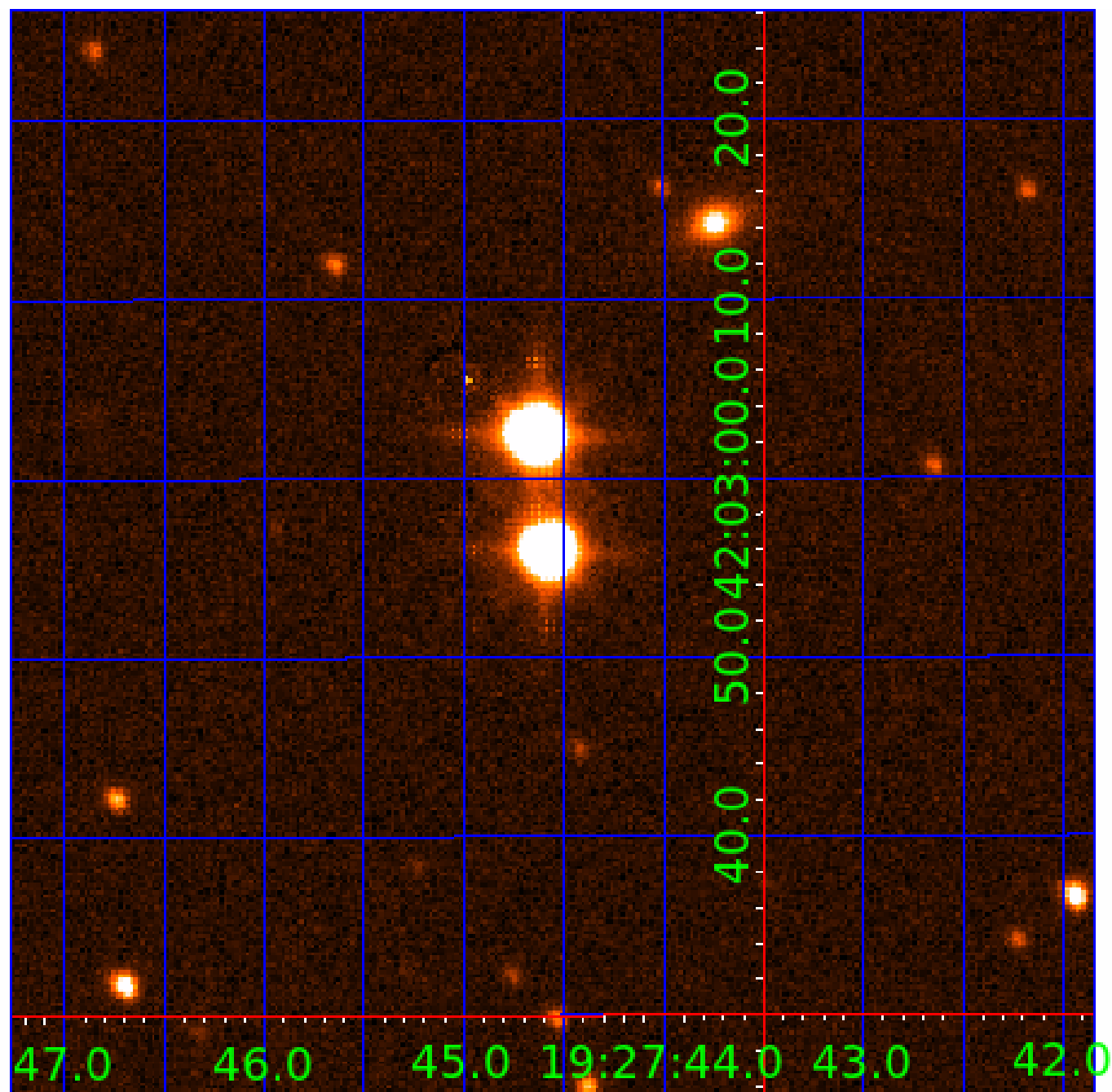


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006606481

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006606481-01 | OBS      | No   | 2.062860      | 131.510854   | 15.0        | 14.824           | 7.8  | 7.4  | 1.20                        | 6551            | 0.49                   | 2059.41                |
| 006606481-03 | OBS      | No   | 59.728174     | 147.161243   | 430.3       | 20.482           | 11.8 | 11.0 | 1.20                        | 6551            | 4.79                   | 23.16                  |
| 006606481-04 | OBS      | No   | 44.654730     | 136.804552   | 133.2       | 6.266            | 10.2 | 6.7  | 1.20                        | 6551            | 1.63                   | 34.14                  |
| 006606481-05 | OBS      | No   | 34.883059     | 163.824645   | 185.3       | 1.427            | 9.5  | 9.5  | 1.20                        | 6551            | 1.73                   | 47.45                  |
| 006606481-06 | OBS      | No   | 14.157855     | 143.959628   | 154.6       | 1.301            | 8.3  | 9.2  | 1.20                        | 6551            | 2.24                   | 157.90                 |
| 006606481-07 | OBS      | No   | 42.655509     | 157.218044   | 201.1       | 2.626            | 8.6  | 8.6  | 1.20                        | 6551            | 1.92                   | 36.29                  |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 006606481-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS  |
| 006606481-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS                         |
| 006606481-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006606481-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—MOD_NONUNIQ_DV—HALO_GHOST   |
| 006606481-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT                                 |
| 006606481-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_KIC_POS  |

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

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

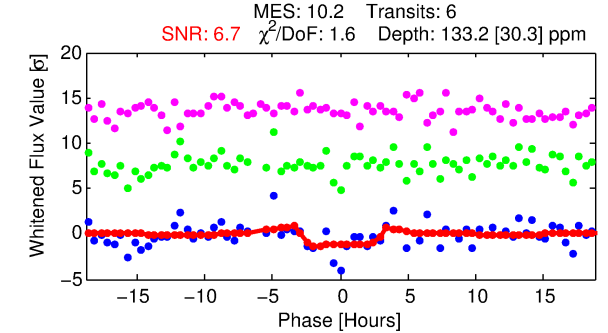
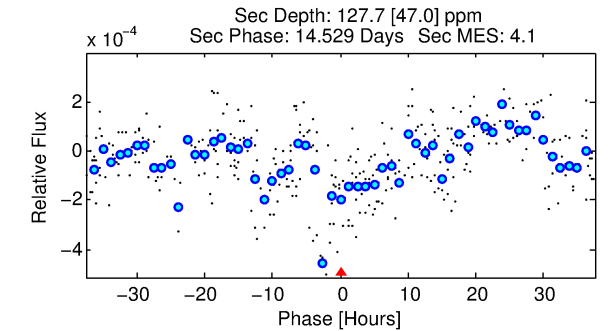
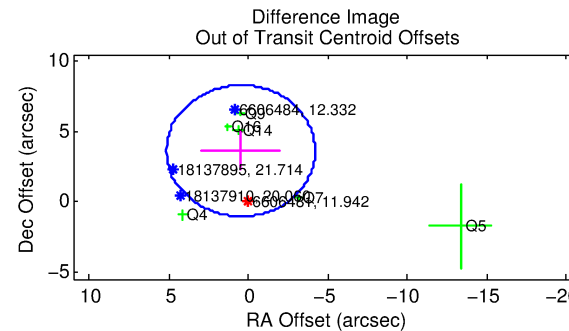
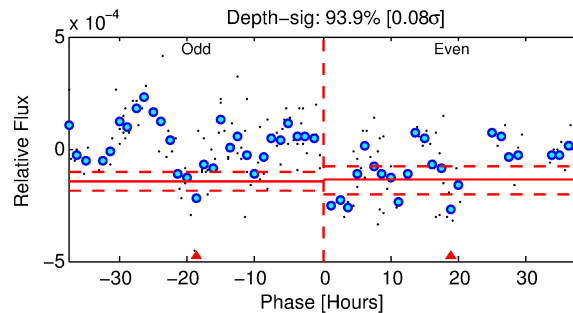
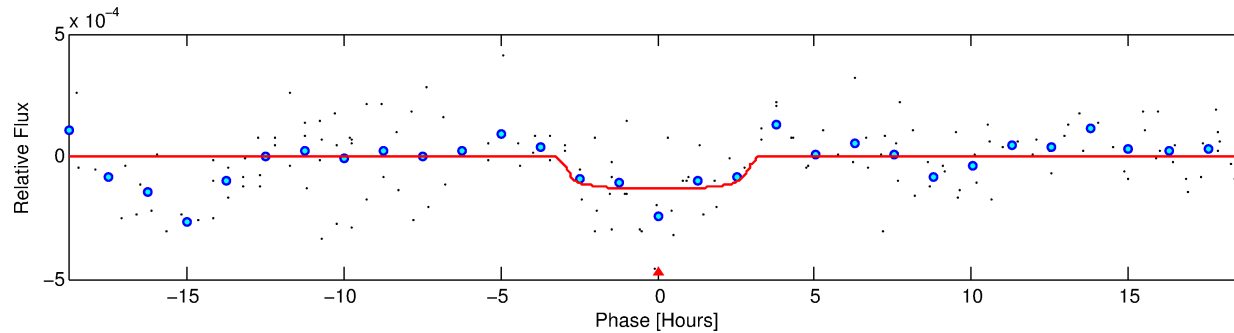
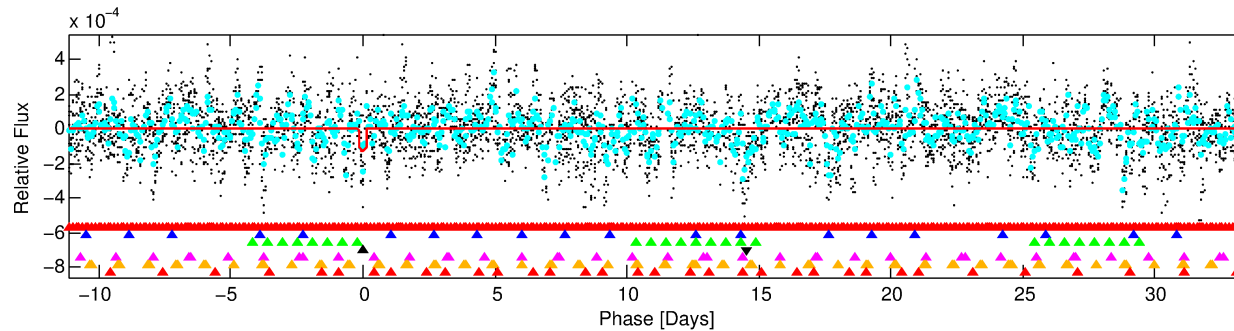
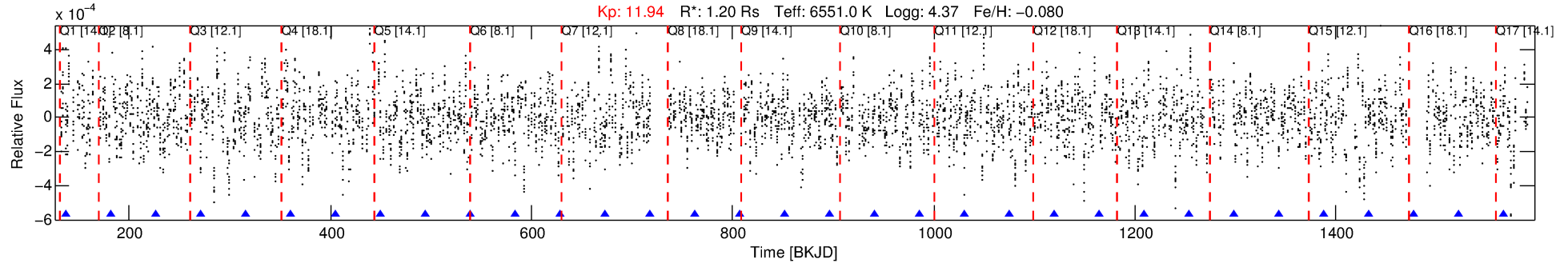
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006606481-04

No Significant Match Found

# DV One-Page Summary

KIC: 6606481 Candidate: 4 of 7 Period: 44.655 d



## DV Fit Results:

Period = 44.65473 [0.00127] d  
Epoch = 136.8046 [0.0176] BKJD  
Rp/R\* = 0.0125 [0.0100]  
a/R\* = 23.89 [108.62]  
b = 0.91 [0.84]  
Seff = 34.14 [14.47]  
Teq = 616 [65] K  
Rp = 1.63 [1.42] Re  
a = 0.2627 [0.0758] AU  
Ag = 1828.39 [3084.16] [0.59 $\sigma$ ]  
Teffp = 6231 [2557] K [2.20 $\sigma$ ]

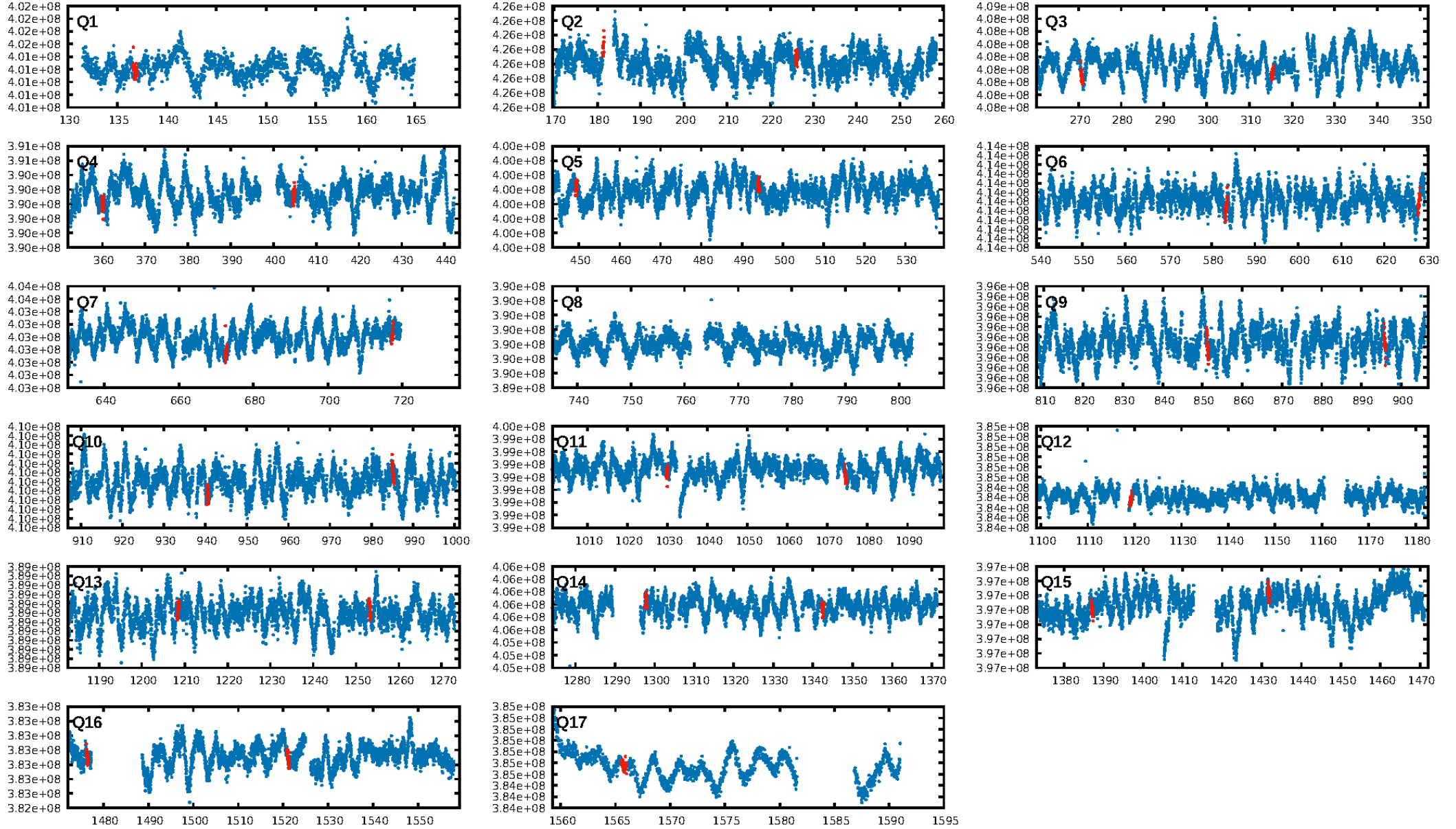
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.06 $\sigma$ ]  
LongPeriod-sig: 100.0% [16.89 $\sigma$ ]  
ModelChiSquare2-sig: 2.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.14e-12  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -1.887  
Centroid-sig: 3.2%  
Centroid-so: 2.165 arcsec [2.20 $\sigma$ ]  
OotOffset-rm: 3.656 arcsec [2.35 $\sigma$ ]  
KicOffset-rm: 4.530 arcsec [2.74 $\sigma$ ]  
OotOffset-st: 1/1/2/2 [6]  
KicOffset-st: 1/1/2/2 [6]  
DiffImageQuality-fgm: 0.00 [0/6]  
DiffImageOverlap-fno: 0.20 [3/15]

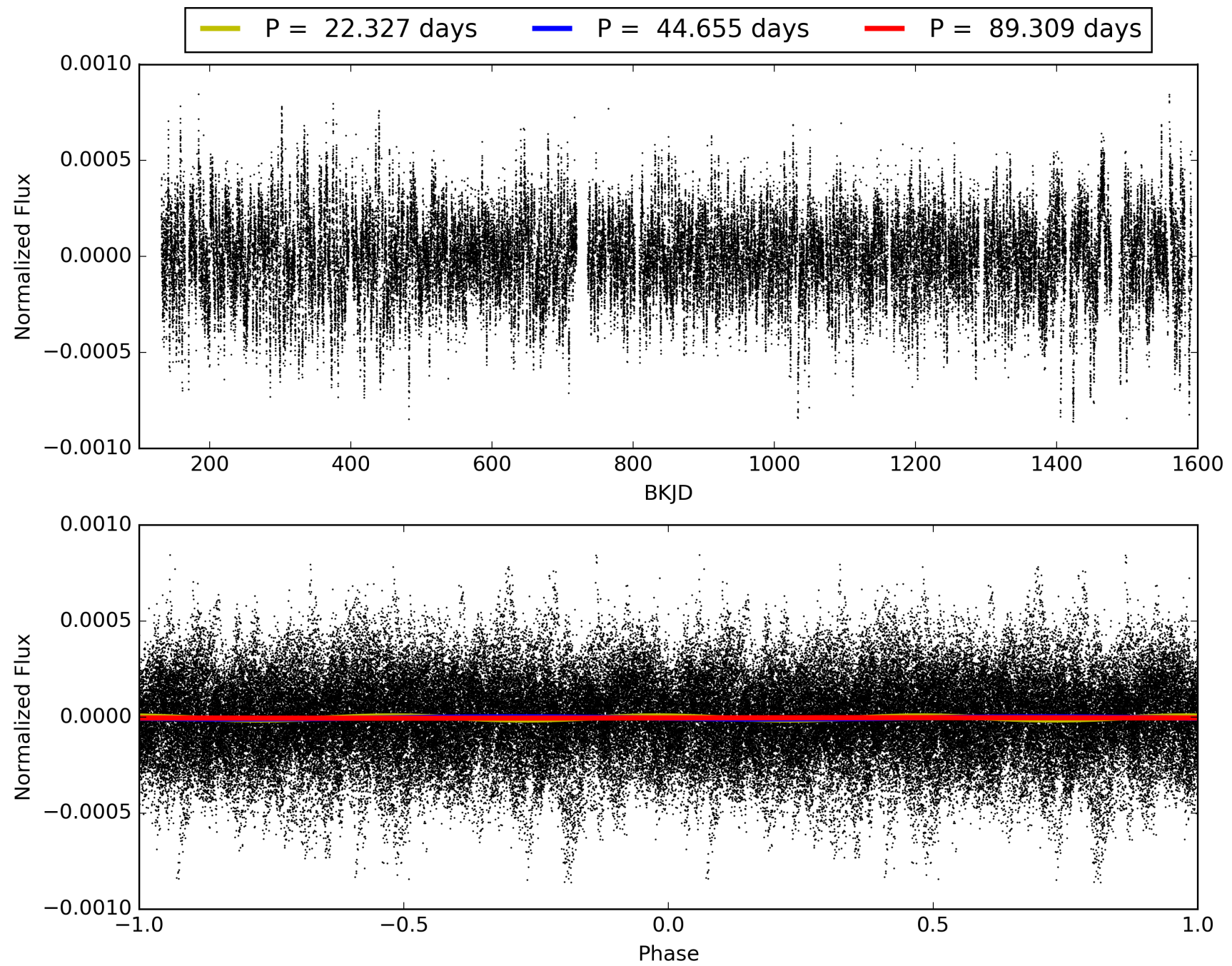
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:38:01 Z

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

# TCE 006606481-04, PDC Light Curves

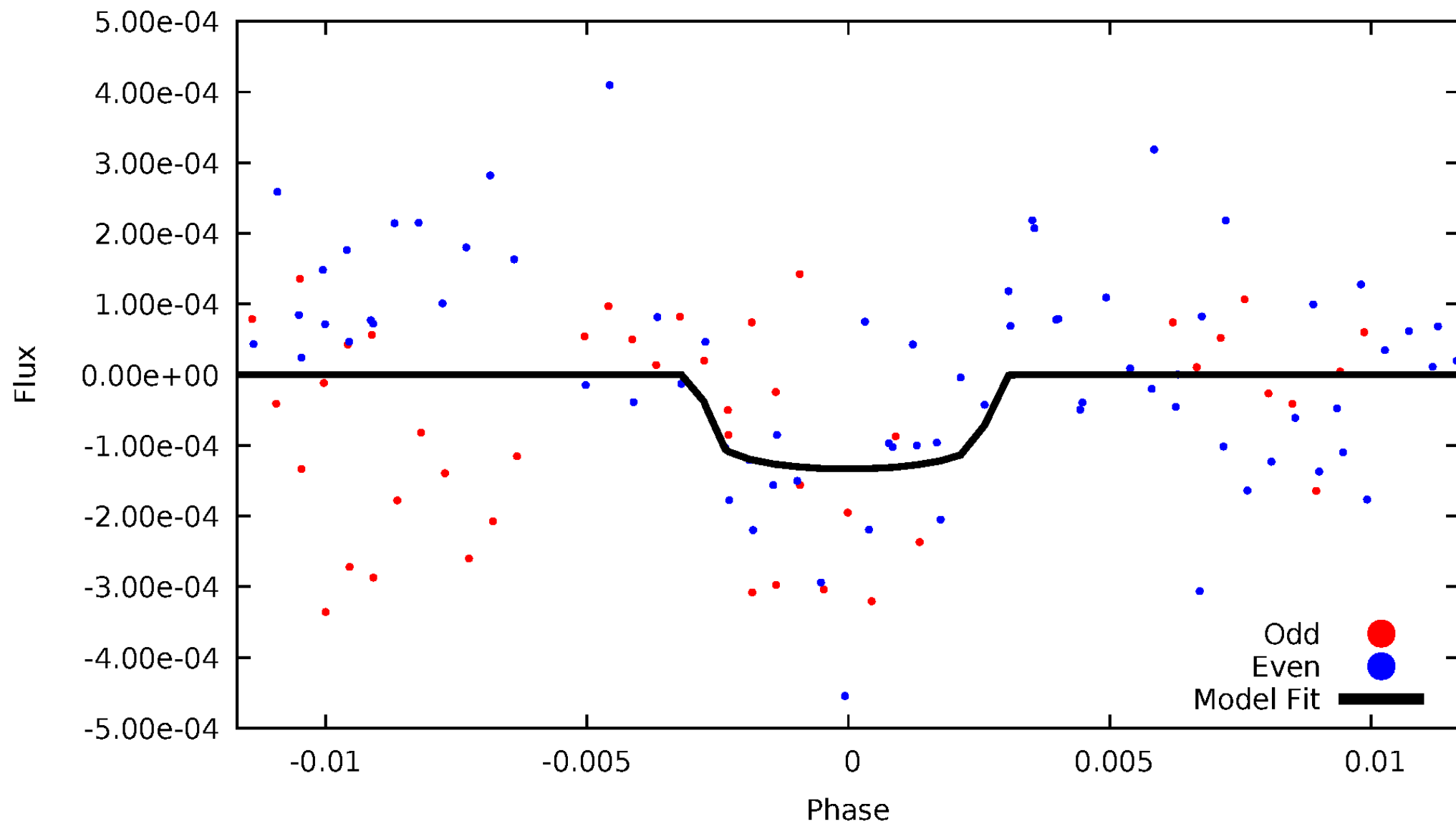


TCE 006606481-04



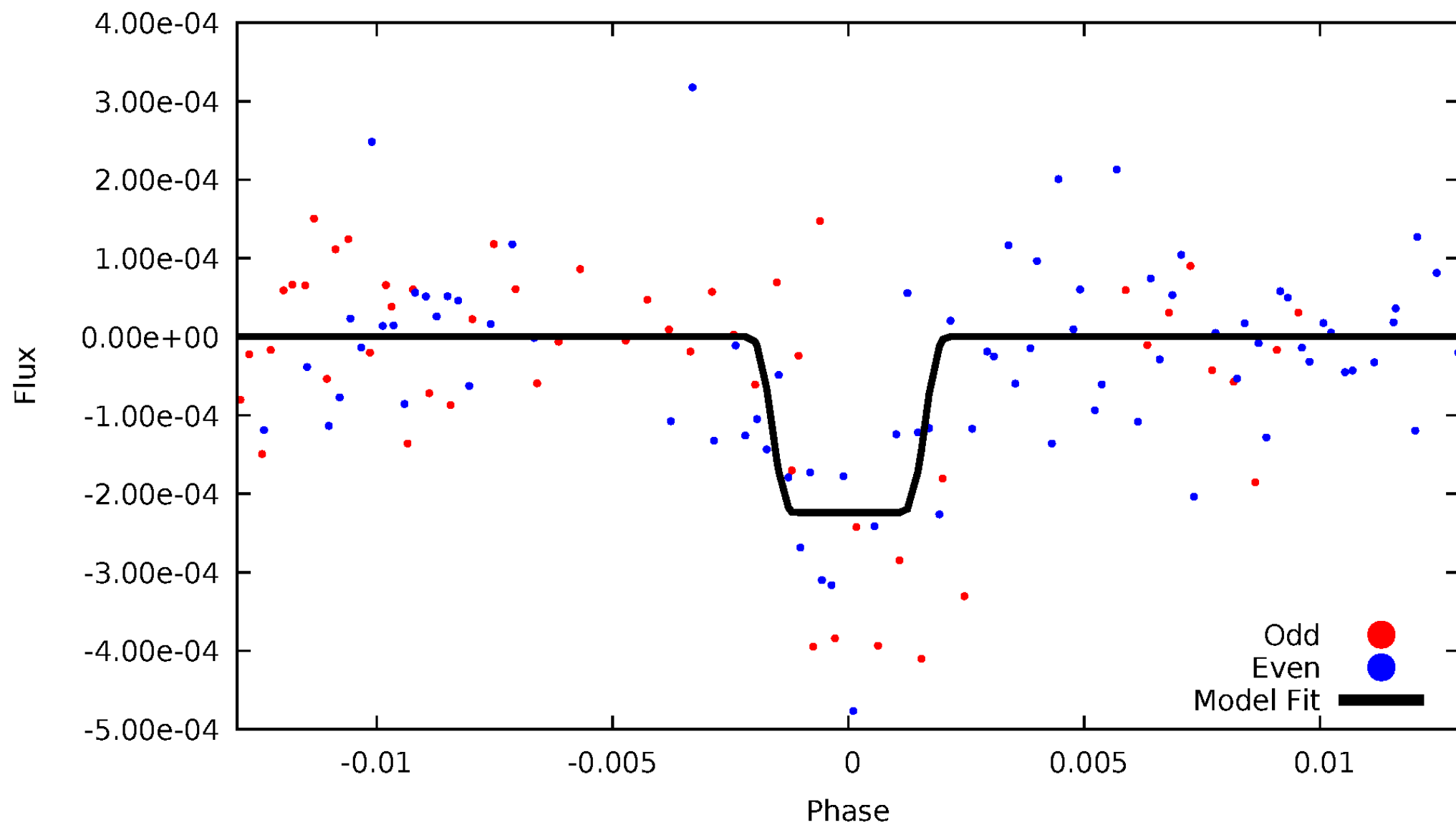
# DV Odd/Even

TCE 006606481-04



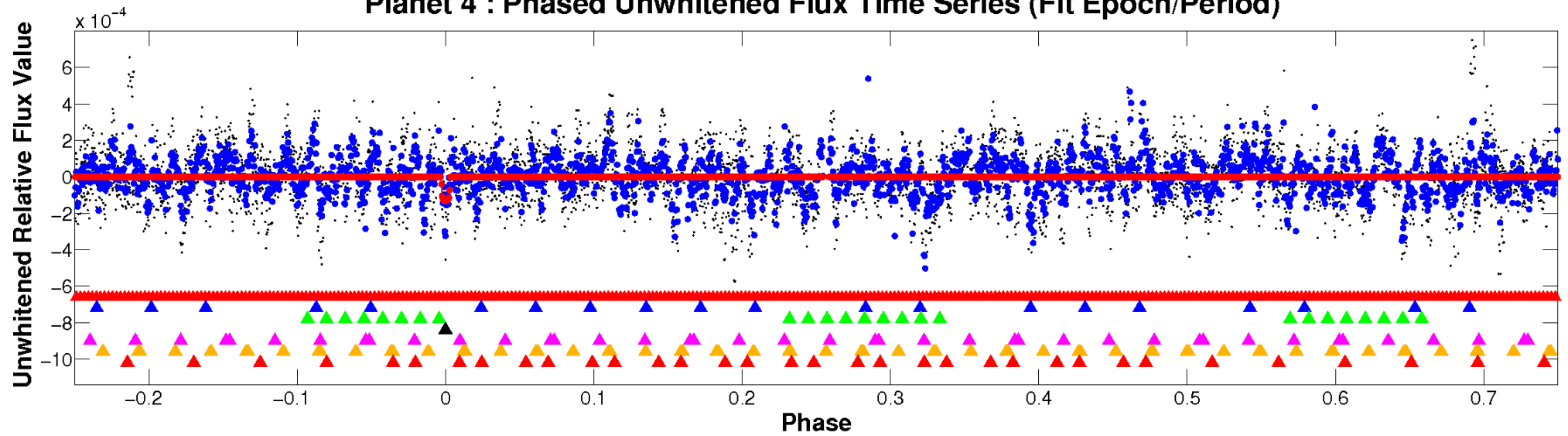
# ALT Odd/Even

TCE 006606481-04

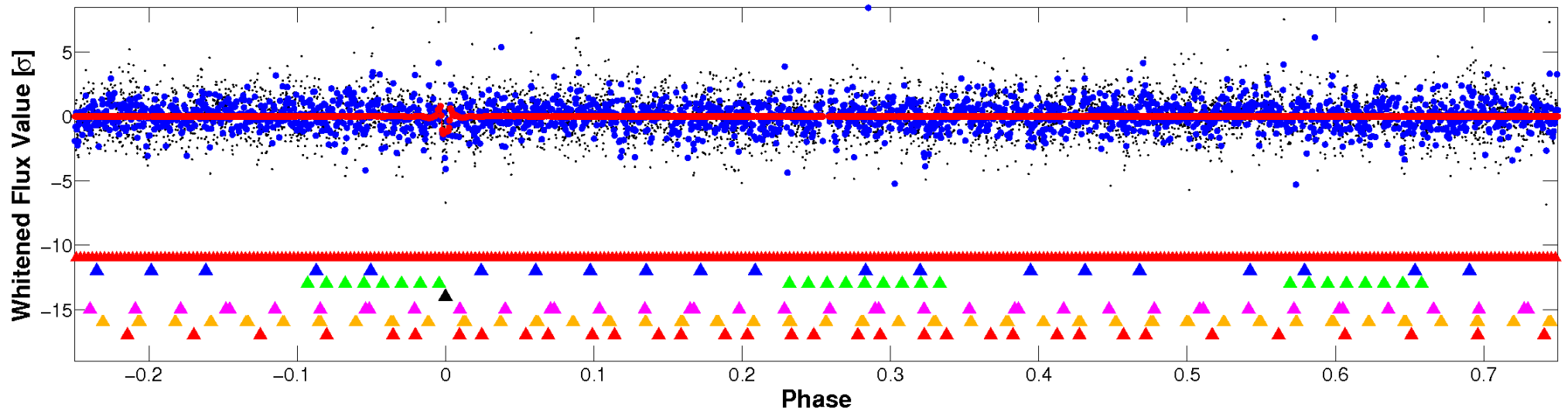


# Non-Whitened Vs. Whitened Light Curve

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

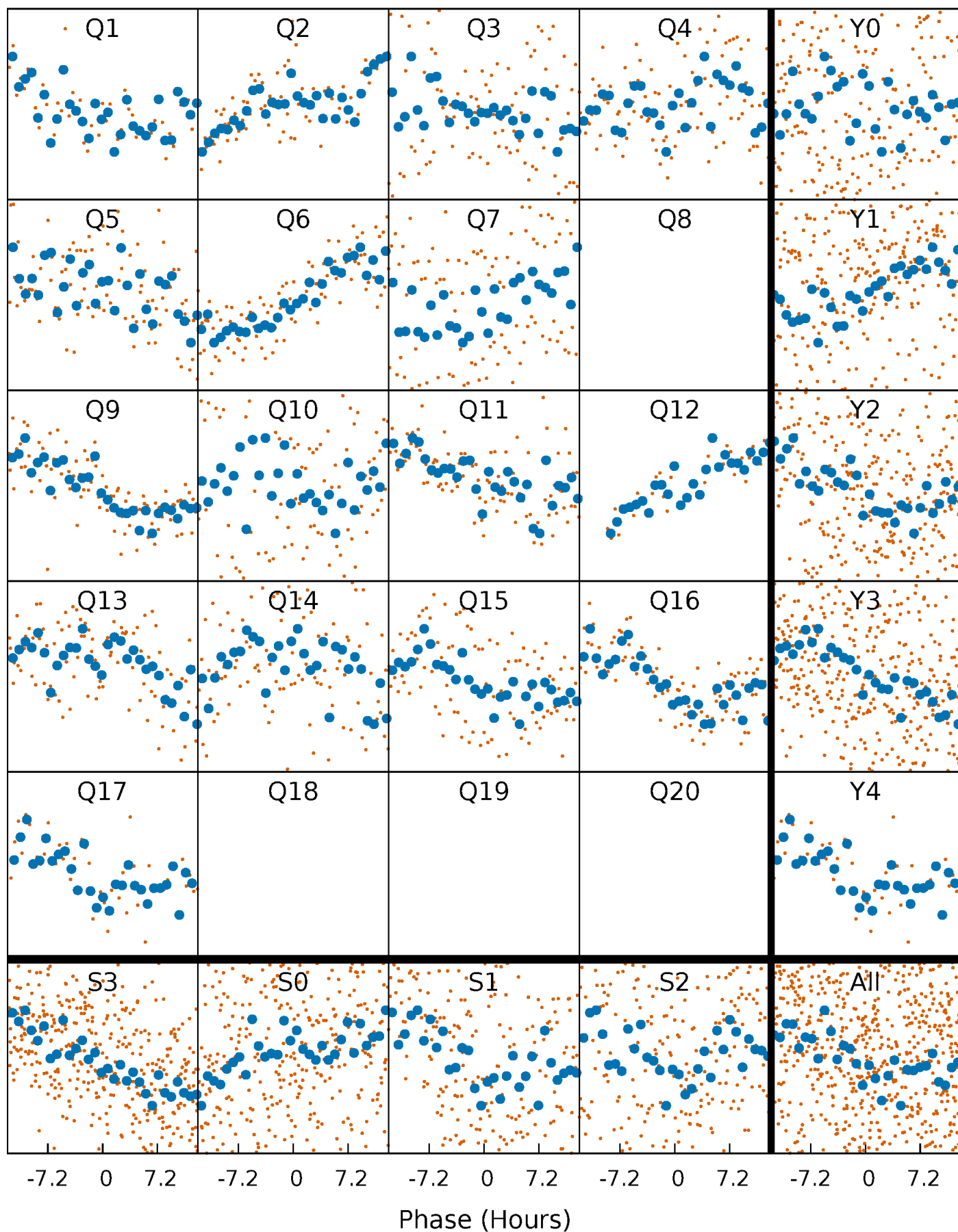


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



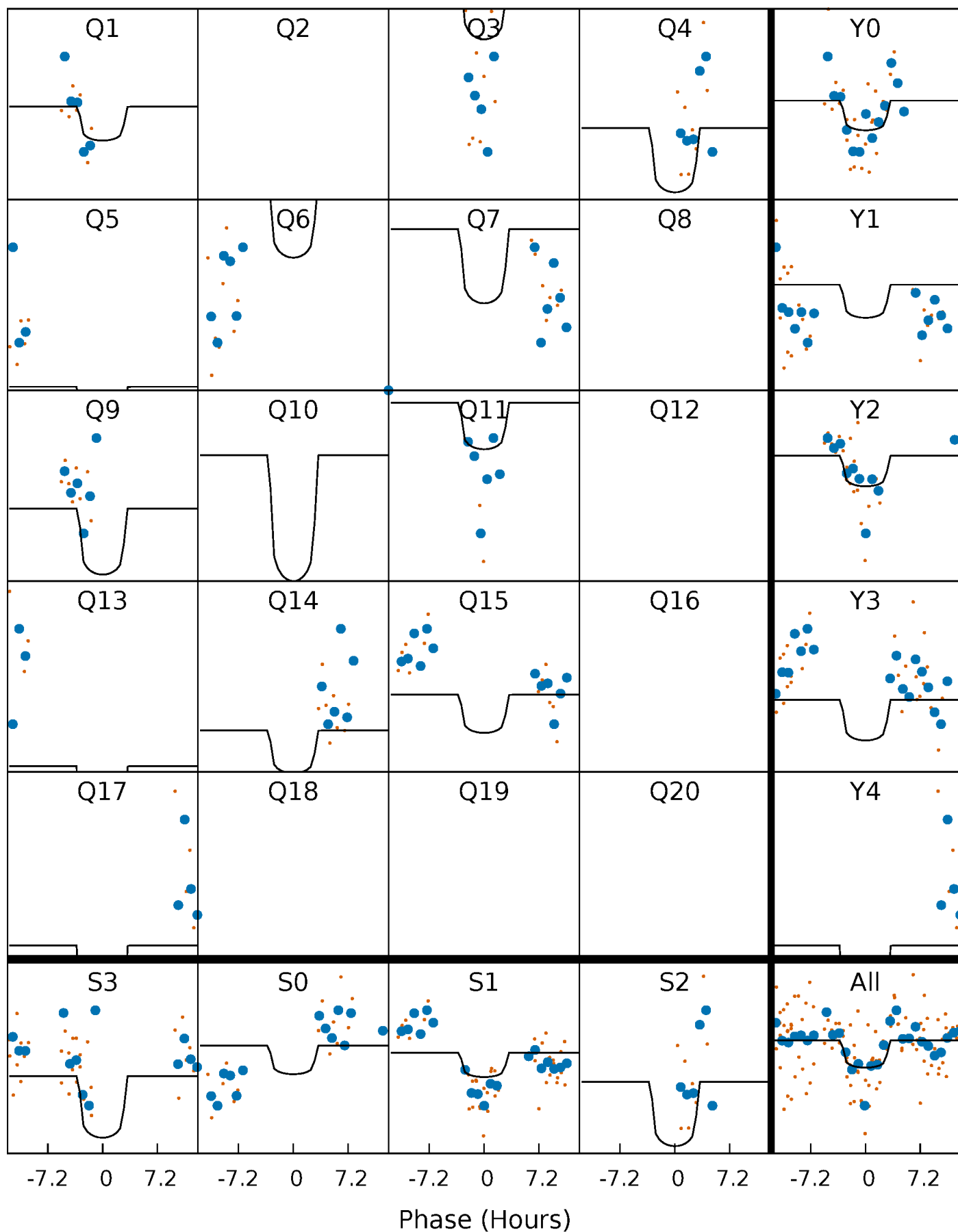
# PDC Quarter-Phased Transit Curves

TCE 006606481-04   P= 44.654730 Days    $T_0=136.804552$  (BKJD)



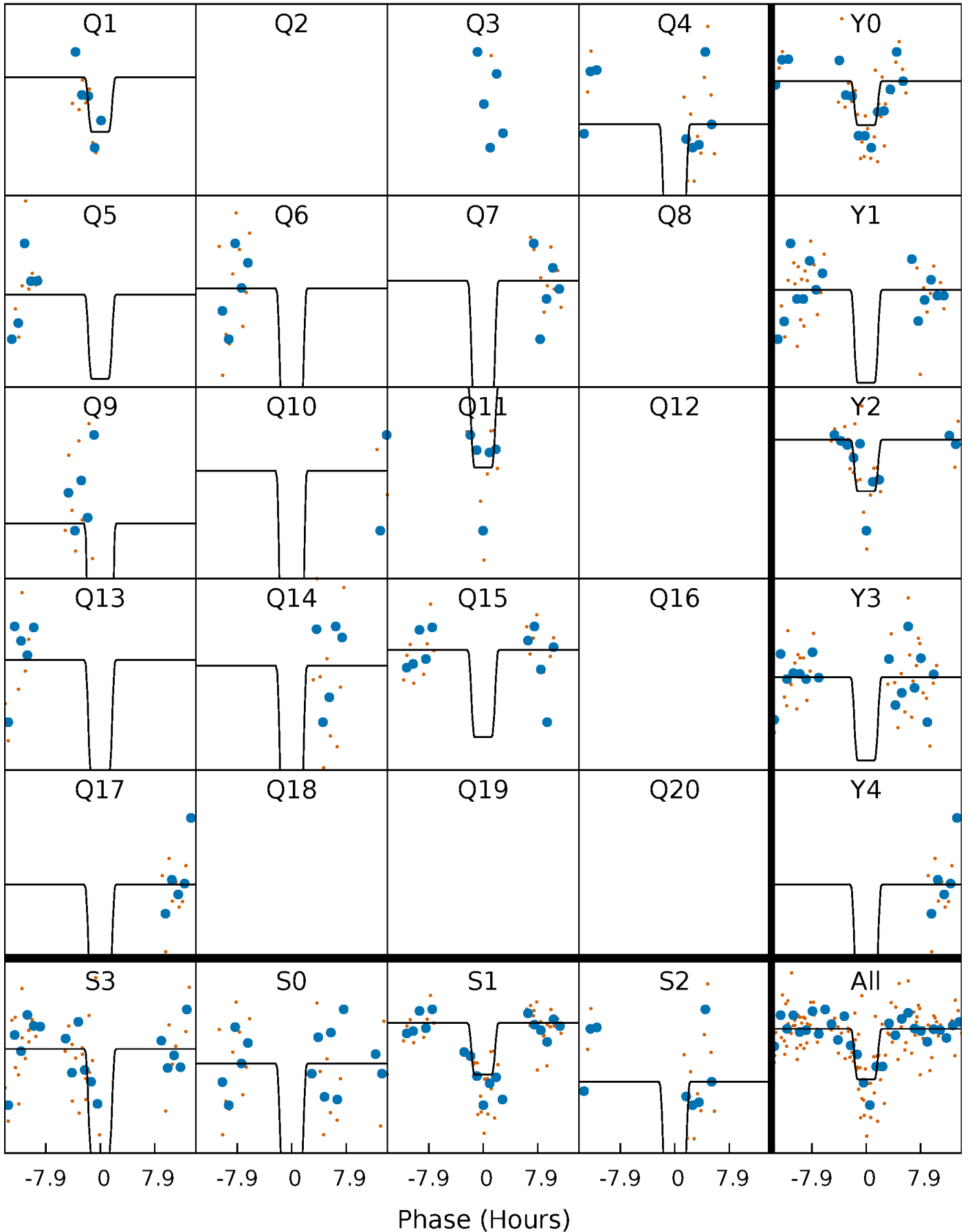
# DV Quarter-Phased Transit Curves

TCE 006606481-04   P= 44.654730 Days    $T_0=136.804552$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

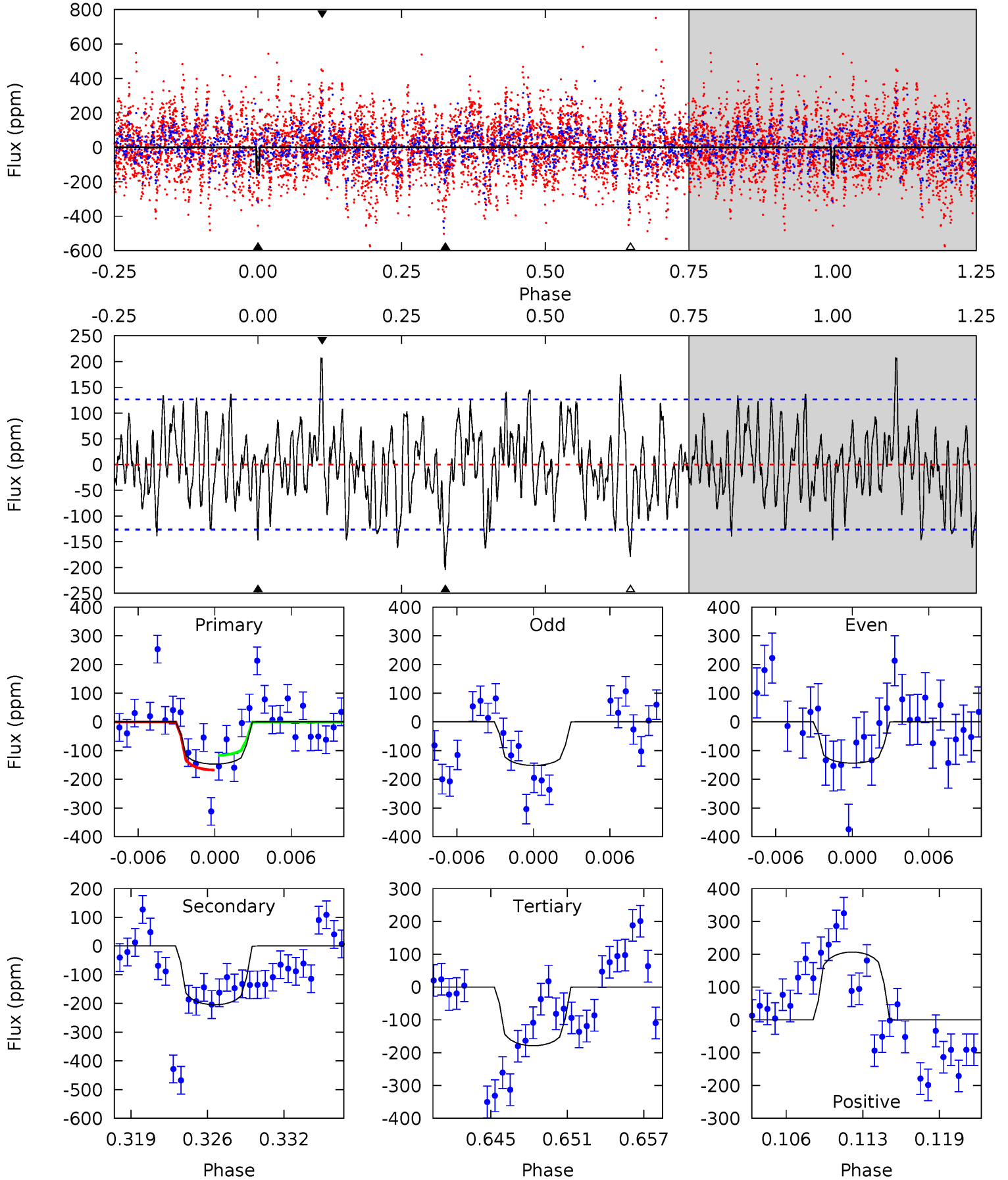
TCE 006606481-04   P= 44.657177 Days    $T_0=136.748197$  (BKJD)



# DV Model-Shift Uniqueness Test

006606481-04, P = 44.654730 Days, E = 92.149822 Days

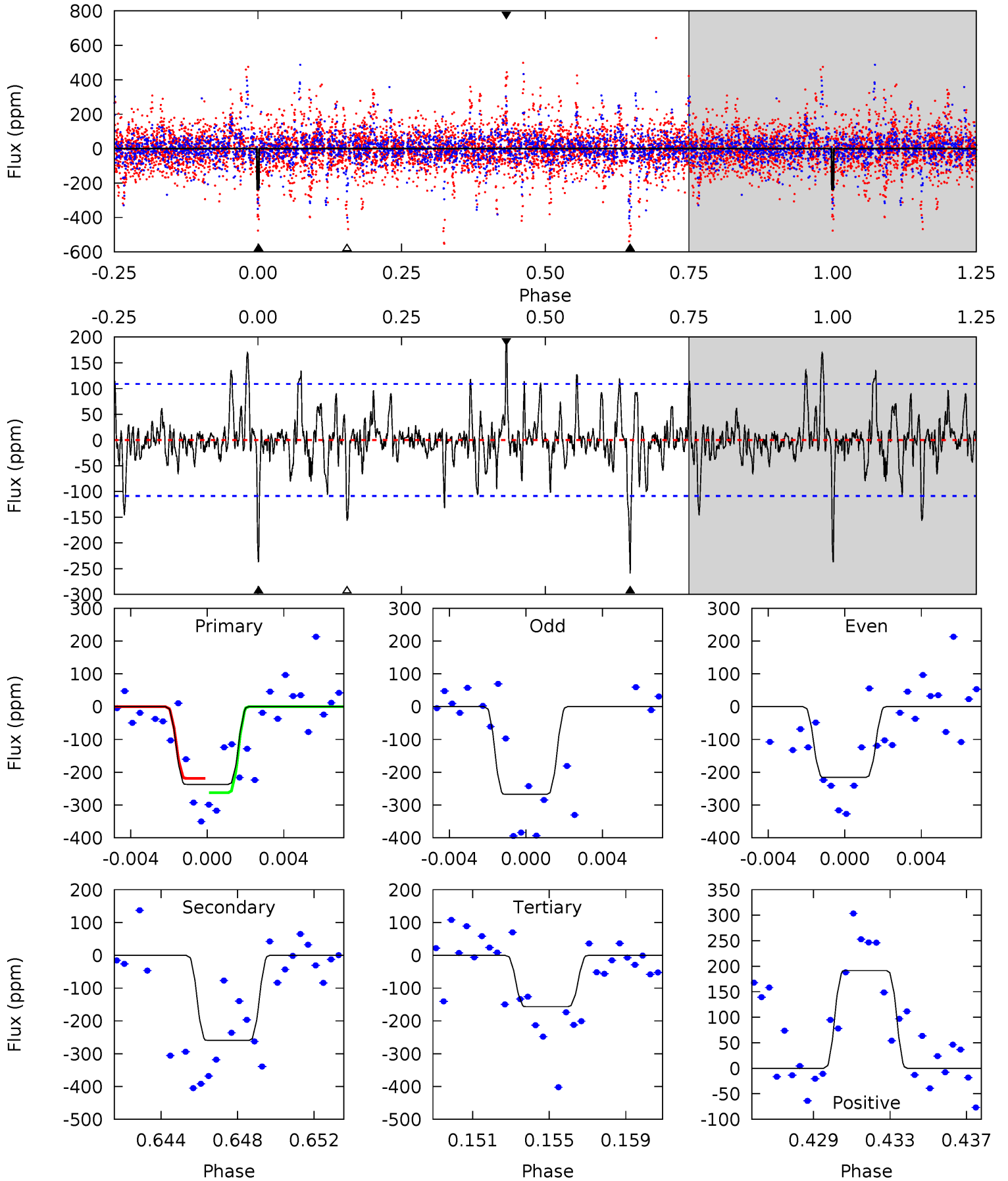
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.95 | 8.28 | 7.23 | 8.36 | 5.12            | 2.73            | 2.51             | -1.28   | -2.41   | 1.04    | -0.09   | 0.15    | 0.70 | 0.50  | 1.03 |



# Alt Model-Shift Uniqueness Test

006606481-04, P = 44.657177 Days, E = 92.091020 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.3 | 12.4 | 7.49 | 9.15 | 5.20            | 2.88            | 1.85             | 3.86    | 2.20    | 4.91    | 3.25    | 1.14    | 0.65 | 0.42  | 1.05 |



### Stellar Parameters For KIC 006606481

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6551^{+145}_{-194}$ | $4.367^{+0.054}_{-0.216}$ | $-0.080^{+0.250}_{-0.300}$ | $1.195^{+0.423}_{-0.141}$ | $1.215^{+0.173}_{-0.173}$ | $1.003^{+0.292}_{-0.533}$                 |
|        | +2%/-3%              | +1%/-5%                   | +312%/-375%                | +35%/-12%                 | +14%/-14%                 | +29%/-53%                                 |
| 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 006606481-04 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$          | $A_{obs}$               |
|---------|---------------|------------------------|-------------------|------------------------|-------------------------|
| DV      | $-205 \pm 25$ | $1.80^{+1.38}_{-1.08}$ | $877^{+67}_{-43}$ | $6774^{+5916}_{-1547}$ | $2319^{+12753}_{-1589}$ |
| Alt.    | $-259 \pm 21$ | $2.11^{+1.31}_{-1.24}$ | $879^{+63}_{-41}$ | $6643^{+5448}_{-1398}$ | $2157^{+10474}_{-1350}$ |

$T_{max}$  = 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

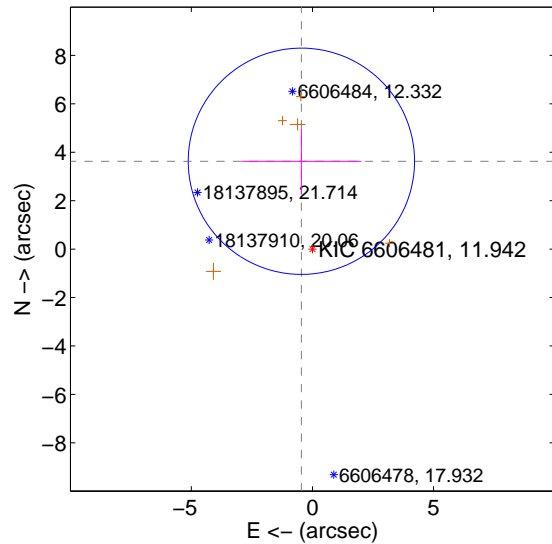
Supplemental centroid analysis for 006606481-04. **Kepler magnitude: 11.94.** Transit SNR 6.66

**There are 0 quarters with good PRF difference image offsets**

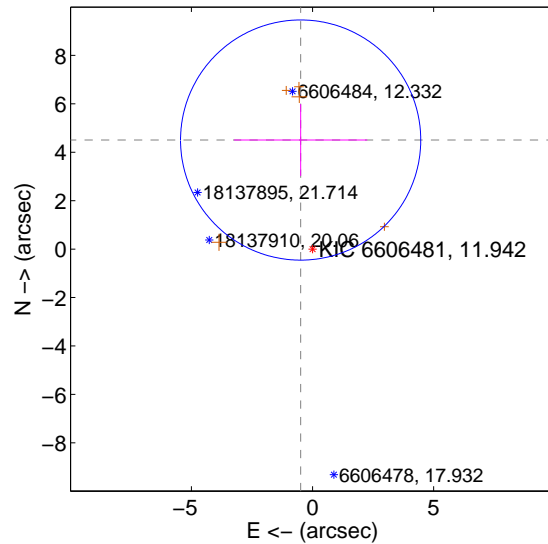
The direct PRF centroid is offset from the target star catalog position by about 1.26 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $3.656 \pm 1.557$  | 2.35                | $0.456 \pm 2.474$ | $3.627 \pm 1.362$ |
| PRF-fit source offset from KIC position | $4.530 \pm 1.653$  | 2.74                | $0.491 \pm 2.750$ | $4.503 \pm 1.480$ |
| photometric centroid source offset      | $2.16 \pm 0.98$    | 2.20                | $-0.19 \pm 0.30$  | $2.16 \pm 0.99$   |

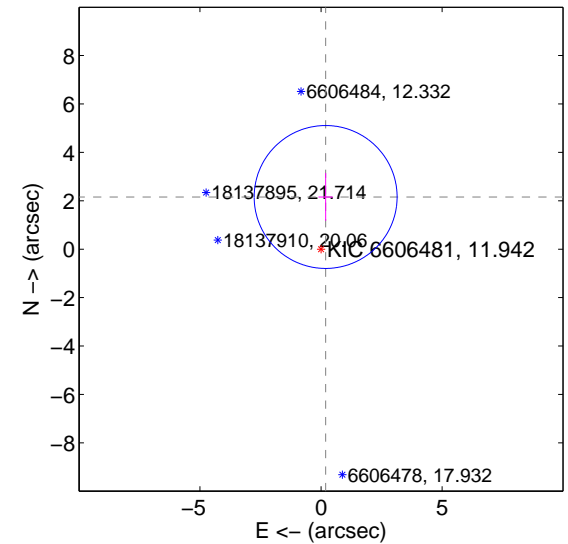
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

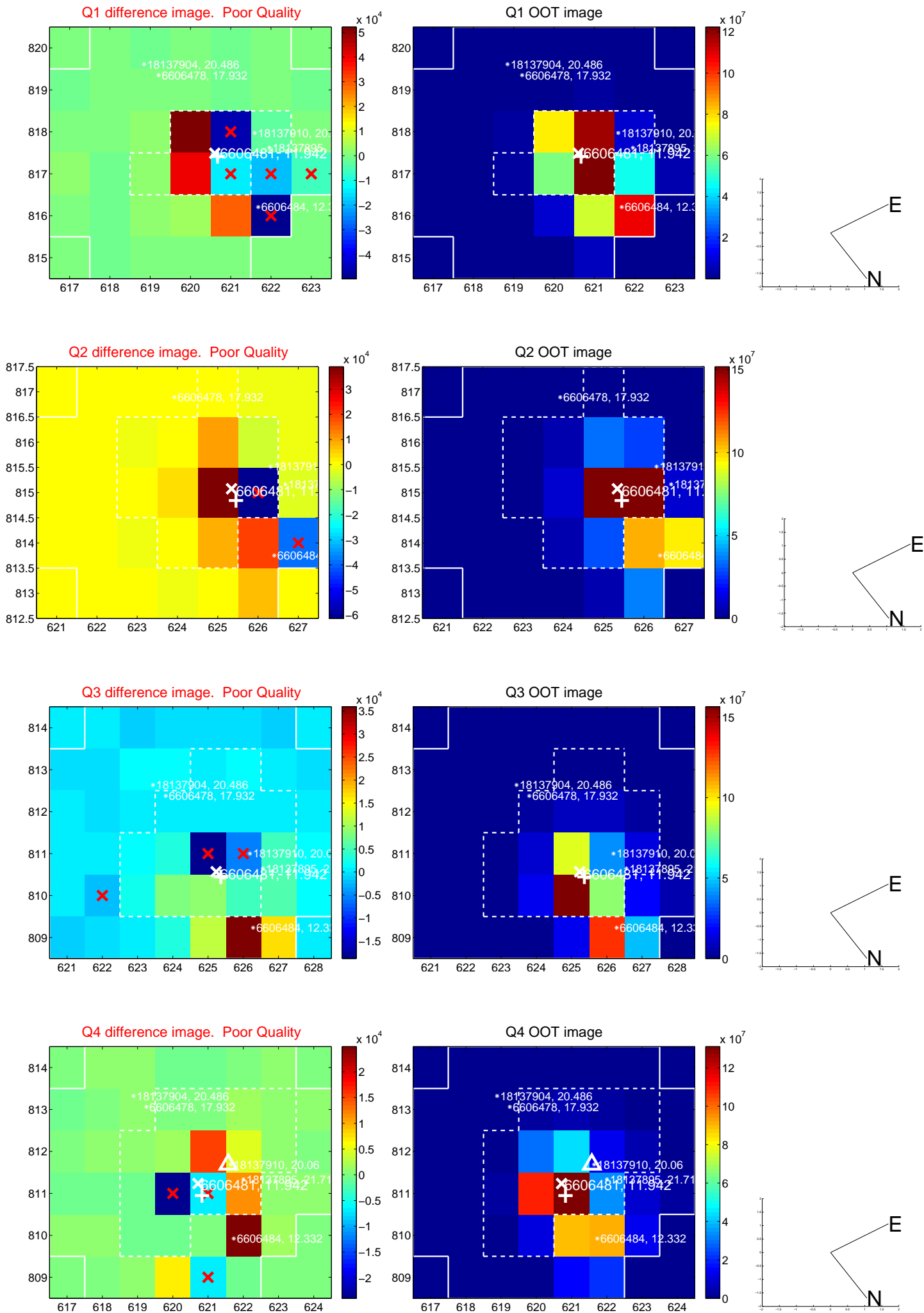


offset from photometric centroids

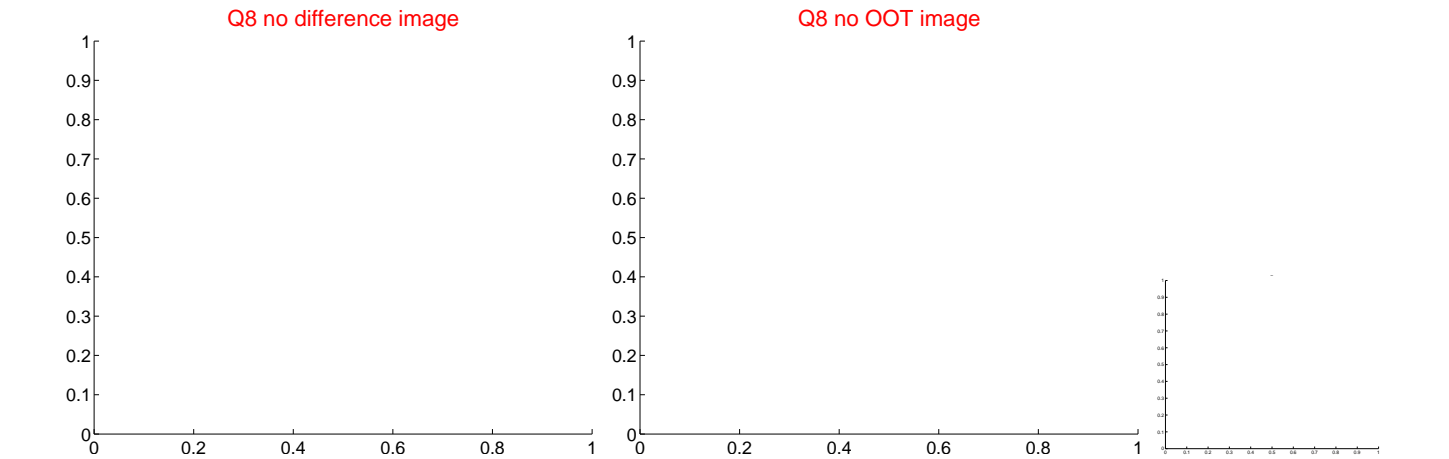
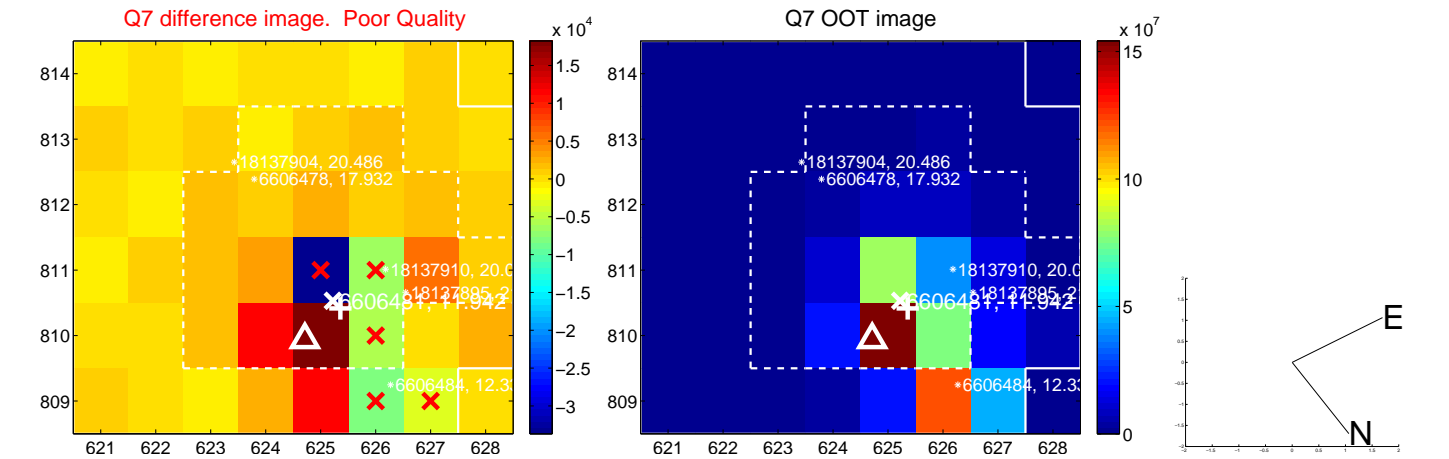
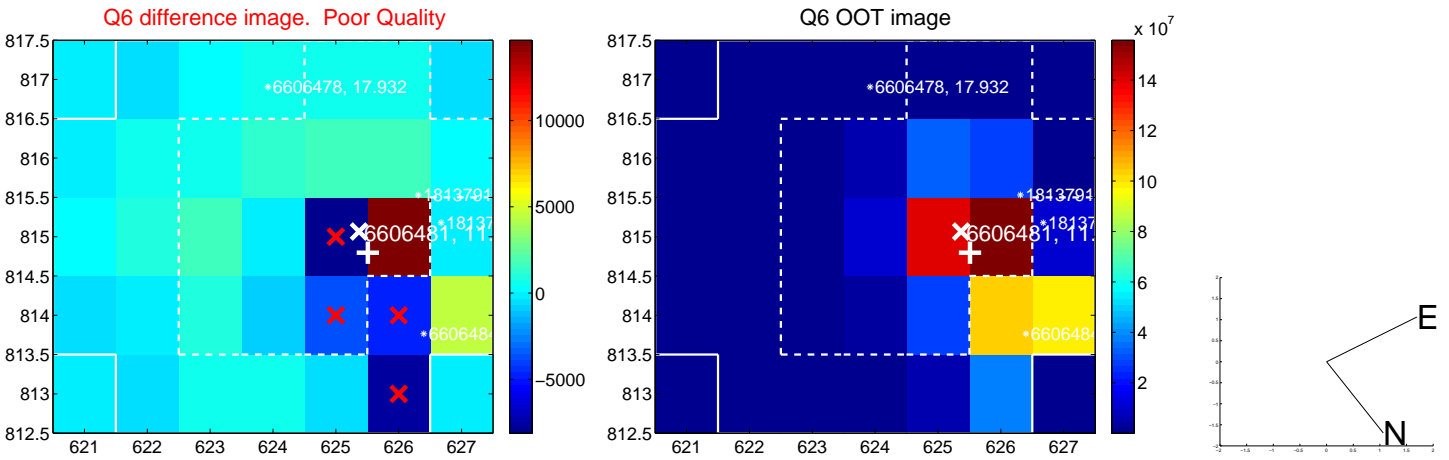
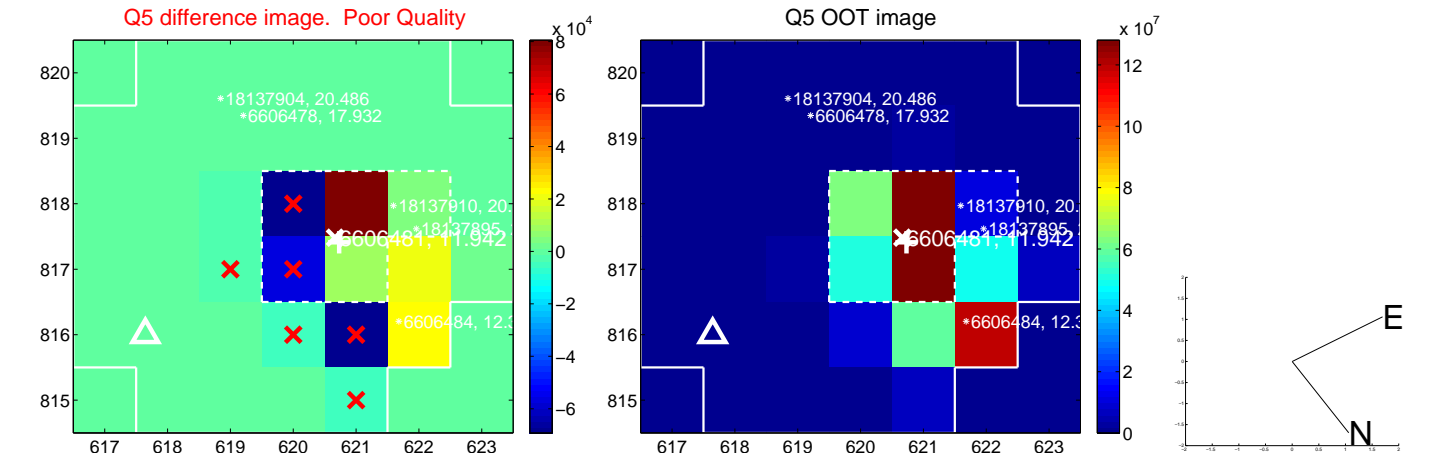


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

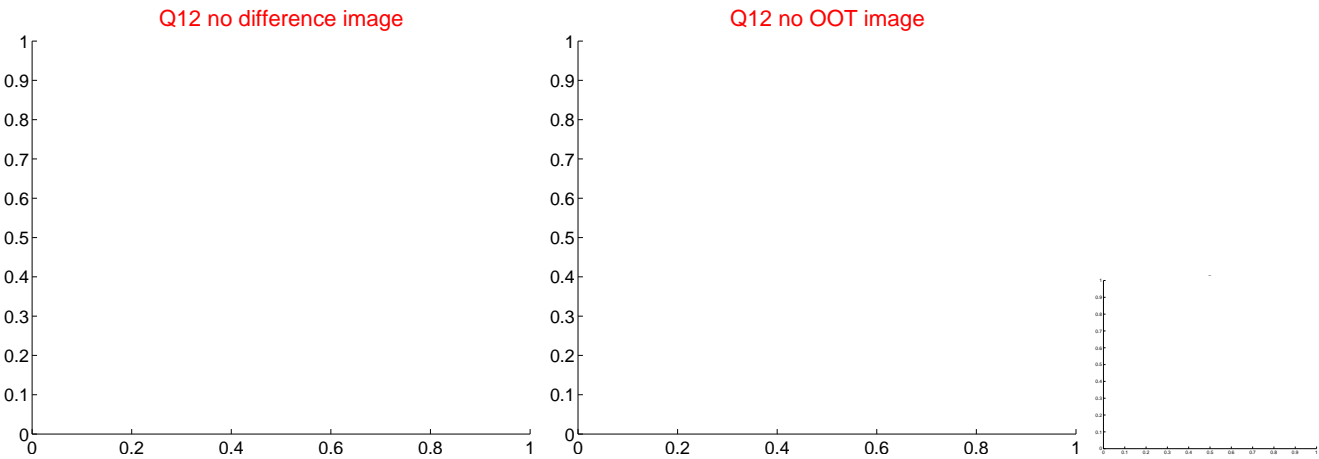
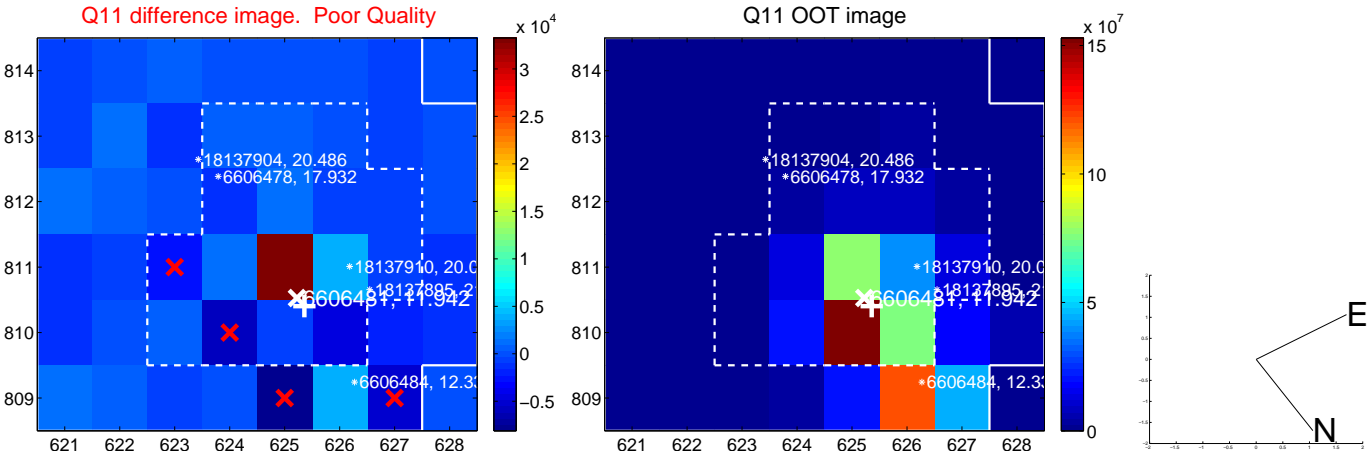
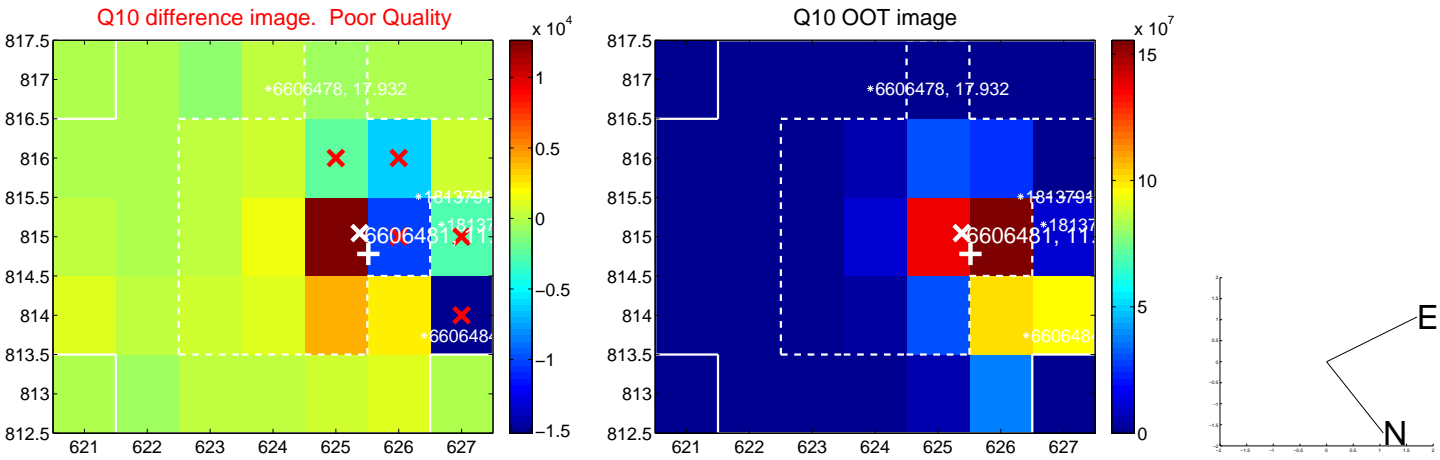
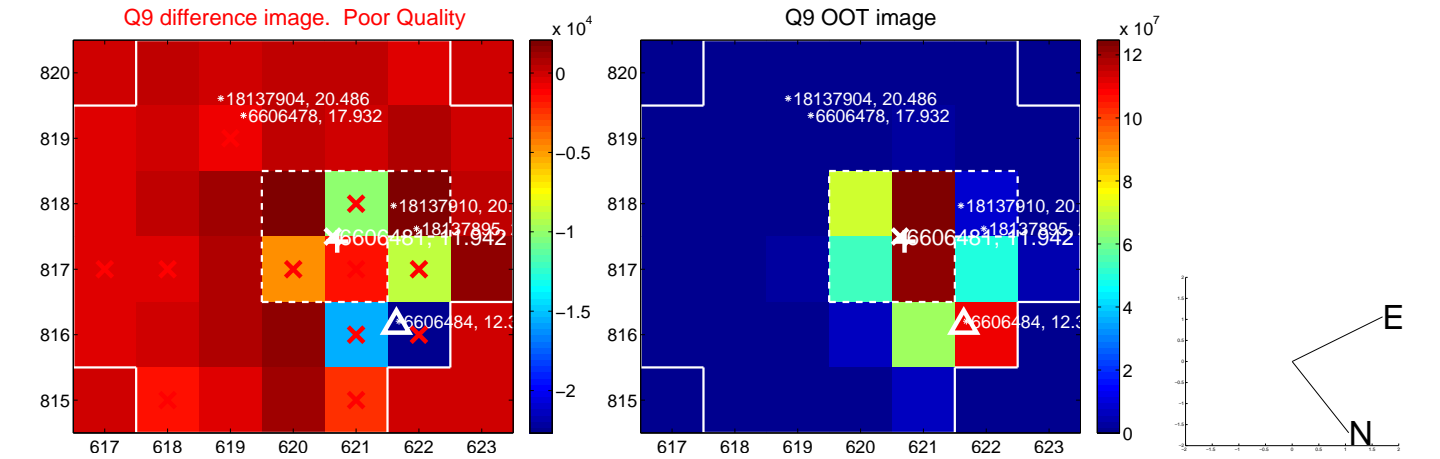
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



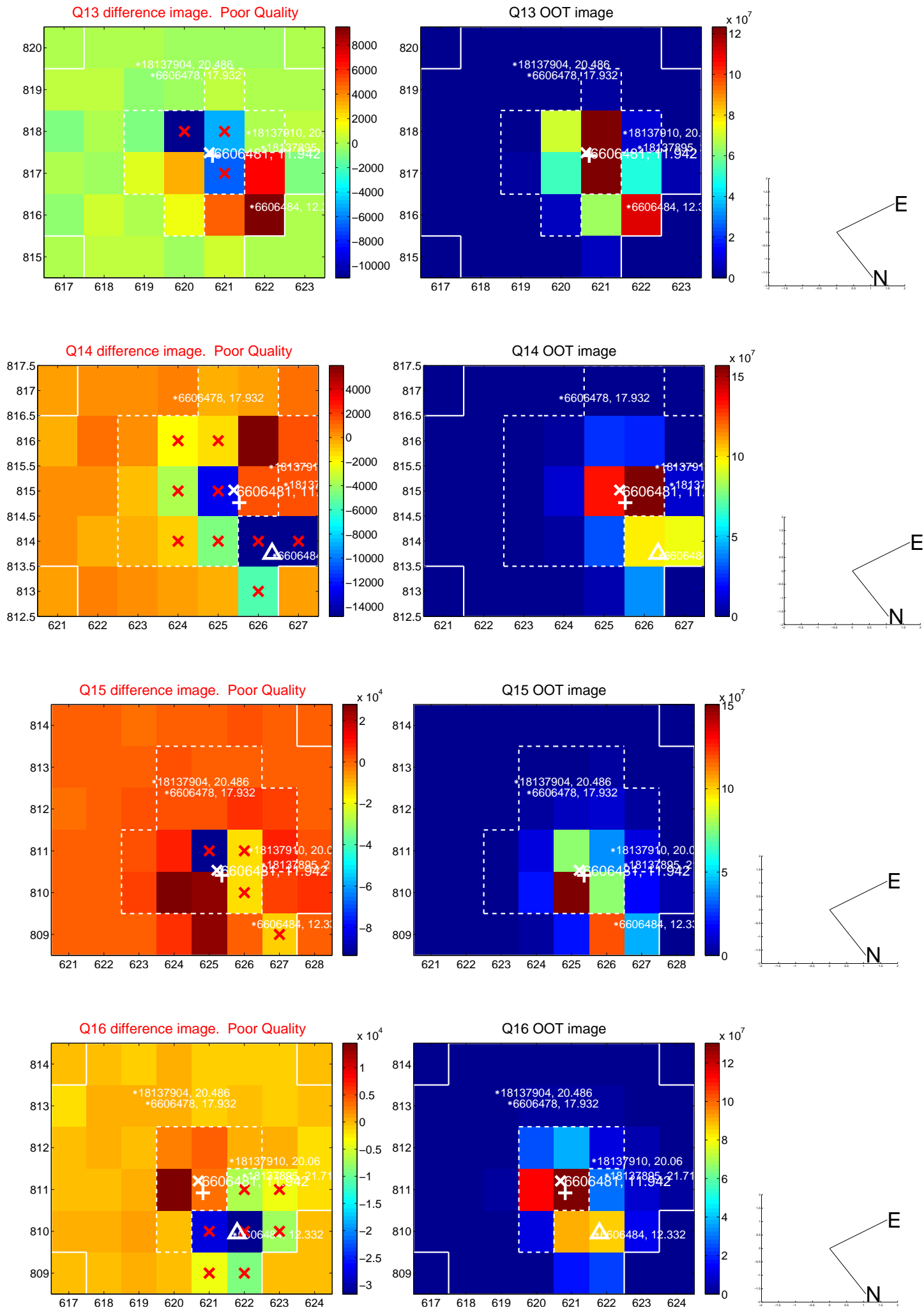
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



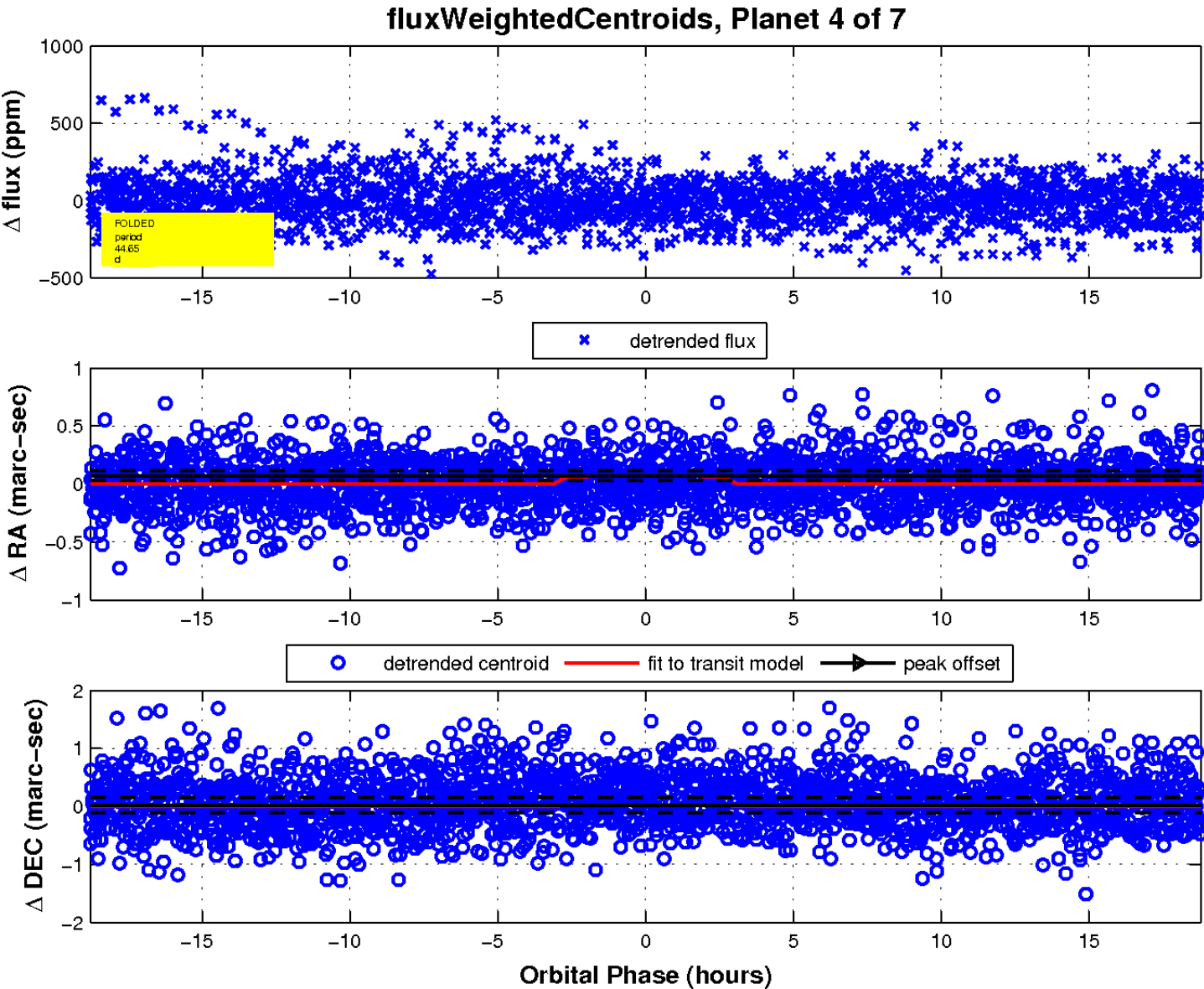
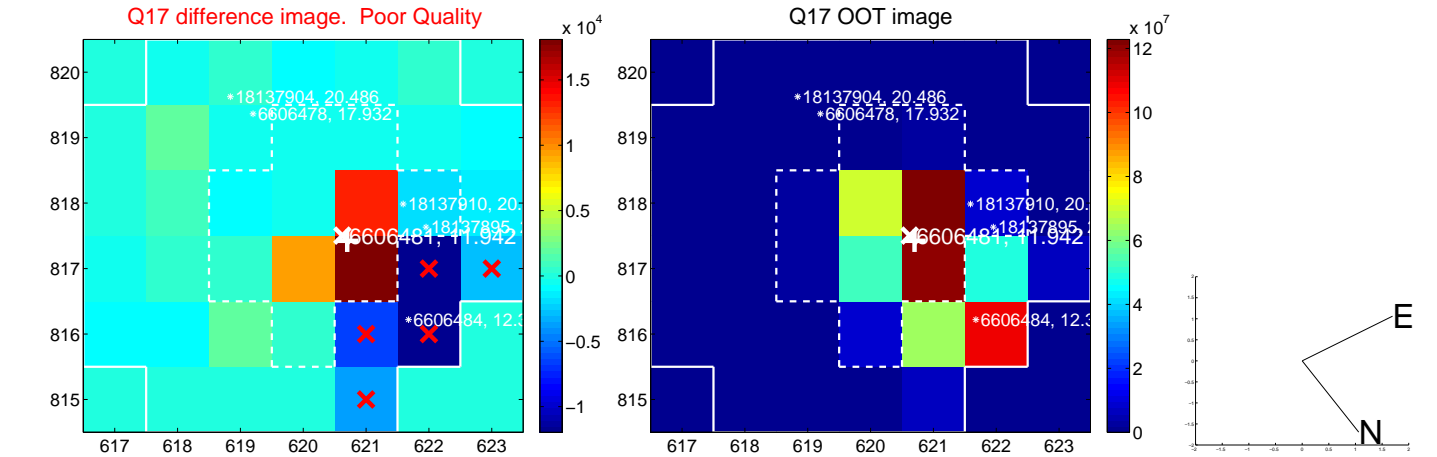
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

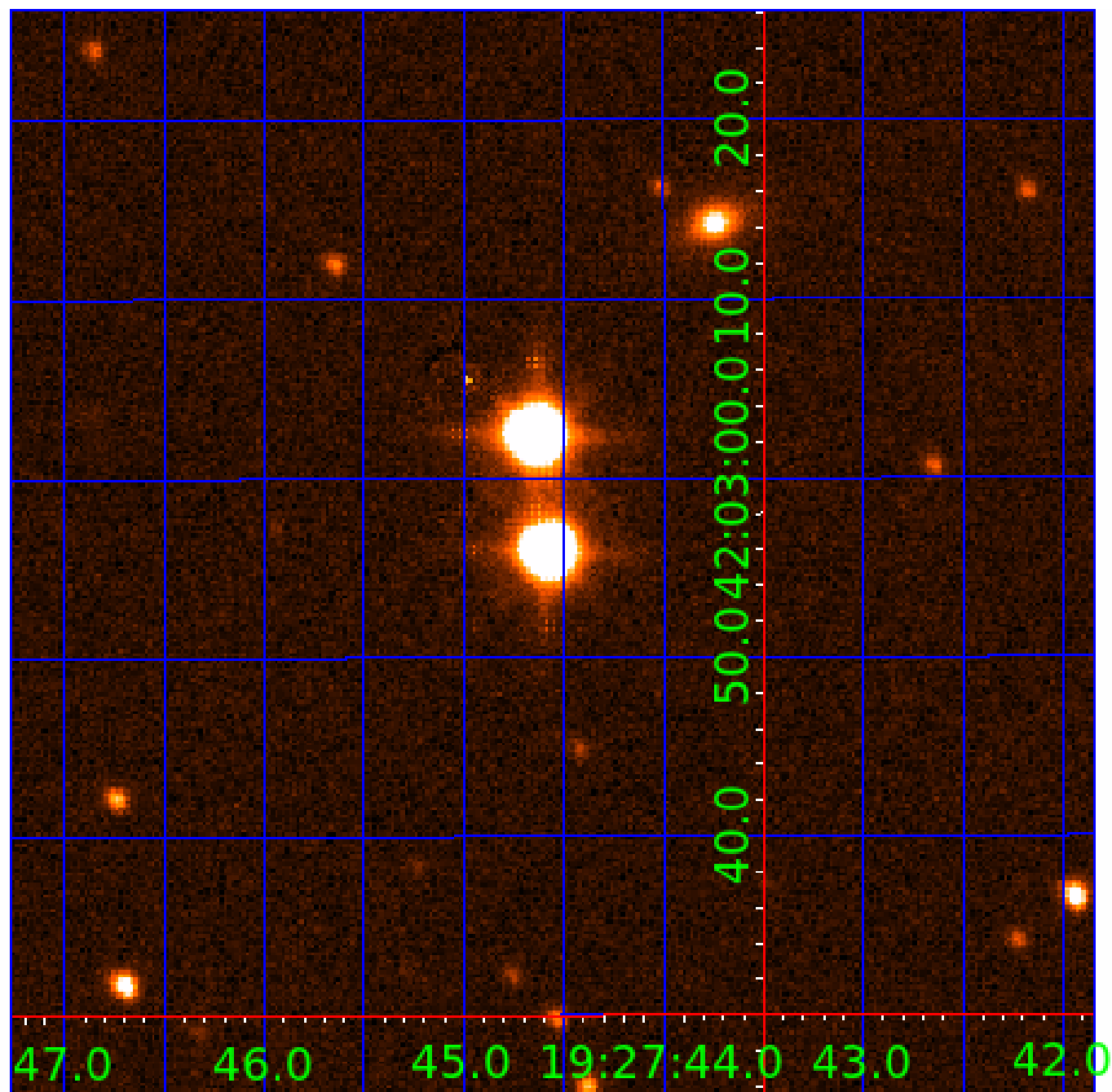


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006606481

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006606481-01 | OBS      | No   | 2.062860      | 131.510854   | 15.0        | 14.824           | 7.8  | 7.4  | 1.20                        | 6551            | 0.49                   | 2059.41                |
| 006606481-03 | OBS      | No   | 59.728174     | 147.161243   | 430.3       | 20.482           | 11.8 | 11.0 | 1.20                        | 6551            | 4.79                   | 23.16                  |
| 006606481-04 | OBS      | No   | 44.654730     | 136.804552   | 133.2       | 6.266            | 10.2 | 6.7  | 1.20                        | 6551            | 1.63                   | 34.14                  |
| 006606481-05 | OBS      | No   | 34.883059     | 163.824645   | 185.3       | 1.427            | 9.5  | 9.5  | 1.20                        | 6551            | 1.73                   | 47.45                  |
| 006606481-06 | OBS      | No   | 14.157855     | 143.959628   | 154.6       | 1.301            | 8.3  | 9.2  | 1.20                        | 6551            | 2.24                   | 157.90                 |
| 006606481-07 | OBS      | No   | 42.655509     | 157.218044   | 201.1       | 2.626            | 8.6  | 8.6  | 1.20                        | 6551            | 1.92                   | 36.29                  |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 006606481-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS  |
| 006606481-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS                         |
| 006606481-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006606481-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—MOD_NONUNIQ_DV—HALO_GHOST   |
| 006606481-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT                                 |
| 006606481-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_KIC_POS  |

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

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

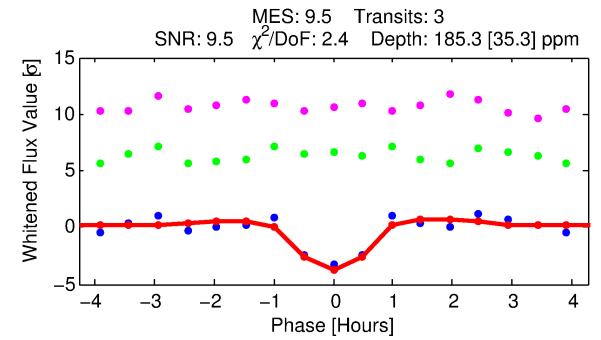
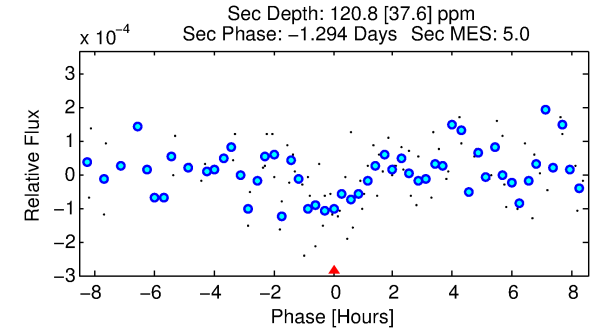
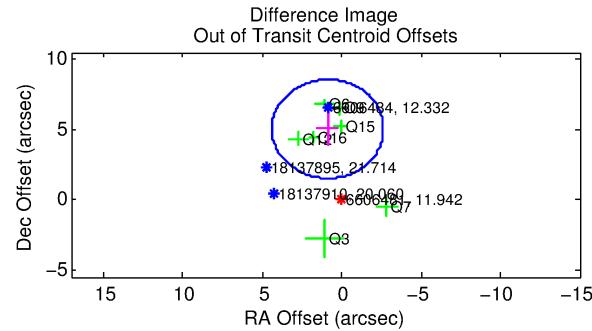
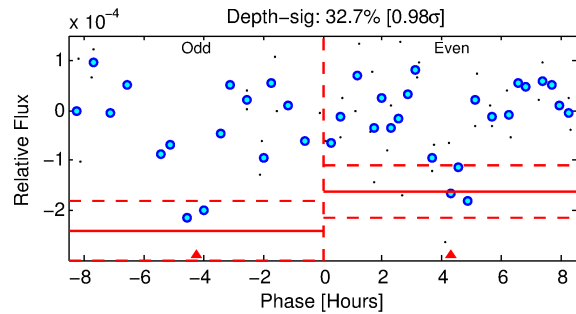
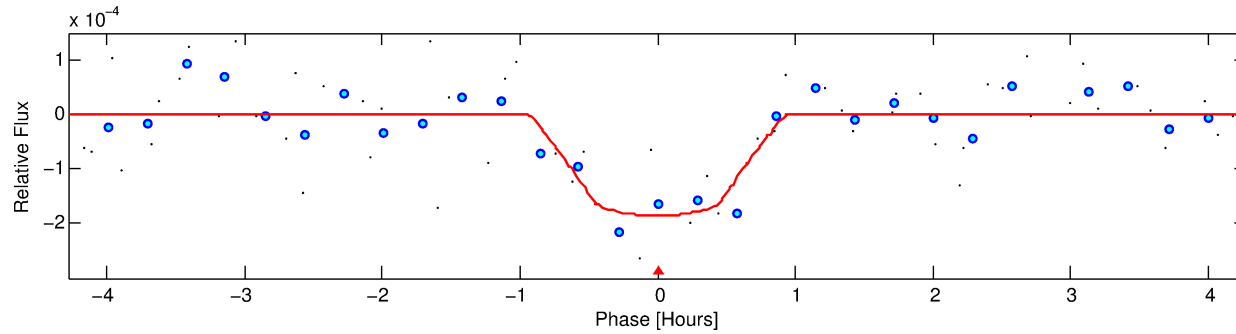
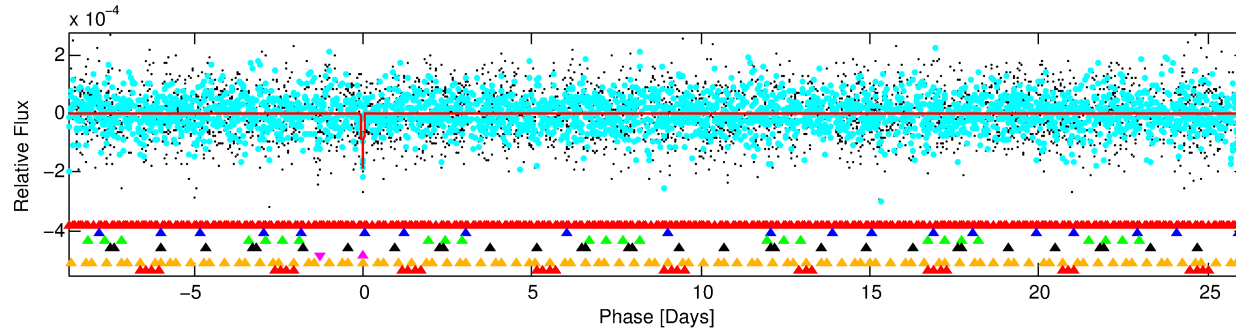
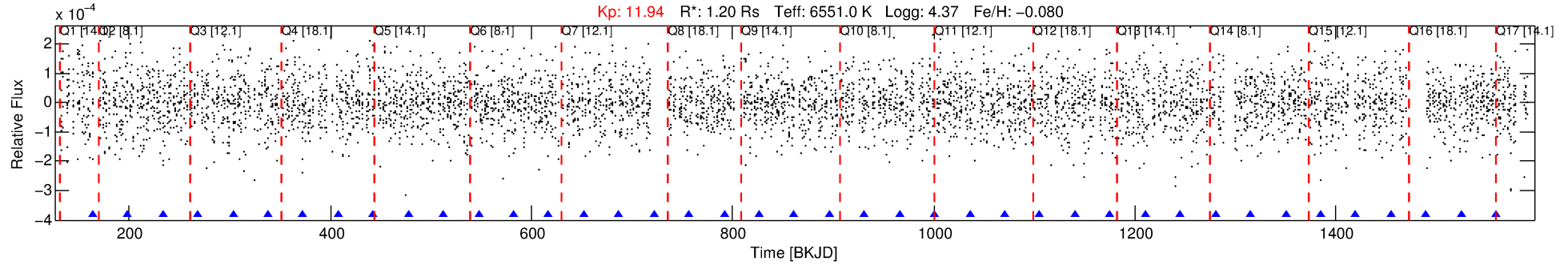
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006606481-05

No Significant Match Found

# DV One-Page Summary

KIC: 6606481 Candidate: 5 of 7 Period: 34.883 d



## DV Fit Results:

Period = 34.88306 [0.00034] d  
Epoch = 163.8246 [0.0067] BKJD  
Rp/R\* = 0.0133 [0.0114]  
a/R\* = 144.44 [643.26]  
b = 0.65 [3.97]  
Seff = 47.45 [20.11]  
Teq = 669 [71] K  
Rp = 1.73 [1.60] Re  
a = 0.2229 [0.0643] AU  
Ag = 1103.88 [1975.50] [0.56 $\sigma$ ]  
Teffp = 5964 [2604] K [2.03 $\sigma$ ]

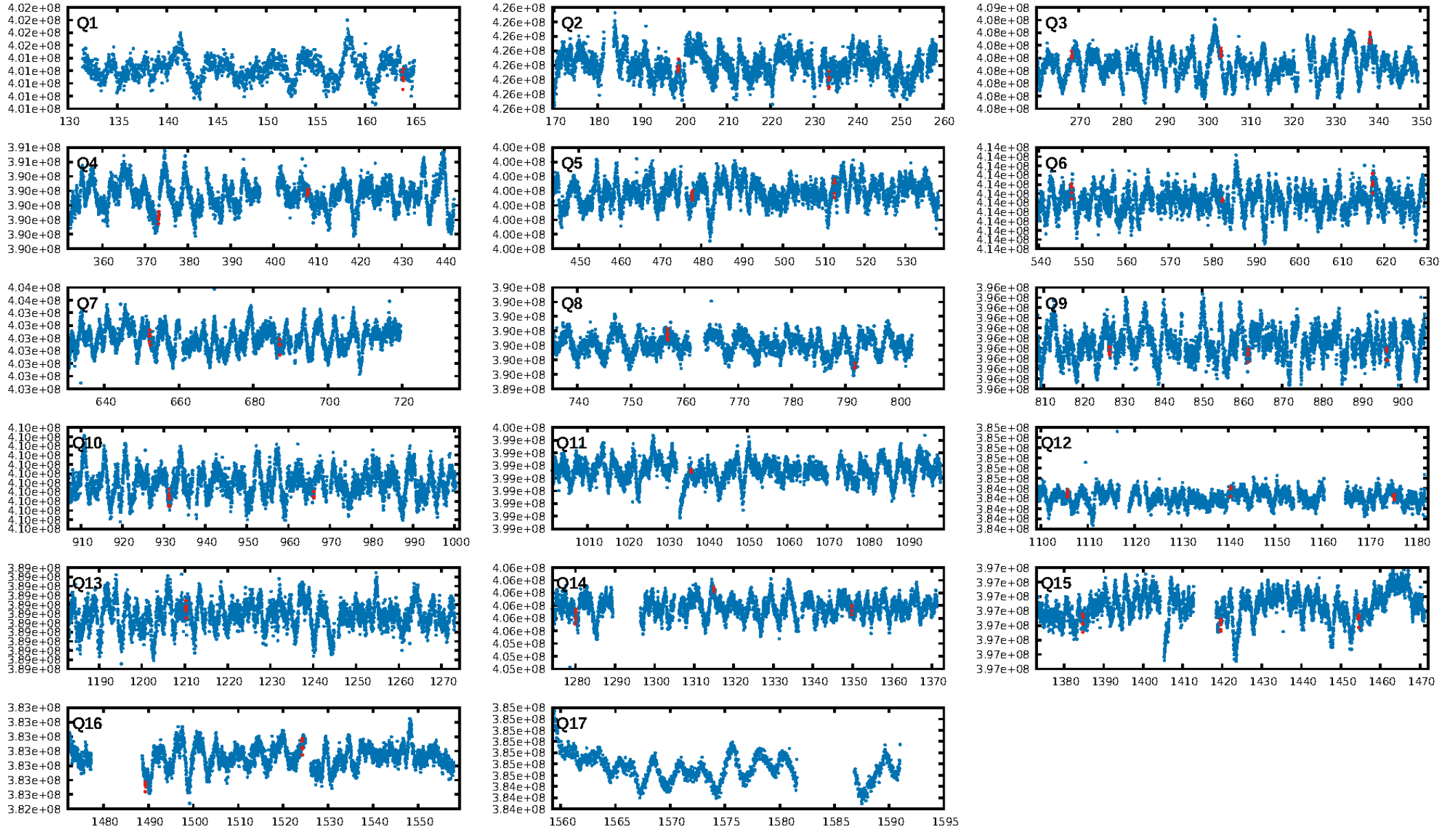
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [257.60 $\sigma$ ]  
LongPeriod-sig: 100.0% [62.42 $\sigma$ ]  
ModelChiSquare2-sig: 2.2%  
ModelChiSquareGof-sig: 14.2%  
Bootstrap-pfa: 3.32e-11  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.1911  
Centroid-sig: 1.1%  
Centroid-so: 3.462 arcsec [4.04 $\sigma$ ]  
OotOffset-rm: 5.121 arcsec [4.37 $\sigma$ ]  
KicOffset-rm: 5.435 arcsec [4.78 $\sigma$ ]  
OotOffset-st: 1/3/2/1 [7]  
KicOffset-st: 1/3/2/1 [7]  
DiffImageQuality-fgm: 0.29 [2/7]  
DiffImageOverlap-fno: 0.50 [8/16]

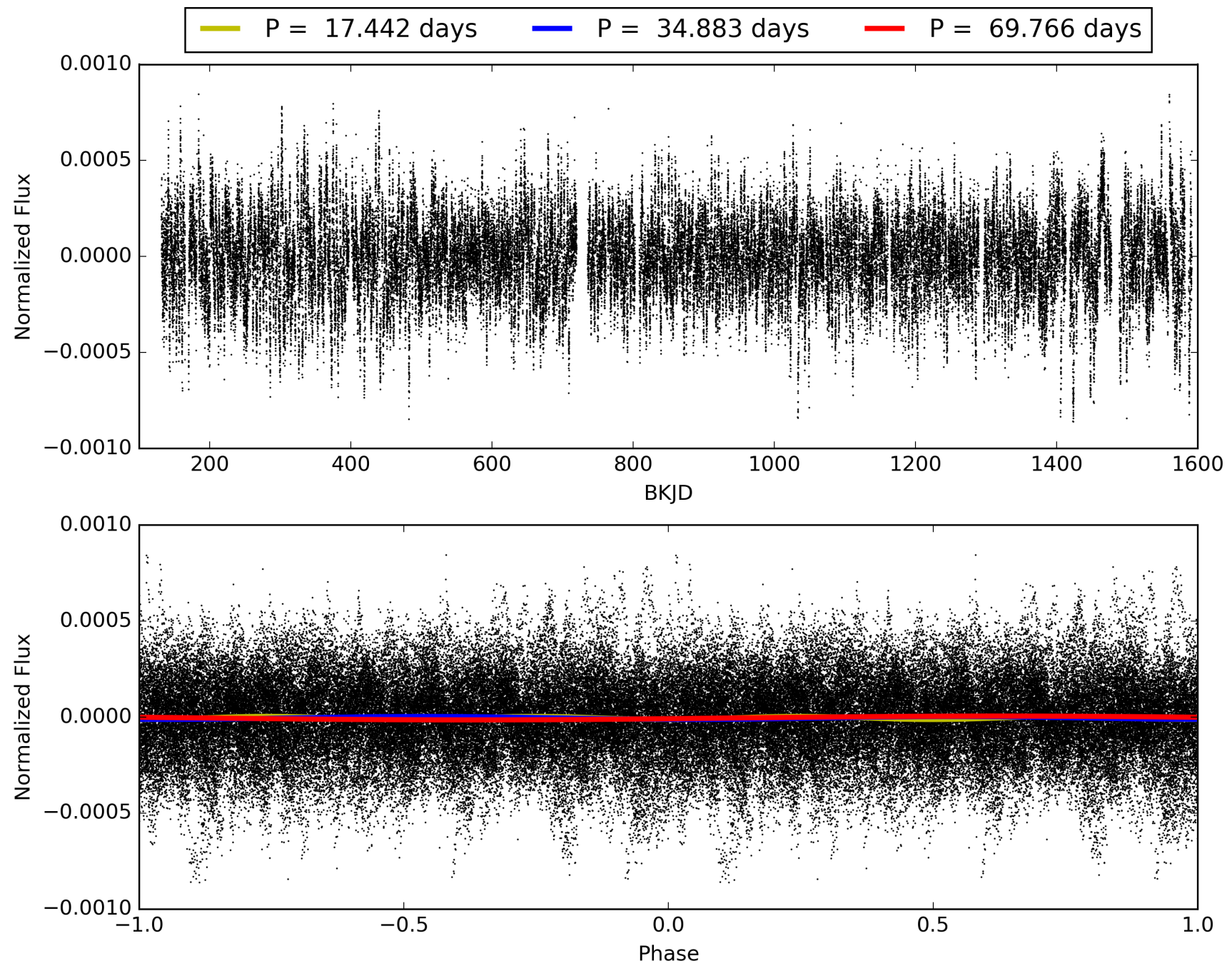
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:38:05 Z

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

# TCE 006606481-05, PDC Light Curves

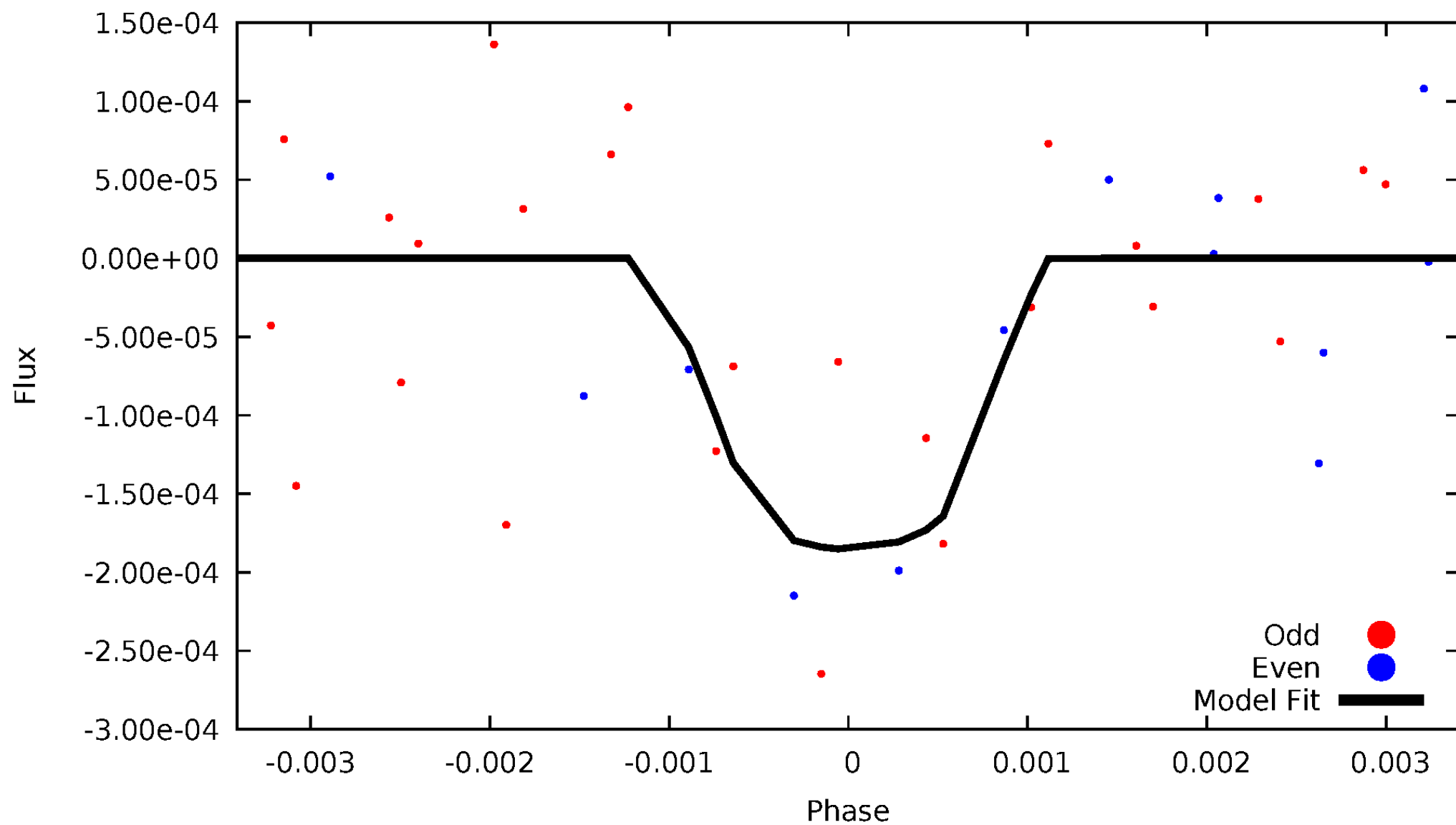


TCE 006606481-05



# DV Odd/Even

TCE 006606481-05



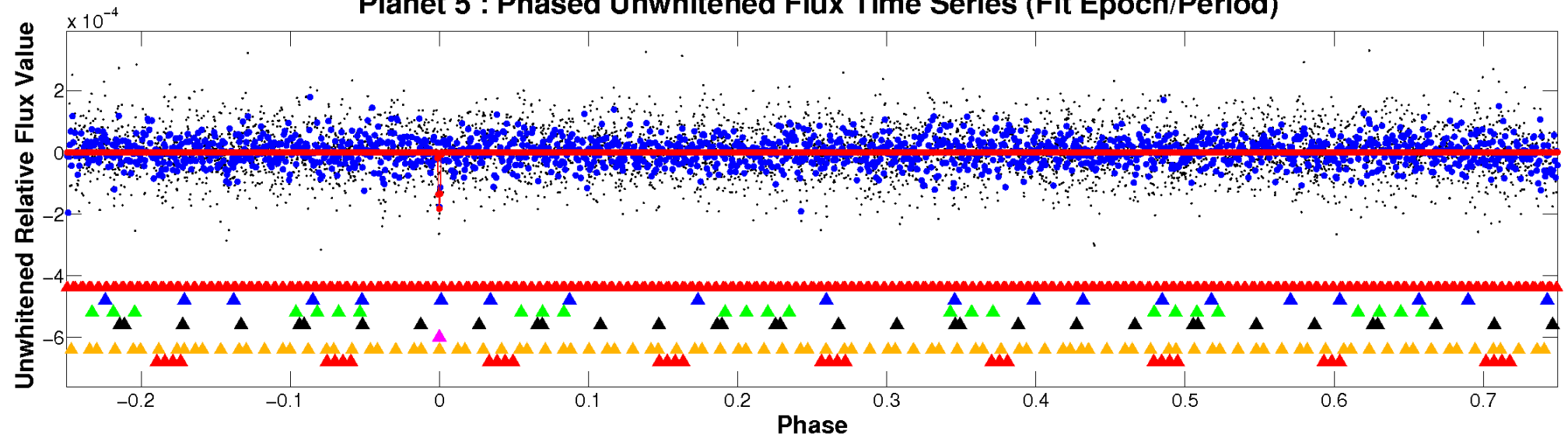


ALT Odd/Even

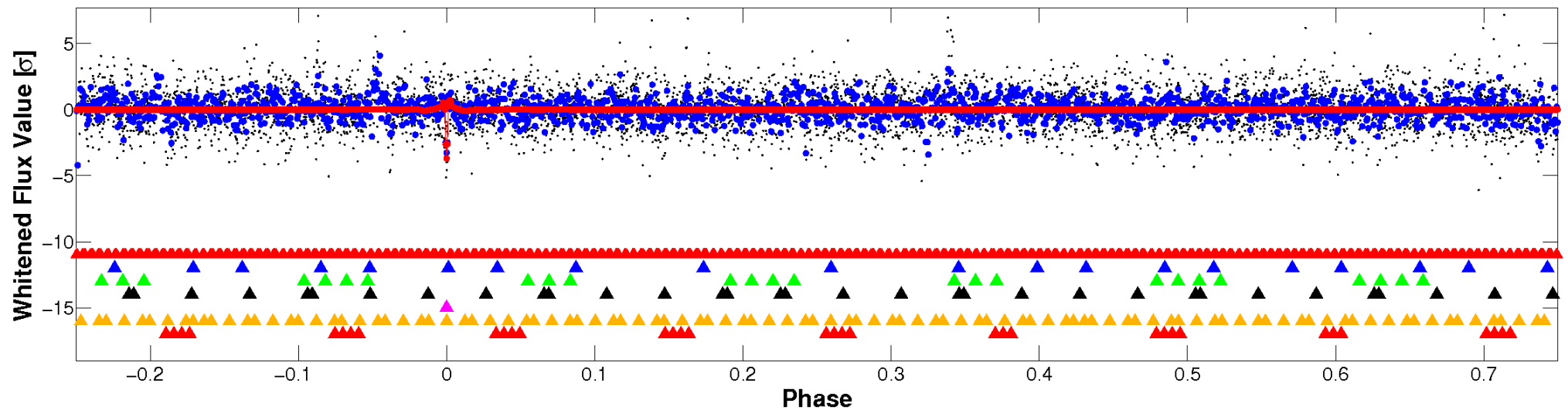
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

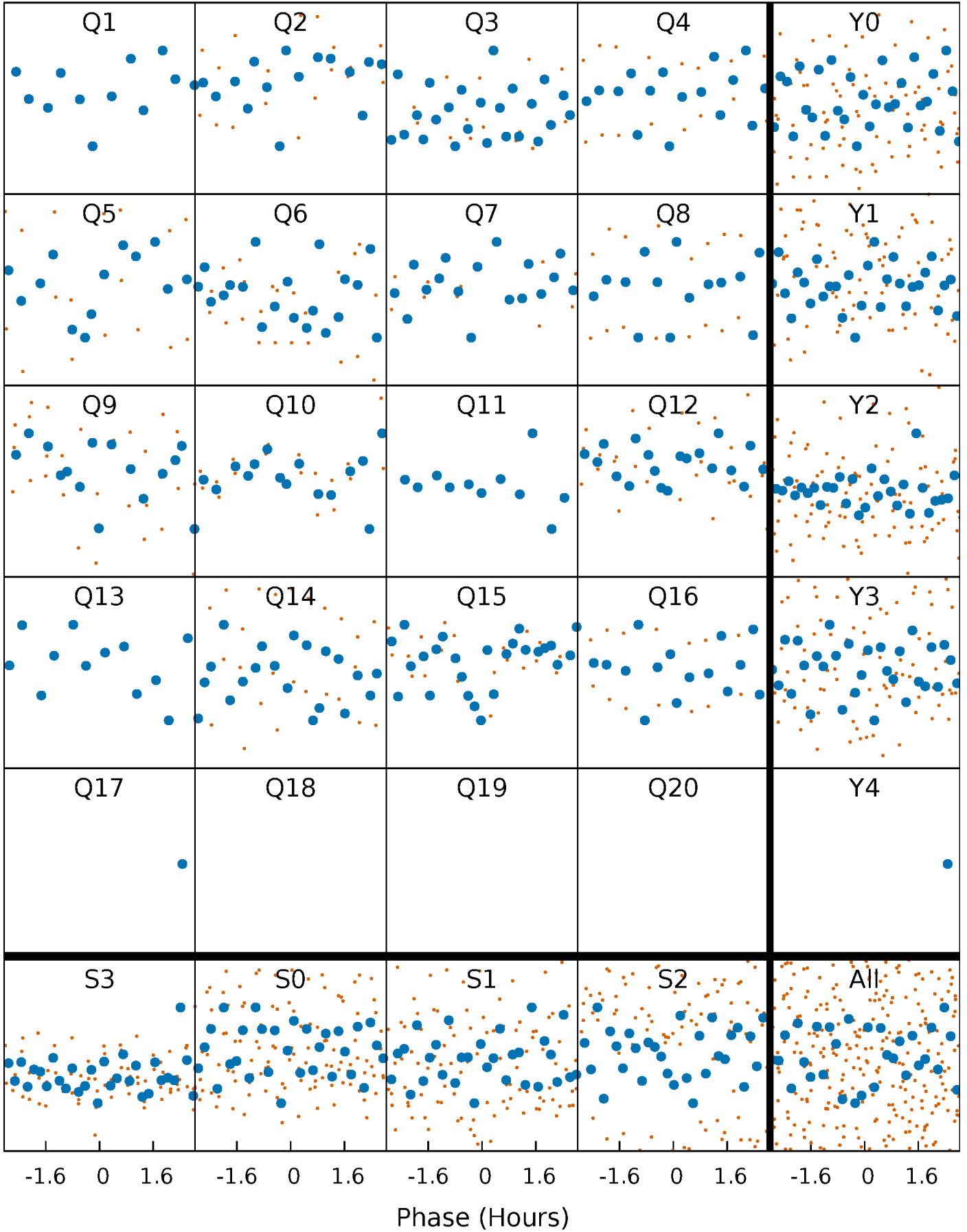


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



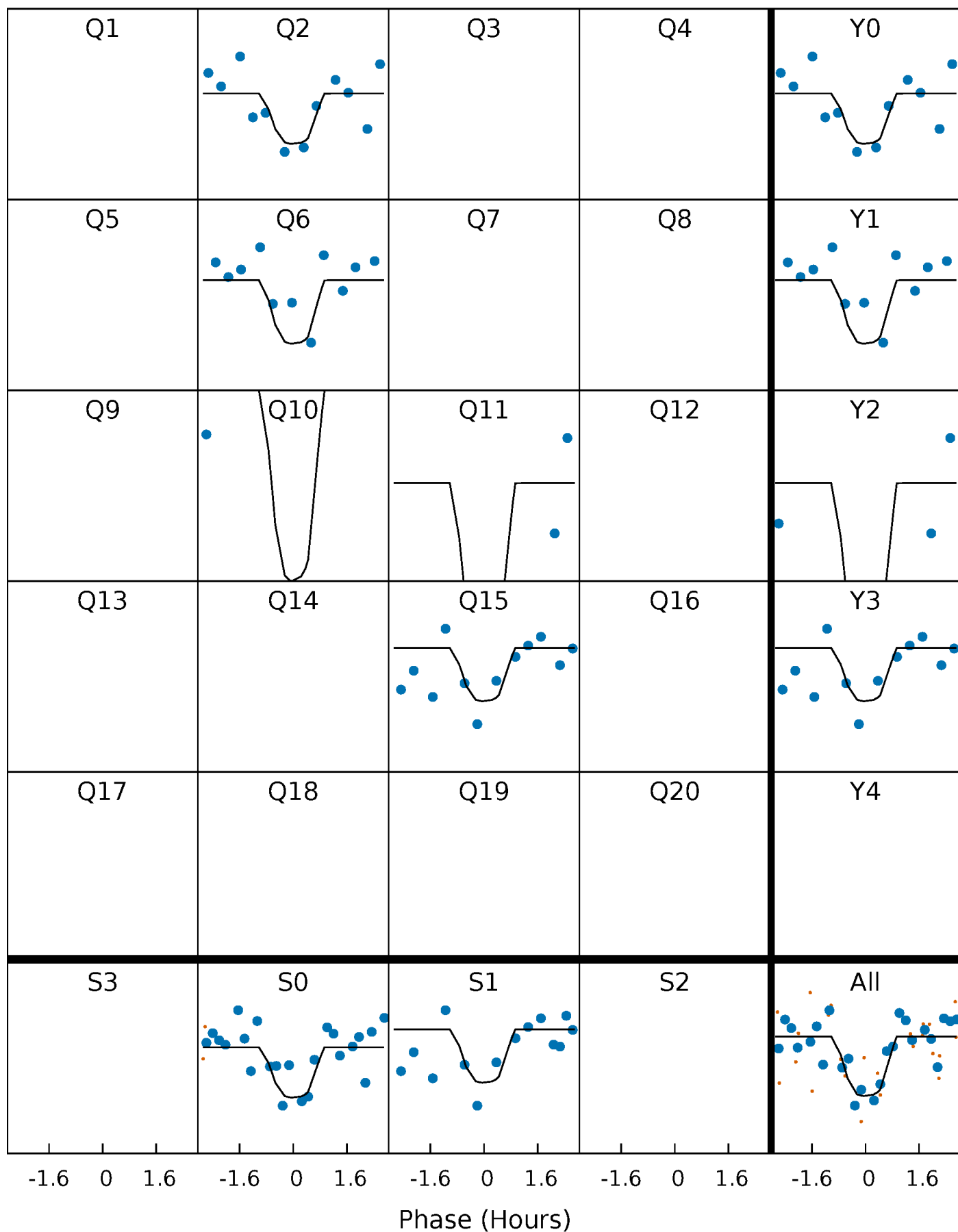
# PDC Quarter-Phased Transit Curves

TCE 006606481-05   P= 34.883059 Days    $T_0=163.824645$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 006606481-05    P= 34.883059 Days     $T_0=163.824645$  (BKJD)

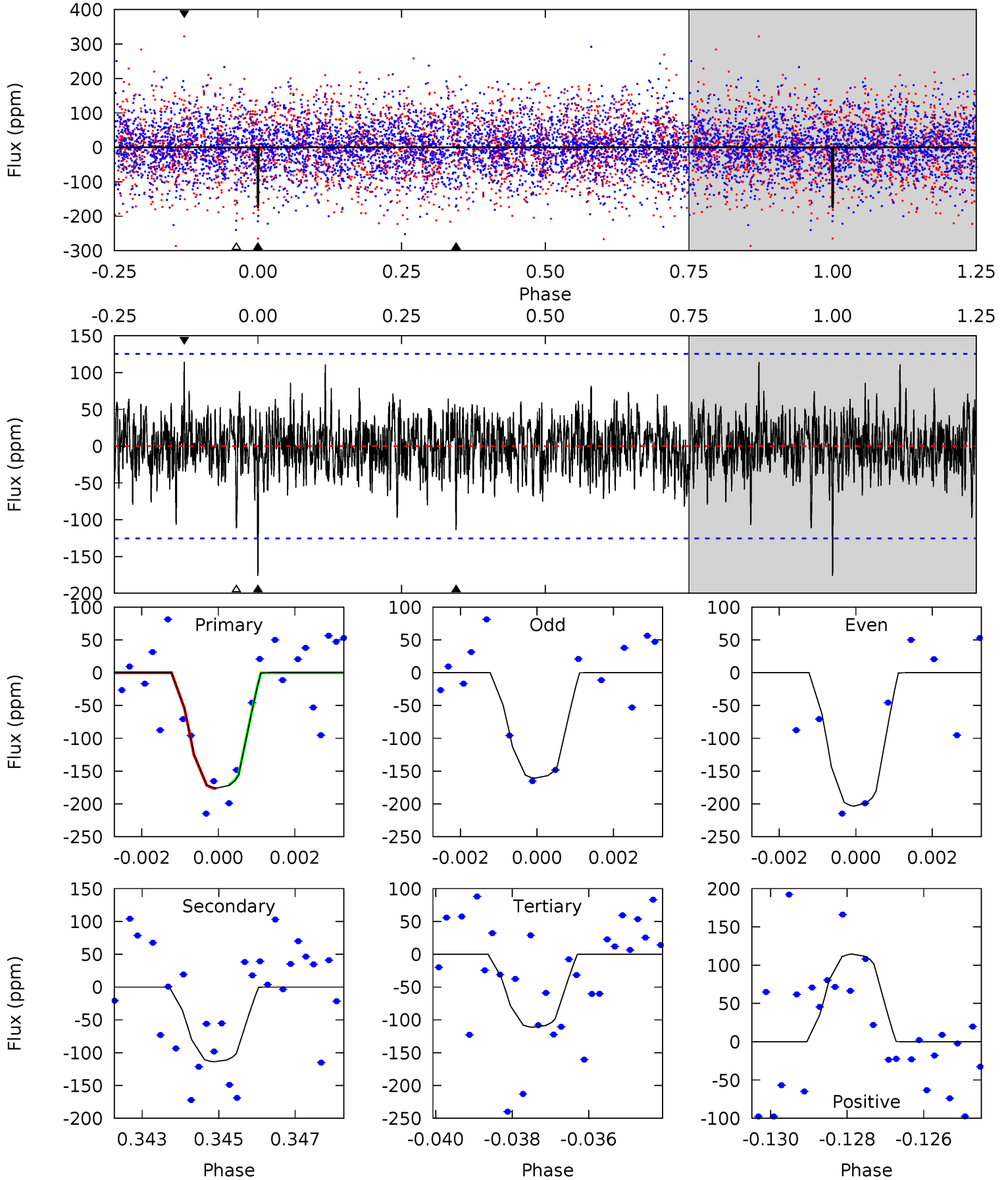


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

006606481-05, P = 34.883059 Days, E = 128.941586 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.48 | 4.83 | 4.72 | 4.86 | 5.33            | 3.09            | 1.24             | 2.75    | 2.61    | 0.11    | -0.03   | 0.83    | 0.87 | 0.39  | 0.12 |



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 006606481

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|--|
|        | $6551^{+145}_{-194}$ | $4.367^{+0.054}_{-0.216}$ | $-0.080^{+0.250}_{-0.300}$ | $1.195^{+0.423}_{-0.141}$ | $1.215^{+0.173}_{-0.173}$ | $1.003^{+0.292}_{-0.533}$                    |
|        | +2%/-3%              | +1%/-5%                   | +312%/-375%                | +35%/-12%                 | +14%/-14%                 | +29%/-53%                                    |
| 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 006606481-05 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$   | $A_{\text{obs}}$     |
|---------|---------------|------------------------|----------------------|------------------------|----------------------|
| DV      | $-114 \pm 24$ | $1.95^{+1.64}_{-1.22}$ | $956^{+74}_{-46}$    | $5586^{+4516}_{-1208}$ | $784^{+4670}_{-556}$ |
| Alt.    | N/A           | N/A                    | N/A                  | N/A                    | N/A                  |

$T_{\text{max}}$  = 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

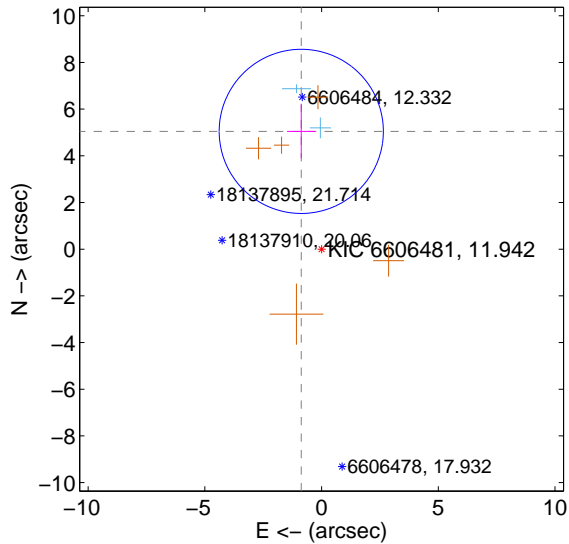
Supplemental centroid analysis for 006606481-05. **Kepler magnitude: 11.94.** Transit SNR 9.47

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

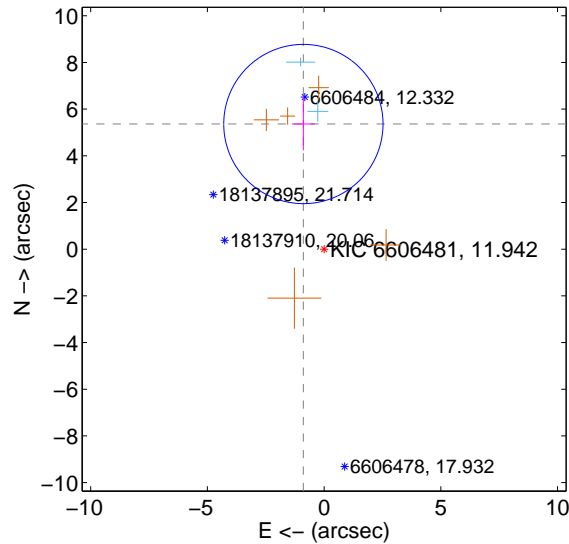
The direct PRF centroid is offset from the target star catalog position by about 1.26 arcsec

|   | Distance in arcsec                  | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|-------------------------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | <b><math>5.121 \pm 1.172</math></b> | <b>4.37</b>         | $0.870 \pm 0.608$ | $5.047 \pm 1.151$ |
| PRF-fit source offset from KIC position | <b><math>5.435 \pm 1.137</math></b> | <b>4.78</b>         | $0.888 \pm 0.494$ | $5.362 \pm 1.133$ |
| photometric centroid source offset      | <b><math>3.46 \pm 0.86</math></b>   | <b>4.04</b>         | $-0.01 \pm 0.36$  | $3.46 \pm 0.86$   |

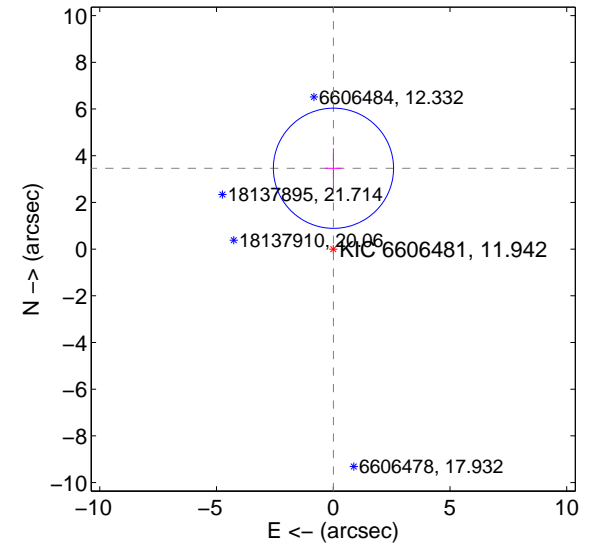
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

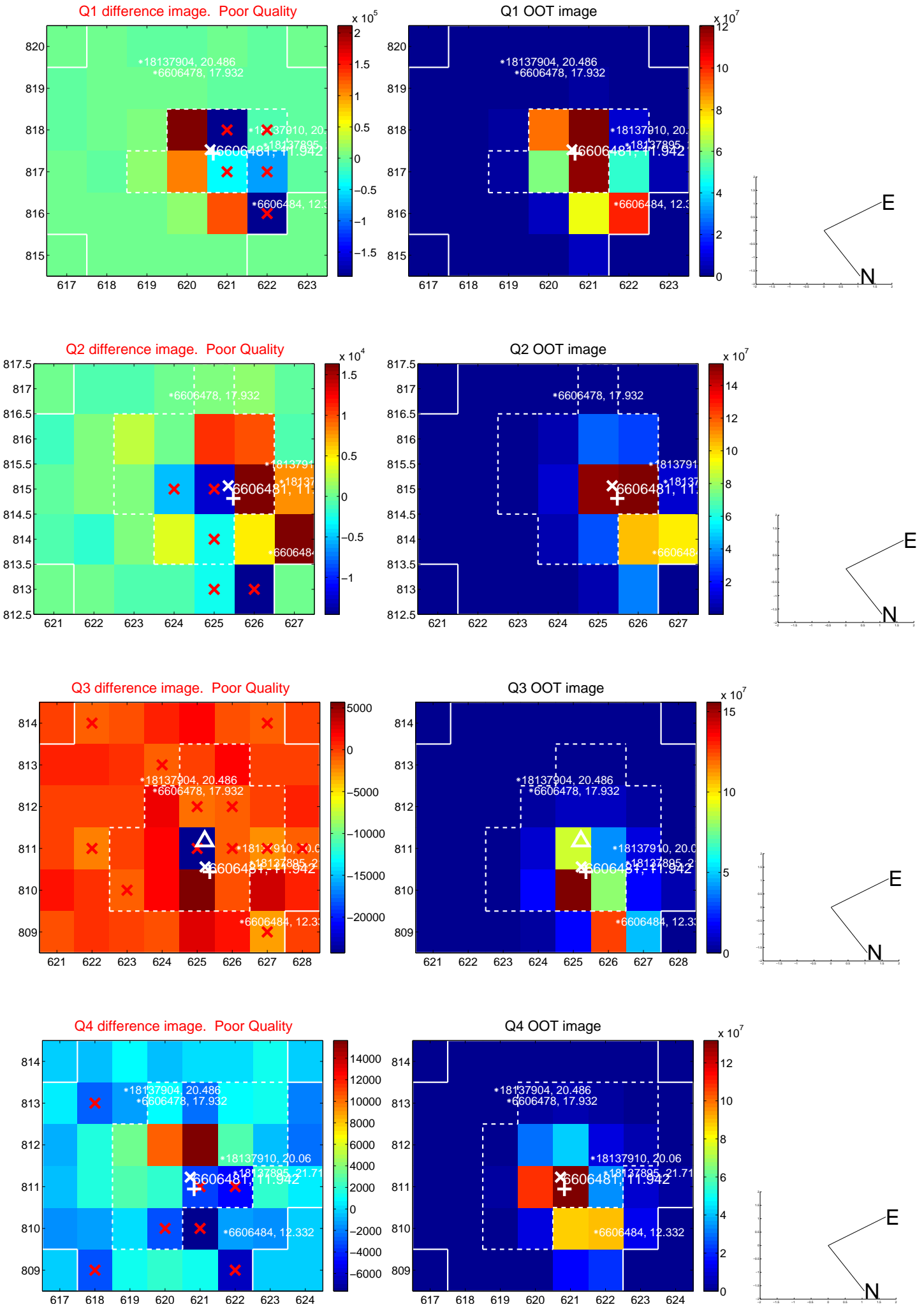


offset from photometric centroids

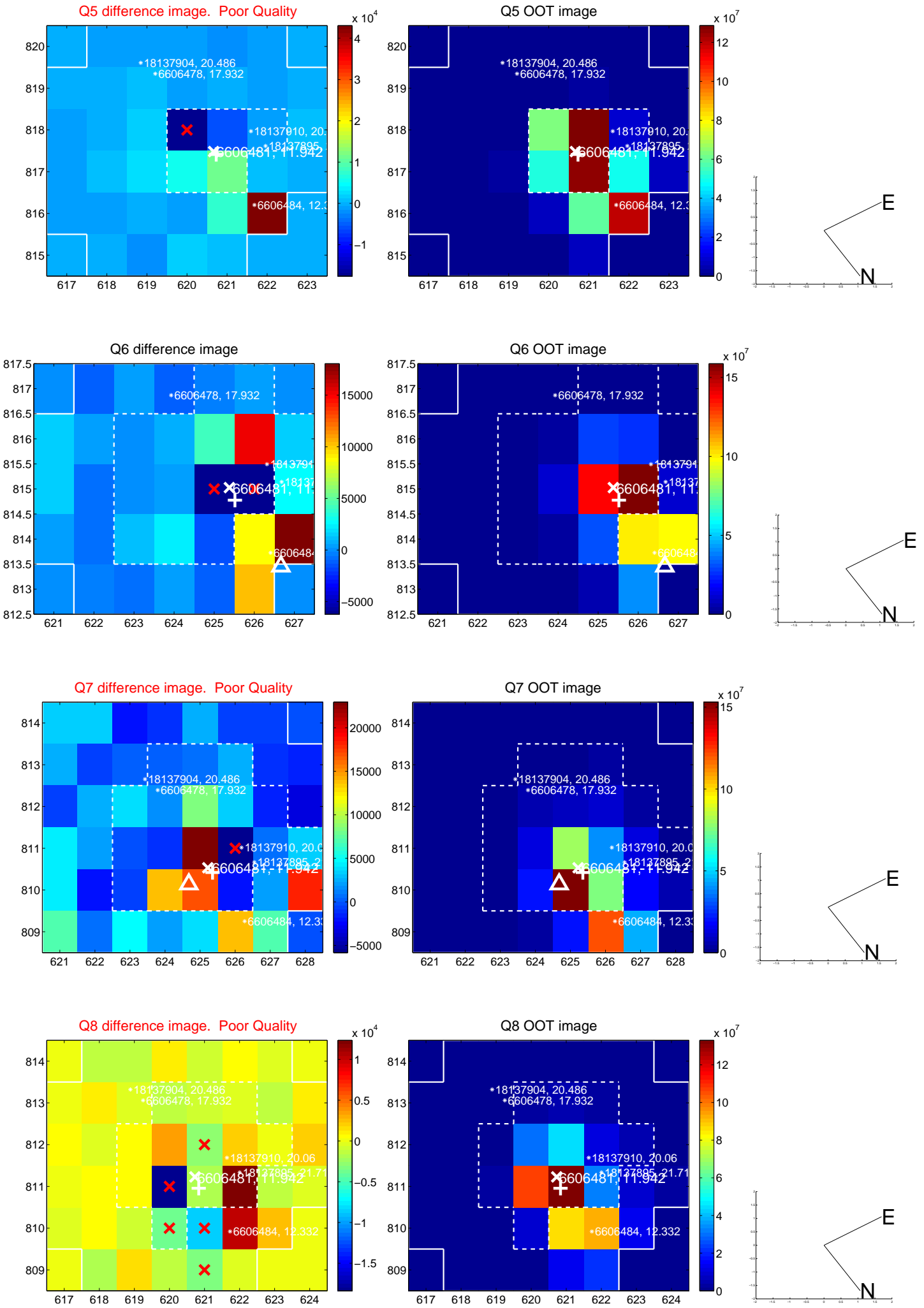


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

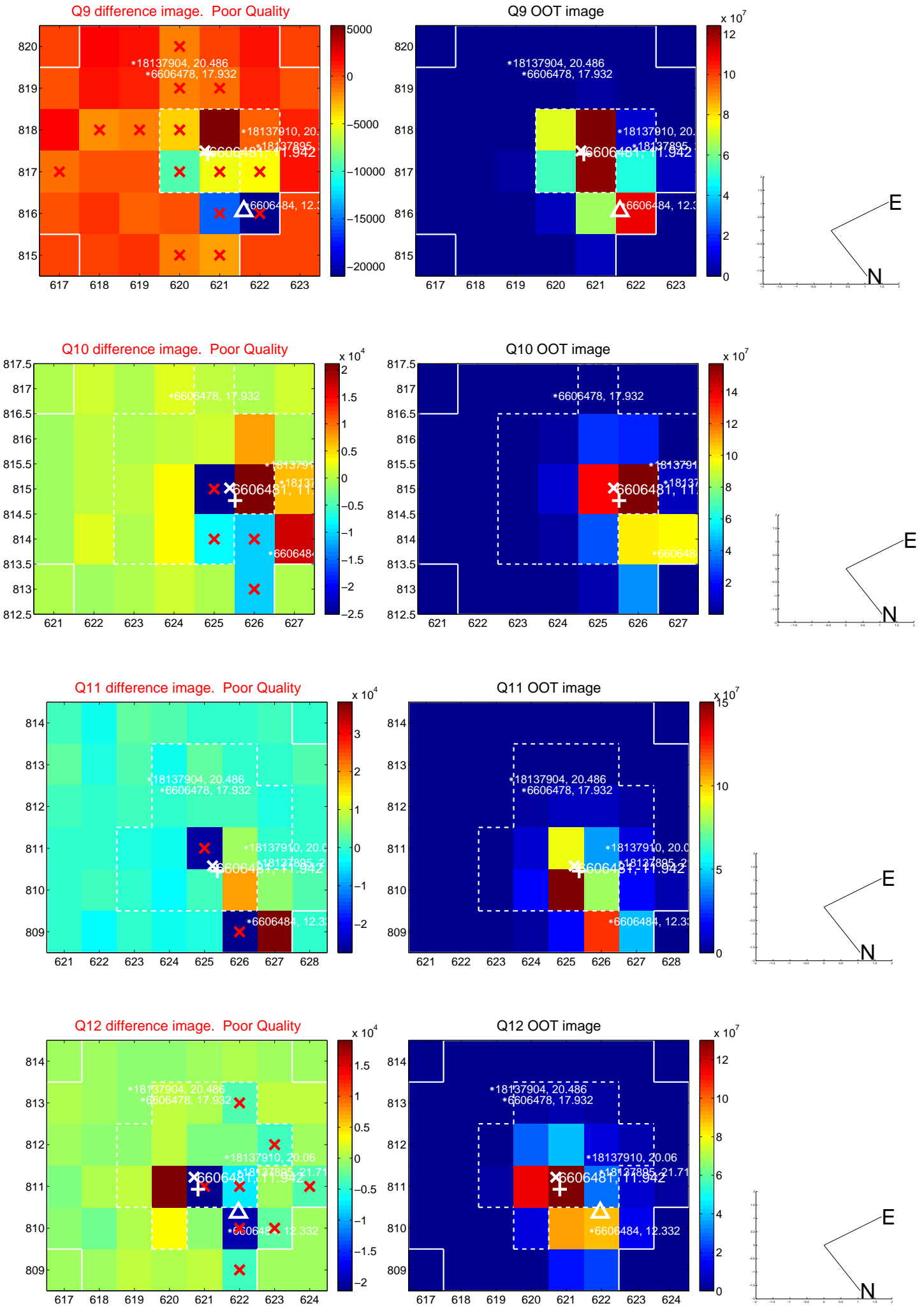
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



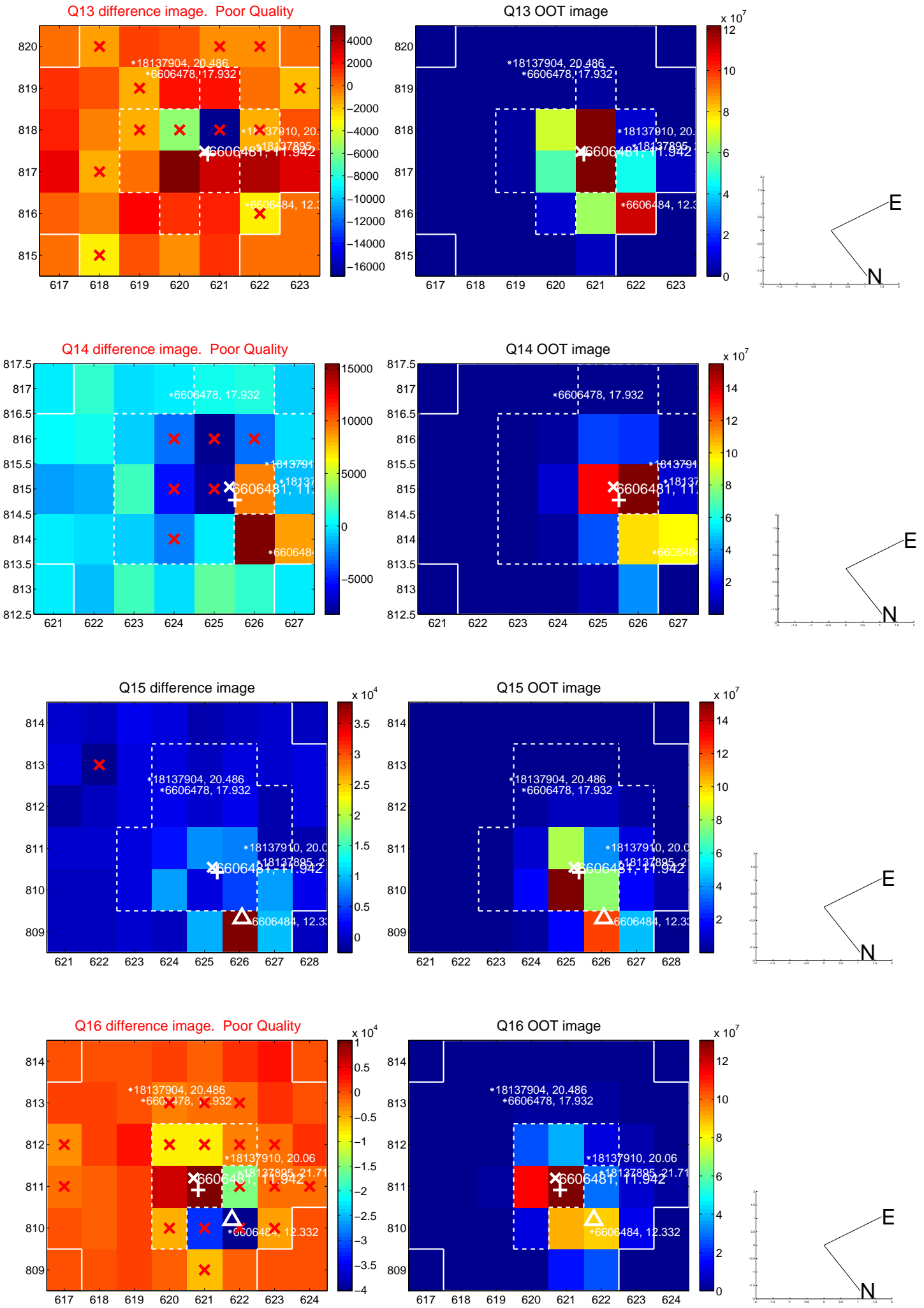
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



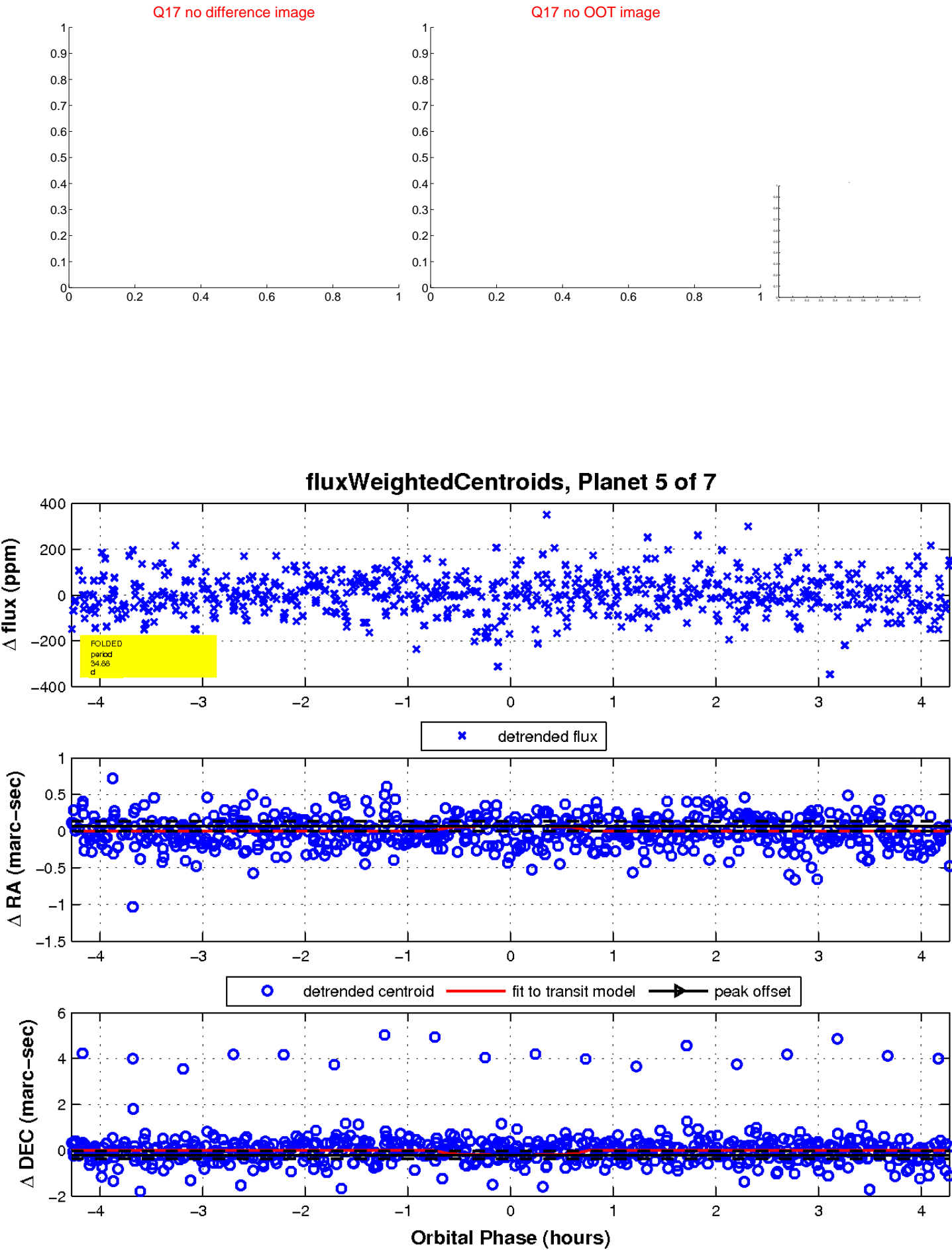
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

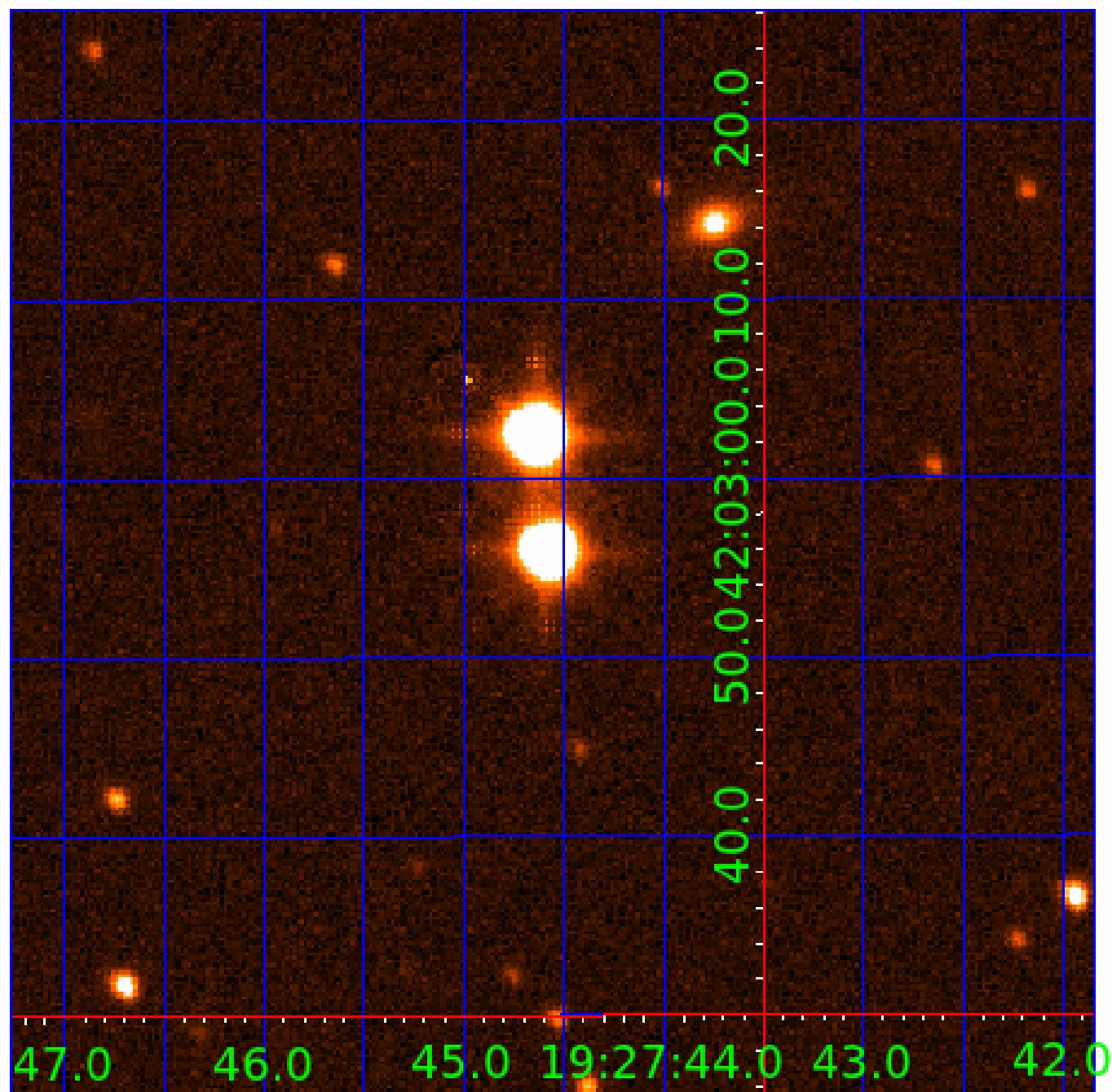


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006606481

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006606481-01 | OBS      | No   | 2.062860      | 131.510854   | 15.0        | 14.824           | 7.8  | 7.4  | 1.20                        | 6551            | 0.49                   | 2059.41                |
| 006606481-03 | OBS      | No   | 59.728174     | 147.161243   | 430.3       | 20.482           | 11.8 | 11.0 | 1.20                        | 6551            | 4.79                   | 23.16                  |
| 006606481-04 | OBS      | No   | 44.654730     | 136.804552   | 133.2       | 6.266            | 10.2 | 6.7  | 1.20                        | 6551            | 1.63                   | 34.14                  |
| 006606481-05 | OBS      | No   | 34.883059     | 163.824645   | 185.3       | 1.427            | 9.5  | 9.5  | 1.20                        | 6551            | 1.73                   | 47.45                  |
| 006606481-06 | OBS      | No   | 14.157855     | 143.959628   | 154.6       | 1.301            | 8.3  | 9.2  | 1.20                        | 6551            | 2.24                   | 157.90                 |
| 006606481-07 | OBS      | No   | 42.655509     | 157.218044   | 201.1       | 2.626            | 8.6  | 8.6  | 1.20                        | 6551            | 1.92                   | 36.29                  |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 006606481-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS  |
| 006606481-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS                         |
| 006606481-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006606481-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—MOD_NONUNIQ_DV—HALO_GHOST   |
| 006606481-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT                                 |
| 006606481-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_KIC_POS  |

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

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

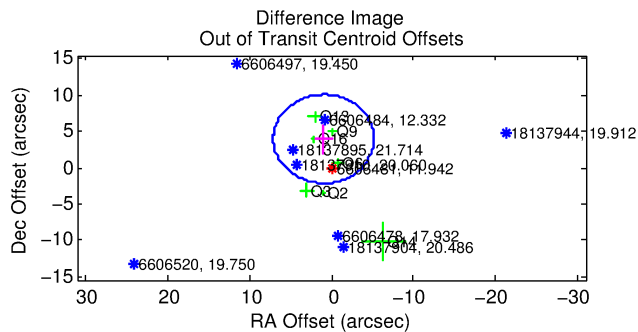
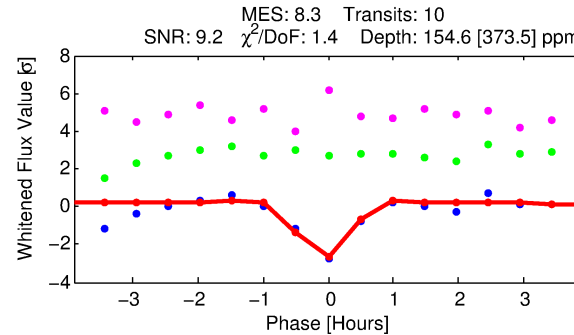
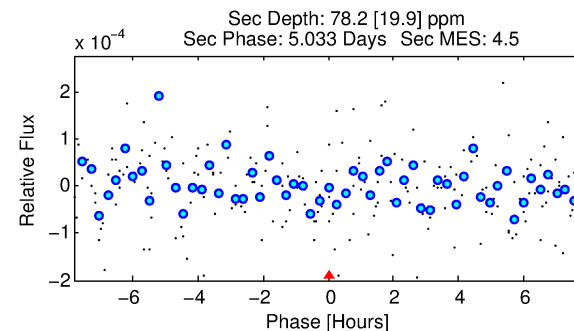
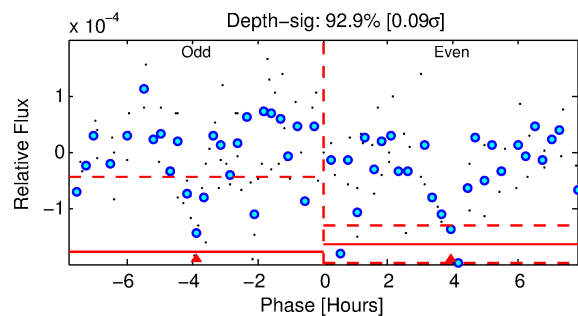
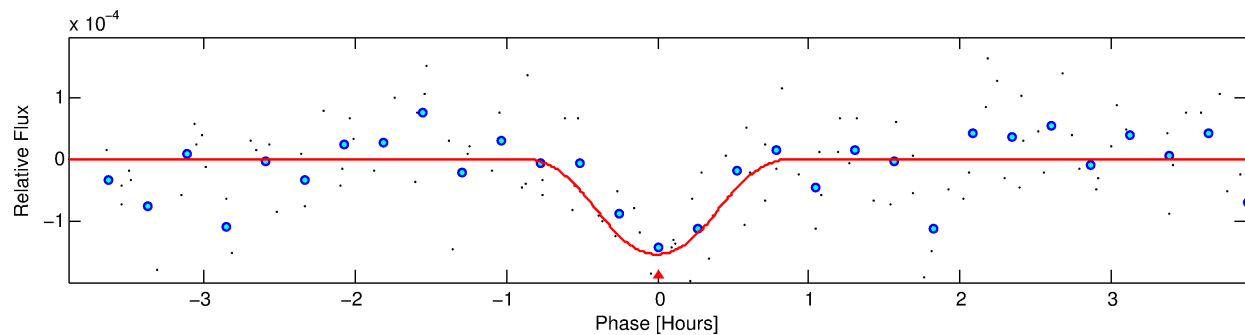
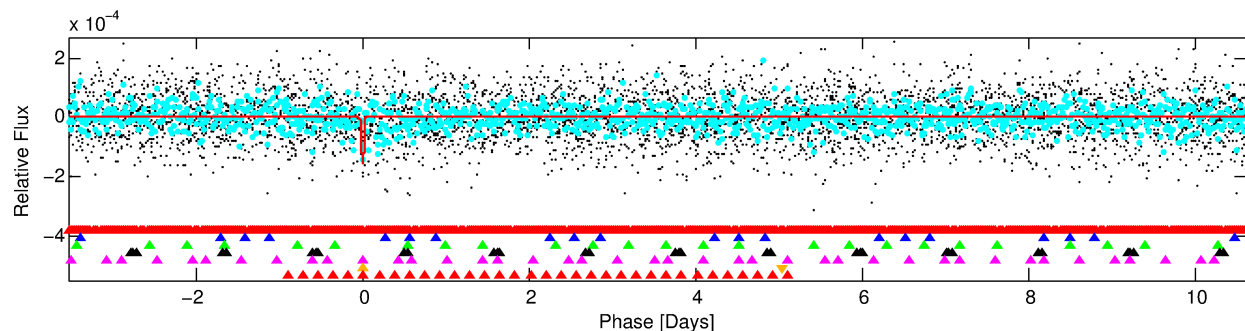
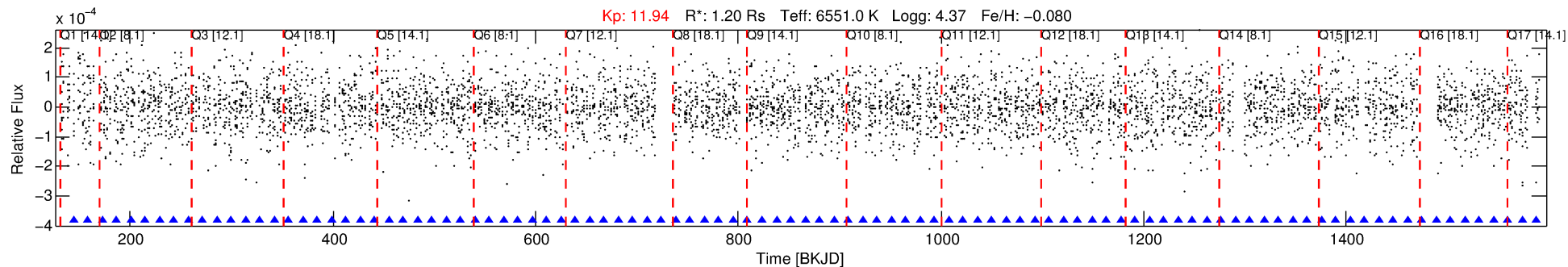
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006606481-06

No Significant Match Found

# DV One-Page Summary

KIC: 6606481 Candidate: 6 of 7 Period: 14.158 d



## DV Fit Results:

Period = 14.15785 [0.00009] d  
Epoch = 143.9596 [0.0045] BKJD  
Rp/R\* = 0.0172 [0.0690]  
a/R\* = 19.84 [46.03]  
b = 0.99 [0.17]  
Seff = 157.90 [66.93]  
Teq = 904 [96] K  
Rp = 2.24 [9.03] Re  
a = 0.1222 [0.0352] AU  
Ag = 128.25 [1033.43] [0.12 $\sigma$ ]  
Teffp = 4703 [9463] K [0.40 $\sigma$ ]

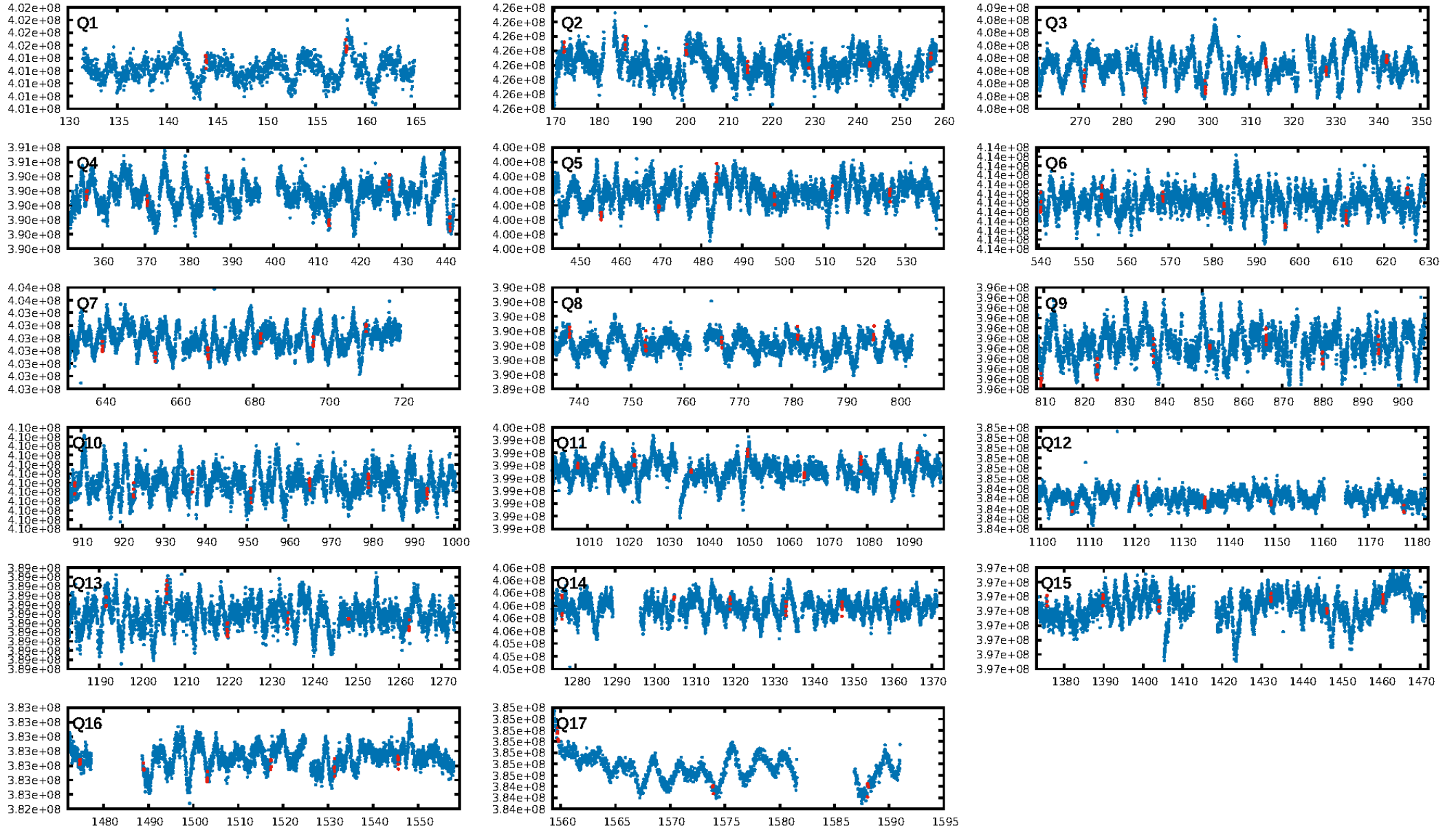
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [19.51 $\sigma$ ]  
LongPeriod-sig: 100.0% [257.60 $\sigma$ ]  
ModelChiSquare2-sig: 74.8%  
ModelChiSquareGof-sig: 95.7%  
**Bootstrap-pfa: 6.93e-09**  
RollingBand-fgt: 1.00 [10/10]  
GhostDiagnostic-chr: 1.144  
Centroid-sig: 12.0%  
**Centroid-so: 2.832 arcsec [3.85 $\sigma$ ]**  
OotOffset-rm: 4.085 arcsec [2.00 $\sigma$ ]  
KicOffset-rm: 4.817 arcsec [2.20 $\sigma$ ]  
OotOffset-st: 3/1/1/2 [7]  
KicOffset-st: 3/1/1/2 [7]  
DiffImageQuality-fgm: 0.43 [3/7]  
DiffImageOverlap-fno: 0.88 [15/17]

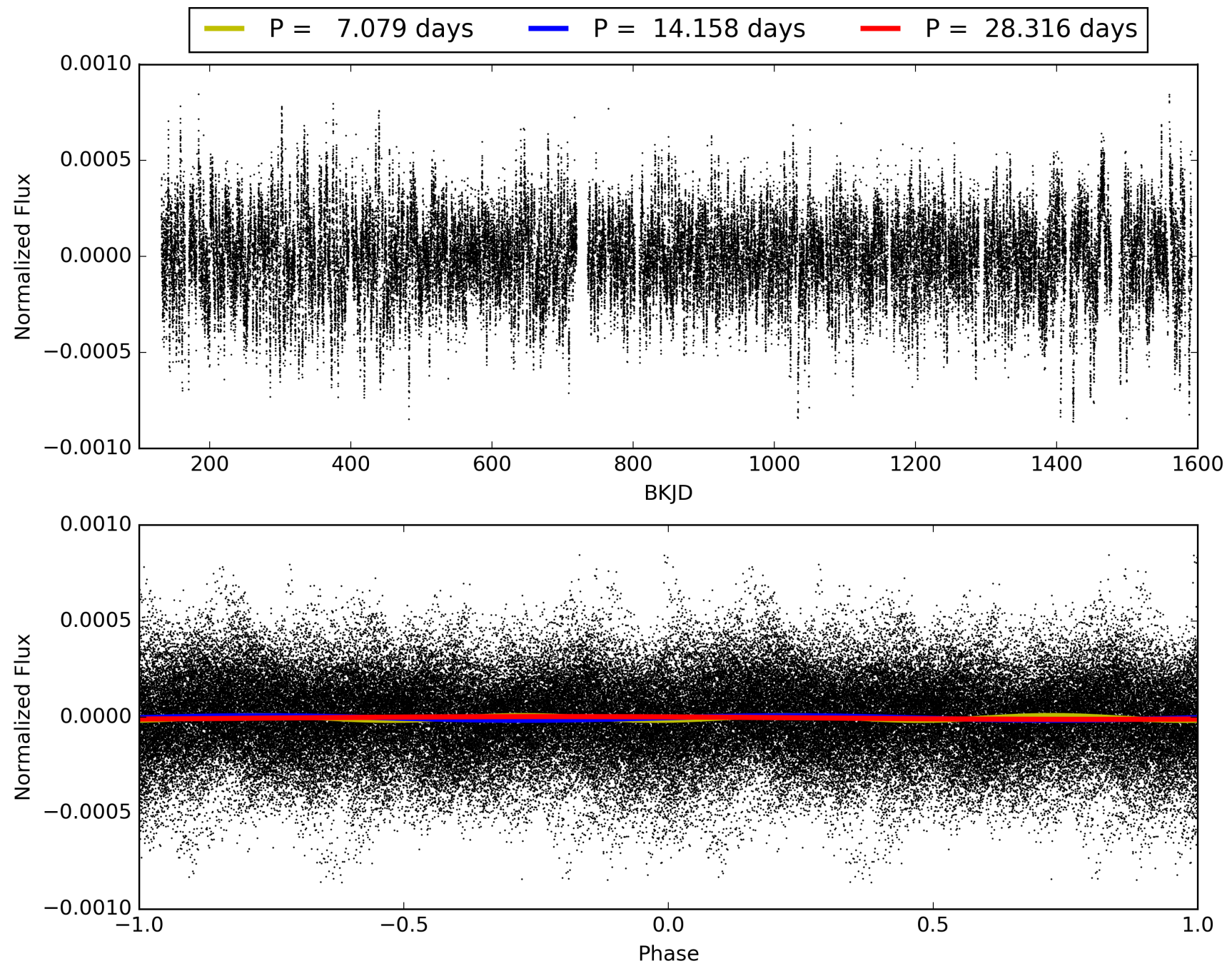
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:38:08 Z

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

# TCE 006606481-06, PDC Light Curves

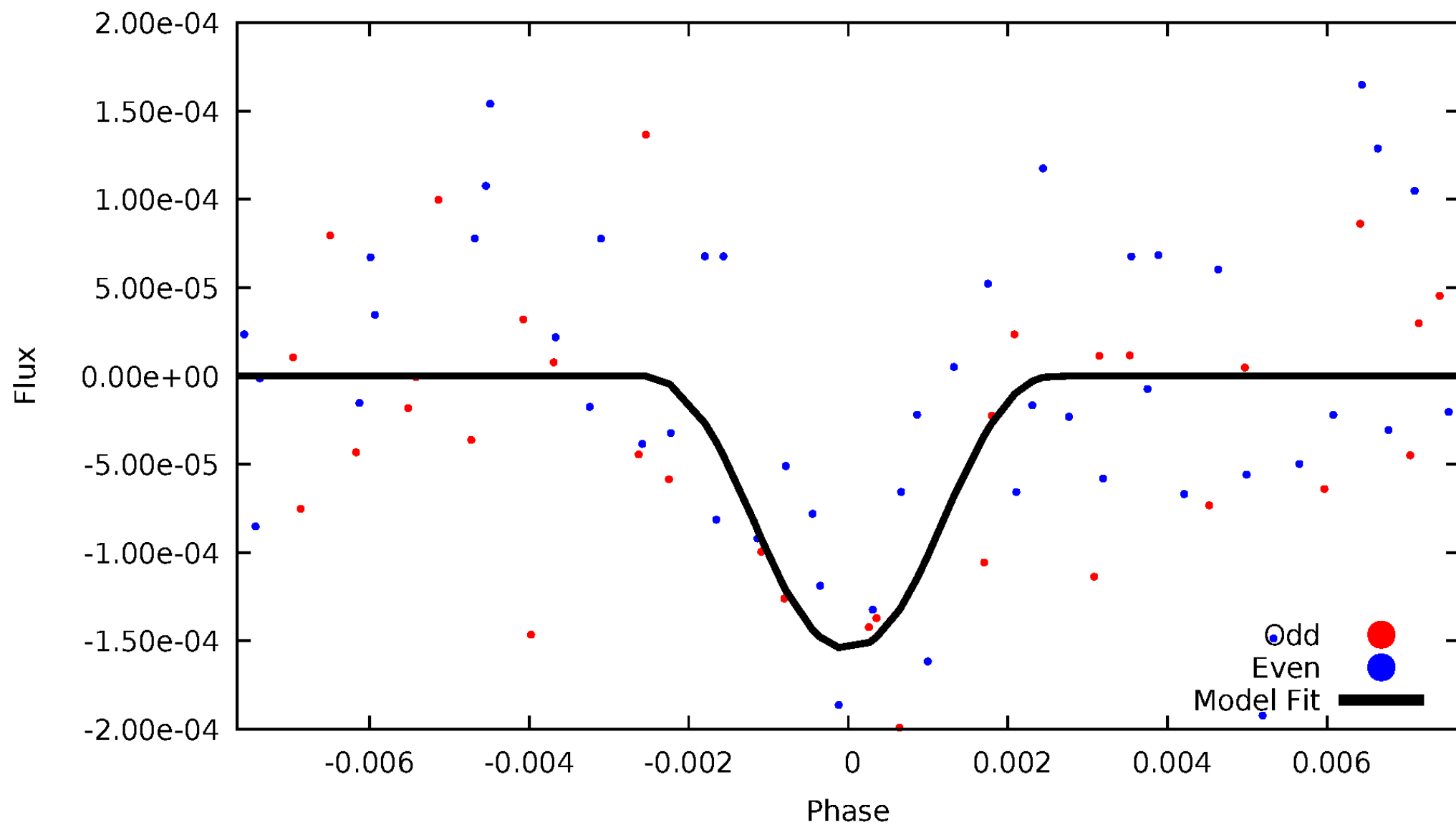


TCE 006606481-06



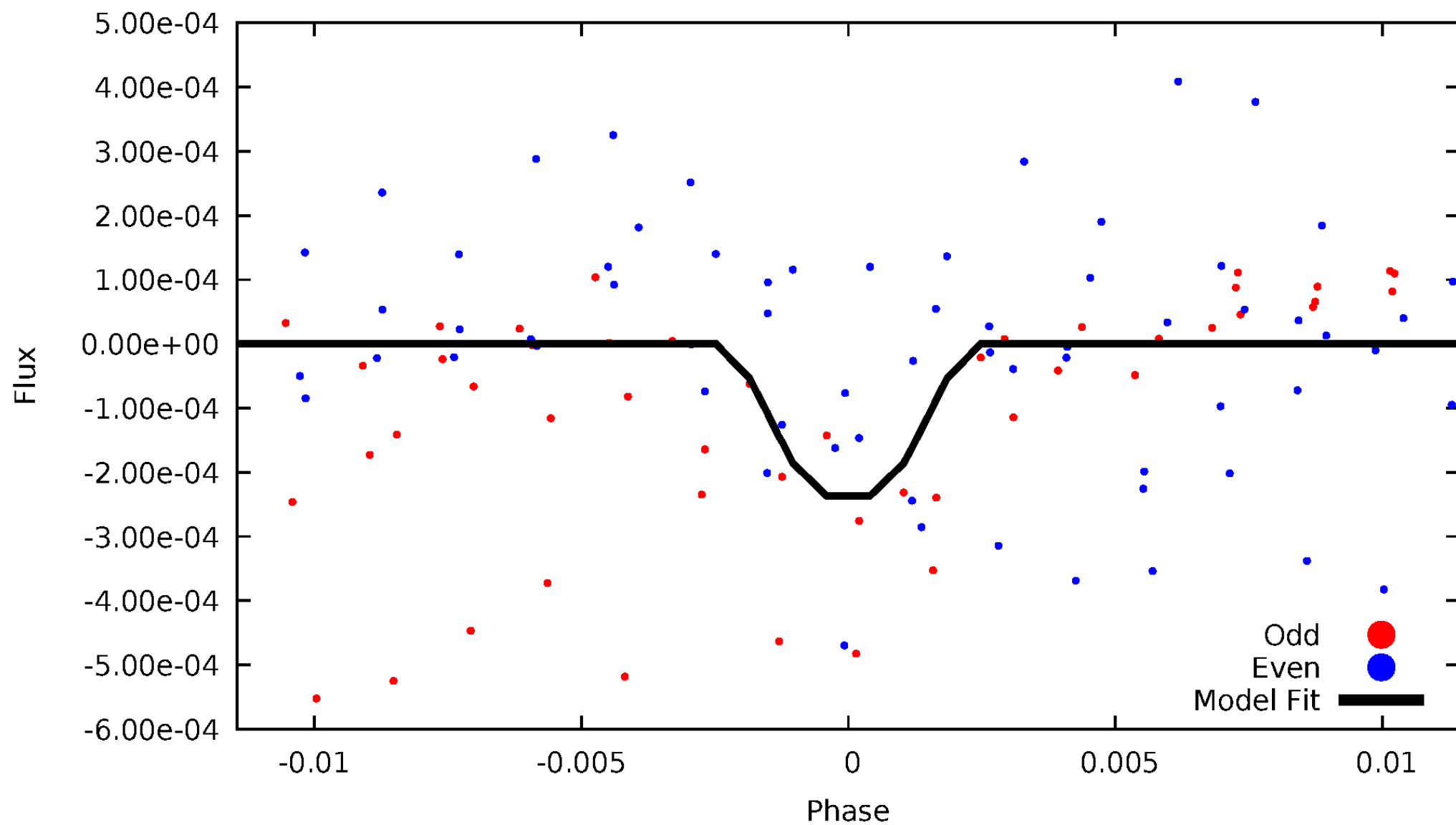
# DV Odd/Even

TCE 006606481-06



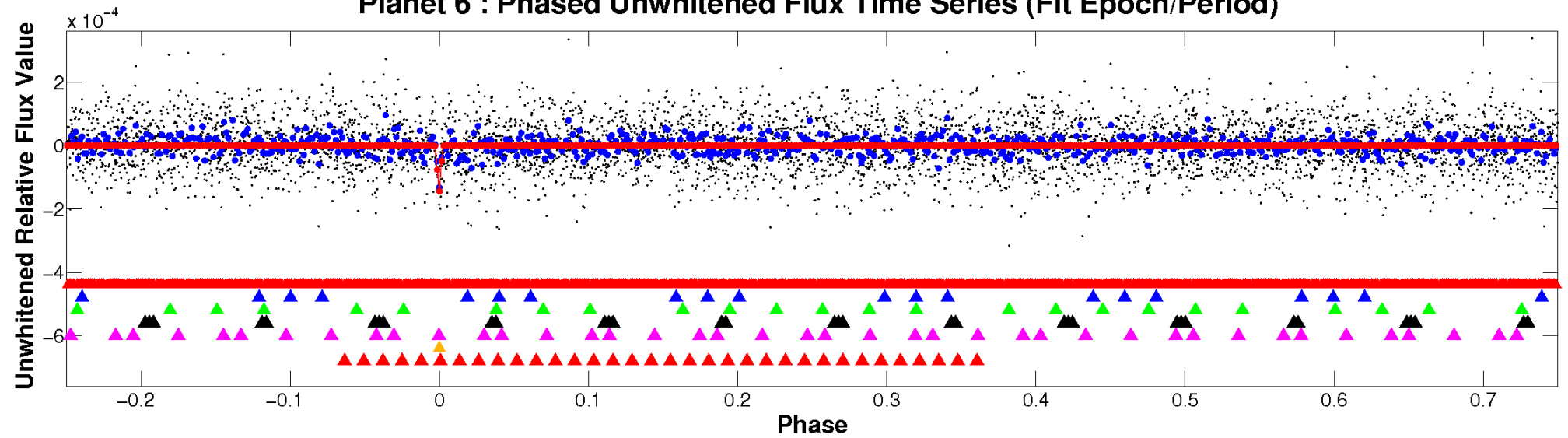
# ALT Odd/Even

TCE 006606481-06

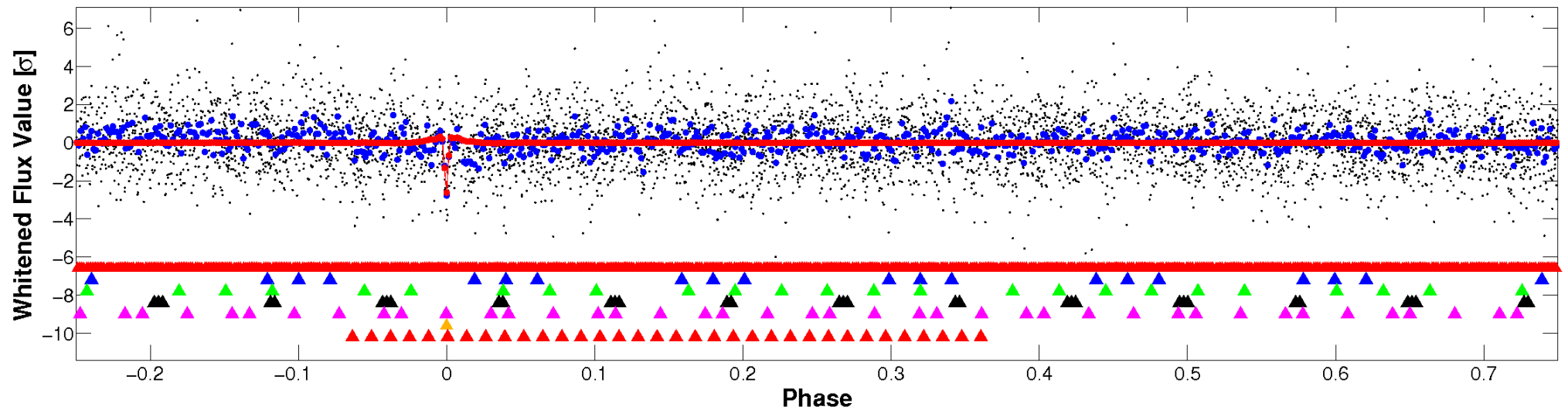


# Non-Whitened Vs. Whitened Light Curve

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

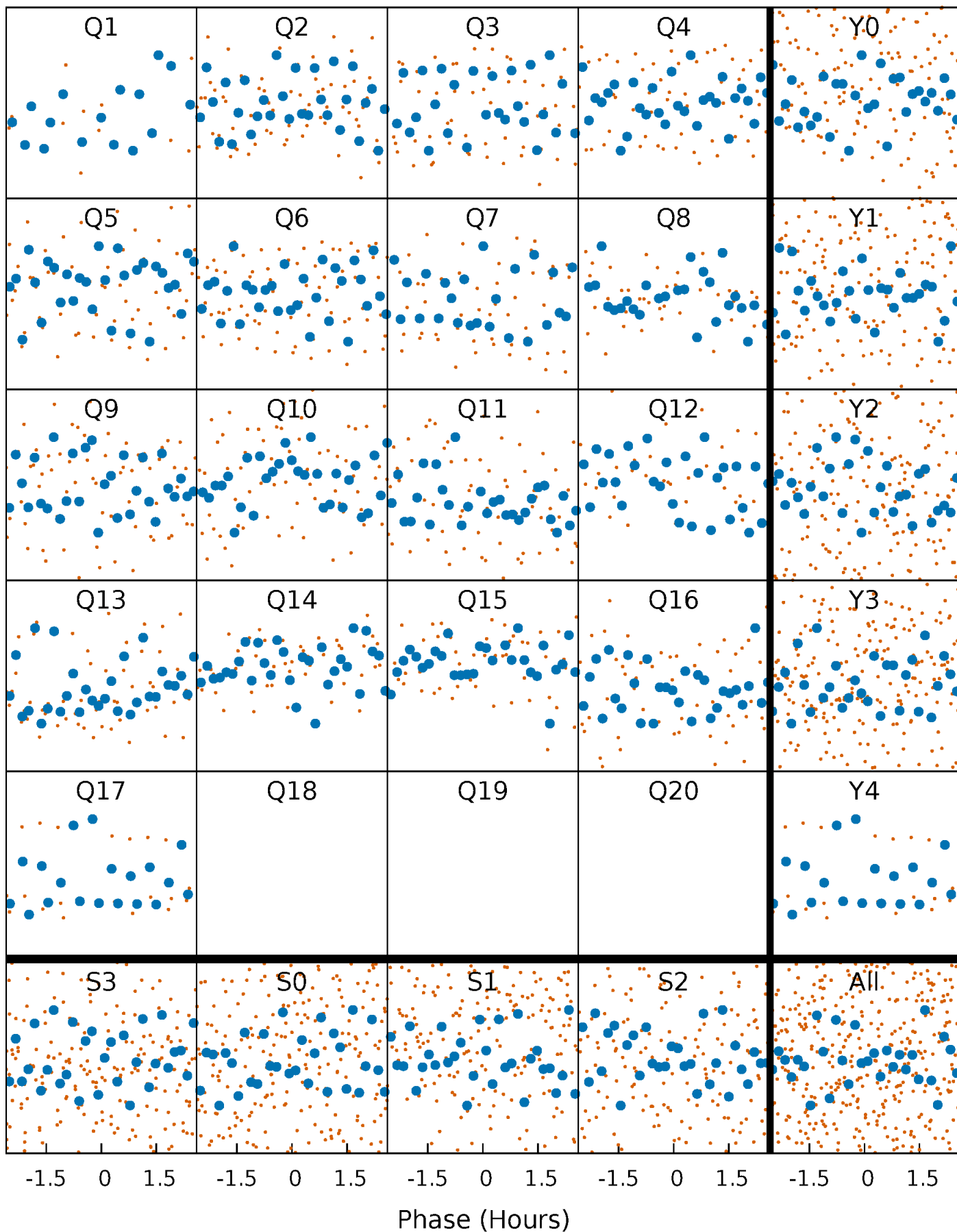


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



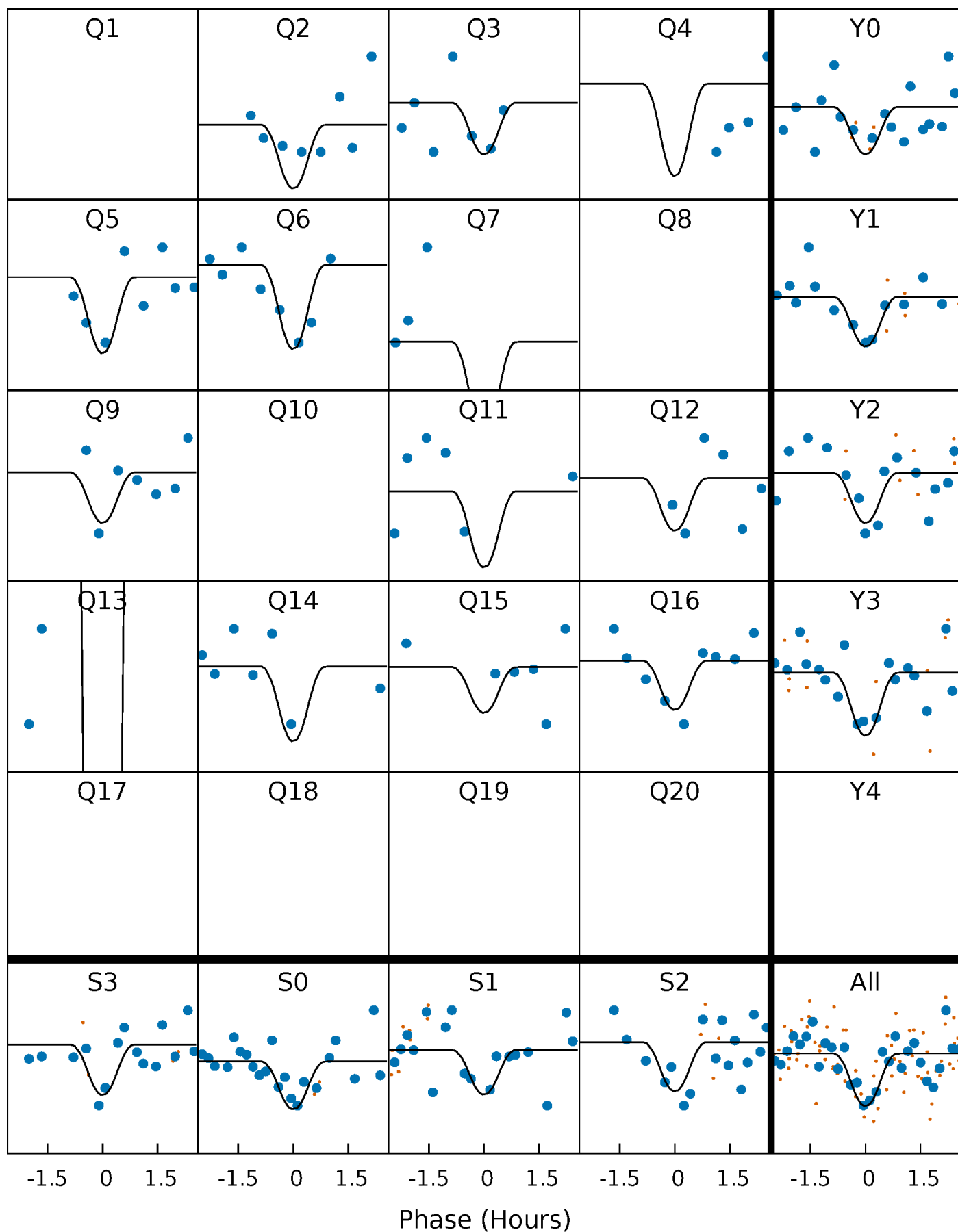
# PDC Quarter-Phased Transit Curves

TCE 006606481-06 P= 14.157855 Days  $T_0=143.959628$  (BKJD)



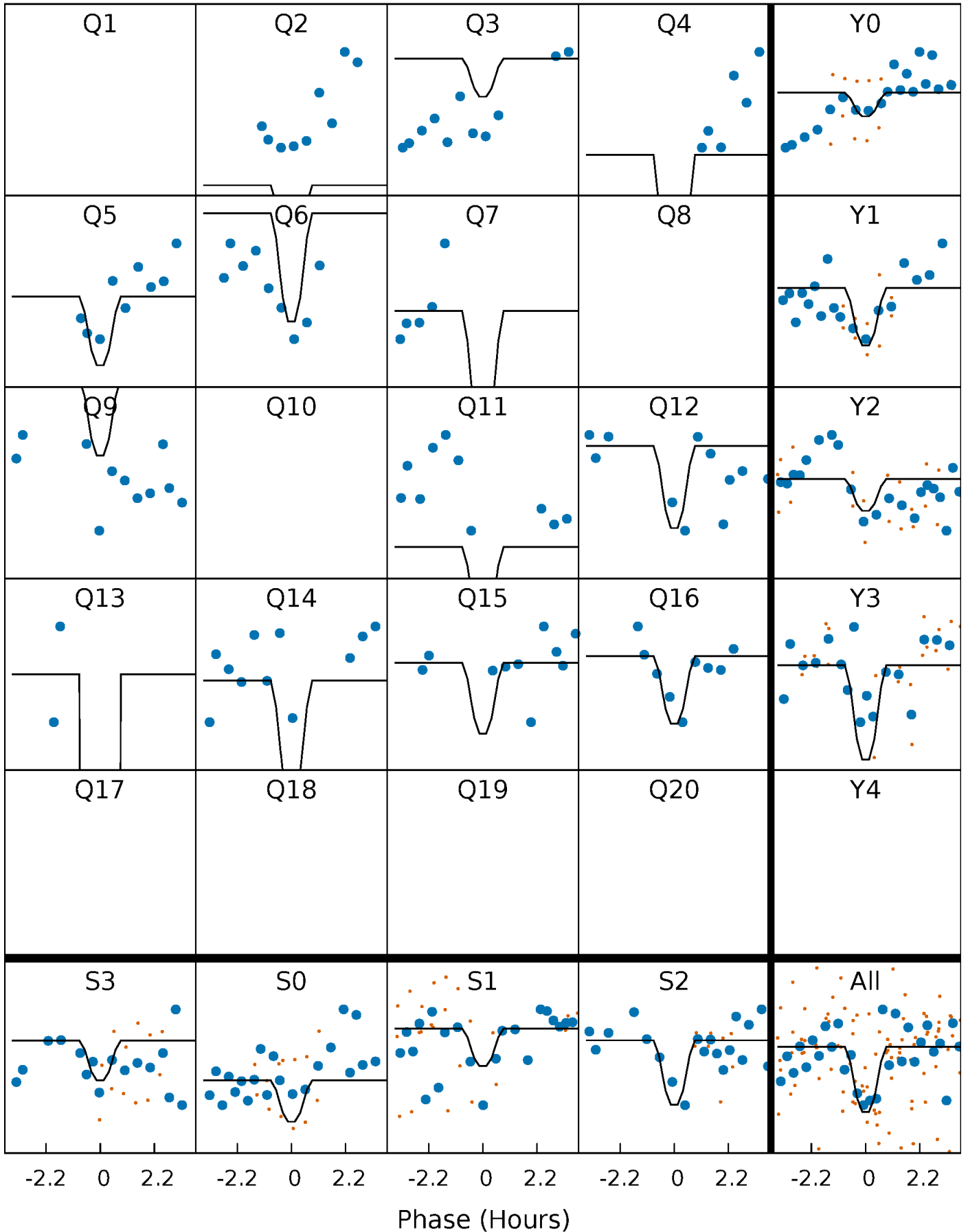
# DV Quarter-Phased Transit Curves

TCE 006606481-06 P= 14.157855 Days  $T_0=143.959628$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

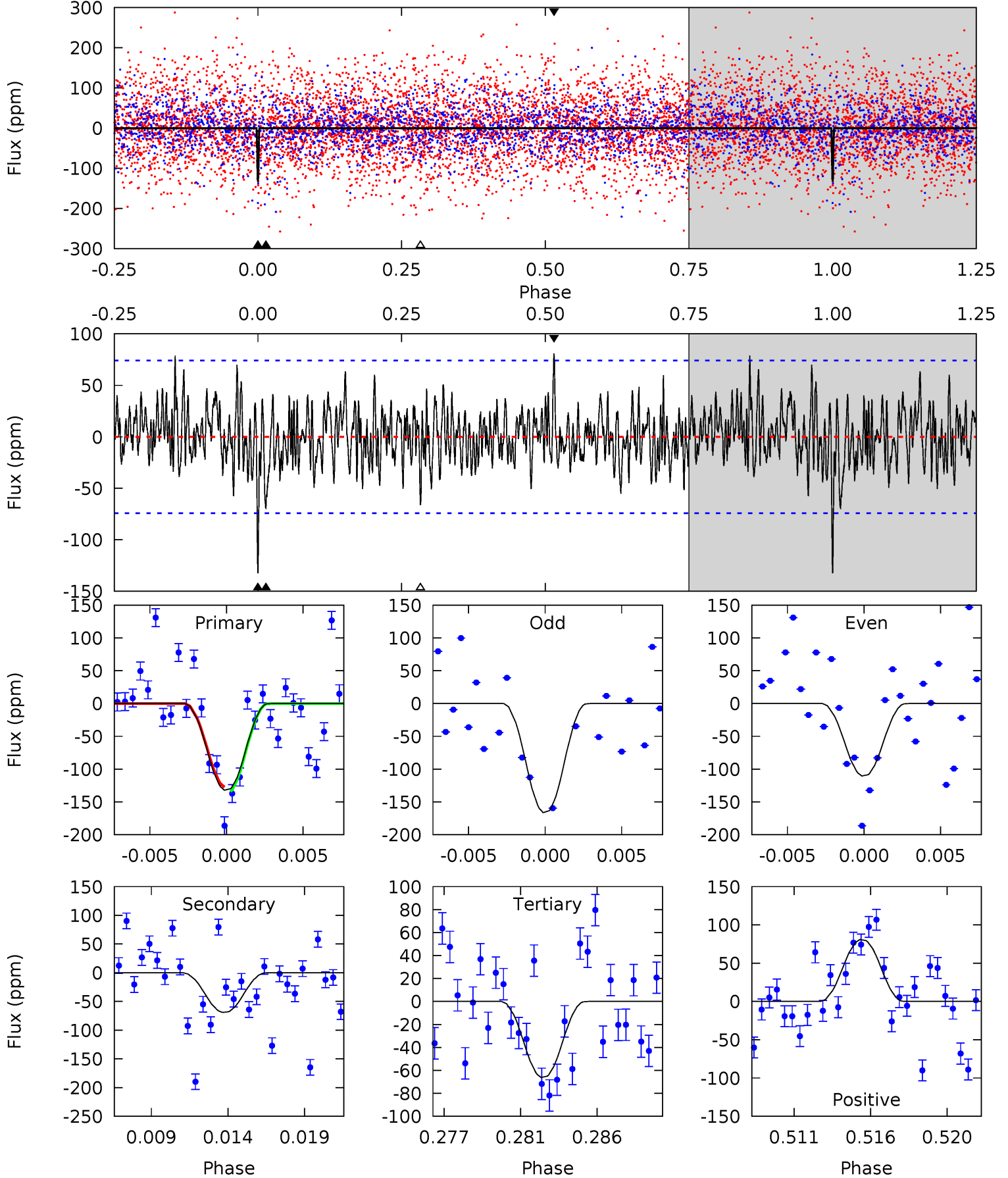
TCE 006606481-06 P= 14.157757 Days  $T_0=143.963647$  (BKJD)



# DV Model-Shift Uniqueness Test

006606481-06, P = 14.157855 Days, E = 129.801773 Days

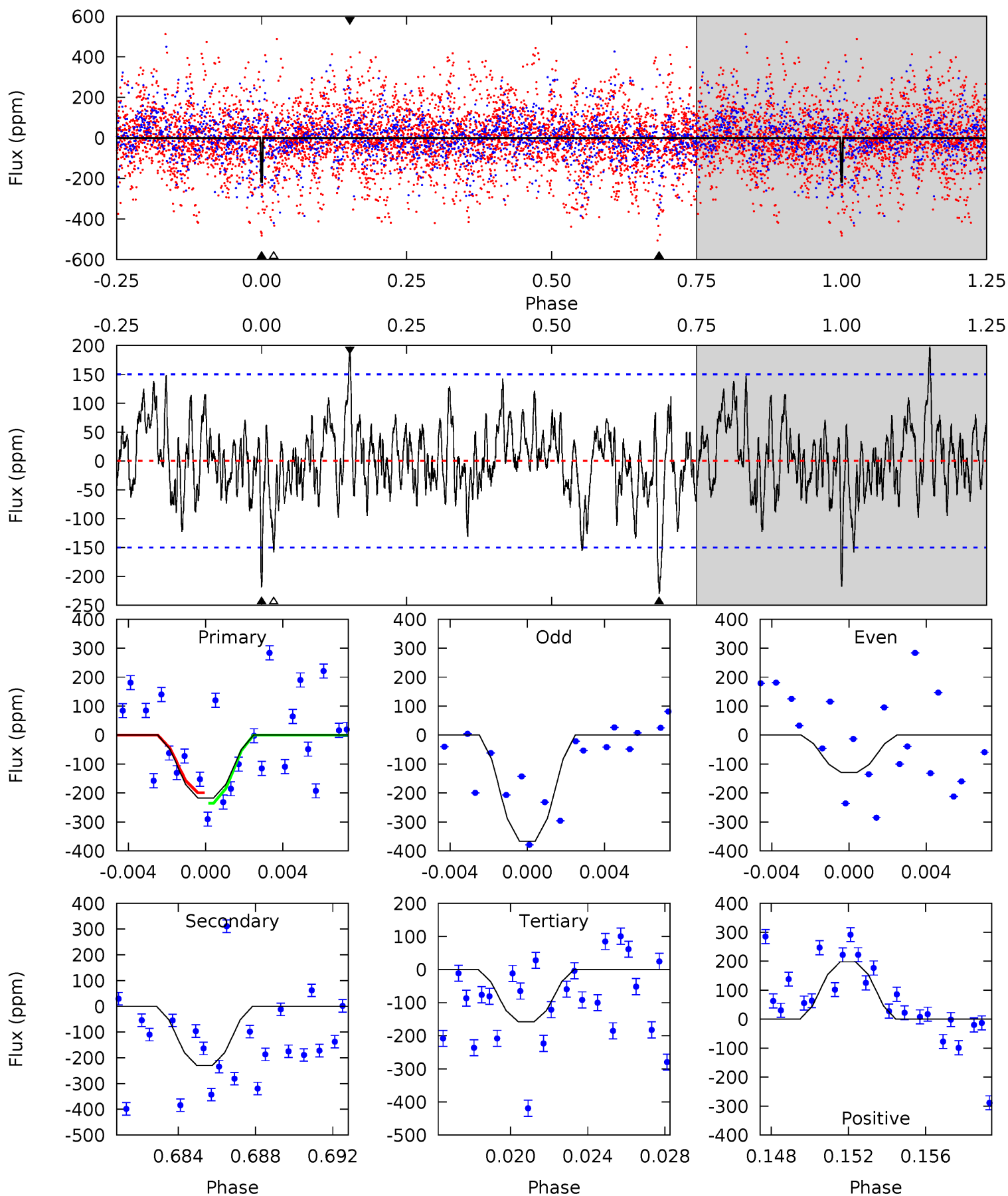
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.22 | 4.82 | 4.62 | 5.65 | 5.17            | 2.83            | 1.55             | 4.60    | 3.58    | 0.20    | -0.82   | 1.86    | 0.95 | 0.38  | 0.24 |



# Alt Model-Shift Uniqueness Test

006606481-06, P = 14.157757 Days, E = 129.805890 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.54 | 7.97 | 5.49 | 6.87 | 5.20            | 2.88            | 1.85             | 2.05    | 0.67    | 2.49    | 1.11    | 3.95    | 1.07 | 0.46  | 0.63 |



### Stellar Parameters For KIC 006606481

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6551^{+145}_{-194}$ | $4.367^{+0.054}_{-0.216}$ | $-0.080^{+0.250}_{-0.300}$ | $1.195^{+0.423}_{-0.141}$ | $1.215^{+0.173}_{-0.173}$ | $1.003^{+0.292}_{-0.533}$                 |
|        | +2%/-3%              | +1%/-5%                   | +312%/-375%                | +35%/-12%                 | +14%/-14%                 | +29%/-53%                                 |
| 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 006606481-06 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{max} (K)$       | $T_{obs} (K)$         | $A_{obs}$                   |
|---------|---------------|------------------------|---------------------|-----------------------|-----------------------------|
| DV      | $-69 \pm 14$  | $7.51^{+7.33}_{-5.36}$ | $1289^{+96}_{-60}$  | $3141^{+1625}_{-556}$ | $9.844^{+107.882}_{-7.488}$ |
| Alt.    | $-230 \pm 29$ | $7.65^{+7.29}_{-5.28}$ | $1288^{+103}_{-62}$ | $3773^{+2359}_{-700}$ | $32^{+297}_{-23}$           |

$T_{max}$  = 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

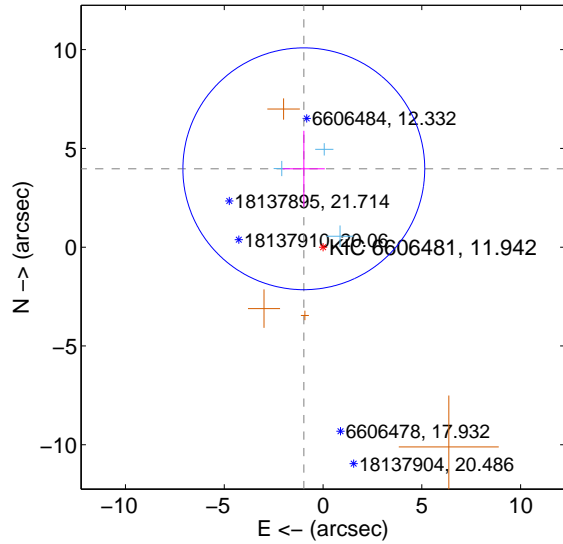
Supplemental centroid analysis for 006606481-06. **Kepler magnitude: 11.94.** Transit SNR 9.21

**There are 3 quarters with good PRF difference image offsets**

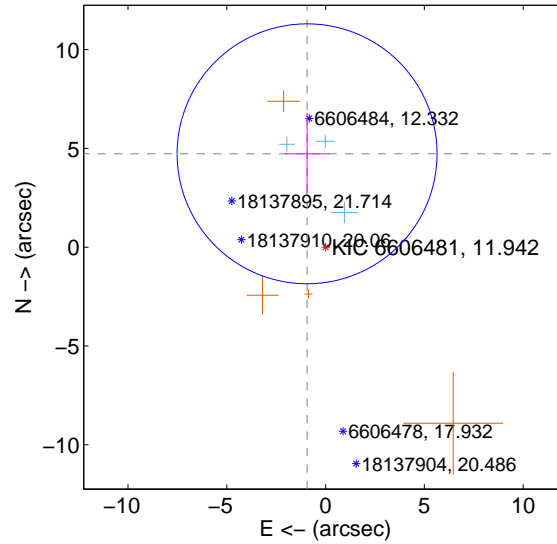
The direct PRF centroid is offset from the target star catalog position by about 1.24 arcsec

|   | Distance in arcsec                | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|-----------------------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $4.085 \pm 2.040$                 | 2.00                | $0.973 \pm 1.062$ | $3.967 \pm 1.923$ |
| PRF-fit source offset from KIC position | $4.817 \pm 2.193$                 | 2.20                | $0.936 \pm 1.120$ | $4.726 \pm 2.070$ |
| photometric centroid source offset      | <b><math>2.83 \pm 0.74</math></b> | <b>3.85</b>         | $0.02 \pm 0.32$   | $2.83 \pm 0.74$   |

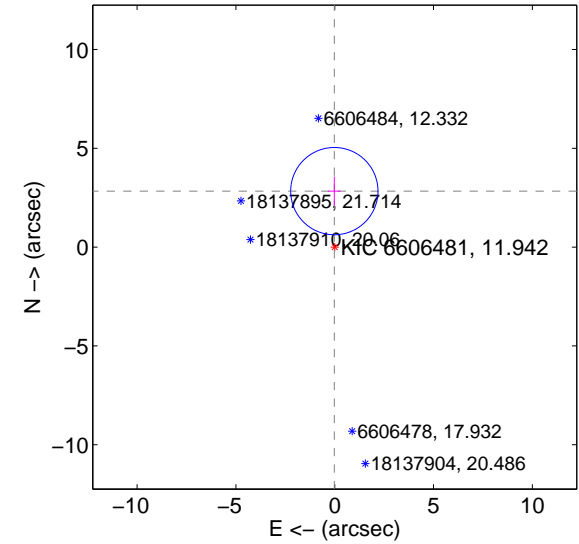
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

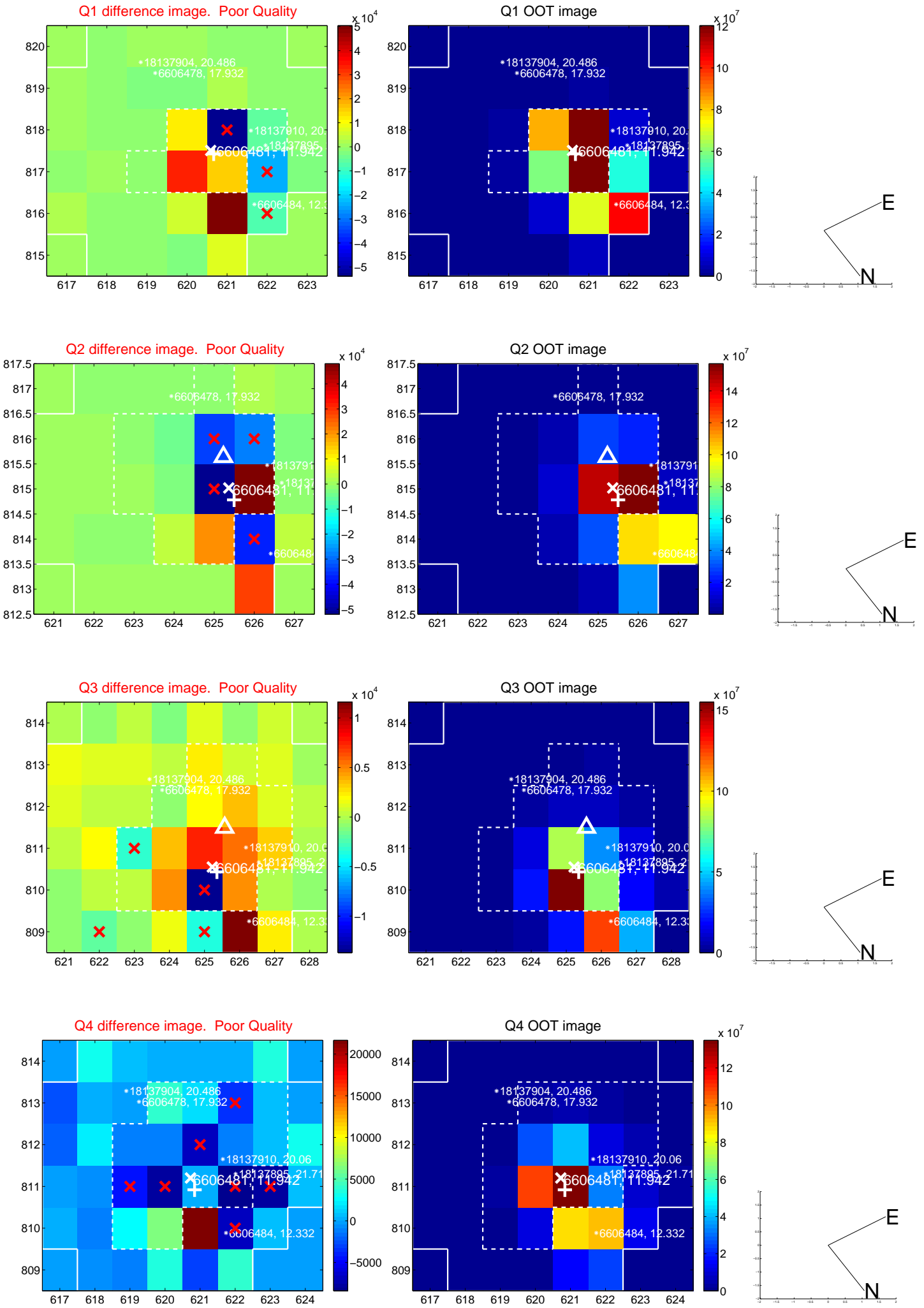


offset from photometric centroids

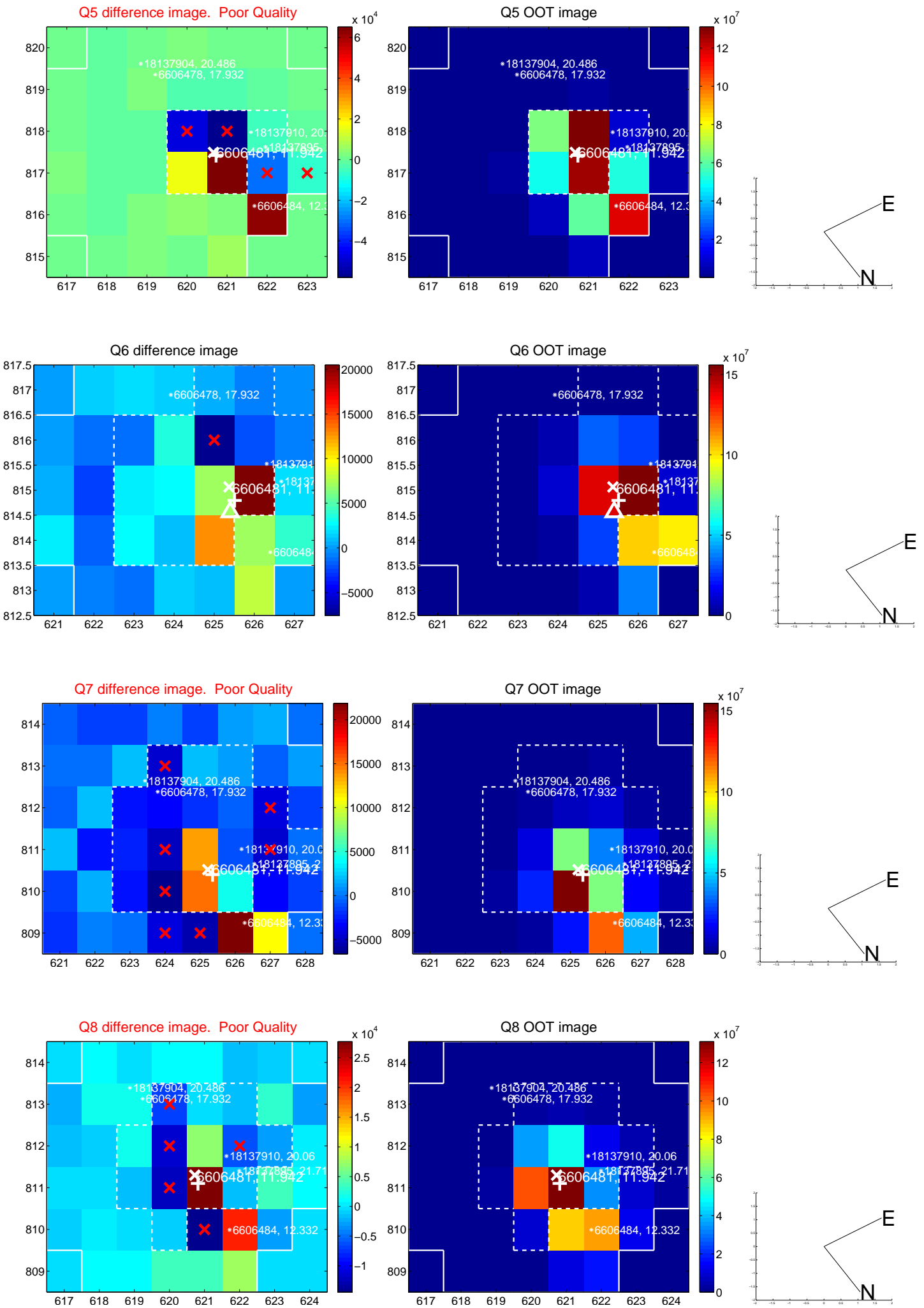


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

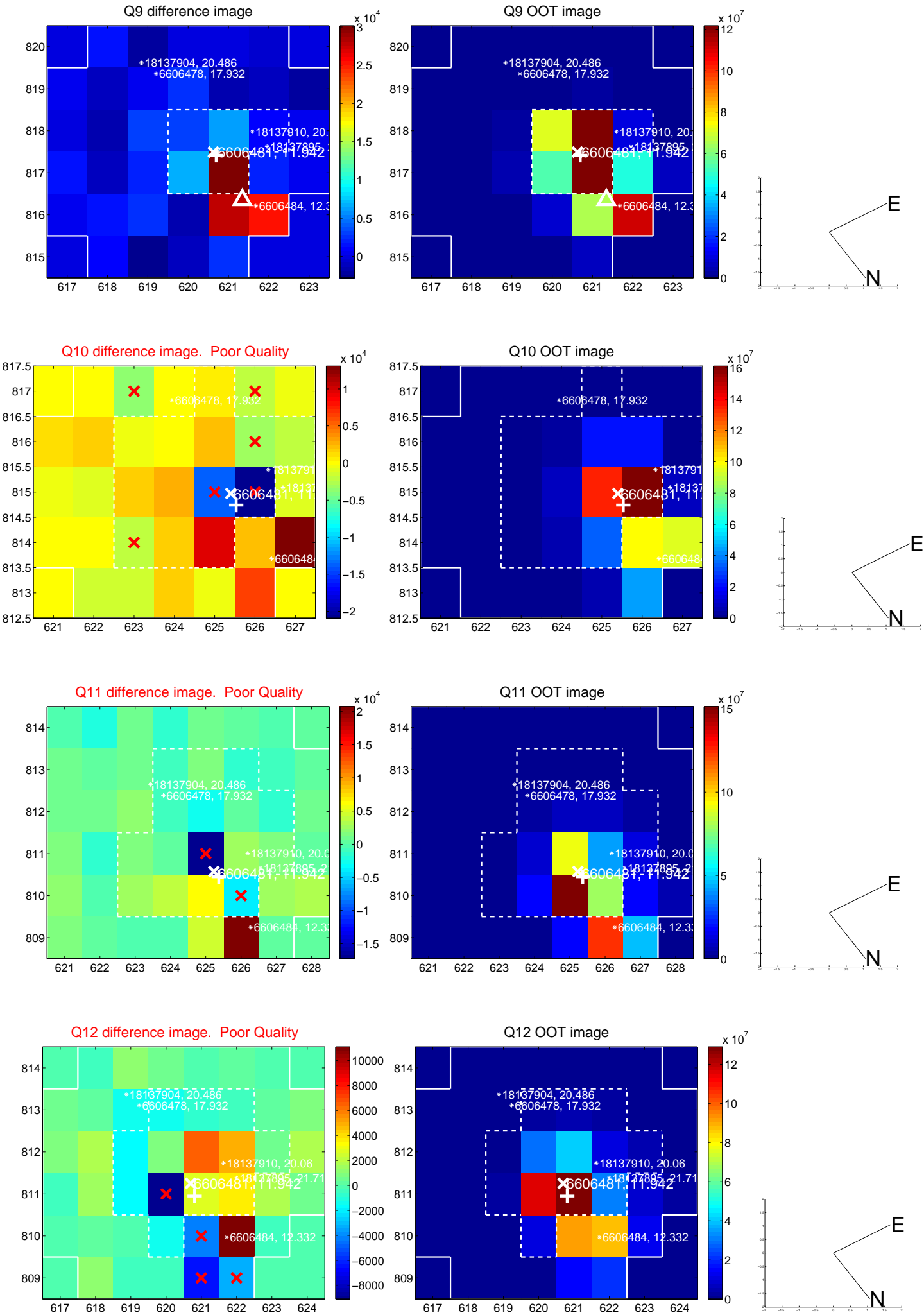
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



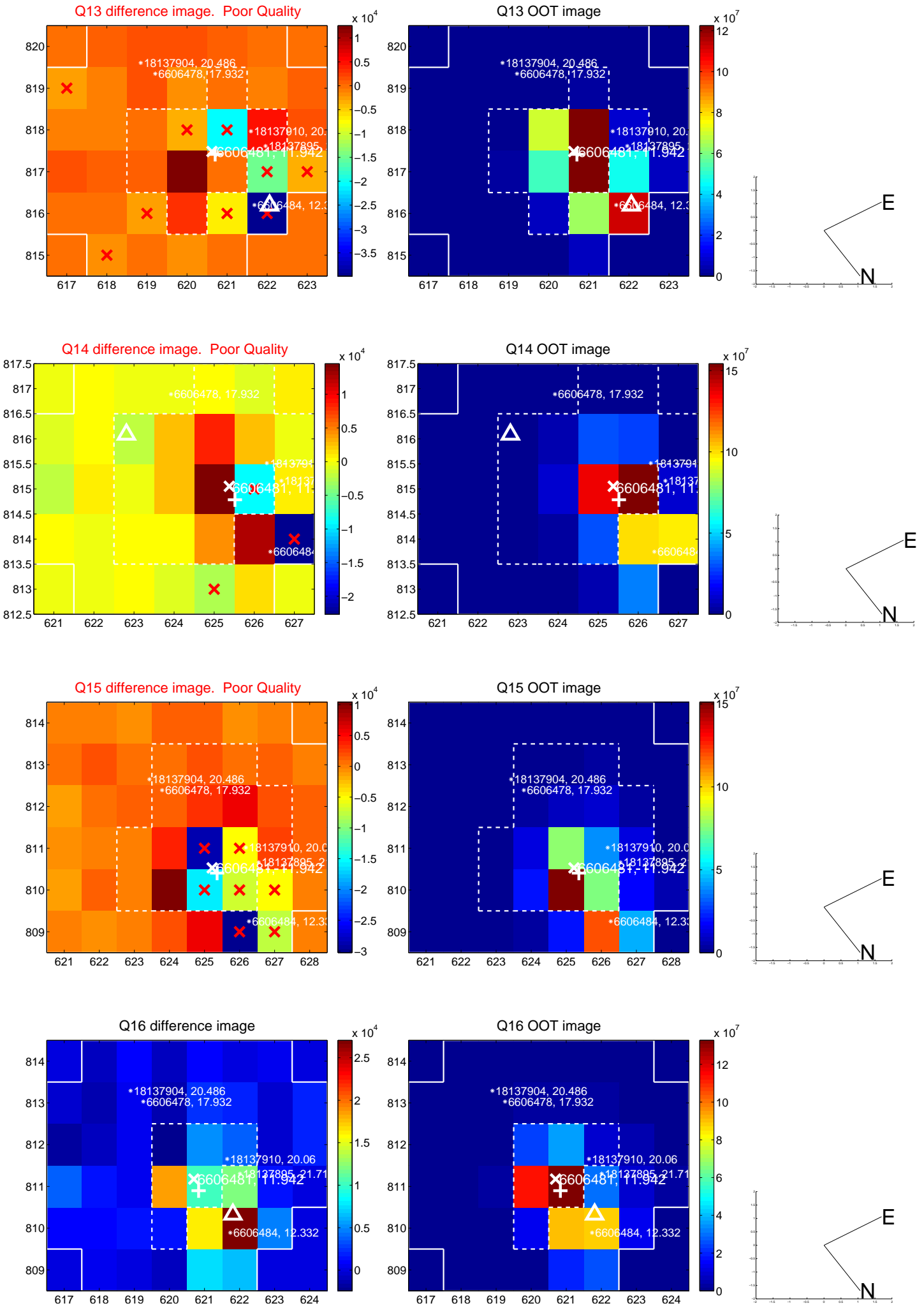
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



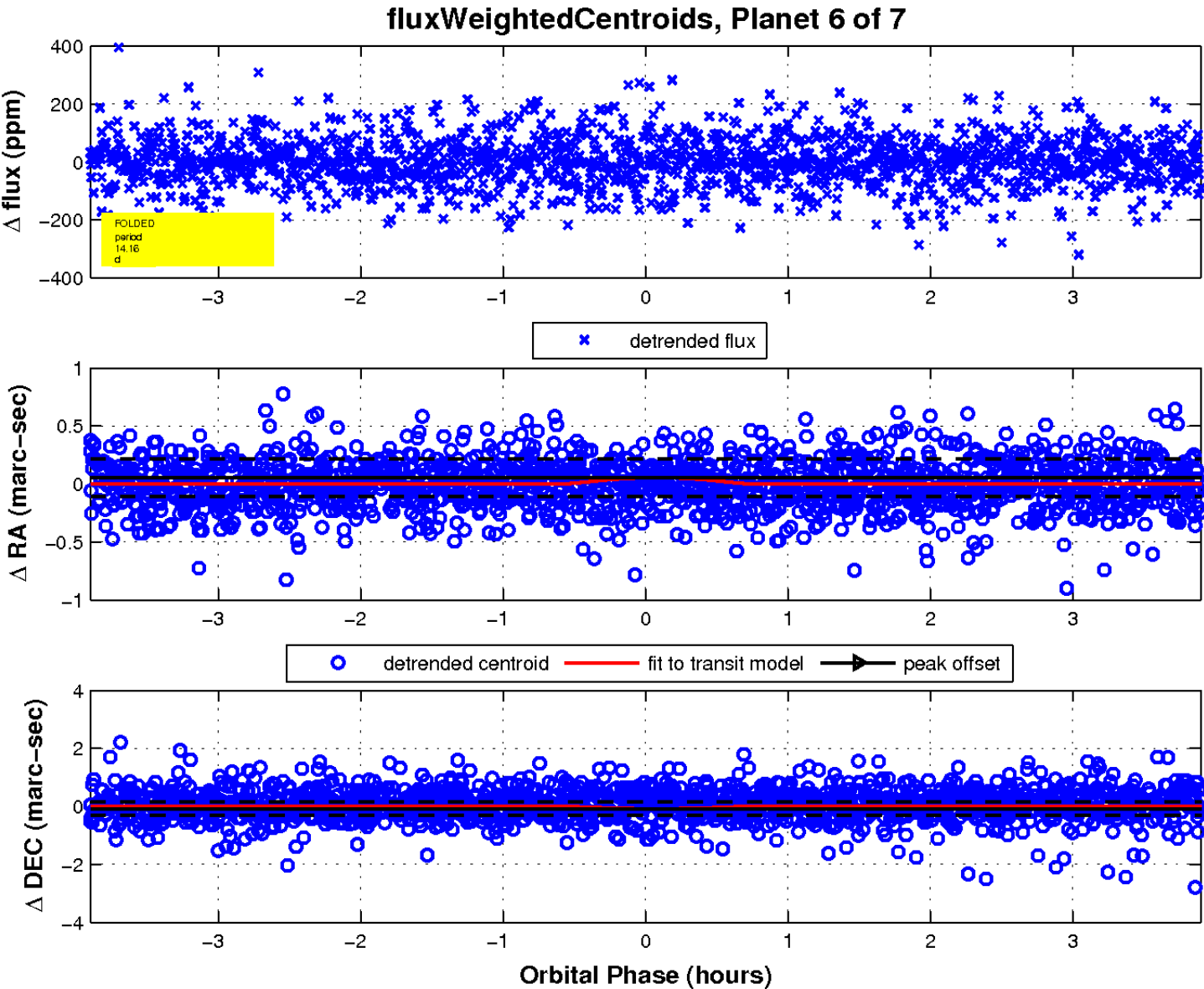
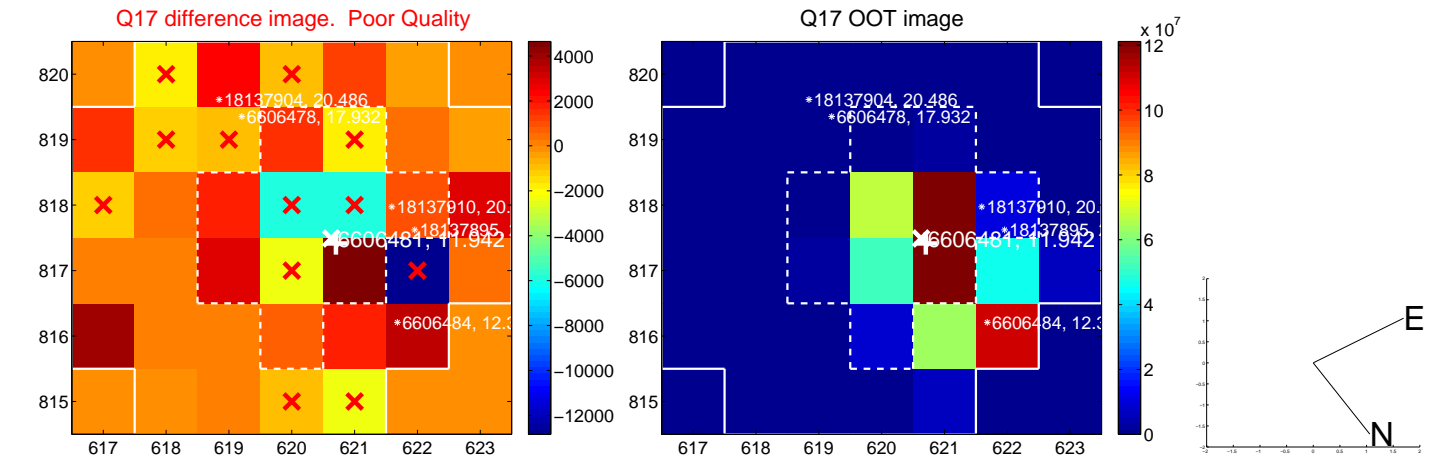
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

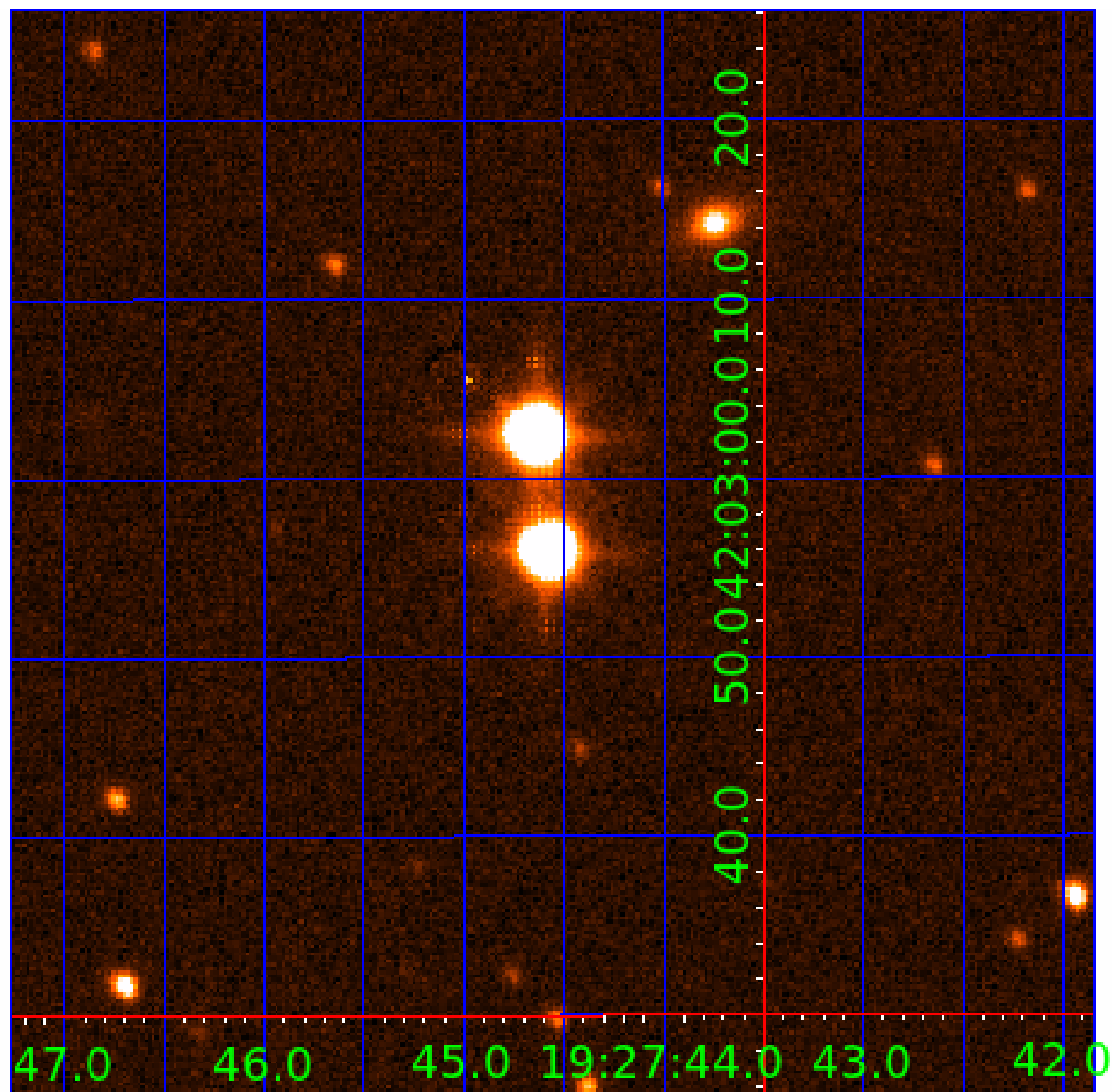


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006606481

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006606481-01 | OBS      | No   | 2.062860      | 131.510854   | 15.0        | 14.824           | 7.8  | 7.4  | 1.20                        | 6551            | 0.49                   | 2059.41                |
| 006606481-03 | OBS      | No   | 59.728174     | 147.161243   | 430.3       | 20.482           | 11.8 | 11.0 | 1.20                        | 6551            | 4.79                   | 23.16                  |
| 006606481-04 | OBS      | No   | 44.654730     | 136.804552   | 133.2       | 6.266            | 10.2 | 6.7  | 1.20                        | 6551            | 1.63                   | 34.14                  |
| 006606481-05 | OBS      | No   | 34.883059     | 163.824645   | 185.3       | 1.427            | 9.5  | 9.5  | 1.20                        | 6551            | 1.73                   | 47.45                  |
| 006606481-06 | OBS      | No   | 14.157855     | 143.959628   | 154.6       | 1.301            | 8.3  | 9.2  | 1.20                        | 6551            | 2.24                   | 157.90                 |
| 006606481-07 | OBS      | No   | 42.655509     | 157.218044   | 201.1       | 2.626            | 8.6  | 8.6  | 1.20                        | 6551            | 1.92                   | 36.29                  |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 006606481-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS  |
| 006606481-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS                         |
| 006606481-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 006606481-05 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | TRANS_GAPPED—MOD_NONUNIQ_DV—HALO_GHOST   |
| 006606481-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT                                 |
| 006606481-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_KIC_POS  |

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

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

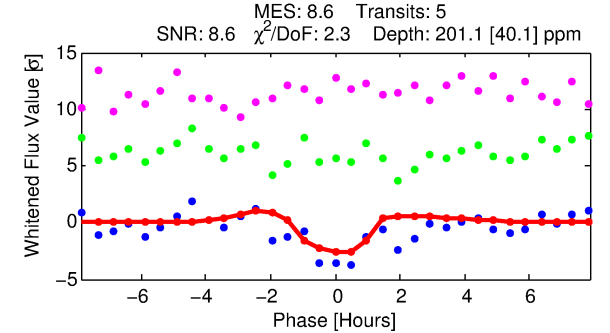
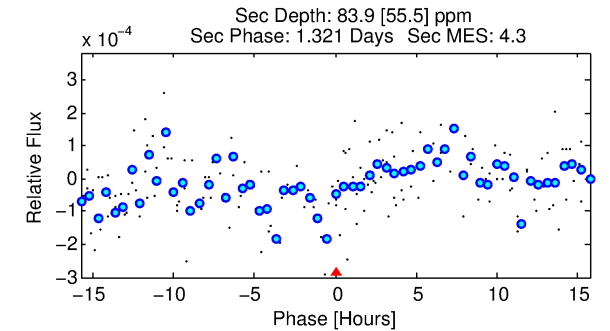
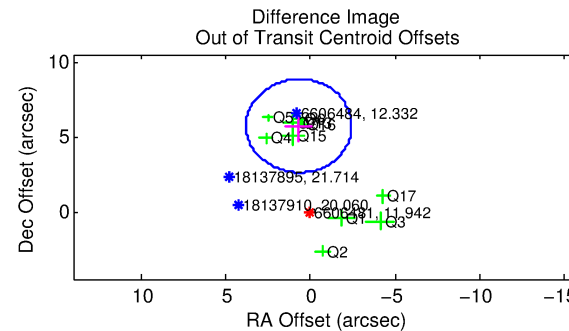
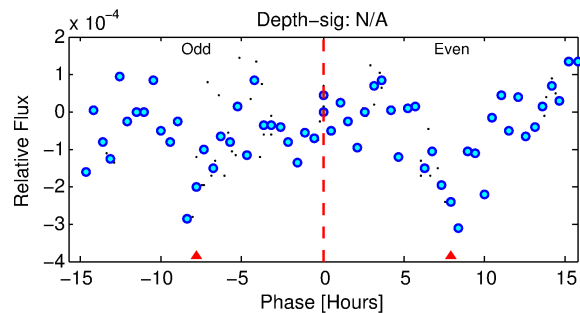
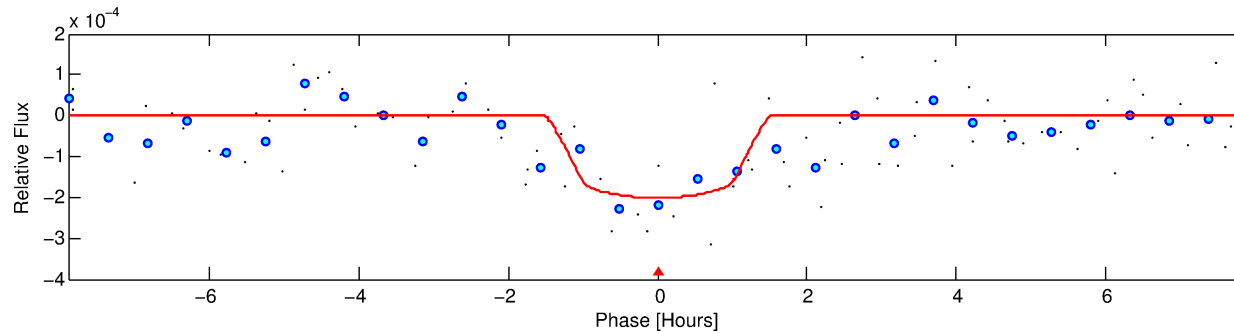
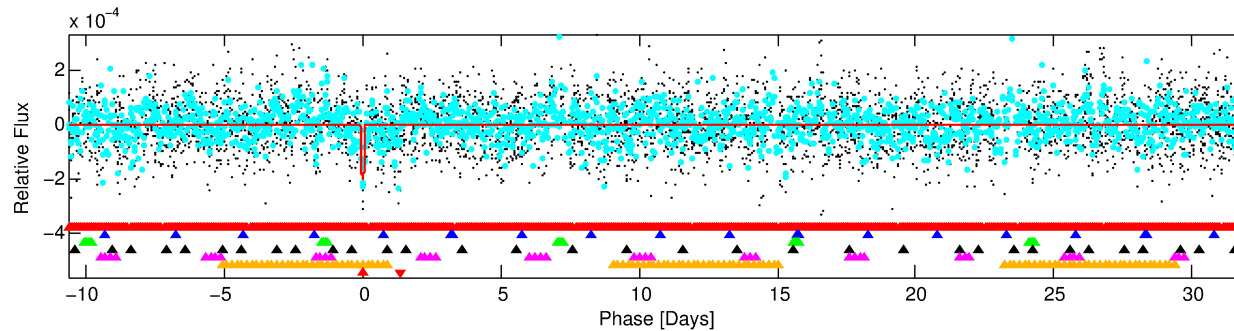
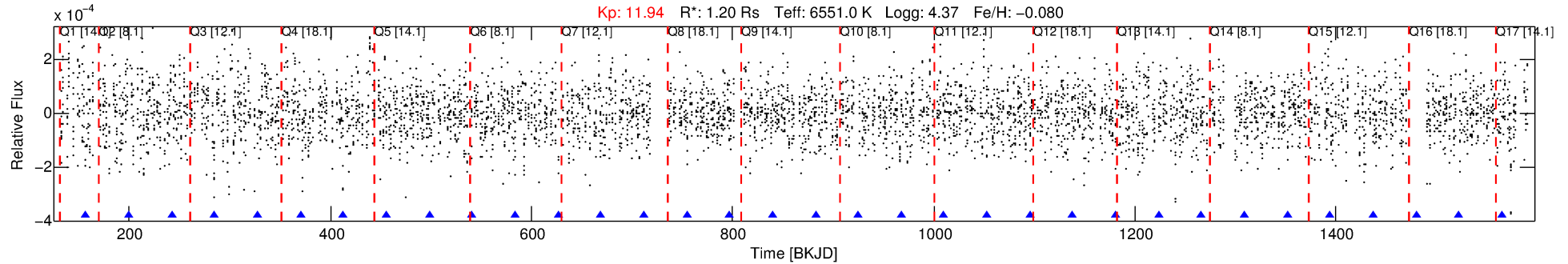
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006606481-07

No Significant Match Found

# DV One-Page Summary

KIC: 6606481 Candidate: 7 of 7 Period: 42.656 d



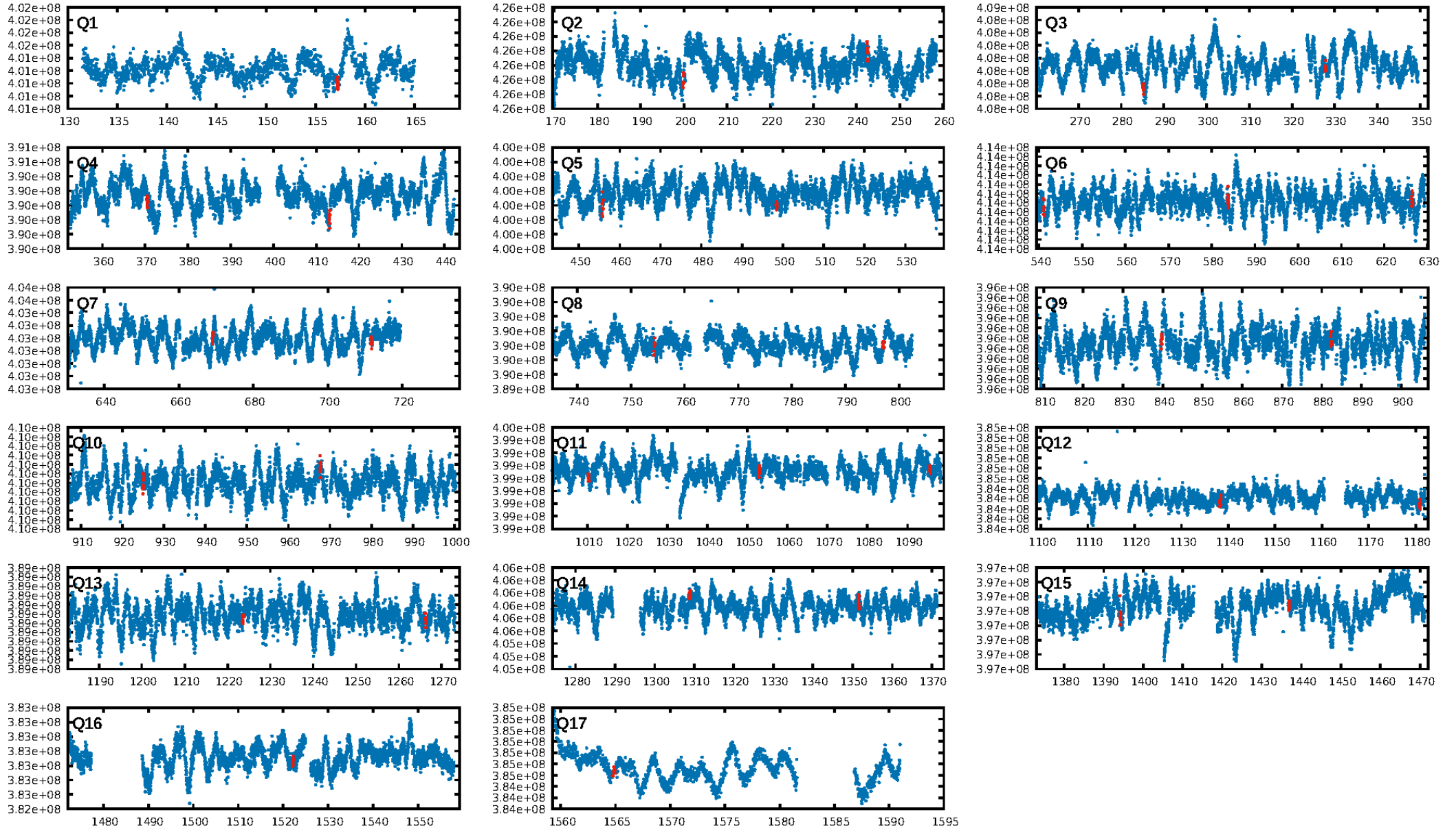
## DV Fit Results:

Period = 42.65551 [0.00069] d  
Epoch = 157.2180 [0.0073] BKJD  
 $R_p/R^* = 0.0147$  [0.0104]  
 $a/R^* = 68.62$  [264.39]  
 $b = 0.85$  [1.26]  
 $\text{Seff} = 36.29$  [15.38]  
 $T_{\text{eq}} = 626$  [66] K  
 $R_p = 1.92$  [1.51]  $R_e$   
 $a = 0.2548$  [0.0735] AU  
 $\text{Ag} = 814.87$  [1312.88] [0.62] $\sigma$   
 $T_{\text{eff}} = 5170$  [2021] K [2.25] $\sigma$

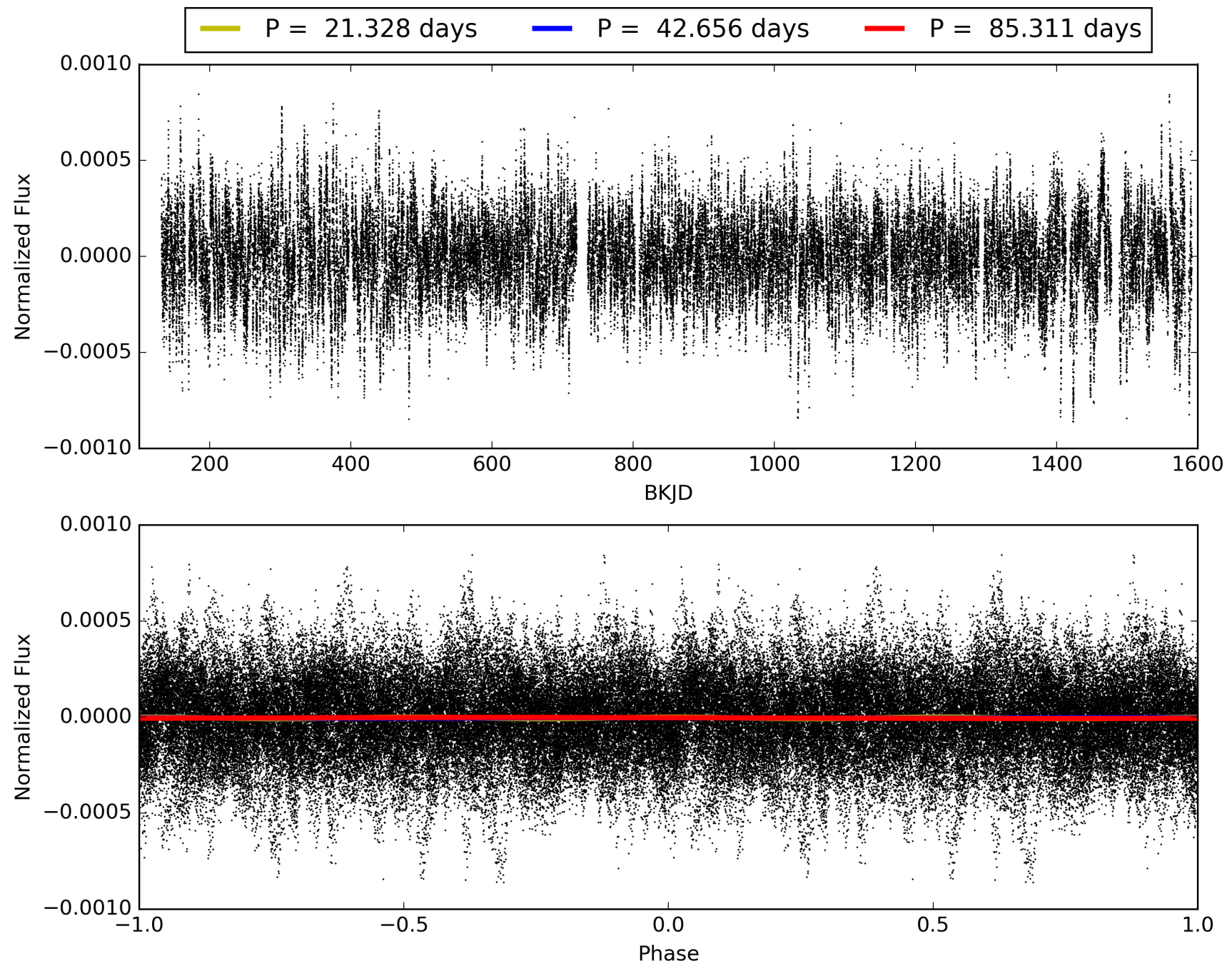
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [62.42] $\sigma$   
LongPeriod-sig: 100.0% [7.06] $\sigma$   
ModelChiSquare2-sig: 4.9%  
ModelChiSquareGof-sig: 89.5%  
**Bootstrap-pfa: 2.35e-09**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 1.417  
Centroid-sig: 1.9%  
**Centroid-so: 2.991 arcsec [4.32] $\sigma$**   
**OotOffset-rm: 5.765 arcsec [5.55] $\sigma$**   
**KicOffset-rm: 6.825 arcsec [7.00] $\sigma$**   
OotOffset-st: 2/3/2/4 [11]  
KicOffset-st: 2/3/2/4 [11]  
DiffImageQuality-fgm: 0.36 [4/11]  
DiffImageOverlap-fno: 0.59 [10/17]

# TCE 006606481-07, PDC Light Curves

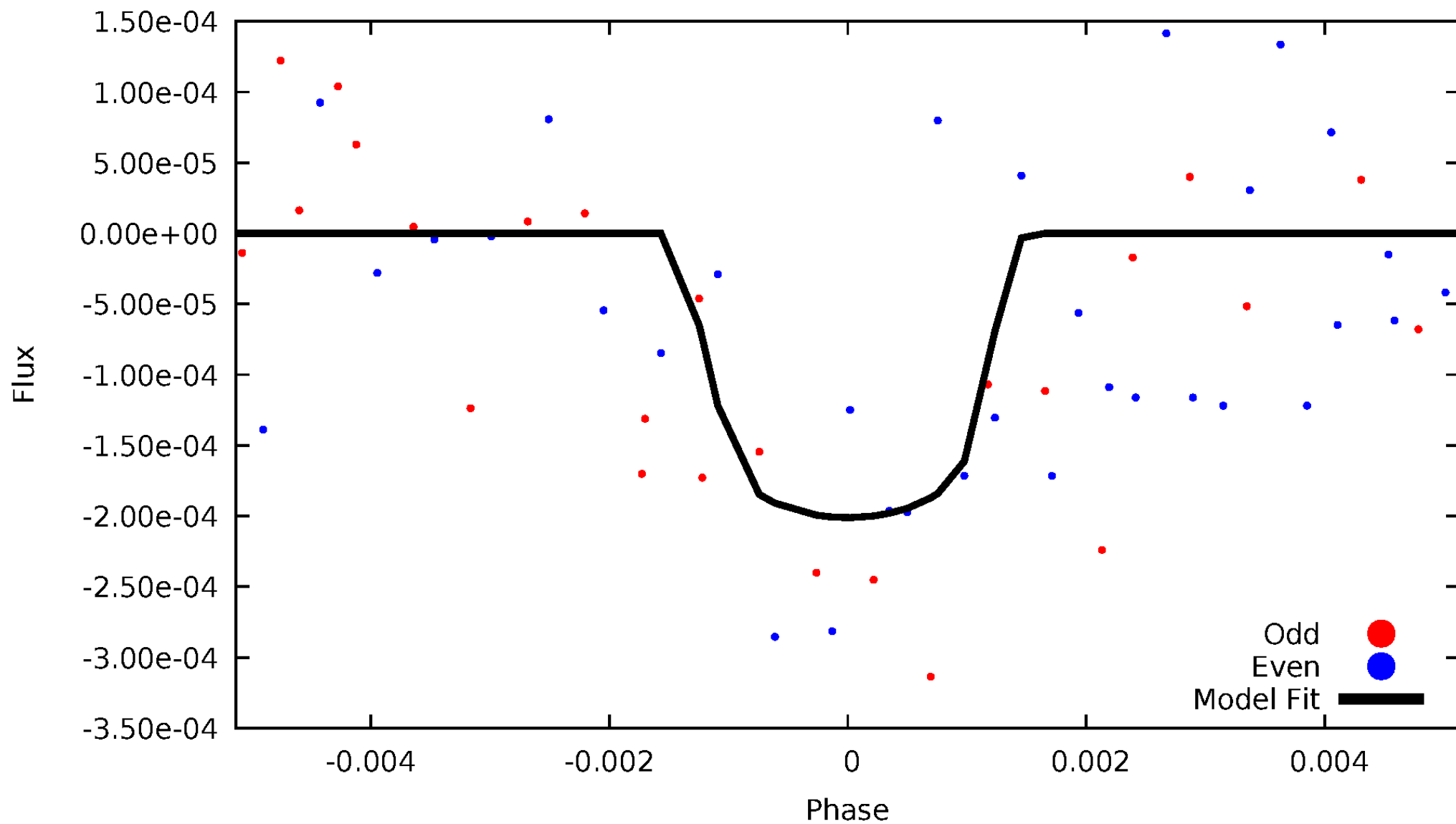


TCE 006606481-07



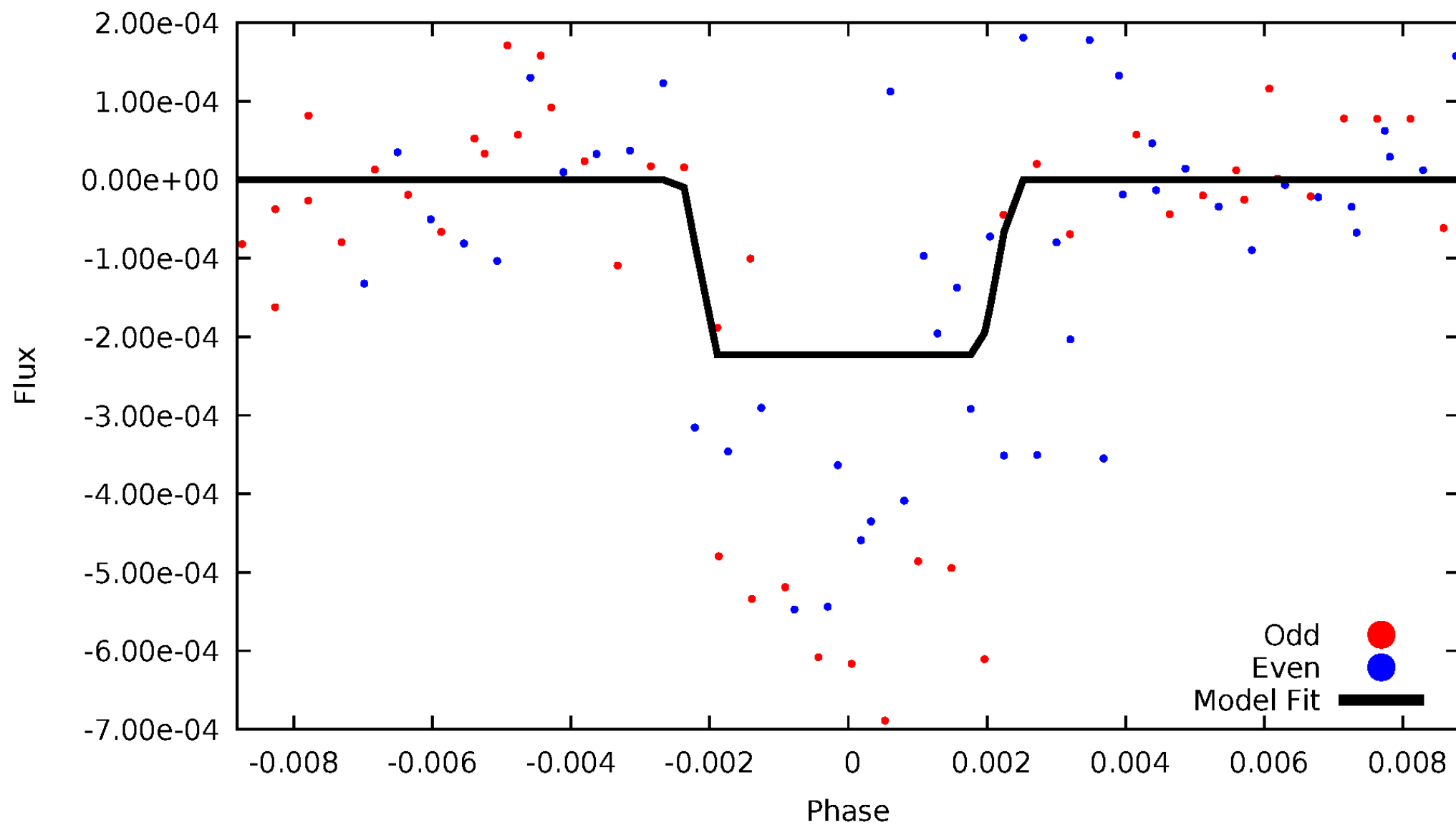
# DV Odd/Even

TCE 006606481-07



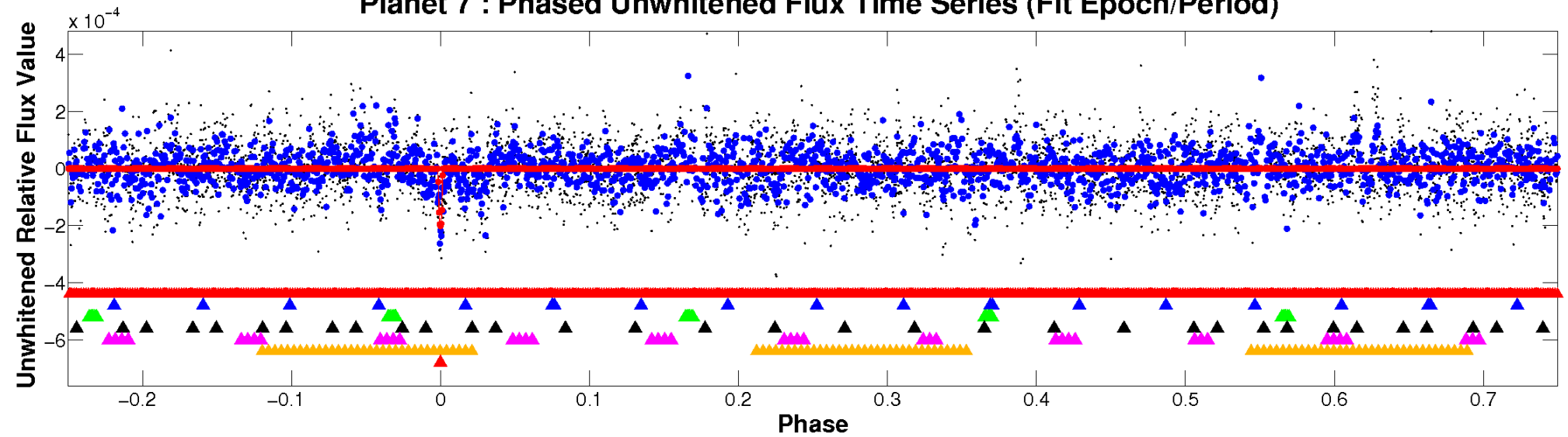
# ALT Odd/Even

TCE 006606481-07

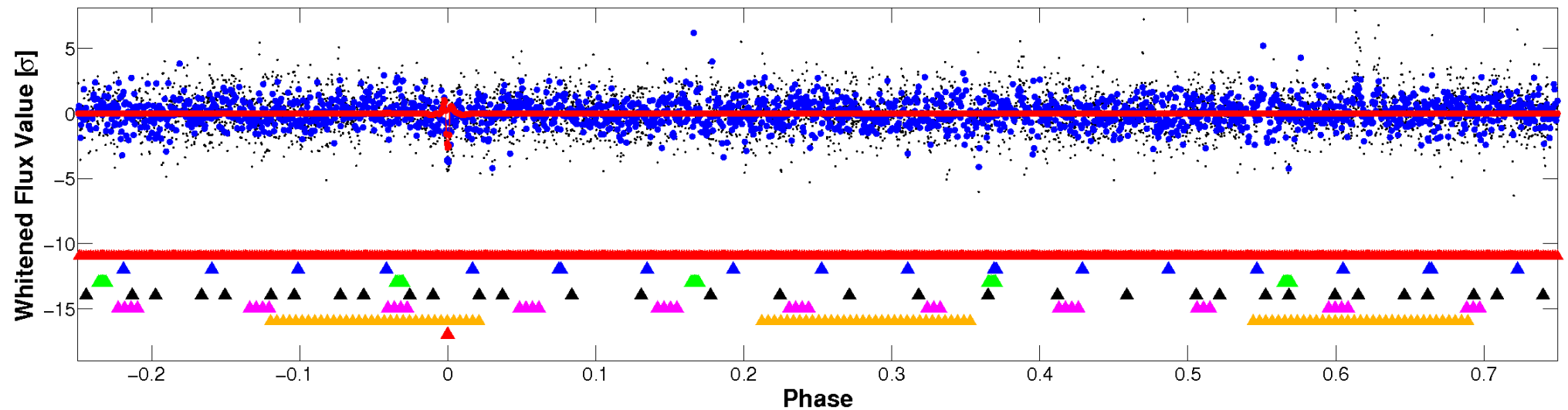


# Non-Whitened Vs. Whitened Light Curve

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

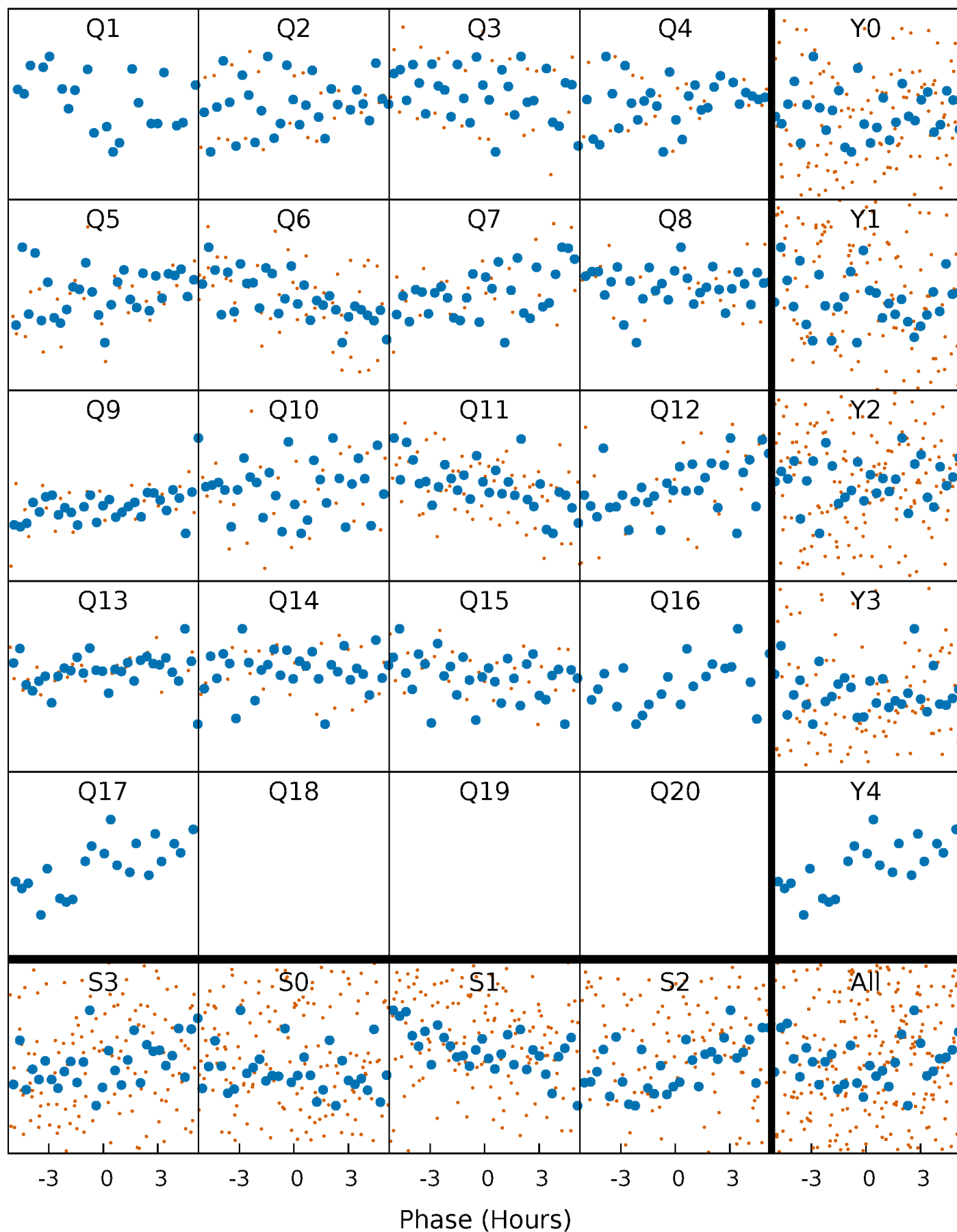


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



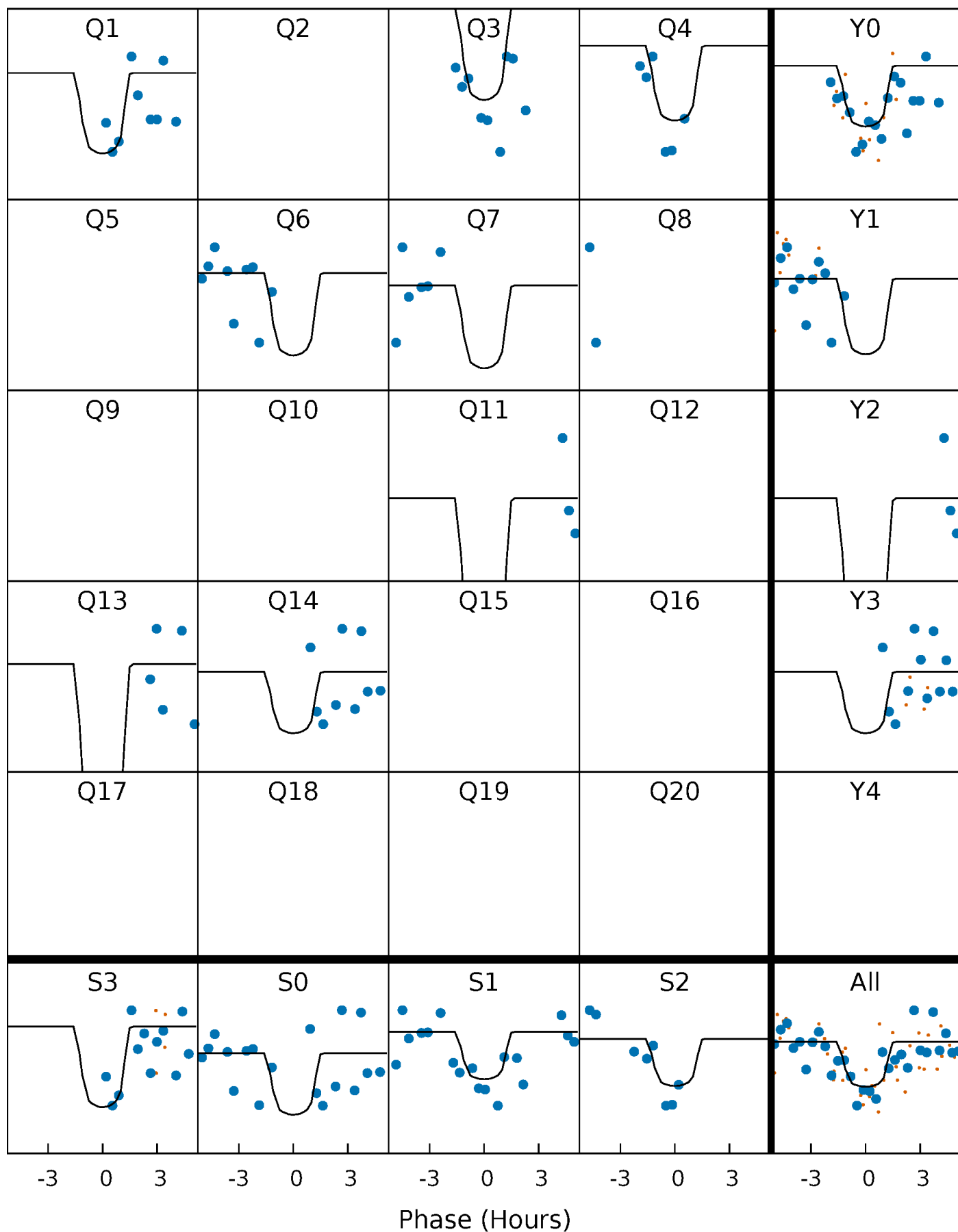
## PDC Quarter-Phased Transit Curves

TCE 006606481-07    P= 42.655509 Days     $T_0=157.218044$  (BKJD)



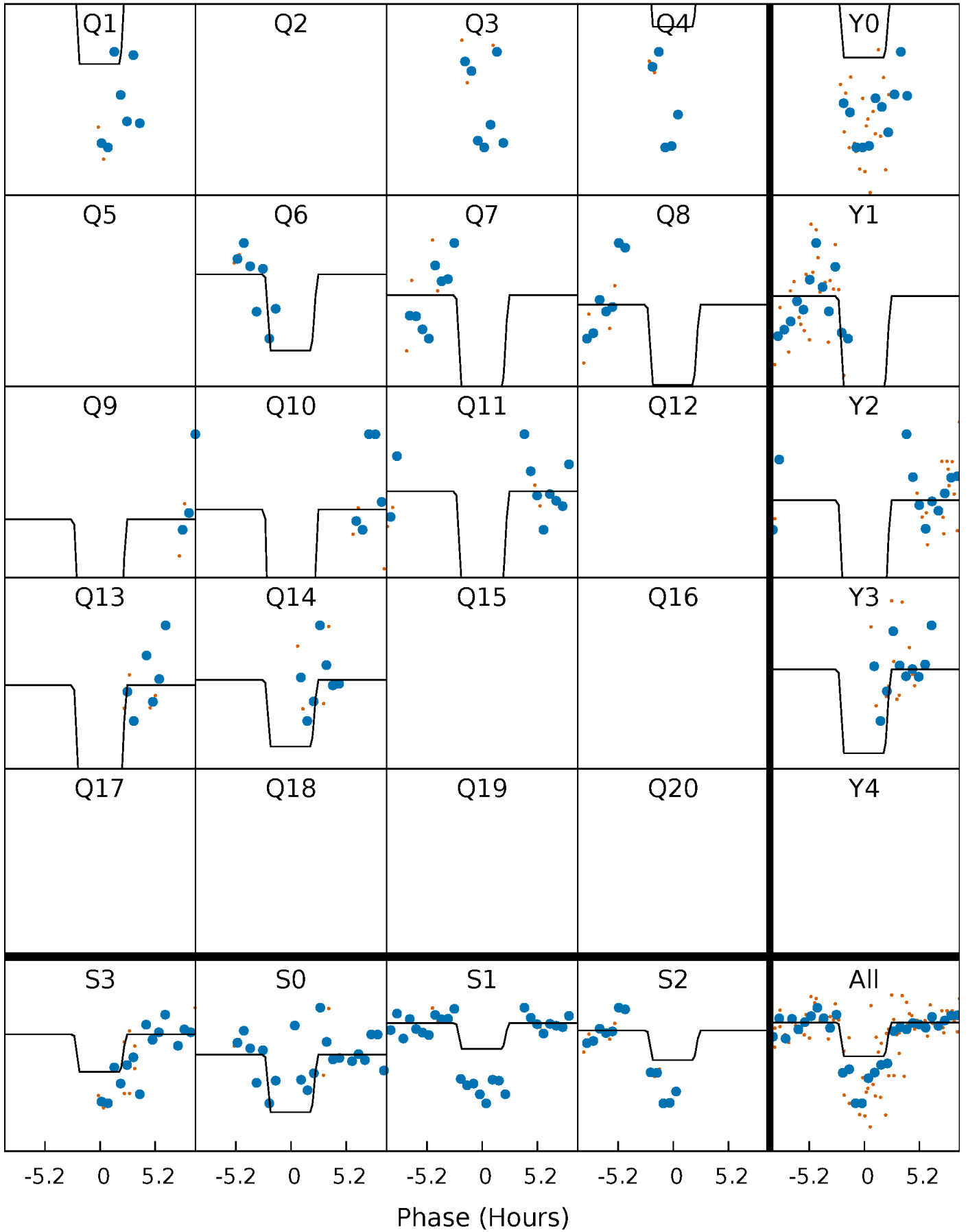
# DV Quarter-Phased Transit Curves

TCE 006606481-07     $P = 42.655509$  Days     $T_0 = 157.218044$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

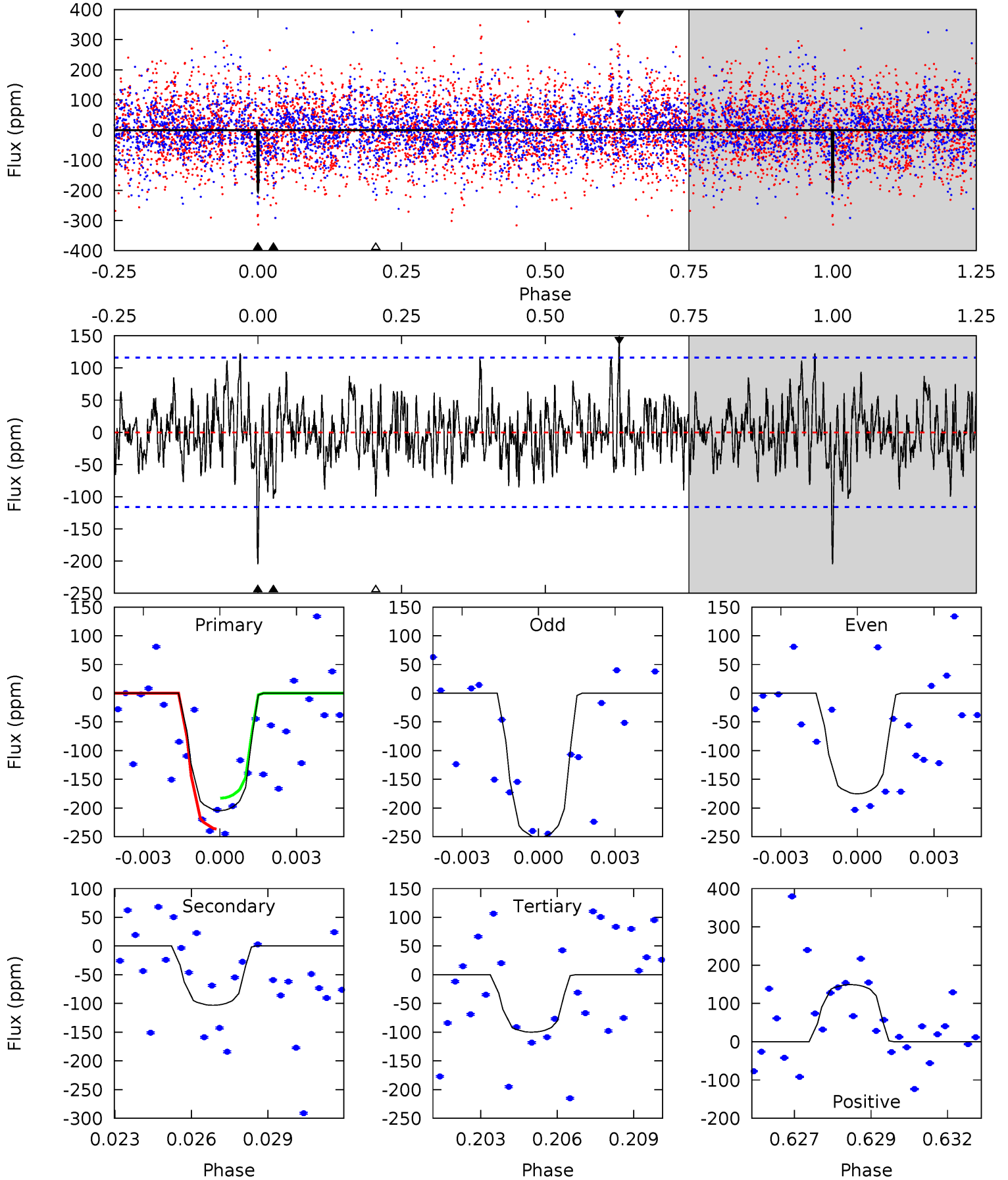
TCE 006606481-07     $P = 42.655474$  Days     $T_0 = 157.225338$  (BKJD)



# DV Model-Shift Uniqueness Test

006606481-07,  $P = 42.655509$  Days,  $E = 114.562535$  Days

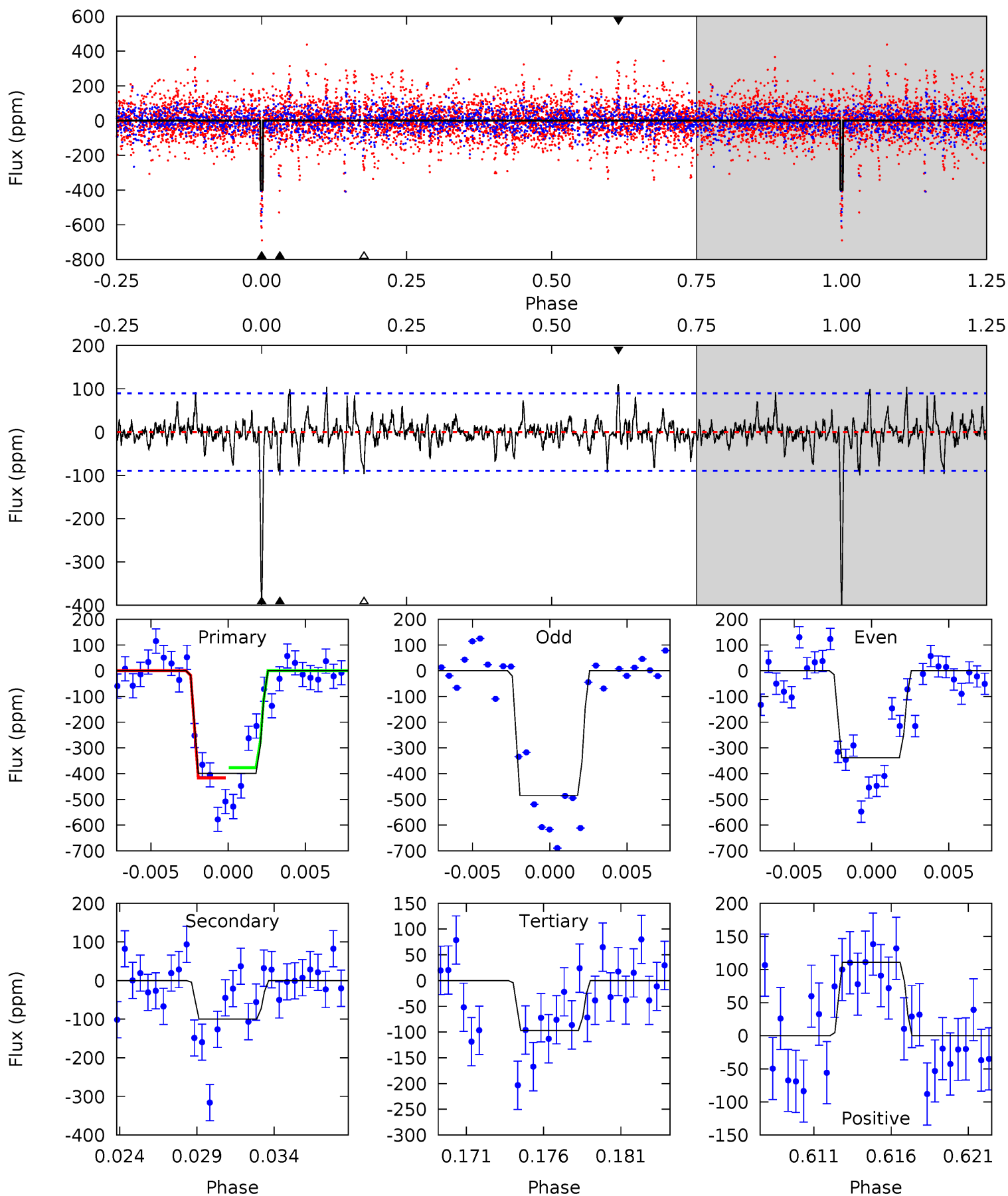
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.27 | 4.68 | 4.53 | 6.76 | 5.26            | 2.98            | 1.64             | 4.74    | 2.51    | 0.14    | -2.08   | 1.65    | 0.77 | 0.42  | 1.18 |



# Alt Model-Shift Uniqueness Test

006606481-07,  $P = 42.655474$  Days,  $E = 114.569864$  Days

| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 23.0 | 5.73 | 5.58 | 6.38 | 5.16            | 2.81            | 1.48             | 17.4    | 16.6    | 0.15    | -0.65   | 3.81    | 0.88 | 0.22  | 1.13 |



### Stellar Parameters For KIC 006606481

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6551^{+145}_{-194}$ | $4.367^{+0.054}_{-0.216}$ | $-0.080^{+0.250}_{-0.300}$ | $1.195^{+0.423}_{-0.141}$ | $1.215^{+0.173}_{-0.173}$ | $1.003^{+0.292}_{-0.533}$                 |
|        | +2%/-3%              | +1%/-5%                   | +312%/-375%                | +35%/-12%                 | +14%/-14%                 | +29%/-53%                                 |
| 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 006606481-07 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$         | $A_{obs}$            |
|---------|---------------|------------------------|-------------------|-----------------------|----------------------|
| DV      | $-103 \pm 22$ | $2.18^{+1.46}_{-1.28}$ | $891^{+66}_{-41}$ | $5227^{+3191}_{-978}$ | $742^{+3676}_{-479}$ |
| Alt.    | $-99 \pm 17$  | $2.23^{+1.42}_{-1.22}$ | $894^{+65}_{-43}$ | $5161^{+2624}_{-932}$ | $673^{+2746}_{-417}$ |

$T_{max}$  = 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

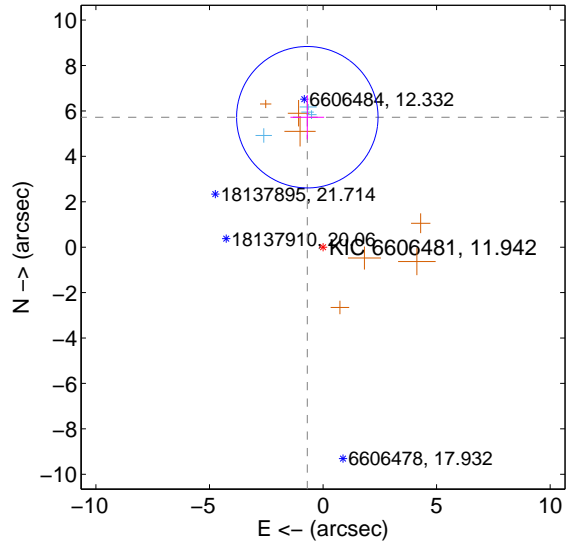
Supplemental centroid analysis for 006606481-07. **Kepler magnitude: 11.94.** Transit SNR 8.58

There are 4 quarters with good PRF difference image offsets

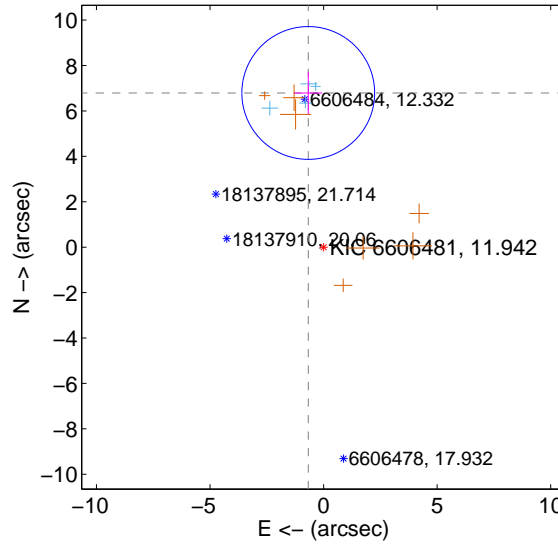
The direct PRF centroid is offset from the target star catalog position by about 0.44 arcsec

|   | Distance in arcsec                  | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|-------------------------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | <b><math>5.765 \pm 1.038</math></b> | <b>5.55</b>         | $0.693 \pm 0.743$ | $5.723 \pm 0.974$ |
| PRF-fit source offset from KIC position | <b><math>6.825 \pm 0.975</math></b> | <b>7.00</b>         | $0.675 \pm 0.620$ | $6.791 \pm 0.930$ |
| photometric centroid source offset      | <b><math>2.99 \pm 0.69</math></b>   | <b>4.32</b>         | $0.82 \pm 0.26$   | $2.88 \pm 0.72$   |

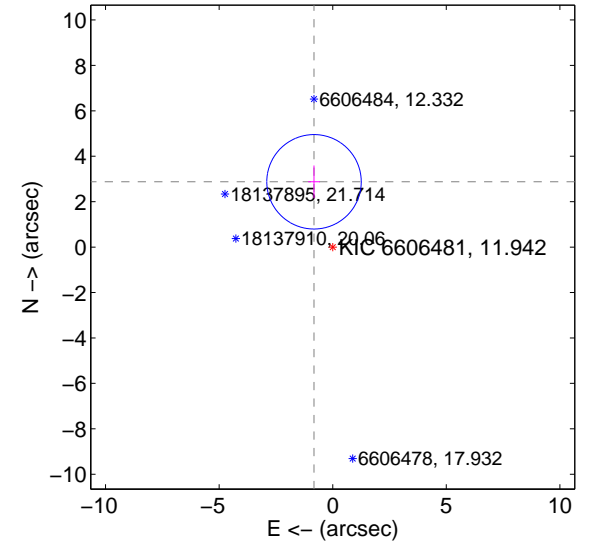
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

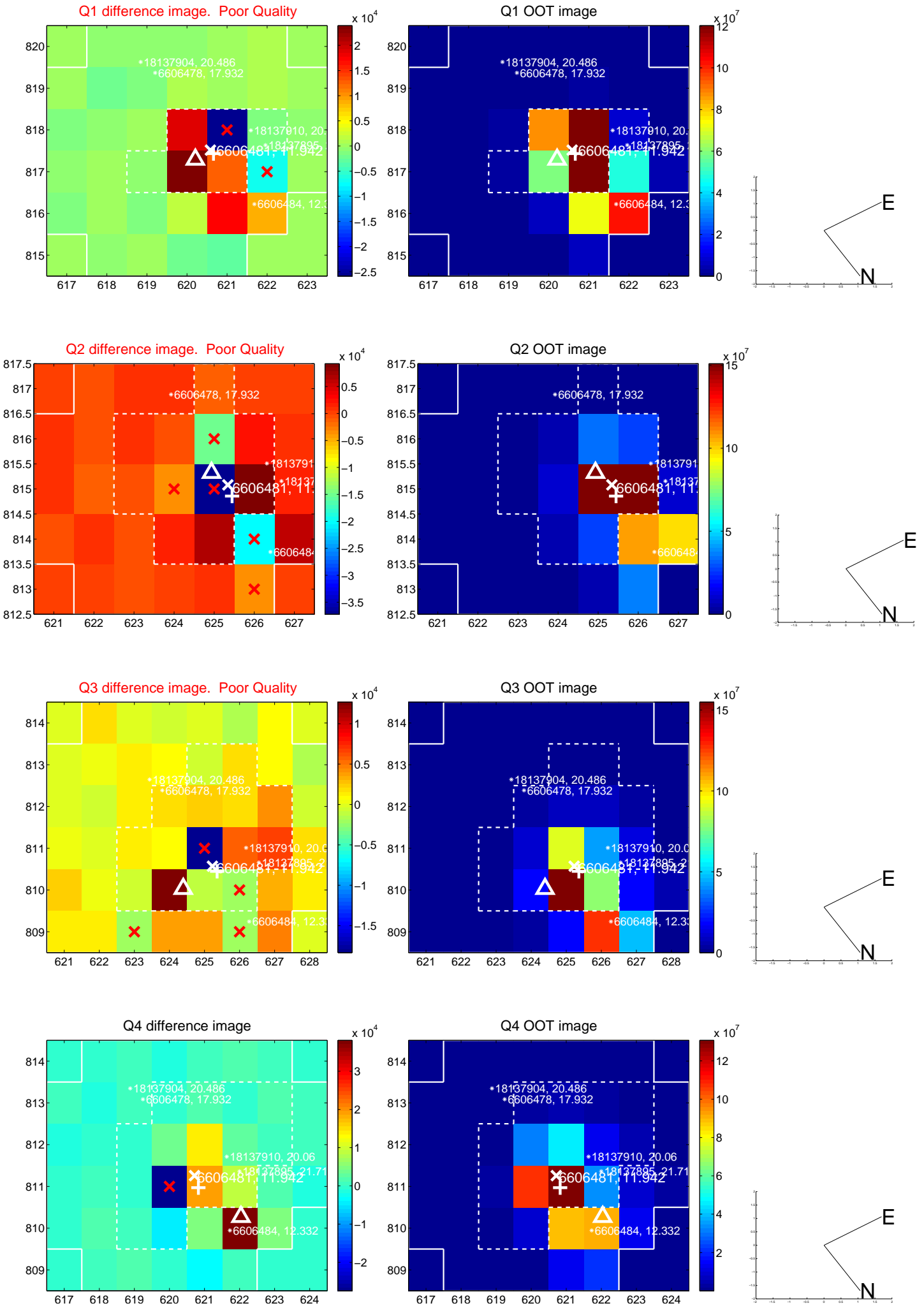


offset from photometric centroids

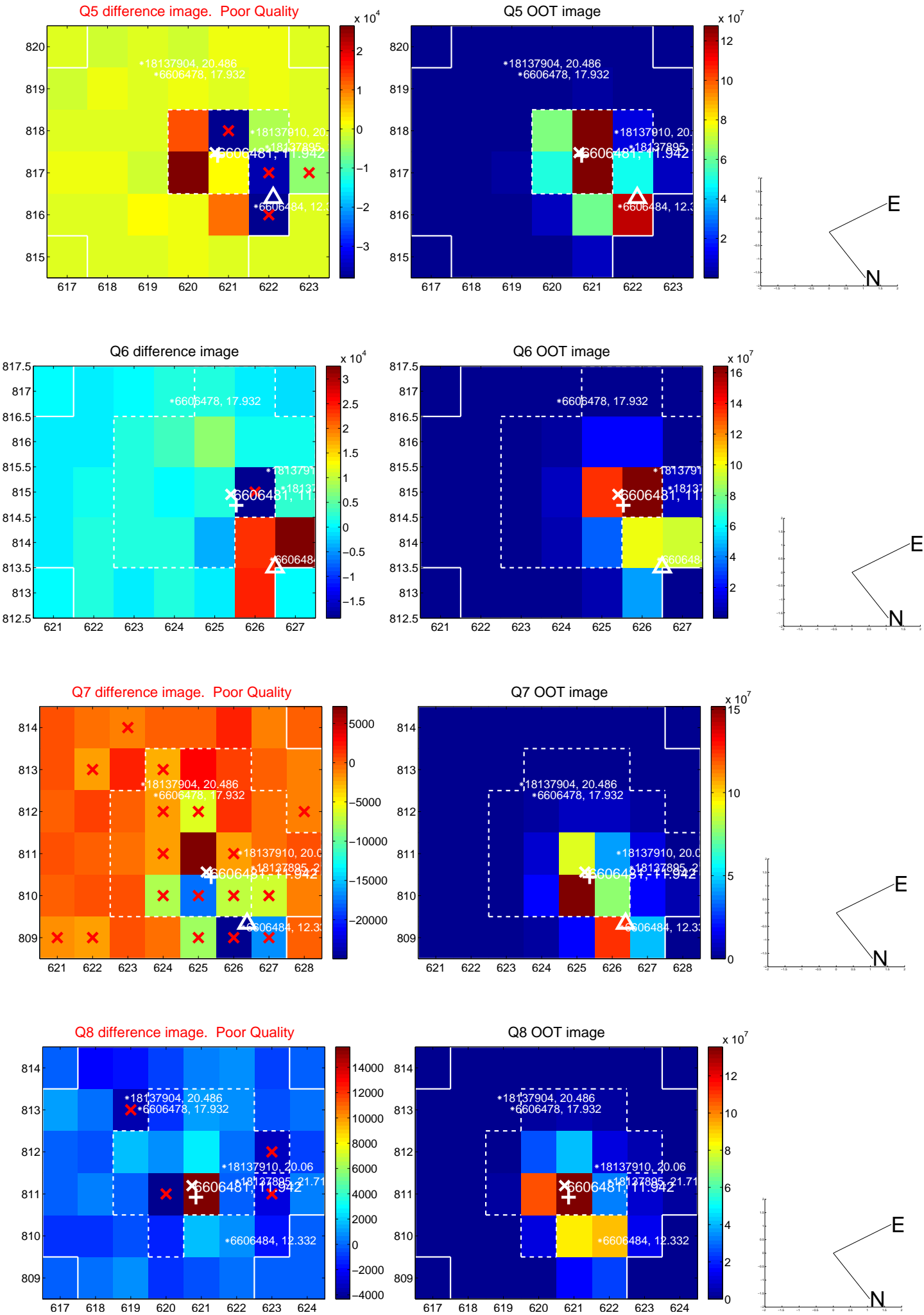


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

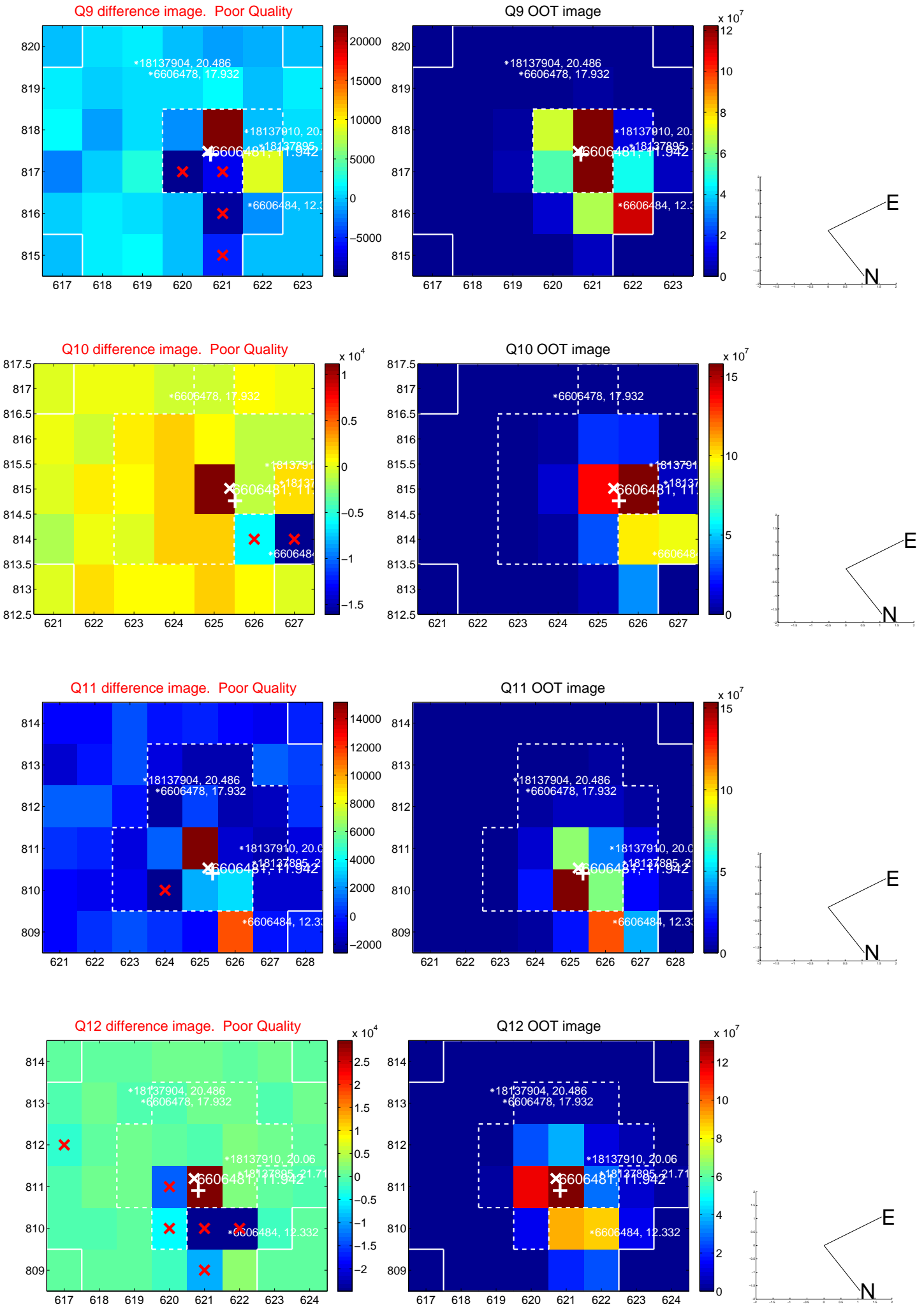
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



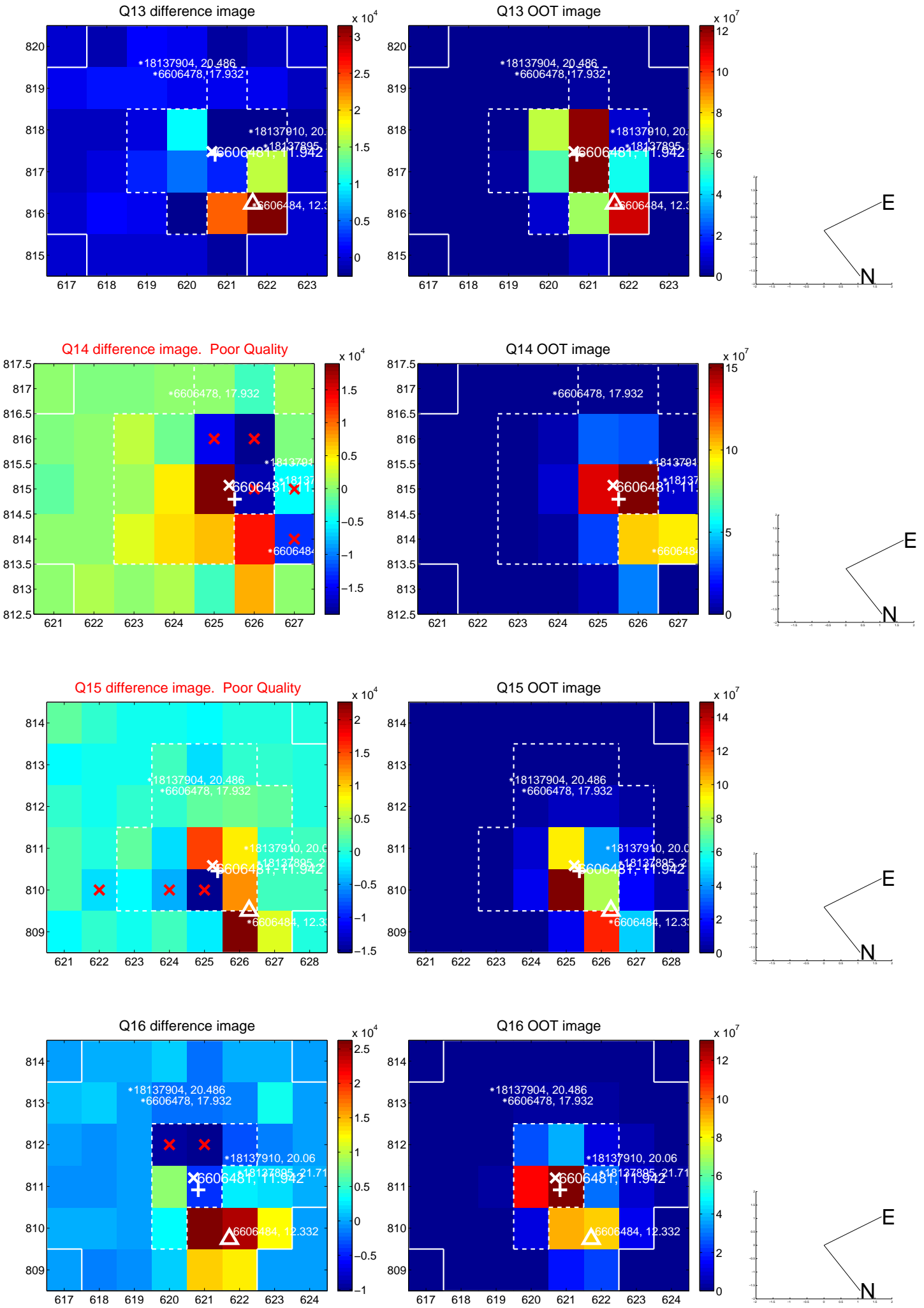
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



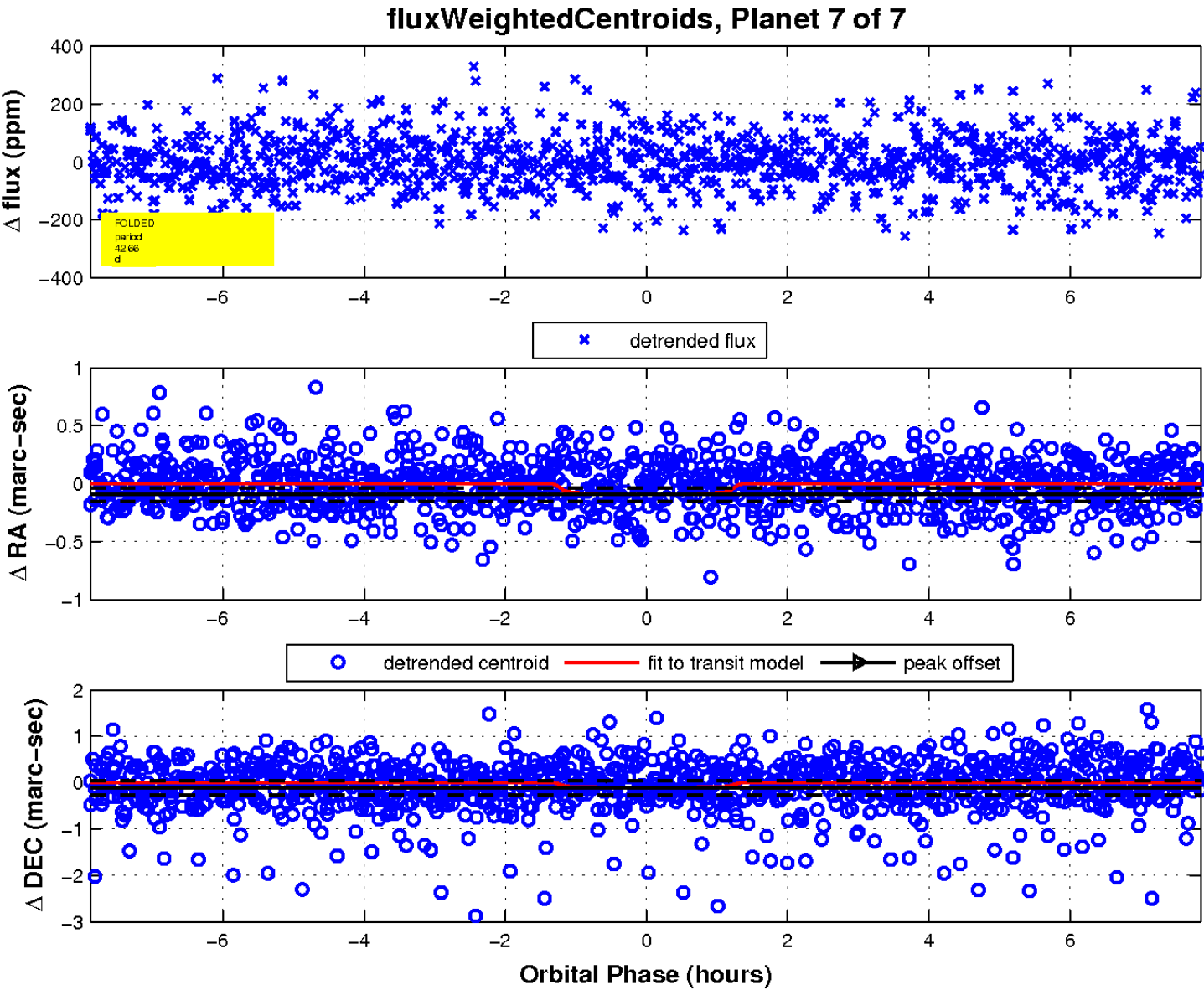
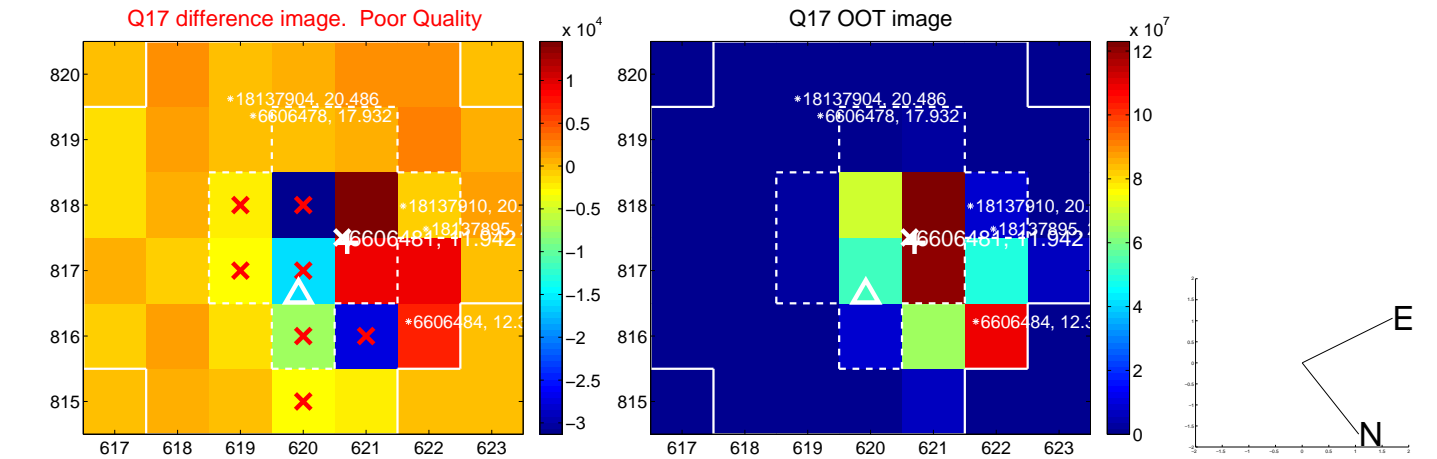
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

