

# KIC 006467363

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006467363-01	OBS	2840.01	3.679381	134.988441	81.5	3.465	15.3	16.3	0.85	5676	0.90	362.21
006467363-02	OBS	2840.02	7.446513	137.331245	74.7	4.022	9.3	10.4	0.85	5676	0.84	141.49

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006467363-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
006467363-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

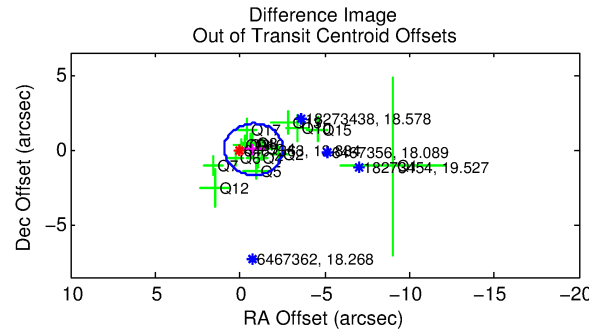
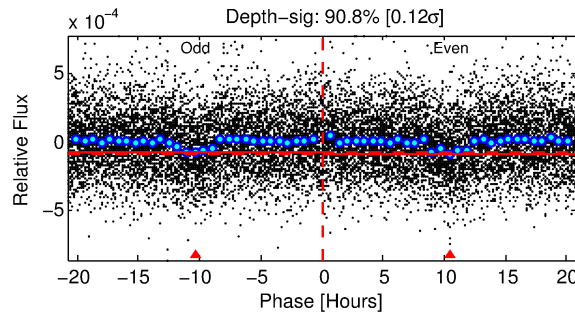
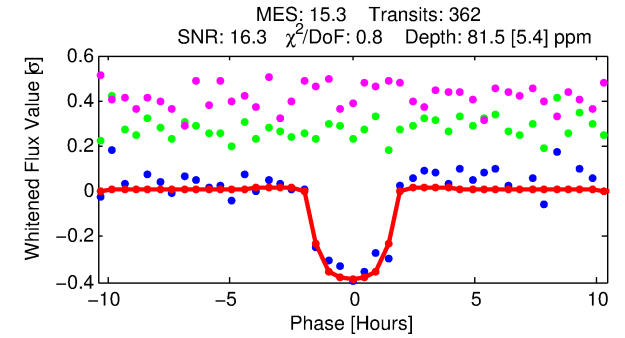
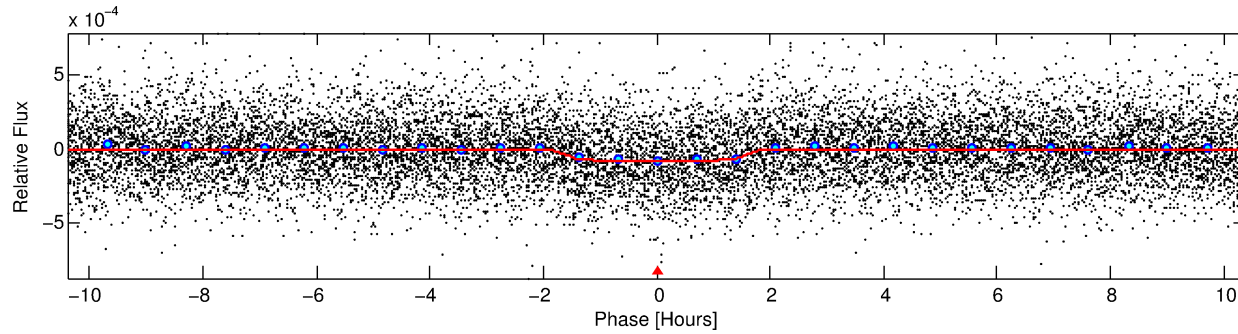
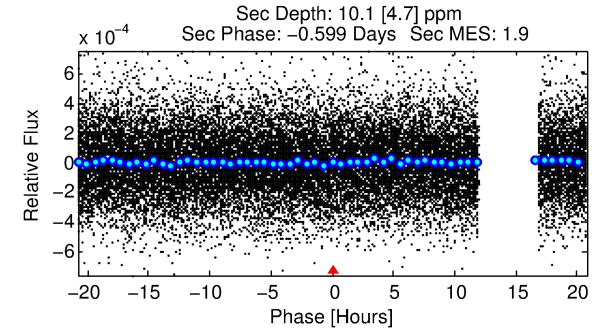
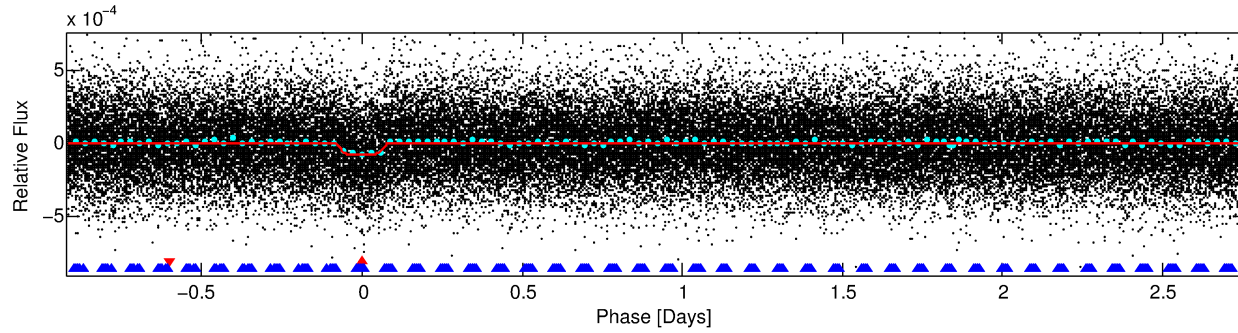
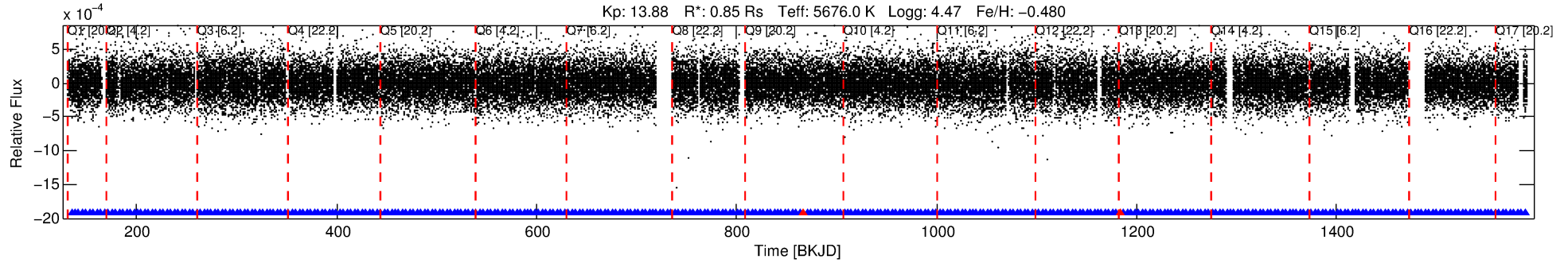
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006467363-01

No Significant Match Found

# DV One-Page Summary

KIC: 6467363 Candidate: 1 of 2 Period: 3.679 d  
KOI: K02840.01 Corr: 0.969



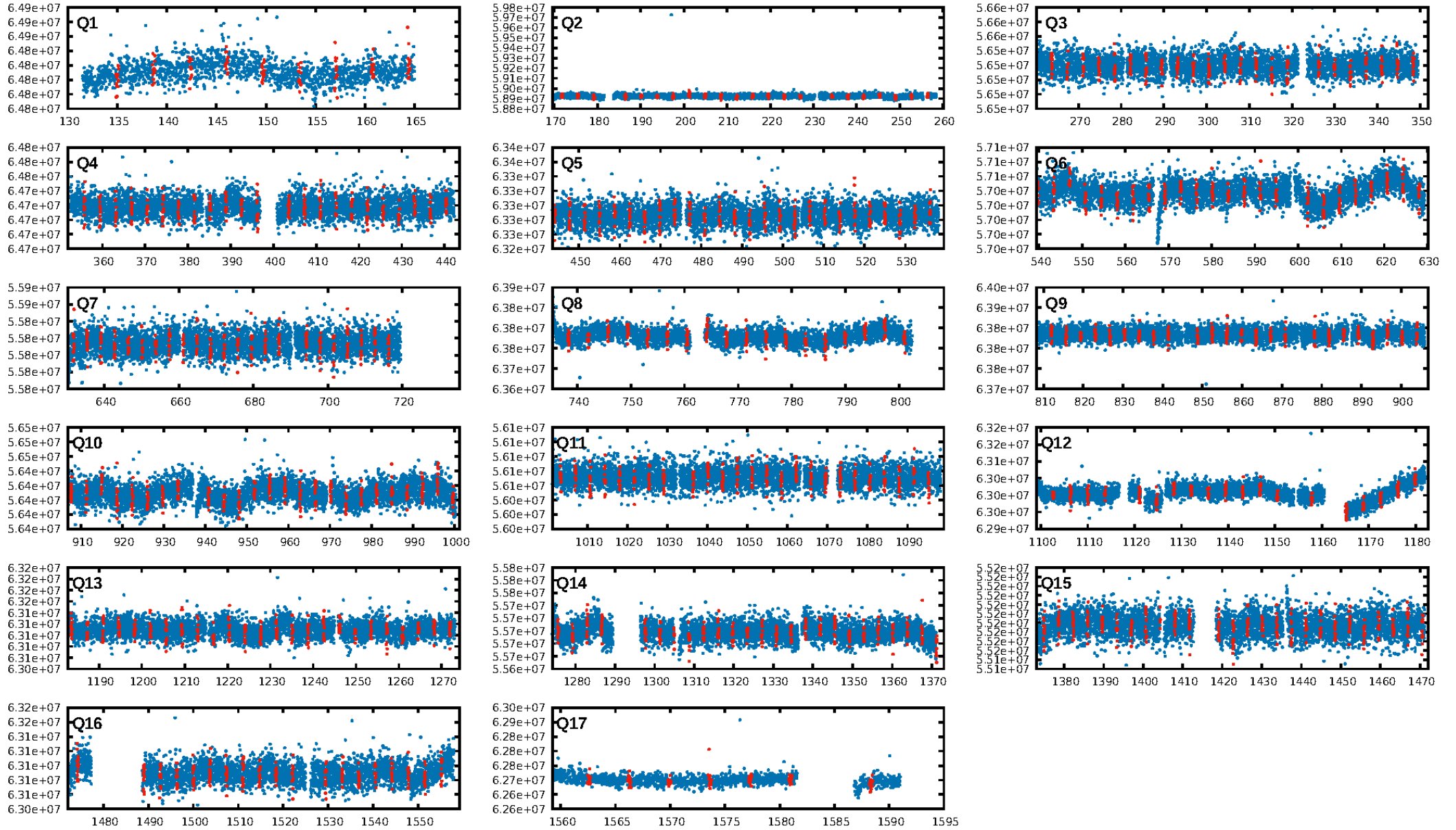
## DV Fit Results:

Period = 3.67938 [0.00002] d  
Epoch = 134.9884 [0.0033] BKJD  
Rp/R\* = 0.0097 [0.0040]  
a/R\* = 4.02 [7.61]  
b = 0.89 [0.49]  
Seff = 362.21 [110.57]  
Teff = 1112 [85] K  
Rp = 0.90 [0.42] Re  
a = 0.0430 [0.0081] AU  
Ag = 12.80 [12.58] [0.94σ]  
Teffp = 3253 [772] K [2.76σ]

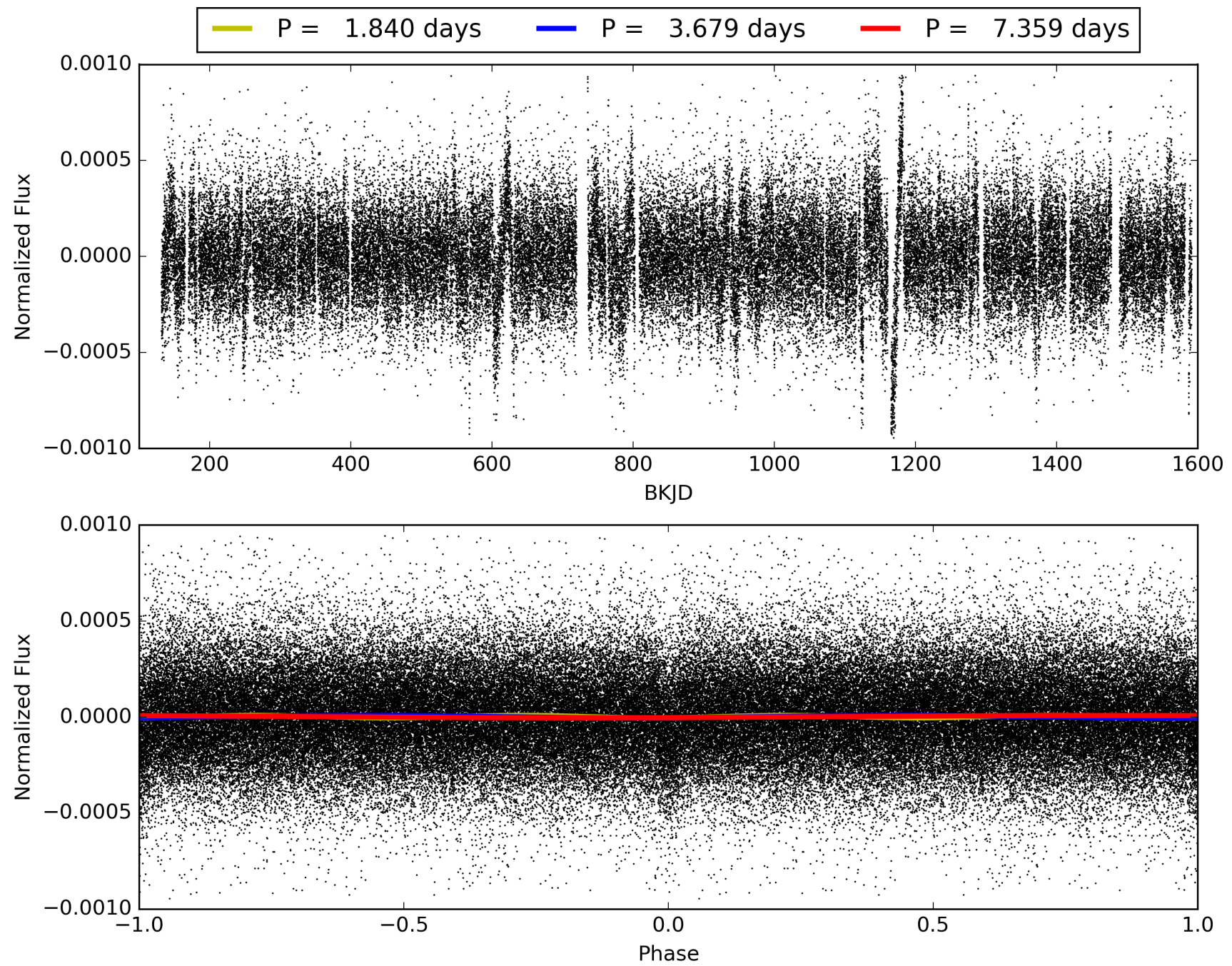
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [17.03σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.94e-51  
RollingBand-fgt: 0.99 [344/346]  
GhostDiagnostic-chr: 2.948  
Centroid-sig: 3.0%  
Centroid-so: 1.682 arcsec [2.08σ]  
OotOffset-rm: 0.806 arcsec [1.40σ]  
KicOffset-rm: 0.792 arcsec [1.28σ]  
OotOffset-st: 4/3/4/5 [16]  
KicOffset-st: 4/3/4/5 [16]  
DiffImageQuality-fgm: 0.62 [10/16]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 006467363-01, PDC Light Curves



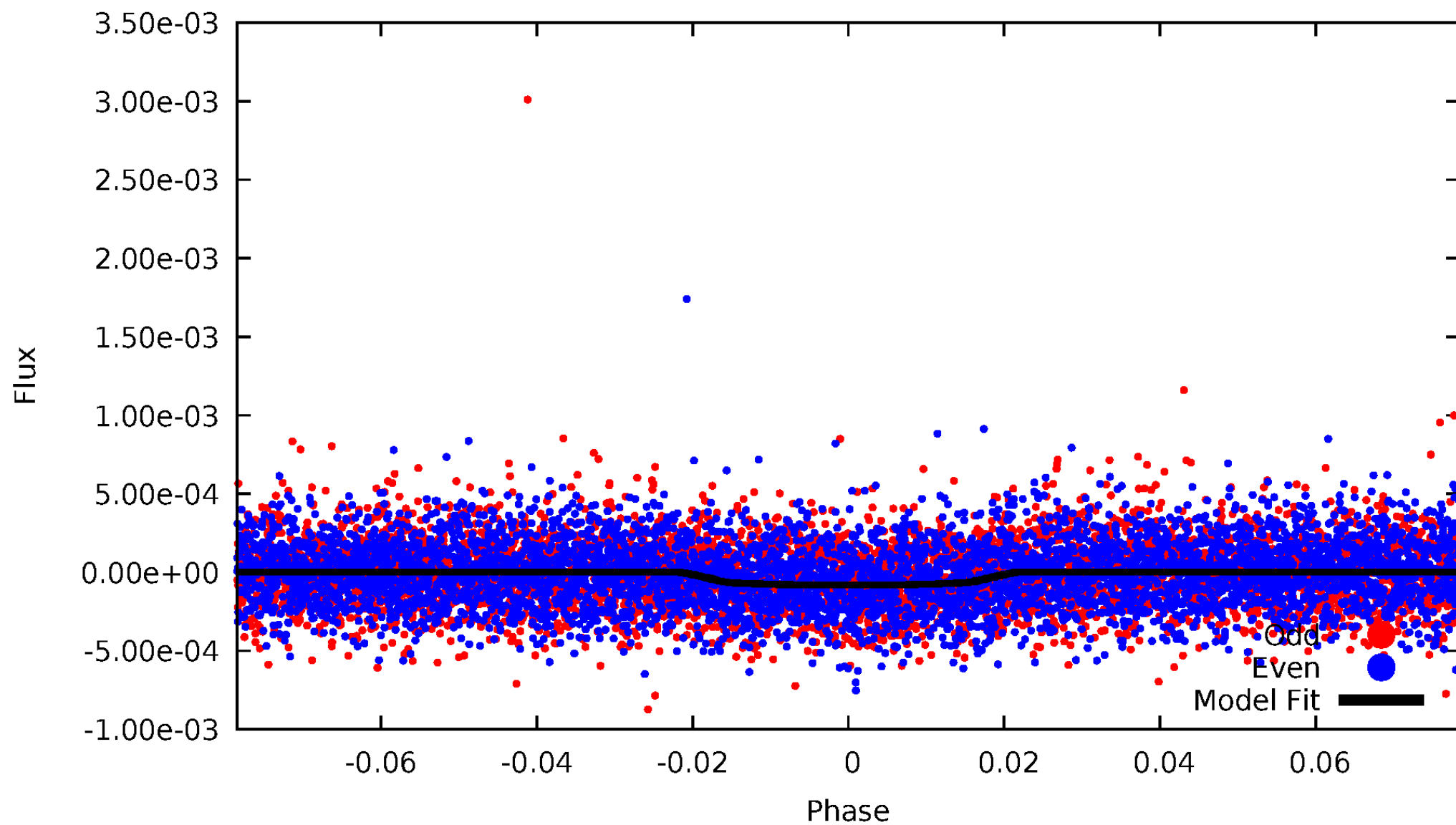
TCE 006467363-01





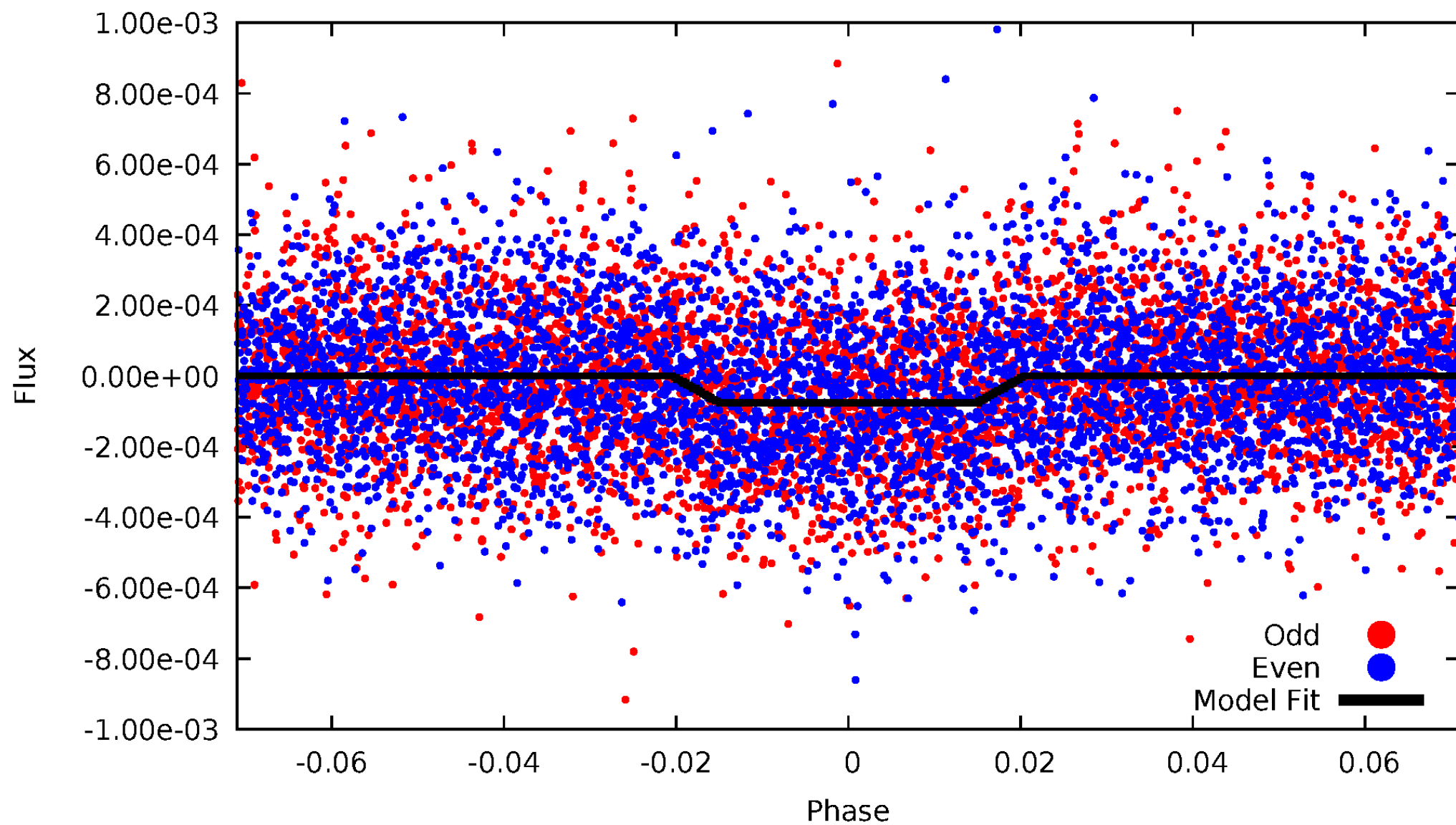
# DV Odd/Even

TCE 006467363-01



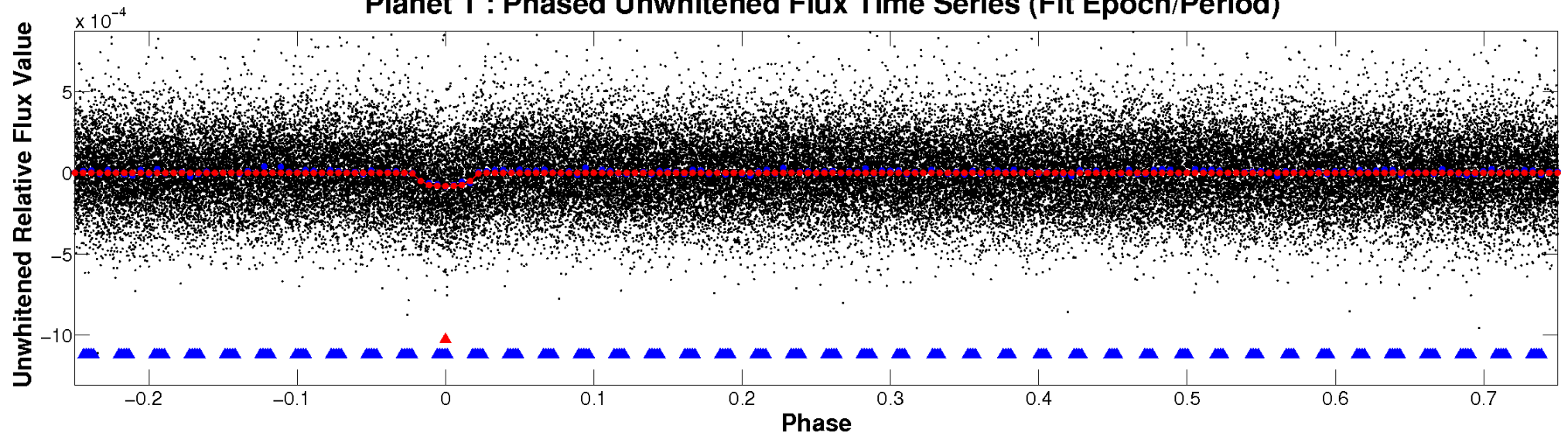
# ALT Odd/Even

TCE 006467363-01

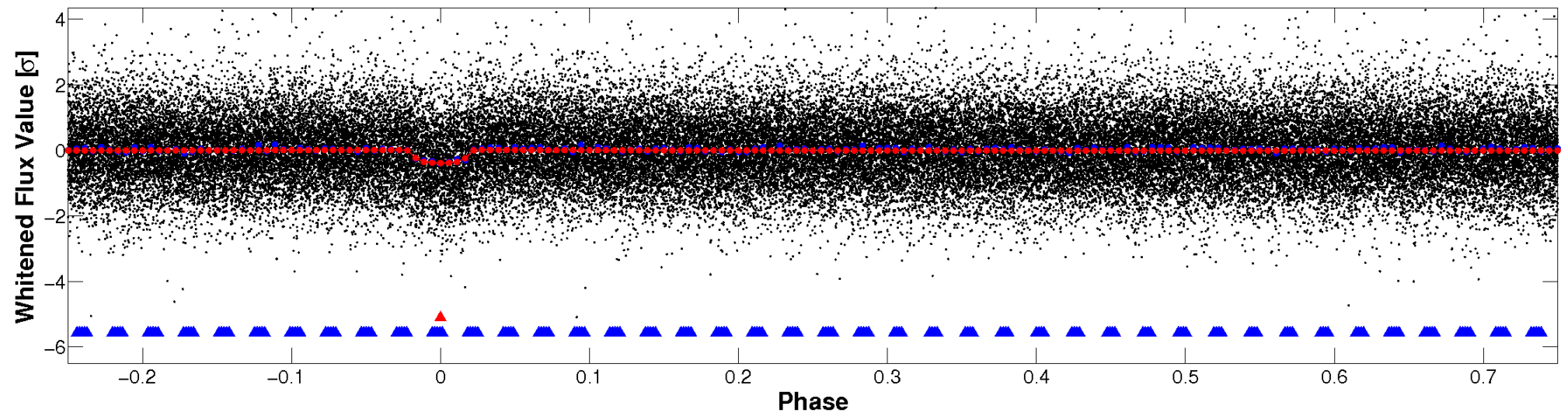


# Non-Whitened Vs. Whitened Light Curve

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

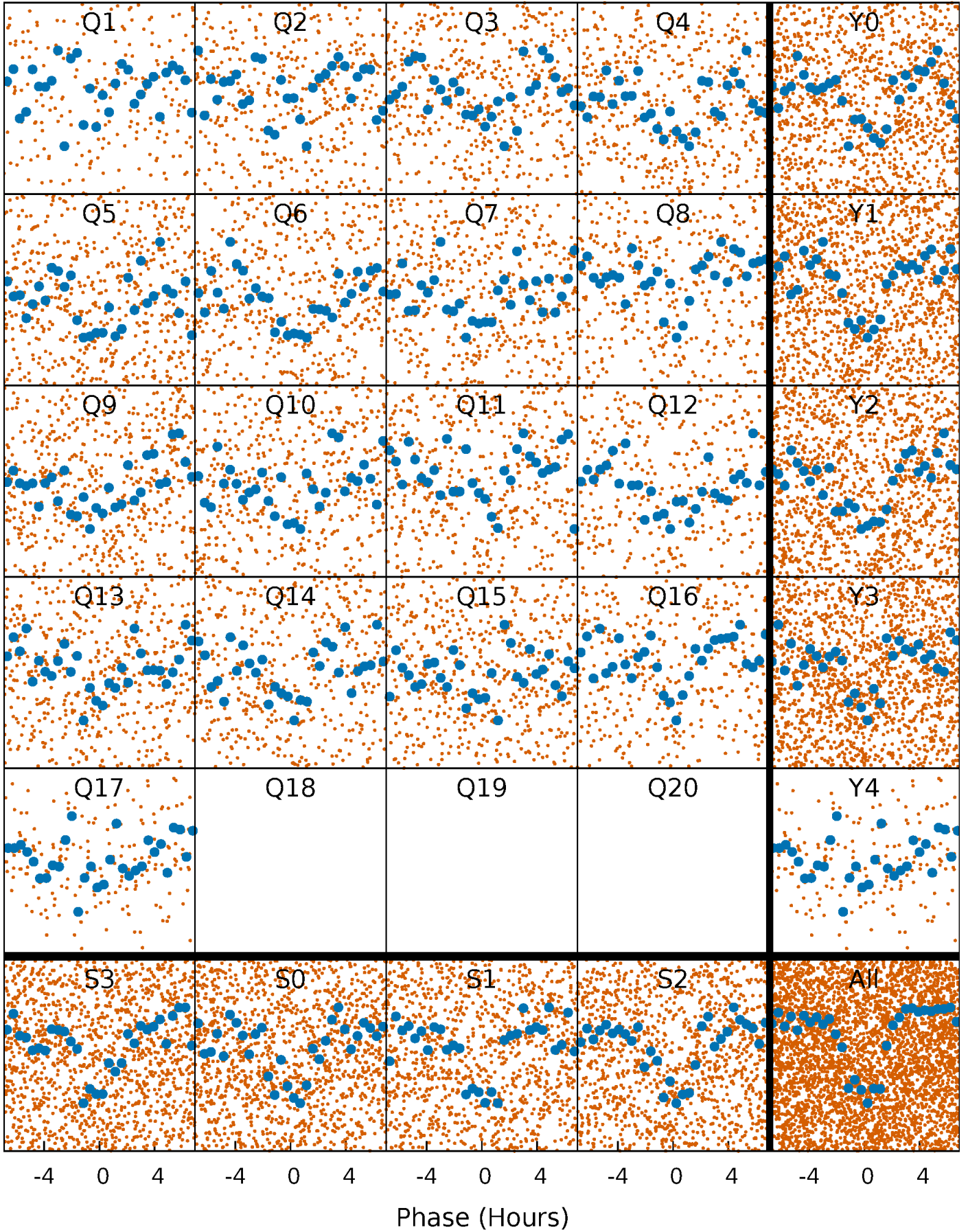


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

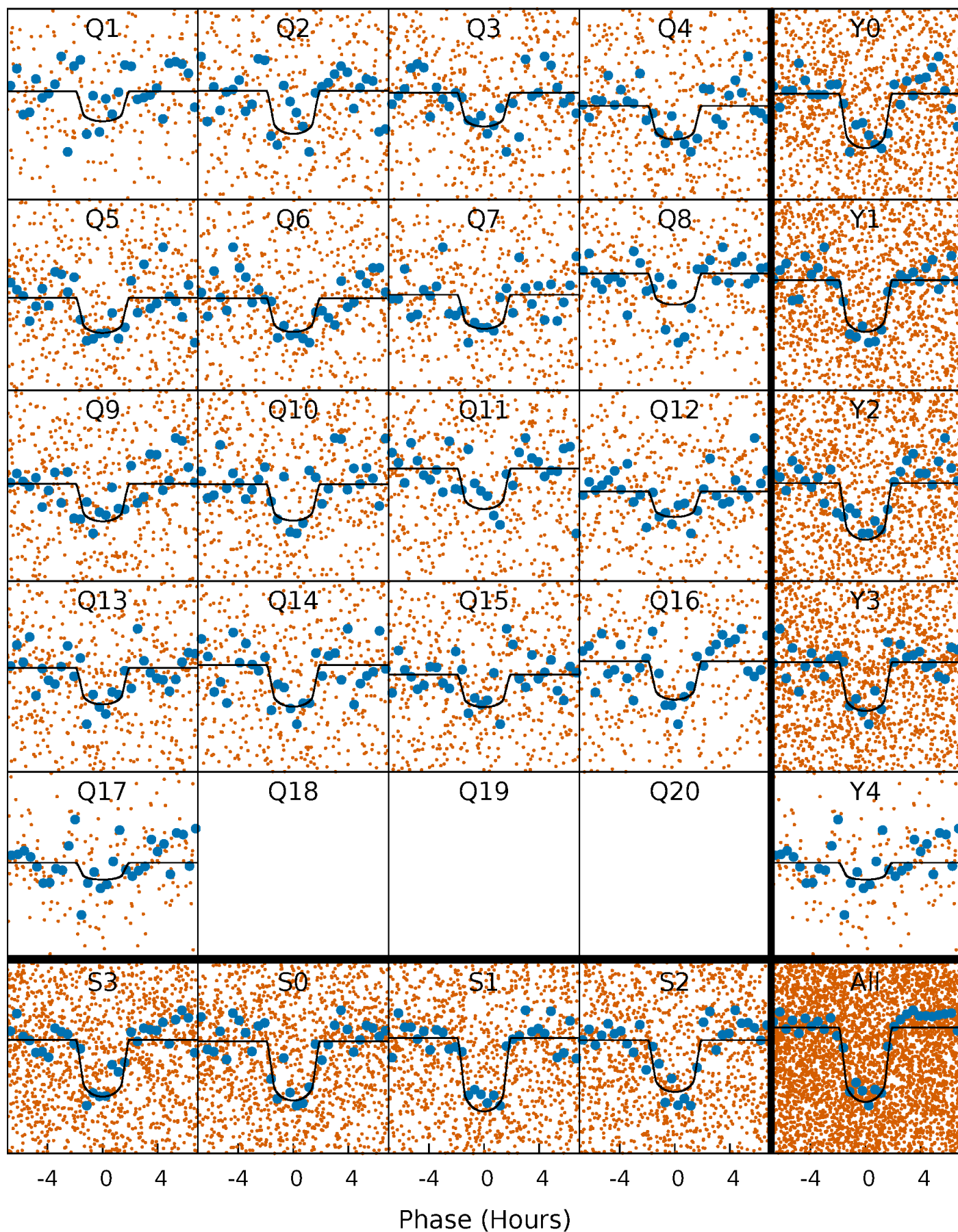
TCE 006467363-01   P= 3.679381 Days    $T_0=134.988441$  (BKJD)





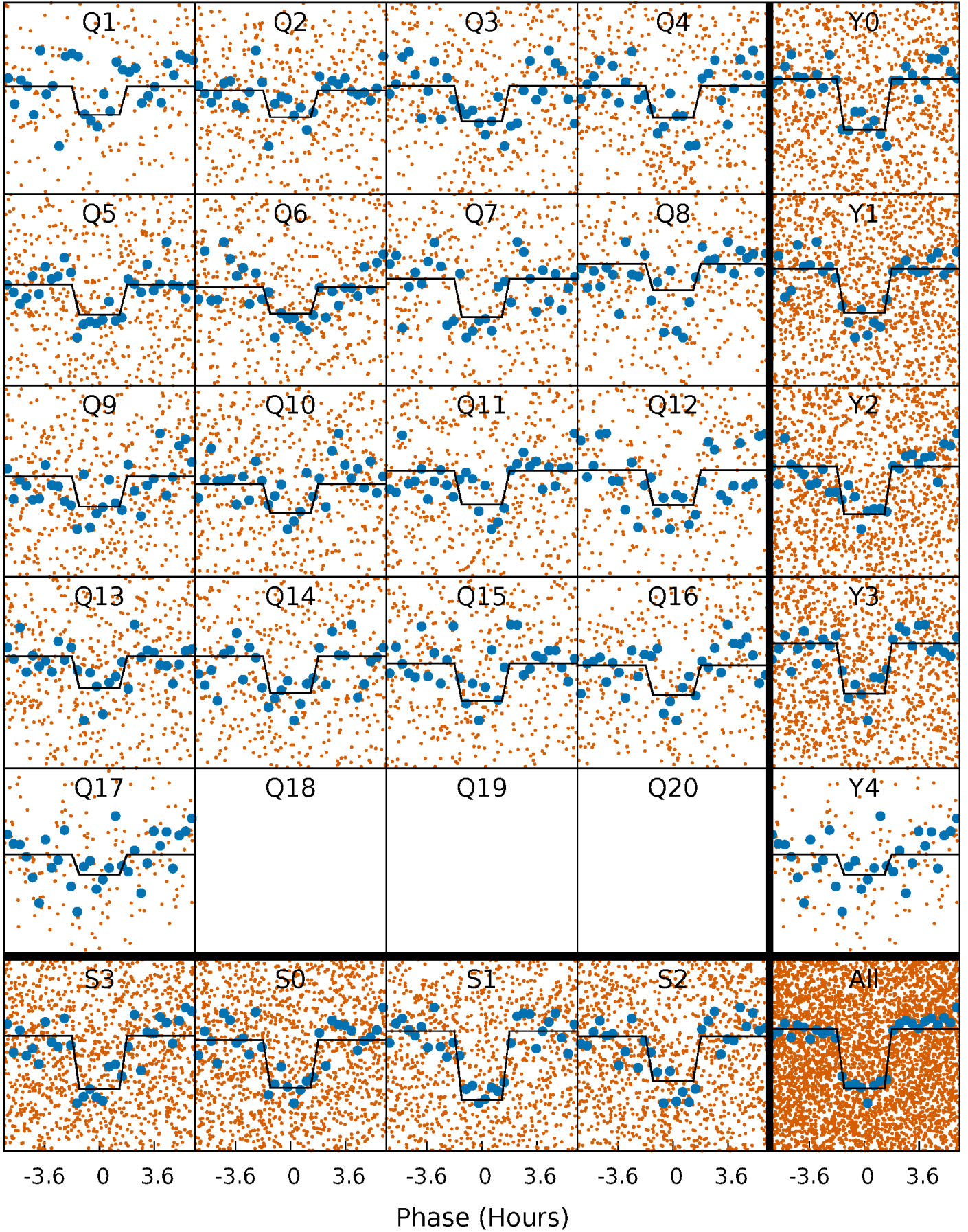
# DV Quarter-Phased Transit Curves

TCE 006467363-01 P= 3.679381 Days  $T_0=134.988441$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

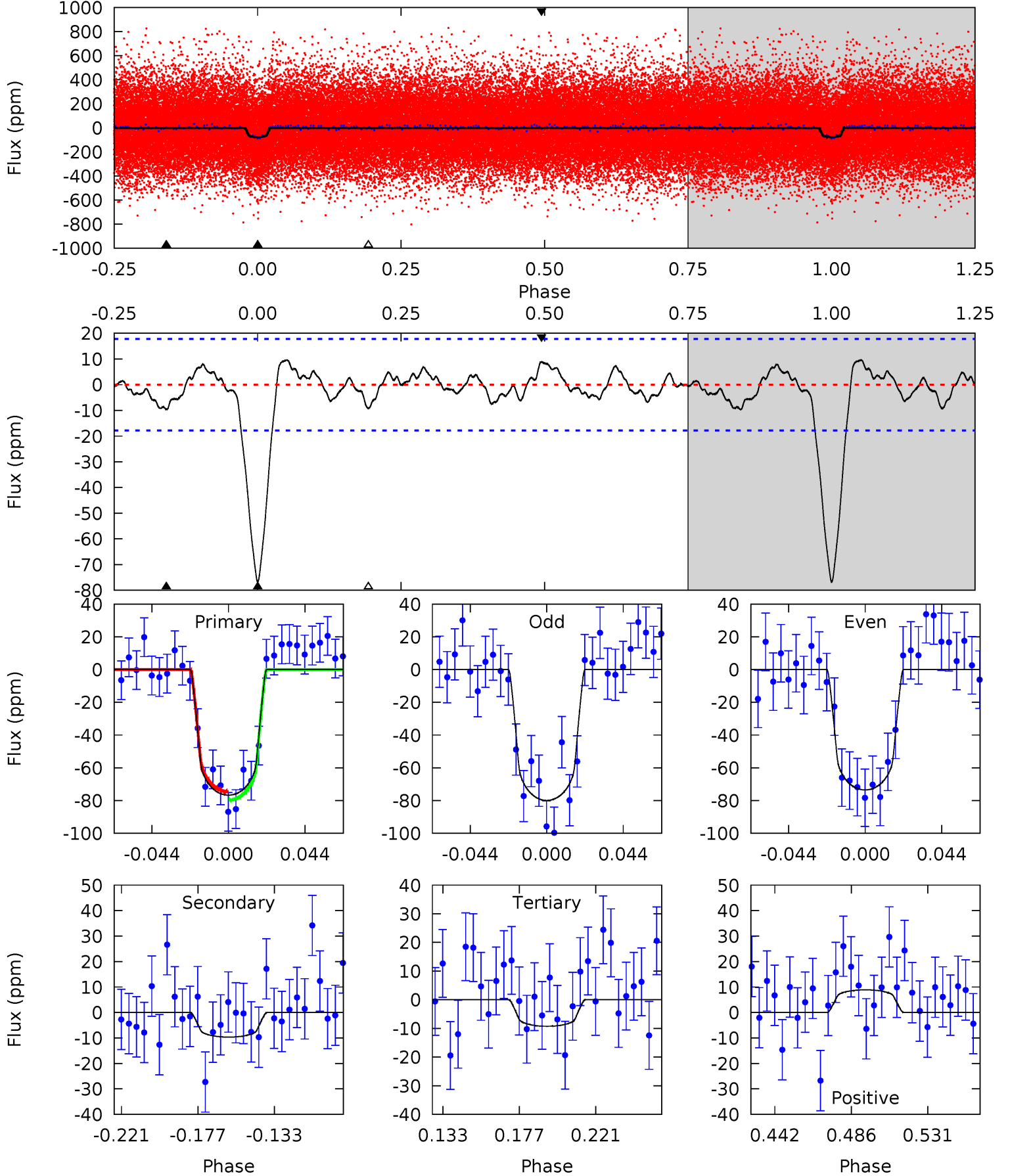
TCE 006467363-01 P= 3.679379 Days  $T_0=134.989225$  (BKJD)



# DV Model-Shift Uniqueness Test

006467363-01, P = 3.679381 Days, E = 131.309060 Days

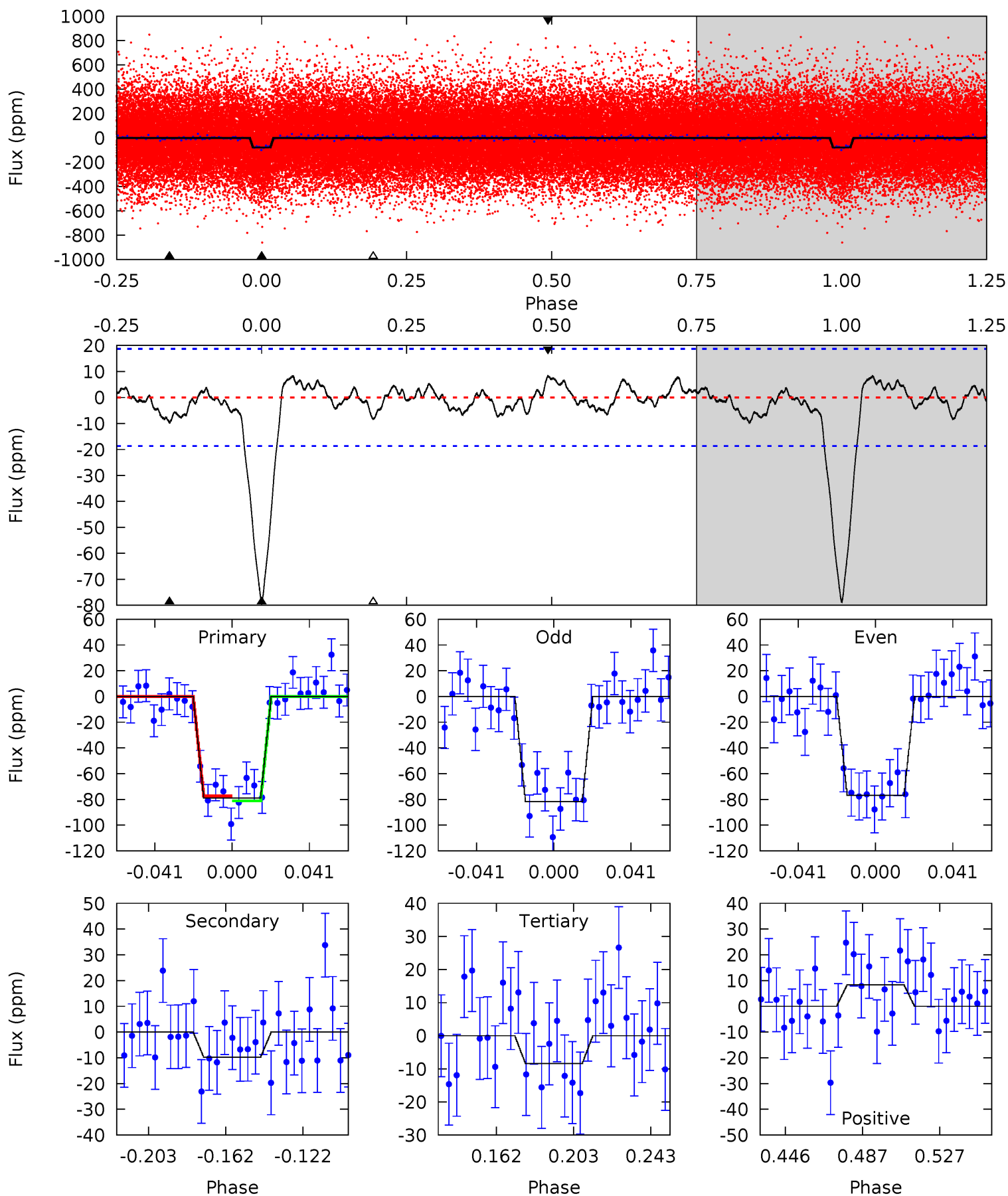
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.4	2.57	2.46	2.36	4.73	2.01	1.08	17.9	18.0	0.11	0.20	0.85	0.89	0.11	0.69



# Alt Model-Shift Uniqueness Test

006467363-01, P = 3.679379 Days, E = 131.309846 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.0	2.48	2.13	2.12	4.75	2.05	0.94	17.9	17.9	0.35	0.36	0.62	1.00	0.10	0.48





### Stellar Parameters For KIC 006467363

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5676^{+172}_{-154}$	$4.474^{+0.117}_{-0.156}$	$-0.480^{+0.300}_{-0.300}$	$0.848^{+0.185}_{-0.108}$	$0.781^{+0.104}_{-0.056}$	$1.806^{+0.938}_{-0.766}$
	+3%/-3%	+3%/-3%	+62%/-62%	+22%/-13%	+13%/-7%	+52%/-42%
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 006467363-01 / KOI 2840.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-10 \pm 4$	$0.90^{+0.40}_{-0.34}$	$1555^{+94}_{-78}$	$3612^{+774}_{-455}$	$12^{+23}_{-7}$
Alt.	$-10 \pm 4$	$0.83^{+0.39}_{-0.36}$	$1566^{+94}_{-85}$	$3715^{+880}_{-505}$	$13^{+32}_{-8}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

## DV Centroid Data

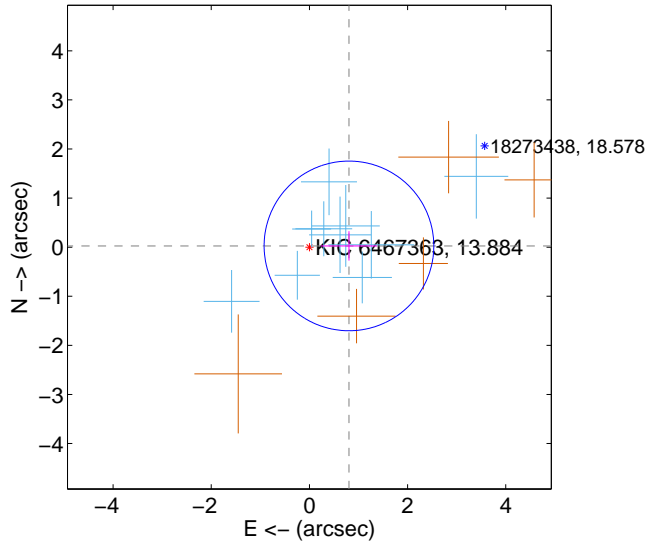
Supplemental centroid analysis for 006467363-01. Kepler magnitude: 13.88. Transit SNR 16.29

There are 10 quarters with good PRF difference image offsets

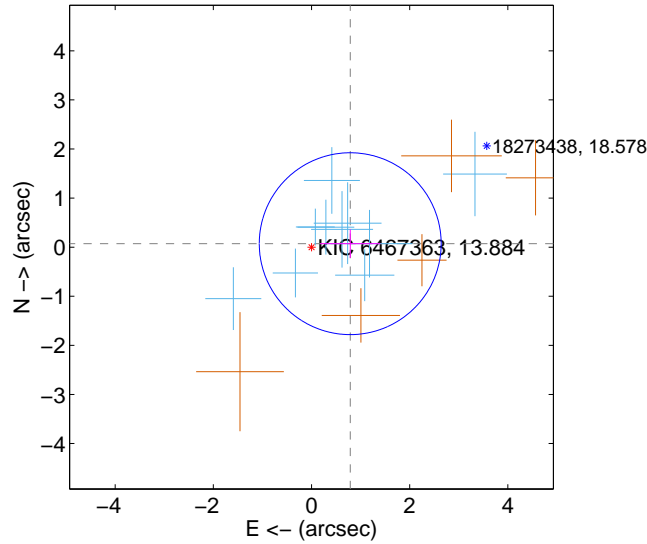
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.806 \pm 0.576$	1.40	$-0.806 \pm 0.574$	$0.025 \pm 0.300$
PRF-fit source offset from KIC position	$0.792 \pm 0.617$	1.28	$-0.789 \pm 0.612$	$0.071 \pm 0.291$
photometric centroid source offset	$1.68 \pm 0.81$	2.08	$-1.67 \pm 0.81$	$0.24 \pm 0.79$

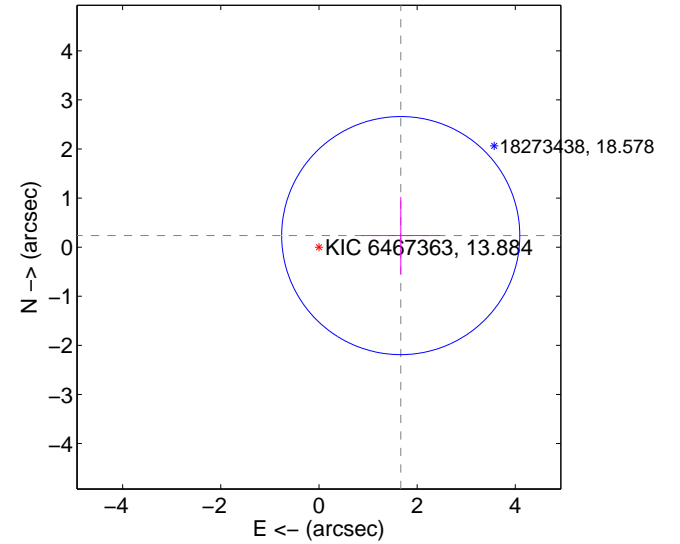
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

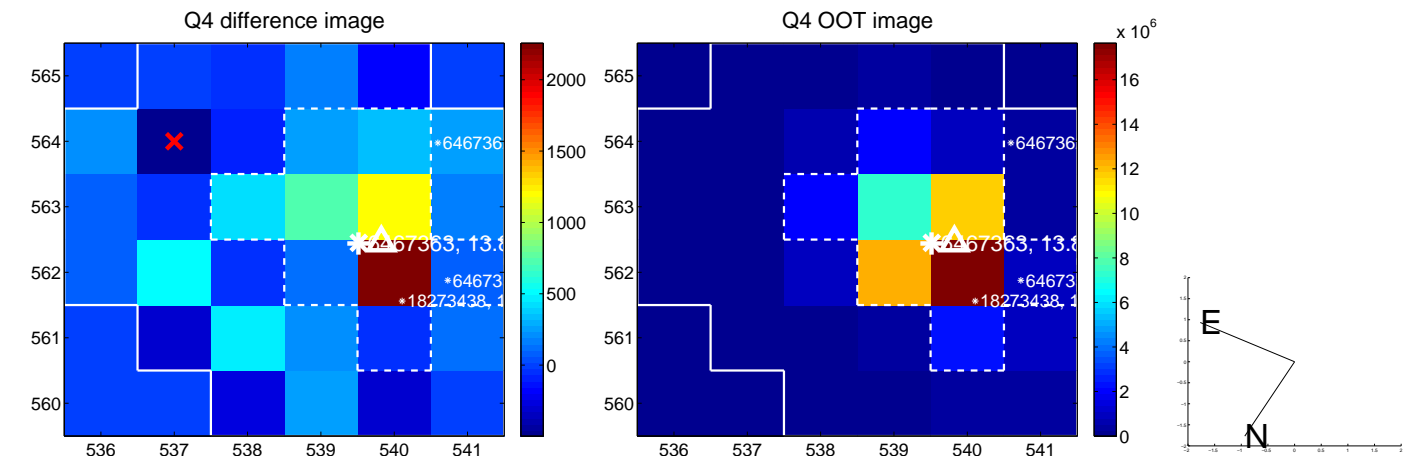
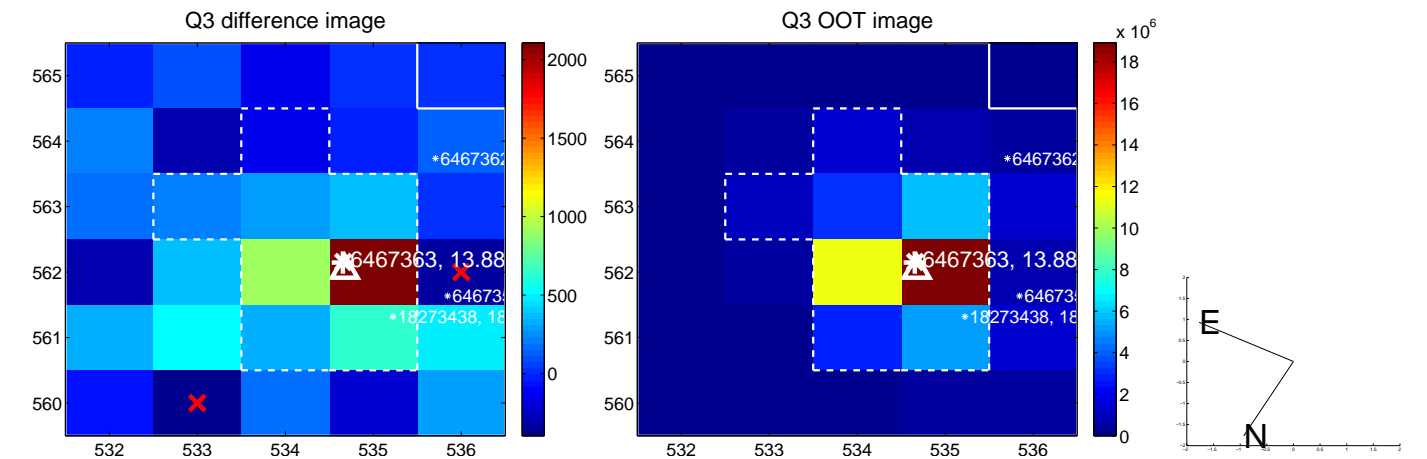
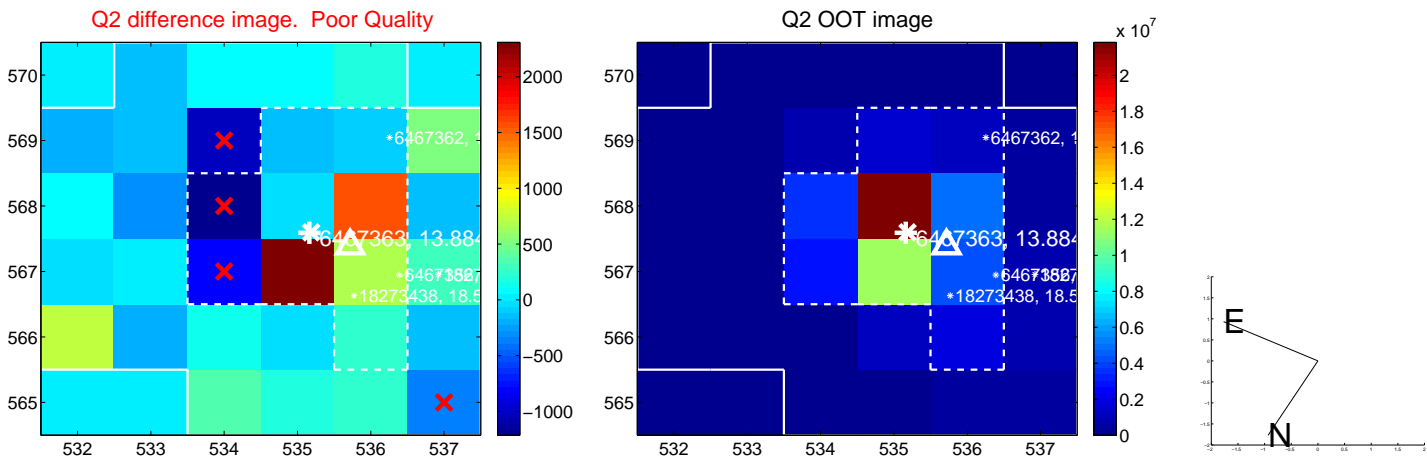
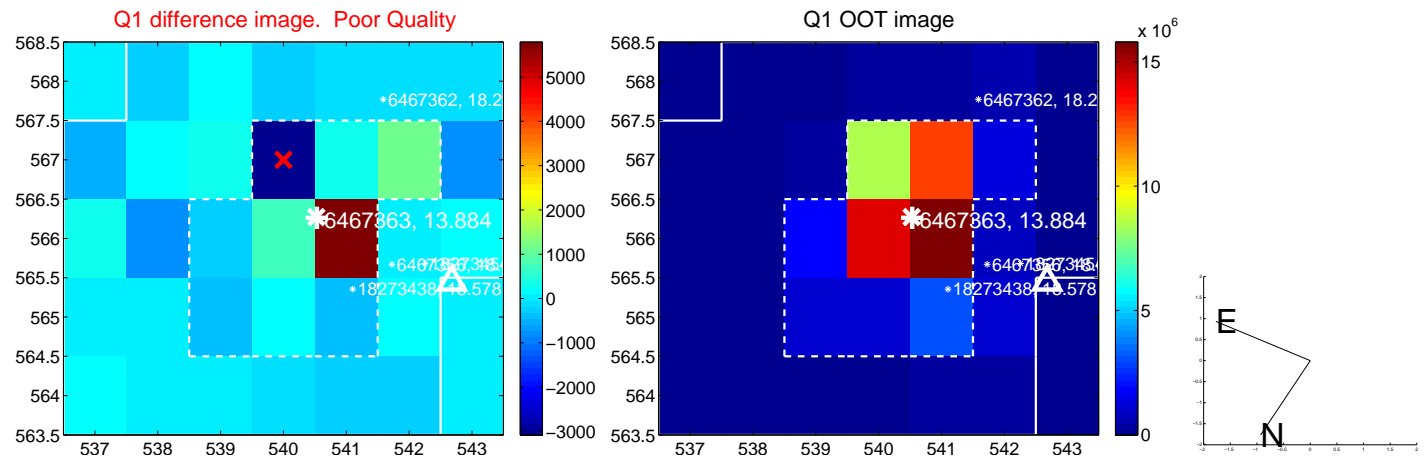


offset from photometric centroids

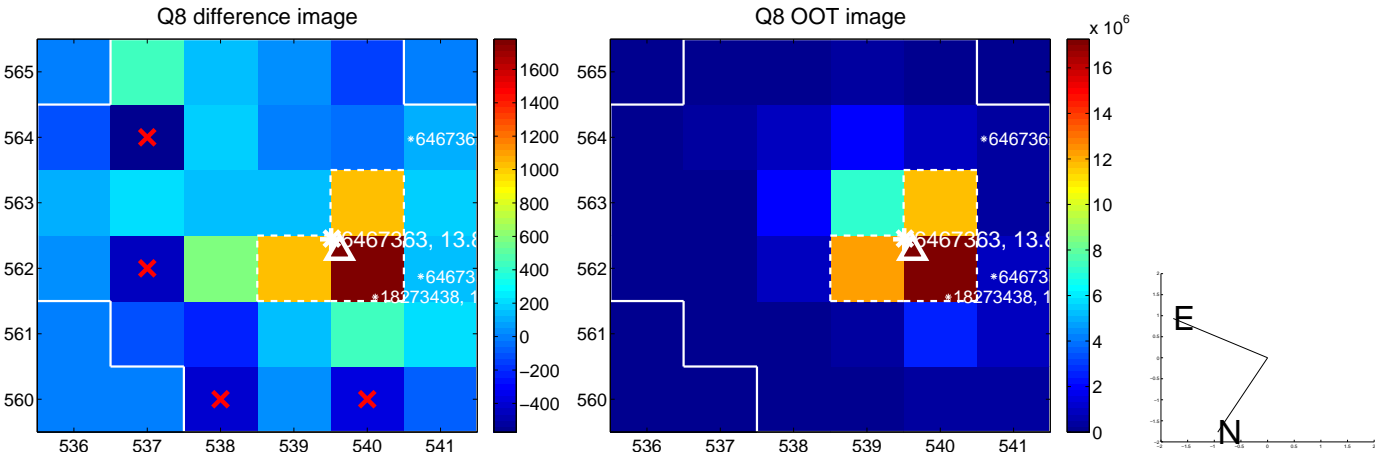
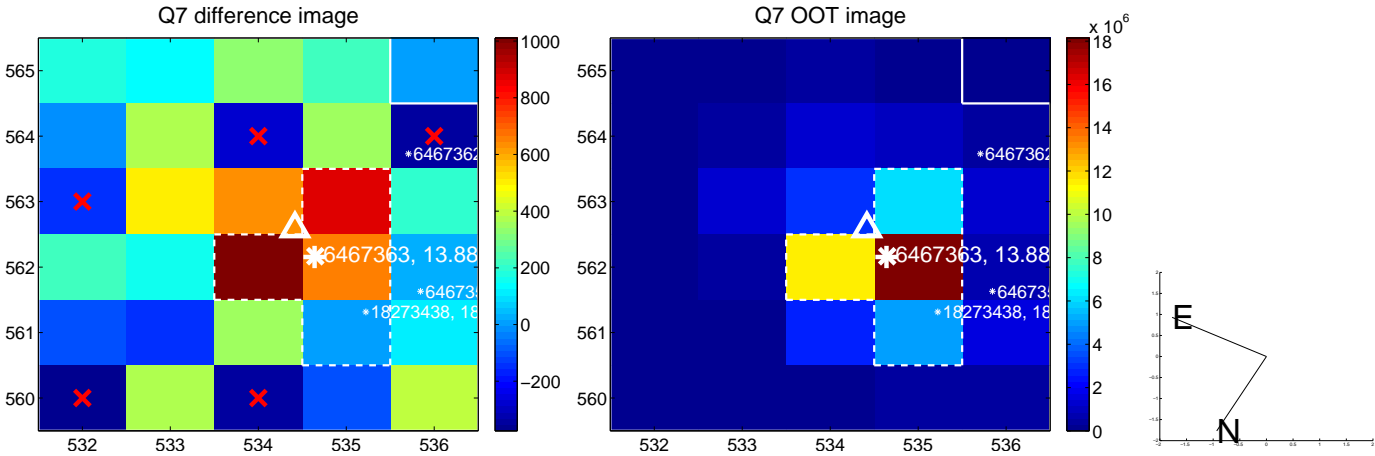
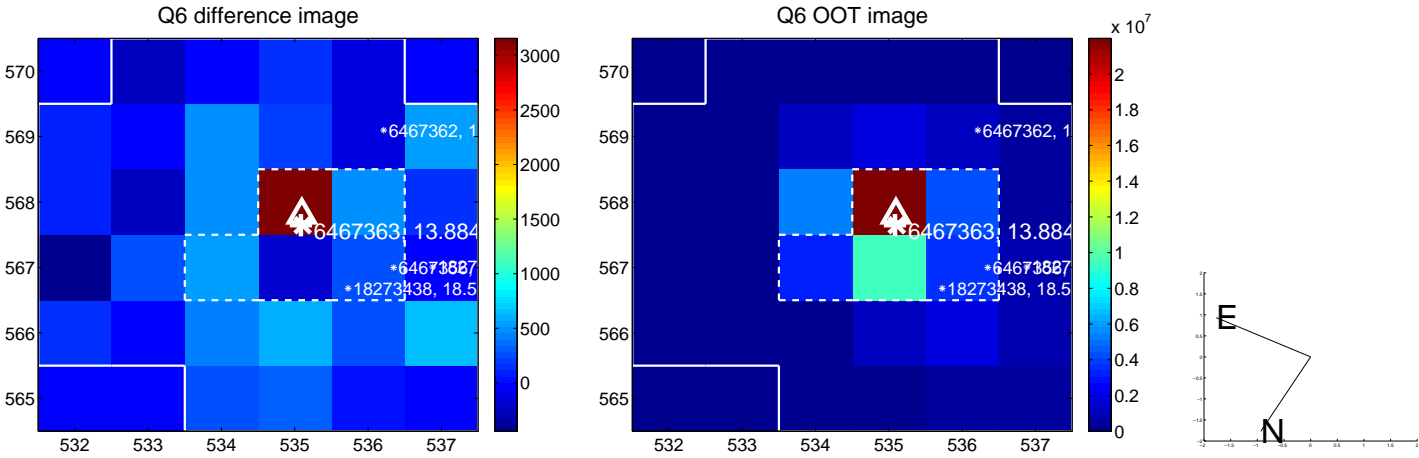
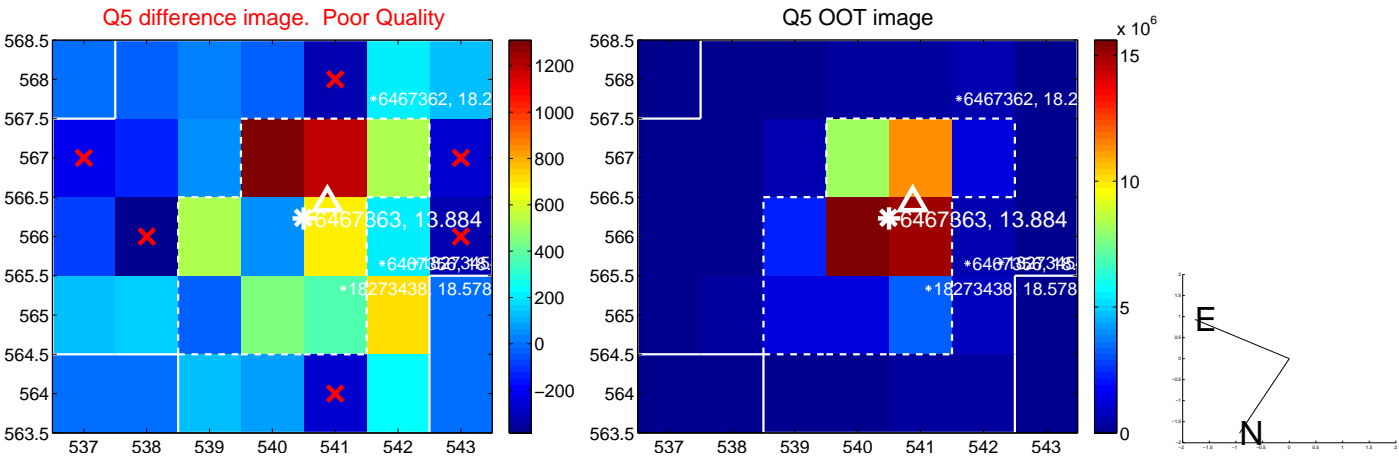


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

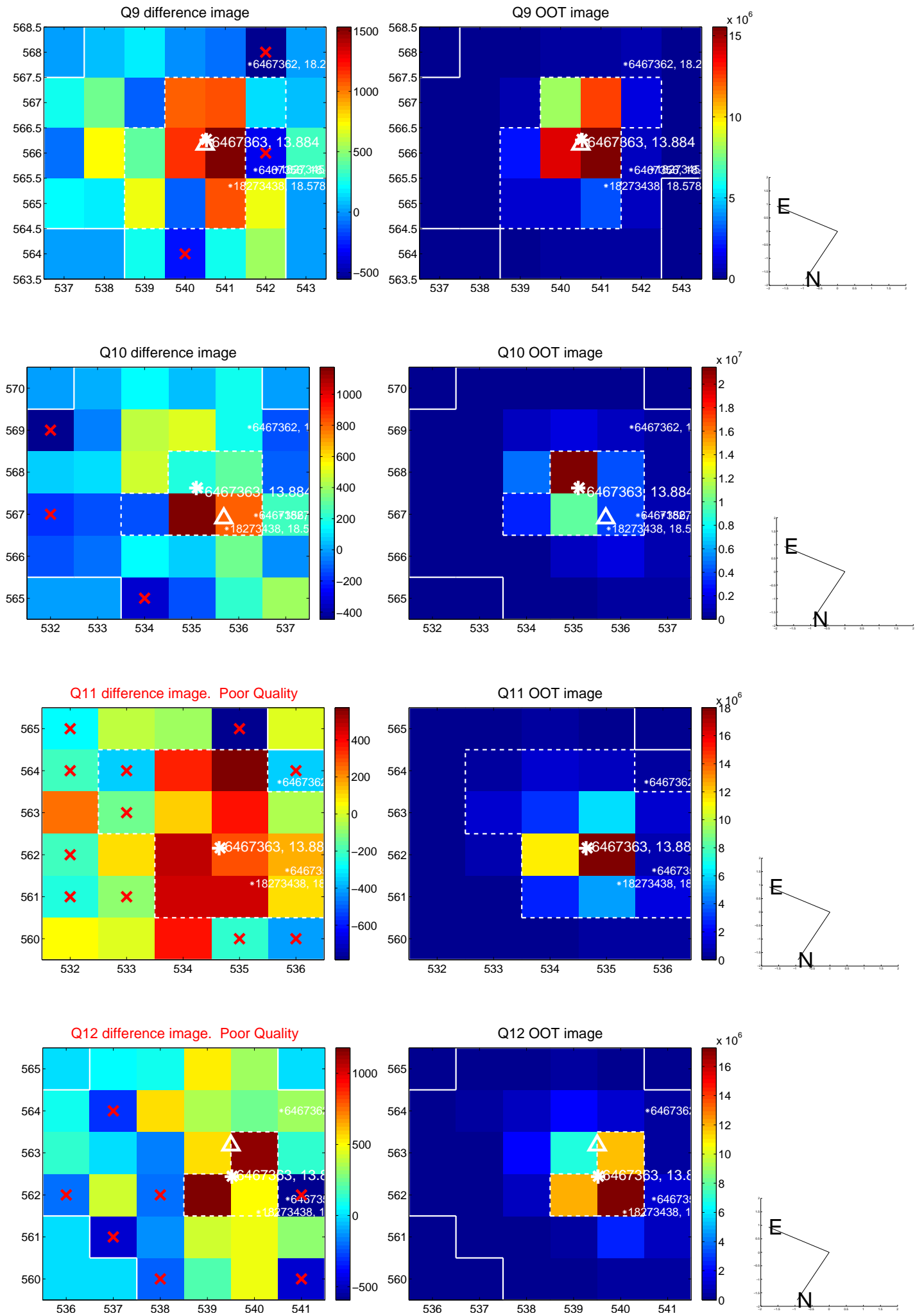


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

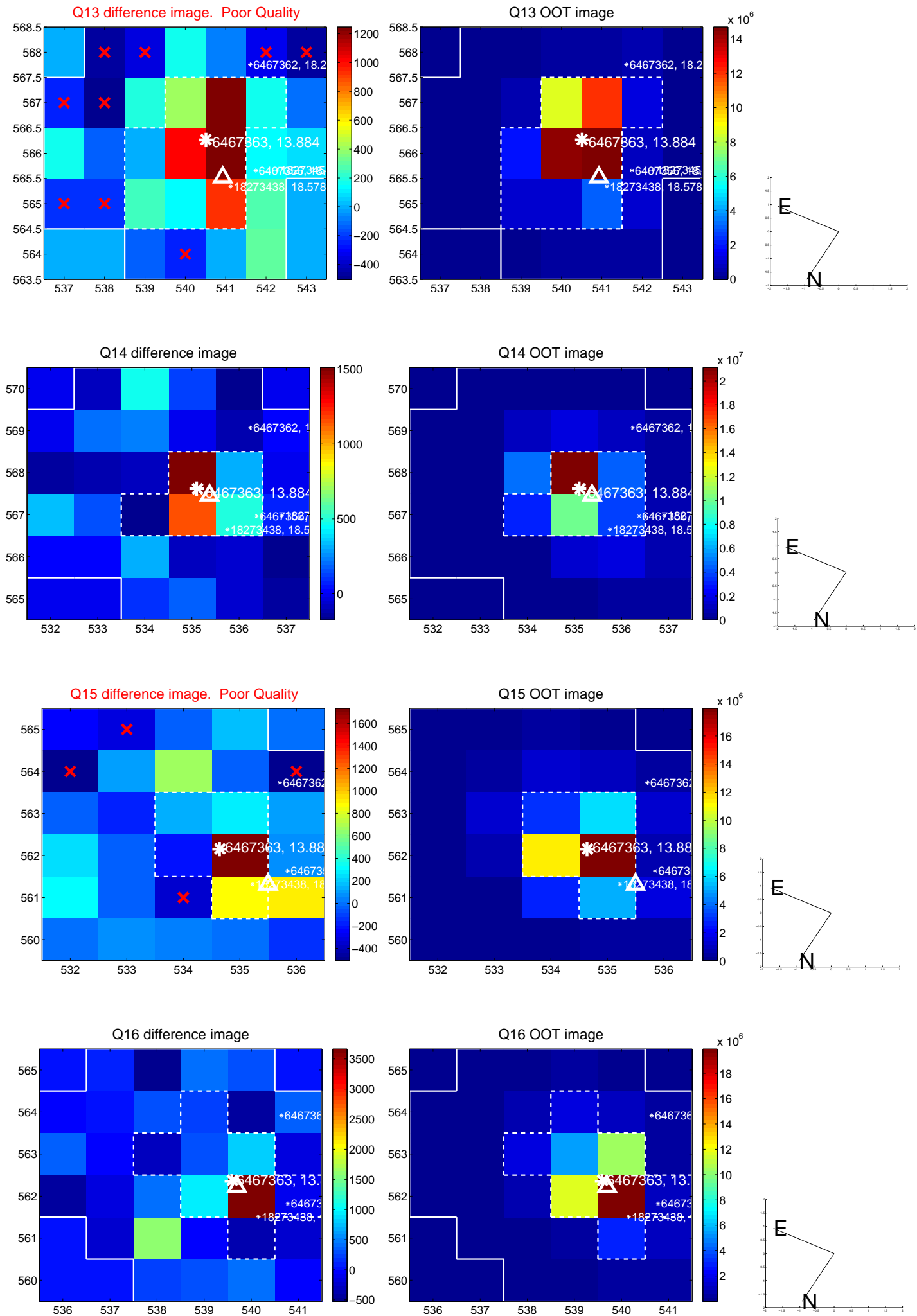




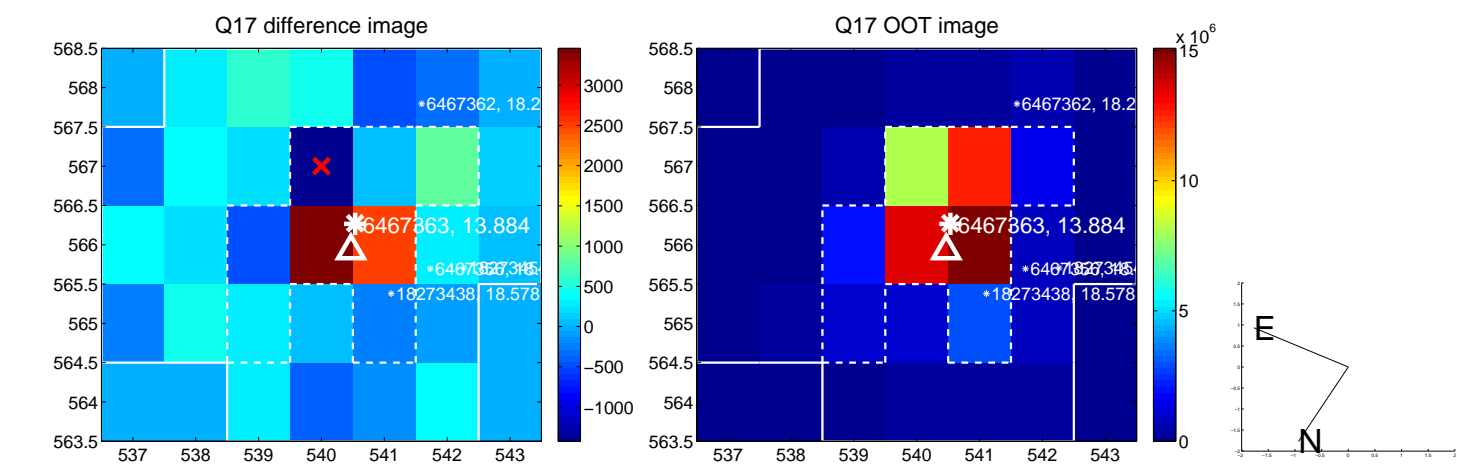
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



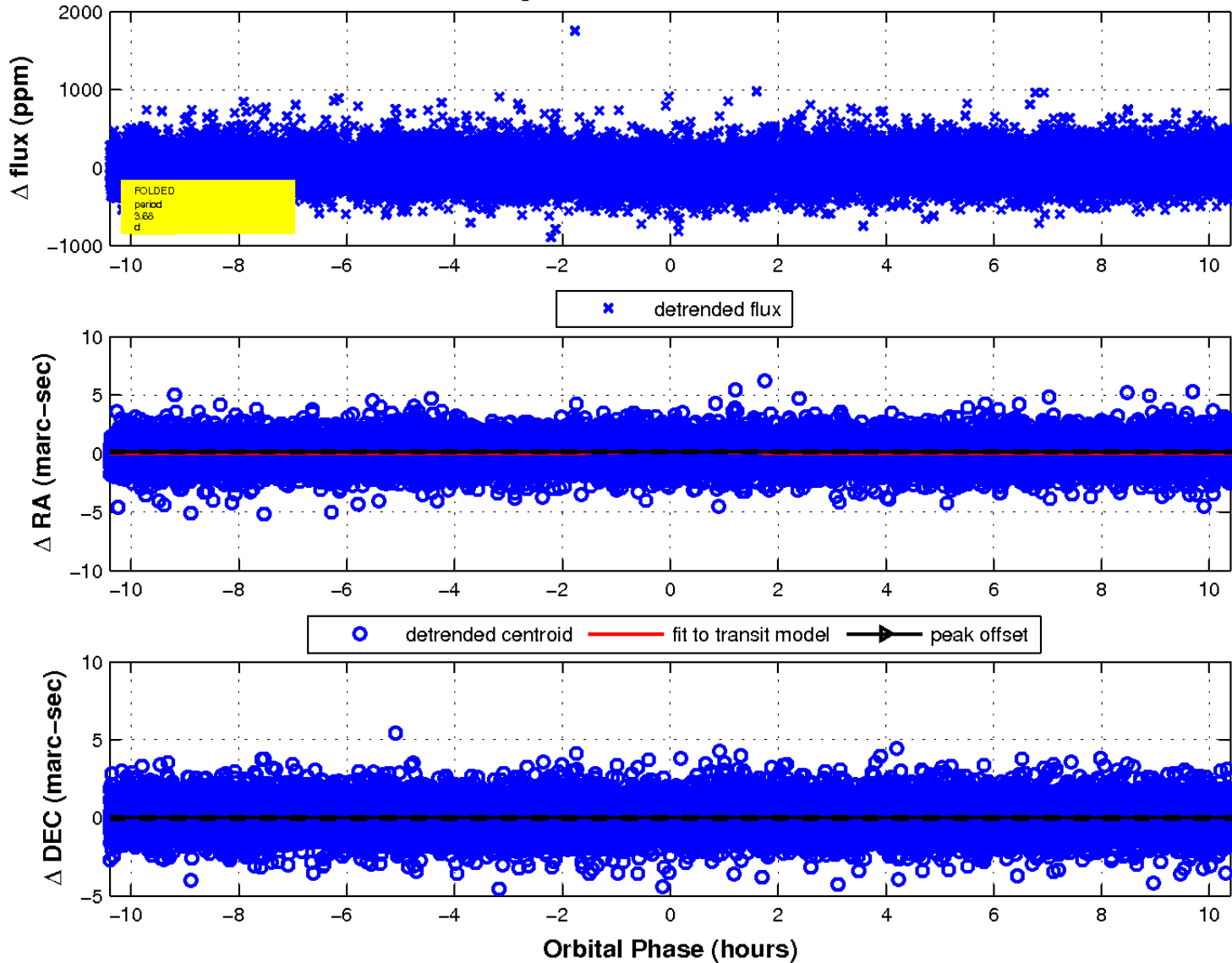
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

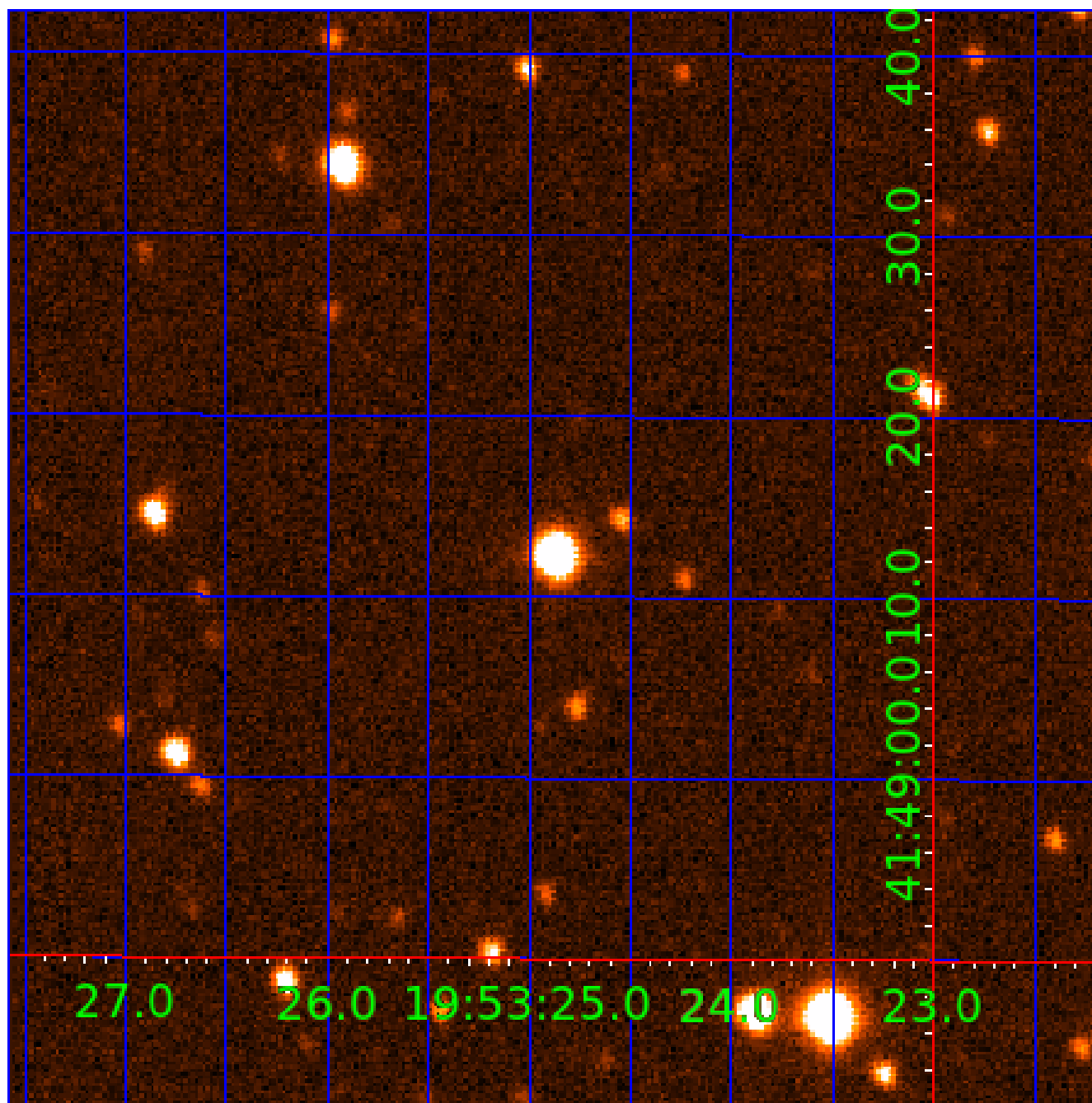


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination





# KIC 006467363

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006467363-01	OBS	2840.01	3.679381	134.988441	81.5	3.465	15.3	16.3	0.85	5676	0.90	362.21
006467363-02	OBS	2840.02	7.446513	137.331245	74.7	4.022	9.3	10.4	0.85	5676	0.84	141.49

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006467363-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
006467363-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

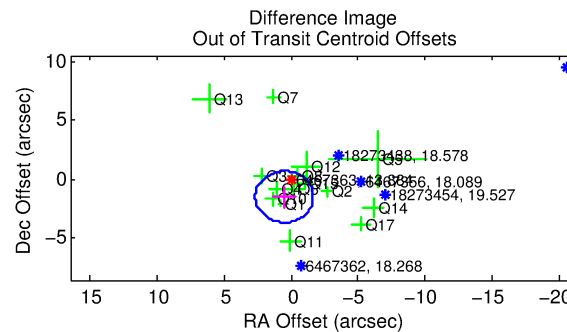
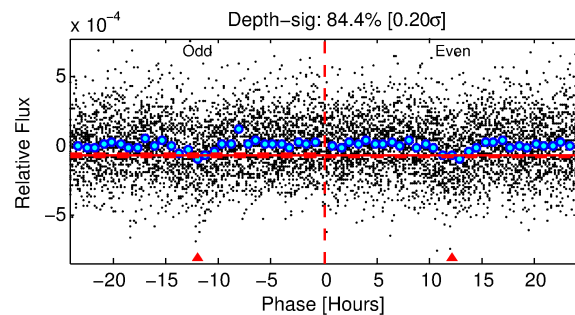
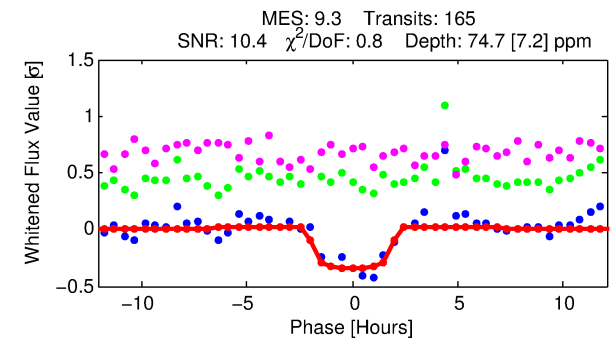
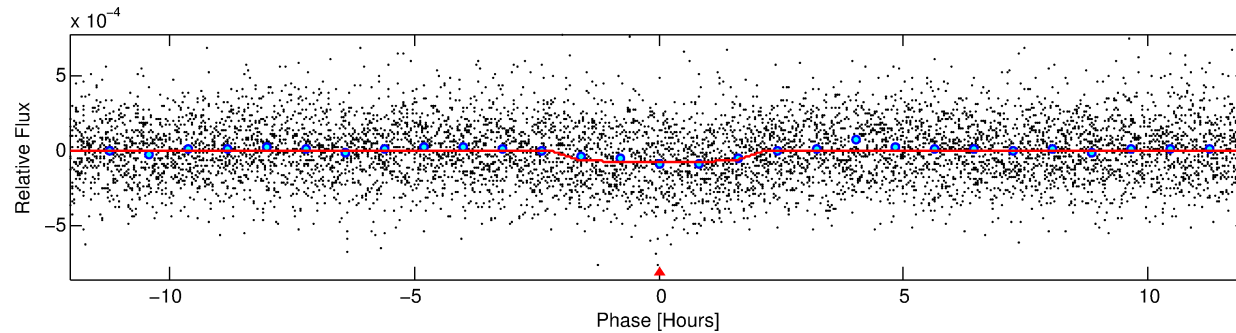
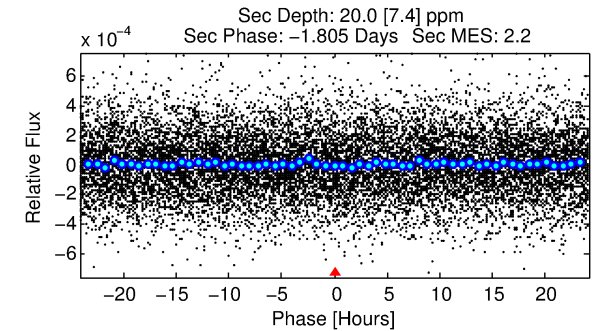
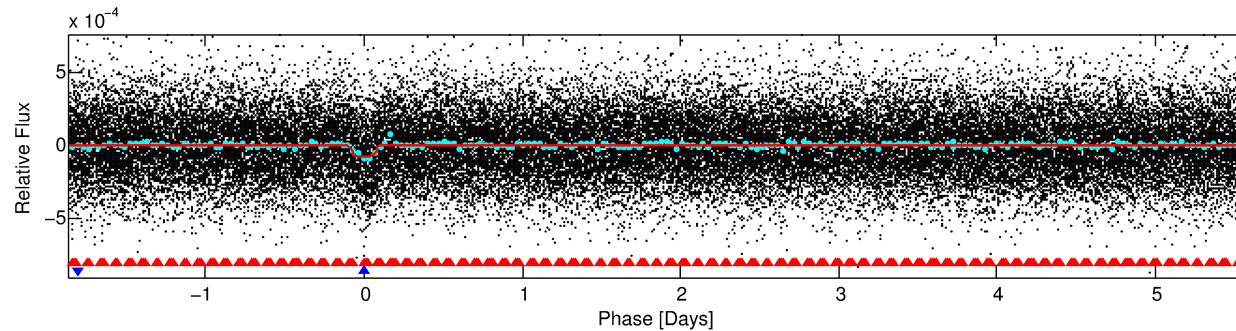
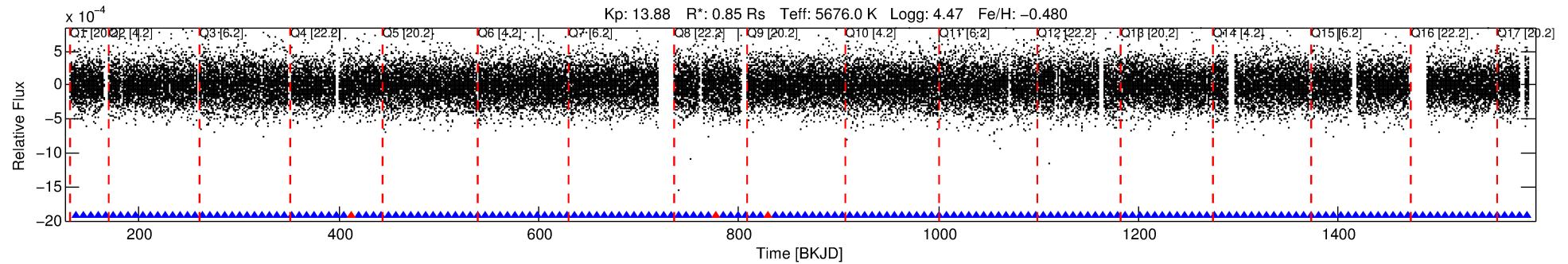
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006467363-02

No Significant Match Found

# DV One-Page Summary

KIC: 6467363 Candidate: 2 of 2 Period: 7.447 d  
KOI: K02840.02 Corr: 0.962



## DV Fit Results:

Period = 7.44651 [0.00007] d  
Epoch = 137.3312 [0.0068] BKJD  
Rp/R\* = 0.0091 [0.0058]  
a/R\* = 7.40 [22.69]  
b = 0.87 [0.92]  
Seff = 141.49 [43.19]  
Teq = 879 [67] K  
Rp = 0.84 [0.57] Re  
a = 0.0687 [0.0130] AU  
Ag = 73.03 [99.21] [0.73σ]  
Teffp = 3975 [1326] K [2.33σ]

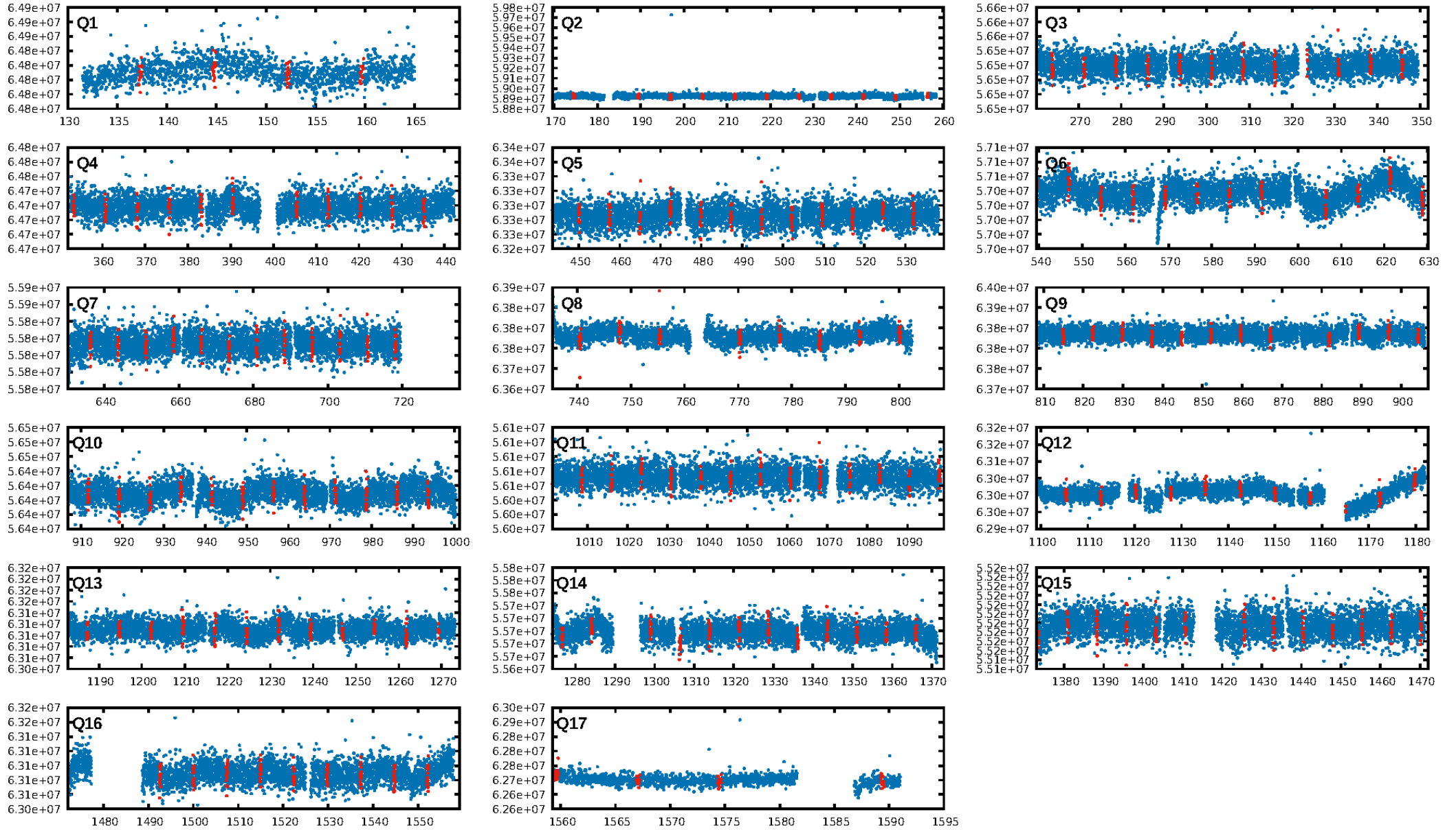
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.03σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.18e-20  
RollingBand-fgt: 0.98 [154/157]  
GhostDiagnostic-chr: 2.736  
Centroid-sig: 17.3%  
Centroid-so: 1.484 arcsec [1.26σ]  
OotOffset-rm: 1.546 arcsec [2.14σ]  
KicOffset-rm: 1.474 arcsec [1.98σ]  
OotOffset-st: 4/4/3/4 [15]  
KicOffset-st: 4/4/3/4 [15]  
DiffImageQuality-fgm: 0.53 [8/15]  
DiffImageOverlap-fno: 1.00 [17/17]

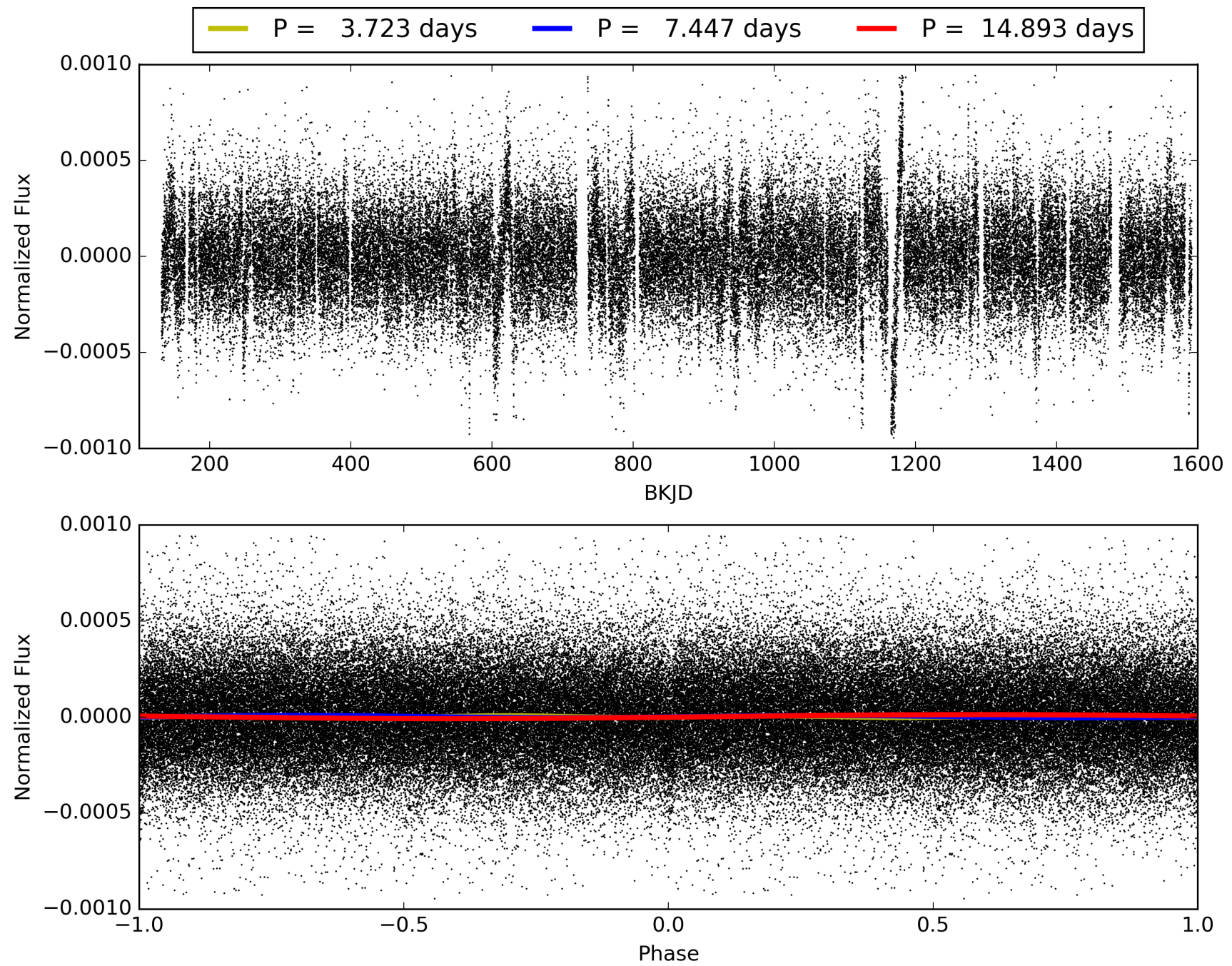
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:34:34 Z

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

# TCE 006467363-02, PDC Light Curves



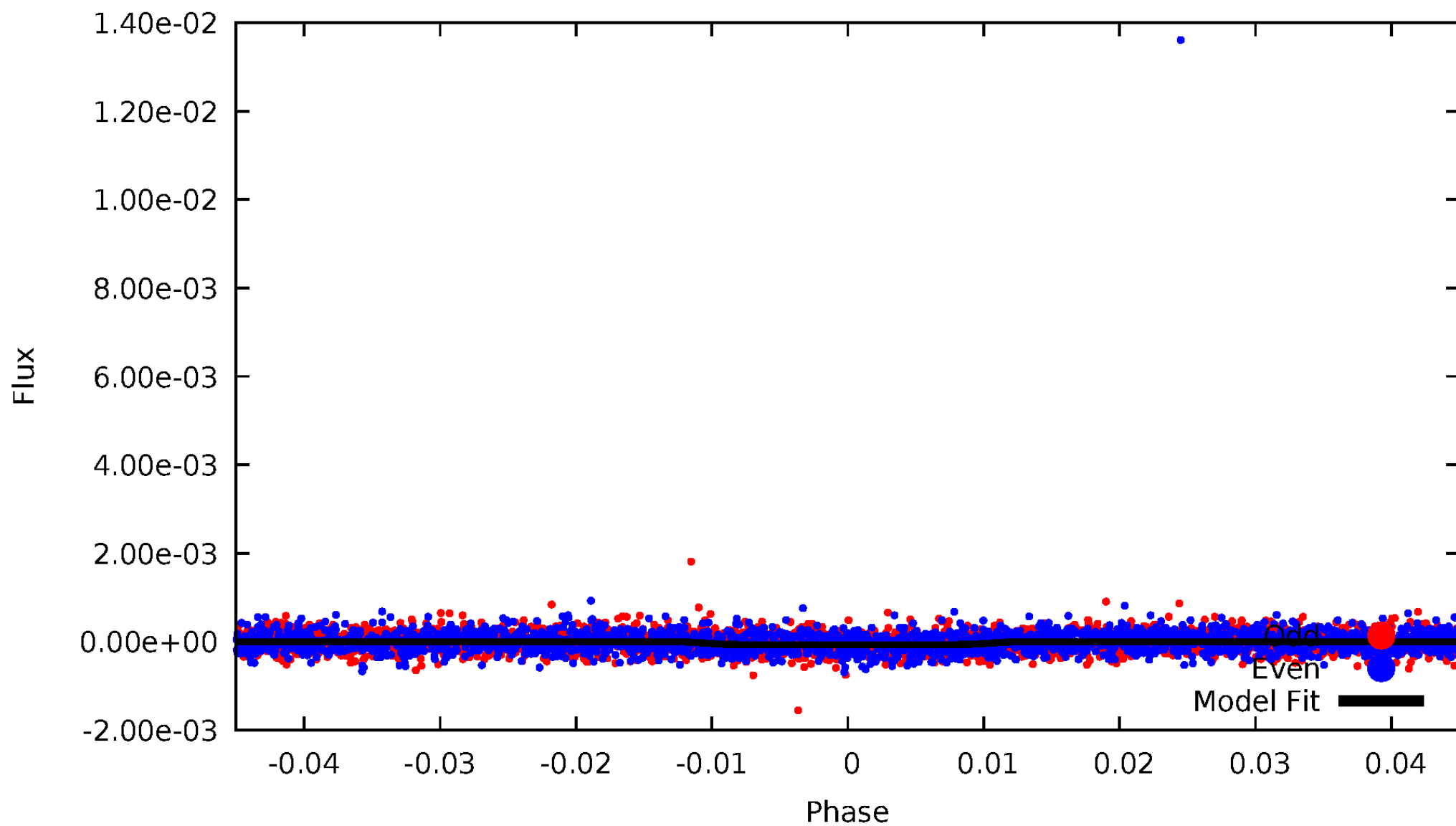
TCE 006467363-02





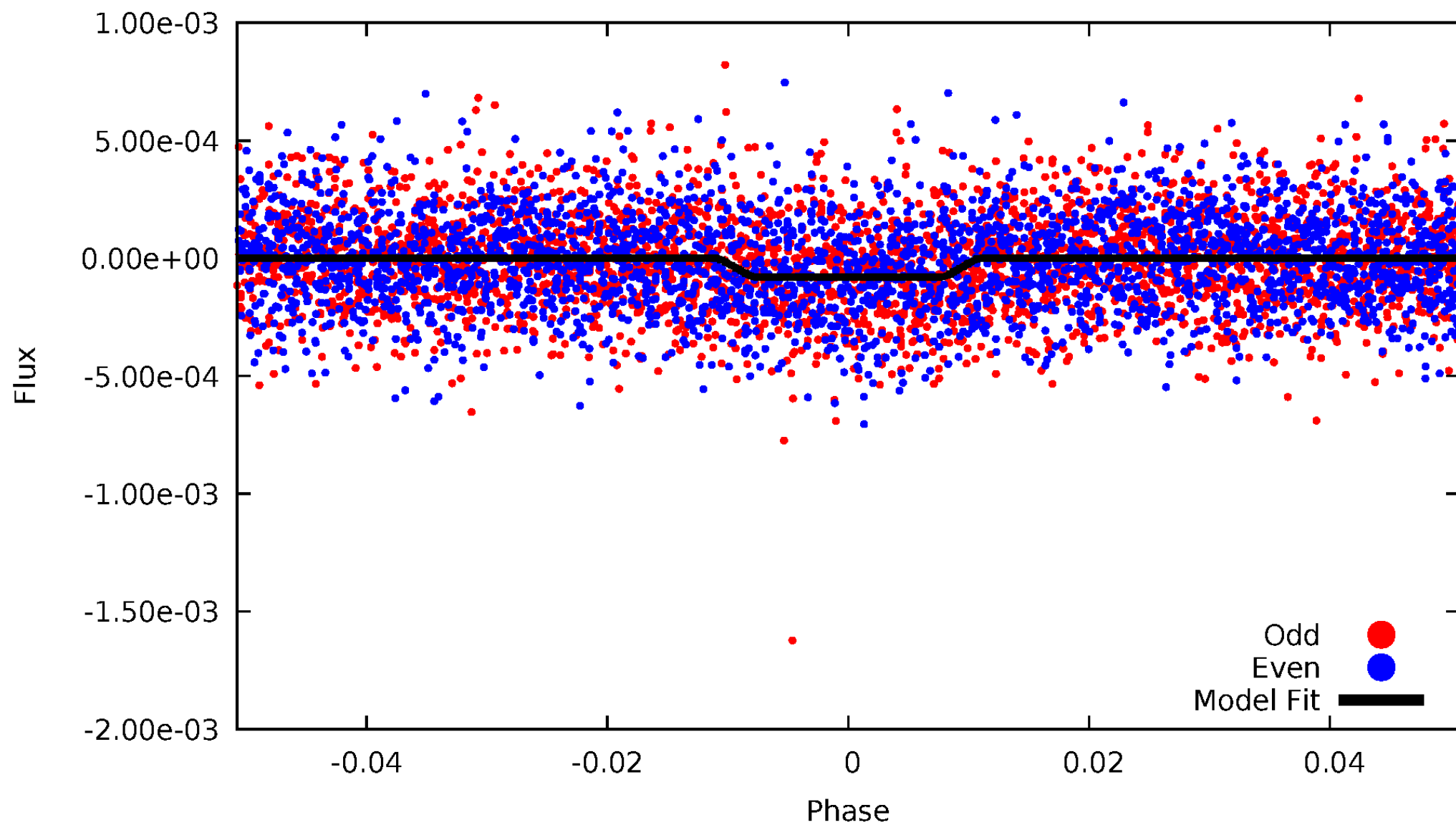
# DV Odd/Even

TCE 006467363-02



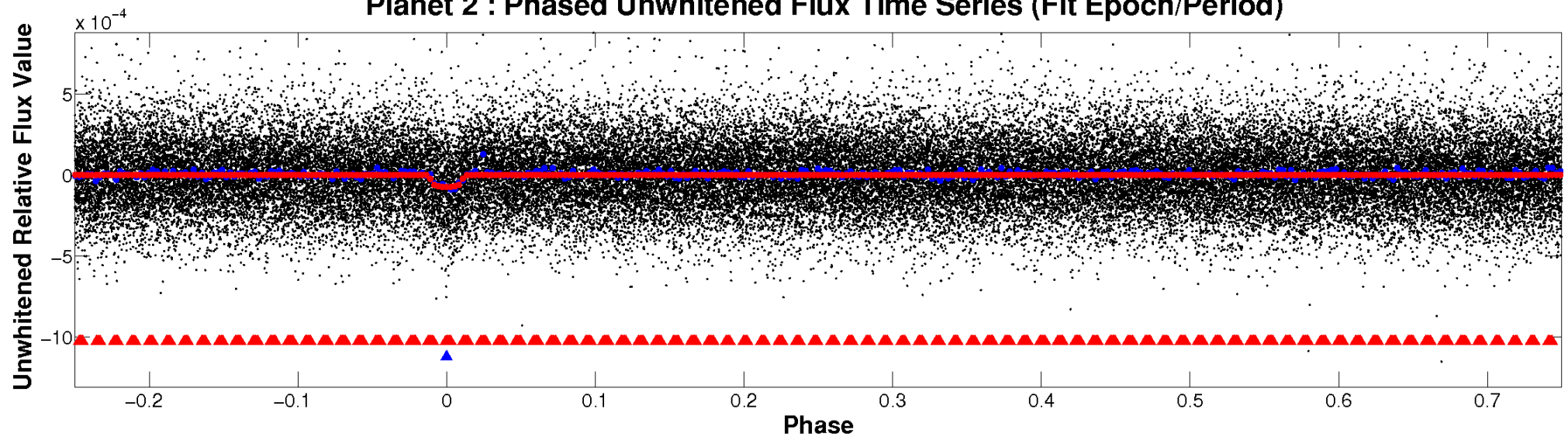
# ALT Odd/Even

TCE 006467363-02

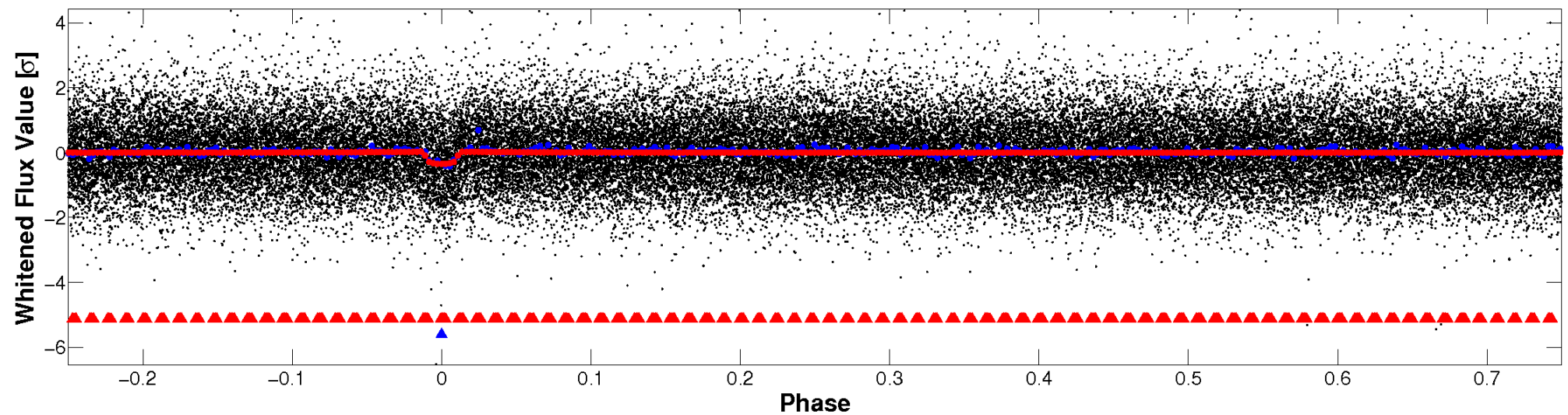


# Non-Whitened Vs. Whitened Light Curve

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

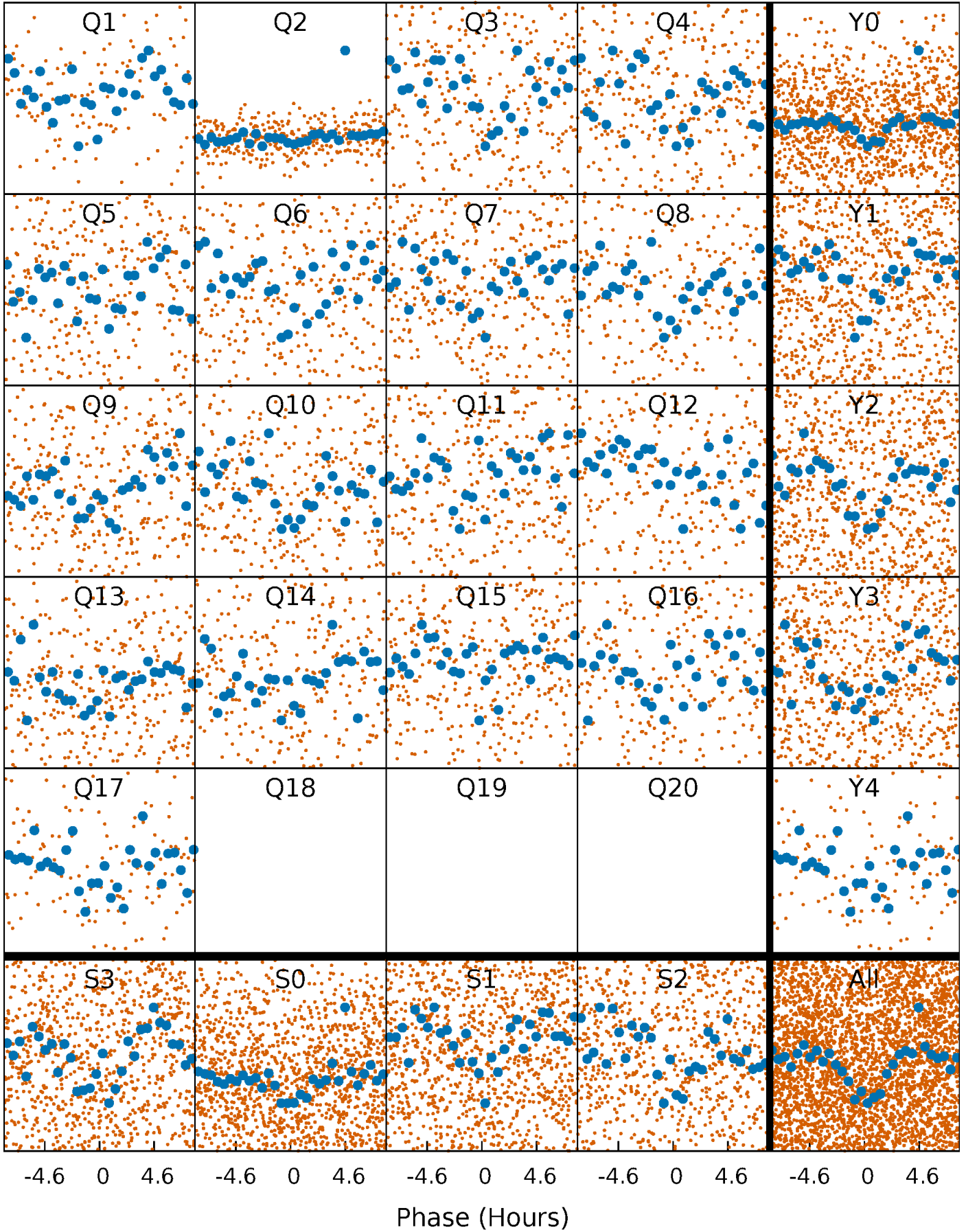


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



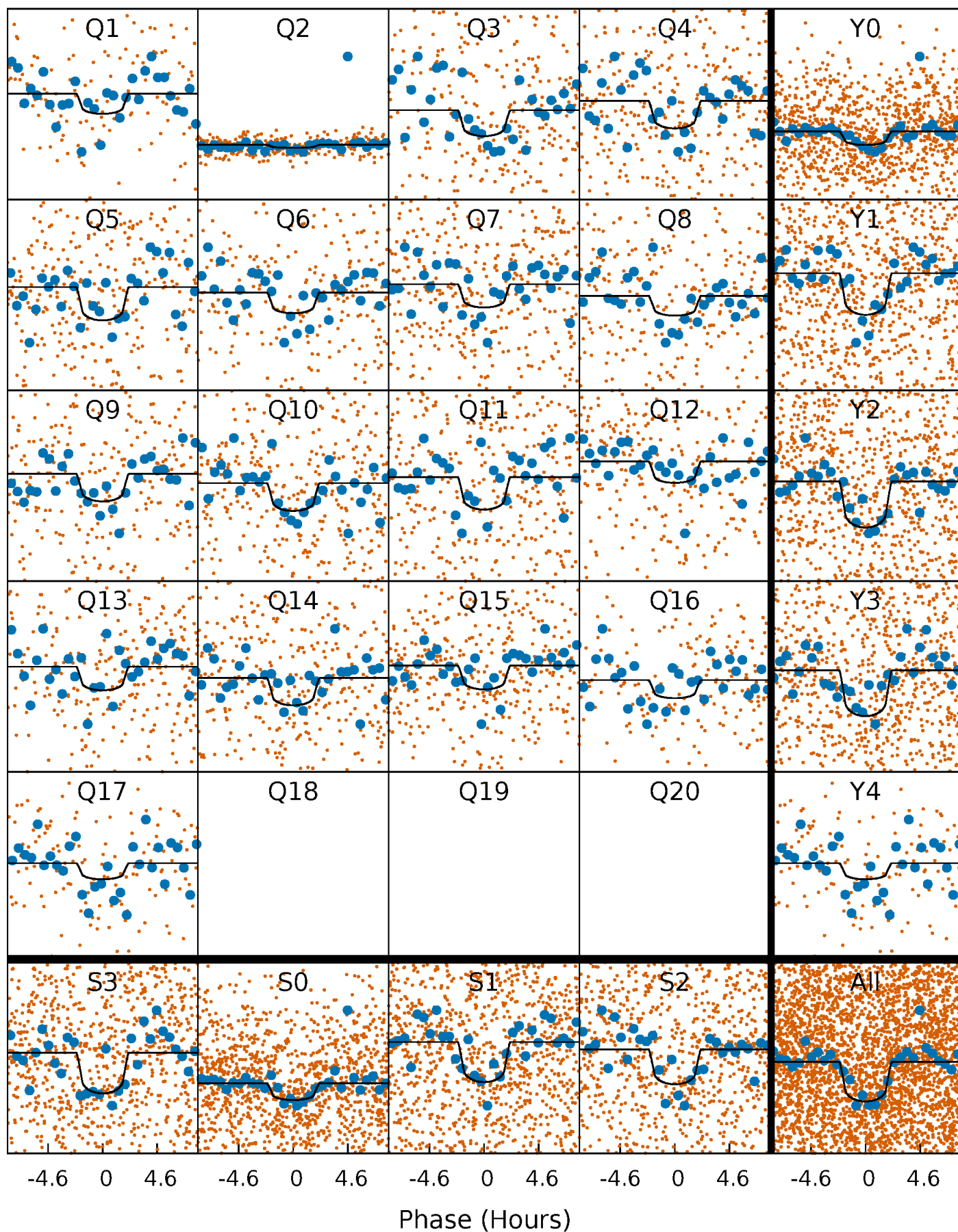
# PDC Quarter-Phased Transit Curves

TCE 006467363-02   P= 7.446513 Days    $T_0=137.331245$  (BKJD)



# DV Quarter-Phased Transit Curves

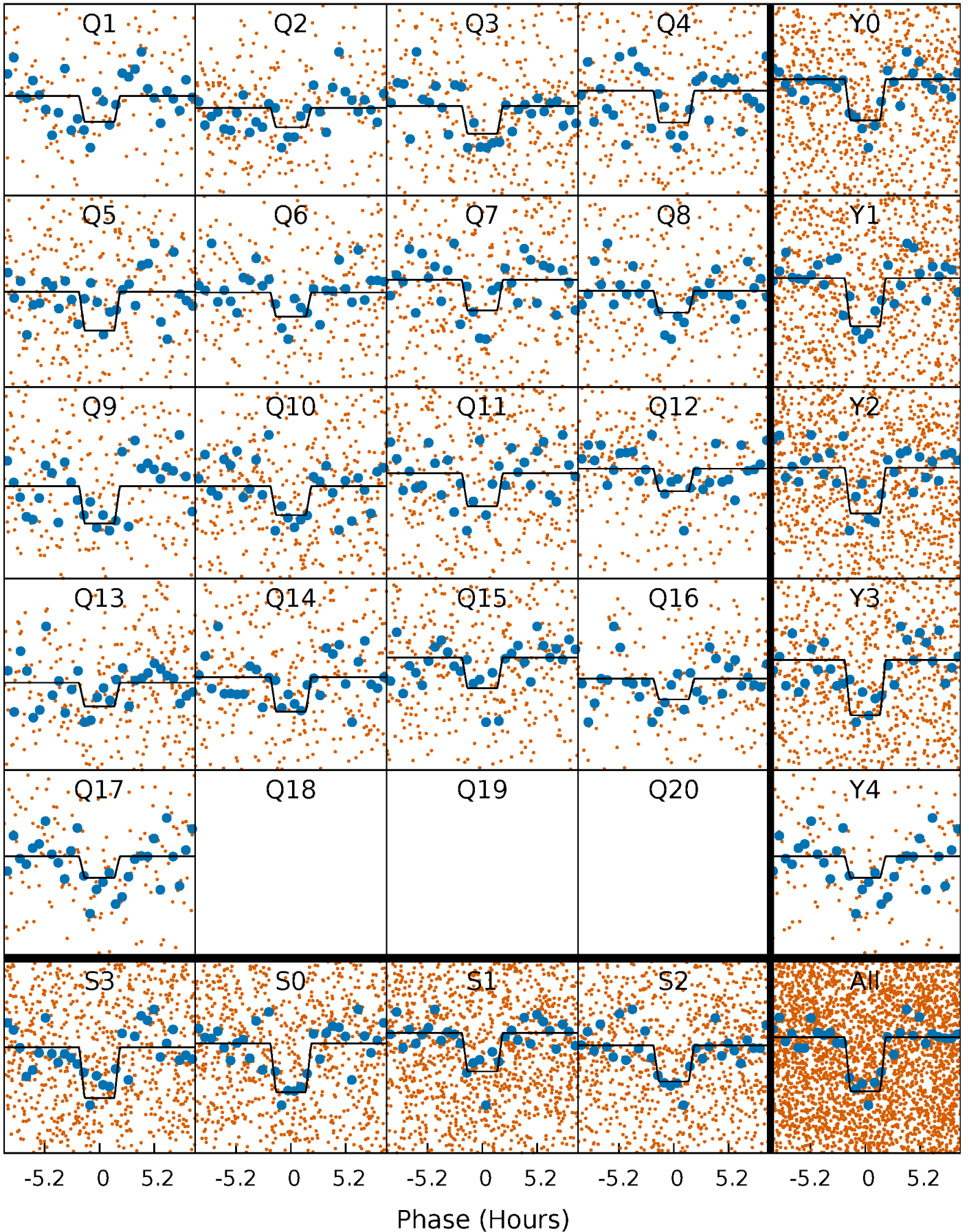
TCE 006467363-02   P= 7.446513 Days    $T_0=137.331245$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

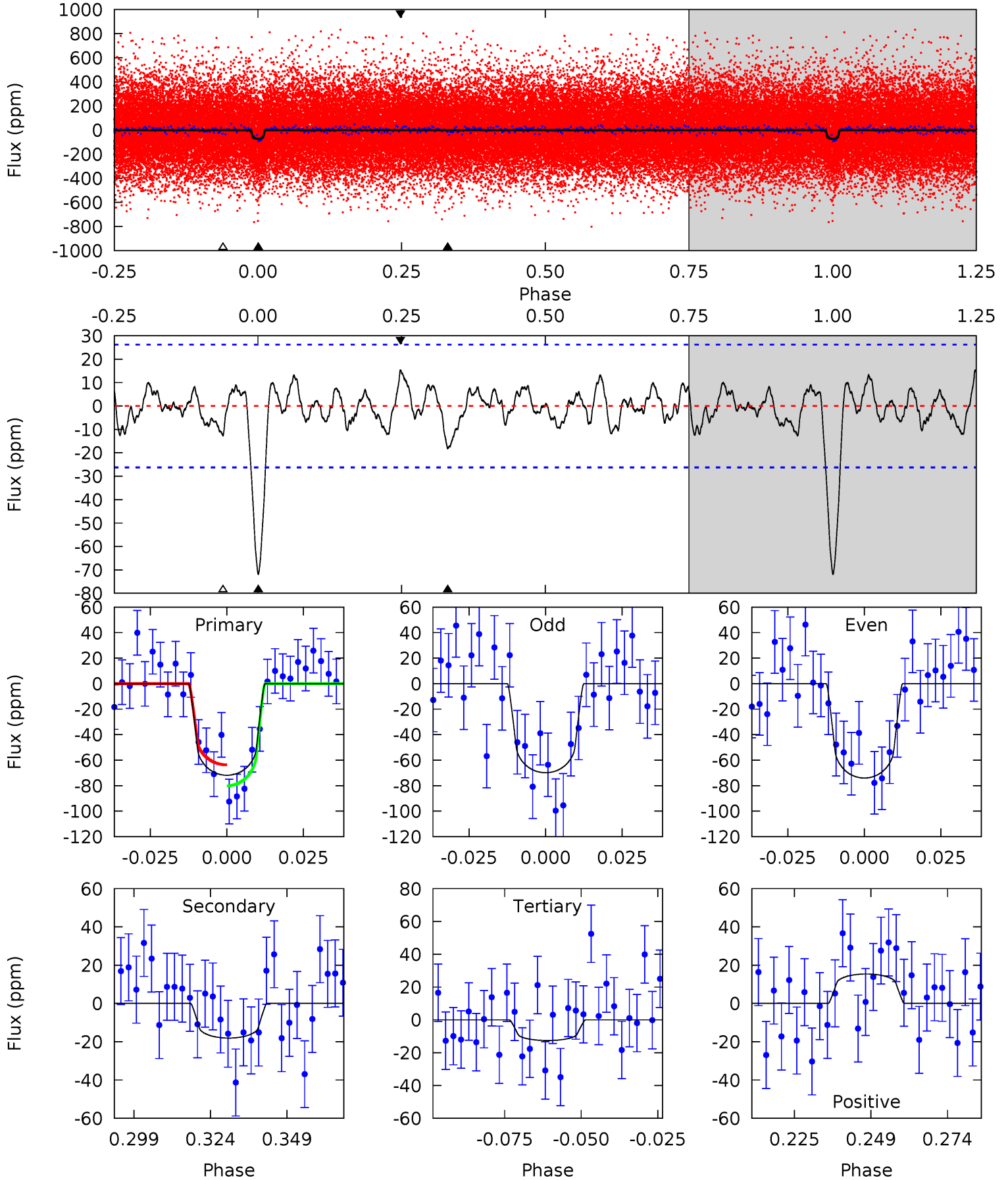
TCE 006467363-02   P= 7.446293 Days    $T_0=137.356471$  (BKJD)



# DV Model-Shift Uniqueness Test

006467363-02, P = 7.446513 Days, E = 129.884732 Days

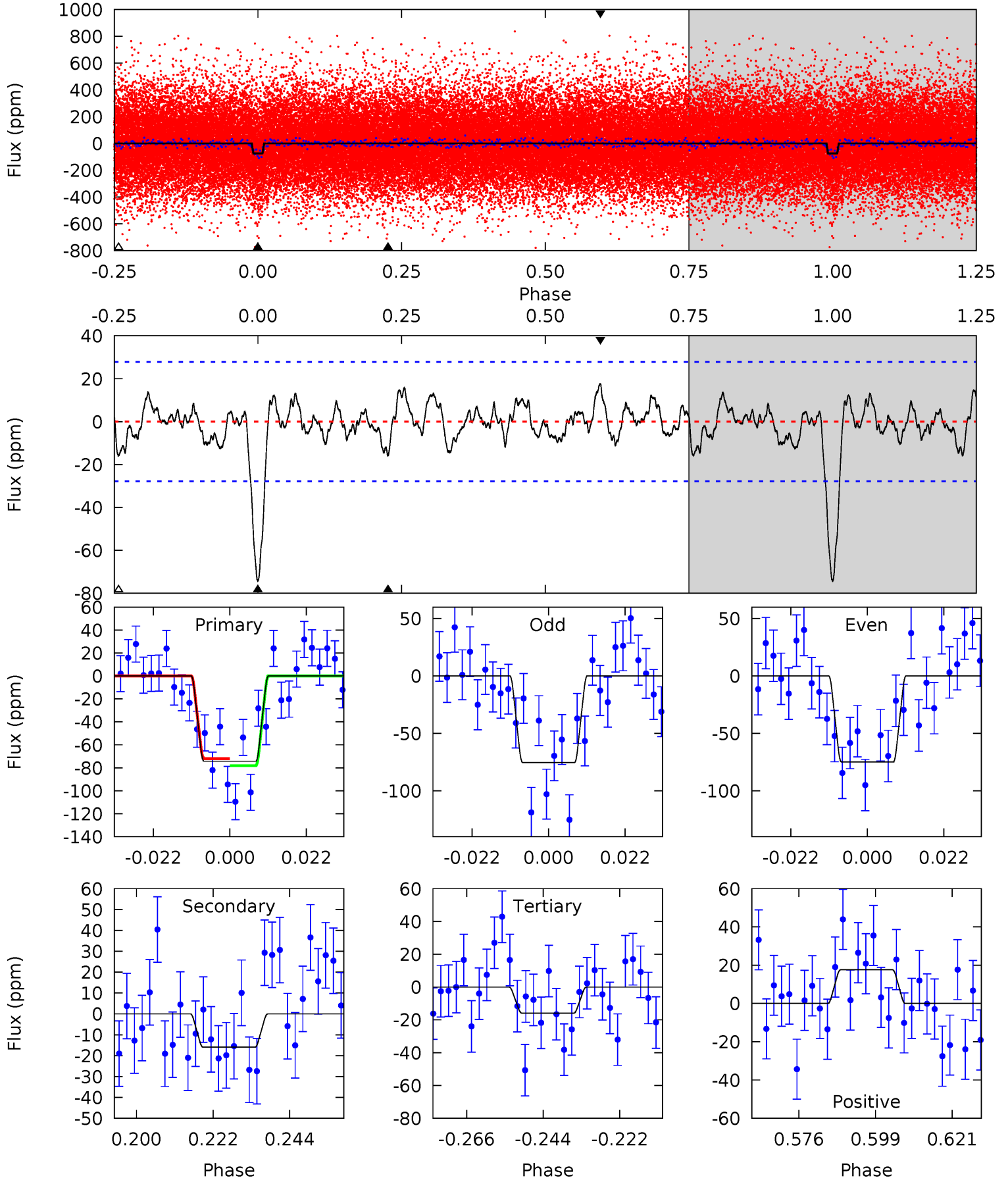
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	3.34	2.33	2.84	4.85	2.24	1.08	11.0	10.4	1.02	0.50	0.38	1.04	0.18	1.52



# Alt Model-Shift Uniqueness Test

006467363-02, P = 7.446293 Days, E = 129.910178 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	2.79	2.78	3.08	4.87	2.29	1.13	10.2	9.92	0.00	-0.29	0.04	1.03	0.19	0.52



### Stellar Parameters For KIC 006467363

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5676^{+172}_{-154}$	$4.474^{+0.117}_{-0.156}$	$-0.480^{+0.300}_{-0.300}$	$0.848^{+0.185}_{-0.108}$	$0.781^{+0.104}_{-0.056}$	$1.806^{+0.938}_{-0.766}$
	+3%/-3%	+3%/-3%	+62%/-62%	+22%/-13%	+13%/-7%	+52%/-42%
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 006467363-02 / KOI 2840.02

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-18 \pm 5$	$0.91^{+0.56}_{-0.49}$	$1234^{+80}_{-61}$	$4021^{+1461}_{-594}$	$56^{+193}_{-36}$
Alt.	$-16 \pm 6$	$0.87^{+0.58}_{-0.50}$	$1233^{+83}_{-66}$	$4009^{+1699}_{-651}$	$53^{+281}_{-35}$

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

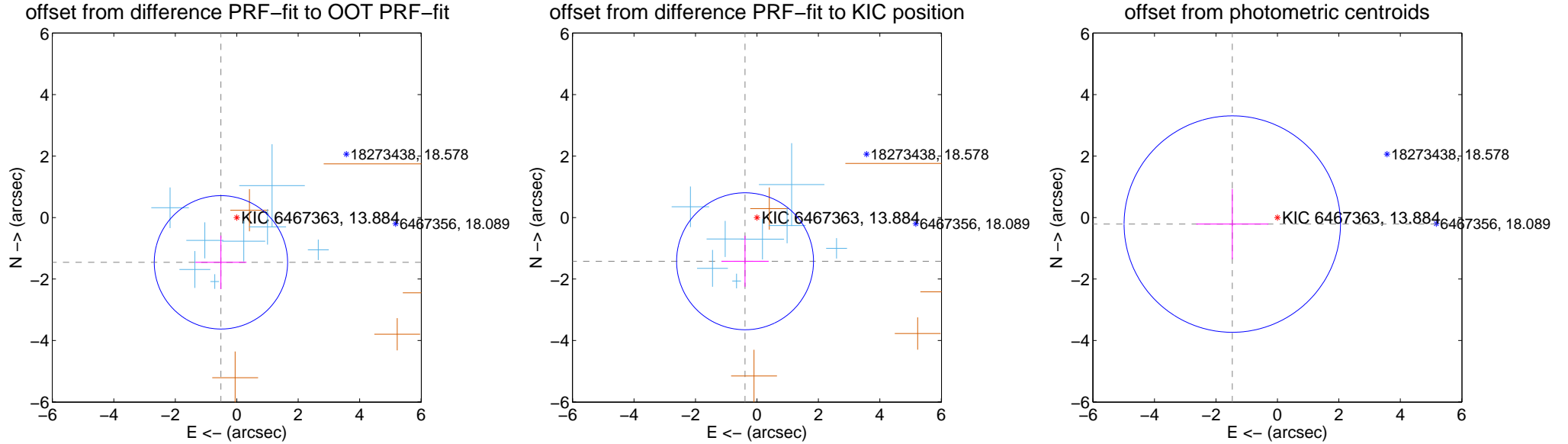
## DV Centroid Data

Supplemental centroid analysis for 006467363-02. Kepler magnitude: 13.88. Transit SNR 10.43

There are 8 quarters with good PRF difference image offsets

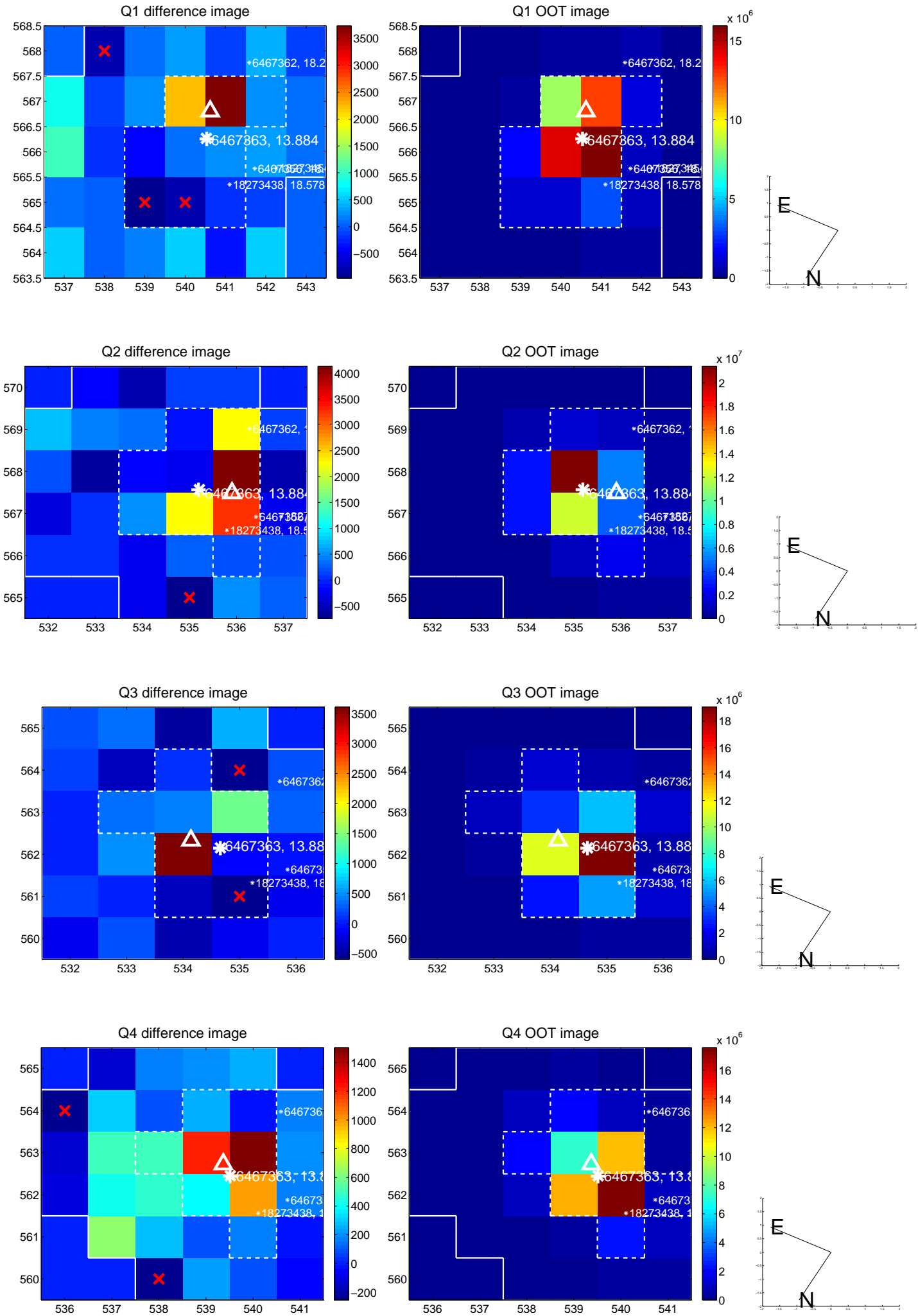
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.546 \pm 0.723$	2.14	$0.515 \pm 0.833$	$-1.458 \pm 0.871$
PRF-fit source offset from KIC position	$1.474 \pm 0.743$	1.98	$0.387 \pm 0.770$	$-1.422 \pm 0.830$
photometric centroid source offset	$1.48 \pm 1.17$	1.26	$1.47 \pm 1.17$	$-0.21 \pm 1.14$



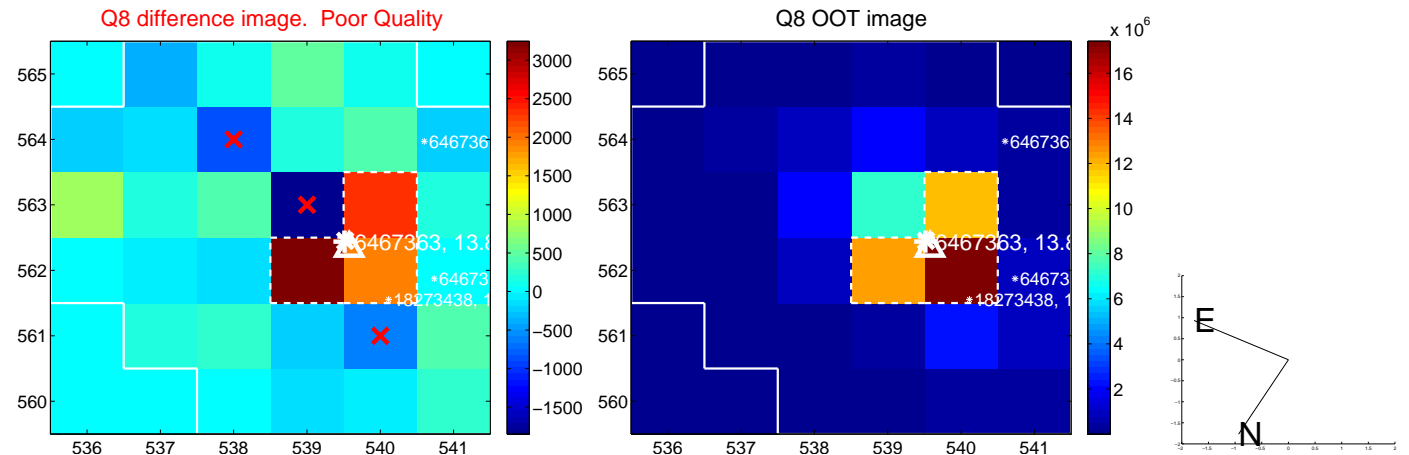
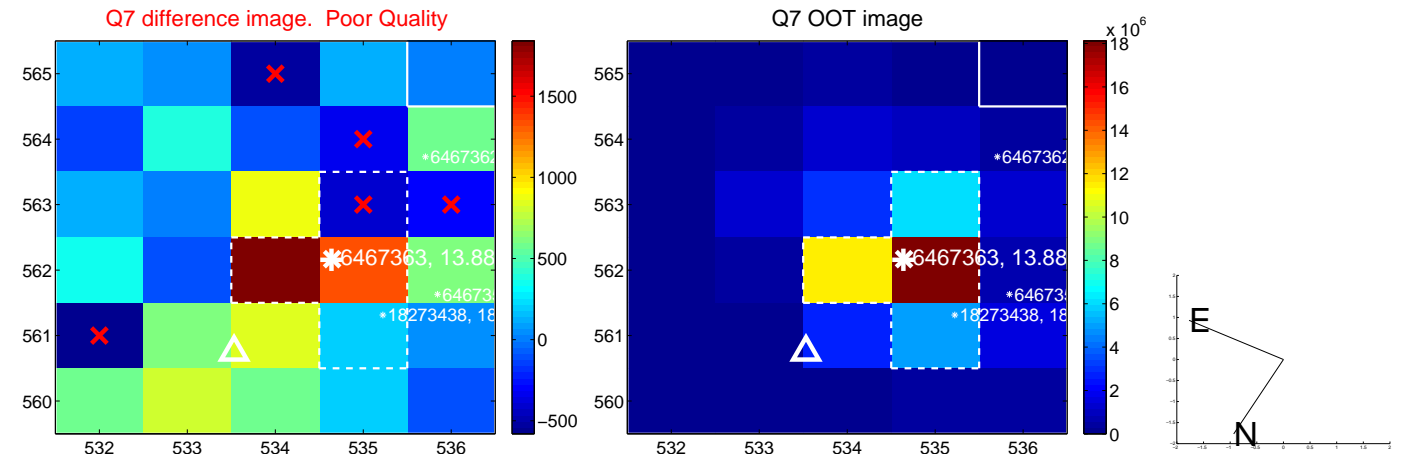
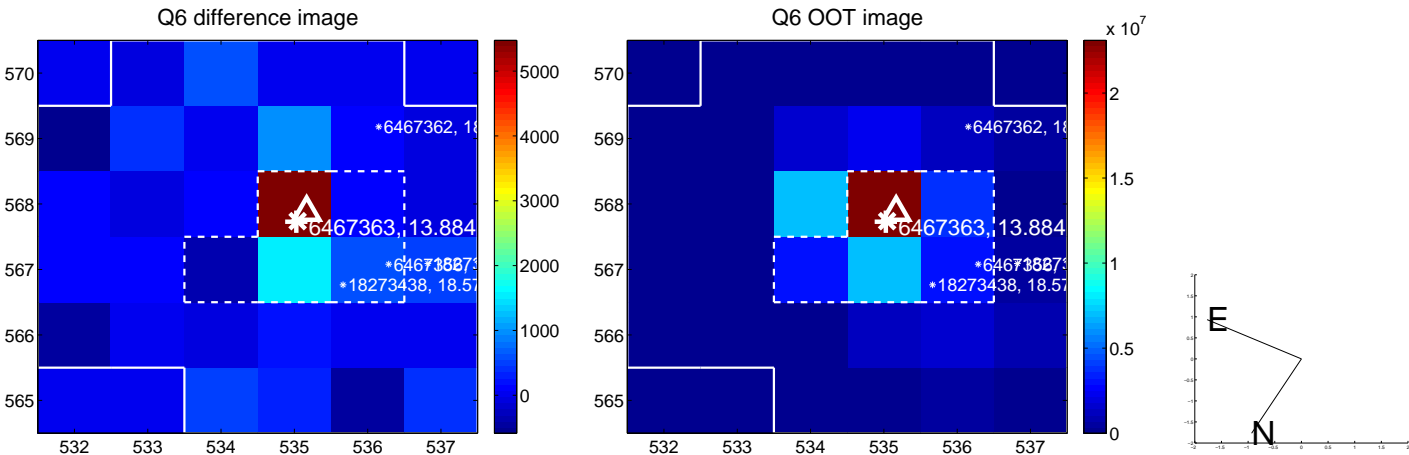
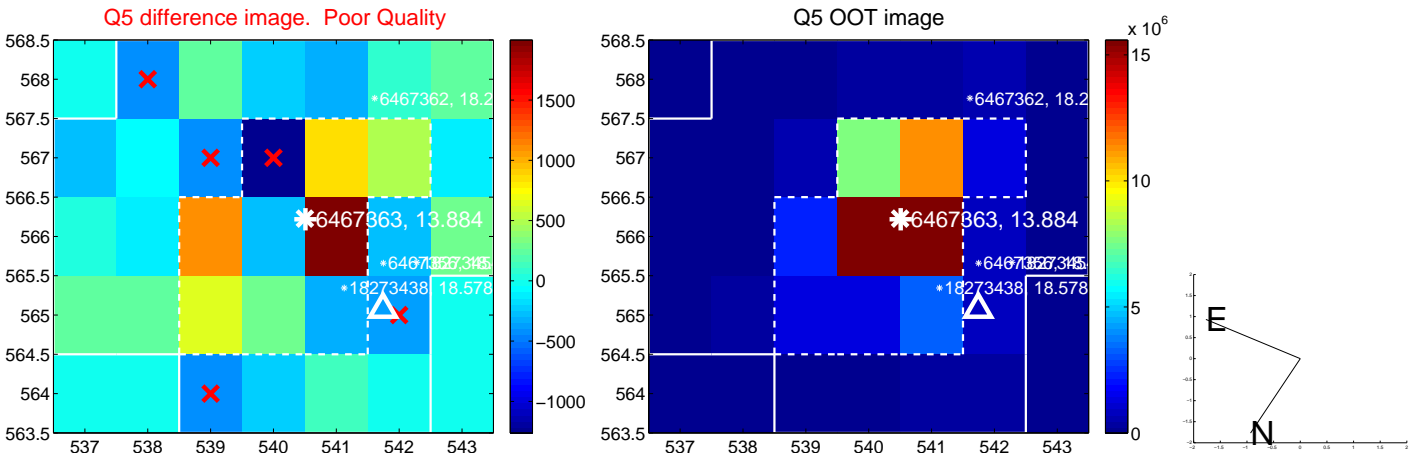
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

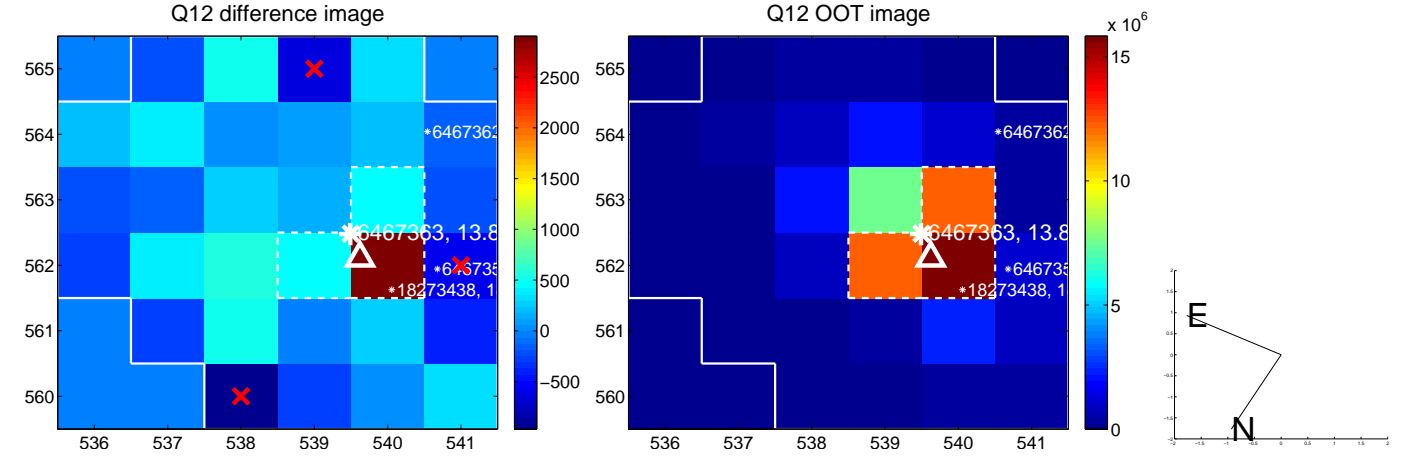
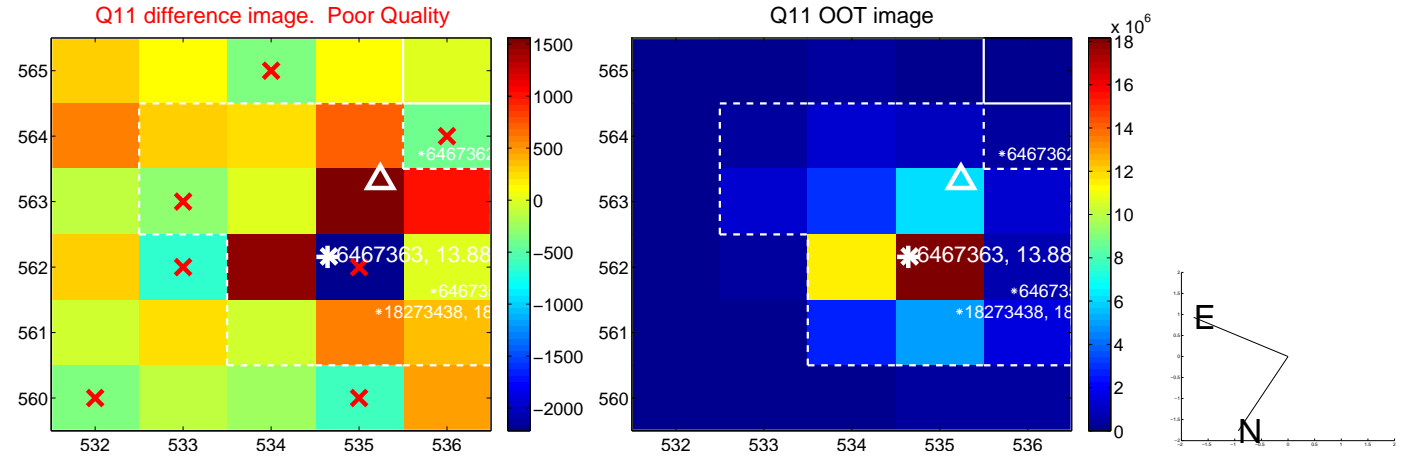
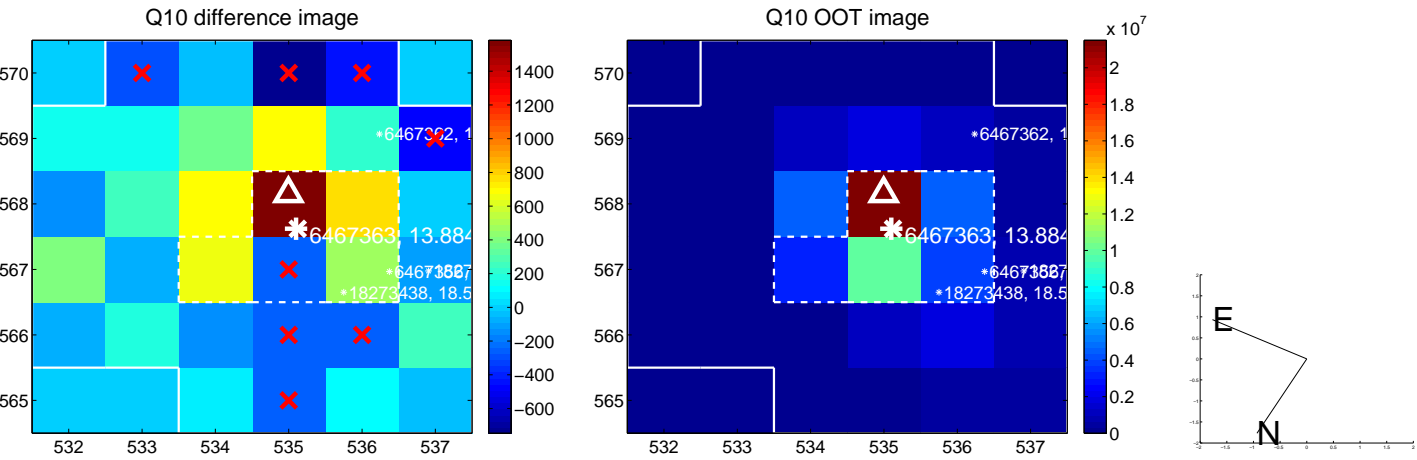
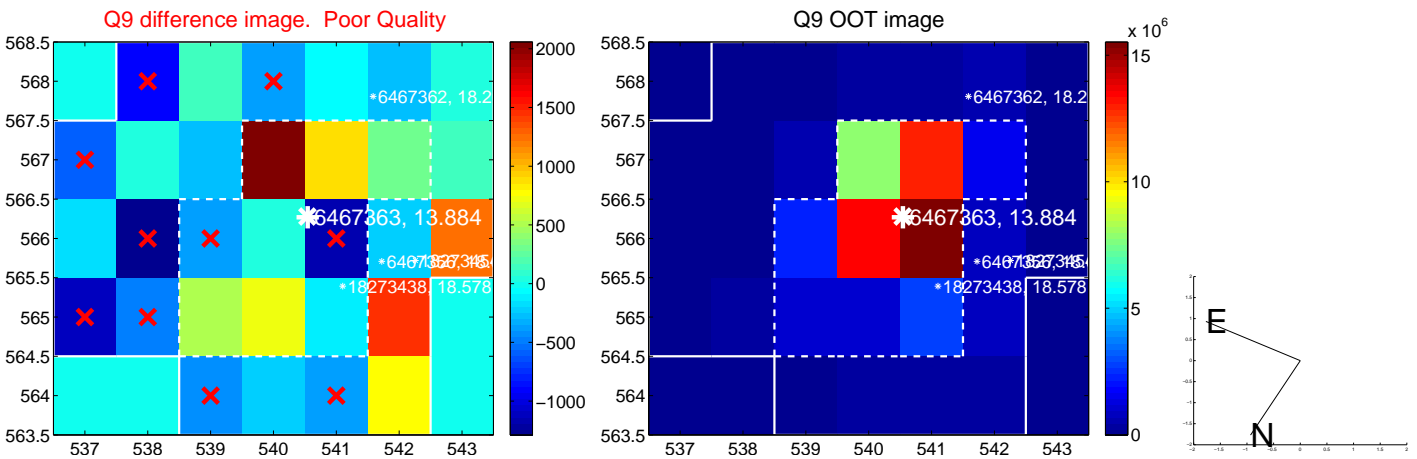




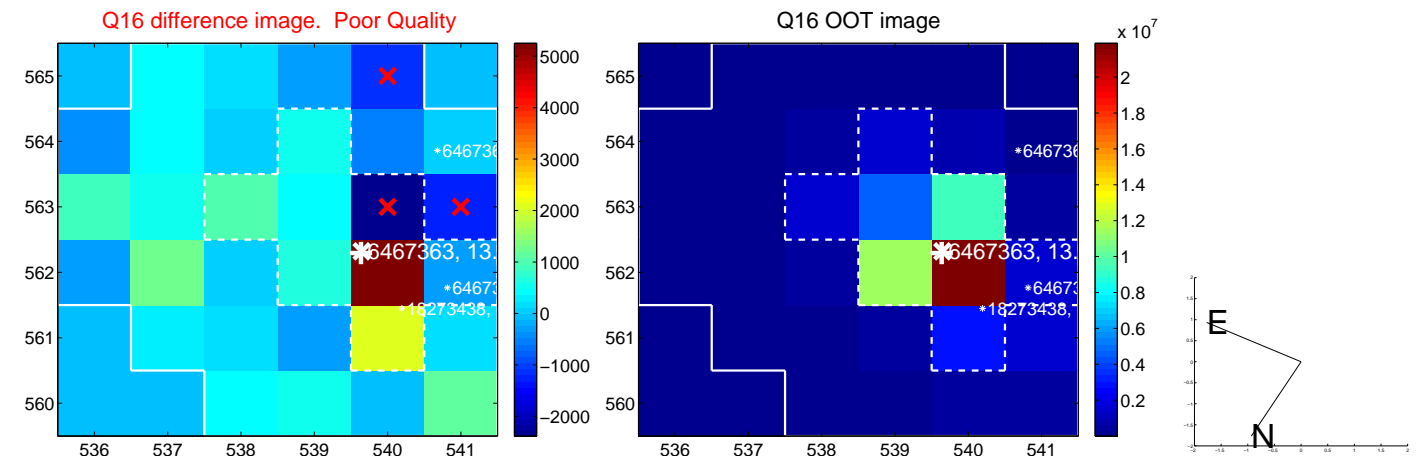
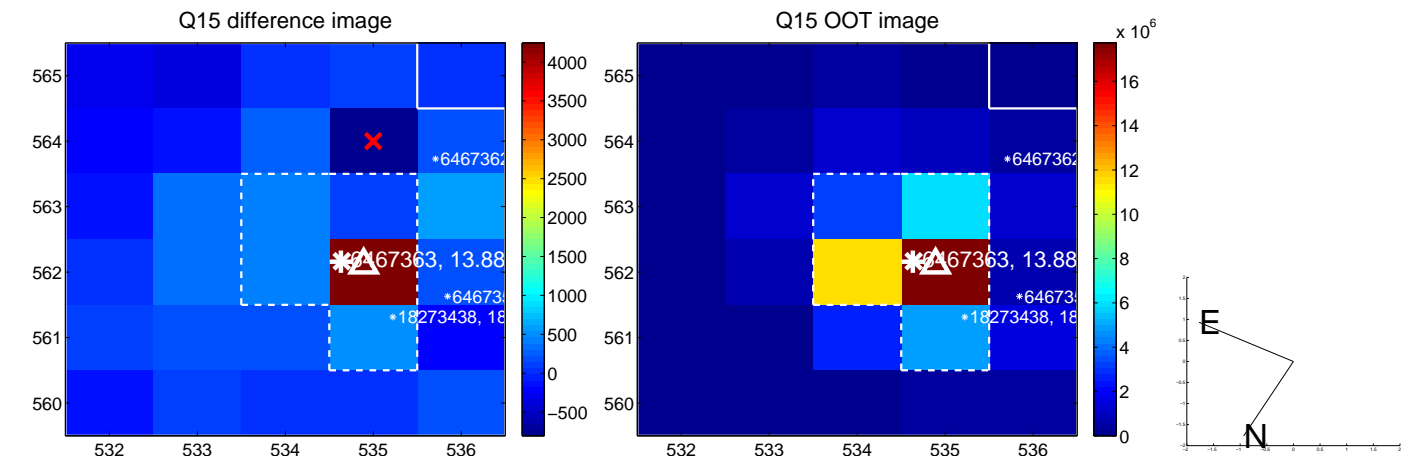
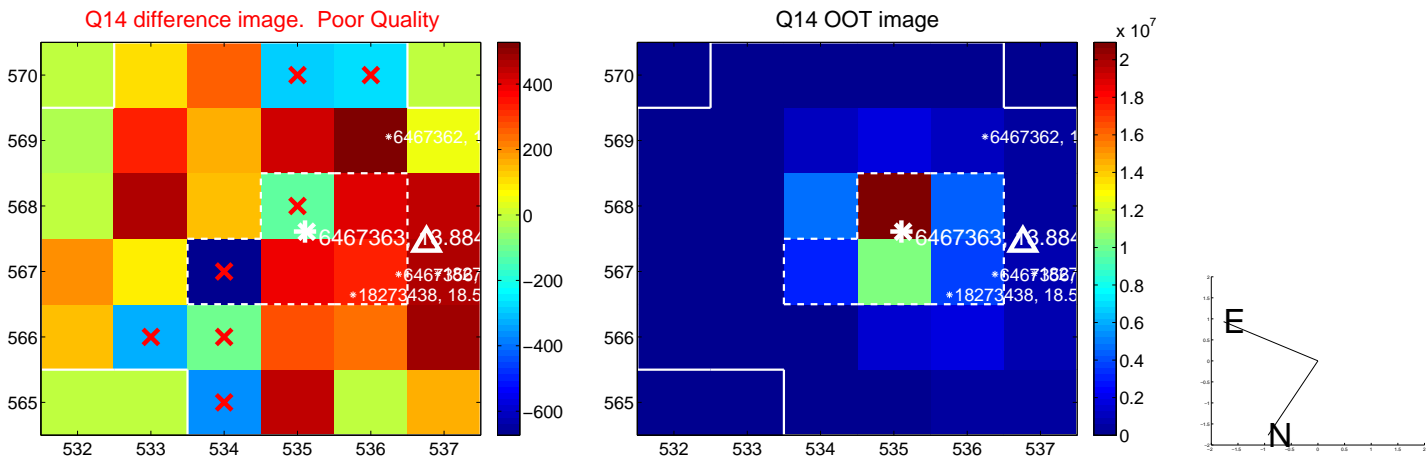
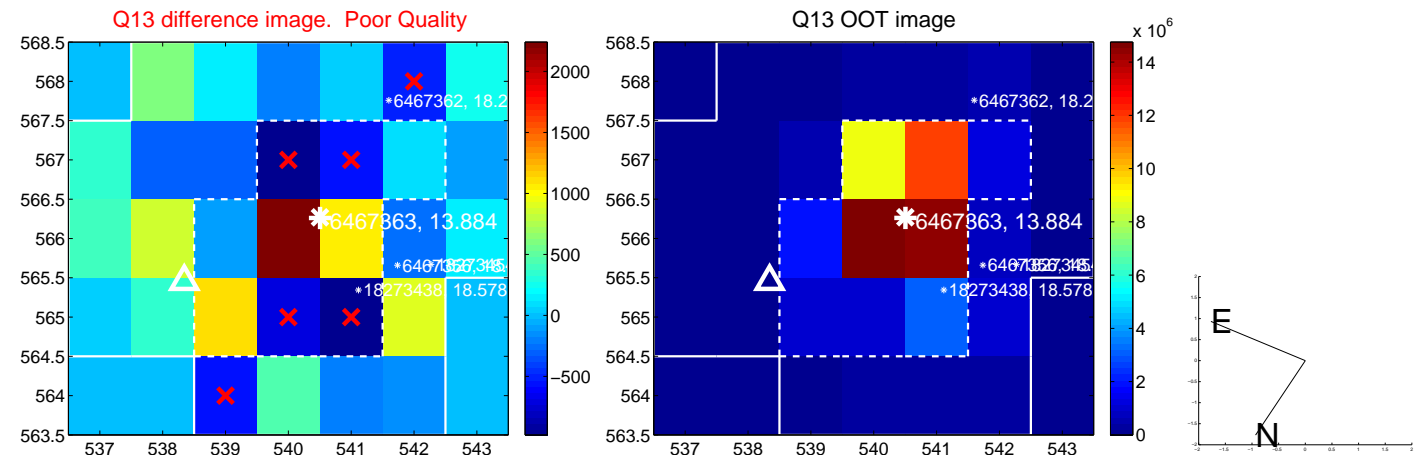
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



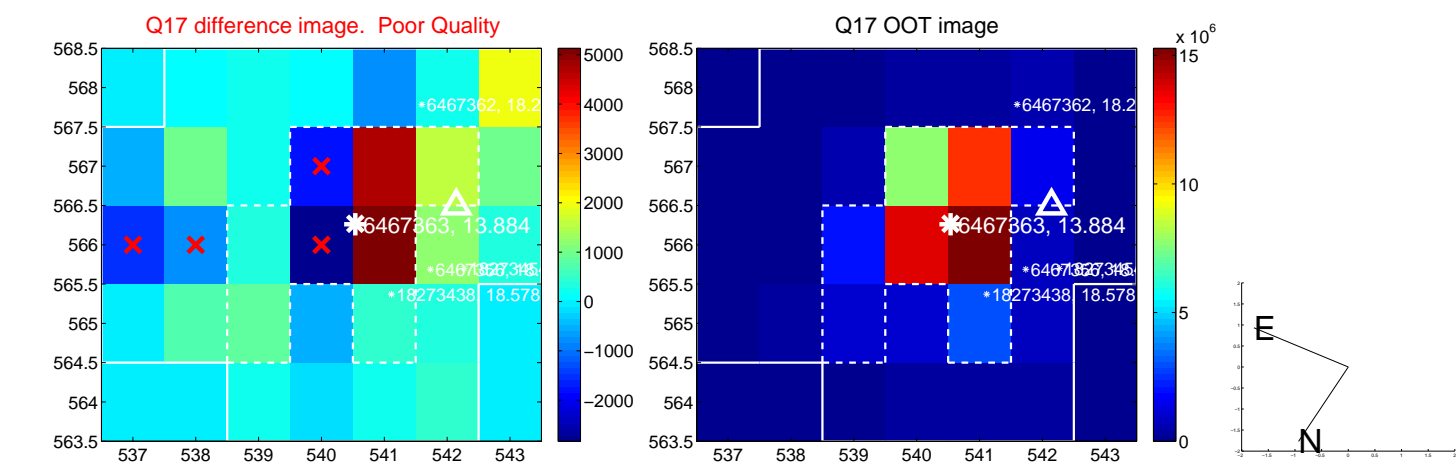
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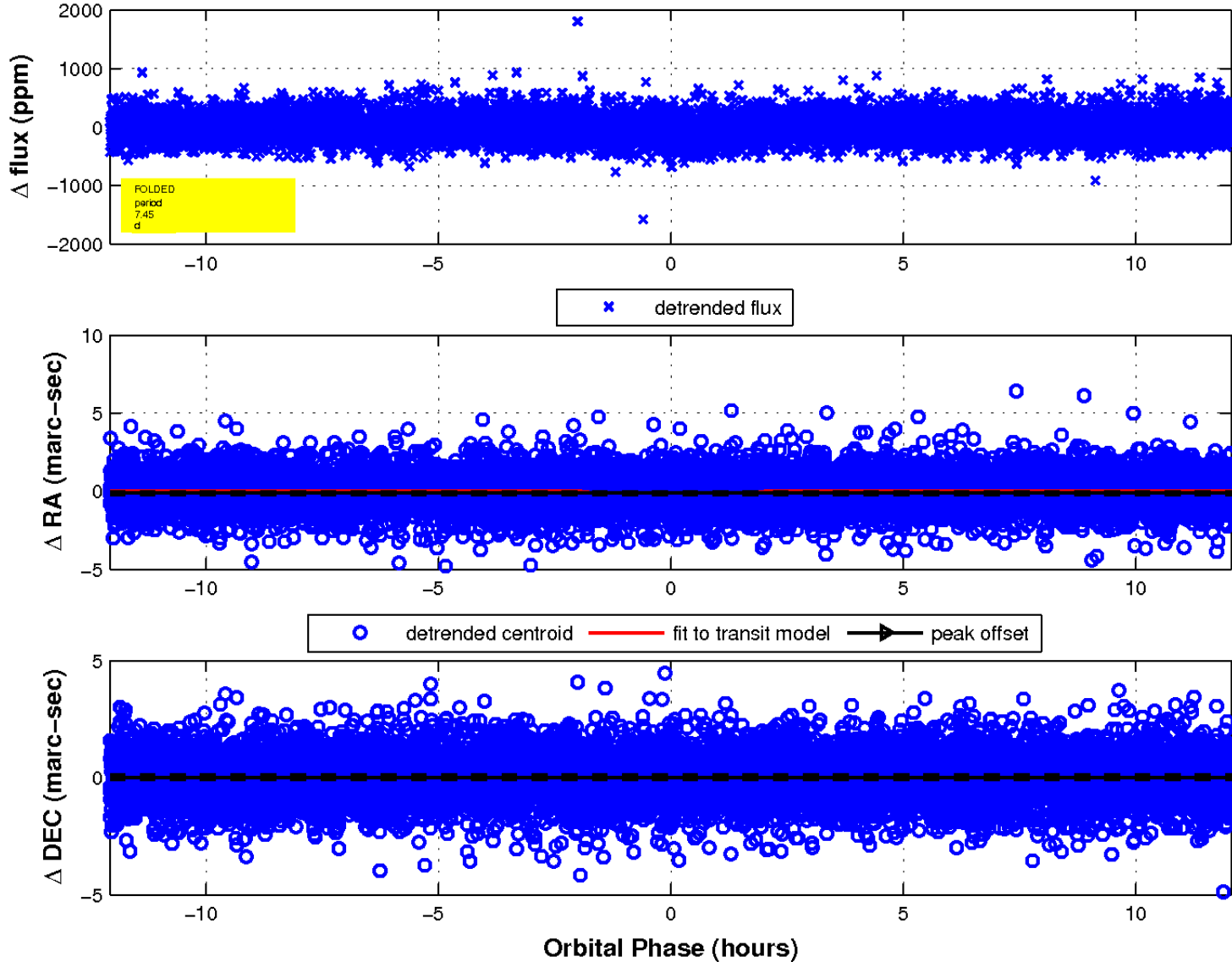
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

