

# KIC 010191036

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010191036-01 | OBS      | 3218.01 | 1.213688      | 131.774952   | 22.8        | 3.928            | 16.3 | 16.4 | 1.05                        | 6238            | 0.59                   | 2961.08                |
| 010191036-02 | OBS      | No      | 266.260750    | 386.672484   | 82.8        | 2.897            | 13.8 | 2.9  | 1.05                        | 6238            | 1.08                   | 2.24                   |
| 010191036-03 | OBS      | No      | 189.085046    | 216.332625   | 17.0        | 6.402            | 13.7 | 0.9  | 1.05                        | 6238            | 0.51                   | 3.53                   |
| 010191036-04 | OBS      | No      | 329.559517    | 454.481811   | 106.3       | 0.677            | 13.4 | 2.0  | 1.05                        | 6238            | 1.30                   | 1.68                   |
| 010191036-06 | OBS      | No      | 216.943053    | 219.355992   | 139.1       | 8.693            | 11.8 | 6.8  | 1.05                        | 6238            | 1.38                   | 2.94                   |
| 010191036-07 | OBS      | No      | 235.618253    | 354.206000   | 129.3       | 7.962            | 7.7  | 6.6  | 1.05                        | 6238            | 1.35                   | 2.63                   |
| 010191036-08 | OBS      | No      | 240.159512    | 265.954871   | 129.4       | 15.721           | 7.5  | 5.0  | 1.05                        | 6238            | 1.31                   | 2.57                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 010191036-01 | OBS      | FP   | 0.00  | 0 | 0 | 1 | 1 | CENT_KIC_POS—HALO_GHOST—EPHEM_MATCH   |
| 010191036-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS—CENT_UNCERTAIN                                |
| 010191036-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS  |
| 010191036-04 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |
| 010191036-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_KIC_POS   |
| 010191036-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS  |
| 010191036-08 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—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.

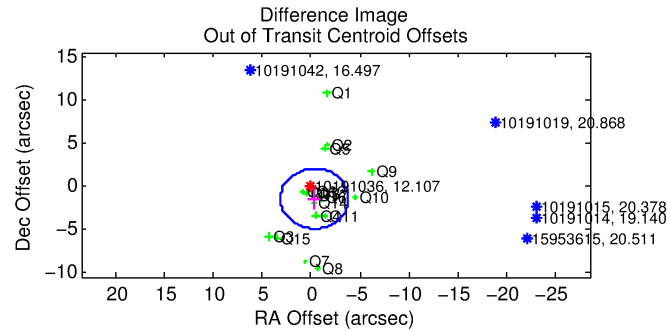
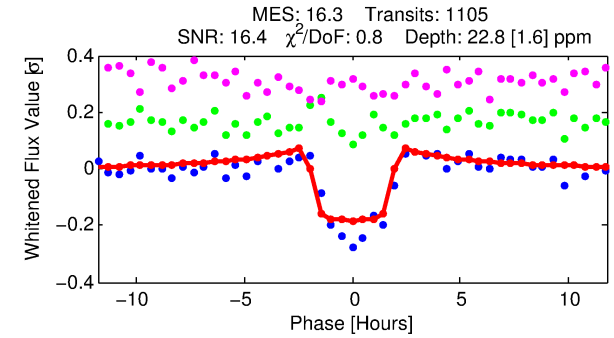
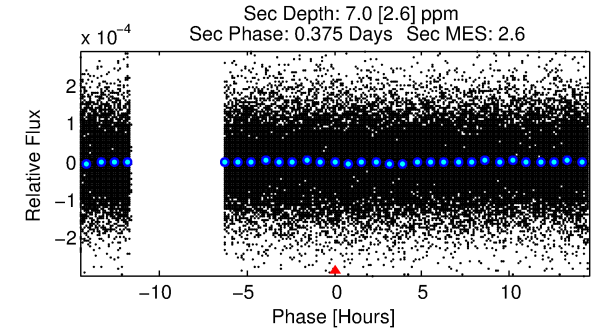
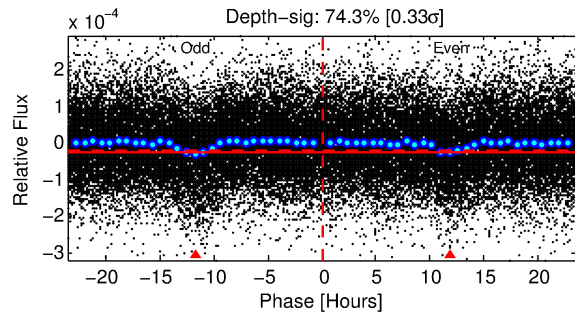
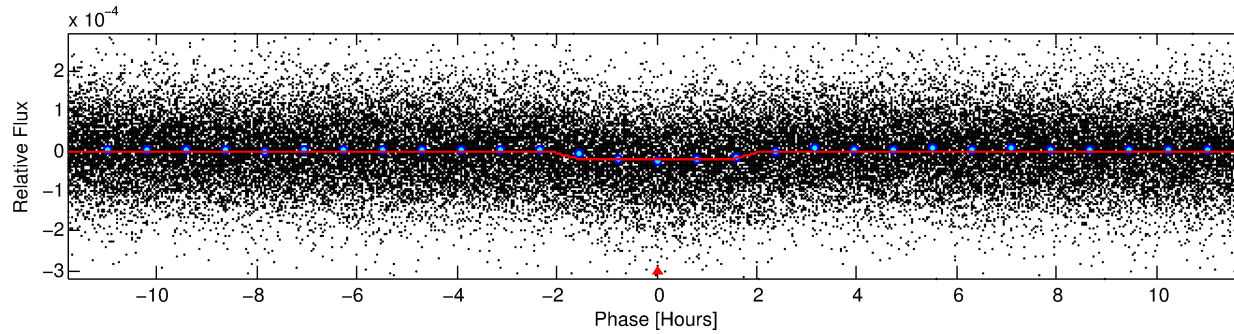
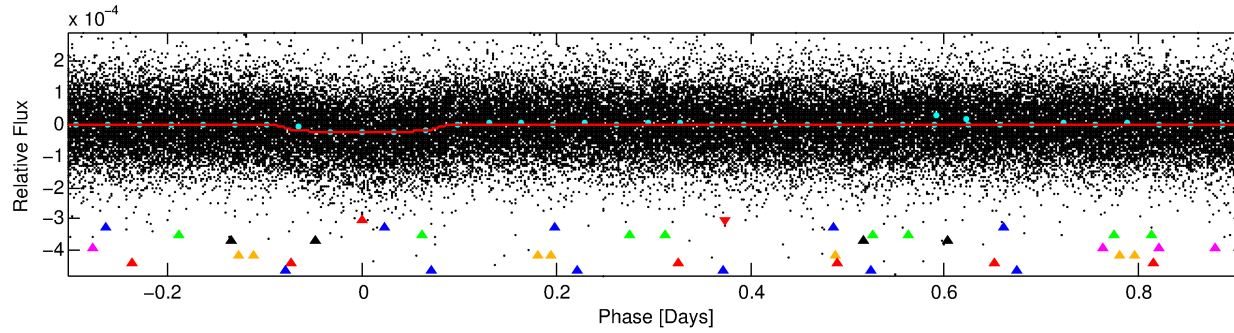
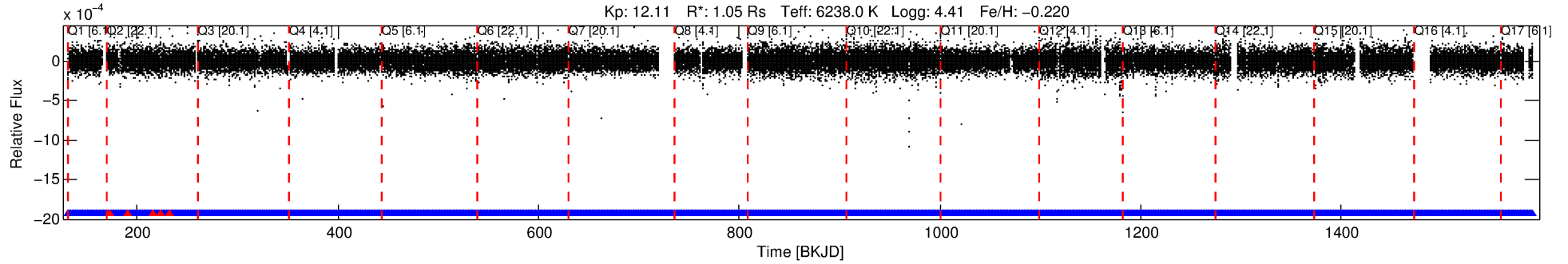
## Ephemeris Match Information For 010191036-01

| TCE (1)      | KIC      | Parent (2) | Parent KIC | $P_1:P_2$ | Dist ( $''$ ) | $\Delta$ Row | $\Delta$ Col | $m_2$ | $m_1$ | $D_2/D_1$ | Mechanism  | Flag | $\sigma_P$ | $\sigma_T$ |
|--------------|----------|------------|------------|-----------|---------------|--------------|--------------|-------|-------|-----------|------------|------|------------|------------|
| 010191036-01 | 10191036 | 5774.01    | 10191056   | 1:1       | 66.2          | 17           | -2           | 10.81 | 12.11 | 8040.00   | Direct-PRF | 0    | 4.20       | 2.22       |

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 10191036 Candidate: 1 of 8 Period: 1.214 d  
KOI: K03218.01 Corr: 0.880



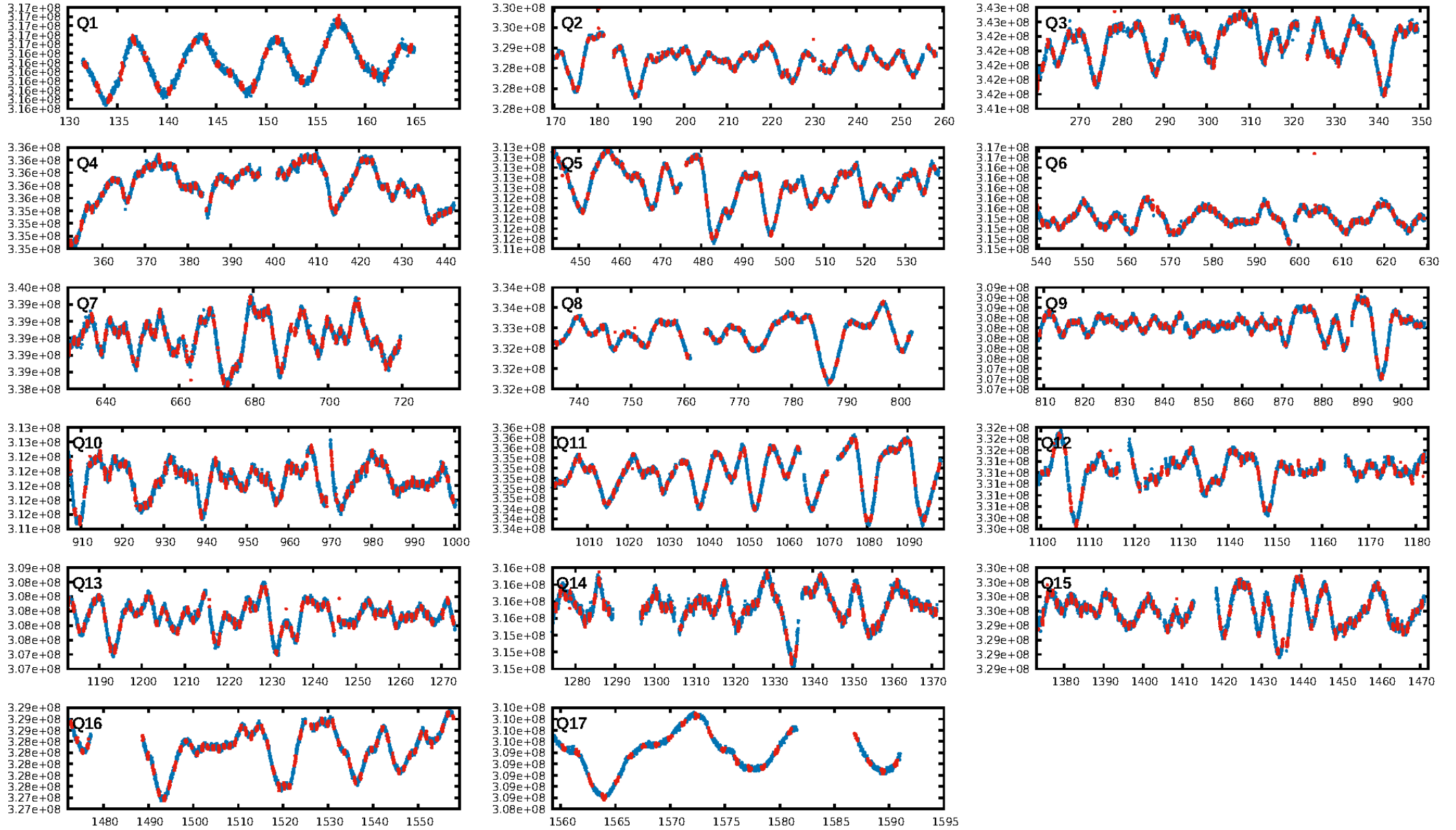
## DV Fit Results:

Period = 1.21369 [0.00001] d  
Epoch = 131.7750 [0.0021] BKJD  
Rp/R\* = 0.0051 [0.0010]  
a/R\* = 1.41 [0.78]  
b = 0.90 [0.23]  
Seff = 2961.08 [910.08]  
Teq = 1881 [145] K  
Rp = 0.59 [0.18] Re  
a = 0.0225 [0.0044] AU  
Ag = 5.60 [3.45] [1.33 $\sigma$ ]  
Teffp = 4474 [627] K [4.03 $\sigma$ ]

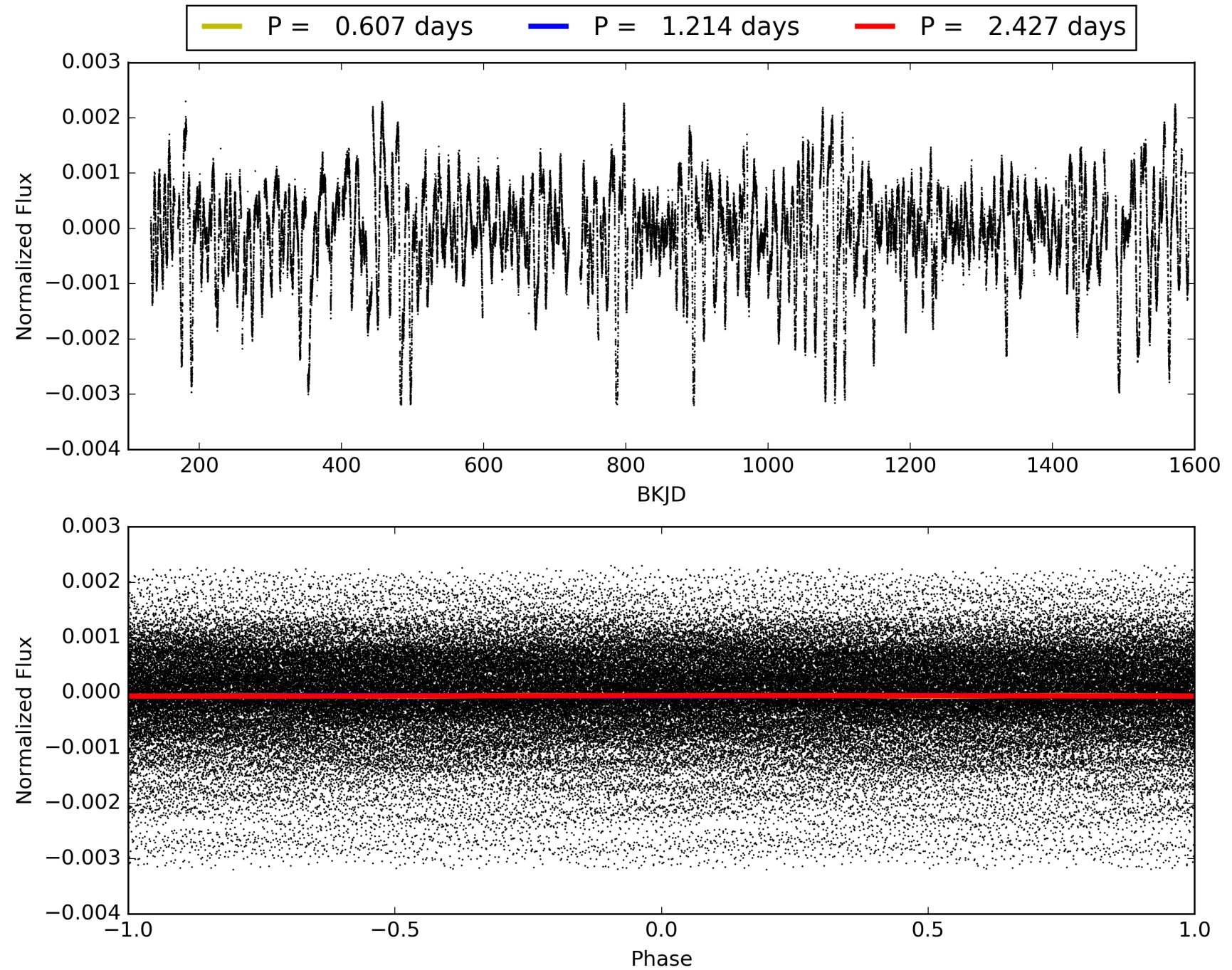
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [600.34 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.47e-47  
RollingBand-fgt: 0.99 [1049/1055]  
**GhostDiagnostic-chr: 0.1264**  
Centroid-sig: 0.0%  
Centroid-so: 4.145 arcsec [7.92 $\sigma$ ]  
OotOffset-rm: 1.481 arcsec [1.28 $\sigma$ ]  
KicOffset-rm: 0.996 arcsec [1.04 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.24 [4/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 010191036-01, PDC Light Curves



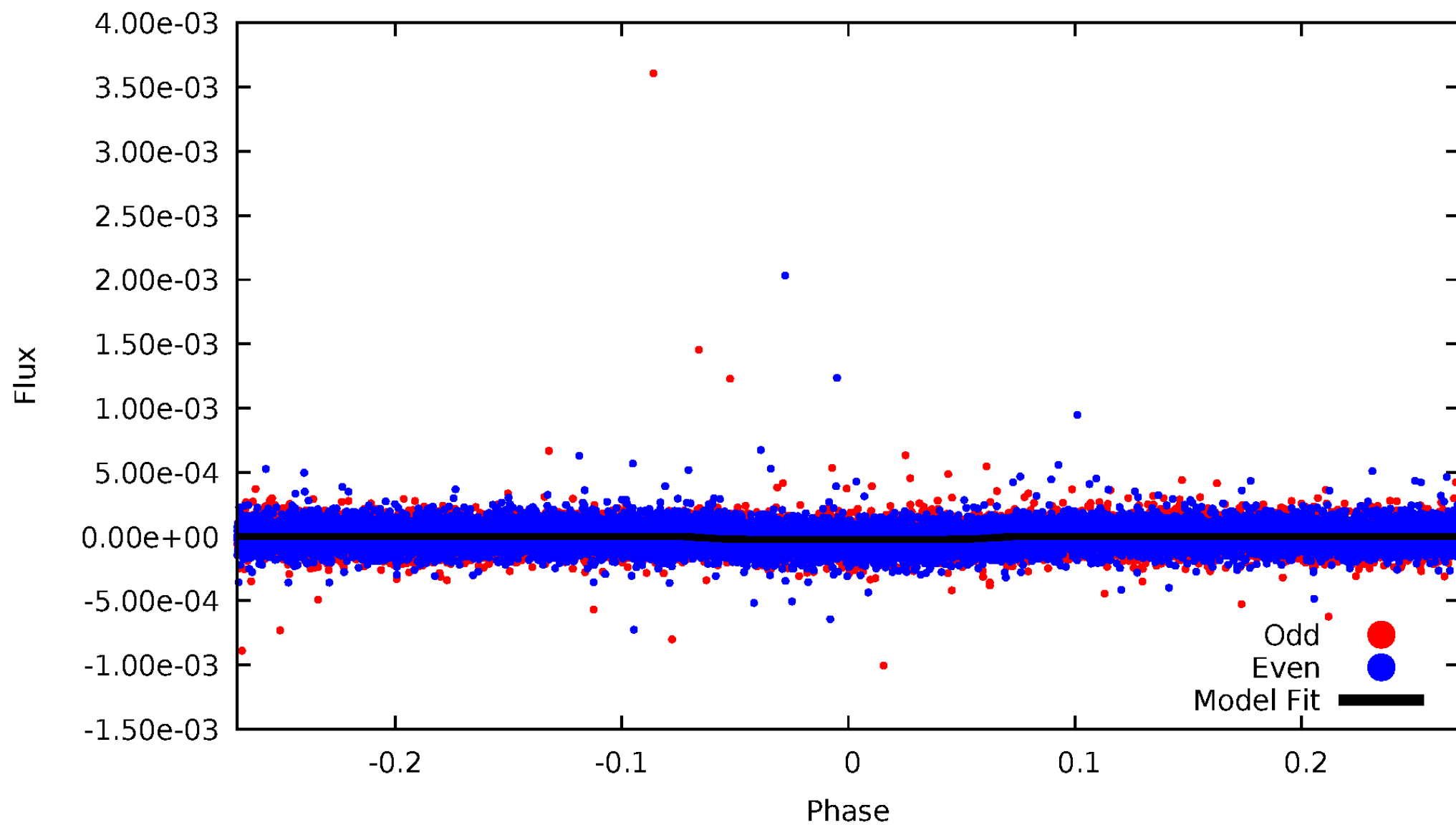
# TCE 010191036-01





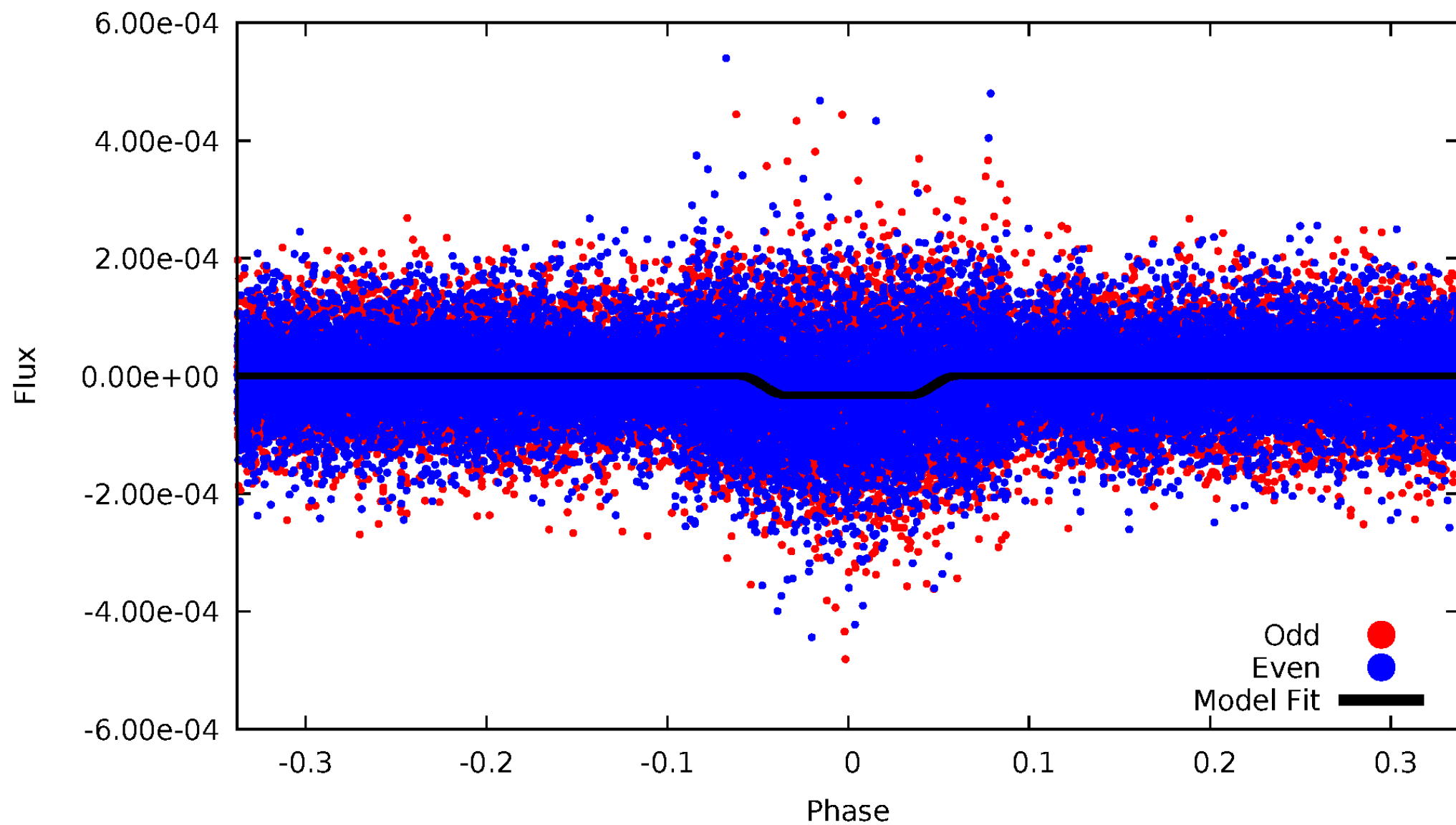
# DV Odd/Even

TCE 010191036-01

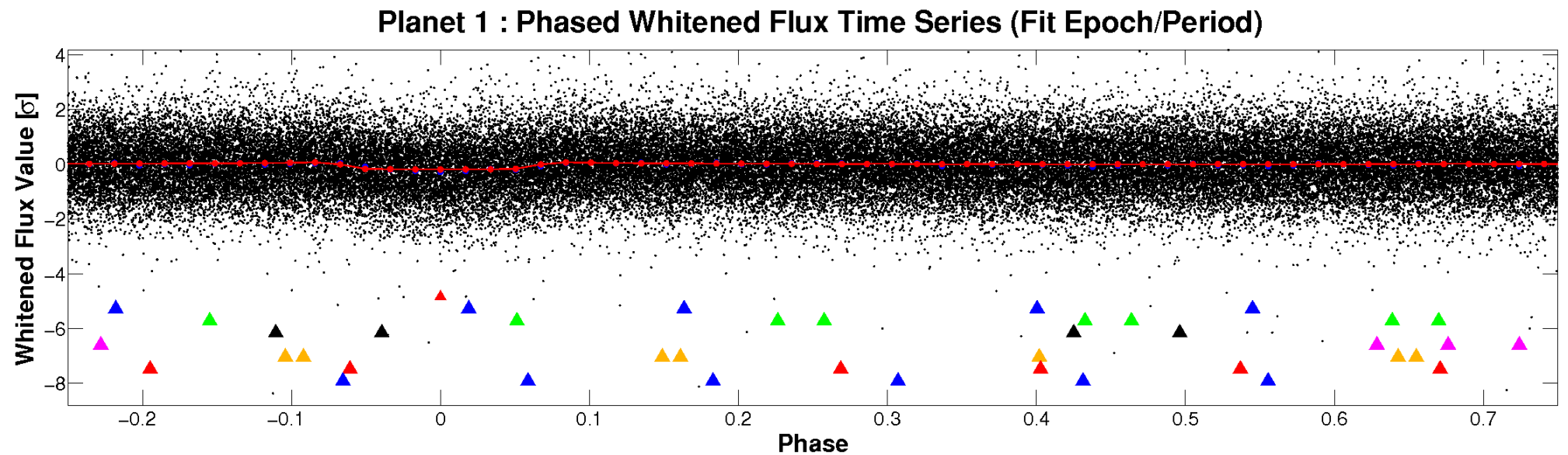
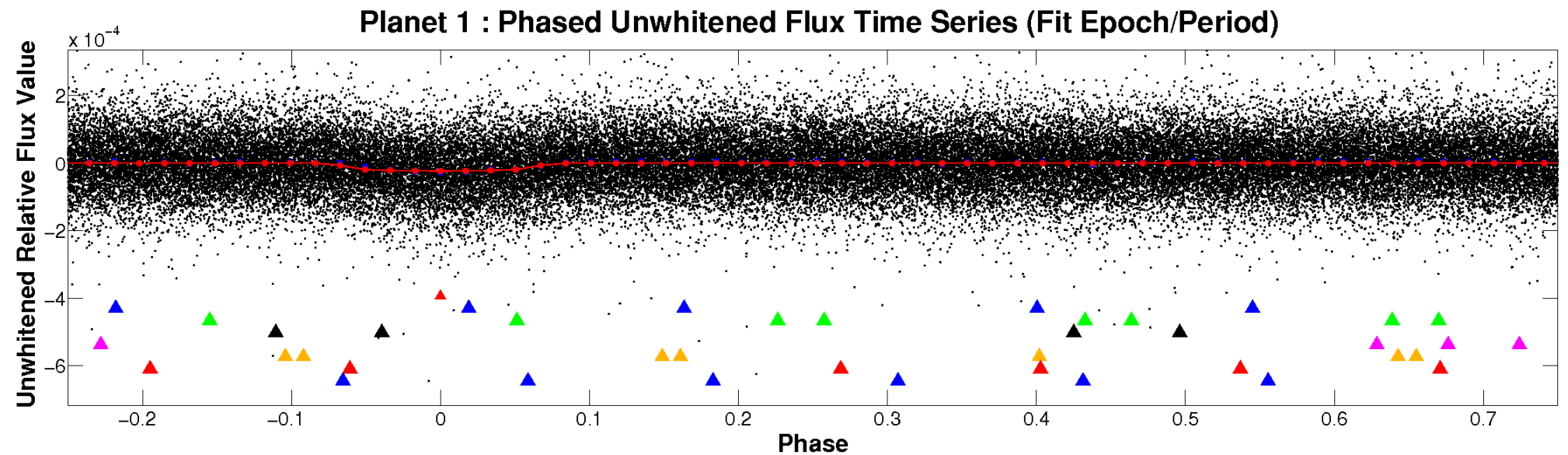


# ALT Odd/Even

TCE 010191036-01

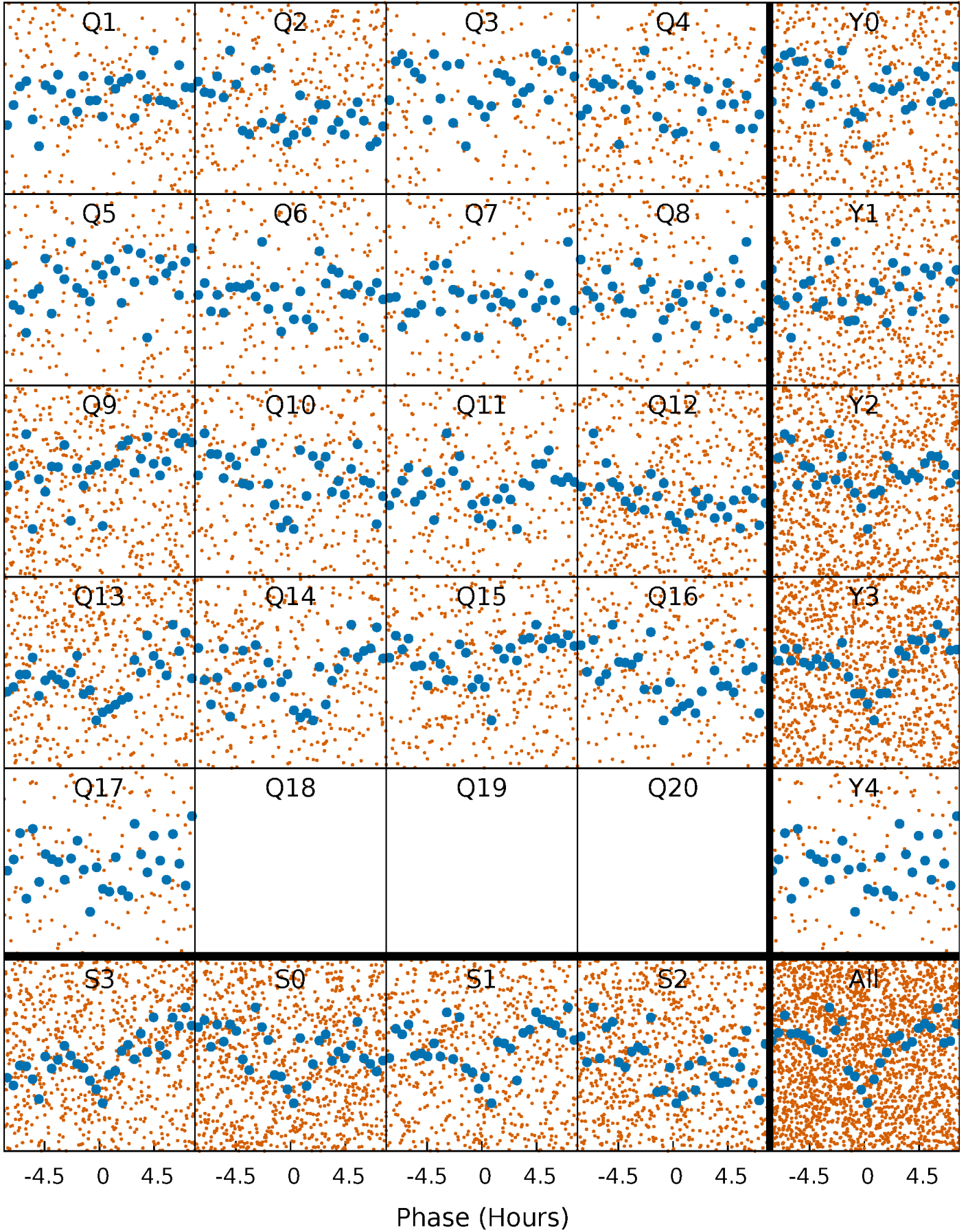


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

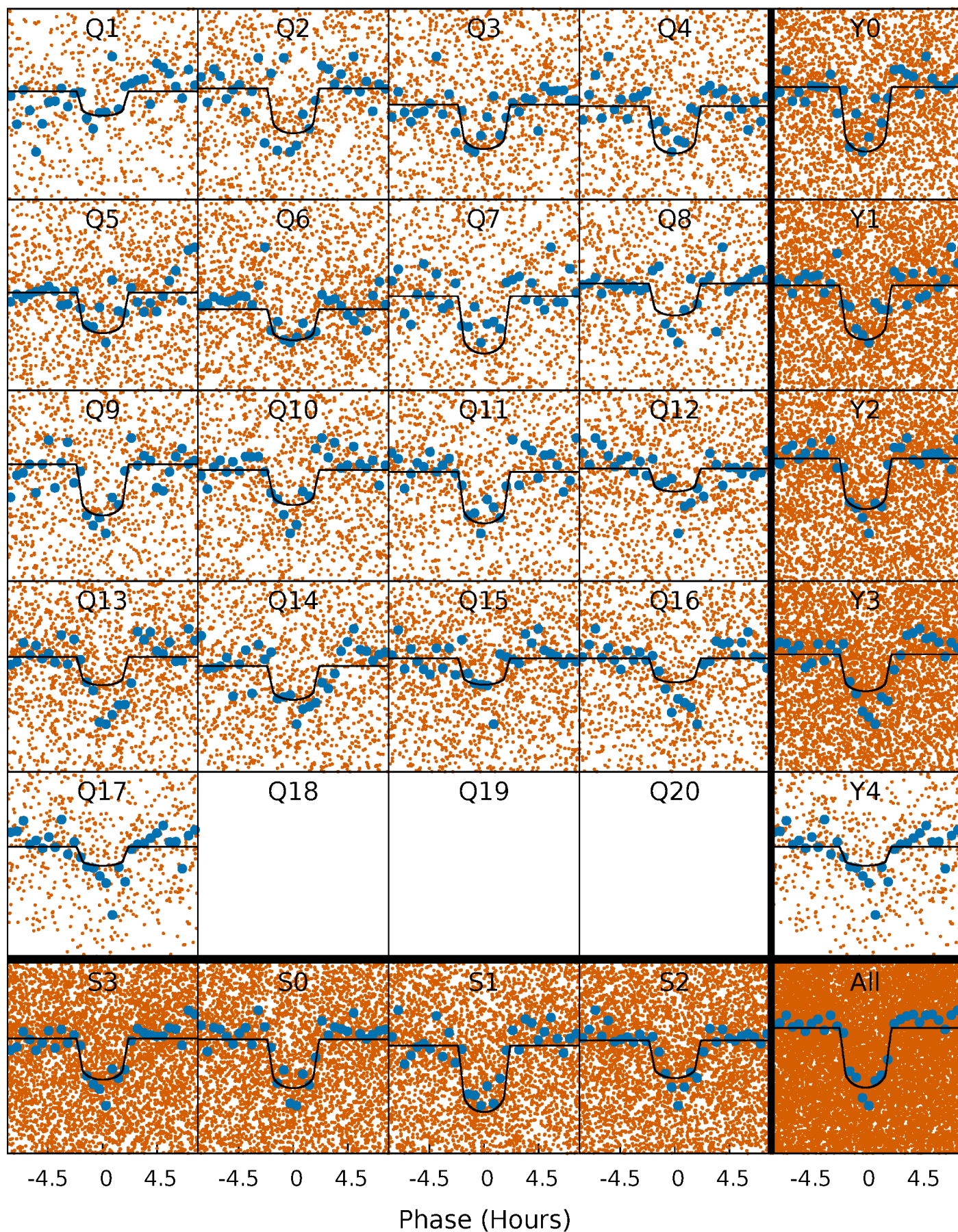
TCE 010191036-01 P= 1.213688 Days  $T_0=131.774952$  (BKJD)





# DV Quarter-Phased Transit Curves

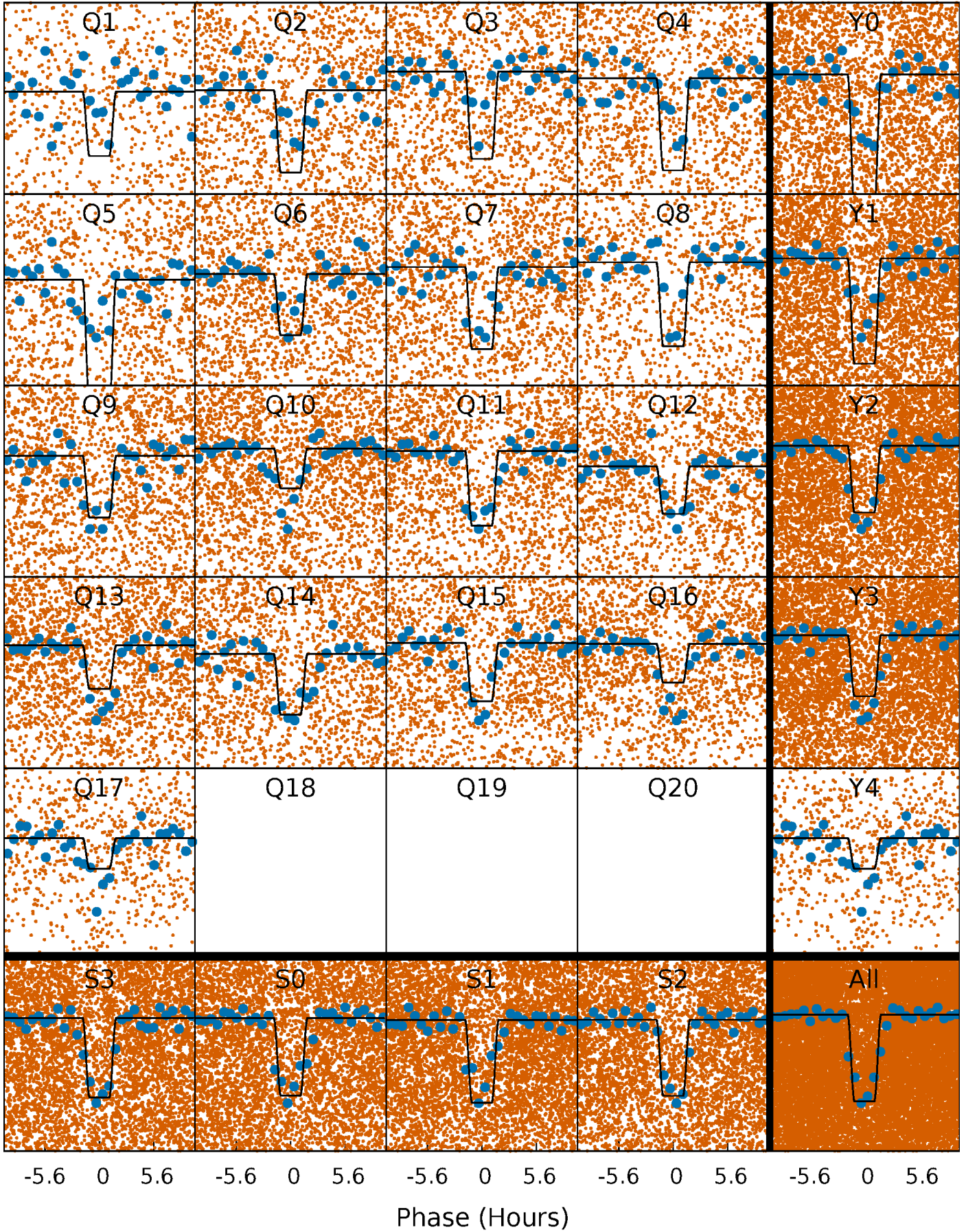
TCE 010191036-01 P= 1.213688 Days  $T_0=131.774952$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

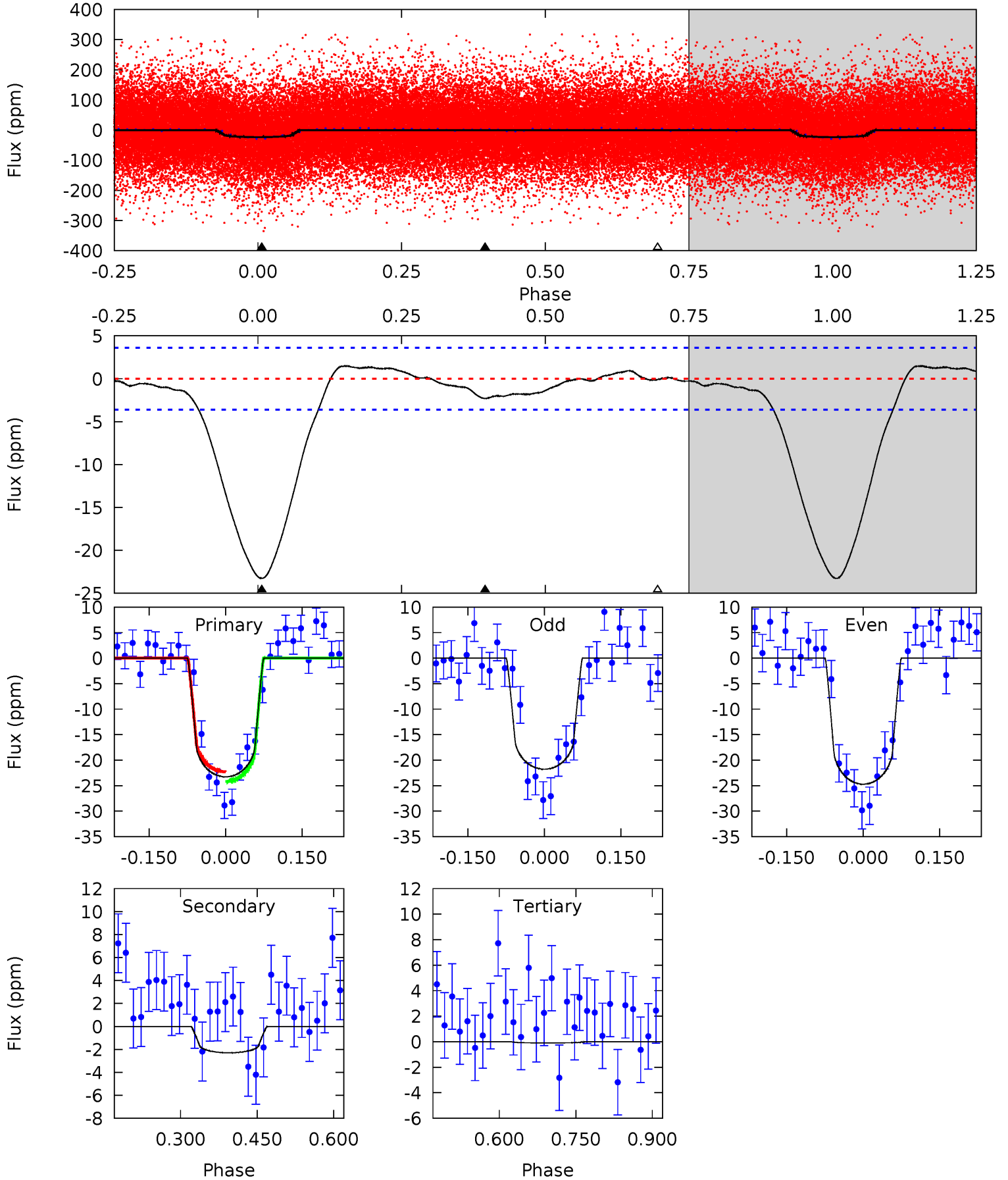
TCE 010191036-01 P= 1.213749 Days  $T_0=131.738939$  (BKJD)



# DV Model-Shift Uniqueness Test

010191036-01, P = 1.213688 Days, E = 130.561264 Days

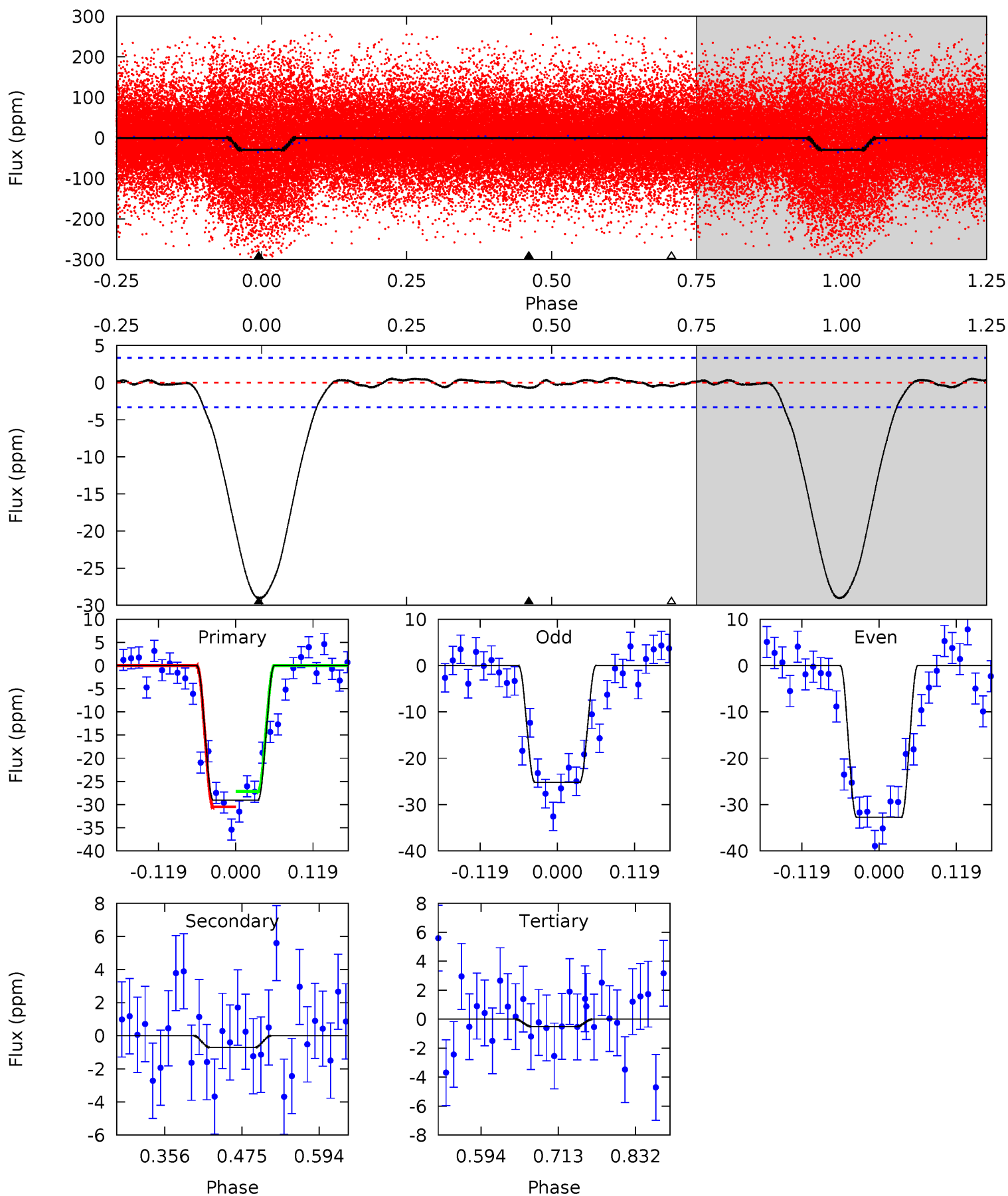
| Pri  | Sec  | Ter  | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 28.9 | 2.86 | 0.12 | 0   | 4.48            | 1.44            | 0.94             | 28.8    | 28.9    | 2.74    | 2.86    | 1.83    | 1.03 | 0.06  | 1.19 |



# Alt Model-Shift Uniqueness Test

010191036-01, P = 1.213749 Days, E = 130.525190 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  |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 39.6 | 0.97 | 0.69 | 0   | 4.53            | 1.56            | 0.45             | 38.9    | 39.6    | 0.28    | 0.97    | 5.10    | 1.02 | 0.02  | 2.29 |





### Stellar Parameters For KIC 010191036

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6238^{+156}_{-188}$ | $4.407^{+0.077}_{-0.154}$ | $-0.220^{+0.250}_{-0.350}$ | $1.049^{+0.244}_{-0.122}$ | $1.022^{+0.134}_{-0.120}$ | $1.246^{+0.426}_{-0.527}$                 |
|        | +3%/-3%              | +2%/-3%                   | +114%/-159%                | +23%/-12%                 | +13%/-12%                 | +34%/-42%                                 |
| Source | PHO1                 | FLK73                     | 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 010191036-01 / KOI 3218.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{max} (K)$        | $T_{obs} (K)$         | $A_{obs}$                 |
|---------|-------------|------------------------|----------------------|-----------------------|---------------------------|
| DV      | $-2 \pm 1$  | $0.60^{+0.14}_{-0.13}$ | $2659^{+166}_{-121}$ | $3645^{+486}_{-404}$  | $1.697^{+1.390}_{-0.761}$ |
| Alt.    | $-1 \pm 1$  | $0.66^{+0.15}_{-0.13}$ | $2654^{+158}_{-124}$ | $2551^{+698}_{-5486}$ | $0.407^{+0.603}_{-0.440}$ |

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

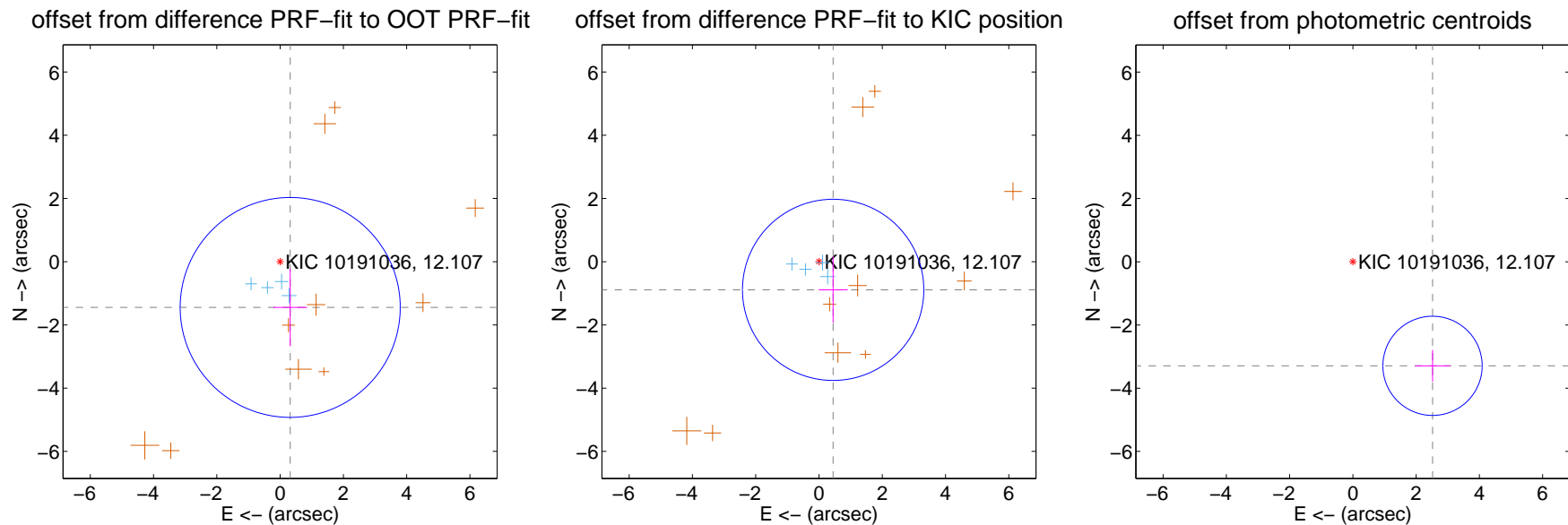
## DV Centroid Data

Supplemental centroid analysis for 010191036-01. Kepler magnitude: 12.11. Transit SNR 16.38

There are 4 quarters with good PRF difference image offsets

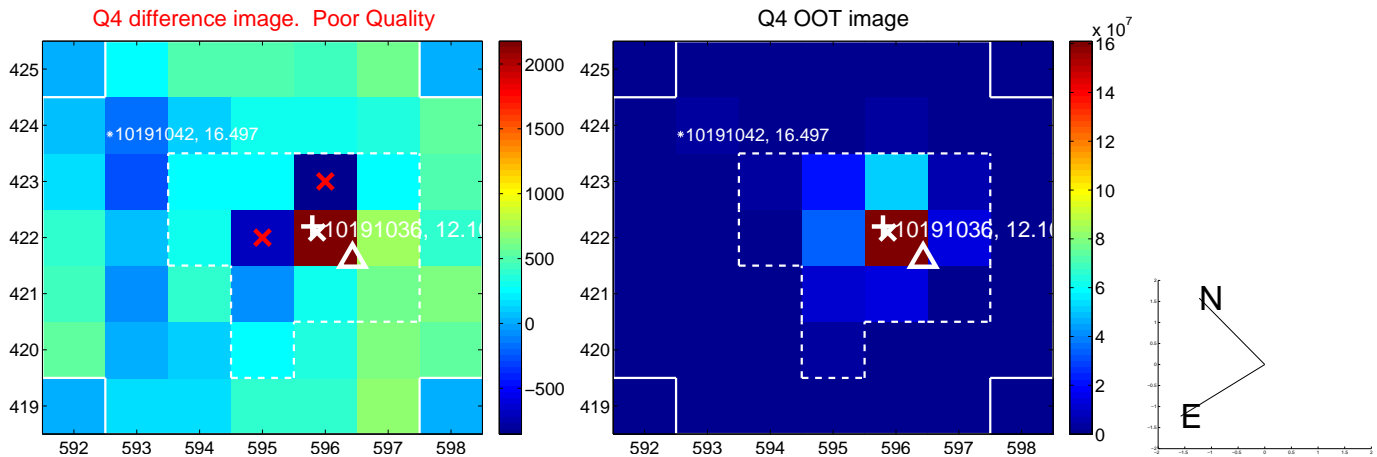
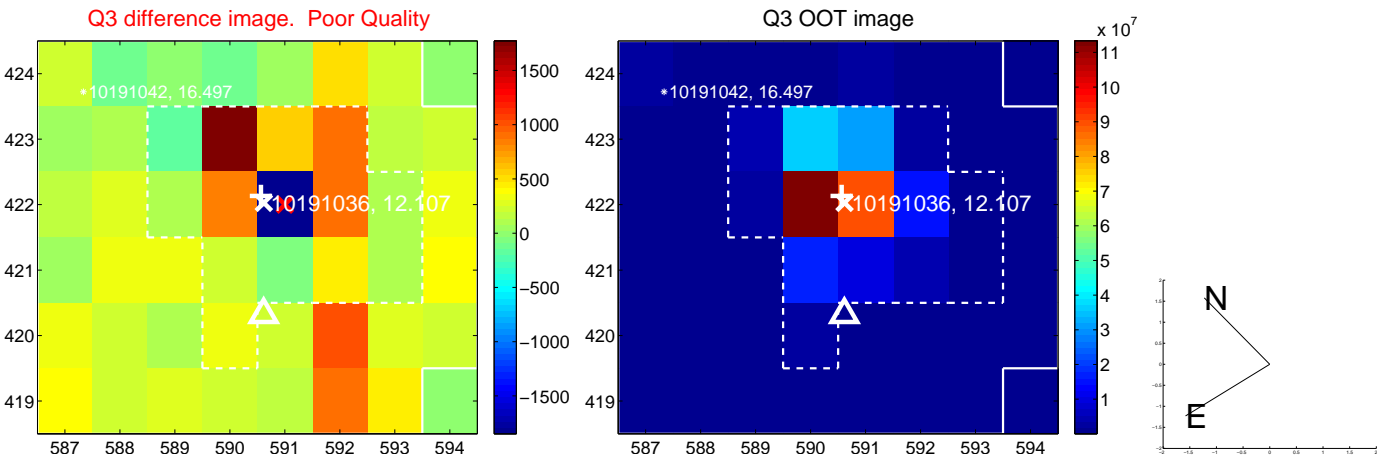
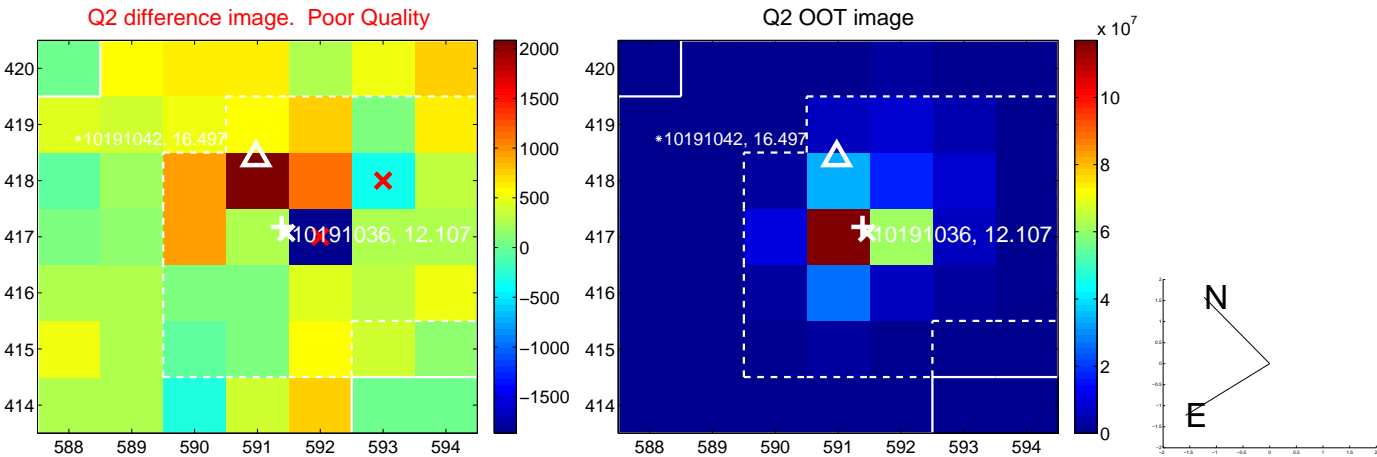
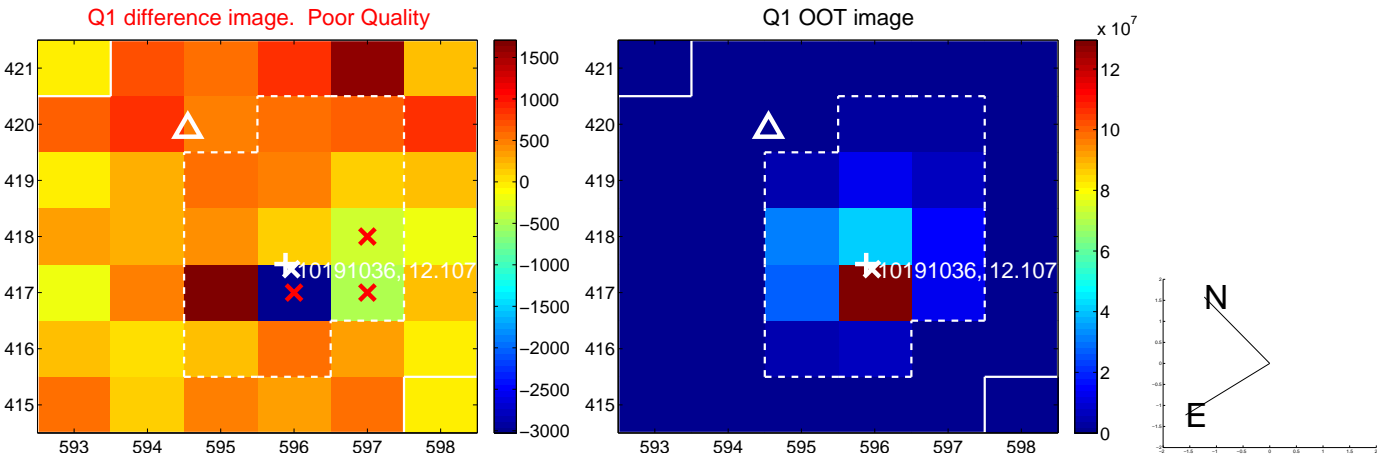
The direct PRF centroid is offset from the target star catalog position by about 0.60 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $1.481 \pm 1.159$  | 1.28                | $-0.319 \pm 0.536$ | $-1.447 \pm 1.225$ |
| PRF-fit source offset from KIC position | $0.996 \pm 0.955$  | 1.04                | $-0.447 \pm 0.460$ | $-0.891 \pm 1.043$ |
| photometric centroid source offset      | $4.15 \pm 0.52$    | $7.92$              | $-2.52 \pm 0.56$   | $-3.29 \pm 0.50$   |

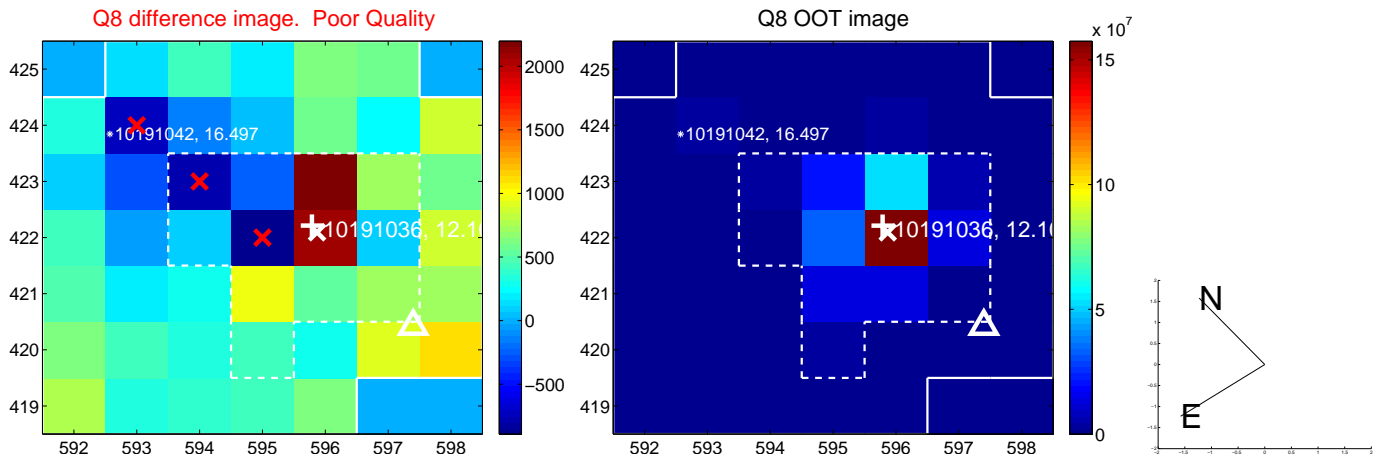
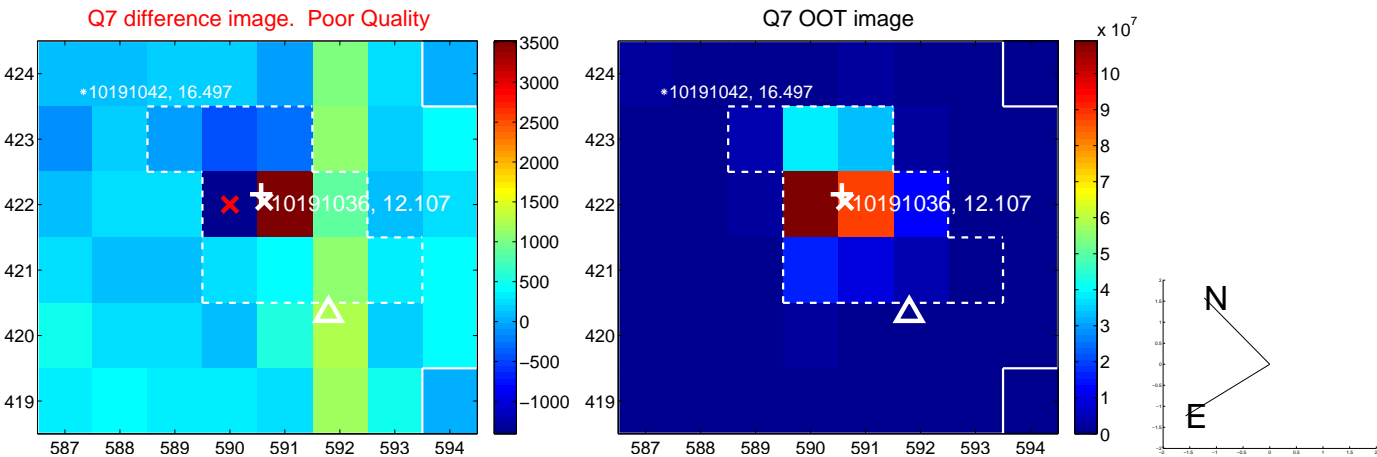
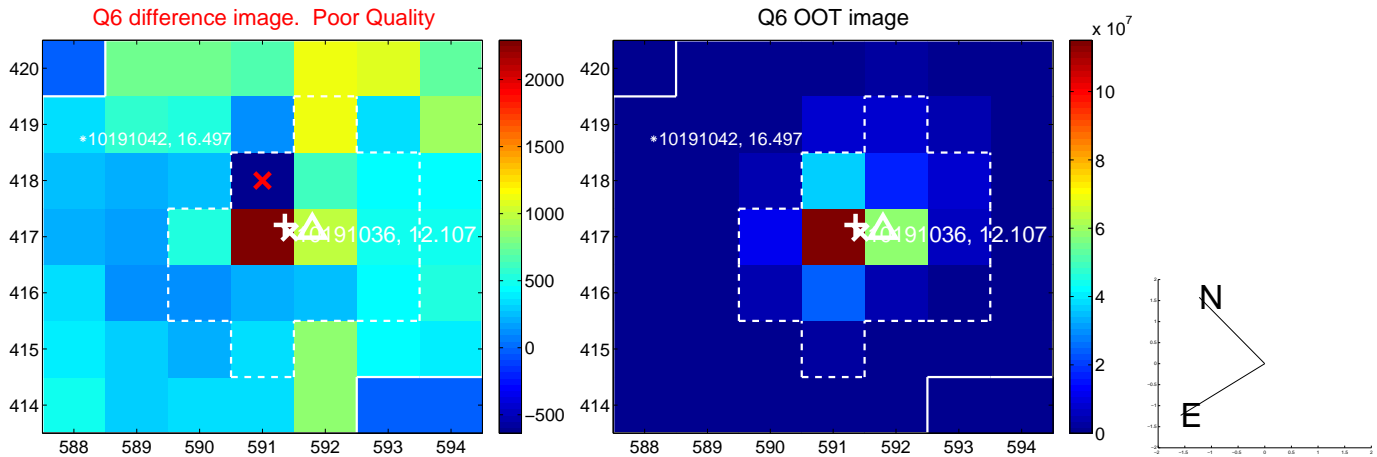
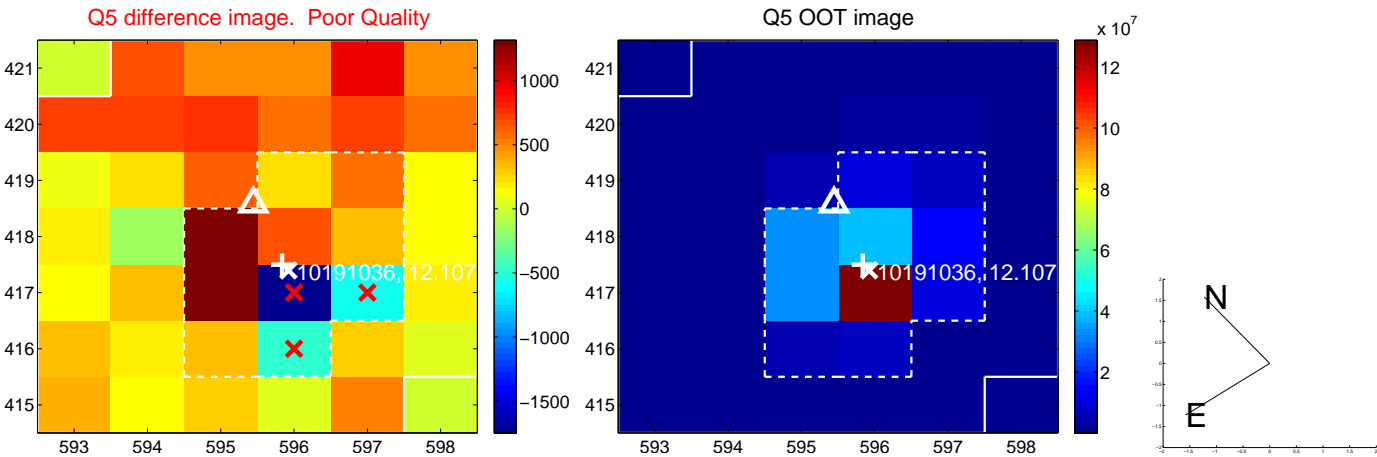


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

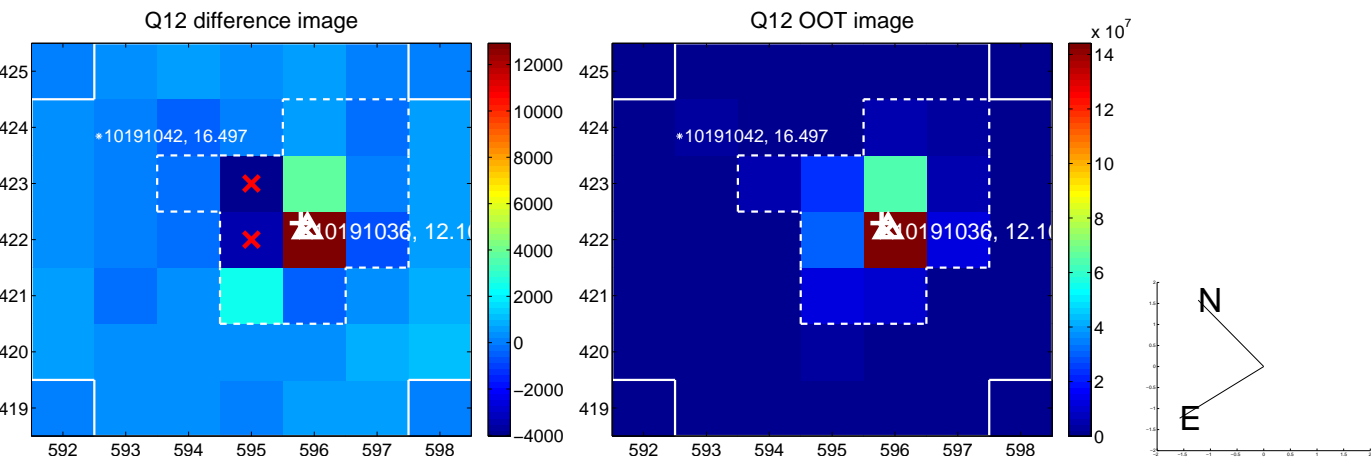
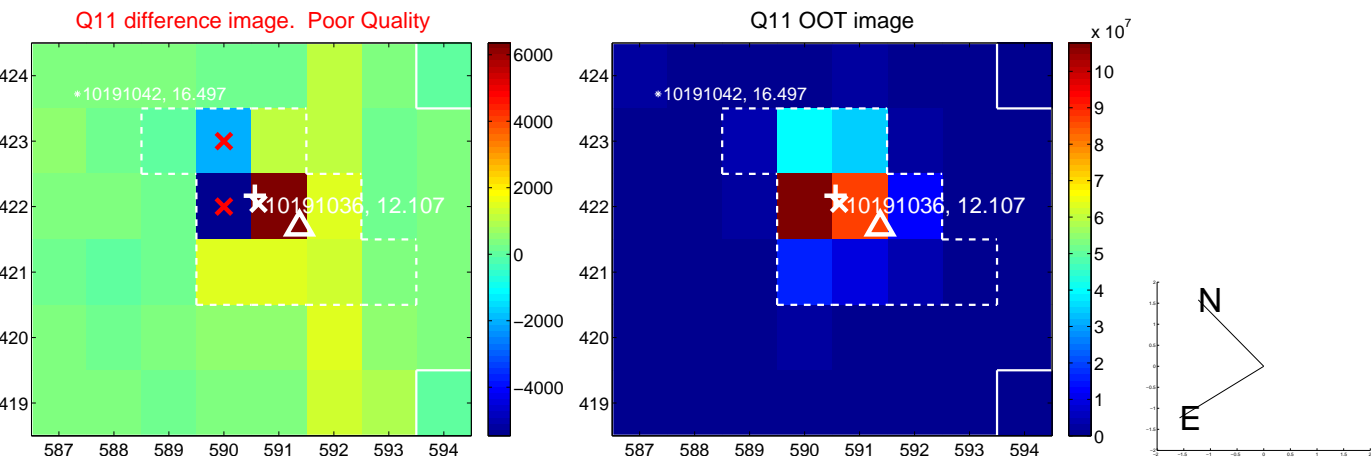
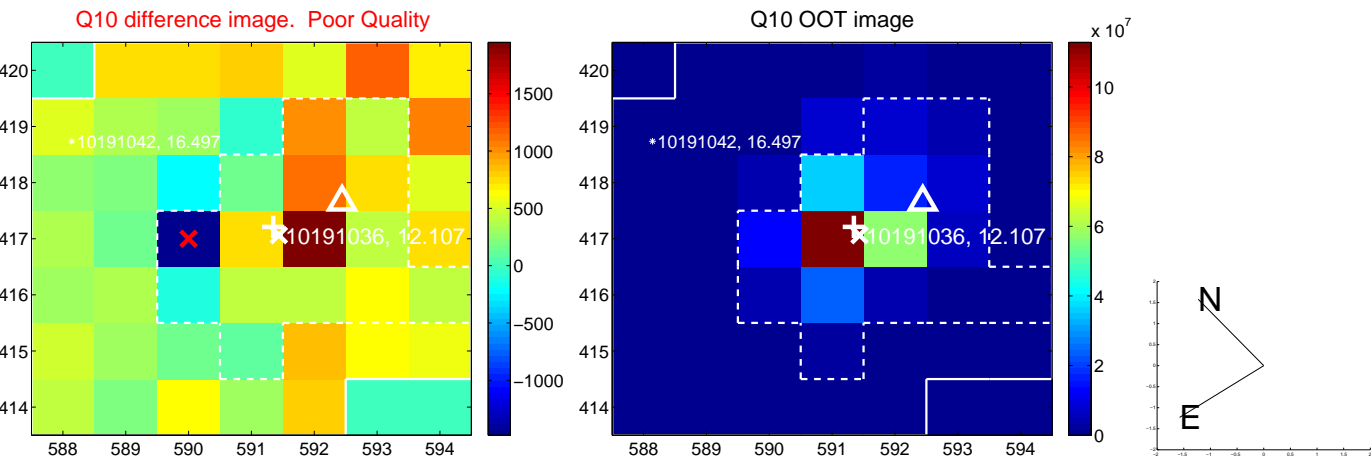
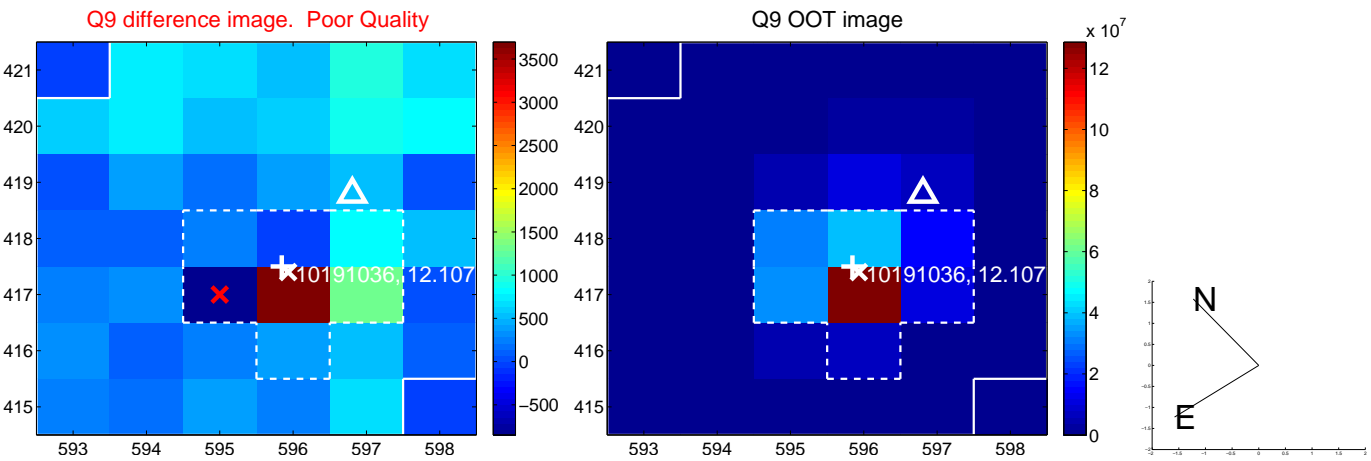


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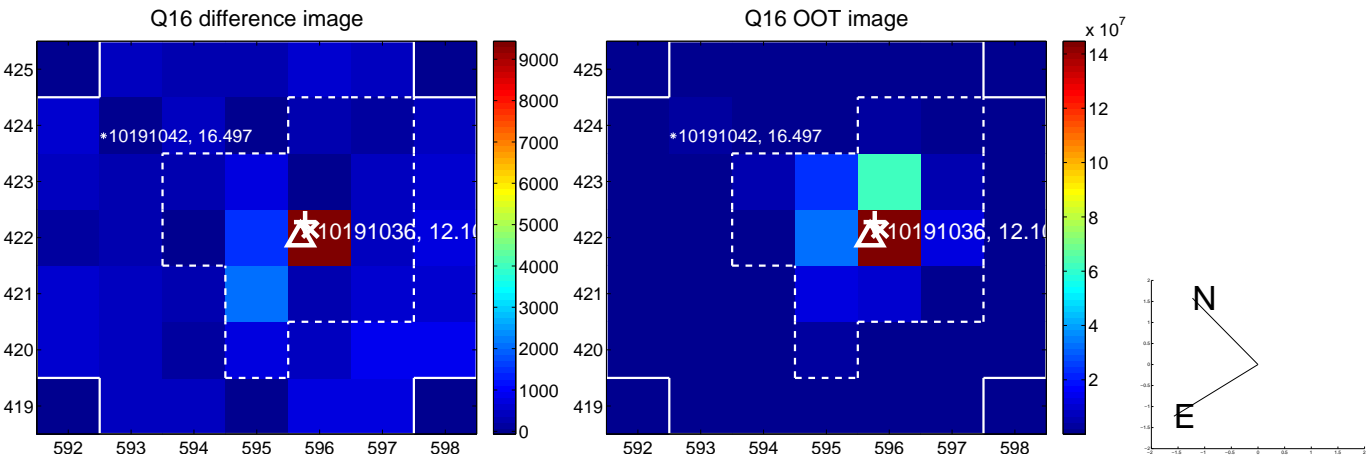
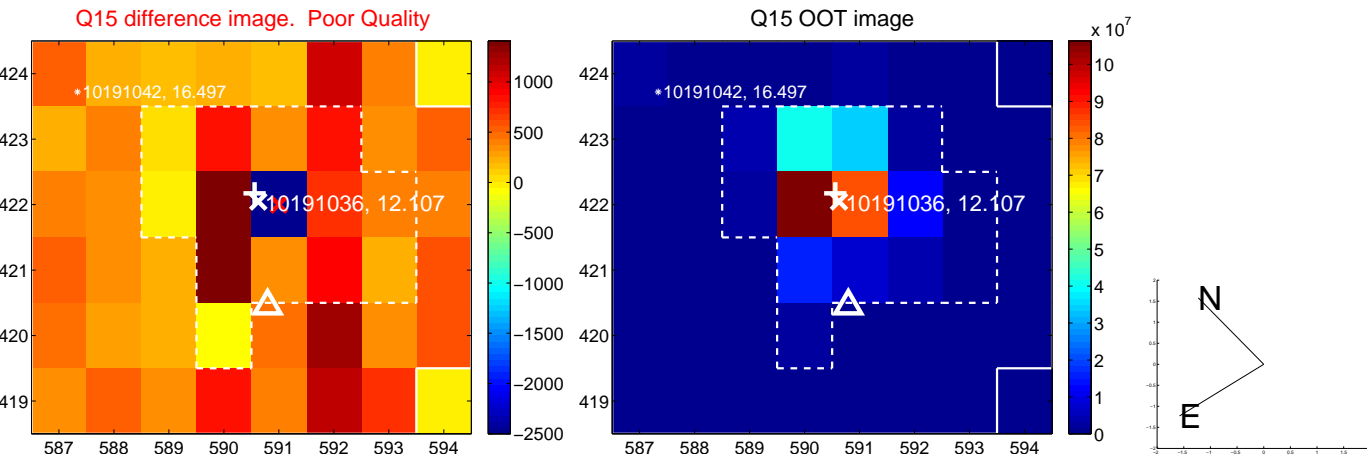
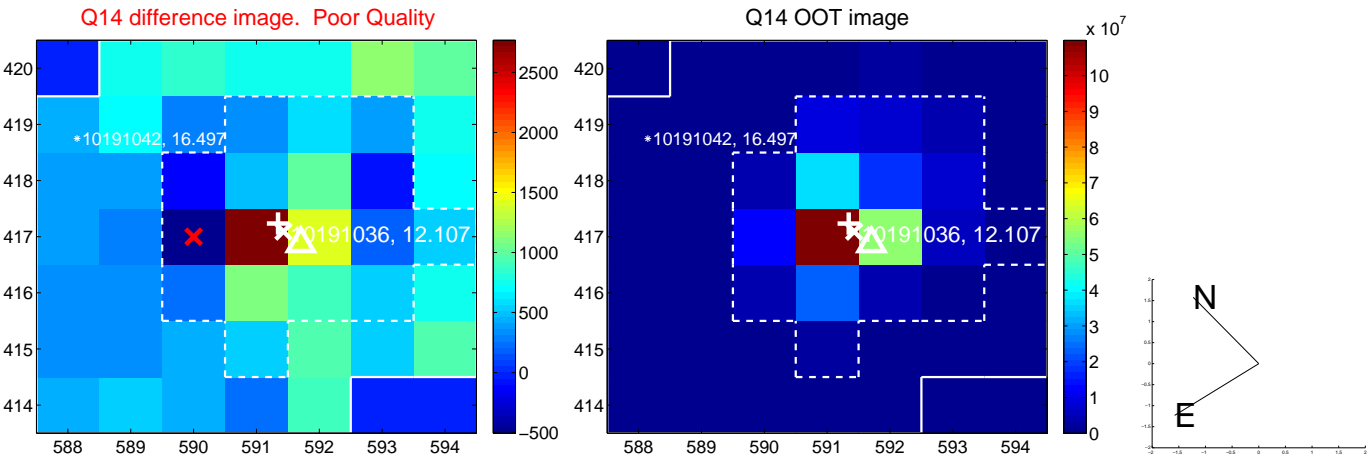
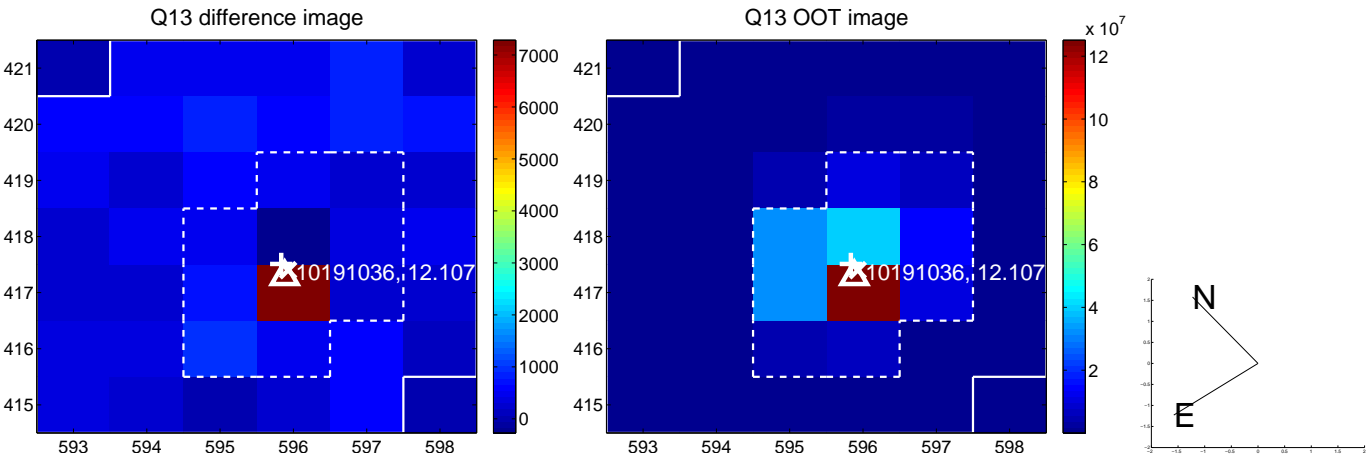




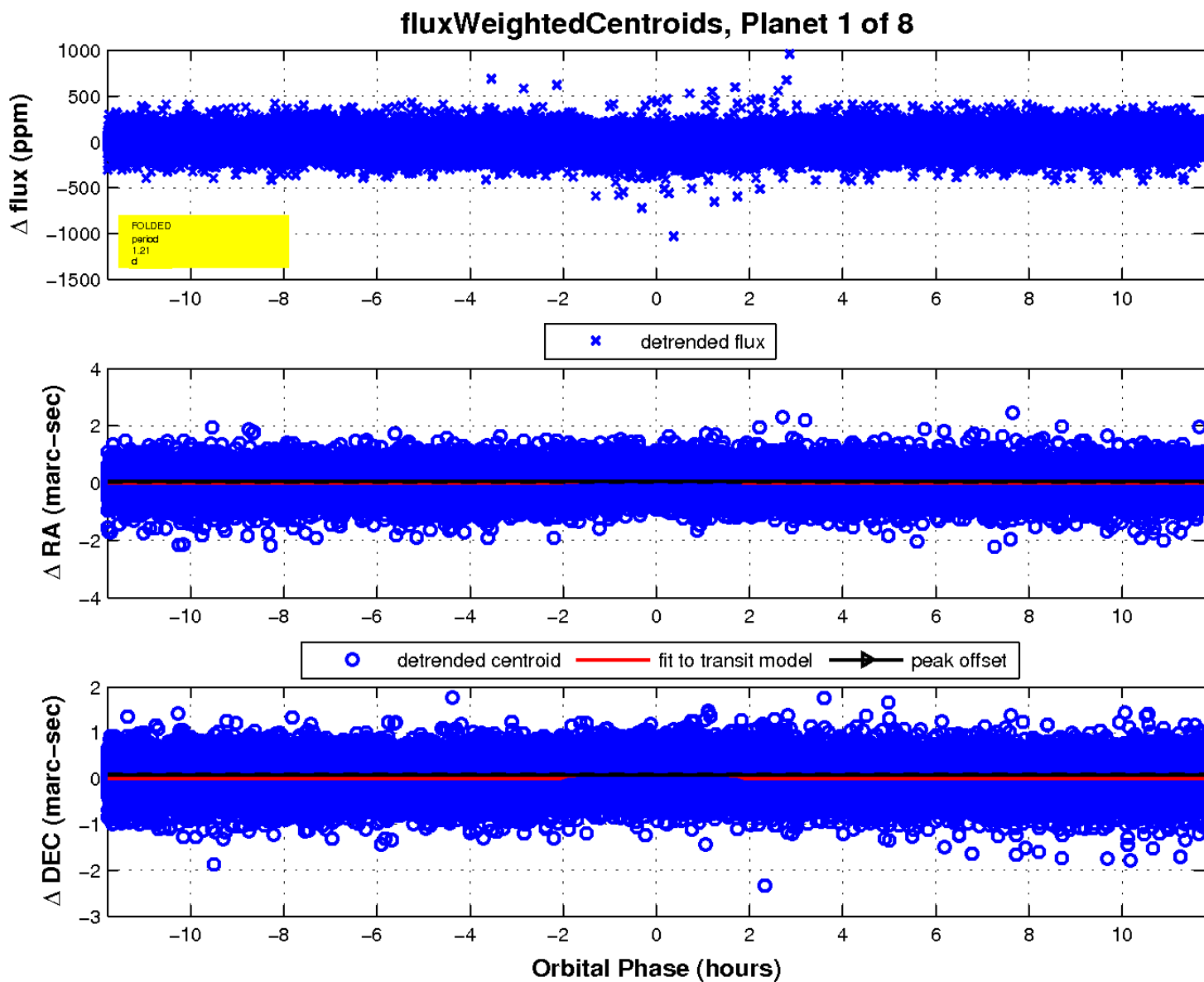
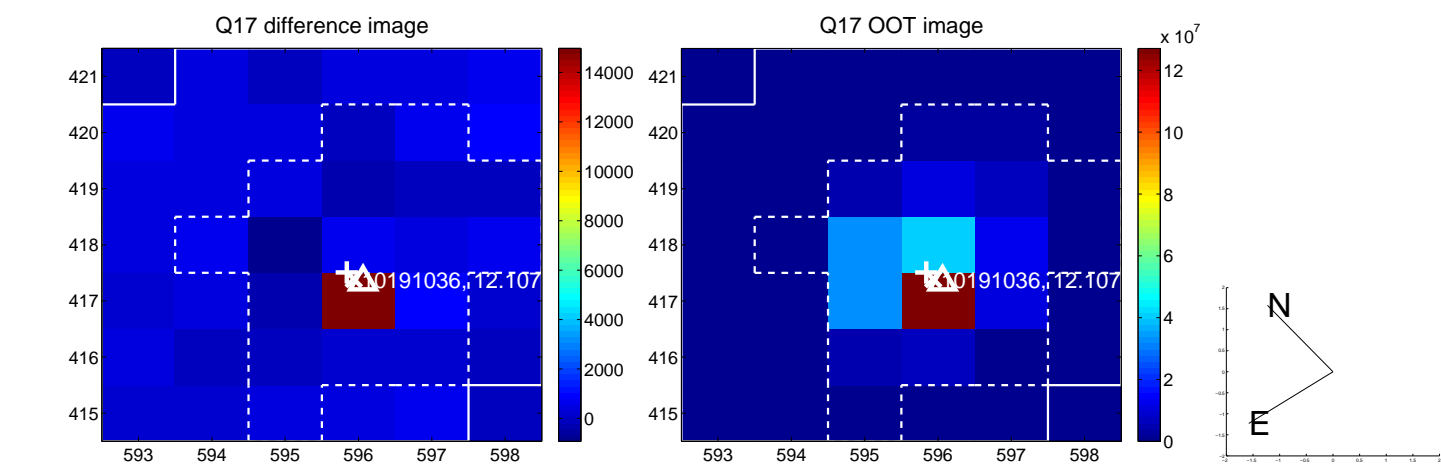
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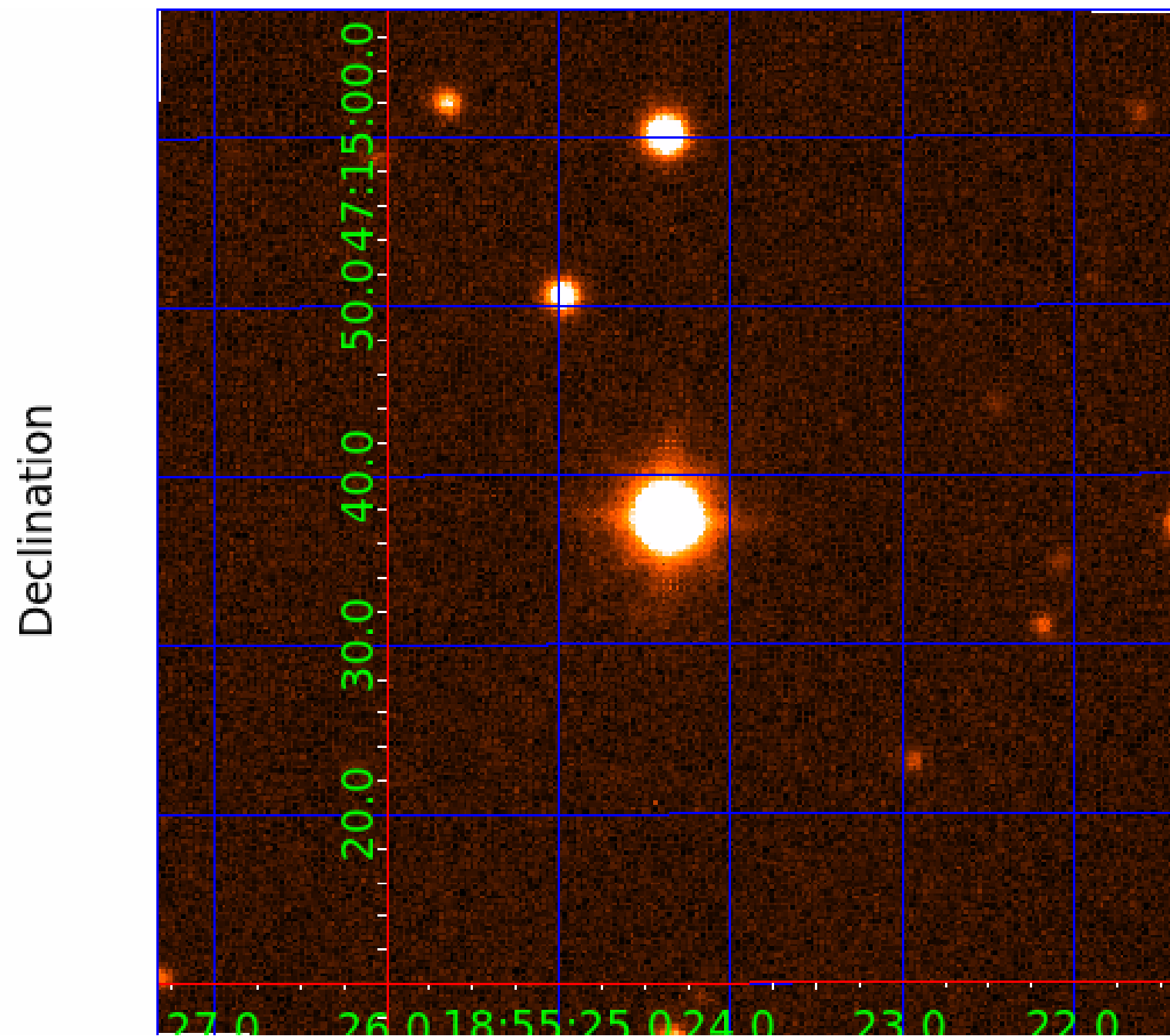
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UKIRT Image



# KIC 010191036

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010191036-01 | OBS      | 3218.01 | 1.213688      | 131.774952   | 22.8        | 3.928            | 16.3 | 16.4 | 1.05                        | 6238            | 0.59                   | 2961.08                |
| 010191036-02 | OBS      | No      | 266.260750    | 386.672484   | 82.8        | 2.897            | 13.8 | 2.9  | 1.05                        | 6238            | 1.08                   | 2.24                   |
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## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 010191036-01 | OBS      | FP   | 0.00  | 0 | 0 | 1 | 1 | CENT_KIC_POS—HALO_GHOST—EPHEM_MATCH   |
| 010191036-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—<br>INCONSISTENT_TRANS—CENT_KIC_POS—CENT_UNCERTAIN                                |
| 010191036-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—<br>INCONSISTENT_TRANS—CENT_FEW_MEAS  |
| 010191036-04 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—<br>MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |
| 010191036-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—<br>CENT_KIC_POS   |
| 010191036-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS  |
| 010191036-08 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—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.

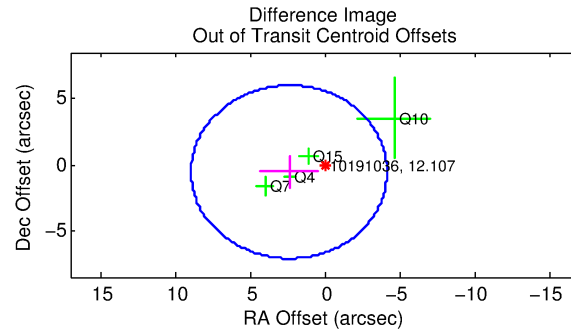
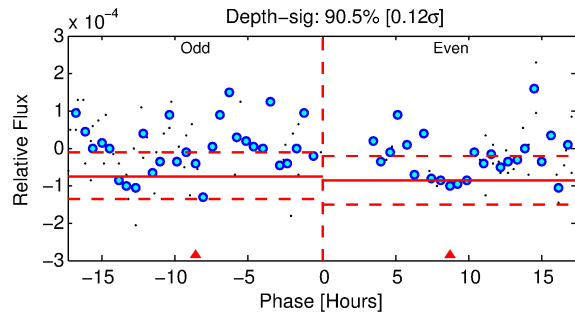
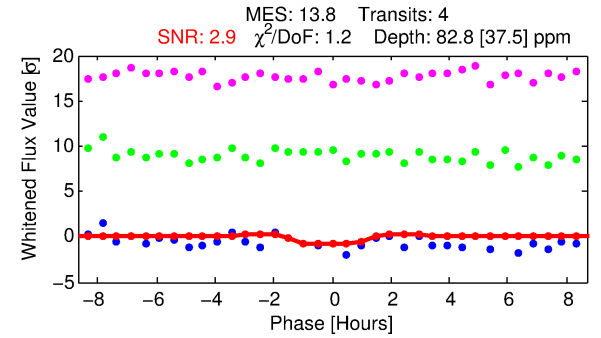
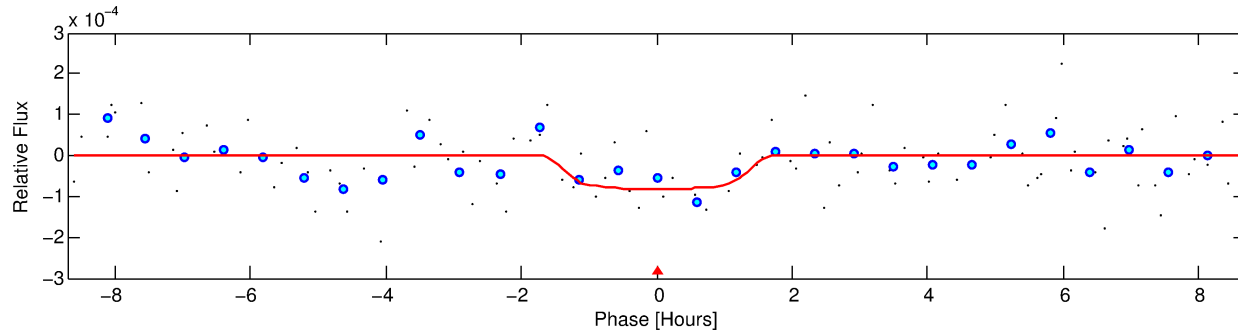
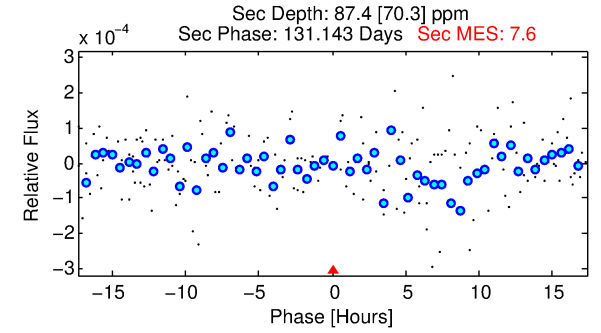
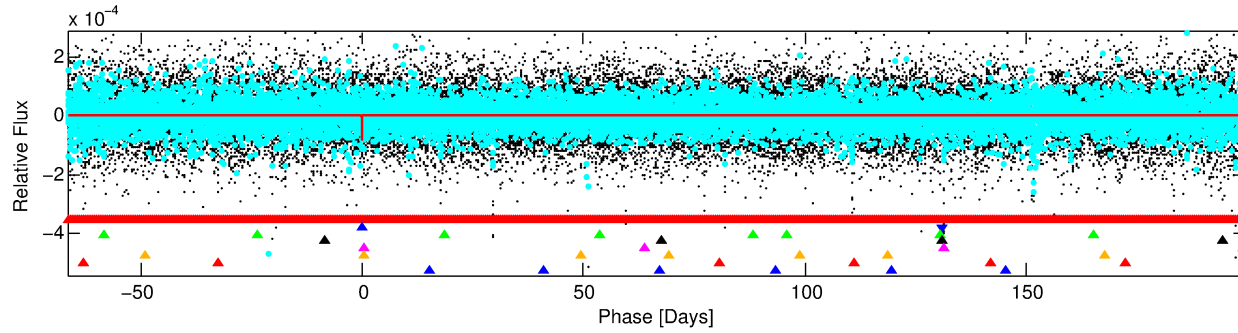
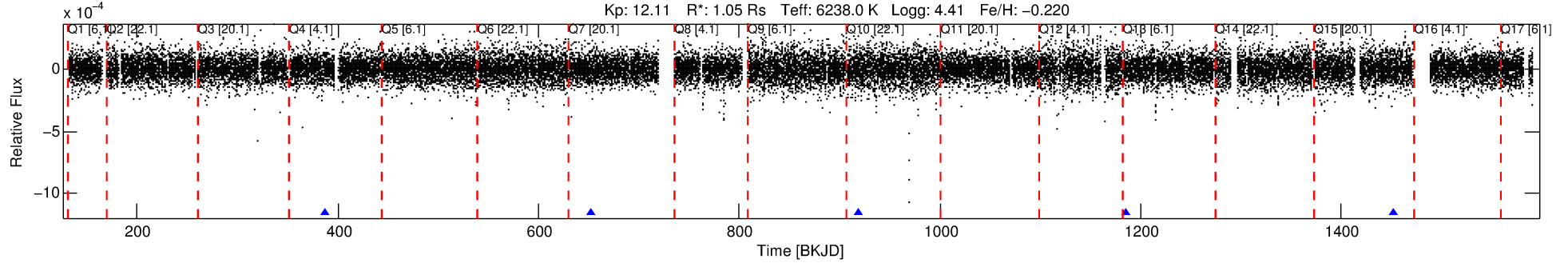
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010191036-02

No Significant Match Found

# DV One-Page Summary

KIC: 10191036 Candidate: 2 of 8 Period: 266.261 d  
KOI: K03218 Corr: No Ephemeris Match



## DV Fit Results:

Period = 266.26075 [0.00738] d  
Epoch = 386.6725 [0.0210] BKJD  
Rp/R\* = 0.0095 [0.0439]  
a/R\* = 379.76 [9394.41]  
b = 0.85 [8.10]  
Seff = 2.24 [0.69]  
Teq = 312 [24] K  
Rp = 1.08 [5.03] Re  
a = 0.8167 [0.1592] AU  
Ag = 27314.97 [254513.21] [0.11σ]  
Teffp = 6199 [14435] K [0.41σ]

## DV Diagnostic Results:

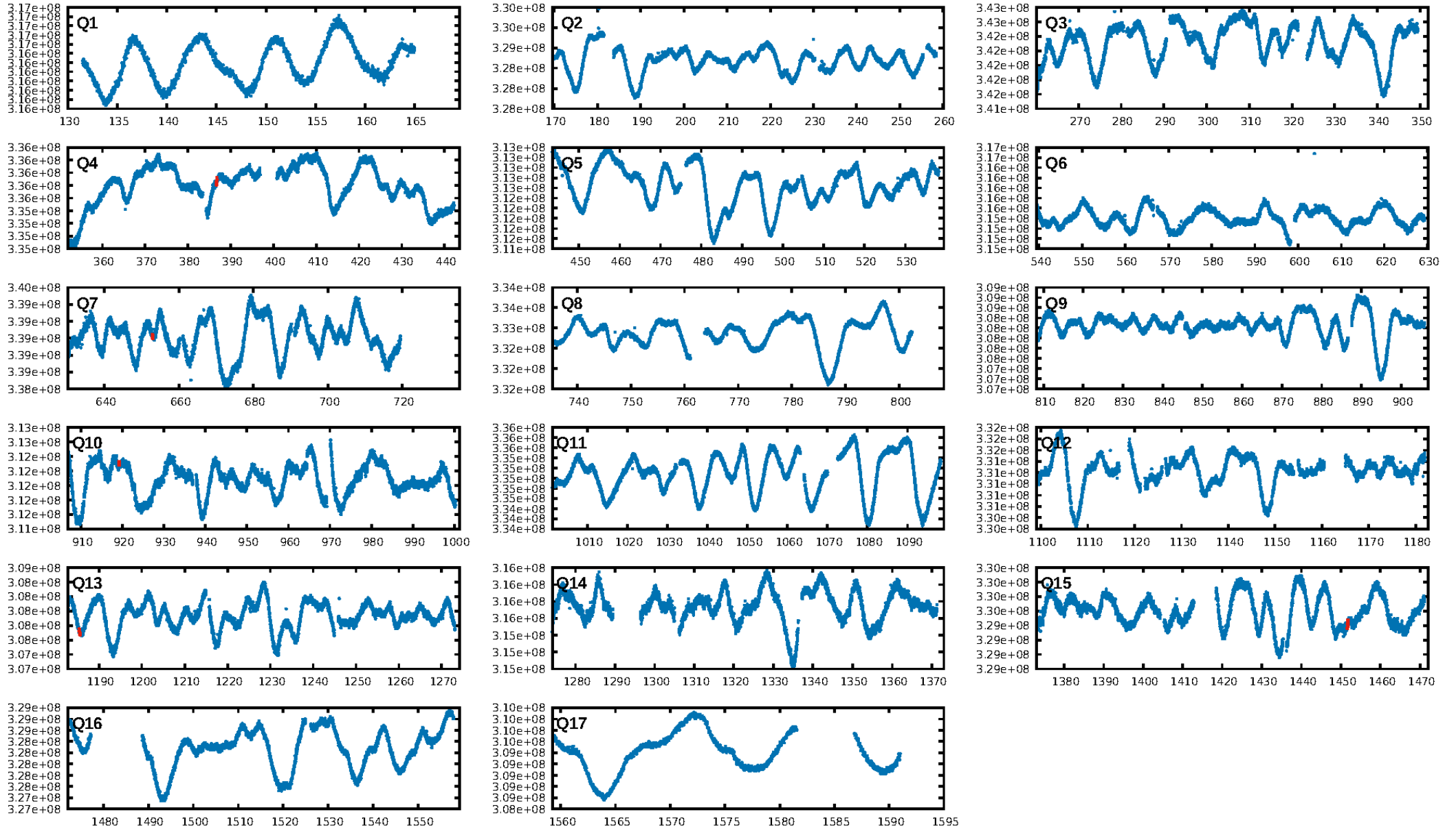
ShortPeriod-sig: 100.0% [39.19σ]  
LongPeriod-sig: 100.0% [510.58σ]  
ModelChiSquare2-sig: 19.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.58e-16  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 15.2  
Centroid-sig: 15.0%  
Centroid-so: 2.185 arcsec [0.84σ]  
OotOffset-rm: 2.436 arcsec [1.12σ]  
KicOffset-rm: 2.331 arcsec [2.46σ]  
OotOffset-st: 1/2/1/0 [4]  
KicOffset-st: 1/2/1/0 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 0.00 [0/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:52:48 Z

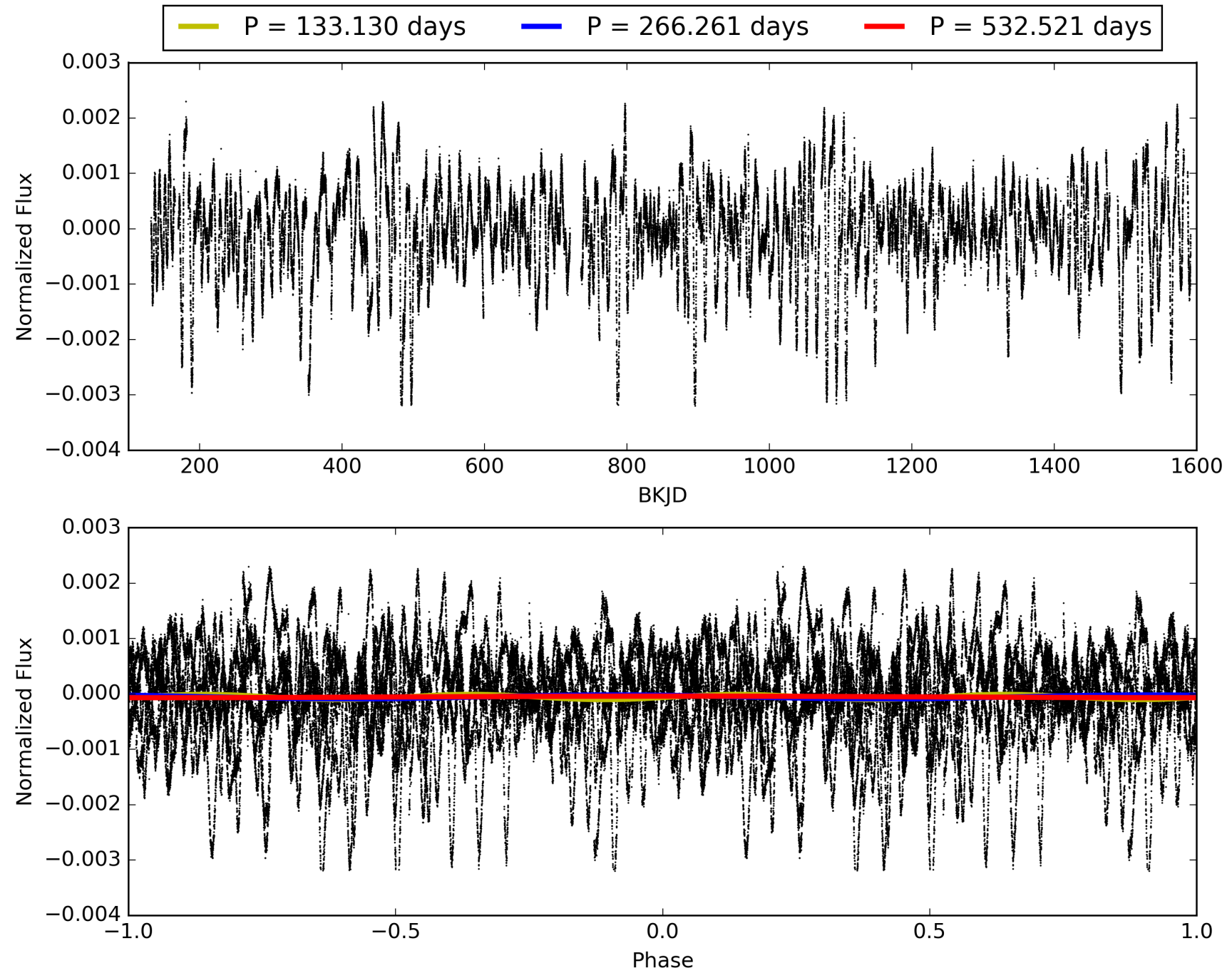
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 010191036-02, PDC Light Curves

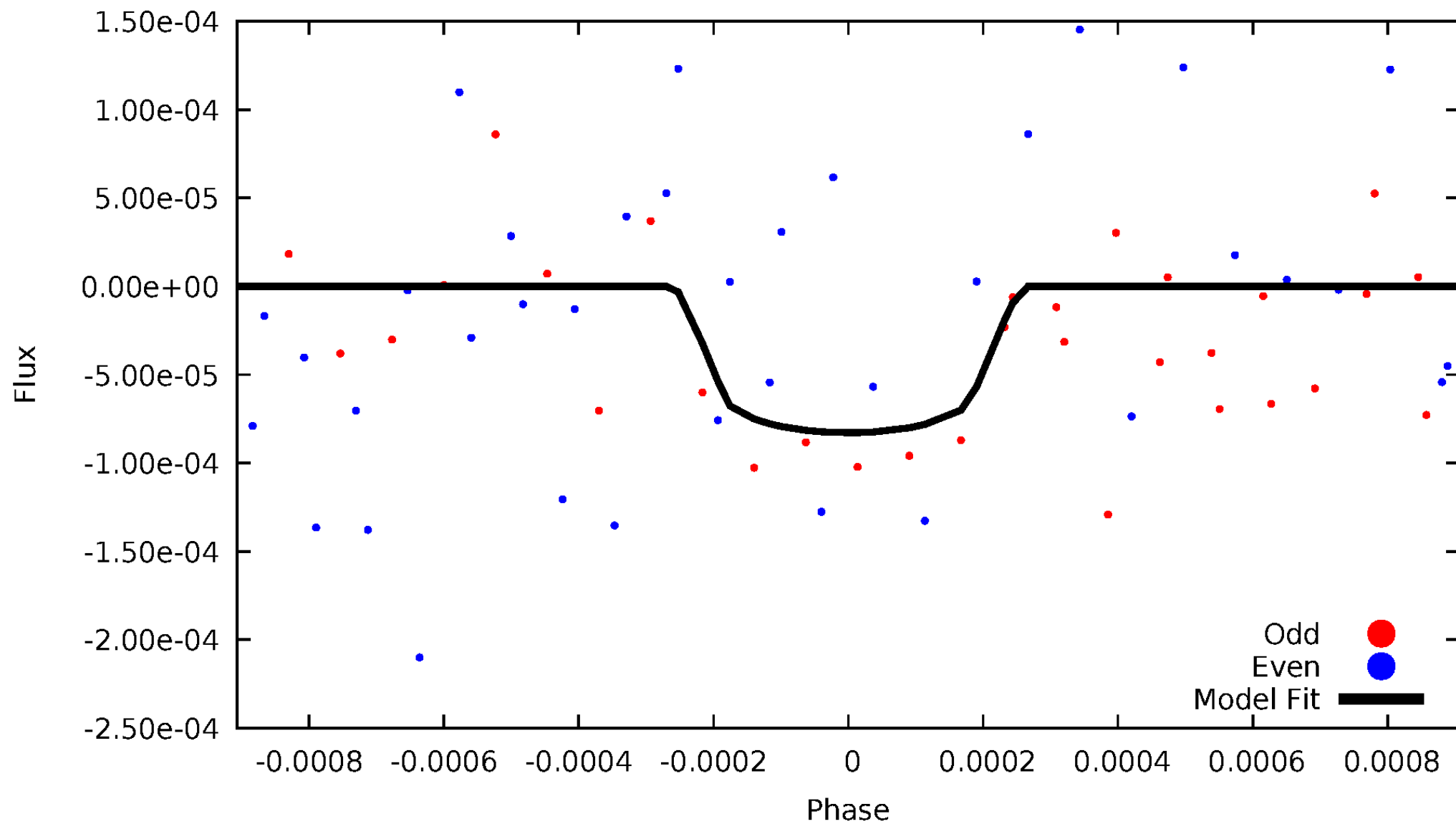


# TCE 010191036-02



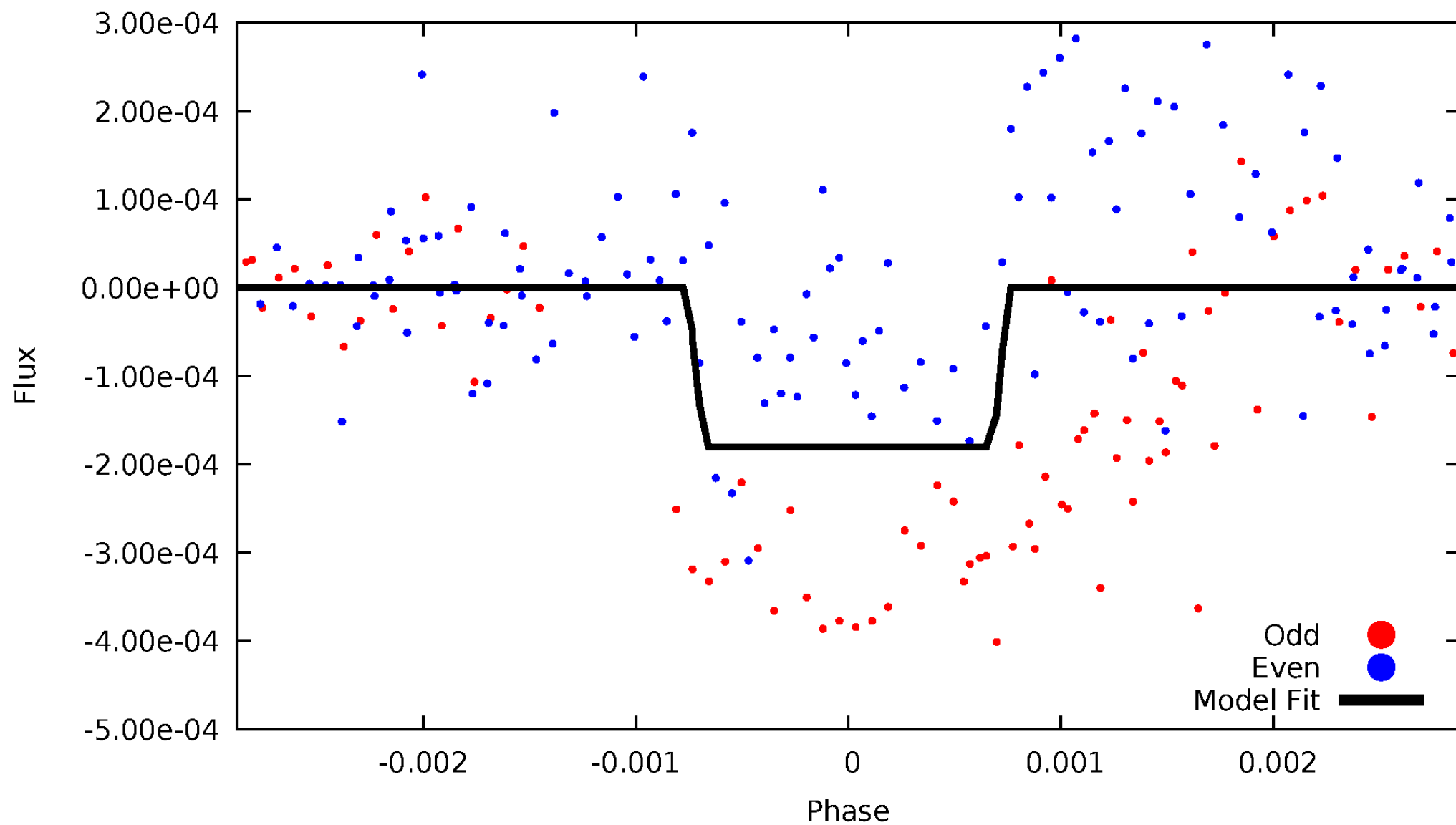
# DV Odd/Even

TCE 010191036-02



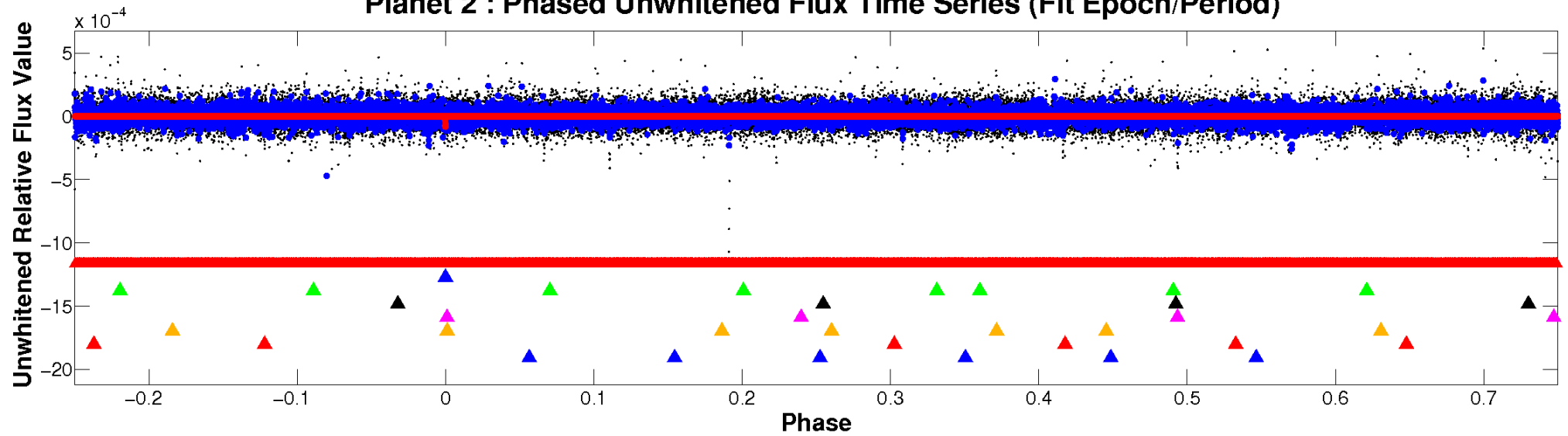
# ALT Odd/Even

TCE 010191036-02

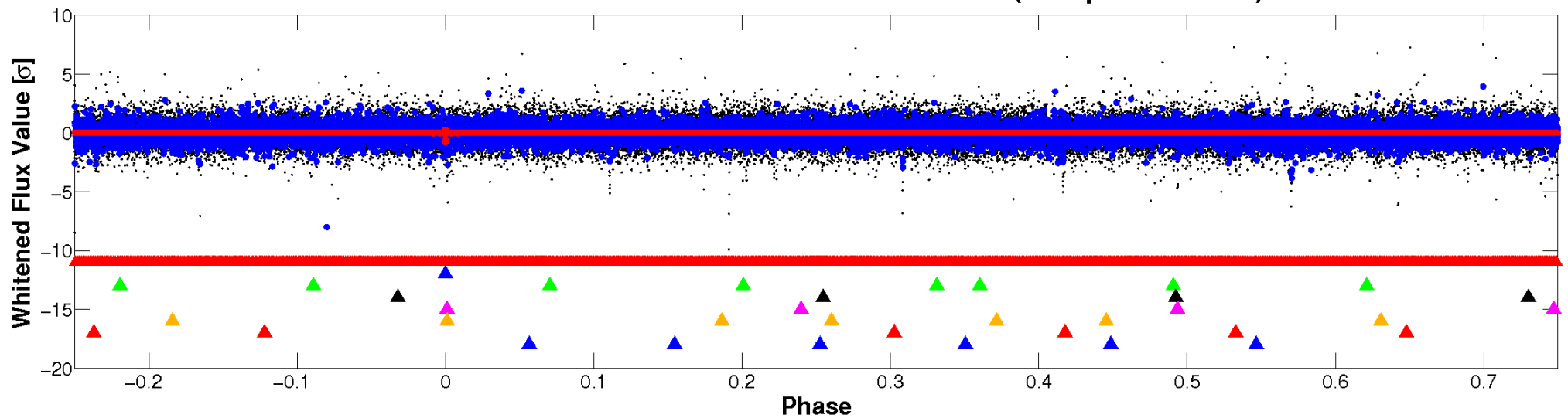


# Non-Whitened Vs. Whitened Light Curve

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

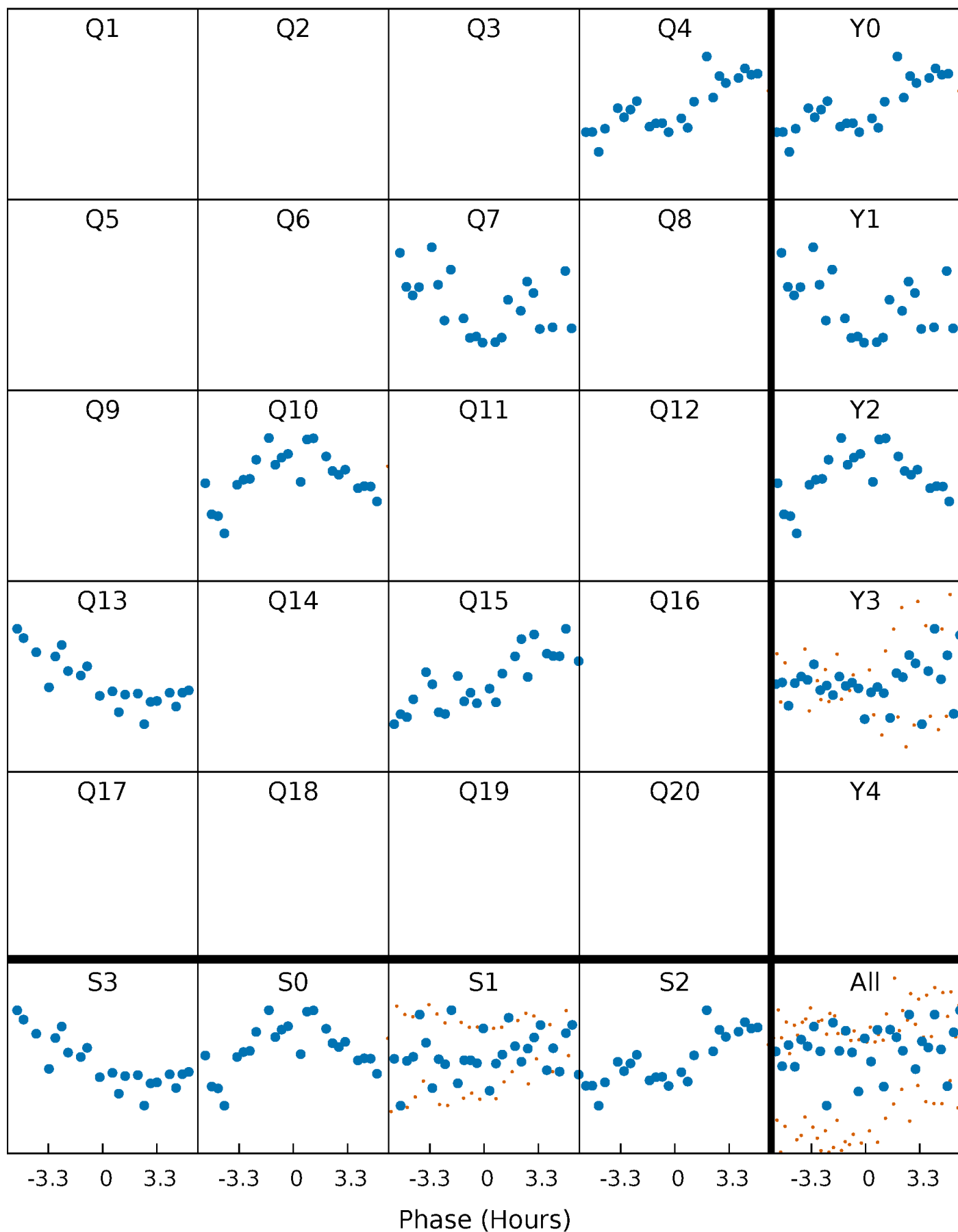


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

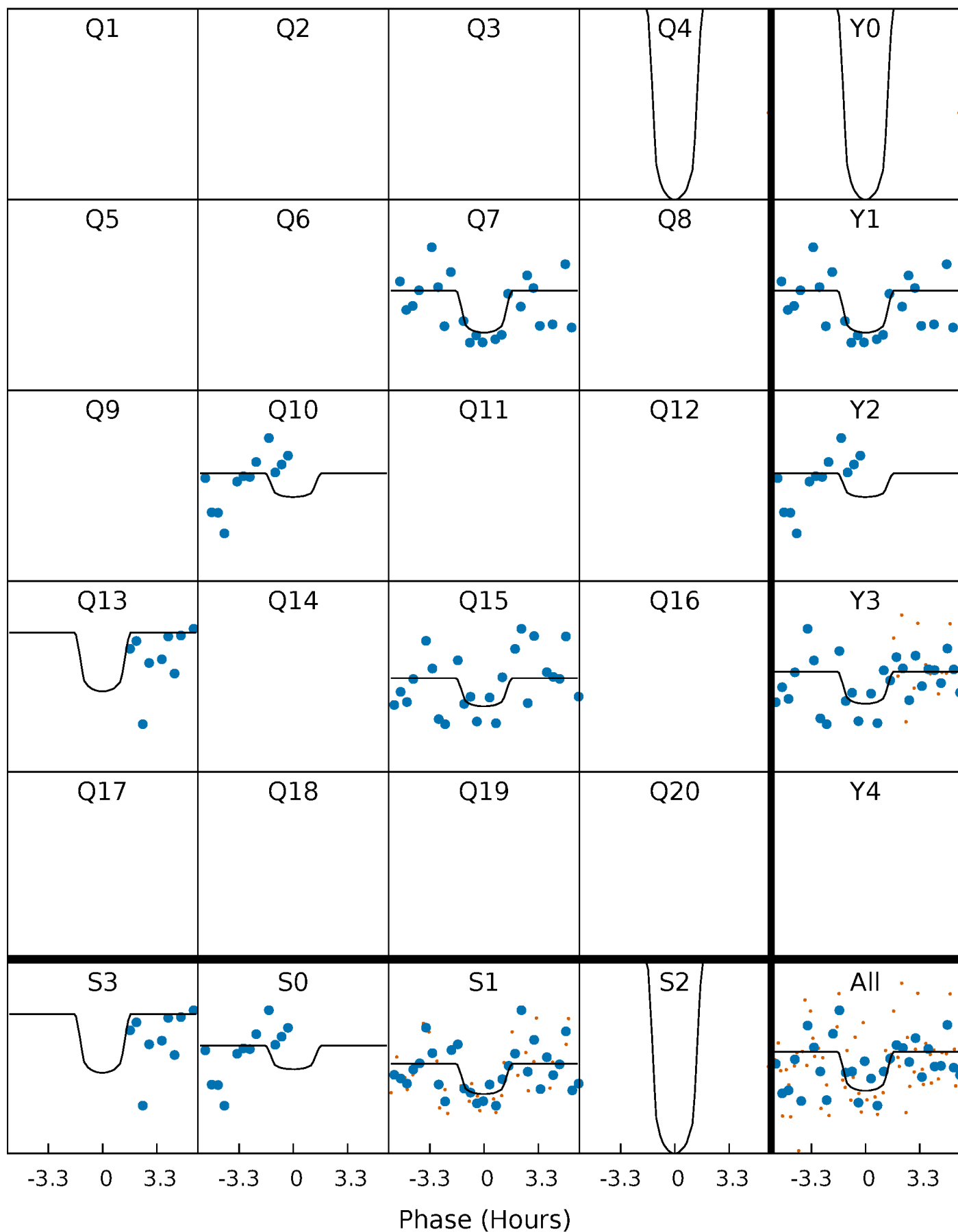
TCE 010191036-02     $P=266.260750$  Days     $T_0=386.672484$  (BKJD)





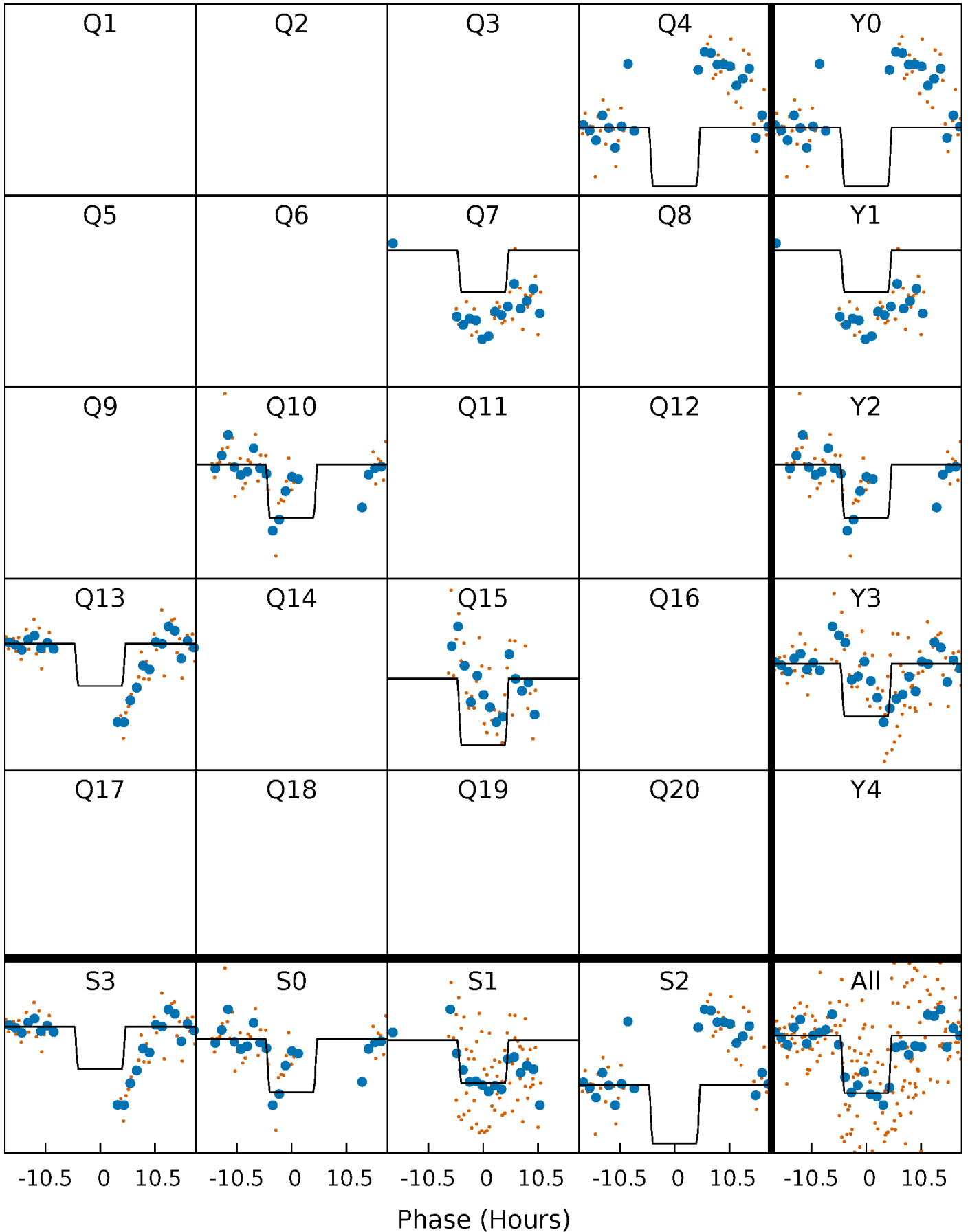
# DV Quarter-Phased Transit Curves

TCE 010191036-02     $P=266.260750$  Days     $T_0=386.672484$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

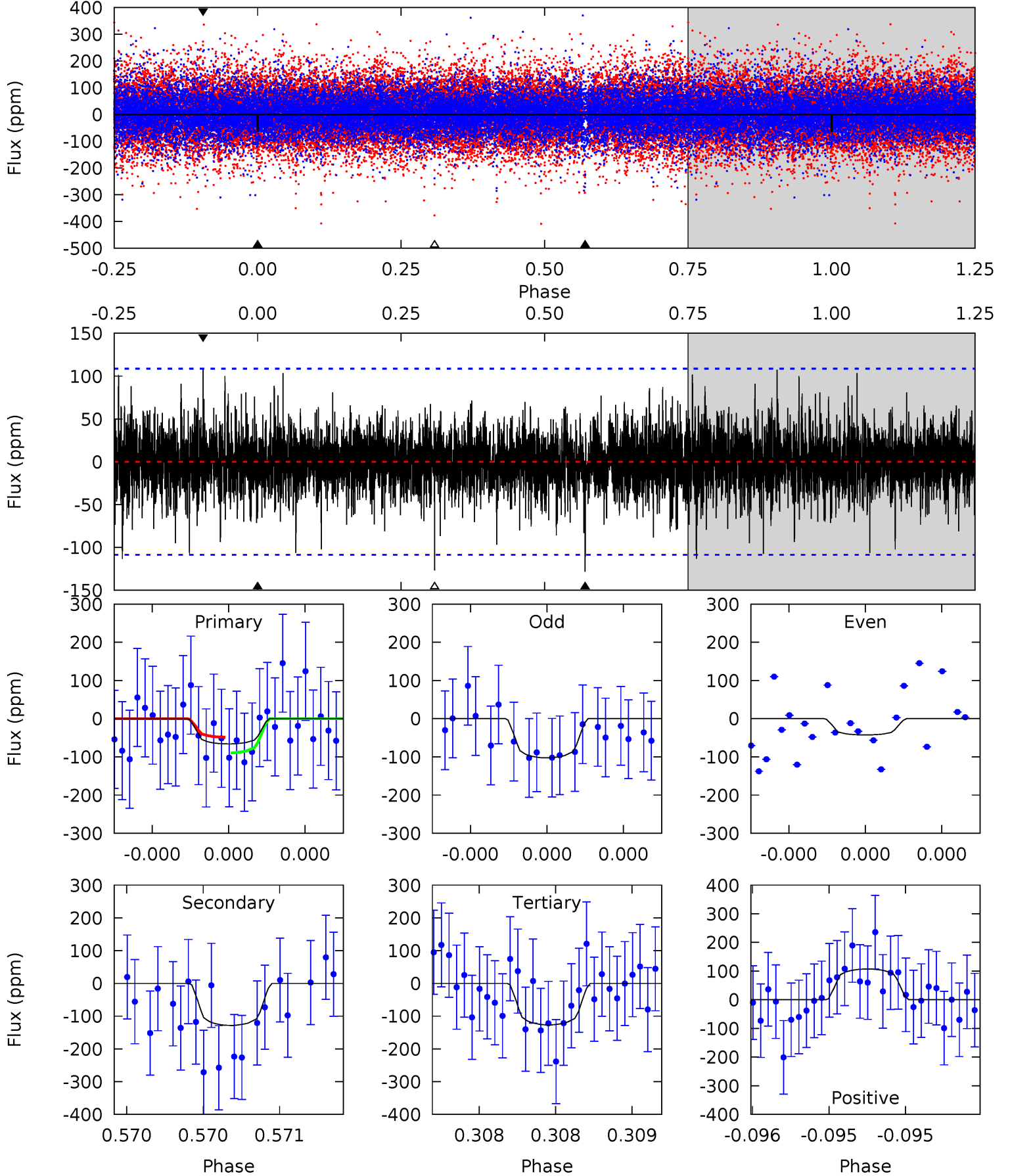
TCE 010191036-02     $P=266.222042$  Days     $T_0=386.705625$  (BKJD)



# DV Model-Shift Uniqueness Test

010191036-02, P = 266.260750 Days, E = 120.411734 Days

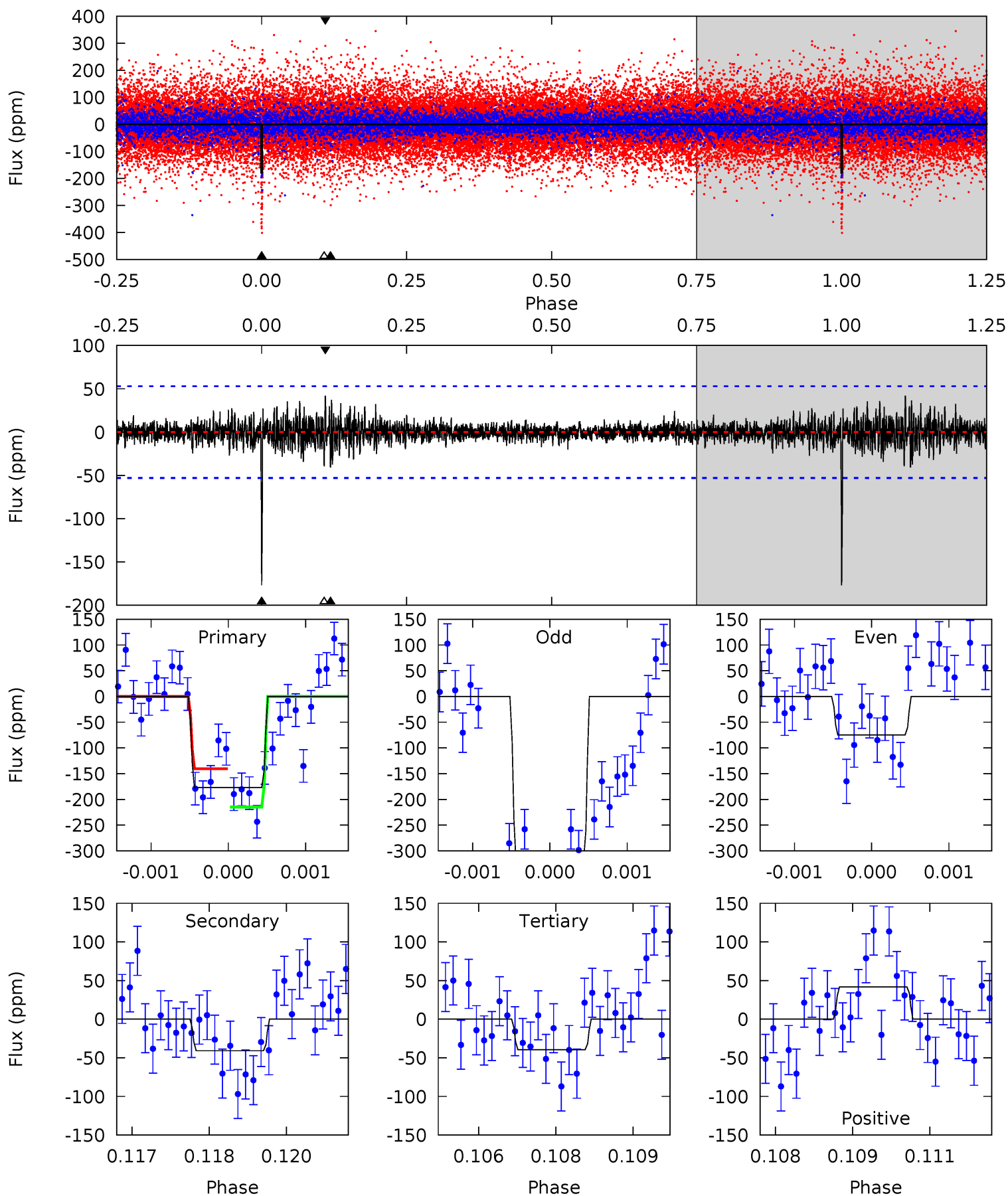
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 3.40 | 6.58 | 6.50 | 5.51 | 5.57            | 3.48            | 1.29             | -3.11   | -2.11   | 0.08    | 1.08    | 1.52    | 0.58 | 0.46  | 1.05 |



# Alt Model-Shift Uniqueness Test

010191036-02, P = 266.222042 Days, E = 120.483583 Days

| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 18.0 | 4.15 | 4.01 | 4.25 | 5.38            | 3.18            | 0.80             | 14.0    | 13.7    | 0.14    | -0.11   | 12.5    | 0.96 | 0.19  | 3.71 |



### Stellar Parameters For KIC 010191036

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6238^{+156}_{-188}$ | $4.407^{+0.077}_{-0.154}$ | $-0.220^{+0.250}_{-0.350}$ | $1.049^{+0.244}_{-0.122}$ | $1.022^{+0.134}_{-0.120}$ | $1.246^{+0.426}_{-0.527}$                 |
|        | +3%/-3%              | +2%/-3%                   | +114%/-159%                | +23%/-12%                 | +13%/-12%                 | +34%/-42%                                 |
| Source | PHO1                 | FLK73                     | 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 010191036-02 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$         | $A_{obs}$               |
|---------|---------------|------------------------|-------------------|-----------------------|-------------------------|
| DV      | $-128 \pm 19$ | $3.58^{+4.03}_{-2.38}$ | $439^{+25}_{-22}$ | $4033^{+2487}_{-856}$ | $3610^{+28622}_{-2834}$ |
| Alt.    | $-41 \pm 10$  | $4.28^{+4.20}_{-2.98}$ | $439^{+24}_{-20}$ | $3236^{+1531}_{-588}$ | $844^{+6782}_{-638}$    |

$T_{max}$  = 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

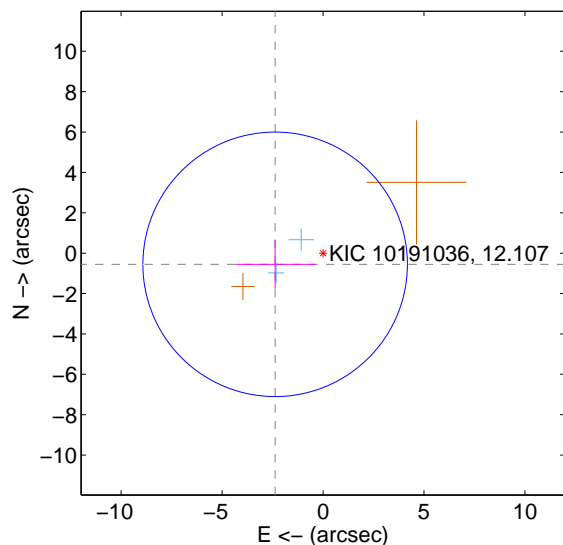
Supplemental centroid analysis for 010191036-02. Kepler magnitude: 12.11. Transit SNR 2.85

There are 2 quarters with good PRF difference image offsets

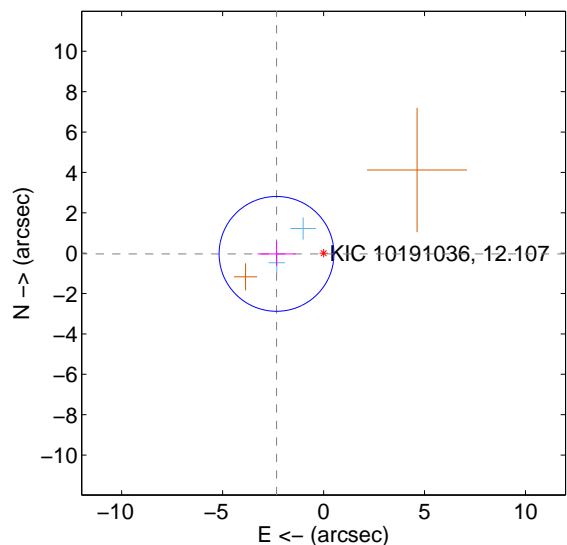
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $2.436 \pm 2.183$  | 1.12                | $2.372 \pm 1.965$ | $-0.552 \pm 1.201$ |
| PRF-fit source offset from KIC position | $2.331 \pm 0.948$  | 2.46                | $2.331 \pm 0.940$ | $-0.035 \pm 0.598$ |
| photometric centroid source offset      | $2.19 \pm 2.60$    | 0.84                | $1.46 \pm 2.72$   | $-1.63 \pm 2.50$   |

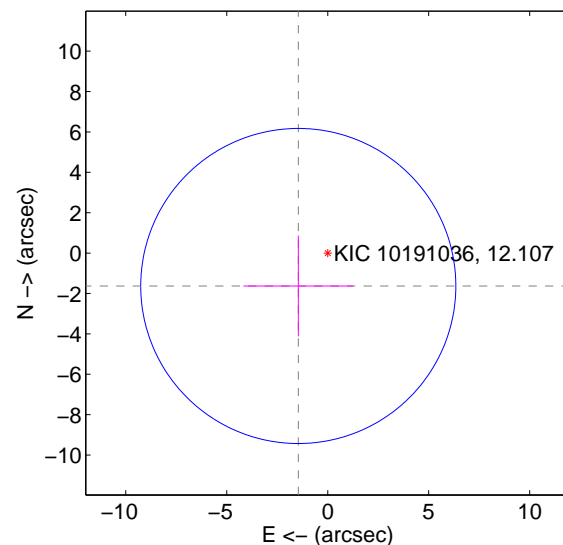
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



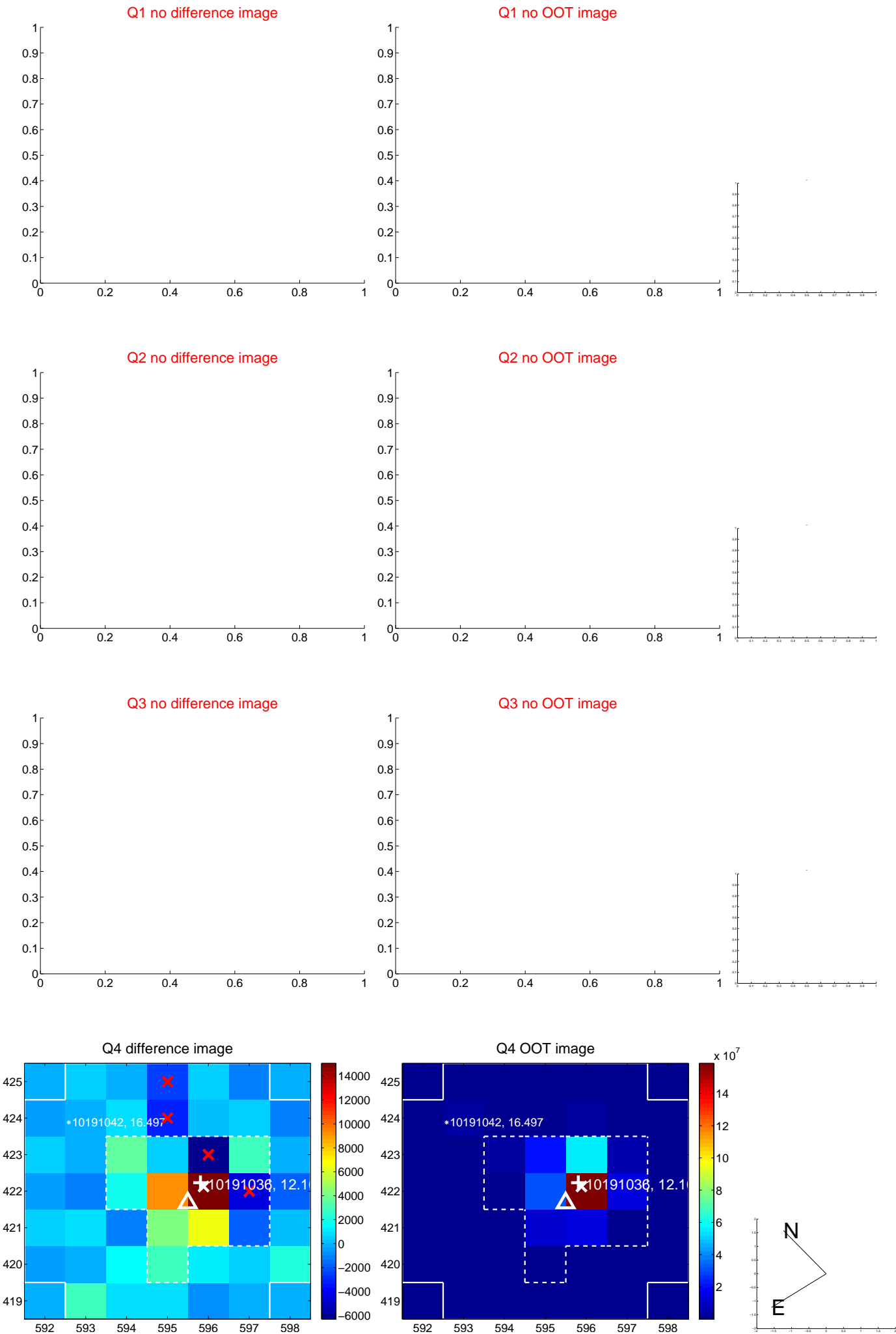
offset from photometric centroids



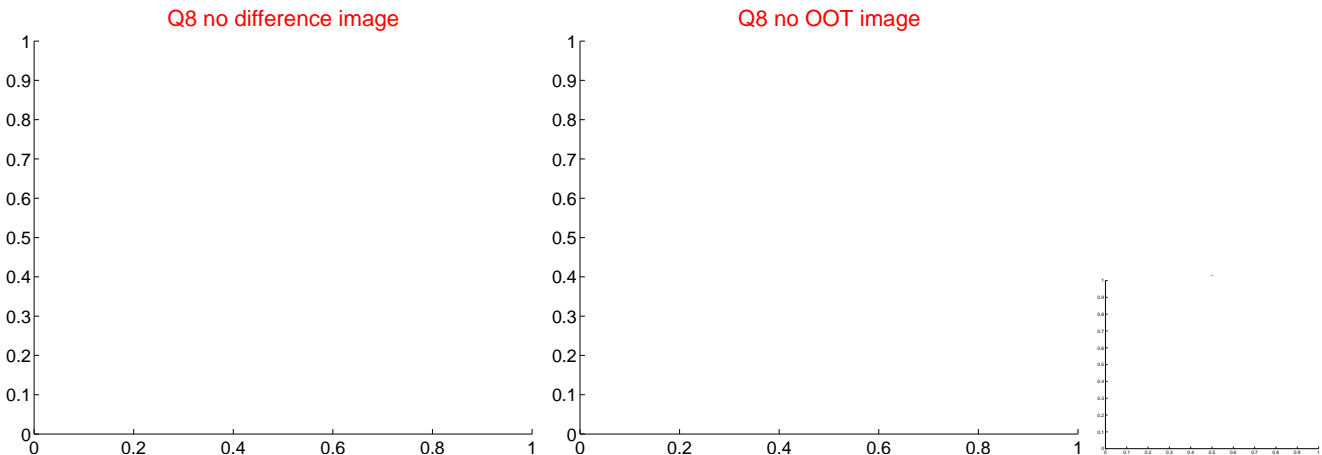
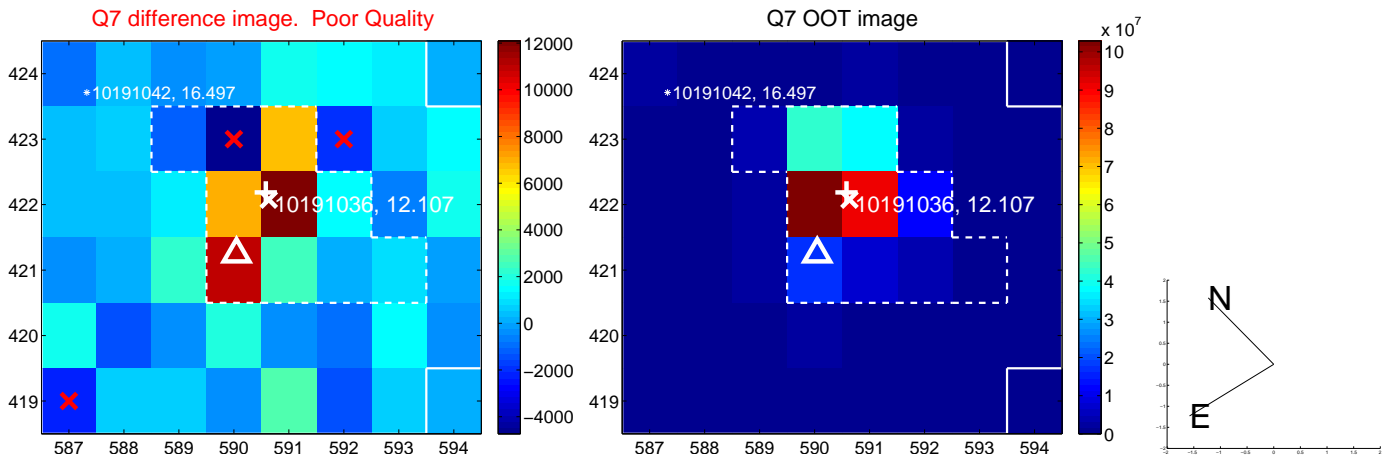
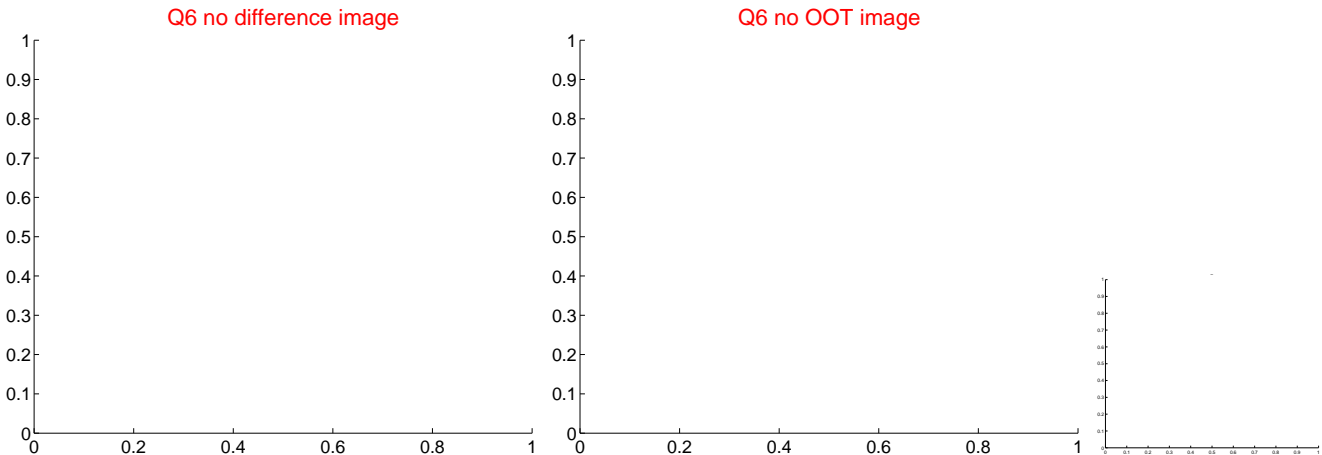
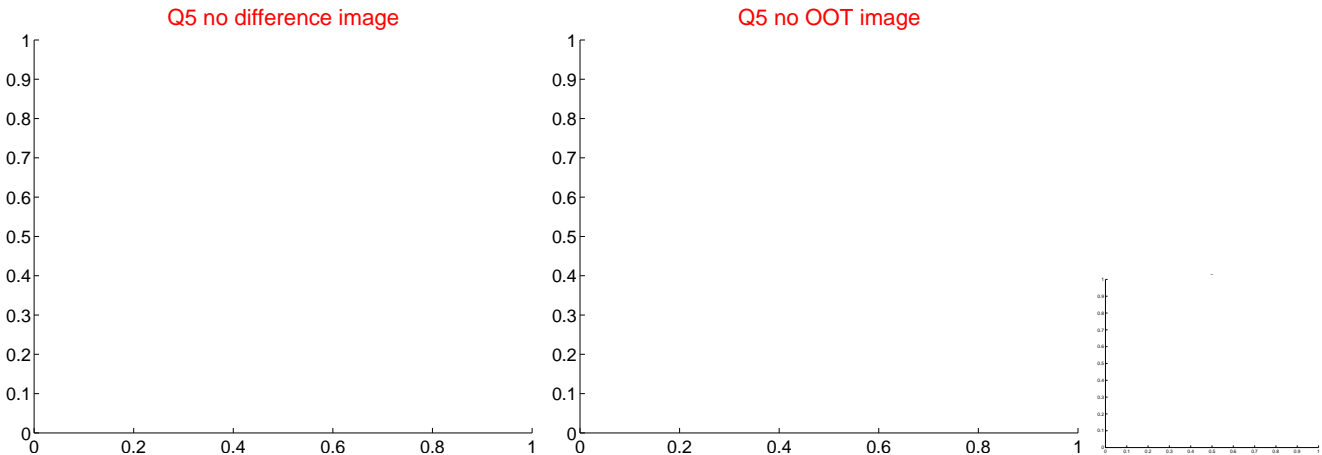
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



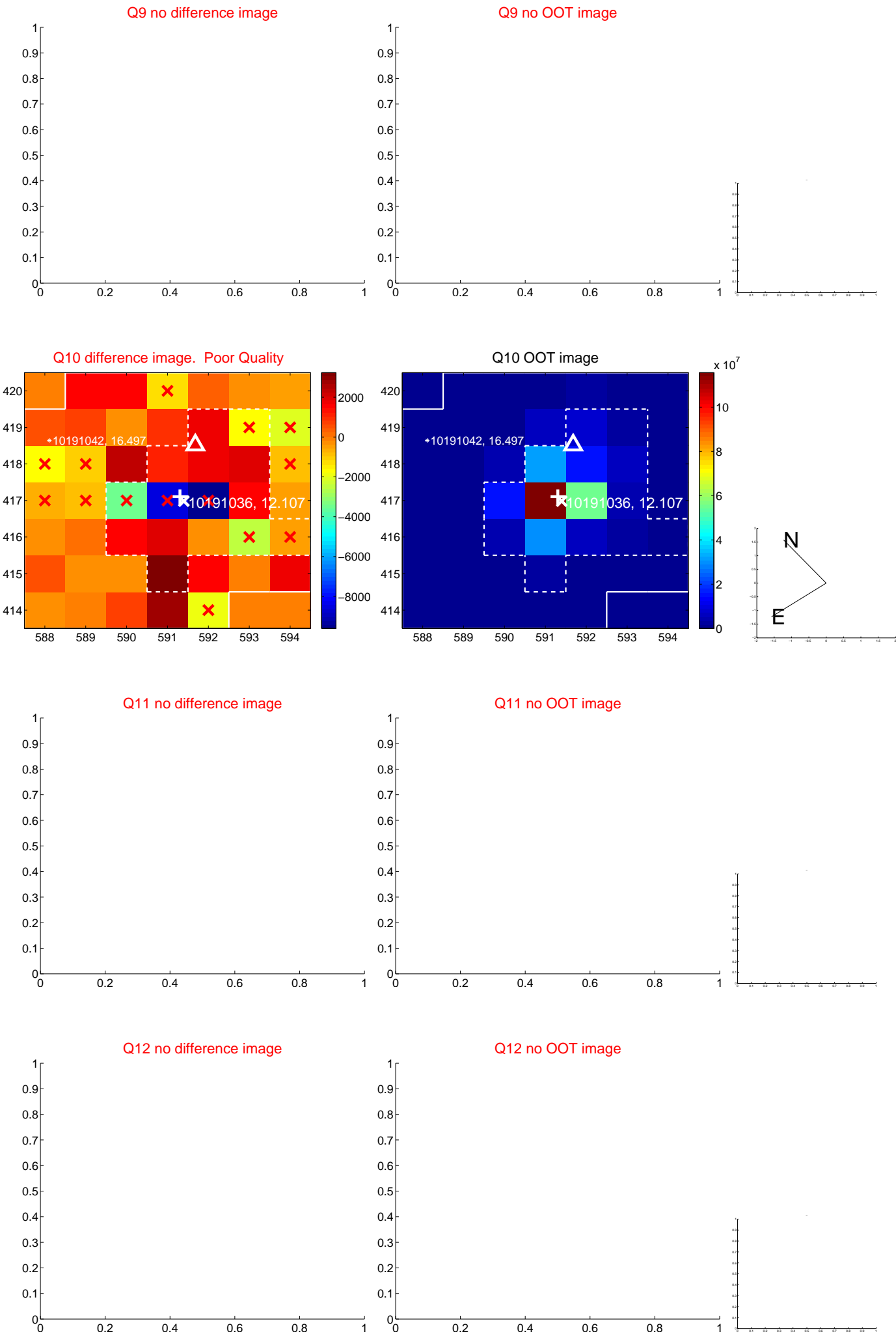
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



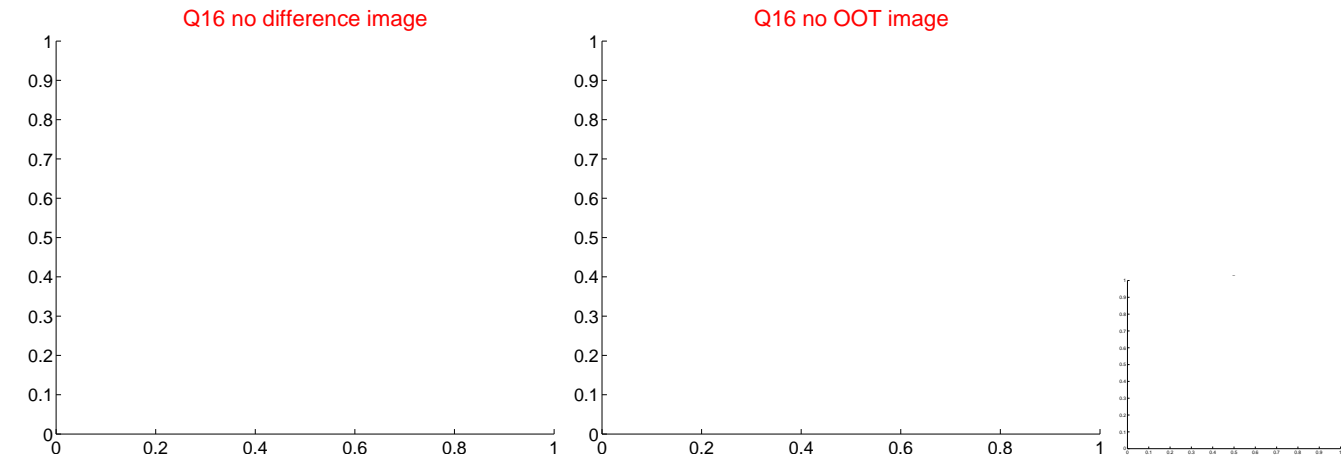
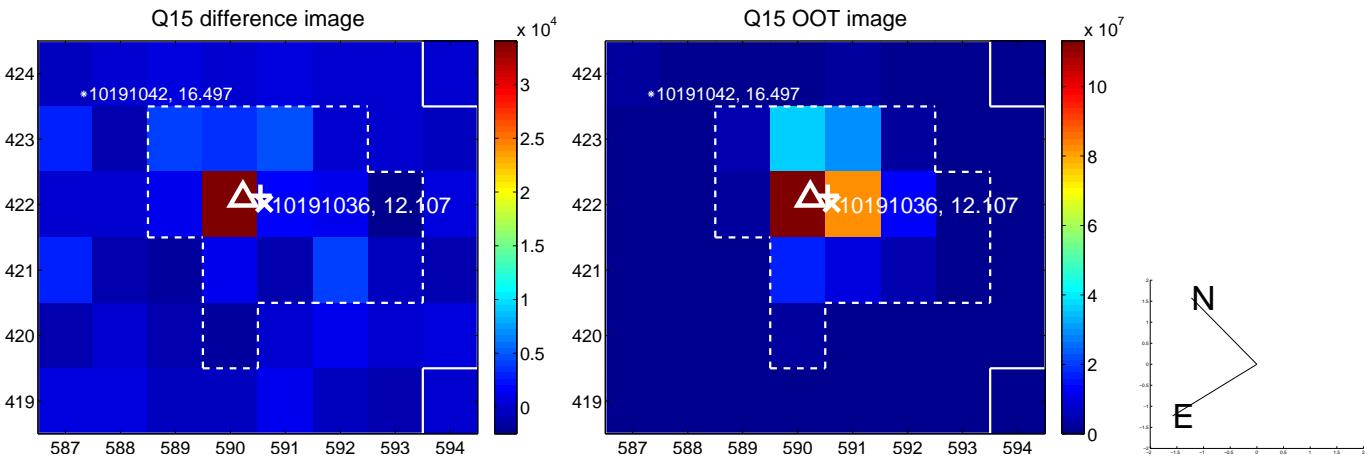
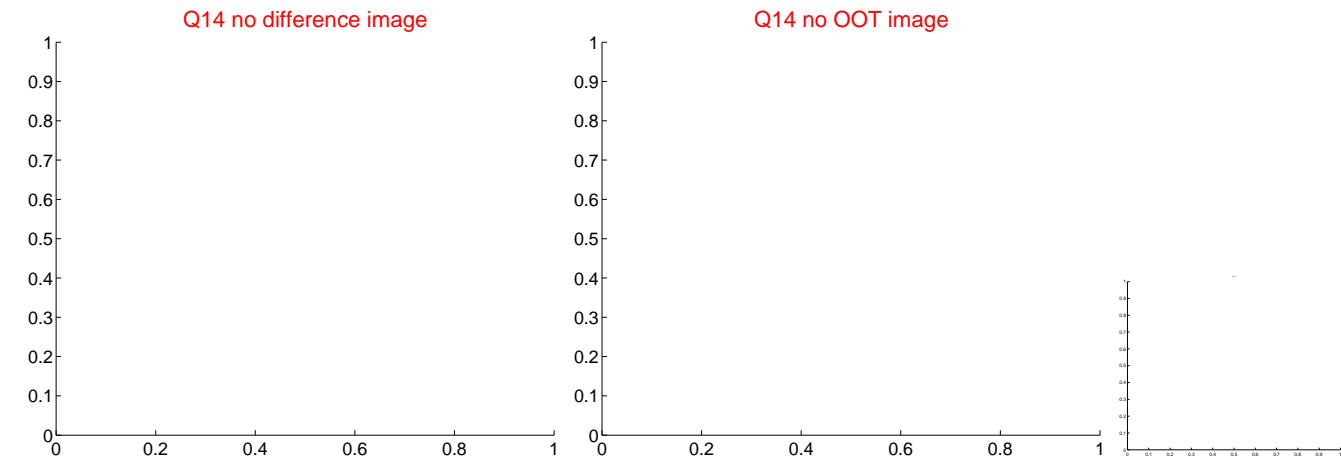
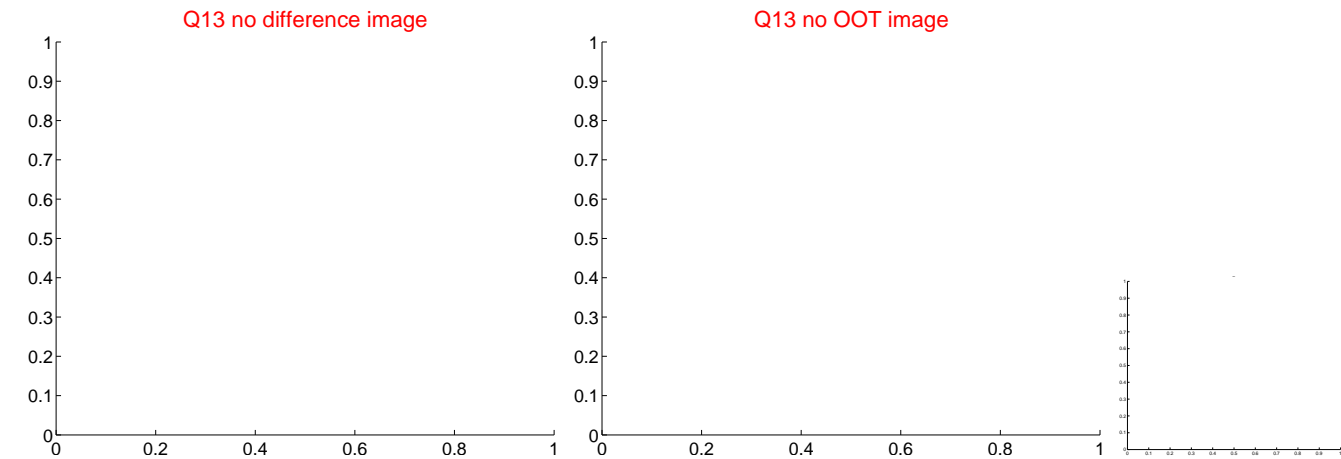
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



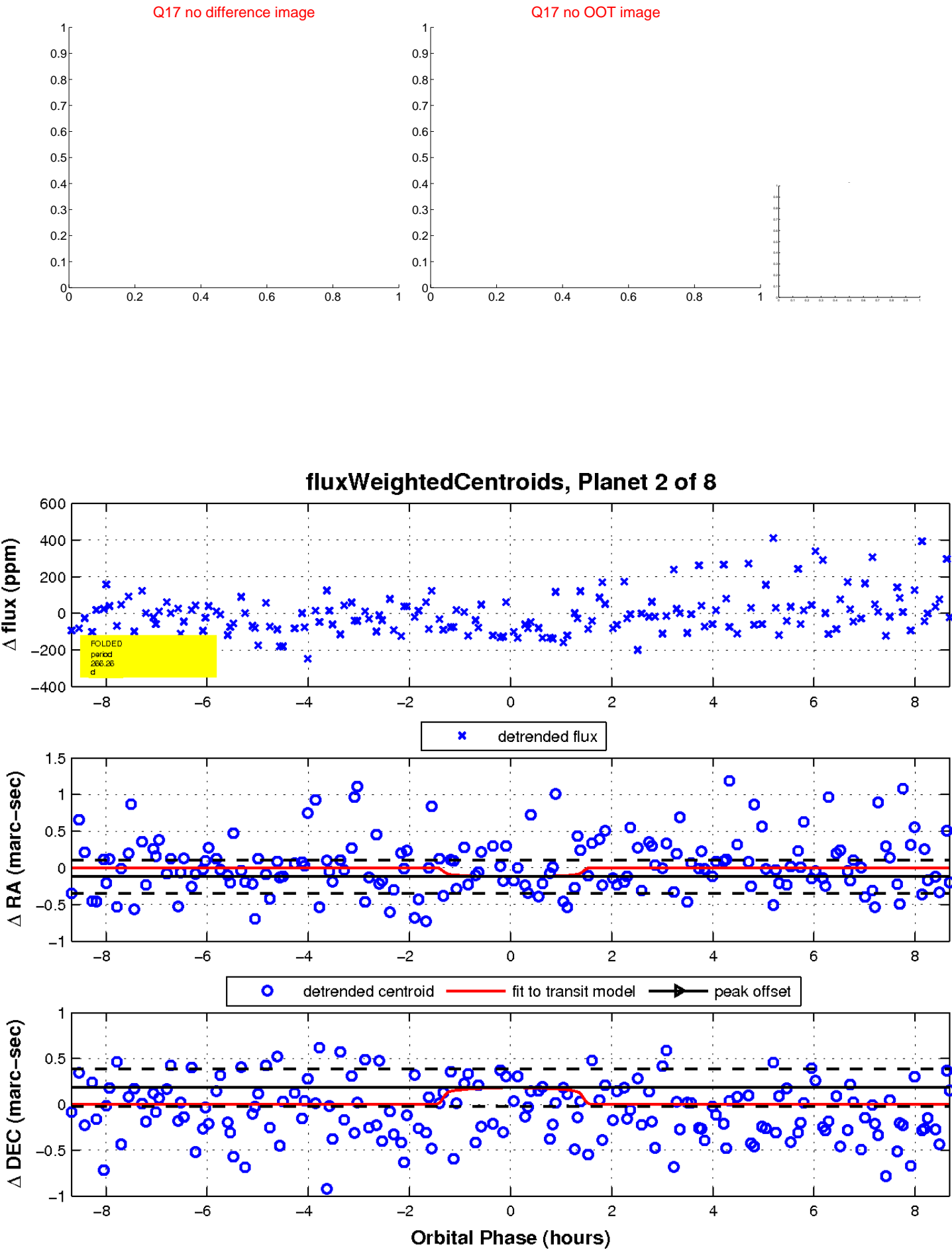
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

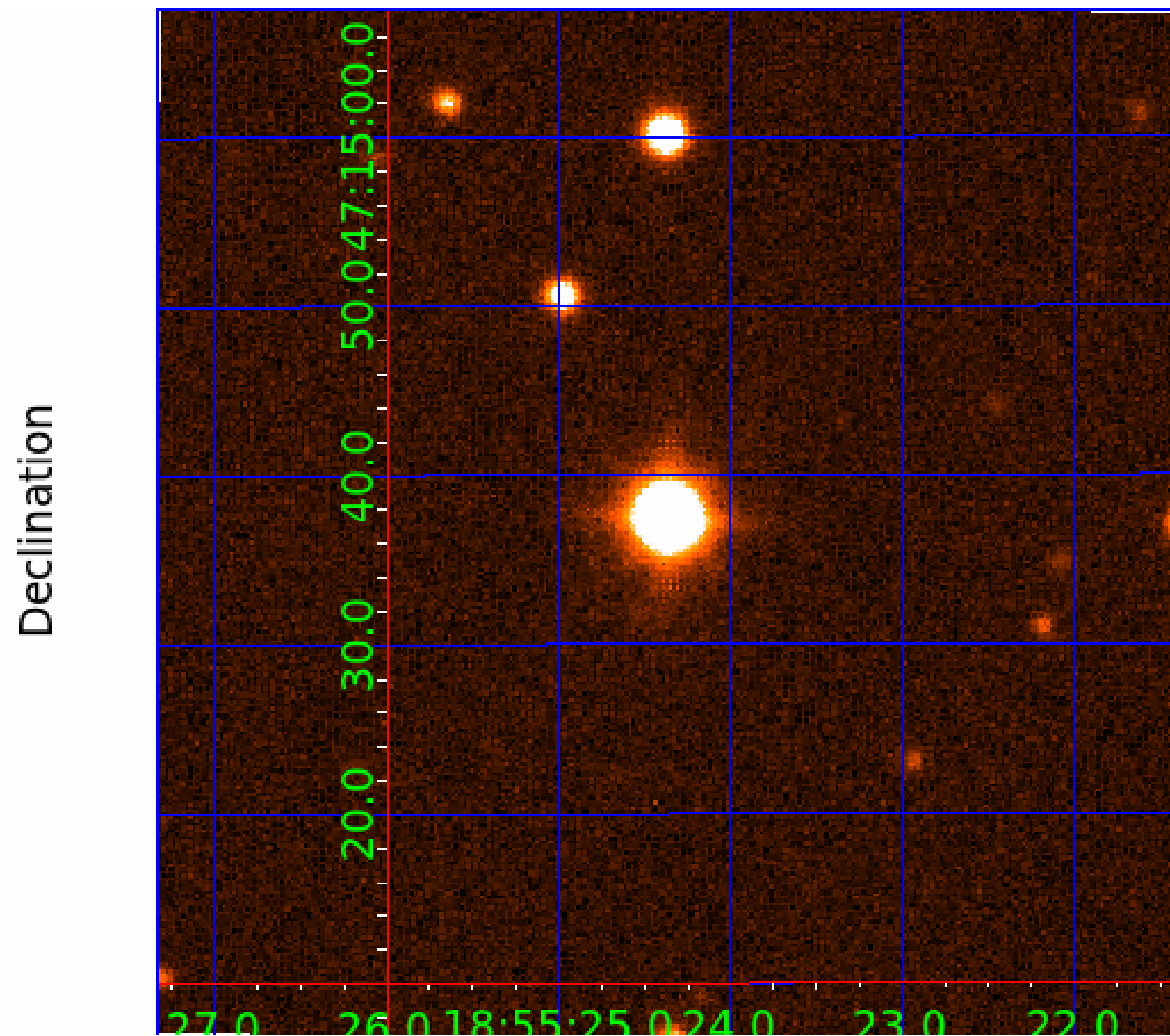


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image



# KIC 010191036

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010191036-01 | OBS      | 3218.01 | 1.213688      | 131.774952   | 22.8        | 3.928            | 16.3 | 16.4 | 1.05                        | 6238            | 0.59                   | 2961.08                |
| 010191036-02 | OBS      | No      | 266.260750    | 386.672484   | 82.8        | 2.897            | 13.8 | 2.9  | 1.05                        | 6238            | 1.08                   | 2.24                   |
| 010191036-03 | OBS      | No      | 189.085046    | 216.332625   | 17.0        | 6.402            | 13.7 | 0.9  | 1.05                        | 6238            | 0.51                   | 3.53                   |
| 010191036-04 | OBS      | No      | 329.559517    | 454.481811   | 106.3       | 0.677            | 13.4 | 2.0  | 1.05                        | 6238            | 1.30                   | 1.68                   |
| 010191036-06 | OBS      | No      | 216.943053    | 219.355992   | 139.1       | 8.693            | 11.8 | 6.8  | 1.05                        | 6238            | 1.38                   | 2.94                   |
| 010191036-07 | OBS      | No      | 235.618253    | 354.206000   | 129.3       | 7.962            | 7.7  | 6.6  | 1.05                        | 6238            | 1.35                   | 2.63                   |
| 010191036-08 | OBS      | No      | 240.159512    | 265.954871   | 129.4       | 15.721           | 7.5  | 5.0  | 1.05                        | 6238            | 1.31                   | 2.57                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 010191036-01 | OBS      | FP   | 0.00  | 0 | 0 | 1 | 1 | CENT_KIC_POS—HALO_GHOST—EPHEM_MATCH   |
| 010191036-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS—CENT_UNCERTAIN                                |
| 010191036-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS  |
| 010191036-04 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |
| 010191036-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_KIC_POS   |
| 010191036-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS  |
| 010191036-08 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—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.

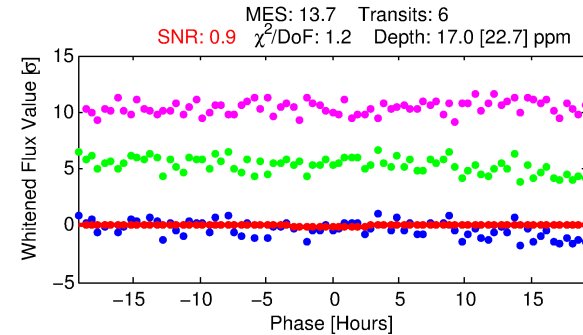
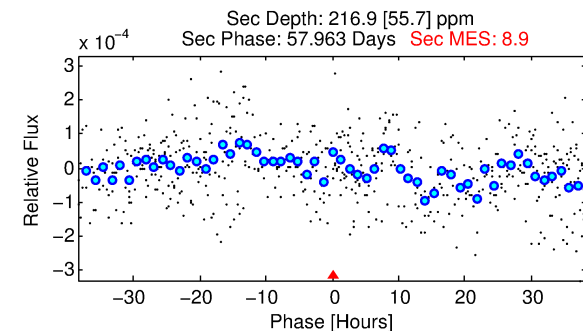
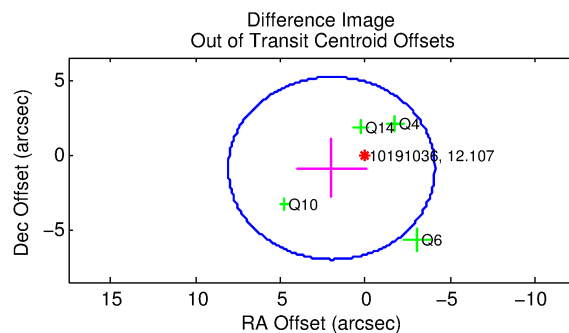
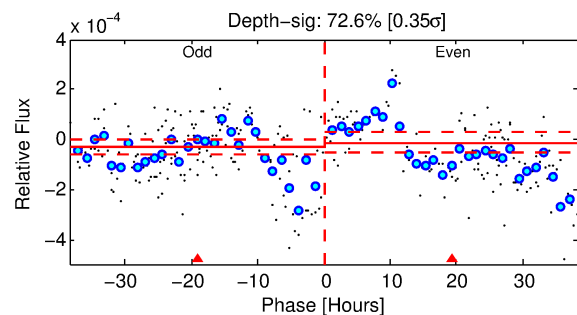
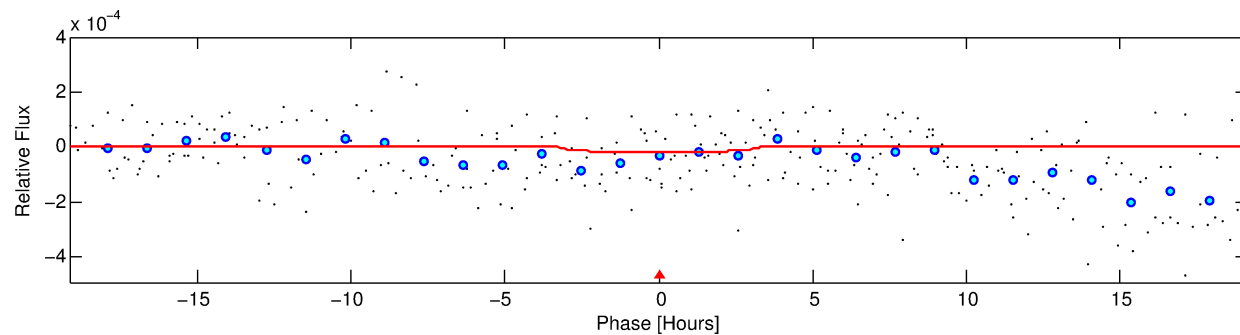
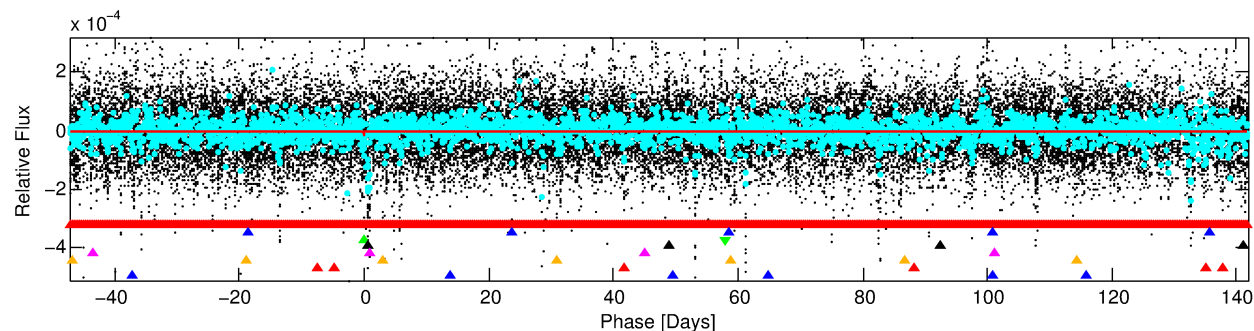
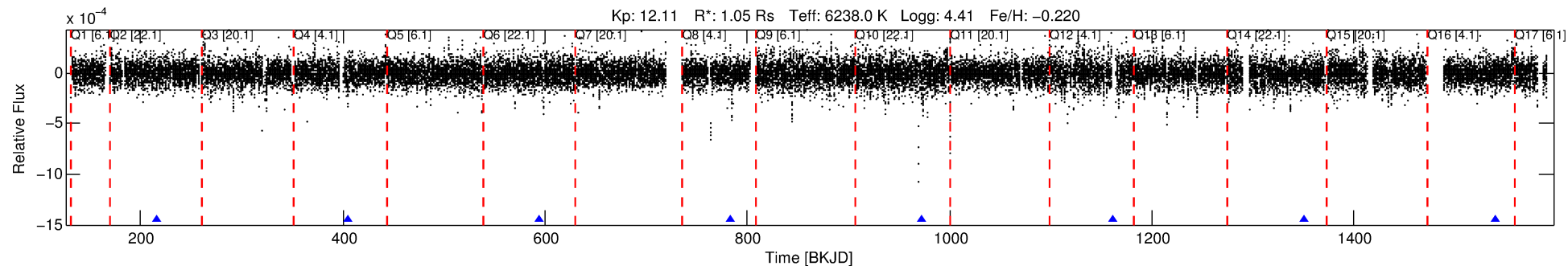
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010191036-03

No Significant Match Found

# DV One-Page Summary

KIC: 10191036 Candidate: 3 of 8 Period: 189.085 d  
KOI: K03218 Corr: No Ephemeris Match



## DV Fit Results:

Period = 189.08505 [0.01854] d  
Epoch = 216.3326 [0.0767] BKJD  
Rp/R\* = 0.0044 [0.0102]  
a/R\* = 100.62 [1171.80]  
b = 0.90 [2.50]  
Seff = 3.53 [1.09]  
Teq = 350 [27] K  
Rp = 0.51 [1.17] Re  
a = 0.6501 [0.1268] AU  
Ag = 195948.11 [901693.96] [0.22 $\sigma$ ]  
Teffp = 11371 [13062] K [0.84 $\sigma$ ]

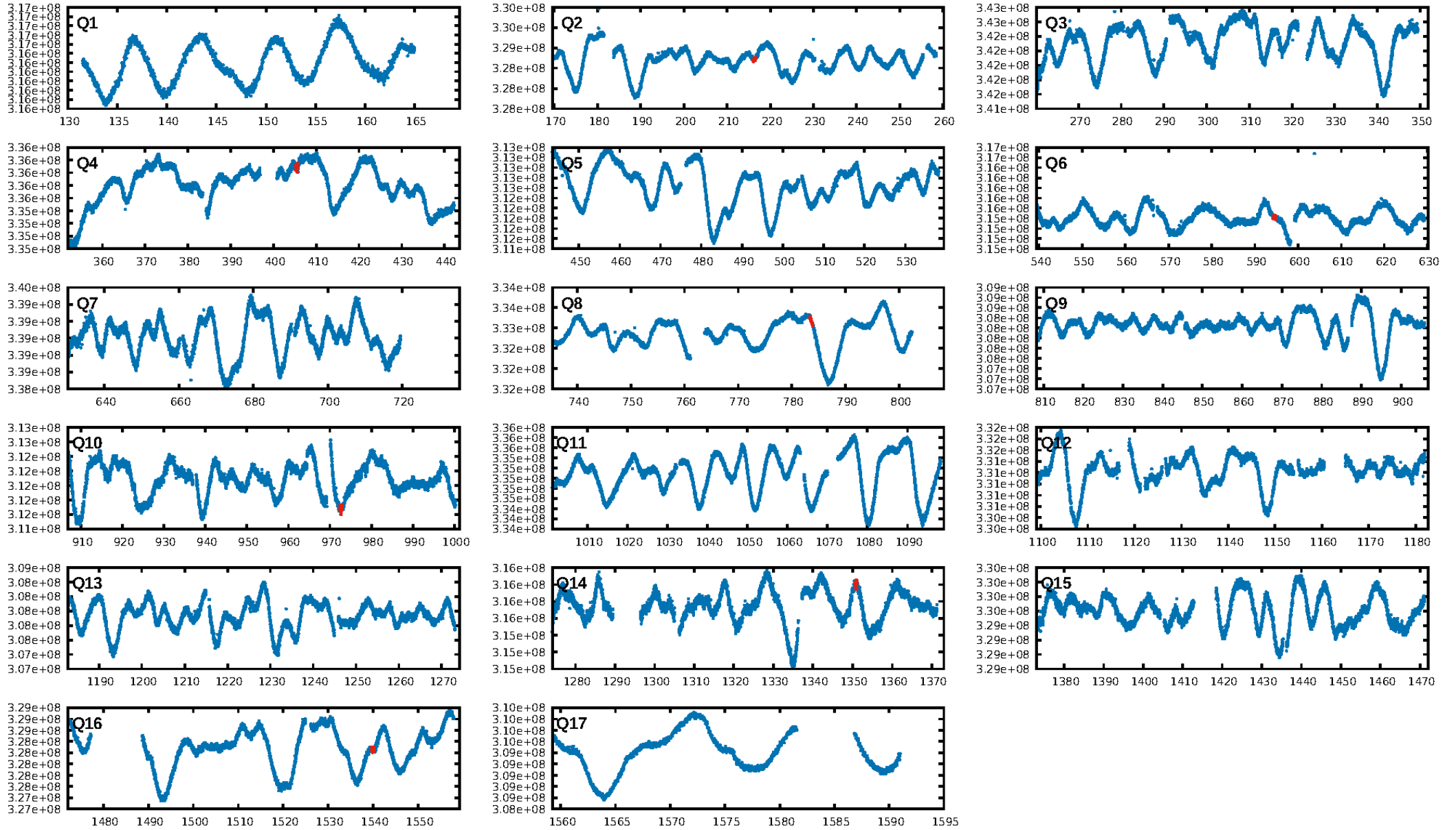
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [600.34 $\sigma$ ]  
LongPeriod-sig: 100.0% [61.93 $\sigma$ ]  
ModelChiSquare2-sig: 54.1%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 1.93e-13  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 0.5108  
Centroid-sig: 27.5%  
Centroid-so: 7.114 arcsec [0.95 $\sigma$ ]  
OotOffset-rm: 2.165 arcsec [1.07 $\sigma$ ]  
KicOffset-rm: 1.888 arcsec [0.93 $\sigma$ ]  
OotOffset-st: 3/0/1/0 [4]  
KicOffset-st: 3/0/1/0 [4]  
DiffImageQuality-fgm: 0.25 [1/4]  
DiffImageOverlap-fno: 0.00 [0/7]

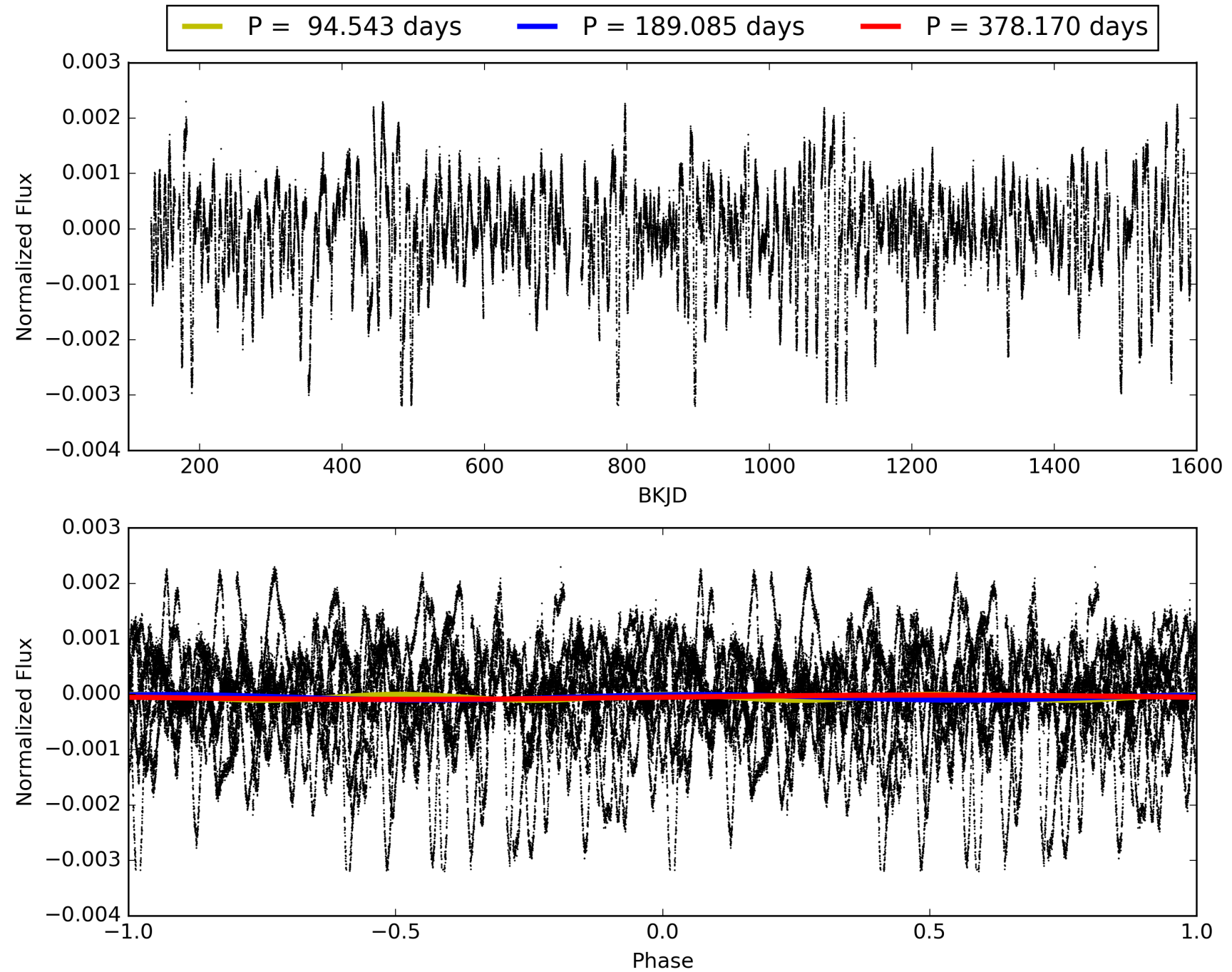
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:52:55 Z

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

# TCE 010191036-03, PDC Light Curves

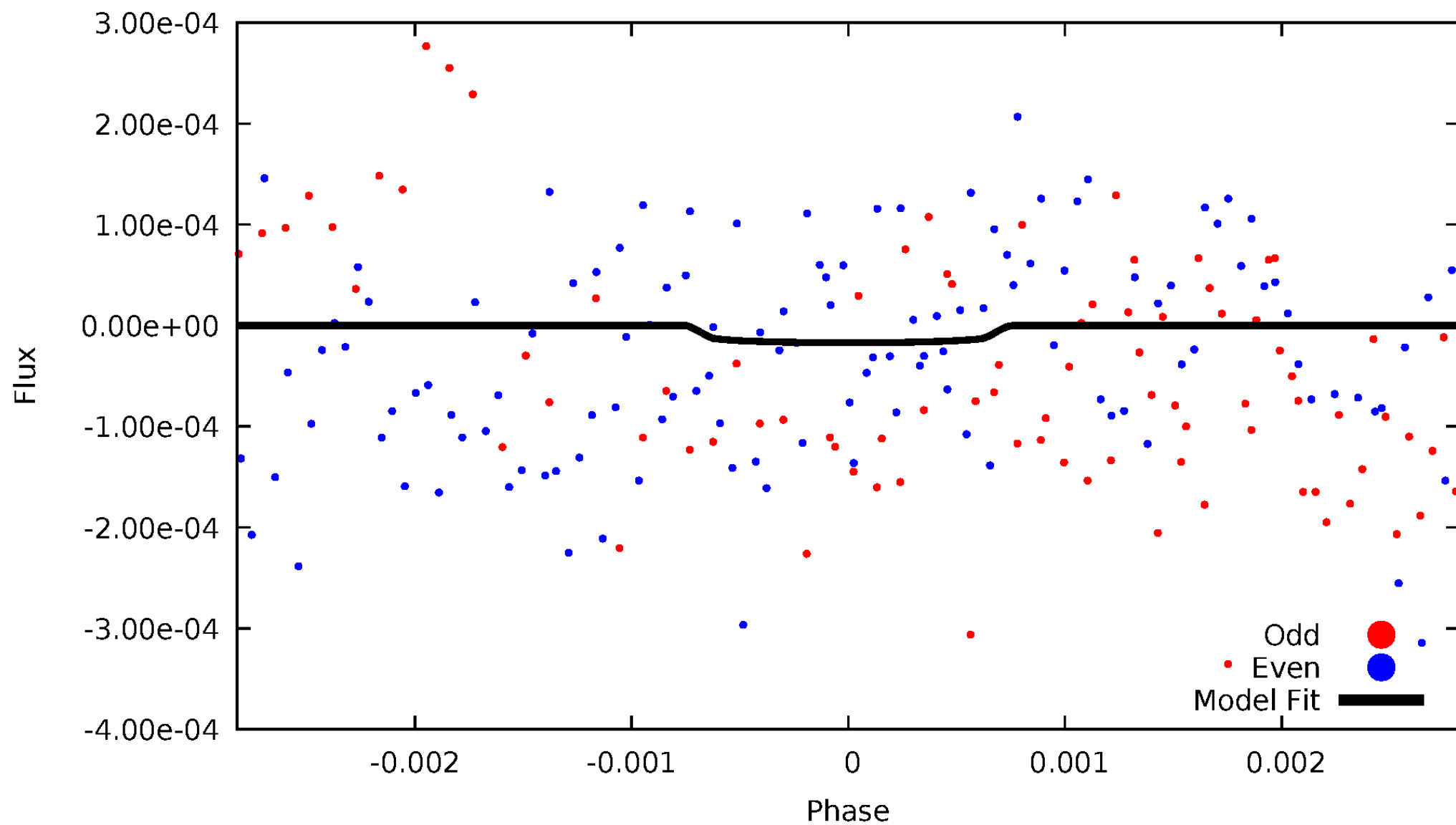


# TCE 010191036-03



# DV Odd/Even

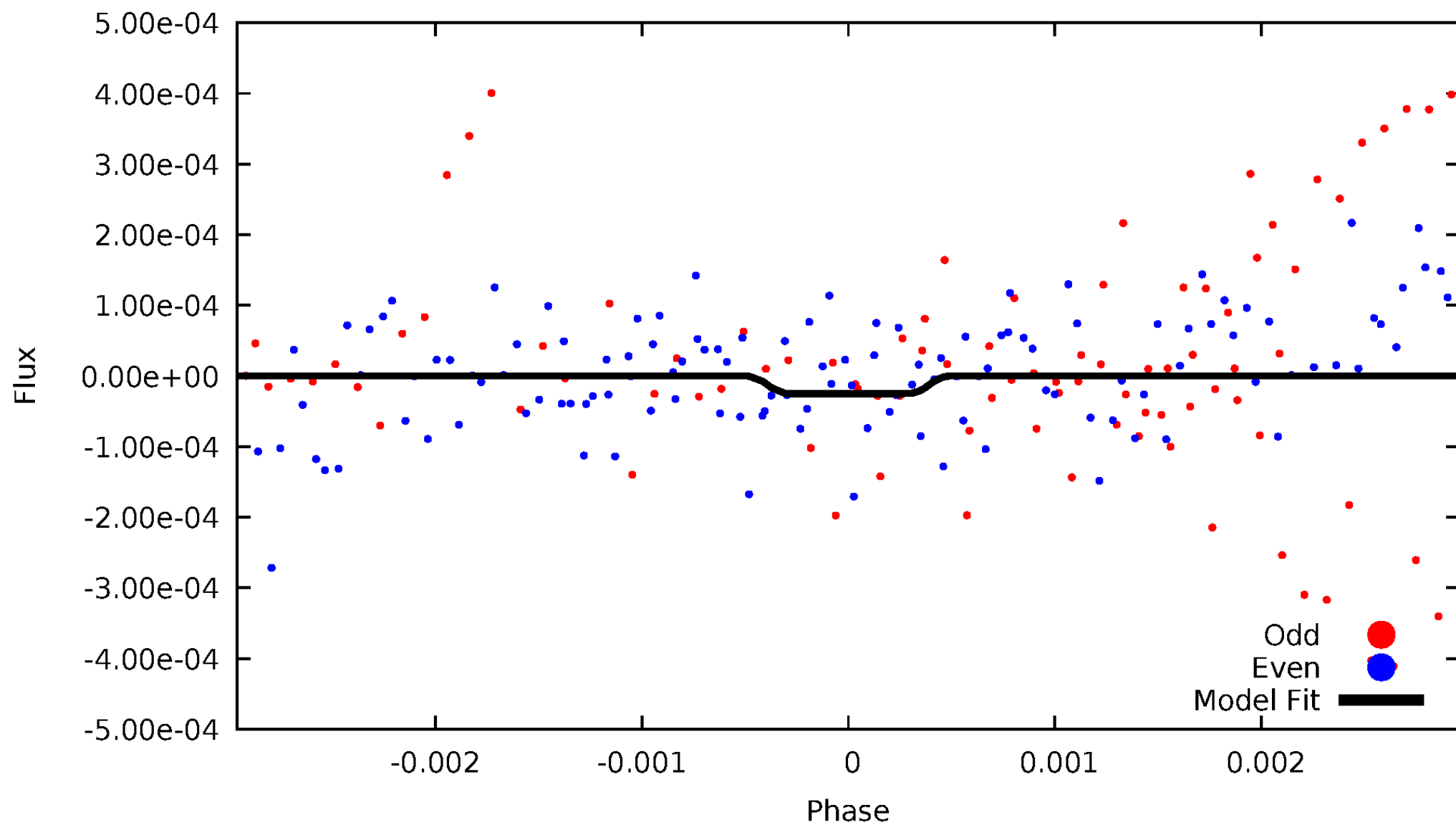
TCE 010191036-03





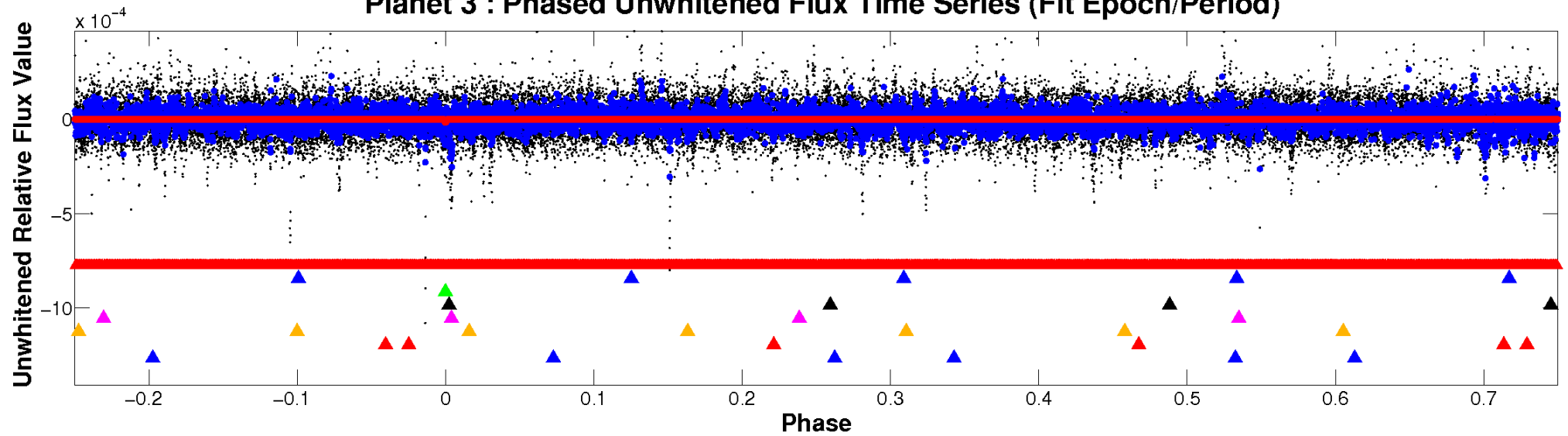
# ALT Odd/Even

TCE 010191036-03

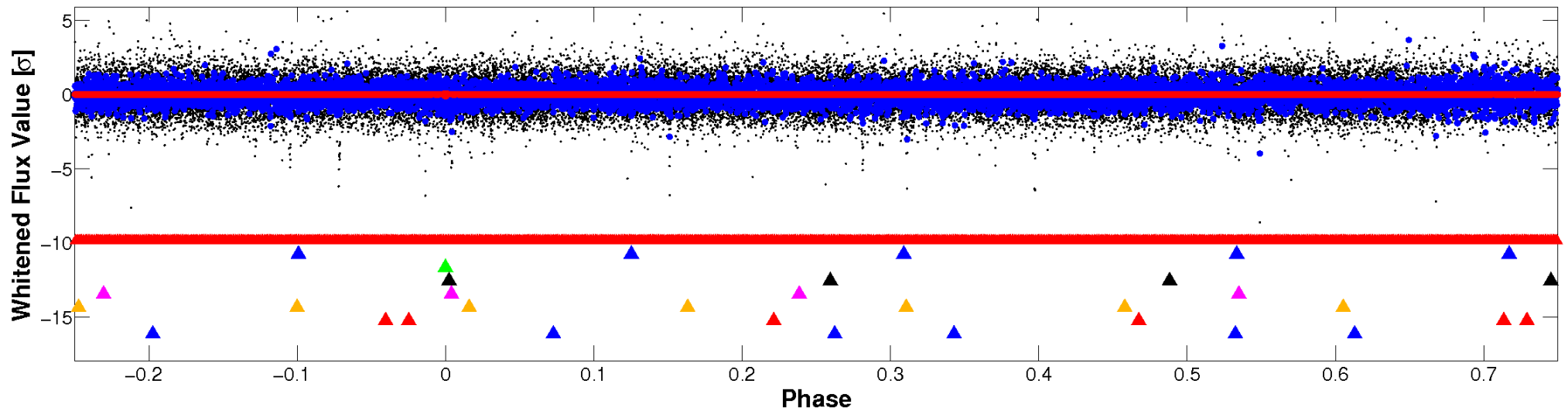


# Non-Whitened Vs. Whitened Light Curve

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

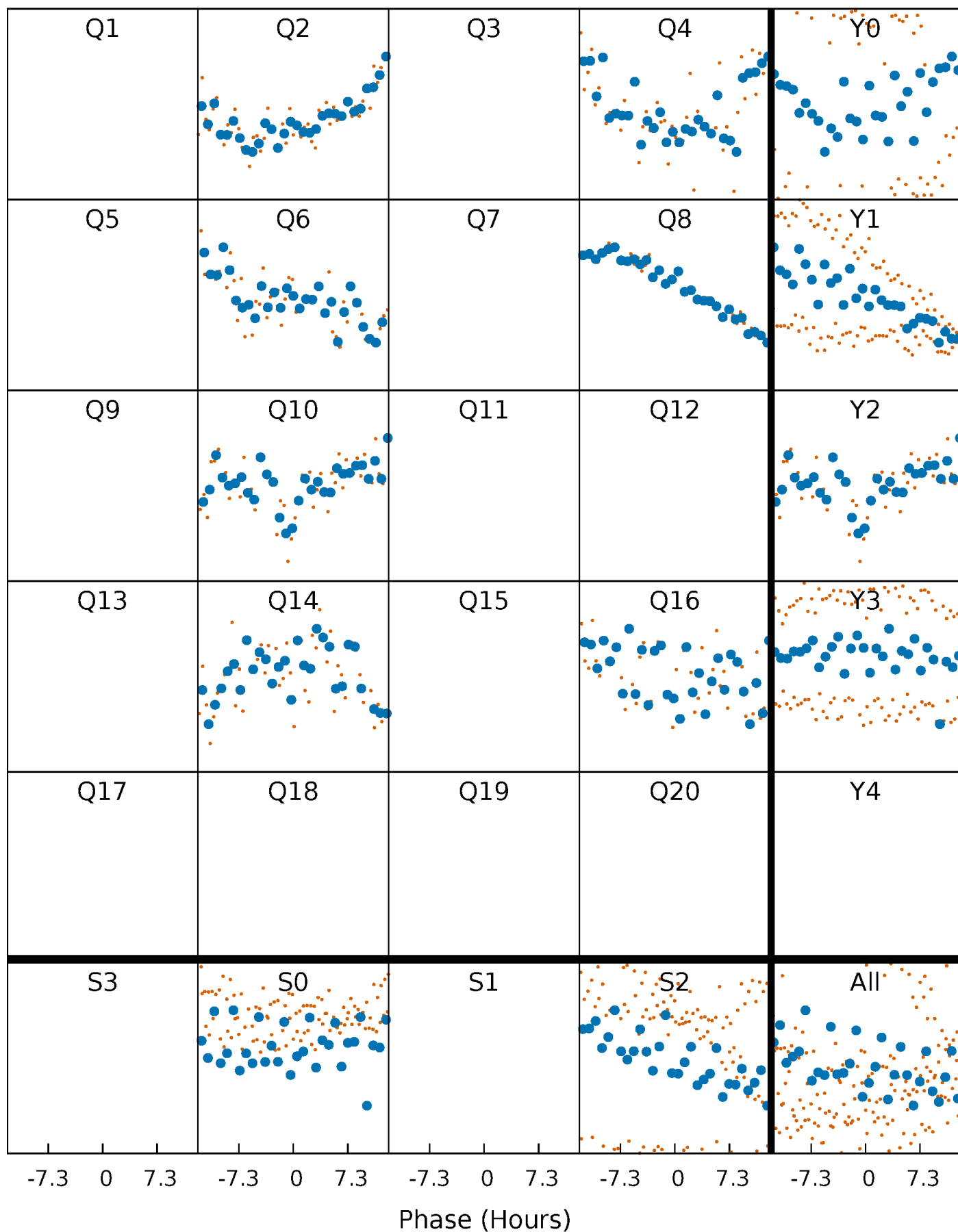


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



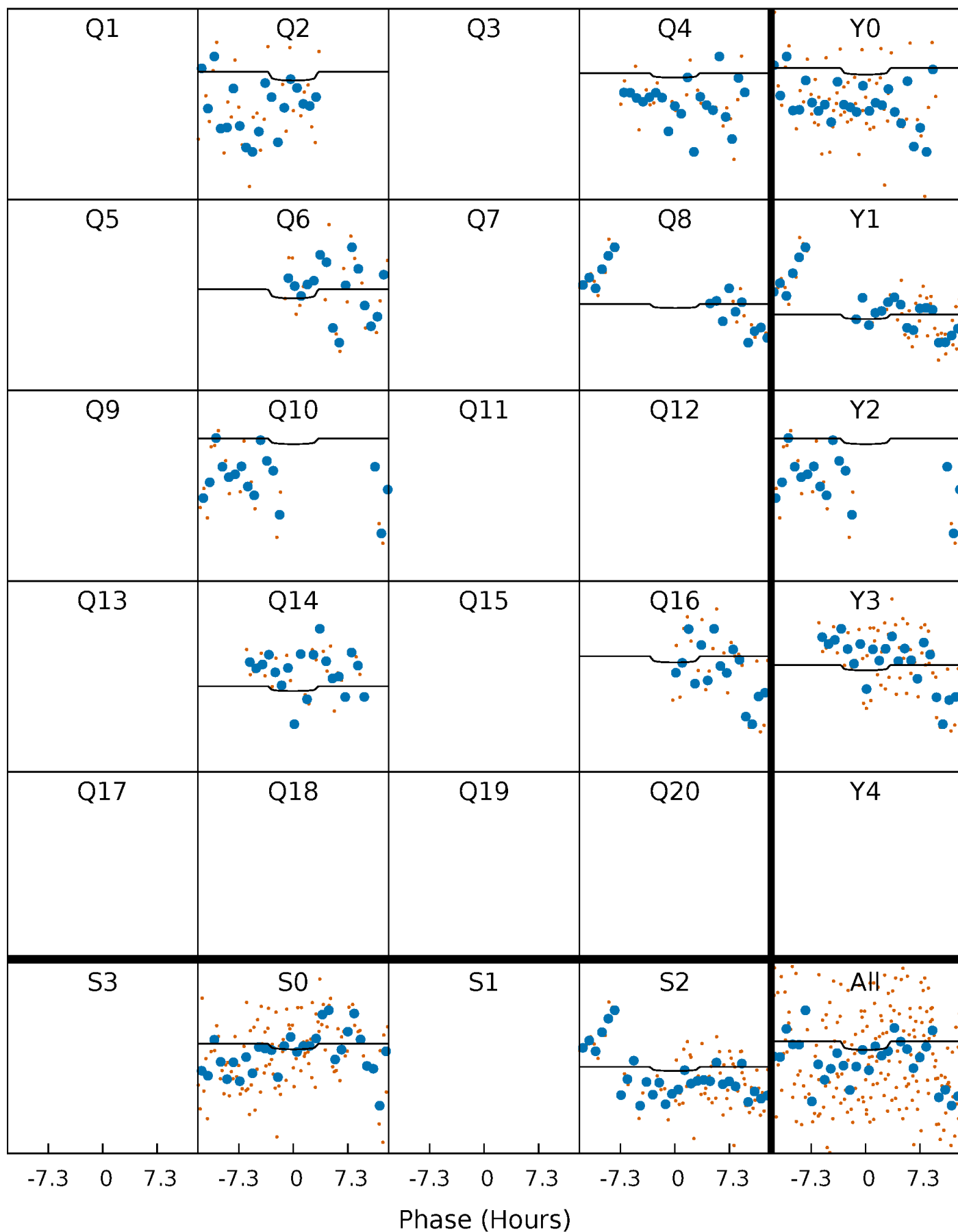
# PDC Quarter-Phased Transit Curves

TCE 010191036-03     $P=189.085046$  Days     $T_0=216.332625$  (BKJD)



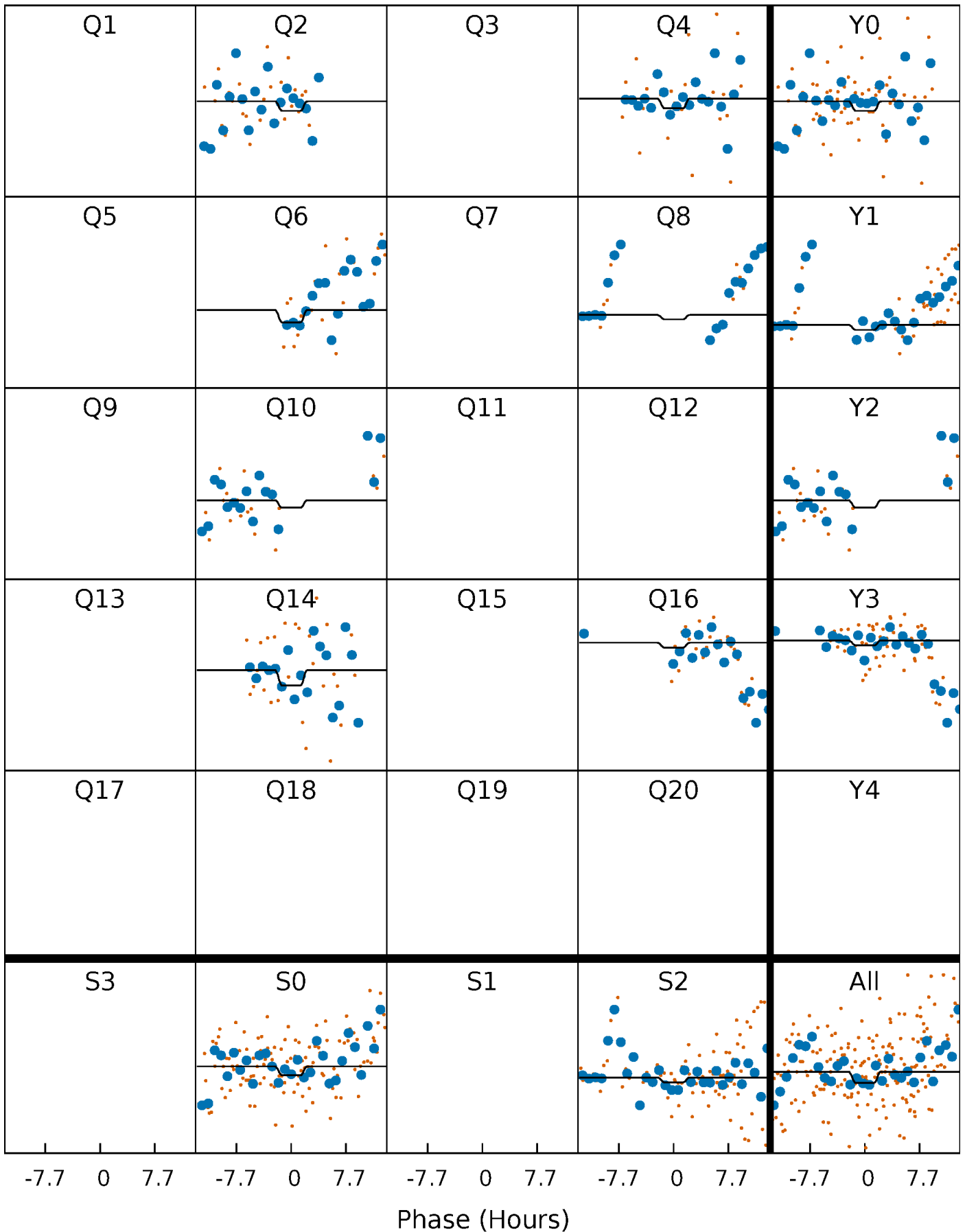
# DV Quarter-Phased Transit Curves

TCE 010191036-03     $P=189.085046$  Days     $T_0=216.332625$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

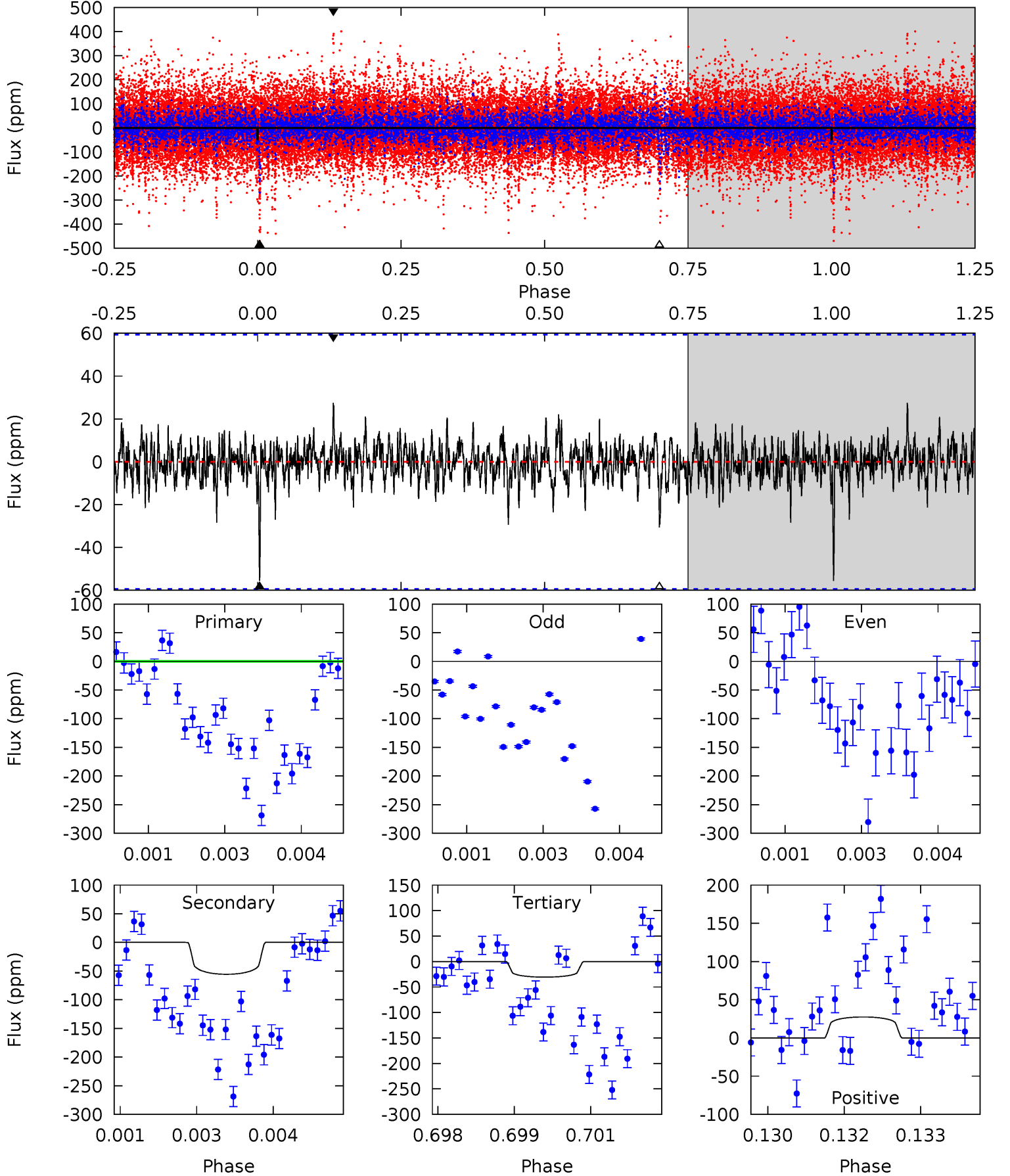
TCE 010191036-03 P=189.085353 Days  $T_0=216.330499$  (BKJD)



# DV Model-Shift Uniqueness Test

010191036-03,  $P = 189.085046$  Days,  $E = 27.247579$  Days

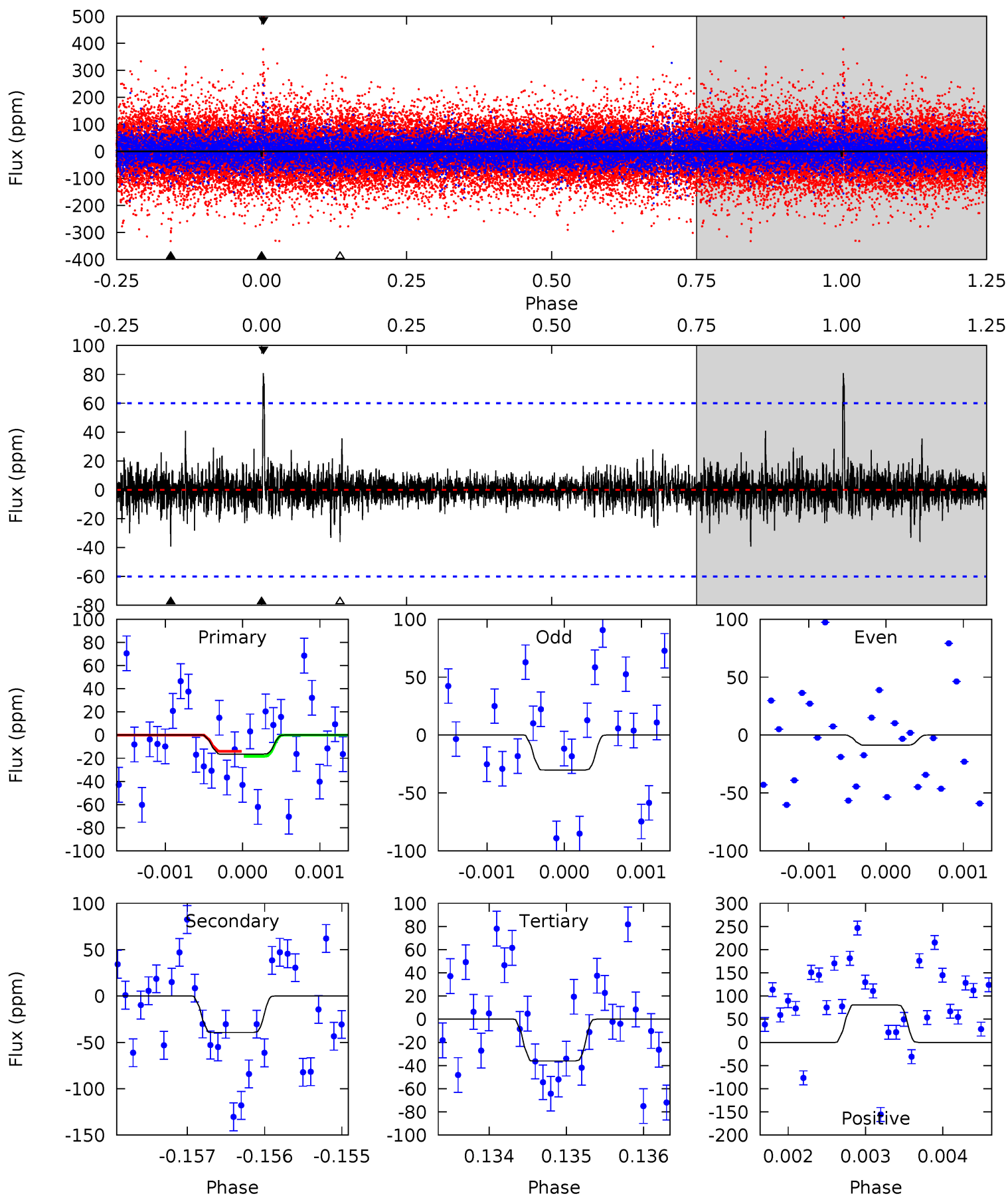
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.32 | 5.03 | 2.77 | 2.49 | 5.38            | 3.18            | 0.66             | 1.55    | 1.83    | 2.26    | 2.55    | 2.58    | 1.53 | 0.33  | 1.07 |



# Alt Model-Shift Uniqueness Test

010191036-03, P = 189.085353 Days, E = 27.245146 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 1.49 | 3.57 | 3.28 | 7.35 | 5.46            | 3.30            | 0.68             | -1.79   | -5.86   | 0.29    | -3.78   | 0.90    | 1.12 | 0.67  | 0.20 |





### Stellar Parameters For KIC 010191036

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6238^{+156}_{-188}$ | $4.407^{+0.077}_{-0.154}$ | $-0.220^{+0.250}_{-0.350}$ | $1.049^{+0.244}_{-0.122}$ | $1.022^{+0.134}_{-0.120}$ | $1.246^{+0.426}_{-0.527}$                 |
|        | +3%/-3%              | +2%/-3%                   | +114%/-159%                | +23%/-12%                 | +13%/-12%                 | +34%/-42%                                 |
| Source | PHO1                 | FLK73                     | 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 010191036-03 / KOI

| Detrend | Depth (ppm)  | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$          | $A_{obs}$                  |
|---------|--------------|------------------------|-------------------|------------------------|----------------------------|
| DV      | $-56 \pm 11$ | $0.99^{+1.06}_{-0.68}$ | $494^{+28}_{-23}$ | $5827^{+6584}_{-1537}$ | $12966^{+116384}_{-10058}$ |
| Alt.    | $-39 \pm 11$ | $1.08^{+1.01}_{-0.74}$ | $494^{+29}_{-23}$ | $5203^{+4733}_{-1233}$ | $7730^{+67995}_{-5813}$    |

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

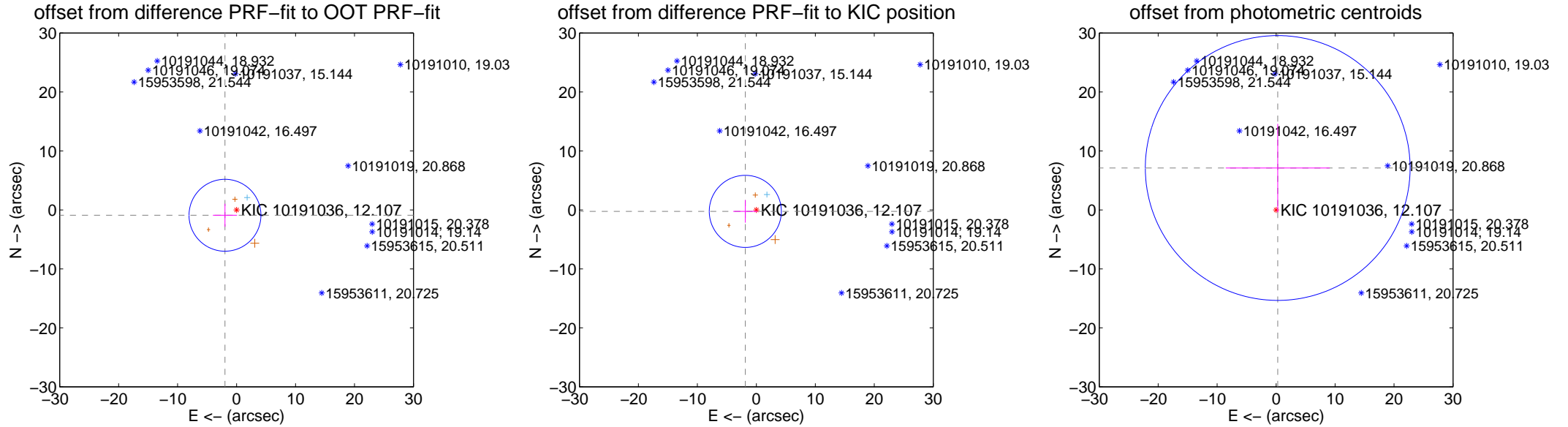
## DV Centroid Data

Supplemental centroid analysis for 010191036-03. Kepler magnitude: 12.11. Transit SNR 0.91

There are 1 quarters with good PRF difference image offsets

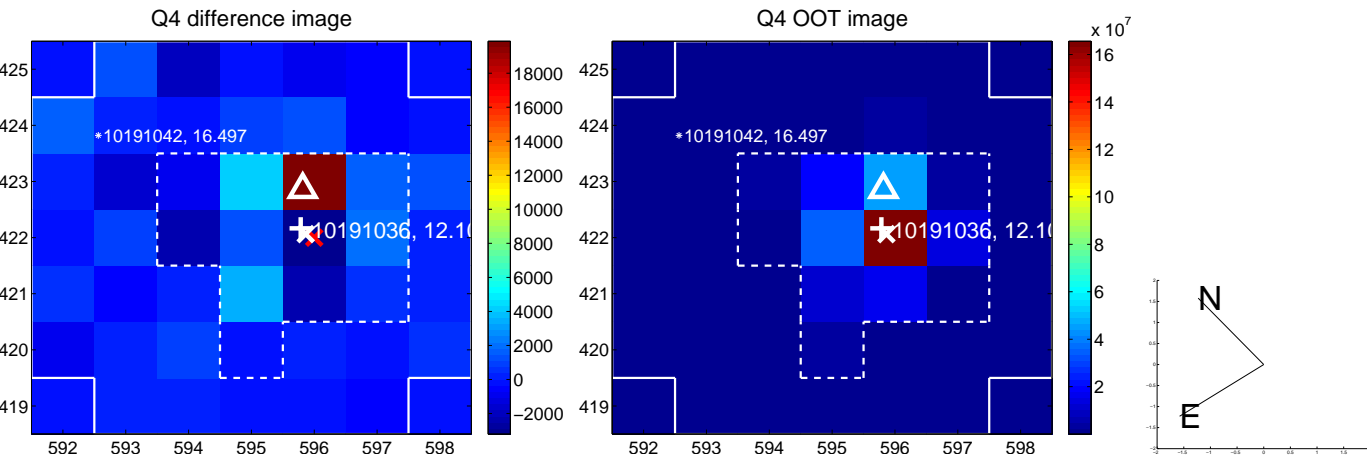
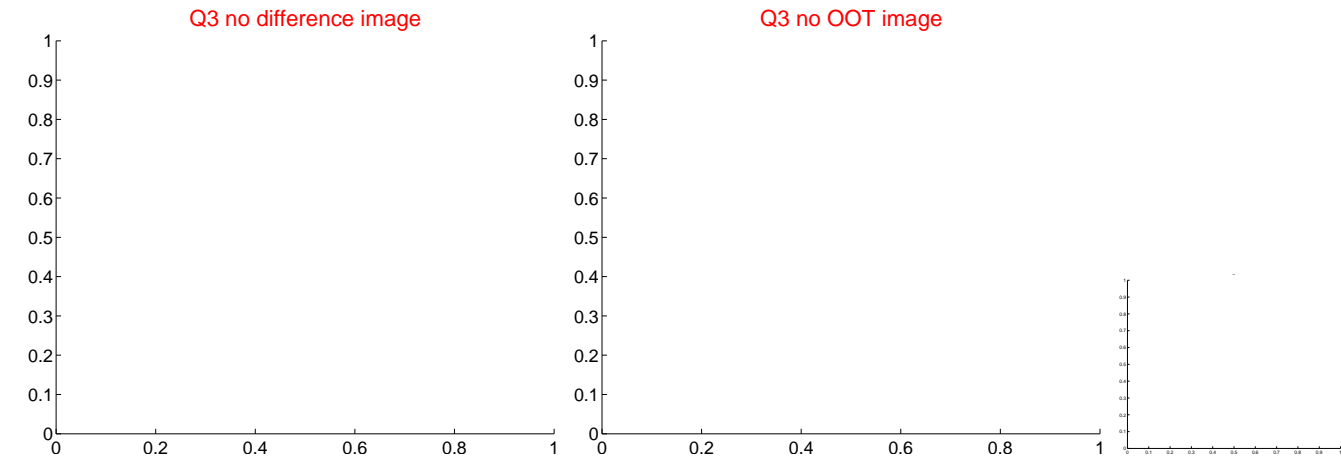
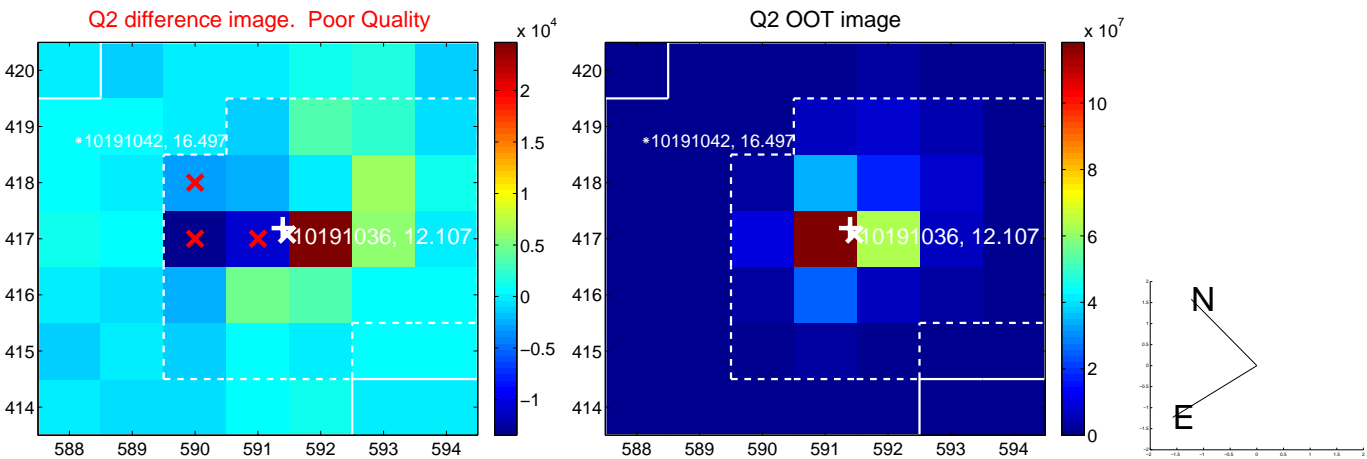
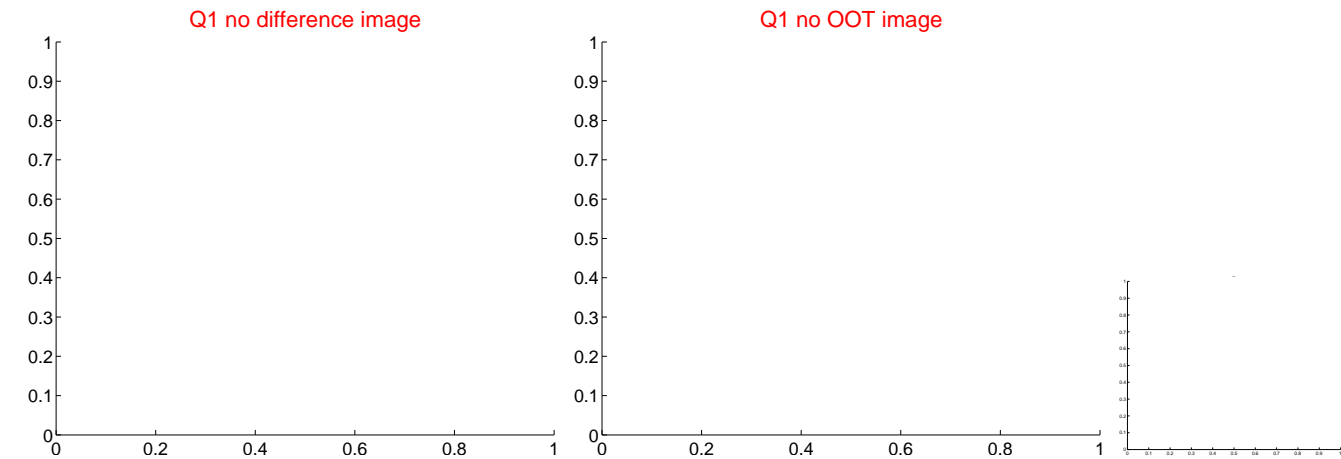
The direct PRF centroid is offset from the target star catalog position by about 0.72 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $2.165 \pm 2.032$  | 1.07                | $1.967 \pm 2.050$ | $-0.905 \pm 1.944$ |
| PRF-fit source offset from KIC position | $1.888 \pm 2.037$  | 0.93                | $1.872 \pm 2.039$ | $-0.247 \pm 1.911$ |
| photometric centroid source offset      | $7.11 \pm 7.48$    | 0.95                | $-0.27 \pm 8.81$  | $7.11 \pm 7.48$    |

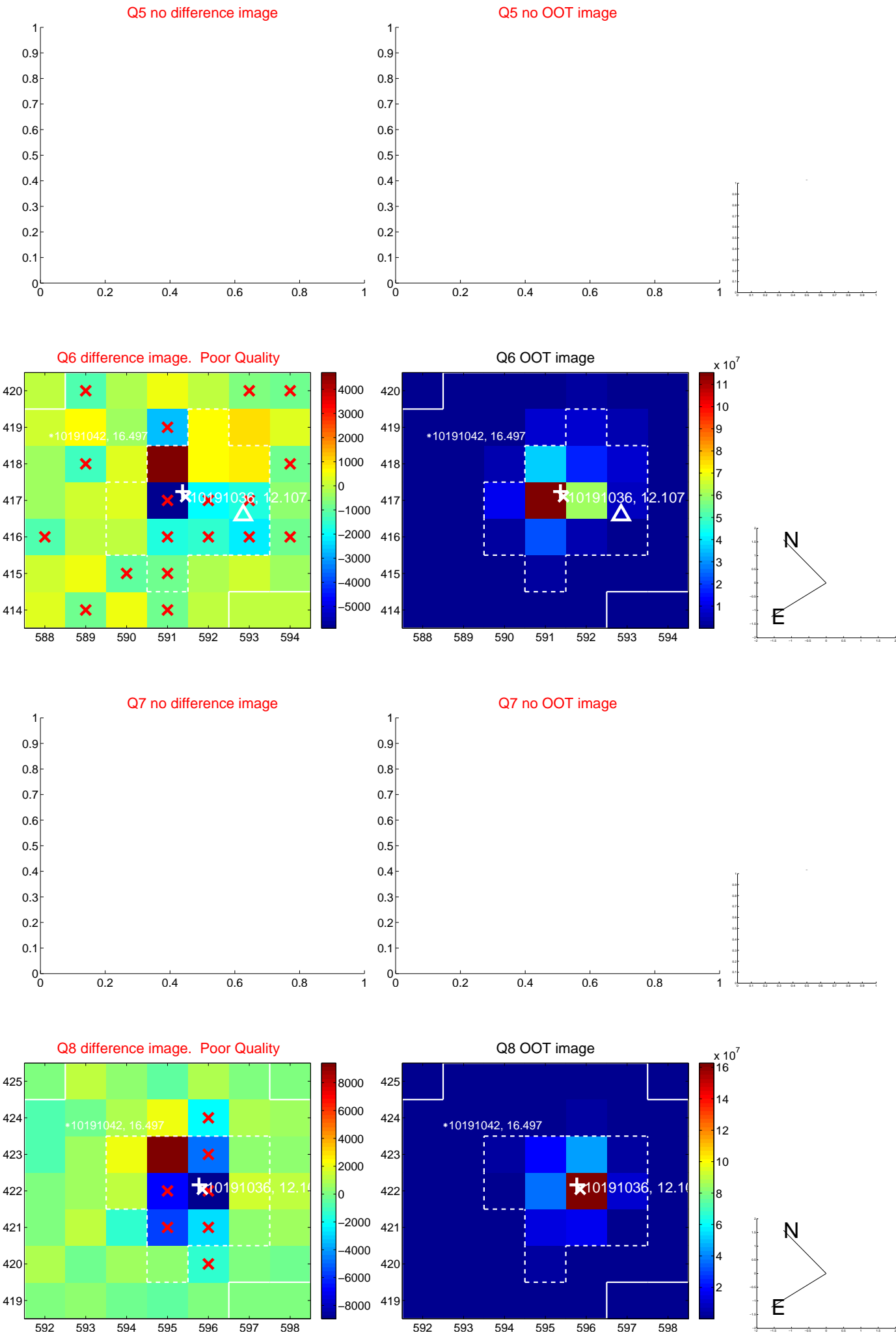


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

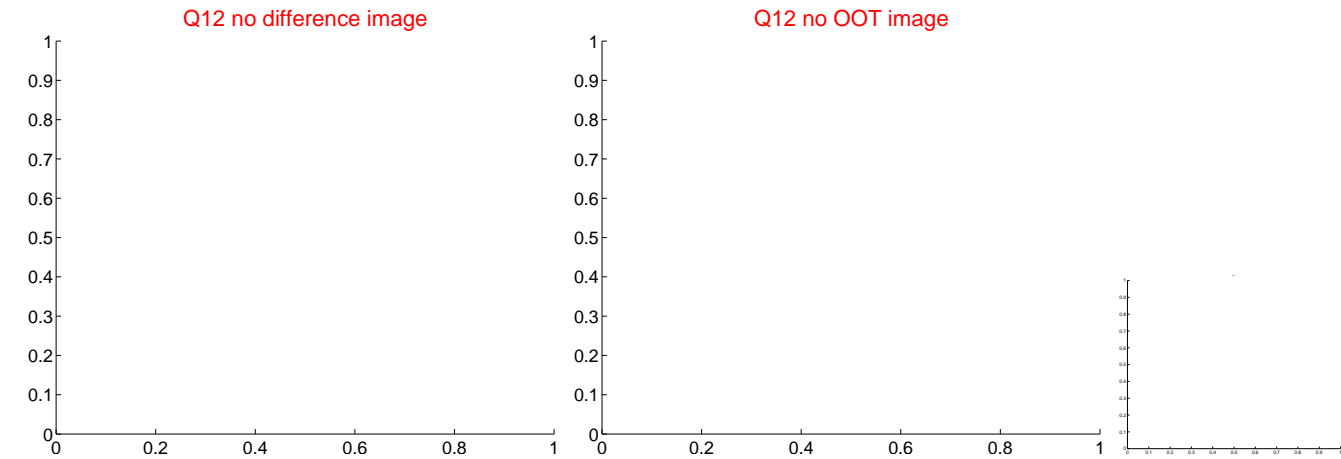
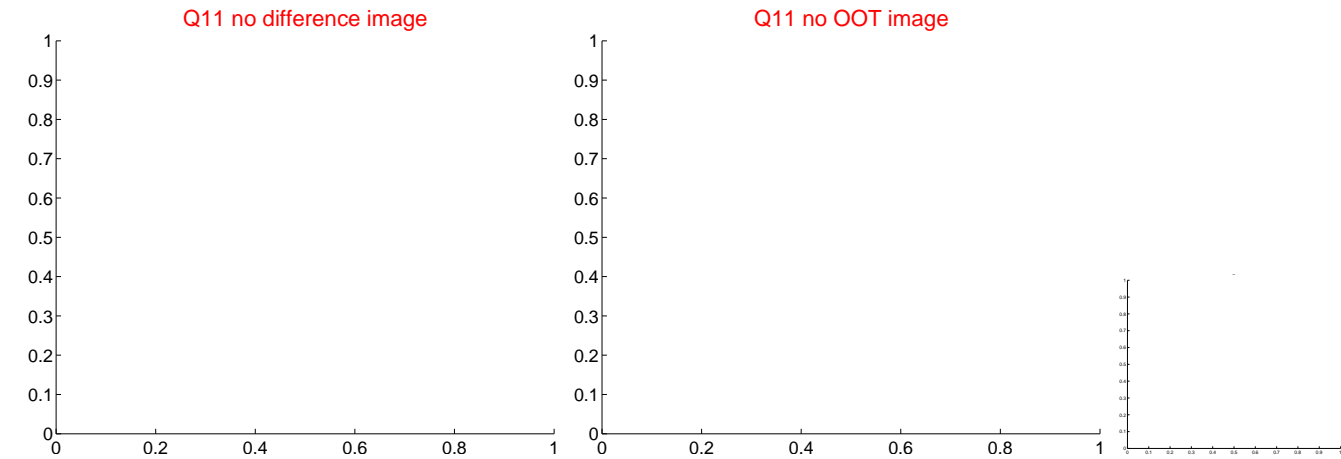
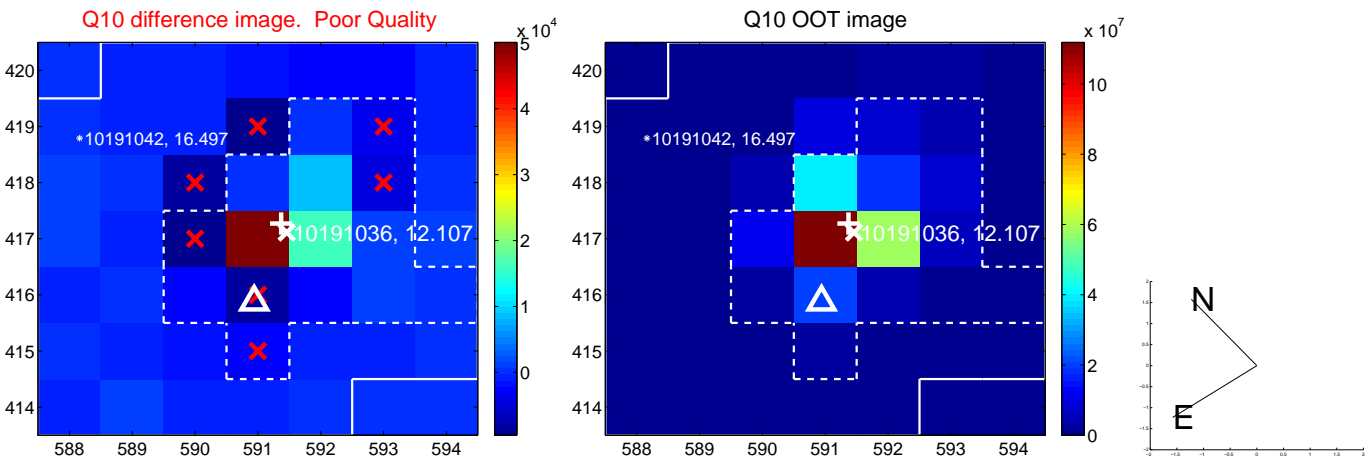
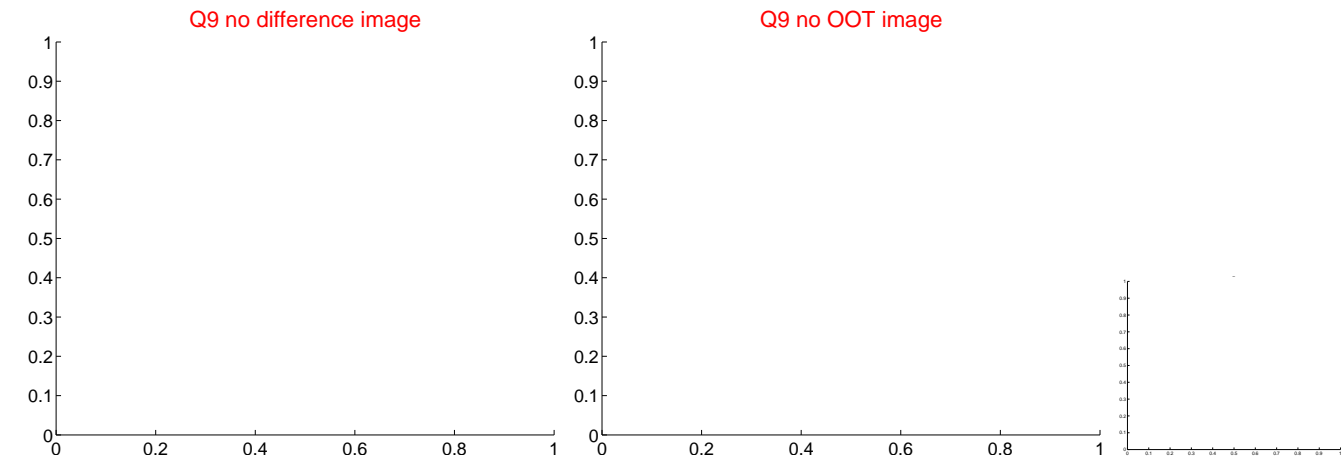
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



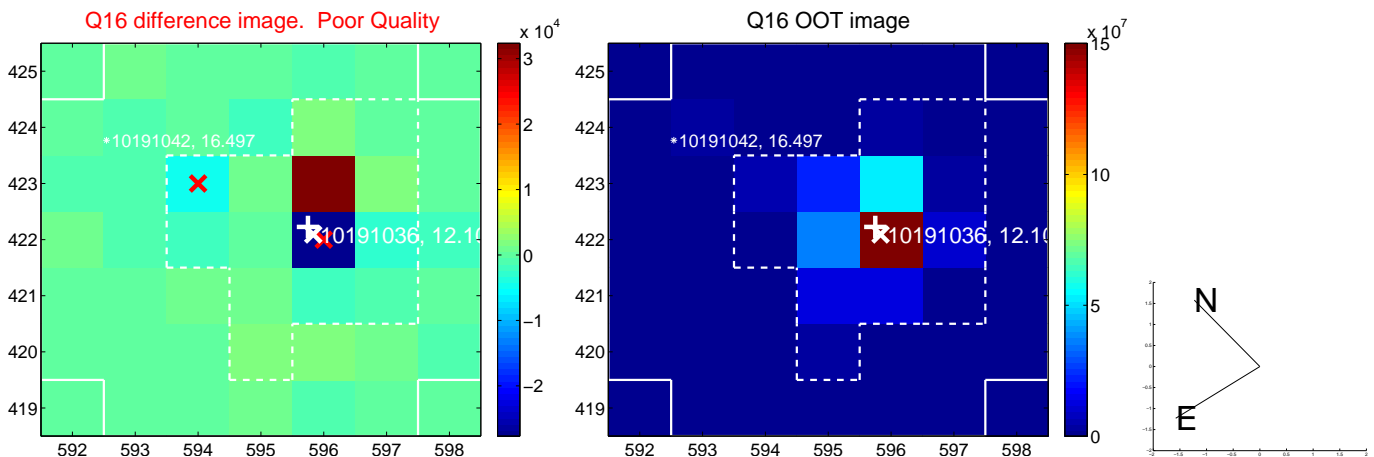
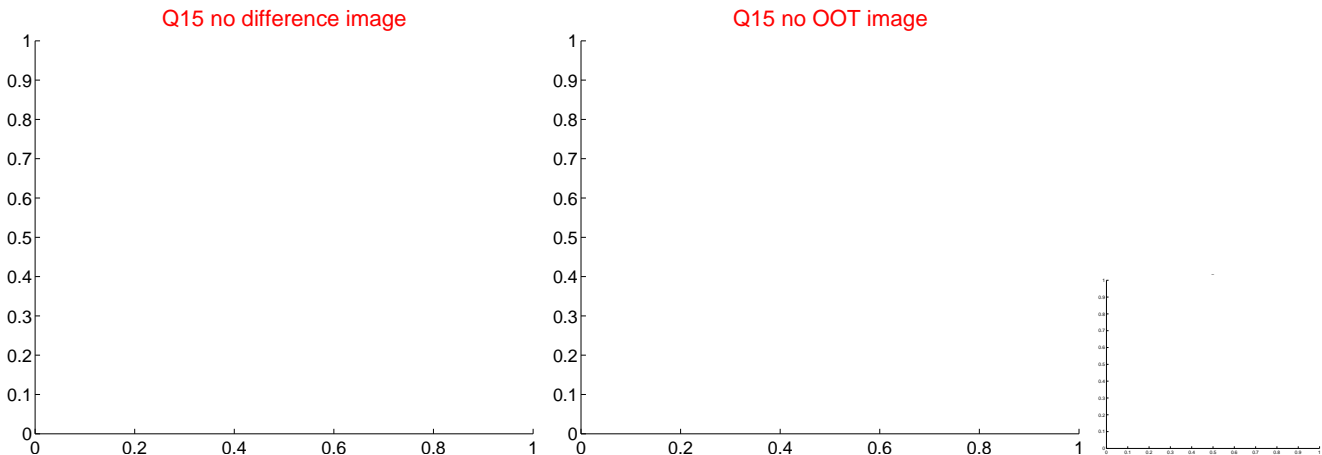
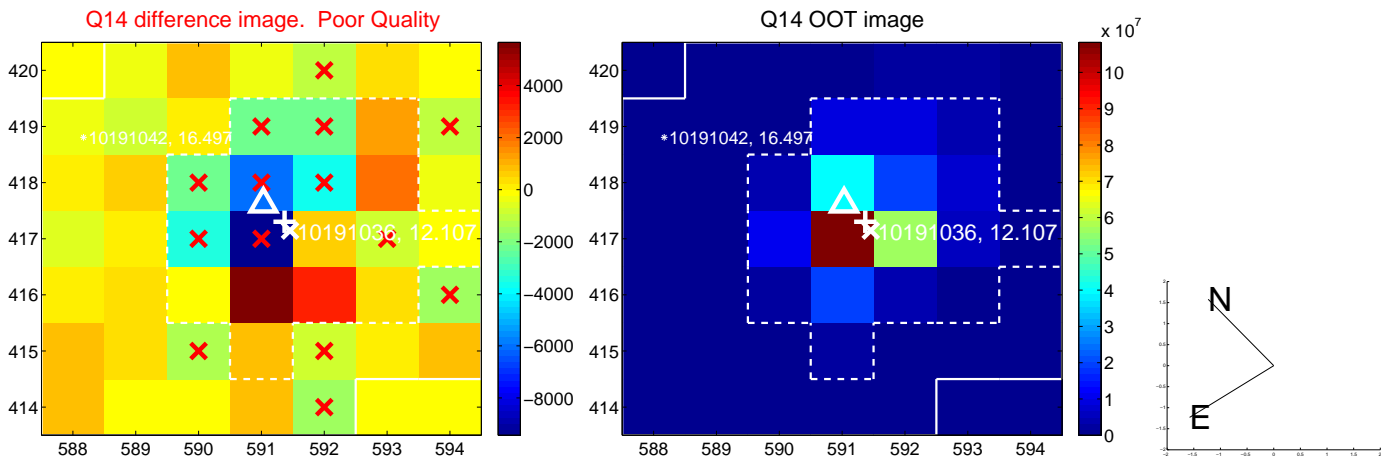
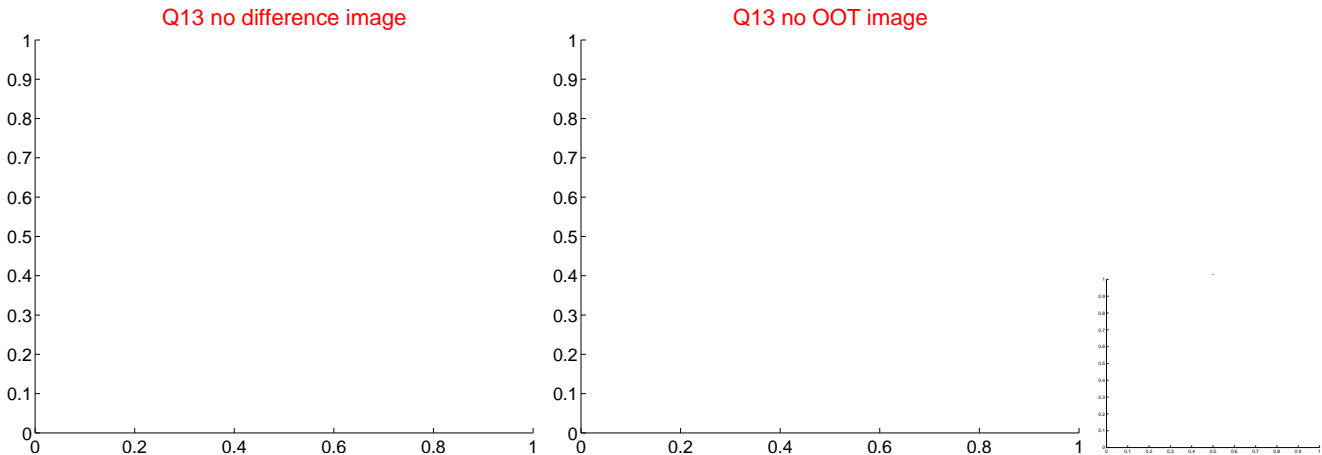
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



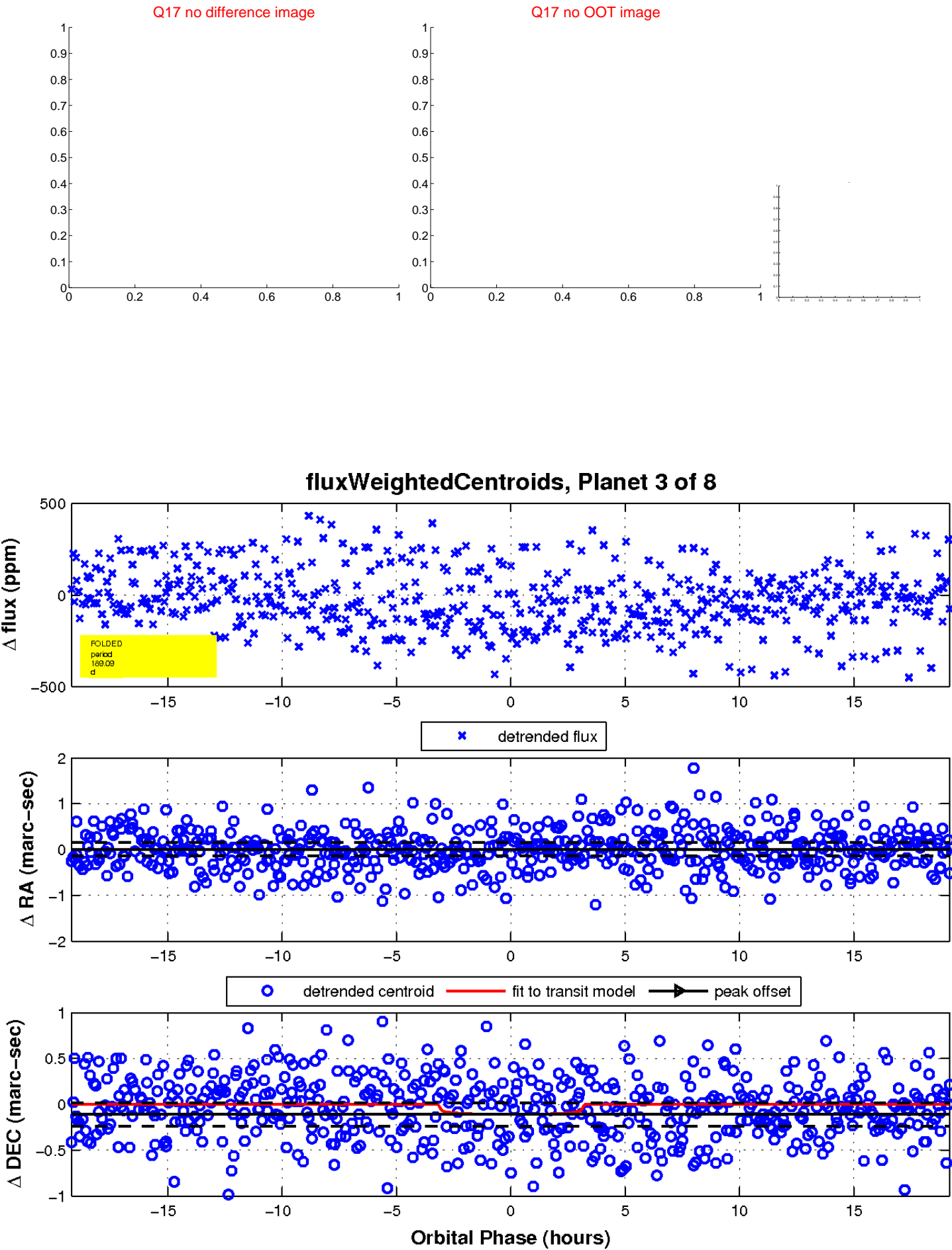
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

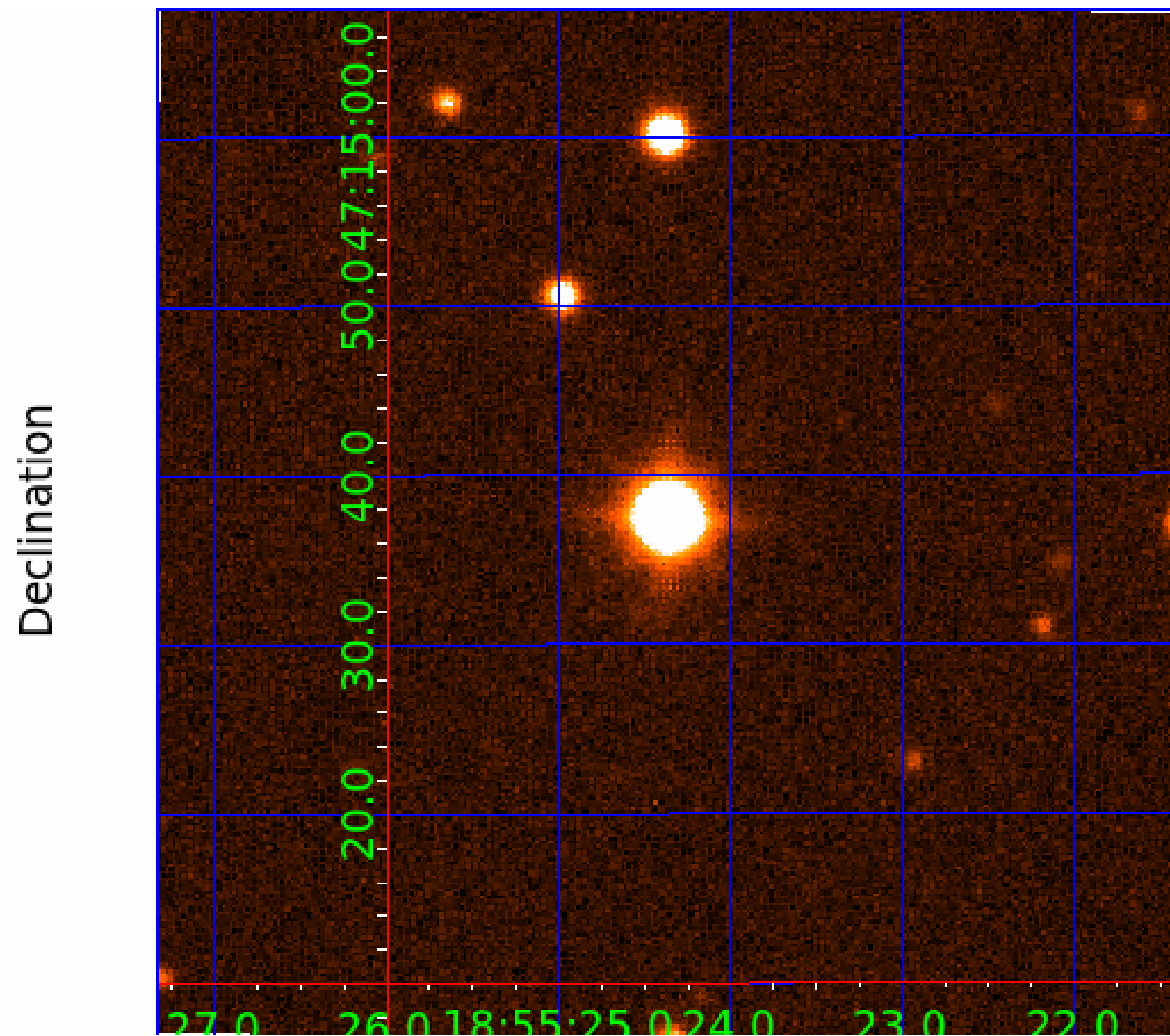


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image



# KIC 010191036

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010191036-01 | OBS      | 3218.01 | 1.213688      | 131.774952   | 22.8        | 3.928            | 16.3 | 16.4 | 1.05                        | 6238            | 0.59                   | 2961.08                |
| 010191036-02 | OBS      | No      | 266.260750    | 386.672484   | 82.8        | 2.897            | 13.8 | 2.9  | 1.05                        | 6238            | 1.08                   | 2.24                   |
| 010191036-03 | OBS      | No      | 189.085046    | 216.332625   | 17.0        | 6.402            | 13.7 | 0.9  | 1.05                        | 6238            | 0.51                   | 3.53                   |
| 010191036-04 | OBS      | No      | 329.559517    | 454.481811   | 106.3       | 0.677            | 13.4 | 2.0  | 1.05                        | 6238            | 1.30                   | 1.68                   |
| 010191036-06 | OBS      | No      | 216.943053    | 219.355992   | 139.1       | 8.693            | 11.8 | 6.8  | 1.05                        | 6238            | 1.38                   | 2.94                   |
| 010191036-07 | OBS      | No      | 235.618253    | 354.206000   | 129.3       | 7.962            | 7.7  | 6.6  | 1.05                        | 6238            | 1.35                   | 2.63                   |
| 010191036-08 | OBS      | No      | 240.159512    | 265.954871   | 129.4       | 15.721           | 7.5  | 5.0  | 1.05                        | 6238            | 1.31                   | 2.57                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 010191036-01 | OBS      | FP   | 0.00  | 0 | 0 | 1 | 1 | CENT_KIC_POS—HALO_GHOST—EPHEM_MATCH   |
| 010191036-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS—CENT_UNCERTAIN                                |
| 010191036-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS  |
| 010191036-04 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |
| 010191036-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_KIC_POS   |
| 010191036-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS  |
| 010191036-08 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—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.

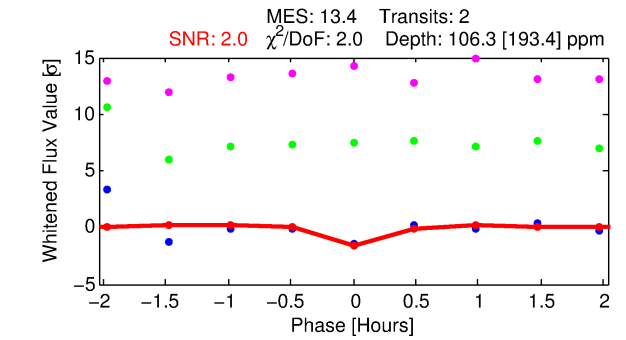
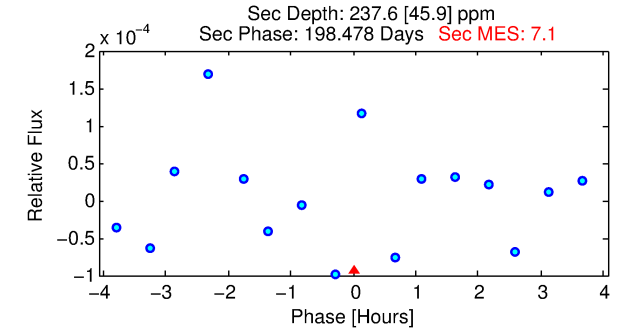
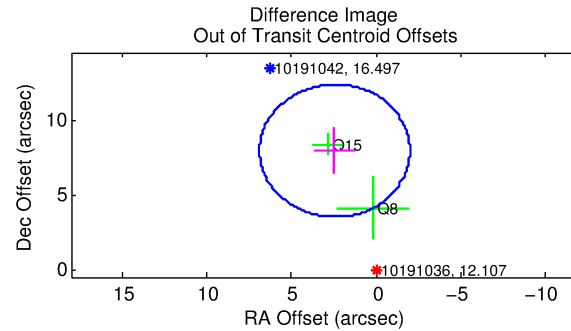
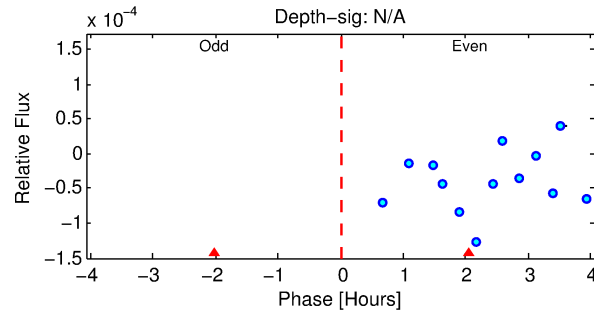
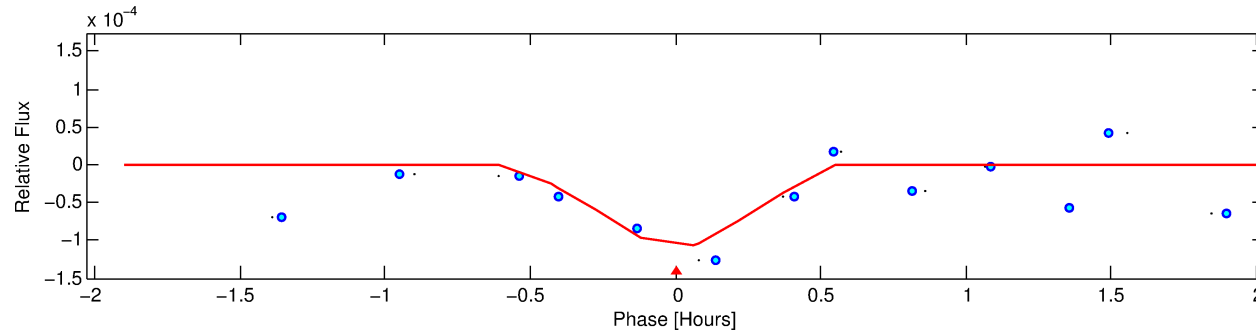
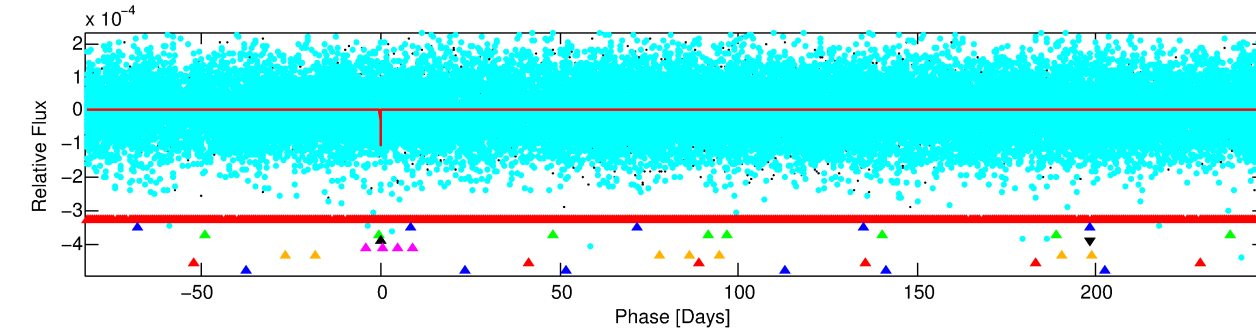
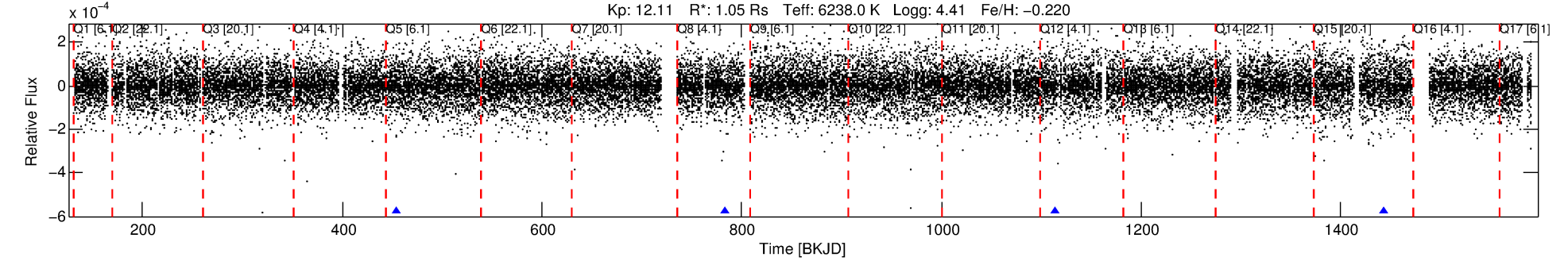
Ephemeris Match Information For 010191036-04

No Significant Match Found

# DV One-Page Summary

KIC: 10191036 Candidate: 4 of 8 Period: 329.560 d  
KOI: K03218 Corr: No Ephemeris Match

Kp: 12.11 R\*: 1.05 Rs Teff: 6238.0 K Logg: 4.41 Fe/H: -0.220



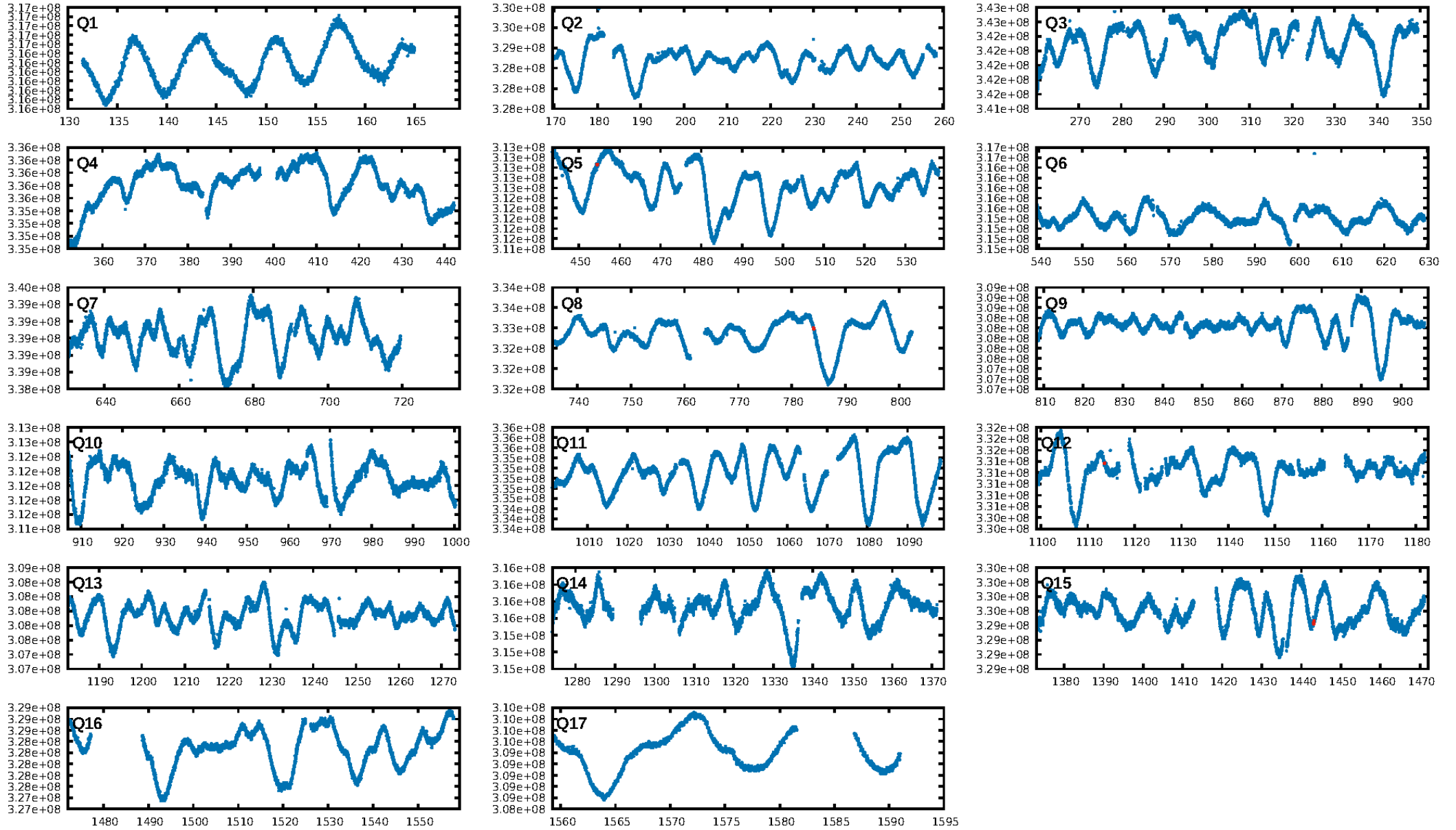
## DV Fit Results:

Period = 329.55952 [0.01081] d  
Epoch = 454.4818 [0.0264] BKJD  
Rp/R\* = 0.0114 [0.0430]  
a/R\* = 1720.14 [35519.36]  
b = 0.90 [4.42]  
Seff = 1.68 [0.52]  
Teq = 290 [22] K  
Rp = 1.30 [4.93] Re  
a = 0.9415 [0.1836] AU  
Ag = 68169.42 [515162.86] [0.13σ]  
Teffp = 7257 [13702] K [0.51σ]

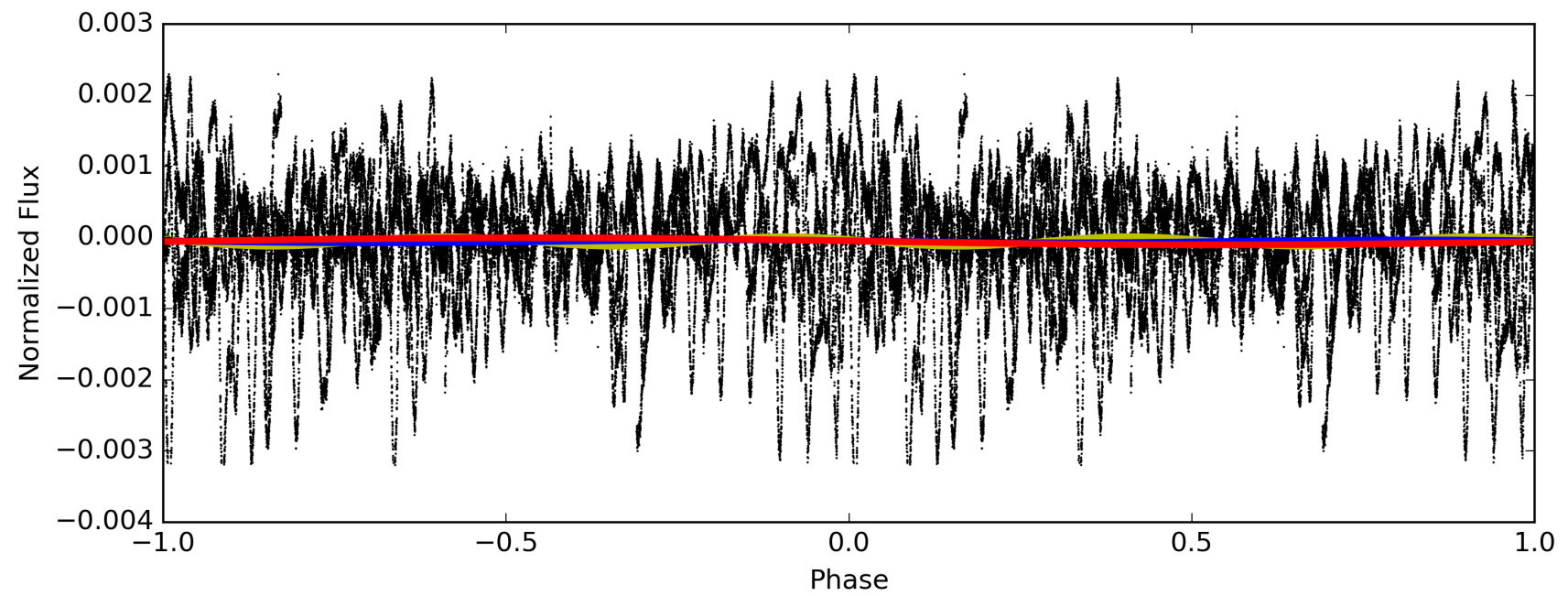
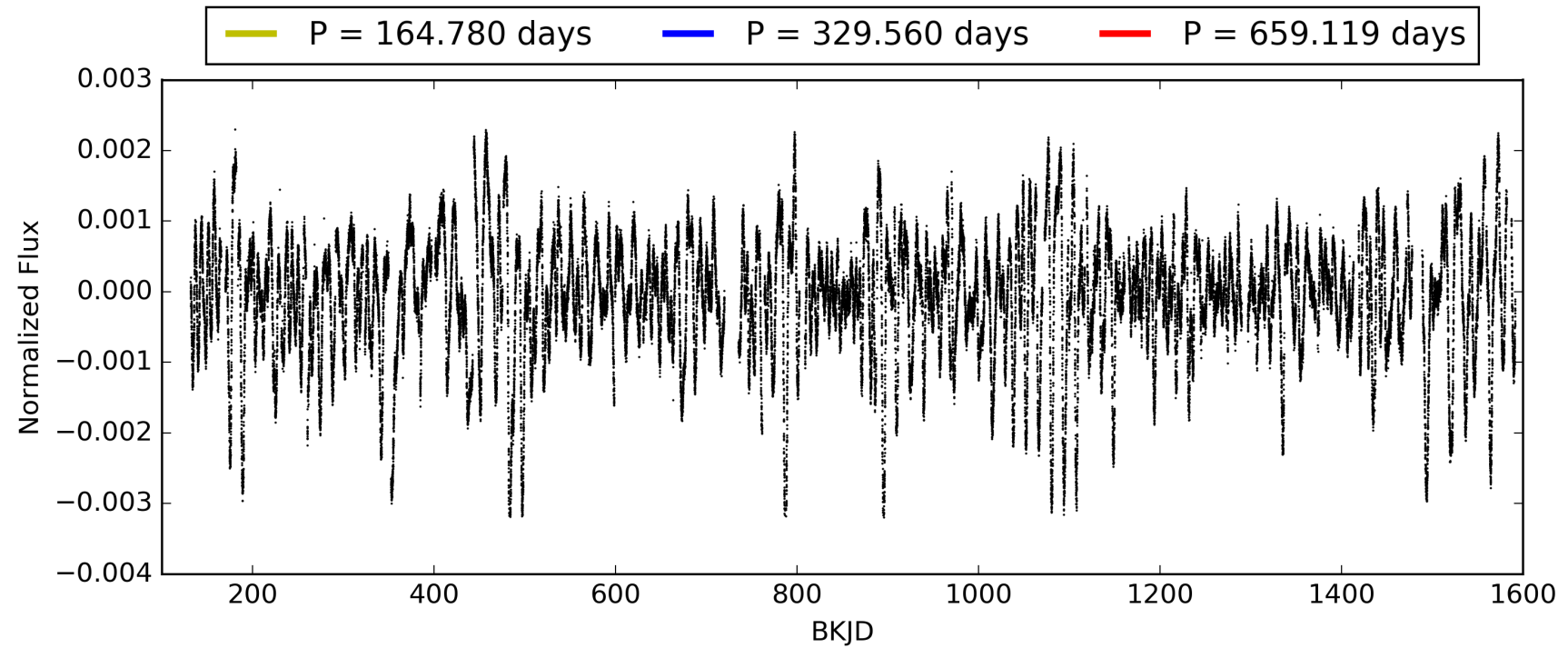
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [510.58σ]  
LongPeriod-sig: 100.0% [14.78σ]  
ModelChiSquare2-sig: 47.2%  
ModelChiSquareGof-sig: 93.3%  
Bootstrap-pfa: 4.37e-09  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 0.1689  
Centroid-sig: 41.7%  
Centroid-so: 3.029 arcsec [0.70σ]  
OotOffset-rm: 8.301 arcsec [5.62σ]  
KicOffset-rm: 8.825 arcsec [5.98σ]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 0.33 [1/3]

# TCE 010191036-04, PDC Light Curves

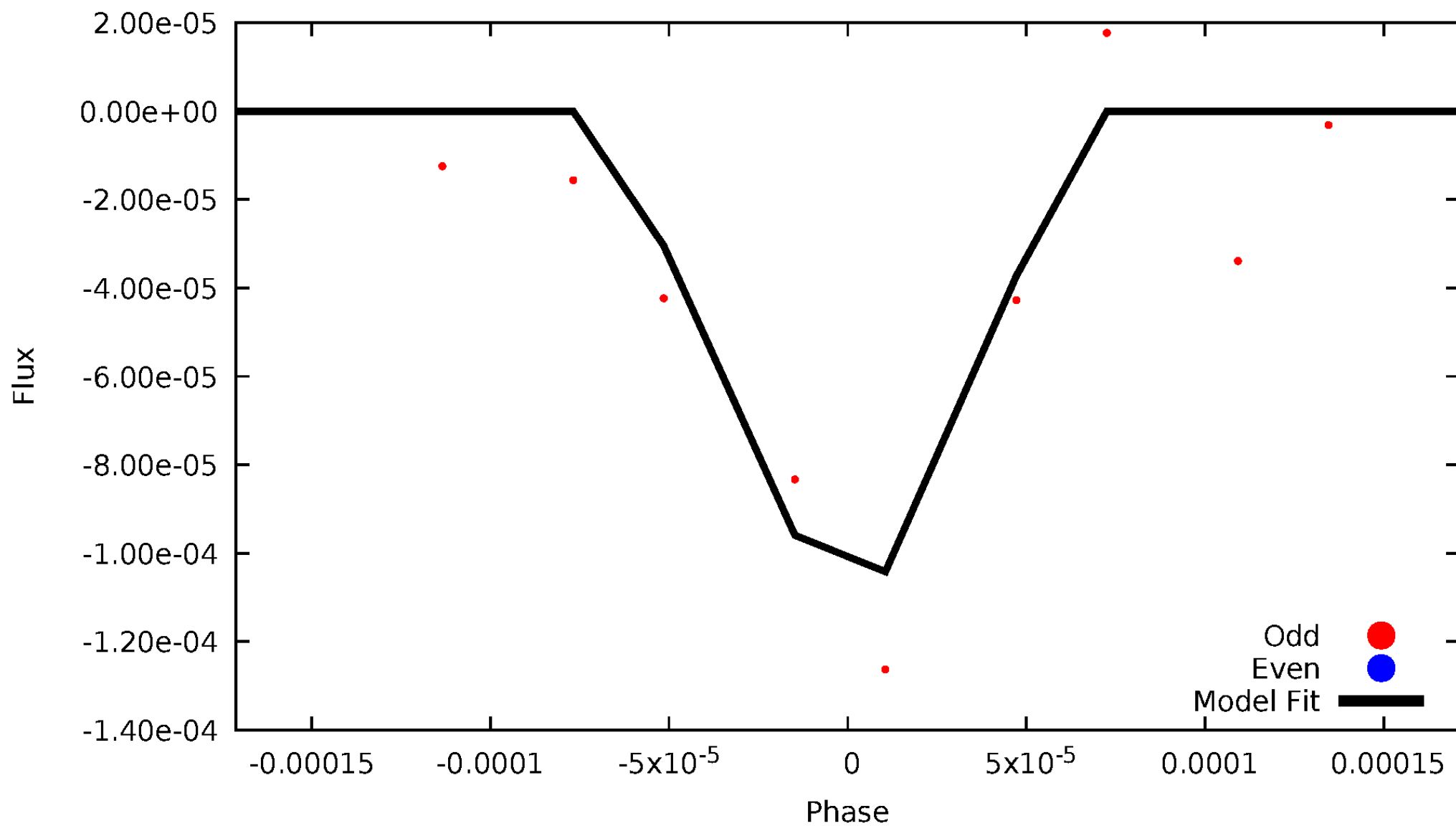


TCE 010191036-04



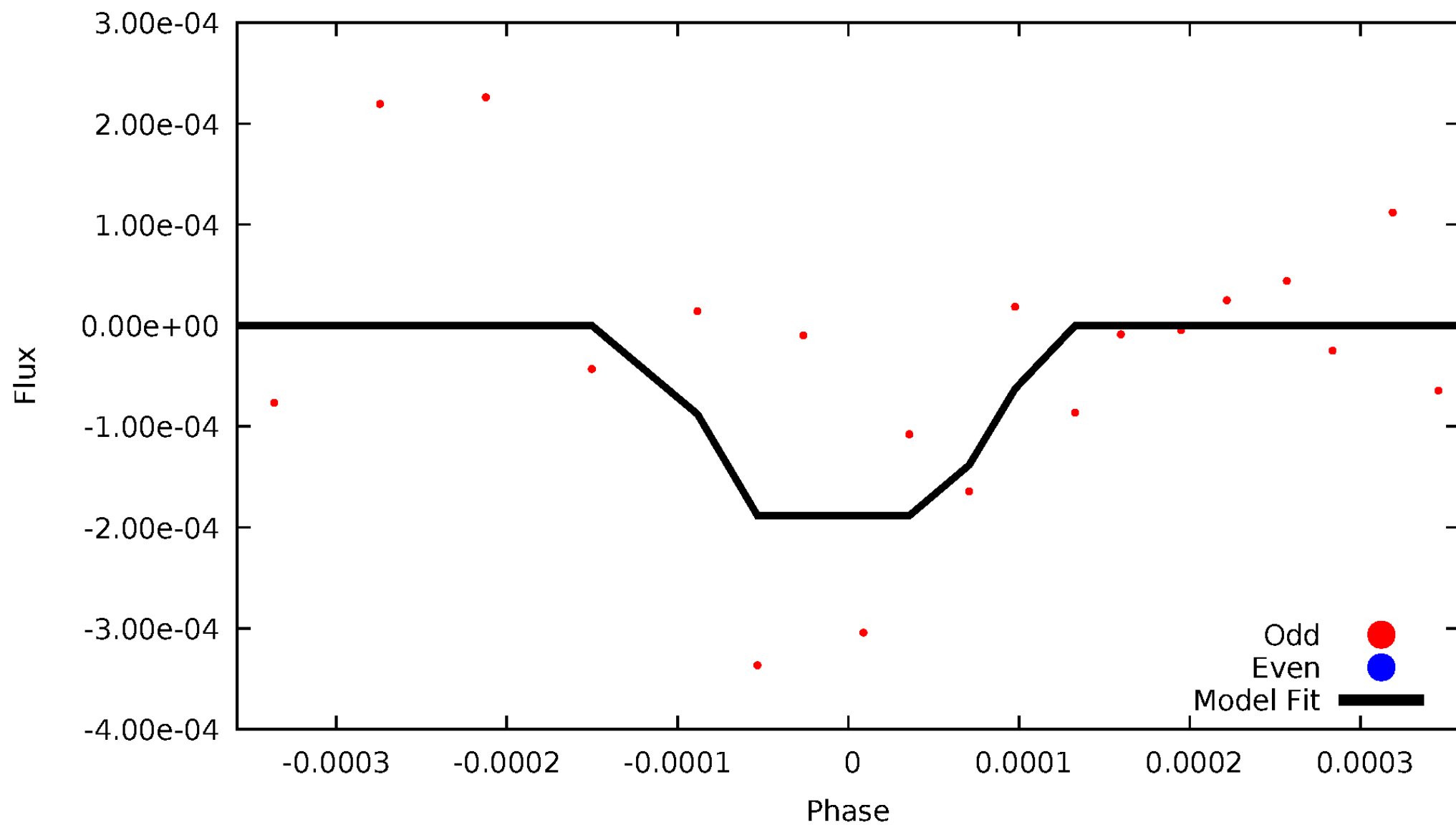
# DV Odd/Even

TCE 010191036-04



# ALT Odd/Even

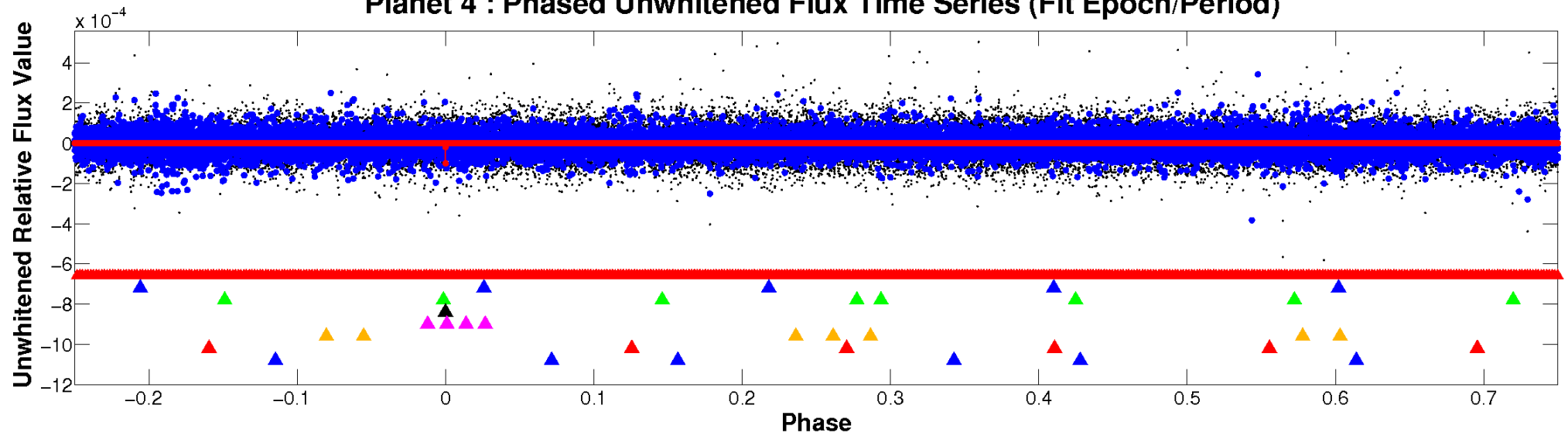
TCE 010191036-04



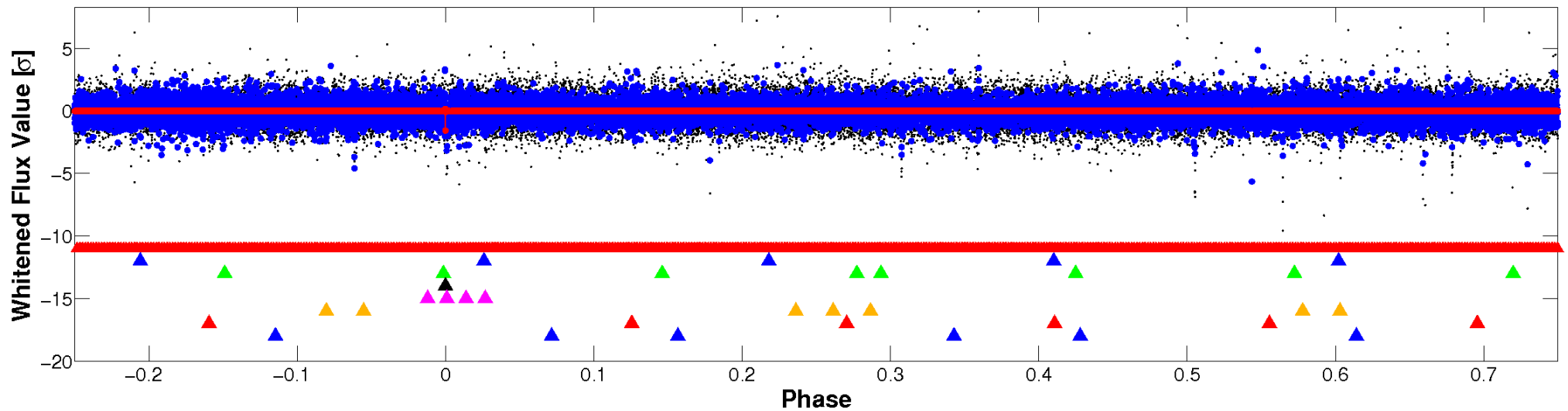


# Non-Whitened Vs. Whitened Light Curve

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

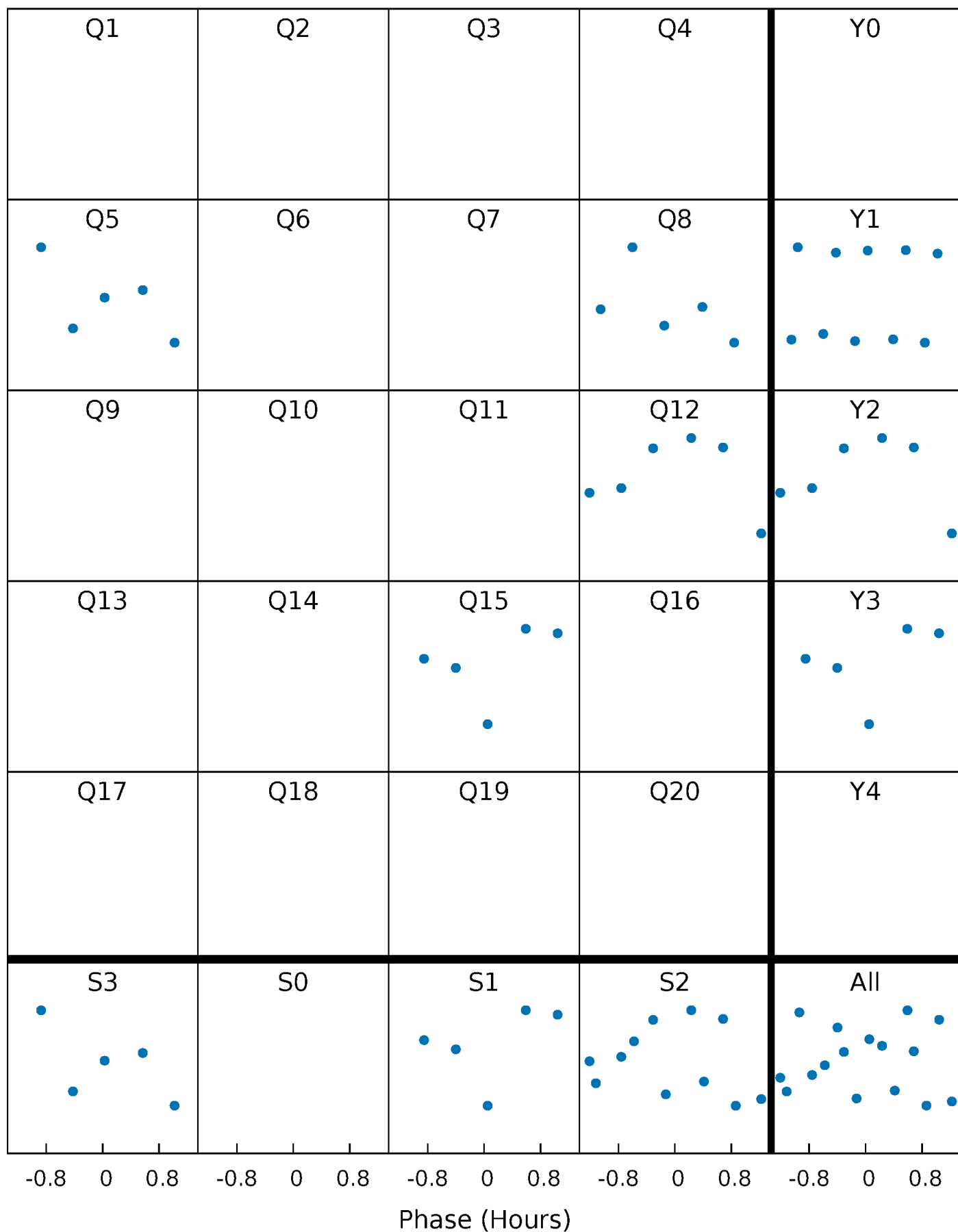


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



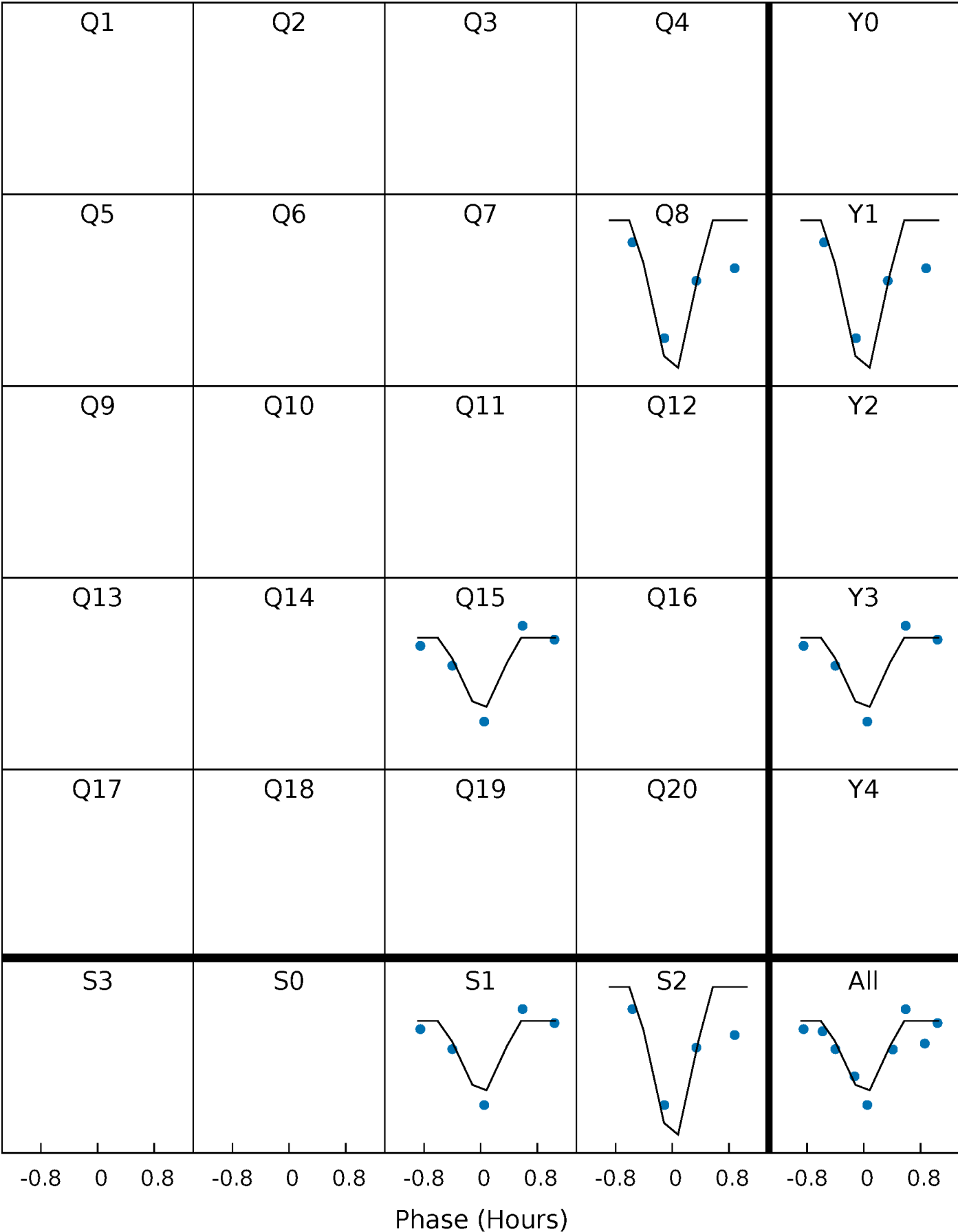
# PDC Quarter-Phased Transit Curves

TCE 010191036-04   P=329.559517 Days    $T_0=454.481811$  (BKJD)



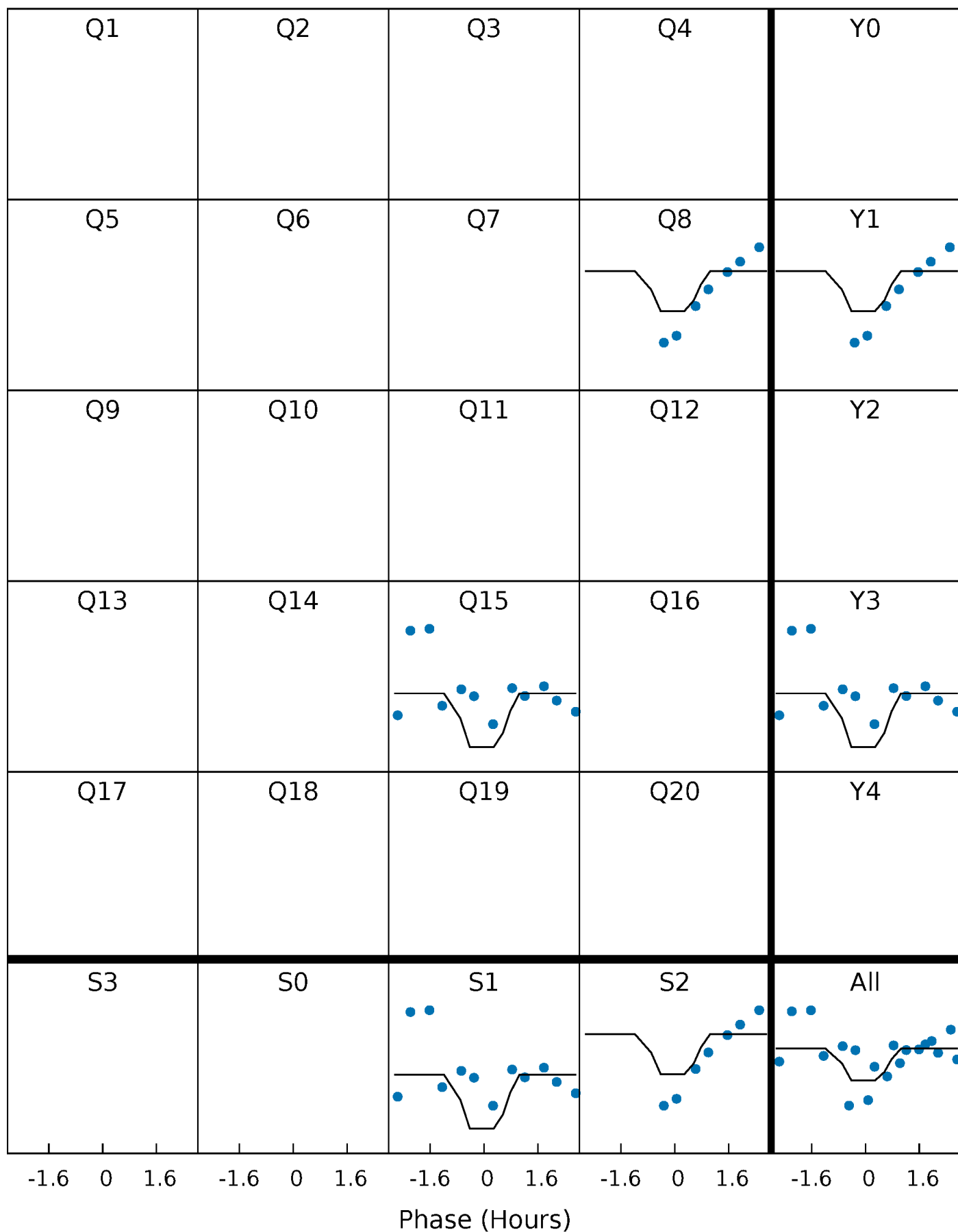
DV Quarter-Phased Transit Curves

TCE 010191036-04    P=329.559517 Days     $T_0=454.481811$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

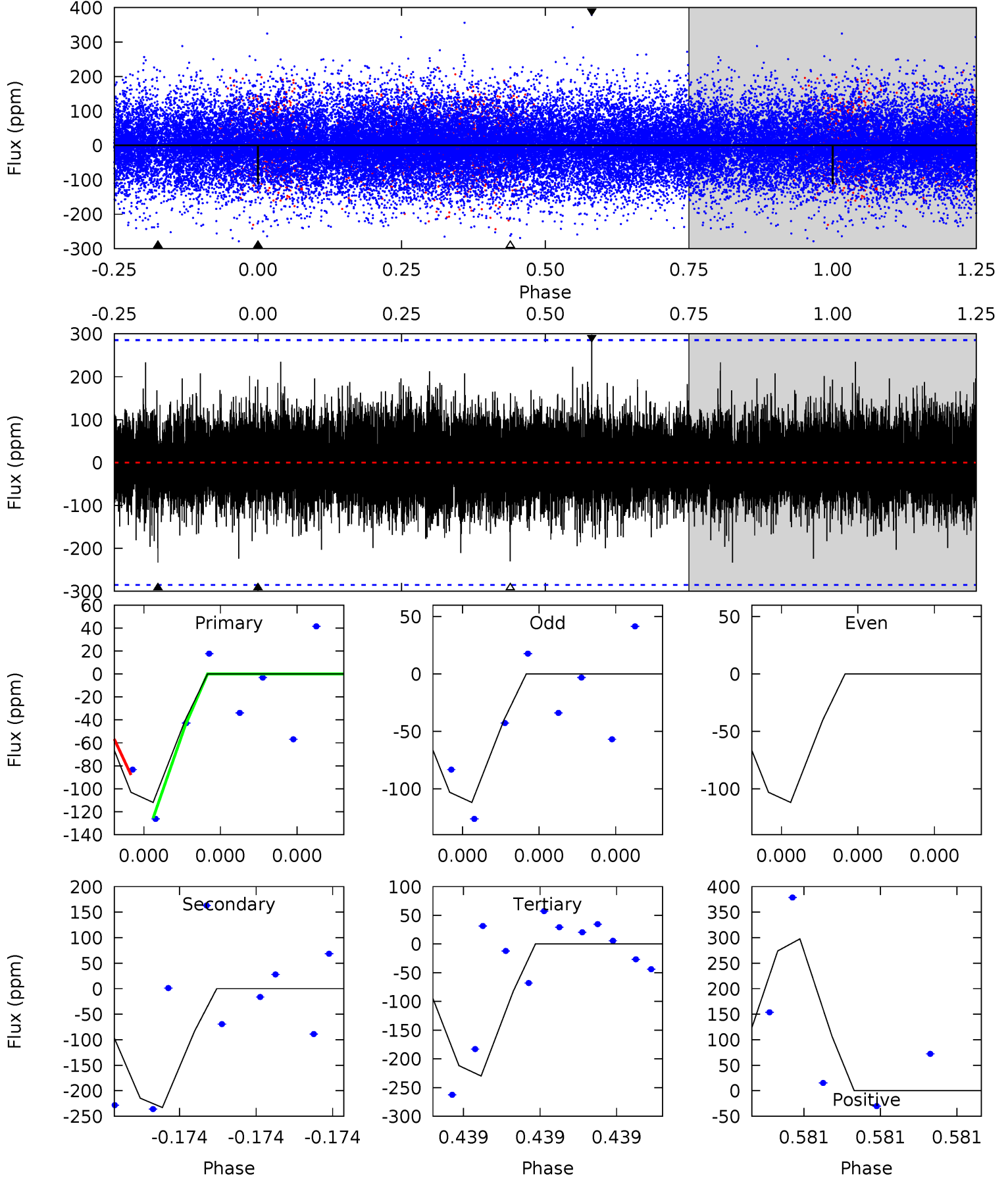
TCE 010191036-04 P=329.559267 Days  $T_0=454.474269$  (BKJD)



# DV Model-Shift Uniqueness Test

010191036-04, P = 329.559517 Days, E = 124.922294 Days

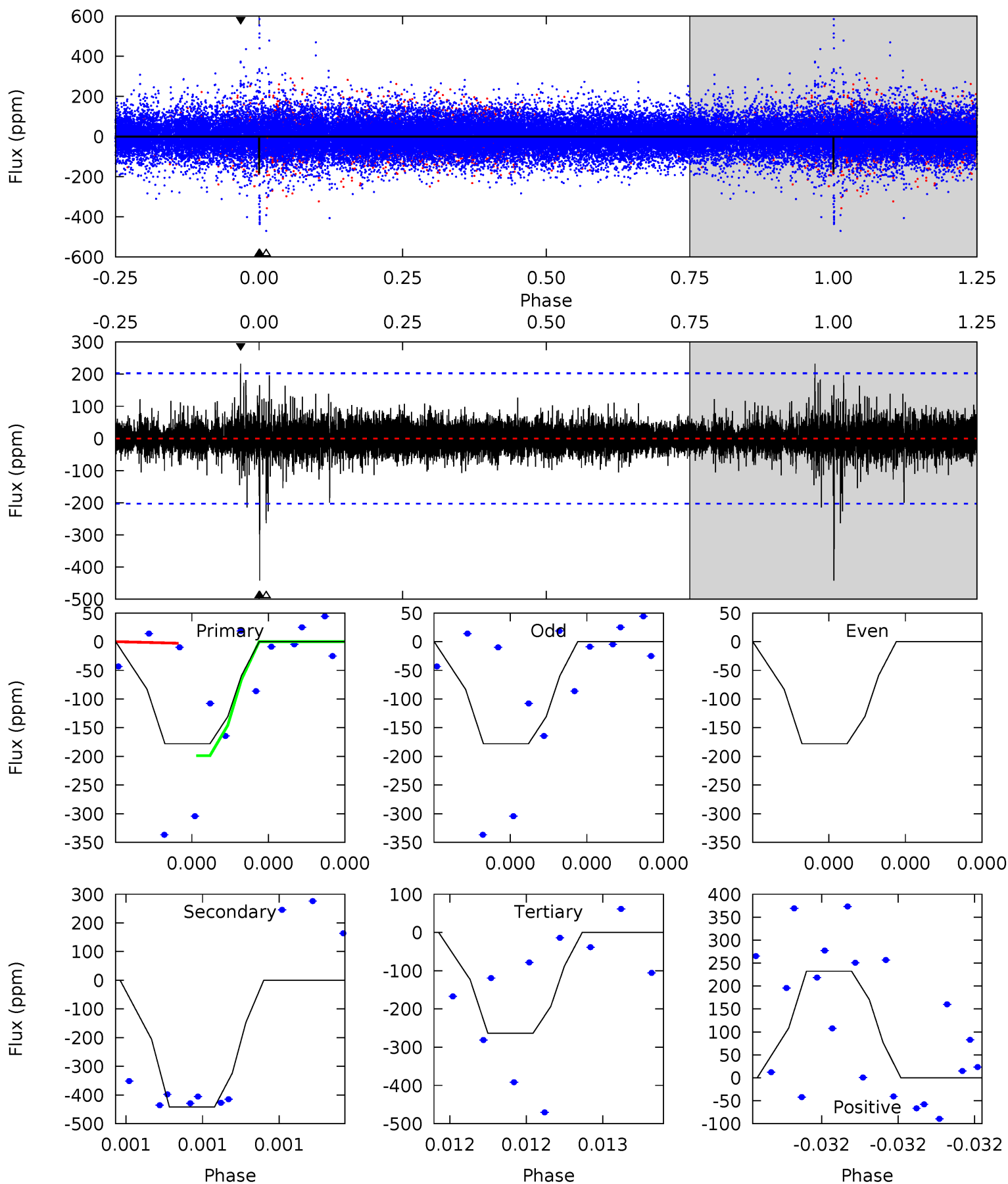
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 2.30 | 4.79 | 4.73 | 6.13 | 5.87            | 3.92            | 1.02             | -2.43   | -3.82   | 0.06    | -1.33   | 0       | 1.00 | 0.56  | 0.00 |



# Alt Model-Shift Uniqueness Test

010191036-04, P = 329.559267 Days, E = 124.915002 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.07 | 12.6 | 7.51 | 6.62 | 5.78            | 3.79            | 0.87             | -2.44   | -1.55   | 5.07    | 5.97    | 0       | 1.00 | 0.34  | 2.49 |



### Stellar Parameters For KIC 010191036

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6238^{+156}_{-188}$ | $4.407^{+0.077}_{-0.154}$ | $-0.220^{+0.250}_{-0.350}$ | $1.049^{+0.244}_{-0.122}$ | $1.022^{+0.134}_{-0.120}$ | $1.246^{+0.426}_{-0.527}$                 |
|        | +3%/-3%              | +2%/-3%                   | +114%/-159%                | +23%/-12%                 | +13%/-12%                 | +34%/-42%                                 |
| Source | PHO1                 | FLK73                     | 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 010191036-04 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$          | $A_{obs}$                 |
|---------|---------------|------------------------|-------------------|------------------------|---------------------------|
| DV      | $-233 \pm 49$ | $4.00^{+3.97}_{-2.75}$ | $410^{+25}_{-20}$ | $4389^{+3195}_{-926}$  | $6915^{+67390}_{-5182}$   |
| Alt.    | $-442 \pm 35$ | $4.15^{+3.94}_{-2.86}$ | $408^{+25}_{-18}$ | $4932^{+4046}_{-1128}$ | $12507^{+111047}_{-9260}$ |

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

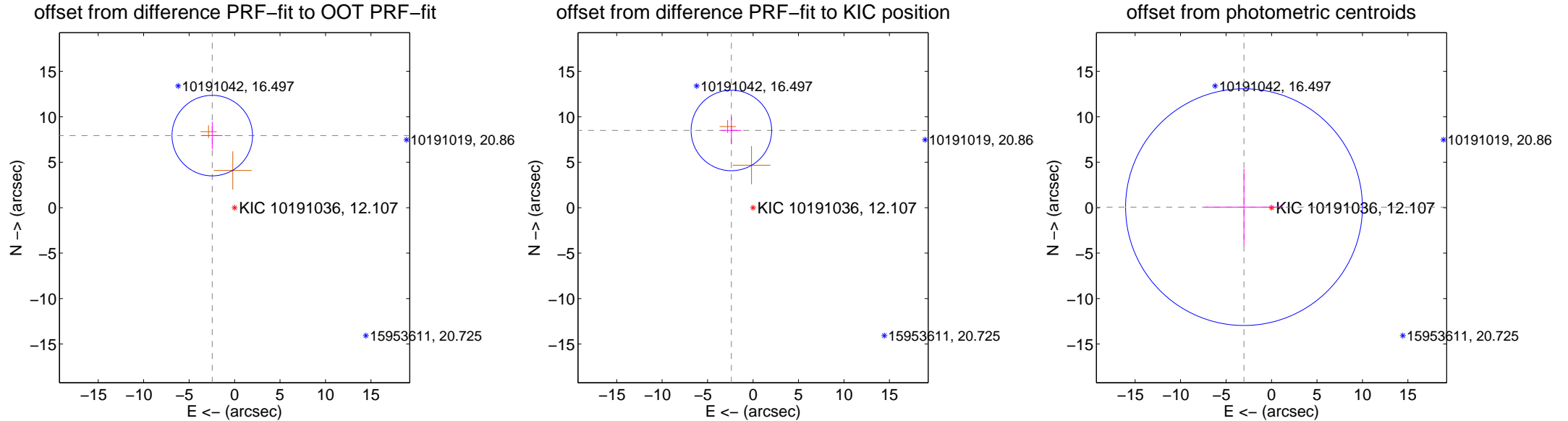
## DV Centroid Data

Supplemental centroid analysis for 010191036-04. Kepler magnitude: 12.11. Transit SNR 2.03

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.57 arcsec

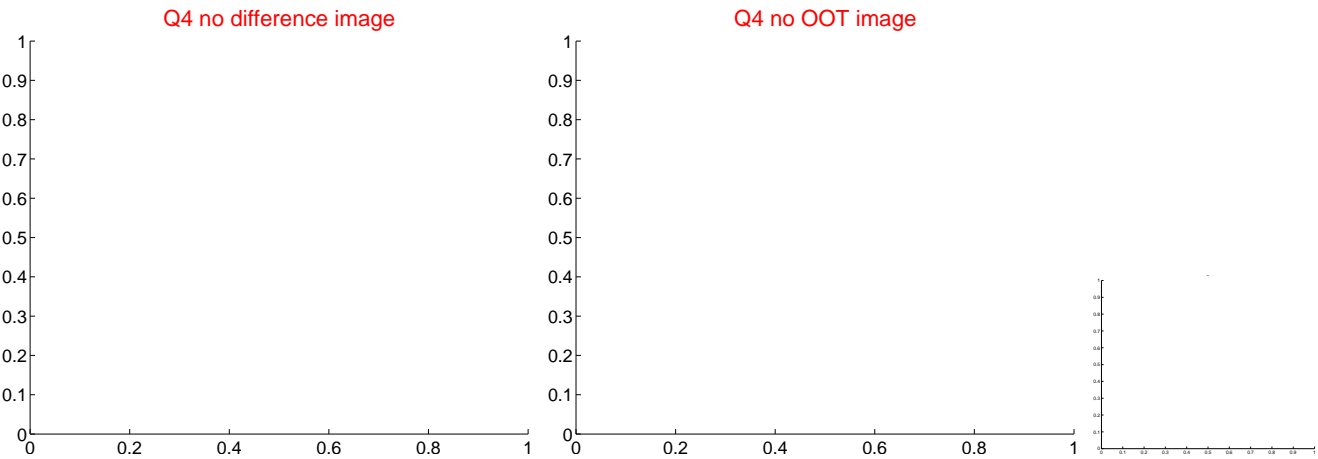
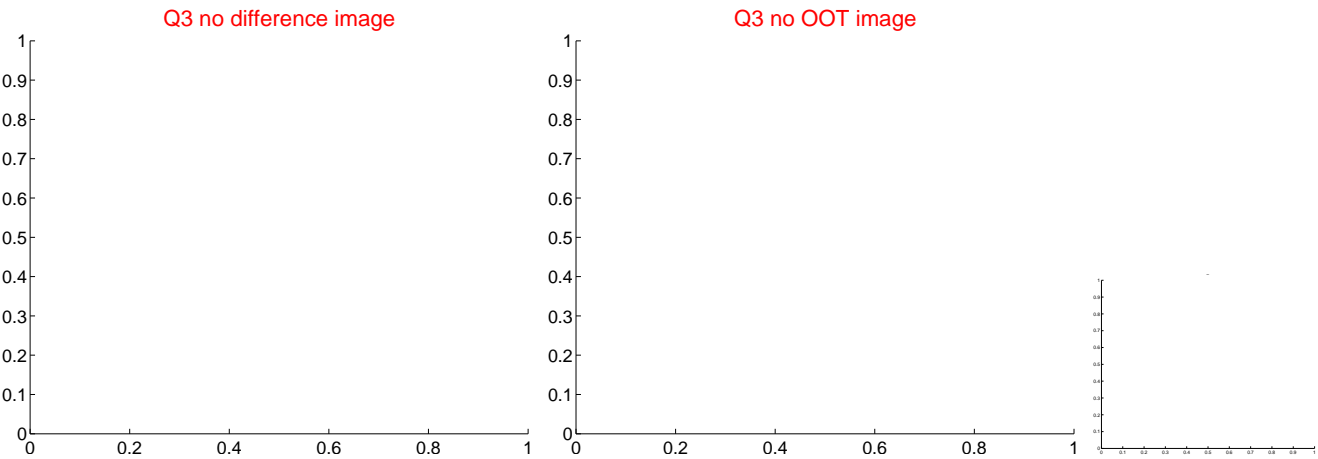
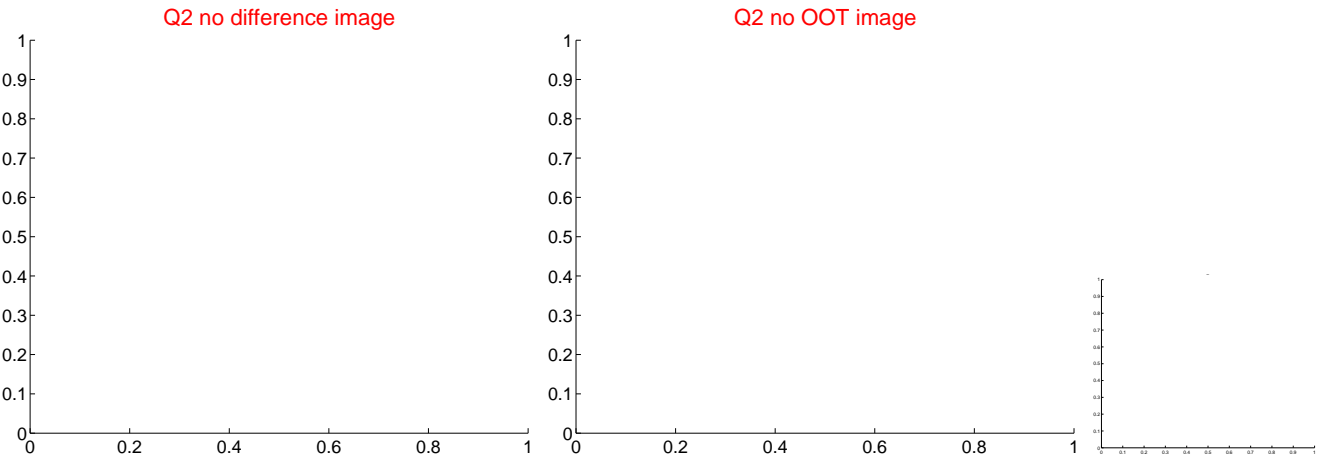
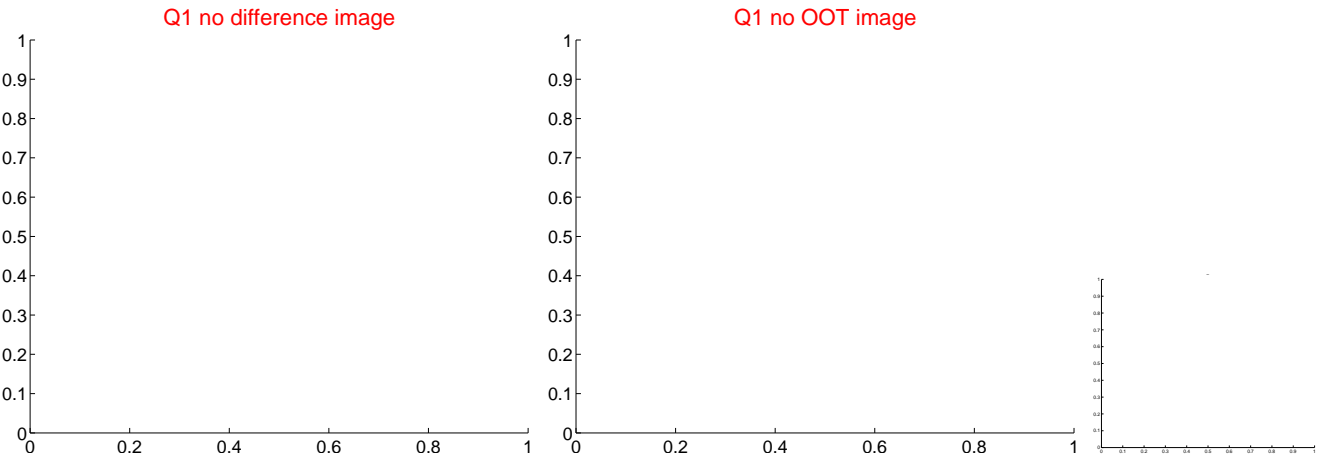
|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | 8.301 $\pm$ 1.476  | 5.62                | 2.453 $\pm$ 1.128 | 7.931 $\pm$ 1.505 |
| PRF-fit source offset from KIC position | 8.825 $\pm$ 1.476  | 5.98                | 2.385 $\pm$ 1.108 | 8.496 $\pm$ 1.502 |
| photometric centroid source offset      | 3.03 $\pm$ 4.34    | 0.70                | 3.03 $\pm$ 4.34   | 0.06 $\pm$ 4.24   |



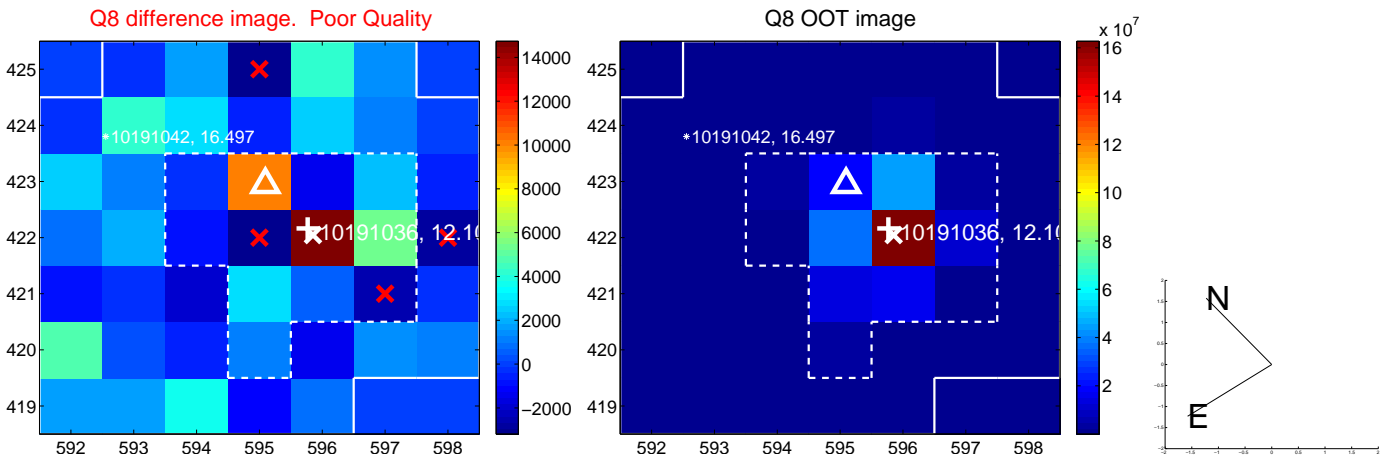
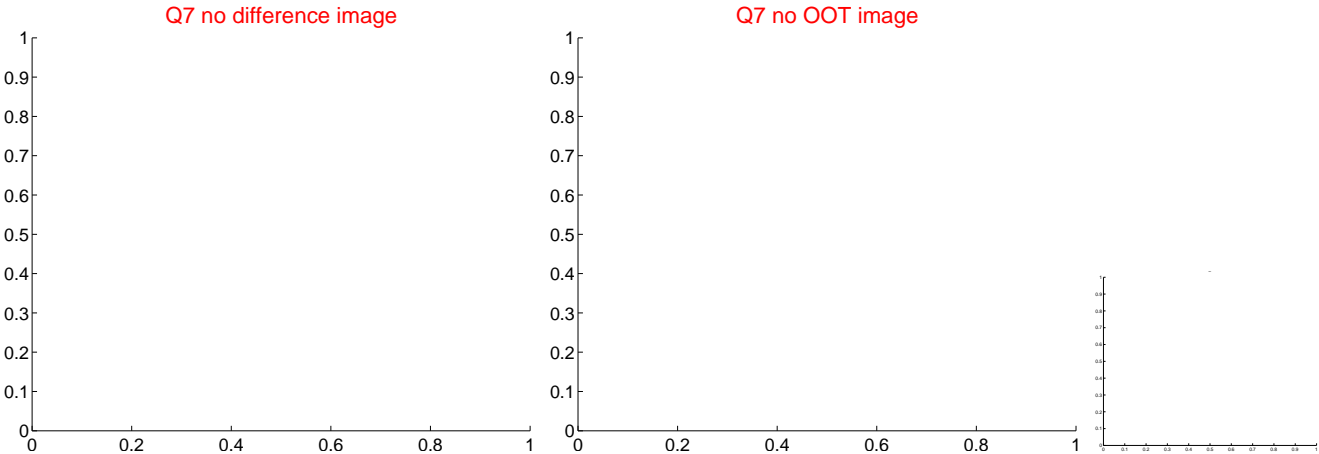
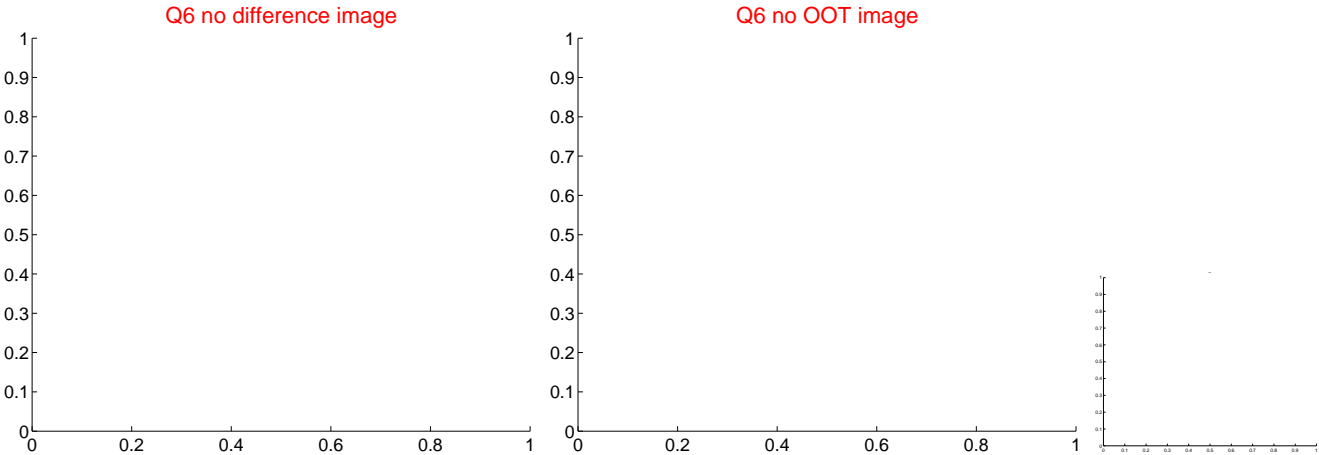
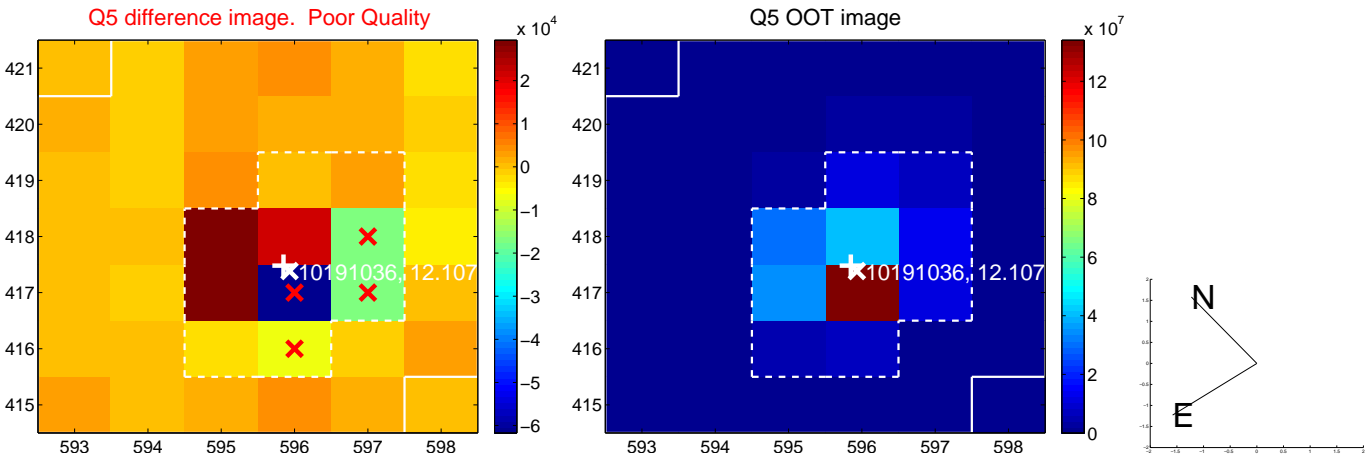
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



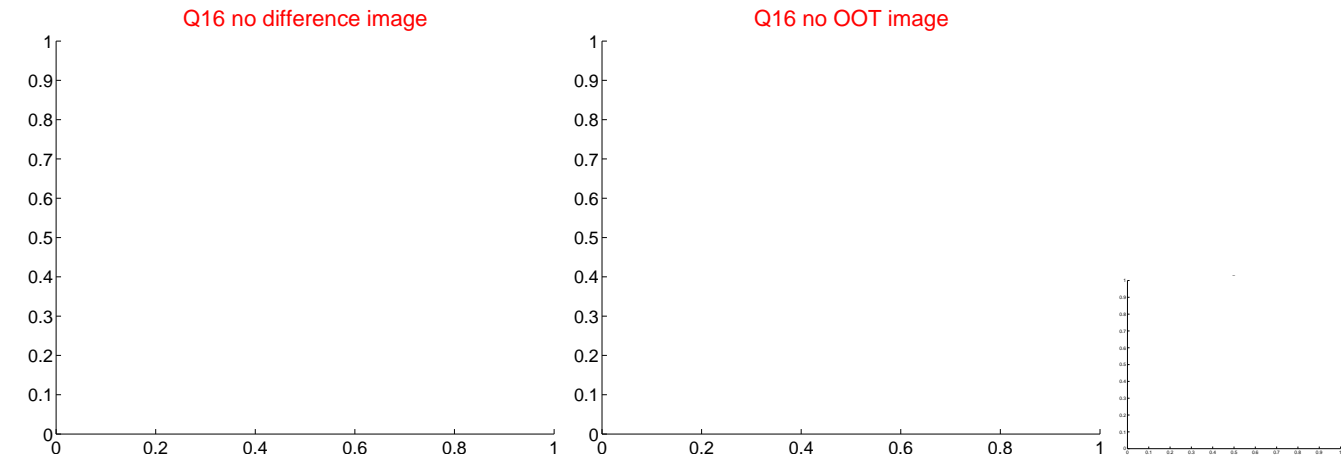
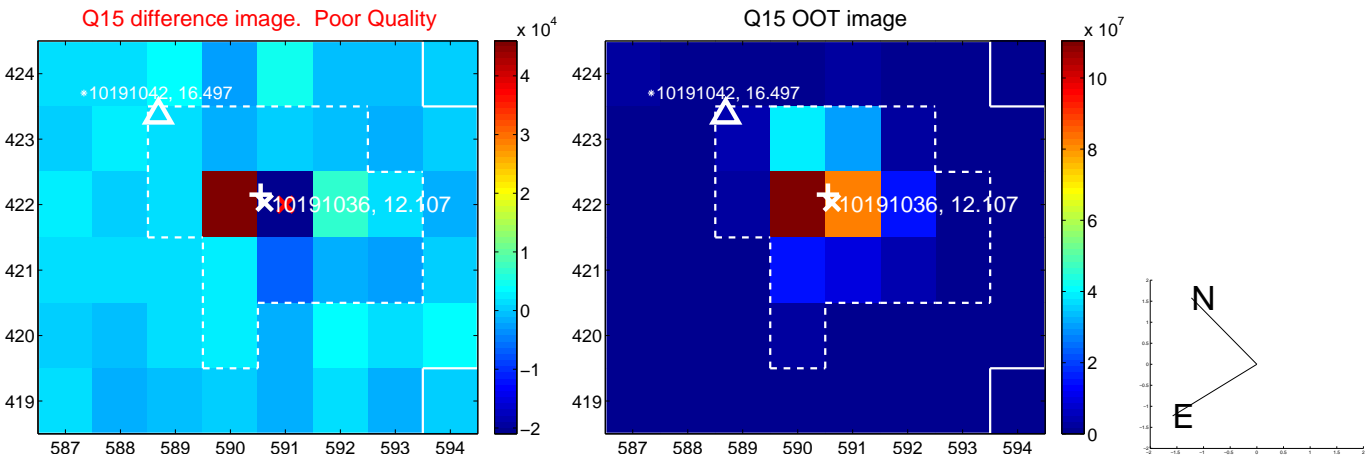
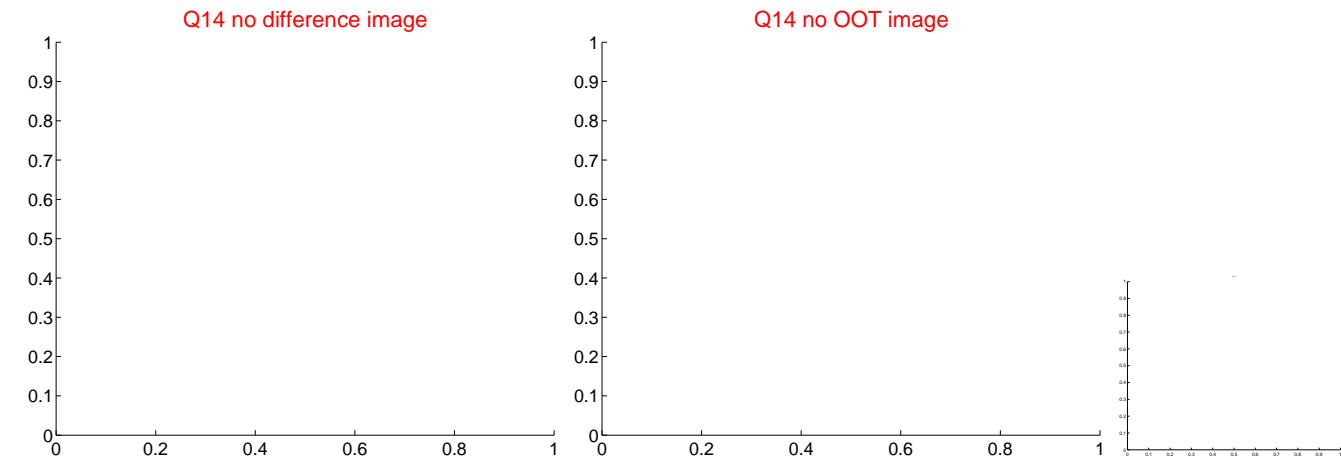
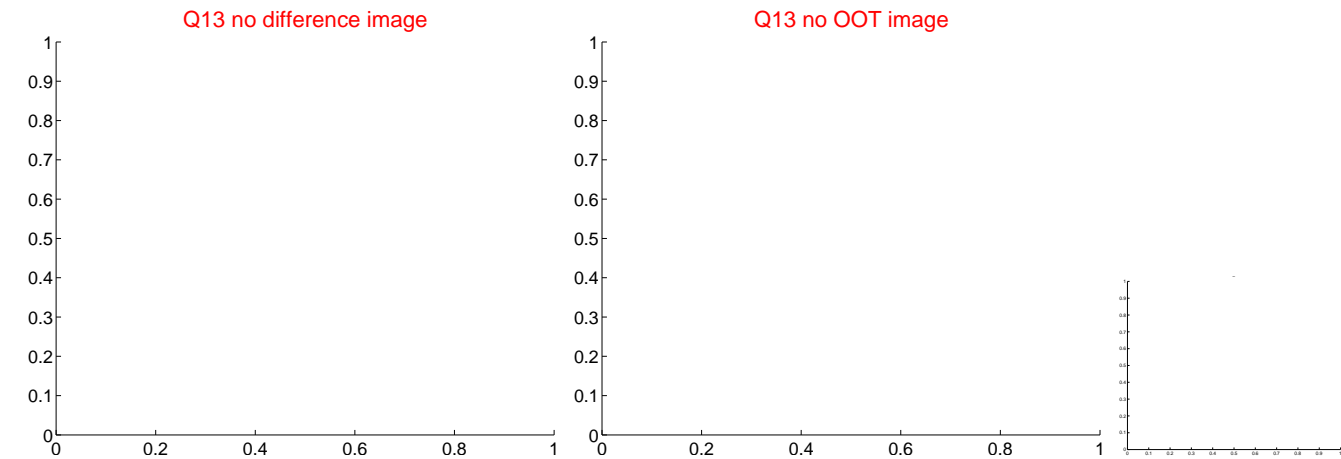
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



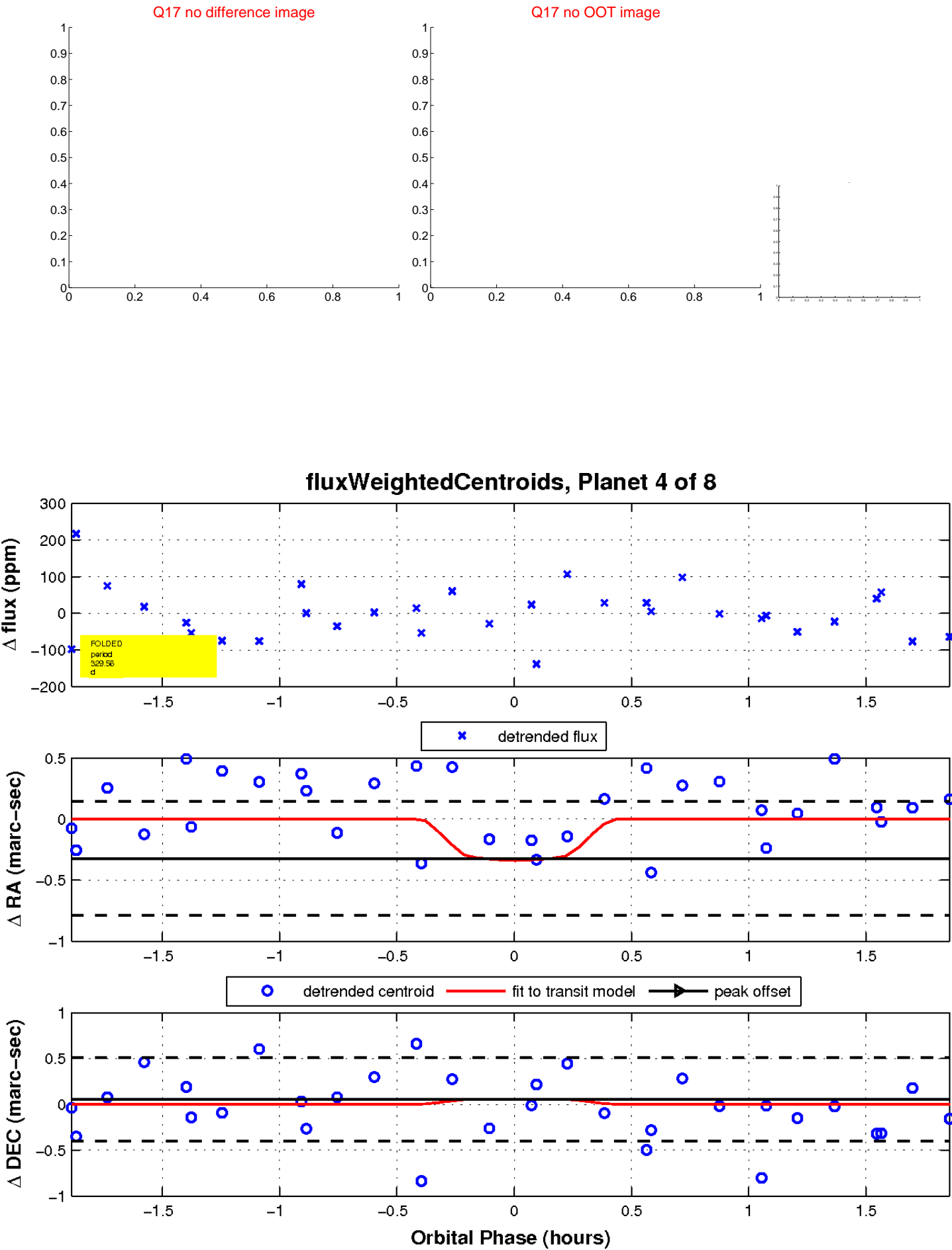
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



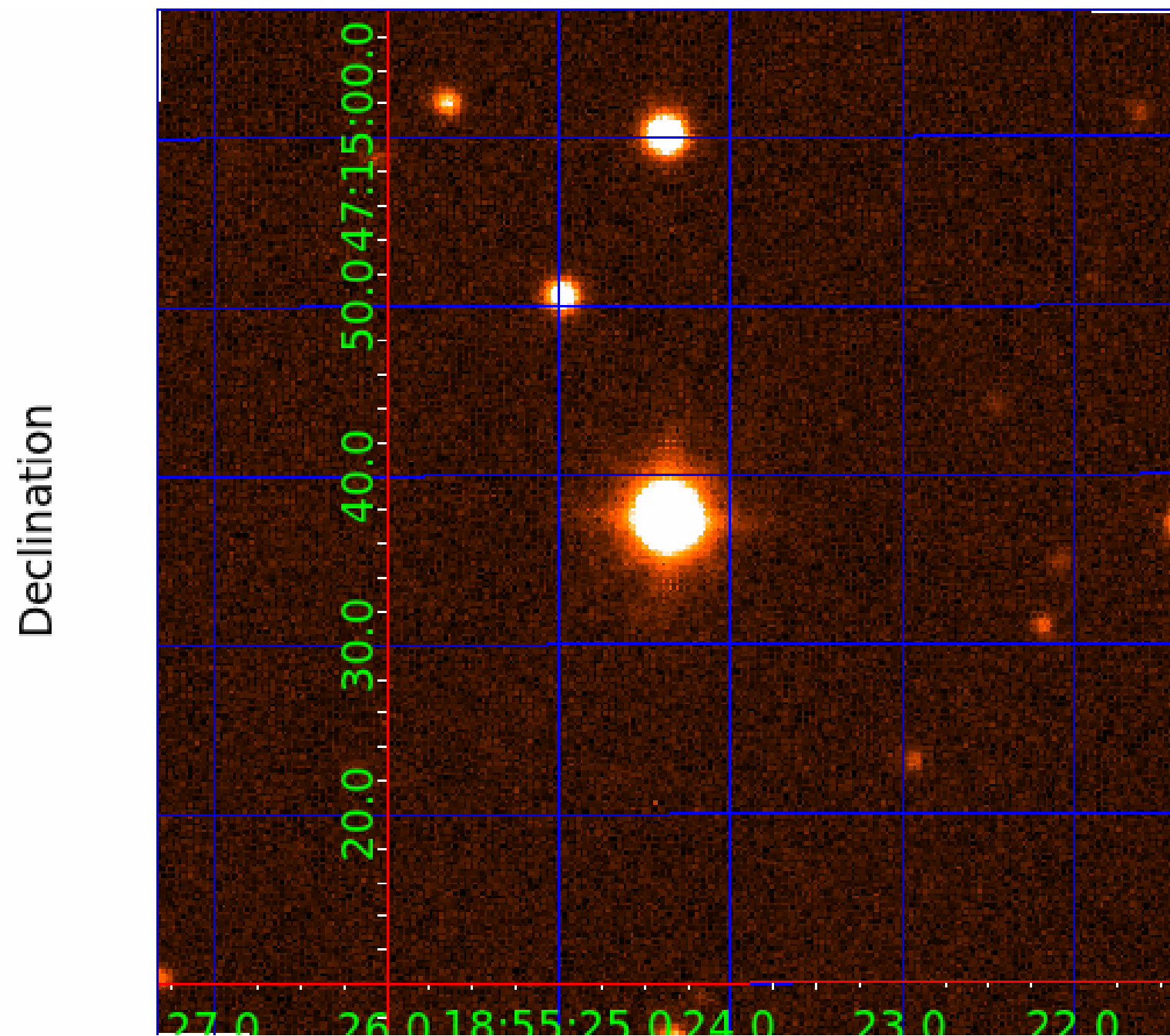
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 010191036

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010191036-01 | OBS      | 3218.01 | 1.213688      | 131.774952   | 22.8        | 3.928            | 16.3 | 16.4 | 1.05                        | 6238            | 0.59                   | 2961.08                |
| 010191036-02 | OBS      | No      | 266.260750    | 386.672484   | 82.8        | 2.897            | 13.8 | 2.9  | 1.05                        | 6238            | 1.08                   | 2.24                   |
| 010191036-03 | OBS      | No      | 189.085046    | 216.332625   | 17.0        | 6.402            | 13.7 | 0.9  | 1.05                        | 6238            | 0.51                   | 3.53                   |
| 010191036-04 | OBS      | No      | 329.559517    | 454.481811   | 106.3       | 0.677            | 13.4 | 2.0  | 1.05                        | 6238            | 1.30                   | 1.68                   |
| 010191036-06 | OBS      | No      | 216.943053    | 219.355992   | 139.1       | 8.693            | 11.8 | 6.8  | 1.05                        | 6238            | 1.38                   | 2.94                   |
| 010191036-07 | OBS      | No      | 235.618253    | 354.206000   | 129.3       | 7.962            | 7.7  | 6.6  | 1.05                        | 6238            | 1.35                   | 2.63                   |
| 010191036-08 | OBS      | No      | 240.159512    | 265.954871   | 129.4       | 15.721           | 7.5  | 5.0  | 1.05                        | 6238            | 1.31                   | 2.57                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 010191036-01 | OBS      | FP   | 0.00  | 0 | 0 | 1 | 1 | CENT_KIC_POS—HALO_GHOST—EPHEM_MATCH   |
| 010191036-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS—CENT_UNCERTAIN                                |
| 010191036-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS  |
| 010191036-04 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |
| 010191036-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_KIC_POS   |
| 010191036-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS  |
| 010191036-08 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—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.

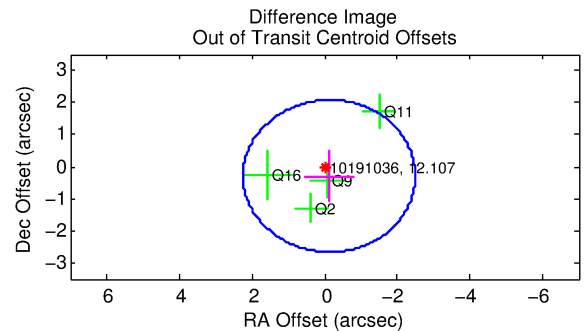
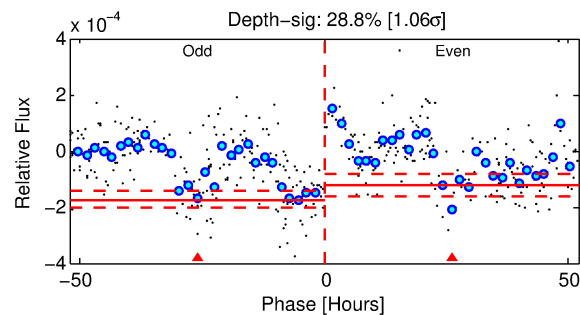
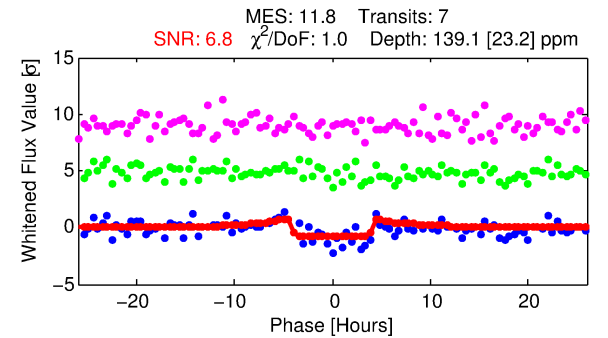
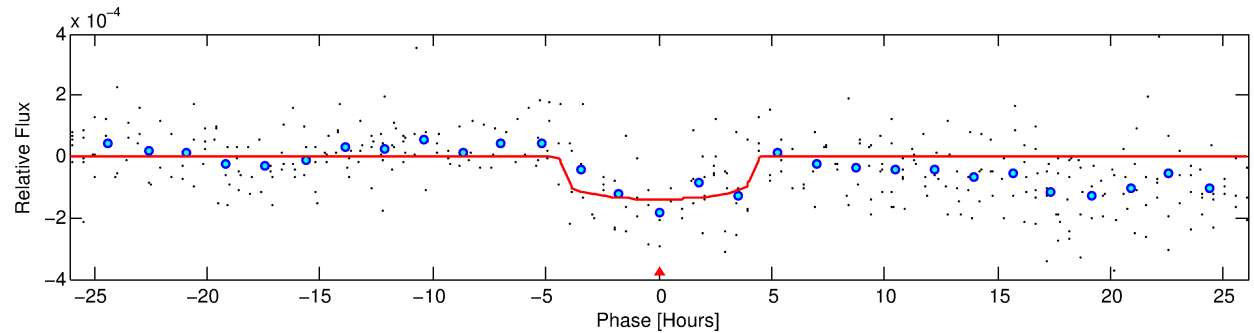
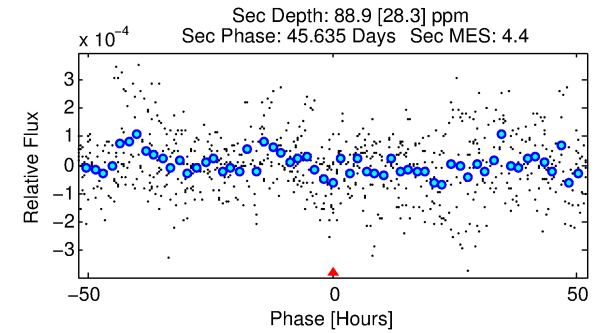
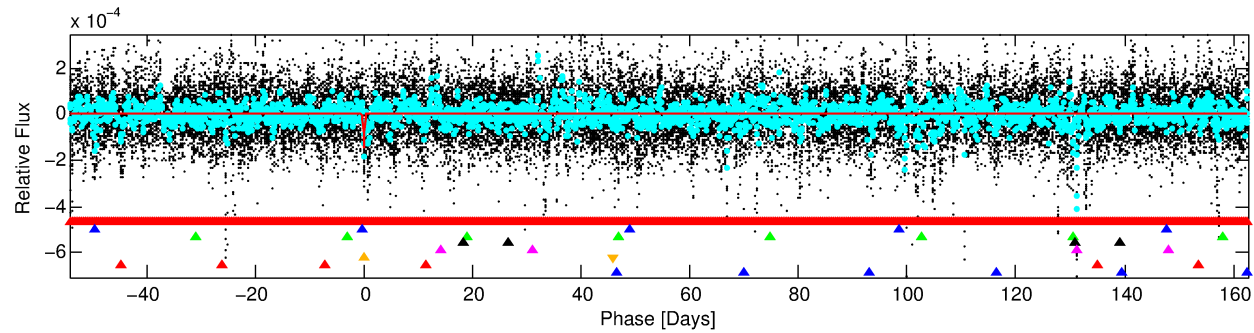
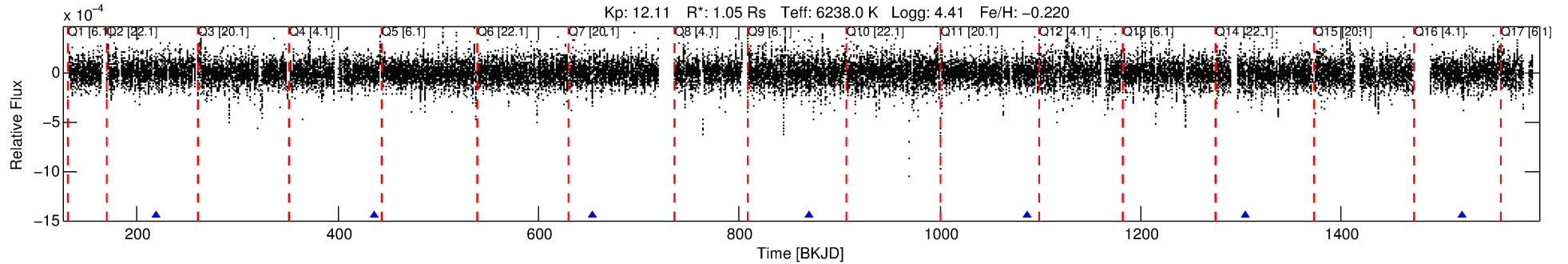
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010191036-06

No Significant Match Found

# DV One-Page Summary

KIC: 10191036 Candidate: 6 of 8 Period: 216.943 d  
KOI: K03218 Corr: No Ephemeris Match



## DV Fit Results:

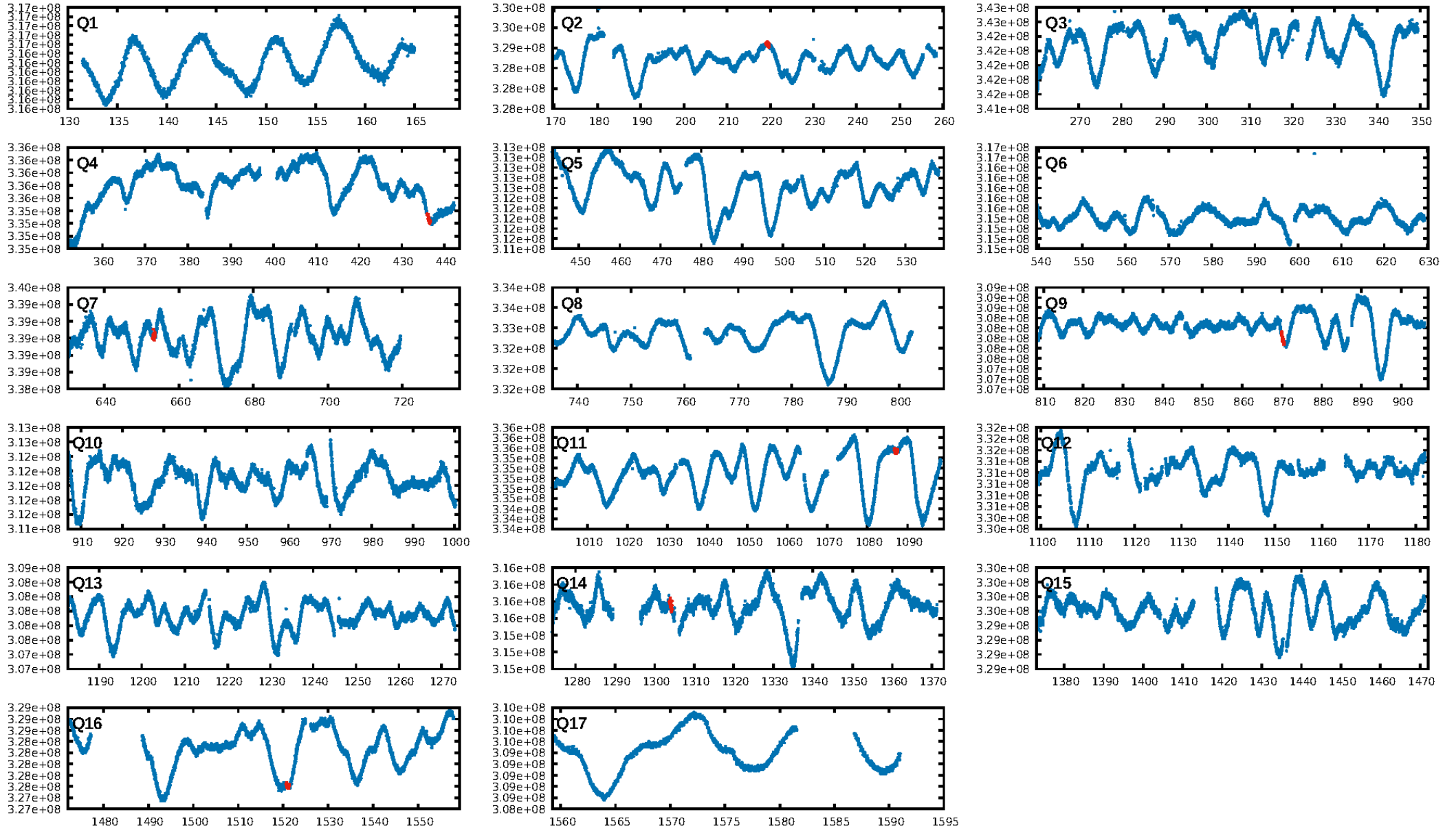
Period = 216.94305 [0.00376] d  
Epoch = 219.3560 [0.0146] BKJD  
Rp/R\* = 0.0120 [0.0036]  
a/R\* = 113.67 [167.75]  
b = 0.82 [0.60]  
Seff = 2.94 [0.90]  
Teq = 334 [26] K  
Rp = 1.38 [0.53] Re  
a = 0.7125 [0.1389] AU  
Ag = 13071.60 [9662.02] [1.35σ]  
Teffp = 5520 [957] K [5.42σ]

## DV Diagnostic Results:

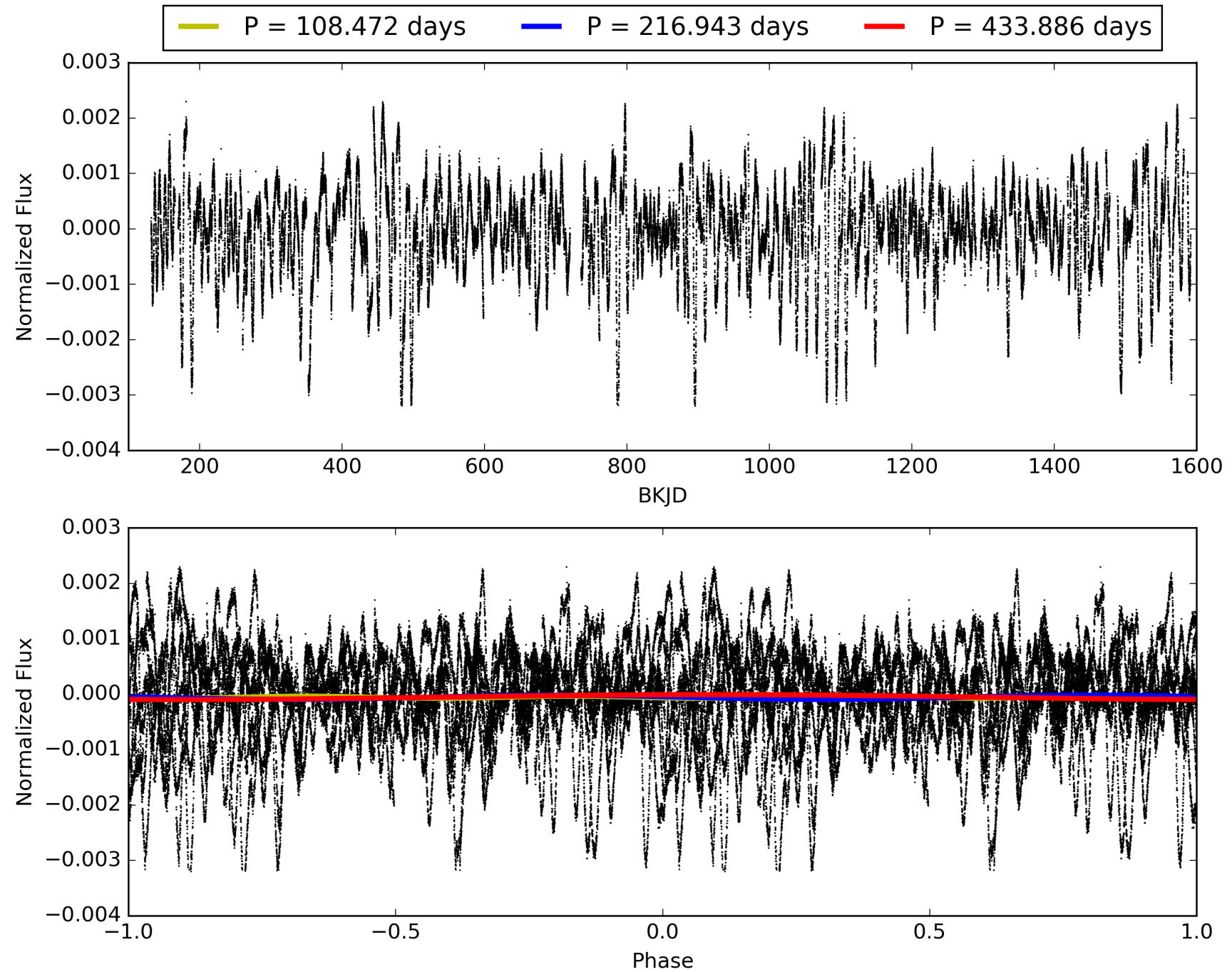
ShortPeriod-sig: 100.0% [61.93σ]  
LongPeriod-sig: 100.0% [38.02σ]  
ModelChiSquare2-sig: 13.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.51e-16  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: 1.049  
Centroid-sig: 68.1%  
Centroid-so: 0.182 arcsec [0.21σ]  
OotOffset-rm: 0.317 arcsec [0.40σ]  
KicOffset-rm: 0.302 arcsec [0.39σ]  
OotOffset-st: 1/1/1/1 [4]  
KicOffset-st: 1/1/1/1 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 0.00 [0/6]



# TCE 010191036-06, PDC Light Curves

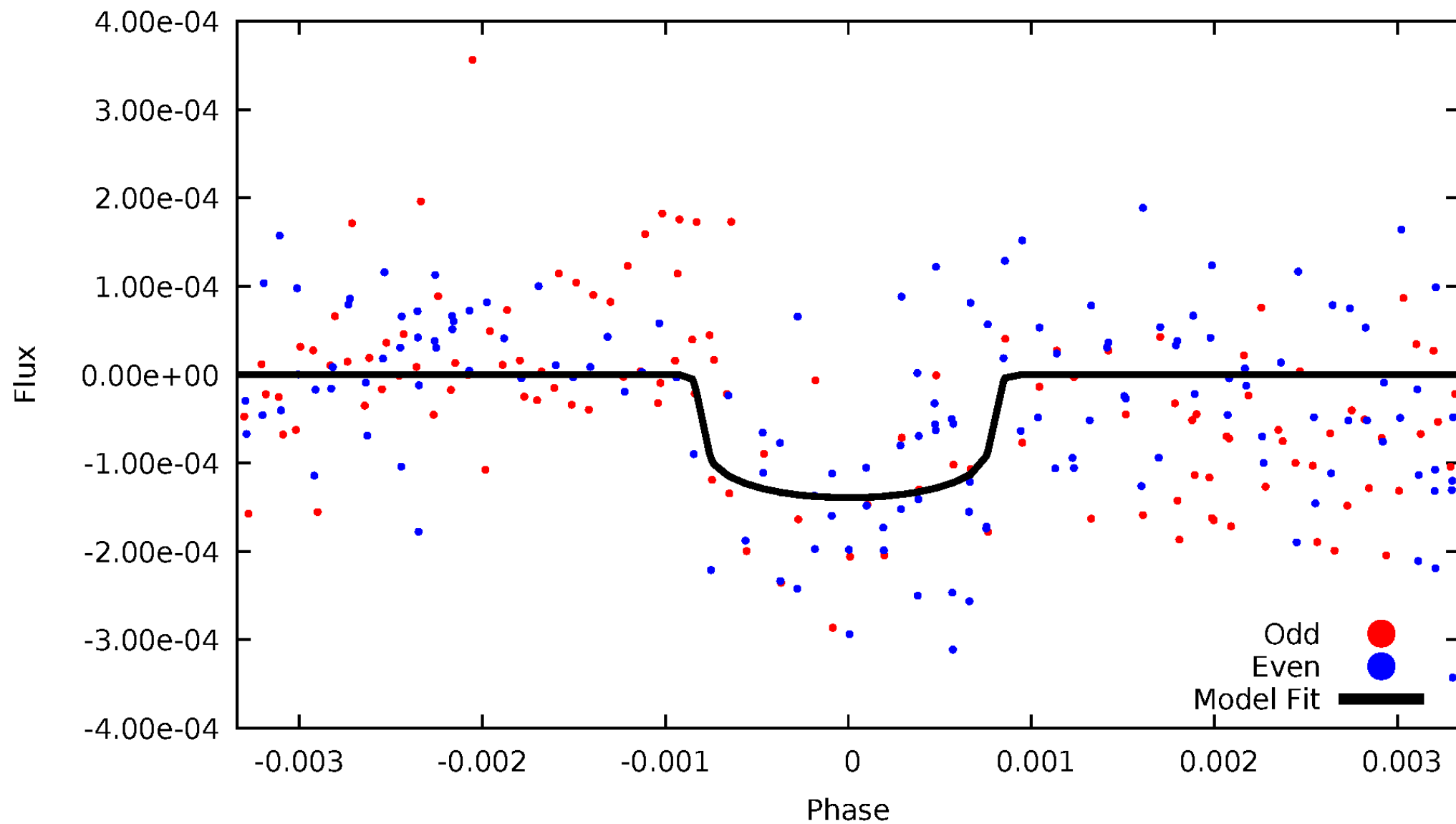


# TCE 010191036-06



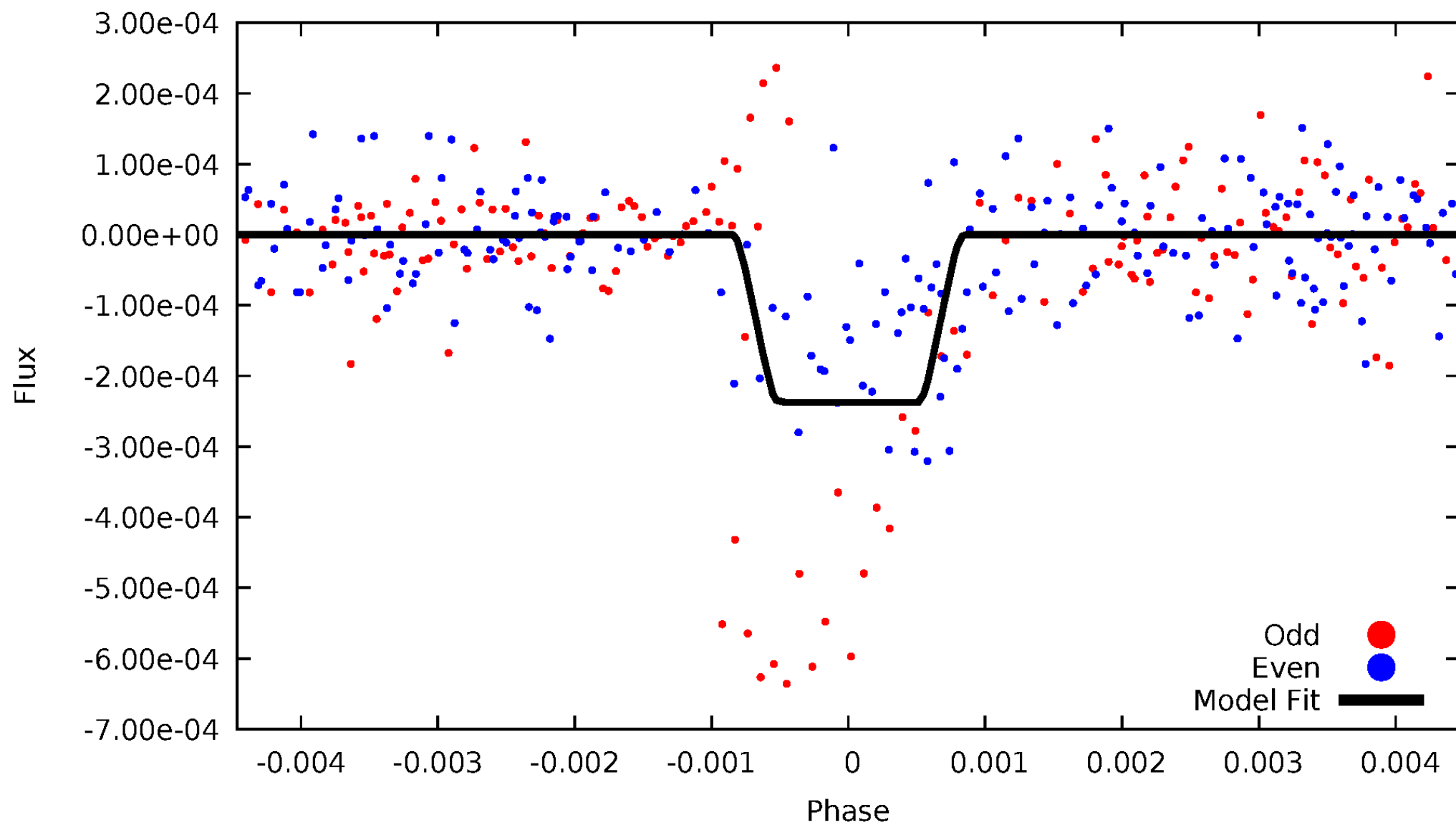
# DV Odd/Even

TCE 010191036-06



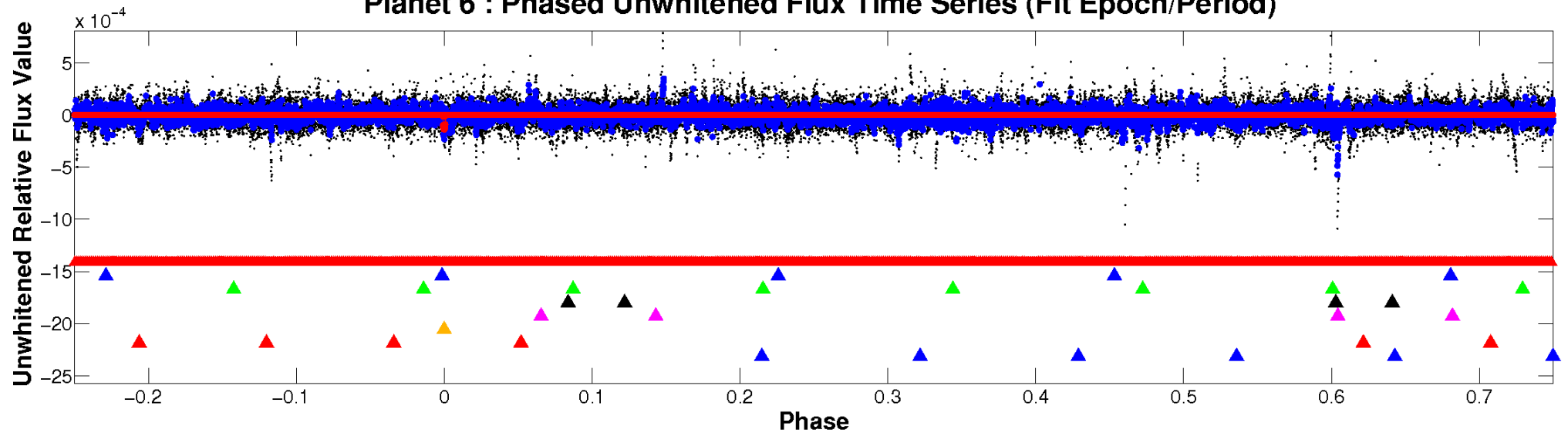
# ALT Odd/Even

TCE 010191036-06

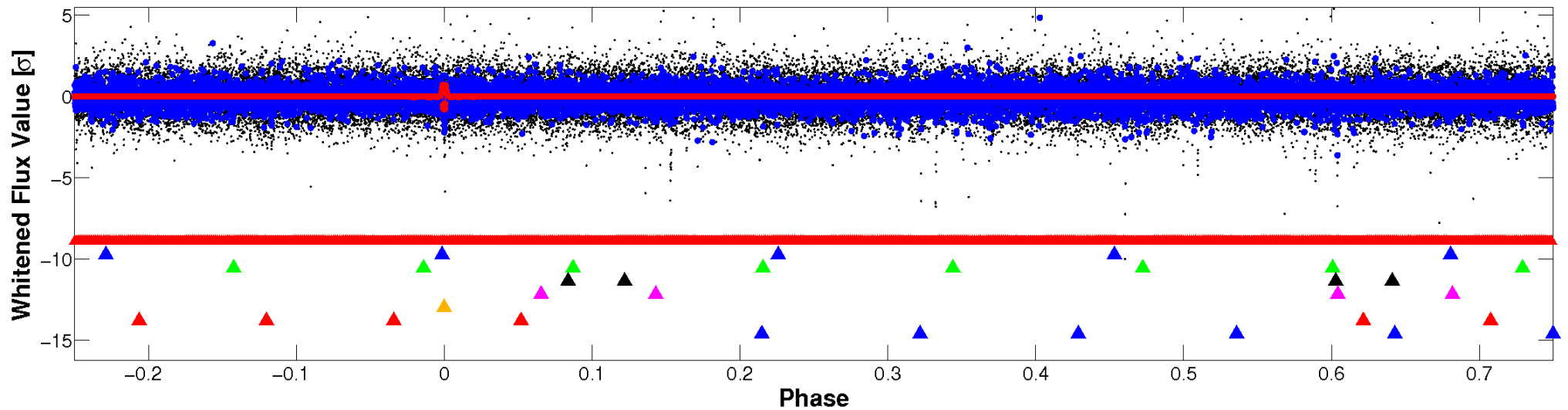


# Non-Whitened Vs. Whitened Light Curve

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

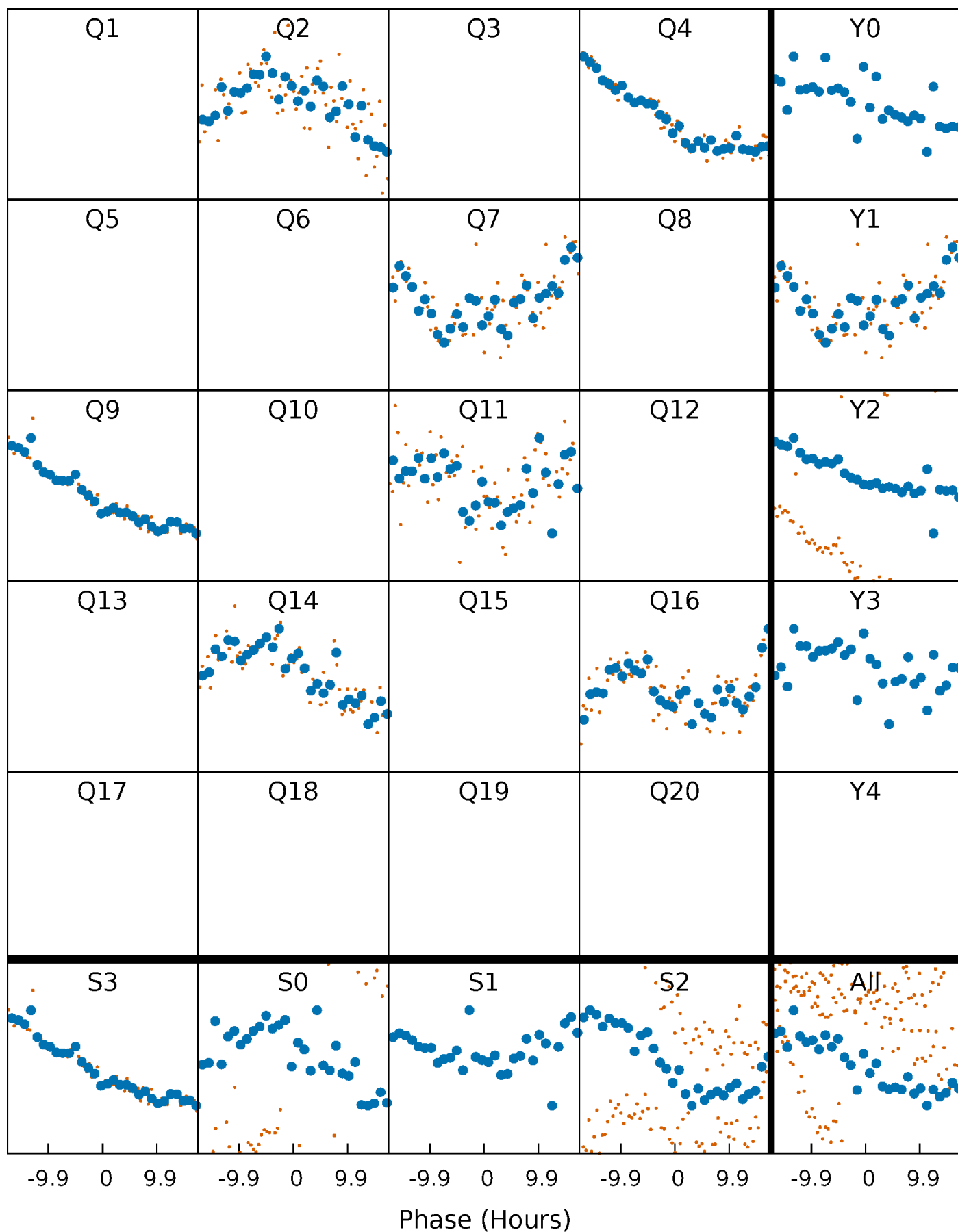


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



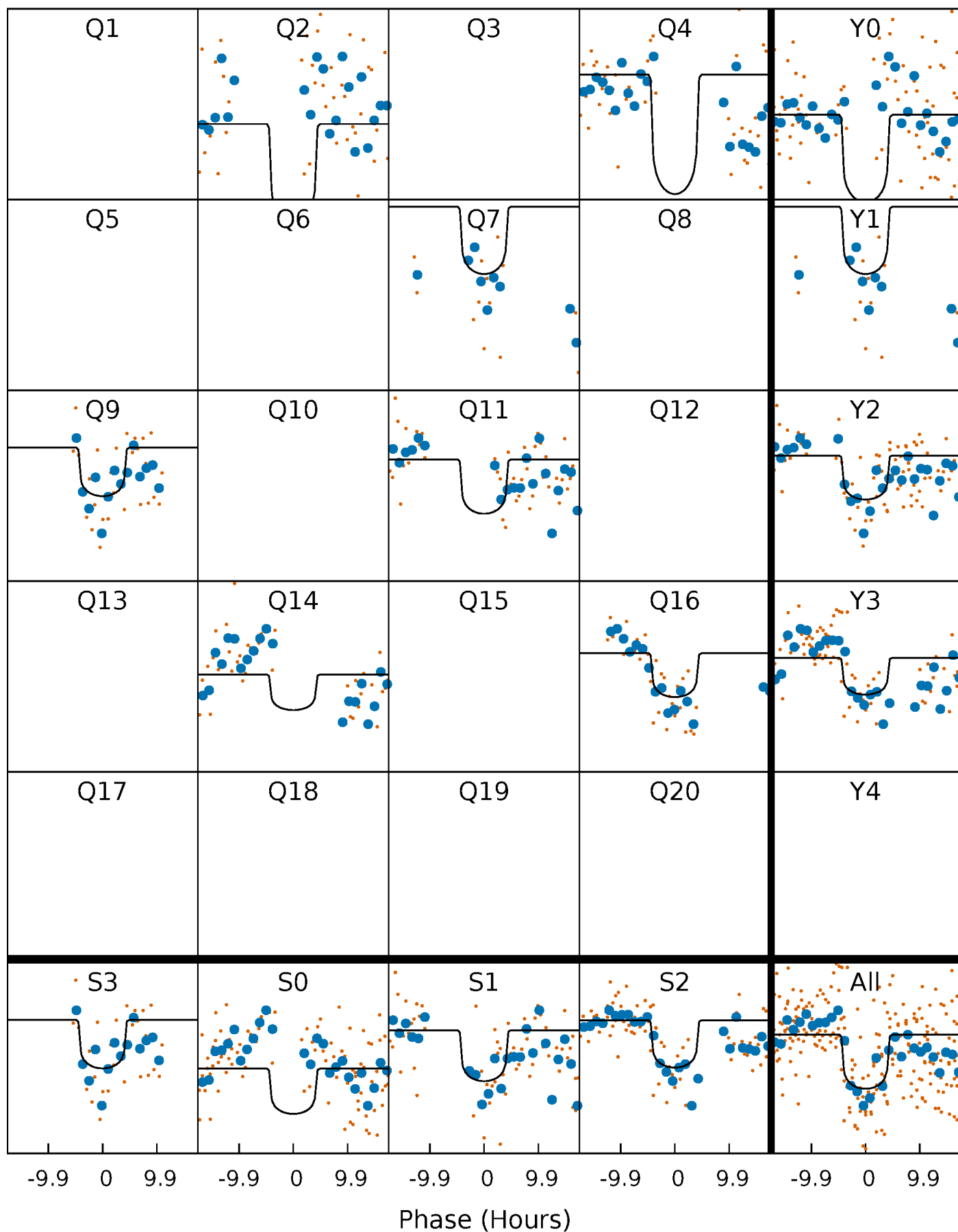
# PDC Quarter-Phased Transit Curves

TCE 010191036-06 P=216.943053 Days  $T_0=219.355993$  (BKJD)



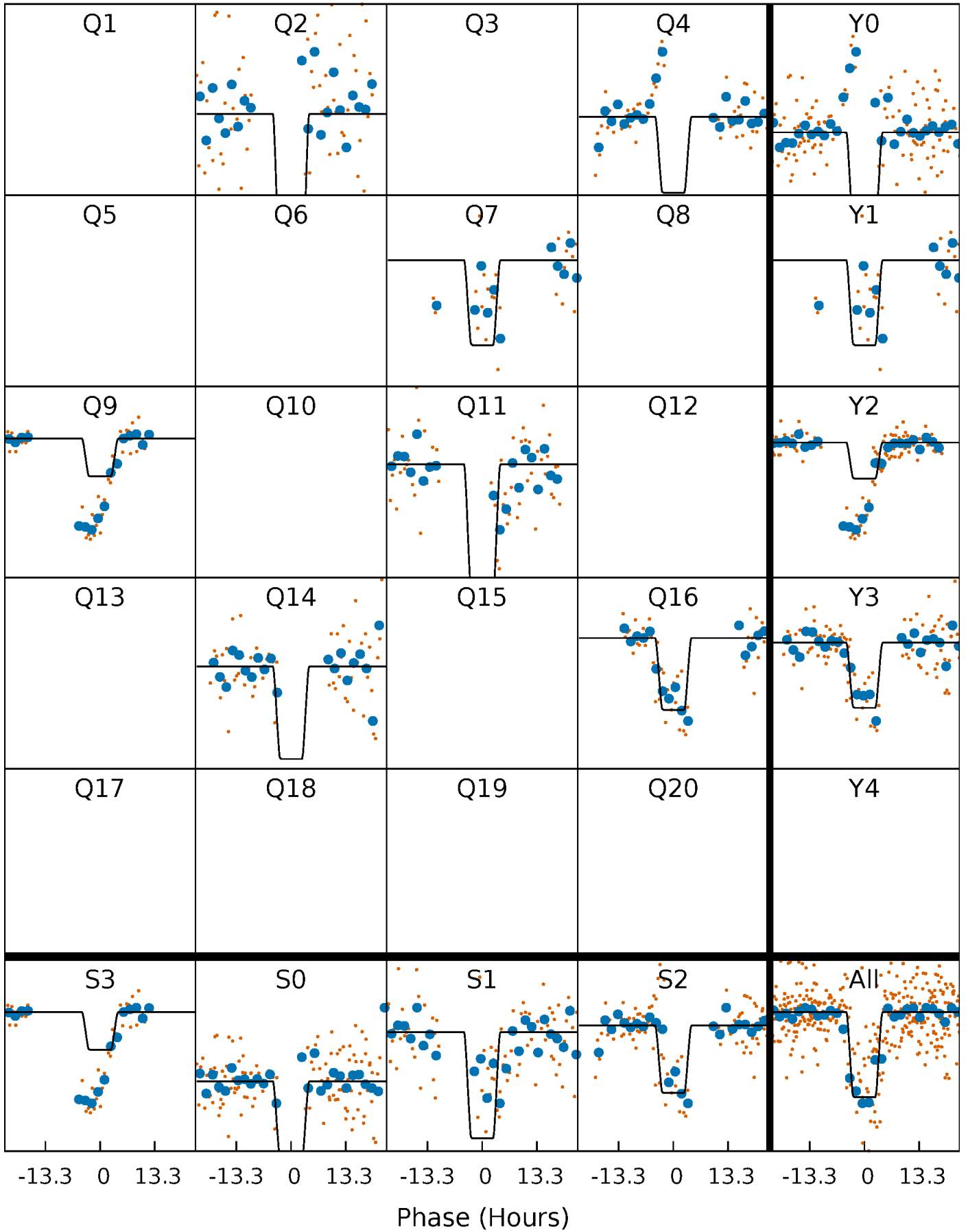
# DV Quarter-Phased Transit Curves

TCE 010191036-06 P=216.943053 Days  $T_0=219.355993$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010191036-06 P=216.956729 Days  $T_0=219.292288$  (BKJD)

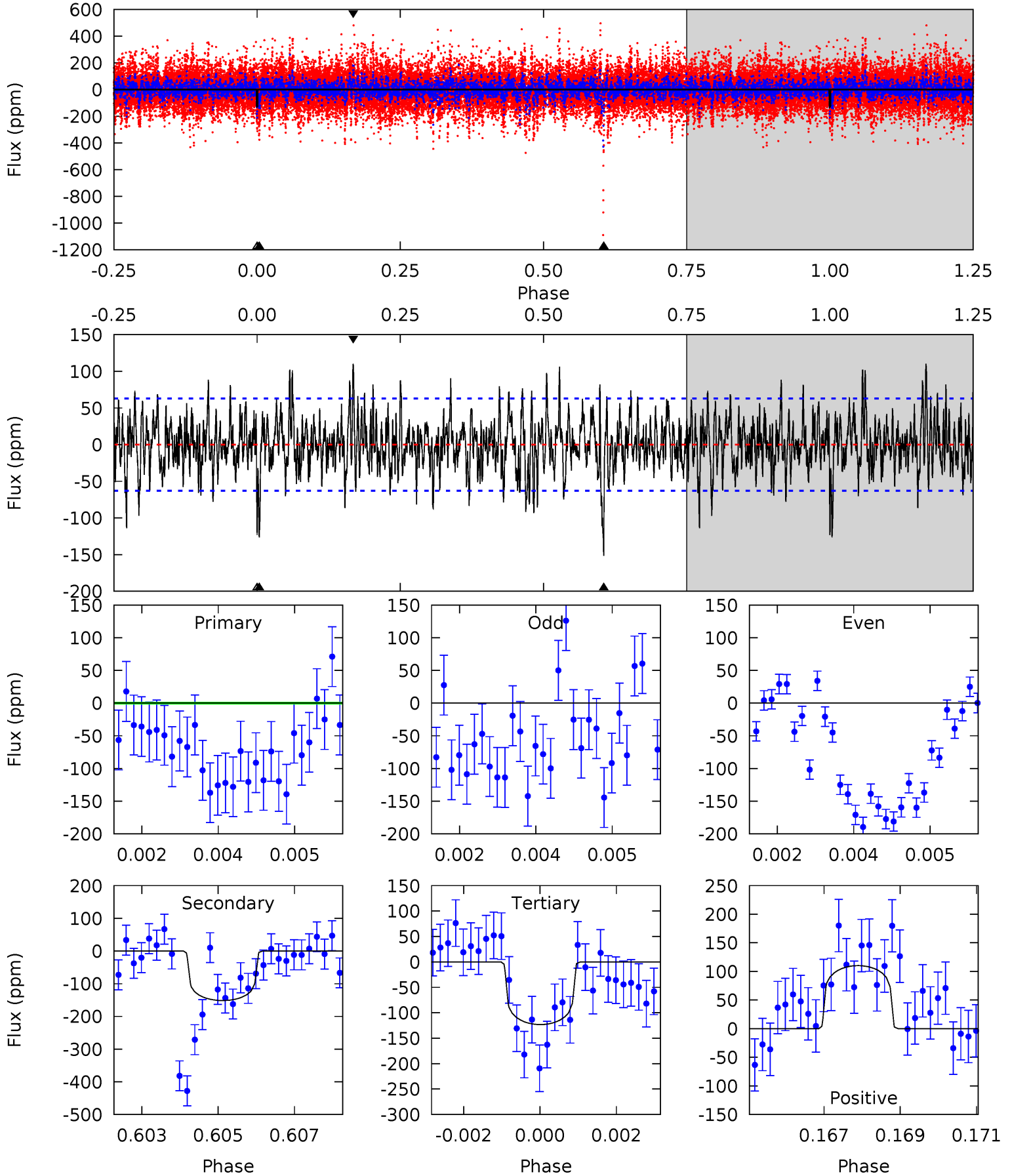




# DV Model-Shift Uniqueness Test

010191036-06, P = 216.943053 Days, E = 2.412940 Days

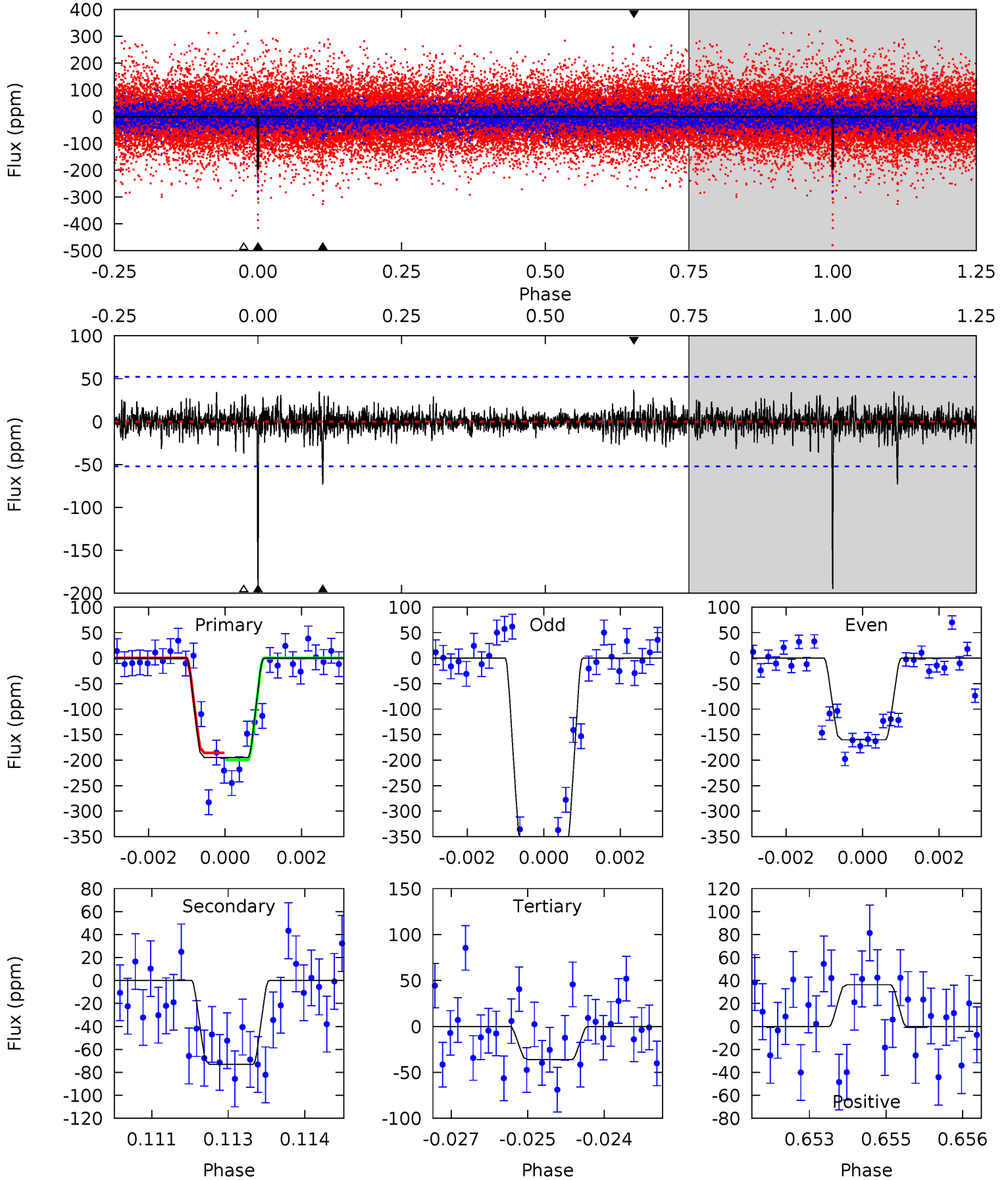
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.7 | 12.9 | 10.5 | 9.36 | 5.35            | 3.12            | 2.62             | 0.27    | 1.38    | 2.41    | 3.52    | 0.40    | 0.62 | 0.42  | 0.20 |



# Alt Model-Shift Uniqueness Test

010191036-06, P = 216.956729 Days, E = 2.335559 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.0 | 7.50 | 3.71 | 3.72 | 5.36            | 3.14            | 0.86             | 16.3    | 16.3    | 3.79    | 3.77    | 10.8    | 1.12 | 0.16  | 0.70 |



### Stellar Parameters For KIC 010191036

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6238^{+156}_{-188}$ | $4.407^{+0.077}_{-0.154}$ | $-0.220^{+0.250}_{-0.350}$ | $1.049^{+0.244}_{-0.122}$ | $1.022^{+0.134}_{-0.120}$ | $1.246^{+0.426}_{-0.527}$                 |
|        | +3%/-3%              | +2%/-3%                   | +114%/-159%                | +23%/-12%                 | +13%/-12%                 | +34%/-42%                                 |
| Source | PHO1                 | FLK73                     | 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 010191036-06 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$  | $A_{\text{obs}}$         |
|---------|---------------|------------------------|----------------------|-----------------------|--------------------------|
| DV      | $-152 \pm 12$ | $1.42^{+0.47}_{-0.46}$ | $471^{+27}_{-21}$    | $6270^{+1441}_{-796}$ | $20580^{+23947}_{-8820}$ |
| Alt.    | $-73 \pm 10$  | $1.78^{+0.53}_{-0.42}$ | $470^{+32}_{-22}$    | $4794^{+573}_{-444}$  | $6262^{+4641}_{-2552}$   |

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

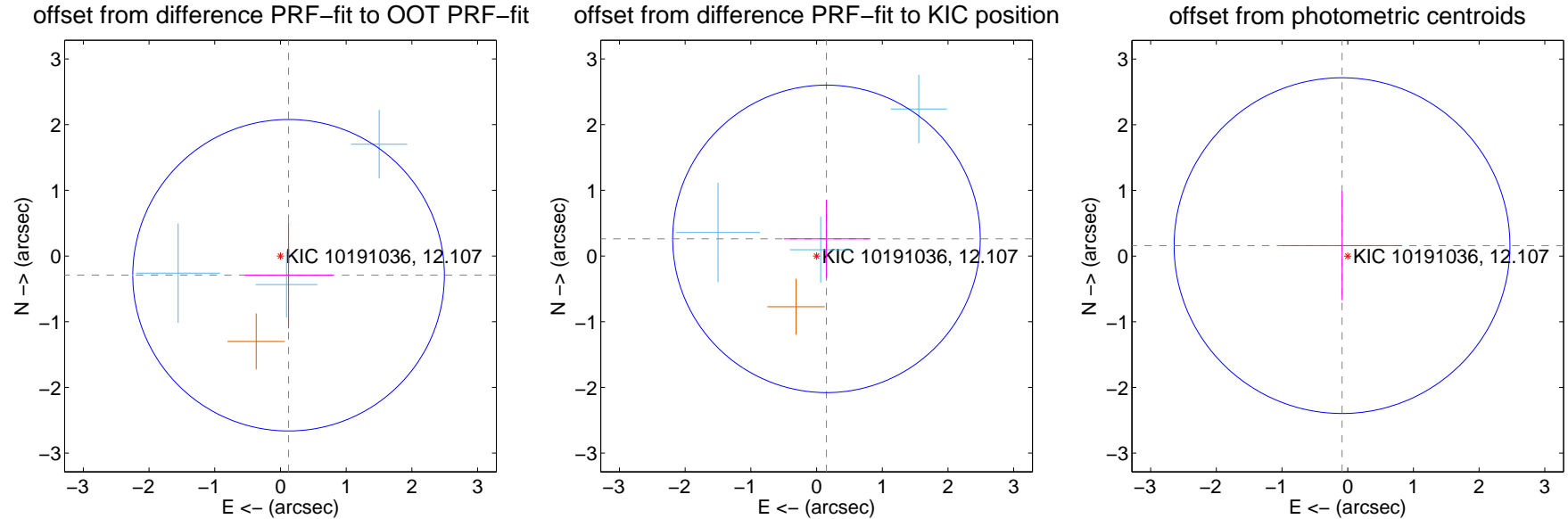
## DV Centroid Data

Supplemental centroid analysis for 010191036-06. Kepler magnitude: 12.11. Transit SNR 6.77

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.62 arcsec

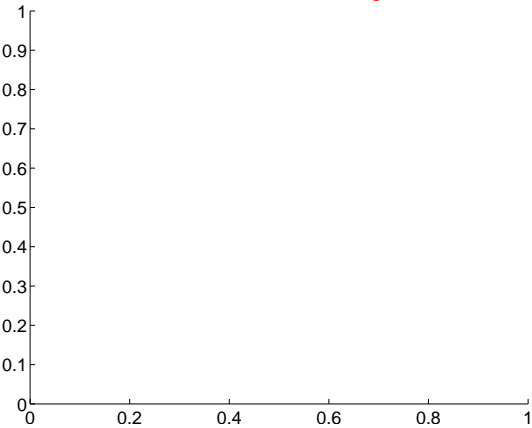
|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.317 \pm 0.790$  | 0.40                | $-0.124 \pm 0.674$ | $-0.292 \pm 0.810$ |
| PRF-fit source offset from KIC position | $0.302 \pm 0.780$  | 0.39                | $-0.151 \pm 0.651$ | $0.261 \pm 0.593$  |
| photometric centroid source offset      | $0.18 \pm 0.85$    | 0.21                | $0.09 \pm 0.92$    | $0.16 \pm 0.83$    |



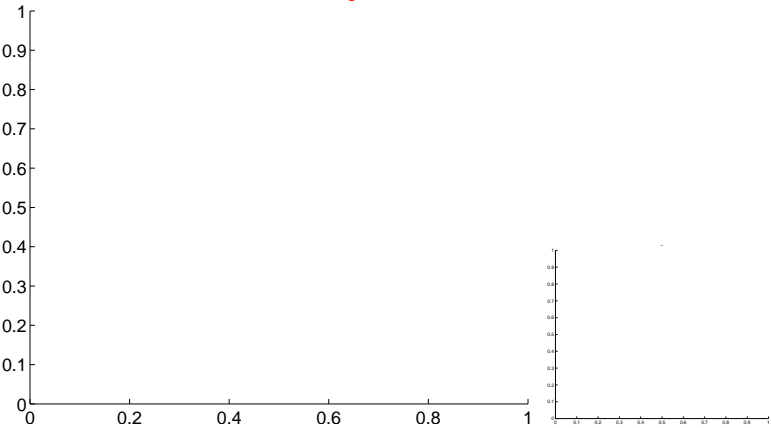
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

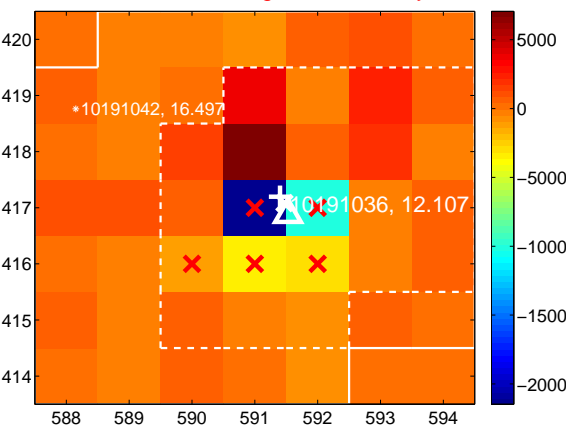
Q1 no difference image



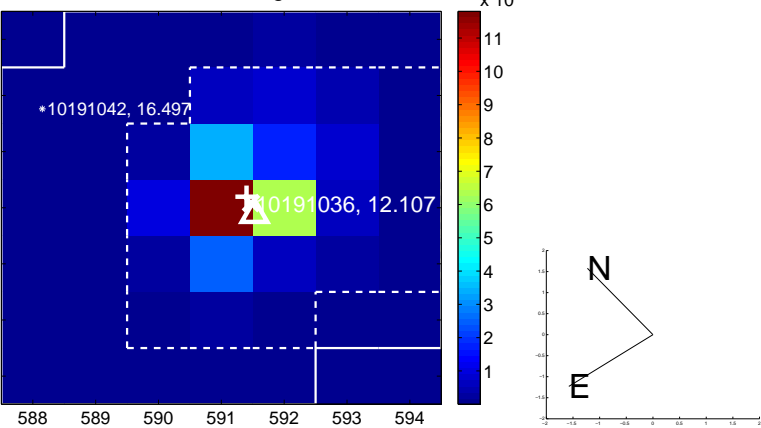
Q1 no OOT image



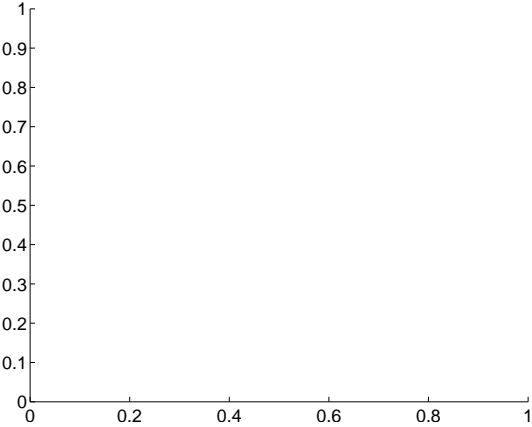
Q2 difference image. Poor Quality



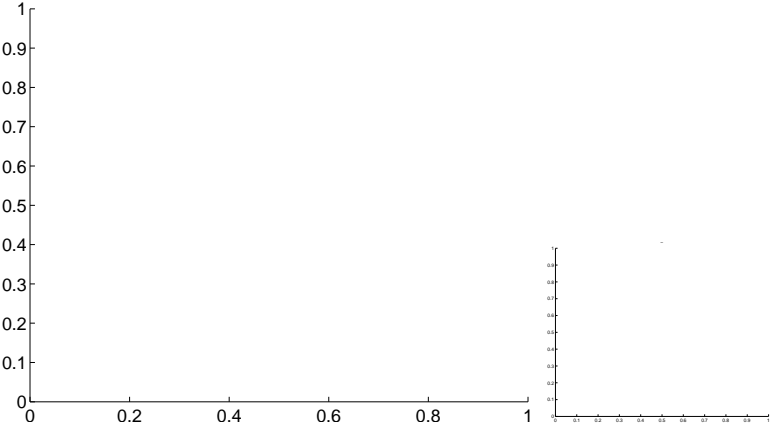
Q2 OOT image



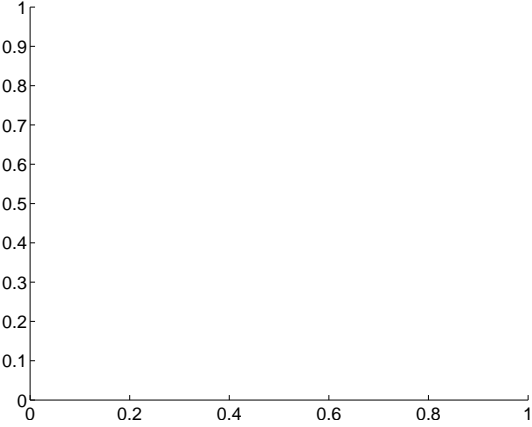
Q3 no difference image



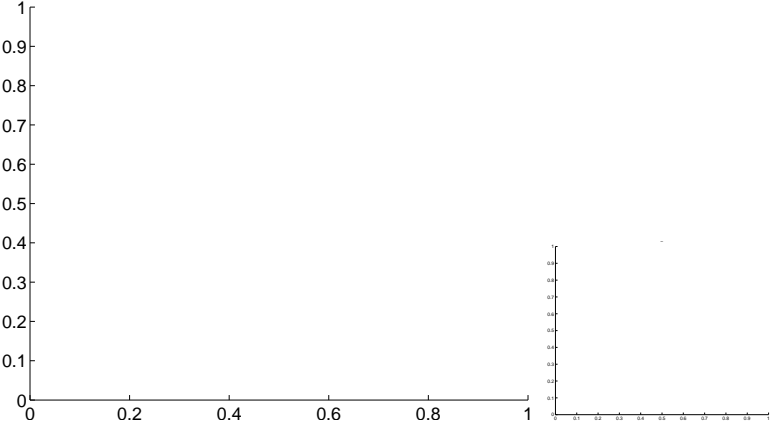
Q3 no OOT image



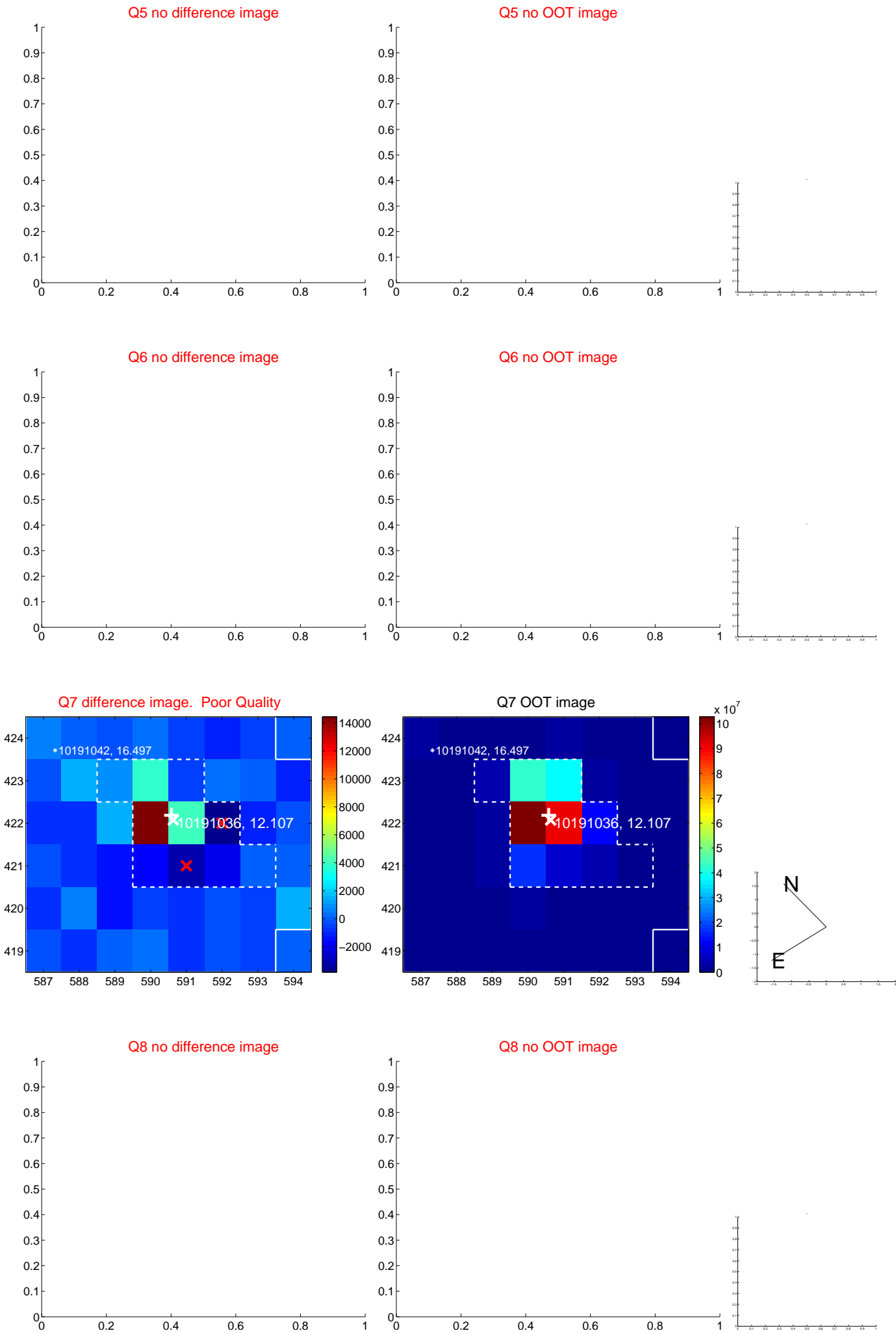
Q4 no difference image



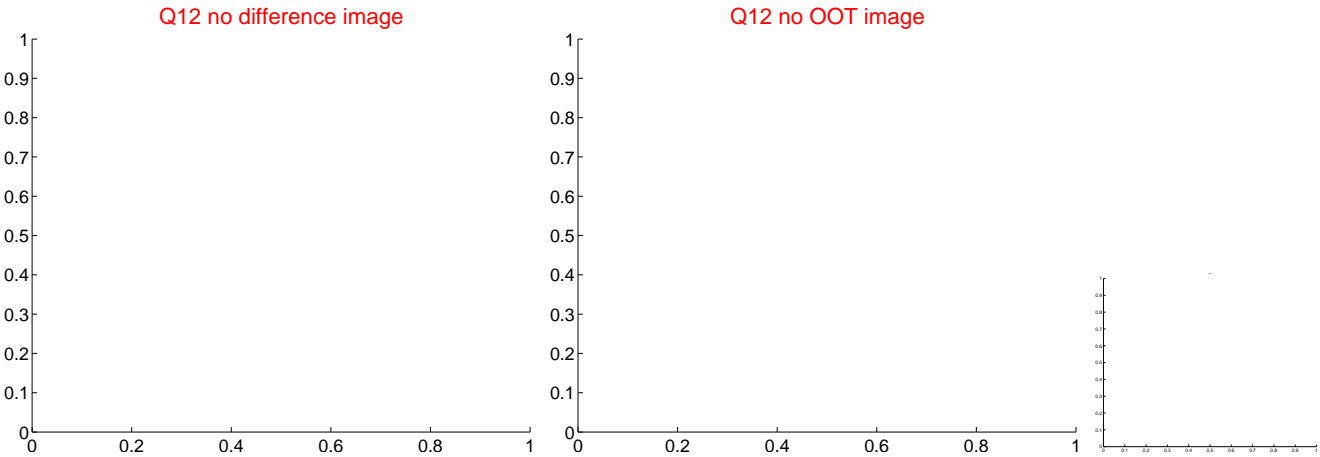
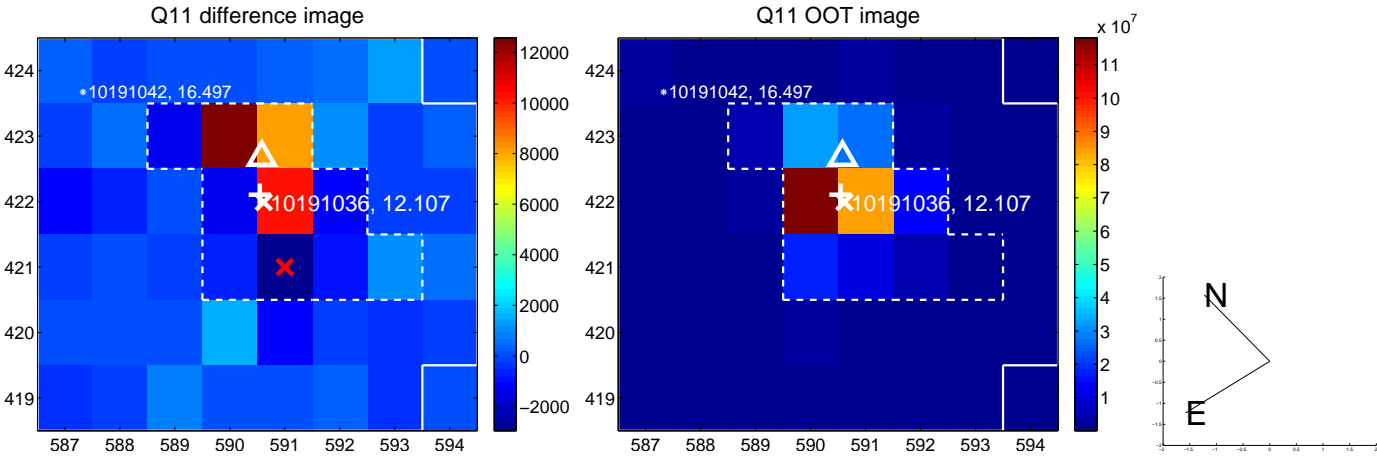
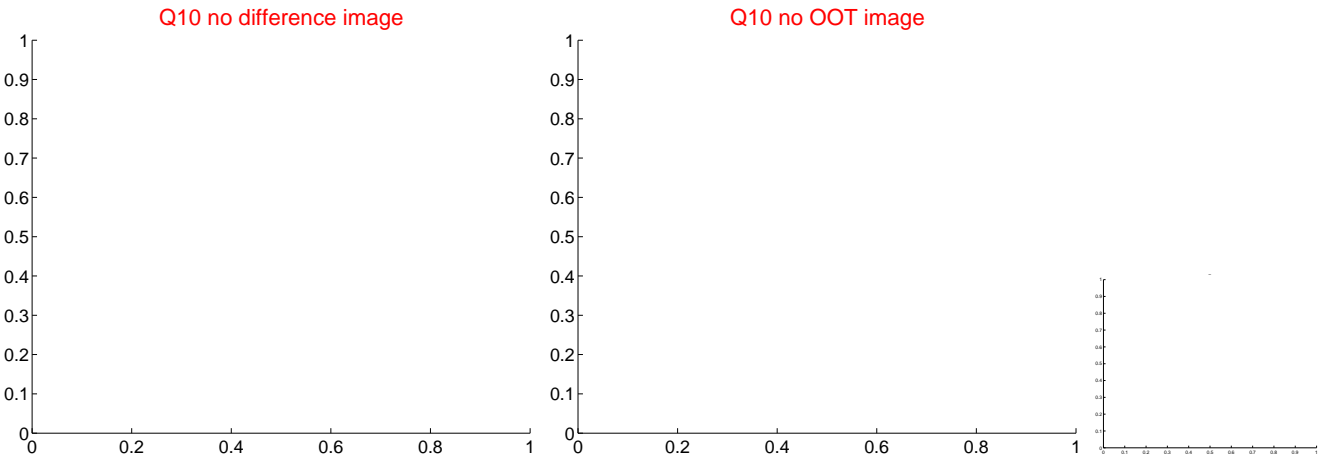
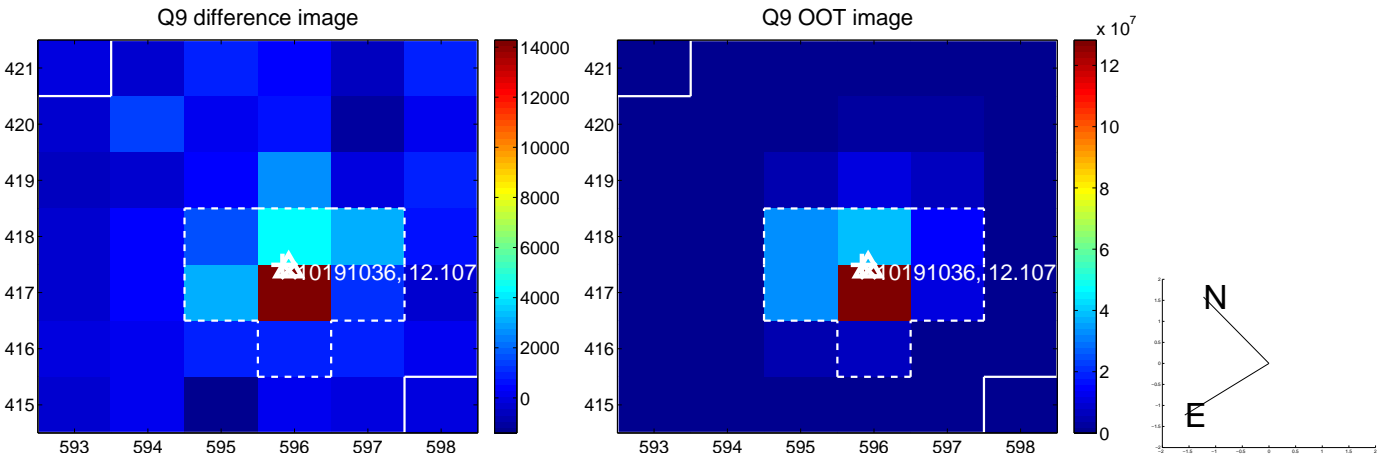
Q4 no OOT image



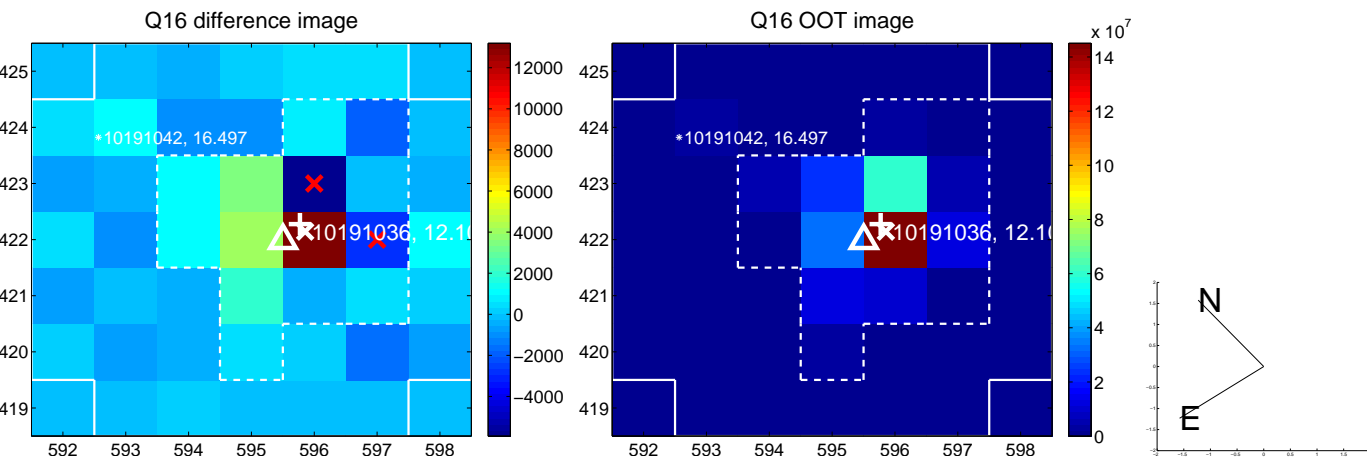
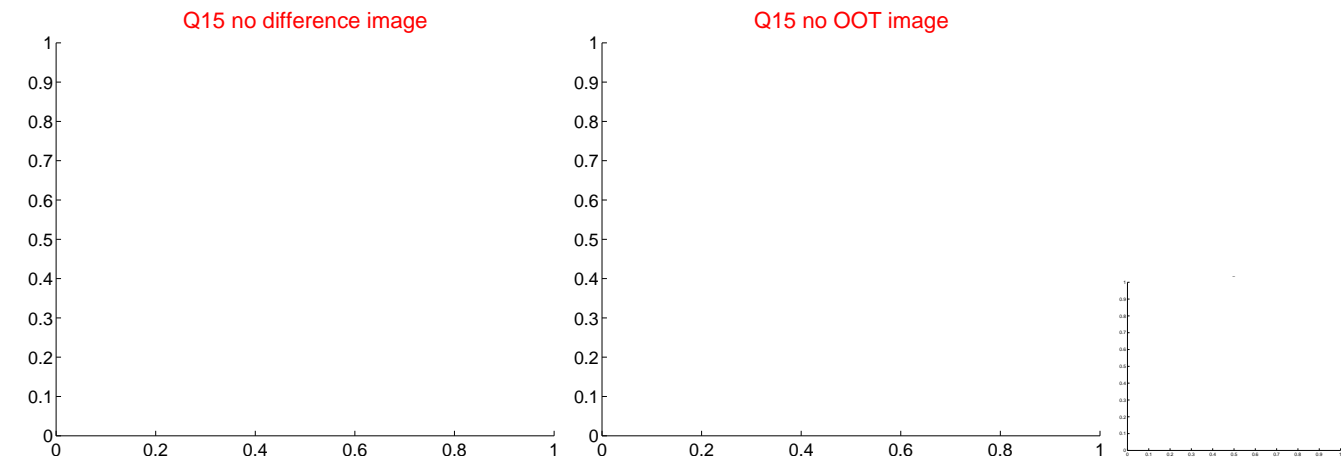
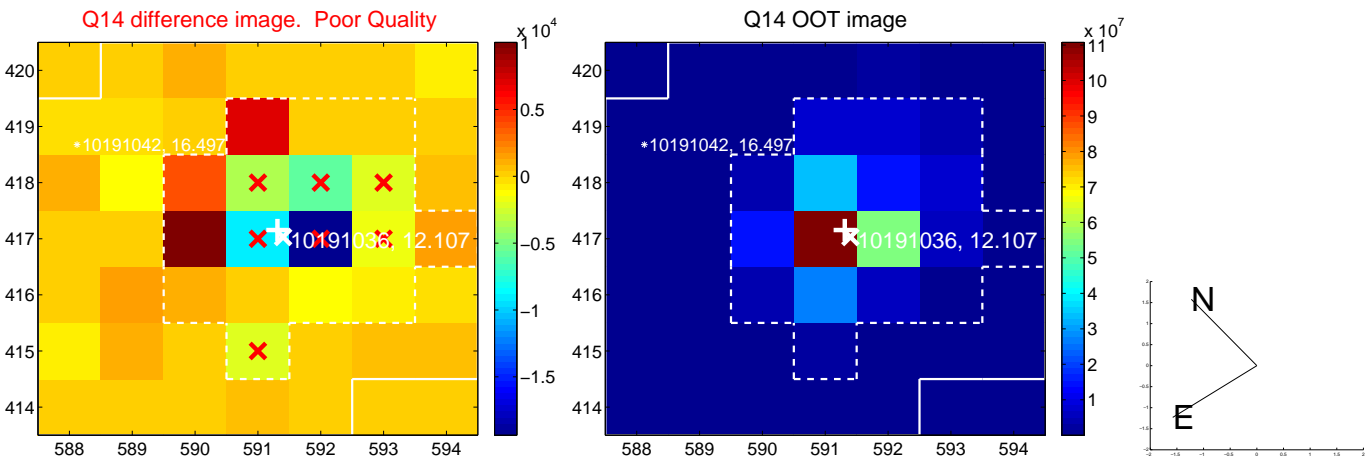
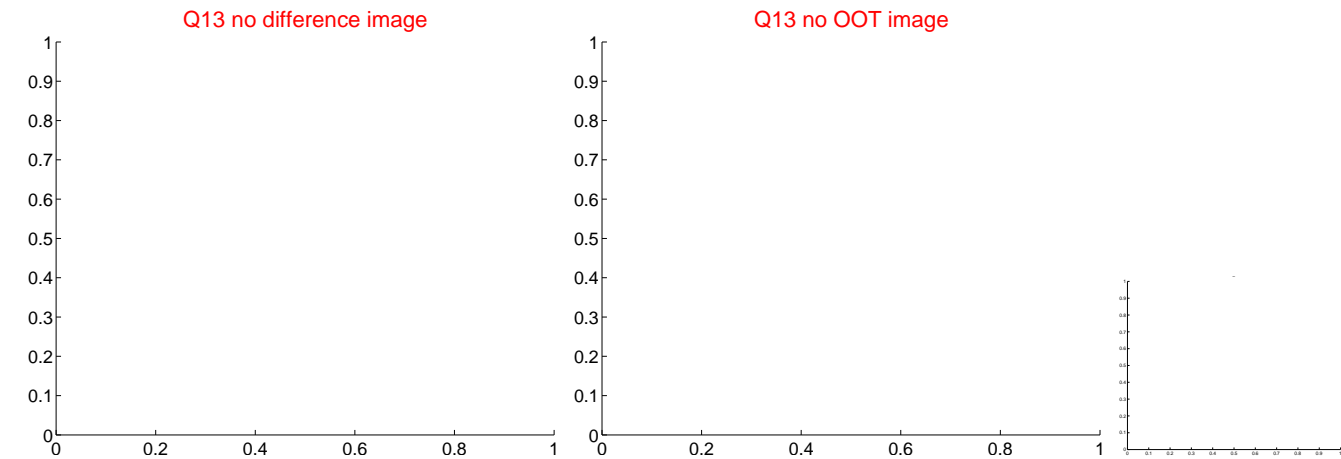
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

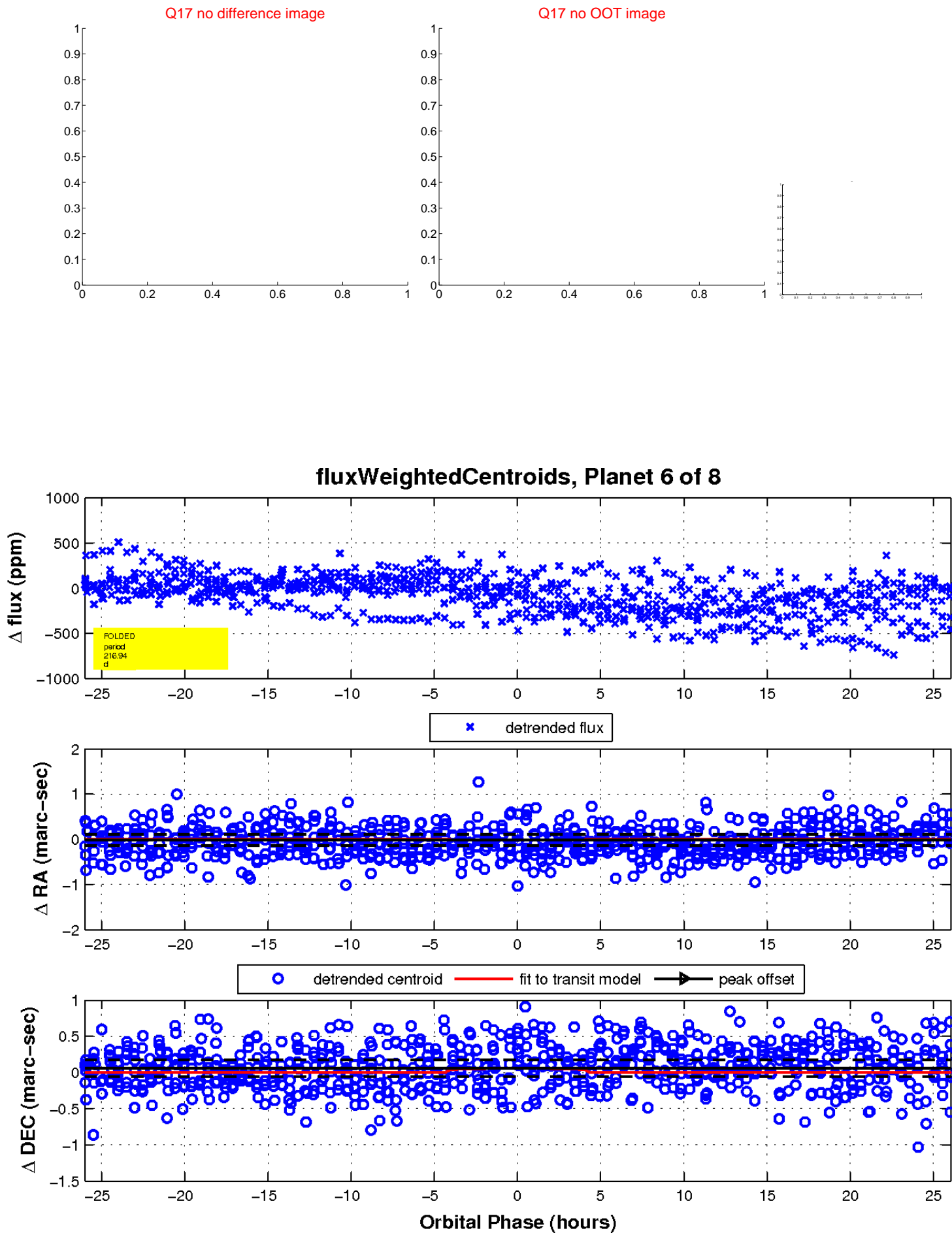


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

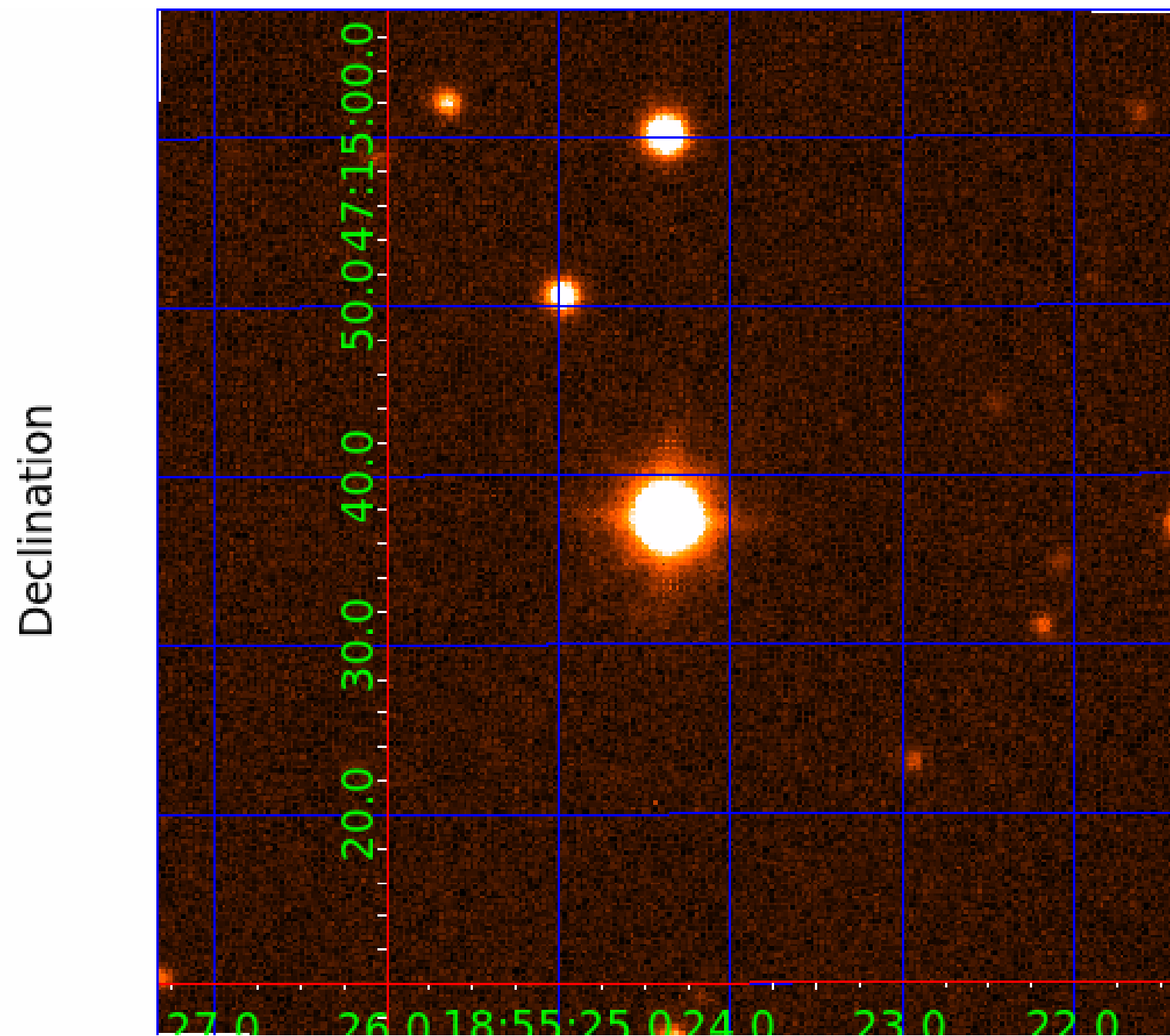




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 010191036

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010191036-01 | OBS      | 3218.01 | 1.213688      | 131.774952   | 22.8        | 3.928            | 16.3 | 16.4 | 1.05                        | 6238            | 0.59                   | 2961.08                |
| 010191036-02 | OBS      | No      | 266.260750    | 386.672484   | 82.8        | 2.897            | 13.8 | 2.9  | 1.05                        | 6238            | 1.08                   | 2.24                   |
| 010191036-03 | OBS      | No      | 189.085046    | 216.332625   | 17.0        | 6.402            | 13.7 | 0.9  | 1.05                        | 6238            | 0.51                   | 3.53                   |
| 010191036-04 | OBS      | No      | 329.559517    | 454.481811   | 106.3       | 0.677            | 13.4 | 2.0  | 1.05                        | 6238            | 1.30                   | 1.68                   |
| 010191036-06 | OBS      | No      | 216.943053    | 219.355992   | 139.1       | 8.693            | 11.8 | 6.8  | 1.05                        | 6238            | 1.38                   | 2.94                   |
| 010191036-07 | OBS      | No      | 235.618253    | 354.206000   | 129.3       | 7.962            | 7.7  | 6.6  | 1.05                        | 6238            | 1.35                   | 2.63                   |
| 010191036-08 | OBS      | No      | 240.159512    | 265.954871   | 129.4       | 15.721           | 7.5  | 5.0  | 1.05                        | 6238            | 1.31                   | 2.57                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 010191036-01 | OBS      | FP   | 0.00  | 0 | 0 | 1 | 1 | CENT_KIC_POS—HALO_GHOST—EPHEM_MATCH   |
| 010191036-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS—CENT_UNCERTAIN                                |
| 010191036-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS  |
| 010191036-04 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |
| 010191036-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_KIC_POS   |
| 010191036-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS  |
| 010191036-08 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—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.

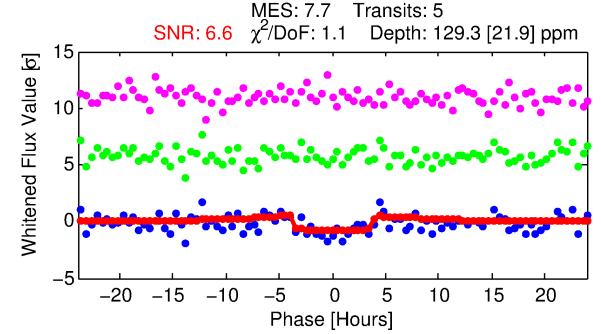
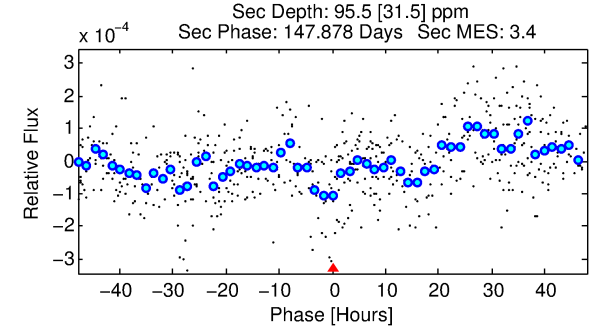
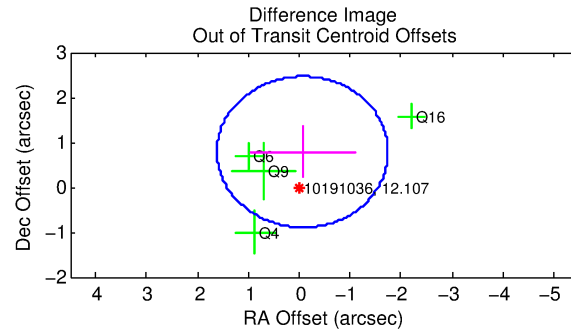
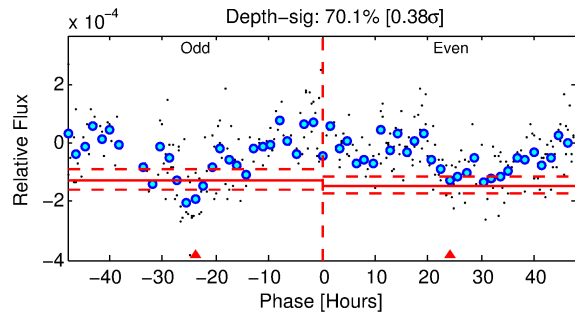
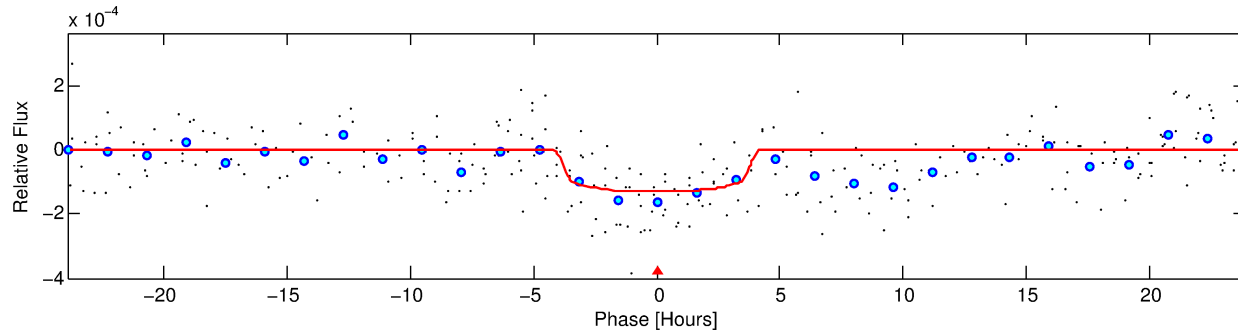
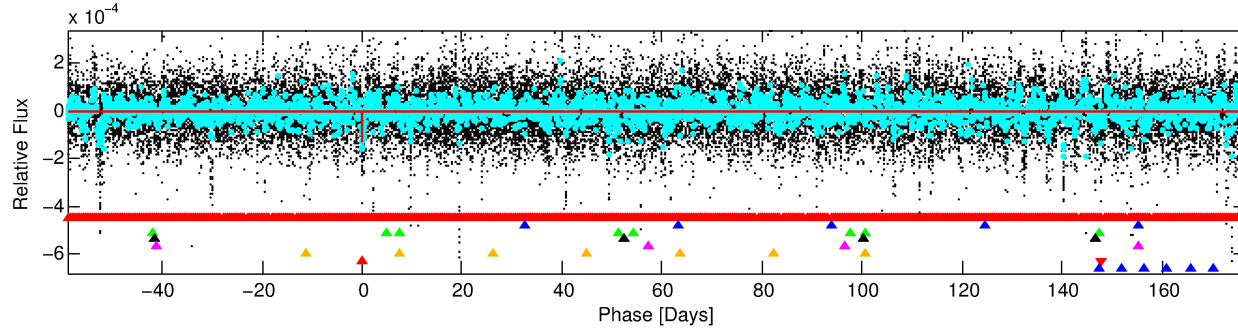
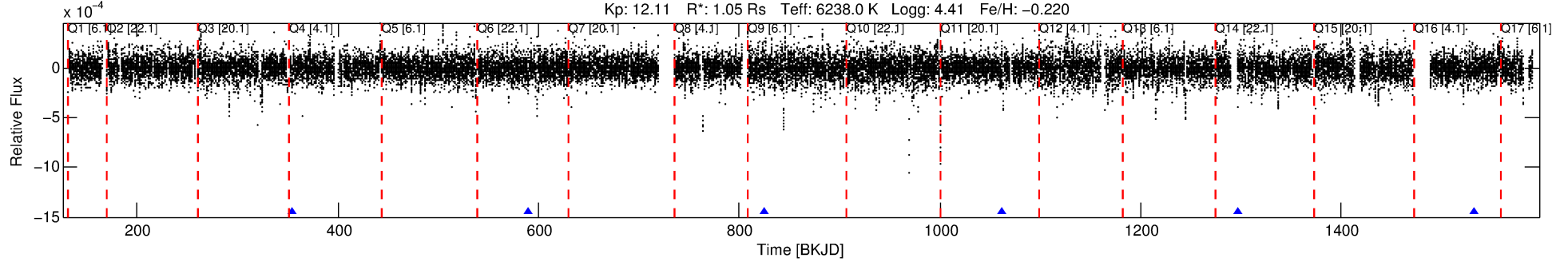
Ephemeris Match Information For 010191036-07

No Significant Match Found

# DV One-Page Summary

KIC: 10191036 Candidate: 7 of 8 Period: 235.618 d  
KOI: K03218 Corr: No Ephemeris Match

Kp: 12.11 R\*: 1.05 Rs Teff: 6238.0 K Logg: 4.41 Fe/H: -0.220



## DV Fit Results:

Period = 235.61825 [0.00834] d  
Epoch = 354.2060 [0.0171] BKJD  
Rp/R\* = 0.0118 [0.0042]  
a/R\* = 124.53 [226.81]  
b = 0.85 [0.60]  
Seff = 2.63 [0.81]  
Teq = 325 [25] K  
Rp = 1.35 [0.57] Re  
a = 0.7528 [0.1468] AU  
Ag = 16327.29 [13629.04] [1.20σ]  
Teffp = 5677 [1128] K [4.74σ]

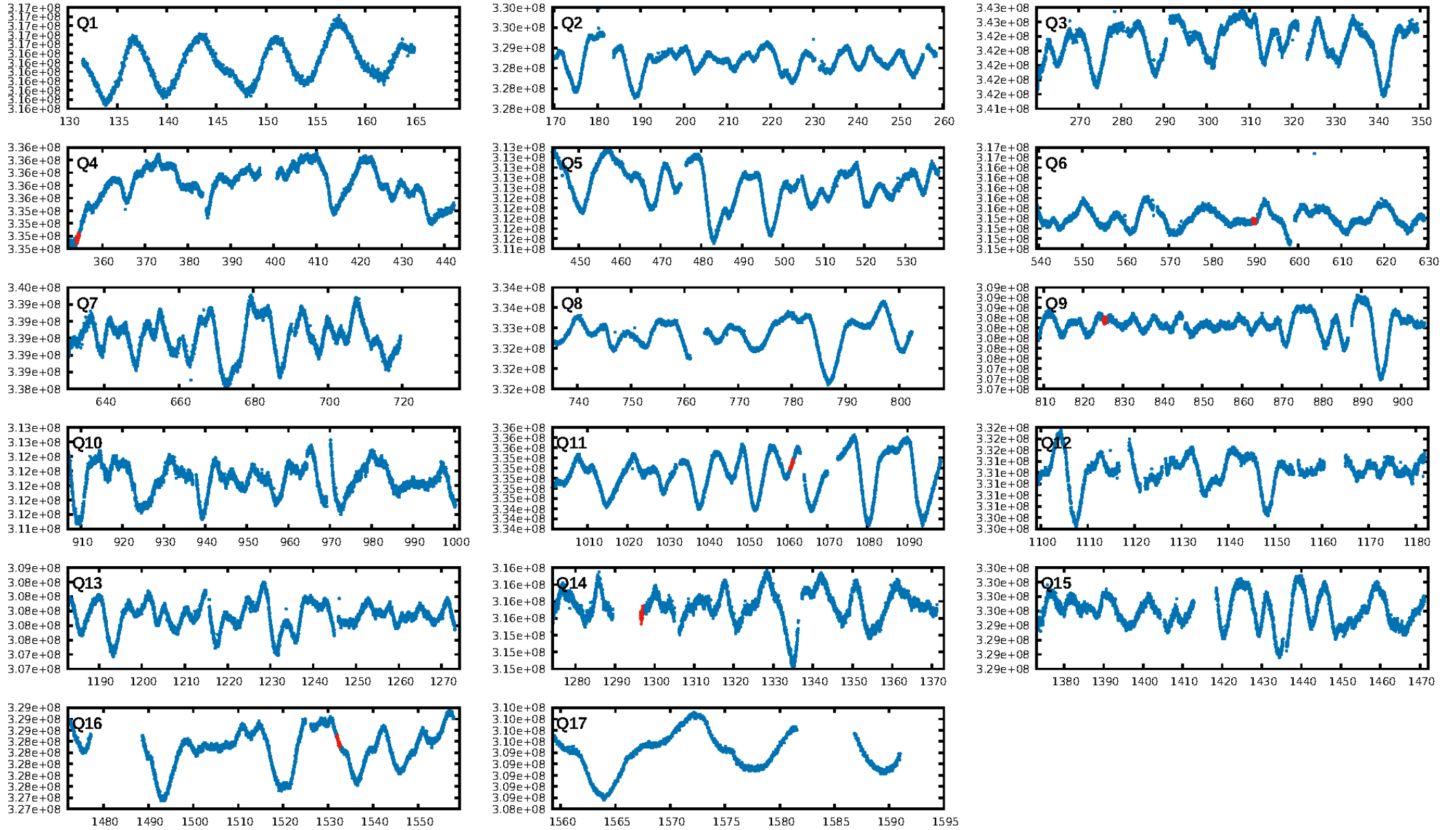
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [38.02σ]  
LongPeriod-sig: 100.0% [6.18σ]  
ModelChiSquare2-sig: 7.3%  
ModelChiSquareGof-sig: 99.7%  
**Bootstrap-pfa: 3.21e-06**  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -0.6039  
Centroid-sig: 0.8%  
Centroid-so: 2.147 arcsec [2.18σ]  
OotOffset-rm: 0.784 arcsec [1.40σ]  
OotOffset-st: 1/0/2/1 [4]  
KicOffset-rm: 1.382 arcsec [2.36σ]  
KicOffset-st: 1/0/2/1 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 0.00 [0/5]

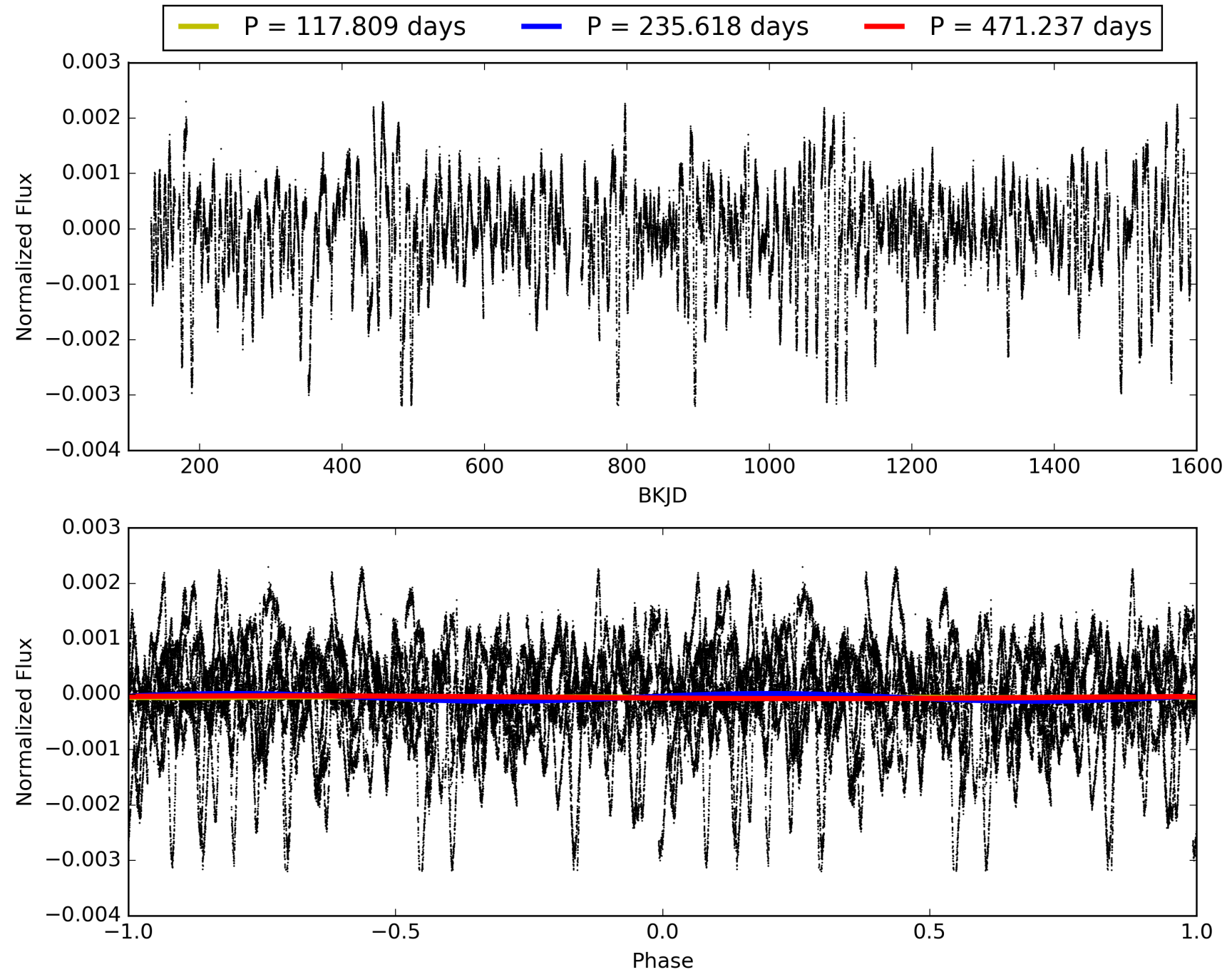
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:53:51 Z

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

# TCE 010191036-07, PDC Light Curves

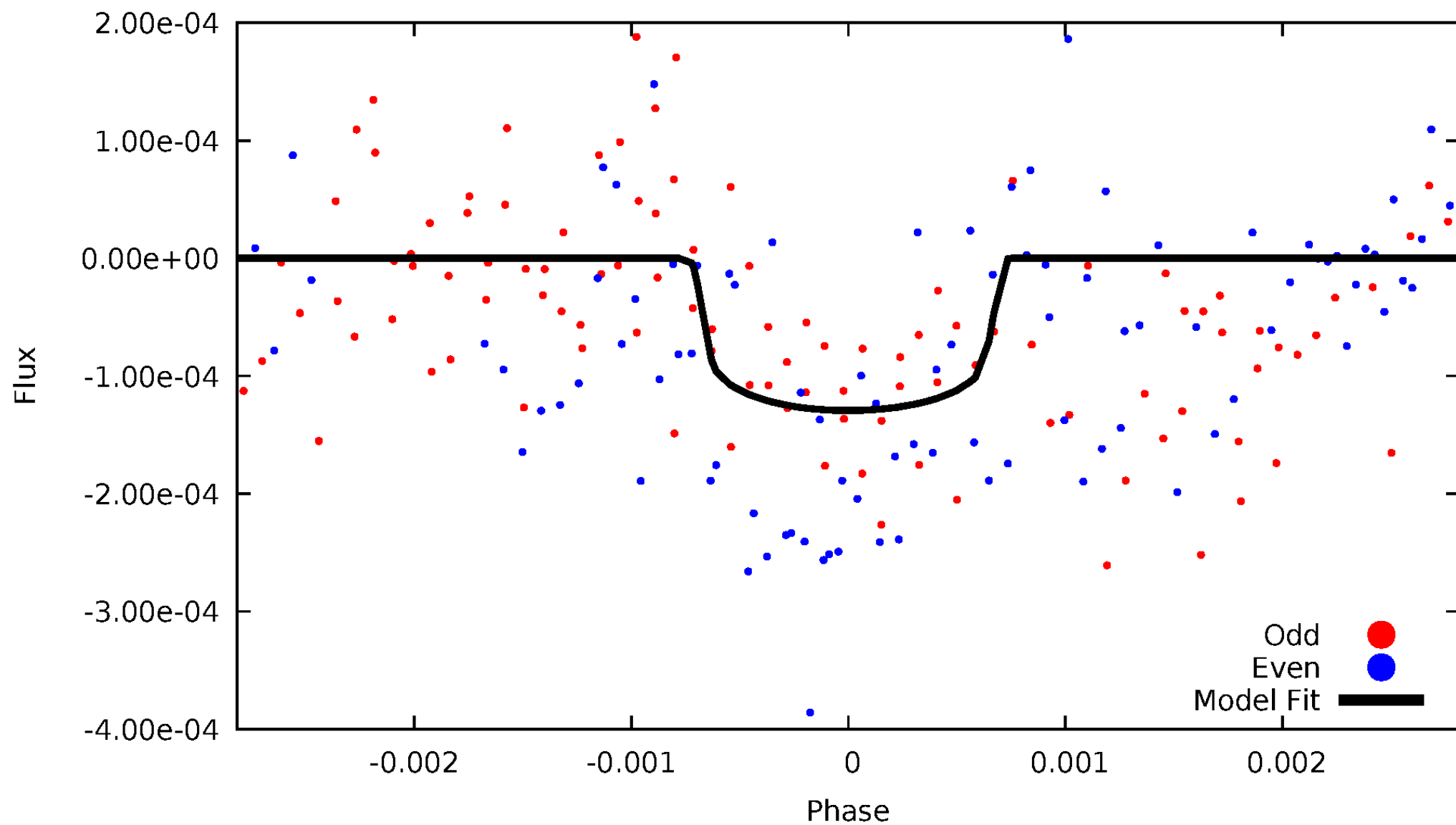


# TCE 010191036-07



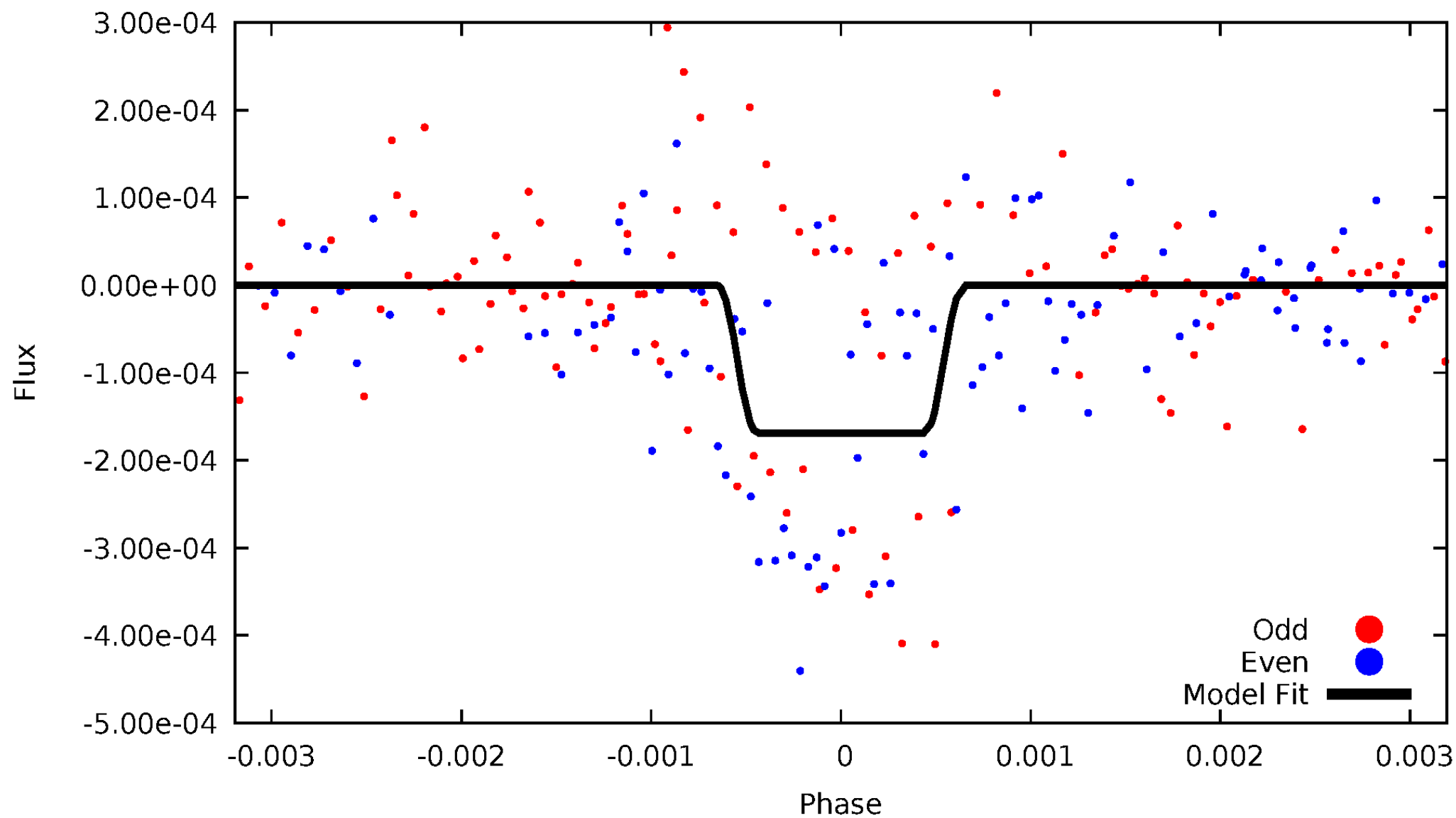
# DV Odd/Even

TCE 010191036-07



# ALT Odd/Even

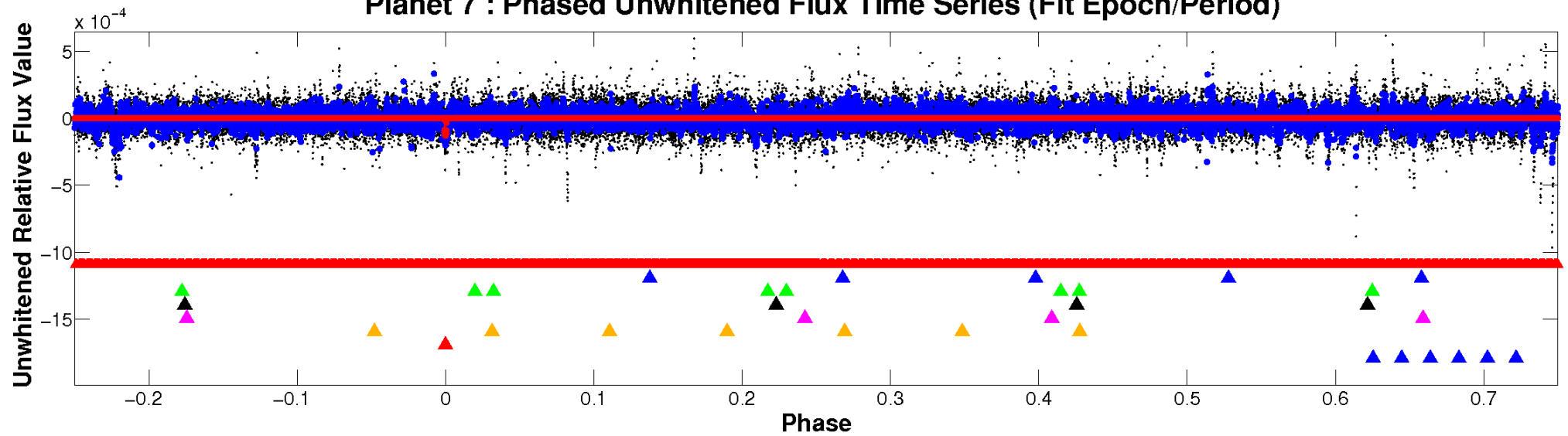
TCE 010191036-07



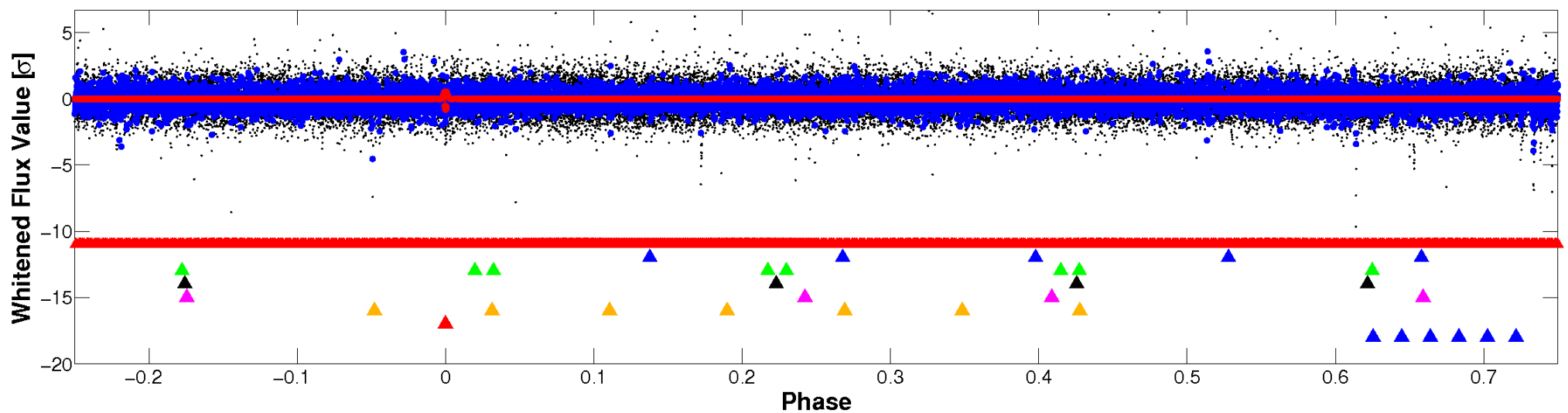


# Non-Whitened Vs. Whitened Light Curve

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

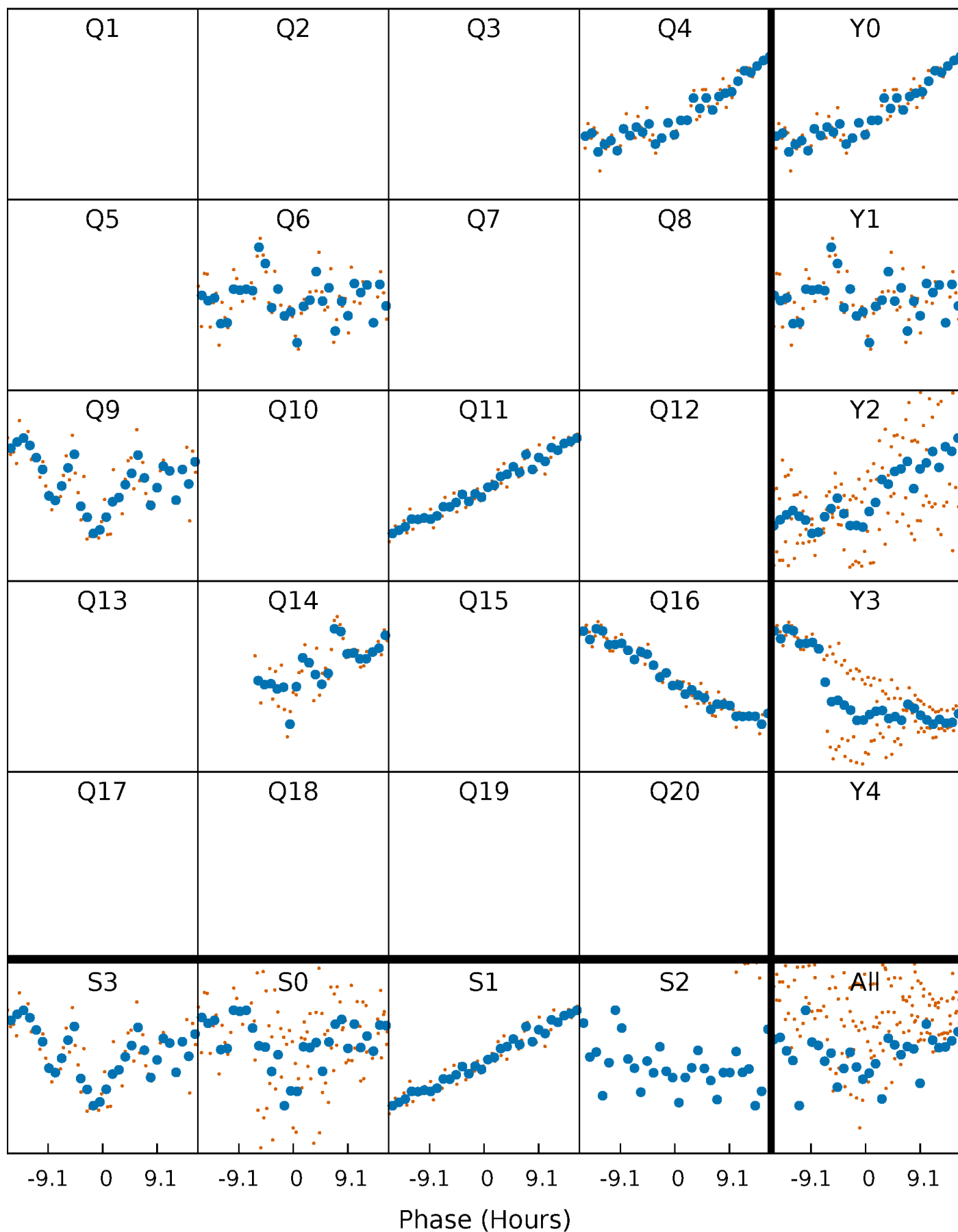


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



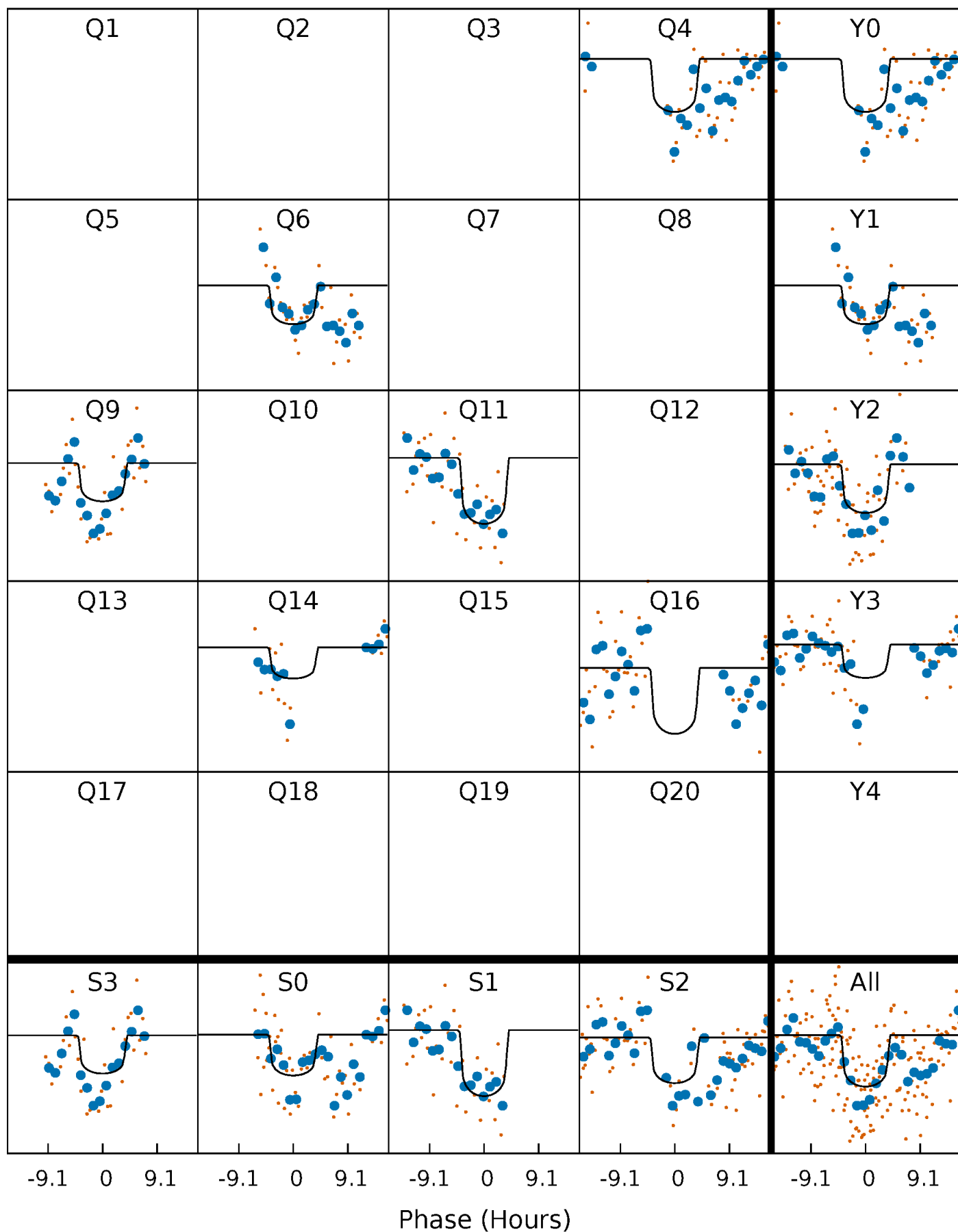
# PDC Quarter-Phased Transit Curves

TCE 010191036-07     $P=235.618254$  Days     $T_0=354.206000$  (BKJD)



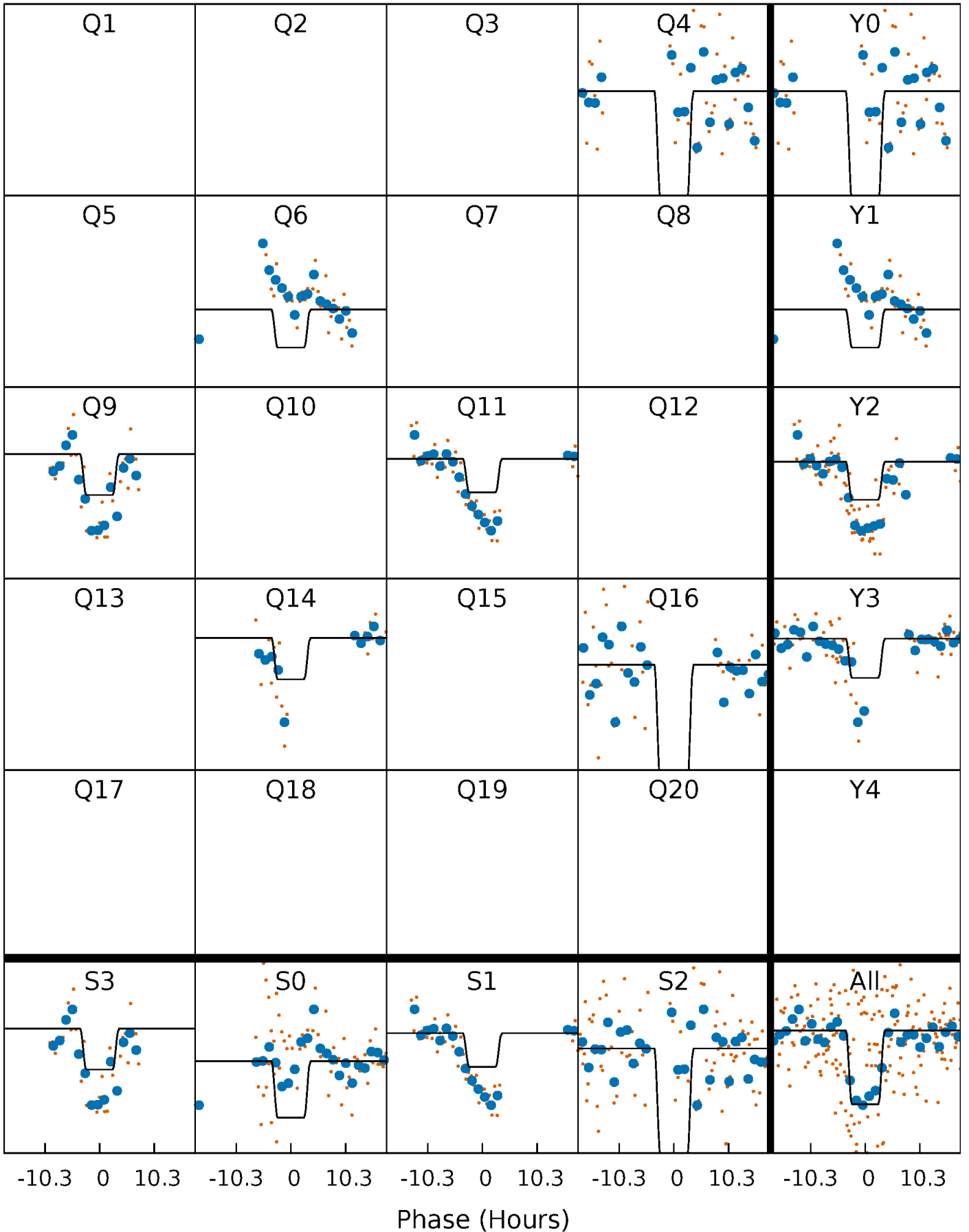
# DV Quarter-Phased Transit Curves

TCE 010191036-07 P=235.618254 Days  $T_0=354.206000$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

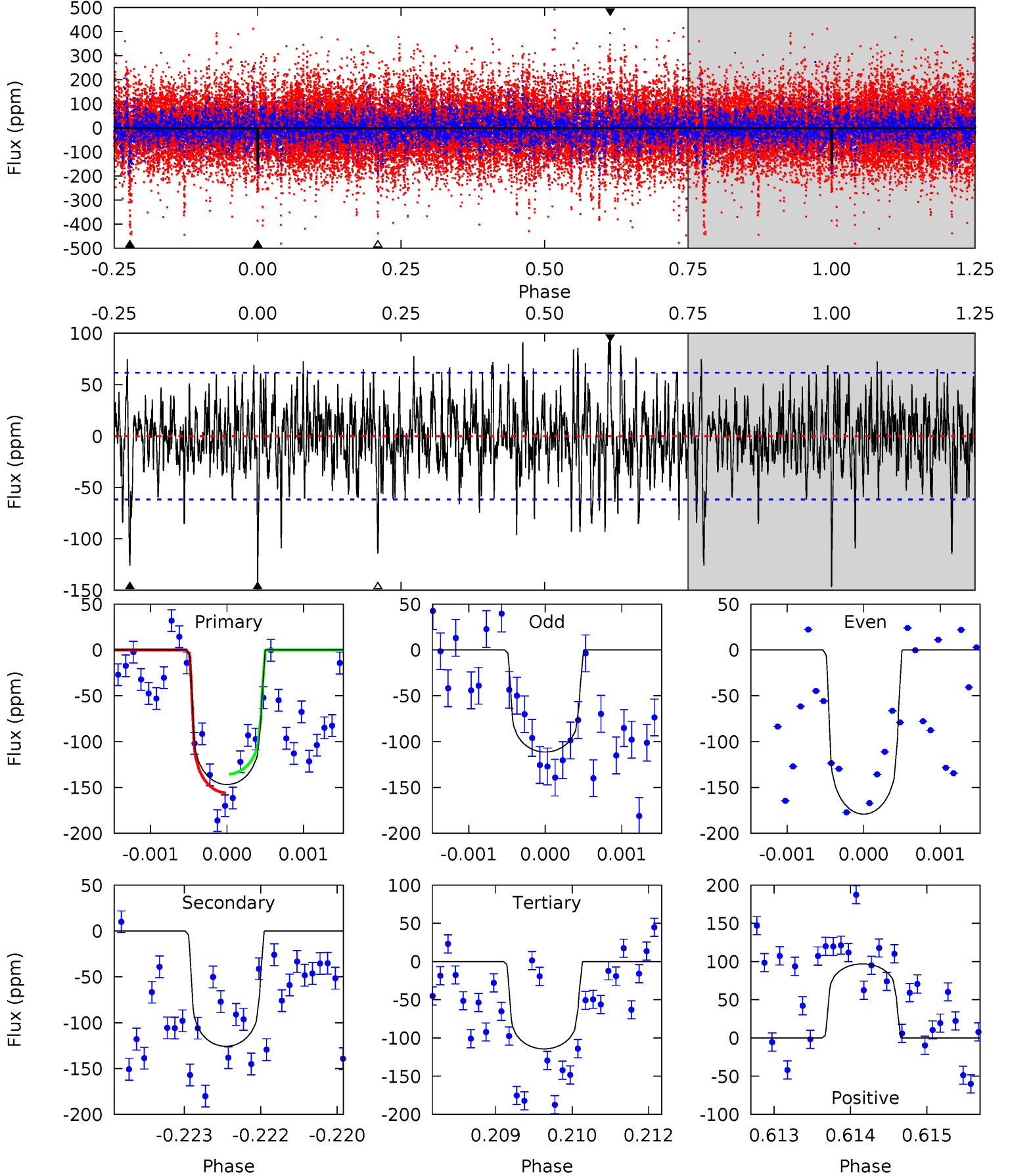
TCE 010191036-07     $P=235.626192$  Days     $T_0=354.183237$  (BKJD)



# DV Model-Shift Uniqueness Test

010191036-07, P = 235.618254 Days, E = 118.587746 Days

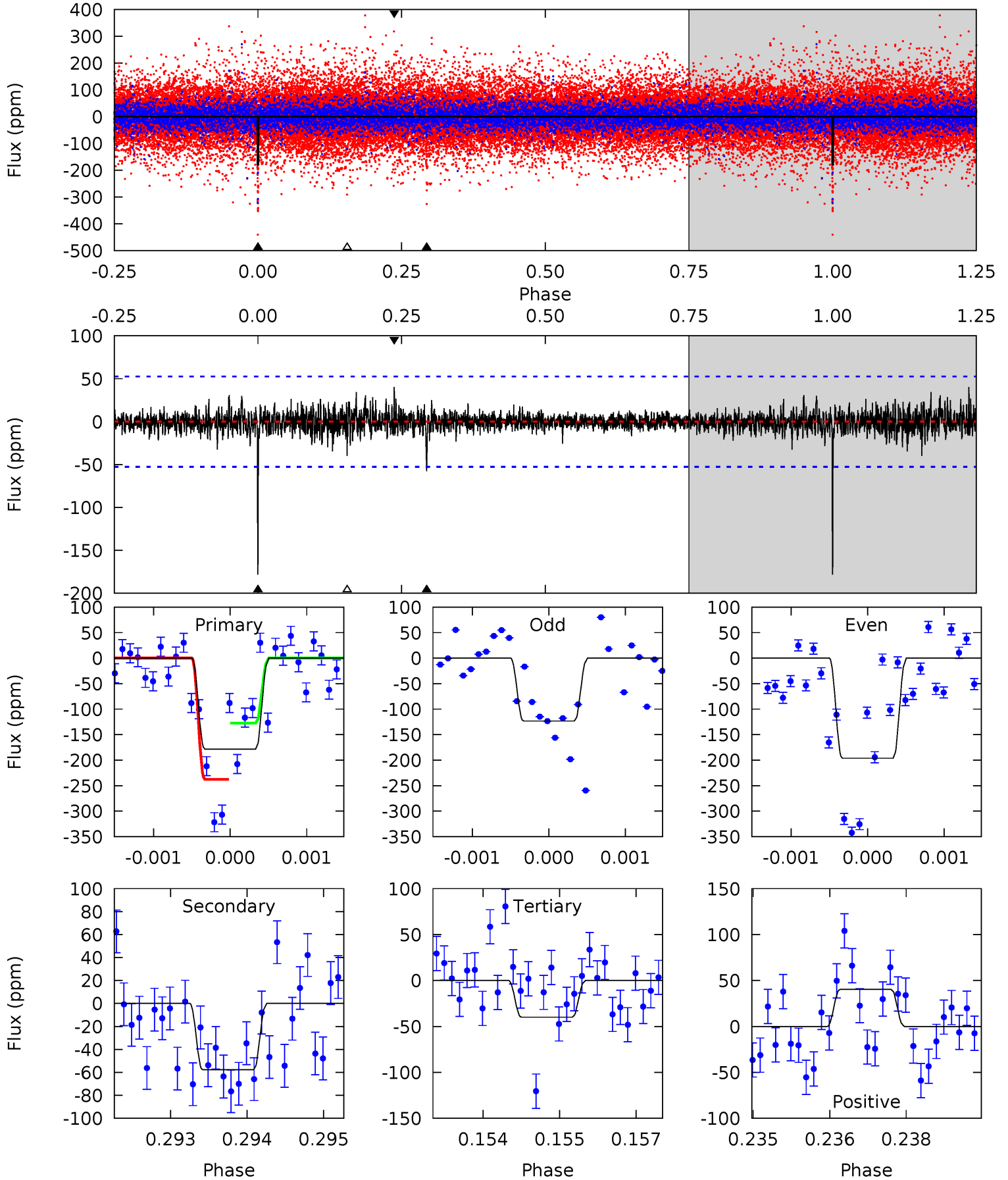
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.8 | 11.0 | 9.97 | 8.46 | 5.38            | 3.18            | 2.53             | 2.84    | 4.35    | 1.00    | 2.52    | 2.89    | 1.00 | 0.40  | 0.89 |



# Alt Model-Shift Uniqueness Test

010191036-07, P = 235.626192 Days, E = 118.557045 Days

| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 18.3 | 5.93 | 4.10 | 4.14 | 5.40            | 3.21            | 0.77             | 14.2    | 14.2    | 1.83    | 1.79    | 3.93    | 0.61 | 0.18  | 5.69 |



### Stellar Parameters For KIC 010191036

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6238^{+156}_{-188}$ | $4.407^{+0.077}_{-0.154}$ | $-0.220^{+0.250}_{-0.350}$ | $1.049^{+0.244}_{-0.122}$ | $1.022^{+0.134}_{-0.120}$ | $1.246^{+0.426}_{-0.527}$                 |
|        | +3%/-3%              | +2%/-3%                   | +114%/-159%                | +23%/-12%                 | +13%/-12%                 | +34%/-42%                                 |
| Source | PHO1                 | FLK73                     | 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 010191036-07 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$  | $A_{\text{obs}}$          |
|---------|---------------|------------------------|----------------------|-----------------------|---------------------------|
| DV      | $-126 \pm 11$ | $1.36^{+0.53}_{-0.53}$ | $457^{+27}_{-21}$    | $6116^{+1955}_{-845}$ | $21042^{+36427}_{-10039}$ |
| Alt.    | $-58 \pm 10$  | $1.55^{+0.52}_{-0.54}$ | $458^{+26}_{-21}$    | $4841^{+1002}_{-547}$ | $7413^{+9820}_{-3372}$    |

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

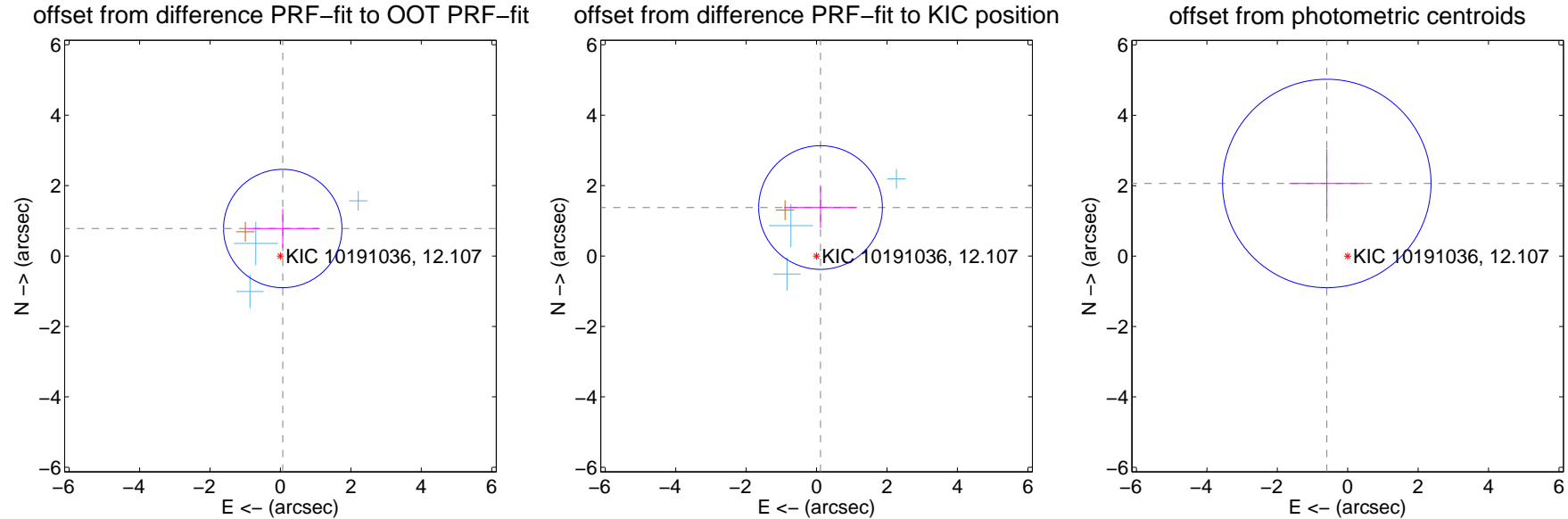
## DV Centroid Data

Supplemental centroid analysis for 010191036-07. Kepler magnitude: 12.11. Transit SNR 6.56

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.63 arcsec

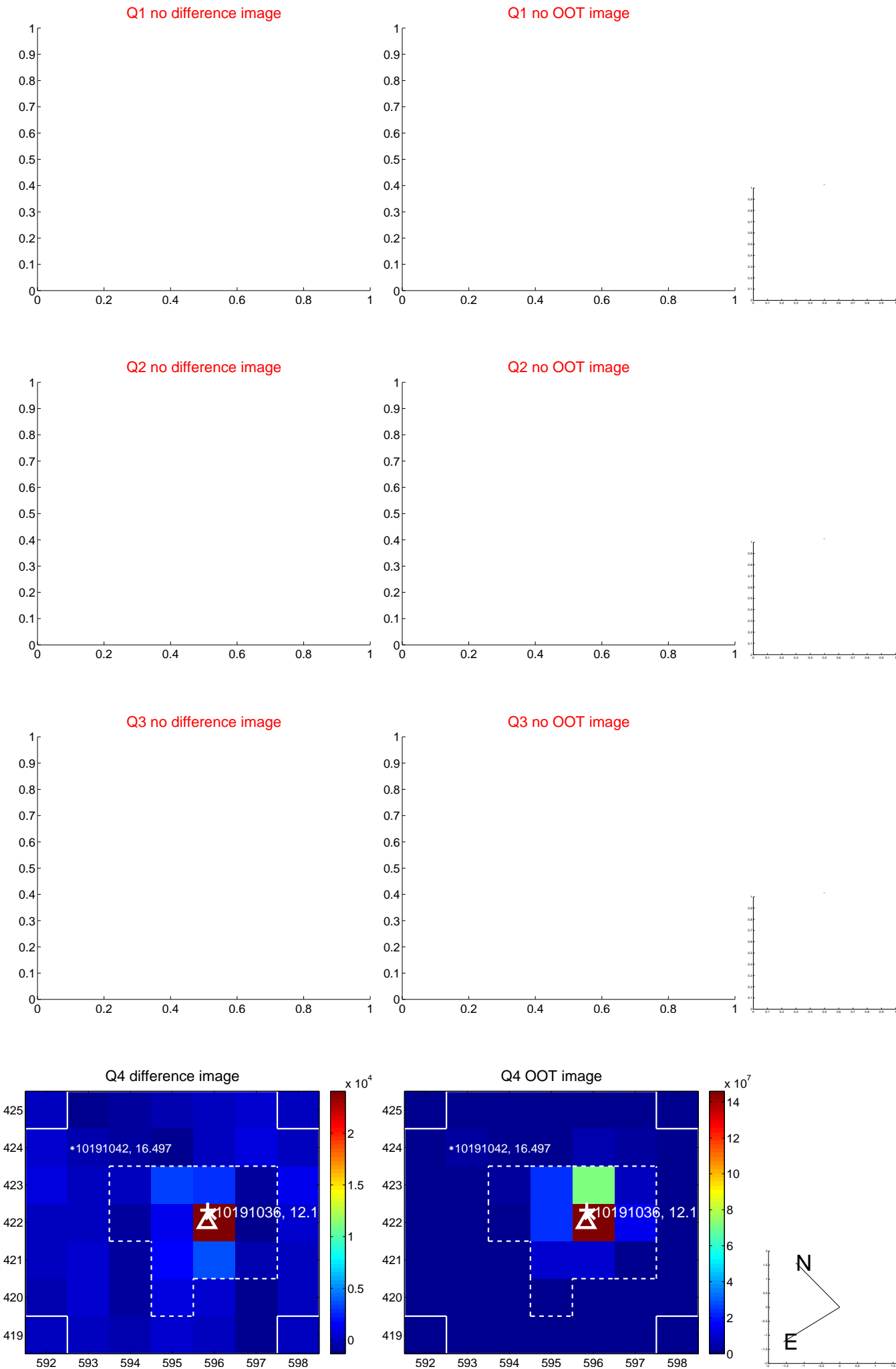
|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | $0.784 \pm 0.560$  | 1.40                | $-0.065 \pm 1.033$ | $0.782 \pm 0.556$ |
| PRF-fit source offset from KIC position | $1.382 \pm 0.585$  | 2.36                | $-0.112 \pm 1.034$ | $1.377 \pm 0.581$ |
| photometric centroid source offset      | $2.15 \pm 0.99$    | 2.18                | $0.59 \pm 1.07$    | $2.06 \pm 0.98$   |



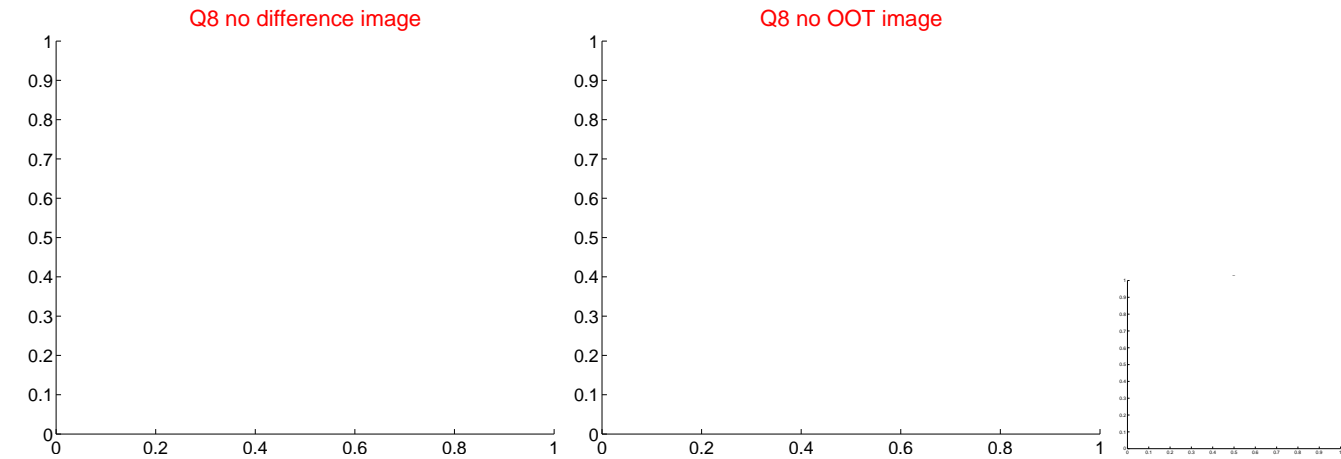
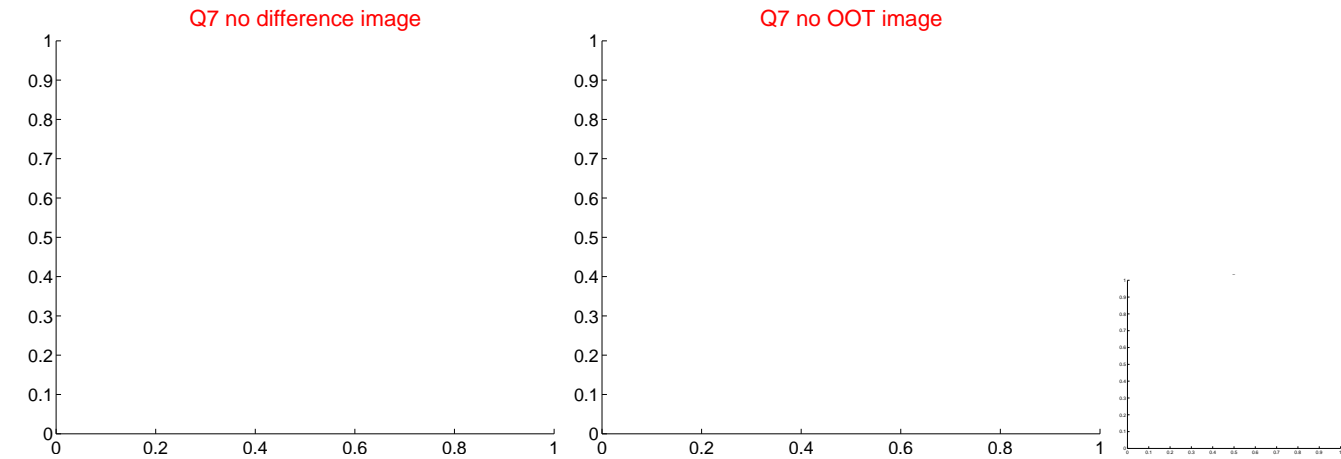
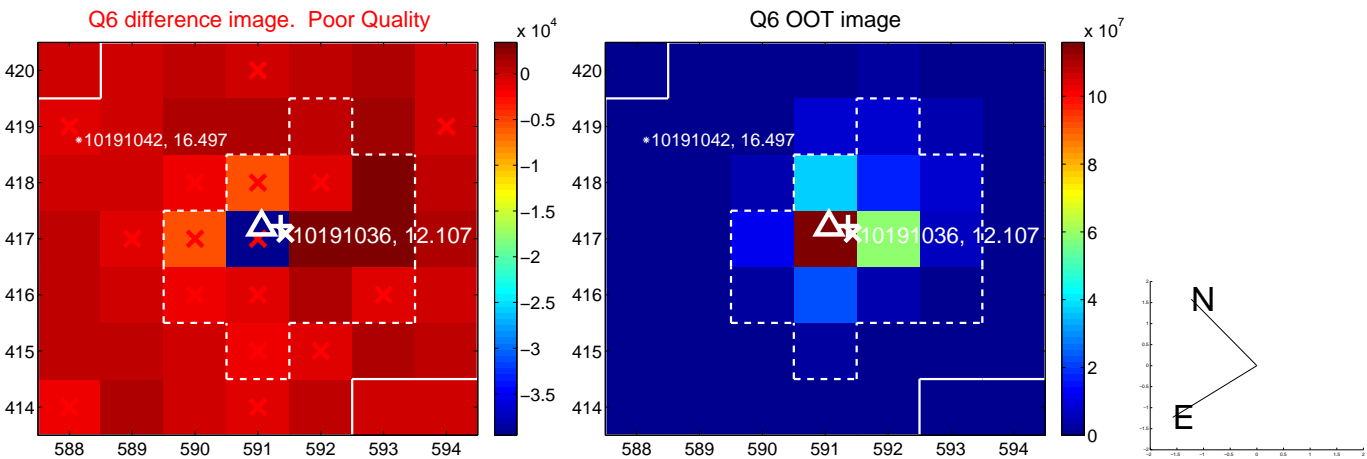
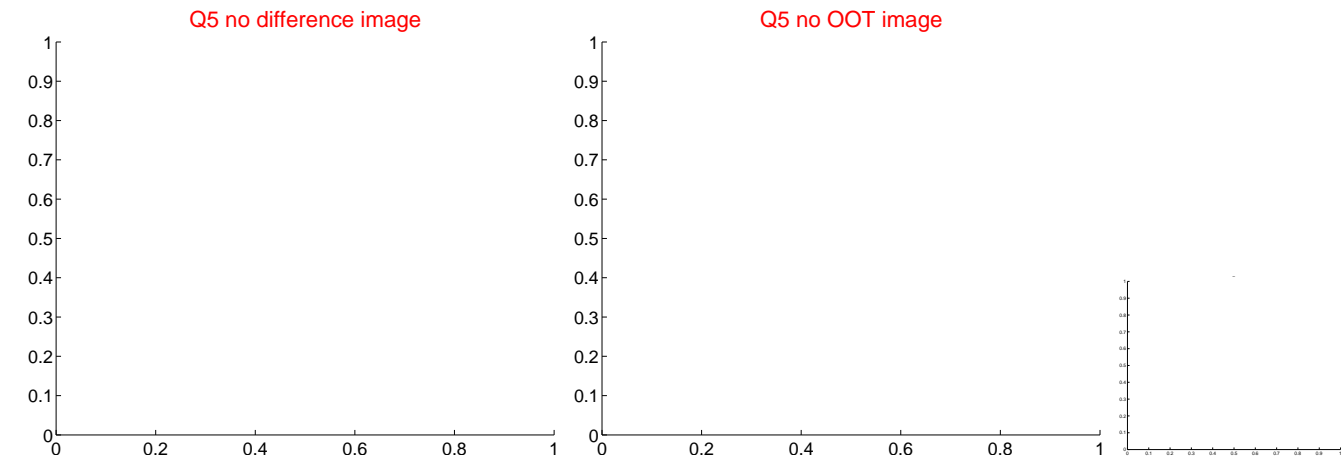
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



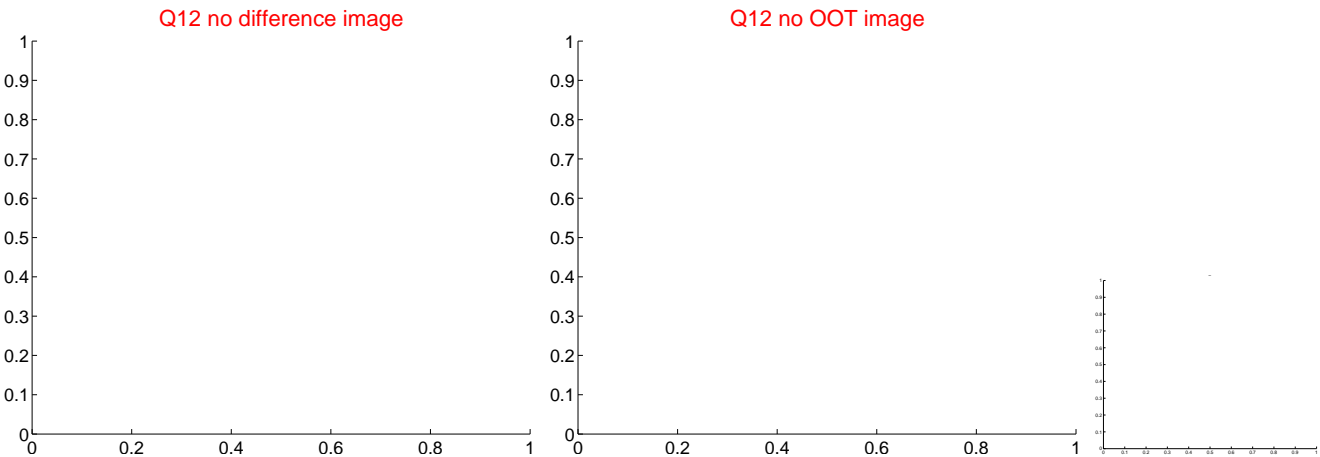
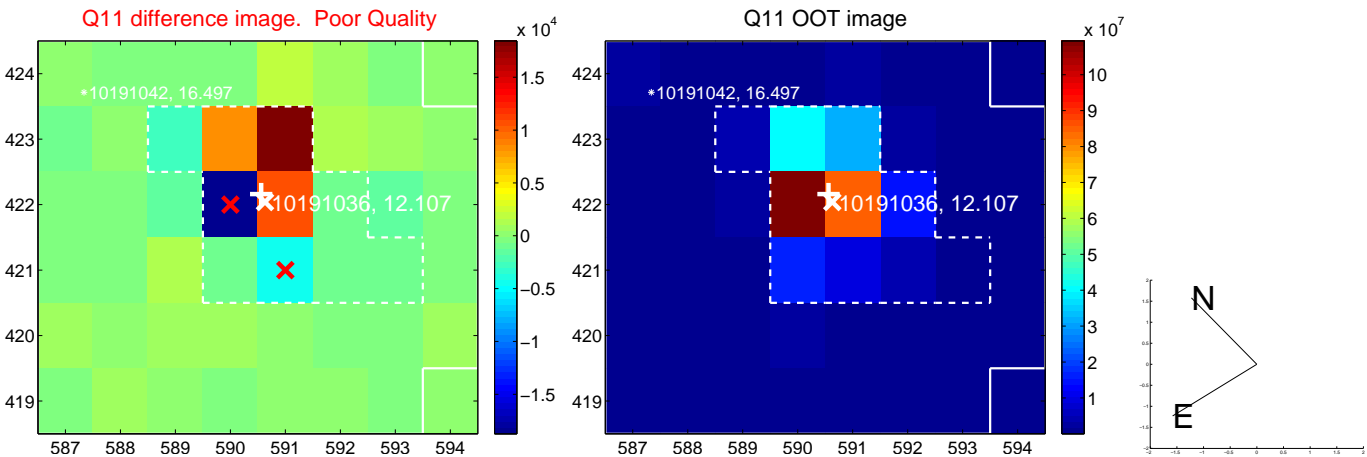
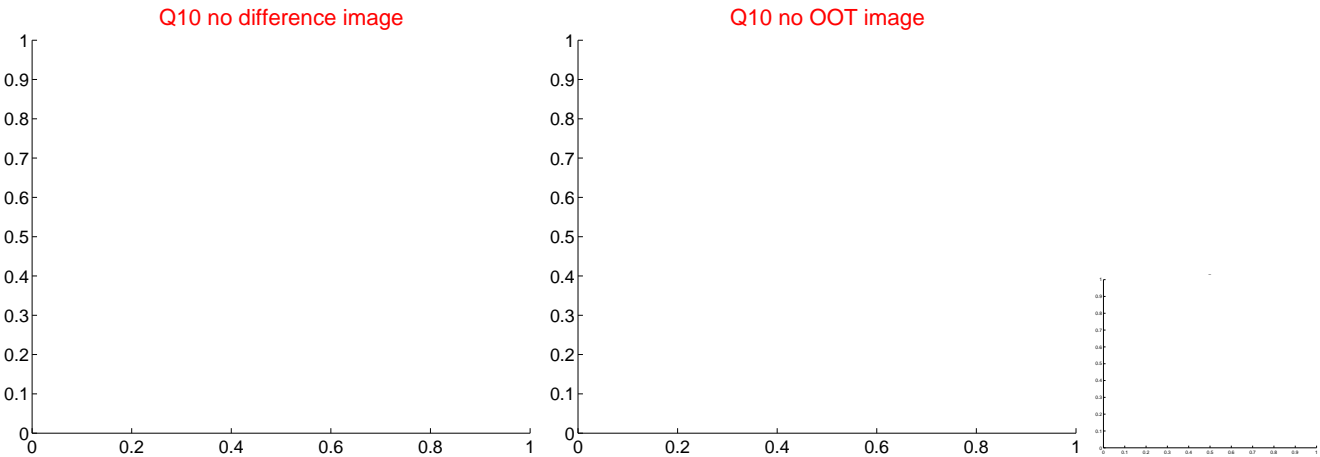
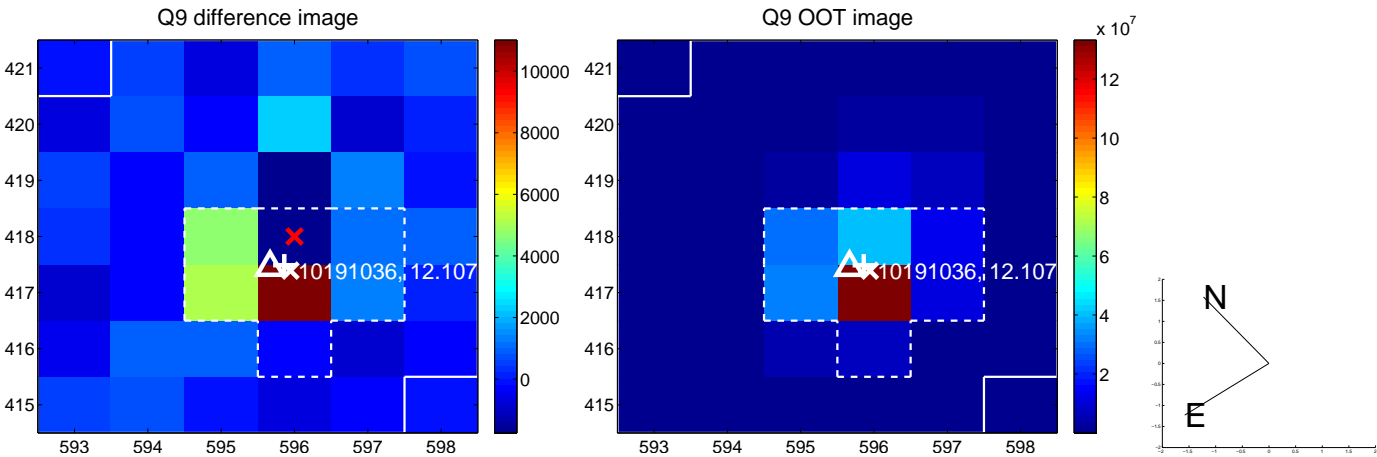
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



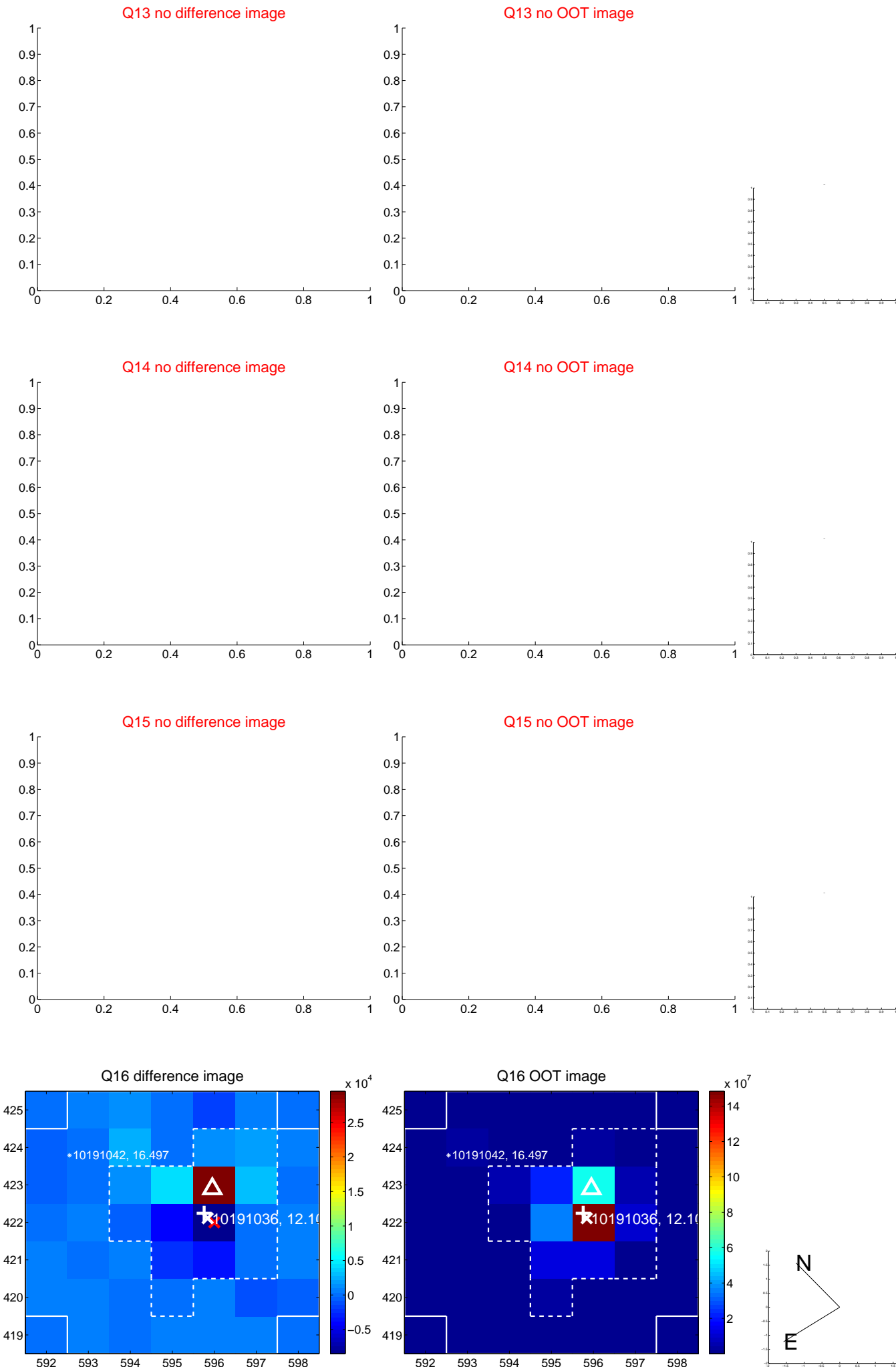
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



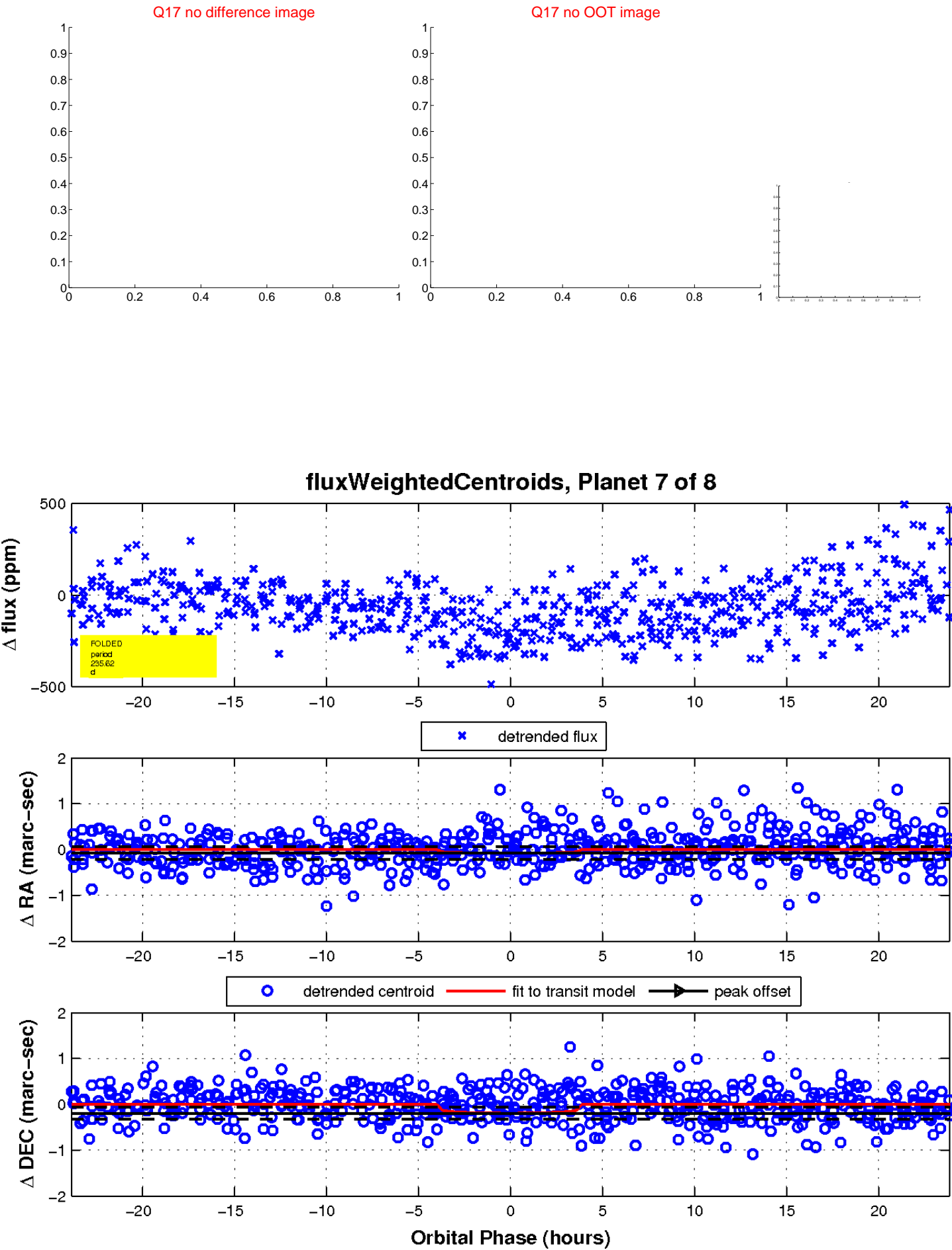
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



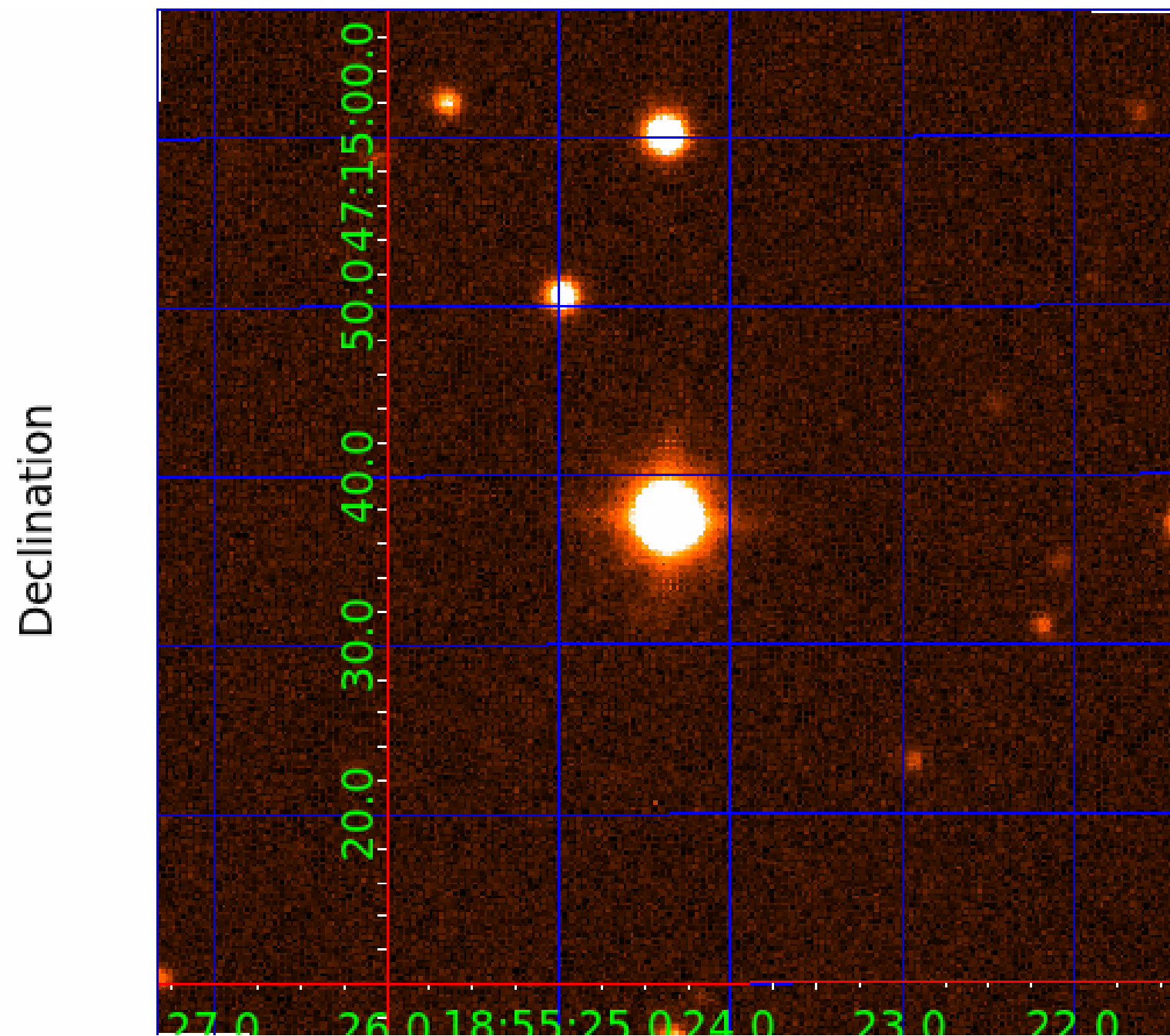
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 010191036

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010191036-01 | OBS      | 3218.01 | 1.213688      | 131.774952   | 22.8        | 3.928            | 16.3 | 16.4 | 1.05                        | 6238            | 0.59                   | 2961.08                |
| 010191036-02 | OBS      | No      | 266.260750    | 386.672484   | 82.8        | 2.897            | 13.8 | 2.9  | 1.05                        | 6238            | 1.08                   | 2.24                   |
| 010191036-03 | OBS      | No      | 189.085046    | 216.332625   | 17.0        | 6.402            | 13.7 | 0.9  | 1.05                        | 6238            | 0.51                   | 3.53                   |
| 010191036-04 | OBS      | No      | 329.559517    | 454.481811   | 106.3       | 0.677            | 13.4 | 2.0  | 1.05                        | 6238            | 1.30                   | 1.68                   |
| 010191036-06 | OBS      | No      | 216.943053    | 219.355992   | 139.1       | 8.693            | 11.8 | 6.8  | 1.05                        | 6238            | 1.38                   | 2.94                   |
| 010191036-07 | OBS      | No      | 235.618253    | 354.206000   | 129.3       | 7.962            | 7.7  | 6.6  | 1.05                        | 6238            | 1.35                   | 2.63                   |
| 010191036-08 | OBS      | No      | 240.159512    | 265.954871   | 129.4       | 15.721           | 7.5  | 5.0  | 1.05                        | 6238            | 1.31                   | 2.57                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 010191036-01 | OBS      | FP   | 0.00  | 0 | 0 | 1 | 1 | CENT_KIC_POS—HALO_GHOST—EPHEM_MATCH   |
| 010191036-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS—CENT_UNCERTAIN                                |
| 010191036-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS  |
| 010191036-04 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |
| 010191036-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_KIC_POS   |
| 010191036-07 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS  |
| 010191036-08 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—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.

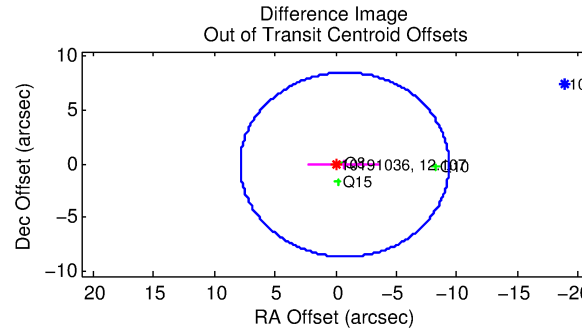
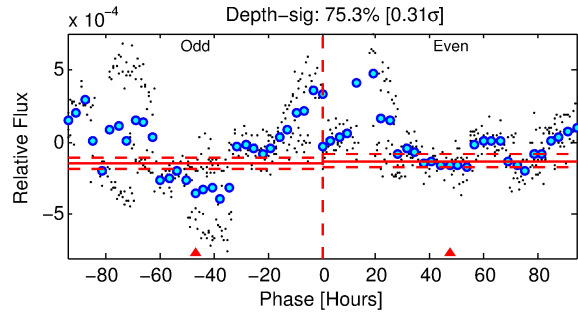
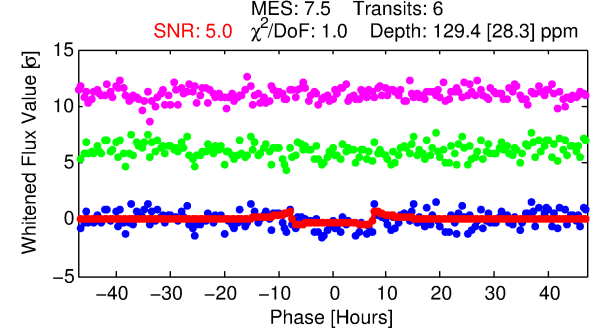
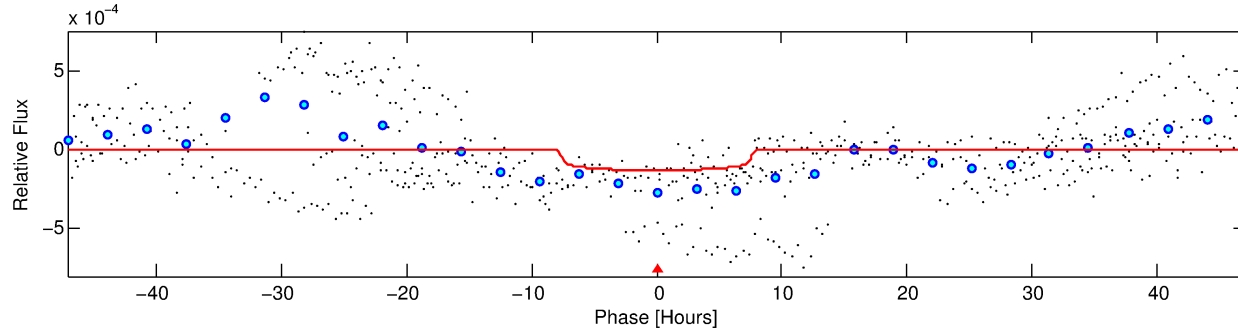
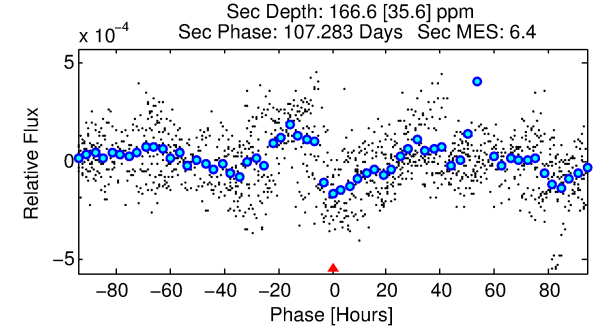
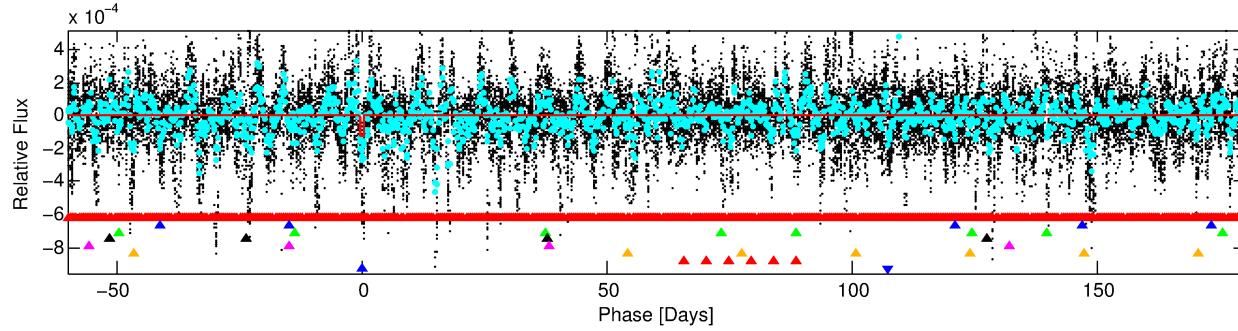
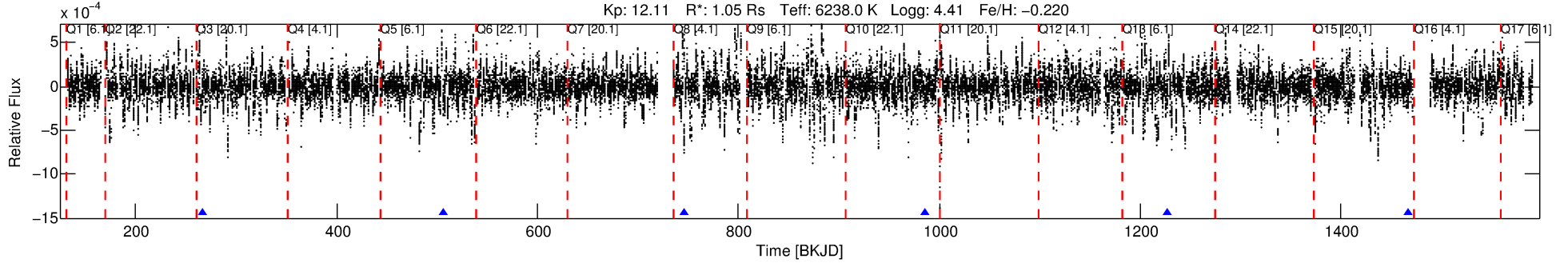
Ephemeris Match Information For 010191036-08

No Significant Match Found

# DV One-Page Summary

KIC: 10191036 Candidate: 8 of 8 Period: 240.160 d  
KOI: K03218 Corr: No Ephemeris Match

Kp: 12.11 R\*: 1.05 Rs Teff: 6238.0 K Logg: 4.41 Fe/H: -0.220



## DV Fit Results:

Period = 240.15951 [0.00526] d  
Epoch = 265.9549 [0.0162] BKJD  
Rp/R\* = 0.0114 [0.0028]  
a/R\* = 74.72 [79.68]  
b = 0.78 [0.53]  
Seff = 2.57 [0.79]  
Teq = 323 [25] K  
Rp = 1.31 [0.44] Re  
a = 0.7625 [0.1487] AU  
Ag = 31042.41 [18771.83] [1.65σ]  
Teffp = 6625 [908] K [6.94σ]

## DV Diagnostic Results:

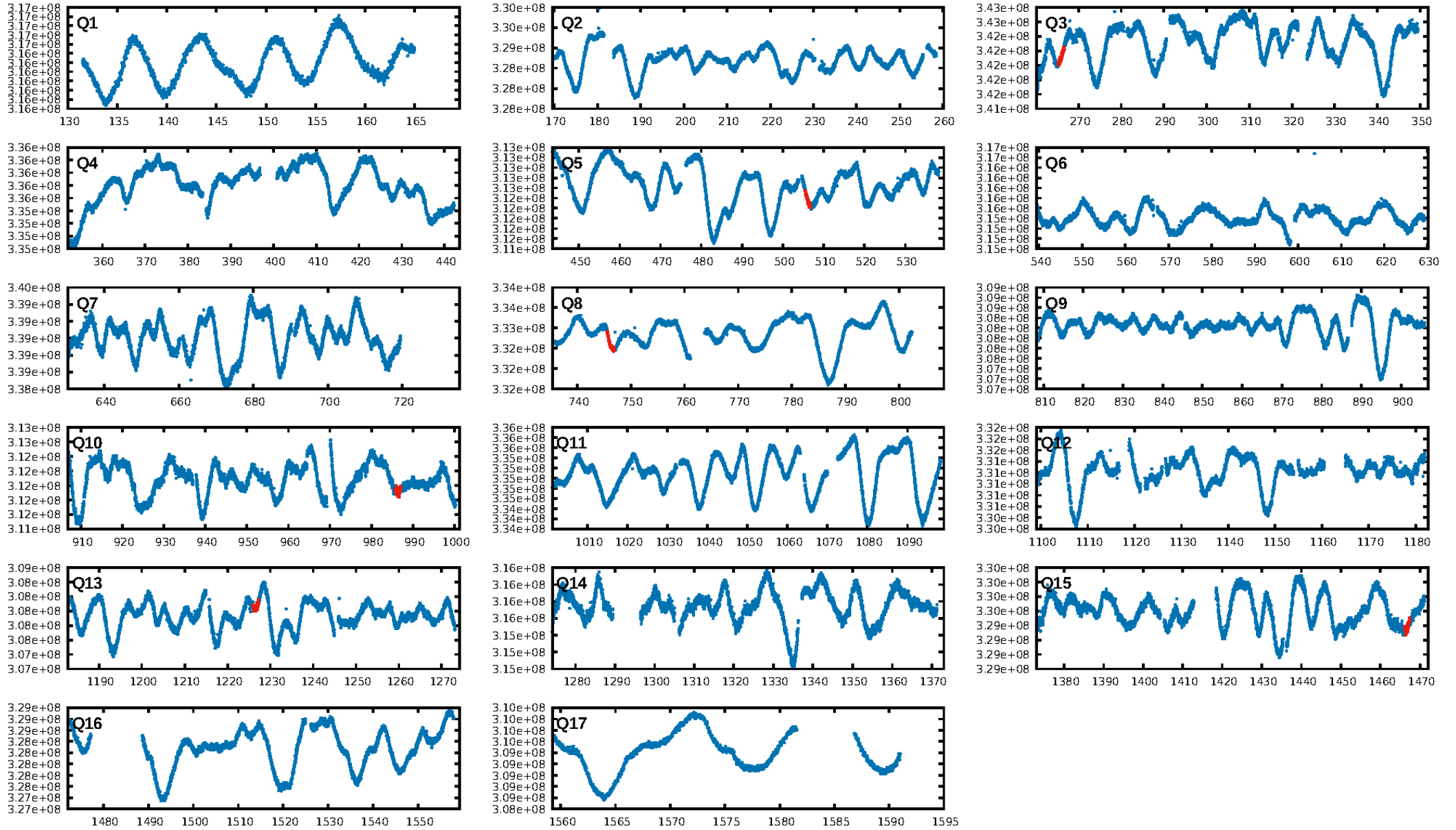
ShortPeriod-sig: 100.0% [6.18σ]  
LongPeriod-sig: 100.0% [39.19σ]  
ModelChiSquare2-sig: 52.2%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 8.88e-07**  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 1.564  
Centroid-sig: 37.3%  
Centroid-so: 0.674 arcsec [0.67σ]  
OotOffset-rm: 0.752 arcsec [0.26σ]  
KicOffset-rm: 0.915 arcsec [0.30σ]  
OotOffset-st: 1/1/1/0 [3]  
KicOffset-st: 1/1/1/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 0.00 [0/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:53:57 Z

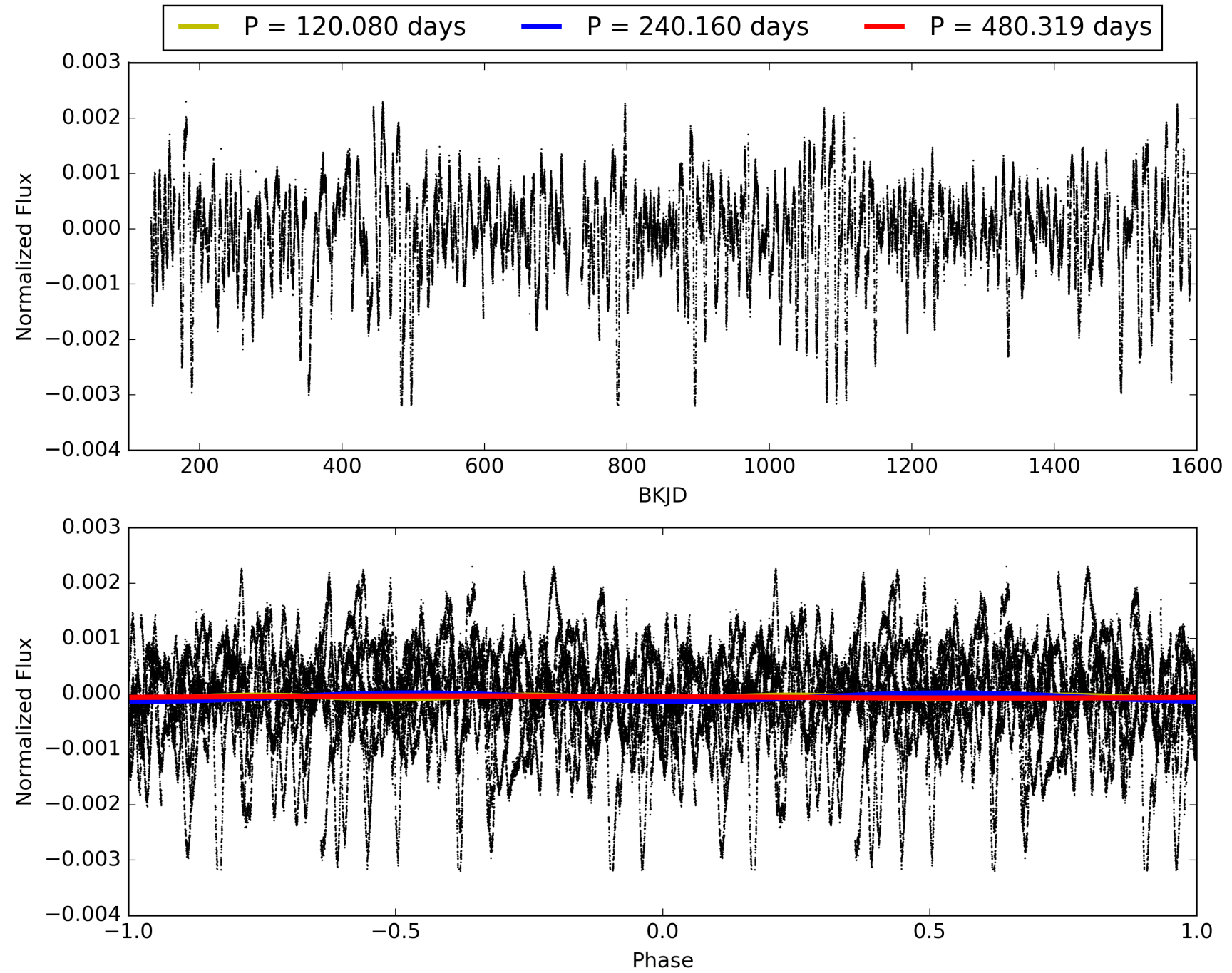
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 010191036-08, PDC Light Curves

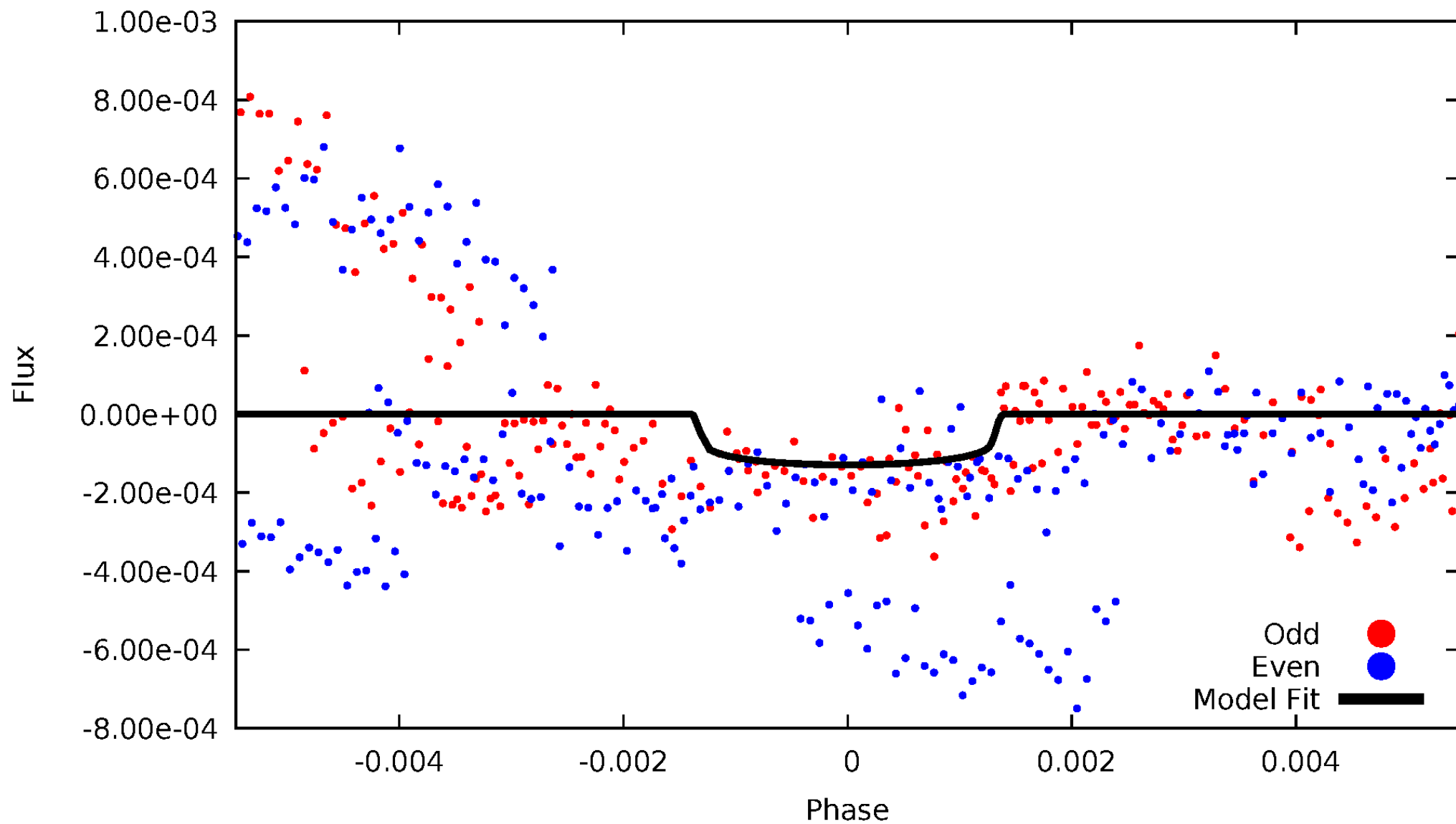


# TCE 010191036-08



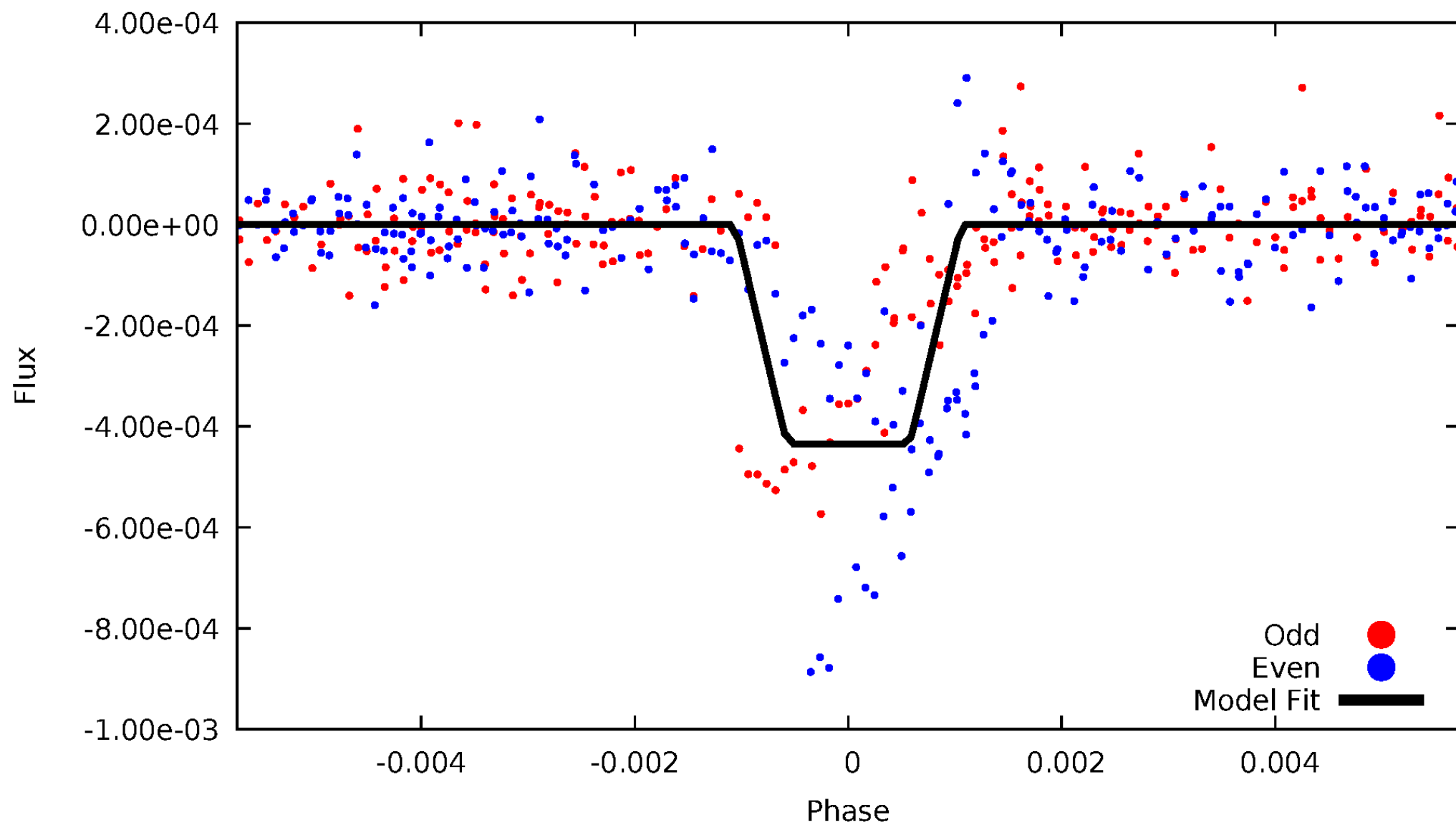
# DV Odd/Even

TCE 010191036-08



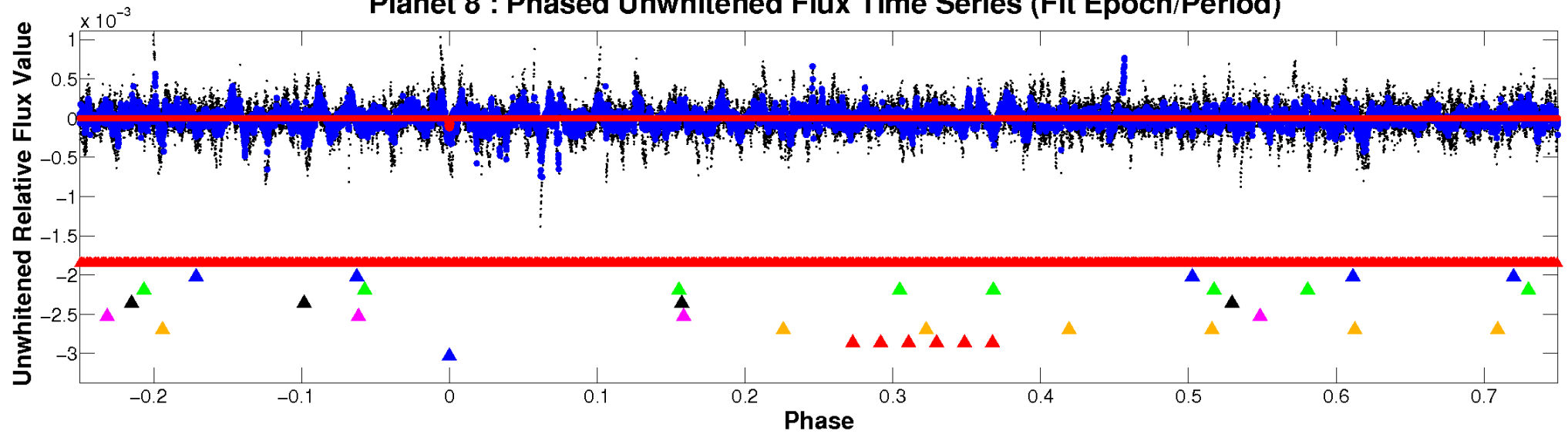
# ALT Odd/Even

TCE 010191036-08

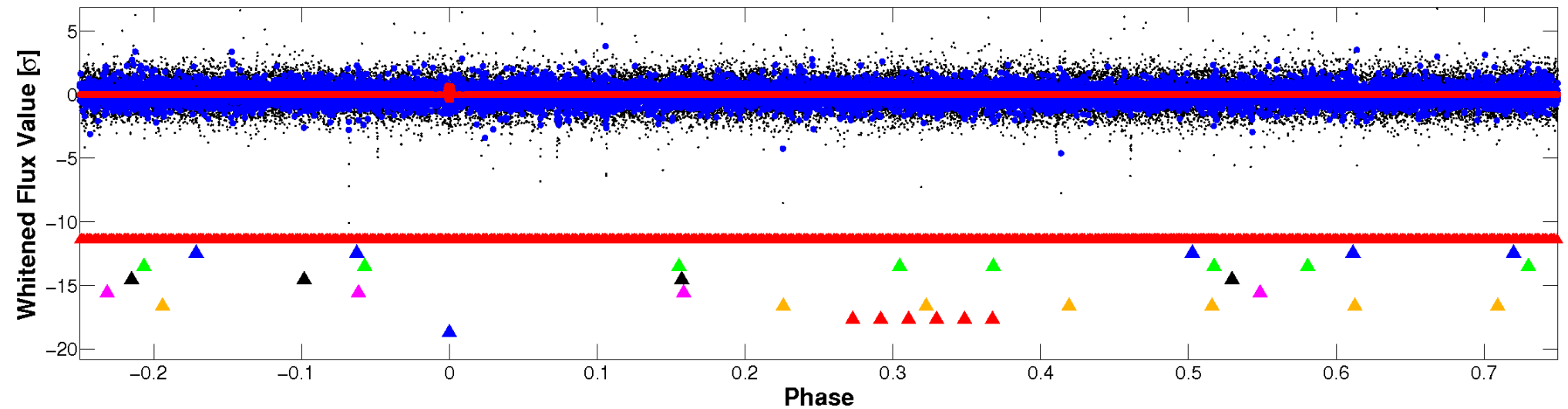


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

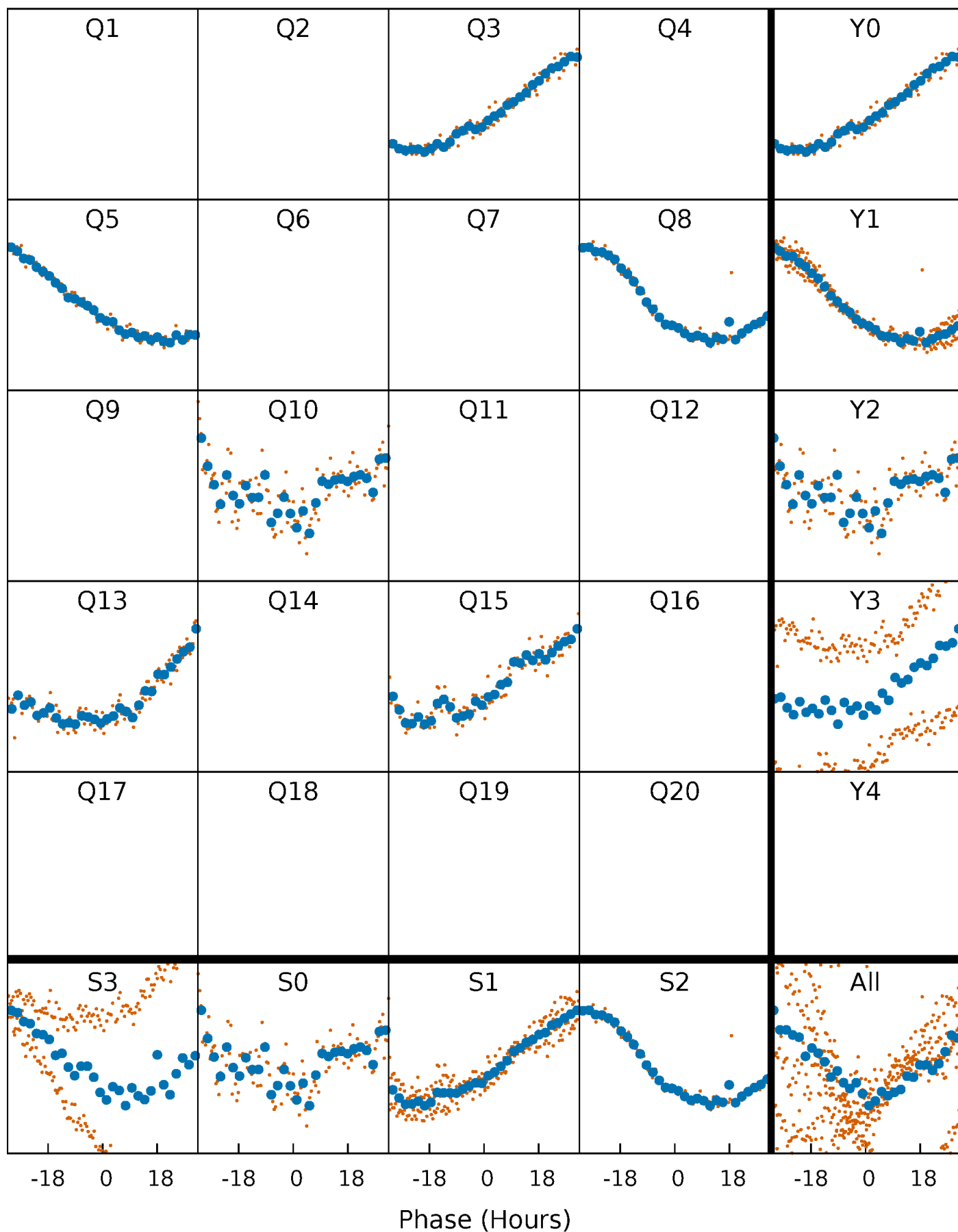


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



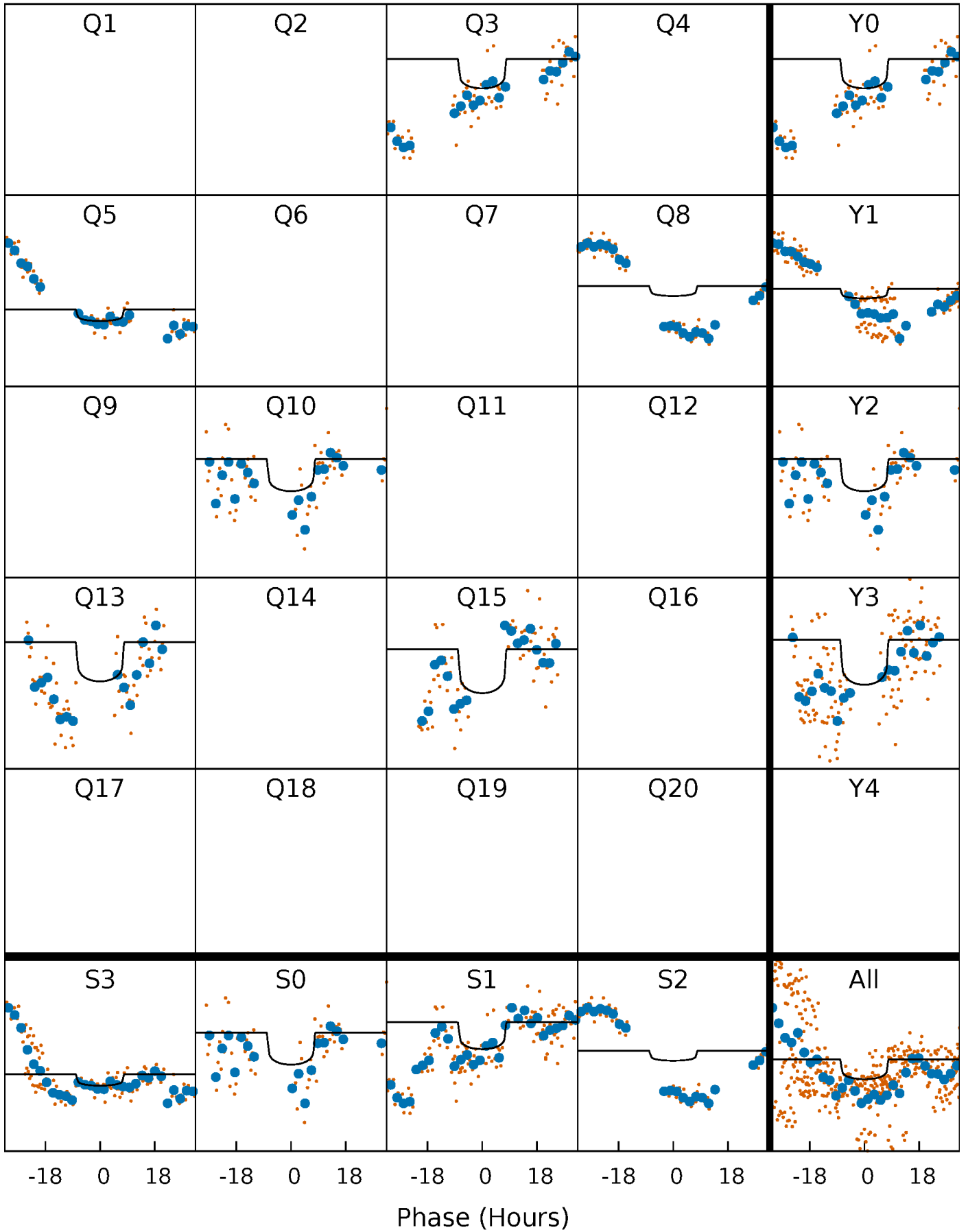
# PDC Quarter-Phased Transit Curves

TCE 010191036-08 P=240.159512 Days  $T_0=265.954871$  (BKJD)



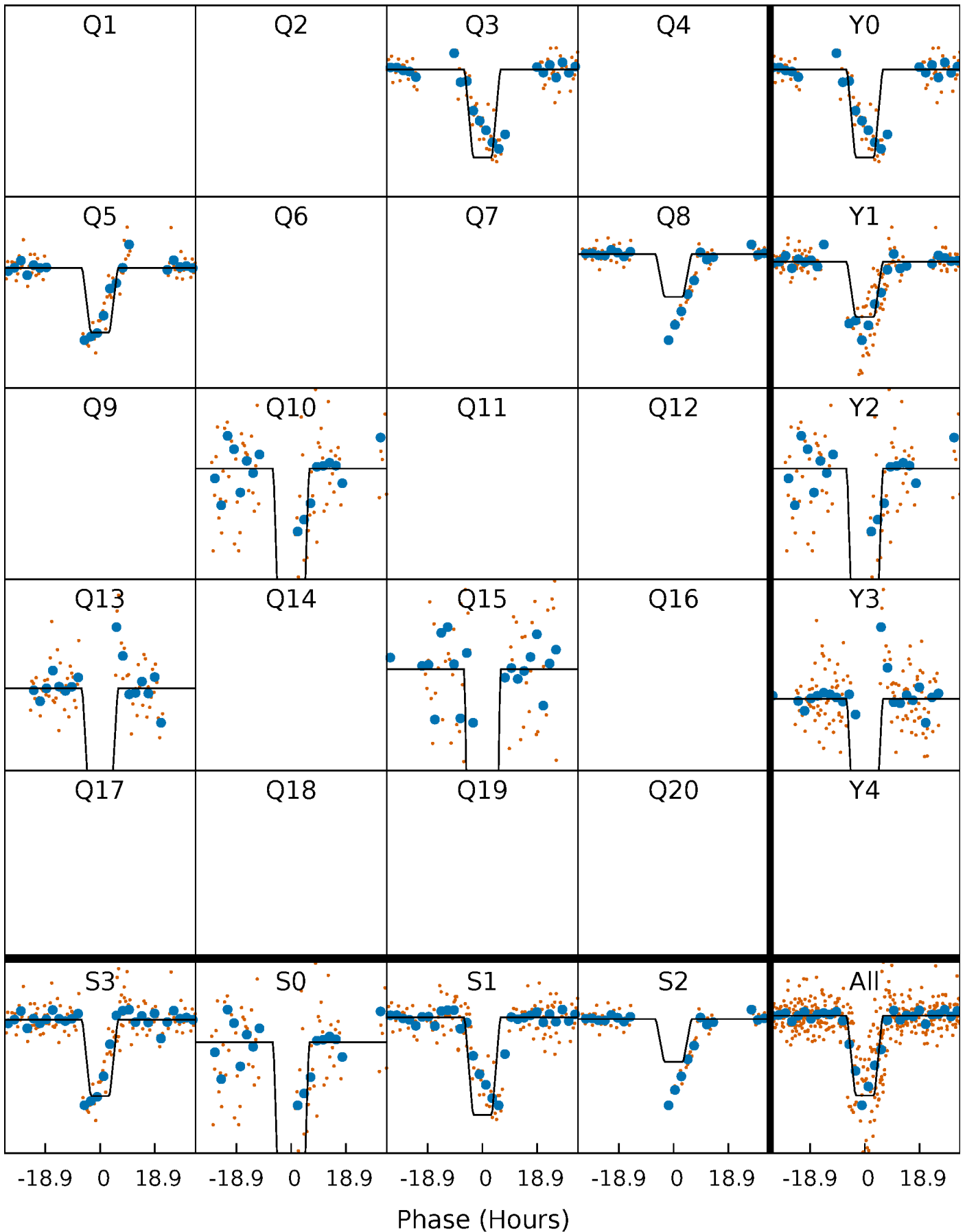
# DV Quarter-Phased Transit Curves

TCE 010191036-08     $P=240.159512$  Days     $T_0=265.954871$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010191036-08     $P=240.155631$  Days     $T_0=265.946032$  (BKJD)

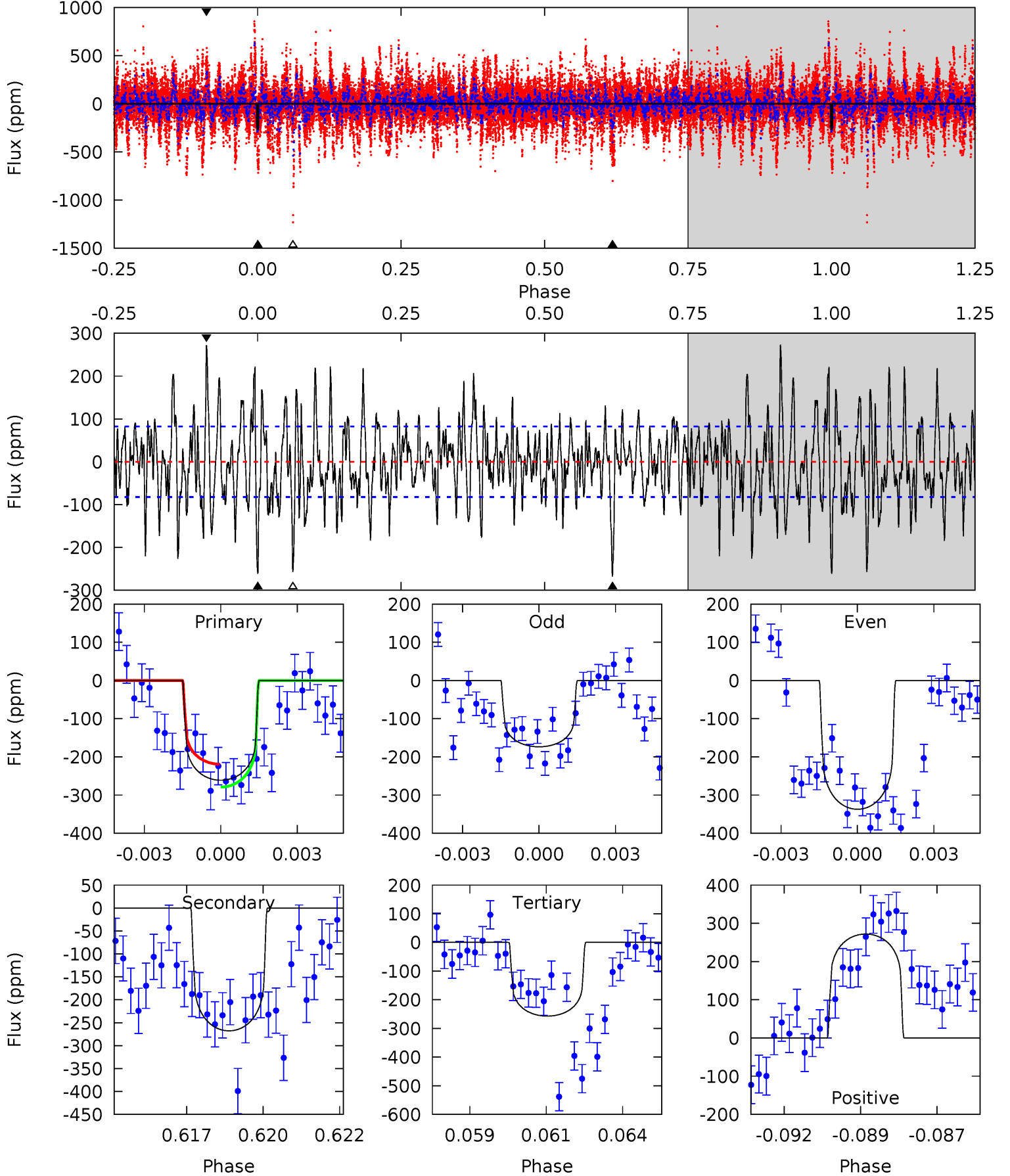




# DV Model-Shift Uniqueness Test

010191036-08, P = 240.159512 Days, E = 25.795359 Days

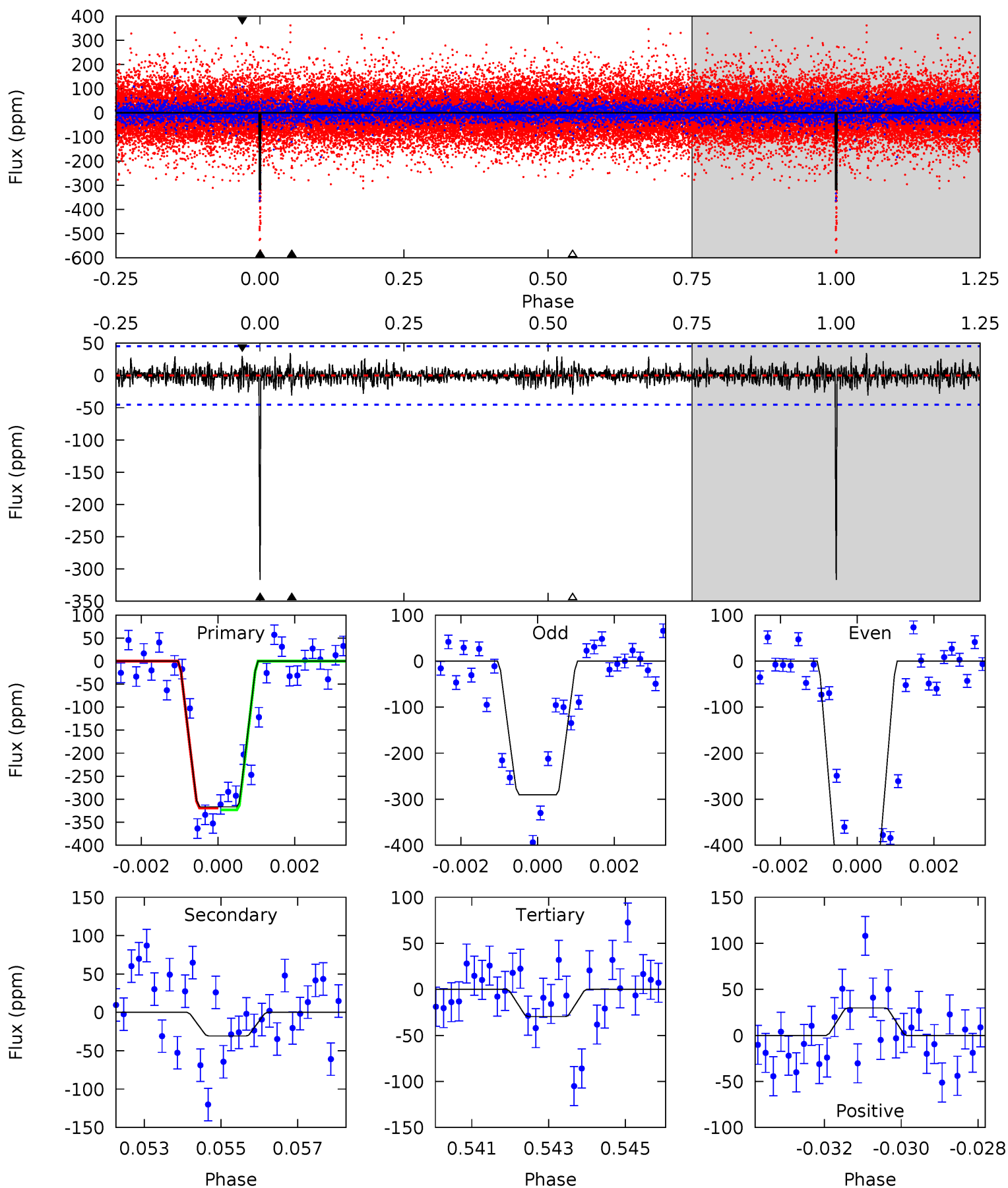
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.7 | 17.1 | 16.4 | 17.4 | 5.27            | 2.99            | 4.75             | 0.26    | -0.69   | 0.69    | -0.27   | 4.98    | 1.37 | 0.50  | 1.85 |



# Alt Model-Shift Uniqueness Test

010191036-08, P = 240.155631 Days, E = 25.790401 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 37.1 | 3.61 | 3.47 | 3.50 | 5.32            | 3.07            | 0.88             | 33.7    | 33.6    | 0.15    | 0.12    | 10.7    | 0.91 | 0.10  | 0.25 |



### Stellar Parameters For KIC 010191036

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M$ ( $M_{\odot}$ )       | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6238^{+156}_{-188}$ | $4.407^{+0.077}_{-0.154}$ | $-0.220^{+0.250}_{-0.350}$ | $1.049^{+0.244}_{-0.122}$ | $1.022^{+0.134}_{-0.120}$ | $1.246^{+0.426}_{-0.527}$                     |
|        | +3%/-3%              | +2%/-3%                   | +114%/-159%                | +23%/-12%                 | +13%/-12%                 | +34%/-42%                                     |
| Source | PHO1                 | FLK73                     | 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 010191036-08 / KOI

| Detrend | Depth (ppm)   | $R_p$ ( $R_{\oplus}$ ) | $T_{\text{max}}$ (K) | $T_{\text{obs}}$ (K)  | $A_{\text{obs}}$          |
|---------|---------------|------------------------|----------------------|-----------------------|---------------------------|
| DV      | $-268 \pm 16$ | $1.34^{+0.36}_{-0.36}$ | $454^{+26}_{-20}$    | $7627^{+1482}_{-947}$ | $48195^{+39440}_{-18545}$ |
| Alt.    | $-31 \pm 9$   | $2.45^{+0.46}_{-0.39}$ | $455^{+28}_{-20}$    | $3643^{+250}_{-246}$  | $1585^{+848}_{-576}$      |

$T_{\text{max}}$  = 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

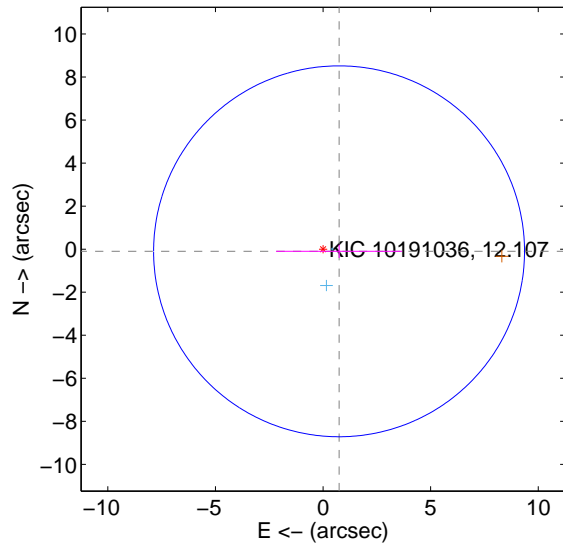
Supplemental centroid analysis for 010191036-08. Kepler magnitude: 12.11. Transit SNR 5.01

There are 2 quarters with good PRF difference image offsets

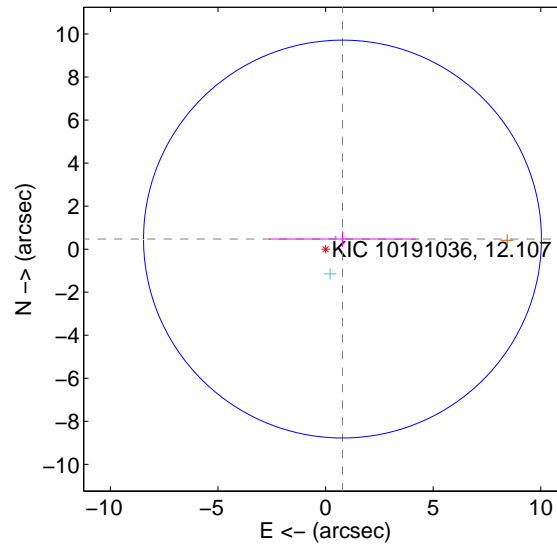
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.752 \pm 2.873$  | 0.26                | $-0.745 \pm 2.928$ | $-0.099 \pm 0.307$ |
| PRF-fit source offset from KIC position | $0.915 \pm 3.081$  | 0.30                | $-0.786 \pm 3.424$ | $0.470 \pm 0.358$  |
| photometric centroid source offset      | $0.67 \pm 1.01$    | 0.67                | $0.67 \pm 1.02$    | $0.09 \pm 0.87$    |

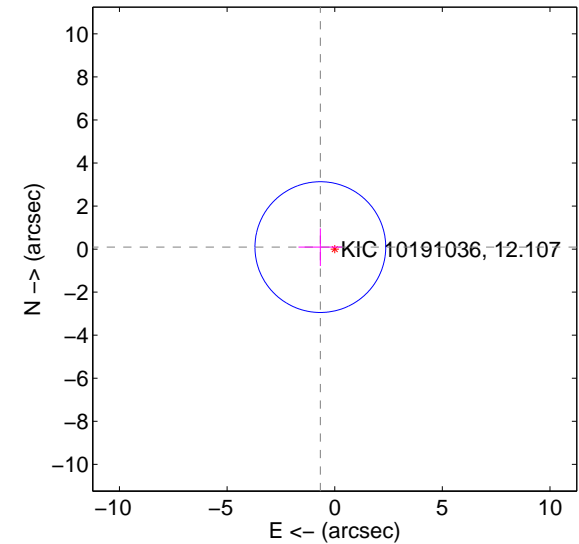
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

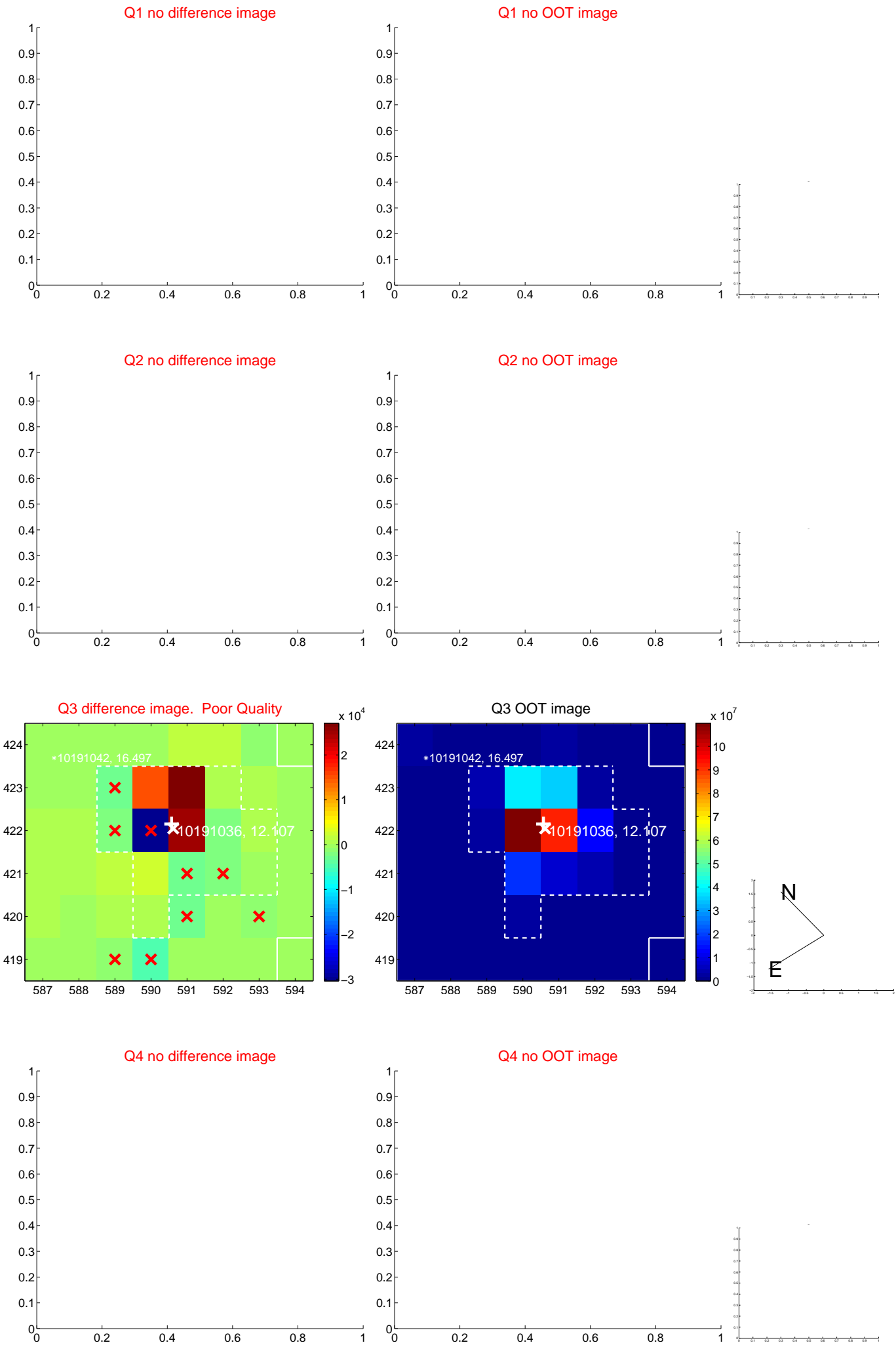


offset from photometric centroids

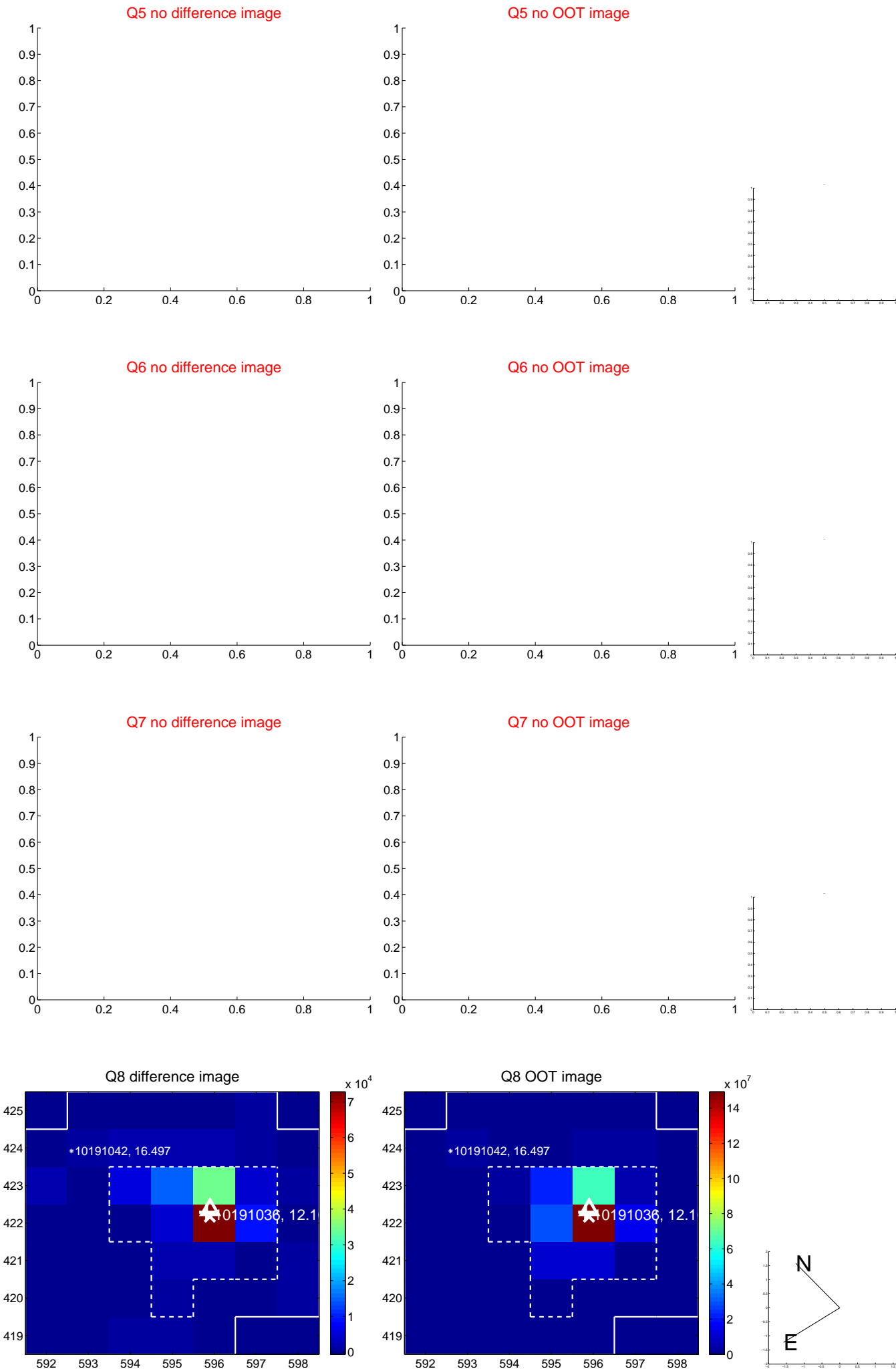


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

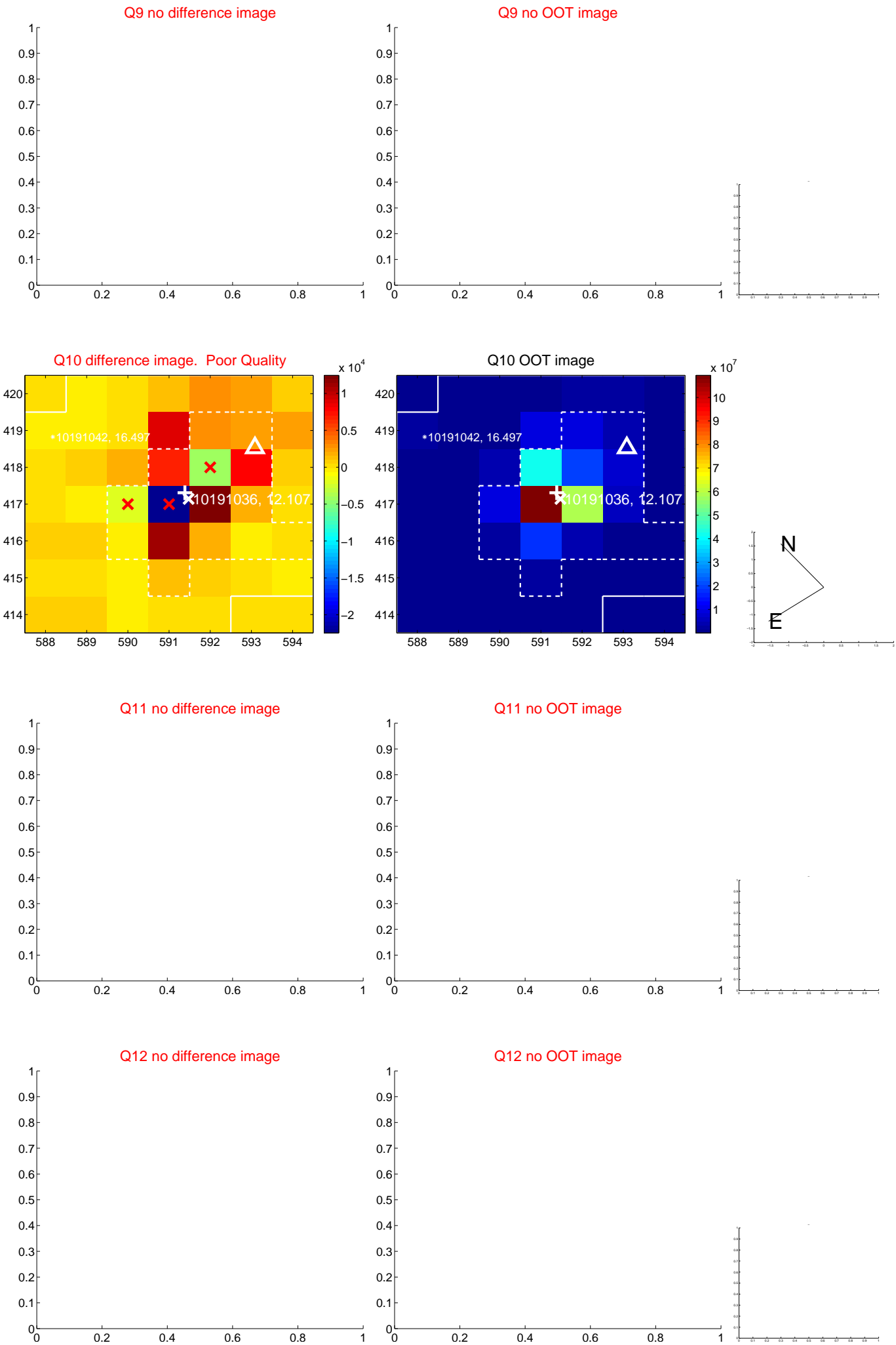
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



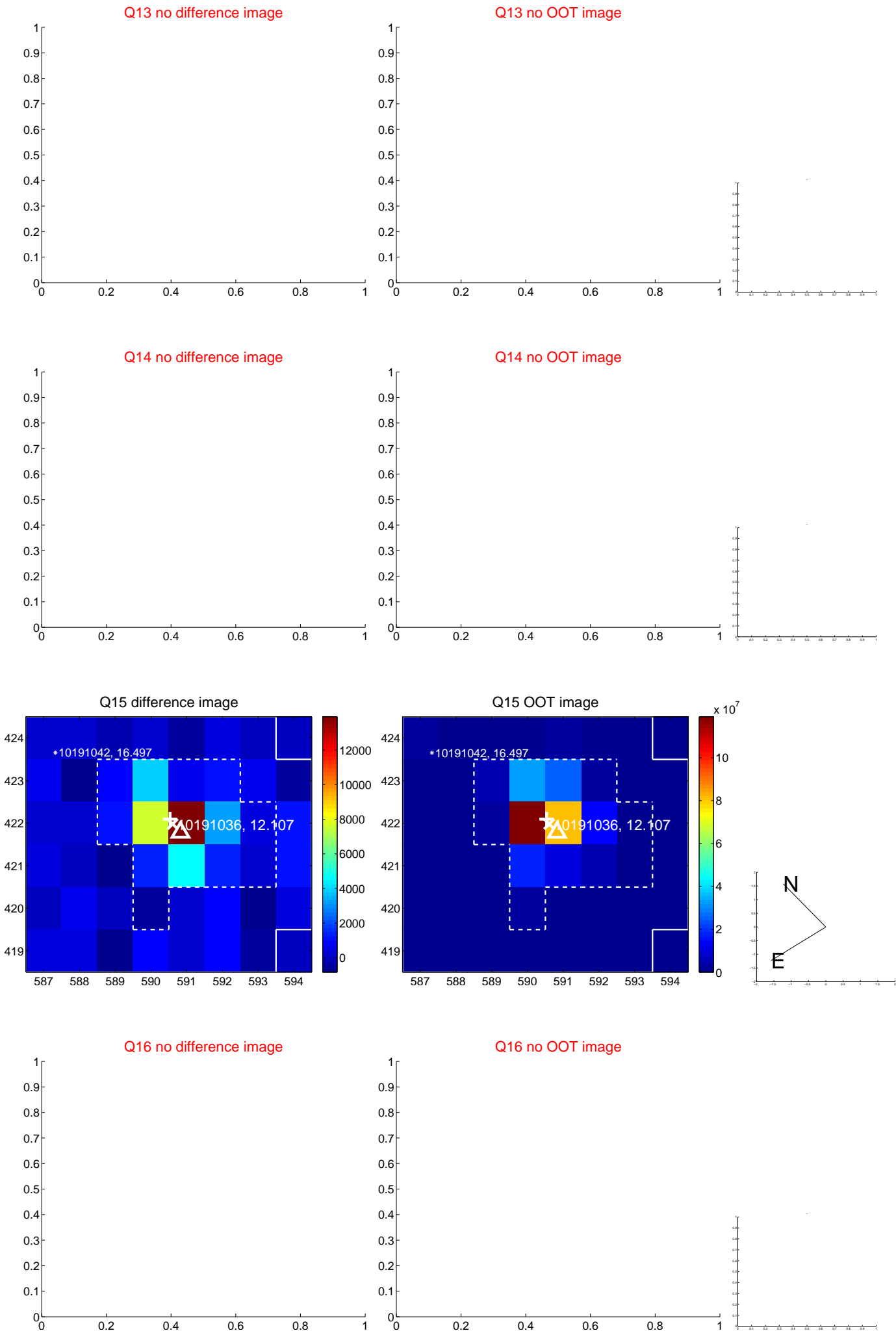
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

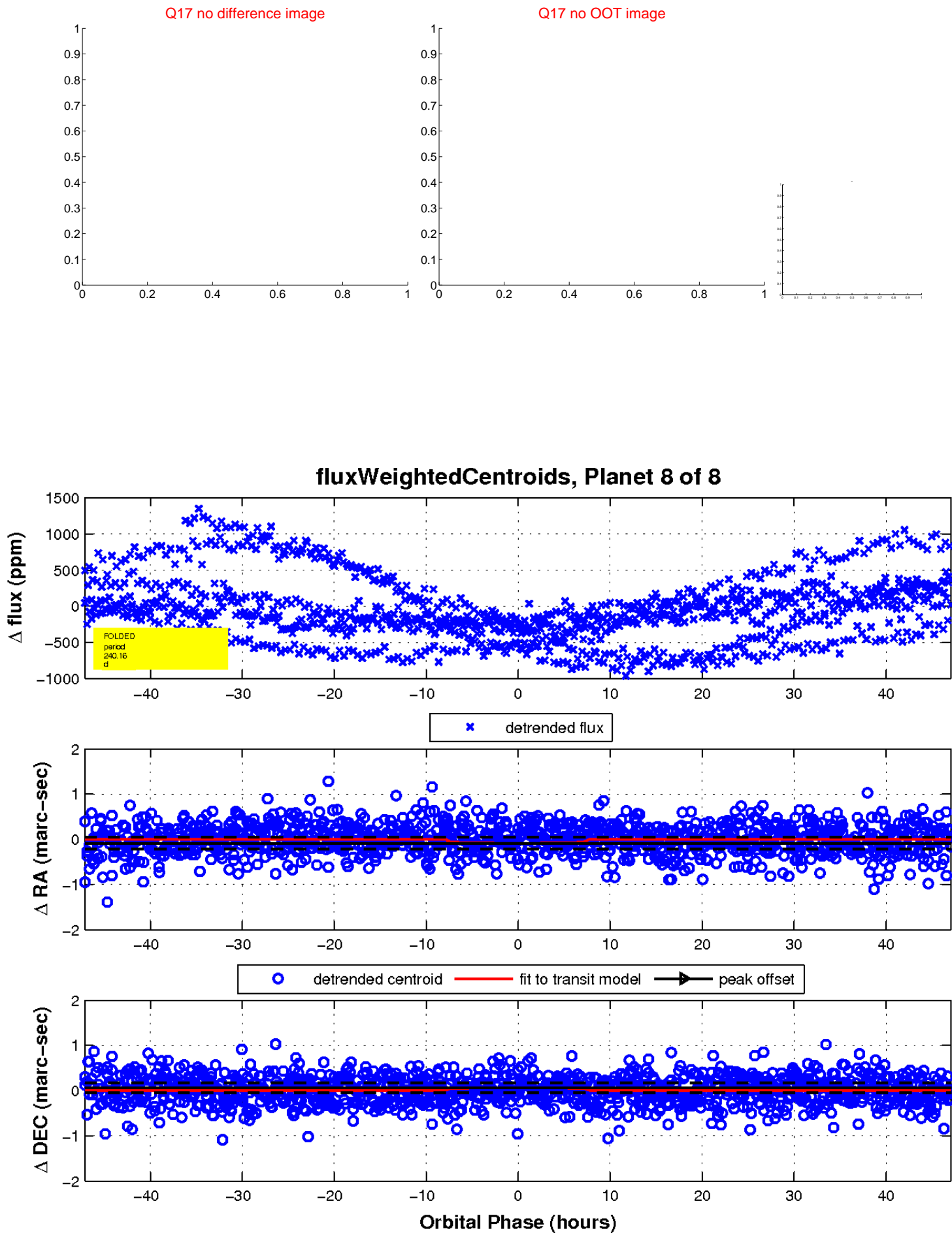


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.





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



UKIRT Image

