

# KIC 007664485

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007664485-01 | OBS      | No   | 454.705206    | 284.481808   | 1343.0      | 3.552            | 17.0 | 8.9  | 0.77                        | 5521            | 2.92                   | 0.41                   |
| 007664485-02 | OBS      | No   | 461.249590    | 136.111643   | 879.2       | 4.722            | 15.0 | 7.1  | 0.77                        | 5521            | 2.48                   | 0.40                   |
| 007664485-03 | OBS      | No   | 451.960616    | 541.673274   | 1691.8      | 4.685            | 17.6 | 10.8 | 0.77                        | 5521            | 3.98                   | 0.41                   |
| 007664485-04 | OBS      | No   | 369.594182    | 399.627406   | 2101.4      | 12.365           | 14.9 | 10.1 | 0.77                        | 5521            | 3.48                   | 0.54                   |
| 007664485-05 | OBS      | No   | 376.306100    | 390.884279   | 1699.0      | 10.035           | 15.1 | 8.0  | 0.77                        | 5521            | 3.13                   | 0.53                   |
| 007664485-06 | OBS      | No   | 464.161938    | 159.116733   | 511.8       | 4.500            | 14.0 | -1.0 | 0.77                        | 5521            | 1.72                   | 0.40                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007664485-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS             |
| 007664485-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS |
| 007664485-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS    |
| 007664485-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS   |
| 007664485-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS                              |
| 007664485-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—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.

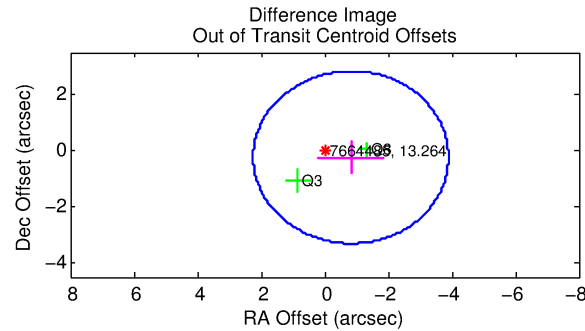
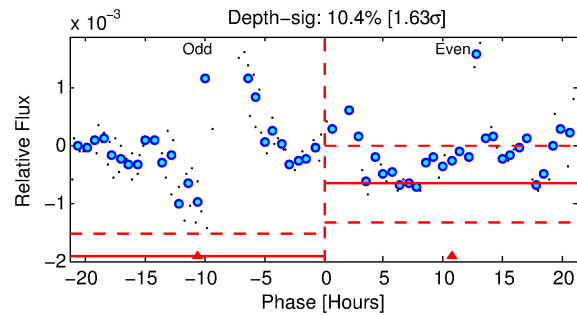
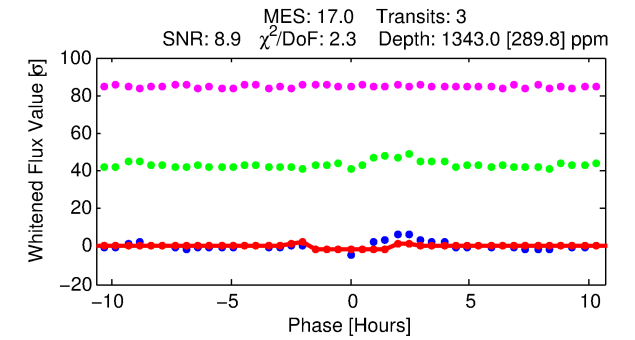
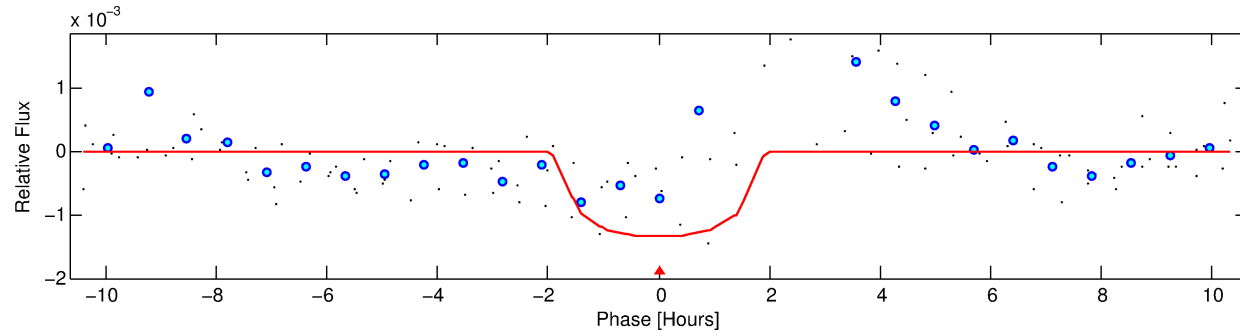
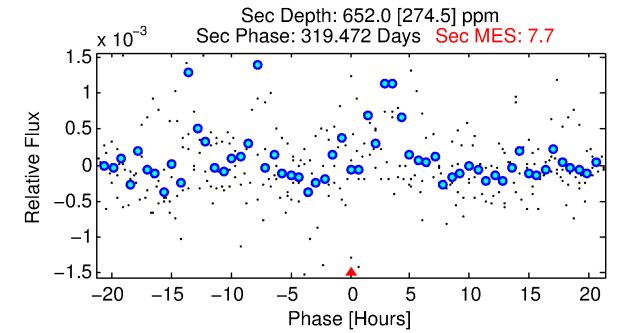
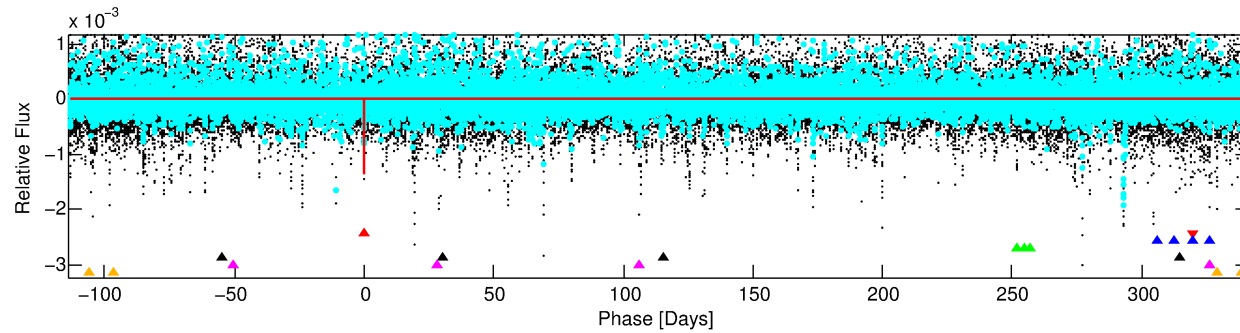
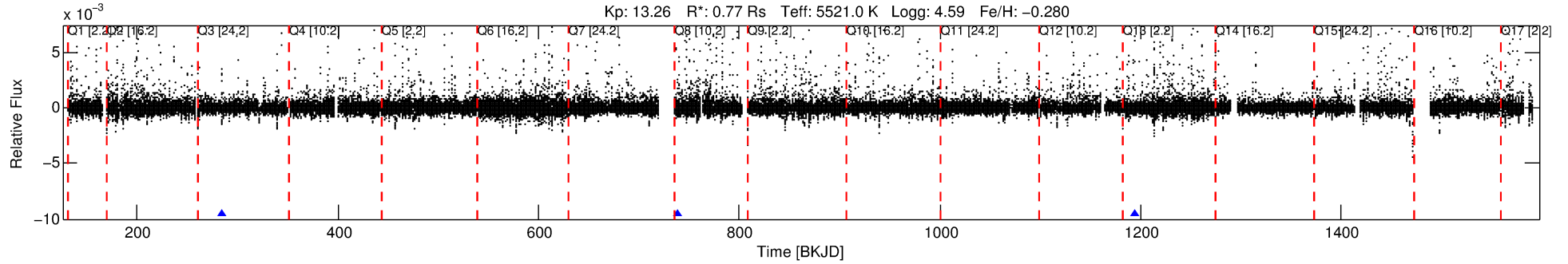
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007664485-01

No Significant Match Found

# DV One-Page Summary

KIC: 7664485 Candidate: 1 of 6 Period: 454.705 d



## DV Fit Results:

Period = 454.70521 [0.00513] d  
Epoch = 284.4818 [0.0068] BKJD  
Rp/R\* = 0.0347 [0.0379]  
a/R\* = 845.62 [3747.42]  
b = 0.57 [5.37]  
Seff = 0.41 [0.10]  
Teq = 204 [12] K  
Rp = 2.92 [3.23] Re  
a = 1.0970 [0.1613] AU  
Ag = 50690.56 [113257.26] [0.45 $\sigma$ ]  
Teffp = 4737 [2637] K [1.72 $\sigma$ ]

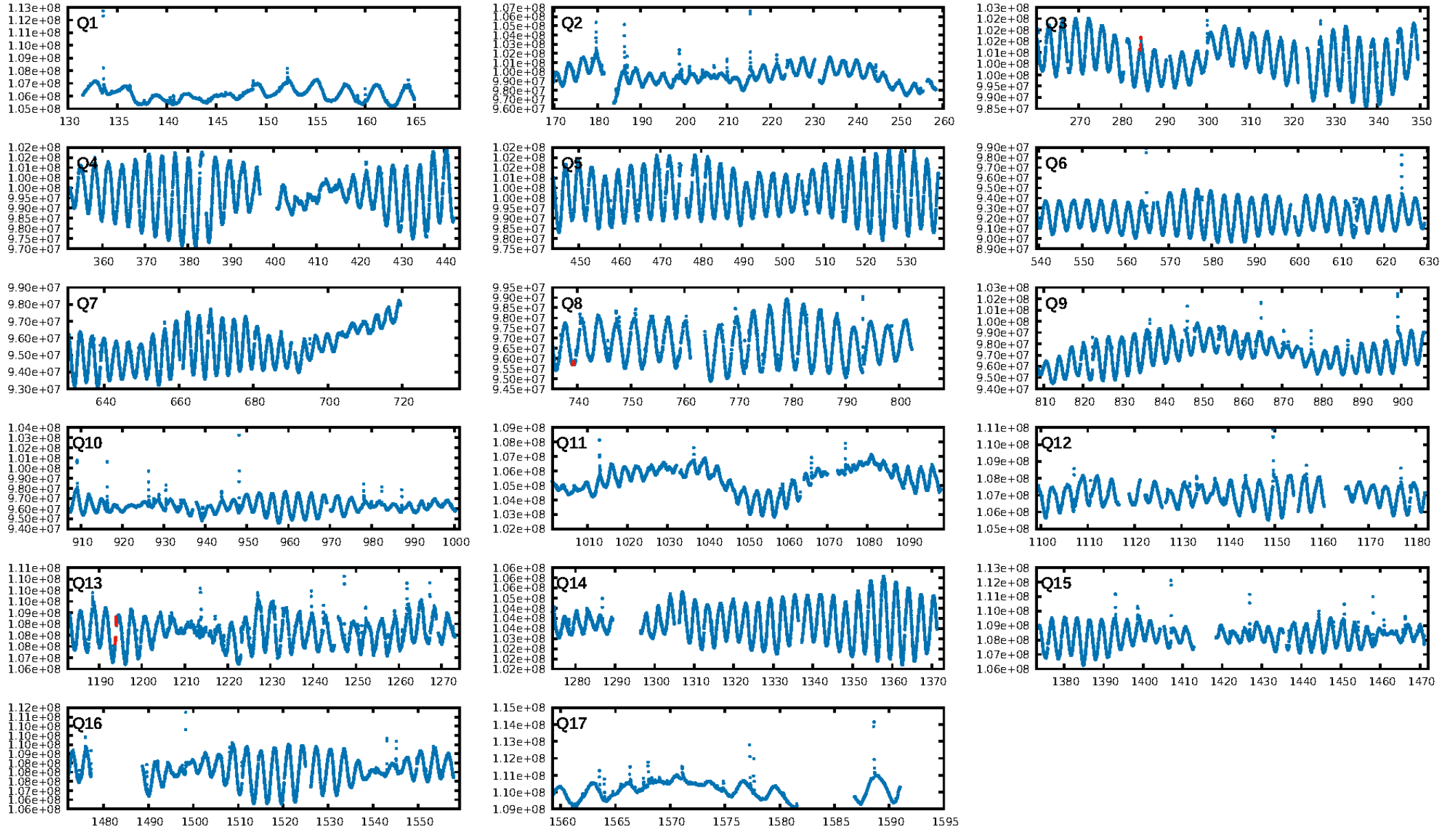
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.20 $\sigma$ ]  
LongPeriod-sig: 100.0% [26.58 $\sigma$ ]  
ModelChiSquare2-sig: 1.6%  
ModelChiSquareGof-sig: 40.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: -1.694**  
Centroid-sig: 54.4%  
Centroid-so: 0.219 arcsec [0.50 $\sigma$ ]  
OotOffset-rm: 0.860 arcsec [0.84 $\sigma$ ]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-rm: 0.761 arcsec [0.69 $\sigma$ ]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

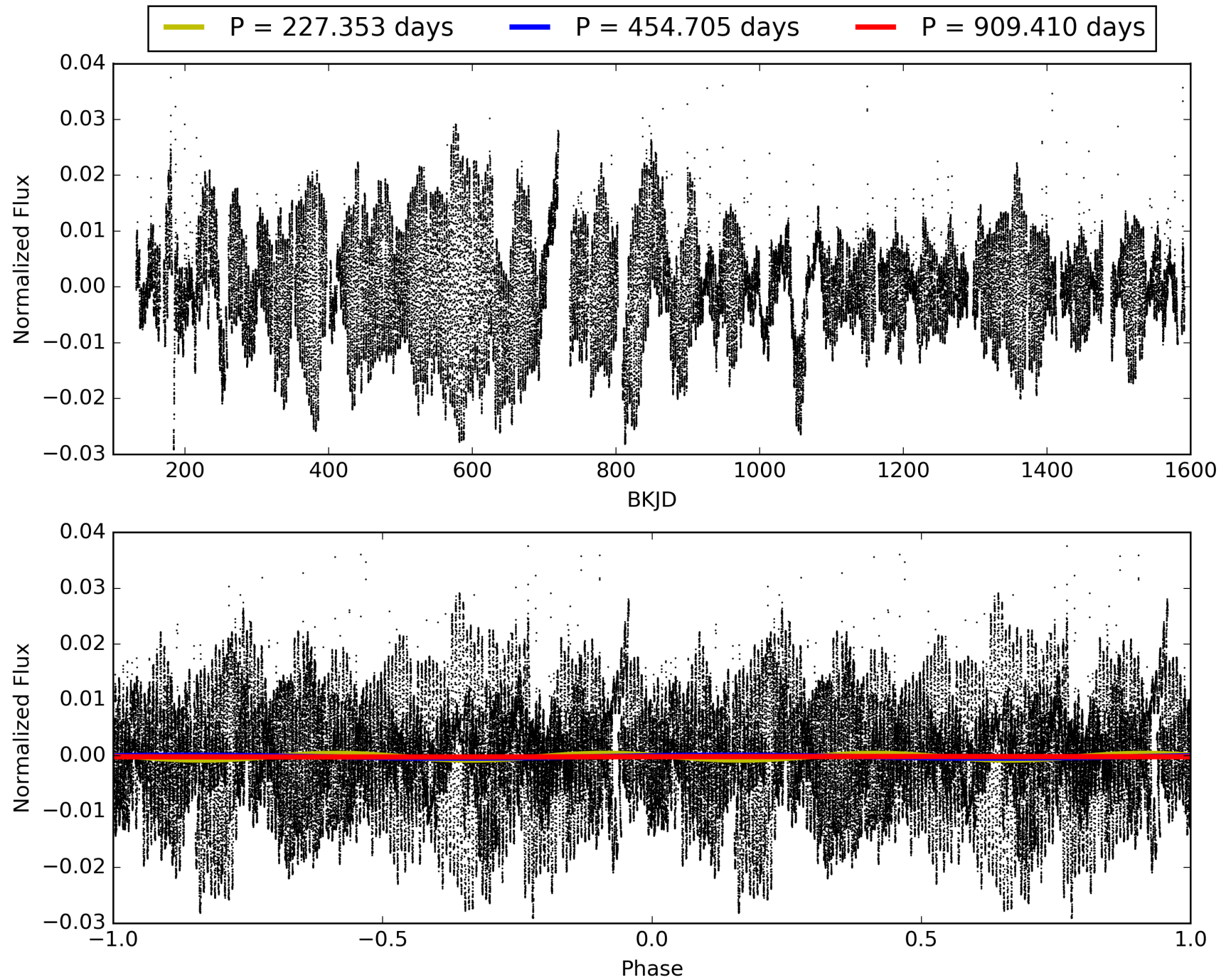
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:23:30 Z

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

# TCE 007664485-01, PDC Light Curves



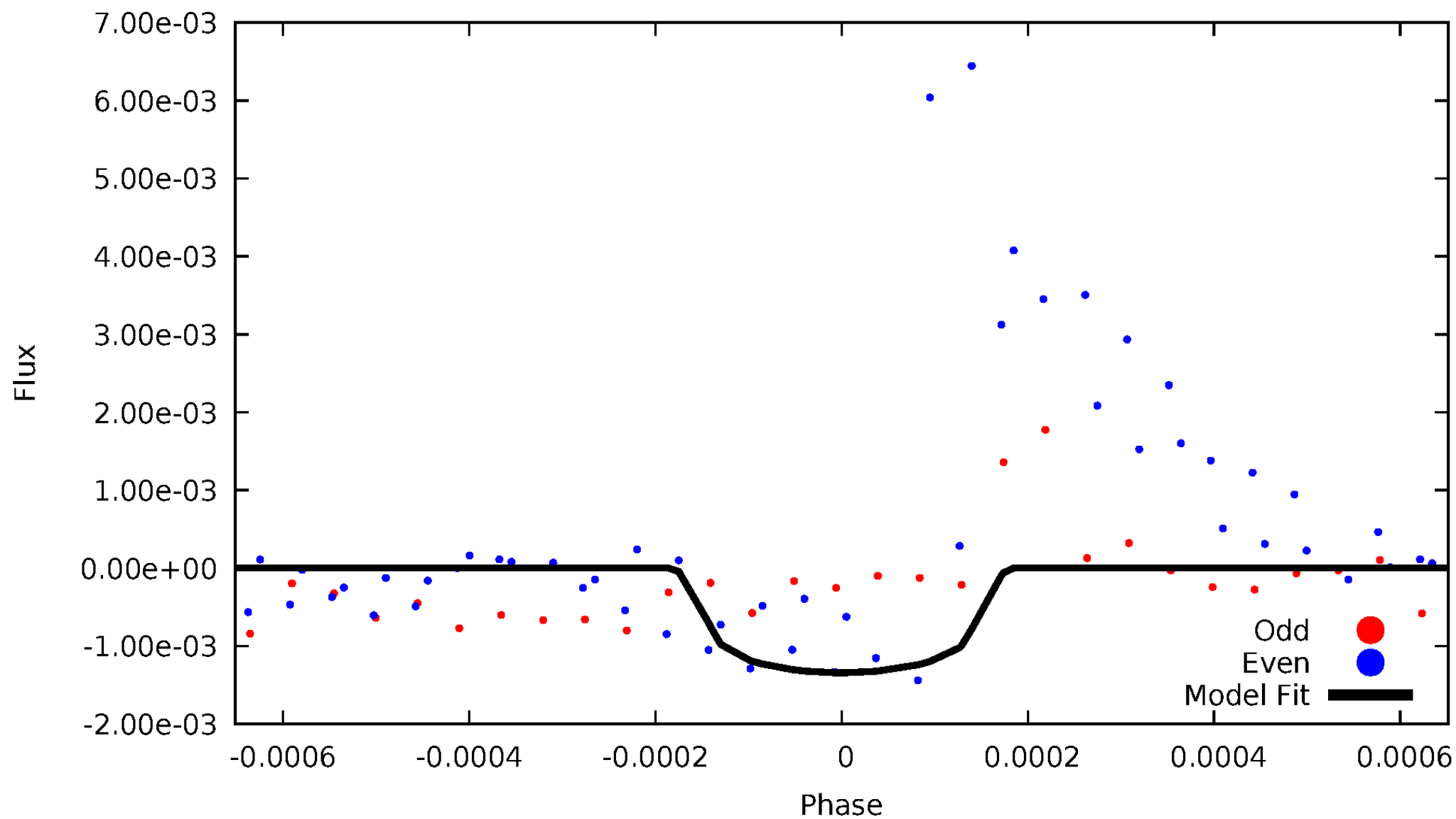
TCE 007664485-01





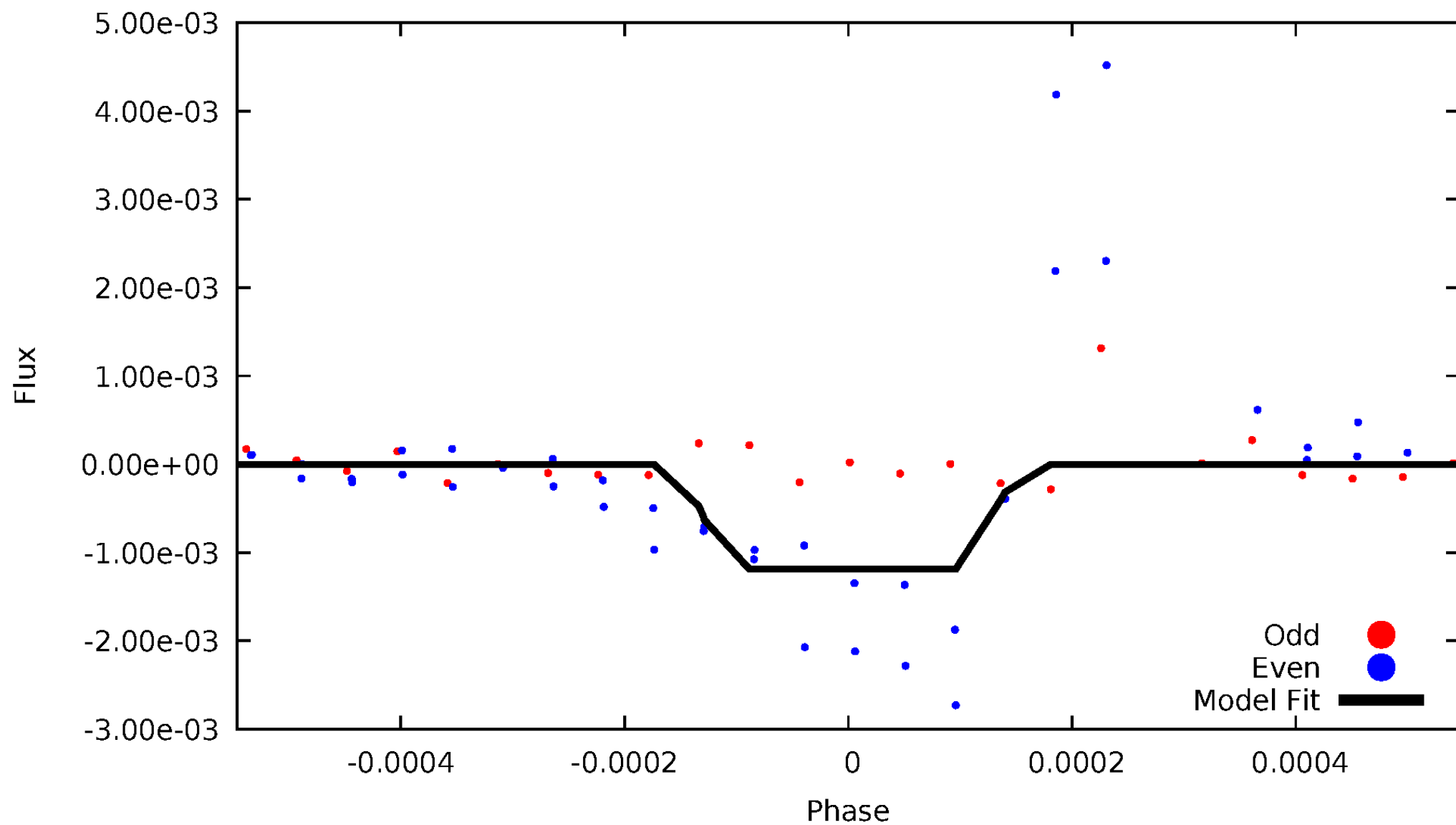
# DV Odd/Even

TCE 007664485-01



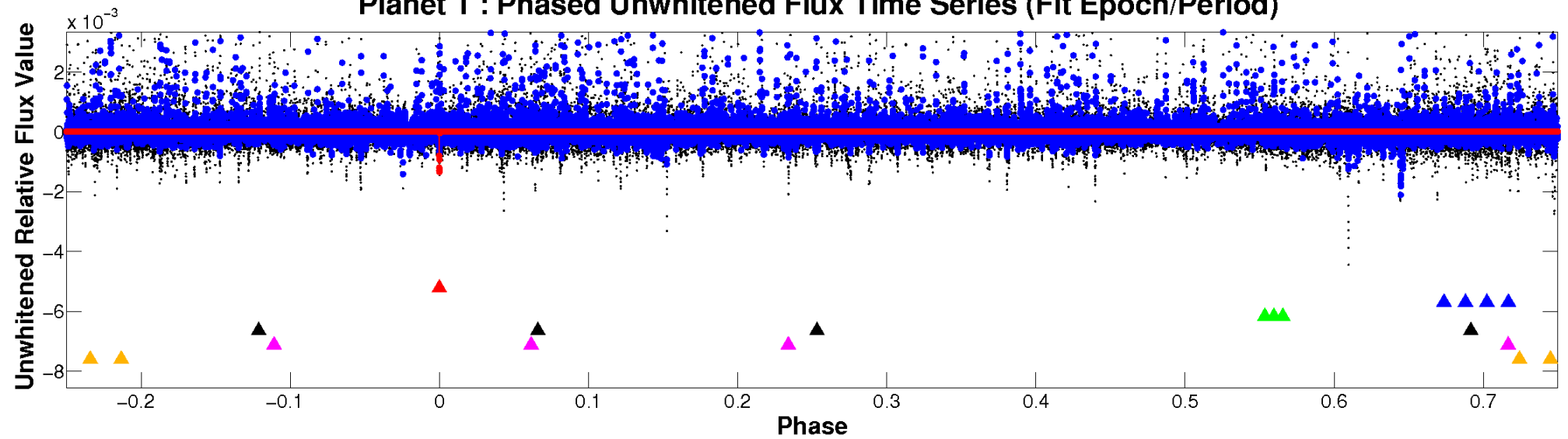
# ALT Odd/Even

TCE 007664485-01

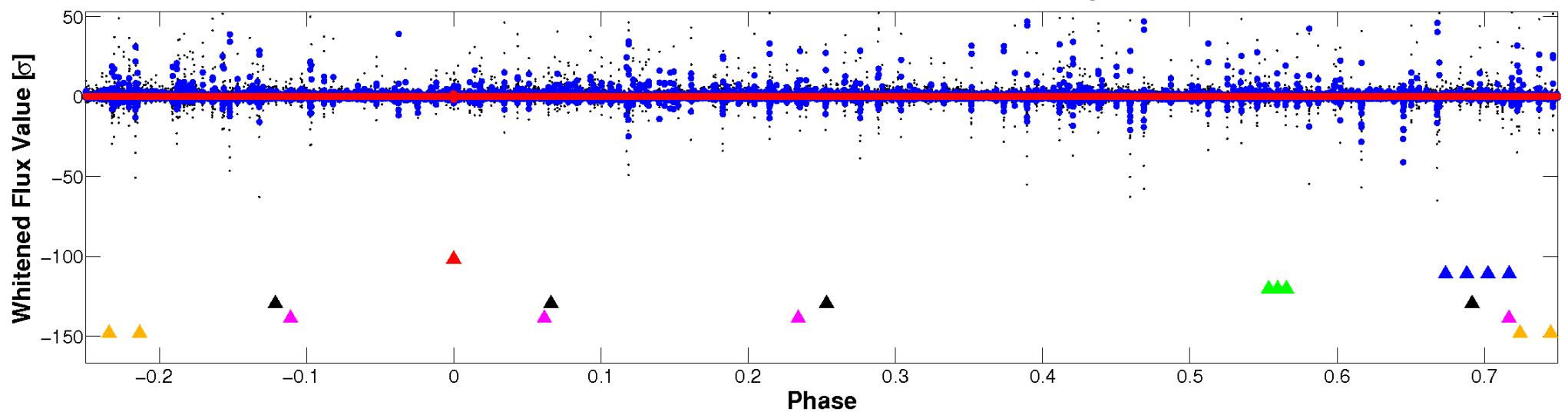


# Non-Whitened Vs. Whitened Light Curve

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

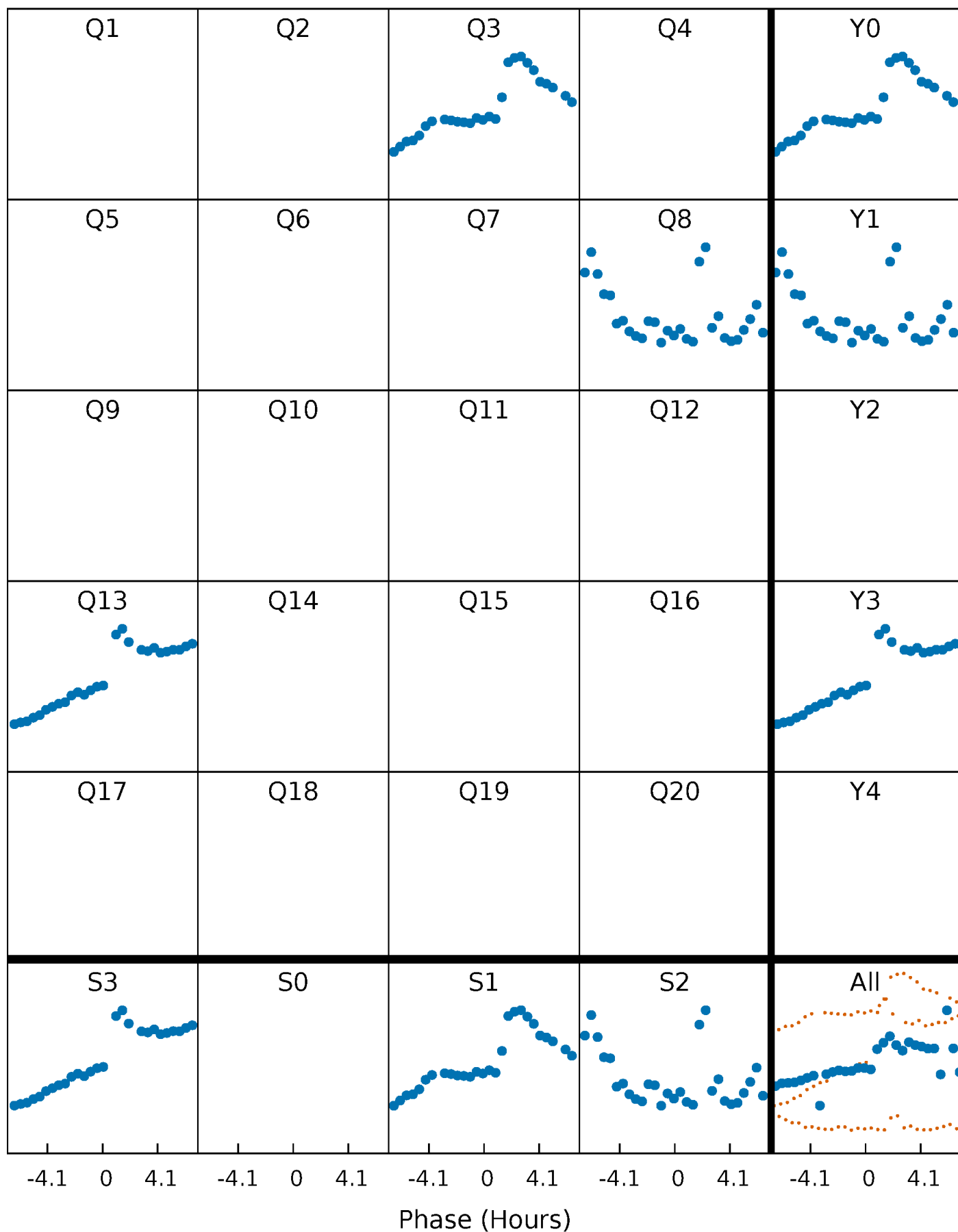


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

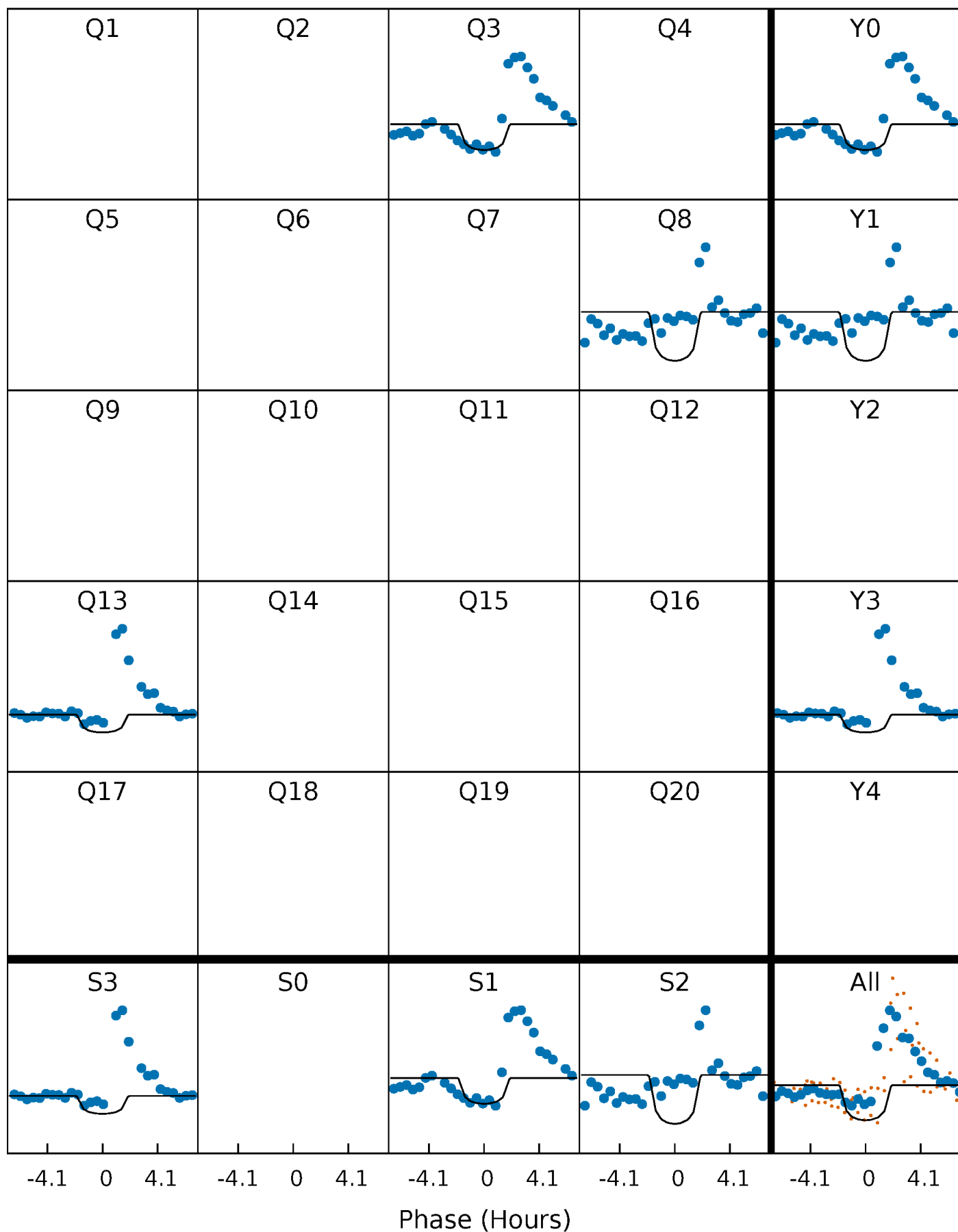
TCE 007664485-01 P=454.705206 Days  $T_0=284.481808$  (BKJD)





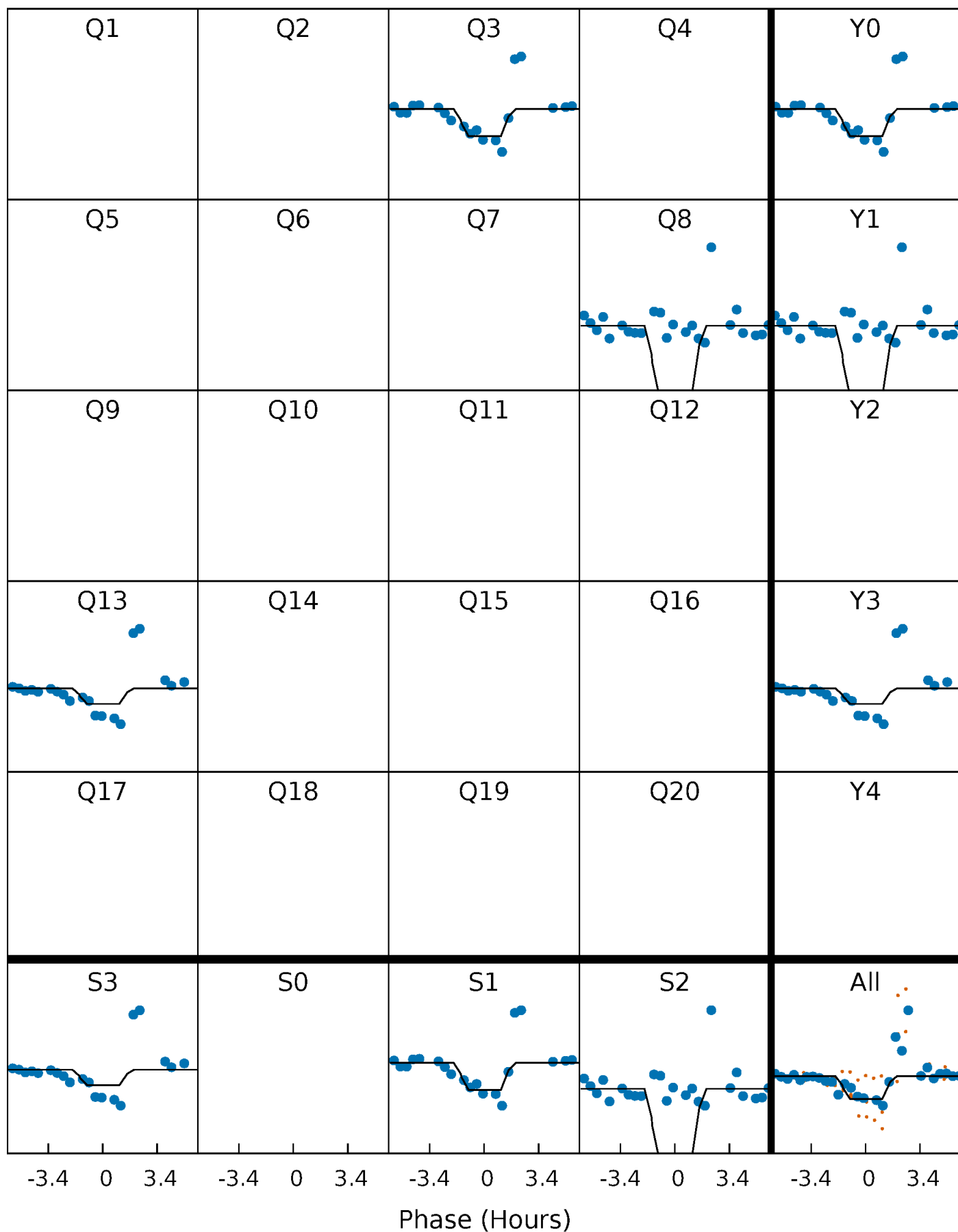
# DV Quarter-Phased Transit Curves

TCE 007664485-01 P=454.705206 Days  $T_0=284.481808$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

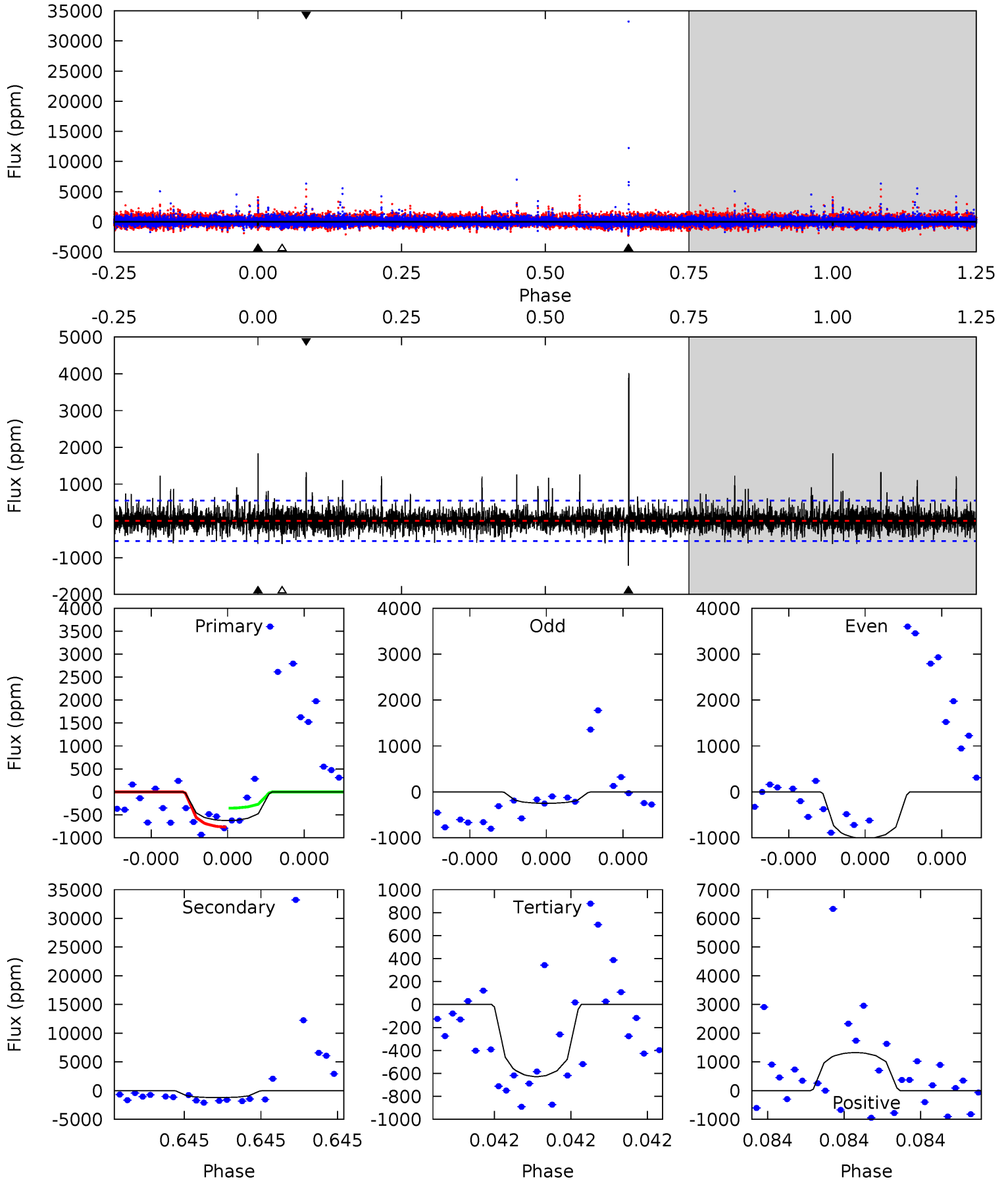
TCE 007664485-01 P=454.687577 Days  $T_0=284.475632$  (BKJD)



# DV Model-Shift Uniqueness Test

007664485-01, P = 454.705206 Days, E = 284.481808 Days

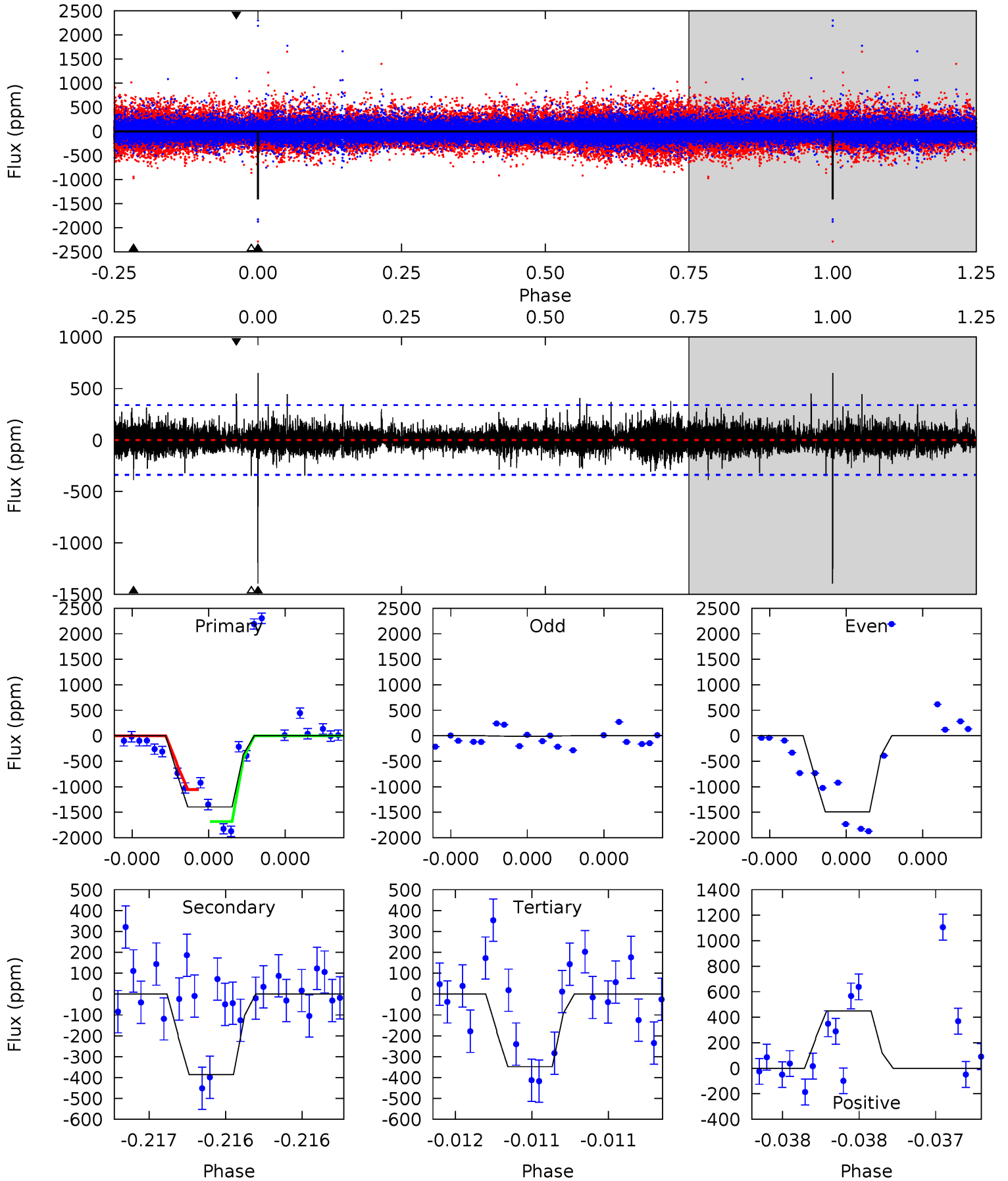
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM   | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-------|-------|------|
| 6.42 | 12.5 | 6.45 | 13.6 | 5.65            | 3.60            | 1.80             | -0.03   | -7.18   | 6.04    | -1.11   | 1.67    | -0.30 | 0.77  | 2.09 |



# Alt Model-Shift Uniqueness Test

007664485-01, P = 454.687577 Days, E = 284.475632 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 |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 23.3 | 6.45 | 5.82 | 7.52 | 5.66            | 3.61            | 1.08             | 17.5    | 15.8    | 0.63    | -1.07   | 12.6    | 0.84 | 0.32  | 0   |





### Stellar Parameters For KIC 007664485

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5521^{+150}_{-150}$ | $4.594^{+0.040}_{-0.112}$ | $-0.280^{+0.300}_{-0.300}$ | $0.771^{+0.138}_{-0.069}$ | $0.864^{+0.072}_{-0.109}$ | $2.650^{+0.520}_{-0.956}$                 |
|        | +3%/-3%              | +1%/-2%                   | +107%/-107%                | +18%/-9%                  | +8%/-13%                  | +20%/-36%                                 |
| 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 007664485-01 / KOI

| Detrend | Depth (ppm)    | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$   | $A_{\text{obs}}$           |
|---------|----------------|------------------------|----------------------|------------------------|----------------------------|
| DV      | $-1218 \pm 97$ | $3.65^{+2.86}_{-2.36}$ | $289^{+13}_{-11}$    | $5049^{+3879}_{-1013}$ | $59663^{+423261}_{-40836}$ |
| Alt.    | $-386 \pm 60$  | $3.72^{+2.96}_{-2.33}$ | $289^{+13}_{-11}$    | $4055^{+1890}_{-726}$  | $18949^{+100878}_{-13206}$ |

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

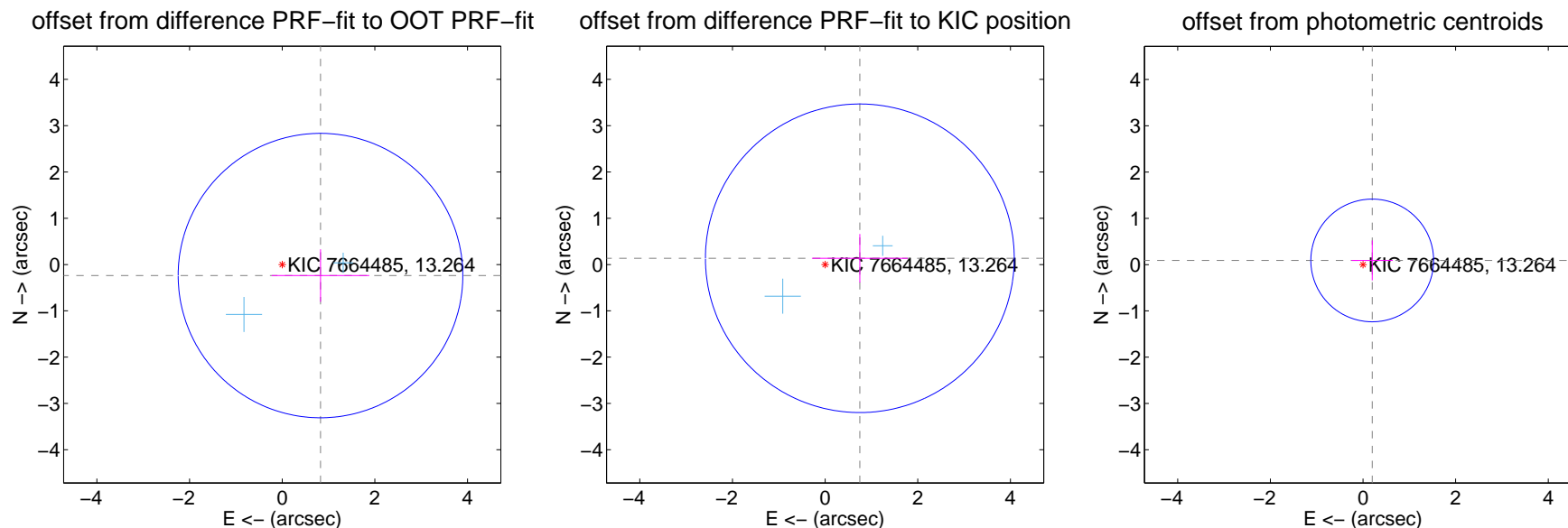
## DV Centroid Data

Supplemental centroid analysis for 007664485-01. Kepler magnitude: 13.26. Transit SNR 8.88

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.860 \pm 1.024$  | 0.84                | $-0.826 \pm 1.053$ | $-0.238 \pm 0.566$ |
| PRF-fit source offset from KIC position | $0.761 \pm 1.111$  | 0.69                | $-0.749 \pm 1.035$ | $0.135 \pm 0.525$  |
| photometric centroid source offset      | $0.22 \pm 0.44$    | 0.50                | $-0.20 \pm 0.44$   | $0.09 \pm 0.43$    |



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

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

Q1 no difference image



Q1 no OOT image



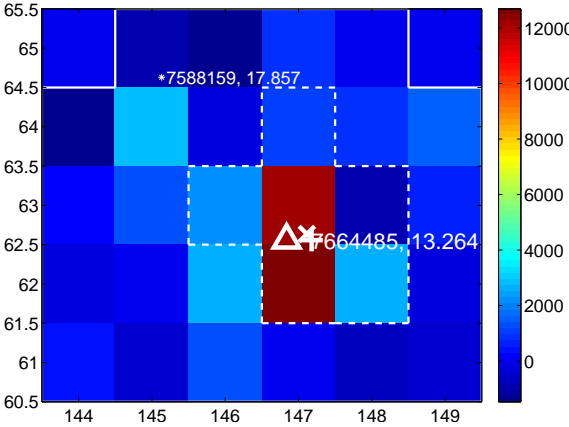
Q2 no difference image



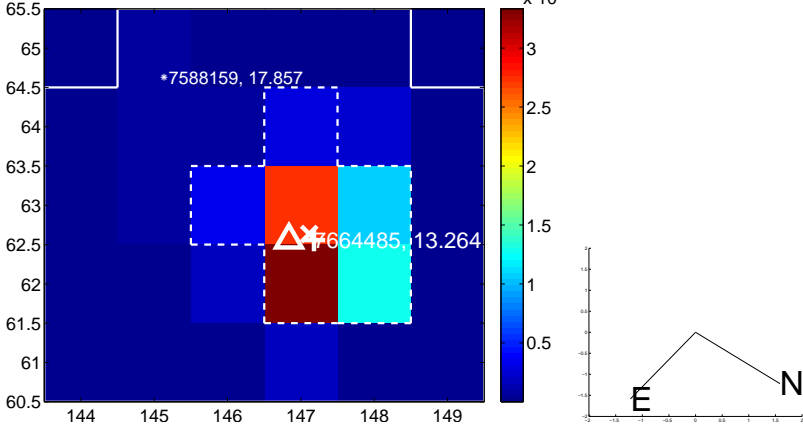
Q2 no OOT image



Q3 difference image



Q3 OOT image



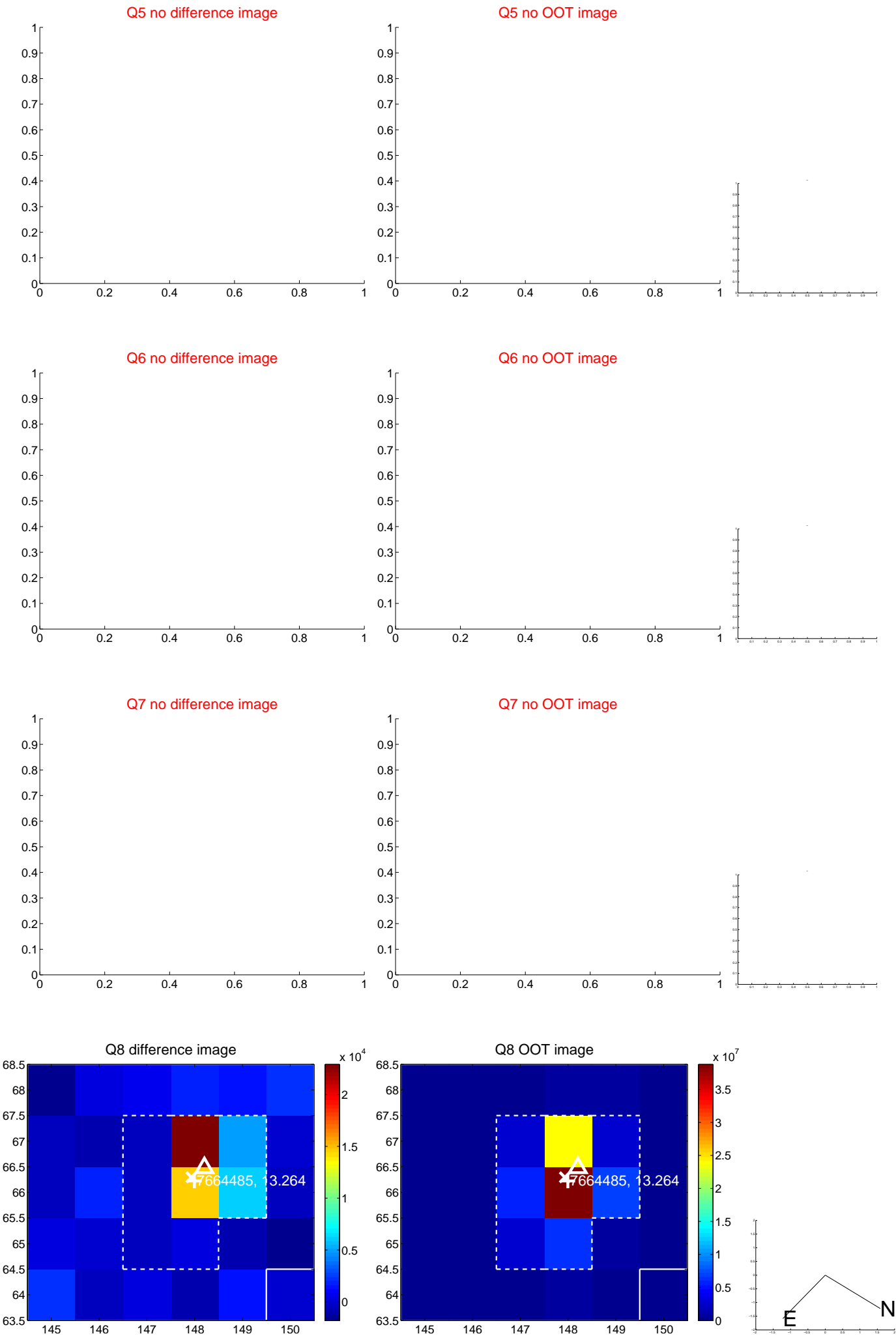
Q4 no difference image



Q4 no OOT image



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





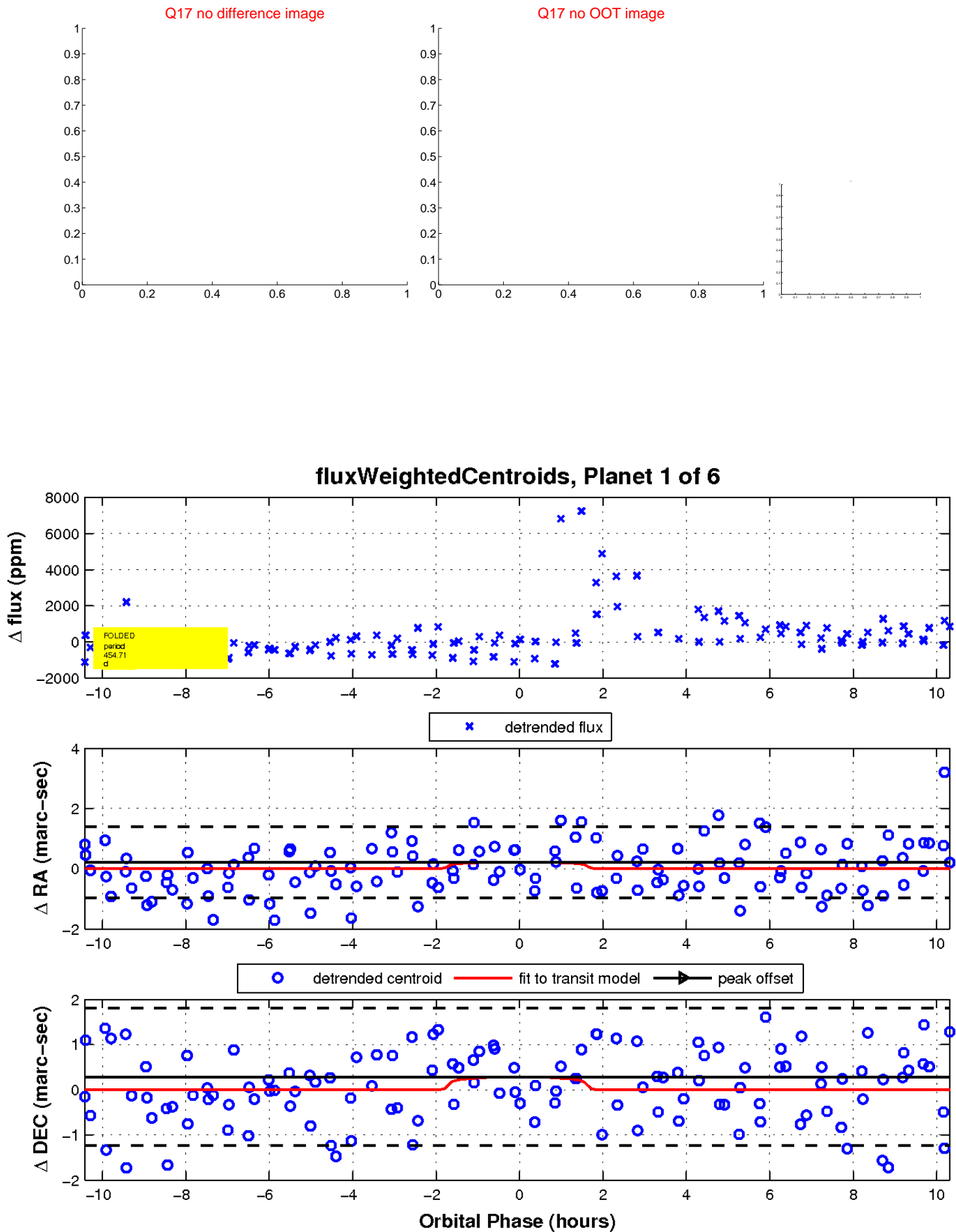
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

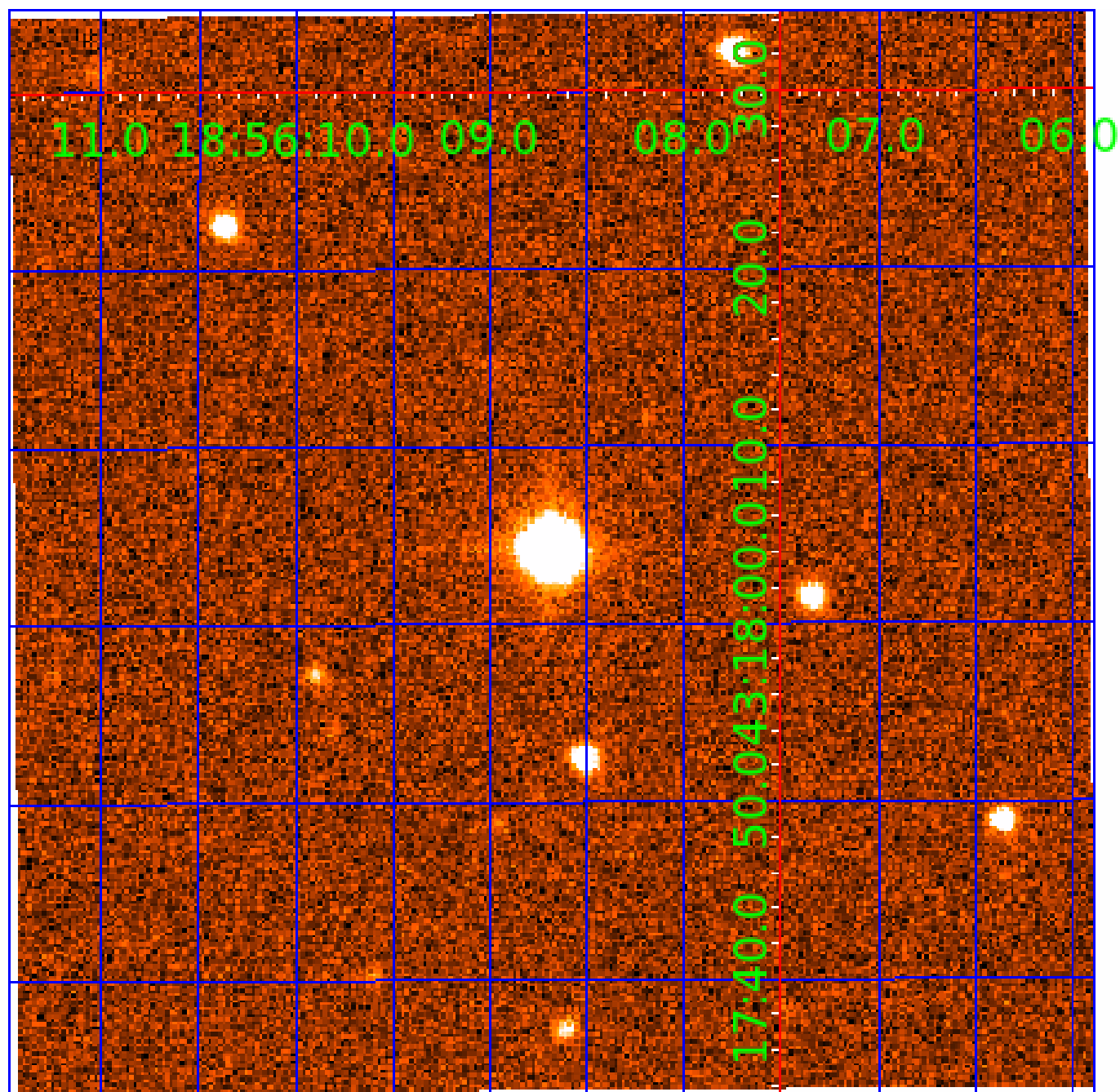


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007664485

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007664485-01 | OBS      | No   | 454.705206    | 284.481808   | 1343.0      | 3.552            | 17.0 | 8.9  | 0.77                        | 5521            | 2.92                   | 0.41                   |
| 007664485-02 | OBS      | No   | 461.249590    | 136.111643   | 879.2       | 4.722            | 15.0 | 7.1  | 0.77                        | 5521            | 2.48                   | 0.40                   |
| 007664485-03 | OBS      | No   | 451.960616    | 541.673274   | 1691.8      | 4.685            | 17.6 | 10.8 | 0.77                        | 5521            | 3.98                   | 0.41                   |
| 007664485-04 | OBS      | No   | 369.594182    | 399.627406   | 2101.4      | 12.365           | 14.9 | 10.1 | 0.77                        | 5521            | 3.48                   | 0.54                   |
| 007664485-05 | OBS      | No   | 376.306100    | 390.884279   | 1699.0      | 10.035           | 15.1 | 8.0  | 0.77                        | 5521            | 3.13                   | 0.53                   |
| 007664485-06 | OBS      | No   | 464.161938    | 159.116733   | 511.8       | 4.500            | 14.0 | -1.0 | 0.77                        | 5521            | 1.72                   | 0.40                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007664485-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS             |
| 007664485-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS |
| 007664485-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS    |
| 007664485-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS   |
| 007664485-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS                              |
| 007664485-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—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.

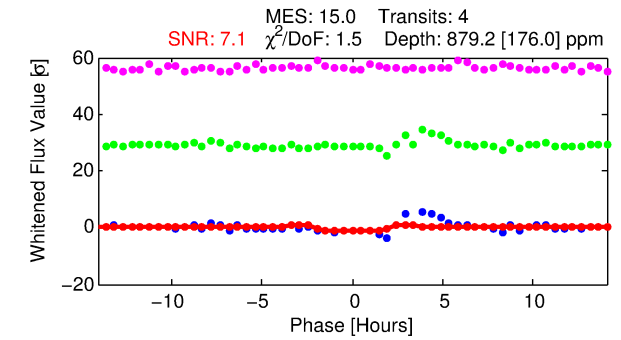
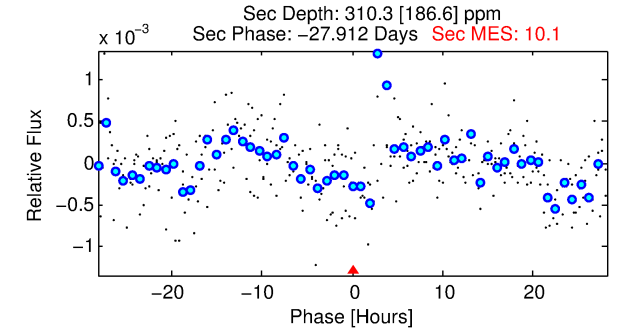
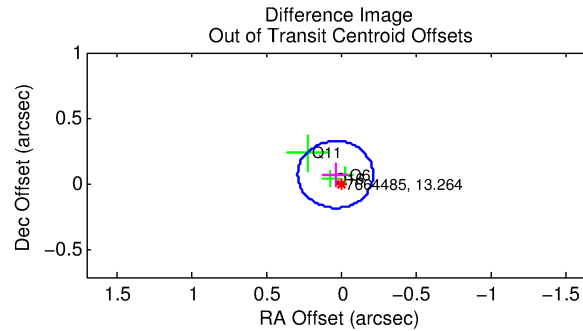
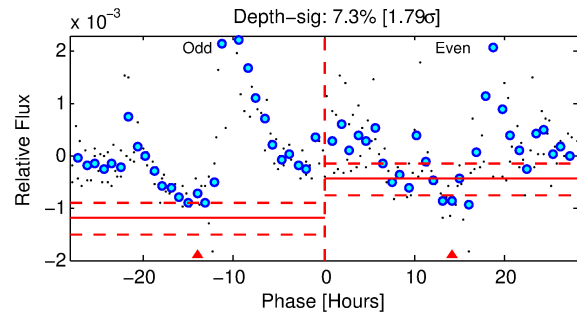
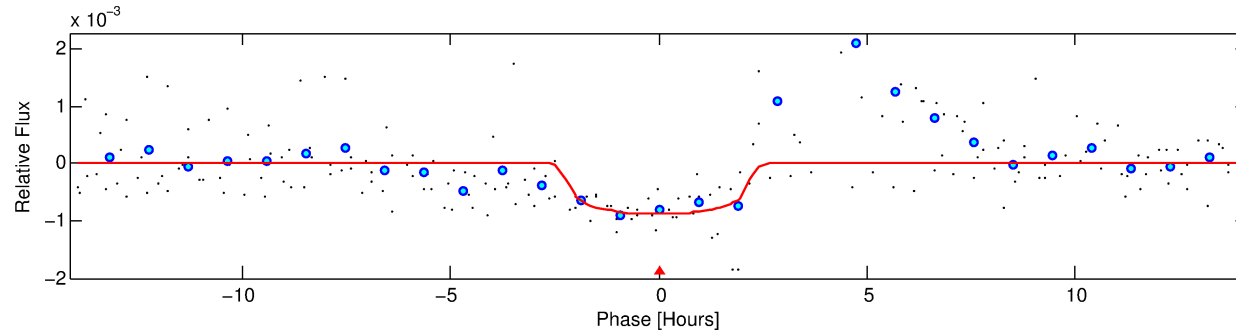
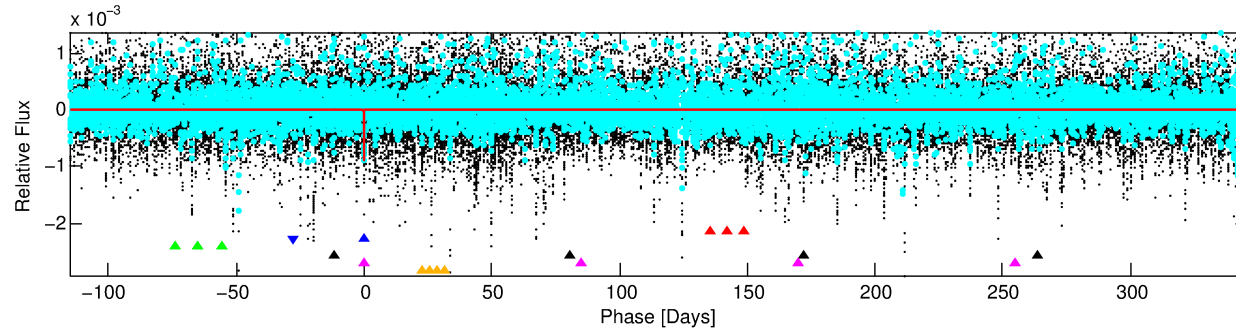
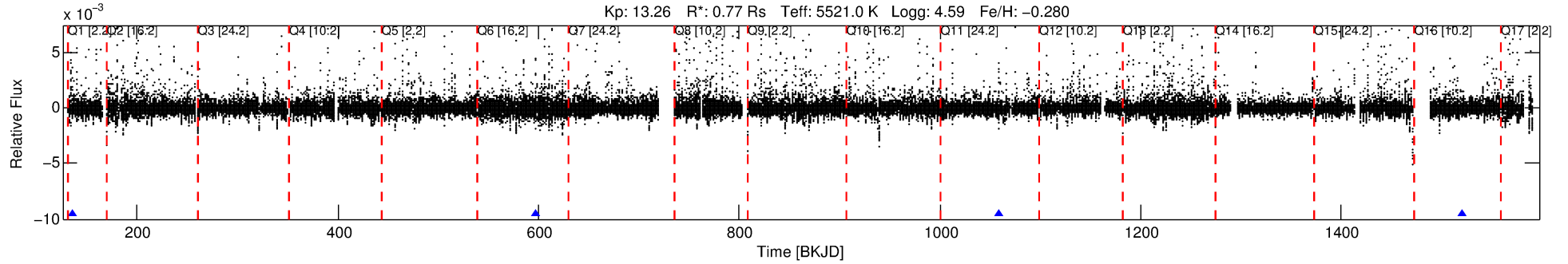
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007664485-02

No Significant Match Found

# DV One-Page Summary

KIC: 7664485 Candidate: 2 of 6 Period: 461.250 d



## DV Fit Results:

Period = 461.24959 [0.00426] d  
Epoch = 136.1116 [0.0099] BKJD  
Rp/R\* = 0.0295 [0.0160]  
a/R\* = 531.01 [1175.71]  
b = 0.74 [1.35]  
Seff = 0.40 [0.10]  
Teq = 203 [12] K  
Rp = 2.48 [1.42] Re  
a = 1.1075 [0.1629] AU  
Ag = 34092.86 [42904.14] [0.79 $\sigma$ ]  
Teffp = 4269 [1330] K [3.06 $\sigma$ ]

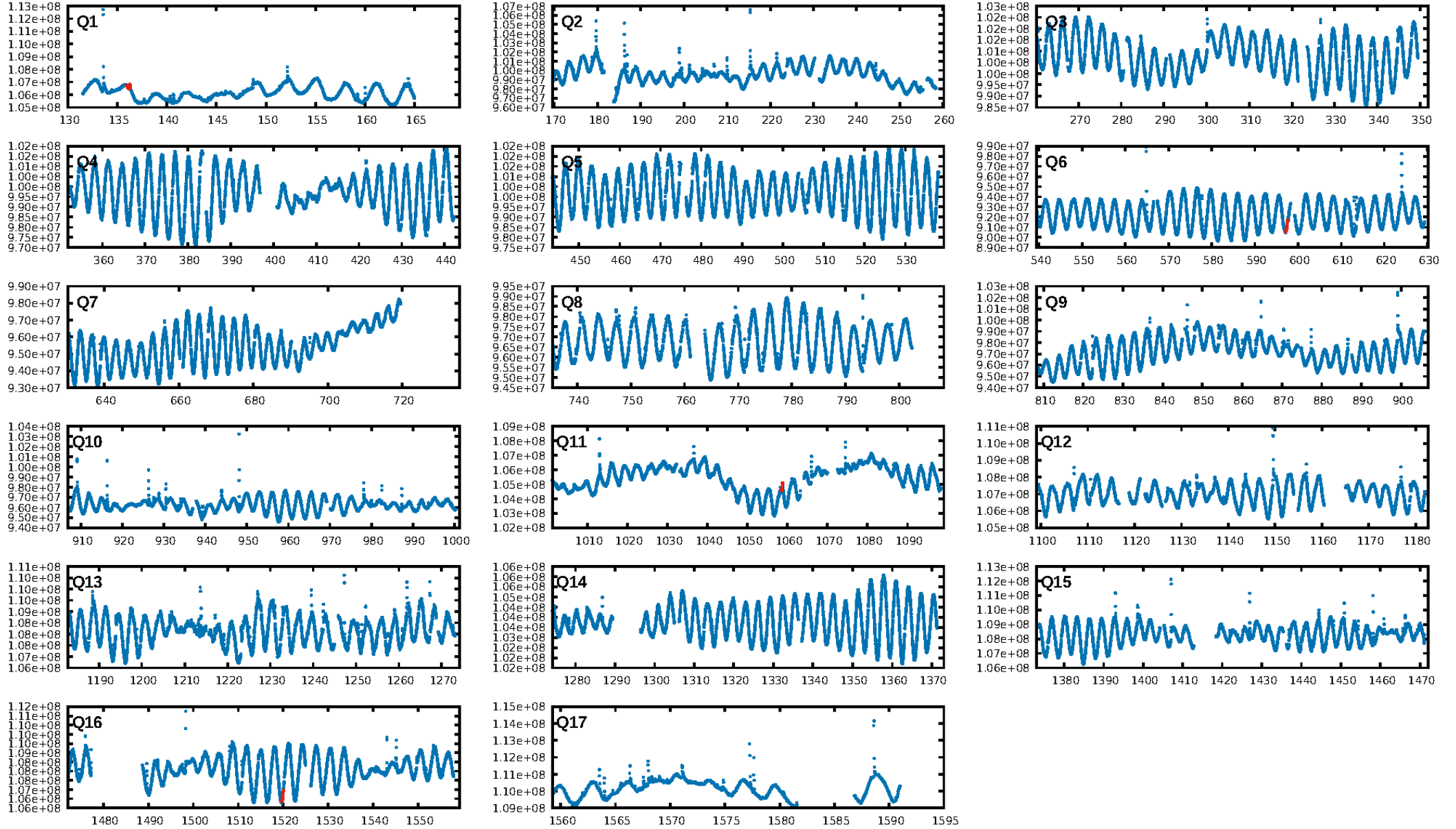
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.58 $\sigma$ ]  
LongPeriod-sig: 100.0% [10.72 $\sigma$ ]  
ModelChiSquare2-sig: 0.9%  
ModelChiSquareGof-sig: 78.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.68  
Centroid-sig: 28.3%  
Centroid-so: 0.504 arcsec [0.94 $\sigma$ ]  
OotOffset-rm: 0.083 arcsec [0.99 $\sigma$ ]  
OotOffset-st: 1/1/1/0 [3]  
KicOffset-rm: 0.573 arcsec [4.75 $\sigma$ ]  
KicOffset-st: 1/1/1/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 0.75 [3/4]

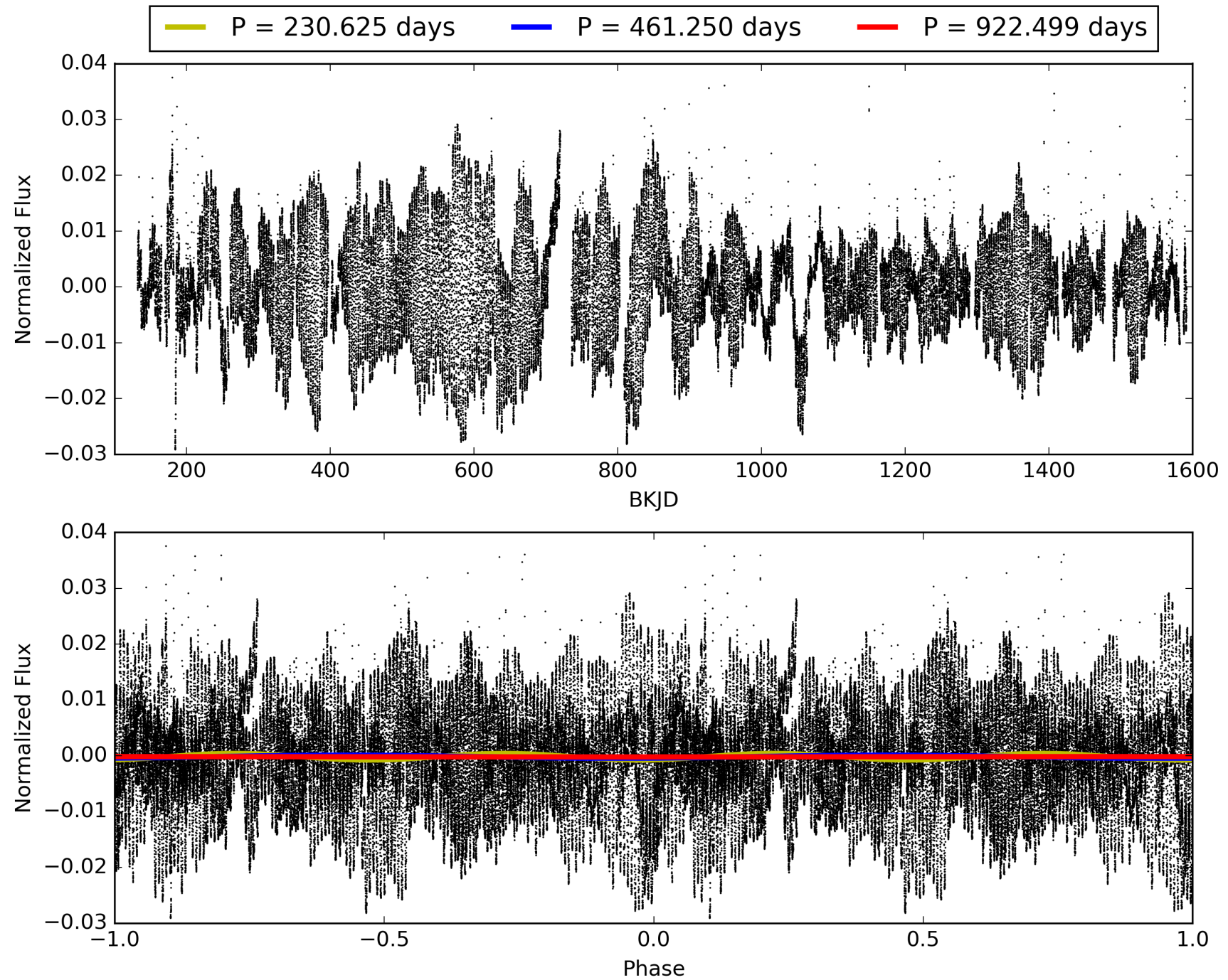
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:23:45 Z

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

# TCE 007664485-02, PDC Light Curves

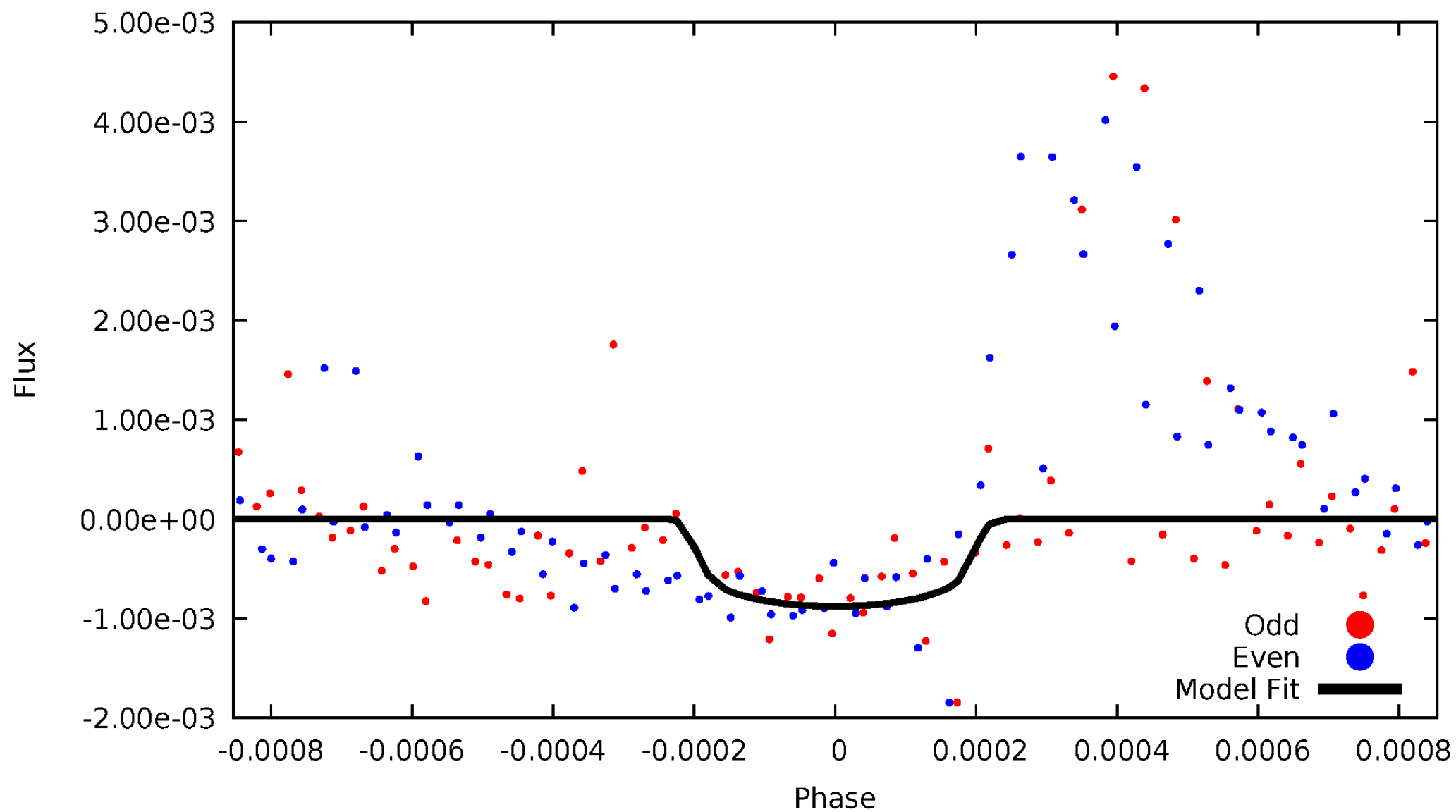


TCE 007664485-02



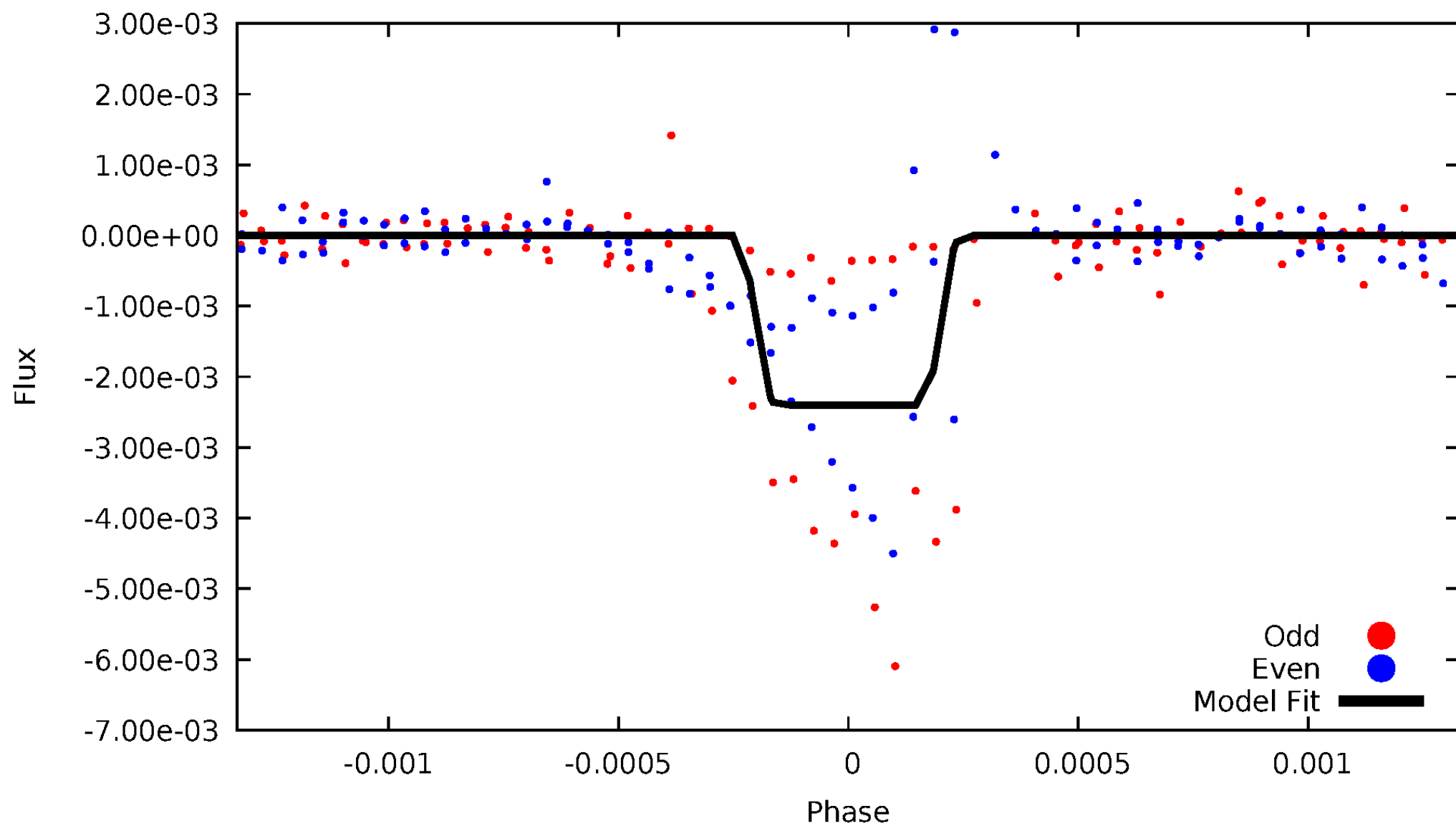
# DV Odd/Even

TCE 007664485-02



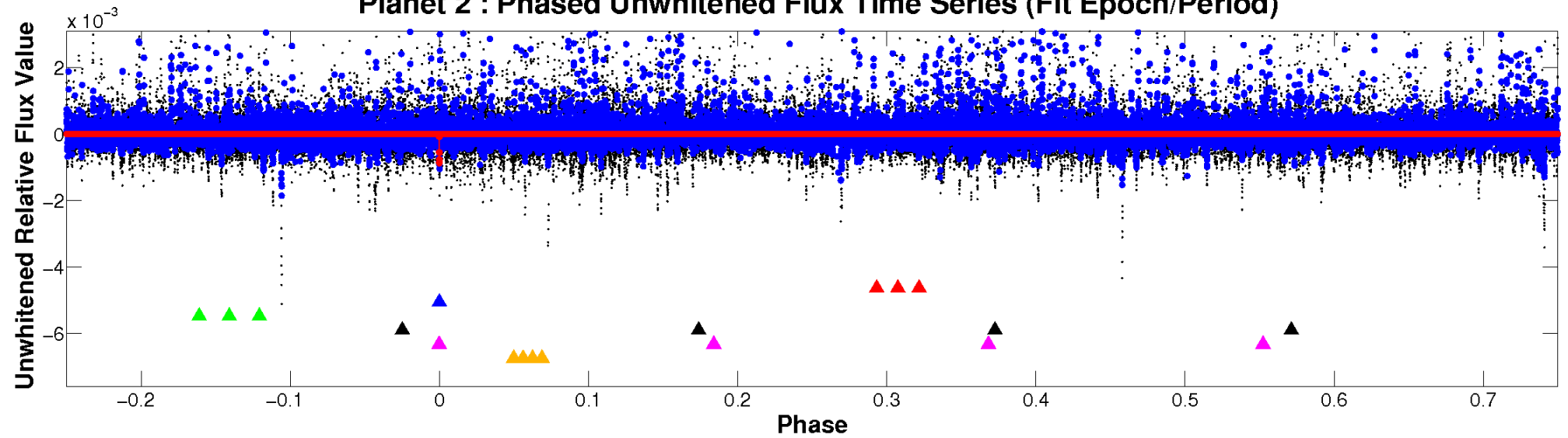
# ALT Odd/Even

TCE 007664485-02

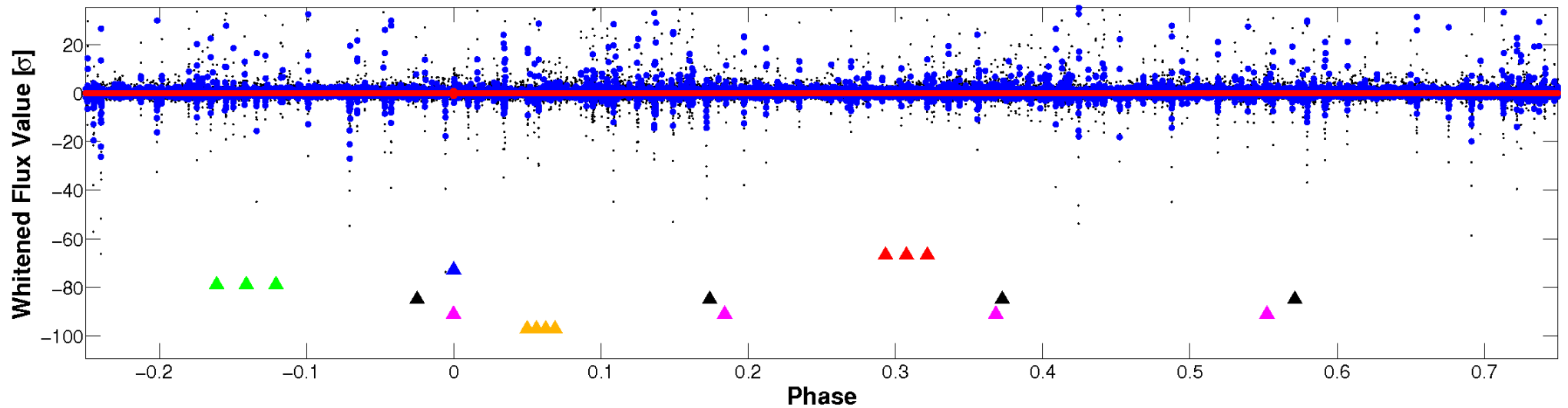


# Non-Whitened Vs. Whitened Light Curve

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



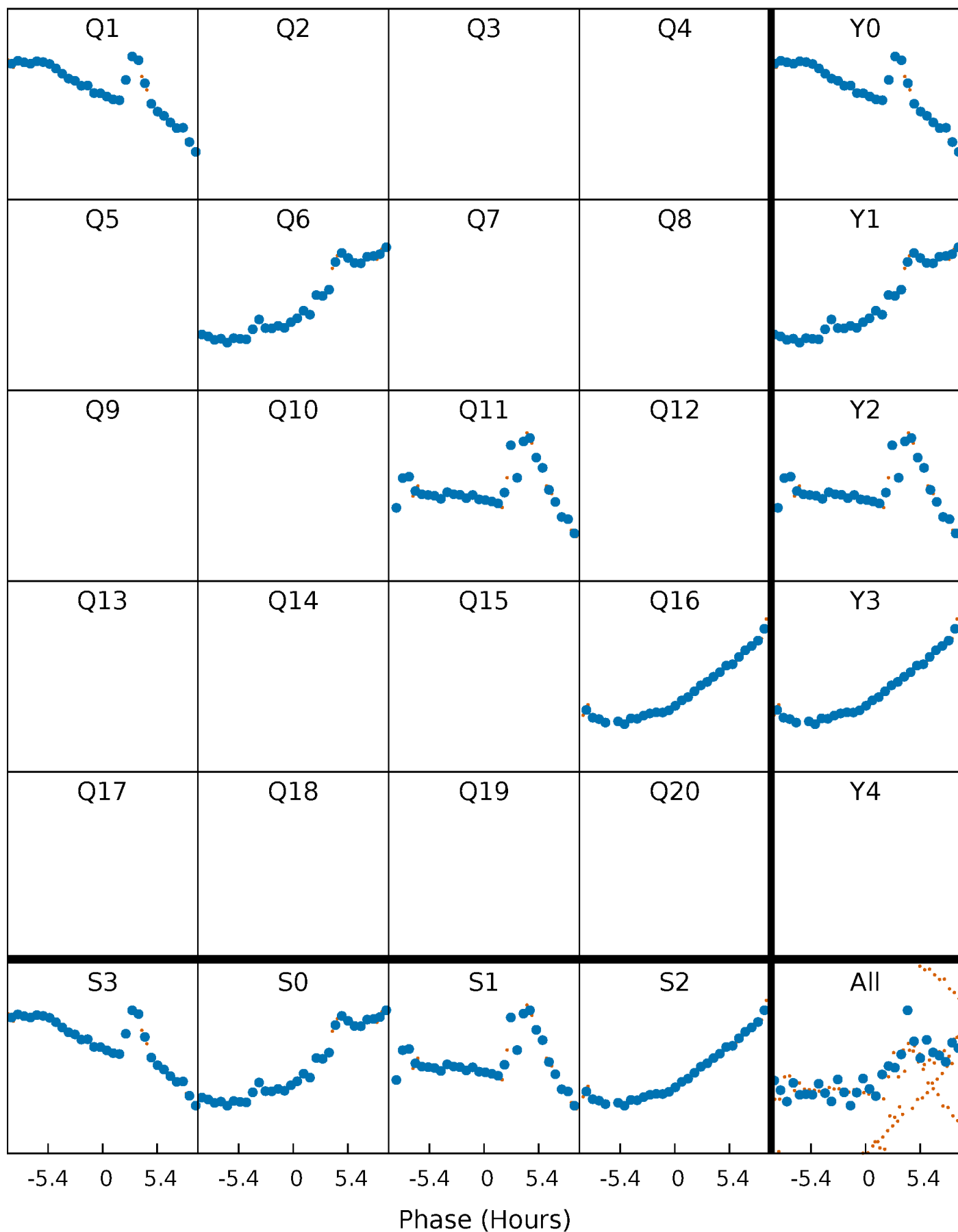
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

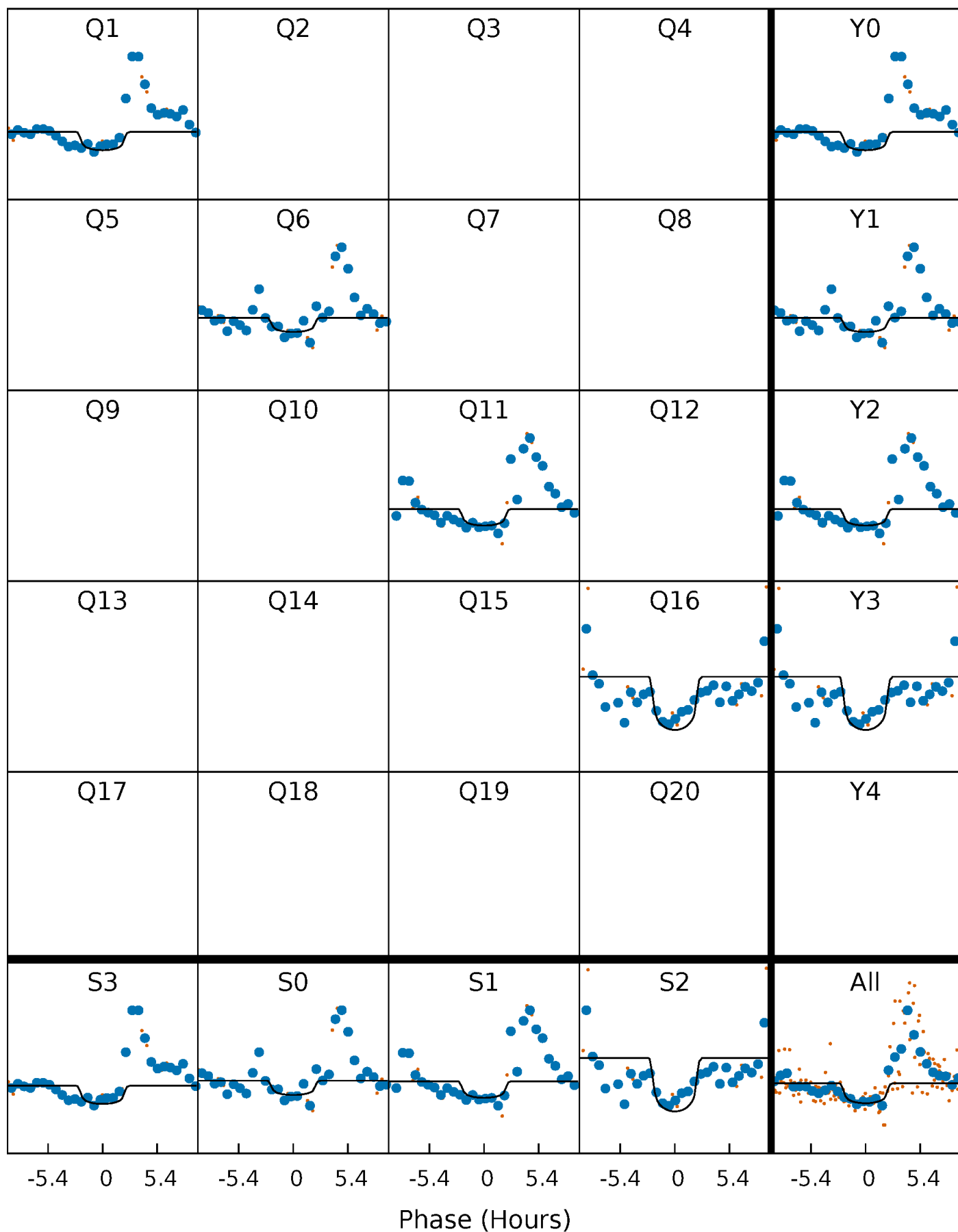
TCE 007664485-02   P=461.249590 Days    $T_0=136.111644$  (BKJD)





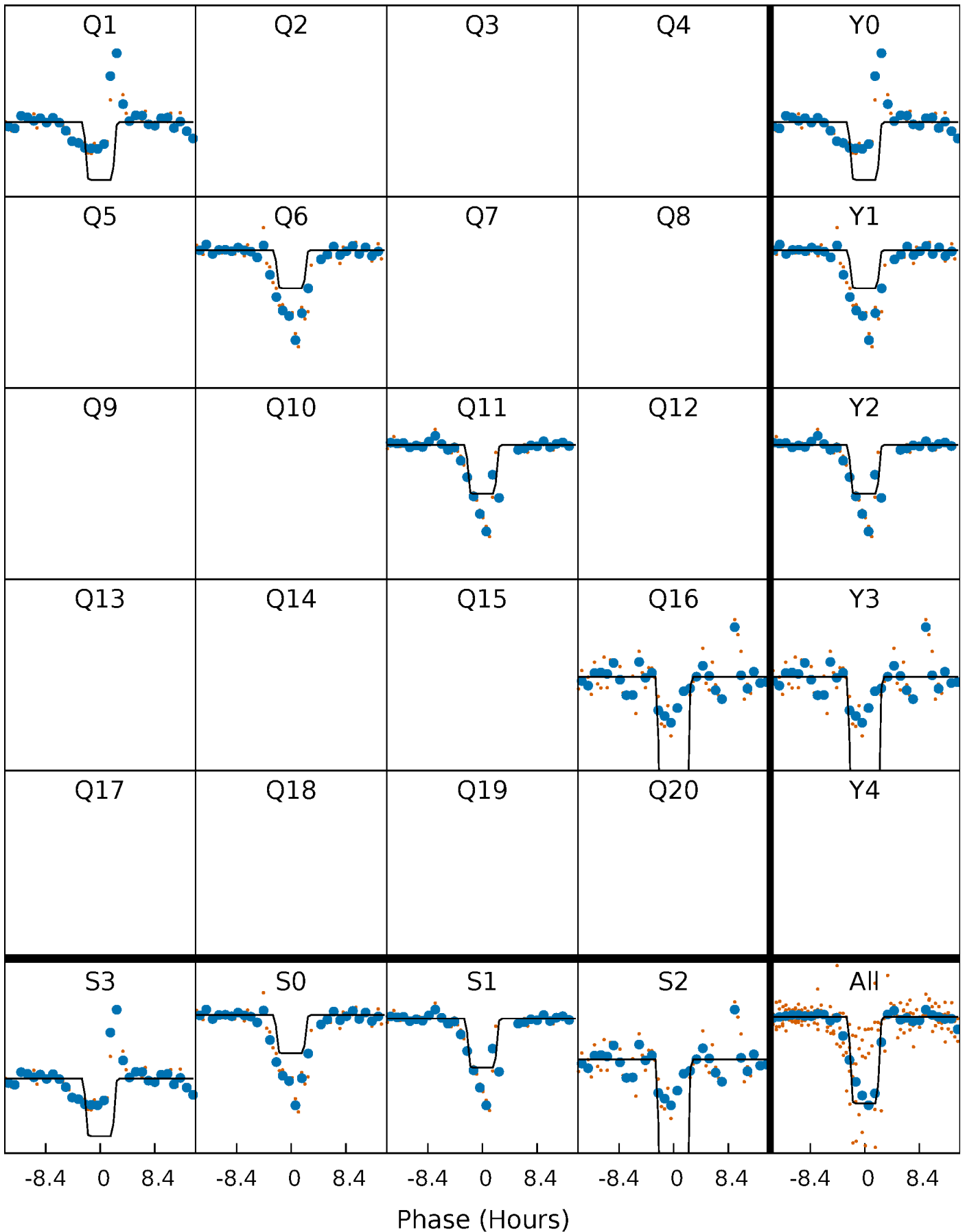
# DV Quarter-Phased Transit Curves

TCE 007664485-02 P=461.249590 Days  $T_0=136.111644$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

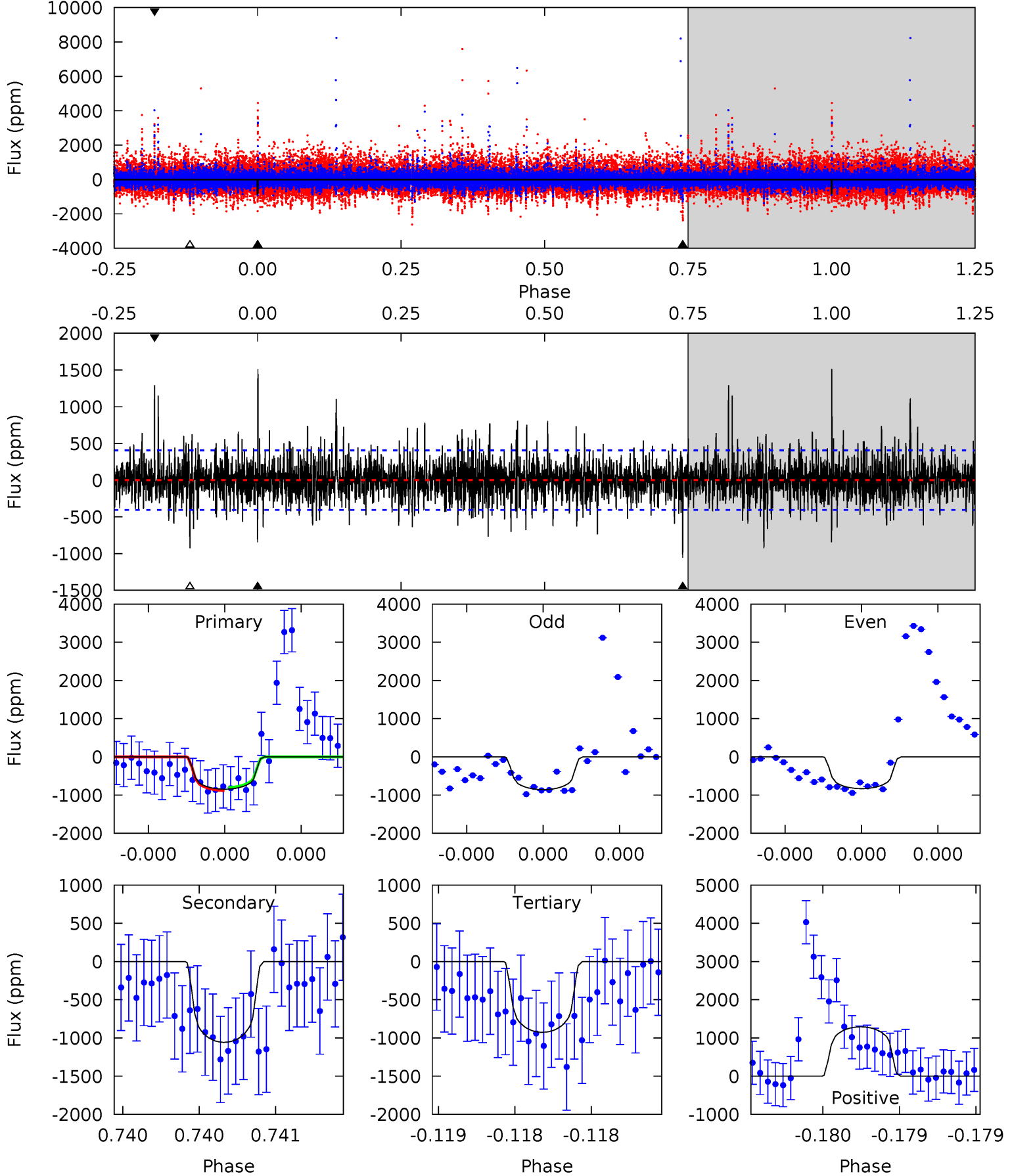
TCE 007664485-02 P=461.246750 Days  $T_0=136.147103$  (BKJD)



# DV Model-Shift Uniqueness Test

007664485-02, P = 461.249590 Days, E = 136.111644 Days

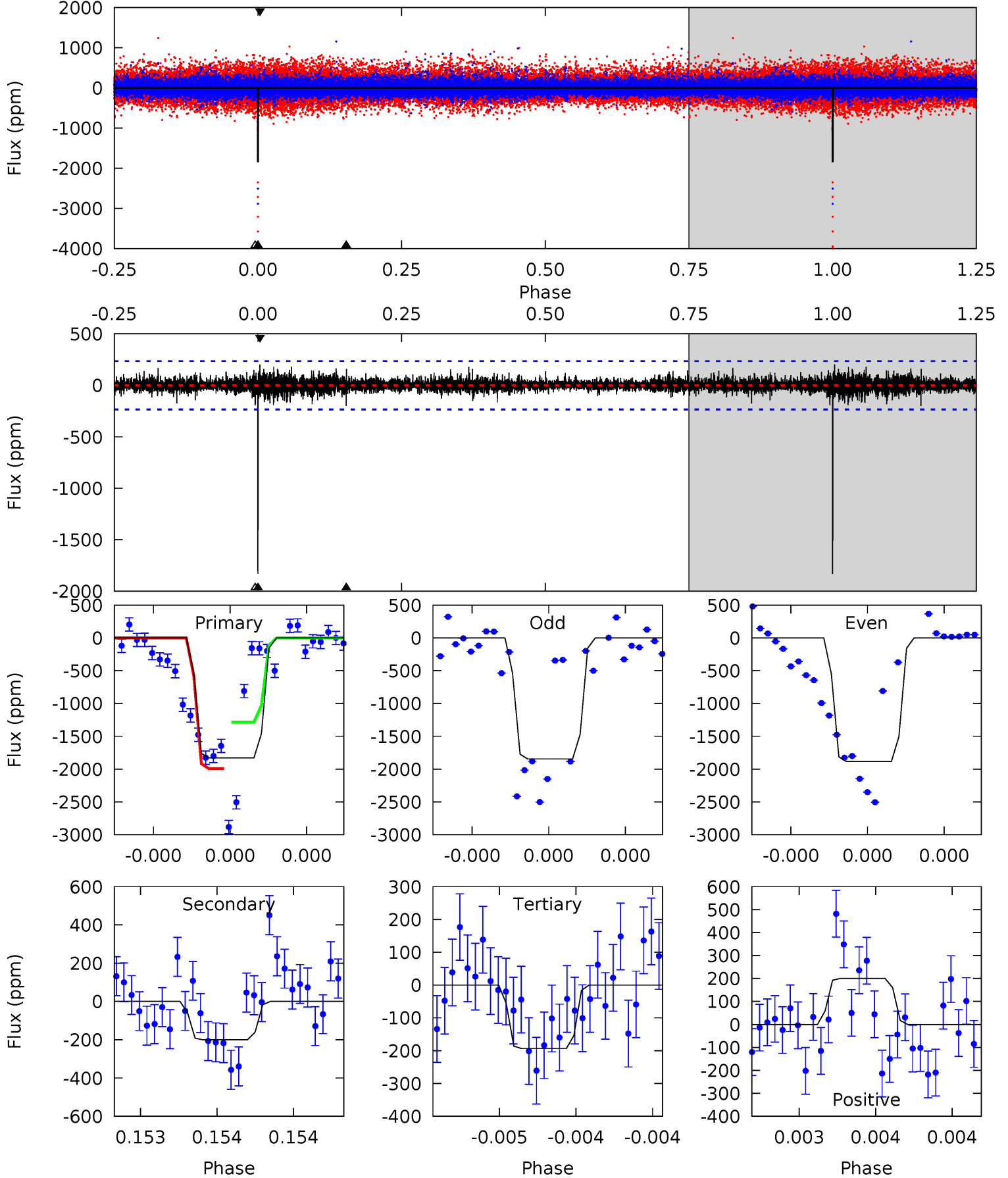
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.6 | 14.5 | 12.7 | 17.8 | 5.59            | 3.50            | 2.75             | -1.10   | -6.13   | 1.80    | -3.23   | 0.09    | 1.02 | 0.59  | 0.52 |



# Alt Model-Shift Uniqueness Test

007664485-02, P = 461.246750 Days, E = 136.147103 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 |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 43.6 | 4.76 | 4.60 | 4.77 | 5.59            | 3.51            | 0.83             | 39.0    | 38.8    | 0.16    | -0.01   | 0.55    | 1.20 | 0.10  | 0   |



### Stellar Parameters For KIC 007664485

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5521^{+150}_{-150}$ | $4.594^{+0.040}_{-0.112}$ | $-0.280^{+0.300}_{-0.300}$ | $0.771^{+0.138}_{-0.069}$ | $0.864^{+0.072}_{-0.109}$ | $2.650^{+0.520}_{-0.956}$                 |
|        | +3%/-3%              | +1%/-2%                   | +107%/-107%                | +18%/-9%                  | +8%/-13%                  | +20%/-36%                                 |
| 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 007664485-02 / KOI

| Detrend | Depth (ppm)    | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$  | $A_{\text{obs}}$           |
|---------|----------------|------------------------|----------------------|-----------------------|----------------------------|
| DV      | $-1057 \pm 73$ | $2.64^{+1.44}_{-1.30}$ | $289^{+12}_{-11}$    | $5687^{+2368}_{-940}$ | $99160^{+275569}_{-54861}$ |
| Alt.    | $-200 \pm 42$  | $4.21^{+1.36}_{-1.33}$ | $287^{+13}_{-10}$    | $3452^{+470}_{-320}$  | $7422^{+8789}_{-3397}$     |

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

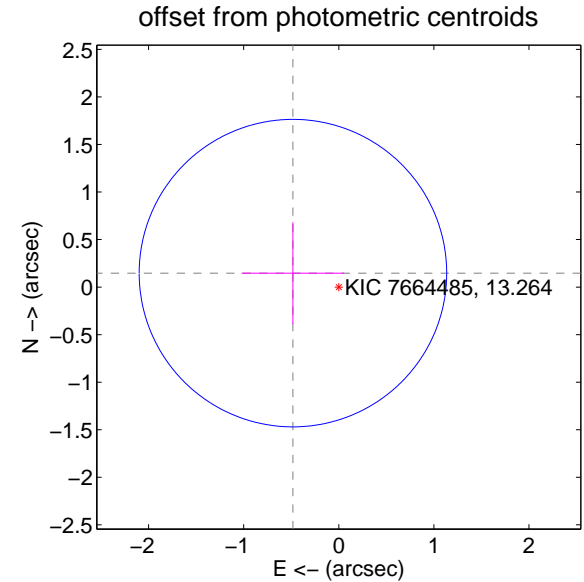
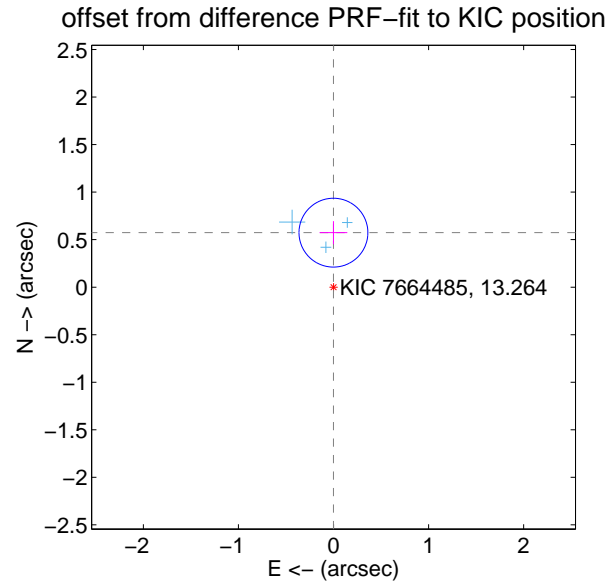
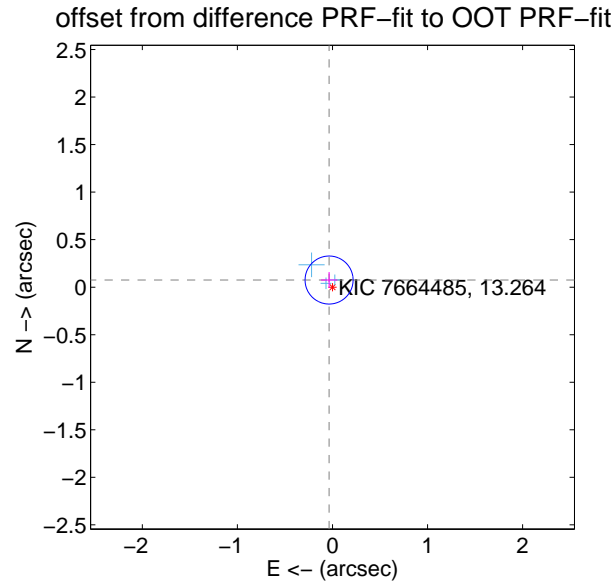
## DV Centroid Data

Supplemental centroid analysis for 007664485-02. Kepler magnitude: 13.26. Transit SNR 7.08

There are 3 quarters with good PRF difference image offsets

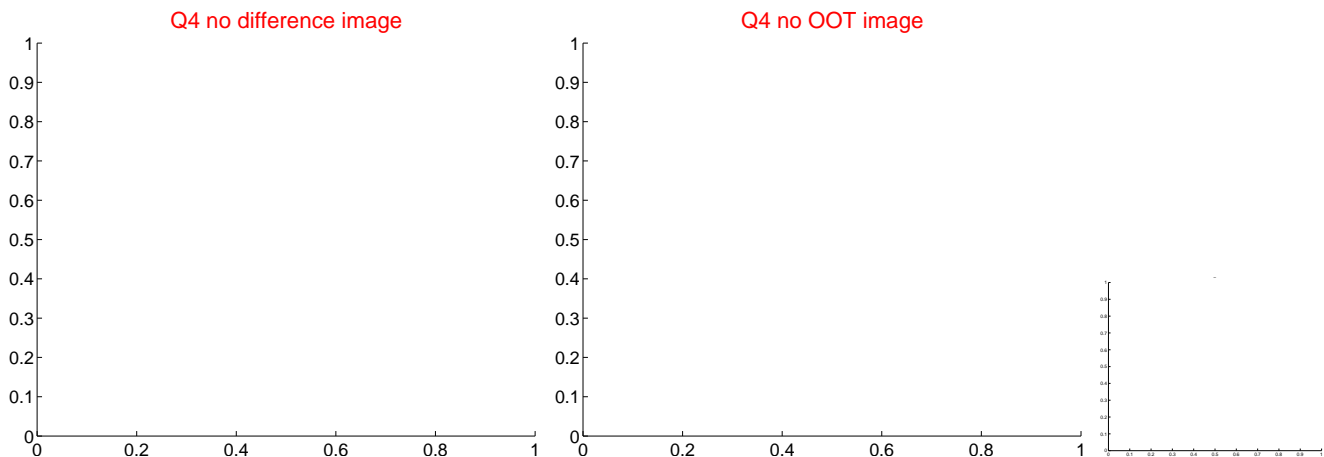
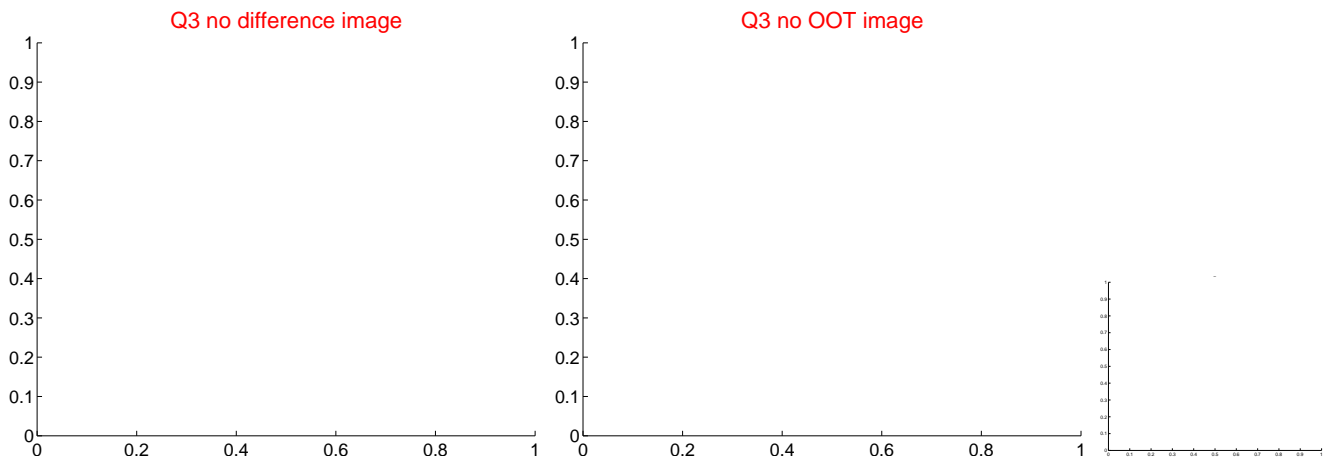
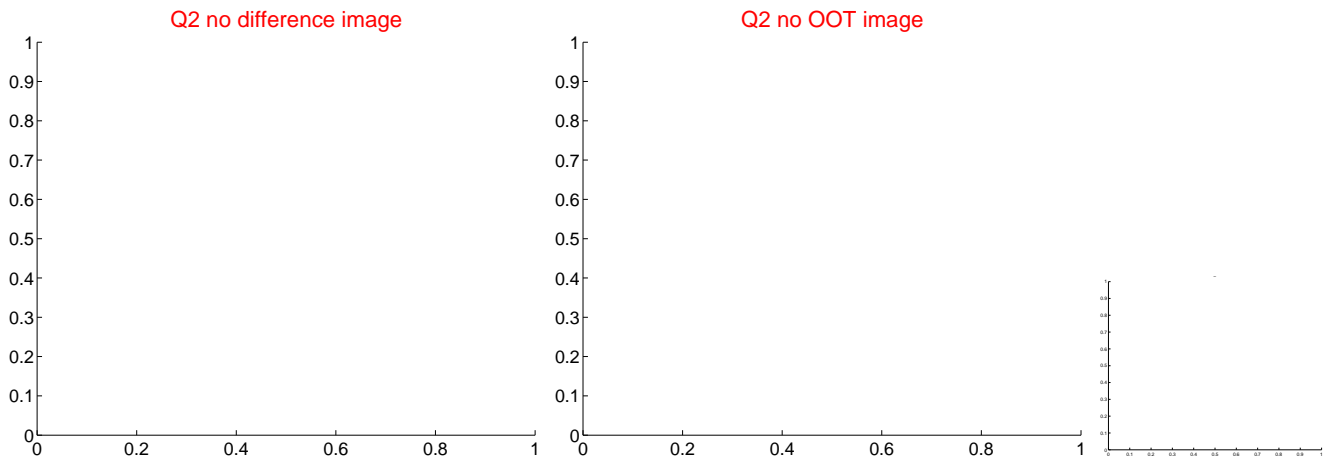
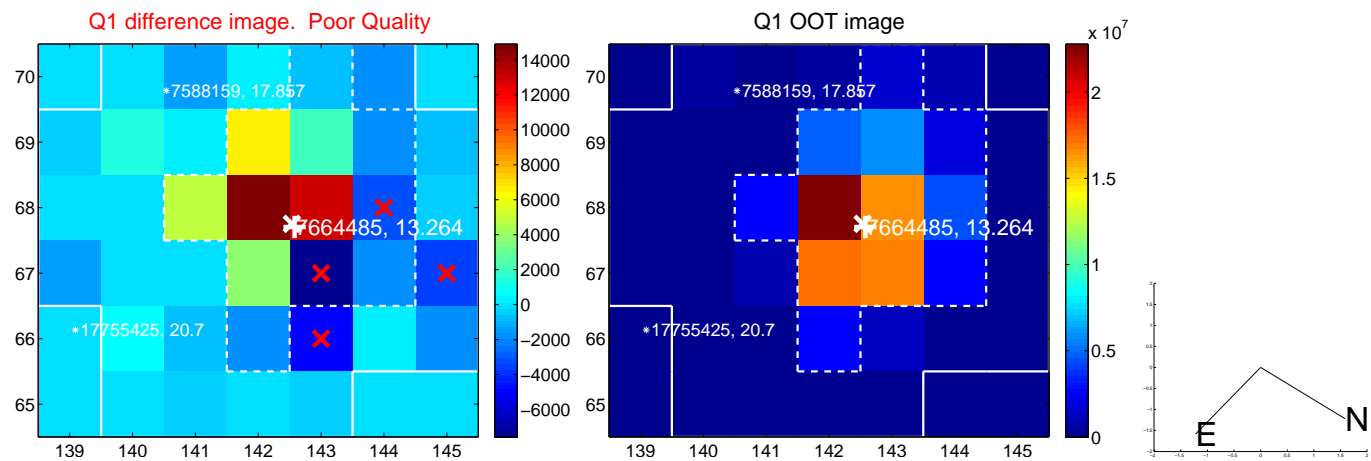
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

|   | Distance in arcsec                  | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|-------------------------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.083 \pm 0.084$                   | 0.99                | $0.036 \pm 0.085$ | $0.075 \pm 0.084$ |
| PRF-fit source offset from KIC position | <b><math>0.573 \pm 0.121</math></b> | <b>4.75</b>         | $0.001 \pm 0.146$ | $0.573 \pm 0.121$ |
| photometric centroid source offset      | $0.50 \pm 0.54$                     | 0.94                | $0.48 \pm 0.54$   | $0.15 \pm 0.53$   |

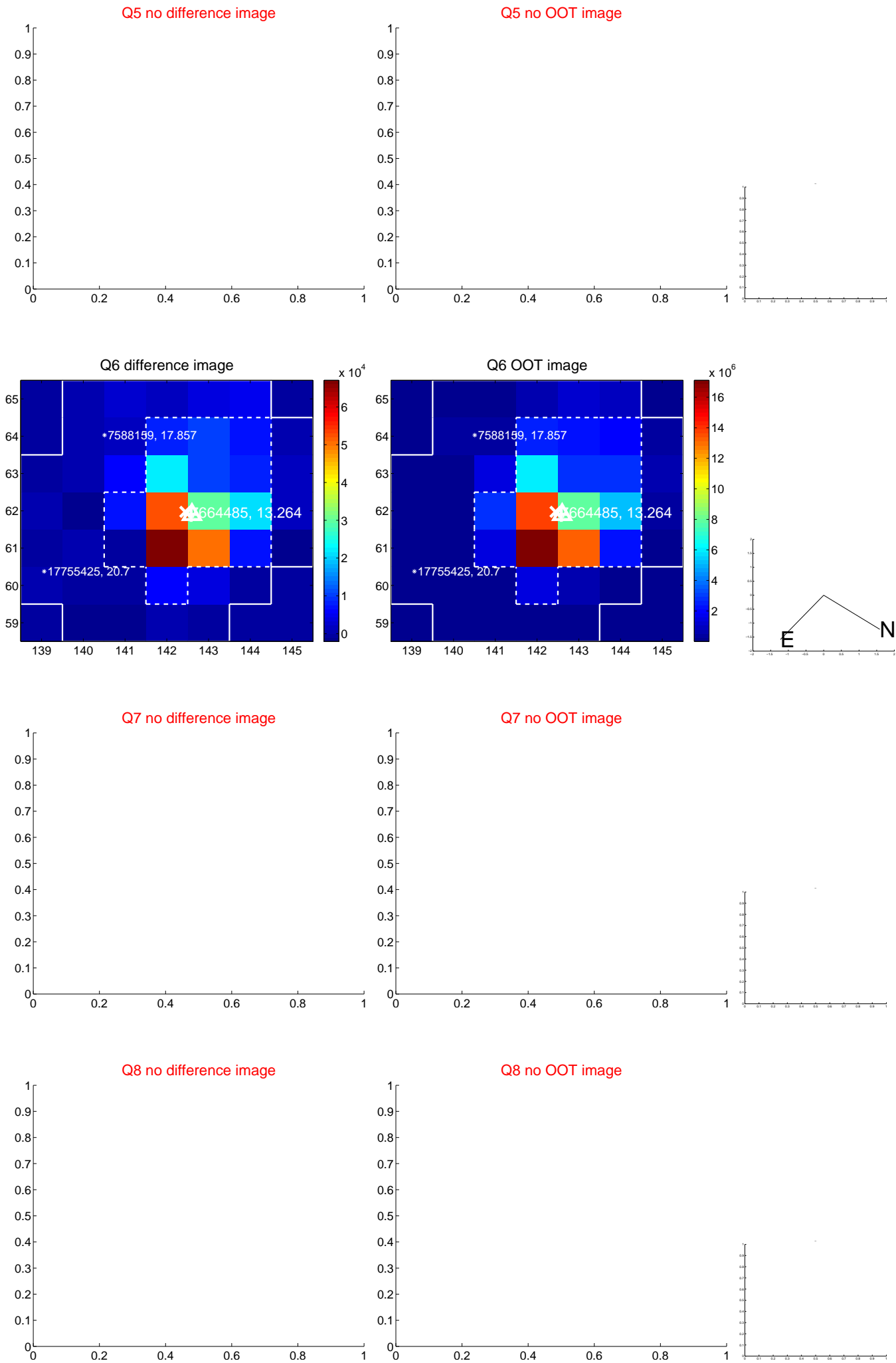


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

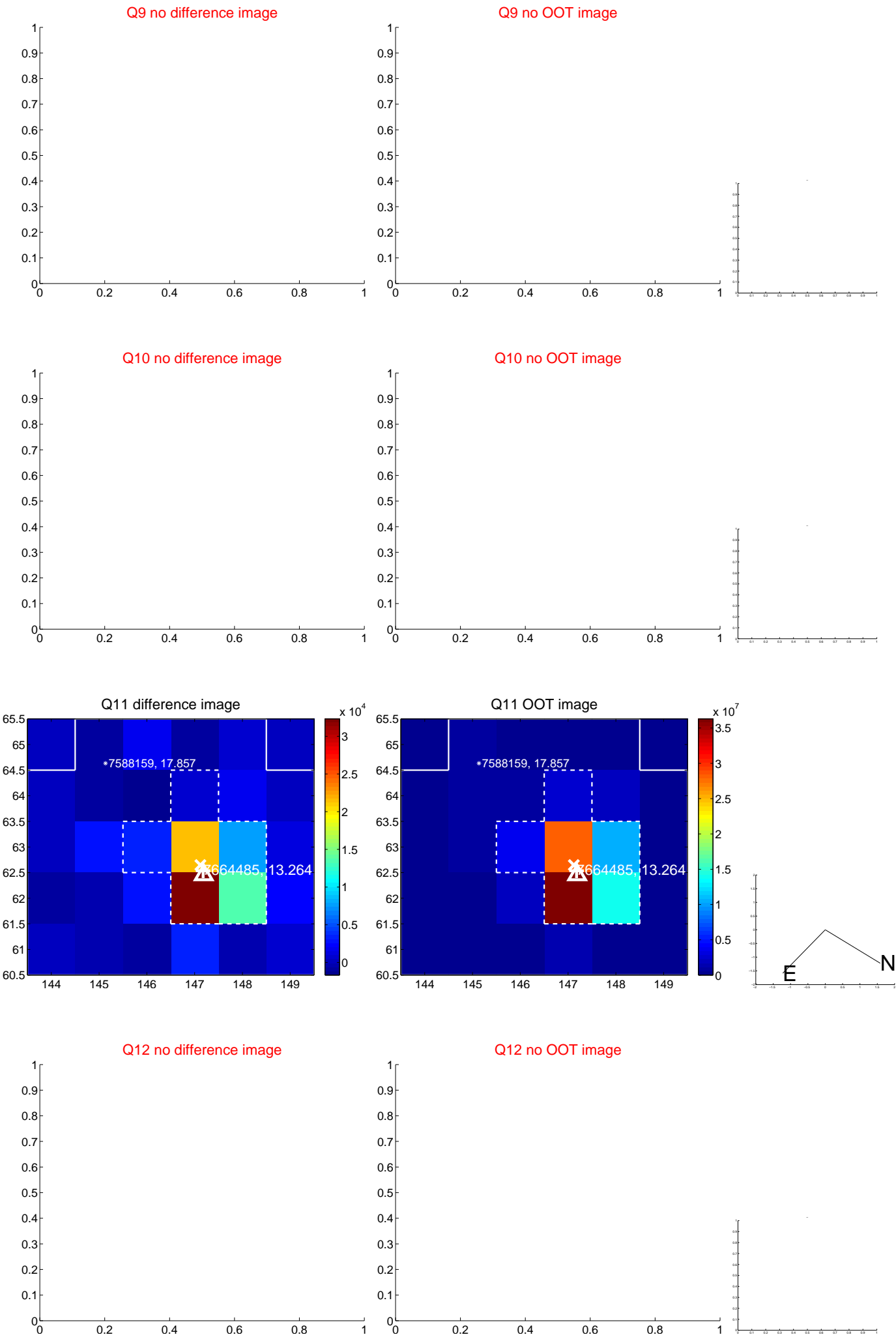


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

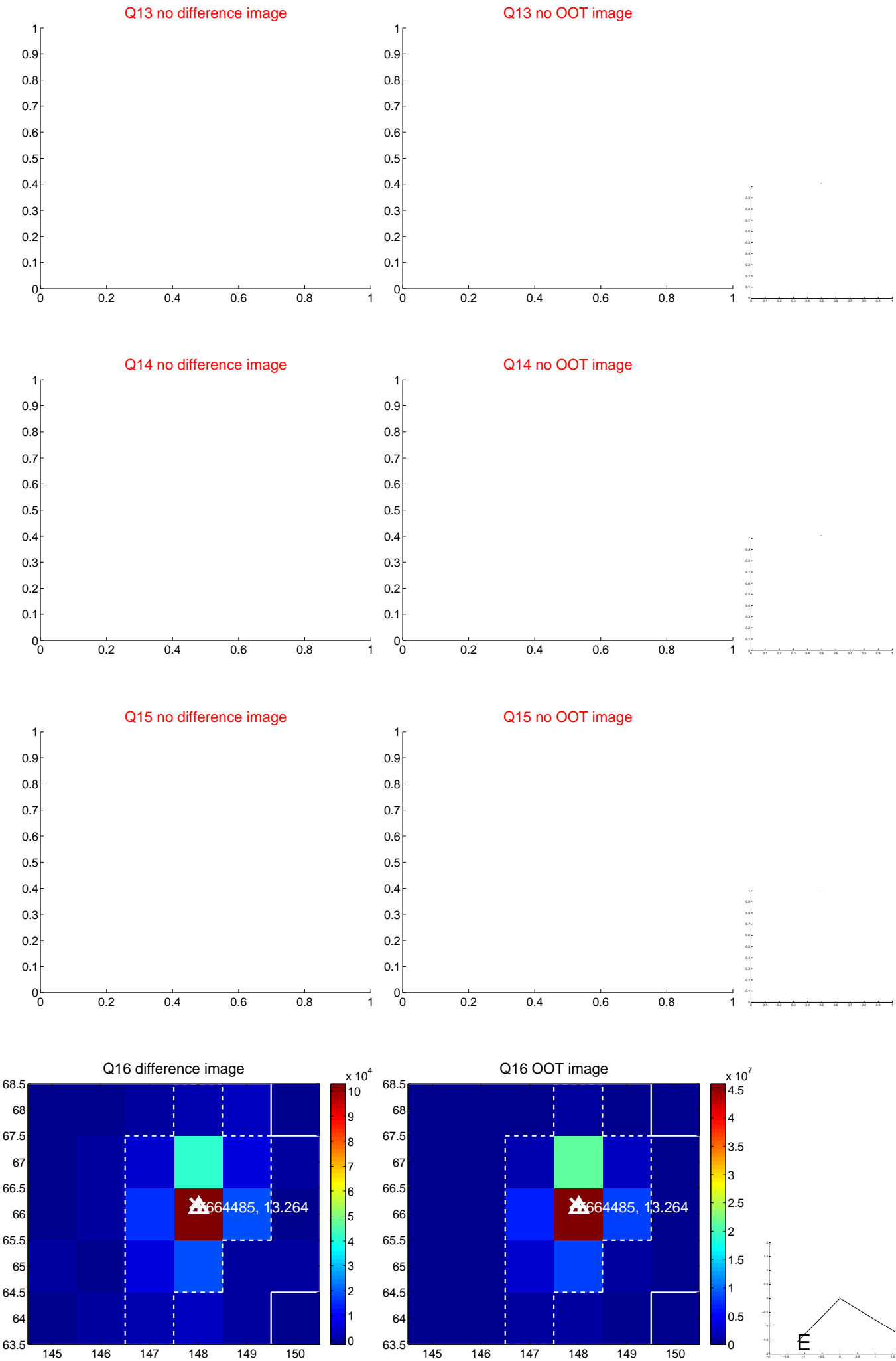




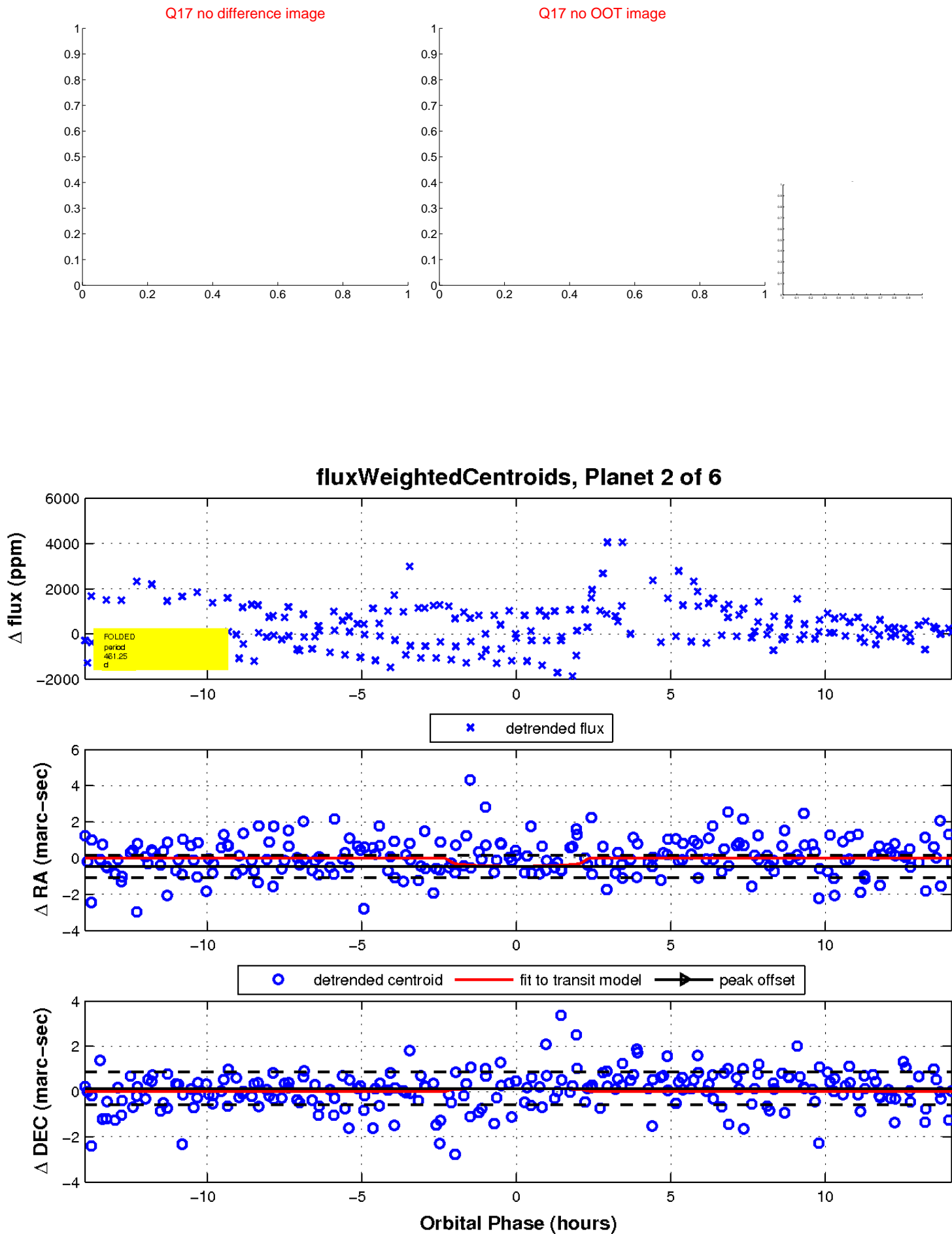
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

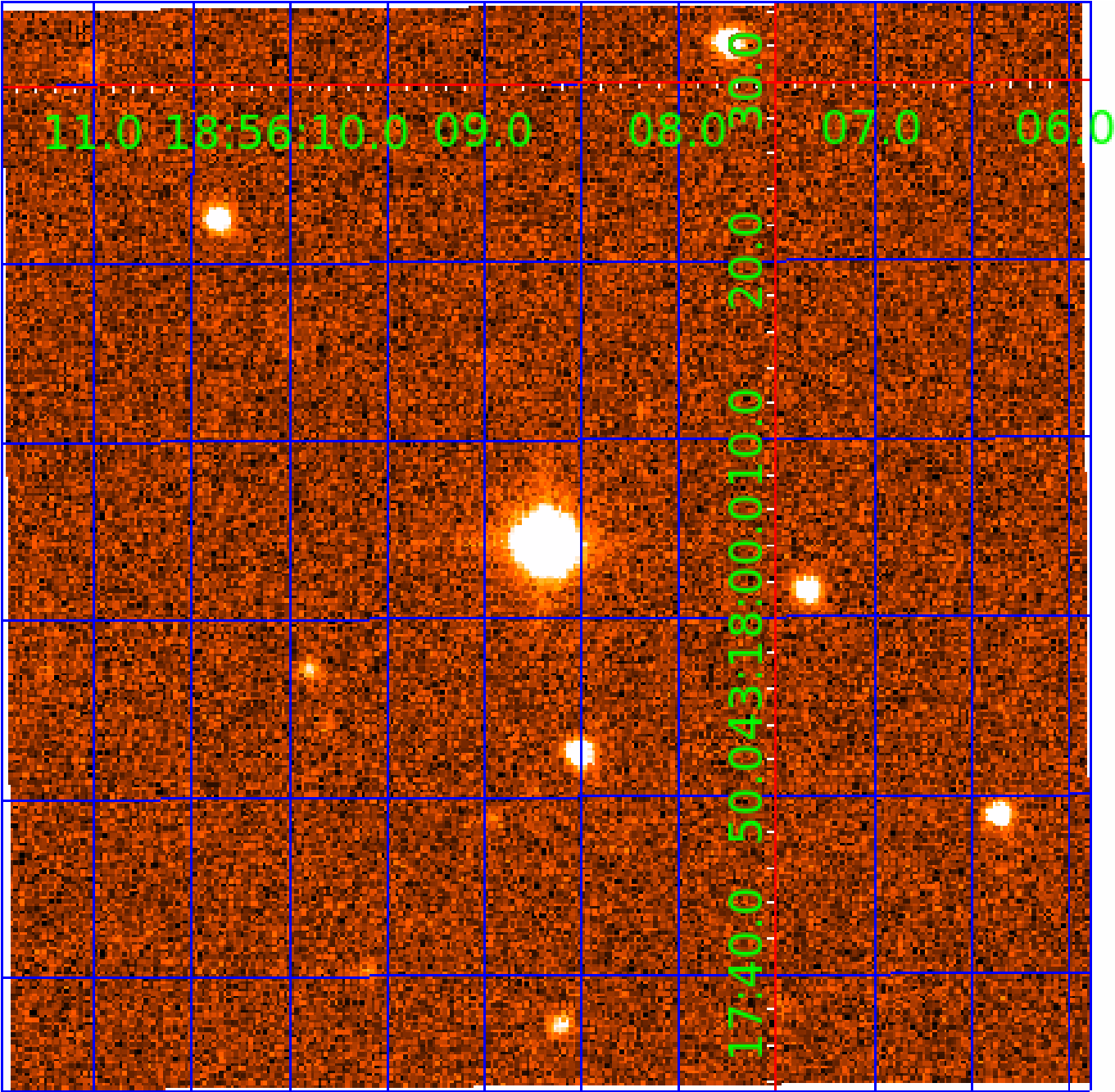


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007664485

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007664485-01 | OBS      | No   | 454.705206    | 284.481808   | 1343.0      | 3.552            | 17.0 | 8.9  | 0.77                        | 5521            | 2.92                   | 0.41                   |
| 007664485-02 | OBS      | No   | 461.249590    | 136.111643   | 879.2       | 4.722            | 15.0 | 7.1  | 0.77                        | 5521            | 2.48                   | 0.40                   |
| 007664485-03 | OBS      | No   | 451.960616    | 541.673274   | 1691.8      | 4.685            | 17.6 | 10.8 | 0.77                        | 5521            | 3.98                   | 0.41                   |
| 007664485-04 | OBS      | No   | 369.594182    | 399.627406   | 2101.4      | 12.365           | 14.9 | 10.1 | 0.77                        | 5521            | 3.48                   | 0.54                   |
| 007664485-05 | OBS      | No   | 376.306100    | 390.884279   | 1699.0      | 10.035           | 15.1 | 8.0  | 0.77                        | 5521            | 3.13                   | 0.53                   |
| 007664485-06 | OBS      | No   | 464.161938    | 159.116733   | 511.8       | 4.500            | 14.0 | -1.0 | 0.77                        | 5521            | 1.72                   | 0.40                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007664485-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS             |
| 007664485-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS |
| 007664485-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS    |
| 007664485-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS   |
| 007664485-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS                              |
| 007664485-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—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.

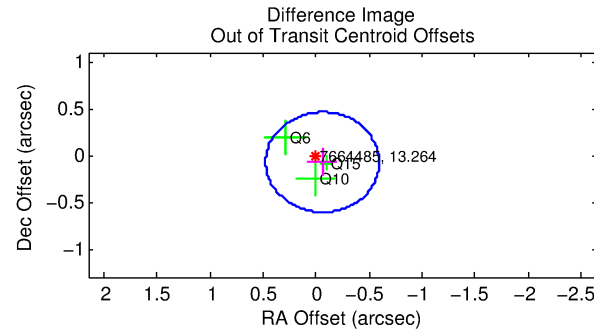
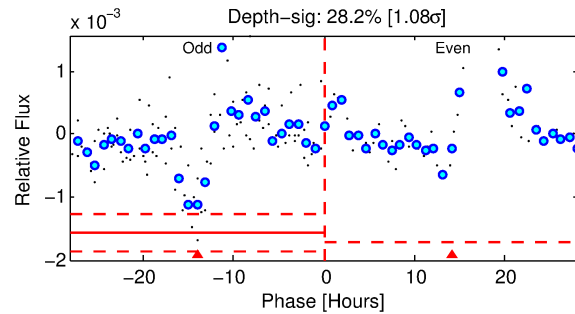
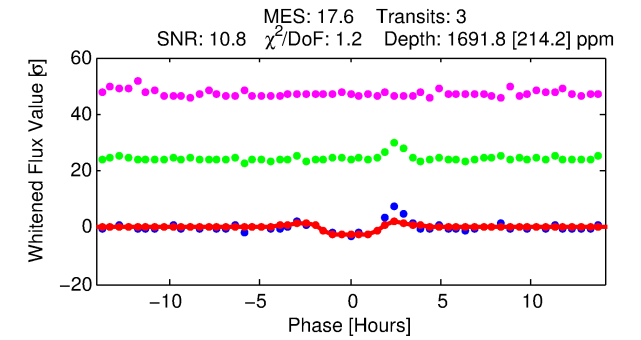
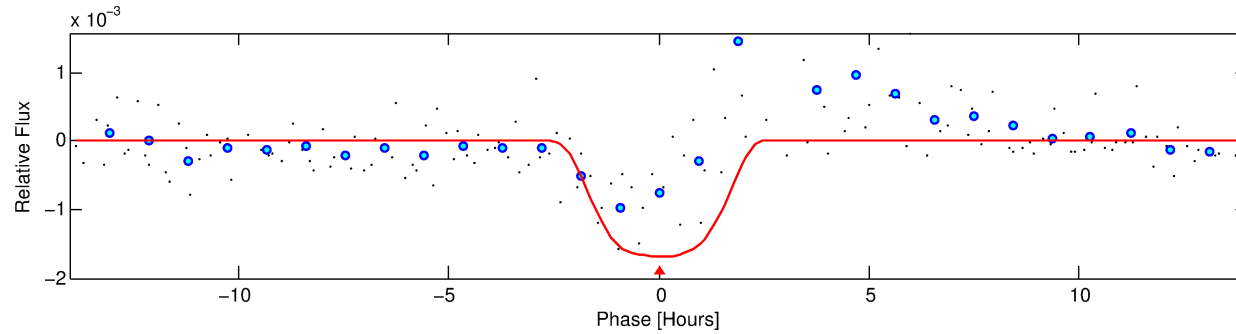
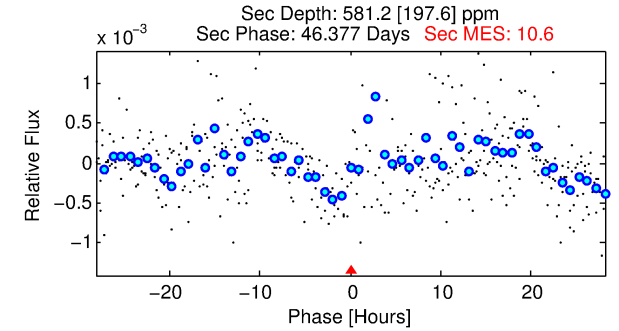
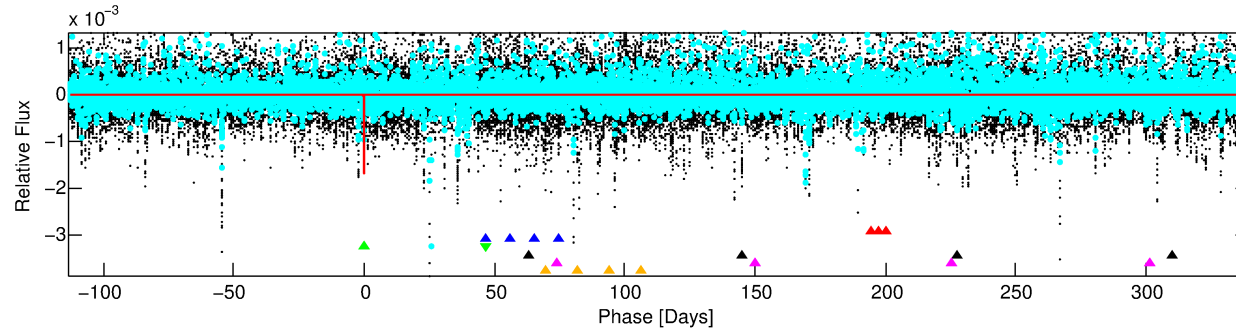
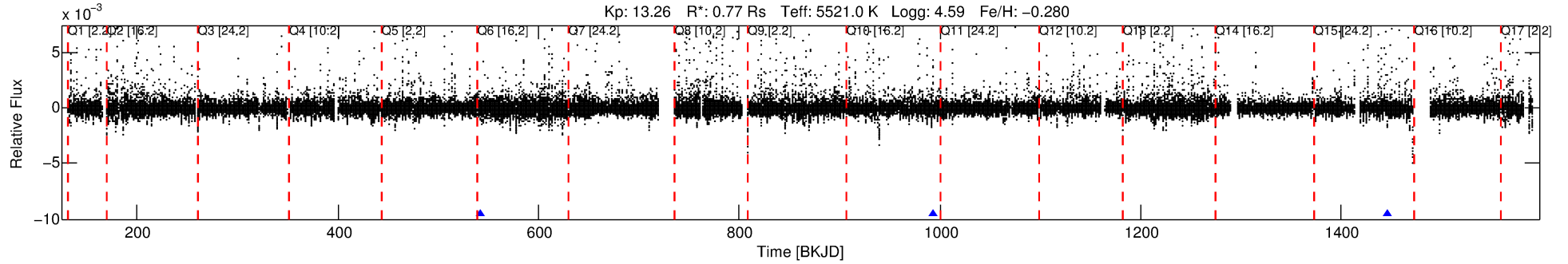
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007664485-03

No Significant Match Found

# DV One-Page Summary

KIC: 7664485 Candidate: 3 of 6 Period: 451.961 d



## DV Fit Results:

Period = 451.96062 [0.00491] d  
Epoch = 541.6733 [0.0078] BKJD  
Rp/R\* = 0.0474 [0.0038]  
a/R\* = 344.39 [47.48]  
b = 0.94 [0.02]  
Seff = 0.41 [0.10]  
Teq = 205 [12] K  
Rp = 3.98 [0.78] Re  
a = 1.0926 [0.1607] AU  
Ag = 24044.67 [10349.76] [2.32 $\sigma$ ]  
**Teffp = 3939 [386] K [9.68 $\sigma$ ]**

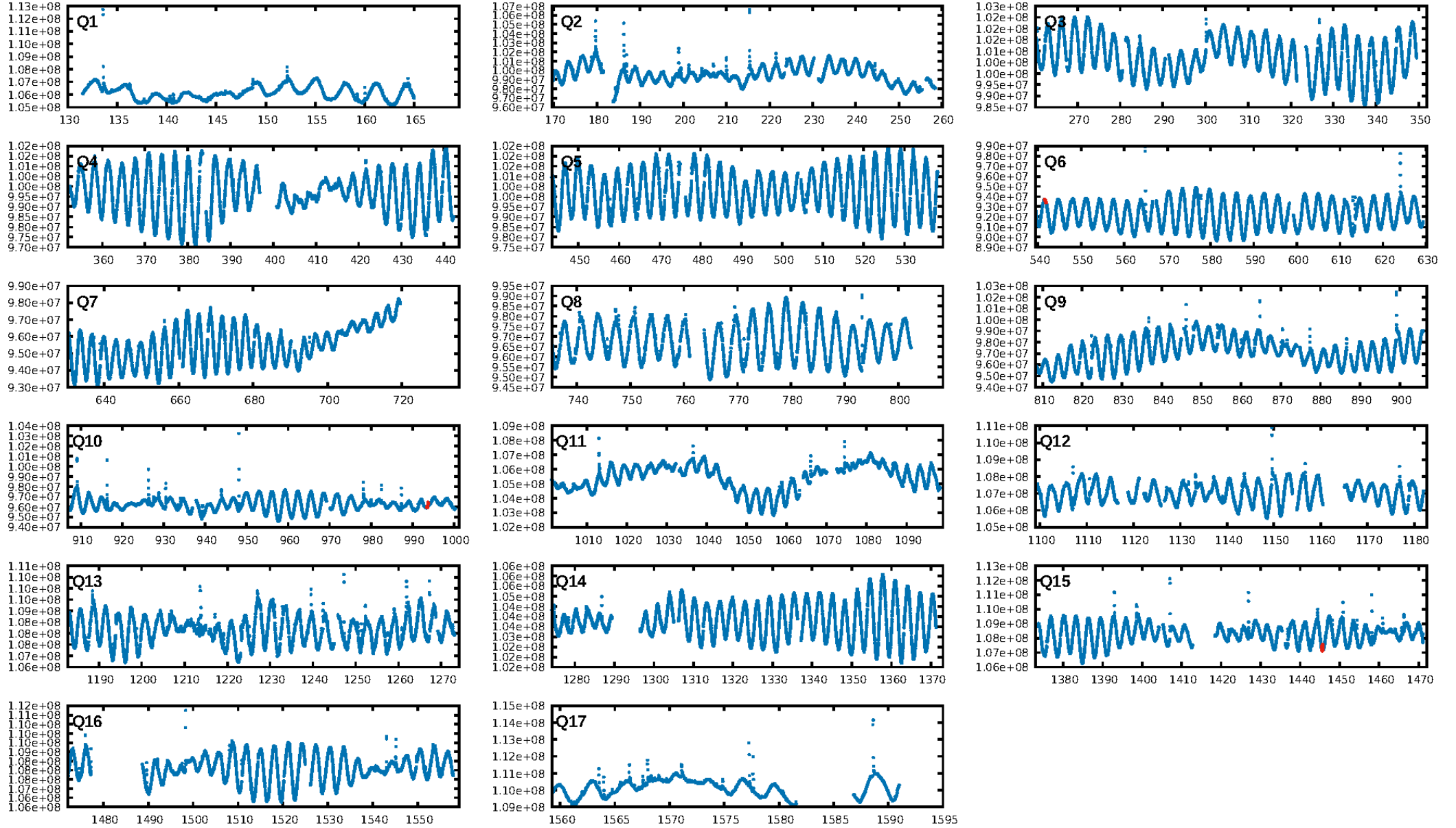
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [163.95 $\sigma$ ]  
LongPeriod-sig: 100.0% [11.20 $\sigma$ ]  
ModelChiSquare2-sig: 0.3%  
ModelChiSquareGof-sig: 88.2%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.33  
Centroid-sig: 70.9%  
Centroid-so: 0.413 arcsec [1.12 $\sigma$ ]  
OotOffset-rm: 0.094 arcsec [0.53 $\sigma$ ]  
OotOffset-st: 2/1/0/0 [3]  
**KicOffset-rm: 0.503 arcsec [4.44 $\sigma$ ]**  
KicOffset-st: 2/1/0/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:24:01 Z

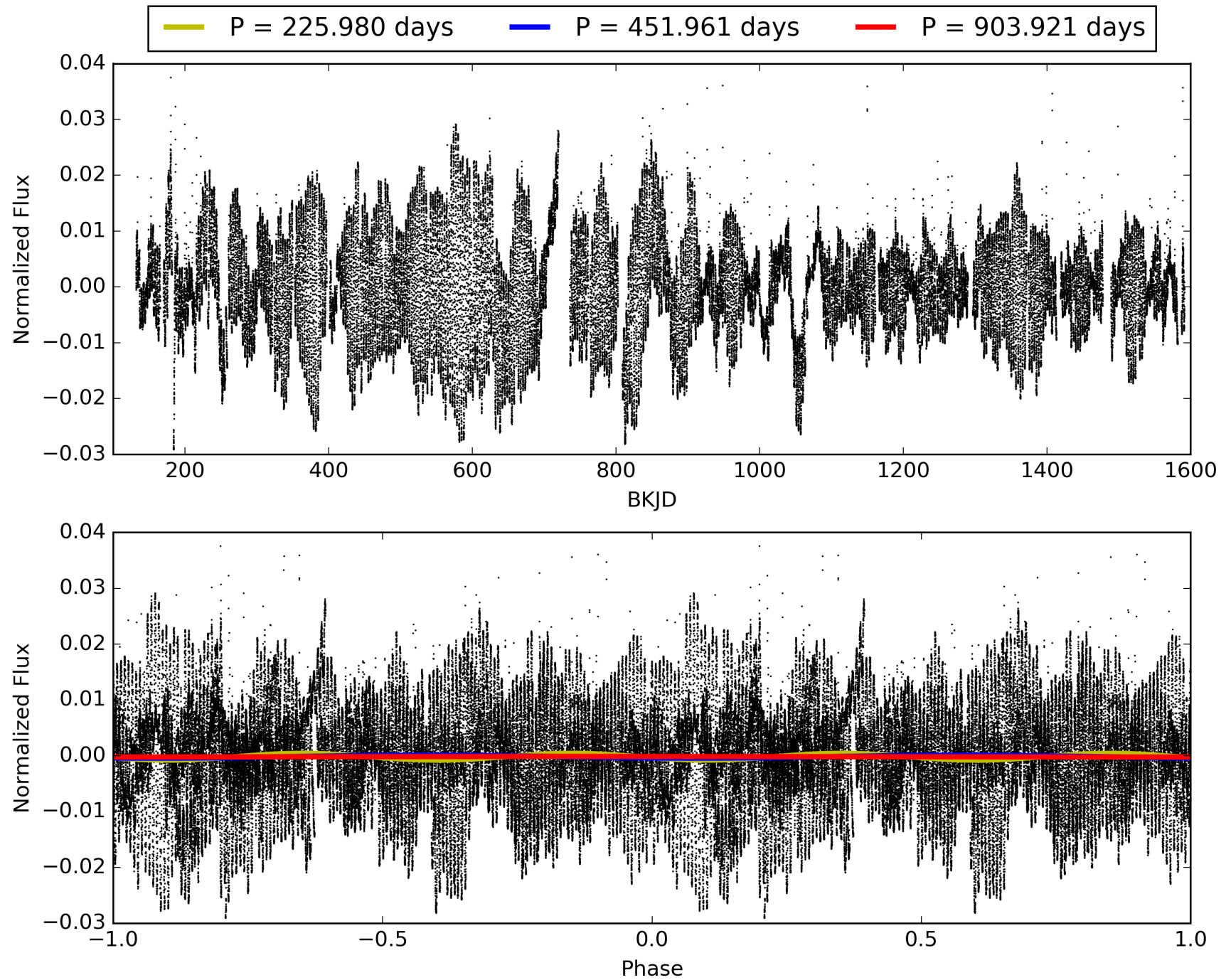
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007664485-03, PDC Light Curves





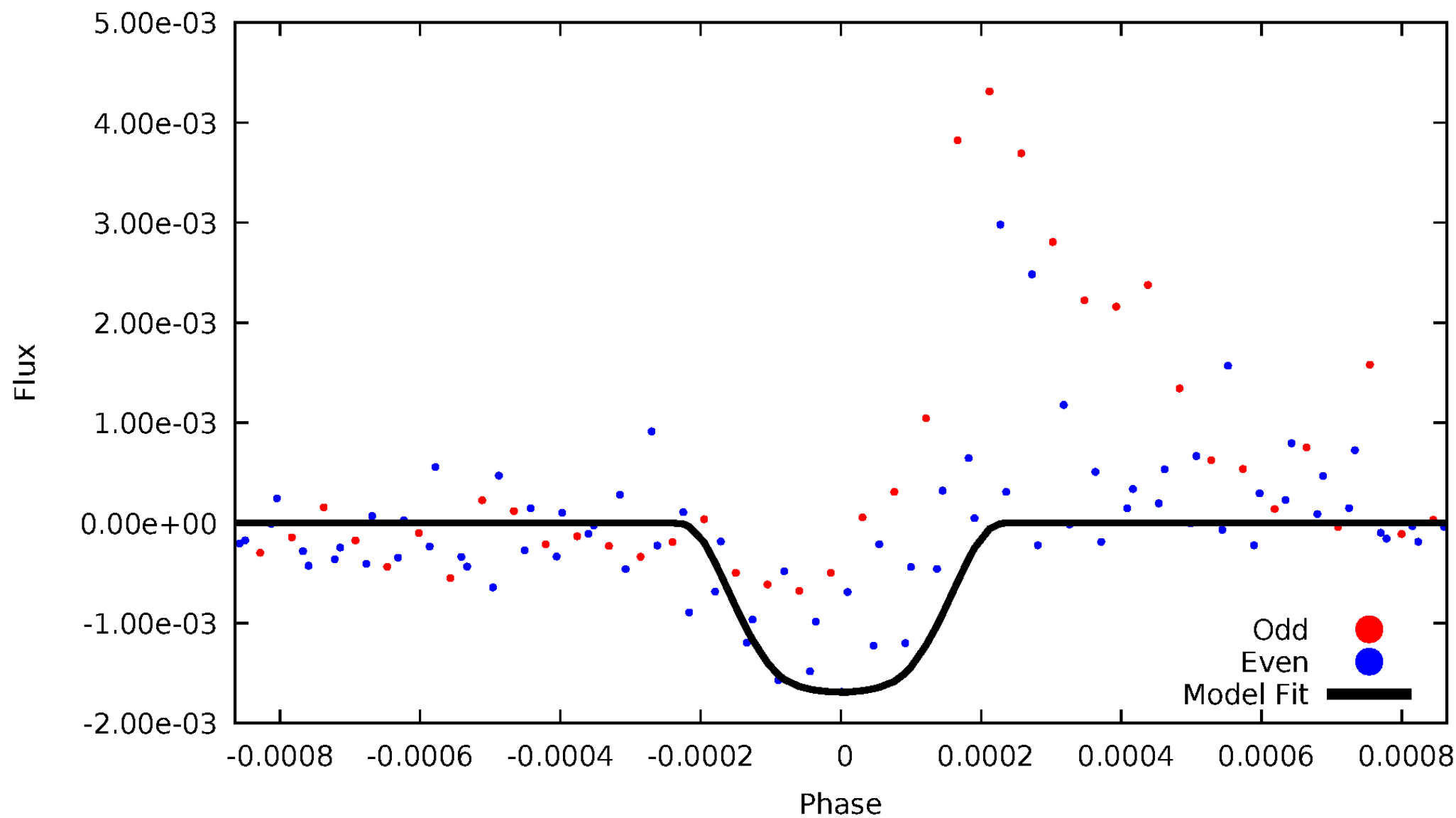
TCE 007664485-03





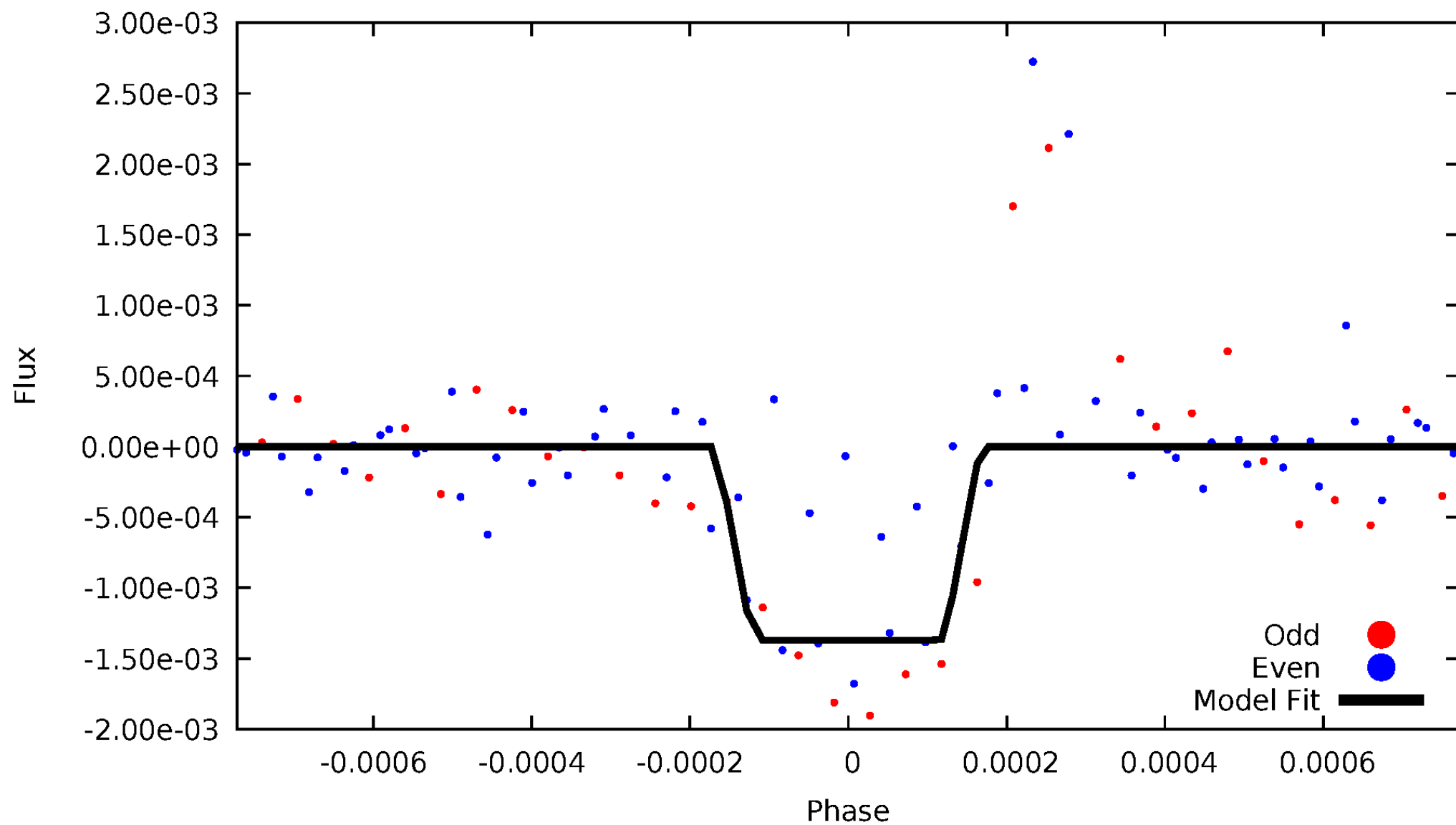
# DV Odd/Even

TCE 007664485-03



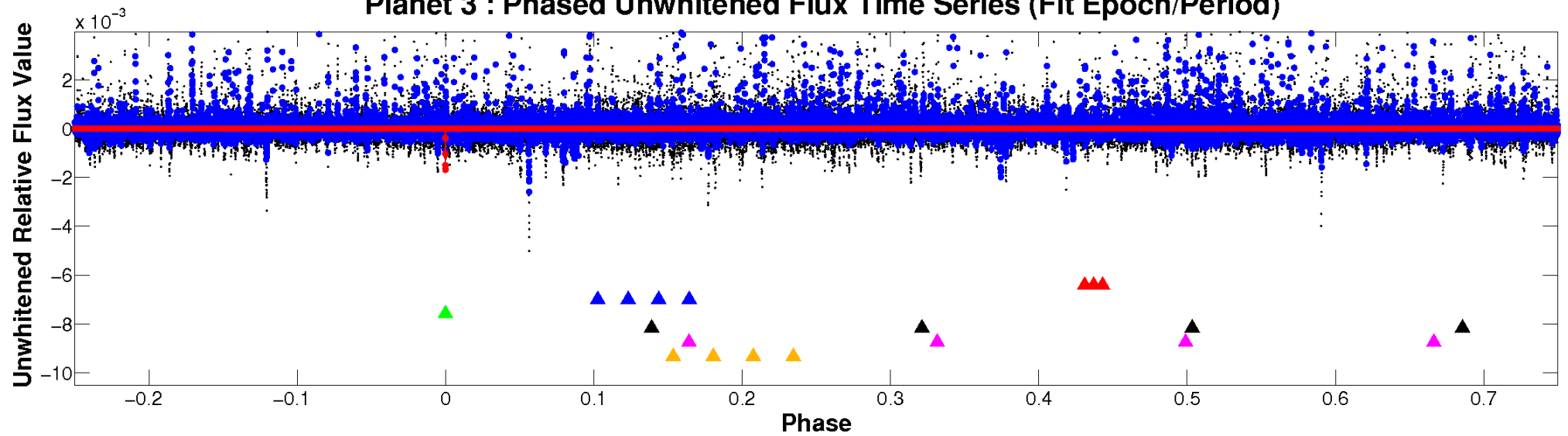
# ALT Odd/Even

TCE 007664485-03

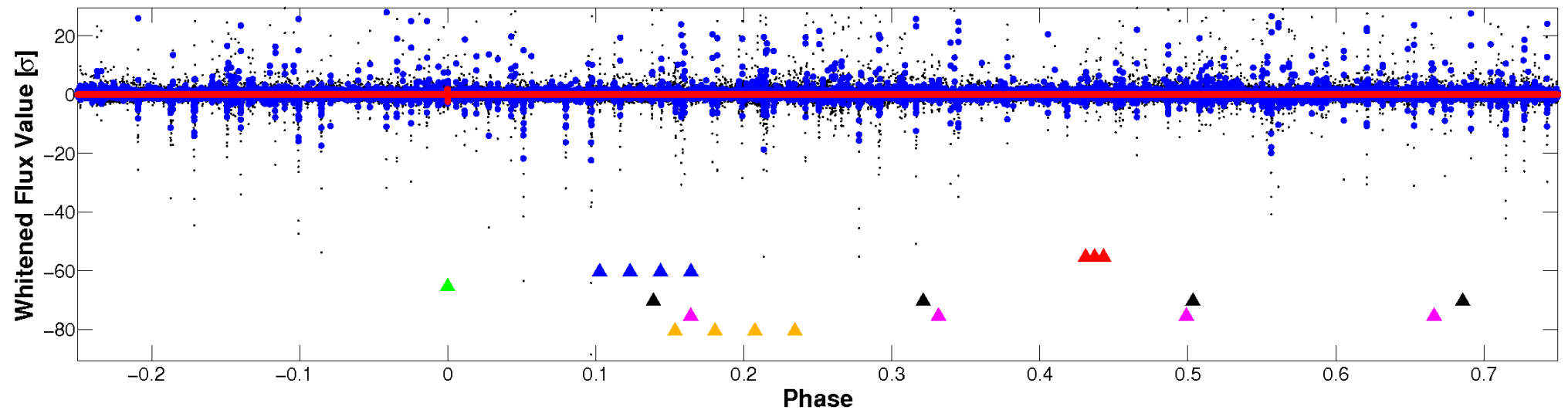


# Non-Whitened Vs. Whitened Light Curve

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

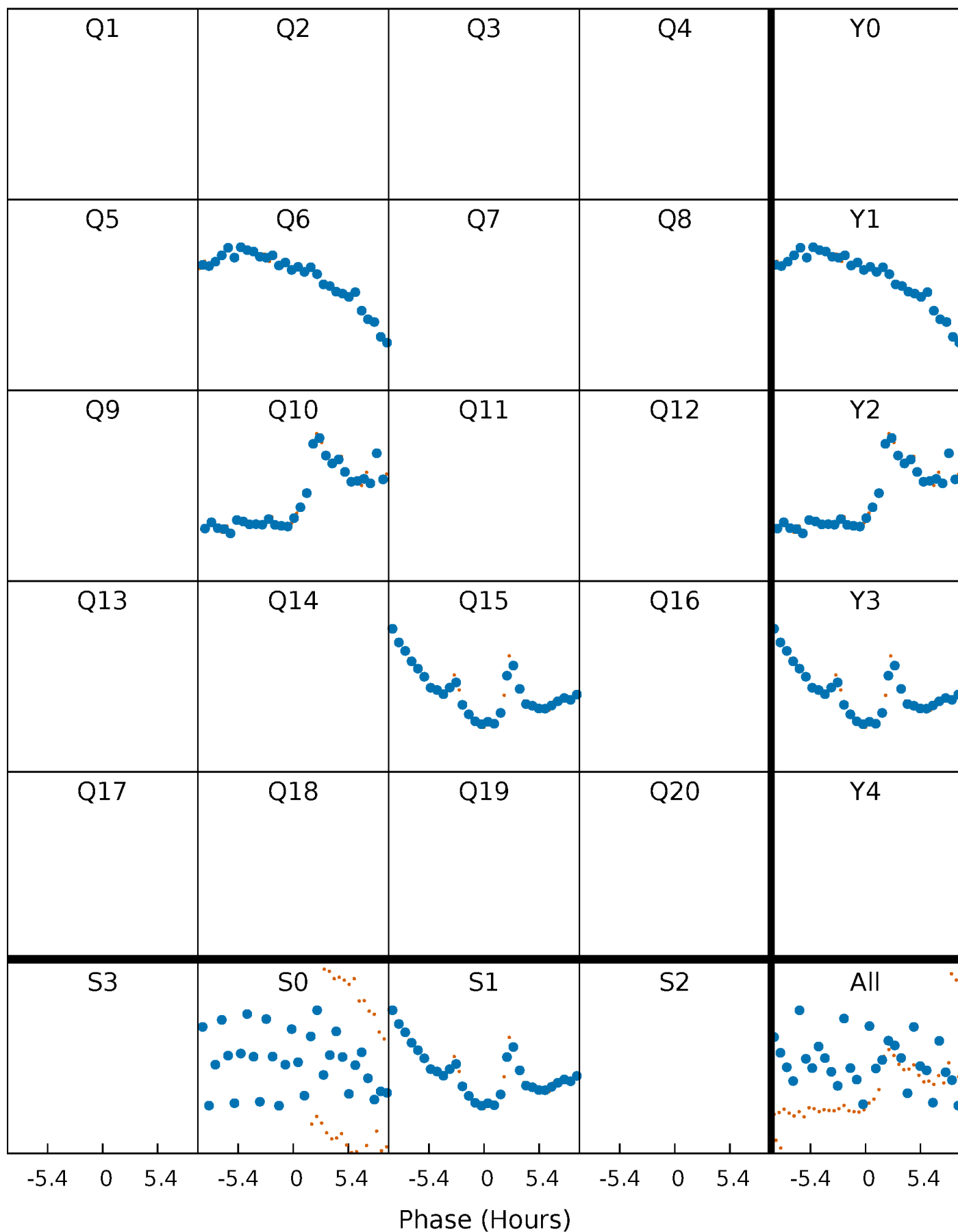


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



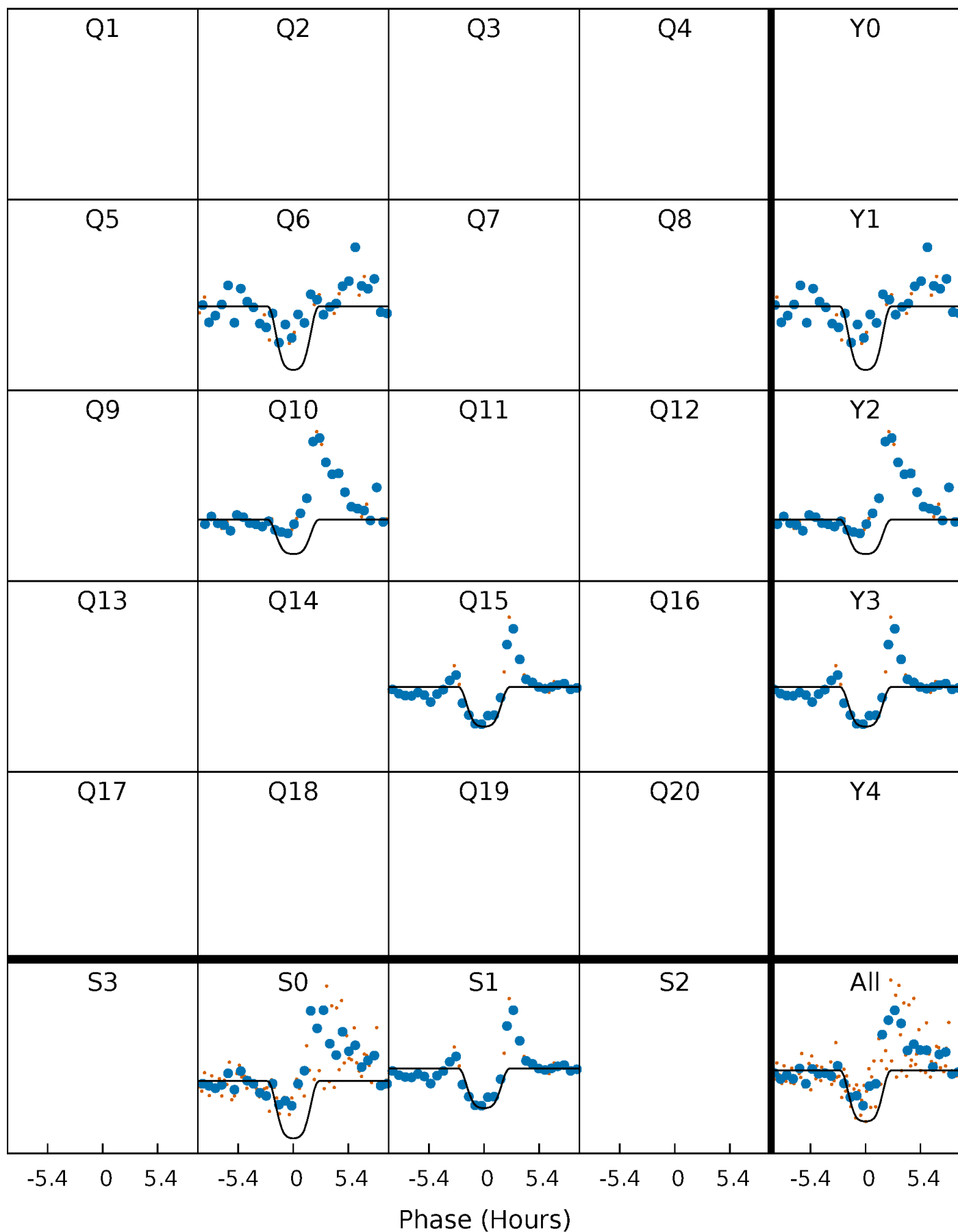
# PDC Quarter-Phased Transit Curves

TCE 007664485-03 P=451.960616 Days  $T_0=541.673274$  (BKJD)



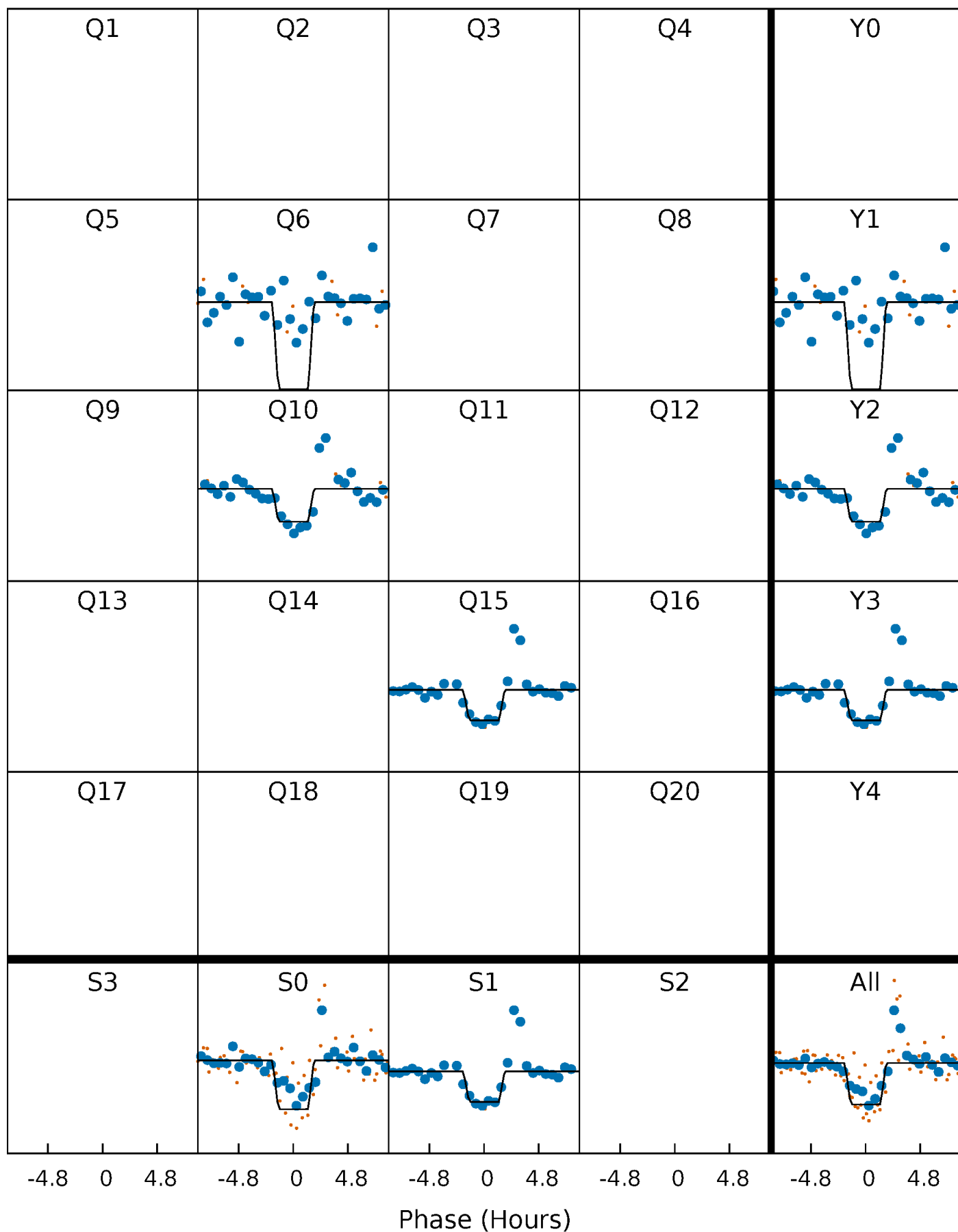
# DV Quarter-Phased Transit Curves

TCE 007664485-03   P=451.960616 Days    $T_0=541.673274$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

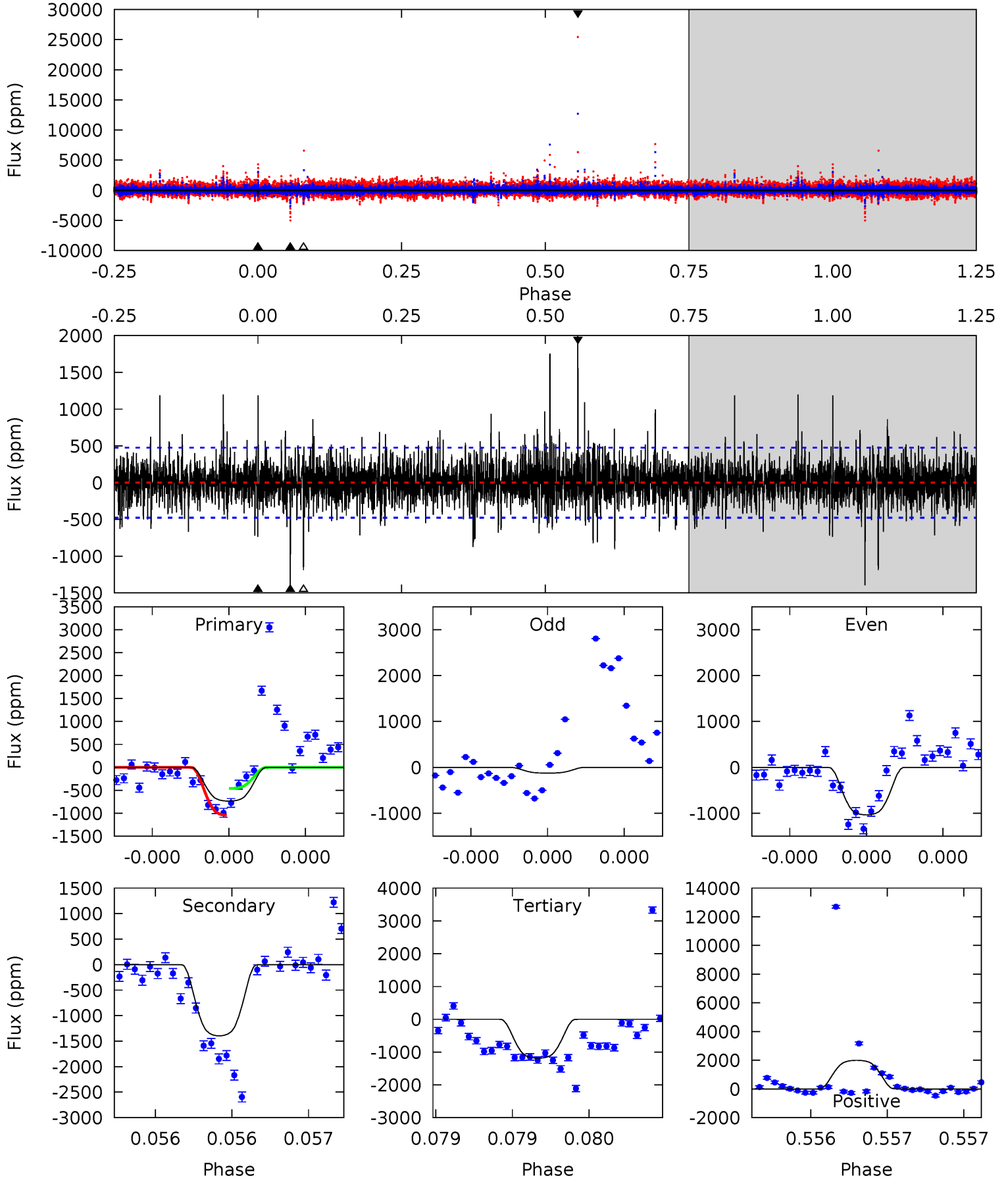
TCE 007664485-03 P=451.976725 Days  $T_0=541.638375$  (BKJD)



# DV Model-Shift Uniqueness Test

007664485-03, P = 451.960616 Days, E = 89.712658 Days

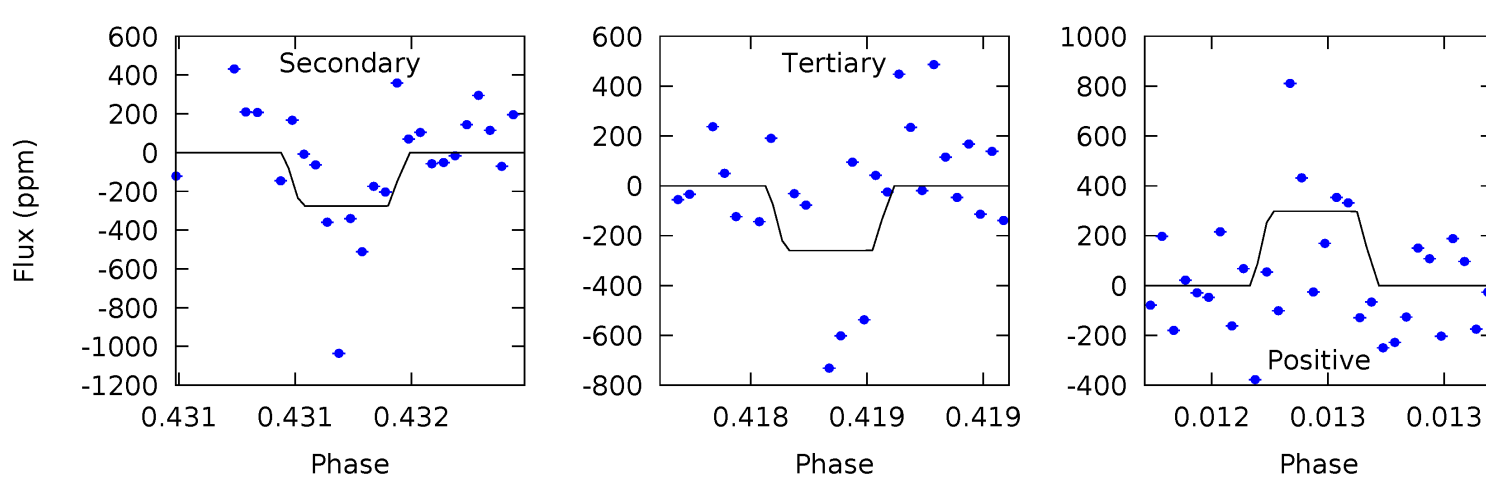
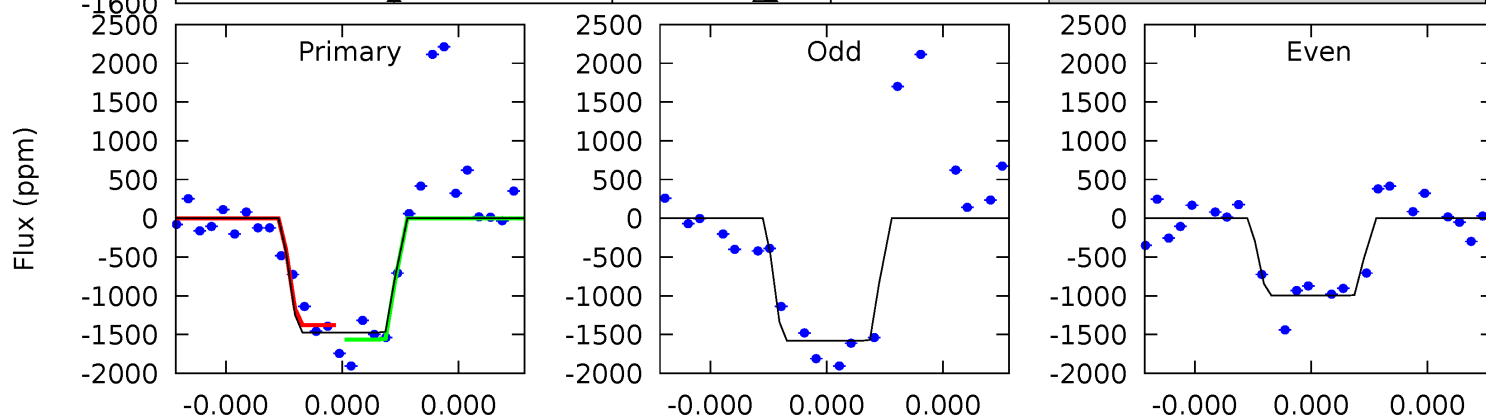
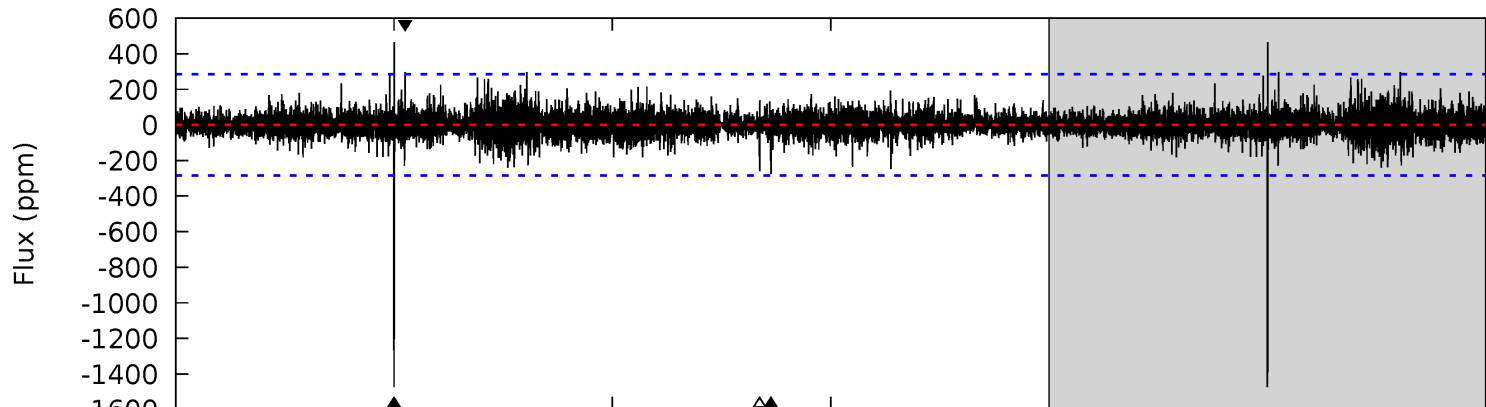
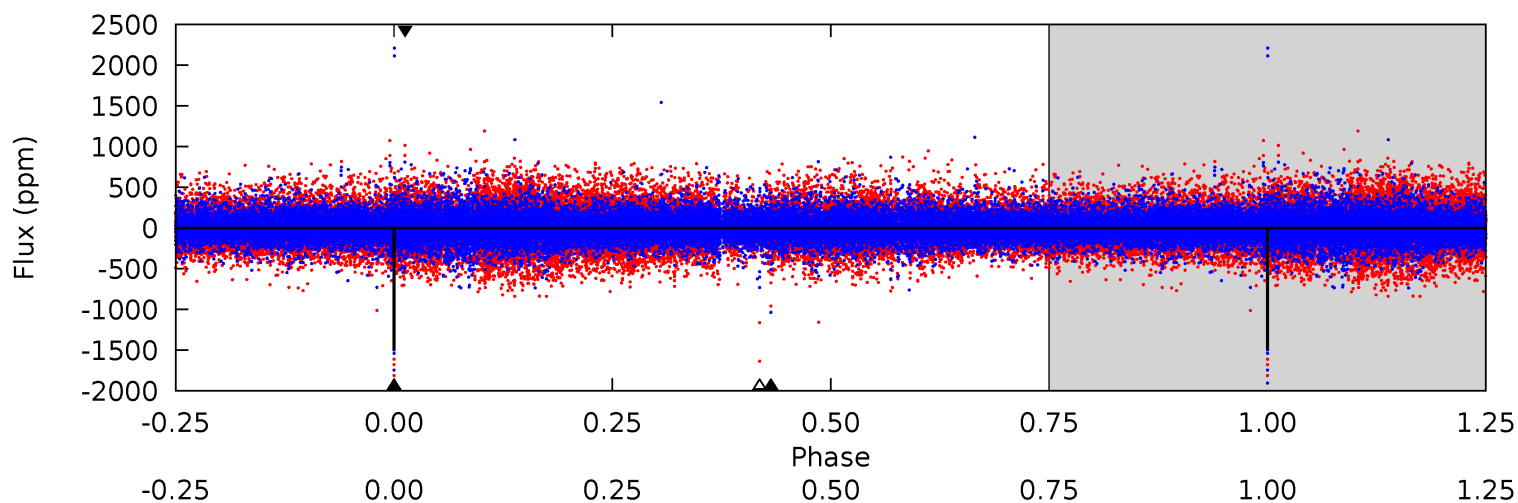
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.63 | 16.4 | 13.9 | 23.4 | 5.58            | 3.50            | 2.36             | -5.30   | -14.8   | 2.46    | -7.01   | 2.77    | 1.07 | 0.59  | 3.44 |



# Alt Model-Shift Uniqueness Test

007664485-03, P = 451.976725 Days, E = 89.661650 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 |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 29.2 | 5.49 | 5.16 | 5.92 | 5.65            | 3.60            | 0.95             | 24.1    | 23.3    | 0.33    | -0.43   | 5.28    | 0.77 | 0.24  | 0   |





### Stellar Parameters For KIC 007664485

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5521^{+150}_{-150}$ | $4.594^{+0.040}_{-0.112}$ | $-0.280^{+0.300}_{-0.300}$ | $0.771^{+0.138}_{-0.069}$ | $0.864^{+0.072}_{-0.109}$ | $2.650^{+0.520}_{-0.956}$                 |
|        | +3%/-3%              | +1%/-2%                   | +107%/-107%                | +18%/-9%                  | +8%/-13%                  | +20%/-36%                                 |
| 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 007664485-03 / KOI

| Detrend | Depth (ppm)    | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | $A_{\text{obs}}$          |
|---------|----------------|------------------------|----------------------|----------------------|---------------------------|
| DV      | $-1397 \pm 85$ | $4.09^{+0.47}_{-0.39}$ | $289^{+12}_{-11}$    | $4959^{+223}_{-199}$ | $54537^{+11739}_{-10474}$ |
| Alt.    | $-276 \pm 50$  | $3.22^{+0.41}_{-0.37}$ | $290^{+12}_{-11}$    | $3986^{+222}_{-207}$ | $17307^{+5835}_{-4755}$   |

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

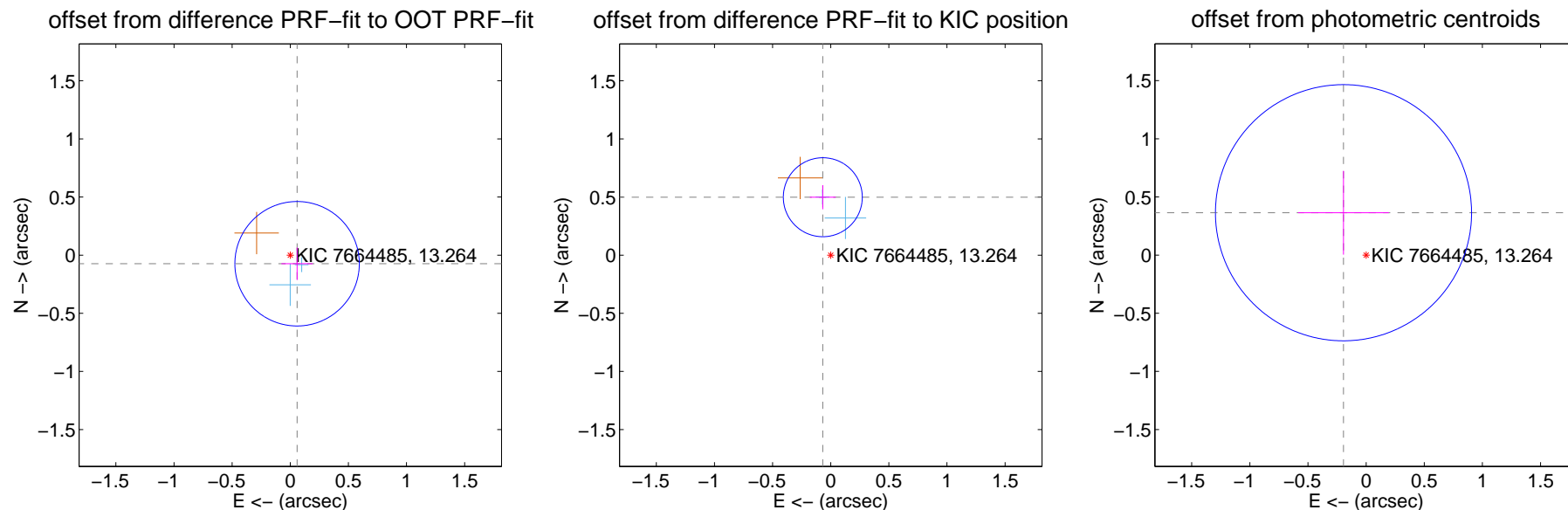
## DV Centroid Data

Supplemental centroid analysis for 007664485-03. Kepler magnitude: 13.26. Transit SNR 10.83

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.094 \pm 0.178$  | 0.53                | $-0.059 \pm 0.135$ | $-0.074 \pm 0.140$ |
| PRF-fit source offset from KIC position | $0.503 \pm 0.113$  | 4.44                | $0.068 \pm 0.111$  | $0.498 \pm 0.104$  |
| photometric centroid source offset      | $0.41 \pm 0.37$    | 1.12                | $0.19 \pm 0.39$    | $0.36 \pm 0.36$    |

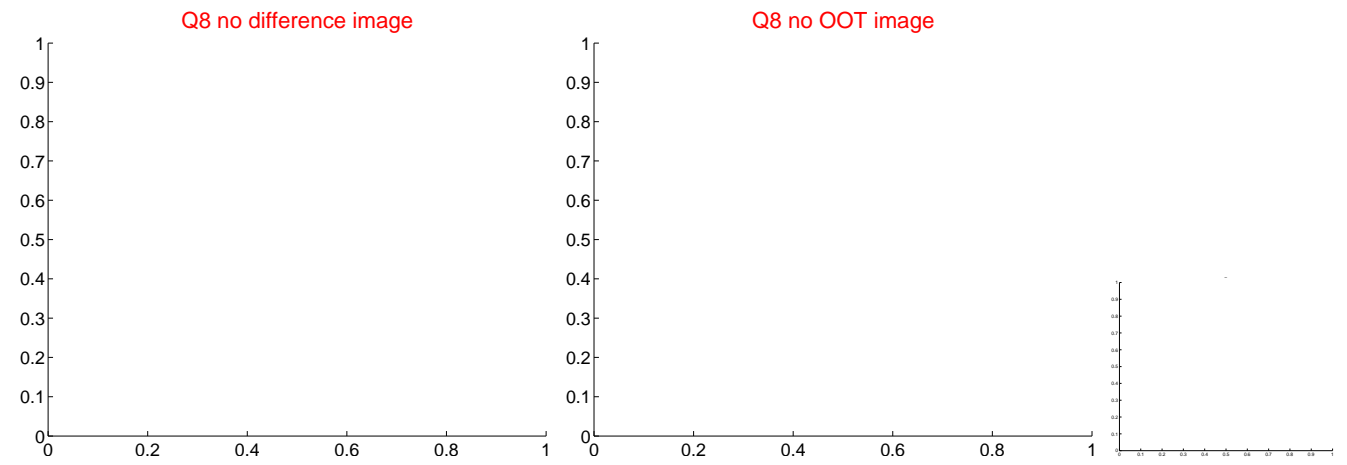
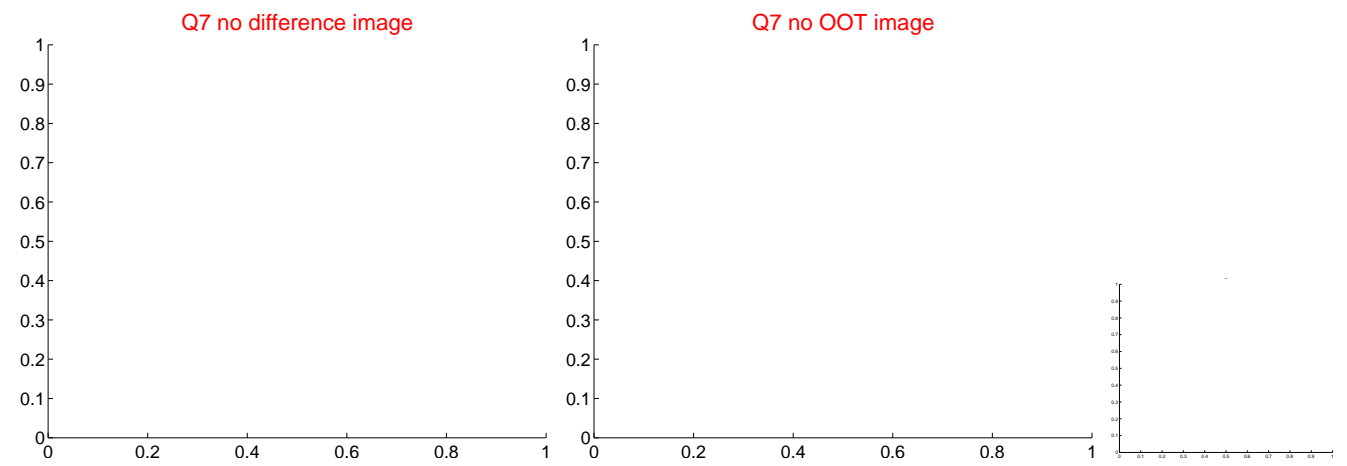
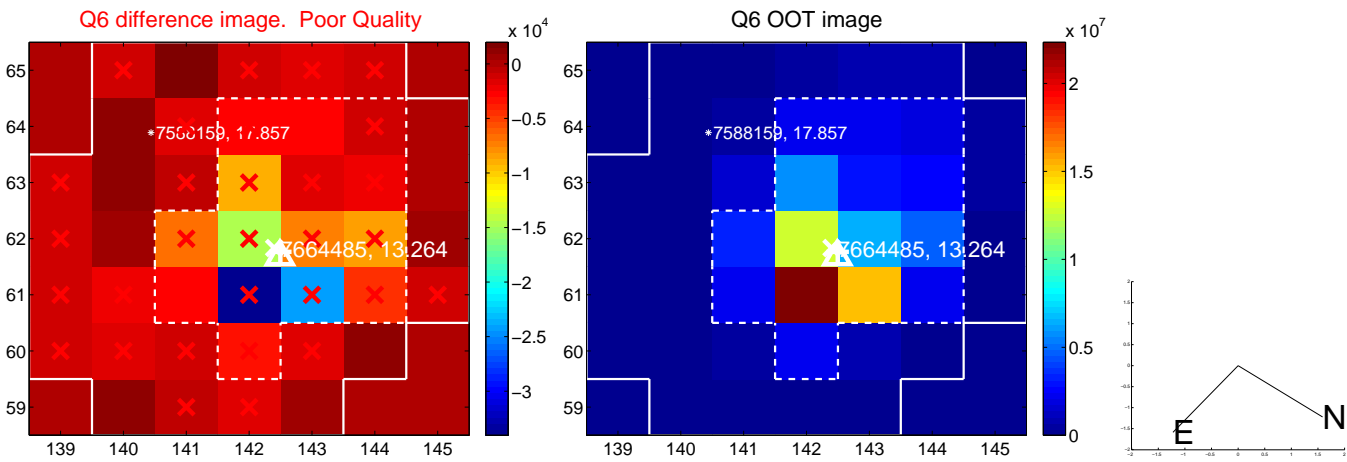
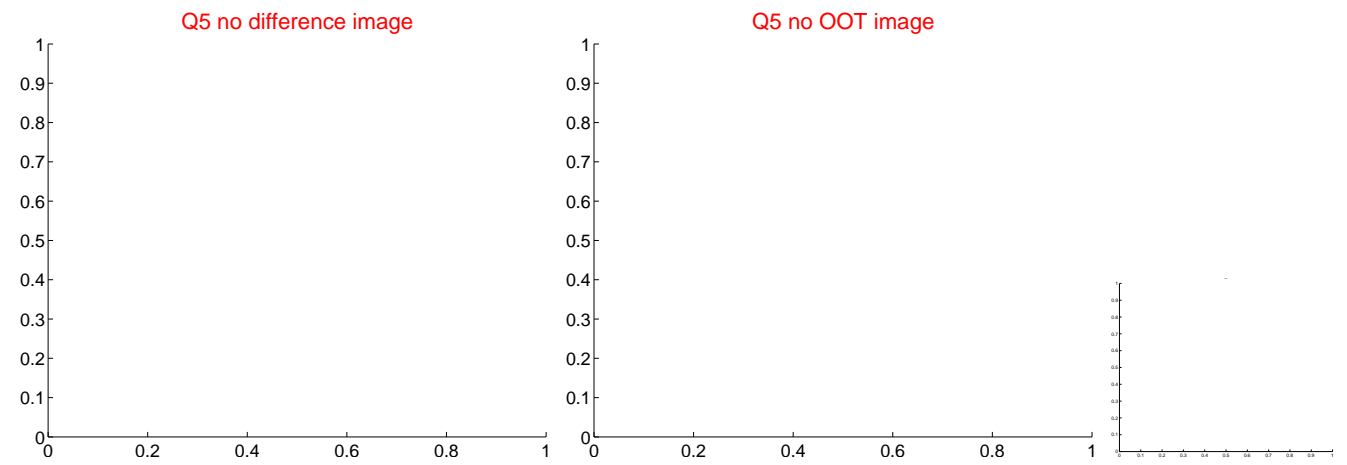


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

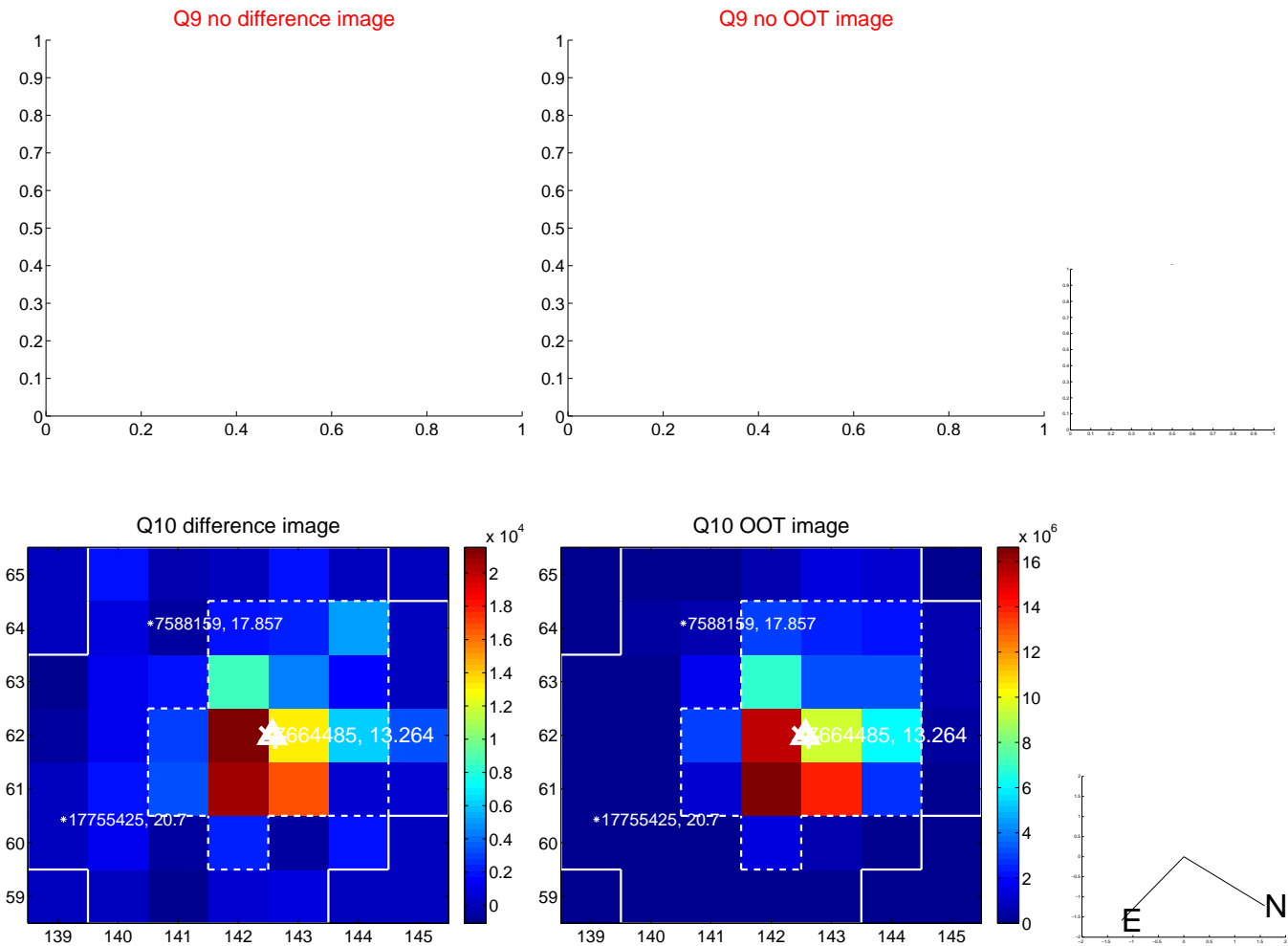
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



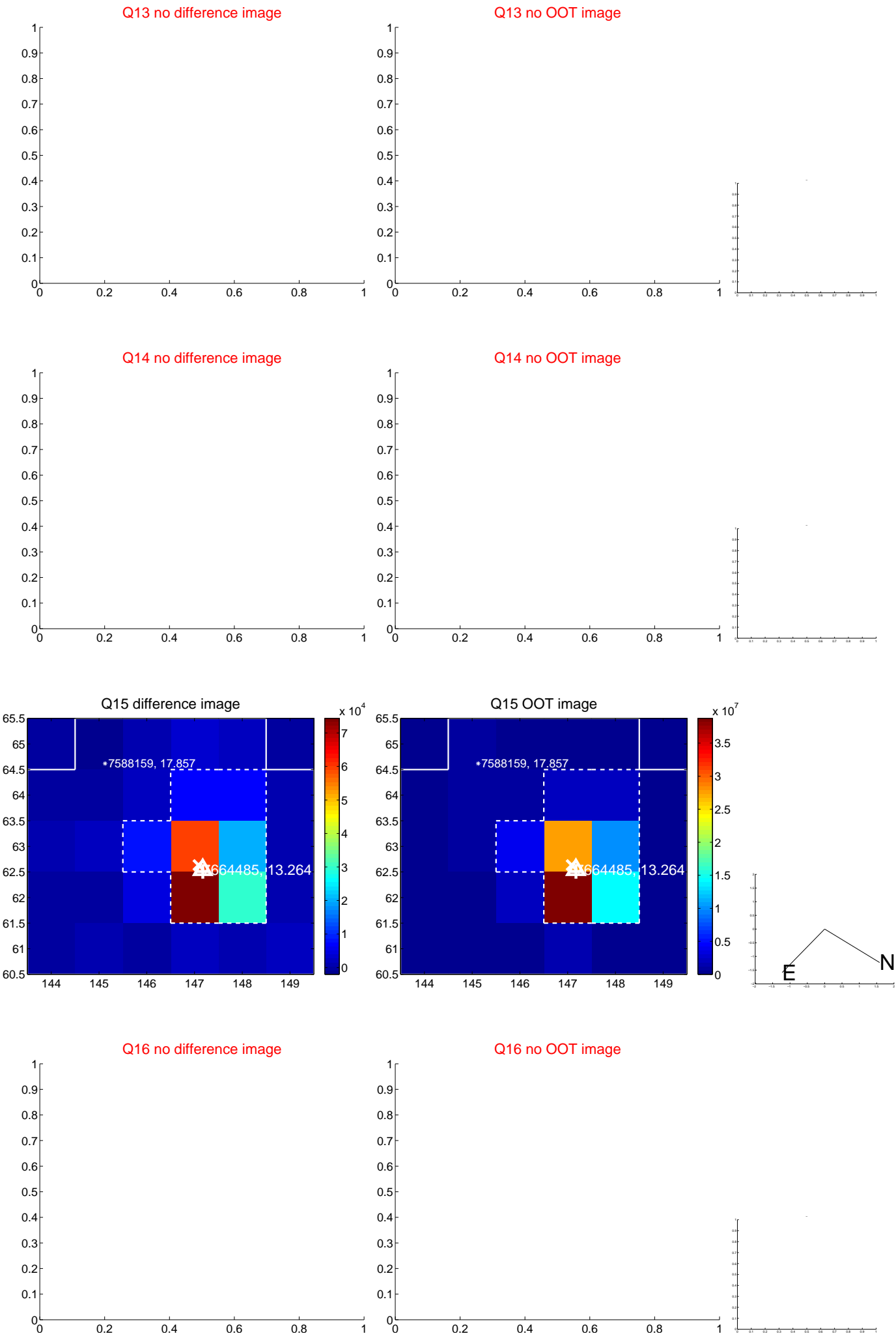
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



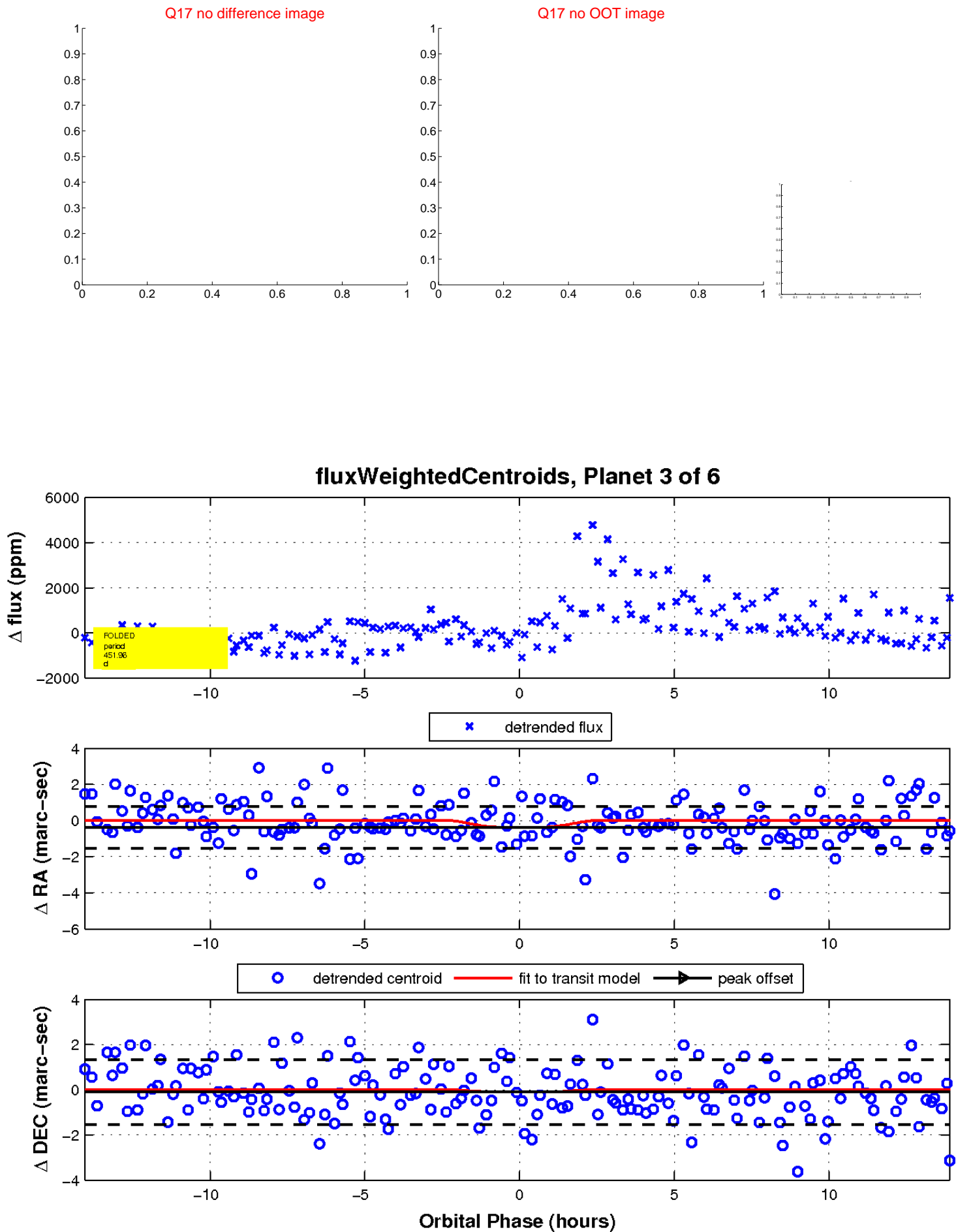
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

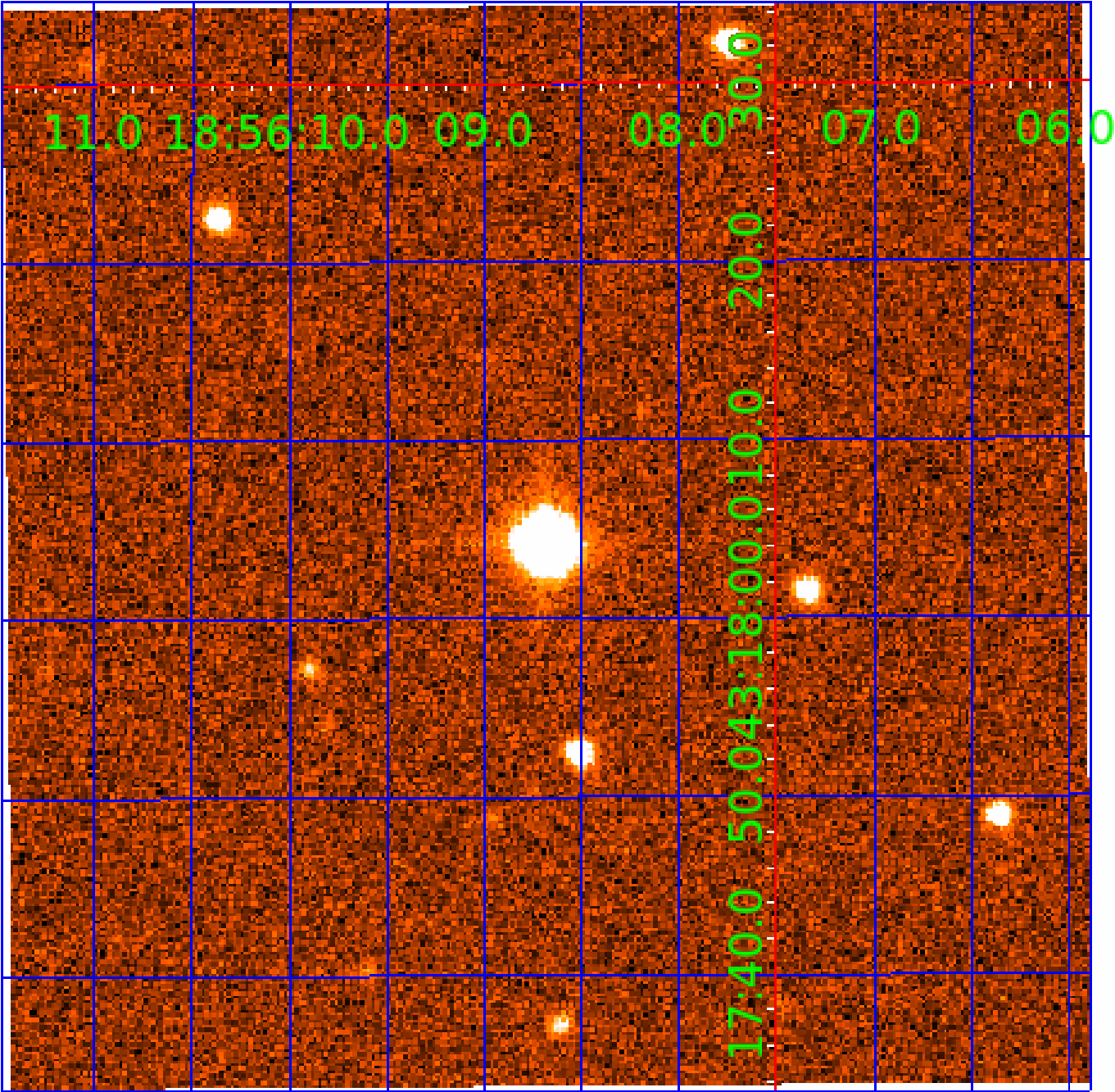


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007664485

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007664485-01 | OBS      | No   | 454.705206    | 284.481808   | 1343.0      | 3.552            | 17.0 | 8.9  | 0.77                        | 5521            | 2.92                   | 0.41                   |
| 007664485-02 | OBS      | No   | 461.249590    | 136.111643   | 879.2       | 4.722            | 15.0 | 7.1  | 0.77                        | 5521            | 2.48                   | 0.40                   |
| 007664485-03 | OBS      | No   | 451.960616    | 541.673274   | 1691.8      | 4.685            | 17.6 | 10.8 | 0.77                        | 5521            | 3.98                   | 0.41                   |
| 007664485-04 | OBS      | No   | 369.594182    | 399.627406   | 2101.4      | 12.365           | 14.9 | 10.1 | 0.77                        | 5521            | 3.48                   | 0.54                   |
| 007664485-05 | OBS      | No   | 376.306100    | 390.884279   | 1699.0      | 10.035           | 15.1 | 8.0  | 0.77                        | 5521            | 3.13                   | 0.53                   |
| 007664485-06 | OBS      | No   | 464.161938    | 159.116733   | 511.8       | 4.500            | 14.0 | -1.0 | 0.77                        | 5521            | 1.72                   | 0.40                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007664485-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS             |
| 007664485-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS |
| 007664485-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS    |
| 007664485-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS   |
| 007664485-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS                              |
| 007664485-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—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.

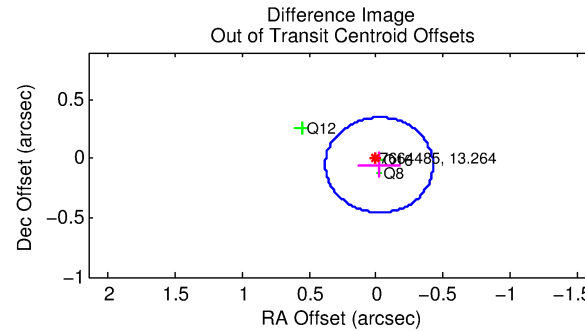
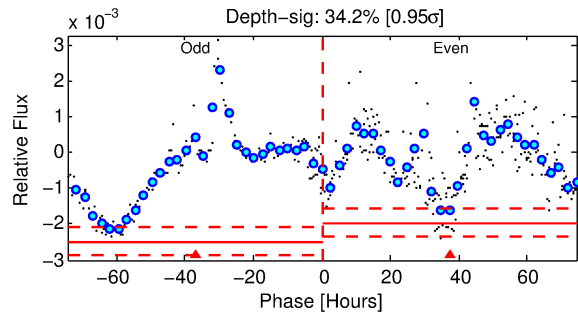
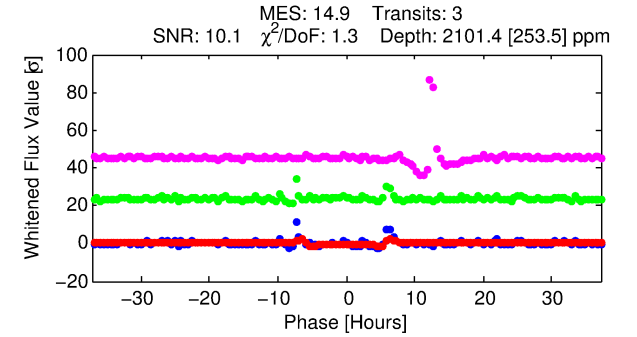
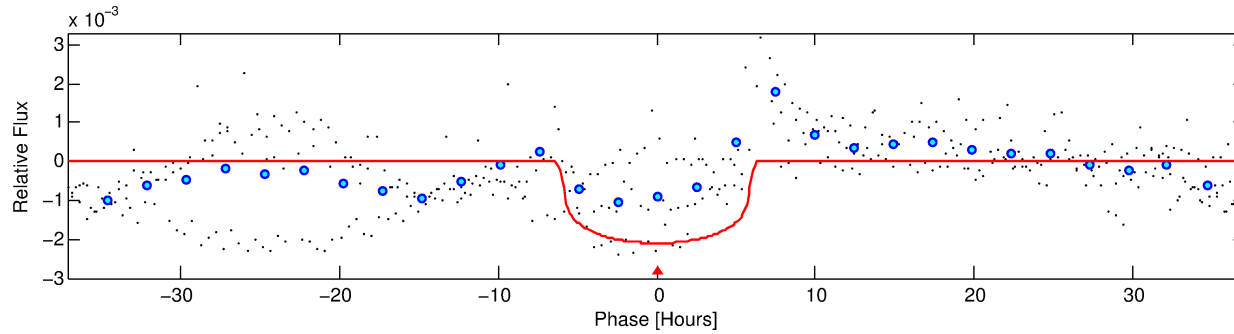
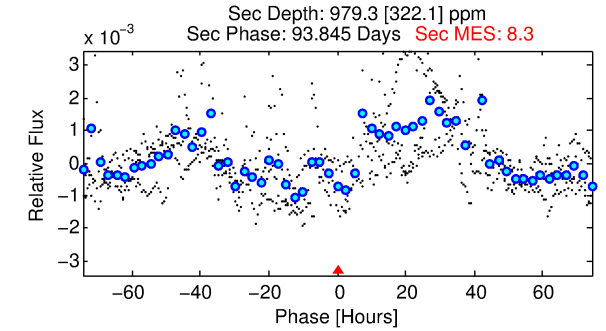
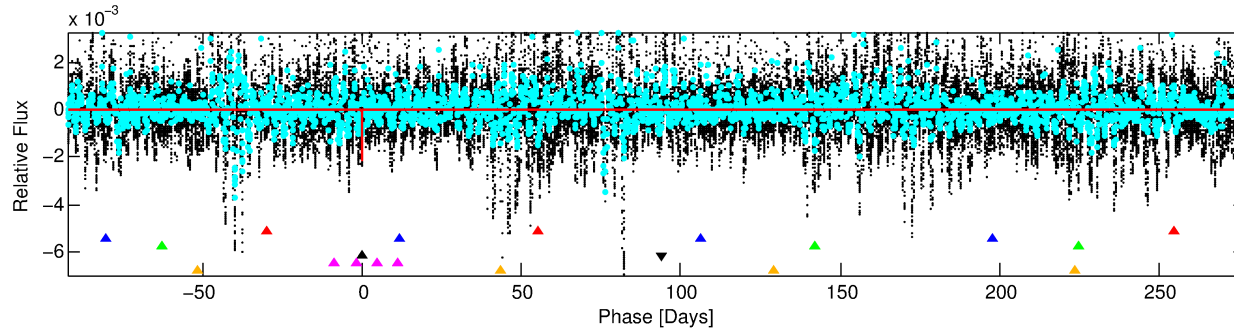
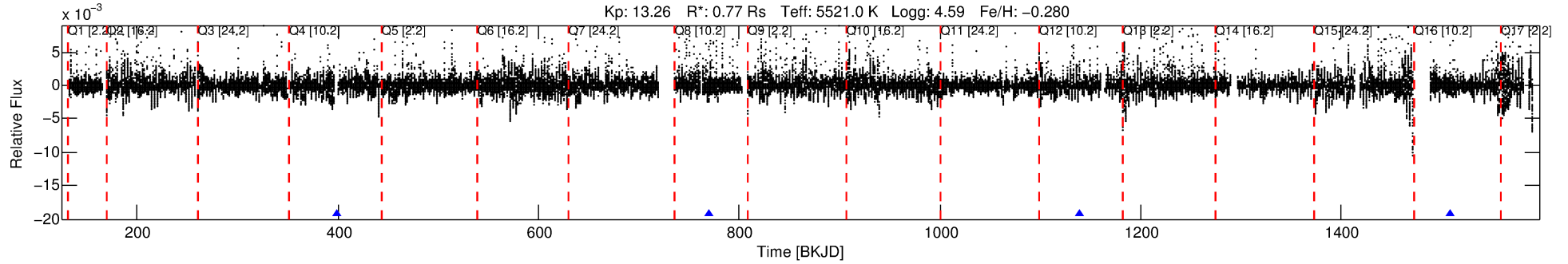
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007664485-04

No Significant Match Found

# DV One-Page Summary

KIC: 7664485 Candidate: 4 of 6 Period: 369.594 d



## DV Fit Results:

Period = 369.59418 [0.00385] d  
Epoch = 399.6274 [0.0090] BKJD  
Rp/R\* = 0.0414 [0.0079]  
a/R\* = 237.81 [166.93]  
b = 0.00 [198.02]  
Seff = 0.54 [0.13]  
Teq = 219 [13] K  
Rp = 3.48 [0.91] Re  
a = 0.9555 [0.1405] AU  
Ag = 40497.30 [22022.19] [1.84 $\sigma$ ]  
Teffp = 4799 [616] K [7.43 $\sigma$ ]

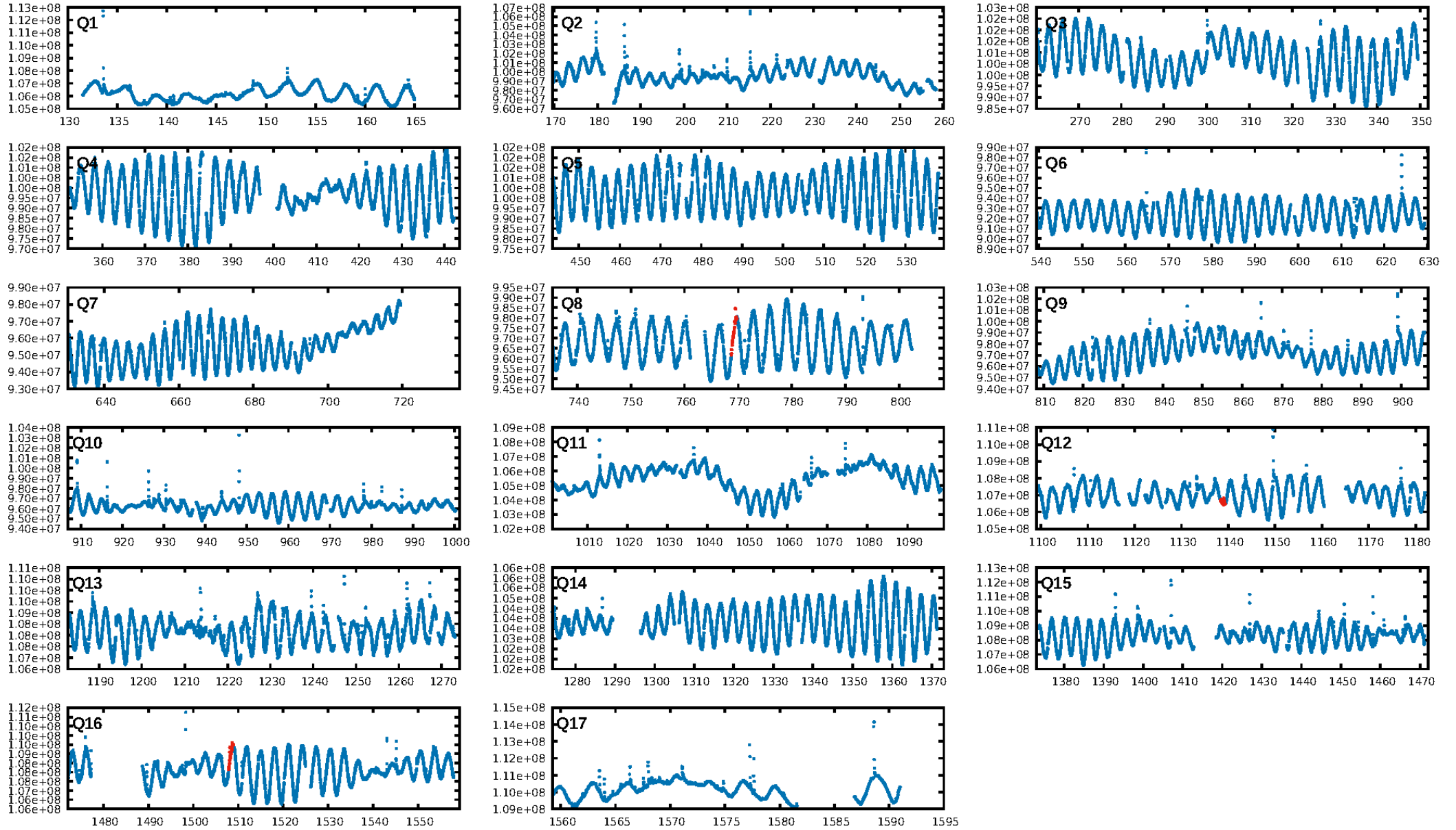
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [10.12 $\sigma$ ]  
ModelChiSquare2-sig: 88.3%  
ModelChiSquareGof-sig: 95.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 4.632  
Centroid-sig: 3.0%  
Centroid-so: 0.589 arcsec [3.10 $\sigma$ ]  
OotOffset-rm: 0.058 arcsec [0.43 $\sigma$ ]  
OotOffset-st: 0/0/3/0 [3]  
KicOffset-rm: 0.328 arcsec [2.82 $\sigma$ ]  
KicOffset-st: 0/0/3/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

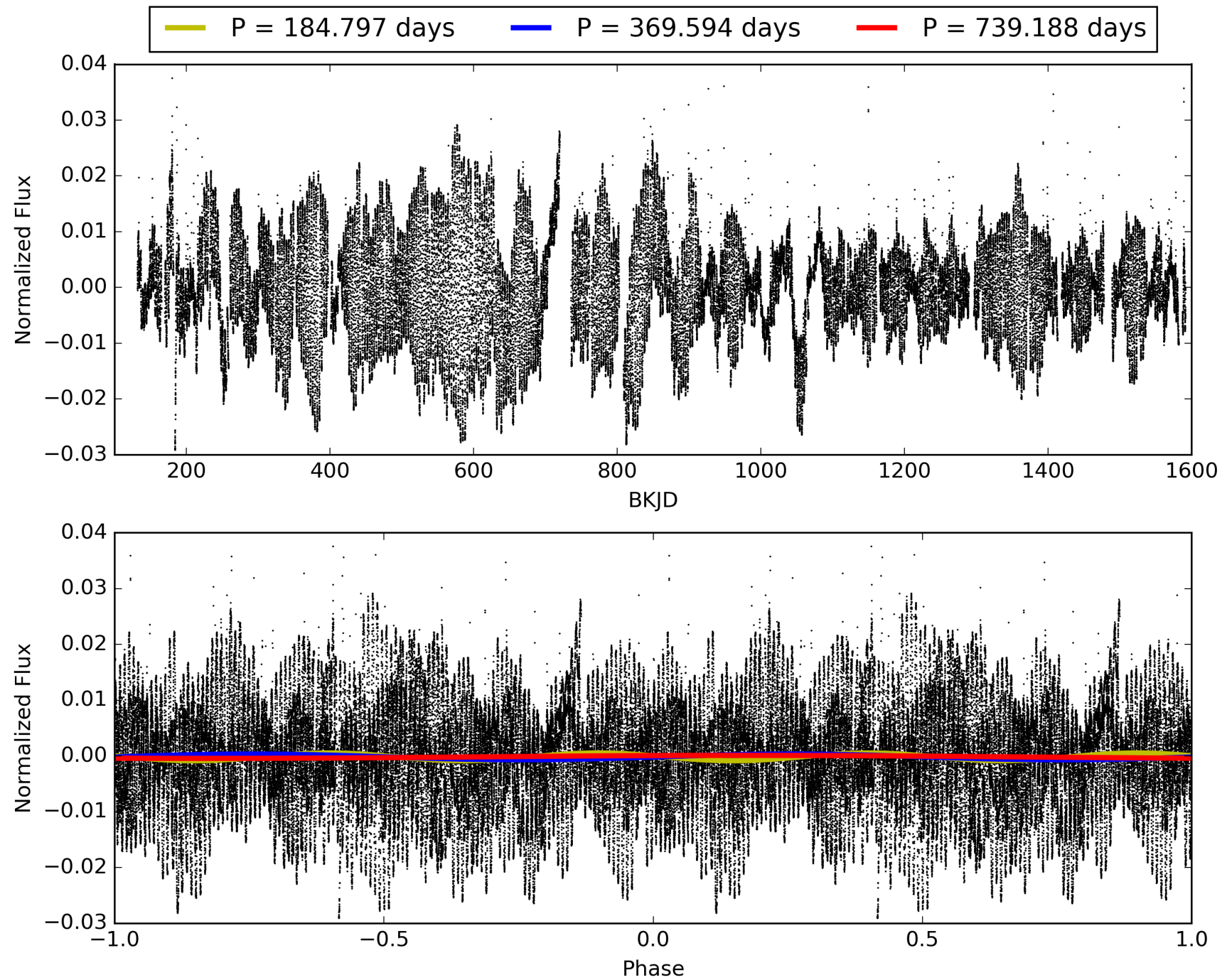
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:24:10 Z

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

# TCE 007664485-04, PDC Light Curves

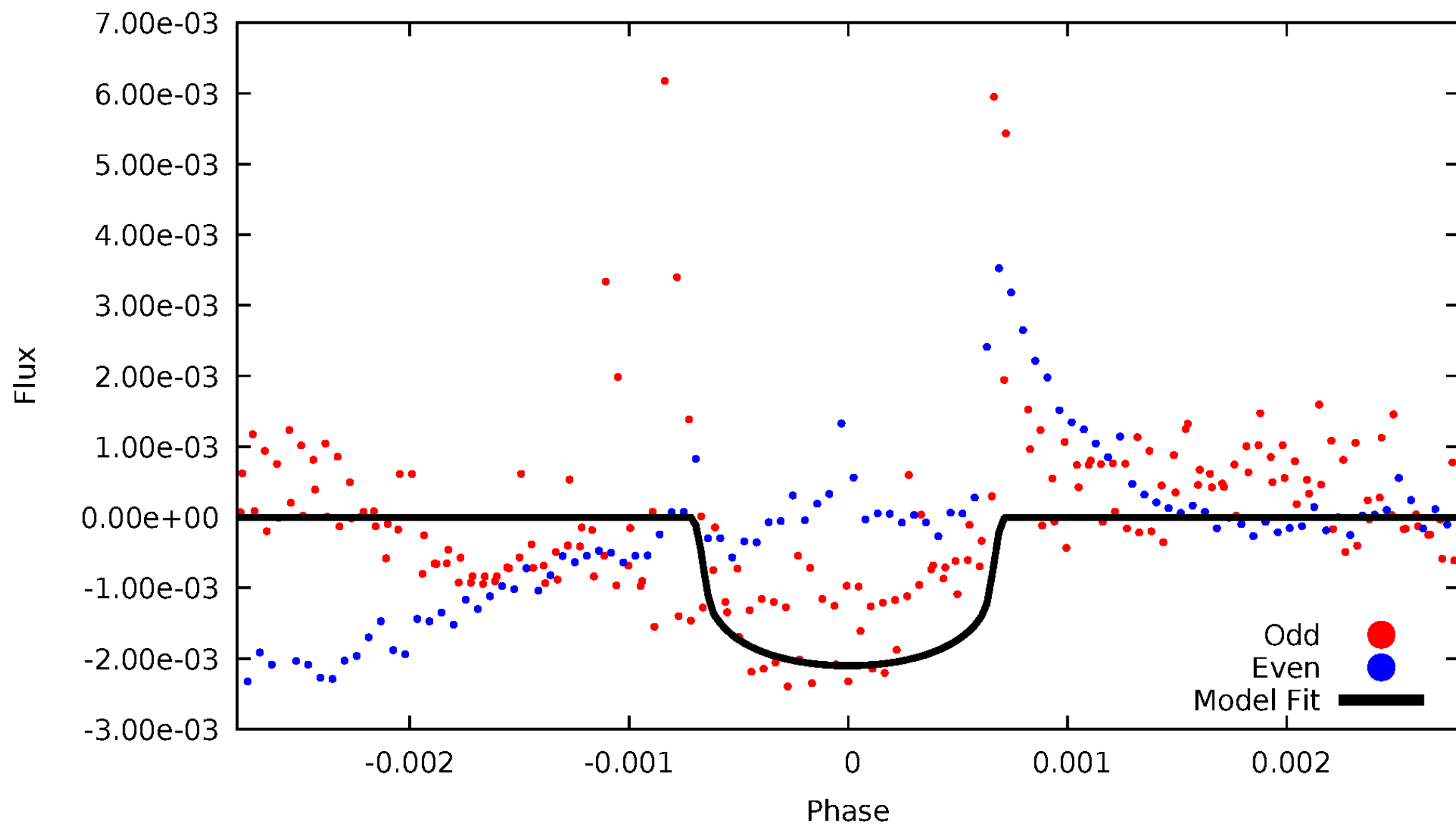


TCE 007664485-04



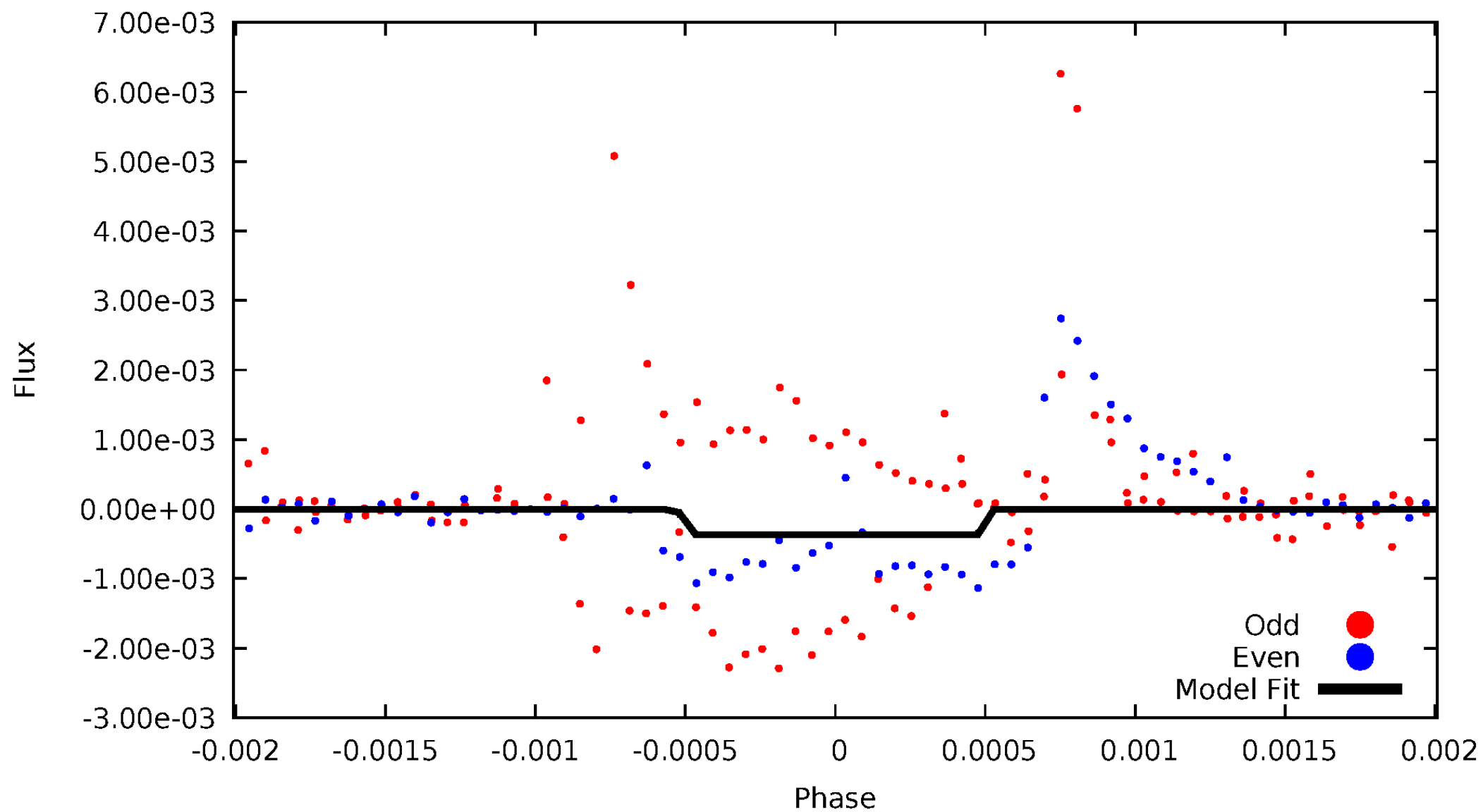
# DV Odd/Even

TCE 007664485-04



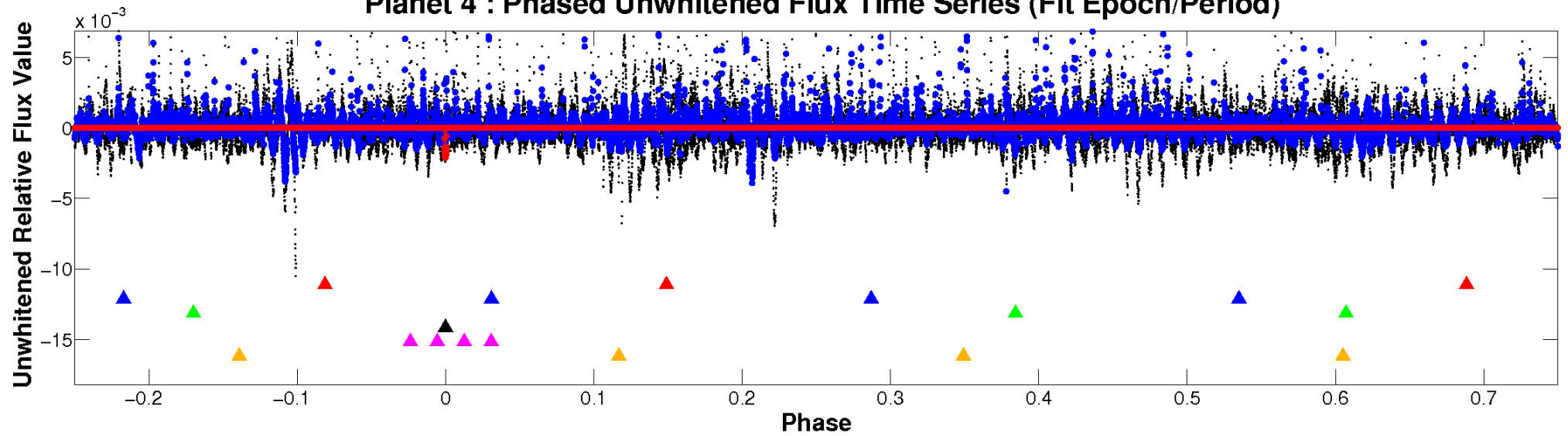
# ALT Odd/Even

TCE 007664485-04

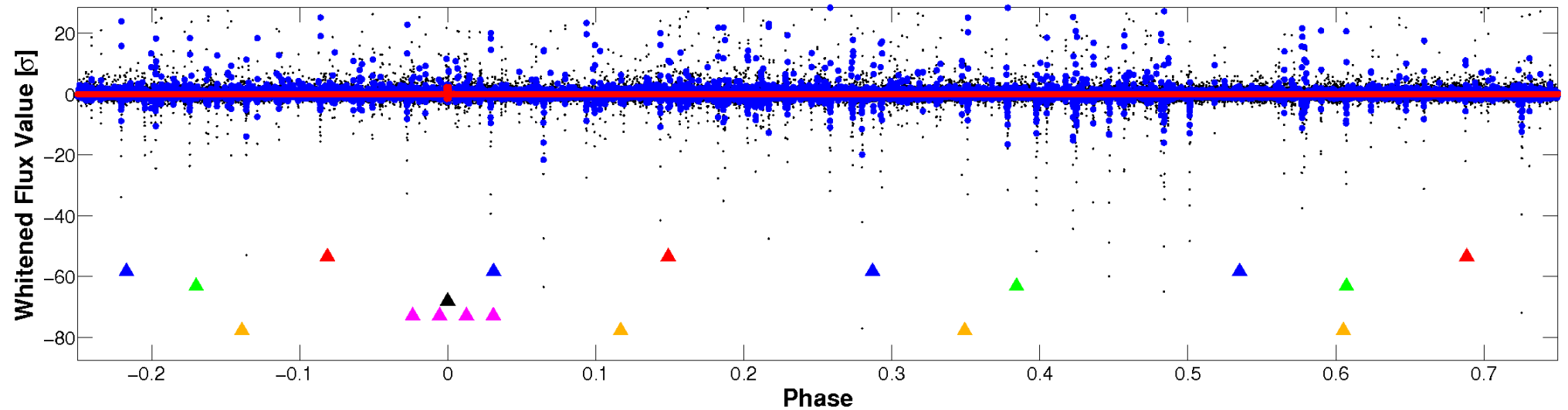


# Non-Whitened Vs. Whitened Light Curve

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



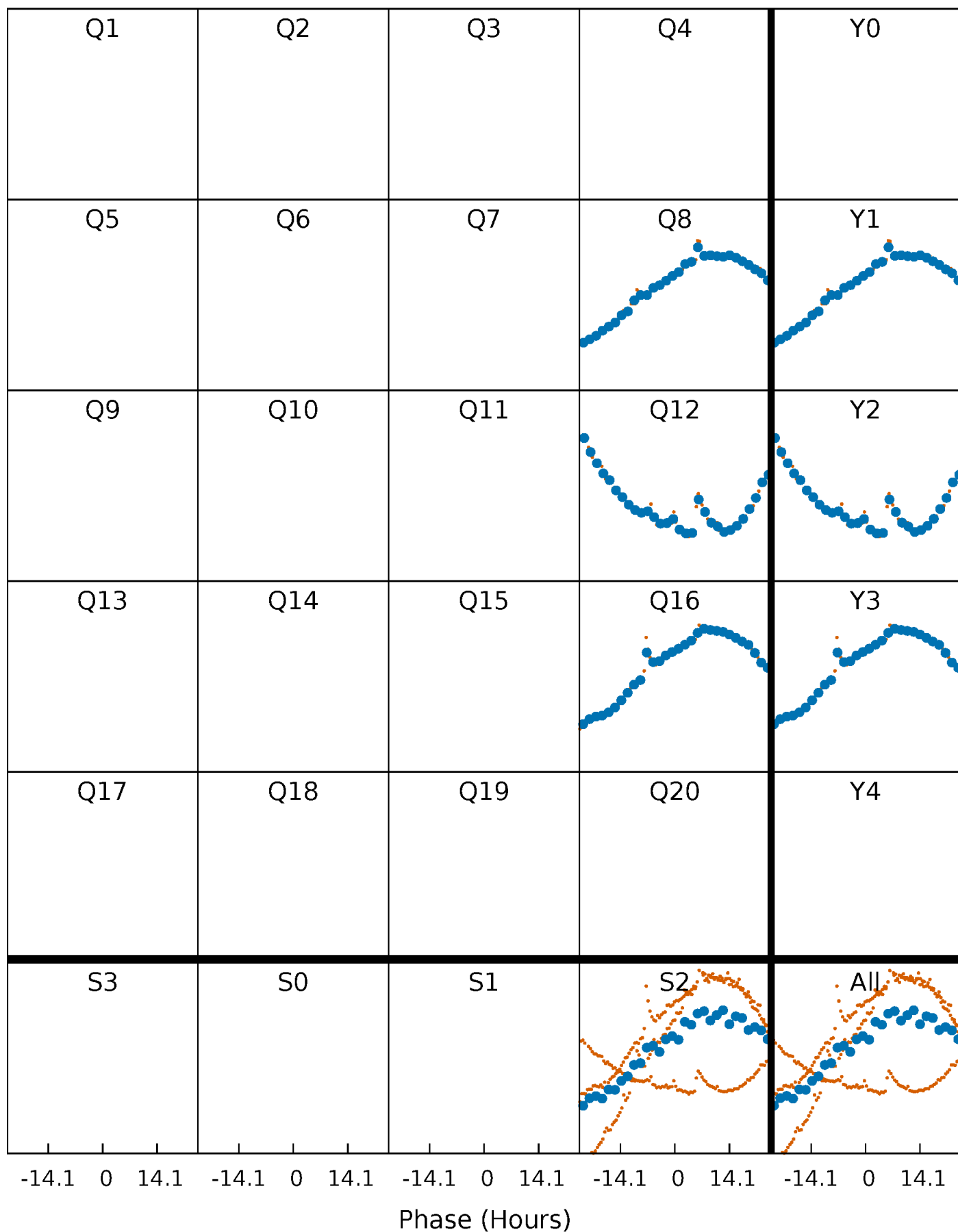
## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

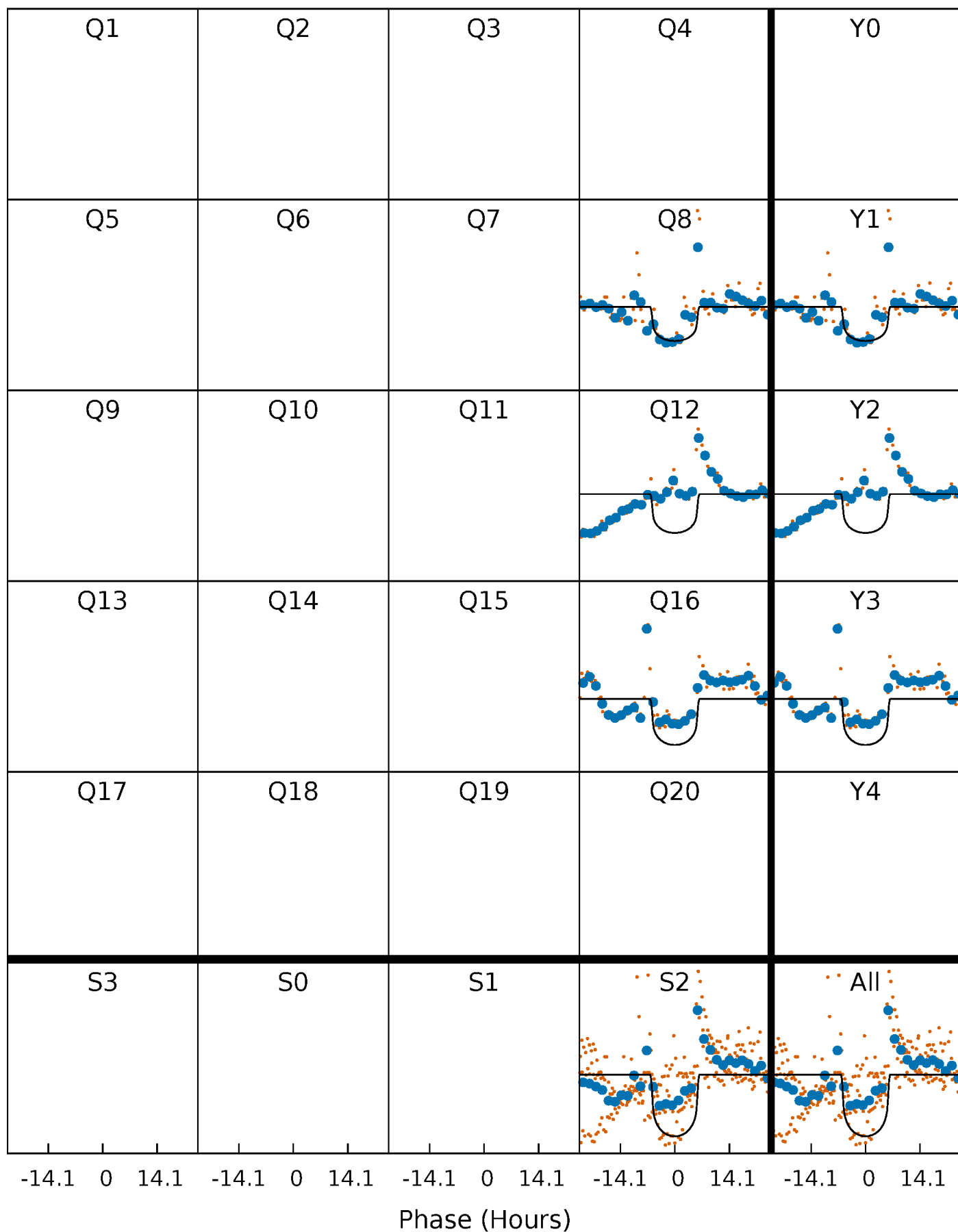
TCE 007664485-04 P=369.594182 Days  $T_0=399.627406$  (BKJD)





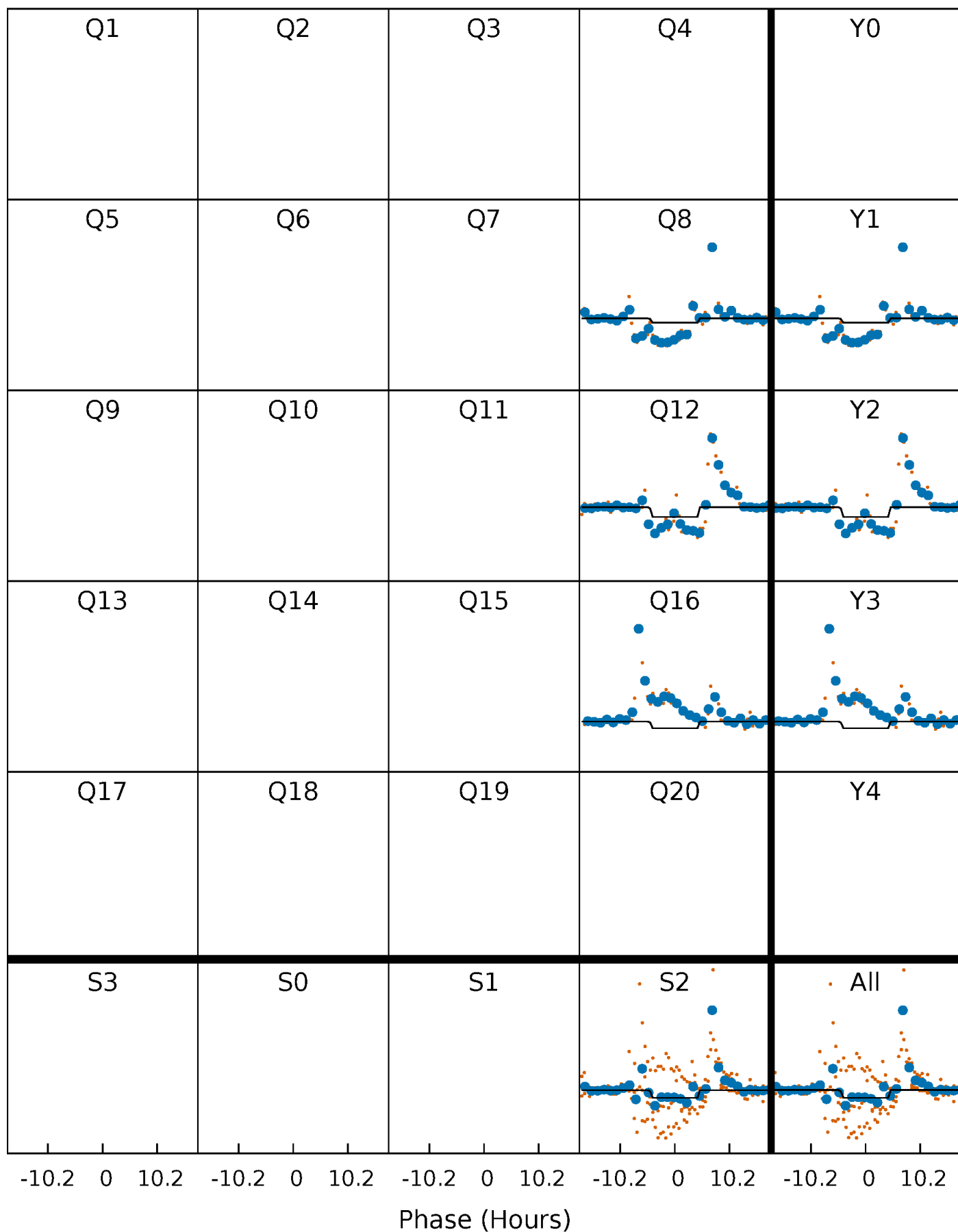
# DV Quarter-Phased Transit Curves

TCE 007664485-04     $P=369.594182$  Days     $T_0=399.627406$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

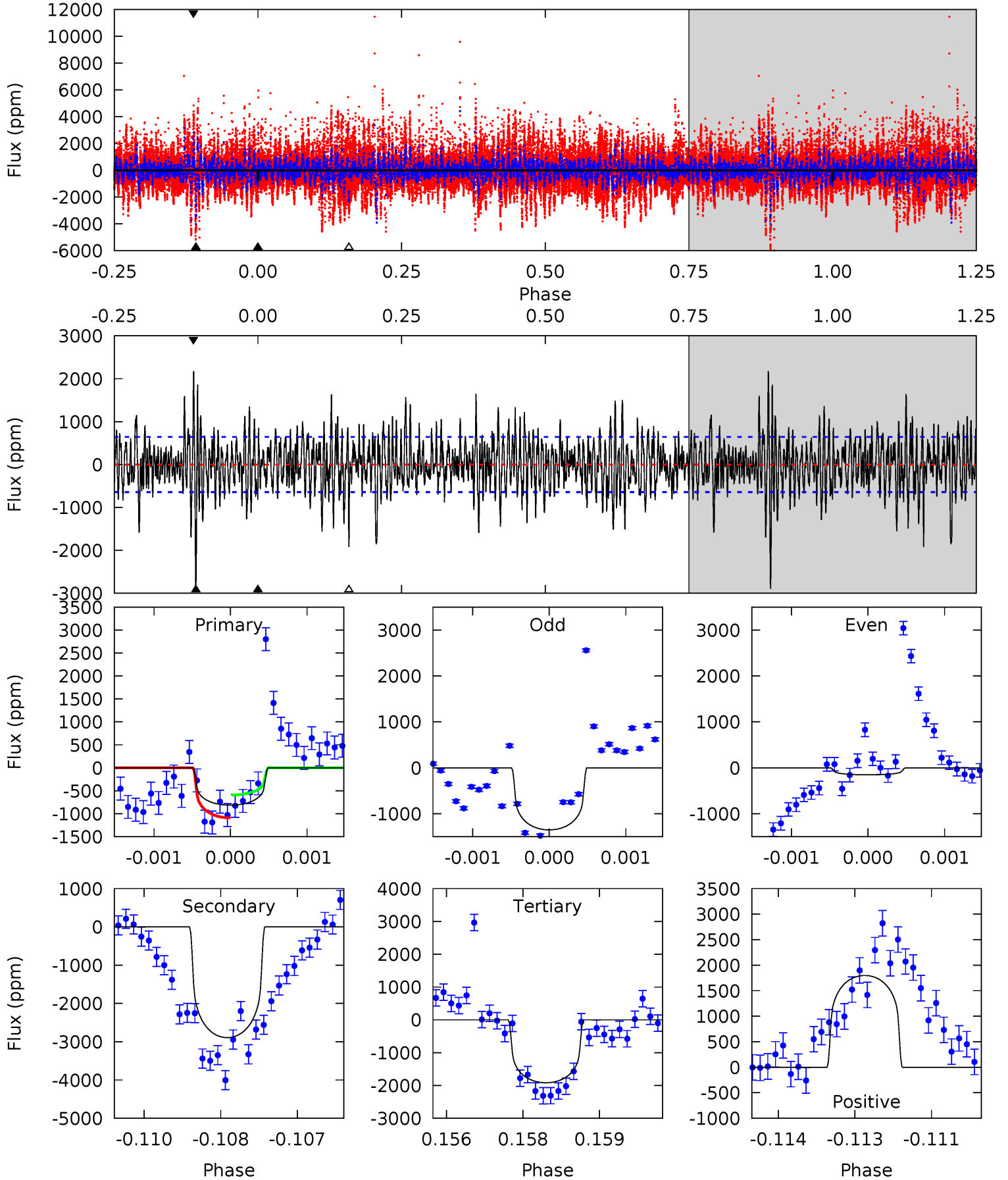
TCE 007664485-04     $P=369.602233$  Days     $T_0=399.586912$  (BKJD)



# DV Model-Shift Uniqueness Test

007664485-04, P = 369.594182 Days, E = 30.033224 Days

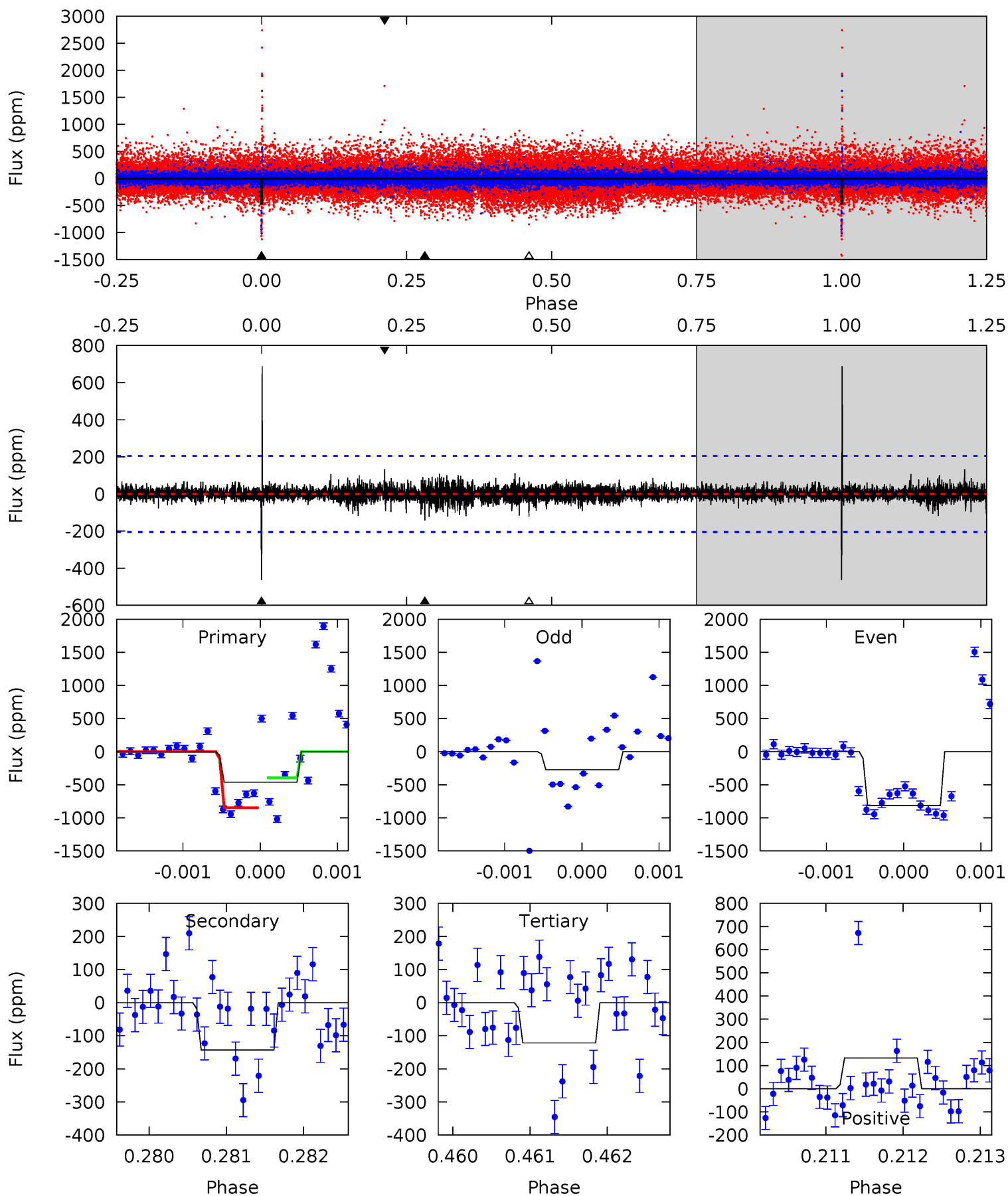
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.81 | 24.2 | 16.0 | 15.0 | 5.38            | 3.18            | 4.21             | -9.21   | -8.22   | 8.16    | 9.15    | 4.31    | 0.77 | 0.43  | 2.09 |



# Alt Model-Shift Uniqueness Test

007664485-04, P = 369.602233 Days, E = 29.984679 Days

| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 12.3 | 3.79 | 3.24 | 3.52 | 5.45            | 3.29            | 0.66             | 9.05    | 8.77    | 0.55    | 0.27    | 9.16    | 0.53 | 0.60  | 0   |



### Stellar Parameters For KIC 007664485

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5521^{+150}_{-150}$ | $4.594^{+0.040}_{-0.112}$ | $-0.280^{+0.300}_{-0.300}$ | $0.771^{+0.138}_{-0.069}$ | $0.864^{+0.072}_{-0.109}$ | $2.650^{+0.520}_{-0.956}$                 |
|        | +3%/-3%              | +1%/-2%                   | +107%/-107%                | +18%/-9%                  | +8%/-13%                  | +20%/-36%                                 |
| 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 007664485-04 / KOI

| Detrend | Depth (ppm)     | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$  | $A_{\text{obs}}$           |
|---------|-----------------|------------------------|----------------------|-----------------------|----------------------------|
| DV      | $-2893 \pm 120$ | $3.57^{+0.66}_{-0.69}$ | $310^{+13}_{-12}$    | $6266^{+770}_{-509}$  | $112613^{+58702}_{-31244}$ |
| Alt.    | $-143 \pm 38$   | $1.64^{+0.66}_{-0.66}$ | $310^{+14}_{-12}$    | $4535^{+1142}_{-583}$ | $25952^{+49821}_{-13898}$  |

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

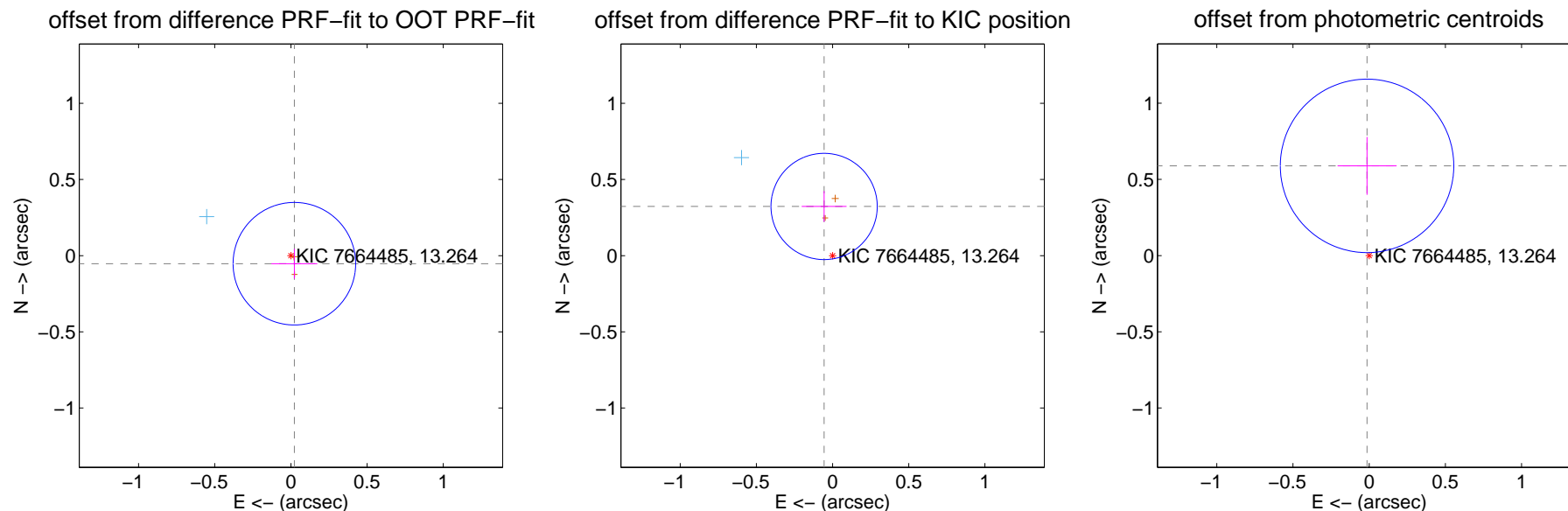
## DV Centroid Data

Supplemental centroid analysis for 007664485-04. Kepler magnitude: 13.26. Transit SNR 10.08

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.058 \pm 0.134$  | 0.43                | $-0.023 \pm 0.151$ | $-0.053 \pm 0.098$ |
| PRF-fit source offset from KIC position | $0.328 \pm 0.116$  | 2.82                | $0.056 \pm 0.147$  | $0.323 \pm 0.101$  |
| photometric centroid source offset      | $0.59 \pm 0.19$    | 3.10                | $0.01 \pm 0.19$    | $0.59 \pm 0.19$    |

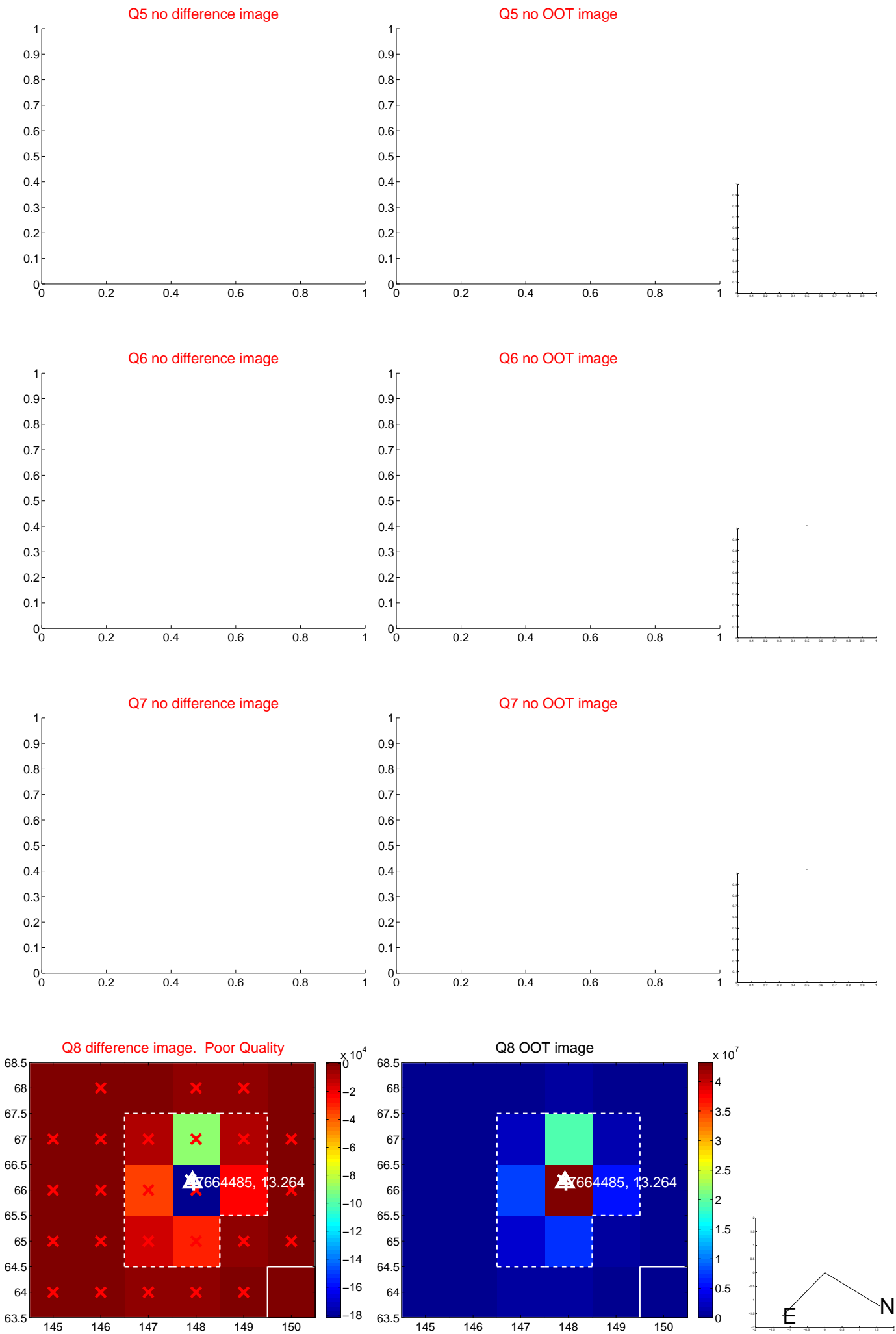


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

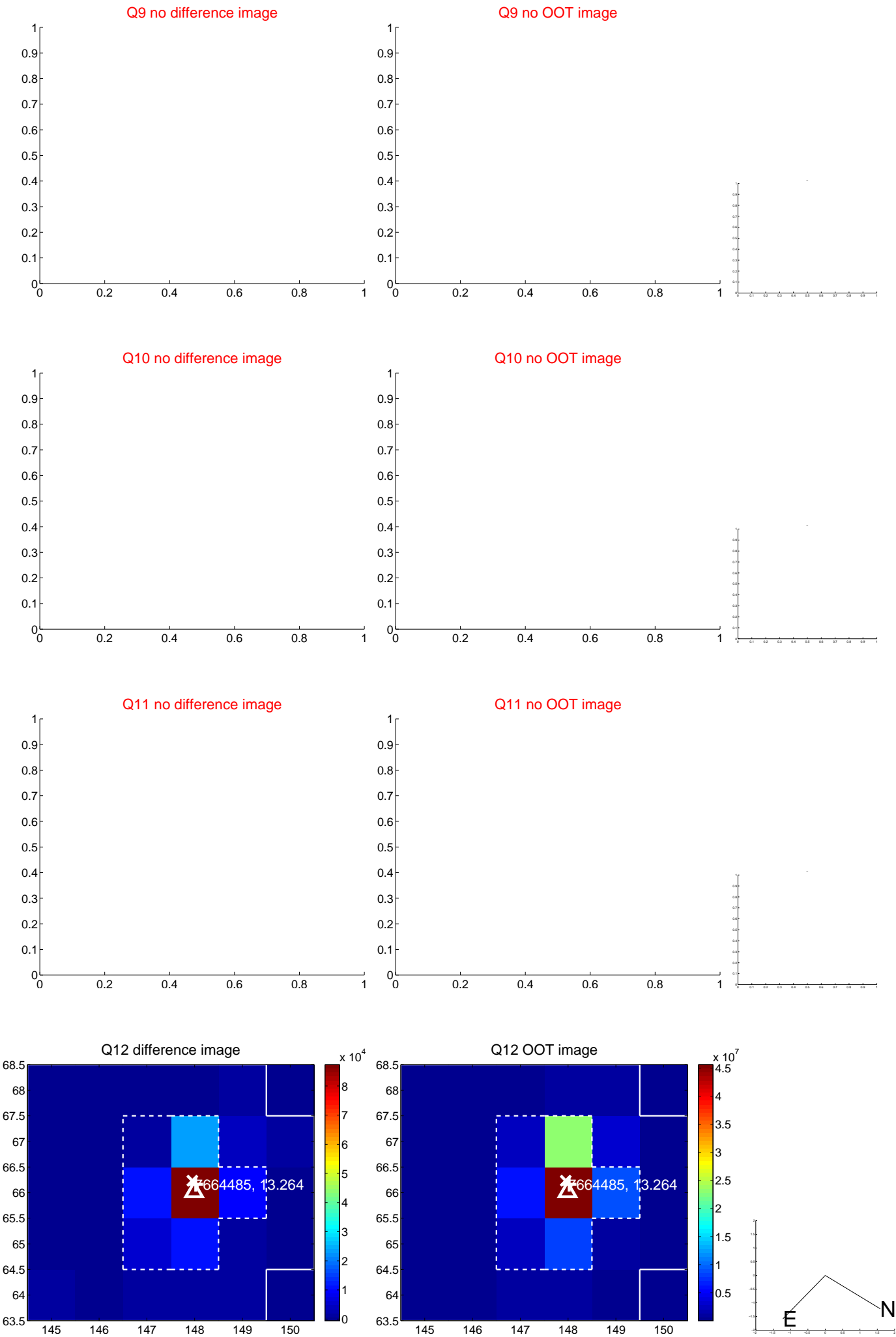


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

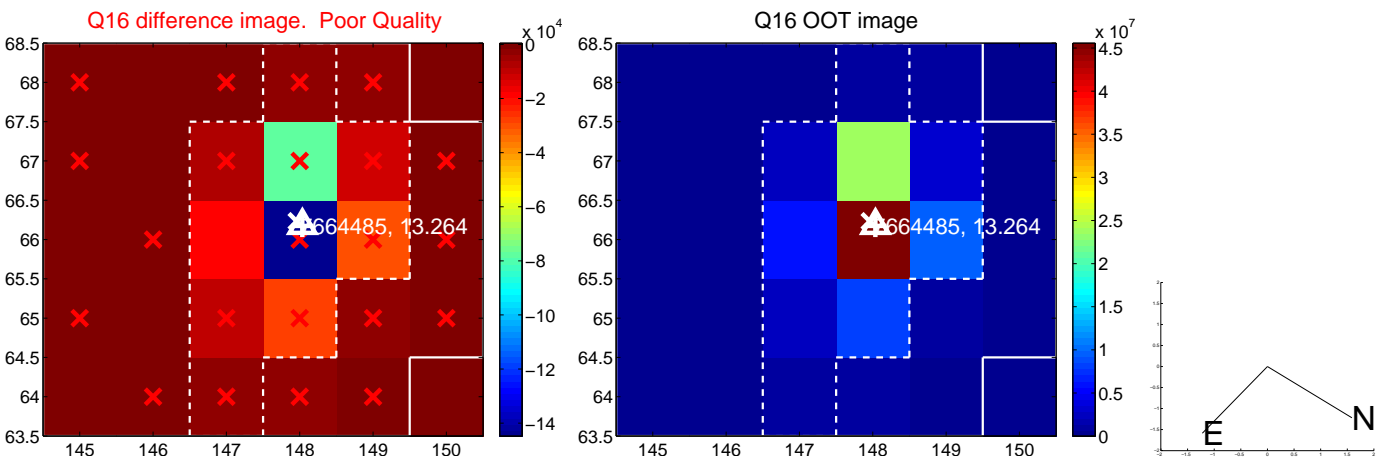
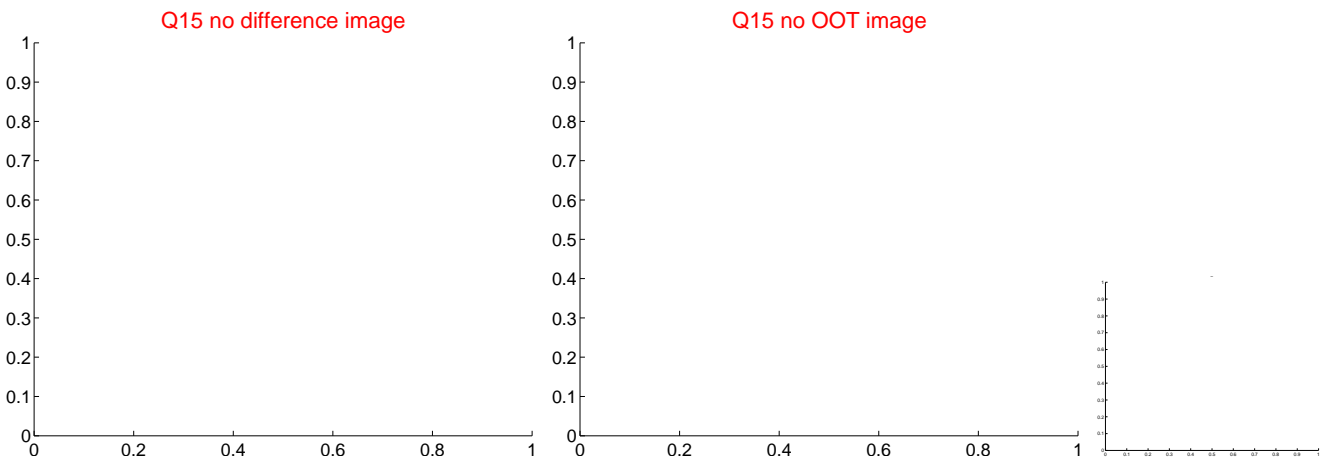
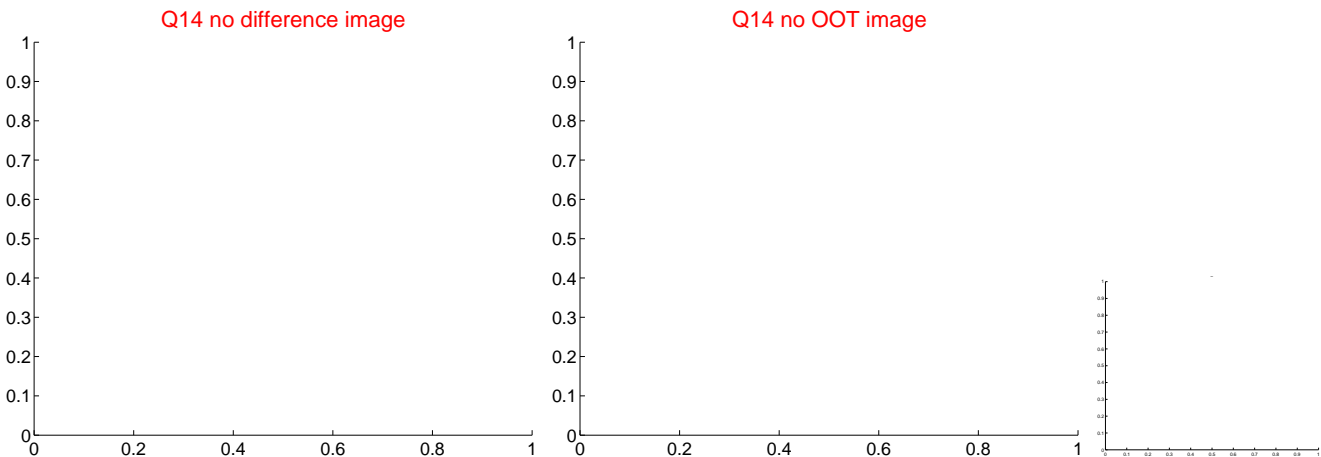
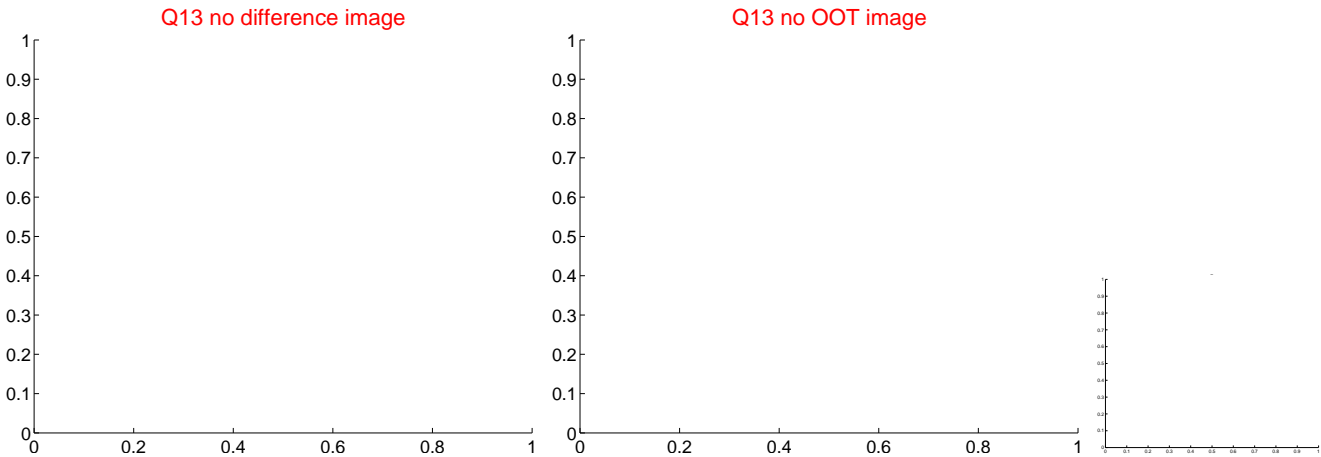




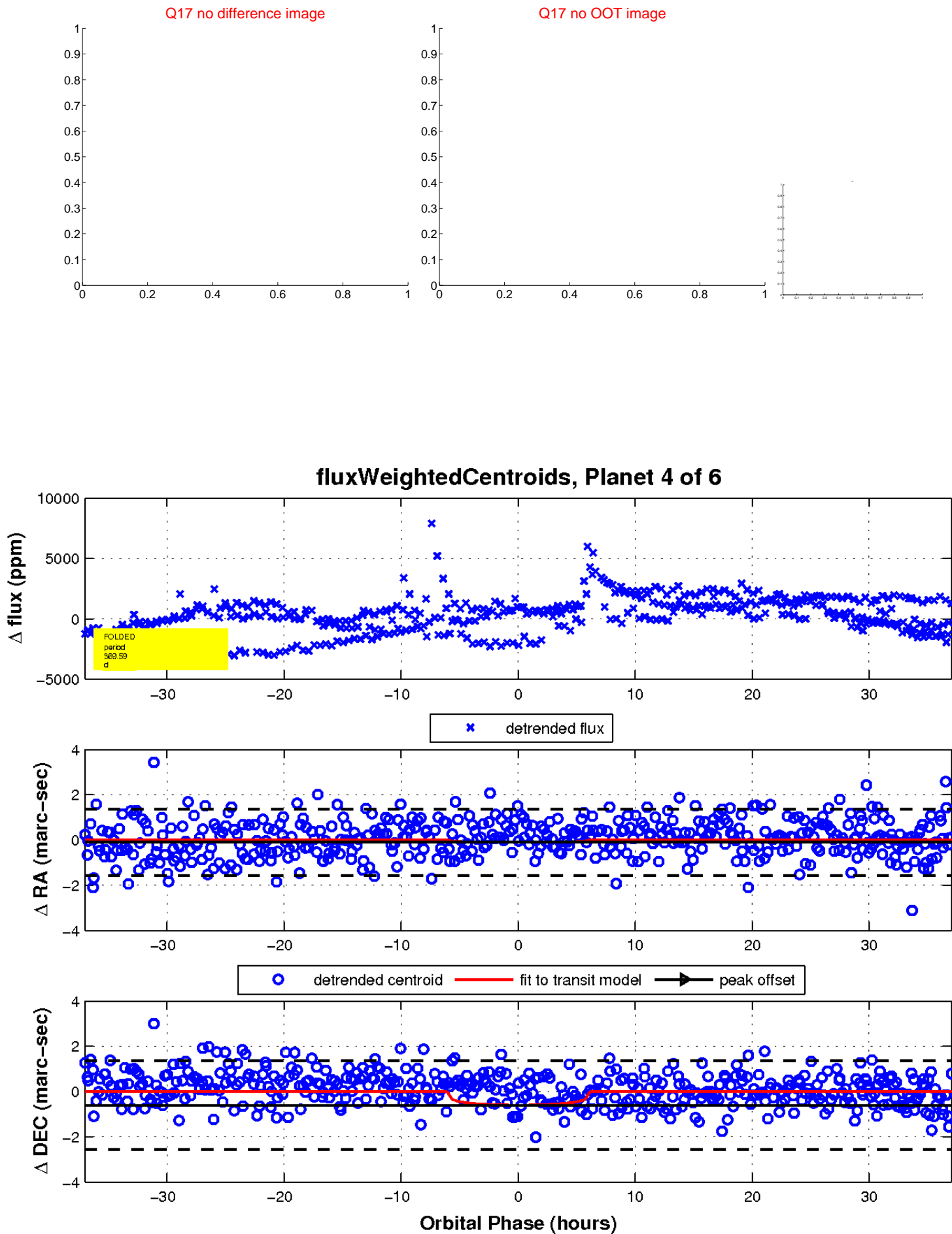
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

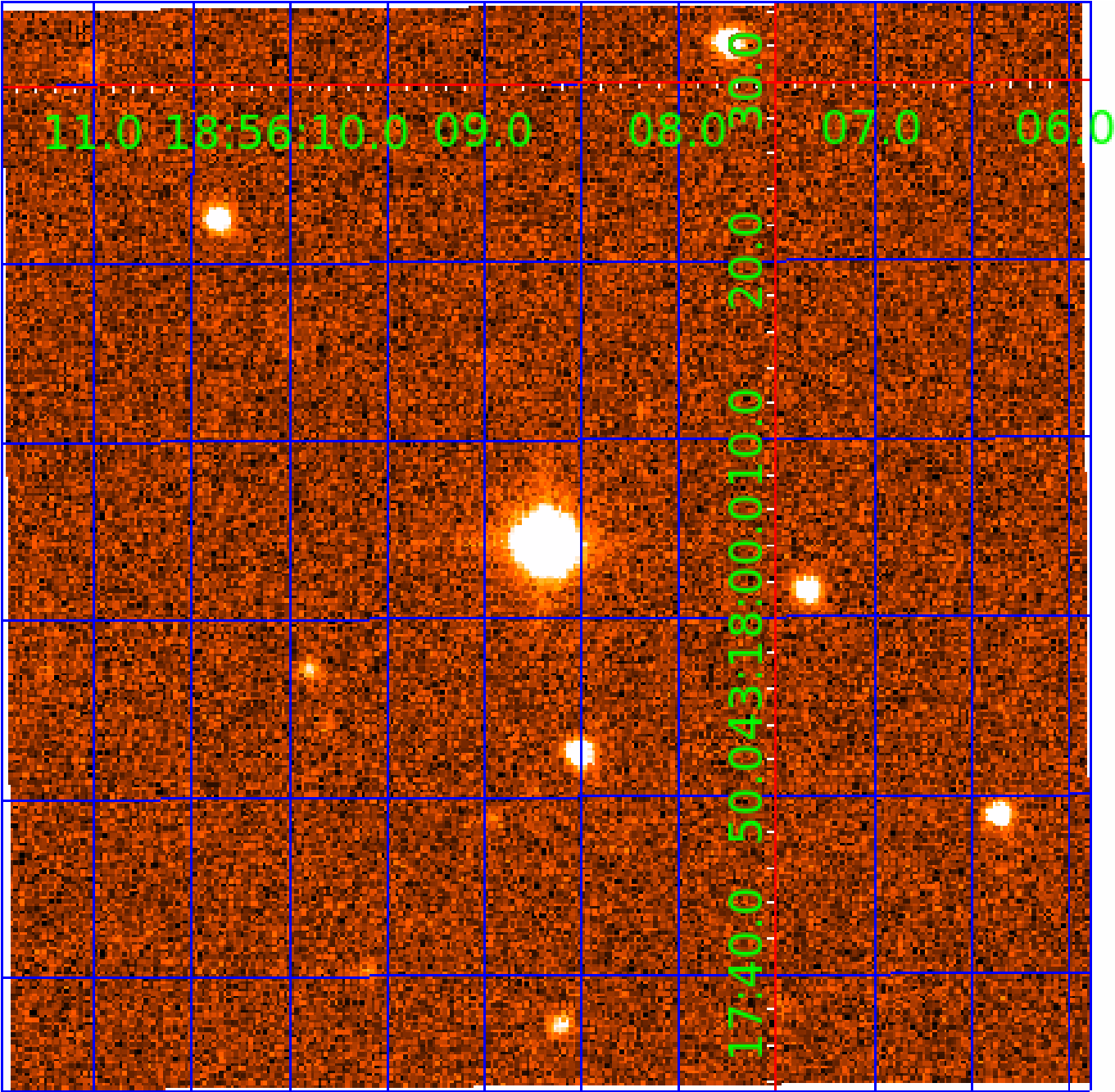


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007664485

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007664485-01 | OBS      | No   | 454.705206    | 284.481808   | 1343.0      | 3.552            | 17.0 | 8.9  | 0.77                        | 5521            | 2.92                   | 0.41                   |
| 007664485-02 | OBS      | No   | 461.249590    | 136.111643   | 879.2       | 4.722            | 15.0 | 7.1  | 0.77                        | 5521            | 2.48                   | 0.40                   |
| 007664485-03 | OBS      | No   | 451.960616    | 541.673274   | 1691.8      | 4.685            | 17.6 | 10.8 | 0.77                        | 5521            | 3.98                   | 0.41                   |
| 007664485-04 | OBS      | No   | 369.594182    | 399.627406   | 2101.4      | 12.365           | 14.9 | 10.1 | 0.77                        | 5521            | 3.48                   | 0.54                   |
| 007664485-05 | OBS      | No   | 376.306100    | 390.884279   | 1699.0      | 10.035           | 15.1 | 8.0  | 0.77                        | 5521            | 3.13                   | 0.53                   |
| 007664485-06 | OBS      | No   | 464.161938    | 159.116733   | 511.8       | 4.500            | 14.0 | -1.0 | 0.77                        | 5521            | 1.72                   | 0.40                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007664485-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS             |
| 007664485-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS |
| 007664485-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS    |
| 007664485-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS   |
| 007664485-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS                              |
| 007664485-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—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.

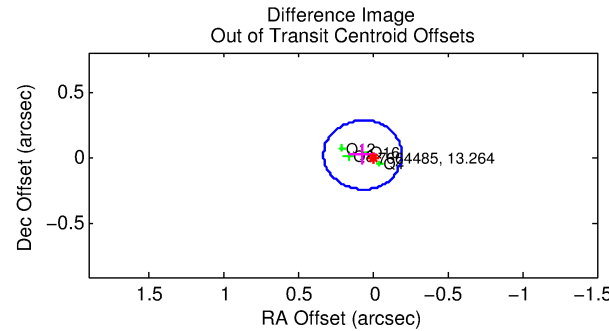
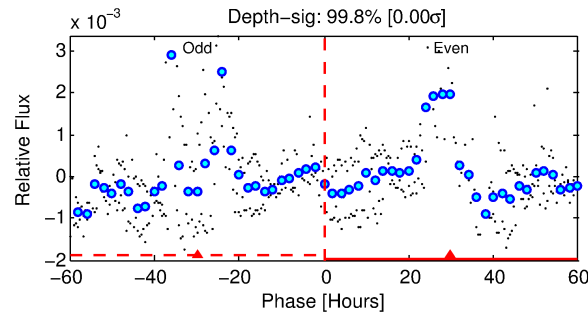
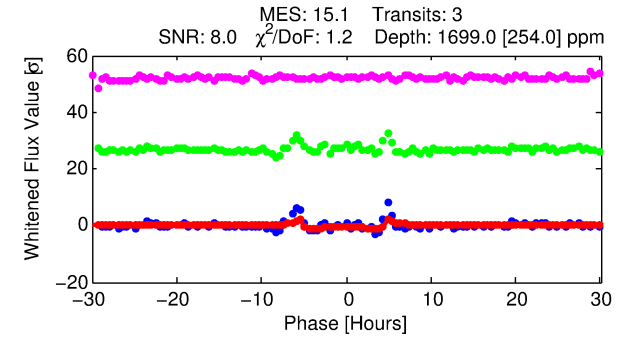
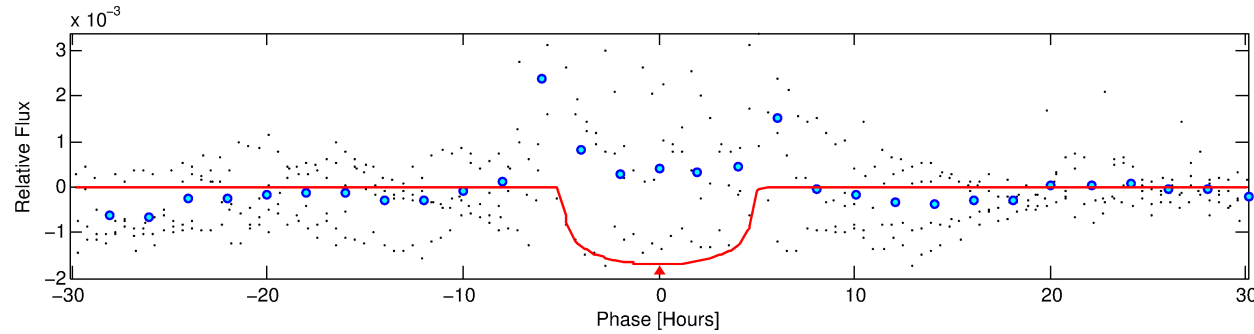
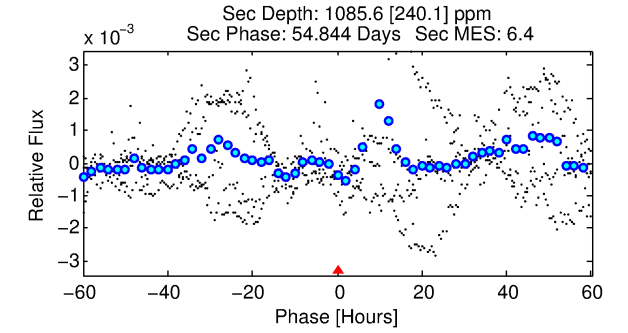
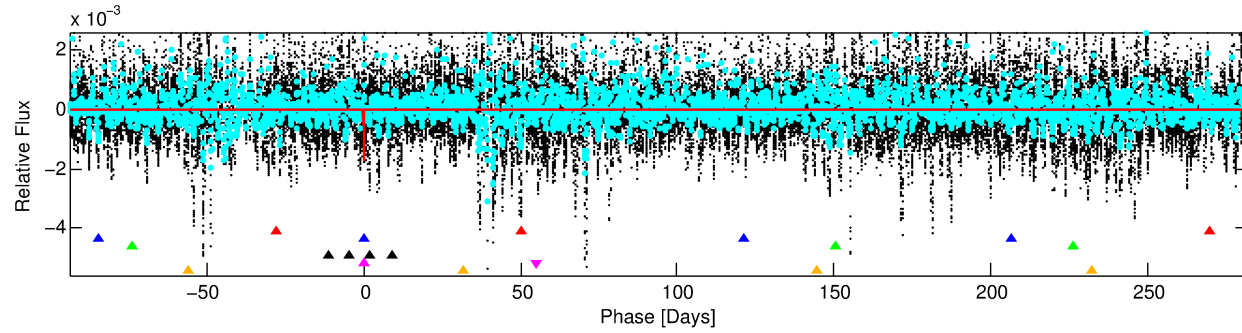
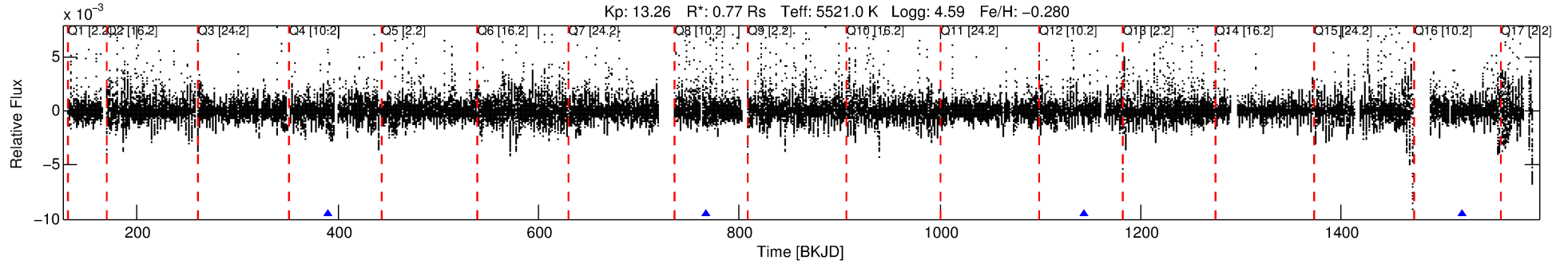
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007664485-05

No Significant Match Found

# DV One-Page Summary

KIC: 7664485 Candidate: 5 of 6 Period: 376.306 d



## DV Fit Results:

Period = 376.30610 [0.00393] d  
Epoch = 390.8843 [0.0054] BKJD  
Rp/R\* = 0.0373 [0.0112]  
a/R\* = 297.12 [340.34]  
b = 0.01 [122.45]  
Seff = 0.53 [0.12]  
Teq = 217 [13] K  
Rp = 3.13 [1.10] Re  
a = 0.9670 [0.1422] AU  
Ag = 56856.94 [38292.21] [1.48 $\sigma$ ]  
Teffp = 5192 [843] K [5.90 $\sigma$ ]

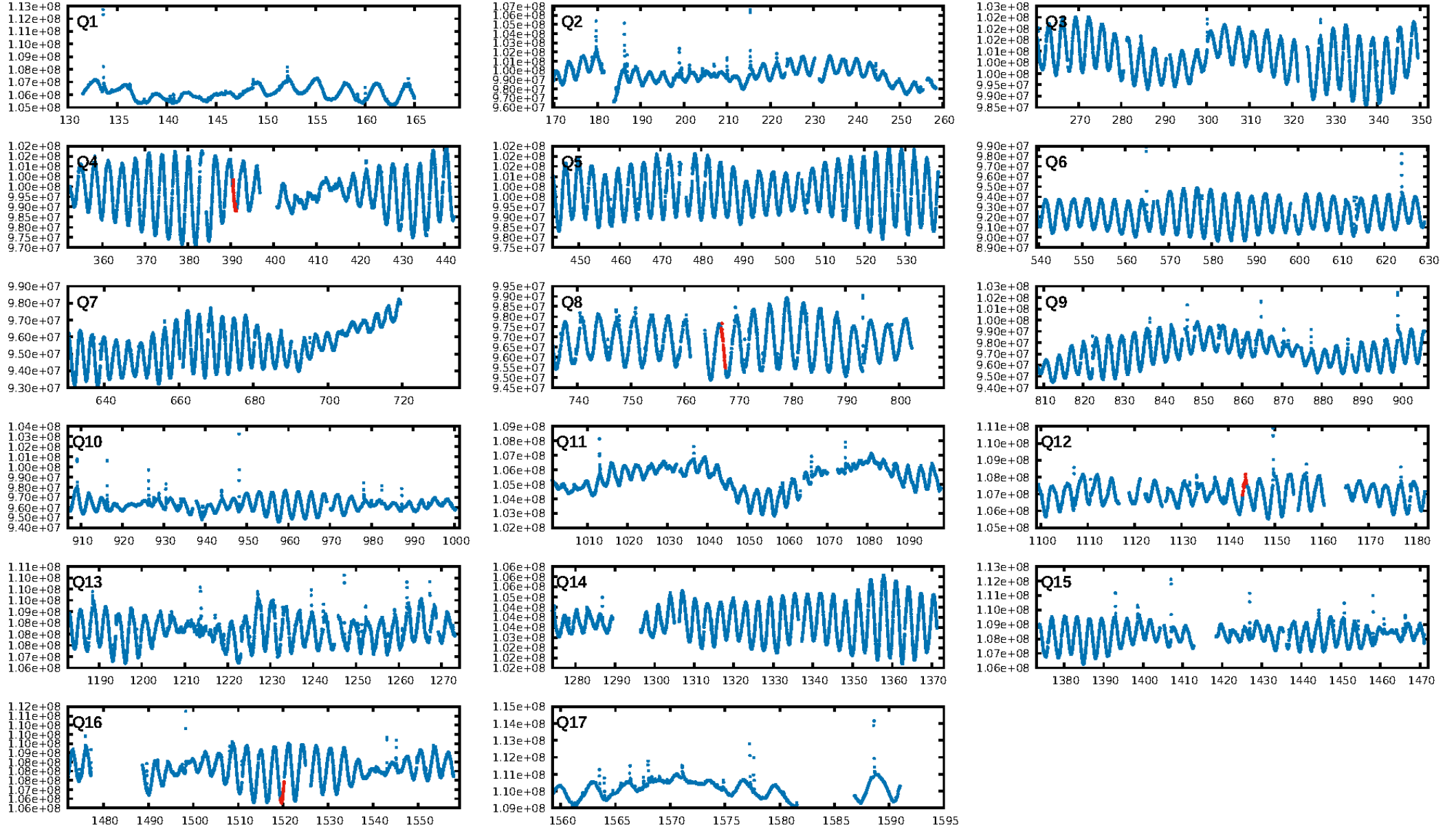
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.12 $\sigma$ ]  
LongPeriod-sig: 100.0% [163.95 $\sigma$ ]  
ModelChiSquare2-sig: 87.0%  
ModelChiSquareGof-sig: 42.3%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.7336**  
Centroid-sig: 0.0%  
Centroid-so: 0.211 arcsec [0.93 $\sigma$ ]  
OotOffset-rm: 0.070 arcsec [0.80 $\sigma$ ]  
KicOffset-rm: 0.409 arcsec [5.20 $\sigma$ ]  
OotOffset-st: 0/0/4/0 [4]  
KicOffset-st: 0/0/4/0 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 0.75 [3/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:24:18 Z

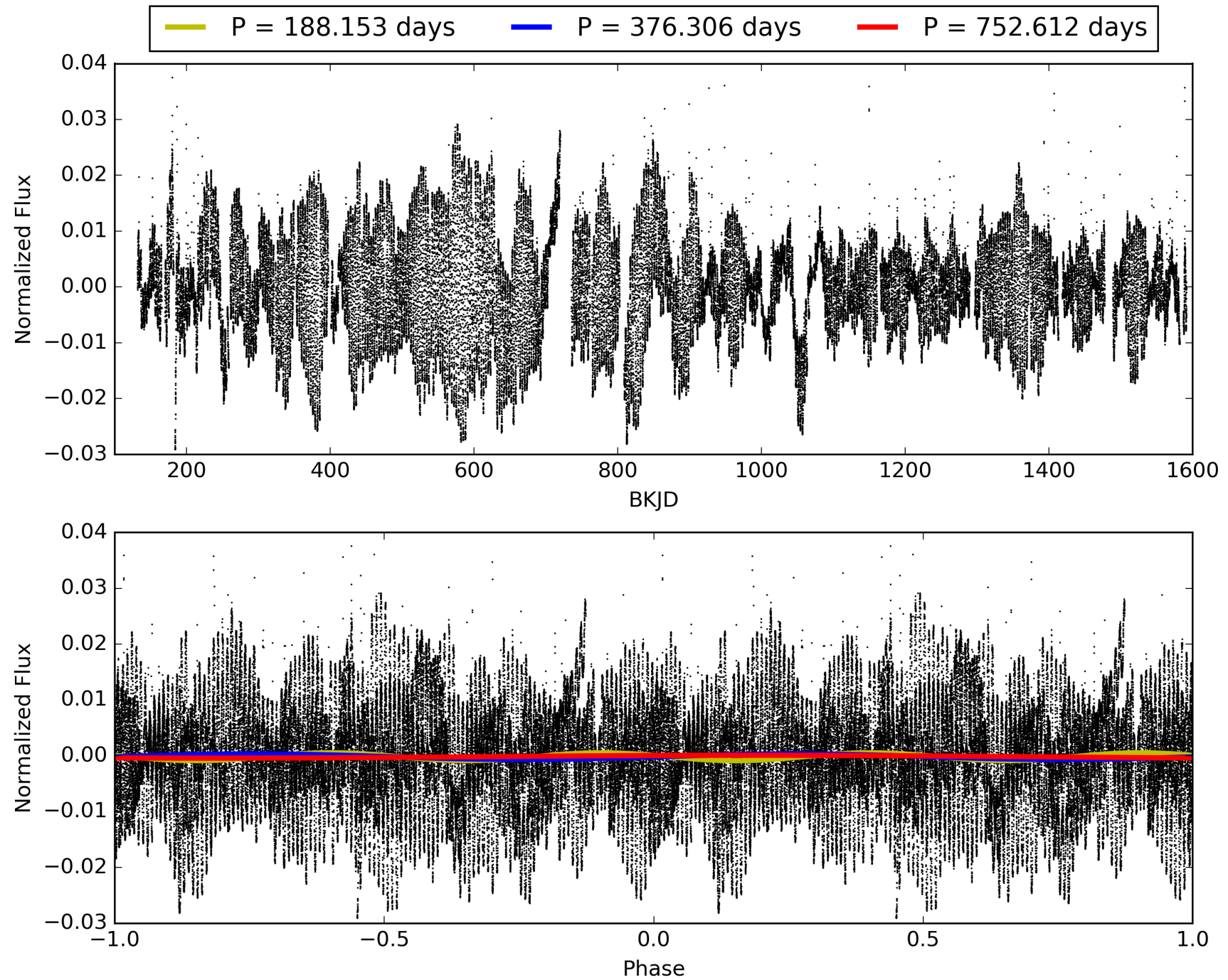
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007664485-05, PDC Light Curves





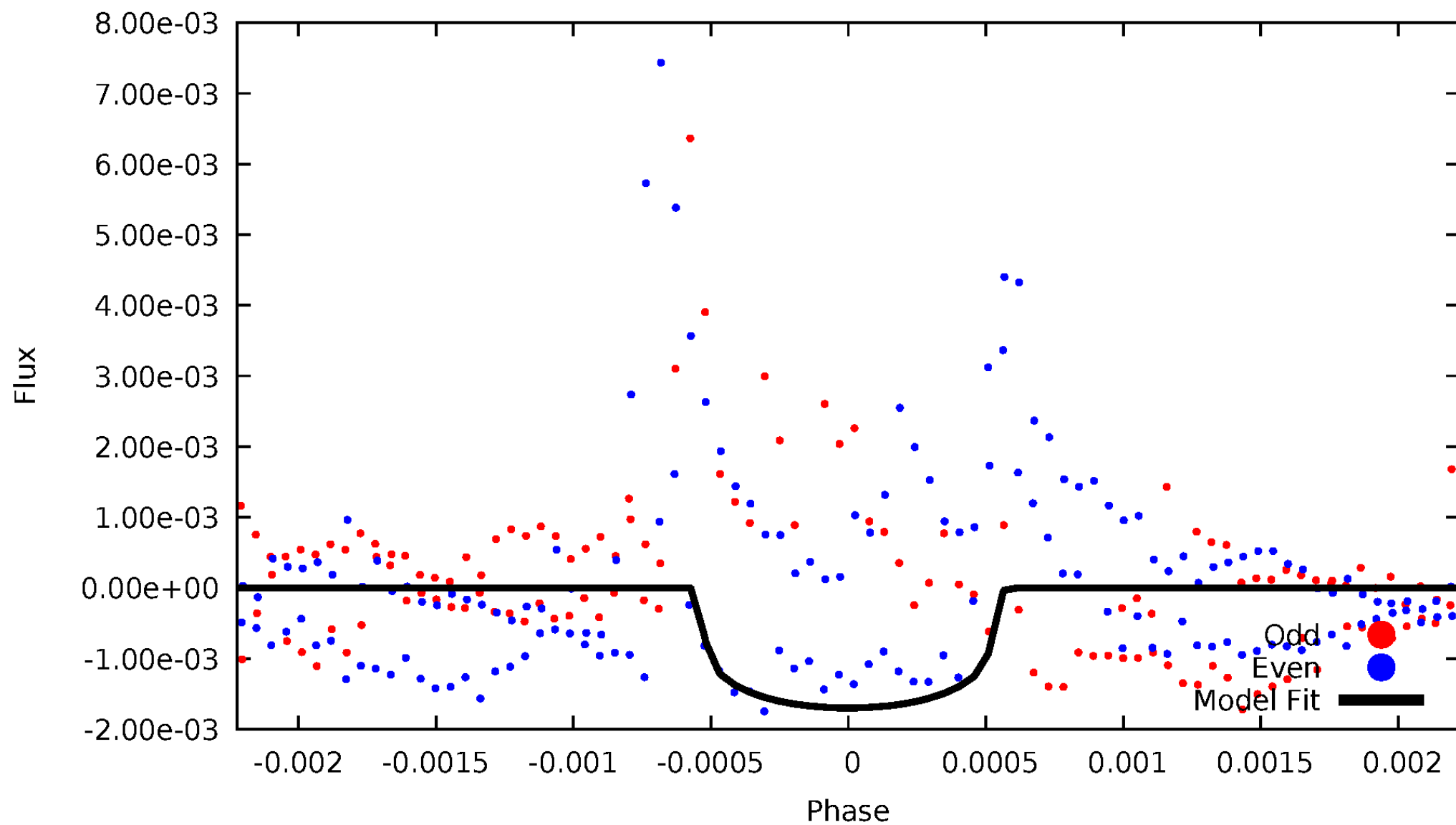
TCE 007664485-05





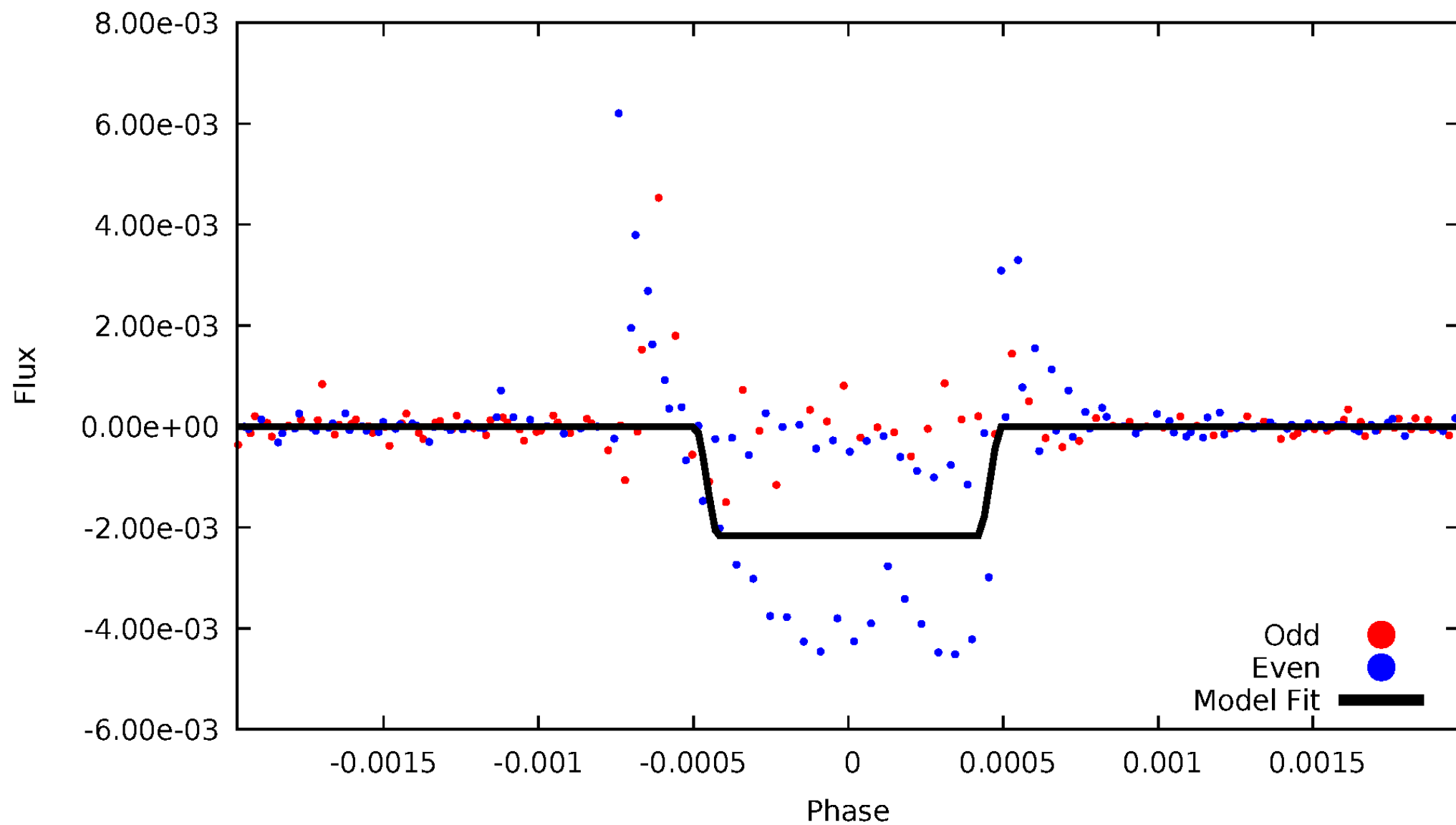
# DV Odd/Even

TCE 007664485-05



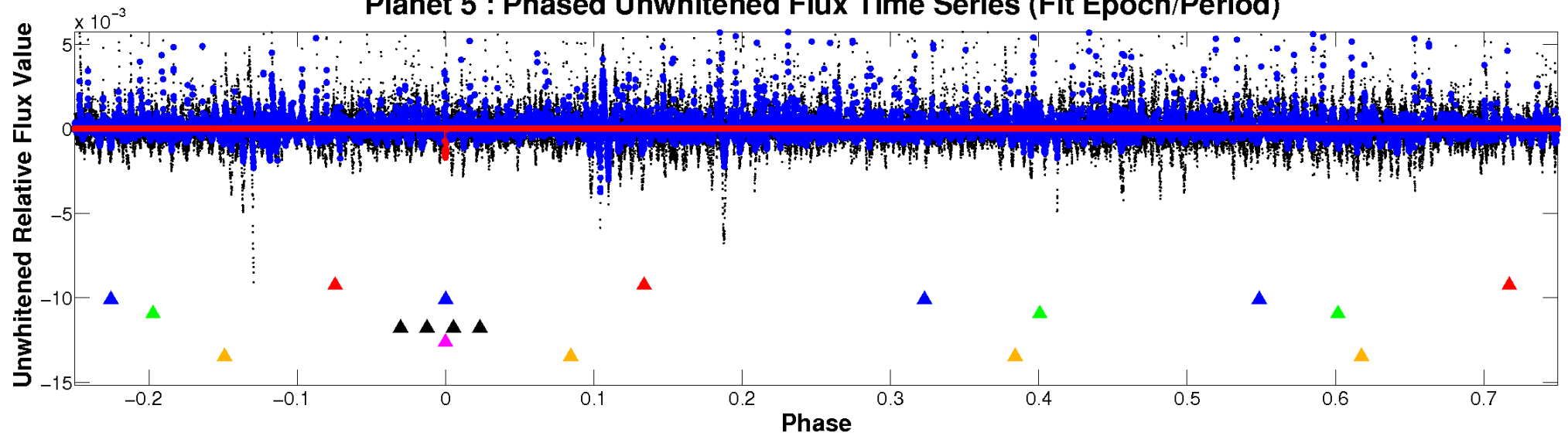
# ALT Odd/Even

TCE 007664485-05

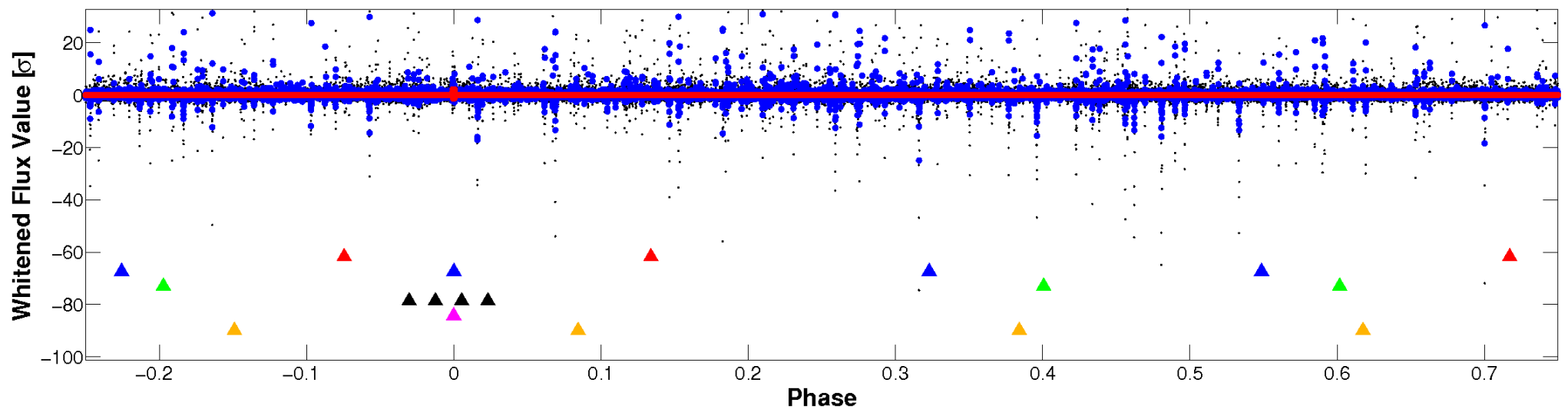


# Non-Whitened Vs. Whitened Light Curve

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

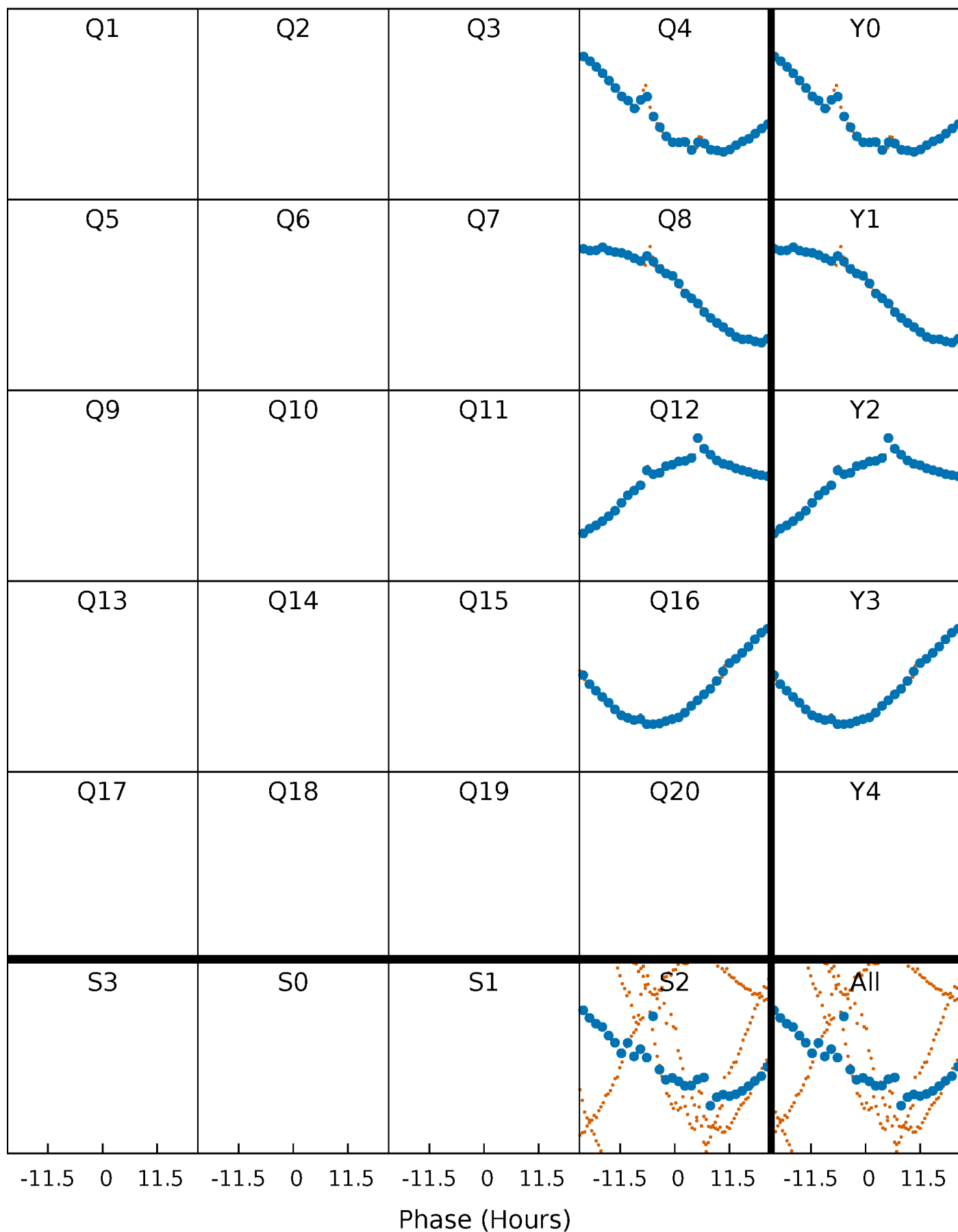


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



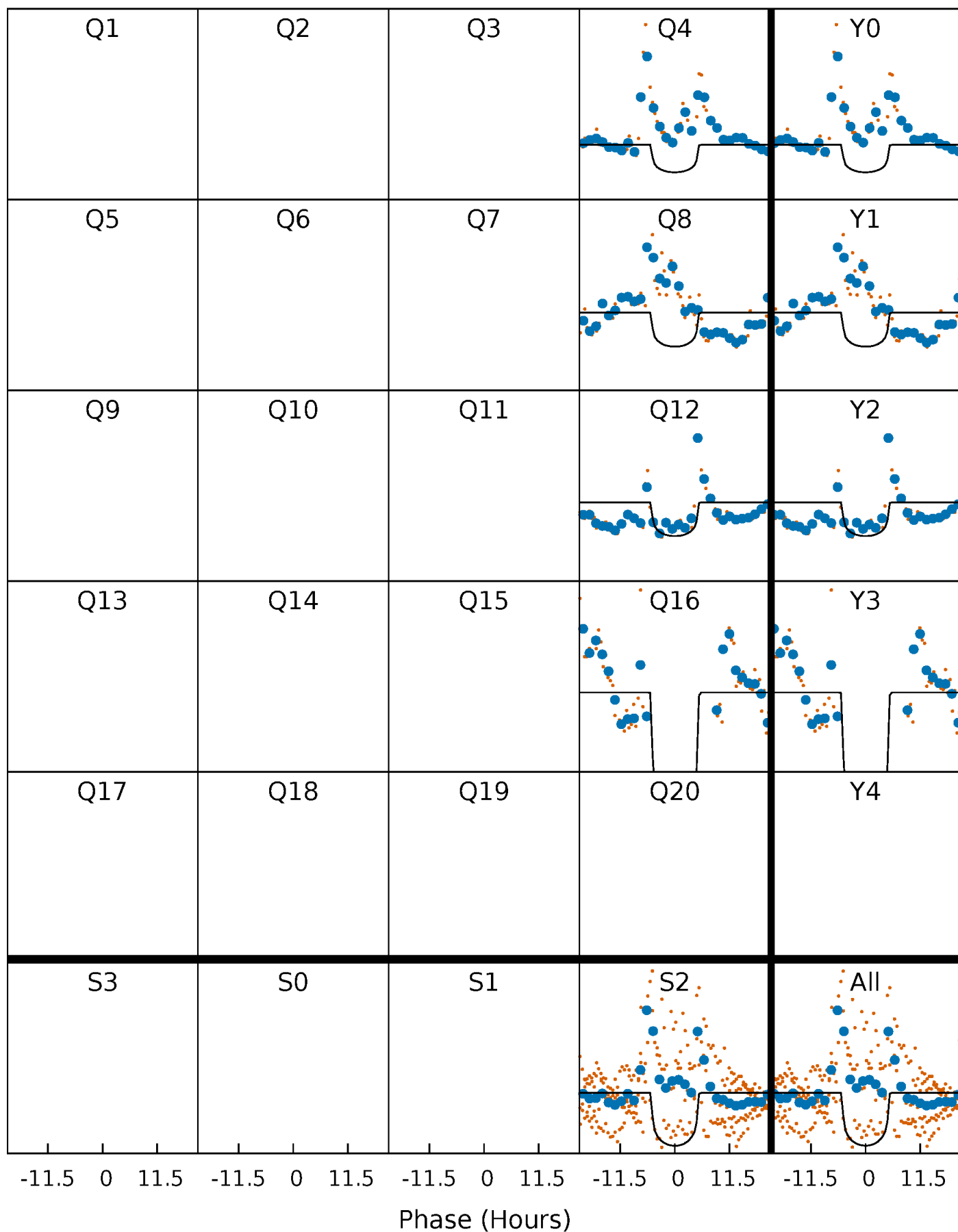
# PDC Quarter-Phased Transit Curves

TCE 007664485-05     $P=376.306100$  Days     $T_0=390.884279$  (BKJD)



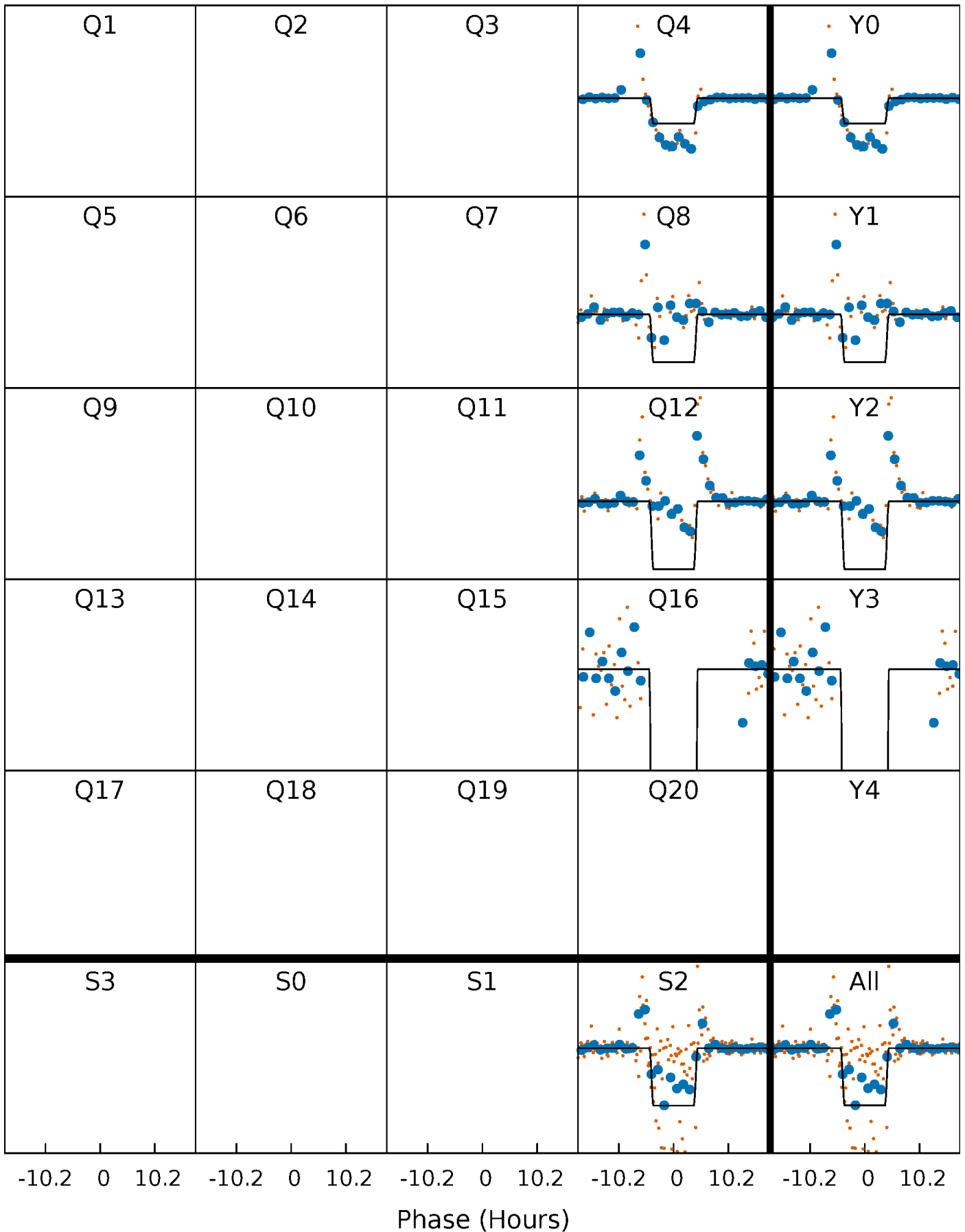
# DV Quarter-Phased Transit Curves

TCE 007664485-05     $P=376.306100$  Days     $T_0=390.884279$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

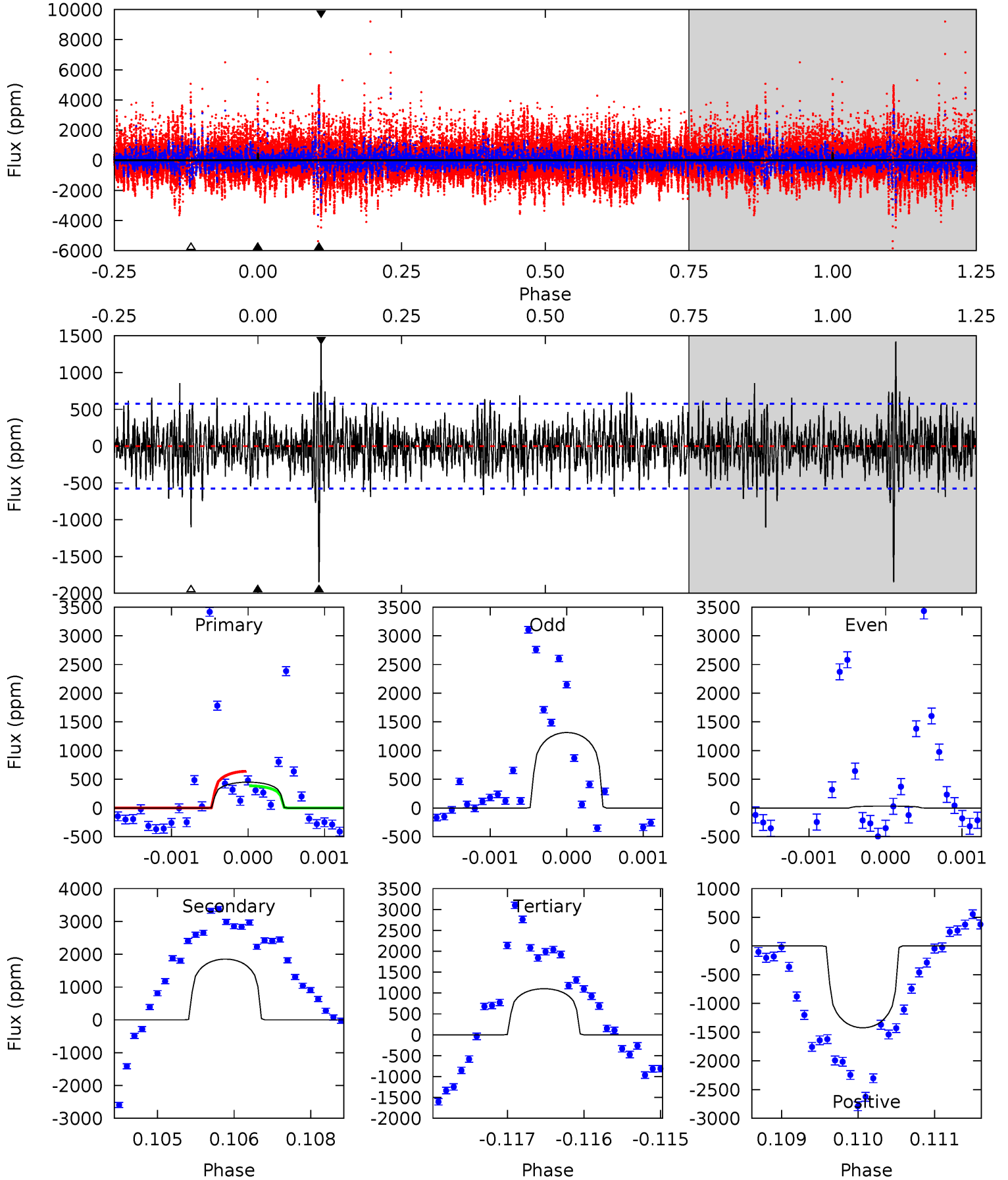
TCE 007664485-05     $P=376.297630$  Days     $T_0=390.906708$  (BKJD)



# DV Model-Shift Uniqueness Test

007664485-05, P = 376.306100 Days, E = 14.578179 Days

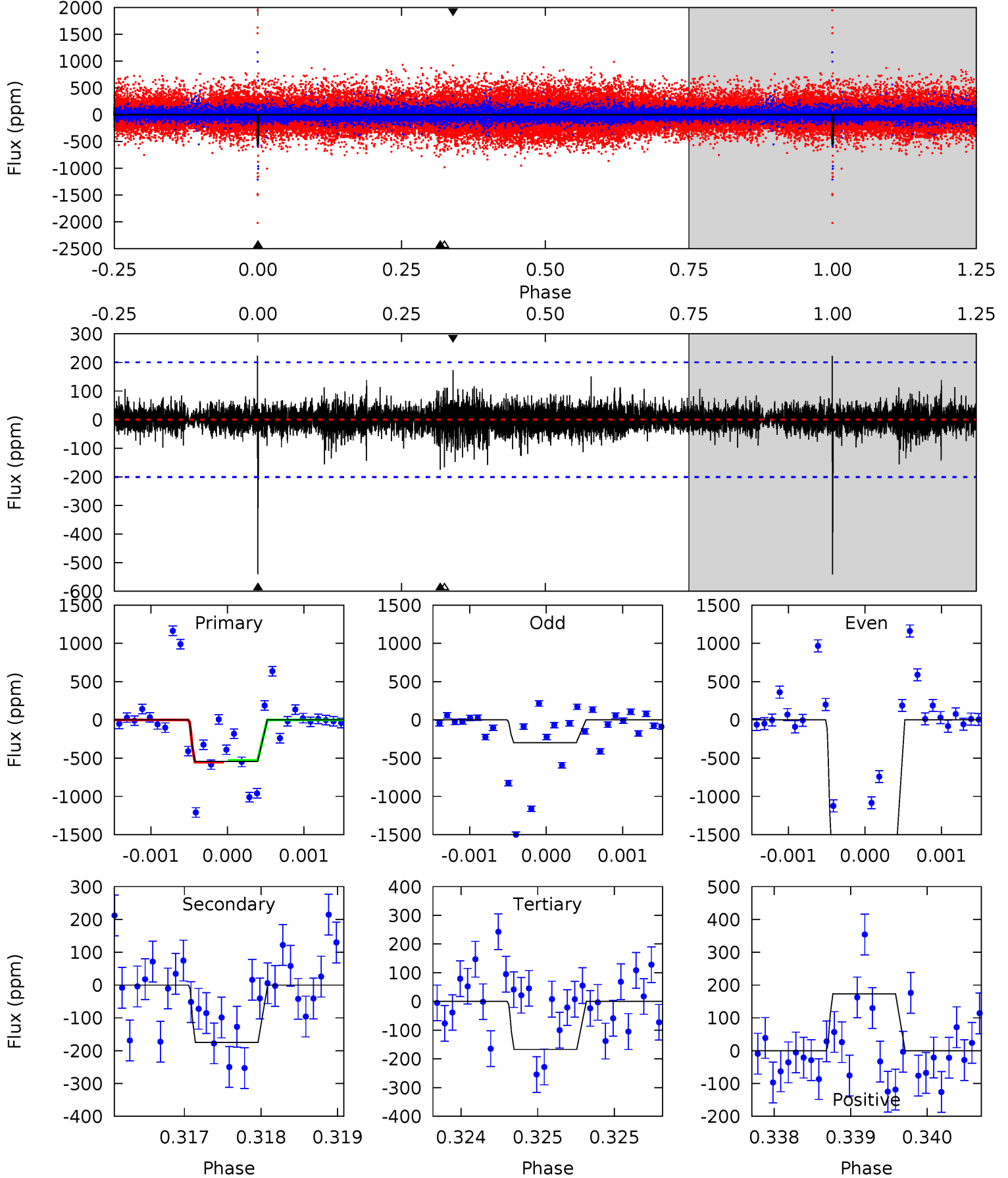
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.23 | 17.4 | 10.4 | 13.4 | 5.42            | 3.24            | 2.20             | -6.14   | -9.16   | 7.05    | 4.03    | 4.67    | 0.38 | 0.43  | 1.17 |



# Alt Model-Shift Uniqueness Test

007664485-05, P = 376.297630 Days, E = 14.609078 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 |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 14.7 | 4.76 | 4.54 | 4.70 | 5.46            | 3.30            | 0.78             | 10.2    | 10.0    | 0.22    | 0.05    | 23.7    | 3.38 | 0.29  | 0   |





### Stellar Parameters For KIC 007664485

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5521^{+150}_{-150}$ | $4.594^{+0.040}_{-0.112}$ | $-0.280^{+0.300}_{-0.300}$ | $0.771^{+0.138}_{-0.069}$ | $0.864^{+0.072}_{-0.109}$ | $2.650^{+0.520}_{-0.956}$                 |
|        | +3%/-3%              | +1%/-2%                   | +107%/-107%                | +18%/-9%                  | +8%/-13%                  | +20%/-36%                                 |
| 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 007664485-05 / KOI

| Detrend | Depth (ppm)     | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$  | $A_{\text{obs}}$           |
|---------|-----------------|------------------------|----------------------|-----------------------|----------------------------|
| DV      | $-1852 \pm 106$ | $3.22^{+1.12}_{-1.03}$ | $308^{+14}_{-12}$    | $5913^{+1346}_{-717}$ | $91403^{+104189}_{-40218}$ |
| Alt.    | $-175 \pm 37$   | $4.08^{+0.95}_{-1.01}$ | $308^{+14}_{-12}$    | $3429^{+326}_{-249}$  | $5408^{+4061}_{-2051}$     |

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

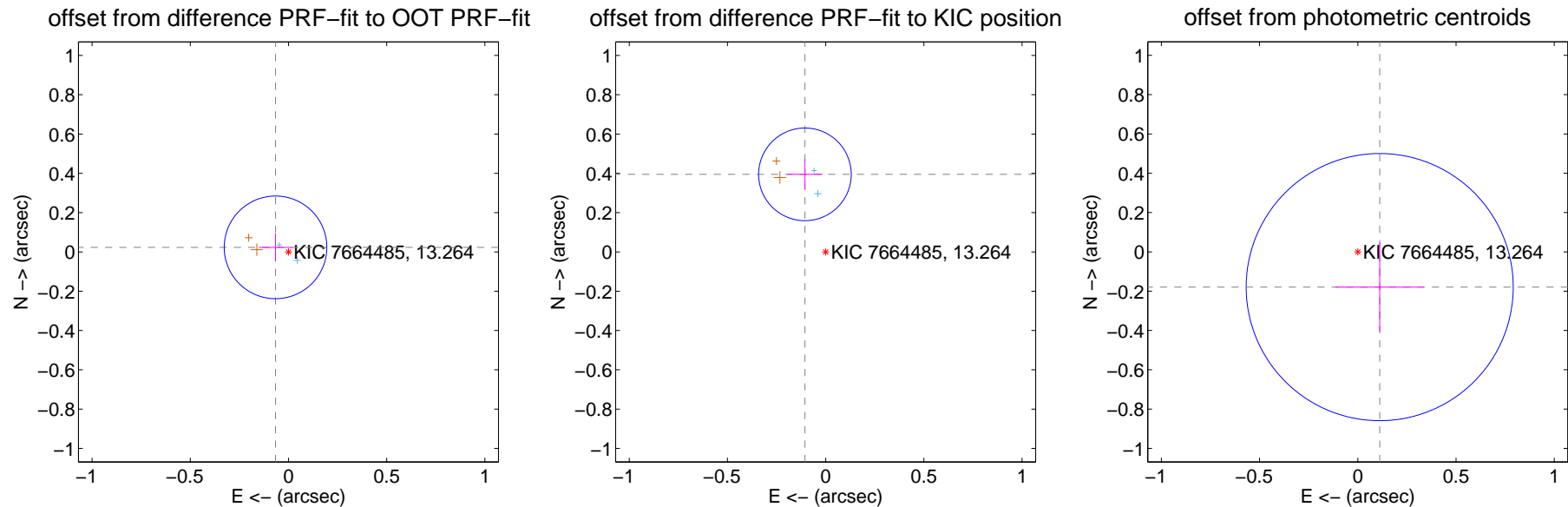
## DV Centroid Data

Supplemental centroid analysis for 007664485-05. Kepler magnitude: 13.26. Transit SNR 8.00

There are 2 quarters with good PRF difference image offsets

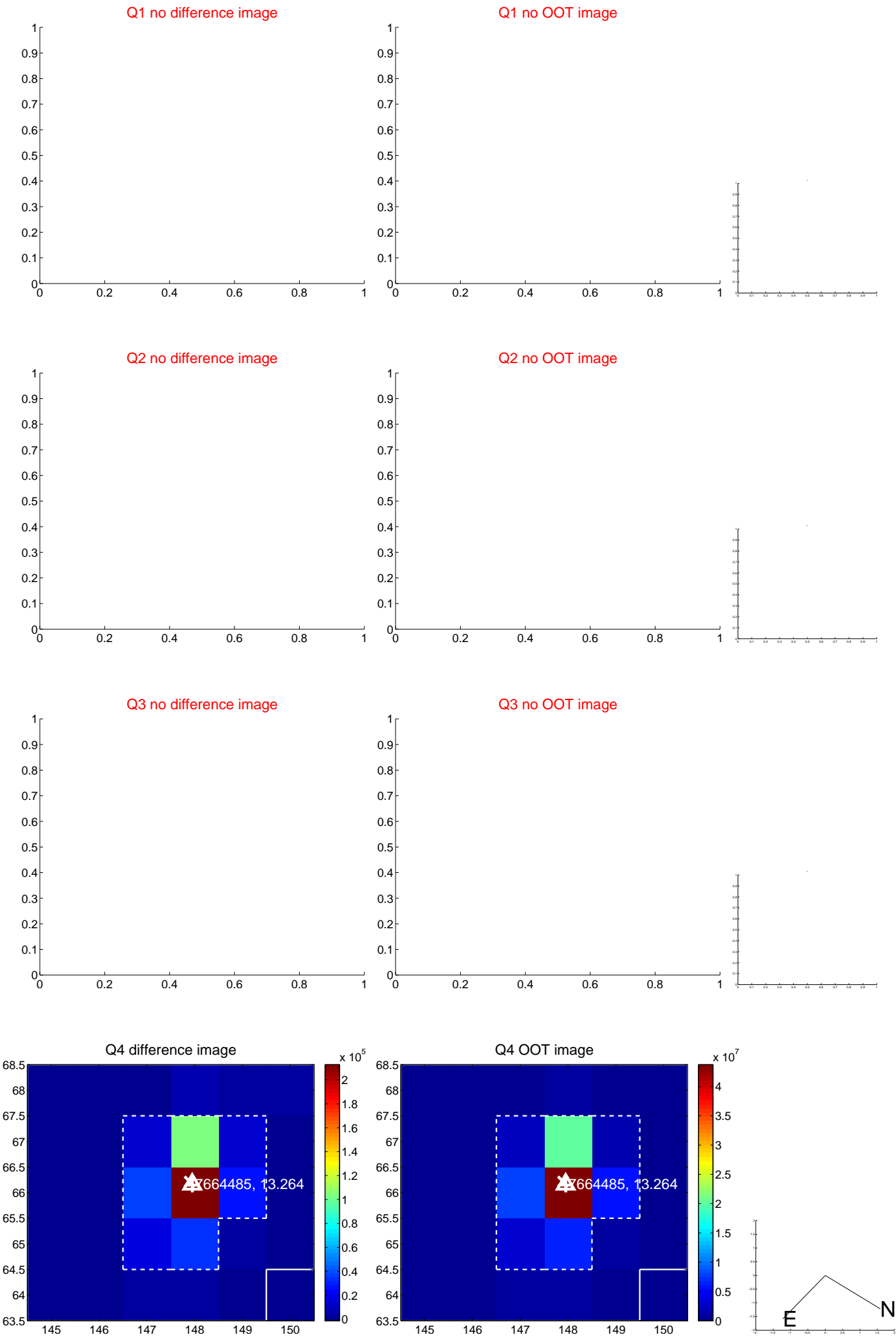
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

|   | Distance in arcsec                  | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|-------------------------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.070 \pm 0.087$                   | 0.80                | $0.066 \pm 0.085$ | $0.023 \pm 0.070$ |
| PRF-fit source offset from KIC position | <b><math>0.409 \pm 0.079</math></b> | <b>5.20</b>         | $0.106 \pm 0.090$ | $0.395 \pm 0.078$ |
| photometric centroid source offset      | $0.21 \pm 0.23$                     | 0.93                | $-0.11 \pm 0.23$  | $-0.18 \pm 0.23$  |

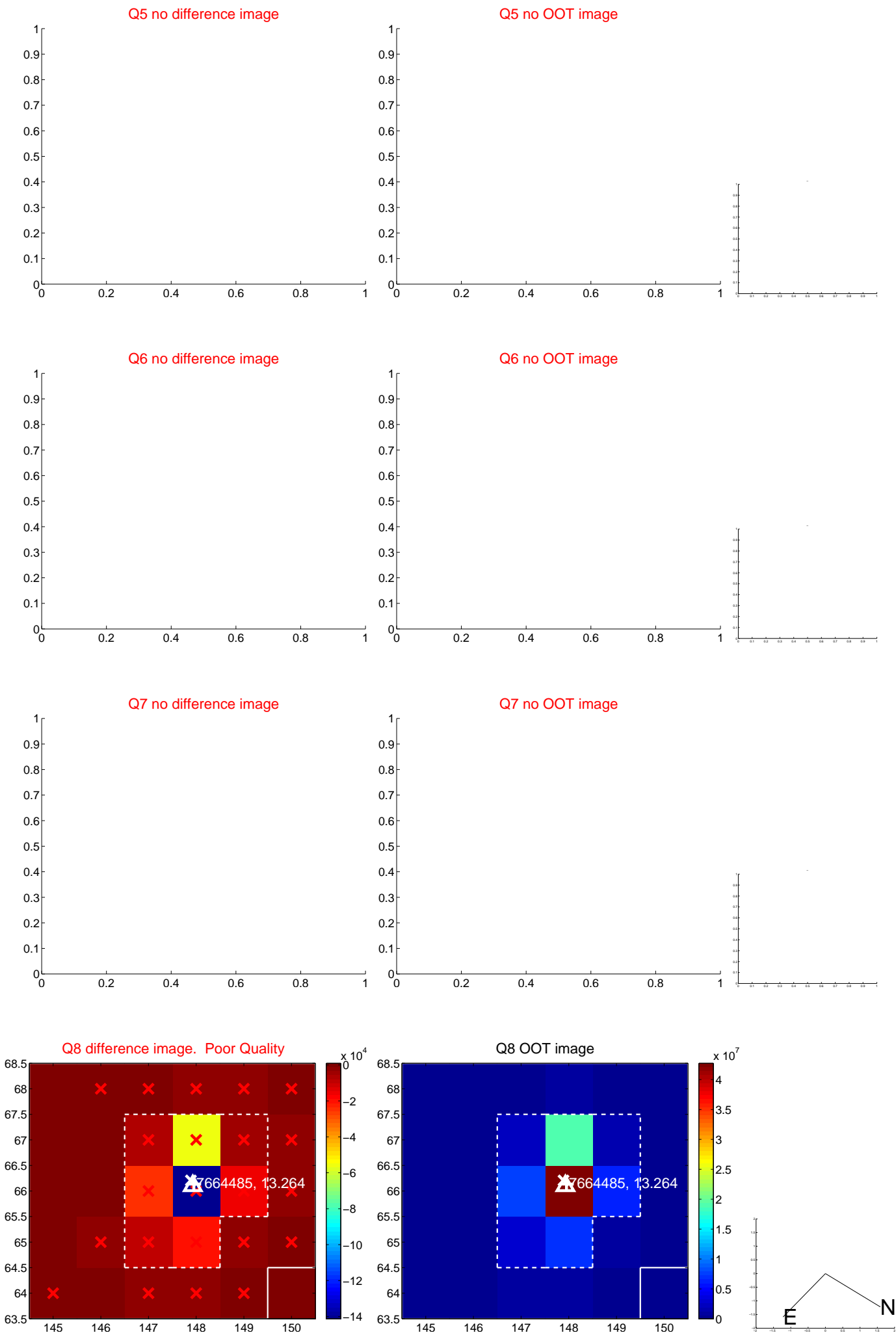


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

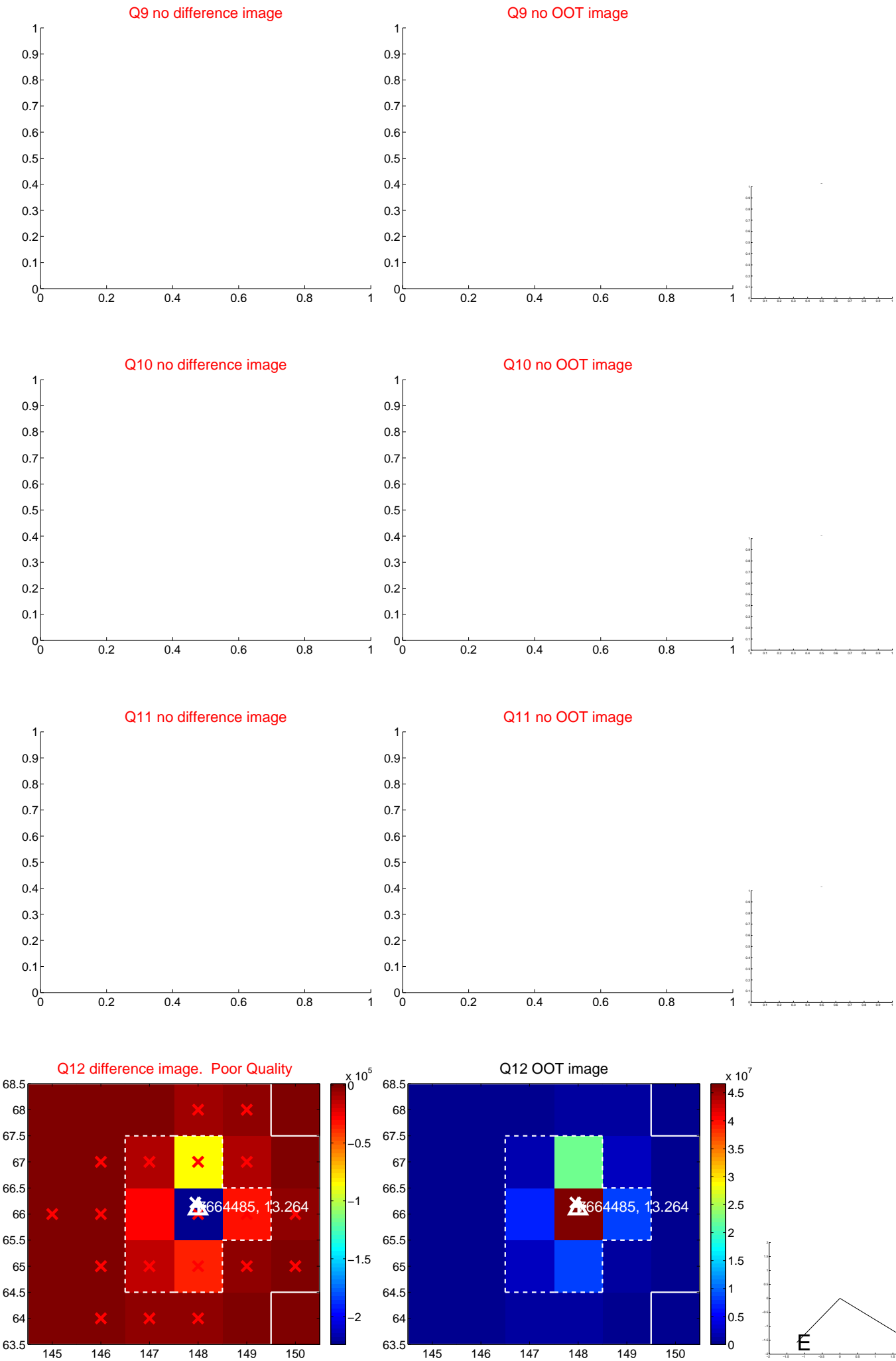
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



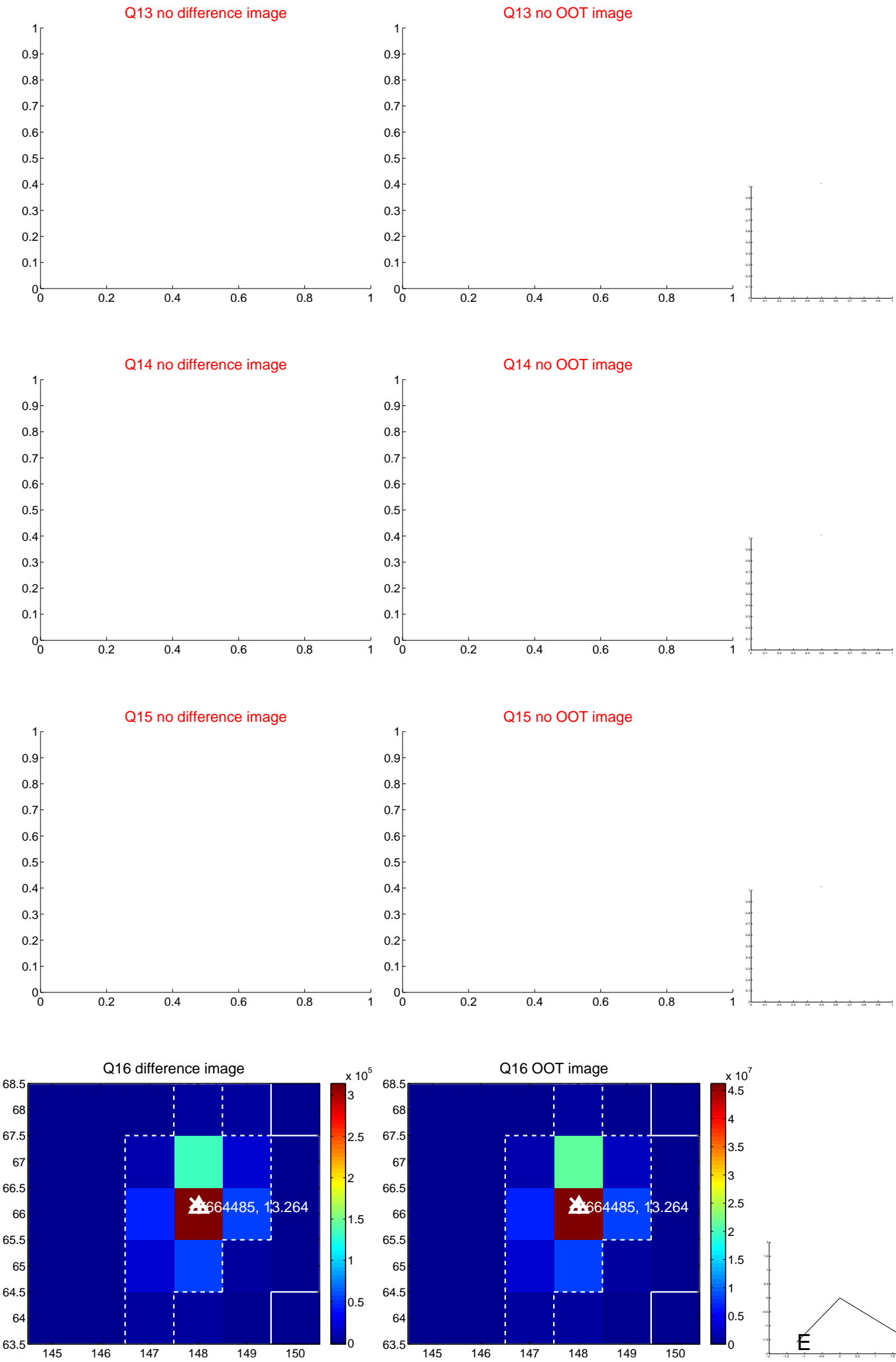
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



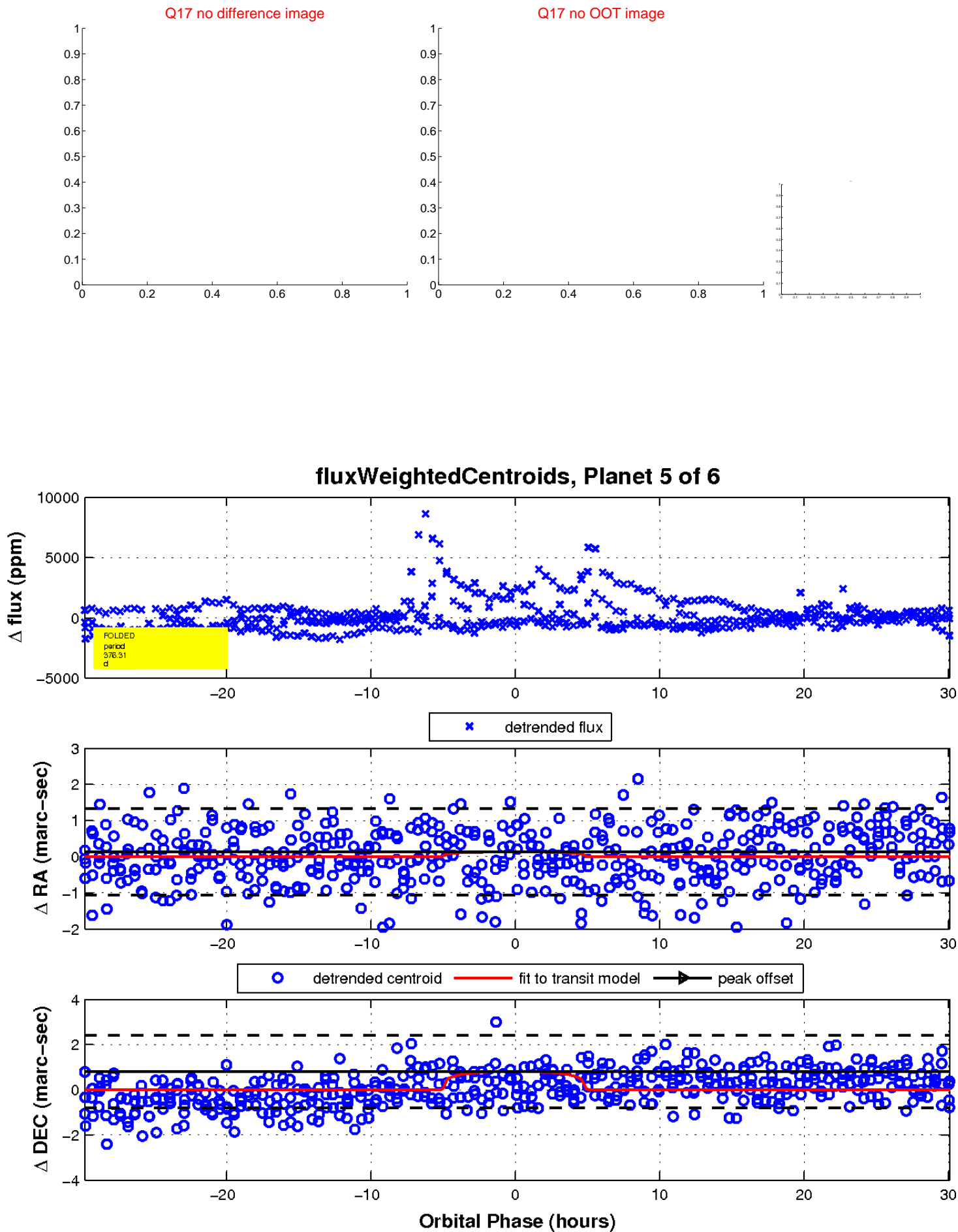
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

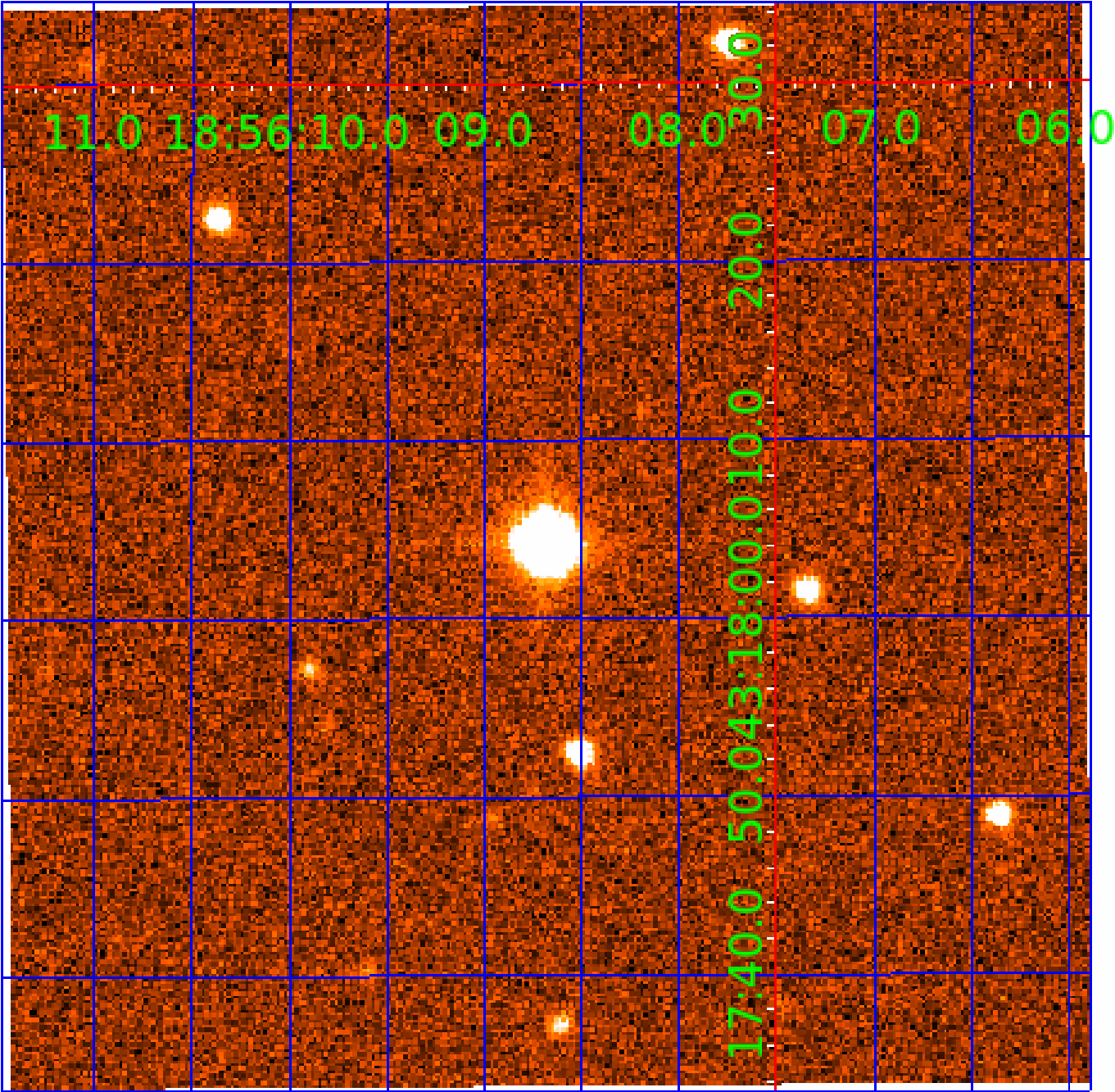


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007664485

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007664485-01 | OBS      | No   | 454.705206    | 284.481808   | 1343.0      | 3.552            | 17.0 | 8.9  | 0.77                        | 5521            | 2.92                   | 0.41                   |
| 007664485-02 | OBS      | No   | 461.249590    | 136.111643   | 879.2       | 4.722            | 15.0 | 7.1  | 0.77                        | 5521            | 2.48                   | 0.40                   |
| 007664485-03 | OBS      | No   | 451.960616    | 541.673274   | 1691.8      | 4.685            | 17.6 | 10.8 | 0.77                        | 5521            | 3.98                   | 0.41                   |
| 007664485-04 | OBS      | No   | 369.594182    | 399.627406   | 2101.4      | 12.365           | 14.9 | 10.1 | 0.77                        | 5521            | 3.48                   | 0.54                   |
| 007664485-05 | OBS      | No   | 376.306100    | 390.884279   | 1699.0      | 10.035           | 15.1 | 8.0  | 0.77                        | 5521            | 3.13                   | 0.53                   |
| 007664485-06 | OBS      | No   | 464.161938    | 159.116733   | 511.8       | 4.500            | 14.0 | -1.0 | 0.77                        | 5521            | 1.72                   | 0.40                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007664485-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS             |
| 007664485-02 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS |
| 007664485-03 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS    |
| 007664485-04 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS   |
| 007664485-05 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS                              |
| 007664485-06 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—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.

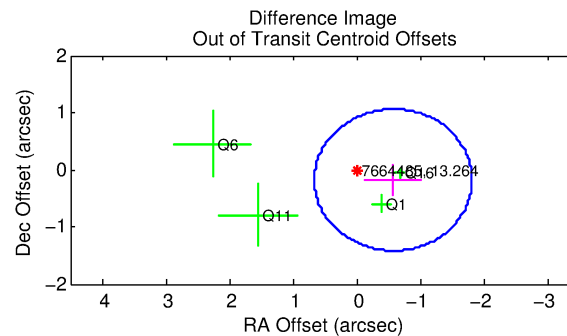
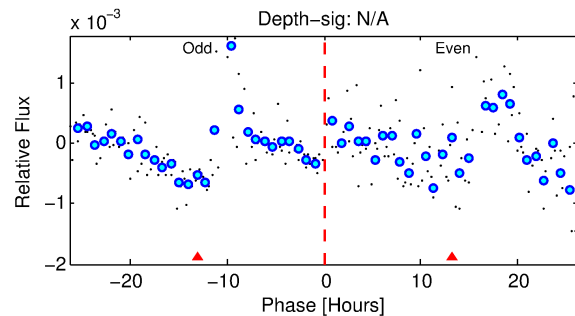
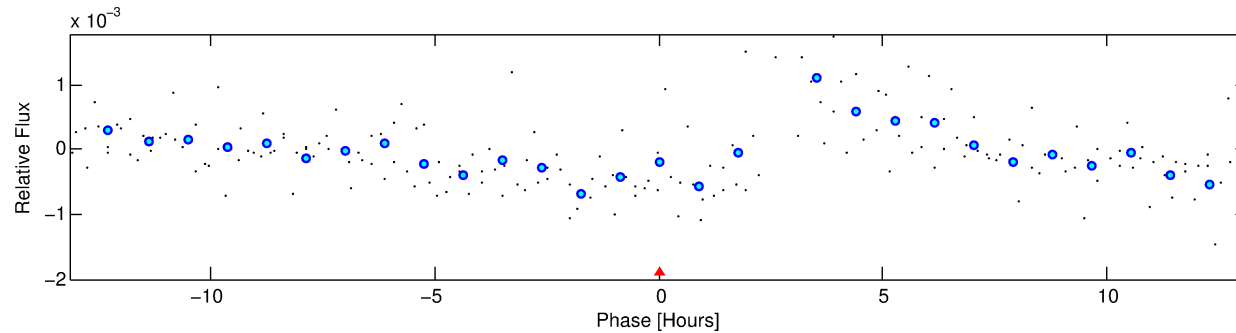
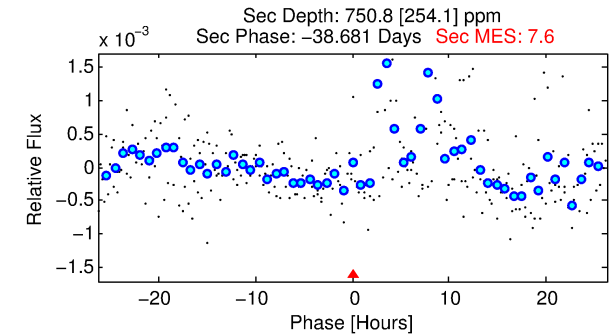
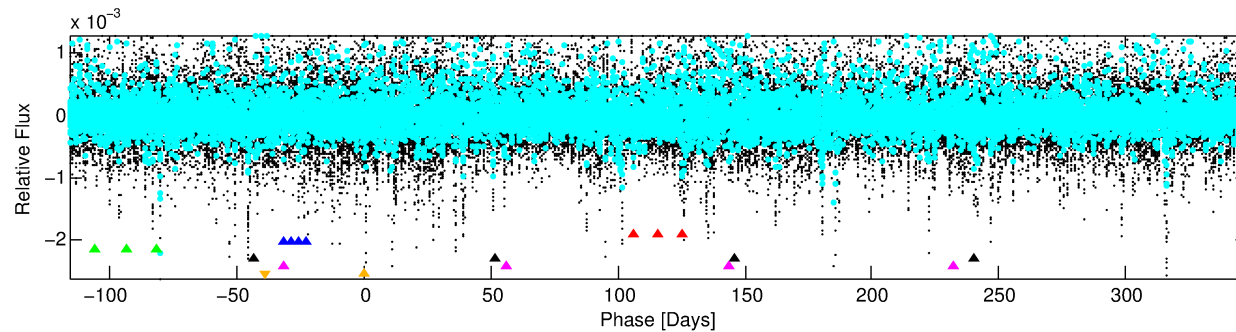
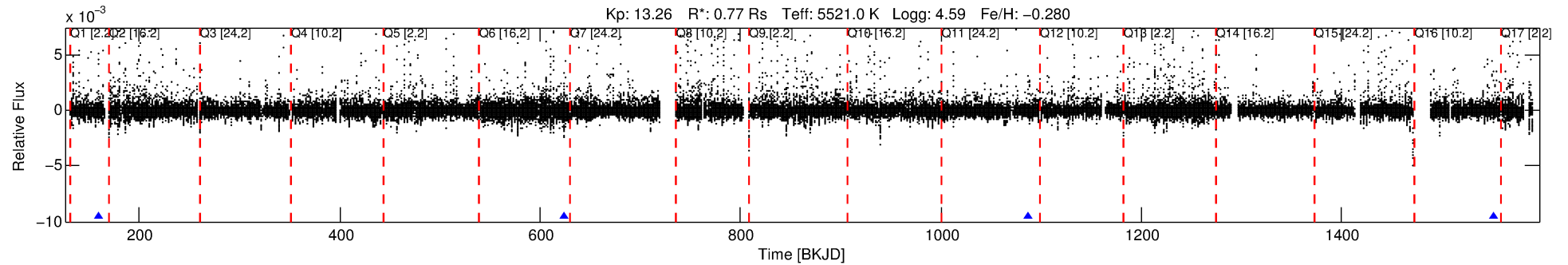
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007664485-06

No Significant Match Found

# DV One-Page Summary

KIC: 7664485 Candidate: 6 of 6 Period: 464.162 d



## TPS TCE Results:

Period = 464.16194 d  
Epoch = 159.1167 BKJD

DV fit results are unavailable

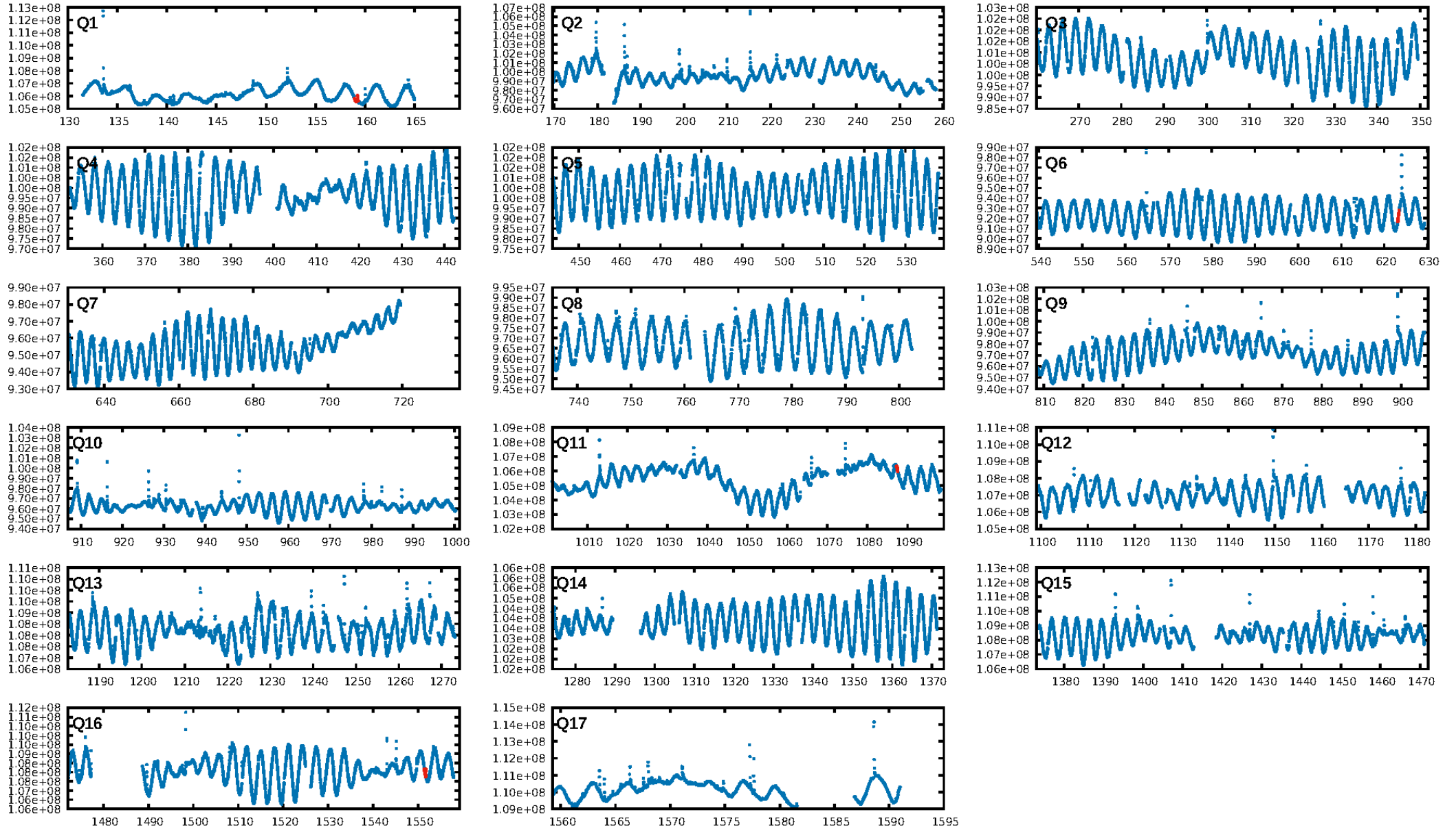
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.72 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.3957  
Centroid-sig: 55.5%  
Centroid-so: 0.538 arcsec [0.87 $\sigma$ ]  
OotOffset-rm: 0.603 arcsec [1.46 $\sigma$ ]  
KicOffset-rm: 0.597 arcsec [1.61 $\sigma$ ]  
OotOffset-st: 1/1/1/1 [4]  
KicOffset-st: 1/1/1/1 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [4/4]

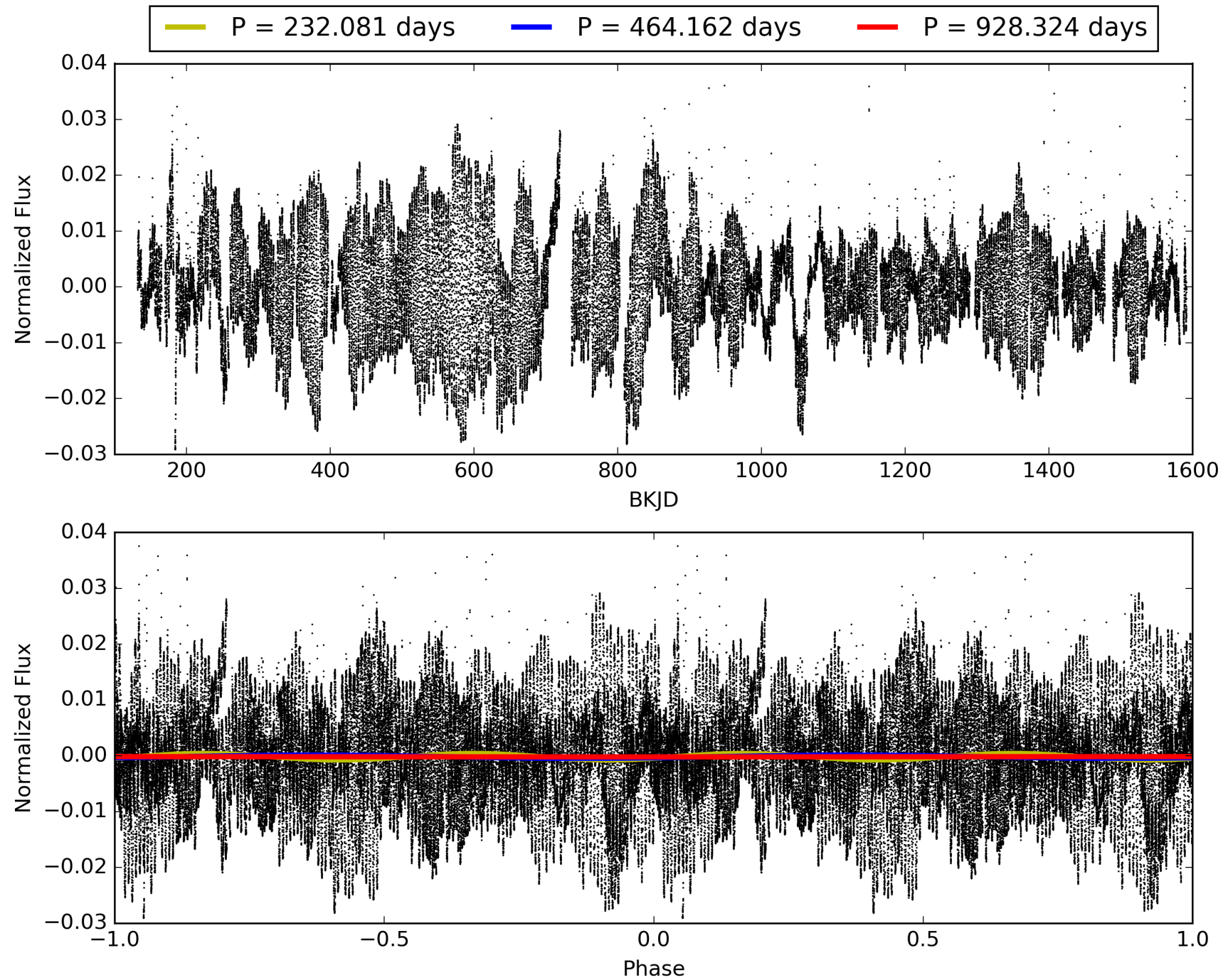
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007664485-06, PDC Light Curves

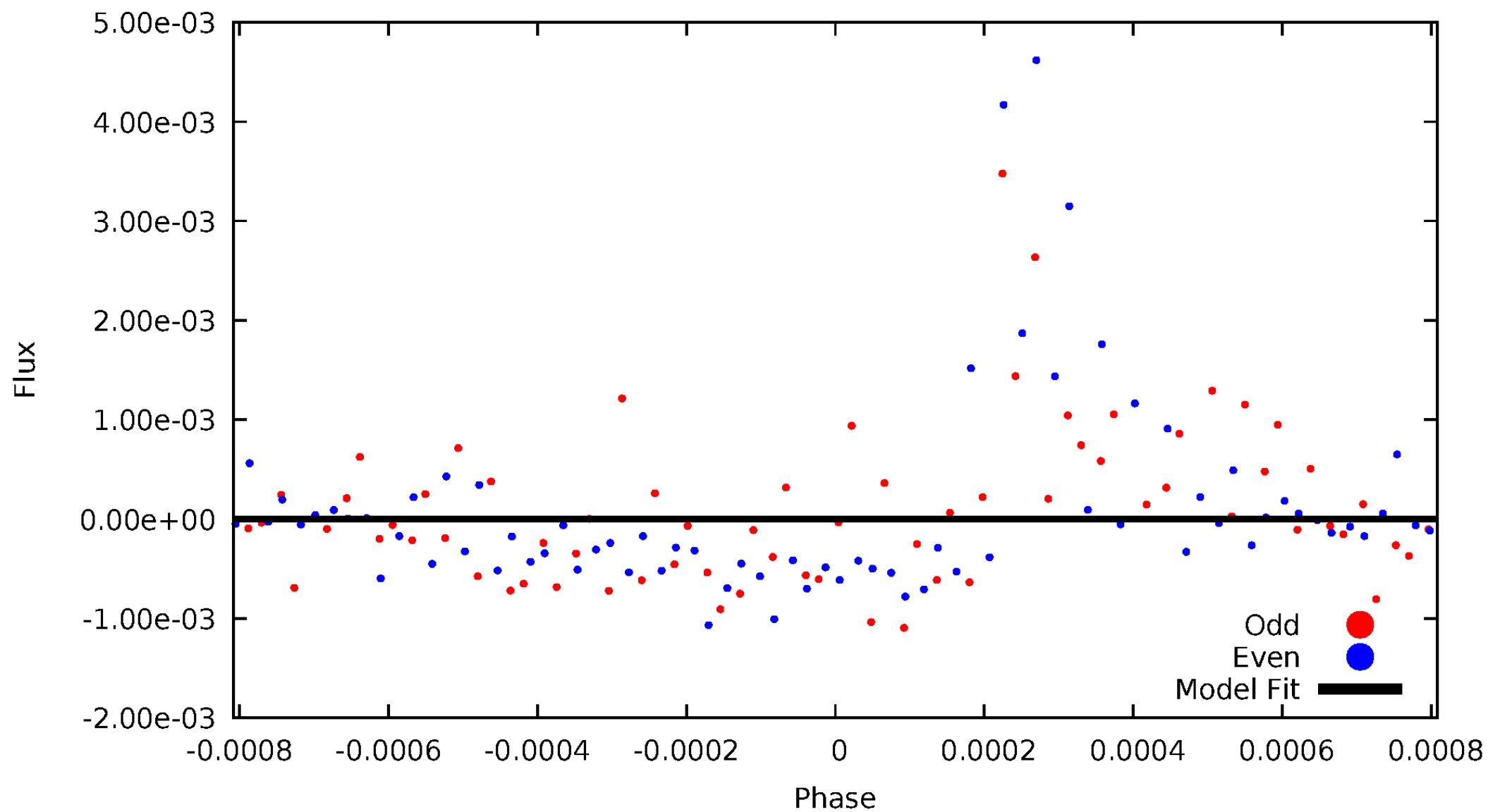


TCE 007664485-06



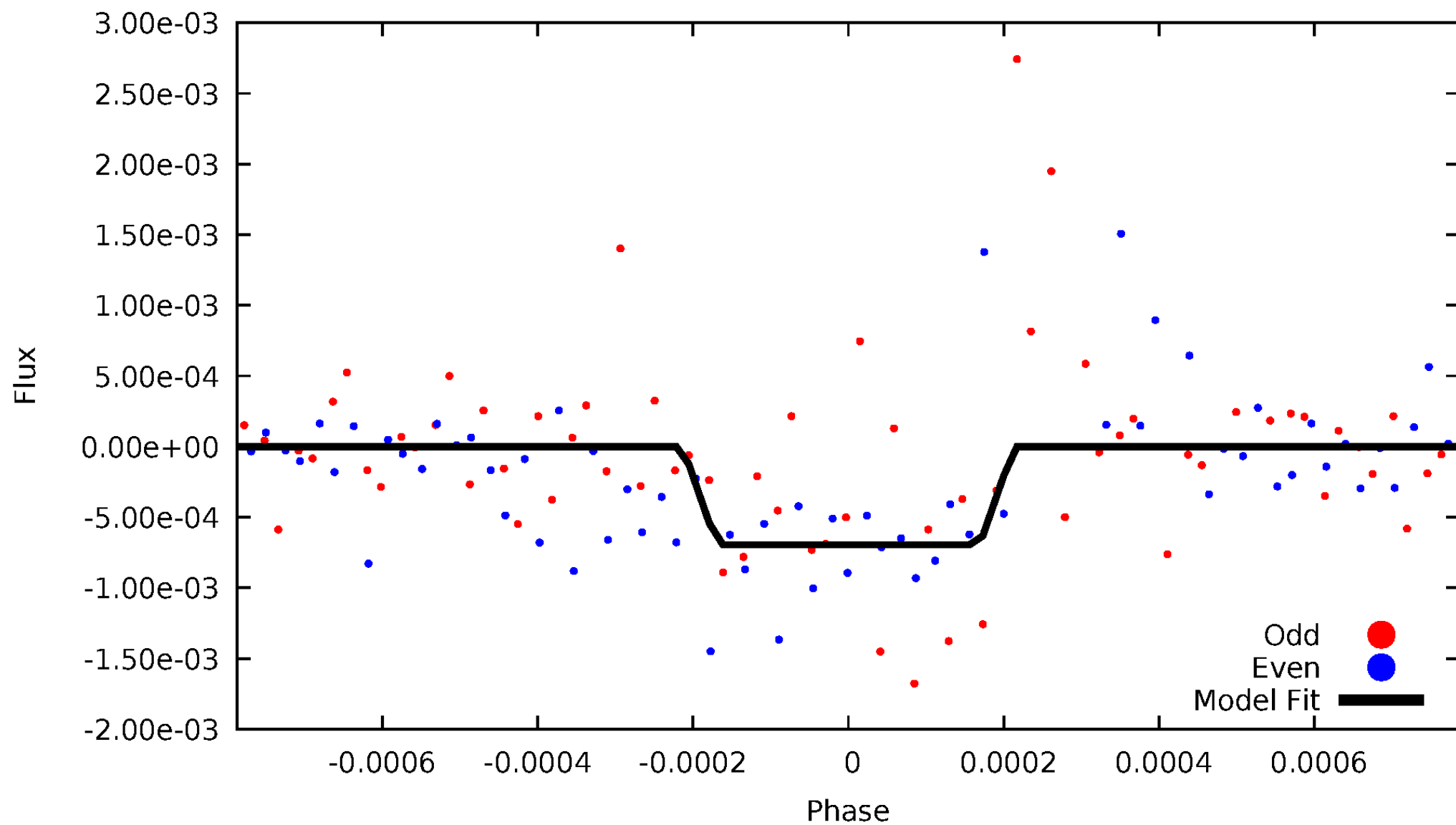
# DV Odd/Even

TCE 007664485-06



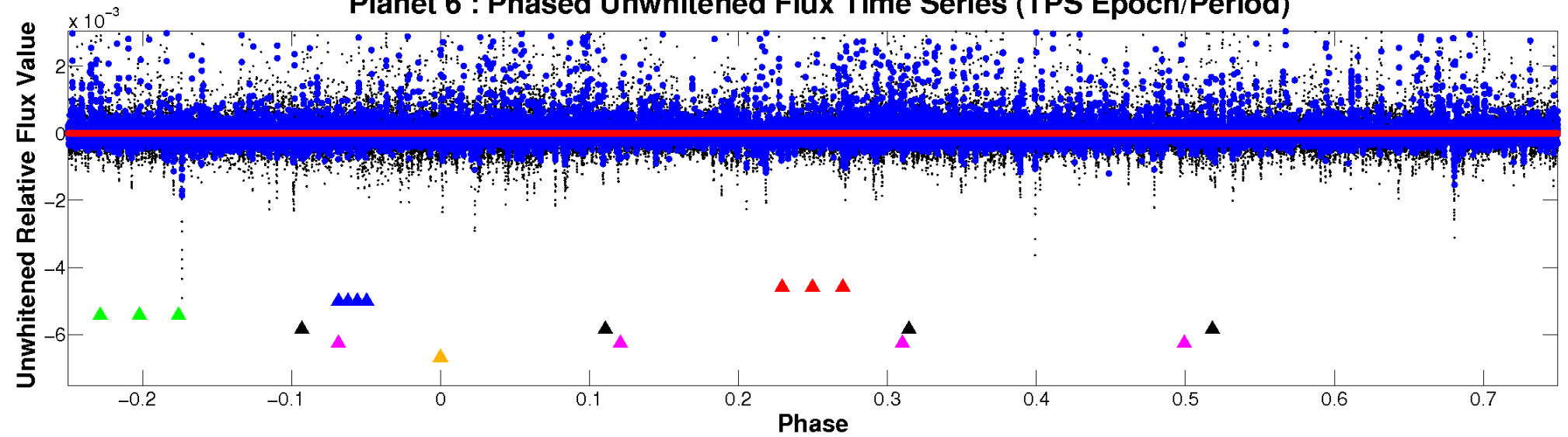
# ALT Odd/Even

TCE 007664485-06



# Non-Whitened Vs. Whitened Light Curve

**Planet 6 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

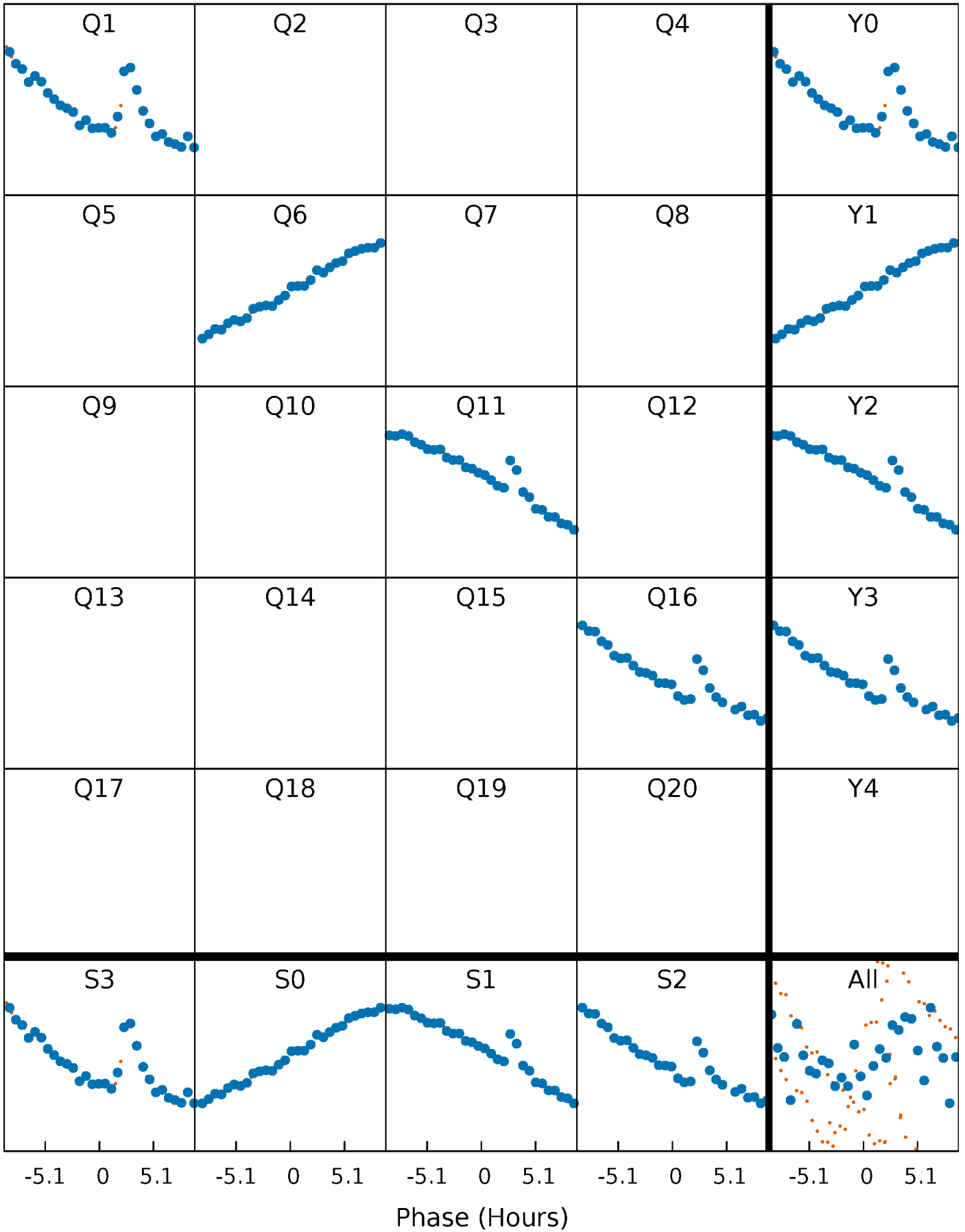


**Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

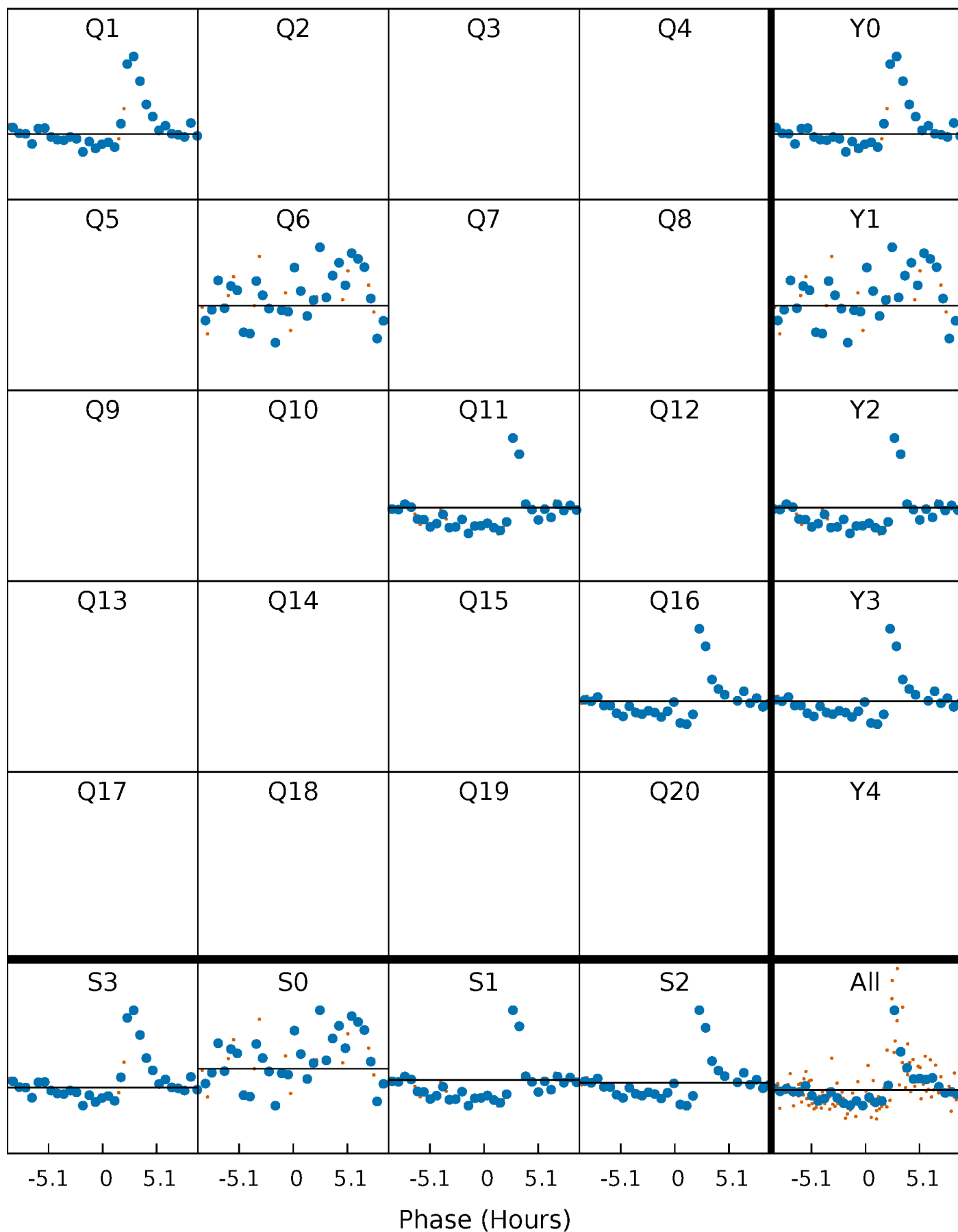
TCE 007664485-06     $P=464.161938$  Days     $T_0=159.116733$  (BKJD)





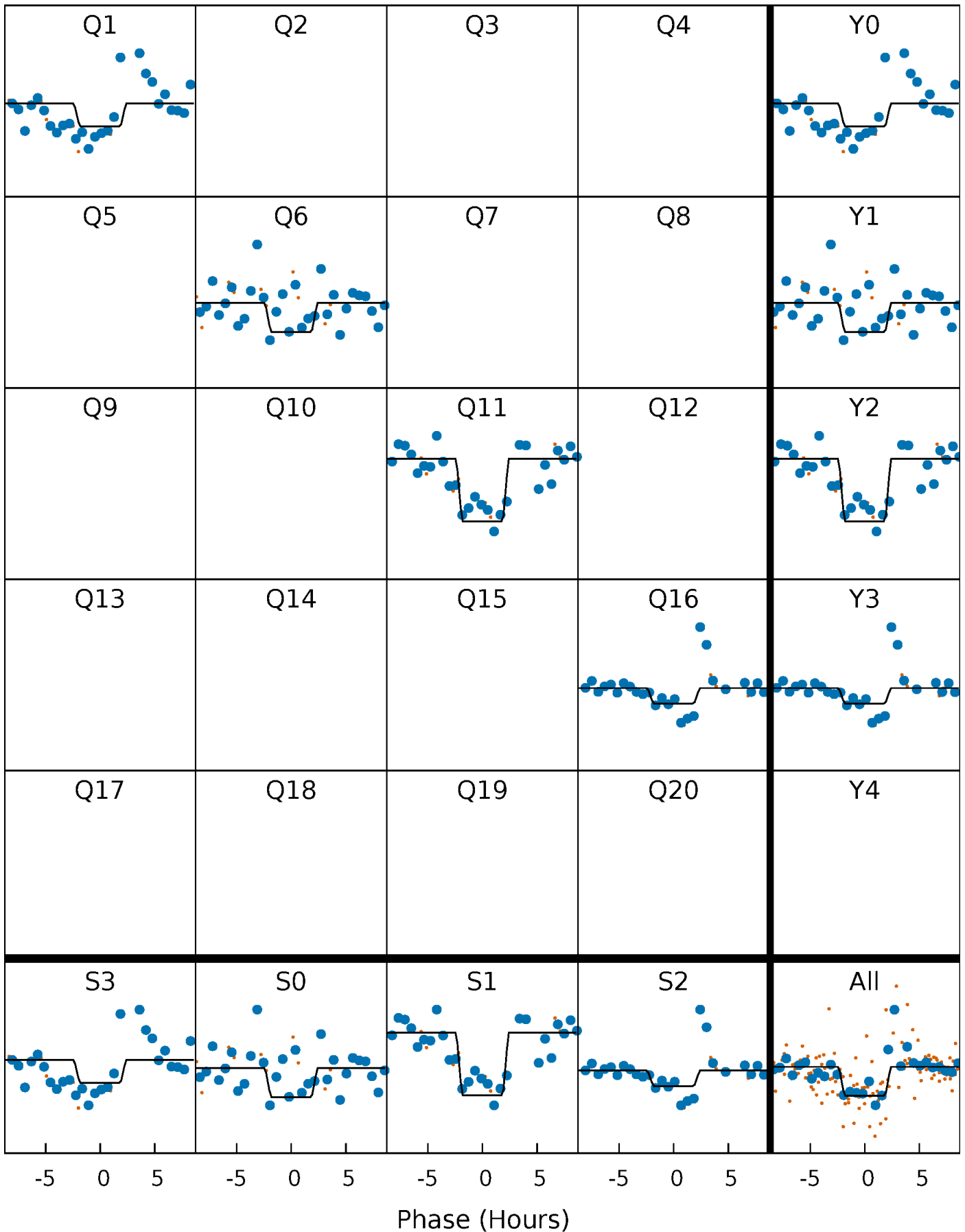
# DV Quarter-Phased Transit Curves

TCE 007664485-06 P=464.161938 Days  $T_0=159.116733$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

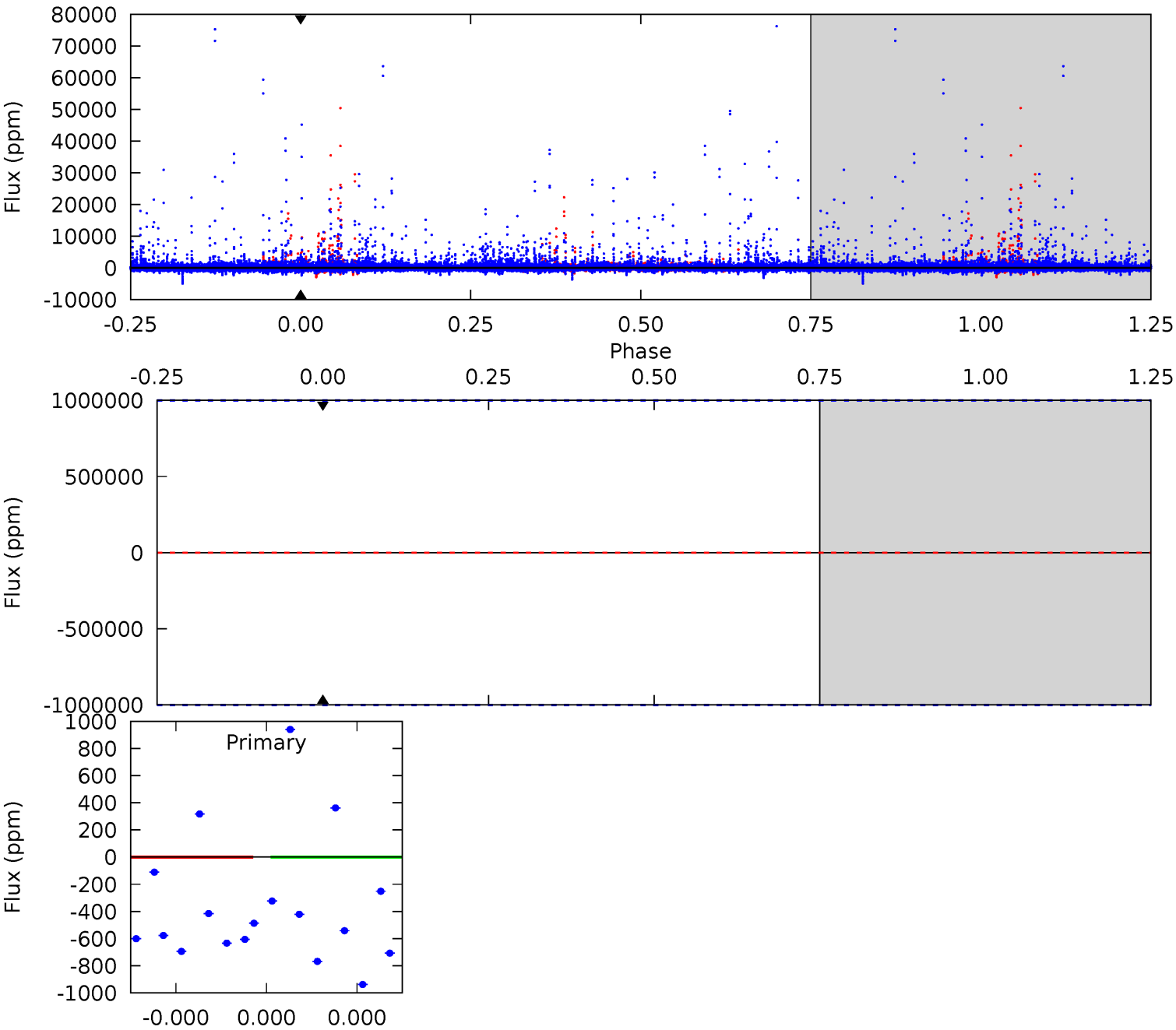
TCE 007664485-06 P=464.161938 Days  $T_0=159.120034$  (BKJD)



# DV Model-Shift Uniqueness Test

007664485-06, P = 464.161938 Days, E = 159.116733 Days

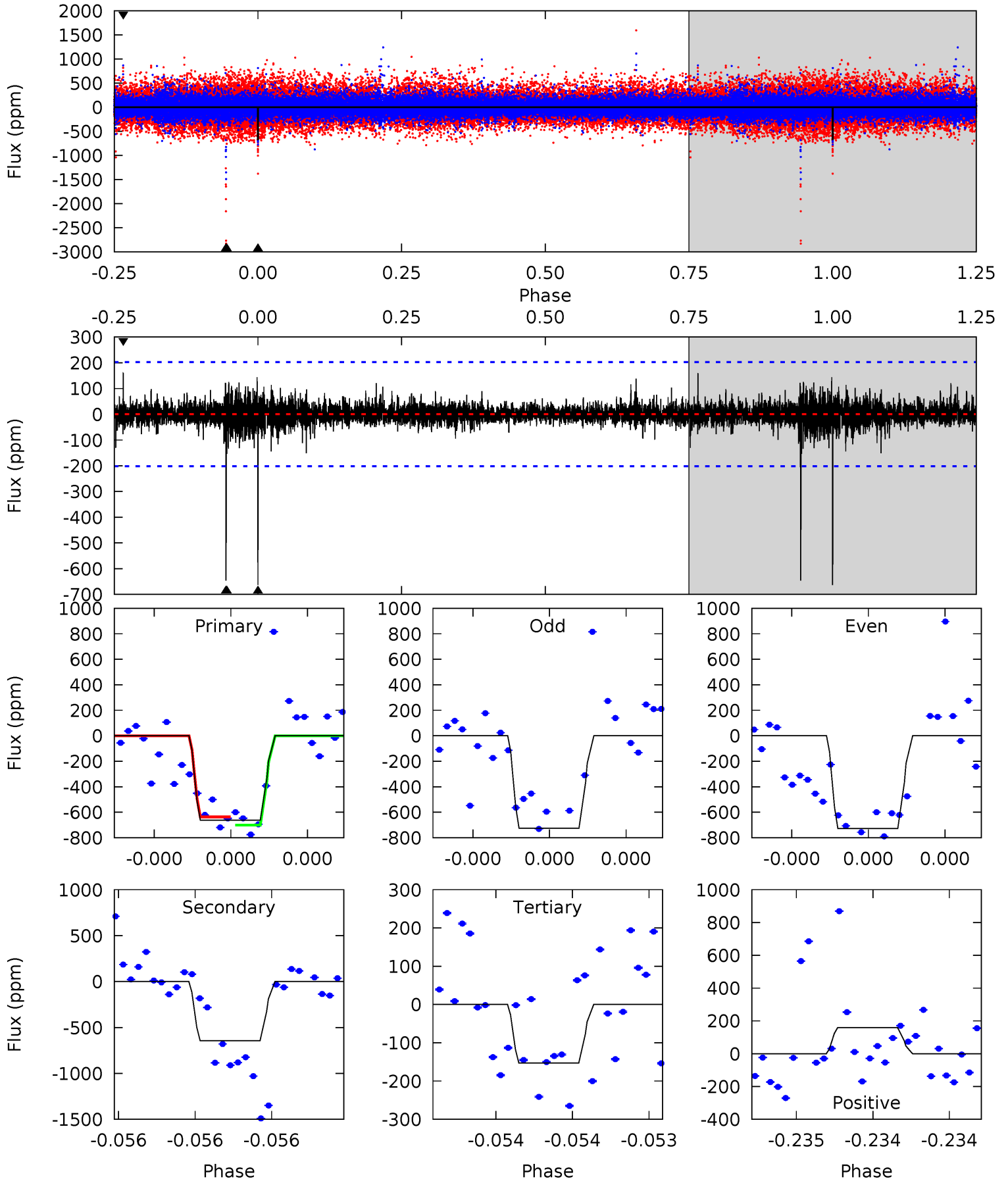
| Pri | Sec | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-----|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|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



# Alt Model-Shift Uniqueness Test

007664485-06, P = 464.161938 Days, E = 159.120034 Days

| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 18.4 | 17.9 | 4.24 | 4.42 | 5.61            | 3.54            | 0.73             | 14.1    | 14.0    | 13.7    | 13.5    | 0.02    | 0.95 | 0.19  | 0.88 |



### Stellar Parameters For KIC 007664485

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5521^{+150}_{-150}$ | $4.594^{+0.040}_{-0.112}$ | $-0.280^{+0.300}_{-0.300}$ | $0.771^{+0.138}_{-0.069}$ | $0.864^{+0.072}_{-0.109}$ | $2.650^{+0.520}_{-0.956}$                 |
|        | +3%/-3%              | +1%/-2%                   | +107%/-107%                | +18%/-9%                  | +8%/-13%                  | +20%/-36%                                 |
| 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 007664485-06 / KOI

| Detrend | Depth (ppm)     | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$      | $A_{\text{obs}}$                           |
|---------|-----------------|------------------------|----------------------|---------------------------|--|
| DV      | $0 \pm 1000000$ | $6.94^{+7.24}_{-5.06}$ | $287^{+13}_{-10}$    | $-4557^{+22709}_{-12594}$ | $-32036.871^{+2944341.396}_{-2402347.848}$ |
| Alt.    | $-645 \pm 36$   | $6.61^{+6.75}_{-4.34}$ | $287^{+13}_{-12}$    | $3598^{+1867}_{-671}$     | $9960^{+77972}_{-7539}$                    |

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

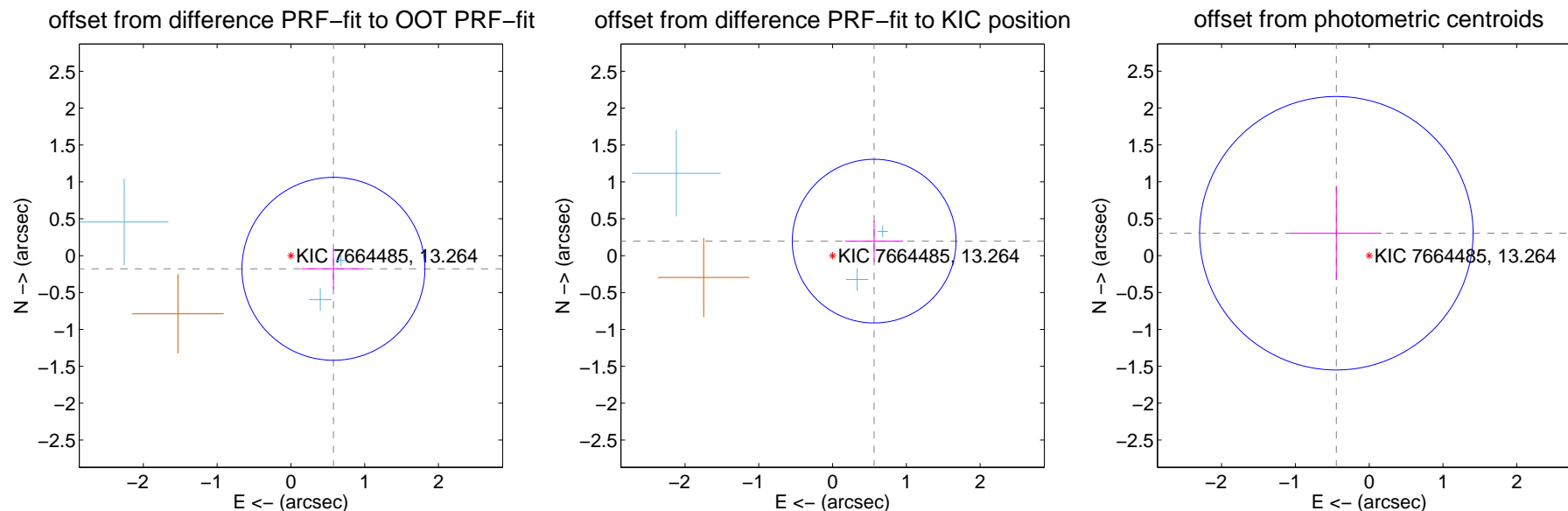
## DV Centroid Data

Supplemental centroid analysis for 007664485-06. Kepler magnitude: 13.26. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

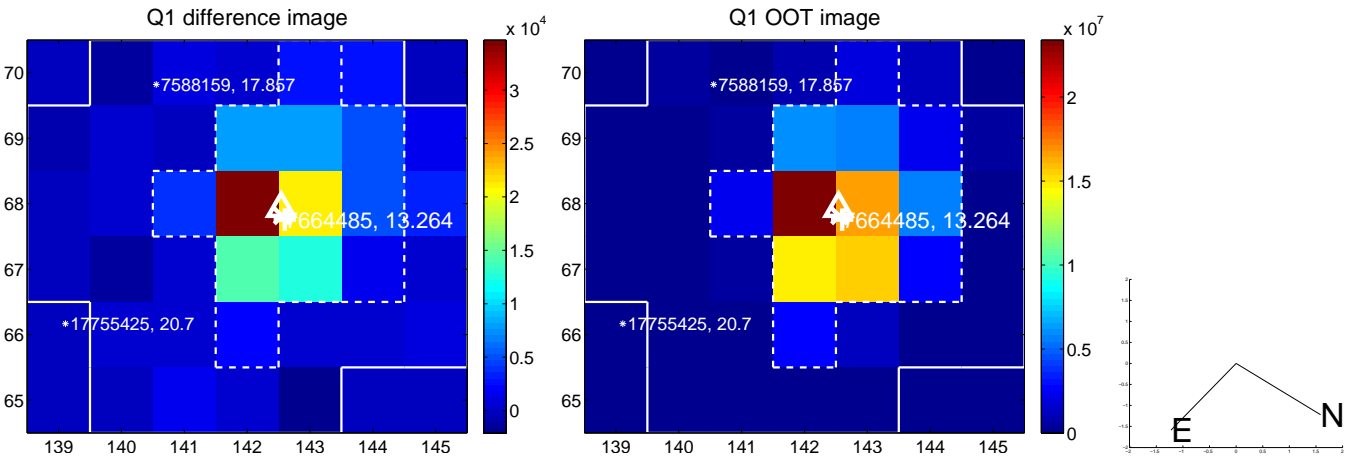
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.603 \pm 0.413$  | 1.46                | $-0.576 \pm 0.432$ | $-0.178 \pm 0.274$ |
| PRF-fit source offset from KIC position | $0.597 \pm 0.370$  | 1.61                | $-0.564 \pm 0.394$ | $0.197 \pm 0.278$  |
| photometric centroid source offset      | $0.54 \pm 0.62$    | 0.87                | $0.44 \pm 0.61$    | $0.30 \pm 0.63$    |



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.

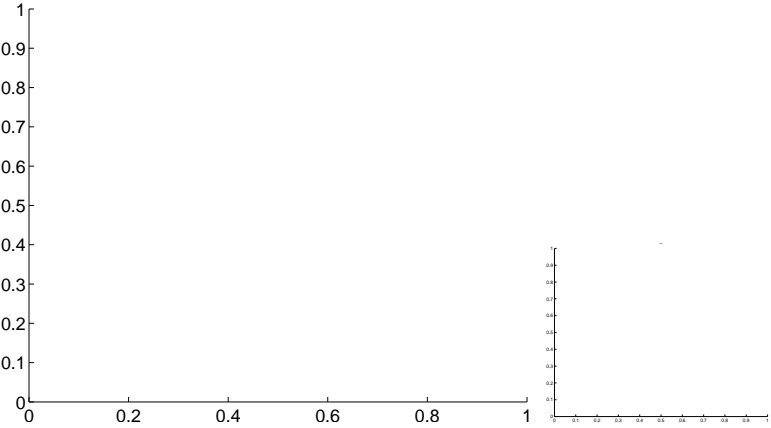


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

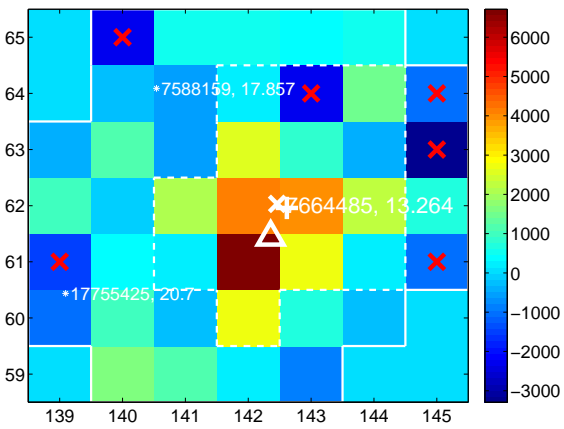
Q5 no difference image



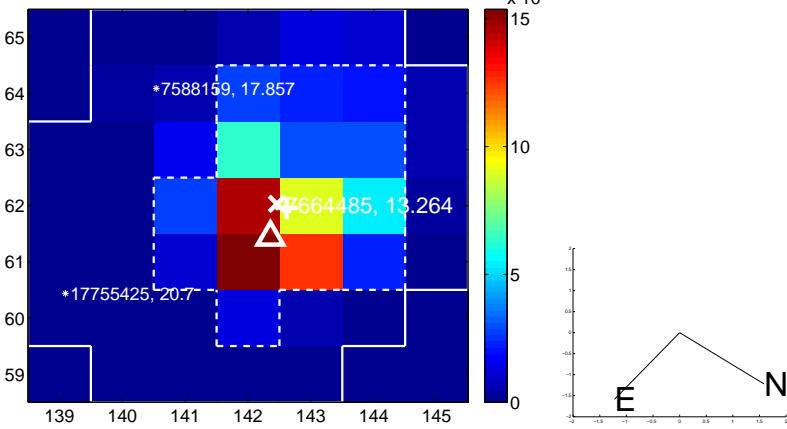
Q5 no OOT image



Q6 difference image



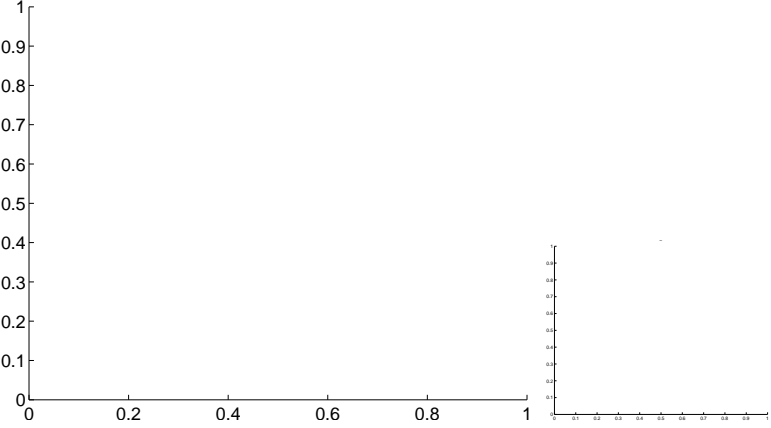
Q6 OOT image



Q7 no difference image



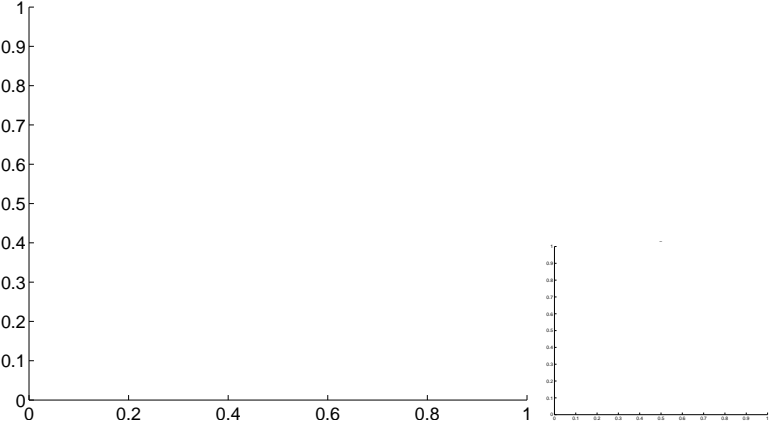
Q7 no OOT image



Q8 no difference image

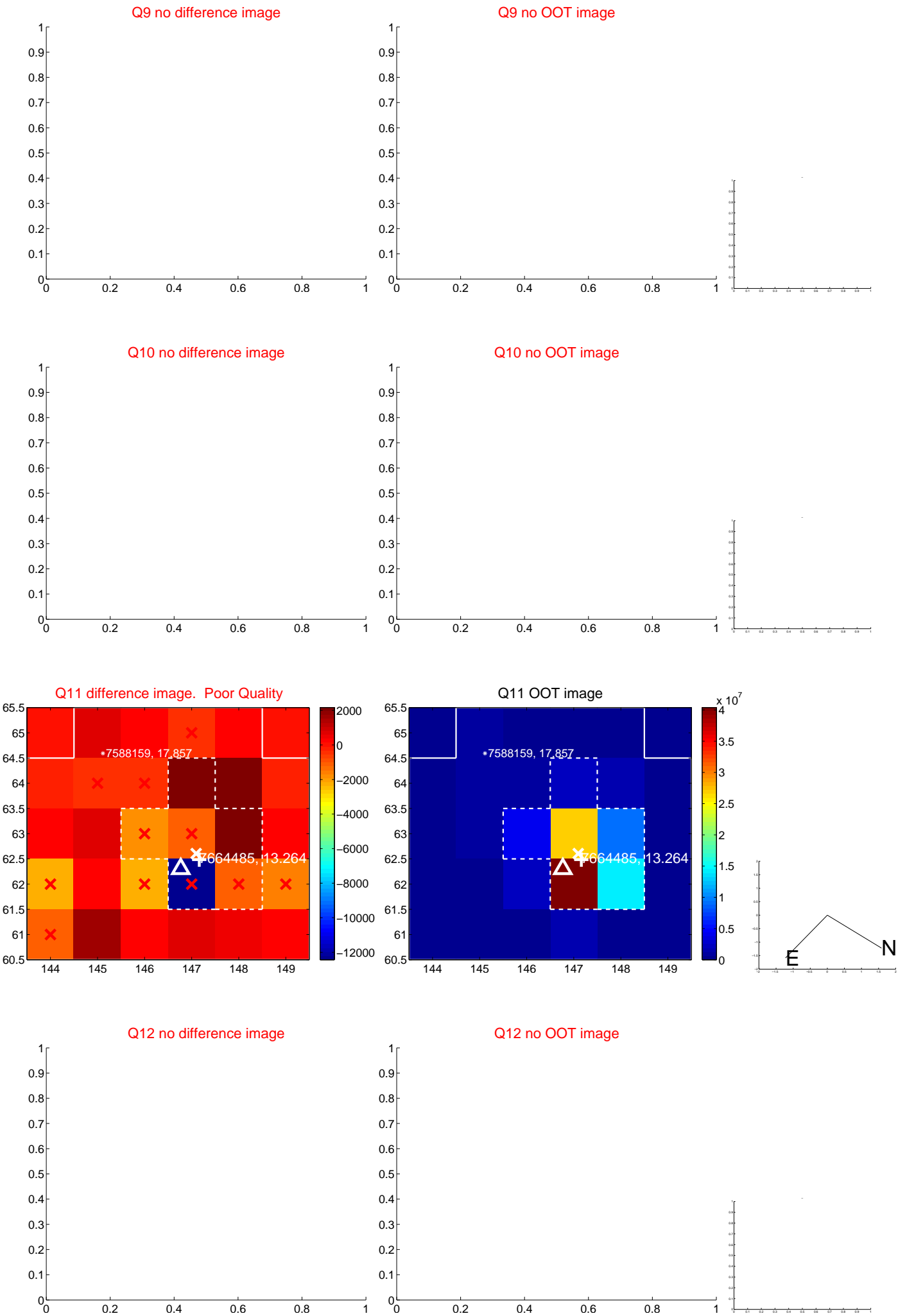


Q8 no OOT image

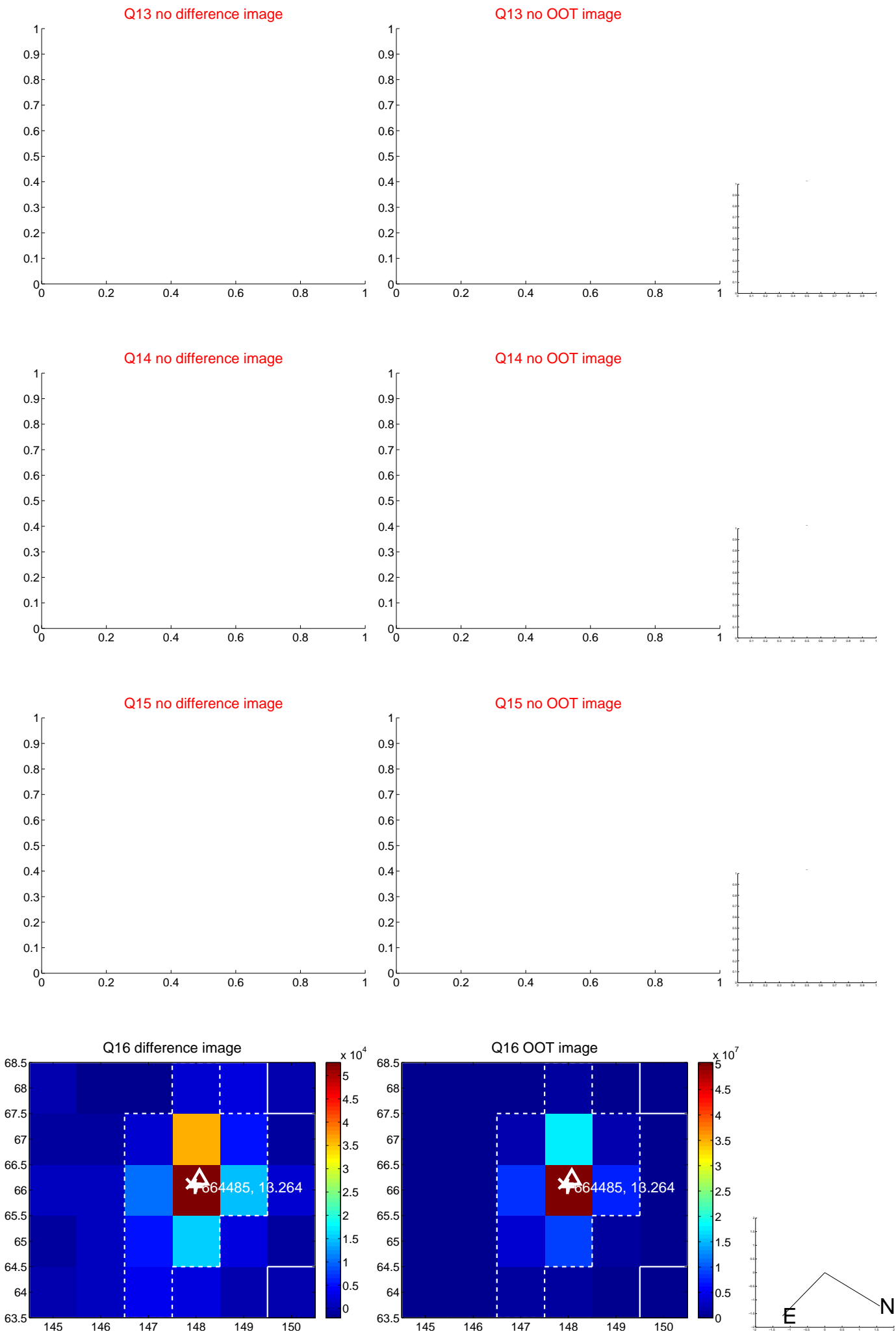




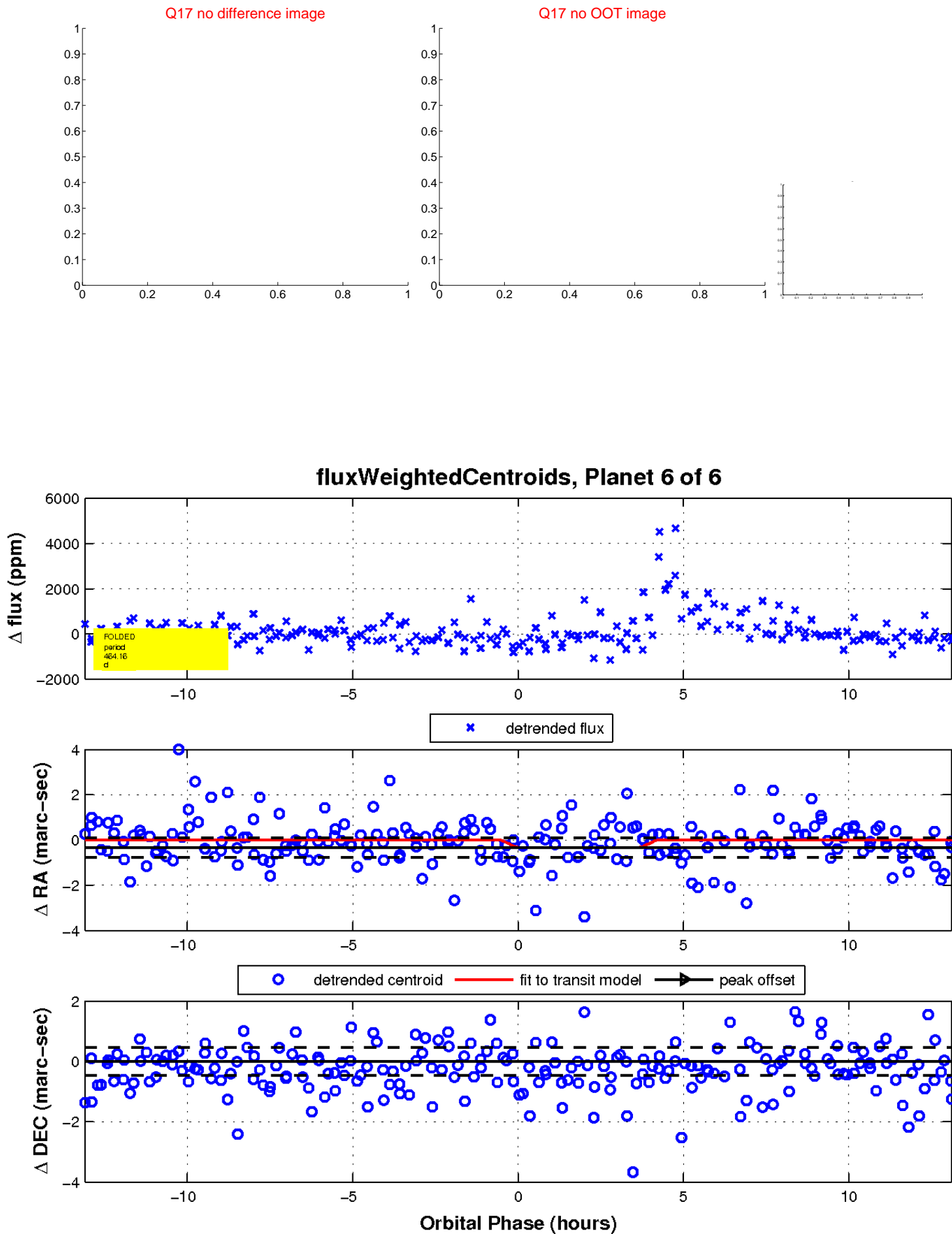
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

