

# KIC 008518426

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 008518426-01 | OBS      | No   | 2.171834      | 133.302795   | 31.0        | 9.367            | 9.7  | 7.2  | 3.75                        | 5916            | 2.08                   | 10666.03               |
| 008518426-02 | OBS      | No   | 2.172077      | 131.775130   | 13.4        | 6.148            | 12.7 | 3.4  | 3.75                        | 5916            | 1.59                   | 10664.44               |
| 008518426-03 | OBS      | No   | 2.172169      | 131.879671   | 124.3       | 26.066           | 11.1 | 15.9 | 3.75                        | 5916            | 4.54                   | 10663.84               |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 008518426-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT  |
| 008518426-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD        |
| 008518426-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—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.

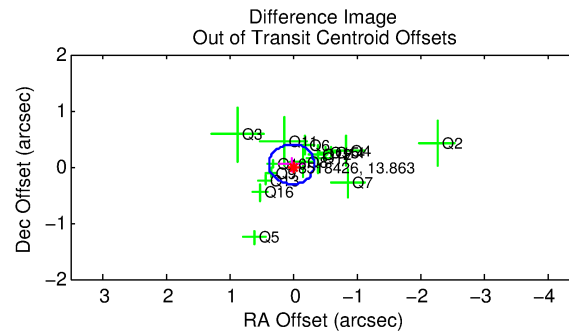
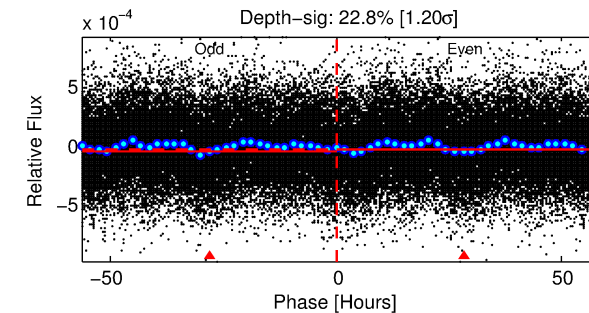
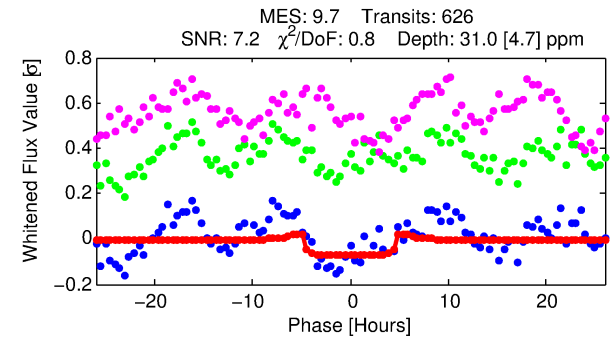
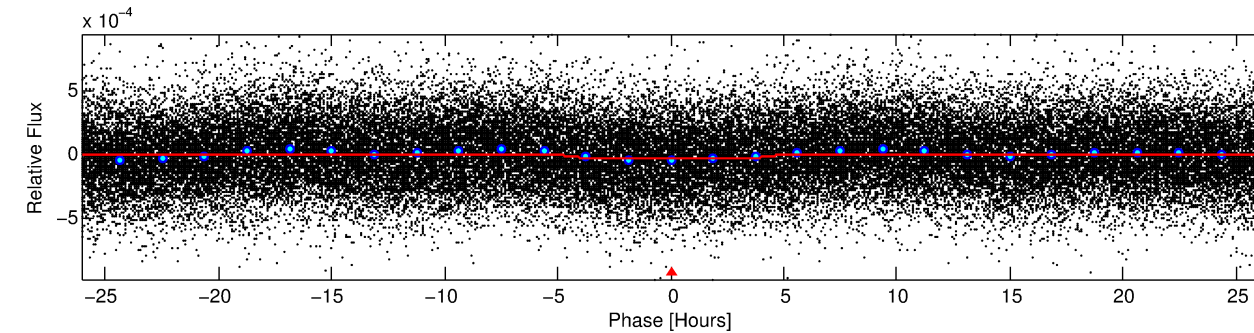
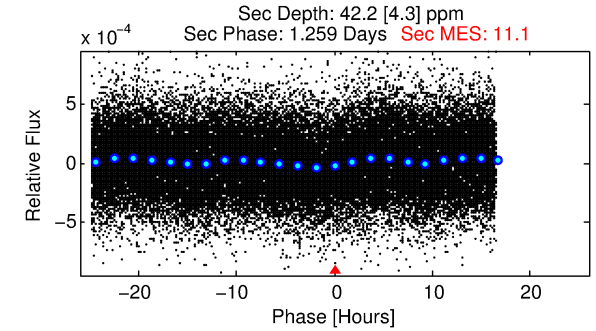
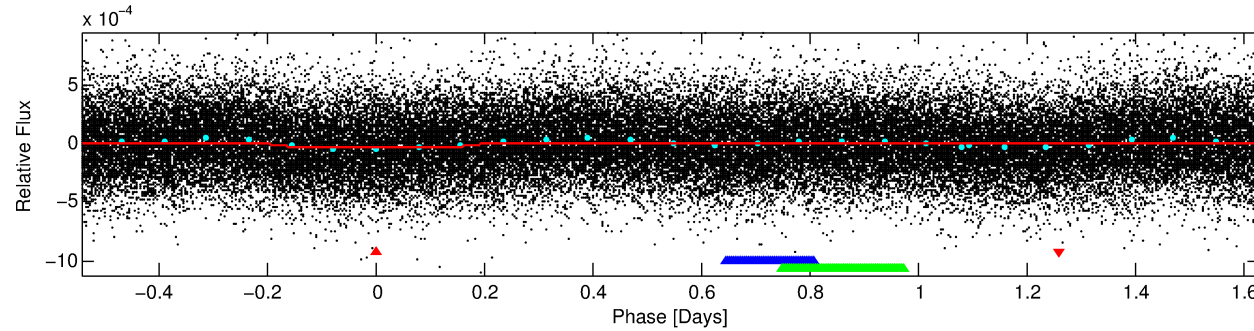
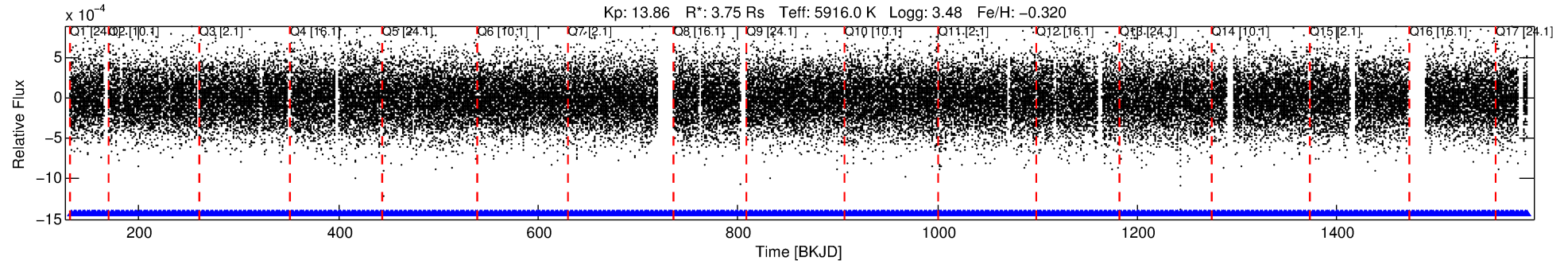
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008518426-01

No Significant Match Found

# DV One-Page Summary

KIC: 8518426 Candidate: 1 of 3 Period: 2.172 d



## DV Fit Results:

Period = 2.17183 [0.00003] d  
Epoch = 133.3028 [0.0079] BKJD  
Rp/R\* = 0.0051 [0.0061]  
a/R\* = 1.88 [7.77]  
b = 0.00 [4722.30]  
Seff = 10666.03 [13885.44]  
Teff = 2591 [843] K  
Rp = 2.08 [2.87] Re  
a = 0.0380 [0.0287] AU  
Ag = 7.76 [21.19] [0.32σ]  
Teffp = 6687 [4030] K [0.99σ]

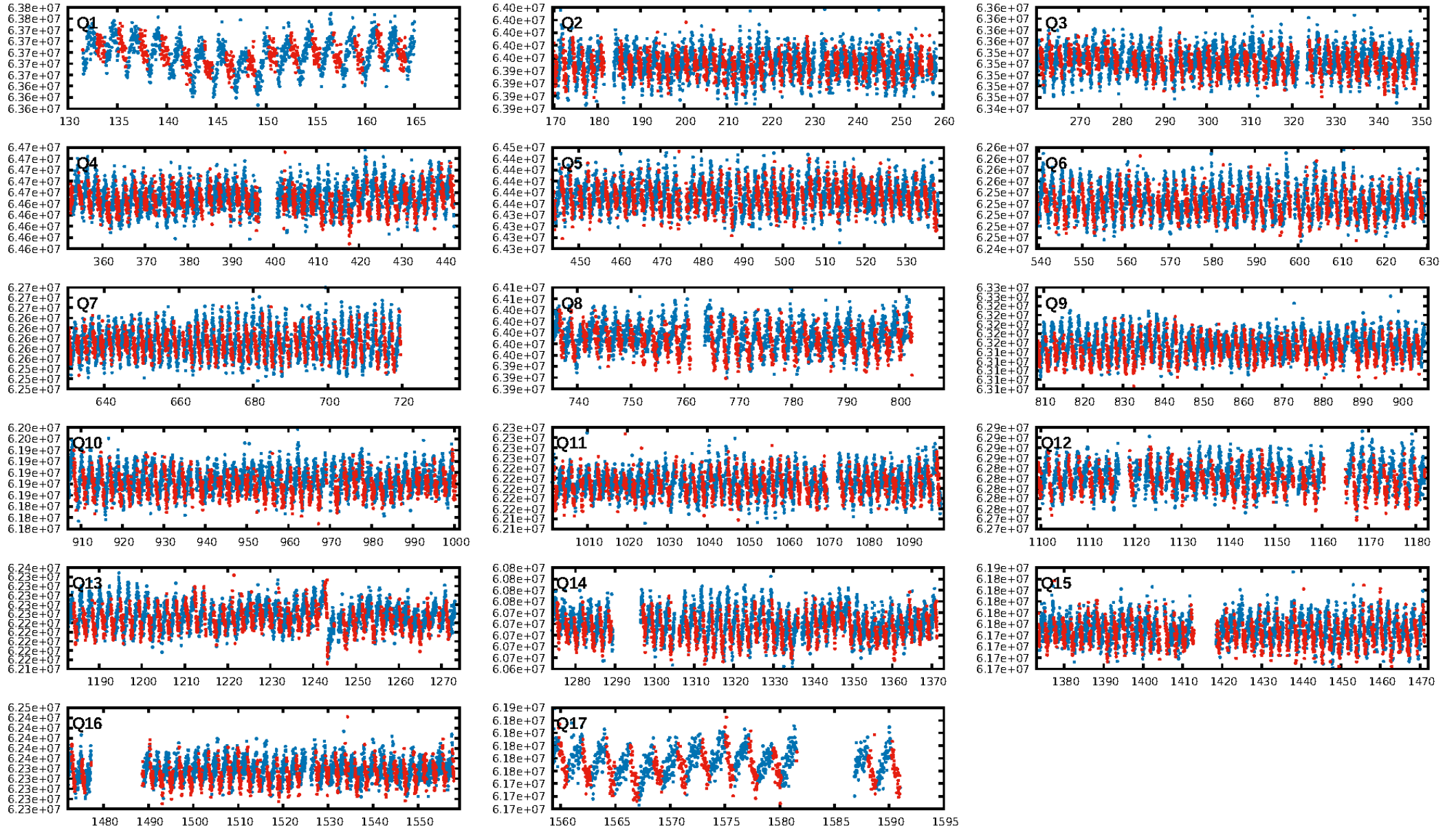
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
**LongPeriod-sig: 0.0% [0.00σ]**  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [599/599]  
GhostDiagnostic-chr: 1.193  
Centroid-sig: 28.0%  
Centroid-so: 1.199 arcsec [1.09σ]  
OotOffset-rm: 0.047 arcsec [0.40σ]  
KicOffset-rm: 0.026 arcsec [0.21σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 0.00 [0/17]

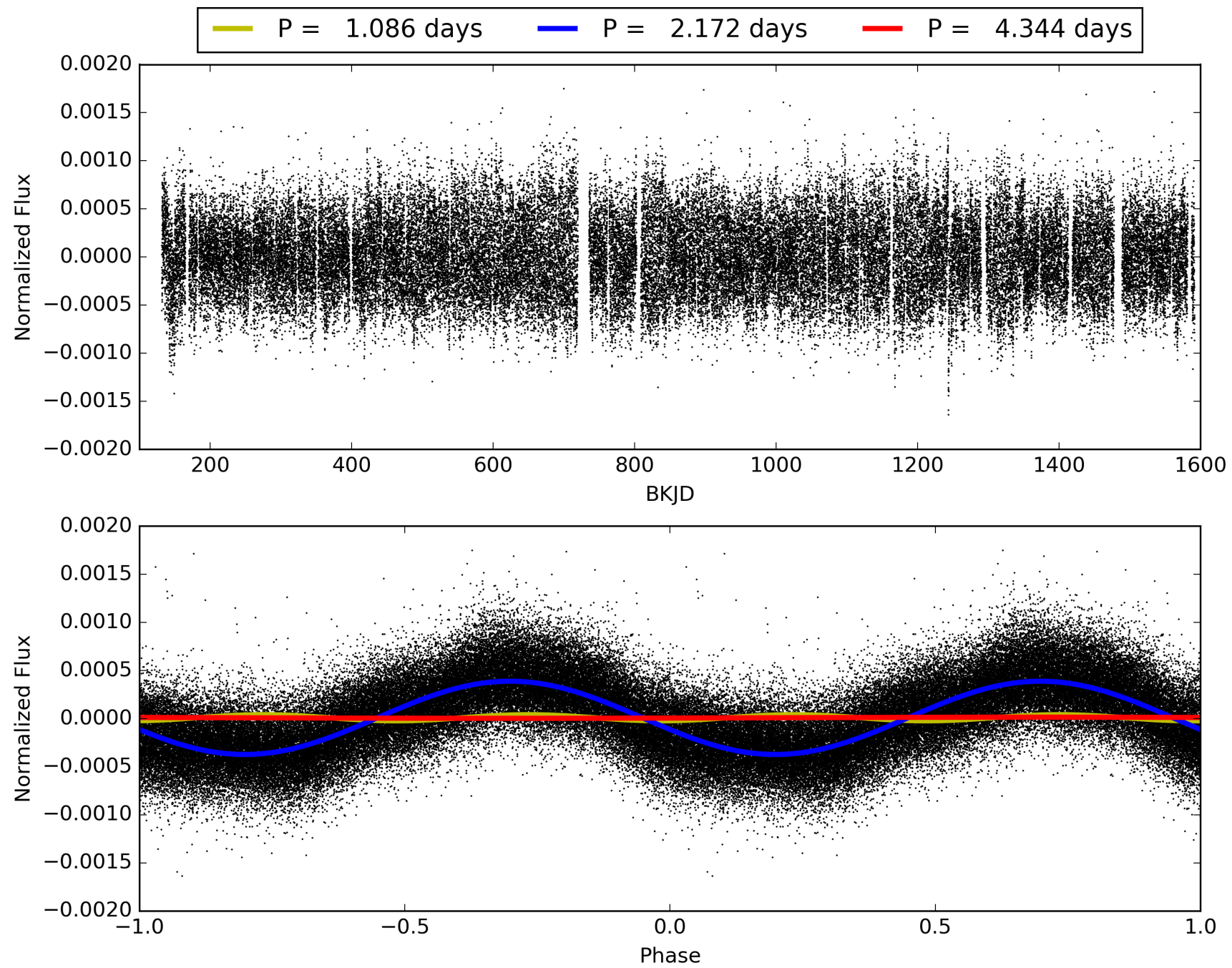
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:41:23 Z

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

# TCE 008518426-01, PDC Light Curves



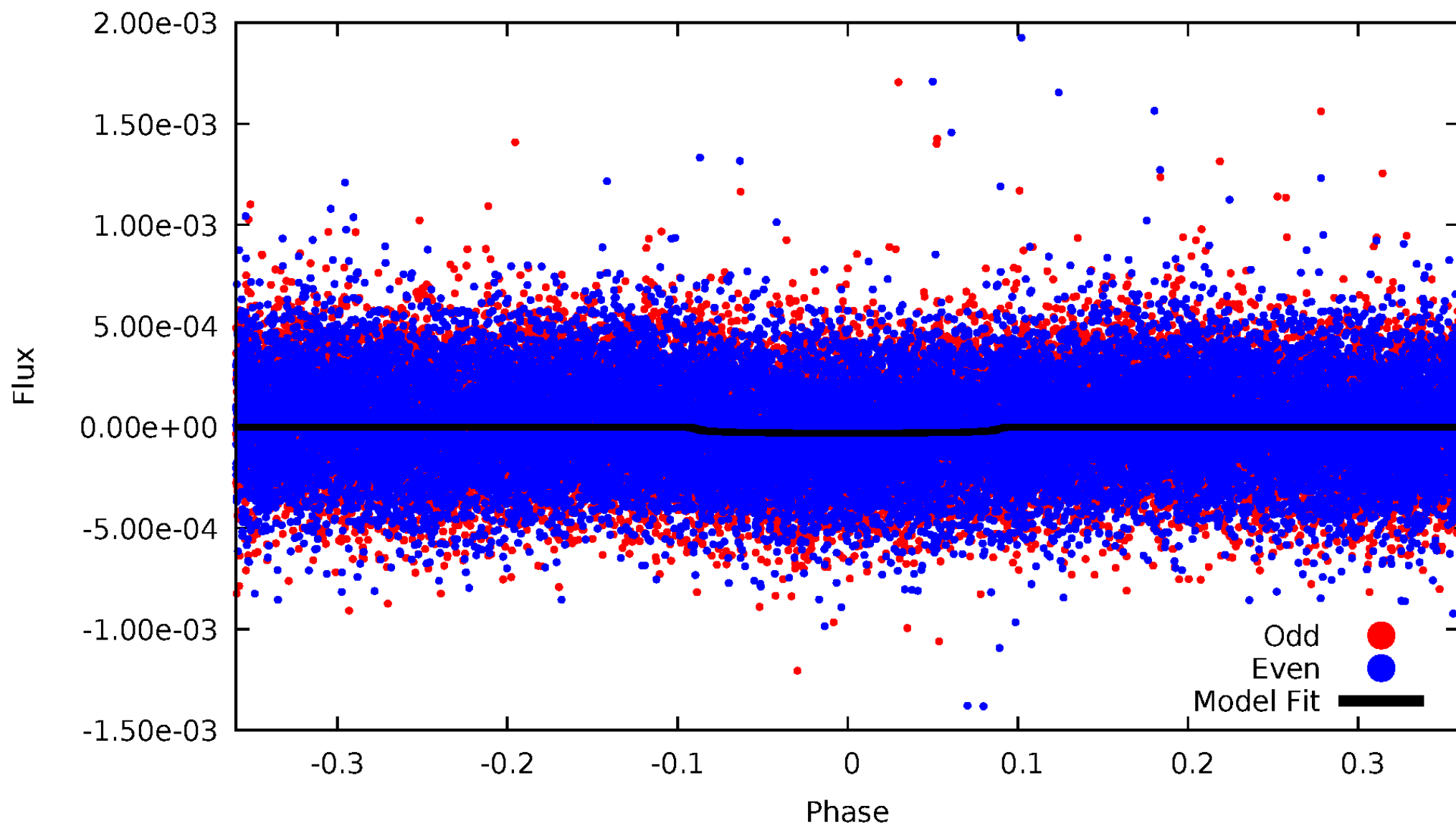
# TCE 008518426-01





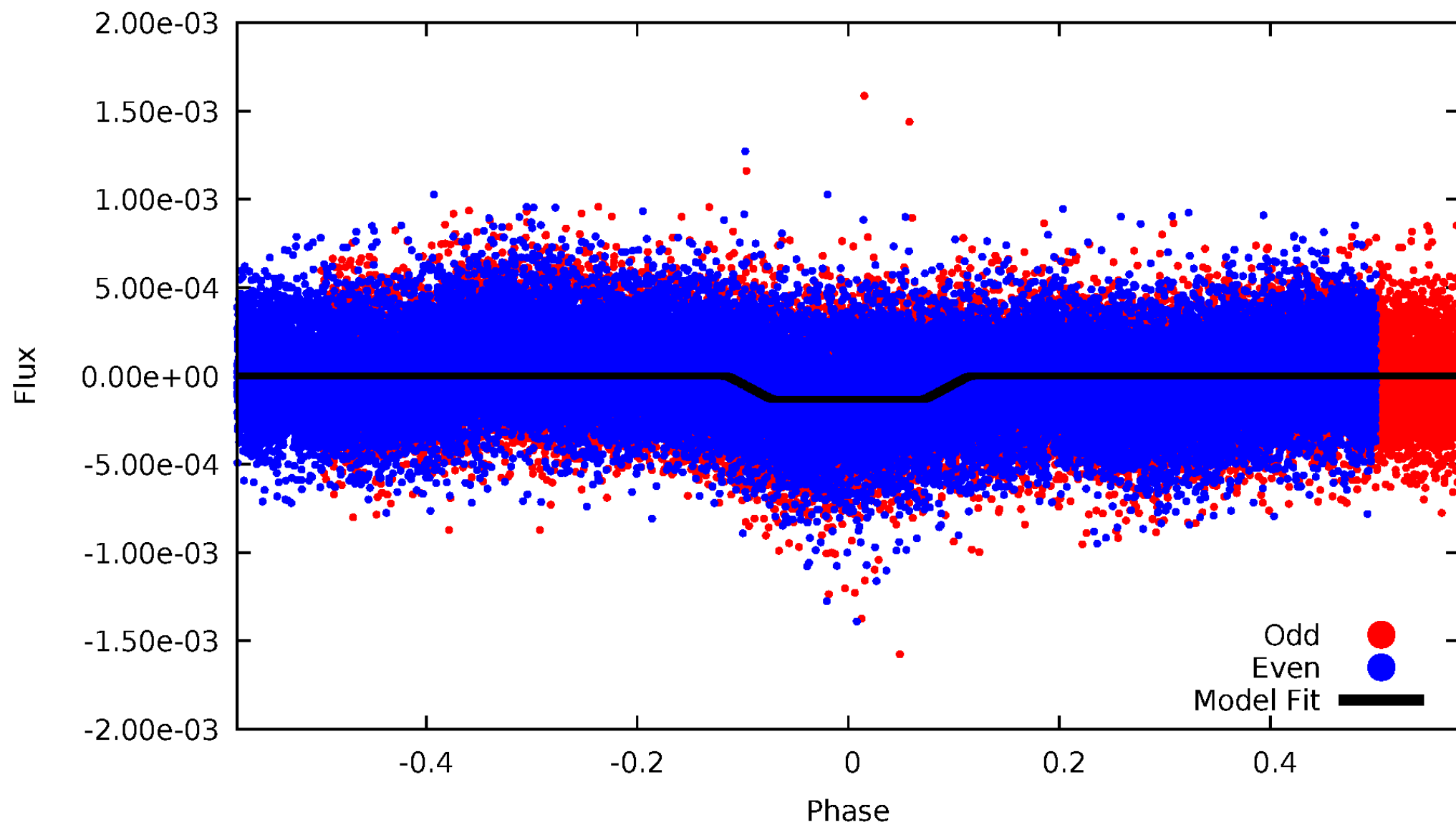
# DV Odd/Even

TCE 008518426-01

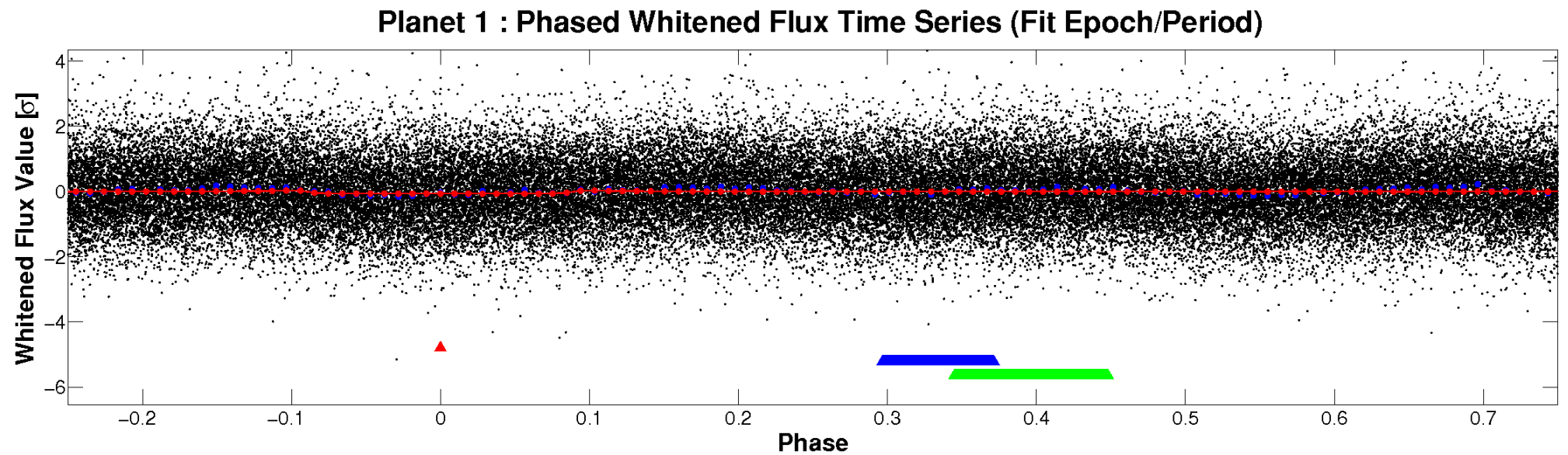
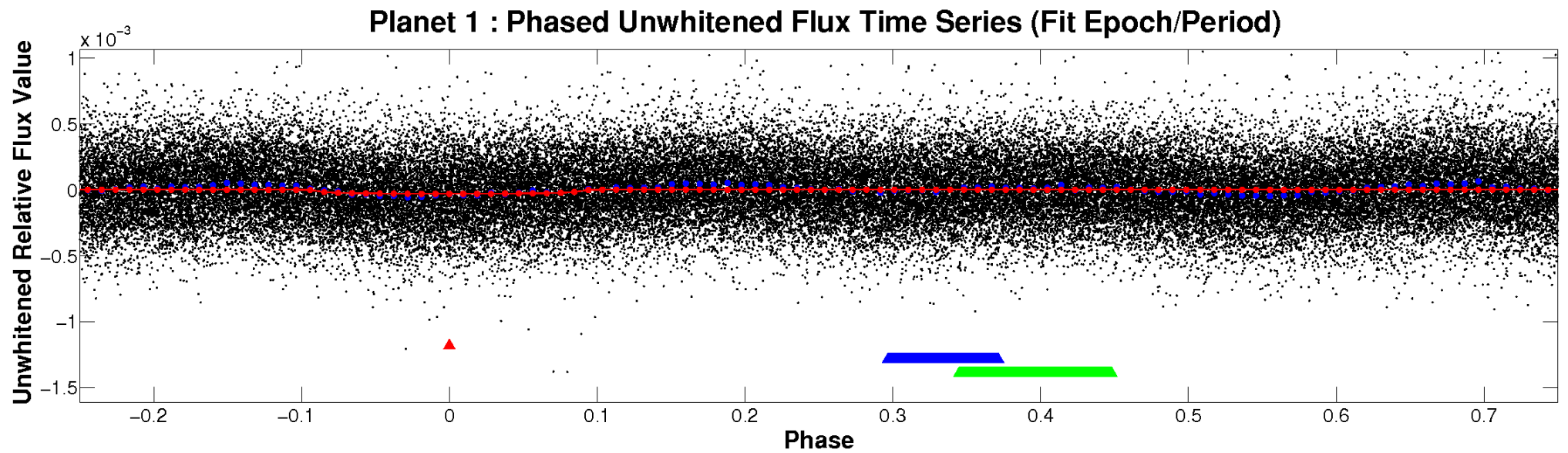


# ALT Odd/Even

TCE 008518426-01

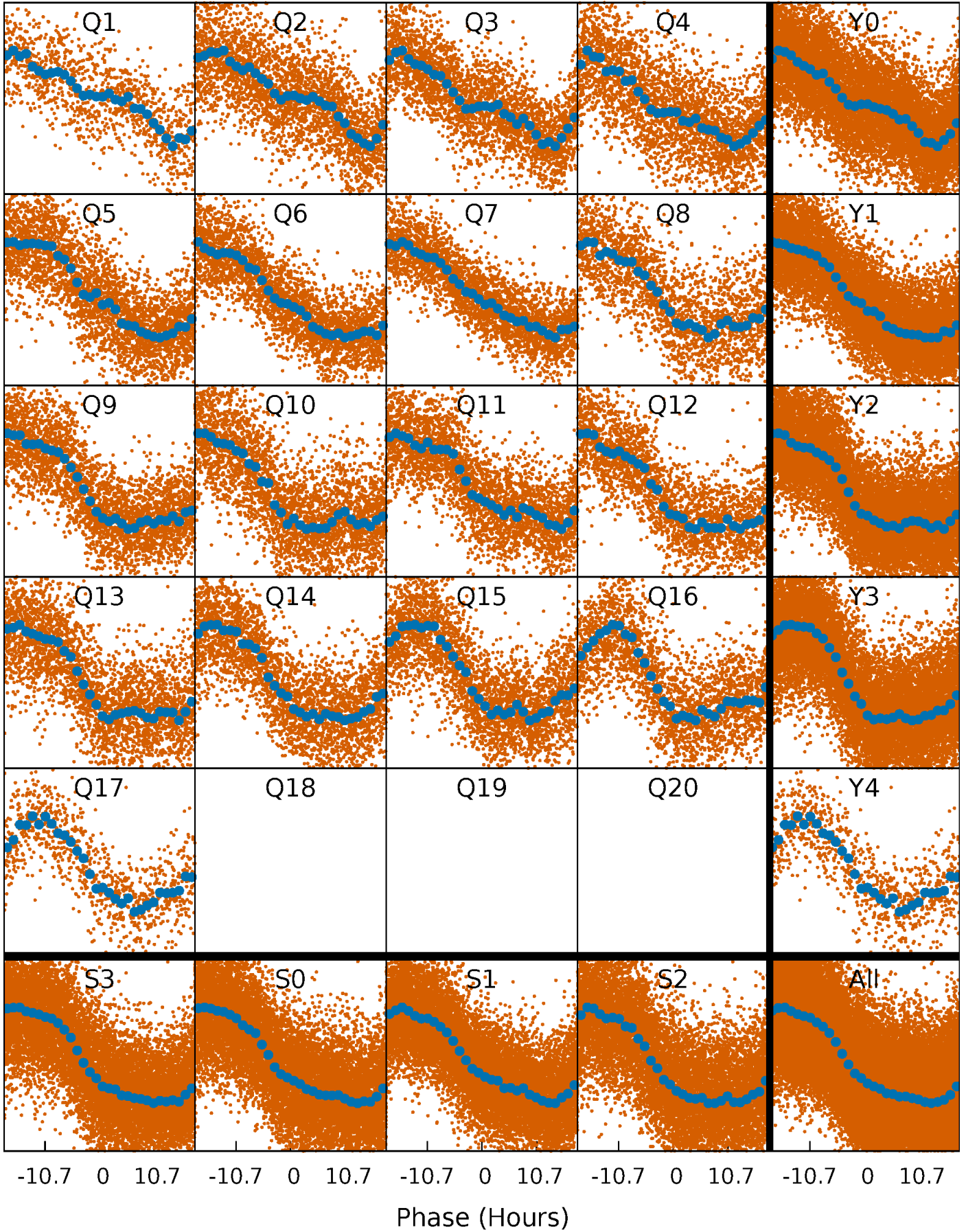


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

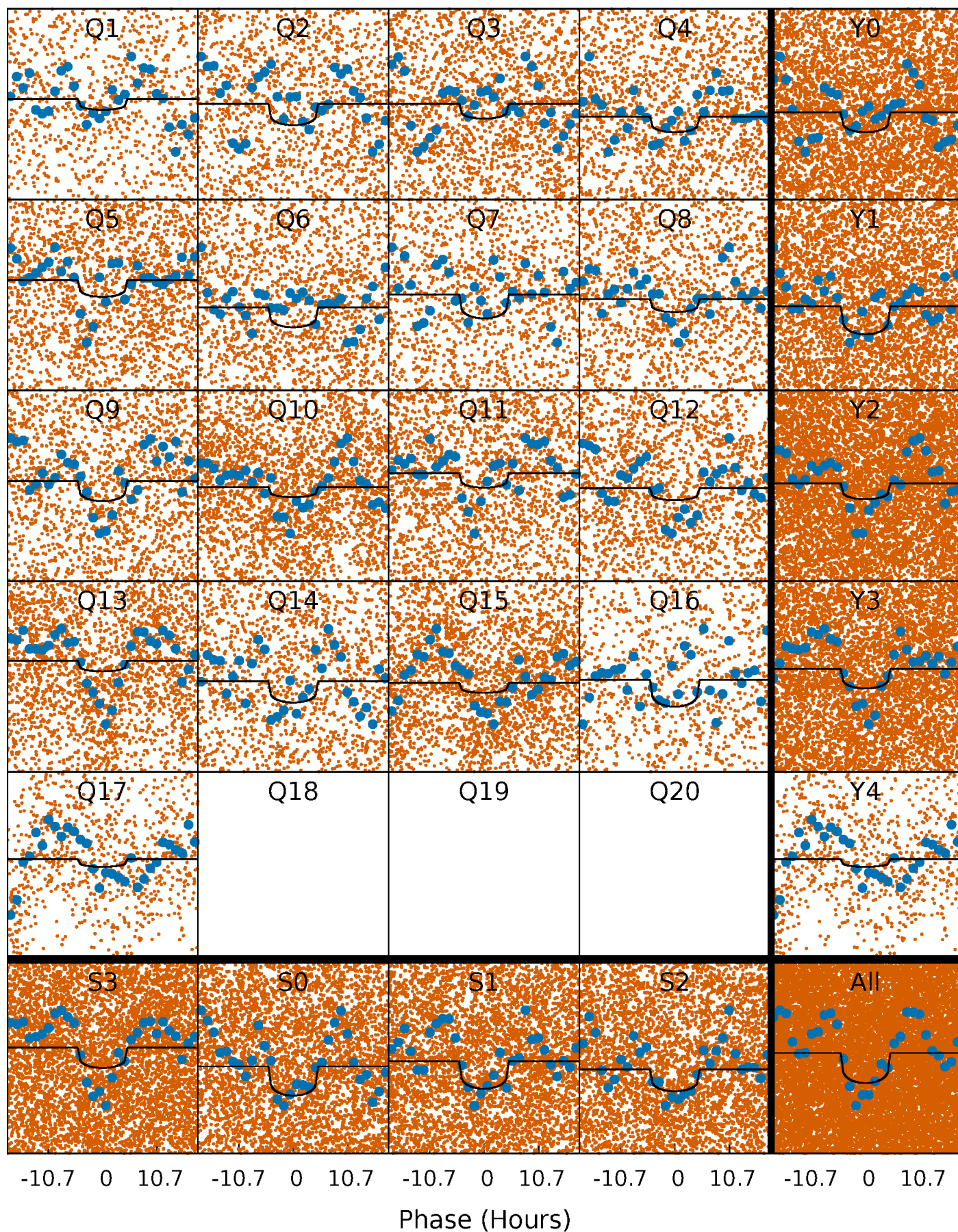
TCE 008518426-01 P= 2.171834 Days  $T_0=133.302795$  (BKJD)





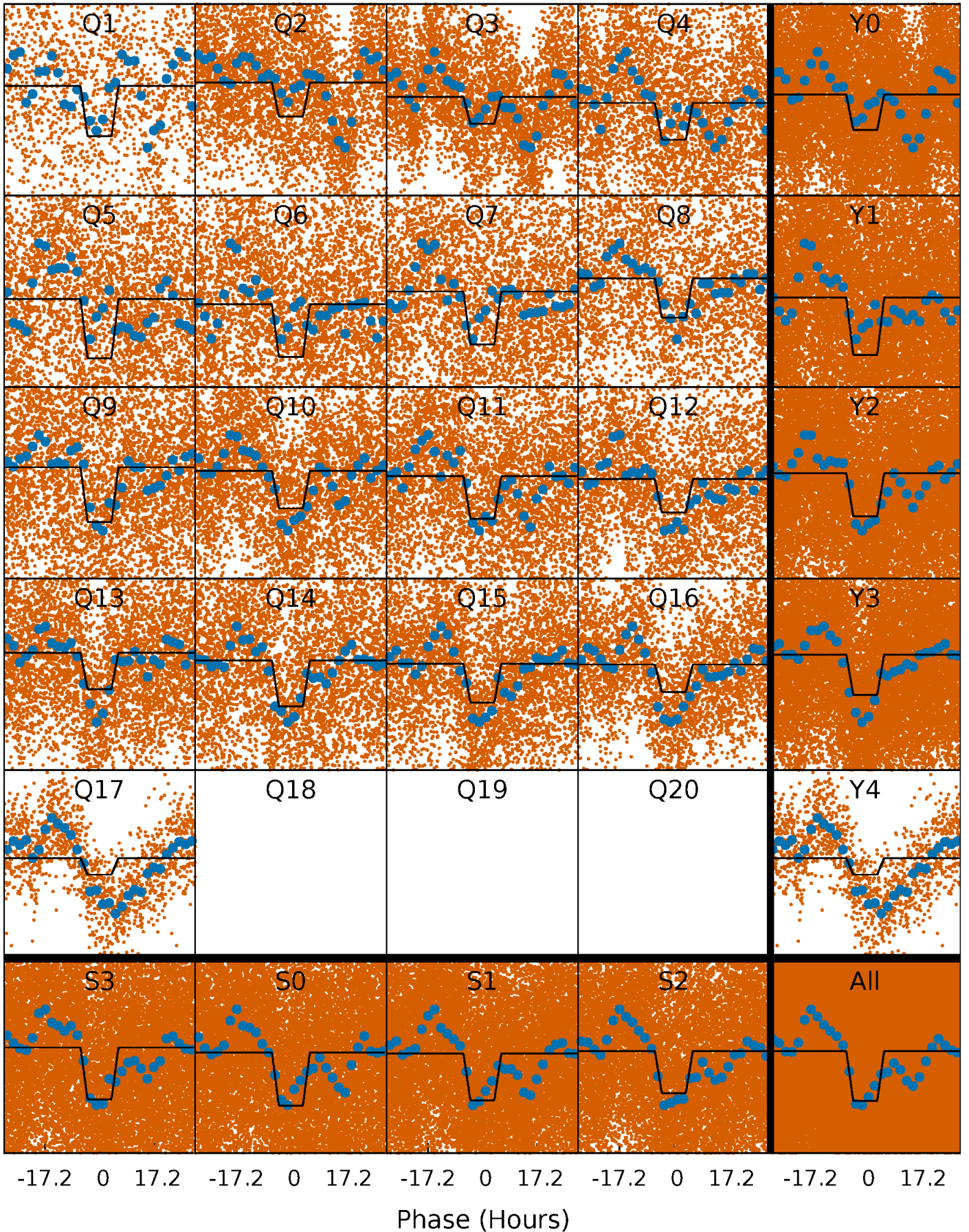
# DV Quarter-Phased Transit Curves

TCE 008518426-01 P= 2.171834 Days  $T_0=133.302795$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008518426-01 P= 2.172047 Days  $T_0=133.248048$  (BKJD)

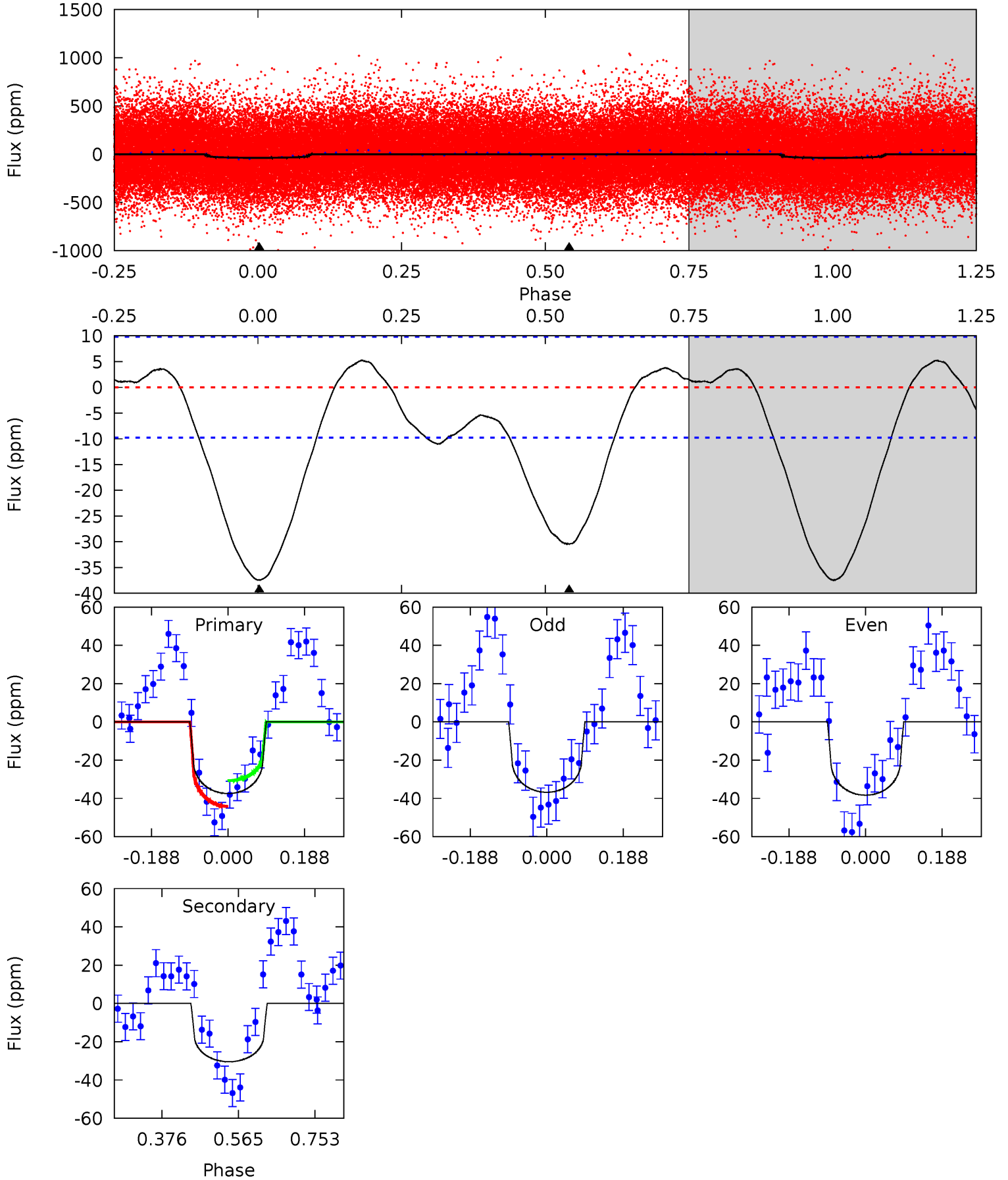




# DV Model-Shift Uniqueness Test

008518426-01, P = 2.171834 Days, E = 131.130961 Days

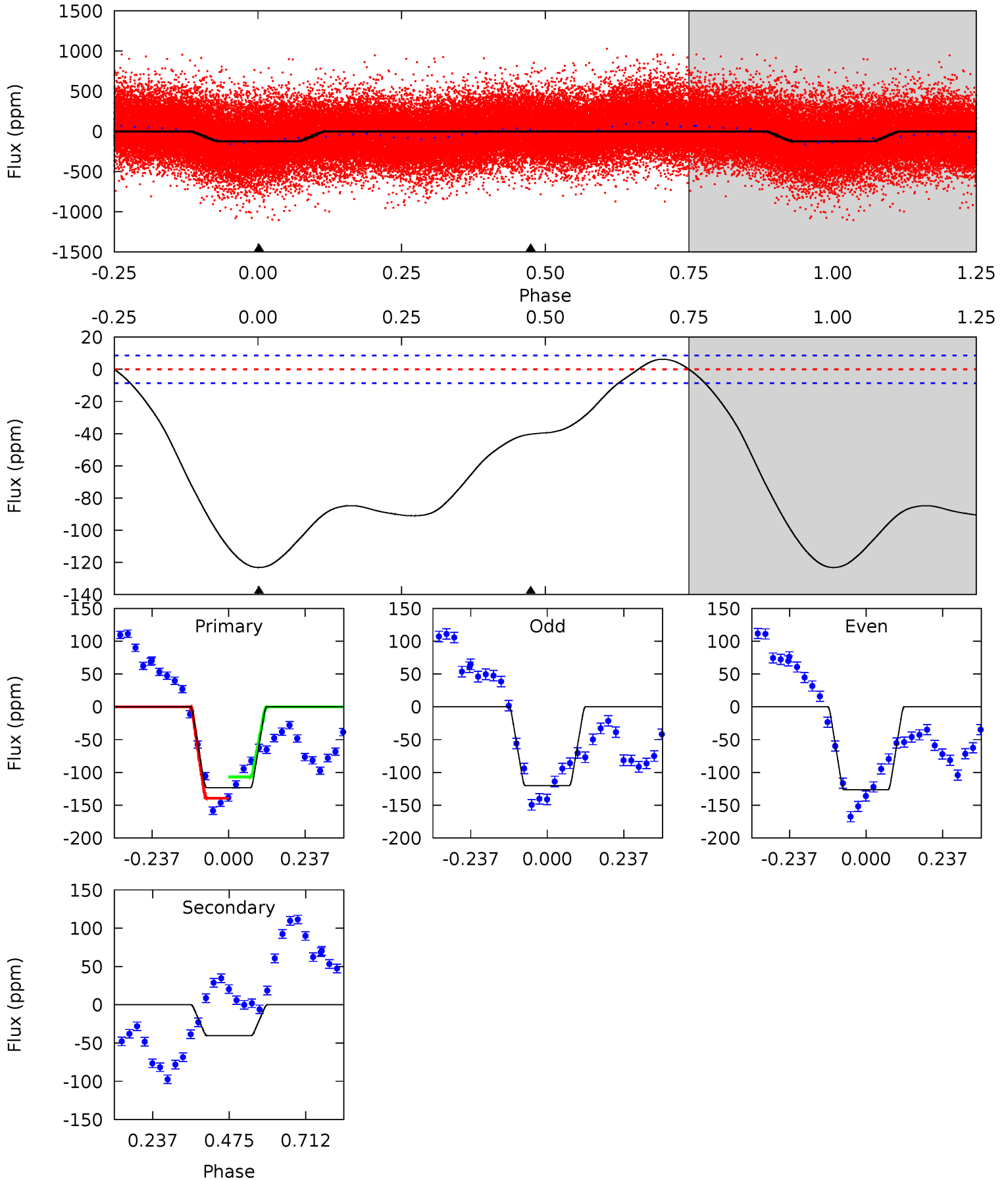
| Pri  | Sec  | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 17.0 | 13.8 | 0   | 0   | 4.43            | 1.32            | 2.44             | 17.0    | 17.0    | 13.8    | 13.8    | 0.34    | 1.01 | 0.12  | 3.03 |



# Alt Model-Shift Uniqueness Test

008518426-01, P = 2.172047 Days, E = 131.076001 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  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 62.9 | 20.6 | 0   | 0   | 4.38            | 1.18            | 19.9             | 62.9    | 62.9    | 20.6    | 20.6    | 1.58    | 1.03 | 0.05  | 8.42 |





### Stellar Parameters For KIC 008518426

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5916^{+227}_{-186}$ | $3.482^{+0.790}_{-0.139}$ | $-0.320^{+0.350}_{-0.250}$ | $3.751^{+0.840}_{-2.520}$ | $1.554^{+0.201}_{-0.603}$ | $0.041^{+0.752}_{-0.017}$                     |
|        | +4%/-3%              | +23%/-4%                  | +109%/-78%                 | +22%/-67%                 | +13%/-39%                 | +1814%/-40%                                   |
| 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 008518426-01 / KOI

| Detrend | Depth (ppm) | $R_p$ ( $R_{\oplus}$ ) | $T_{\text{max}}$ (K) | $T_{\text{obs}}$ (K)   | $A_{\text{obs}}$           |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV      | $-30 \pm 2$ | $2.10^{+2.28}_{-1.42}$ | $3477^{+370}_{-612}$ | $5541^{+4439}_{-1506}$ | $5.136^{+42.228}_{-3.896}$ |
| Alt.    | $-40 \pm 2$ | $3.99^{+2.87}_{-2.21}$ | $3506^{+310}_{-594}$ | $4378^{+1787}_{-835}$  | $1.960^{+7.407}_{-1.279}$  |

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

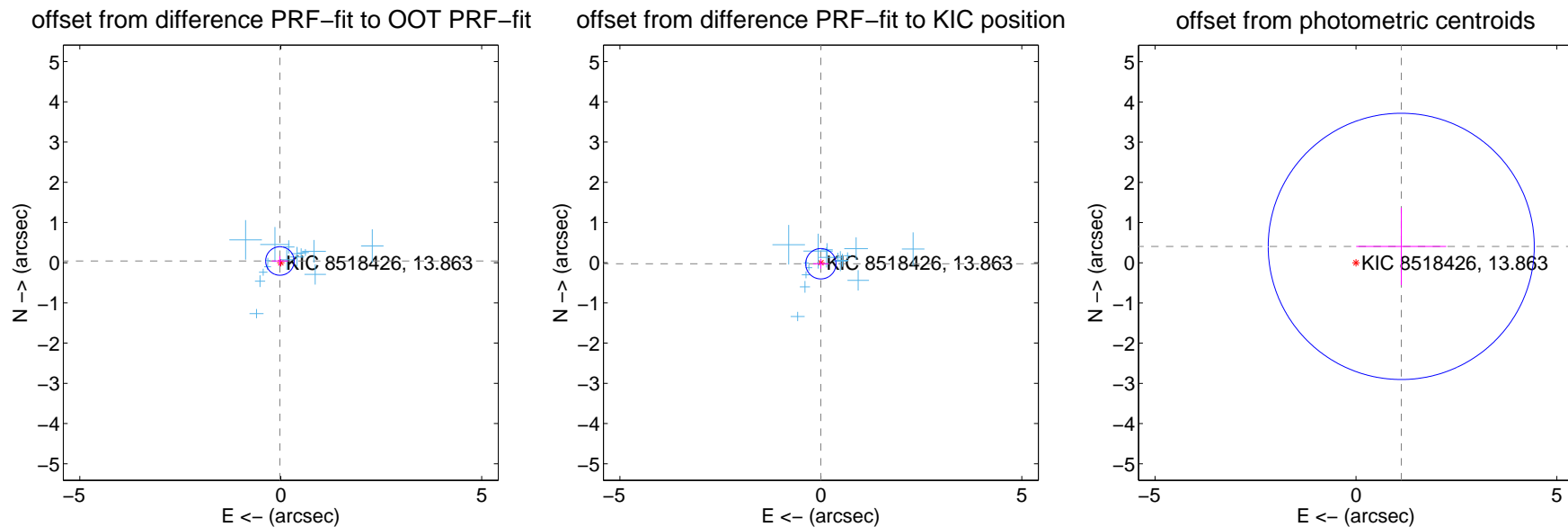
## DV Centroid Data

Supplemental centroid analysis for 008518426-01. Kepler magnitude: 13.86. Transit SNR 7.23

There are 16 quarters with good PRF difference image offsets

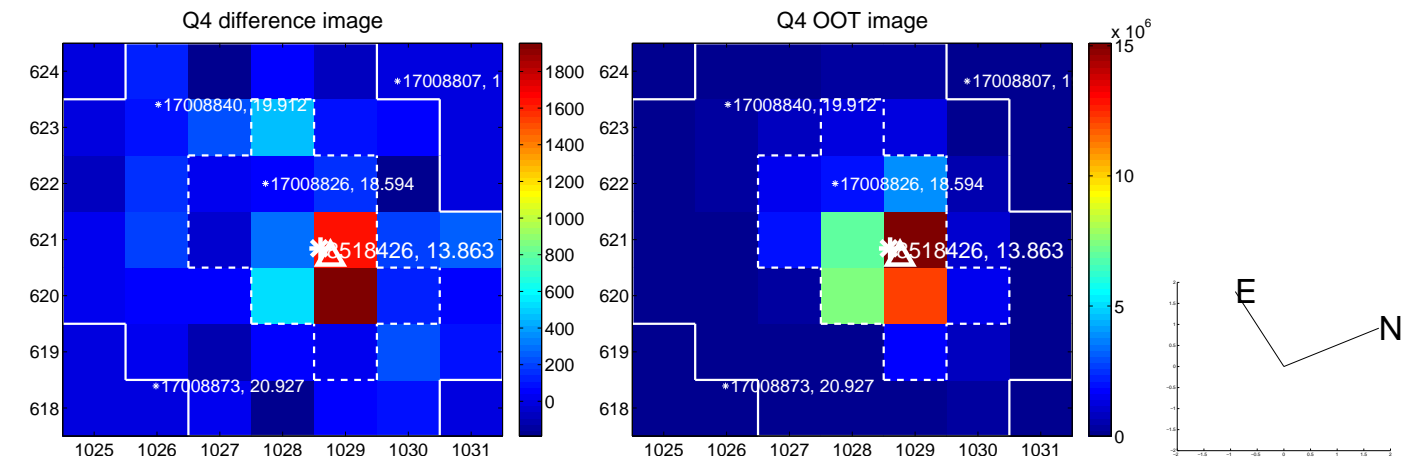
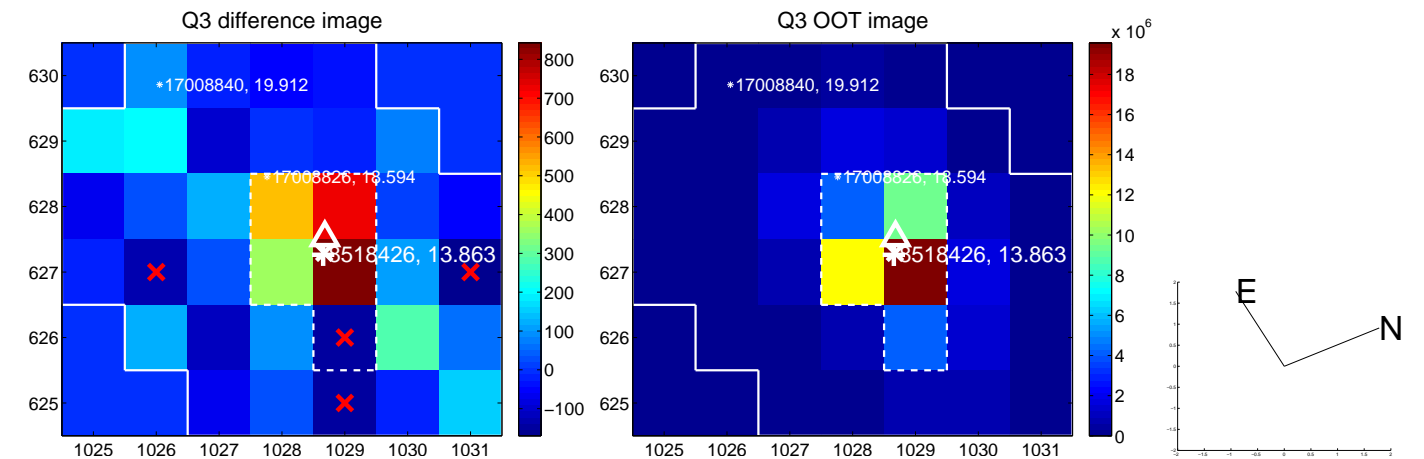
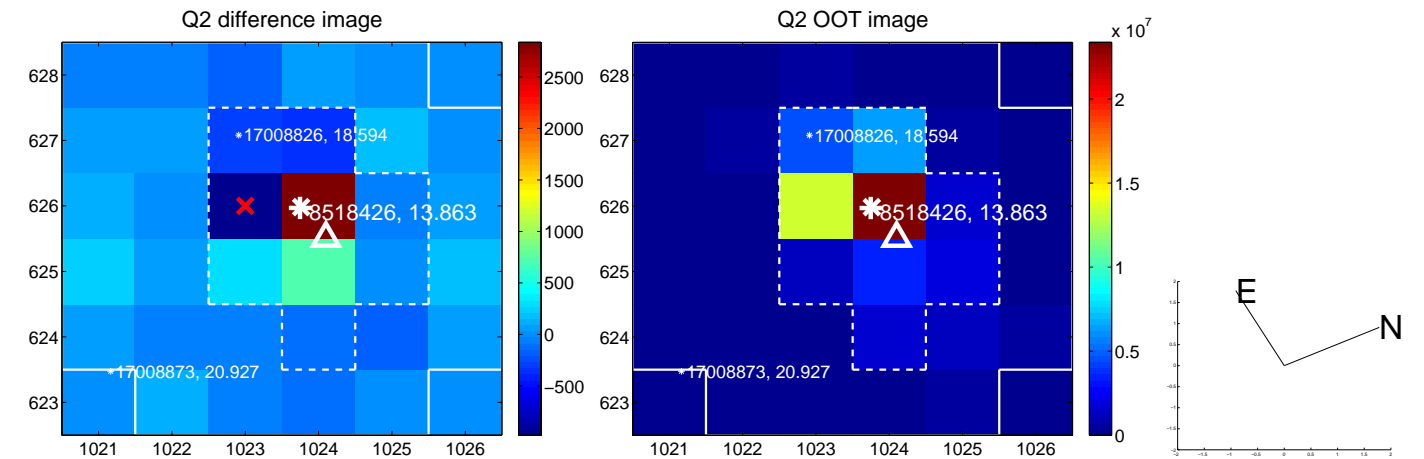
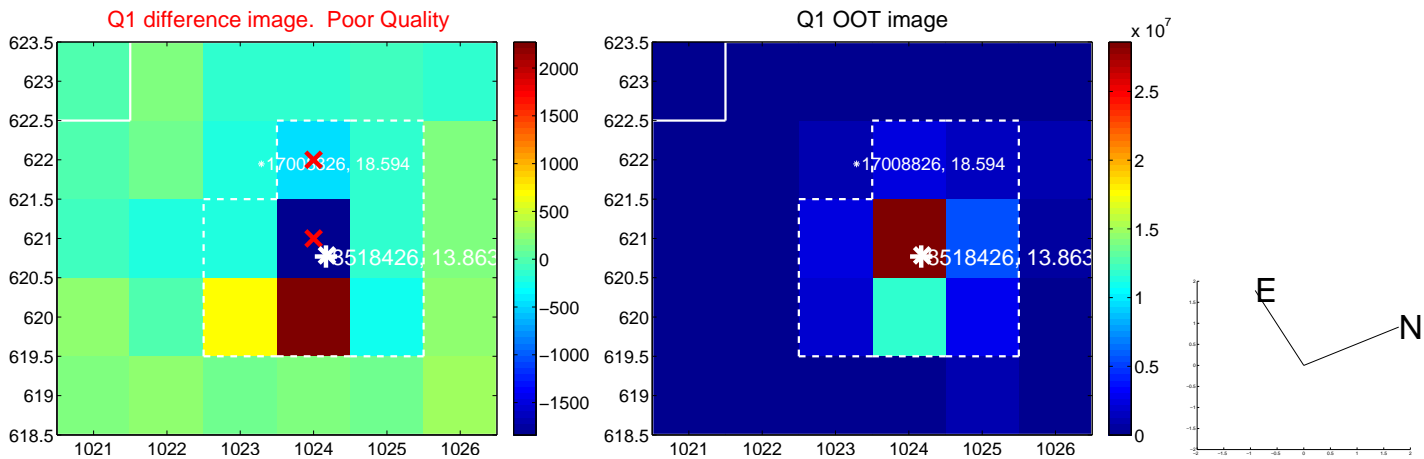
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $0.047 \pm 0.118$  | 0.40                | $0.021 \pm 0.200$ | $0.042 \pm 0.123$  |
| PRF-fit source offset from KIC position | $0.026 \pm 0.126$  | 0.21                | $0.000 \pm 0.193$ | $-0.026 \pm 0.125$ |
| photometric centroid source offset      | $1.20 \pm 1.10$    | 1.09                | $-1.13 \pm 1.12$  | $0.41 \pm 0.96$    |

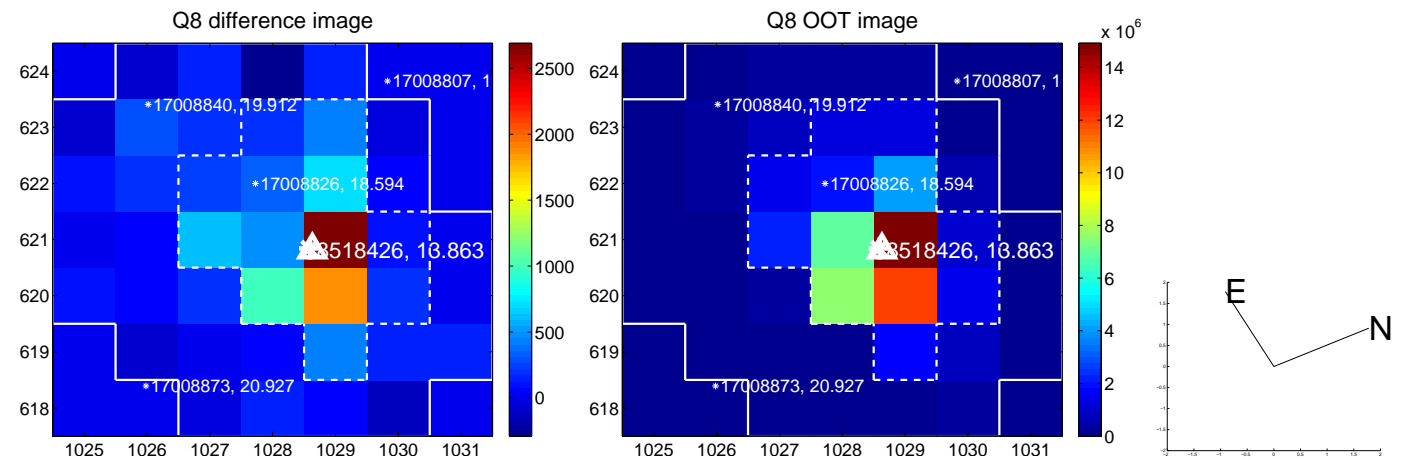
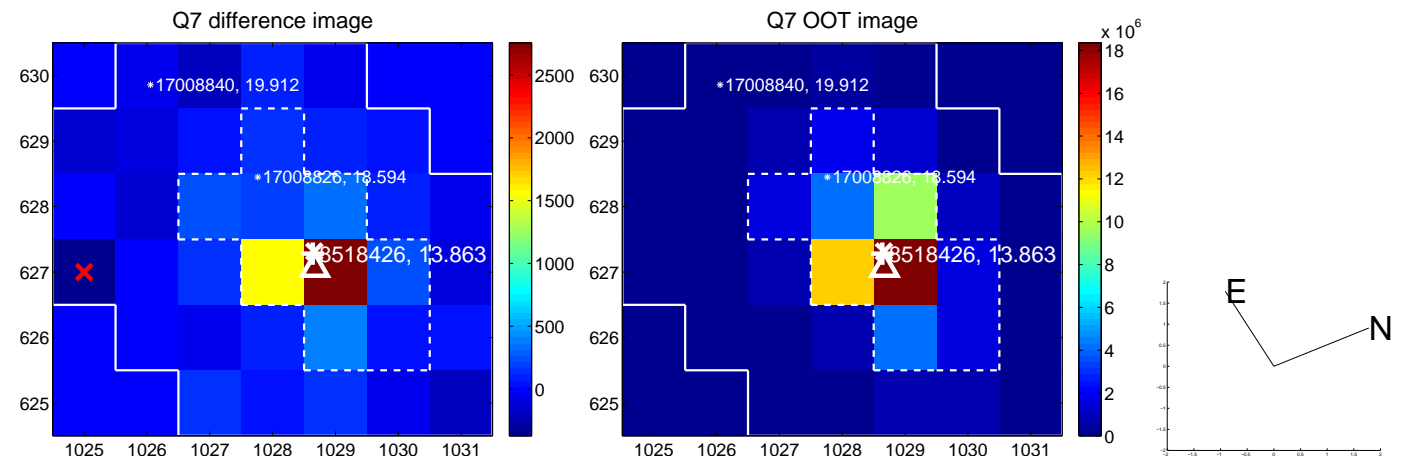
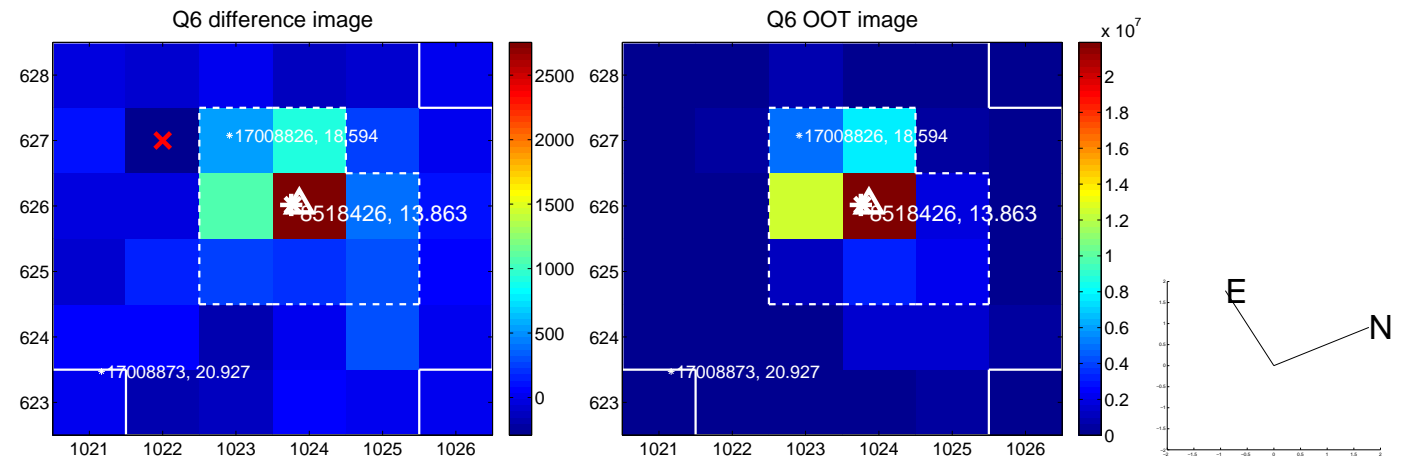
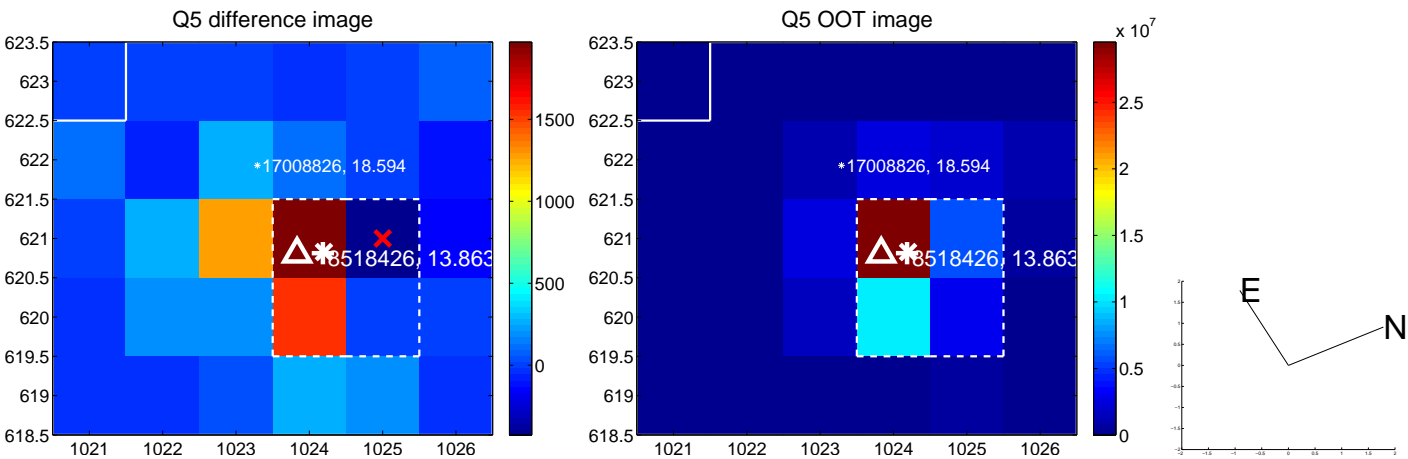


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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

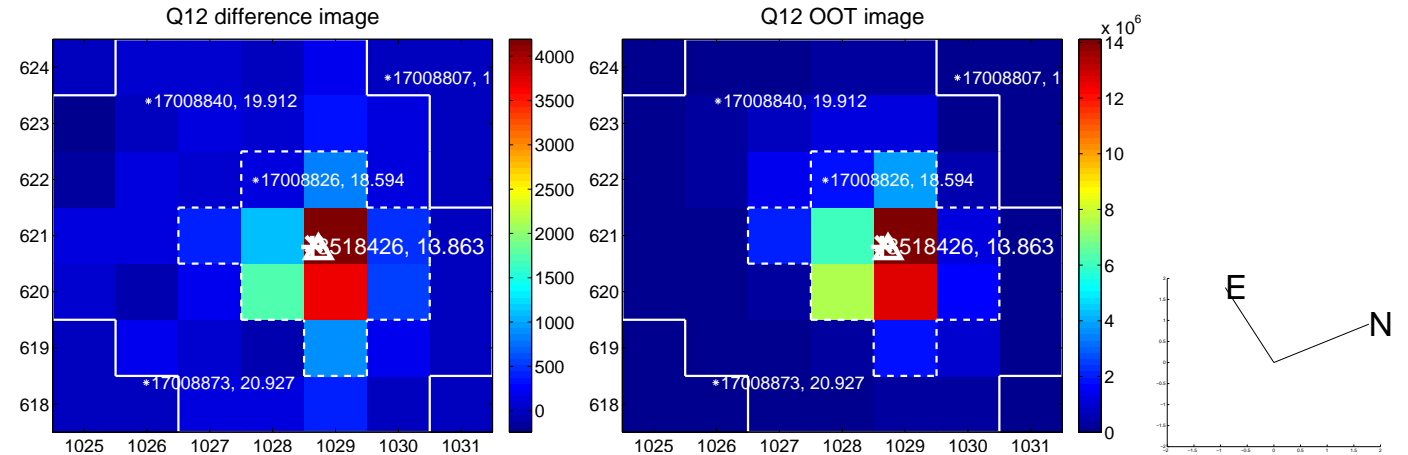
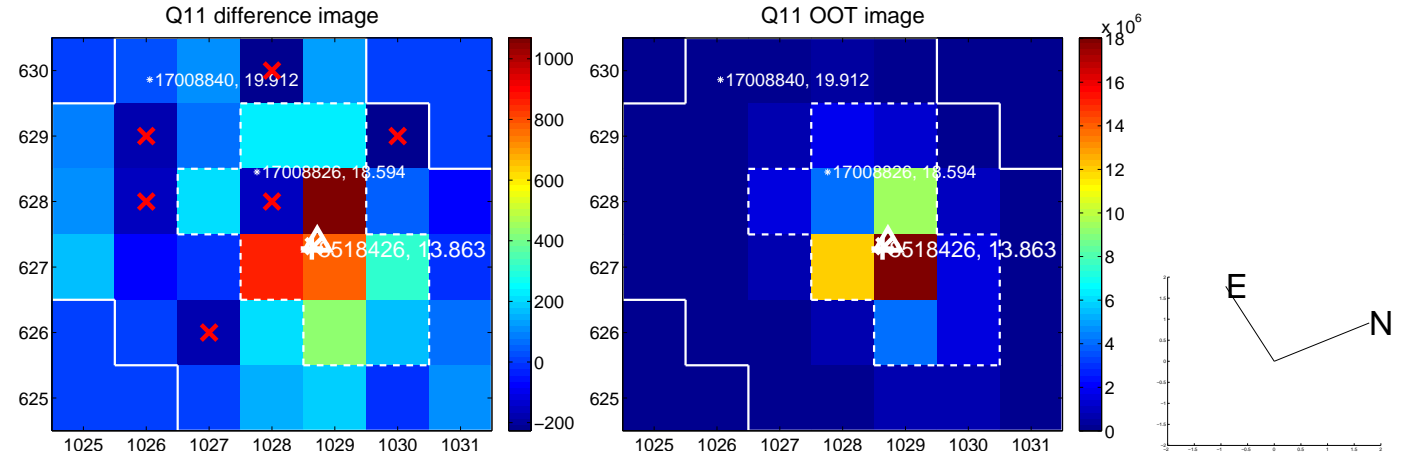
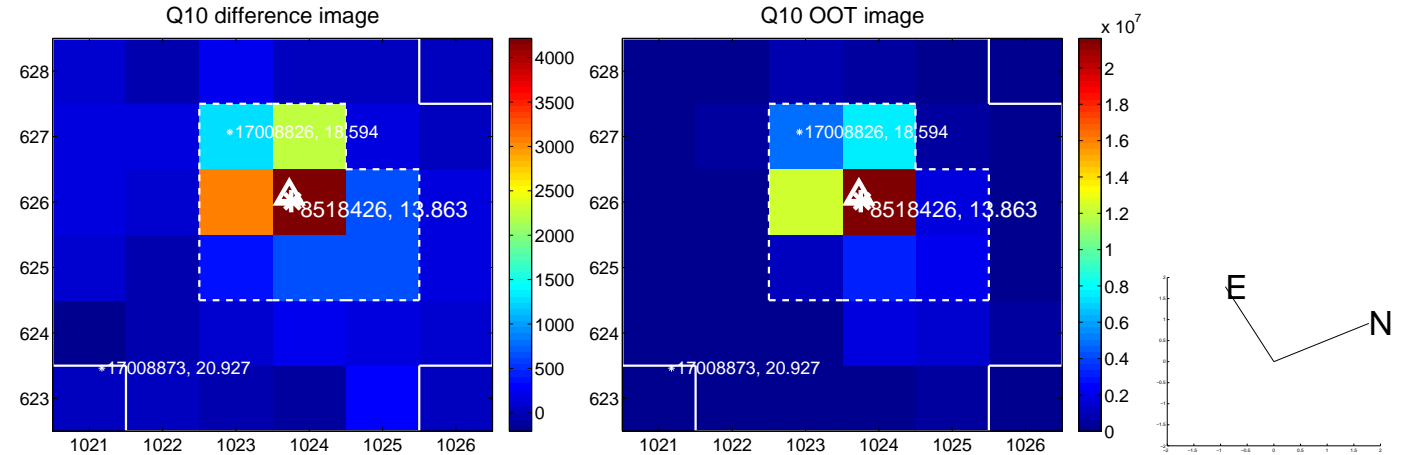
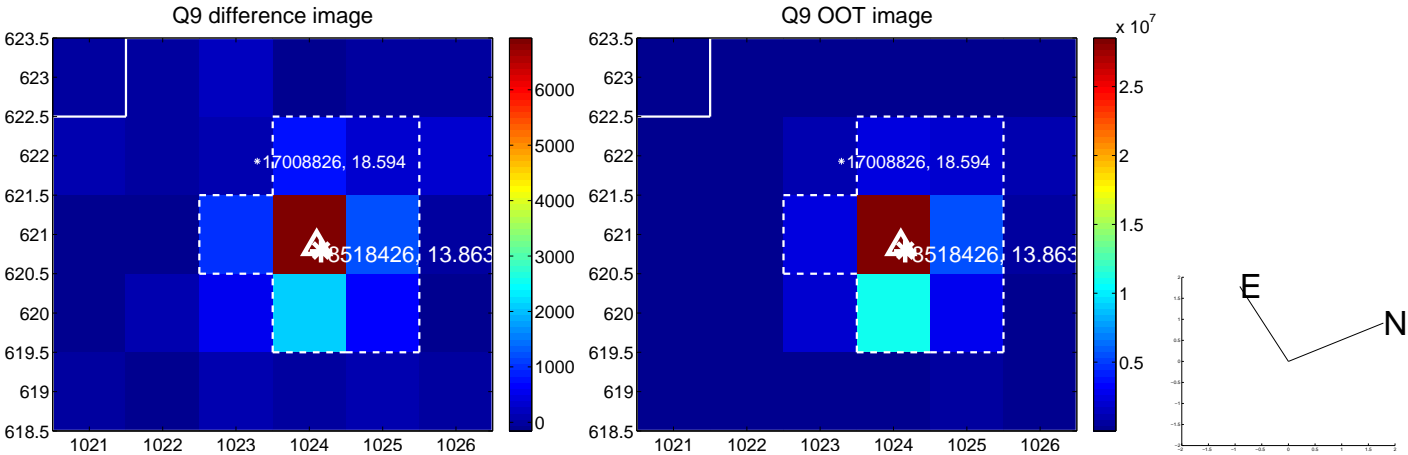


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

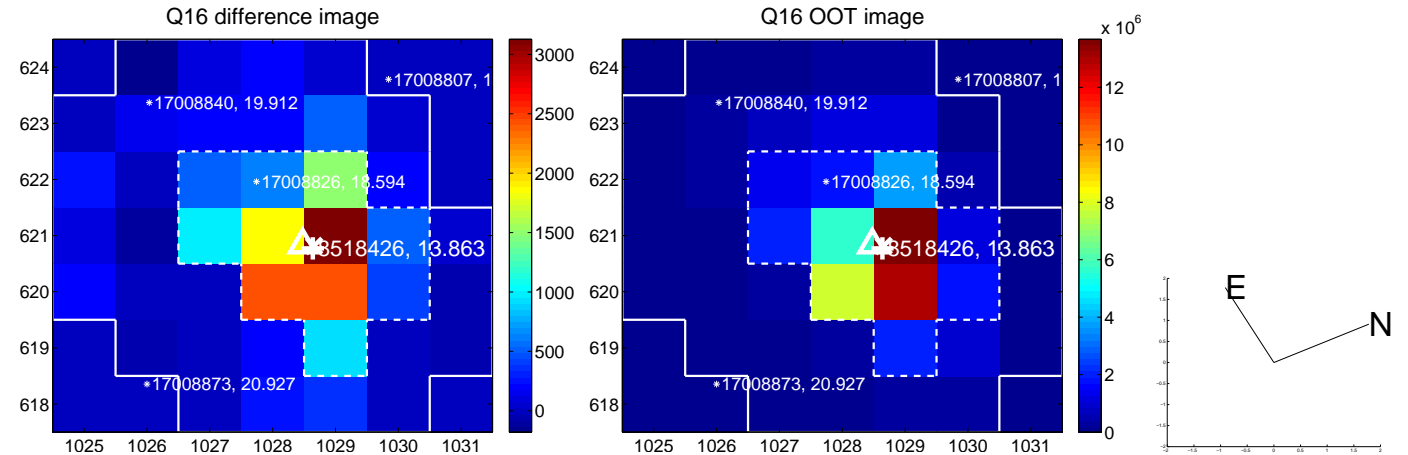
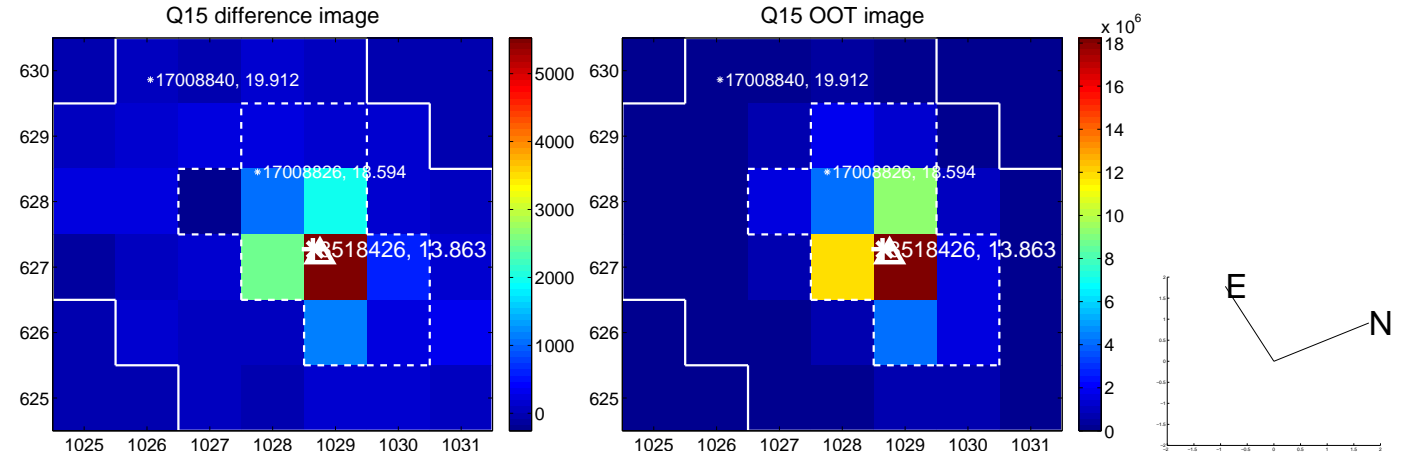
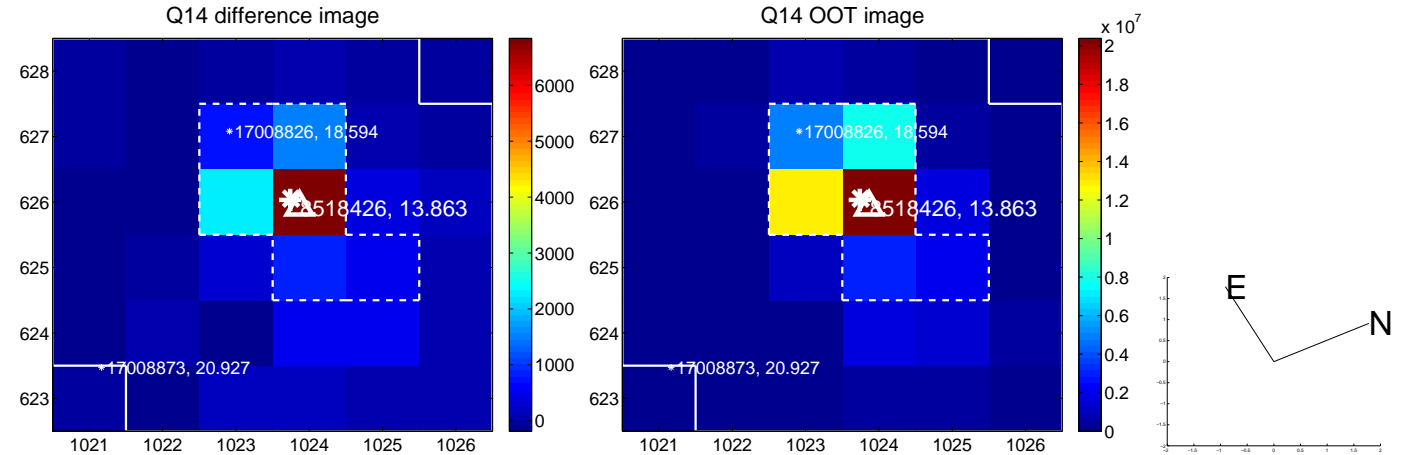
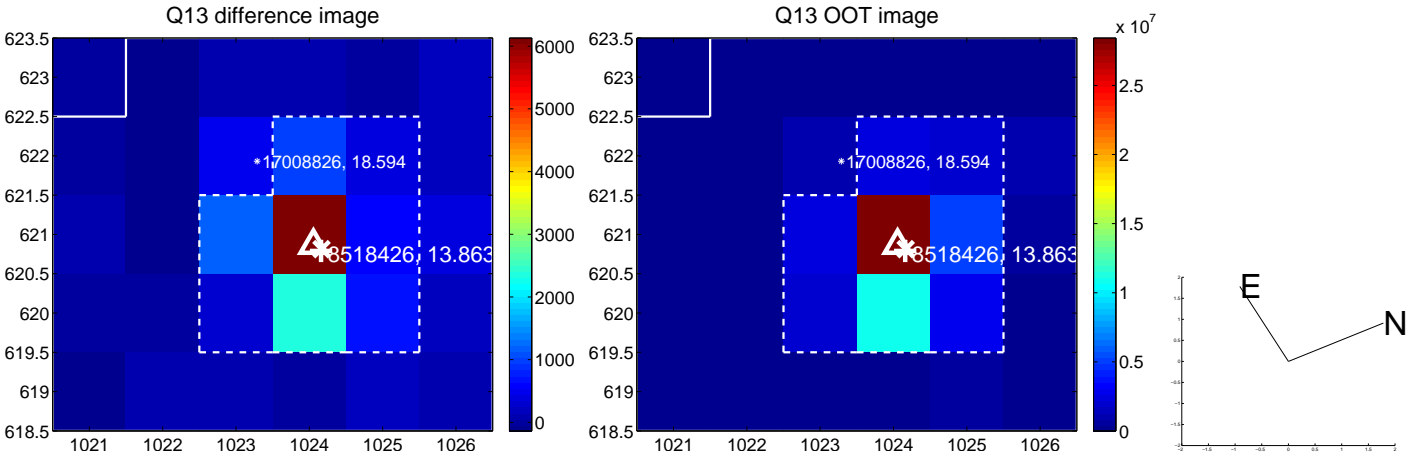




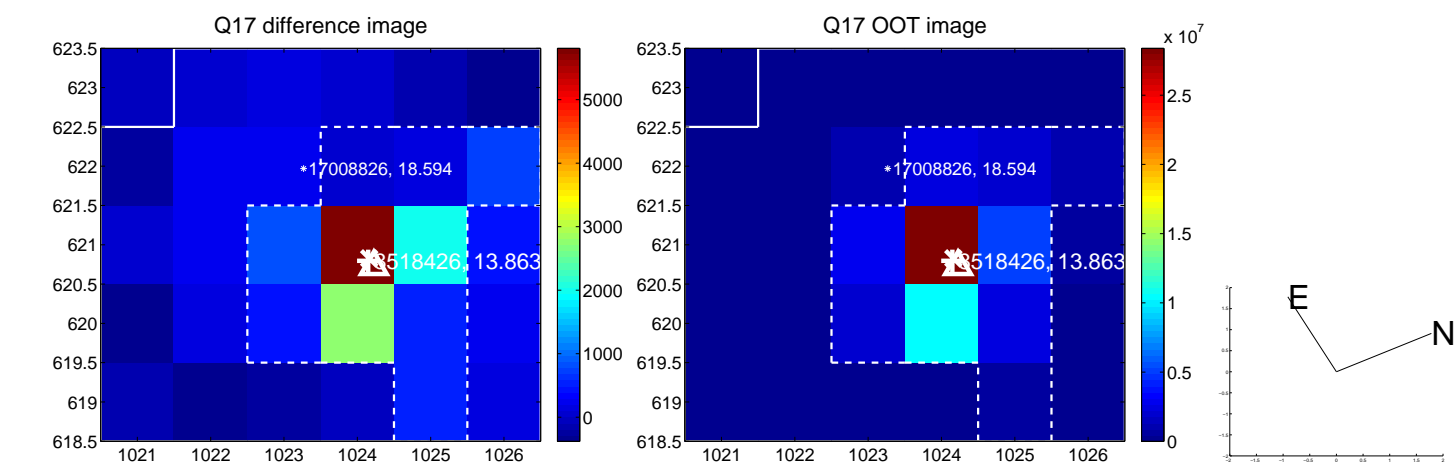
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



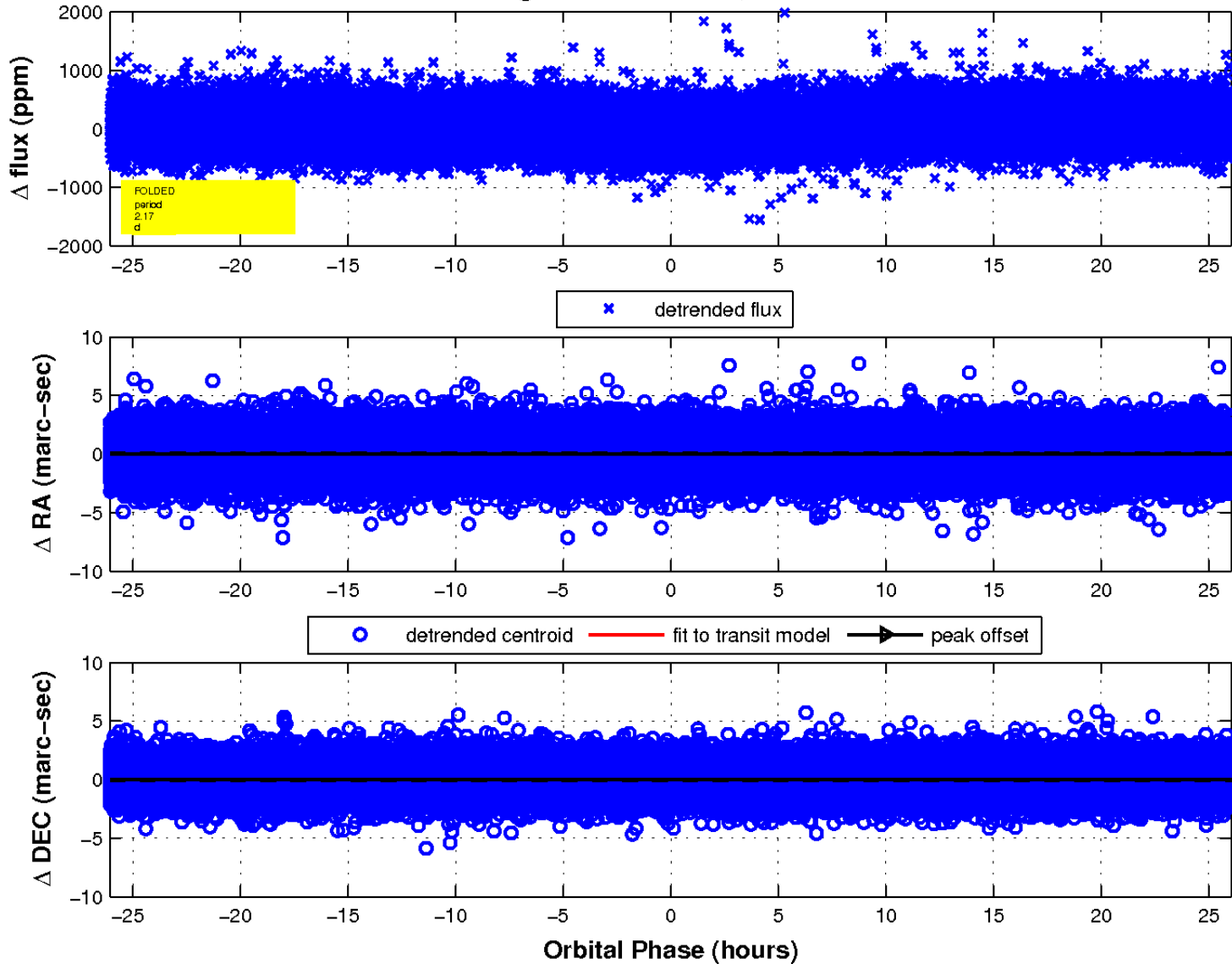
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

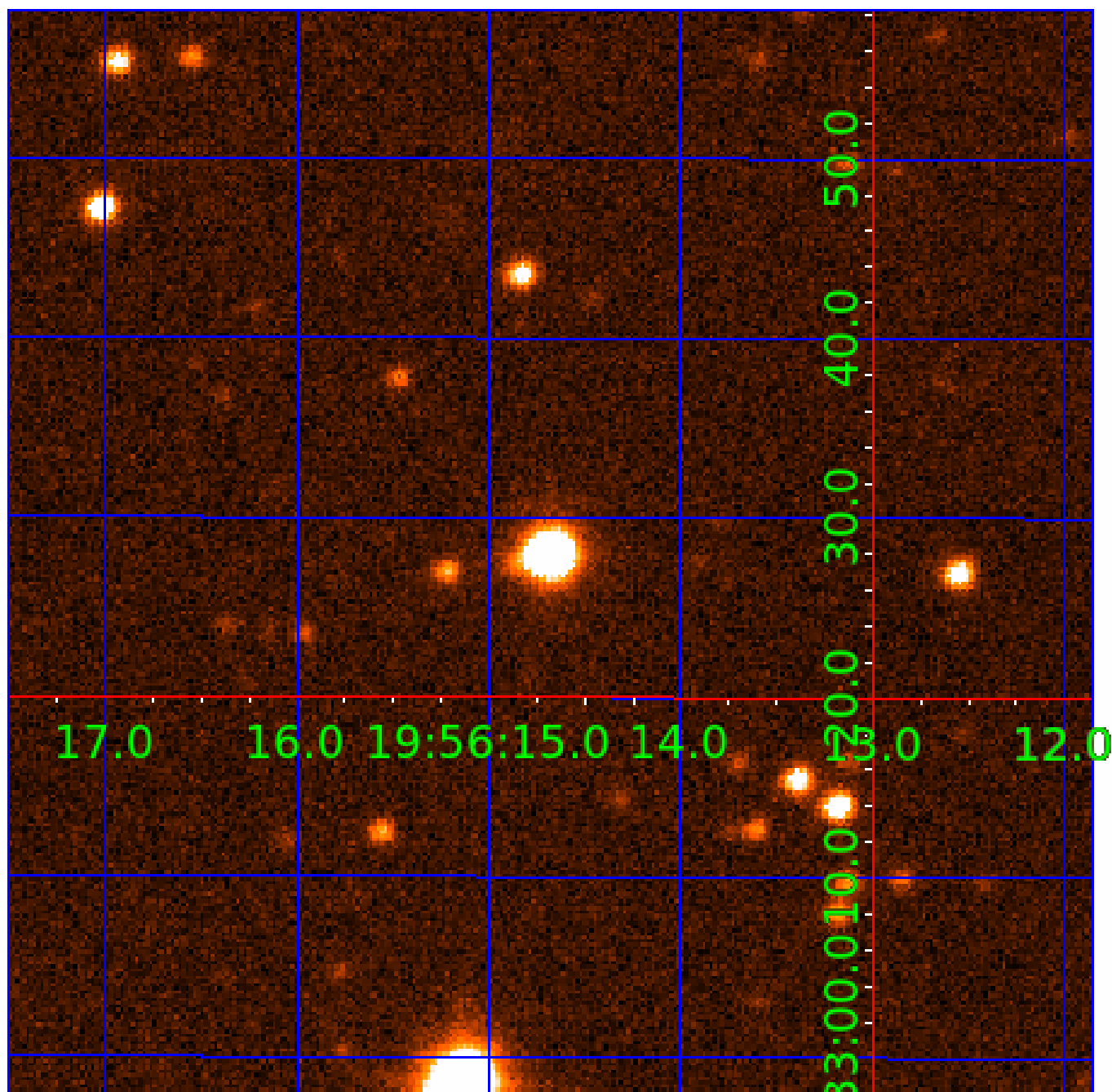


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



# KIC 008518426

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 008518426-01 | OBS      | No   | 2.171834      | 133.302795   | 31.0        | 9.367            | 9.7  | 7.2  | 3.75                        | 5916            | 2.08                   | 10666.03               |
| 008518426-02 | OBS      | No   | 2.172077      | 131.775130   | 13.4        | 6.148            | 12.7 | 3.4  | 3.75                        | 5916            | 1.59                   | 10664.44               |
| 008518426-03 | OBS      | No   | 2.172169      | 131.879671   | 124.3       | 26.066           | 11.1 | 15.9 | 3.75                        | 5916            | 4.54                   | 10663.84               |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 008518426-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT  |
| 008518426-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD        |
| 008518426-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—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.

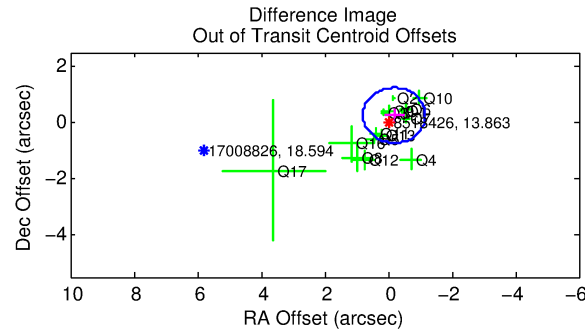
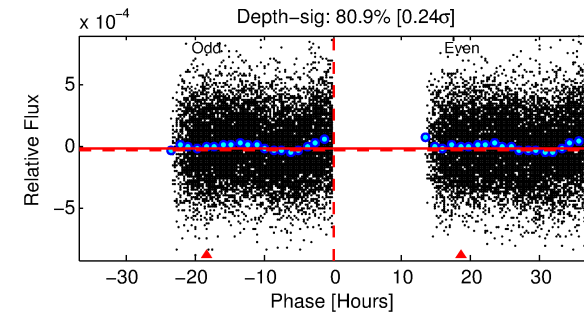
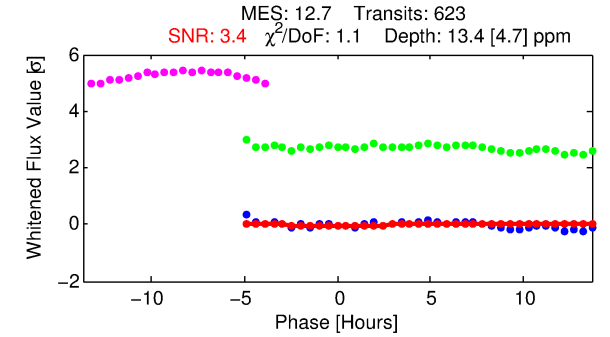
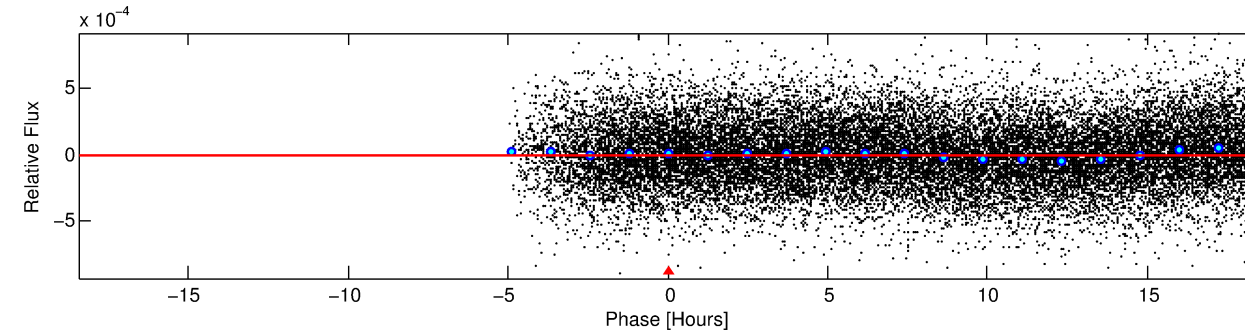
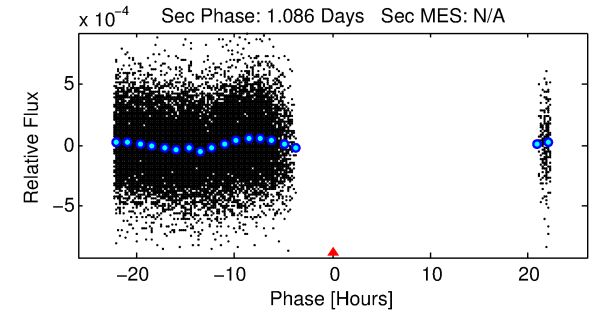
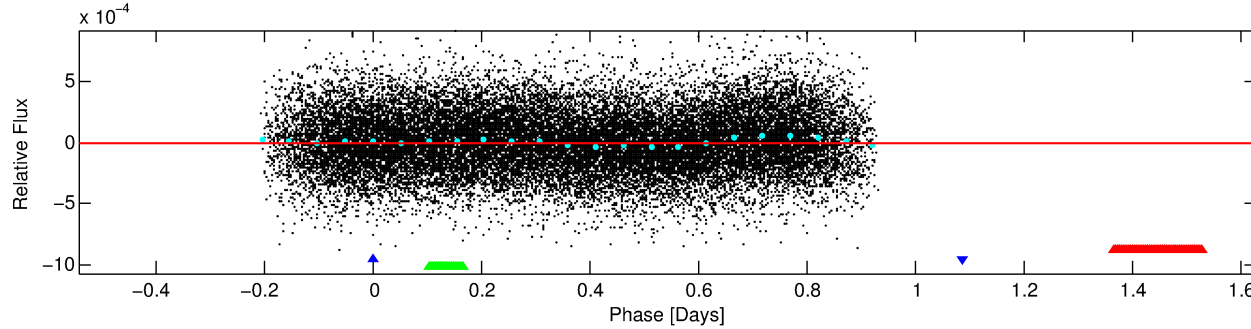
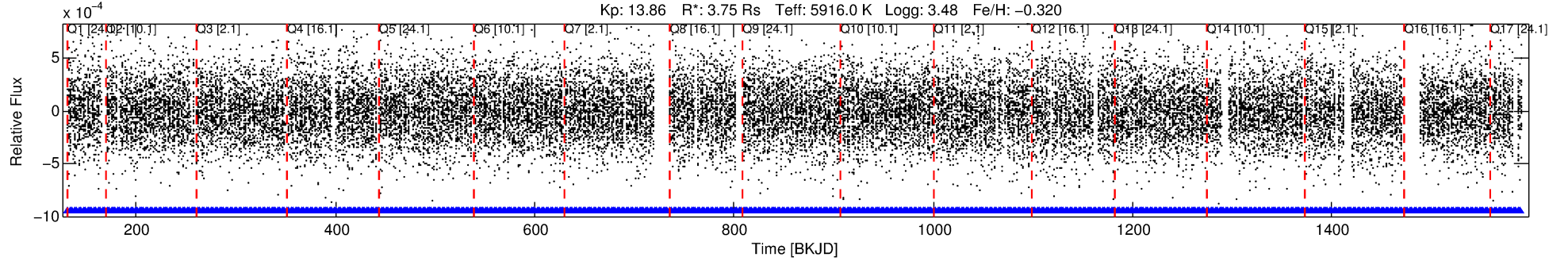
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008518426-02

No Significant Match Found

# DV One-Page Summary

KIC: 8518426 Candidate: 2 of 3 Period: 2.172 d



## DV Fit Results:

Period = 2.17208 [0.00007] d  
Epoch = 131.7751 [0.0195] BKJD  
Rp/R\* = 0.0039 [0.0037]  
a/R\* = 1.62 [4.92]  
b = 0.87 [1.33]  
Seff = 10664.44 [13883.38]  
Teq = 2591 [843] K  
Rp = 1.59 [1.85] Re  
a = 0.0381 [0.0287] AU

## DV Diagnostic Results:

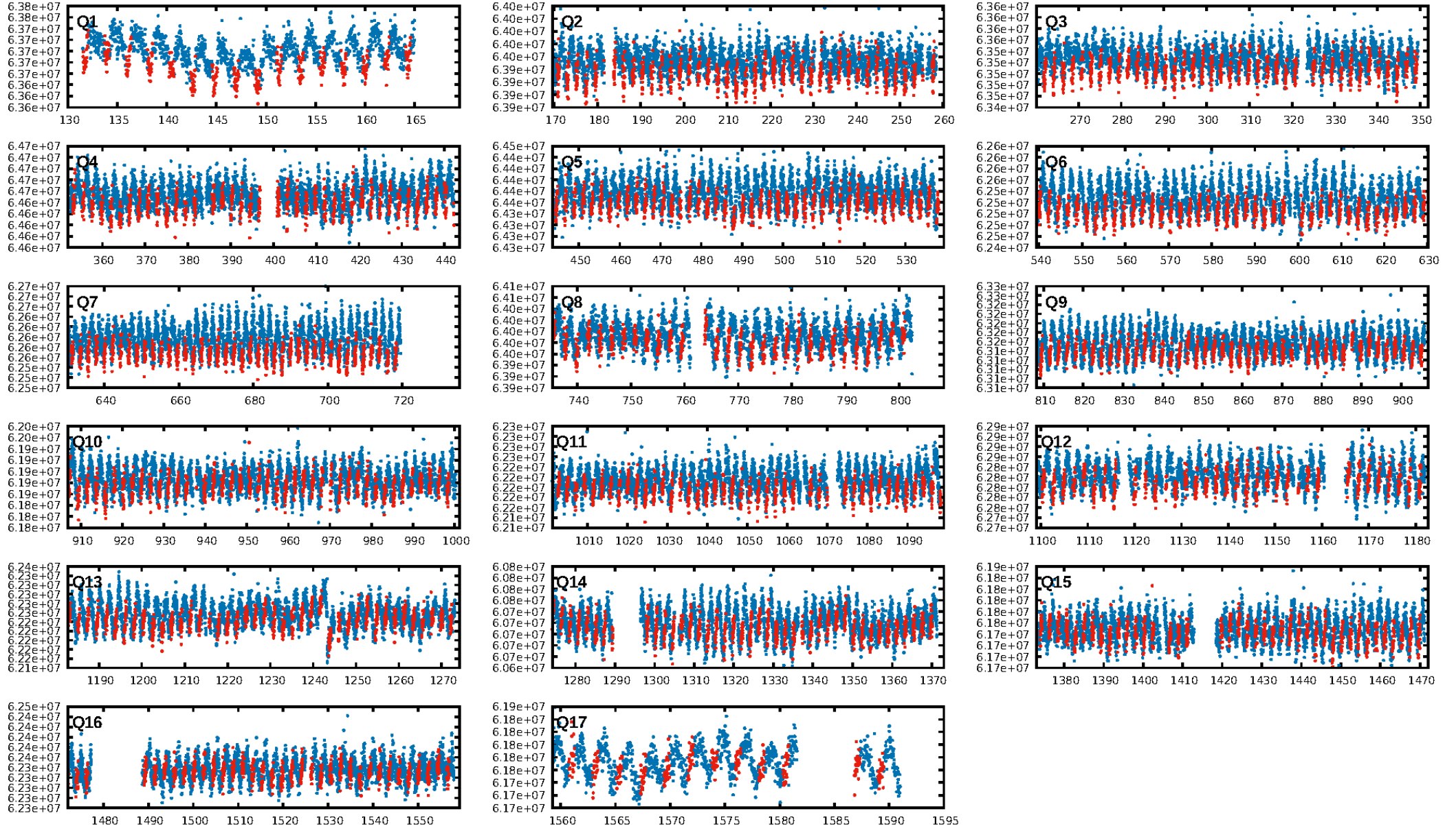
ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [595/595]  
GhostDiagnostic-chr: -2.49  
Centroid-sig: 82.4%  
Centroid-so: 1.108 arcsec [0.33σ]  
OotOffset-rm: 0.314 arcsec [0.96σ]  
KicOffset-rm: 0.272 arcsec [0.76σ]  
OotOffset-st: 3/3/4/5 [15]  
KicOffset-st: 3/3/4/5 [15]  
DiffImageQuality-fgm: 0.93 [14/15]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:41:35 Z

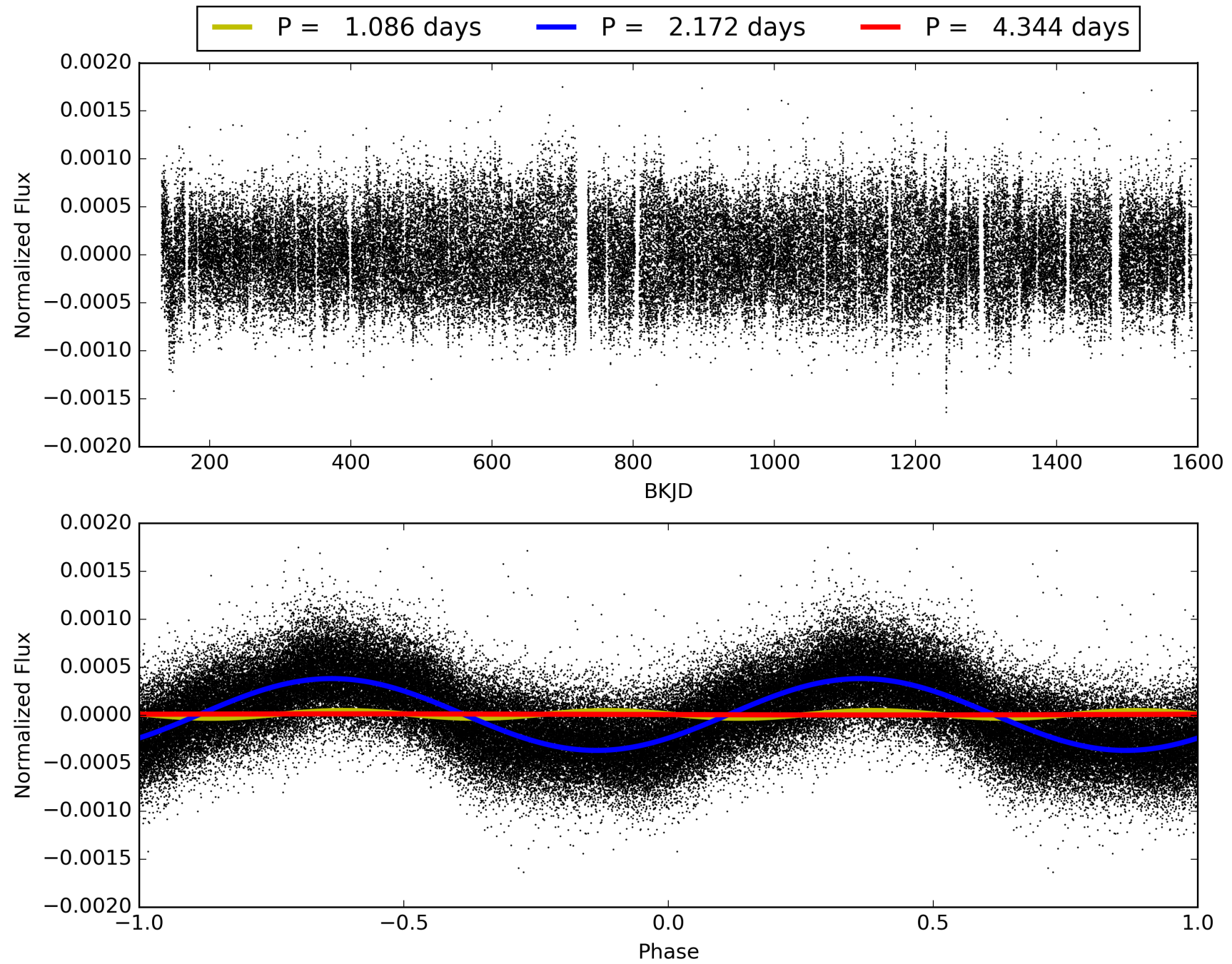
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008518426-02, PDC Light Curves

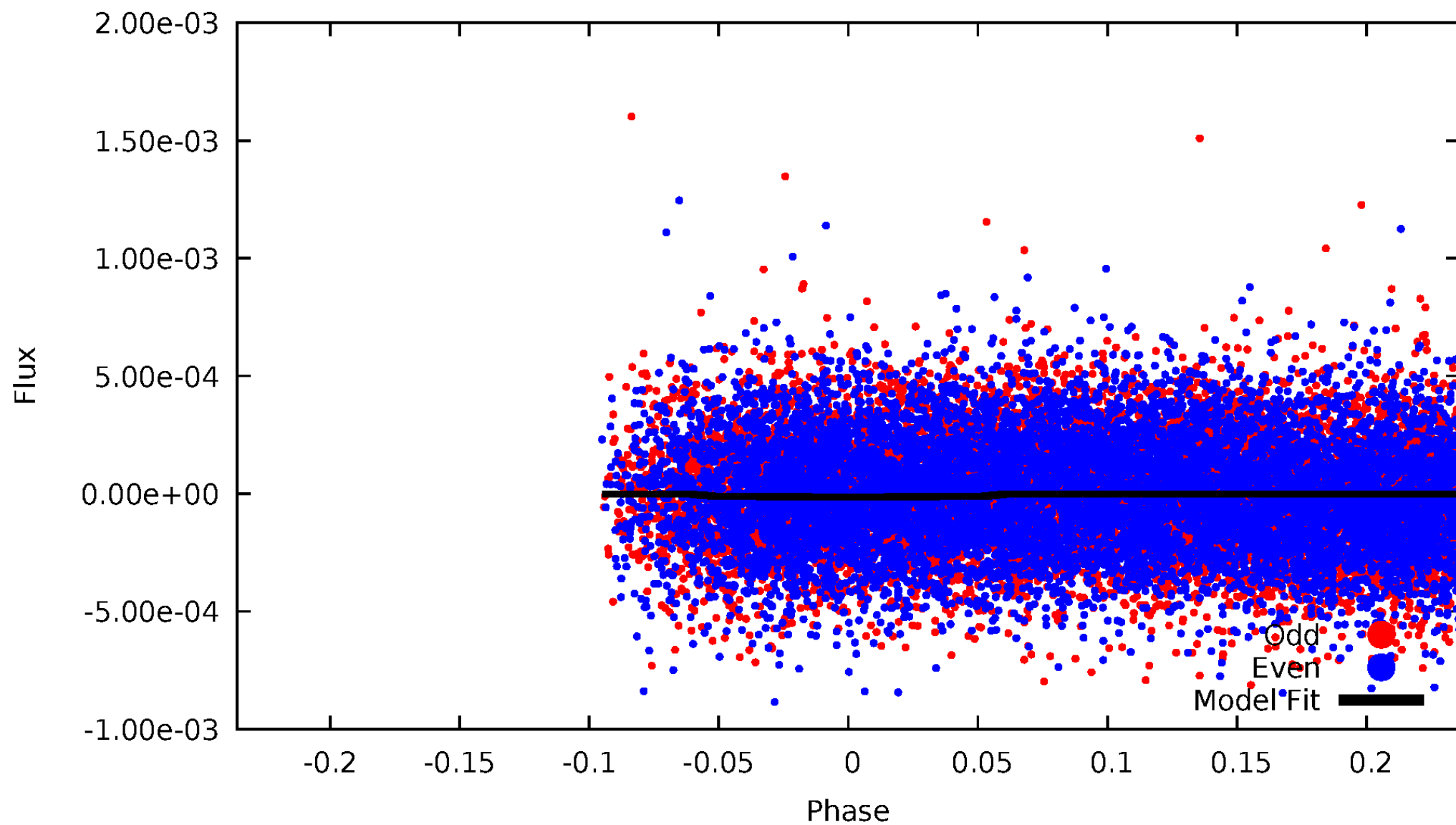


# TCE 008518426-02



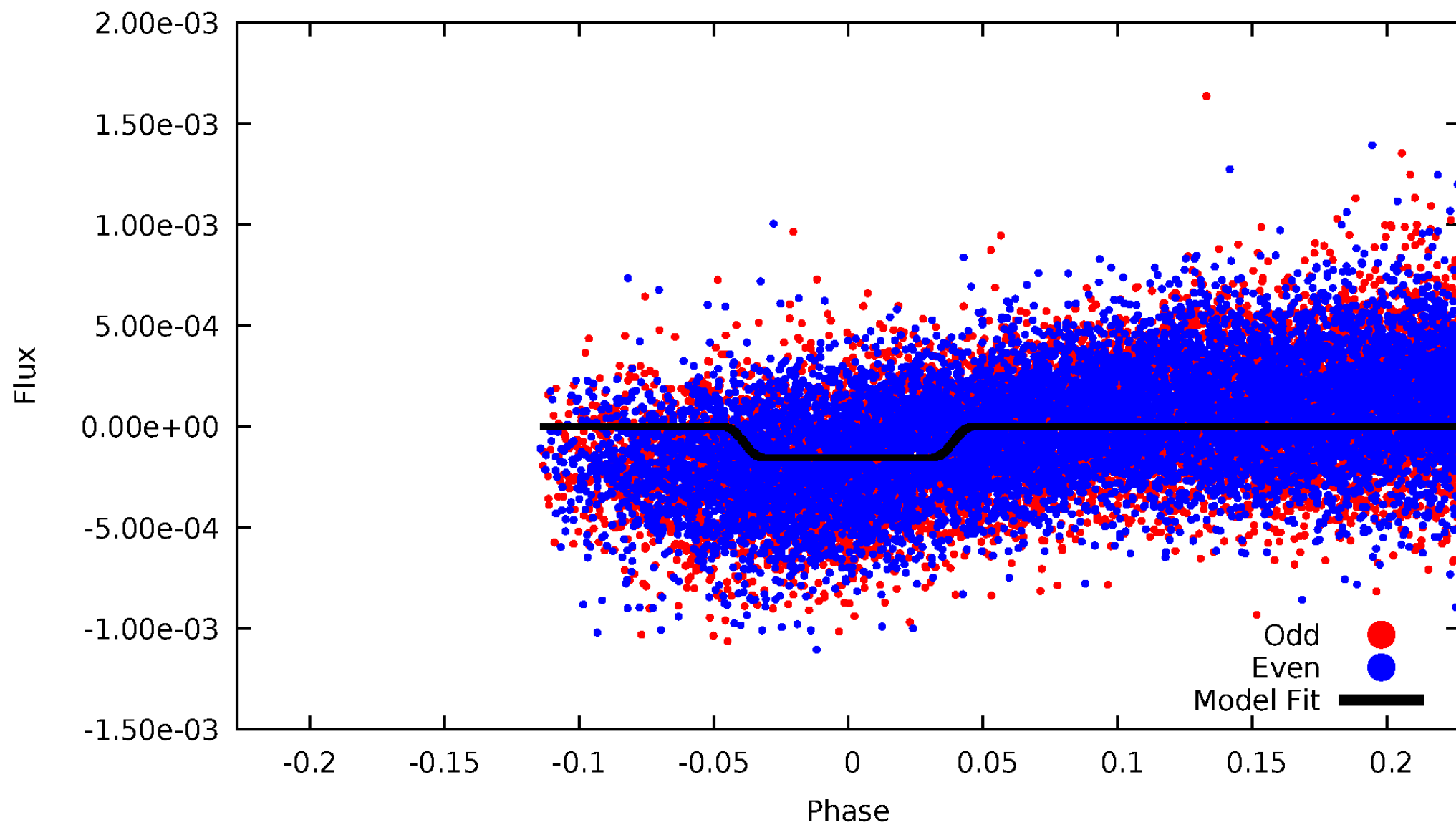
# DV Odd/Even

TCE 008518426-02



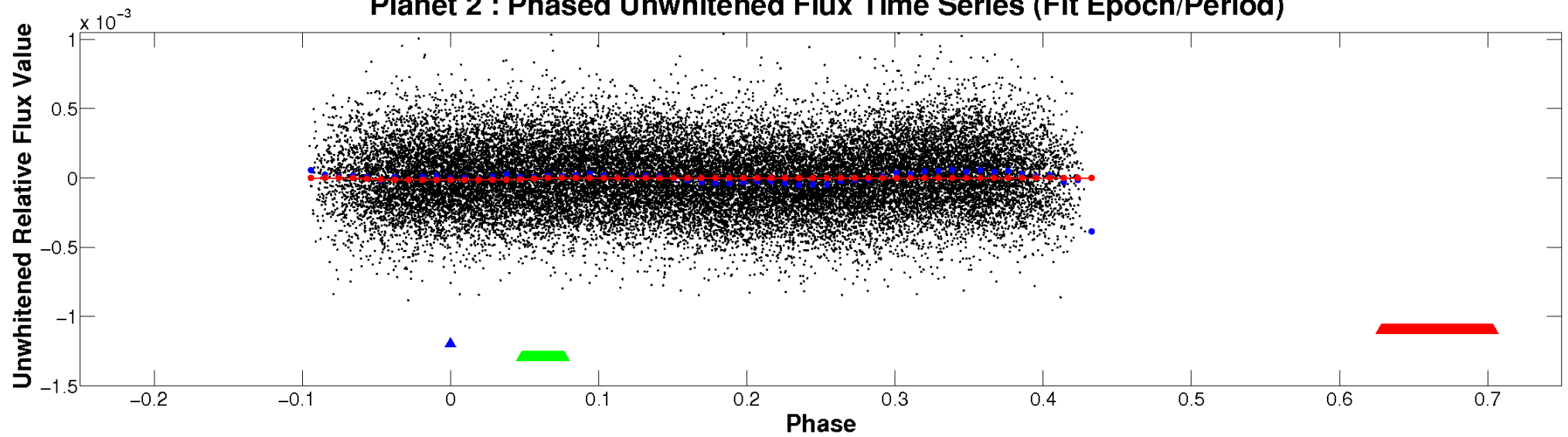
# ALT Odd/Even

TCE 008518426-02

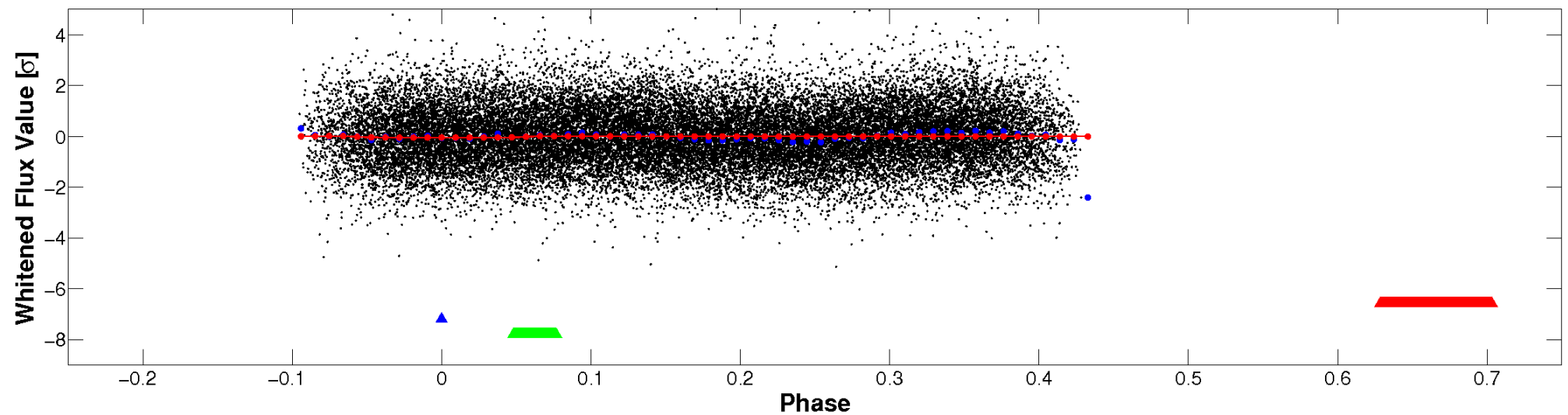


# Non-Whitened Vs. Whitened Light Curve

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



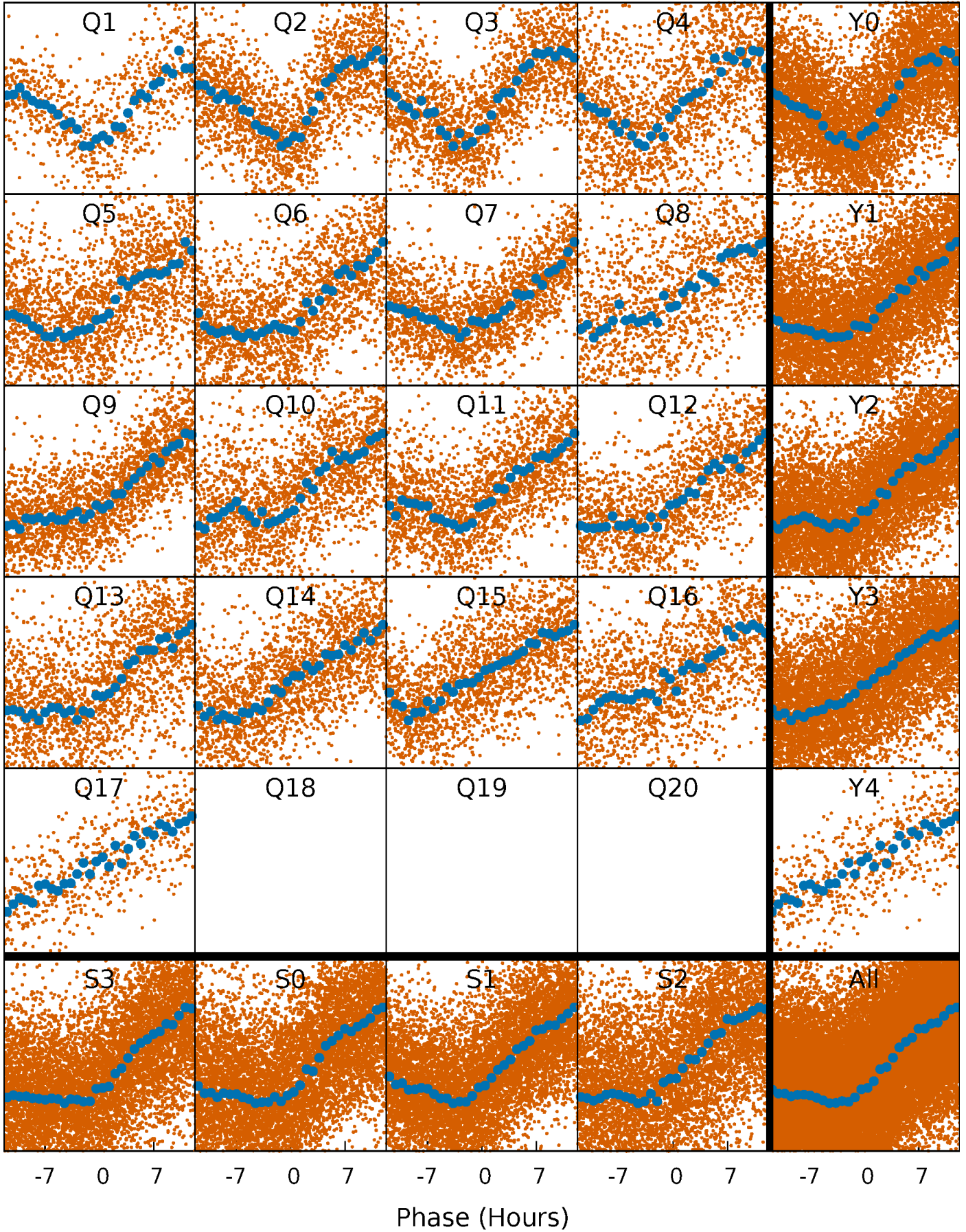
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

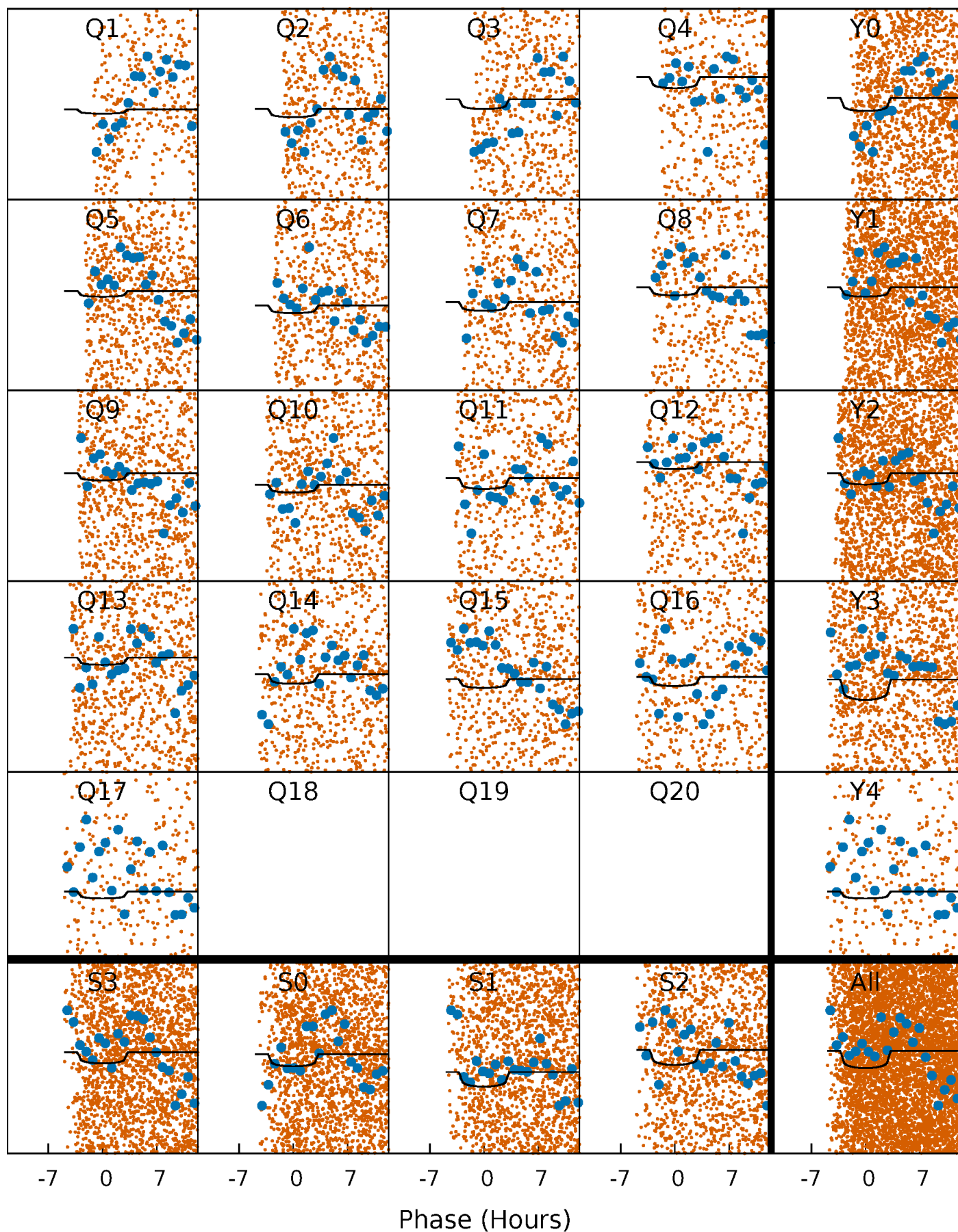
TCE 008518426-02   P= 2.172077 Days    $T_0=131.775130$  (BKJD)





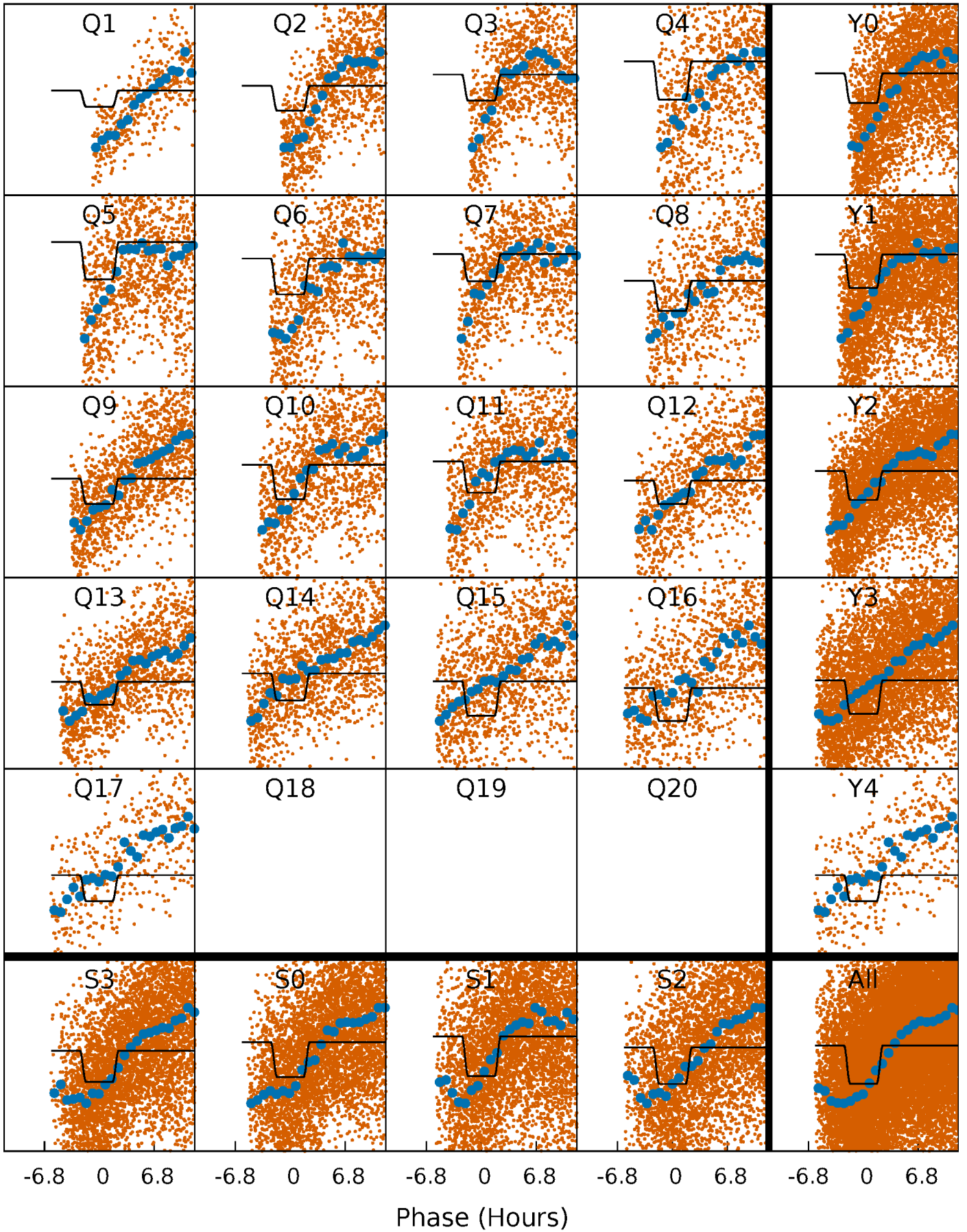
# DV Quarter-Phased Transit Curves

TCE 008518426-02   P= 2.172077 Days    $T_0=131.775130$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

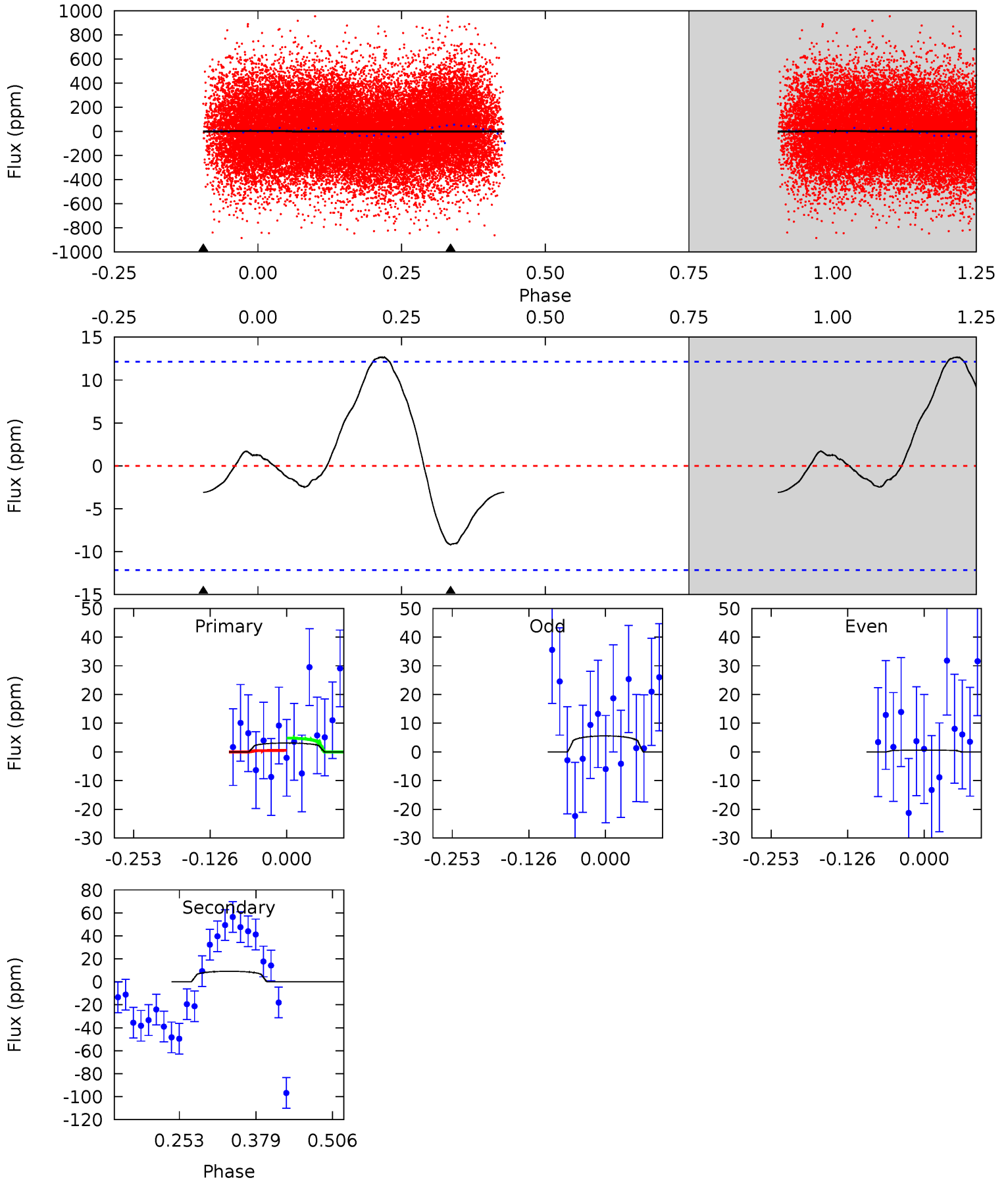
TCE 008518426-02   P= 2.172165 Days    $T_0=131.758251$  (BKJD)



# DV Model-Shift Uniqueness Test

008518426-02, P = 2.172077 Days, E = 129.603053 Days

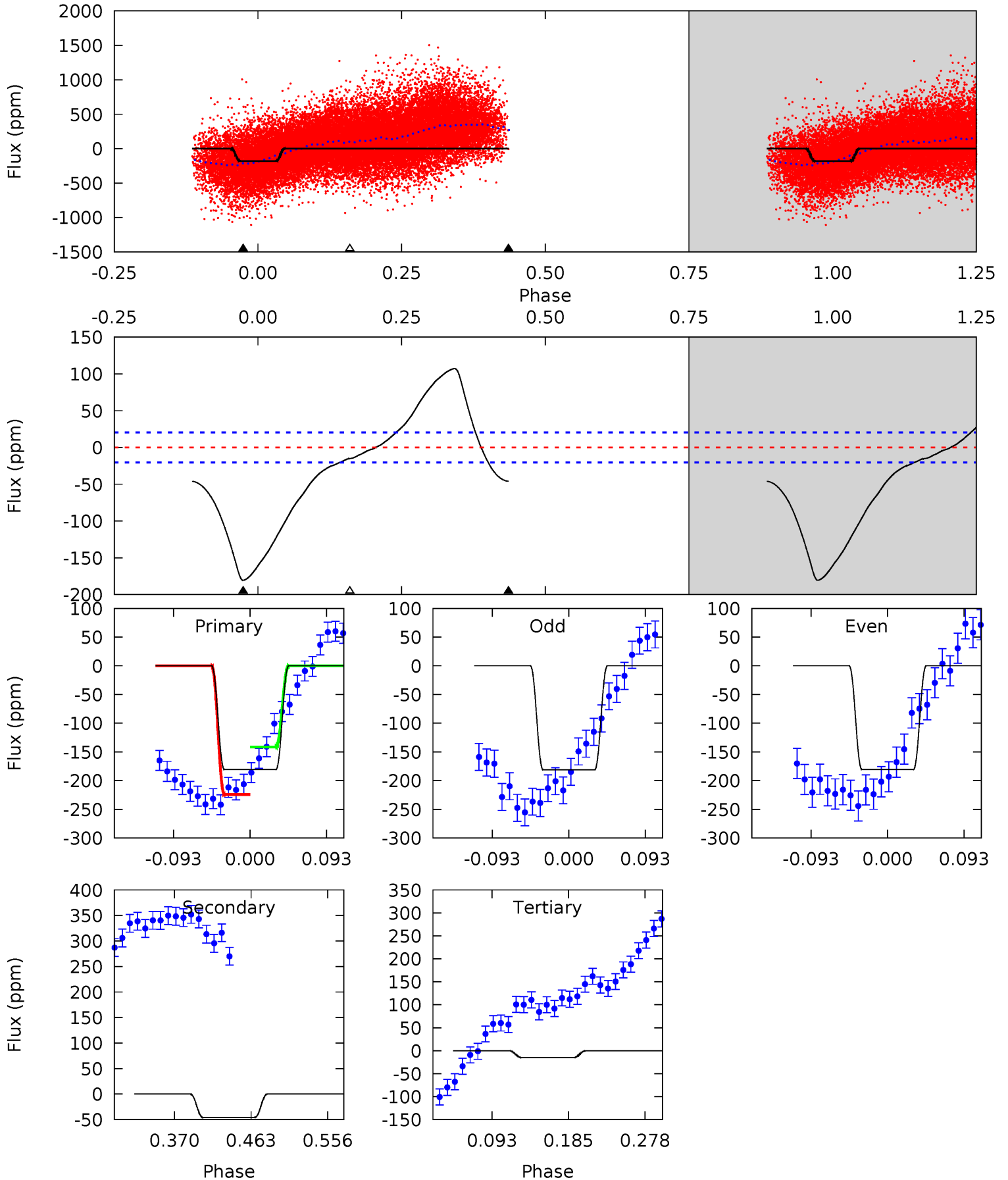
| Pri  | Sec  | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 1.15 | 3.41 | 0   | 0   | 4.52            | 1.53            | 1.84             | 1.15    | 1.15    | 3.41    | 3.41    | 0.91    | 0.85 | 0.58  | 0.76 |



# Alt Model-Shift Uniqueness Test

008518426-02, P = 2.172165 Days, E = 129.586086 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  |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 40.5 | 10.3 | 3.38 | 0   | 4.58            | 1.68            | 11.2             | 37.2    | 40.5    | 6.92    | 10.3    | 0.06    | 1.10 | 0.37  | 9.56 |





### Stellar Parameters For KIC 008518426

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M$ ( $M_{\odot}$ )       | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5916^{+227}_{-186}$ | $3.482^{+0.790}_{-0.139}$ | $-0.320^{+0.350}_{-0.250}$ | $3.751^{+0.840}_{-2.520}$ | $1.554^{+0.201}_{-0.603}$ | $0.041^{+0.752}_{-0.017}$                     |
|        | +4%/-3%              | +23%/-4%                  | +109%/-78%                 | +22%/-67%                 | +13%/-39%                 | +1814%/-40%                                   |
| 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 008518426-02 / KOI

| Detrend | Depth (ppm) | $R_p$ ( $R_{\oplus}$ ) | $T_{\text{max}}$ (K) | $T_{\text{obs}}$ (K)   | $A_{\text{obs}}$           |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV      | $-9 \pm 3$  | $1.60^{+1.53}_{-1.05}$ | $3495^{+336}_{-627}$ | $4663^{+3469}_{-1171}$ | $2.611^{+19.981}_{-1.928}$ |
| Alt.    | $-46 \pm 4$ | $4.42^{+2.04}_{-1.76}$ | $3501^{+325}_{-653}$ | $4347^{+728}_{-512}$   | $1.828^{+2.709}_{-0.931}$  |

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

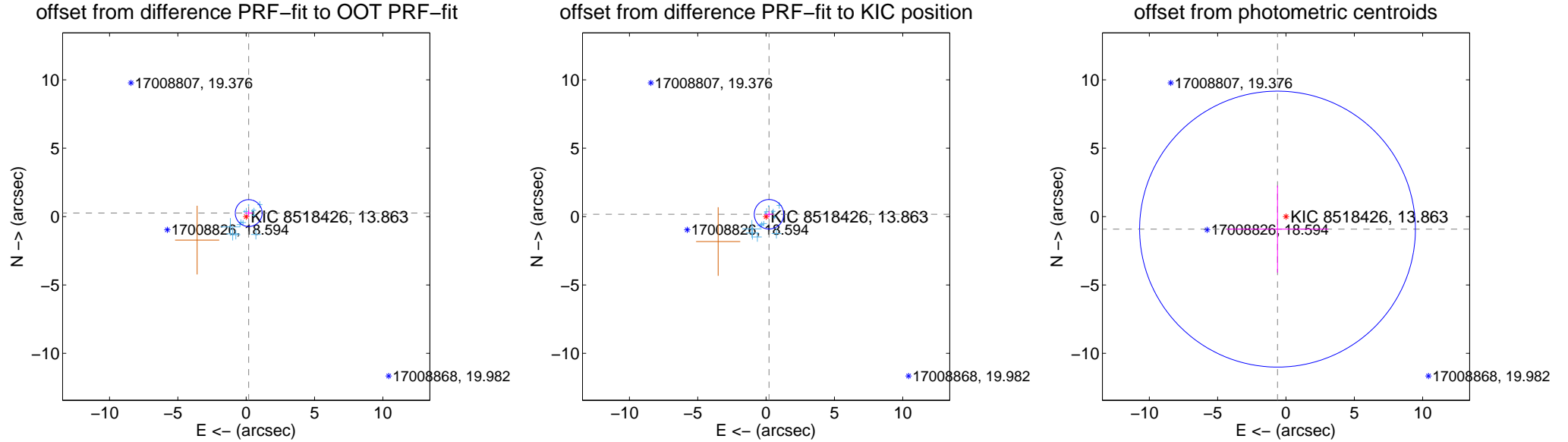
## DV Centroid Data

Supplemental centroid analysis for 008518426-02. Kepler magnitude: 13.86. Transit SNR 3.38

There are 14 quarters with good PRF difference image offsets

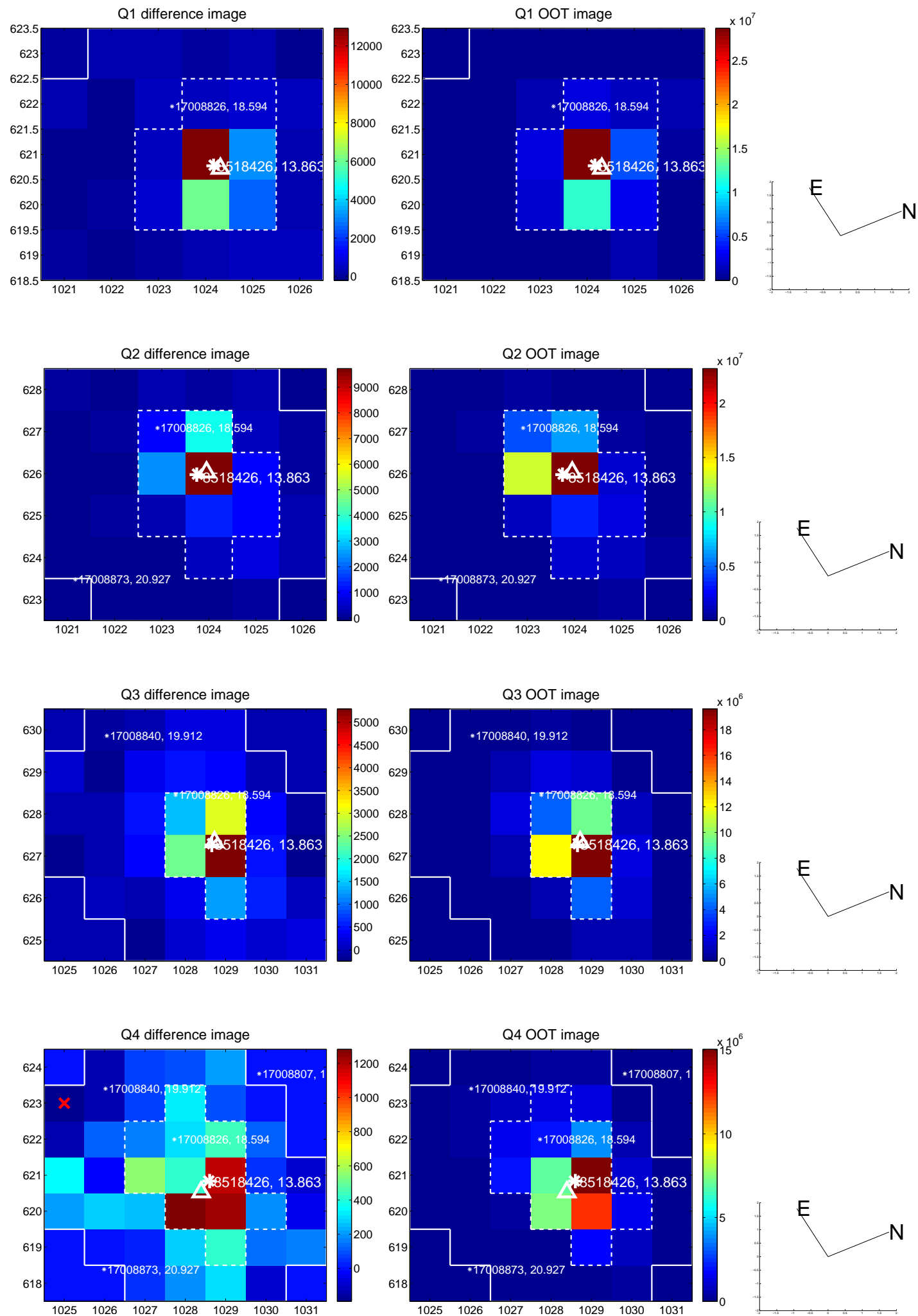
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | $0.314 \pm 0.328$  | 0.96                | $-0.182 \pm 0.294$ | $0.256 \pm 0.228$ |
| PRF-fit source offset from KIC position | $0.272 \pm 0.359$  | 0.76                | $-0.213 \pm 0.312$ | $0.169 \pm 0.232$ |
| photometric centroid source offset      | $1.11 \pm 3.36$    | 0.33                | $0.62 \pm 3.73$    | $-0.92 \pm 3.18$  |

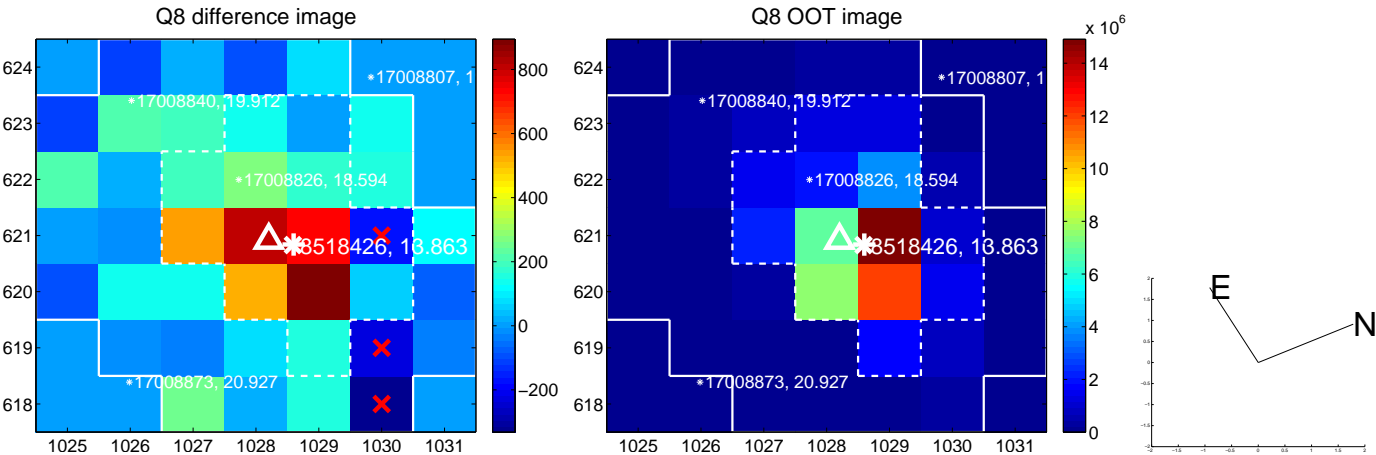
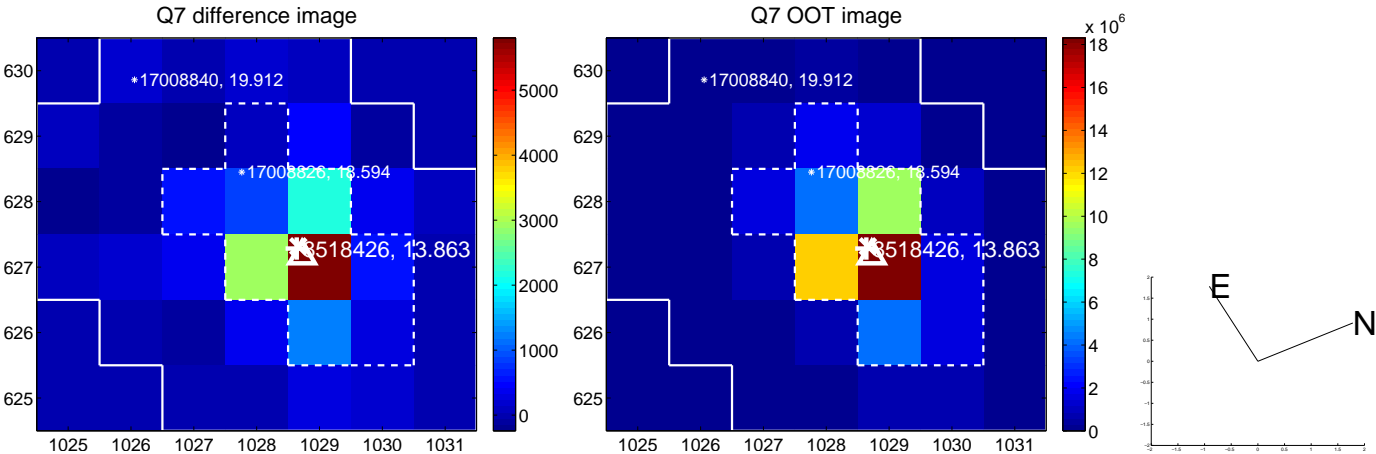
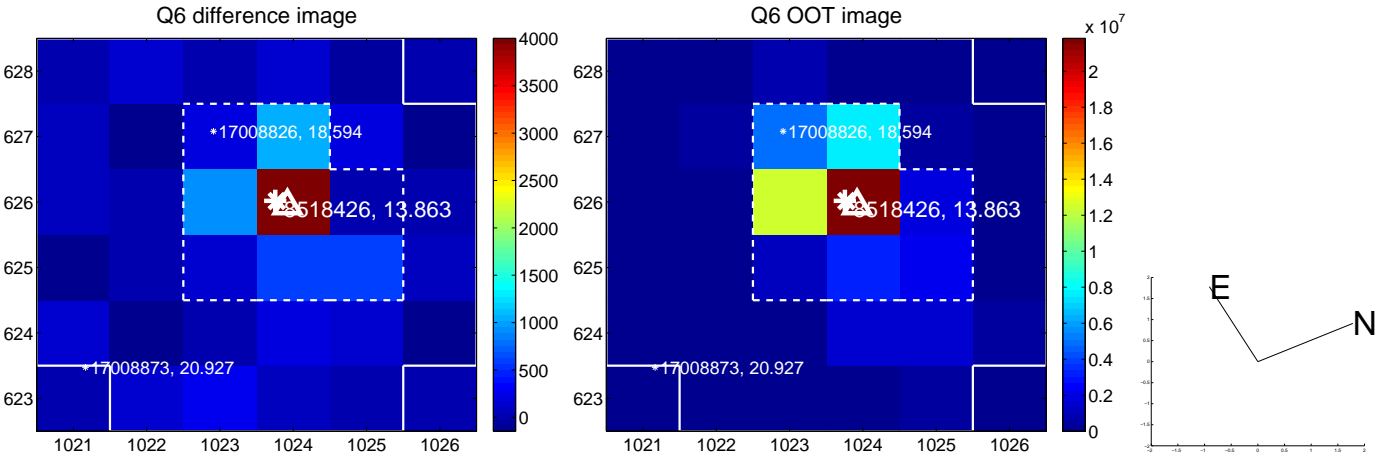
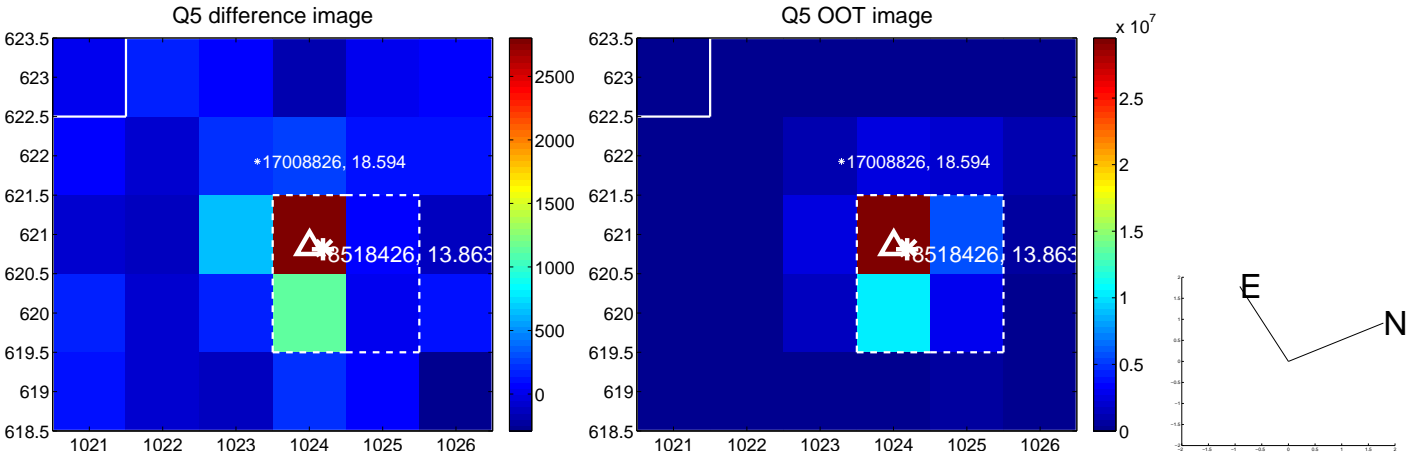


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

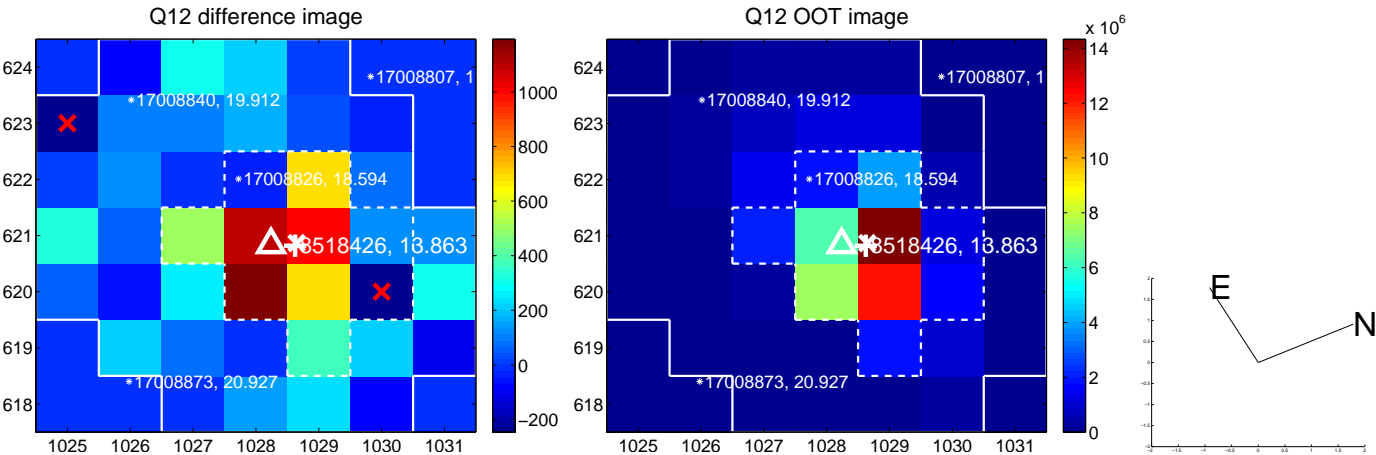
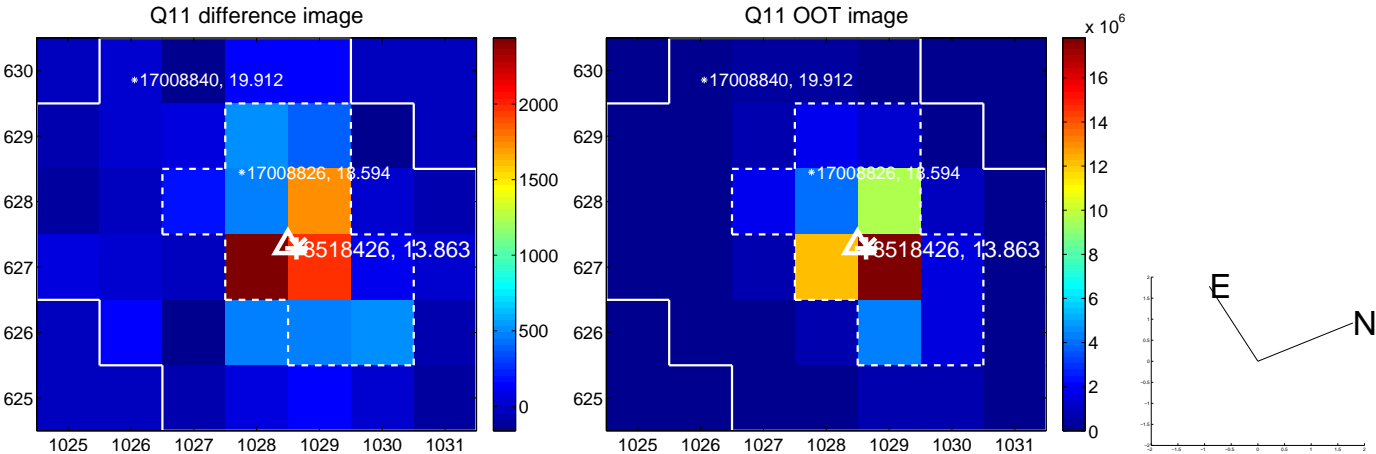
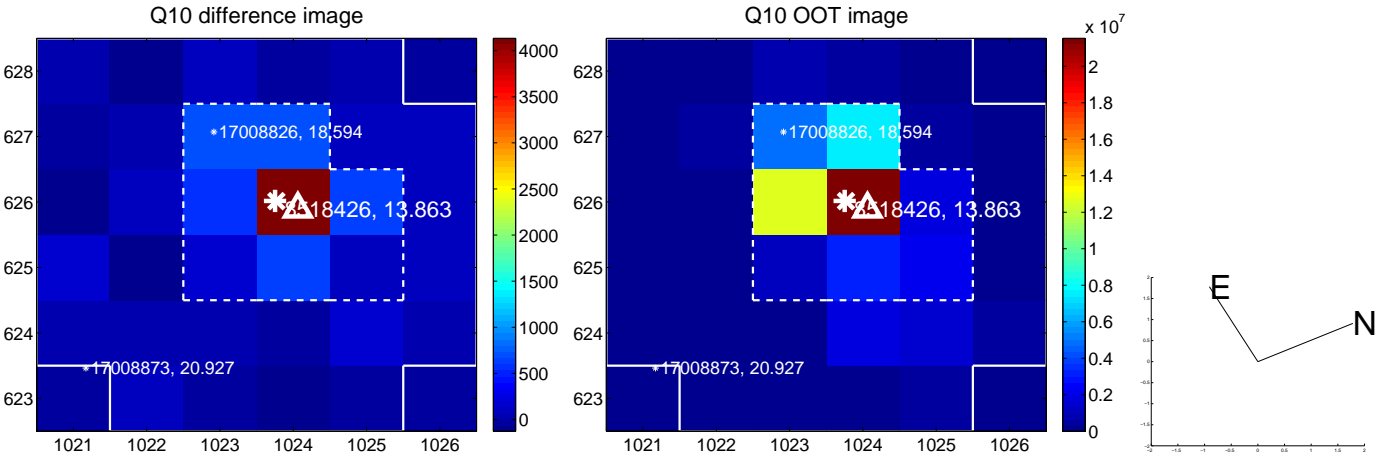
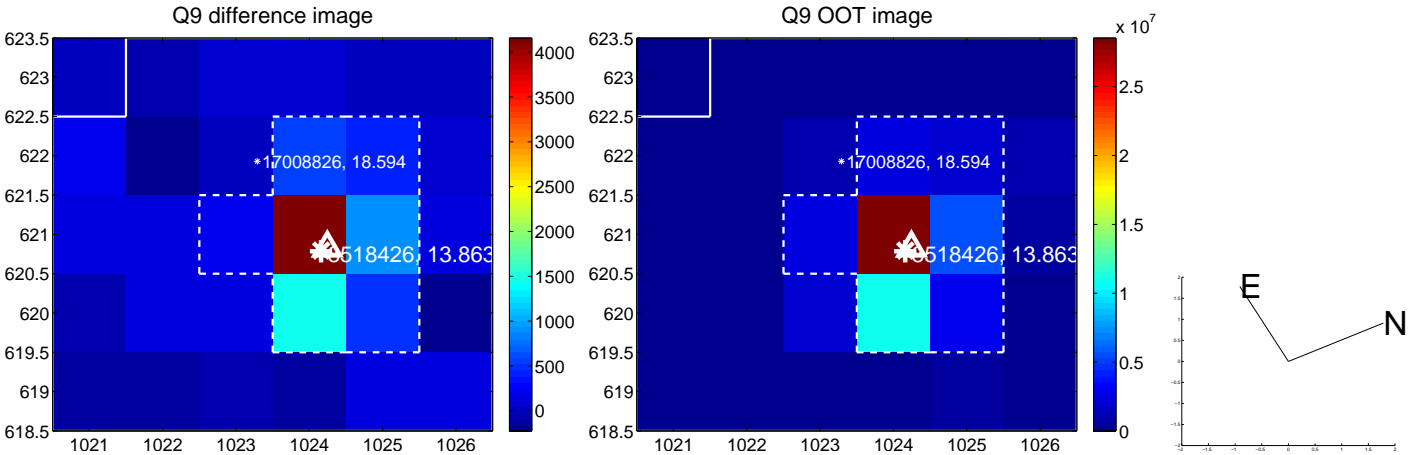


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

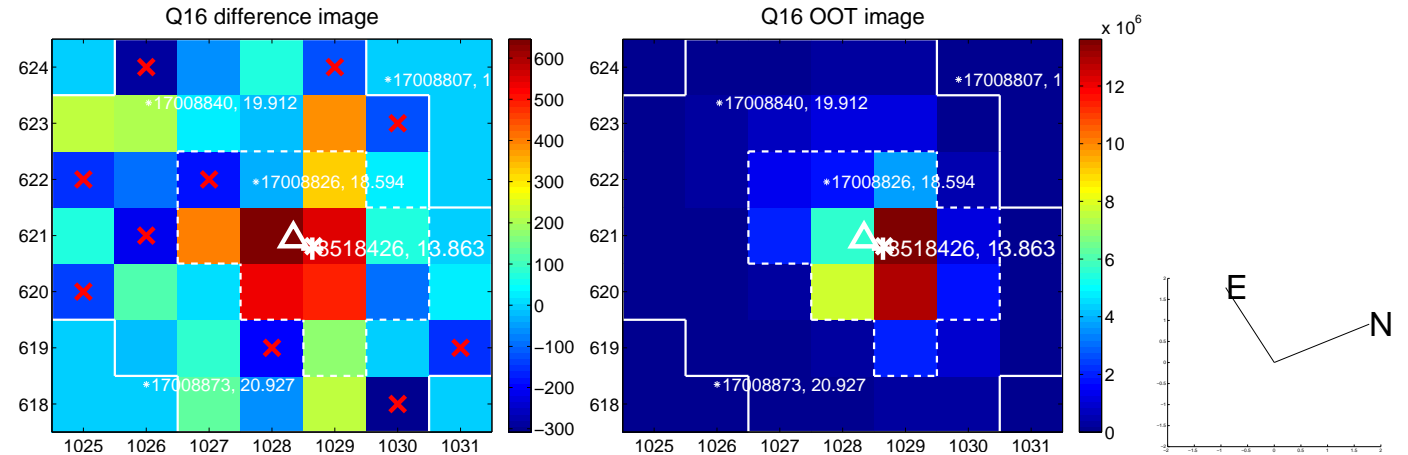
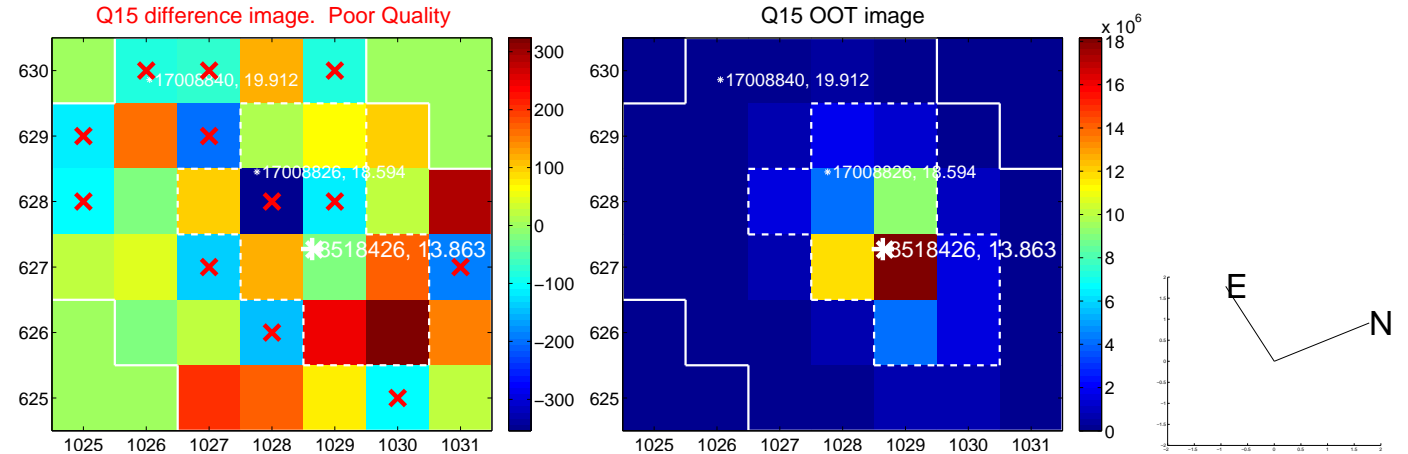
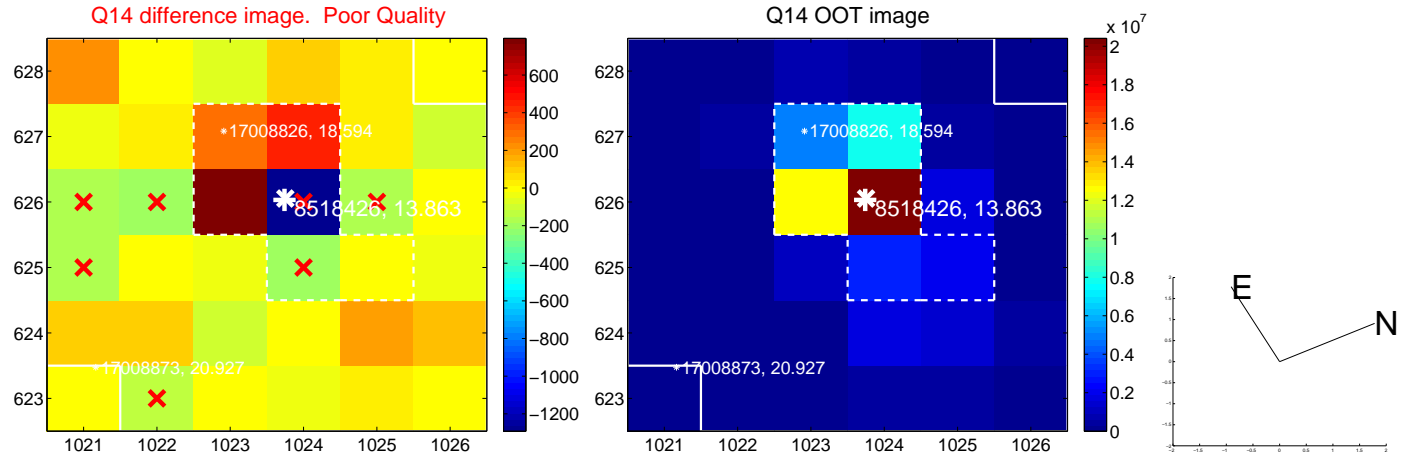
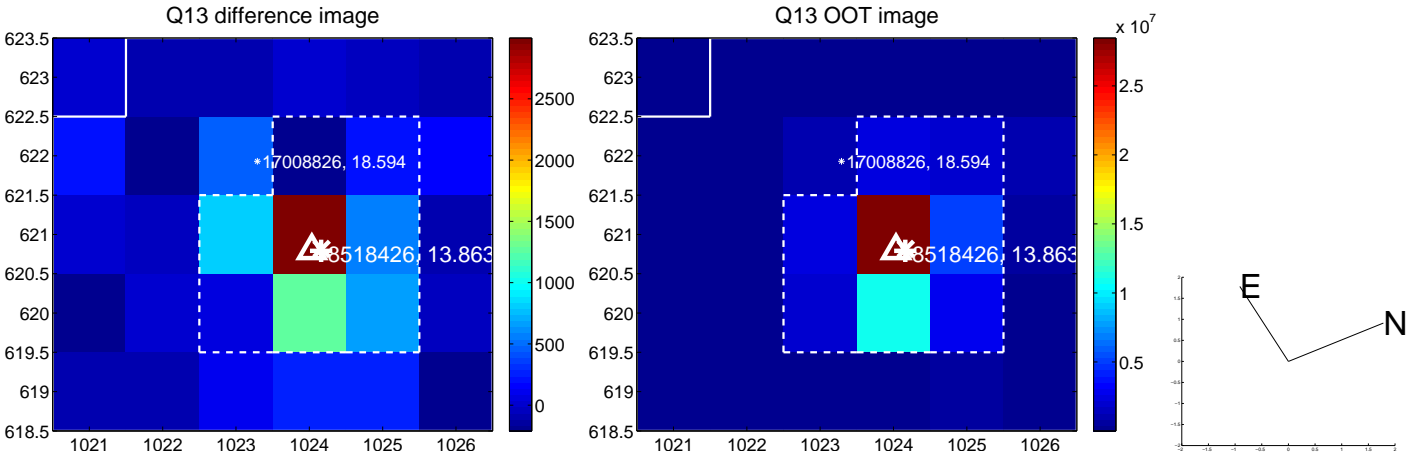




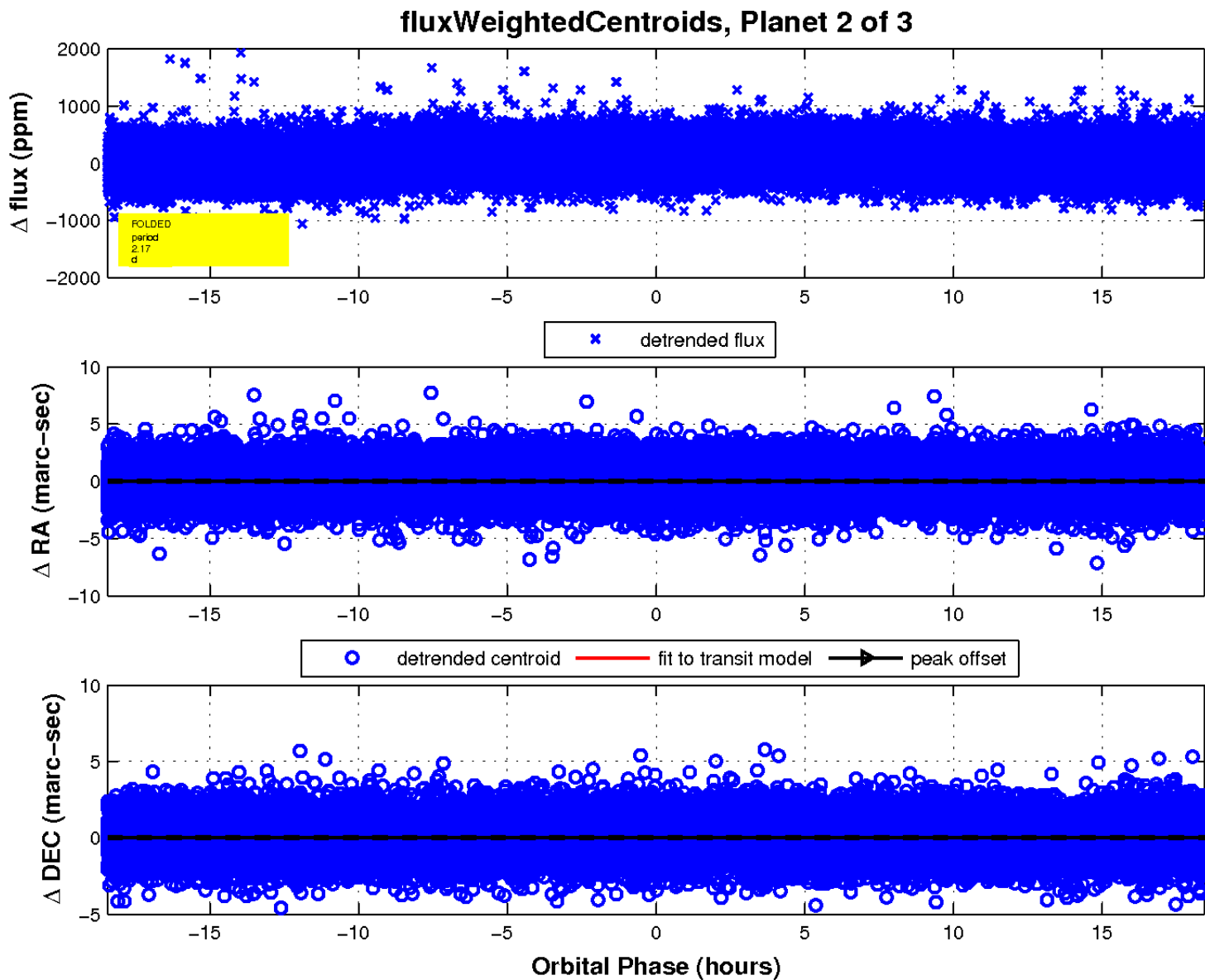
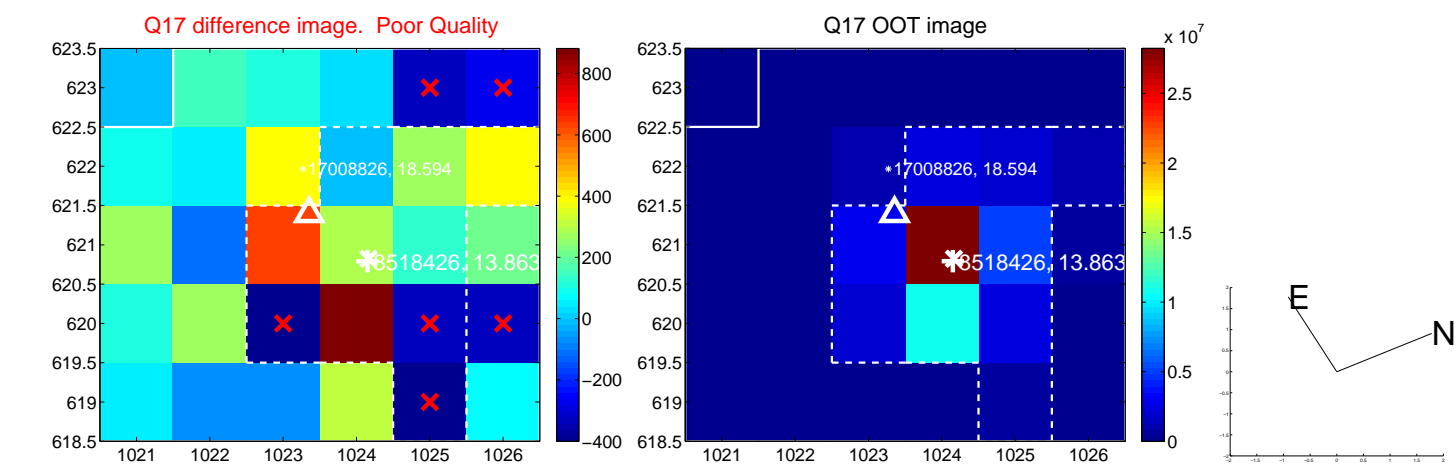
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

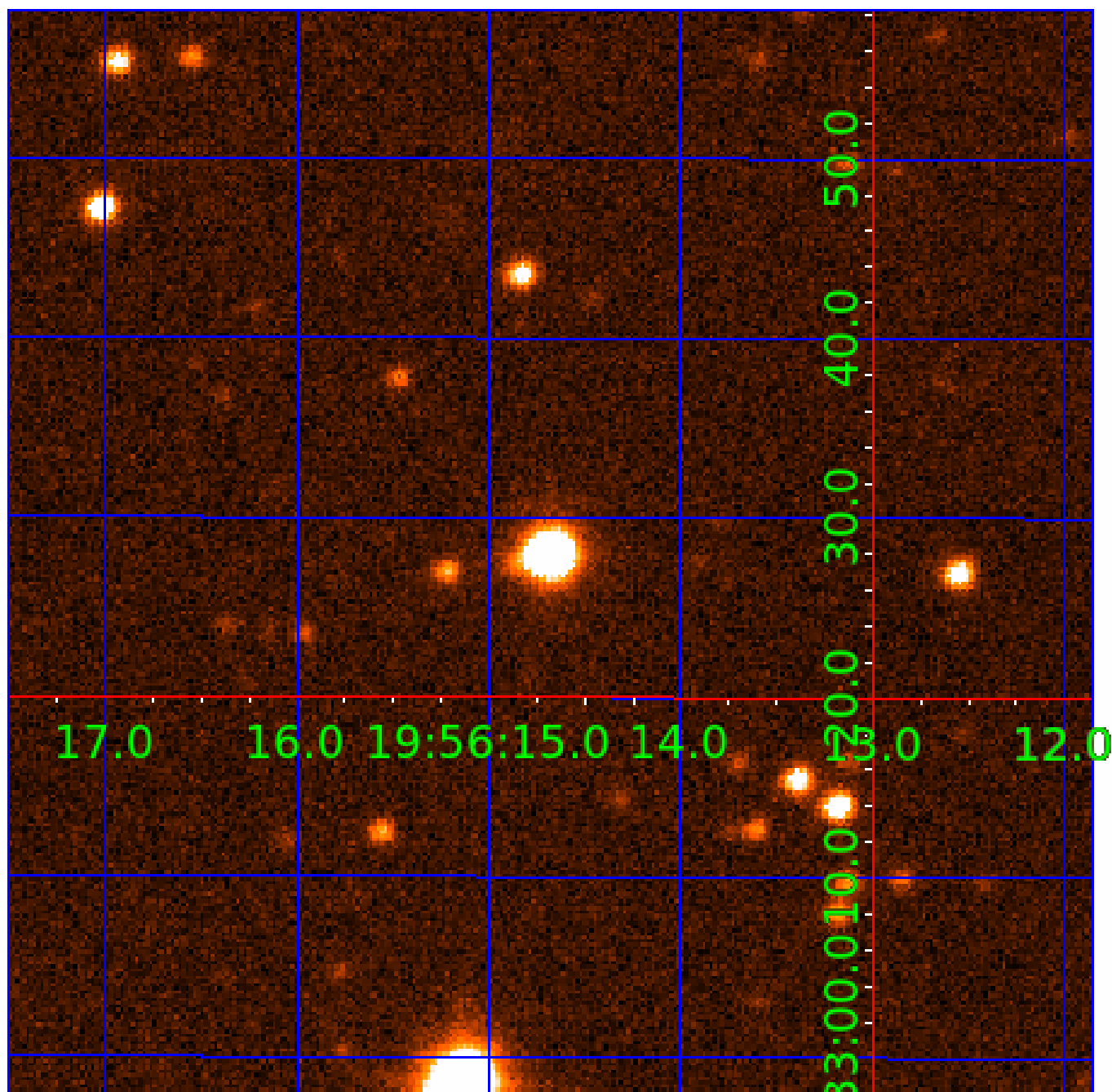


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008518426

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 008518426-01 | OBS      | No   | 2.171834      | 133.302795   | 31.0        | 9.367            | 9.7  | 7.2  | 3.75                        | 5916            | 2.08                   | 10666.03               |
| 008518426-02 | OBS      | No   | 2.172077      | 131.775130   | 13.4        | 6.148            | 12.7 | 3.4  | 3.75                        | 5916            | 1.59                   | 10664.44               |
| 008518426-03 | OBS      | No   | 2.172169      | 131.879671   | 124.3       | 26.066           | 11.1 | 15.9 | 3.75                        | 5916            | 4.54                   | 10663.84               |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 008518426-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT  |
| 008518426-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD        |
| 008518426-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—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.

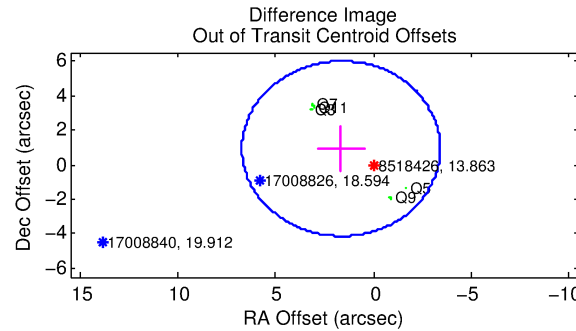
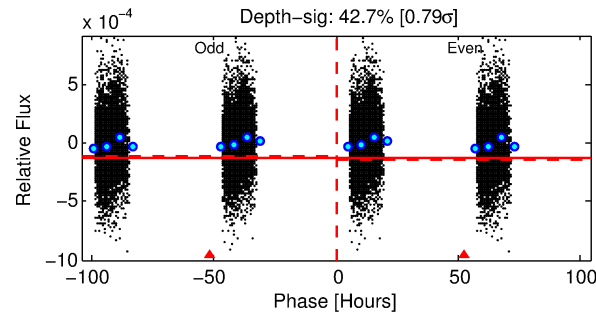
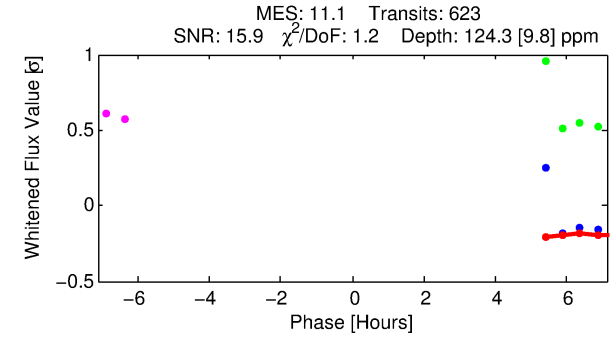
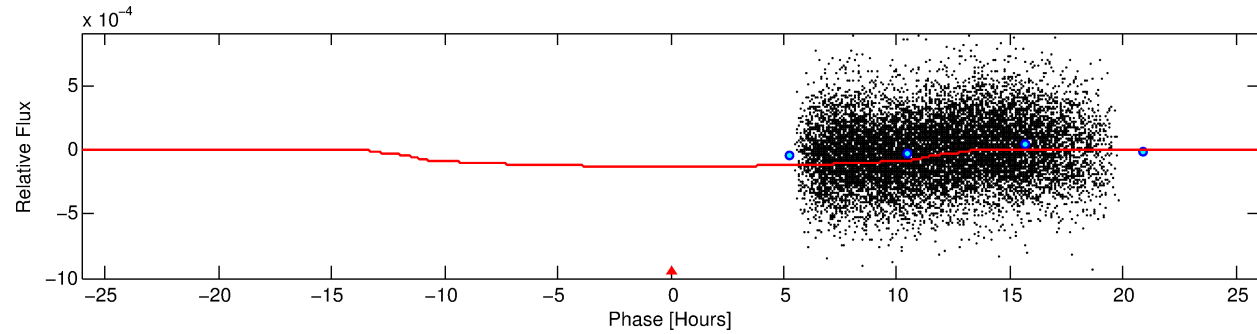
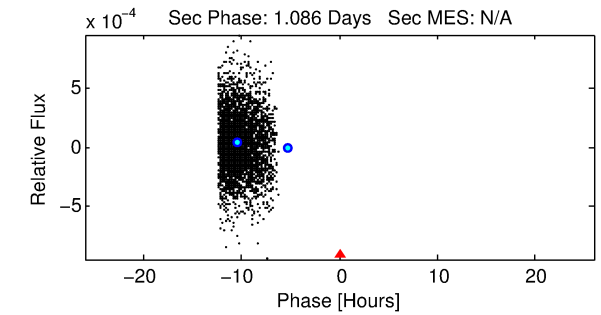
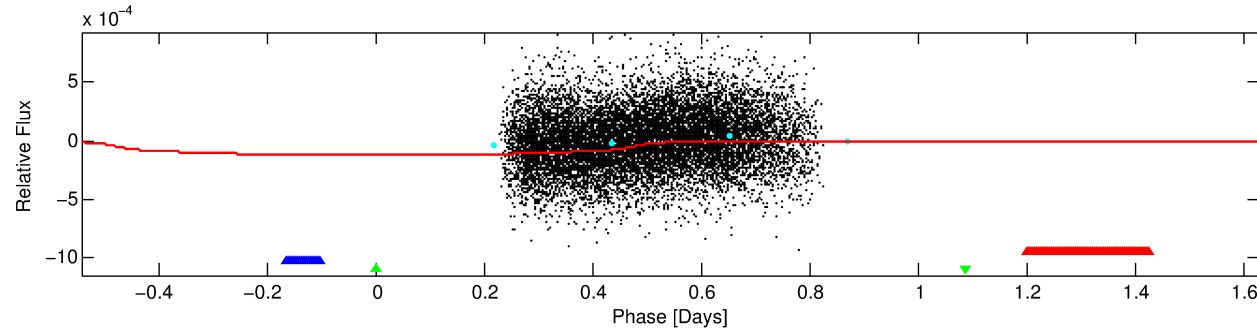
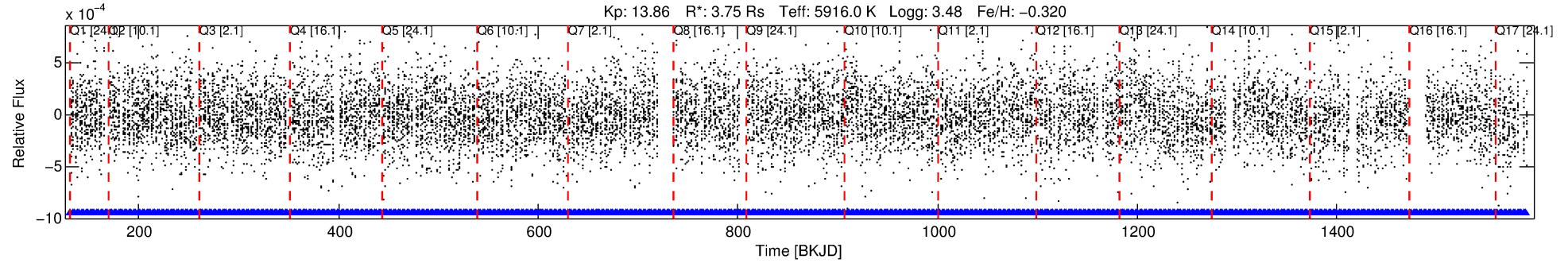
Ephemeris Match Information For 008518426-03

No Significant Match Found



# DV One-Page Summary

KIC: 8518426 Candidate: 3 of 3 Period: 2.172 d



## DV Fit Results:

Period = 2.17217 [0.00003] d  
Epoch = 131.8797 [0.0136] BKJD  
Rp/R\* = 0.0111 [0.0006]  
a/R\* = 1.00 [0.00]  
b = 0.75 [0.11]  
Seff = 10663.84 [13882.59]  
Teff = 2591 [843] K  
Rp = 4.54 [3.06] Re  
a = 0.0381 [0.0287] AU

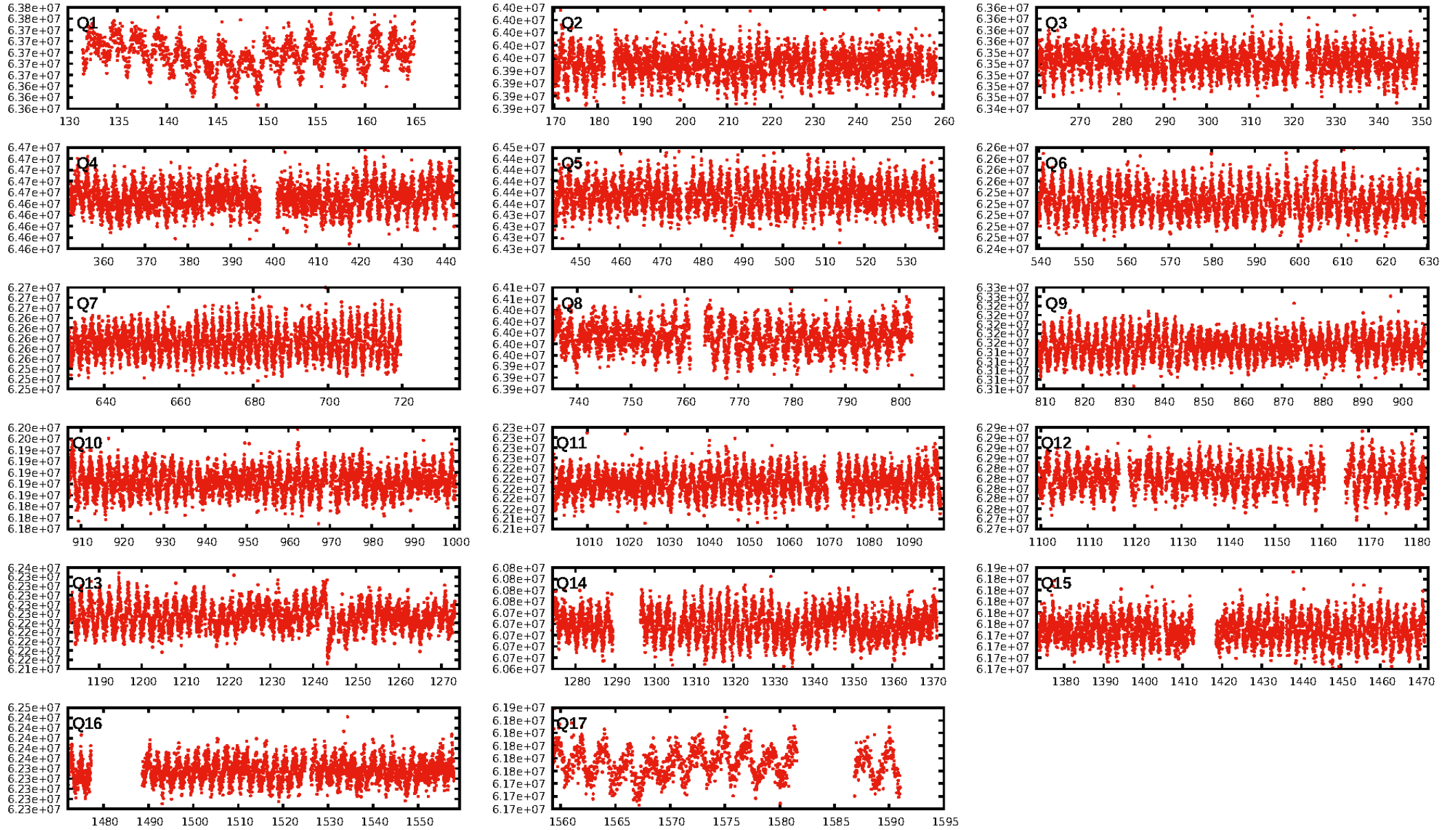
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [594/594]  
GhostDiagnostic-chr: 0.8395  
Centroid-sig: 0.0%  
Centroid-so: 0.476 arcsec [2.26σ]  
OotOffset-rm: 1.900 arcsec [1.13σ]  
KicOffset-rm: 1.801 arcsec [1.23σ]  
OotOffset-st: 0/3/0/2 [5]  
KicOffset-st: 0/3/0/2 [5]  
DiffImageQuality-fgm: 0.20 [1/5]  
DiffImageOverlap-fno: 0.00 [0/17]

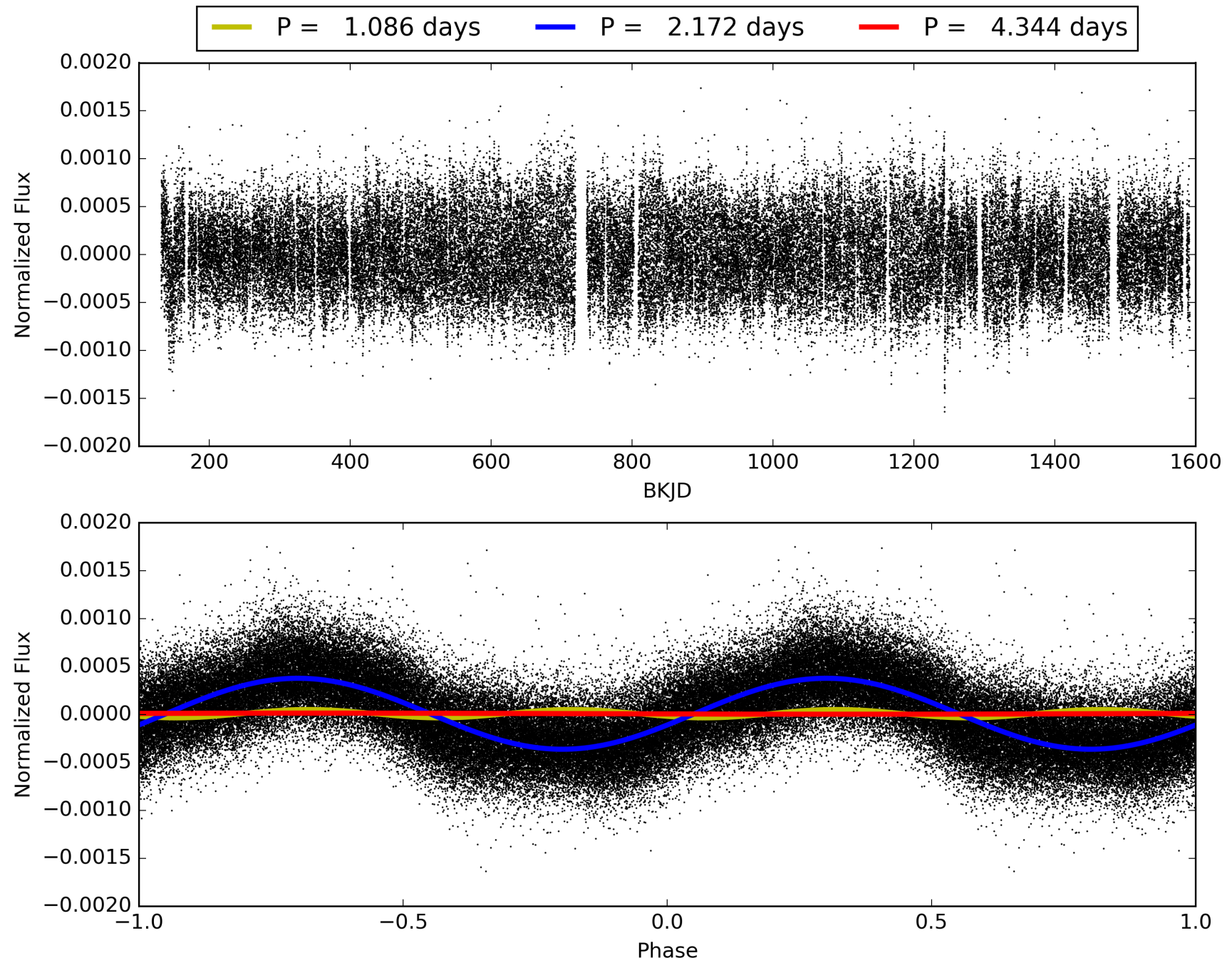
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:41:48 Z

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

# TCE 008518426-03, PDC Light Curves

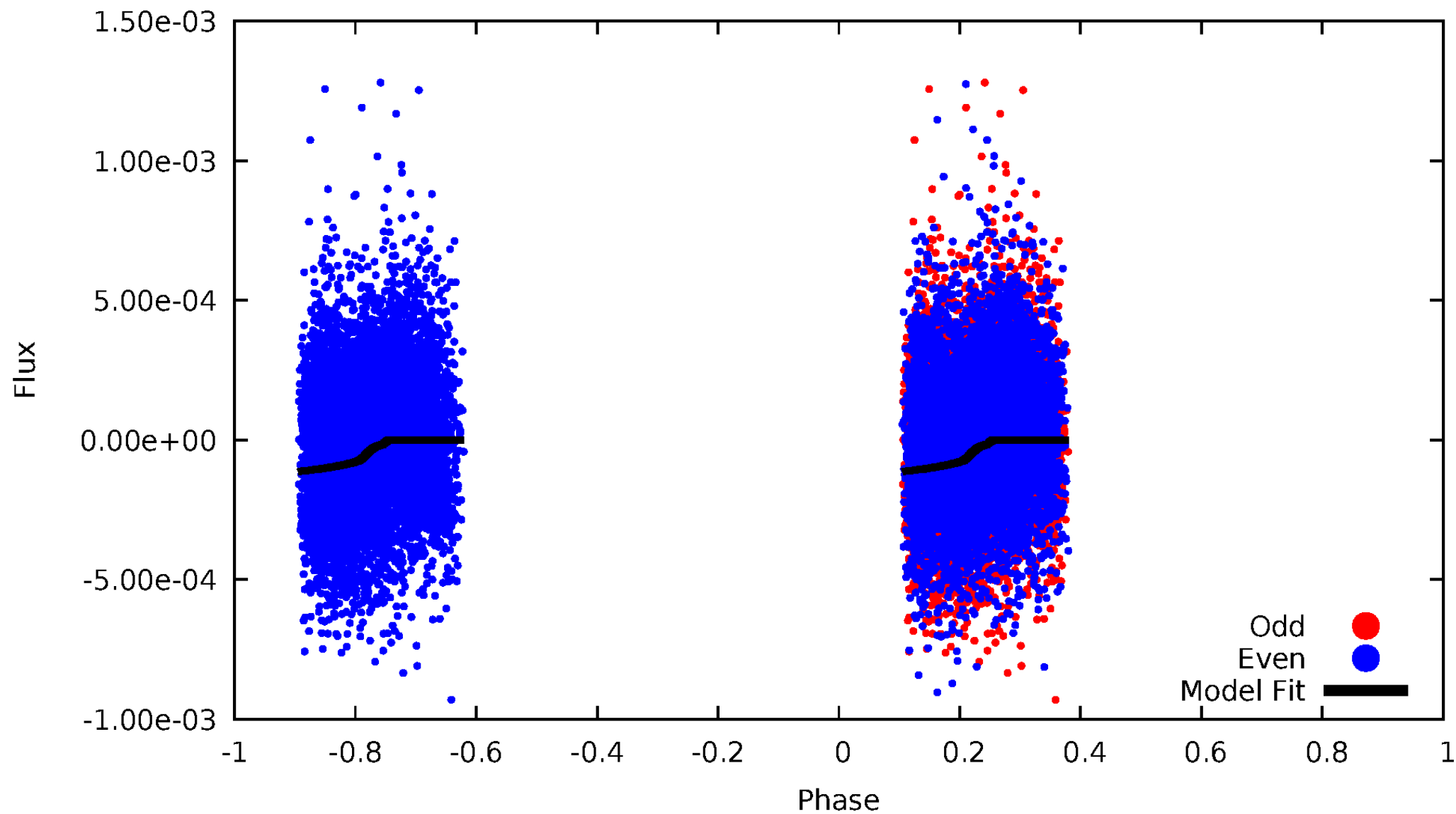


# TCE 008518426-03



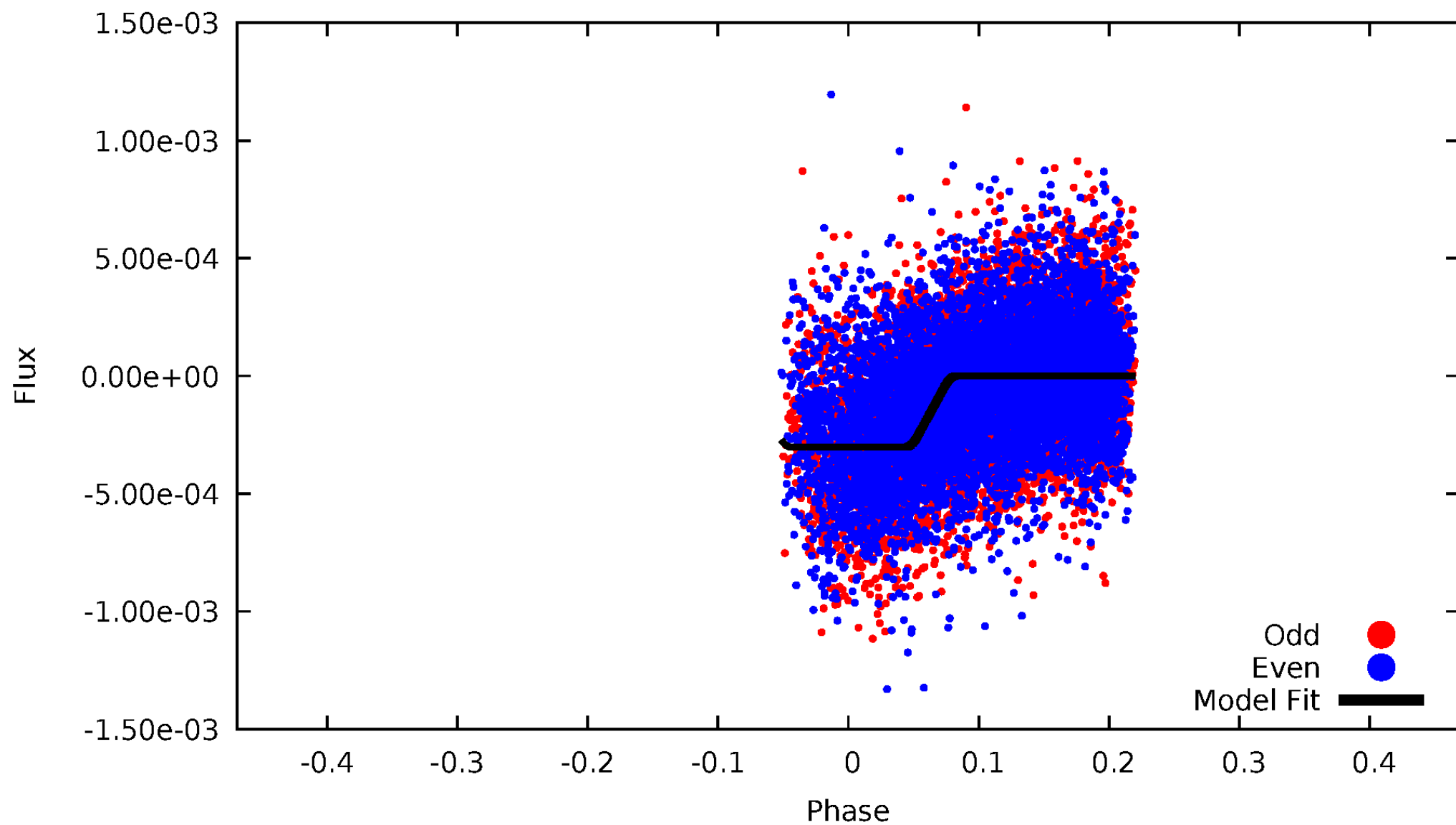
# DV Odd/Even

TCE 008518426-03



# ALT Odd/Even

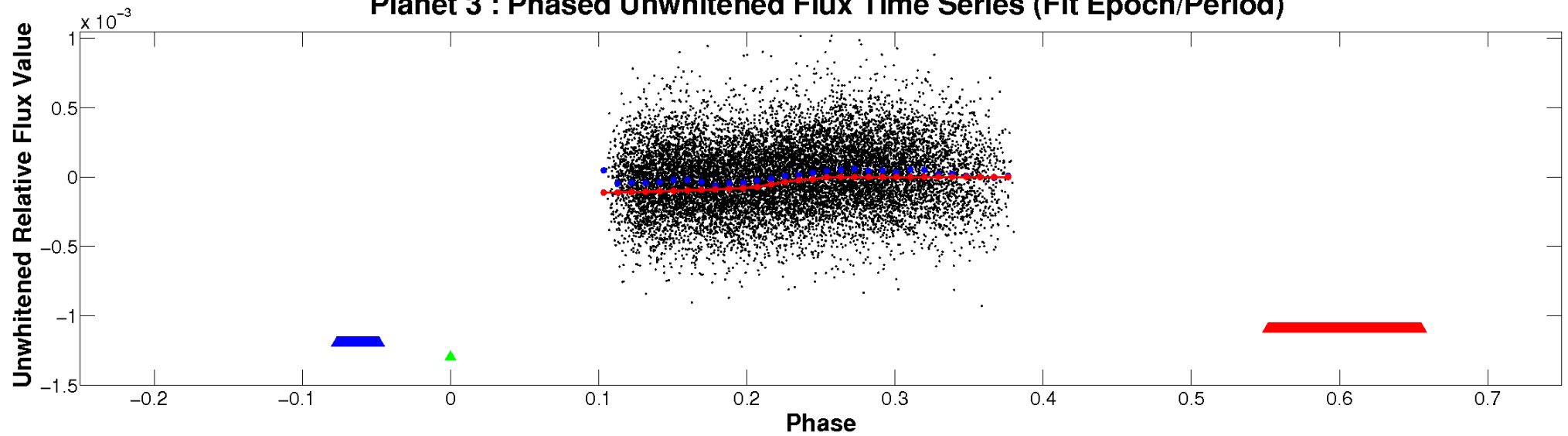
TCE 008518426-03



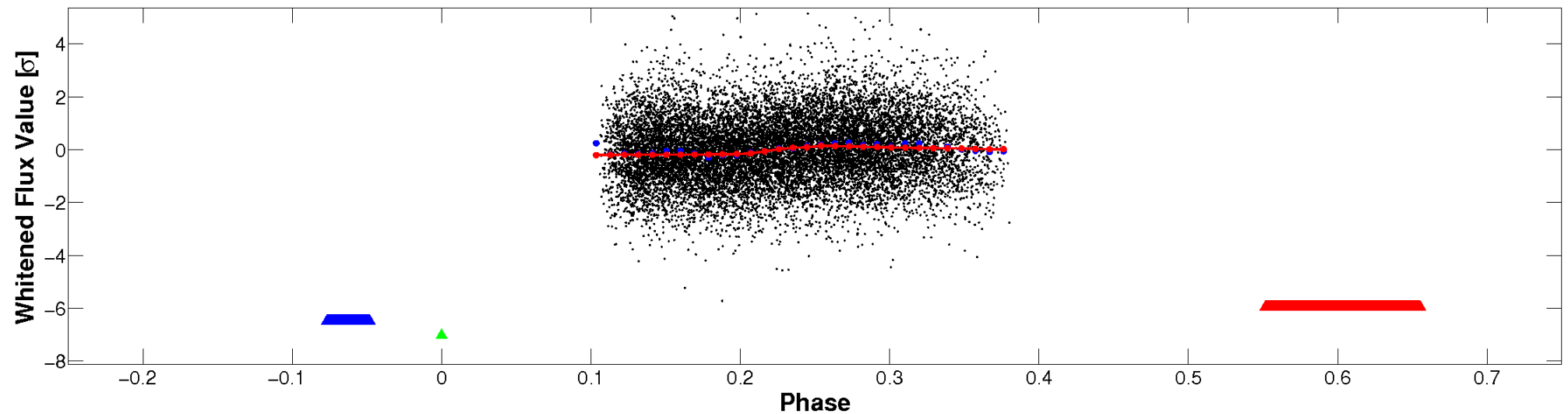


# Non-Whitened Vs. Whitened Light Curve

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

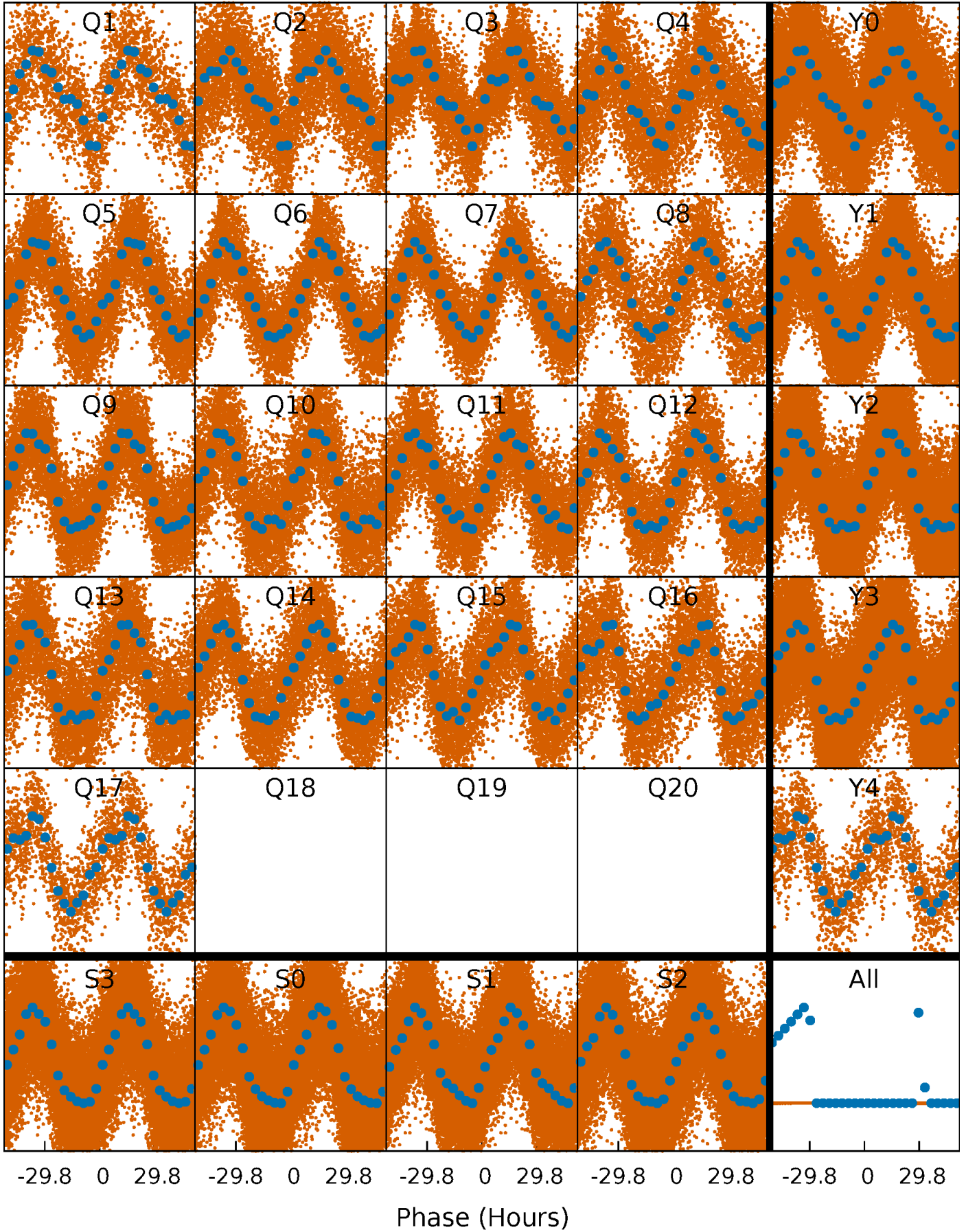


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



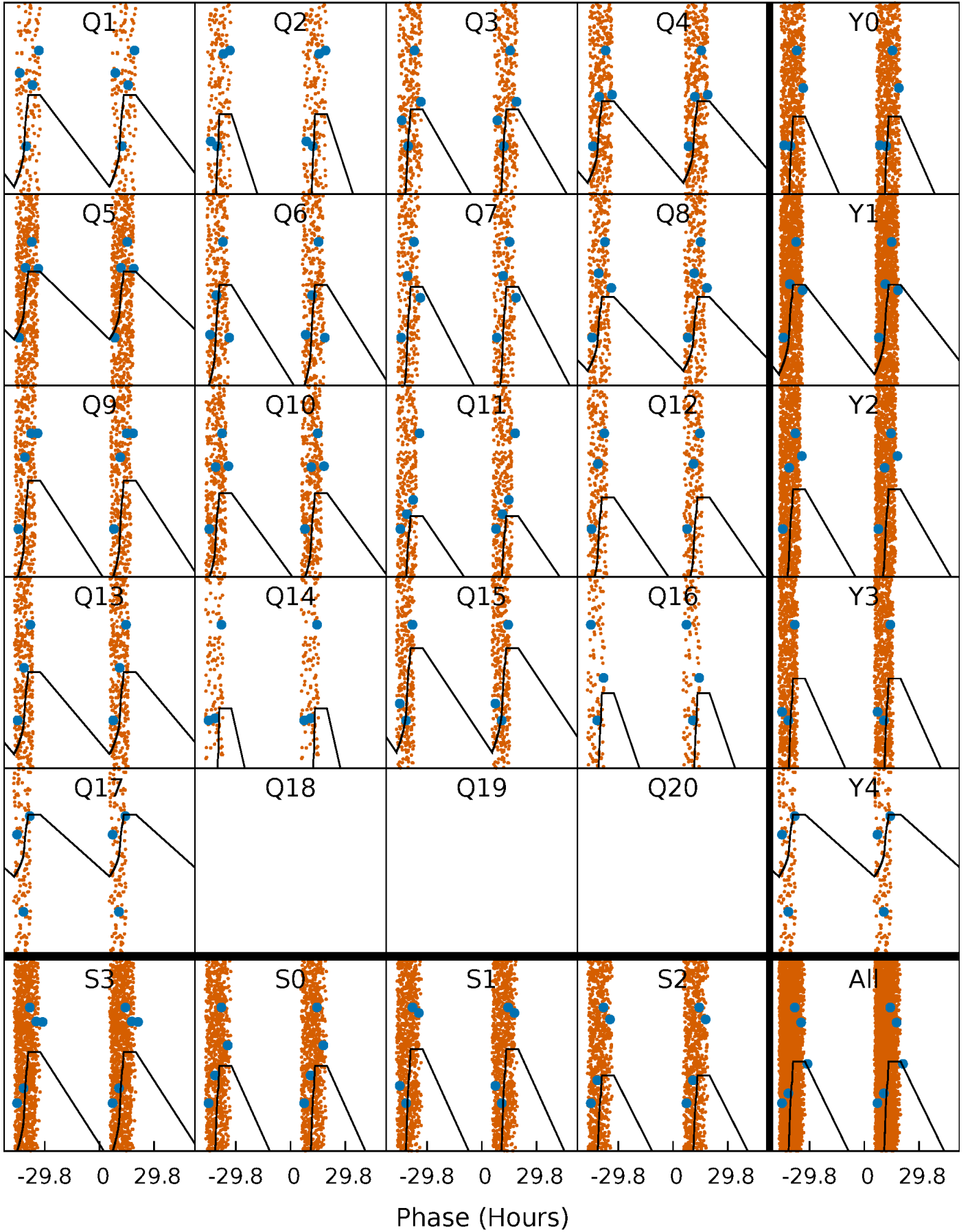
# PDC Quarter-Phased Transit Curves

TCE 008518426-03   P= 2.172169 Days    $T_0=131.879671$  (BKJD)



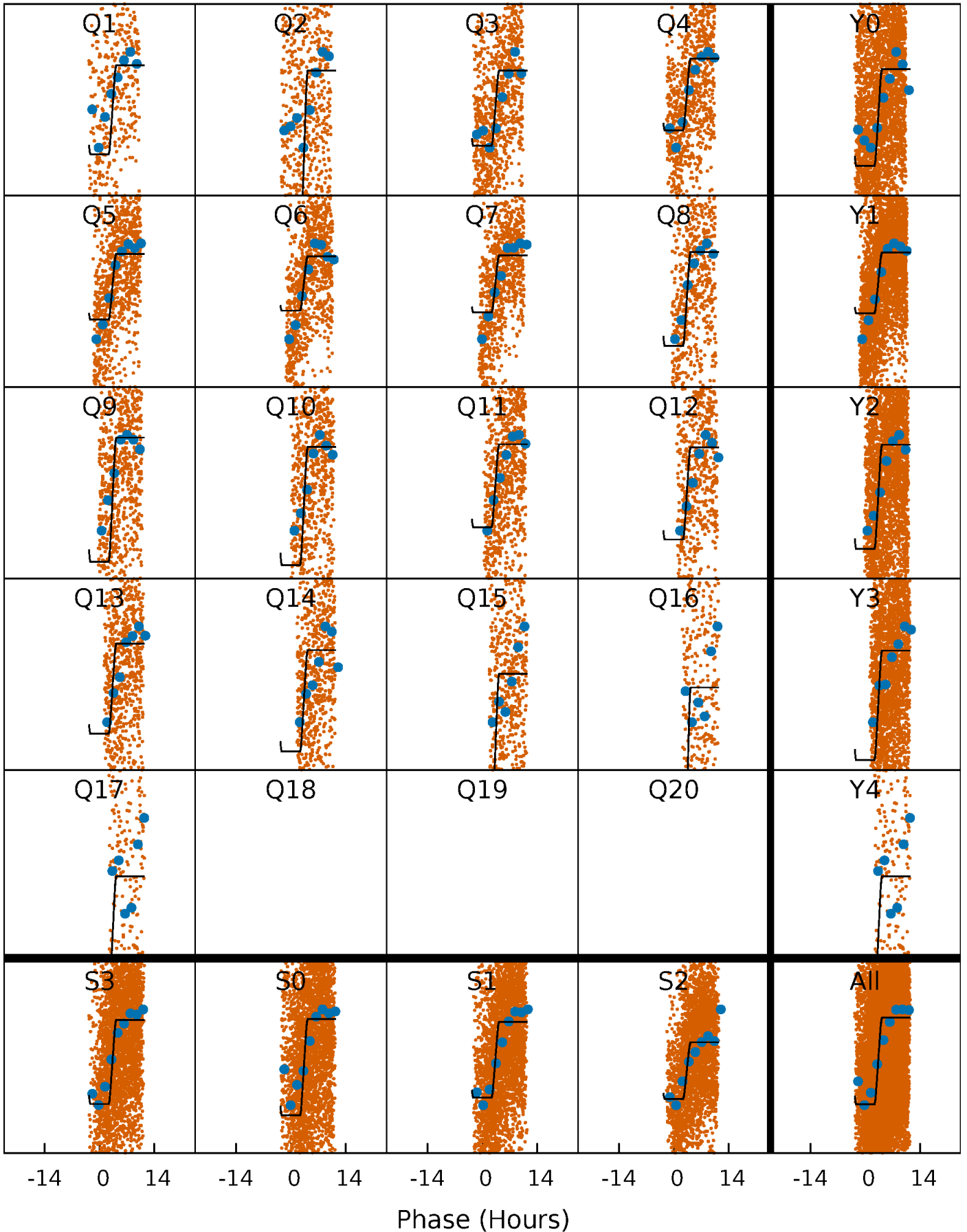
# DV Quarter-Phased Transit Curves

TCE 008518426-03 P= 2.172169 Days  $T_0=131.879671$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

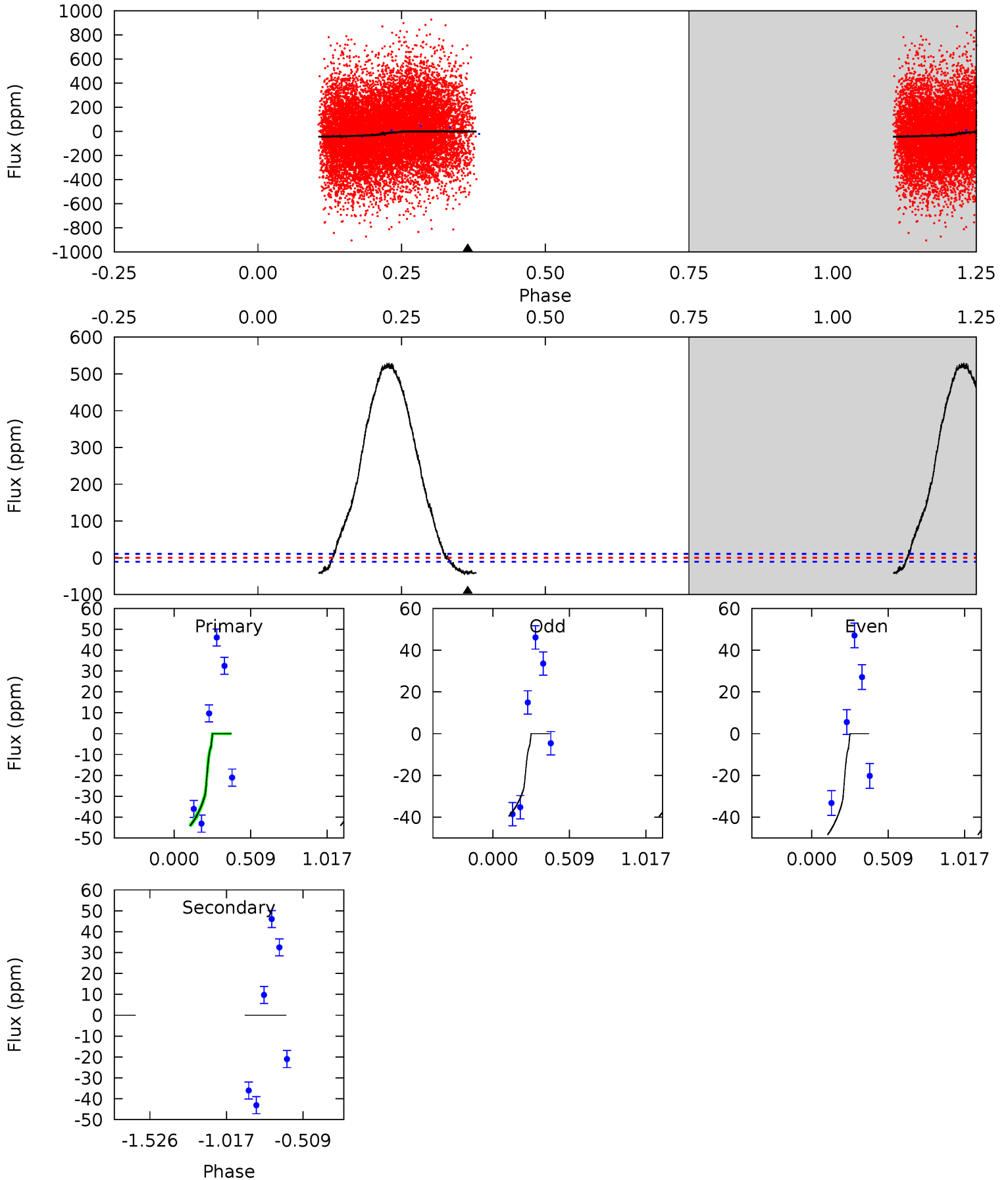
TCE 008518426-03   P= 2.171751 Days    $T_0=132.283997$  (BKJD)



# DV Model-Shift Uniqueness Test

008518426-03, P = 2.172169 Days, E = 131.879671 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 |
|------|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 17.7 | 0   | 0   | 0   | 4.21            | 0.66            | 11.2             | 17.7    | 17.7    | 0       | 0       | 1.77    | 0.57 | 0.92  | 0   |

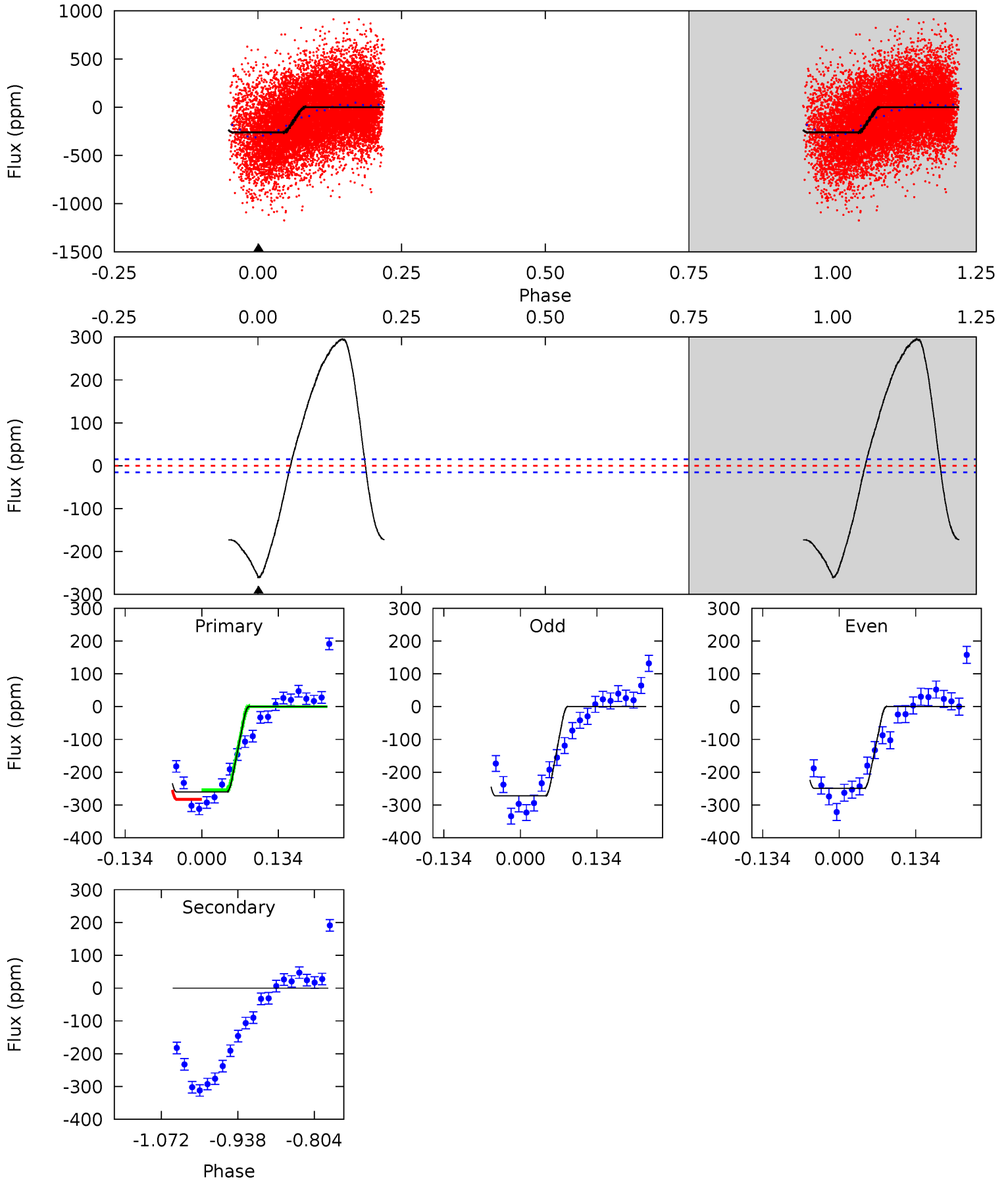




# Alt Model-Shift Uniqueness Test

008518426-03, P = 2.171751 Days, E = 130.112246 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  |
|------|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 77.1 | 0   | 0   | 0   | 4.50            | 1.50            | 33.9             | 77.1    | 77.1    | 0       | 0       | 3.37    | 0.94 | 0.53  | 2.87 |



### Stellar Parameters For KIC 008518426

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M$ ( $M_{\odot}$ )       | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5916^{+227}_{-186}$ | $3.482^{+0.790}_{-0.139}$ | $-0.320^{+0.350}_{-0.250}$ | $3.751^{+0.840}_{-2.520}$ | $1.554^{+0.201}_{-0.603}$ | $0.041^{+0.752}_{-0.017}$                     |
|        | +4%/-3%              | +23%/-4%                  | +109%/-78%                 | +22%/-67%                 | +13%/-39%                 | +1814%/-40%                                   |
| 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 008518426-03 / KOI

| Detrend | Depth (ppm) | $R_p$ ( $R_{\oplus}$ ) | $T_{\text{max}}$ (K) | $T_{\text{obs}}$ (K)  | $A_{\text{obs}}$           |
|---------|-------------|------------------------|----------------------|-----------------------|----------------------------|
| DV      | $0 \pm 3$   | $4.23^{+0.86}_{-1.57}$ | $3515^{+305}_{-651}$ | $-3378^{+463}_{-267}$ | $-0.002^{+0.137}_{-0.131}$ |
| Alt.    | $0 \pm 3$   | $6.80^{+1.15}_{-2.42}$ | $3503^{+339}_{-580}$ | $-3385^{+368}_{-227}$ | $-0.000^{+0.066}_{-0.069}$ |

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

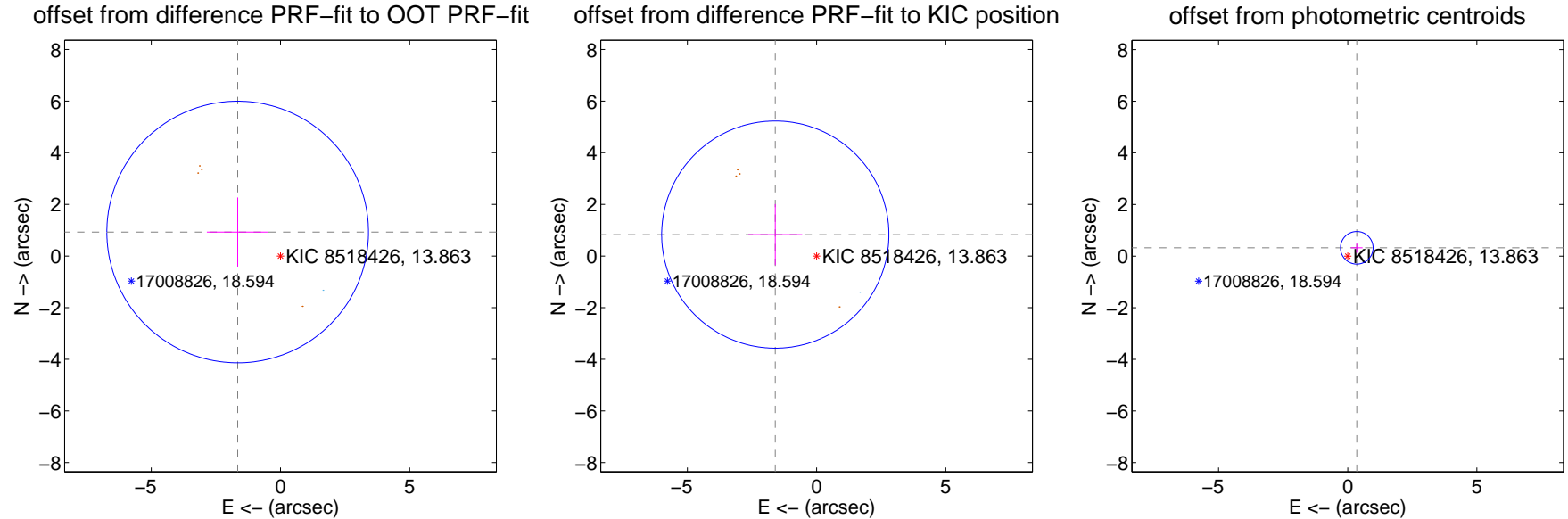
## DV Centroid Data

Supplemental centroid analysis for 008518426-03. Kepler magnitude: 13.86. Transit SNR 15.86

There are 1 quarters with good PRF difference image offsets

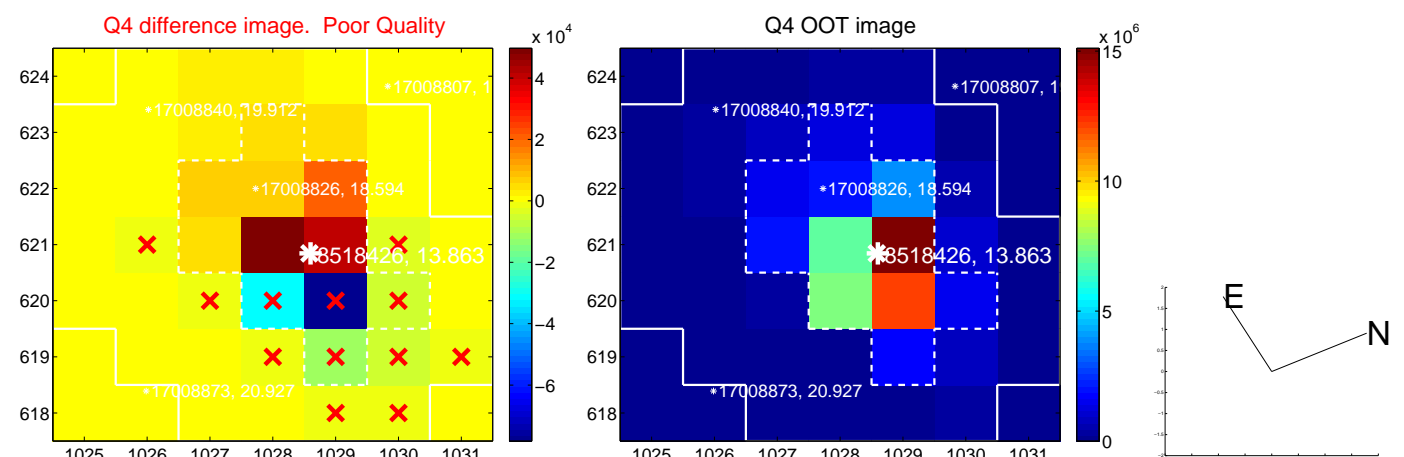
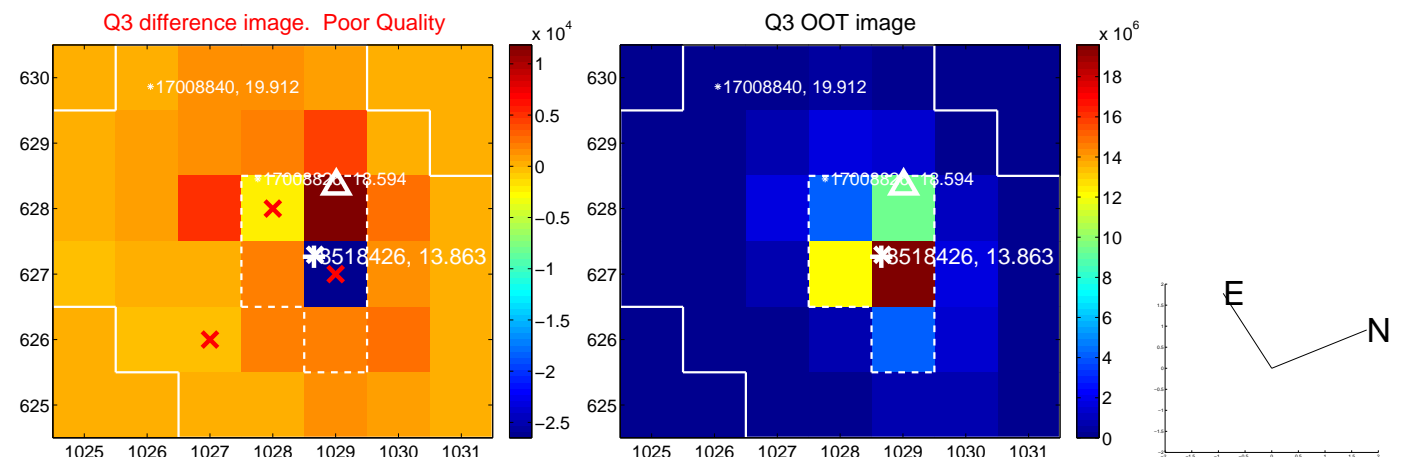
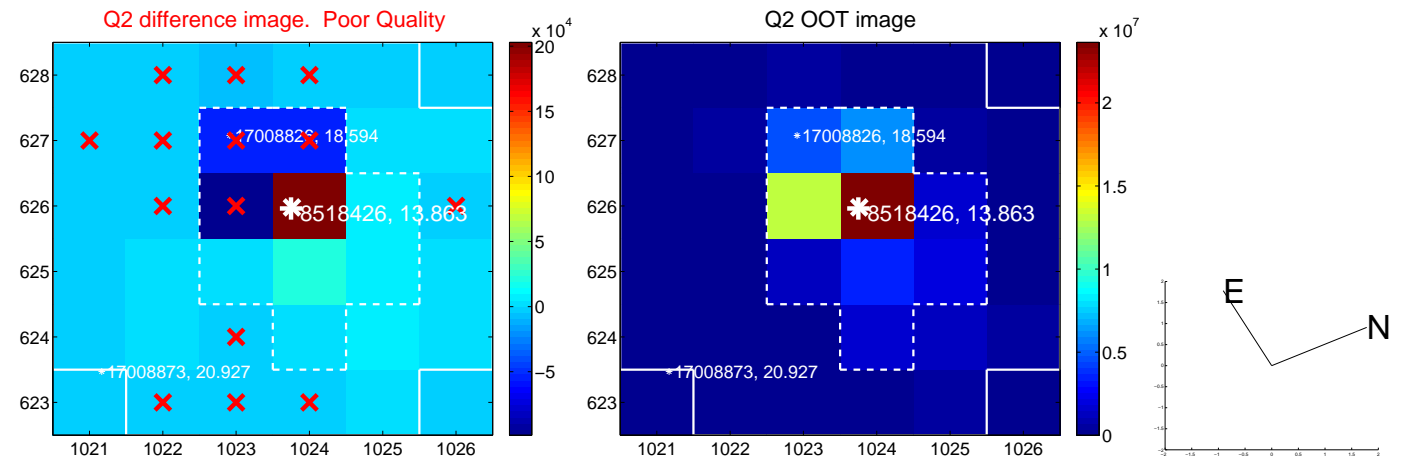
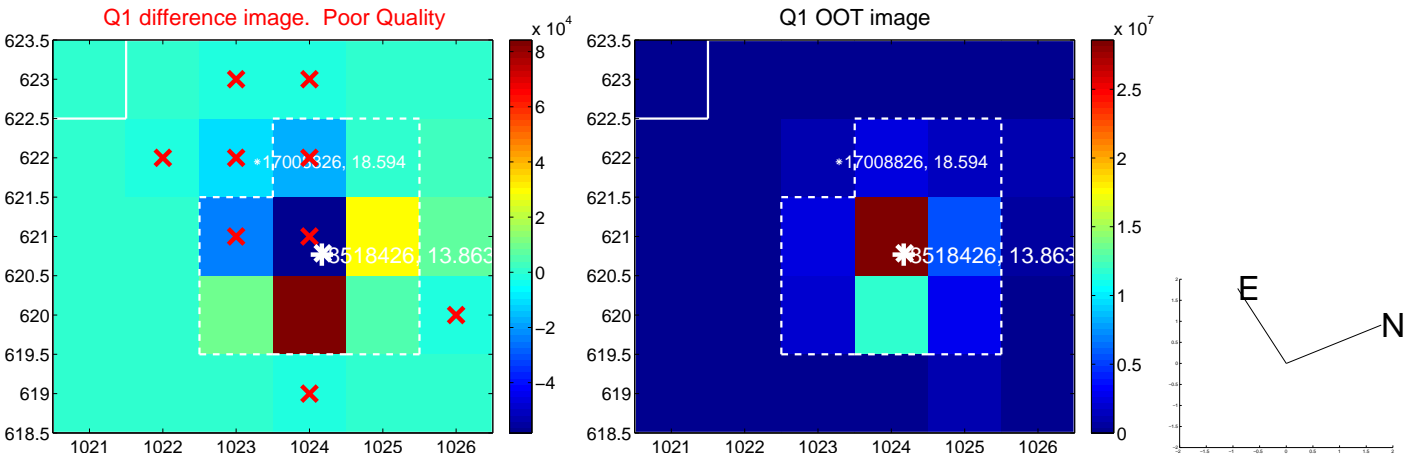
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $1.900 \pm 1.688$  | 1.13                | $1.657 \pm 1.193$ | $0.929 \pm 1.339$ |
| PRF-fit source offset from KIC position | $1.801 \pm 1.466$  | 1.23                | $1.599 \pm 1.045$ | $0.830 \pm 1.183$ |
| photometric centroid source offset      | $0.48 \pm 0.21$    | 2.26                | $-0.35 \pm 0.23$  | $0.32 \pm 0.19$   |

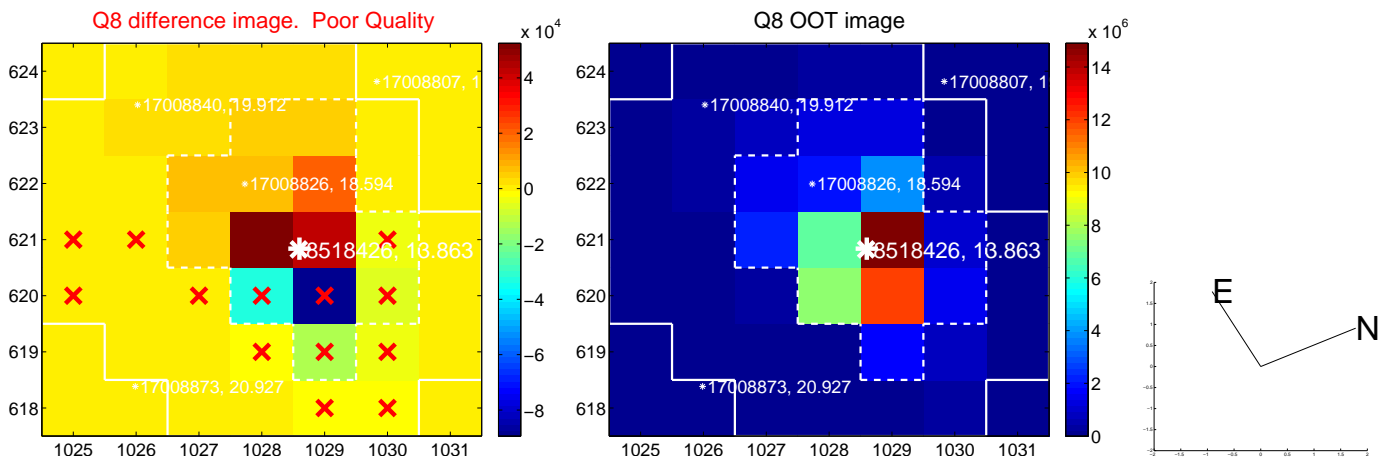
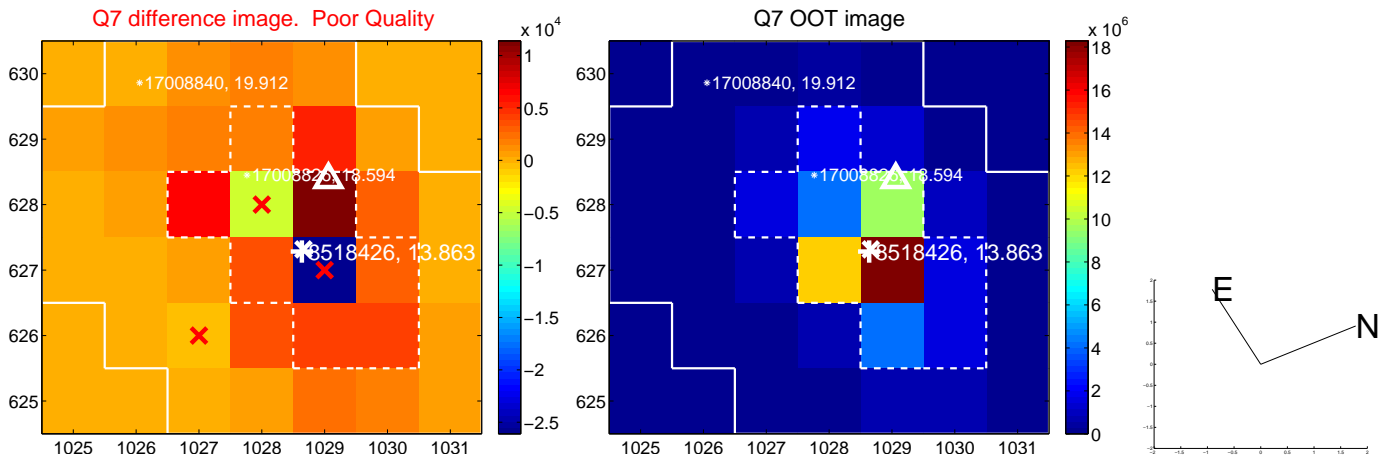
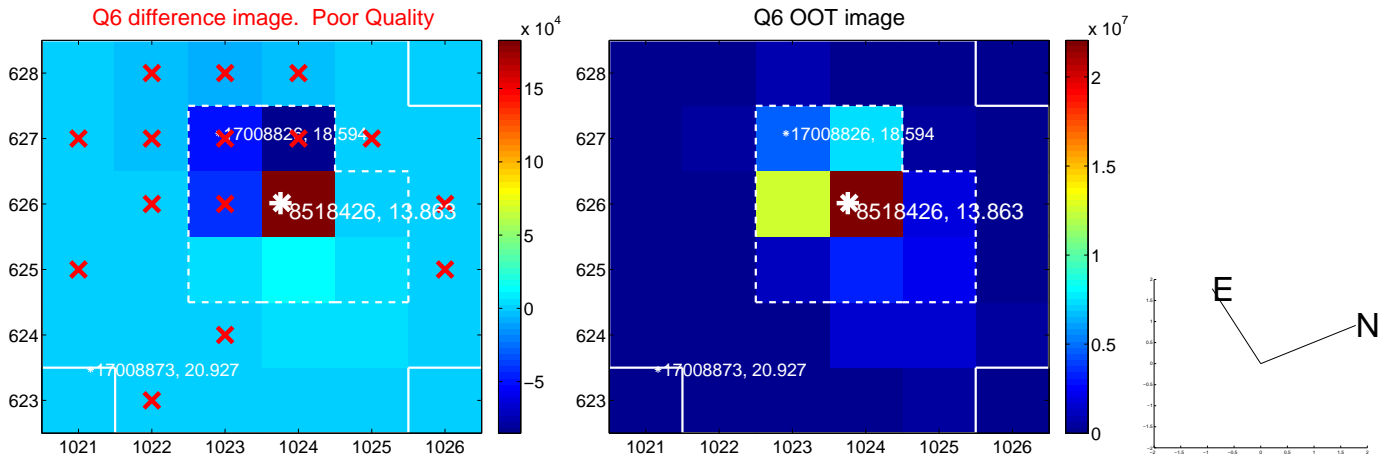
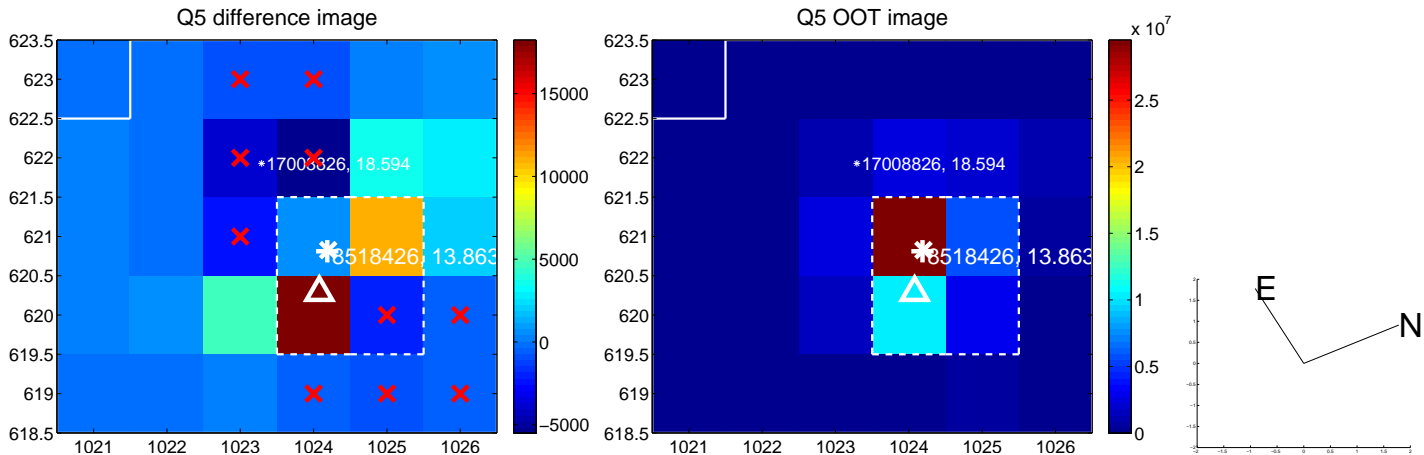


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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

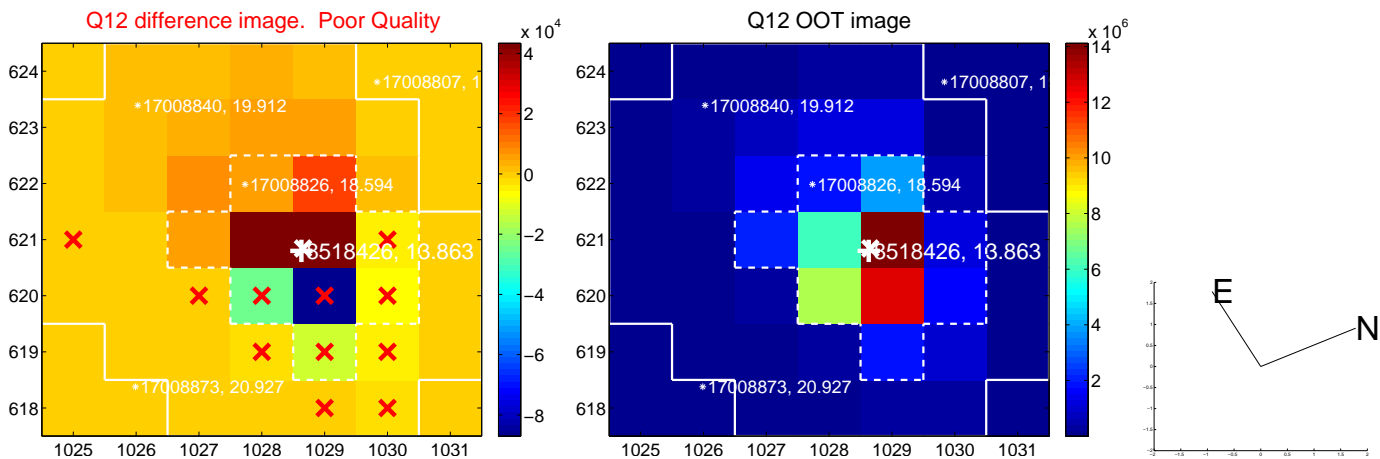
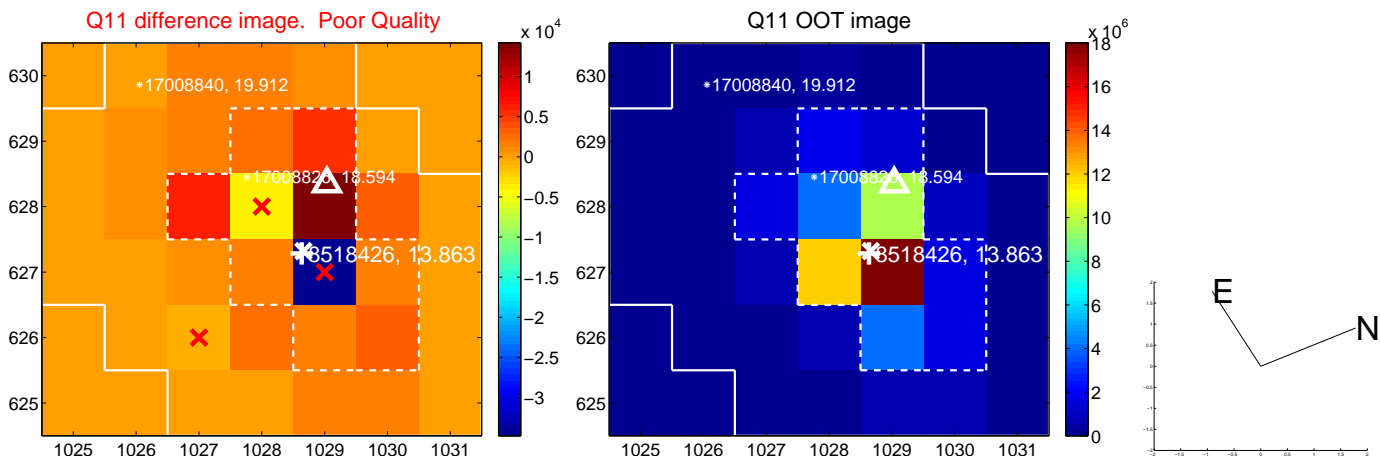
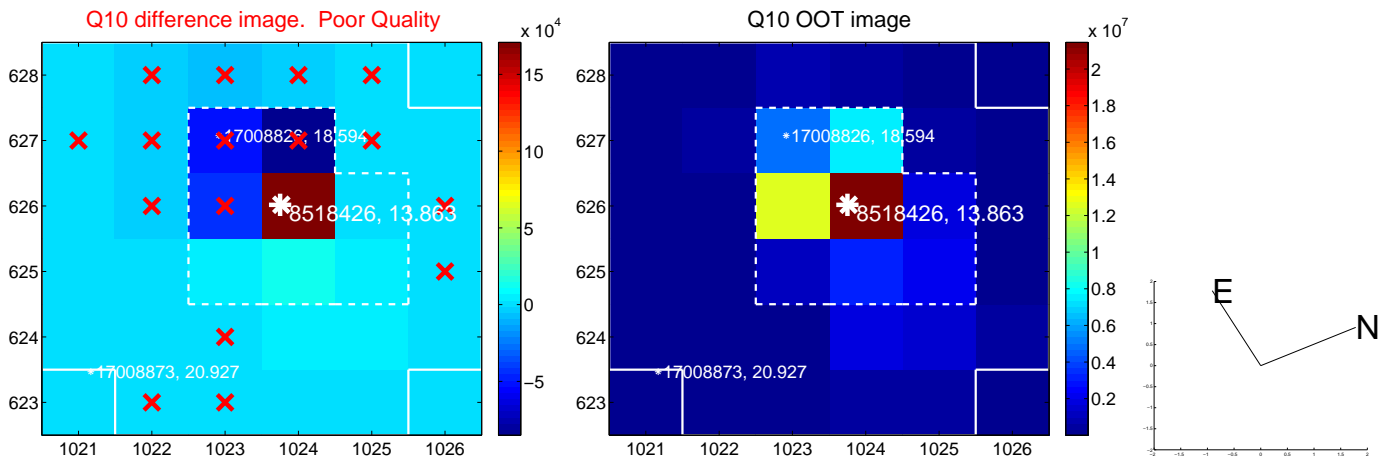
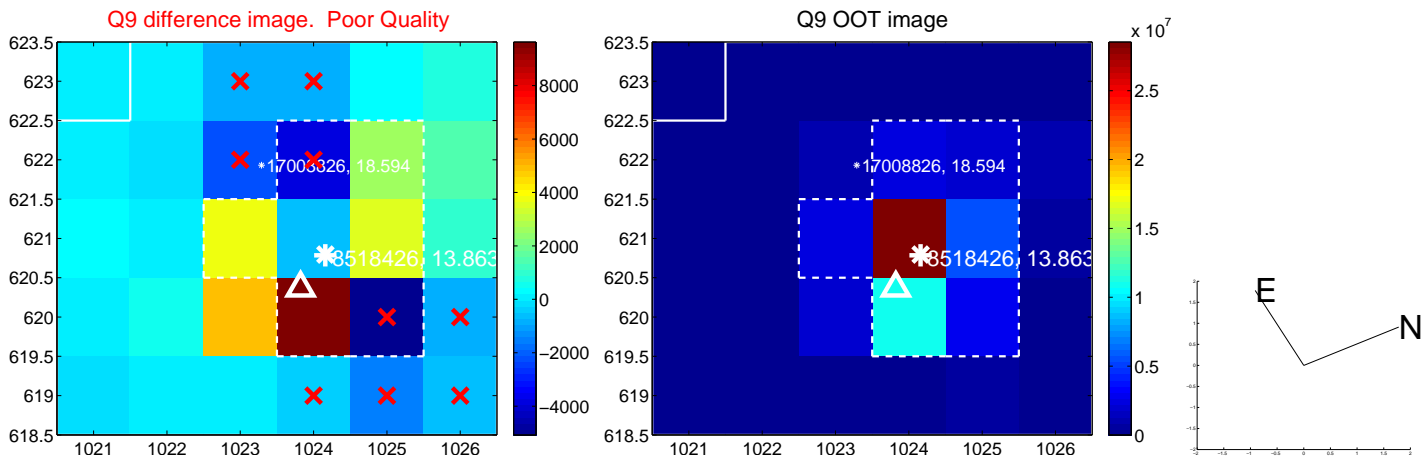


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

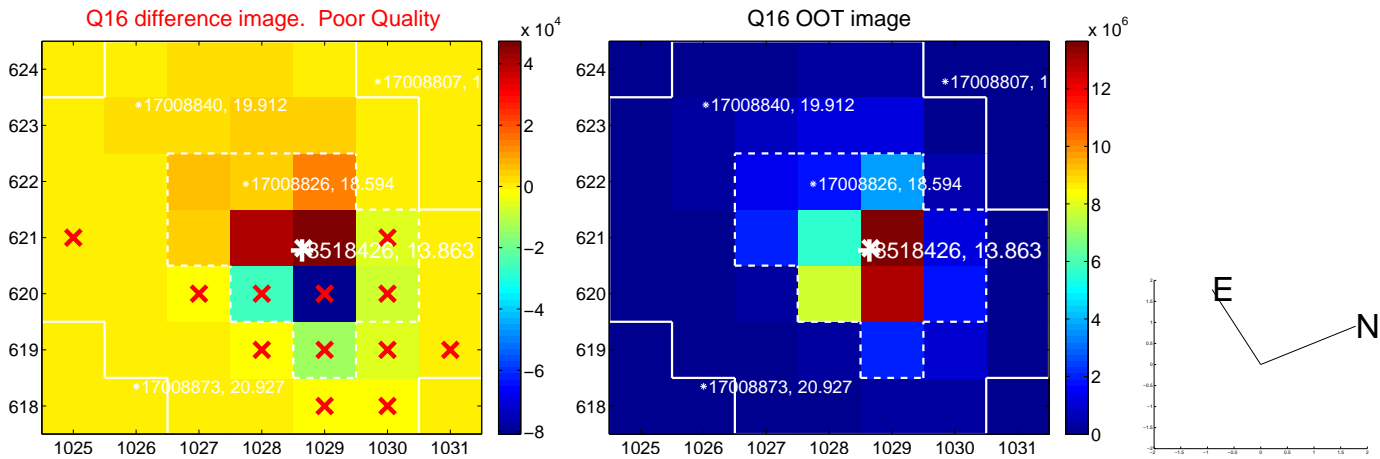
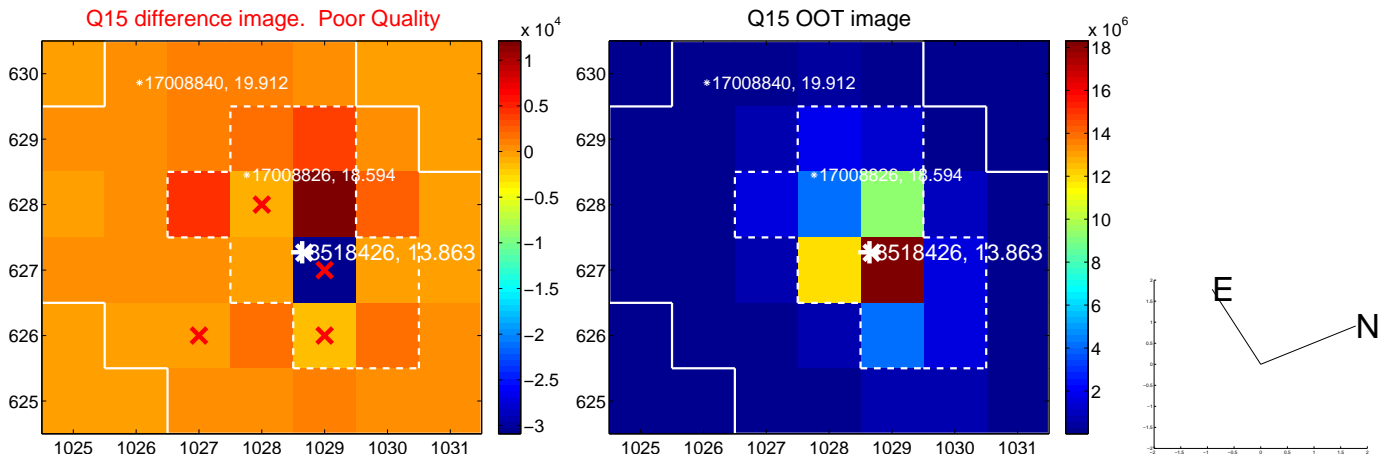
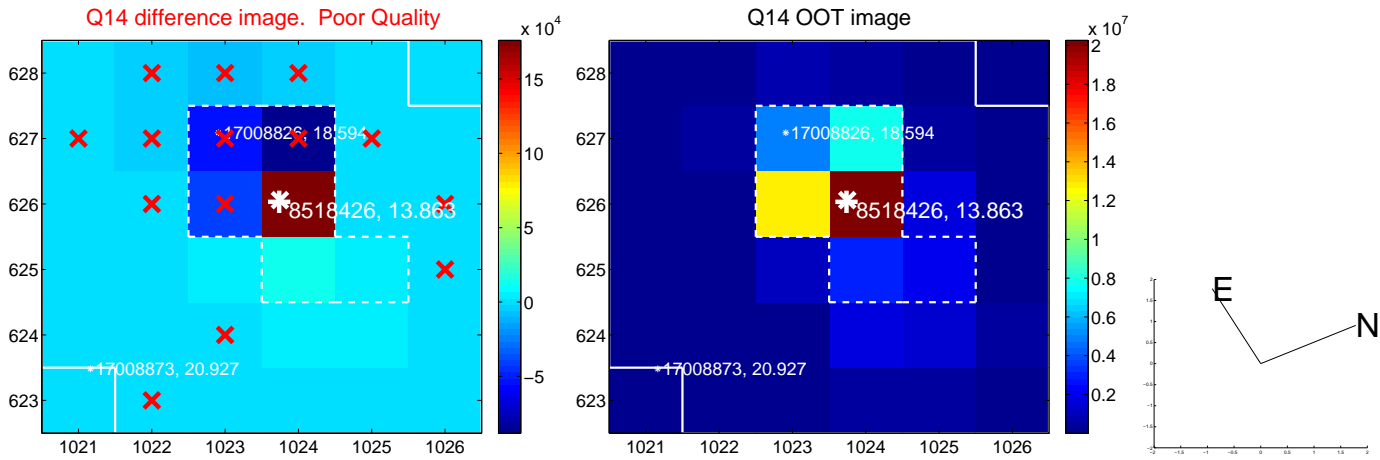
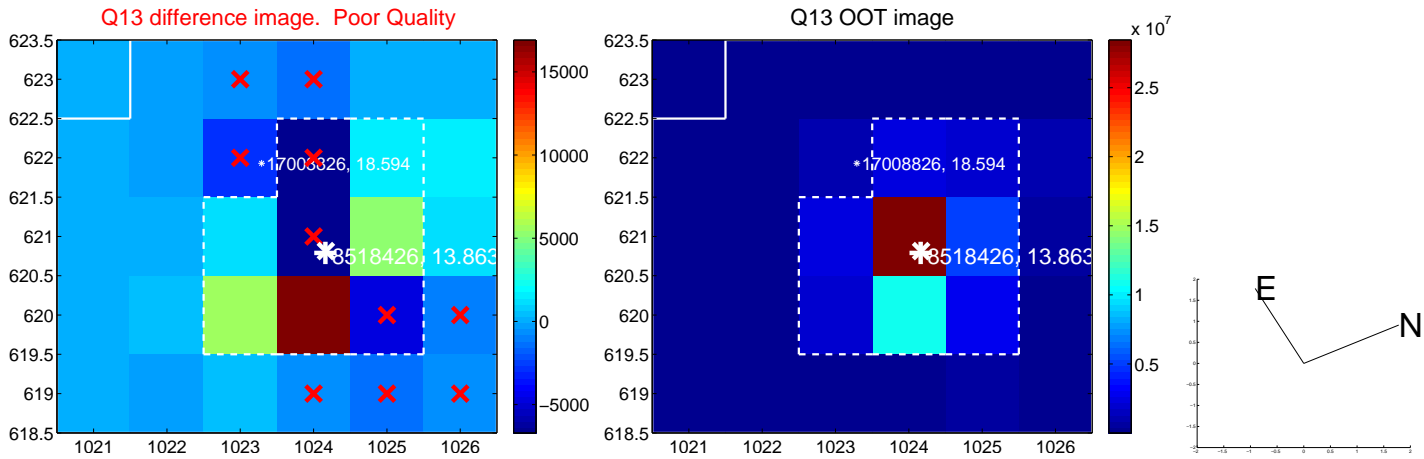




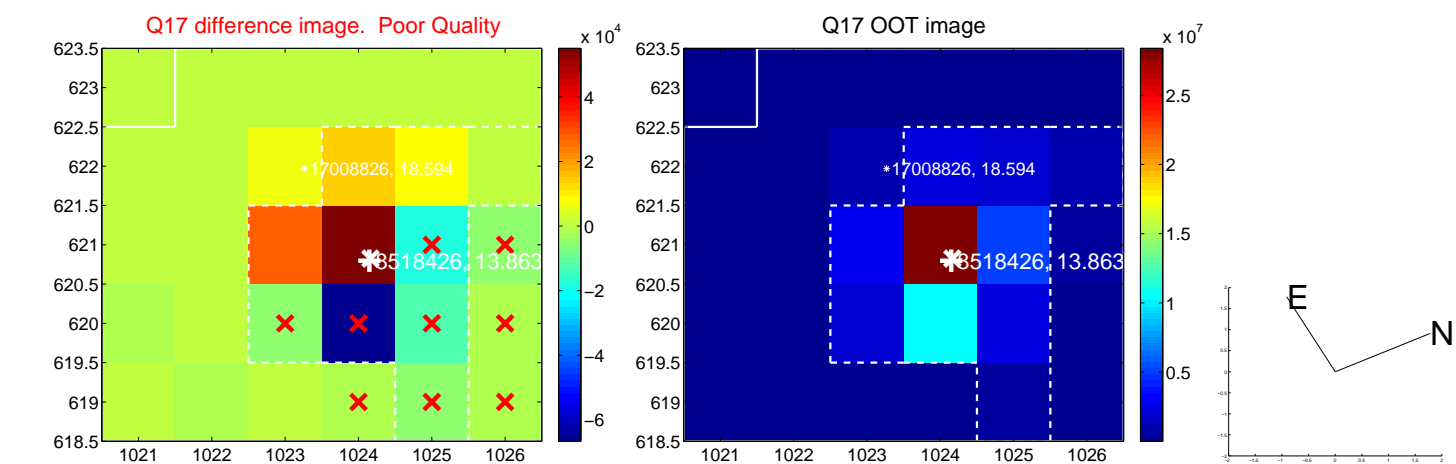
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



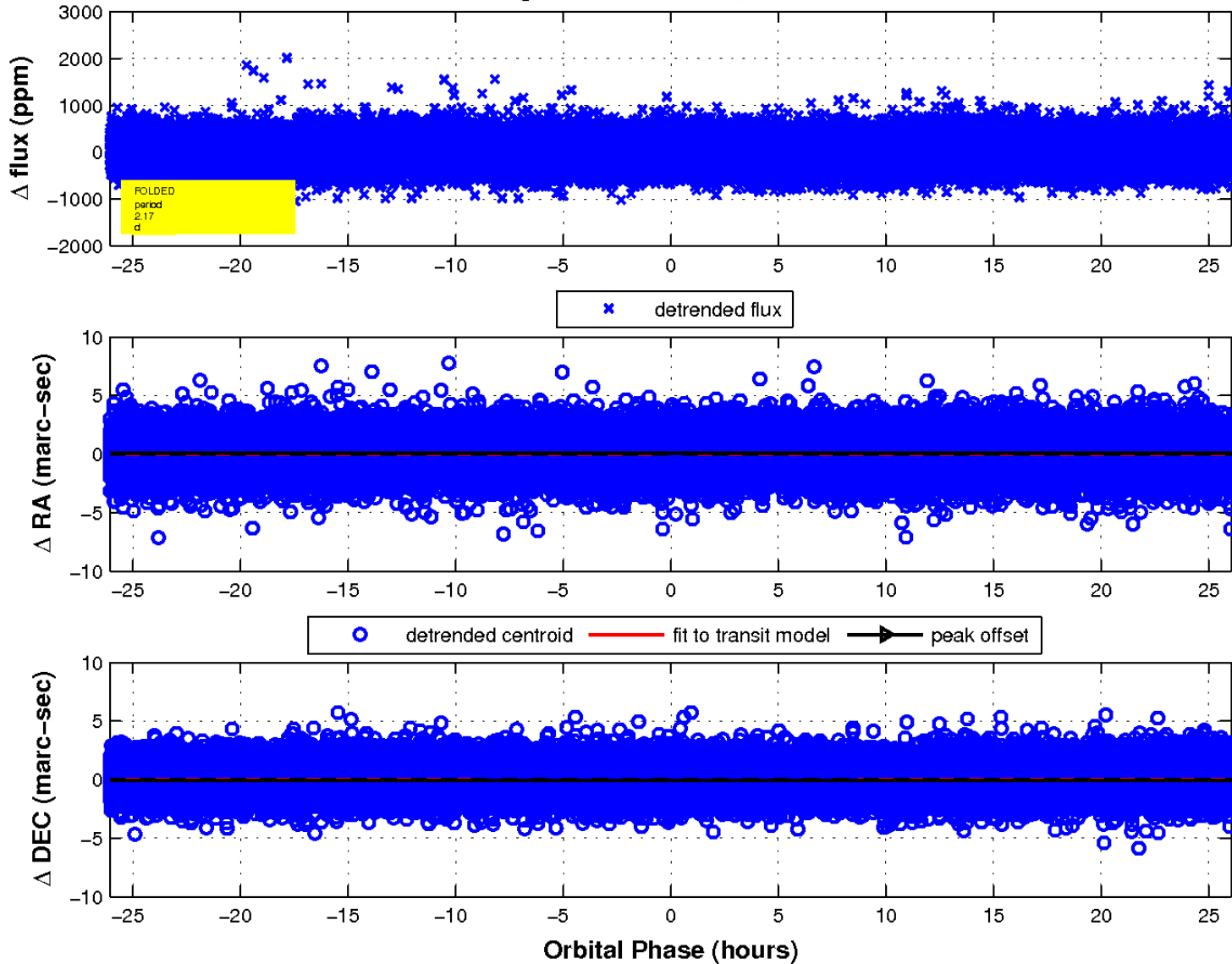
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

