

# KIC 006776957

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006776957-01	OBS	No	1.116353	132.034699	6.2	7.224	8.7	10.0	1.93	9748	0.50	39345.27
006776957-02	OBS	No	495.644126	244.268706	87.9	5.213	8.6	7.7	1.93	9748	2.13	11.62
006776957-03	OBS	No	40.783878	172.110732	84.7	3.027	7.9	9.0	1.93	9748	2.01	324.57

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006776957-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006776957-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006776957-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS

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

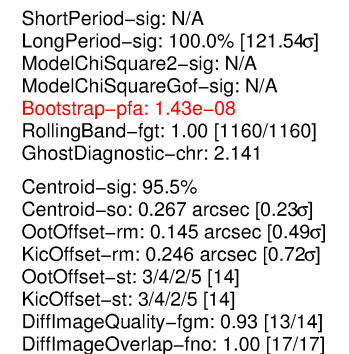
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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.

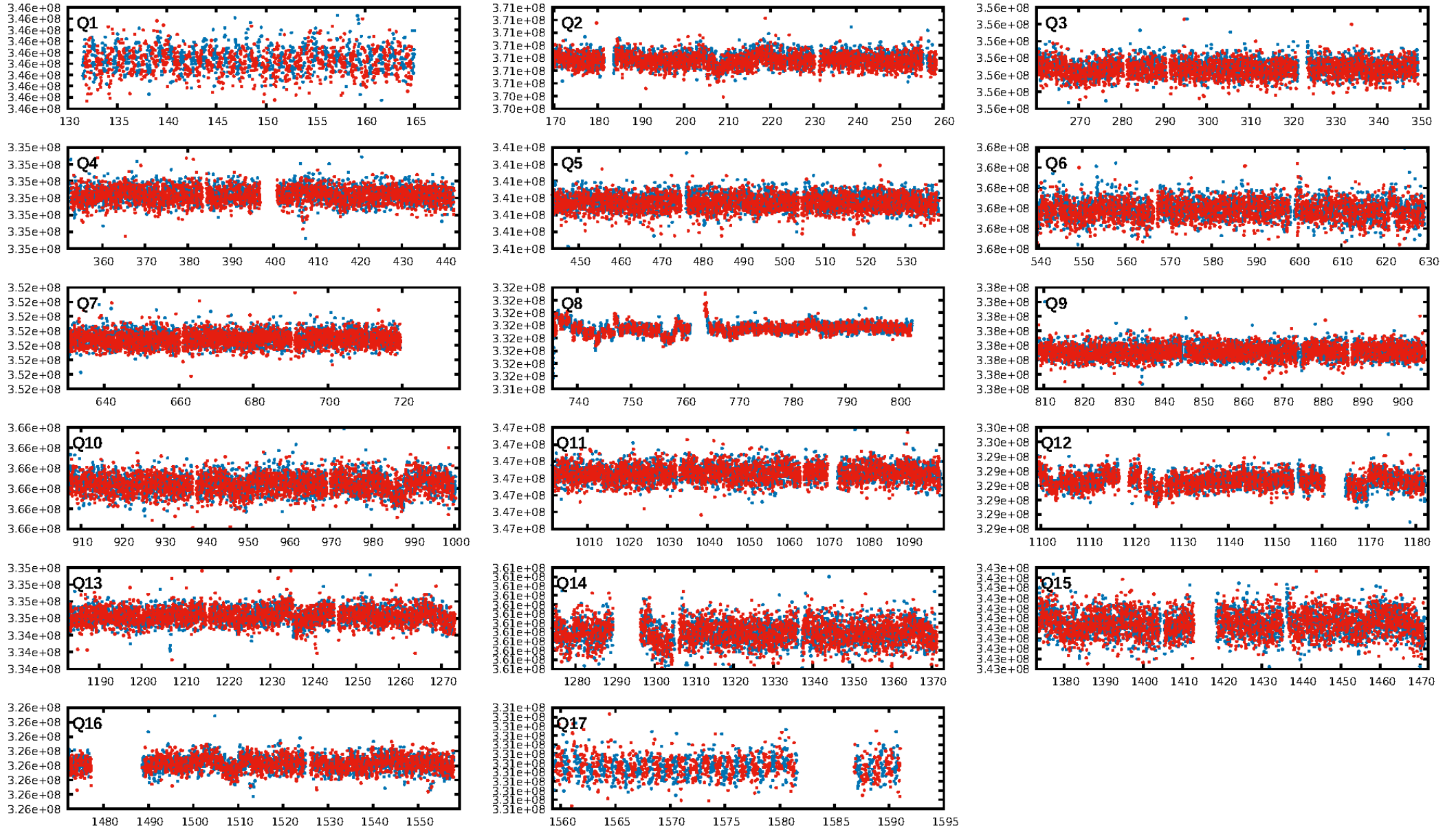
Ephemeris Match Information For 006776957-01

No Significant Match Found

## KIC: 6776957    Candidate: 1 of 3    Period: 1.116 d

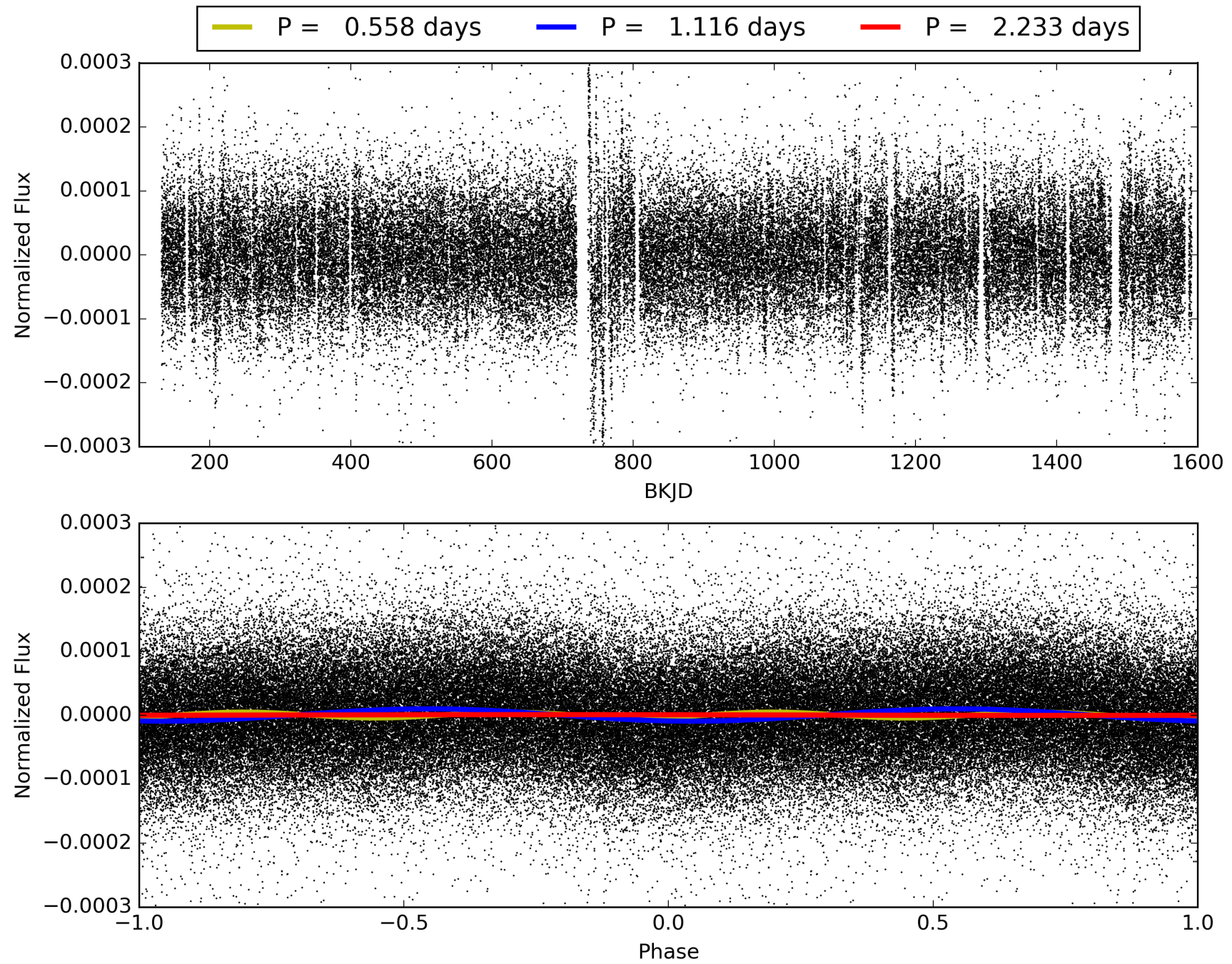


# TCE 006776957-01, PDC Light Curves





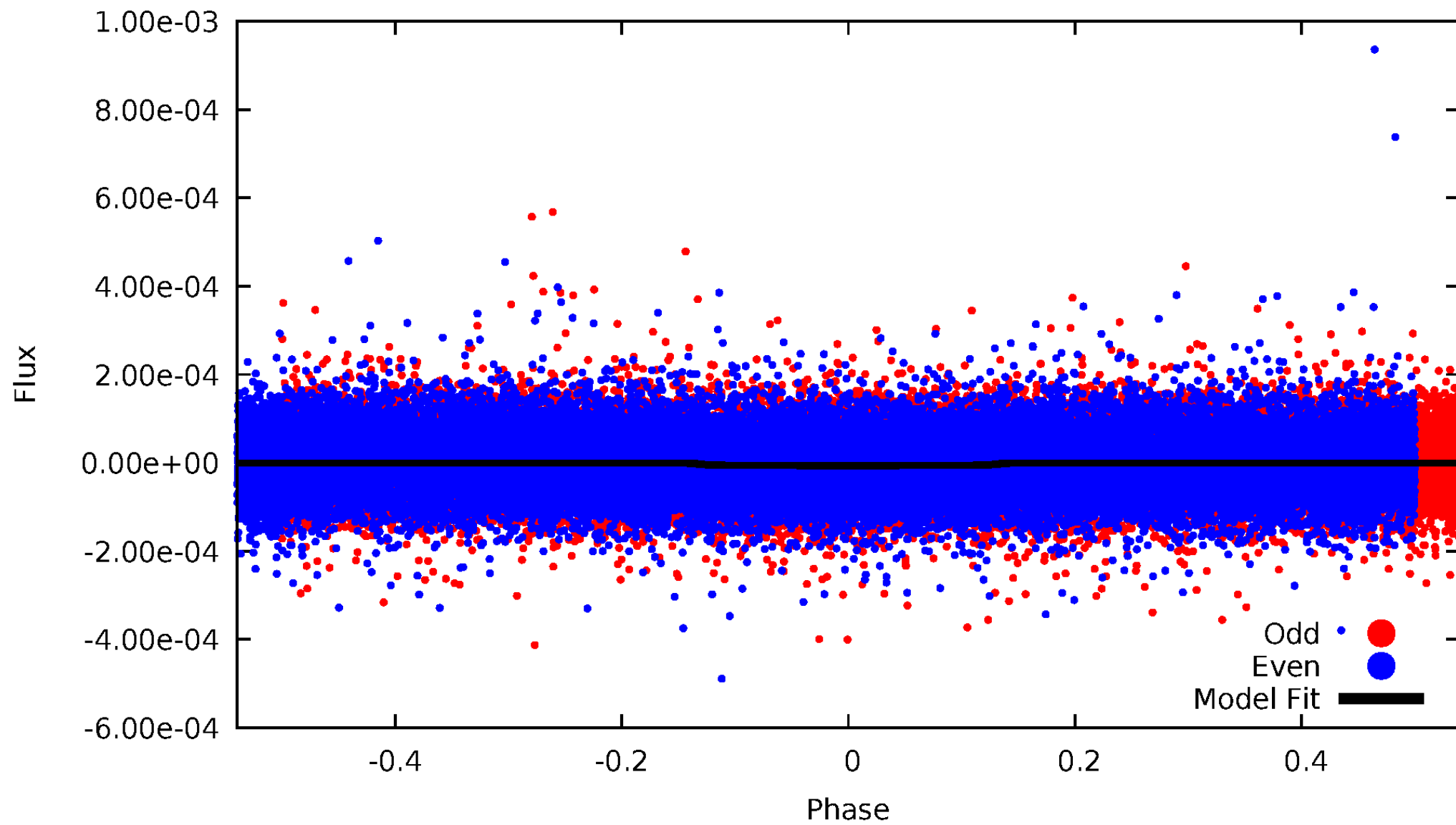
TCE 006776957-01





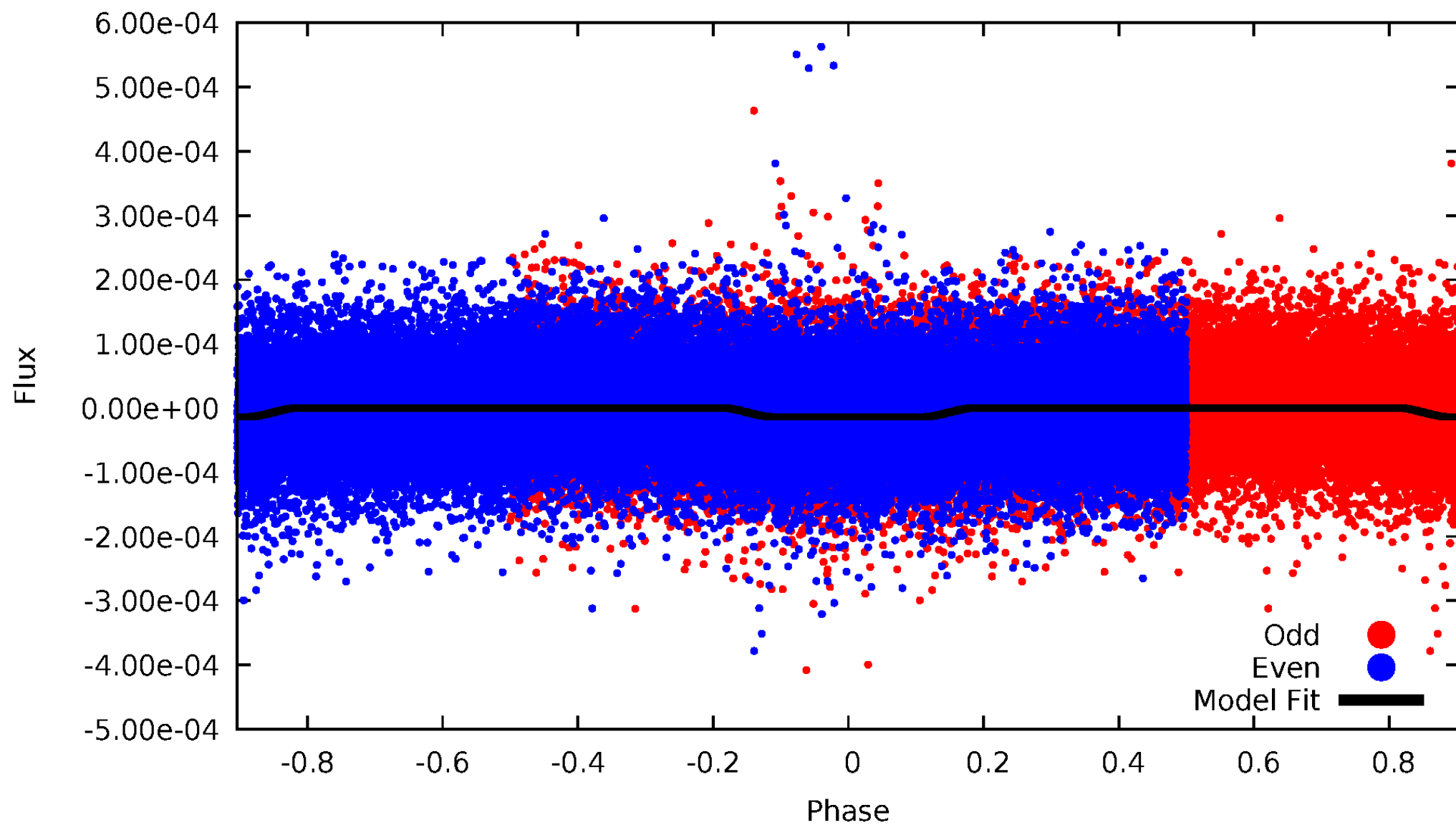
# DV Odd/Even

TCE 006776957-01

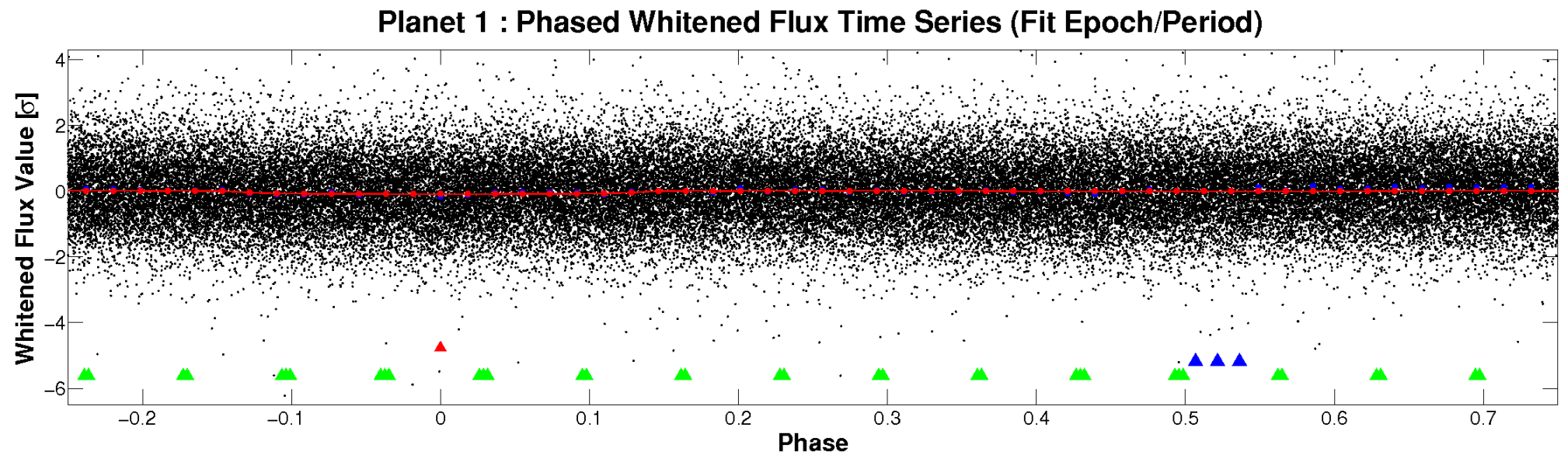
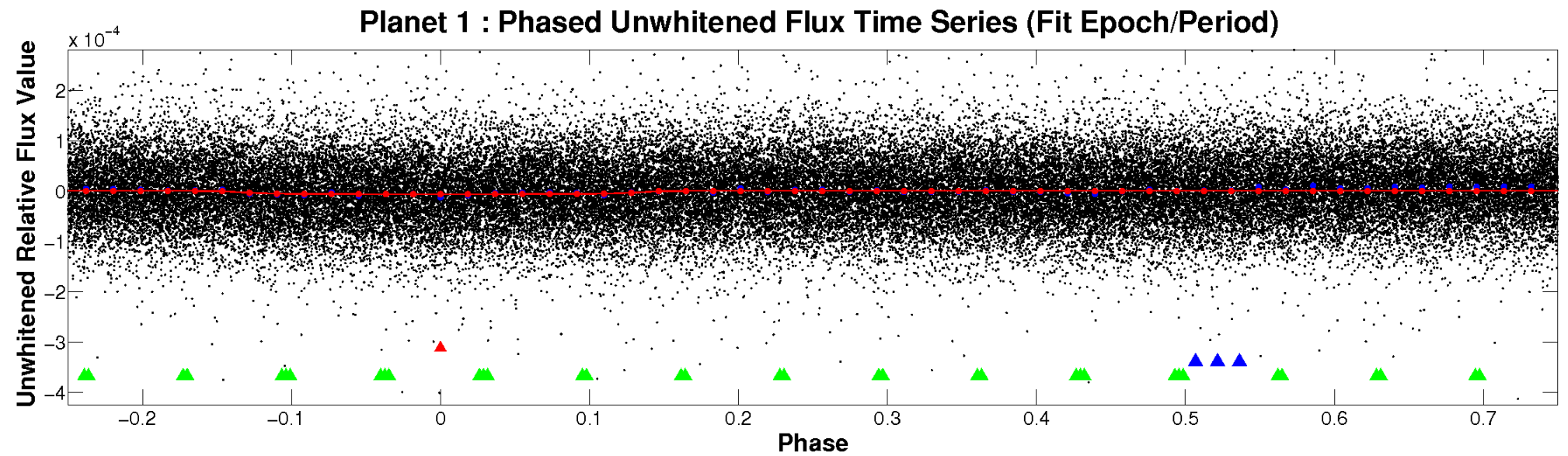


# ALT Odd/Even

TCE 006776957-01



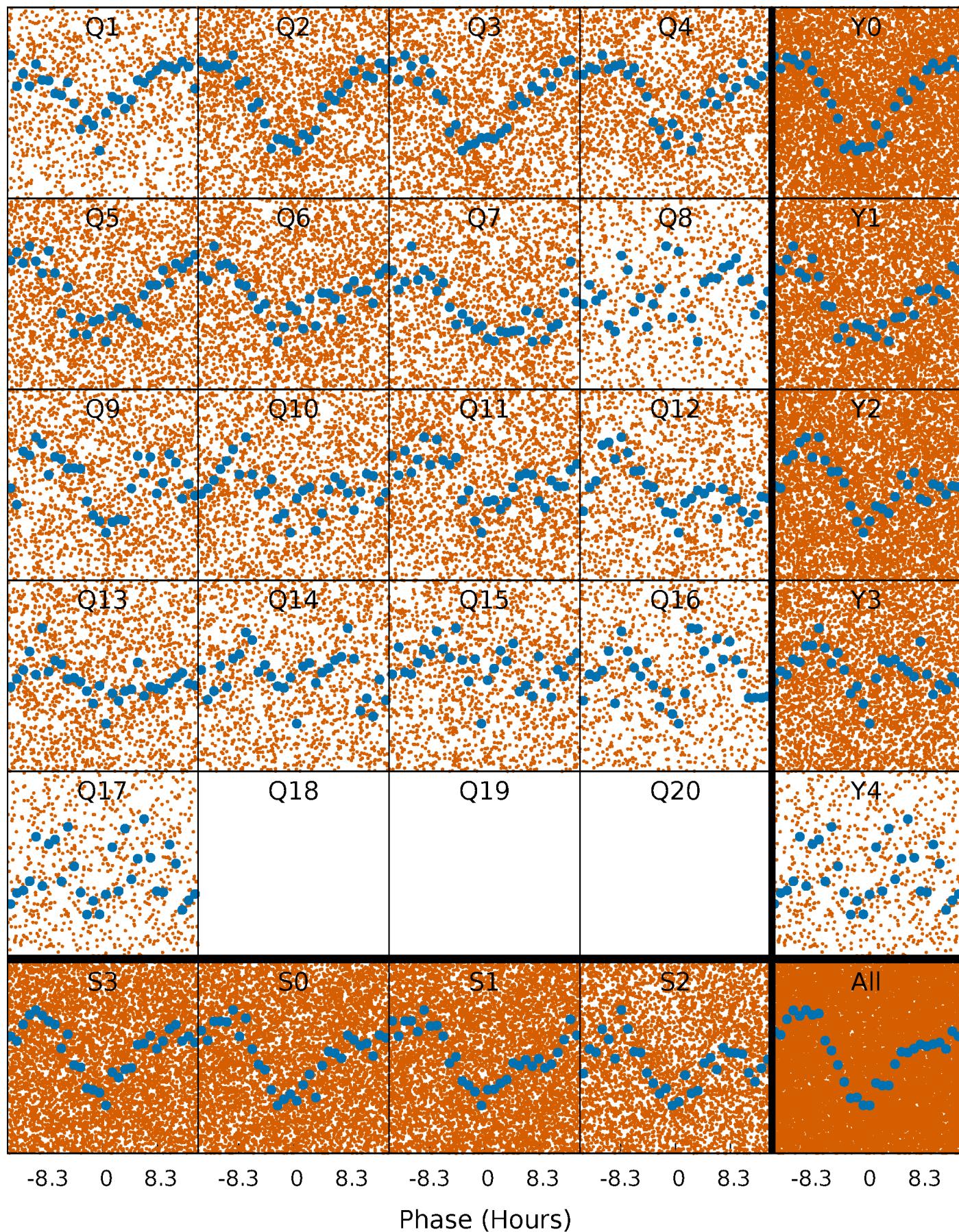
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

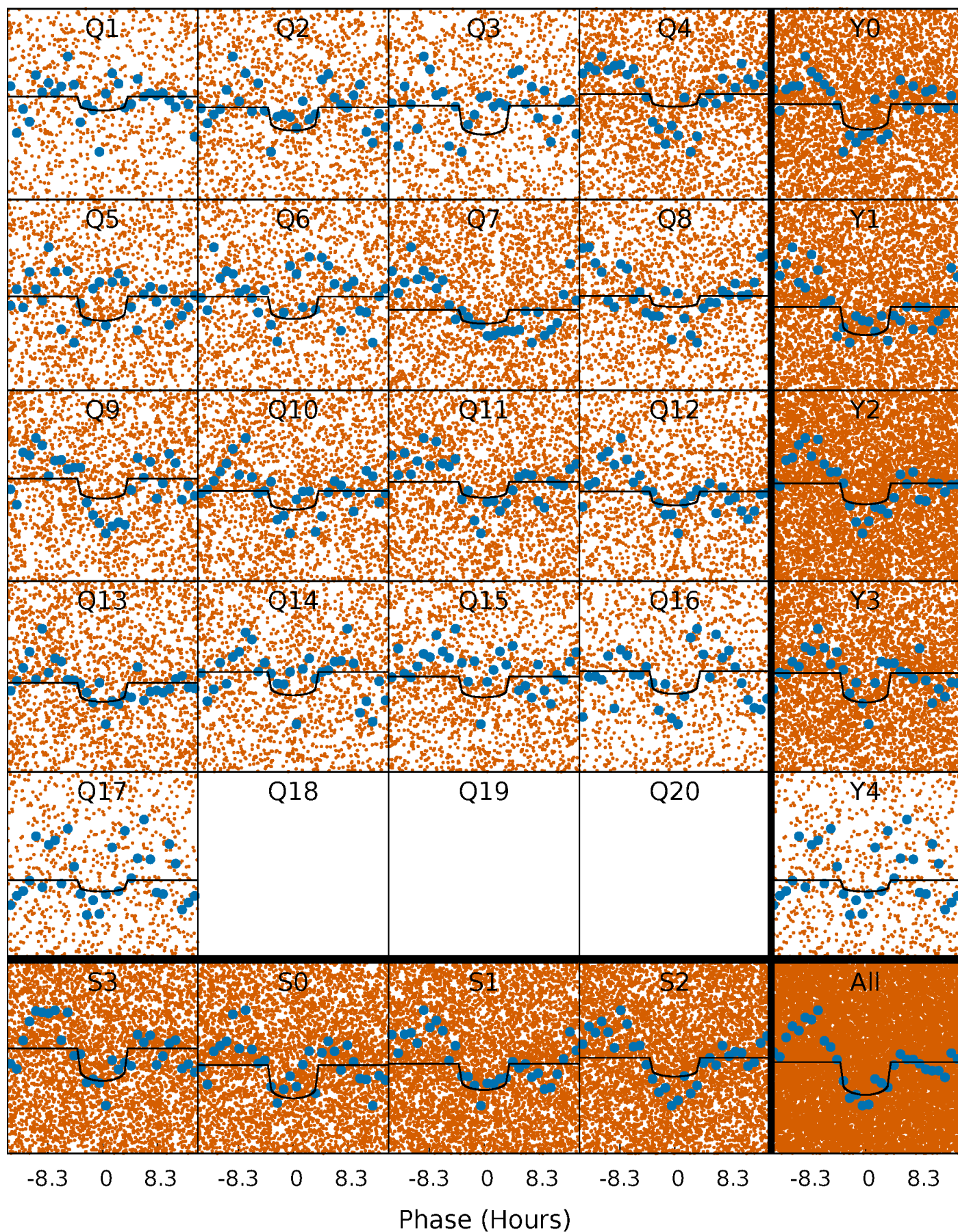
TCE 006776957-01 P= 1.116353 Days  $T_0=132.034699$  (BKJD)





# DV Quarter-Phased Transit Curves

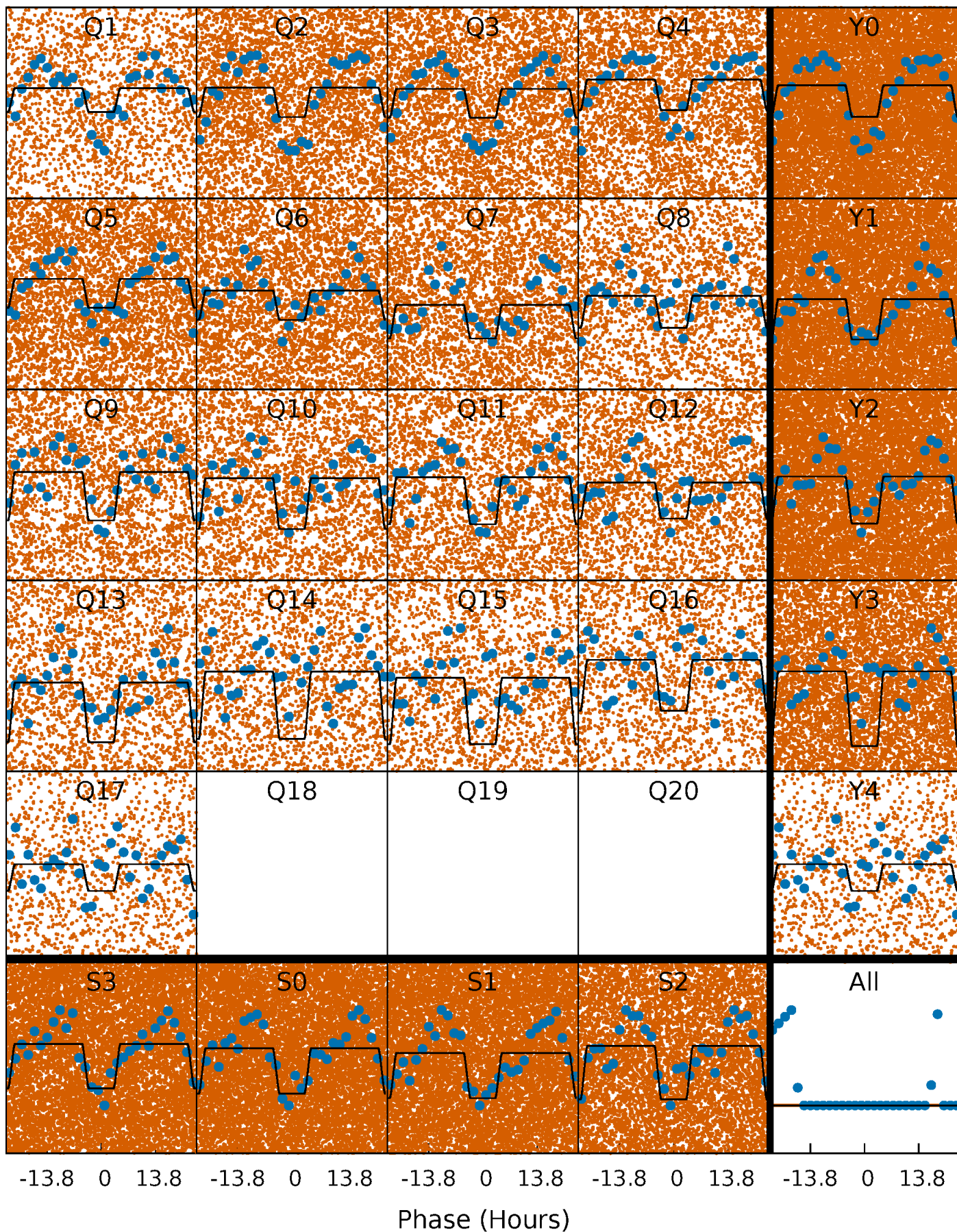
TCE 006776957-01 P= 1.116353 Days  $T_0=132.034699$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 006776957-01 P= 1.116451 Days  $T_0=131.980801$  (BKJD)

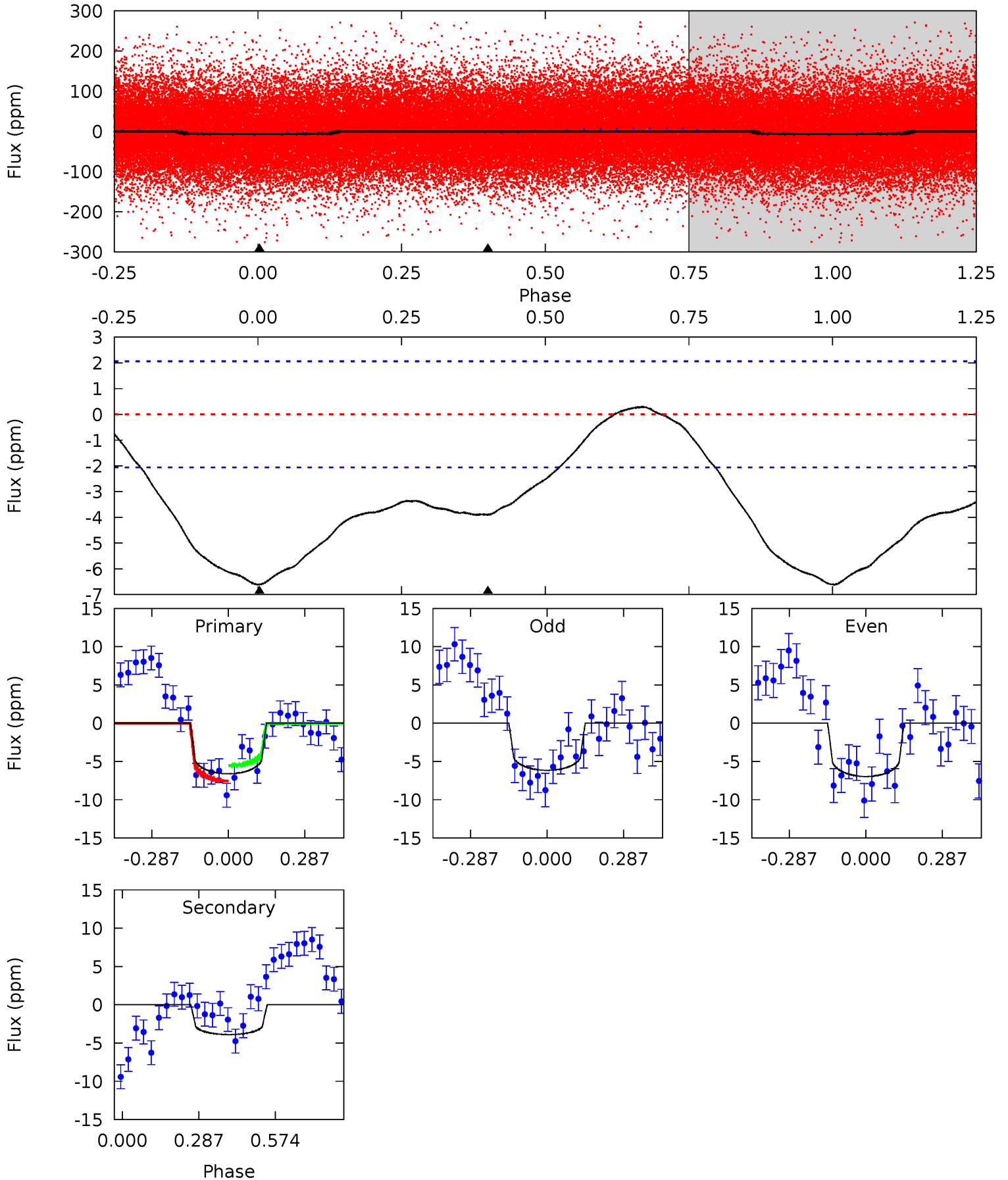




# DV Model-Shift Uniqueness Test

006776957-01, P = 1.116353 Days, E = 130.918346 Days

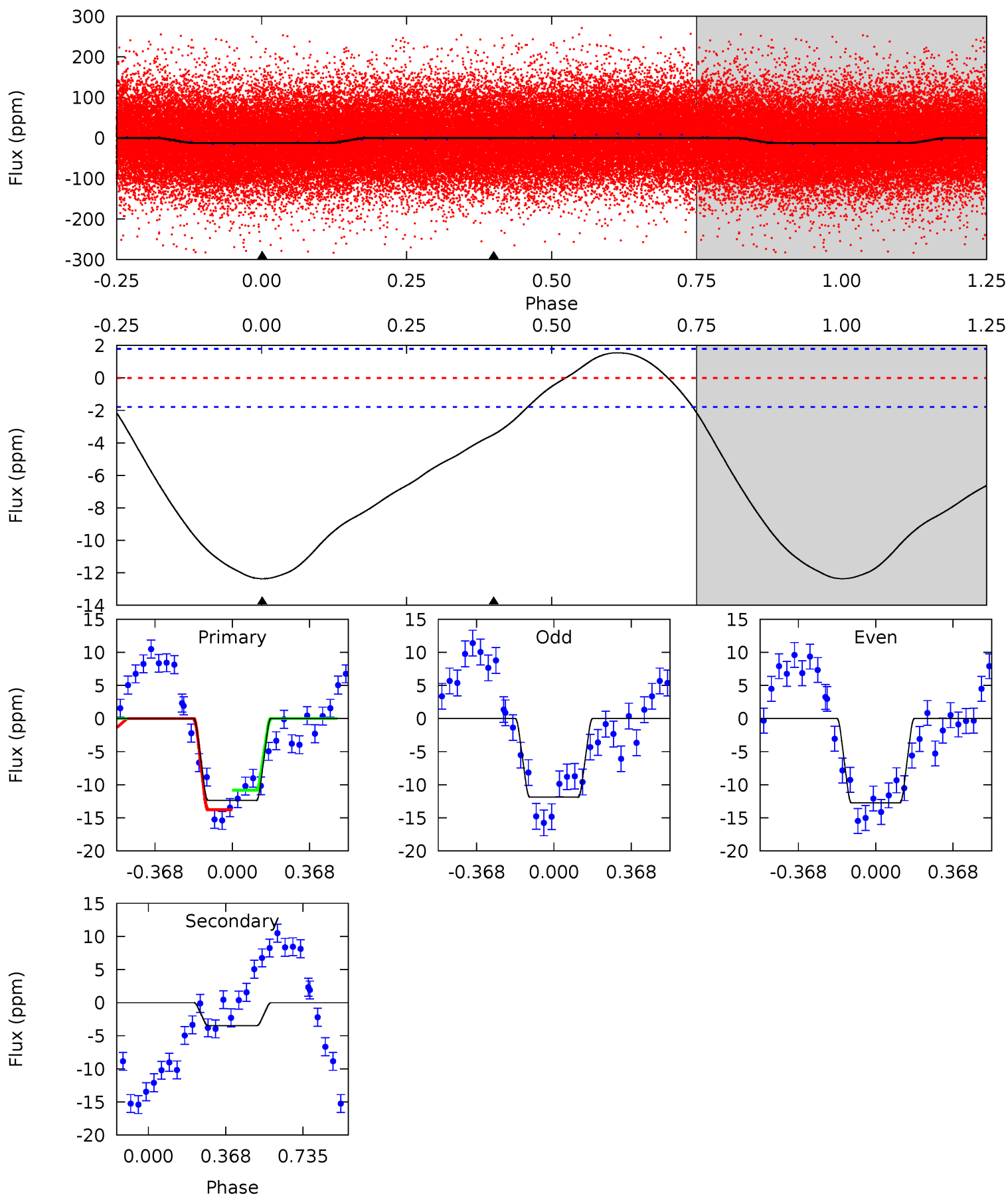
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	8.20	0	0	4.34	1.07	0.65	13.9	13.9	8.20	8.20	0.85	1.07	0.04	2.08



# Alt Model-Shift Uniqueness Test

006776957-01, P = 1.116451 Days, E = 130.864350 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
29.6	8.34	0	0	4.28	0.90	2.45	29.6	29.6	8.34	8.34	1.06	0.94	0.11	3.49



### Stellar Parameters For KIC 006776957

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9748^{+311}_{-428}$	$4.222^{+0.144}_{-0.216}$	$0.070^{+0.150}_{-0.600}$	$1.928^{+0.815}_{-0.439}$	$2.257^{+0.384}_{-0.576}$	$0.444^{+0.340}_{-0.257}$
	+3%/-4%	+3%/-5%	+214%/-857%	+42%/-23%	+17%/-26%	+77%/-58%
Source	KIC0	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 006776957-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-4 \pm 0$	$0.51^{+0.21}_{-0.18}$	$5044^{+468}_{-358}$	$8355^{+3038}_{-1518}$	$6.154^{+8.205}_{-3.044}$
Alt.	$-3 \pm 0$	$0.78^{+0.23}_{-0.24}$	$5070^{+455}_{-369}$	$6254^{+1253}_{-790}$	$2.383^{+2.081}_{-1.022}$

$T_{\text{max}}$  = 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

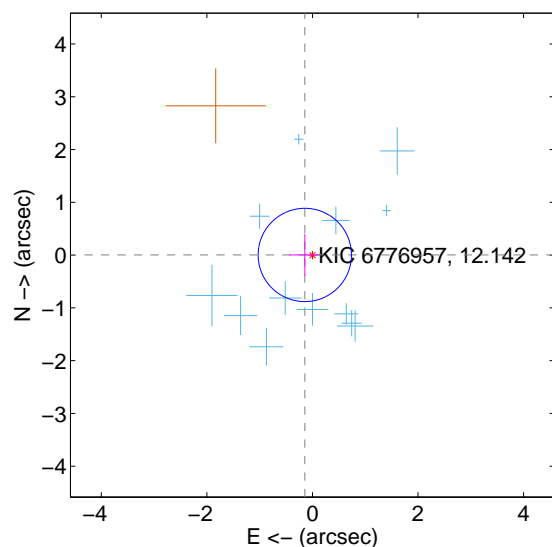
Supplemental centroid analysis for 006776957-01. Kepler magnitude: 12.14. Transit SNR 10.03

There are 13 quarters with good PRF difference image offsets

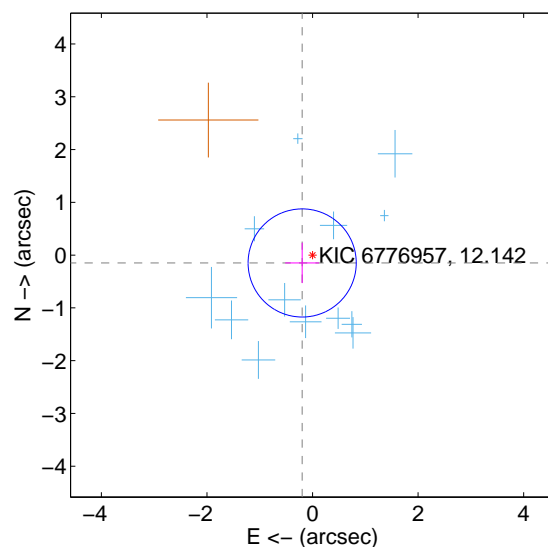
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.145 \pm 0.295$	0.49	$0.145 \pm 0.295$	$0.003 \pm 0.395$
PRF-fit source offset from KIC position	$0.246 \pm 0.341$	0.72	$0.196 \pm 0.322$	$-0.149 \pm 0.382$
photometric centroid source offset	$0.27 \pm 1.18$	0.23	$0.02 \pm 1.34$	$-0.27 \pm 1.18$

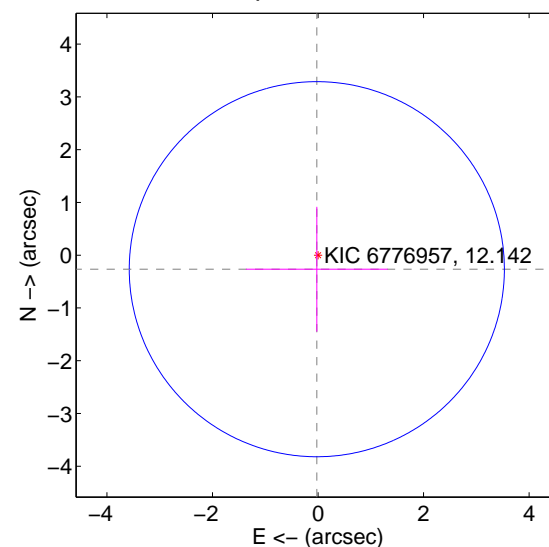
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

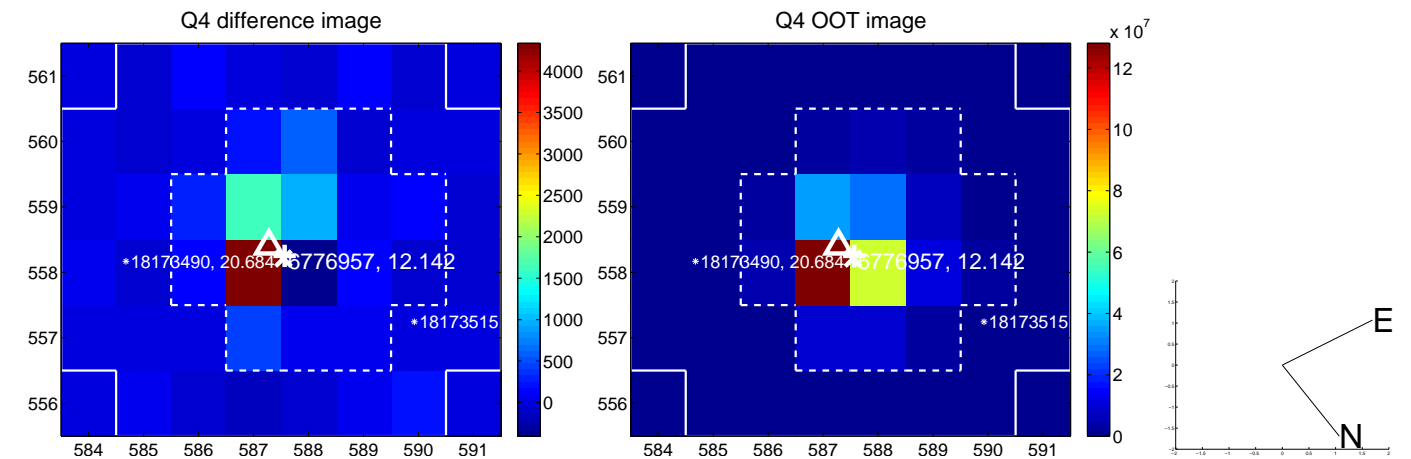
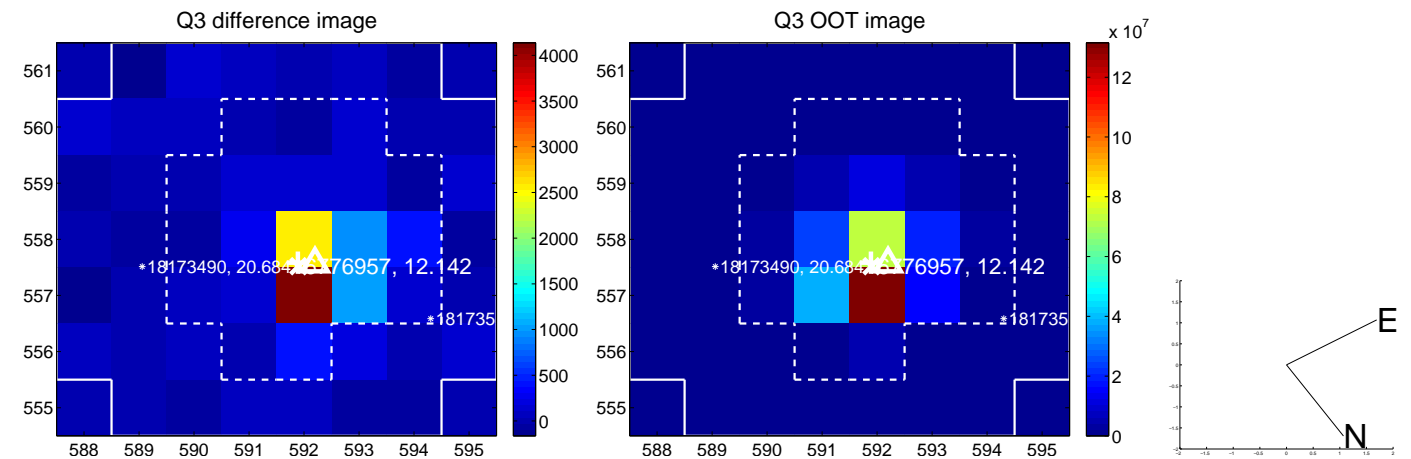
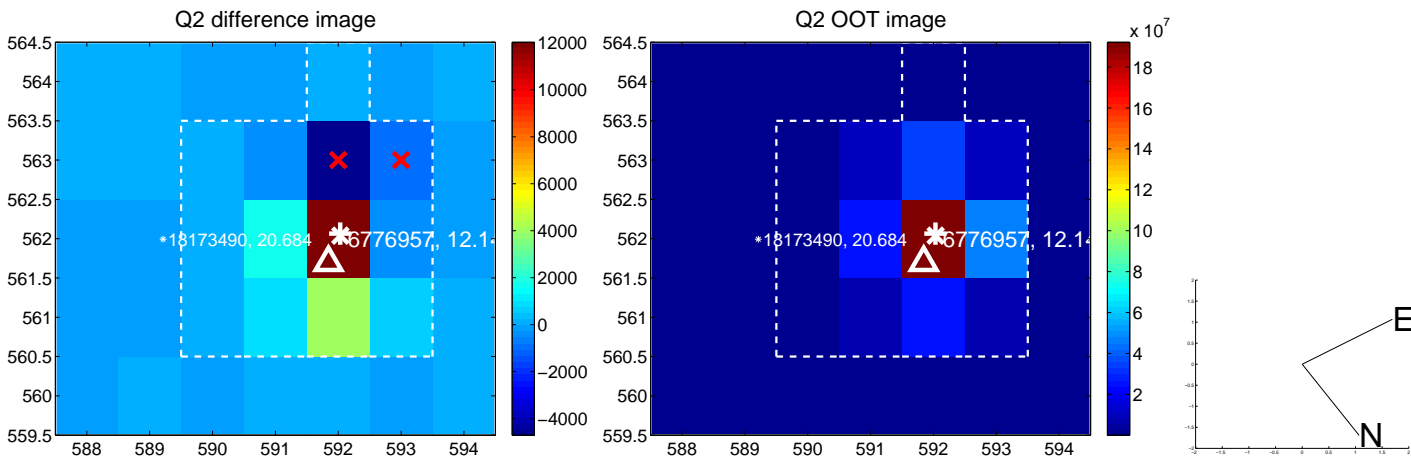
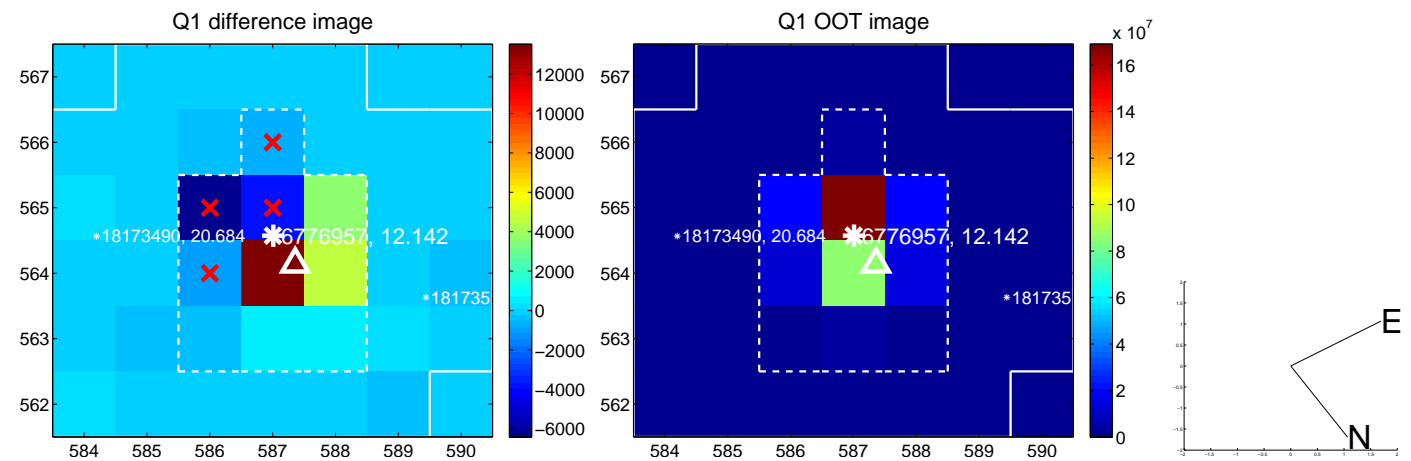


offset from photometric centroids

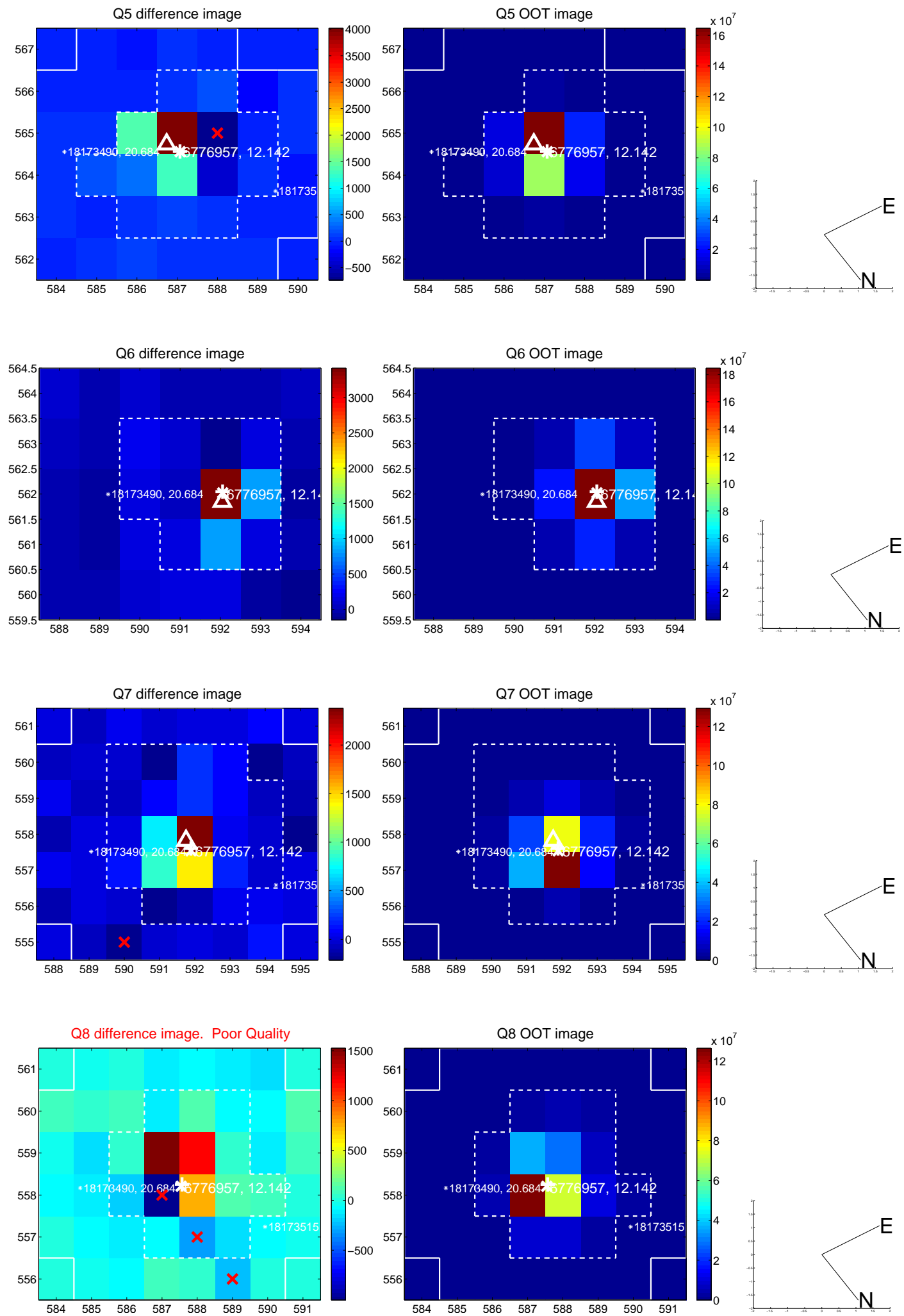


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

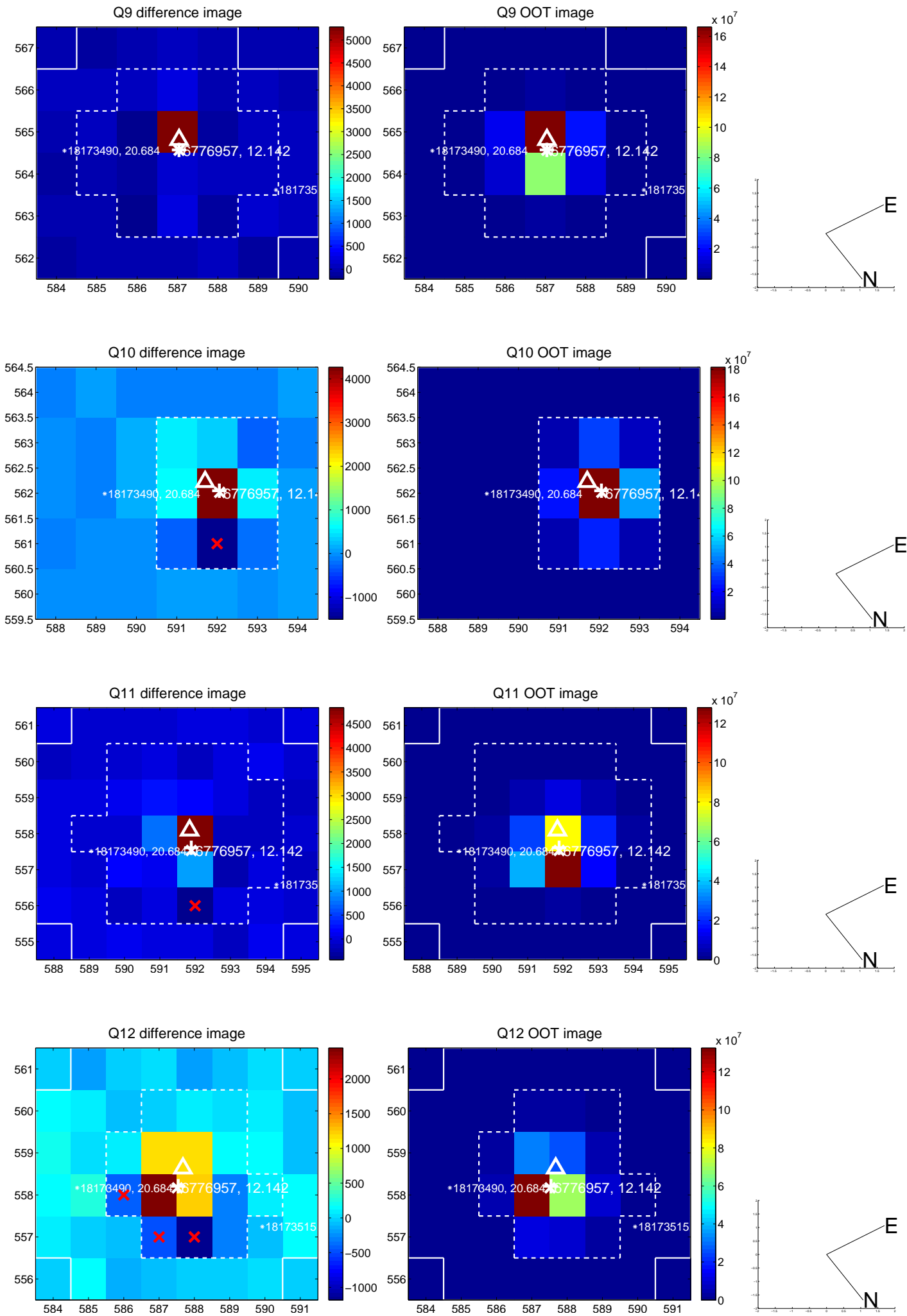


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

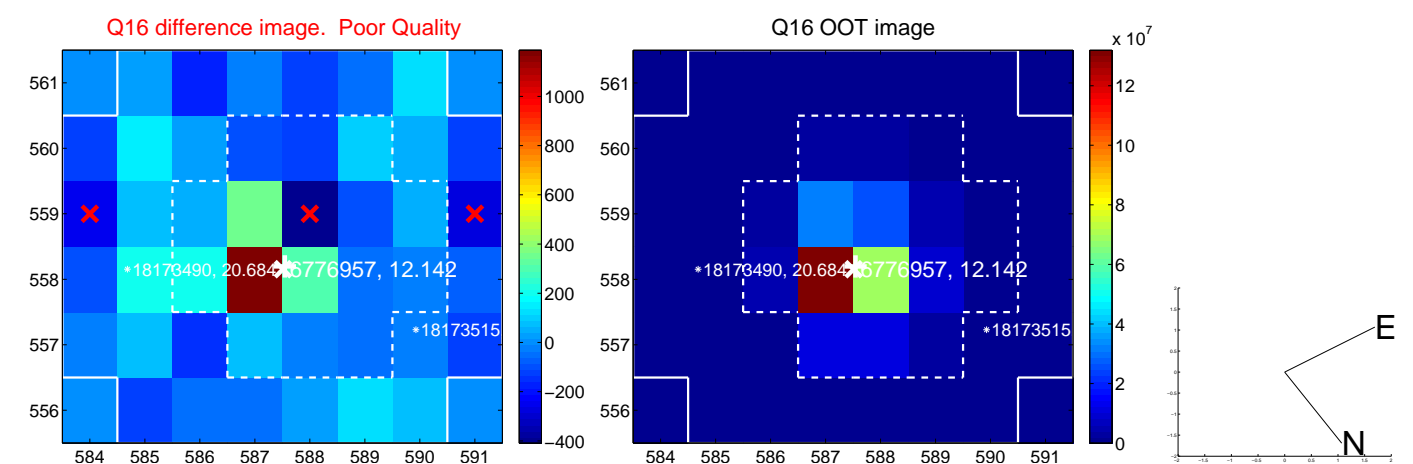
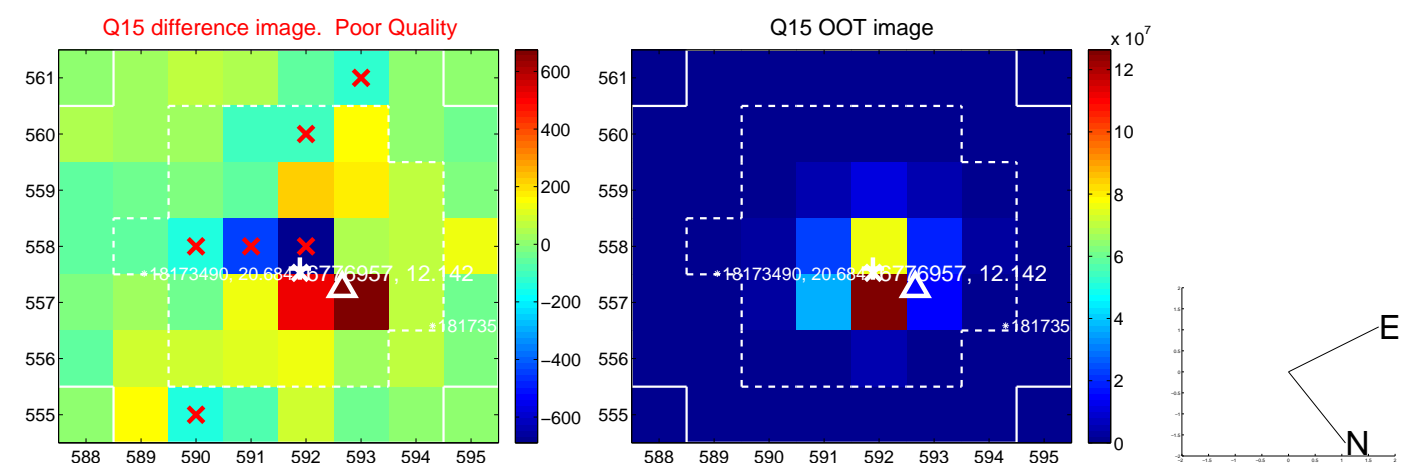
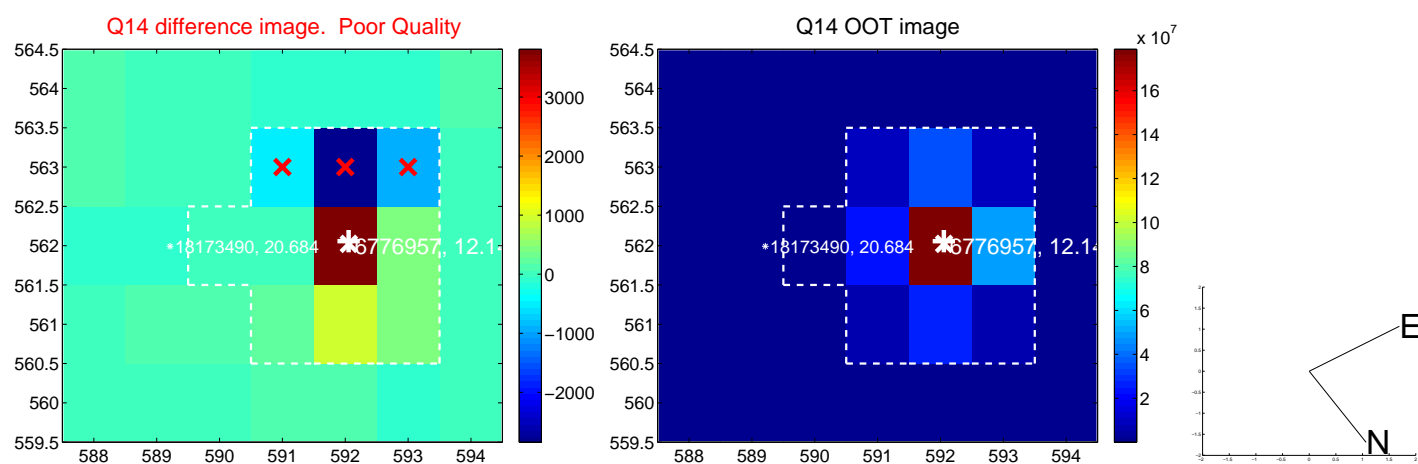
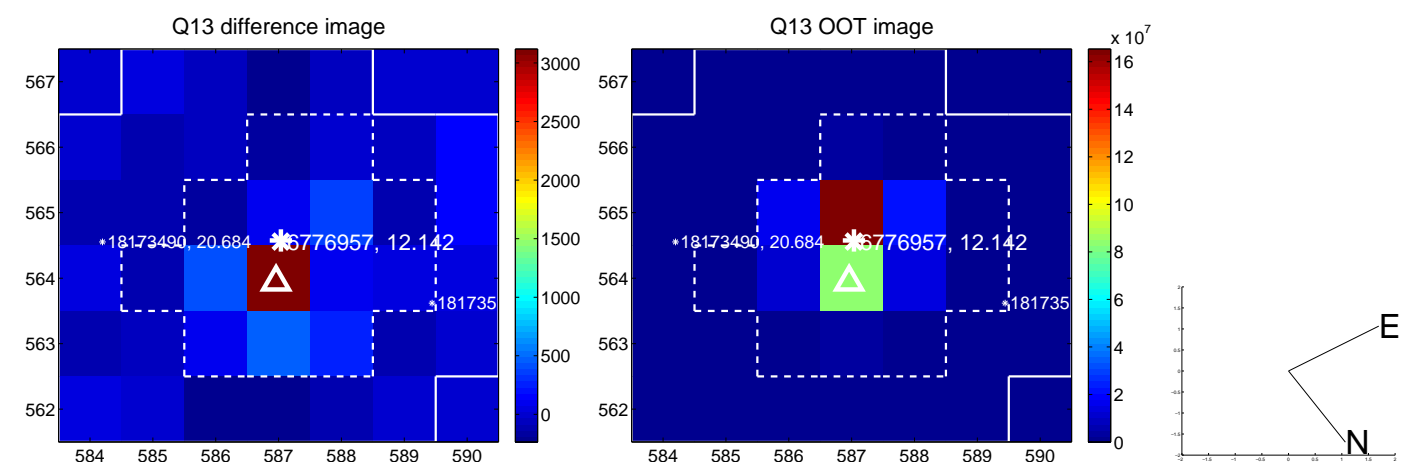




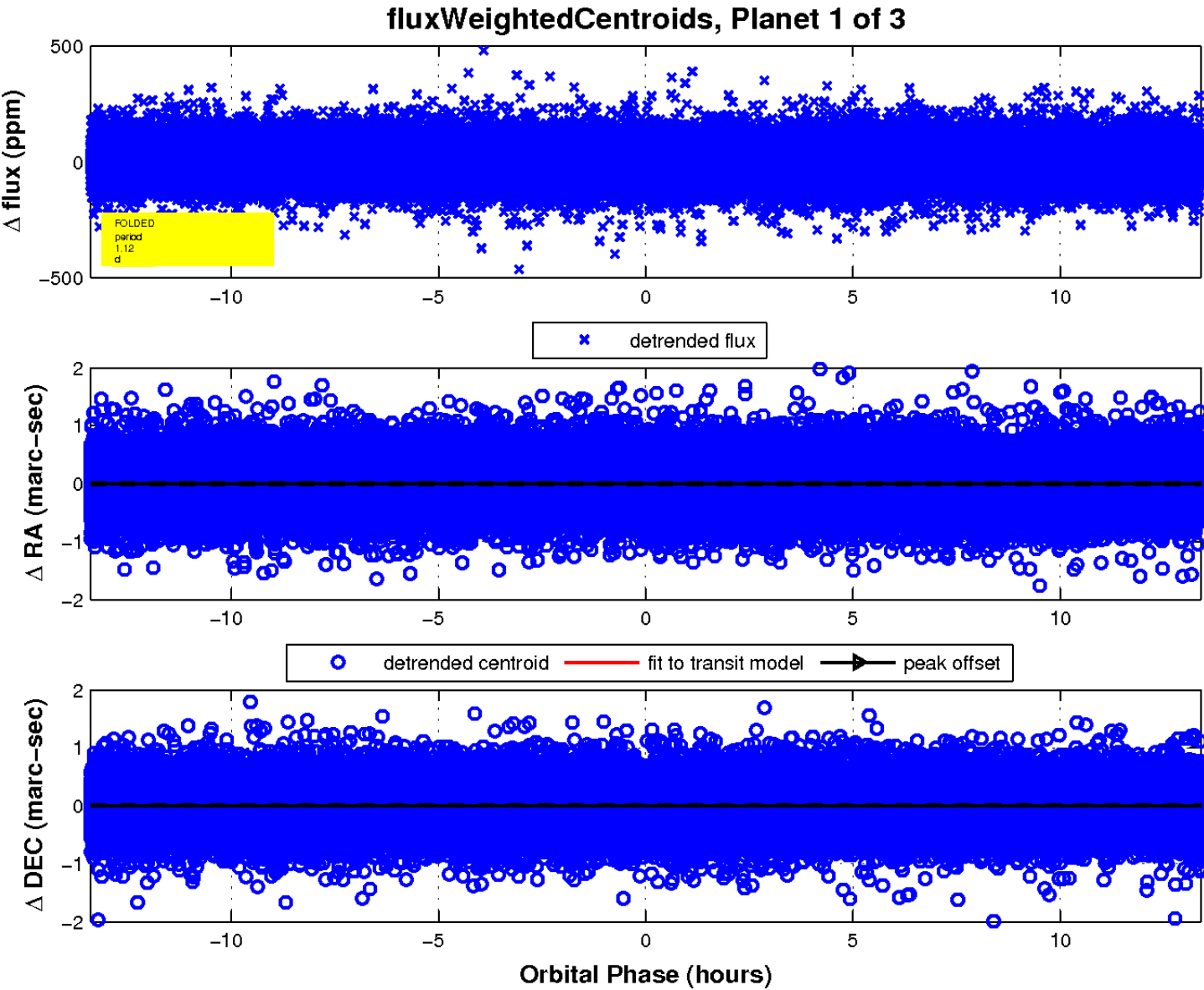
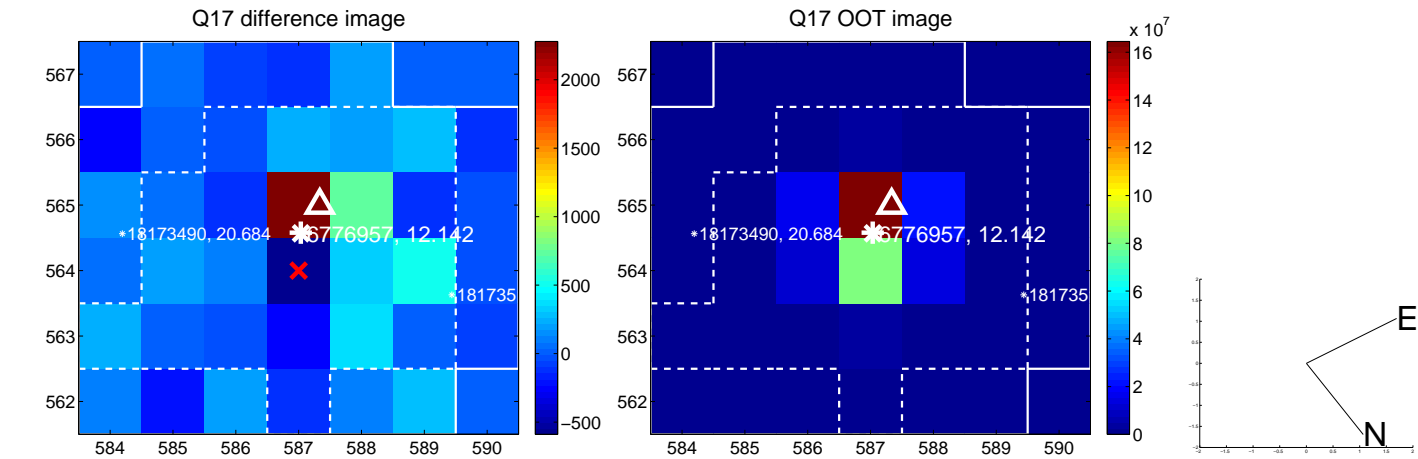
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

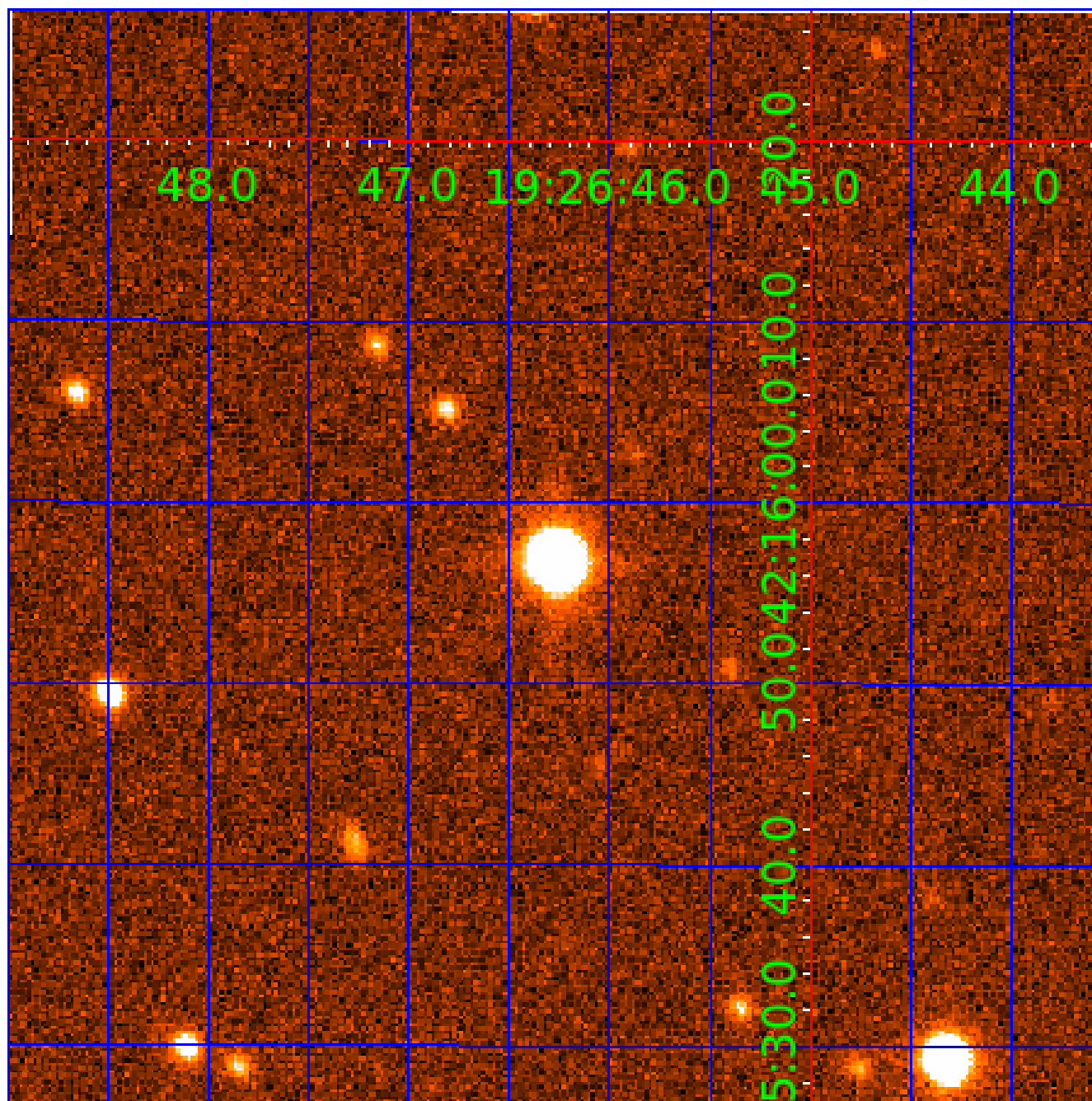


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 006776957

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006776957-01	OBS	No	1.116353	132.034699	6.2	7.224	8.7	10.0	1.93	9748	0.50	39345.27
006776957-02	OBS	No	495.644126	244.268706	87.9	5.213	8.6	7.7	1.93	9748	2.13	11.62
006776957-03	OBS	No	40.783878	172.110732	84.7	3.027	7.9	9.0	1.93	9748	2.01	324.57

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006776957-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006776957-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006776957-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS

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

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

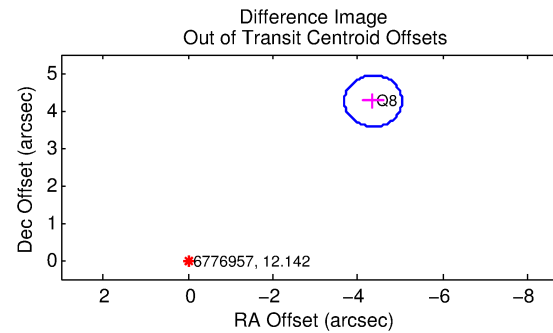
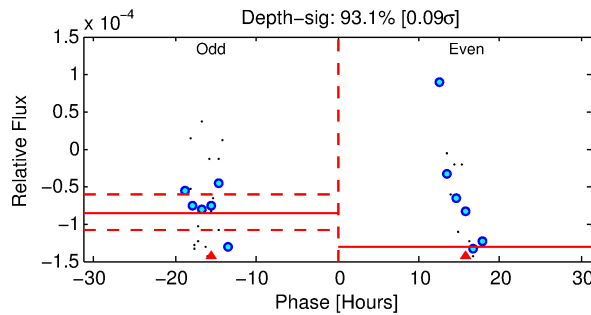
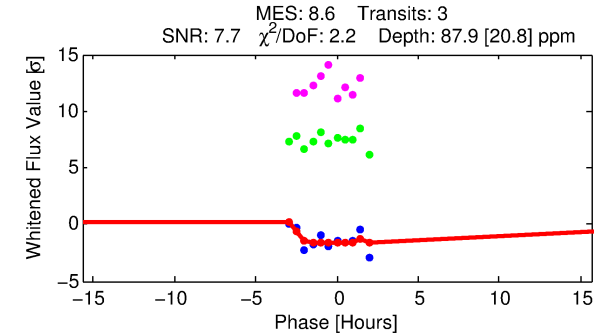
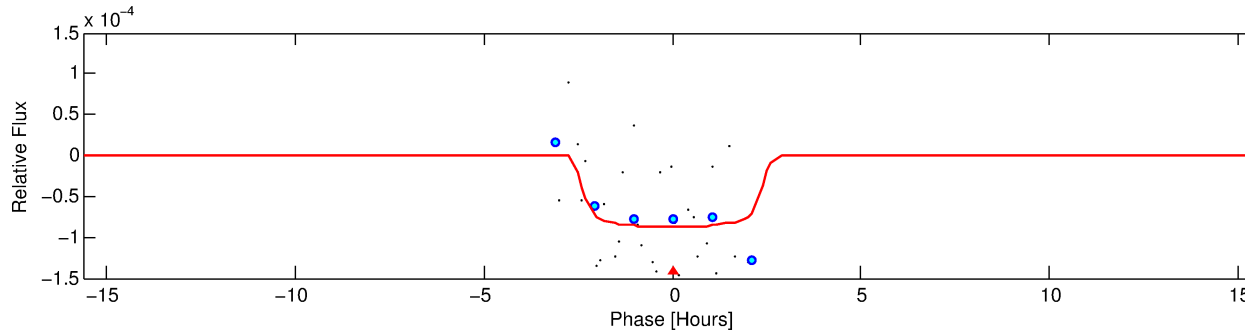
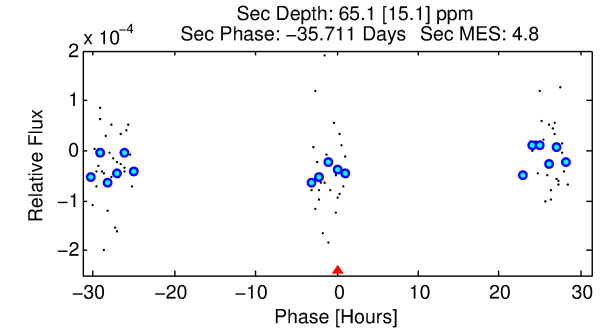
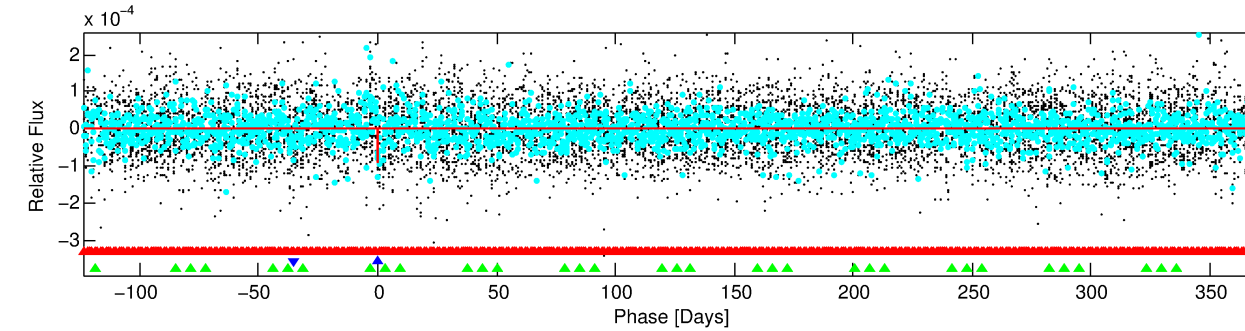
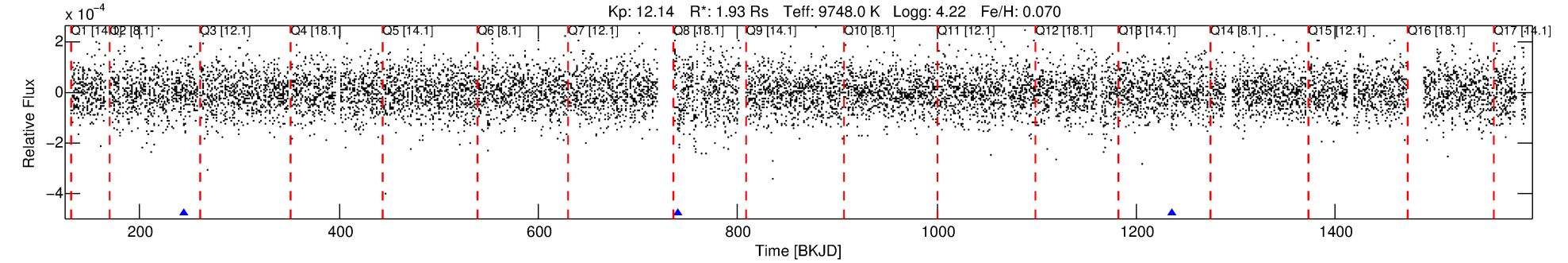
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006776957-02

No Significant Match Found

# DV One-Page Summary

KIC: 6776957 Candidate: 2 of 3 Period: 495.644 d



## DV Fit Results:

Period = 495.64413 [0.01592] d  
Epoch = 244.2687 [0.0624] BKJD  
Rp/R\* = 0.0101 [0.0058]  
a/R\* = 274.65 [1272.06]  
b = 0.94 [0.59]  
Seff = 11.62 [5.45]  
Teff = 471 [55] K  
Rp = 2.13 [1.52] Re  
a = 1.6090 [0.5261] AU  
Ag = 20416.11 [25564.38] [0.80σ]  
Teffp = 8700 [2582] K [3.19σ]

## DV Diagnostic Results:

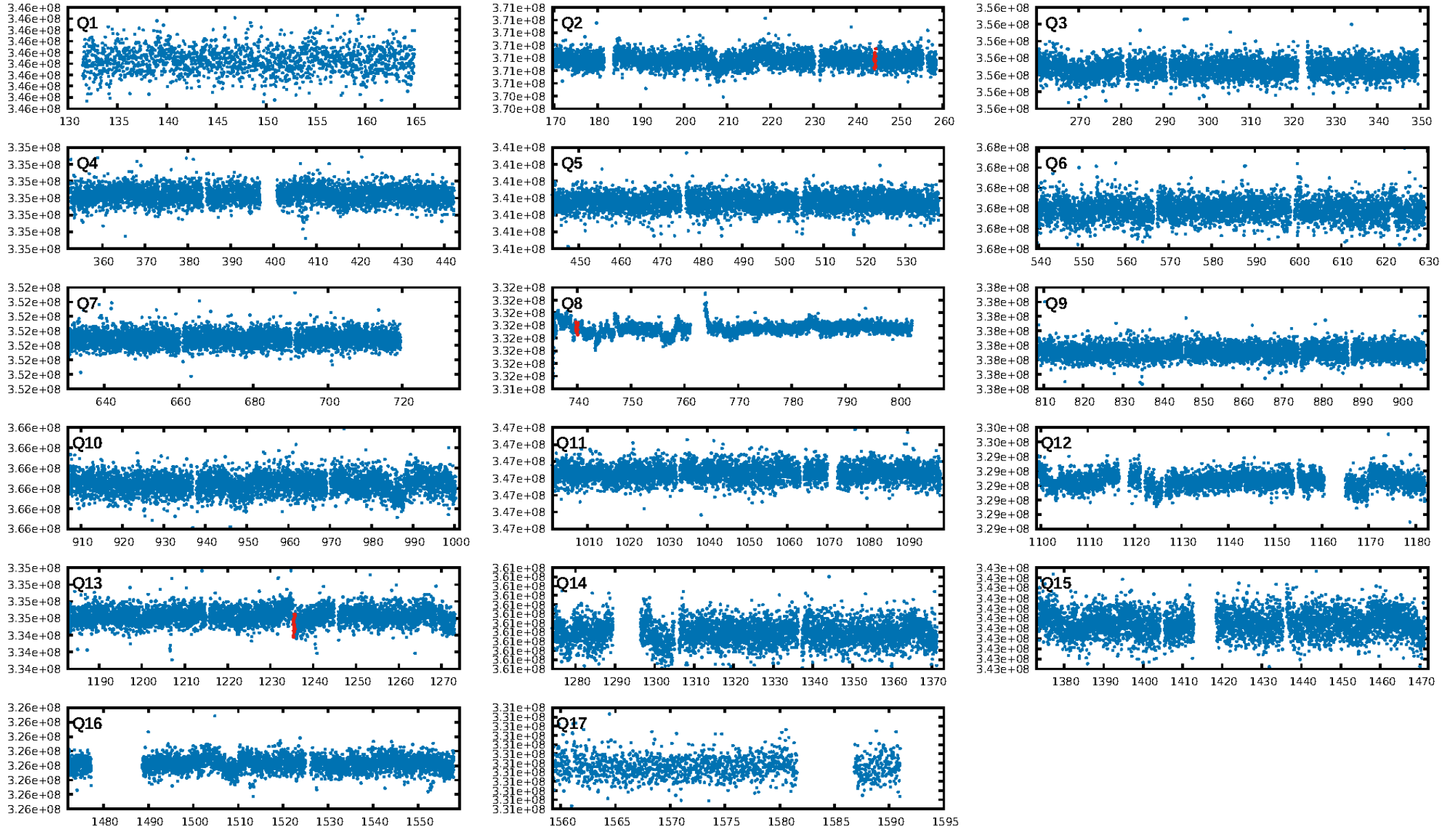
ShortPeriod-sig: 100.0% [1810.92σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 95.2%  
ModelChiSquareGof-sig: 86.9%  
**Bootstrap-pfa: 1.09e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -3.764  
Centroid-sig: 22.3%  
Centroid-so: 2.743 arcsec [1.11σ]  
**OotOffset-rm: 6.095 arcsec [26.81σ]**  
**KicOffset-rm: 5.915 arcsec [26.10σ]**  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 0.00 [0/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:34:44 Z

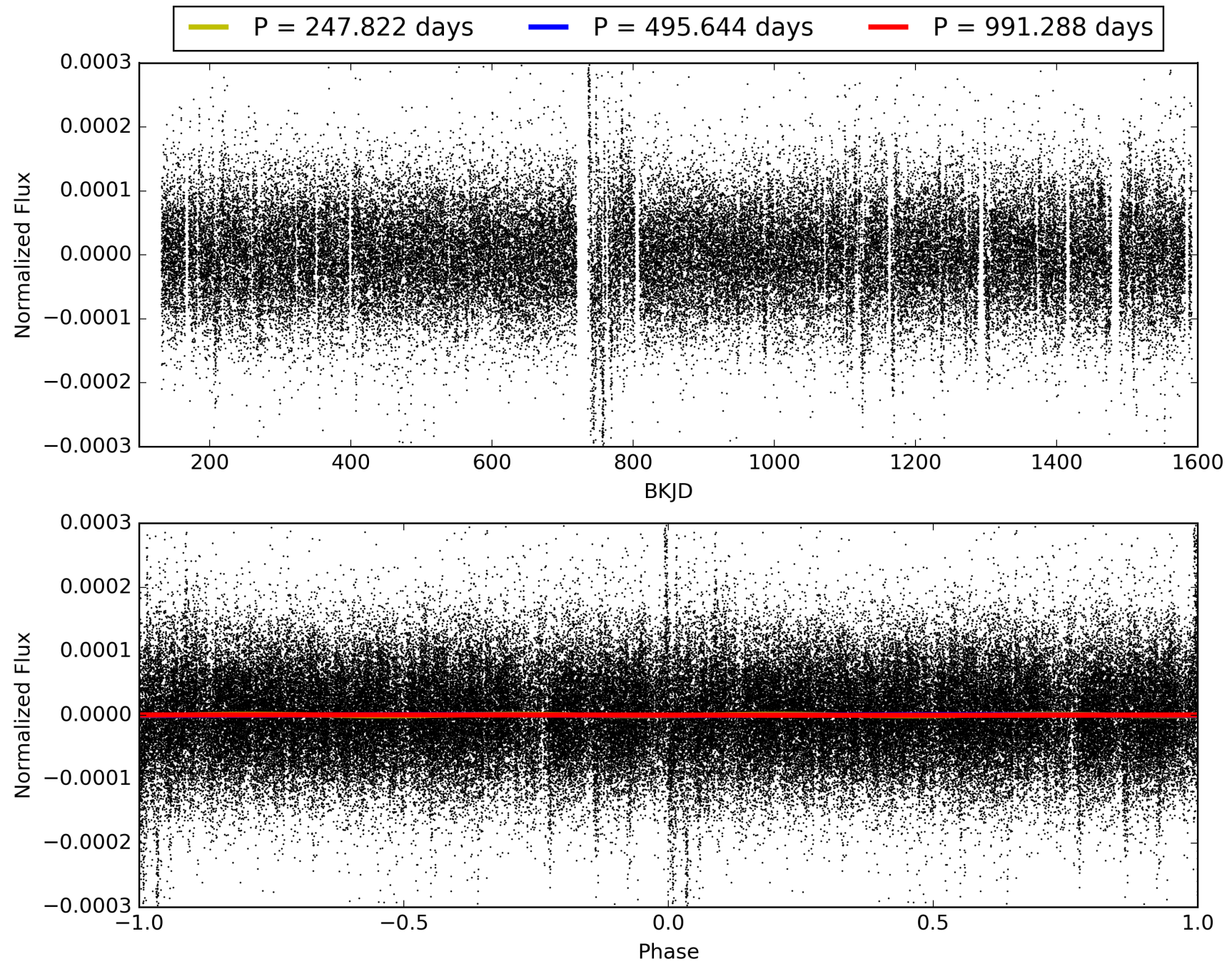
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 006776957-02, PDC Light Curves

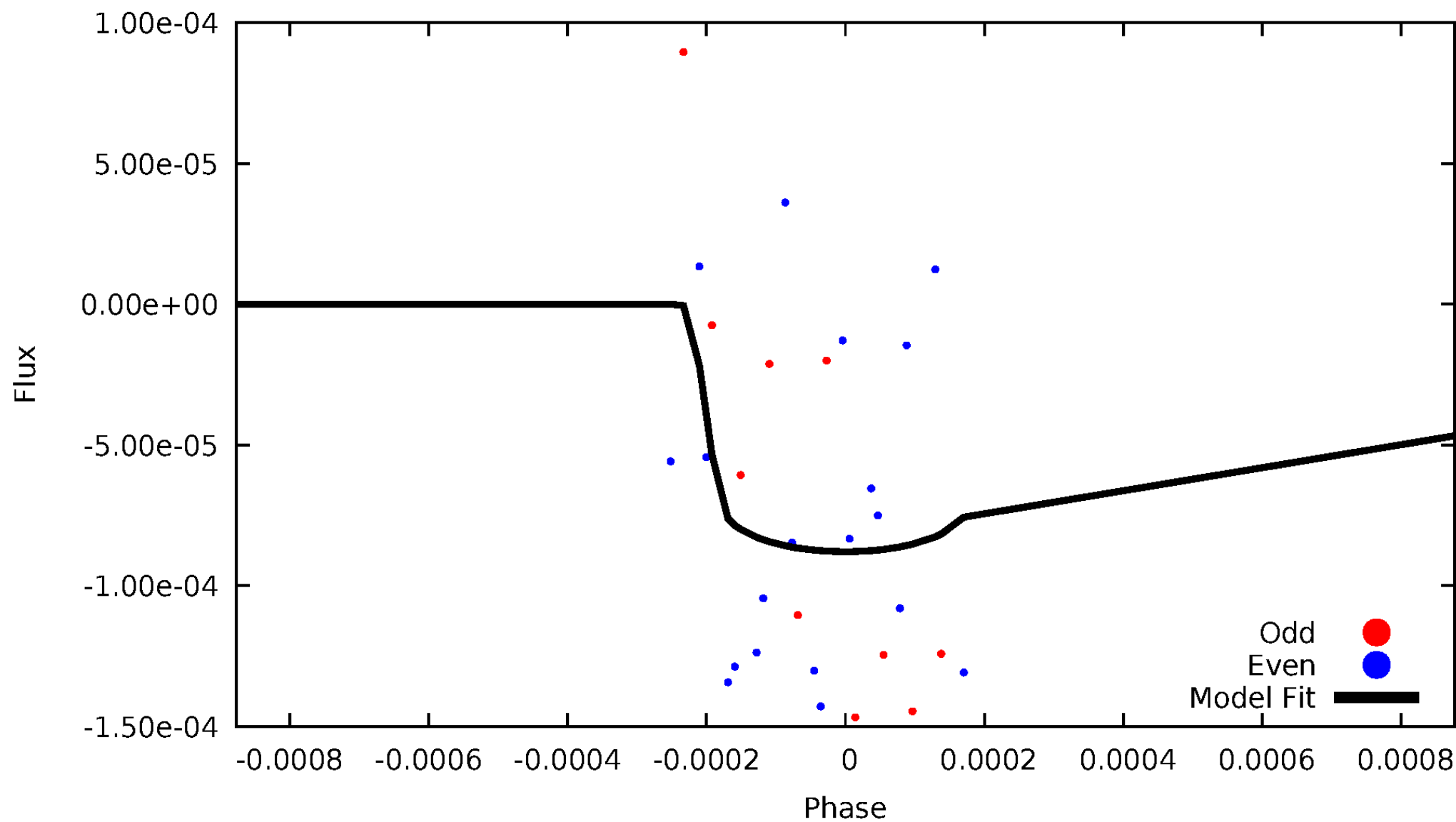


TCE 006776957-02



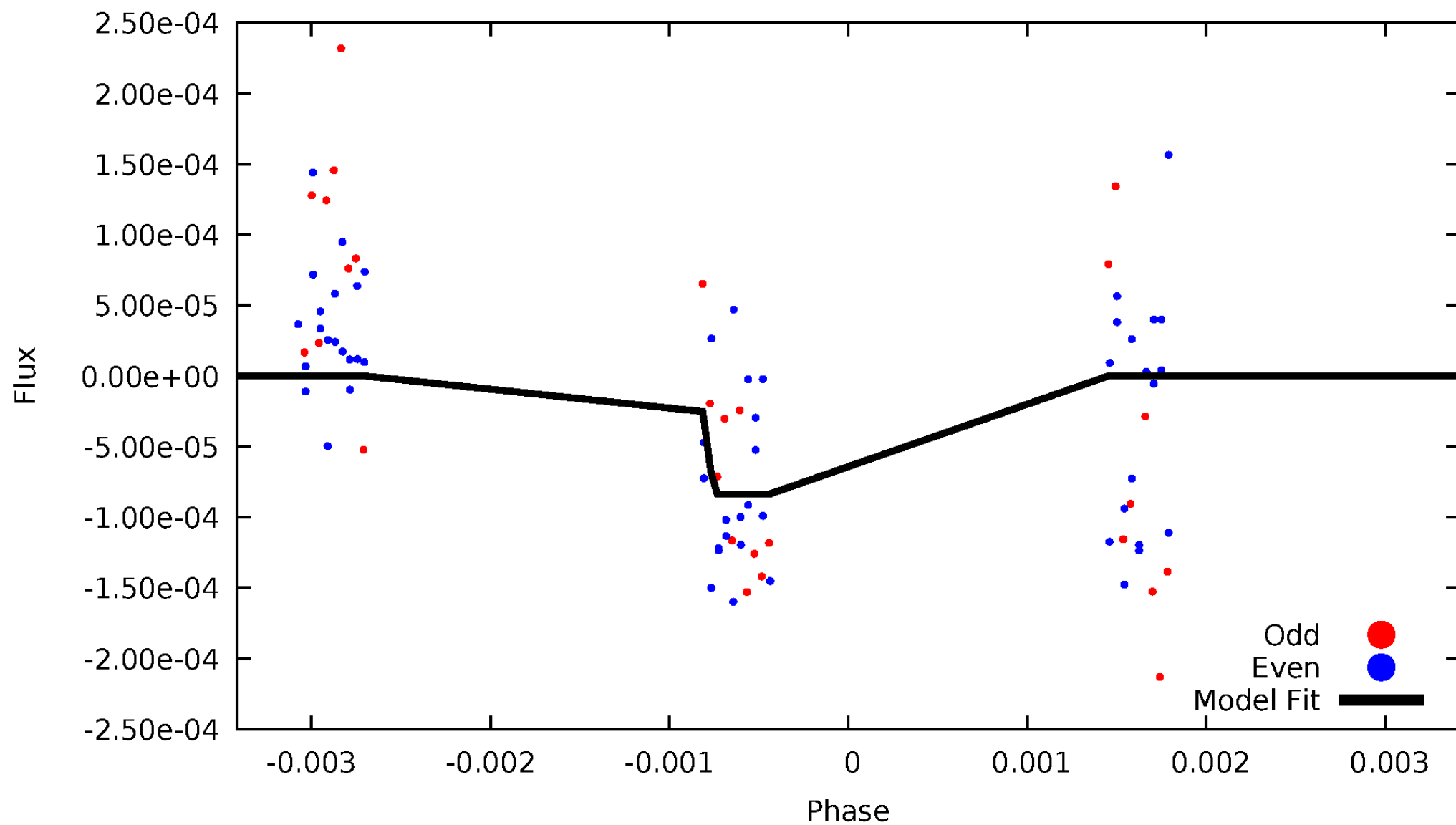
# DV Odd/Even

TCE 006776957-02



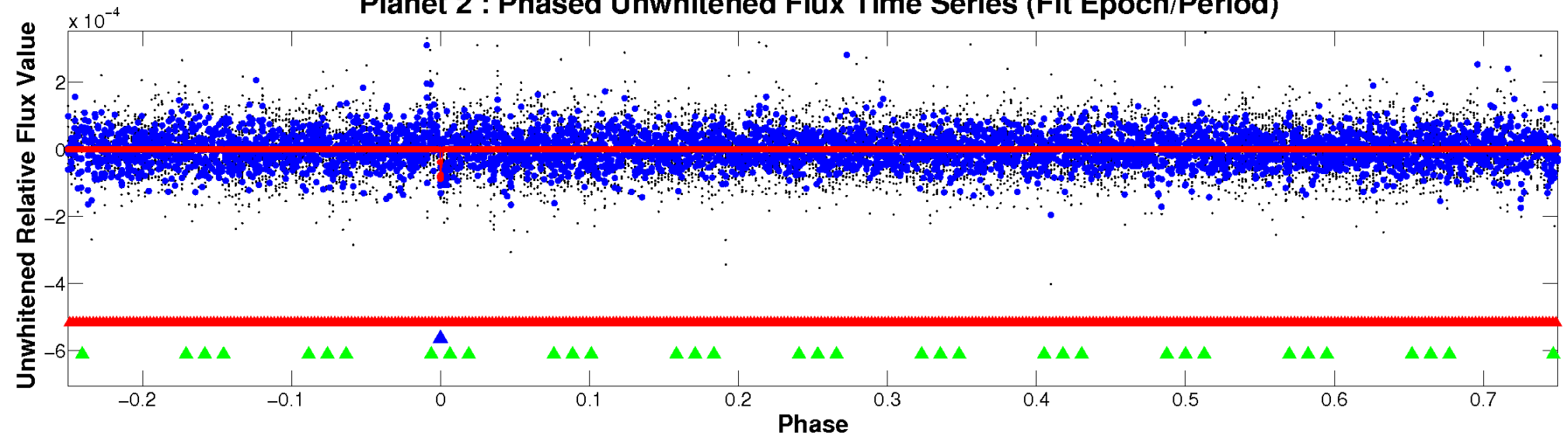
# ALT Odd/Even

TCE 006776957-02

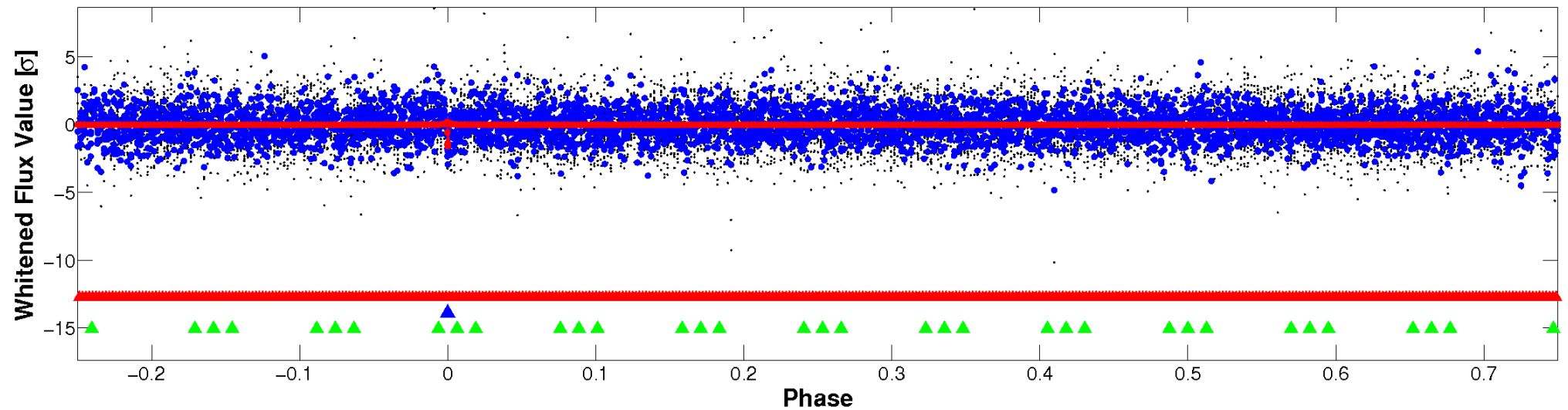


# Non-Whitened Vs. Whitened Light Curve

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

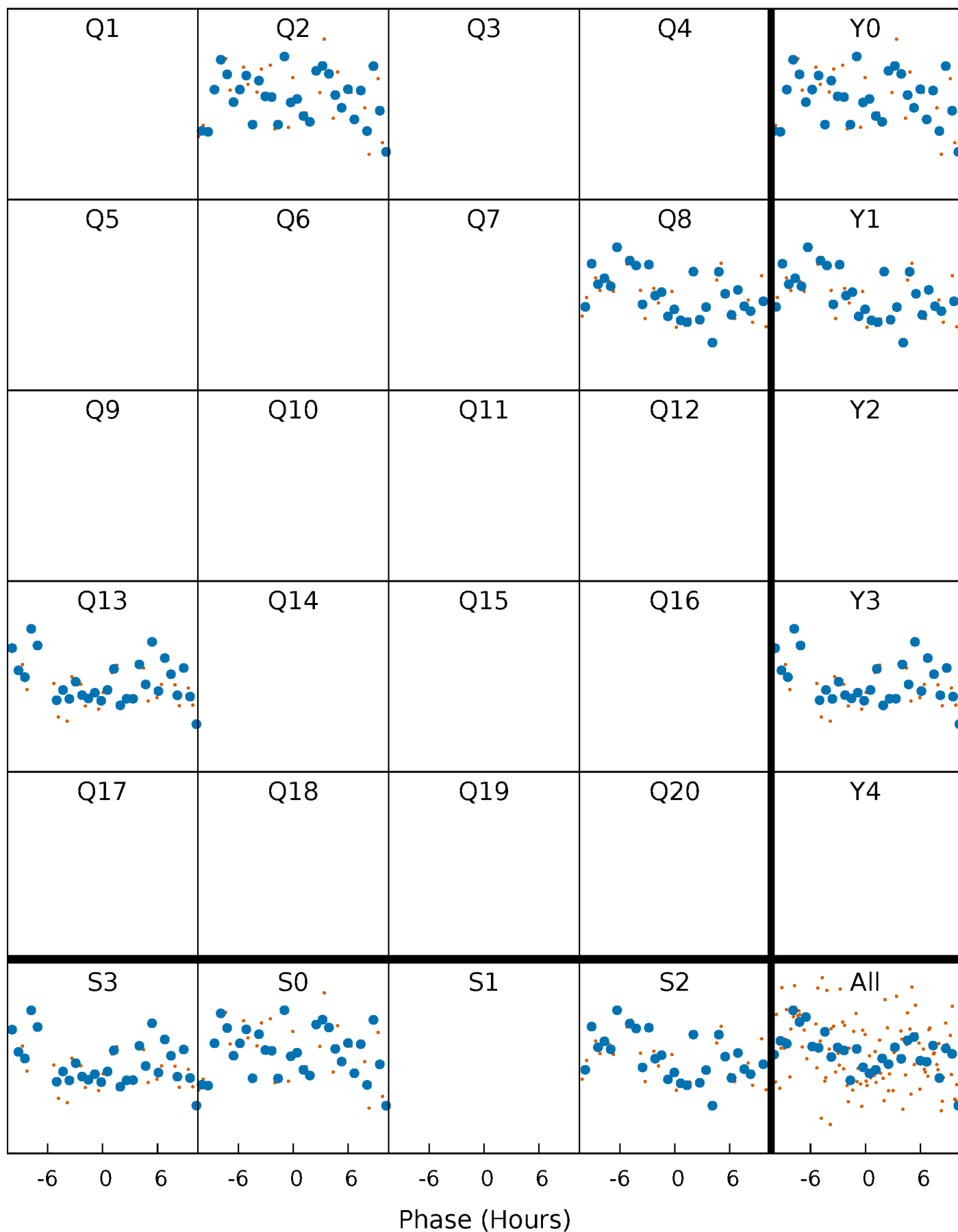


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

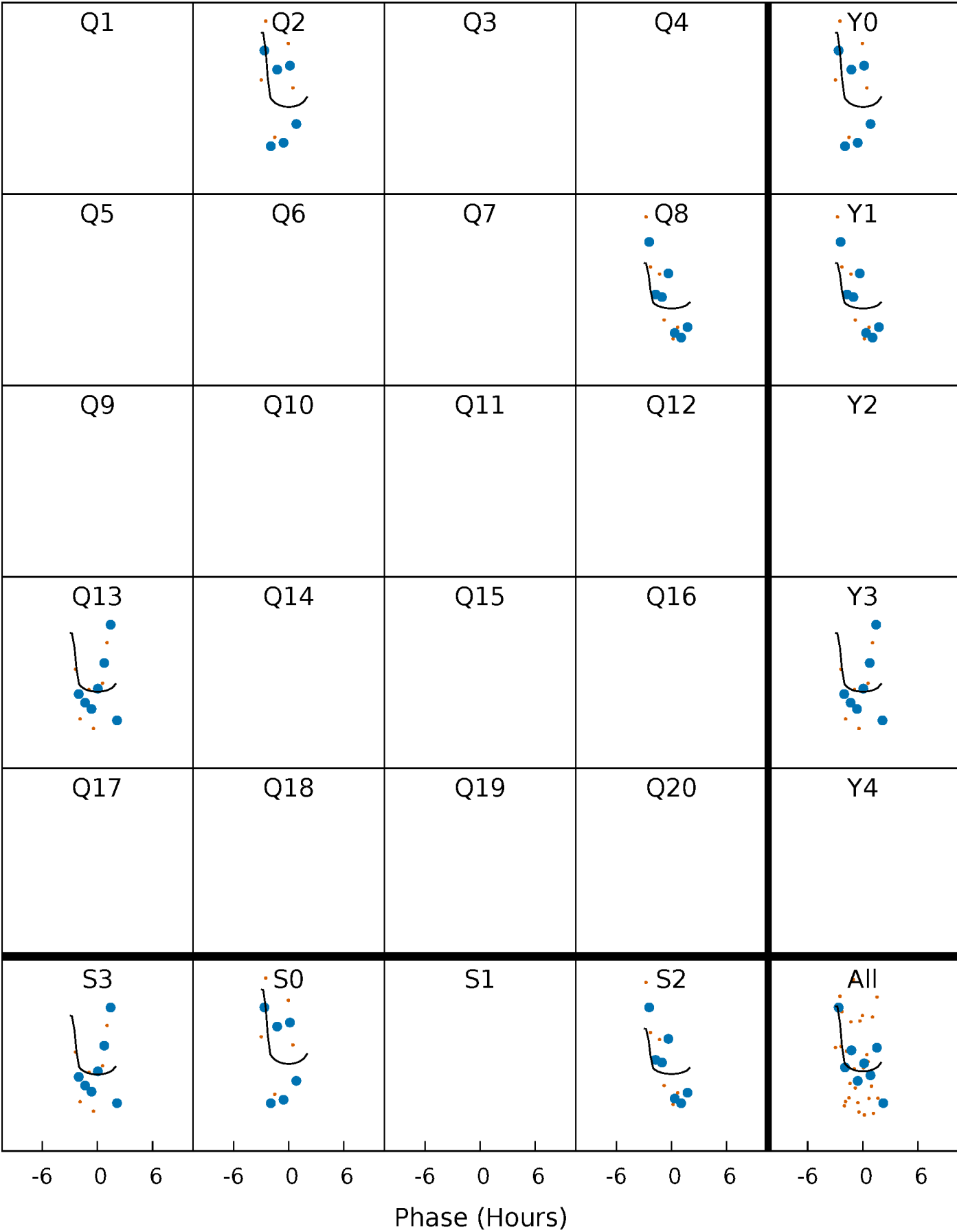
TCE 006776957-02 P=495.644126 Days  $T_0=244.268706$  (BKJD)





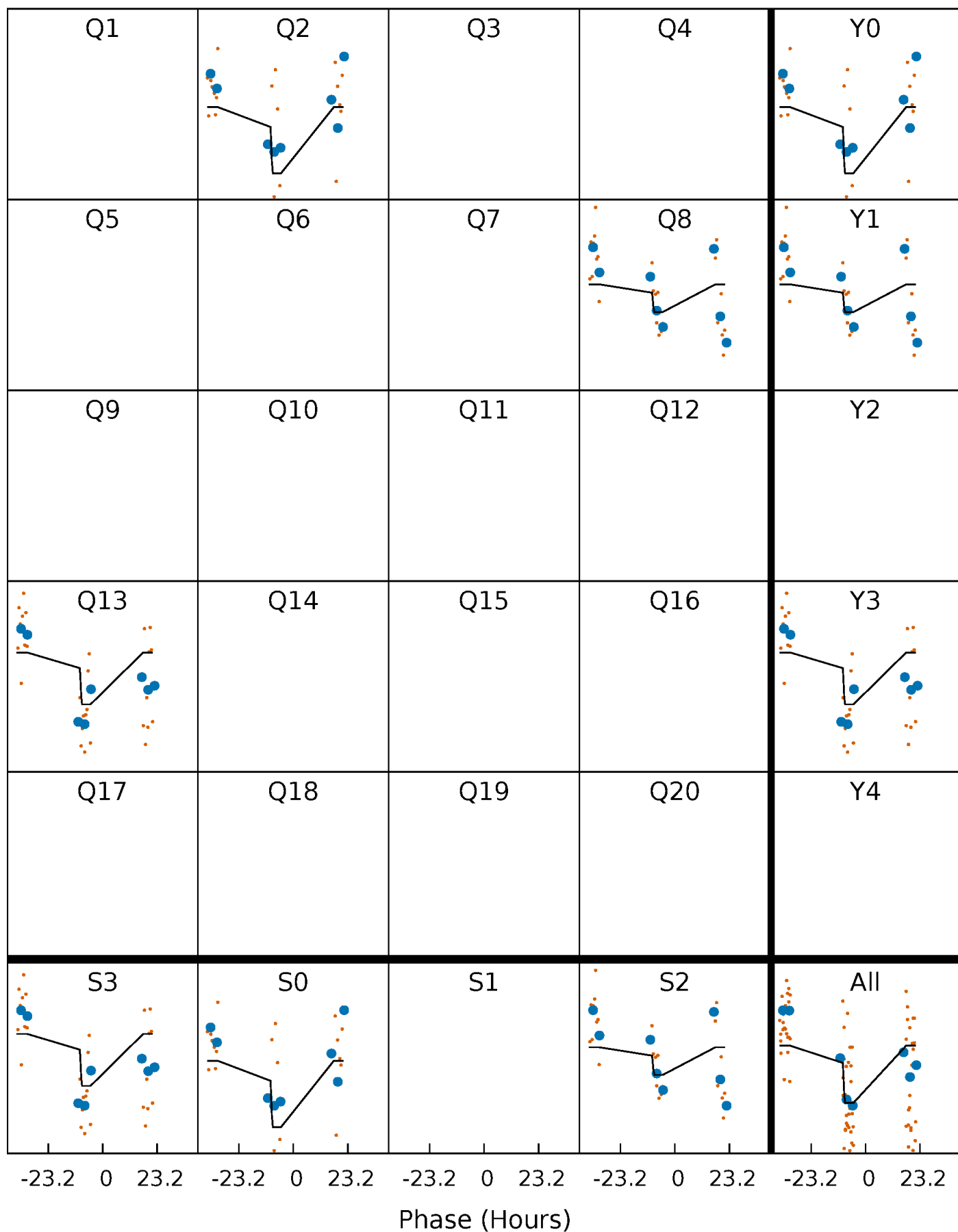
DV Quarter-Phased Transit Curves

TCE 006776957-02    P=495.644126 Days    T<sub>0</sub>=244.268706 (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

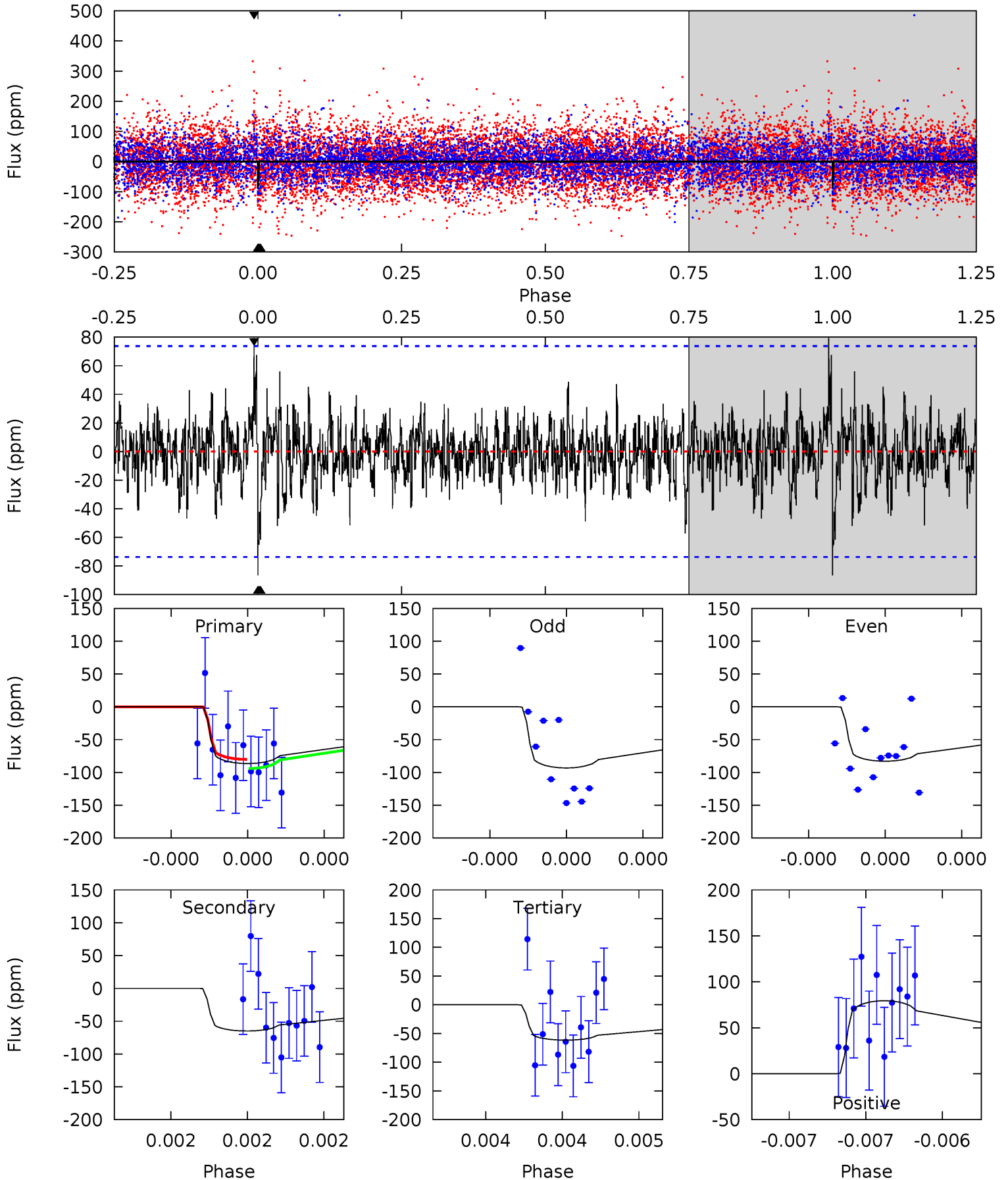
TCE 006776957-02 P=495.656865 Days  $T_0=244.543973$  (BKJD)



# DV Model-Shift Uniqueness Test

006776957-02,  $P = 495.644126$  Days,  $E = 244.268706$  Days

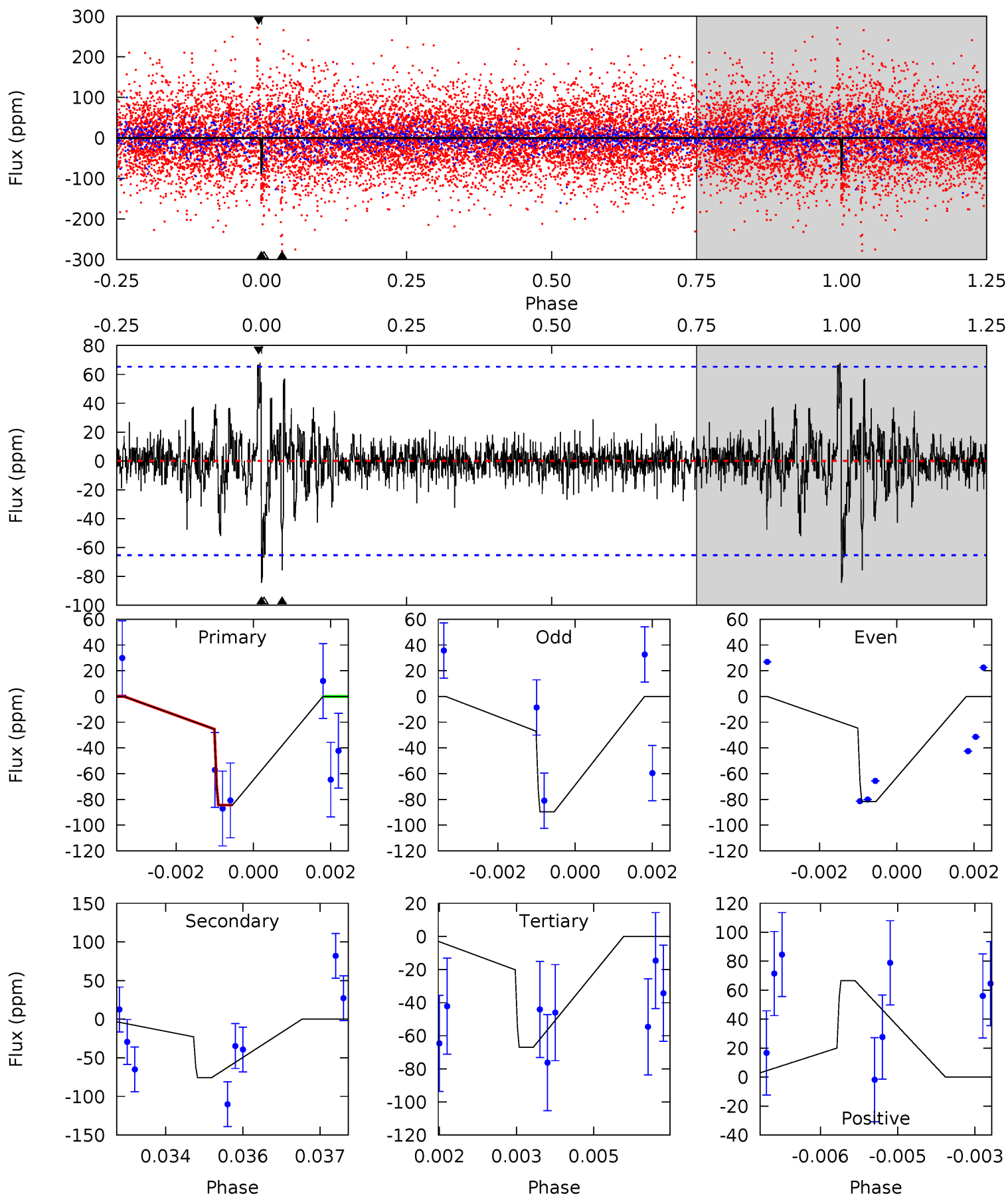
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.58	4.94	4.68	6.04	5.61	3.54	1.23	1.90	0.54	0.26	-1.10	0.36	0.98	0.48	0.52



# Alt Model-Shift Uniqueness Test

006776957-02,  $P = 495.656865$  Days,  $E = 244.543973$  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
6.93	6.22	5.50	5.47	5.37	3.15	1.01	1.43	1.46	0.72	0.75	0.30	0	0.45	0





### Stellar Parameters For KIC 006776957

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9748^{+311}_{-428}$	$4.222^{+0.144}_{-0.216}$	$0.070^{+0.150}_{-0.600}$	$1.928^{+0.815}_{-0.439}$	$2.257^{+0.384}_{-0.576}$	$0.444^{+0.340}_{-0.257}$
	+3%/-4%	+3%/-5%	+214%/-857%	+42%/-23%	+17%/-26%	+77%/-58%
Source	KIC0	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 006776957-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-65 \pm 13$	$2.24^{+1.19}_{-1.17}$	$661^{+62}_{-43}$	$8124^{+5758}_{-1783}$	$17776^{+60924}_{-10361}$
Alt.	$-76 \pm 12$	$2.14^{+1.24}_{-1.14}$	$663^{+54}_{-49}$	$8837^{+7206}_{-2215}$	$23163^{+78062}_{-14344}$

$T_{\text{max}}$  = 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

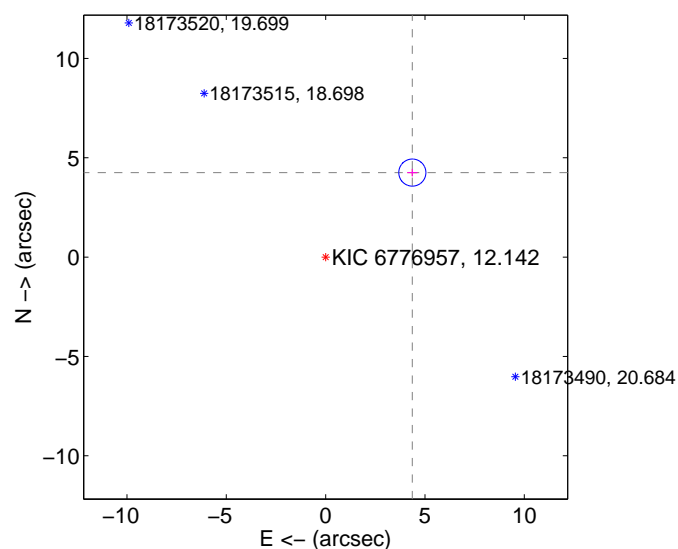
Supplemental centroid analysis for 006776957-02. Kepler magnitude: 12.14. Transit SNR 7.65

There are 0 quarters with good PRF difference image offsets

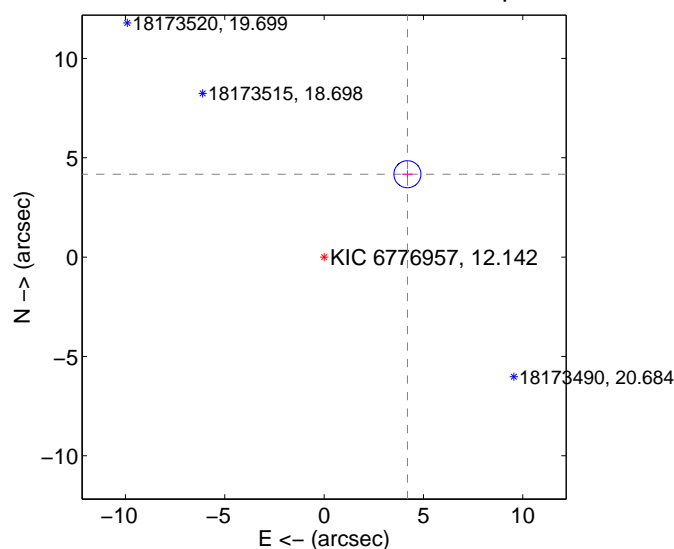
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.095 \pm 0.227$	26.81	$-4.364 \pm 0.258$	$4.254 \pm 0.190$
PRF-fit source offset from KIC position	$5.915 \pm 0.227$	26.10	$-4.193 \pm 0.258$	$4.172 \pm 0.190$
photometric centroid source offset	$2.74 \pm 2.47$	1.11	$-2.73 \pm 2.47$	$-0.31 \pm 2.07$

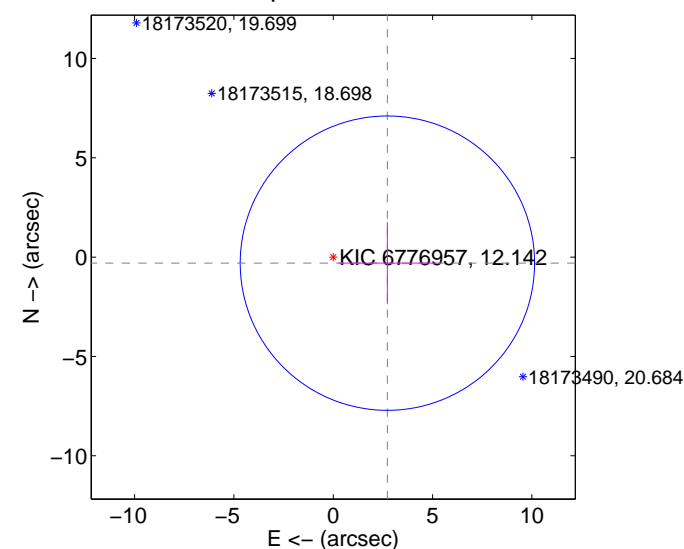
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

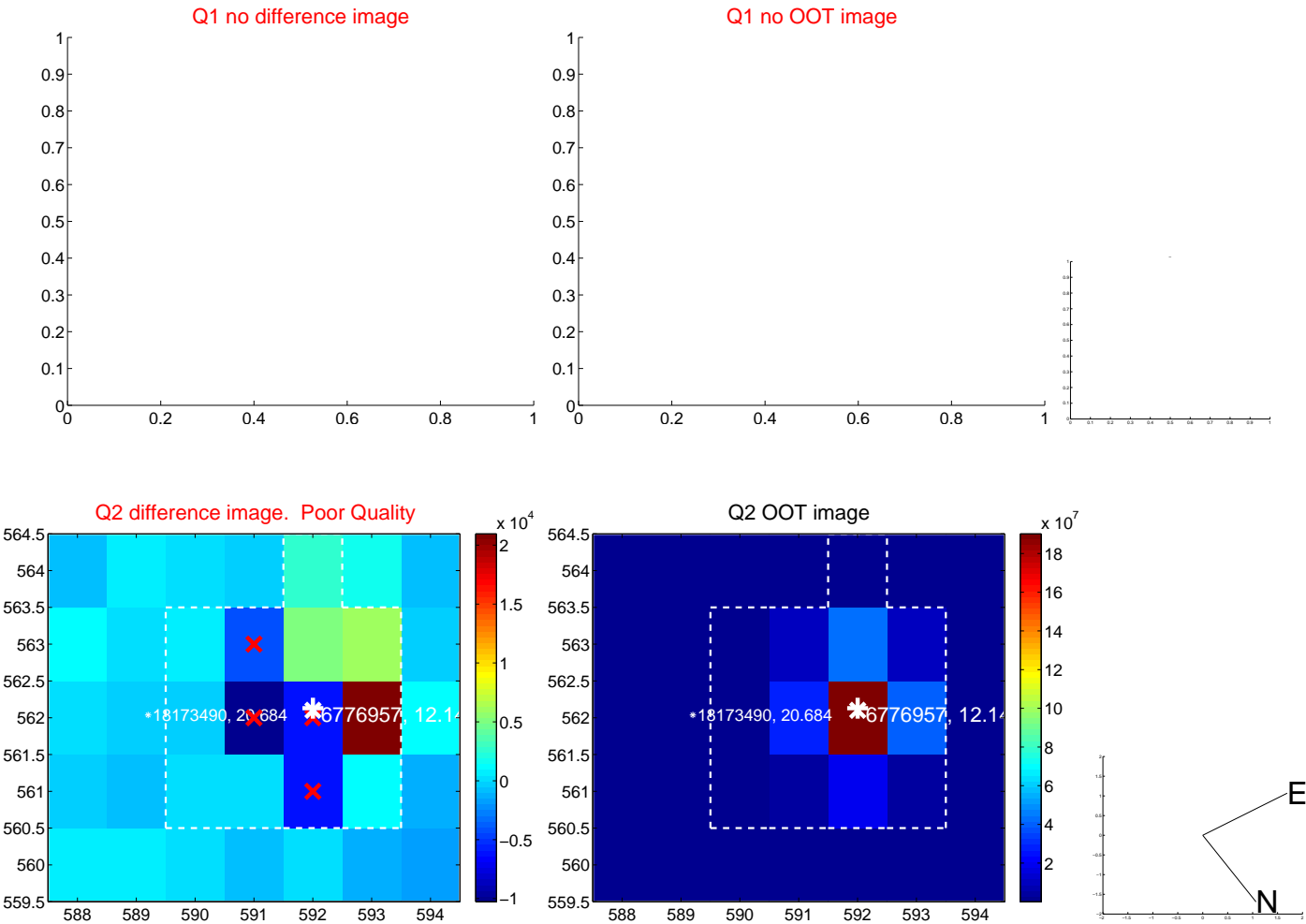


offset from photometric centroids

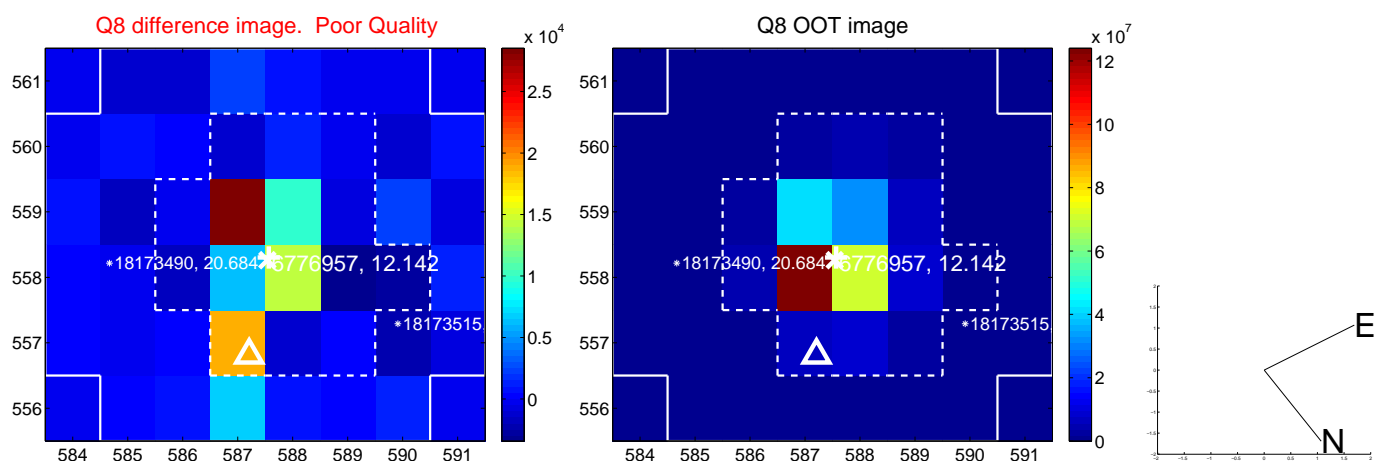
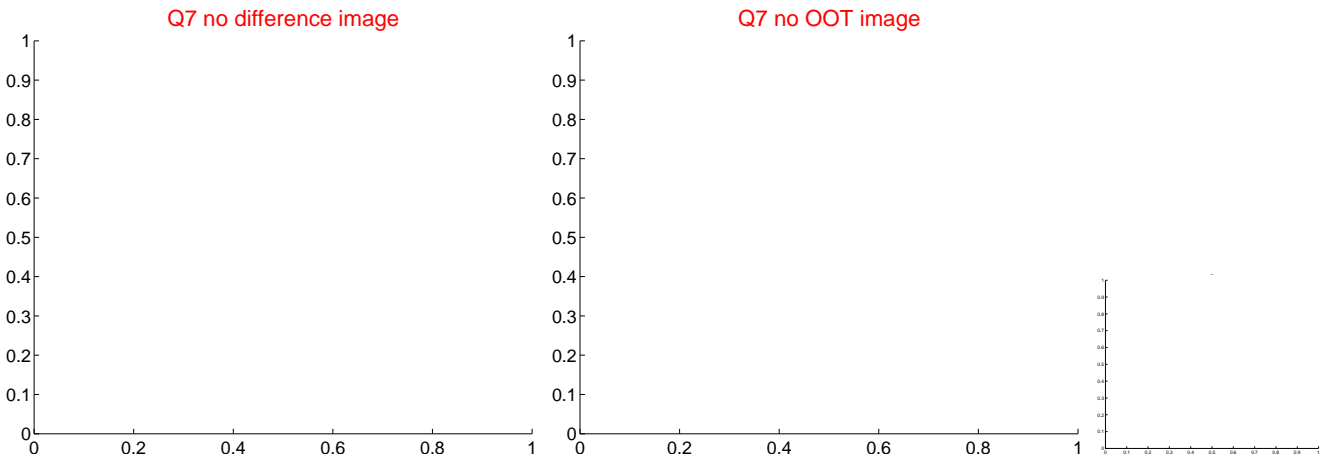
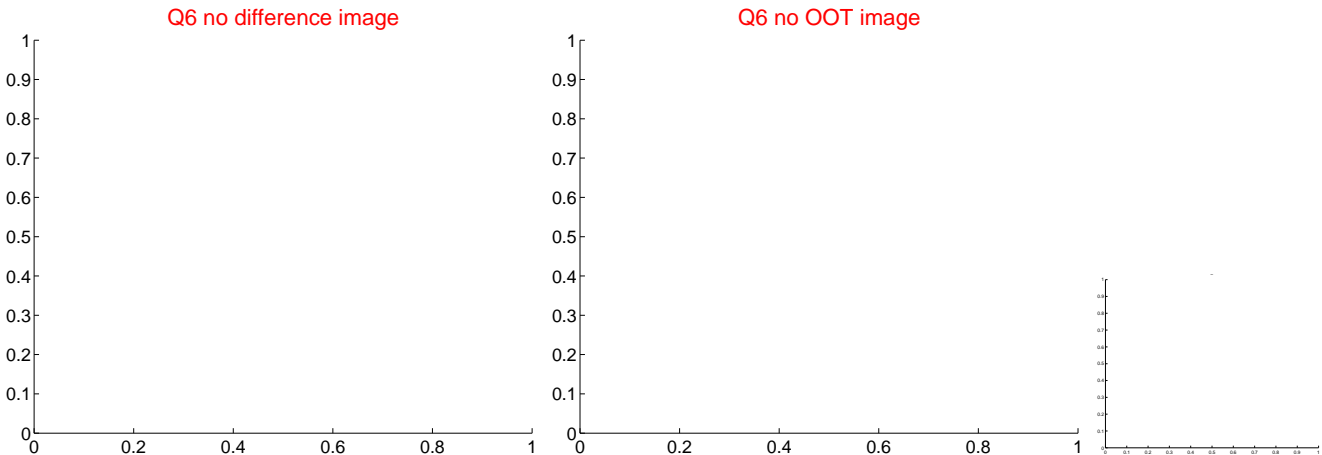
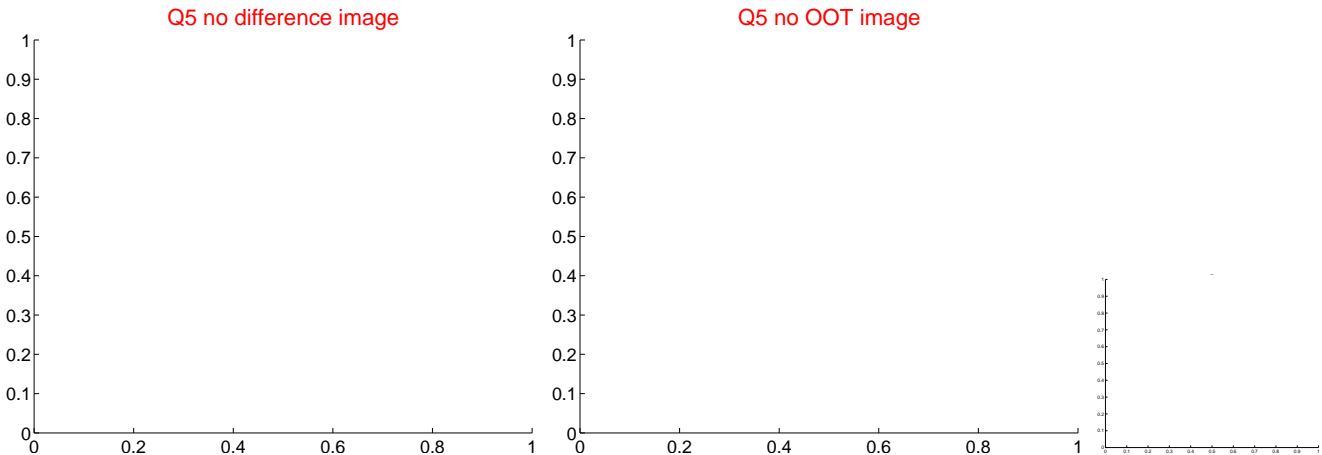


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

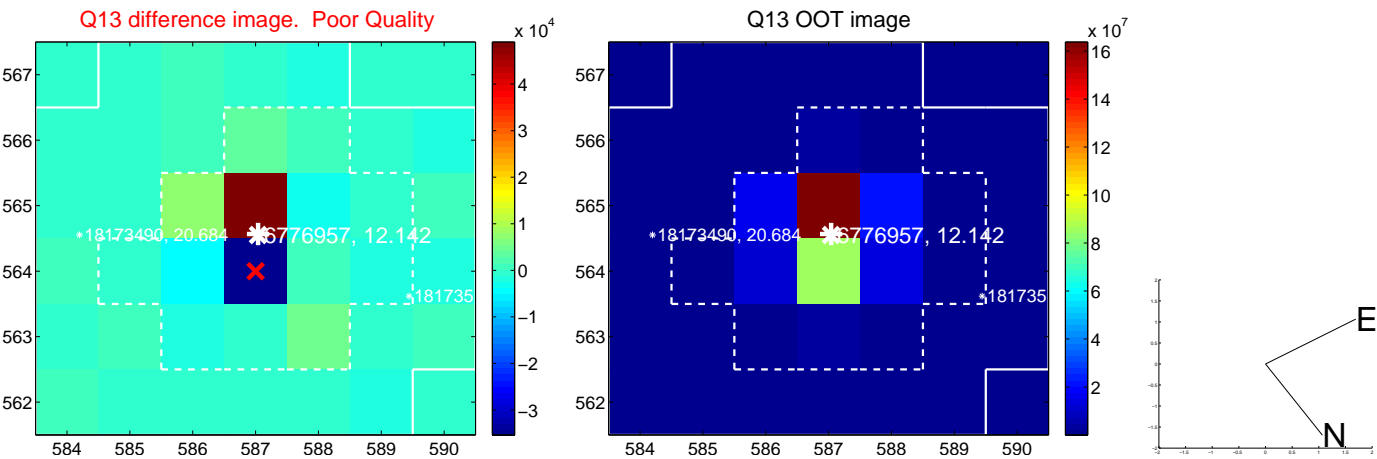




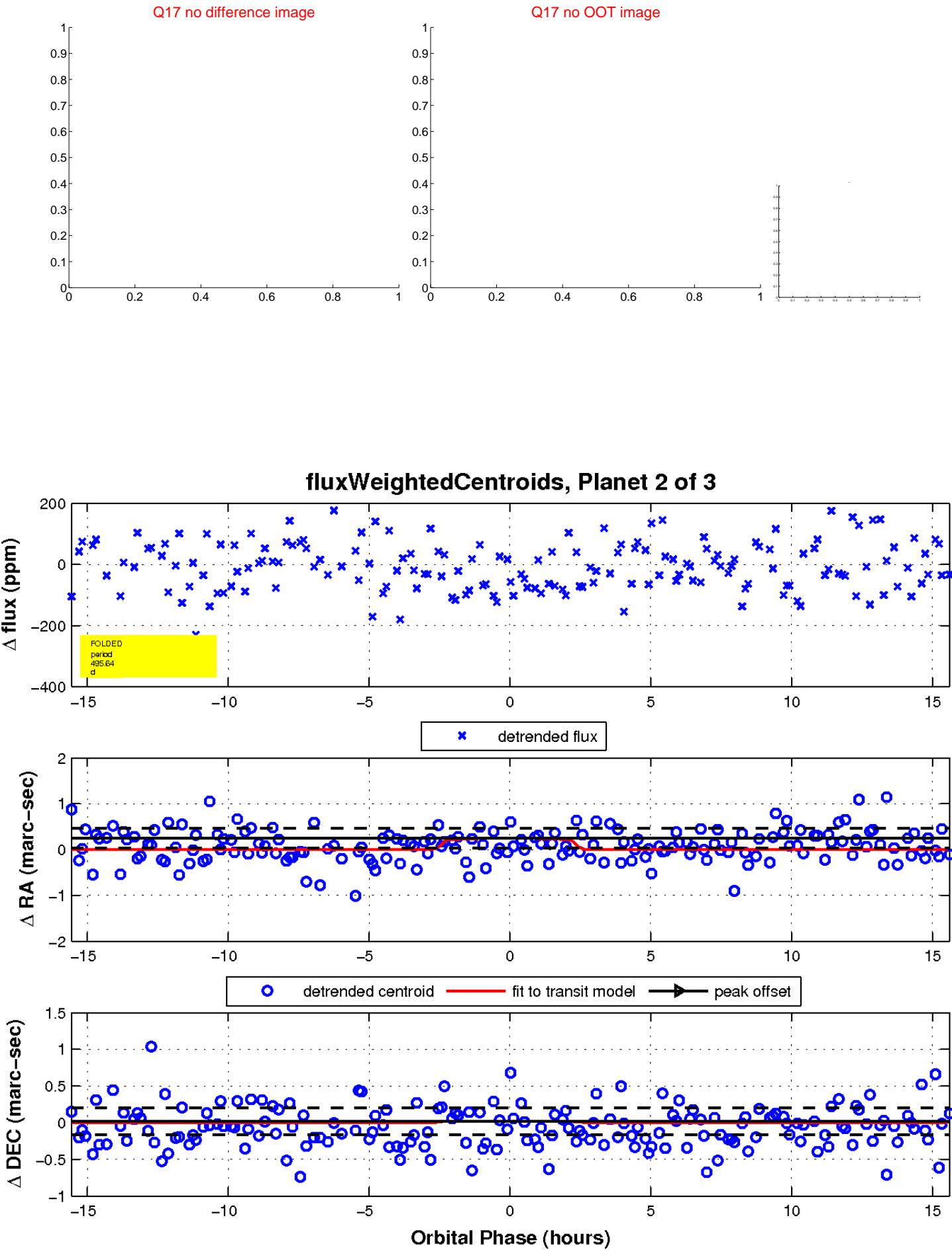
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

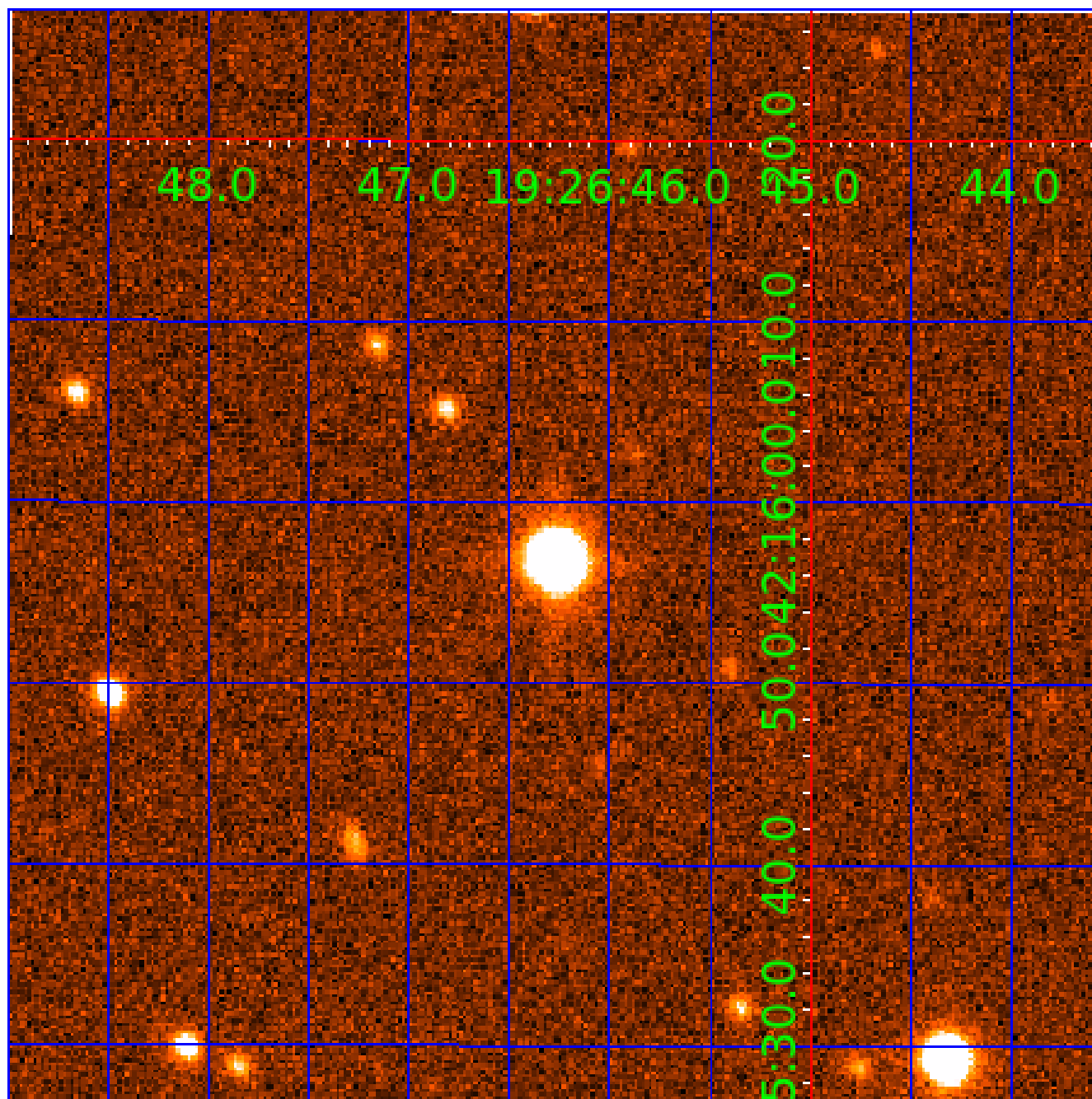


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 006776957

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006776957-01	OBS	No	1.116353	132.034699	6.2	7.224	8.7	10.0	1.93	9748	0.50	39345.27
006776957-02	OBS	No	495.644126	244.268706	87.9	5.213	8.6	7.7	1.93	9748	2.13	11.62
006776957-03	OBS	No	40.783878	172.110732	84.7	3.027	7.9	9.0	1.93	9748	2.01	324.57

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006776957-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006776957-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006776957-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS

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

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

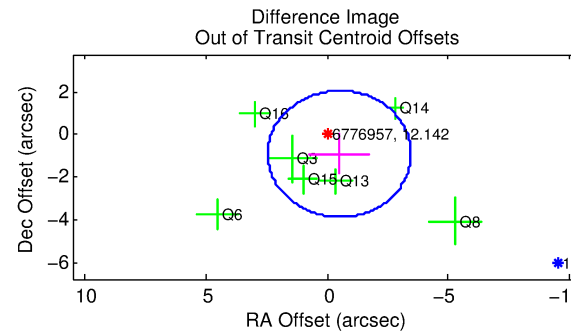
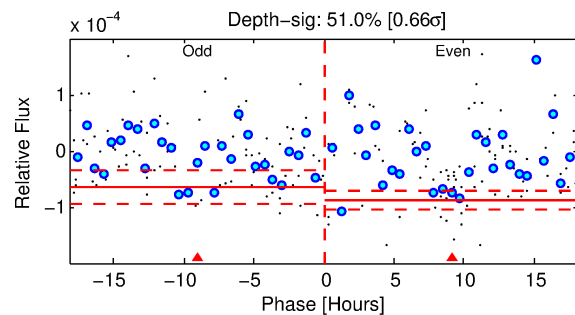
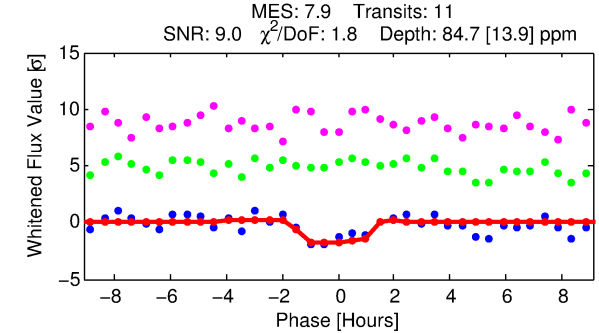
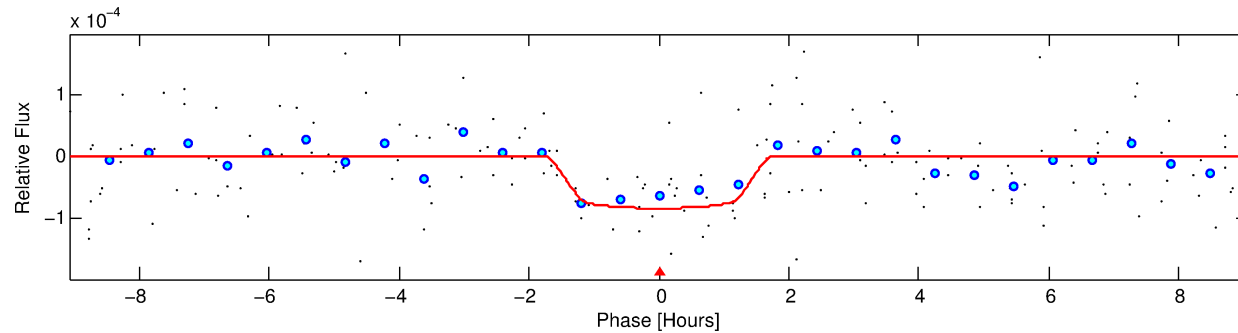
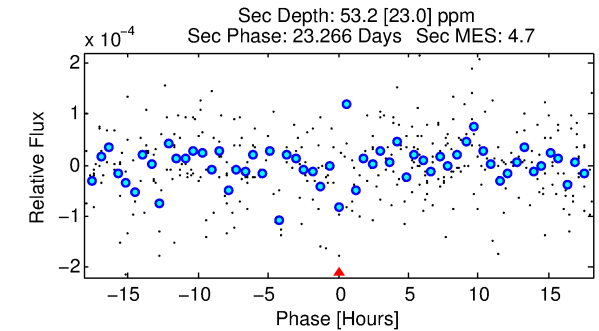
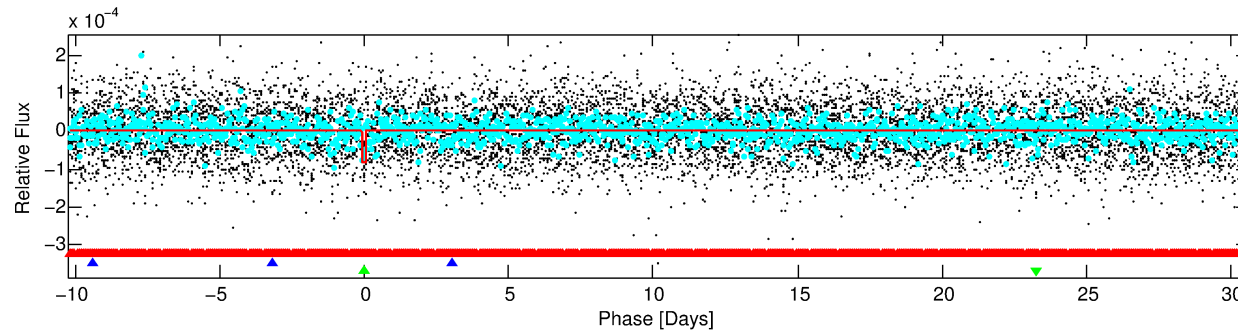
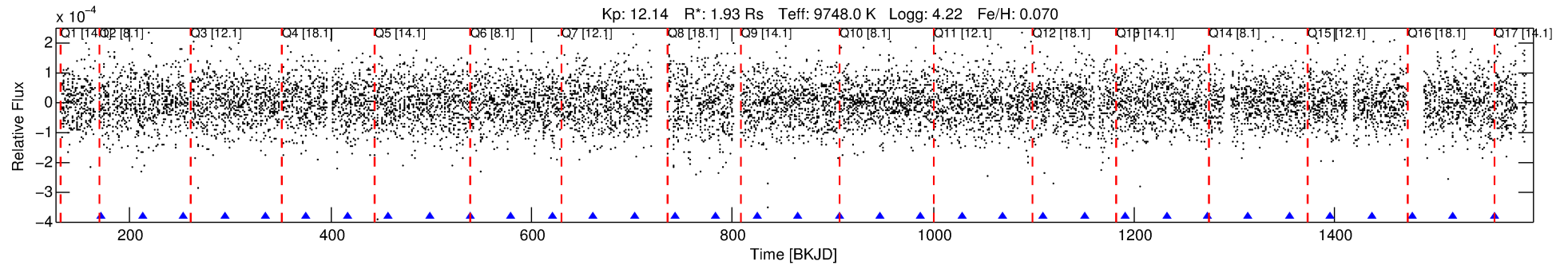
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006776957-03

No Significant Match Found

# DV One-Page Summary

KIC: 6776957 Candidate: 3 of 3 Period: 40.784 d



## DV Fit Results:

Period = 40.78388 [0.00054] d  
Epoch = 172.1107 [0.0093] BKJD  
Rp/R\* = 0.0096 [0.0047]  
a/R\* = 51.73 [189.81]  
b = 0.88 [0.99]  
Seff = 324.57 [152.31]  
Teq = 1082 [127] K  
Rp = 2.01 [1.30] Re  
a = 0.3044 [0.0995] AU  
Ag = 670.82 [777.43] [0.86σ]  
Teffp = 8516 [2317] K [3.20σ]

## DV Diagnostic Results:

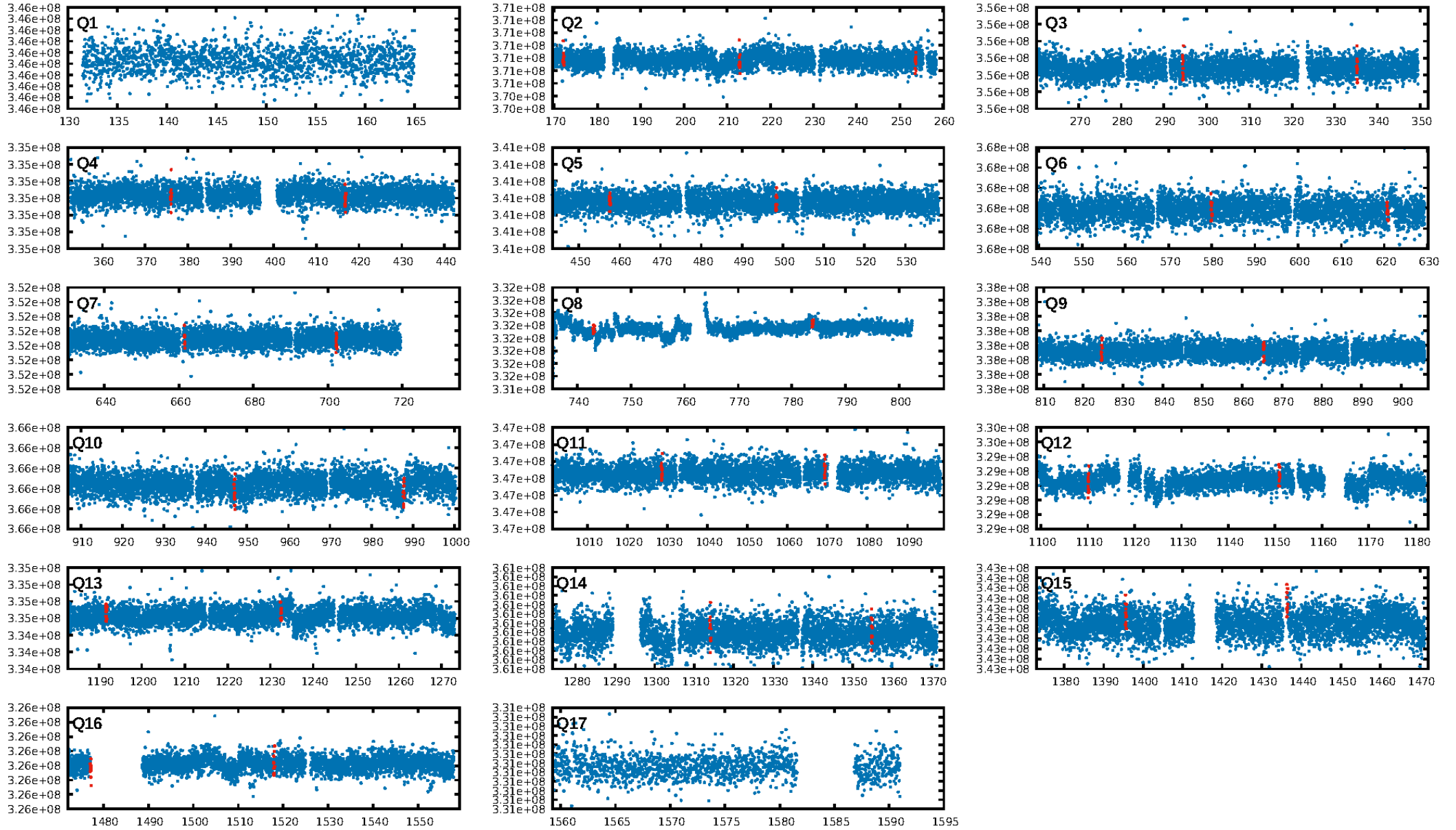
ShortPeriod-sig: 100.0% [121.54σ]  
LongPeriod-sig: 100.0% [1810.92σ]  
ModelChiSquare2-sig: 5.7%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 5.81e-08**  
RollingBand-fgt: 1.00 [11/11]  
GhostDiagnostic-chr: 1.223  
Centroid-sig: 47.5%  
Centroid-so: 0.727 arcsec [0.77σ]  
OotOffset-rm: 1.040 arcsec [1.06σ]  
KicOffset-rm: 1.105 arcsec [1.16σ]  
OotOffset-st: 2/2/2/1 [7]  
KicOffset-st: 2/2/2/1 [7]  
DiffImageQuality-fgm: 0.29 [2/7]  
DiffImageOverlap-fno: 0.33 [5/15]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:34:47 Z

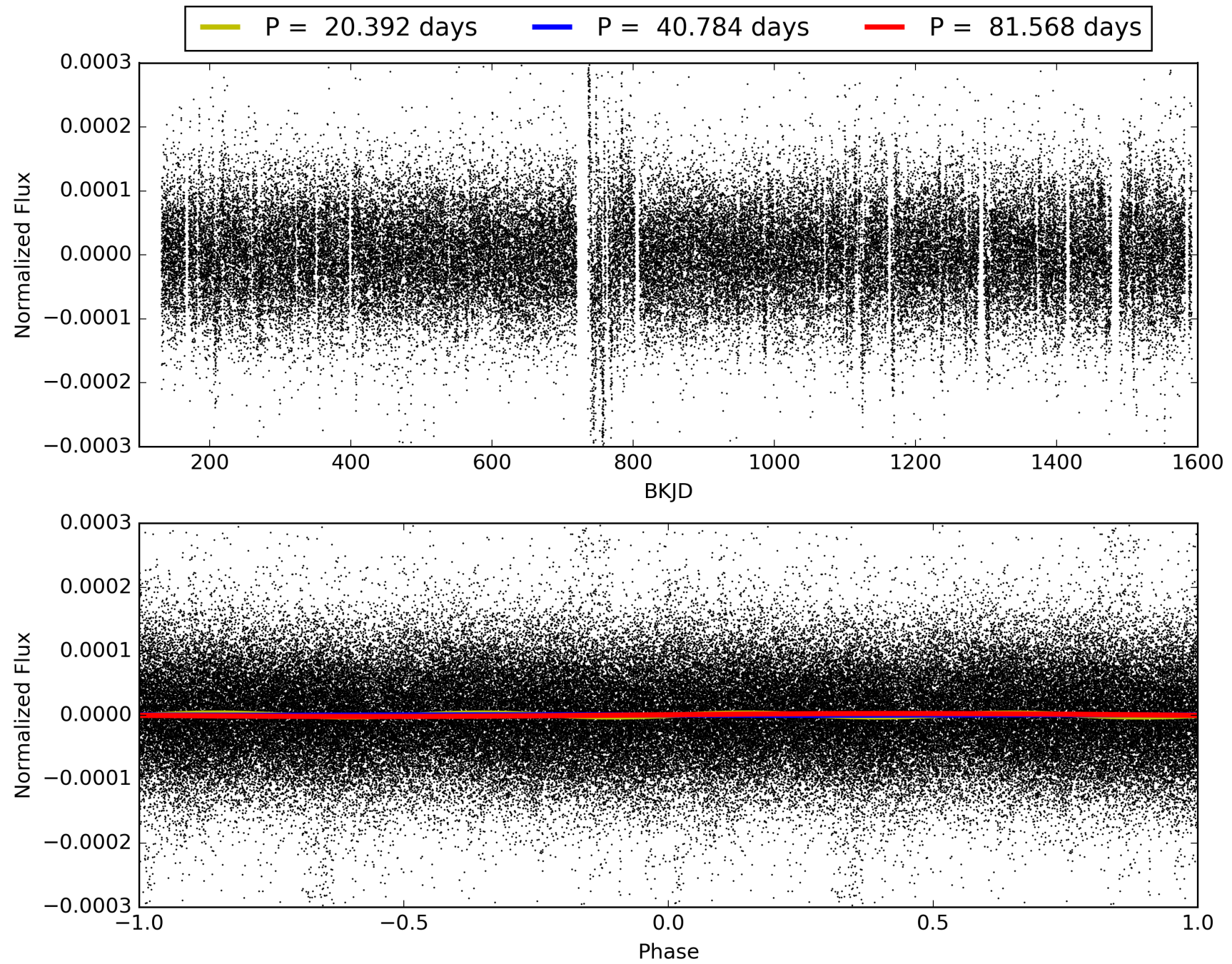
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 006776957-03, PDC Light Curves

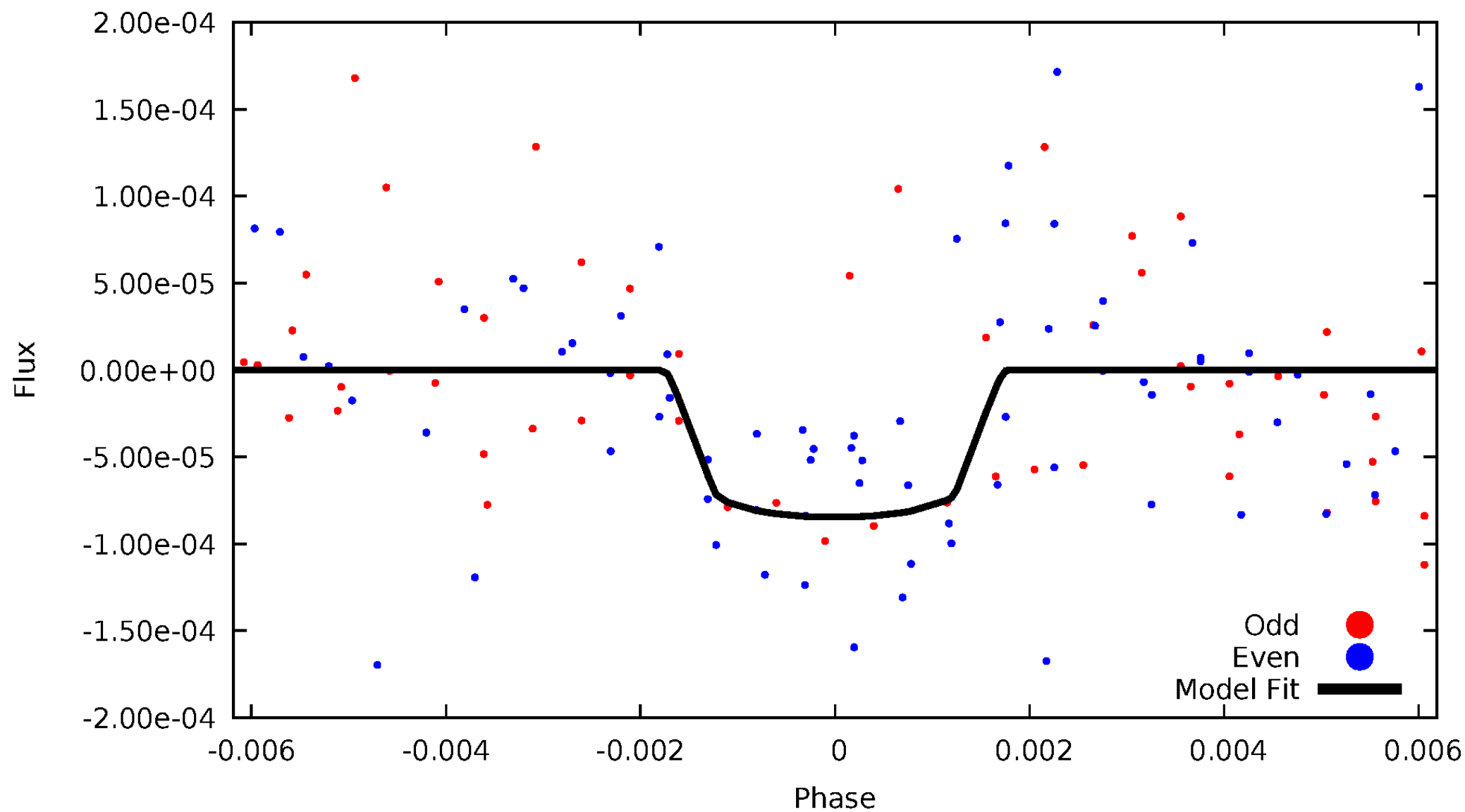


TCE 006776957-03



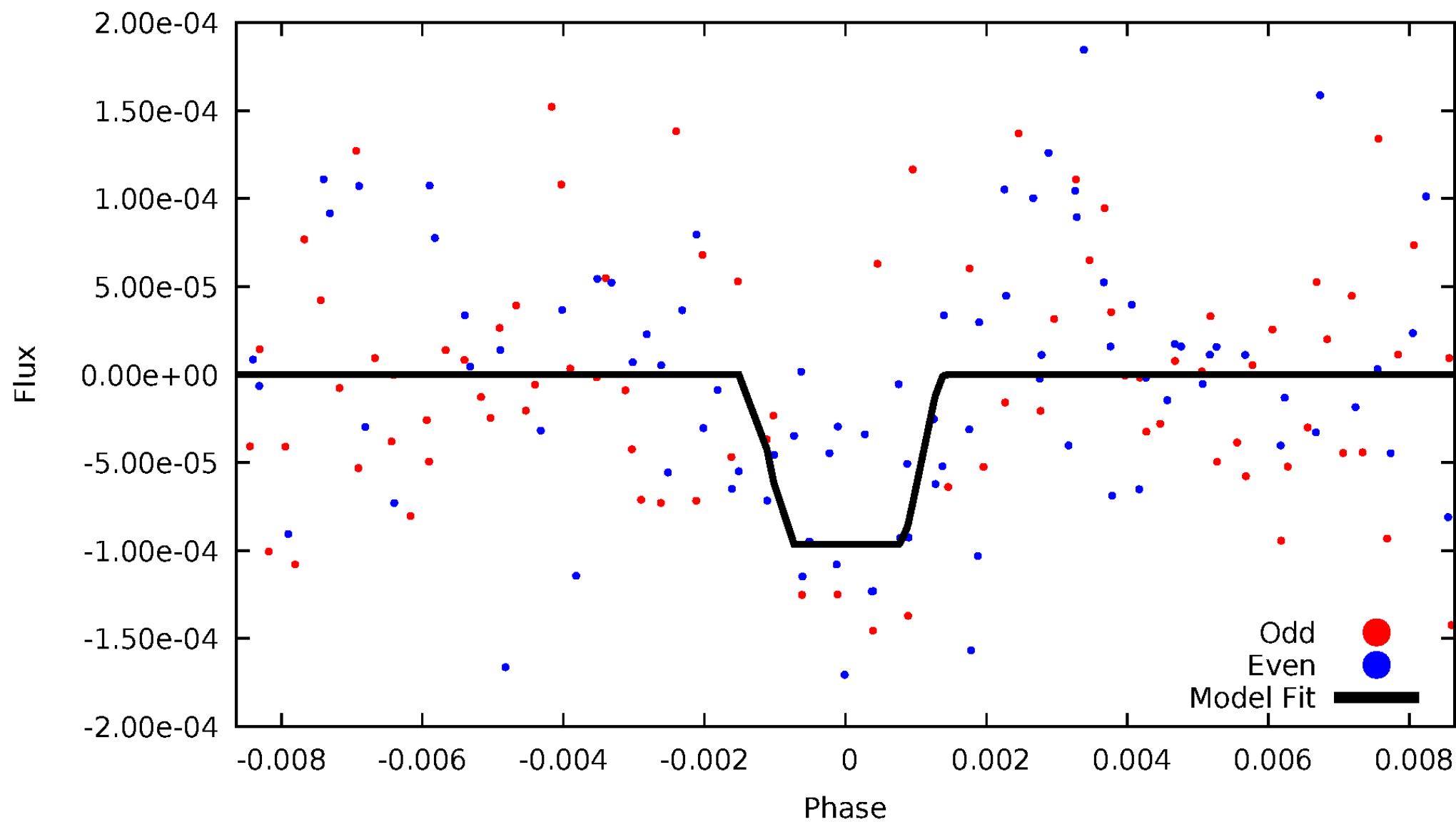
# DV Odd/Even

TCE 006776957-03



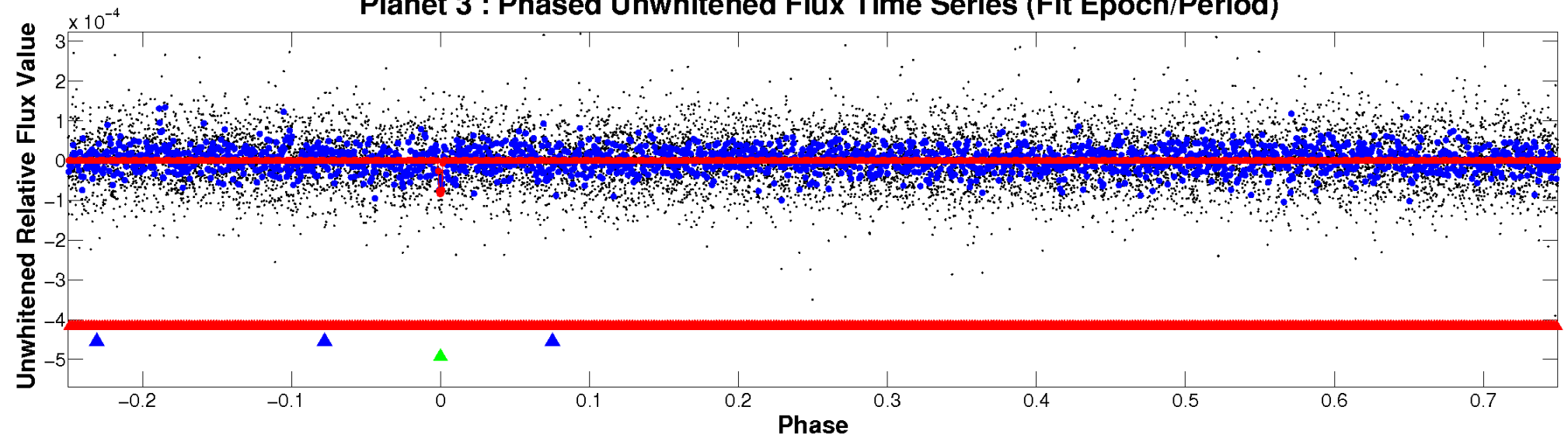
# ALT Odd/Even

TCE 006776957-03

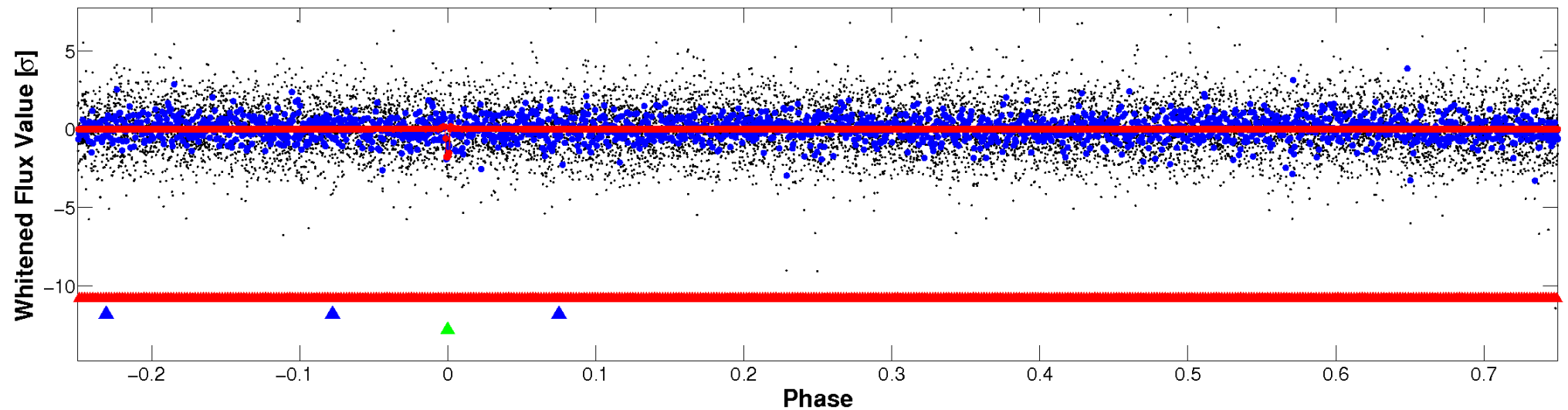


# Non-Whitened Vs. Whitened Light Curve

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

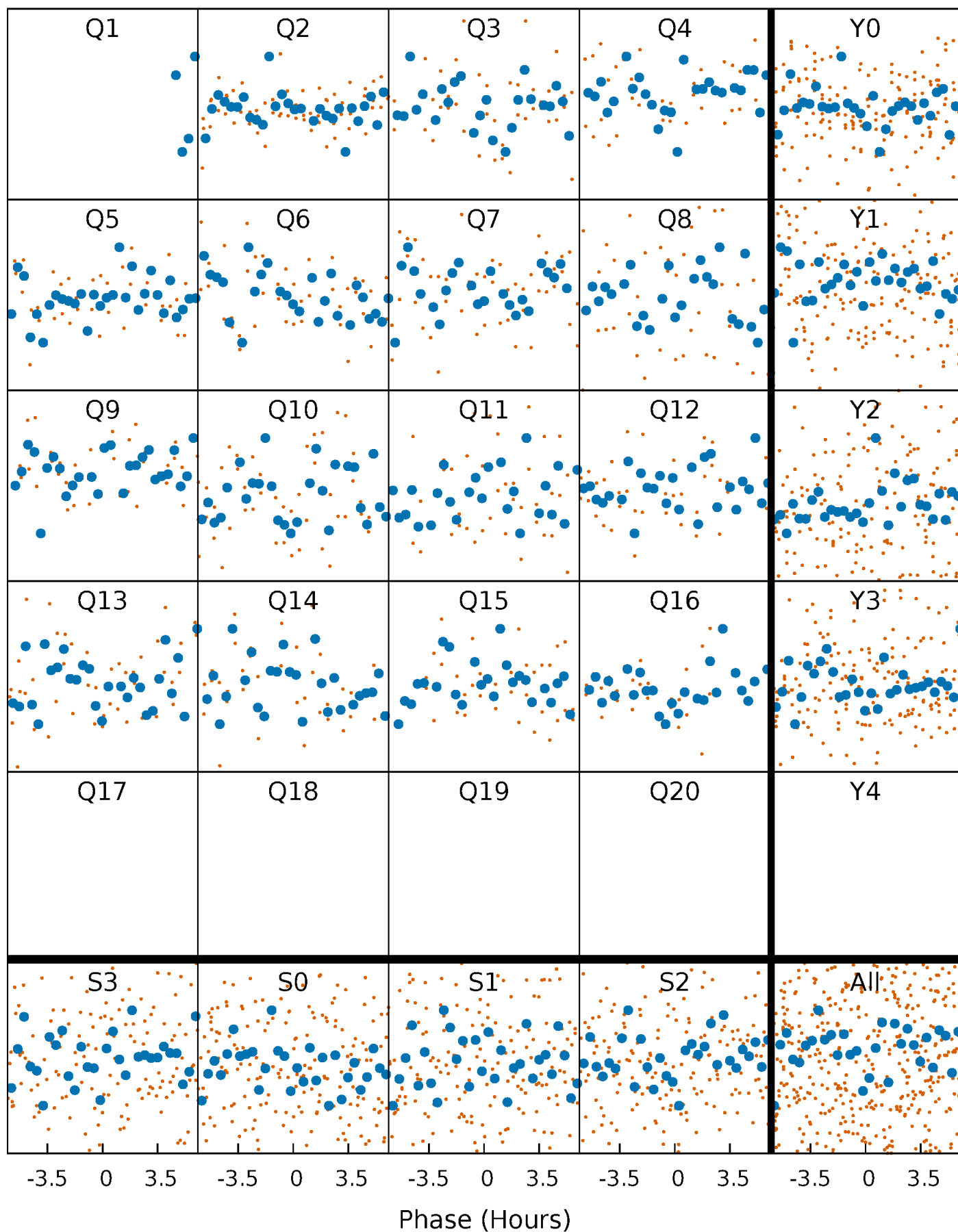


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

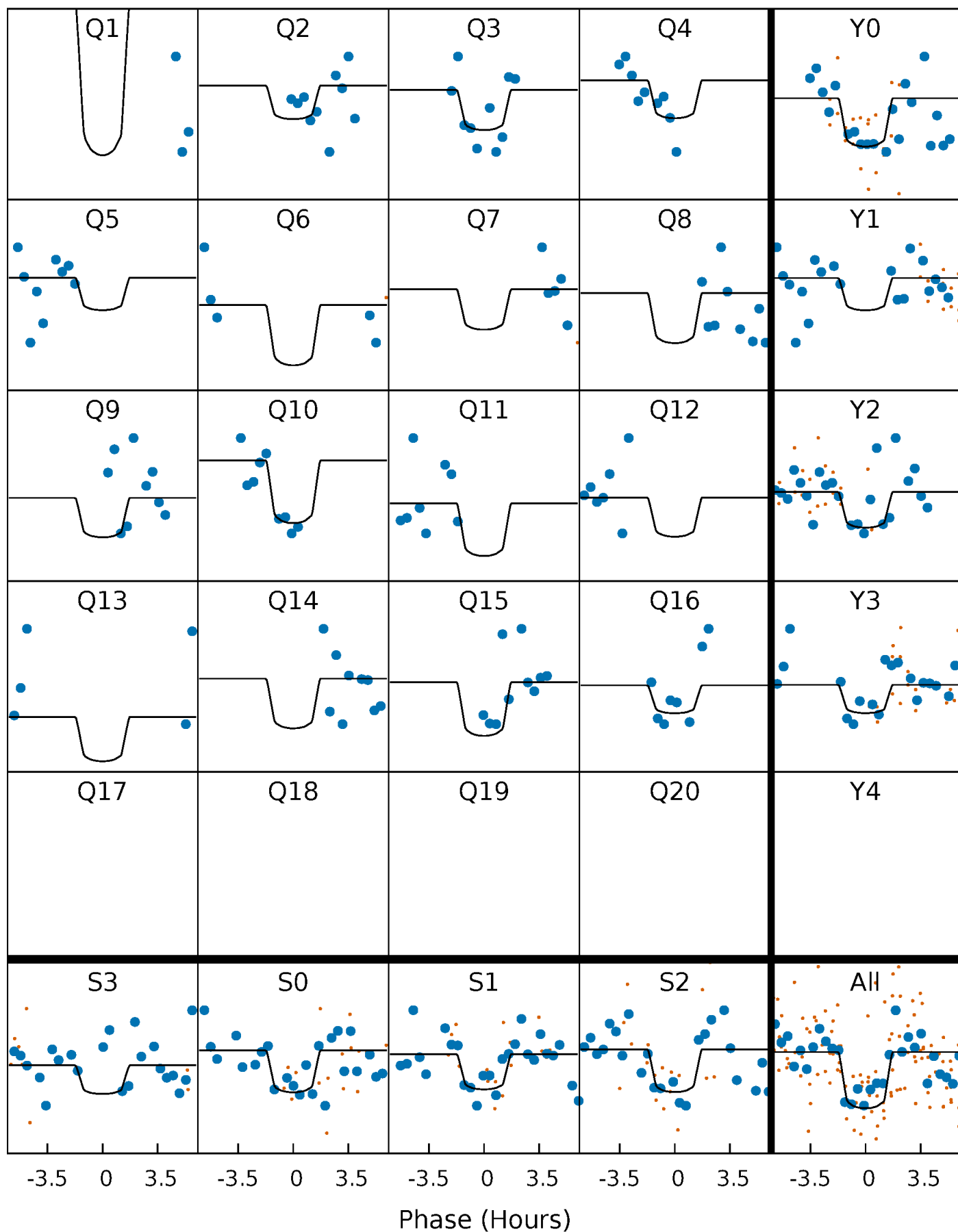
TCE 006776957-03   P= 40.783878 Days    $T_0=172.110732$  (BKJD)





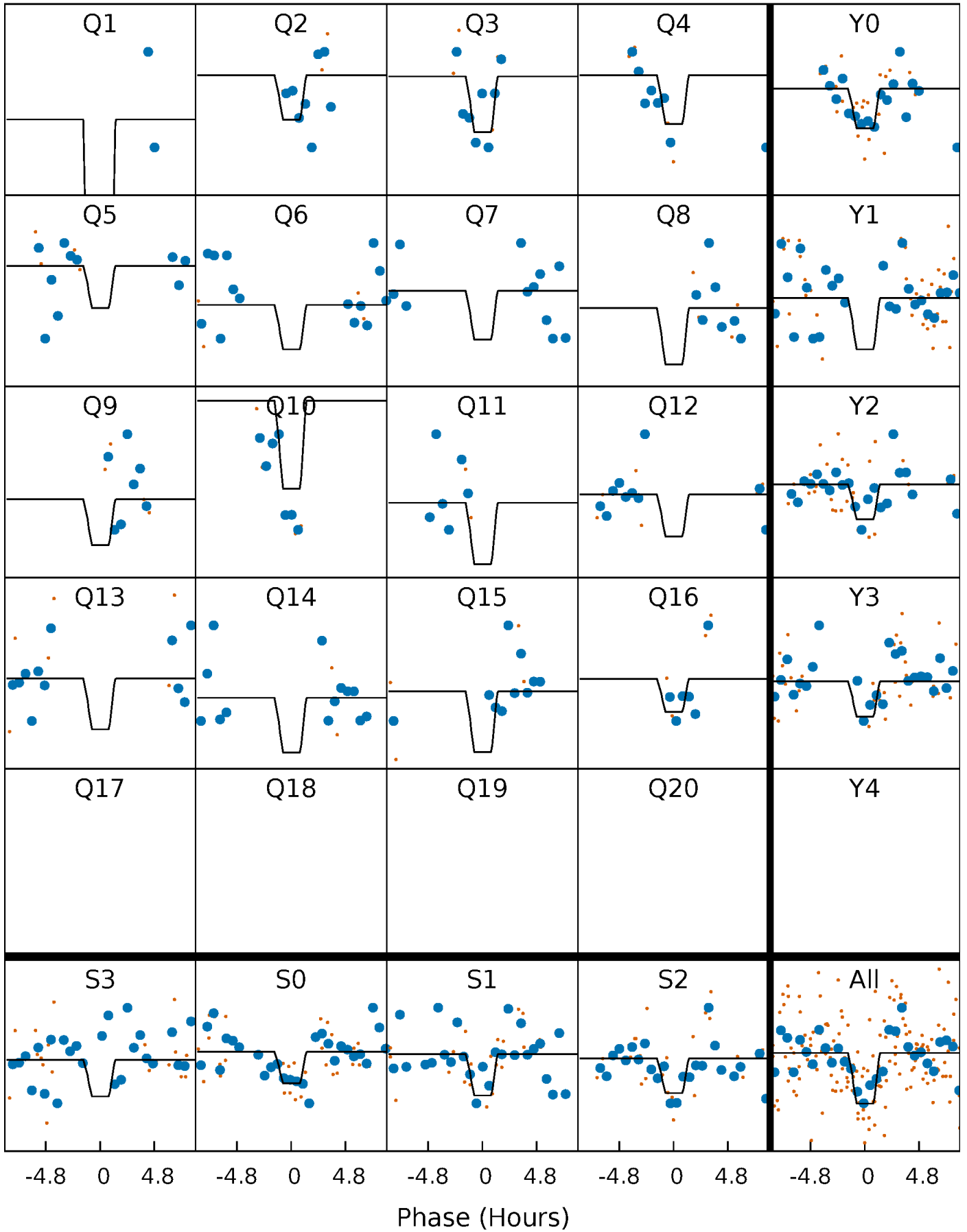
# DV Quarter-Phased Transit Curves

TCE 006776957-03   P= 40.783878 Days    $T_0=172.110732$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

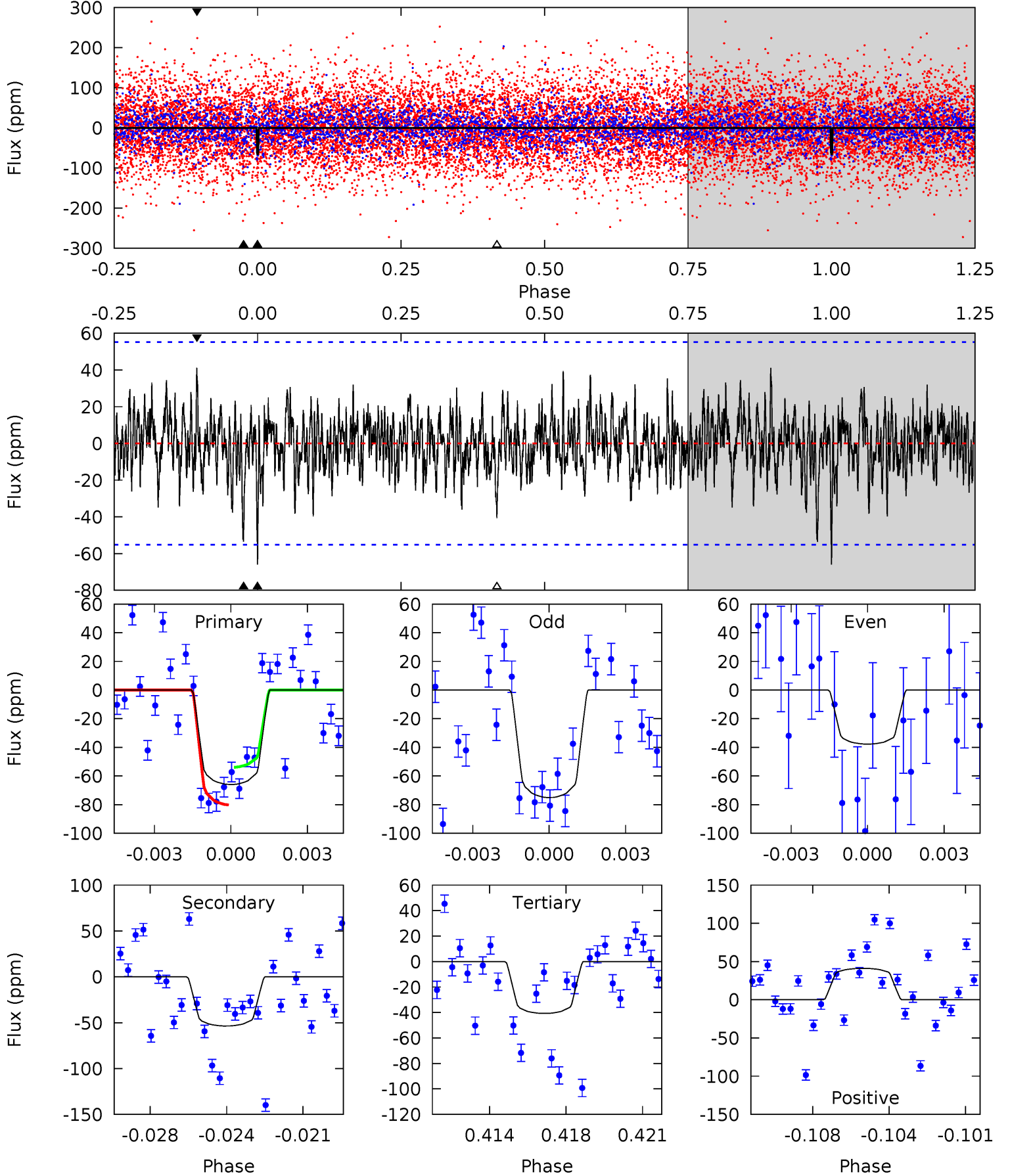
TCE 006776957-03 P= 40.781977 Days  $T_0=172.128692$  (BKJD)



# DV Model-Shift Uniqueness Test

006776957-03, P = 40.783878 Days, E = 131.326854 Days

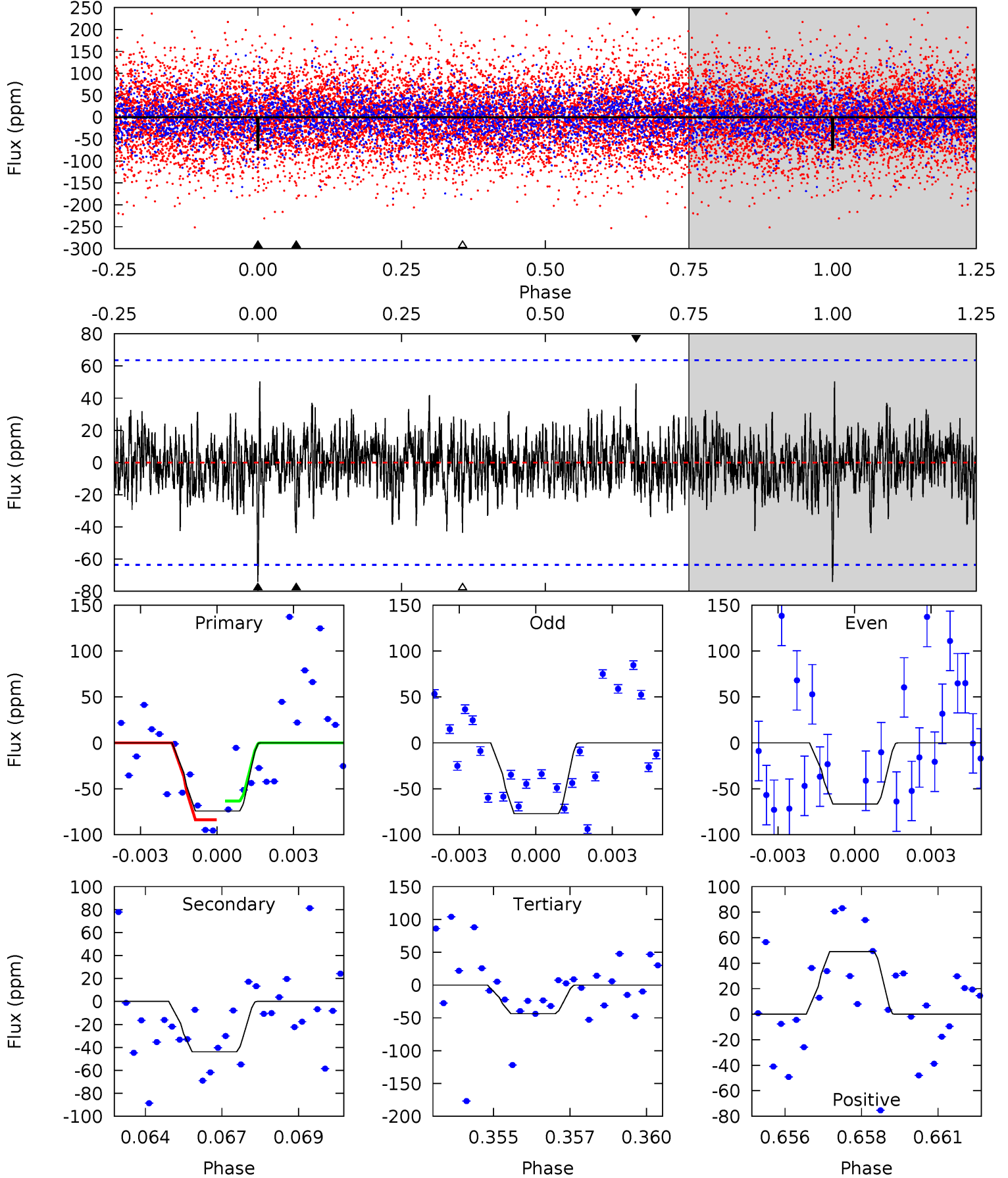
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.24	5.07	3.86	3.89	5.23	2.92	1.20	2.39	2.35	1.22	1.19	1.60	0.69	0.38	1.23



# Alt Model-Shift Uniqueness Test

006776957-03, P = 40.781977 Days, E = 131.346715 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
6.16	3.64	3.62	4.07	5.28	3.01	1.06	2.54	2.09	0.02	-0.43	0.38	0.77	0.40	0.85



### Stellar Parameters For KIC 006776957

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9748^{+311}_{-428}$	$4.222^{+0.144}_{-0.216}$	$0.070^{+0.150}_{-0.600}$	$1.928^{+0.815}_{-0.439}$	$2.257^{+0.384}_{-0.576}$	$0.444^{+0.340}_{-0.257}$
	+3%/-4%	+3%/-5%	+214%/-857%	+42%/-23%	+17%/-26%	+77%/-58%
Source	KIC0	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 006776957-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-54 \pm 11$	$2.07^{+1.14}_{-0.92}$	$1526^{+138}_{-118}$	$8038^{+4131}_{-1721}$	$617^{+1410}_{-363}$
Alt.	$-44 \pm 12$	$2.12^{+1.08}_{-1.03}$	$1516^{+137}_{-107}$	$7353^{+4089}_{-1464}$	$483^{+1280}_{-293}$

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

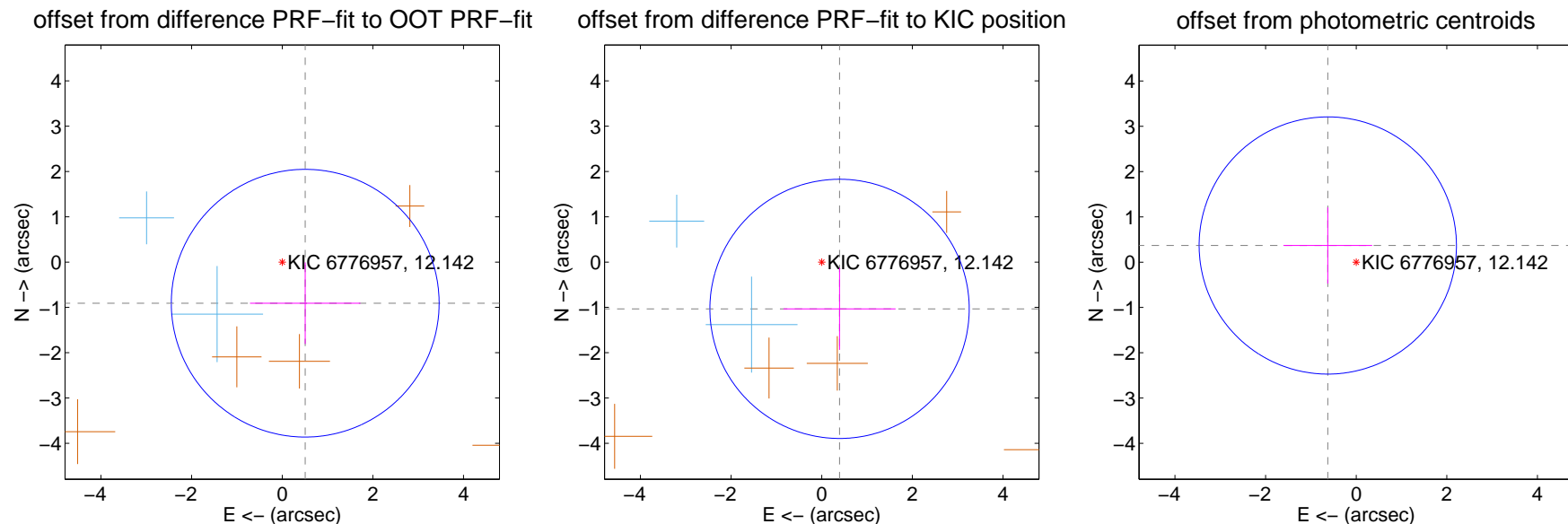
## DV Centroid Data

Supplemental centroid analysis for 006776957-03. Kepler magnitude: 12.14. Transit SNR 9.03

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.040 \pm 0.985$	1.06	$-0.507 \pm 1.218$	$-0.907 \pm 0.900$
PRF-fit source offset from KIC position	$1.105 \pm 0.954$	1.16	$-0.394 \pm 1.237$	$-1.032 \pm 0.905$
photometric centroid source offset	$0.73 \pm 0.95$	0.77	$0.63 \pm 0.98$	$0.37 \pm 0.84$



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



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

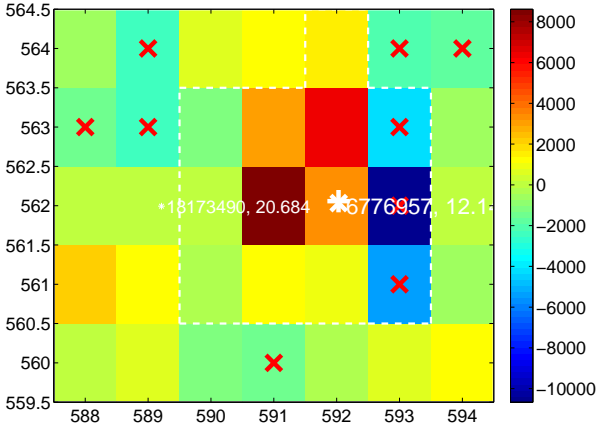
Q1 no difference image



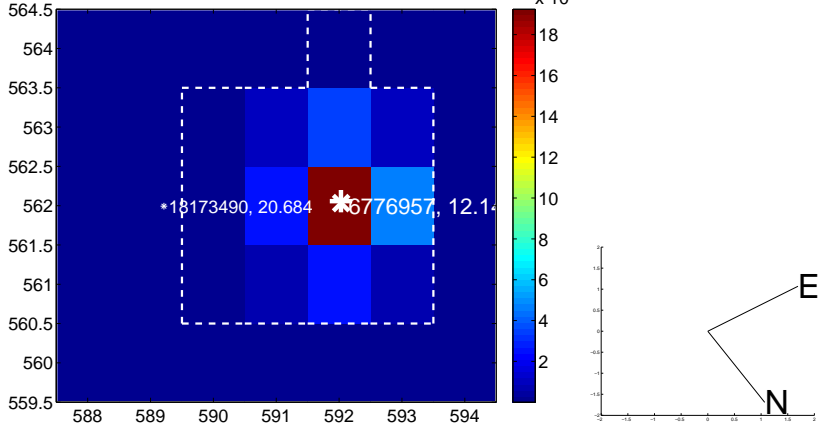
Q1 no OOT image



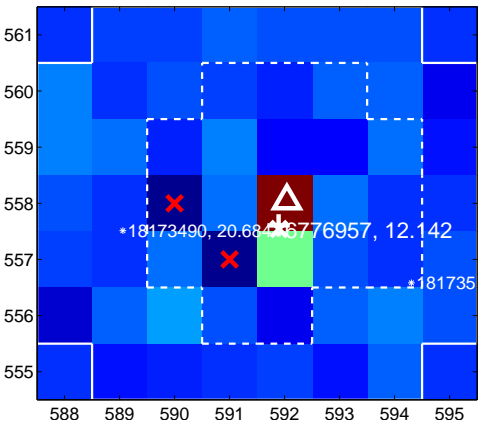
Q2 difference image. Poor Quality



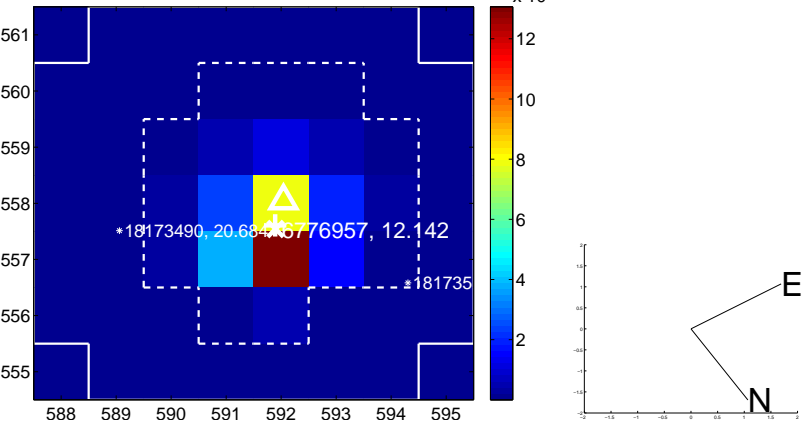
Q2 OOT image



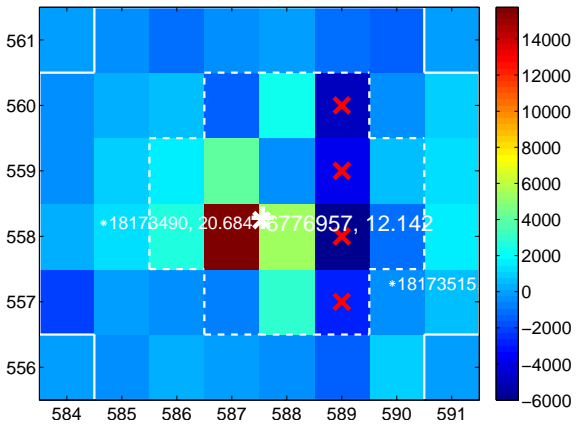
Q3 difference image



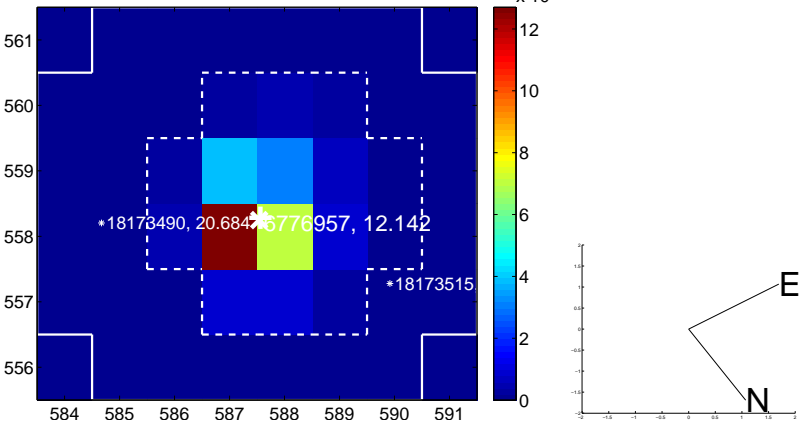
Q3 OOT image



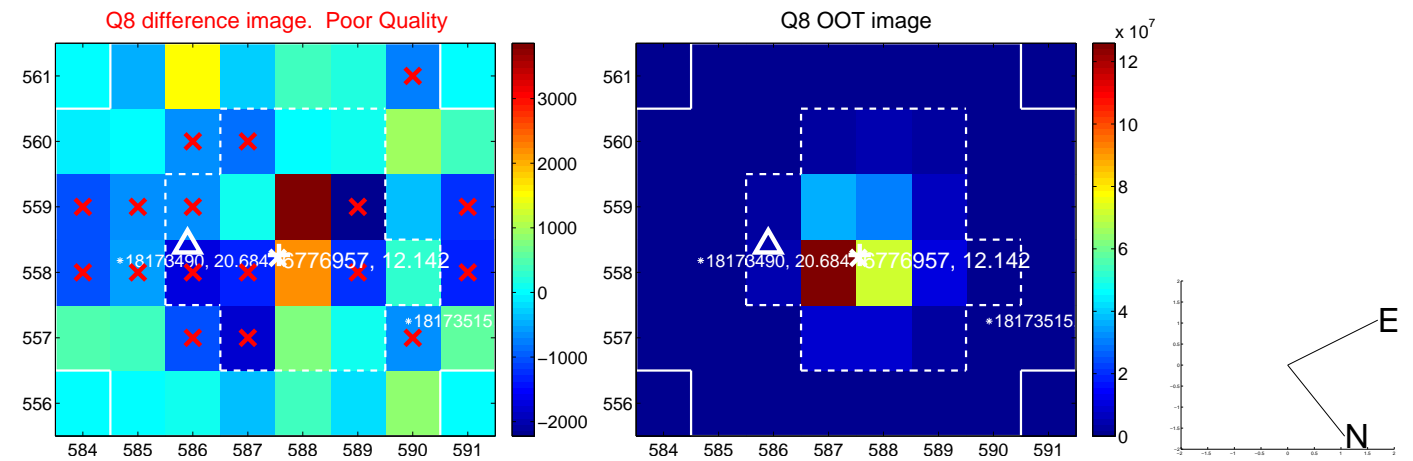
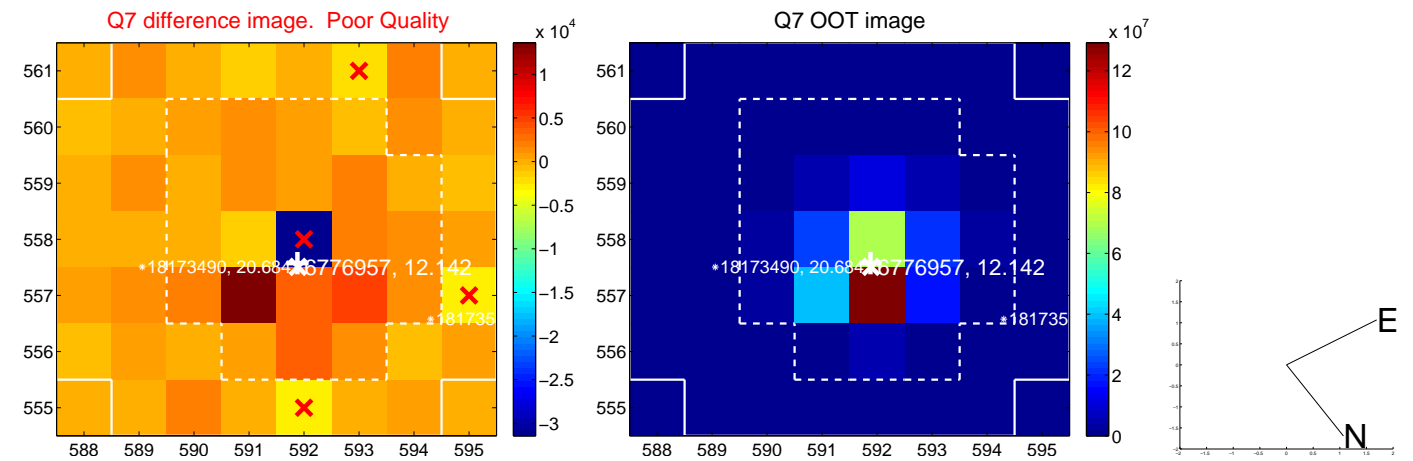
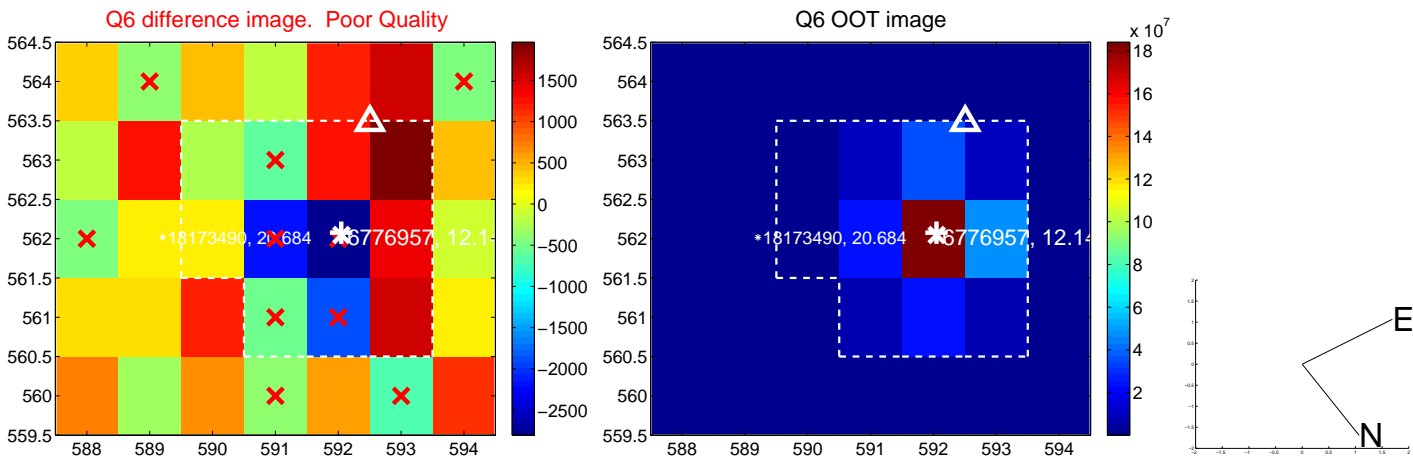
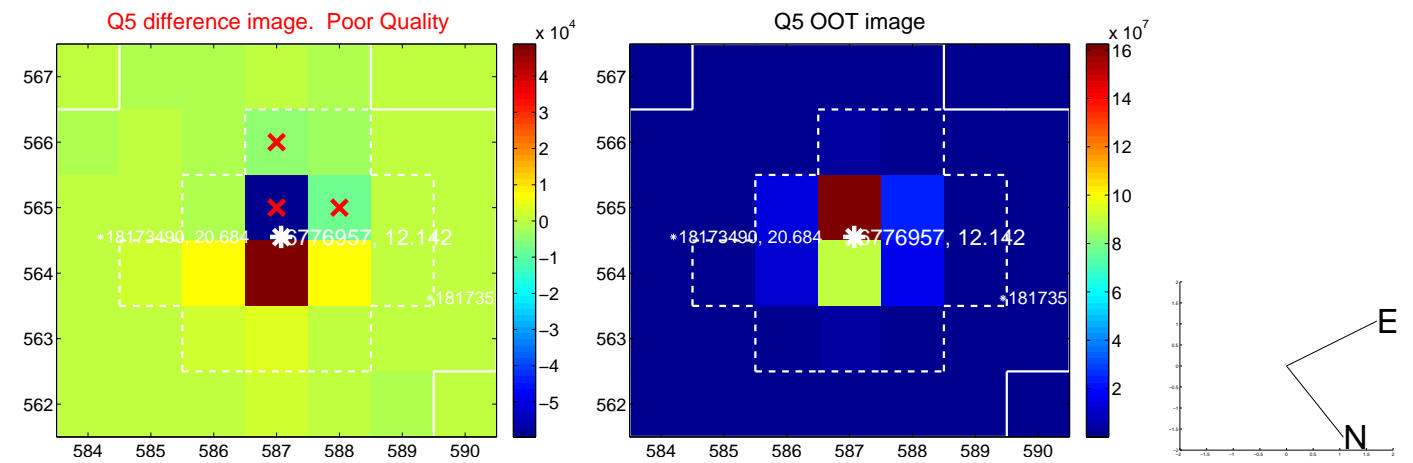
Q4 difference image. Poor Quality



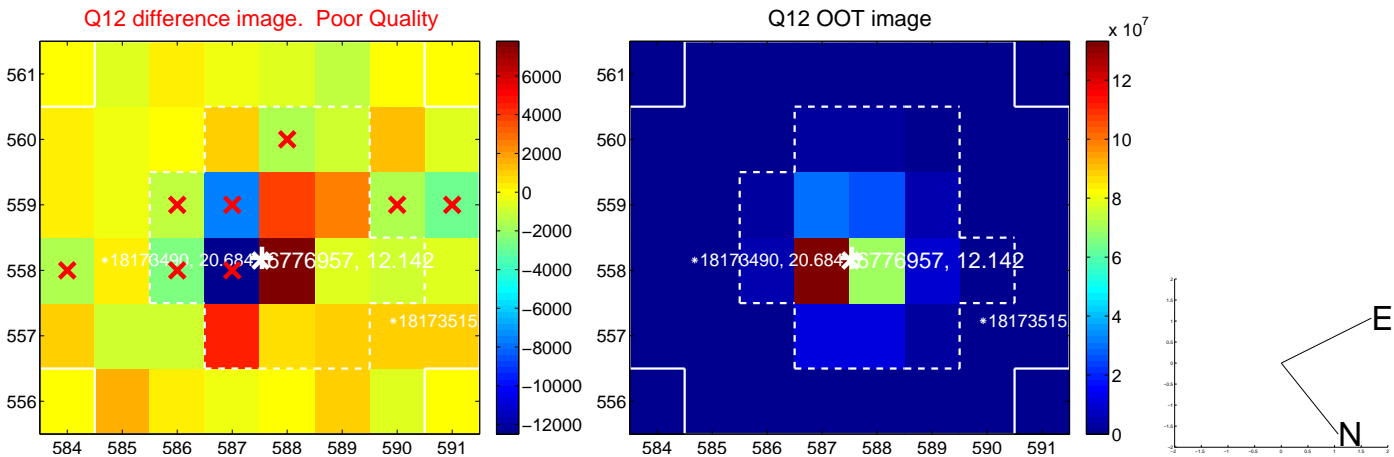
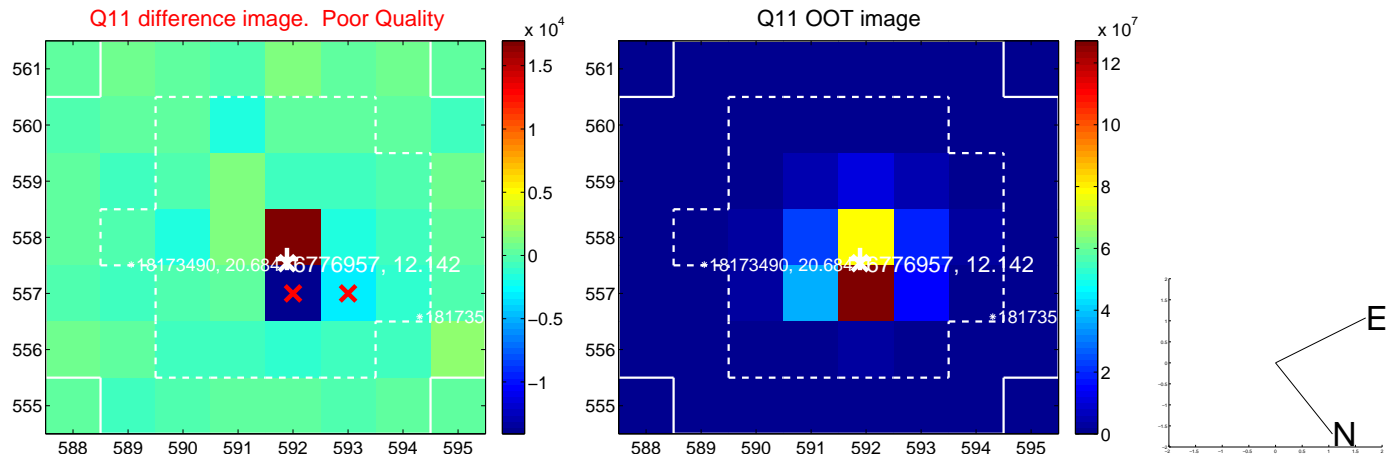
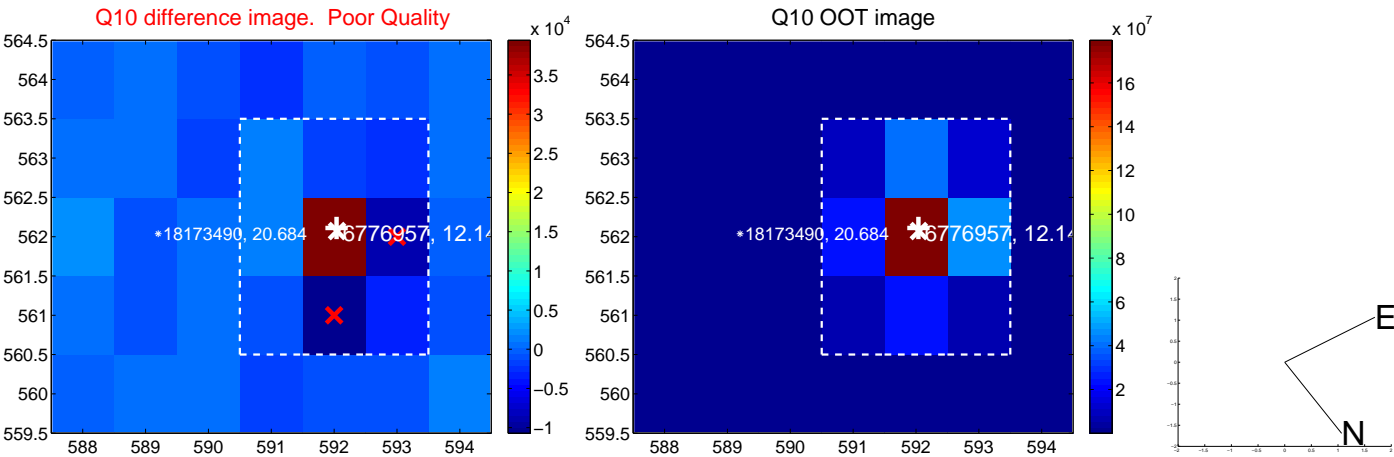
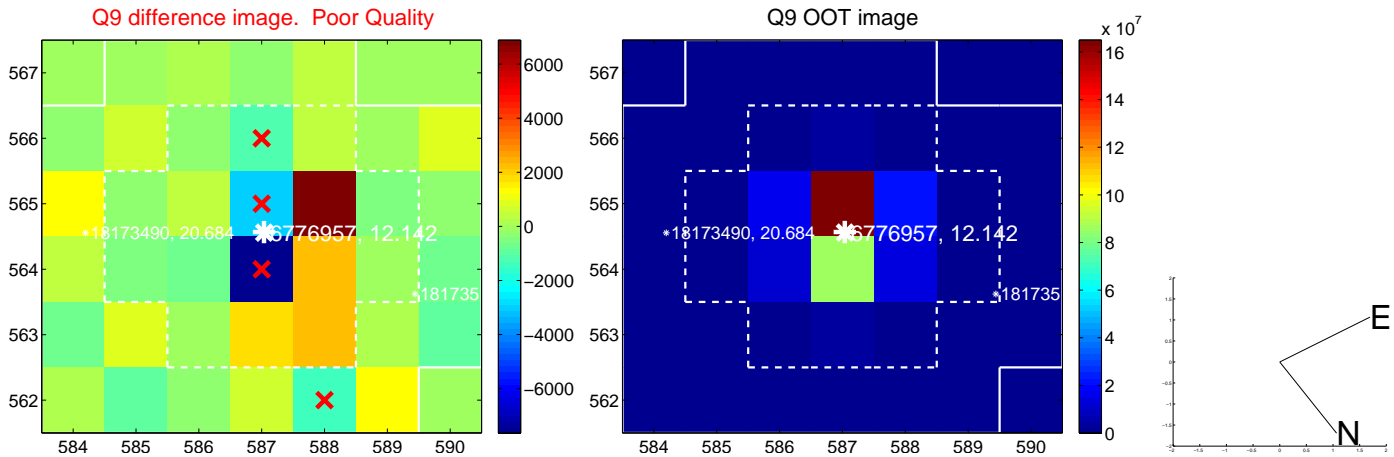
Q4 OOT image



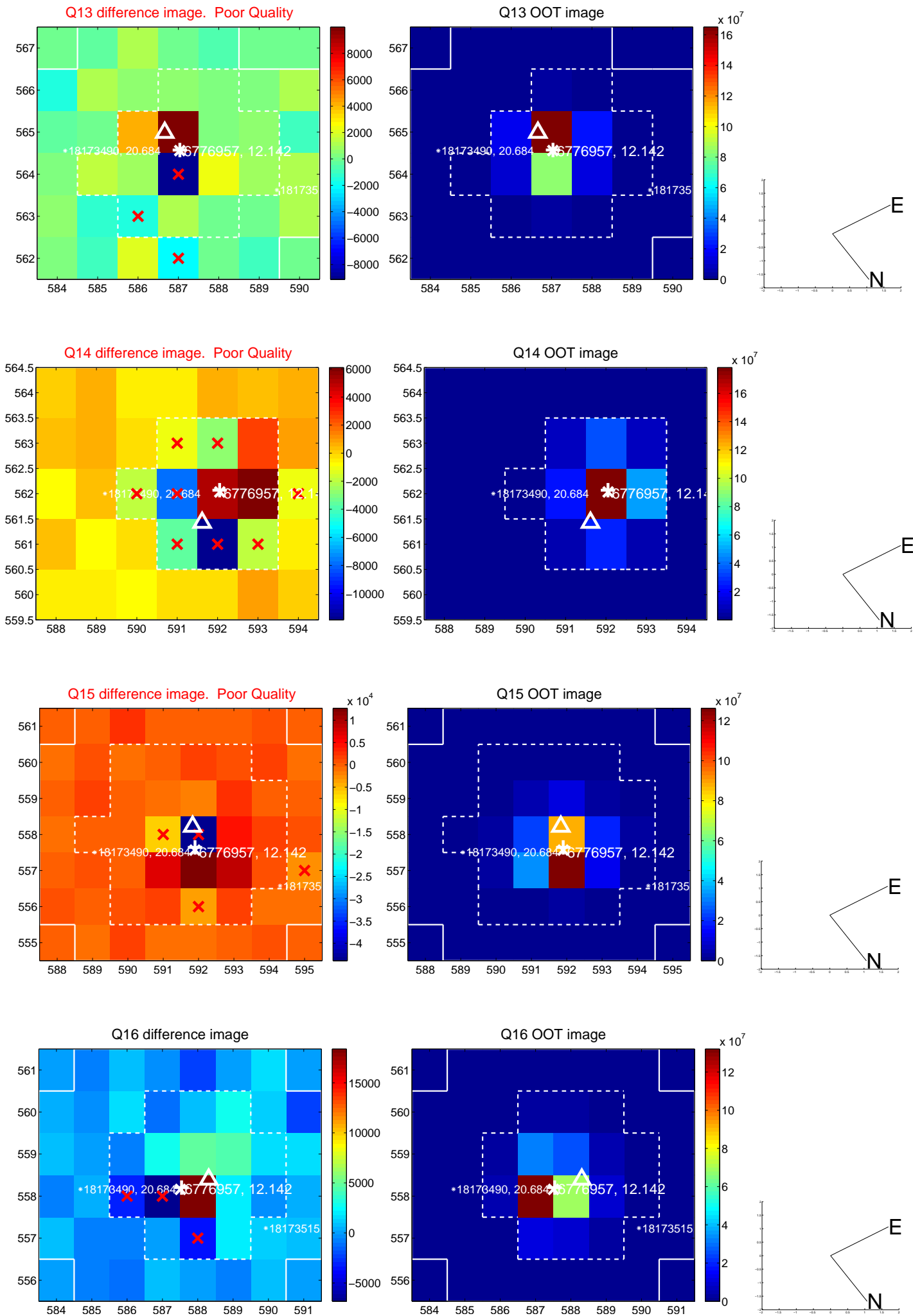
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



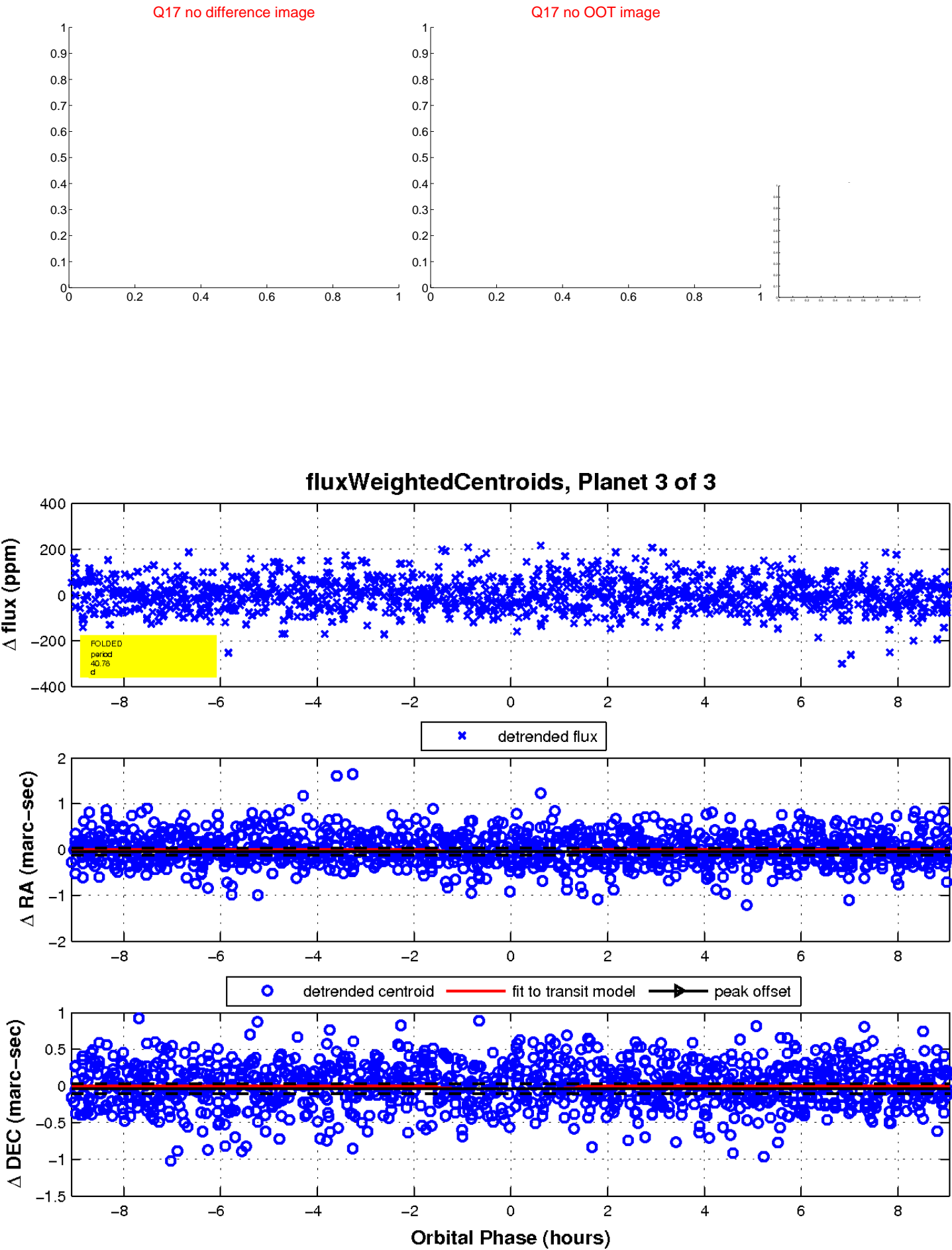
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

