

# KIC 010273384

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010273384-01	OBS	No	609.139974	332.673450	5081.3	2.263	19.8	12.3	2.66	6223	26.33	3.52
010273384-02	OBS	No	0.793536	131.649131	141.6	1.364	12.6	8.4	2.66	6223	3.45	24771.39
010273384-03	OBS	No	0.528422	131.737314	153.8	1.008	11.6	7.5	2.66	6223	3.92	42598.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010273384-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
010273384-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010273384-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

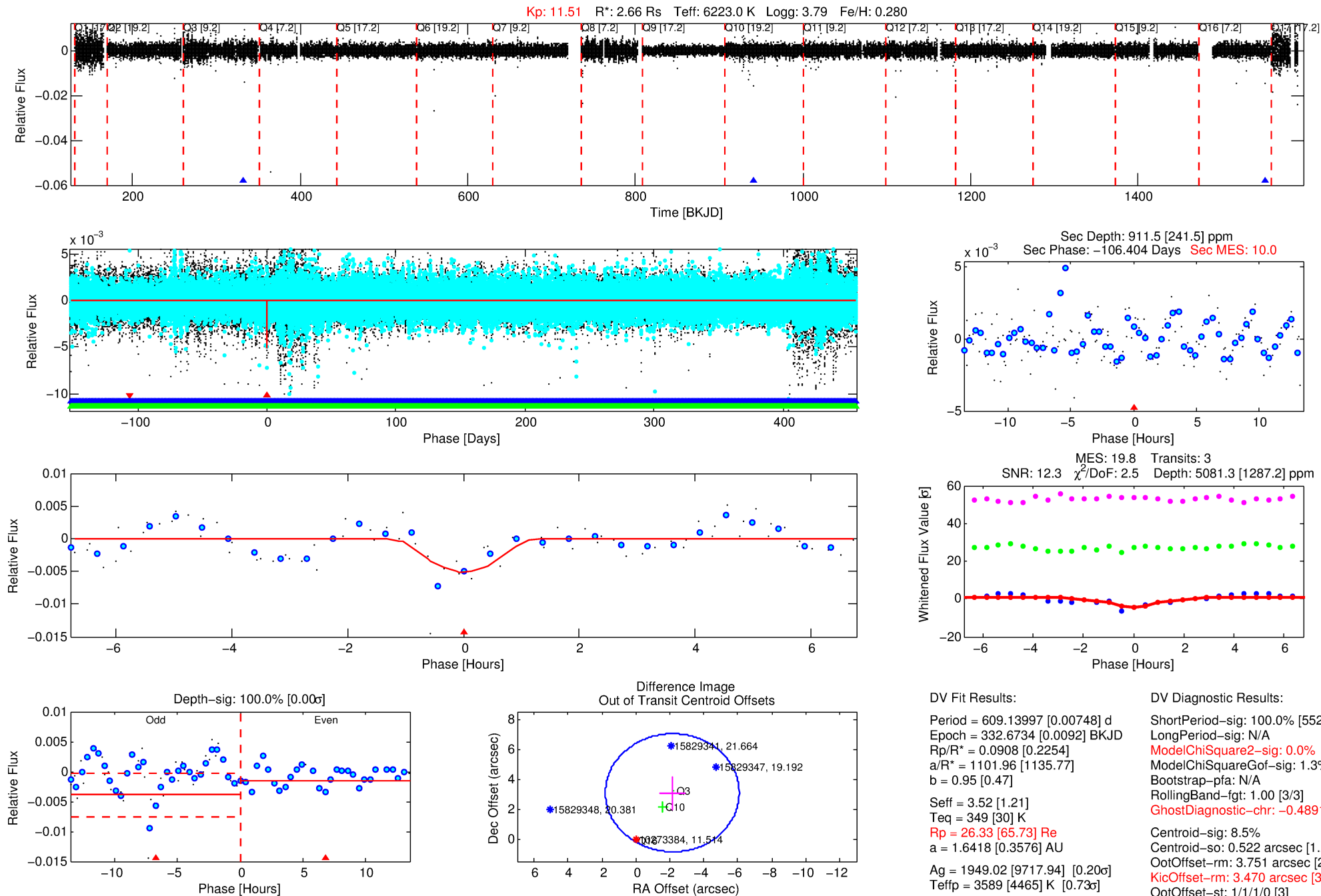
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010273384-01

No Significant Match Found

# DV One-Page Summary

KIC: 10273384 Candidate: 1 of 3 Period: 609.140 d



## DV Fit Results:

Period = 609.13997 [0.00748] d  
Epoch = 332.6734 [0.0092] BKJD  
Rp/R\* = 0.0908 [0.2254]  
a/R\* = 1101.96 [1135.77]  
b = 0.95 [0.47]  
Seff = 3.52 [1.21]  
Teq = 349 [30] K  
Rp = 26.33 [65.73] Re  
a = 1.6418 [0.3576] AU  
Ag = 1949.02 [9717.94] [0.20σ]  
Teffp = 3589 [4465] K [0.73σ]

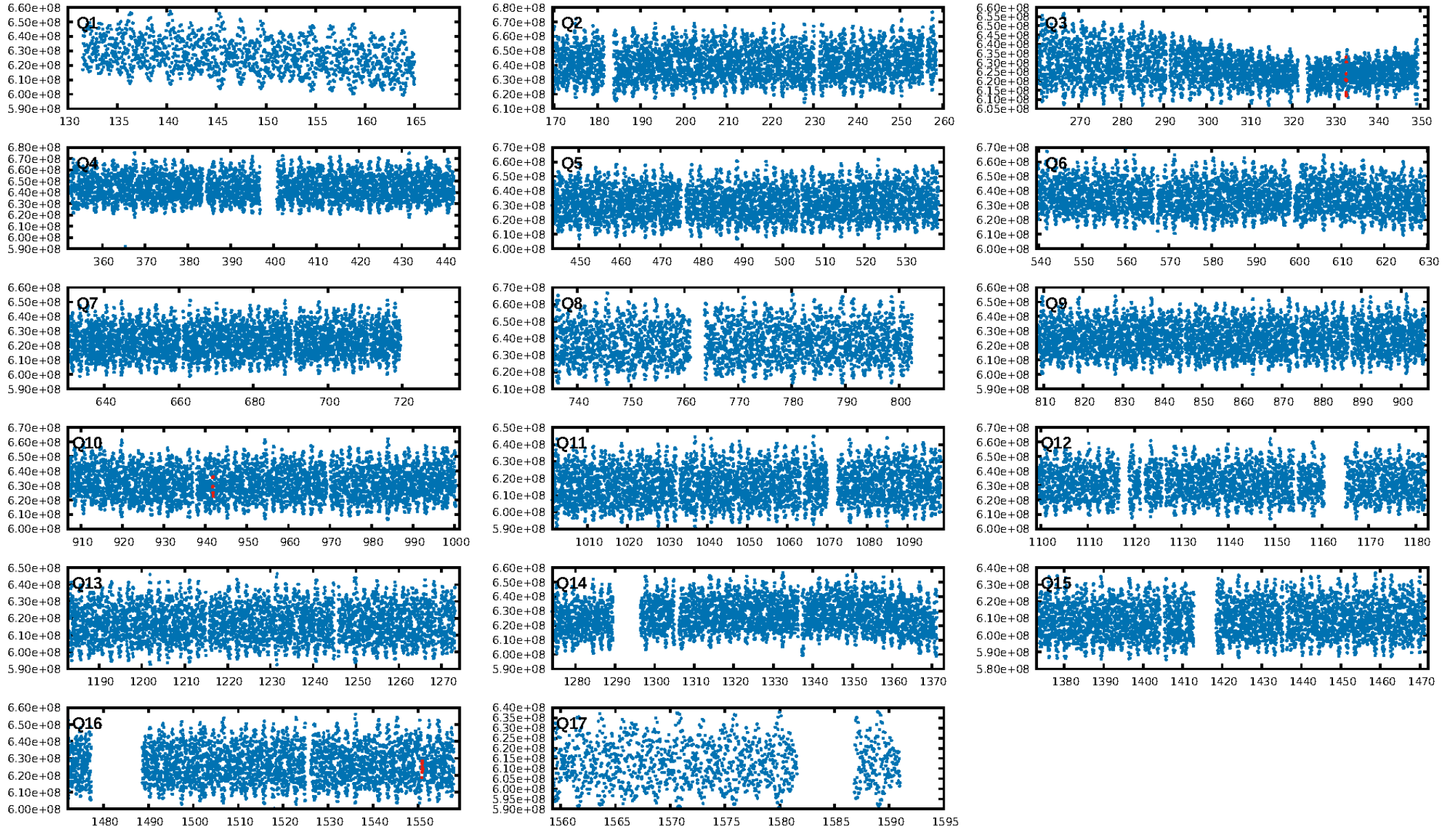
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5525.36σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 1.3%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.4891  
Centroid-sig: 8.5%  
Centroid-so: 0.522 arcsec [1.26σ]  
OotOffset-rm: 3.751 arcsec [2.85σ]  
KicOffset-rm: 3.470 arcsec [3.96σ]  
OotOffset-st: 1/1/1/0 [3]  
KicOffset-st: 1/1/1/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 0.00 [0/3]

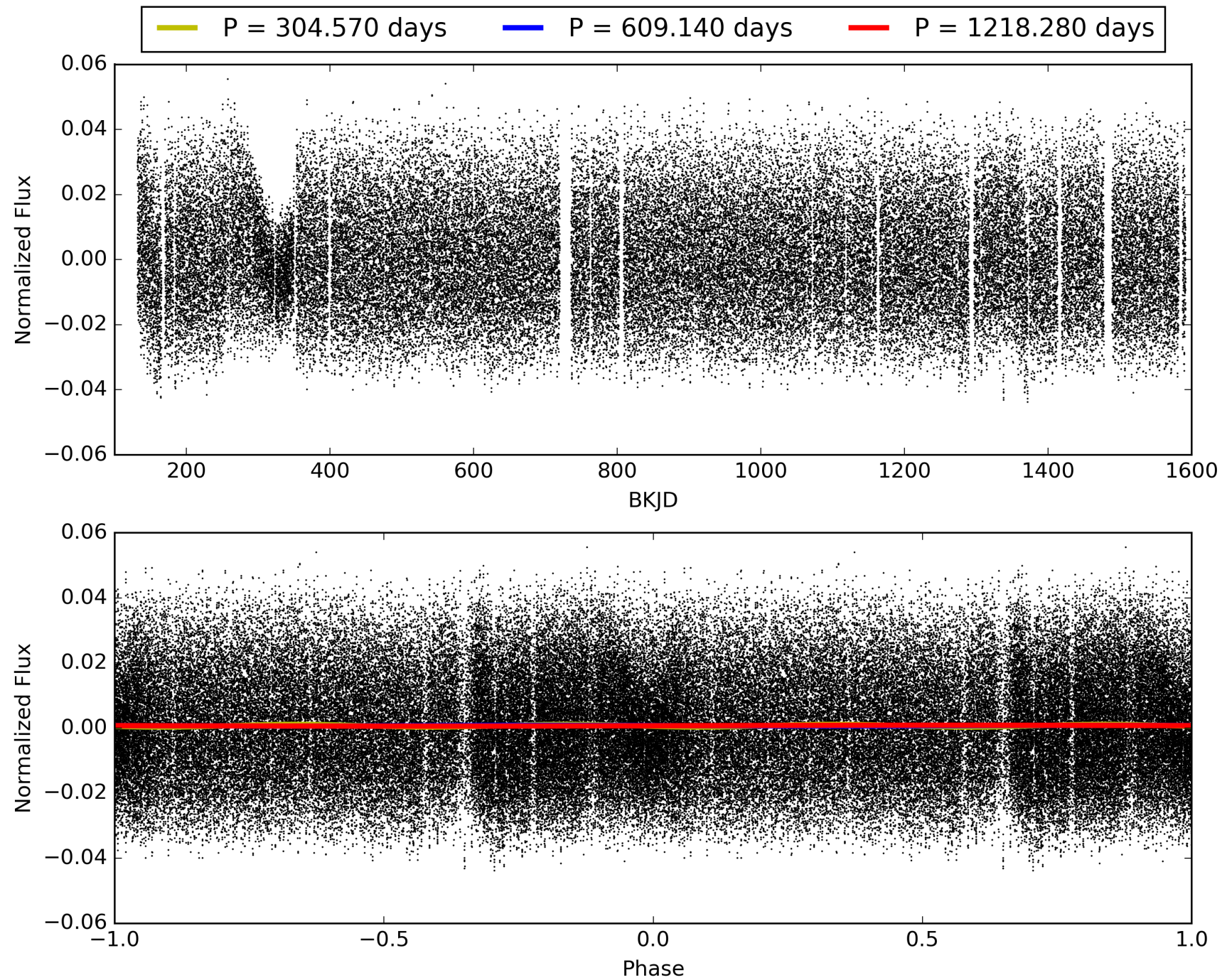
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:17:11 Z

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

# TCE 010273384-01, PDC Light Curves



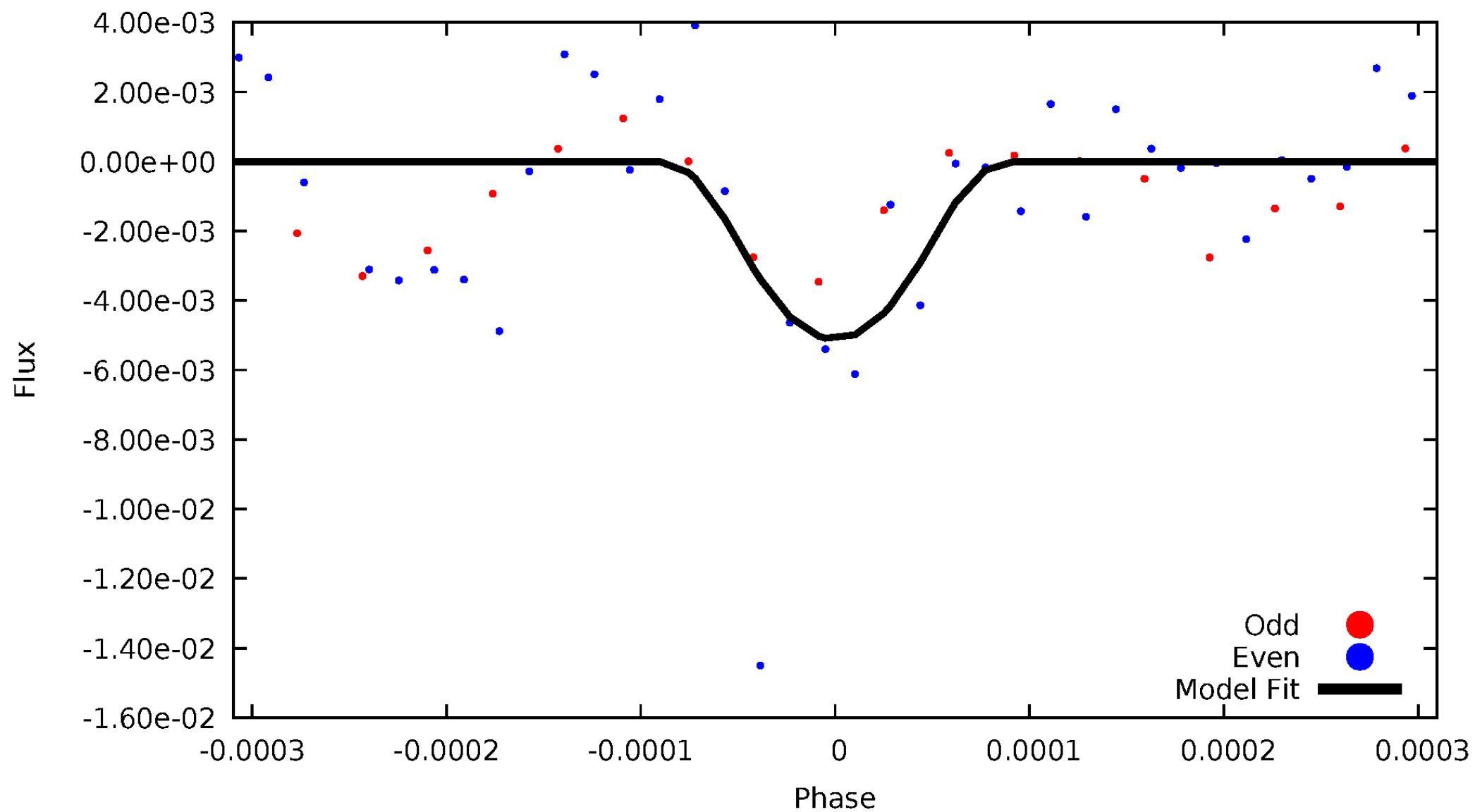
# TCE 010273384-01





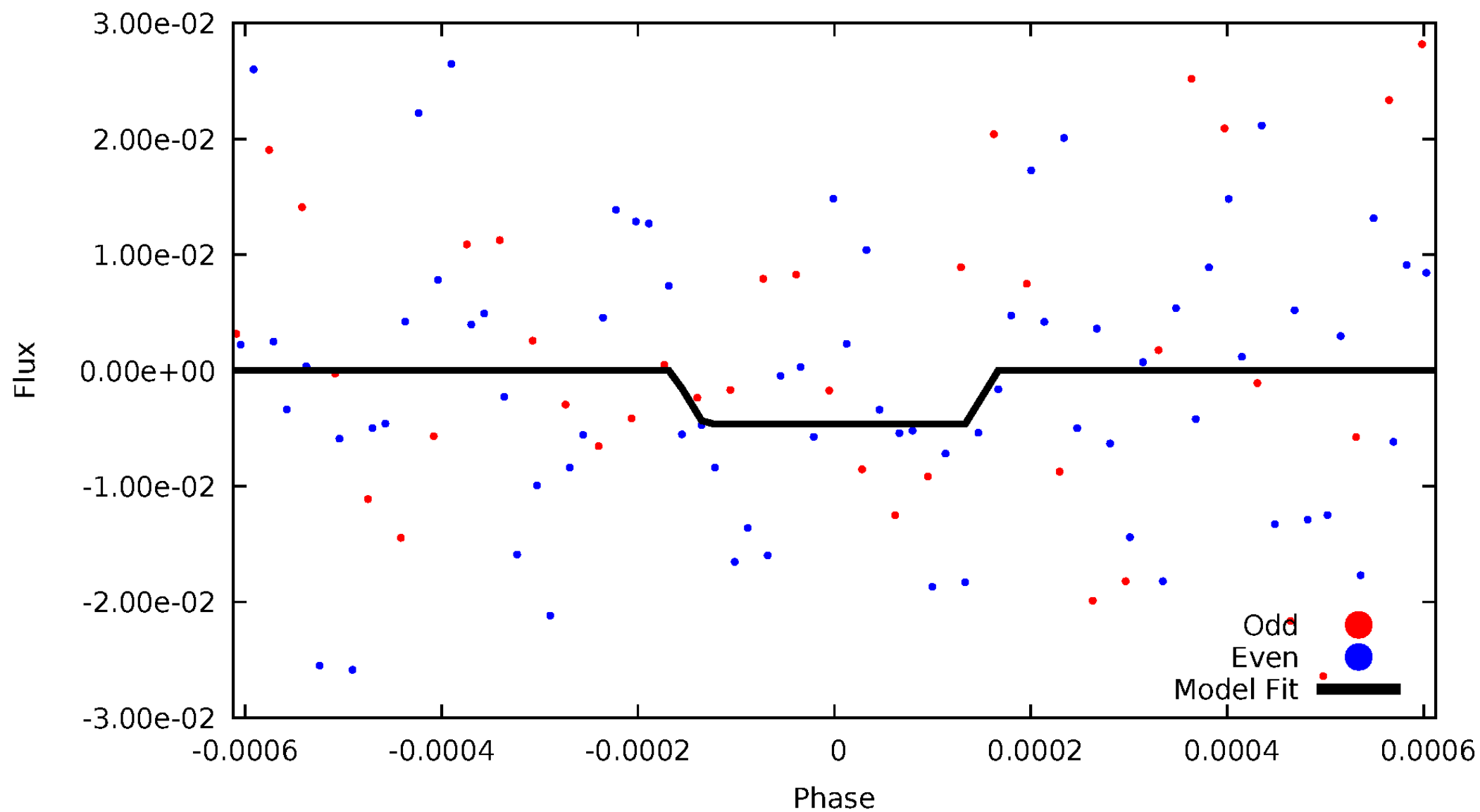
# DV Odd/Even

TCE 010273384-01



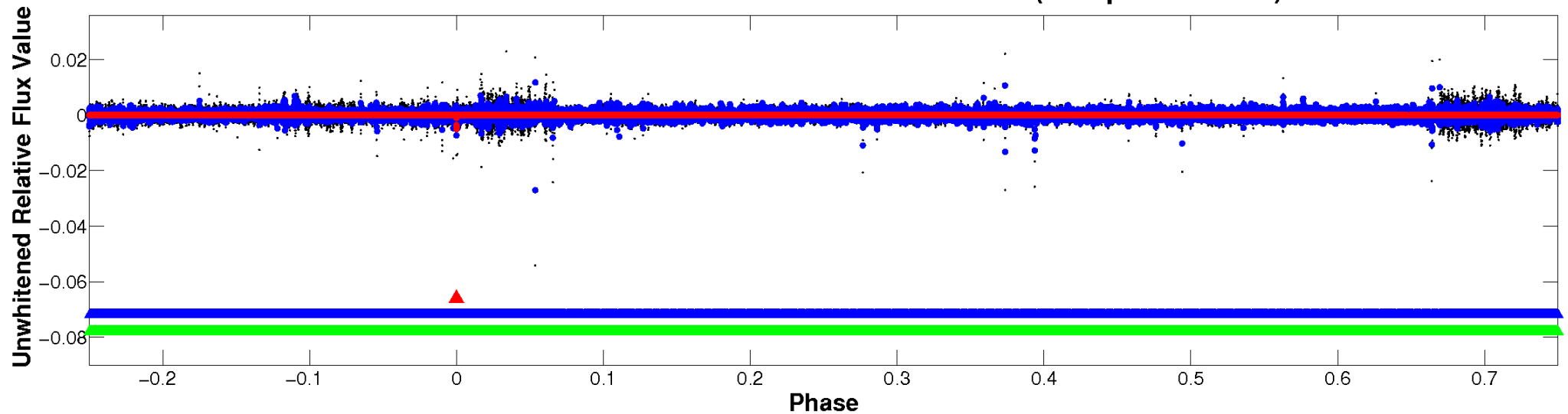
# ALT Odd/Even

TCE 010273384-01

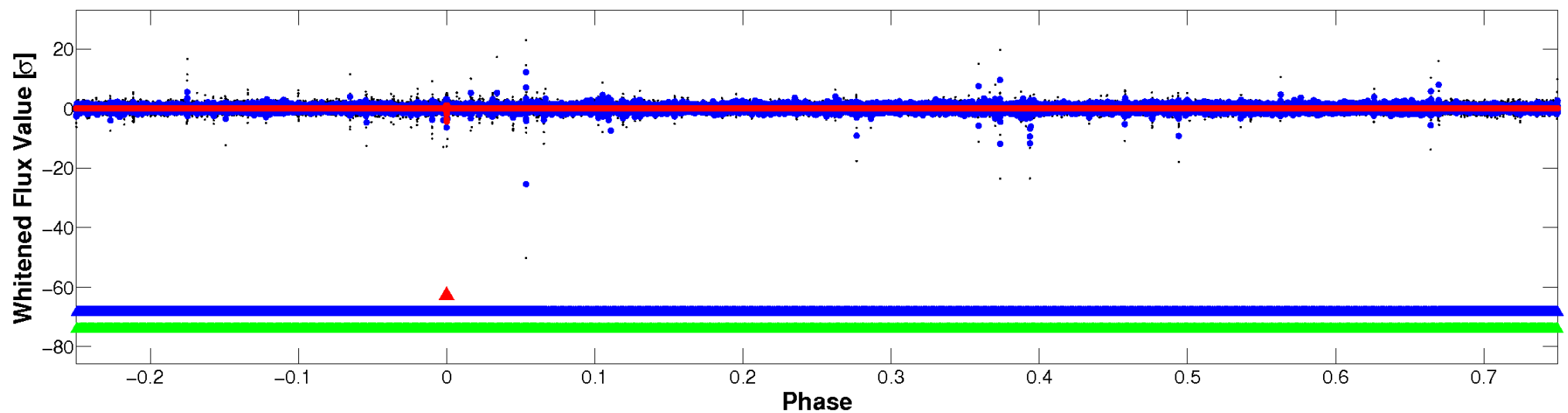


# Non-Whitened Vs. Whitened Light Curve

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

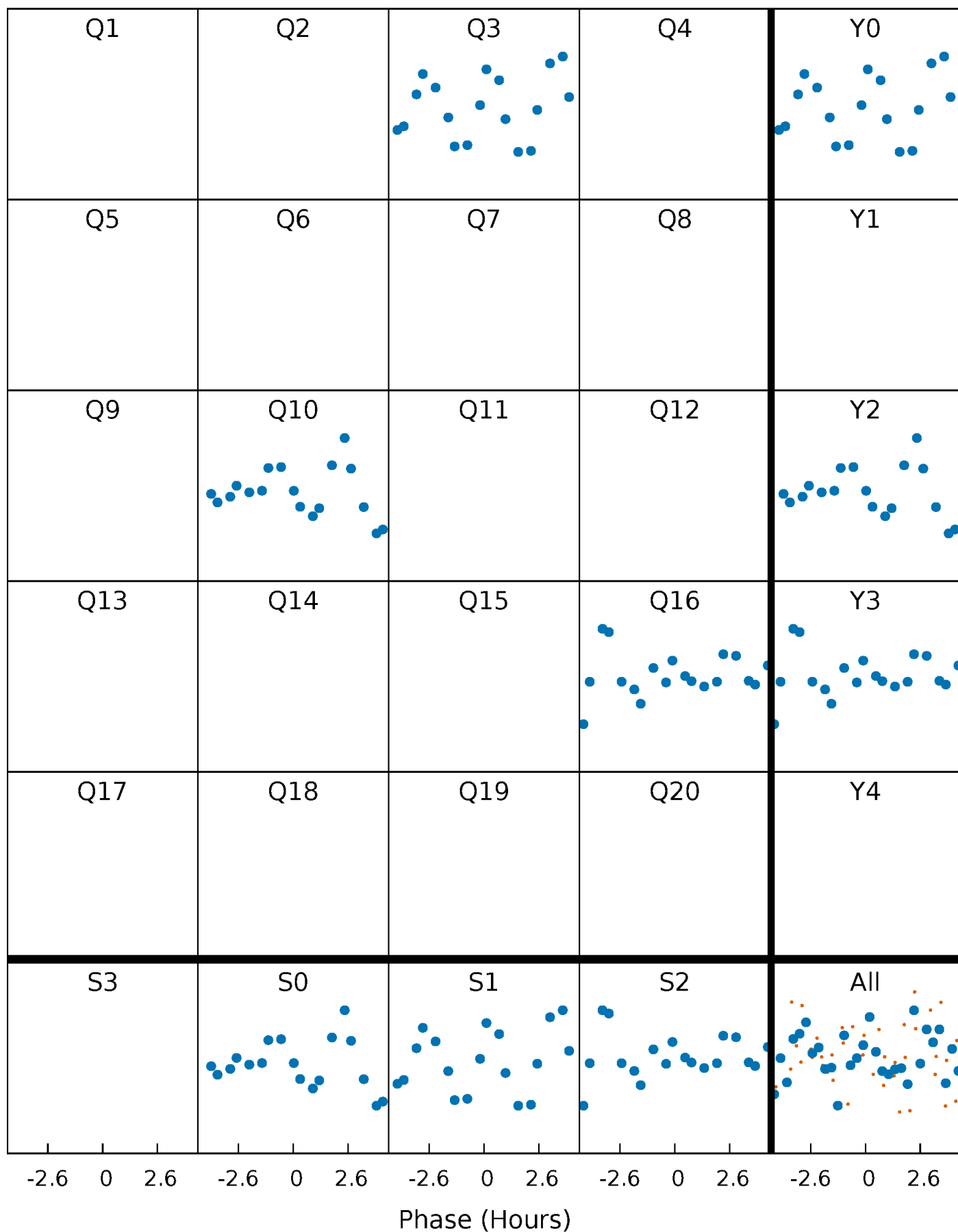


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

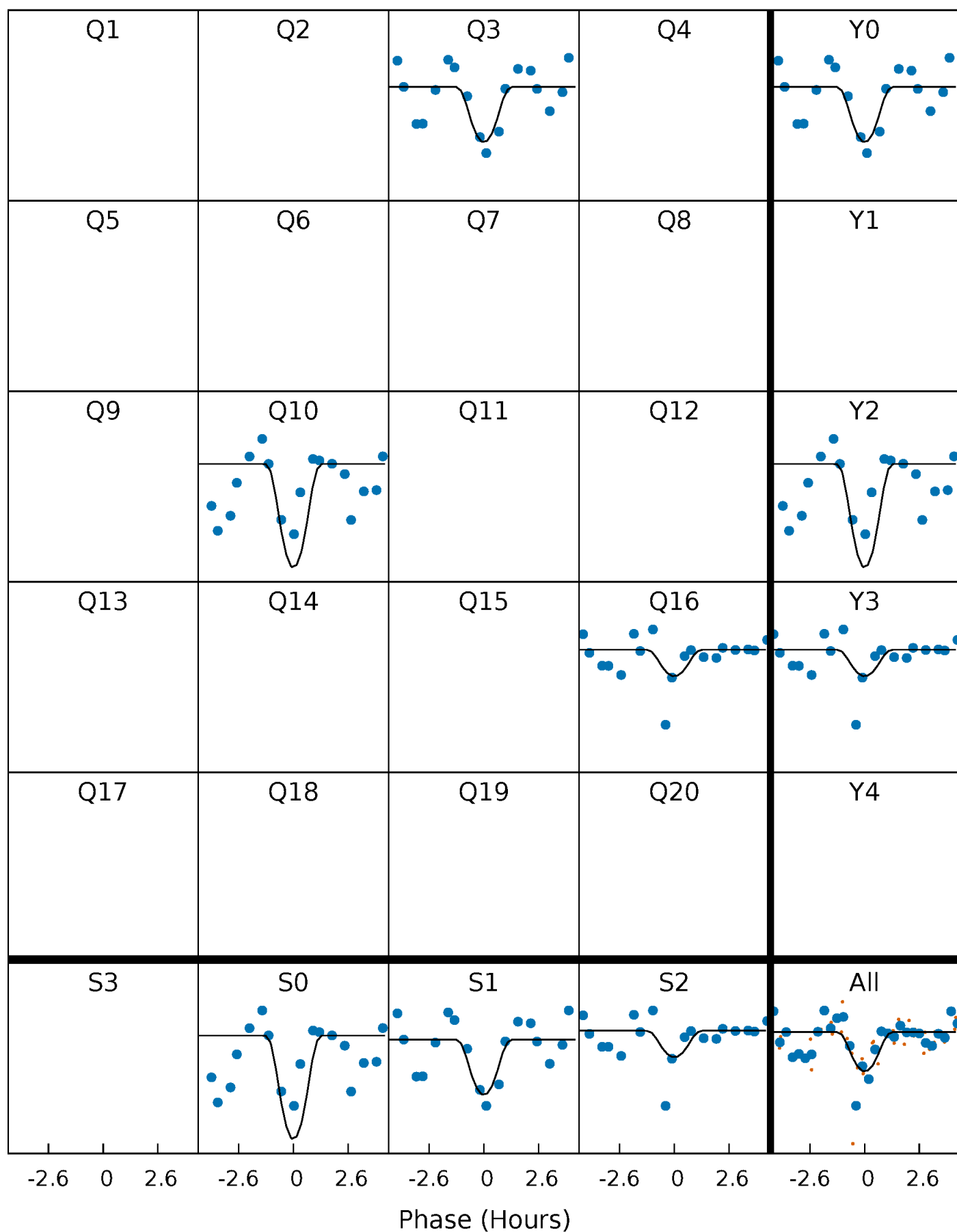
TCE 010273384-01 P=609.139974 Days  $T_0=332.673450$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 010273384-01 P=609.139974 Days  $T_0=332.673450$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

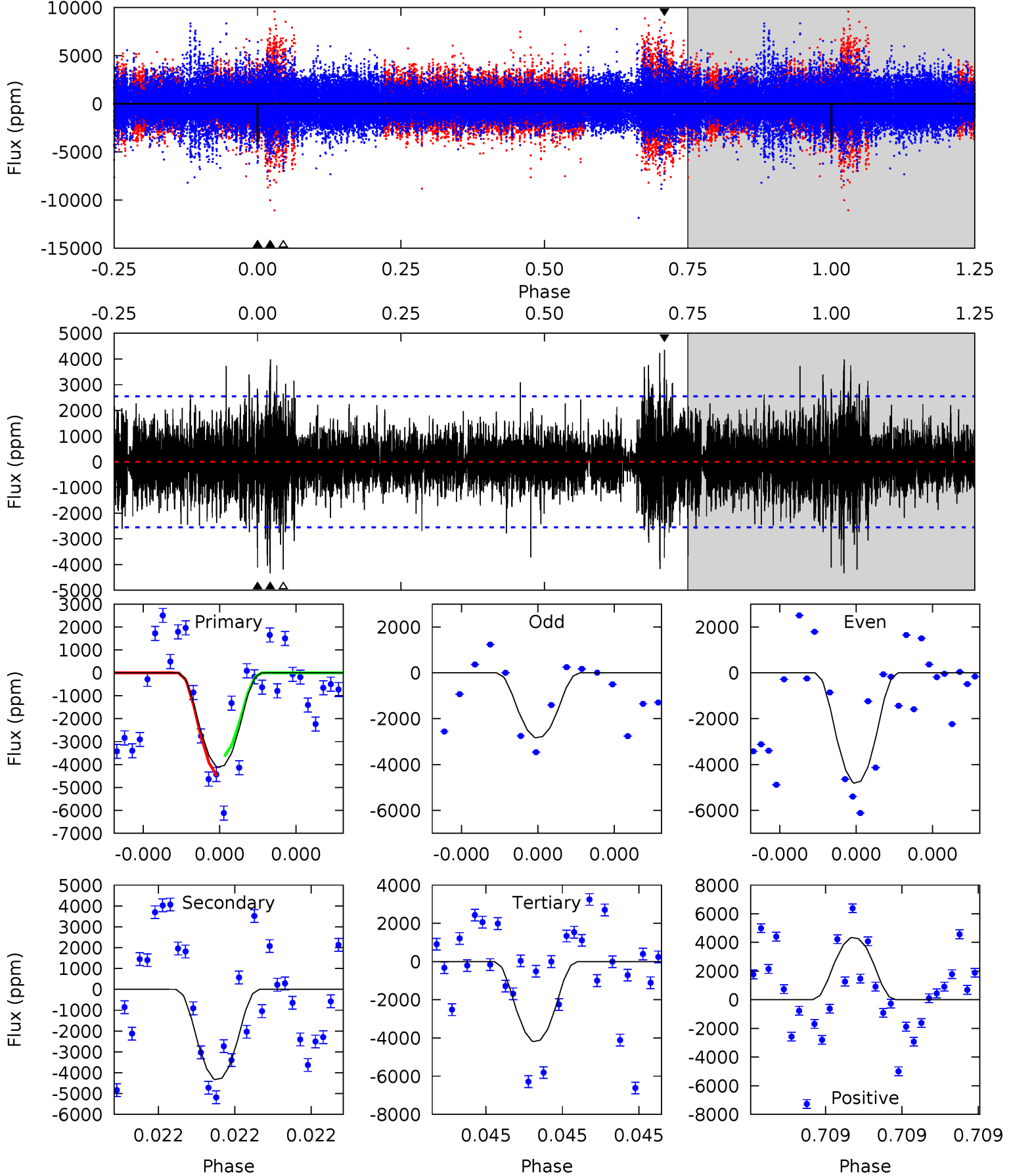
TCE 010273384-01 P=609.131235 Days  $T_0=332.680281$  (BKJD)



# DV Model-Shift Uniqueness Test

010273384-01, P = 609.139974 Days, E = 332.673450 Days

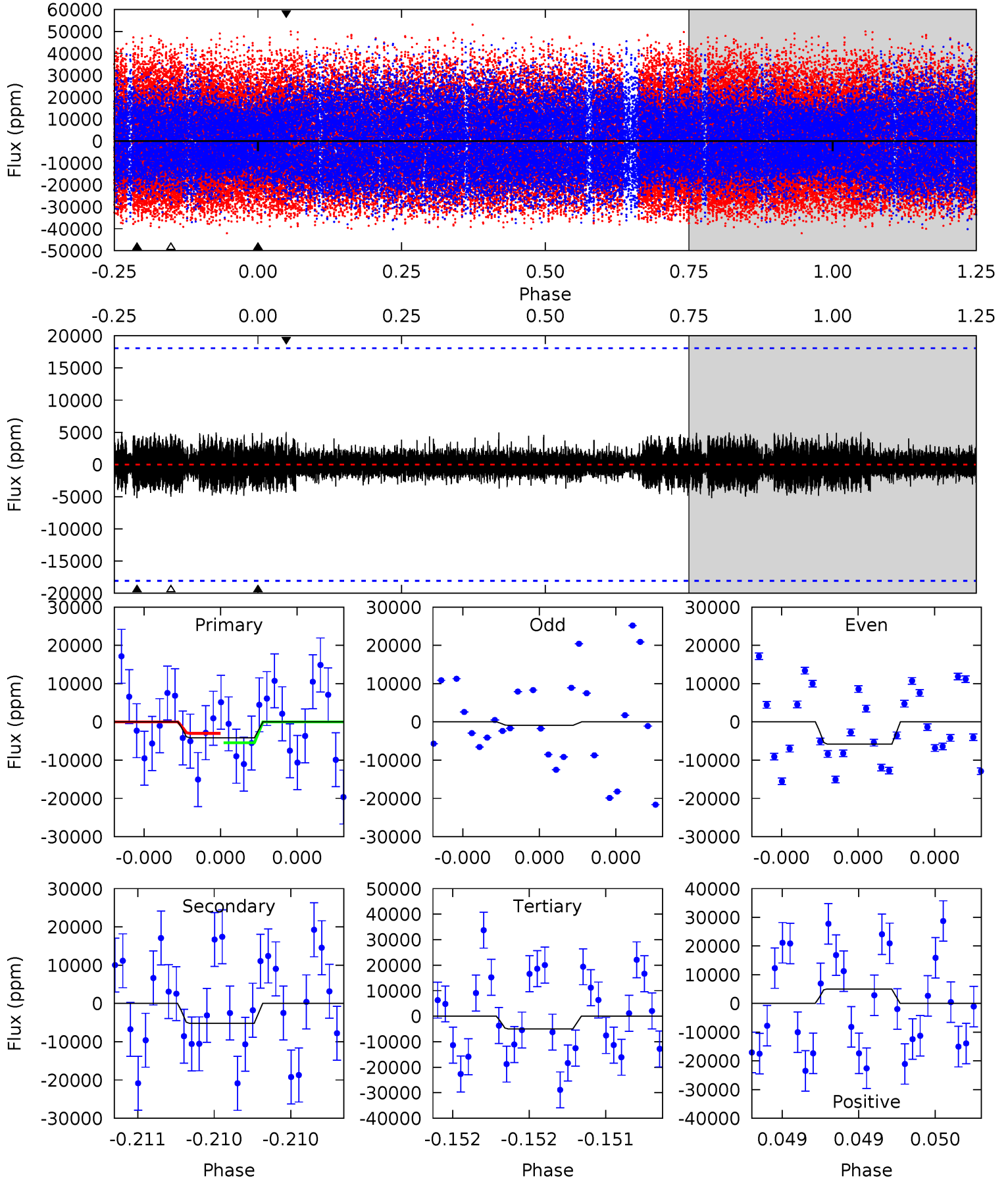
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.30	9.80	9.47	9.82	5.76	3.76	1.69	-0.17	-0.52	0.33	-0.02	2.13	0.91	0.50	0.94



# Alt Model-Shift Uniqueness Test

010273384-01, P = 609.131235 Days, E = 332.680281 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.30	1.63	1.56	1.58	5.66	3.61	0.47	-0.25	-0.28	0.07	0.05	0.71	0.75	0.49	0.38





### Stellar Parameters For KIC 010273384

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6223^{+111}_{-124}$	$3.790^{+0.189}_{-0.081}$	$0.280^{+0.150}_{-0.150}$	$2.659^{+0.432}_{-0.648}$	$1.589^{+0.155}_{-0.190}$	$0.119^{+0.118}_{-0.032}$
	+2%/-2%	+5%/-2%	+54%/-54%	+16%/-24%	+10%/-12%	+99%/-27%
Source	SPE4	SPE4	SPE4	DSEP		

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

### Secondary Eclipse Parameters for KIC 010273384-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-4335 \pm 443$	$55.24^{+50.09}_{-38.99}$	$483^{+21}_{-30}$	$3945^{+2494}_{-748}$	$2183^{+21679}_{-1599}$
Alt.	$-5205 \pm 3193$	$52.32^{+53.18}_{-37.24}$	$483^{+21}_{-28}$	$4074^{+3324}_{-1001}$	$2487^{+30769}_{-2072}$

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

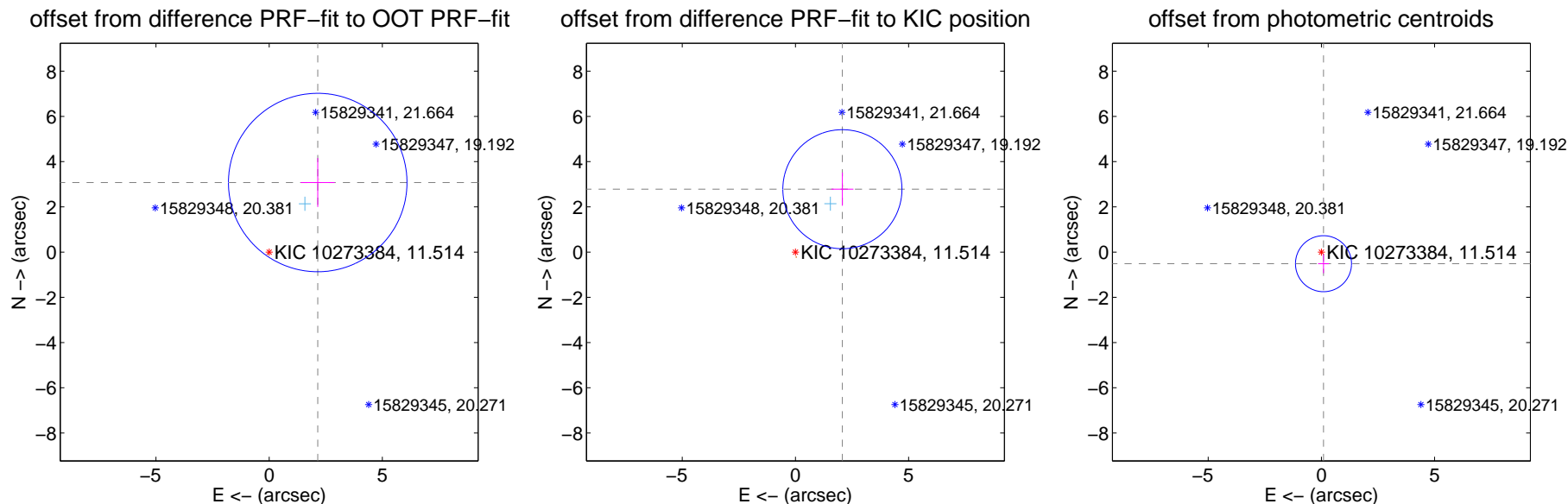
## DV Centroid Data

Supplemental centroid analysis for 010273384-01. **Kepler magnitude: 11.51.** Transit SNR 12.31

**There are 1 quarters with good PRF difference image offsets**

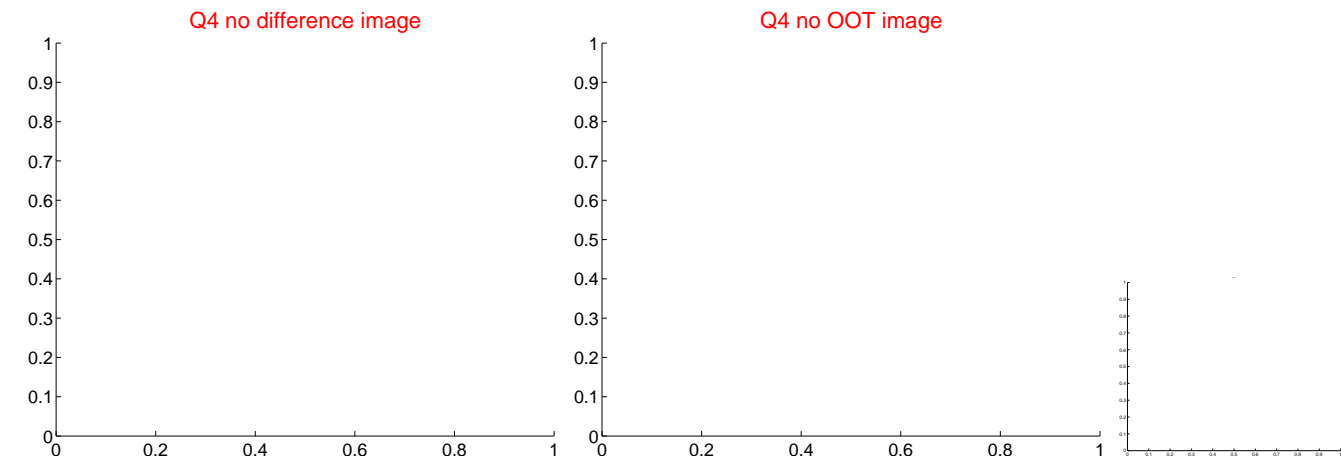
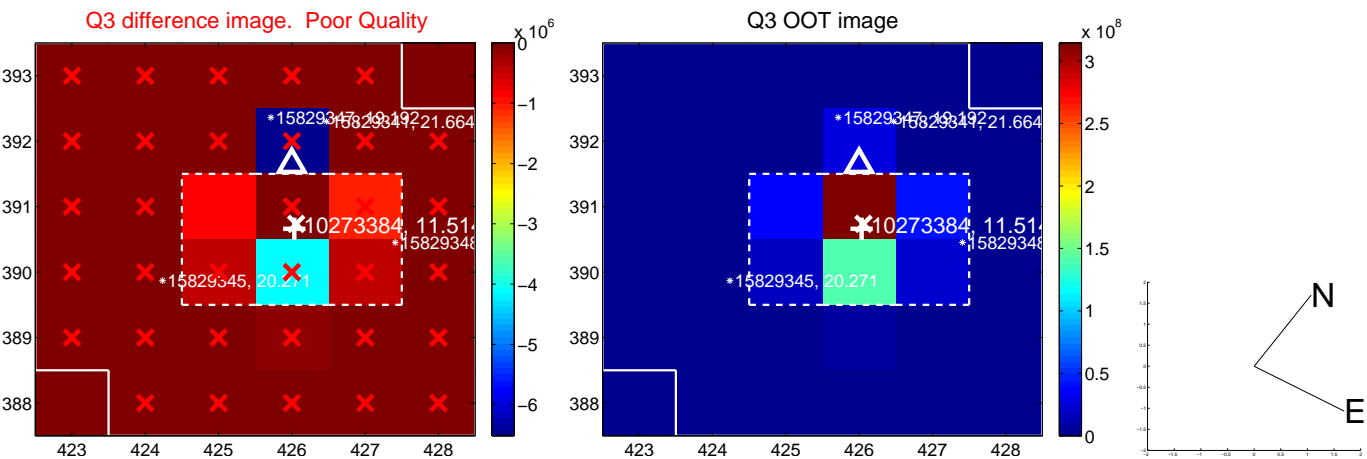
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.751 \pm 1.315$	2.85	$-2.146 \pm 0.750$	$3.076 \pm 1.082$
PRF-fit source offset from KIC position	<b><math>3.470 \pm 0.877</math></b>	<b>3.96</b>	$-2.075 \pm 0.488$	$2.781 \pm 0.734$
photometric centroid source offset	$0.52 \pm 0.41$	1.26	$-0.09 \pm 0.24$	$-0.51 \pm 0.42$



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.

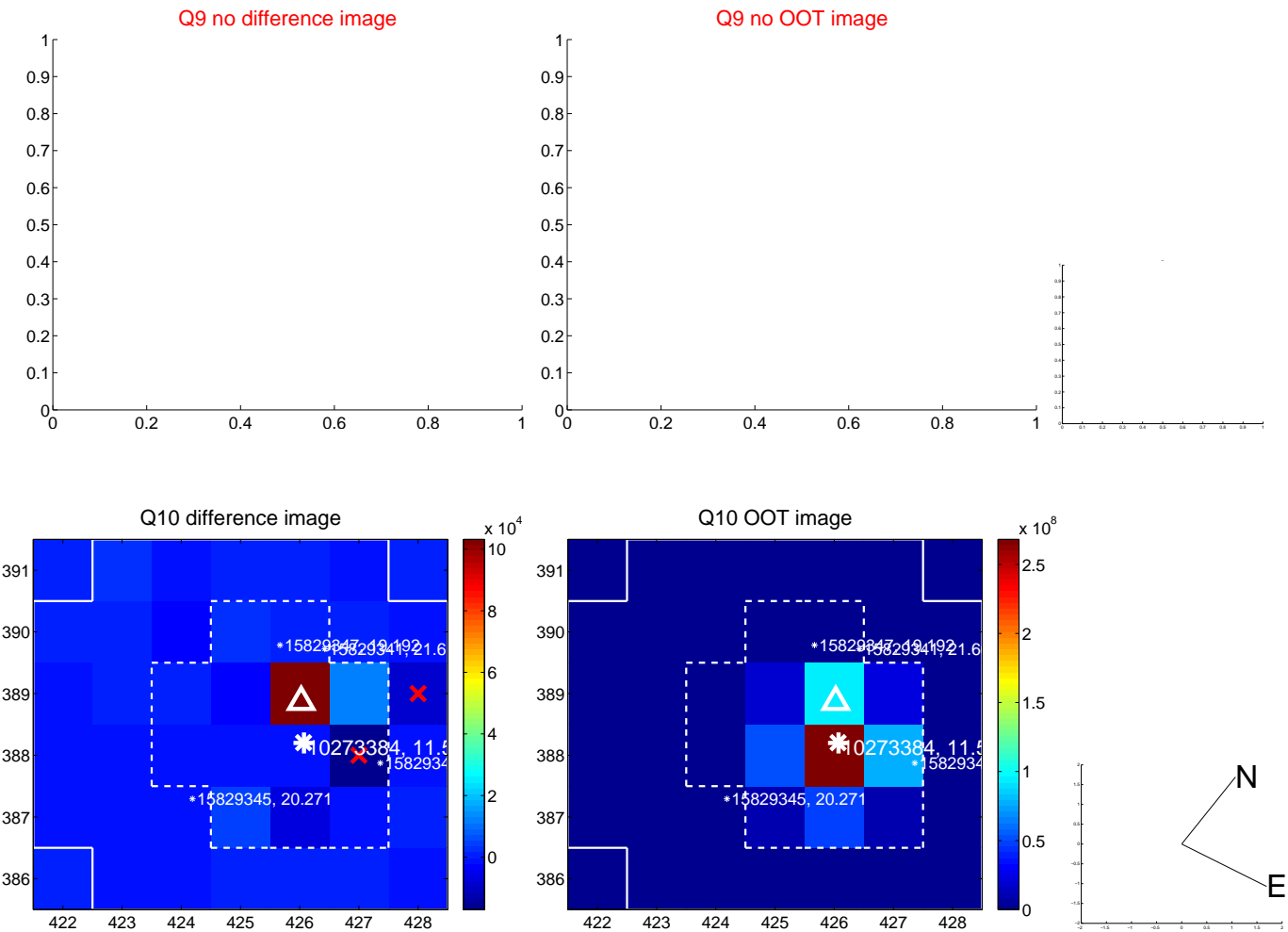


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

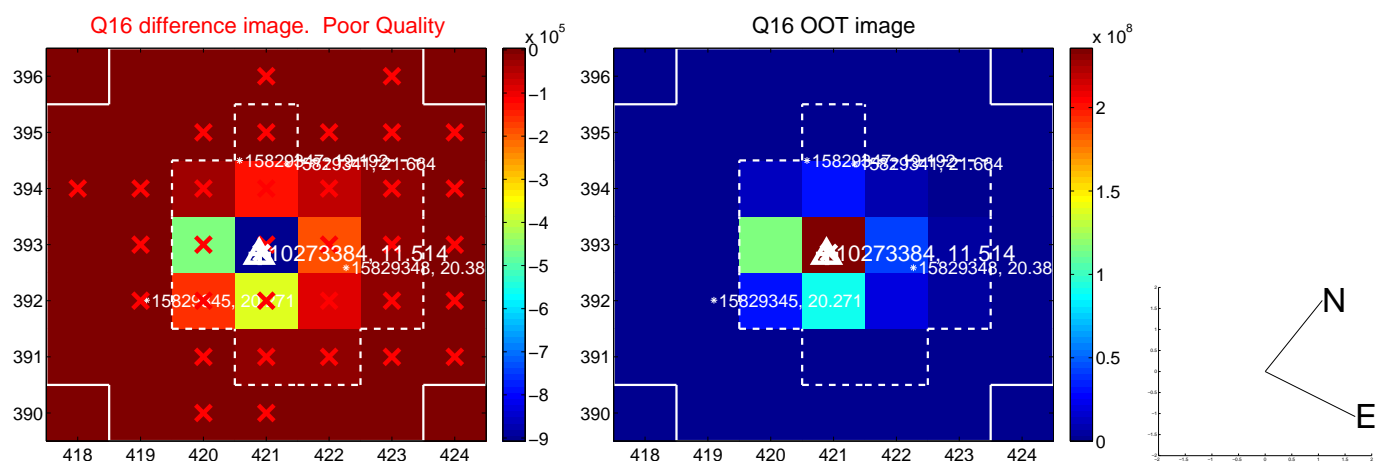




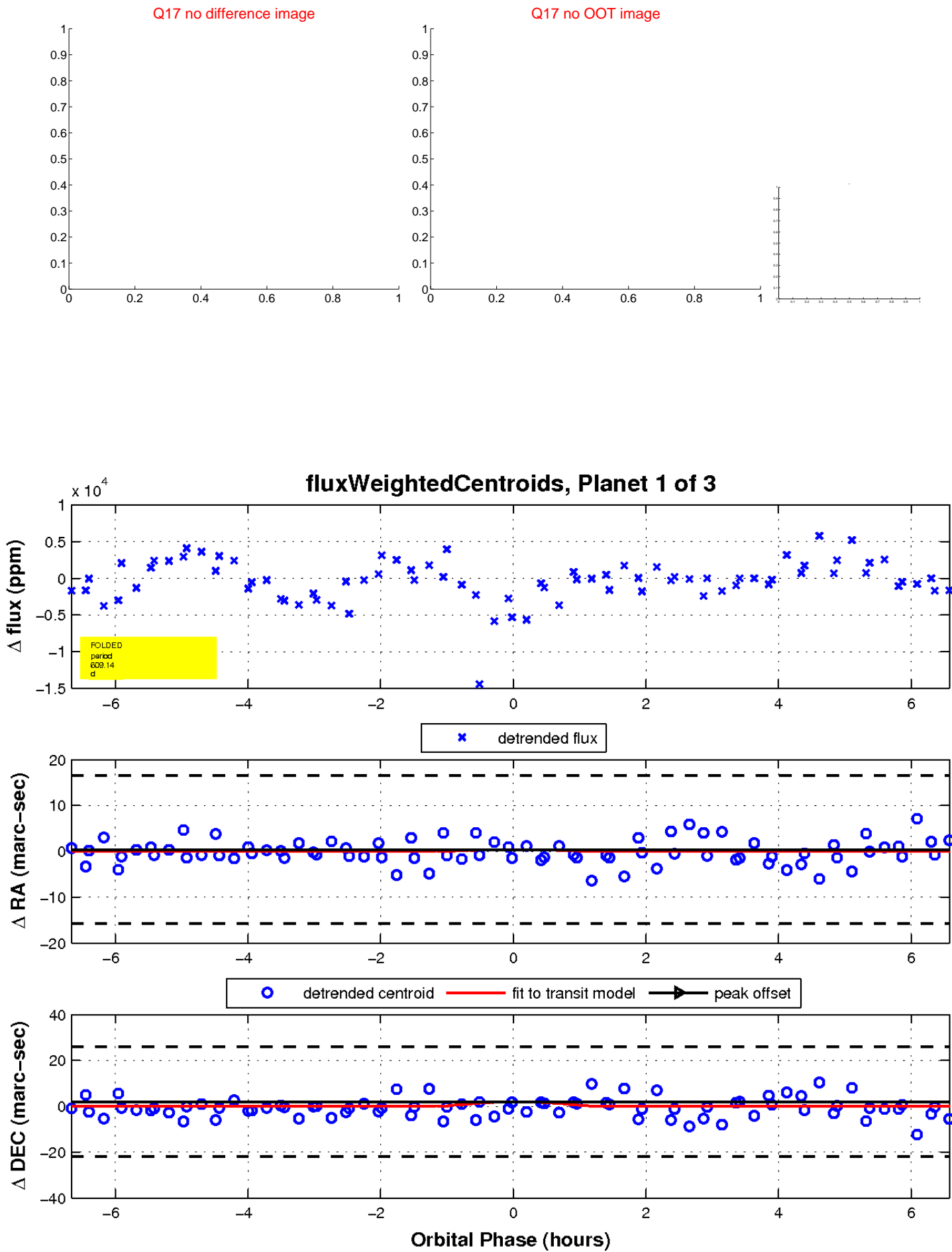
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

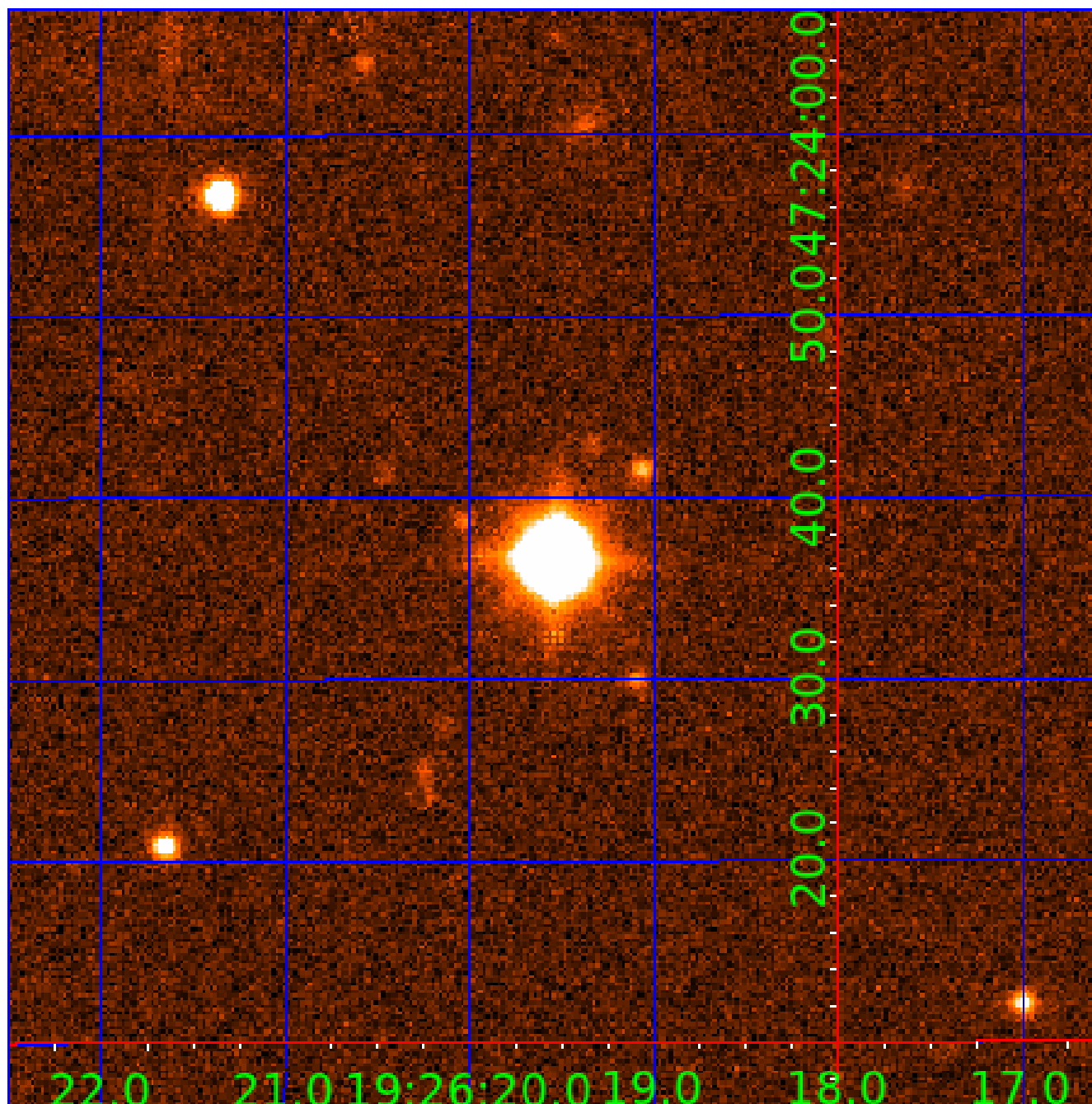


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 010273384

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010273384-01	OBS	No	609.139974	332.673450	5081.3	2.263	19.8	12.3	2.66	6223	26.33	3.52
010273384-02	OBS	No	0.793536	131.649131	141.6	1.364	12.6	8.4	2.66	6223	3.45	24771.39
010273384-03	OBS	No	0.528422	131.737314	153.8	1.008	11.6	7.5	2.66	6223	3.92	42598.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010273384-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
010273384-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010273384-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

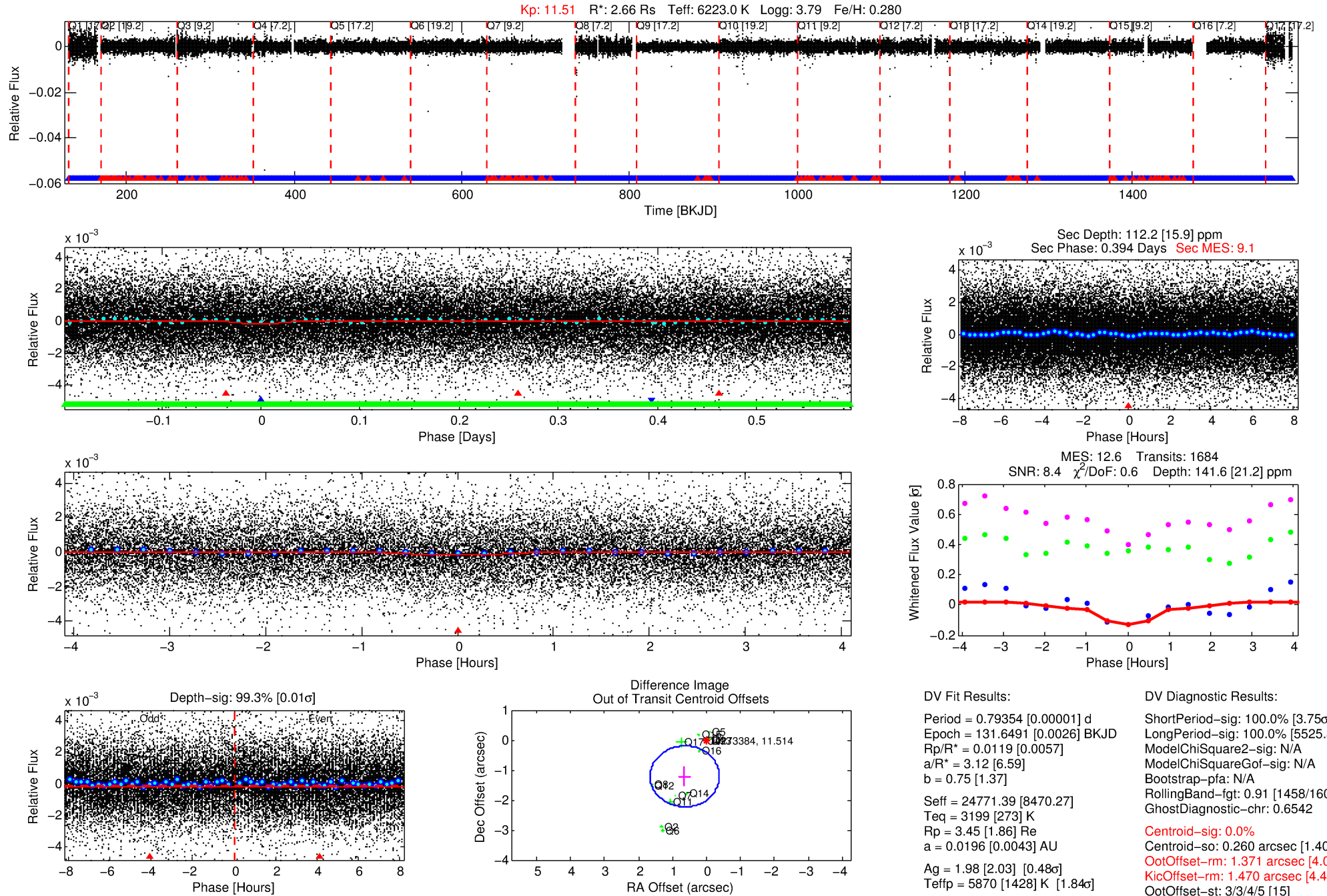
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010273384-02

No Significant Match Found

# DV One-Page Summary

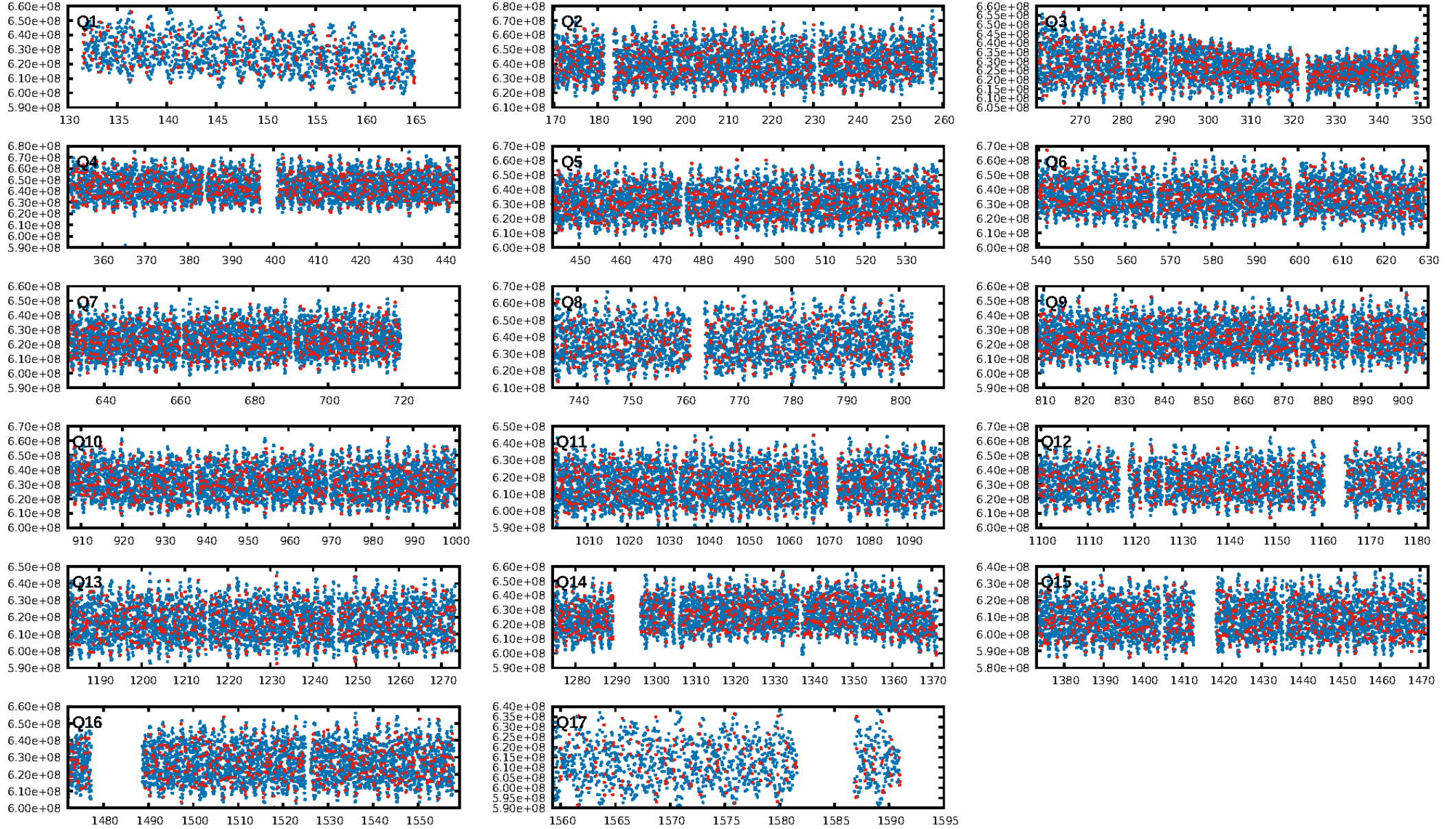
KIC: 10273384 Candidate: 2 of 3 Period: 0.794 d



Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:17:19 Z

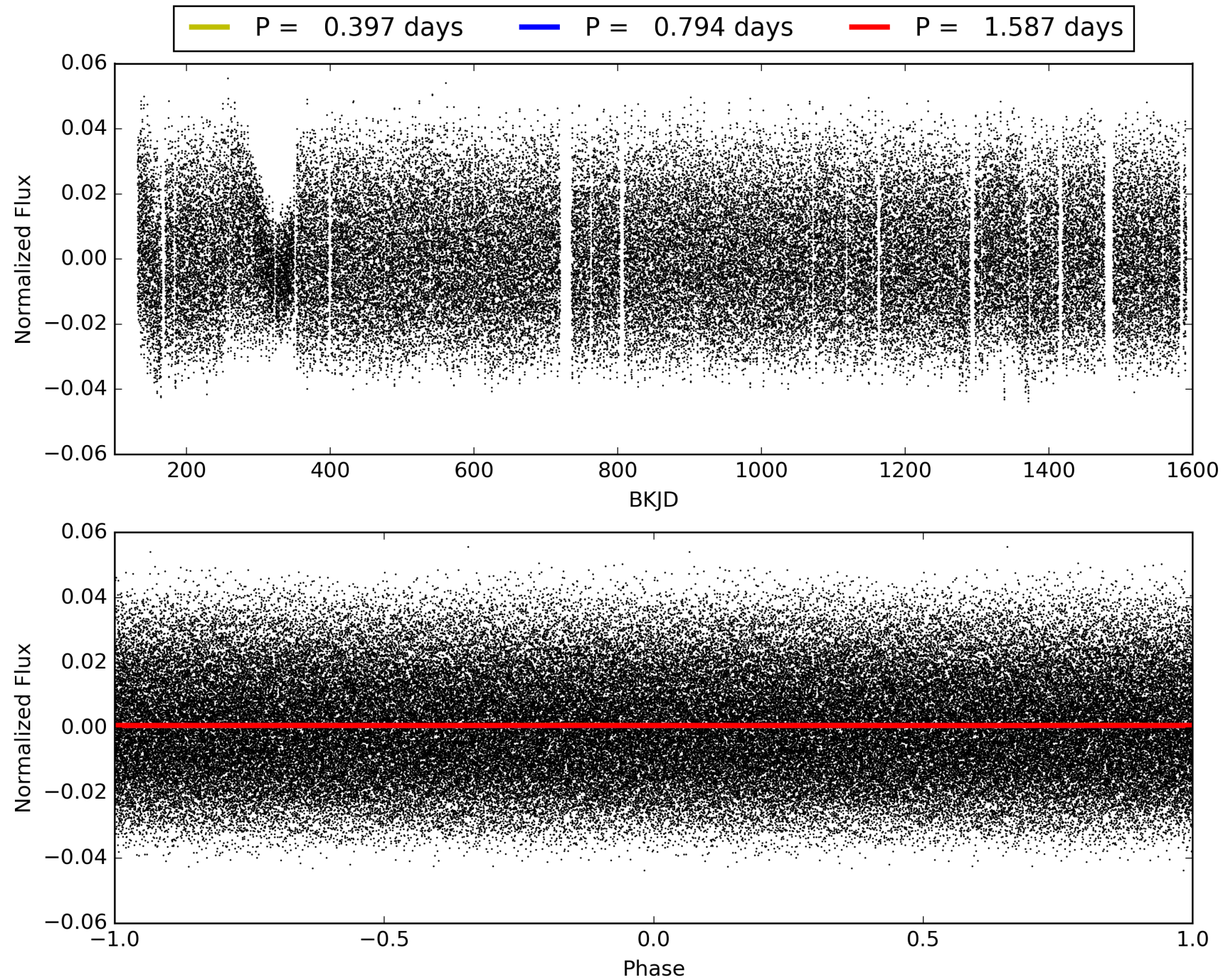
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010273384-02, PDC Light Curves



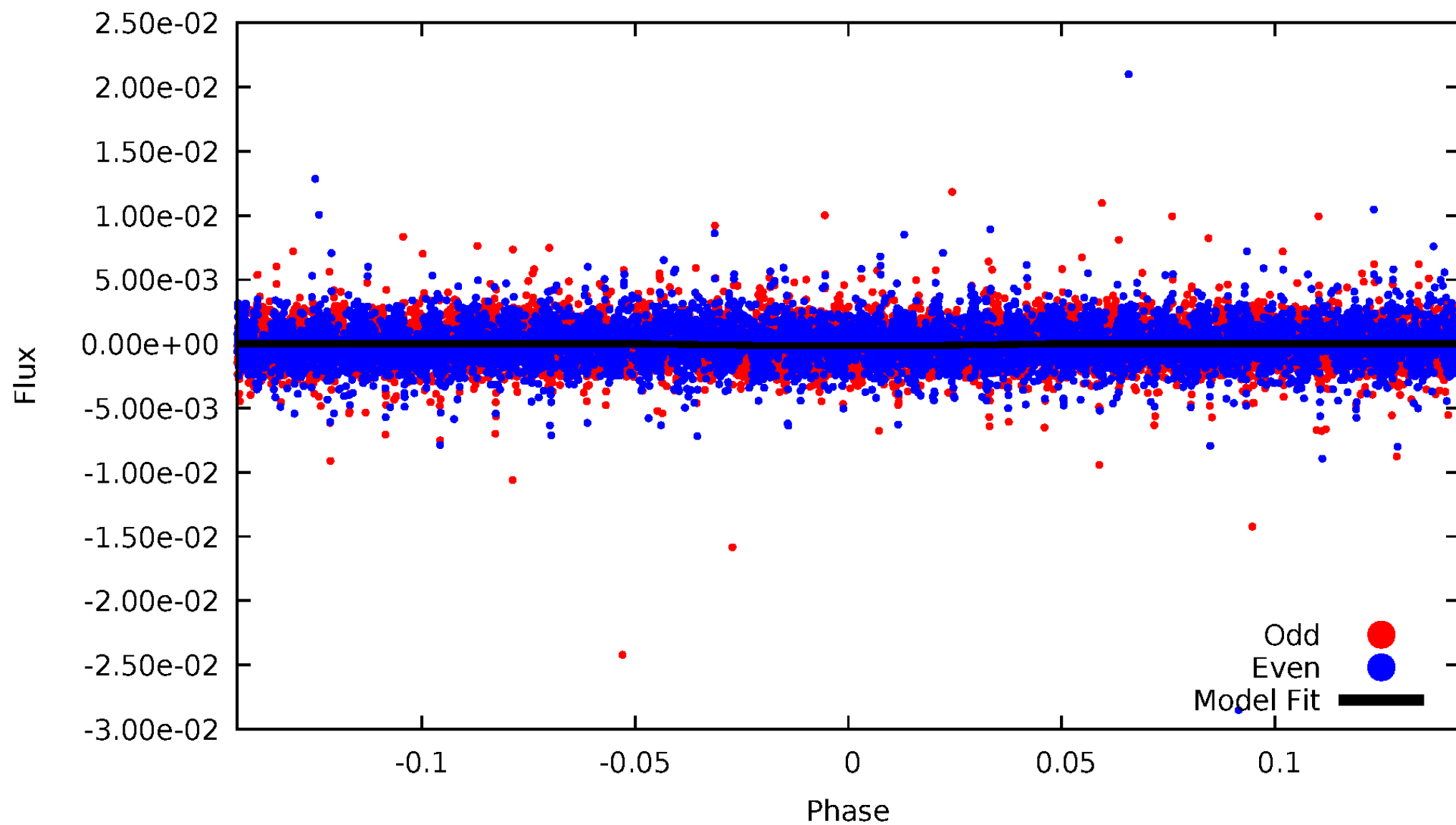


TCE 010273384-02



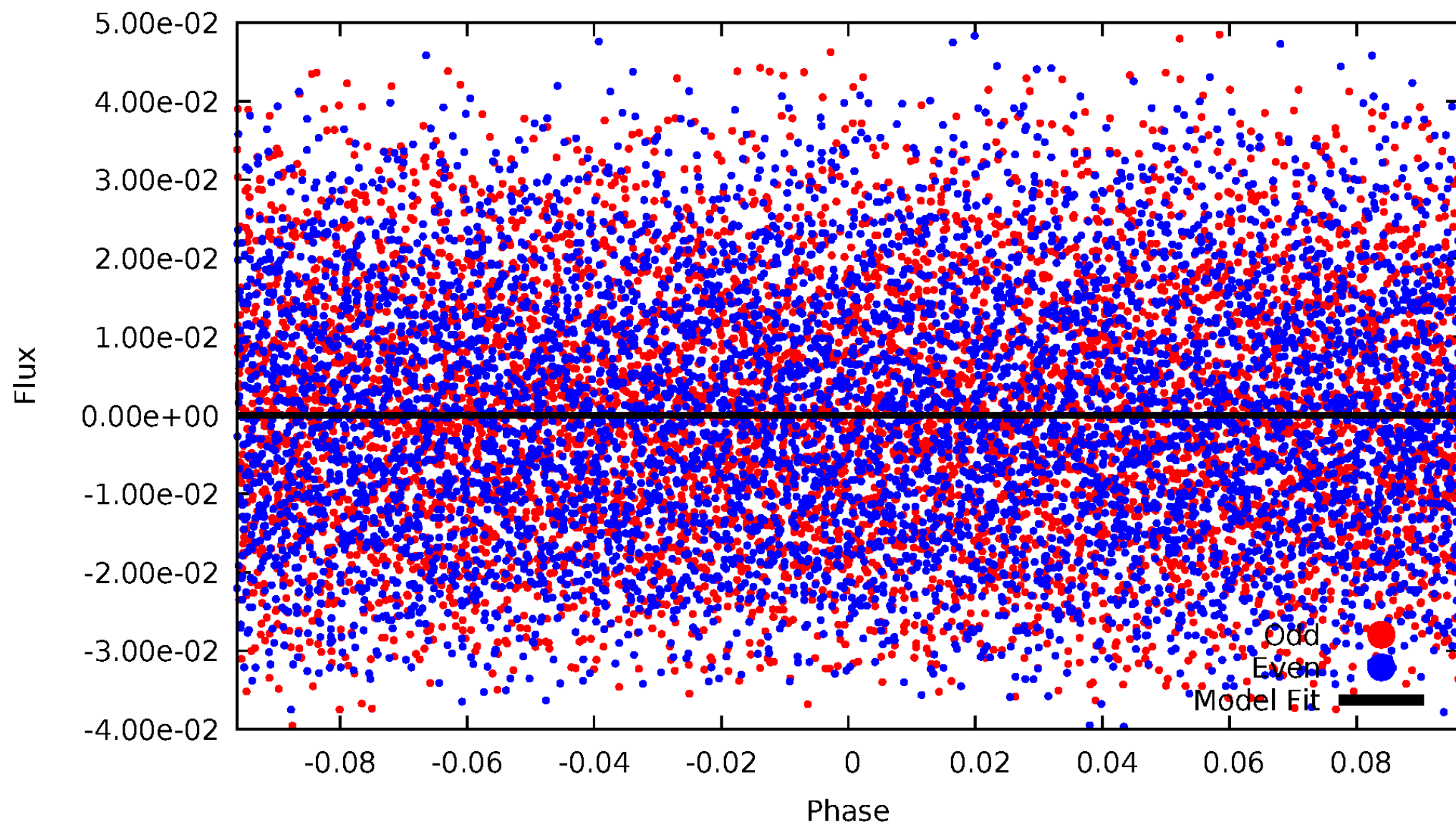
# DV Odd/Even

TCE 010273384-02



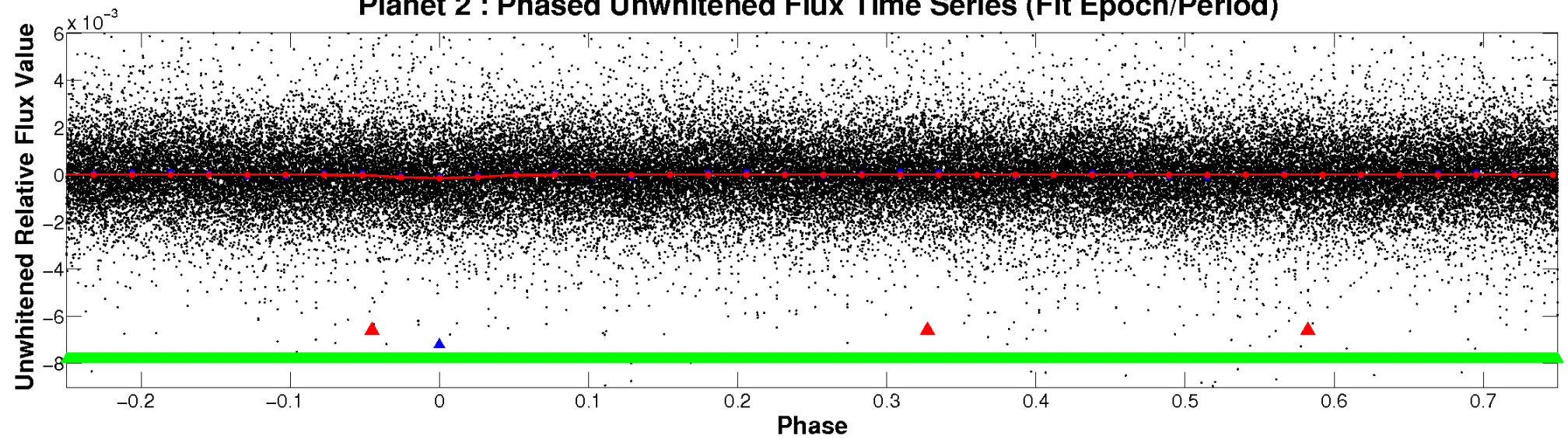
# ALT Odd/Even

TCE 010273384-02

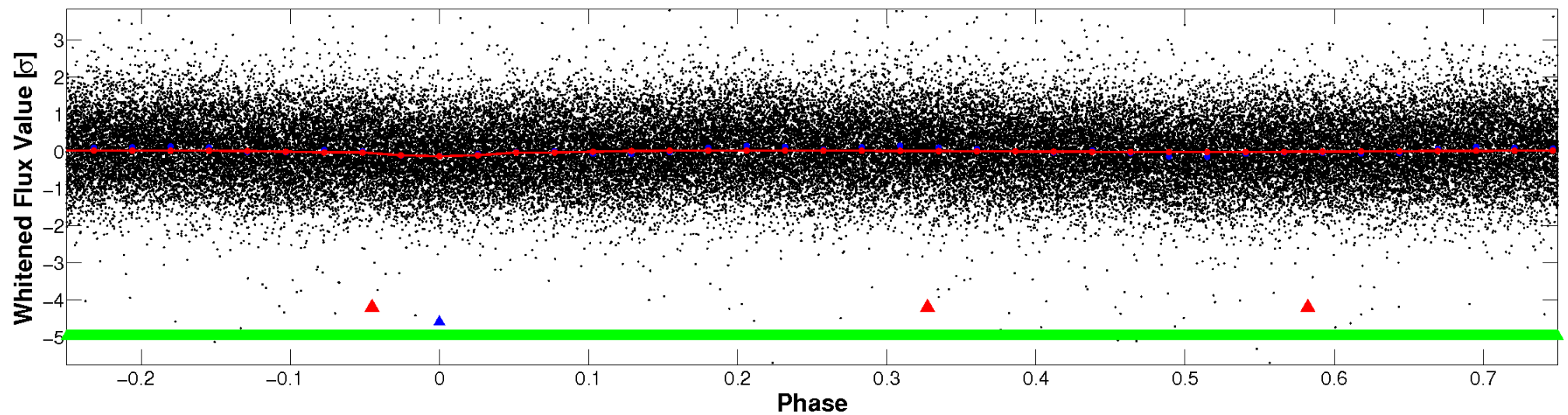


# Non-Whitened Vs. Whitened Light Curve

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



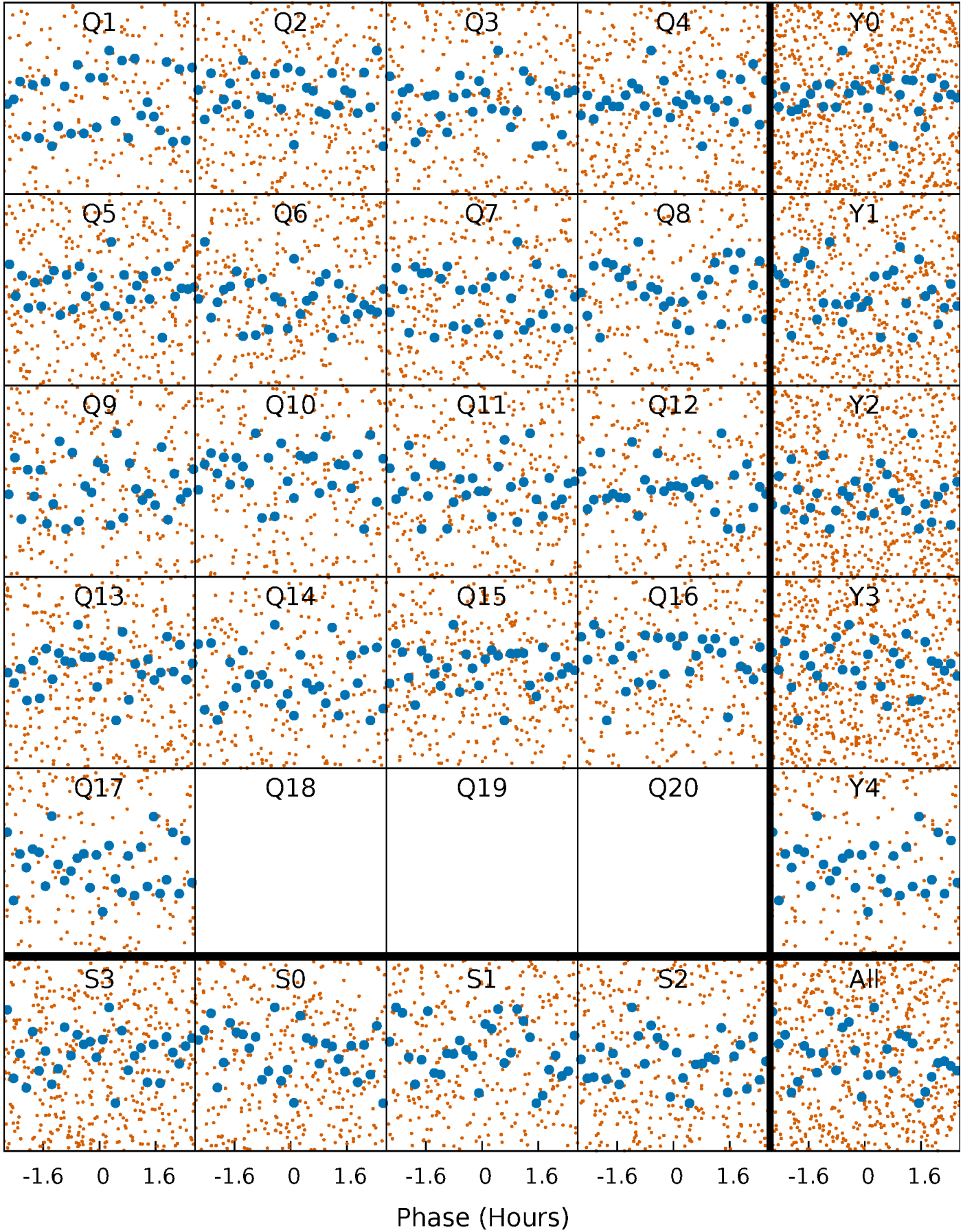
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

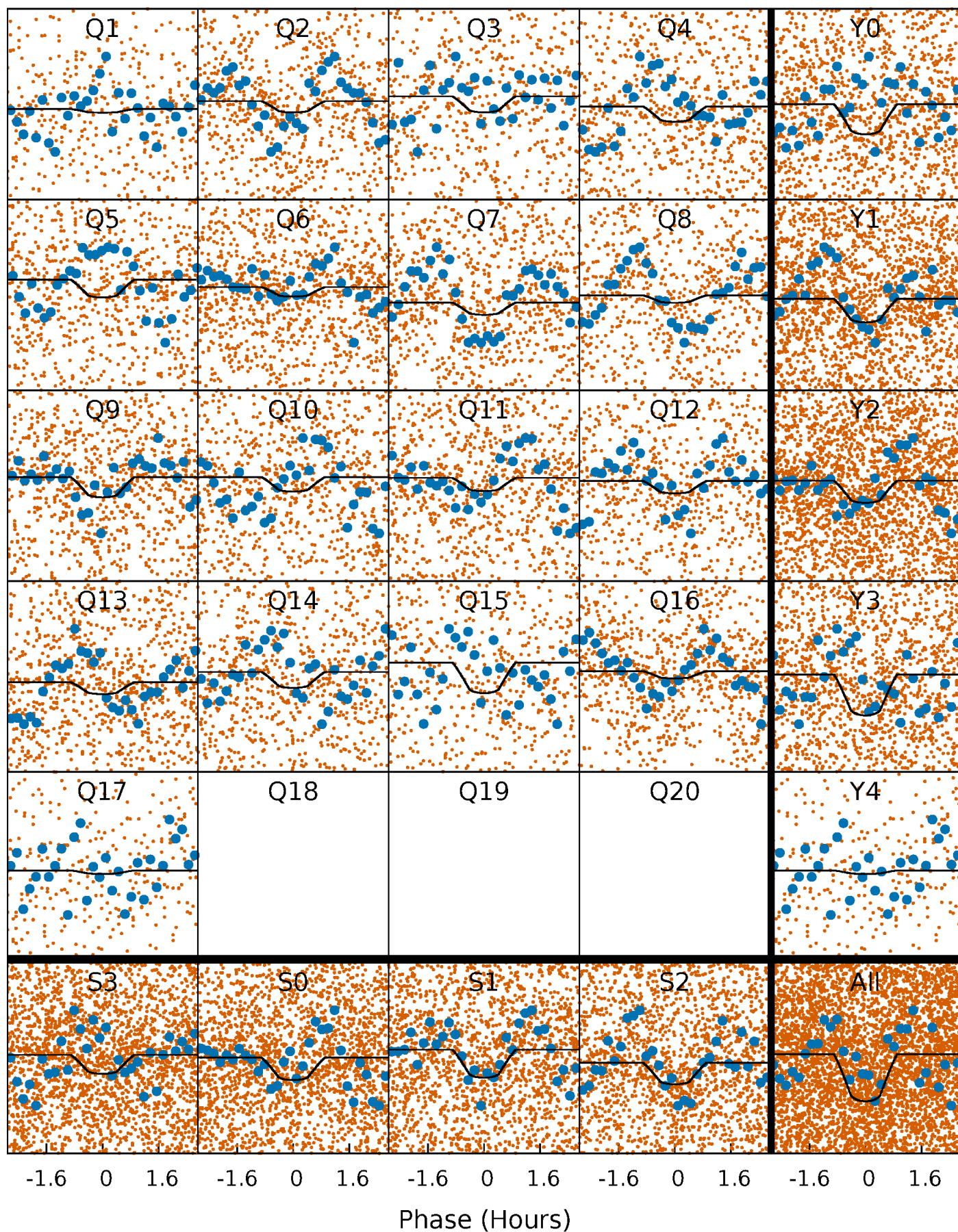
TCE 010273384-02     $P = 0.793536$  Days     $T_0 = 131.649131$  (BKJD)





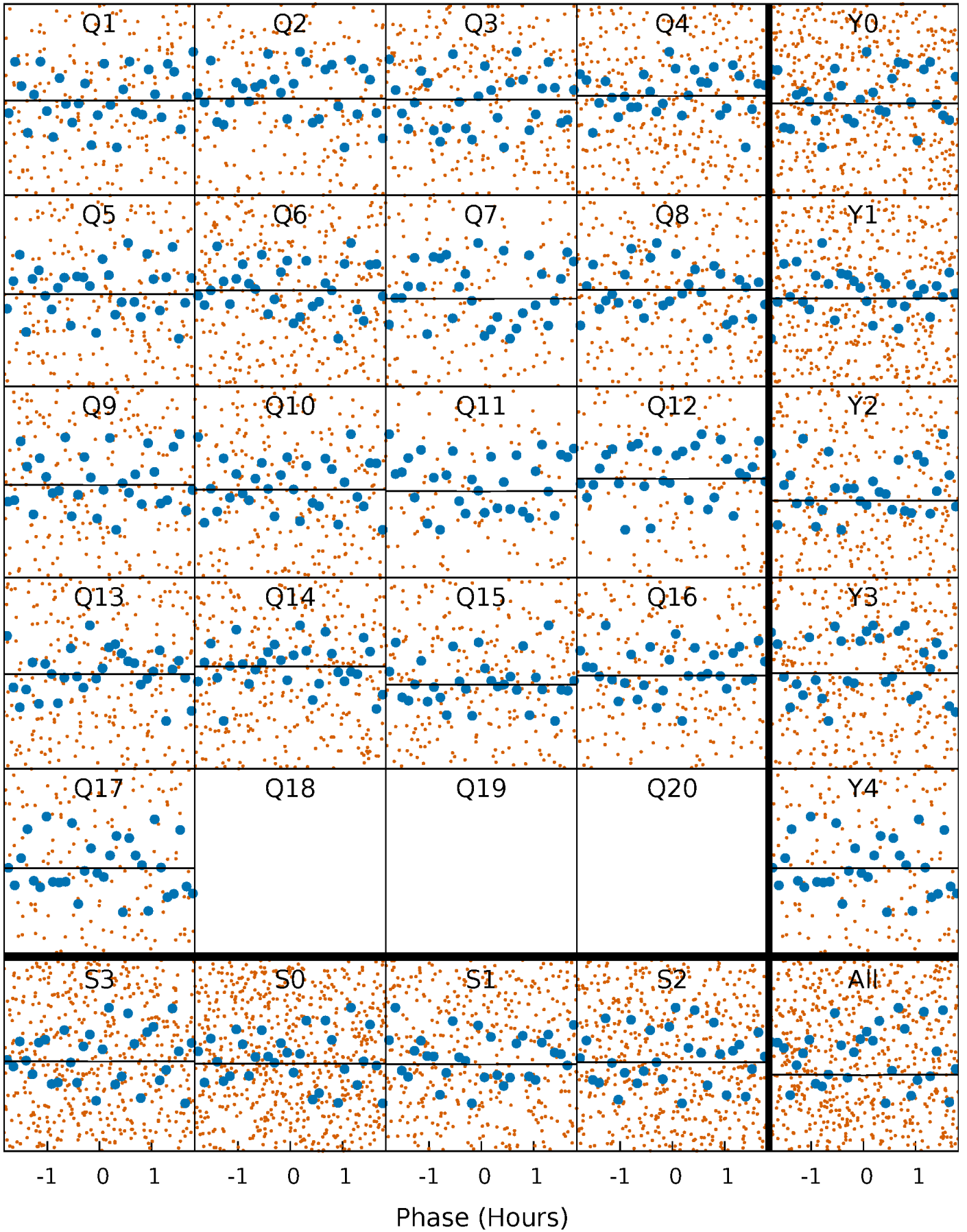
# DV Quarter-Phased Transit Curves

TCE 010273384-02   P= 0.793536 Days    $T_0=131.649131$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

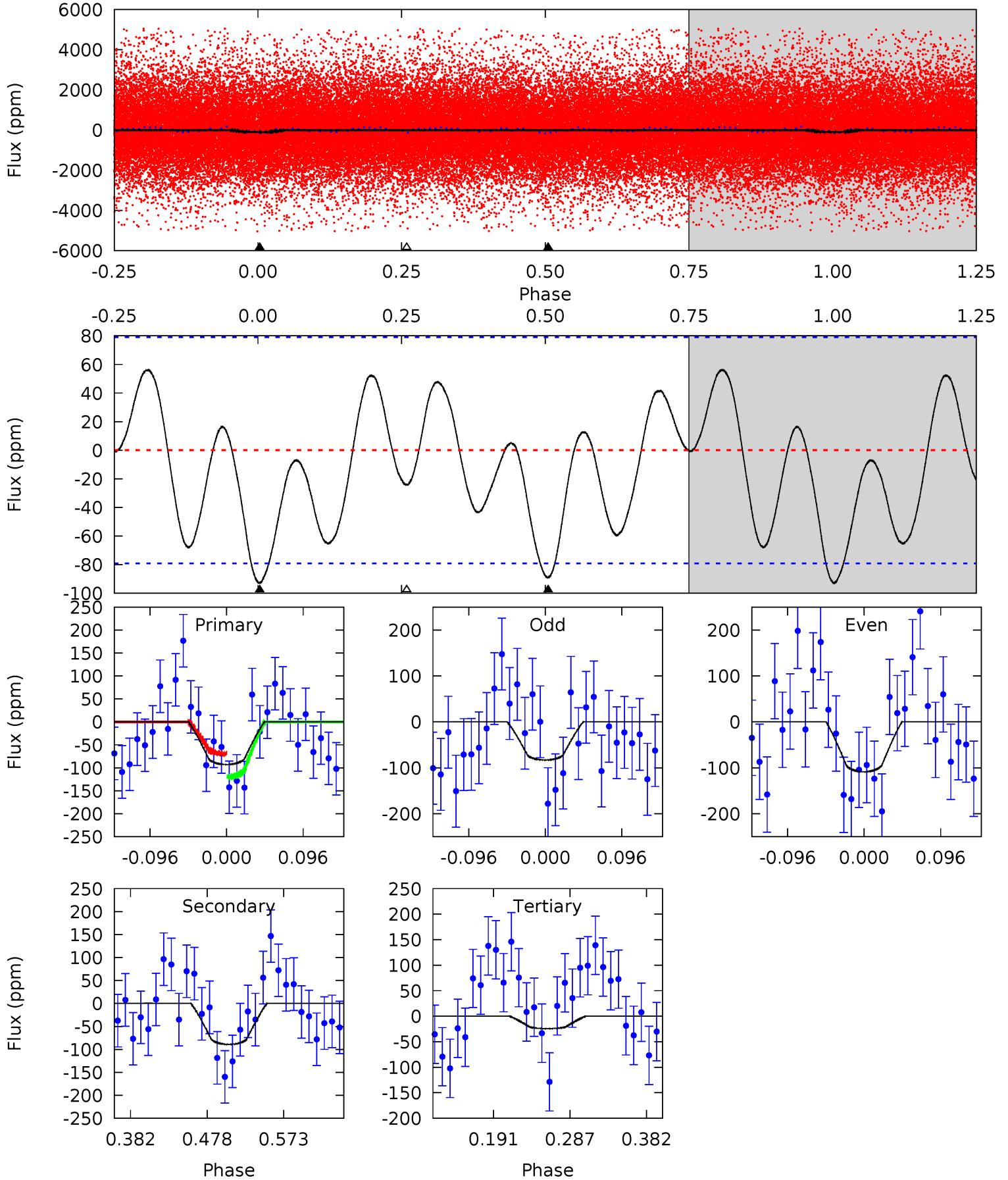
TCE 010273384-02   P= 0.793545 Days    $T_0=131.600143$  (BKJD)



# DV Model-Shift Uniqueness Test

010273384-02, P = 0.793536 Days, E = 130.855595 Days

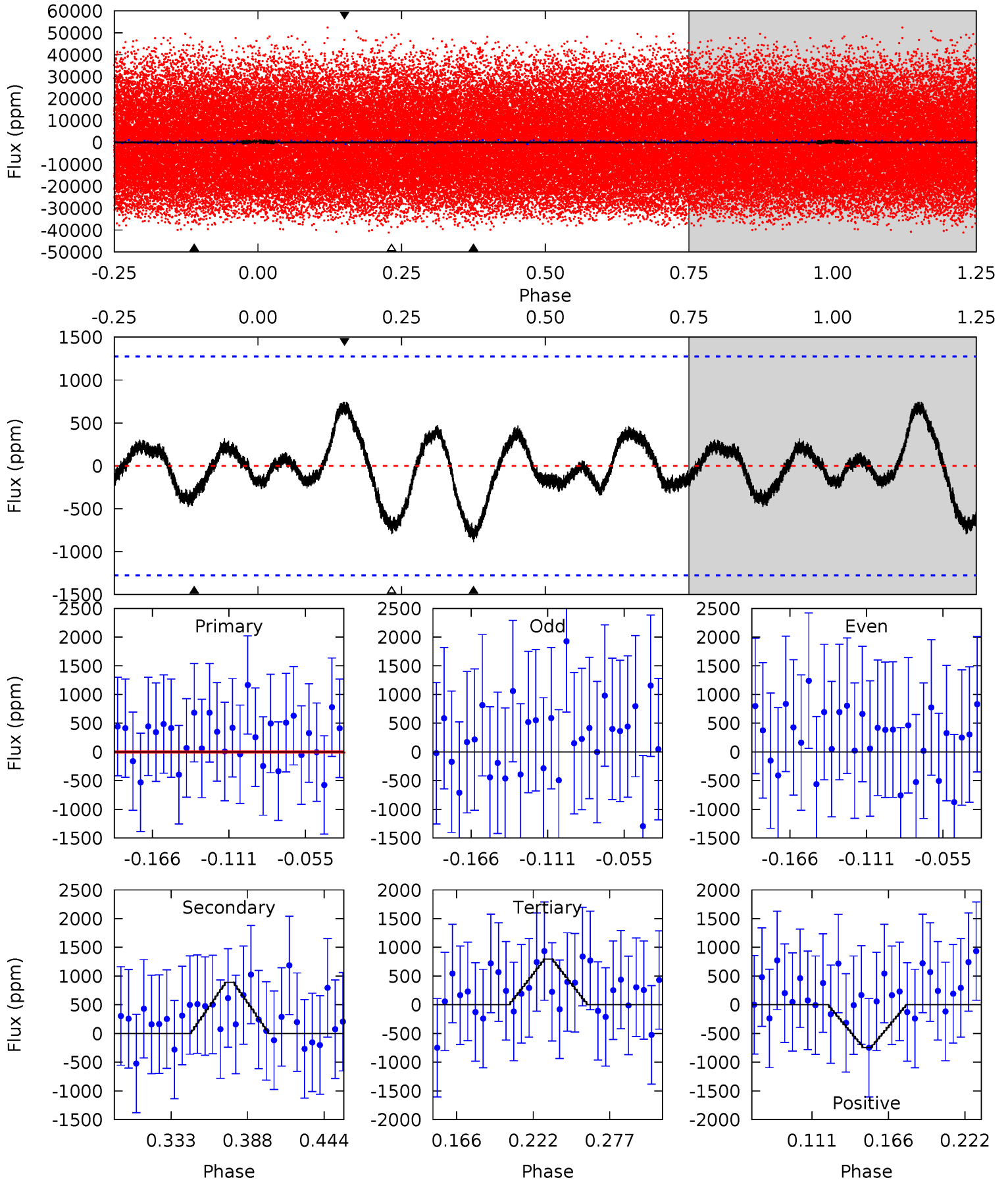
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.38	5.17	1.41	0	4.57	1.67	2.20	3.97	5.38	3.76	5.17	0.74	0.54	0.38	1.49



# Alt Model-Shift Uniqueness Test

010273384-02, P = 0.793545 Days, E = 130.806598 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.43	3.27	2.92	2.74	4.69	1.91	1.02	-1.49	-1.30	0.35	0.53	1.15	-0.48	0.46	0.59



### Stellar Parameters For KIC 010273384

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6223^{+111}_{-124}$	$3.790^{+0.189}_{-0.081}$	$0.280^{+0.150}_{-0.150}$	$2.659^{+0.432}_{-0.648}$	$1.589^{+0.155}_{-0.190}$	$0.119^{+0.118}_{-0.032}$
	+2%/-2%	+5%/-2%	+54%/-54%	+16%/-24%	+10%/-12%	+99%/-27%
Source	SPE4	SPE4	SPE4	DSEP		

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

### Secondary Eclipse Parameters for KIC 010273384-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-89 \pm 17$	$3.30^{+1.76}_{-1.57}$	$4418^{+210}_{-284}$	$5305^{+2411}_{-1129}$	$1.784^{+5.028}_{-1.081}$
Alt.	$-890 \pm 272$	$1.36^{+1.39}_{-0.95}$	$4408^{+204}_{-254}$	$26598^{+147421}_{-13983}$	$95^{+876}_{-72}$

$T_{\text{max}}$  = 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

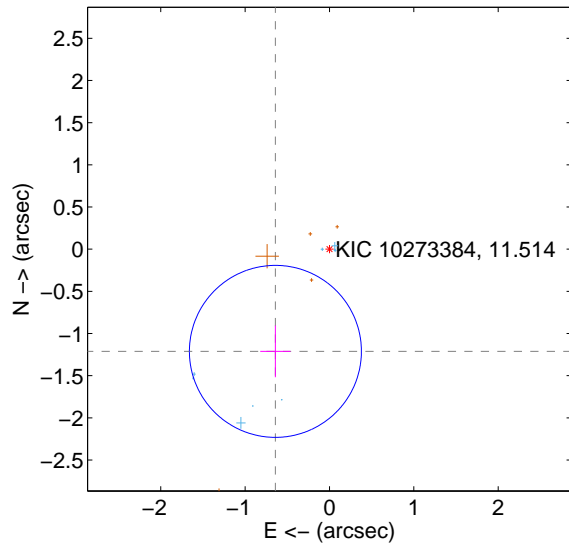
Supplemental centroid analysis for 010273384-02. **Kepler magnitude: 11.51.** Transit SNR 8.41

There are 9 quarters with good PRF difference image offsets

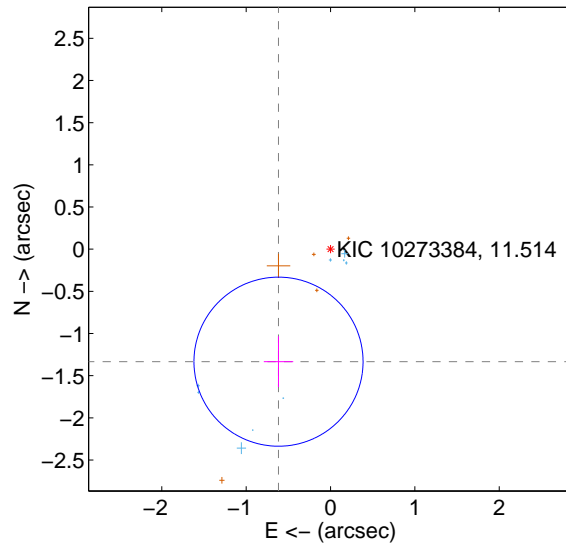
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.371 \pm 0.340</math></b>	<b>4.03</b>	$0.641 \pm 0.179$	$-1.212 \pm 0.307$
PRF-fit source offset from KIC position	<b><math>1.470 \pm 0.334</math></b>	<b>4.40</b>	$0.617 \pm 0.174$	$-1.334 \pm 0.302$
photometric centroid source offset	$0.26 \pm 0.19$	1.40	$-0.01 \pm 0.17$	$0.26 \pm 0.19$

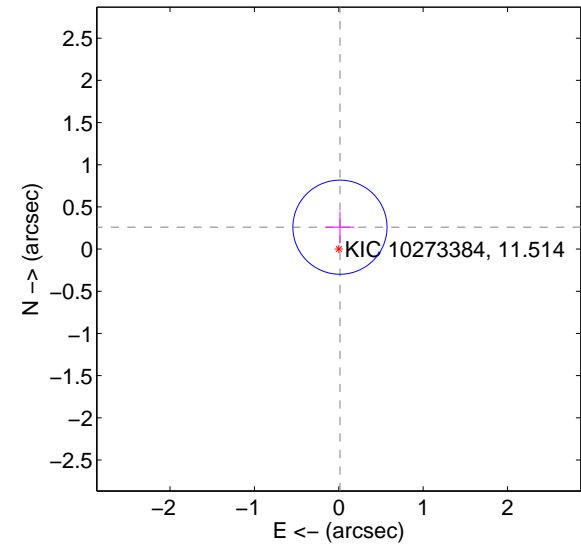
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

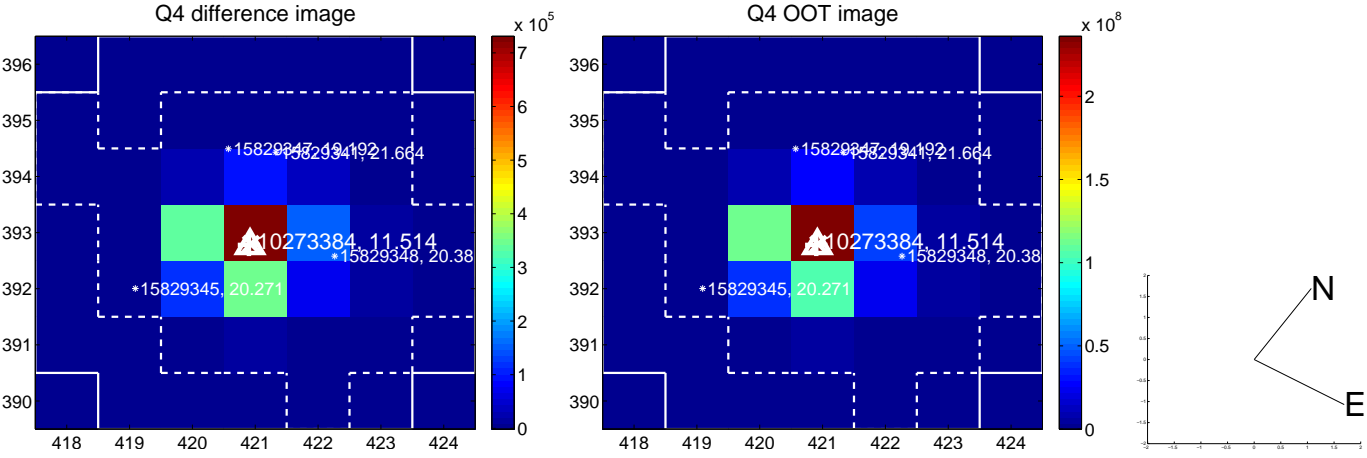
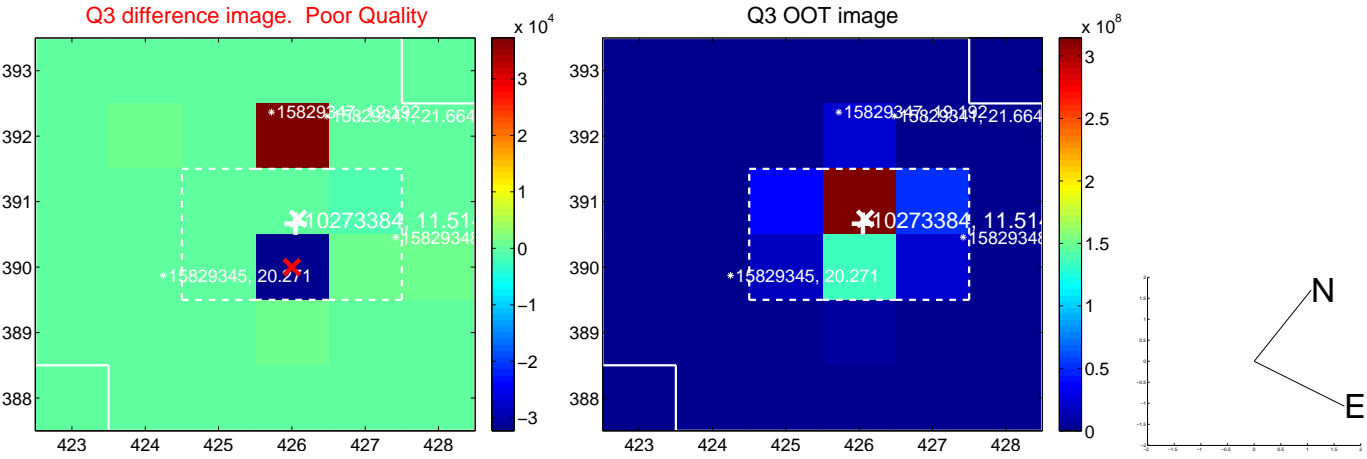
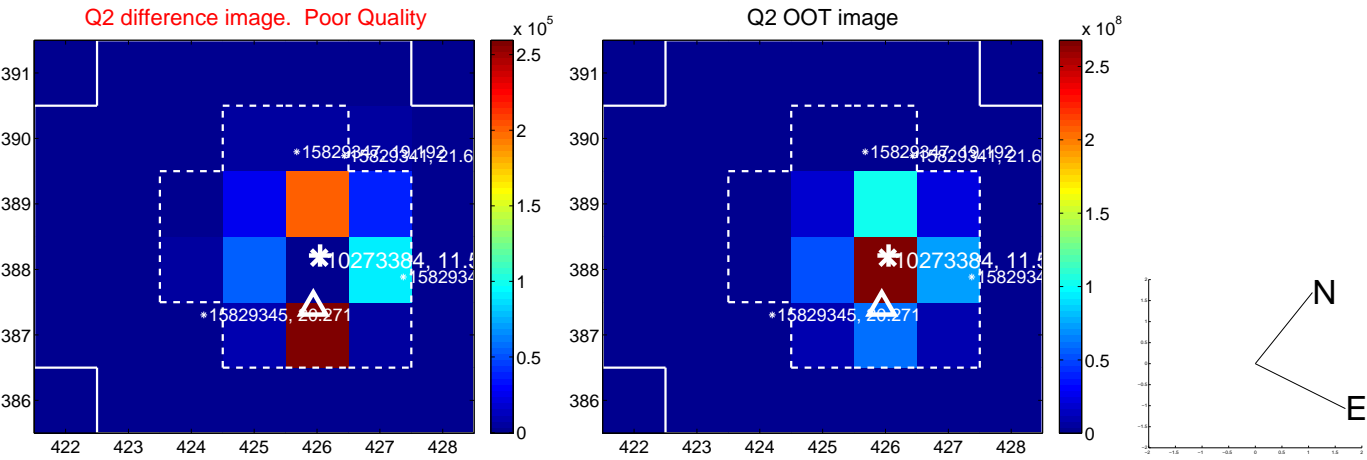
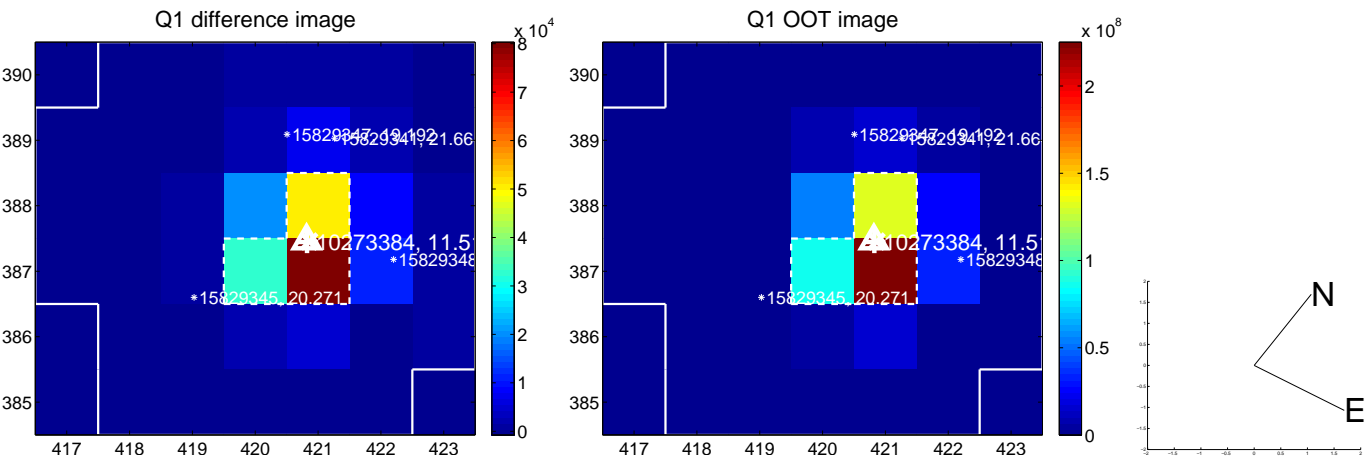


offset from photometric centroids

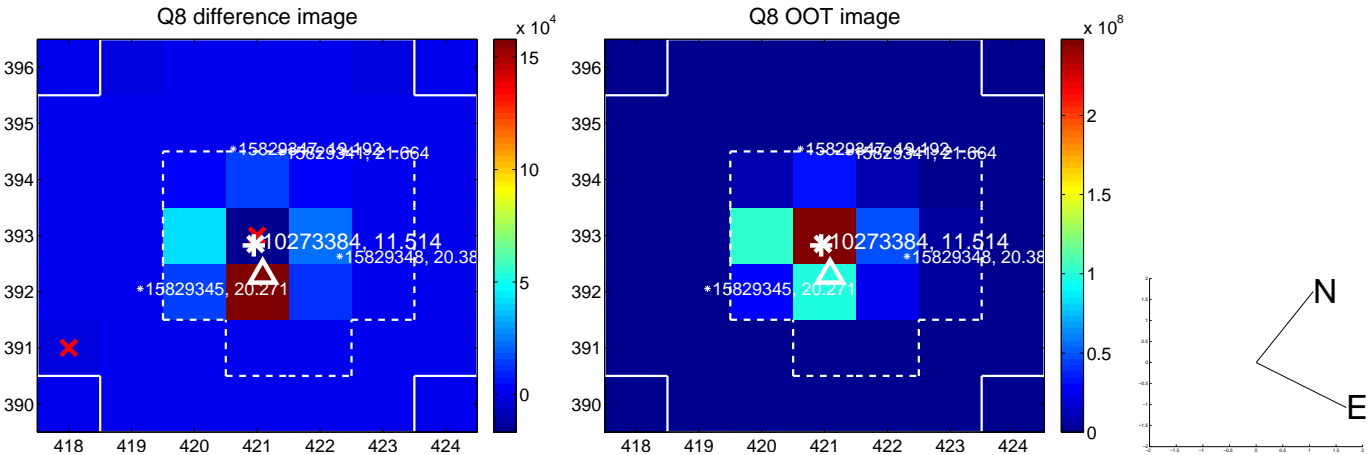
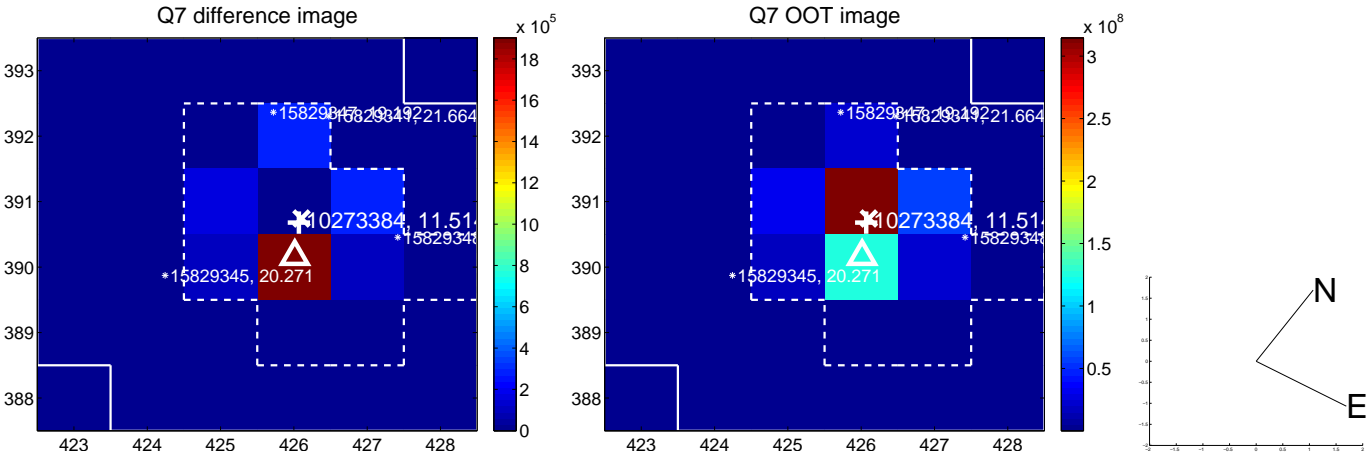
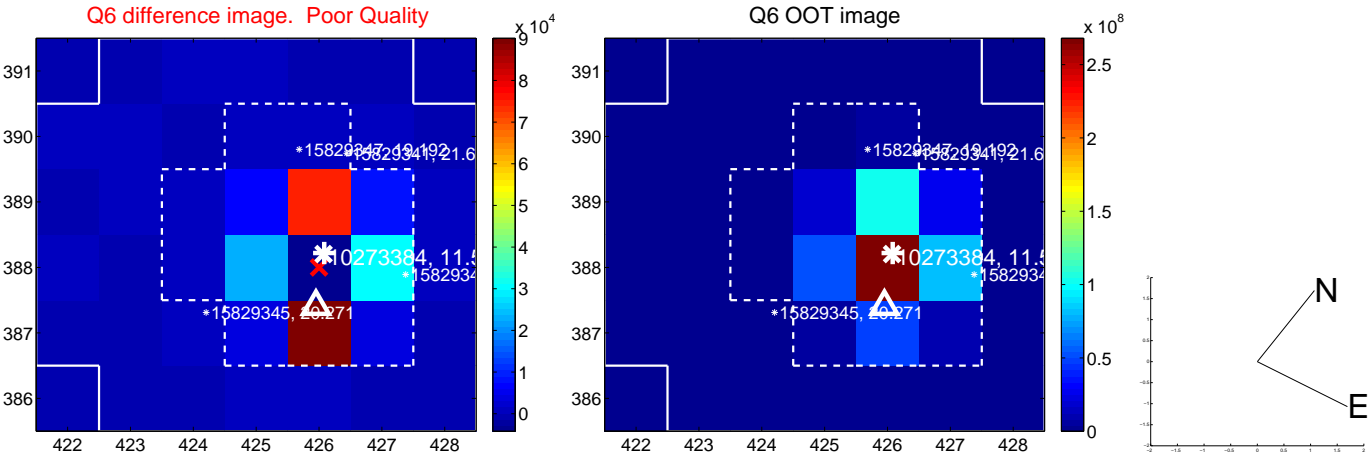
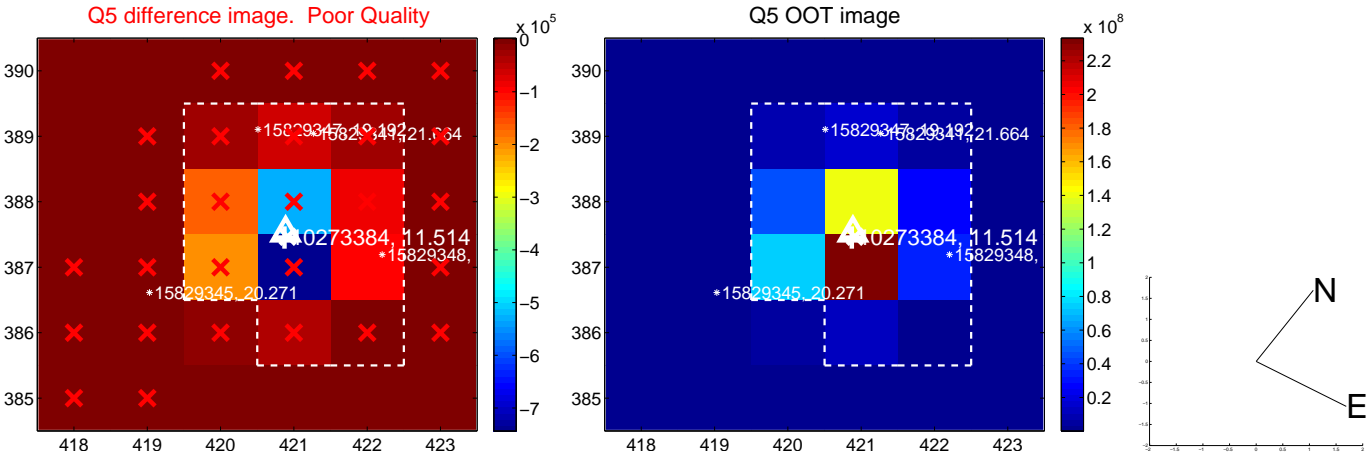


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

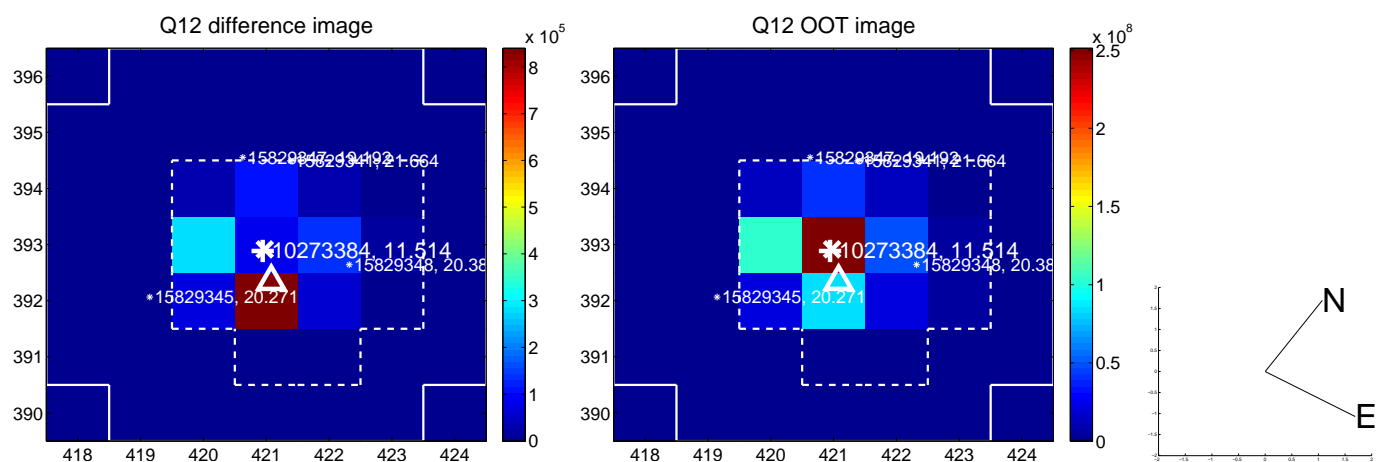
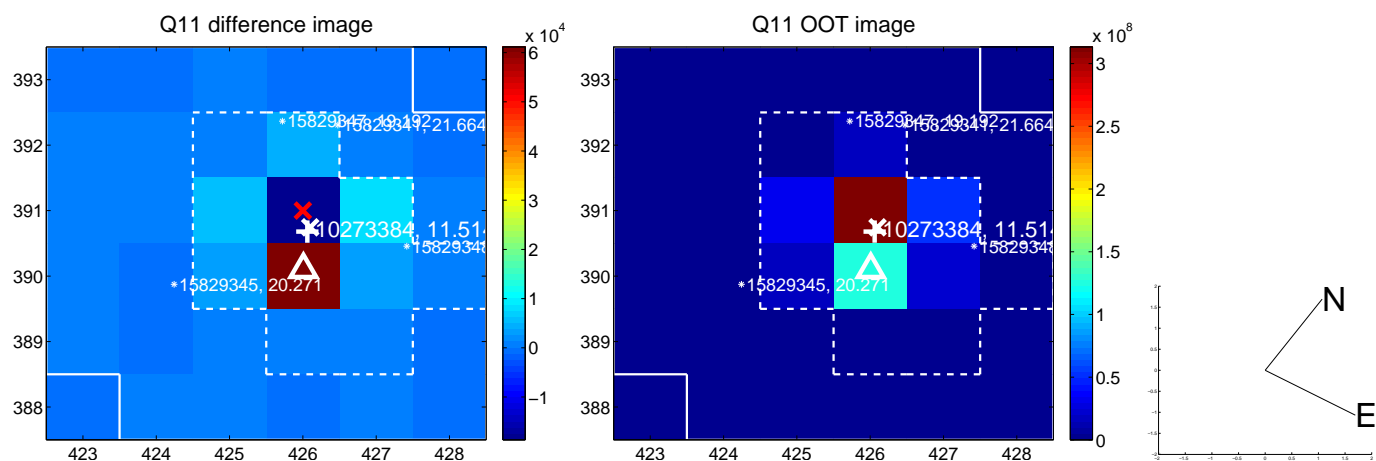
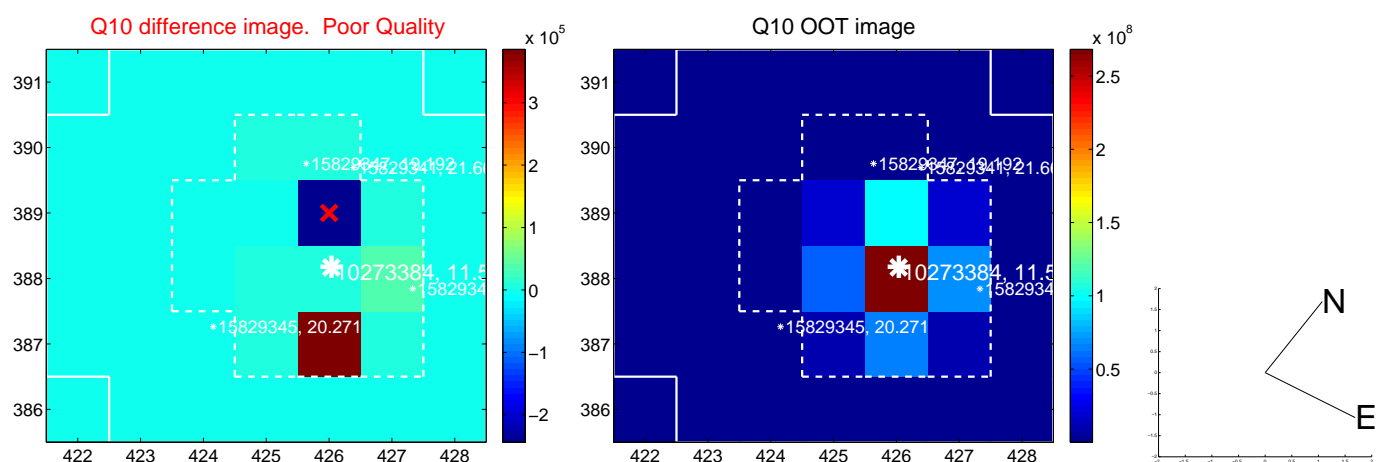
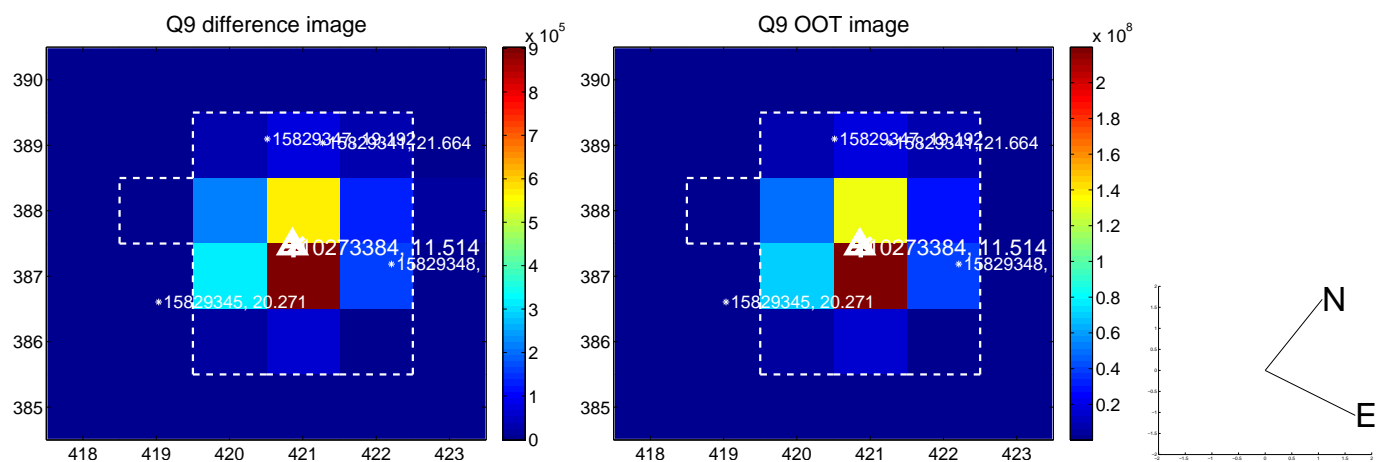


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

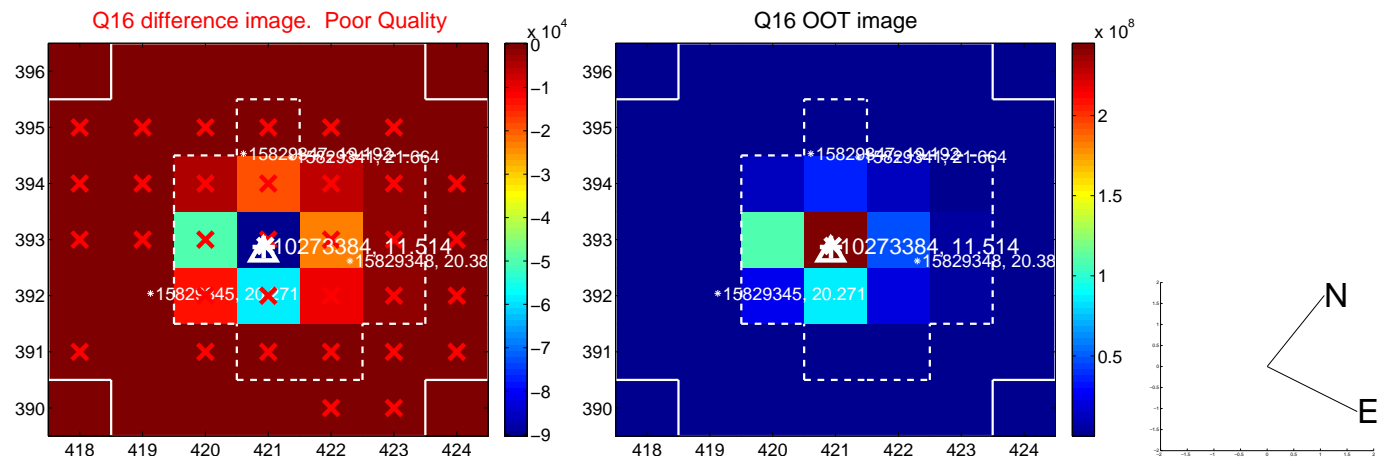
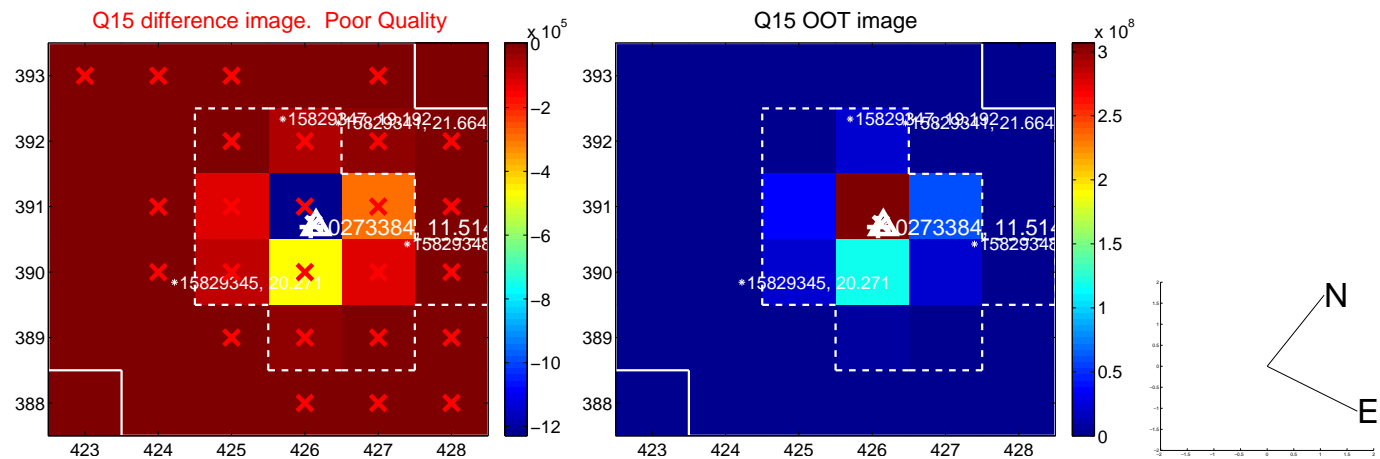
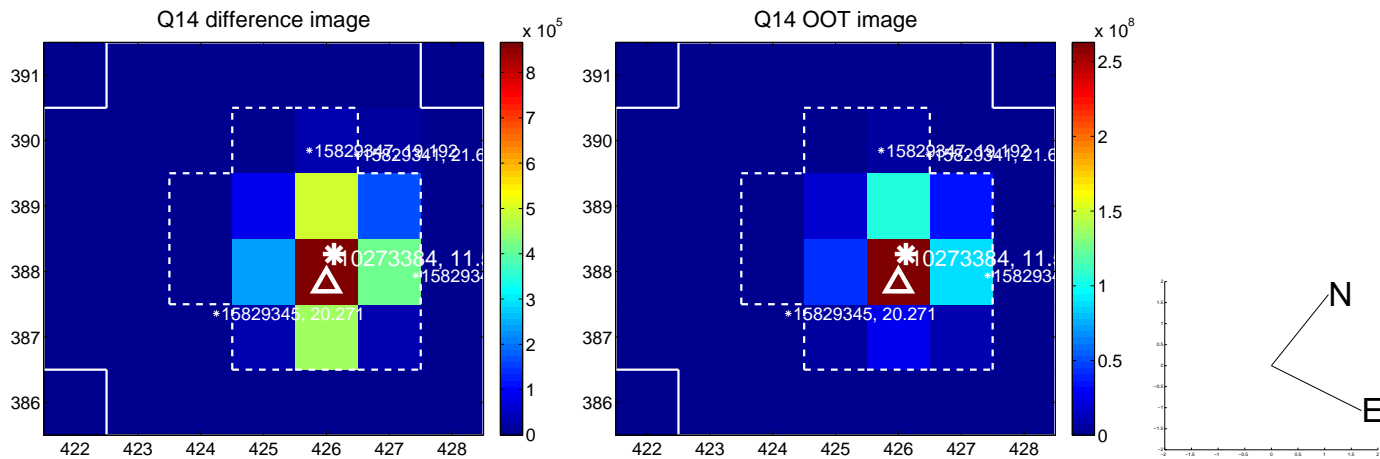
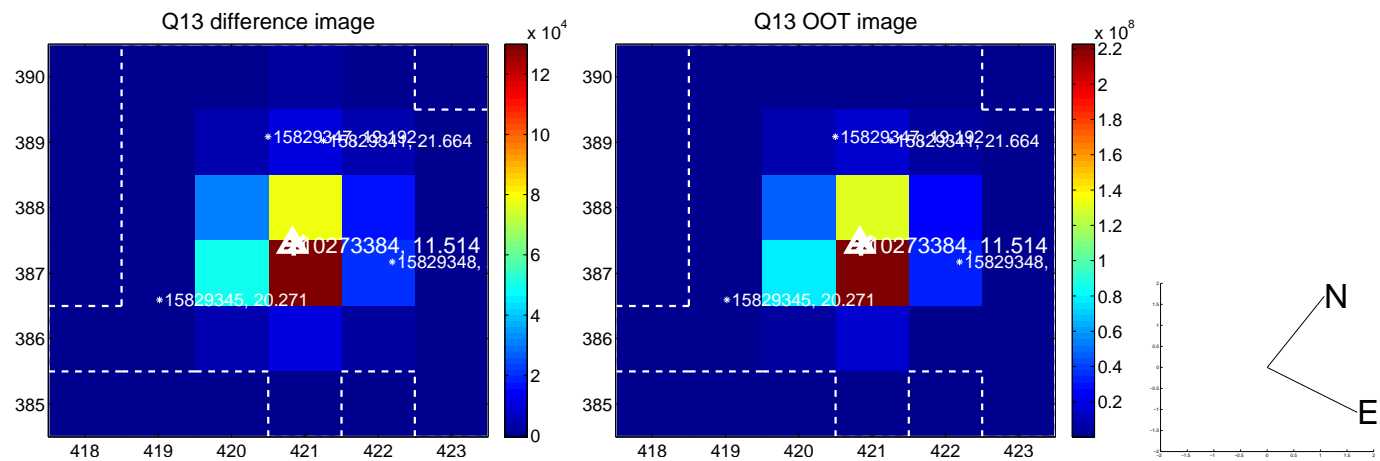




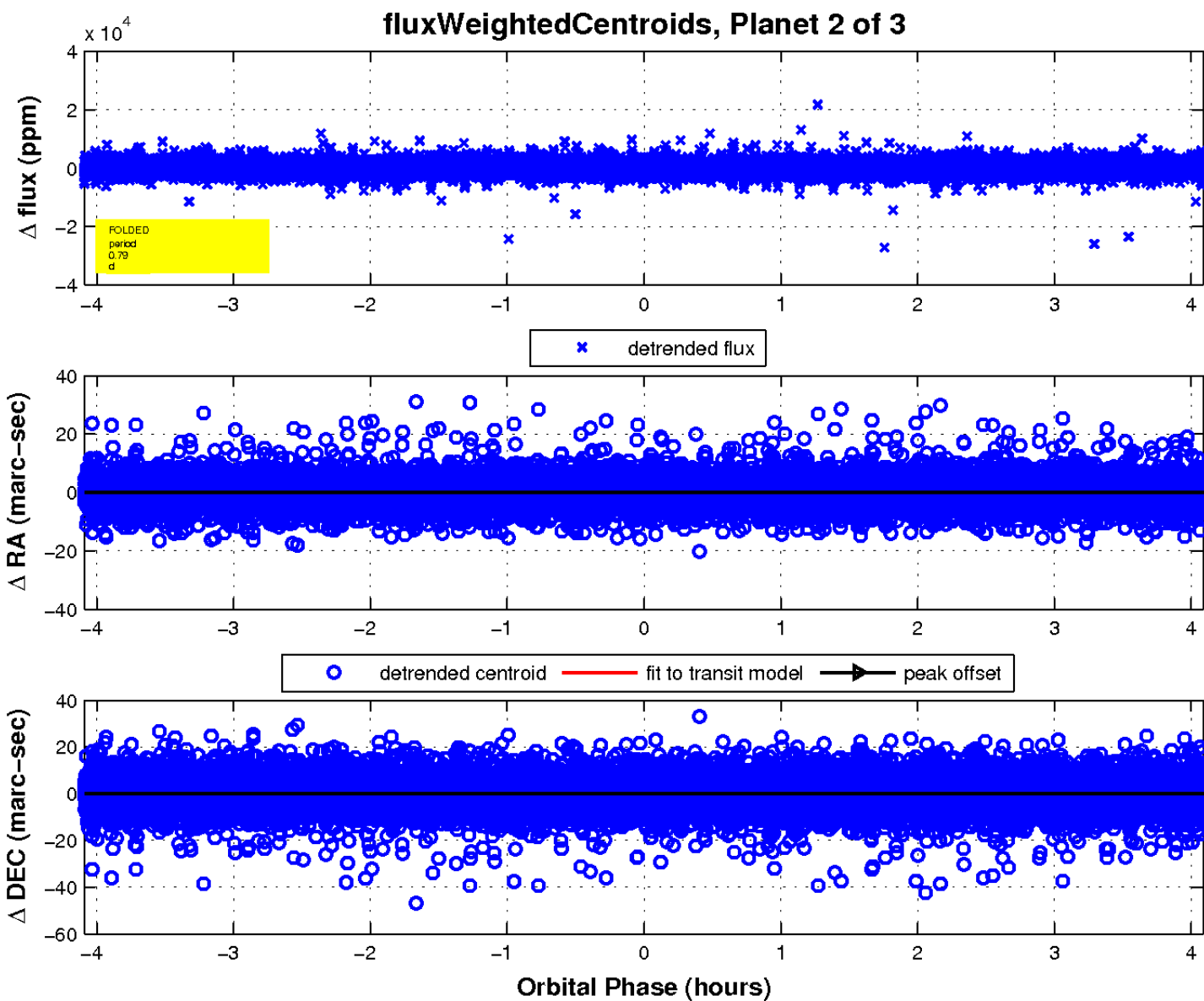
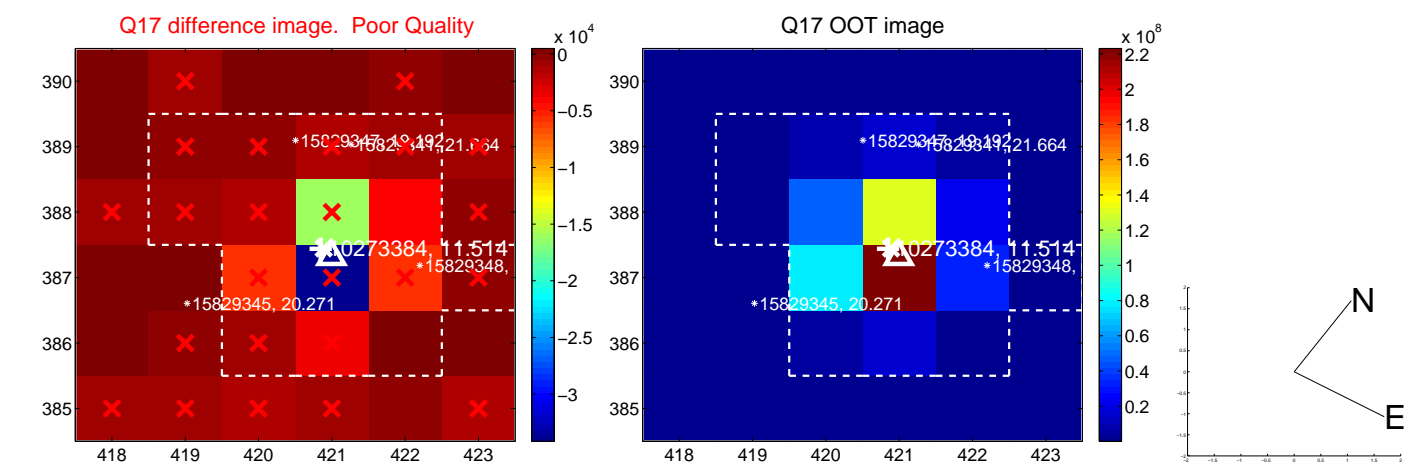
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

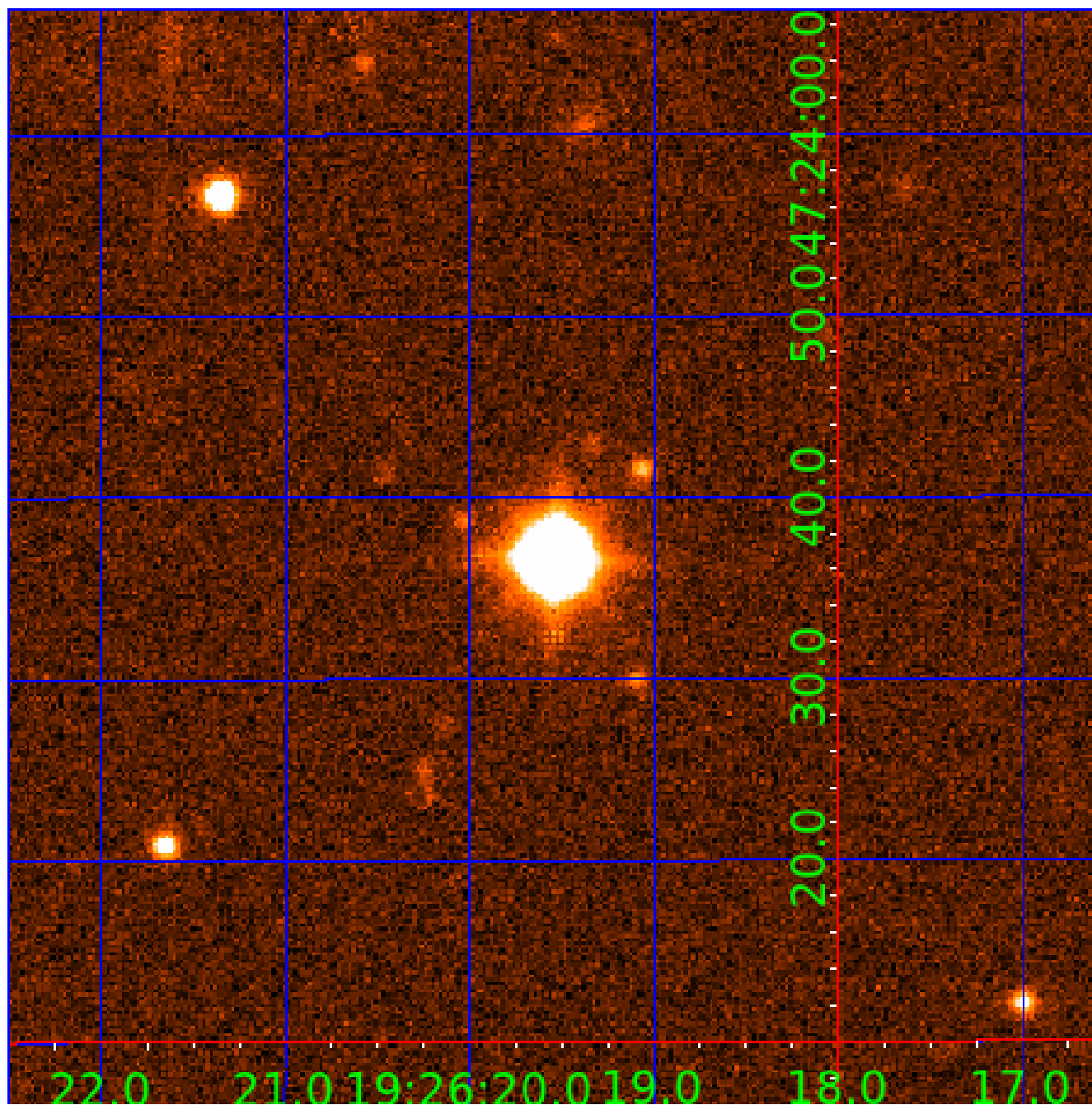


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 010273384

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010273384-01	OBS	No	609.139974	332.673450	5081.3	2.263	19.8	12.3	2.66	6223	26.33	3.52
010273384-02	OBS	No	0.793536	131.649131	141.6	1.364	12.6	8.4	2.66	6223	3.45	24771.39
010273384-03	OBS	No	0.528422	131.737314	153.8	1.008	11.6	7.5	2.66	6223	3.92	42598.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010273384-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
010273384-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010273384-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

**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.

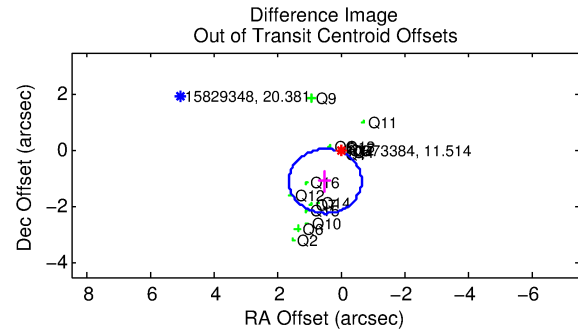
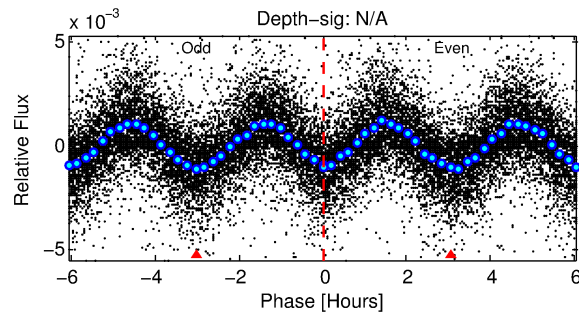
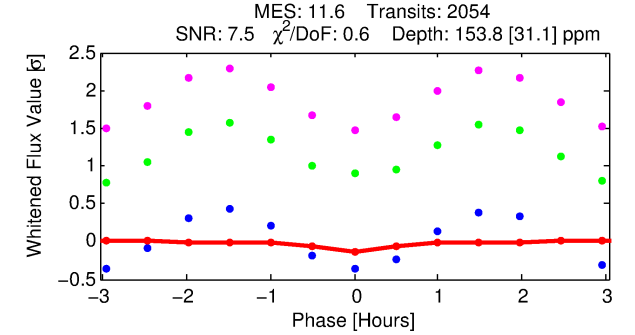
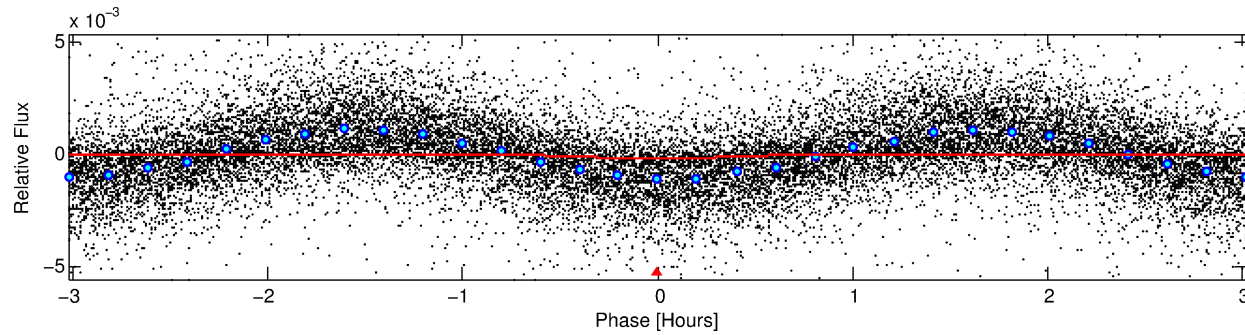
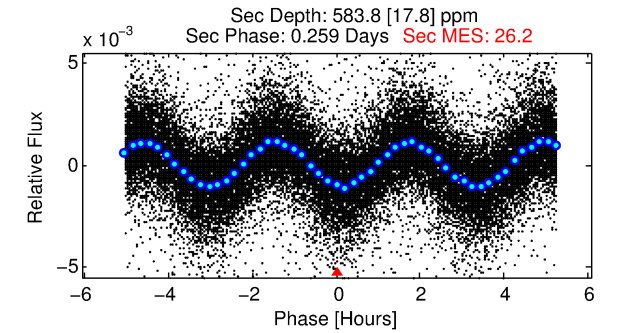
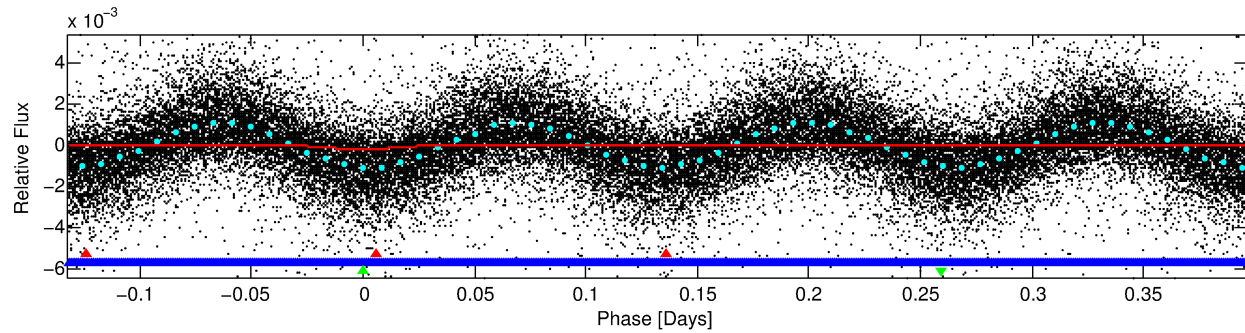
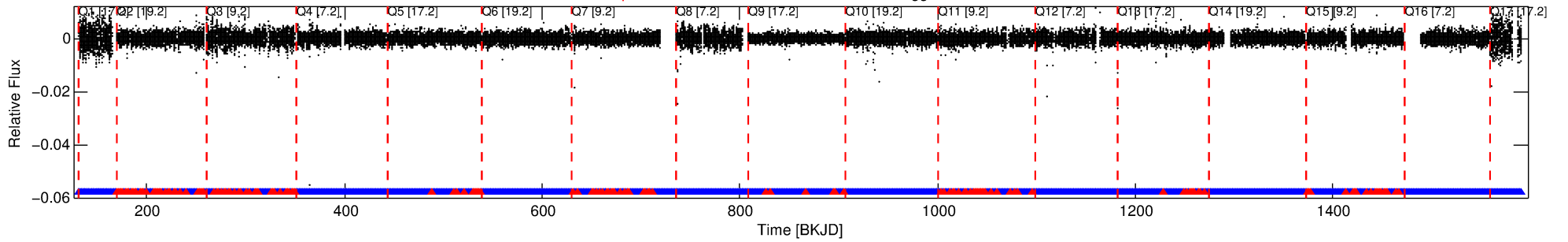
## Ephemeris Match Information For 010273384-03

No Significant Match Found

# DV One-Page Summary

KIC: 10273384 Candidate: 3 of 3 Period: 0.528 d

Kp: 11.51 R\*: 2.66 Rs Teff: 6223.0 K Logg: 3.79 Fe/H: 0.280



## DV Fit Results:

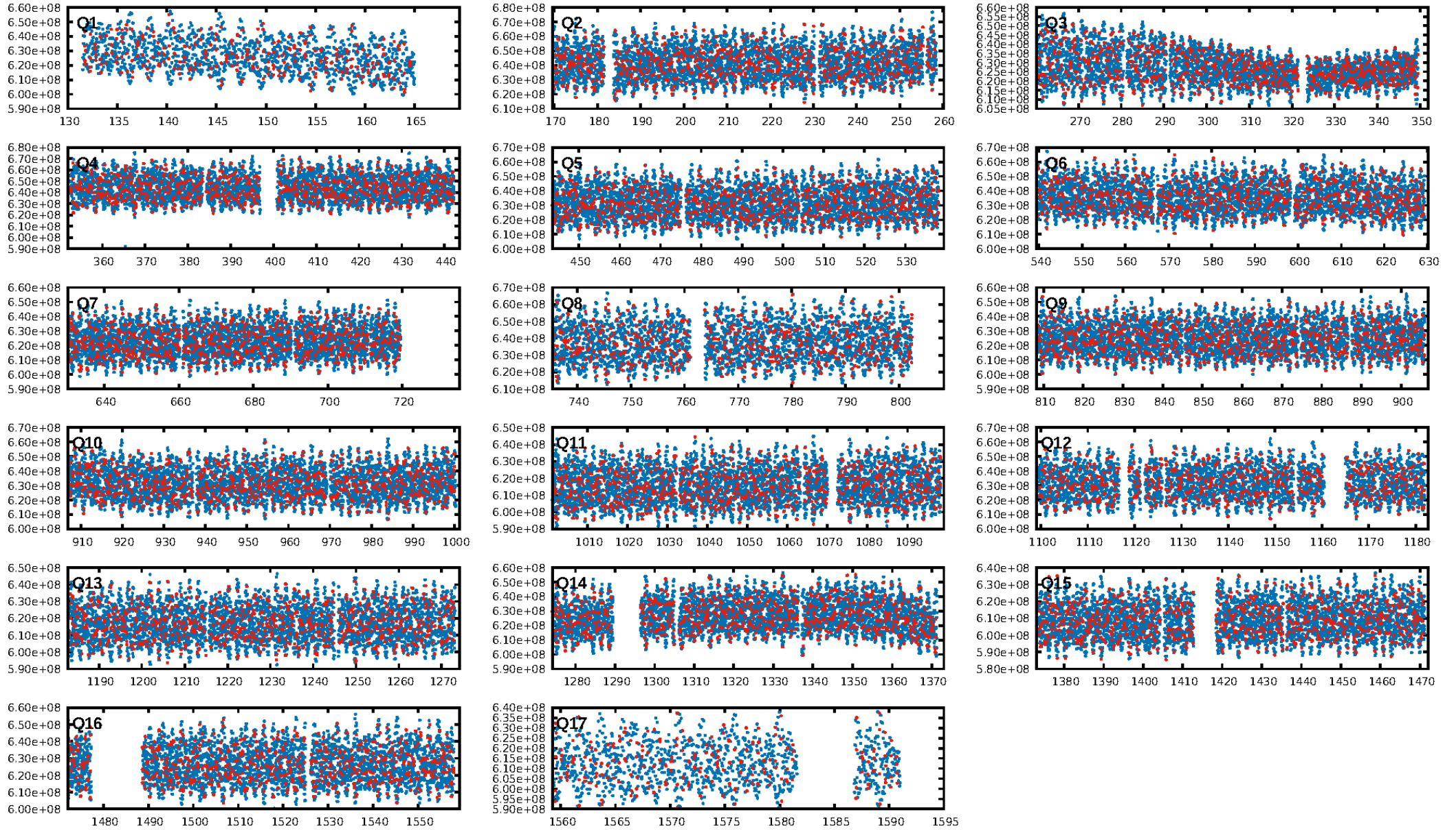
Period = 0.52842 [0.00001] d  
Epoch = 131.7373 [0.0021] BKJD  
Rp/R\* = 0.0135 [0.0133]  
a/R\* = 2.09 [8.31]  
b = 0.90 [1.11]  
Seff = 42598.91 [14566.17]  
Teq = 3663 [313] K  
Rp = 3.92 [3.98] Re  
a = 0.0149 [0.0033] AU  
Ag = 4.67 [9.36] [0.39σ]  
Teffp = 8328 [4115] K [1.13σ]

## DV Diagnostic Results:

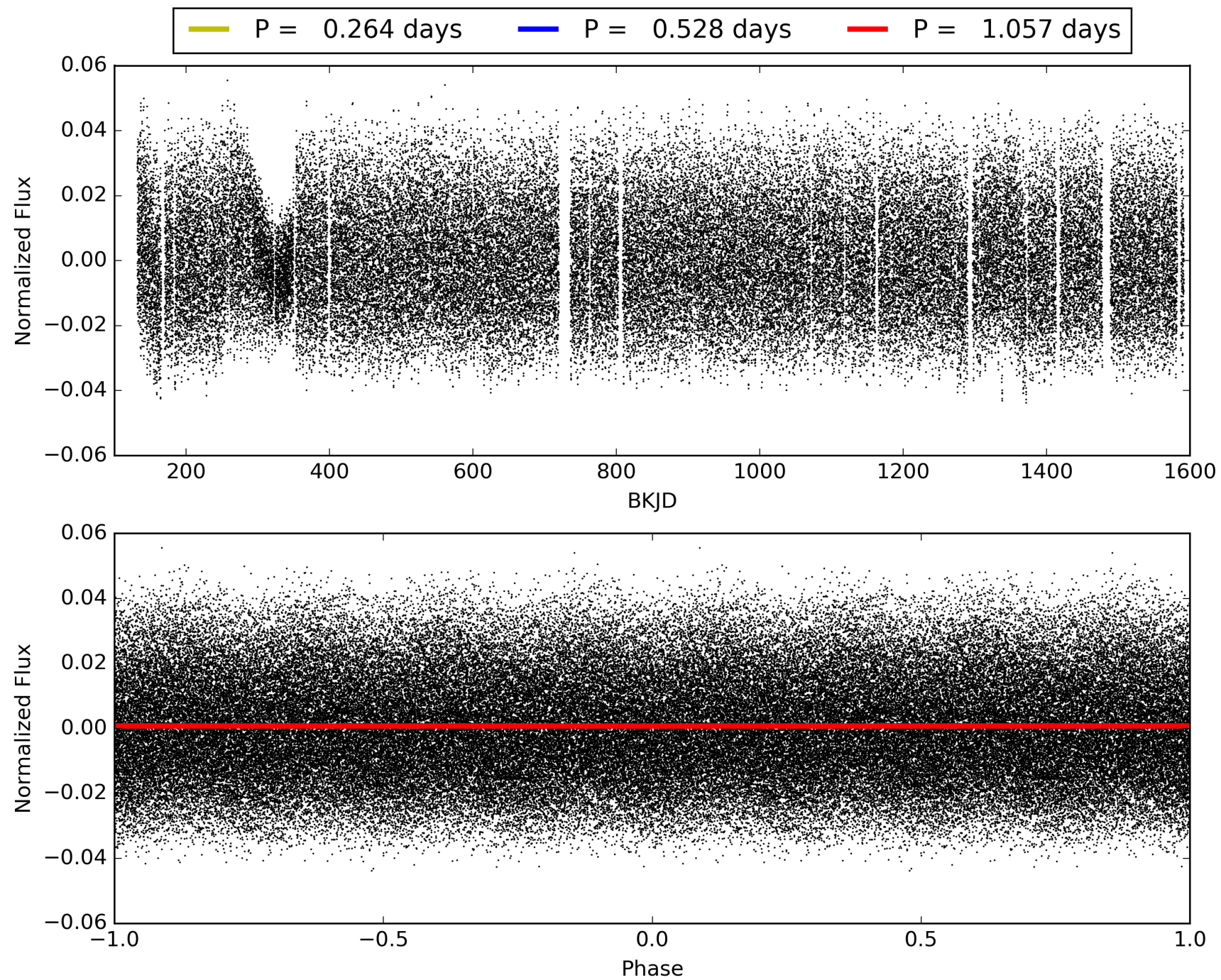
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [3.75σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.91 [1791/1971]  
GhostDiagnostic-chr: 1.201  
Centroid-sig: 42.2%  
Centroid-so: 0.191 arcsec [1.25σ]  
OotOffset-rm: 1.204 arcsec [3.15σ]  
KicOffset-rm: 1.281 arcsec [3.44σ]  
OotOffset-st: 4/3/4/5 [16]  
KicOffset-st: 4/3/4/5 [16]  
DiffImageQuality-fgm: 0.81 [13/16]  
DiffImageOverlap-fno: 1.00 [17/17]



# TCE 010273384-03, PDC Light Curves



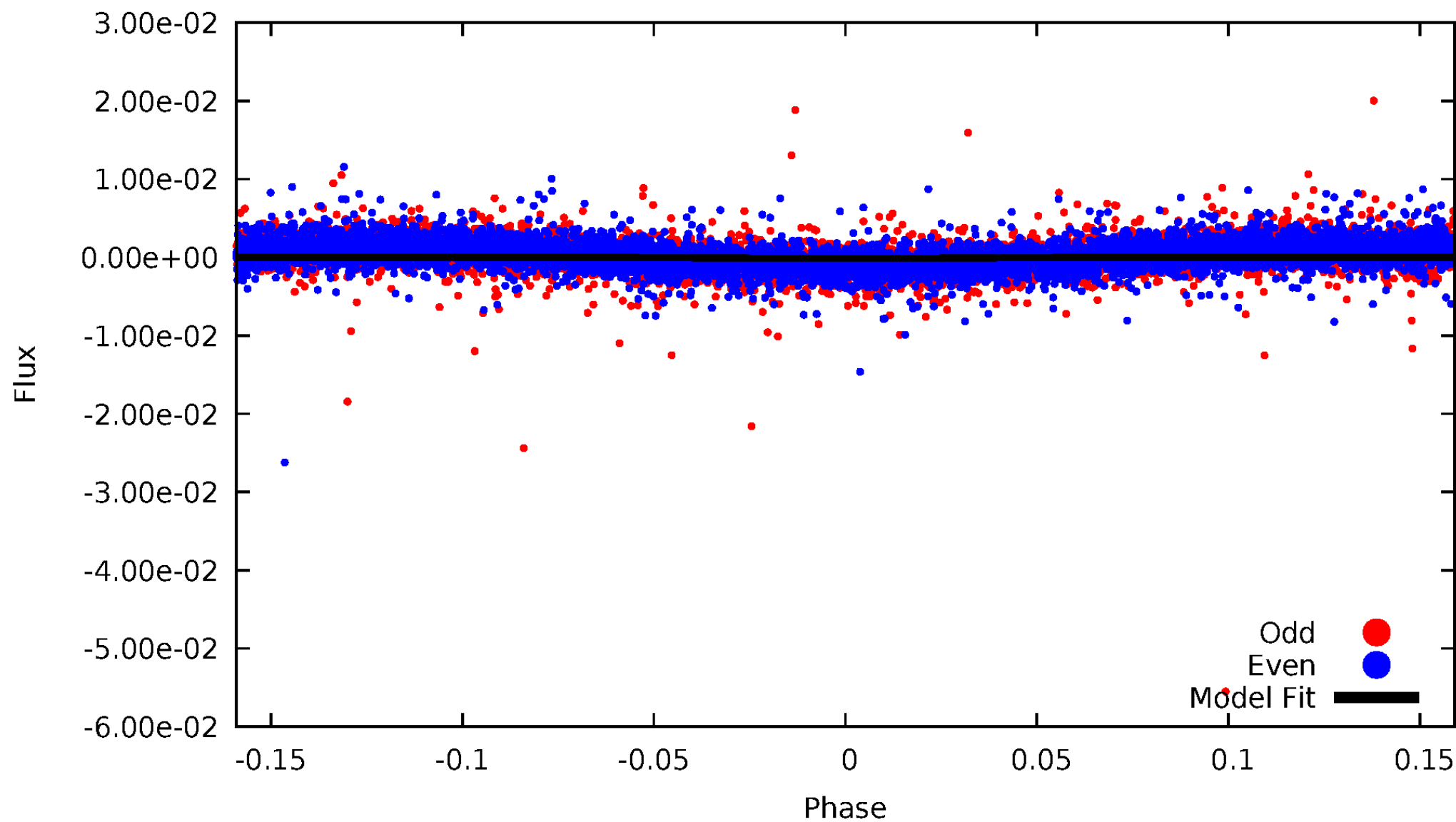
# TCE 010273384-03





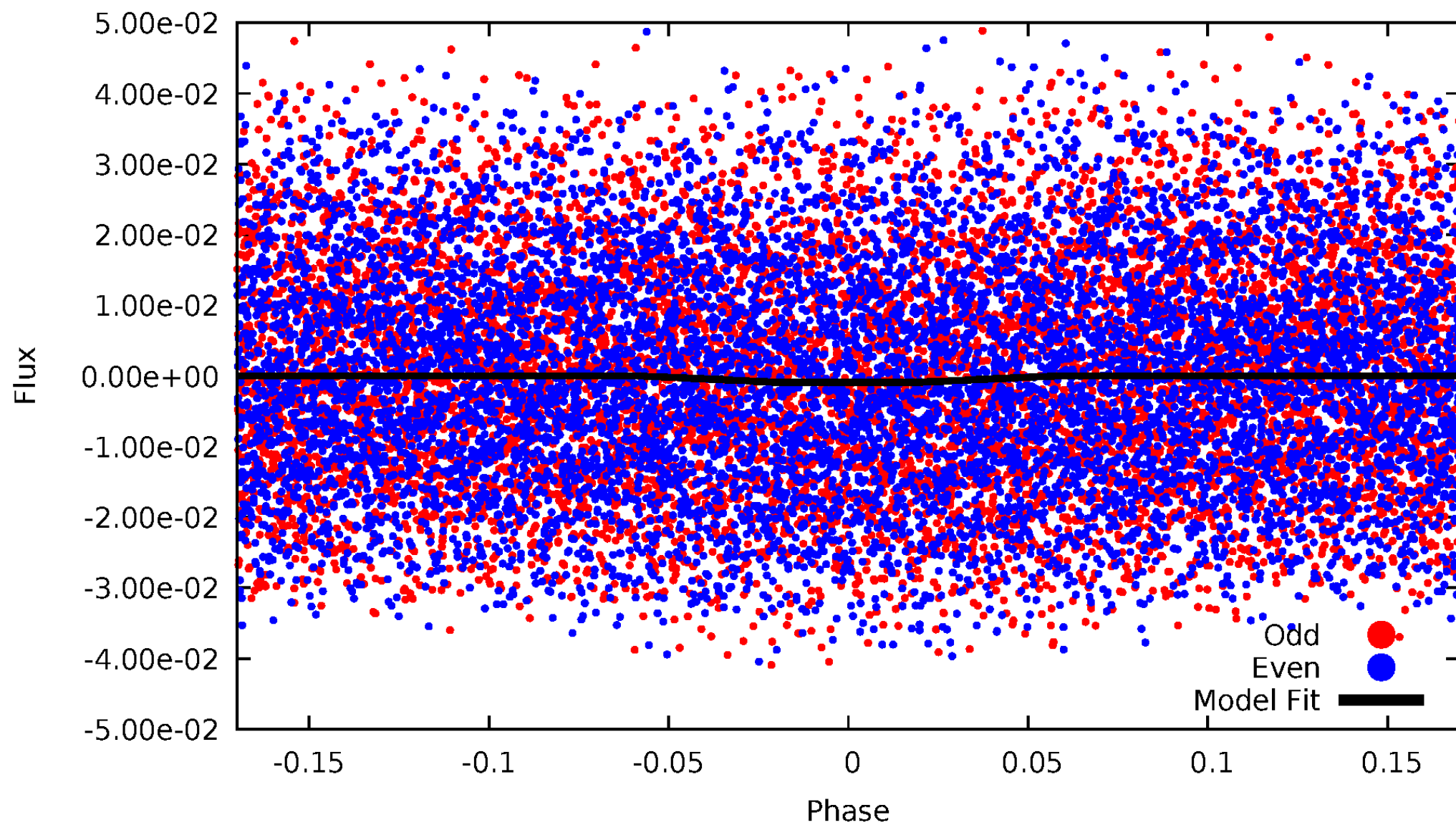
DV Odd/Even

TCE 010273384-03

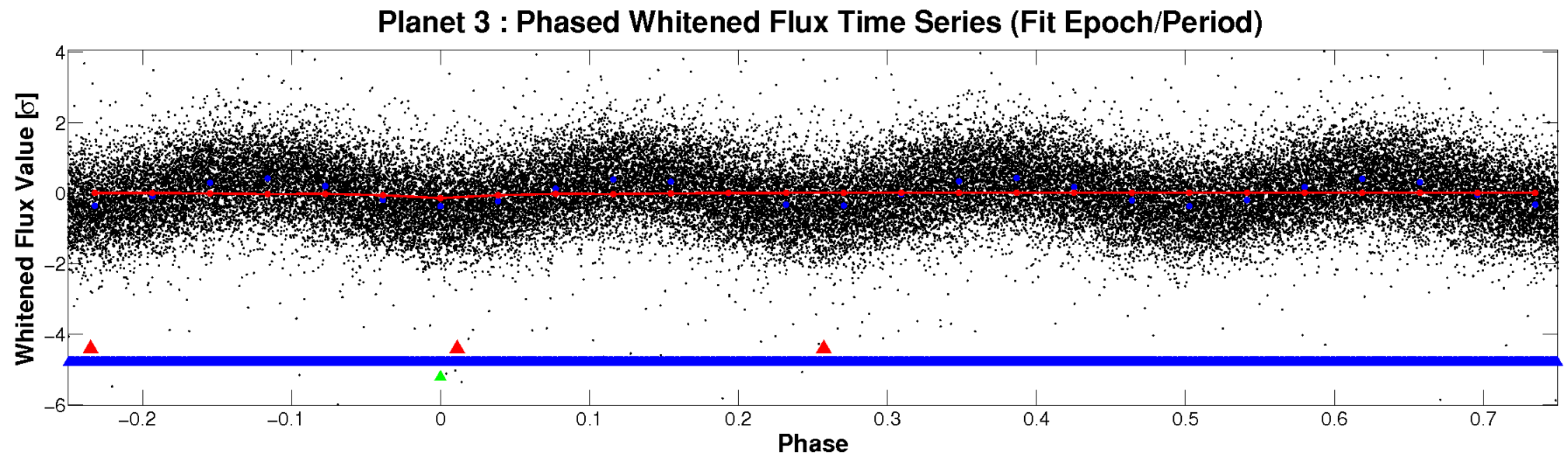
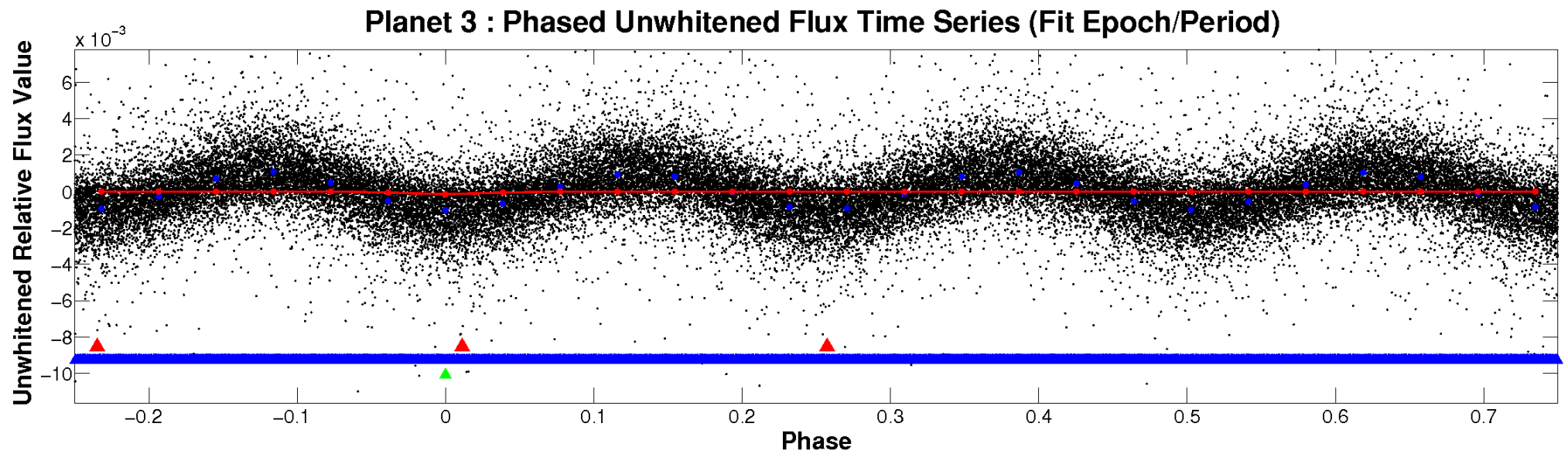


# ALT Odd/Even

TCE 010273384-03

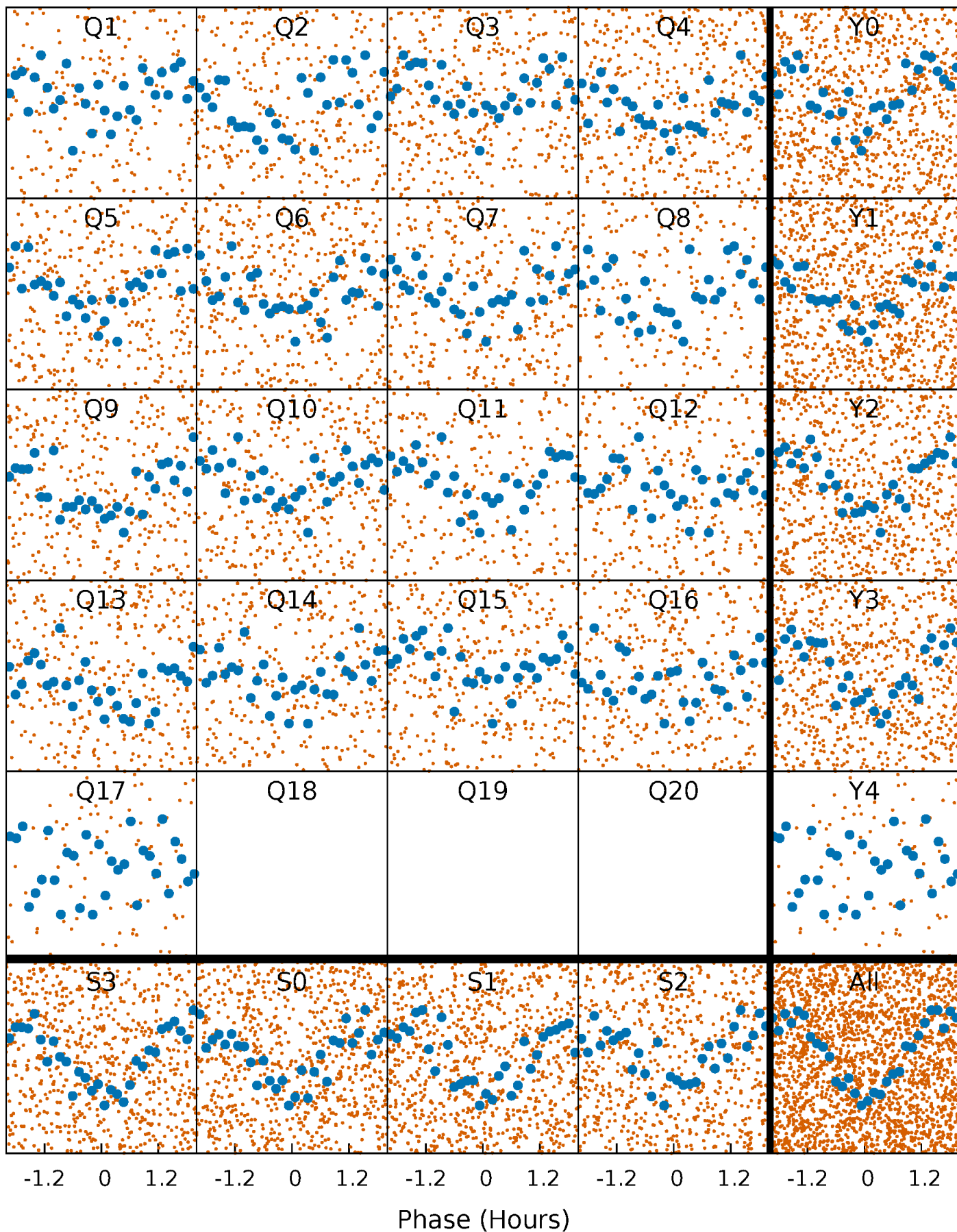


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

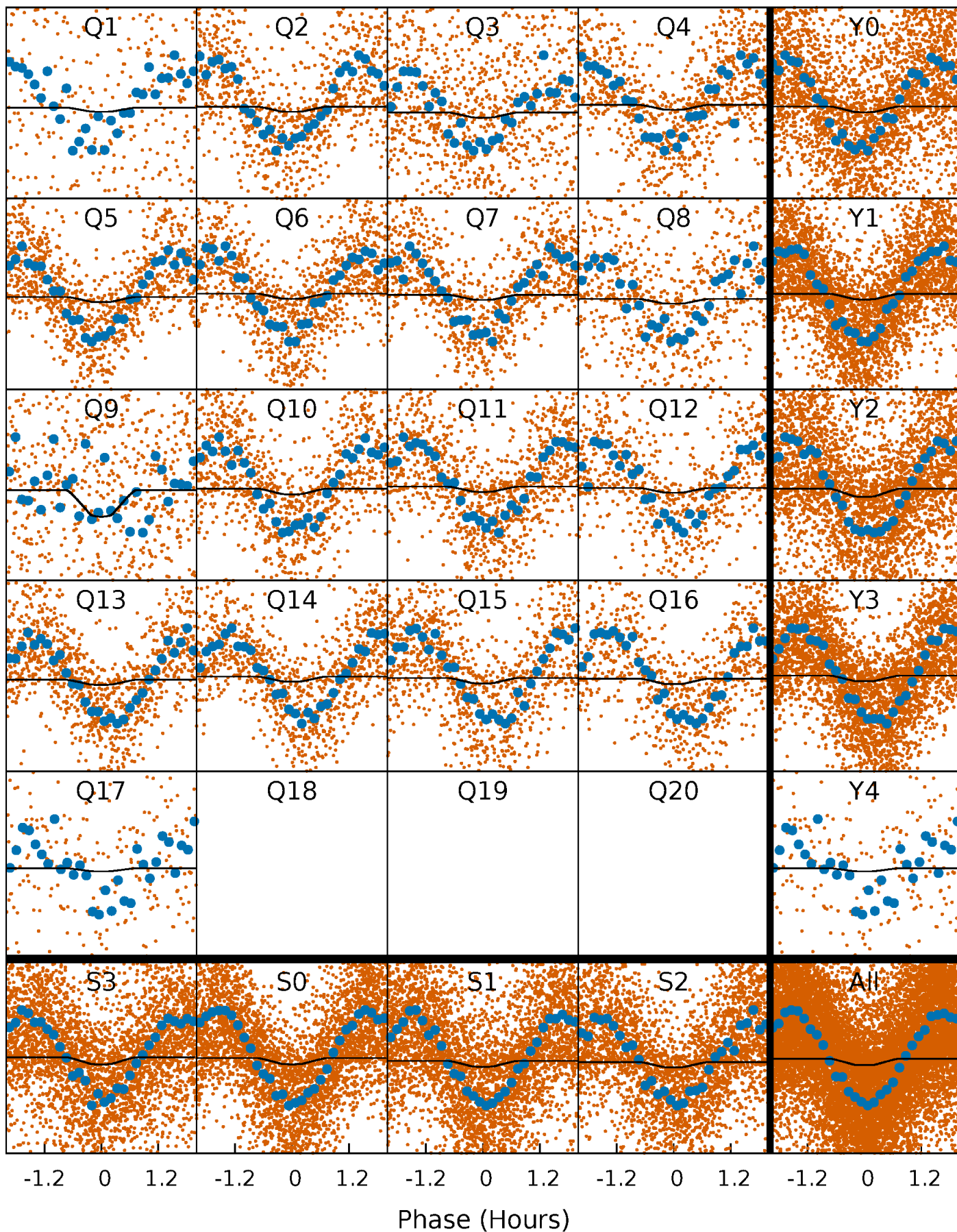
TCE 010273384-03 P= 0.528422 Days  $T_0=131.737314$  (BKJD)





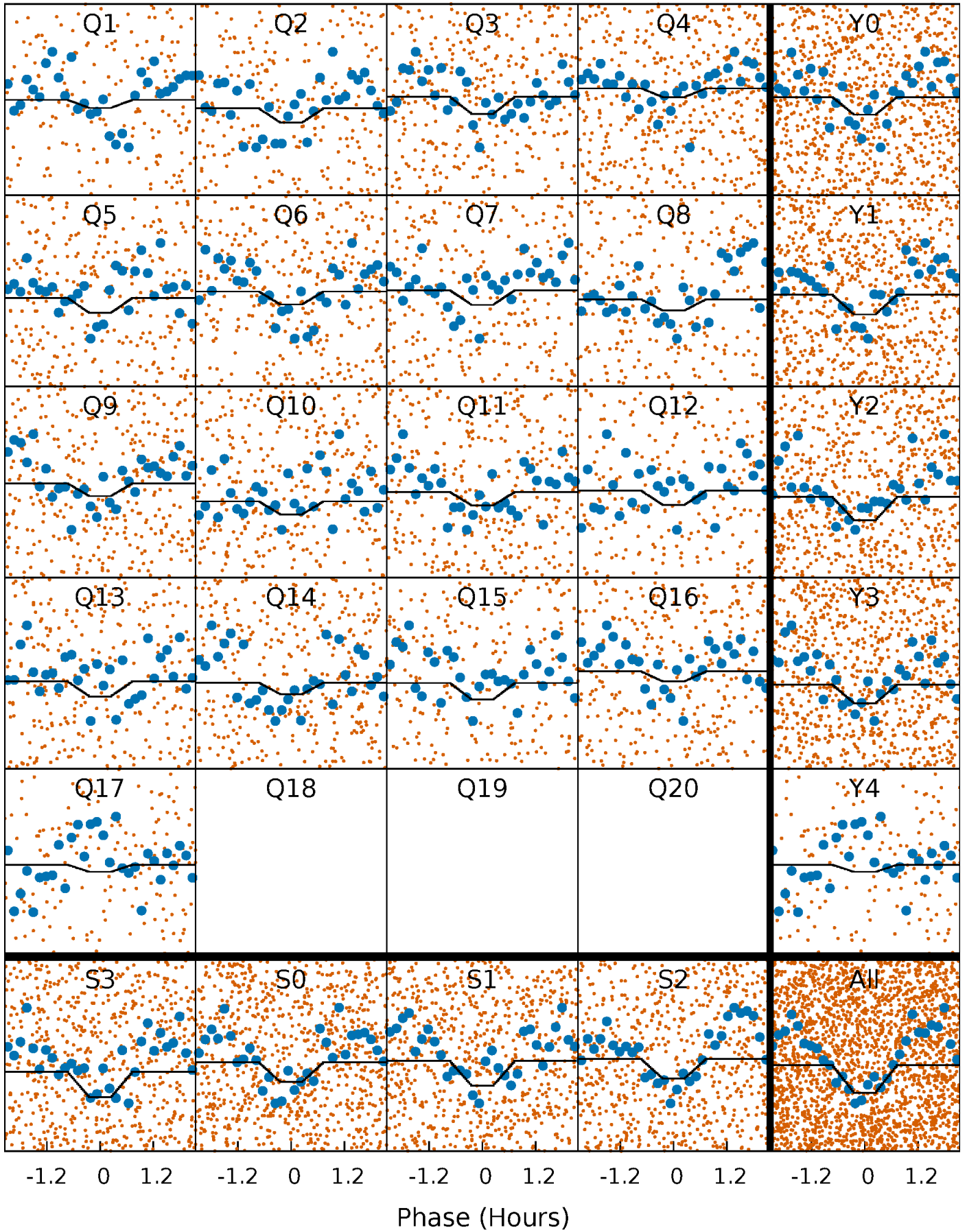
# DV Quarter-Phased Transit Curves

TCE 010273384-03     $P = 0.528422$  Days     $T_0 = 131.737314$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

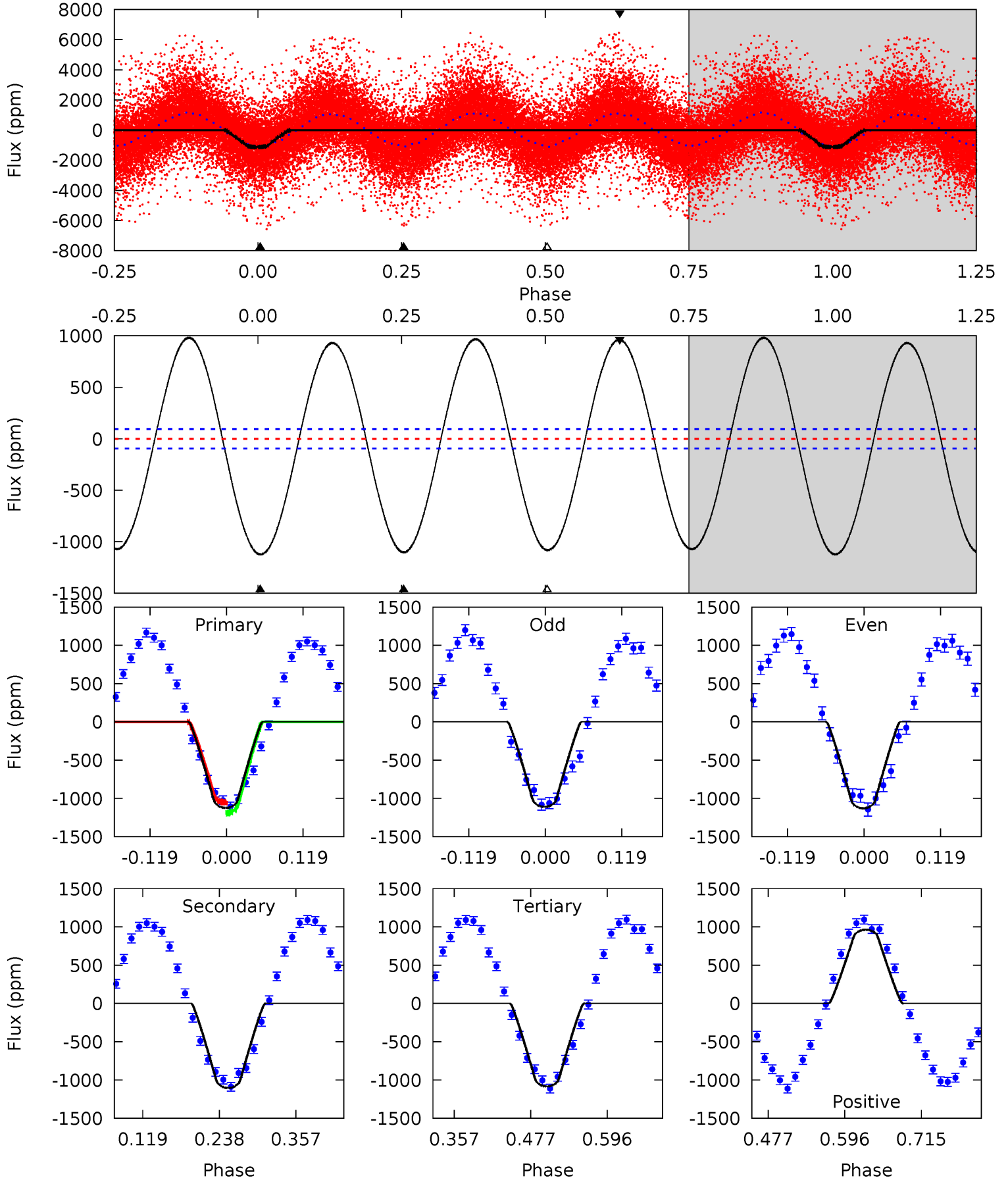
TCE 010273384-03 P= 0.528429 Days  $T_0=131.736018$  (BKJD)



# DV Model-Shift Uniqueness Test

010273384-03, P = 0.528422 Days, E = 131.208892 Days

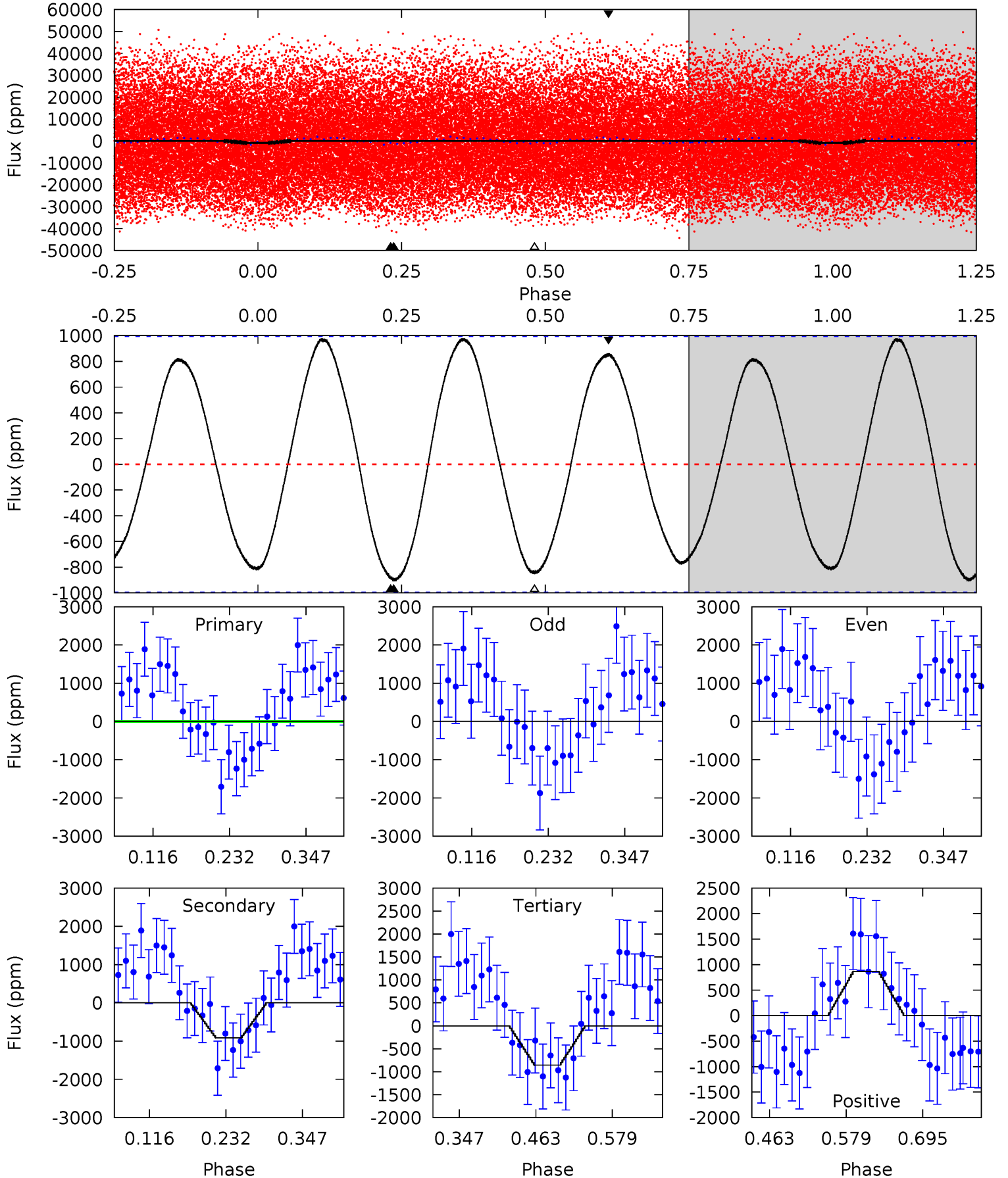
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.8	52.8	51.8	46.1	4.53	1.56	35.2	1.93	7.71	0.98	6.76	0.45	1.08	0.47	3.74



# Alt Model-Shift Uniqueness Test

010273384-03, P = 0.528429 Days, E = 131.207589 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
4.07	4.15	3.89	3.93	4.53	1.57	2.72	0.17	0.14	0.26	0.22	0.61	0.68	0.52	0.41





### Stellar Parameters For KIC 010273384

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6223^{+111}_{-124}$	$3.790^{+0.189}_{-0.081}$	$0.280^{+0.150}_{-0.150}$	$2.659^{+0.432}_{-0.648}$	$1.589^{+0.155}_{-0.190}$	$0.119^{+0.118}_{-0.032}$
	+2%/-2%	+5%/-2%	+54%/-54%	+16%/-24%	+10%/-12%	+99%/-27%
Source	SPE4	SPE4	SPE4	DSEP		

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

### Secondary Eclipse Parameters for KIC 010273384-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1103 \pm 21$	$4.59^{+3.53}_{-2.78}$	$5065^{+233}_{-311}$	$9396^{+11989}_{-2987}$	$6.576^{+35.394}_{-4.509}$
Alt.	$-912 \pm 220$	$8.60^{+3.89}_{-3.55}$	$5066^{+212}_{-302}$	$5827^{+2399}_{-1246}$	$1.519^{+2.936}_{-0.841}$

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

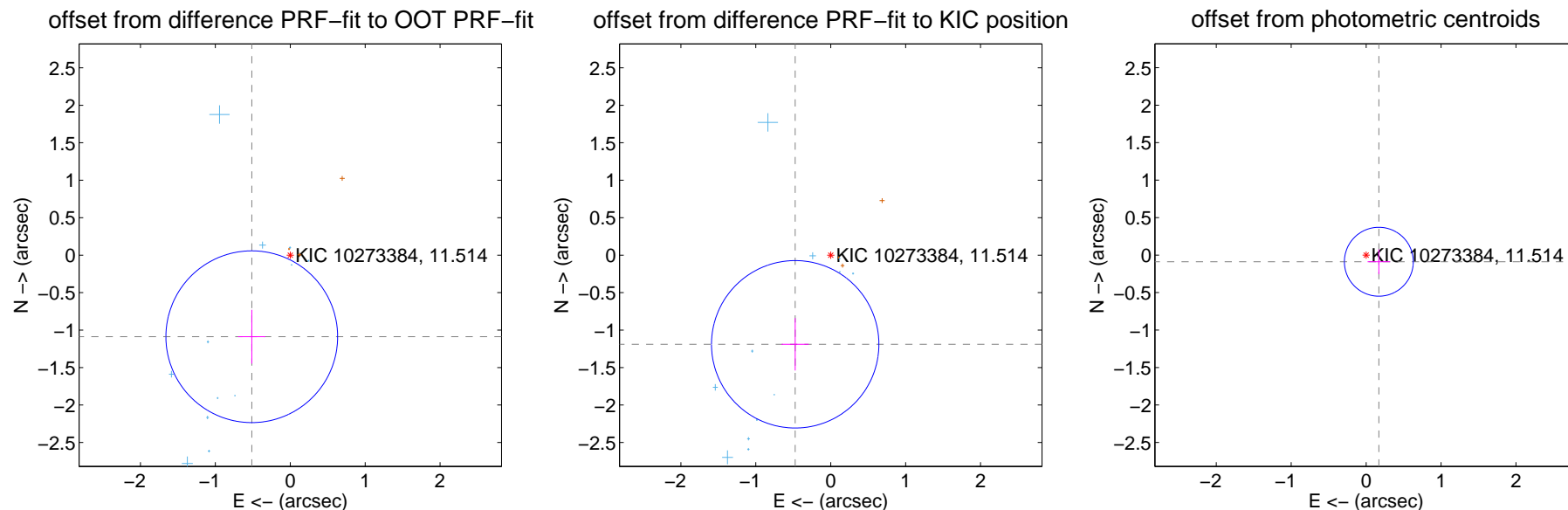
## DV Centroid Data

Supplemental centroid analysis for 010273384-03. **Kepler magnitude: 11.51**. Transit SNR 7.48

There are 13 quarters with good PRF difference image offsets

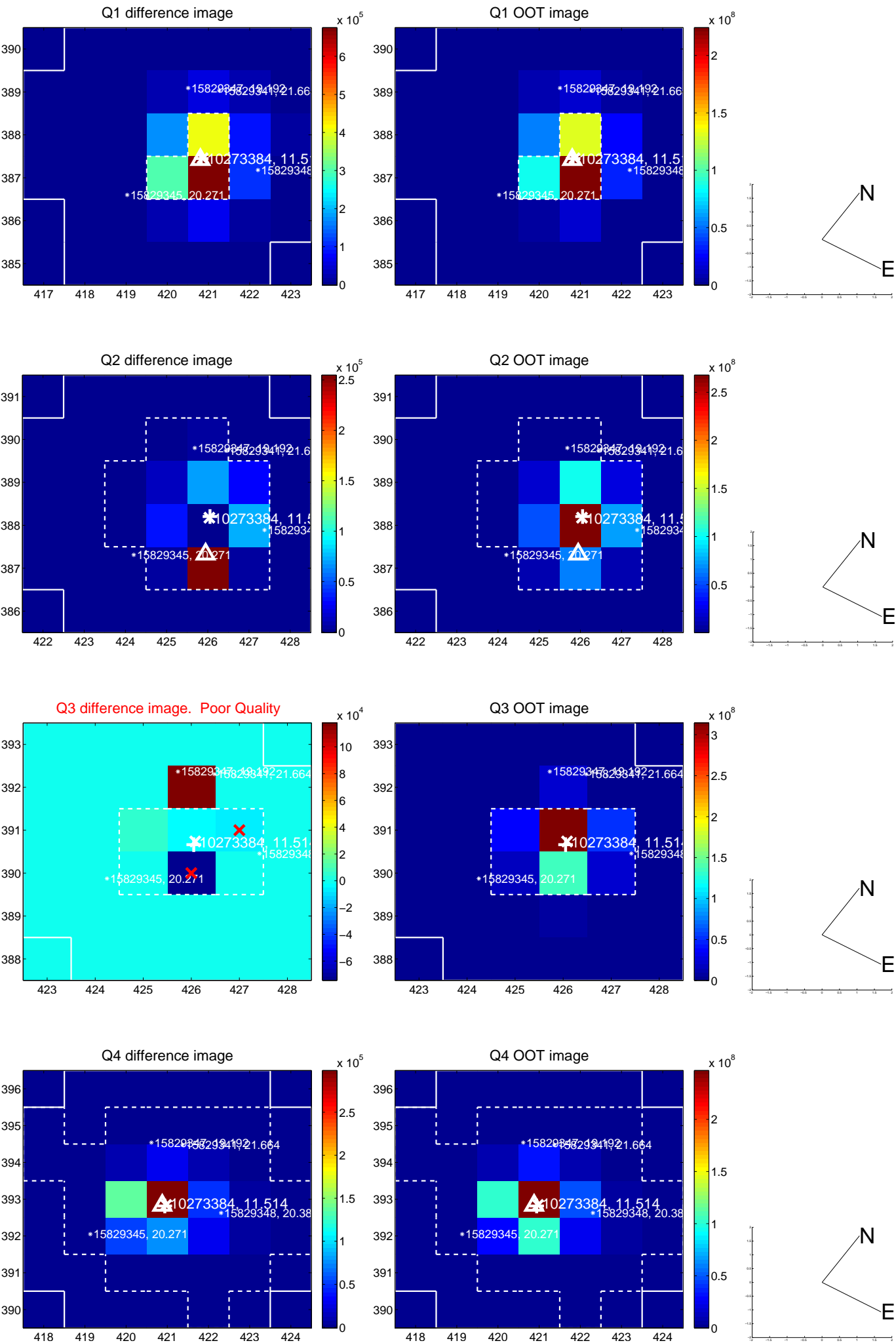
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.204 \pm 0.382</math></b>	<b>3.15</b>	$0.514 \pm 0.182$	$-1.089 \pm 0.359$
PRF-fit source offset from KIC position	<b><math>1.281 \pm 0.372</math></b>	<b>3.44</b>	$0.474 \pm 0.180$	$-1.190 \pm 0.349$
photometric centroid source offset	$0.19 \pm 0.15$	1.25	$-0.17 \pm 0.15$	$-0.09 \pm 0.16$

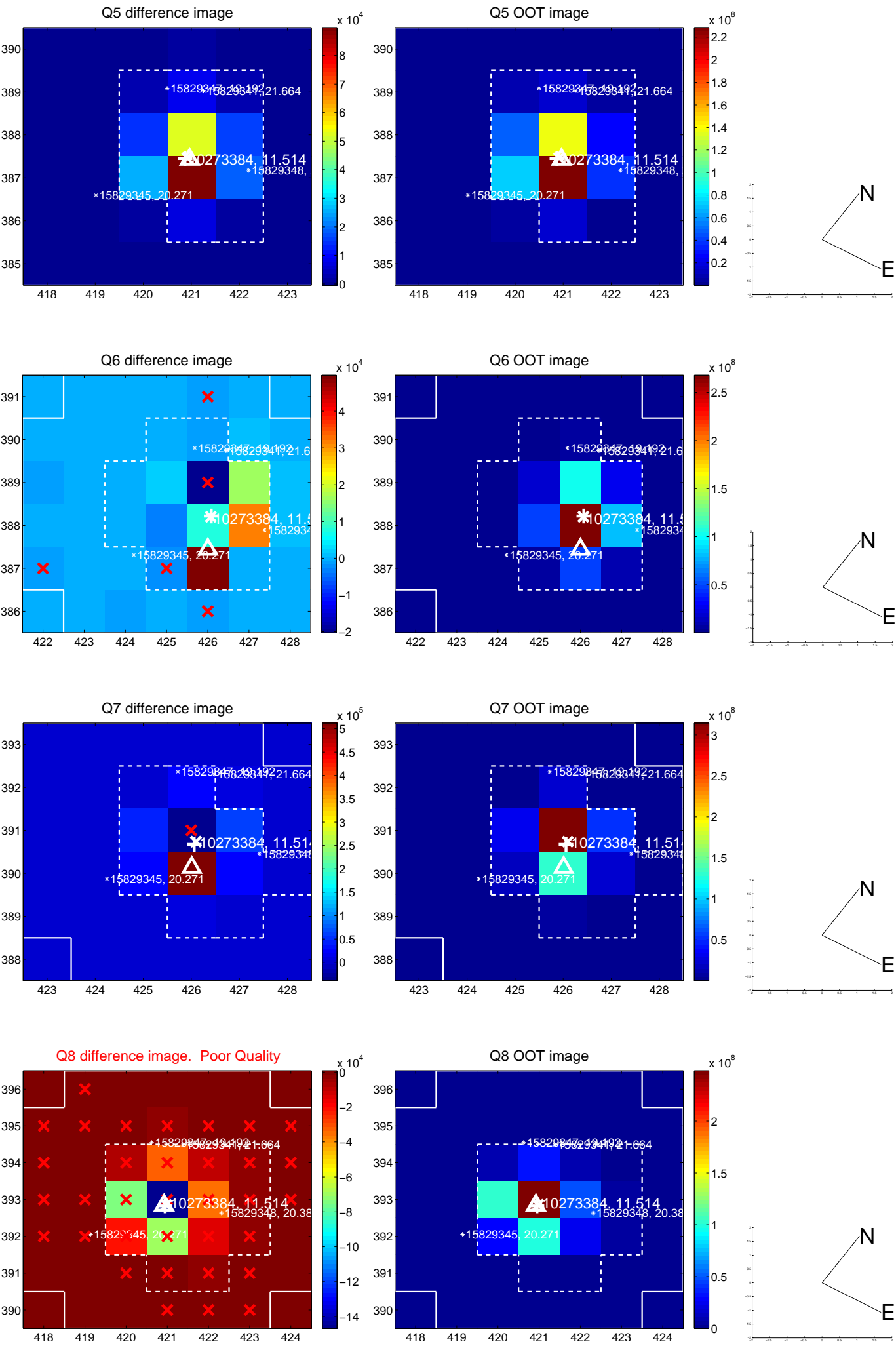


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

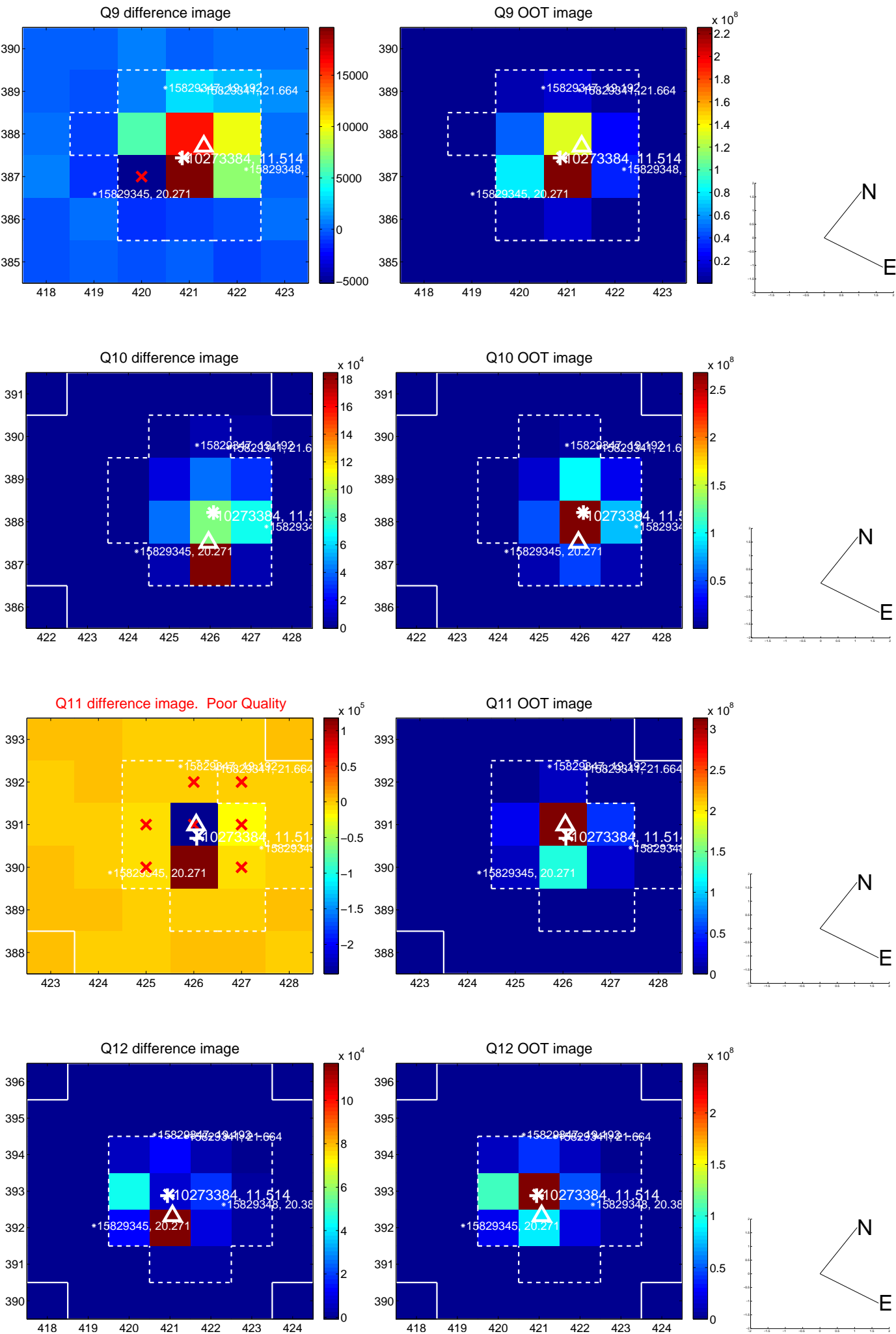
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



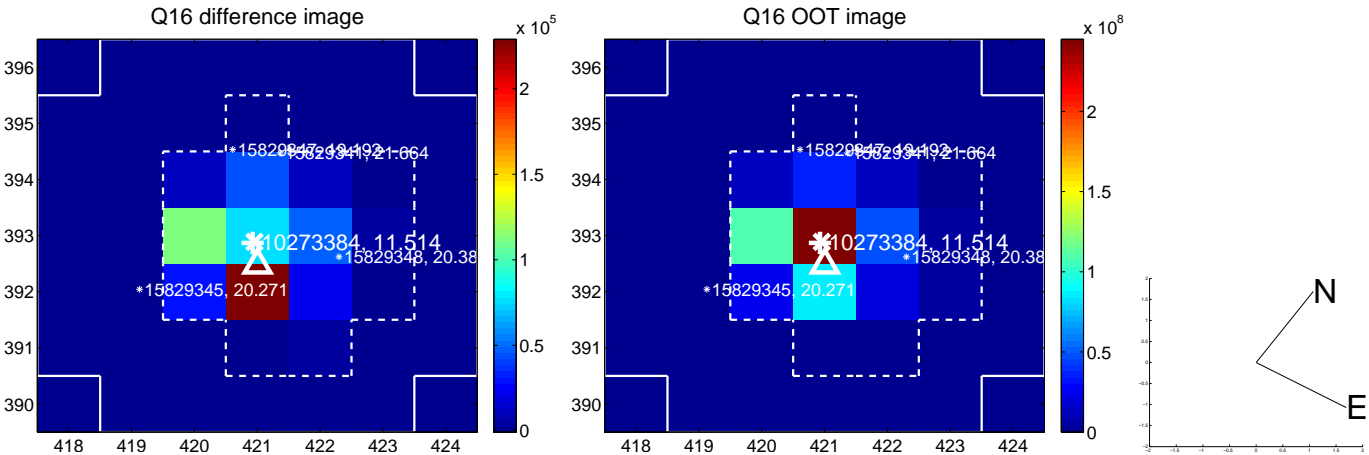
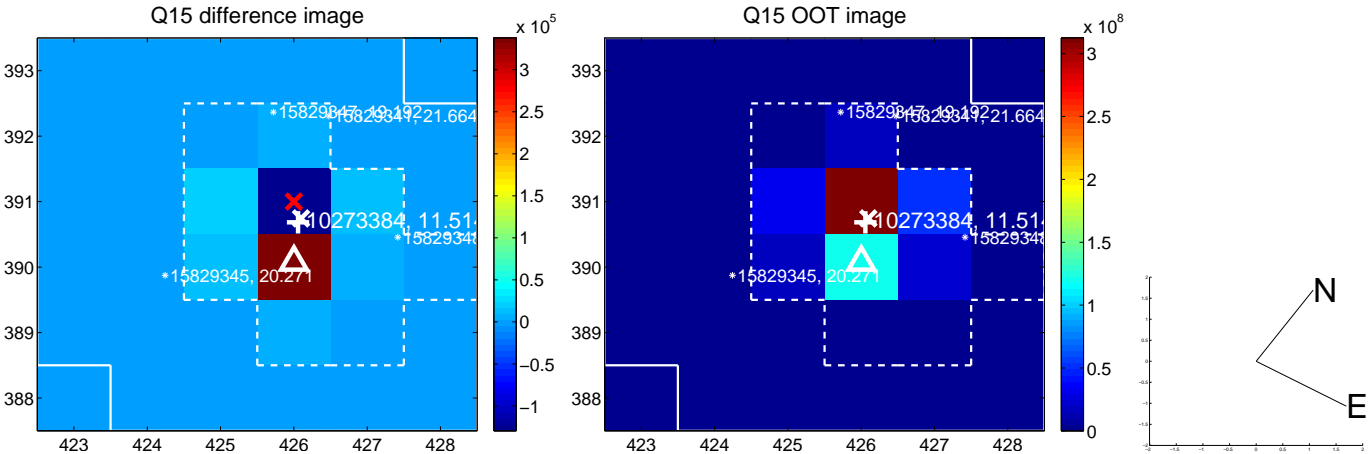
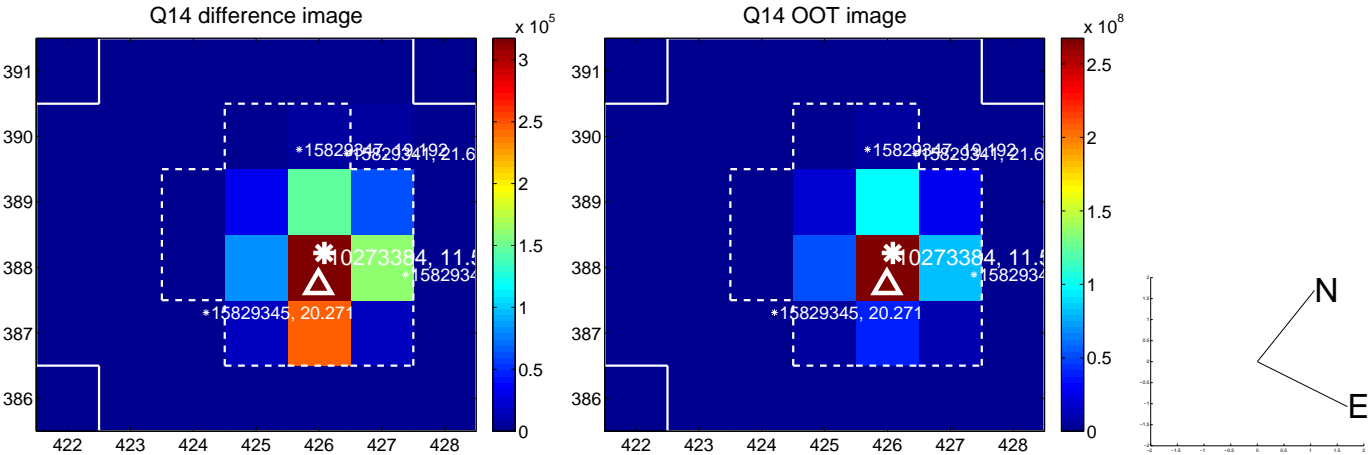
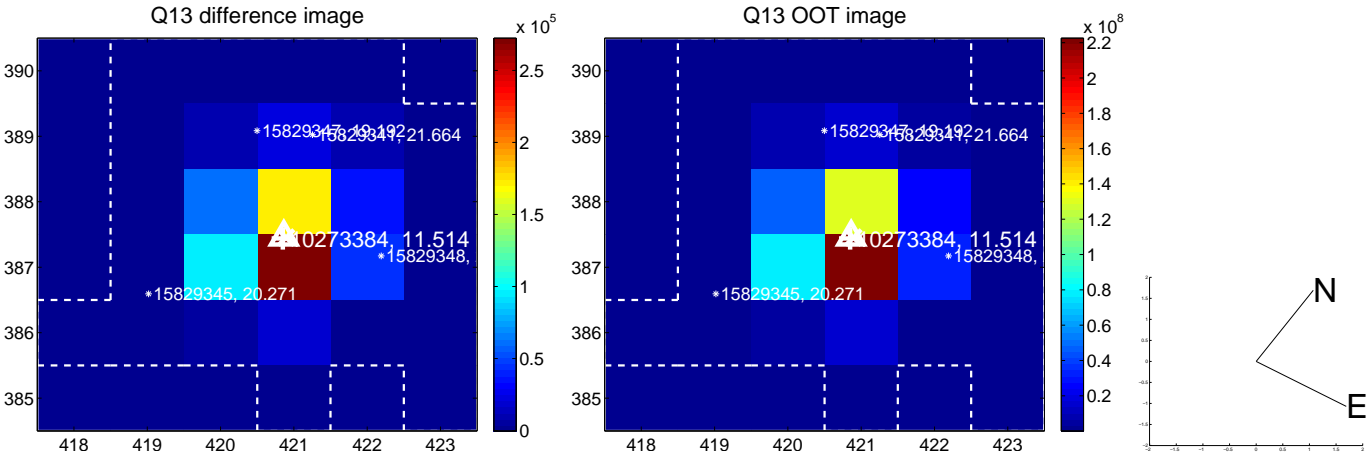
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

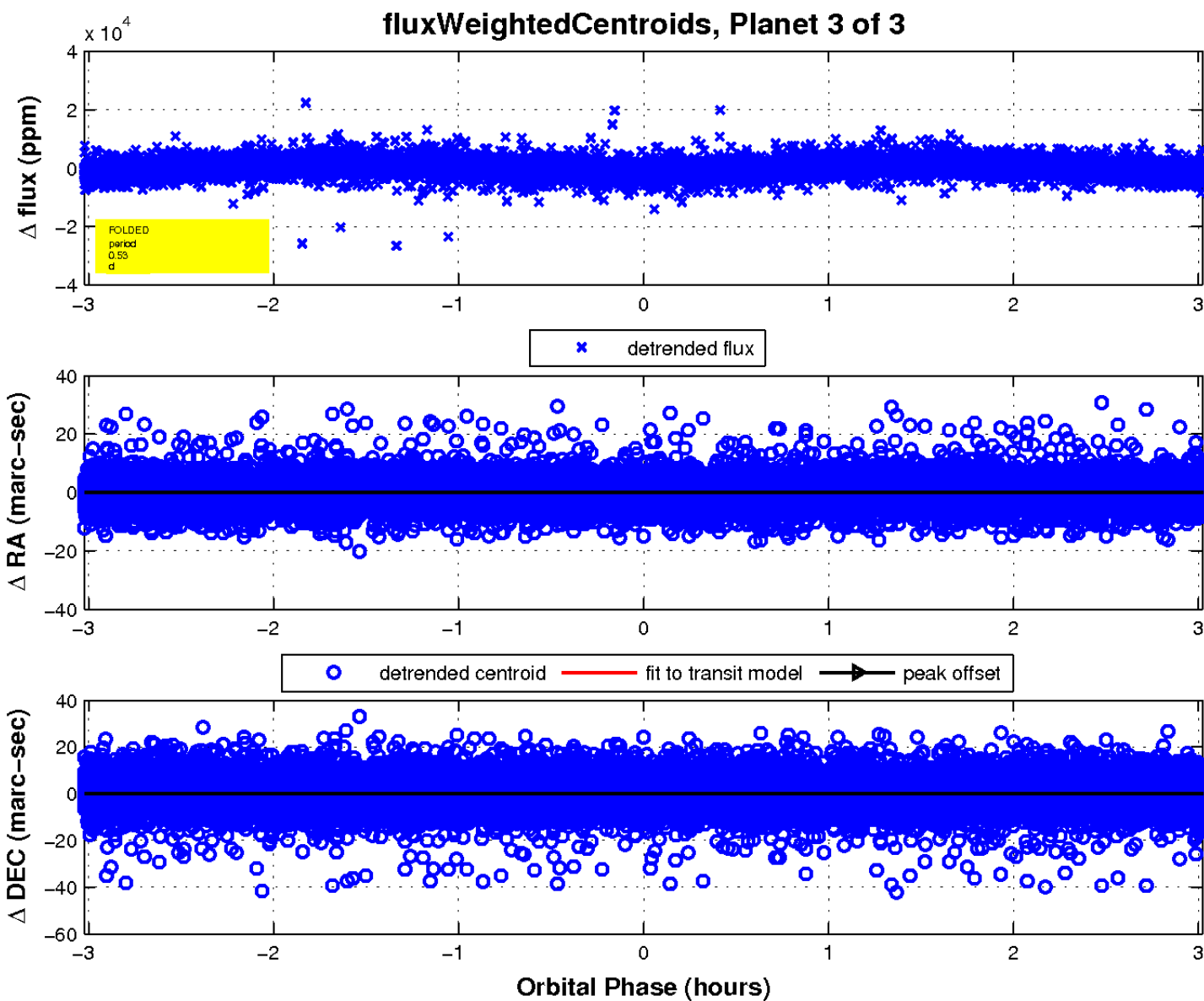
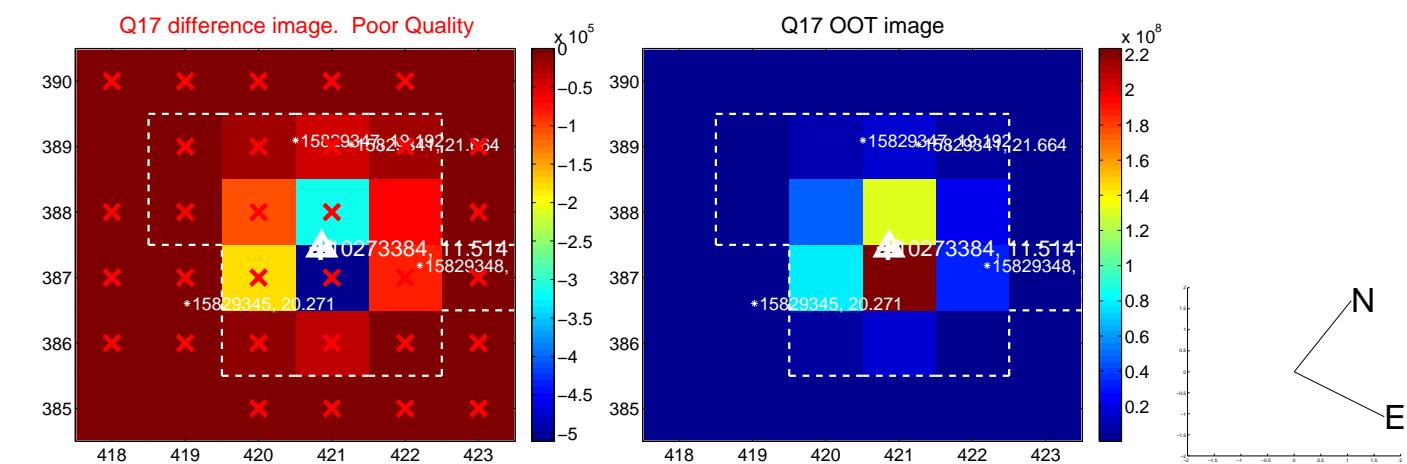


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

