

# KIC 007036755

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007036755-01 | OBS      | No   | 510.583528    | 308.356281   | 1438.1      | 13.650           | 17.2 | 5.6  | 0.49                        | 4425            | 1.84                   | 0.08                   |
| 007036755-02 | OBS      | No   | 260.247391    | 254.842484   | 1775.7      | 6.017            | 18.7 | 10.8 | 0.49                        | 4425            | 2.40                   | 0.20                   |
| 007036755-03 | OBS      | No   | 365.263295    | 364.587524   | 1189.1      | 5.237            | 16.2 | 5.3  | 0.49                        | 4425            | 1.68                   | 0.13                   |
| 007036755-04 | OBS      | No   | 471.587192    | 437.710180   | 1228.1      | 3.213            | 18.8 | 6.9  | 0.49                        | 4425            | 1.69                   | 0.09                   |
| 007036755-05 | OBS      | No   | 0.850606      | 132.264119   | 527.3       | 1.500            | 8.5  | -1.0 | 0.49                        | 4425            | 1.11                   | 419.44                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007036755-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV       |
| 007036755-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV  |
| 007036755-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS                  |
| 007036755-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV |
| 007036755-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—CENT_NOFITS  |

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

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

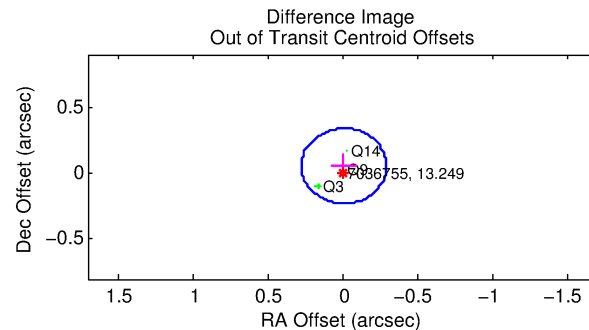
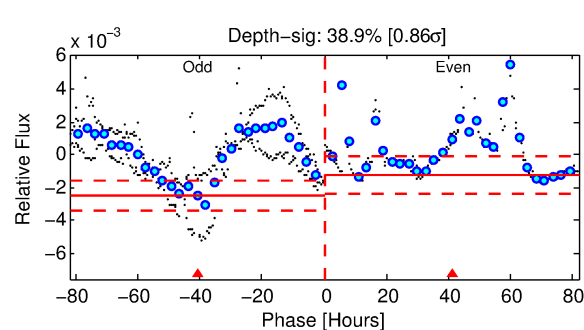
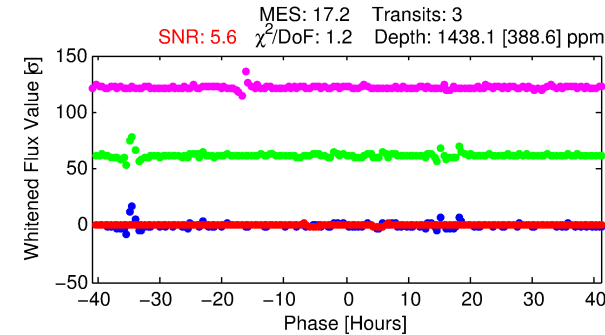
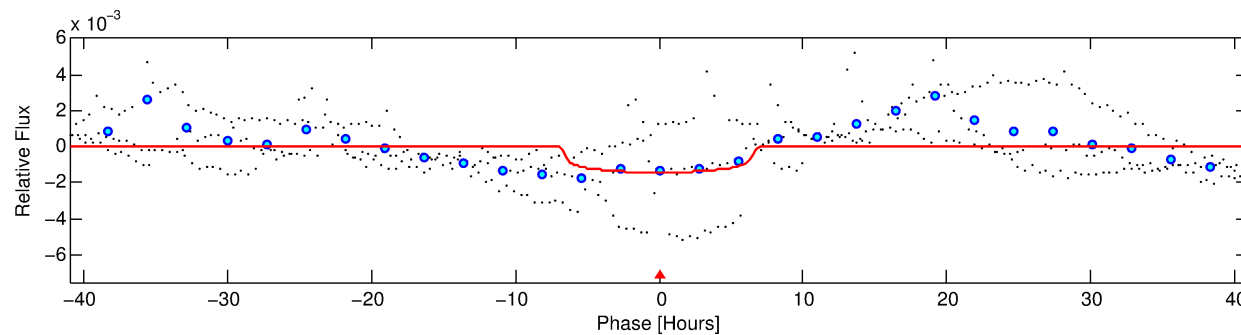
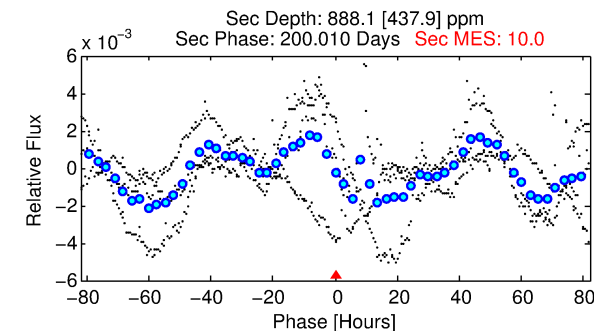
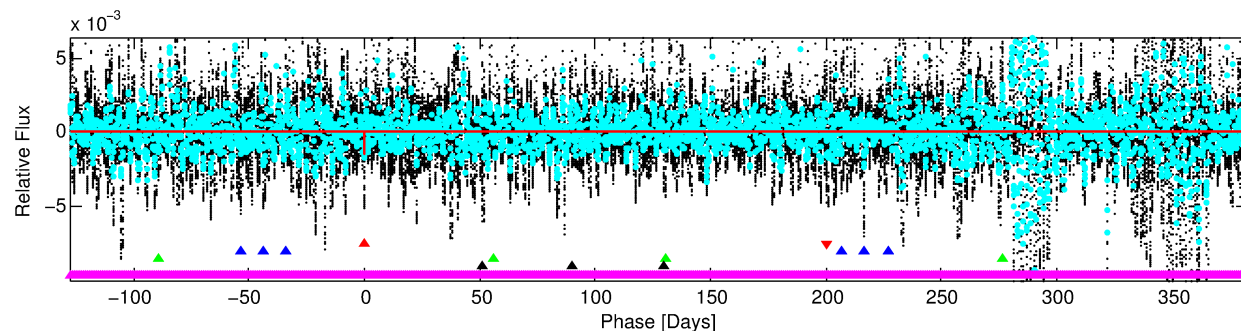
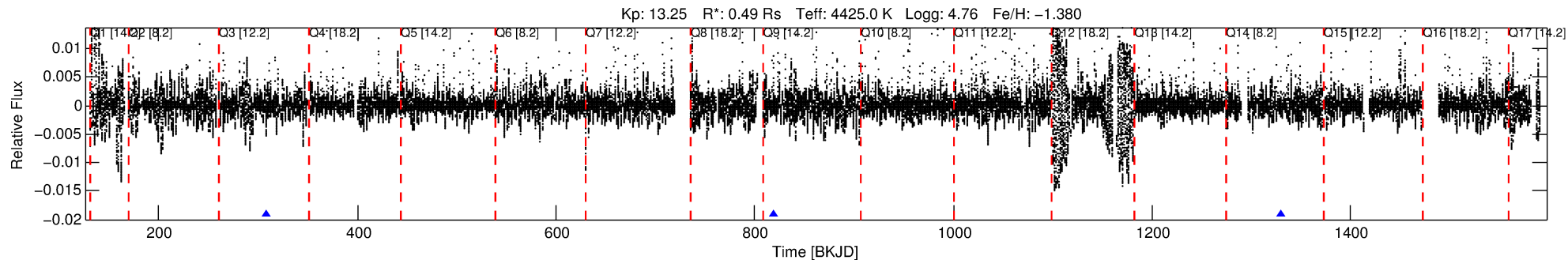
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Ephemeris Match Information For 007036755-01

No Significant Match Found

# DV One-Page Summary

KIC: 7036755 Candidate: 1 of 5 Period: 510.584 d



## DV Fit Results:

Period = 510.58353 [0.00652] d  
Epoch = 308.3563 [0.0081] BKJD  
Rp/R\* = 0.0348 [0.0107]  
a/R\* = 282.80 [297.35]  
b = 0.30 [3.18]  
Seff = 0.08 [0.01]  
Teq = 137 [6] K  
Rp = 1.84 [0.60] Re  
a = 0.9897 [0.0831] AU  
Ag = 140905.40 [112285.00] [1.25σ]  
**Teff = 4098 [819] K [4.84σ]**

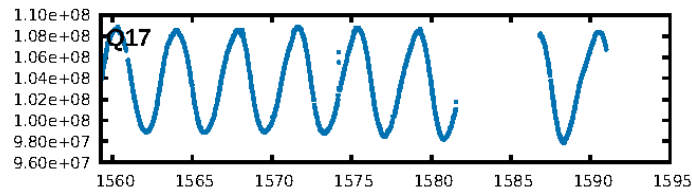
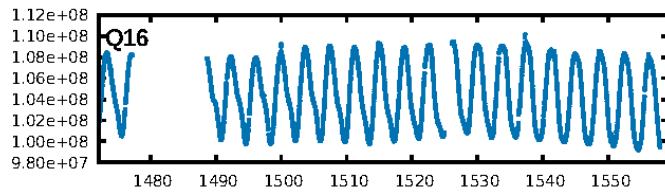
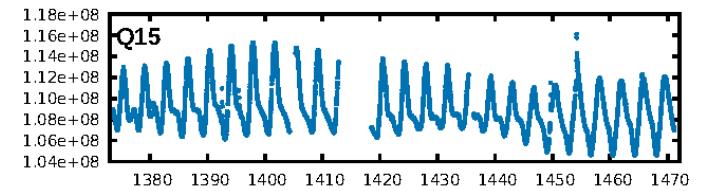
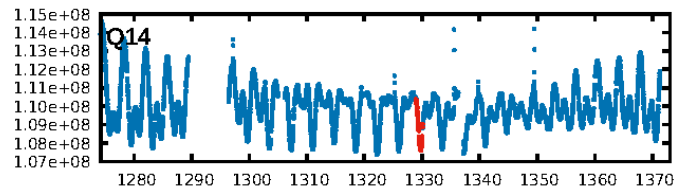
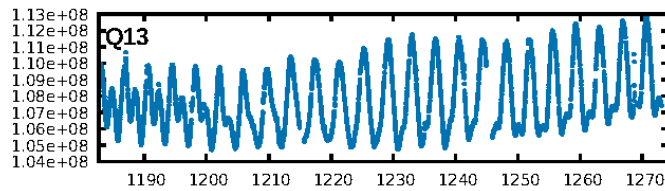
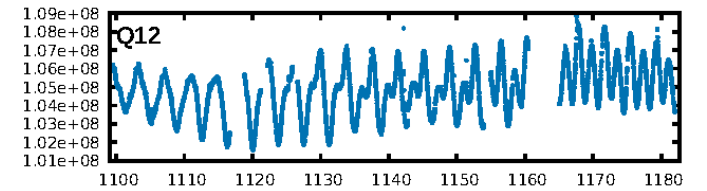
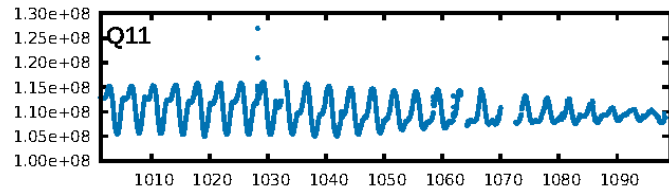
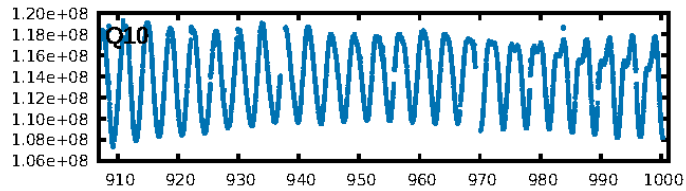
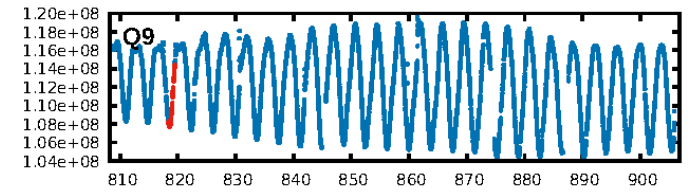
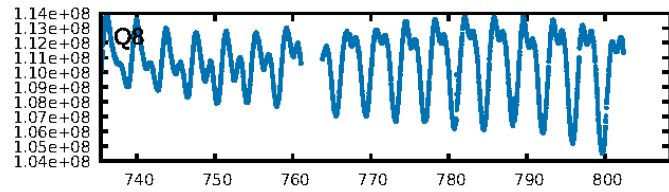
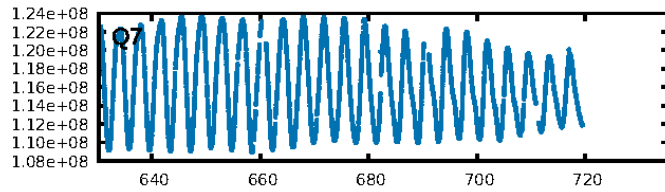
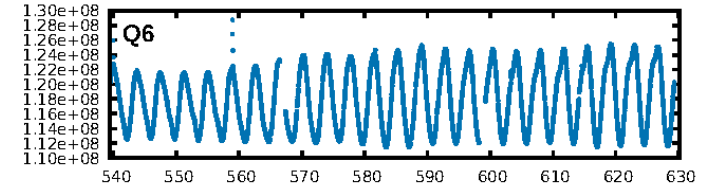
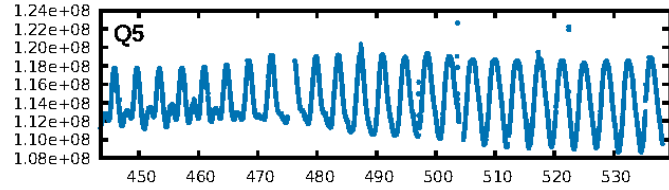
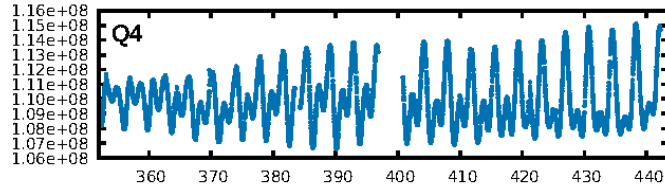
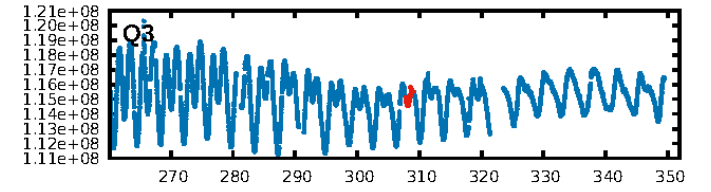
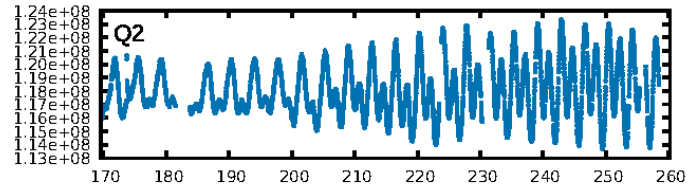
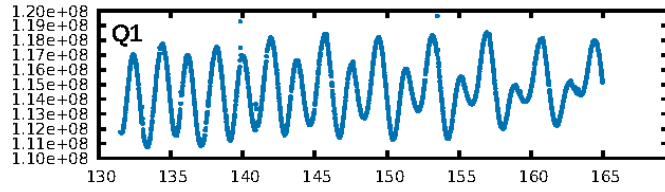
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [66.74σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 19.4%  
ModelChiSquareGof-sig: 81.2%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.32  
Centroid-sig: 0.3%  
Centroid-so: 0.938 arcsec [2.32σ]  
OotOffset-rm: 0.056 arcsec [0.59σ]  
KicOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 0.00 [0/3]

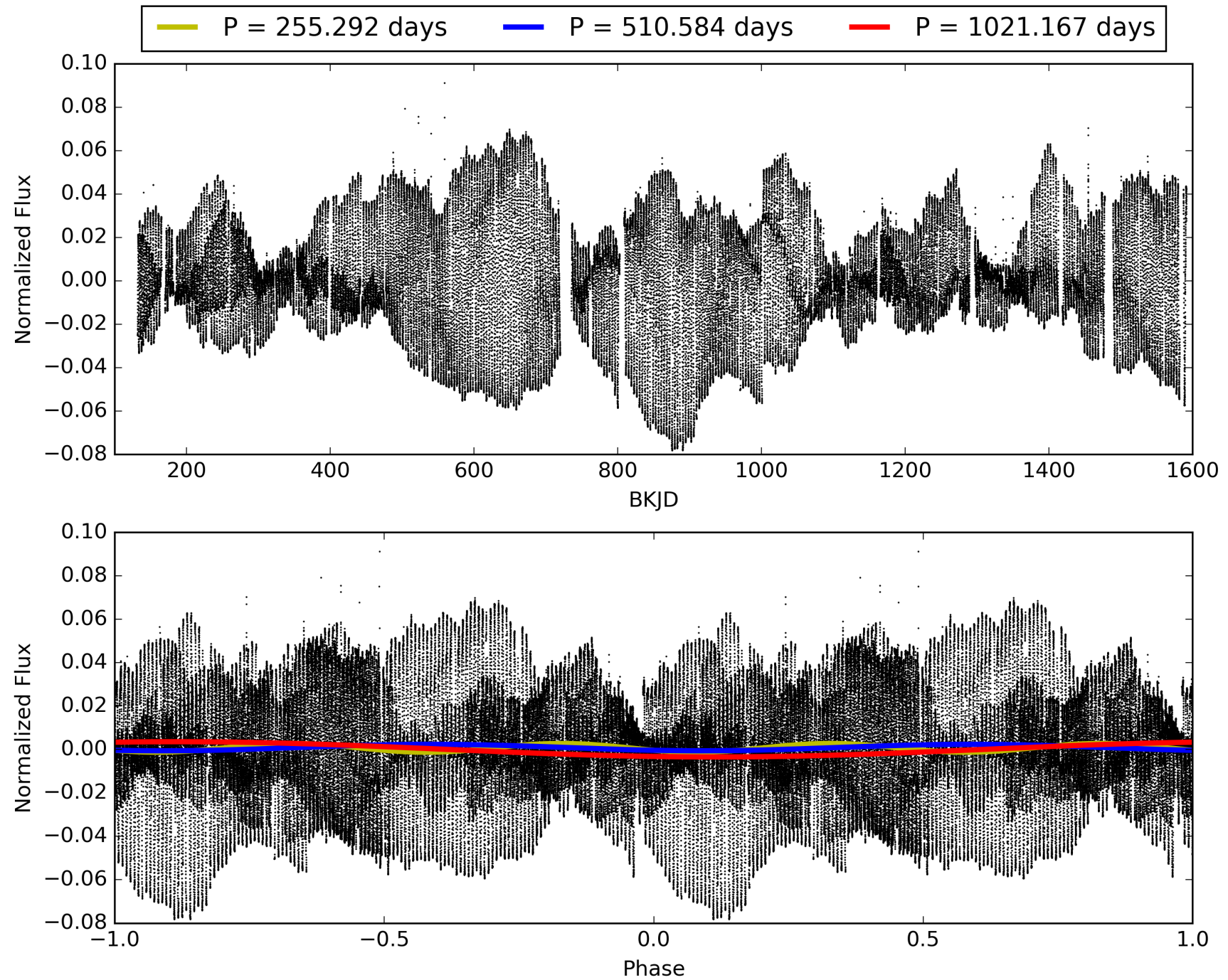
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:36:31 Z

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

# TCE 007036755-01, PDC Light Curves



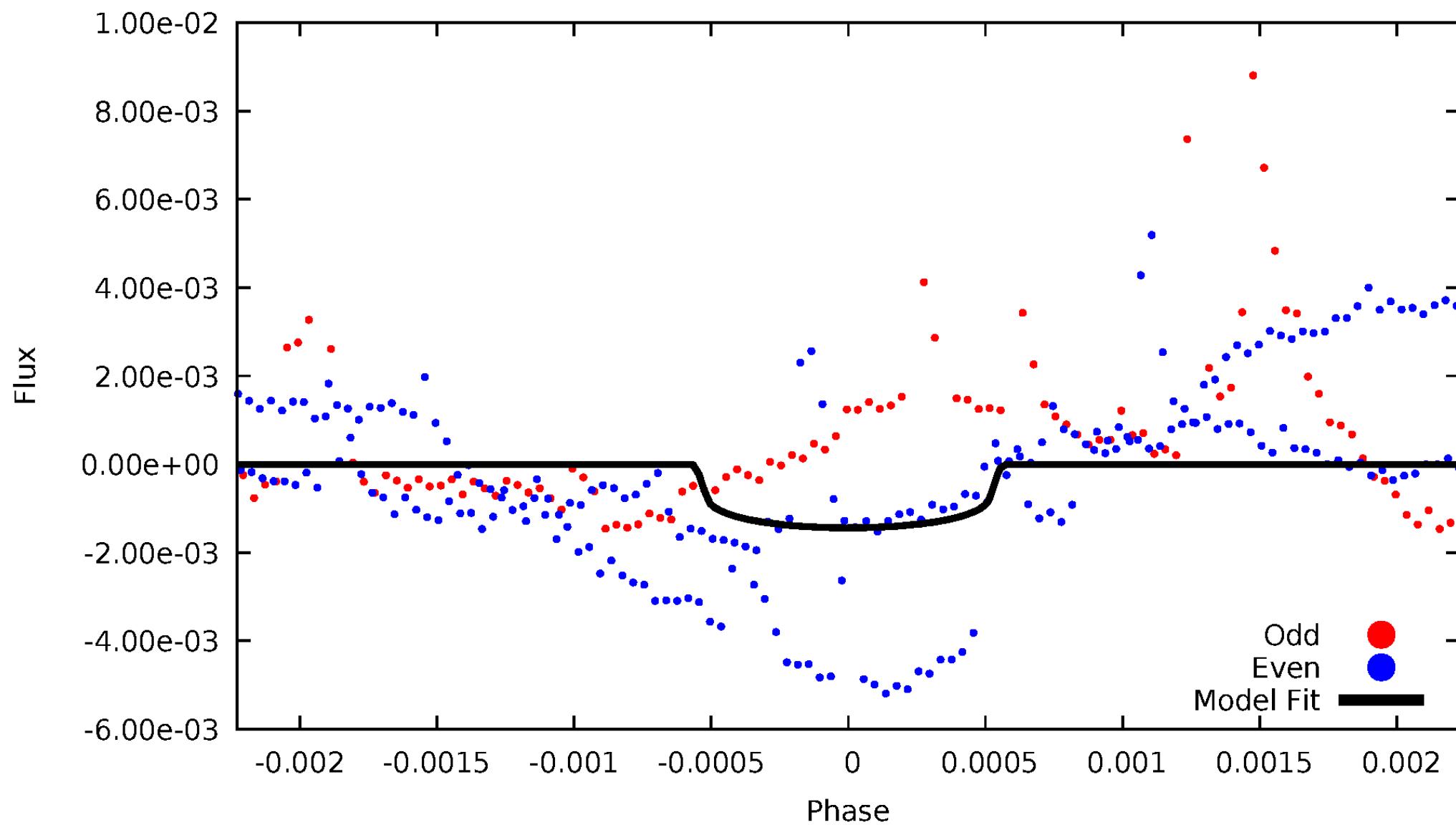
TCE 007036755-01





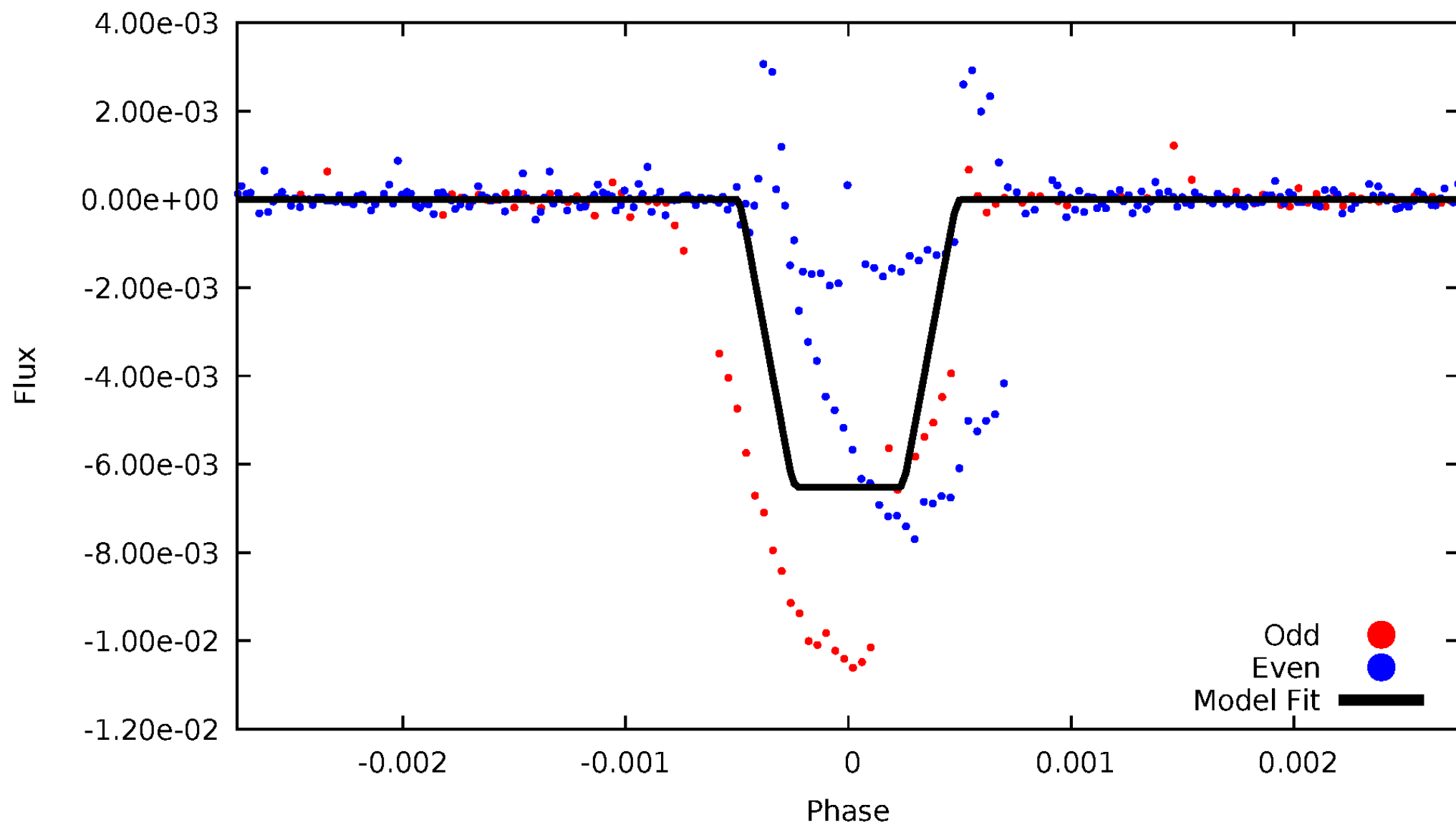
# DV Odd/Even

TCE 007036755-01



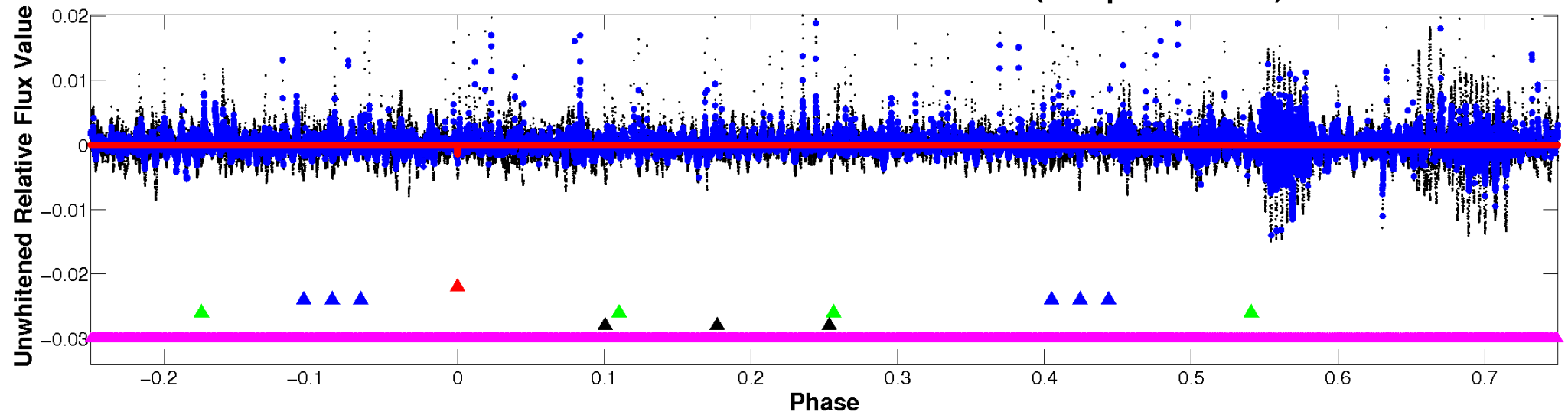
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TCE 007036755-01

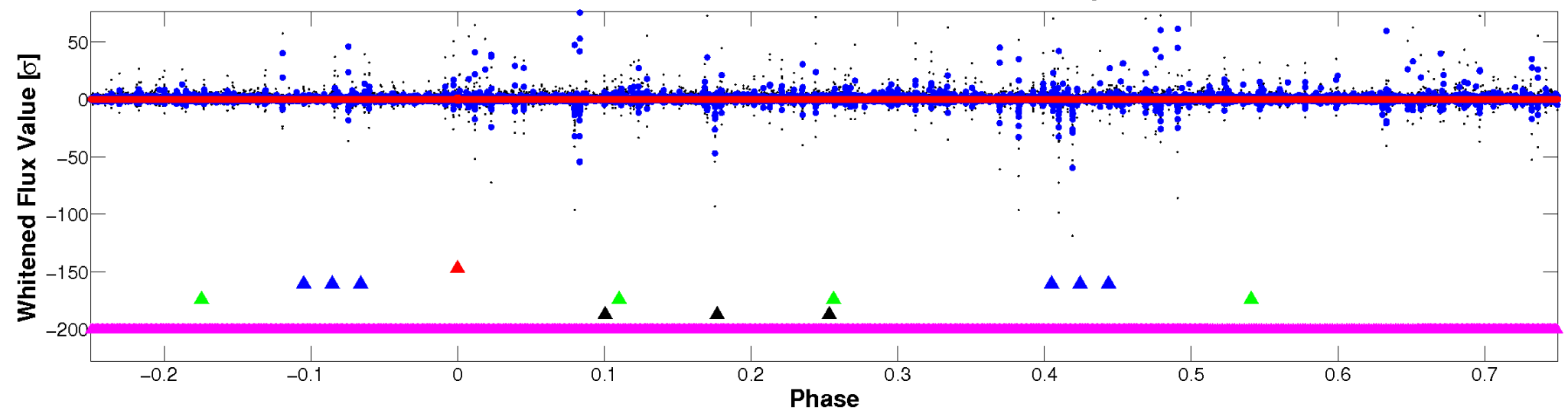


# Non-Whitened Vs. Whitened Light Curve

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

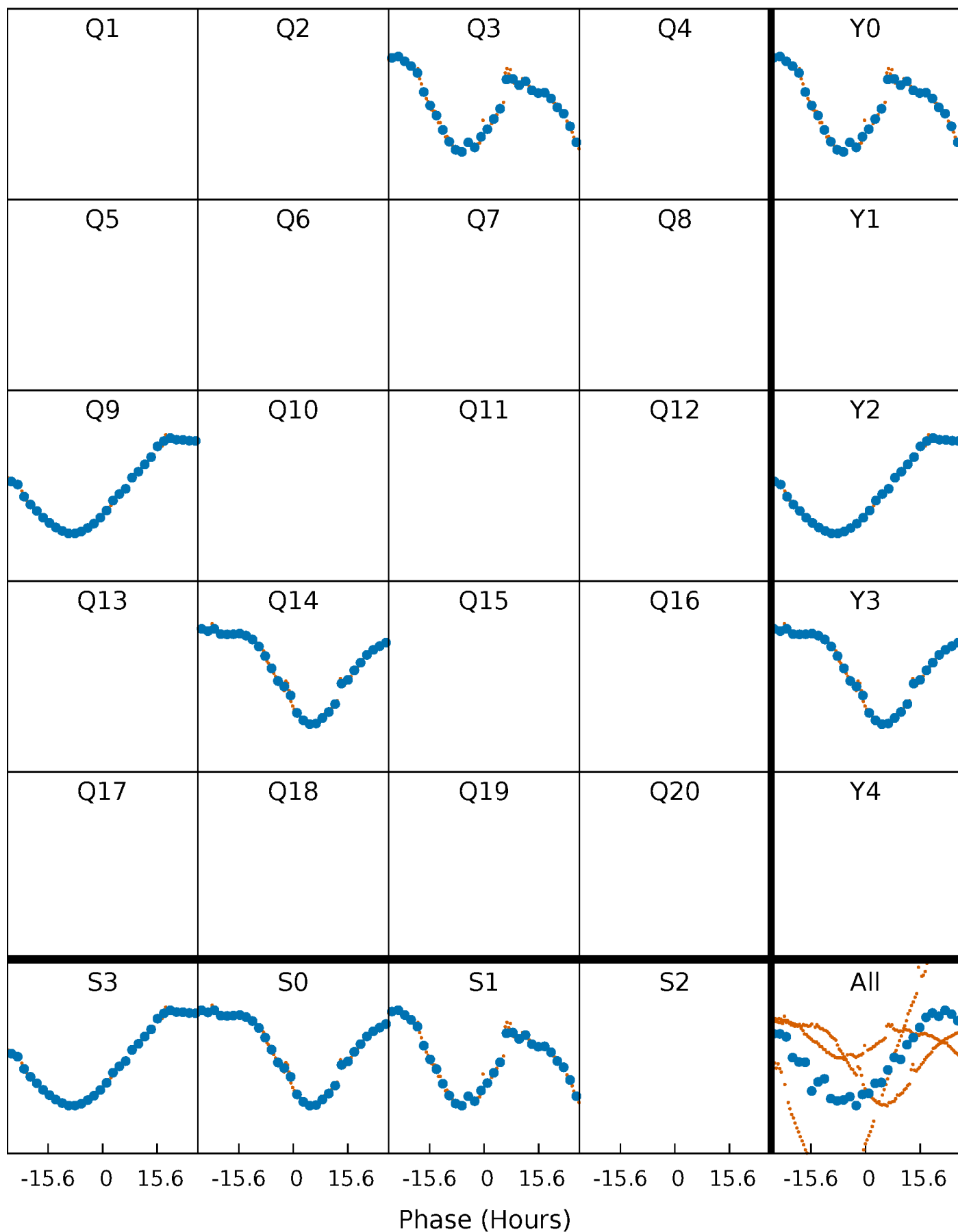


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

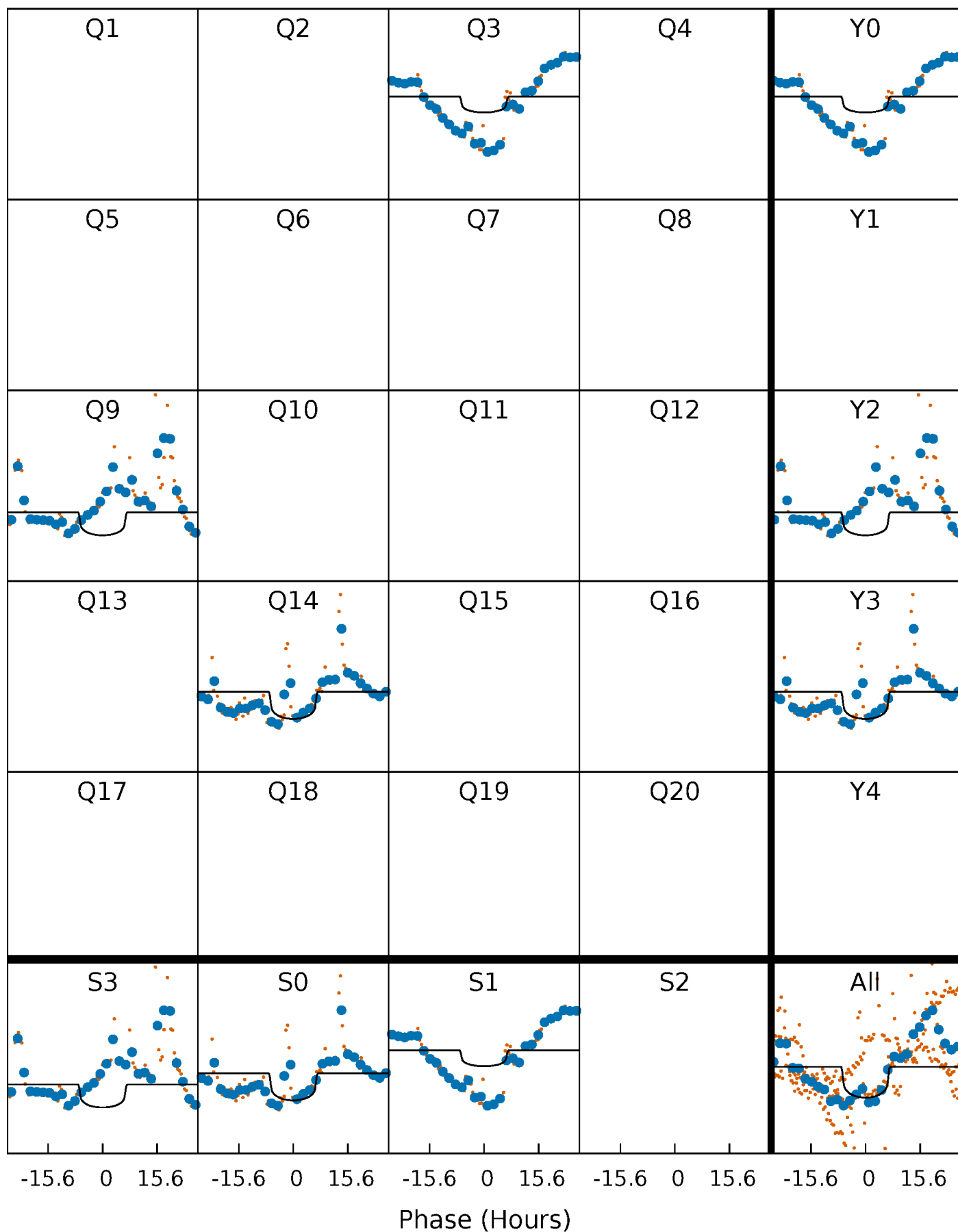
TCE 007036755-01 P=510.583528 Days  $T_0=308.356281$  (BKJD)





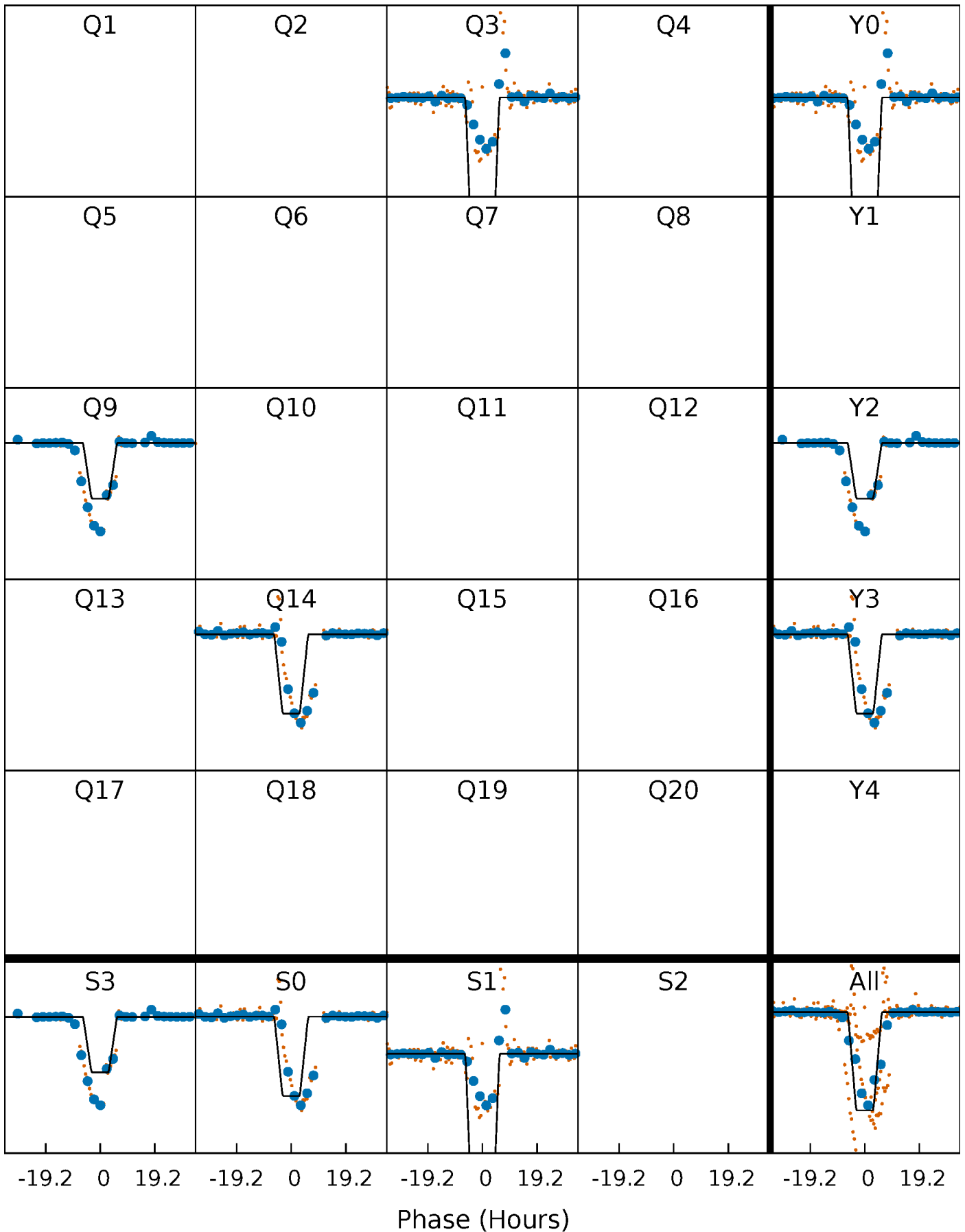
# DV Quarter-Phased Transit Curves

TCE 007036755-01 P=510.583528 Days  $T_0=308.356281$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

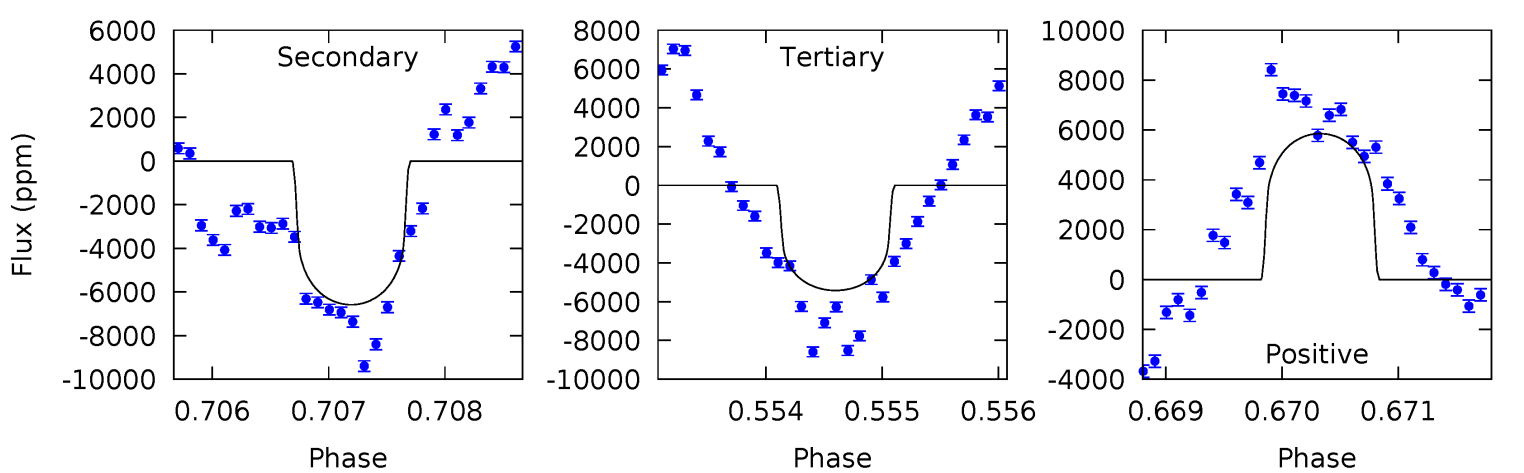
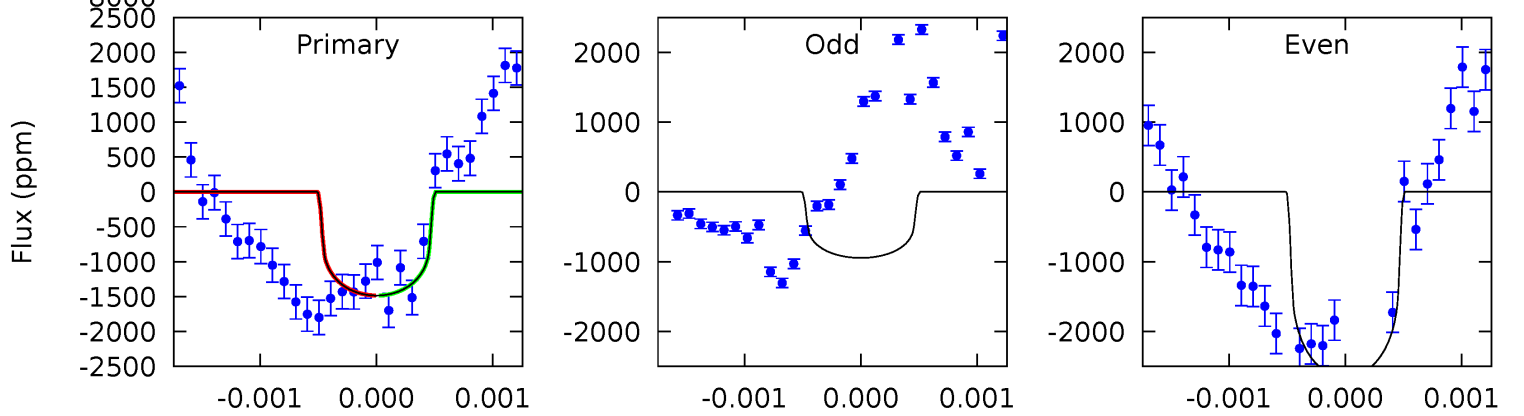
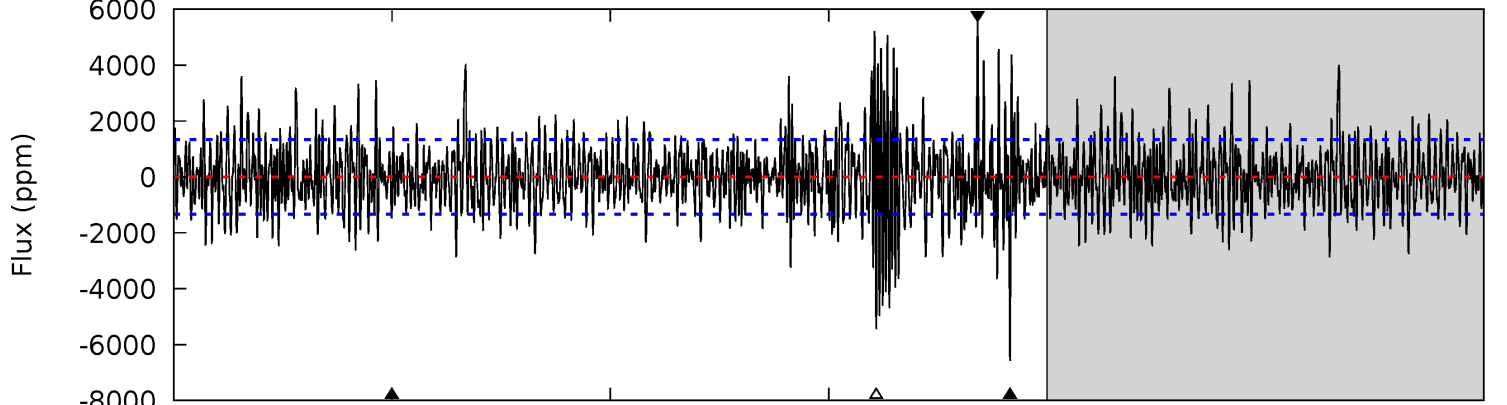
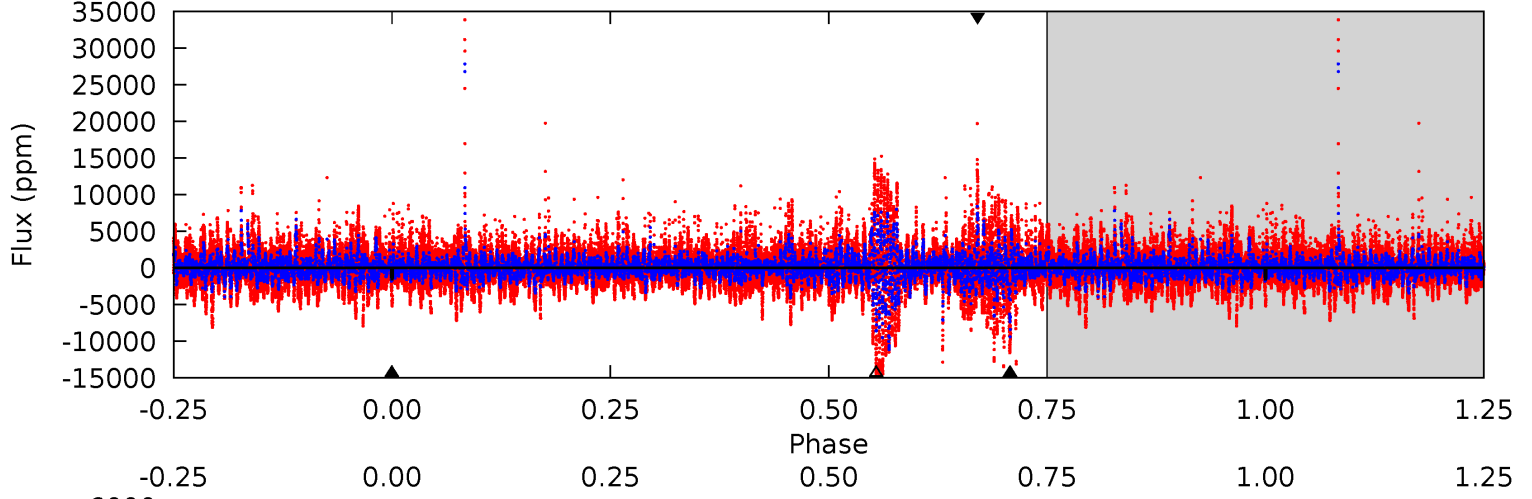
TCE 007036755-01 P=510.641476 Days  $T_0=308.346143$  (BKJD)



# DV Model-Shift Uniqueness Test

007036755-01, P = 510.583528 Days, E = 308.356281 Days

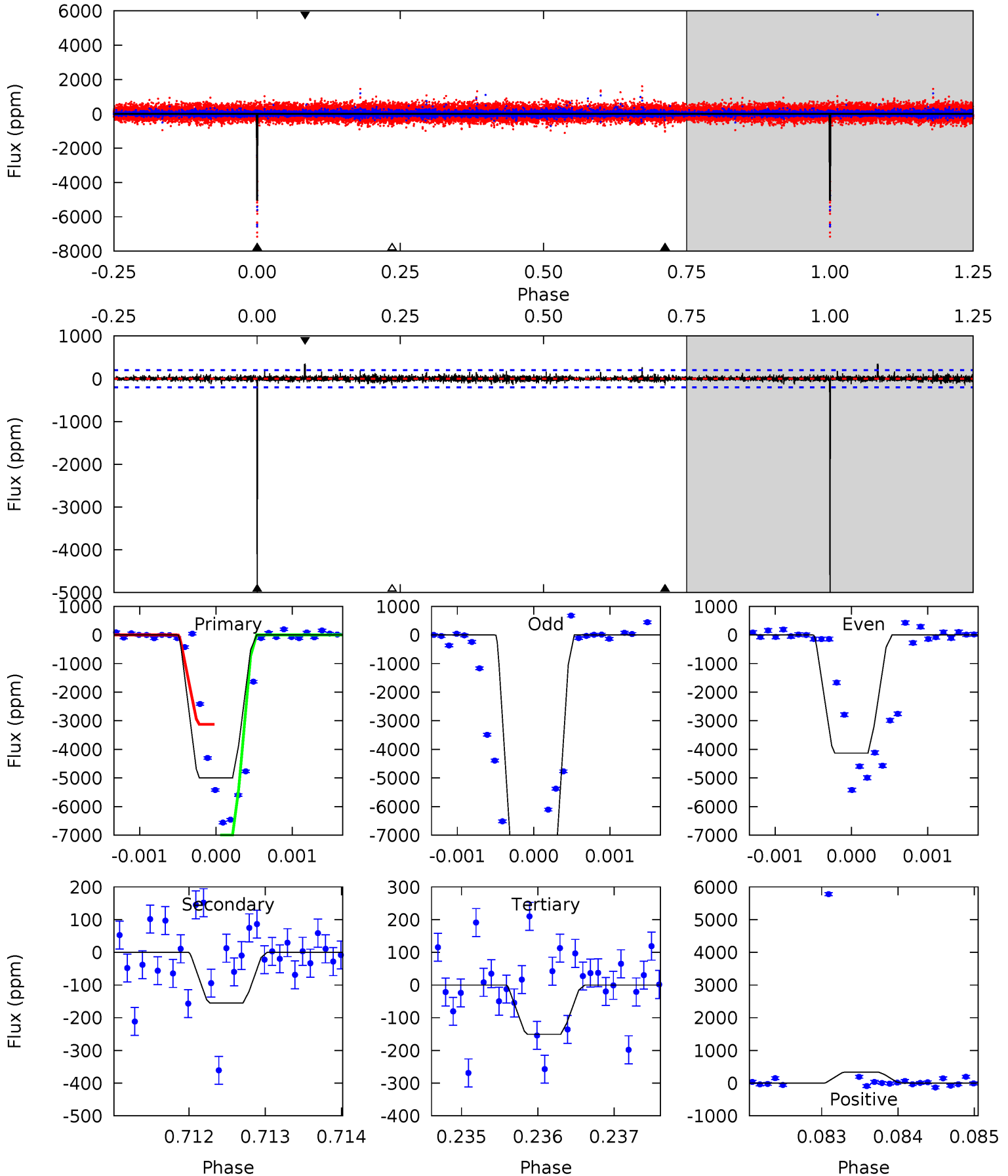
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.05 | 26.8 | 22.1 | 23.8 | 5.43            | 3.26            | 4.53             | -16.0   | -17.8   | 4.74    | 2.98    | 2.95    | 1.59 | 0.47  | 0.00 |



# Alt Model-Shift Uniqueness Test

007036755-01, P = 510.641476 Days, E = 308.346143 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 |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 136.0 | 4.21 | 4.11 | 9.23 | 5.45            | 3.29            | 0.82             | 131.9   | 126.8   | 0.11    | -5.02   | 90.6    | 1.05 | 0.06  | 0   |





### Stellar Parameters For KIC 007036755

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $4425^{+121}_{-148}$ | $4.760^{+0.063}_{-0.032}$ | $-1.380^{+0.300}_{-0.300}$ | $0.486^{+0.031}_{-0.050}$ | $0.495^{+0.034}_{-0.034}$ | $6.087^{+1.776}_{-0.785}$                     |
|        | +3%/-3%              | +1%/-1%                   | +22%/-22%                  | +6%/-10%                  | +7%/-7%                   | +29%/-13%                                     |
| Source | PHO1                 | KIC0                      | KIC0                       | DSEP                      |                           |   |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007036755-01 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ ) | $T_{\text{max}}$ (K) | $T_{\text{obs}}$ (K)  | $A_{\text{obs}}$               |
|---------|-----------------|------------------------|----------------------|-----------------------|--------------------------------|
| DV      | $-6585 \pm 245$ | $1.80^{+0.58}_{-0.57}$ | $190^{+6}_{-6}$      | $6463^{+1721}_{-808}$ | $1104549^{+1248360}_{-467323}$ |
| Alt.    | $-155 \pm 37$   | $4.23^{+0.61}_{-0.57}$ | $190^{+7}_{-7}$      | $2502^{+124}_{-121}$  | $4574^{+2073}_{-1309}$         |

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

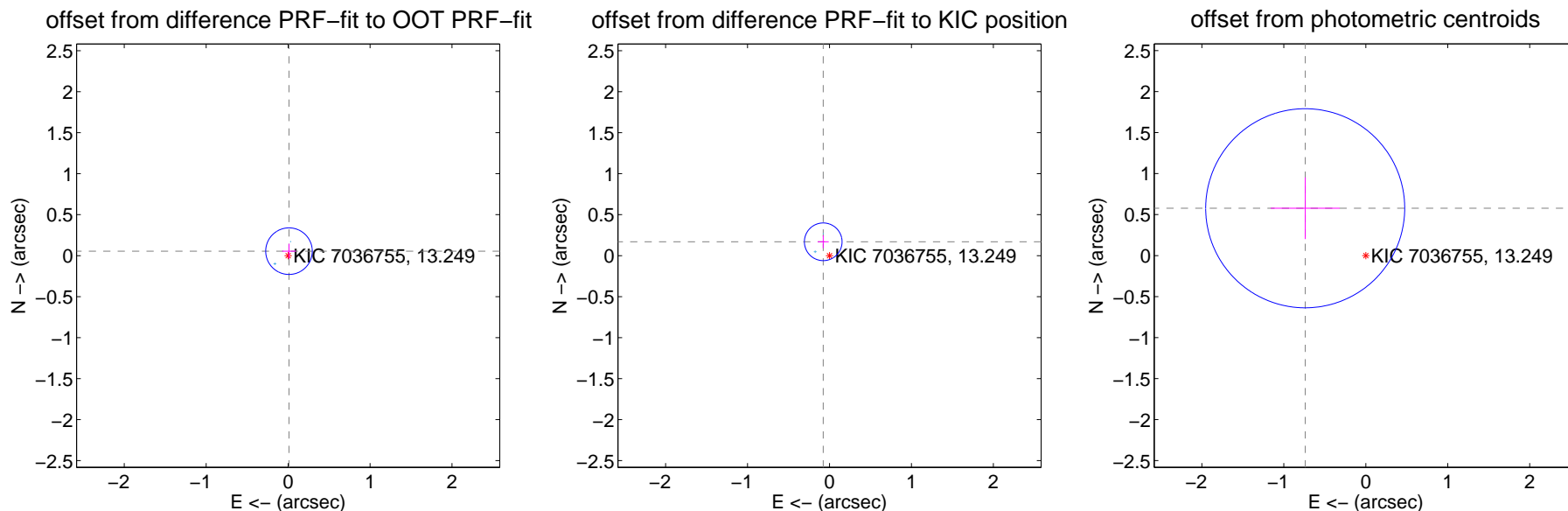
## DV Centroid Data

Supplemental centroid analysis for 007036755-01. Kepler magnitude: 13.25. Transit SNR 5.60

There are 3 quarters with good PRF difference image offsets

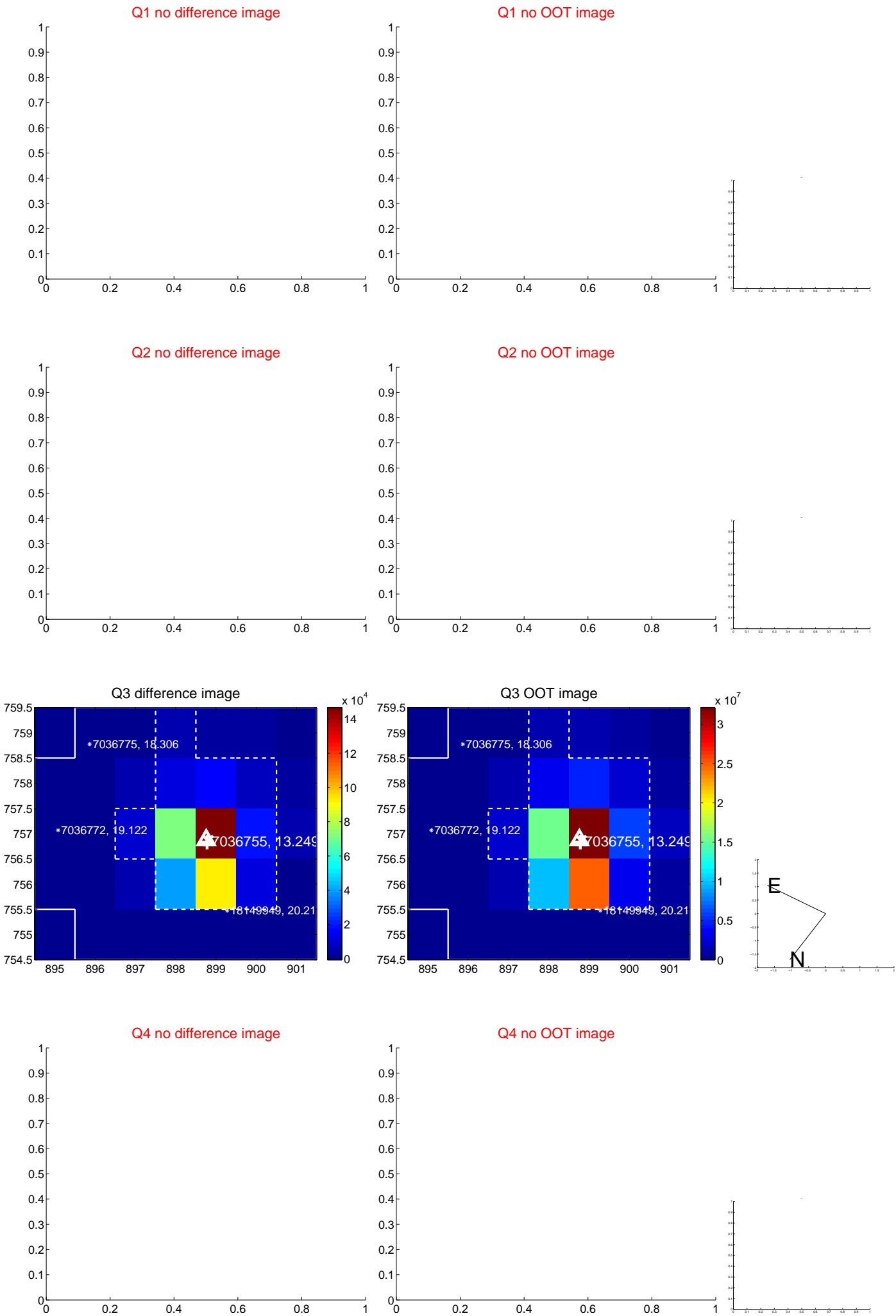
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | $0.056 \pm 0.095$  | 0.59                | $-0.011 \pm 0.084$ | $0.055 \pm 0.090$ |
| PRF-fit source offset from KIC position | $0.186 \pm 0.077$  | 2.42                | $0.076 \pm 0.067$  | $0.169 \pm 0.078$ |
| photometric centroid source offset      | $0.94 \pm 0.40$    | 2.32                | $0.74 \pm 0.42$    | $0.58 \pm 0.38$   |



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

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

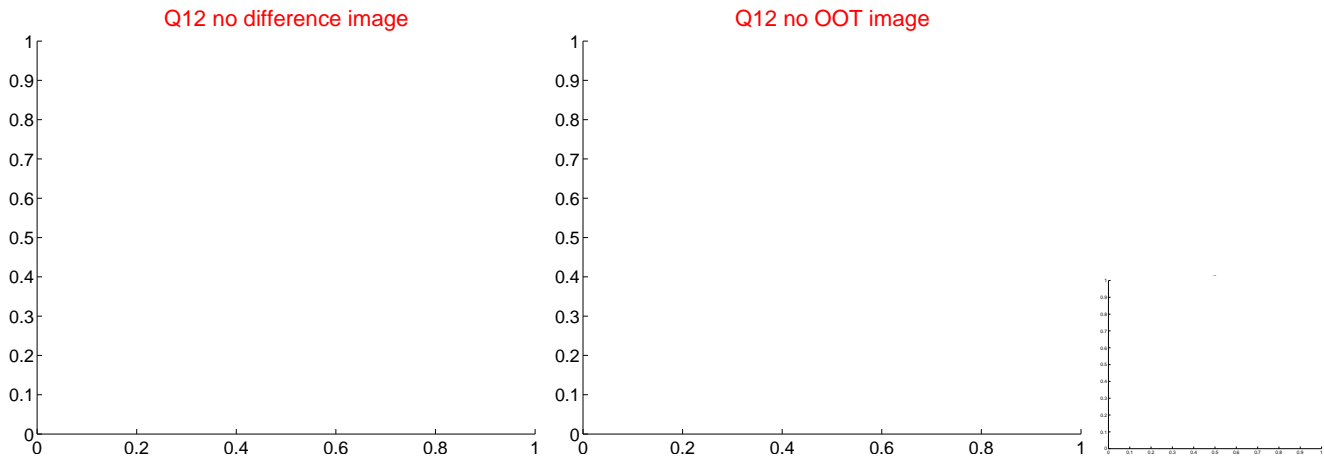
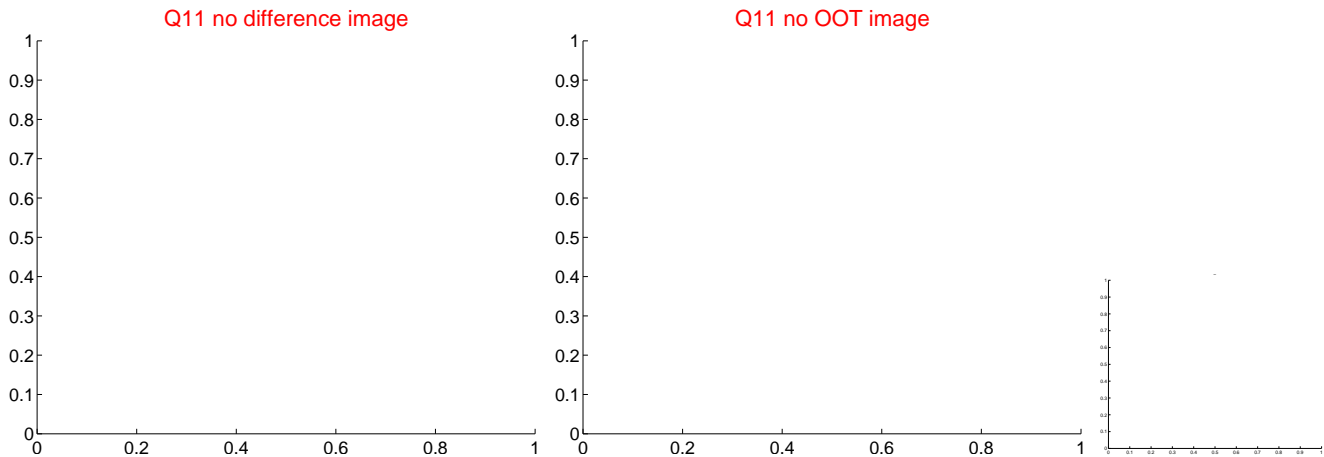
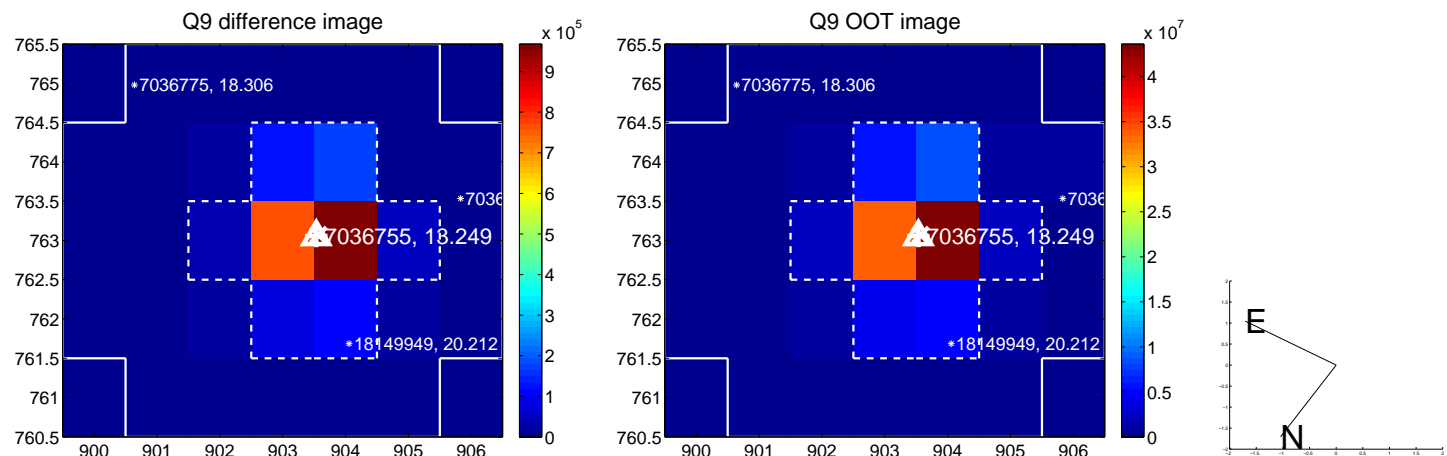


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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

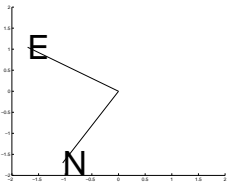
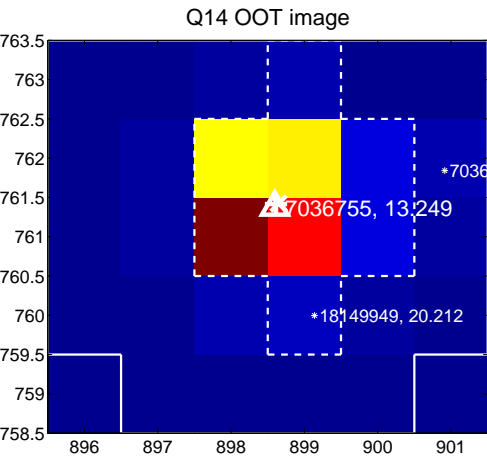
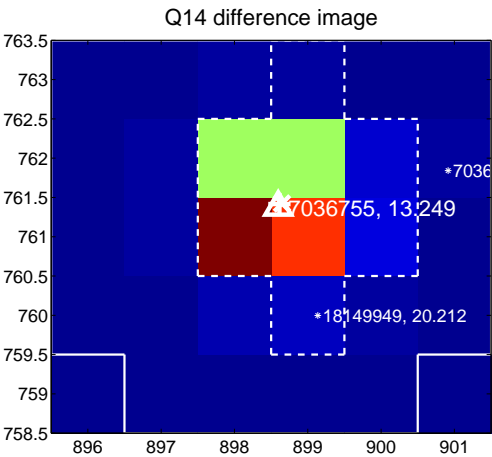


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

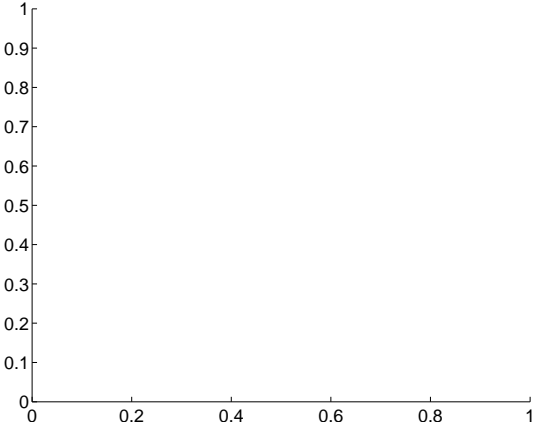
Q13 no difference image



Q13 no OOT image



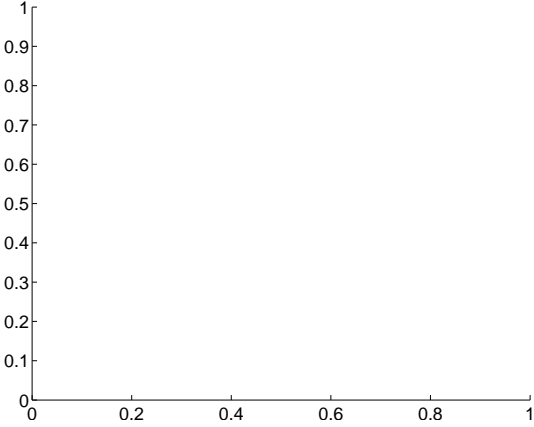
Q15 no difference image



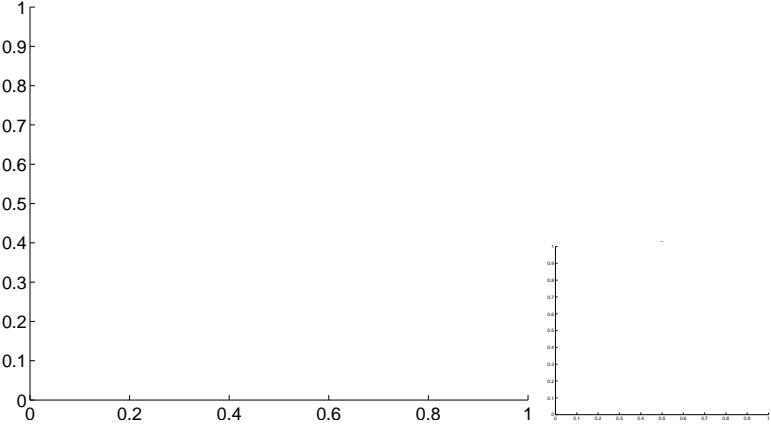
Q15 no OOT image



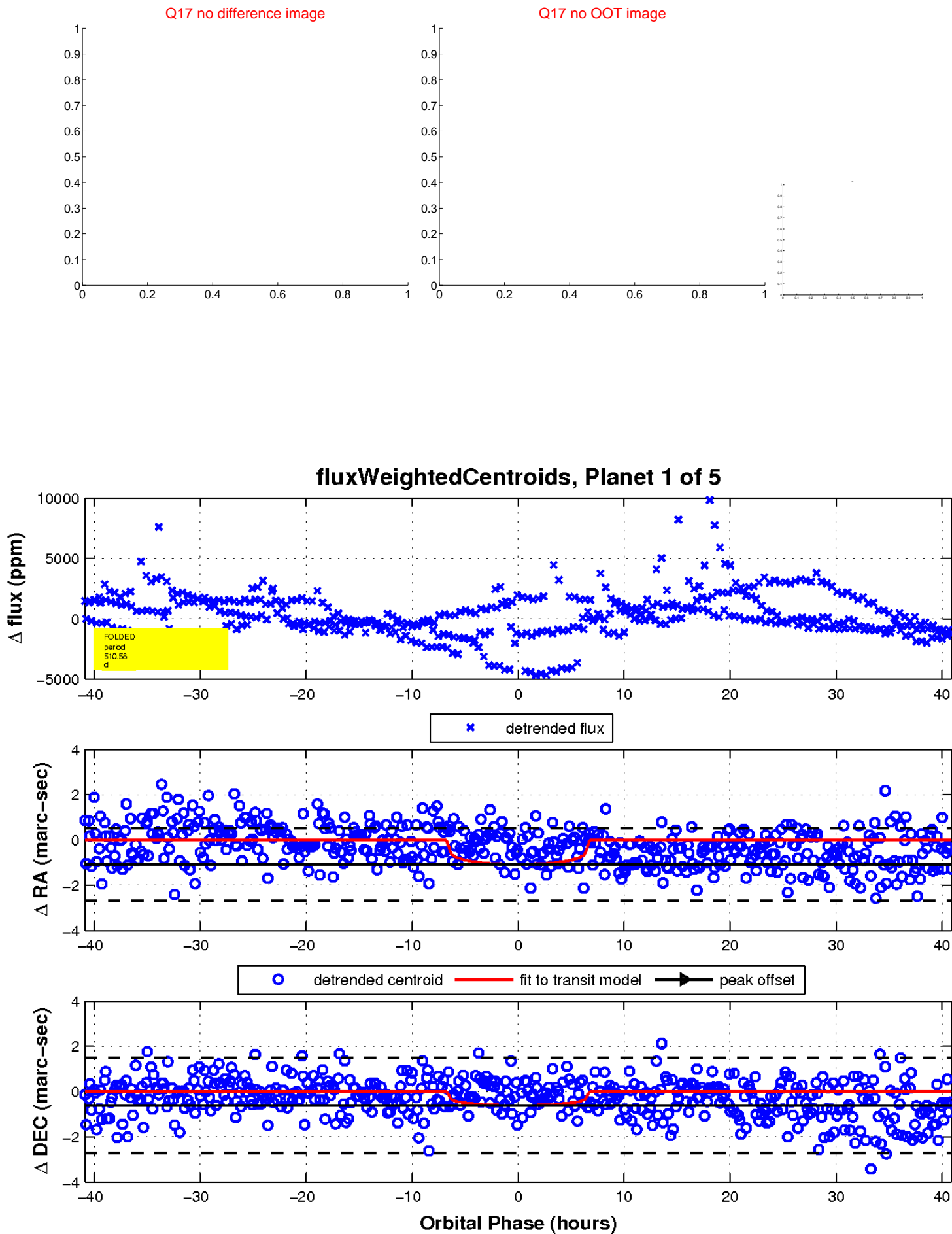
Q16 no difference image



Q16 no OOT image

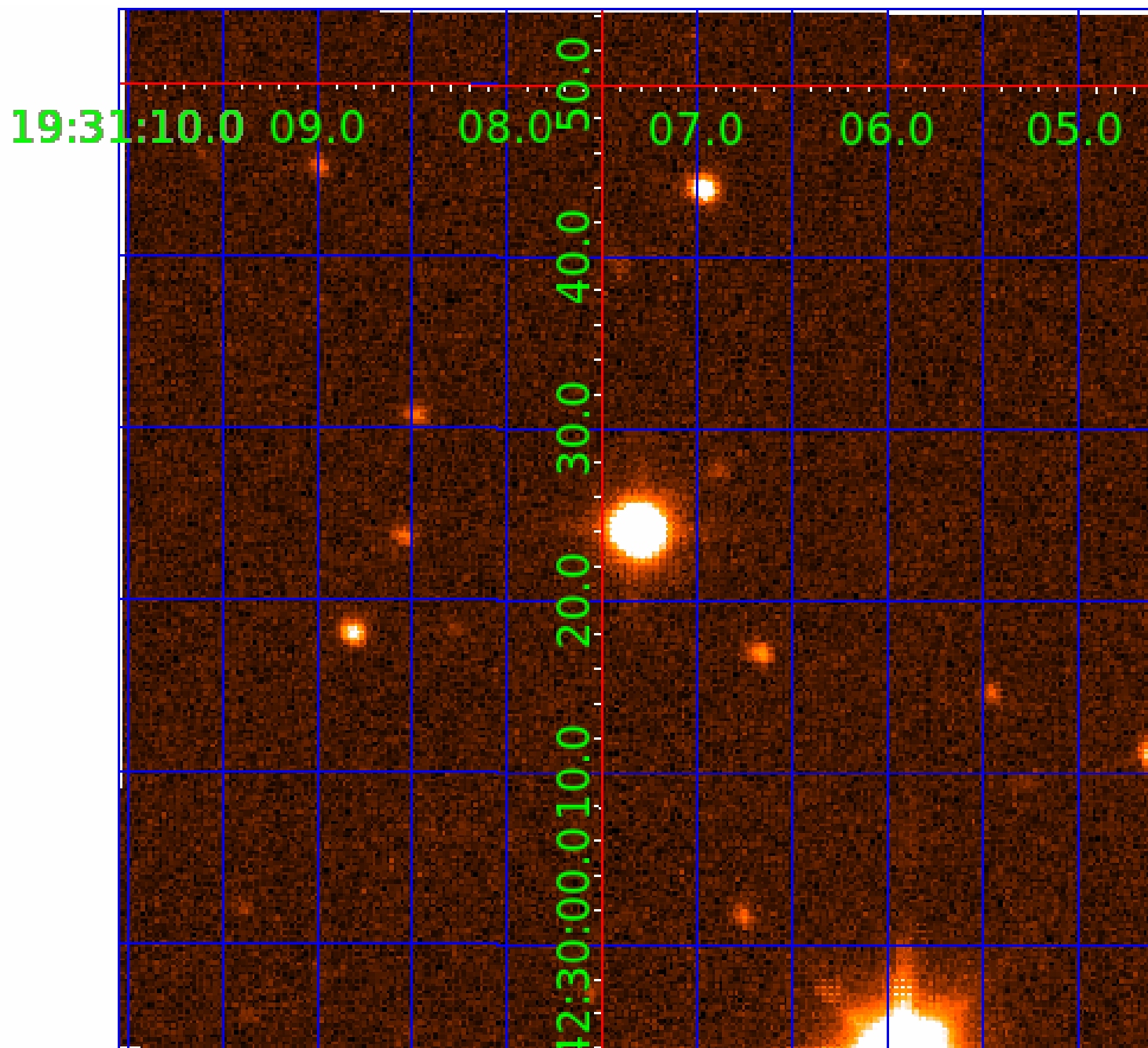


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007036755

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007036755-01 | OBS      | No   | 510.583528    | 308.356281   | 1438.1      | 13.650           | 17.2 | 5.6  | 0.49                        | 4425            | 1.84                   | 0.08                   |
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| 007036755-05 | OBS      | No   | 0.850606      | 132.264119   | 527.3       | 1.500            | 8.5  | -1.0 | 0.49                        | 4425            | 1.11                   | 419.44                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007036755-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV       |
| 007036755-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV  |
| 007036755-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS                  |
| 007036755-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV |
| 007036755-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—CENT_NOFITS  |

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

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

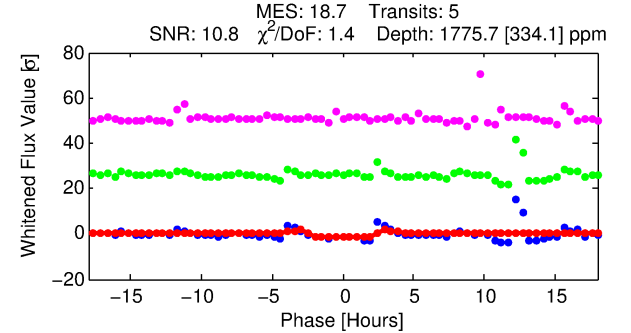
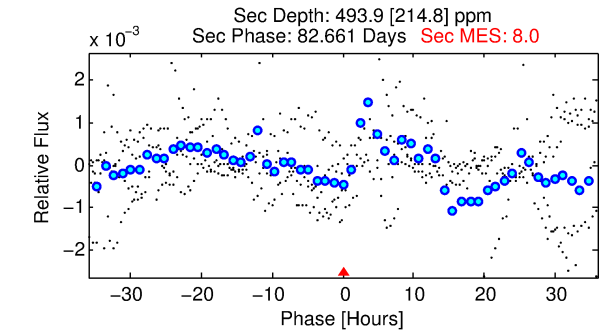
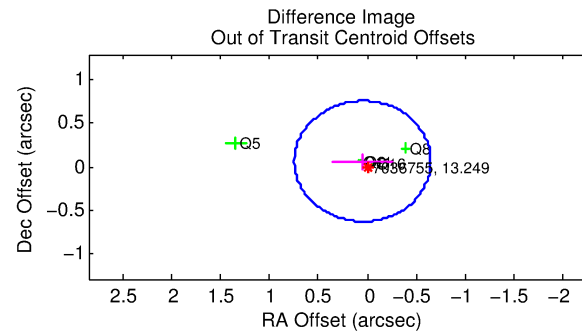
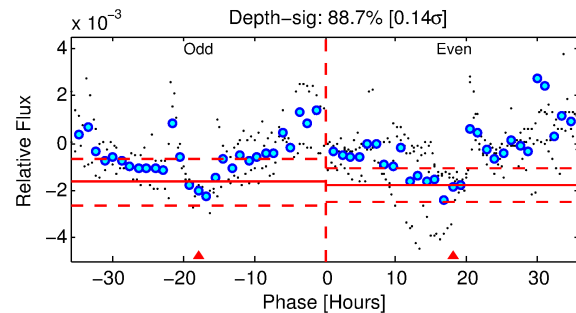
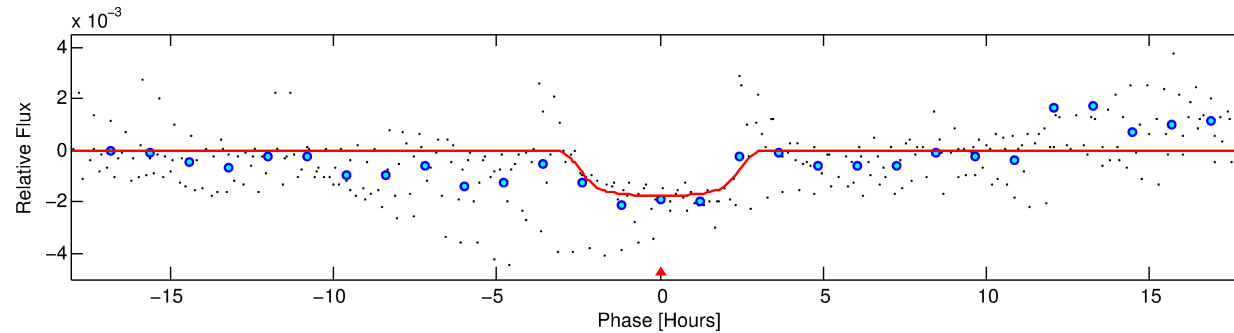
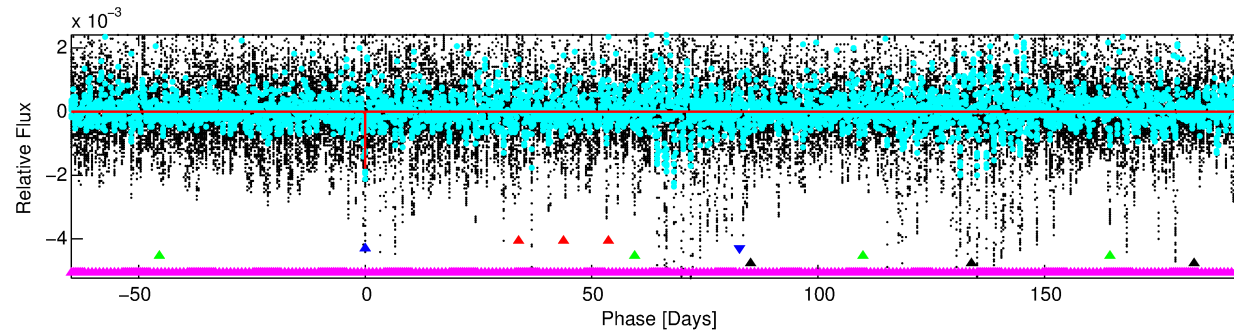
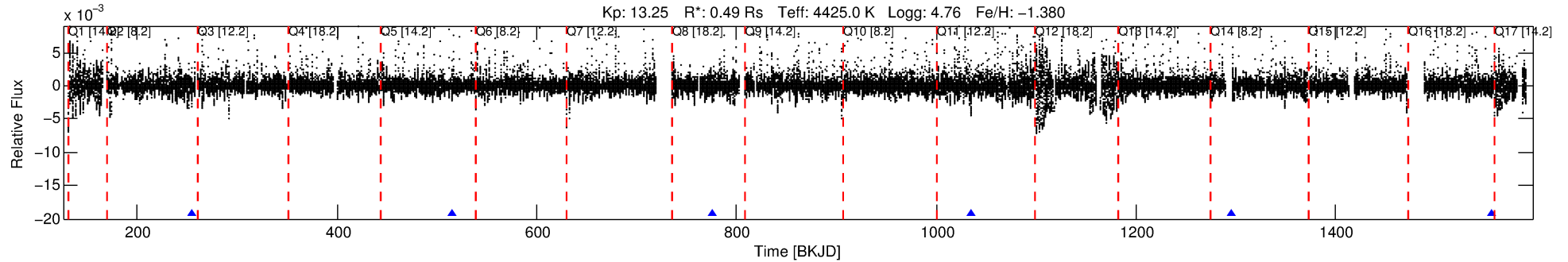
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007036755-02

No Significant Match Found

# DV One-Page Summary

KIC: 7036755 Candidate: 2 of 5 Period: 260.247 d



## DV Fit Results:

Period = 260.24739 [0.00328] d  
Epoch = 254.8425 [0.0088] BKJD  
Rp/R\* = 0.0452 [0.0054]  
a/R\* = 184.62 [44.65]  
b = 0.88 [0.06]  
Seff = 0.20 [0.04]  
Teq = 171 [8] K  
Rp = 2.40 [0.38] Re  
a = 0.6315 [0.0530] AU  
Ag = 18856.45 [9606.46] [1.96 $\sigma$ ]  
Teffp = 3103 [398] K [7.36 $\sigma$ ]

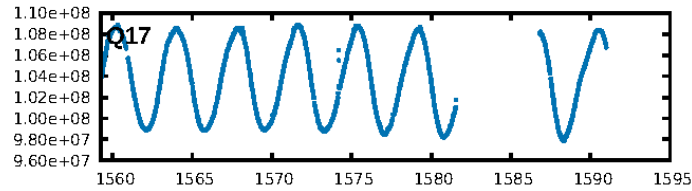
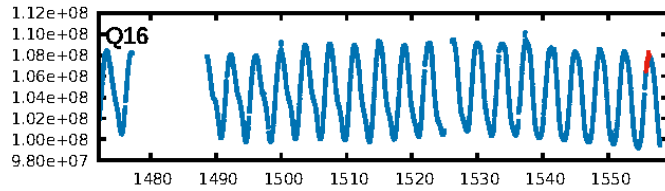
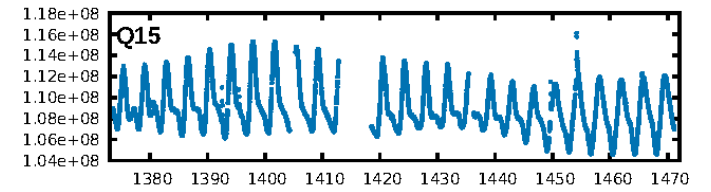
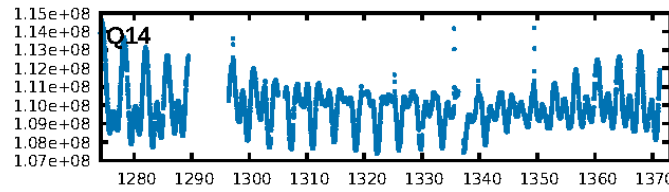
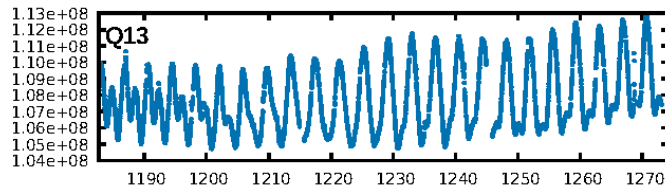
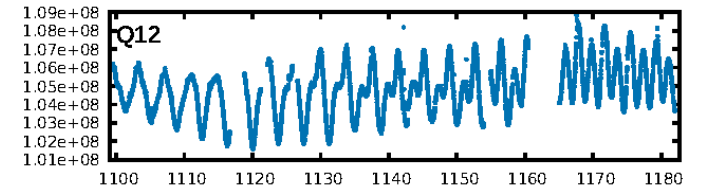
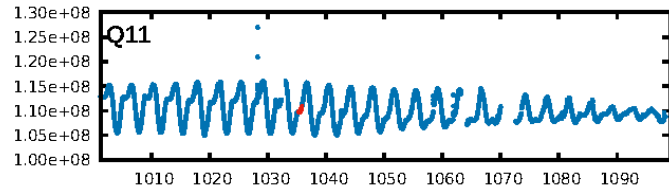
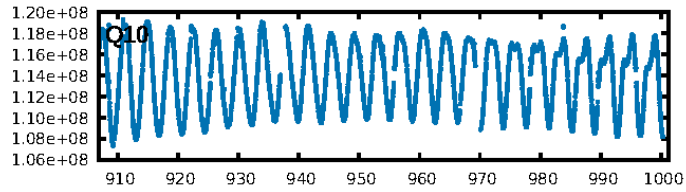
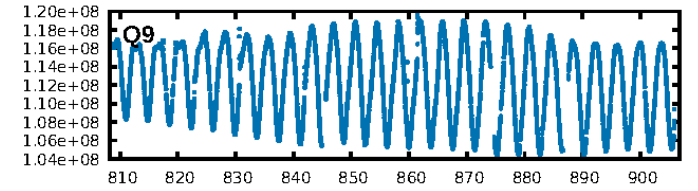
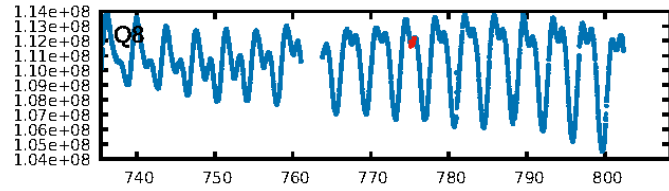
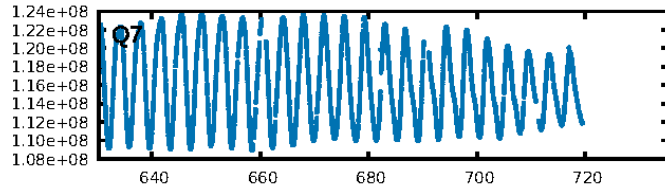
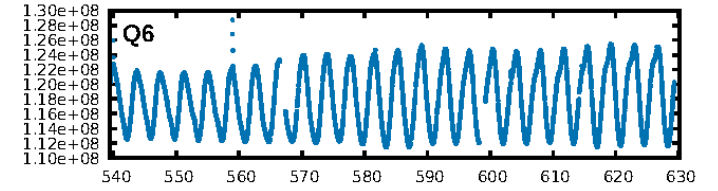
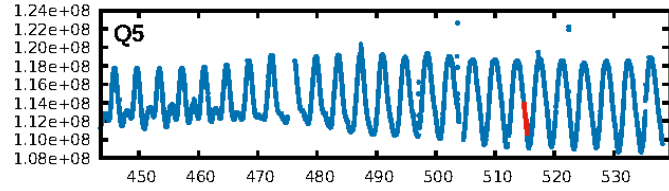
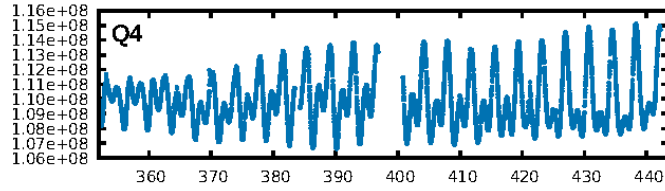
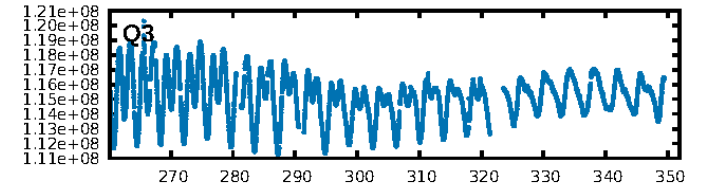
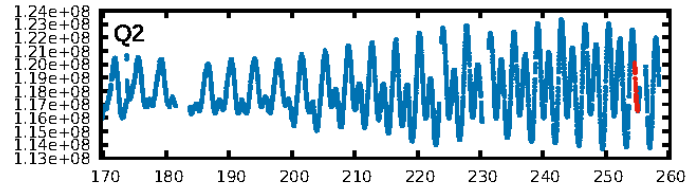
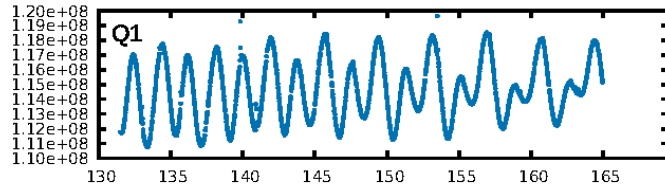
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1003.88 $\sigma$ ]  
LongPeriod-sig: 100.0% [315.94 $\sigma$ ]  
ModelChiSquare2-sig: 1.9%  
ModelChiSquareGof-sig: 89.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 1.468  
Centroid-sig: 0.0%  
Centroid-so: 0.651 arcsec [2.81 $\sigma$ ]  
OotOffset-rm: 0.080 arcsec [0.35 $\sigma$ ]  
KicOffset-rm: 0.278 arcsec [2.17 $\sigma$ ]  
OotOffset-st: 1/1/2/1 [5]  
KicOffset-st: 1/1/2/1 [5]  
DiffImageQuality-fgm: 0.80 [4/5]  
DiffImageOverlap-fno: 0.00 [0/5]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:36:41 Z

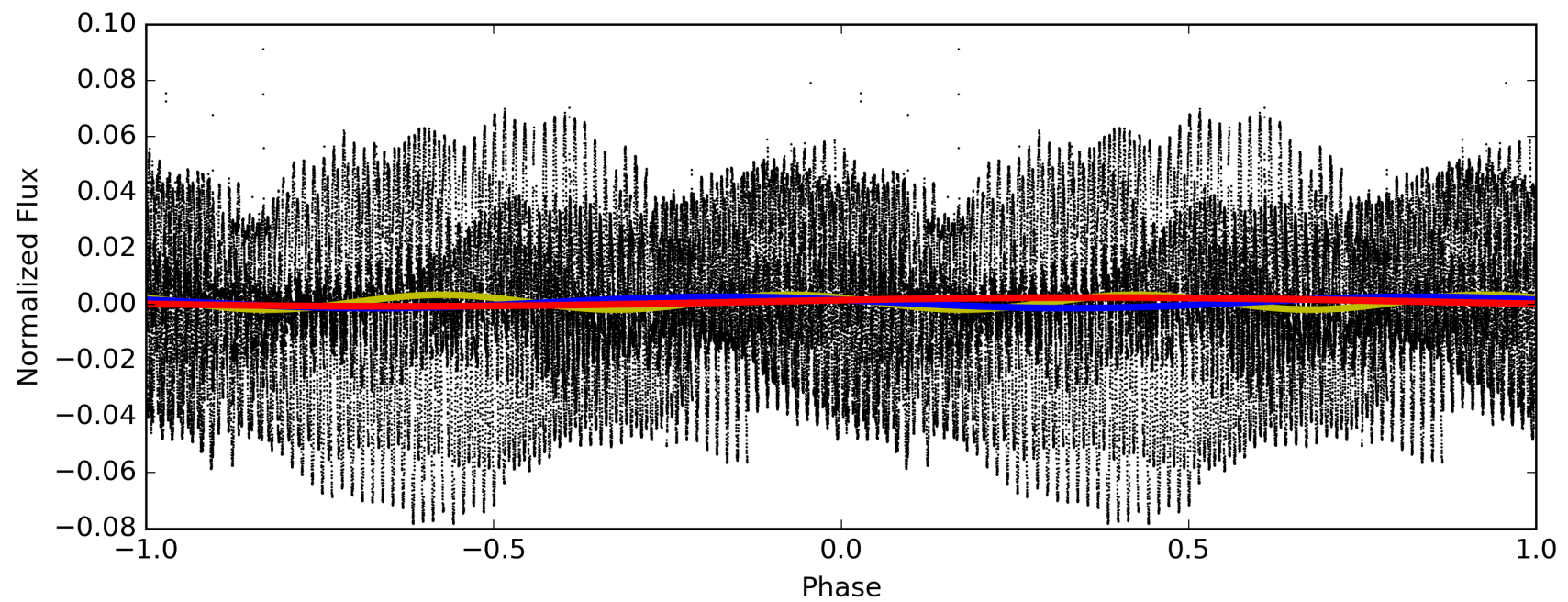
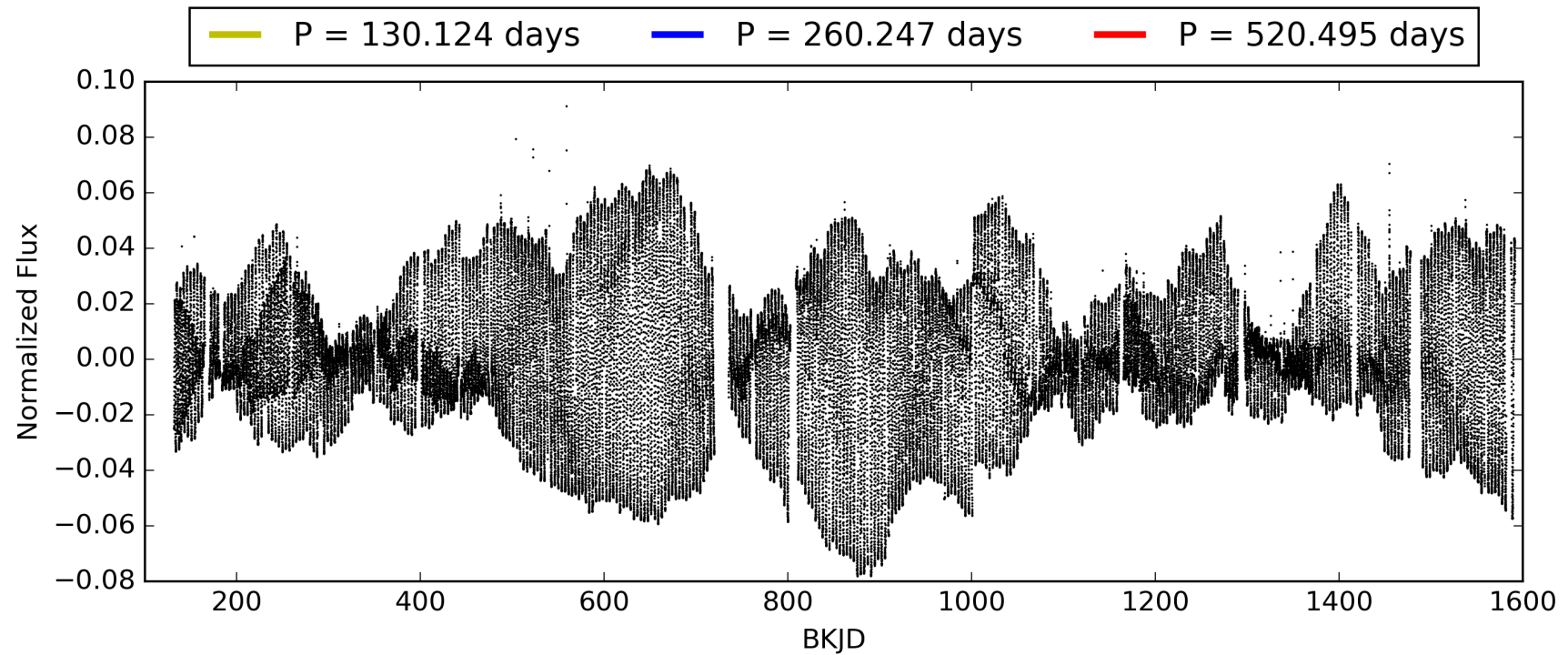
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007036755-02, PDC Light Curves





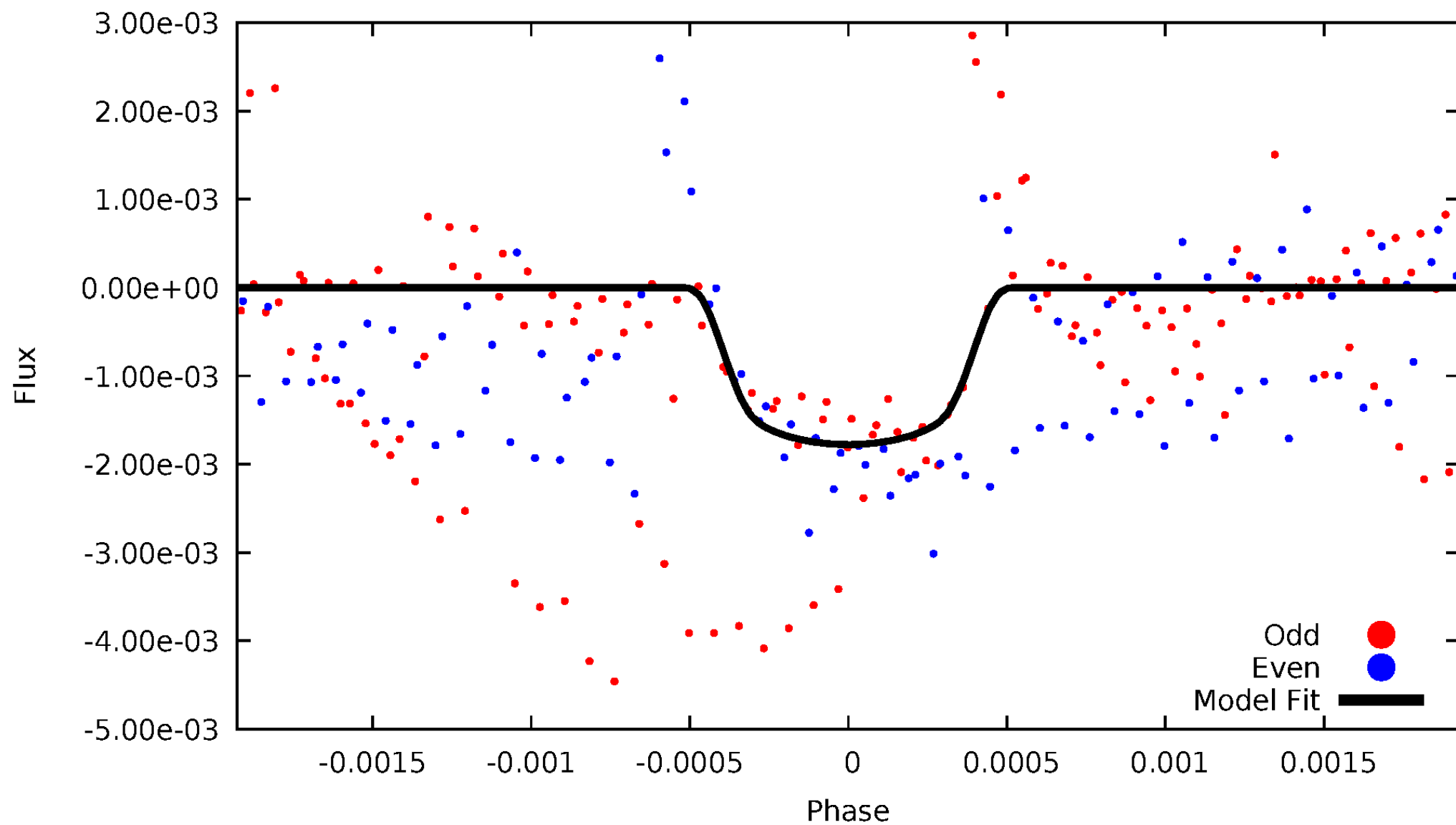
TCE 007036755-02





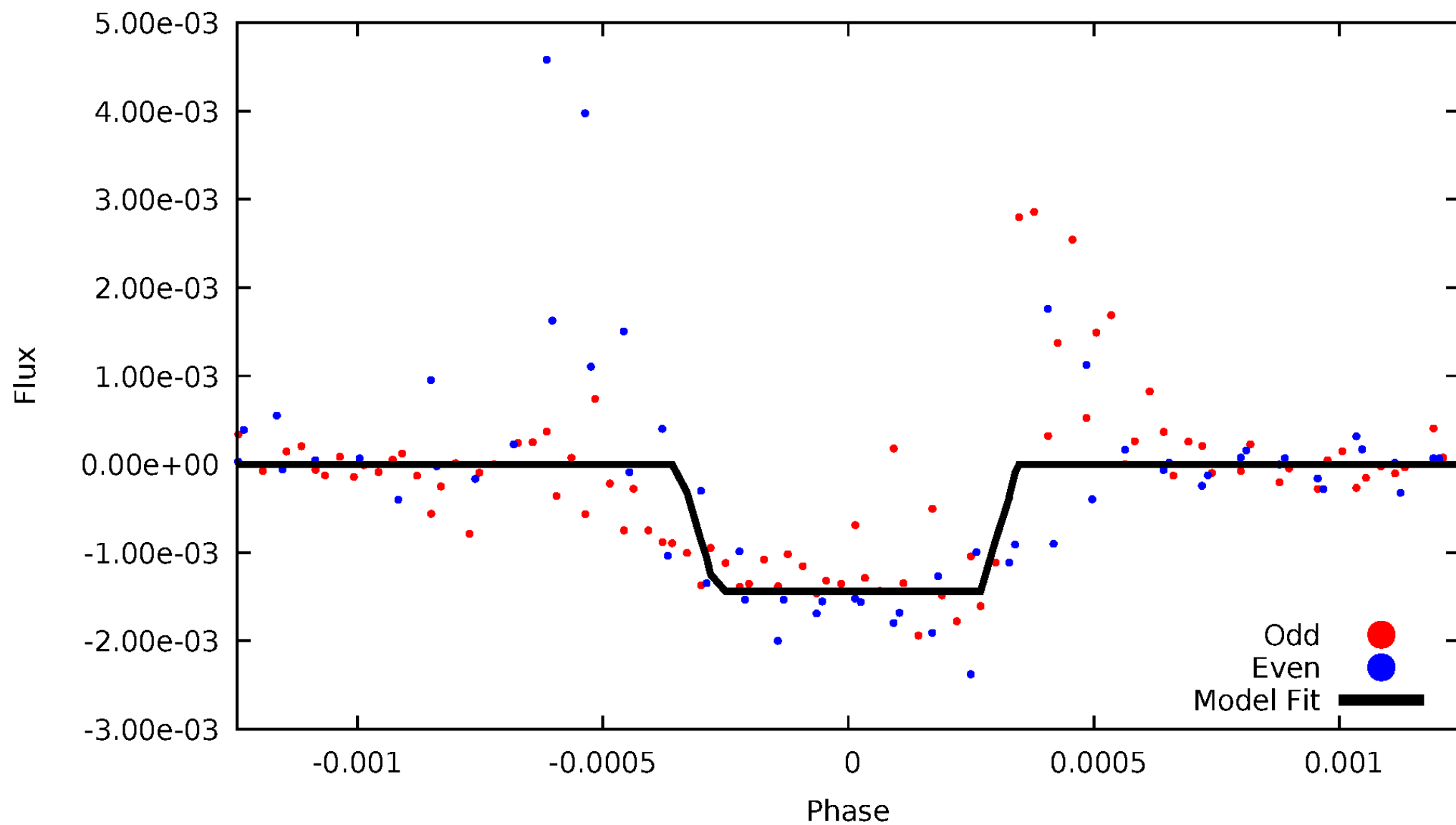
# DV Odd/Even

TCE 007036755-02



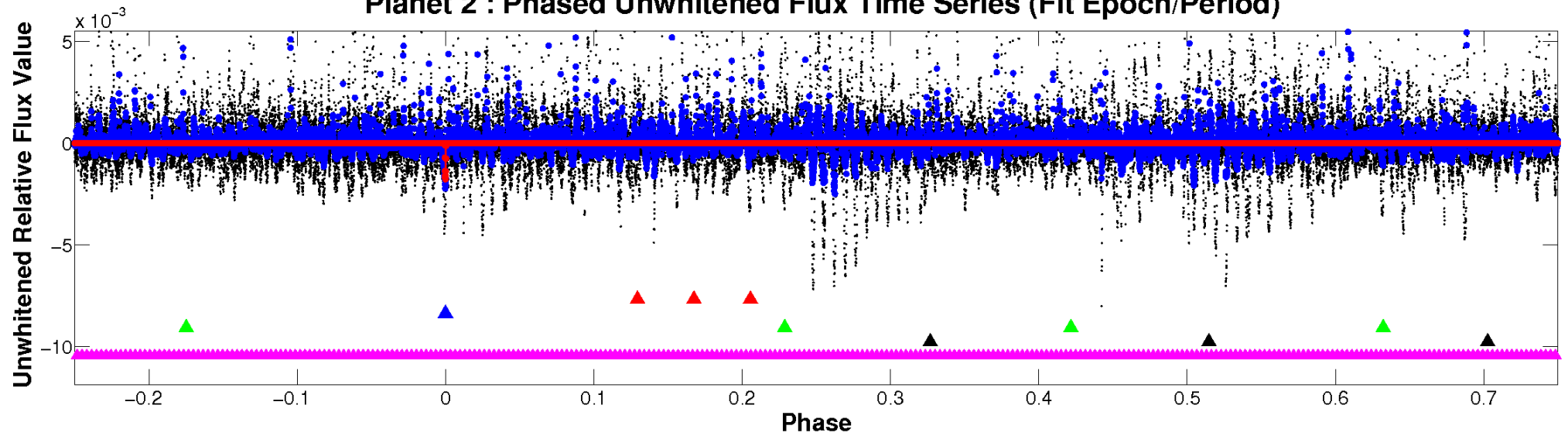
# ALT Odd/Even

TCE 007036755-02

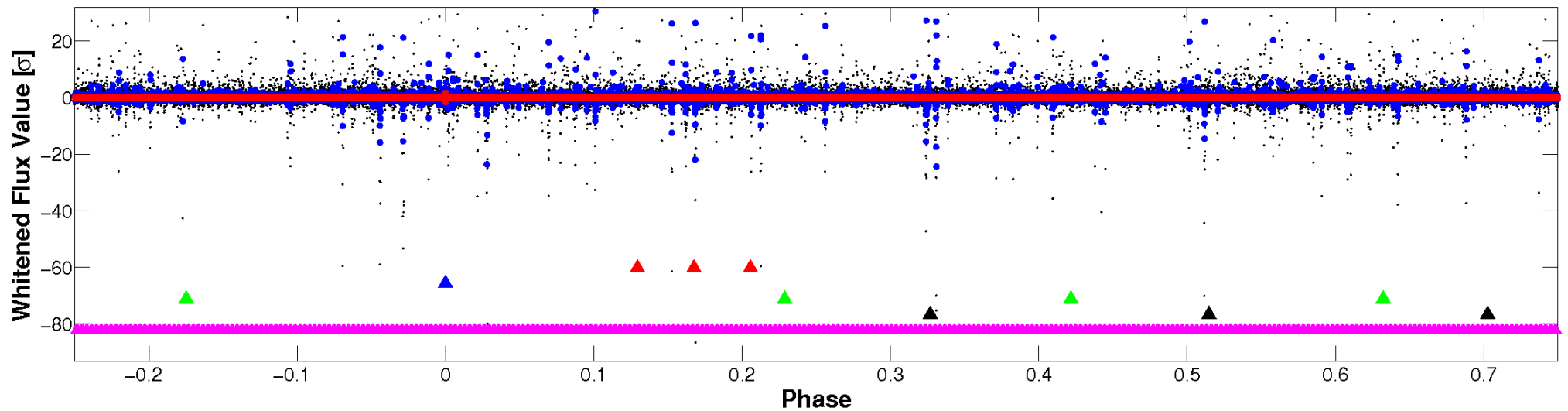


# Non-Whitened Vs. Whitened Light Curve

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

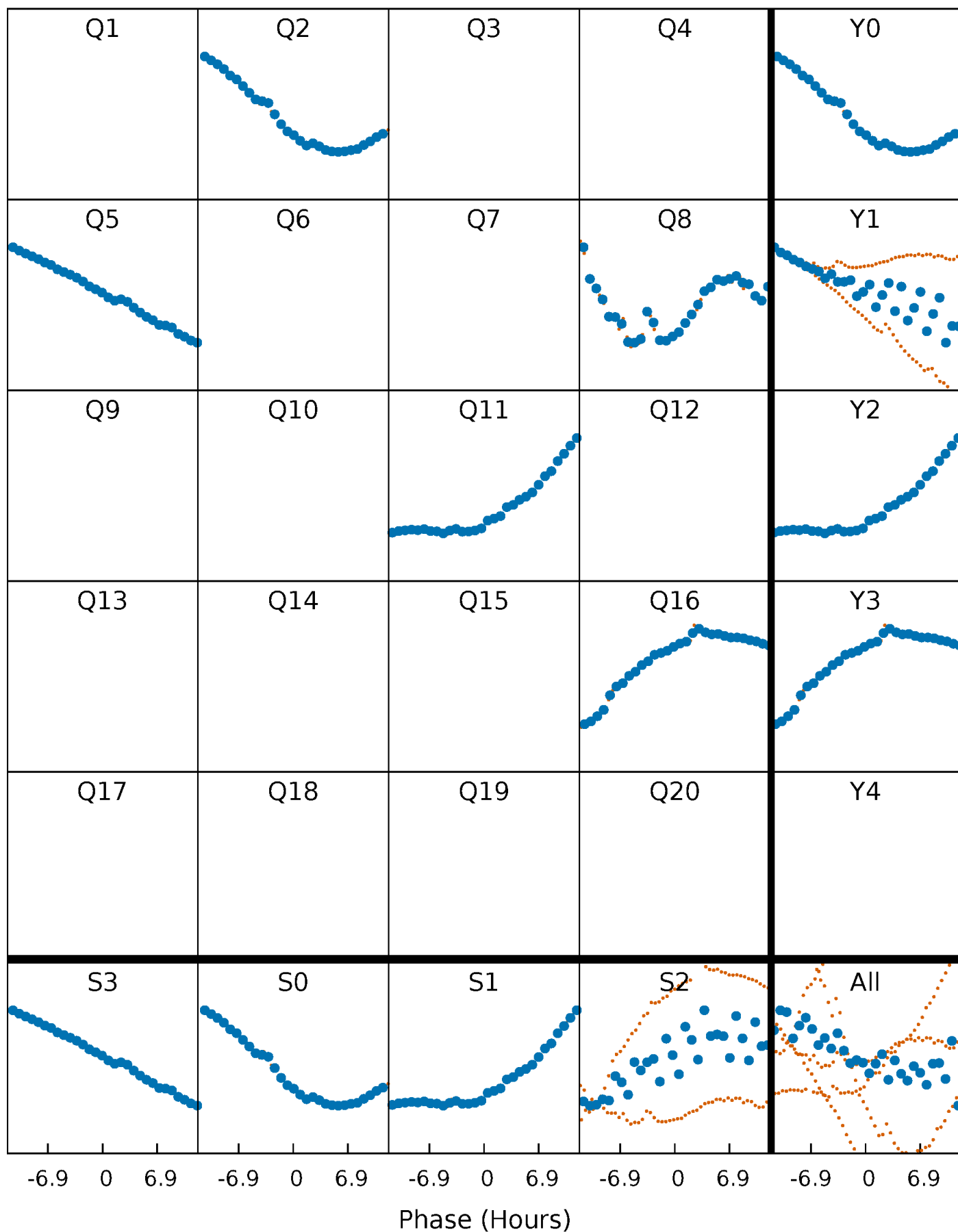


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



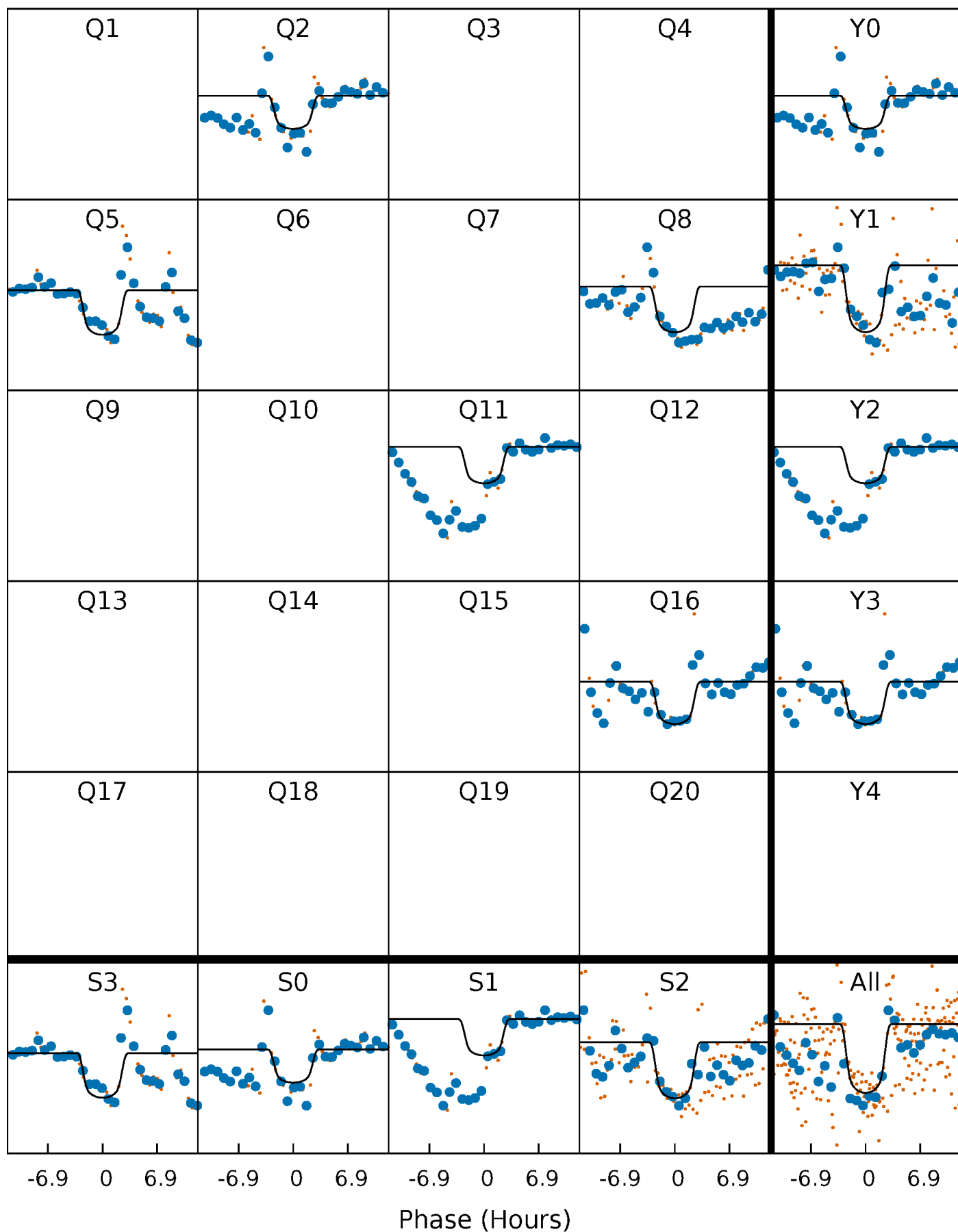
# PDC Quarter-Phased Transit Curves

TCE 007036755-02 P=260.247391 Days  $T_0=254.842484$  (BKJD)



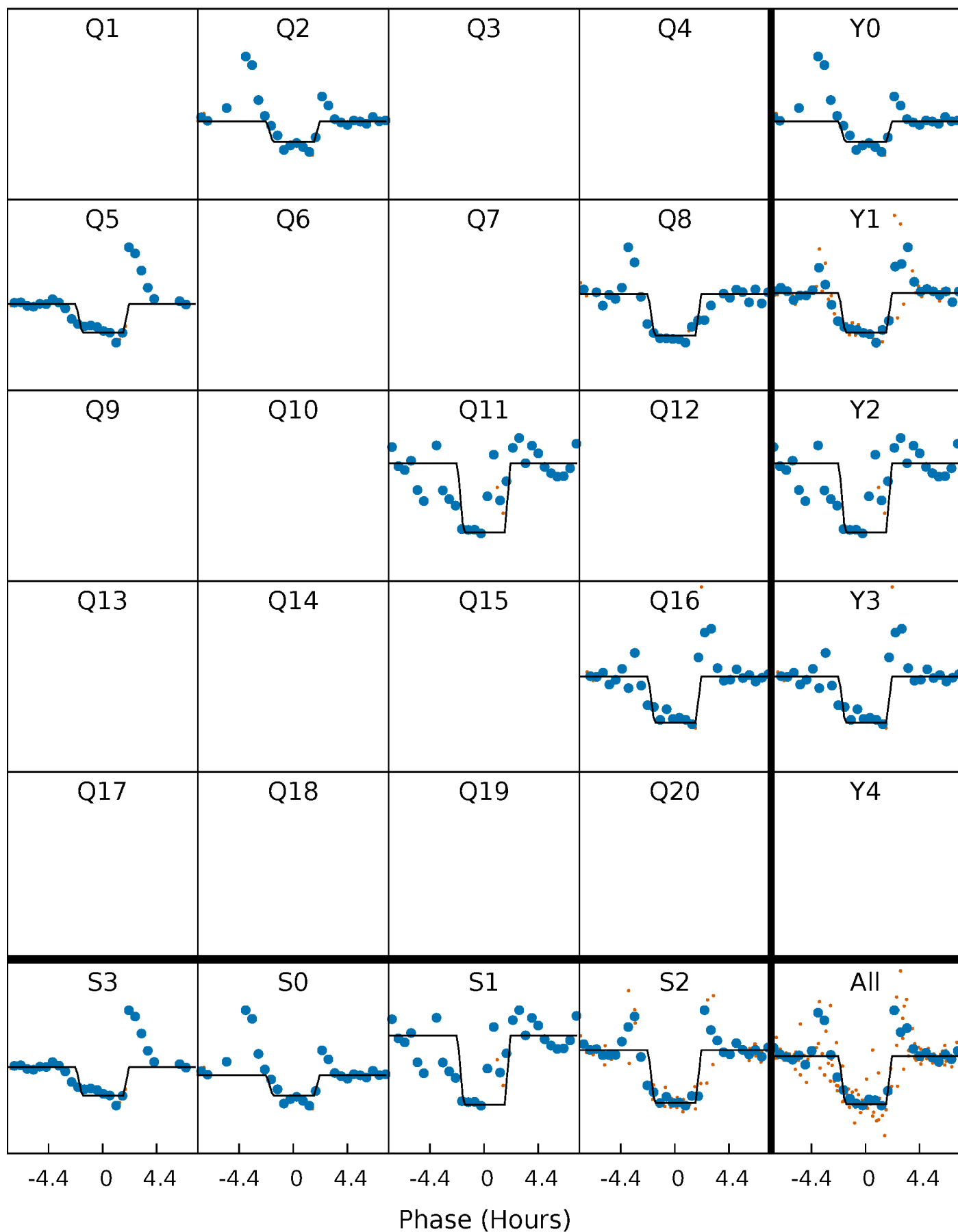
# DV Quarter-Phased Transit Curves

TCE 007036755-02 P=260.247391 Days  $T_0=254.842484$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

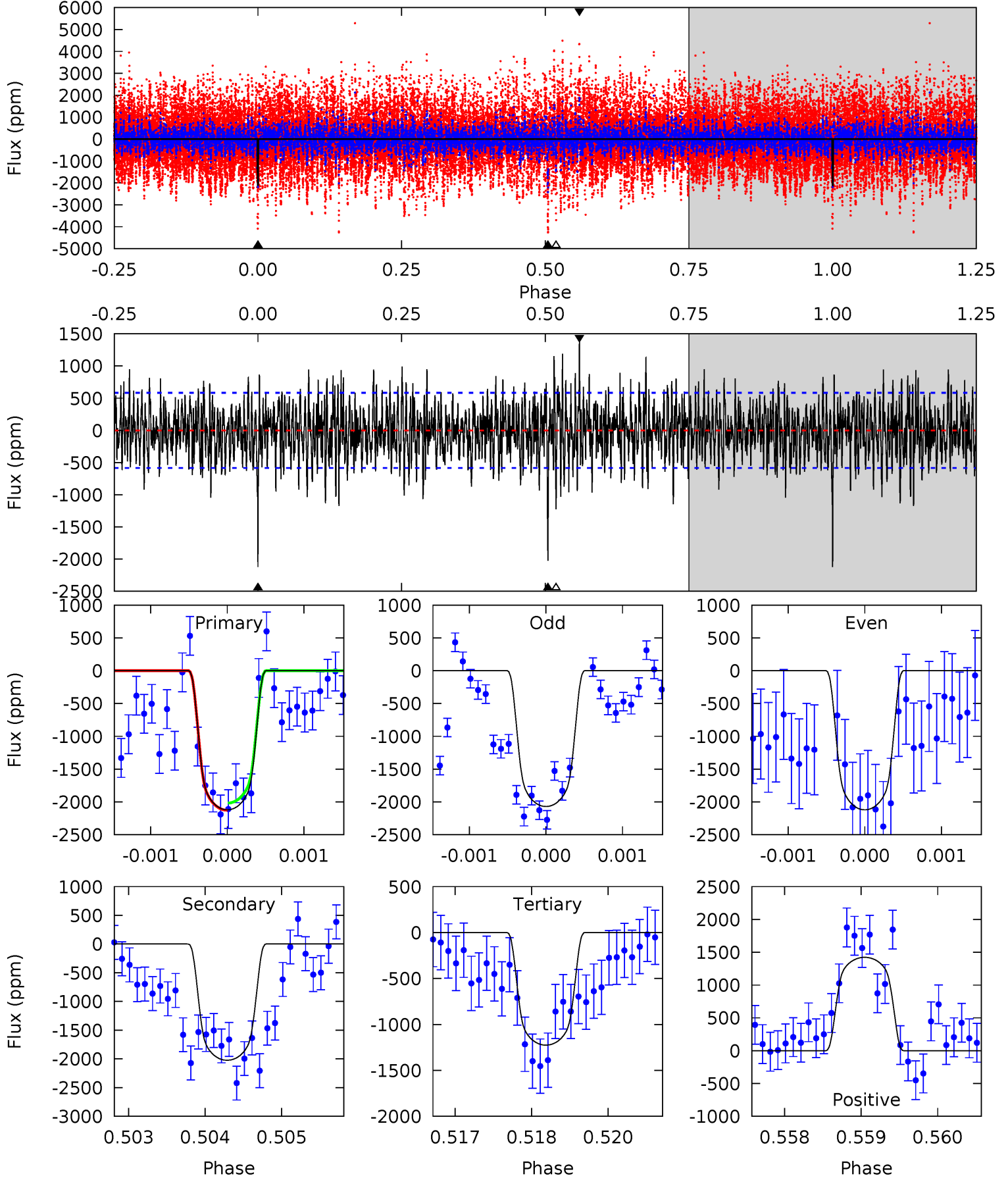
TCE 007036755-02 P=260.248631 Days  $T_0=254.847516$  (BKJD)



# DV Model-Shift Uniqueness Test

007036755-02, P = 260.247391 Days, E = 254.842484 Days

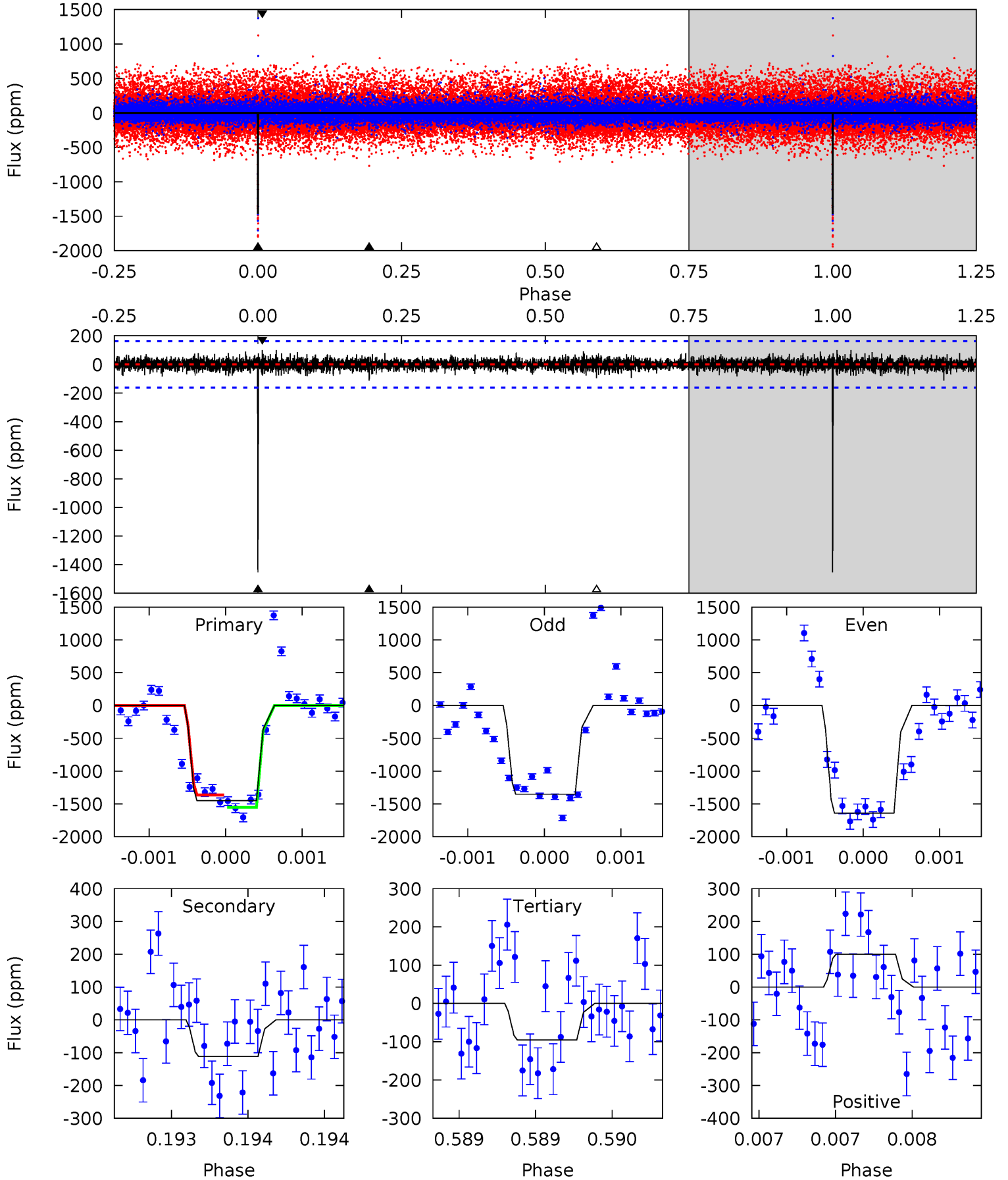
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 19.8 | 18.9 | 11.4 | 13.3 | 5.45            | 3.28            | 3.24             | 8.35    | 6.52    | 7.45    | 5.62    | 0.21    | 1.03 | 0.40  | 0.50 |



# Alt Model-Shift Uniqueness Test

007036755-02, P = 260.248631 Days, E = 254.847516 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 49.4 | 3.80 | 3.24 | 3.40 | 5.52            | 3.40            | 0.75             | 46.2    | 46.0    | 0.55    | 0.39    | 5.17    | 0.96 | 0.06  | 3.28 |





### Stellar Parameters For KIC 007036755

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $4425^{+121}_{-148}$ | $4.760^{+0.063}_{-0.032}$ | $-1.380^{+0.300}_{-0.300}$ | $0.486^{+0.031}_{-0.050}$ | $0.495^{+0.034}_{-0.034}$ | $6.087^{+1.776}_{-0.785}$                 |
|        | +3%/-3%              | +1%/-1%                   | +22%/-22%                  | +6%/-10%                  | +7%/-7%                   | +29%/-13%                                 |
| Source | PHO1                 | KIC0                      | KIC0                       | DSEP                      |                           |   |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007036755-02 / KOI

| Detrend | Depth (ppm)     | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | $A_{\text{obs}}$          |
|---------|-----------------|------------------------|----------------------|----------------------|---------------------------|
| DV      | $-2024 \pm 107$ | $2.37^{+0.29}_{-0.29}$ | $238^{+7}_{-9}$      | $4420^{+256}_{-227}$ | $80880^{+23661}_{-17243}$ |
| Alt.    | $-112 \pm 29$   | $1.98^{+0.31}_{-0.33}$ | $238^{+8}_{-9}$      | $2920^{+203}_{-168}$ | $6142^{+3512}_{-2046}$    |

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

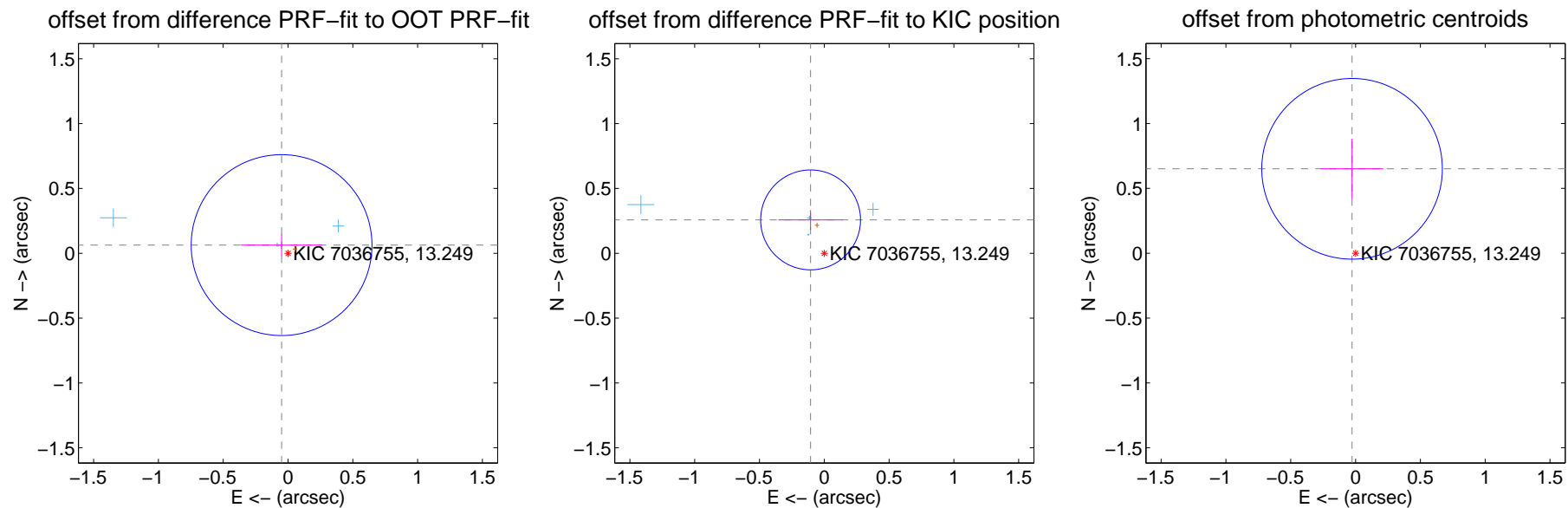
## DV Centroid Data

Supplemental centroid analysis for 007036755-02. Kepler magnitude: 13.25. Transit SNR 10.75

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

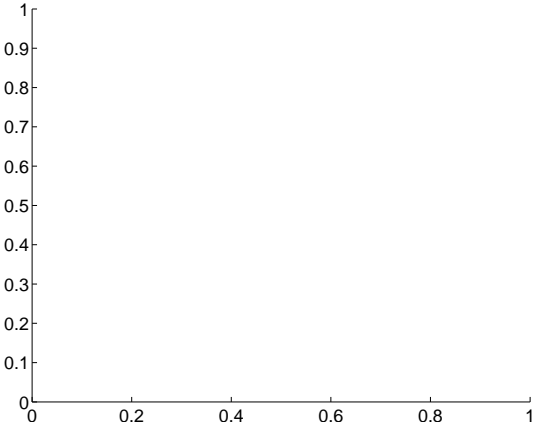
|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.080 \pm 0.232$  | 0.35                | $0.050 \pm 0.314$ | $0.063 \pm 0.086$ |
| PRF-fit source offset from KIC position | $0.278 \pm 0.128$  | 2.17                | $0.106 \pm 0.249$ | $0.258 \pm 0.076$ |
| photometric centroid source offset      | $0.65 \pm 0.23$    | 2.81                | $0.03 \pm 0.24$   | $0.65 \pm 0.23$   |



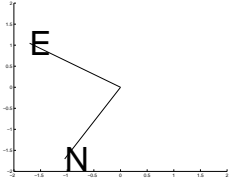
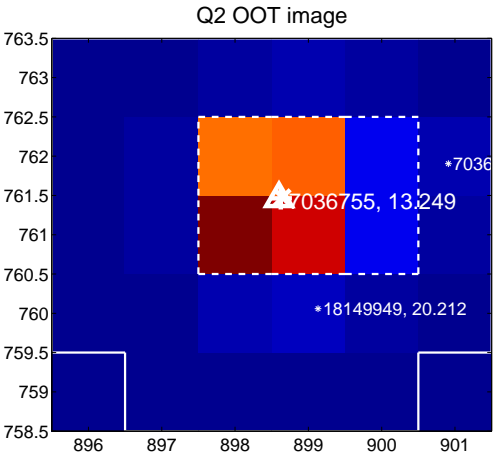
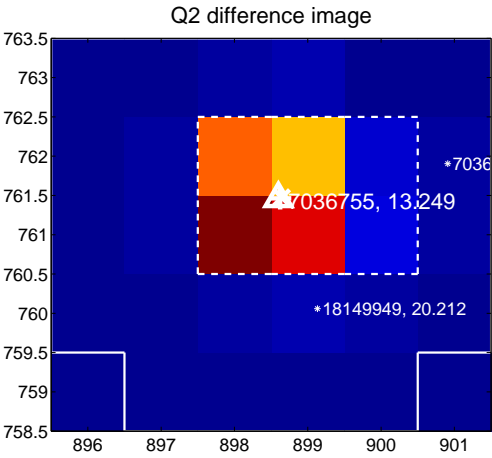
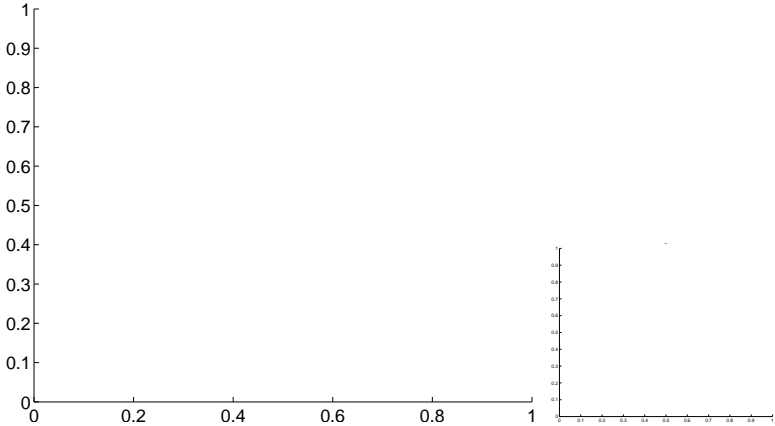
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

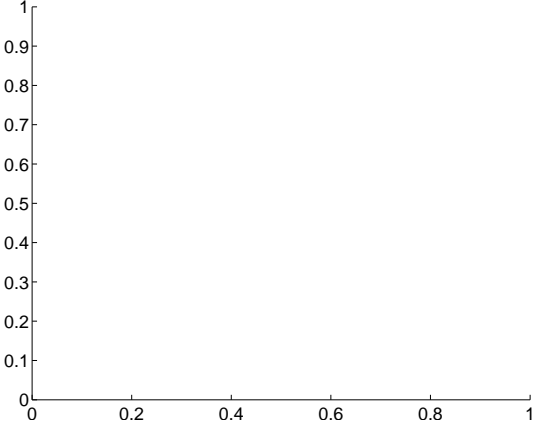
Q1 no difference image



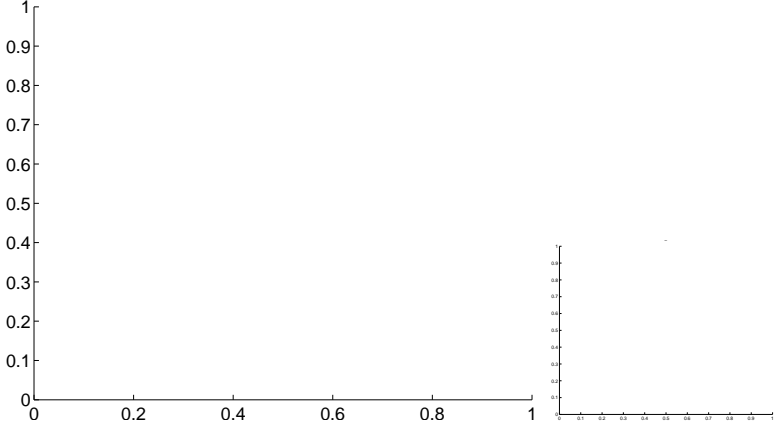
Q1 no OOT image



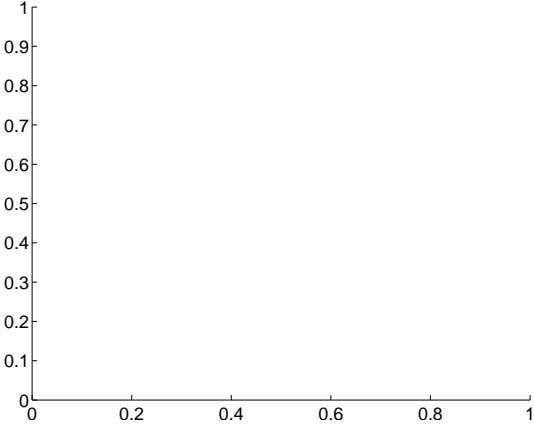
Q3 no difference image



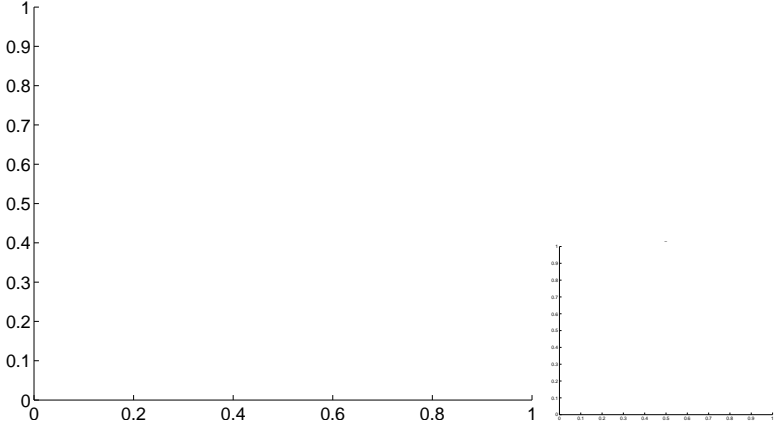
Q3 no OOT image



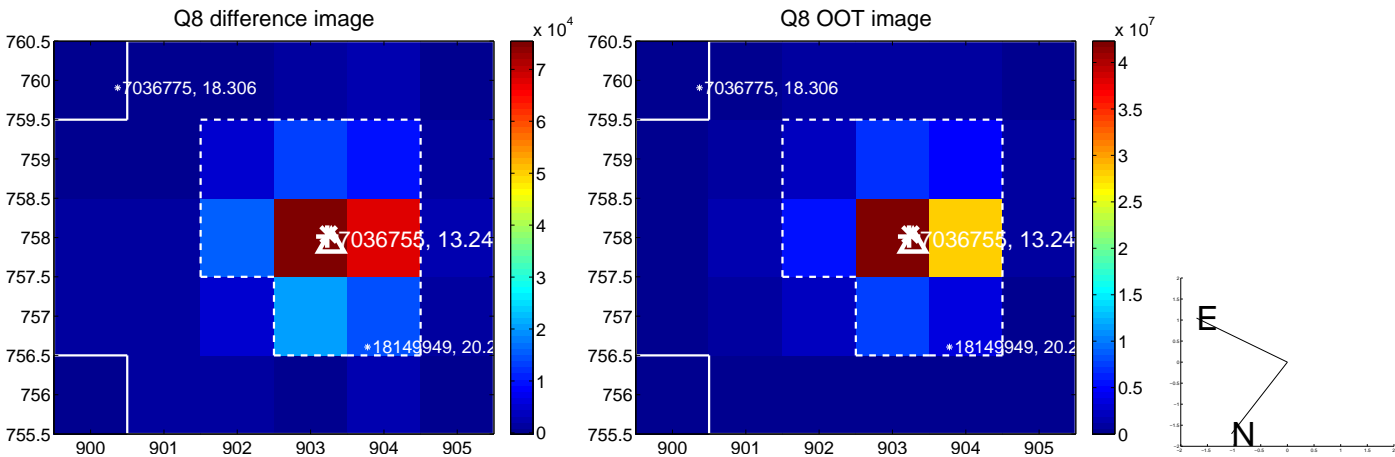
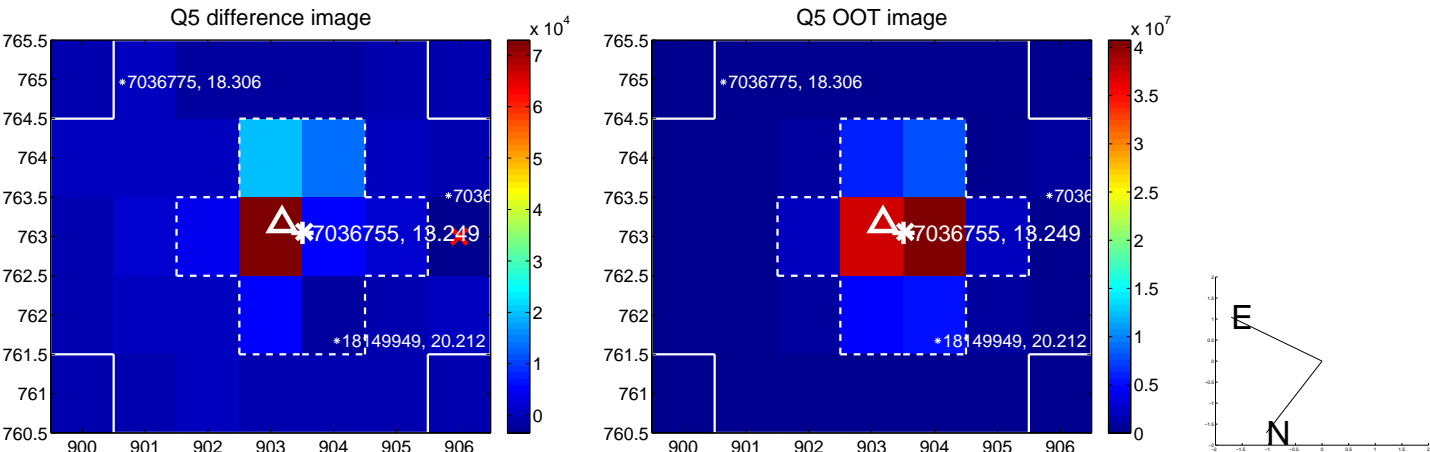
Q4 no difference image



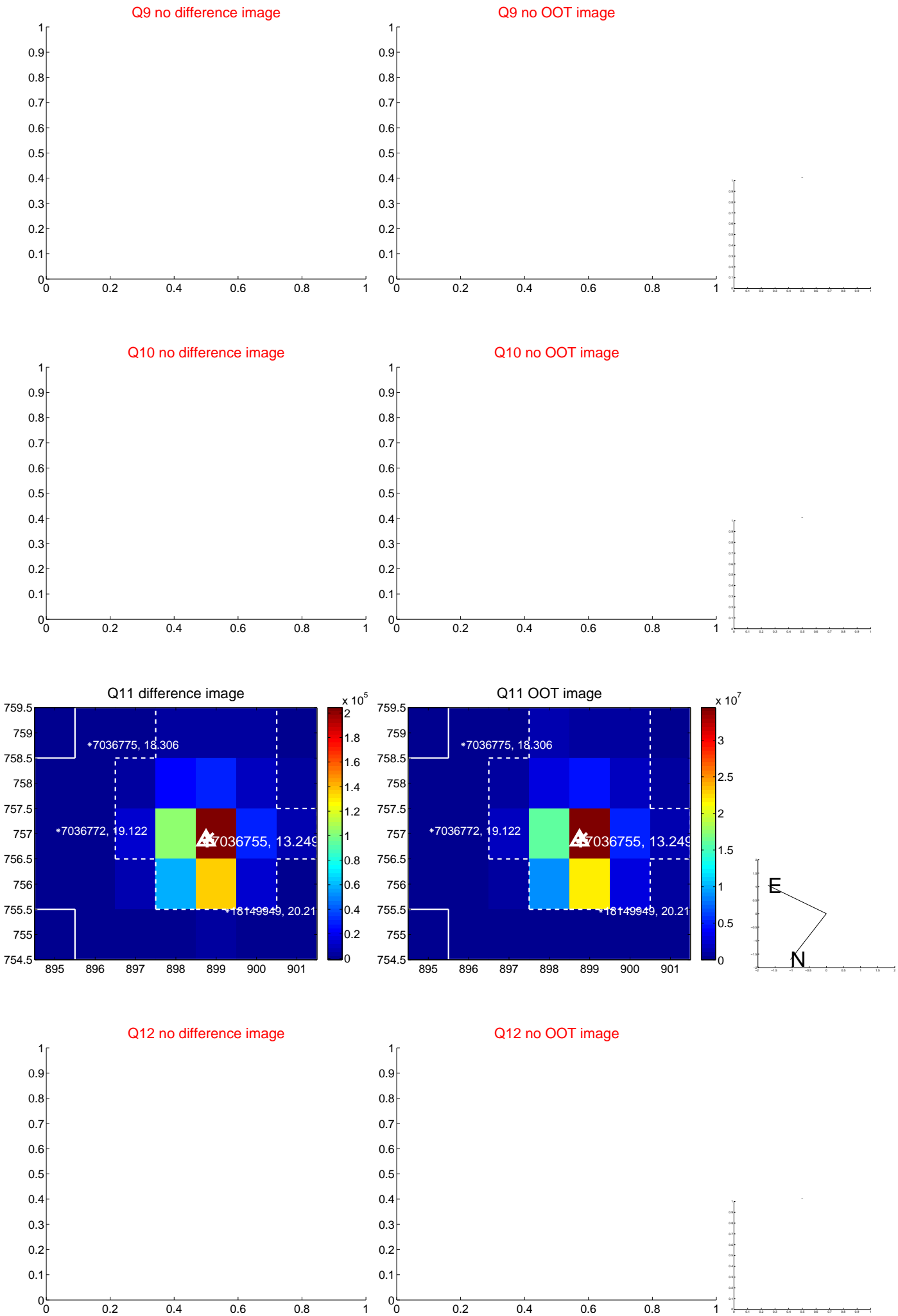
Q4 no OOT image



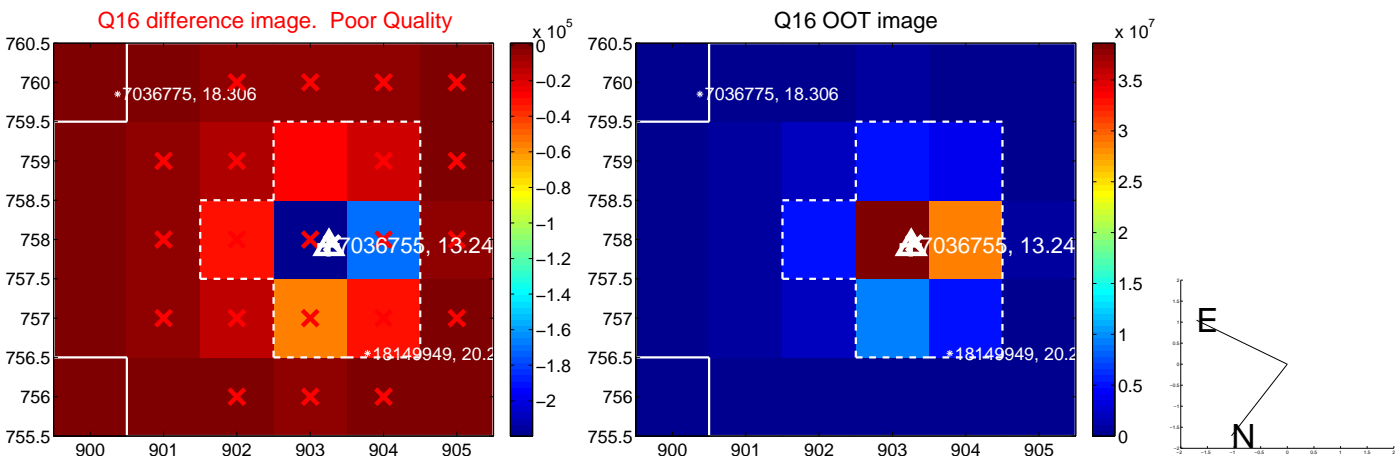
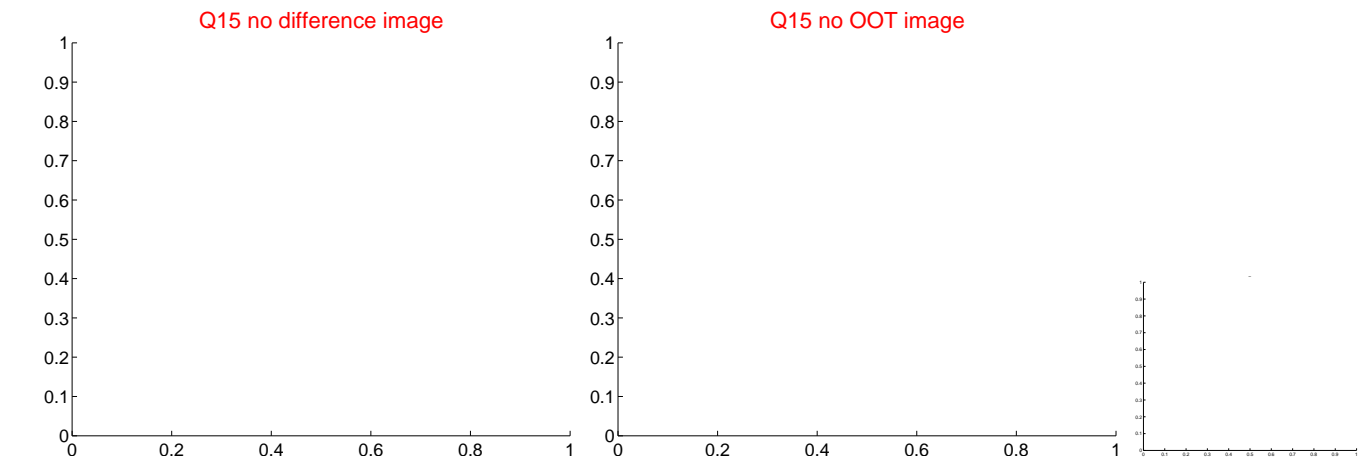
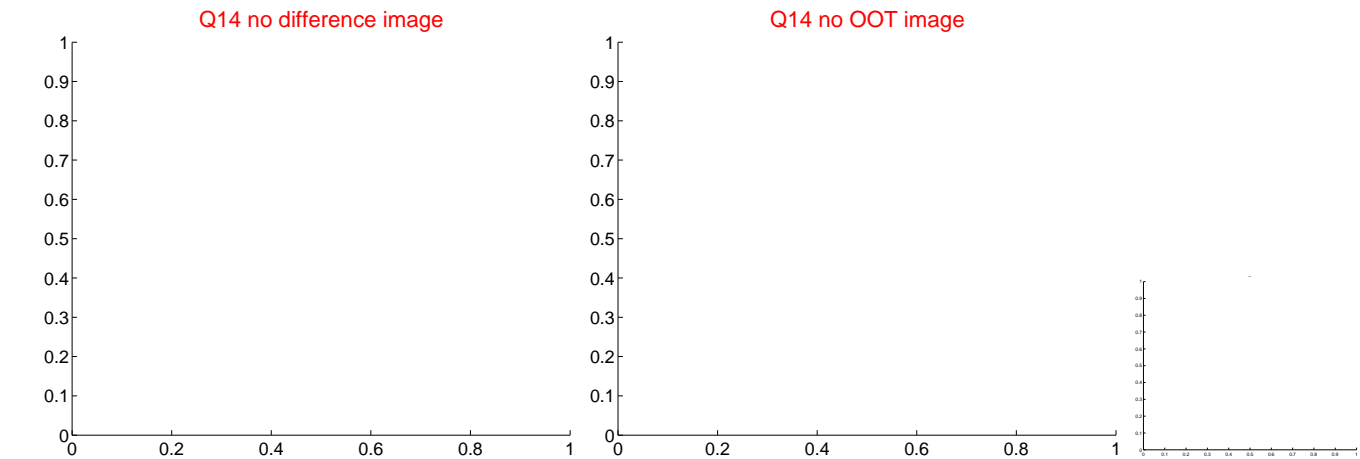
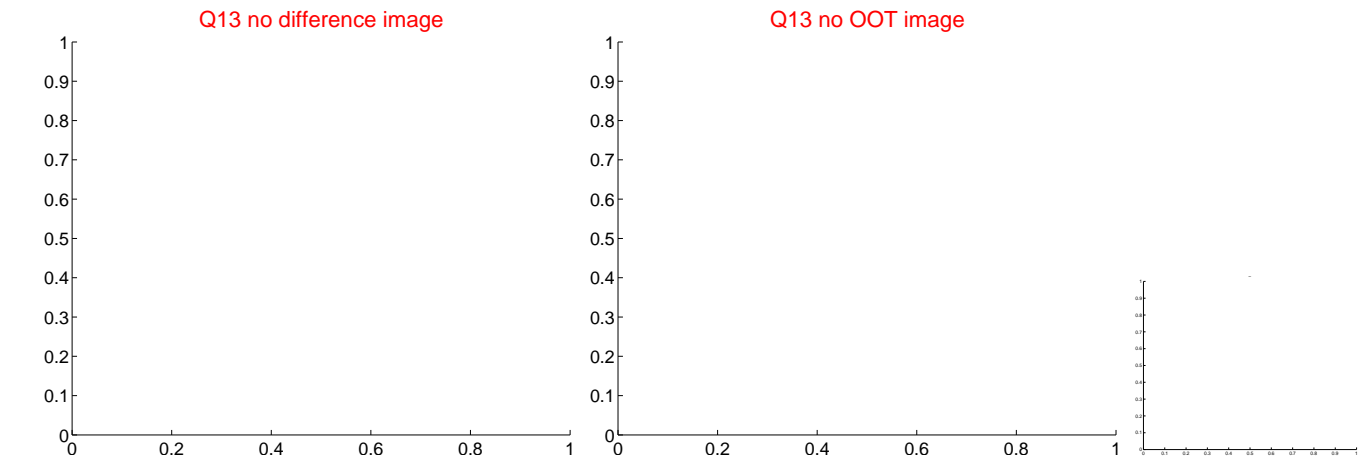
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



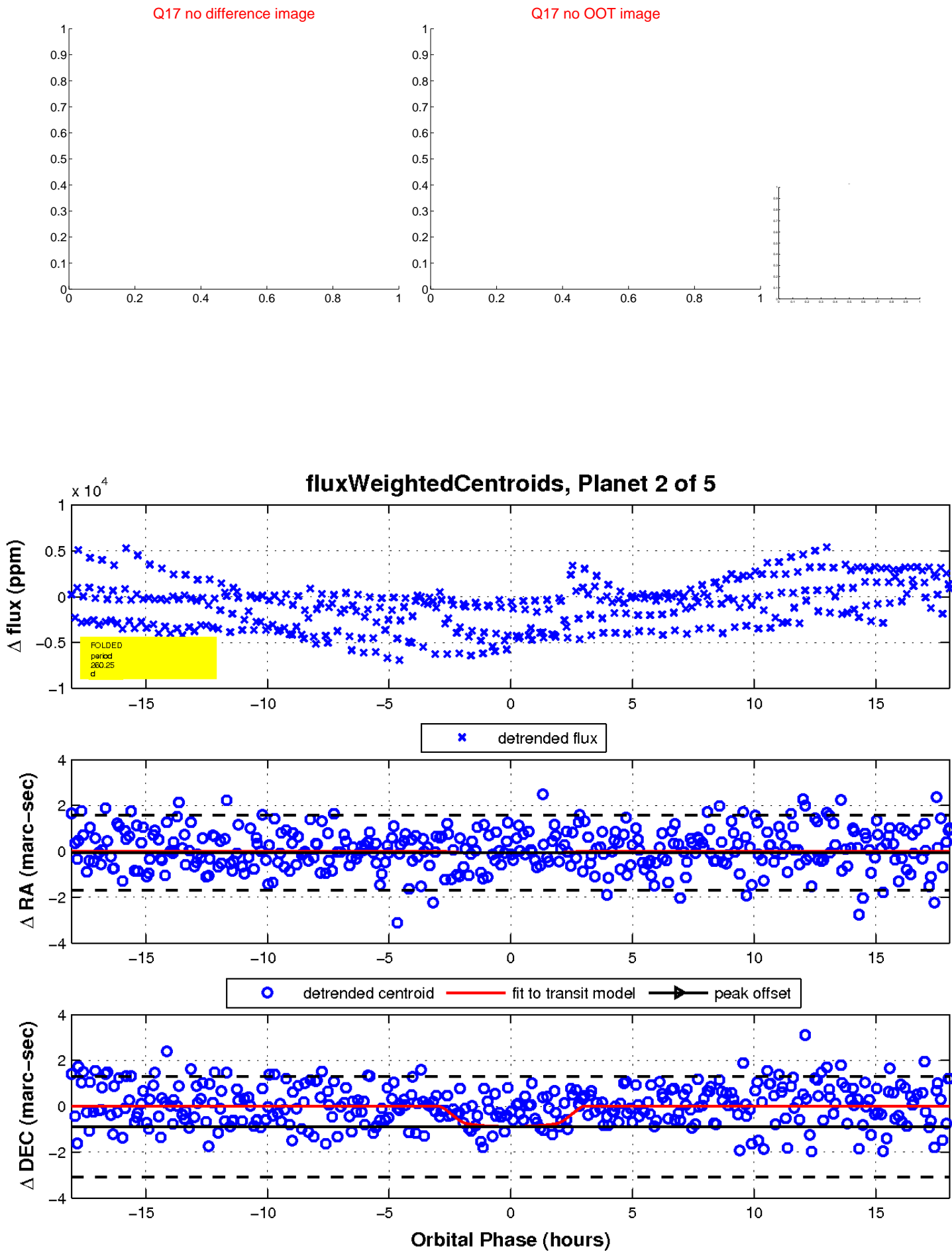
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

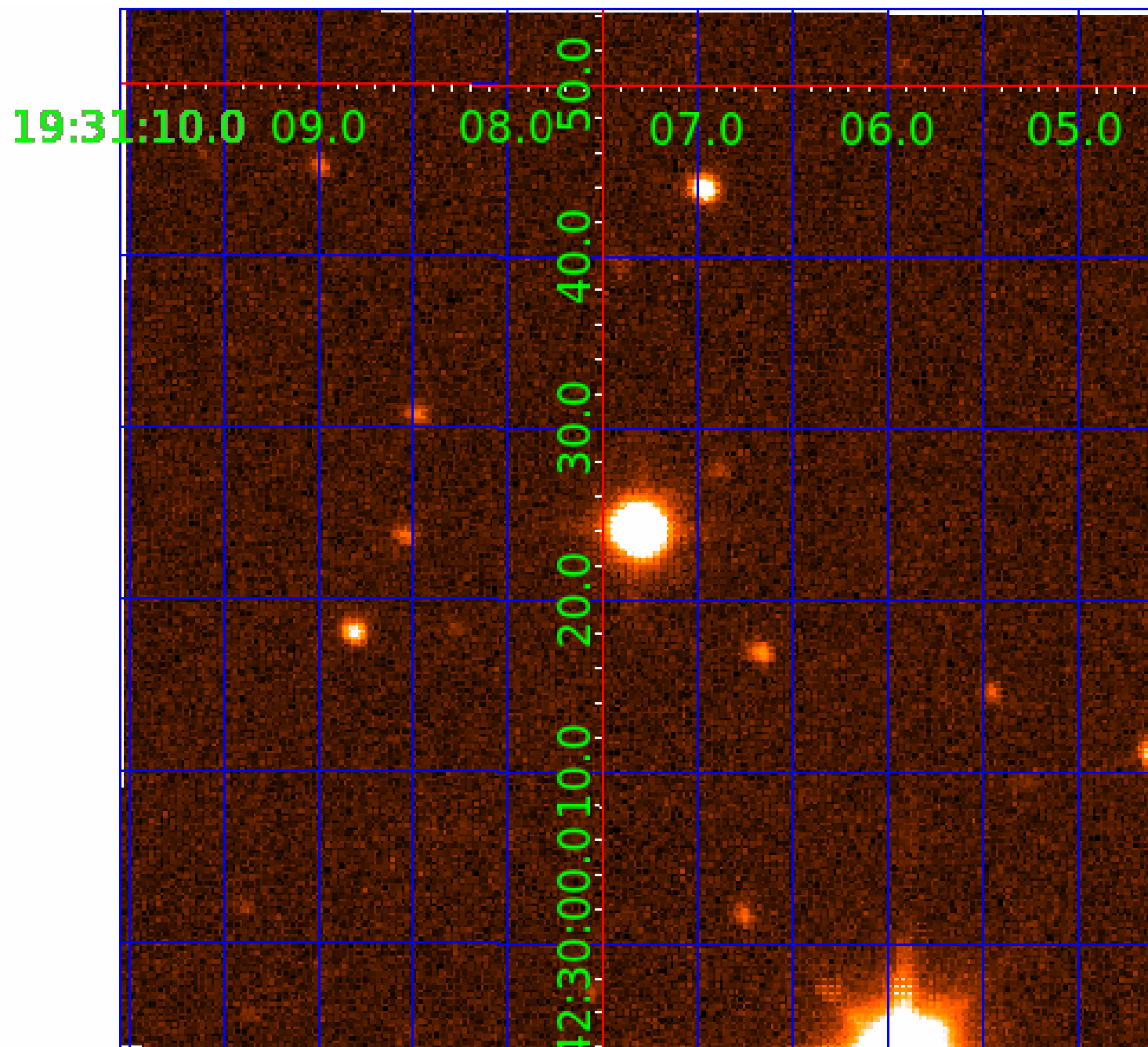


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007036755

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007036755-01 | OBS      | No   | 510.583528    | 308.356281   | 1438.1      | 13.650           | 17.2 | 5.6  | 0.49                        | 4425            | 1.84                   | 0.08                   |
| 007036755-02 | OBS      | No   | 260.247391    | 254.842484   | 1775.7      | 6.017            | 18.7 | 10.8 | 0.49                        | 4425            | 2.40                   | 0.20                   |
| 007036755-03 | OBS      | No   | 365.263295    | 364.587524   | 1189.1      | 5.237            | 16.2 | 5.3  | 0.49                        | 4425            | 1.68                   | 0.13                   |
| 007036755-04 | OBS      | No   | 471.587192    | 437.710180   | 1228.1      | 3.213            | 18.8 | 6.9  | 0.49                        | 4425            | 1.69                   | 0.09                   |
| 007036755-05 | OBS      | No   | 0.850606      | 132.264119   | 527.3       | 1.500            | 8.5  | -1.0 | 0.49                        | 4425            | 1.11                   | 419.44                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007036755-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV       |
| 007036755-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV  |
| 007036755-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS                  |
| 007036755-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV |
| 007036755-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—CENT_NOFITS  |

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

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

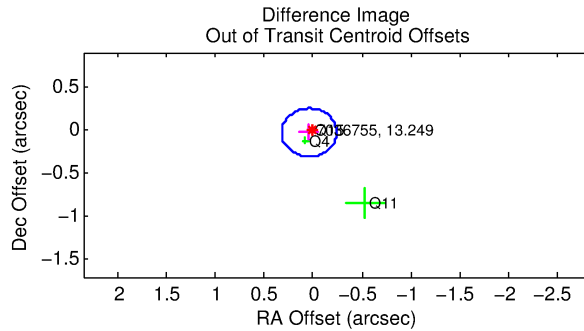
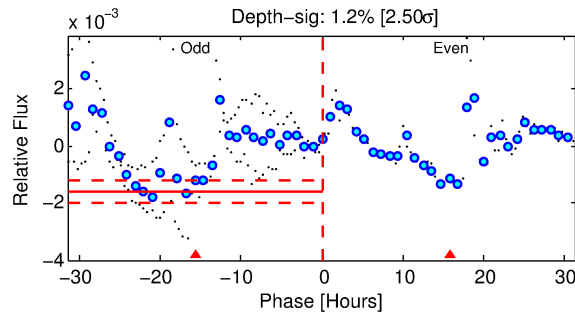
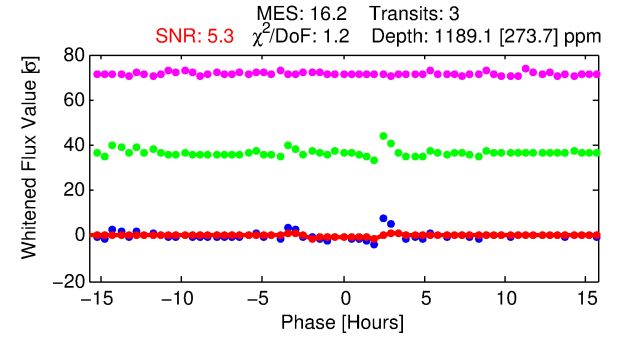
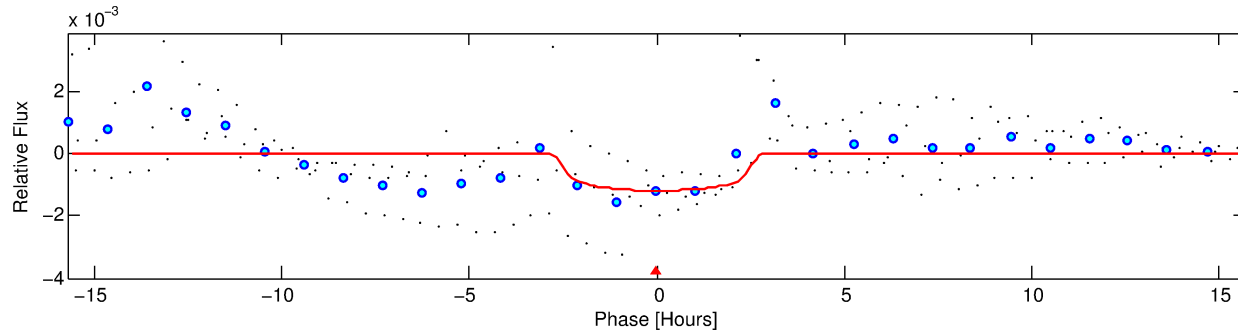
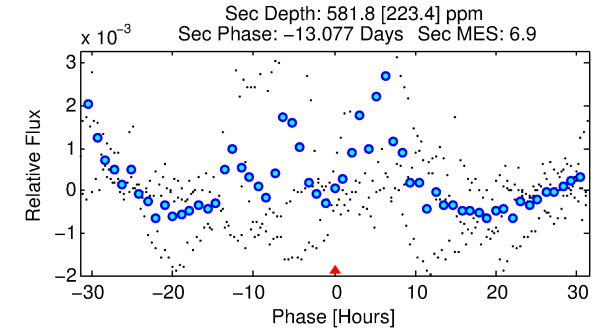
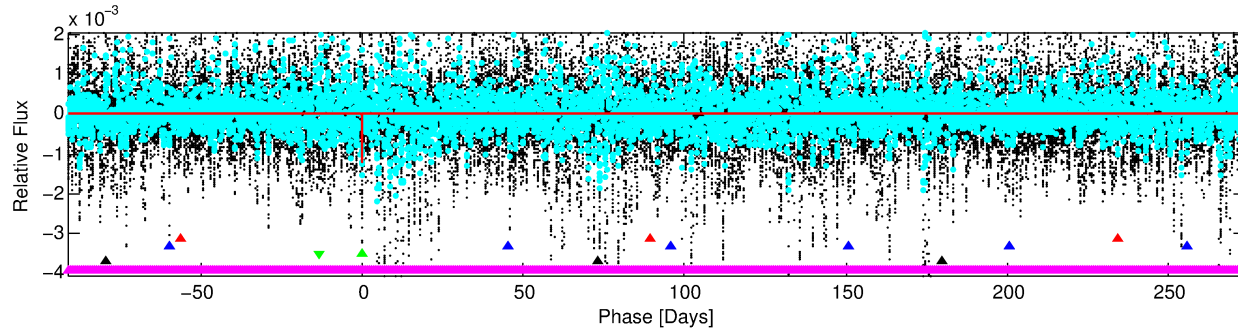
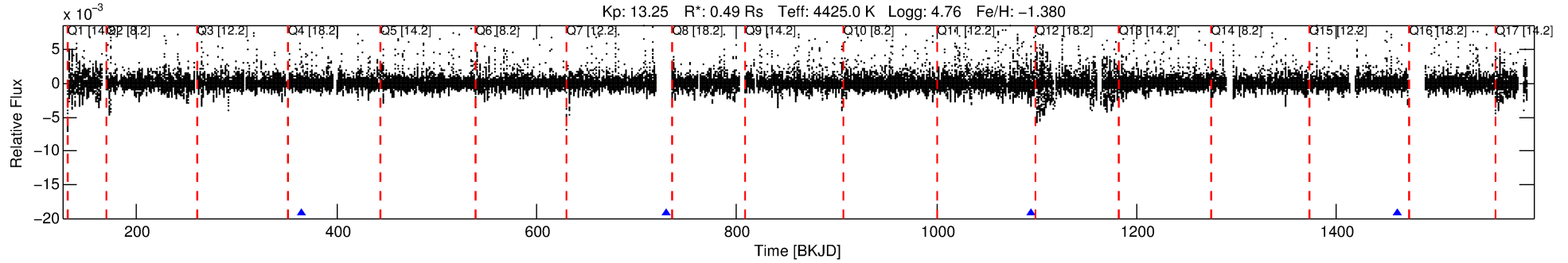
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007036755-03

No Significant Match Found

# DV One-Page Summary

KIC: 7036755 Candidate: 3 of 5 Period: 365.263 d



## DV Fit Results:

Period = 365.26329 [0.00394] d  
Epoch = 364.5875 [0.0081] BKJD  
Rp/R\* = 0.0316 [0.0314]  
a/R\* = 527.47 [2250.15]  
b = 0.29 [13.57]  
Seff = 0.13 [0.02]  
Teq = 153 [7] K  
Rp = 1.67 [1.68] Re  
a = 0.7916 [0.0664] AU  
Ag = 71494.18 [145212.19] [0.49 $\sigma$ ]  
Teffp = 3867 [1964] K [1.89 $\sigma$ ]

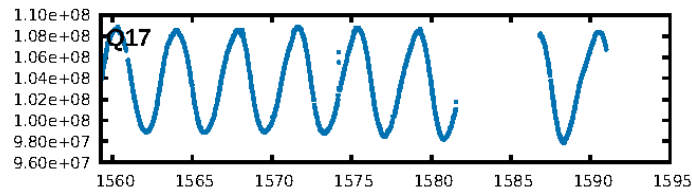
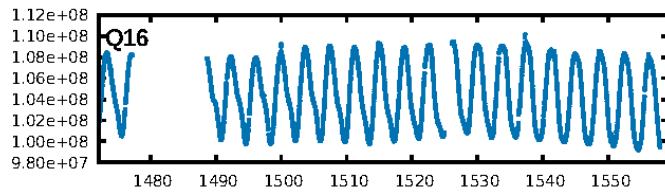
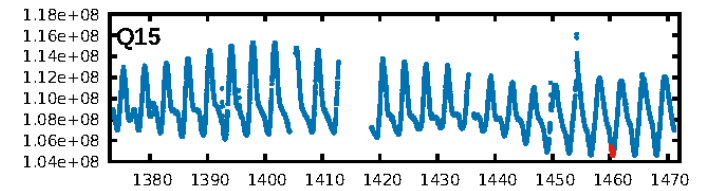
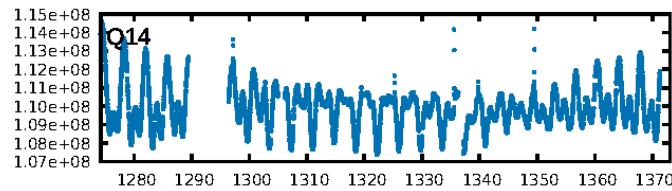
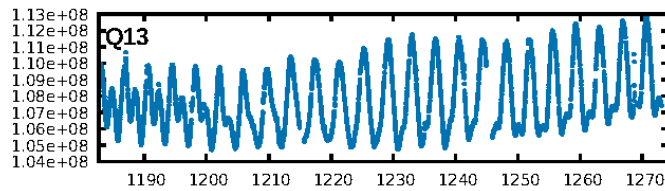
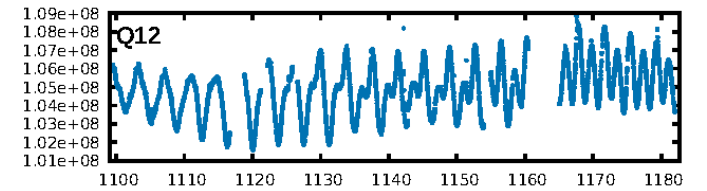
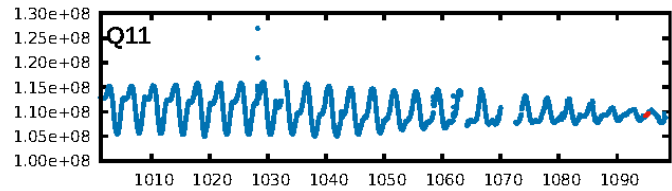
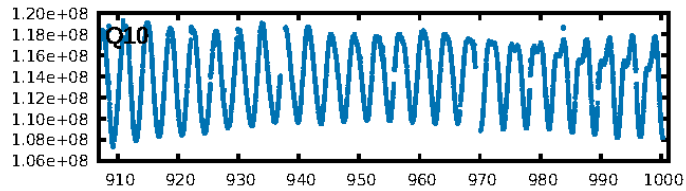
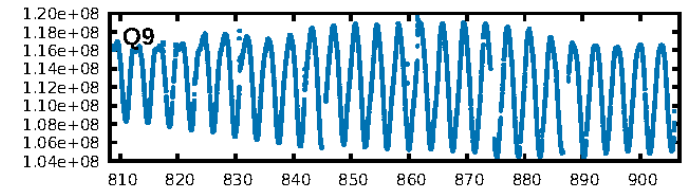
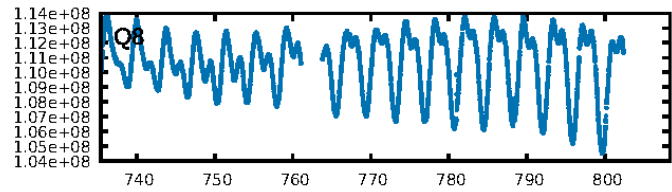
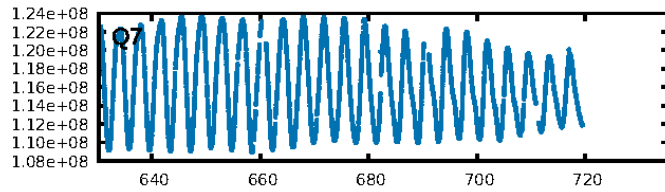
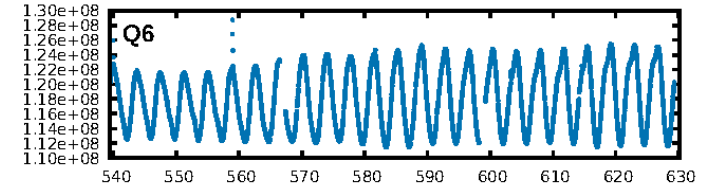
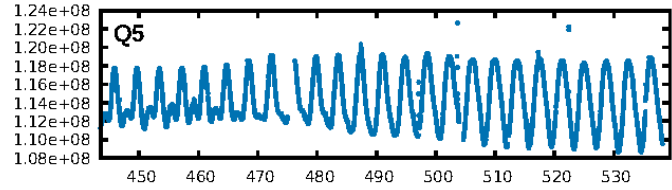
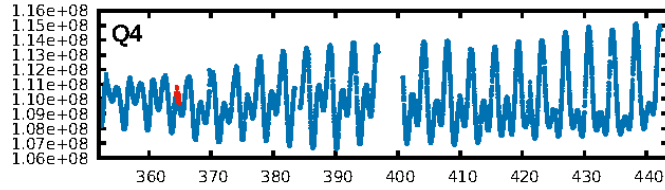
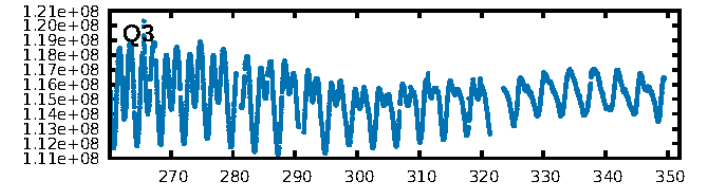
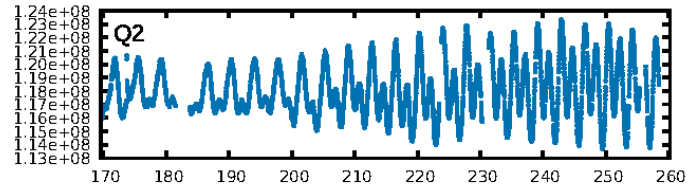
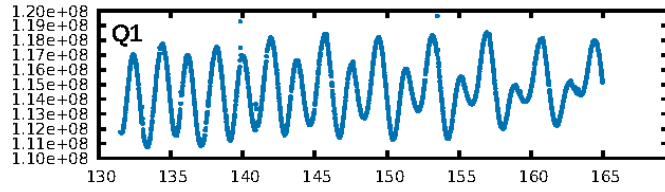
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [315.94 $\sigma$ ]  
LongPeriod-sig: 100.0% [415.30 $\sigma$ ]  
ModelChiSquare2-sig: 42.8%  
ModelChiSquareGof-sig: 98.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.73  
Centroid-sig: 4.8%  
Centroid-so: 0.739 arcsec [1.75 $\sigma$ ]  
OotOffset-rm: 0.052 arcsec [0.56 $\sigma$ ]  
OotOffset-st: 0/2/1/0 [3]  
KicOffset-rm: 0.259 arcsec [1.42 $\sigma$ ]  
KicOffset-st: 0/2/1/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 0.00 [0/3]

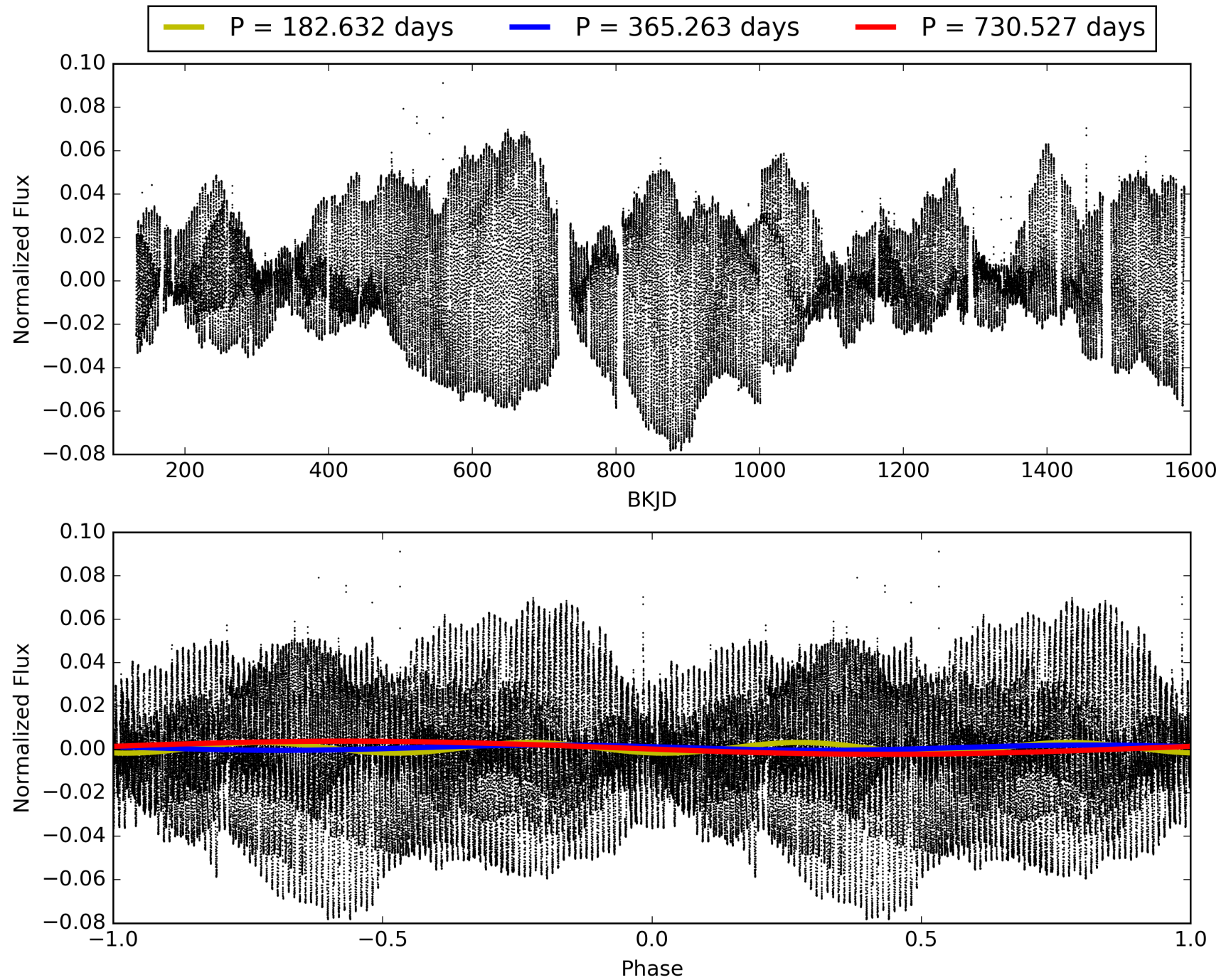
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:36:54 Z

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

# TCE 007036755-03, PDC Light Curves

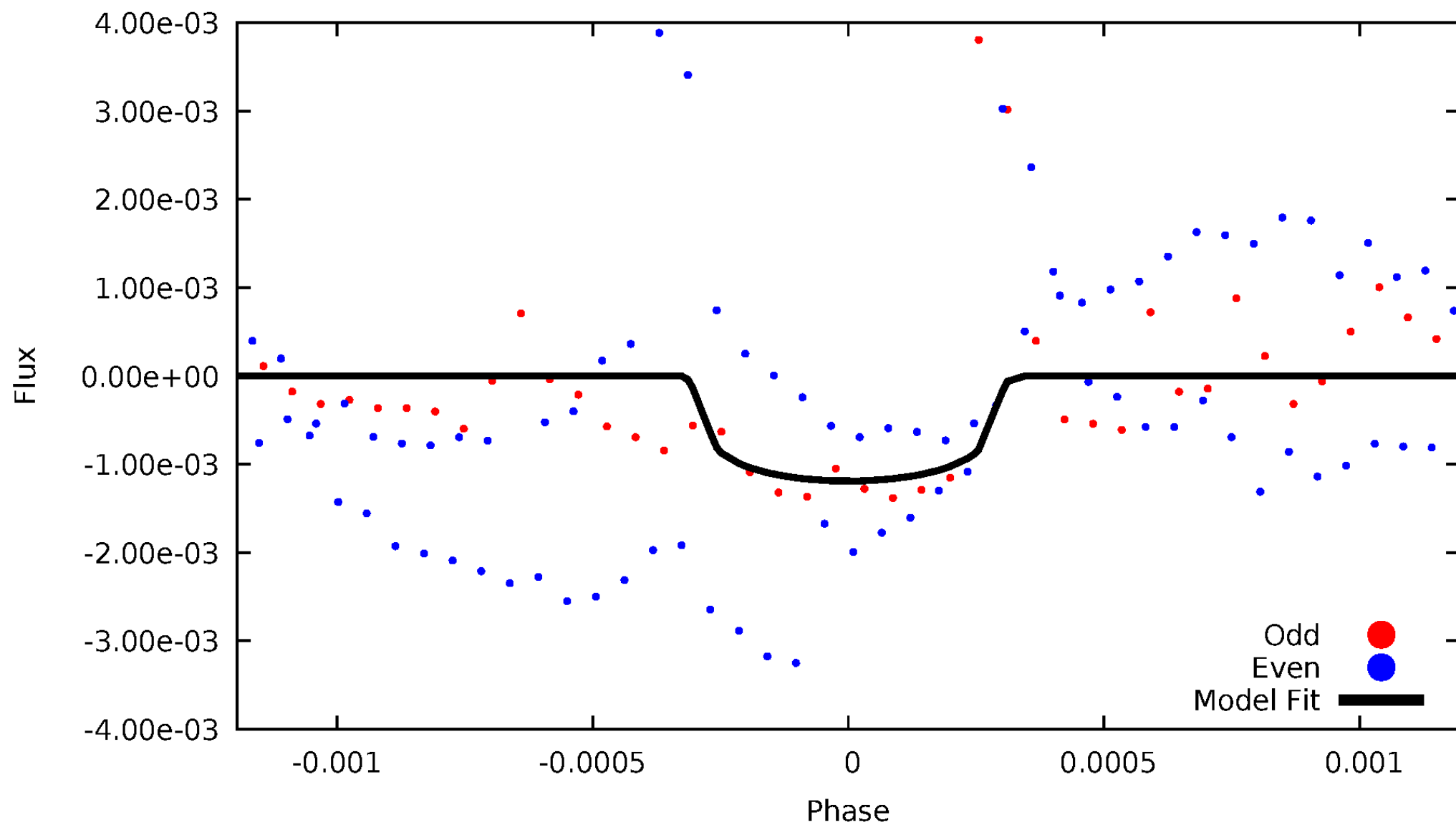


# TCE 007036755-03



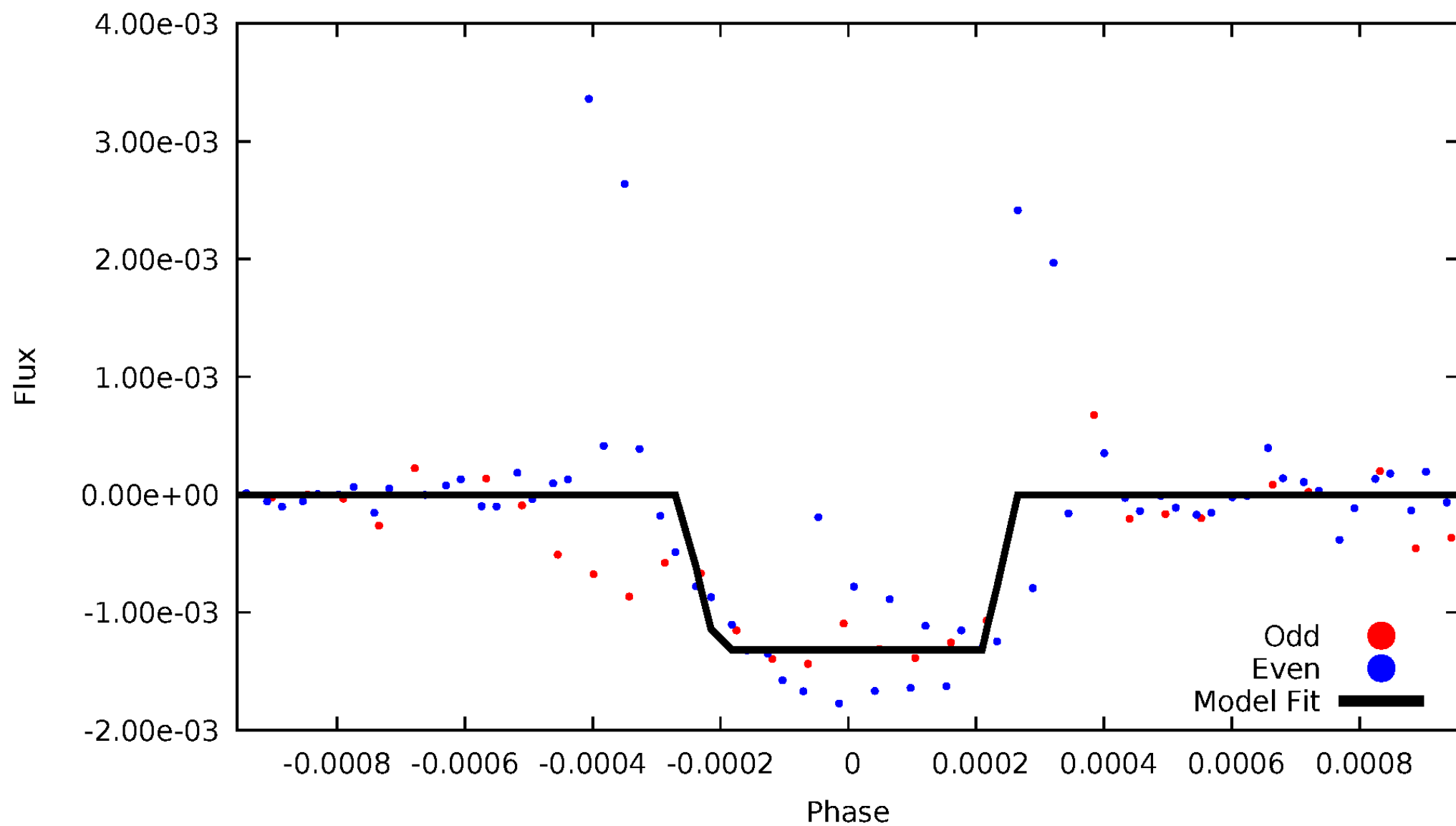
# DV Odd/Even

TCE 007036755-03



# ALT Odd/Even

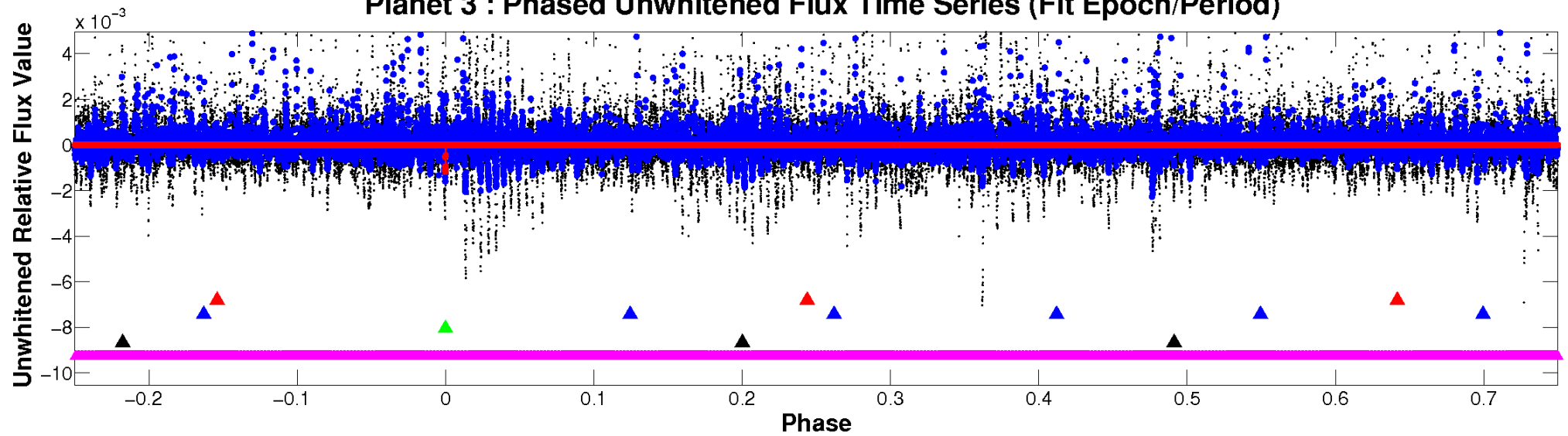
TCE 007036755-03



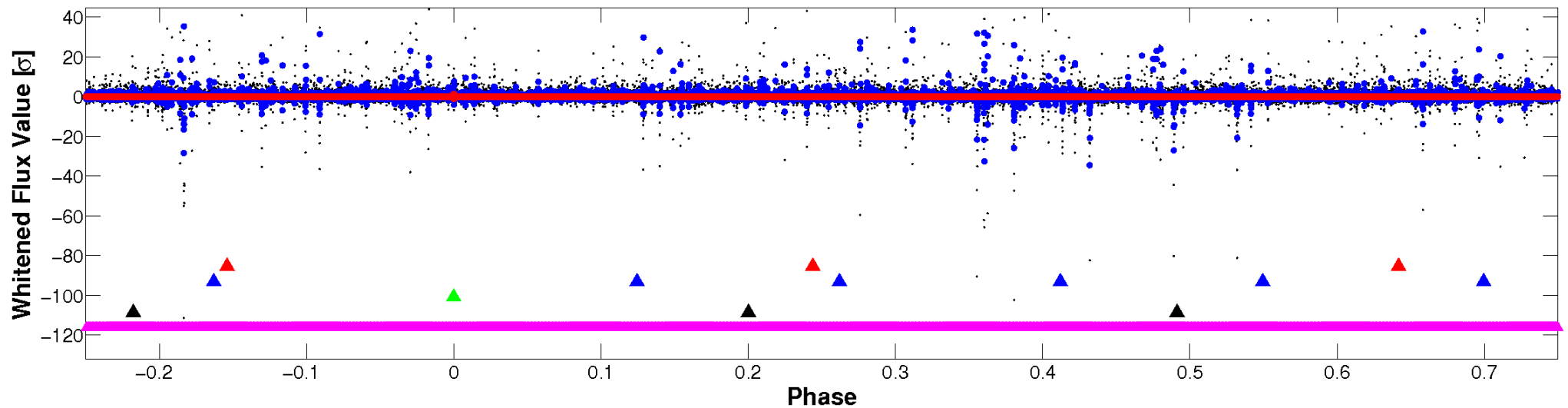


# Non-Whitened Vs. Whitened Light Curve

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

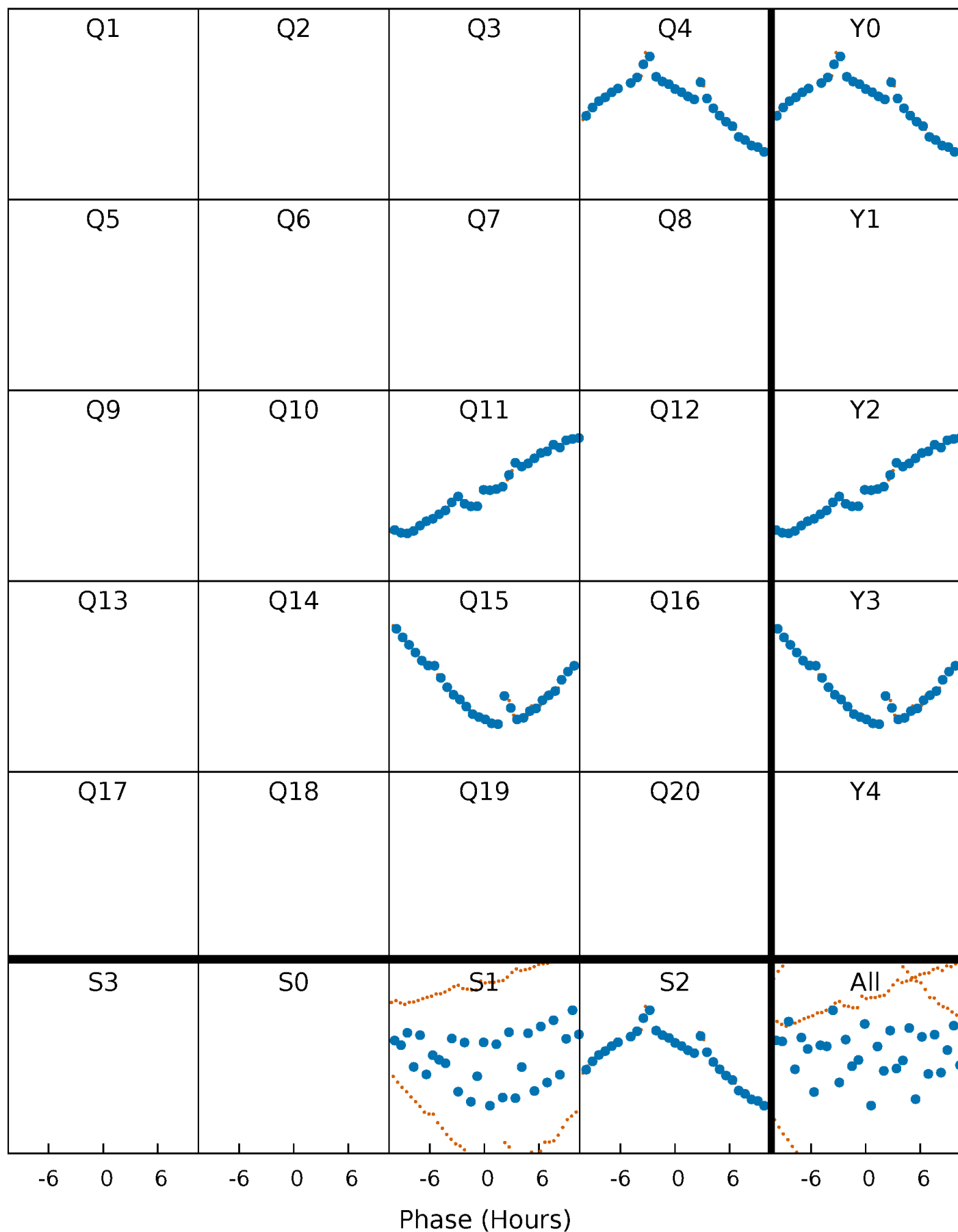


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

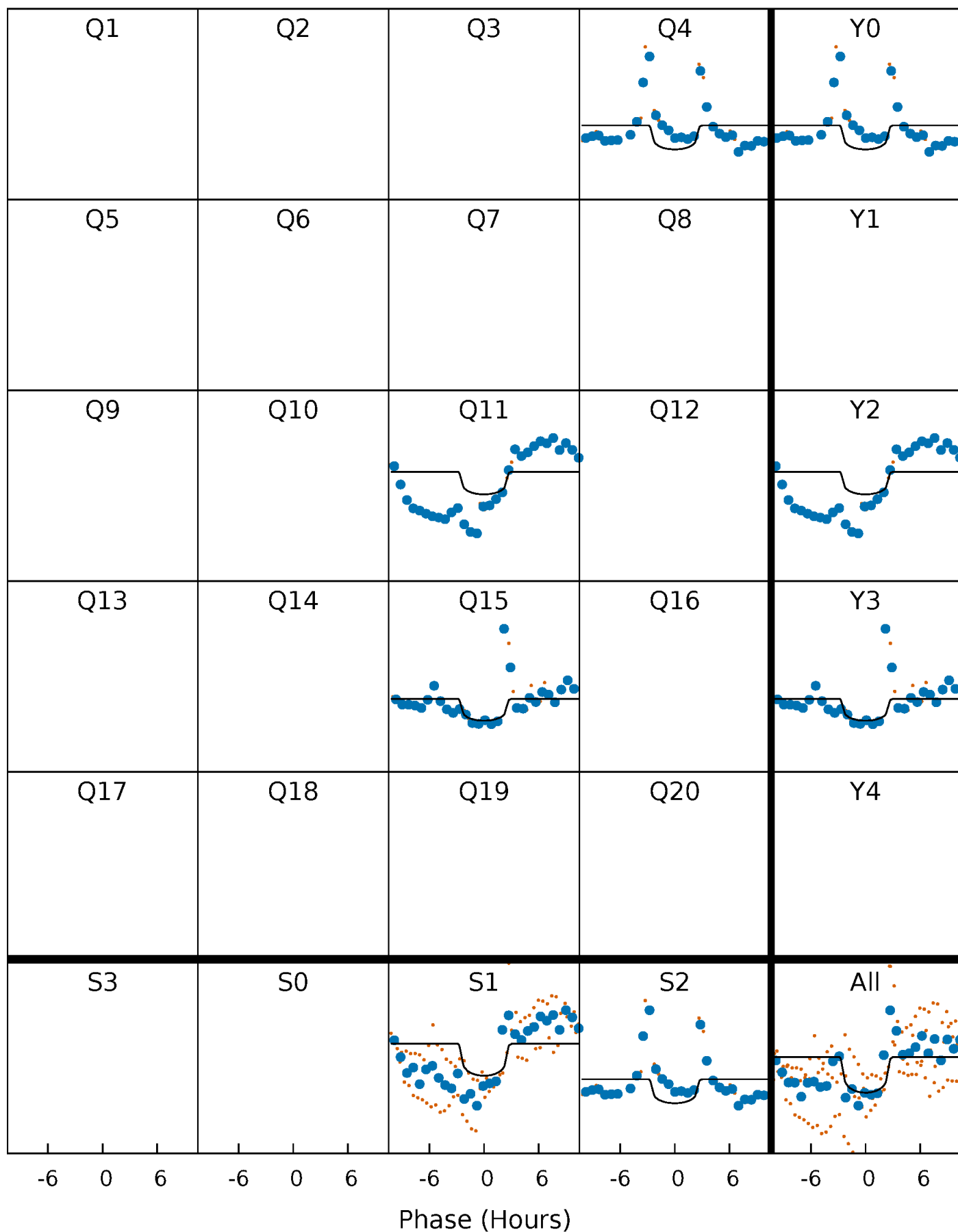
TCE 007036755-03 P=365.263295 Days  $T_0=364.587524$  (BKJD)





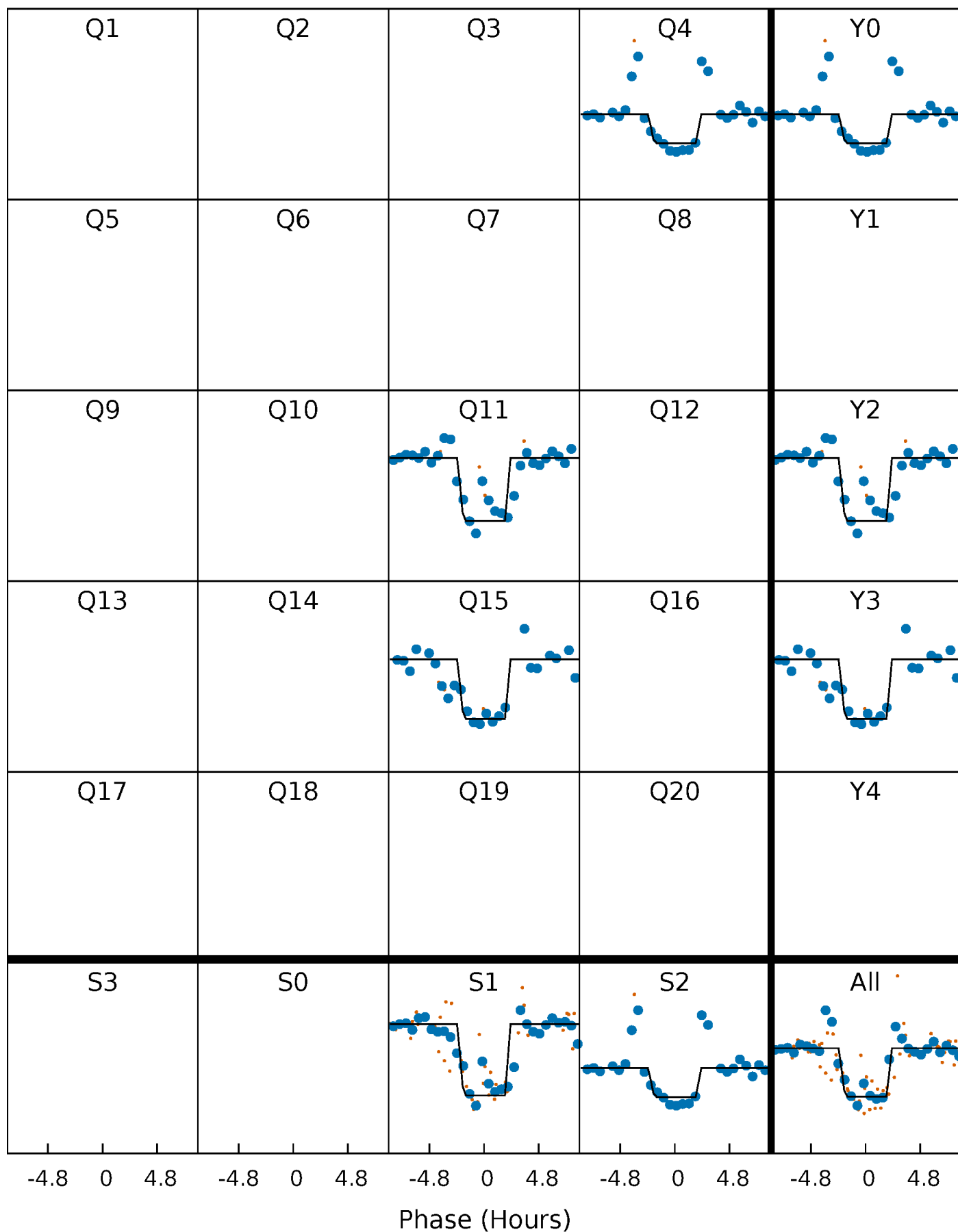
# DV Quarter-Phased Transit Curves

TCE 007036755-03     $P=365.263295$  Days     $T_0=364.587524$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

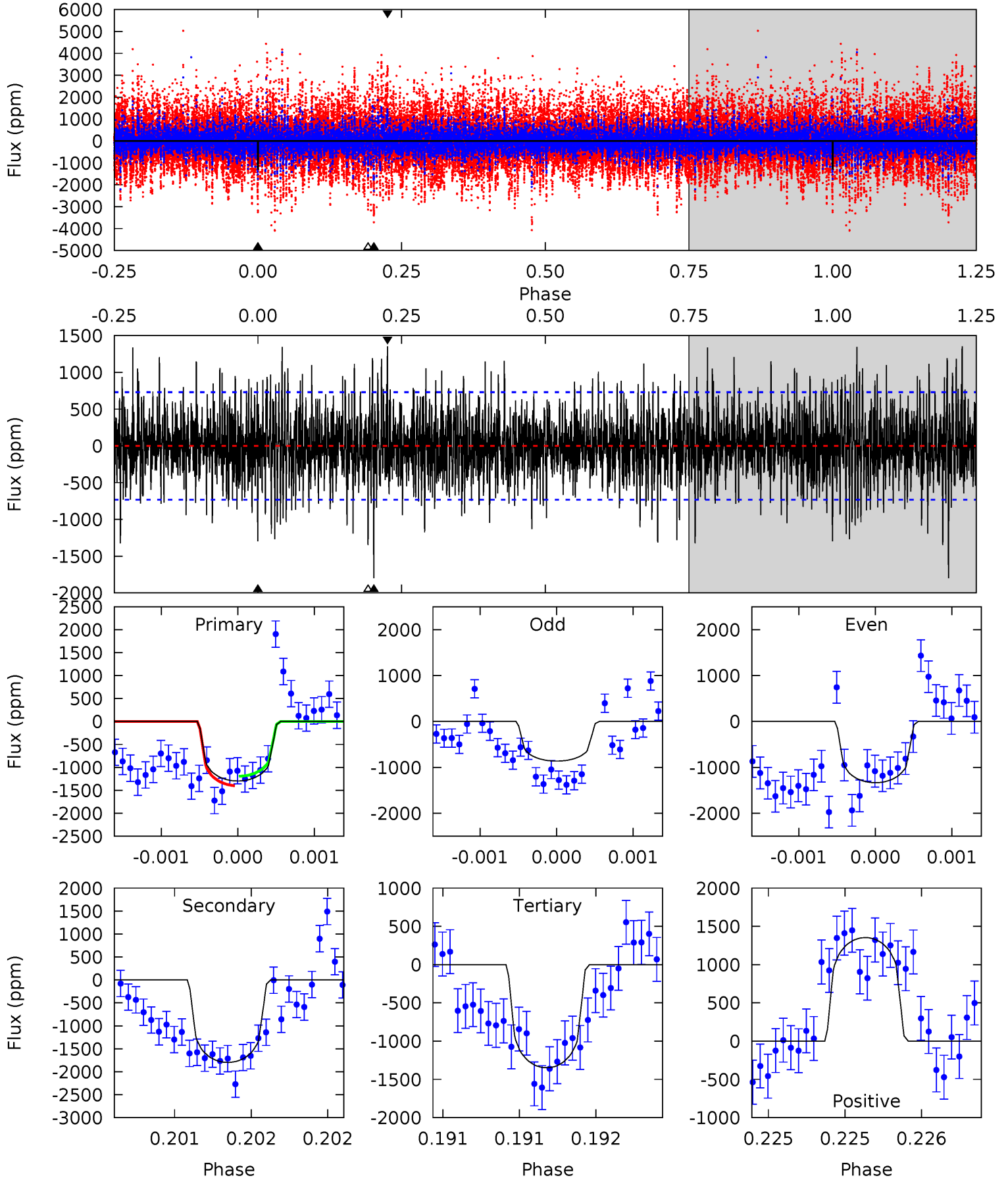
TCE 007036755-03 P=365.256696 Days  $T_0=364.600918$  (BKJD)



# DV Model-Shift Uniqueness Test

007036755-03, P = 365.263295 Days, E = 364.587524 Days

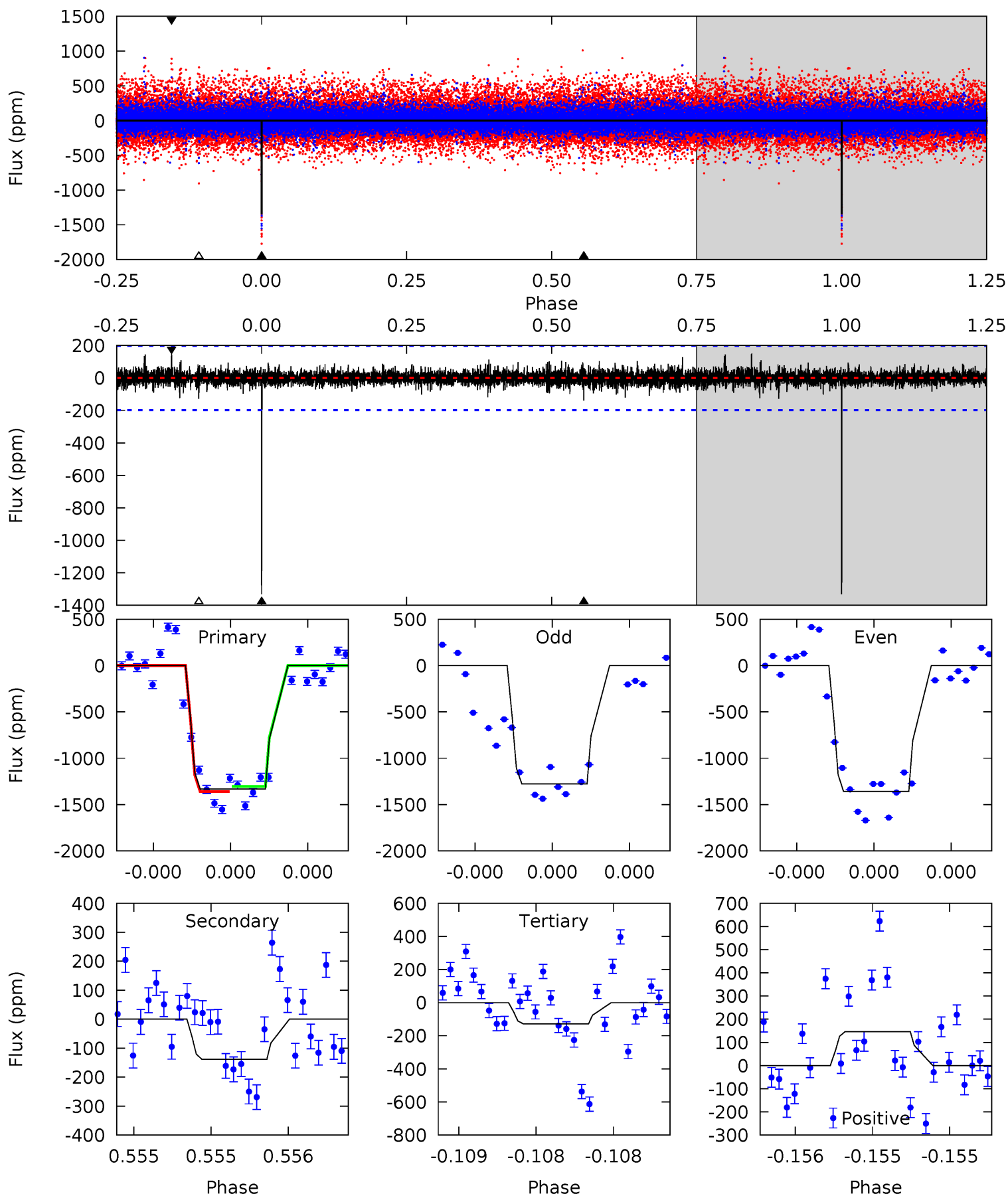
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.82 | 13.6 | 10.2 | 10.2 | 5.54            | 3.42            | 2.72             | -0.39   | -0.42   | 3.40    | 3.36    | 1.29    | 1.34 | 0.43  | 0.78 |



# Alt Model-Shift Uniqueness Test

007036755-03, P = 365.256696 Days, E = 364.600918 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 37.6 | 3.91 | 3.63 | 4.13 | 5.59            | 3.50            | 0.71             | 34.0    | 33.5    | 0.28    | -0.22   | 1.06    | 1.00 | 0.10  | 0.77 |



### Stellar Parameters For KIC 007036755

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $4425^{+121}_{-148}$ | $4.760^{+0.063}_{-0.032}$ | $-1.380^{+0.300}_{-0.300}$ | $0.486^{+0.031}_{-0.050}$ | $0.495^{+0.034}_{-0.034}$ | $6.087^{+1.776}_{-0.785}$                 |
|        | +3%/-3%              | +1%/-1%                   | +22%/-22%                  | +6%/-10%                  | +7%/-7%                   | +29%/-13%                                 |
| Source | PHO1                 | KIC0                      | KIC0                       | DSEP                      |                           |   |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007036755-03 / KOI

| Detrend | Depth (ppm)     | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$  | $A_{\text{obs}}$             |
|---------|-----------------|------------------------|----------------------|-----------------------|------------------------------|
| DV      | $-1797 \pm 132$ | $1.95^{+1.43}_{-1.20}$ | $212^{+7}_{-8}$      | $4662^{+2747}_{-877}$ | $161717^{+984853}_{-105853}$ |
| Alt.    | $-138 \pm 35$   | $2.20^{+1.52}_{-1.35}$ | $213^{+6}_{-8}$      | $2923^{+955}_{-389}$  | $9924^{+54701}_{-6664}$      |

$T_{\text{max}}$  = 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

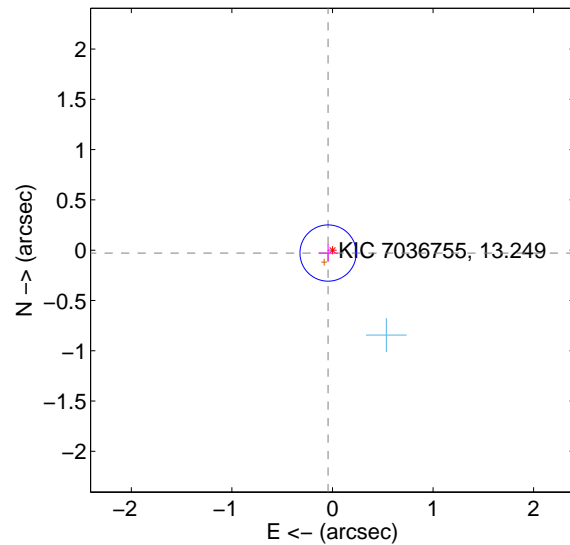
Supplemental centroid analysis for 007036755-03. Kepler magnitude: 13.25. Transit SNR 5.34

There are 2 quarters with good PRF difference image offsets

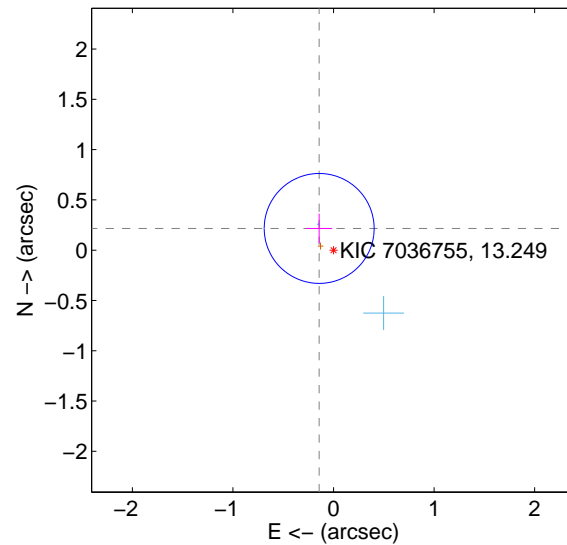
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $0.052 \pm 0.093$  | 0.56                | $0.044 \pm 0.095$ | $-0.029 \pm 0.088$ |
| PRF-fit source offset from KIC position | $0.259 \pm 0.182$  | 1.42                | $0.143 \pm 0.129$ | $0.216 \pm 0.148$  |
| photometric centroid source offset      | $0.74 \pm 0.42$    | 1.75                | $-0.53 \pm 0.45$  | $0.51 \pm 0.39$    |

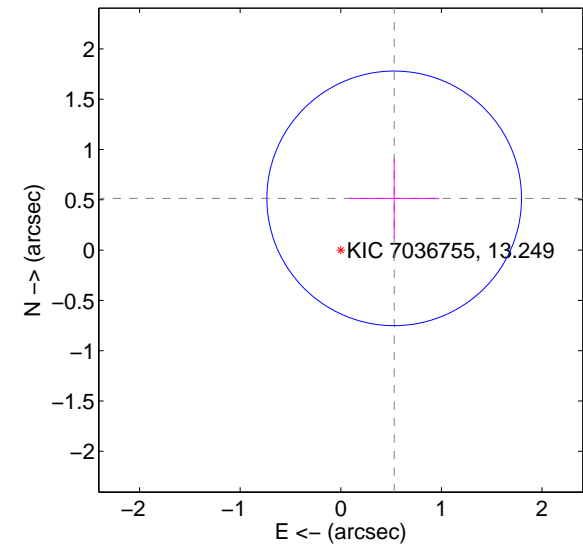
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

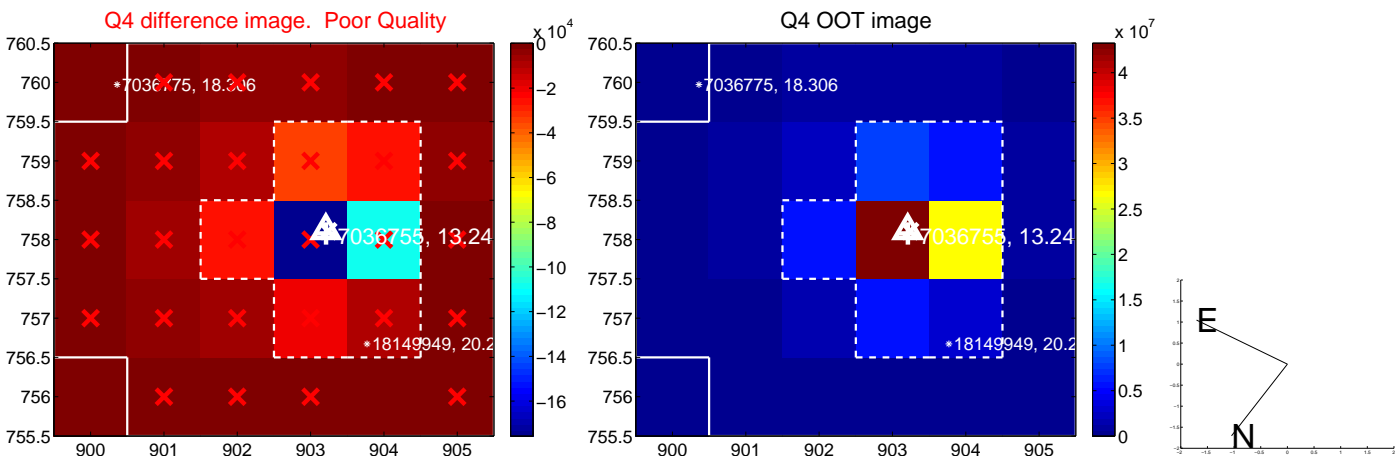
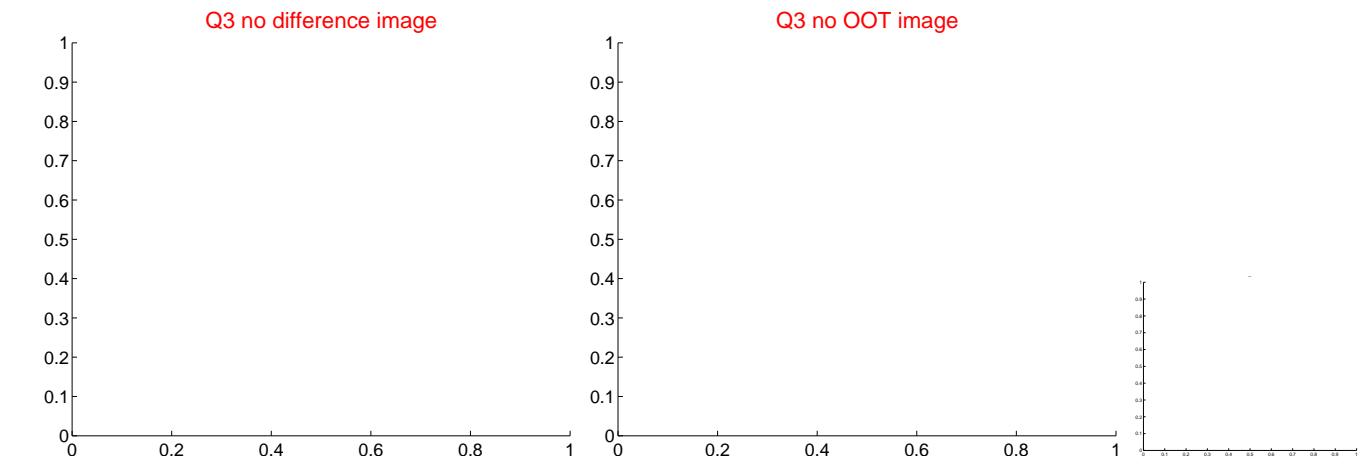
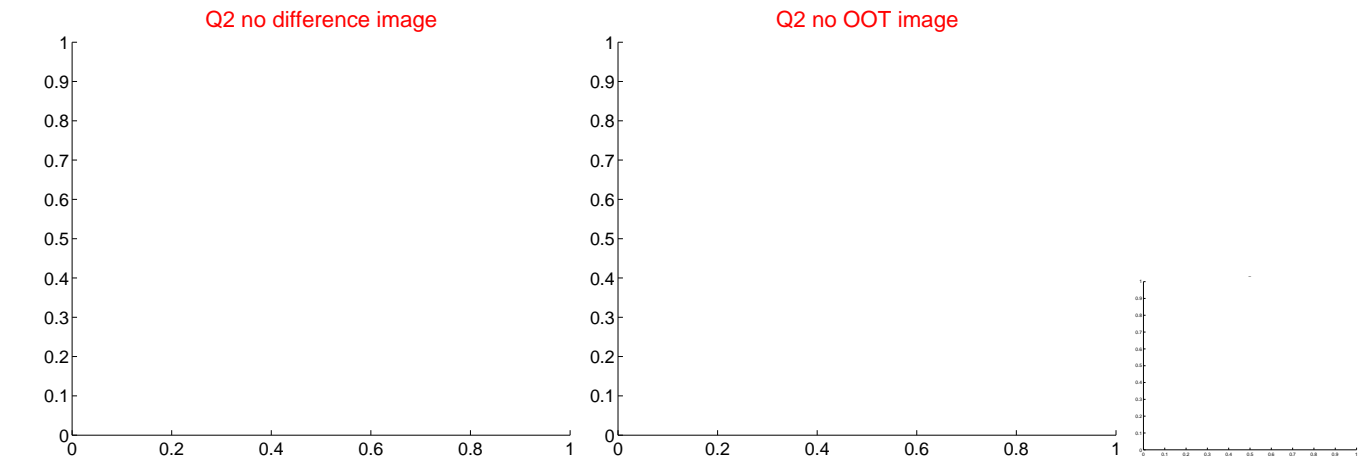
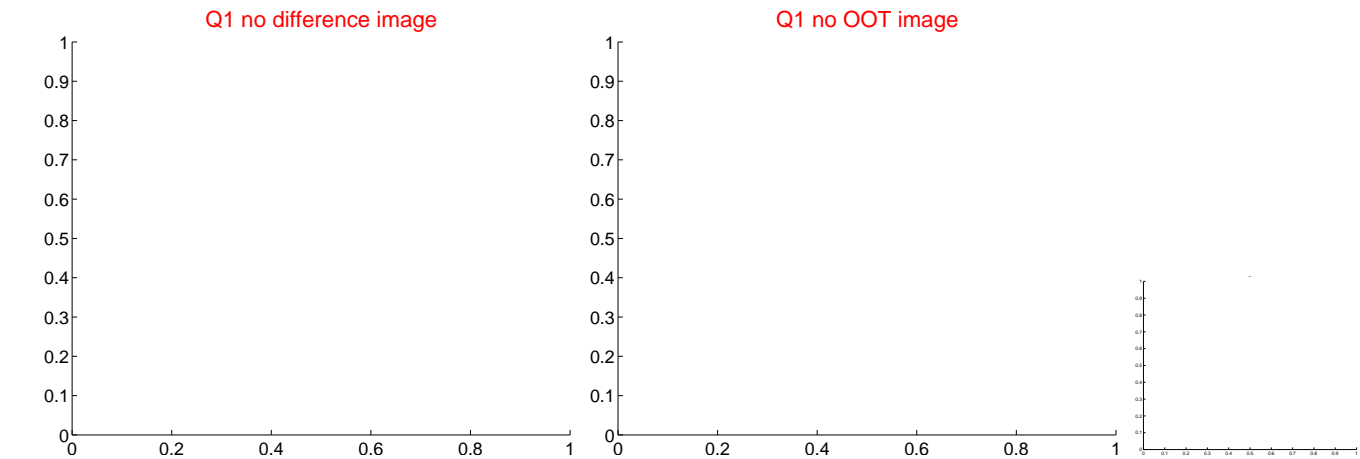


offset from photometric centroids



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



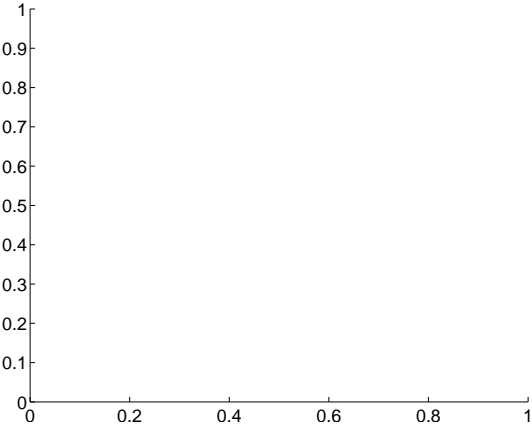
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



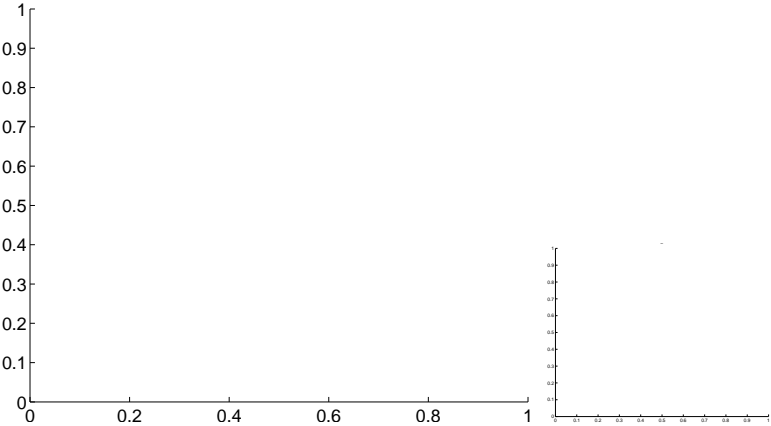


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

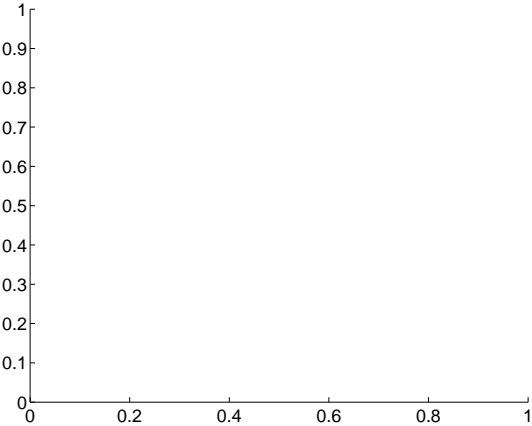
Q9 no difference image



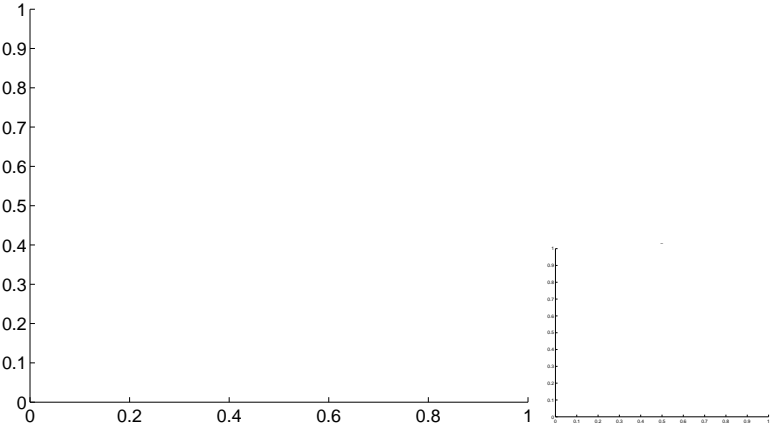
Q9 no OOT image



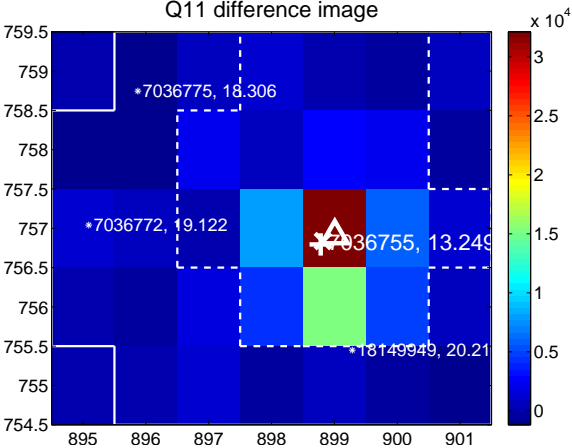
Q10 no difference image



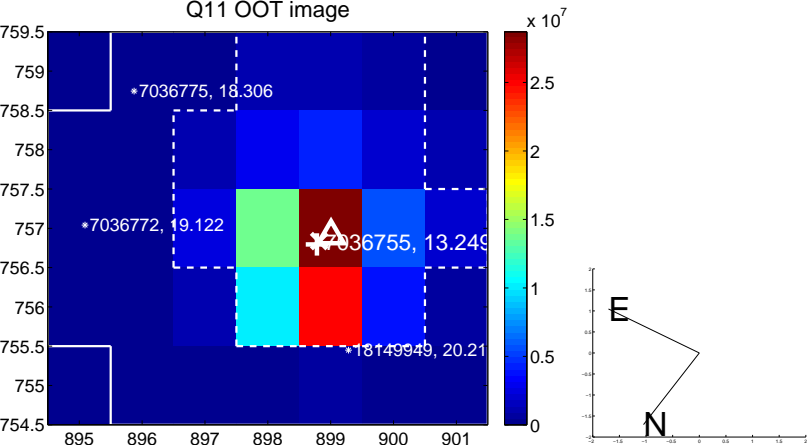
Q10 no OOT image



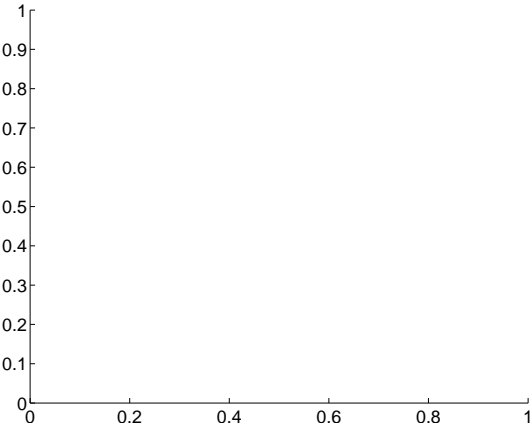
Q11 difference image



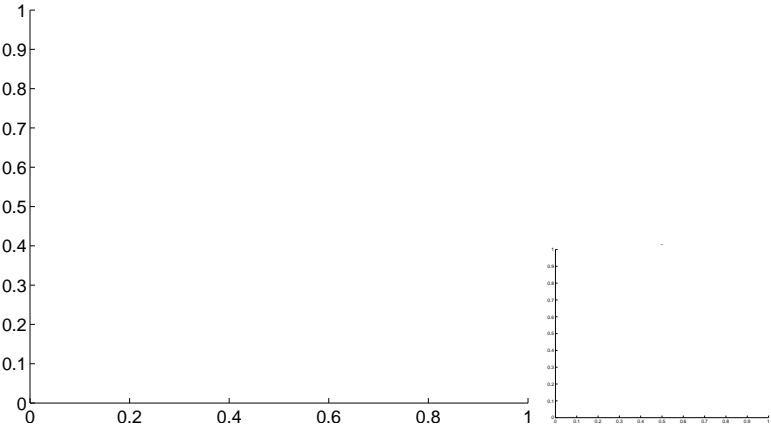
Q11 OOT image



Q12 no difference image



Q12 no OOT image

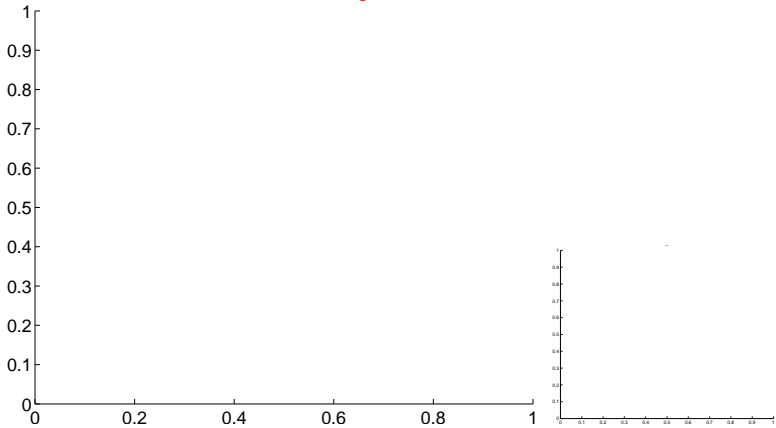


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q13 no difference image



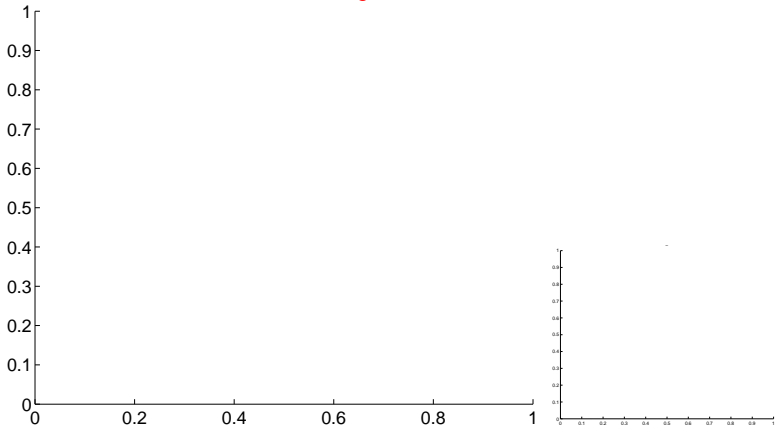
Q13 no OOT image



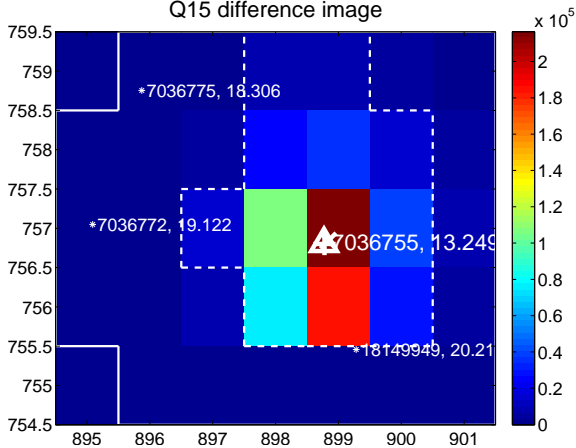
Q14 no difference image



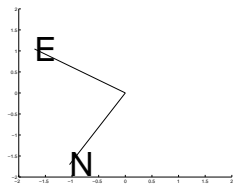
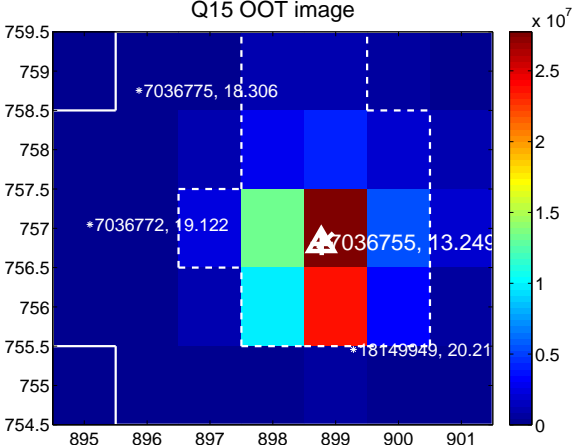
Q14 no OOT image



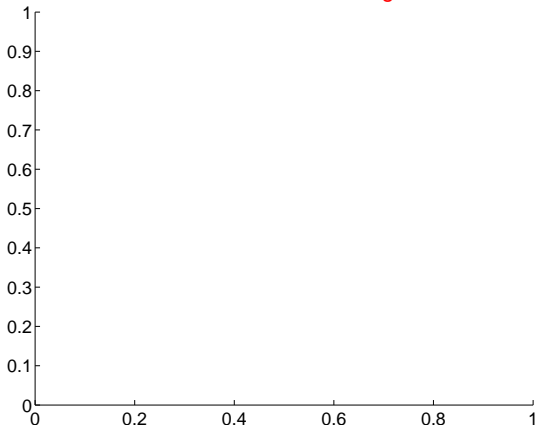
Q15 difference image



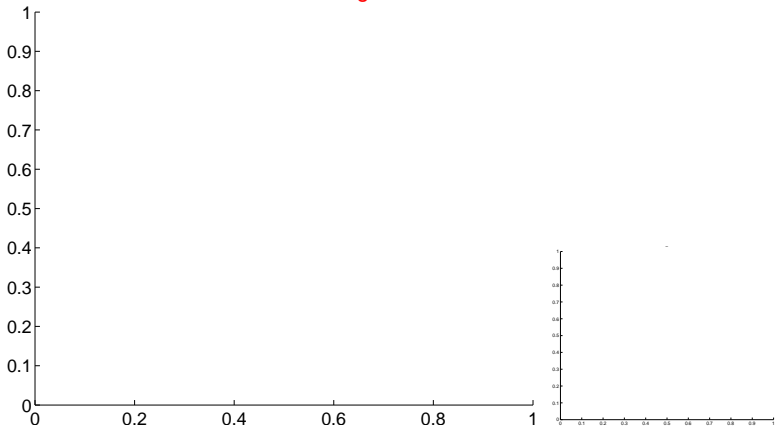
Q15 OOT image



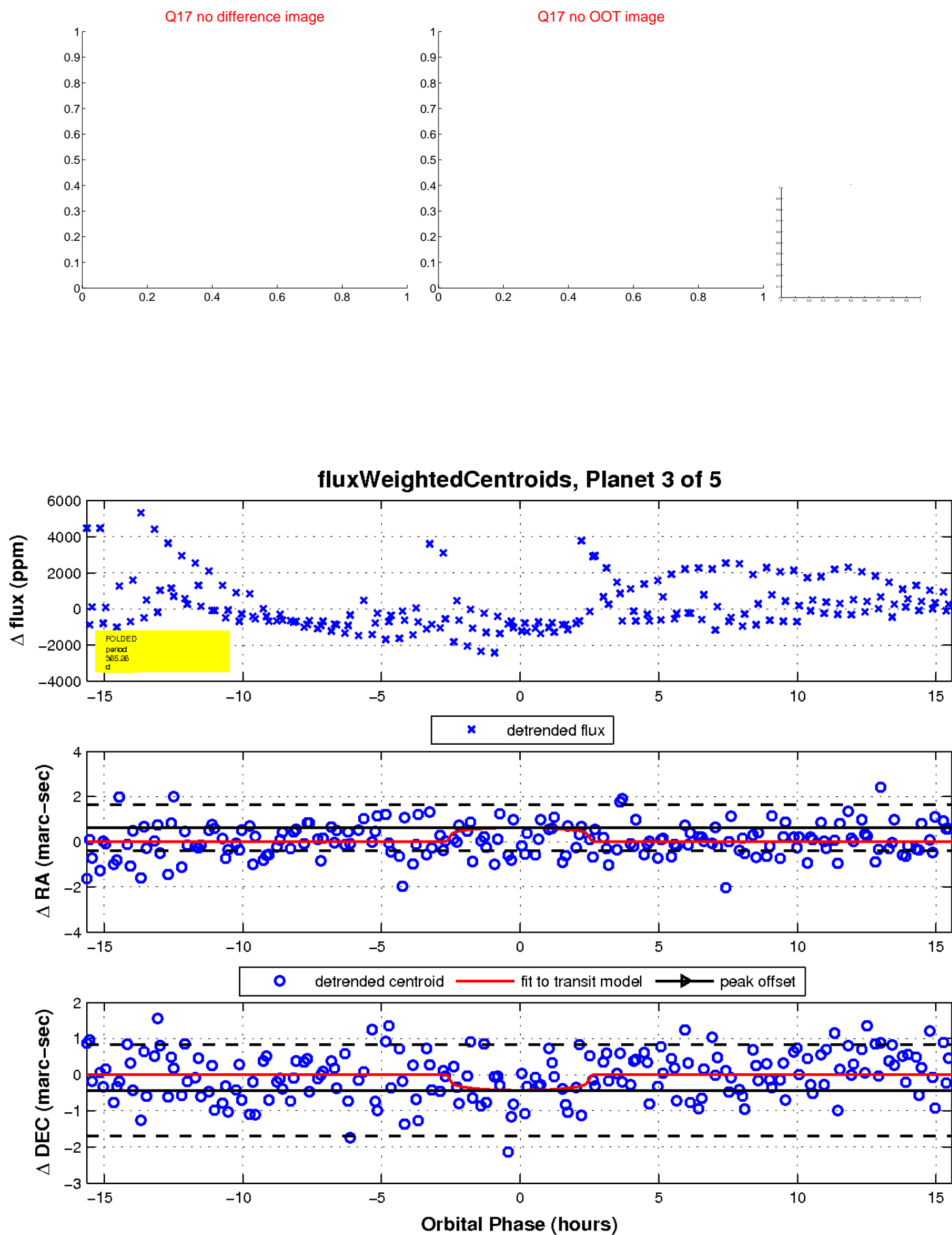
Q16 no difference image



Q16 no OOT image

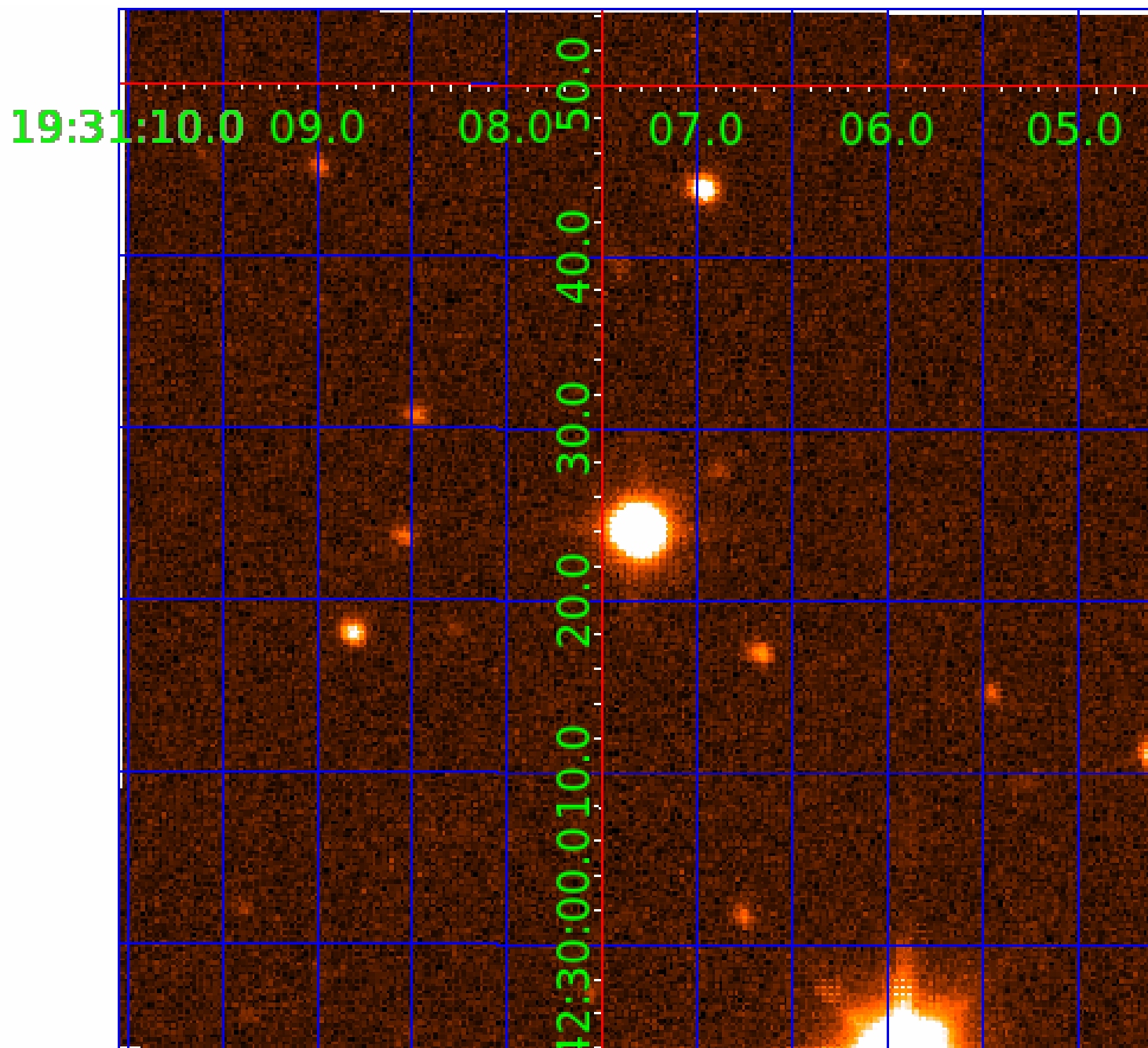


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007036755

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007036755-01 | OBS      | No   | 510.583528    | 308.356281   | 1438.1      | 13.650           | 17.2 | 5.6  | 0.49                        | 4425            | 1.84                   | 0.08                   |
| 007036755-02 | OBS      | No   | 260.247391    | 254.842484   | 1775.7      | 6.017            | 18.7 | 10.8 | 0.49                        | 4425            | 2.40                   | 0.20                   |
| 007036755-03 | OBS      | No   | 365.263295    | 364.587524   | 1189.1      | 5.237            | 16.2 | 5.3  | 0.49                        | 4425            | 1.68                   | 0.13                   |
| 007036755-04 | OBS      | No   | 471.587192    | 437.710180   | 1228.1      | 3.213            | 18.8 | 6.9  | 0.49                        | 4425            | 1.69                   | 0.09                   |
| 007036755-05 | OBS      | No   | 0.850606      | 132.264119   | 527.3       | 1.500            | 8.5  | -1.0 | 0.49                        | 4425            | 1.11                   | 419.44                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007036755-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV       |
| 007036755-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV  |
| 007036755-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS                  |
| 007036755-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV |
| 007036755-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—CENT_NOFITS  |

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

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

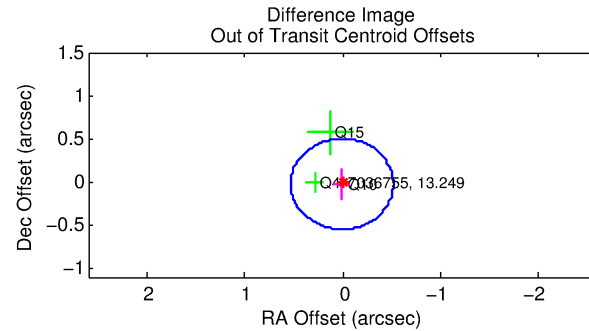
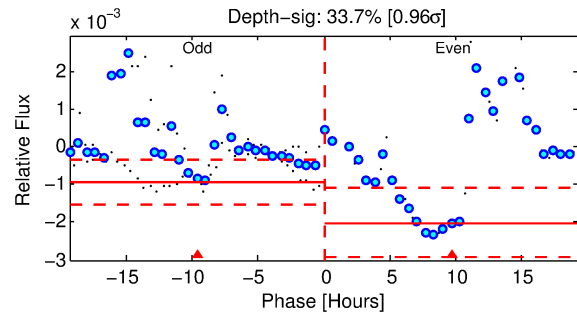
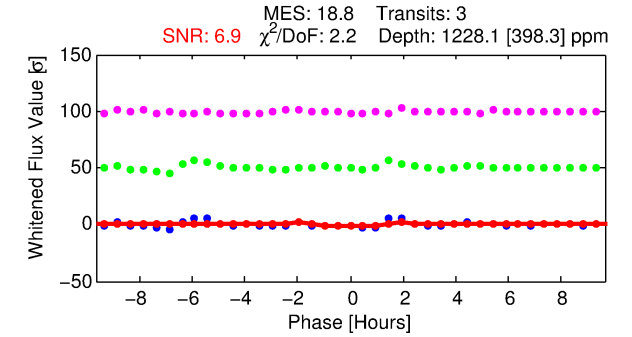
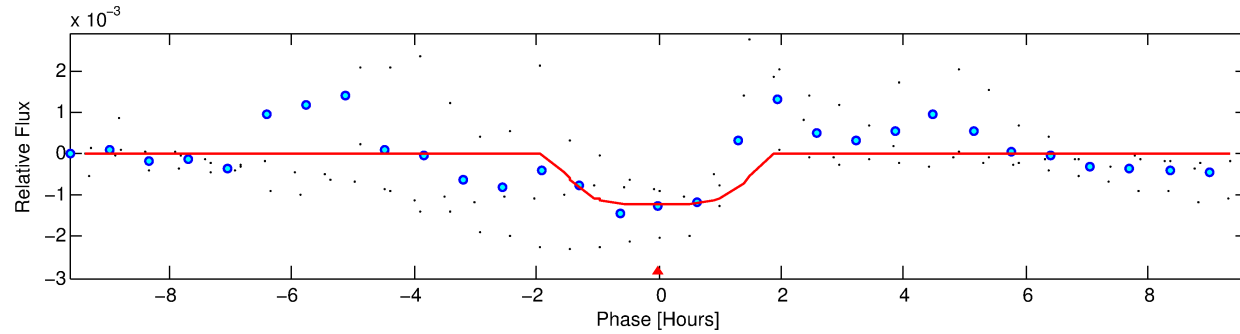
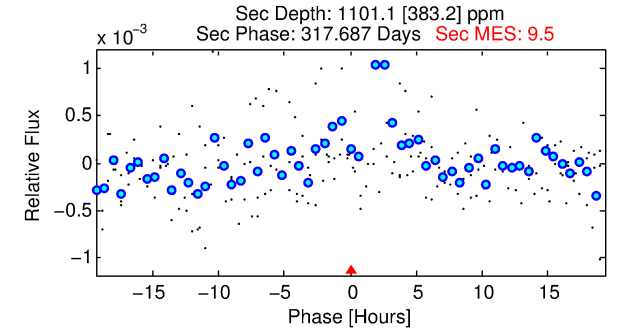
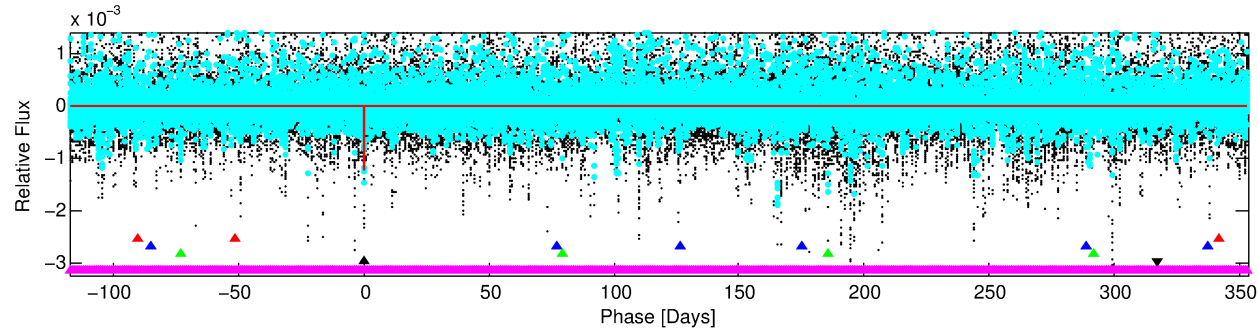
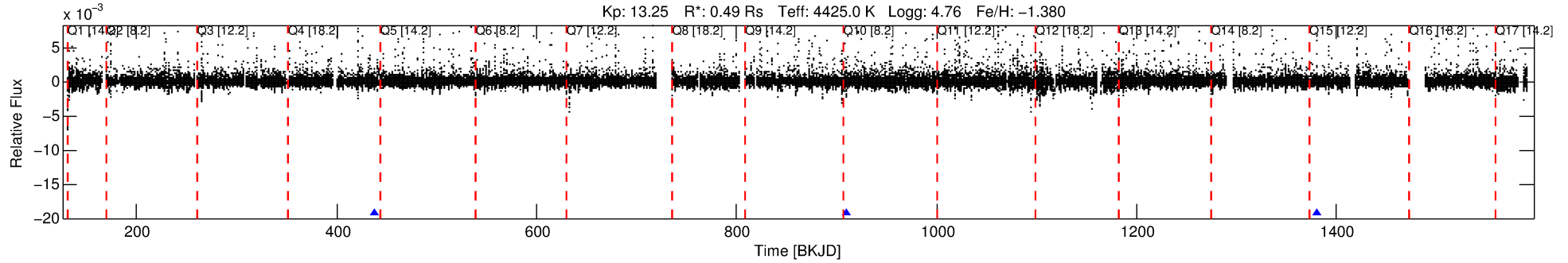
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007036755-04

No Significant Match Found

# DV One-Page Summary

KIC: 7036755 Candidate: 4 of 5 Period: 471.587 d



## DV Fit Results:

Period = 471.58719 [0.00589] d  
Epoch = 437.7102 [0.0075] BKJD  
Rp/R\* = 0.0319 [0.1422]  
a/R\* = 1140.84 [21845.40]  
b = 0.17 [109.58]  
Seff = 0.09 [0.02]  
Teq = 140 [6] K  
Rp = 1.69 [7.54] Re  
a = 0.9386 [0.0788] AU  
Ag = 186506.38 [1664000.36] [0.11 $\sigma$ ]  
Teffp = 4513 [10067] K [0.43 $\sigma$ ]

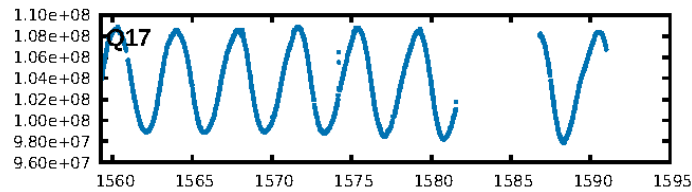
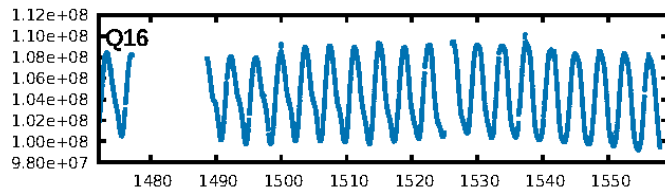
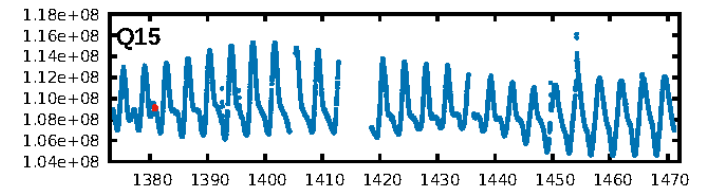
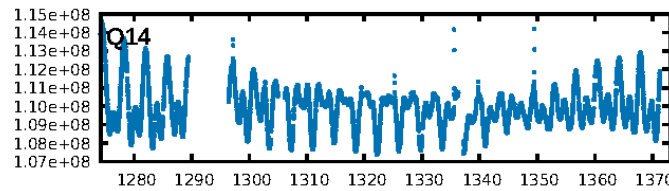
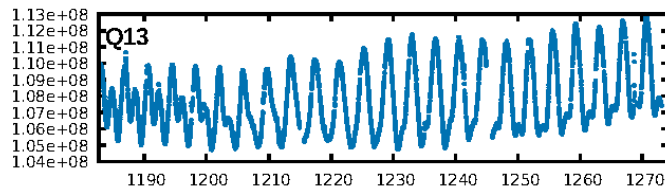
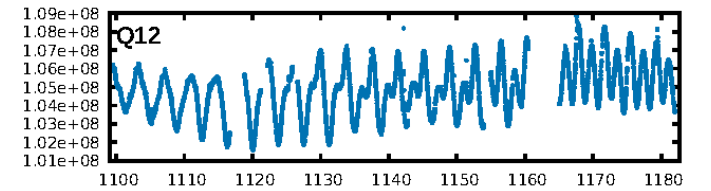
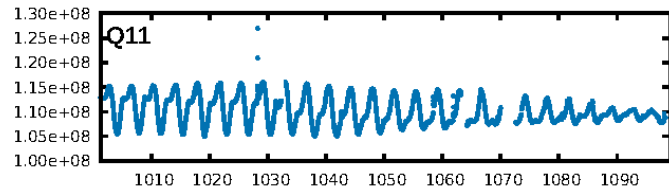
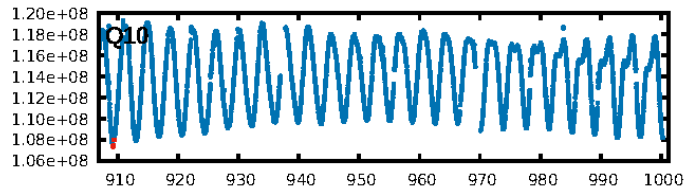
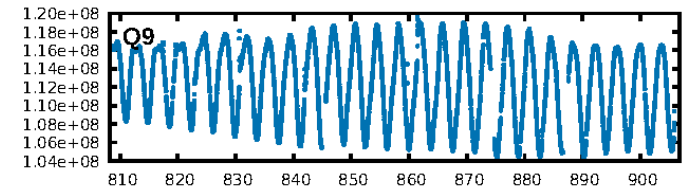
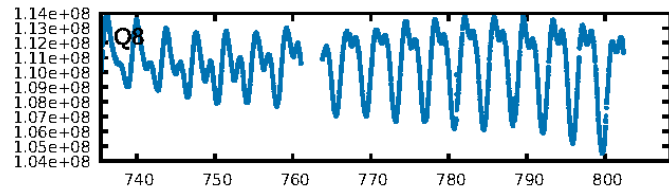
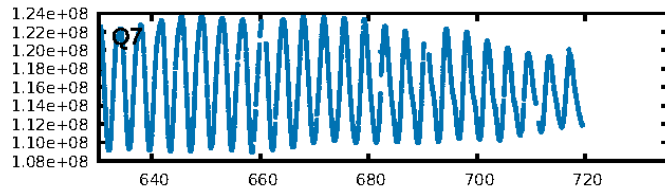
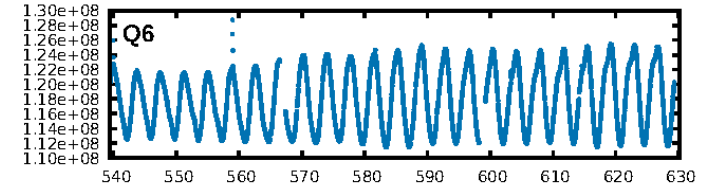
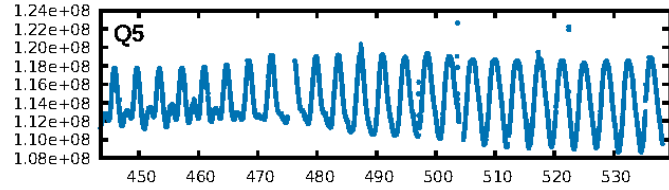
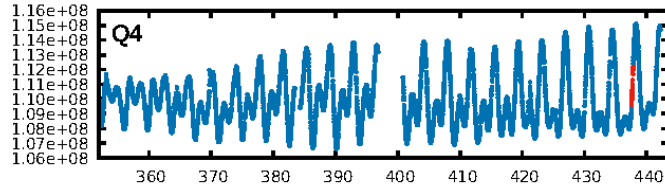
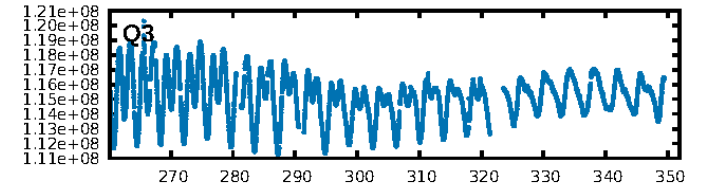
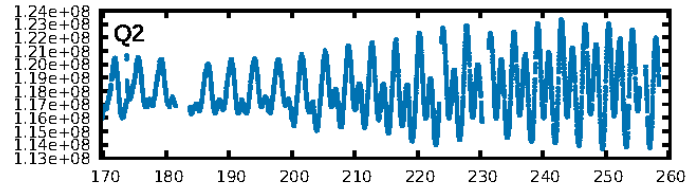
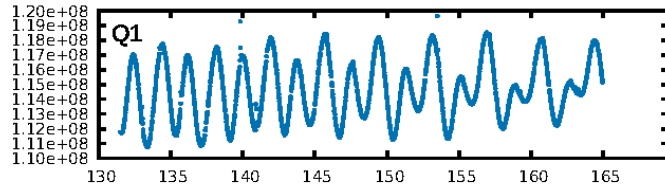
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [415.30 $\sigma$ ]  
LongPeriod-sig: 100.0% [66.74 $\sigma$ ]  
ModelChiSquare2-sig: 4.9%  
ModelChiSquareGof-sig: 39.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.564  
Centroid-sig: 0.1%  
Centroid-so: 1.110 arcsec [2.34 $\sigma$ ]  
OotOffset-rm: 0.025 arcsec [0.14 $\sigma$ ]  
KicOffset-rm: 0.143 arcsec [0.64 $\sigma$ ]  
OotOffset-st: 1/1/1/0 [3]  
KicOffset-st: 1/1/1/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 0.33 [1/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:37:15 Z

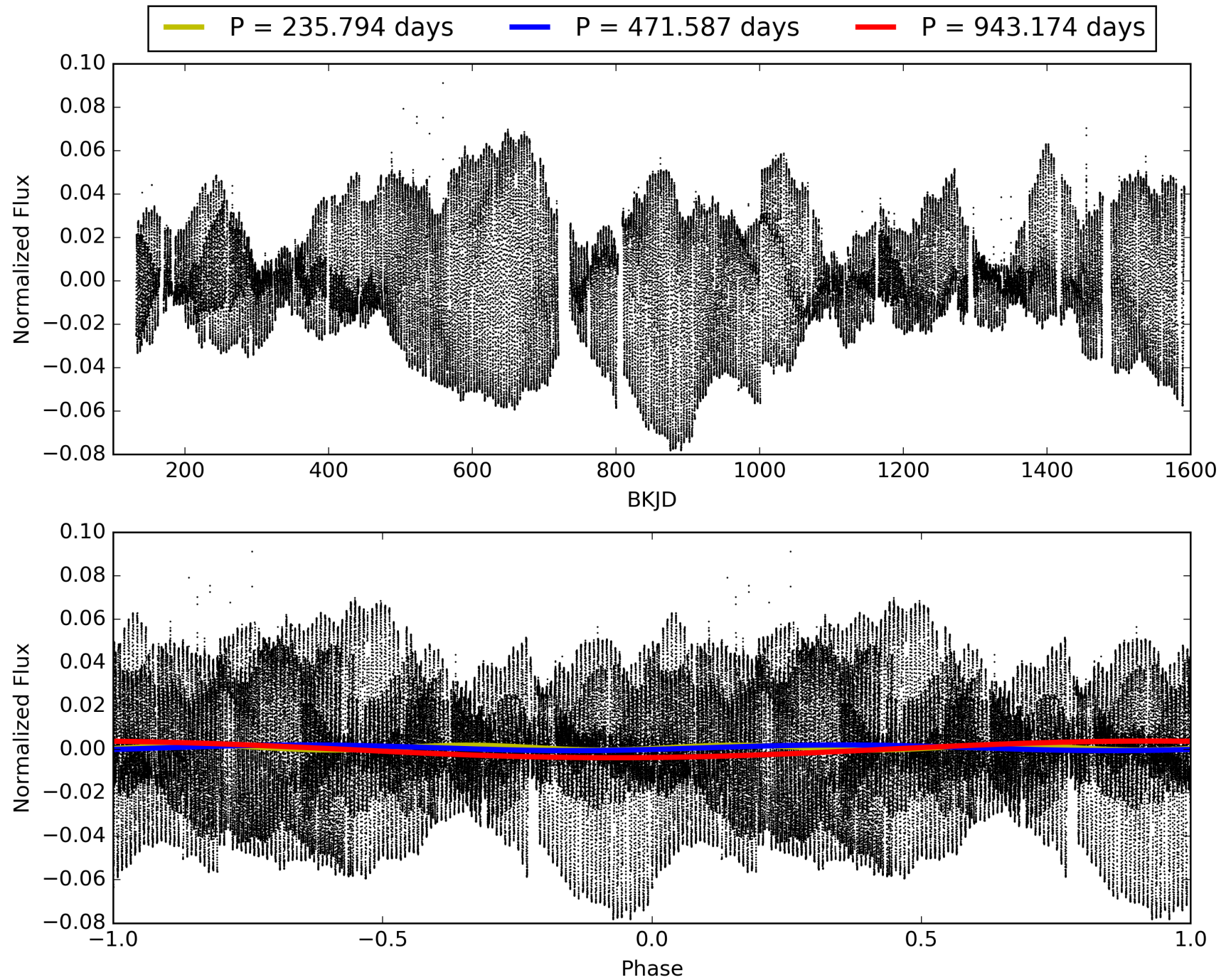
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007036755-04, PDC Light Curves





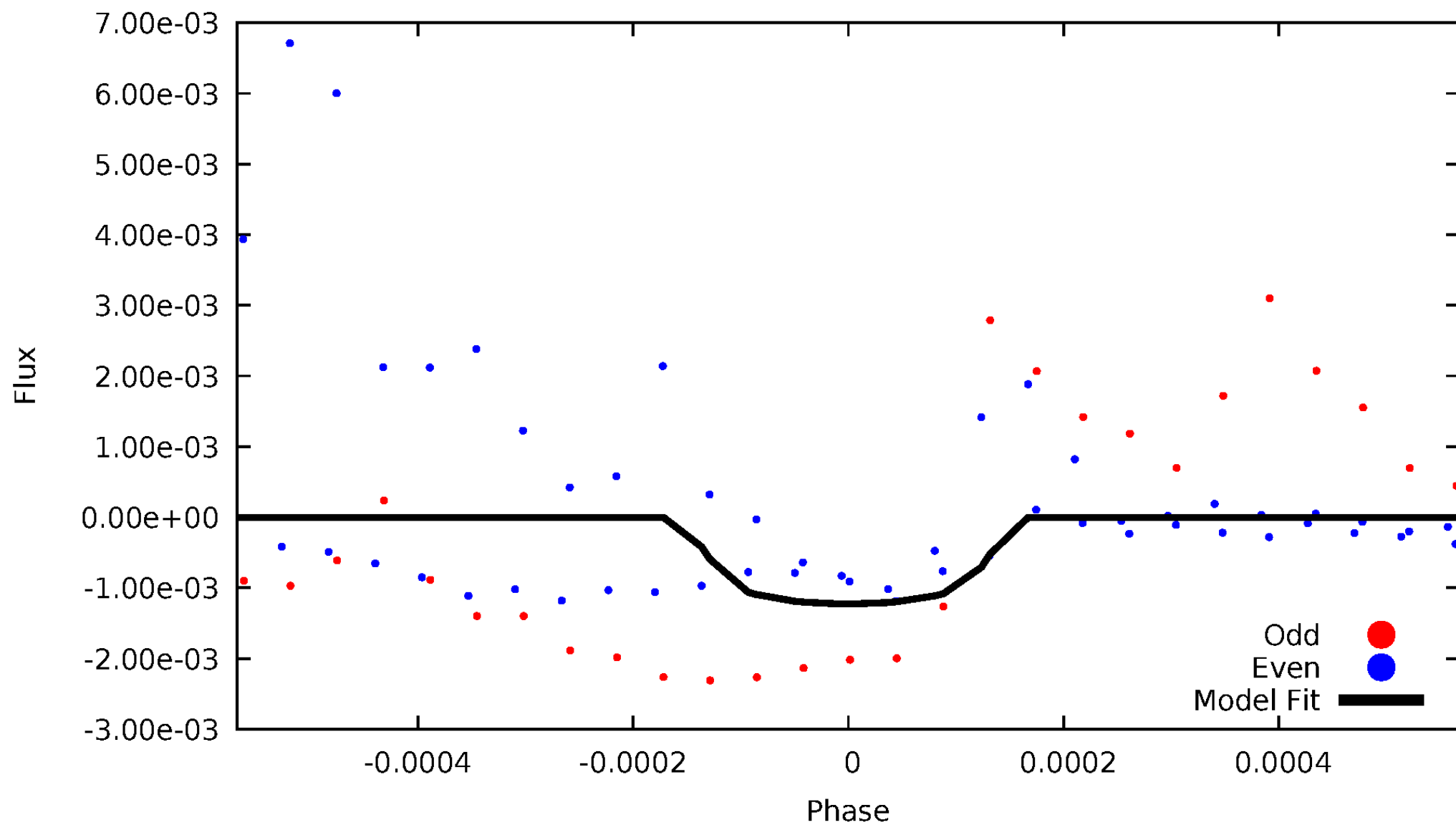
TCE 007036755-04





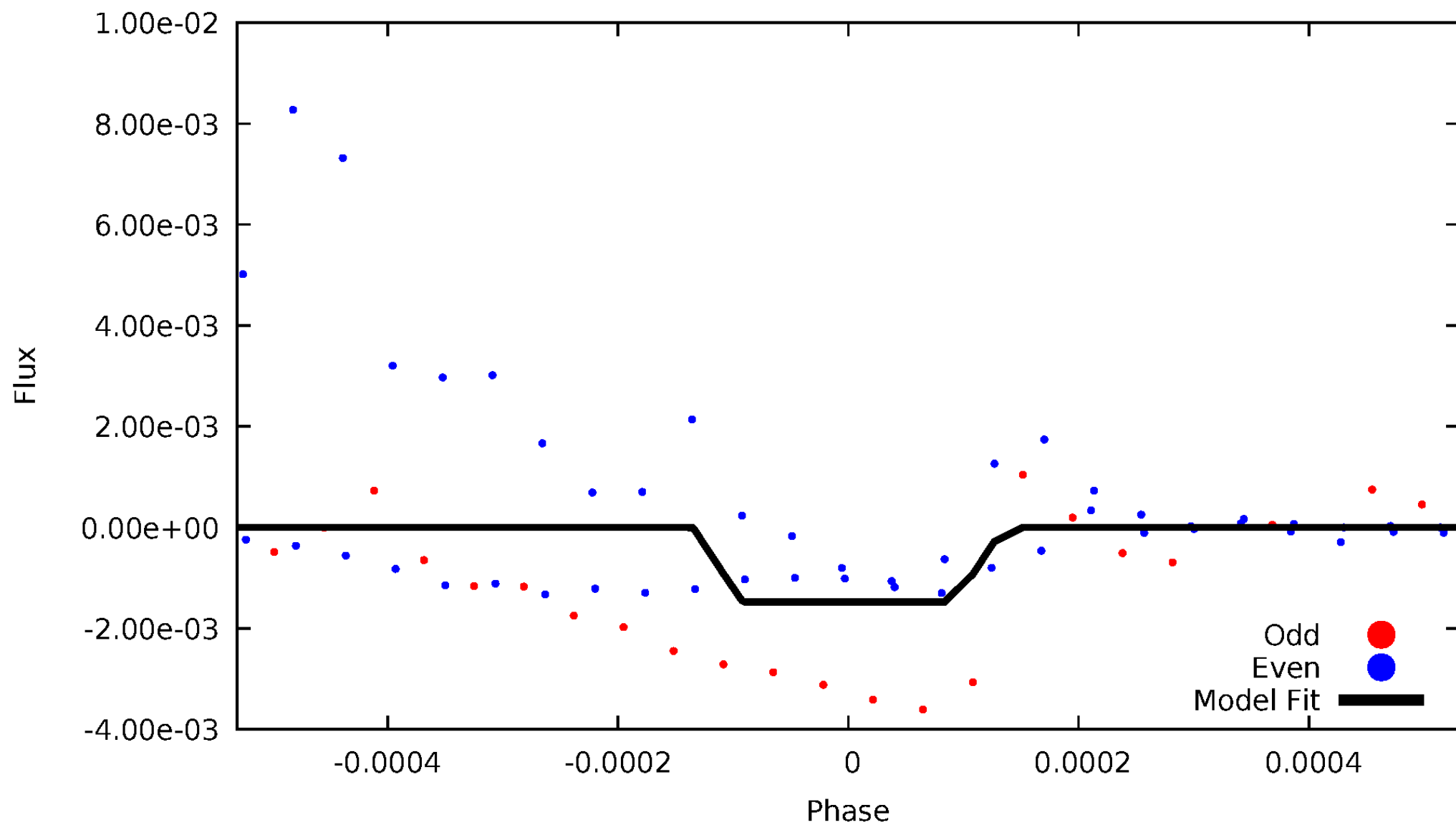
# DV Odd/Even

TCE 007036755-04



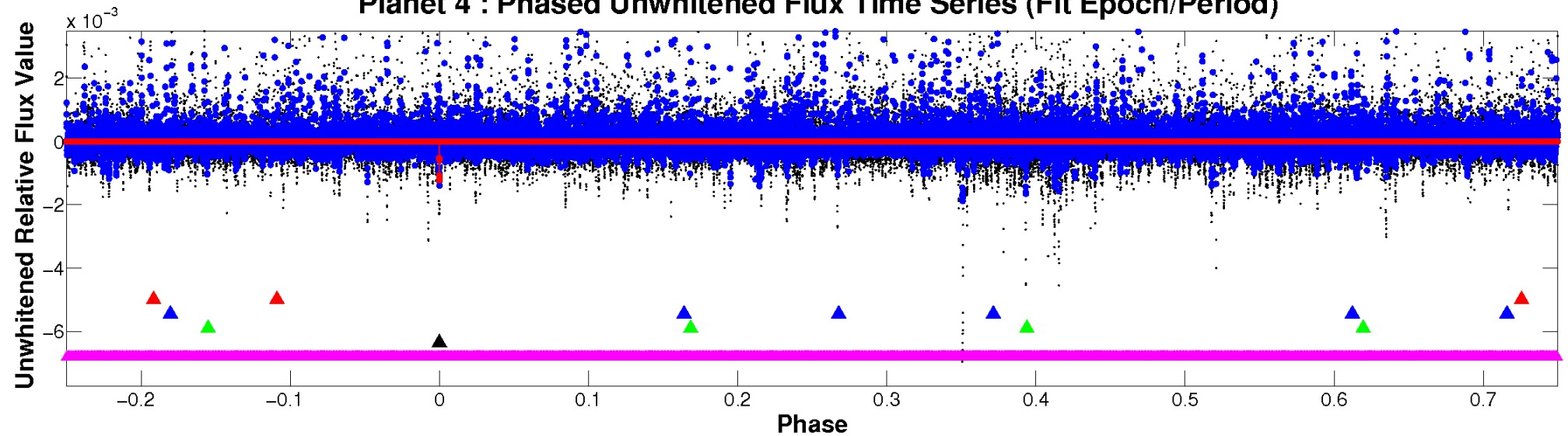
# ALT Odd/Even

TCE 007036755-04

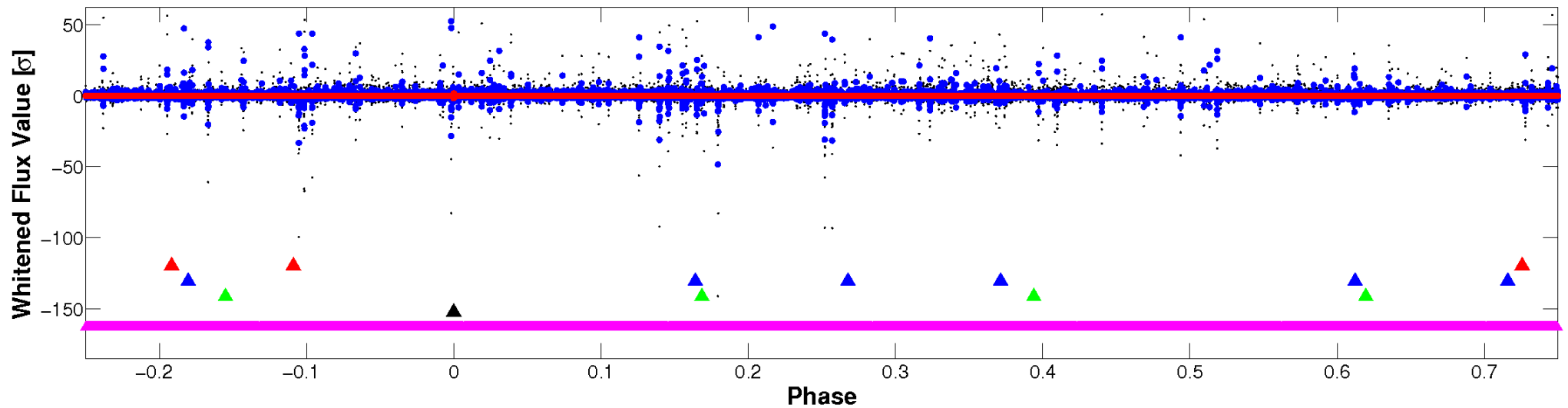


# Non-Whitened Vs. Whitened Light Curve

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

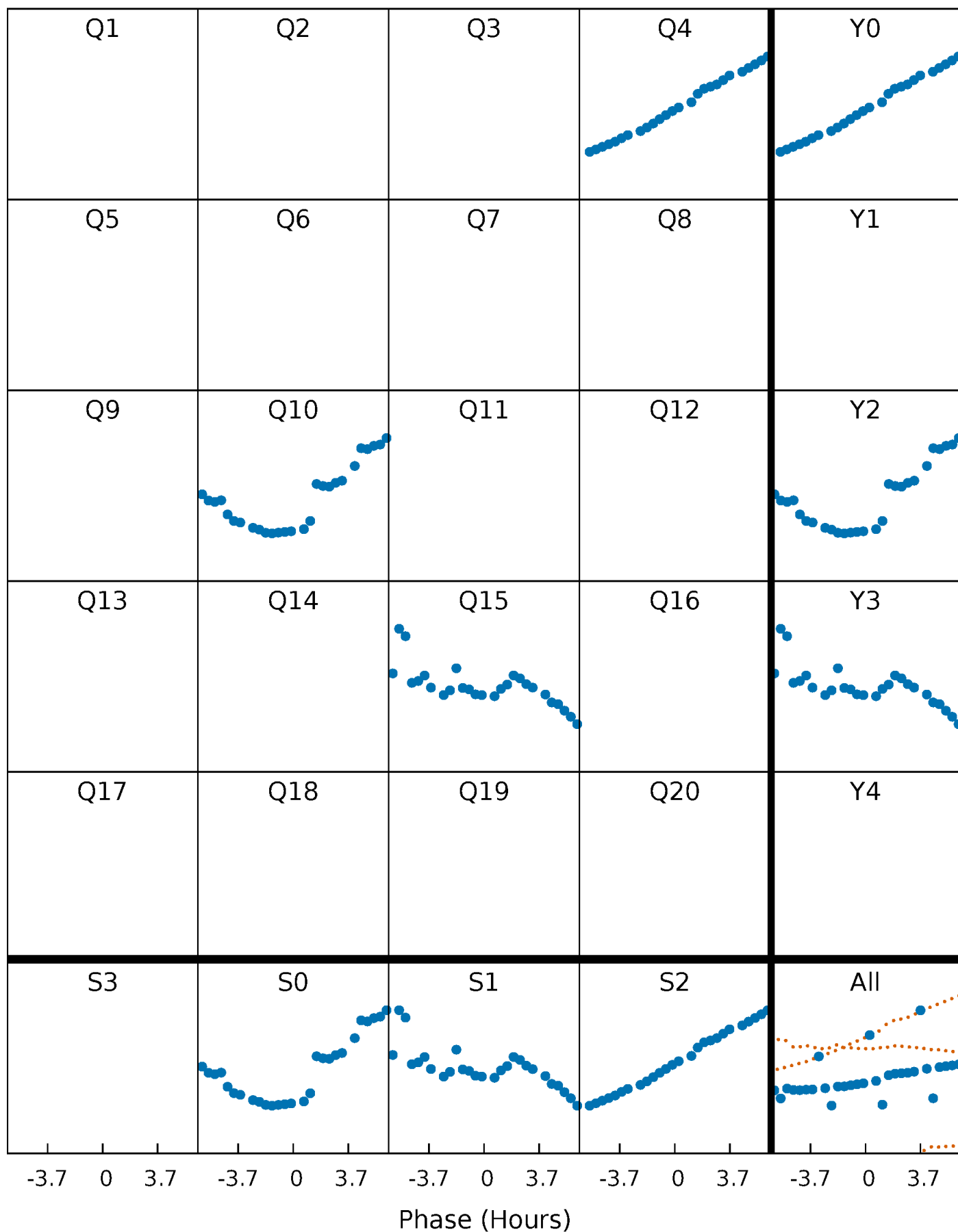


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



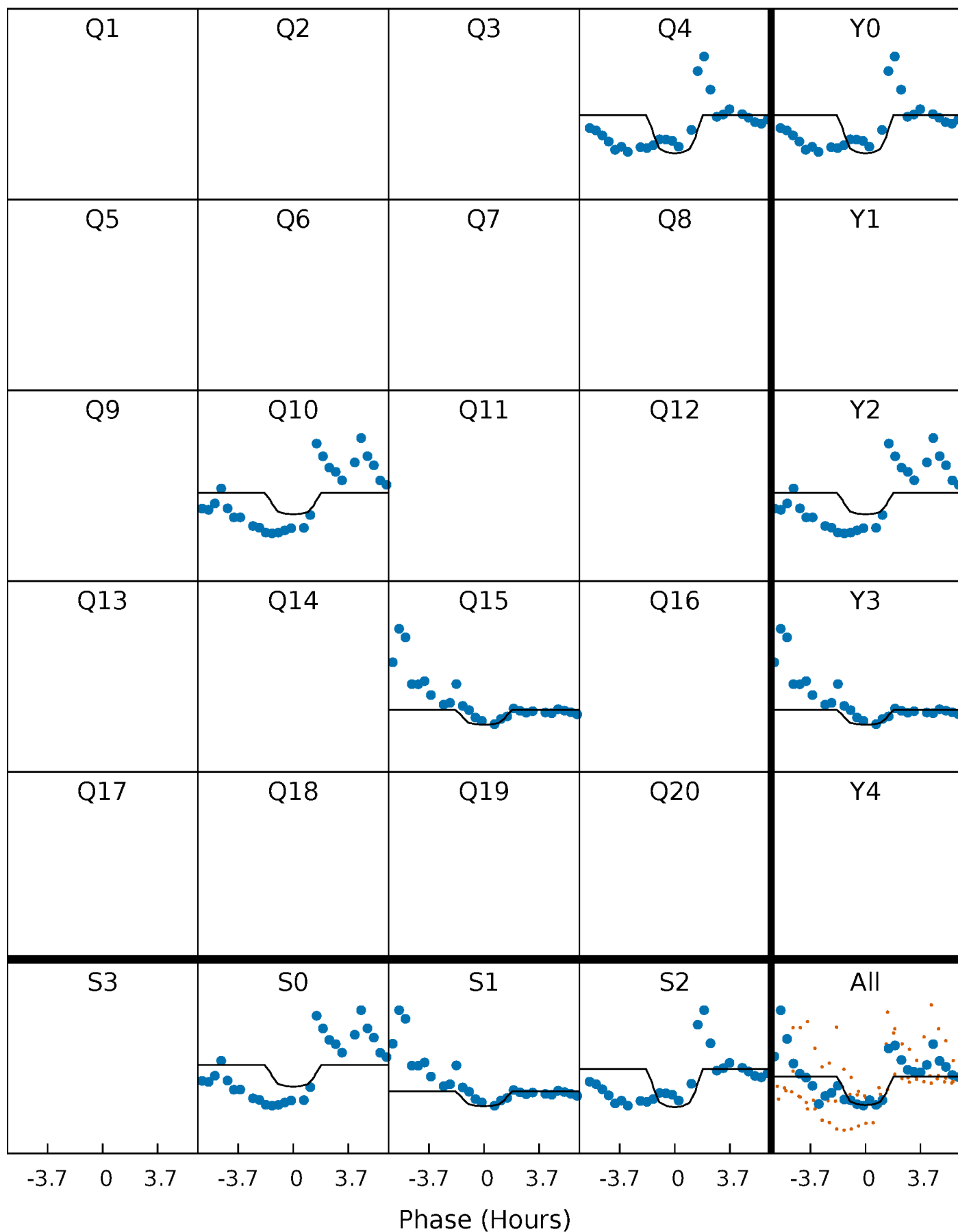
# PDC Quarter-Phased Transit Curves

TCE 007036755-04 P=471.587192 Days  $T_0=437.710180$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 007036755-04 P=471.587192 Days  $T_0=437.710180$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

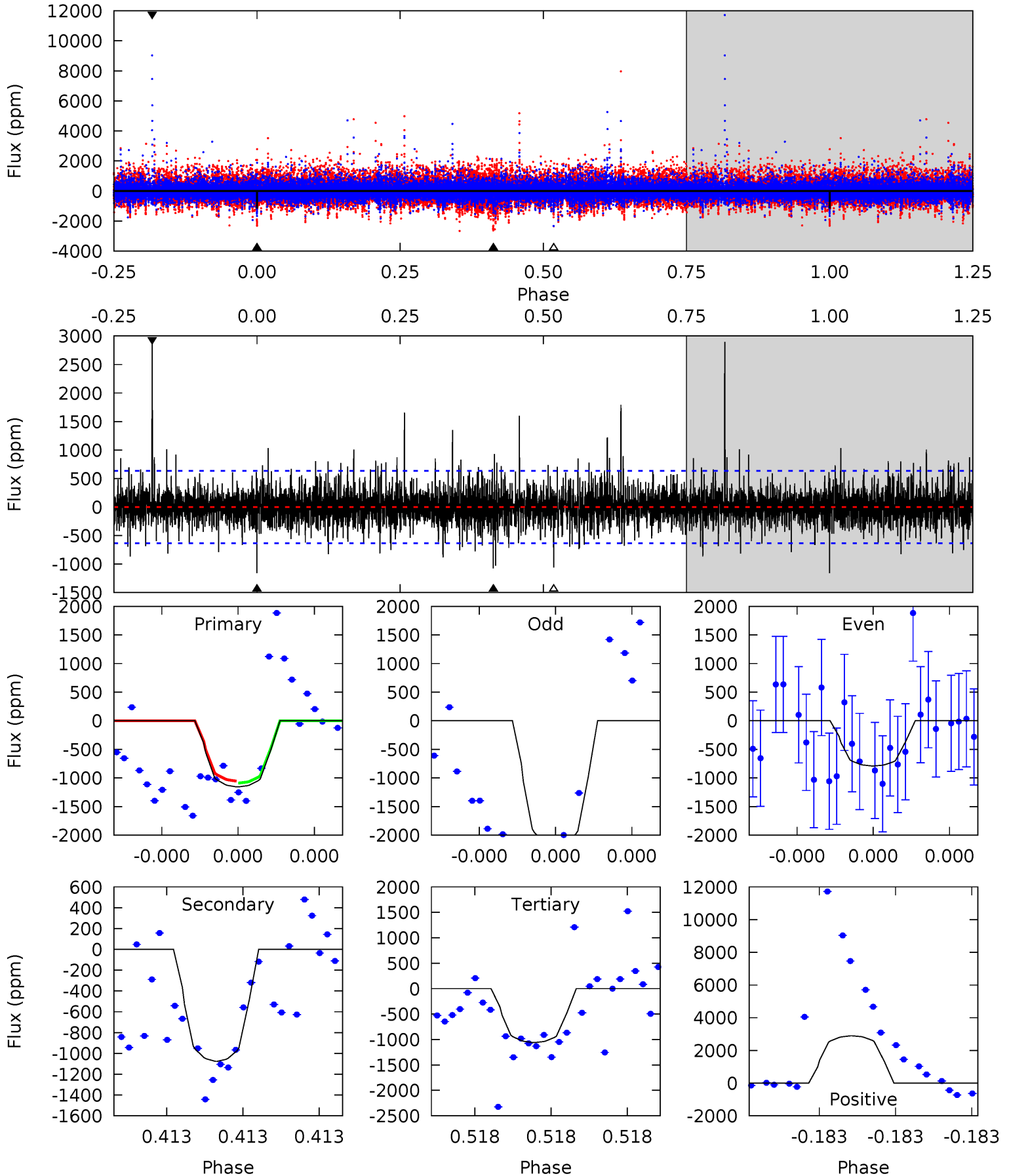
TCE 007036755-04 P=471.579320 Days  $T_0=437.708672$  (BKJD)



# DV Model-Shift Uniqueness Test

007036755-04, P = 471.587192 Days, E = 437.710180 Days

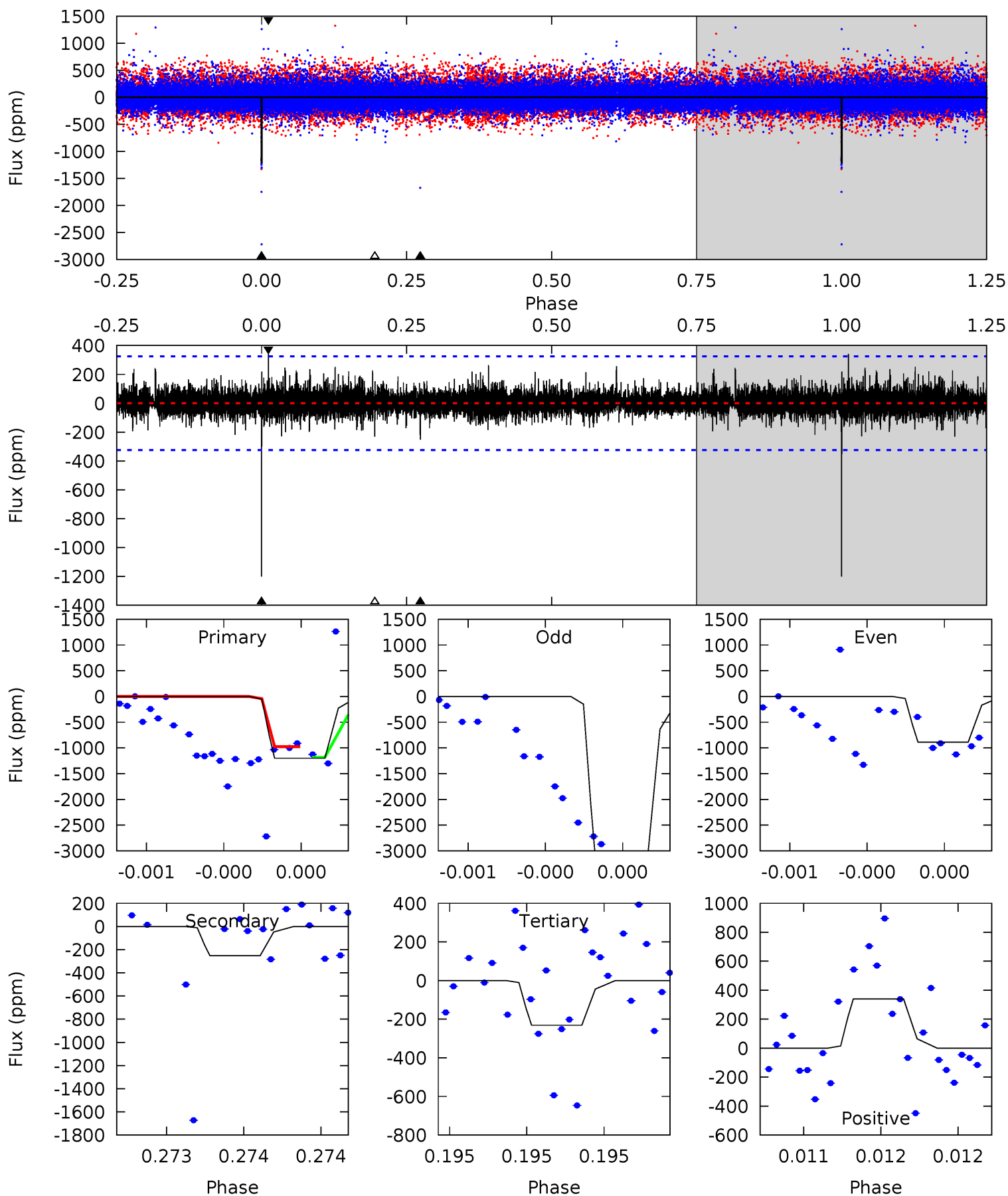
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.3 | 9.61 | 9.46 | 25.8 | 5.66            | 3.61            | 2.01             | 0.86    | -15.5   | 0.15    | -16.2   | 2.57    | 1.51 | 0.71  | 0.15 |



# Alt Model-Shift Uniqueness Test

007036755-04, P = 471.579320 Days, E = 437.708672 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 21.0 | 4.41 | 4.05 | 5.96 | 5.68            | 3.65            | 0.80             | 17.0    | 15.1    | 0.37    | -1.55   | 20.9    | 1.82 | 0.22  | 1.66 |





### Stellar Parameters For KIC 007036755

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $4425^{+121}_{-148}$ | $4.760^{+0.063}_{-0.032}$ | $-1.380^{+0.300}_{-0.300}$ | $0.486^{+0.031}_{-0.050}$ | $0.495^{+0.034}_{-0.034}$ | $6.087^{+1.776}_{-0.785}$                     |
|        | +3%/-3%              | +1%/-1%                   | +22%/-22%                  | +6%/-10%                  | +7%/-7%                   | +29%/-13%                                     |
| Source | PHO1                 | KIC0                      | KIC0                       | DSEP                      |                           |   |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007036755-04 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)   | $T_{obs}$ (K)         | $A_{obs}$                  |
|---------|-----------------|------------------------|-----------------|-----------------------|----------------------------|
| DV      | $-1077 \pm 112$ | $5.67^{+5.95}_{-3.81}$ | $195^{+7}_{-8}$ | $2997^{+1354}_{-513}$ | $16752^{+135252}_{-12845}$ |
| Alt.    | $-252 \pm 57$   | $5.67^{+6.68}_{-3.83}$ | $195^{+7}_{-7}$ | $2472^{+831}_{-389}$  | $3686^{+28409}_{-2844}$    |

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

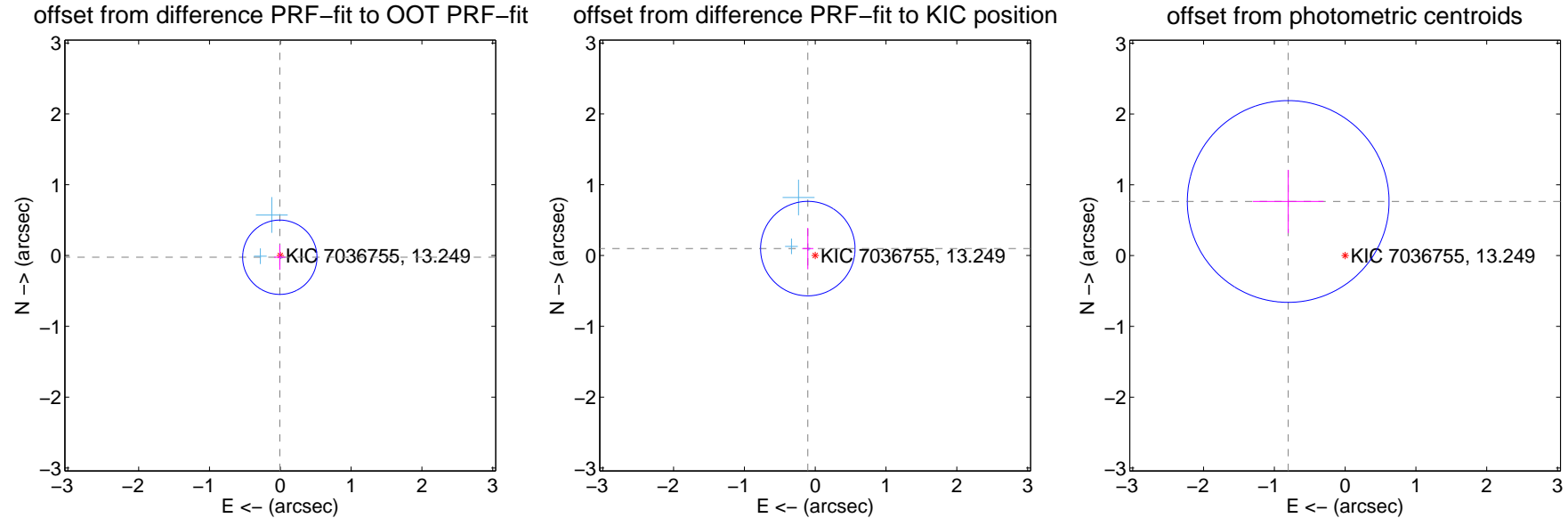
## DV Centroid Data

Supplemental centroid analysis for 007036755-04. Kepler magnitude: 13.25. Transit SNR 6.94

There are 3 quarters with good PRF difference image offsets

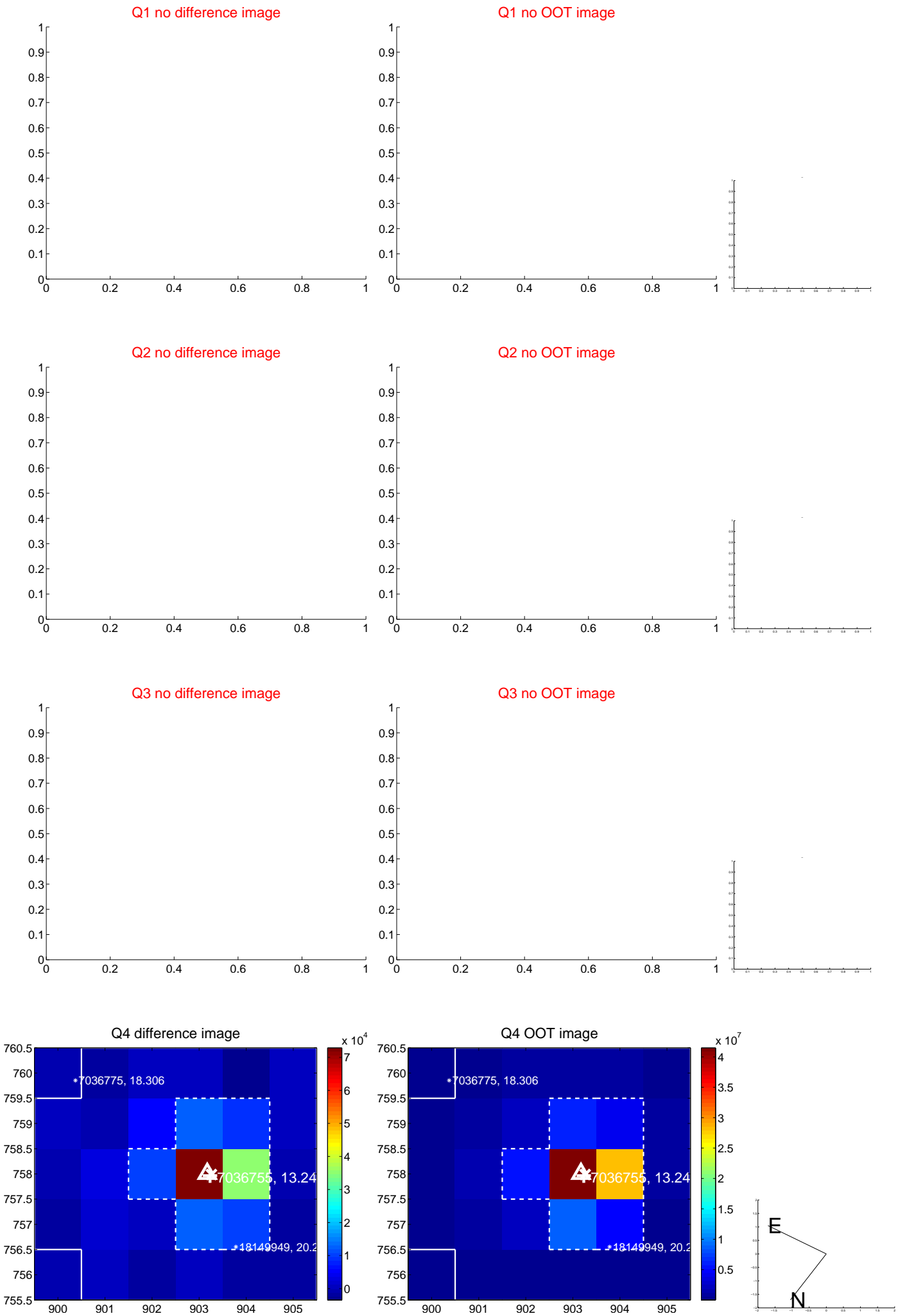
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $0.025 \pm 0.175$  | 0.14                | $0.007 \pm 0.079$ | $-0.024 \pm 0.177$ |
| PRF-fit source offset from KIC position | $0.143 \pm 0.222$  | 0.64                | $0.104 \pm 0.079$ | $0.098 \pm 0.293$  |
| photometric centroid source offset      | $1.11 \pm 0.47$    | 2.34                | $0.80 \pm 0.50$   | $0.76 \pm 0.45$    |



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

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



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

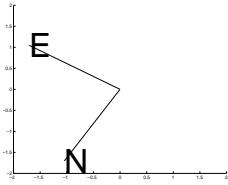
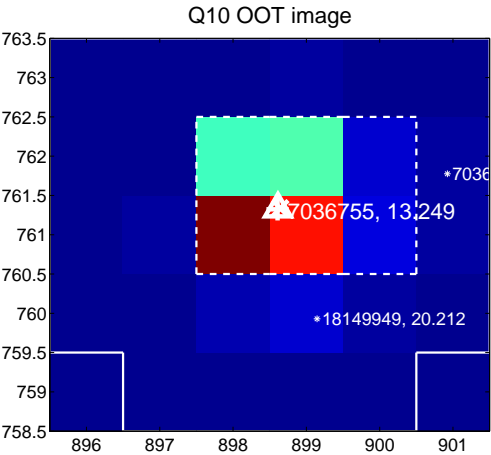
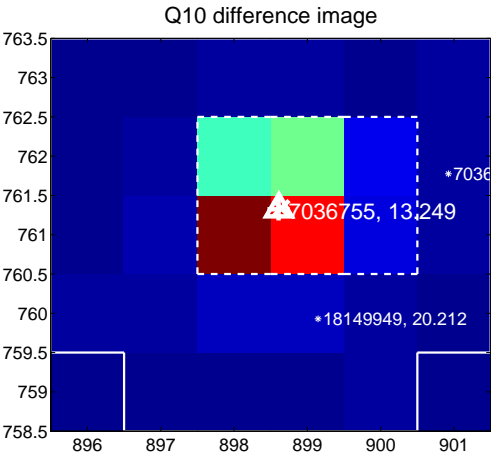
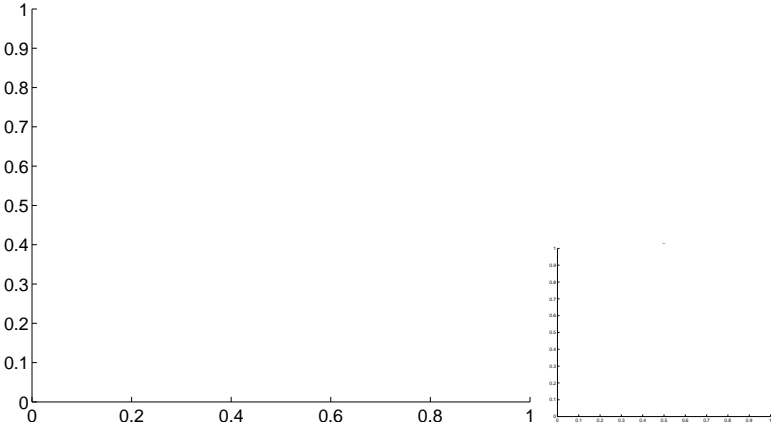


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

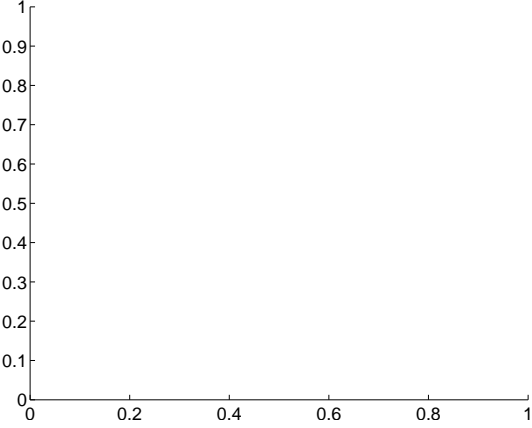
Q9 no difference image



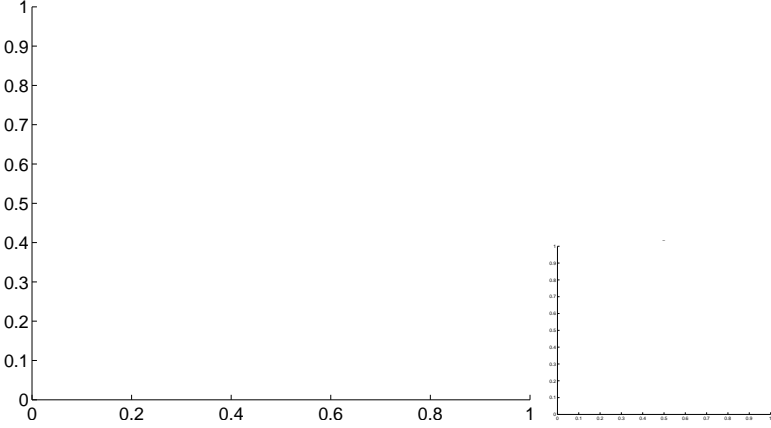
Q9 no OOT image



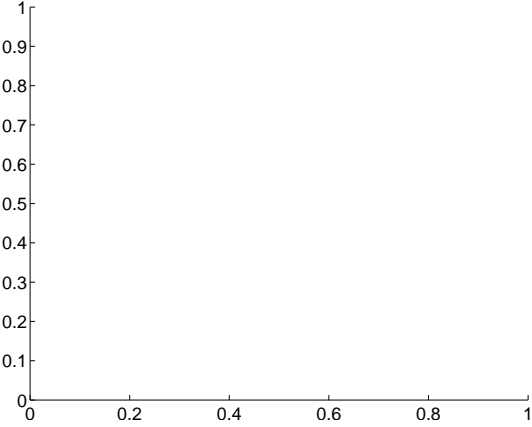
Q11 no difference image



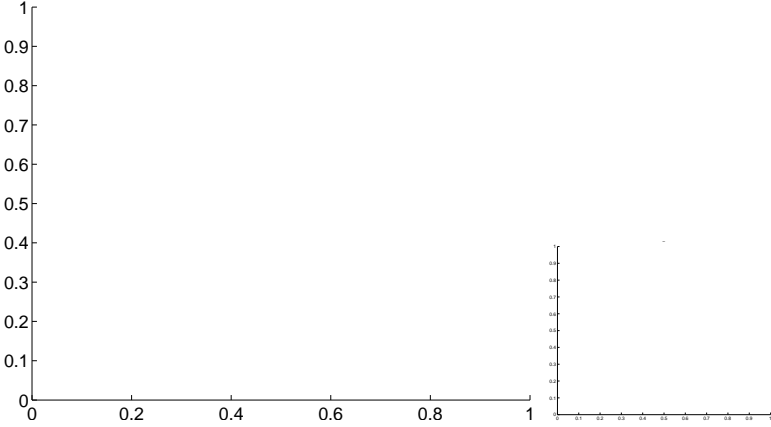
Q11 no OOT image



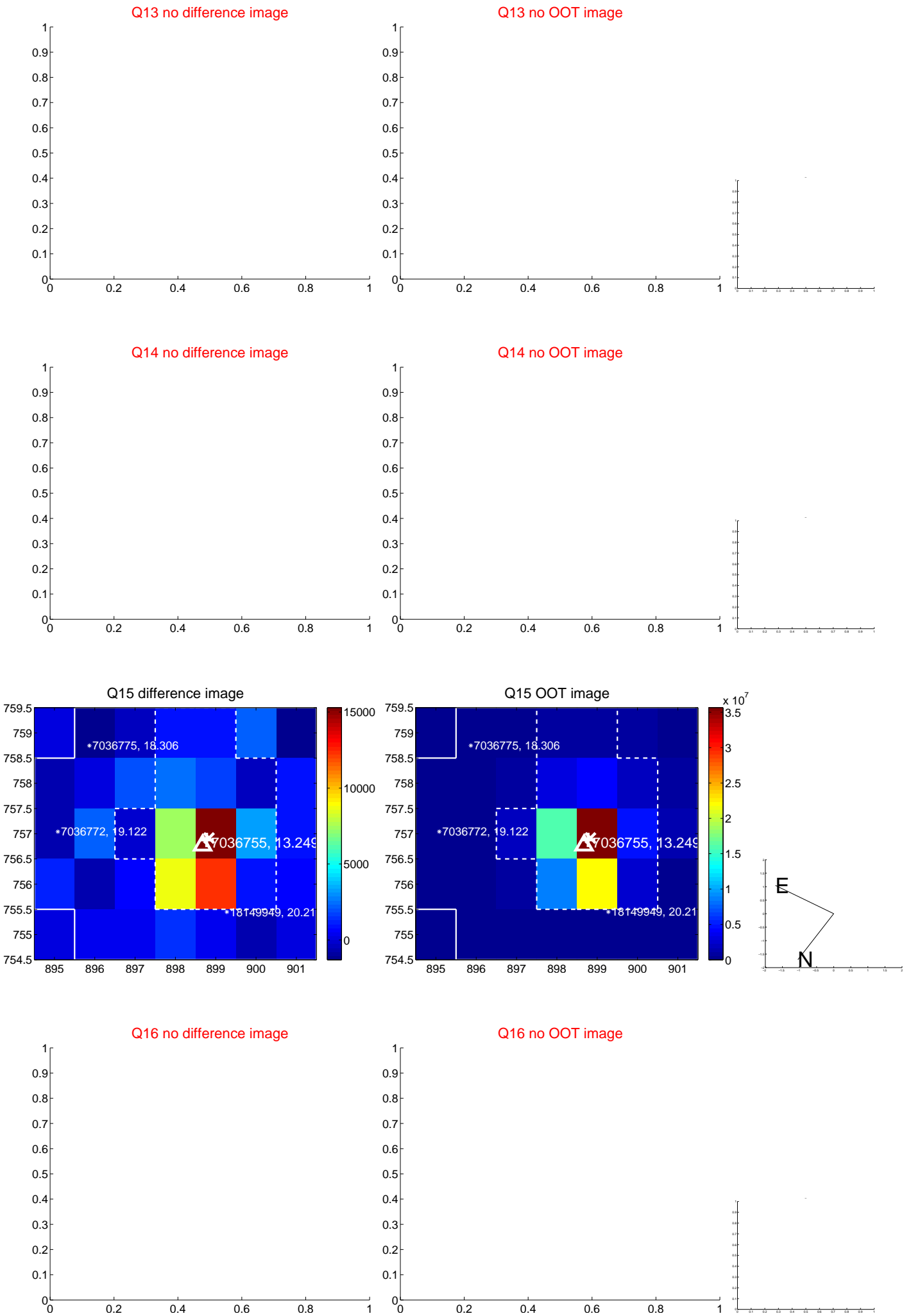
Q12 no difference image



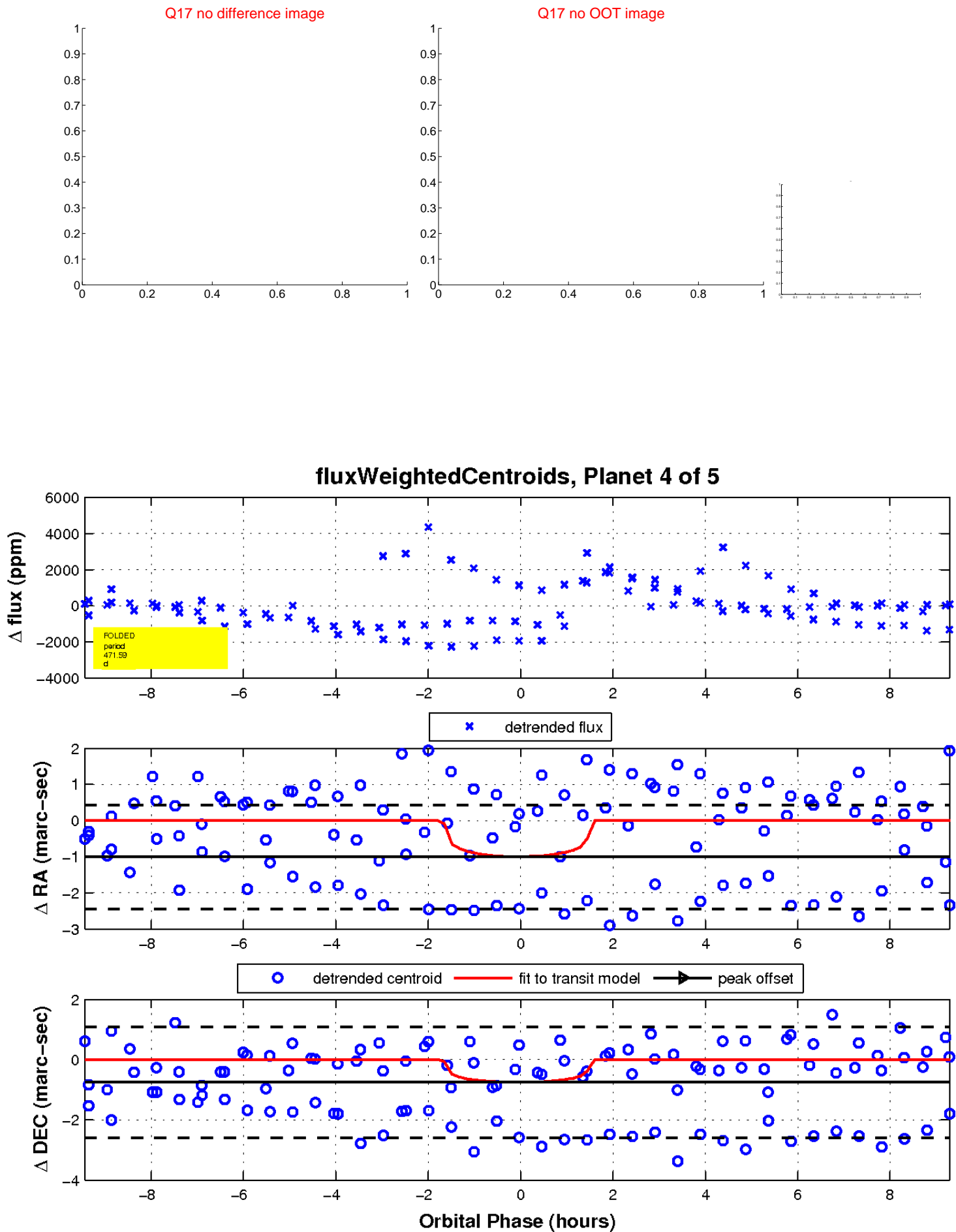
Q12 no OOT image



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

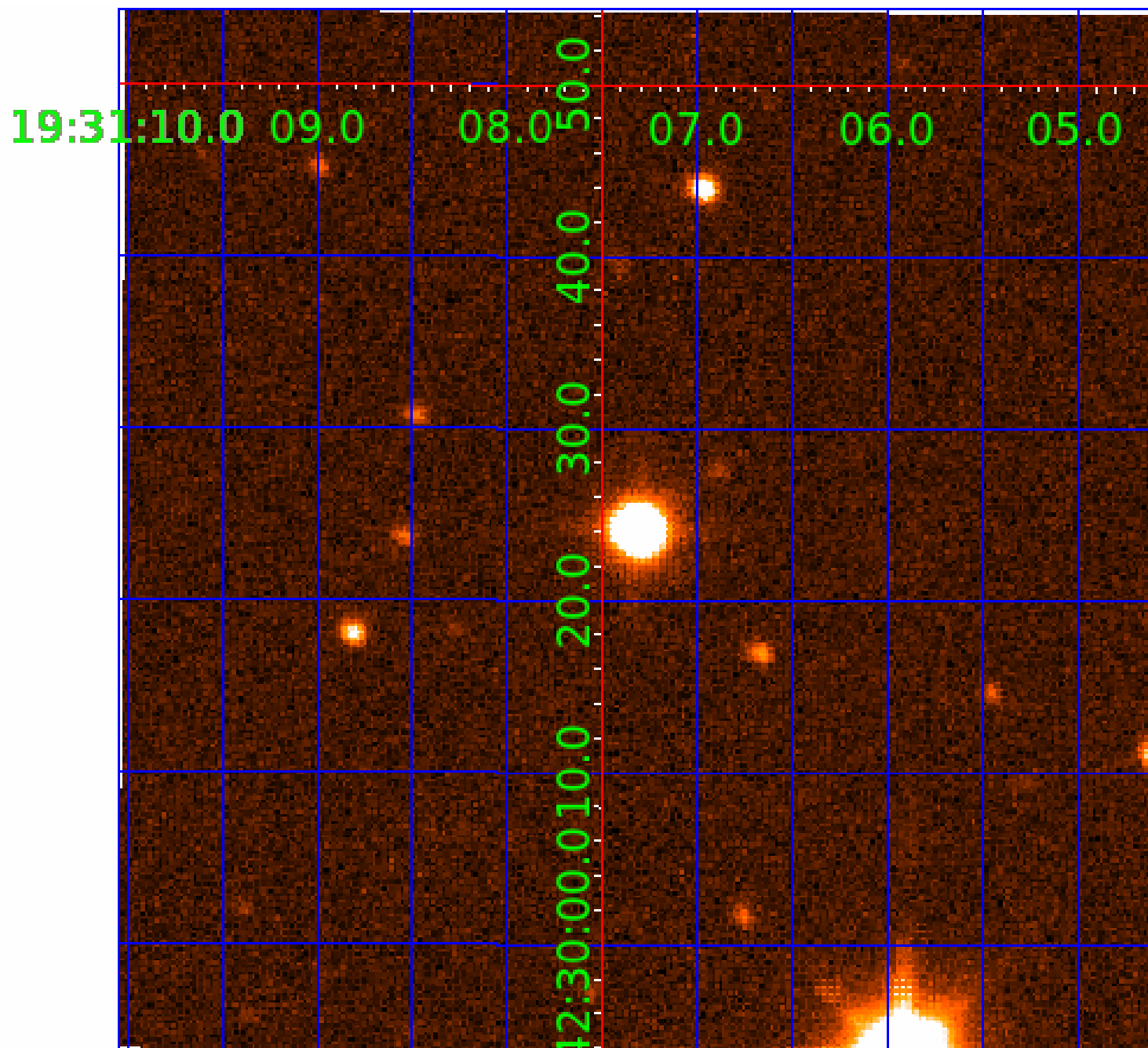


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007036755

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007036755-01 | OBS      | No   | 510.583528    | 308.356281   | 1438.1      | 13.650           | 17.2 | 5.6  | 0.49                        | 4425            | 1.84                   | 0.08                   |
| 007036755-02 | OBS      | No   | 260.247391    | 254.842484   | 1775.7      | 6.017            | 18.7 | 10.8 | 0.49                        | 4425            | 2.40                   | 0.20                   |
| 007036755-03 | OBS      | No   | 365.263295    | 364.587524   | 1189.1      | 5.237            | 16.2 | 5.3  | 0.49                        | 4425            | 1.68                   | 0.13                   |
| 007036755-04 | OBS      | No   | 471.587192    | 437.710180   | 1228.1      | 3.213            | 18.8 | 6.9  | 0.49                        | 4425            | 1.69                   | 0.09                   |
| 007036755-05 | OBS      | No   | 0.850606      | 132.264119   | 527.3       | 1.500            | 8.5  | -1.0 | 0.49                        | 4425            | 1.11                   | 419.44                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007036755-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV       |
| 007036755-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV  |
| 007036755-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS                  |
| 007036755-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV |
| 007036755-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—CENT_NOFITS  |

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

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

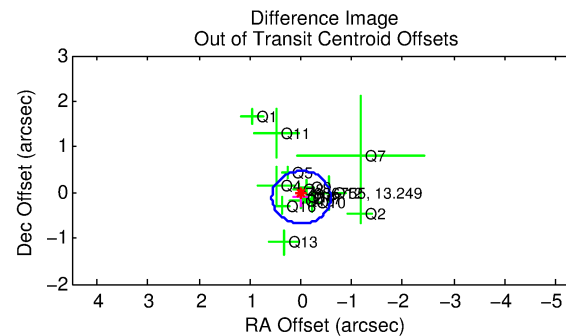
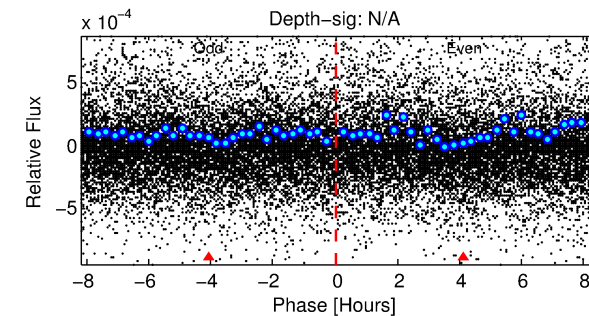
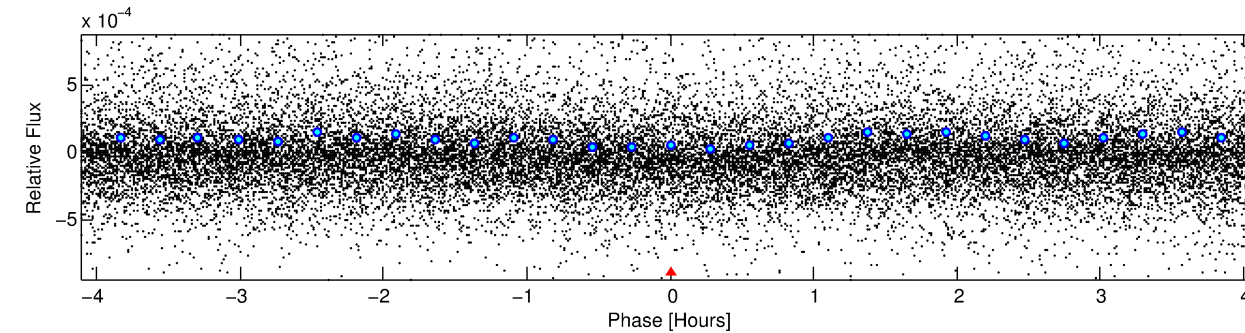
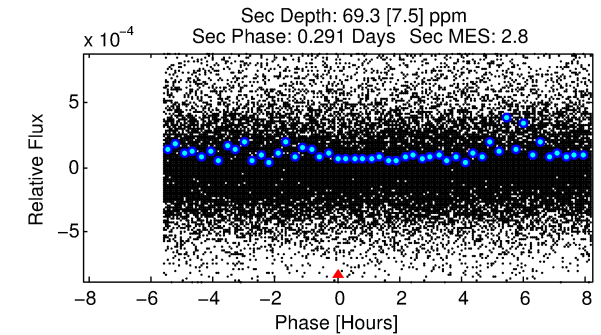
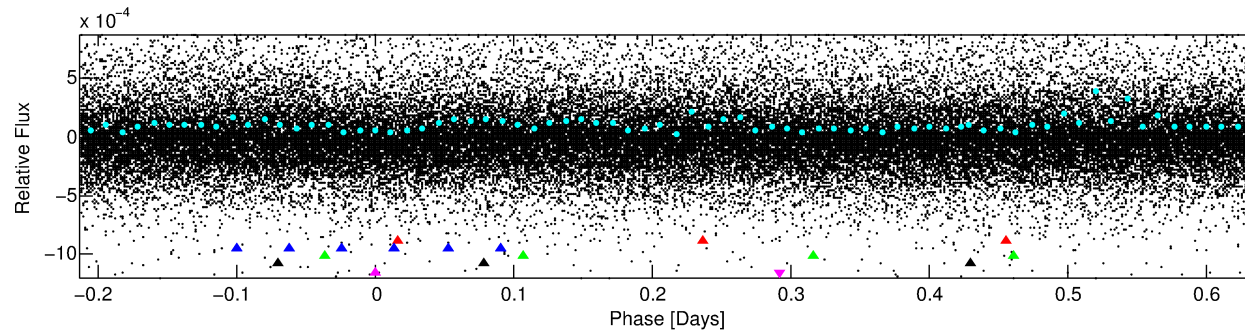
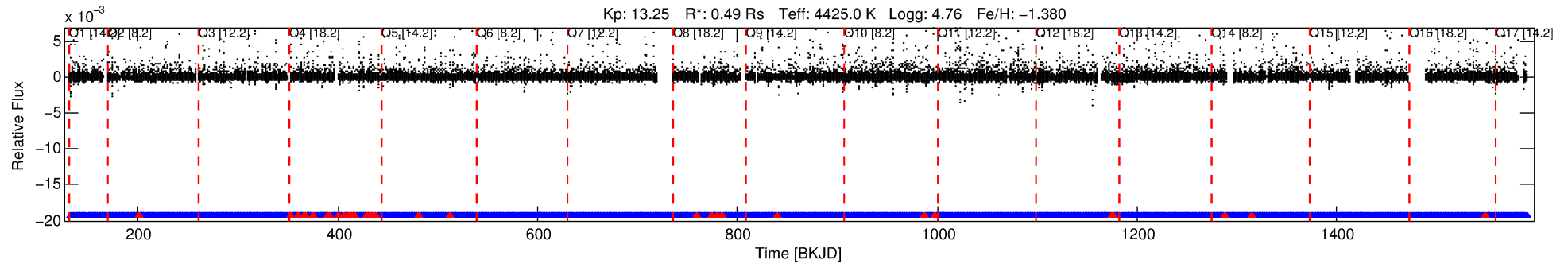
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007036755-05

No Significant Match Found

# DV One-Page Summary

KIC: 7036755 Candidate: 5 of 5 Period: 0.851 d



## TPS TCE Results:

Period = 0.85061 d  
Epoch = 132.2641 BKJD

DV fit results are unavailable

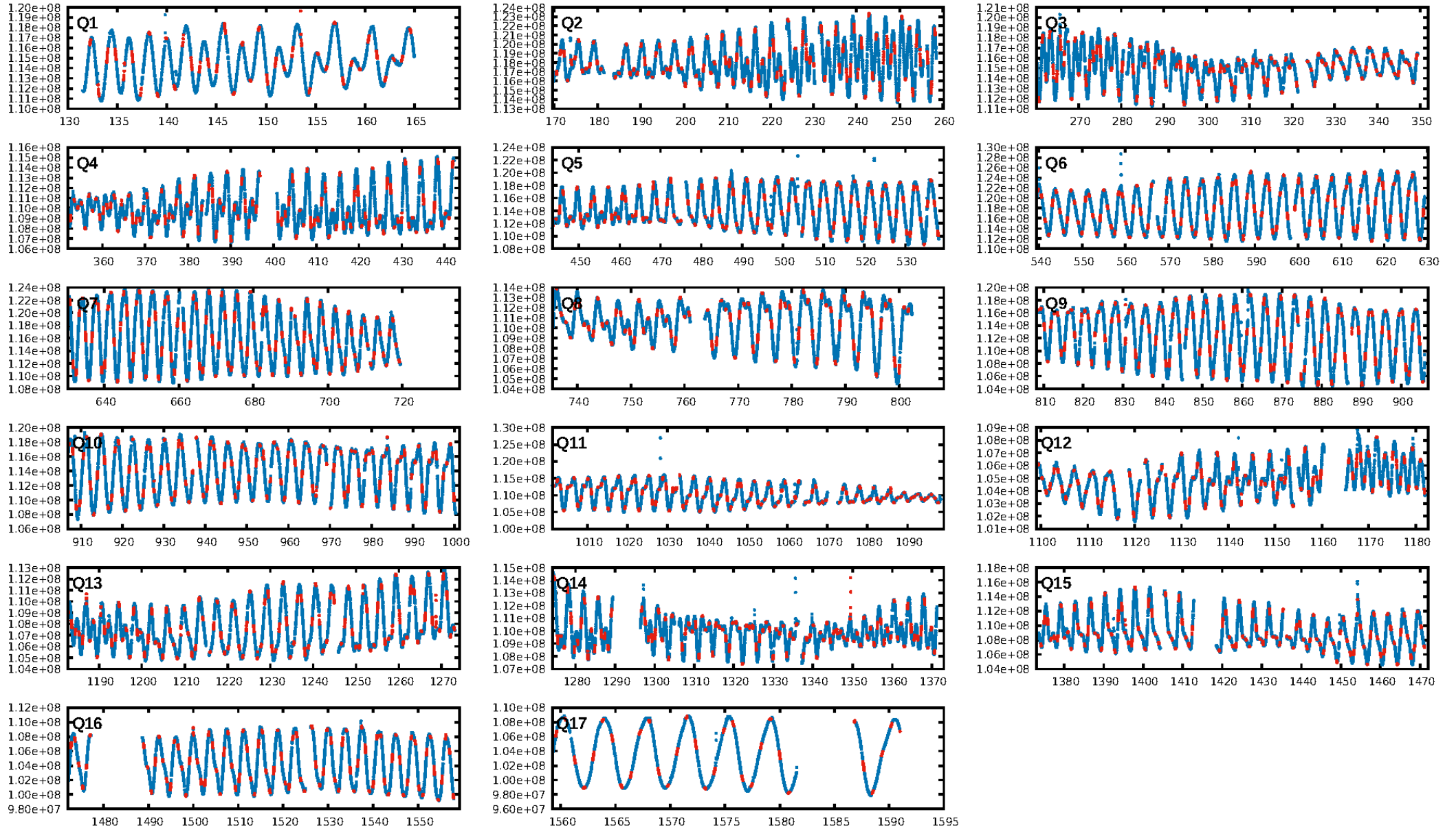
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [1003.88 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [1461/1494]  
GhostDiagnostic-chr: -0.9498  
Centroid-sig: 99.7%  
Centroid-so: 0.127 arcsec [0.18 $\sigma$ ]  
OotOffset-rm: 0.104 arcsec [0.54 $\sigma$ ]  
KicOffset-rm: 0.083 arcsec [0.45 $\sigma$ ]  
OotOffset-st: 3/3/4/5 [15]  
KicOffset-st: 3/3/4/5 [15]  
DiffImageQuality-fgm: 0.67 [10/15]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:37:22 Z

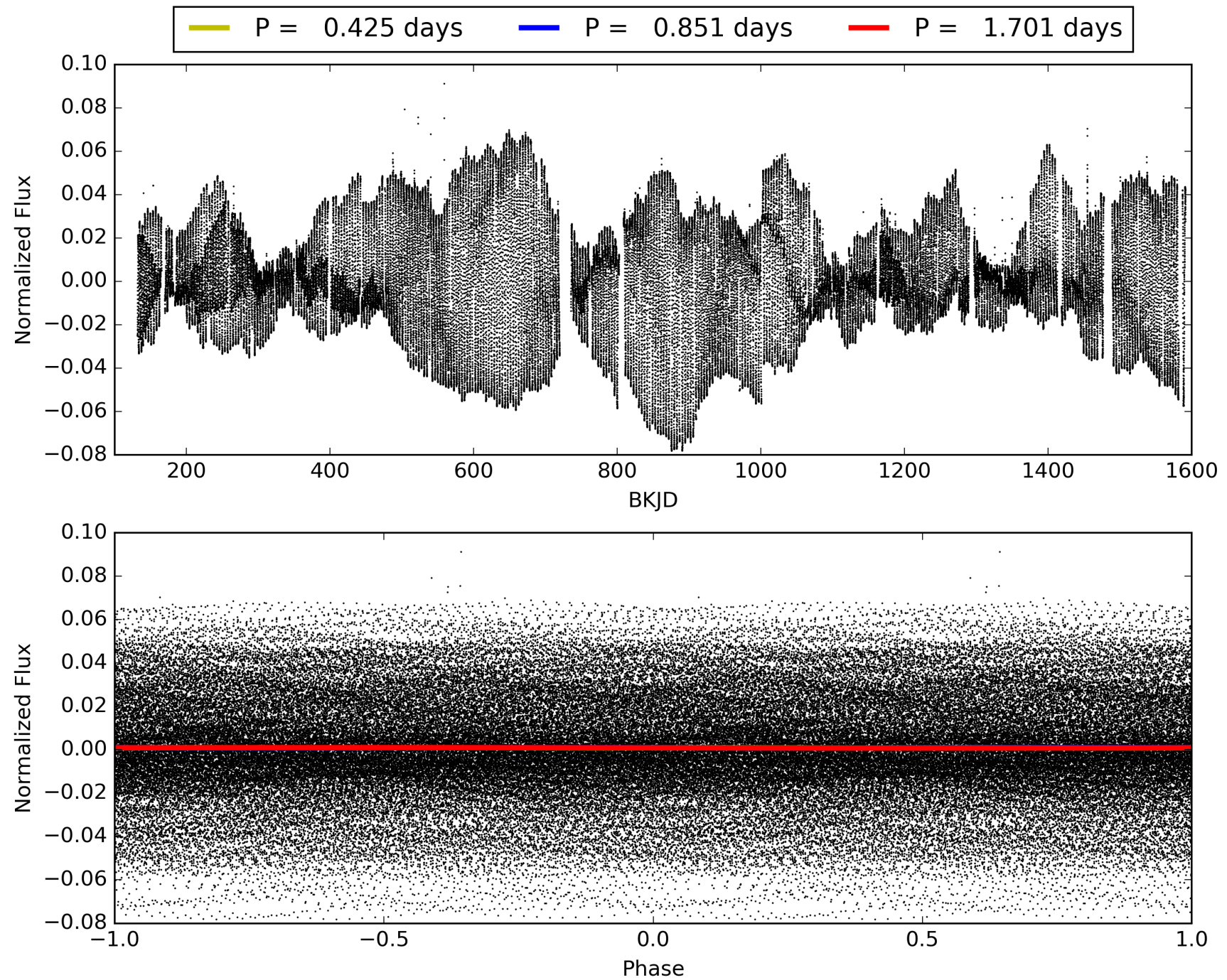
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007036755-05, PDC Light Curves



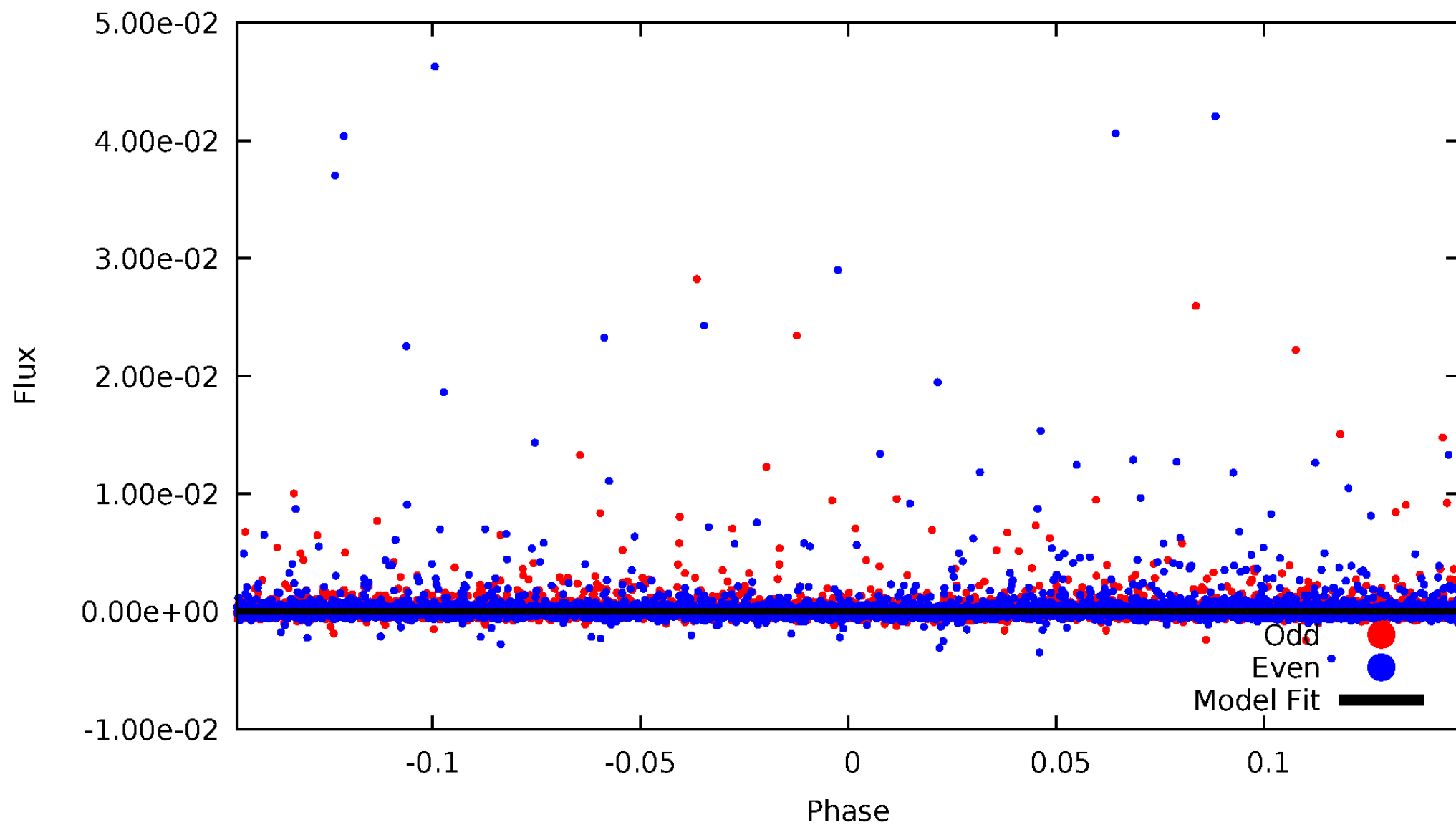


TCE 007036755-05



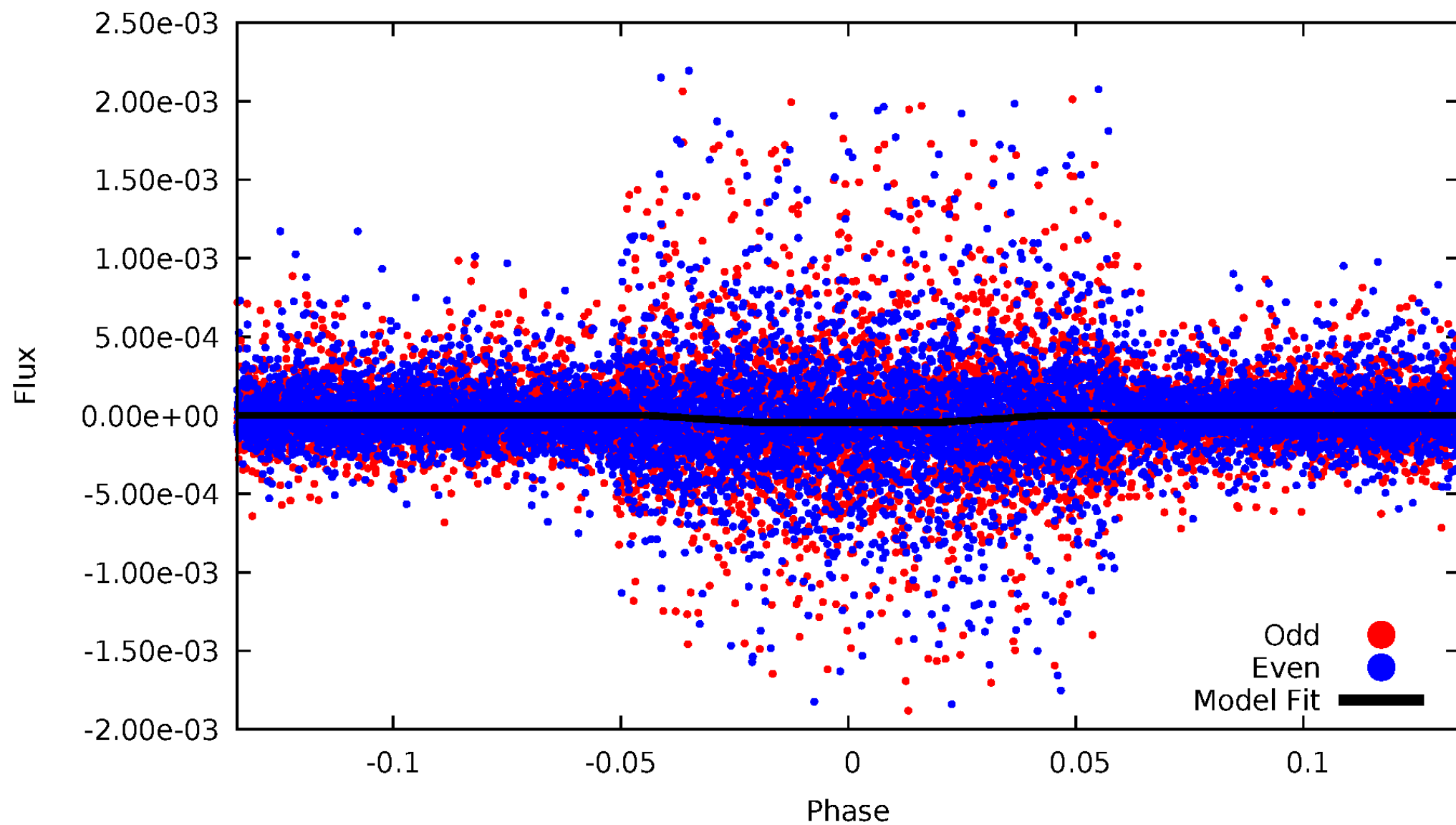
# DV Odd/Even

TCE 007036755-05



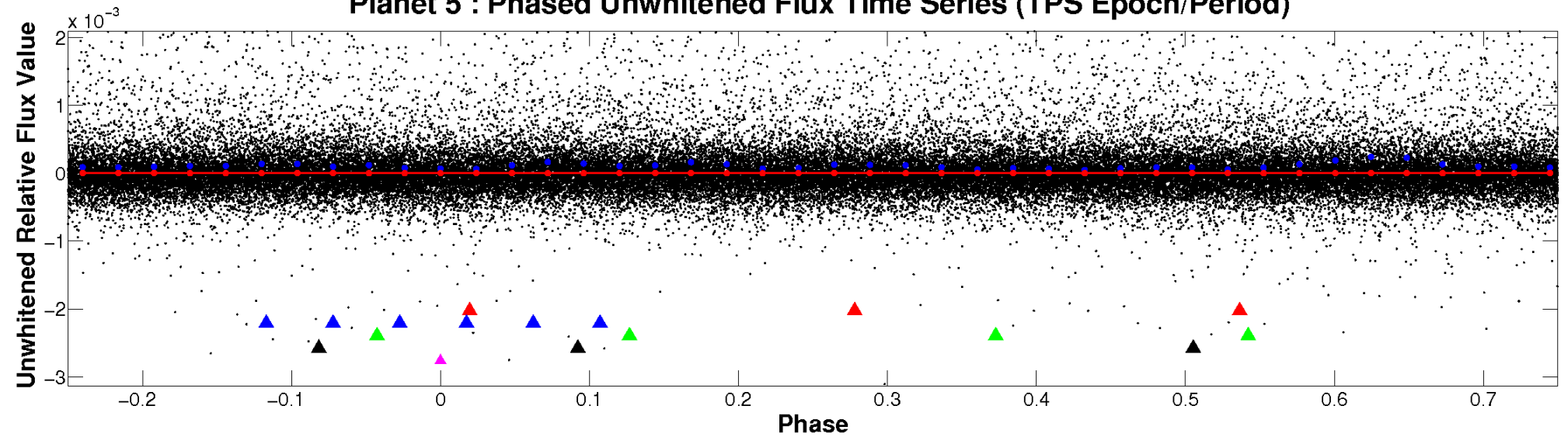
# ALT Odd/Even

TCE 007036755-05

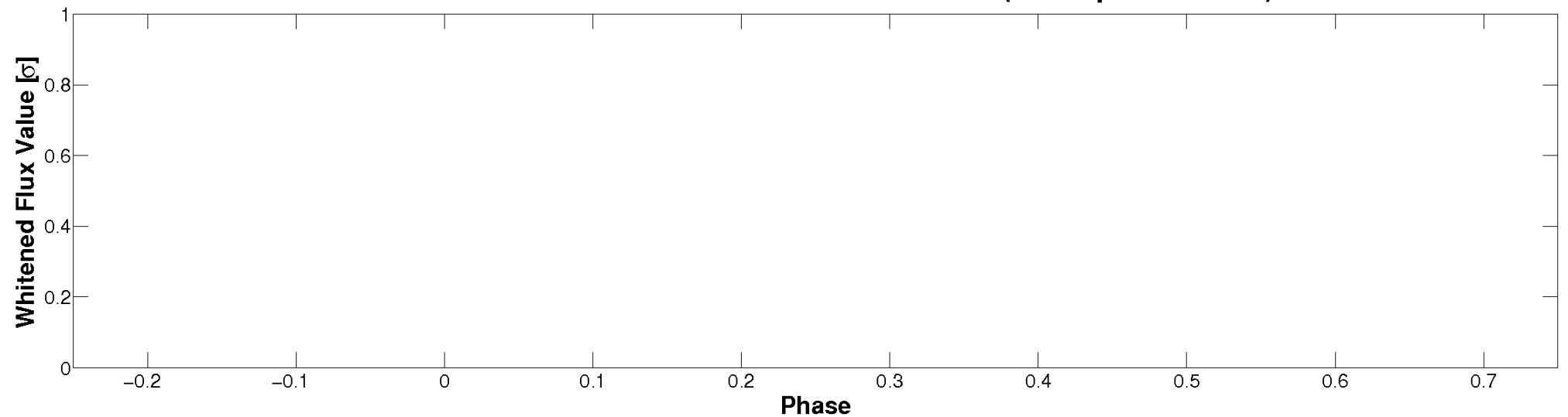


# Non-Whitened Vs. Whitened Light Curve

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

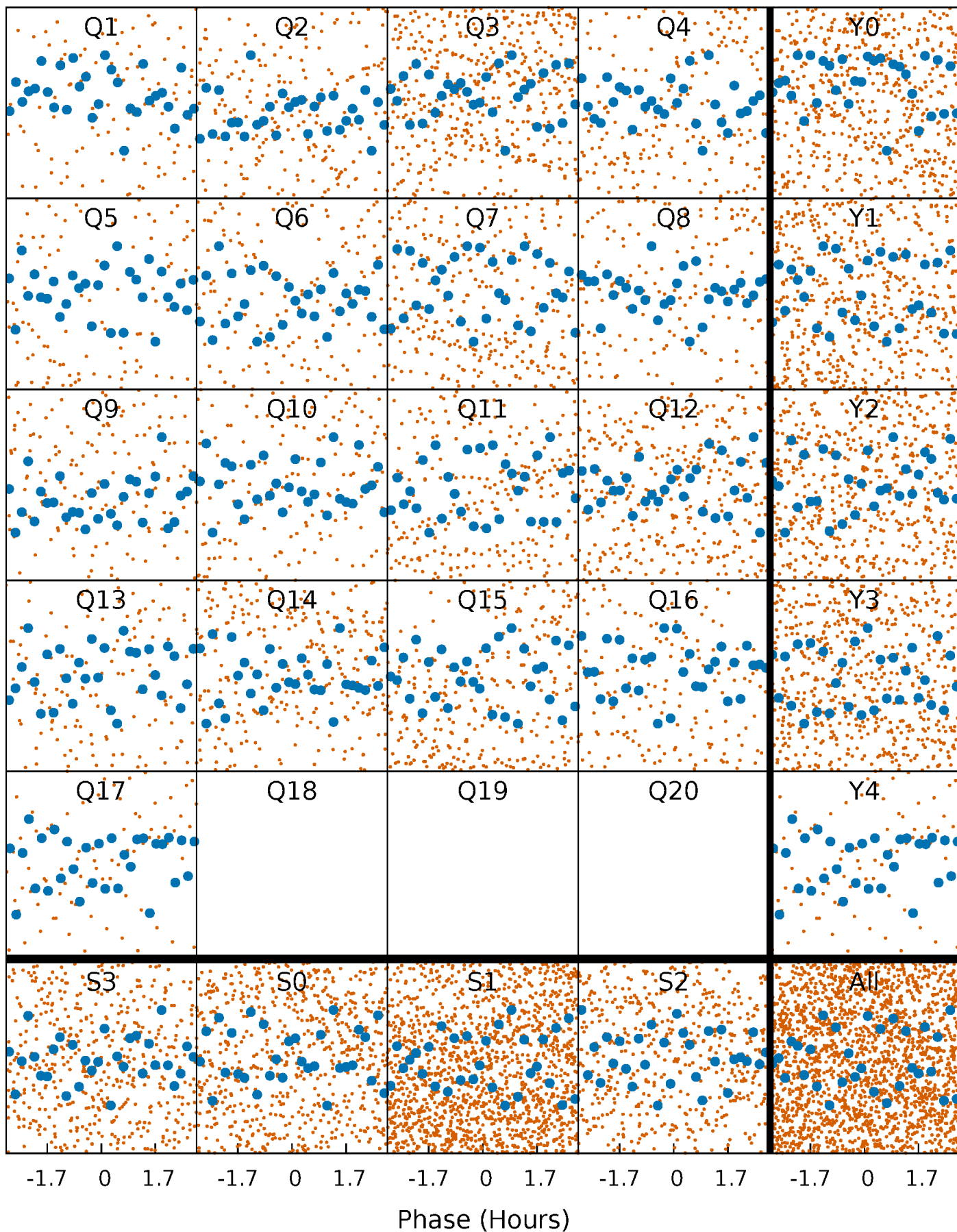


**Planet 5 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

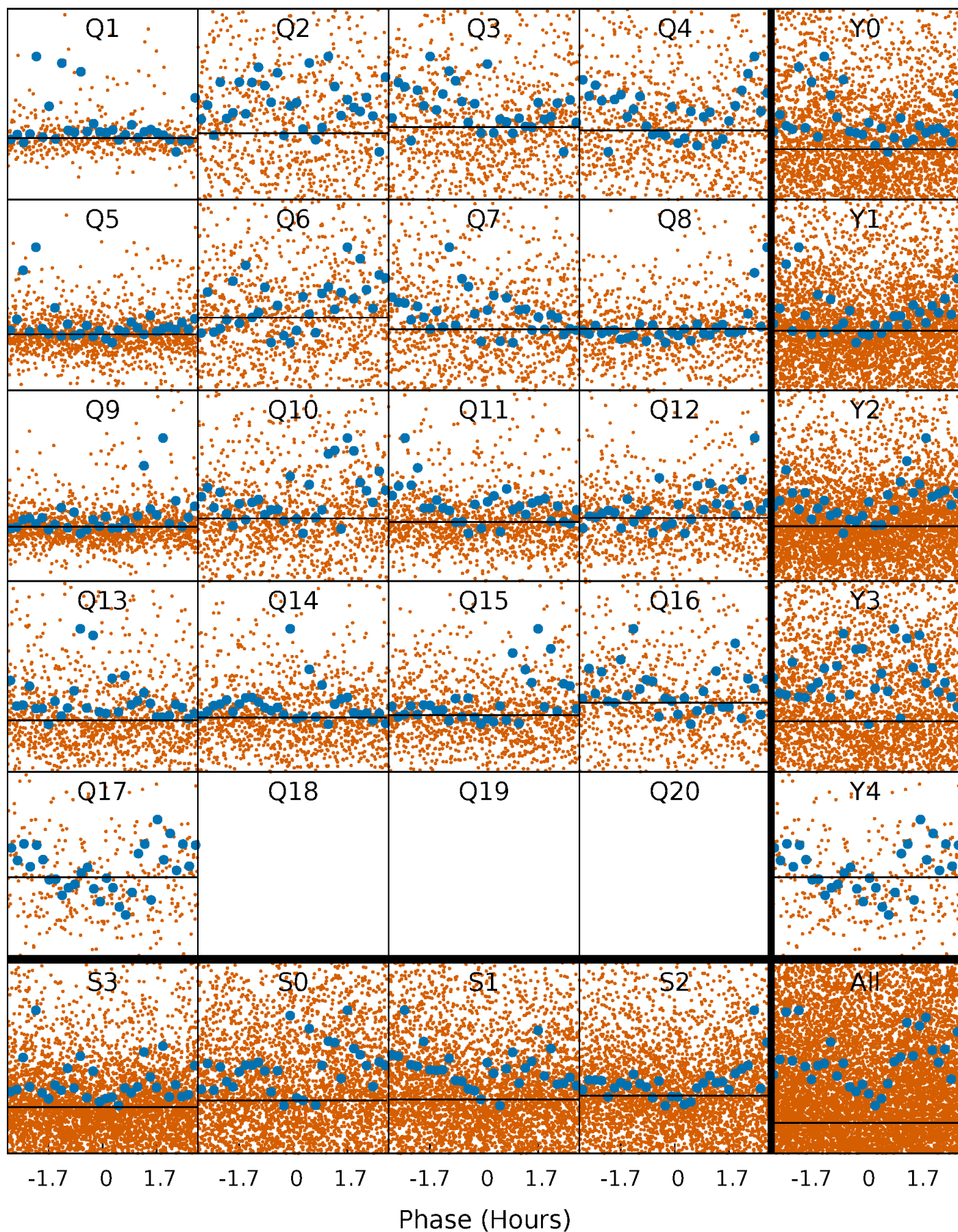
TCE 007036755-05 P= 0.850606 Days  $T_0=132.264119$  (BKJD)





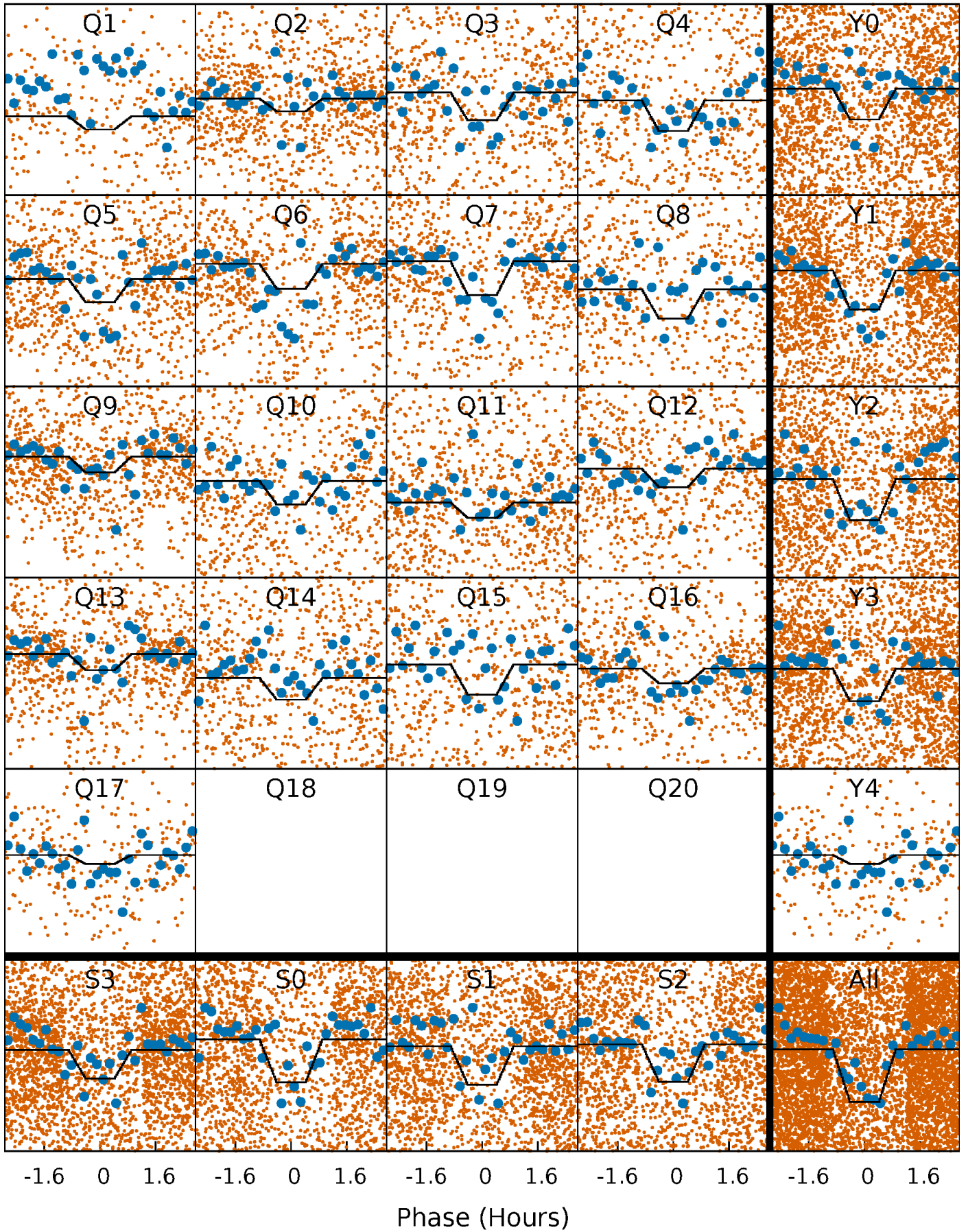
# DV Quarter-Phased Transit Curves

TCE 007036755-05     $P = 0.850606$  Days     $T_0 = 132.264119$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

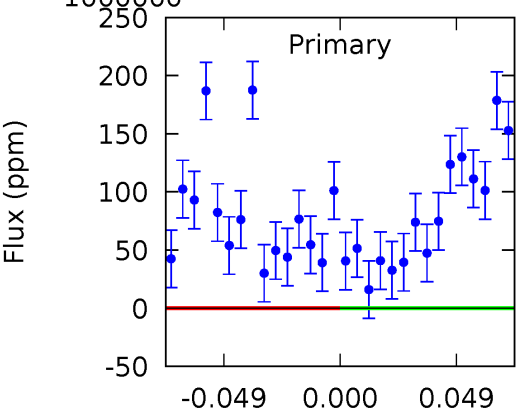
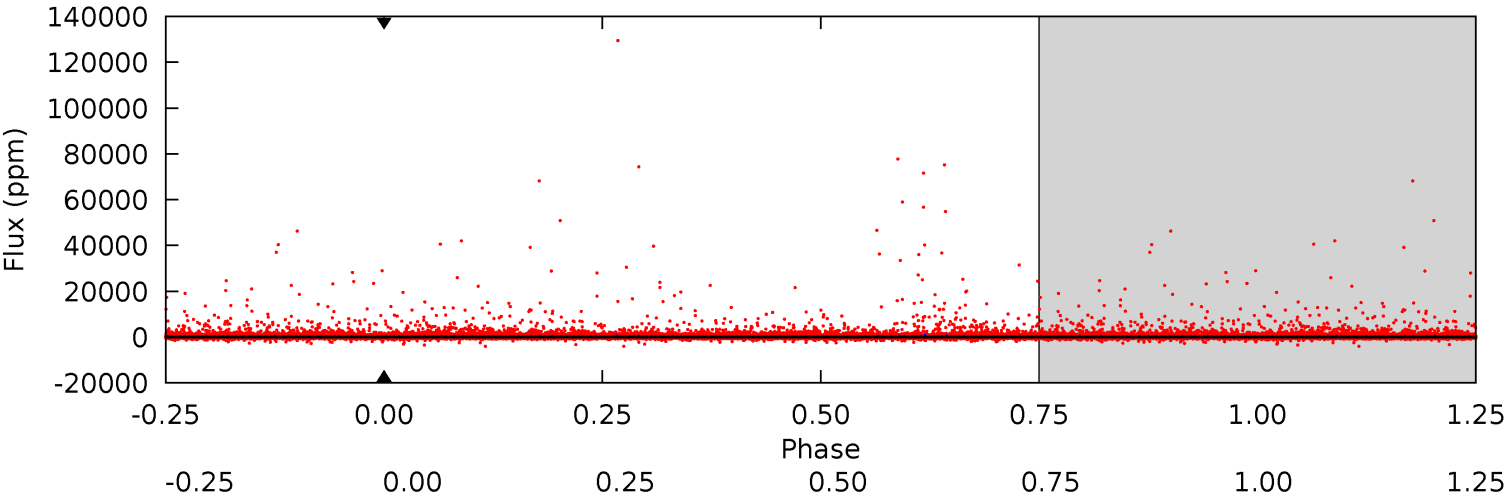
TCE 007036755-05 P= 0.850606 Days  $T_0=132.264807$  (BKJD)



DV Model-Shift Uniqueness Test

007036755-05, P = 0.850606 Days, E = 131.413513 Days

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

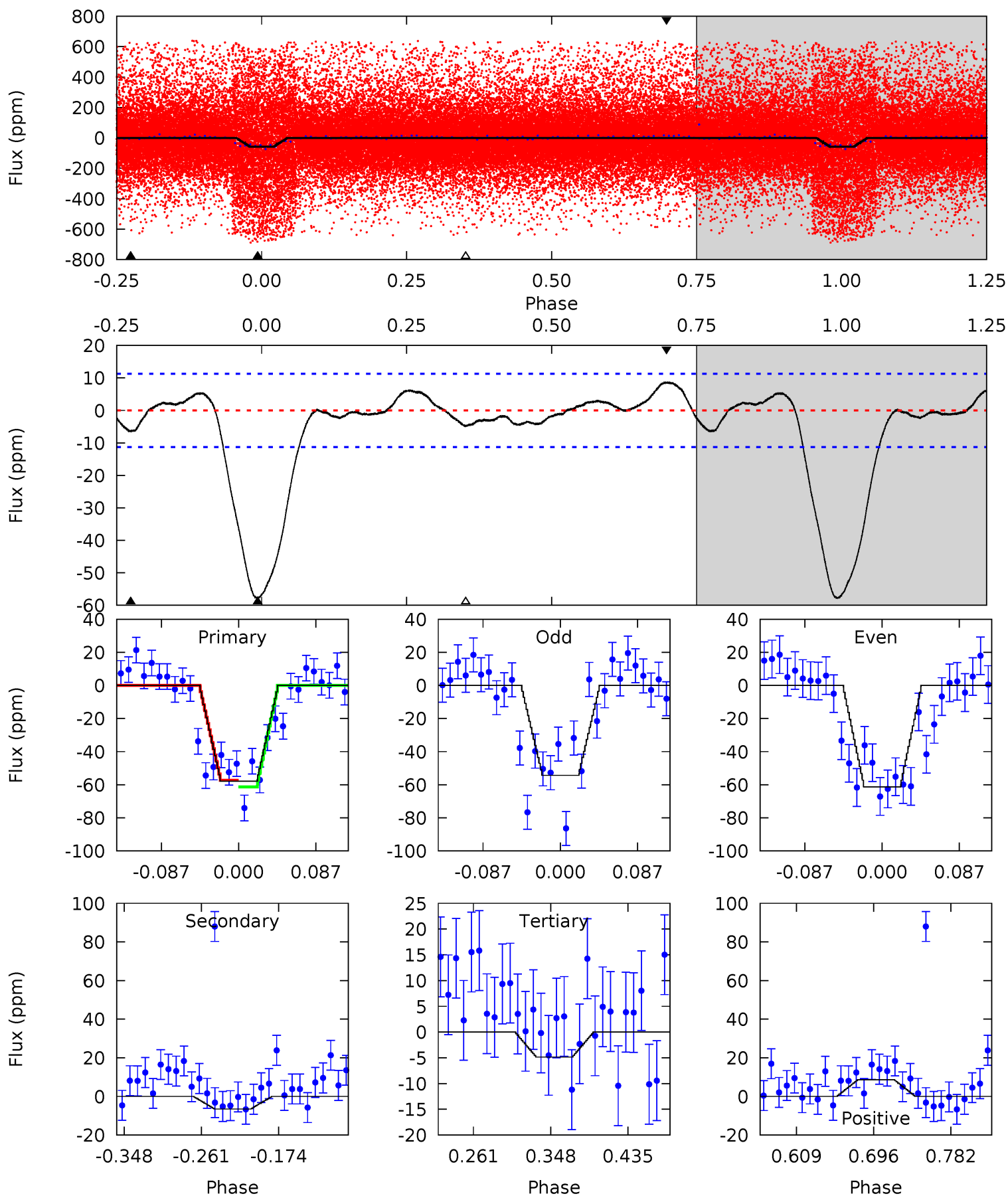




# Alt Model-Shift Uniqueness Test

007036755-05, P = 0.850606 Days, E = 131.414201 Days

| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 23.6 | 2.65 | 1.98 | 3.54 | 4.59            | 1.71            | 1.40             | 21.6    | 20.1    | 0.68    | -0.89   | 1.44    | 0.80 | 0.13  | 0.82 |



### Stellar Parameters For KIC 007036755

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $4425^{+121}_{-148}$ | $4.760^{+0.063}_{-0.032}$ | $-1.380^{+0.300}_{-0.300}$ | $0.486^{+0.031}_{-0.050}$ | $0.495^{+0.034}_{-0.034}$ | $6.087^{+1.776}_{-0.785}$                     |
|        | +3%/-3%              | +1%/-1%                   | +22%/-22%                  | +6%/-10%                  | +7%/-7%                   | +29%/-13%                                     |
| Source | PHO1                 | KIC0                      | KIC0                       | DSEP                      |                           |   |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007036755-05 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ ) | $T_{\text{max}}$ (K) | $T_{\text{obs}}$ (K)     | $A_{\text{obs}}$                  |
|---------|-----------------|------------------------|----------------------|--------------------------|-----------------------------------|
| DV      | $0 \pm 1000000$ | $3.75^{+4.20}_{-2.70}$ | $1607^{+57}_{-67}$   | $-3777^{+15678}_{-8163}$ | $-16.019^{+1461.612}_{-1246.525}$ |
| Alt.    | $-7 \pm 2$      | $3.74^{+4.00}_{-2.60}$ | $1597^{+57}_{-66}$   | $-2135^{+4220}_{-72}$    | $0.046^{+0.439}_{-0.035}$         |

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

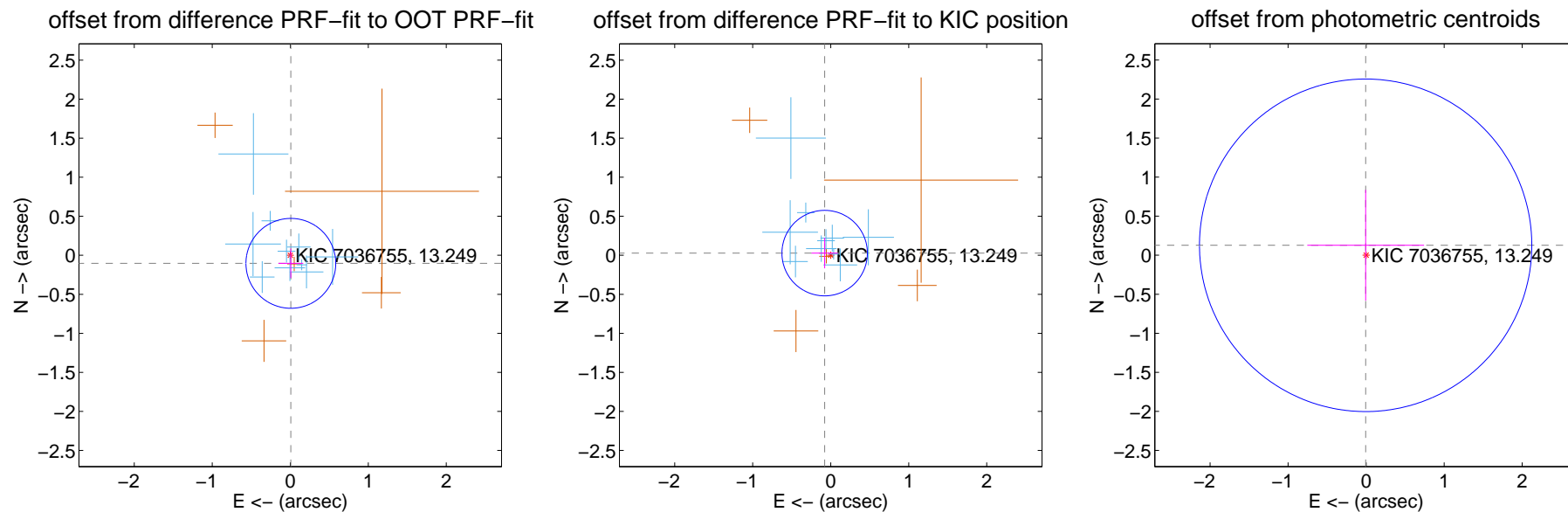
## DV Centroid Data

Supplemental centroid analysis for 007036755-05. Kepler magnitude: 13.25. Transit SNR -1.00

There are 10 quarters with good PRF difference image offsets

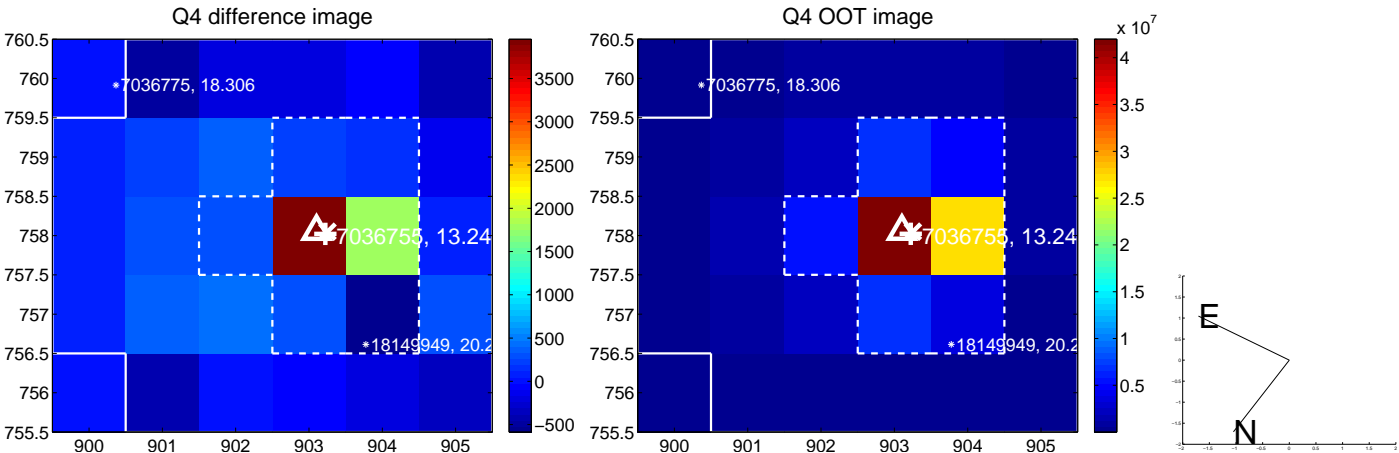
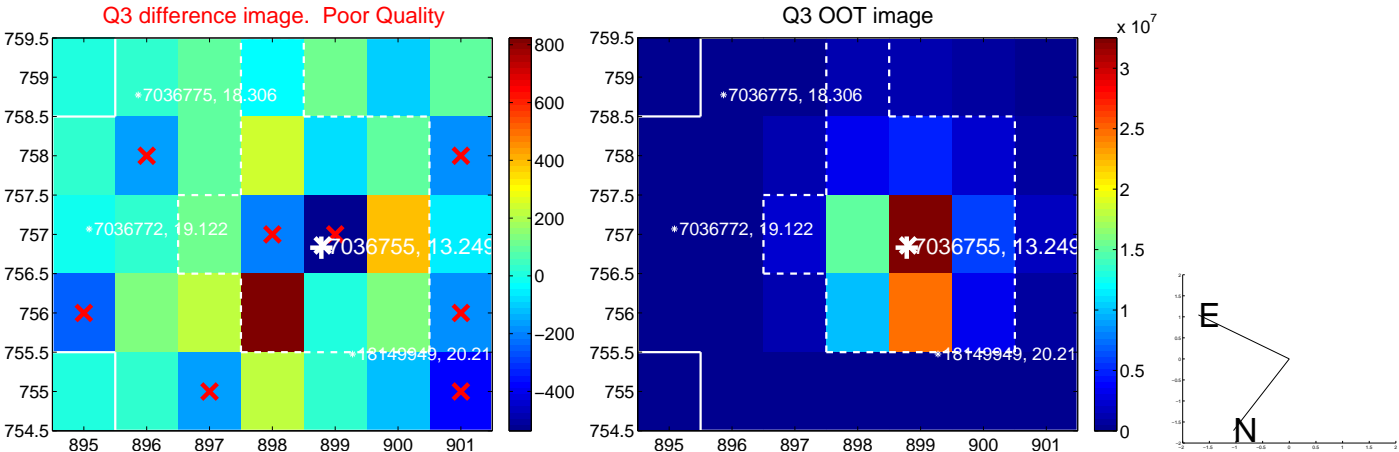
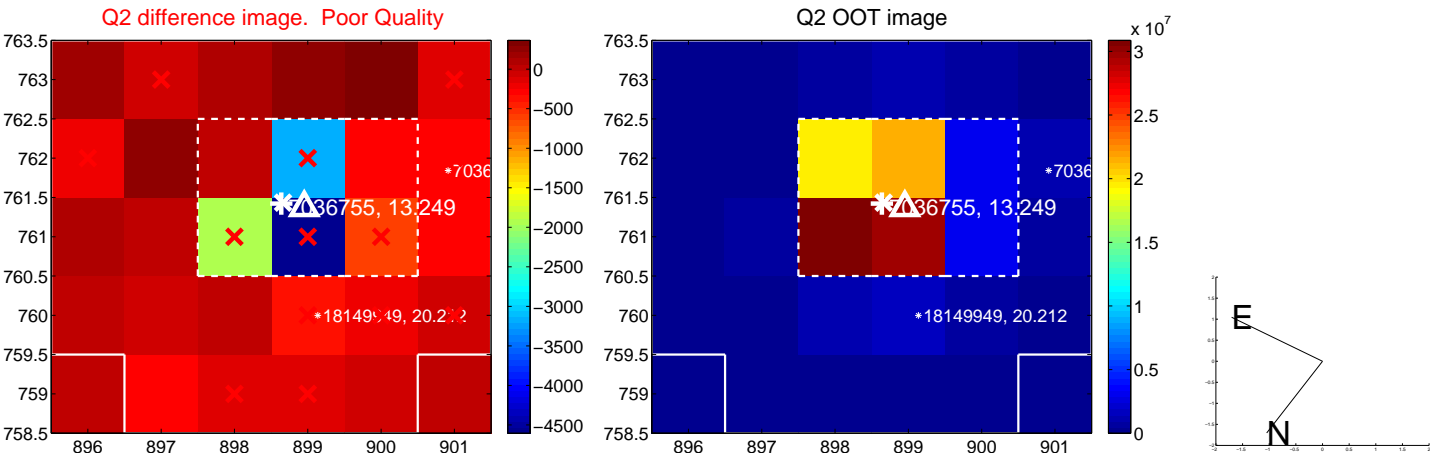
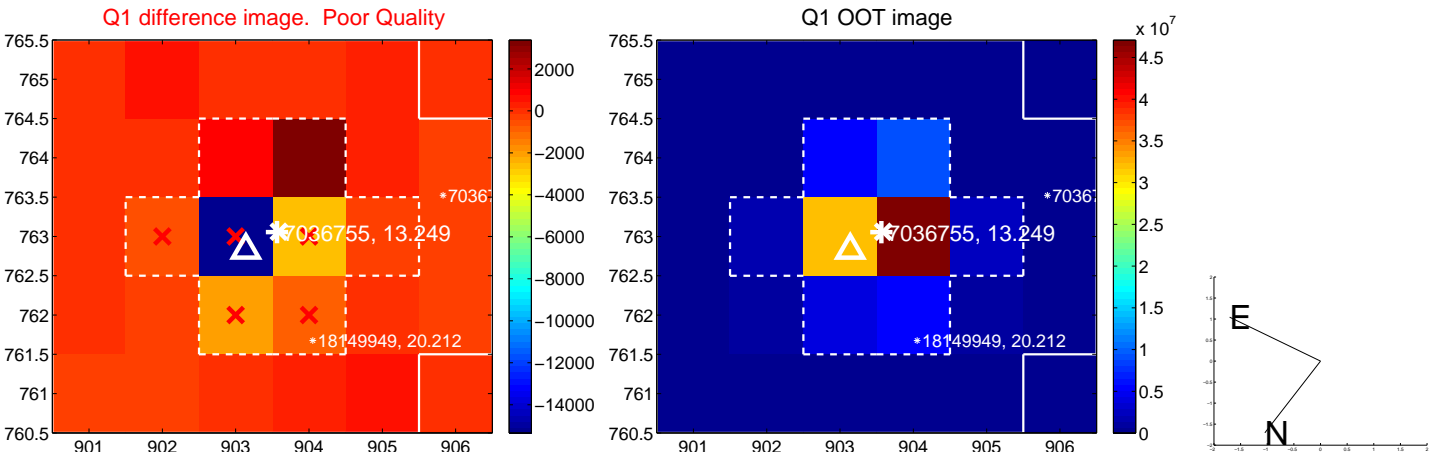
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.104 \pm 0.192$  | 0.54                | $-0.007 \pm 0.159$ | $-0.103 \pm 0.189$ |
| PRF-fit source offset from KIC position | $0.083 \pm 0.183$  | 0.45                | $0.078 \pm 0.168$  | $0.028 \pm 0.196$  |
| photometric centroid source offset      | $0.13 \pm 0.71$    | 0.18                | $0.01 \pm 0.75$    | $0.13 \pm 0.71$    |

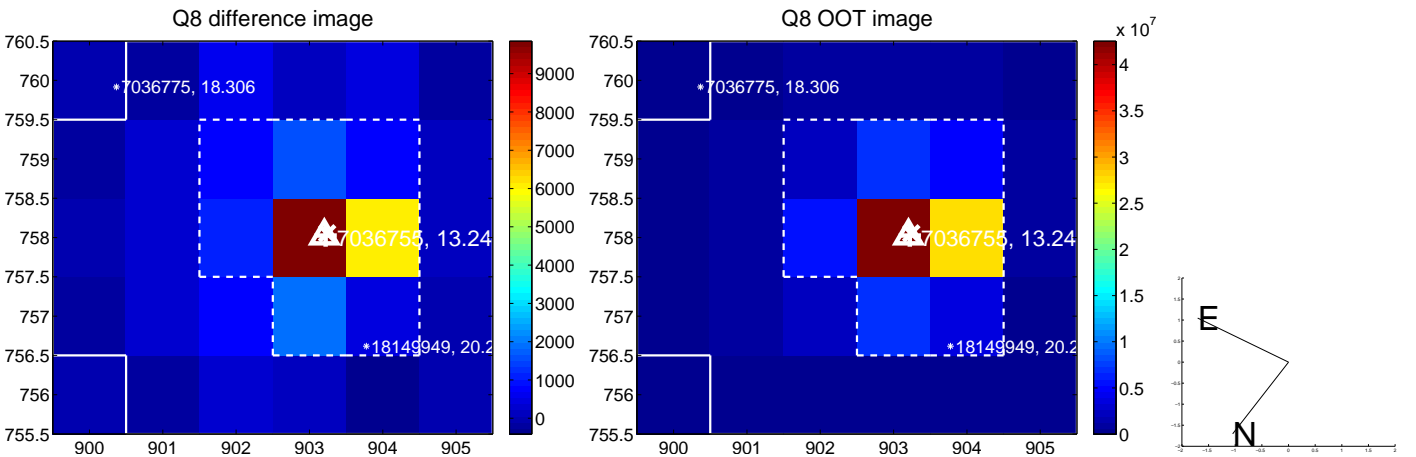
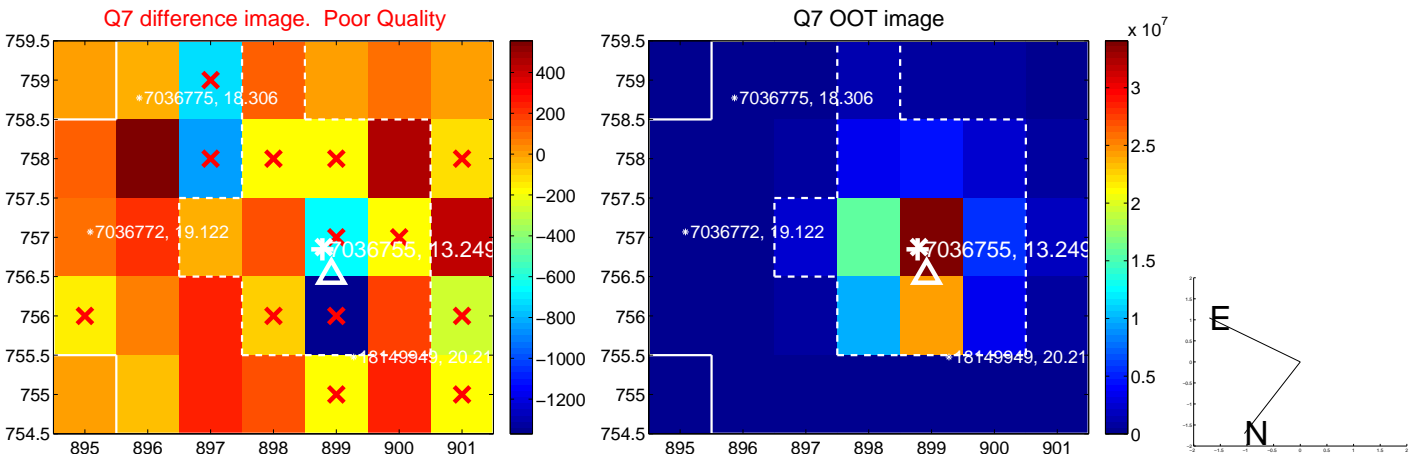
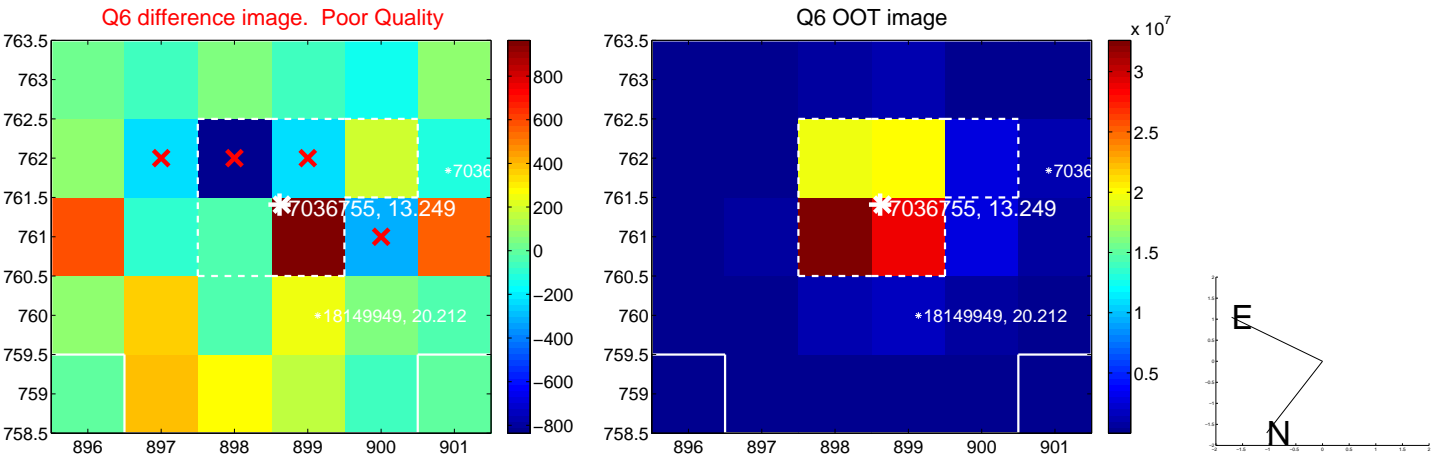
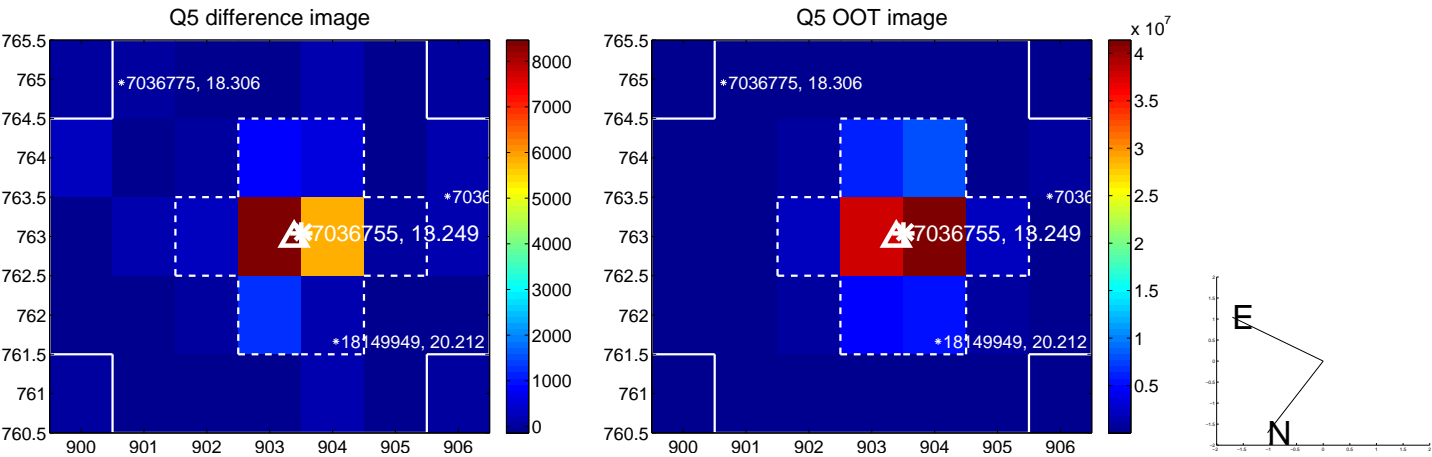


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

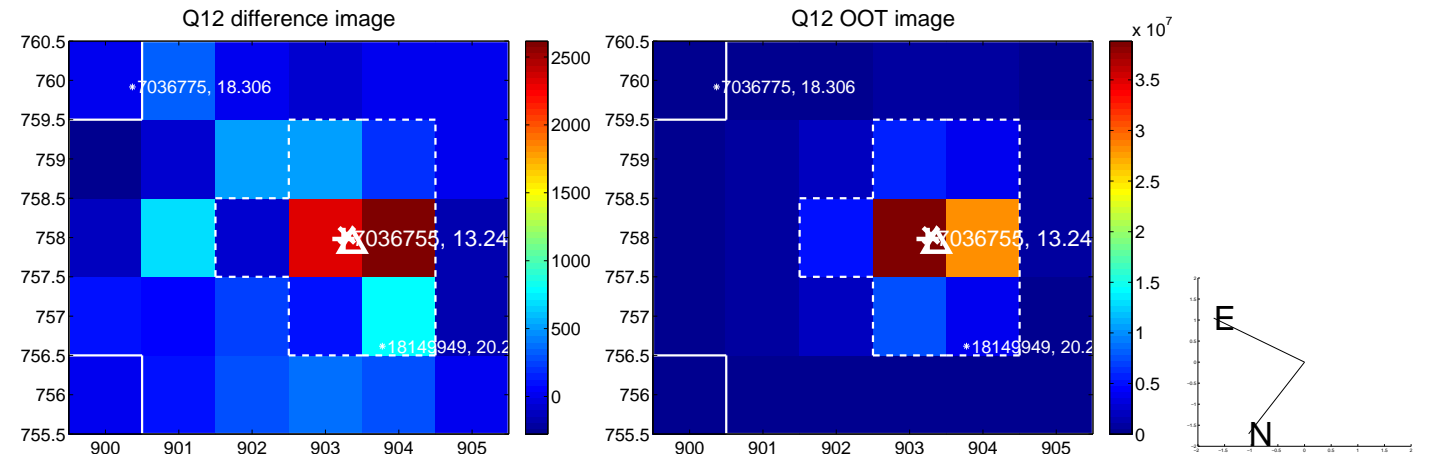
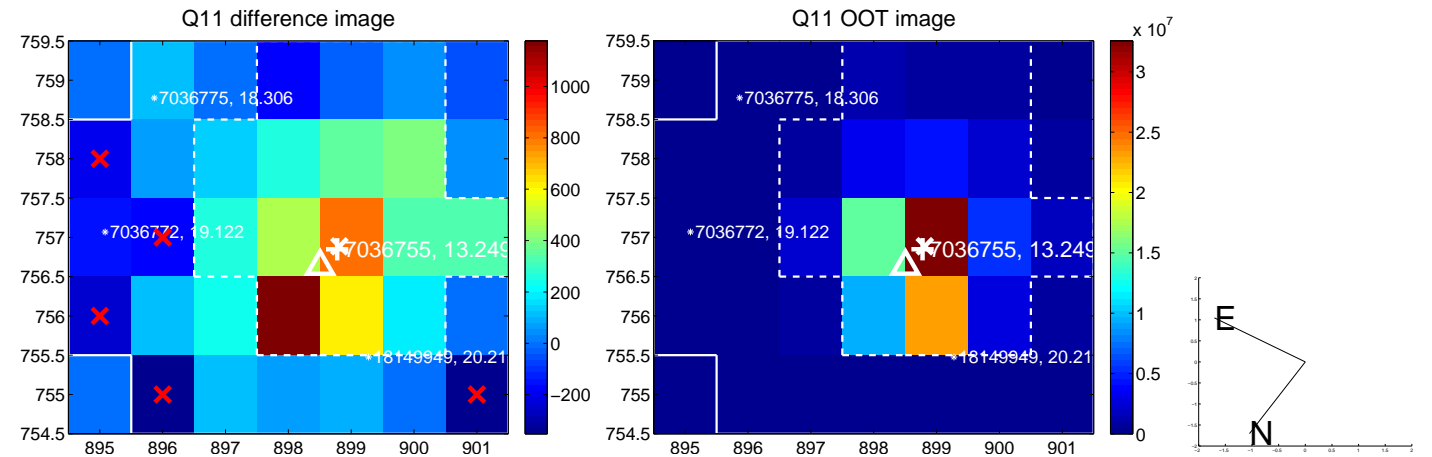
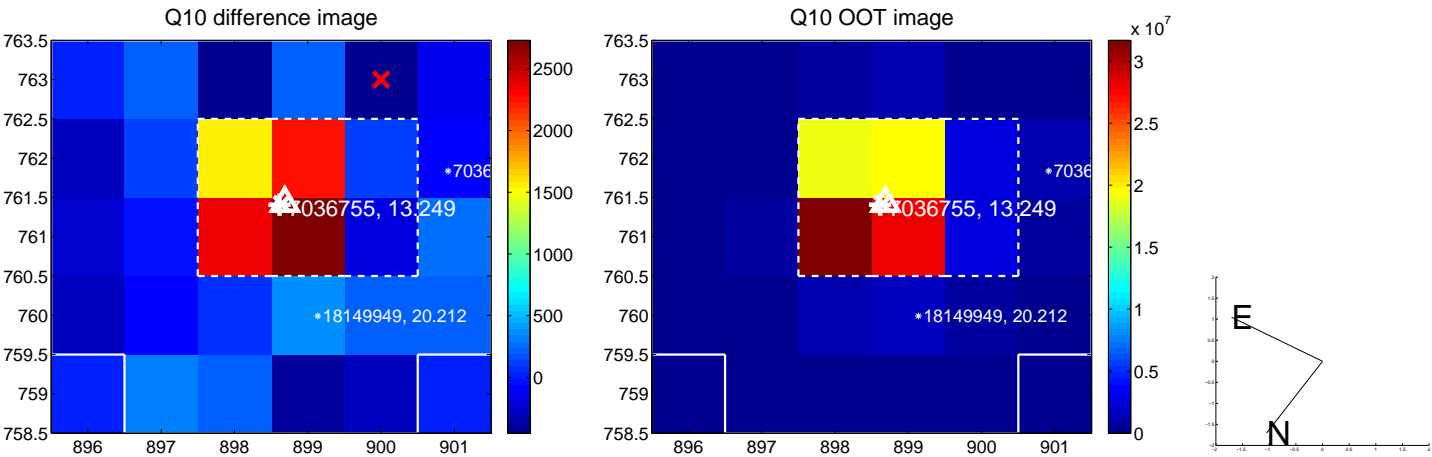
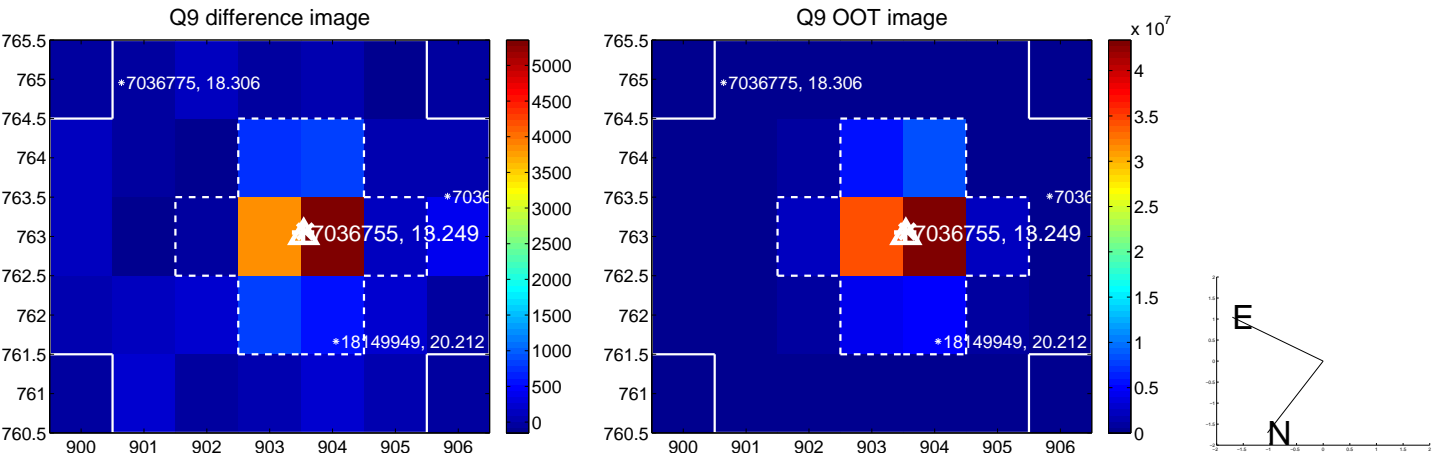


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

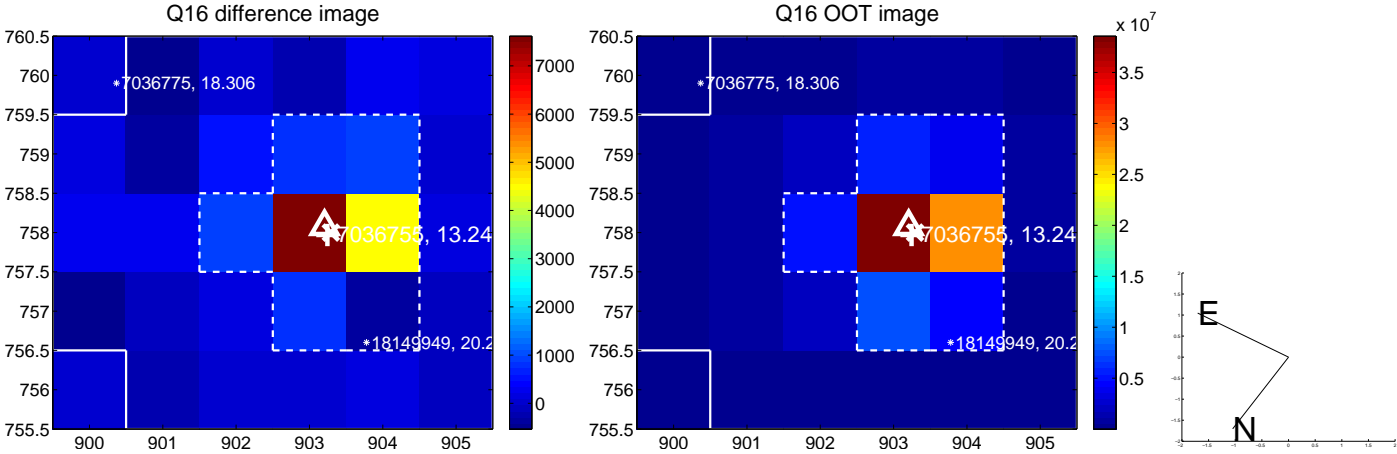
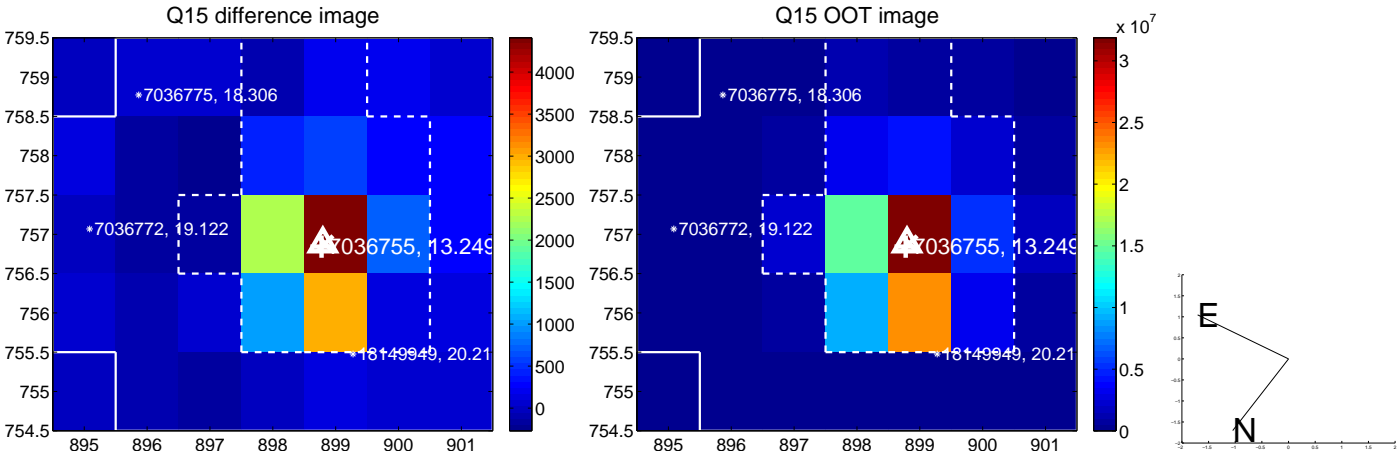
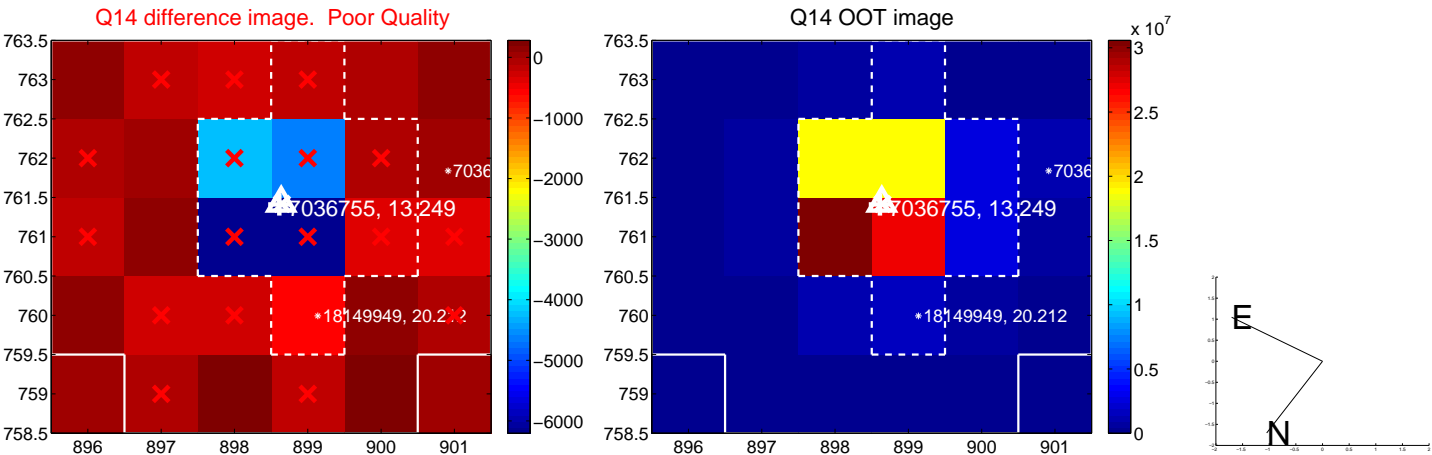
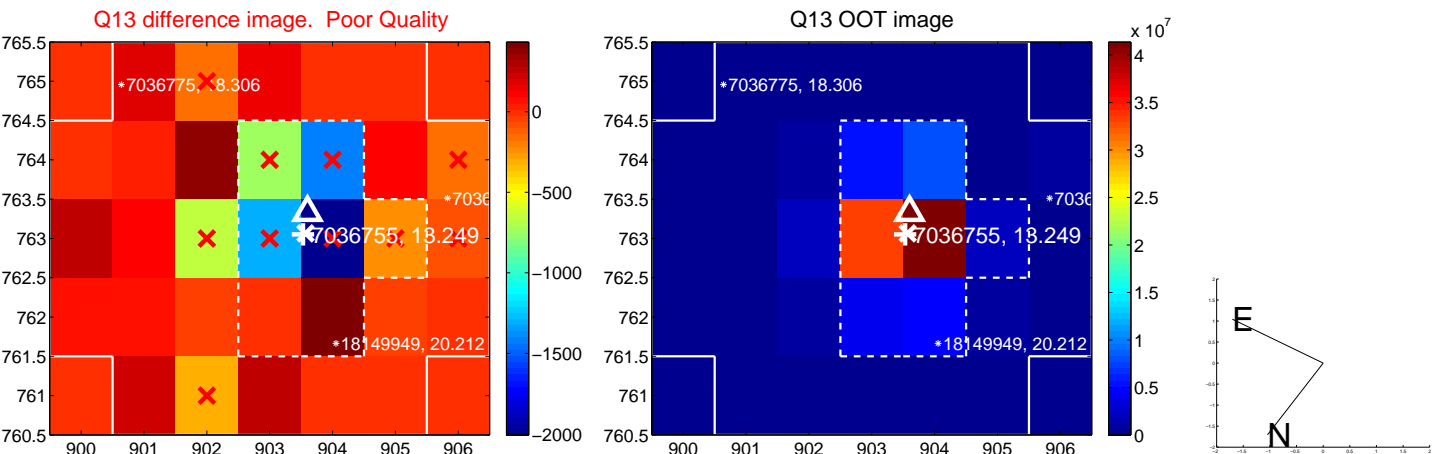




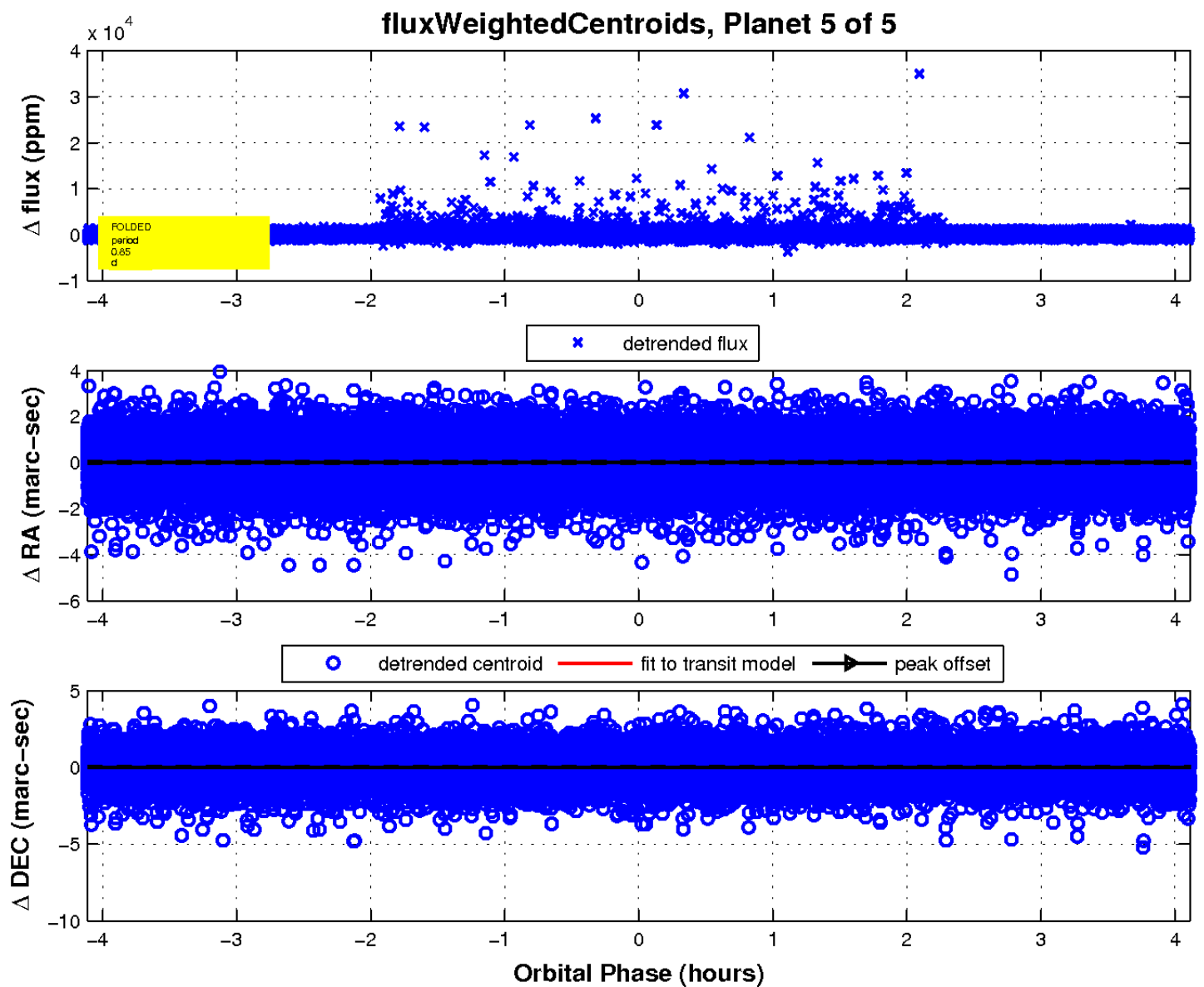
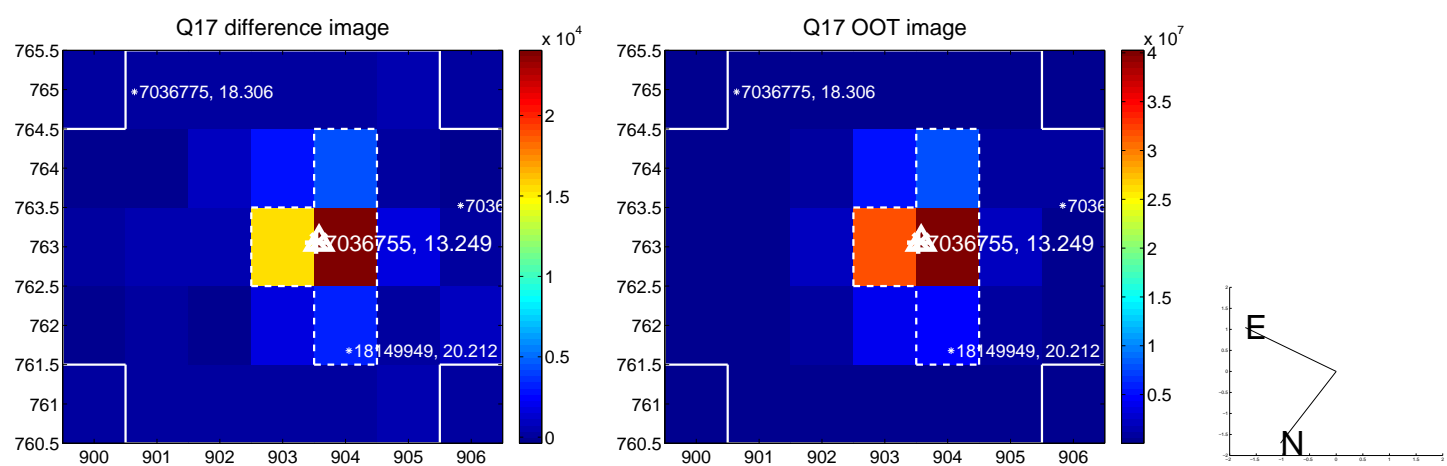
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

