

# KIC 002583777

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 002583777-01 | OBS      | 6284.01 | 0.958124      | 132.049106   | 1281.6      | 1.889            | 362.7 | 261.0 | 1.36                        | 6032            | 5.77                   | 6303.75                |
| 002583777-02 | OBS      | No      | 0.958115      | 131.570369   | 5164.3      | 1.500            | 450.9 | -1.0  | 1.36                        | 6032            | 9.85                   | 6303.83                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                                           |
|--------------|----------|------|-------|---|---|---|---|--------------------------------------------------------------------|
| 002583777-01 | OBS      | FP   | 0.00  | 0 | 1 | 1 | 0 | MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST |
| 002583777-02 | OBS      | FP   | 0.00  | 1 | 1 | 1 | 0 | IS_SEC_TCE—CENT_NOFITS—HALO_GHOST                                  |

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

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

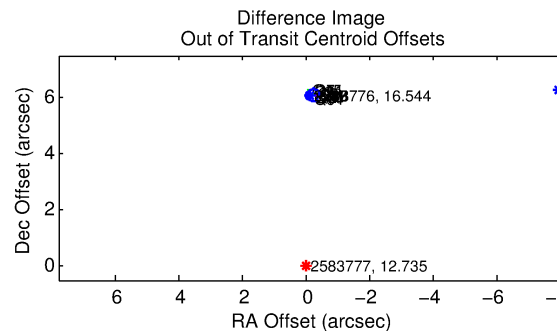
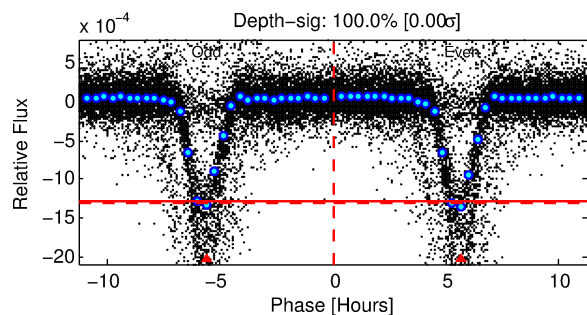
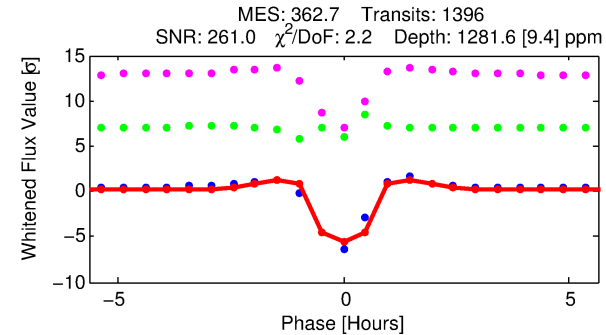
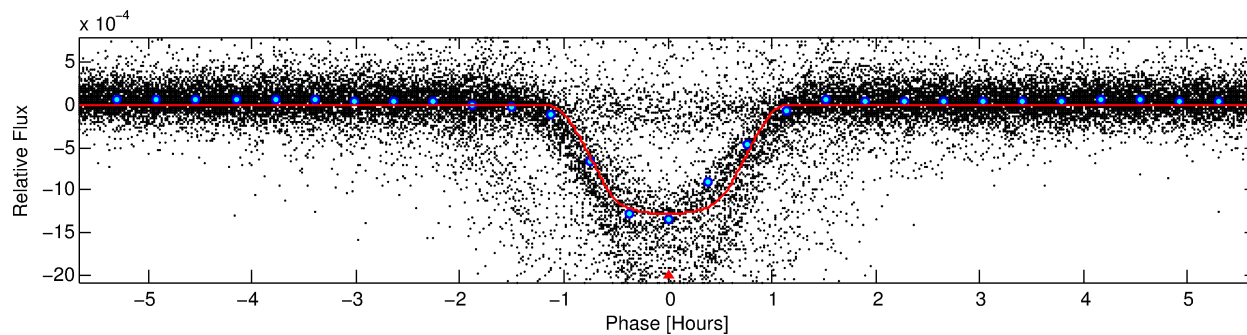
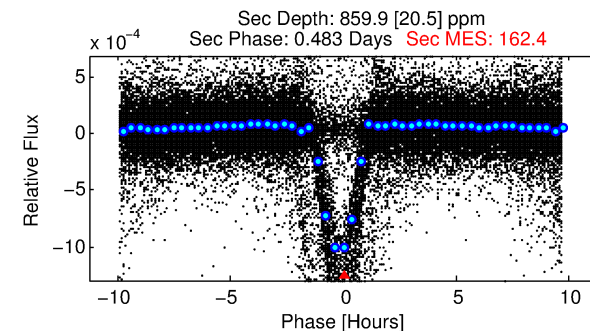
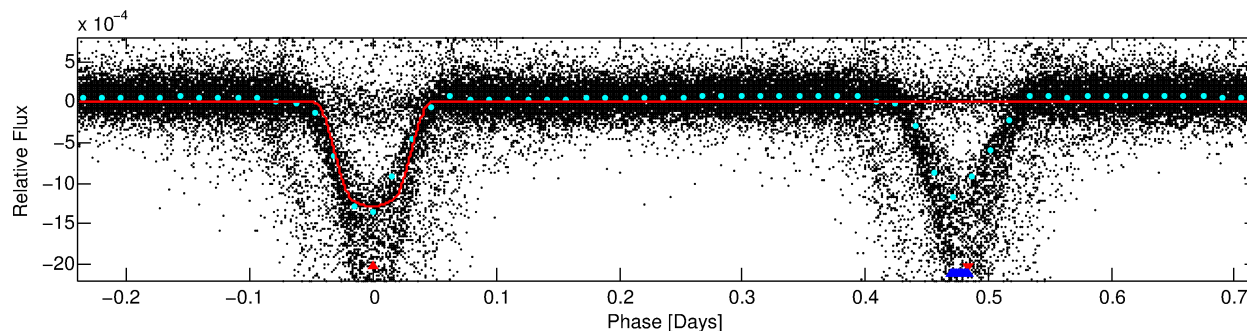
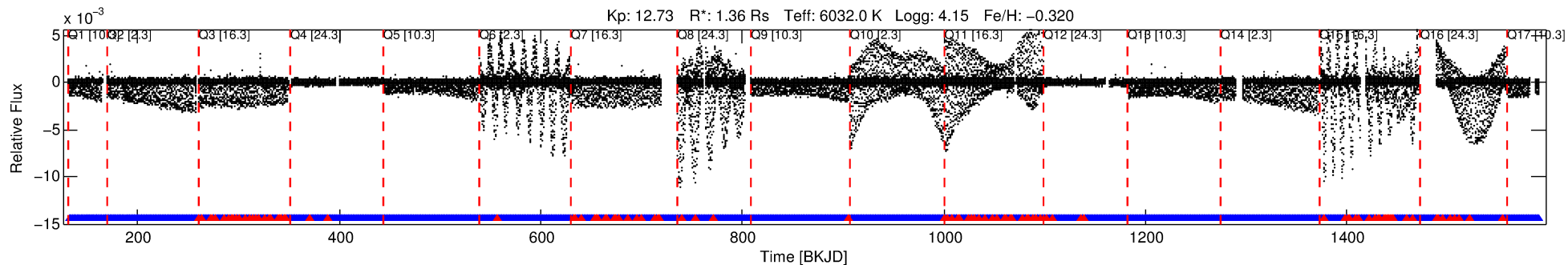
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002583777-01

No Significant Match Found

# DV One-Page Summary

KIC: 2583777 Candidate: 1 of 2 Period: 0.958 d  
KOI: K06284.01 Corr: 0.877



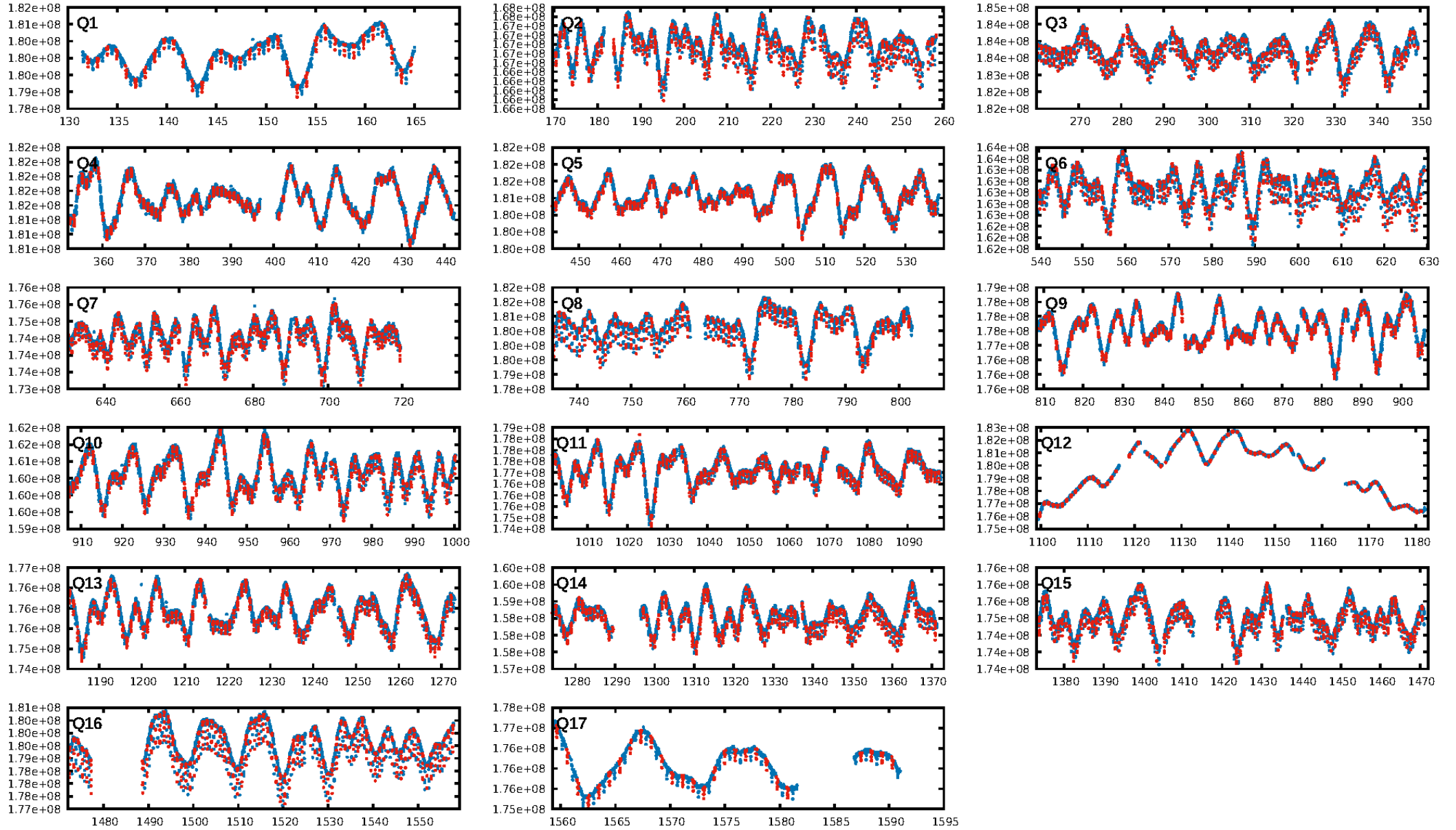
## DV Fit Results:

Period = 0.95812 [0.00000] d  
Epoch = 132.0491 [0.0001] BKJD  
Rp/R\* = 0.0387 [0.0004]  
a/R\* = 2.22 [0.07]  
b = 0.90 [0.01]  
Seff = 6303.75 [3288.21]  
Teff = 2272 [296] K  
Rp = 5.77 [1.88] Re  
a = 0.0187 [0.0059] AU  
Ag = 4.98 [2.53] [1.57 $\sigma$ ]  
Teffp = 5249 [163] K [8.81 $\sigma$ ]

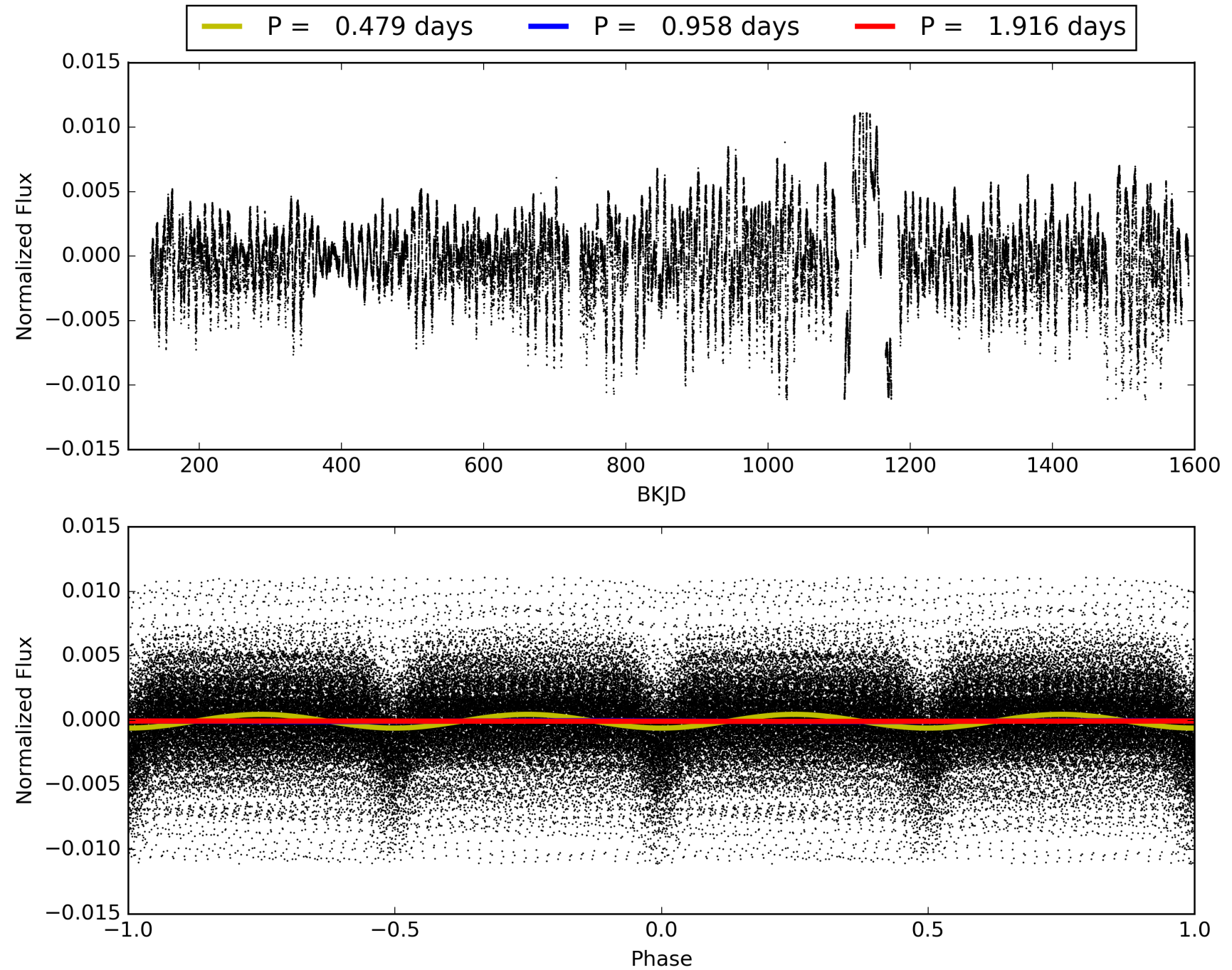
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.92 [1225/1334]  
GhostDiagnostic-chr: -0.02851  
Centroid-sig: 0.0%  
Centroid-so: 26.839 arcsec [1227.58 $\sigma$ ]  
OotOffset-rm: 6.093 arcsec [86.59 $\sigma$ ]  
KicOffset-rm: 6.027 arcsec [88.31 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 002583777-01, PDC Light Curves

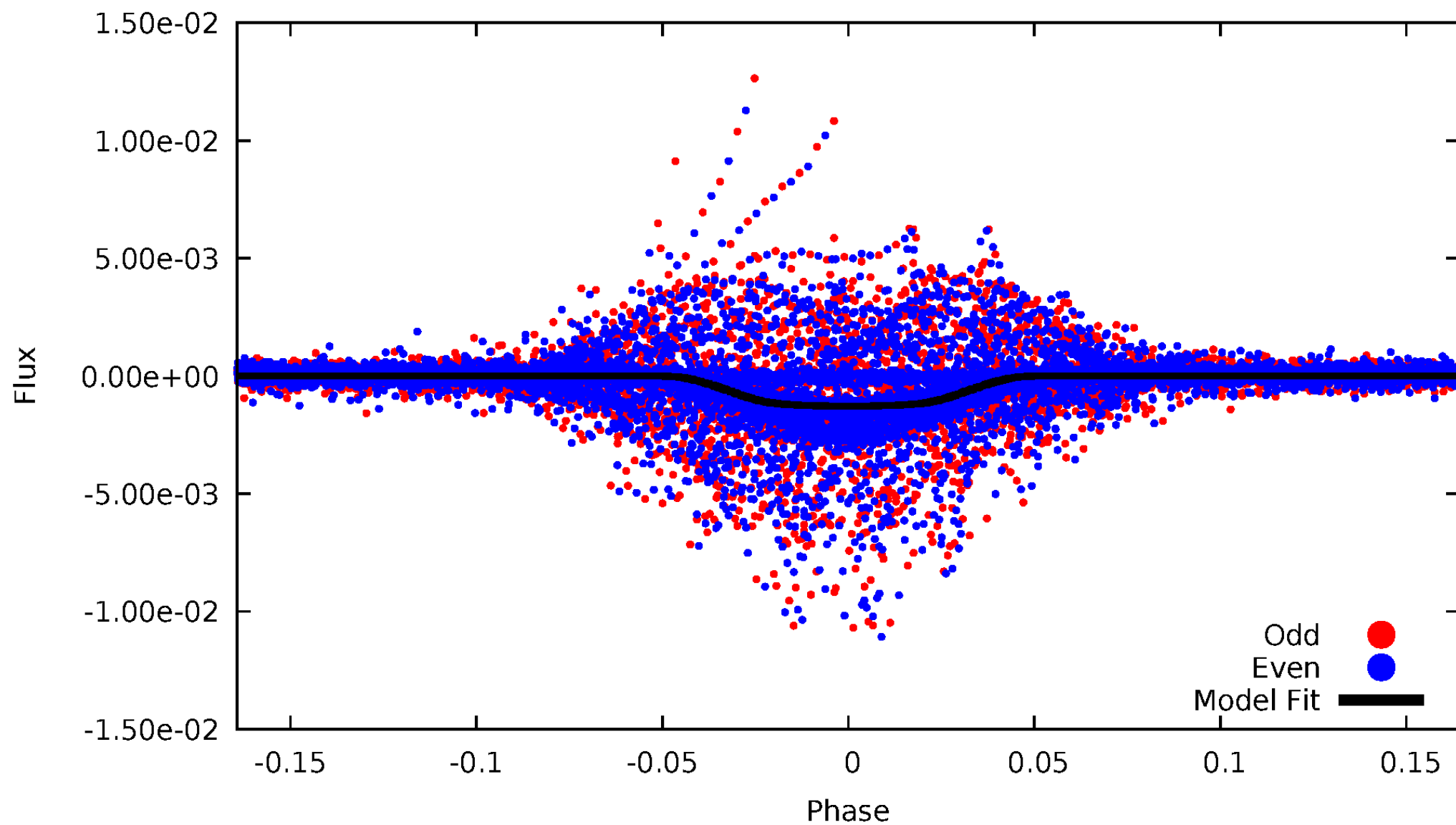


# TCE 002583777-01



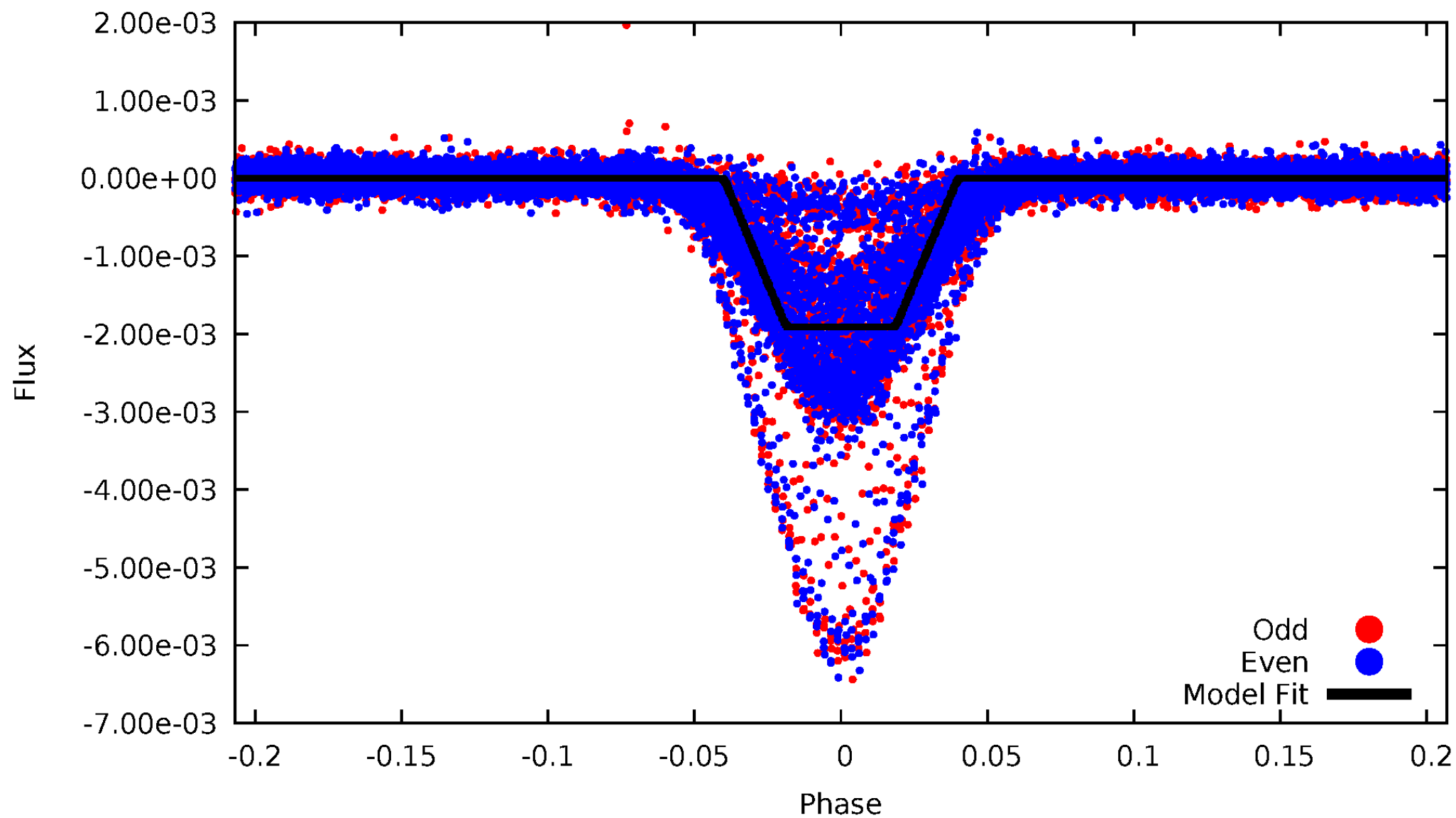
# DV Odd/Even

TCE 002583777-01



# ALT Odd/Even

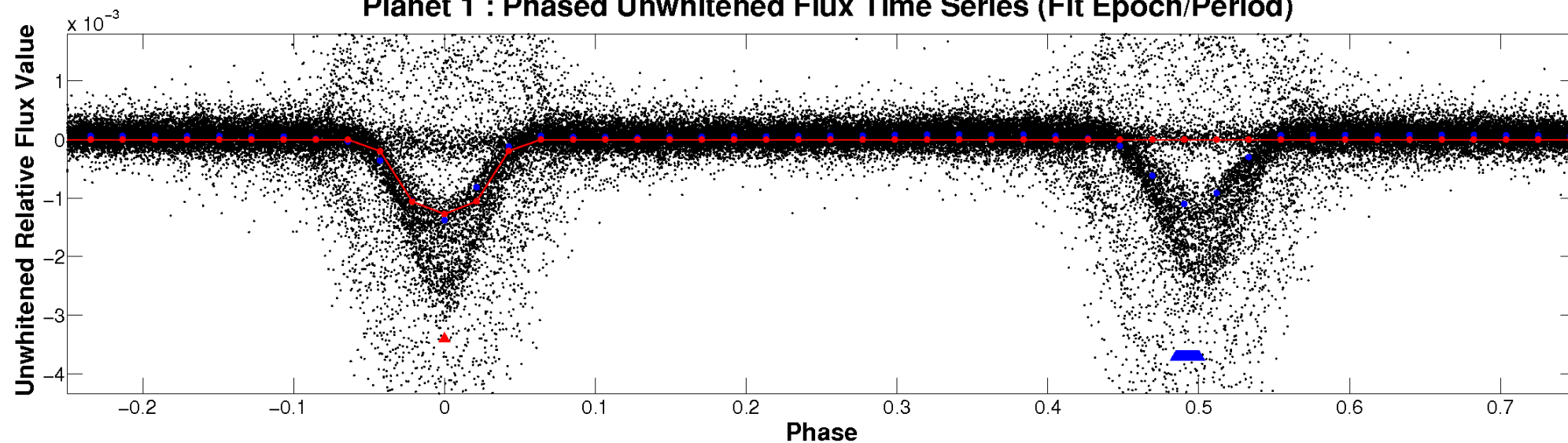
TCE 002583777-01



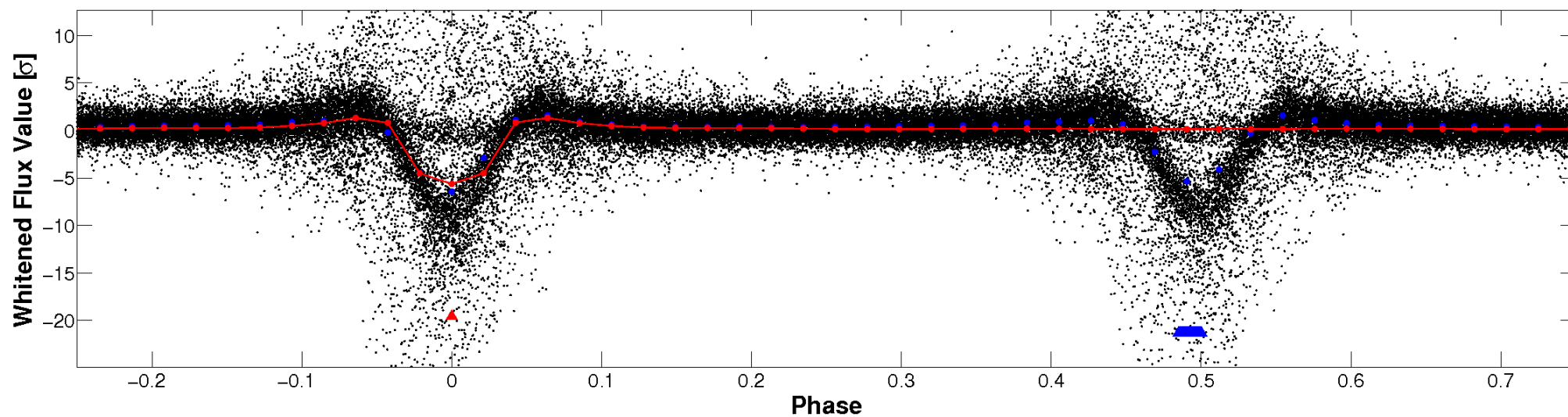


# Non-Whitened Vs. Whitened Light Curve

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

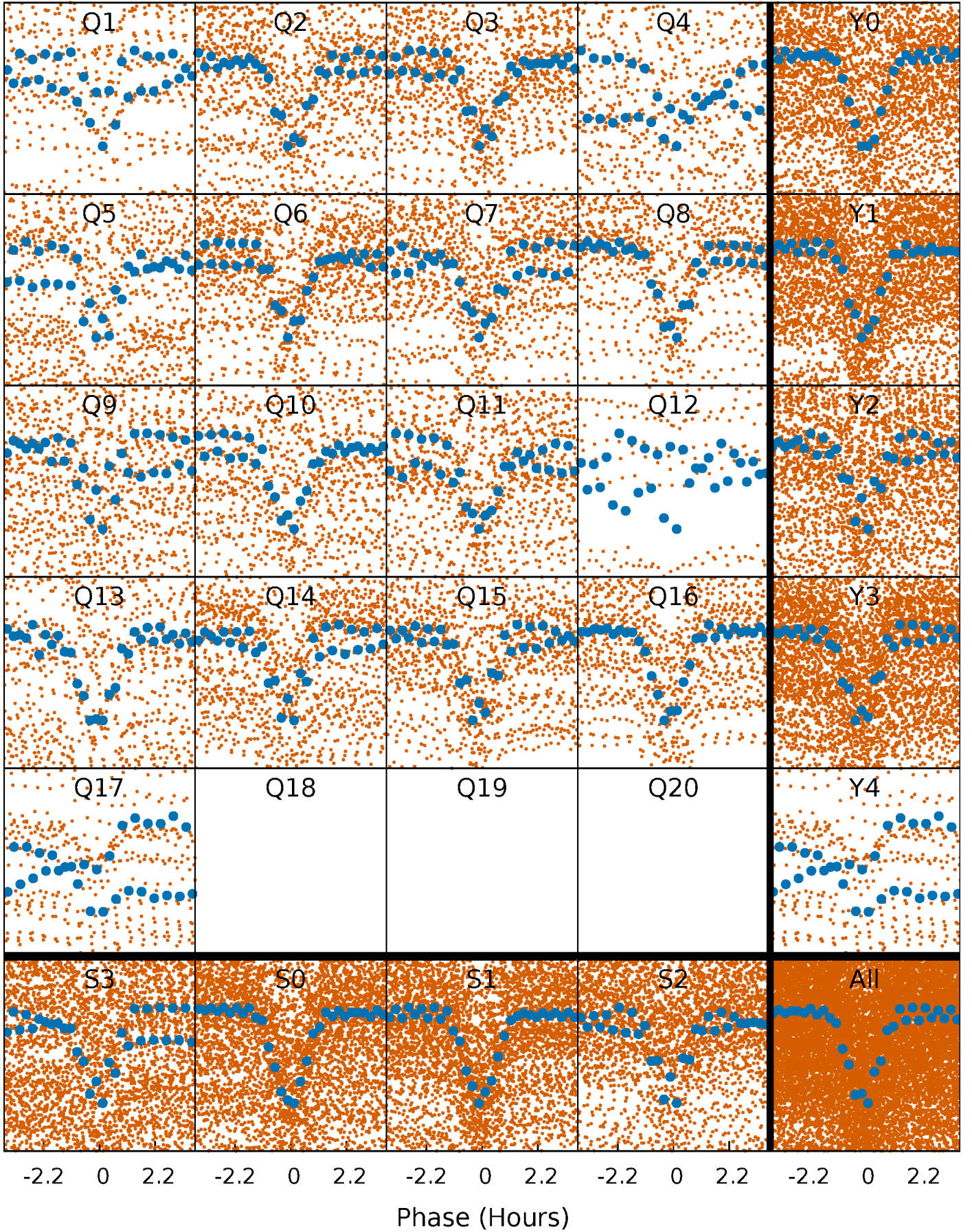


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

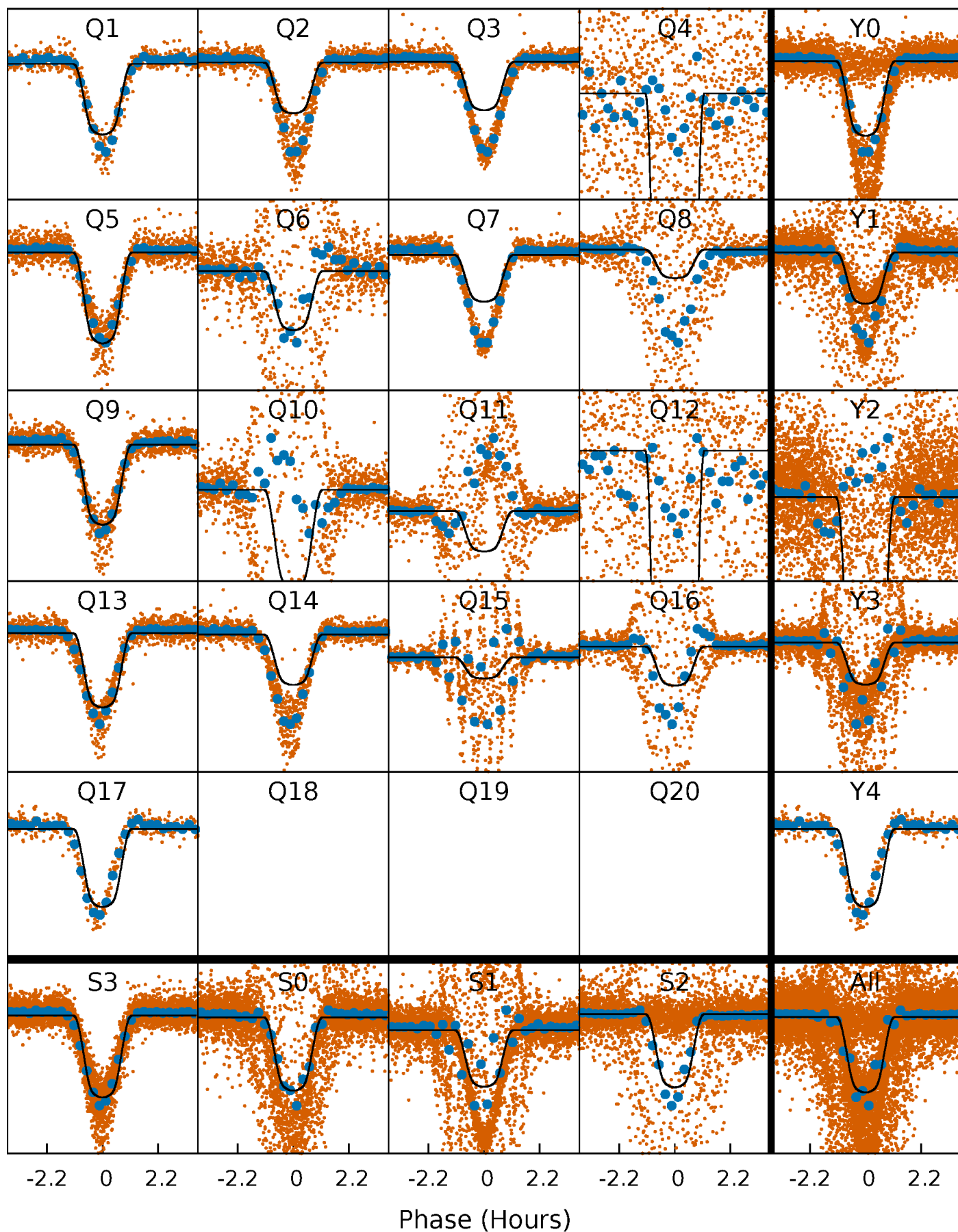
TCE 002583777-01   P= 0.958124 Days    $T_0=132.049106$  (BKJD)





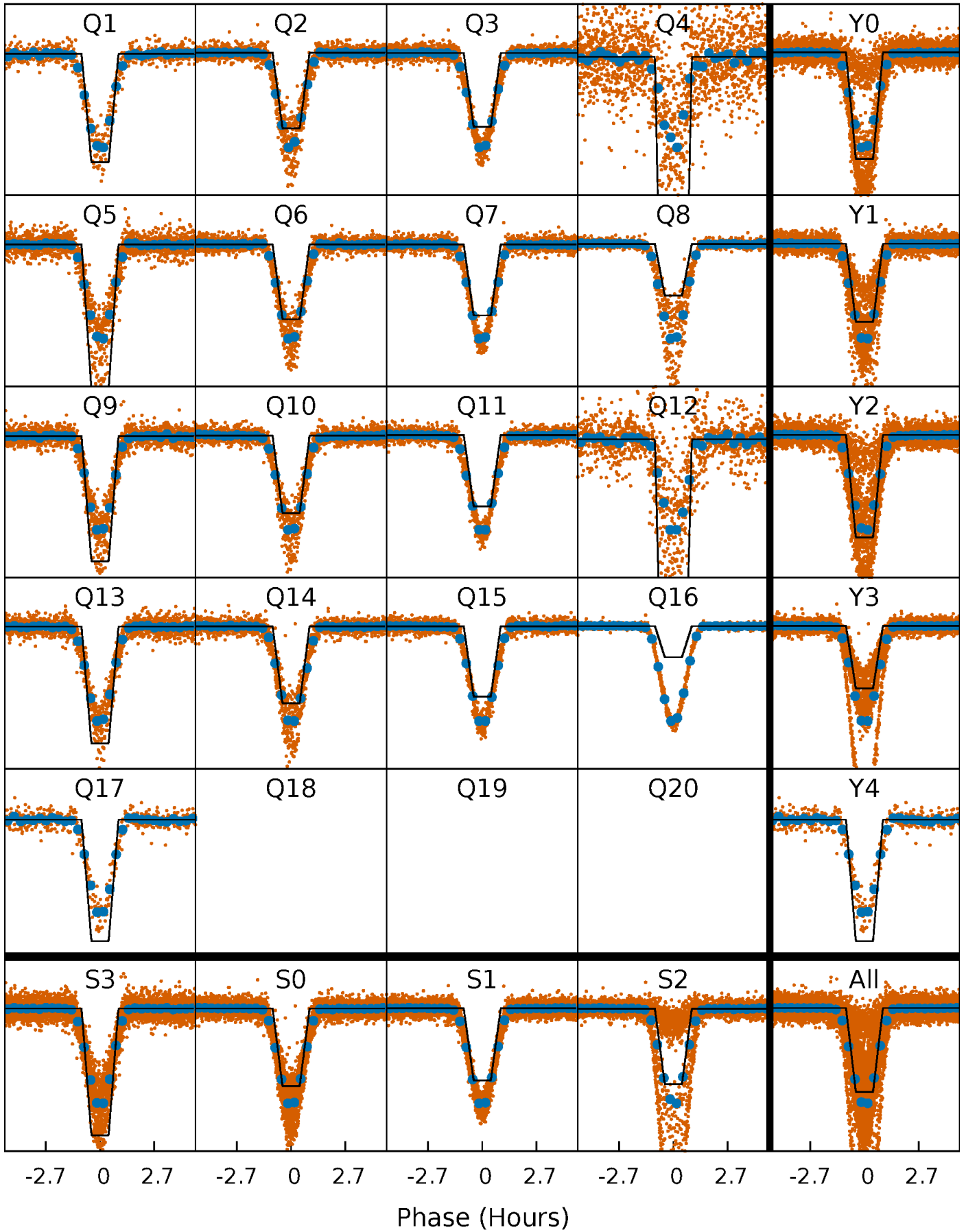
# DV Quarter-Phased Transit Curves

TCE 002583777-01 P= 0.958124 Days  $T_0=132.049106$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

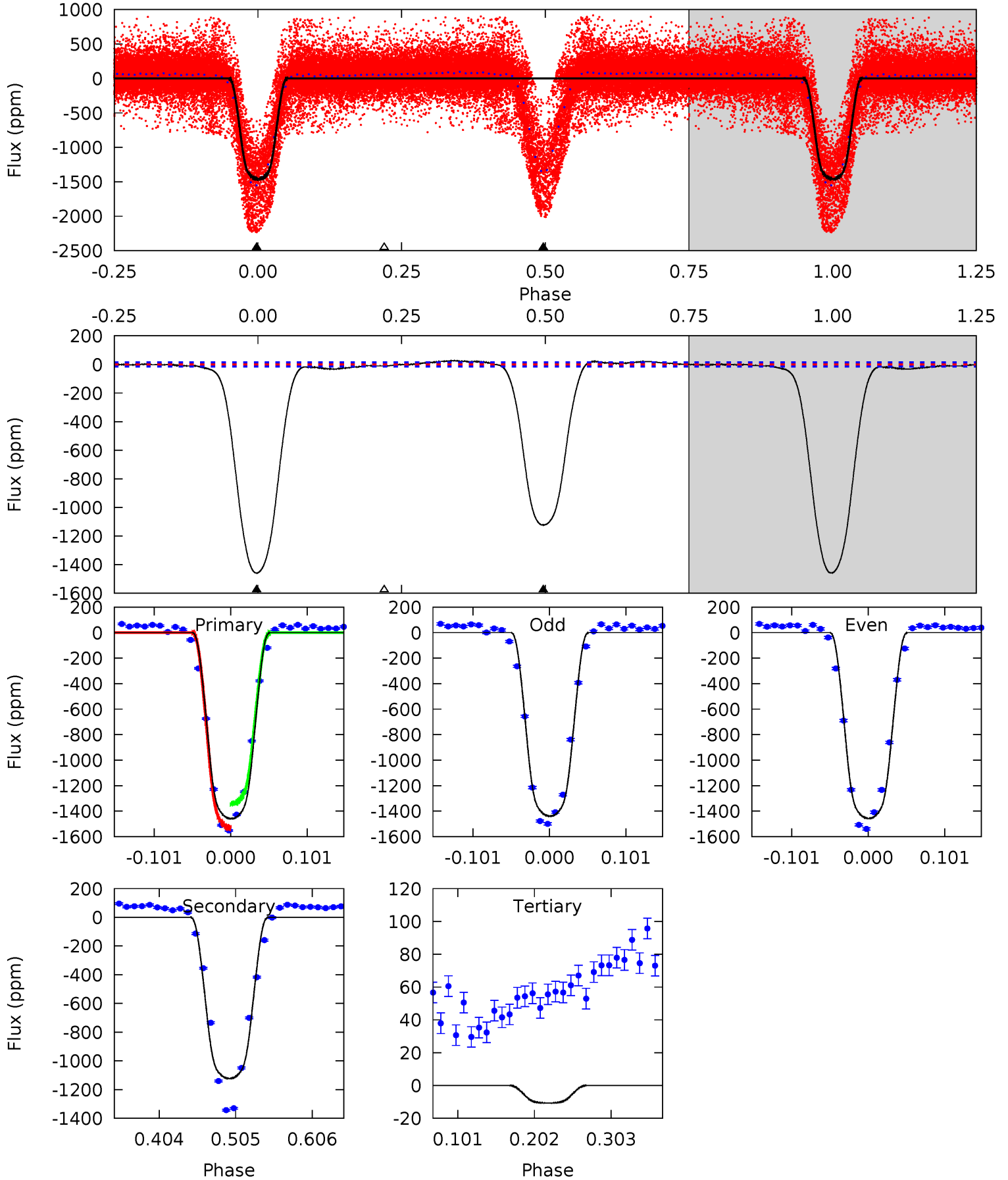
TCE 002583777-01 P= 0.958116 Days  $T_0=132.053321$  (BKJD)



# DV Model-Shift Uniqueness Test

002583777-01, P = 0.958124 Days, E = 131.090982 Days

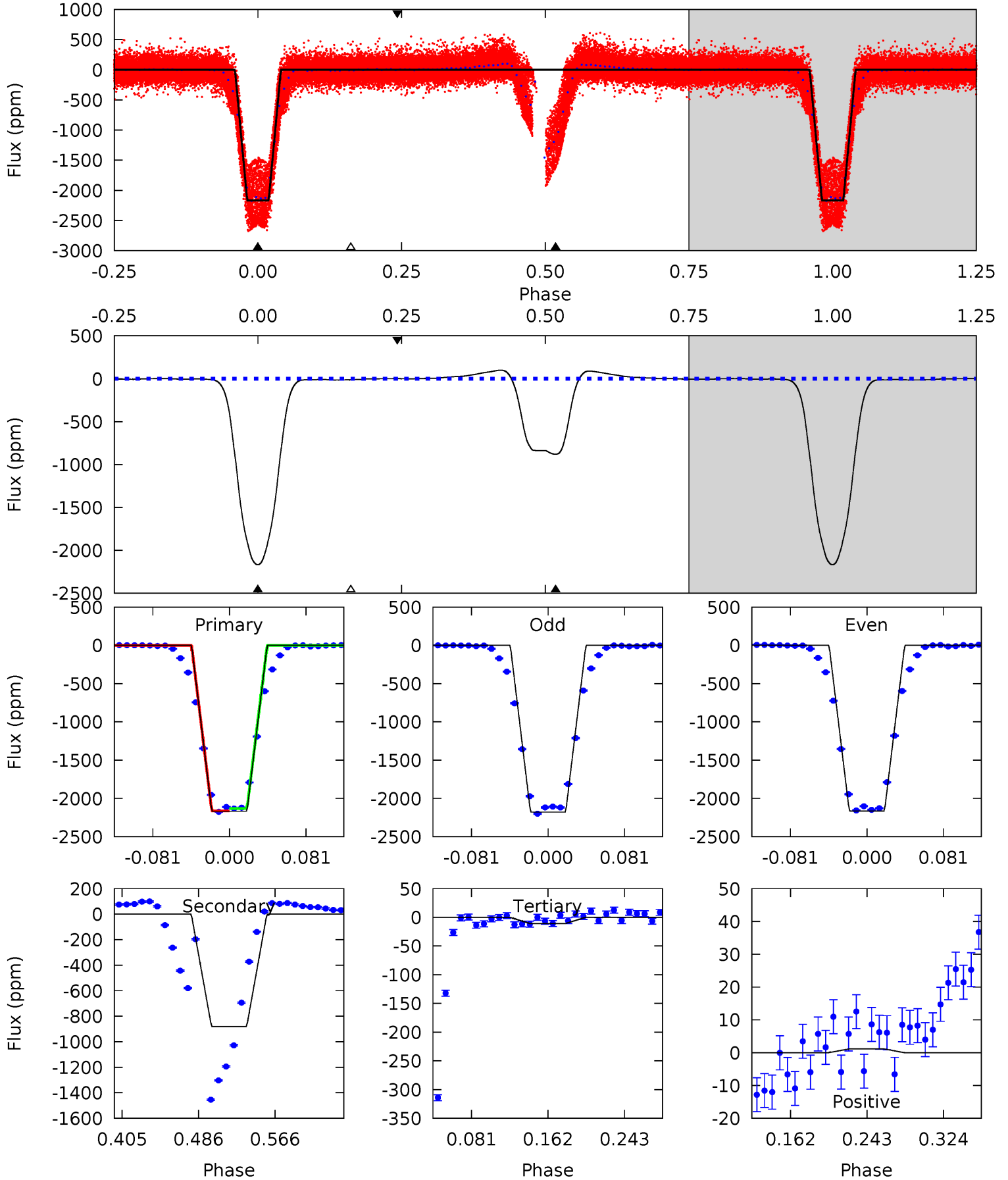
| Pri   | Sec   | Ter  | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|-------|-------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 469.0 | 361.1 | 3.44 | 0   | 4.56            | 1.64            | 4.71             | 465.6   | 469.0   | 357.6   | 361.1   | 2.91    | 0.95 | 0.02  | 30.8 |



# Alt Model-Shift Uniqueness Test

002583777-01, P = 0.958116 Days, E = 131.095205 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 |
|------|-------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 1059 | 430.3 | 5.33 | 0.56 | 4.61            | 1.75            | 13.0             | 1054    | 1059    | 425.0   | 429.8   | 3.37    | 0.97 | 0.04  | 0   |



### Stellar Parameters For KIC 002583777

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
|        | $6032^{+181}_{-163}$ | $4.147^{+0.299}_{-0.161}$ | $-0.320^{+0.300}_{-0.300}$ | $1.365^{+0.364}_{-0.444}$ | $0.954^{+0.143}_{-0.107}$ | $0.529^{+1.031}_{-0.231}$                 |
|        | +3%/-3%              | +7%/-4%                   | +94%/-94%                  | +27%/-33%                 | +15%/-11%                 | +195%/-44%                                |
| 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 002583777-01 / KOI 6284.01

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | $A_{\text{obs}}$          |
|---------|---------------|------------------------|----------------------|----------------------|---------------------------|
| DV      | $-1123 \pm 3$ | $5.76^{+0.80}_{-1.06}$ | $3160^{+230}_{-298}$ | $5565^{+163}_{-136}$ | $6.588^{+3.005}_{-1.487}$ |
| Alt.    | $-880 \pm 2$  | $6.50^{+0.98}_{-1.18}$ | $3152^{+252}_{-287}$ | $4965^{+143}_{-124}$ | $4.113^{+1.909}_{-1.005}$ |

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



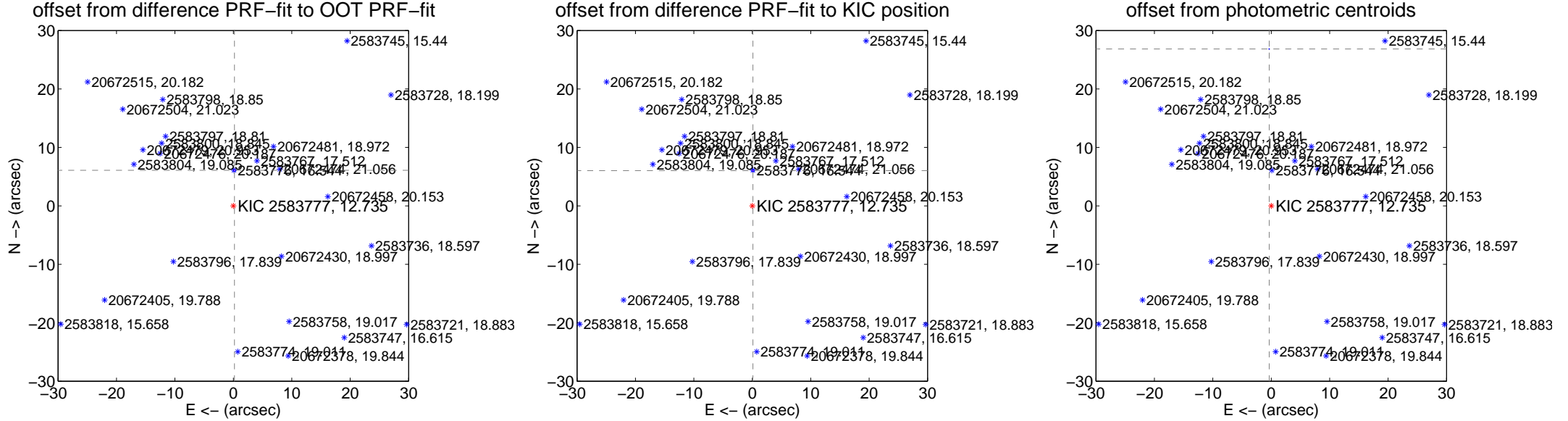
## DV Centroid Data

Supplemental centroid analysis for 002583777-01. Kepler magnitude: 12.73. Transit SNR 261.00

There are 17 quarters with good PRF difference image offsets

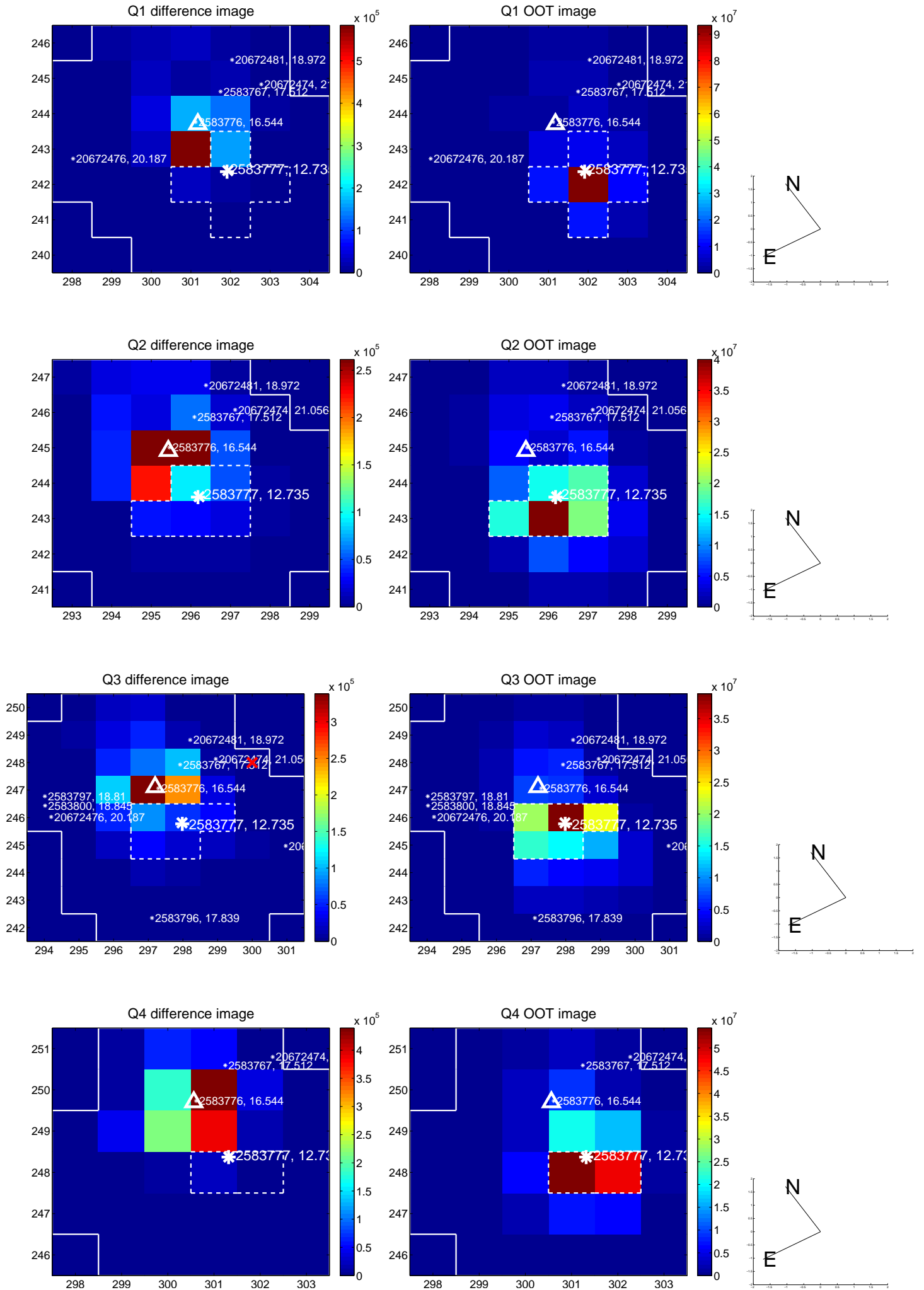
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|-----------------------------------------|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | 6.093 $\pm$ 0.070  | 86.59               | -0.194 $\pm$ 0.069 | 6.090 $\pm$ 0.070 |
| PRF-fit source offset from KIC position | 6.027 $\pm$ 0.068  | 88.31               | -0.105 $\pm$ 0.070 | 6.026 $\pm$ 0.068 |
| photometric centroid source offset      | 26.84 $\pm$ 0.02   | 1227.58             | 0.35 $\pm$ 0.02    | 26.84 $\pm$ 0.02  |

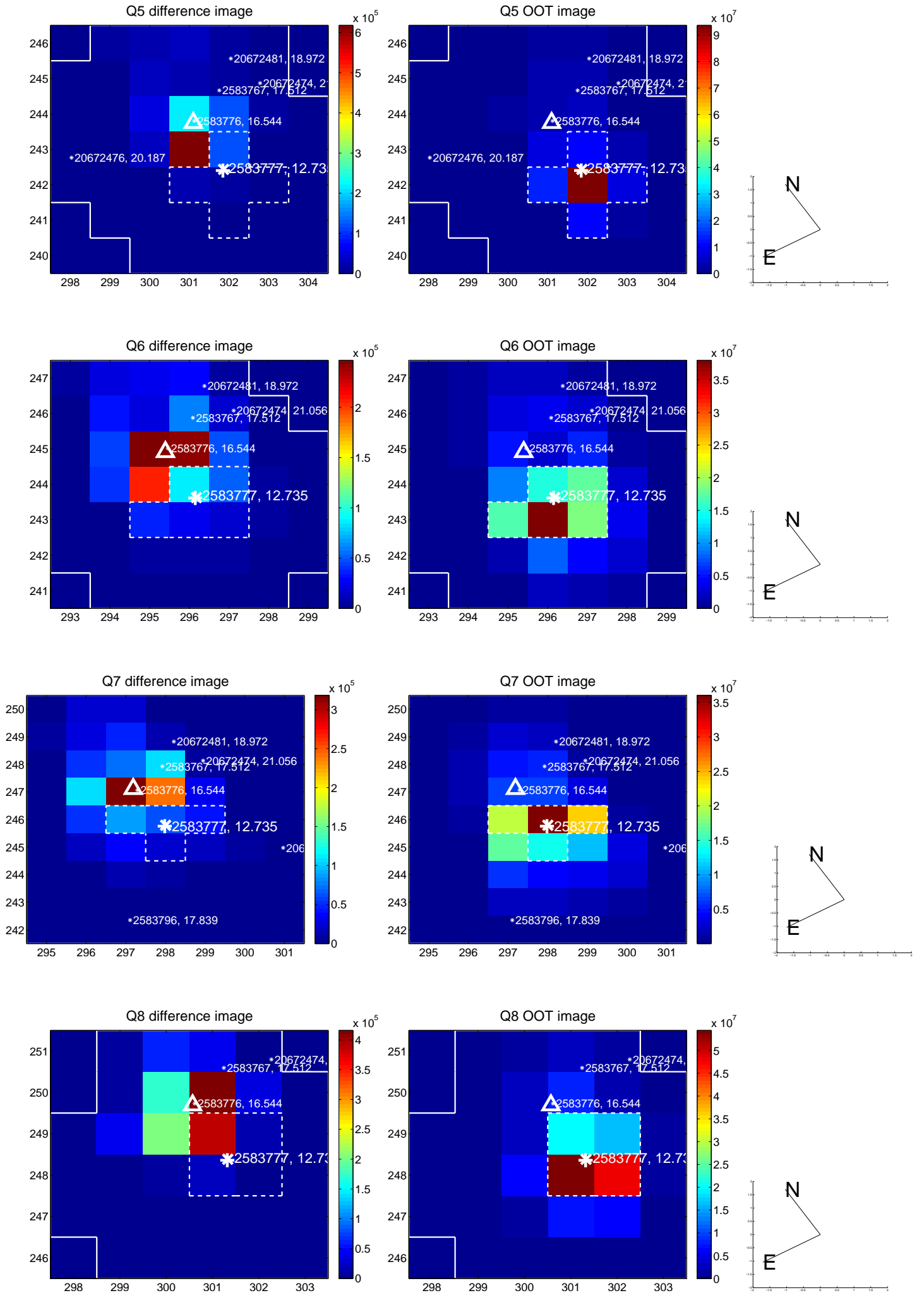


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

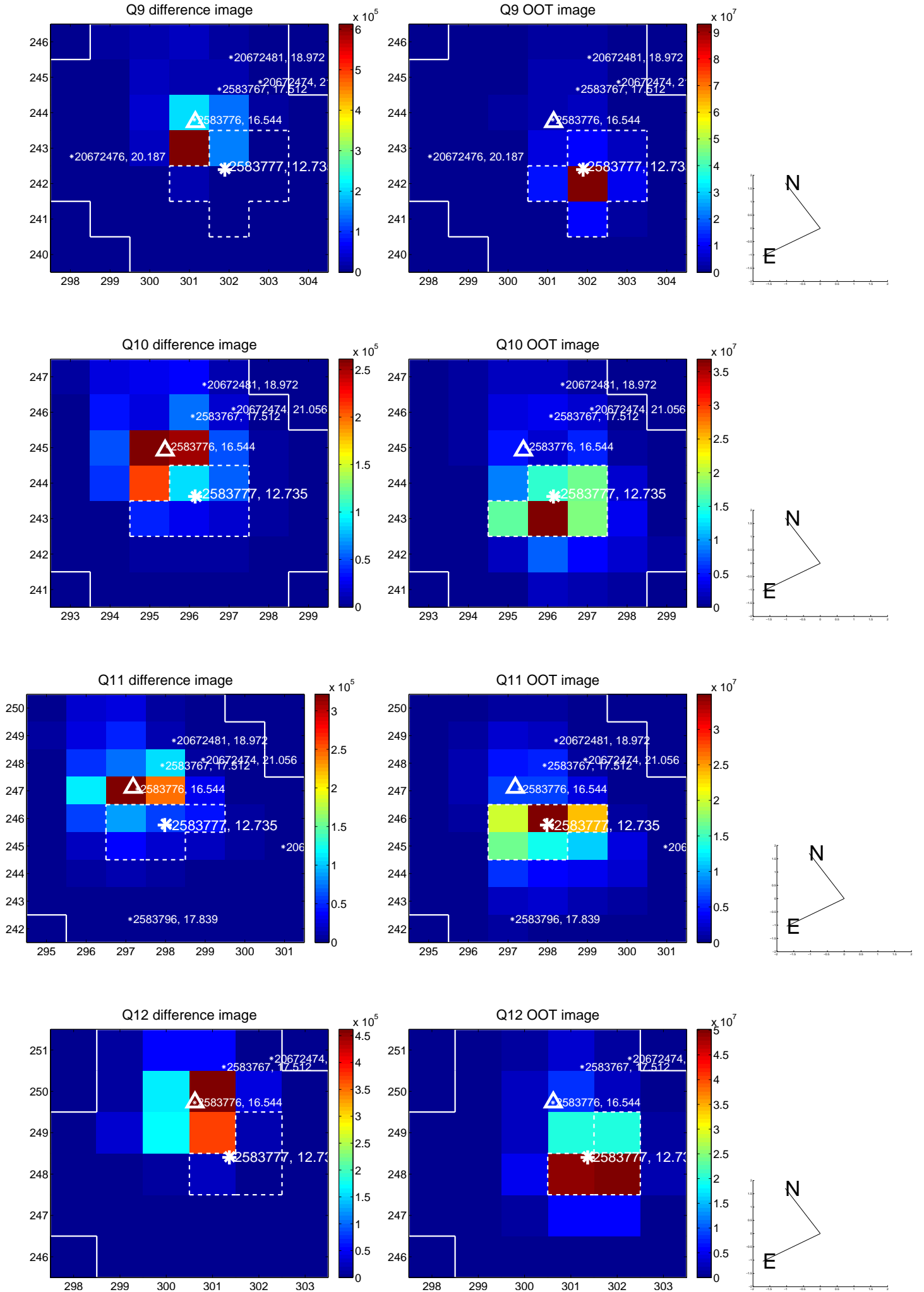
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



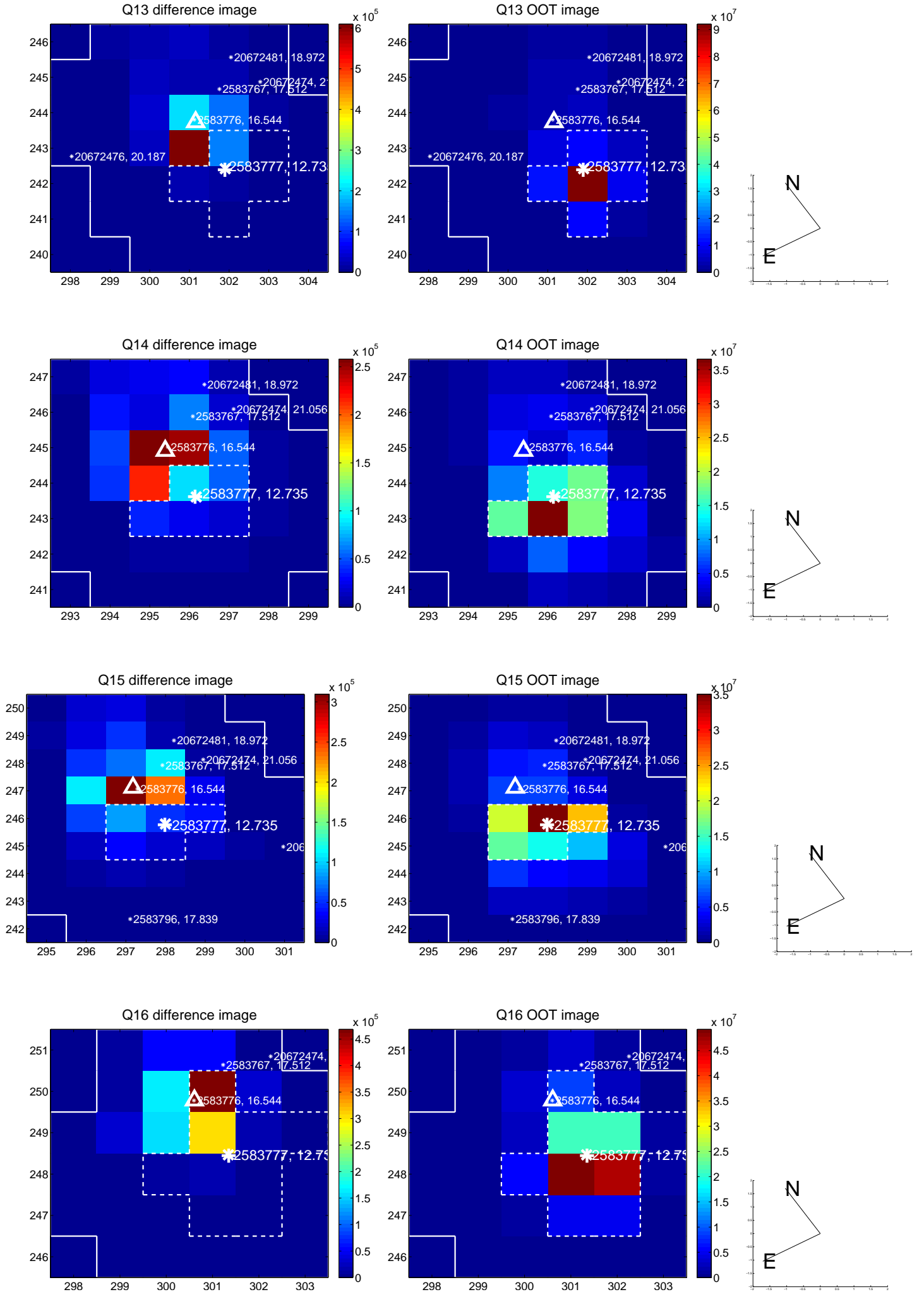
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

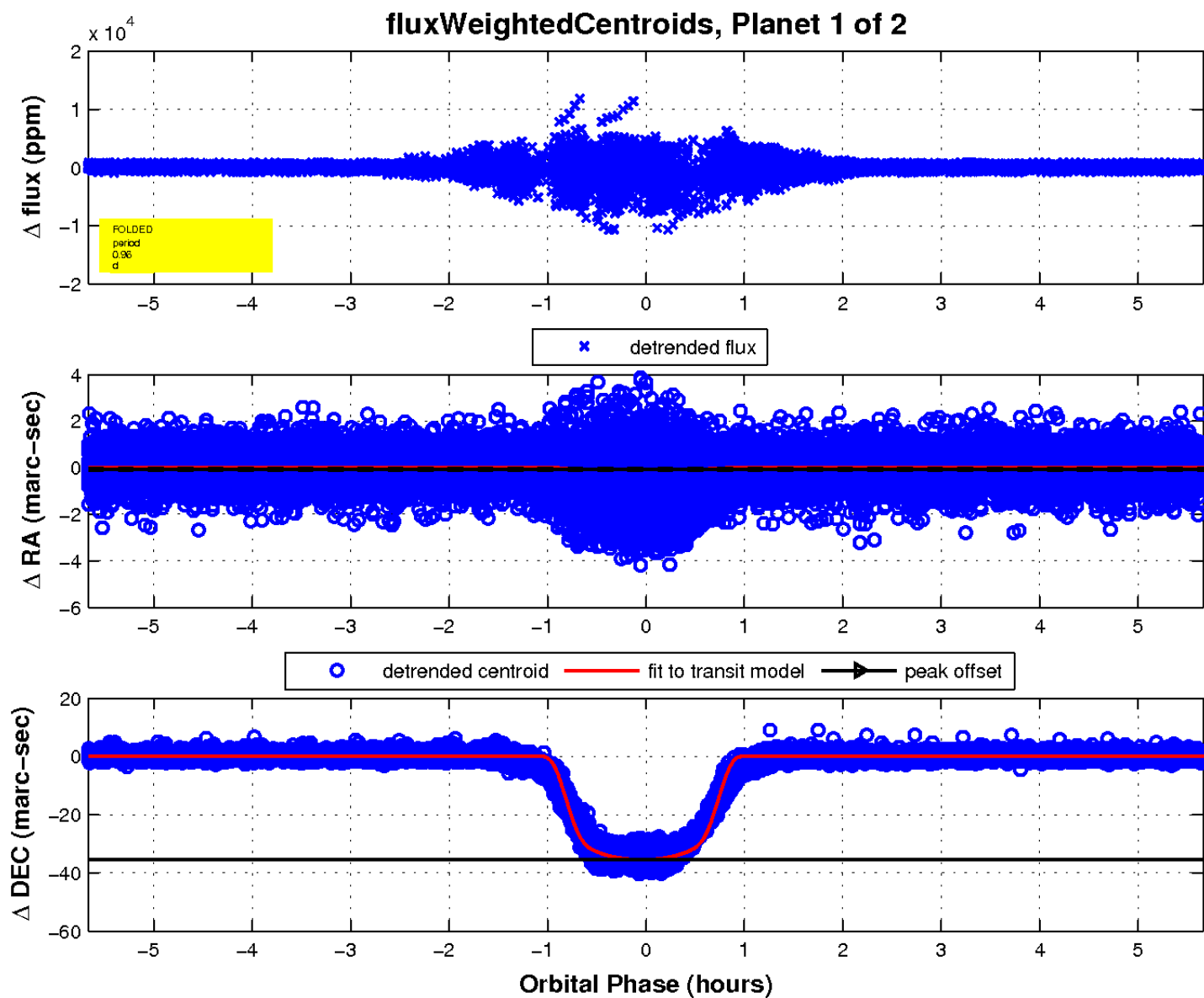
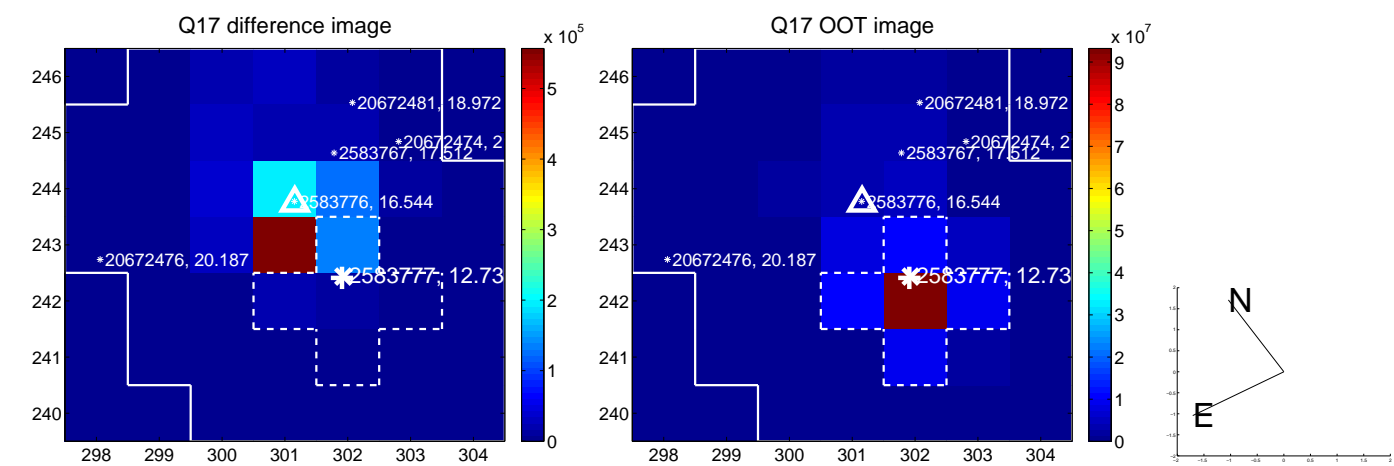


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



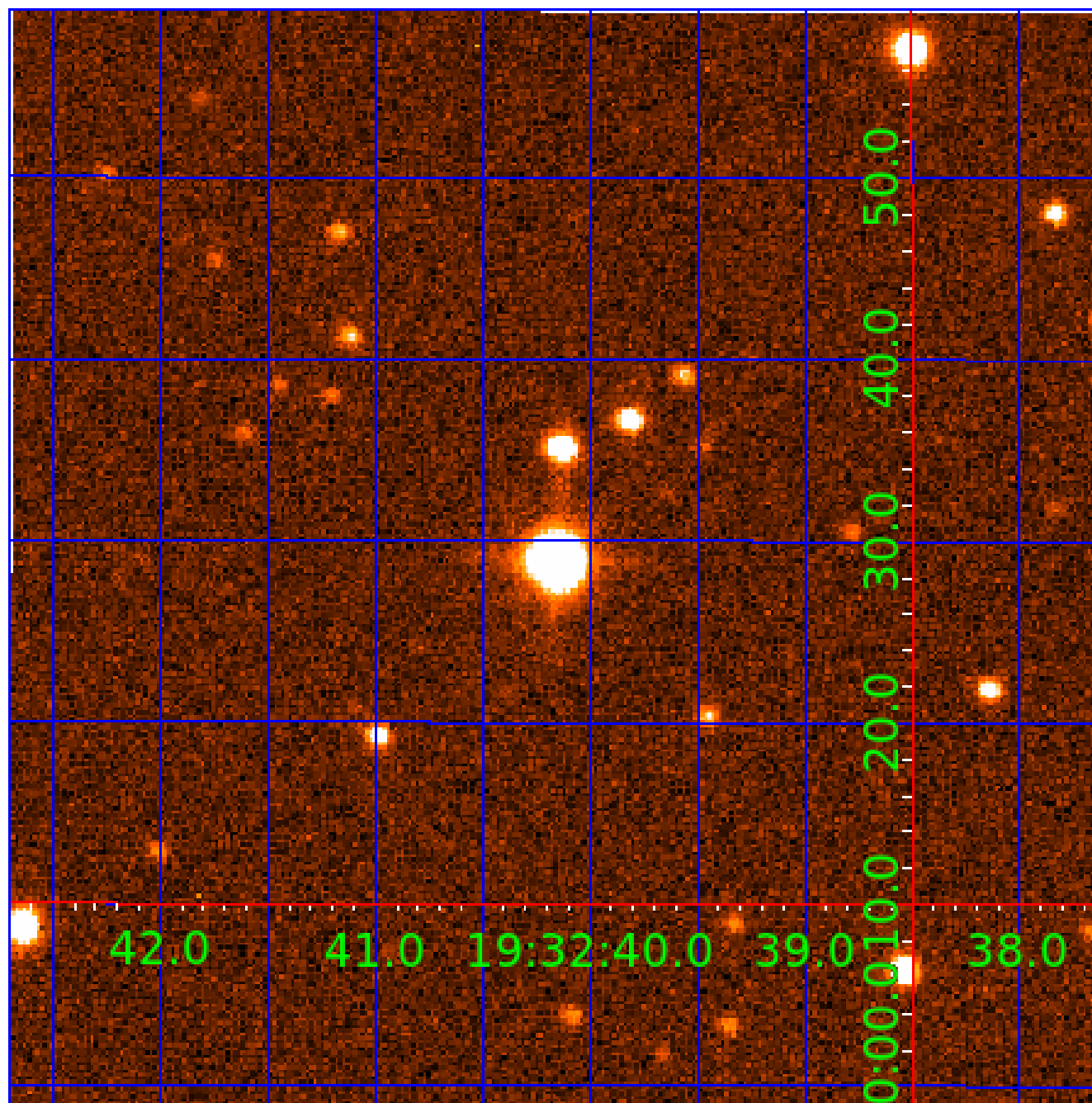


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 002583777

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 002583777-01 | OBS      | 6284.01 | 0.958124      | 132.049106   | 1281.6      | 1.889            | 362.7 | 261.0 | 1.36                        | 6032            | 5.77                   | 6303.75                |
| 002583777-02 | OBS      | No      | 0.958115      | 131.570369   | 5164.3      | 1.500            | 450.9 | -1.0  | 1.36                        | 6032            | 9.85                   | 6303.83                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                                           |
|--------------|----------|------|-------|---|---|---|---|--------------------------------------------------------------------|
| 002583777-01 | OBS      | FP   | 0.00  | 0 | 1 | 1 | 0 | MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST |
| 002583777-02 | OBS      | FP   | 0.00  | 1 | 1 | 1 | 0 | IS_SEC_TCE—CENT_NOFITS—HALO_GHOST                                  |

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

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

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

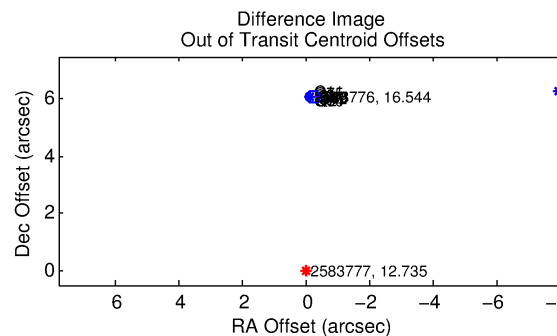
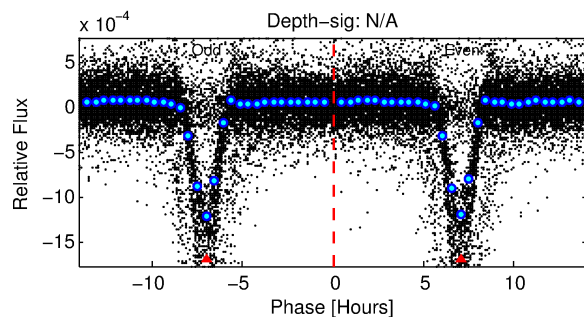
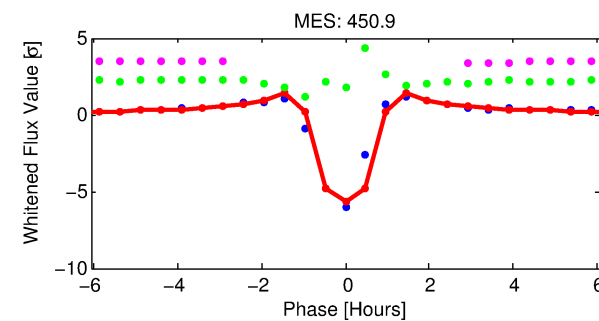
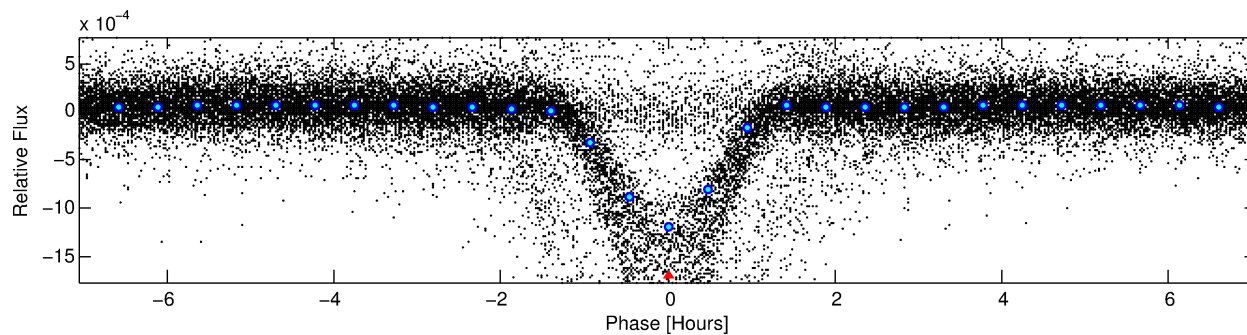
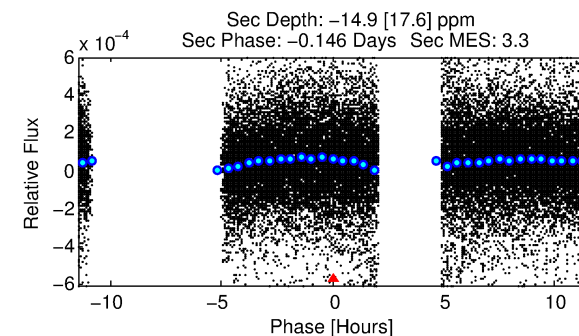
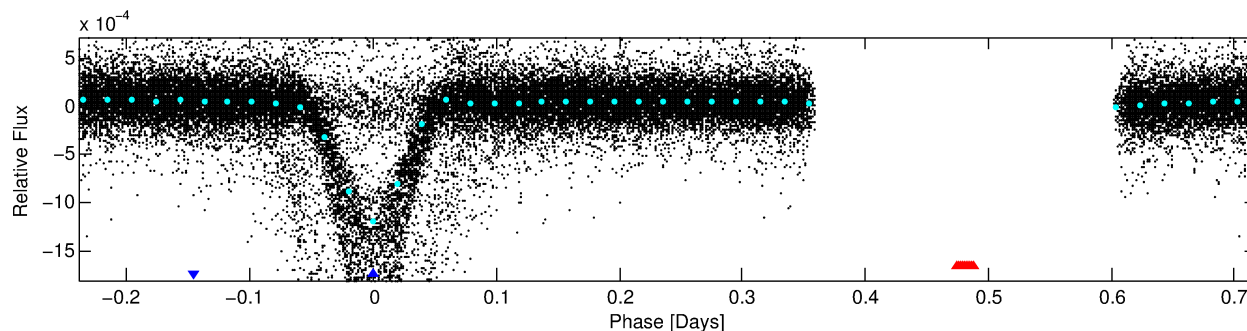
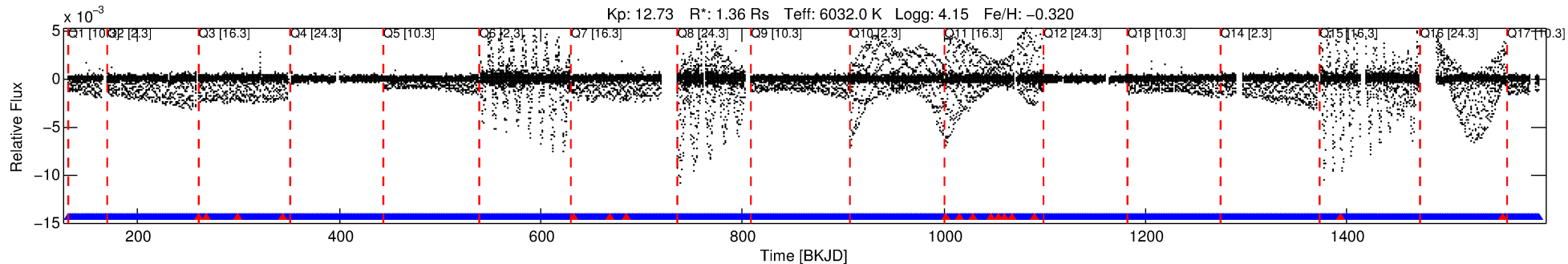
## Ephemeris Match Information For 002583777-02

No Significant Match Found

# DV One-Page Summary

KIC: 2583777 Candidate: 2 of 2 Period: 0.958 d  
KOI: K06284 Corr: No Ephemeris Match

Kp: 12.73 R\*: 1.36 Rs Teff: 6032.0 K Logg: 4.15 Fe/H: -0.320



## TPS TCE Results:

Period = 0.95811 d  
Epoch = 131.5704 BKJD

DV fit results are unavailable

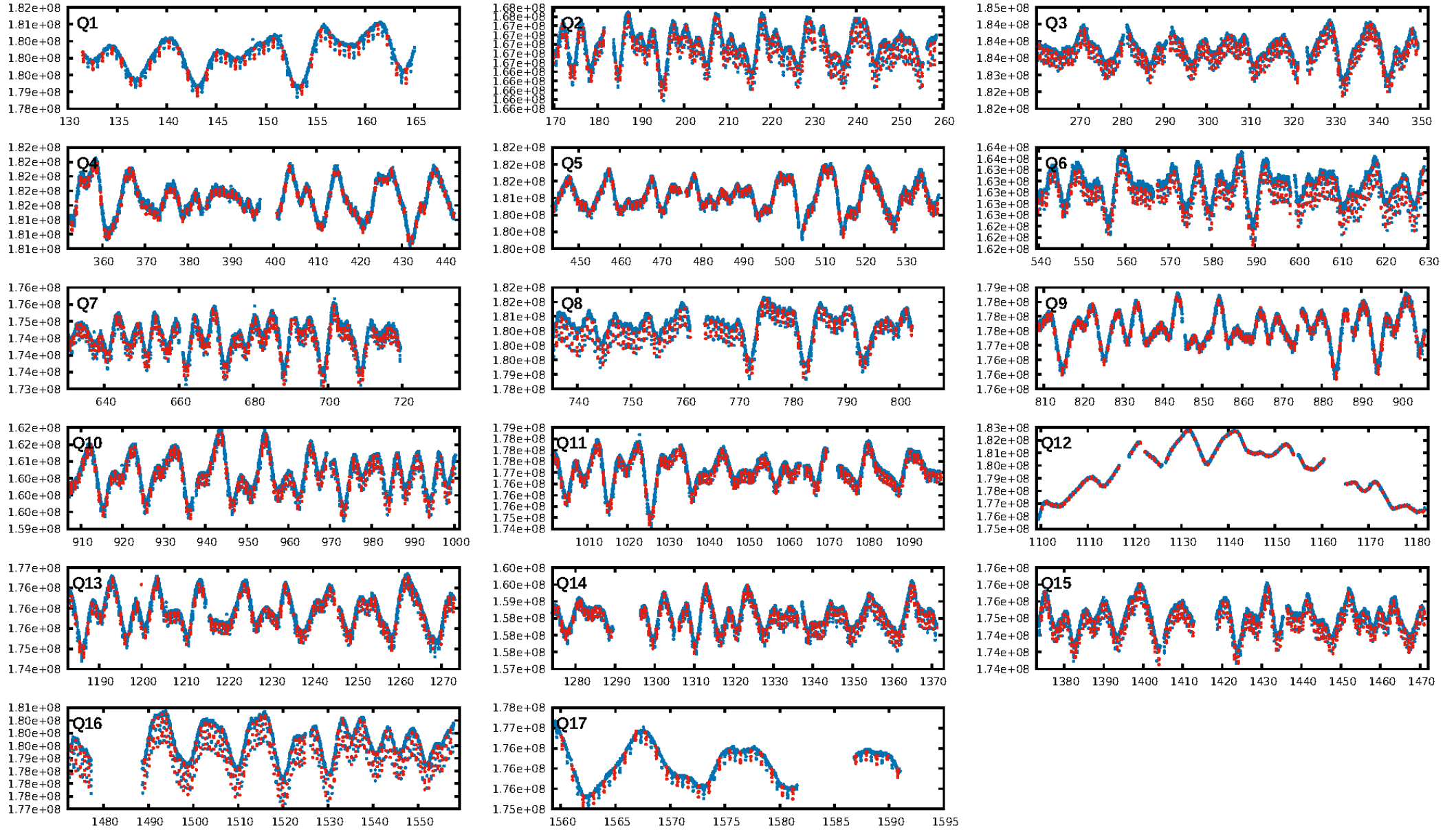
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [1317/1334]  
GhostDiagnostic-chr: -0.02772  
Centroid-sig: 0.0%  
Centroid-so: 33.170 arcsec [1187.07σ]  
OotOffset-rm: 6.086 arcsec [86.78σ]  
KicOffset-rm: 6.026 arcsec [87.80σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:50:52 Z

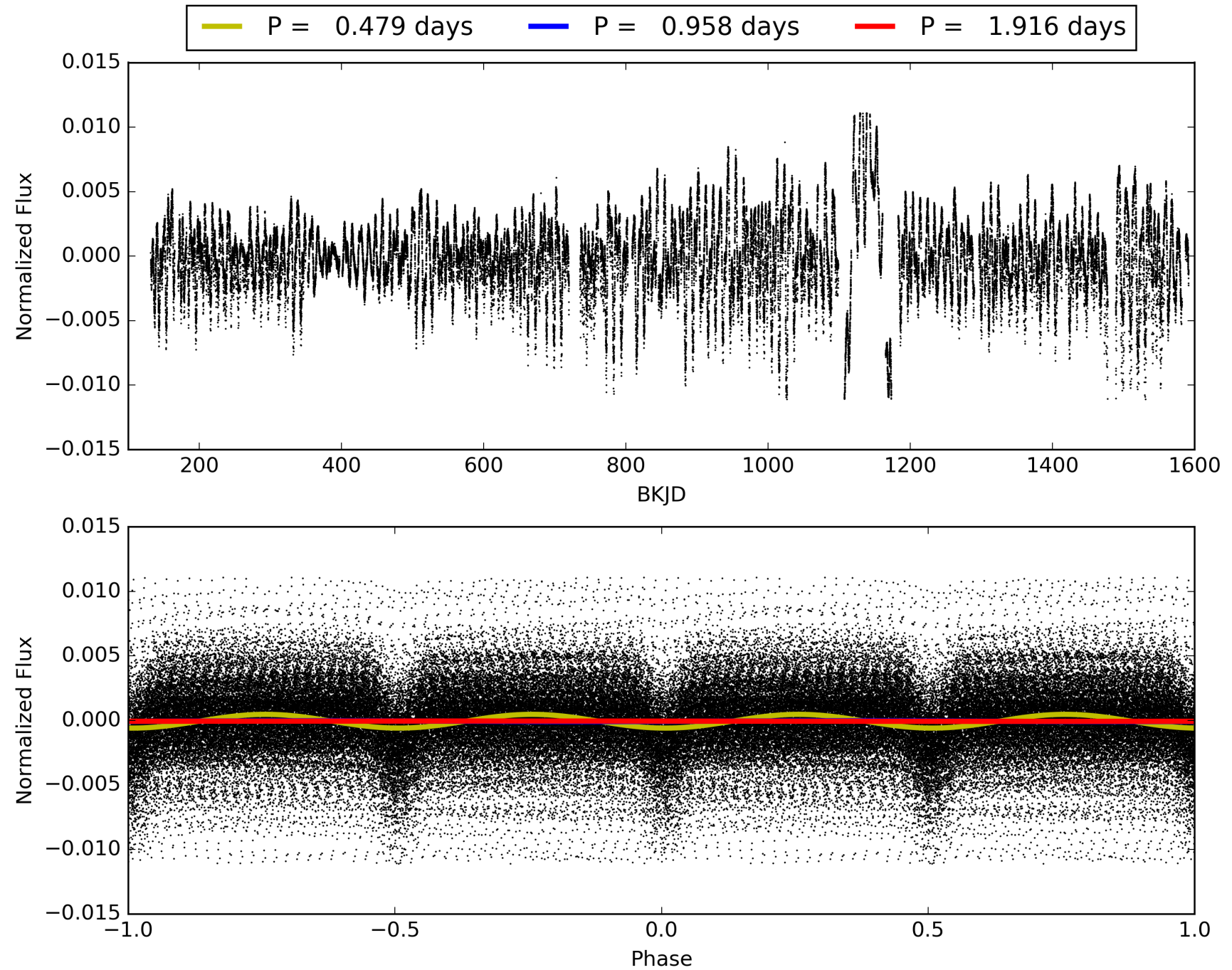
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 002583777-02, PDC Light Curves



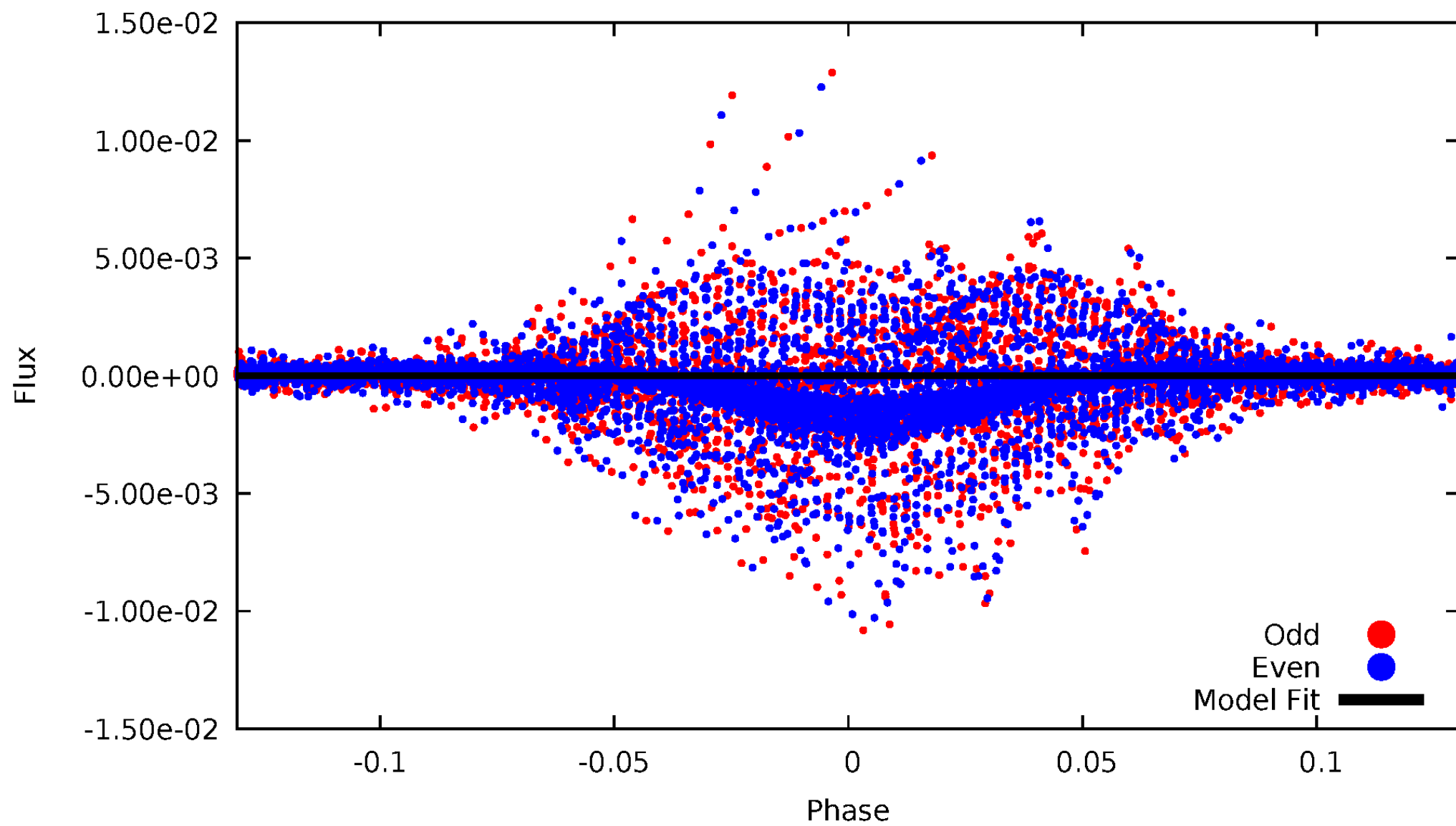


# TCE 002583777-02



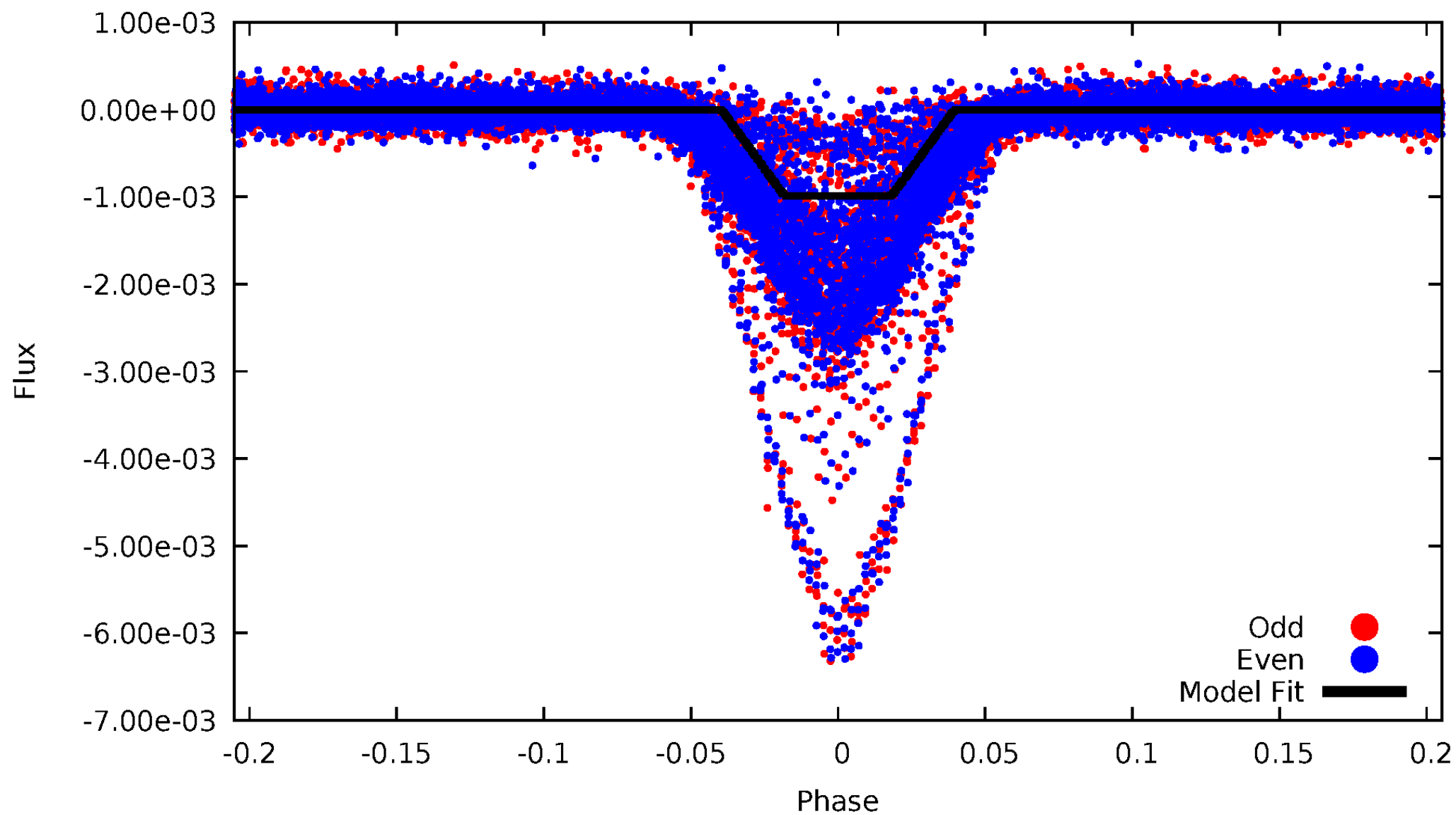
DV Odd/Even

TCE 002583777-02



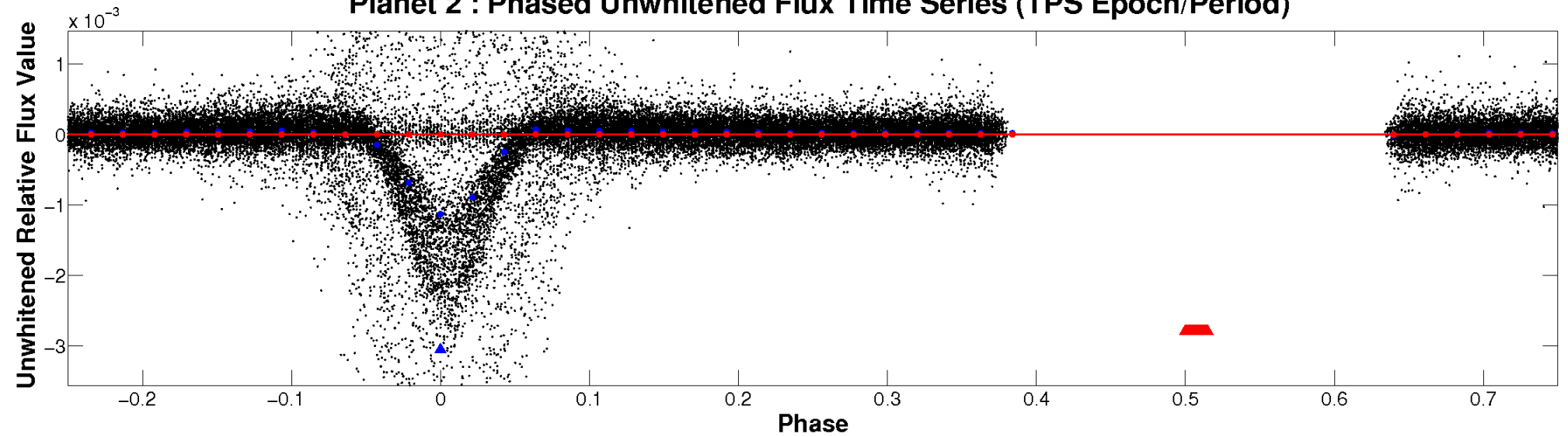
# ALT Odd/Even

TCE 002583777-02

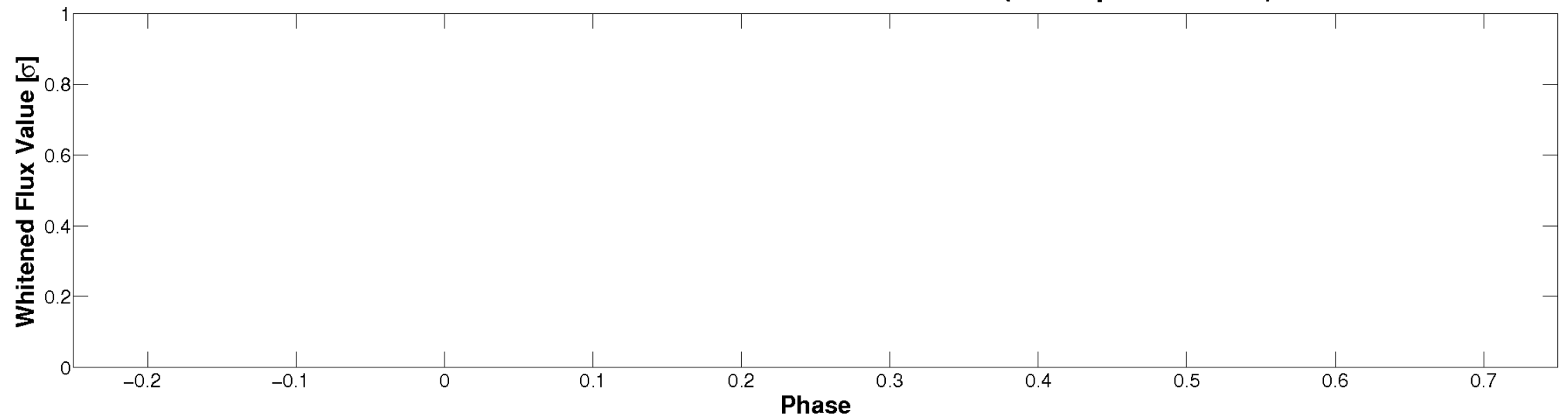


# Non-Whitened Vs. Whitened Light Curve

**Planet 2 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

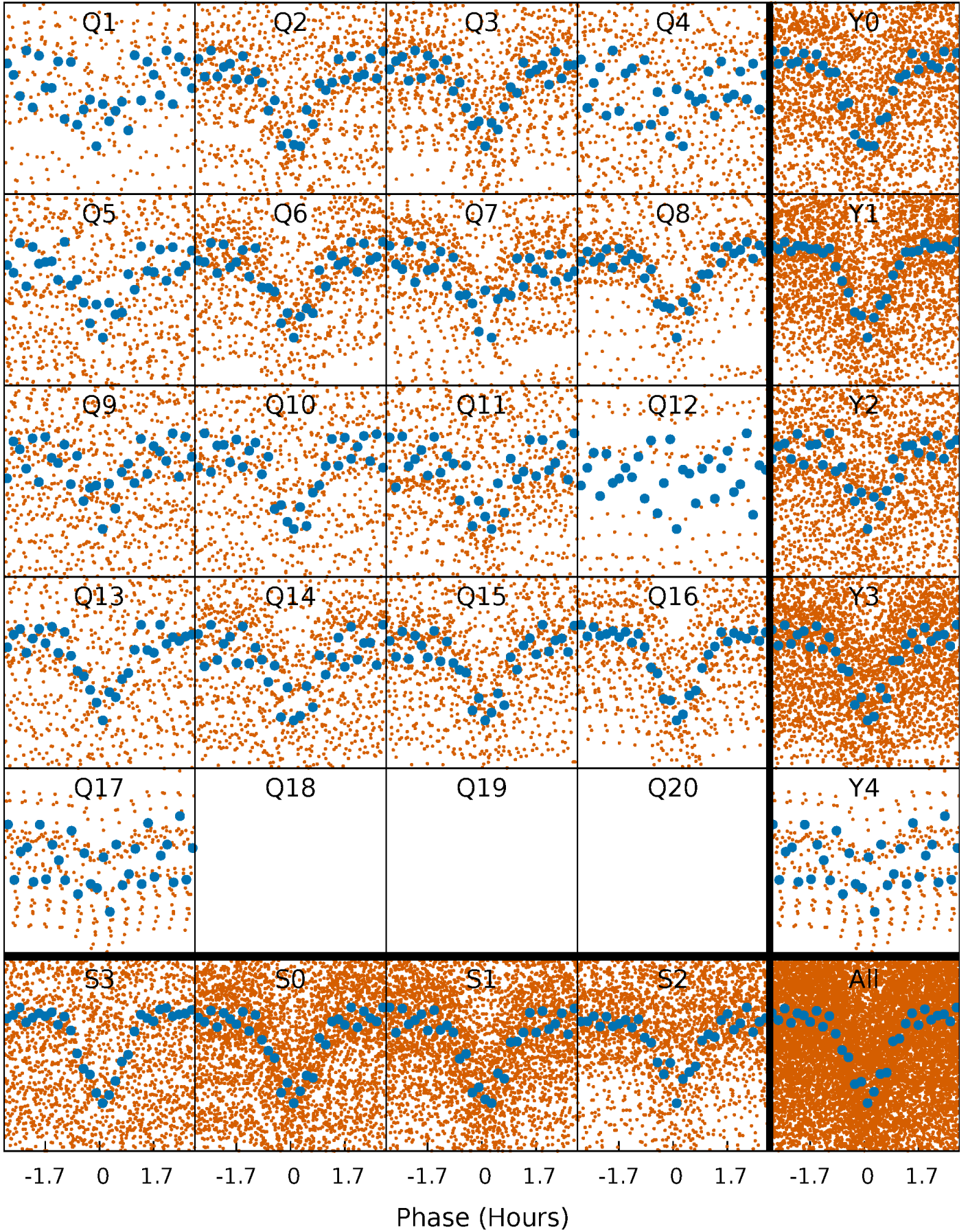


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

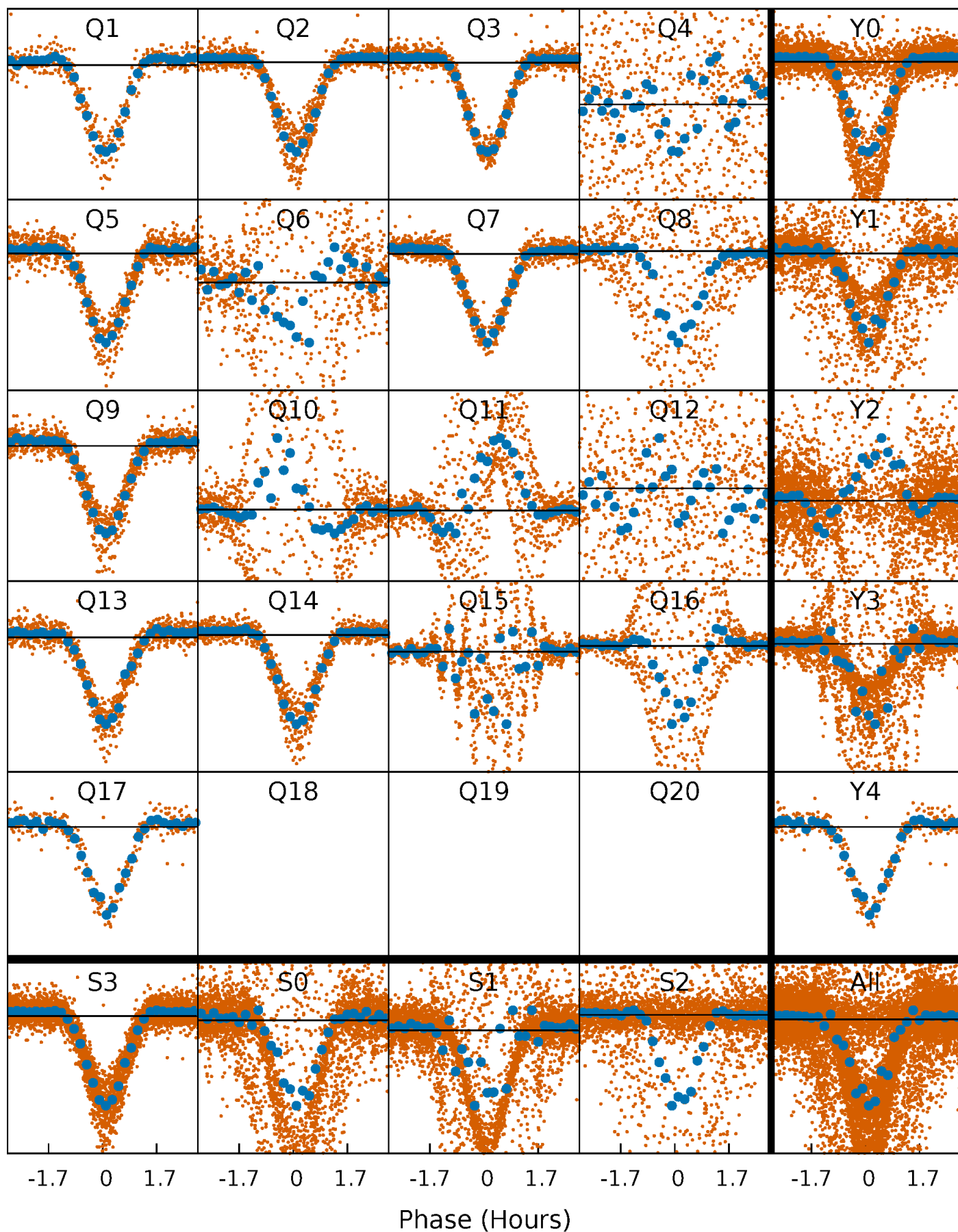
TCE 002583777-02   P= 0.958115 Days    $T_0=131.570369$  (BKJD)





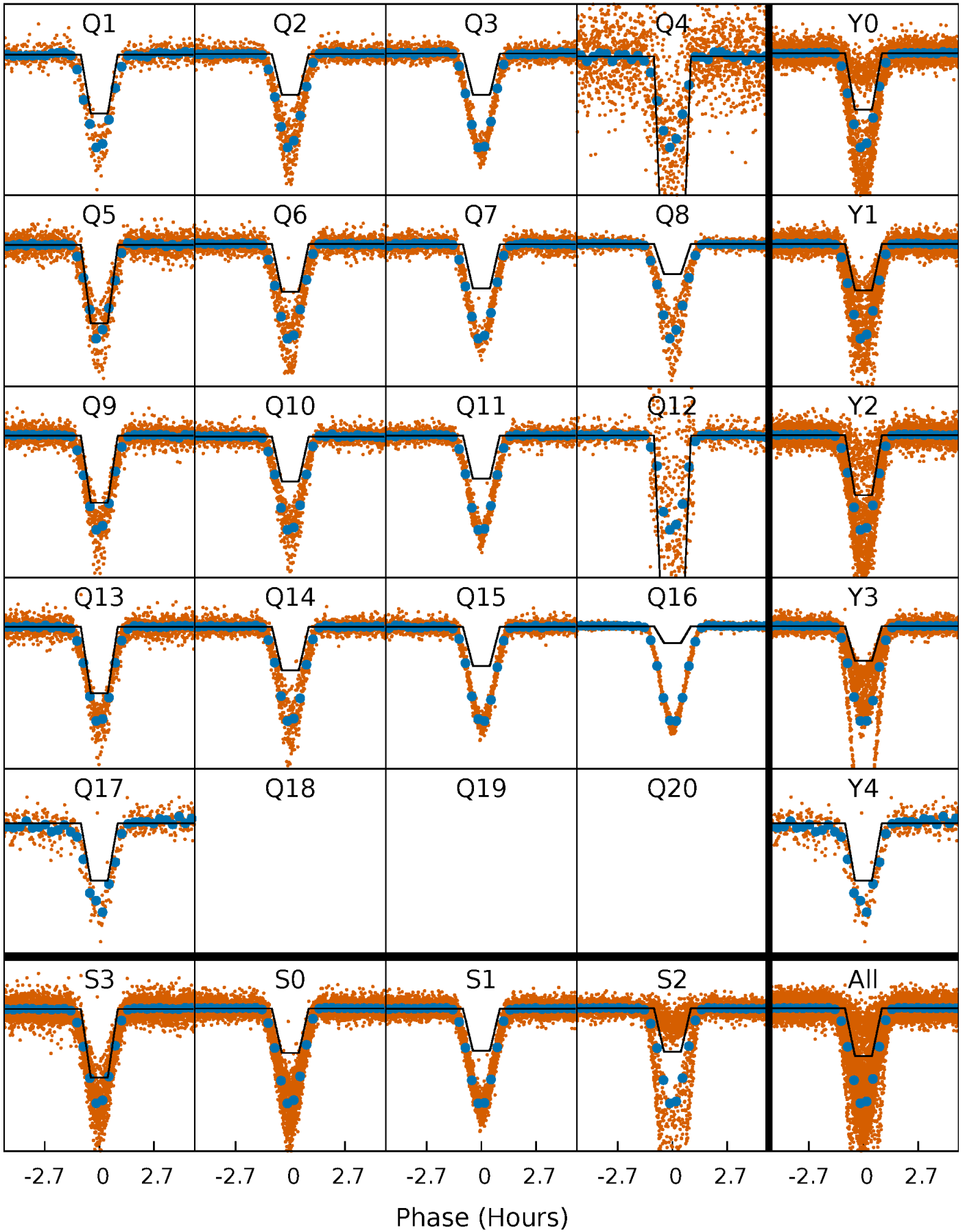
# DV Quarter-Phased Transit Curves

TCE 002583777-02   P= 0.958115 Days    $T_0=131.570369$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

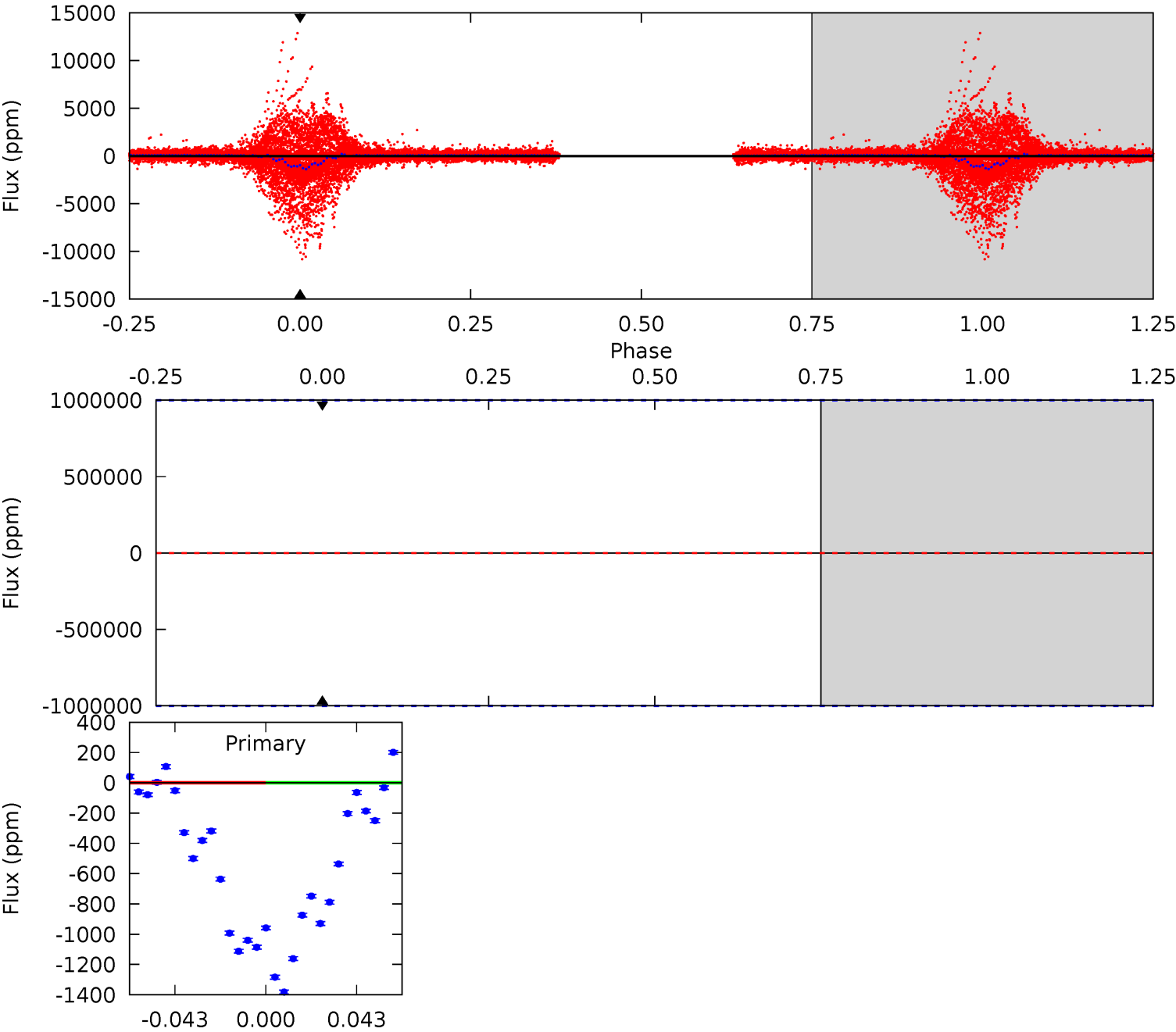
TCE 002583777-02   P= 0.958115 Days    $T_0=131.575338$  (BKJD)



# DV Model-Shift Uniqueness Test

002583777-02, P = 0.958115 Days, E = 130.612254 Days

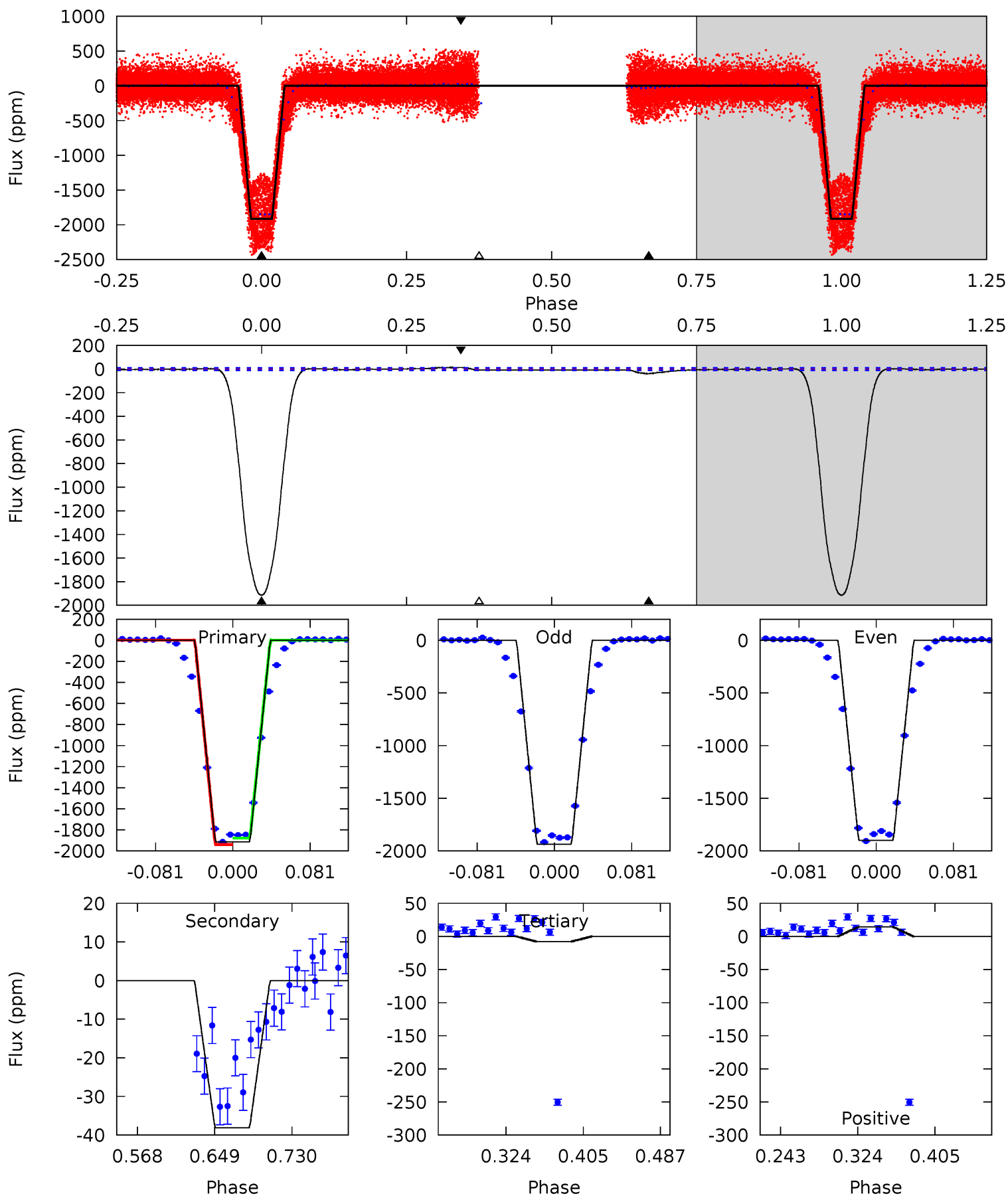
| Pri | Sec | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-----|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|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



# Alt Model-Shift Uniqueness Test

002583777-02, P = 0.958115 Days, E = 130.617223 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 |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 889.4 | 17.7 | 3.63 | 6.64 | 4.61            | 1.74            | 2.48             | 885.8   | 882.8   | 14.1    | 11.1    | 8.23    | 1.02 | 0.01  | 0   |



### Stellar Parameters For KIC 002583777

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M$ ( $M_{\odot}$ )       | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-----------------------------------------------|
|        | $6032^{+181}_{-163}$ | $4.147^{+0.299}_{-0.161}$ | $-0.320^{+0.300}_{-0.300}$ | $1.365^{+0.364}_{-0.444}$ | $0.954^{+0.143}_{-0.107}$ | $0.529^{+1.031}_{-0.231}$                     |
|        | +3%/-3%              | +7%/-4%                   | +94%/-94%                  | +27%/-33%                 | +15%/-11%                 | +195%/-44%                                    |
| 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 002583777-02 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ )   | $T_{\text{max}}$ (K) | $T_{\text{obs}}$ (K)      | $A_{\text{obs}}$               |
|---------|-----------------|--------------------------|----------------------|---------------------------|--------------------------------|
| DV      | $0 \pm 1000000$ | $14.55^{+12.83}_{-9.47}$ | $3151^{+245}_{-270}$ | $-4344^{+19803}_{-10604}$ | $-1.505^{+139.329}_{-126.830}$ |
| Alt.    | $-38 \pm 2$     | $10.77^{+12.49}_{-7.24}$ | $3153^{+242}_{-272}$ | $-3003^{+6149}_{-222}$    | $0.065^{+0.542}_{-0.051}$      |

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

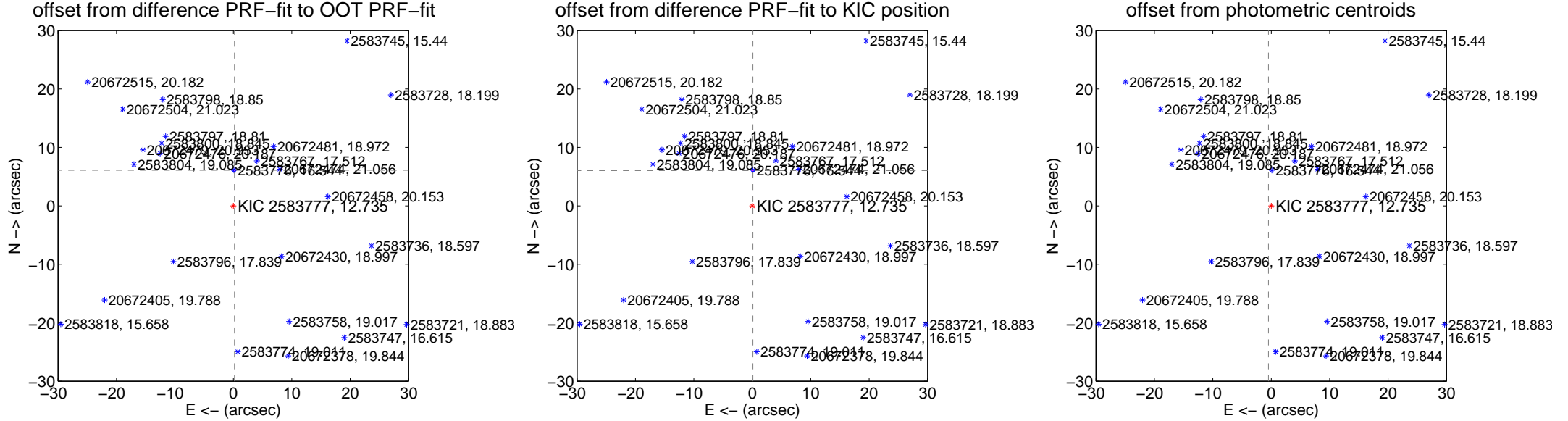
## DV Centroid Data

Supplemental centroid analysis for 002583777-02. Kepler magnitude: 12.73. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

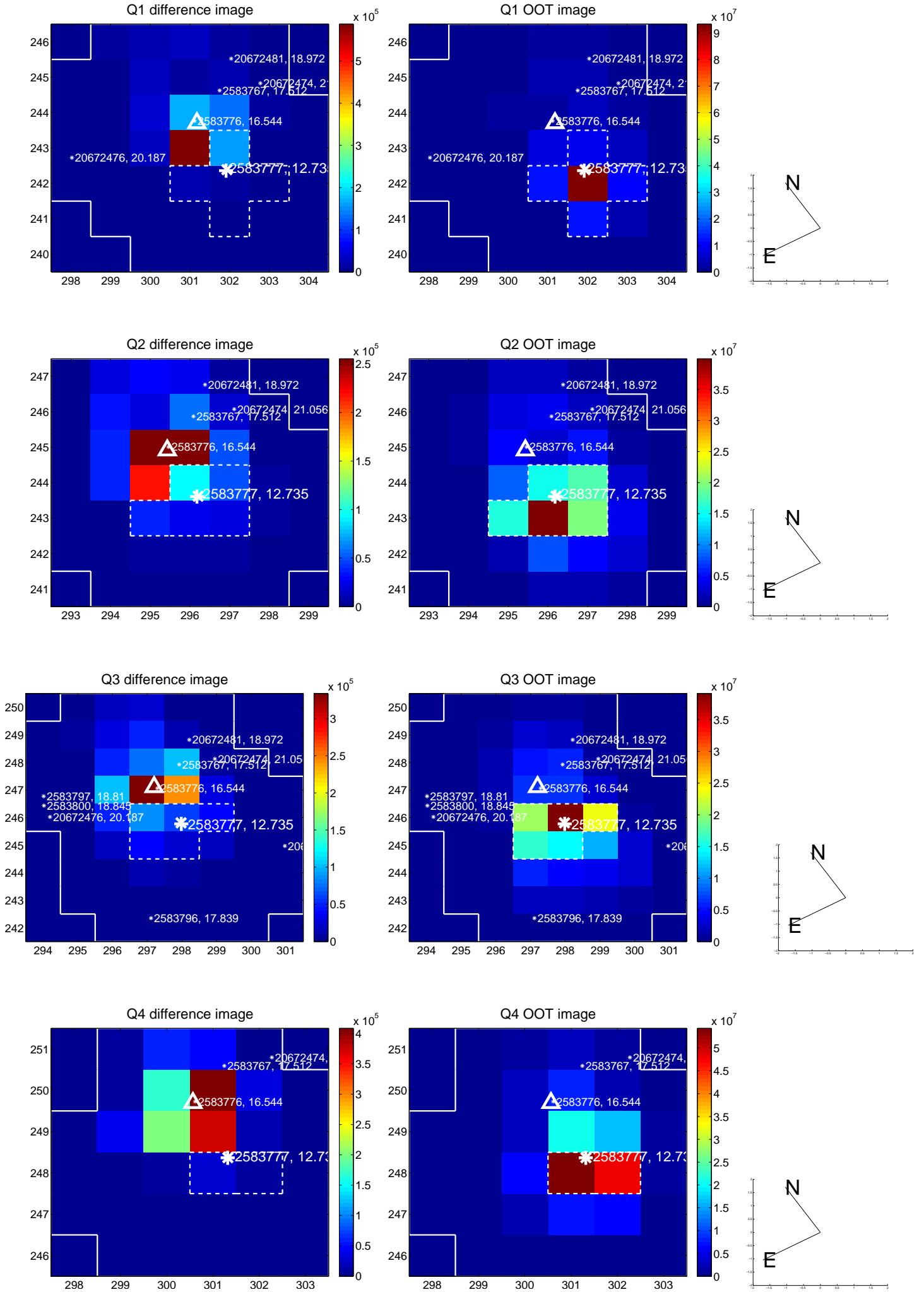
|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|-----------------------------------------|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | 6.086 $\pm$ 0.070  | 86.78               | -0.195 $\pm$ 0.069 | 6.083 $\pm$ 0.070 |
| PRF-fit source offset from KIC position | 6.026 $\pm$ 0.069  | 87.80               | -0.106 $\pm$ 0.070 | 6.025 $\pm$ 0.069 |
| photometric centroid source offset      | 33.17 $\pm$ 0.03   | 1187.07             | 0.48 $\pm$ 0.02    | 33.17 $\pm$ 0.03  |



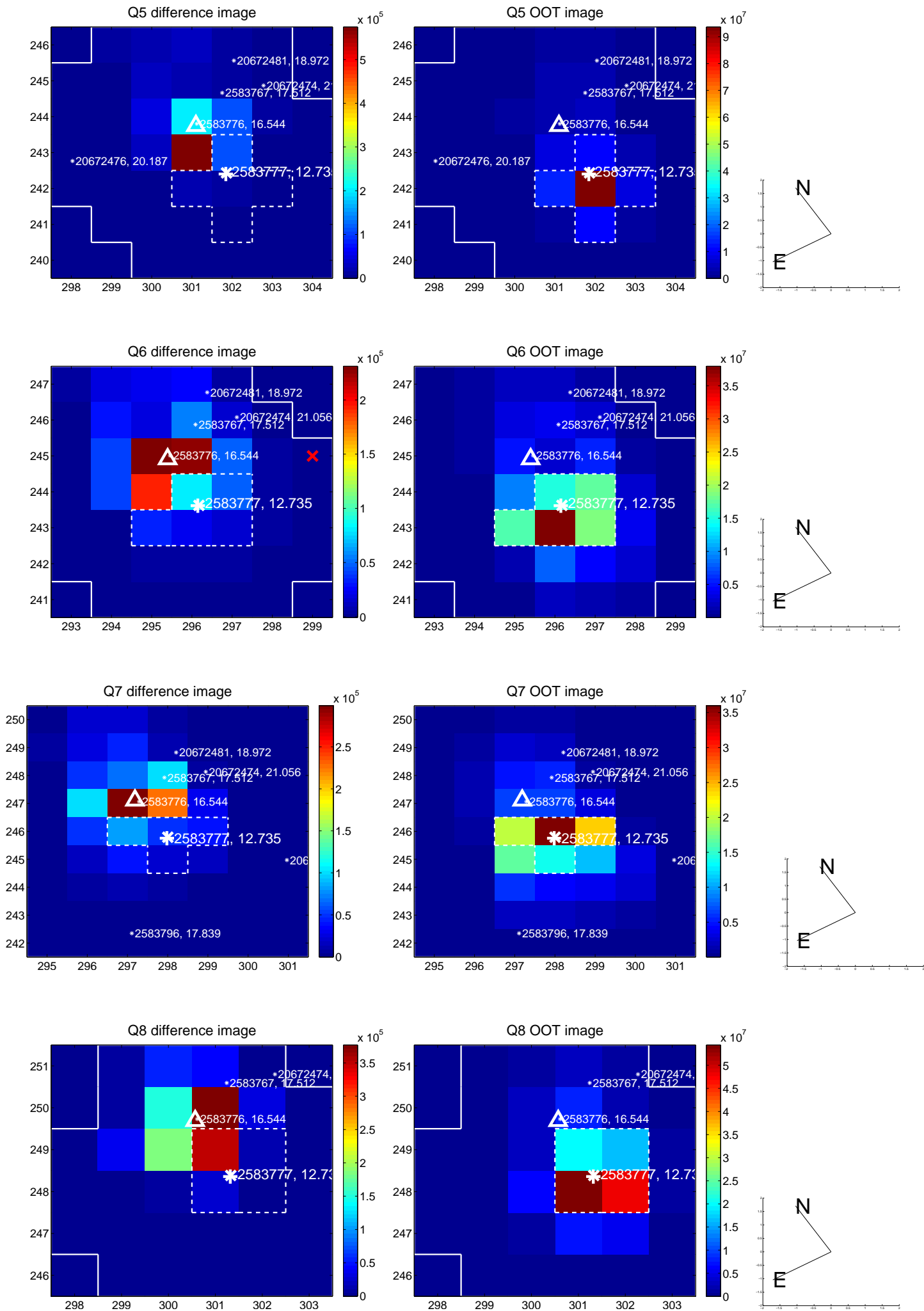
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



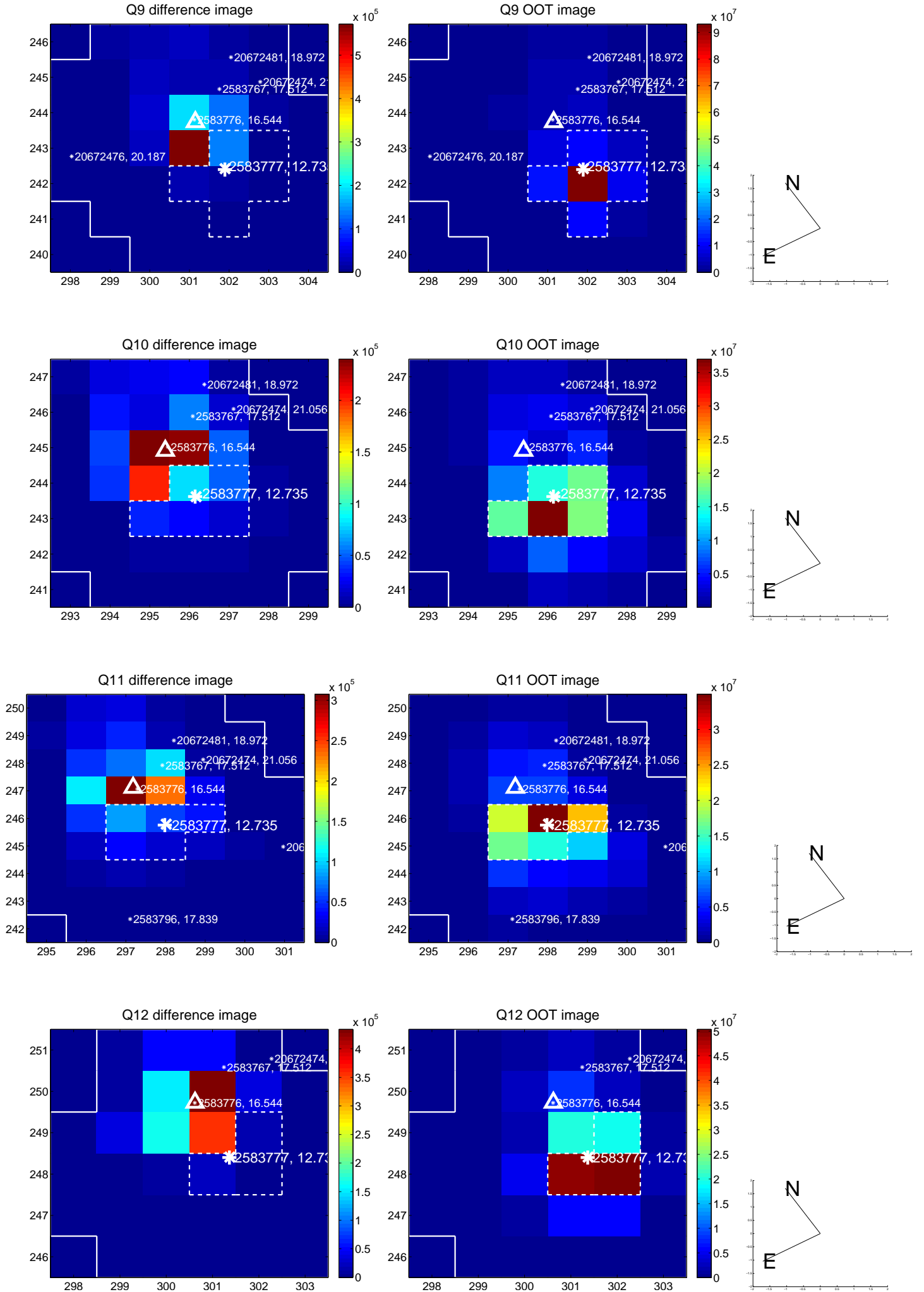
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



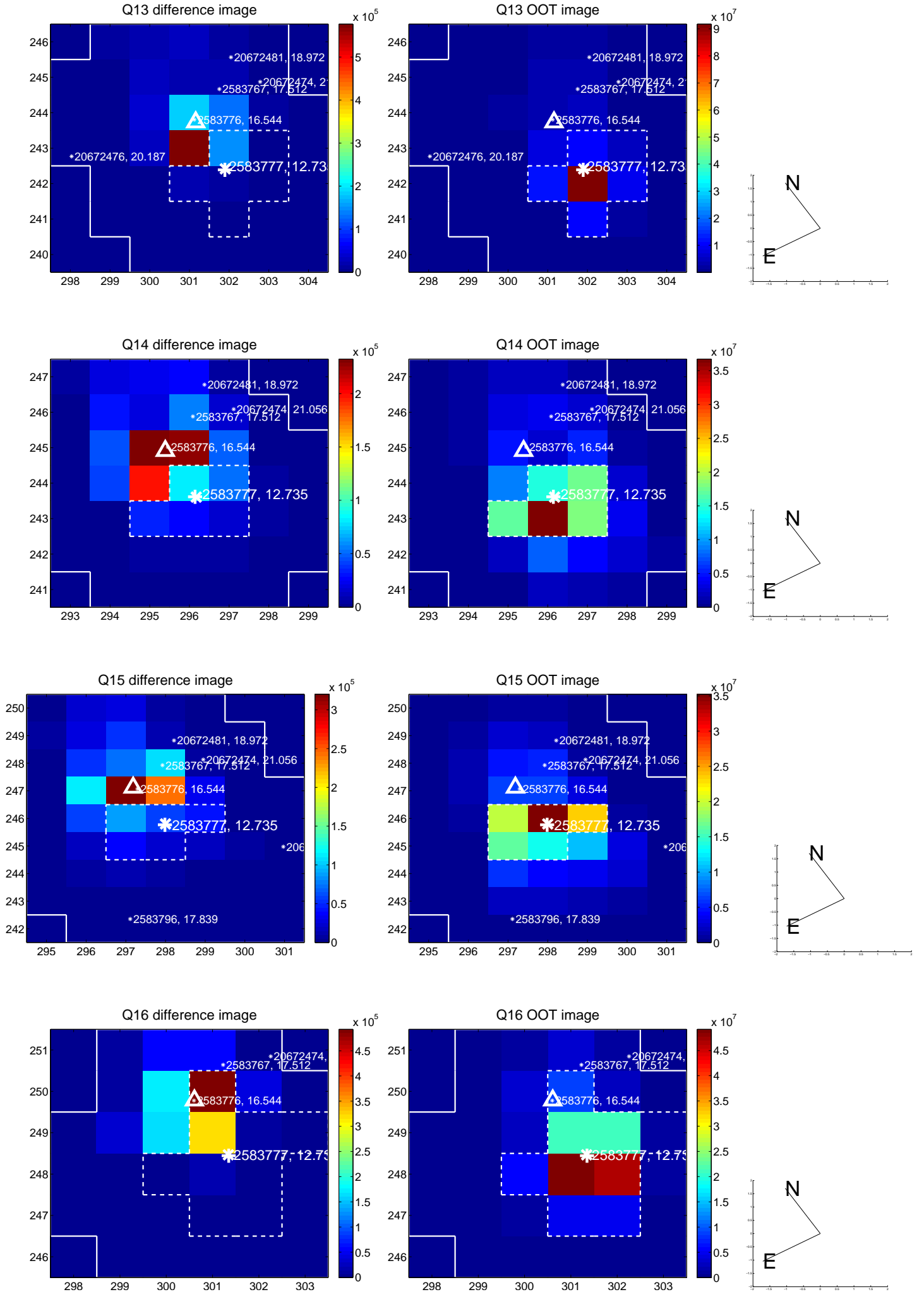
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



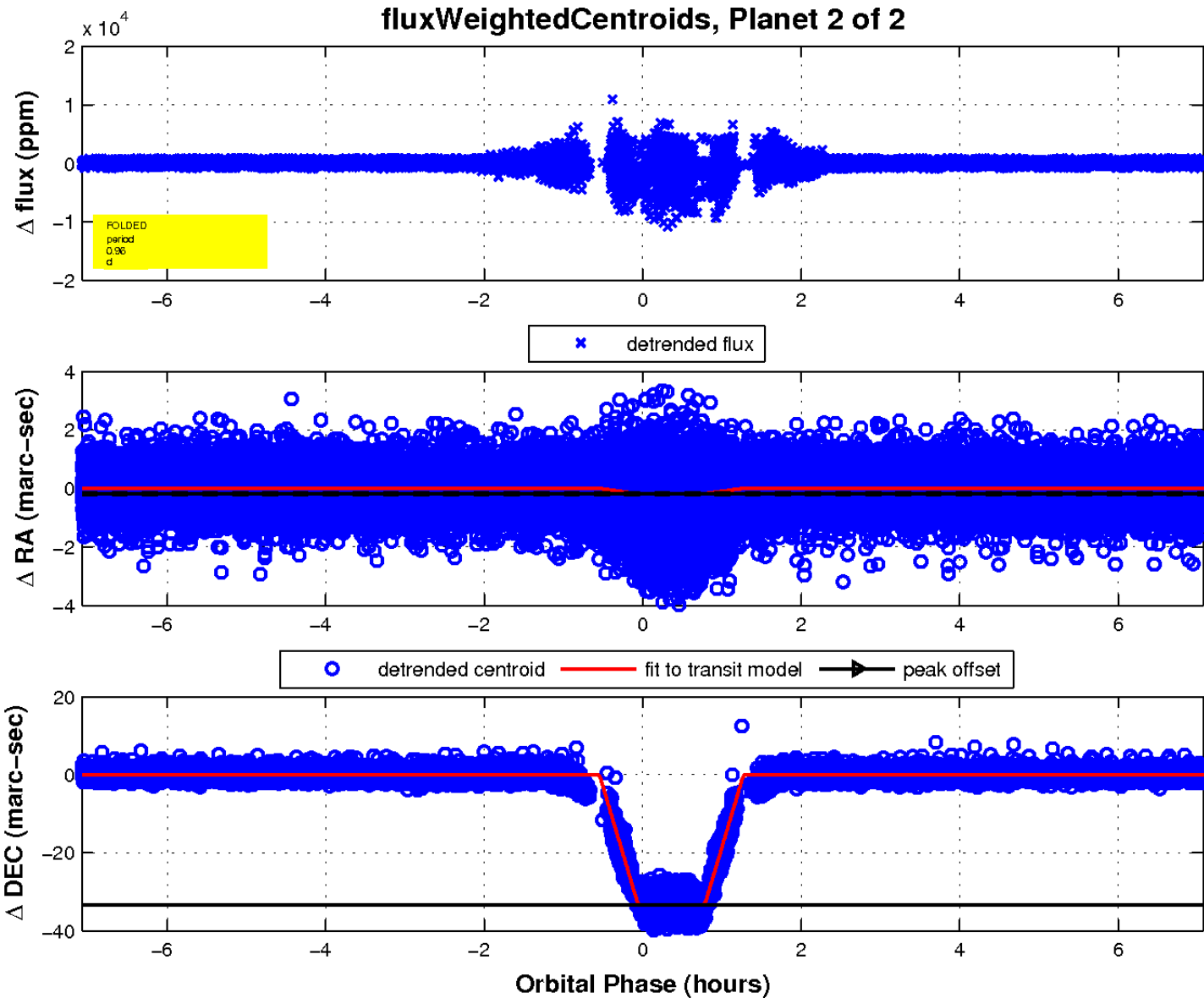
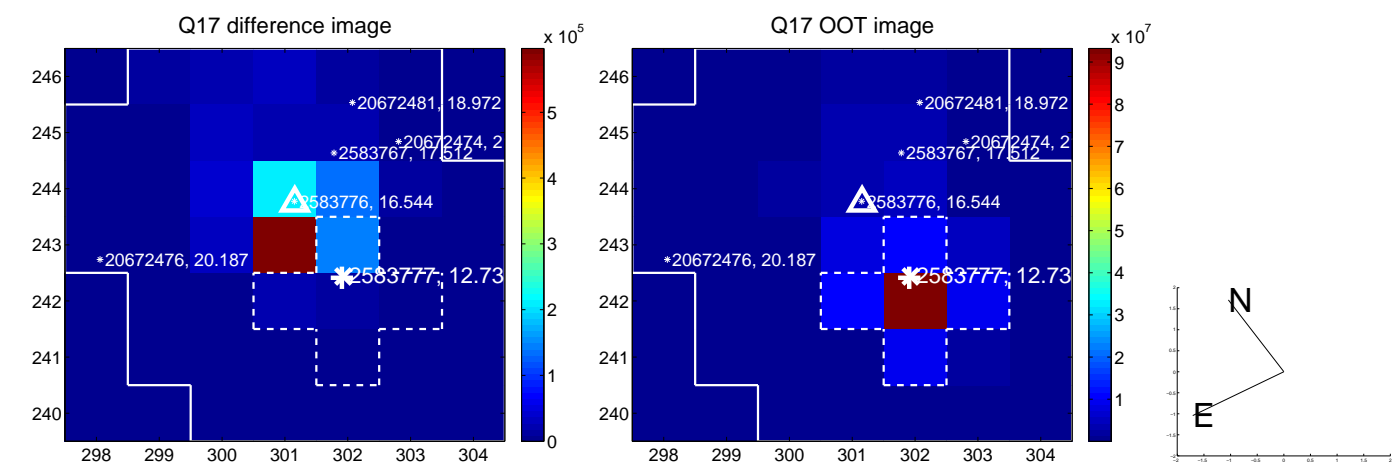
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UKIRT Image

Declination

