

# KIC 005962532

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005962532-02 | OBS      | No   | 375.265656    | 236.698712   | 1617.3      | 15.423           | 13.1 | 4.3 | 0.66                        | 5065            | 2.62                   | 0.33                   |
| 005962532-03 | OBS      | No   | 585.723499    | 363.690865   | 5132.5      | 66.160           | 13.8 | 7.9 | 0.66                        | 5065            | 5.04                   | 0.18                   |
| 005962532-04 | OBS      | No   | 497.356202    | 217.519126   | 2661.1      | 4.713            | 13.0 | 7.3 | 0.66                        | 5065            | 3.41                   | 0.23                   |
| 005962532-05 | OBS      | No   | 500.053693    | 138.259175   | 2190.6      | 4.667            | 11.6 | 6.3 | 0.66                        | 5065            | 3.12                   | 0.23                   |
| 005962532-06 | OBS      | No   | 539.349907    | 425.360331   | 2016.0      | 8.735            | 11.4 | 5.0 | 0.66                        | 5065            | 2.98                   | 0.20                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 005962532-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS  |
| 005962532-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS                           |
| 005962532-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005962532-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS             |
| 005962532-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS                       |

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

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

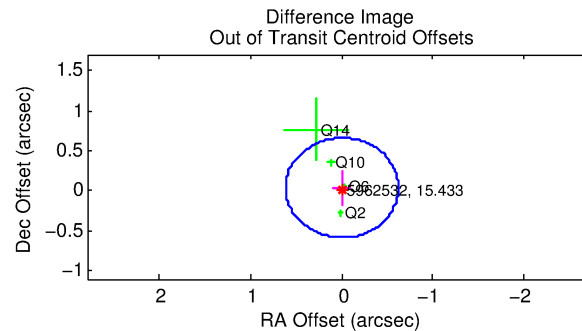
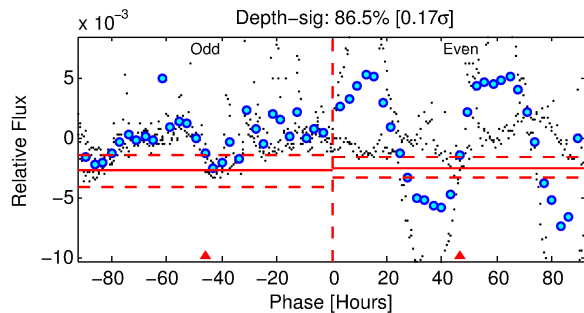
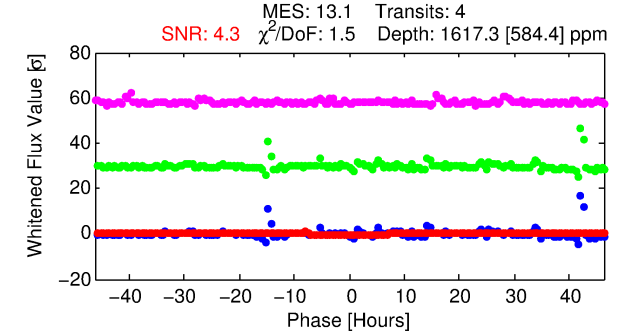
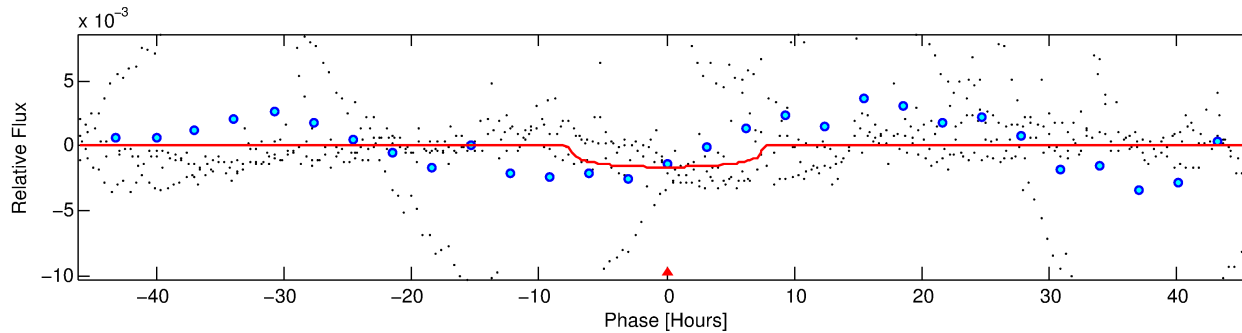
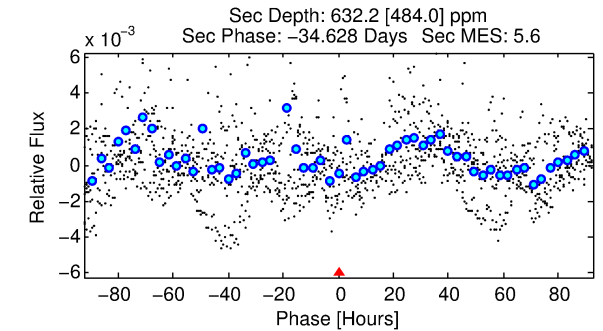
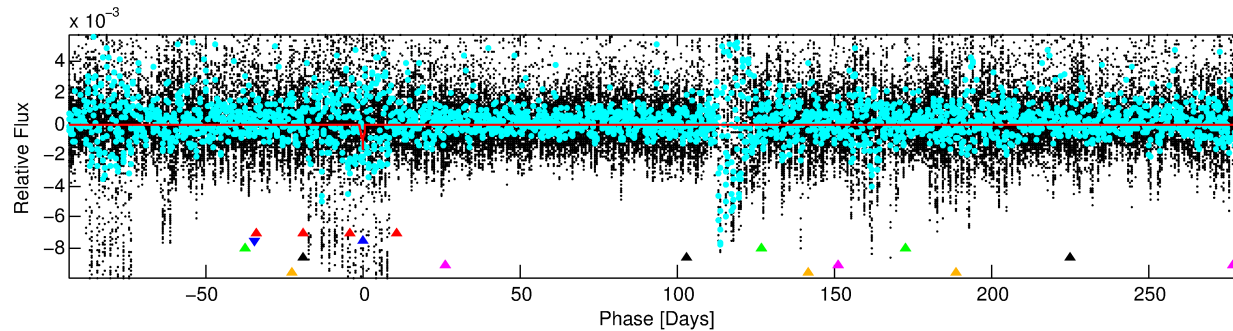
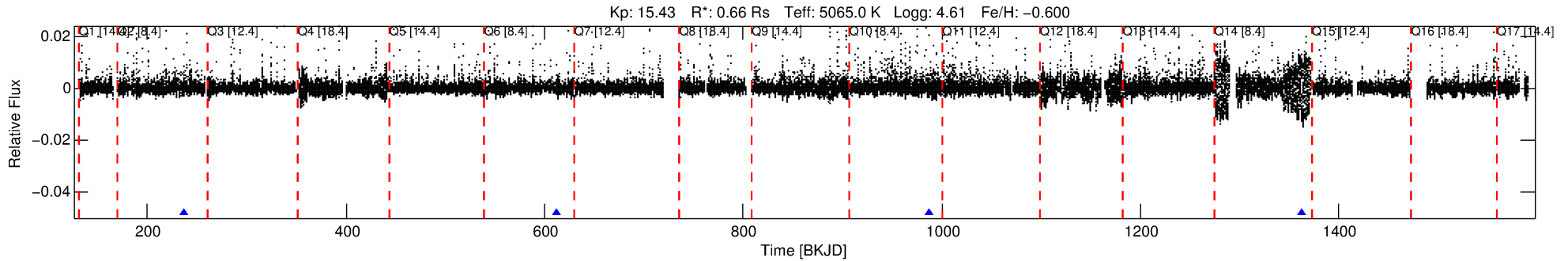
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005962532-02

No Significant Match Found

# DV One-Page Summary

KIC: 5962532 Candidate: 2 of 6 Period: 375.266 d



## DV Fit Results:

Period = 375.26566 [0.01247] d  
Epoch = 236.6987 [0.0259] BKJD  
Rp/R\* = 0.0361 [0.0279]  
a/R\* = 190.43 [532.71]  
b = 0.15 [17.69]  
Seff = 0.33 [0.06]  
Teq = 193 [9] K  
Rp = 2.62 [2.04] Re  
a = 0.8859 [0.0748] AU  
Ag = 39866.57 [68987.68] [0.58σ]  
Teffp = 4226 [1829] K [2.20σ]

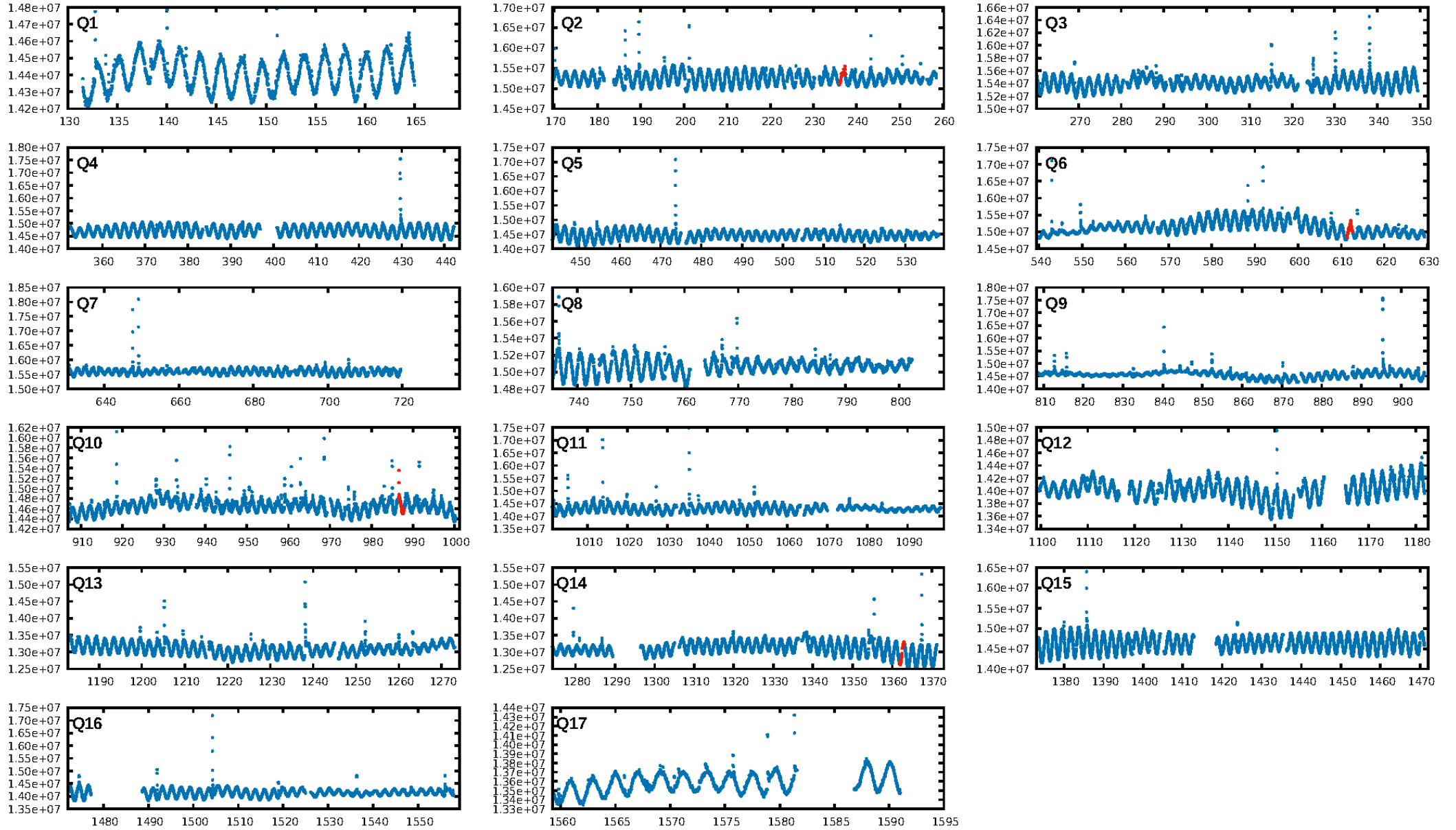
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.64σ]  
LongPeriod-sig: 100.0% [181.70σ]  
ModelChiSquare2-sig: 36.6%  
ModelChiSquareGof-sig: 90.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -11.19  
Centroid-sig: 53.5%  
Centroid-so: 0.100 arcsec [0.24σ]  
OotOffset-rm: 0.036 arcsec [0.18σ]  
KicOffset-rm: 0.089 arcsec [0.80σ]  
OotOffset-st: 4/0/0/0 [4]  
KicOffset-st: 4/0/0/0 [4]  
DiffImageQuality-fgm: 0.25 [1/4]  
DiffImageOverlap-fno: 1.00 [4/4]

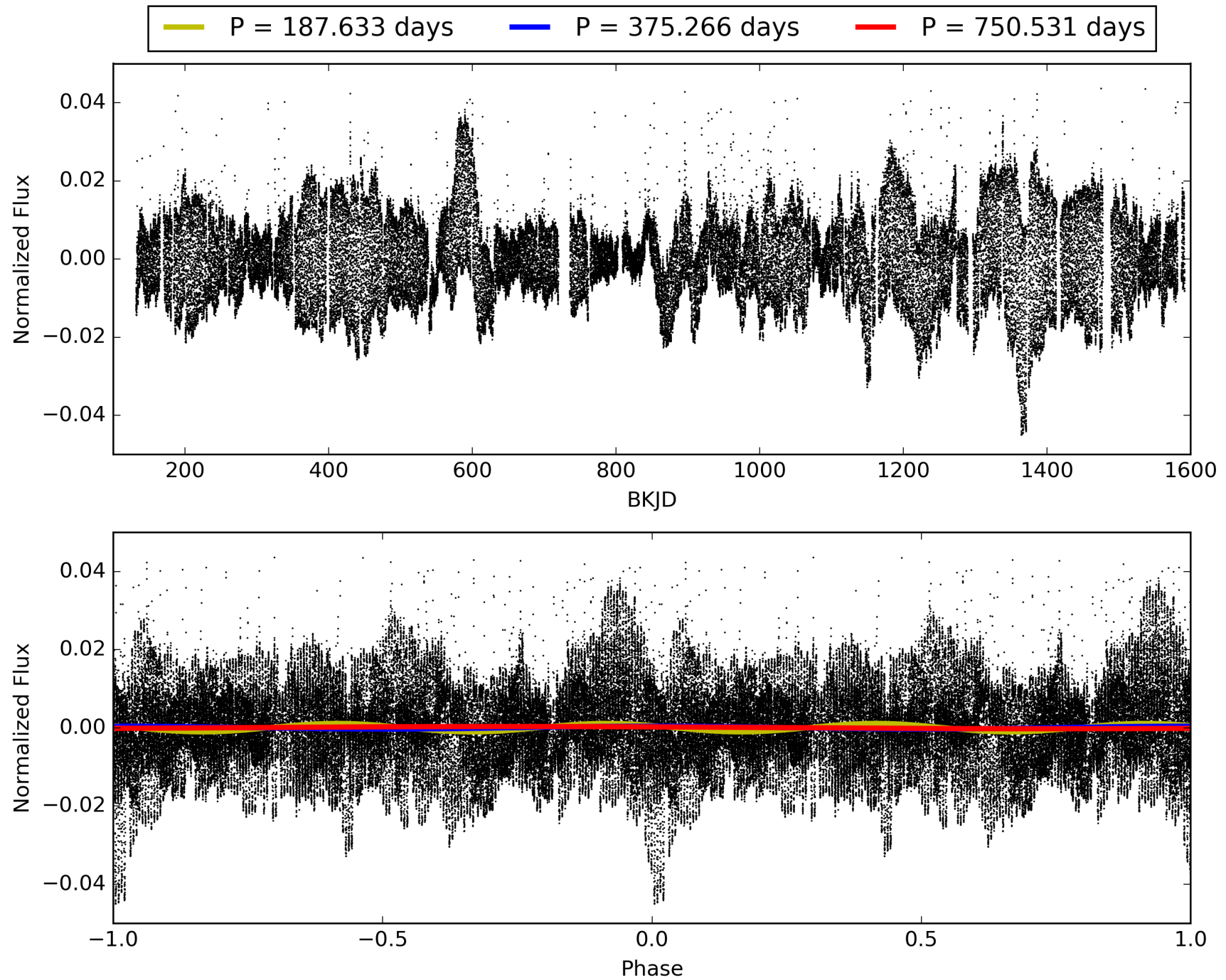
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:58:43 Z

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

# TCE 005962532-02, PDC Light Curves



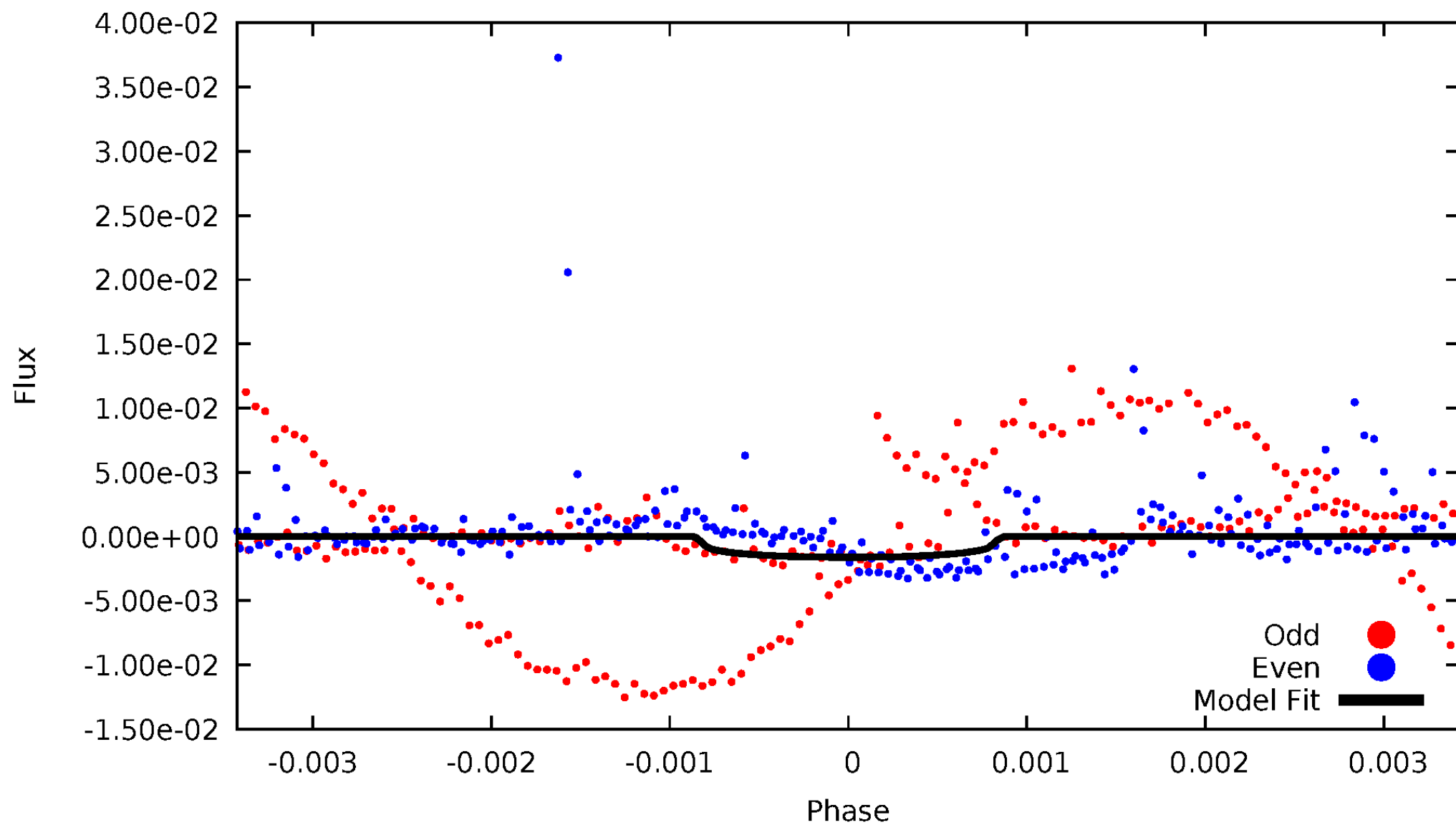
TCE 005962532-02





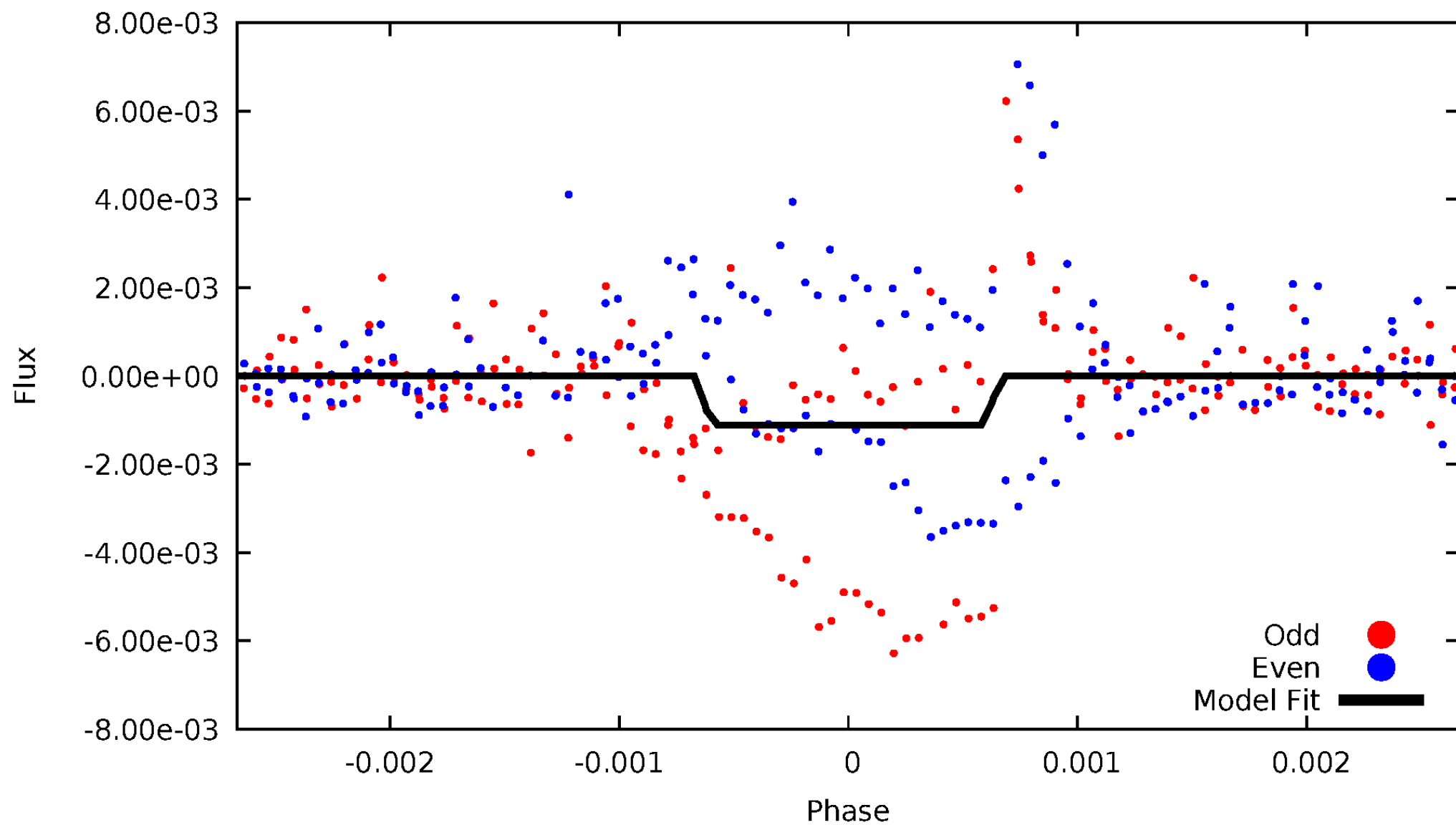
# DV Odd/Even

TCE 005962532-02



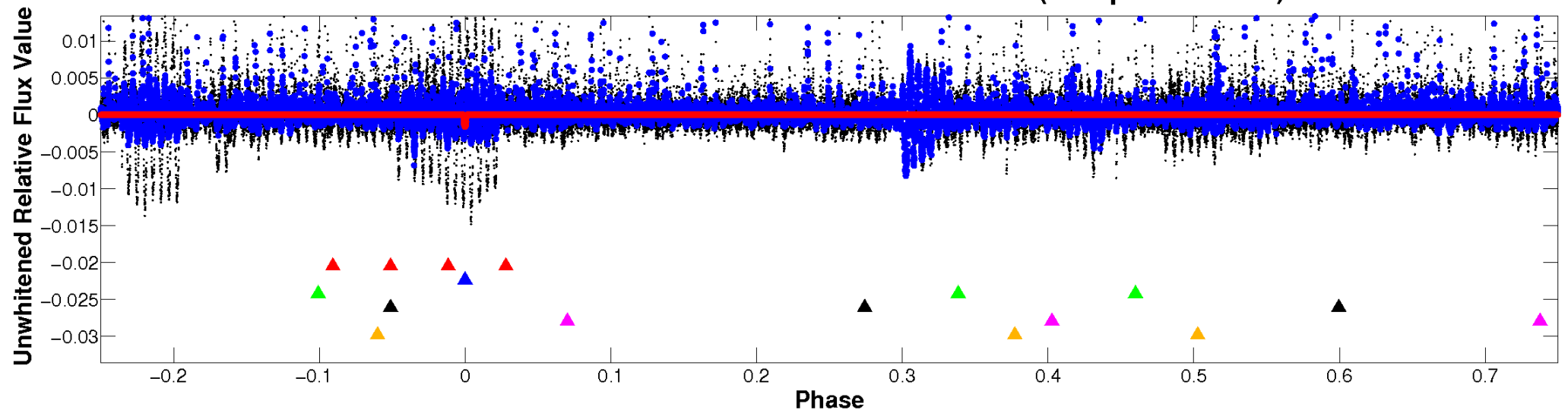
# ALT Odd/Even

TCE 005962532-02

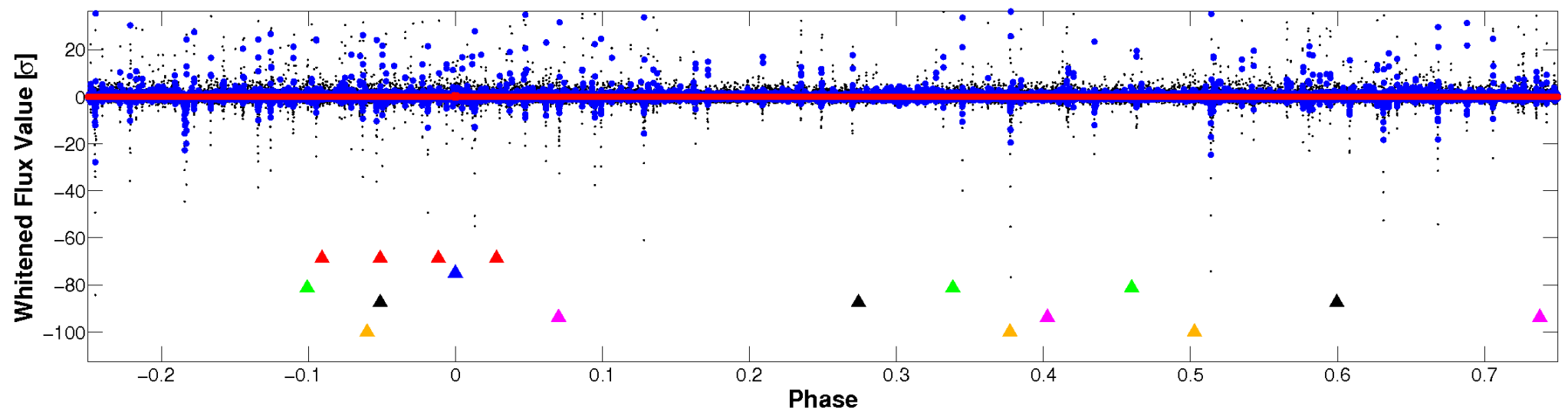


# Non-Whitened Vs. Whitened Light Curve

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

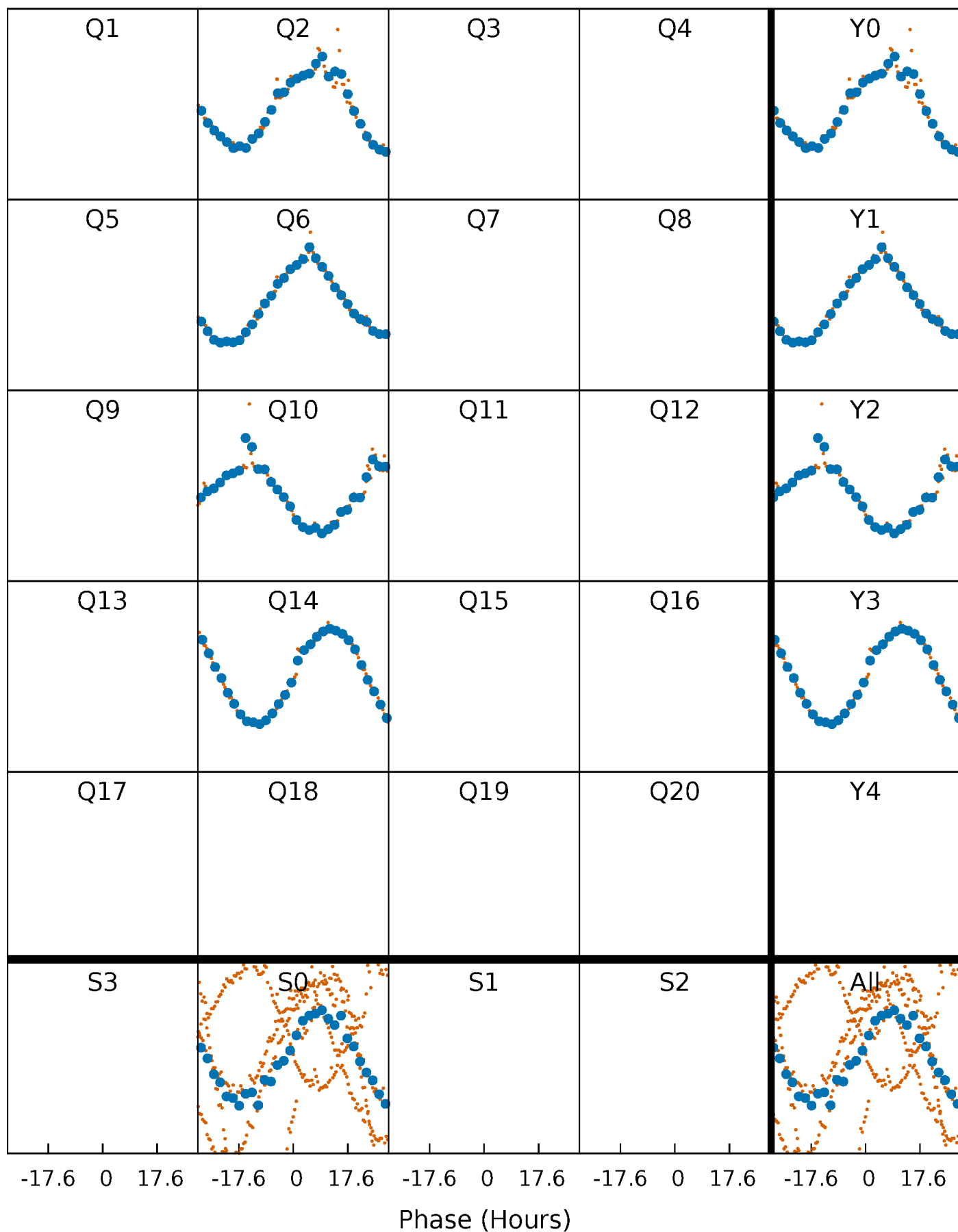


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



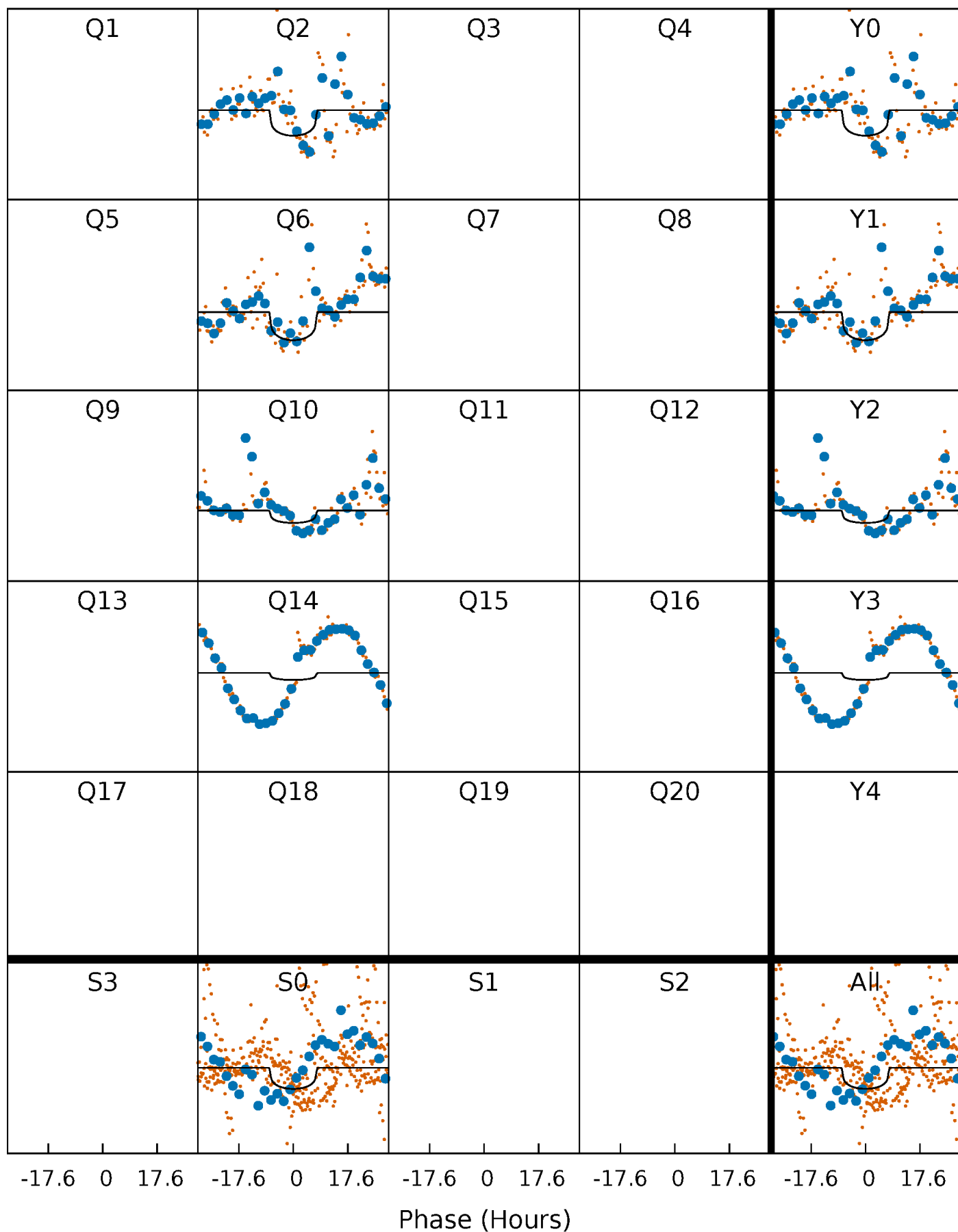
# PDC Quarter-Phased Transit Curves

TCE 005962532-02     $P=375.265655$  Days     $T_0=236.698712$  (BKJD)



# DV Quarter-Phased Transit Curves

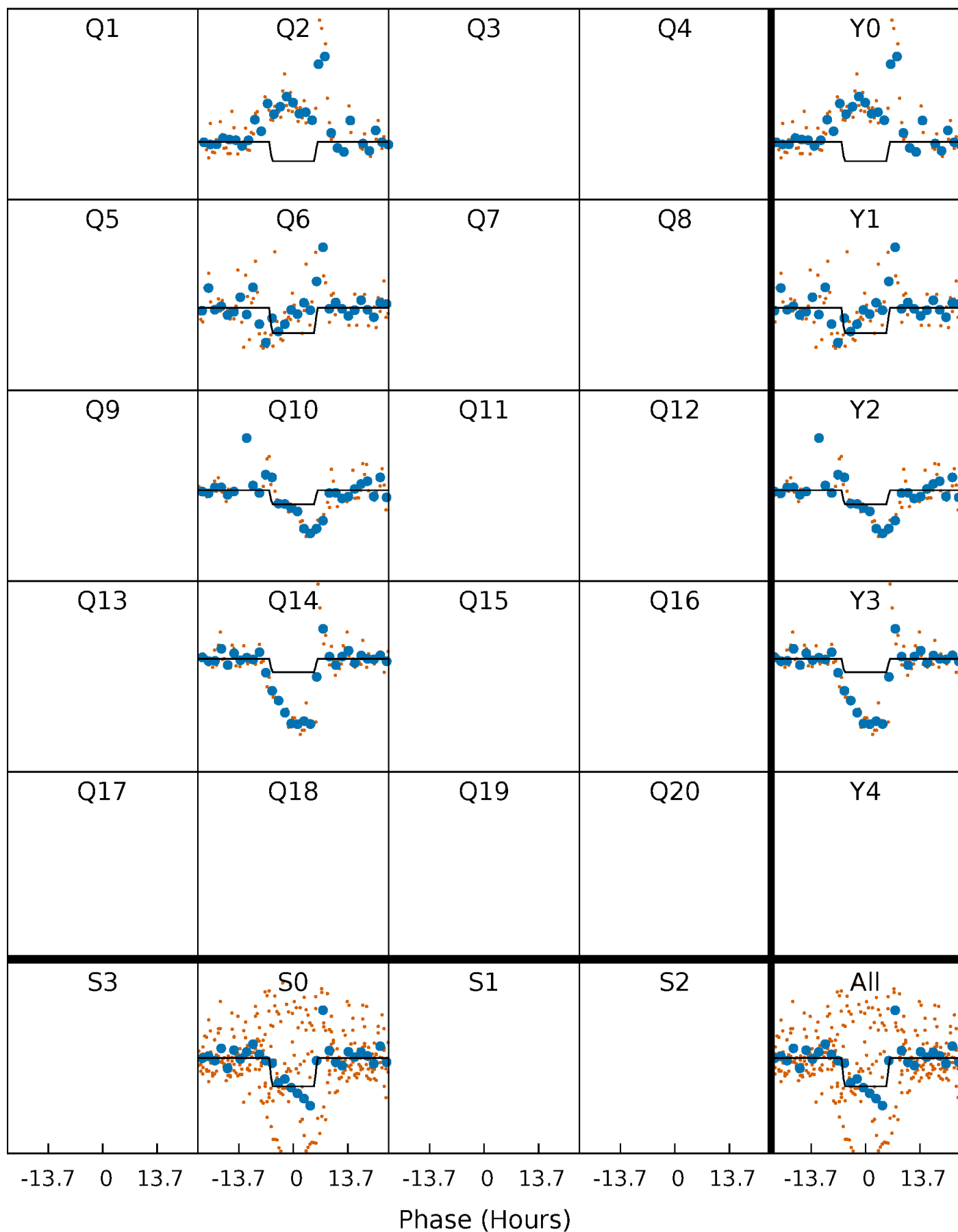
TCE 005962532-02     $P=375.265655$  Days     $T_0=236.698712$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

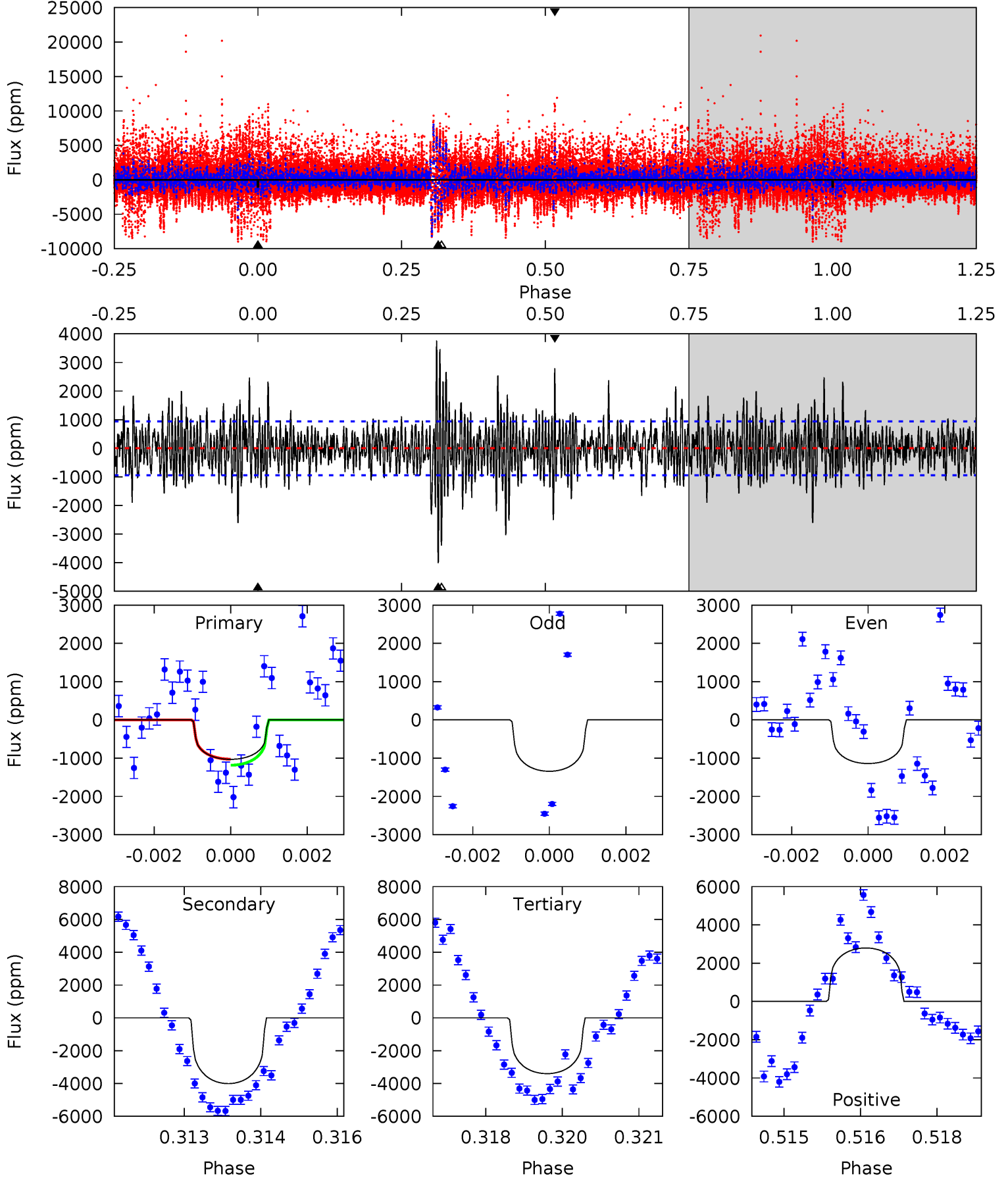
TCE 005962532-02 P=375.180595 Days  $T_0=236.756765$  (BKJD)



# DV Model-Shift Uniqueness Test

005962532-02, P = 375.265655 Days, E = 236.698712 Days

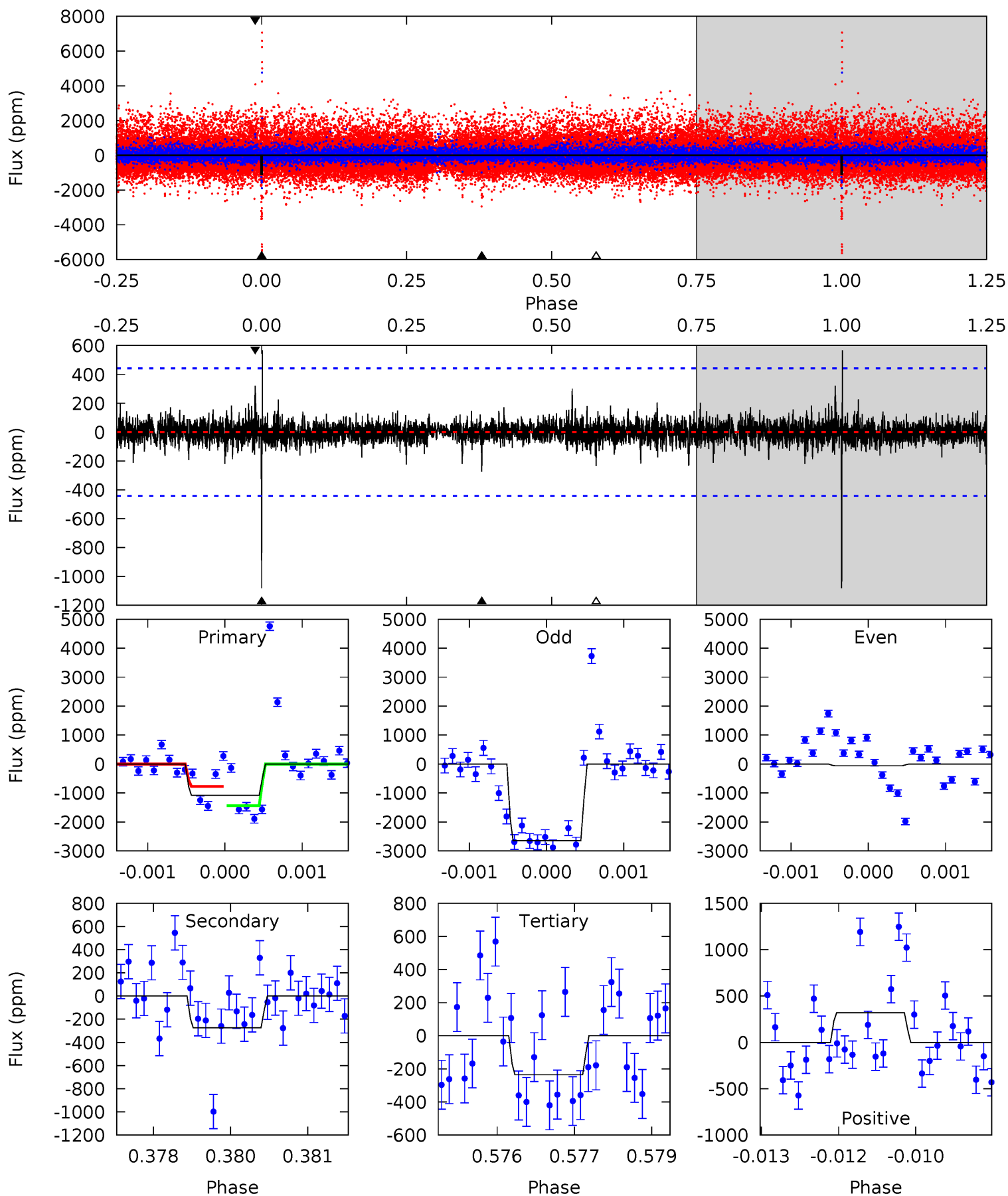
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.85 | 22.7 | 19.3 | 15.8 | 5.35            | 3.13            | 4.08             | -13.4   | -10.0   | 3.44    | 6.88    | 0.46    | 0.99 | 0.48  | 0.45 |



# Alt Model-Shift Uniqueness Test

005962532-02,  $P = 375.180595$  Days,  $E = 236.756765$  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 |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 13.2 | 3.37 | 2.89 | 3.92 | 5.40            | 3.21            | 0.61             | 10.4    | 9.32    | 0.48    | -0.55   | 17.3    | 1.17 | 0.34  | 0   |



### Stellar Parameters For KIC 005962532

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5065^{+166}_{-151}$ | $4.612^{+0.061}_{-0.044}$ | $-0.600^{+0.300}_{-0.300}$ | $0.664^{+0.070}_{-0.059}$ | $0.658^{+0.079}_{-0.036}$ | $3.168^{+0.805}_{-0.535}$                     |
|        | +3%/-3%              | +1%/-1%                   | +50%/-50%                  | +11%/-9%                  | +12%/-5%                  | +25%/-17%                                     |
| 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 005962532-02 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)     | $T_{obs}$ (K)          | $A_{obs}$                     |
|---------|-----------------|------------------------|-------------------|------------------------|-------------------------------|
| DV      | $-4008 \pm 176$ | $2.71^{+1.87}_{-1.67}$ | $270^{+9}_{-10}$  | $6516^{+5680}_{-1457}$ | $235019^{+1404600}_{-150684}$ |
| Alt.    | $-275 \pm 82$   | $2.80^{+1.90}_{-1.70}$ | $270^{+10}_{-11}$ | $3670^{+1573}_{-583}$  | $14575^{+74459}_{-9670}$      |

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

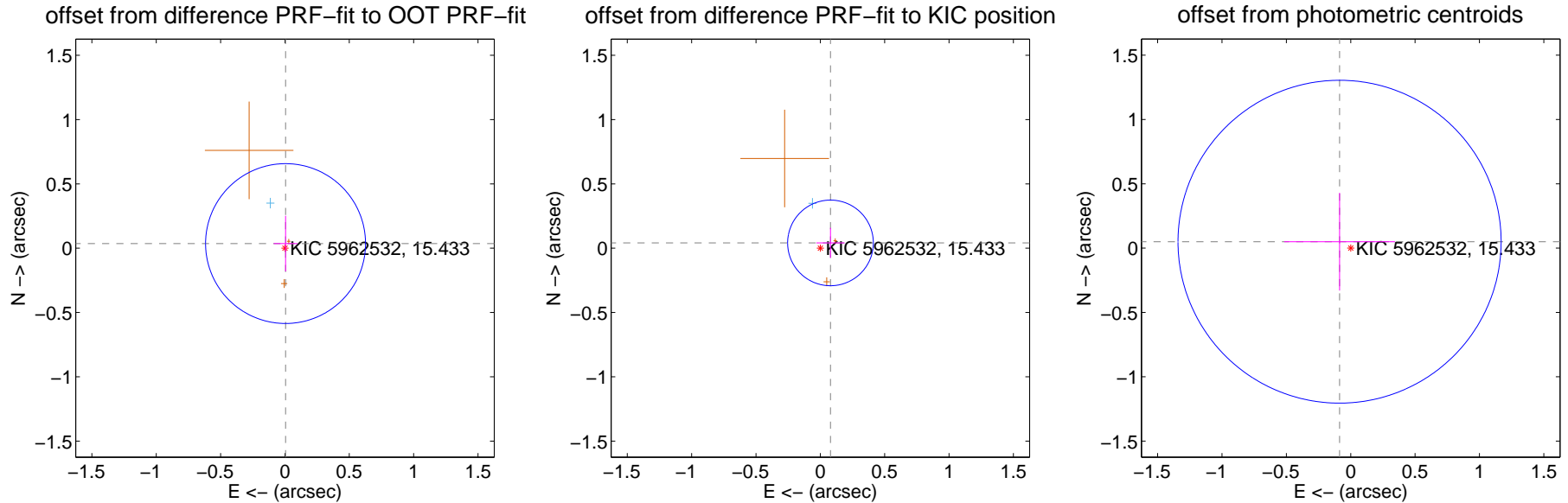
## DV Centroid Data

Supplemental centroid analysis for 005962532-02. Kepler magnitude: 15.43. Transit SNR 4.33

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

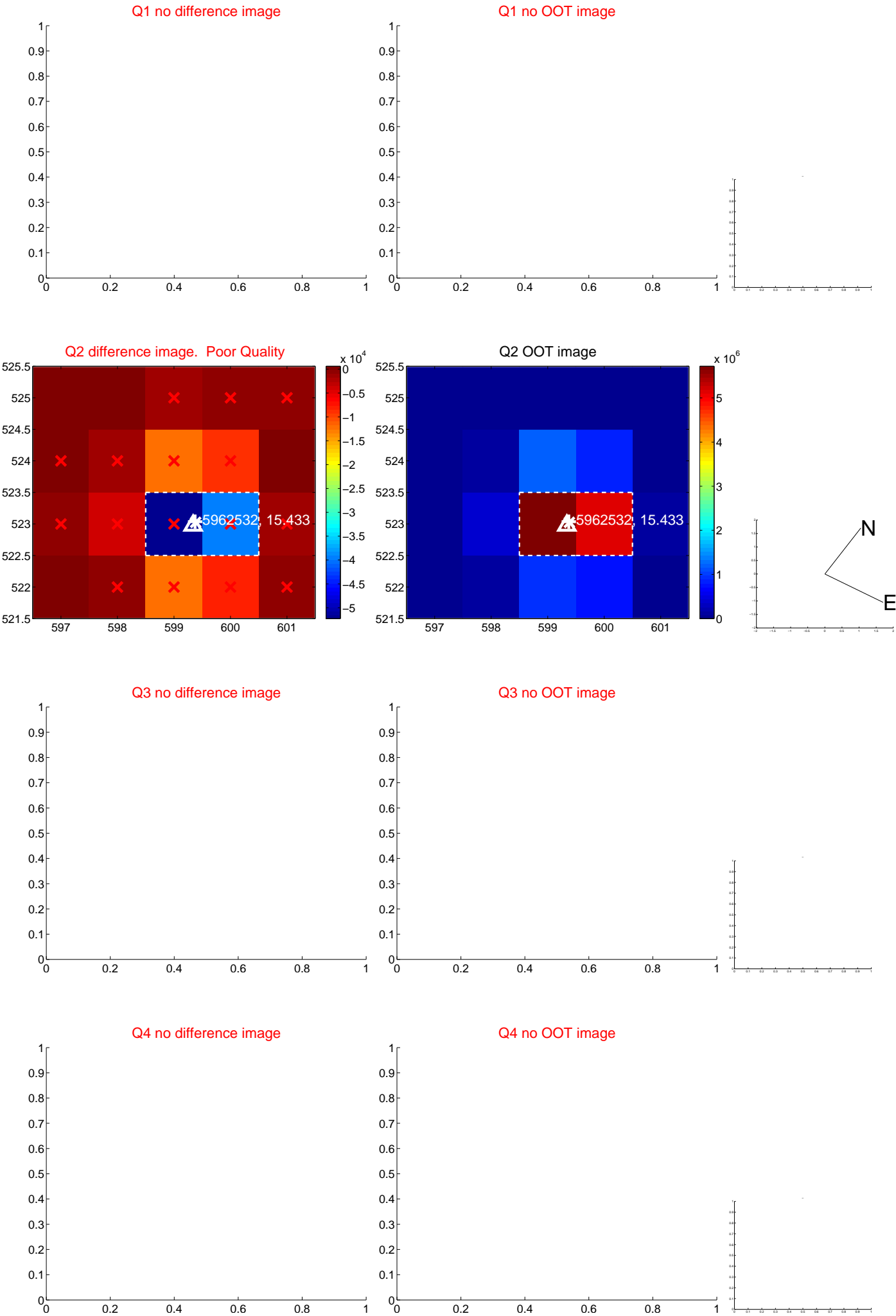
|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | $0.036 \pm 0.207$  | 0.18                | $-0.005 \pm 0.092$ | $0.036 \pm 0.216$ |
| PRF-fit source offset from KIC position | $0.089 \pm 0.111$  | 0.80                | $-0.079 \pm 0.109$ | $0.041 \pm 0.117$ |
| photometric centroid source offset      | $0.10 \pm 0.42$    | 0.24                | $0.09 \pm 0.43$    | $0.05 \pm 0.38$   |



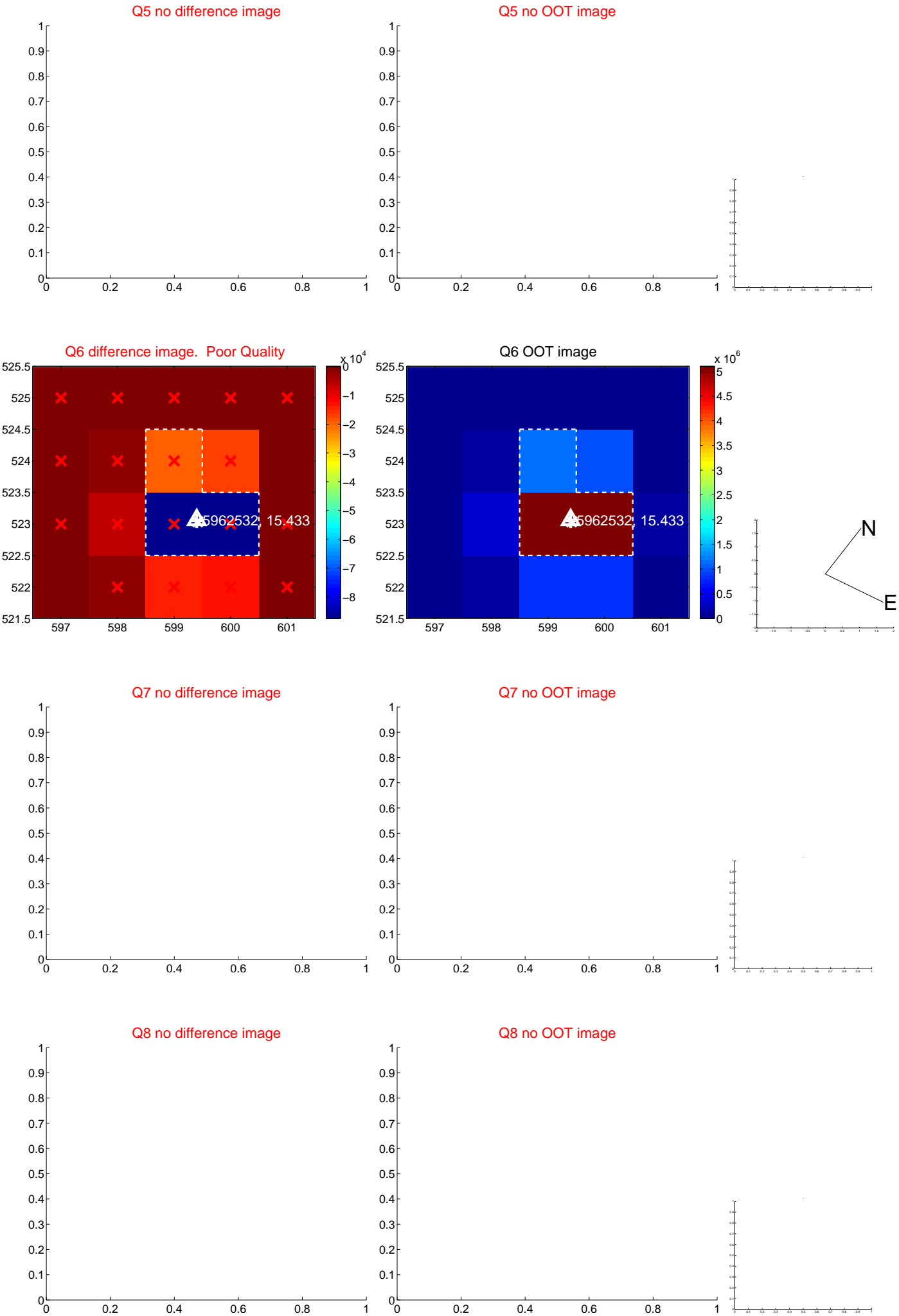
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



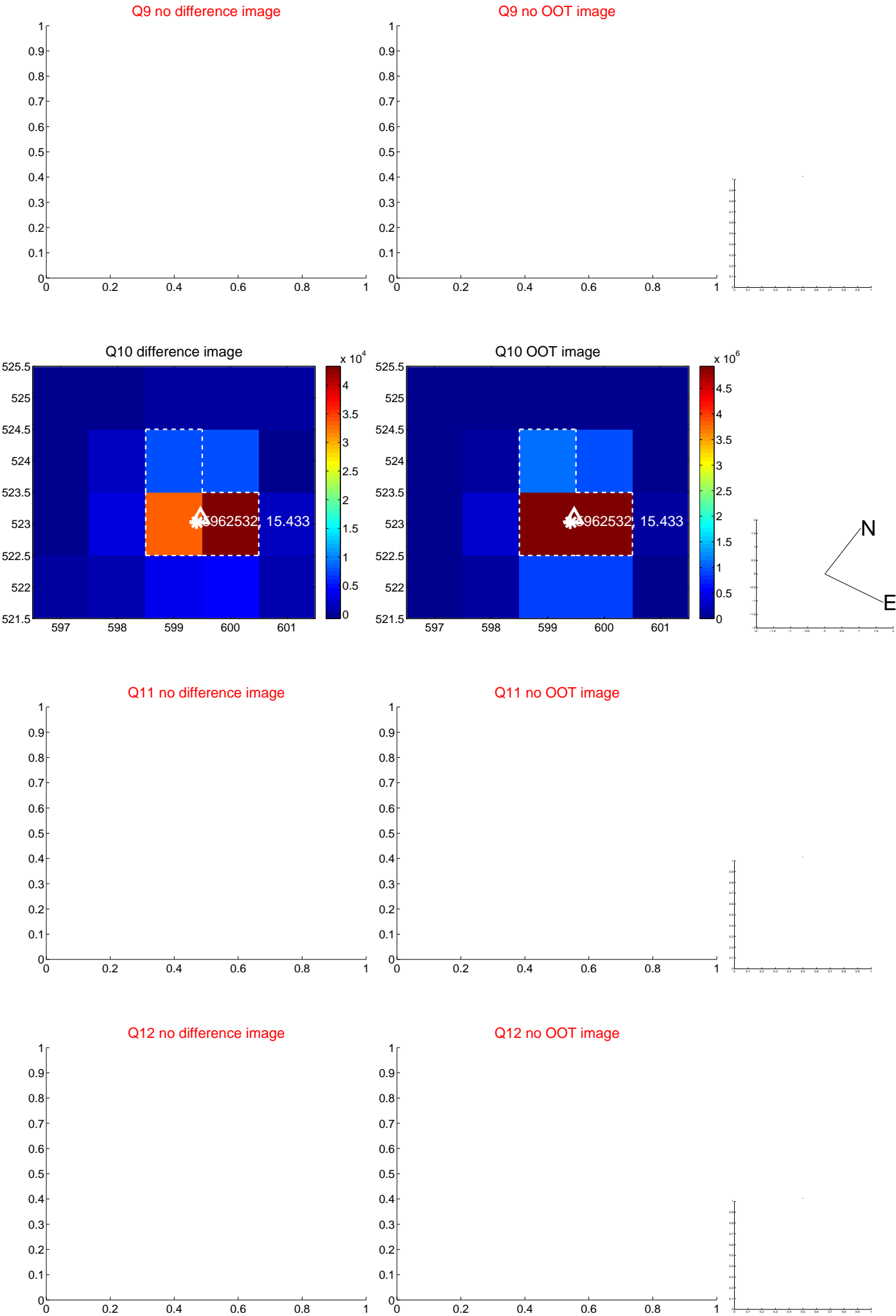
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



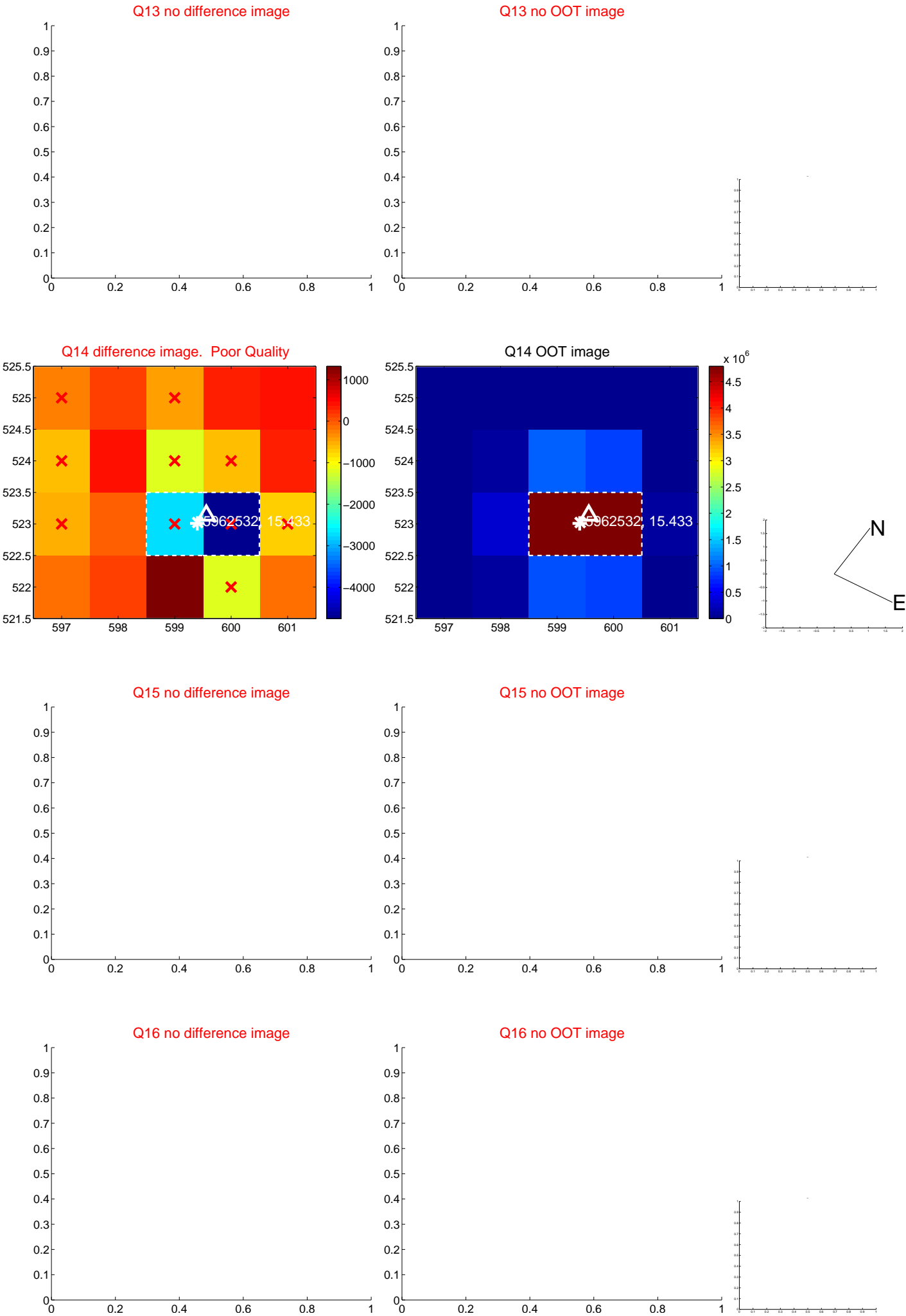
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



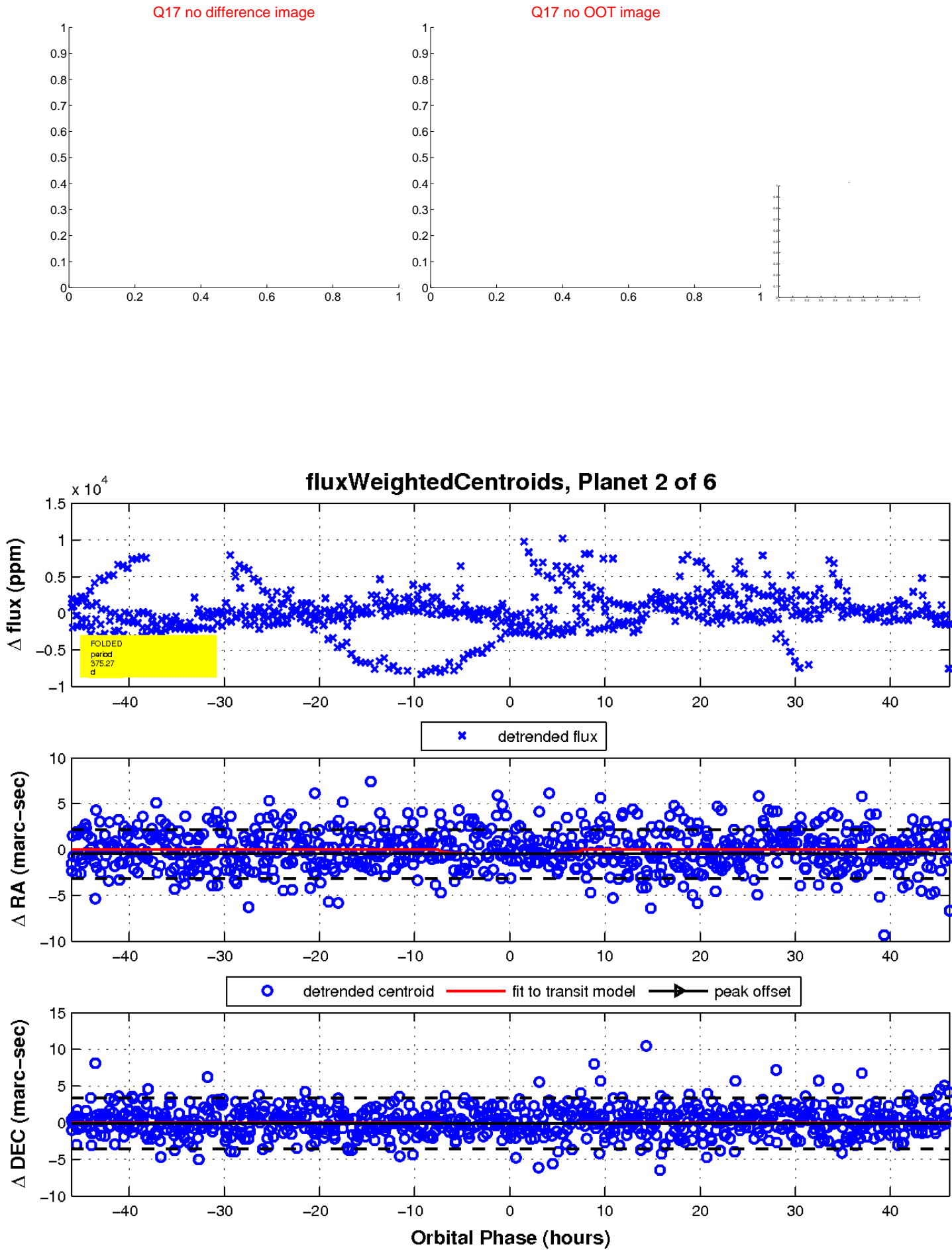
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



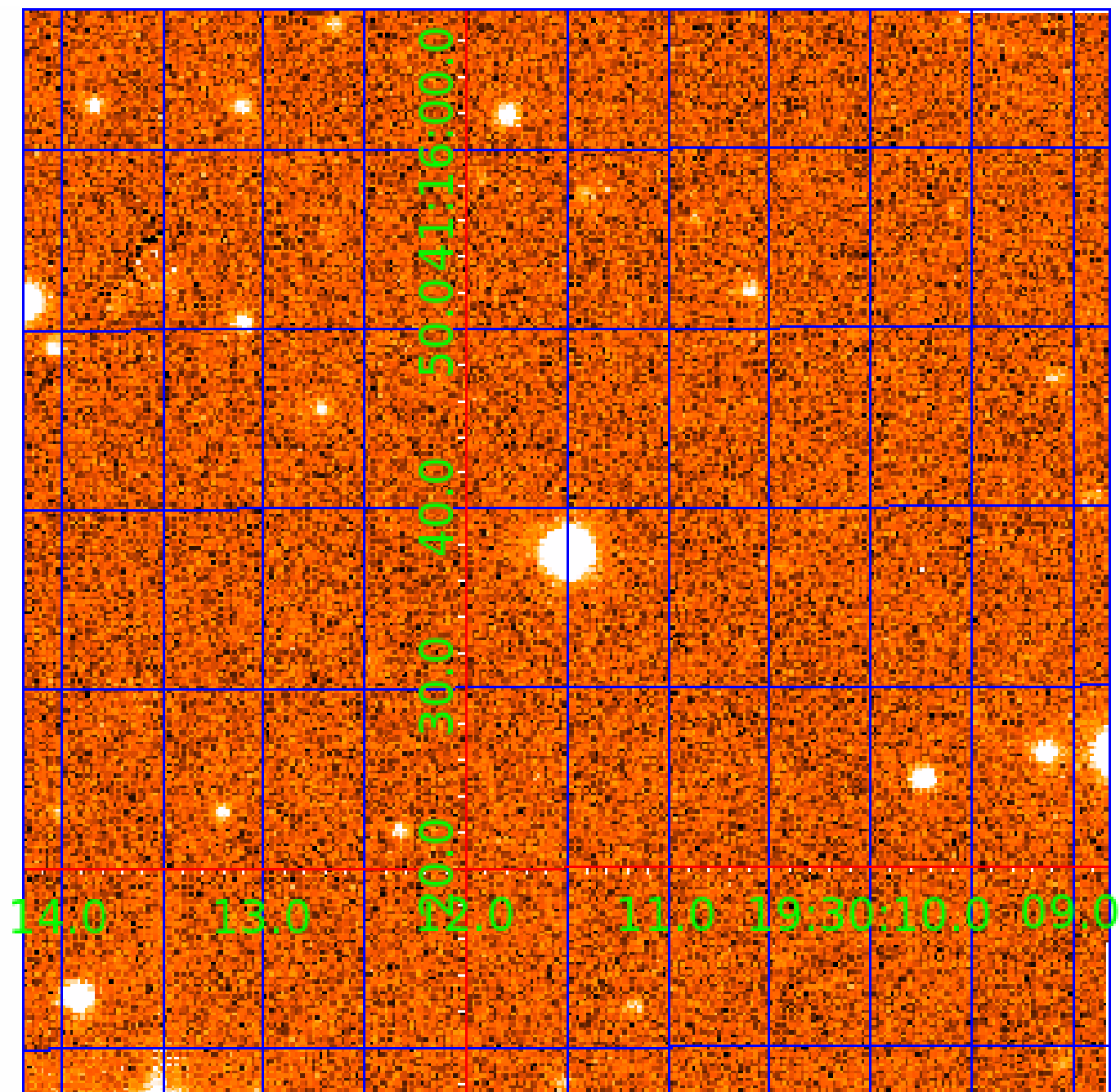
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 005962532

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005962532-02 | OBS      | No   | 375.265656    | 236.698712   | 1617.3      | 15.423           | 13.1 | 4.3 | 0.66                        | 5065            | 2.62                   | 0.33                   |
| 005962532-03 | OBS      | No   | 585.723499    | 363.690865   | 5132.5      | 66.160           | 13.8 | 7.9 | 0.66                        | 5065            | 5.04                   | 0.18                   |
| 005962532-04 | OBS      | No   | 497.356202    | 217.519126   | 2661.1      | 4.713            | 13.0 | 7.3 | 0.66                        | 5065            | 3.41                   | 0.23                   |
| 005962532-05 | OBS      | No   | 500.053693    | 138.259175   | 2190.6      | 4.667            | 11.6 | 6.3 | 0.66                        | 5065            | 3.12                   | 0.23                   |
| 005962532-06 | OBS      | No   | 539.349907    | 425.360331   | 2016.0      | 8.735            | 11.4 | 5.0 | 0.66                        | 5065            | 2.98                   | 0.20                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 005962532-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS  |
| 005962532-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS                           |
| 005962532-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005962532-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS             |
| 005962532-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS                       |

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

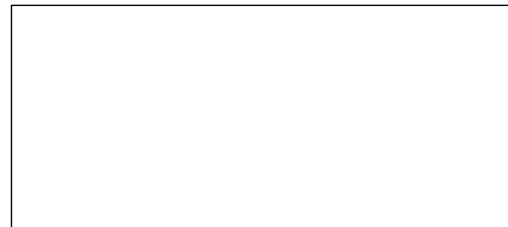
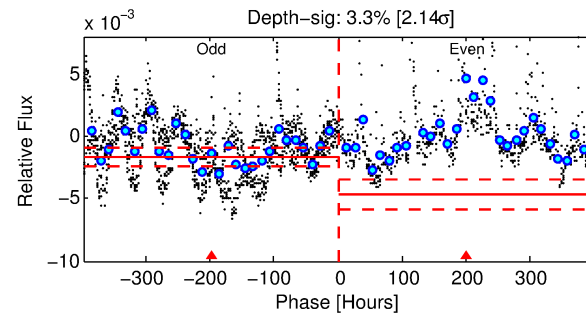
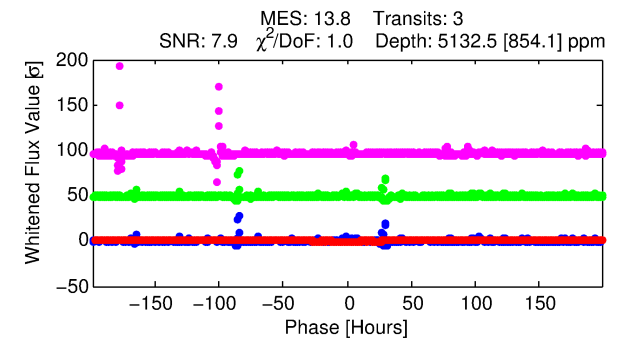
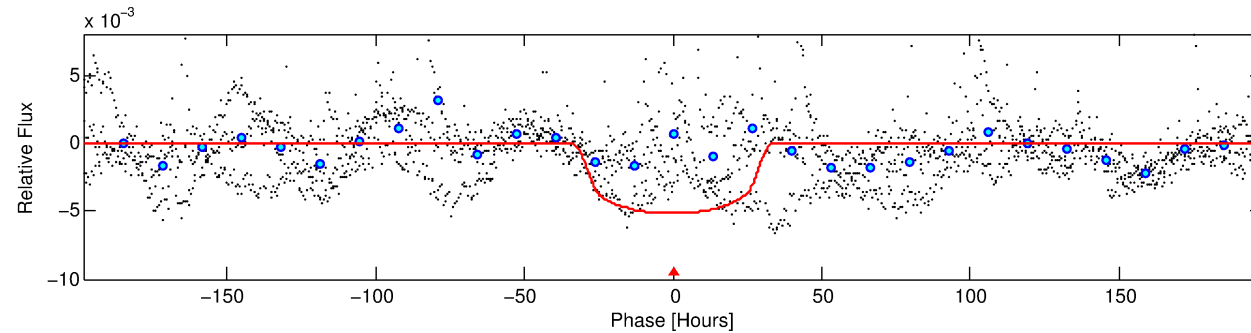
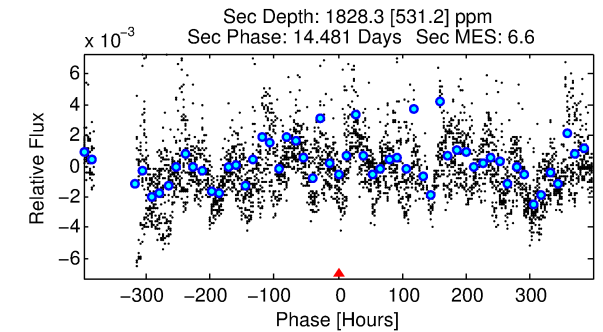
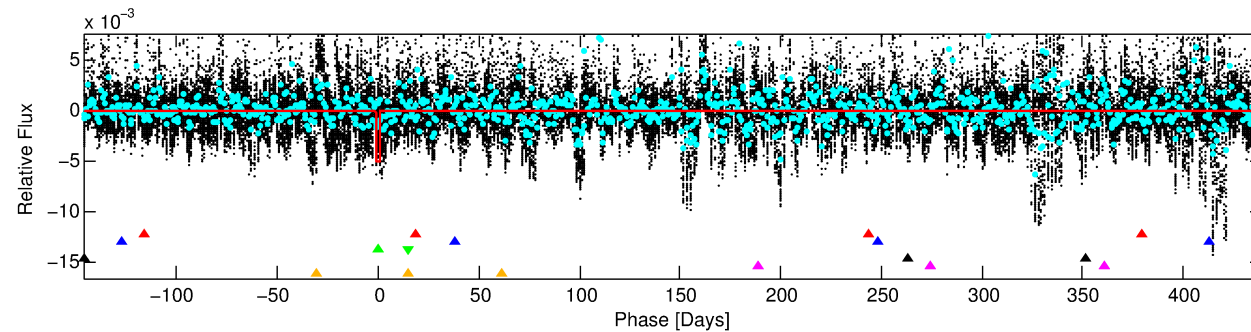
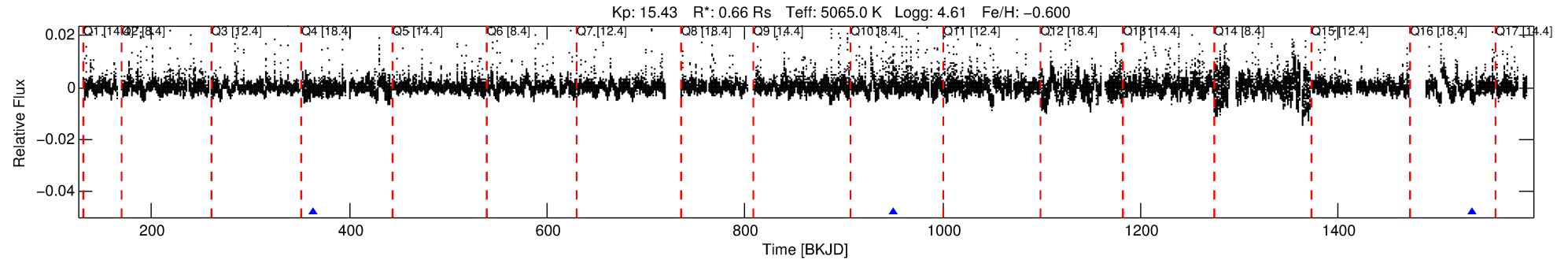
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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 005962532-03

No Significant Match Found

KIC: 5962532    Candidate: 3 of 6    Period: 585.723 d



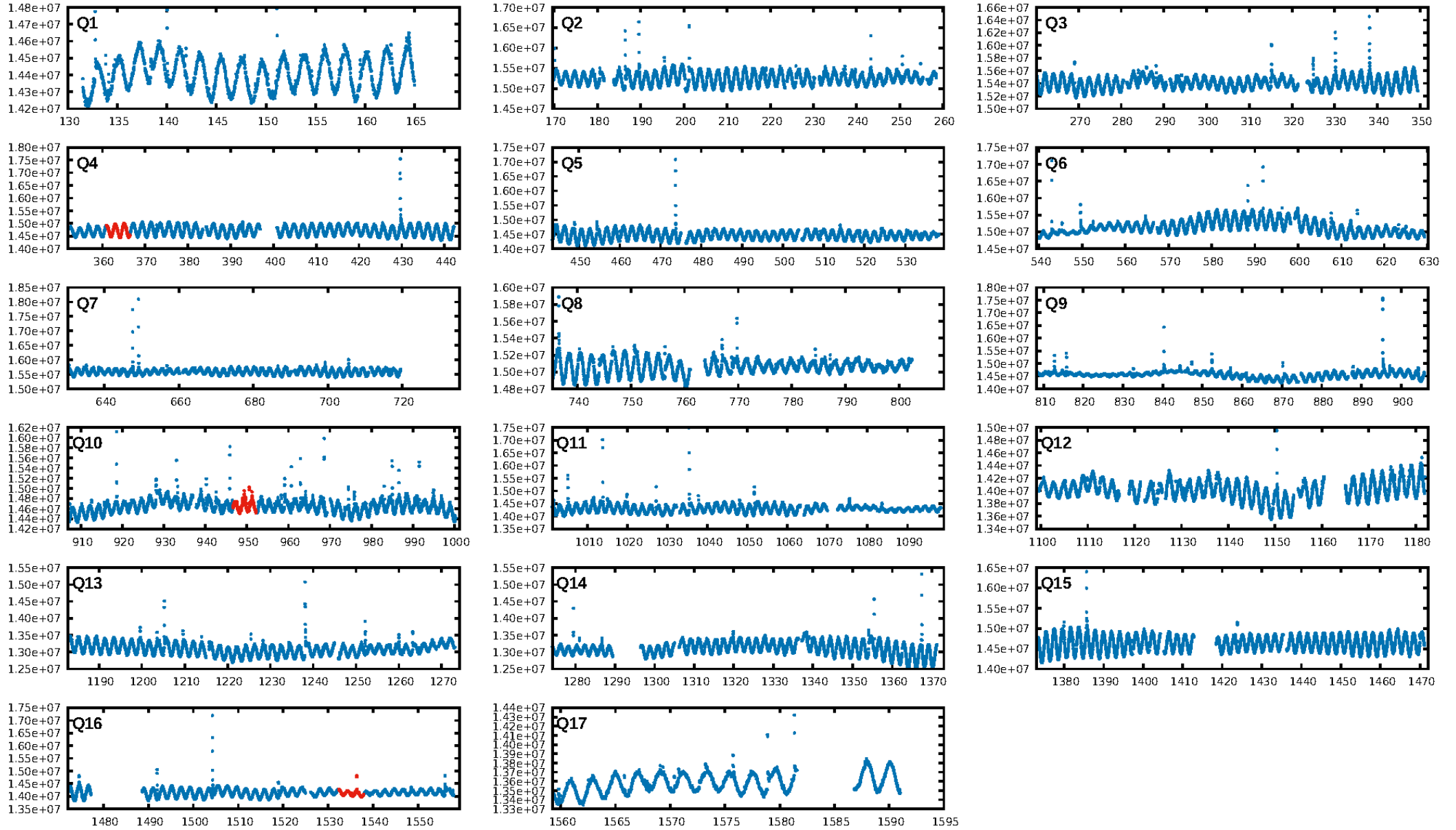
DV Fit Results:

Period = 585.72350 [0.06491] d  
Epoch = 363.6909 [0.0687] BKJD  
Rp/R\* = 0.0695 [0.0072]  
a/R\* = 55.87 [12.52]  
b = 0.68 [0.15]  
Seff = 0.18 [0.03]  
Teq = 167 [7] K  
Rp = 5.04 [0.75] Re  
a = 1.1920 [0.1007] AU  
Ag = 56280.85 [21168.60] [2.66σ]  
Teff = 3972 [378] K [10.06σ]

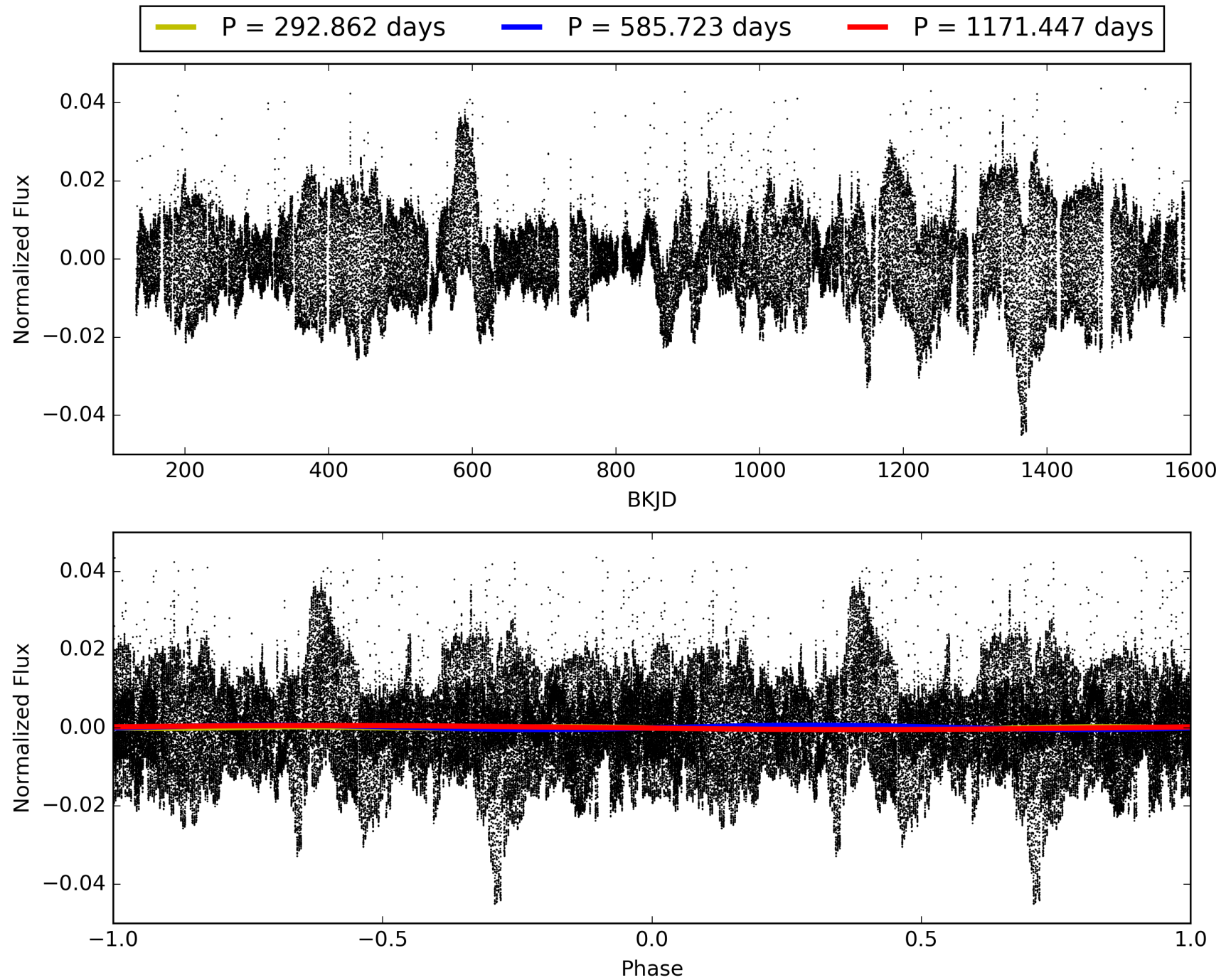
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [16.68]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic- $\chi$ : -2.093  
  
Centroid-sig: 36.9%  
Centroid-so: 0.156 arcsec [1.866]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0 [0]  
KicOffset-st: 0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [2/2]

# TCE 005962532-03, PDC Light Curves



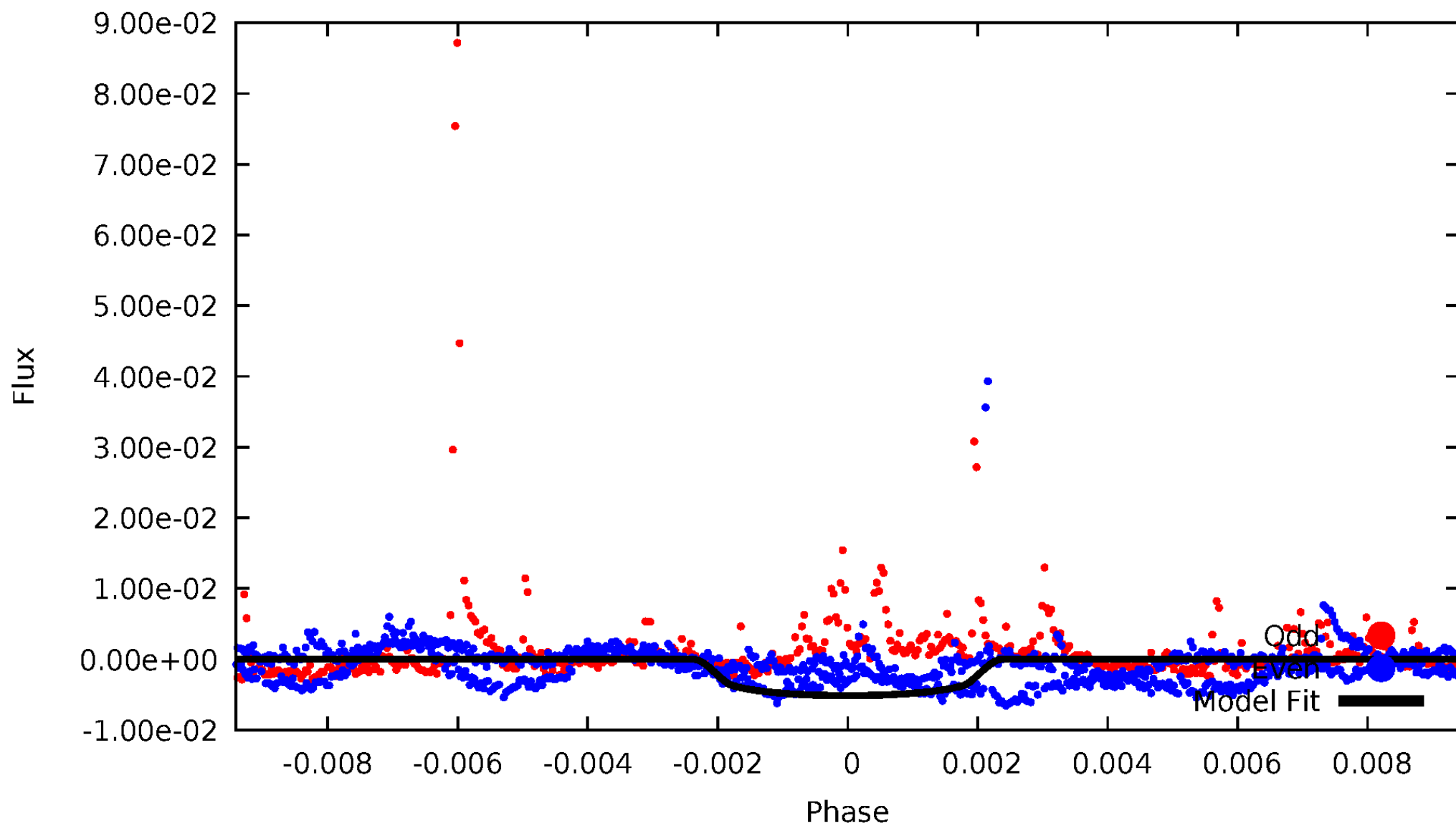
TCE 005962532-03





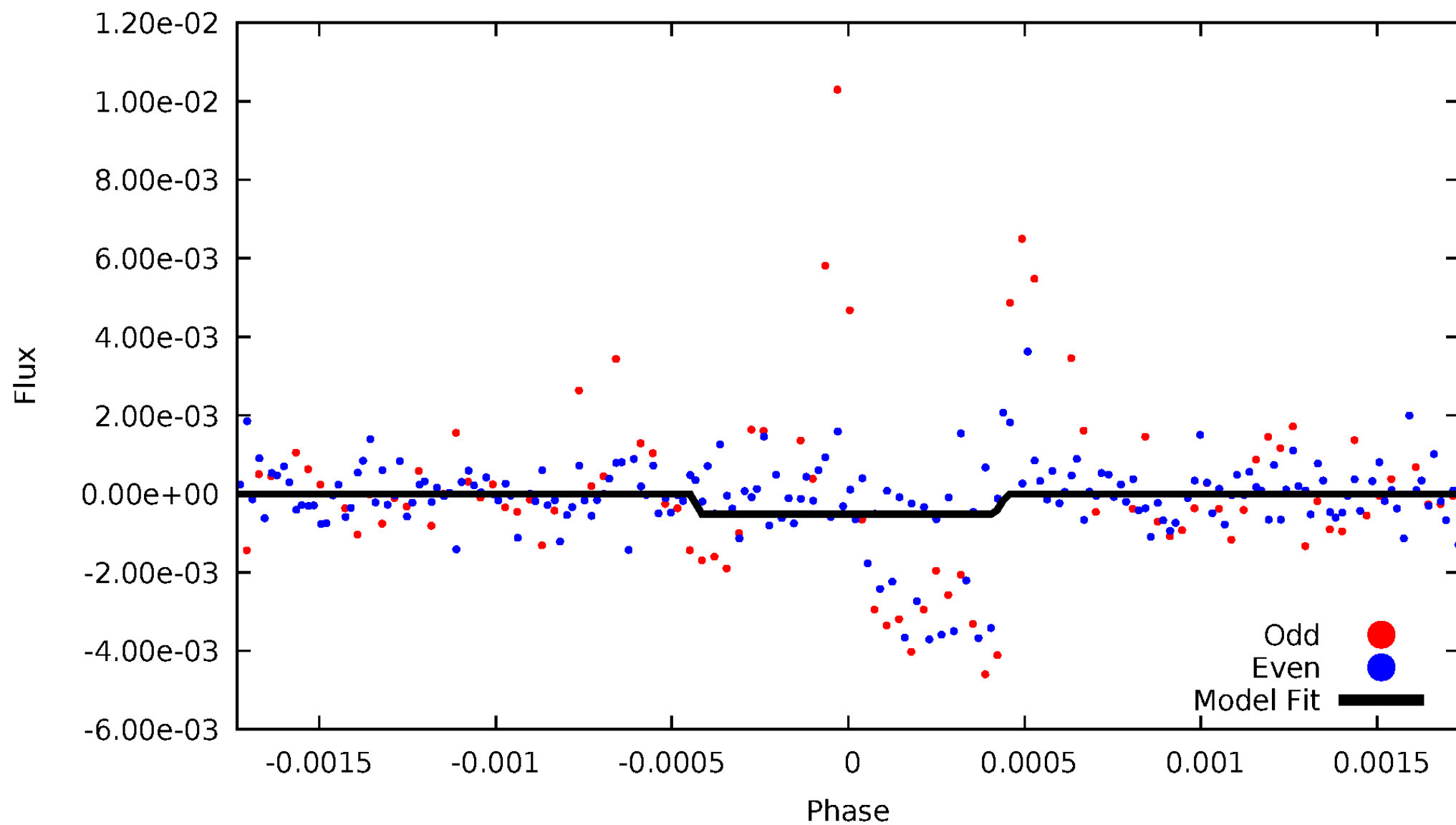
# DV Odd/Even

TCE 005962532-03



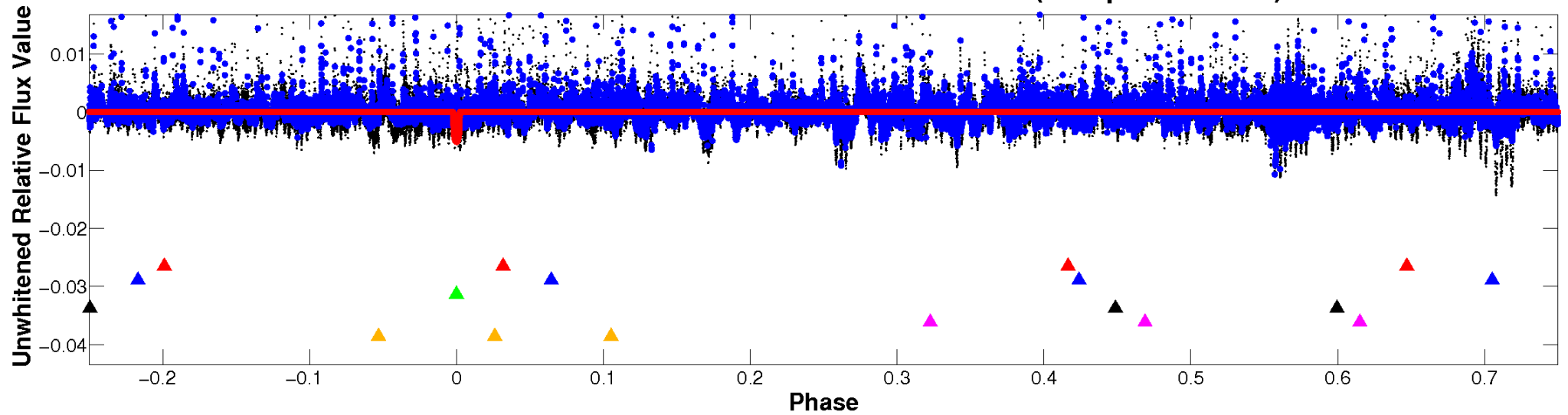
# ALT Odd/Even

TCE 005962532-03

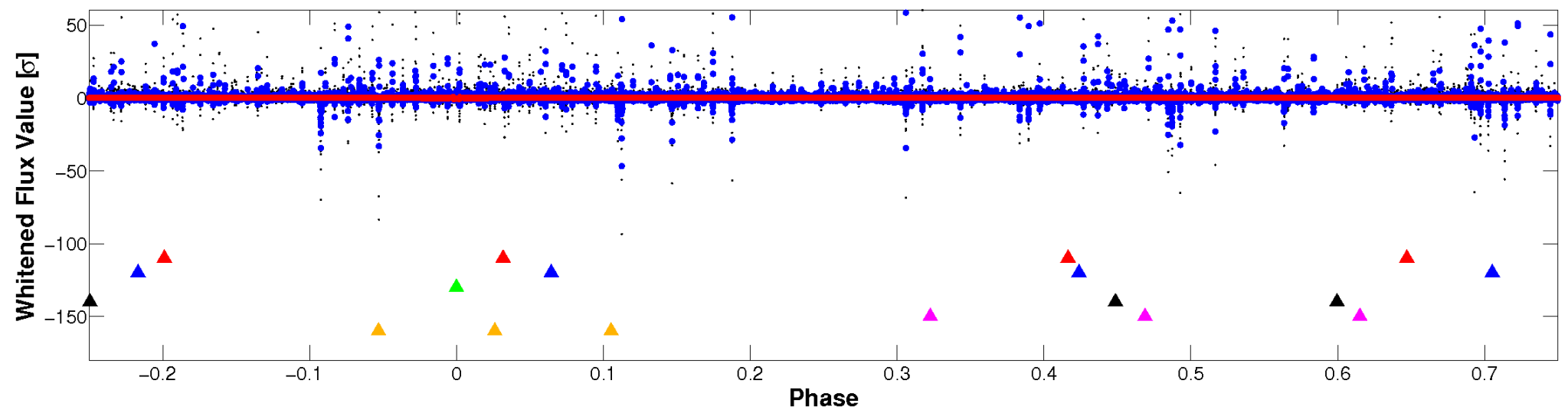


# Non-Whitened Vs. Whitened Light Curve

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

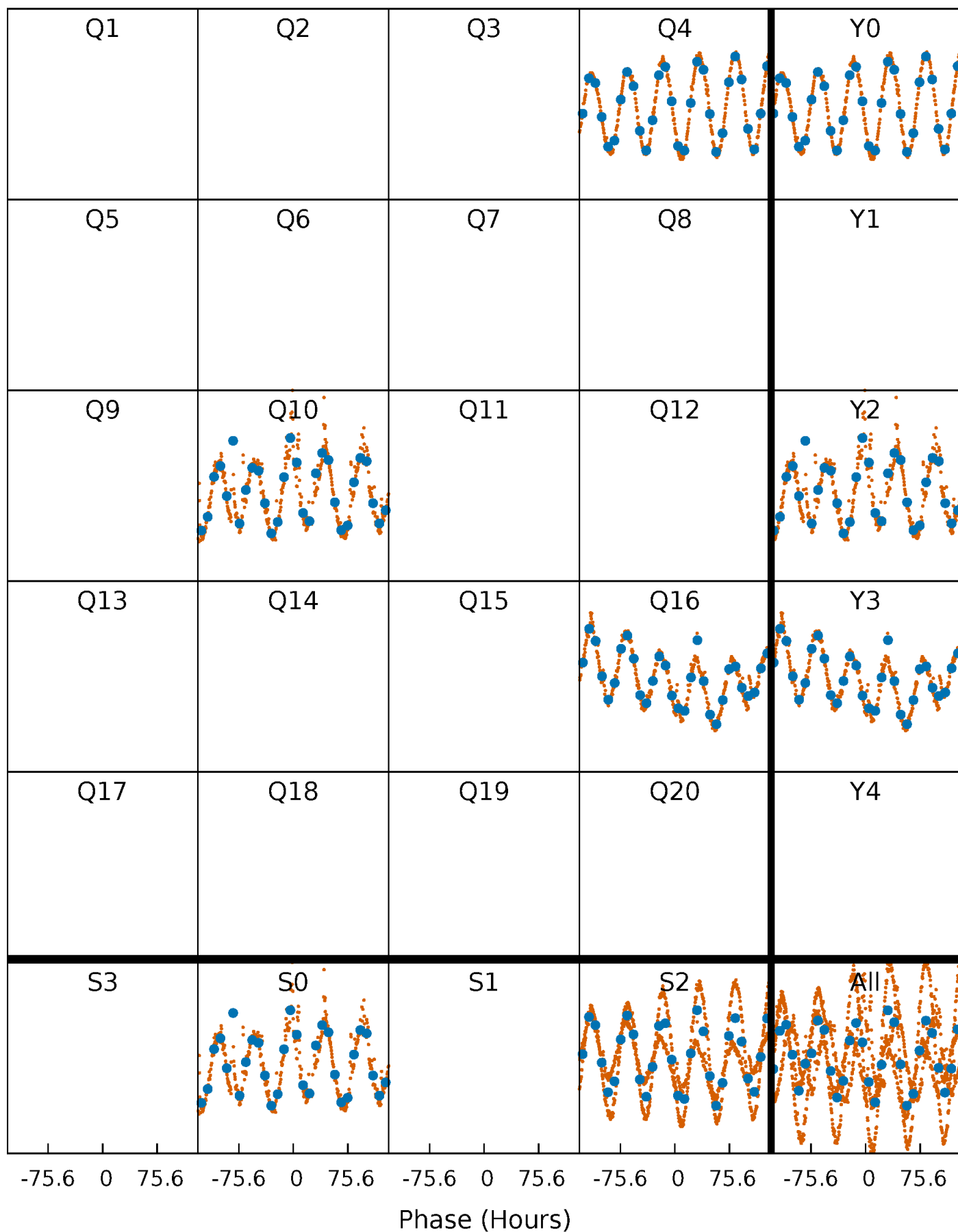


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



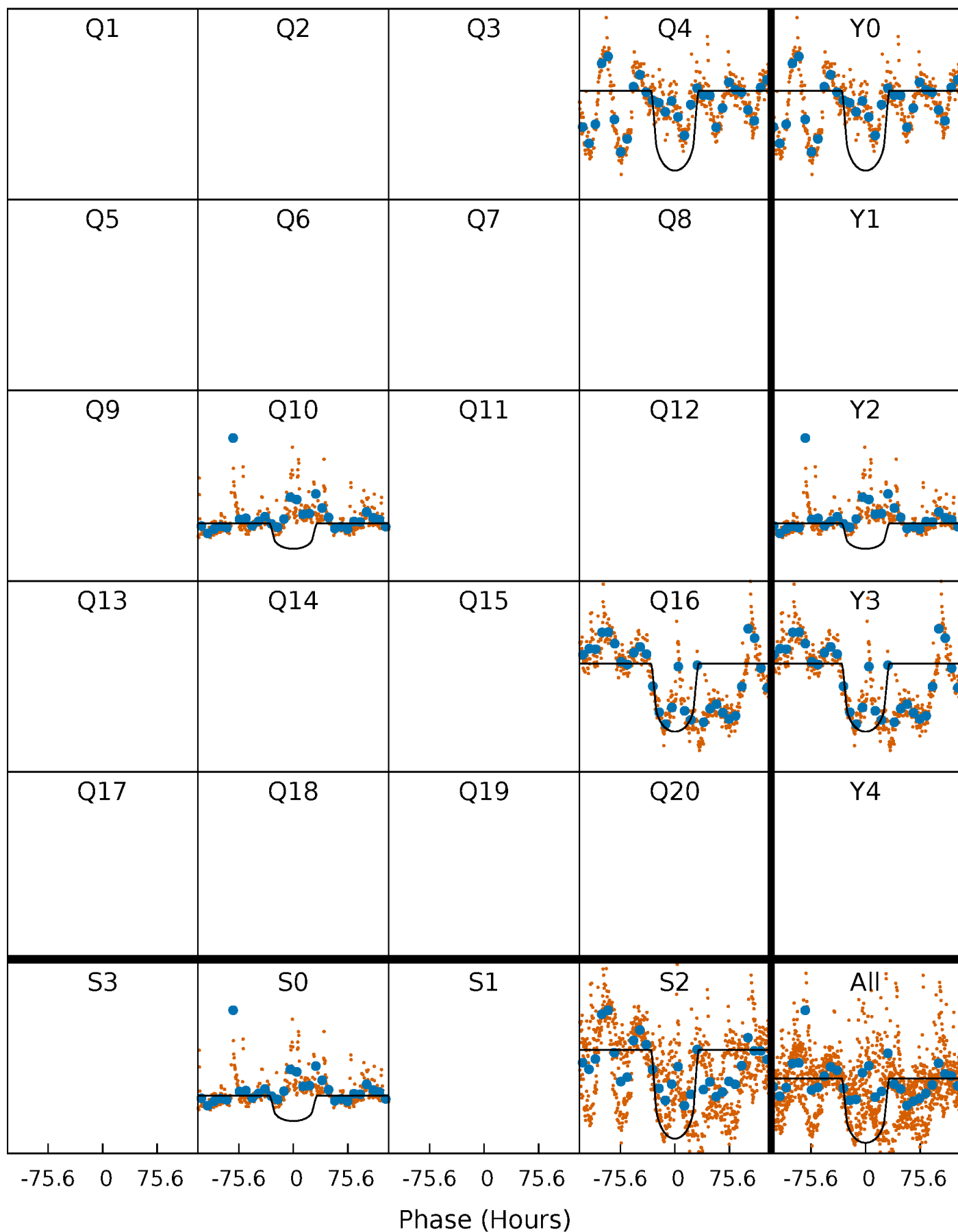
# PDC Quarter-Phased Transit Curves

TCE 005962532-03 P=585.723499 Days  $T_0=363.690865$  (BKJD)



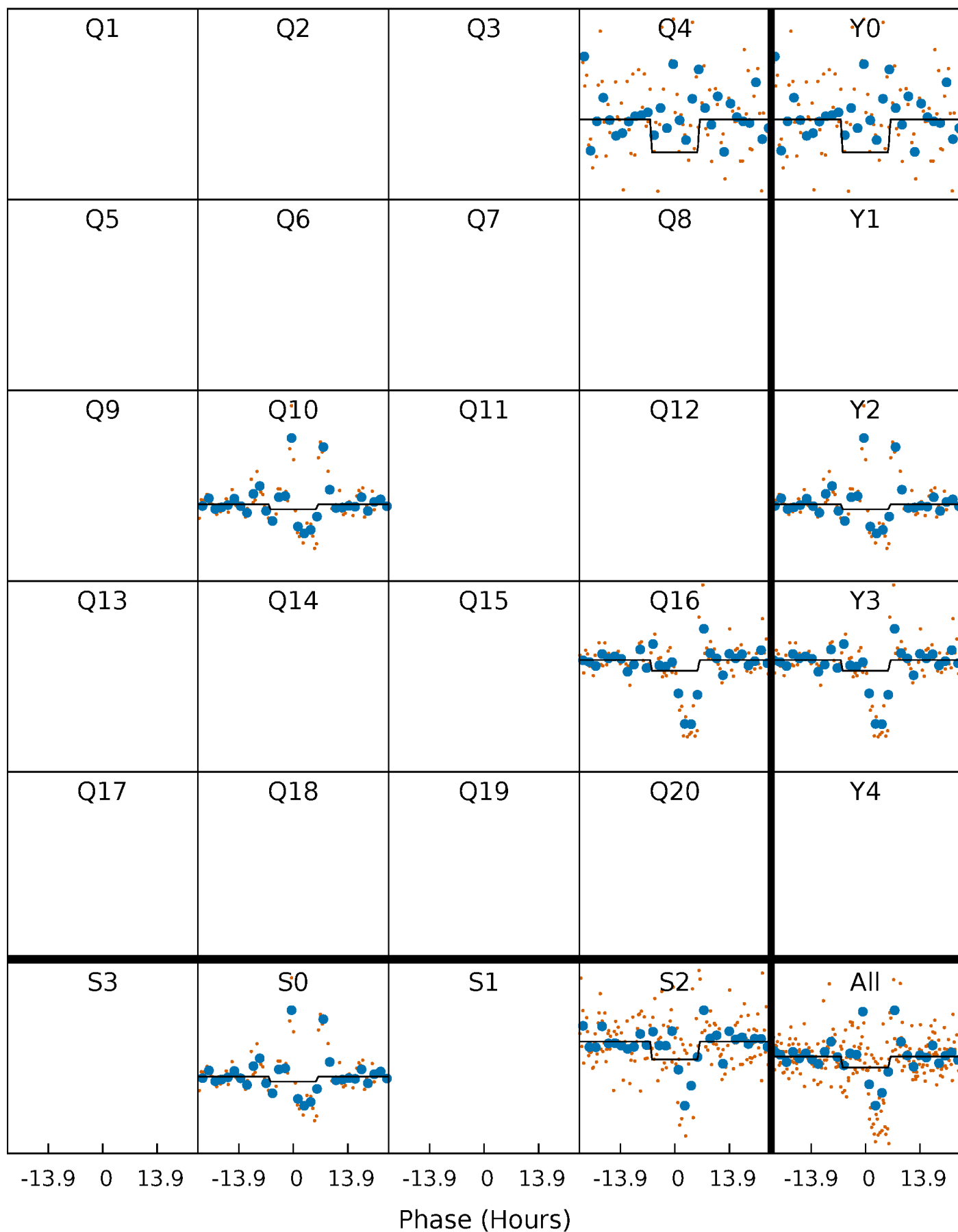
# DV Quarter-Phased Transit Curves

TCE 005962532-03 P=585.723499 Days  $T_0=363.690865$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

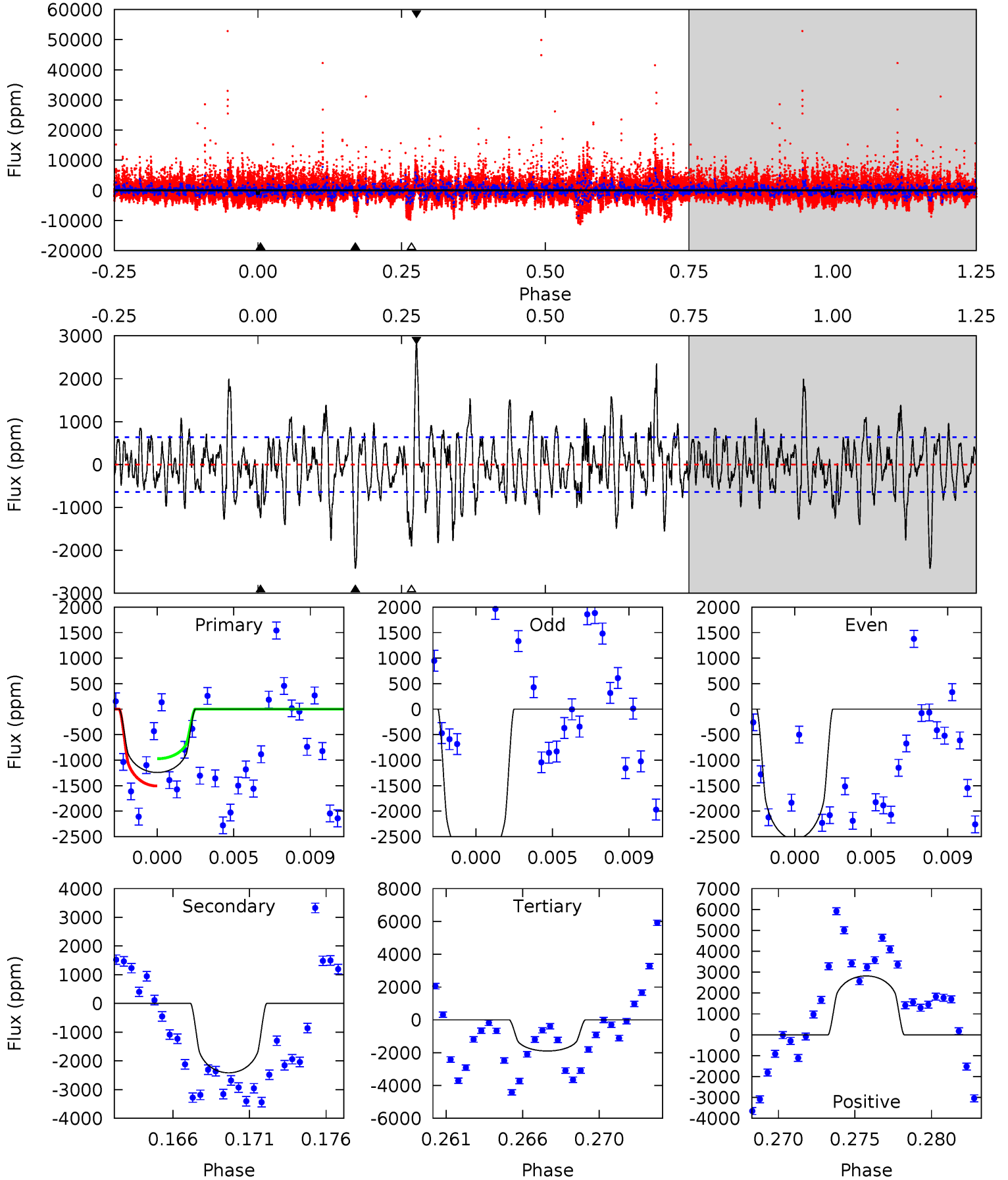
TCE 005962532-03     $P=585.591774$  Days     $T_0=363.795627$  (BKJD)



# DV Model-Shift Uniqueness Test

005962532-03, P = 585.723499 Days, E = 363.690865 Days

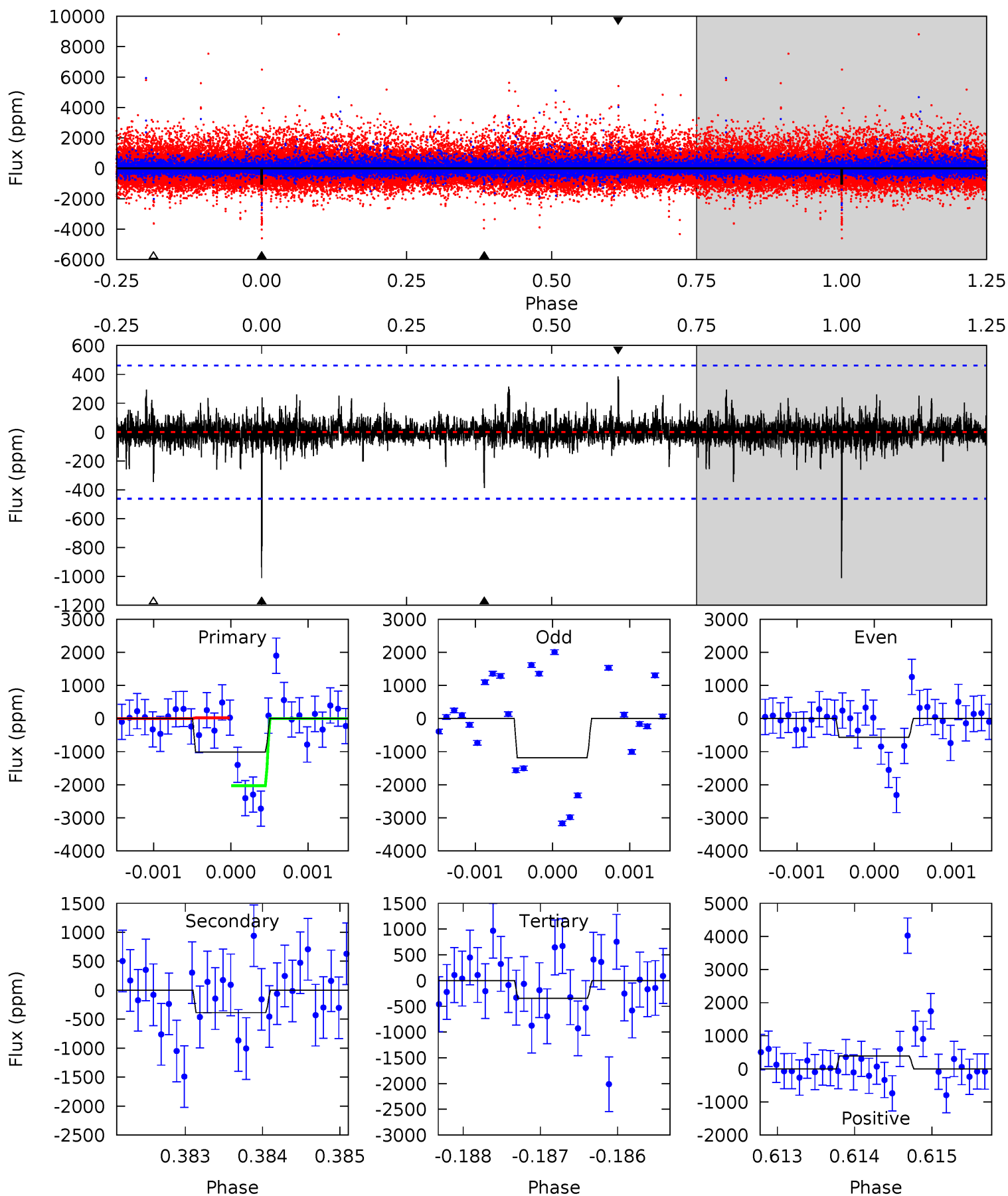
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.0 | 19.5 | 15.4 | 22.8 | 5.17            | 2.82            | 5.05             | -5.32   | -12.8   | 4.18    | -3.26   | 1.37    | 0.41 | 0.54  | 2.18 |



# Alt Model-Shift Uniqueness Test

005962532-03, P = 585.591774 Days, E = 363.795627 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.0 | 4.59 | 4.09 | 4.57 | 5.47            | 3.32            | 0.67             | 7.90    | 7.42    | 0.50    | 0.02    | 2.96    | 0.95 | 0.28  | 12.0 |





### Stellar Parameters For KIC 005962532

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5065^{+166}_{-151}$ | $4.612^{+0.061}_{-0.044}$ | $-0.600^{+0.300}_{-0.300}$ | $0.664^{+0.070}_{-0.059}$ | $0.658^{+0.079}_{-0.036}$ | $3.168^{+0.805}_{-0.535}$                     |
|        | +3%/-3%              | +1%/-1%                   | +50%/-50%                  | +11%/-9%                  | +12%/-5%                  | +25%/-17%                                     |
| 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 005962532-03 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)   | $T_{obs}$ (K)        | $A_{obs}$                   |
|---------|-----------------|------------------------|-----------------|----------------------|-----------------------------|
| DV      | $-2416 \pm 124$ | $5.08^{+0.61}_{-0.62}$ | $232^{+9}_{-9}$ | $4401^{+251}_{-200}$ | $75407^{+20821}_{-14858}$   |
| Alt.    | $-387 \pm 84$   | $1.66^{+0.53}_{-0.56}$ | $232^{+8}_{-8}$ | $4776^{+924}_{-538}$ | $114998^{+142912}_{-53097}$ |

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

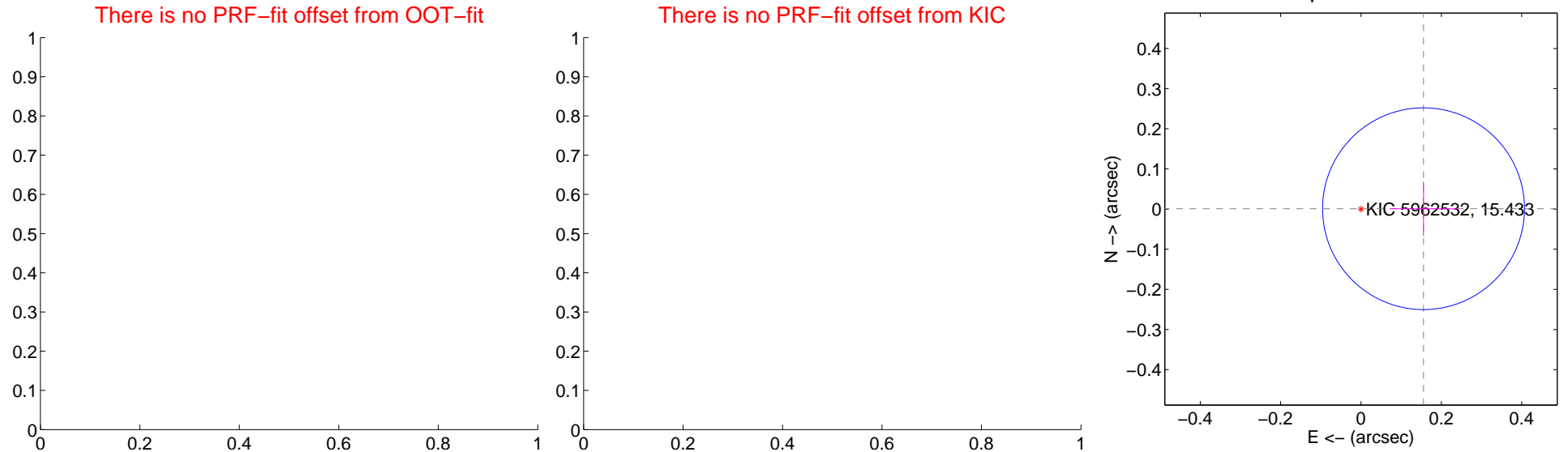
## DV Centroid Data

Supplemental centroid analysis for 005962532-03. Kepler magnitude: 15.43. Transit SNR 7.92

There are 0 quarters with good PRF difference image offsets

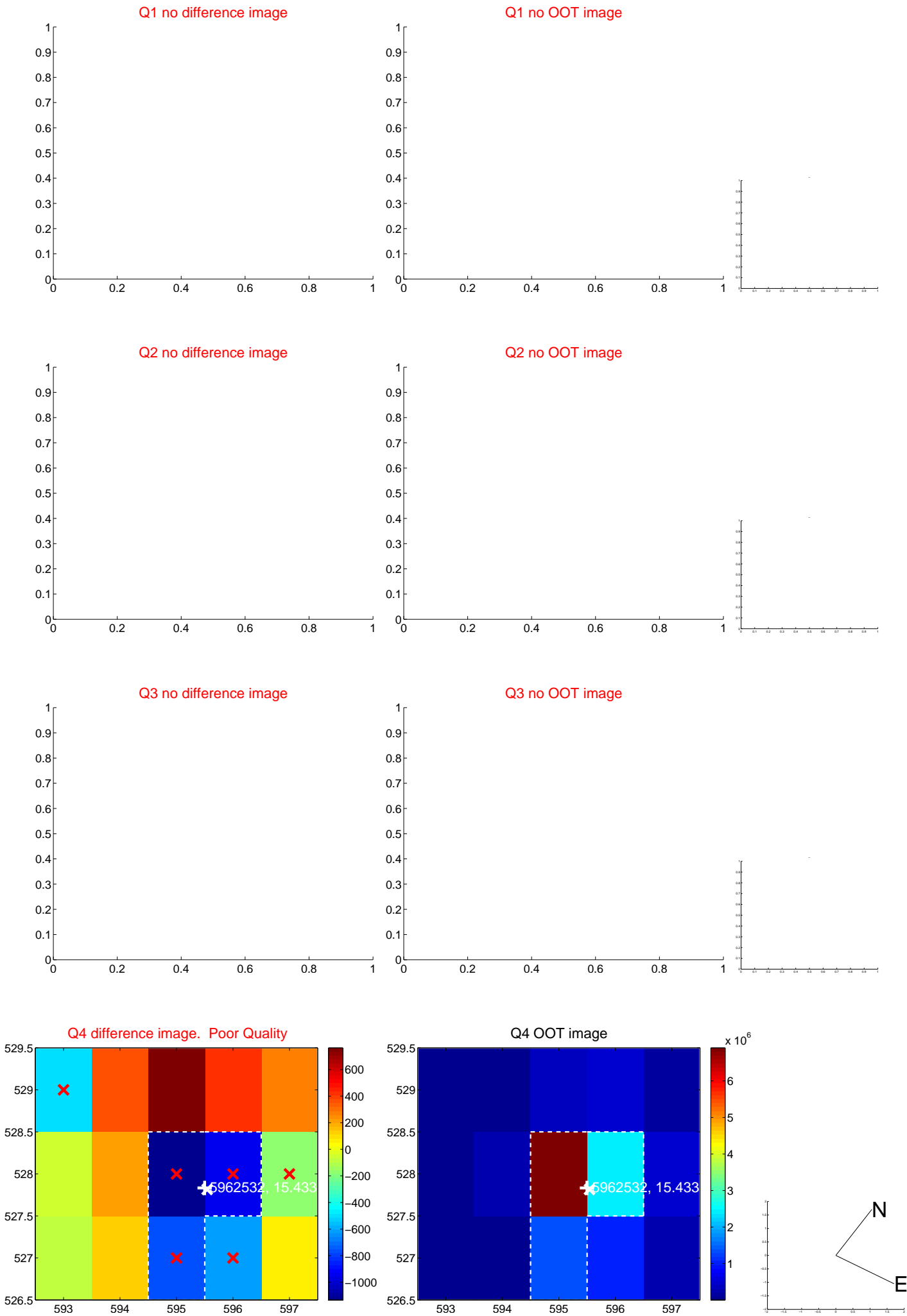
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA      | $\Delta$ Dec    |
|---|--------------------|---------------------|------------------|-----------------|
| PRF-fit source offset from OOT          | —                  | —                   | —                | —               |
| PRF-fit source offset from KIC position | —                  | —                   | —                | —               |
| photometric centroid source offset      | $0.16 \pm 0.08$    | 1.86                | $-0.16 \pm 0.08$ | $0.00 \pm 0.07$ |



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.

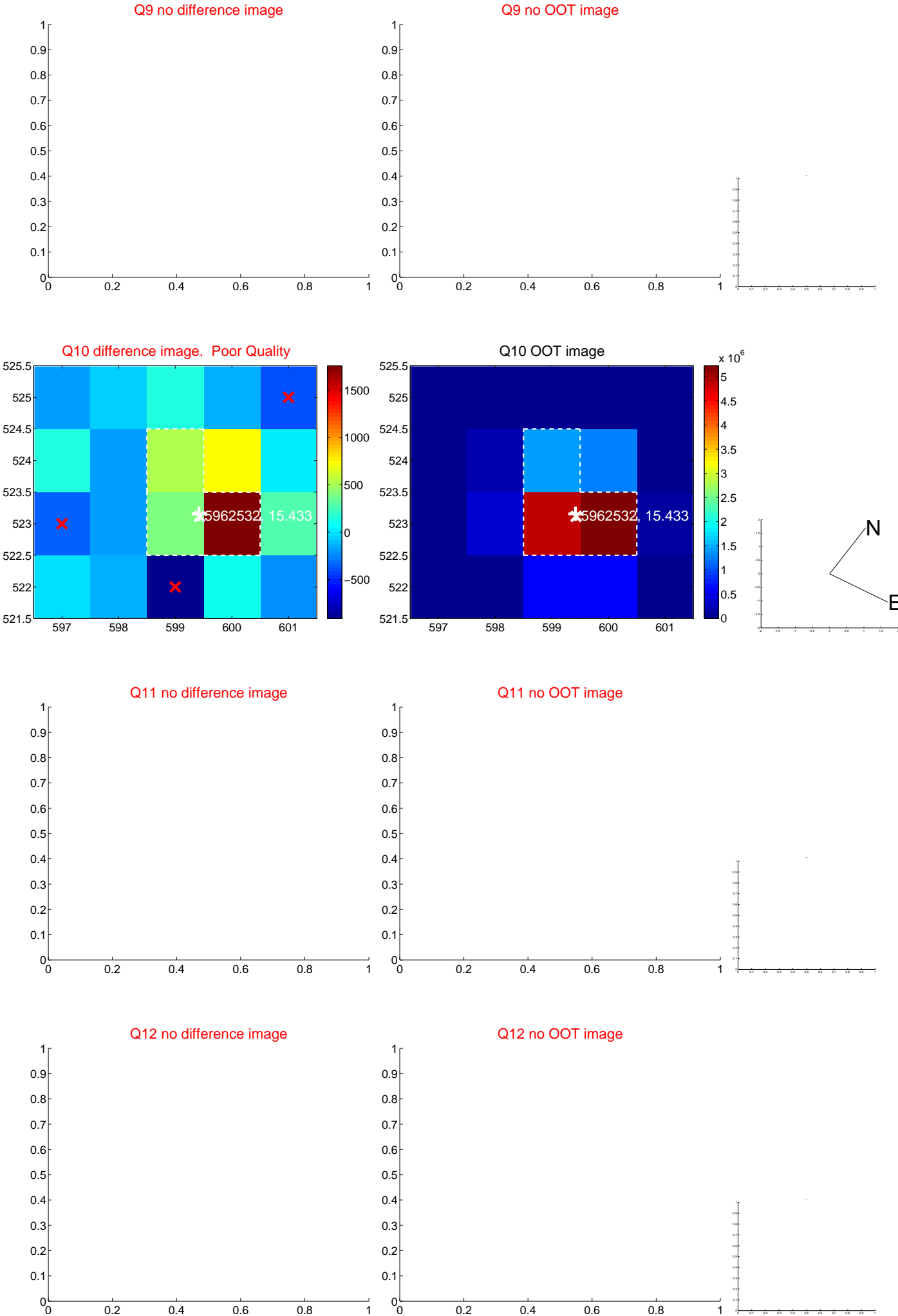
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



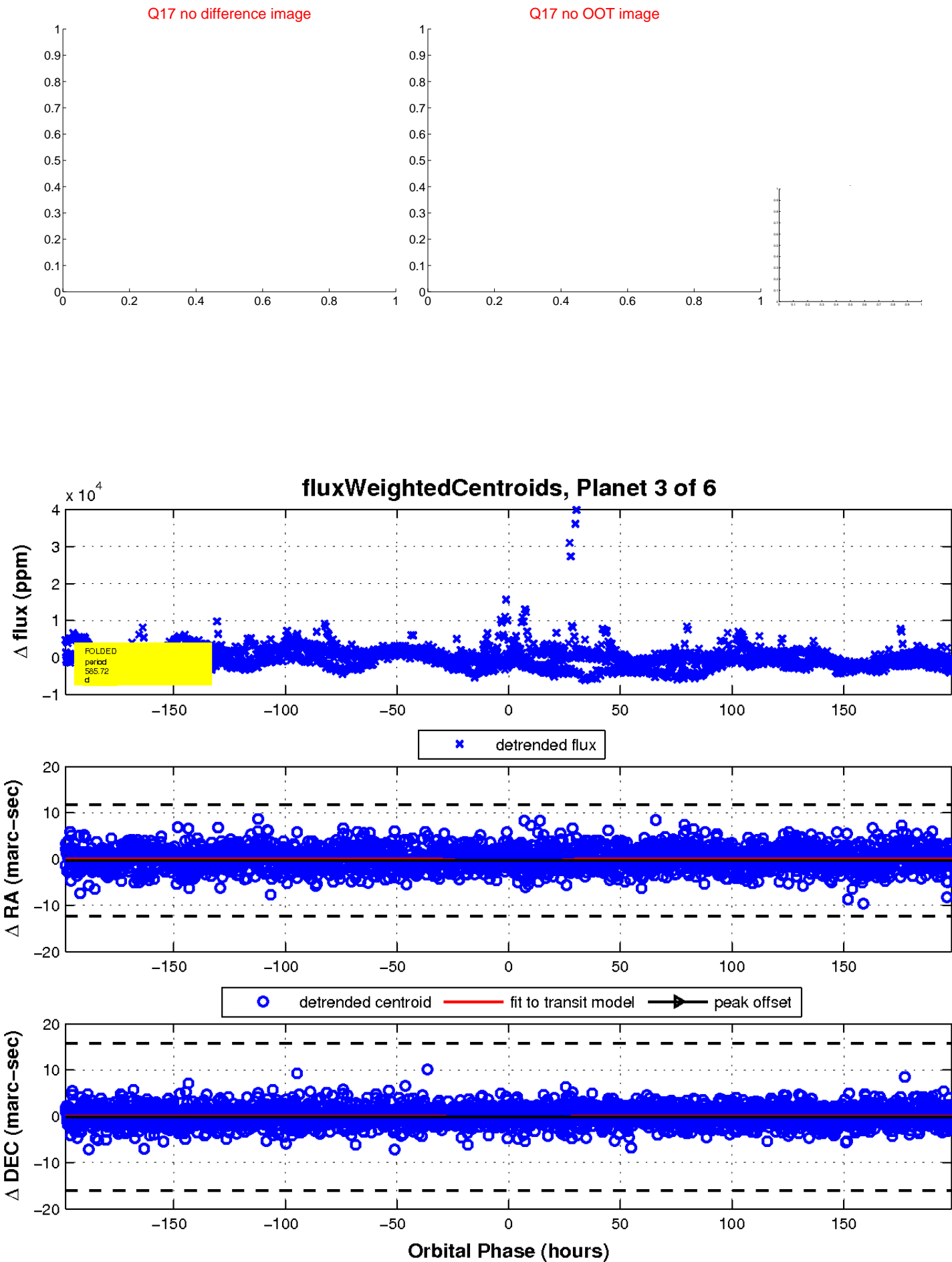
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

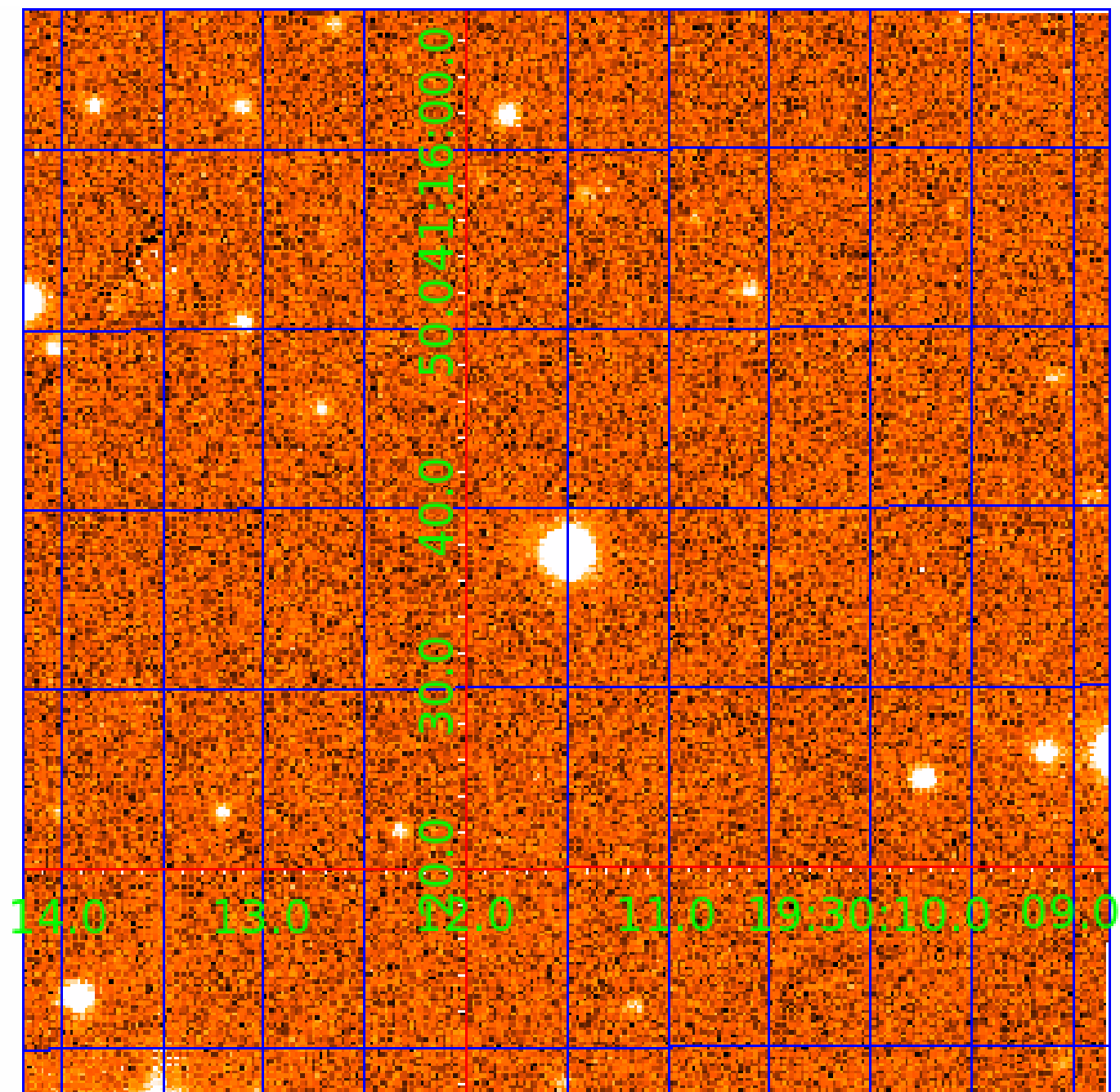


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005962532

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005962532-02 | OBS      | No   | 375.265656    | 236.698712   | 1617.3      | 15.423           | 13.1 | 4.3 | 0.66                        | 5065            | 2.62                   | 0.33                   |
| 005962532-03 | OBS      | No   | 585.723499    | 363.690865   | 5132.5      | 66.160           | 13.8 | 7.9 | 0.66                        | 5065            | 5.04                   | 0.18                   |
| 005962532-04 | OBS      | No   | 497.356202    | 217.519126   | 2661.1      | 4.713            | 13.0 | 7.3 | 0.66                        | 5065            | 3.41                   | 0.23                   |
| 005962532-05 | OBS      | No   | 500.053693    | 138.259175   | 2190.6      | 4.667            | 11.6 | 6.3 | 0.66                        | 5065            | 3.12                   | 0.23                   |
| 005962532-06 | OBS      | No   | 539.349907    | 425.360331   | 2016.0      | 8.735            | 11.4 | 5.0 | 0.66                        | 5065            | 2.98                   | 0.20                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 005962532-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS  |
| 005962532-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS                           |
| 005962532-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005962532-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS             |
| 005962532-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS                       |

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

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

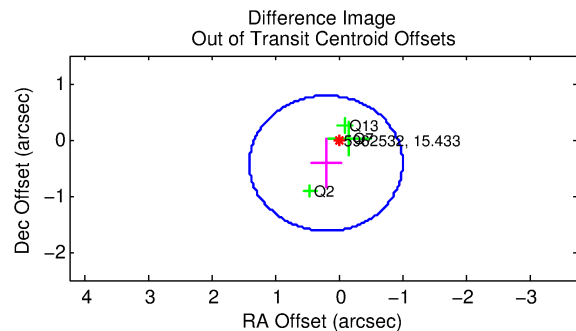
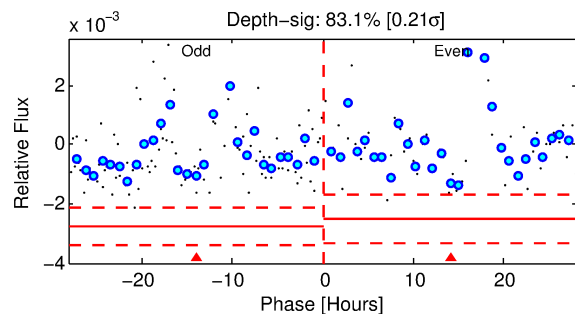
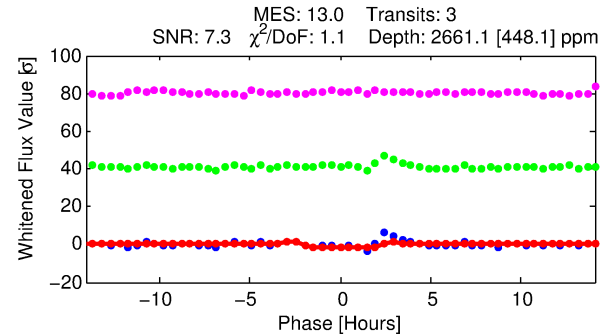
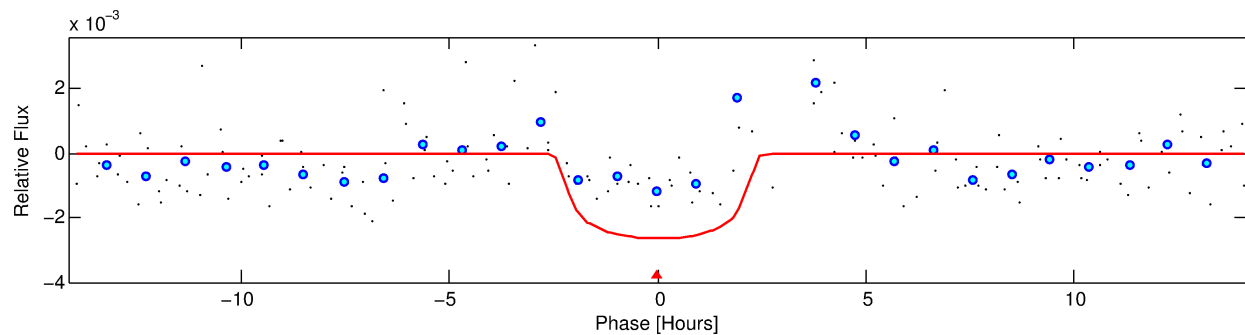
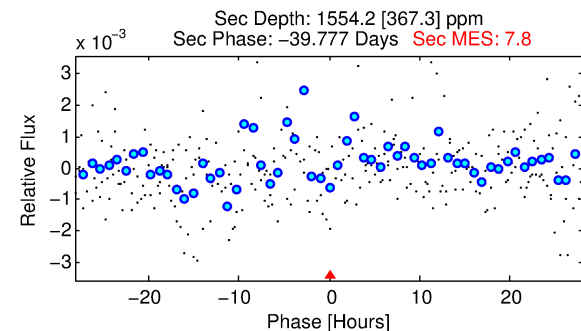
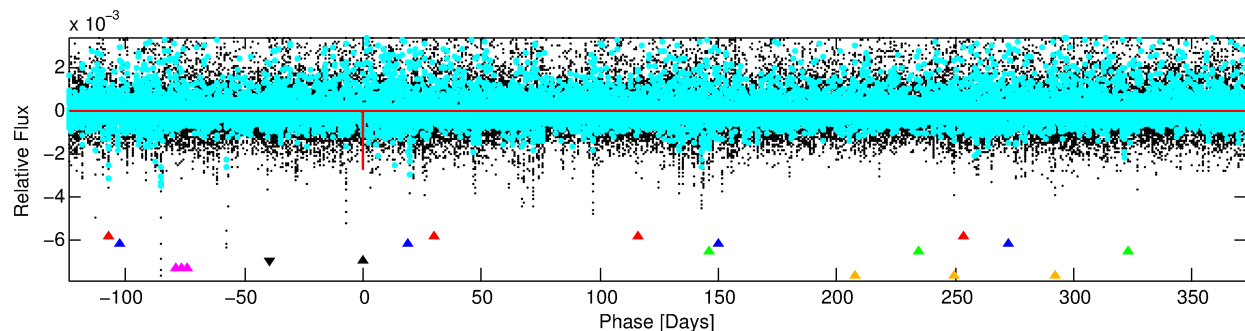
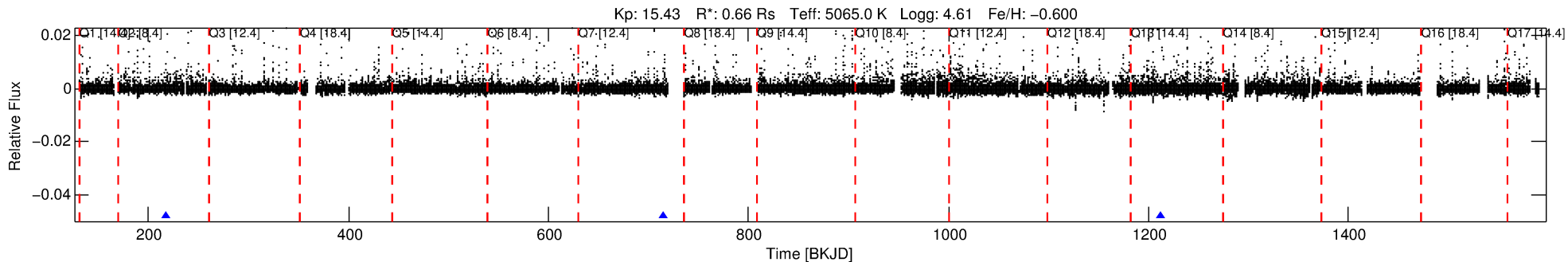
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005962532-04

No Significant Match Found

# DV One-Page Summary

KIC: 5962532 Candidate: 4 of 6 Period: 497.356 d



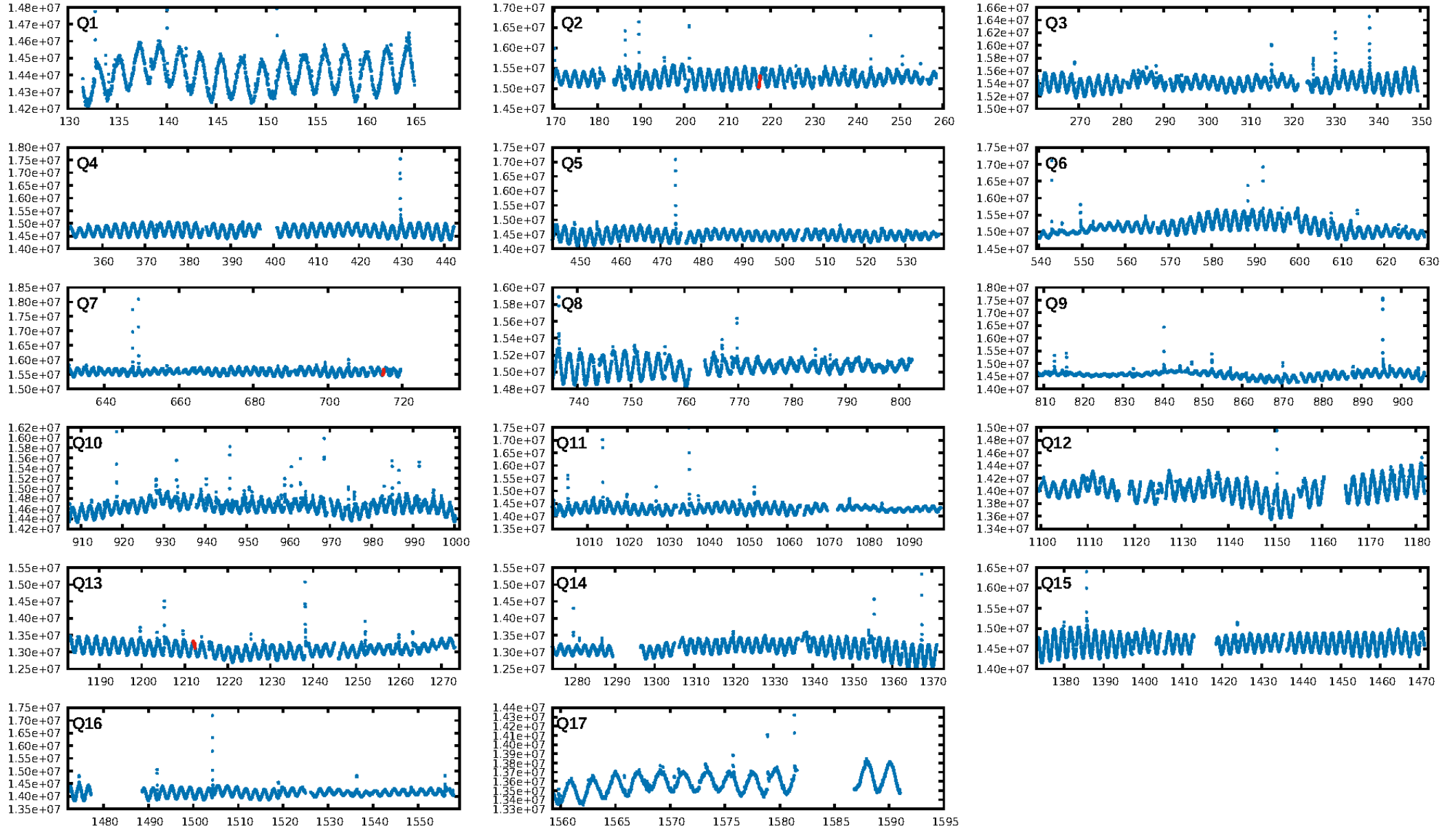
## DV Fit Results:

Period = 497.35620 [0.00634] d  
Epoch = 217.5191 [0.0085] BKJD  
Rp/R\* = 0.0471 [0.0411]  
a/R\* = 789.47 [2540.71]  
b = 0.37 [7.58]  
Seff = 0.23 [0.04]  
Teff = 176 [8] K  
Rp = 3.41 [3.00] Re  
a = 1.0689 [0.0903] AU  
Ag = 83903.12 [148251.54] [0.57σ]  
Teffp = 4634 [2048] K [2.18σ]

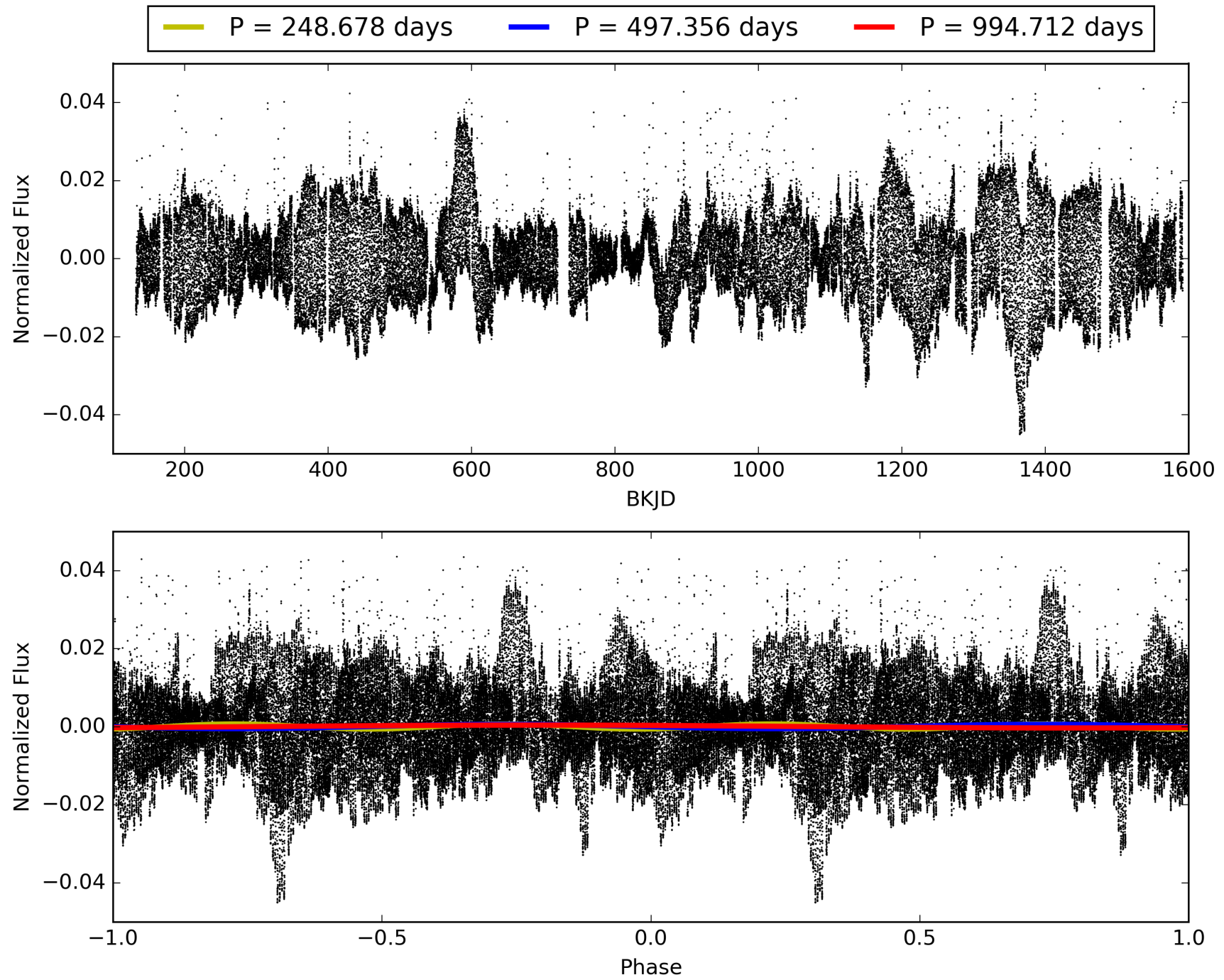
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [181.70σ]  
LongPeriod-sig: 100.0% [9.76σ]  
ModelChiSquare2-sig: 9.5%  
ModelChiSquareGof-sig: 98.6%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -33.2  
Centroid-sig: 1.7%  
Centroid-so: 0.994 arcsec [1.63σ]  
OotOffset-rm: 0.473 arcsec [1.18σ]  
KicOffset-rm: 0.413 arcsec [1.03σ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 005962532-04, PDC Light Curves

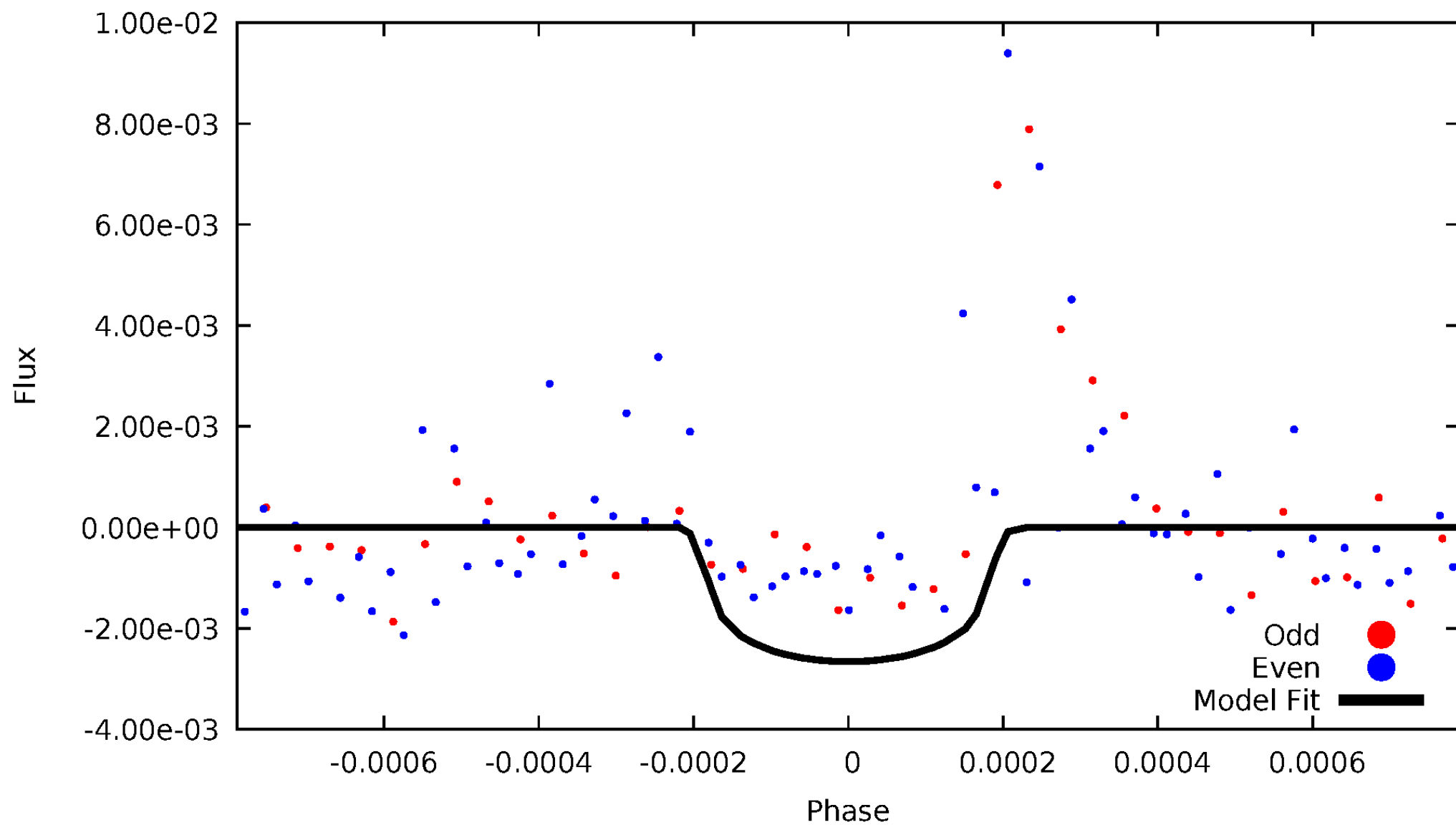


TCE 005962532-04



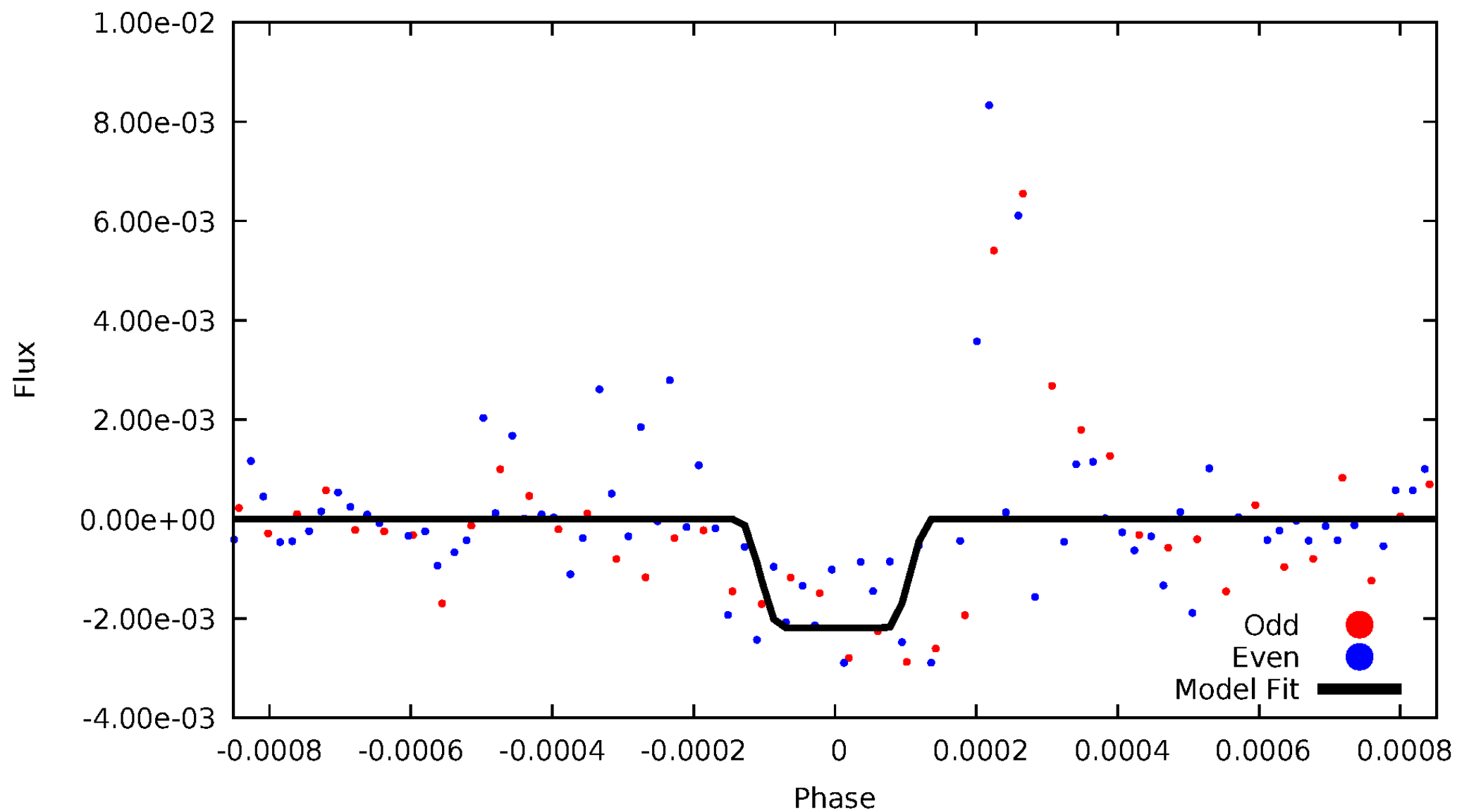
# DV Odd/Even

TCE 005962532-04



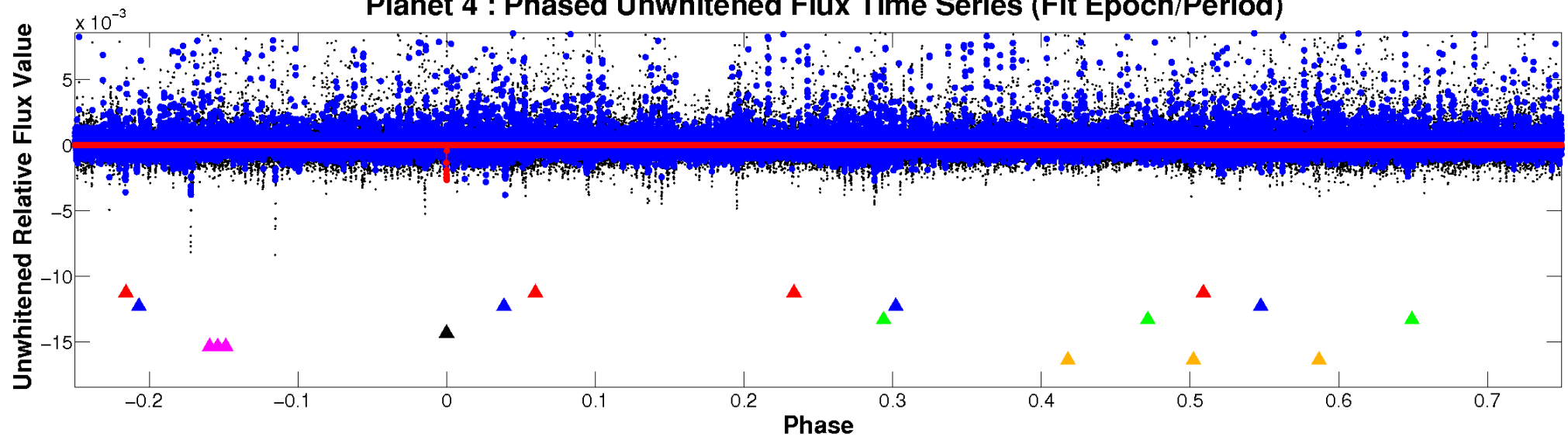
# ALT Odd/Even

TCE 005962532-04

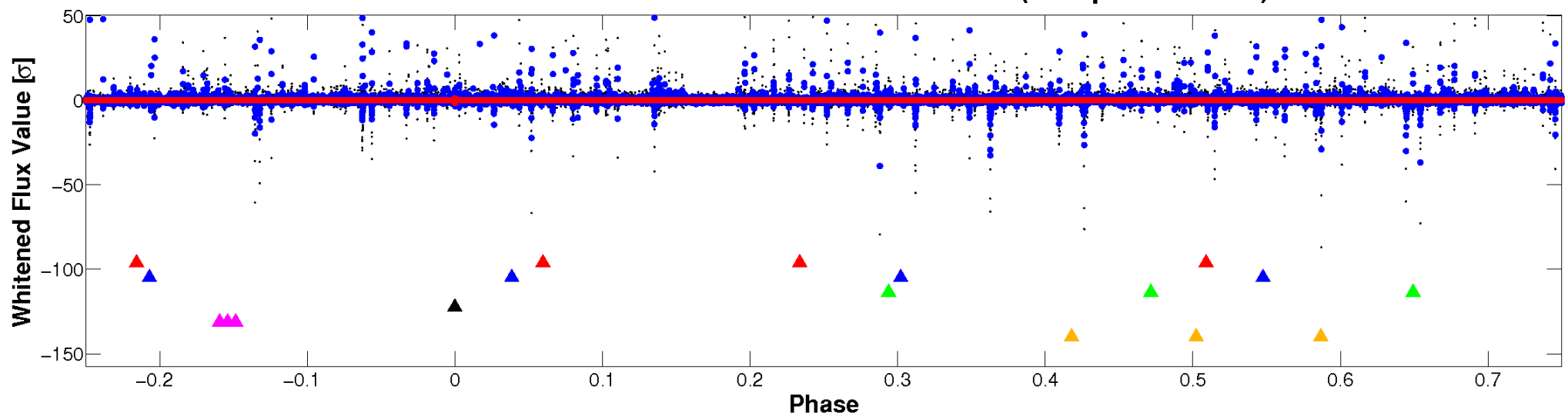


# Non-Whitened Vs. Whitened Light Curve

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

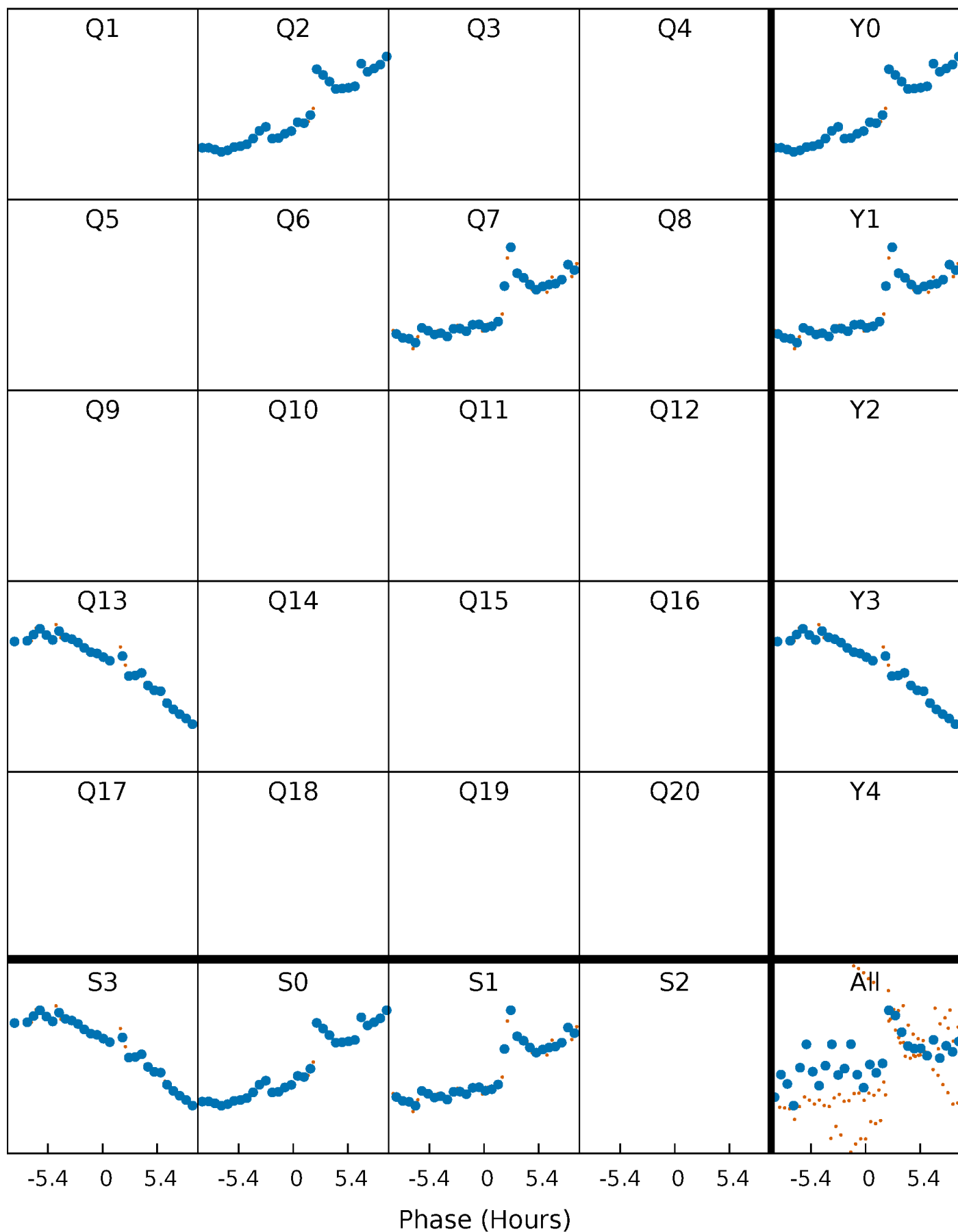


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

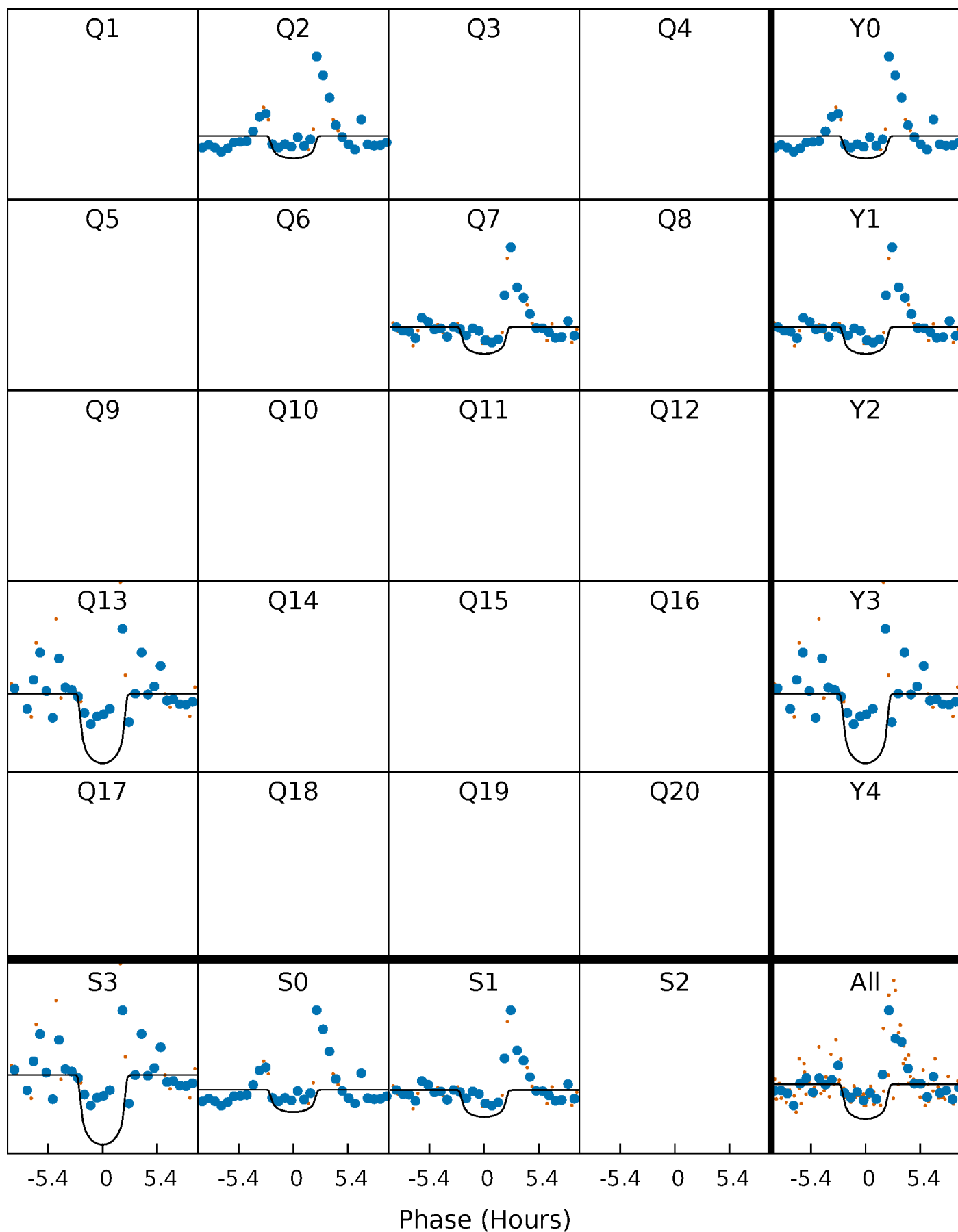
TCE 005962532-04     $P=497.356202$  Days     $T_0=217.519126$  (BKJD)





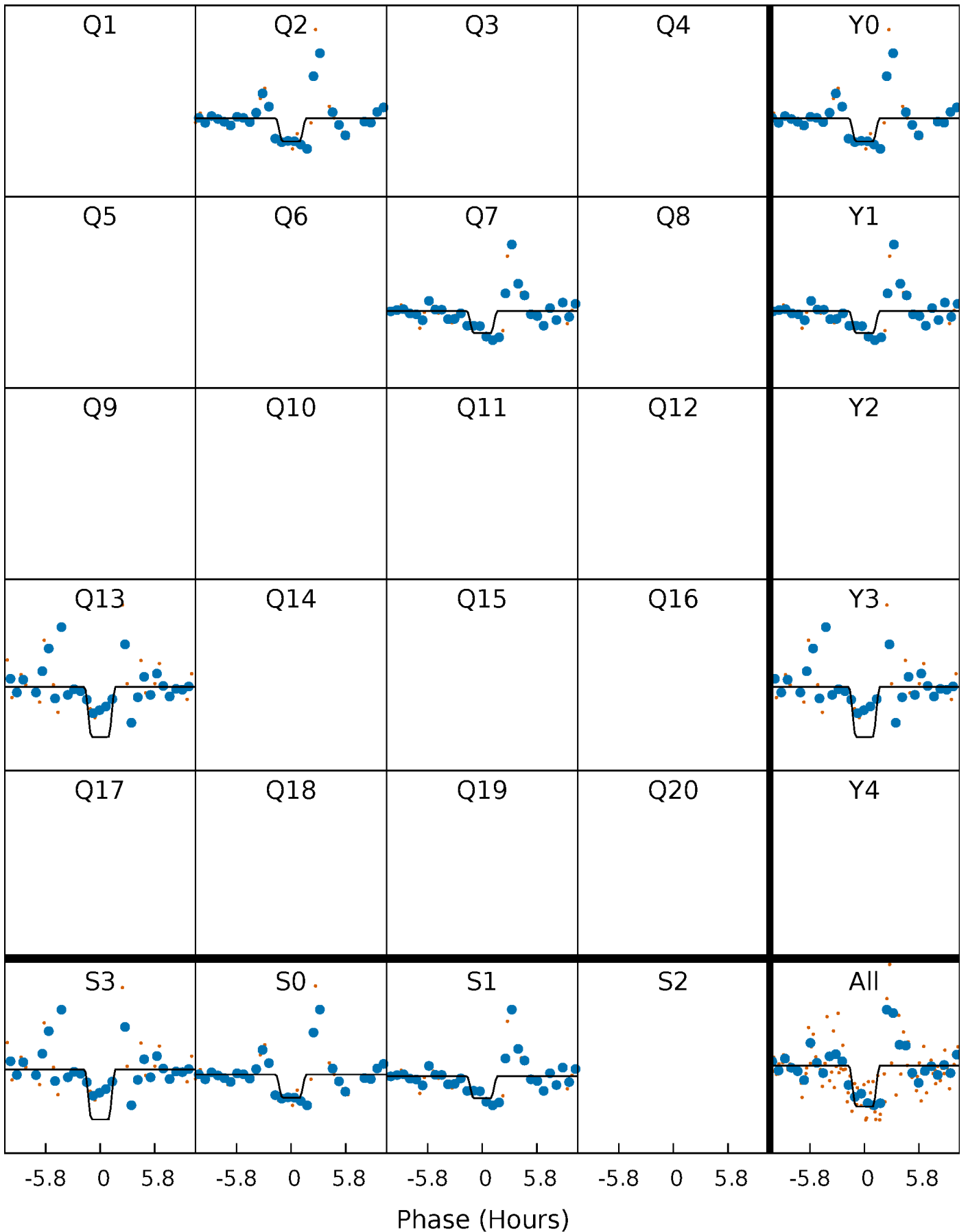
# DV Quarter-Phased Transit Curves

TCE 005962532-04     $P=497.356202$  Days     $T_0=217.519126$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

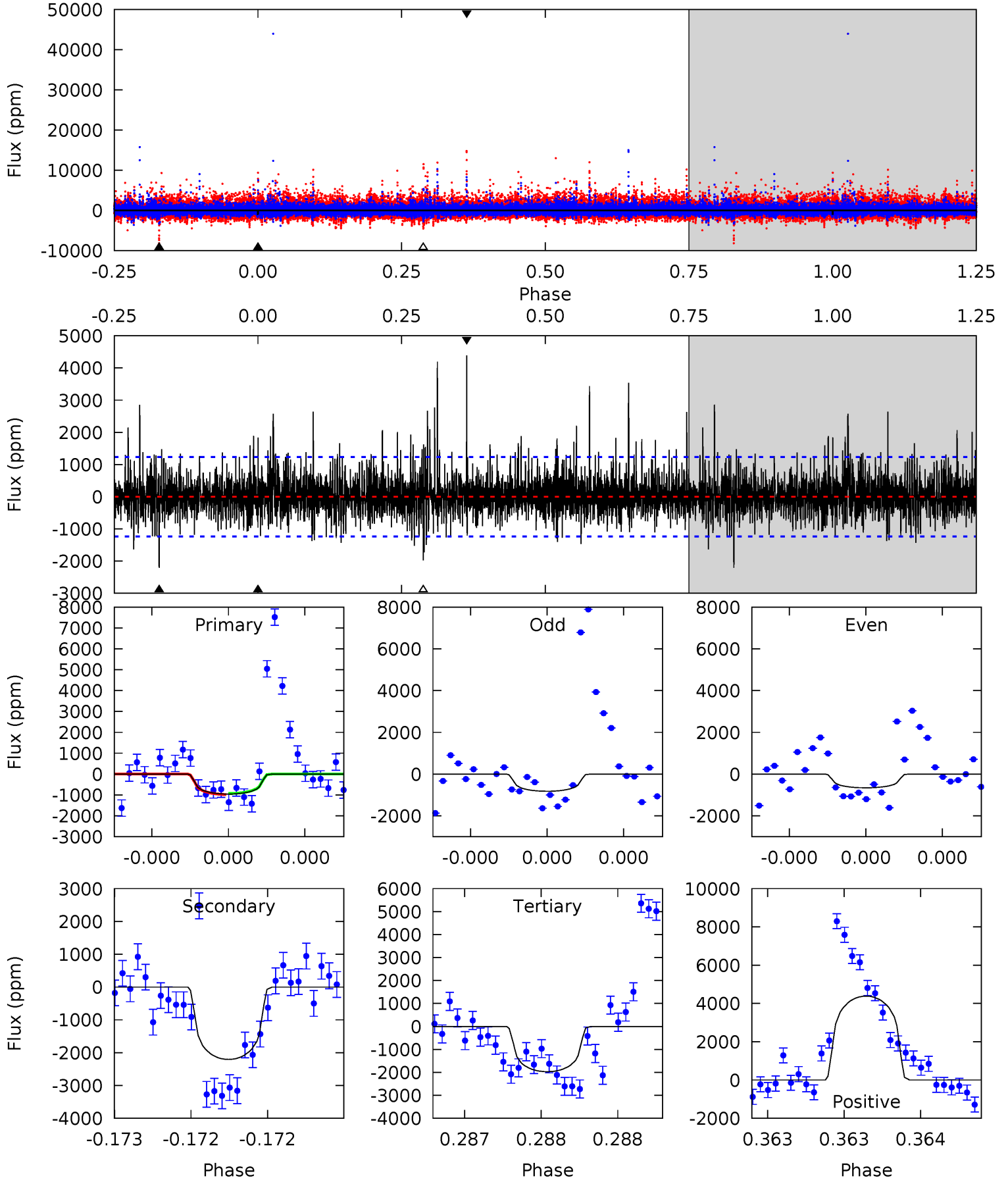
TCE 005962532-04     $P=497.346039$  Days     $T_0=217.513196$  (BKJD)



# DV Model-Shift Uniqueness Test

005962532-04, P = 497.356202 Days, E = 217.519126 Days

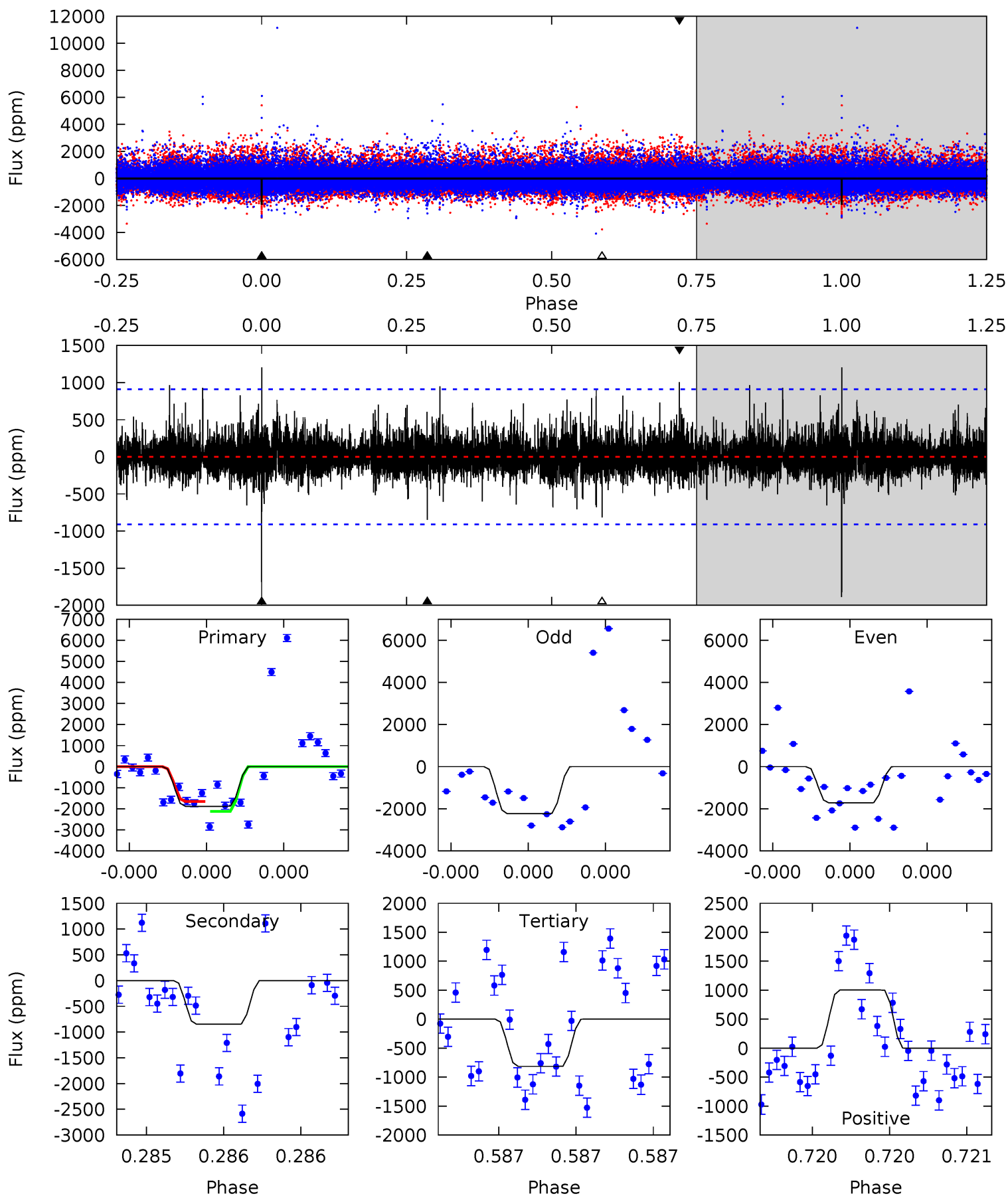
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.35 | 10.0 | 8.96 | 19.9 | 5.61            | 3.53            | 2.18             | -4.60   | -15.6   | 1.06    | -9.89   | 0.16    | 0.82 | 0.67  | 0.11 |



# Alt Model-Shift Uniqueness Test

005962532-04, P = 497.346039 Days, E = 217.513196 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.8 | 5.30 | 5.09 | 6.27 | 5.69            | 3.66            | 1.03             | 6.69    | 5.51    | 0.21    | -0.97   | 1.34    | 0.85 | 0.39  | 1.48 |



### Stellar Parameters For KIC 005962532

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5065^{+166}_{-151}$ | $4.612^{+0.061}_{-0.044}$ | $-0.600^{+0.300}_{-0.300}$ | $0.664^{+0.070}_{-0.059}$ | $0.658^{+0.079}_{-0.036}$ | $3.168^{+0.805}_{-0.535}$                     |
|        | +3%/-3%              | +1%/-1%                   | +50%/-50%                  | +11%/-9%                  | +12%/-5%                  | +25%/-17%                                     |
| 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 005962532-04 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)    | $T_{obs}$ (K)         | $A_{obs}$                  |
|---------|-----------------|------------------------|------------------|-----------------------|----------------------------|
| DV      | $-2207 \pm 220$ | $3.94^{+2.66}_{-2.35}$ | $246^{+9}_{-9}$  | $4772^{+2426}_{-839}$ | $93320^{+440923}_{-60647}$ |
| Alt.    | $-848 \pm 160$  | $3.86^{+2.81}_{-2.33}$ | $245^{+10}_{-8}$ | $4035^{+1812}_{-699}$ | $37659^{+188144}_{-25992}$ |

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

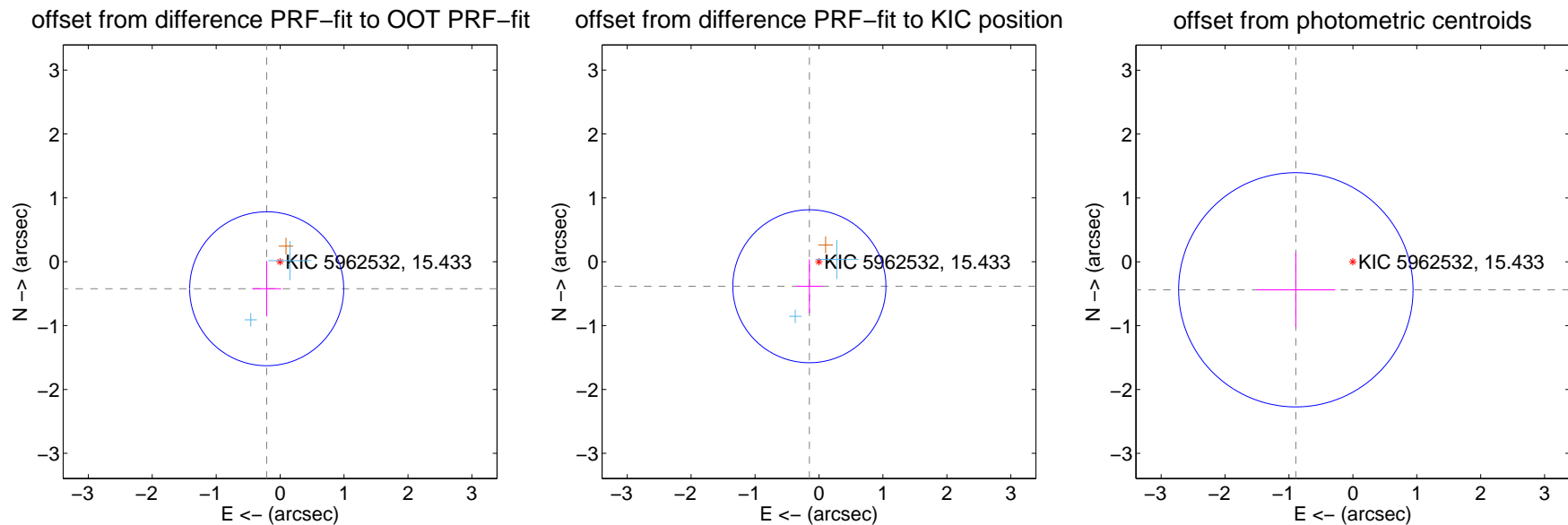
## DV Centroid Data

Supplemental centroid analysis for 005962532-04. Kepler magnitude: 15.43. Transit SNR 7.33

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $0.473 \pm 0.402$  | 1.18                | $0.210 \pm 0.225$ | $-0.424 \pm 0.434$ |
| PRF-fit source offset from KIC position | $0.413 \pm 0.399$  | 1.03                | $0.150 \pm 0.206$ | $-0.385 \pm 0.421$ |
| photometric centroid source offset      | $0.99 \pm 0.61$    | 1.63                | $0.89 \pm 0.62$   | $-0.44 \pm 0.58$   |



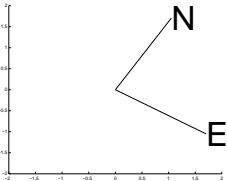
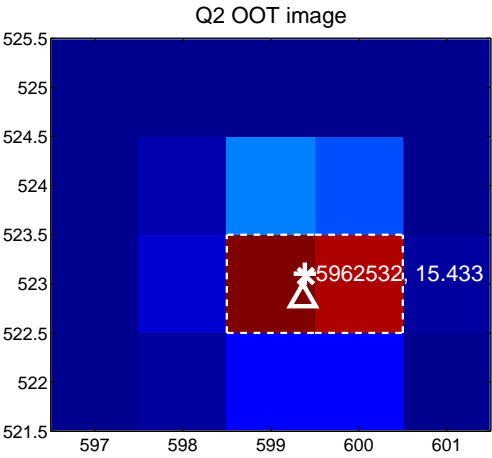
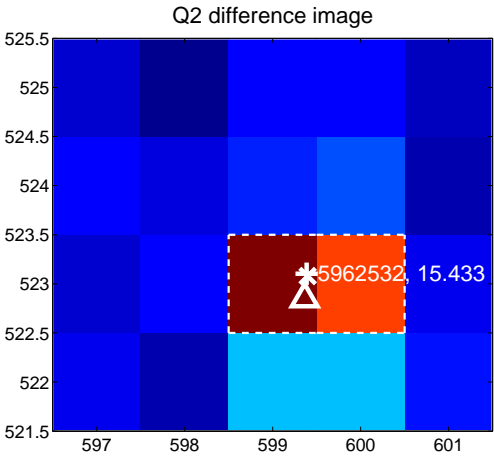
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

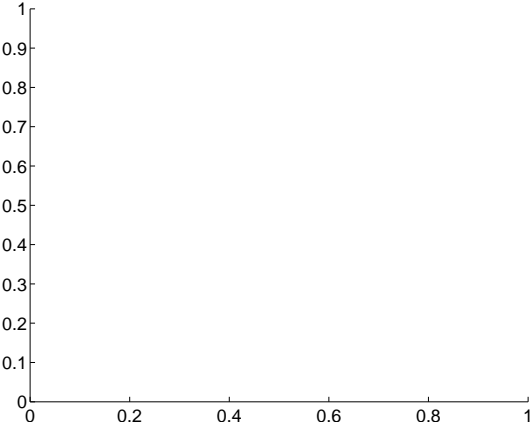
Q1 no difference image



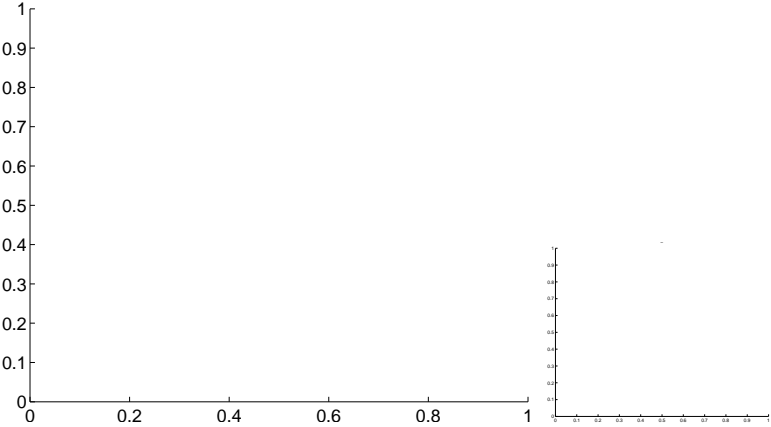
Q1 no OOT image



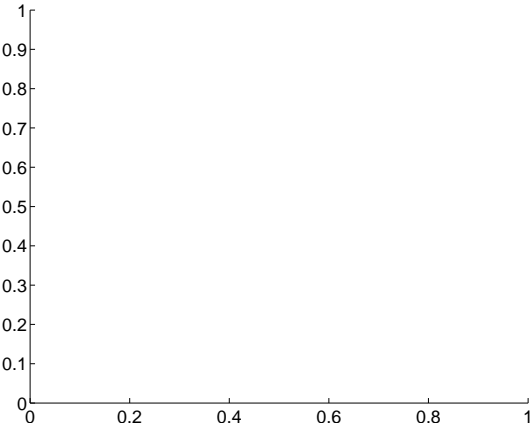
Q3 no difference image



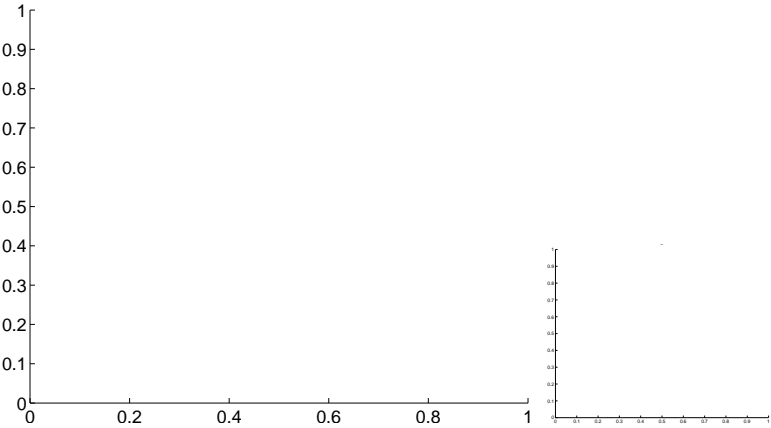
Q3 no OOT image



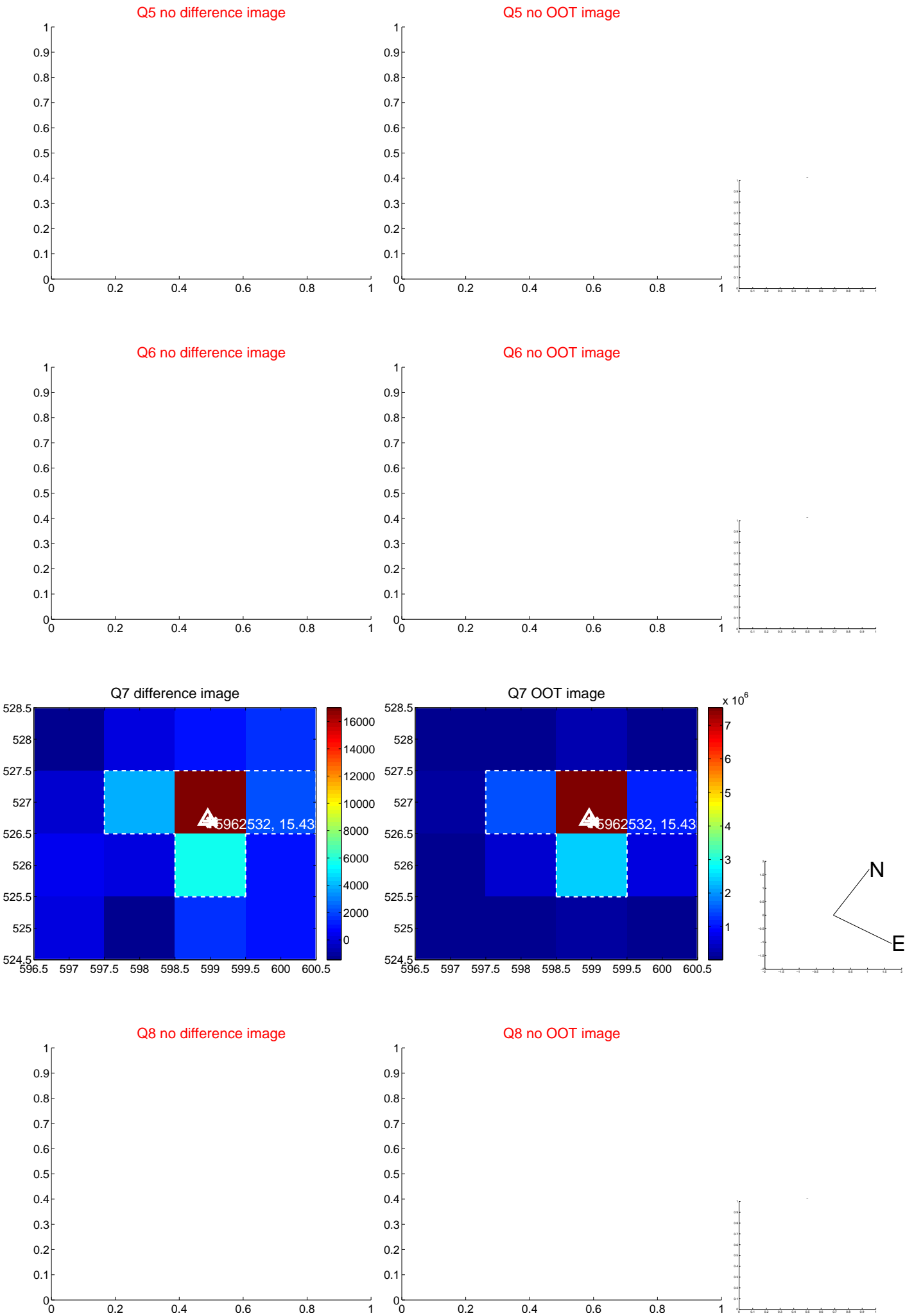
Q4 no difference image



Q4 no OOT image

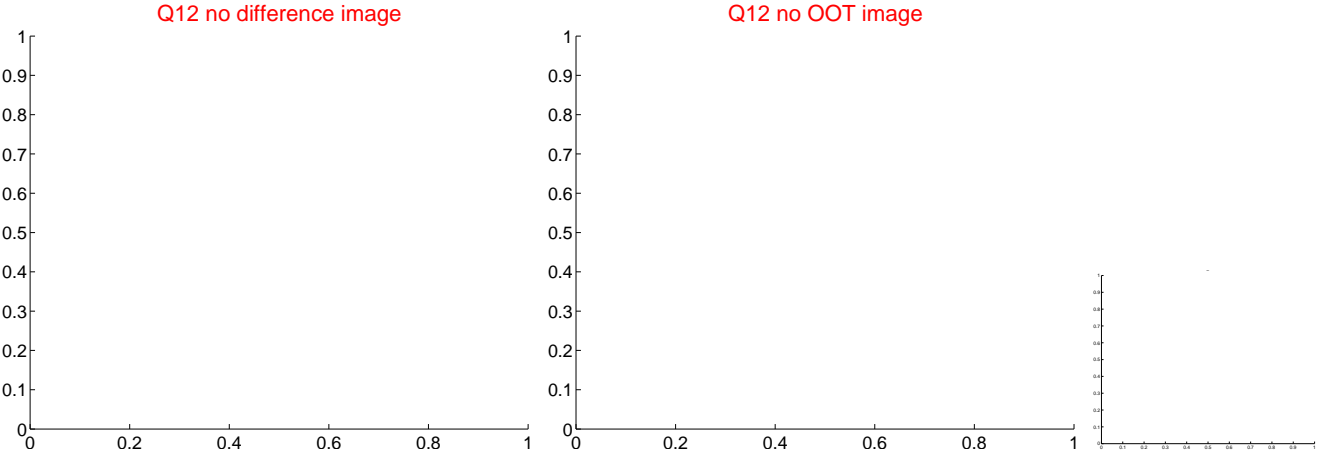
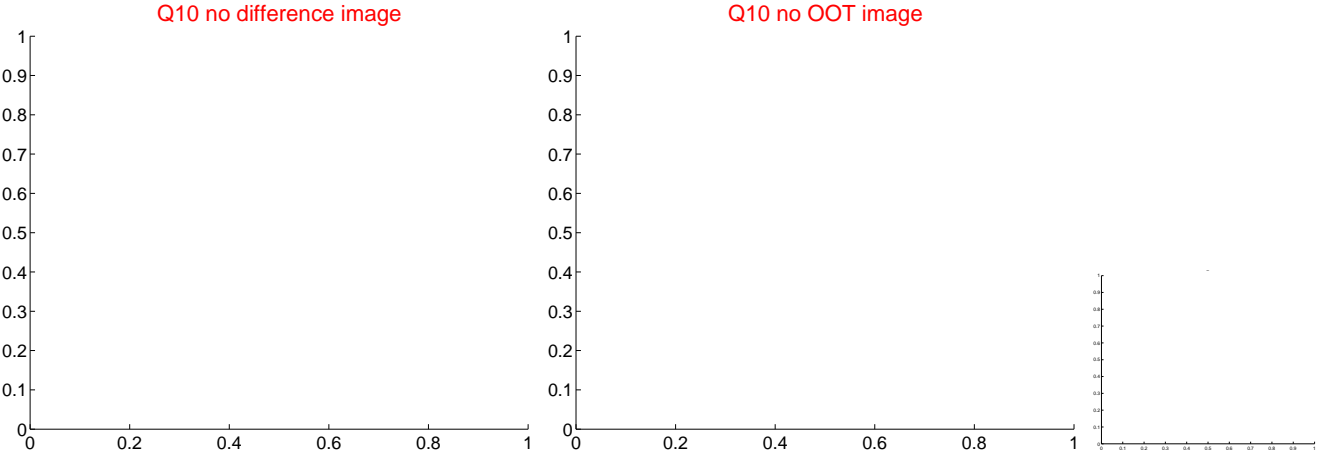


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

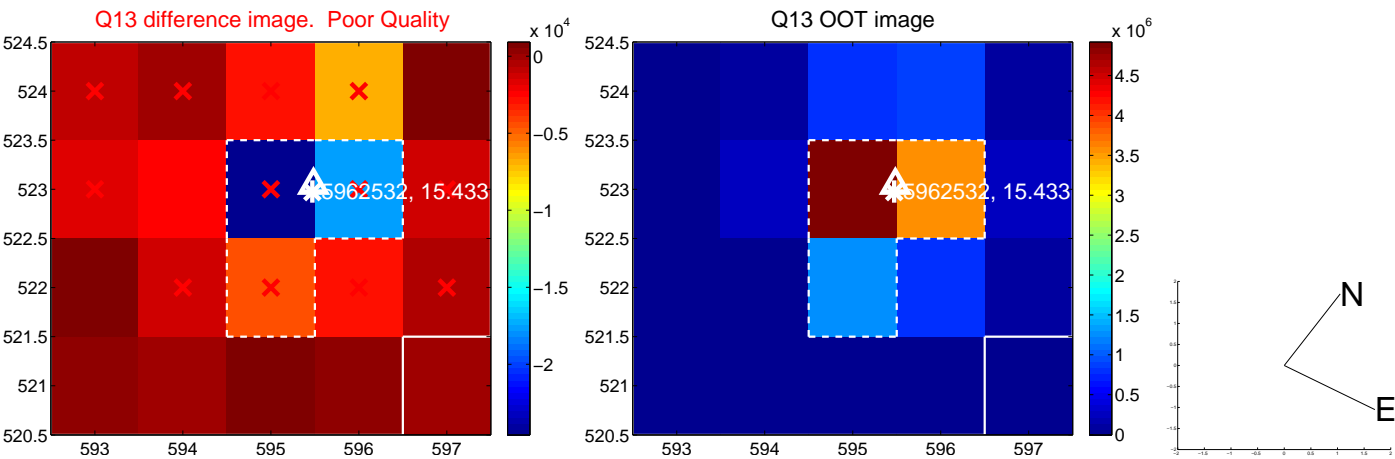




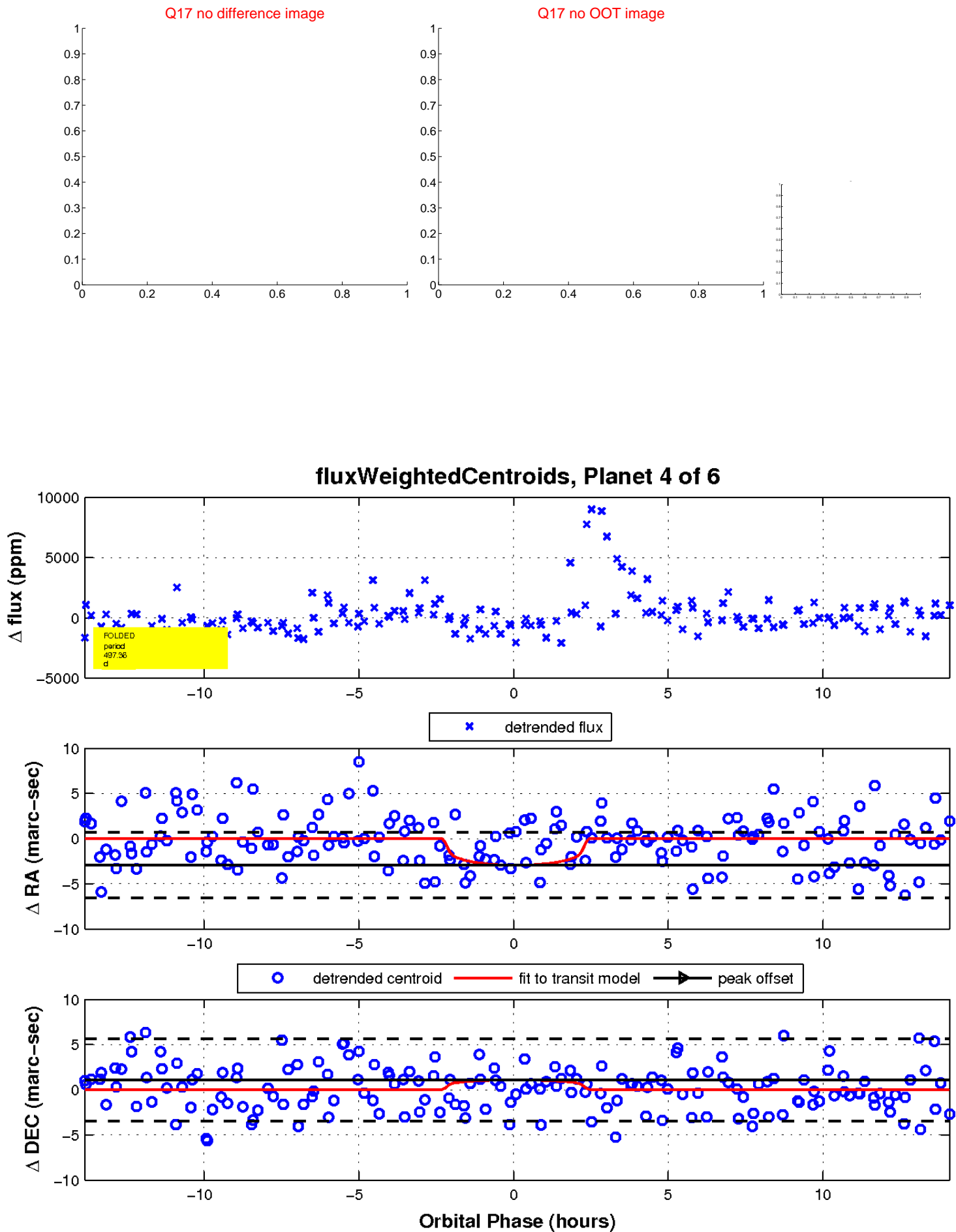
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

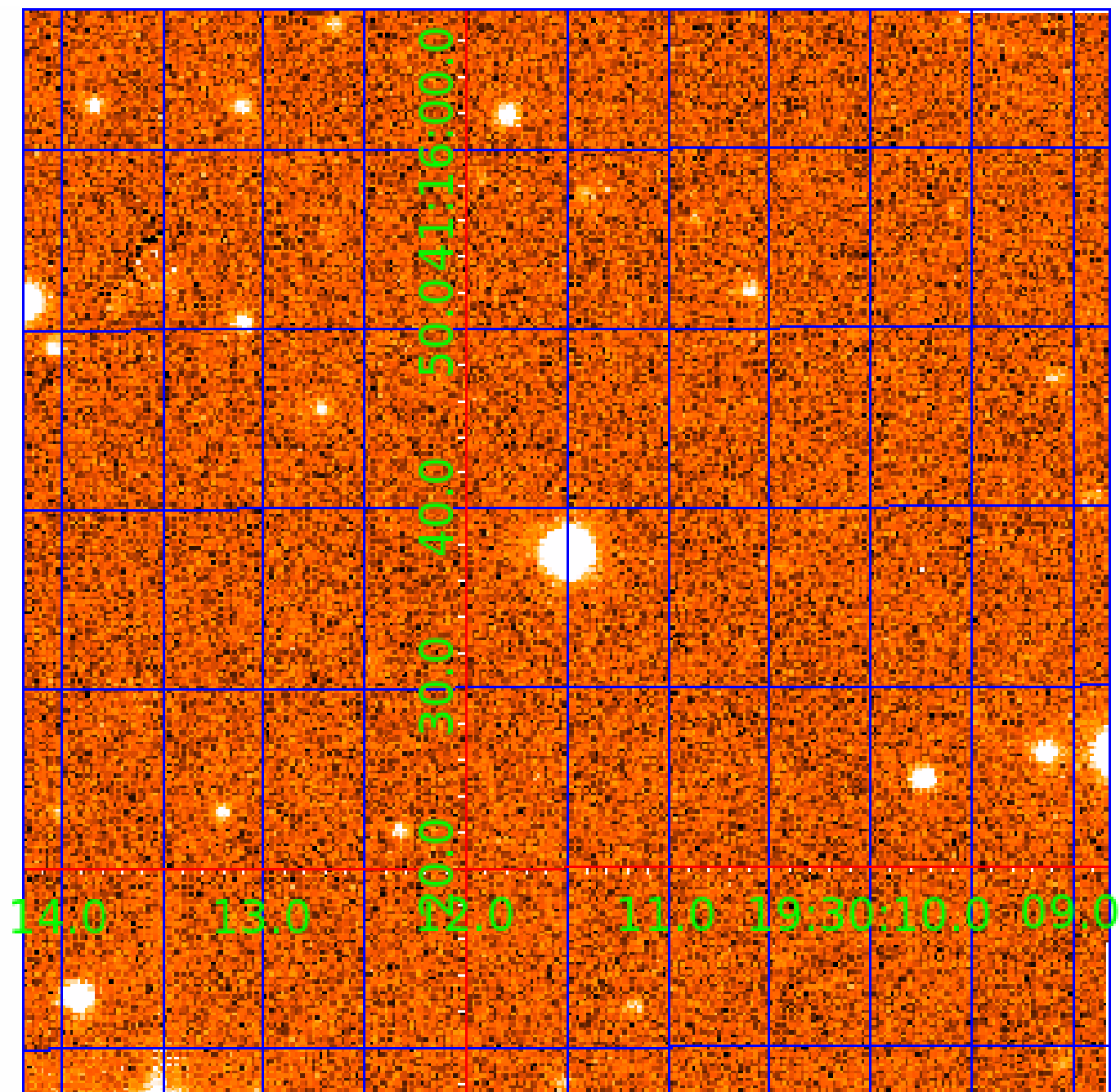


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005962532

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005962532-02 | OBS      | No   | 375.265656    | 236.698712   | 1617.3      | 15.423           | 13.1 | 4.3 | 0.66                        | 5065            | 2.62                   | 0.33                   |
| 005962532-03 | OBS      | No   | 585.723499    | 363.690865   | 5132.5      | 66.160           | 13.8 | 7.9 | 0.66                        | 5065            | 5.04                   | 0.18                   |
| 005962532-04 | OBS      | No   | 497.356202    | 217.519126   | 2661.1      | 4.713            | 13.0 | 7.3 | 0.66                        | 5065            | 3.41                   | 0.23                   |
| 005962532-05 | OBS      | No   | 500.053693    | 138.259175   | 2190.6      | 4.667            | 11.6 | 6.3 | 0.66                        | 5065            | 3.12                   | 0.23                   |
| 005962532-06 | OBS      | No   | 539.349907    | 425.360331   | 2016.0      | 8.735            | 11.4 | 5.0 | 0.66                        | 5065            | 2.98                   | 0.20                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 005962532-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS  |
| 005962532-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS                           |
| 005962532-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005962532-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS             |
| 005962532-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS                       |

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

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

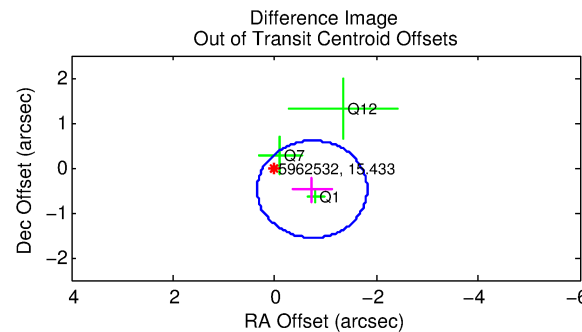
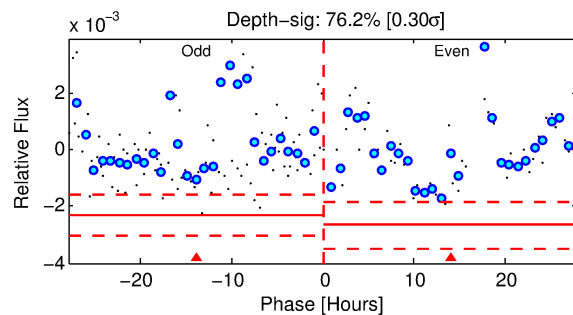
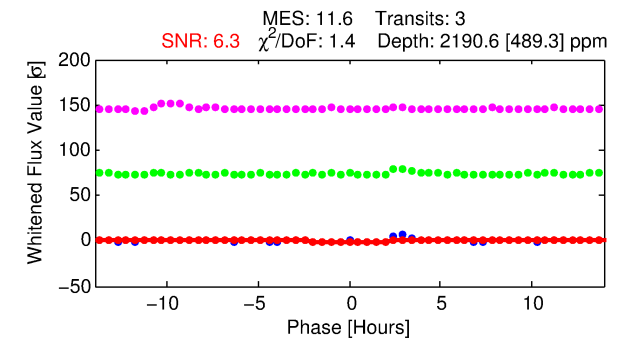
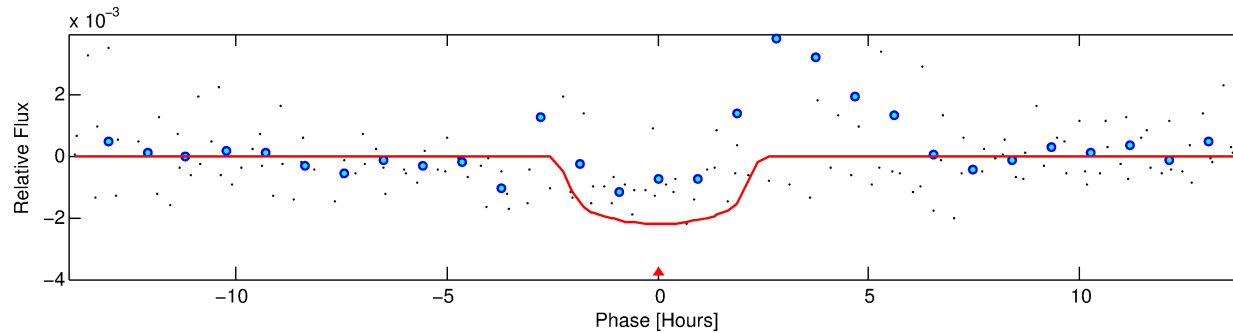
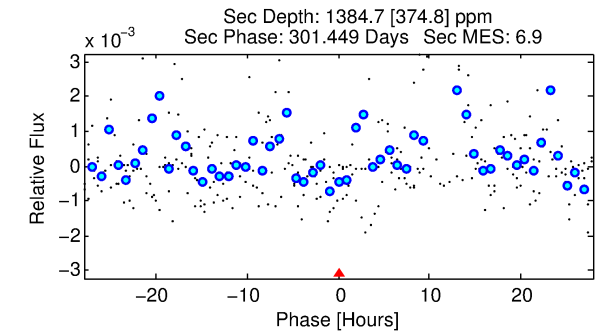
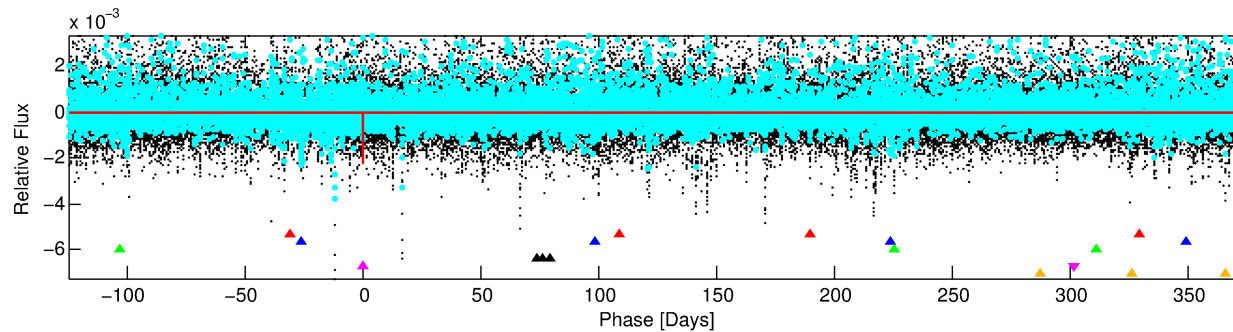
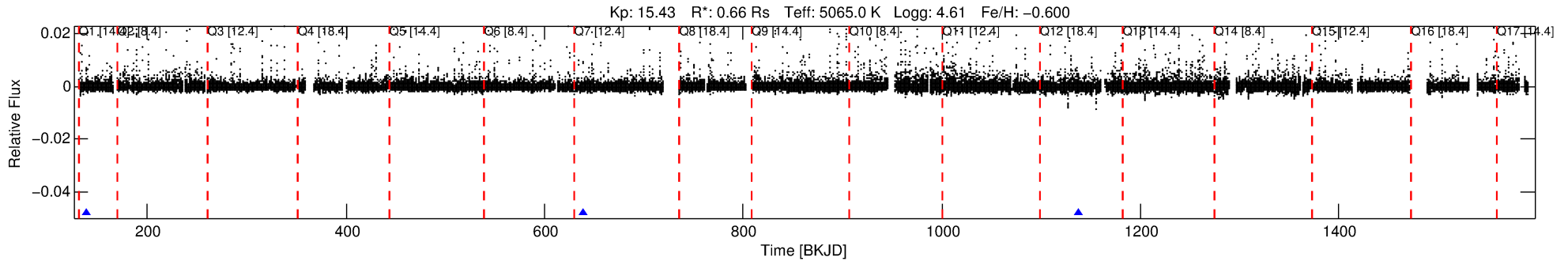
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005962532-05

No Significant Match Found

# DV One-Page Summary

KIC: 5962532 Candidate: 5 of 6 Period: 500.054 d



## DV Fit Results:

Period = 500.05369 [0.00813] d  
Epoch = 138.2592 [0.0103] BKJD  
Rp/R\* = 0.0430 [0.1313]  
a/R\* = 781.23 [8970.11]  
b = 0.42 [22.77]  
Seff = 0.23 [0.04]  
Teq = 176 [8] K  
Rp = 3.12 [9.52] Re  
a = 1.0727 [0.0906] AU  
Ag = 90327.41 [552465.50] [0.16σ]  
Teffp = 4712 [7205] K [0.63σ]

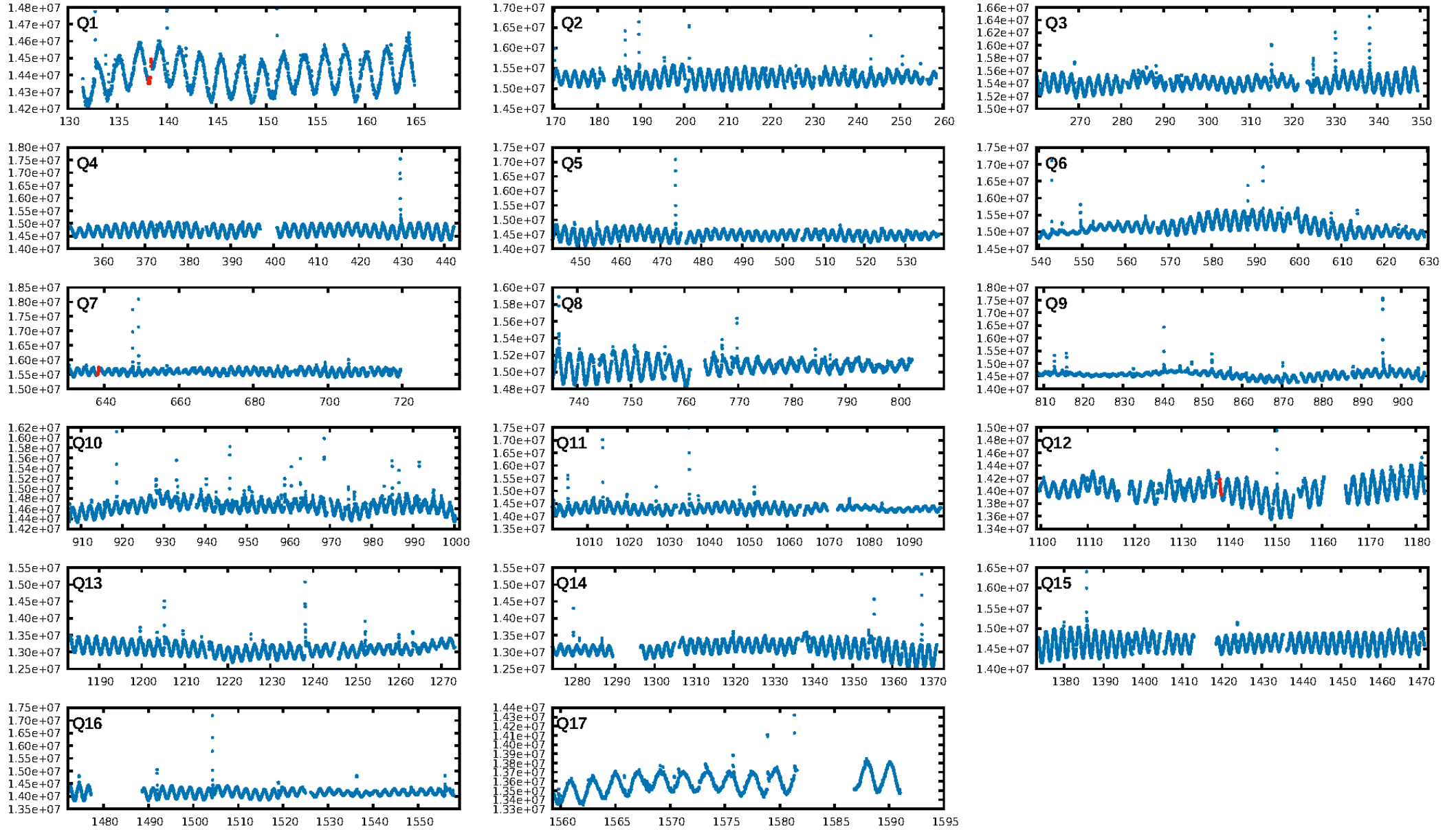
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.76σ]  
LongPeriod-sig: 100.0% [95.23σ]  
ModelChiSquare2-sig: 22.0%  
ModelChiSquareGof-sig: 83.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -3.65  
Centroid-sig: 4.2%  
Centroid-so: 1.010 arcsec [1.44σ]  
OotOffset-rm: 0.878 arcsec [2.44σ]  
KicOffset-rm: 0.925 arcsec [2.56σ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

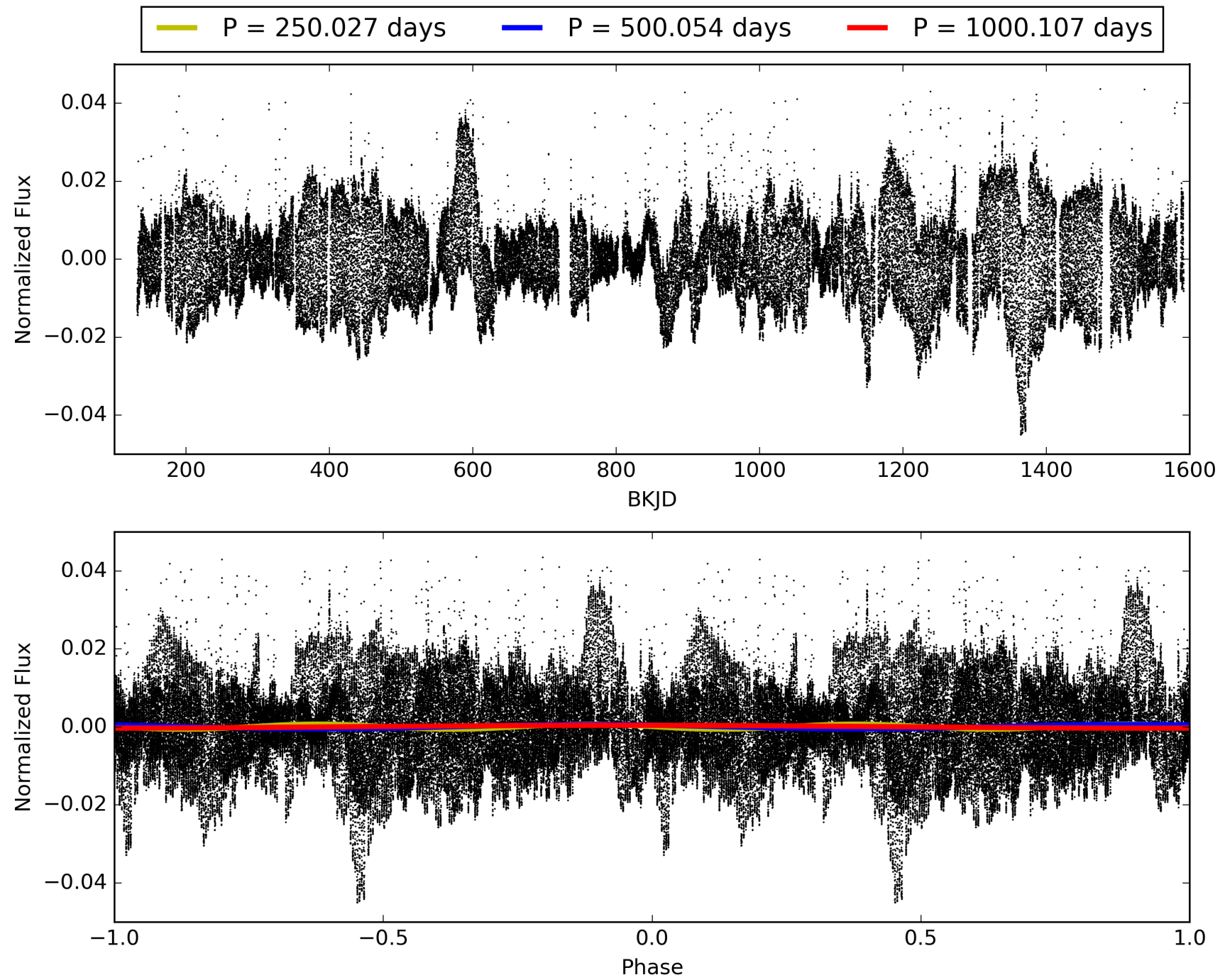
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:59:23 Z

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

# TCE 005962532-05, PDC Light Curves



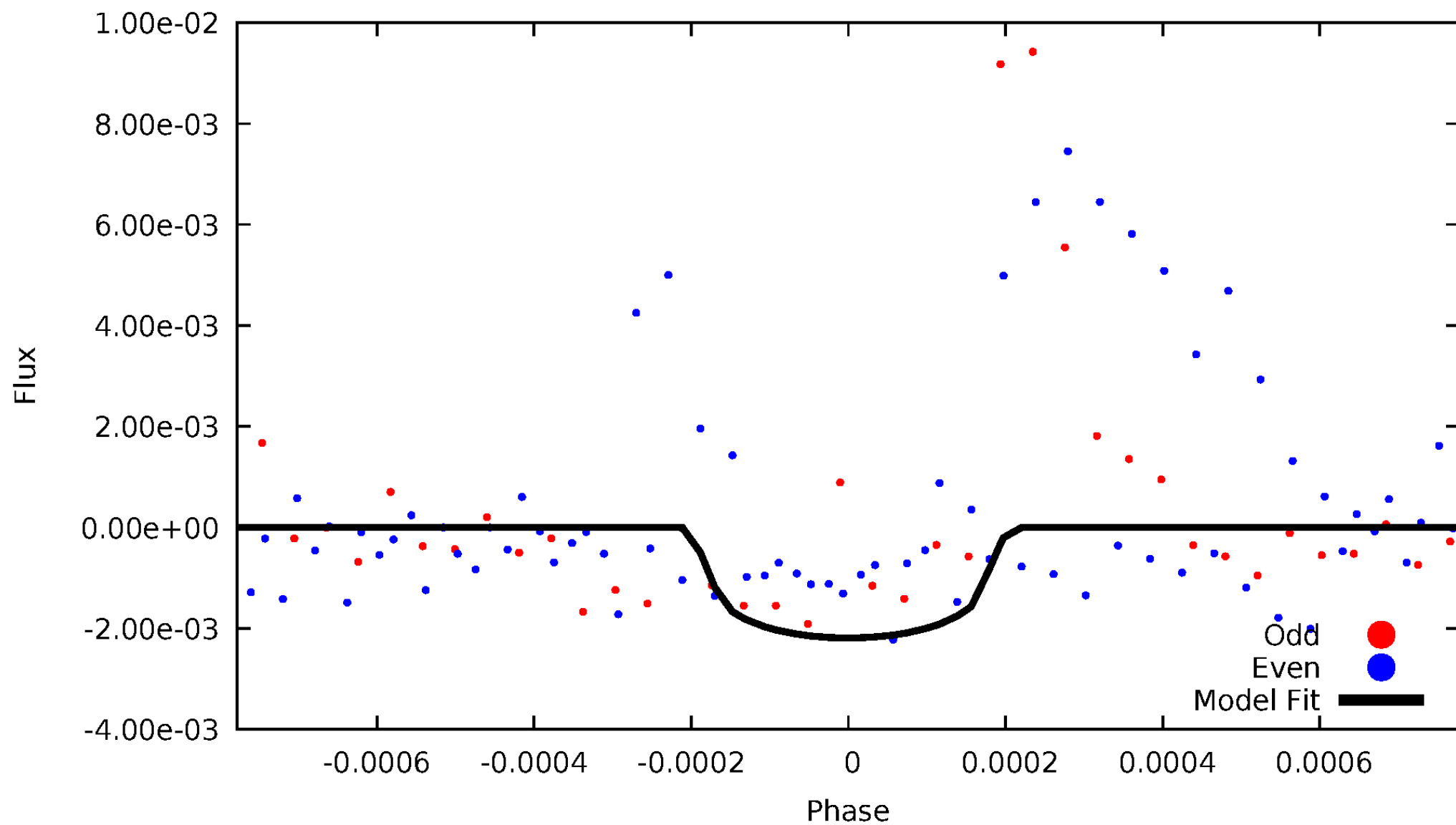
TCE 005962532-05





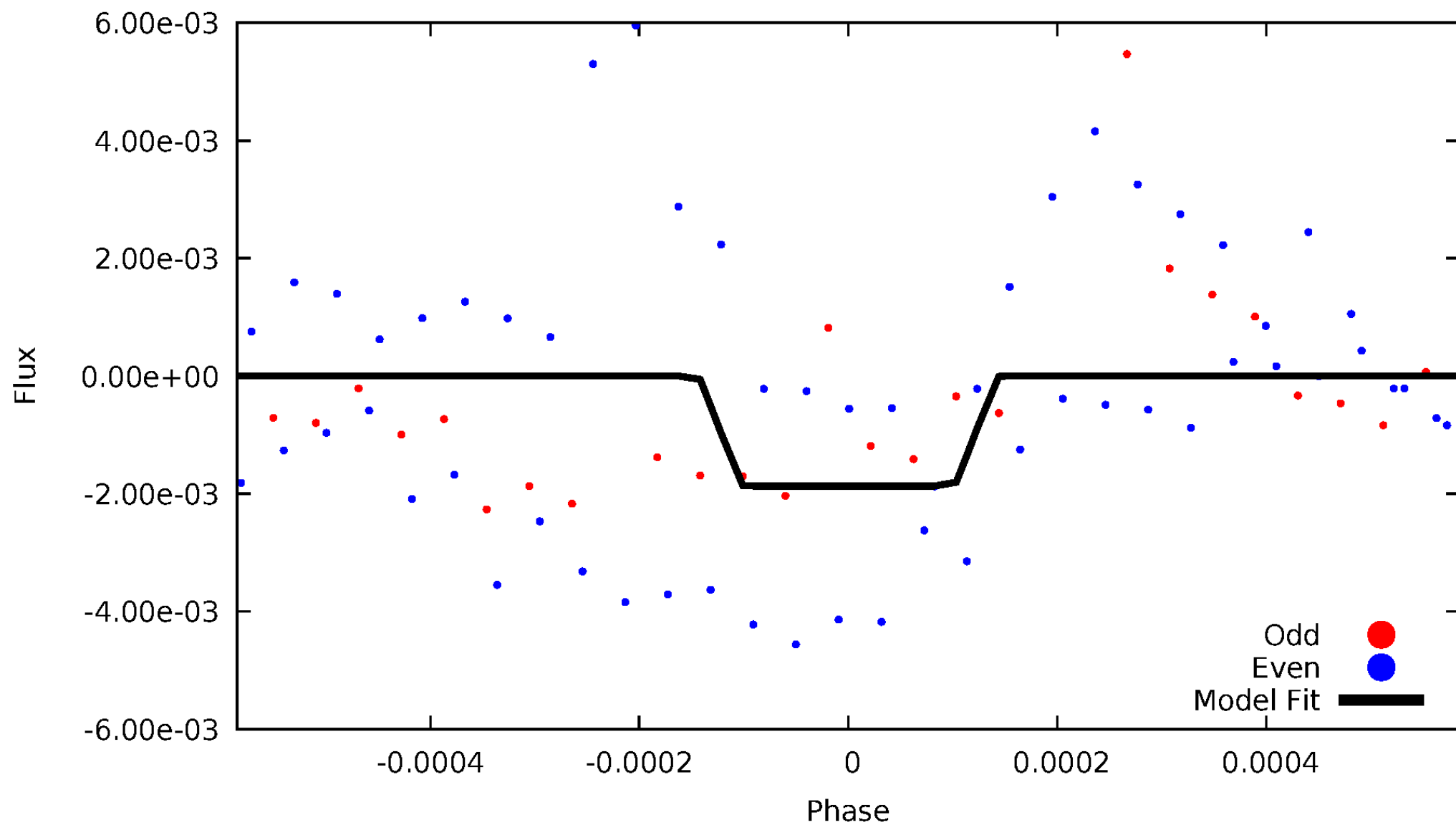
# DV Odd/Even

TCE 005962532-05



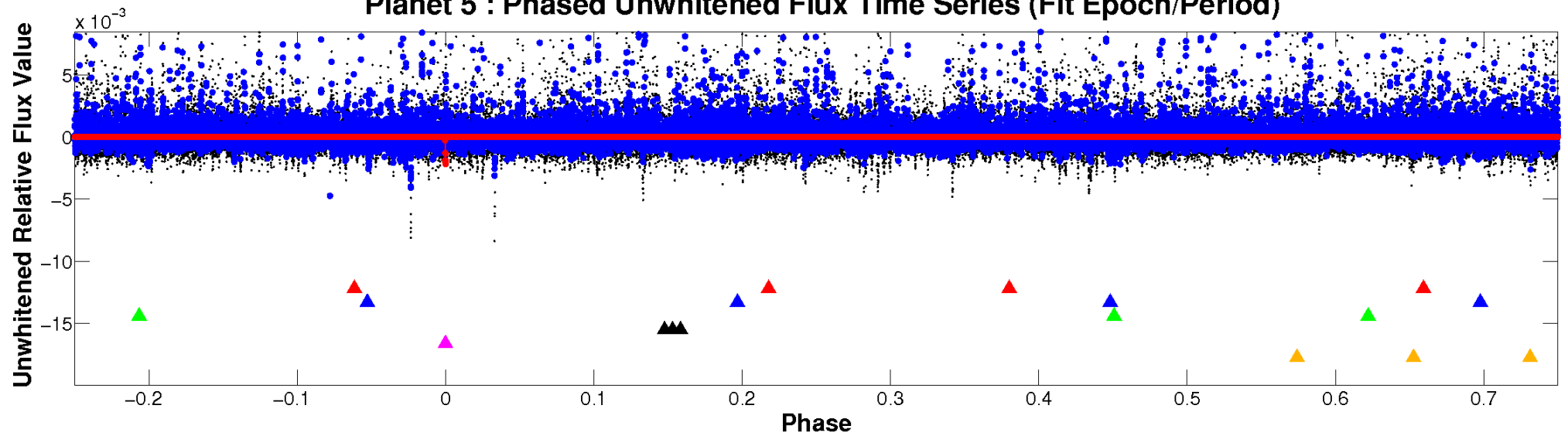
# ALT Odd/Even

TCE 005962532-05

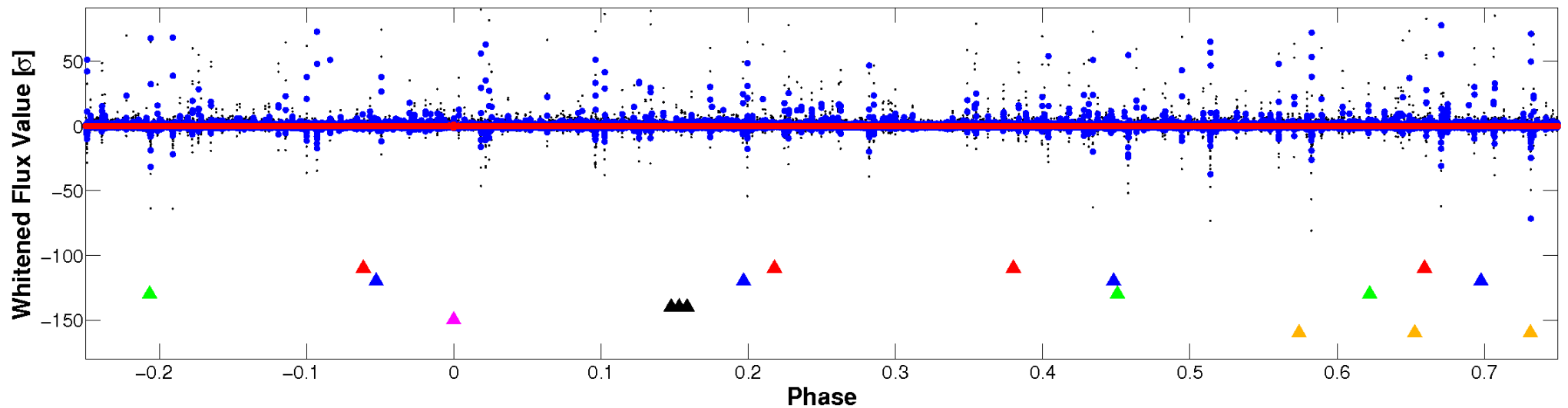


# Non-Whitened Vs. Whitened Light Curve

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

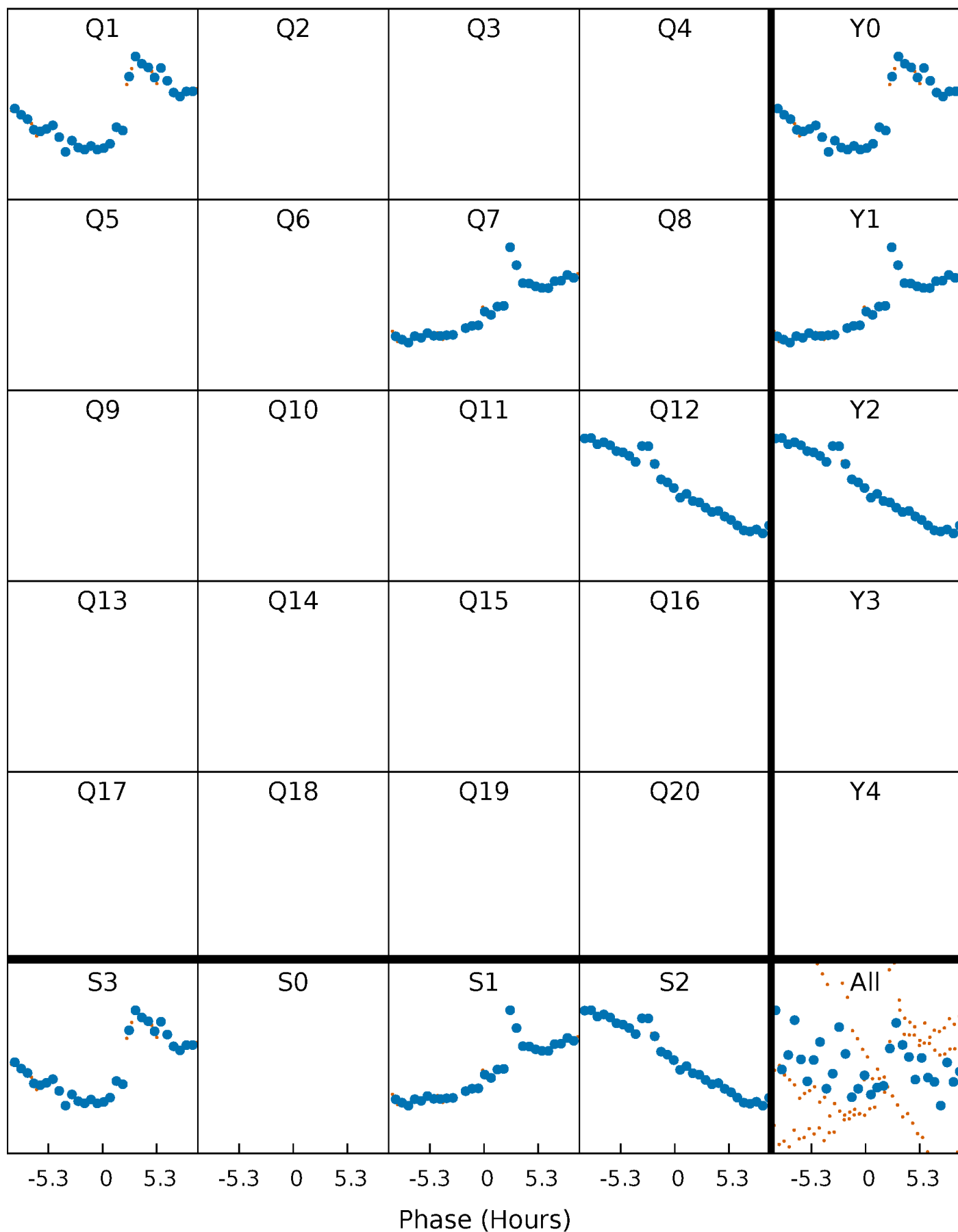


**Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



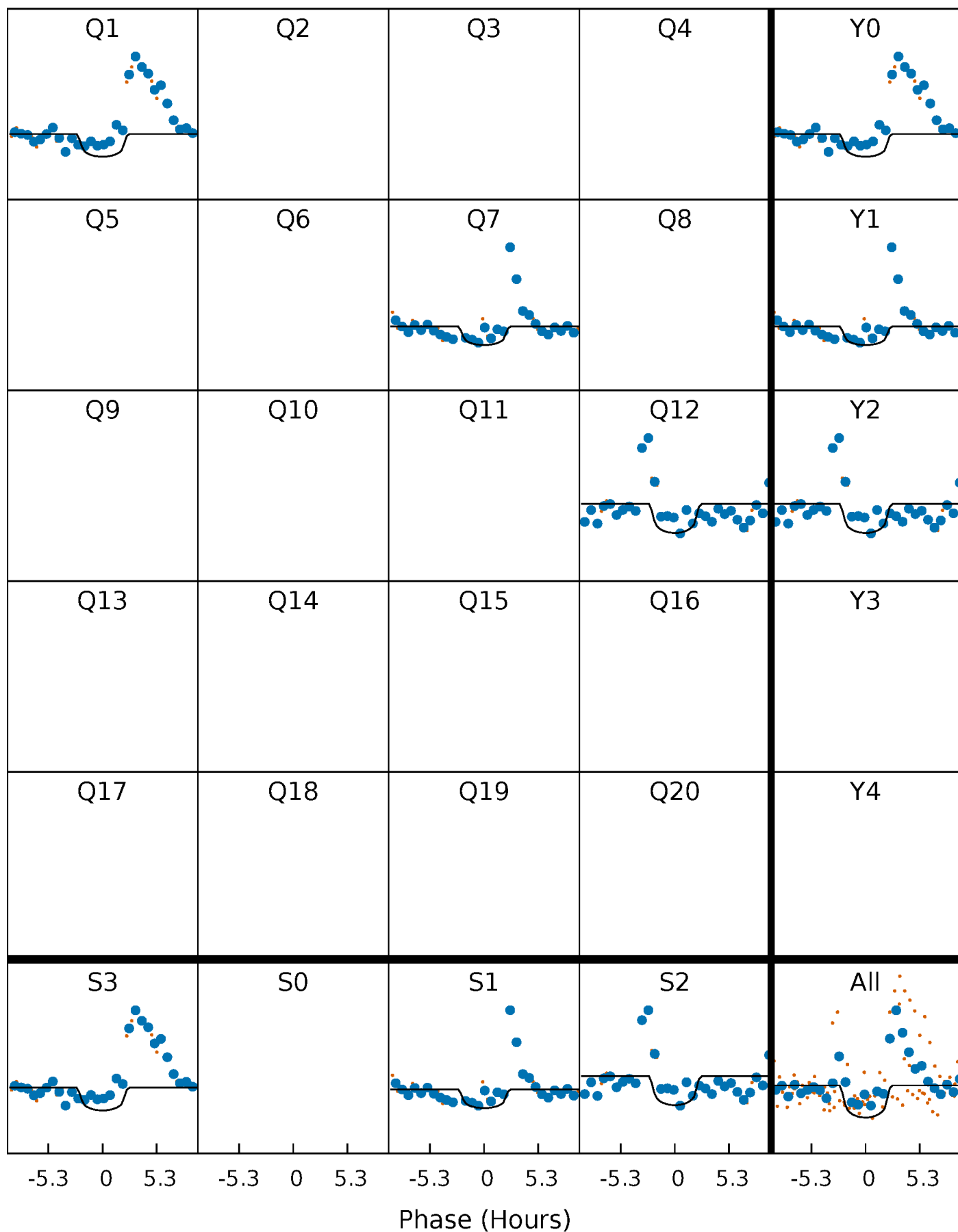
# PDC Quarter-Phased Transit Curves

TCE 005962532-05     $P=500.053693$  Days     $T_0=138.259175$  (BKJD)



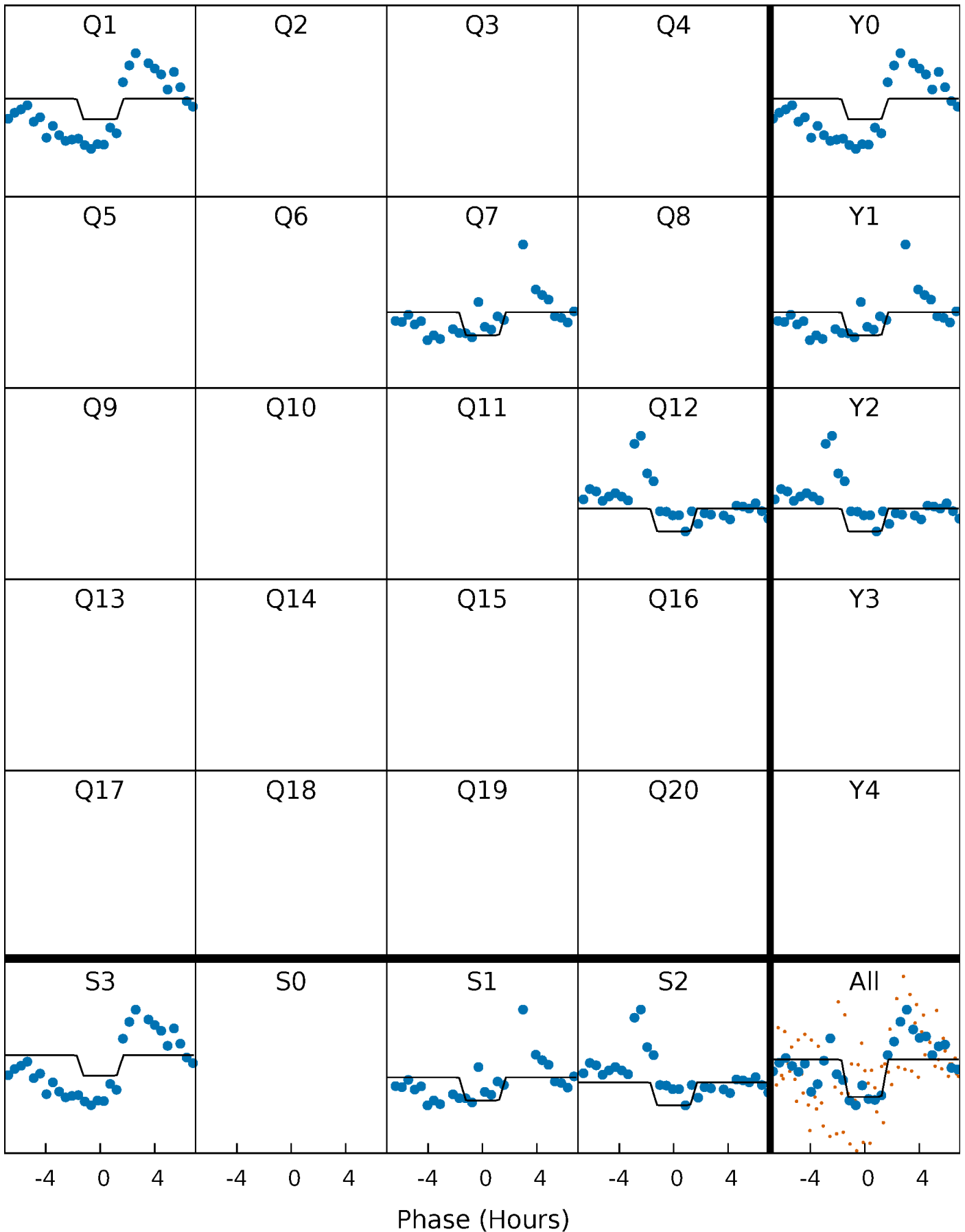
# DV Quarter-Phased Transit Curves

TCE 005962532-05     $P=500.053693$  Days     $T_0=138.259175$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

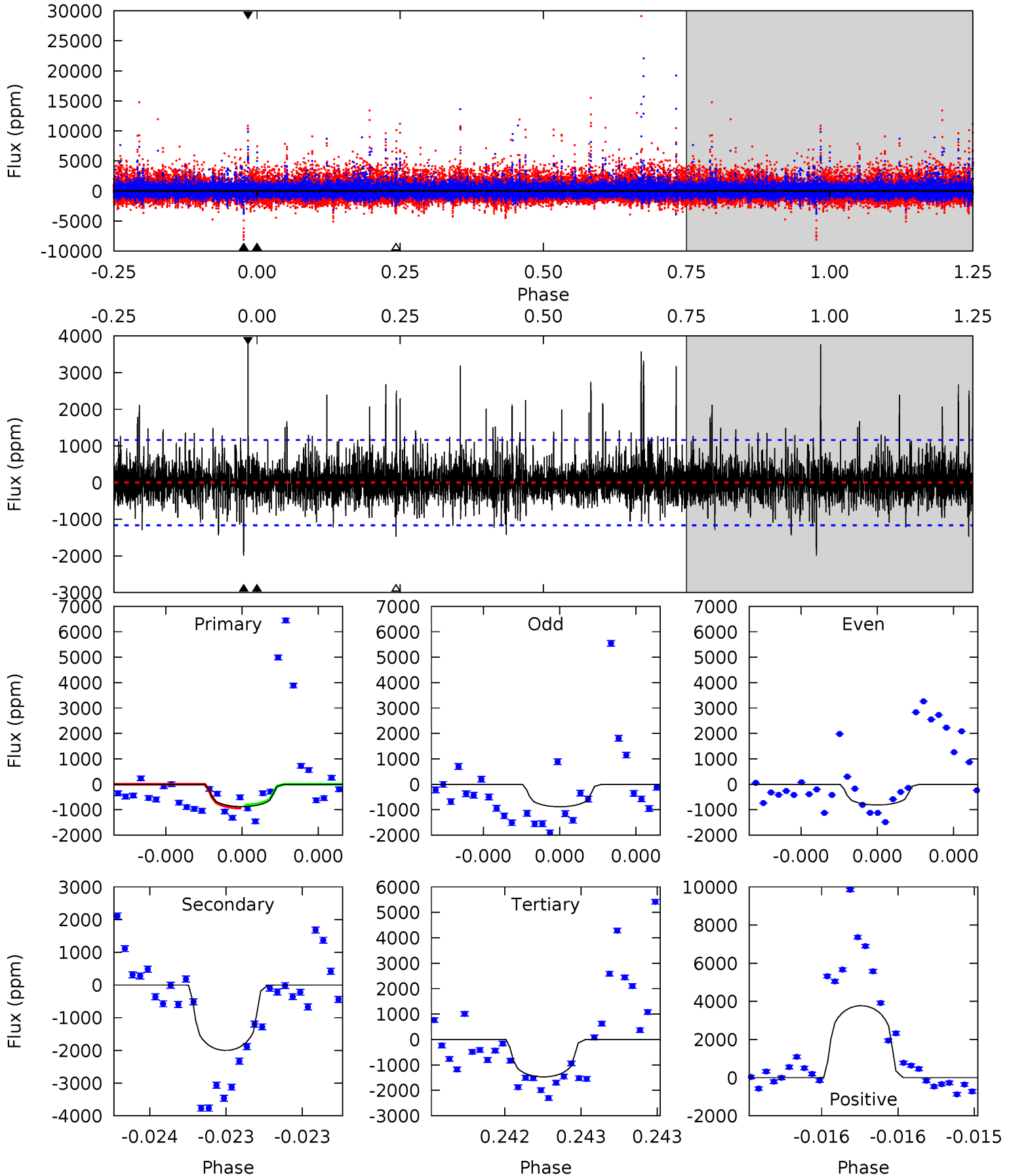
TCE 005962532-05     $P=500.036458$  Days     $T_0=138.280804$  (BKJD)



# DV Model-Shift Uniqueness Test

005962532-05, P = 500.053693 Days, E = 138.259175 Days

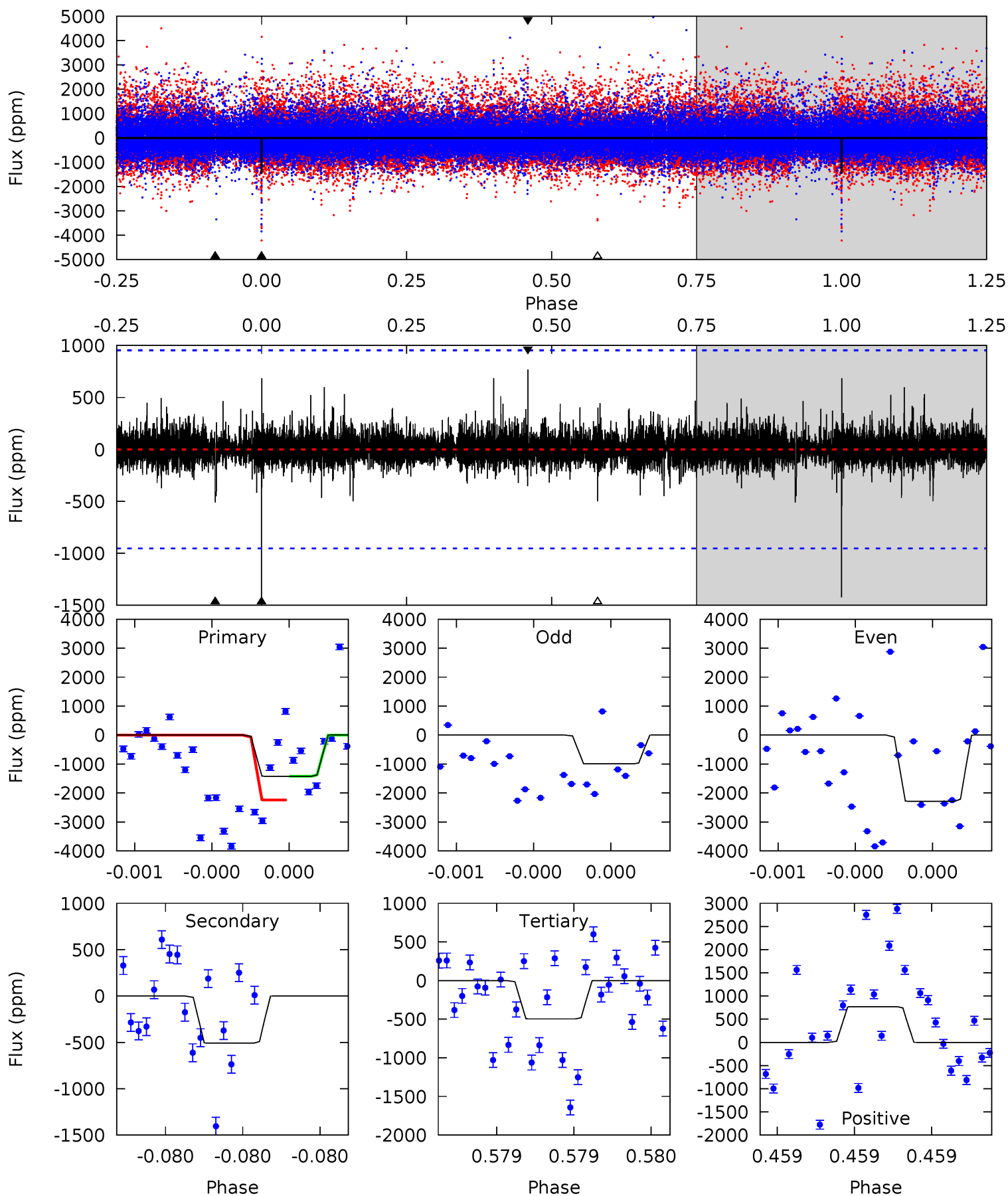
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.22 | 9.63 | 7.08 | 18.2 | 5.60            | 3.52            | 2.00             | -2.85   | -13.9   | 2.56    | -8.52   | 0.07    | 0.92 | 0.65  | 0.29 |



# Alt Model-Shift Uniqueness Test

005962532-05, P = 500.036458 Days, E = 138.280804 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.47 | 3.02 | 2.96 | 4.58 | 5.67            | 3.63            | 0.57             | 5.51    | 3.89    | 0.07    | -1.56   | 3.64    | 1.85 | 0.35  | 2.44 |





### Stellar Parameters For KIC 005962532

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5065^{+166}_{-151}$ | $4.612^{+0.061}_{-0.044}$ | $-0.600^{+0.300}_{-0.300}$ | $0.664^{+0.070}_{-0.059}$ | $0.658^{+0.079}_{-0.036}$ | $3.168^{+0.805}_{-0.535}$                     |
|        | +3%/-3%              | +1%/-1%                   | +50%/-50%                  | +11%/-9%                  | +12%/-5%                  | +25%/-17%                                     |
| 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 005962532-05 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)    | $T_{obs}$ (K)         | $A_{obs}$                  |
|---------|-----------------|------------------------|------------------|-----------------------|----------------------------|
| DV      | $-2000 \pm 208$ | $7.54^{+7.48}_{-4.73}$ | $245^{+9}_{-9}$  | $3695^{+1689}_{-718}$ | $22468^{+145151}_{-16810}$ |
| Alt.    | $-508 \pm 168$  | $7.98^{+7.79}_{-5.60}$ | $244^{+10}_{-8}$ | $2929^{+1362}_{-489}$ | $4817^{+50166}_{-3623}$    |

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

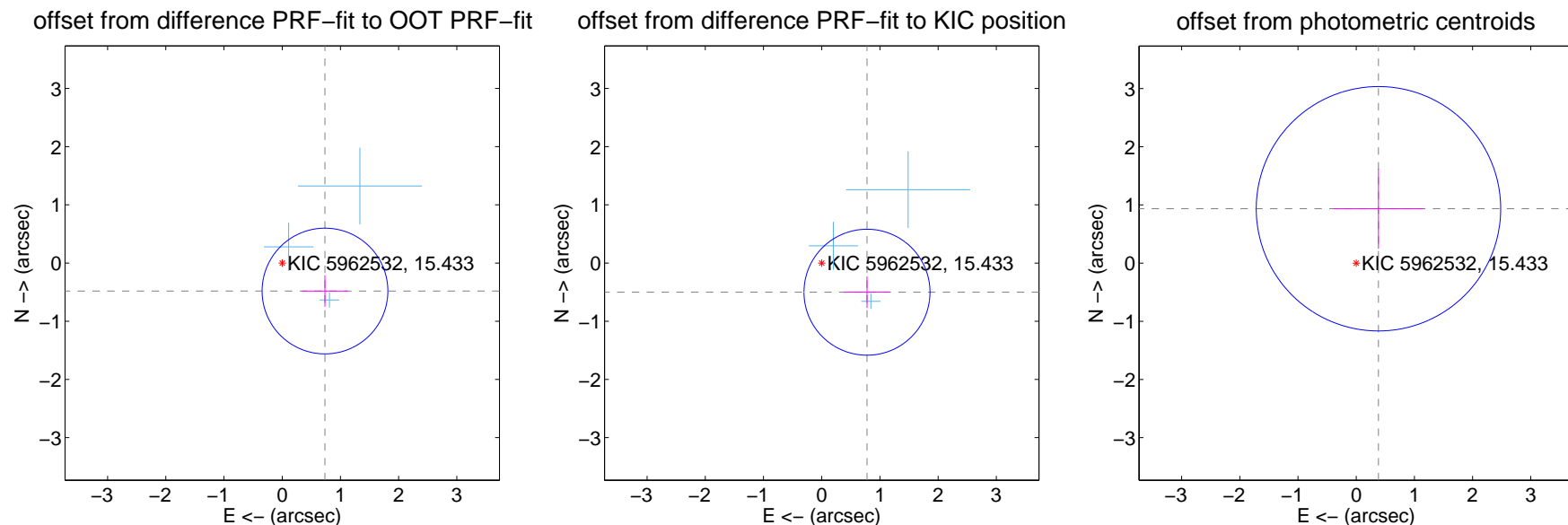
## DV Centroid Data

Supplemental centroid analysis for 005962532-05. Kepler magnitude: 15.43. Transit SNR 6.32

There are 3 quarters with good PRF difference image offsets

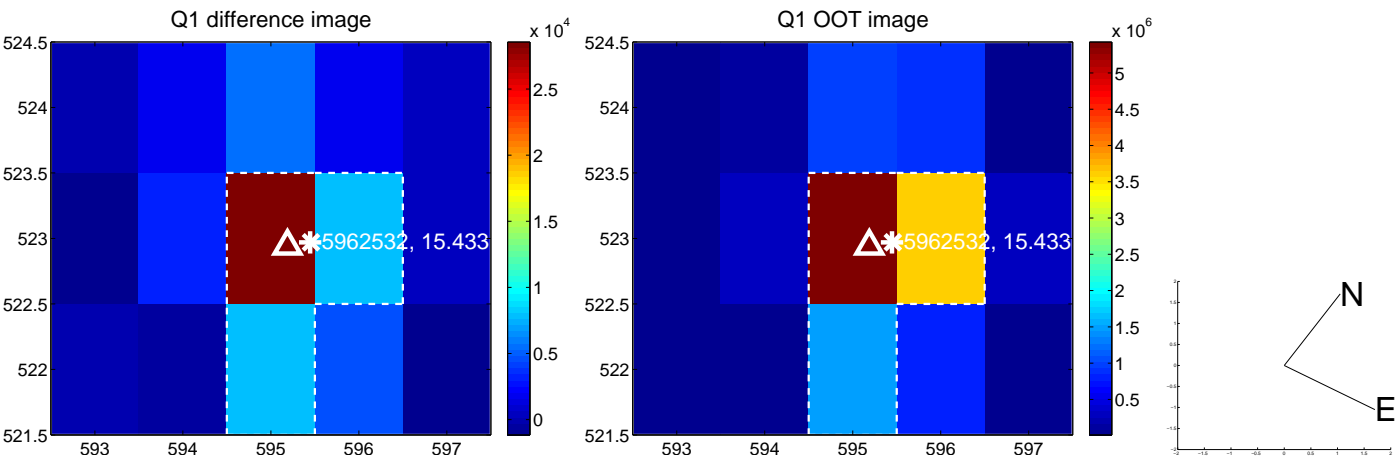
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.878 \pm 0.360$  | 2.44                | $-0.735 \pm 0.392$ | $-0.481 \pm 0.271$ |
| PRF-fit source offset from KIC position | $0.925 \pm 0.361$  | 2.56                | $-0.778 \pm 0.392$ | $-0.501 \pm 0.271$ |
| photometric centroid source offset      | $1.01 \pm 0.70$    | 1.44                | $-0.38 \pm 0.77$   | $0.93 \pm 0.69$    |

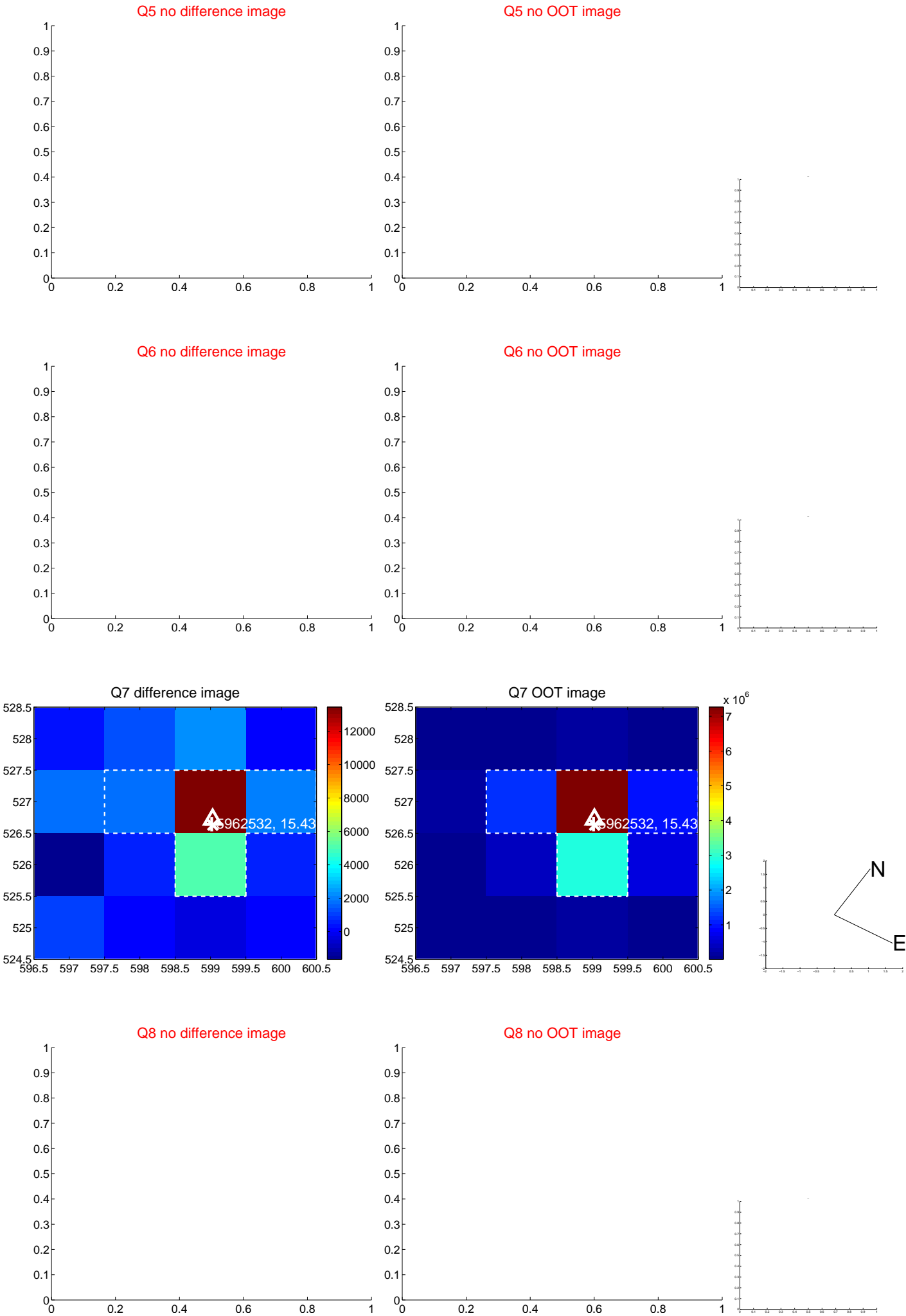


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

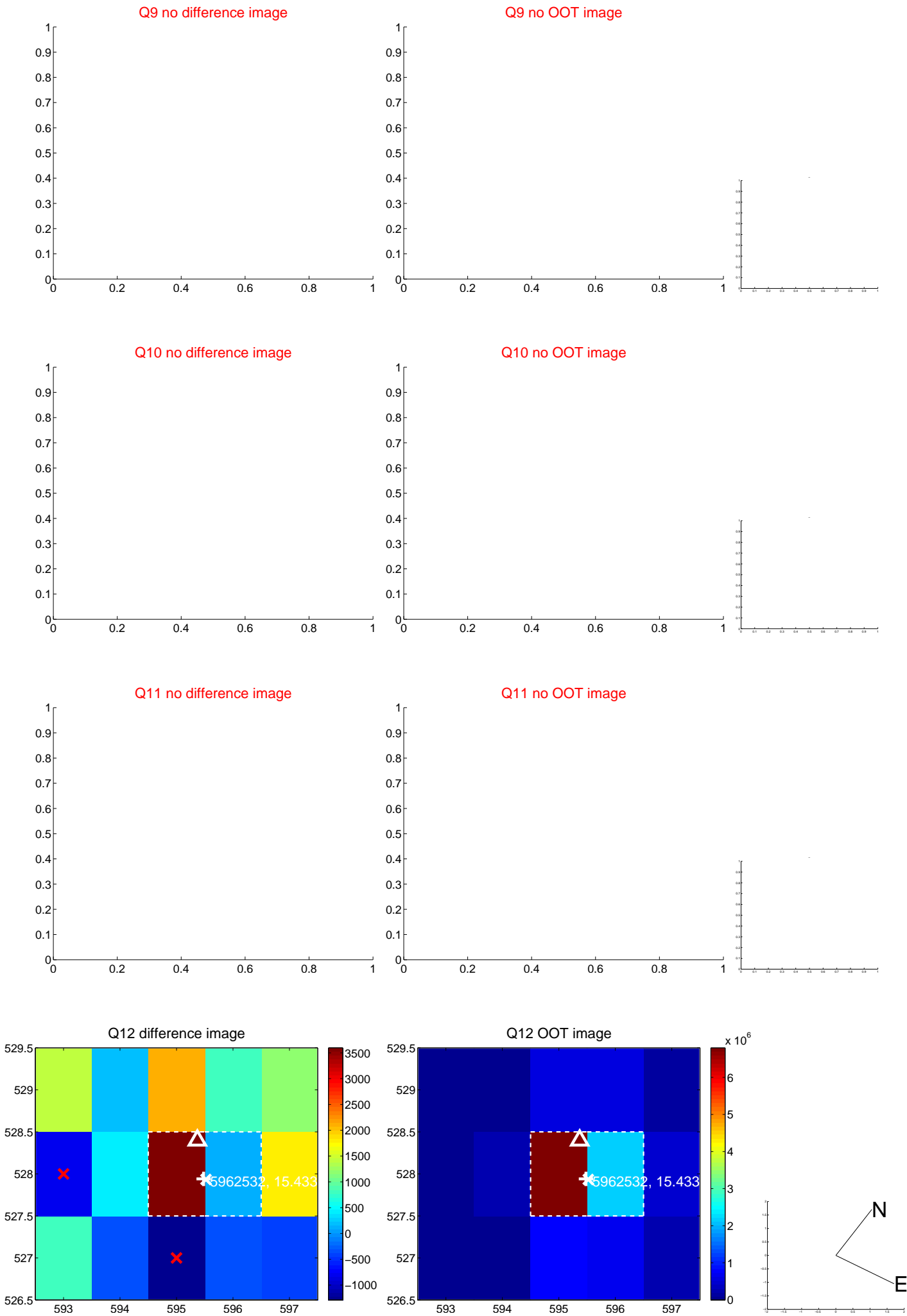
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



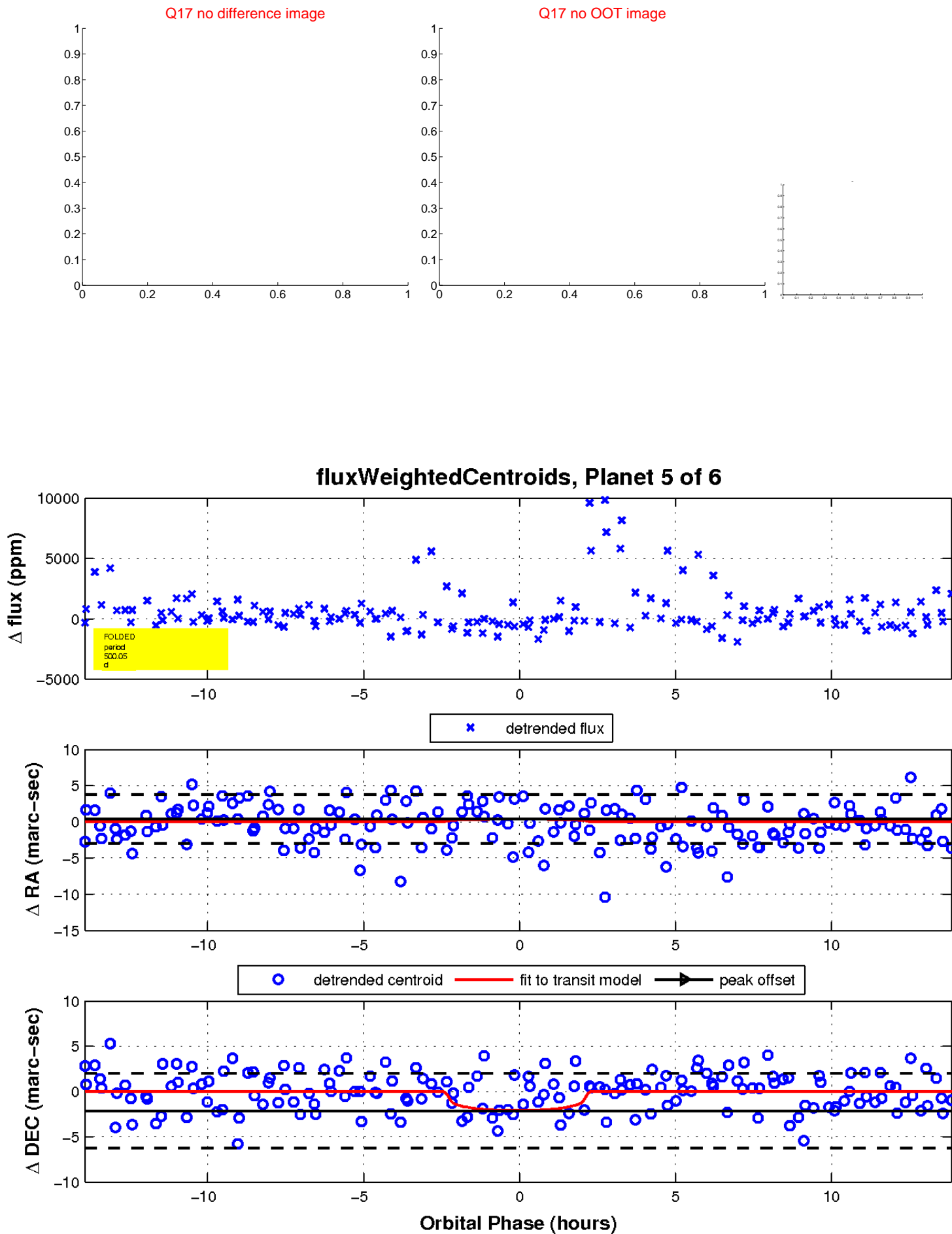
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

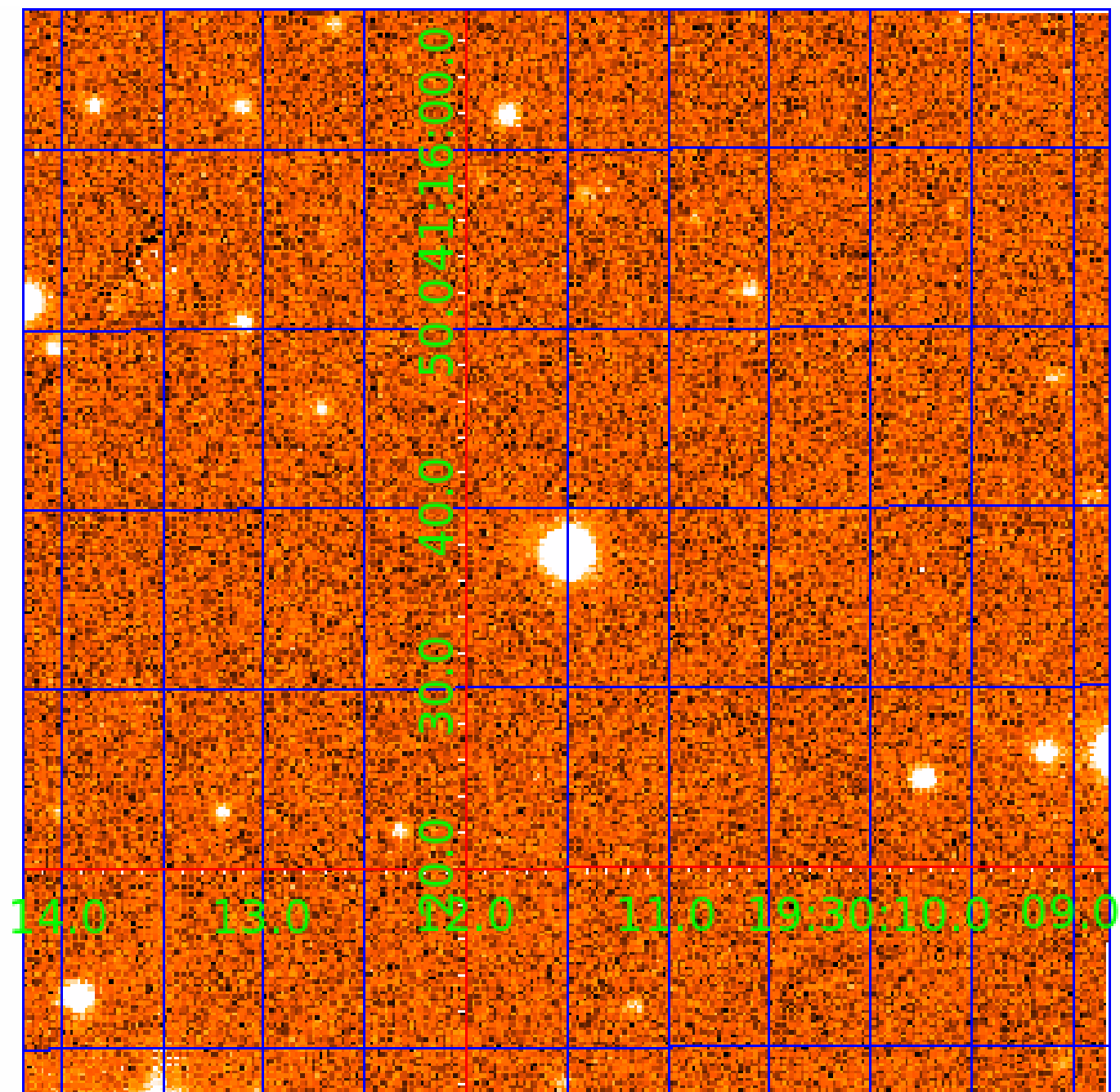


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005962532

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005962532-02 | OBS      | No   | 375.265656    | 236.698712   | 1617.3      | 15.423           | 13.1 | 4.3 | 0.66                        | 5065            | 2.62                   | 0.33                   |
| 005962532-03 | OBS      | No   | 585.723499    | 363.690865   | 5132.5      | 66.160           | 13.8 | 7.9 | 0.66                        | 5065            | 5.04                   | 0.18                   |
| 005962532-04 | OBS      | No   | 497.356202    | 217.519126   | 2661.1      | 4.713            | 13.0 | 7.3 | 0.66                        | 5065            | 3.41                   | 0.23                   |
| 005962532-05 | OBS      | No   | 500.053693    | 138.259175   | 2190.6      | 4.667            | 11.6 | 6.3 | 0.66                        | 5065            | 3.12                   | 0.23                   |
| 005962532-06 | OBS      | No   | 539.349907    | 425.360331   | 2016.0      | 8.735            | 11.4 | 5.0 | 0.66                        | 5065            | 2.98                   | 0.20                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 005962532-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS  |
| 005962532-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS                           |
| 005962532-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005962532-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS             |
| 005962532-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS                       |

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

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

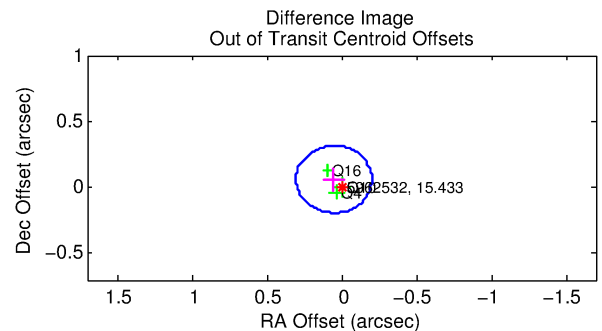
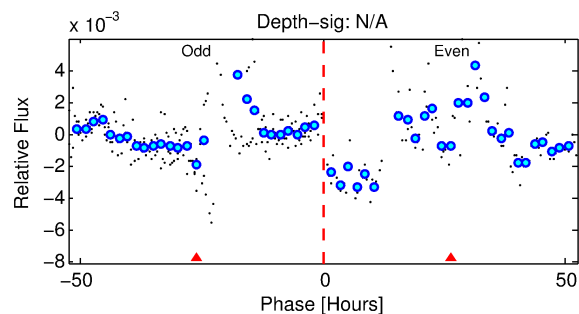
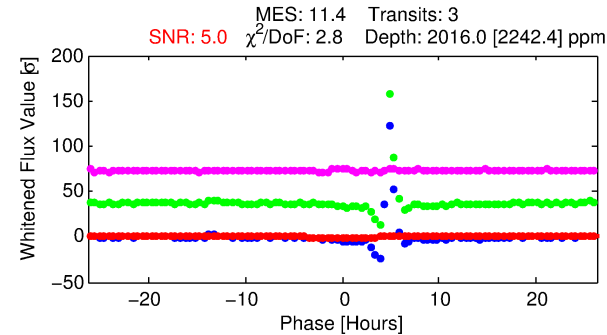
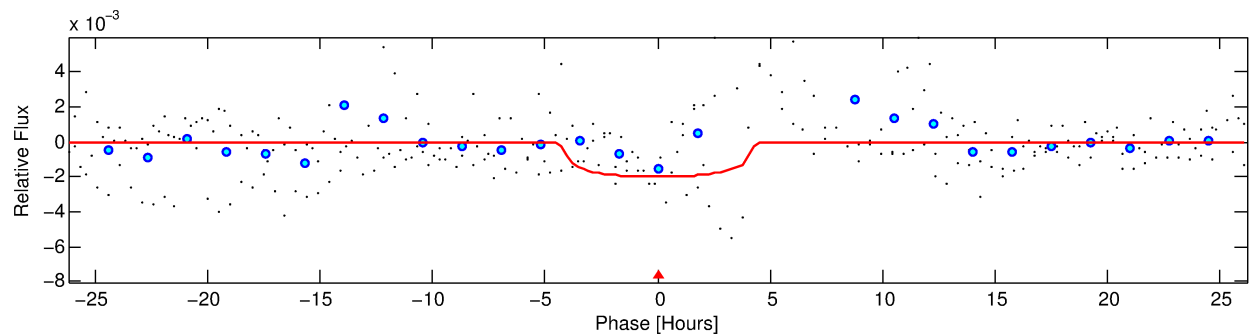
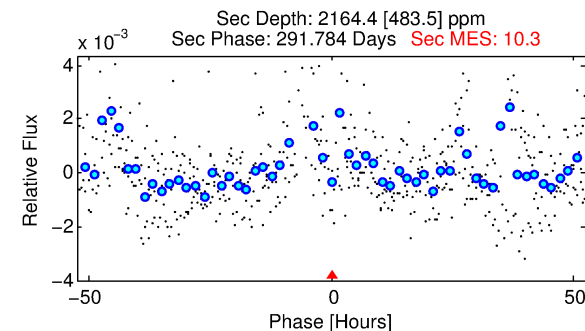
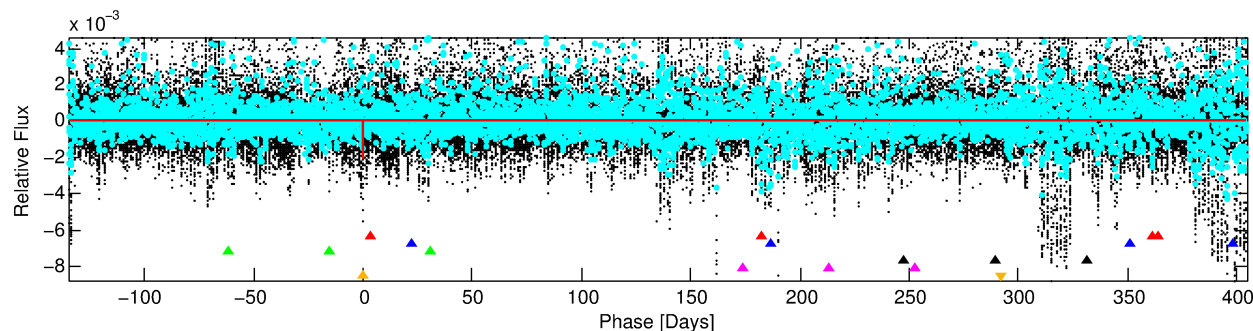
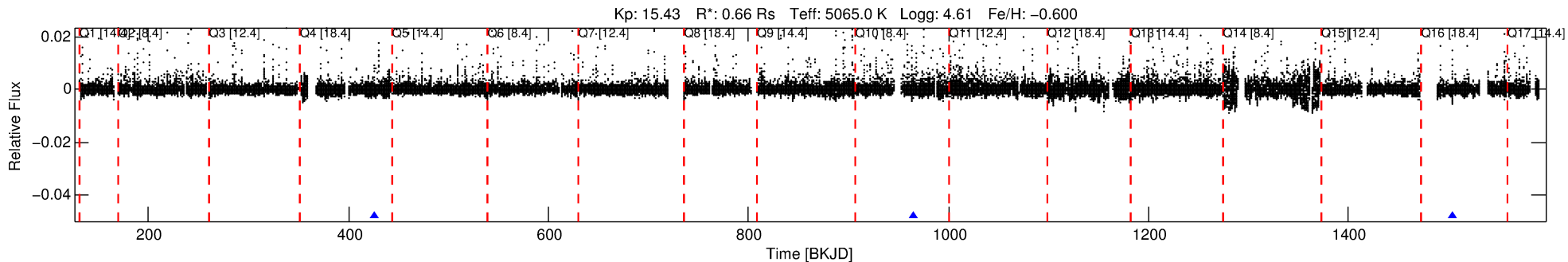
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005962532-06

No Significant Match Found

# DV One-Page Summary

KIC: 5962532 Candidate: 6 of 6 Period: 539.350 d



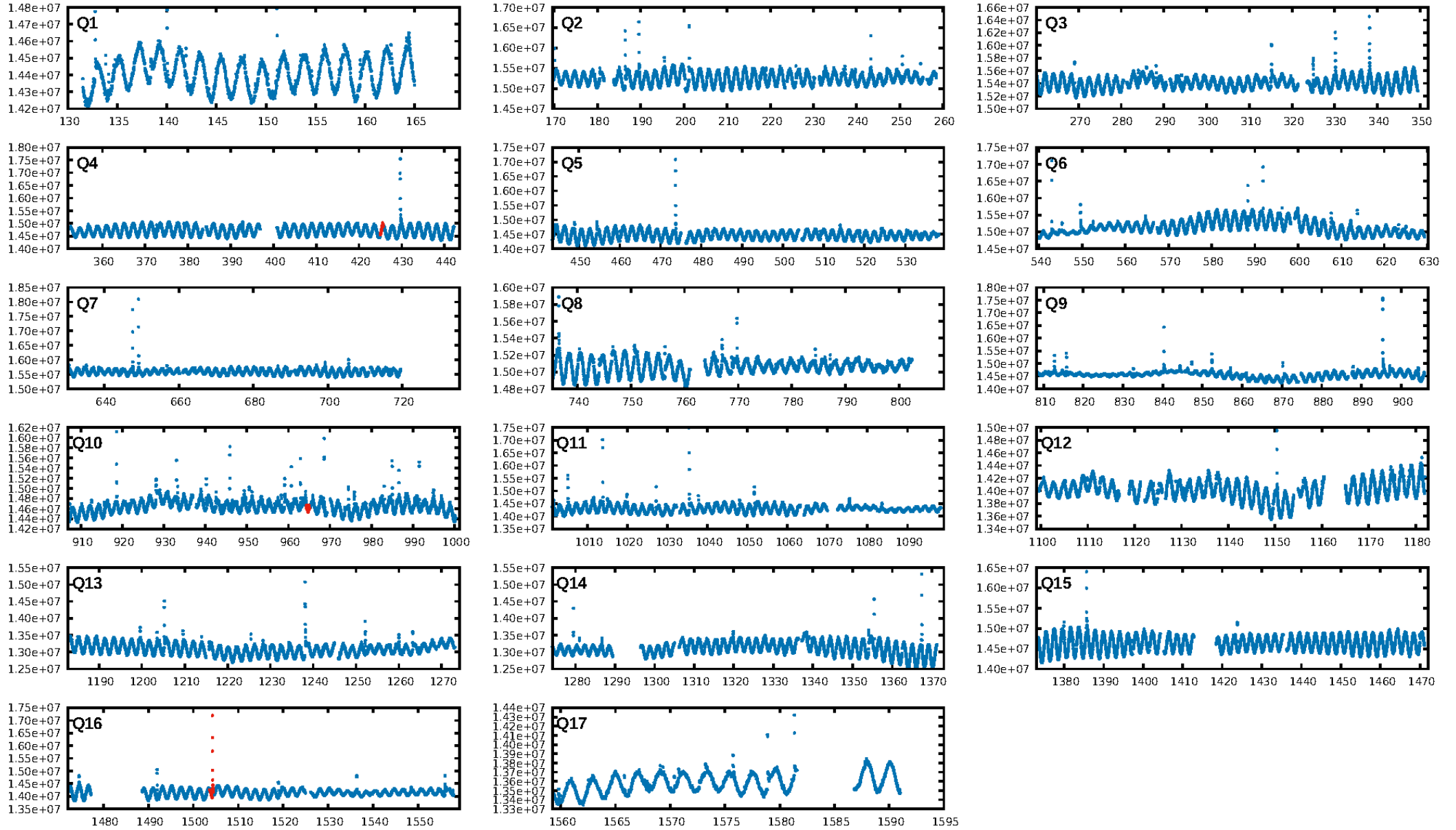
## DV Fit Results:

Period = 539.34991 [0.04942] d  
Epoch = 425.3603 [0.0627] BKJD  
Rp/R\* = 0.0411 [0.1594]  
a/R\* = 453.93 [6375.70]  
b = 0.40 [30.09]  
Seff = 0.20 [0.04]  
Teq = 171 [8] K  
Rp = 2.98 [11.55] Re  
a = 1.1282 [0.0953] AU  
Ag = 170879.00 [1326067.63] [0.13σ]  
Teffp = 5389 [10455] K [0.50σ]

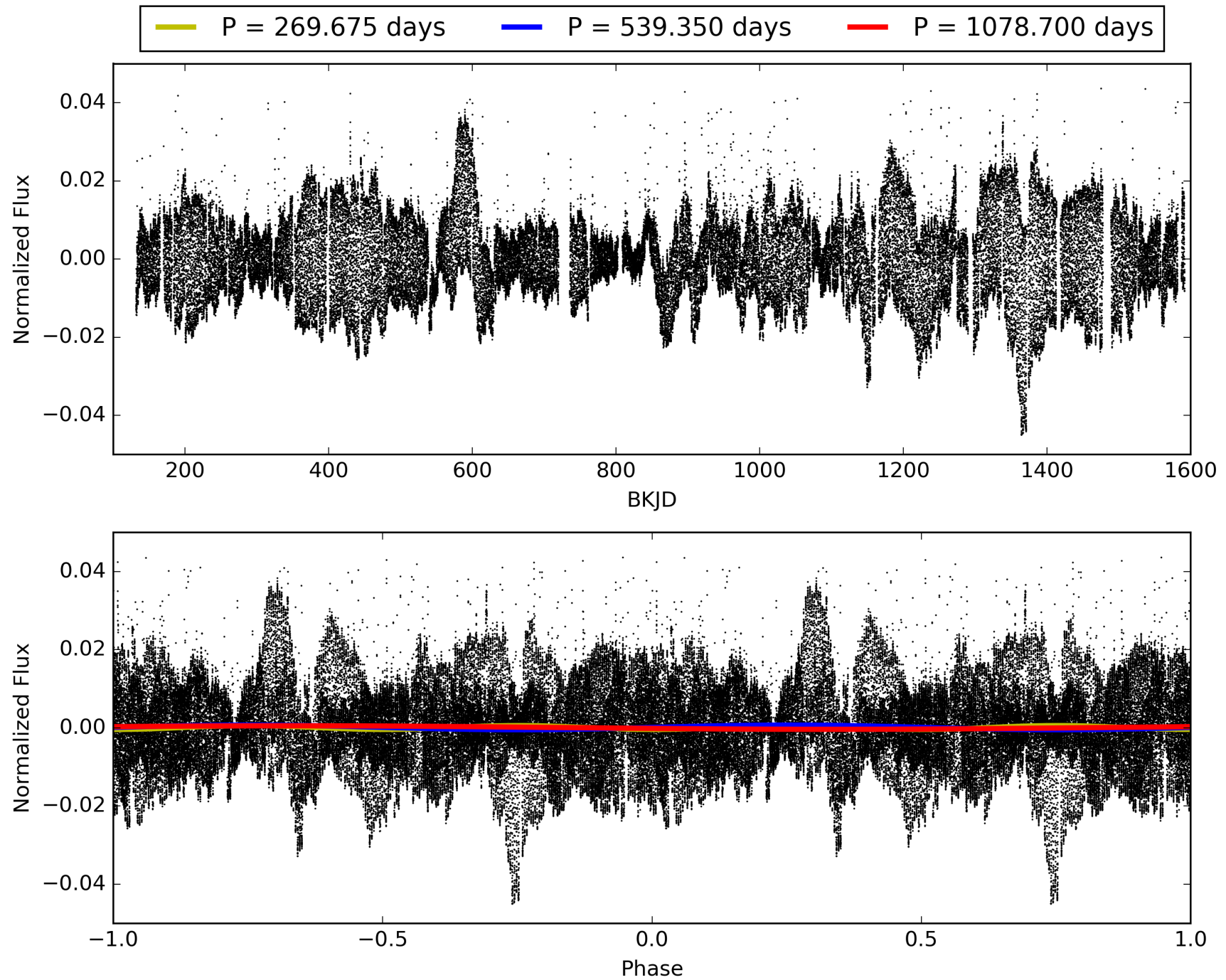
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [95.23σ]  
LongPeriod-sig: 100.0% [16.68σ]  
**ModelChiSquare2-sig: 0.0%**  
**ModelChiSquareGof-sig: 0.0%**  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 4.167  
Centroid-sig: 15.0%  
Centroid-so: 0.931 arcsec [1.67σ]  
OotOffset-rm: 0.080 arcsec [0.95σ]  
OotOffset-st: 1/0/2/0 [3]  
KicOffset-rm: 0.094 arcsec [1.27σ]  
KicOffset-st: 1/0/2/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 005962532-06, PDC Light Curves

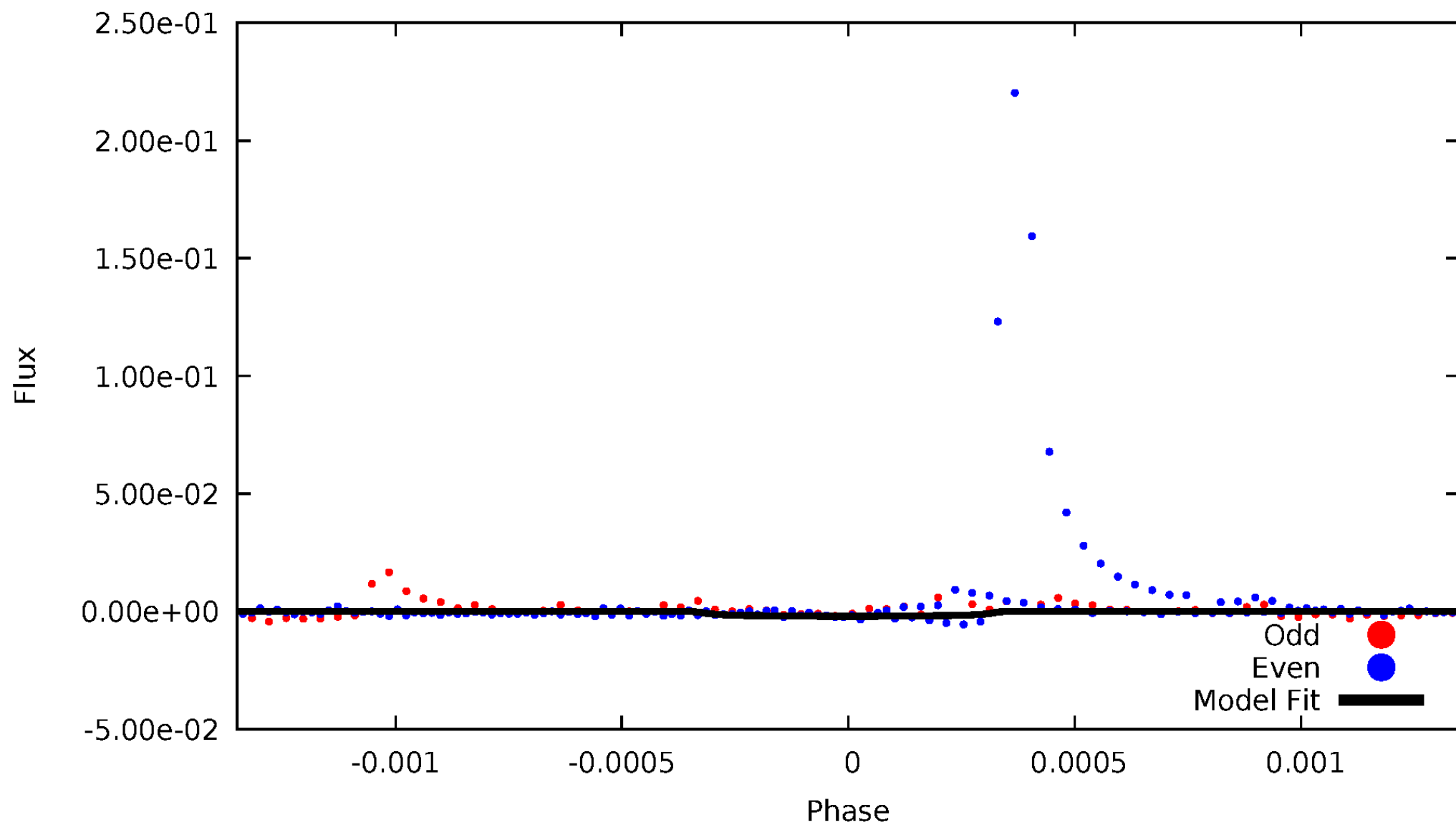


TCE 005962532-06



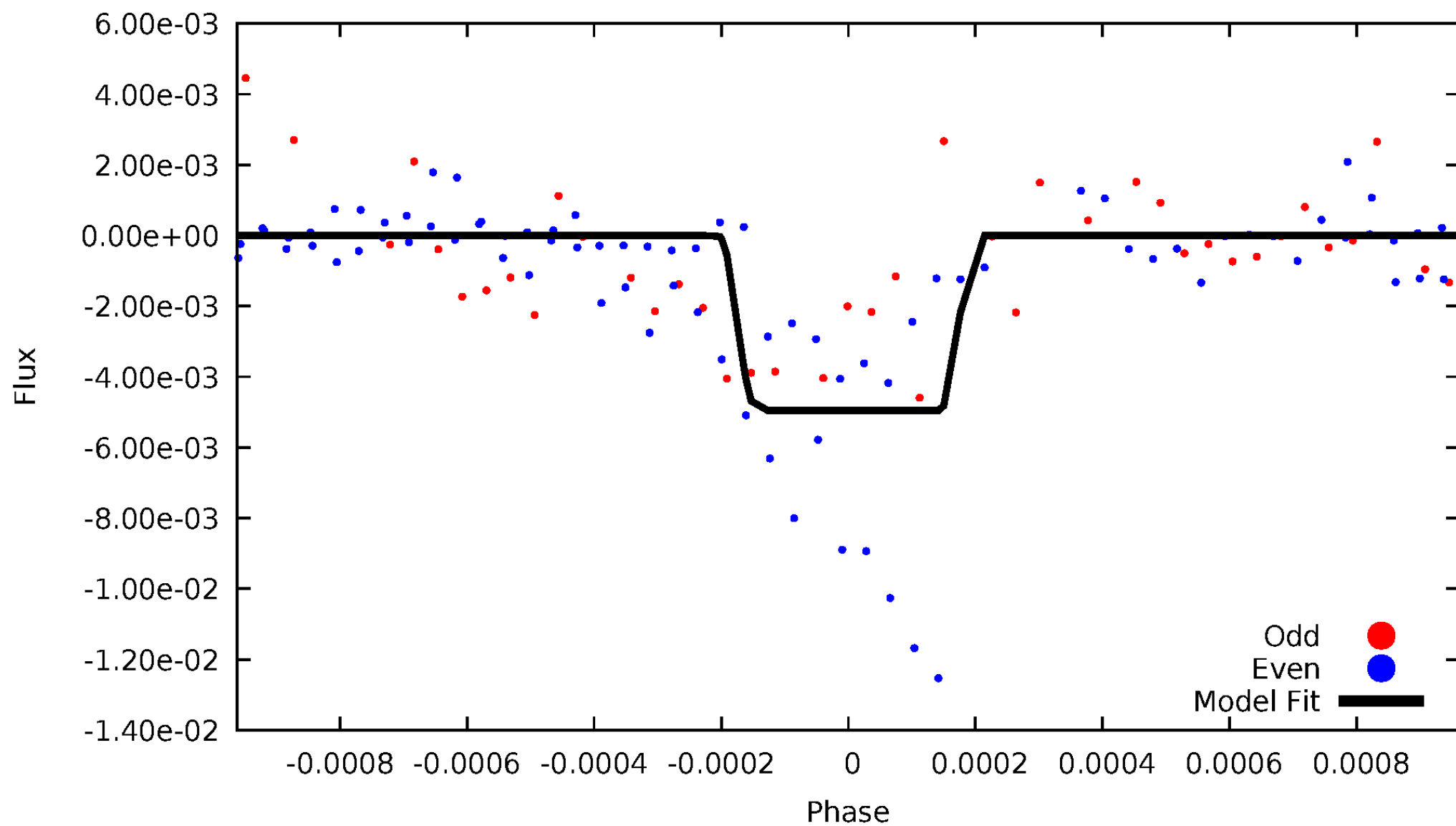
# DV Odd/Even

TCE 005962532-06



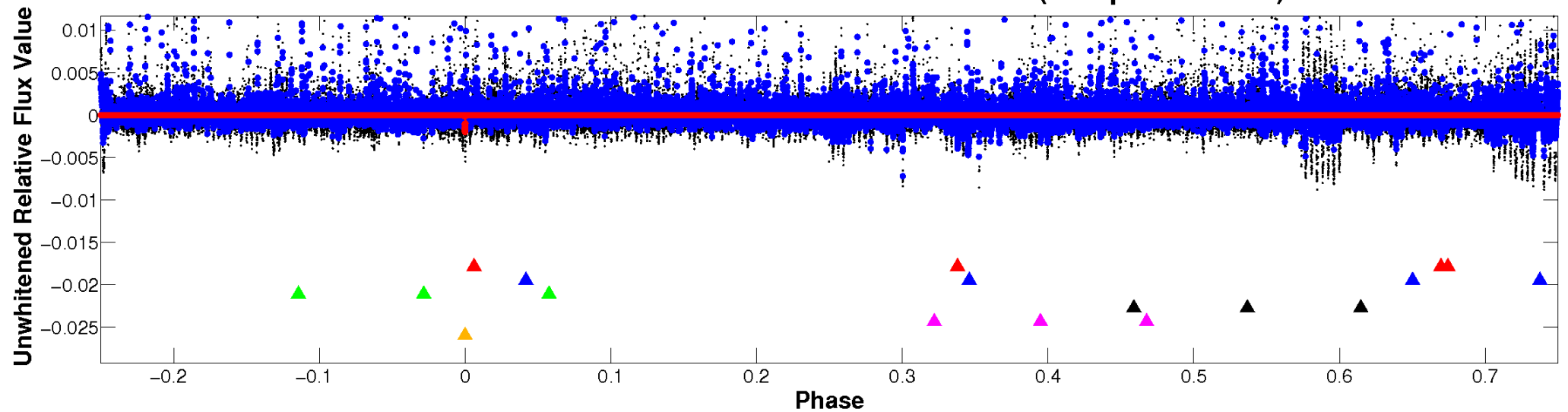
# ALT Odd/Even

TCE 005962532-06

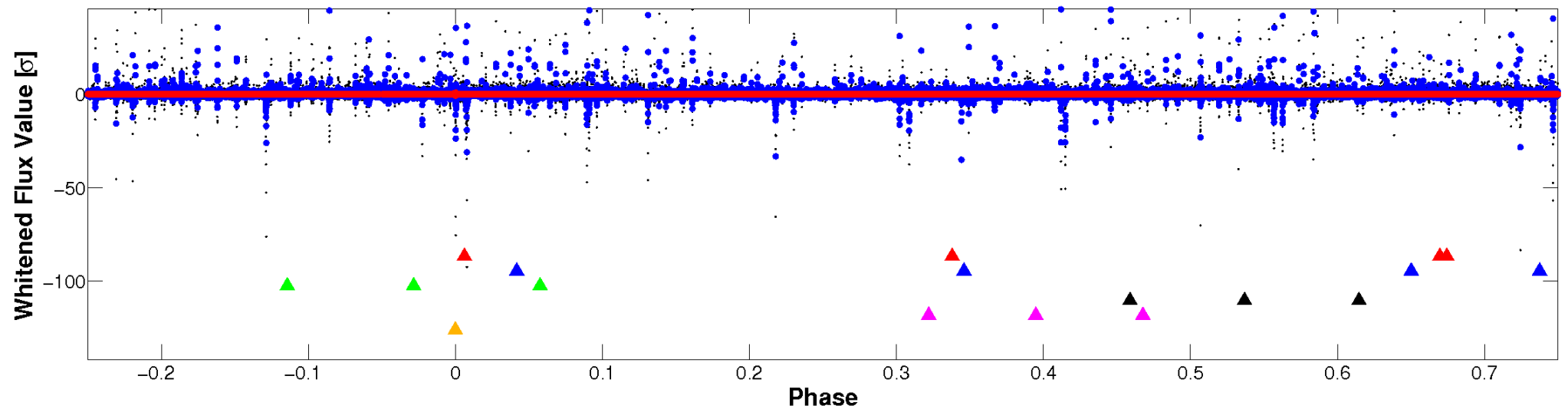


# Non-Whitened Vs. Whitened Light Curve

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

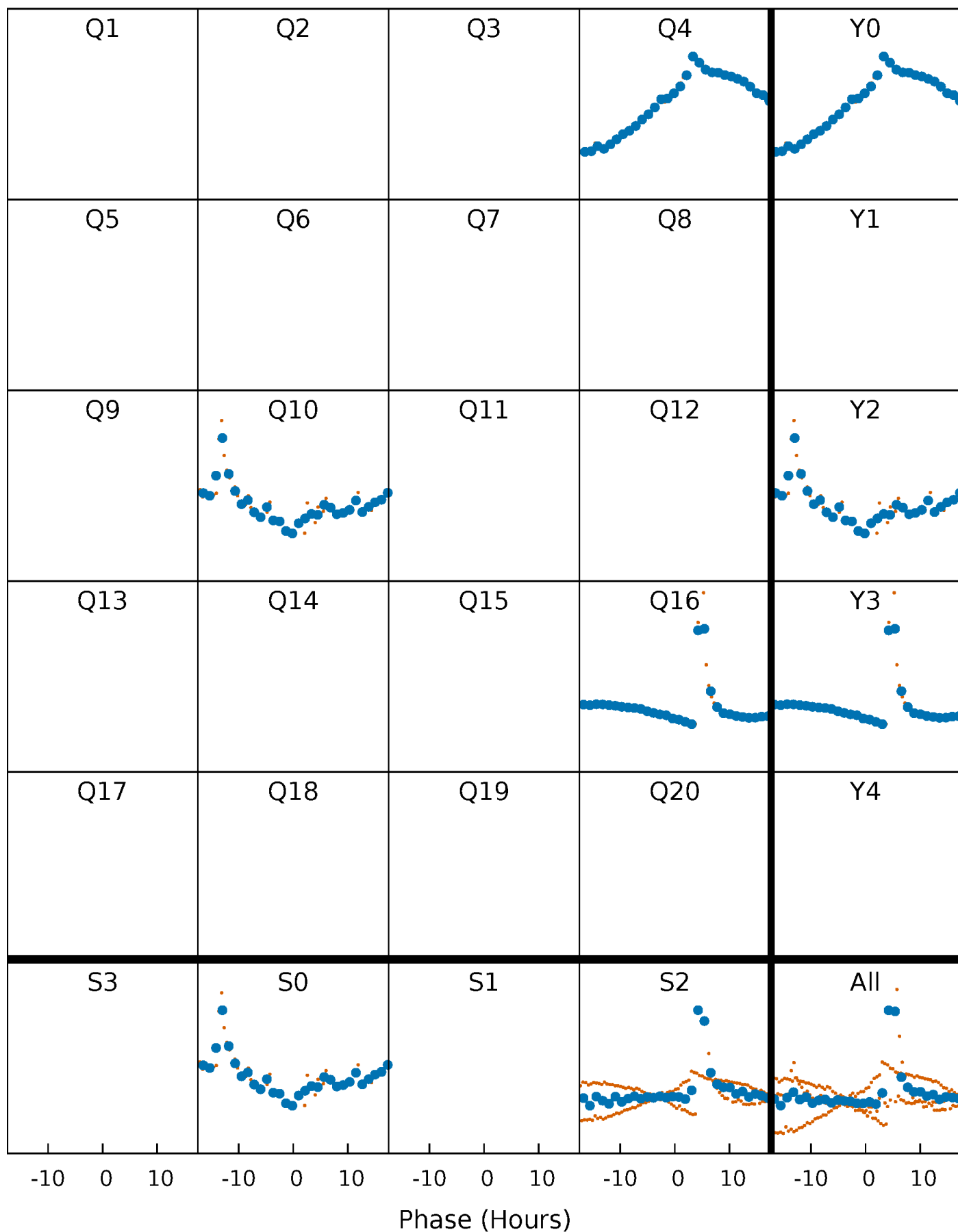


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

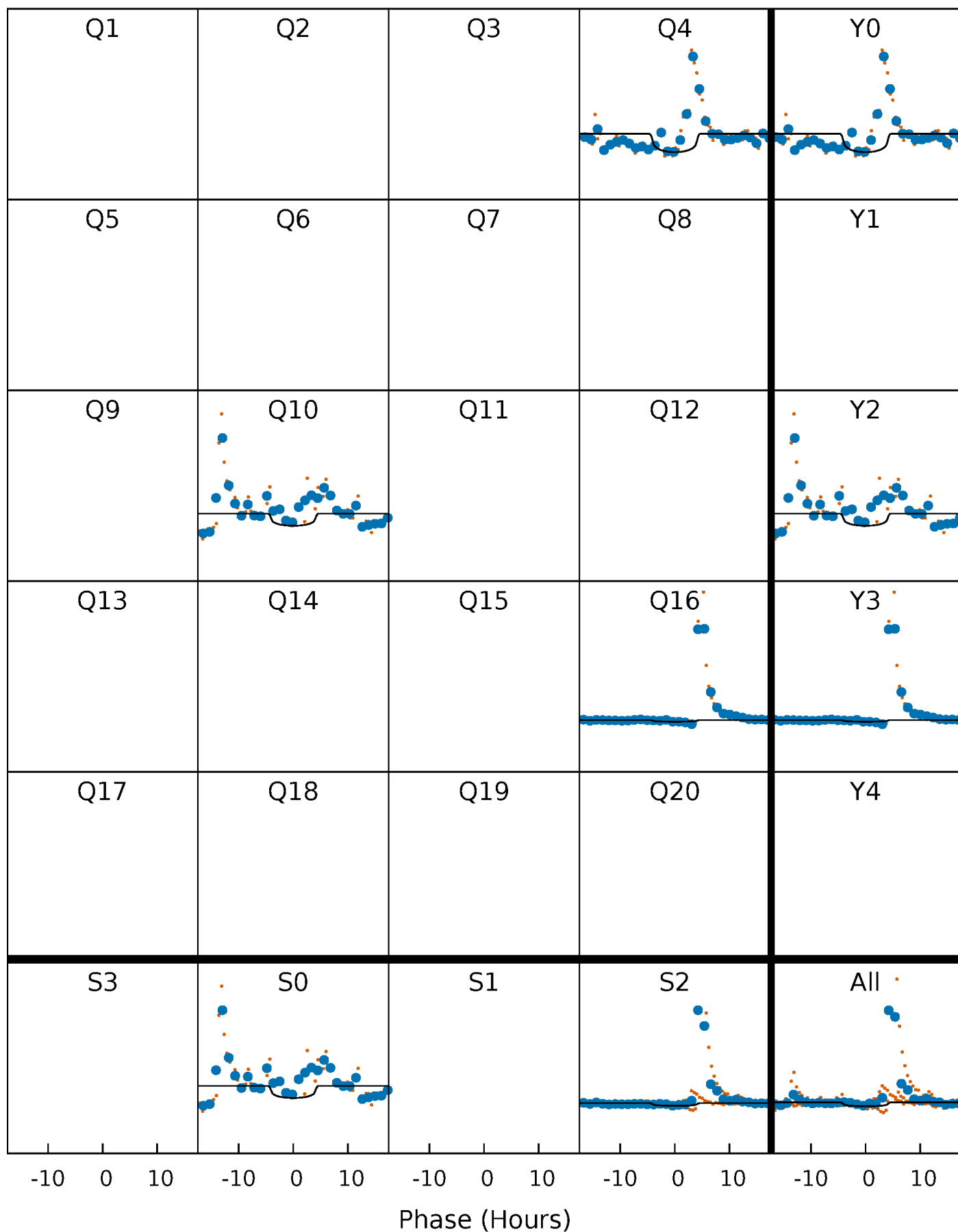
TCE 005962532-06 P=539.349907 Days  $T_0=425.360331$  (BKJD)





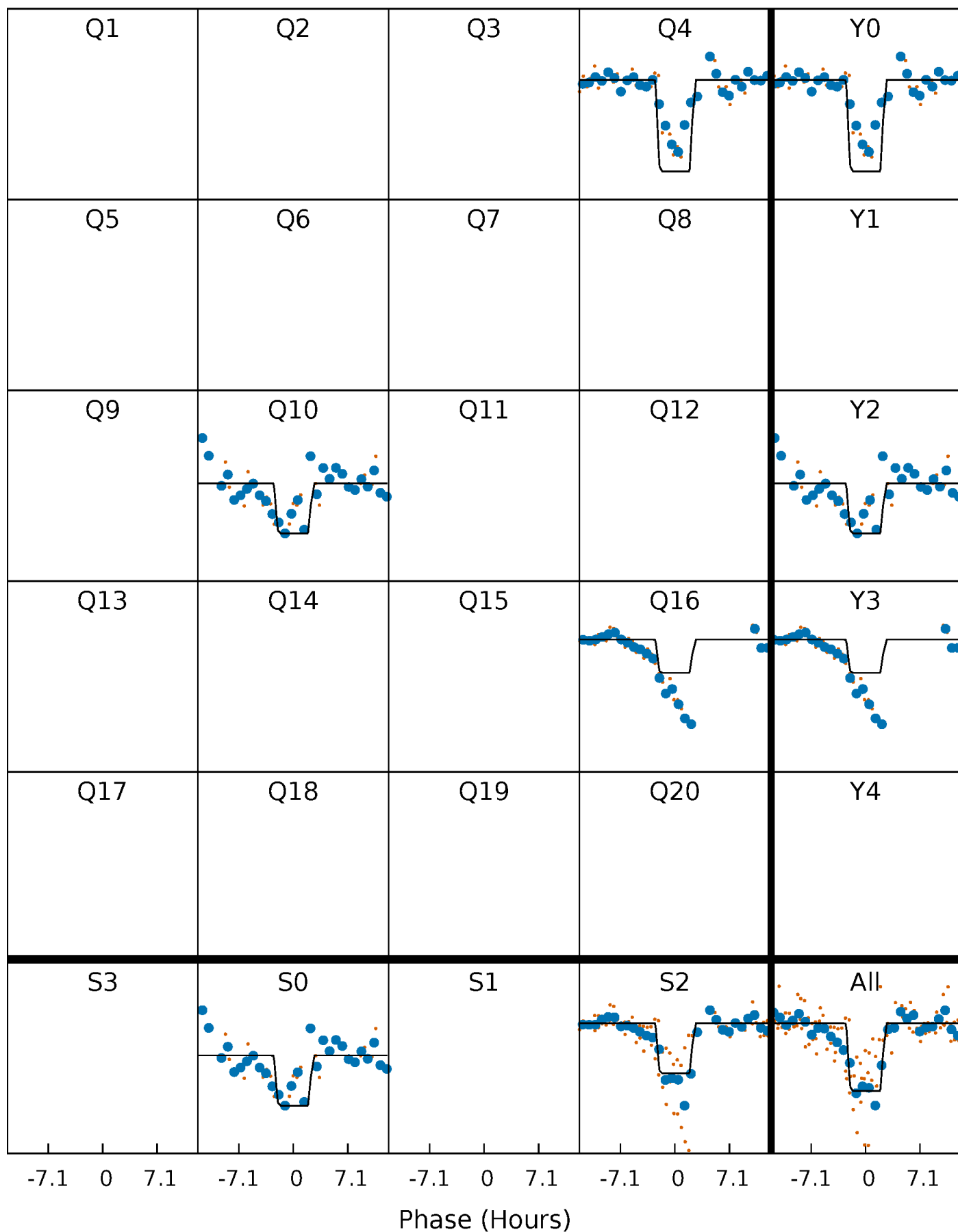
# DV Quarter-Phased Transit Curves

TCE 005962532-06 P=539.349907 Days  $T_0=425.360331$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

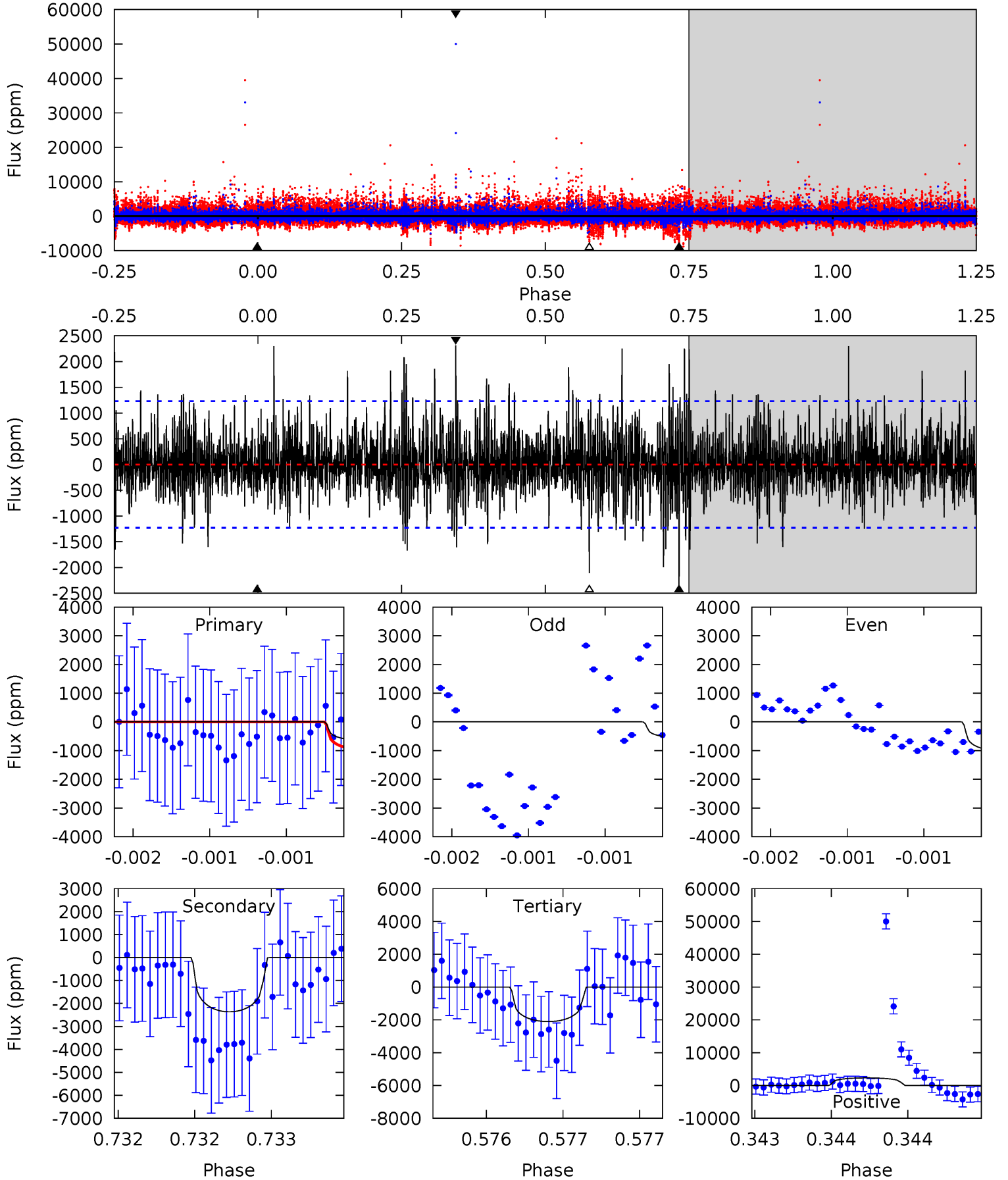
TCE 005962532-06 P=539.384683 Days  $T_0=425.351489$  (BKJD)



# DV Model-Shift Uniqueness Test

005962532-06, P = 539.349907 Days, E = 425.360331 Days

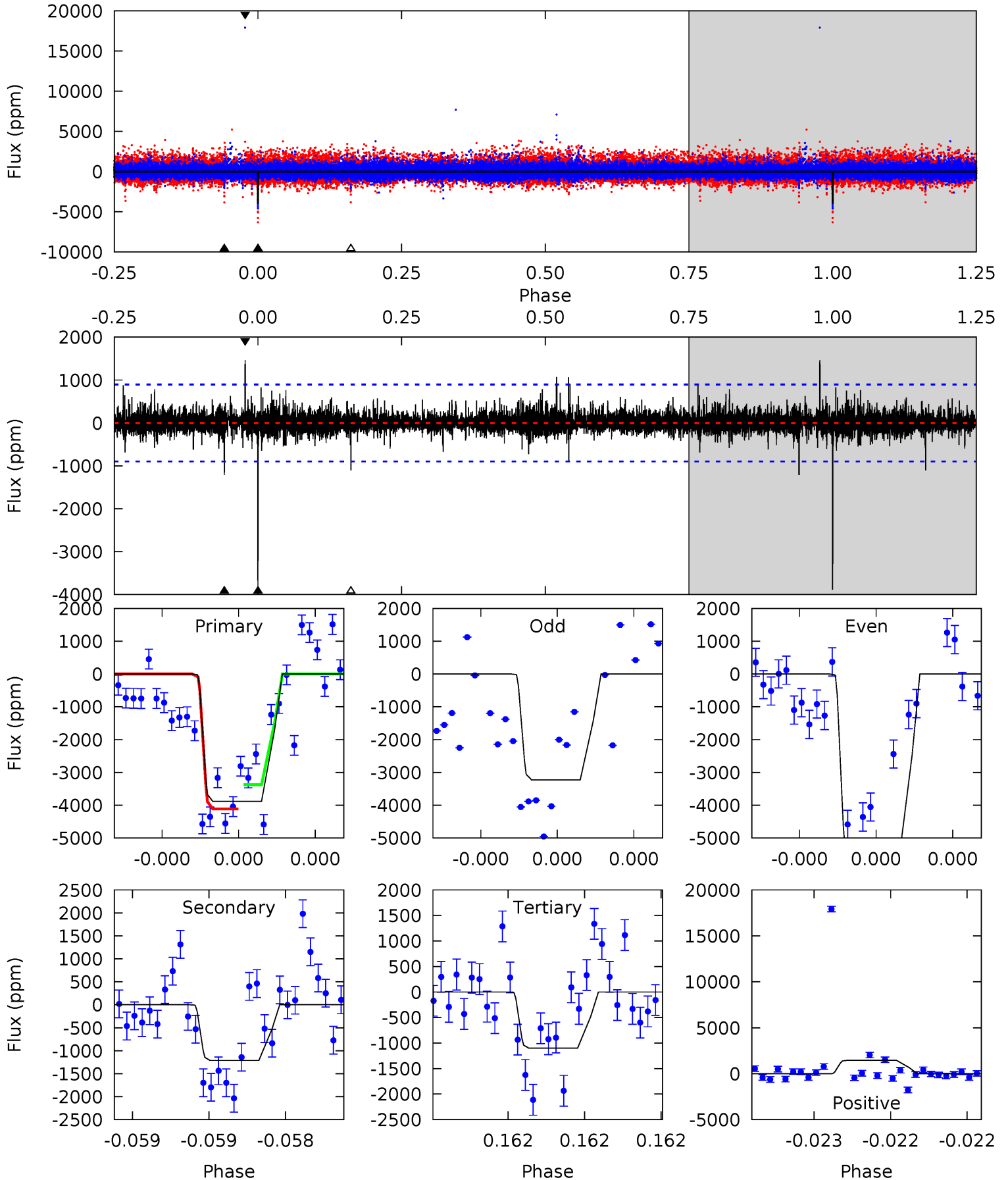
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 2.86 | 10.6 | 9.43 | 10.4 | 5.51            | 3.39            | 2.25             | -6.57   | -7.51   | 1.17    | 0.23    | 0.52    | 0.17 | 0.49  | 2.06 |



# Alt Model-Shift Uniqueness Test

005962532-06, P = 539.384683 Days, E = 425.351489 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 24.3 | 7.59 | 6.88 | 9.16 | 5.62            | 3.56            | 0.96             | 17.4    | 15.2    | 0.70    | -1.57   | 6.78    | 1.73 | 0.27  | 2.05 |



### Stellar Parameters For KIC 005962532

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5065^{+166}_{-151}$ | $4.612^{+0.061}_{-0.044}$ | $-0.600^{+0.300}_{-0.300}$ | $0.664^{+0.070}_{-0.059}$ | $0.658^{+0.079}_{-0.036}$ | $3.168^{+0.805}_{-0.535}$                 |
|        | +3%/-3%              | +1%/-1%                   | +50%/-50%                  | +11%/-9%                  | +12%/-5%                  | +25%/-17%                                 |
| 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 005962532-06 / KOI

| Detrend | Depth (ppm)     | $R_p (R_{\oplus})$     | $T_{max} (K)$   | $T_{obs} (K)$         | $A_{obs}$                  |
|---------|-----------------|------------------------|-----------------|-----------------------|----------------------------|
| DV      | $-2365 \pm 223$ | $8.50^{+9.60}_{-6.13}$ | $239^{+9}_{-9}$ | $3689^{+2365}_{-803}$ | $23332^{+275994}_{-18342}$ |
| Alt.    | $-1213 \pm 160$ | $9.89^{+8.83}_{-6.60}$ | $239^{+9}_{-9}$ | $3125^{+1476}_{-502}$ | $8651^{+77076}_{-6213}$    |

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

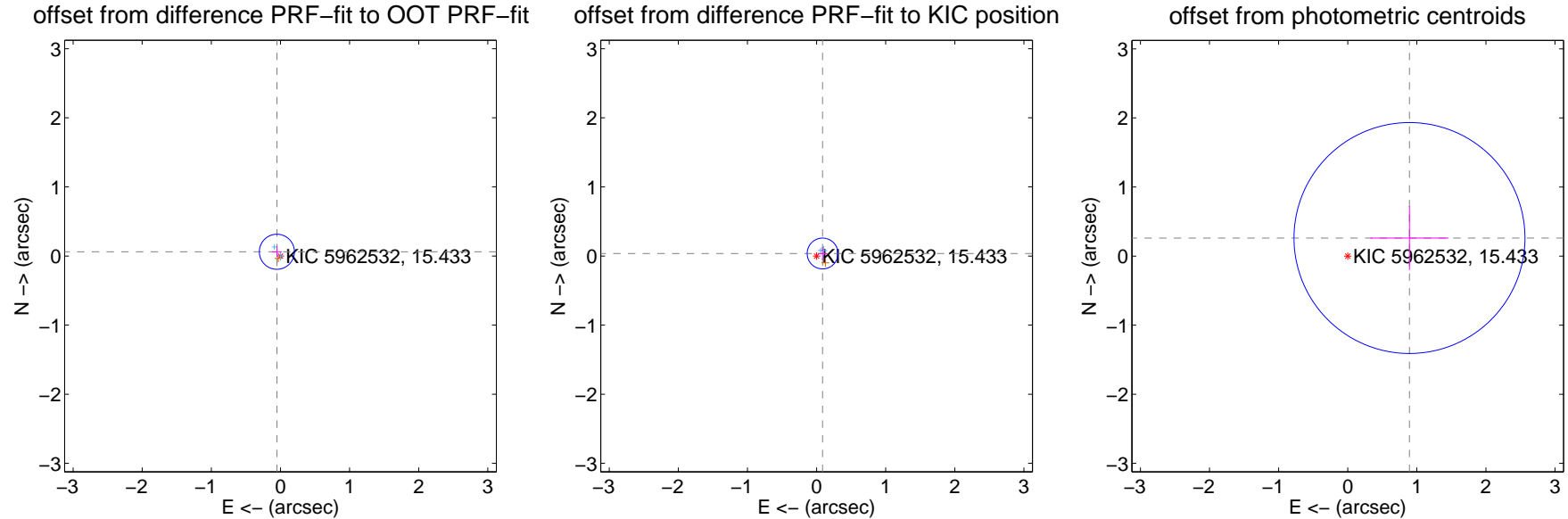
## DV Centroid Data

Supplemental centroid analysis for 005962532-06. Kepler magnitude: 15.43. Transit SNR 4.98

There are 2 quarters with good PRF difference image offsets

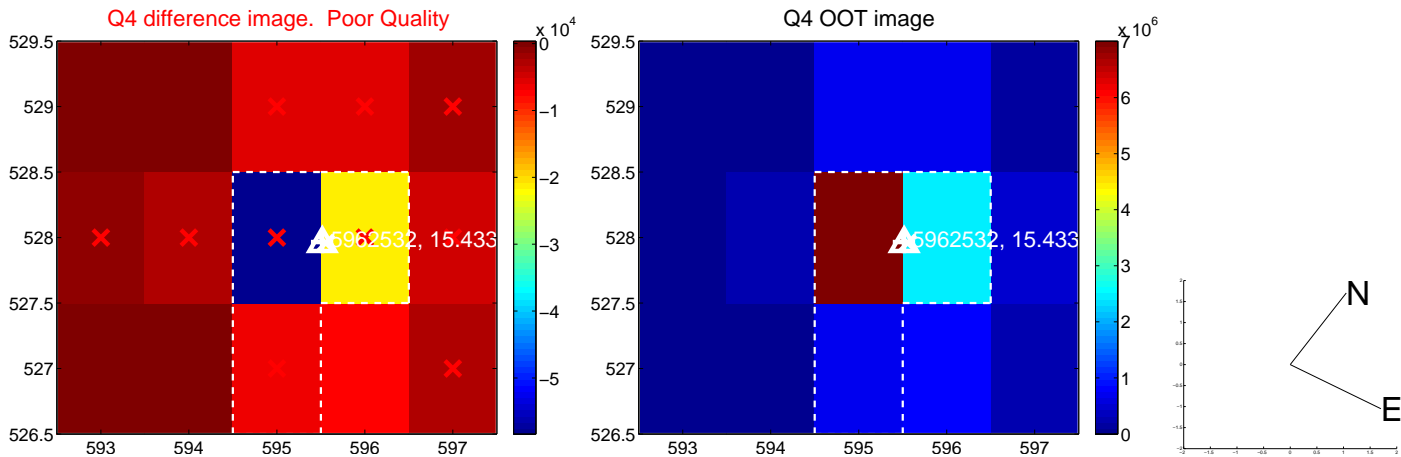
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | $0.080 \pm 0.085$  | 0.95                | $0.052 \pm 0.071$  | $0.062 \pm 0.082$ |
| PRF-fit source offset from KIC position | $0.094 \pm 0.074$  | 1.27                | $-0.087 \pm 0.071$ | $0.036 \pm 0.092$ |
| photometric centroid source offset      | $0.93 \pm 0.56$    | 1.67                | $-0.89 \pm 0.56$   | $0.26 \pm 0.46$   |



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.

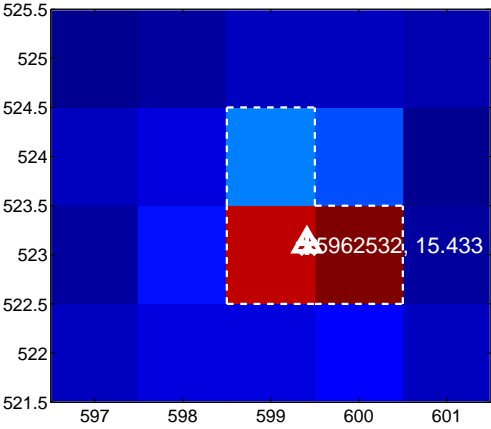
Q9 no difference image



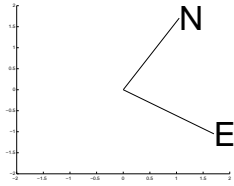
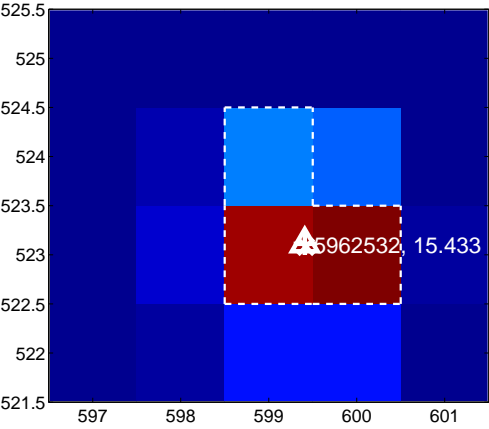
Q9 no OOT image



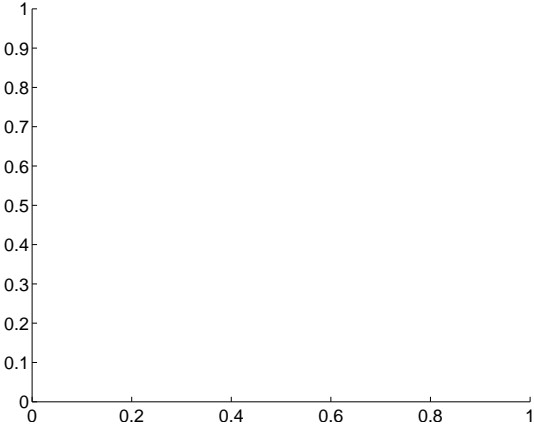
Q10 difference image



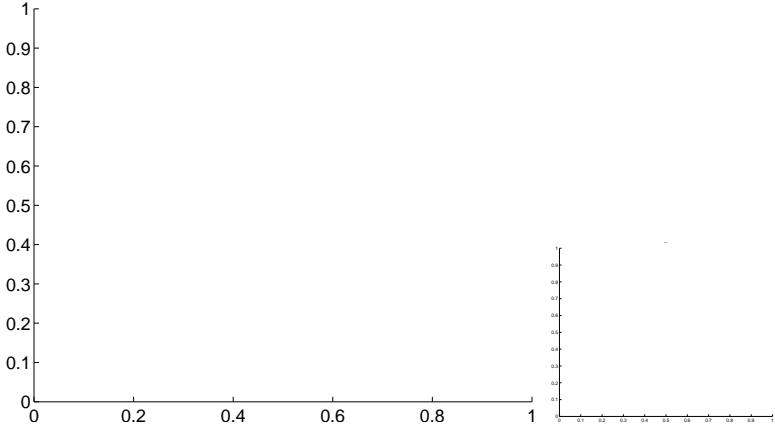
Q10 OOT image



Q11 no difference image



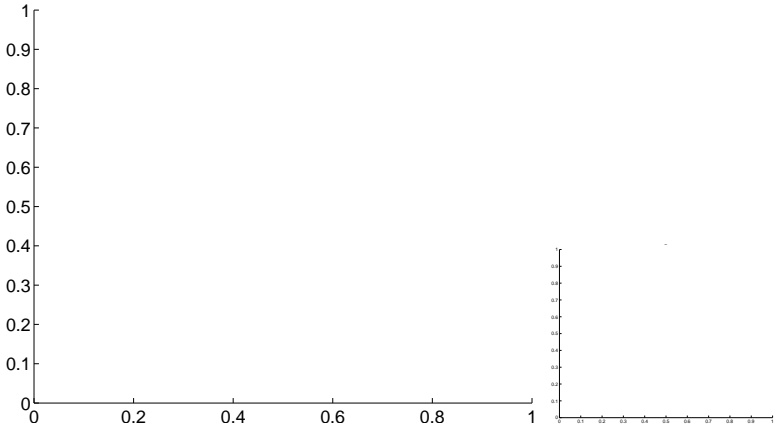
Q11 no OOT image



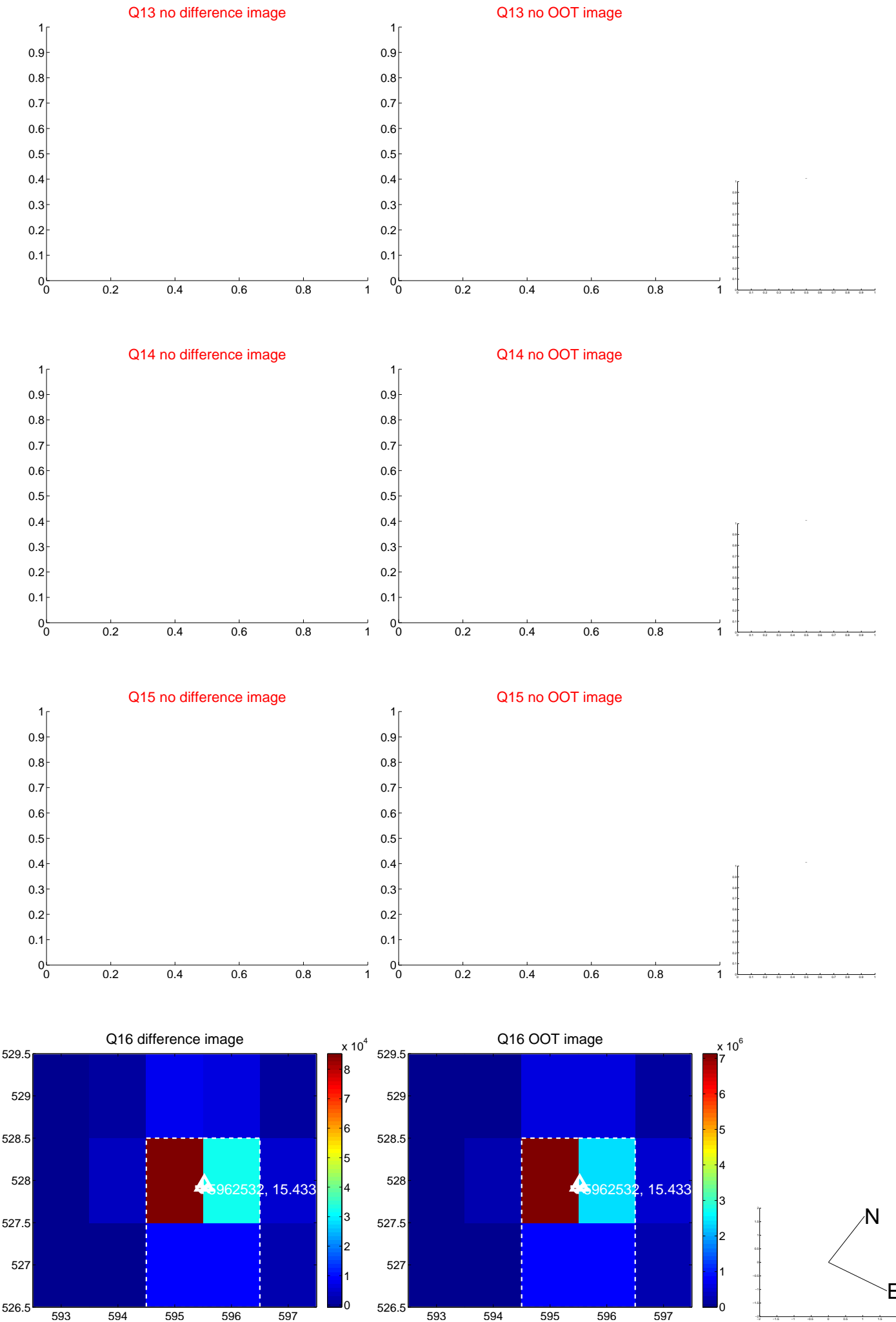
Q12 no difference image



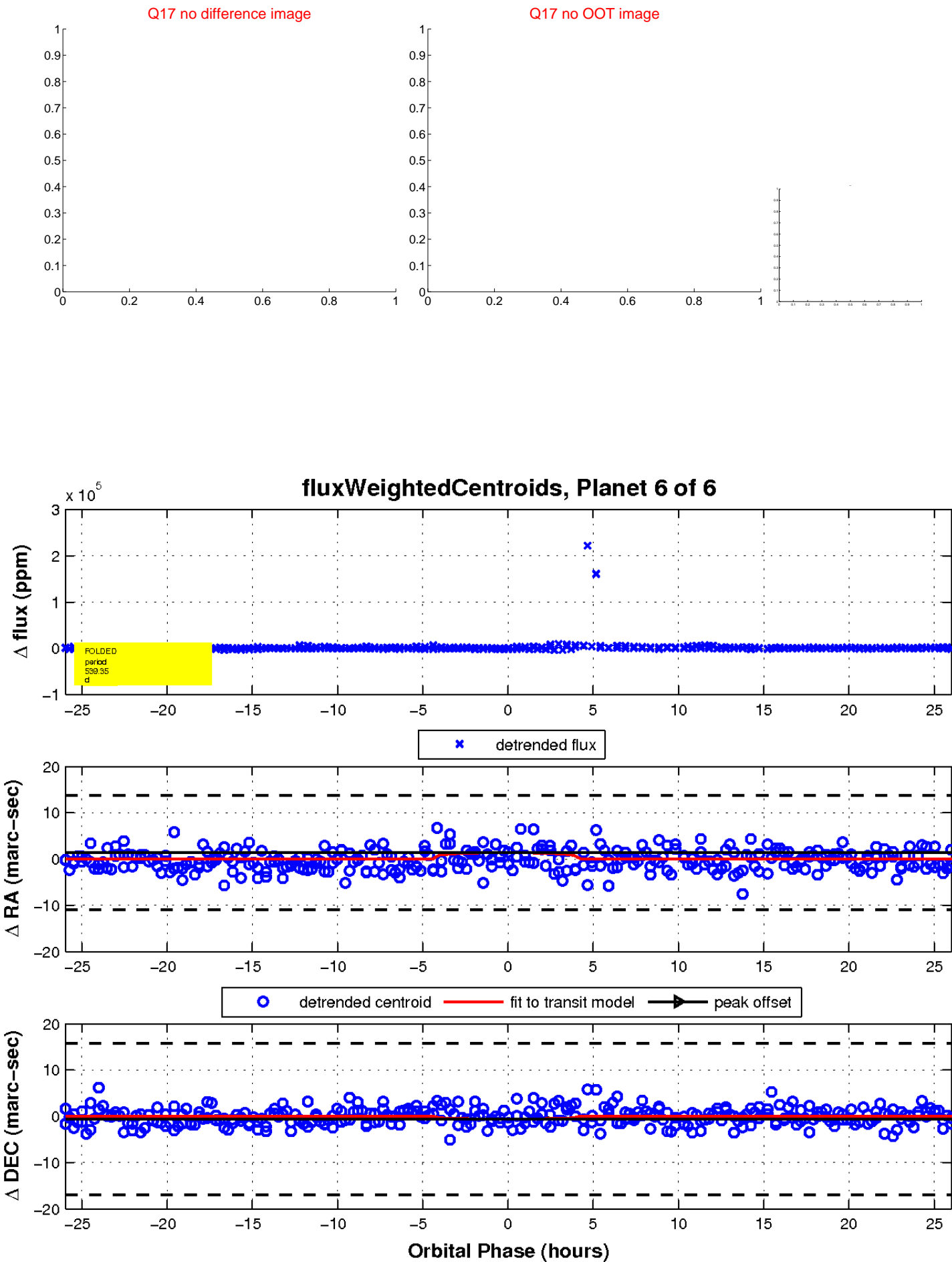
Q12 no OOT image



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image

Declination

