

## KIC 007117367

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007117367-01	OBS	No	0.566775	131.840915	12.0	2.455	7.9	4.3	1.10	6124	0.45	7889.11
007117367-02	OBS	No	460.787180	280.053603	698.7	6.281	15.0	9.3	1.10	6124	3.26	1.04
007117367-03	OBS	No	205.582047	199.067749	369.0	9.000	10.8	-1.0	1.10	6124	2.10	3.05
007117367-04	OBS	No	263.770300	266.301694	620.3	3.137	11.1	6.8	1.10	6124	2.90	2.19
007117367-06	OBS	No	517.431159	471.695739	328.5	5.291	10.2	4.7	1.10	6124	2.30	0.89
007117367-07	OBS	No	188.407371	153.688218	781.8	3.500	10.2	-1.0	1.10	6124	3.06	3.43
007117367-08	OBS	No	200.525987	247.318456	372.2	9.085	8.8	5.2	1.10	6124	2.23	3.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007117367-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
007117367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_FEW_DIFFS
007117367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS
007117367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
007117367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007117367-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007117367-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_UNCERTAIN

**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.

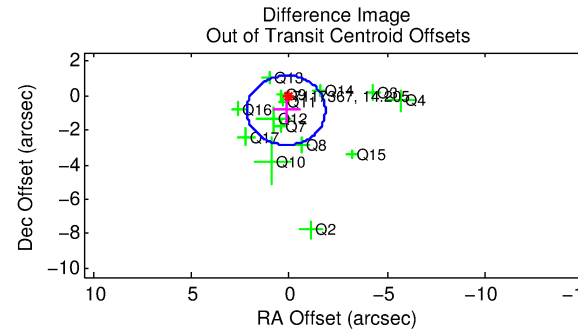
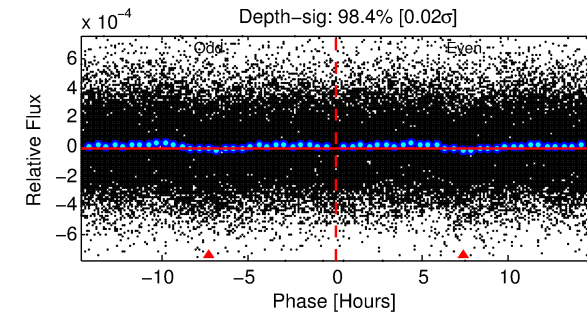
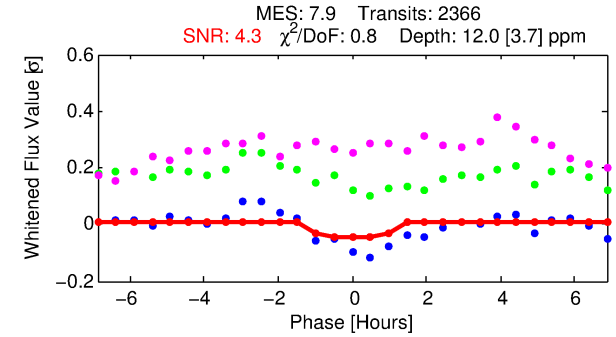
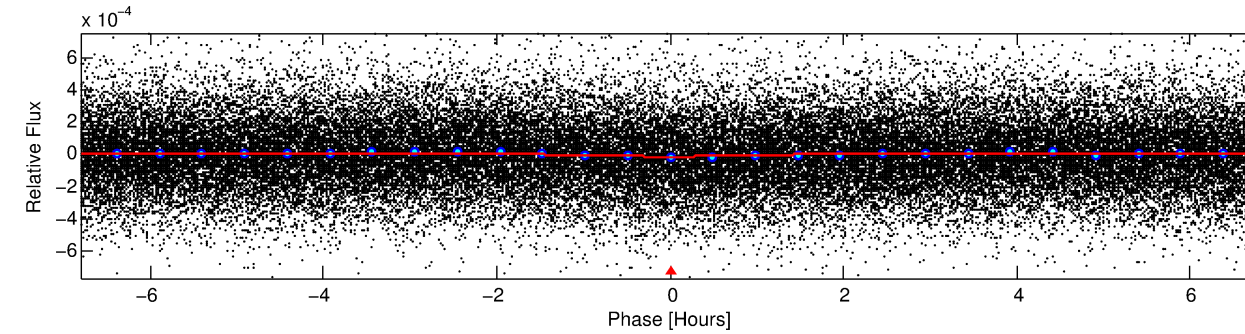
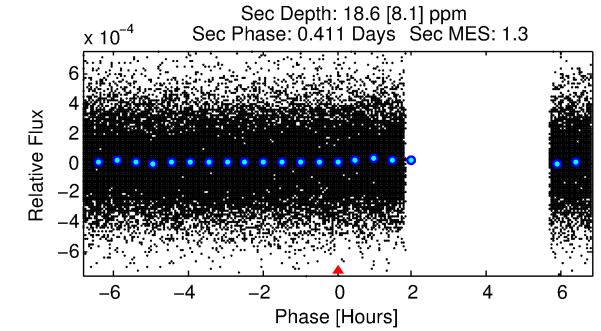
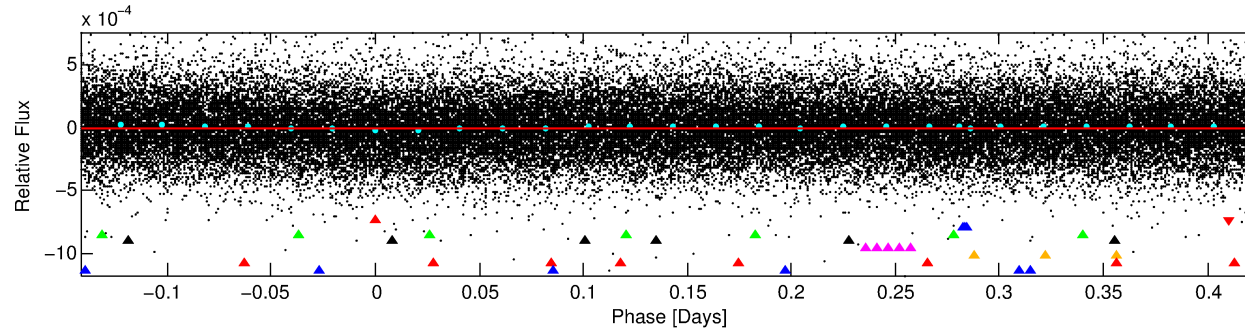
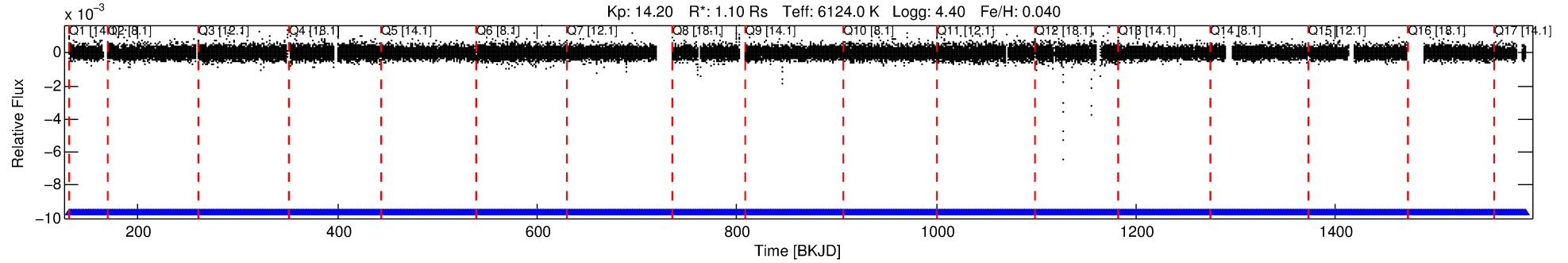
## Ephemeris Match Information For 007117367-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007117367-01	7117367	RR-Lyr-pri	7198959	1:1	989.0	234	84	7.86	14.20	51941.00	Direct-PRF	0	4.60	17.47

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 7117367 Candidate: 1 of 8 Period: 0.567 d



## DV Fit Results:

Period = 0.56678 [0.00002] d  
Epoch = 131.8409 [0.0060] BKJD  
Rp/R\* = 0.0037 [0.0029]  
a/R\* = 1.23 [1.69]  
b = 0.90 [0.90]  
Seff = 7889.11 [3284.71]  
Teff = 2403 [250] K  
Rp = 0.45 [0.38] Re  
a = 0.0139 [0.0039] AU  
Ag = 9.80 [16.50] [0.53σ]  
Teffp = 6574 [2698] K [1.54σ]

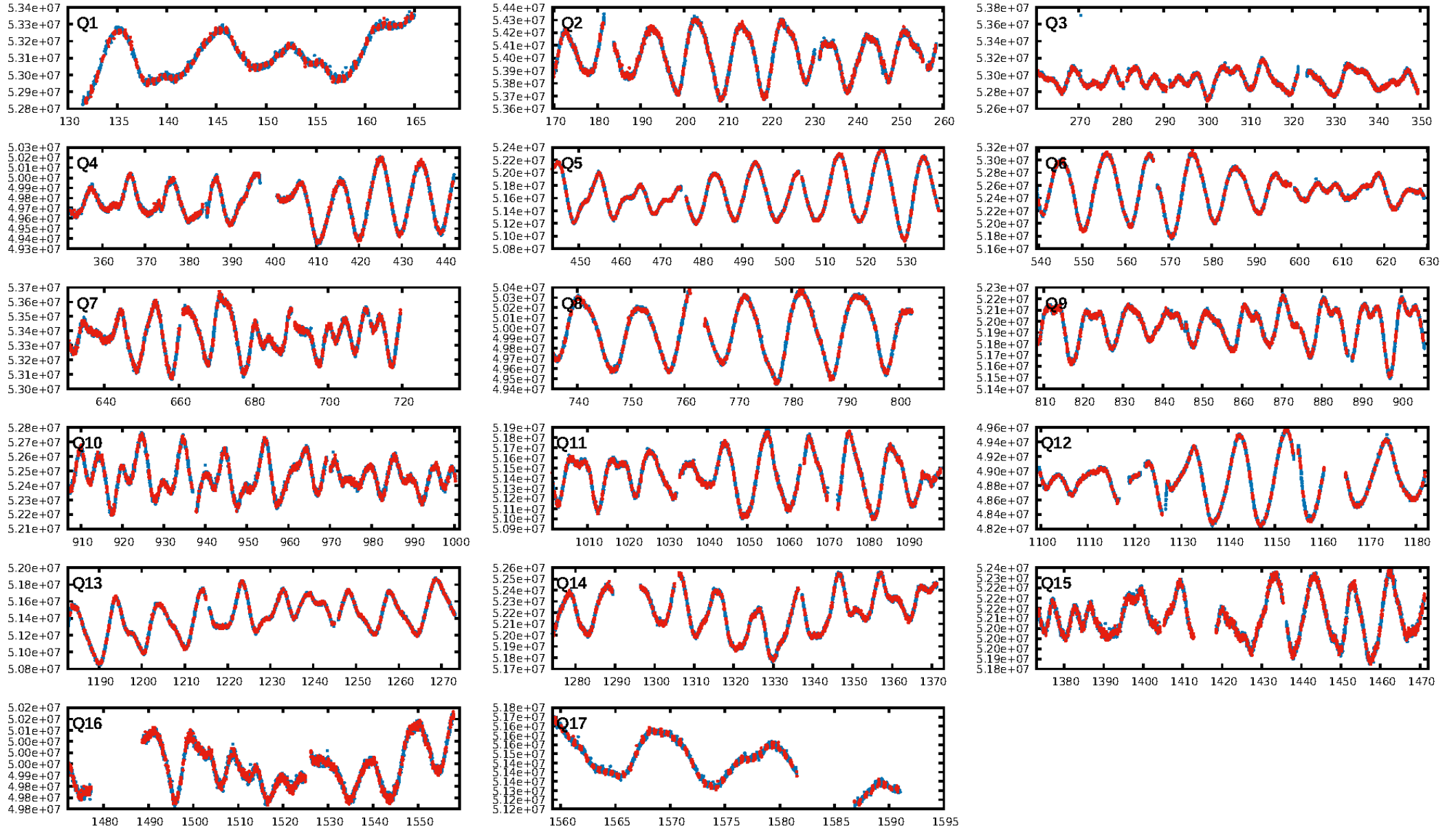
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [1054.52σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2261/2261]  
**GhostDiagnostic-chr: 0.1418**  
Centroid-sig: 0.5%  
Centroid-so: 4.065 arcsec [1.83σ]  
OotOffset-rm: 0.870 arcsec [1.30σ]  
OotOffset-st: 3/4/4/3 [14]  
KicOffset-rm: 0.873 arcsec [1.53σ]  
KicOffset-st: 3/4/4/3 [14]  
DiffImageQuality-fgm: 0.00 [0/14]  
DiffImageOverlap-fno: 1.00 [17/17]

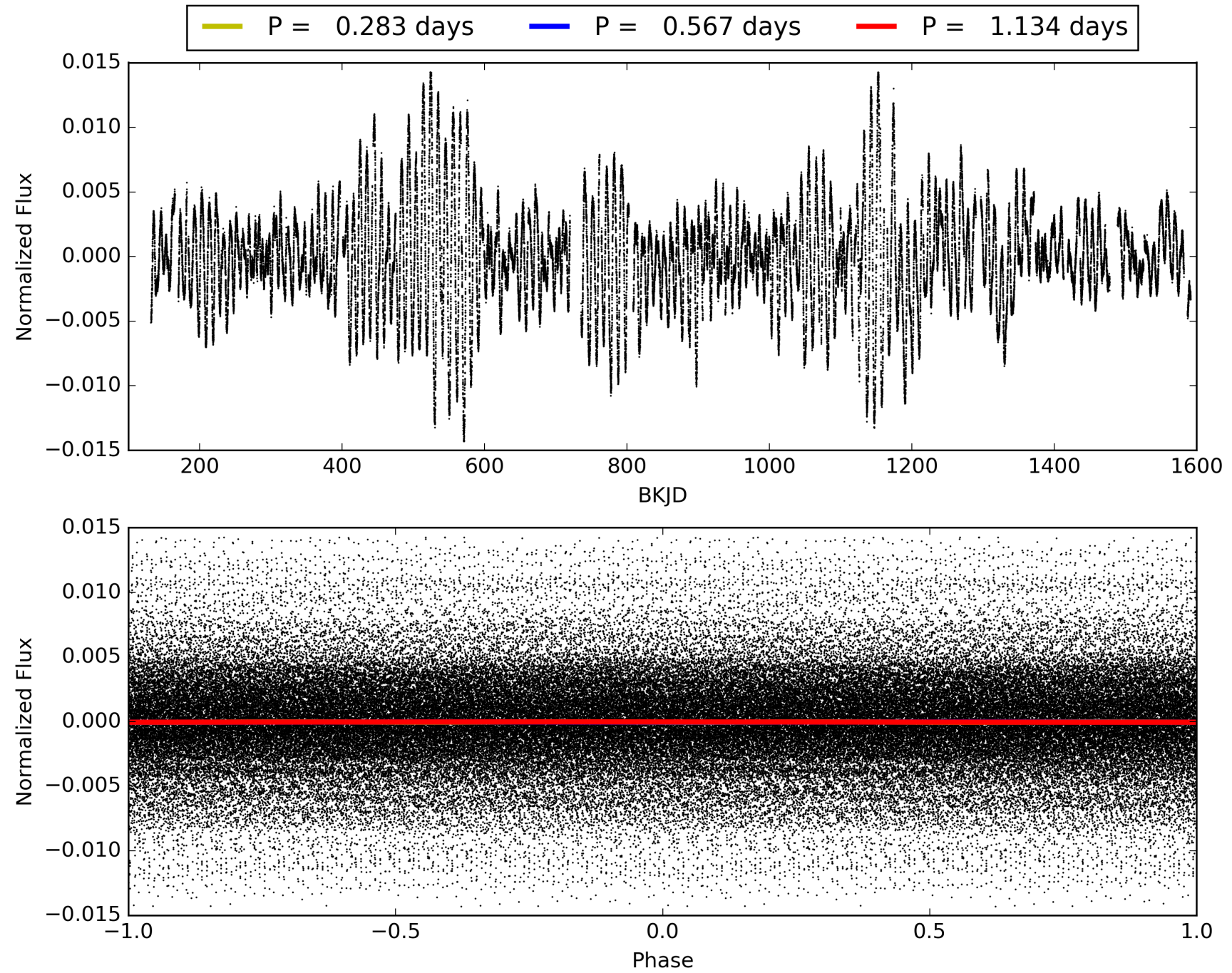
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:35:20 Z

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

# TCE 007117367-01, PDC Light Curves



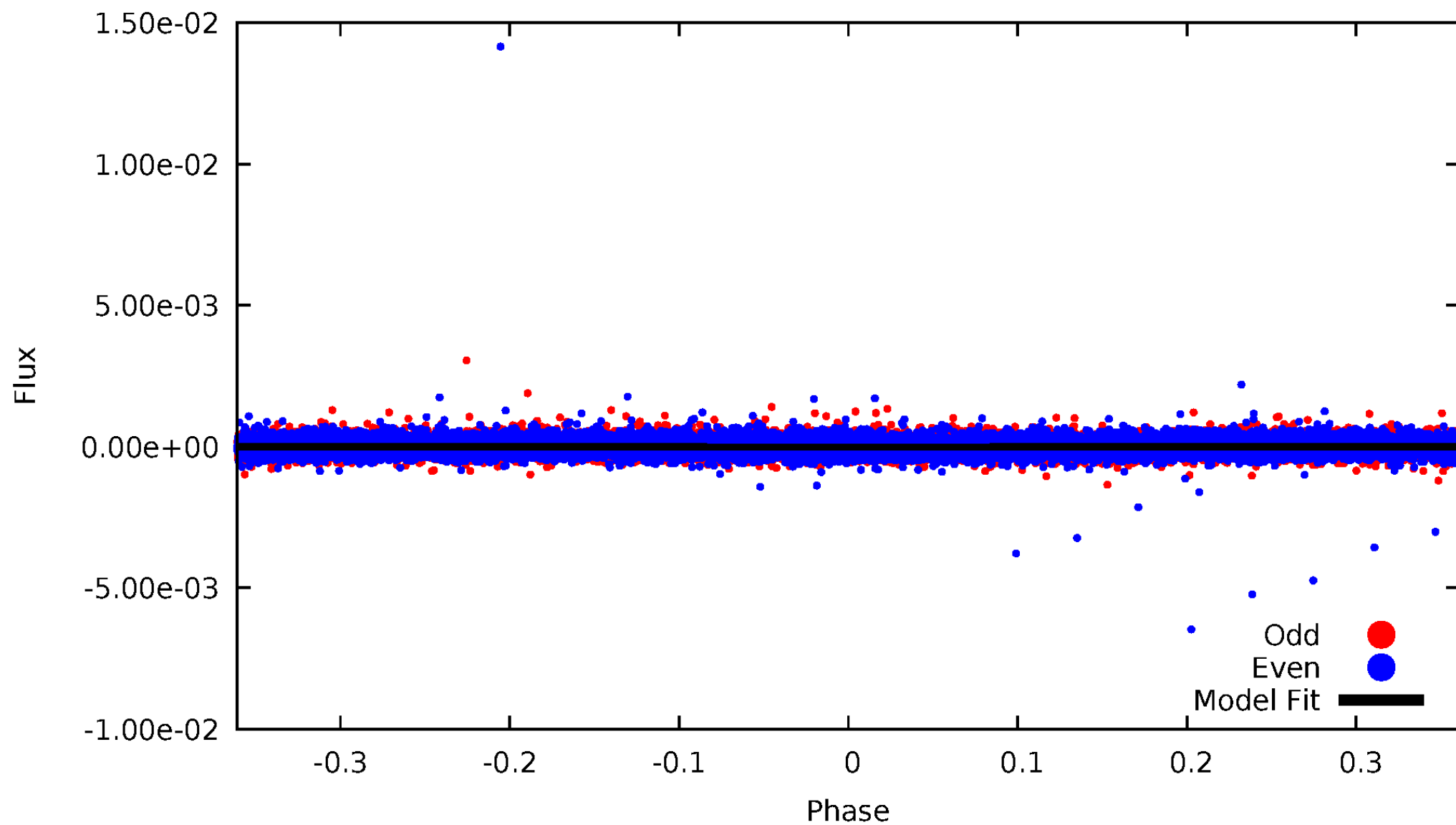
TCE 007117367-01





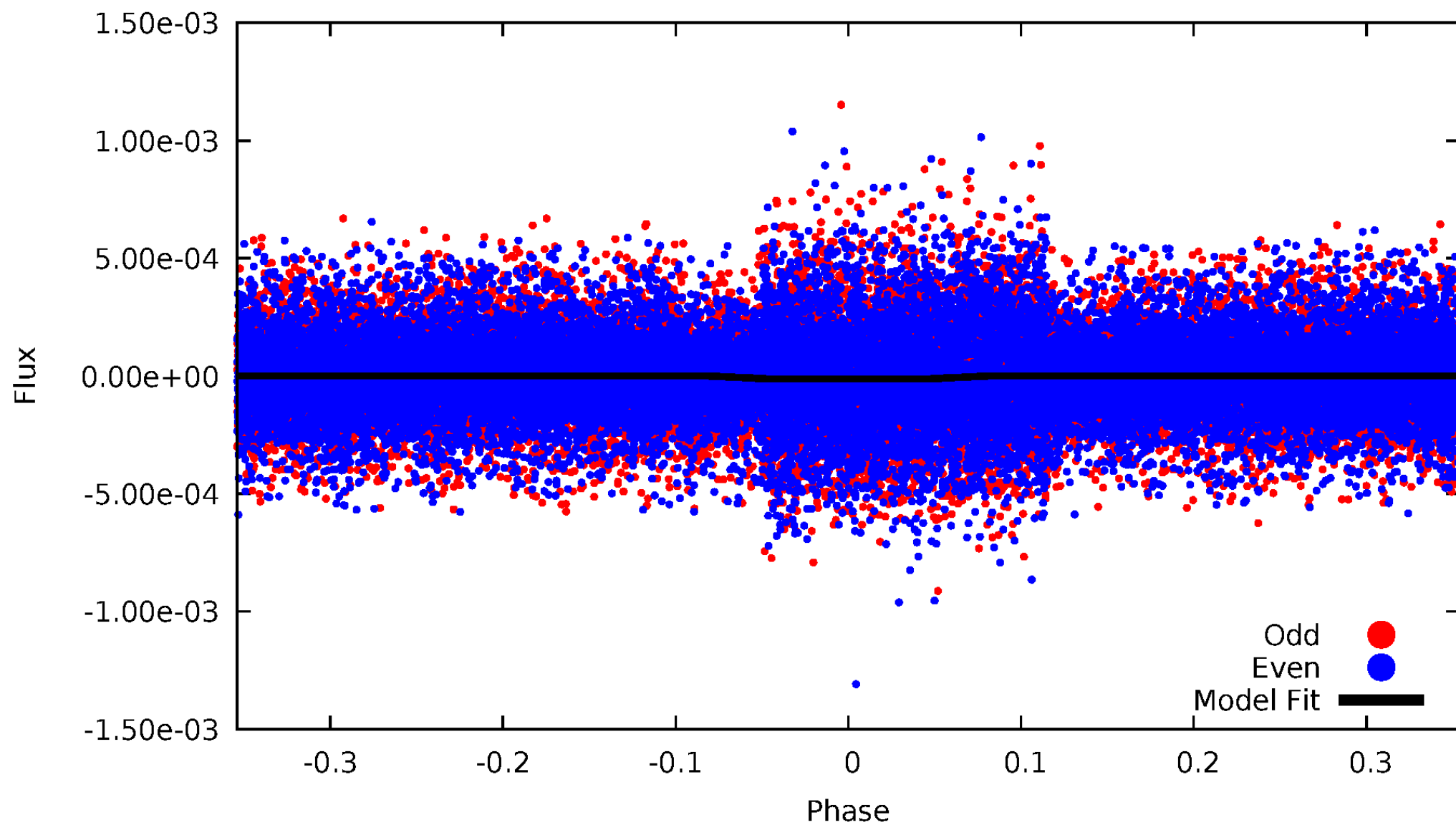
# DV Odd/Even

TCE 007117367-01

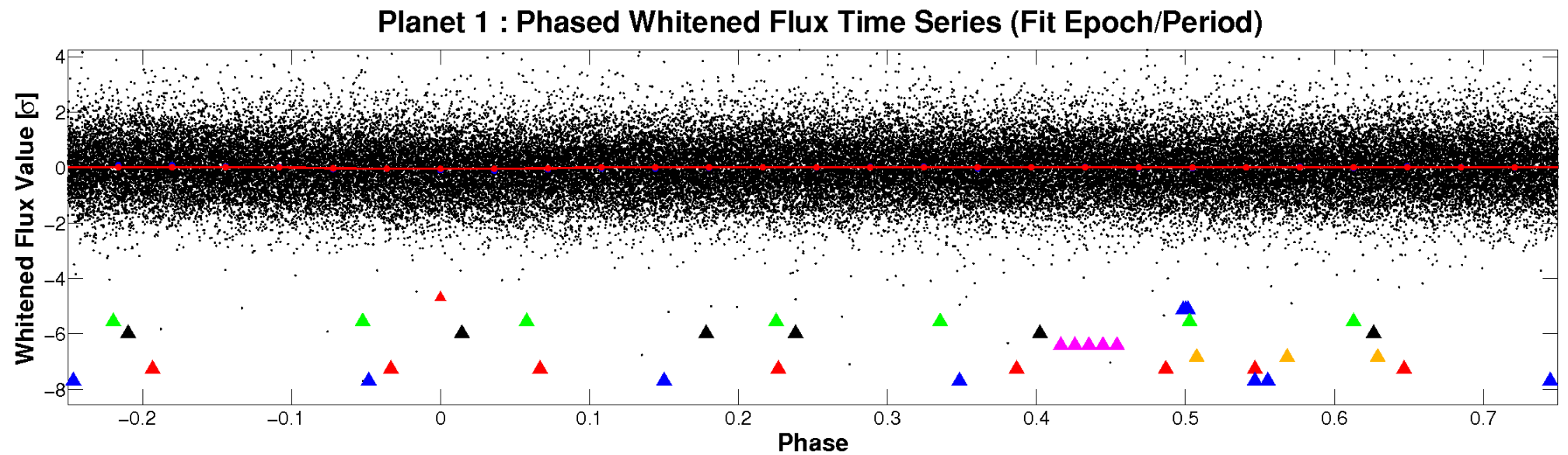
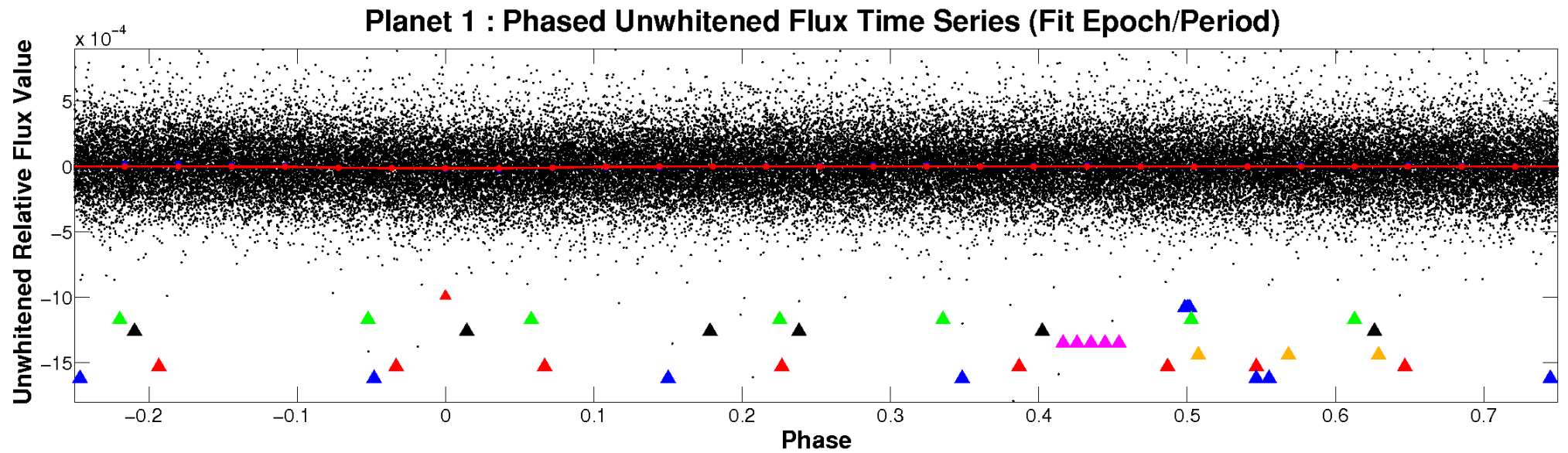


# ALT Odd/Even

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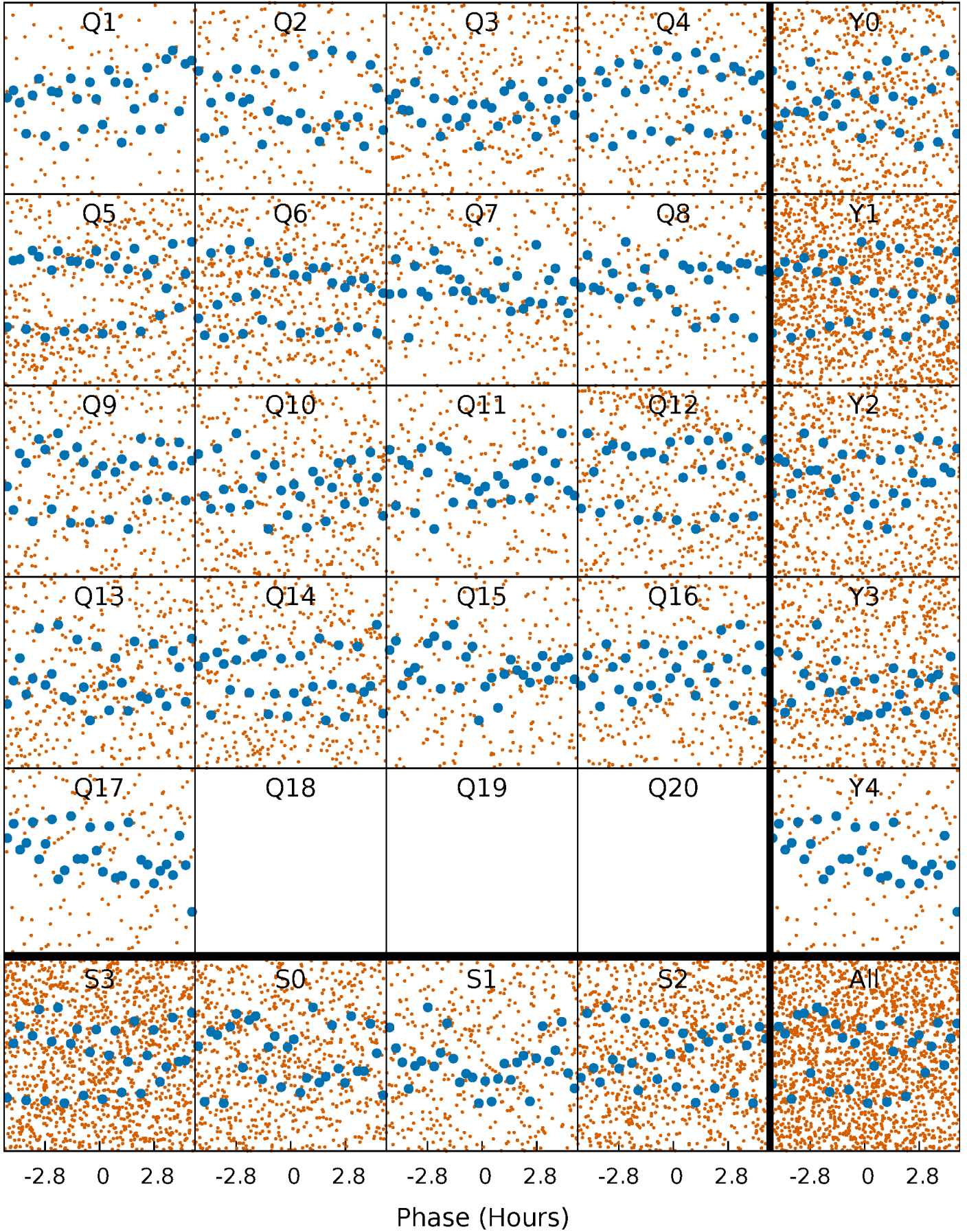


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

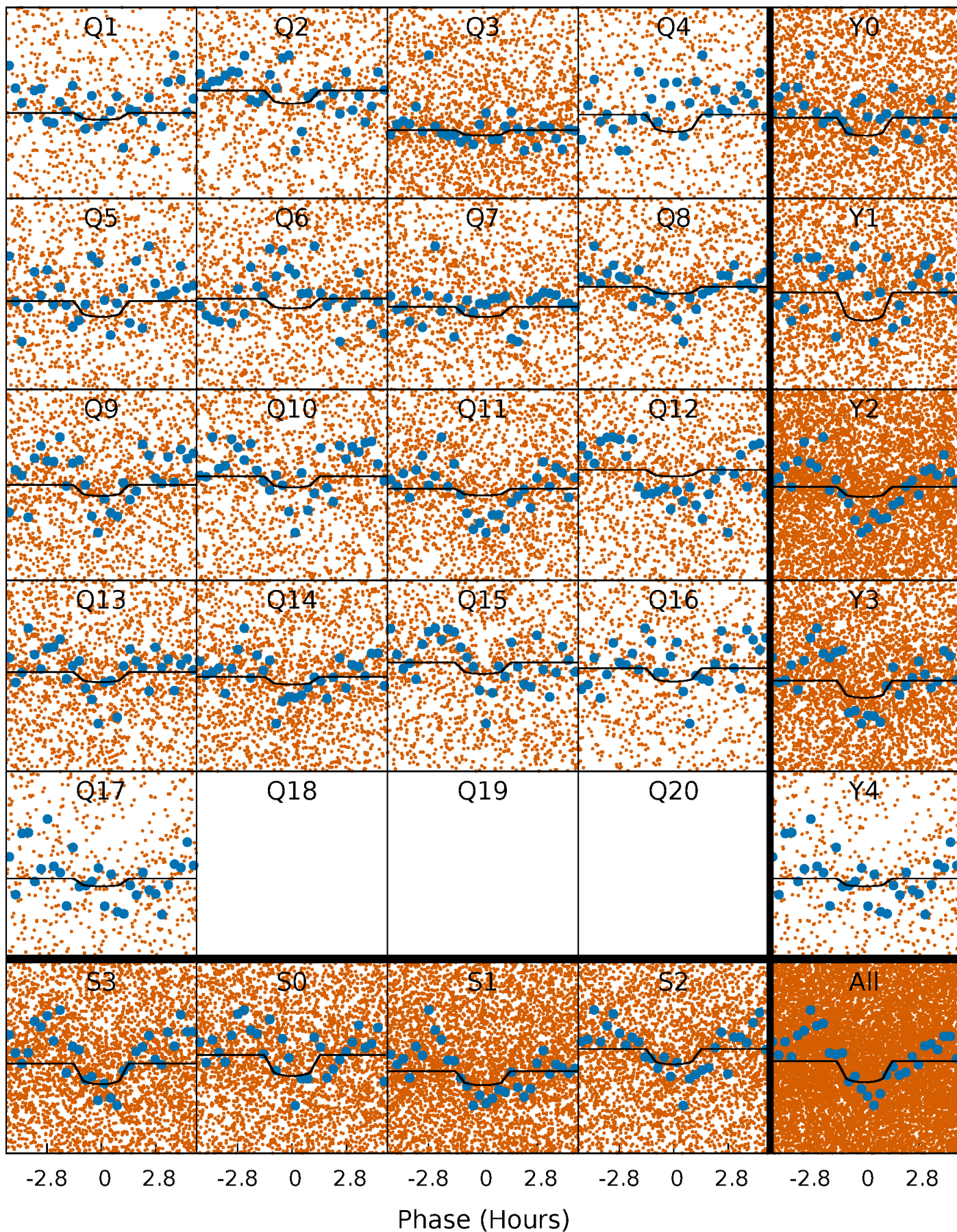
TCE 007117367-01 P= 0.566775 Days  $T_0=131.840915$  (BKJD)





# DV Quarter-Phased Transit Curves

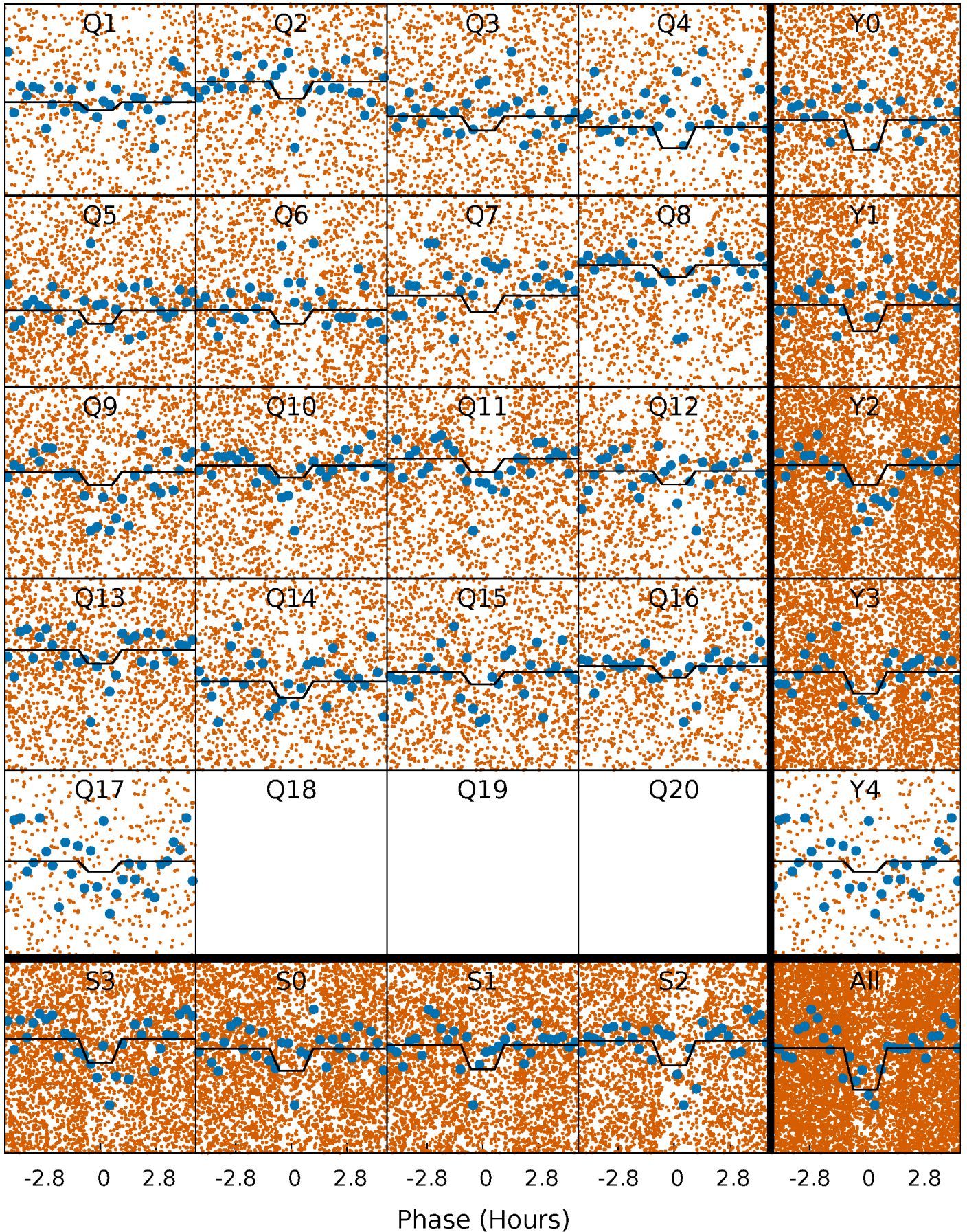
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# Alt. Detrend Quarter-Phased Transit Curves

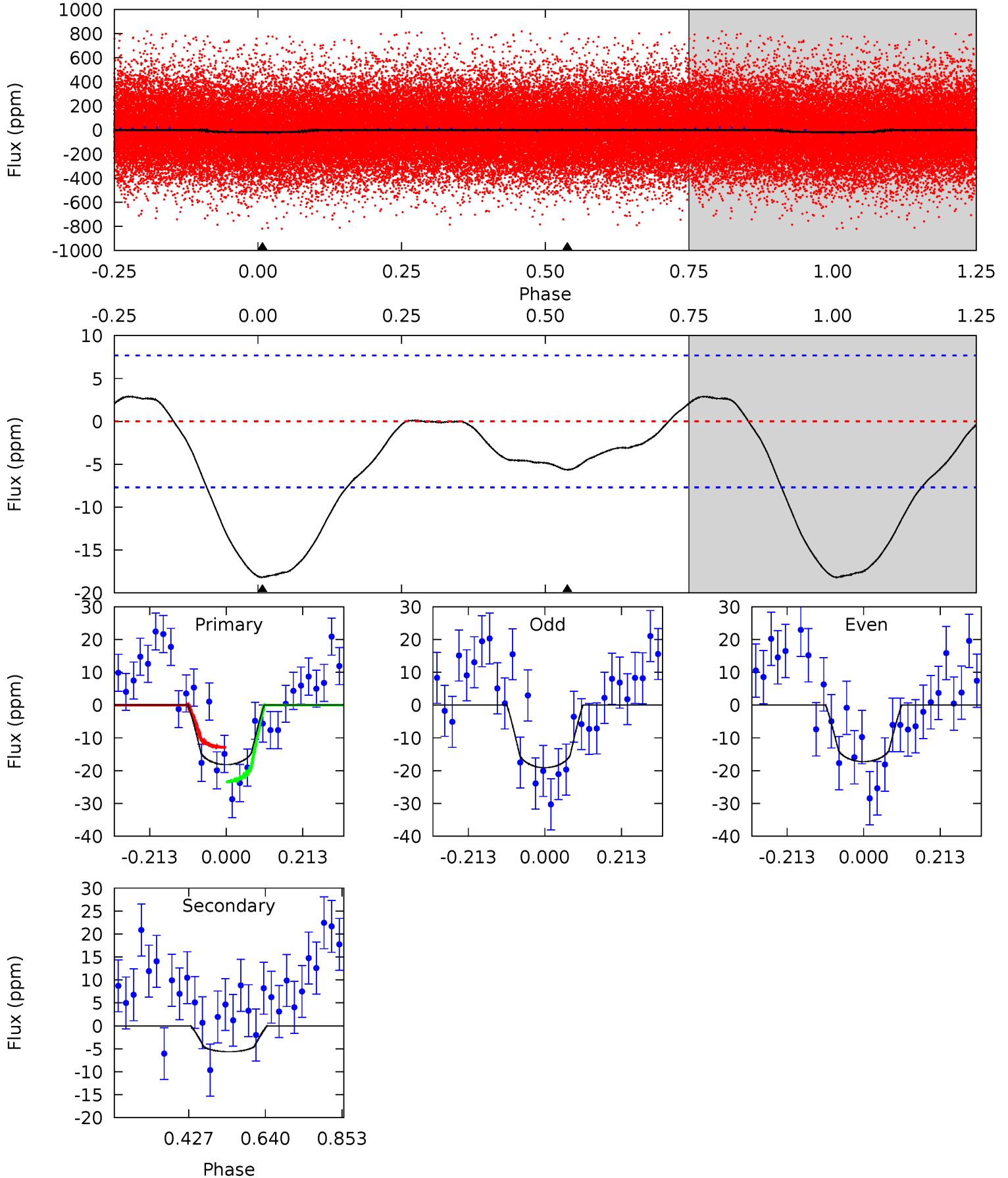
TCE 007117367-01 P= 0.566779 Days  $T_0=131.841013$  (BKJD)



# DV Model-Shift Uniqueness Test

007117367-01, P = 0.566775 Days, E = 131.274140 Days

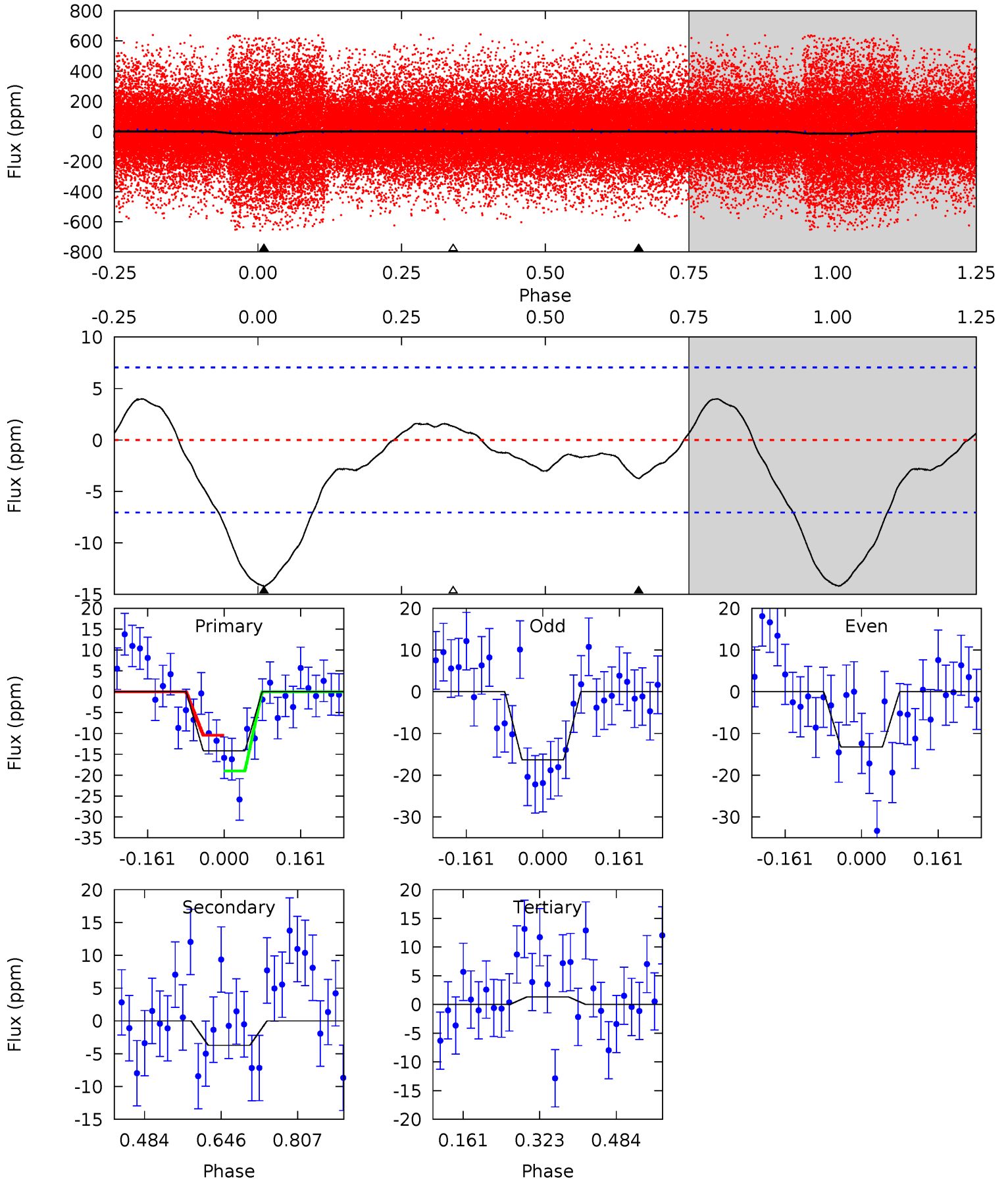
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	3.23	0	0	4.40	1.24	0.89	10.4	10.4	3.23	3.23	0.53	0.90	0.14	2.99



# Alt Model-Shift Uniqueness Test

007117367-01, P = 0.566779 Days, E = 131.274234 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.98	2.36	-0.84	0	4.46	1.40	1.05	9.82	8.98	3.20	2.36	0.97	1.16	0.22	2.69





### Stellar Parameters For KIC 007117367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6124^{+165}_{-202}$	$4.401^{+0.070}_{-0.210}$	$0.040^{+0.250}_{-0.300}$	$1.096^{+0.375}_{-0.150}$	$1.099^{+0.166}_{-0.135}$	$1.175^{+0.447}_{-0.619}$
	+3%/-3%	+2%/-5%	+625%/-750%	+34%/-14%	+15%/-12%	+38%/-53%
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 007117367-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-6 \pm 2$	$0.51^{+0.39}_{-0.32}$	$3430^{+288}_{-189}$	$4687^{+2802}_{-1171}$	$2.280^{+13.600}_{-1.588}$
Alt.	$-4 \pm 2$	$0.49^{+0.35}_{-0.30}$	$3415^{+268}_{-181}$	$4266^{+2500}_{-1171}$	$1.521^{+9.151}_{-1.045}$

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

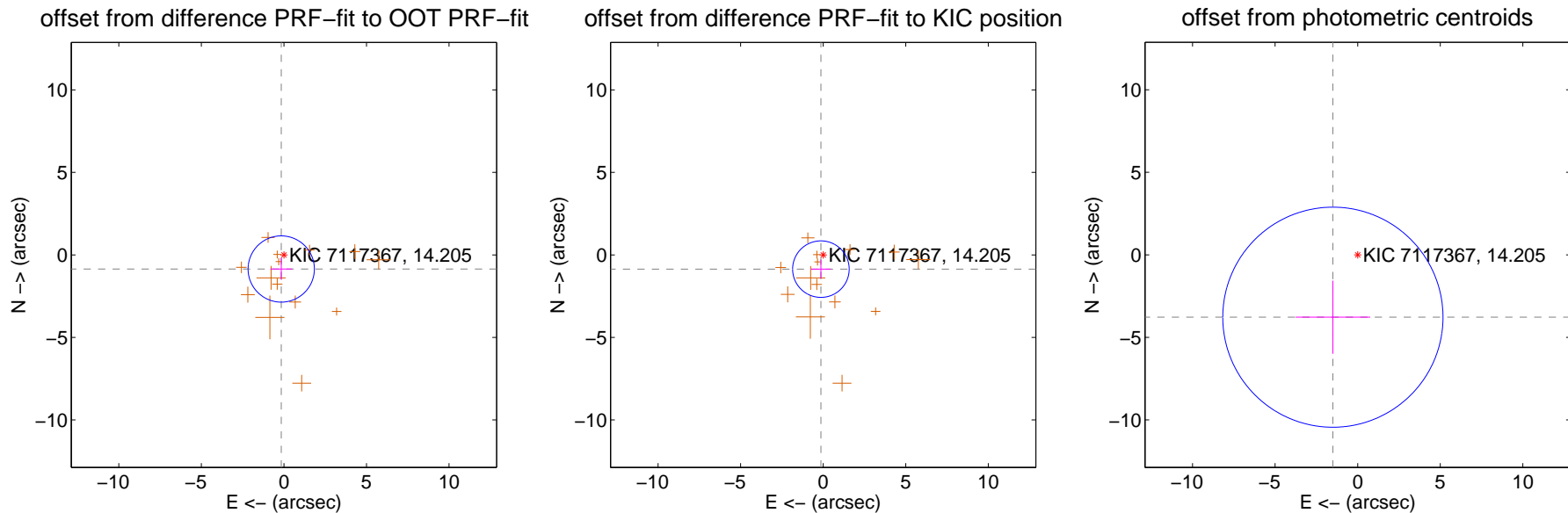
## DV Centroid Data

Supplemental centroid analysis for 007117367-01. Kepler magnitude: 14.21. Transit SNR 4.34

There are 0 quarters with good PRF difference image offsets

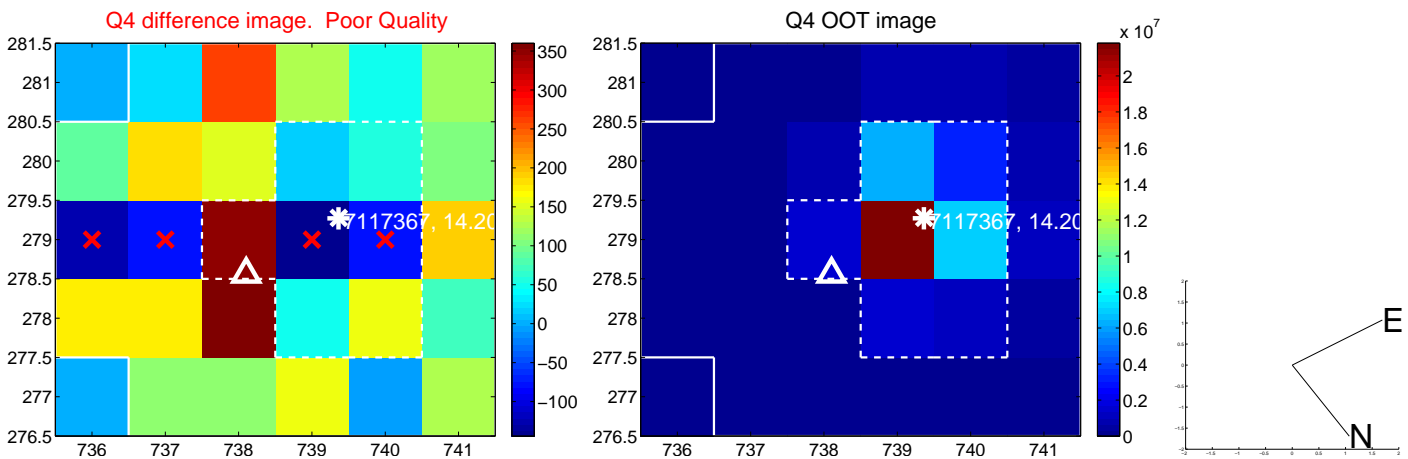
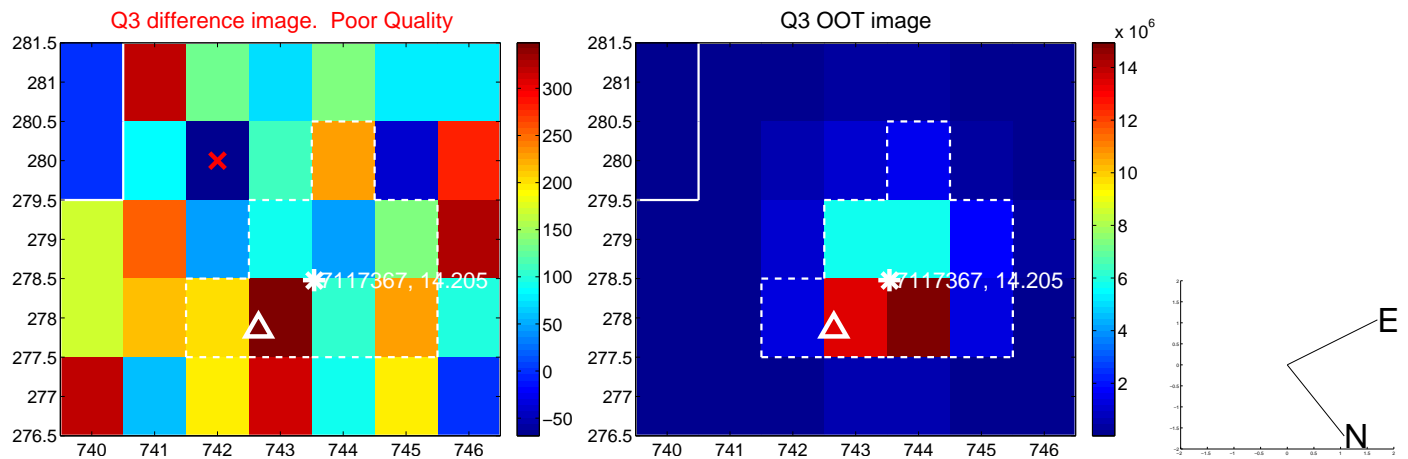
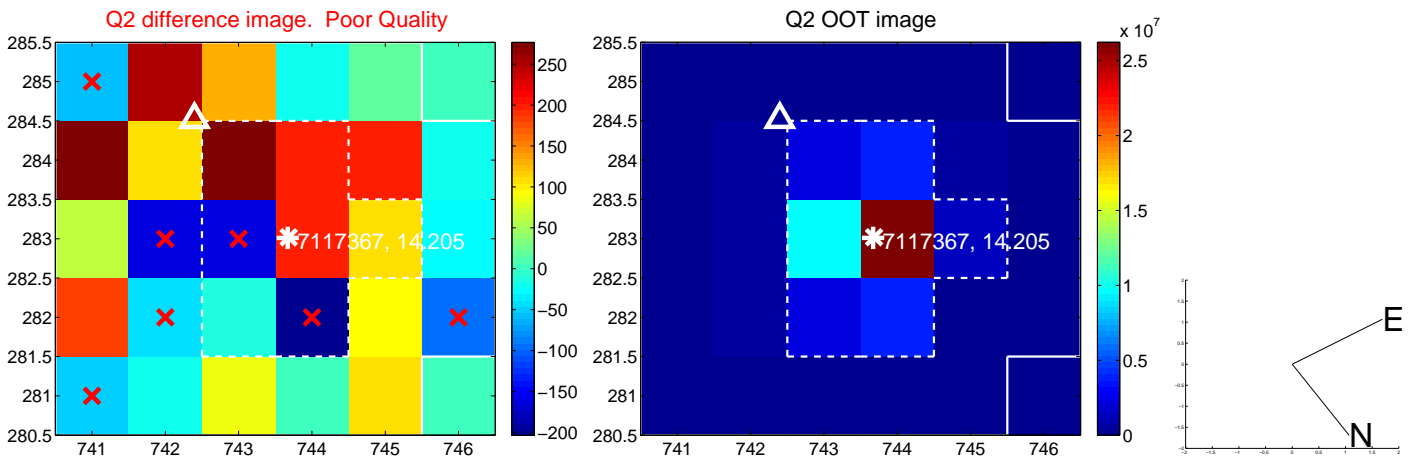
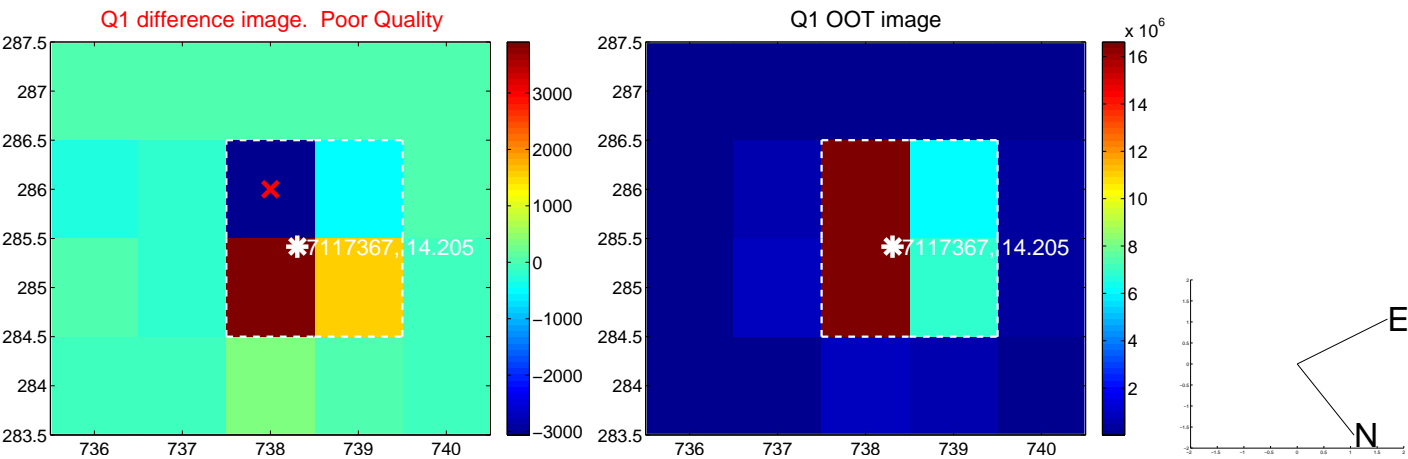
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.870 \pm 0.669$	1.30	$0.164 \pm 0.659$	$-0.855 \pm 0.654$
PRF-fit source offset from KIC position	$0.873 \pm 0.571$	1.53	$0.138 \pm 0.603$	$-0.862 \pm 0.569$
photometric centroid source offset	$4.07 \pm 2.22$	1.83	$1.50 \pm 2.26$	$-3.78 \pm 2.22$

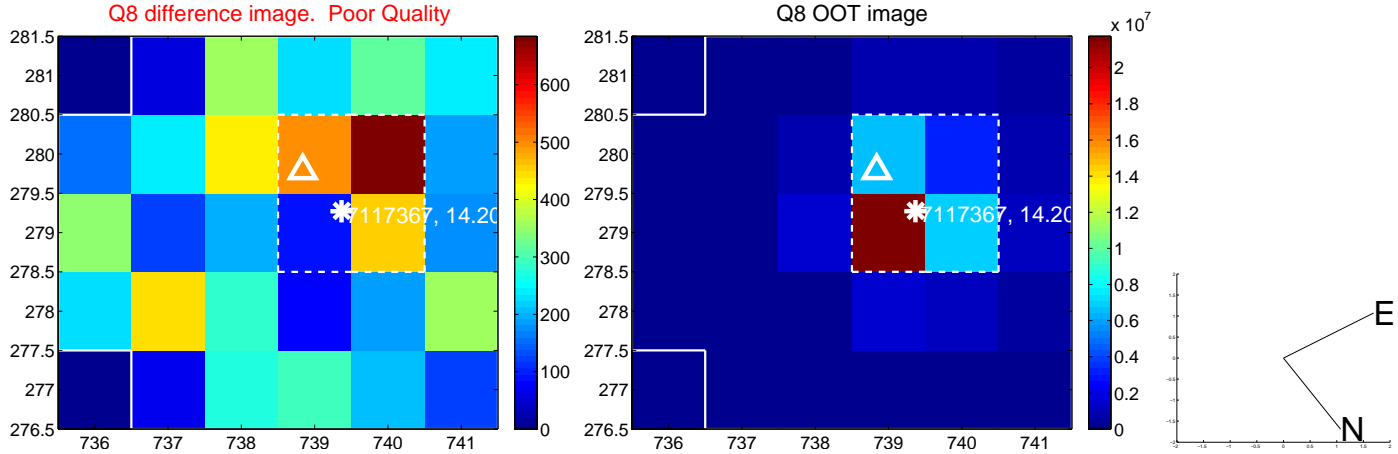
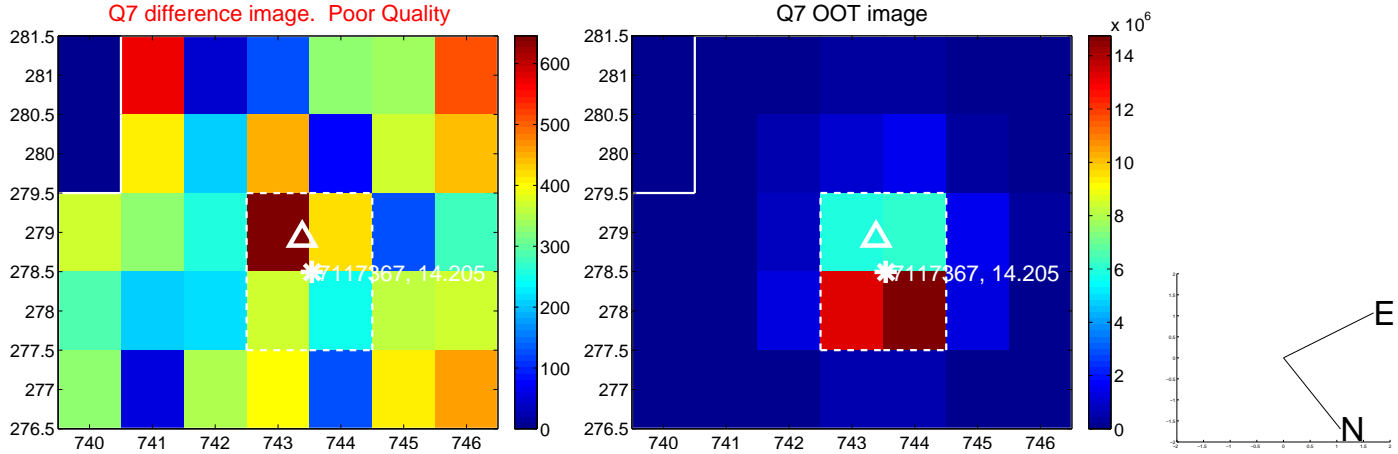
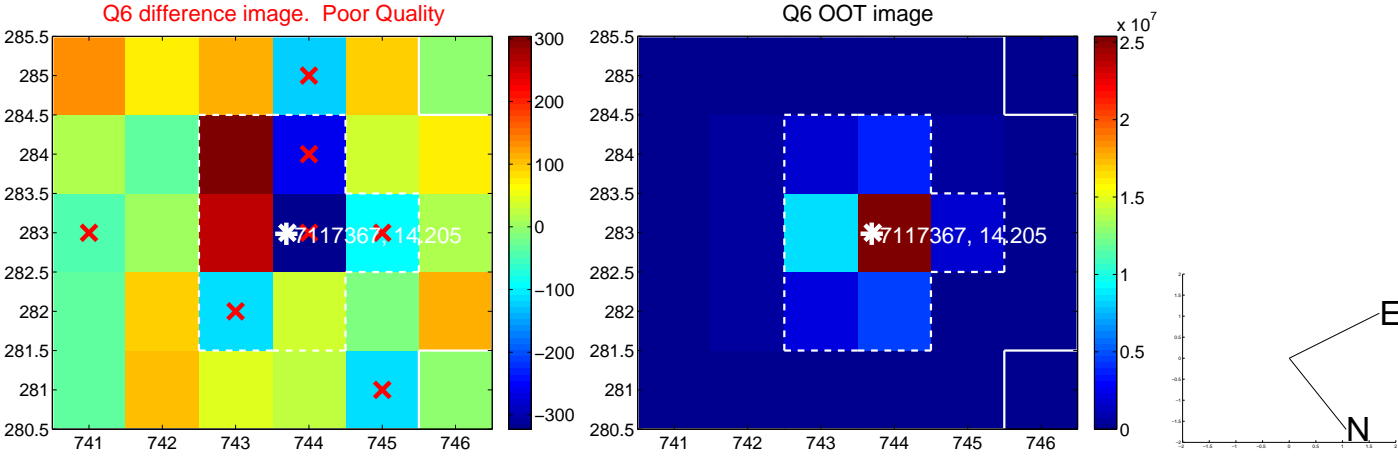
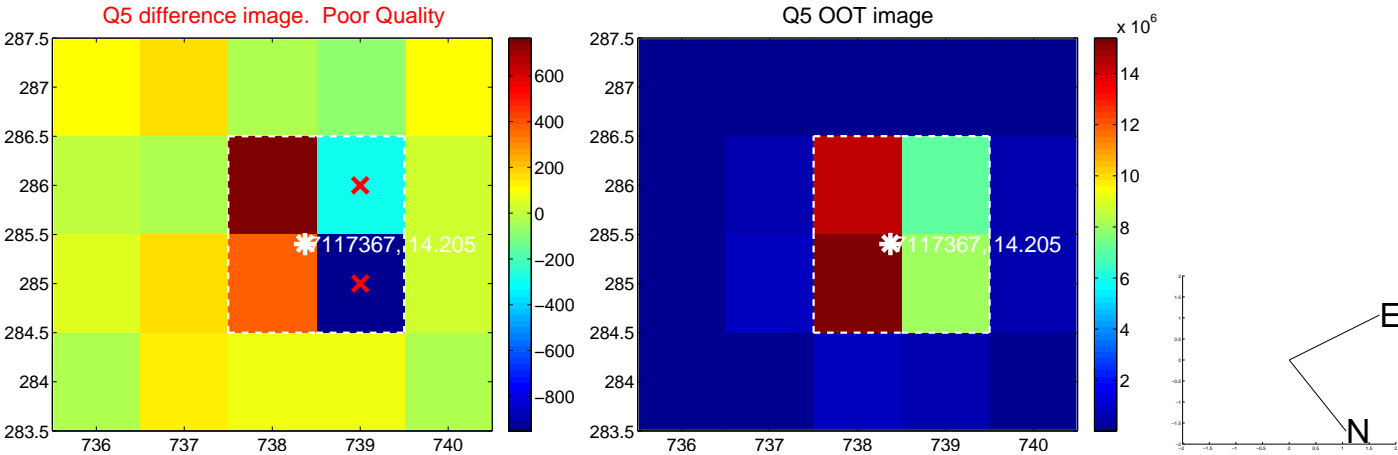


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

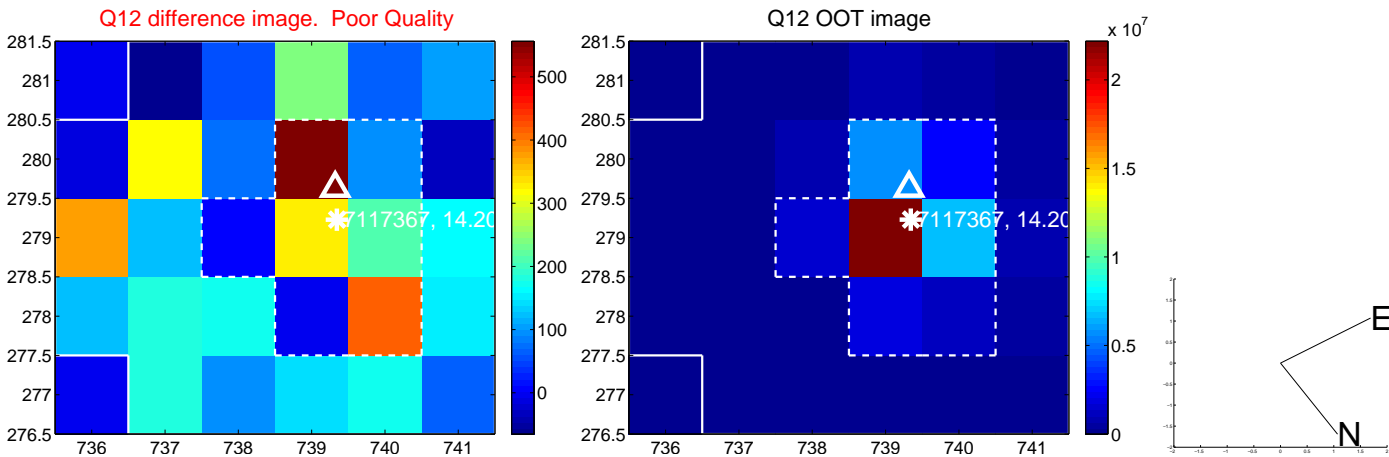
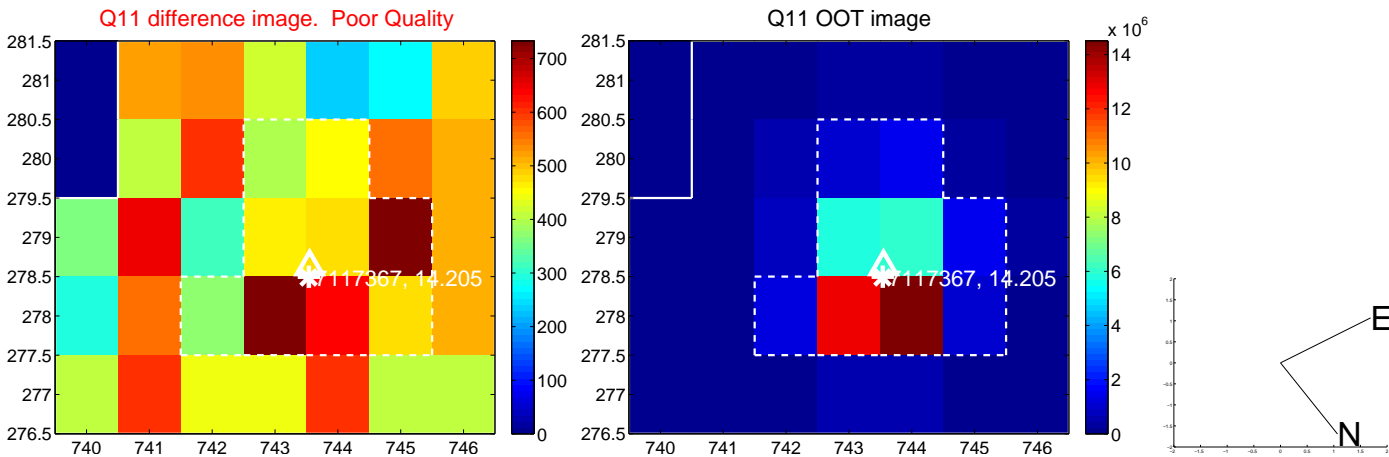
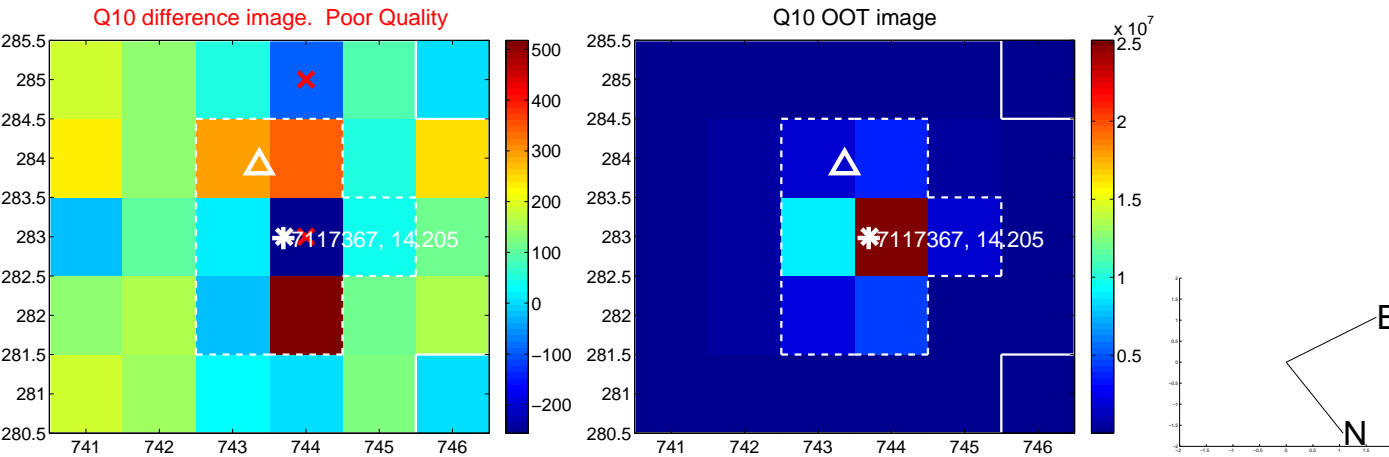
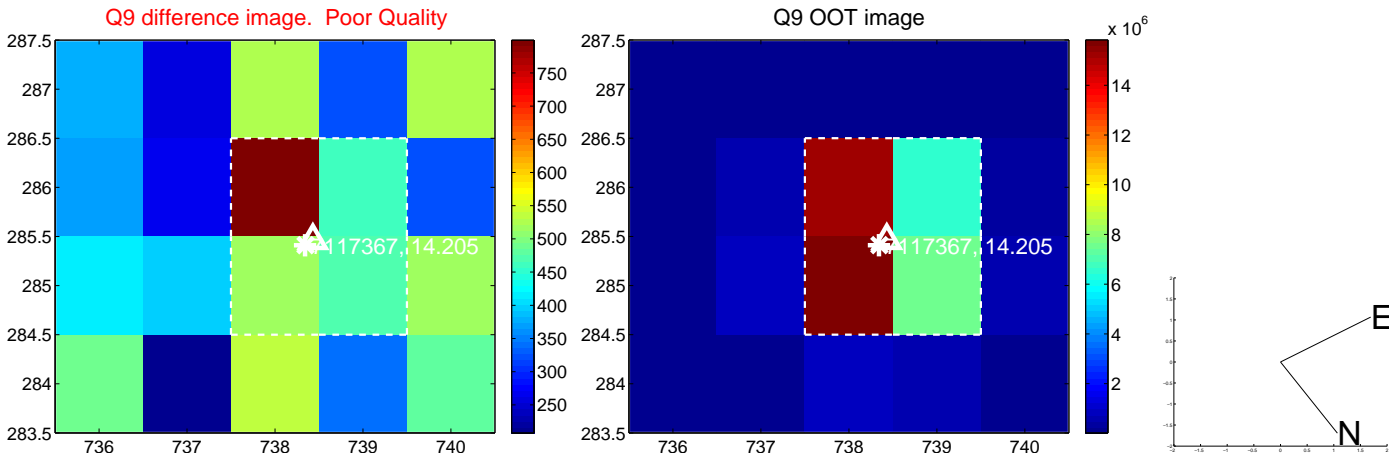


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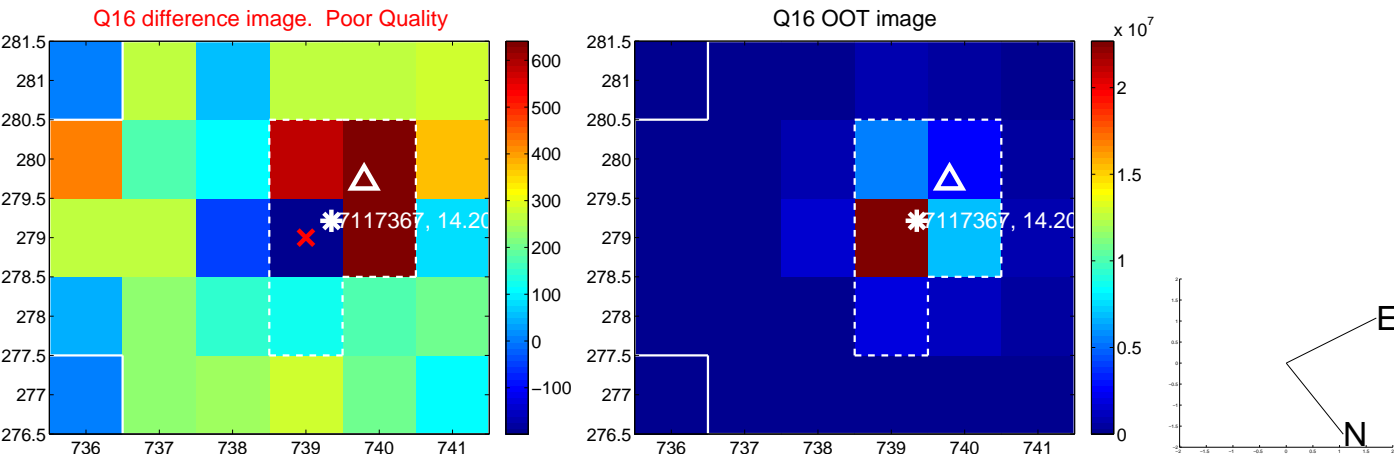
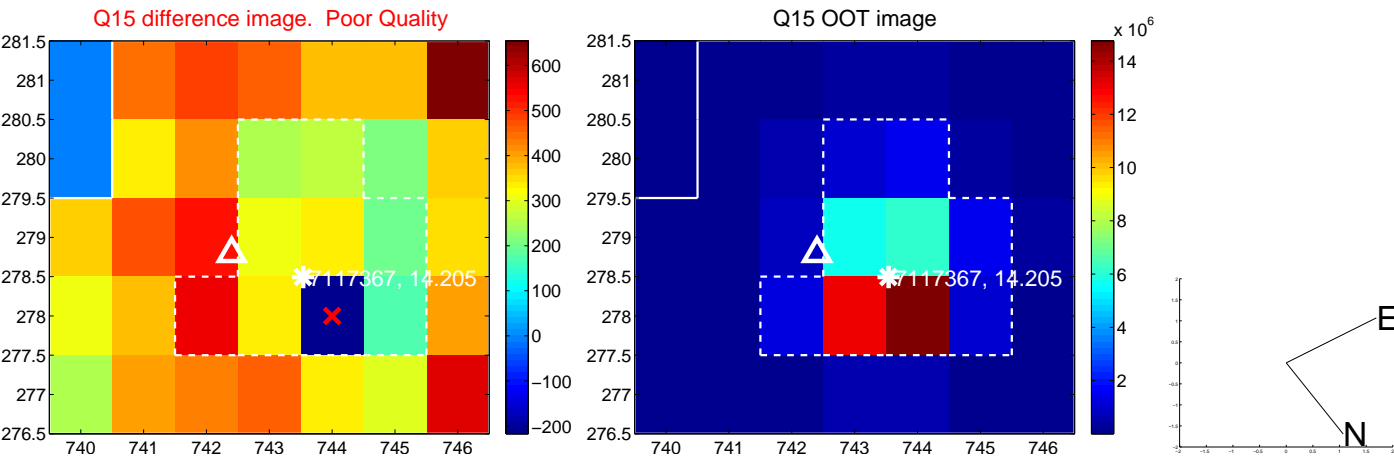
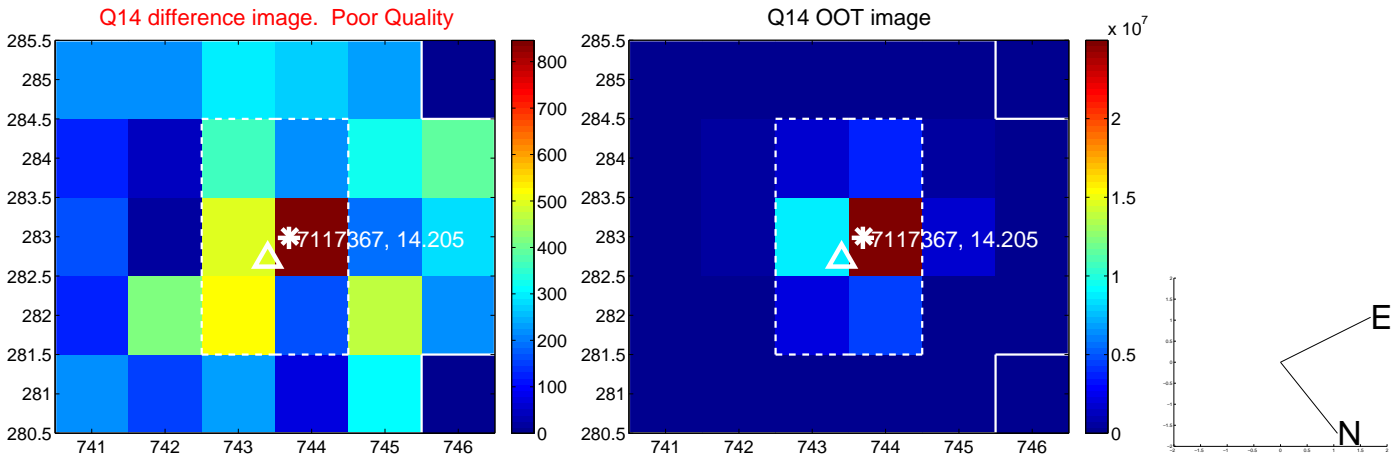
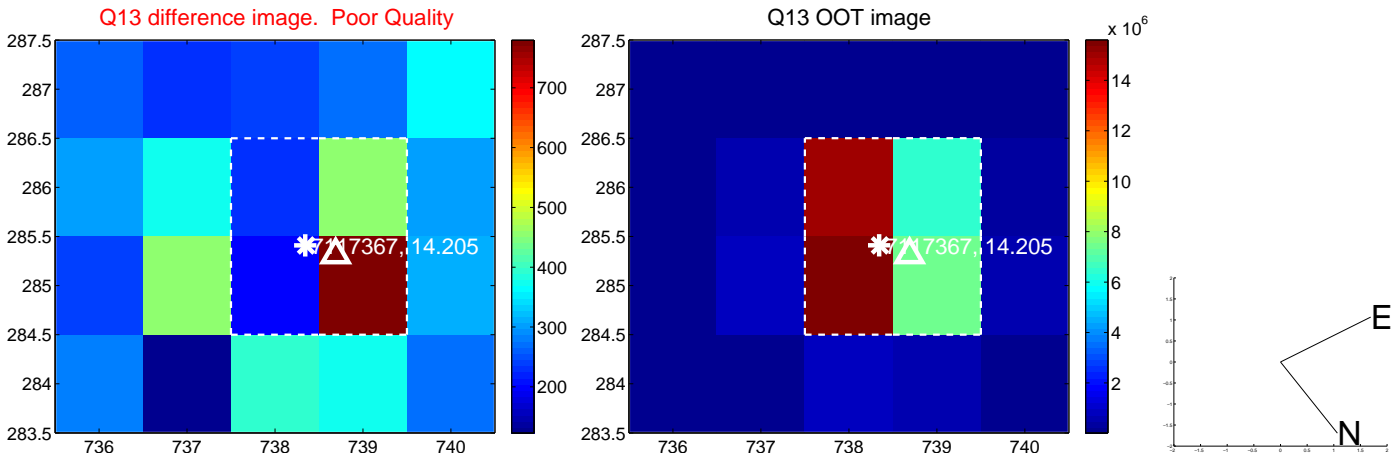




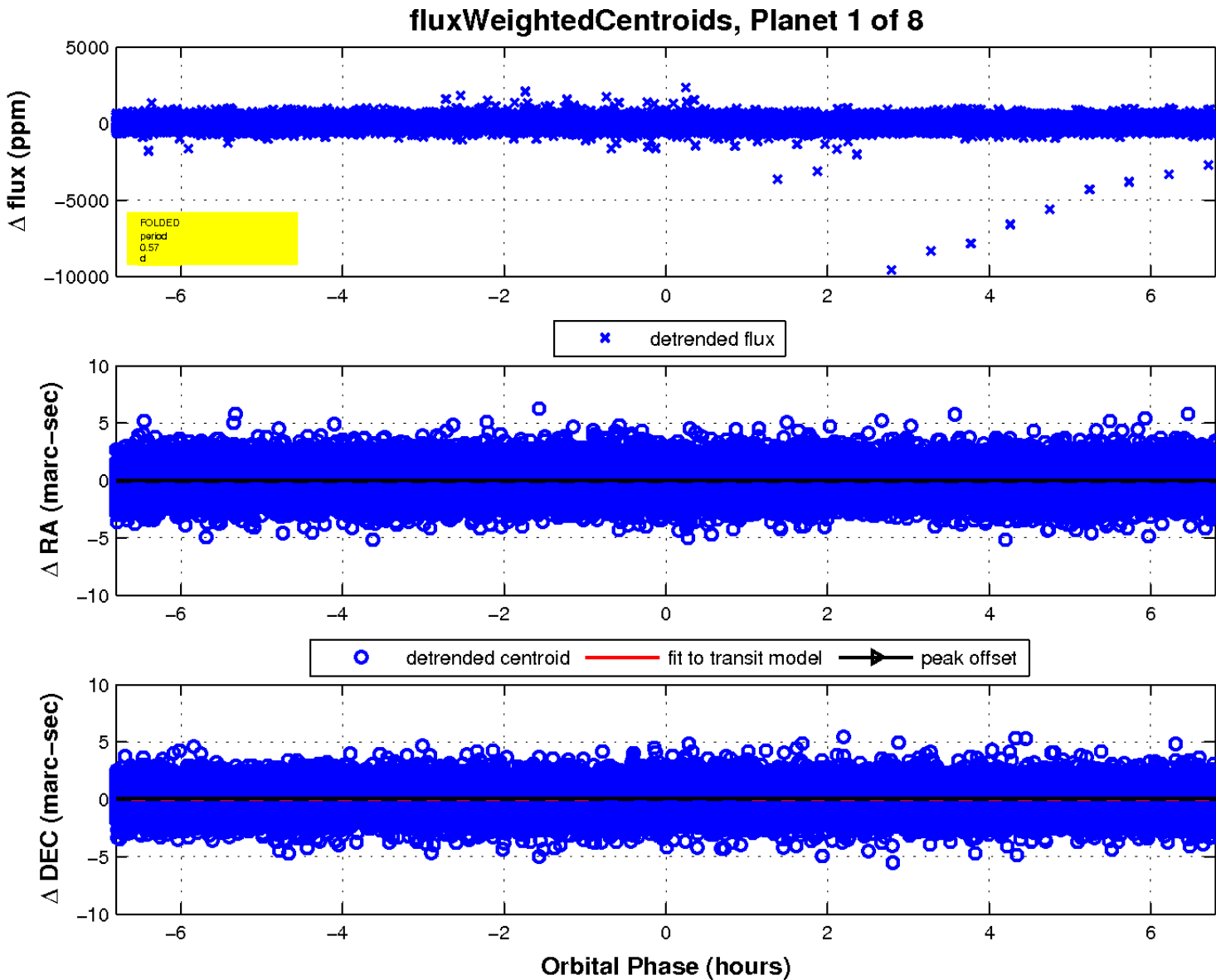
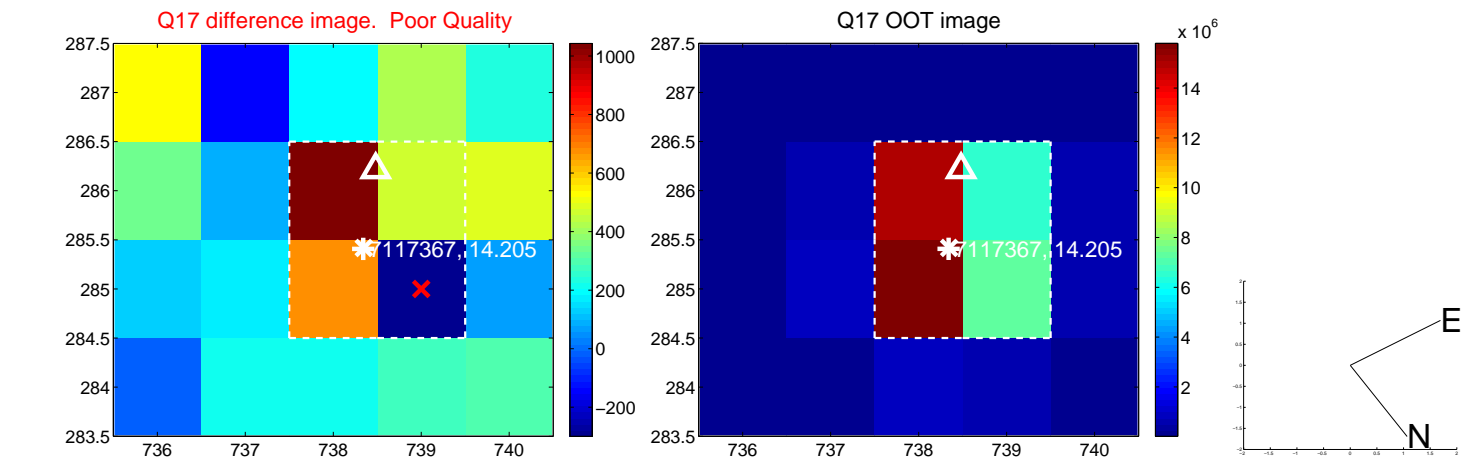
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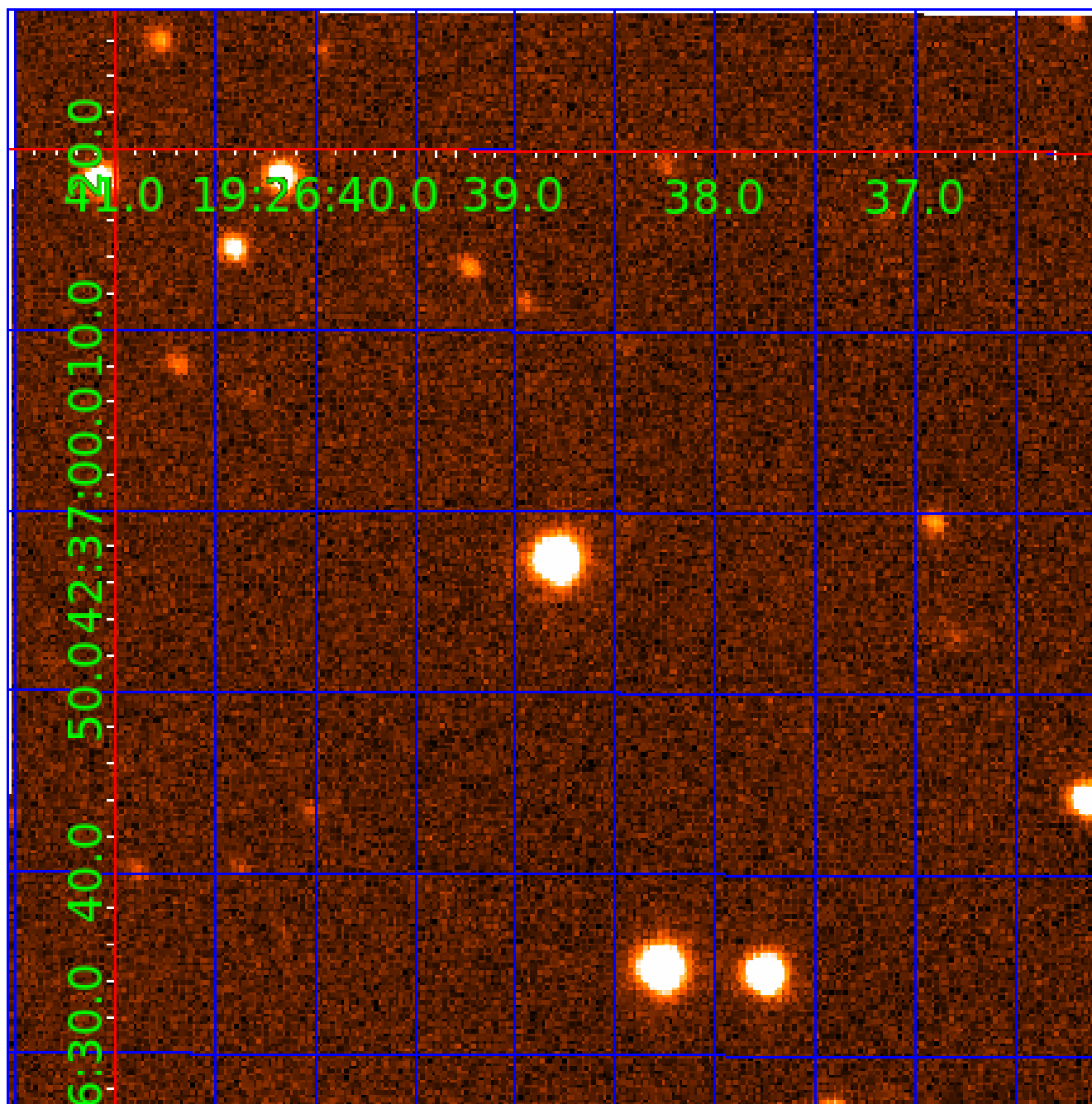


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UKIRT Image

Declination





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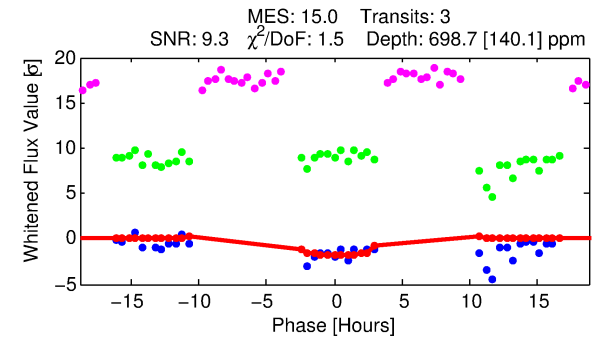
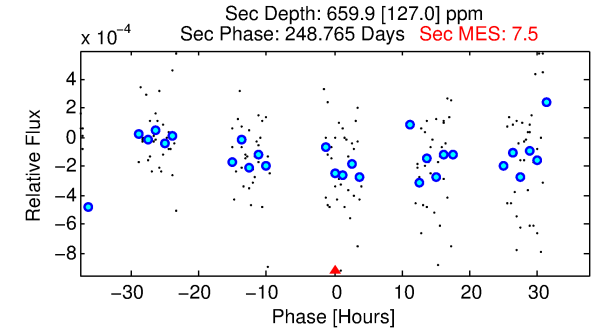
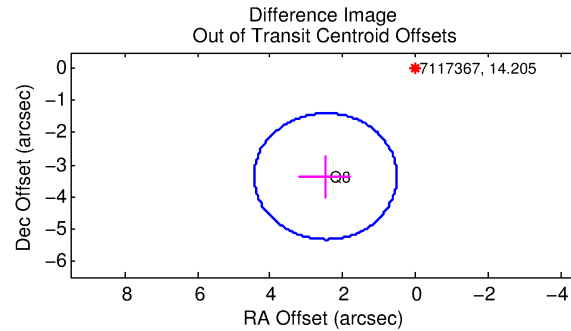
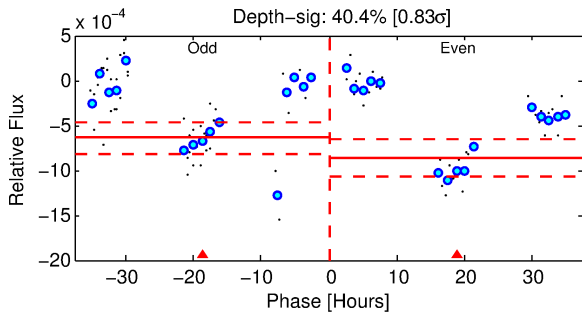
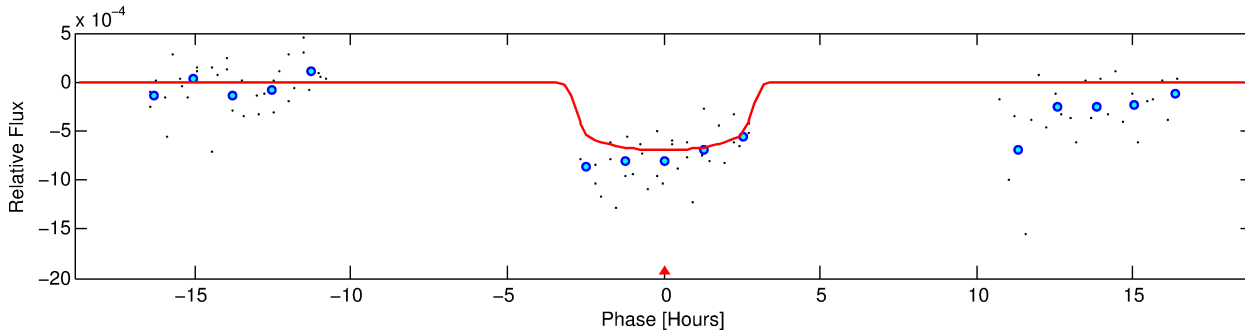
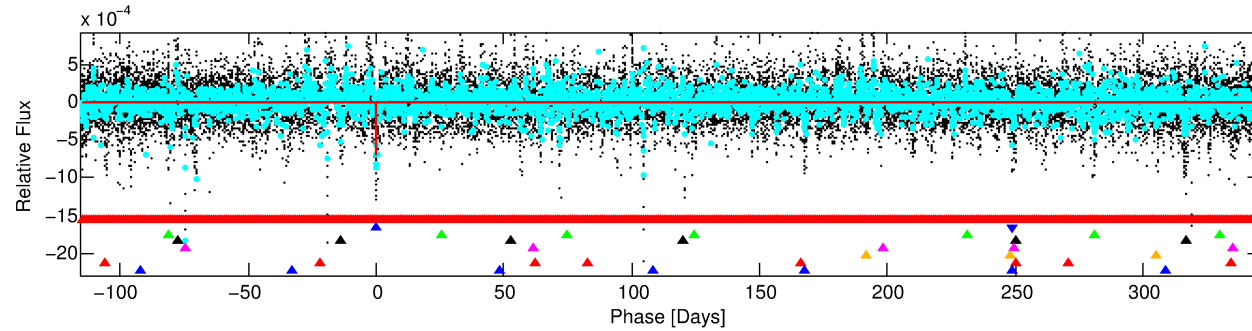
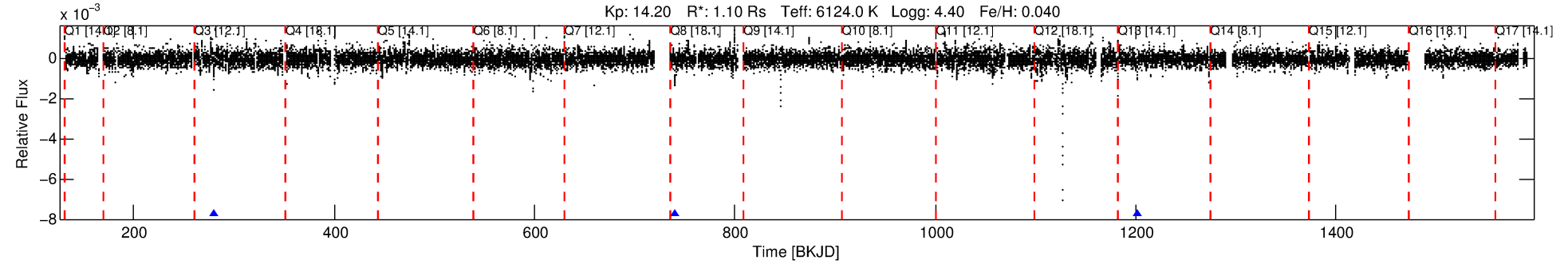
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007117367-02

No Significant Match Found

# DV One-Page Summary

KIC: 7117367 Candidate: 2 of 8 Period: 460.787 d



## DV Fit Results:

Period = 460.78718 [0.00775] d  
Epoch = 280.0536 [0.0132] BKJD  
Rp/R\* = 0.0273 [0.0311]  
a/R\* = 337.52 [1911.67]  
b = 0.83 [2.02]  
Seff = 1.04 [0.43]  
Teff = 257 [27] K  
Rp = 3.26 [3.88] Re  
a = 1.2066 [0.3370] AU  
Ag = 49760.82 [115713.57] [0.43 $\sigma$ ]  
Teffp = 5946 [3412] K [1.67 $\sigma$ ]

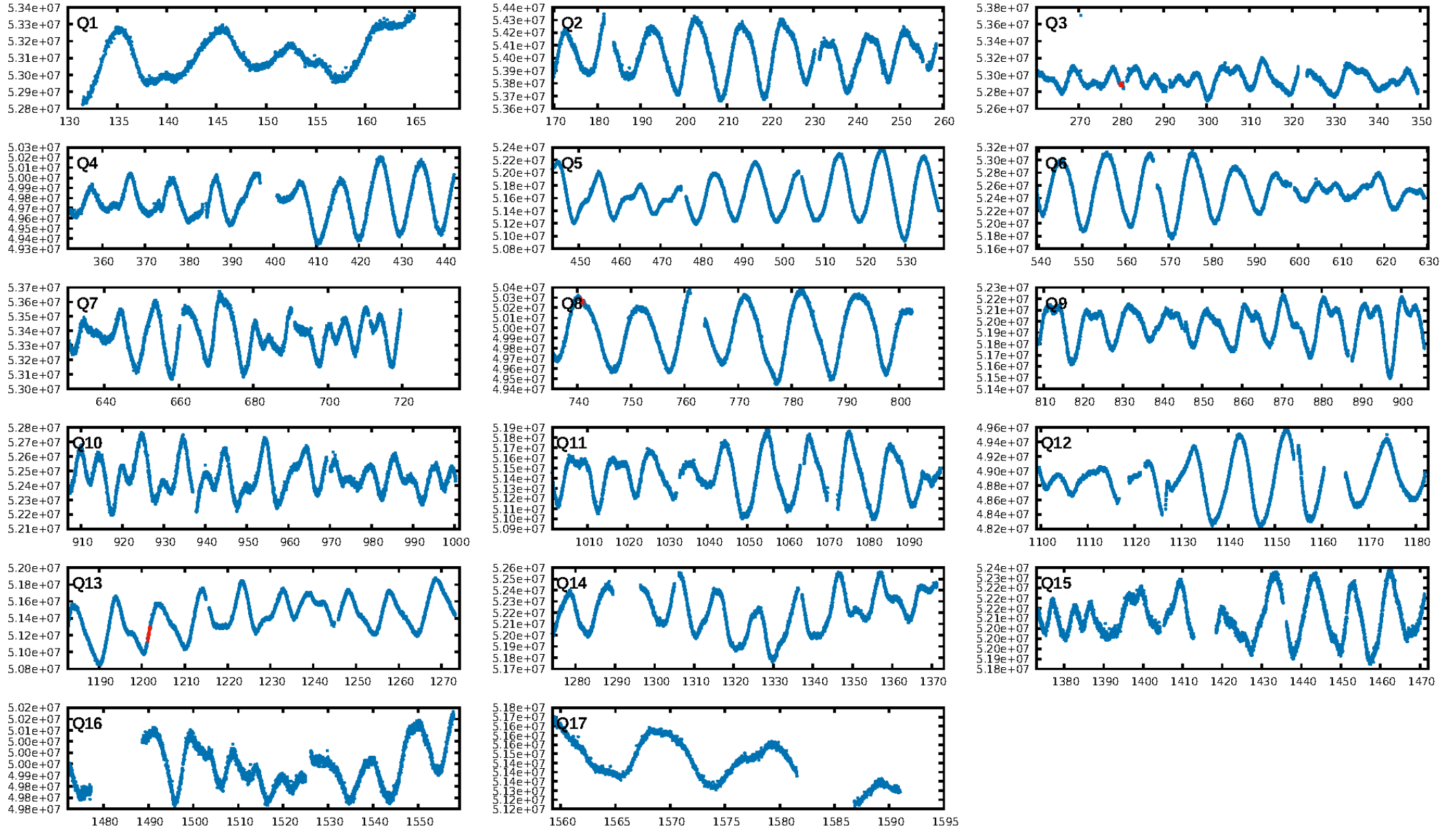
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [452.06 $\sigma$ ]  
LongPeriod-sig: 100.0% [165.53 $\sigma$ ]  
ModelChiSquare2-sig: 19.7%  
ModelChiSquareGof-sig: 98.6%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -10.55  
Centroid-sig: 15.5%  
Centroid-so: 0.946 arcsec [1.38 $\sigma$ ]  
OotOffset-rm: 4.179 arcsec [6.38 $\sigma$ ]  
KicOffset-rm: 4.141 arcsec [6.32 $\sigma$ ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 0.00 [0/3]

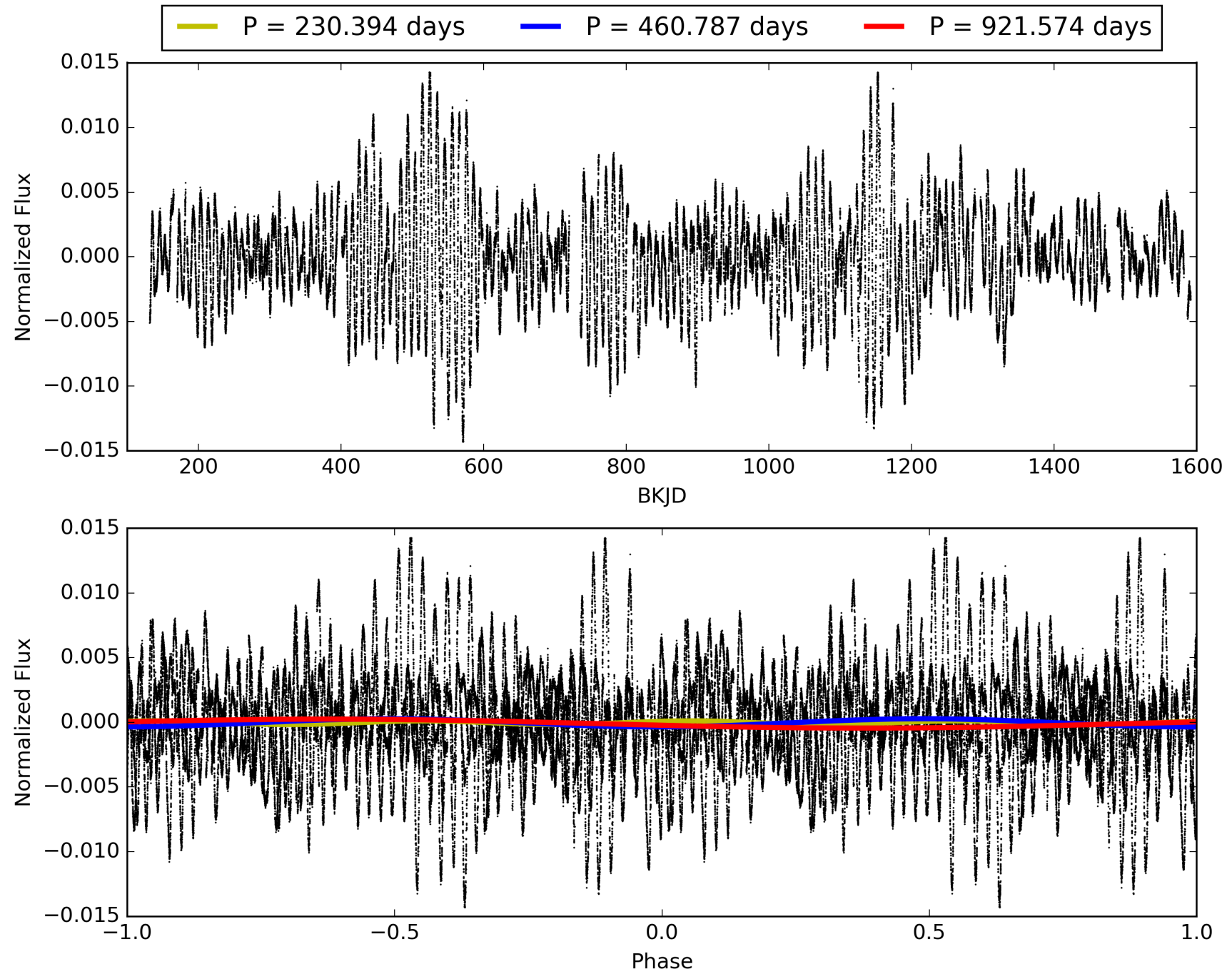
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:35:33 Z

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

# TCE 007117367-02, PDC Light Curves

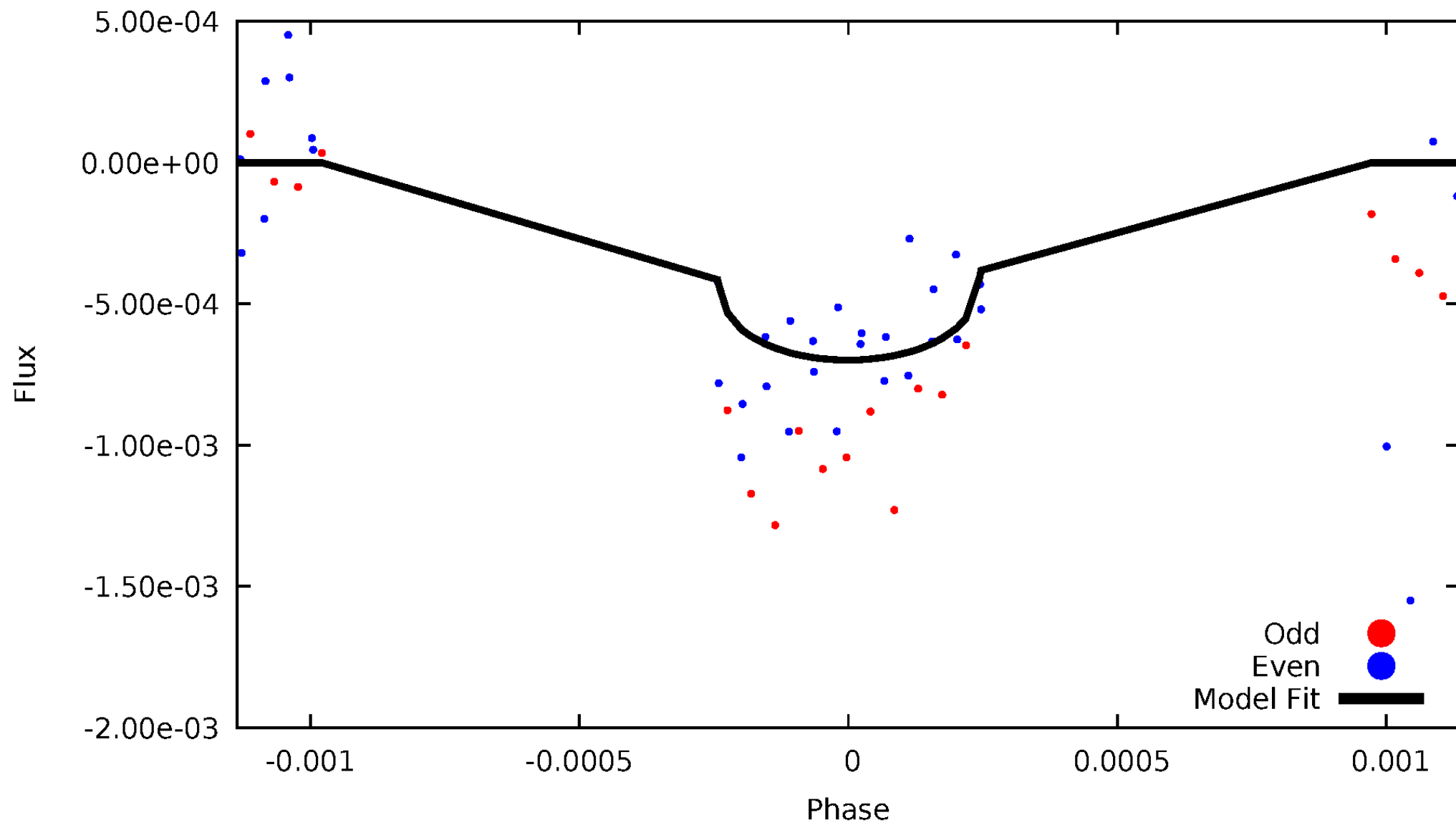


# TCE 007117367-02



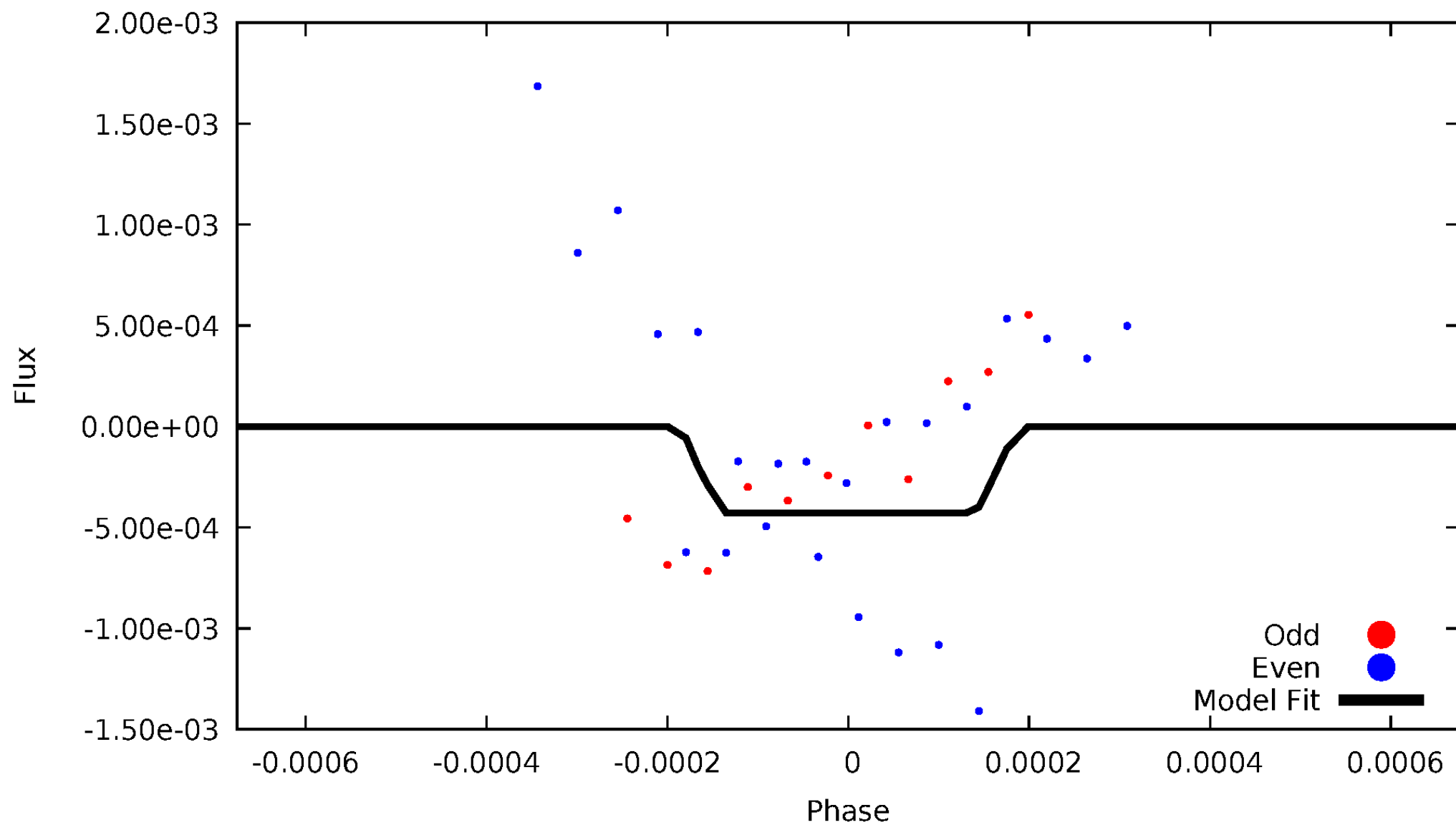
DV Odd/Even

TCE 007117367-02



# ALT Odd/Even

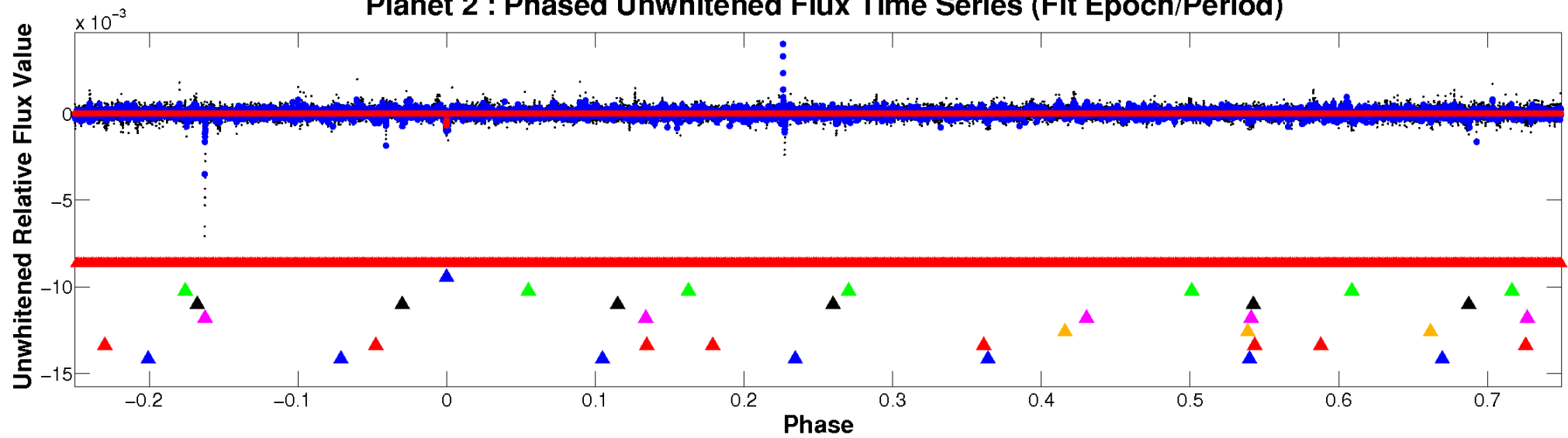
TCE 007117367-02



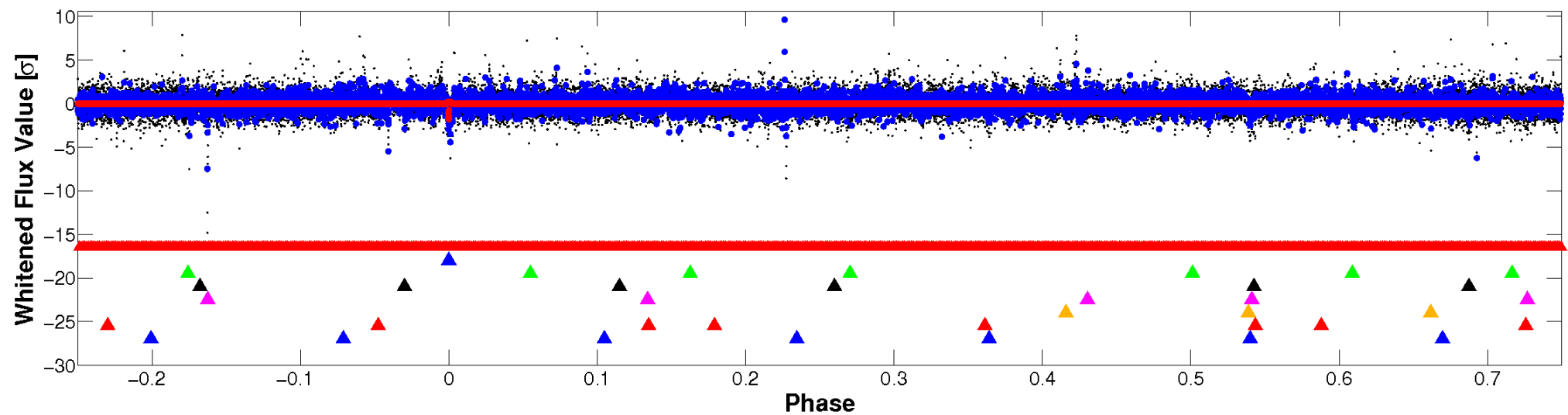


# Non-Whitened Vs. Whitened Light Curve

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

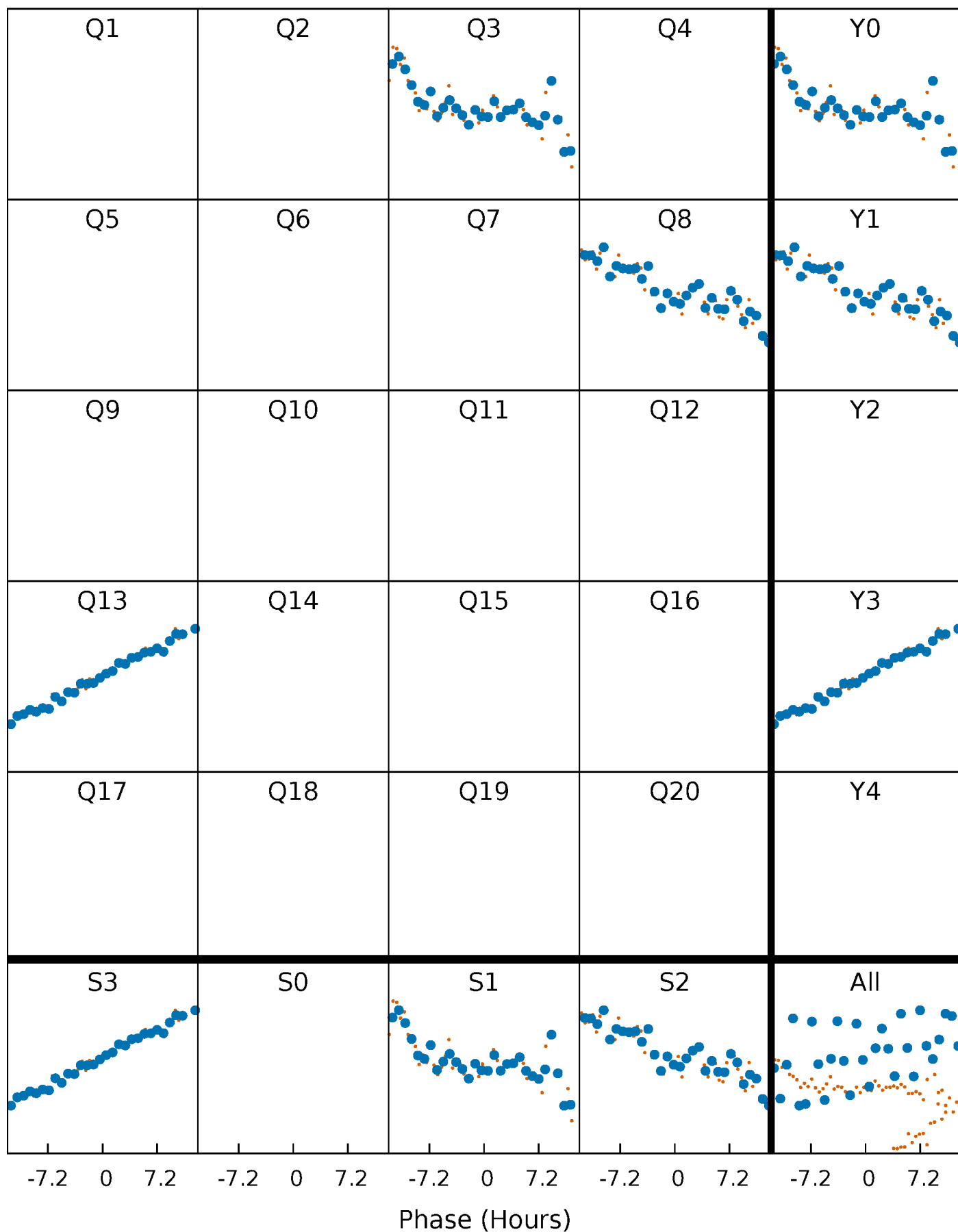


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



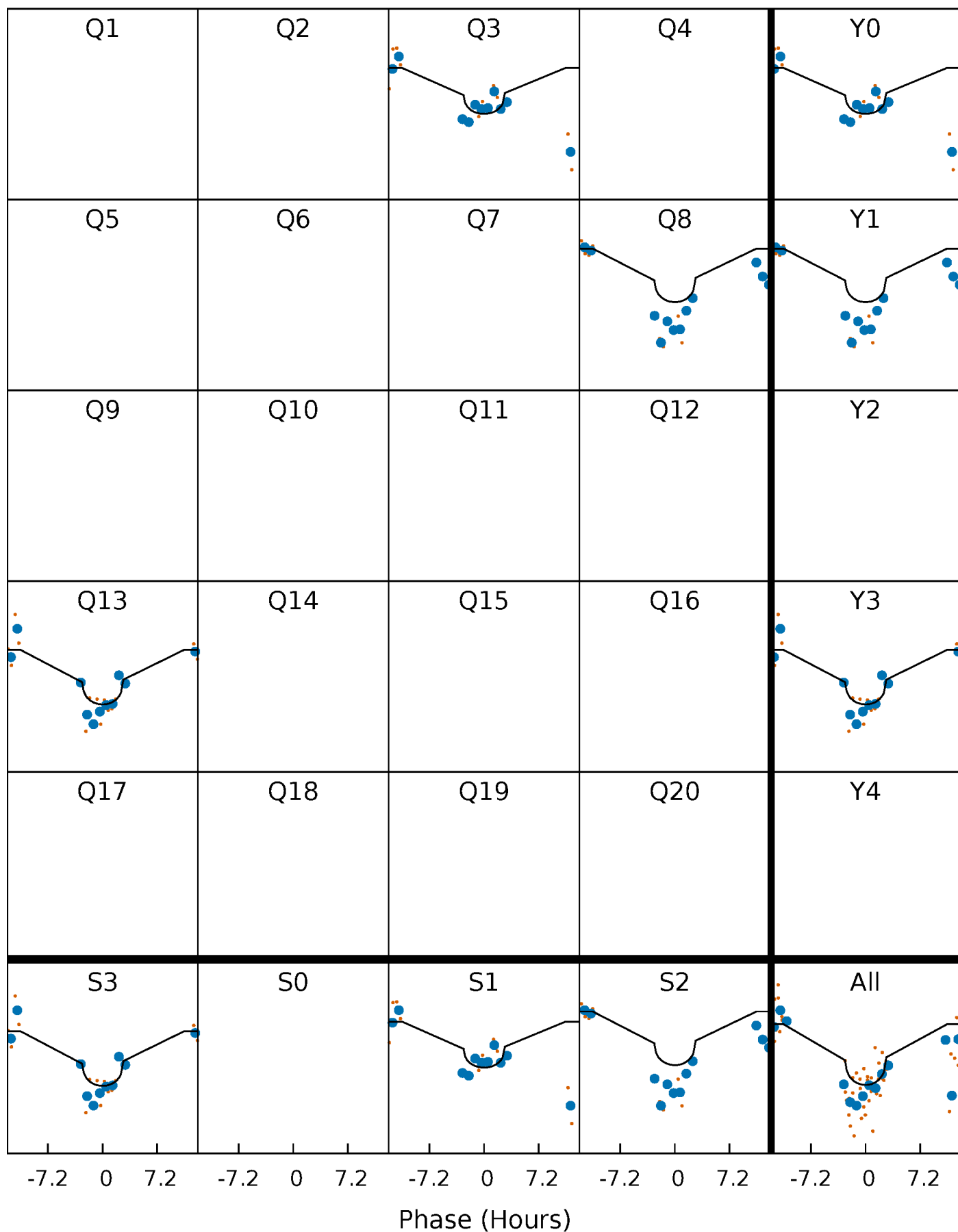
# PDC Quarter-Phased Transit Curves

TCE 007117367-02     $P=460.787180$  Days     $T_0=280.053603$  (BKJD)



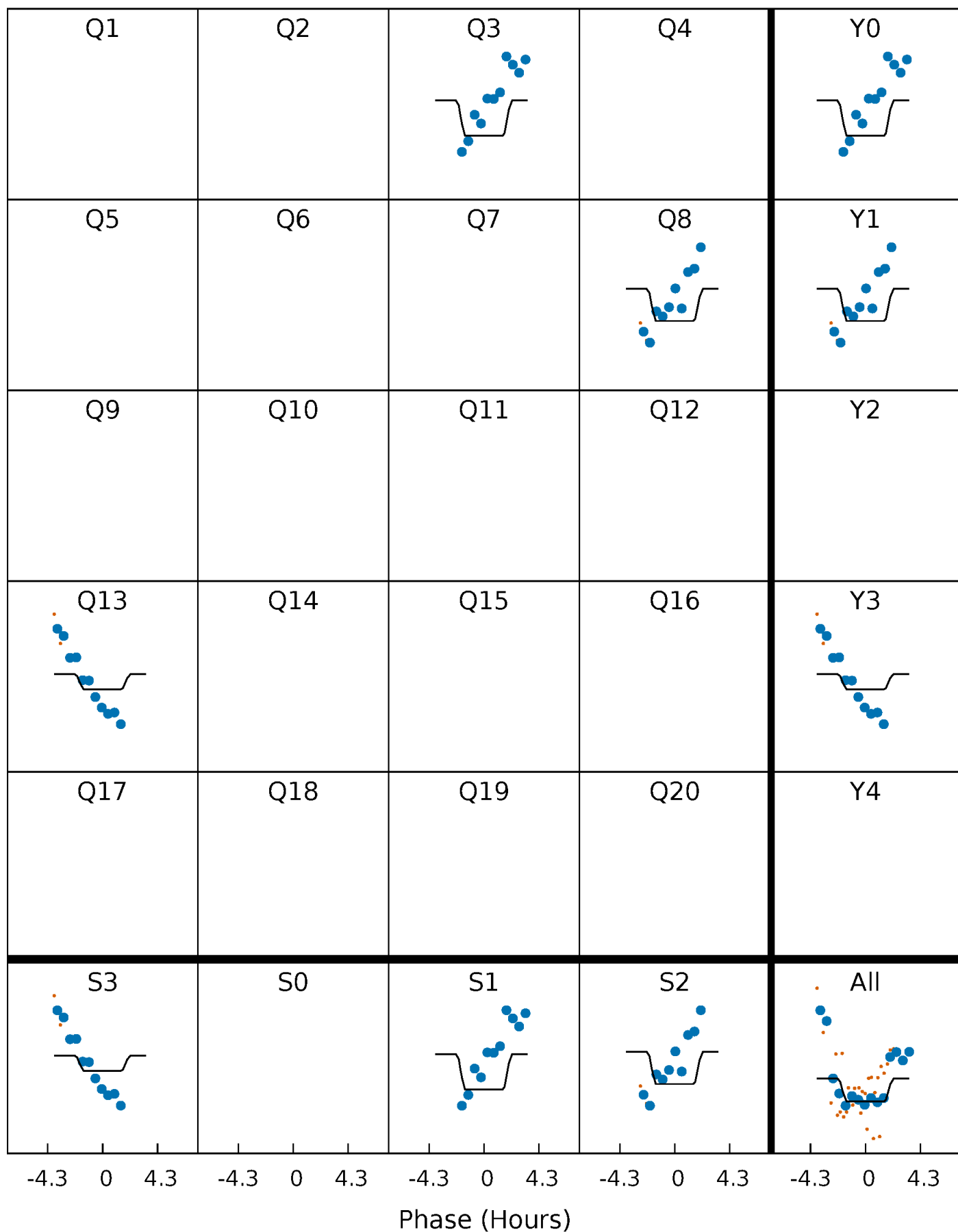
# DV Quarter-Phased Transit Curves

TCE 007117367-02 P=460.787180 Days  $T_0=280.053603$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

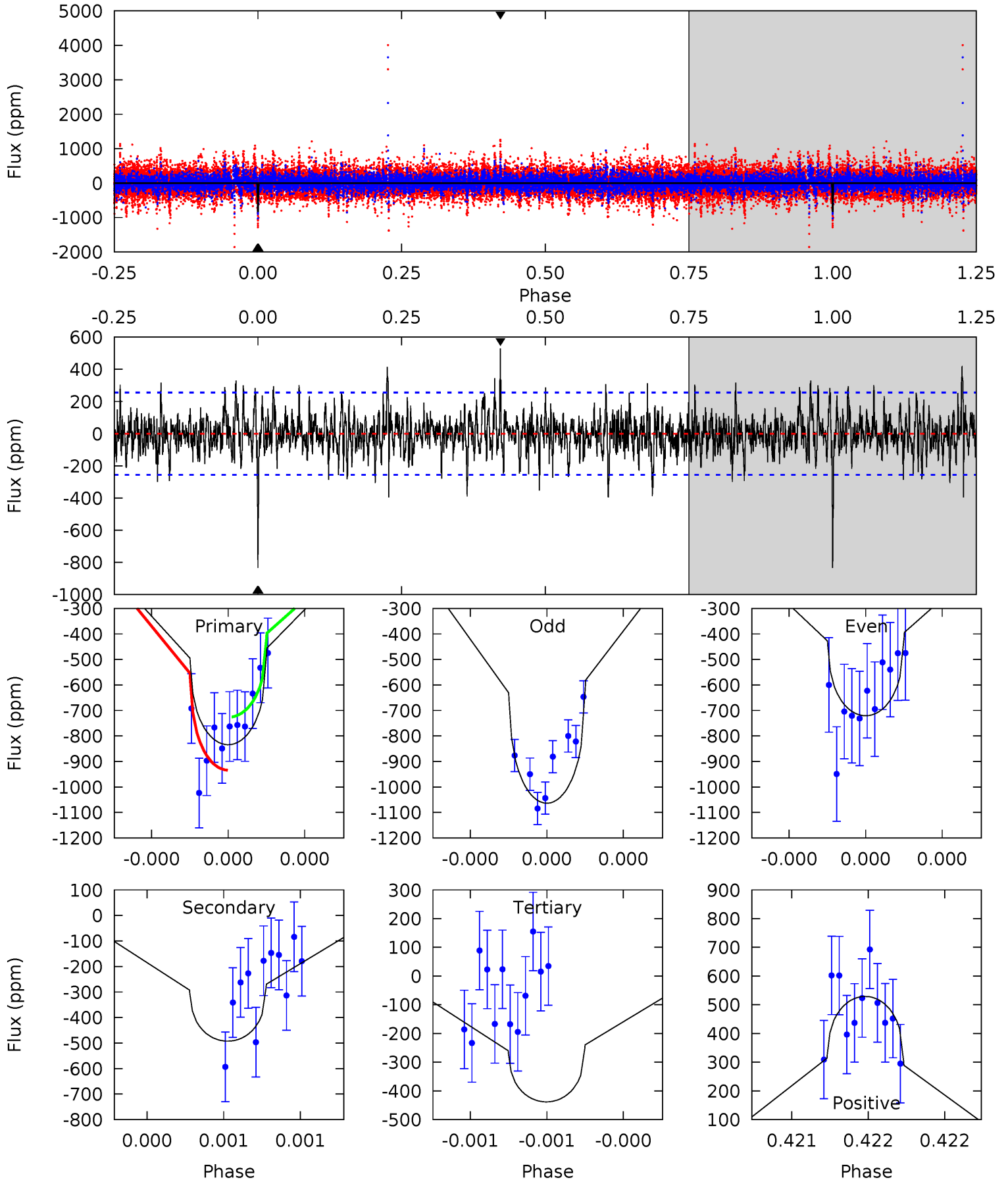
TCE 007117367-02 P=460.824456 Days  $T_0=280.025280$  (BKJD)



# DV Model-Shift Uniqueness Test

007117367-02, P = 460.787180 Days, E = 280.053603 Days

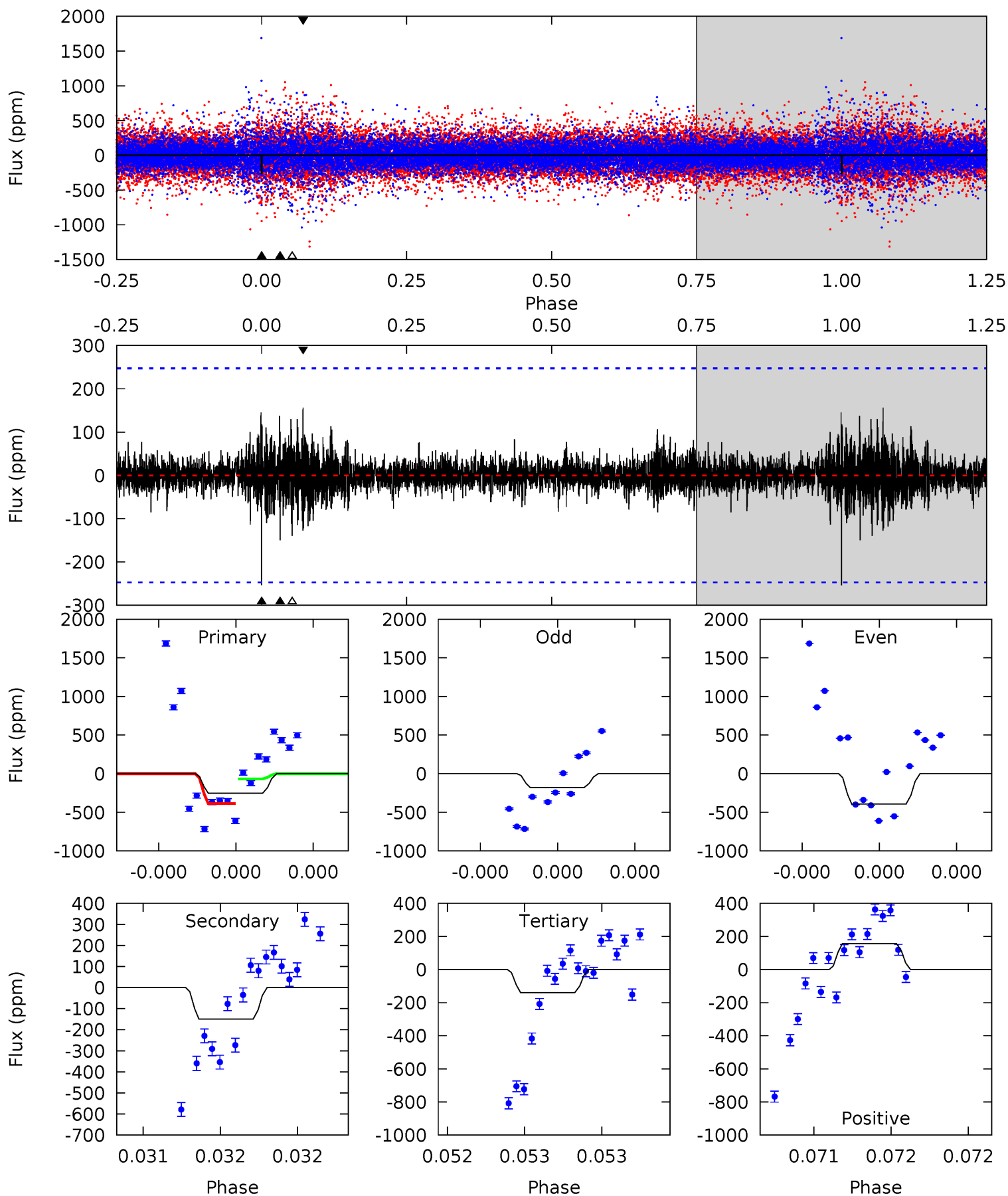
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	10.7	9.55	11.5	5.58	3.49	2.12	8.63	6.65	1.18	-0.80	3.63	1.08	0.39	2.28



# Alt Model-Shift Uniqueness Test

007117367-02, P = 460.824456 Days, E = 280.025280 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
5.76	3.40	3.17	3.55	5.62	3.55	0.59	2.59	2.21	0.23	-0.15	2.49	1.90	0.38	3.61



### Stellar Parameters For KIC 007117367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6124^{+165}_{-202}$	$4.401^{+0.070}_{-0.210}$	$0.040^{+0.250}_{-0.300}$	$1.096^{+0.375}_{-0.150}$	$1.099^{+0.166}_{-0.135}$	$1.175^{+0.447}_{-0.619}$
	+3%/-3%	+2%/-5%	+625%/-750%	+34%/-14%	+15%/-12%	+38%/-53%
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 007117367-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-493 \pm 46$	$4.41^{+3.46}_{-2.80}$	$367^{+27}_{-18}$	$4946^{+3202}_{-971}$	$19587^{+124489}_{-13290}$
Alt.	$-149 \pm 44$	$3.80^{+3.51}_{-2.37}$	$367^{+27}_{-20}$	$4127^{+2240}_{-824}$	$7849^{+51185}_{-5952}$

$T_{max}$  = 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

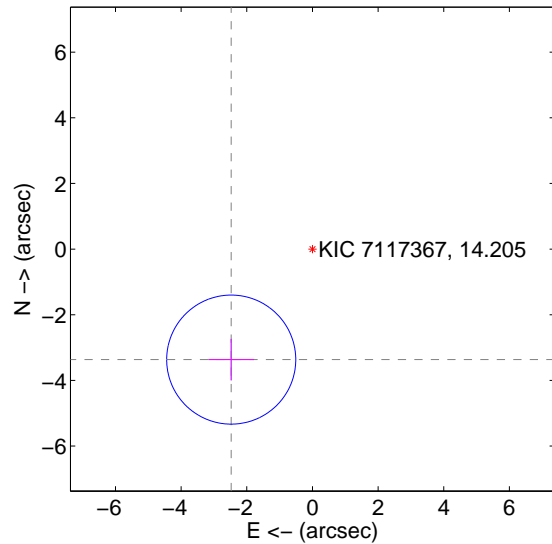
Supplemental centroid analysis for 007117367-02. Kepler magnitude: 14.21. Transit SNR 9.32

There are 1 quarters with good PRF difference image offsets

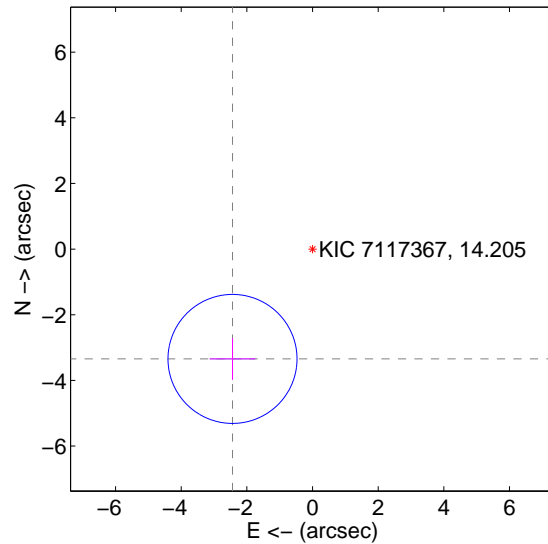
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.179 \pm 0.656$	6.38	$2.475 \pm 0.696$	$-3.368 \pm 0.633$
PRF-fit source offset from KIC position	$4.141 \pm 0.655$	6.32	$2.439 \pm 0.696$	$-3.347 \pm 0.633$
photometric centroid source offset	$0.95 \pm 0.69$	1.38	$-0.76 \pm 0.70$	$-0.57 \pm 0.66$

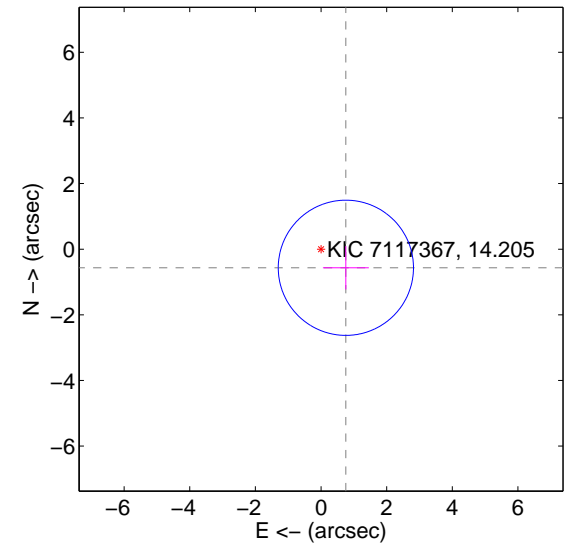
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



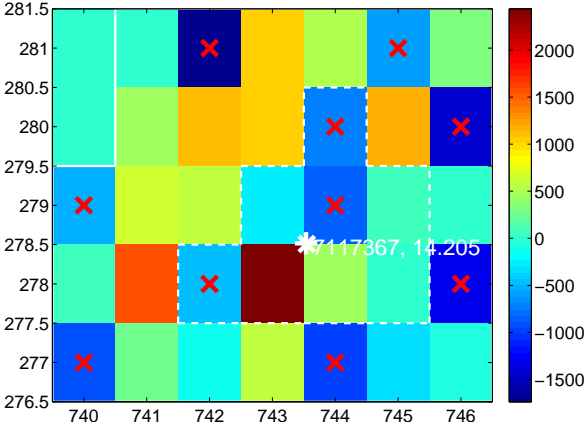
Q2 no difference image



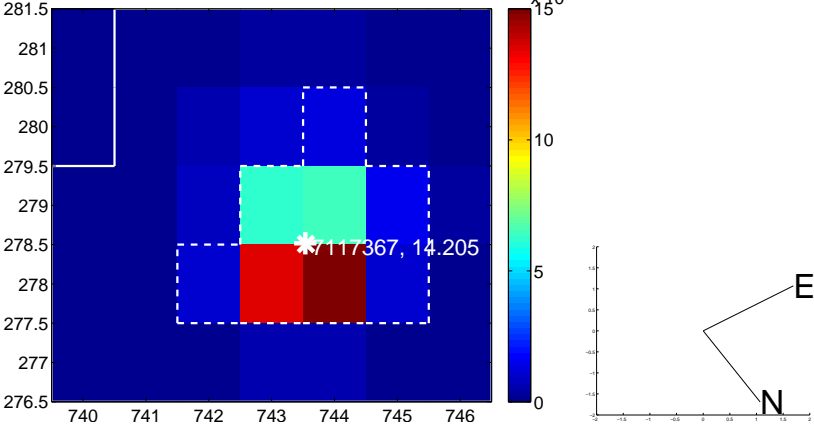
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



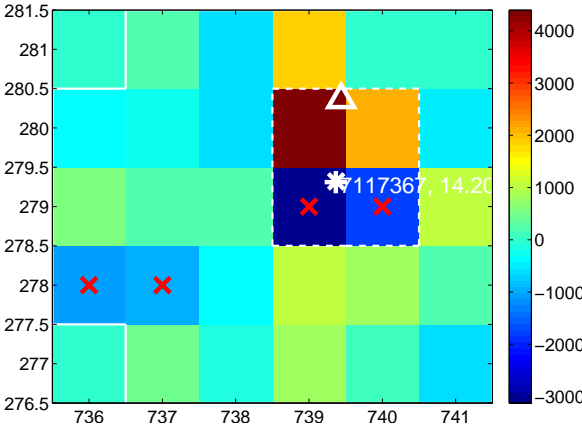
Q7 no difference image



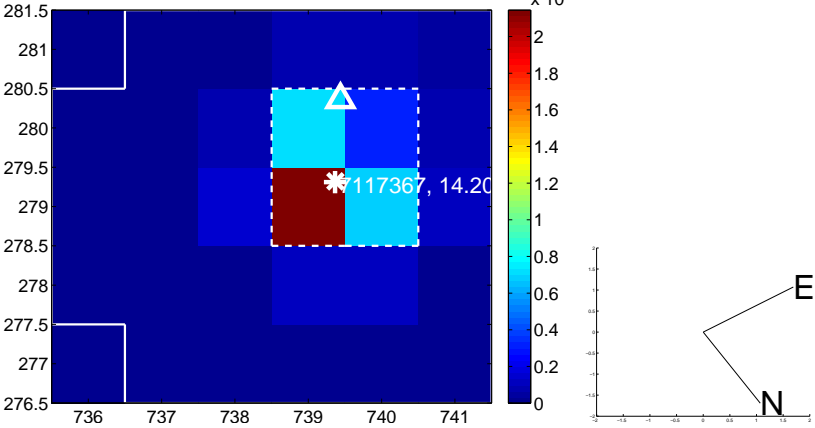
Q7 no OOT image



Q8 difference image



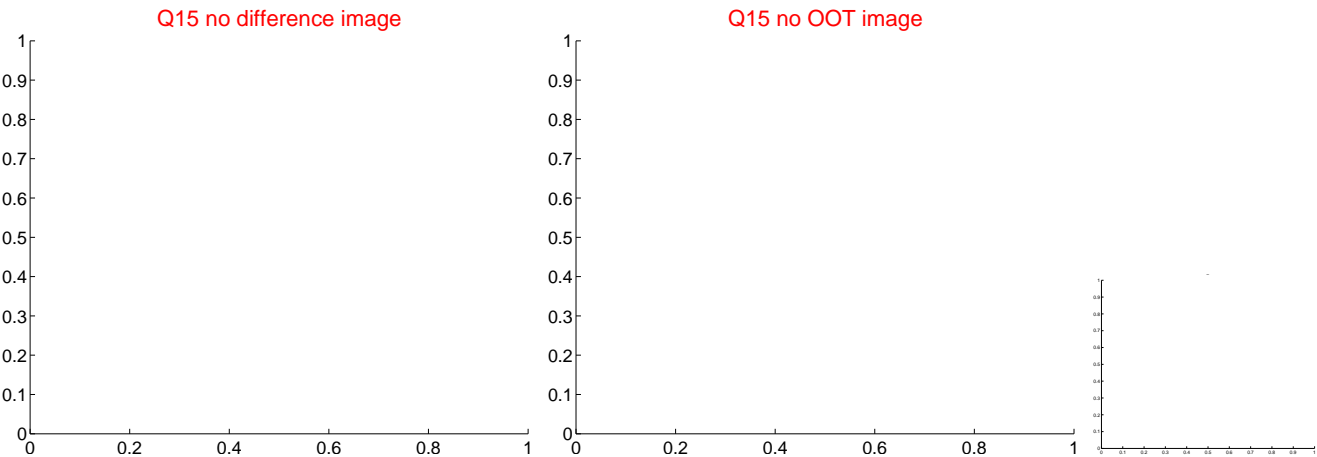
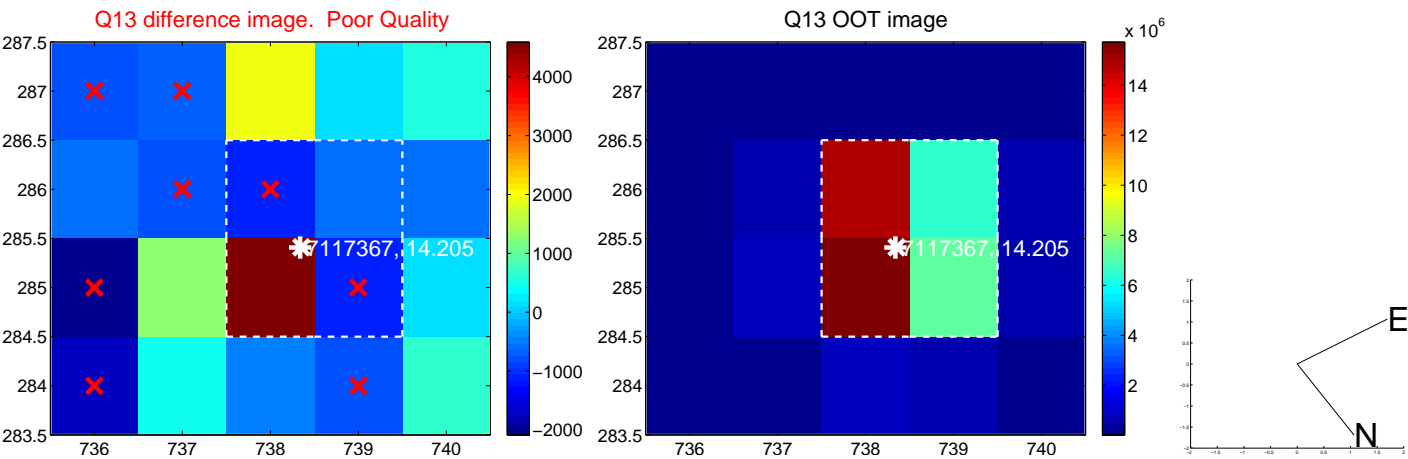
Q8 OOT image



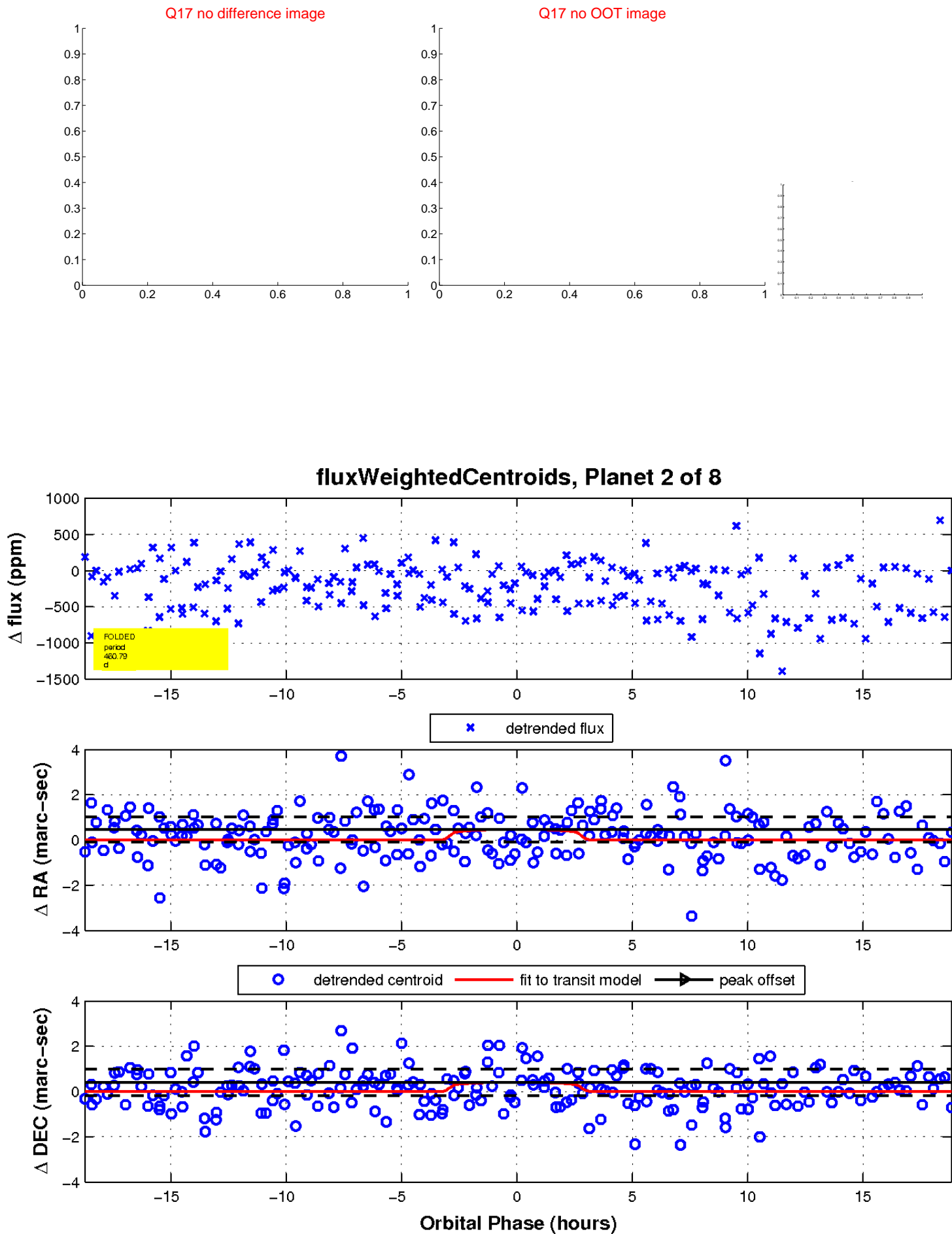
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

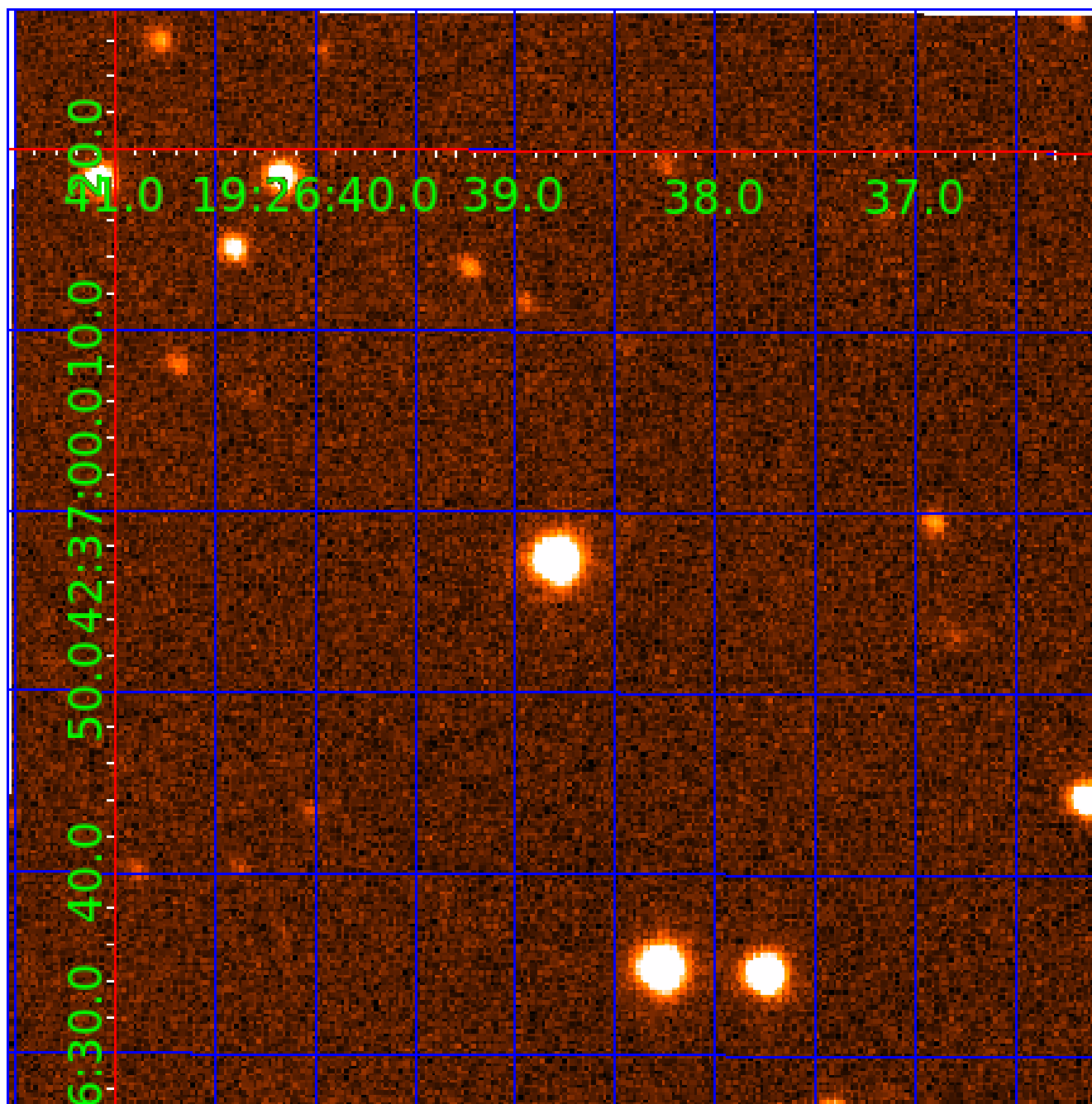


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007117367

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007117367-01	OBS	No	0.566775	131.840915	12.0	2.455	7.9	4.3	1.10	6124	0.45	7889.11
007117367-02	OBS	No	460.787180	280.053603	698.7	6.281	15.0	9.3	1.10	6124	3.26	1.04
007117367-03	OBS	No	205.582047	199.067749	369.0	9.000	10.8	-1.0	1.10	6124	2.10	3.05
007117367-04	OBS	No	263.770300	266.301694	620.3	3.137	11.1	6.8	1.10	6124	2.90	2.19
007117367-06	OBS	No	517.431159	471.695739	328.5	5.291	10.2	4.7	1.10	6124	2.30	0.89
007117367-07	OBS	No	188.407371	153.688218	781.8	3.500	10.2	-1.0	1.10	6124	3.06	3.43
007117367-08	OBS	No	200.525987	247.318456	372.2	9.085	8.8	5.2	1.10	6124	2.23	3.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007117367-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
007117367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_FEW_DIFFS
007117367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS
007117367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
007117367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007117367-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007117367-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_UNCERTAIN

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

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

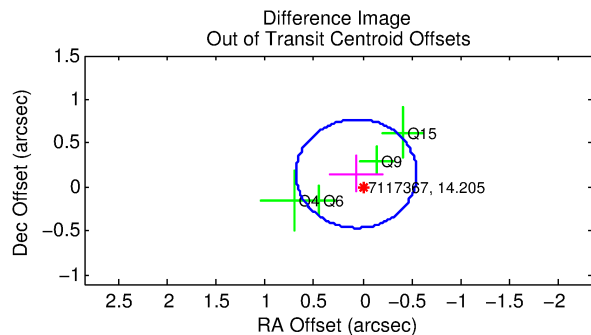
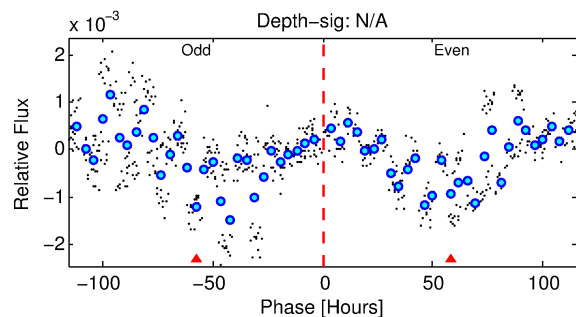
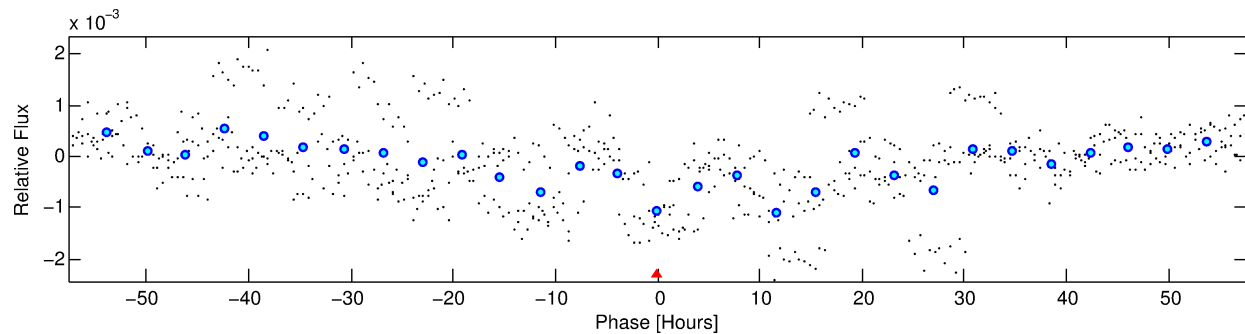
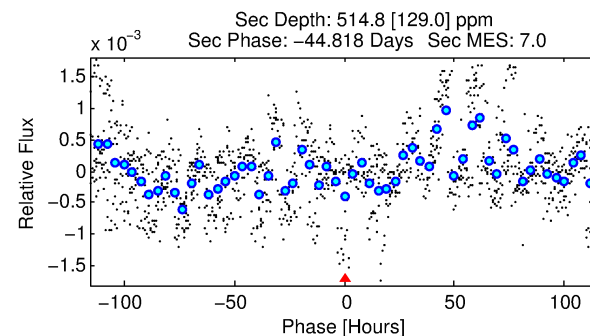
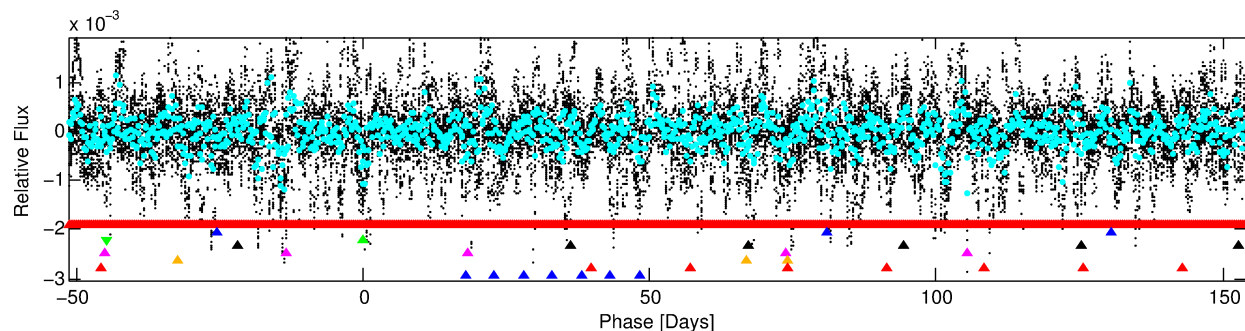
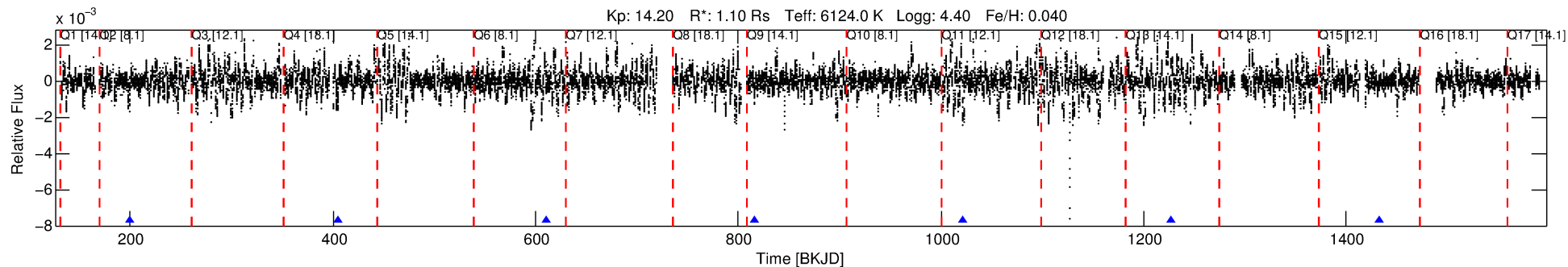
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007117367-03

No Significant Match Found

# DV One-Page Summary

KIC: 7117367 Candidate: 3 of 8 Period: 205.582 d



## TPS TCE Results:

Period = 205.58205 d  
Epoch = 199.0677 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

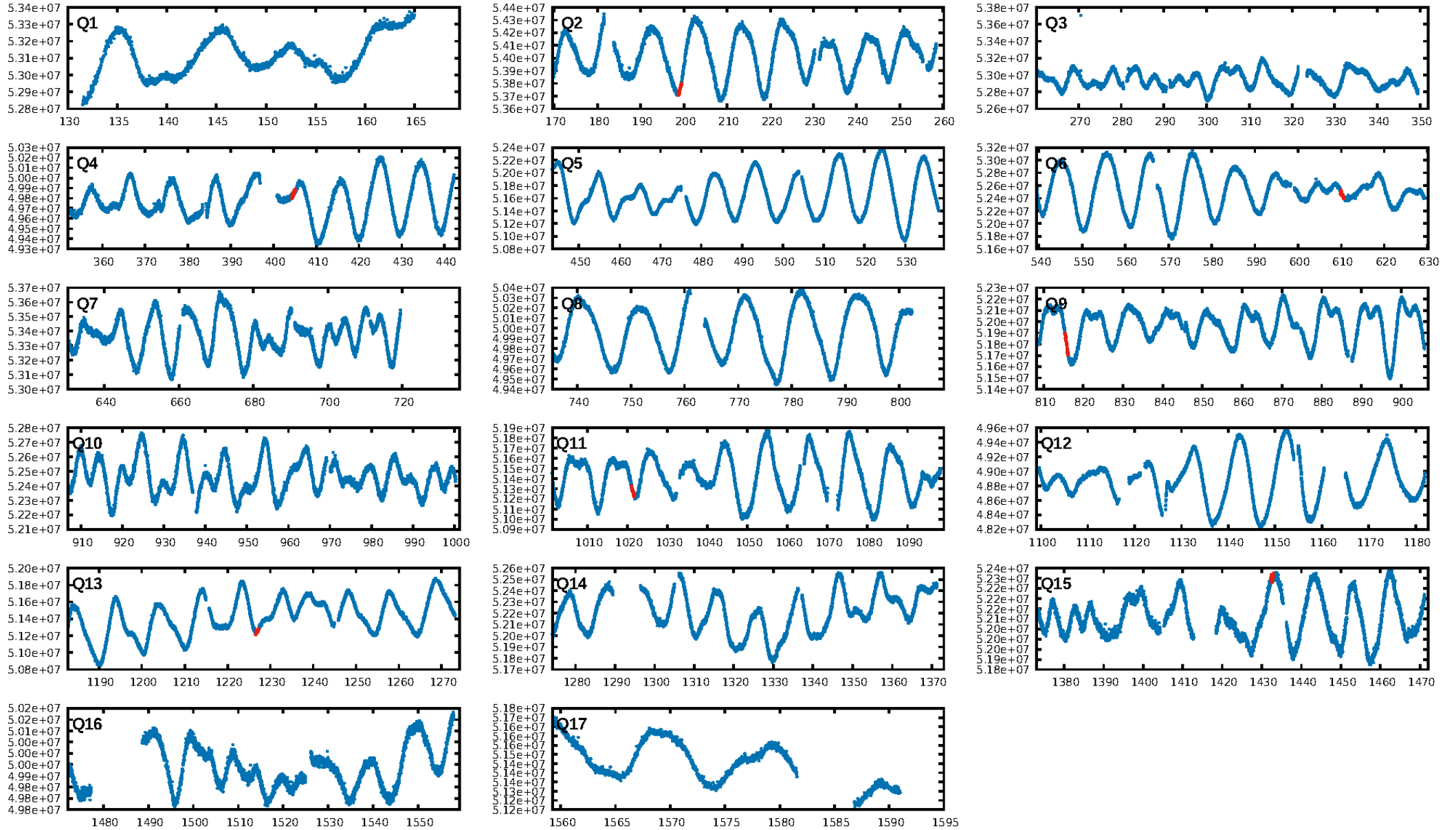
ShortPeriod-sig: 100.0% [9.49 $\sigma$ ]  
LongPeriod-sig: 100.0% [146.52 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: -0.5656

Centroid-sig: 5.2%  
Centroid-so: 3.932 arcsec [1.66 $\sigma$ ]  
OotOffset-rm: 0.171 arcsec [0.83 $\sigma$ ]  
KicOffset-rm: 0.159 arcsec [0.79 $\sigma$ ]  
OotOffset-st: 1/1/1/1 [4]  
KicOffset-st: 1/1/1/1 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 0.00 [0/4]

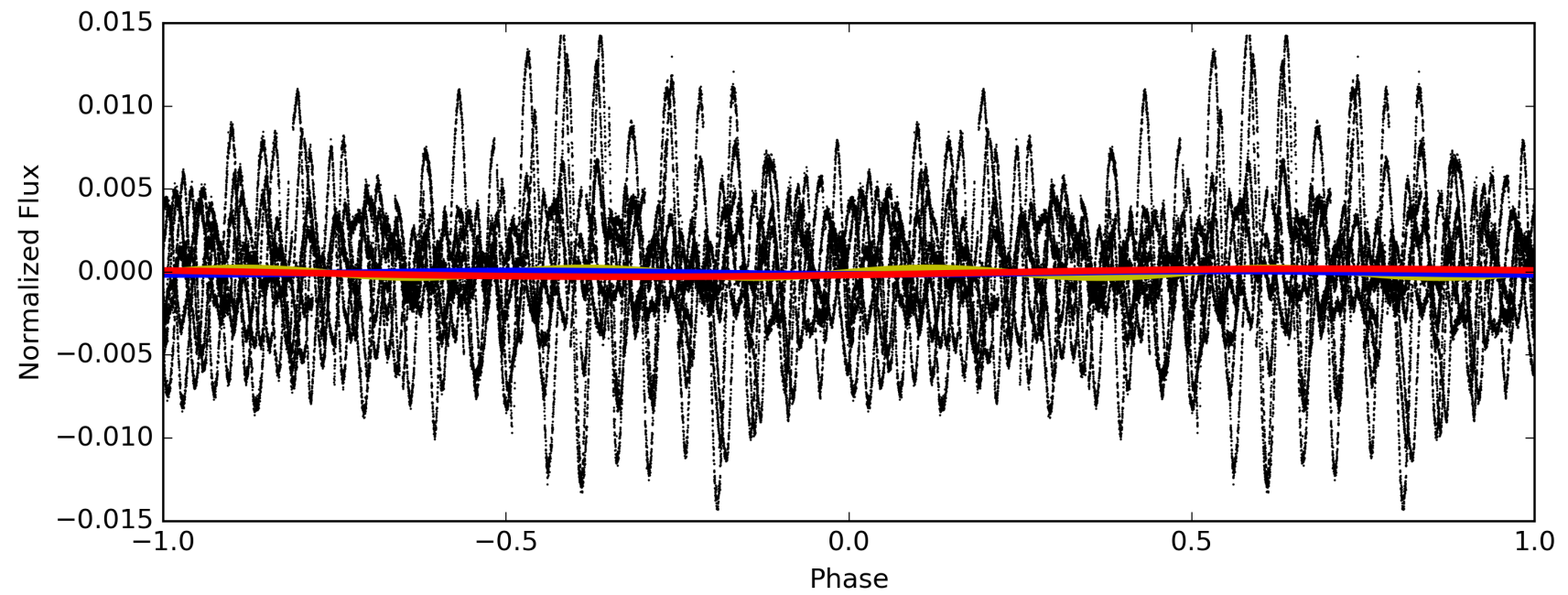
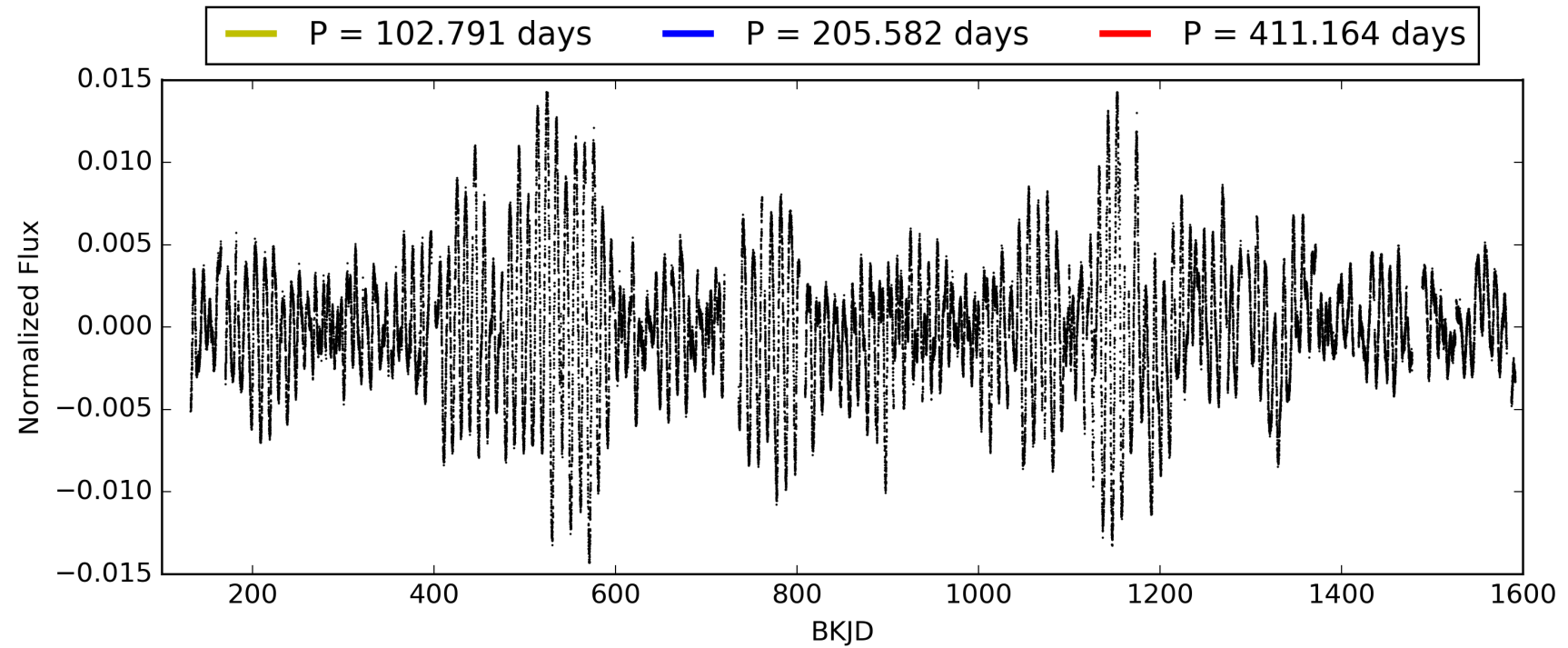
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:35:38 Z

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

# TCE 007117367-03, PDC Light Curves

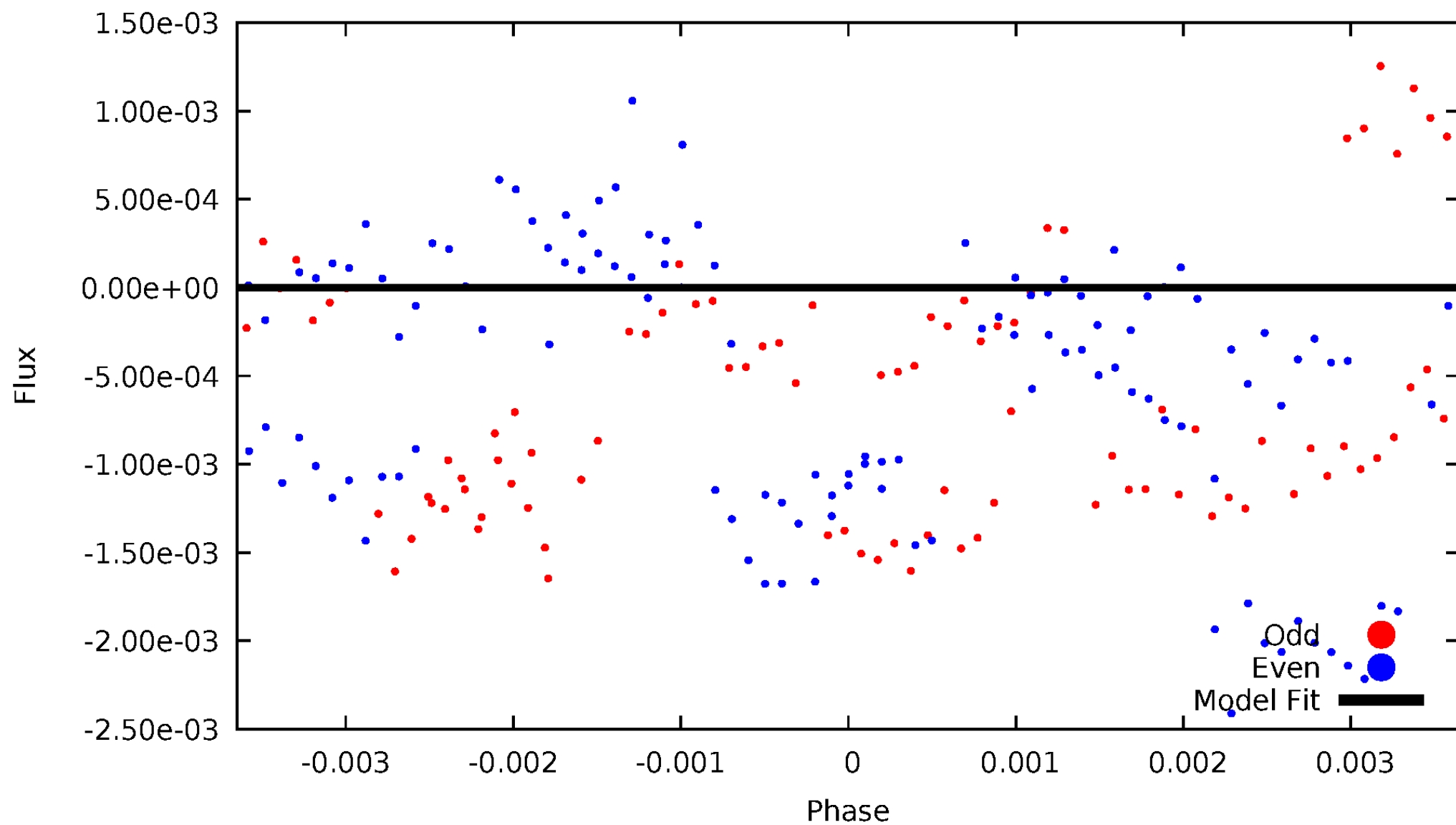


TCE 007117367-03



# DV Odd/Even

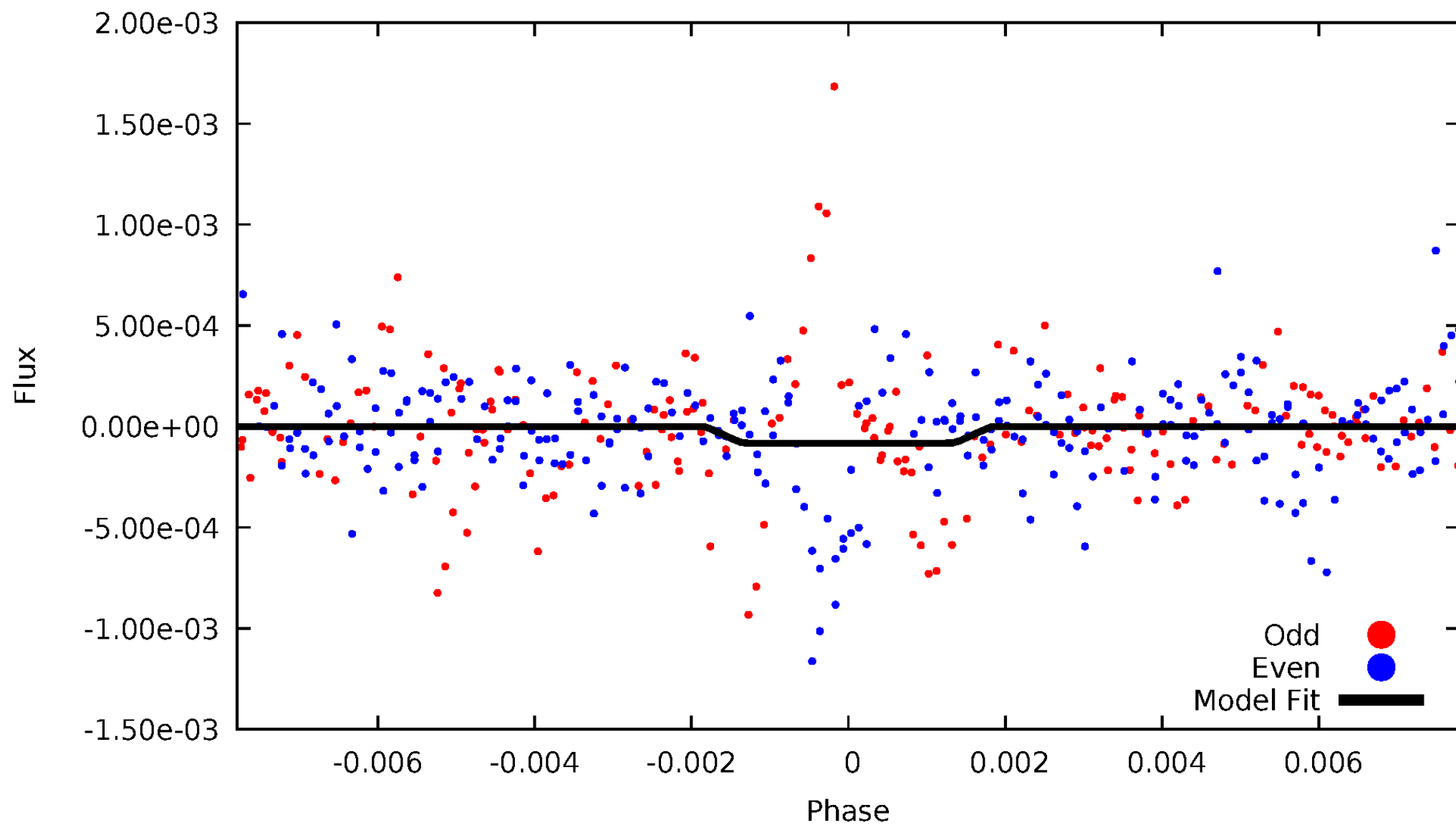
TCE 007117367-03



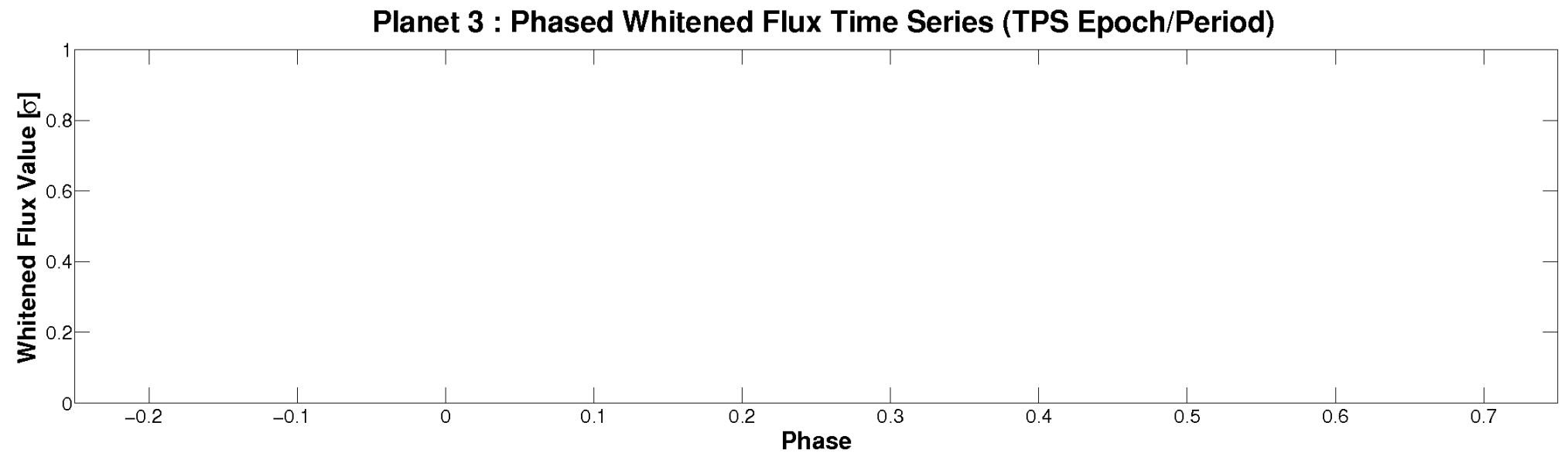
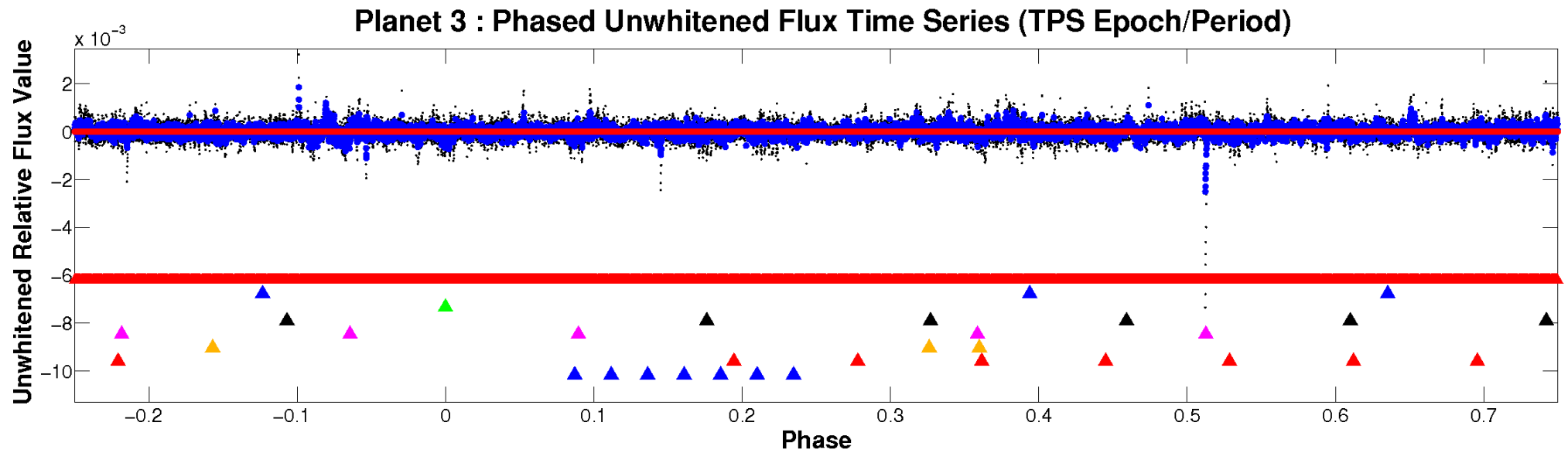


# ALT Odd/Even

TCE 007117367-03

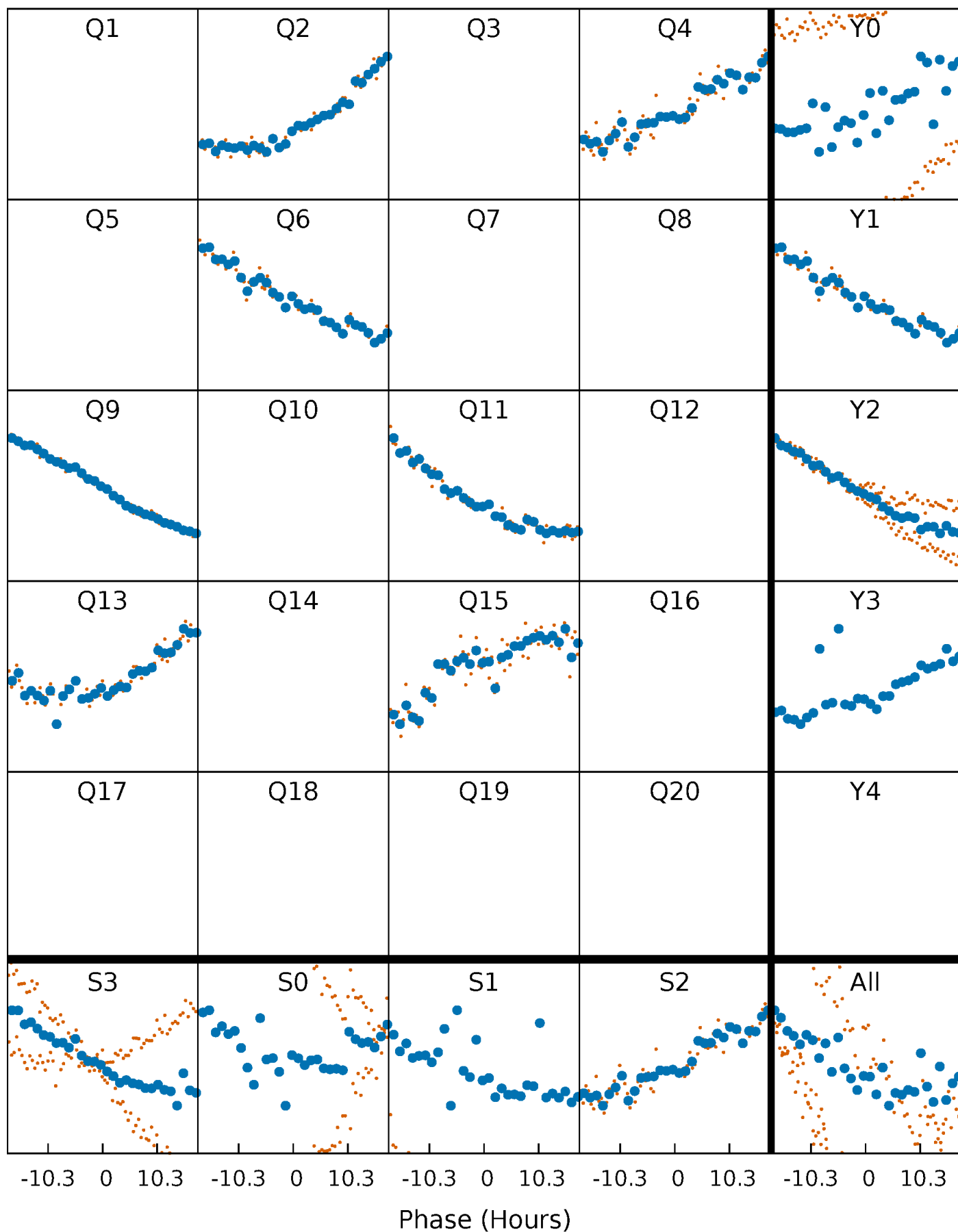


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

TCE 007117367-03 P=205.582047 Days  $T_0=199.067749$  (BKJD)



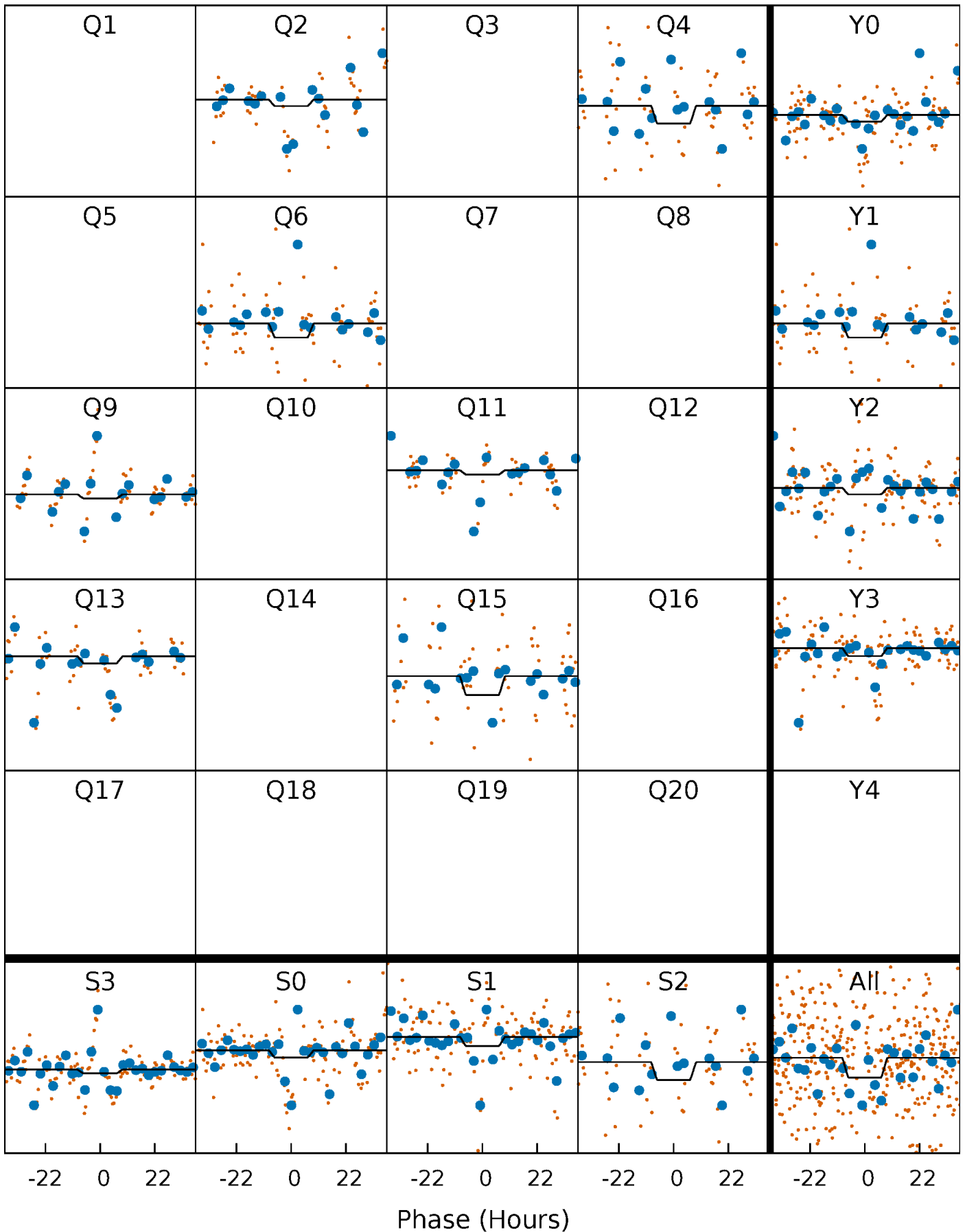
# DV Quarter-Phased Transit Curves

TCE 007117367-03     $P=205.582047$  Days     $T_0=199.067749$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

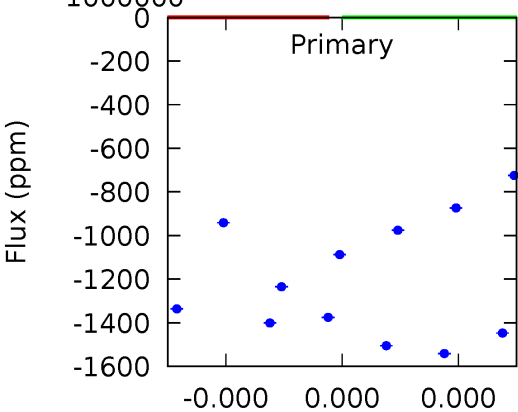
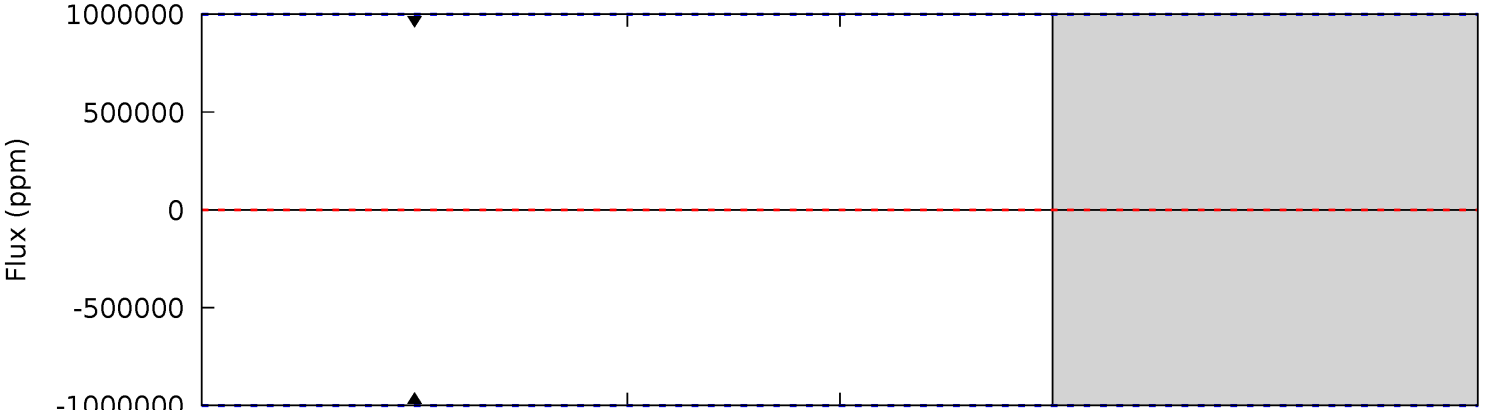
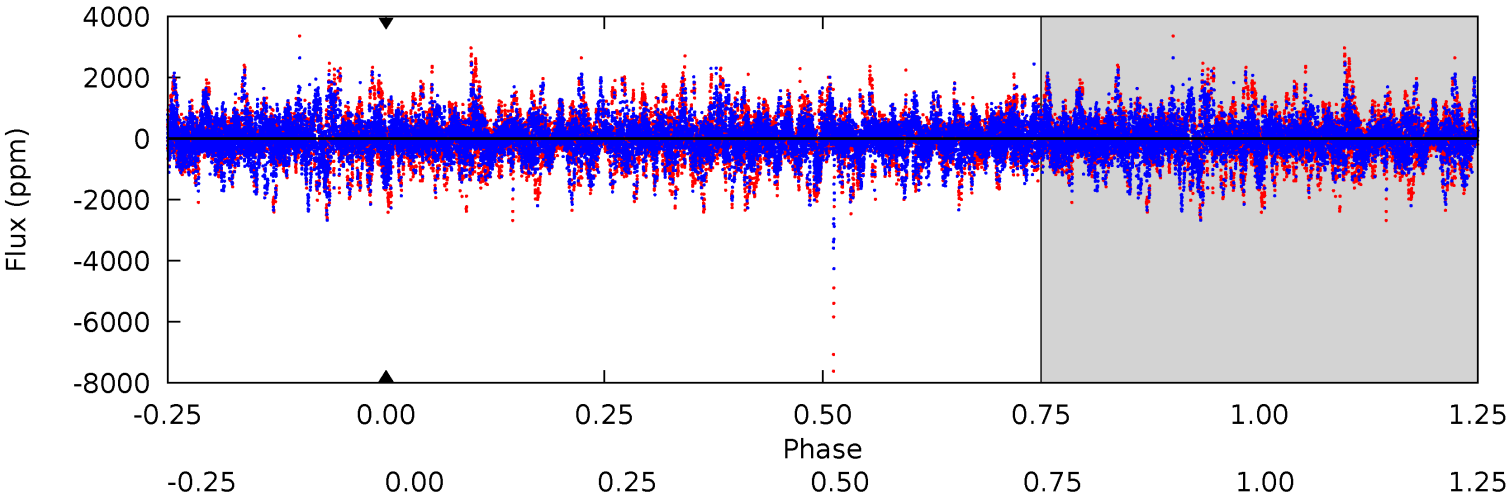
TCE 007117367-03 P=205.582047 Days  $T_0=199.060709$  (BKJD)



# DV Model-Shift Uniqueness Test

007117367-03, P = 205.582047 Days, E = 199.067749 Days

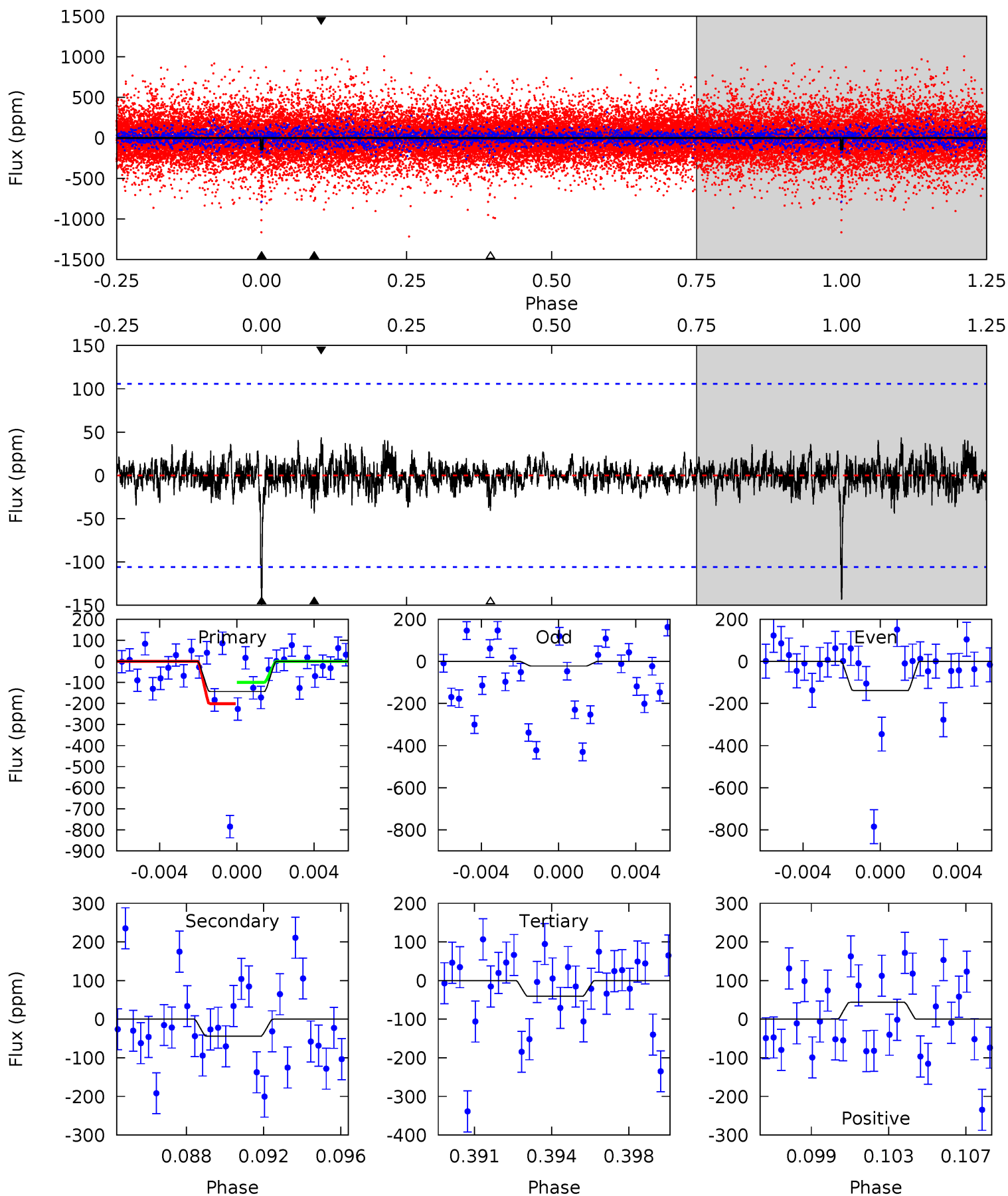
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007117367-03, P = 205.582047 Days, E = 199.060709 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
7.07	2.17	2.02	2.15	5.21	2.90	0.55	5.05	4.92	0.15	0.02	2.83	90.8	0.23	2.50





### Stellar Parameters For KIC 007117367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6124^{+165}_{-202}$	$4.401^{+0.070}_{-0.210}$	$0.040^{+0.250}_{-0.300}$	$1.096^{+0.375}_{-0.150}$	$1.099^{+0.166}_{-0.135}$	$1.175^{+0.447}_{-0.619}$
	+3%/-3%	+2%/-5%	+625%/-750%	+34%/-14%	+15%/-12%	+38%/-53%
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 007117367-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$8.94^{+10.14}_{-5.89}$	$479^{+34}_{-25}$	$-4078^{+28534}_{-17016}$	$-2958.411^{+573972.645}_{-486831.187}$
Alt.	$-44 \pm 20$	$8.95^{+8.71}_{-6.09}$	$481^{+37}_{-26}$	$2648^{+1096}_{-434}$	$142^{+1272}_{-111}$

$T_{max}$  = 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

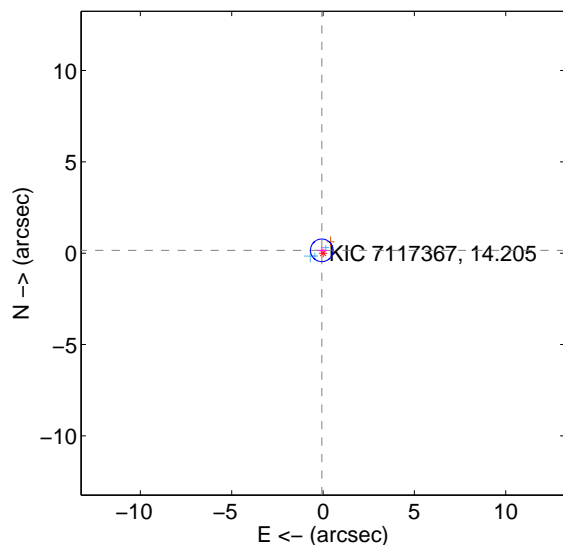
Supplemental centroid analysis for 007117367-03. Kepler magnitude: 14.21. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

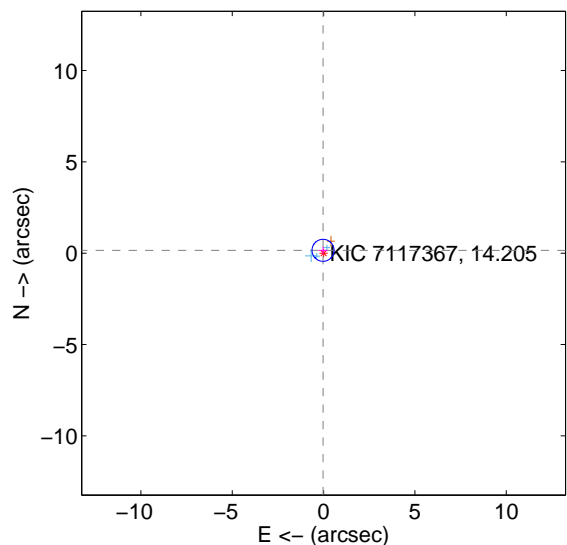
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.171 \pm 0.206$	0.83	$0.069 \pm 0.263$	$0.156 \pm 0.193$
PRF-fit source offset from KIC position	$0.159 \pm 0.201$	0.79	$0.029 \pm 0.248$	$0.156 \pm 0.199$
photometric centroid source offset	$3.93 \pm 2.37$	1.66	$3.44 \pm 2.38$	$1.91 \pm 2.32$

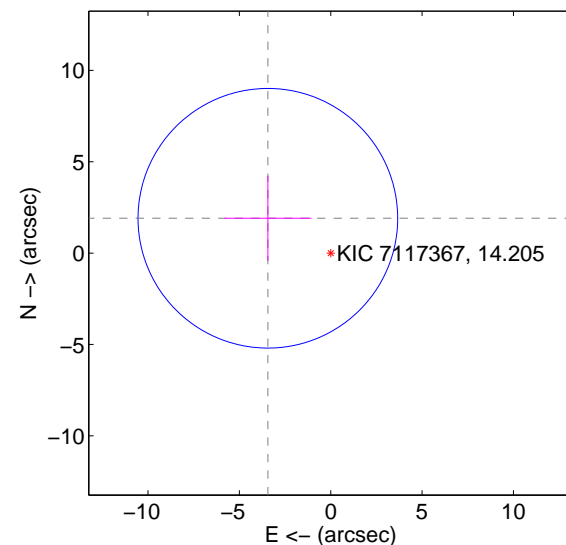
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

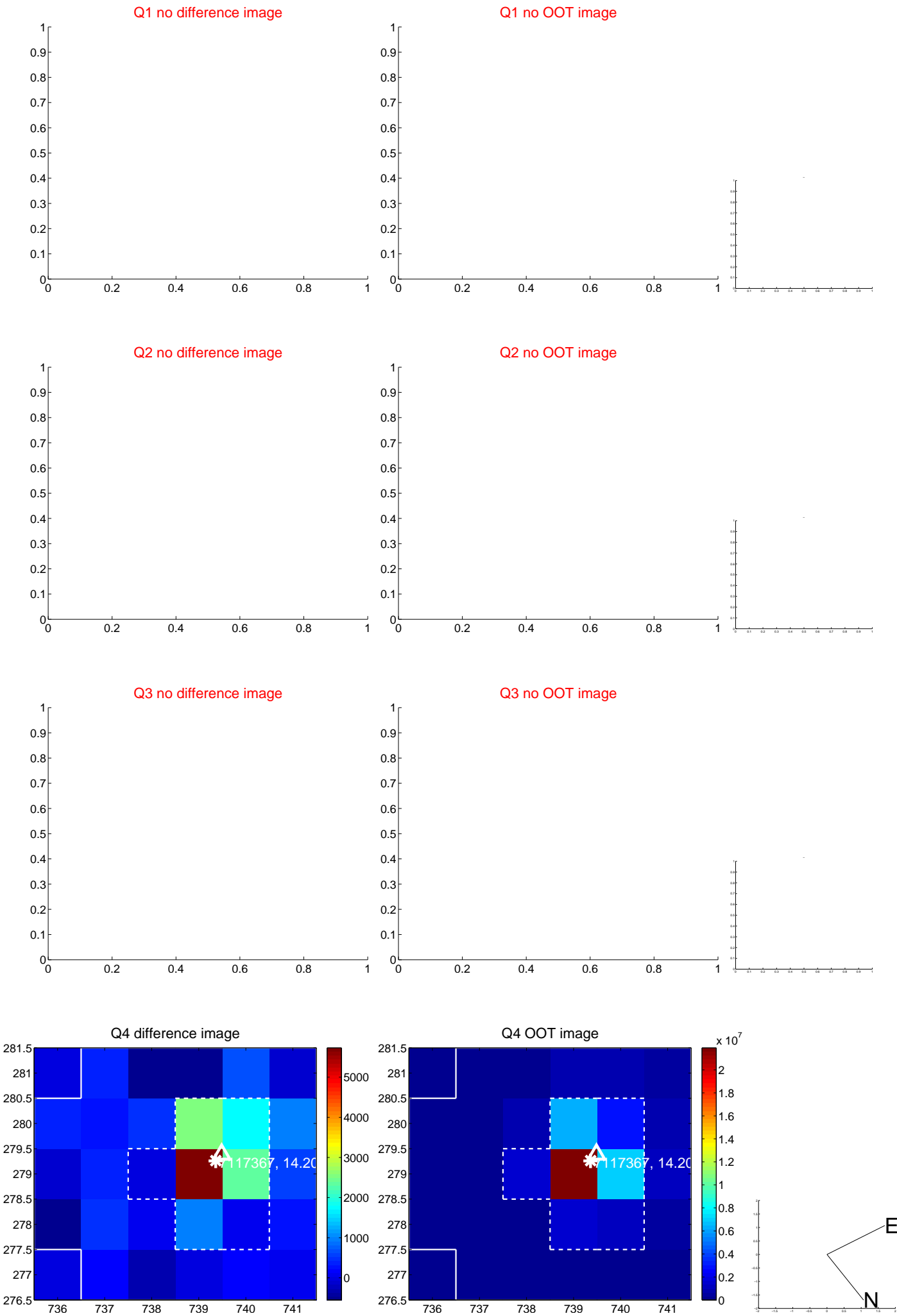


offset from photometric centroids



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

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



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

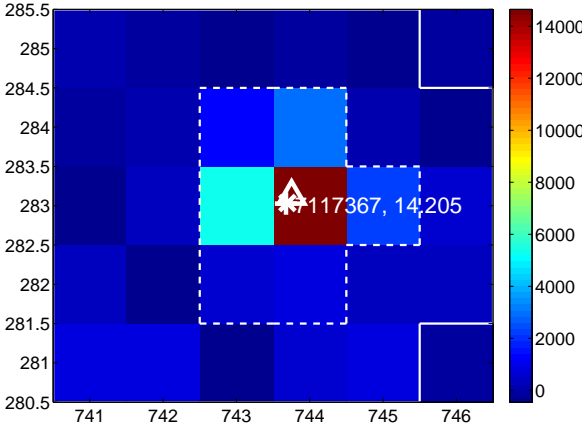
Q5 no difference image



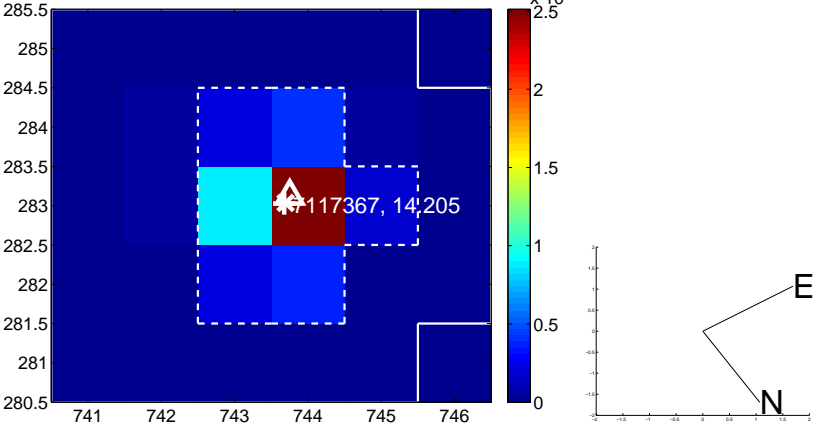
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



Q7 no OOT image



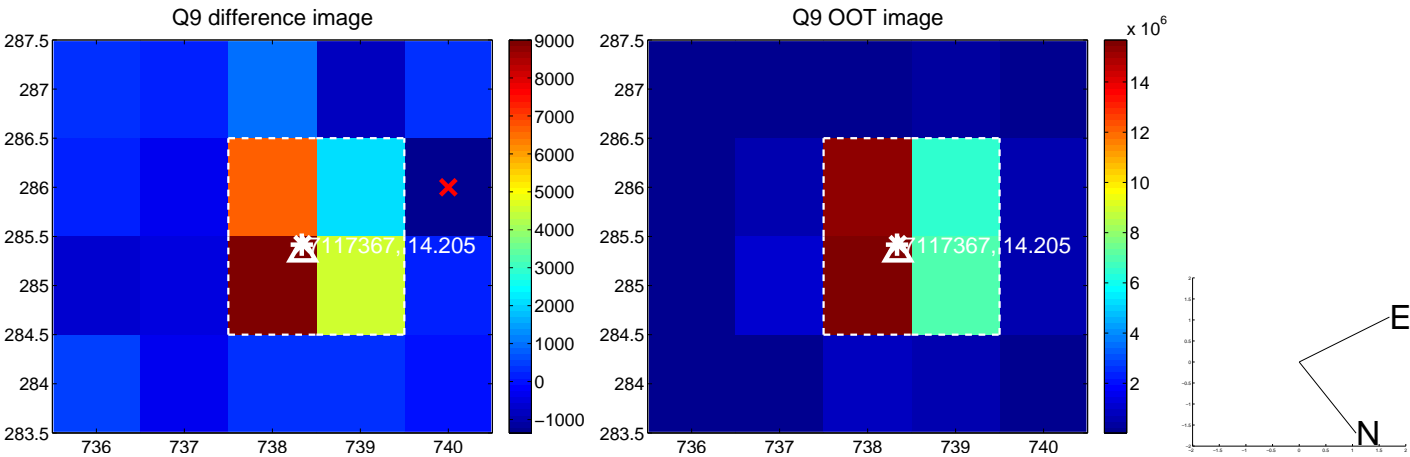
Q8 no difference image



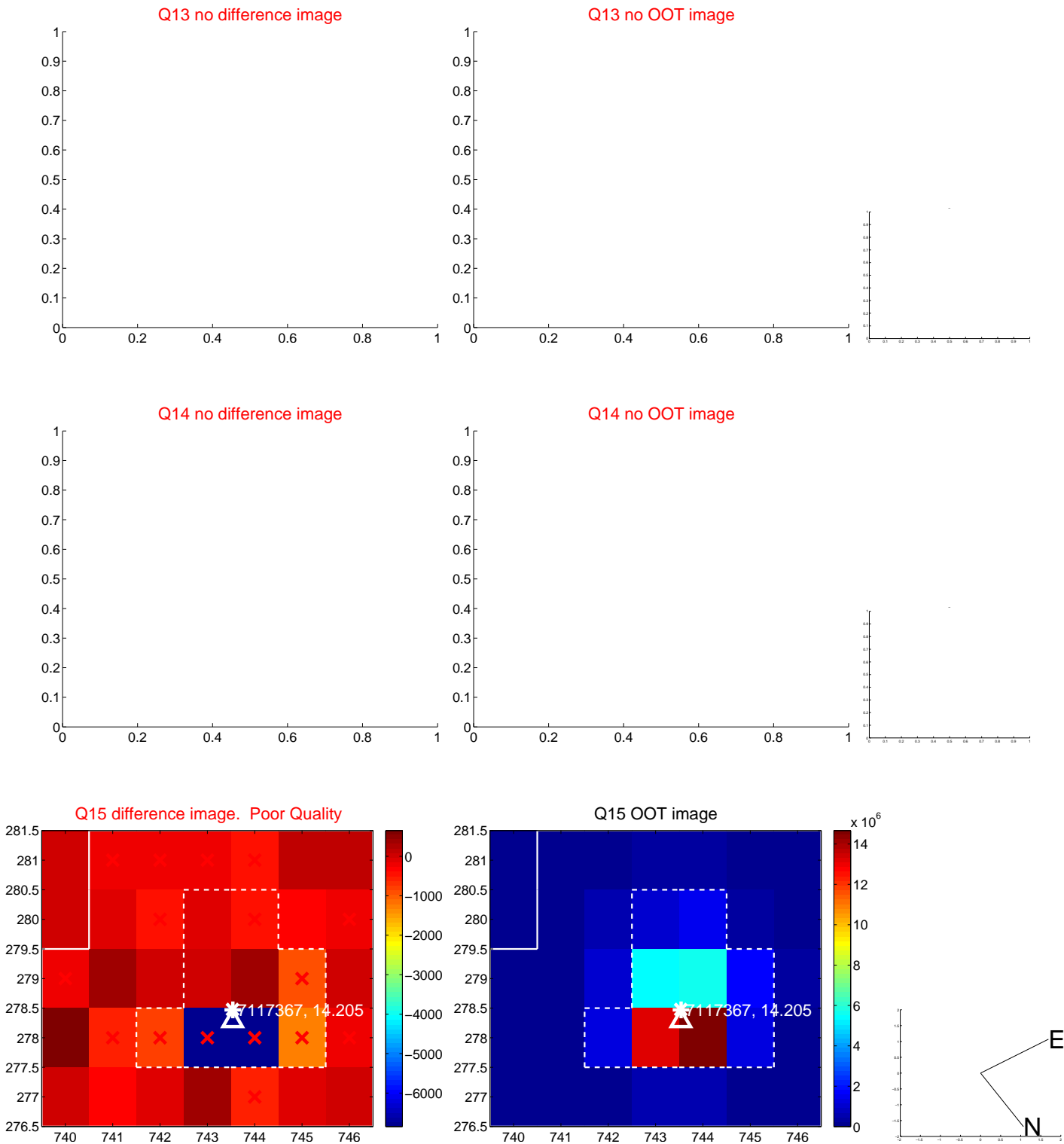
Q8 no OOT image



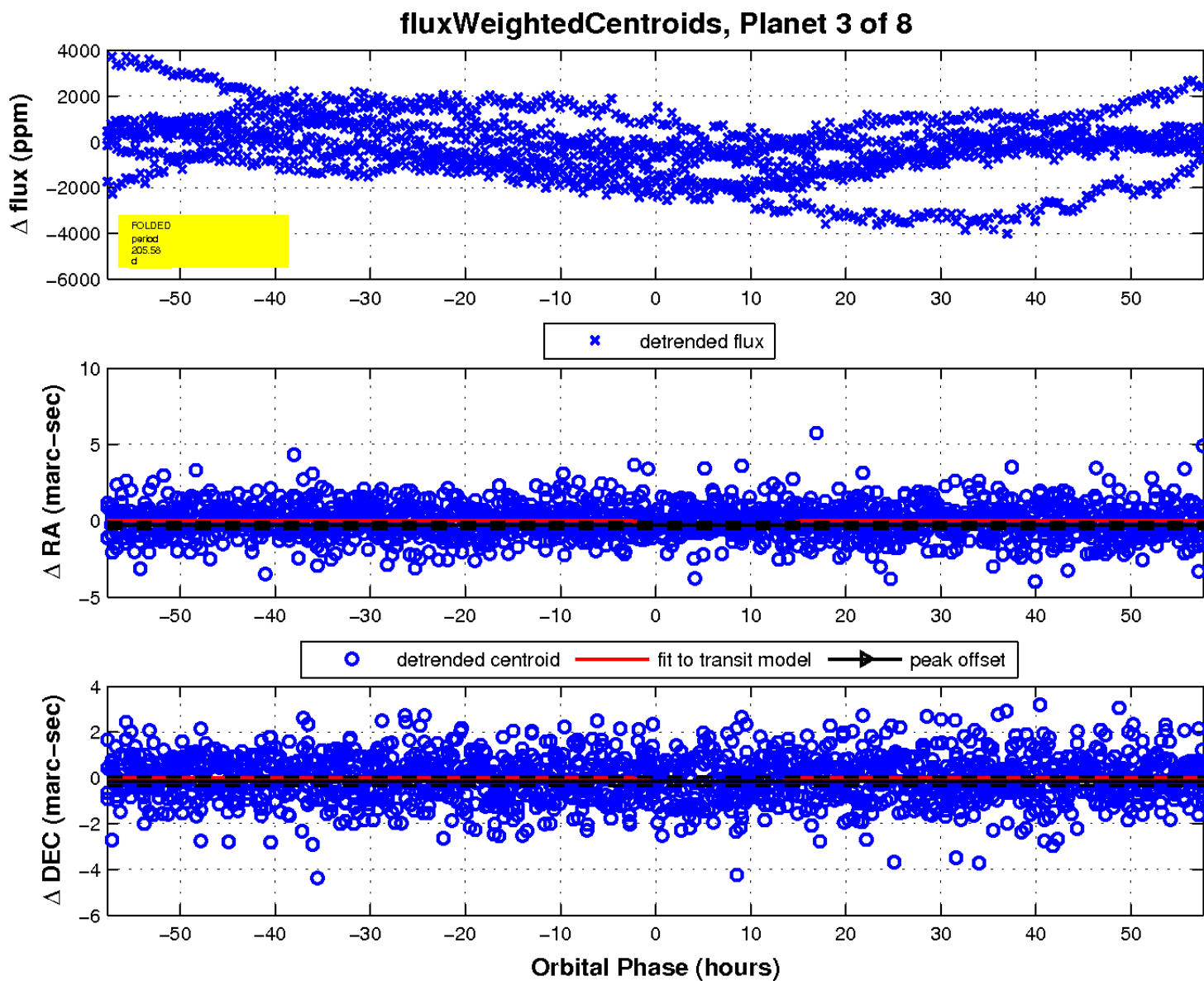
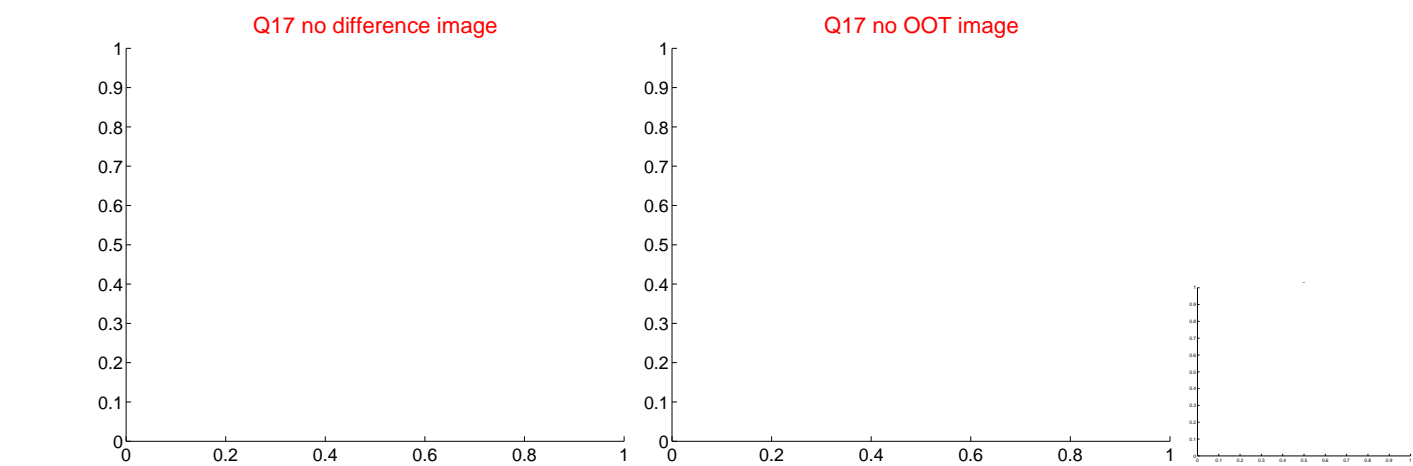
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



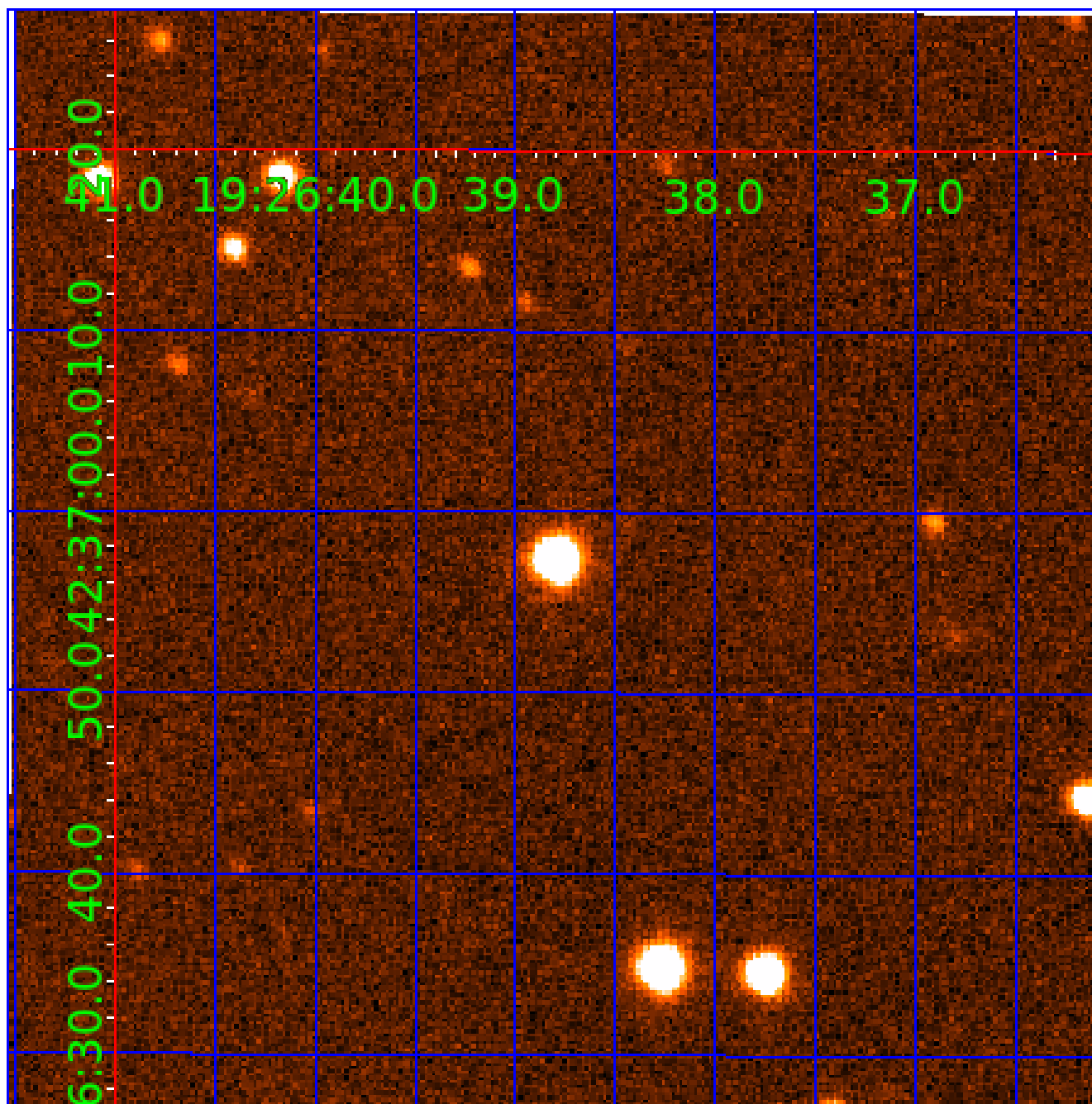
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 007117367

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007117367-01	OBS	No	0.566775	131.840915	12.0	2.455	7.9	4.3	1.10	6124	0.45	7889.11
007117367-02	OBS	No	460.787180	280.053603	698.7	6.281	15.0	9.3	1.10	6124	3.26	1.04
007117367-03	OBS	No	205.582047	199.067749	369.0	9.000	10.8	-1.0	1.10	6124	2.10	3.05
007117367-04	OBS	No	263.770300	266.301694	620.3	3.137	11.1	6.8	1.10	6124	2.90	2.19
007117367-06	OBS	No	517.431159	471.695739	328.5	5.291	10.2	4.7	1.10	6124	2.30	0.89
007117367-07	OBS	No	188.407371	153.688218	781.8	3.500	10.2	-1.0	1.10	6124	3.06	3.43
007117367-08	OBS	No	200.525987	247.318456	372.2	9.085	8.8	5.2	1.10	6124	2.23	3.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007117367-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
007117367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_FEW_DIFFS
007117367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS
007117367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
007117367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007117367-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007117367-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_UNCERTAIN

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

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

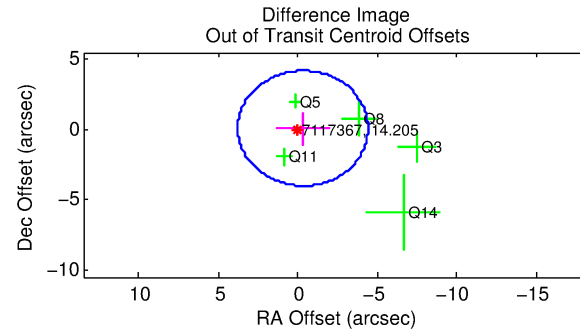
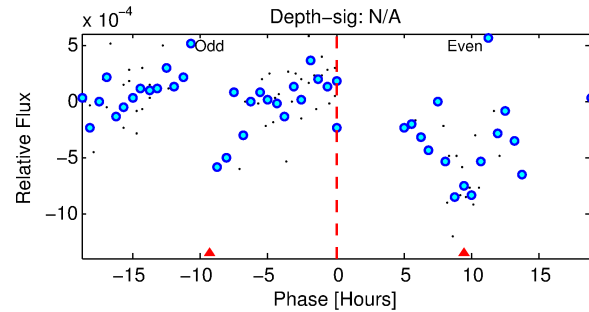
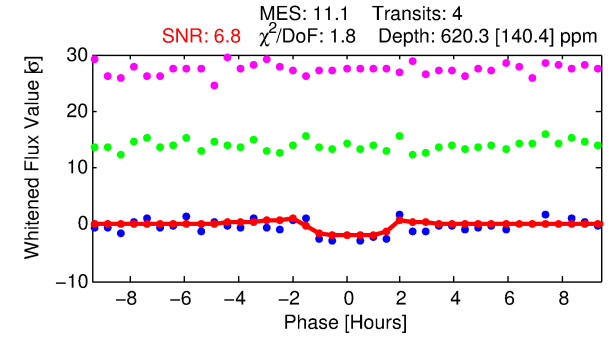
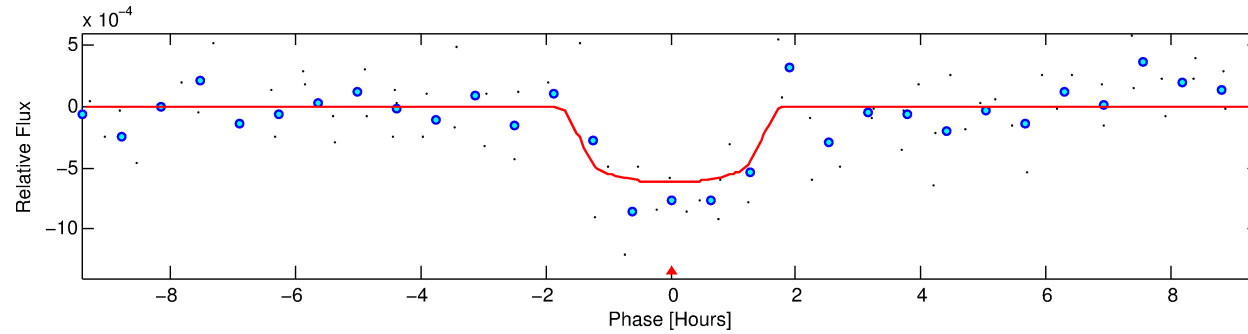
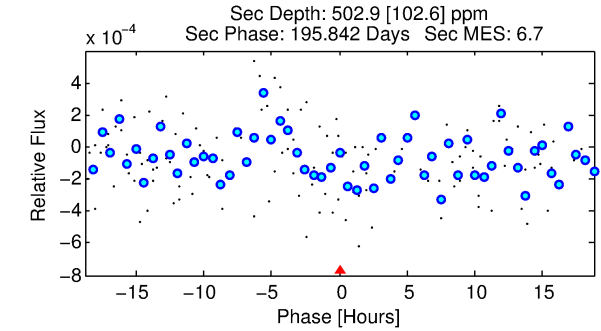
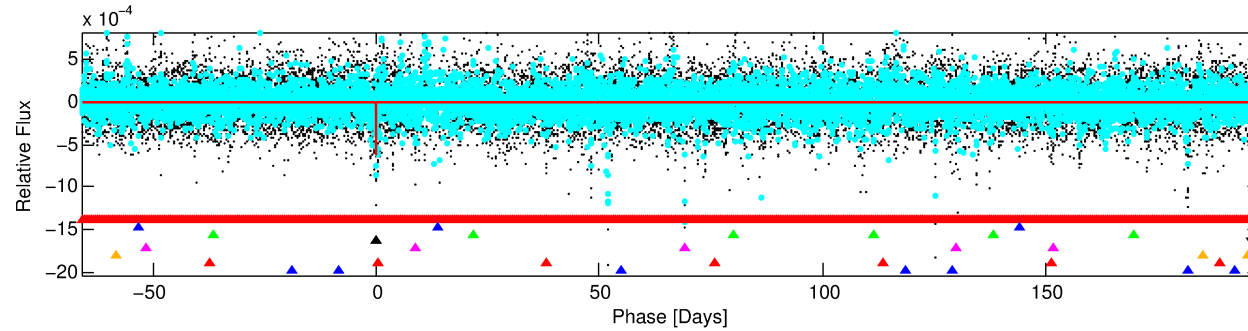
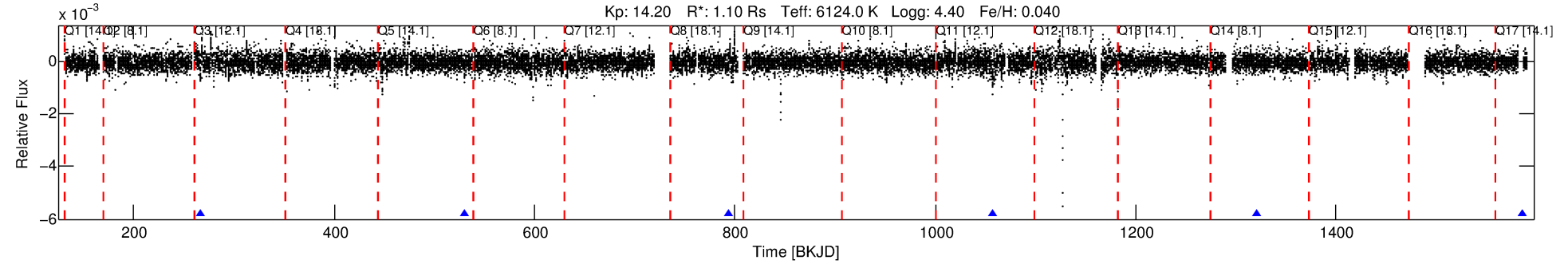
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007117367-04

No Significant Match Found

# DV One-Page Summary

KIC: 7117367 Candidate: 4 of 8 Period: 263.770 d



## DV Fit Results:

Period = 263.77030 [0.00435] d  
Epoch = 266.3017 [0.0118] BKJD  
Rp/R\* = 0.0242 [0.0404]  
a/R\* = 496.37 [3932.73]  
b = 0.67 [6.53]  
Seff = 2.19 [0.91]  
Teq = 310 [32] K  
Rp = 2.90 [4.93] Re  
a = 0.8319 [0.2323] AU  
Ag = 22805.47 [76739.04] [0.30]  
Teffp = 5892 [4926] K [1.13]

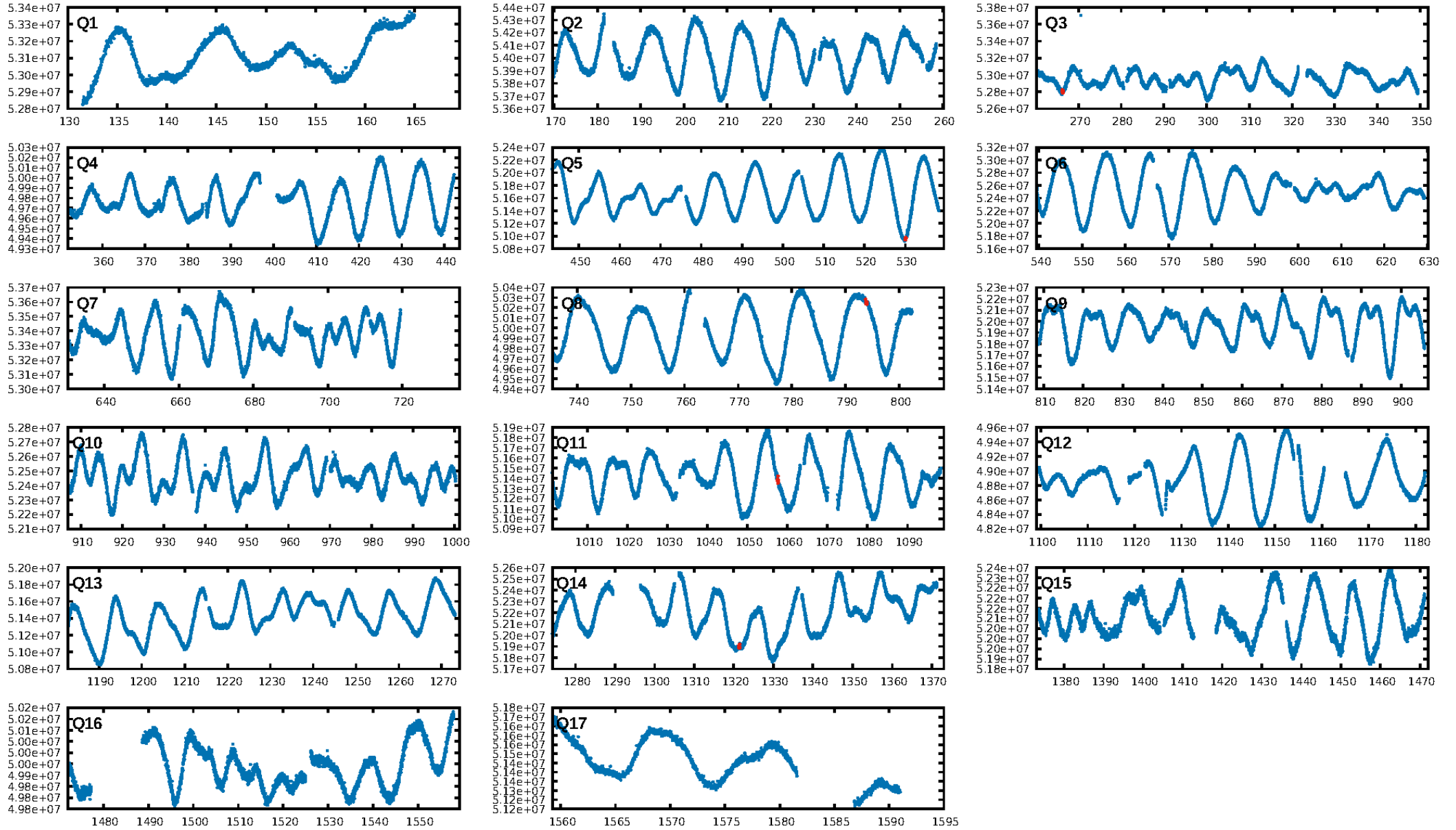
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [146.52]  
LongPeriod-sig: 100.0% [302.61]  
ModelChiSquare2-sig: 2.2%  
ModelChiSquareGof-sig: 96.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.6534  
Centroid-sig: 37.8%  
Centroid-so: 0.716 arcsec [0.83]  
OotOffset-rm: 0.324 arcsec [0.24]  
KicOffset-rm: 0.315 arcsec [0.25]  
OotOffset-st: 1/2/1/1 [5]  
KicOffset-st: 1/2/1/1 [5]  
DiffImageQuality-fgm: 0.40 [2/5]  
DiffImageOverlap-fno: 0.00 [0/5]

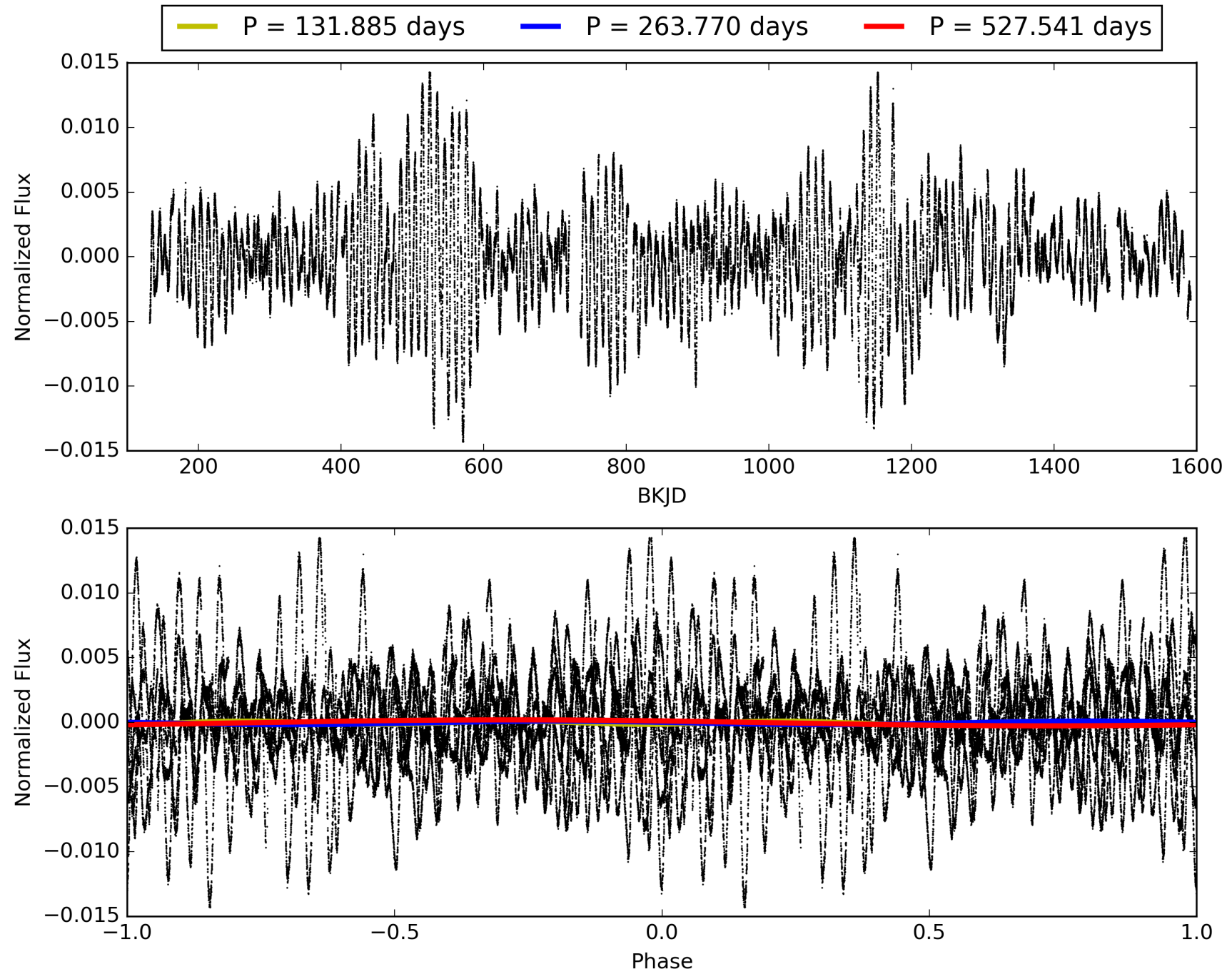
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:35:45 Z

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

# TCE 007117367-04, PDC Light Curves

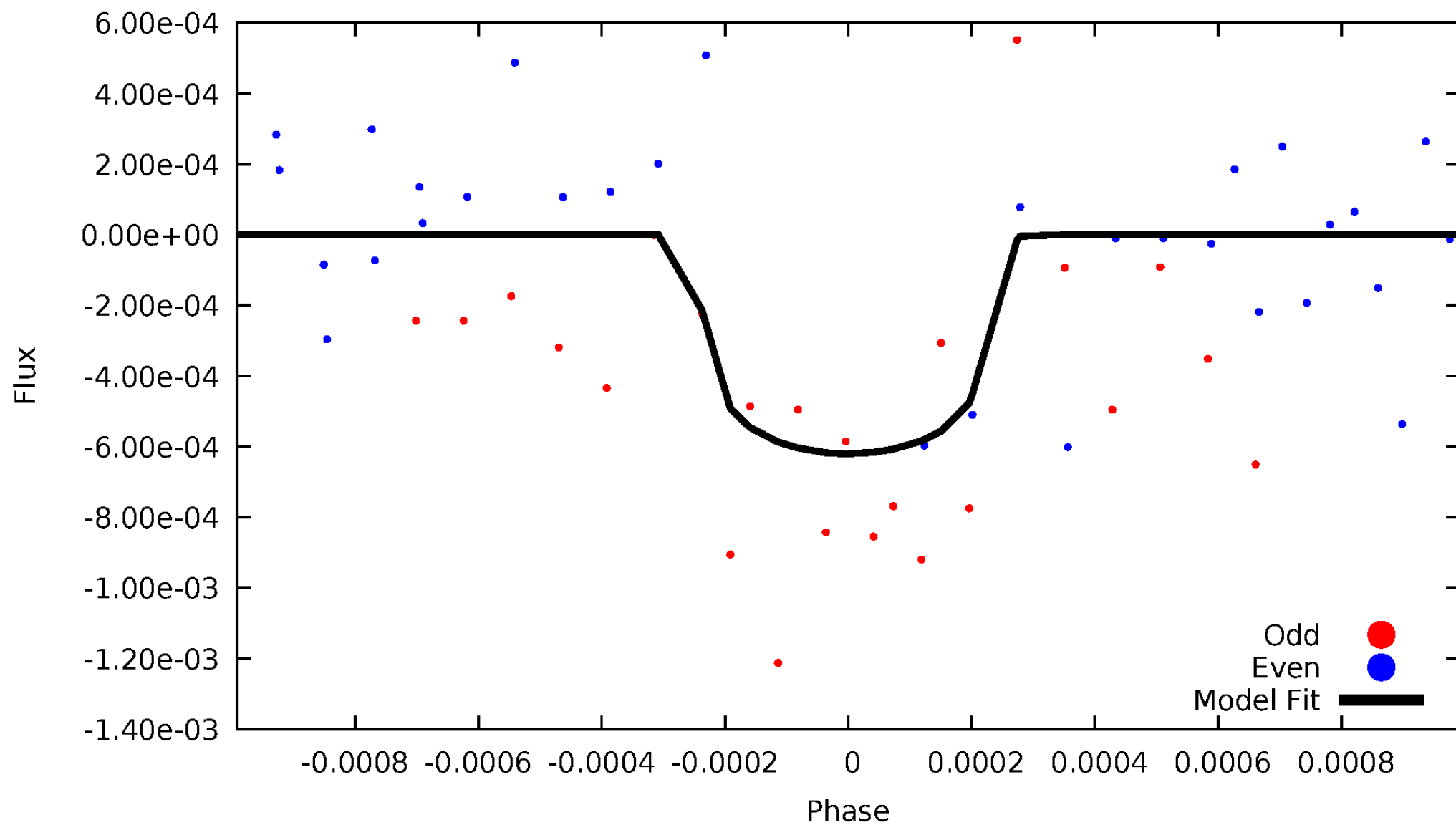


TCE 007117367-04



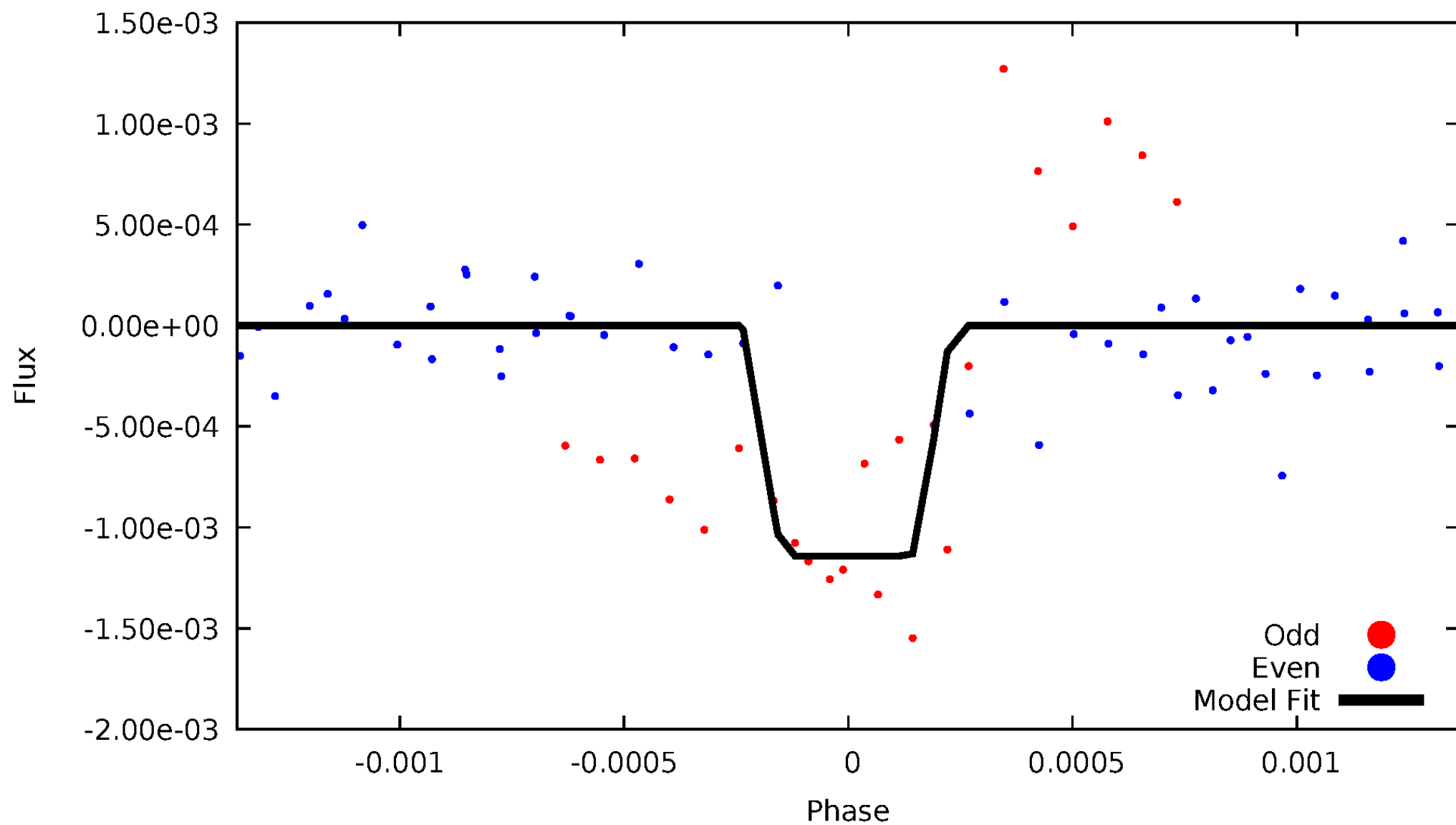
# DV Odd/Even

TCE 007117367-04



# ALT Odd/Even

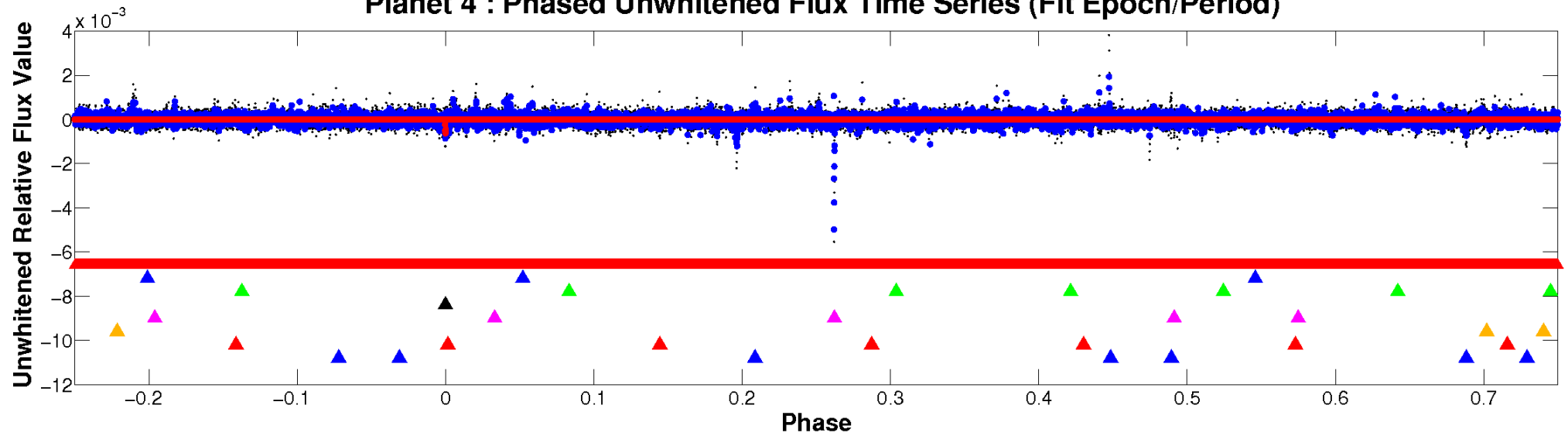
TCE 007117367-04



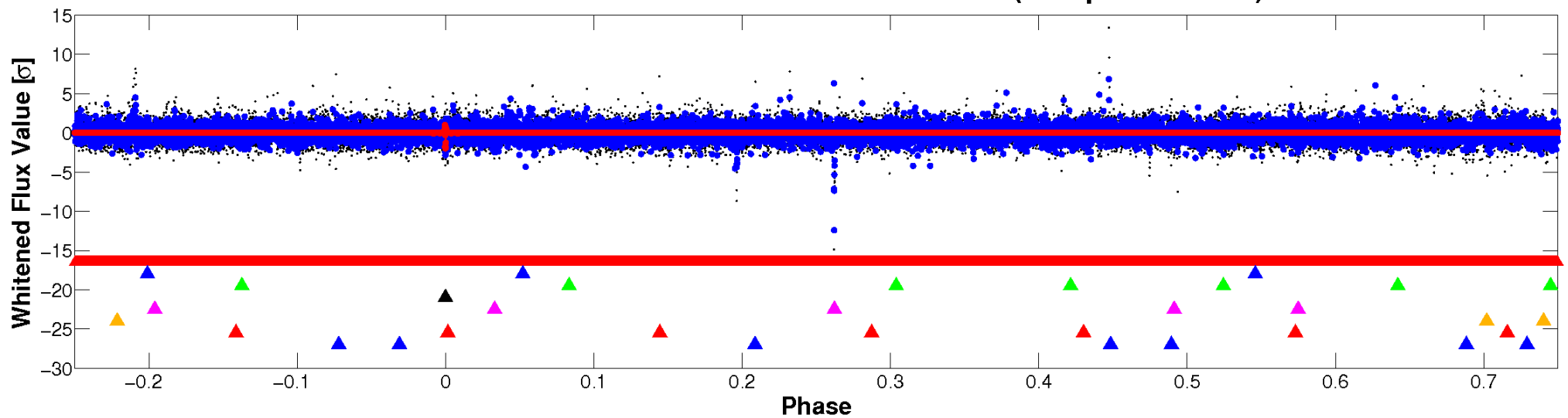


# Non-Whitened Vs. Whitened Light Curve

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

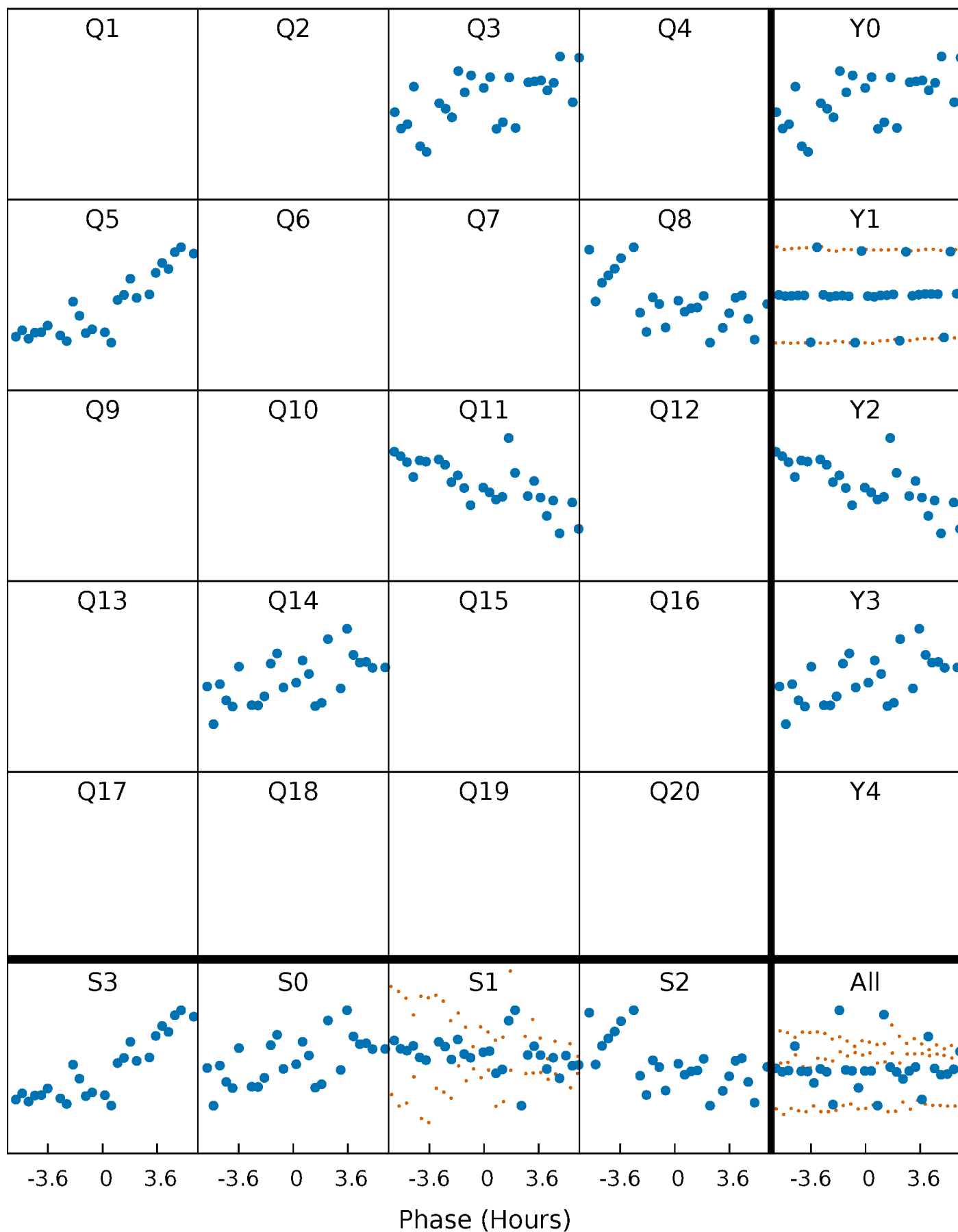


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



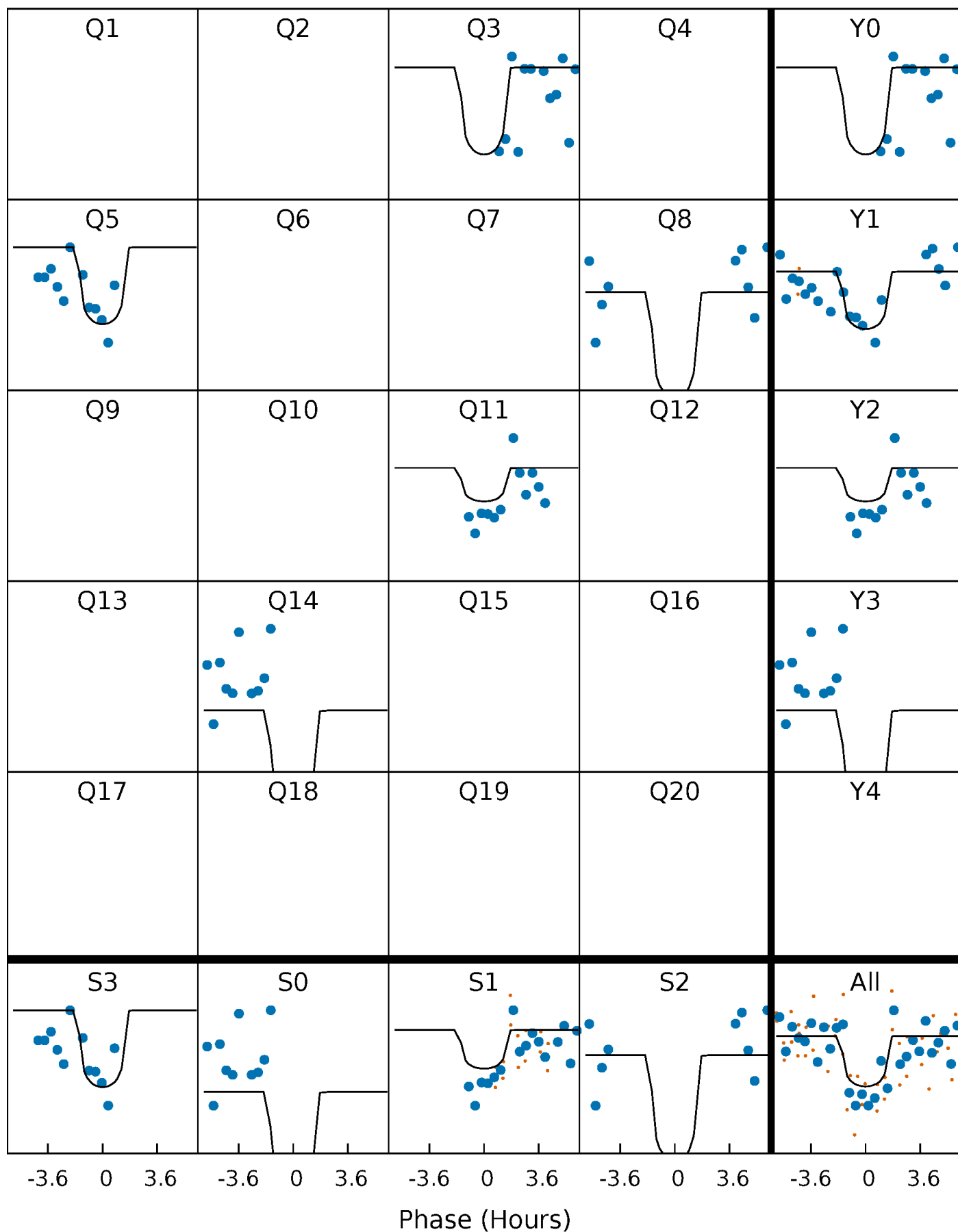
# PDC Quarter-Phased Transit Curves

TCE 007117367-04 P=263.770300 Days  $T_0=266.301694$  (BKJD)



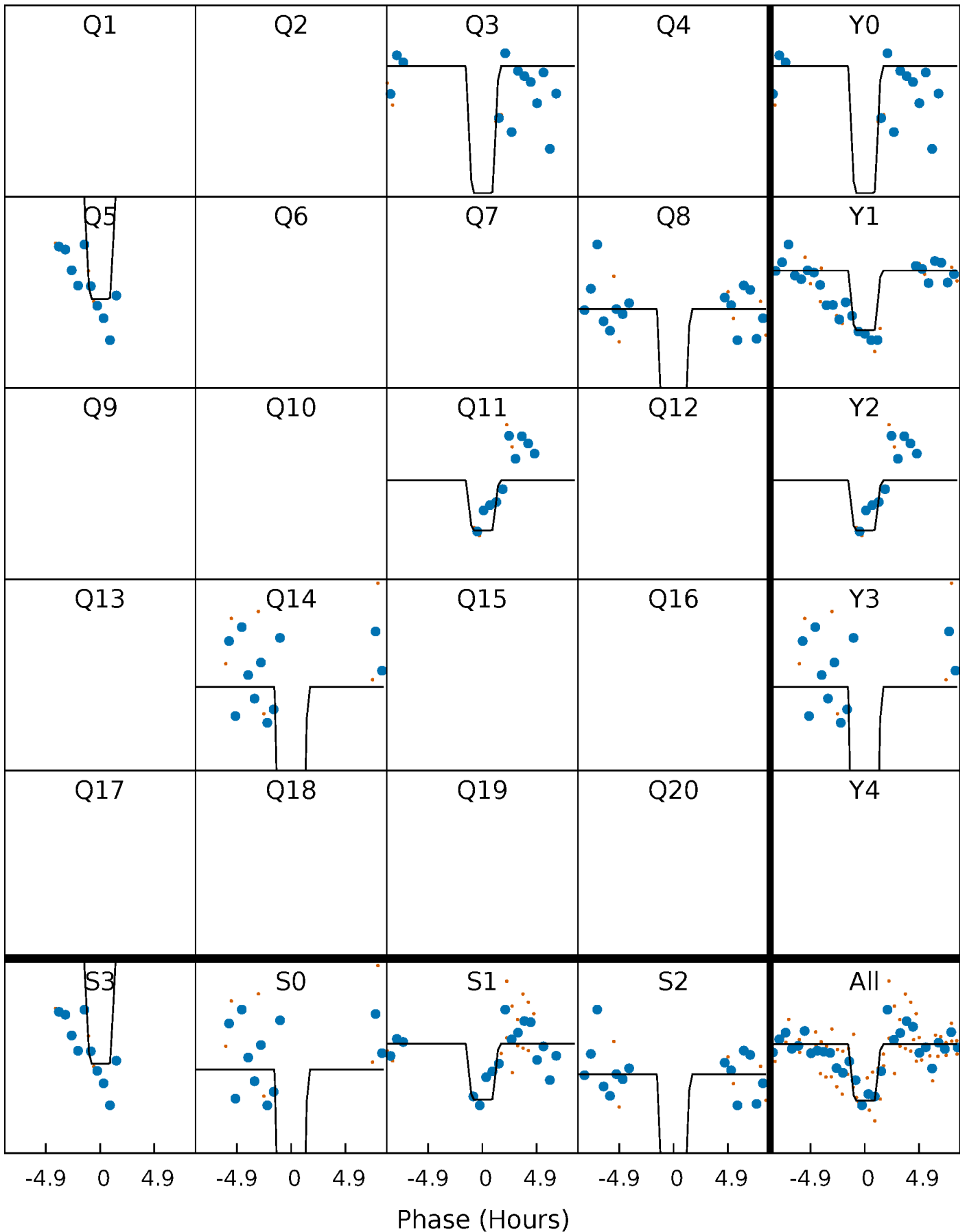
# DV Quarter-Phased Transit Curves

TCE 007117367-04     $P=263.770300$  Days     $T_0=266.301694$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

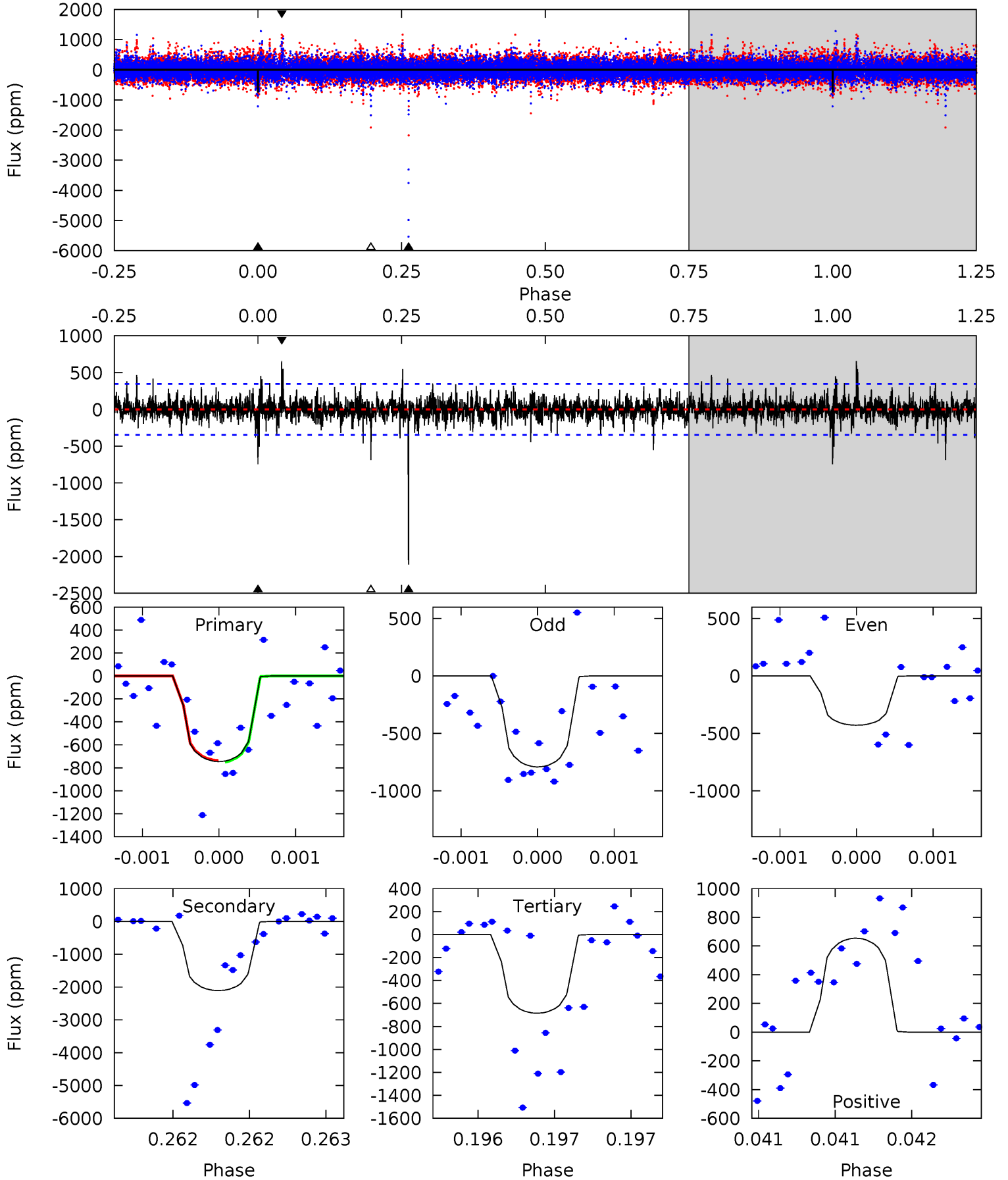
TCE 007117367-04 P=263.770015 Days  $T_0=266.283420$  (BKJD)



# DV Model-Shift Uniqueness Test

007117367-04, P = 263.770300 Days, E = 2.531394 Days

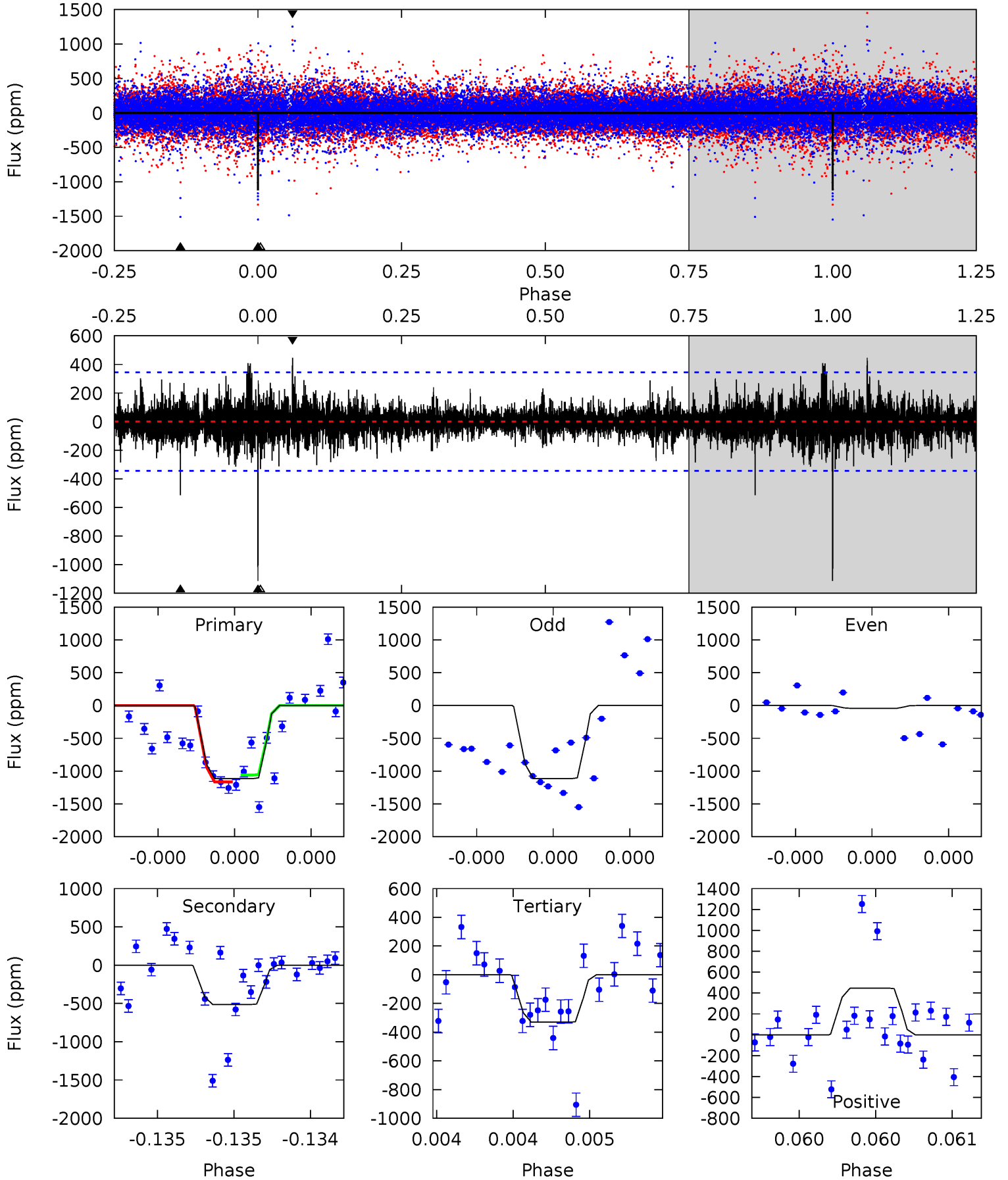
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	34.0	11.1	10.6	5.57	3.48	1.61	0.97	1.47	23.0	23.5	2.08	1.12	0.24	0.11



# Alt Model-Shift Uniqueness Test

007117367-04, P = 263.770015 Days, E = 2.513405 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	8.32	5.36	7.24	5.59	3.51	1.18	12.7	10.8	2.96	1.08	6.97	0.74	0.29	0.85



### Stellar Parameters For KIC 007117367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6124^{+165}_{-202}$	$4.401^{+0.070}_{-0.210}$	$0.040^{+0.250}_{-0.300}$	$1.096^{+0.375}_{-0.150}$	$1.099^{+0.166}_{-0.135}$	$1.175^{+0.447}_{-0.619}$
	+3%/-3%	+2%/-5%	+625%/-750%	+34%/-14%	+15%/-12%	+38%/-53%
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 007117367-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-2110 \pm 62$	$5.02^{+4.16}_{-3.27}$	$442^{+35}_{-23}$	$6640^{+7031}_{-1701}$	$32963^{+235704}_{-23283}$
Alt.	$-513 \pm 62$	$5.53^{+4.85}_{-3.56}$	$442^{+34}_{-24}$	$4547^{+2835}_{-896}$	$6298^{+45395}_{-4532}$

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



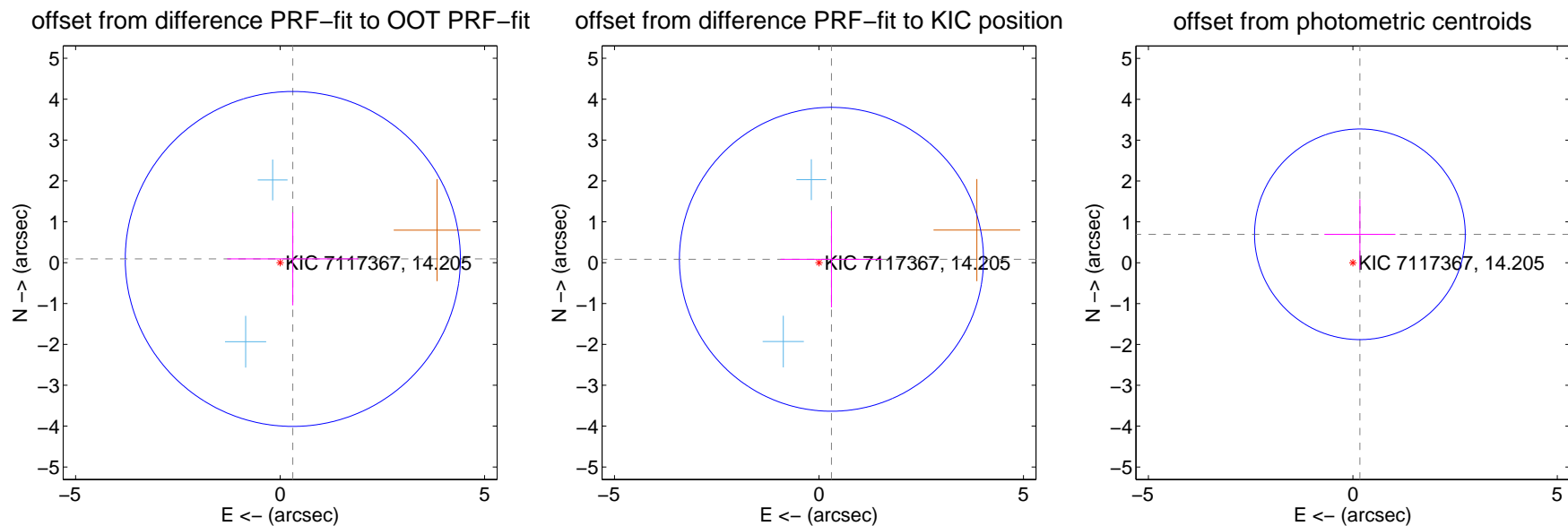
## DV Centroid Data

Supplemental centroid analysis for 007117367-04. Kepler magnitude: 14.21. Transit SNR 6.77

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.324 \pm 1.366$	0.24	$-0.311 \pm 1.605$	$0.091 \pm 1.136$
PRF-fit source offset from KIC position	$0.315 \pm 1.239$	0.25	$-0.305 \pm 1.244$	$0.082 \pm 1.174$
photometric centroid source offset	$0.72 \pm 0.86$	0.83	$-0.17 \pm 0.87$	$0.70 \pm 0.86$



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

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

Q1 no difference image



Q1 no OOT image



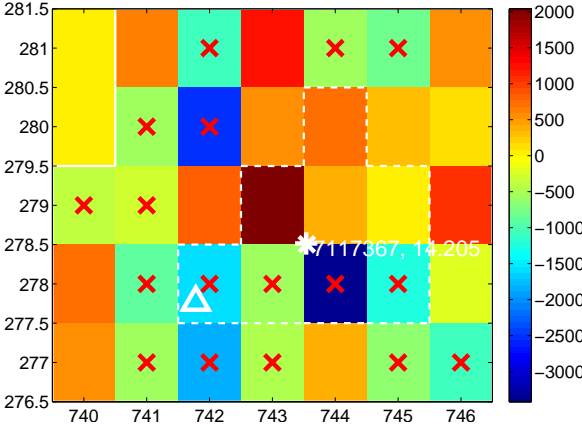
Q2 no difference image



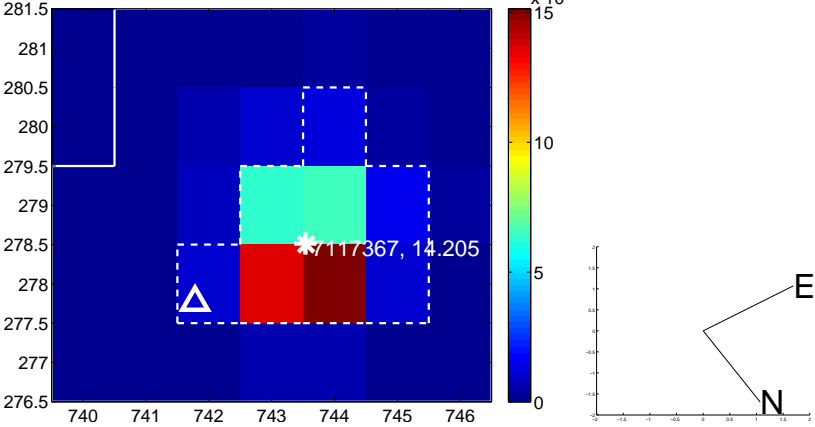
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



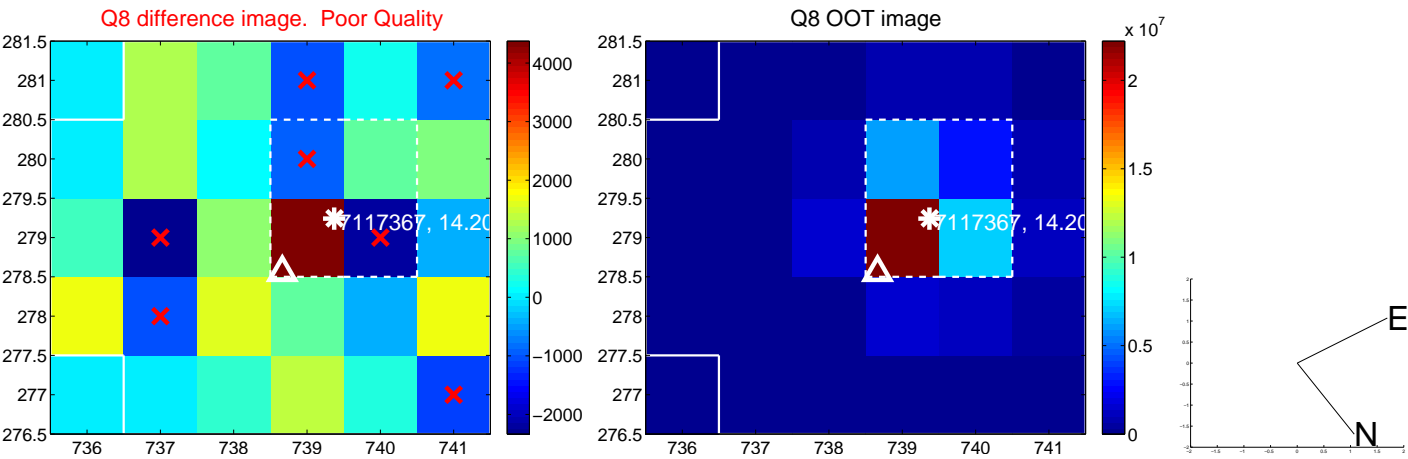
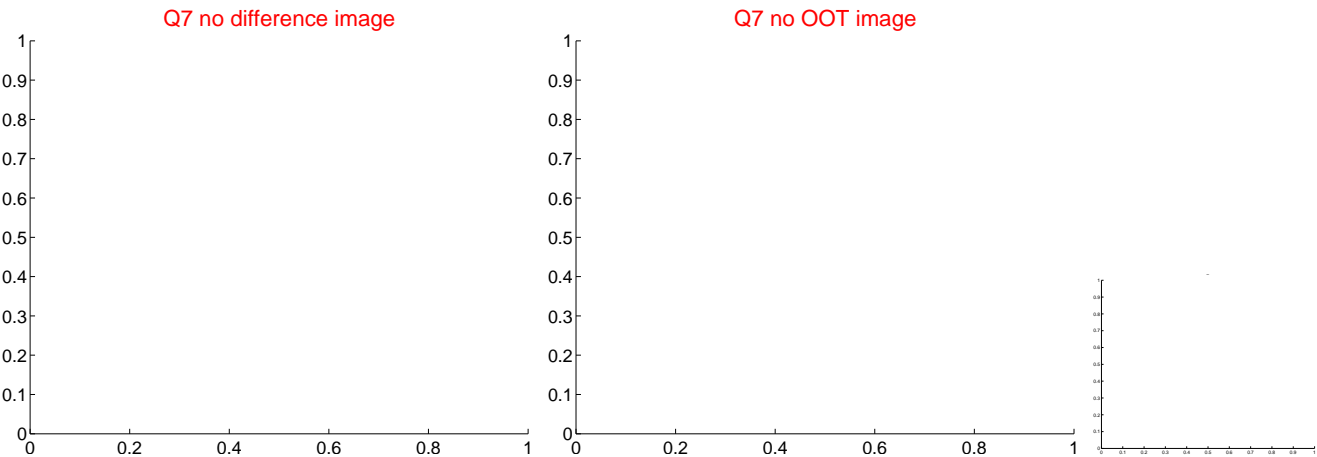
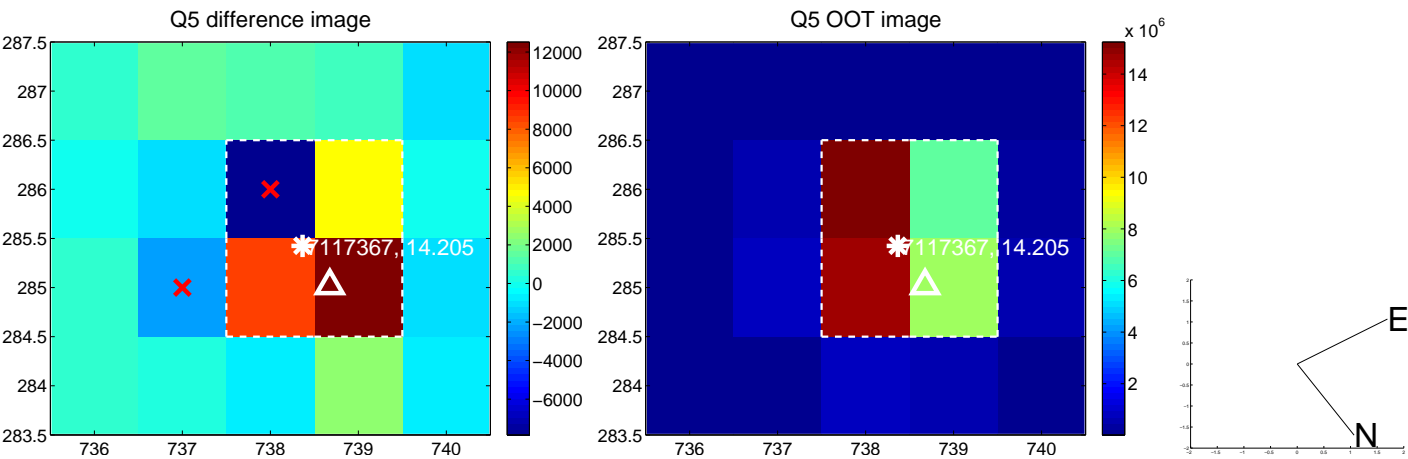
Q4 no difference image



Q4 no OOT image



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



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

Q9 no difference image



Q9 no OOT image



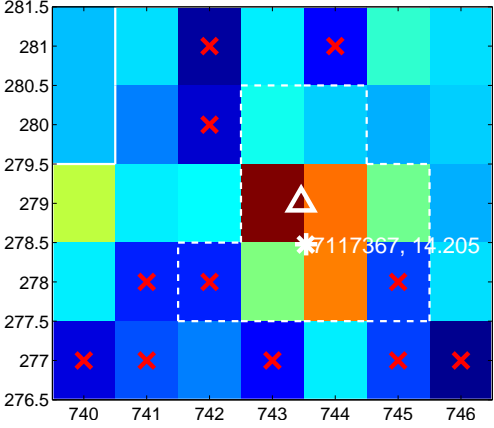
Q10 no difference image



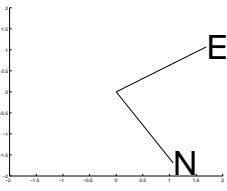
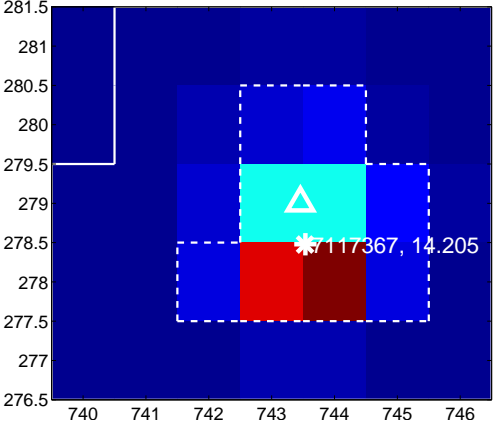
Q10 no OOT image



Q11 difference image



Q11 OOT image



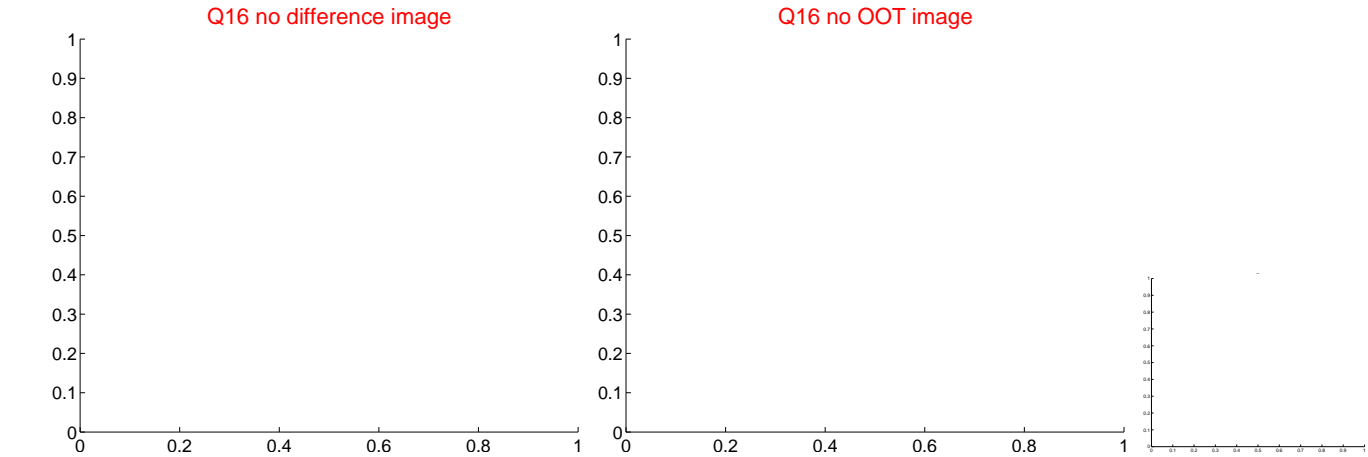
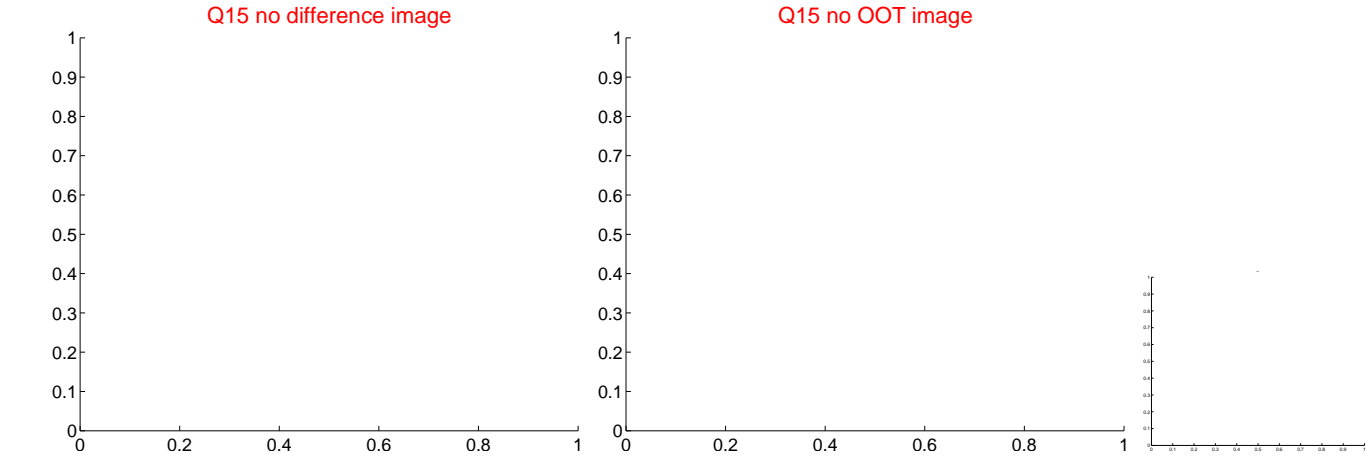
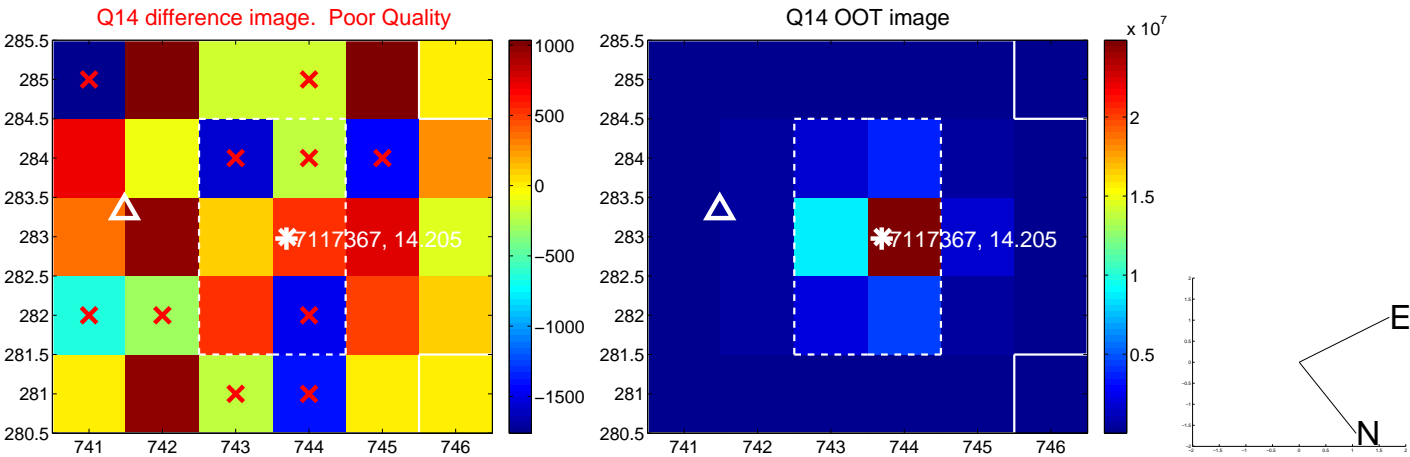
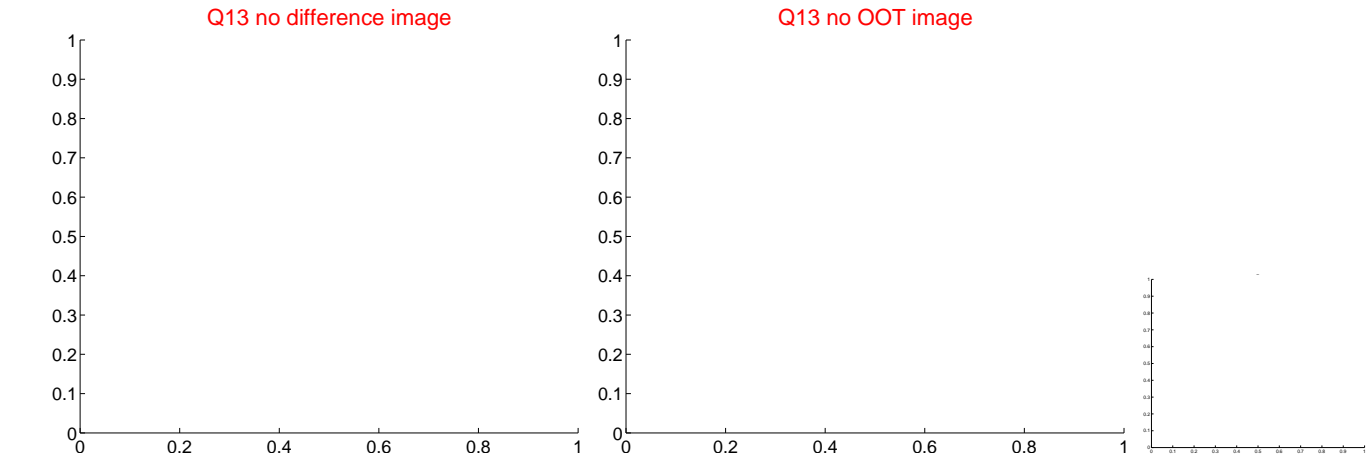
Q12 no difference image



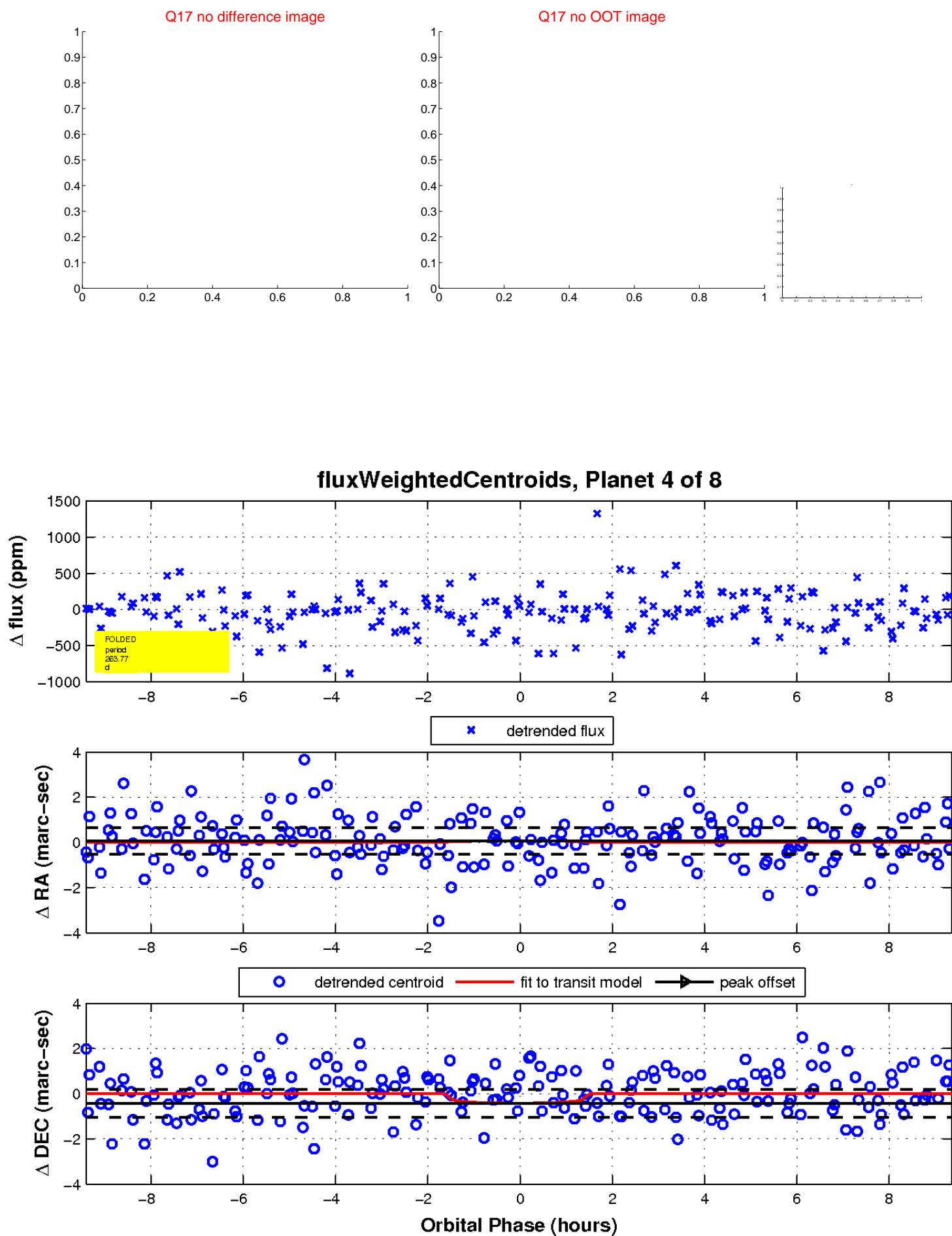
Q12 no OOT image



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

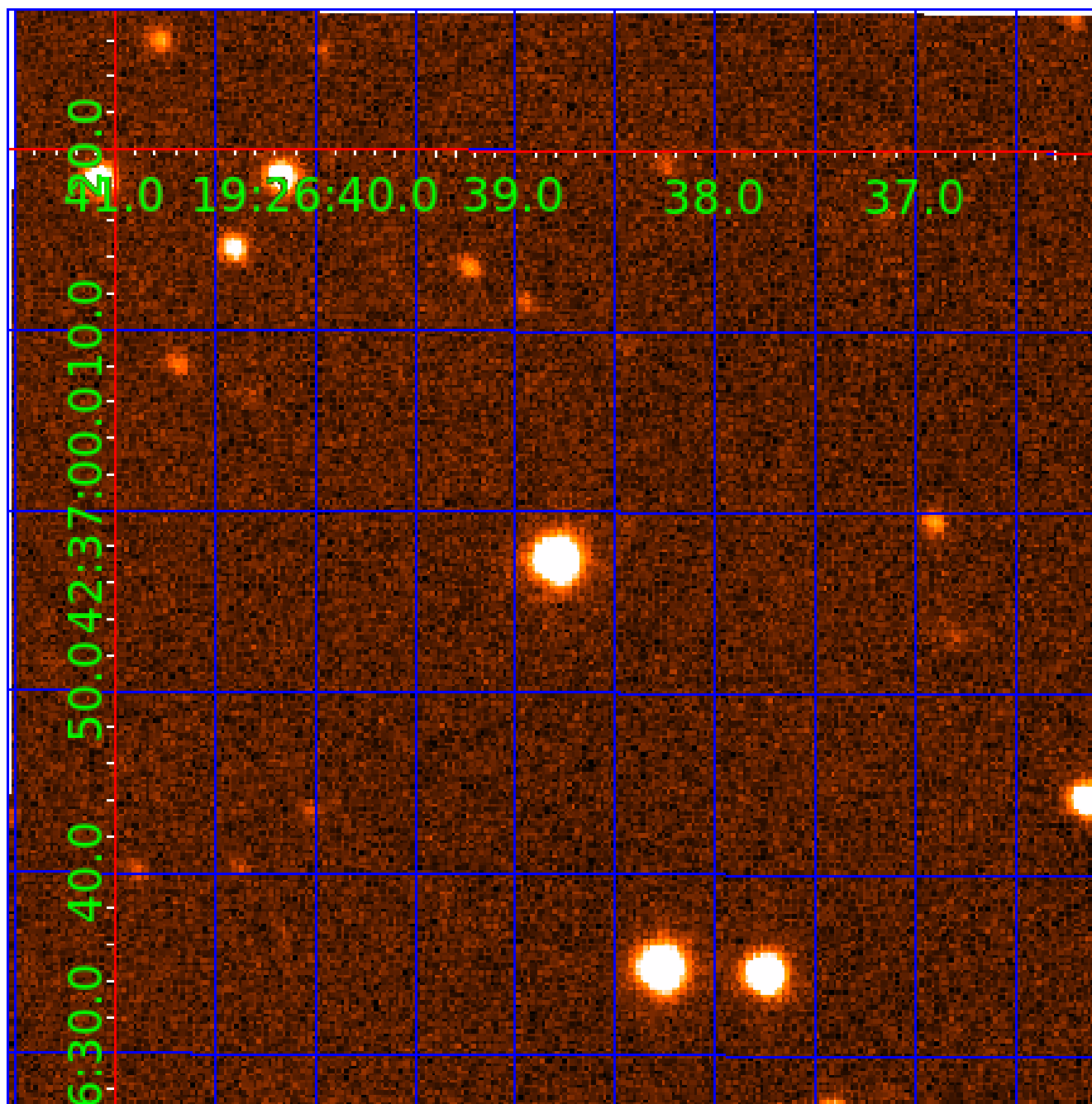


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007117367

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007117367-01	OBS	No	0.566775	131.840915	12.0	2.455	7.9	4.3	1.10	6124	0.45	7889.11
007117367-02	OBS	No	460.787180	280.053603	698.7	6.281	15.0	9.3	1.10	6124	3.26	1.04
007117367-03	OBS	No	205.582047	199.067749	369.0	9.000	10.8	-1.0	1.10	6124	2.10	3.05
007117367-04	OBS	No	263.770300	266.301694	620.3	3.137	11.1	6.8	1.10	6124	2.90	2.19
007117367-06	OBS	No	517.431159	471.695739	328.5	5.291	10.2	4.7	1.10	6124	2.30	0.89
007117367-07	OBS	No	188.407371	153.688218	781.8	3.500	10.2	-1.0	1.10	6124	3.06	3.43
007117367-08	OBS	No	200.525987	247.318456	372.2	9.085	8.8	5.2	1.10	6124	2.23	3.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007117367-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
007117367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_FEW_DIFFS
007117367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS
007117367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
007117367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007117367-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007117367-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_UNCERTAIN

**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.

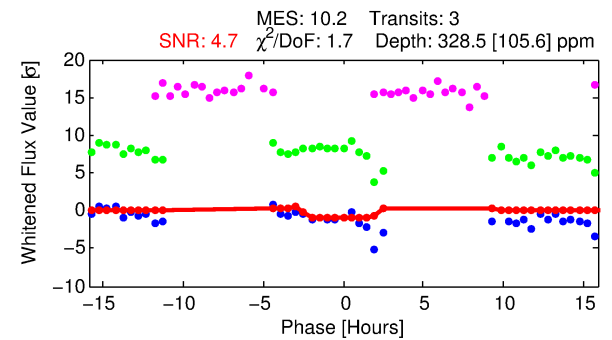
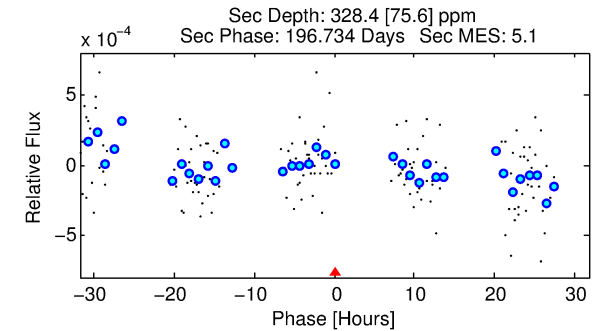
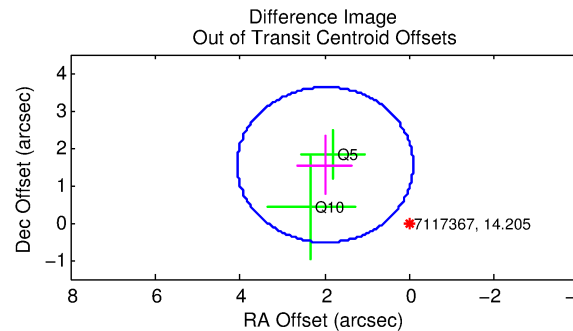
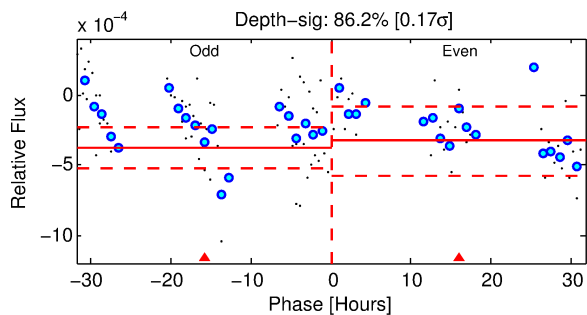
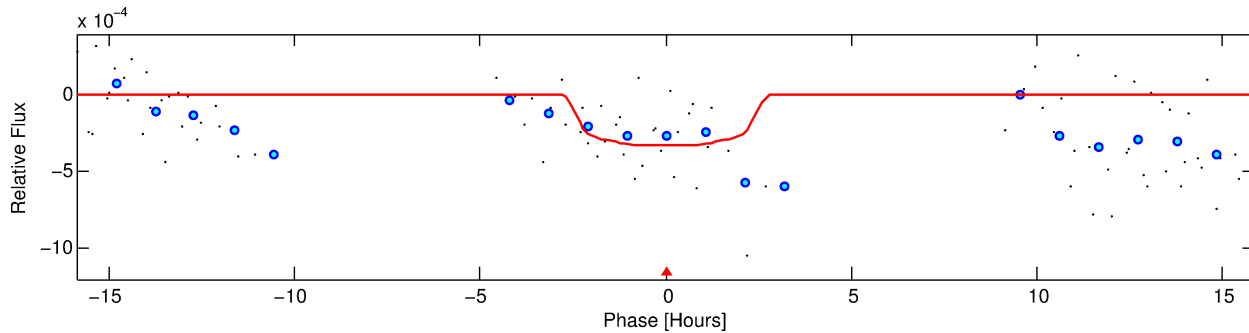
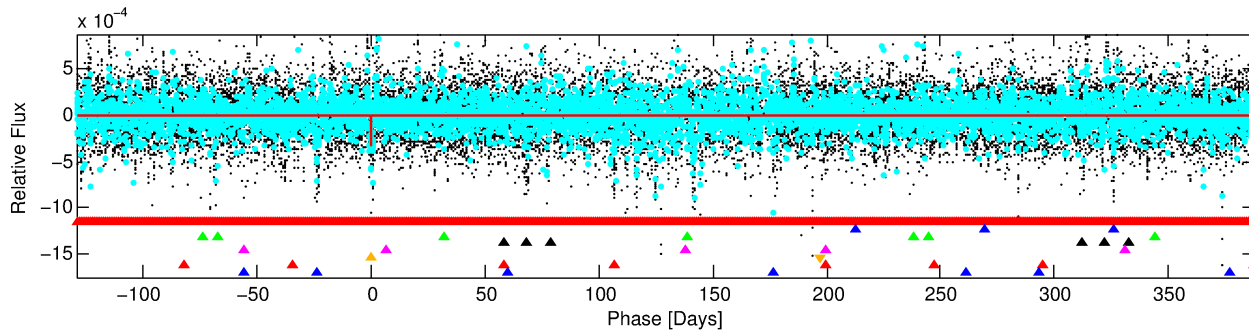
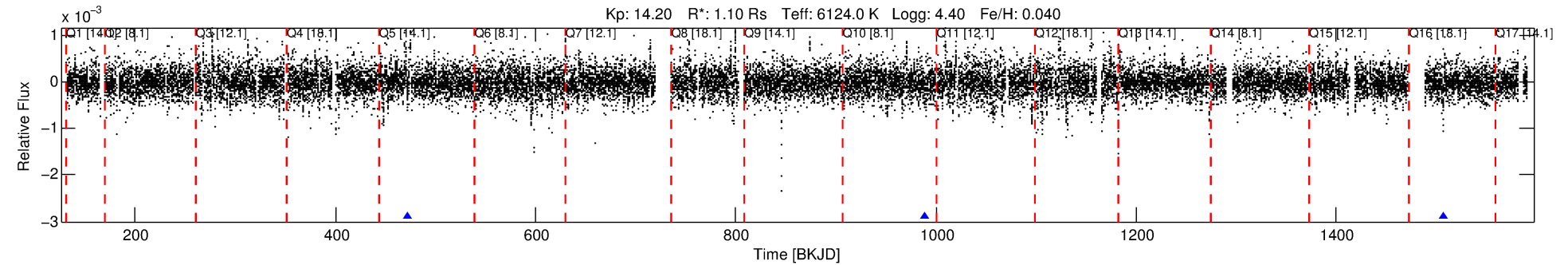
Ephemeris Match Information For 007117367-06

No Significant Match Found



# DV One-Page Summary

KIC: 7117367 Candidate: 6 of 8 Period: 517.431 d



## DV Fit Results:

Period = 517.43116 [0.02103] d  
Epoch = 471.6957 [0.0359] BKJD  
Rp/R\* = 0.0192 [0.0102]  
a/R\* = 386.69 [939.74]  
b = 0.88 [0.65]  
Seff = 0.89 [0.37]  
Teq = 248 [26] K  
Rp = 2.30 [1.46] Re  
a = 1.3036 [0.3641] AU  
Ag = 57997.34 [67143.60] [0.86σ]  
Teffp = 5944 [1629] K [3.50σ]

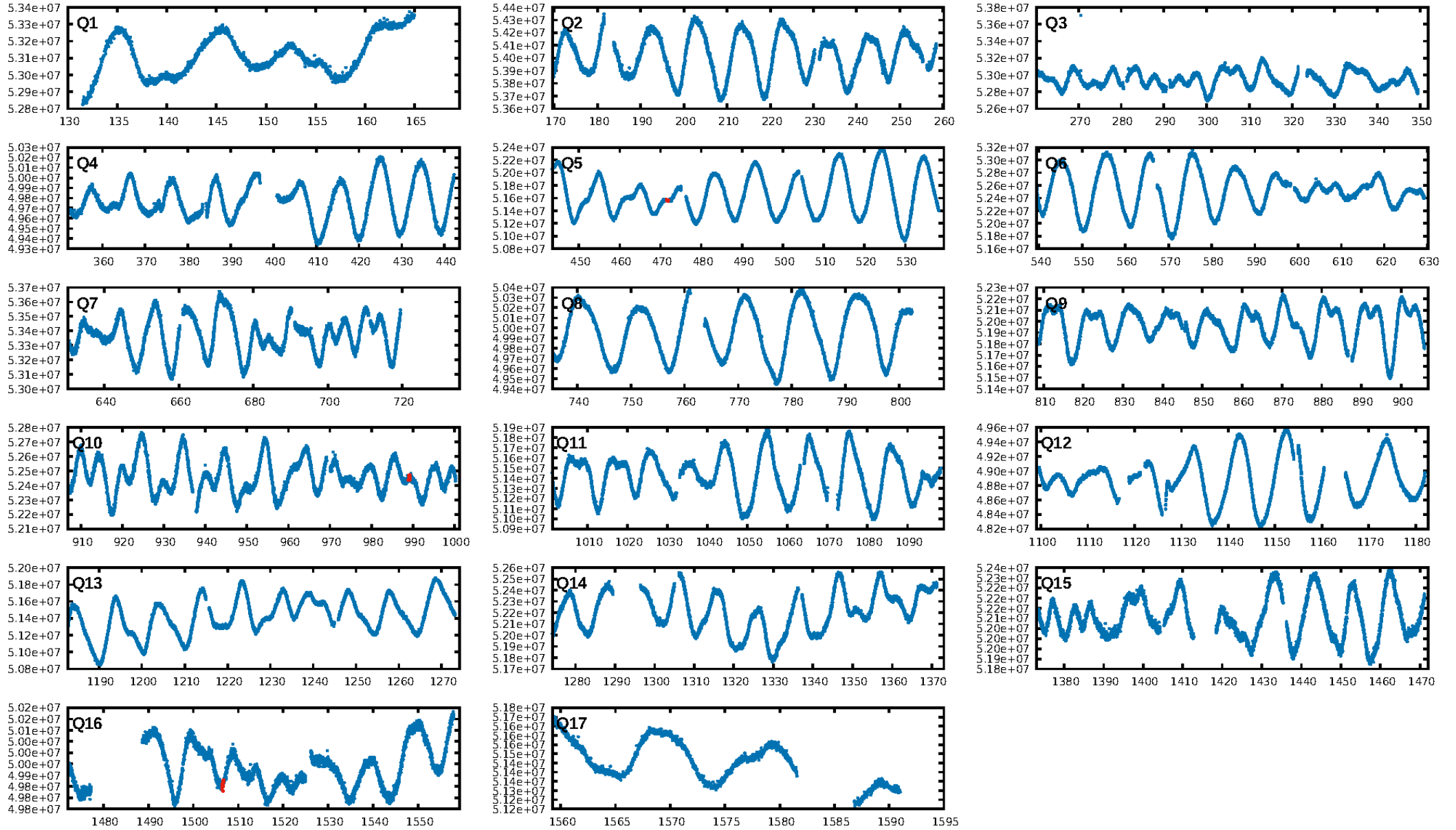
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [165.53σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 77.7%  
ModelChiSquareGof-sig: 99.2%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.085  
Centroid-sig: 76.8%  
Centroid-so: 0.678 arcsec [0.46σ]  
OotOffset-rm: 2.518 arcsec [3.64σ]  
KicOffset-rm: 2.494 arcsec [3.60σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 0.00 [0/3]

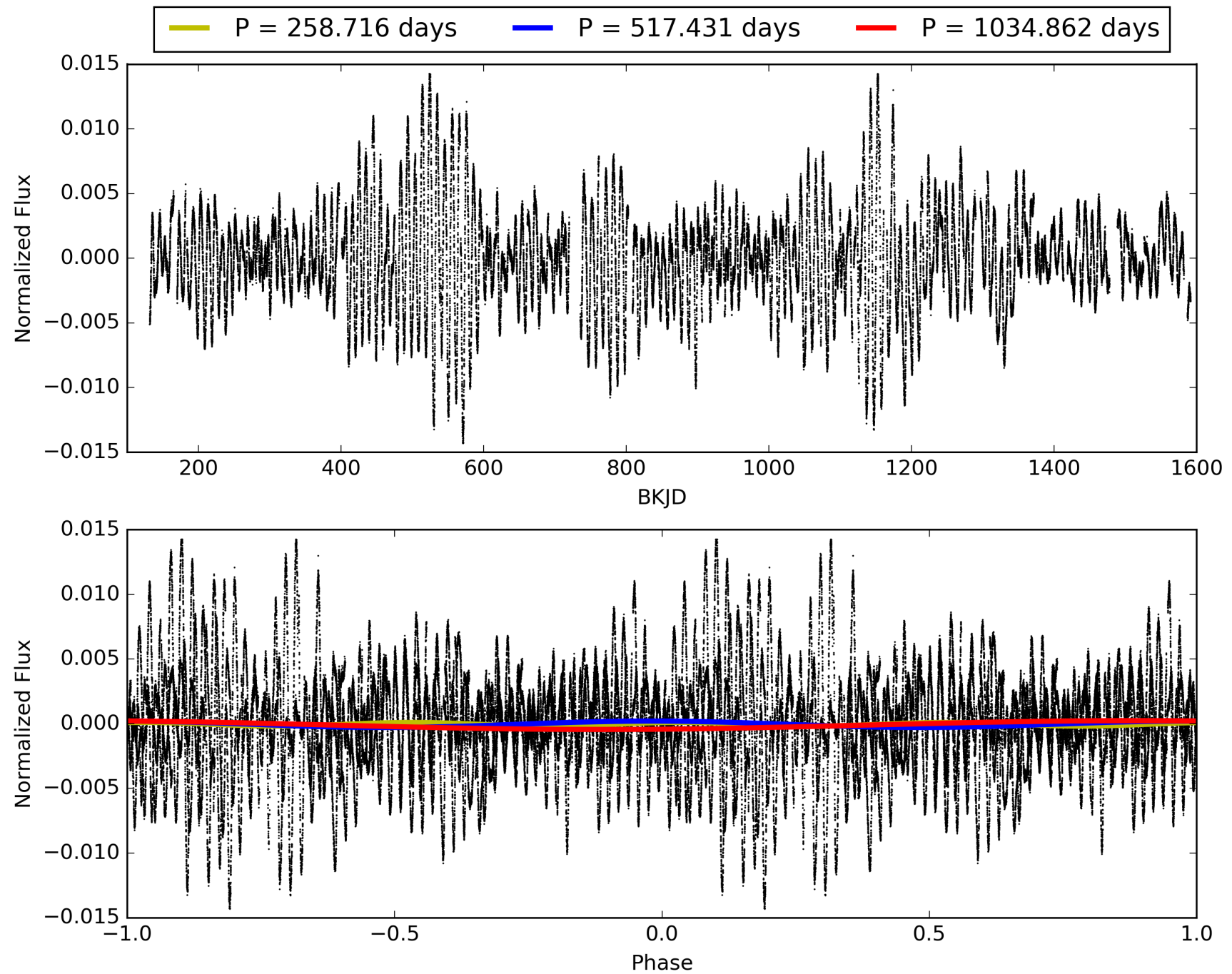
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:36:02 Z

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

# TCE 007117367-06, PDC Light Curves

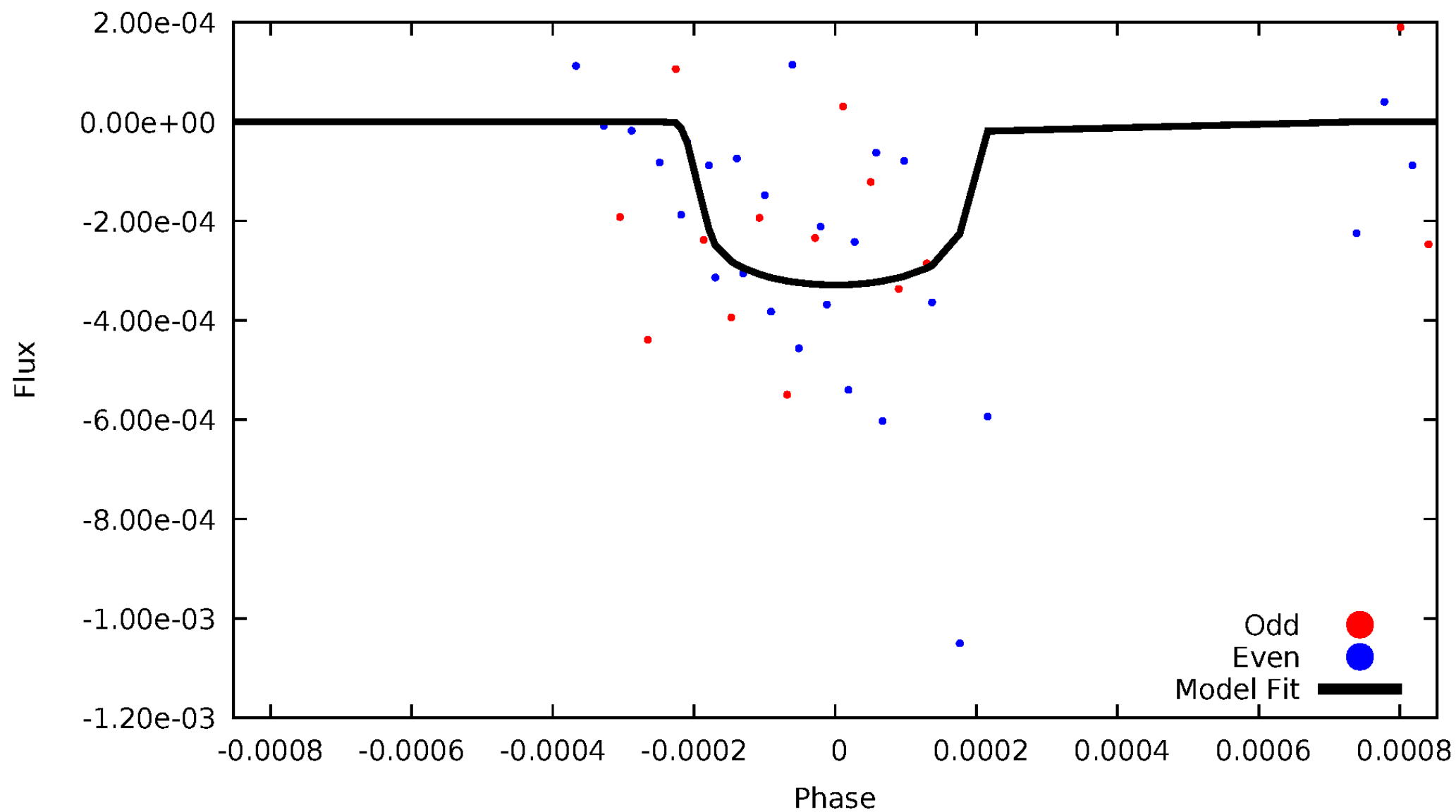


TCE 007117367-06



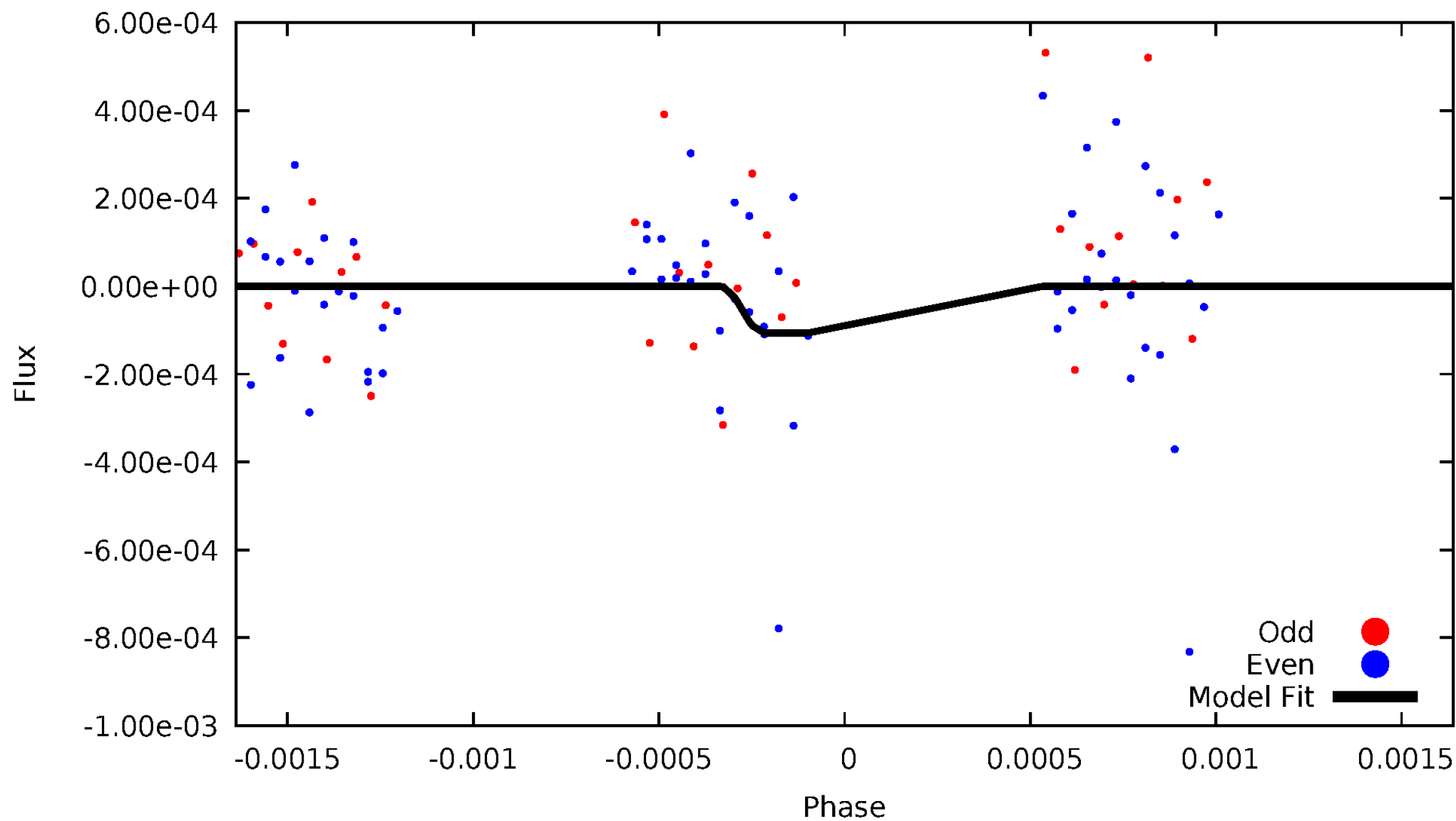
# DV Odd/Even

TCE 007117367-06



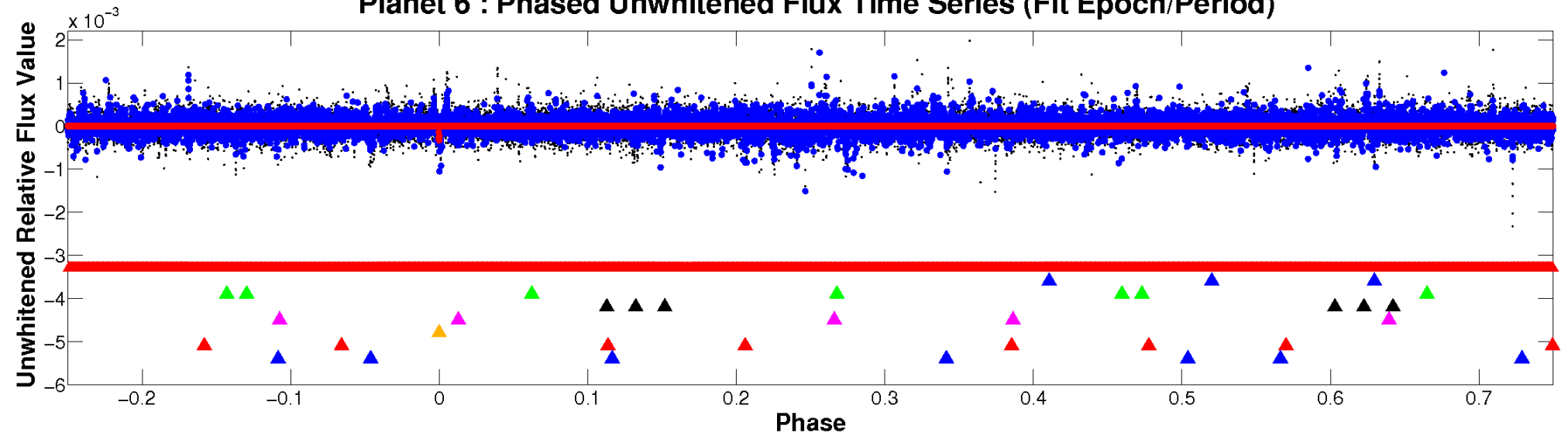
# ALT Odd/Even

TCE 007117367-06

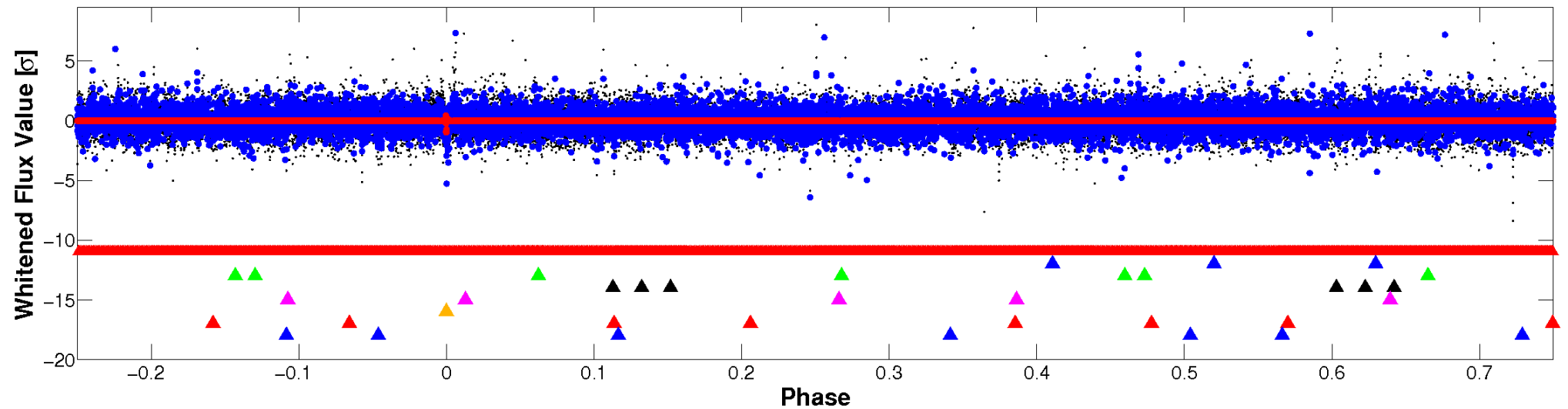


# Non-Whitened Vs. Whitened Light Curve

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

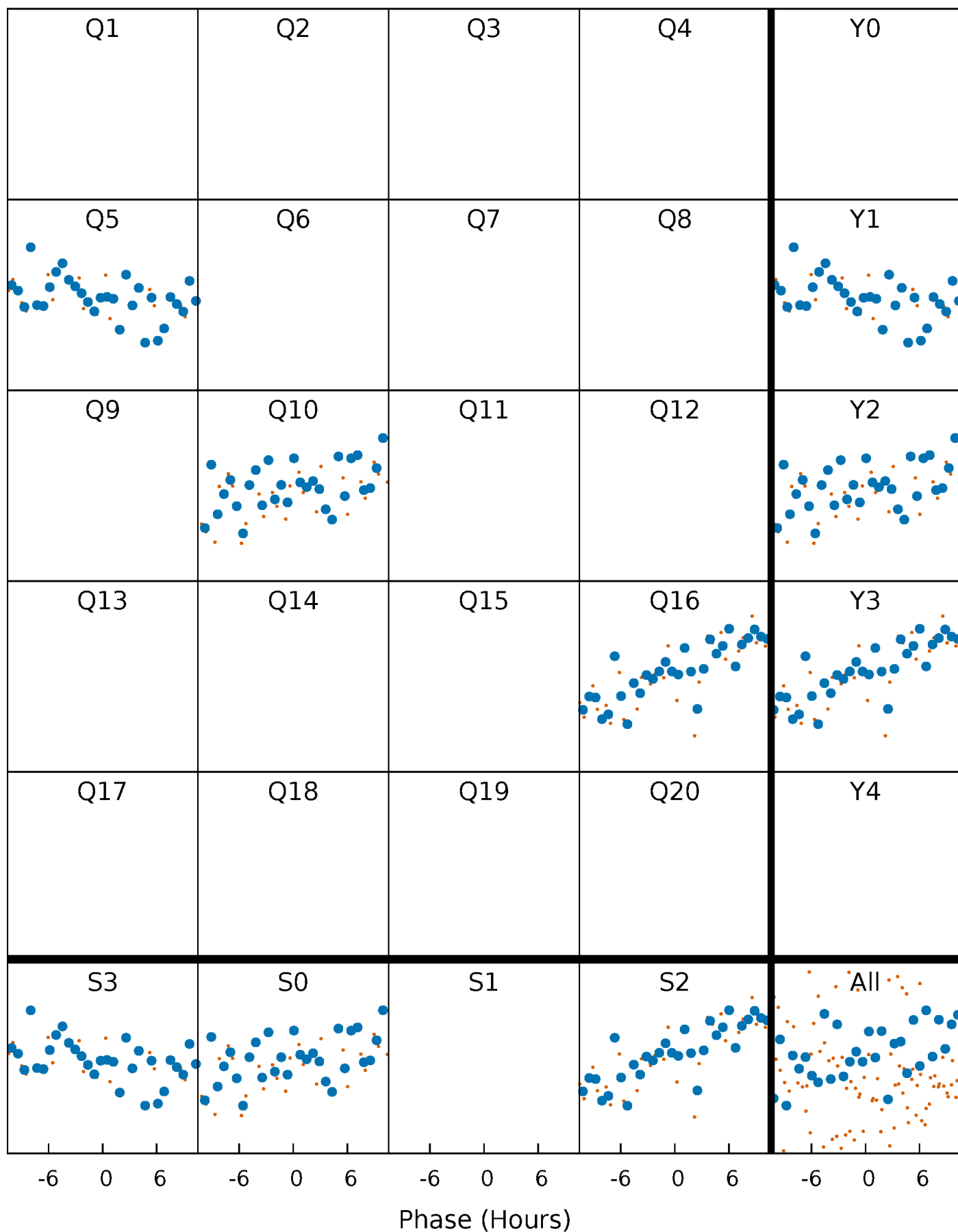


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



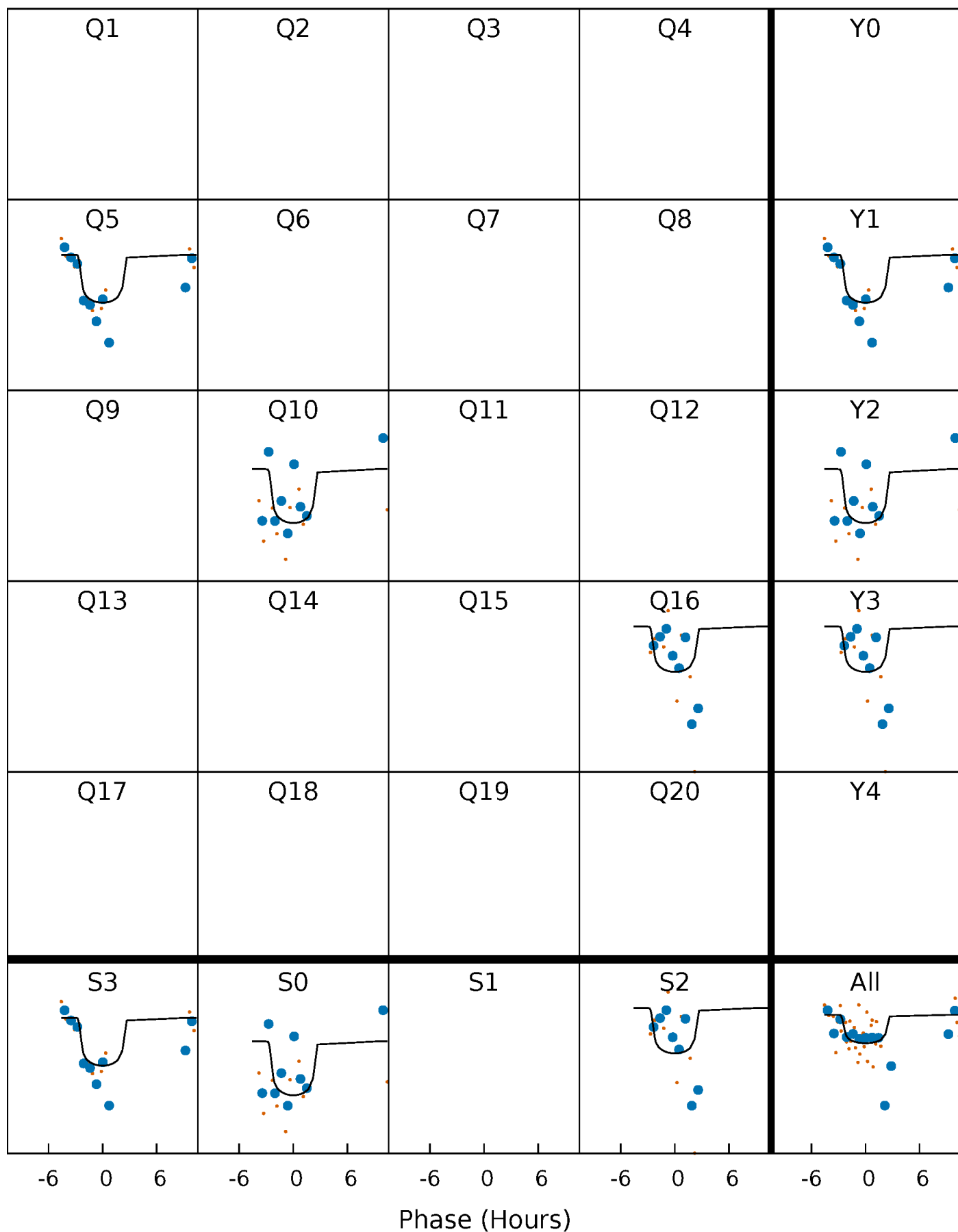
# PDC Quarter-Phased Transit Curves

TCE 007117367-06     $P=517.431159$  Days     $T_0=471.695739$  (BKJD)



# DV Quarter-Phased Transit Curves

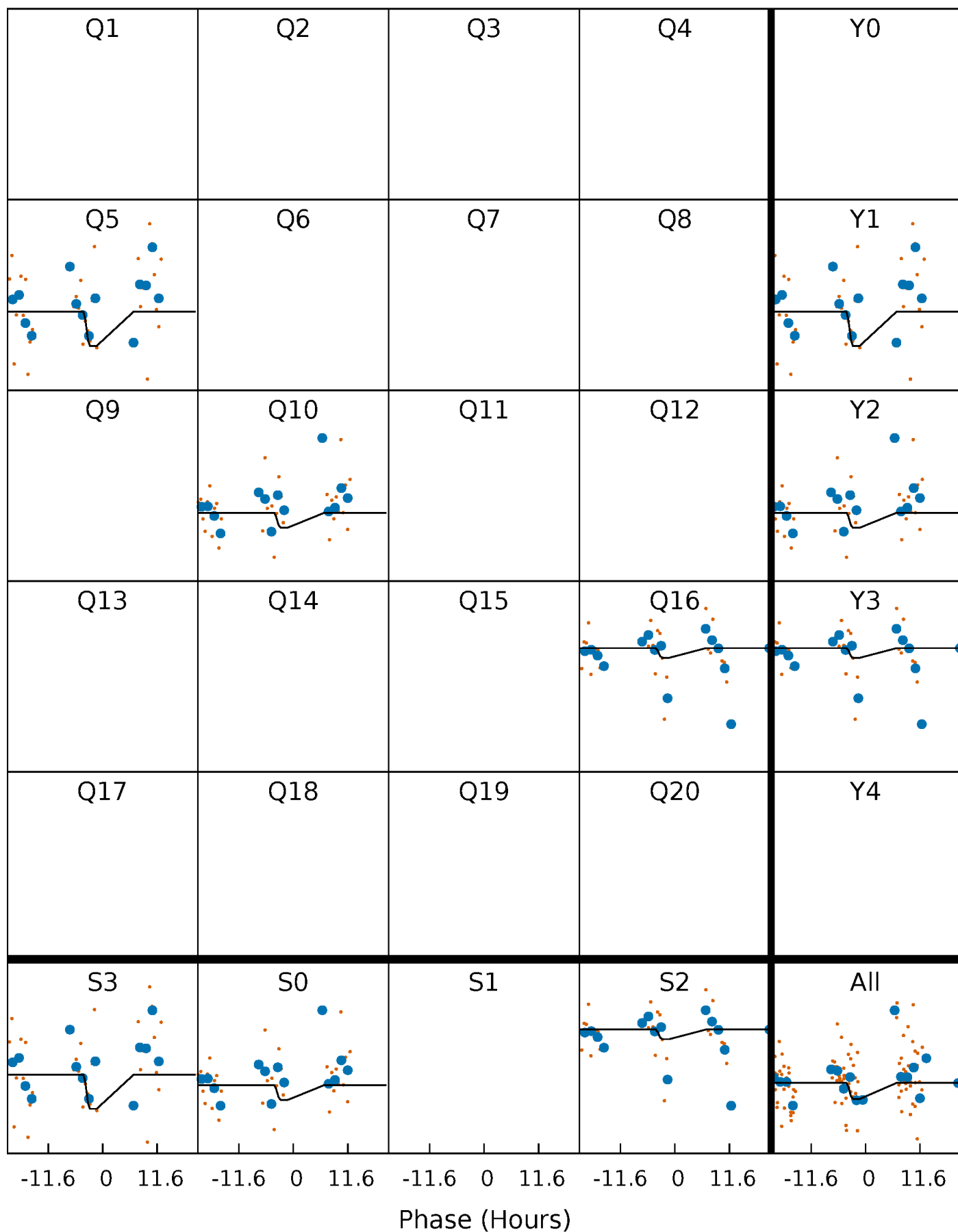
TCE 007117367-06 P=517.431159 Days  $T_0=471.695739$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

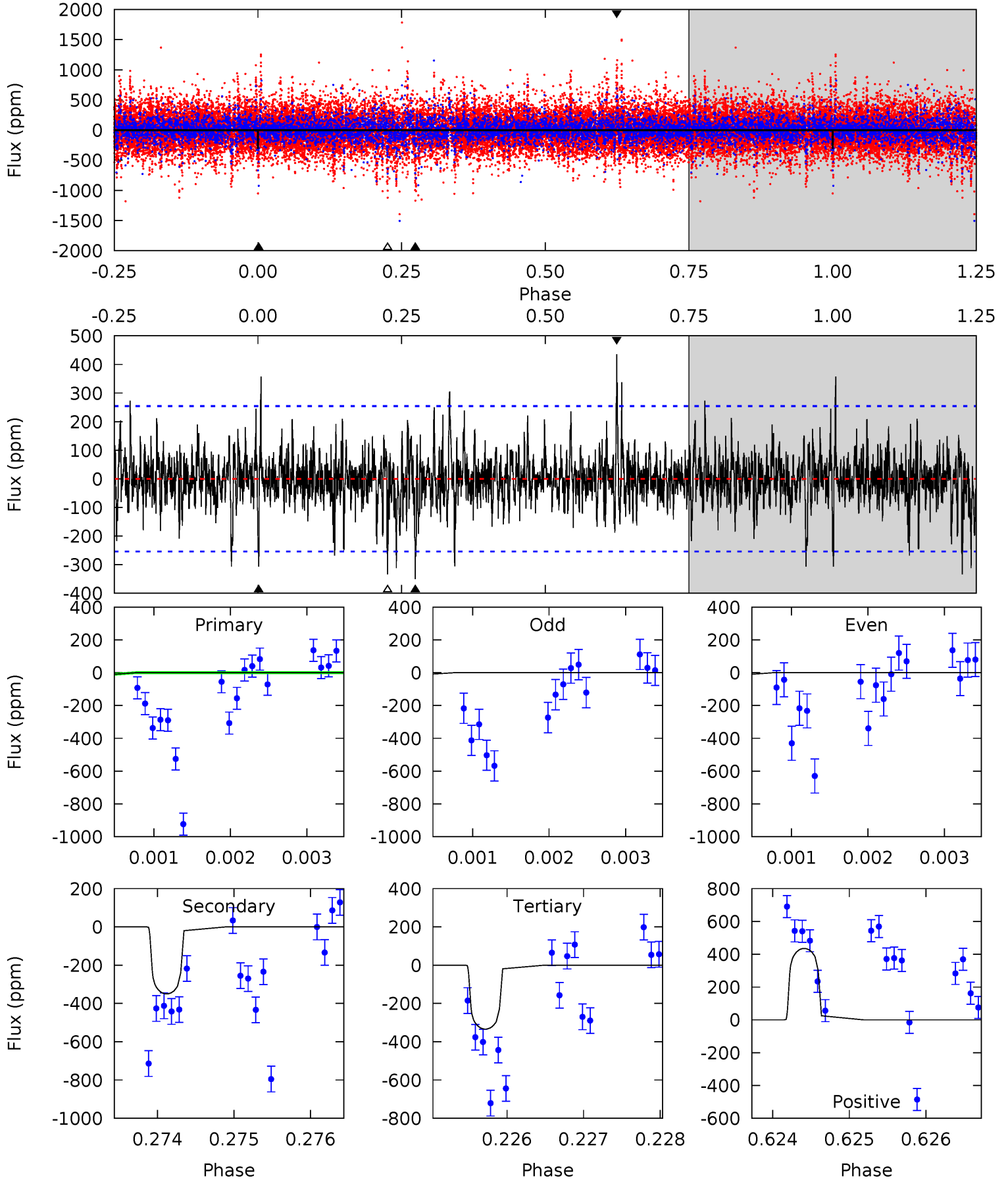
TCE 007117367-06 P=517.479907 Days  $T_0=471.781374$  (BKJD)



# DV Model-Shift Uniqueness Test

007117367-06, P = 517.431159 Days, E = 471.695739 Days

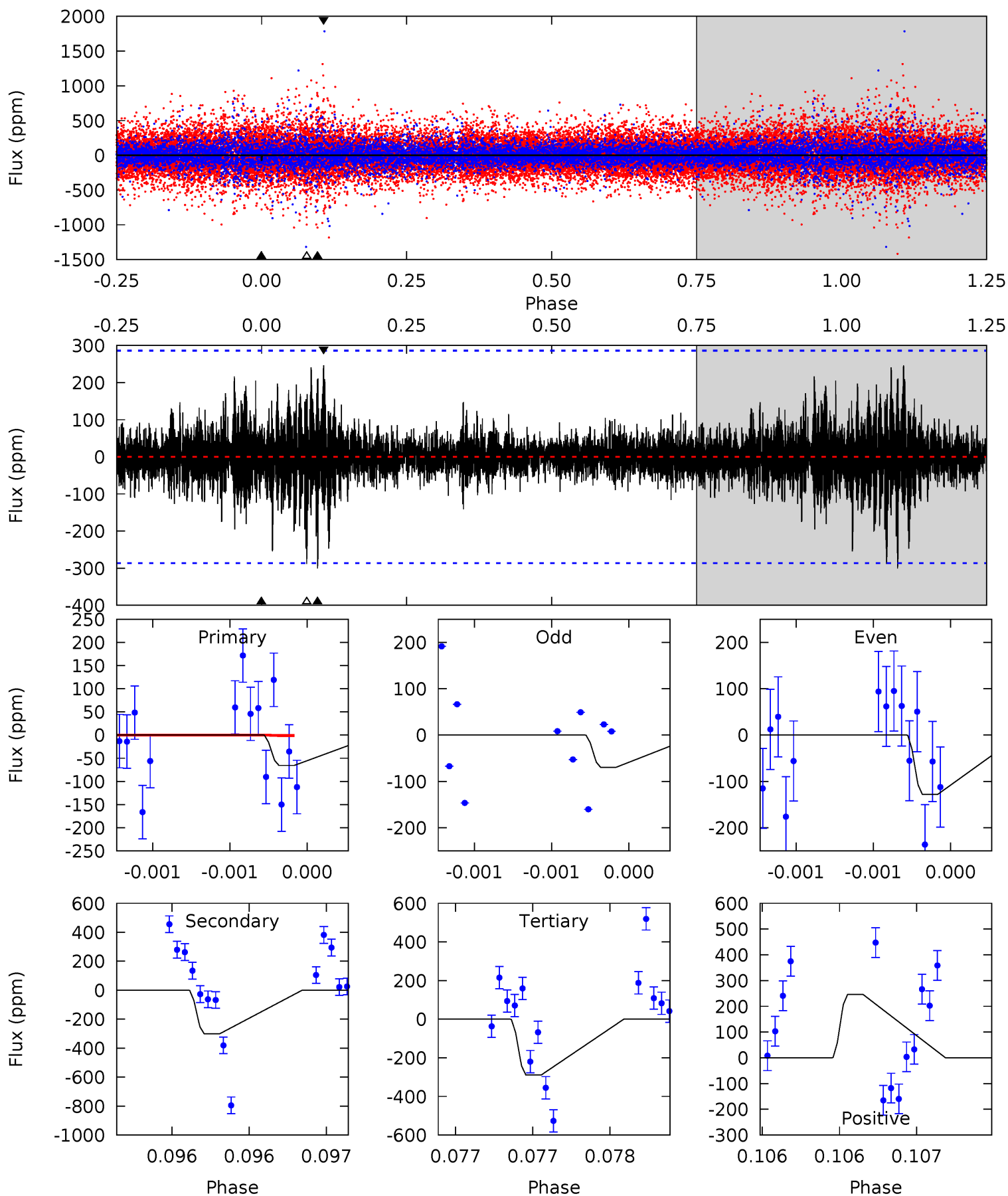
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.60	7.52	7.17	9.35	5.46	3.30	1.57	-0.58	-2.75	0.35	-1.83	0.46	1.14	0.55	0.50



# Alt Model-Shift Uniqueness Test

007117367-06, P = 517.479907 Days, E = 471.781374 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
1.27	5.83	5.59	4.77	5.54	3.44	0.84	-4.32	-3.50	0.24	1.06	0.54	0	0.45	0



### Stellar Parameters For KIC 007117367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6124^{+165}_{-202}$	$4.401^{+0.070}_{-0.210}$	$0.040^{+0.250}_{-0.300}$	$1.096^{+0.375}_{-0.150}$	$1.099^{+0.166}_{-0.135}$	$1.175^{+0.447}_{-0.619}$
	+3%/-3%	+2%/-5%	+625%/-750%	+34%/-14%	+15%/-12%	+38%/-53%
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 007117367-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-350 \pm 47$	$2.47^{+1.31}_{-1.30}$	$354^{+26}_{-20}$	$5941^{+3000}_{-1012}$	$49975^{+190460}_{-27216}$
Alt.	$-301 \pm 52$	$1.59^{+1.22}_{-0.96}$	$351^{+26}_{-16}$	$7227^{+7072}_{-1813}$	$110543^{+593289}_{-76330}$

$T_{\text{max}}$  = 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

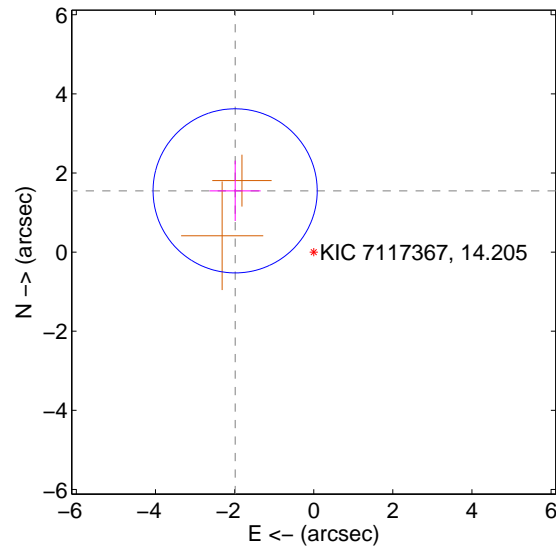
Supplemental centroid analysis for 007117367-06. Kepler magnitude: 14.21. Transit SNR 4.67

There are 0 quarters with good PRF difference image offsets

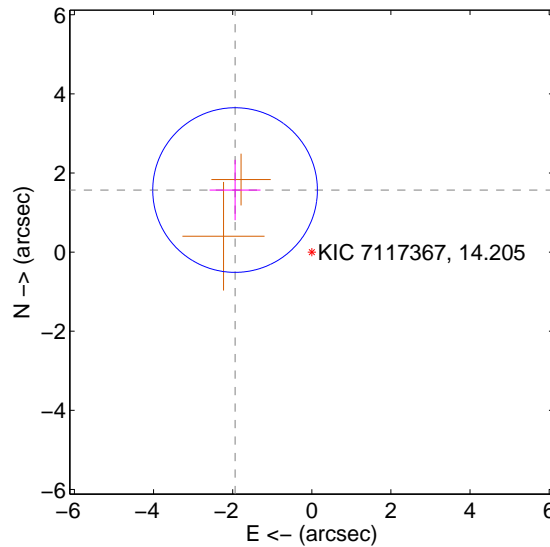
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.518 \pm 0.692$	3.64	$1.986 \pm 0.644$	$1.549 \pm 0.763$
PRF-fit source offset from KIC position	$2.494 \pm 0.694$	3.60	$1.939 \pm 0.644$	$1.569 \pm 0.763$
photometric centroid source offset	$0.68 \pm 1.47$	0.46	$0.68 \pm 1.47$	$0.01 \pm 1.53$

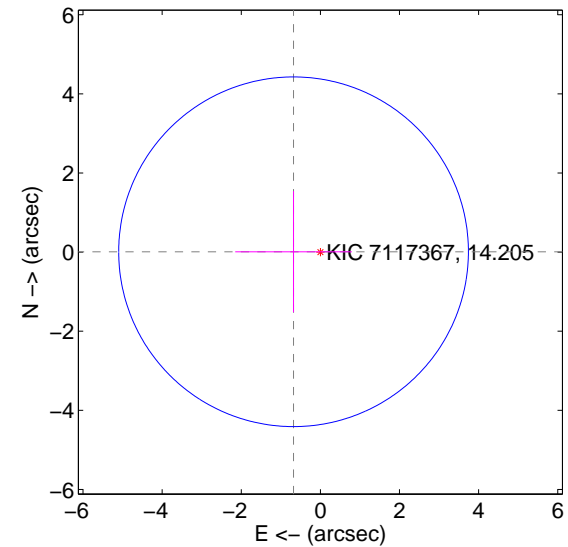
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

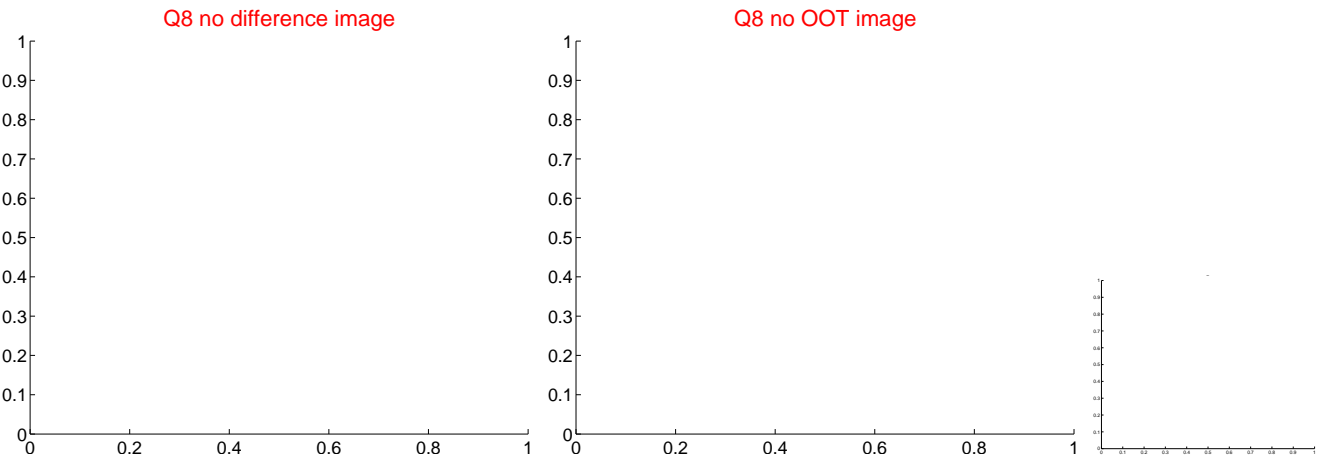
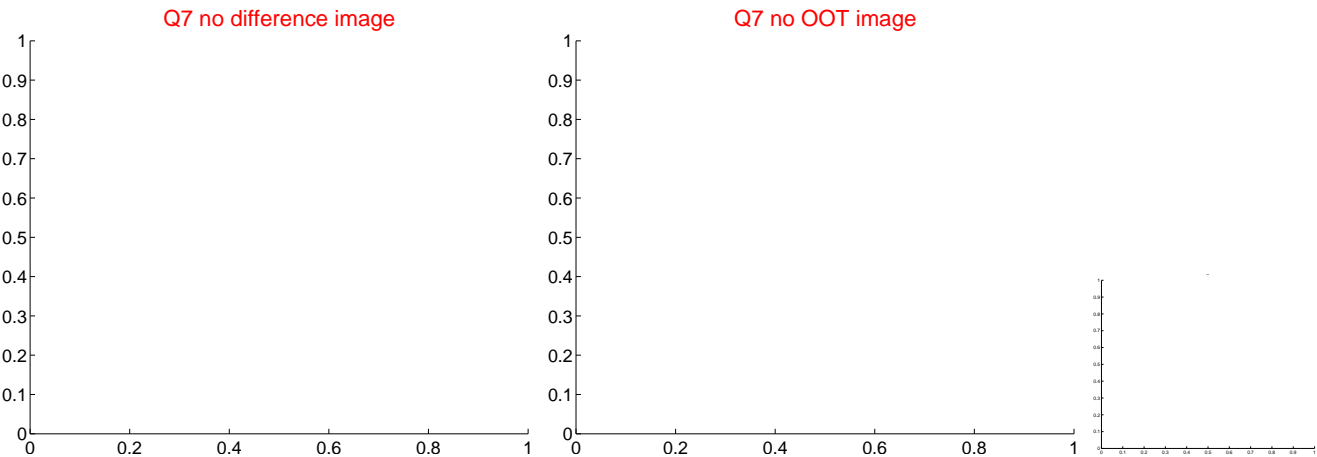
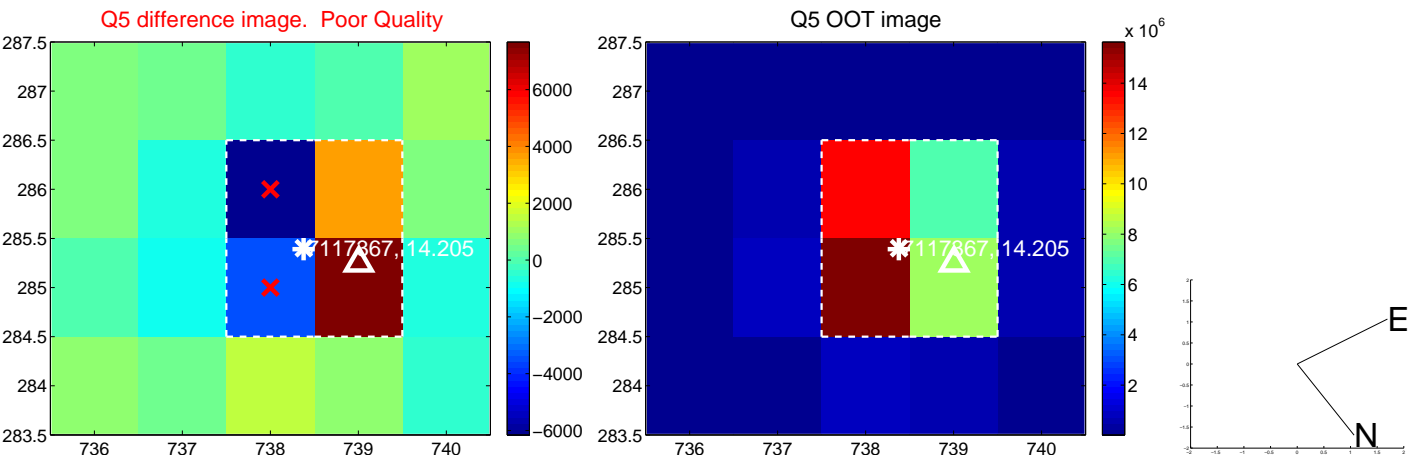


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

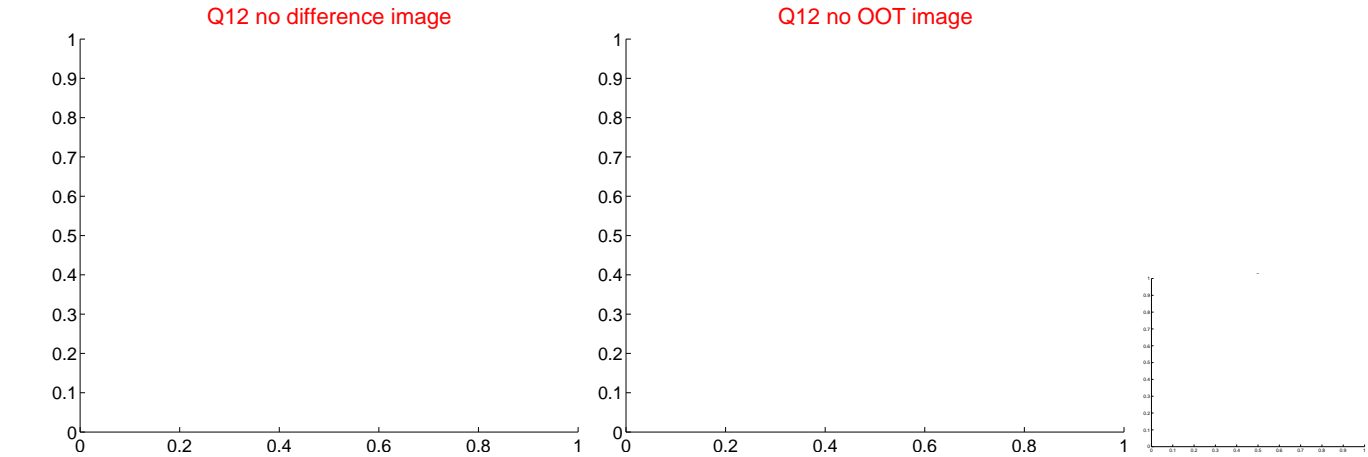
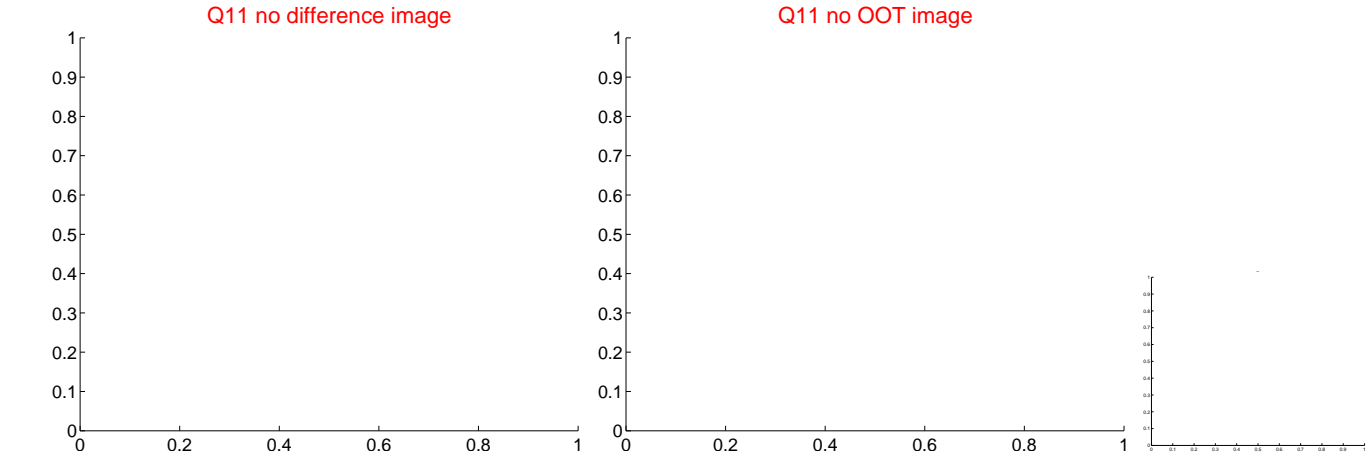
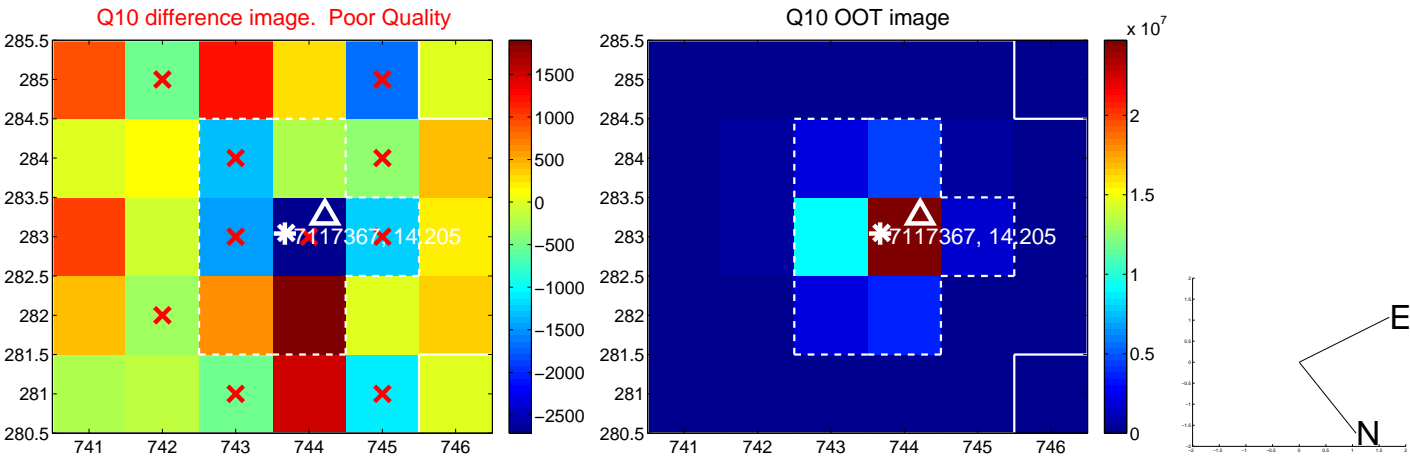
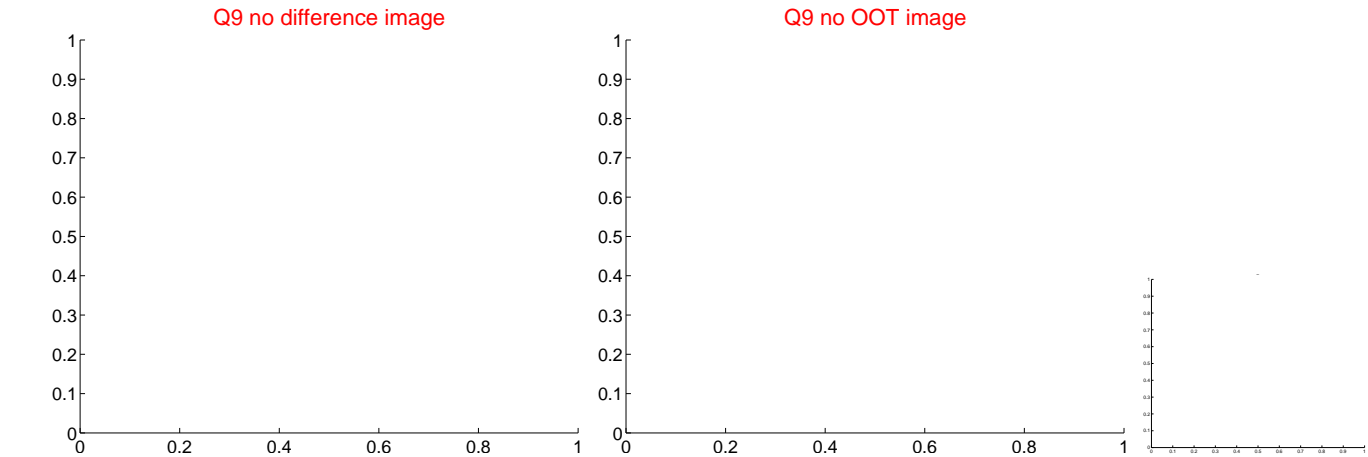
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

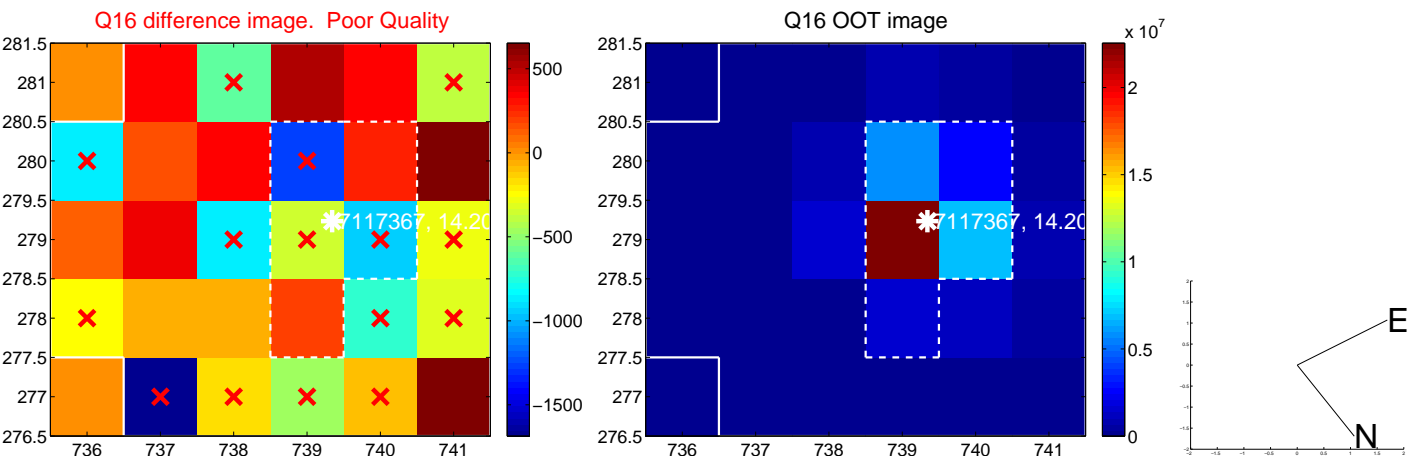
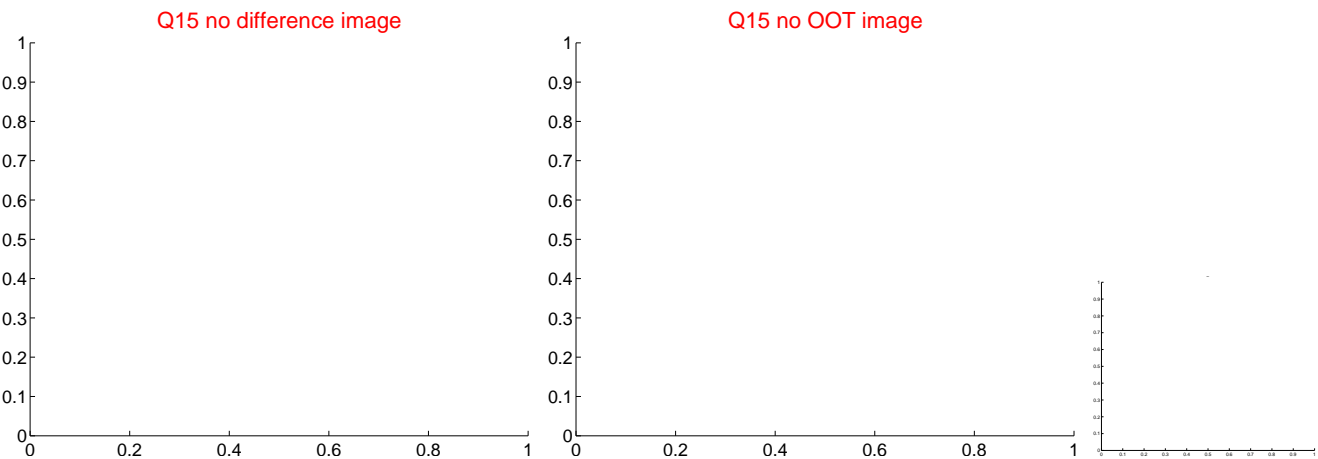
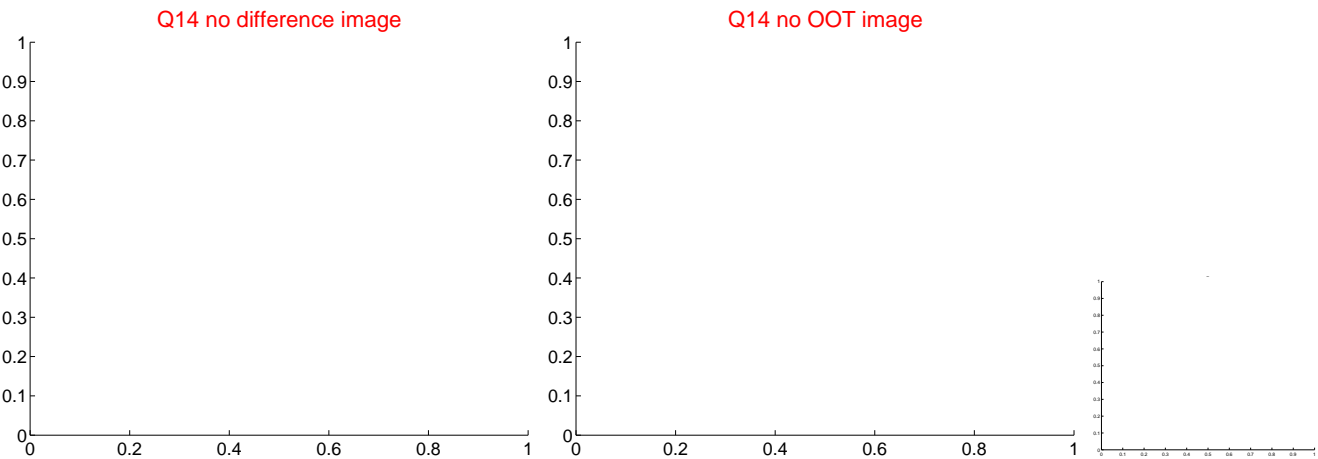
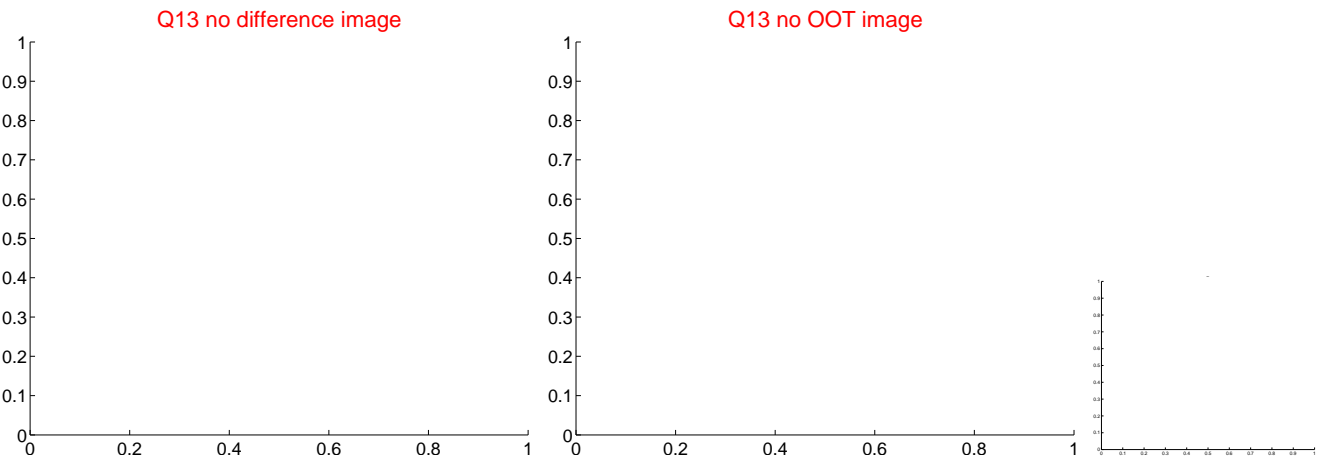


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

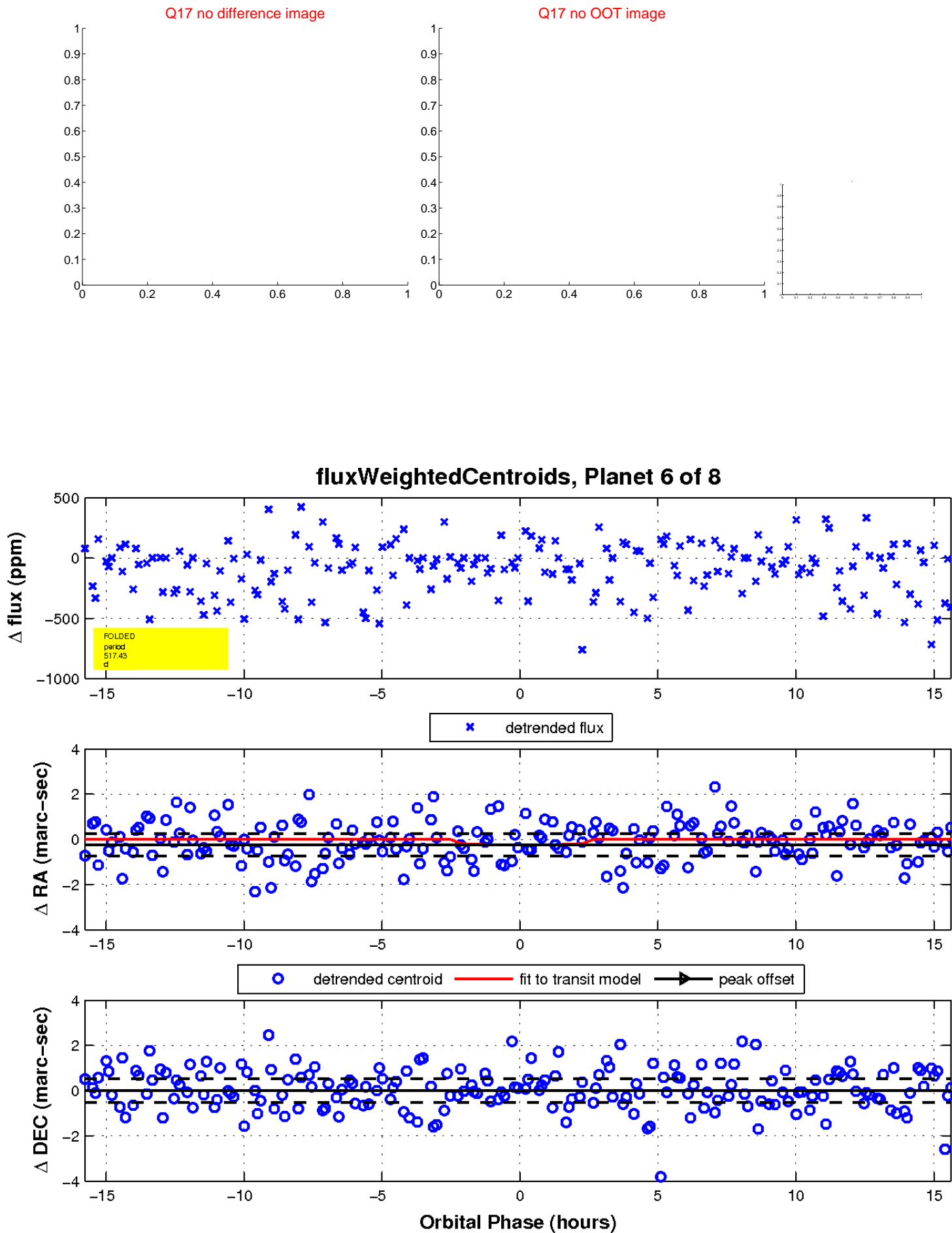




white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

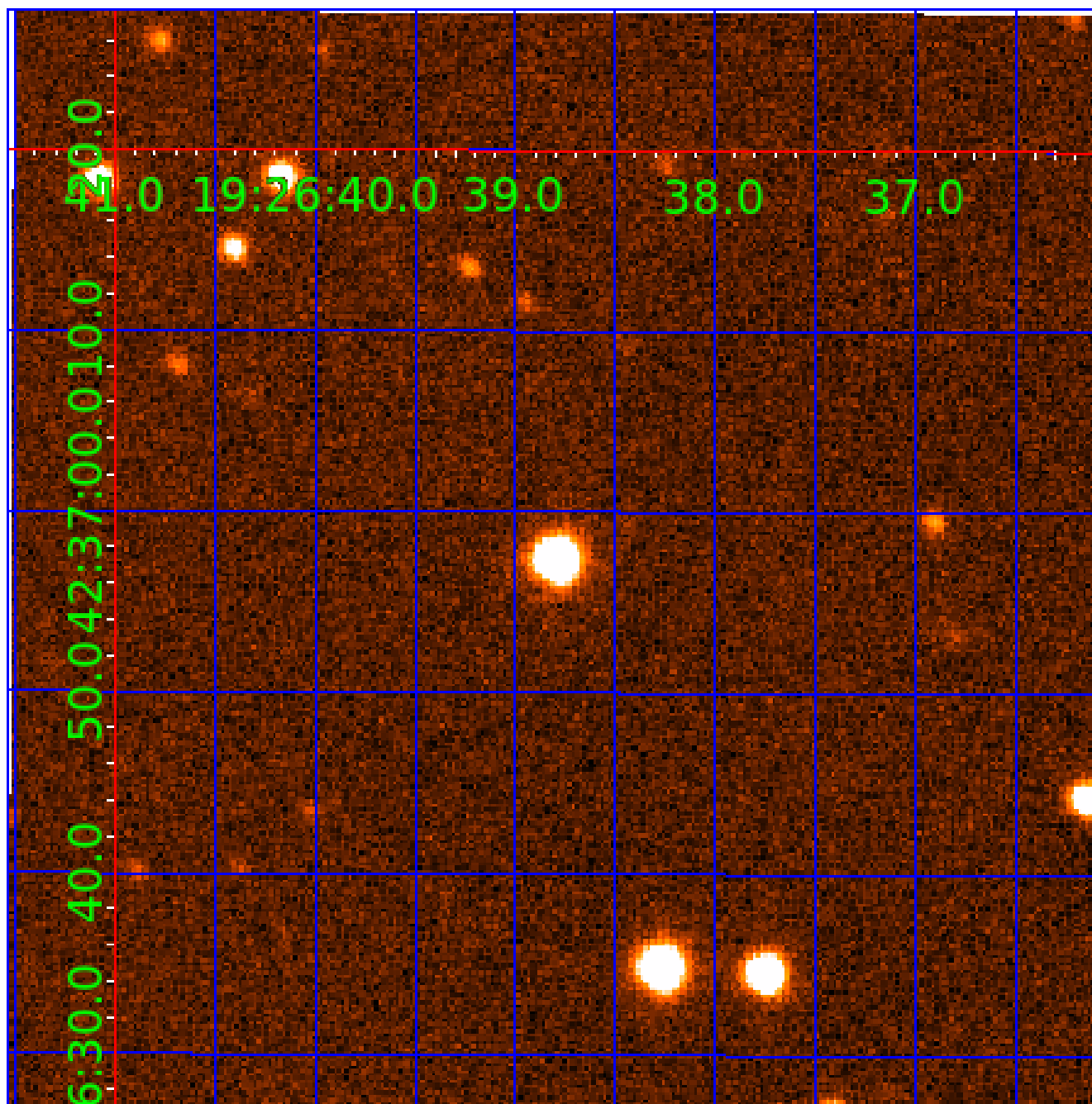


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007117367

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007117367-01	OBS	No	0.566775	131.840915	12.0	2.455	7.9	4.3	1.10	6124	0.45	7889.11
007117367-02	OBS	No	460.787180	280.053603	698.7	6.281	15.0	9.3	1.10	6124	3.26	1.04
007117367-03	OBS	No	205.582047	199.067749	369.0	9.000	10.8	-1.0	1.10	6124	2.10	3.05
007117367-04	OBS	No	263.770300	266.301694	620.3	3.137	11.1	6.8	1.10	6124	2.90	2.19
007117367-06	OBS	No	517.431159	471.695739	328.5	5.291	10.2	4.7	1.10	6124	2.30	0.89
007117367-07	OBS	No	188.407371	153.688218	781.8	3.500	10.2	-1.0	1.10	6124	3.06	3.43
007117367-08	OBS	No	200.525987	247.318456	372.2	9.085	8.8	5.2	1.10	6124	2.23	3.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007117367-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
007117367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_FEW_DIFFS
007117367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS
007117367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
007117367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007117367-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007117367-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_UNCERTAIN

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

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

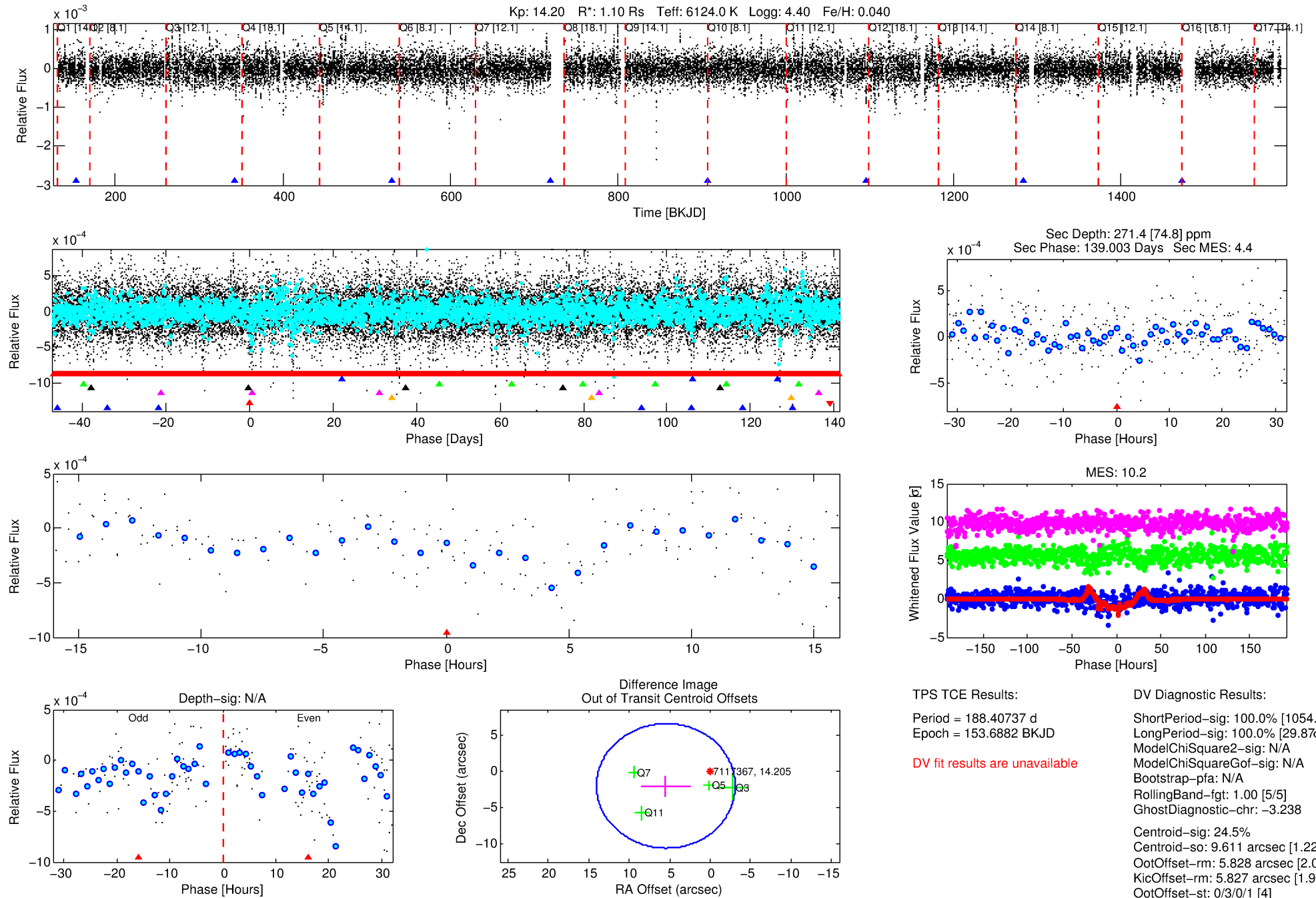
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007117367-07

No Significant Match Found

# DV One-Page Summary

KIC: 7117367 Candidate: 7 of 8 Period: 188.407 d



## TPS TCE Results:

Period = 188.40737 d  
Epoch = 153.6882 BKJD

DV fit results are unavailable

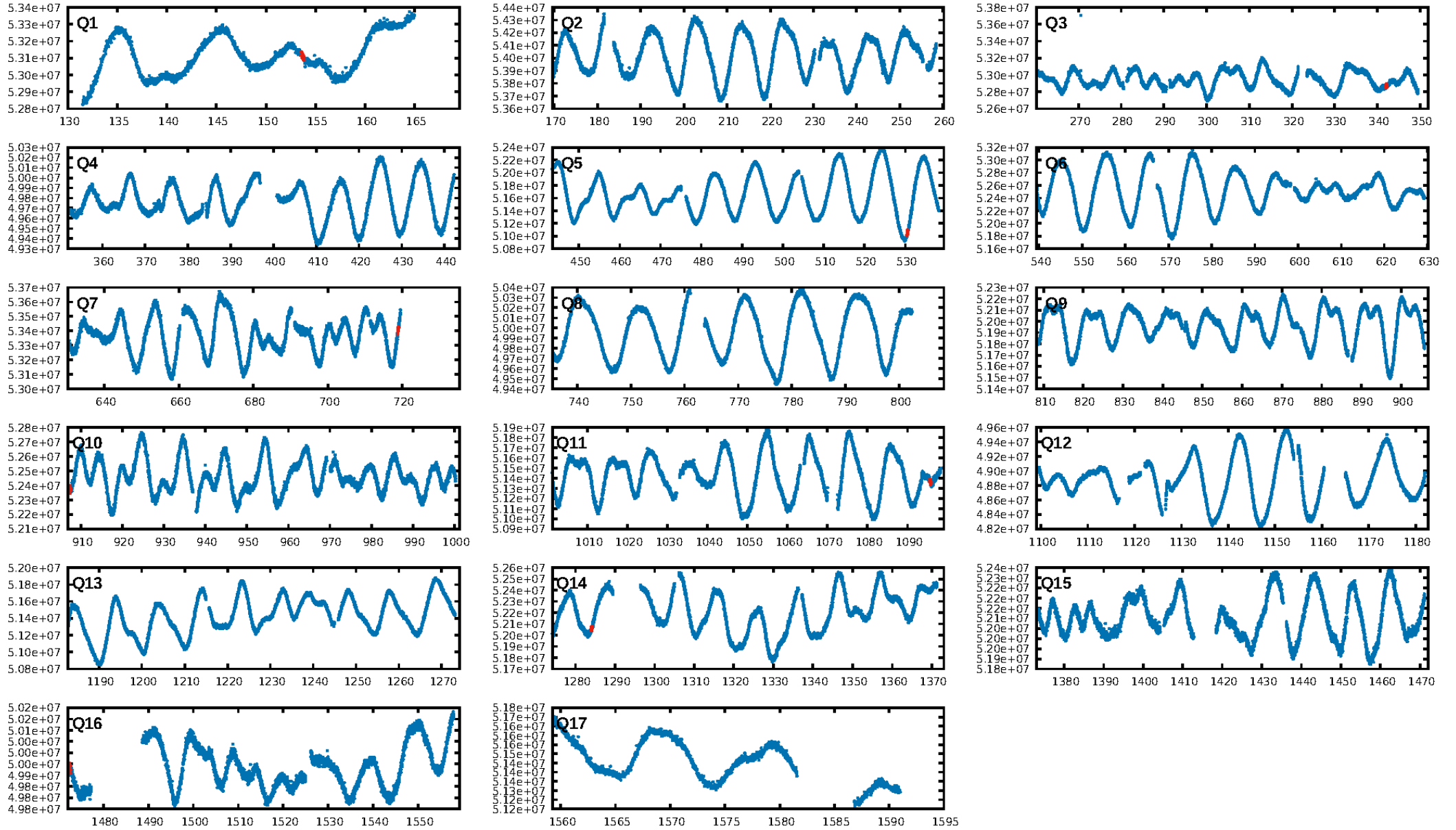
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1054.52σ]  
LongPeriod-sig: 100.0% [29.87σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -3.238  
Centroid-sig: 24.5%  
Centroid-so: 9.611 arcsec [1.22σ]  
OotOffset-rm: 5.828 arcsec [2.04σ]  
KicOffset-rm: 5.827 arcsec [1.94σ]  
OotOffset-st: 0/3/0/1 [4]  
KicOffset-st: 0/3/0/1 [4]  
DiffImageQuality-fgm: 0.25 [1/4]  
DiffImageOverlap-fno: 0.00 [0/6]

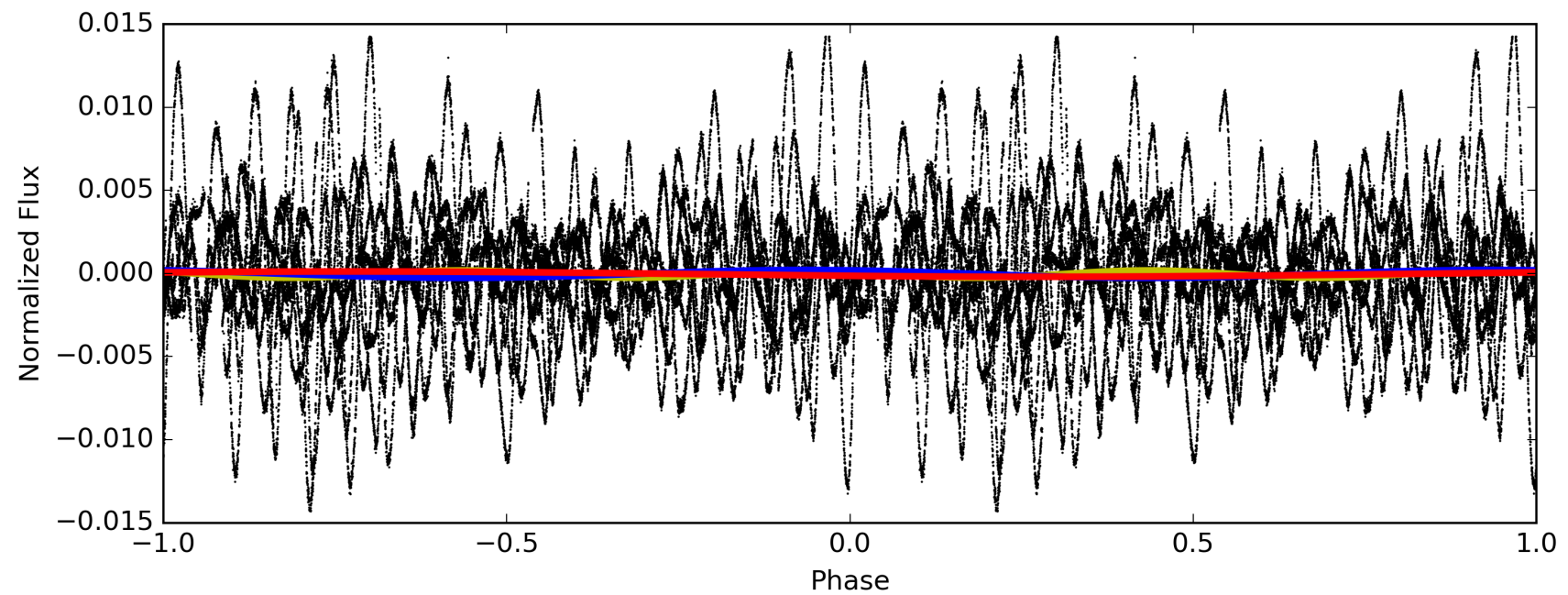
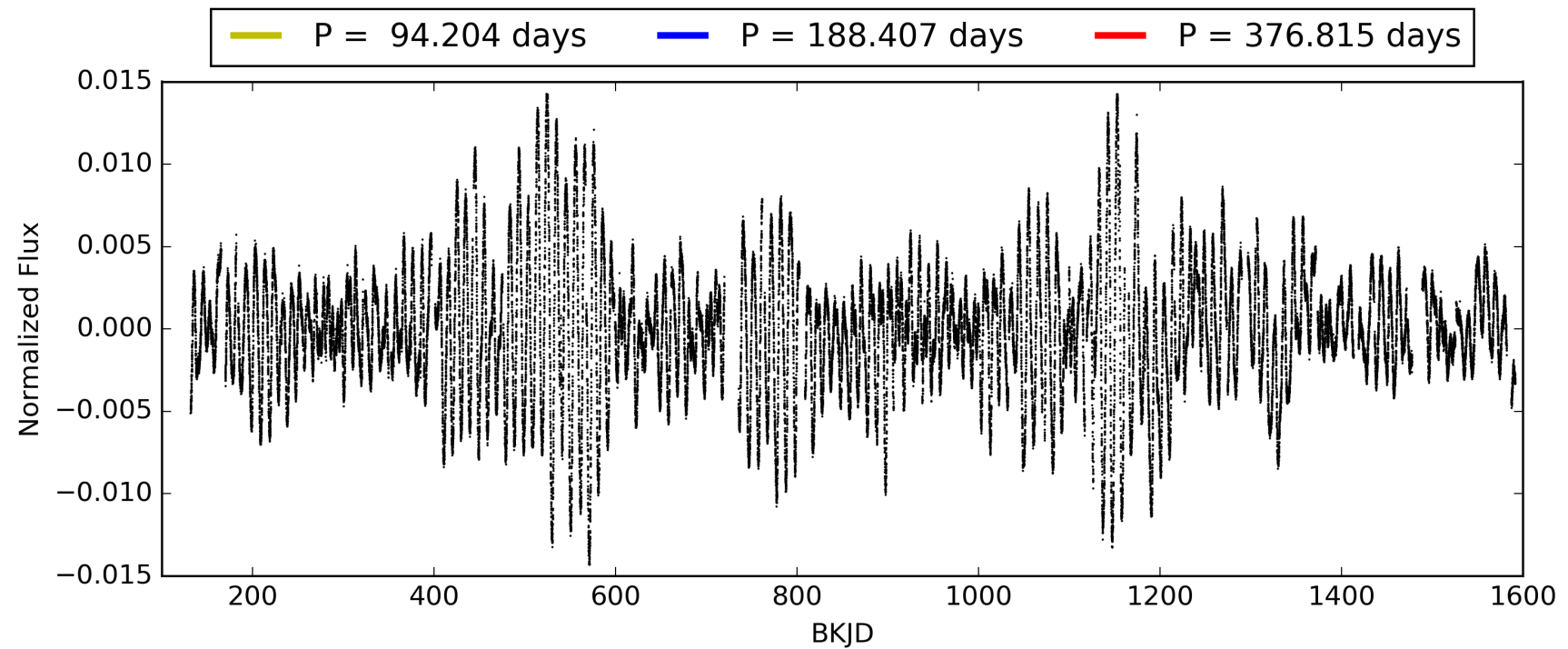
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:36:07 Z

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

# TCE 007117367-07, PDC Light Curves

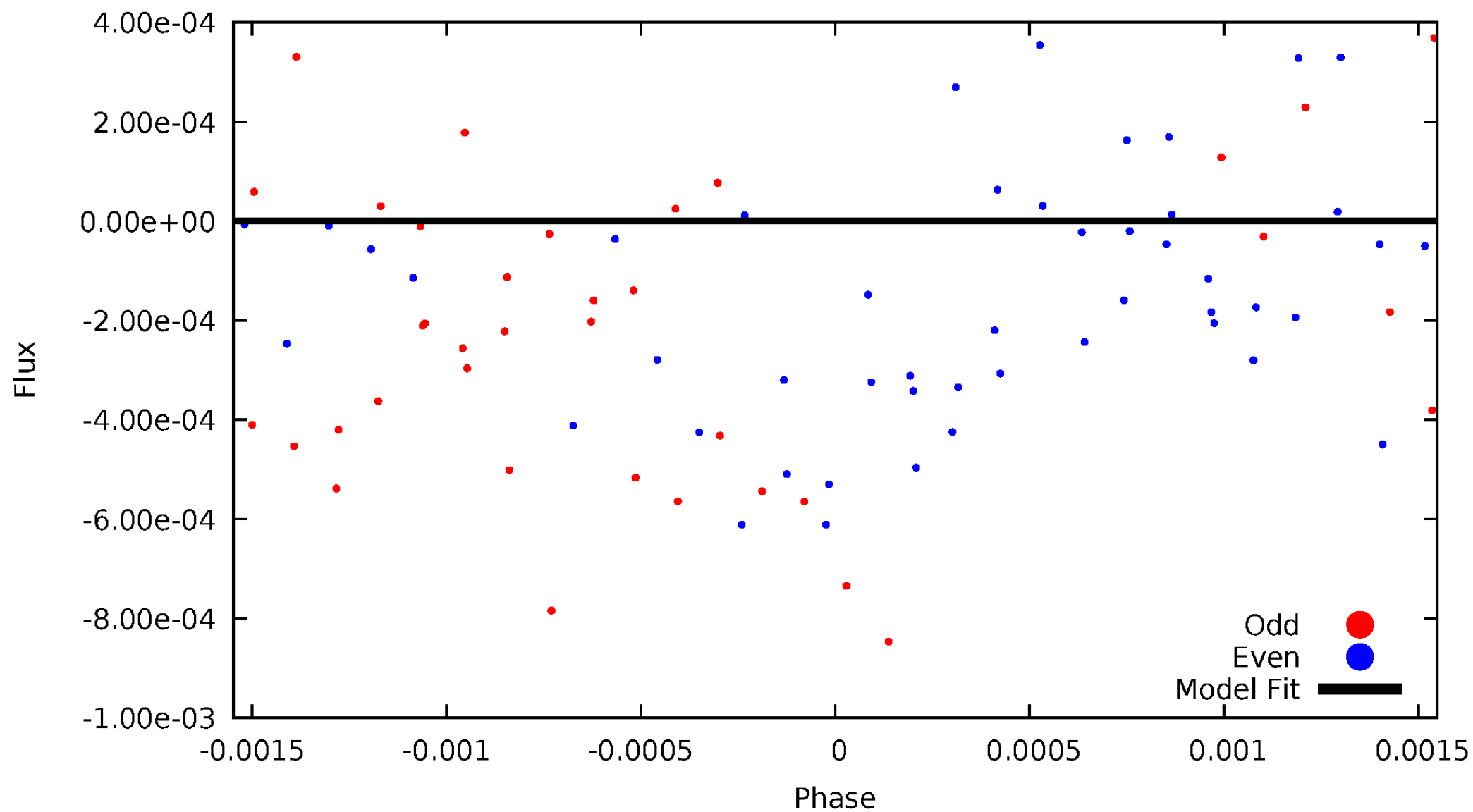


TCE 007117367-07



# DV Odd/Even

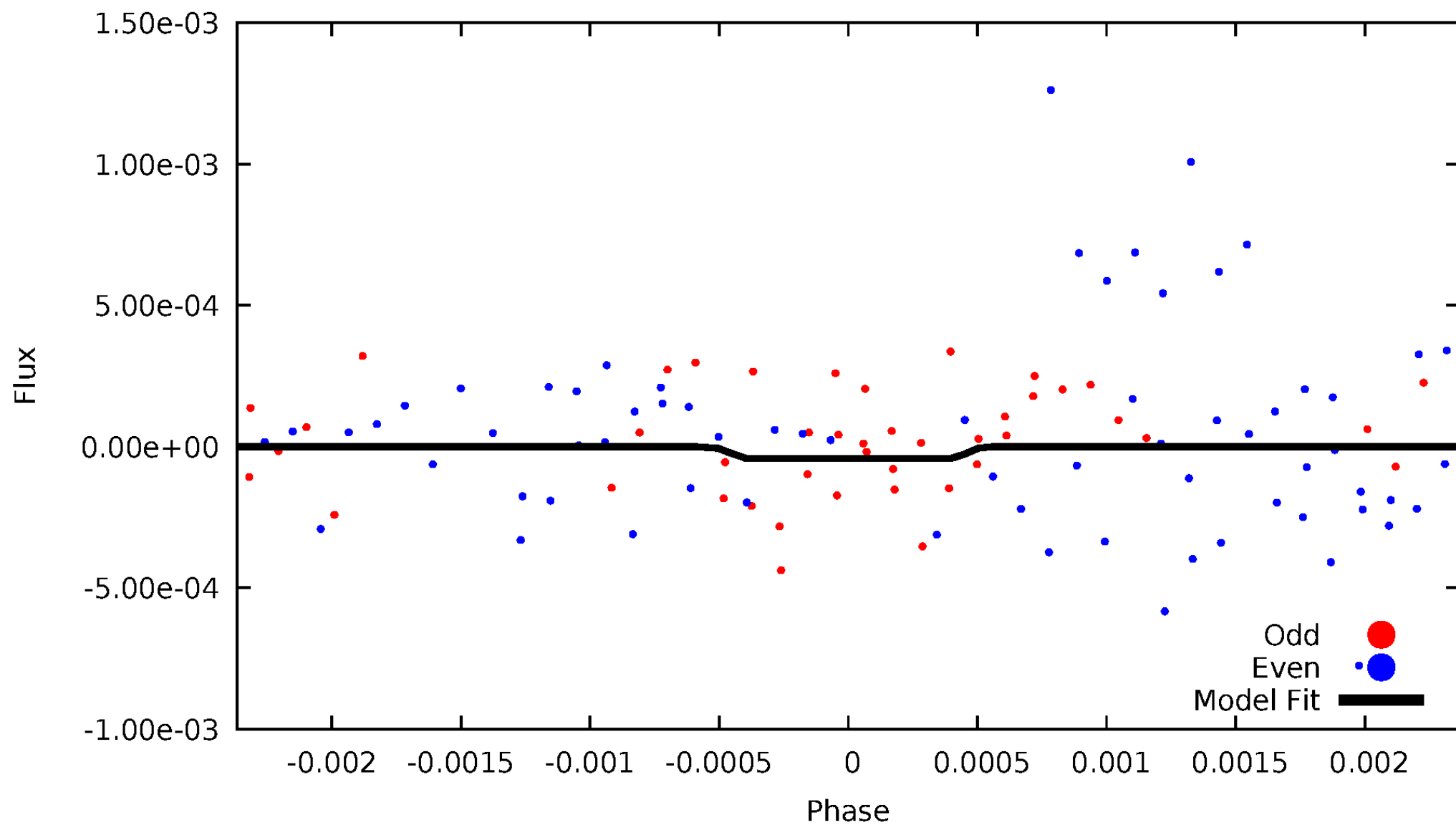
TCE 007117367-07



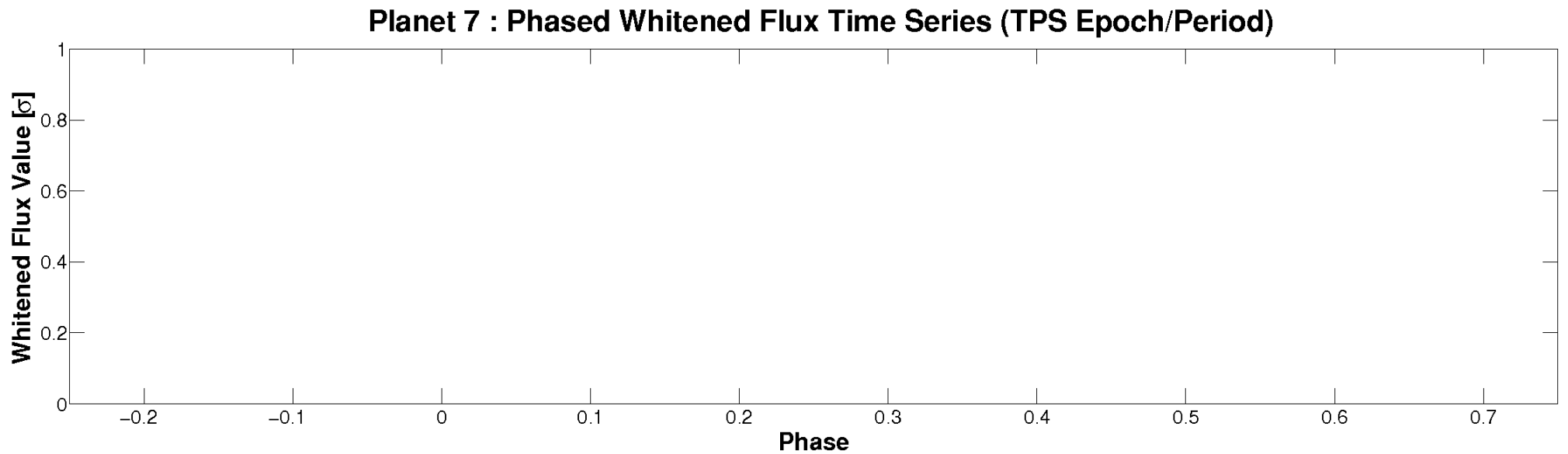
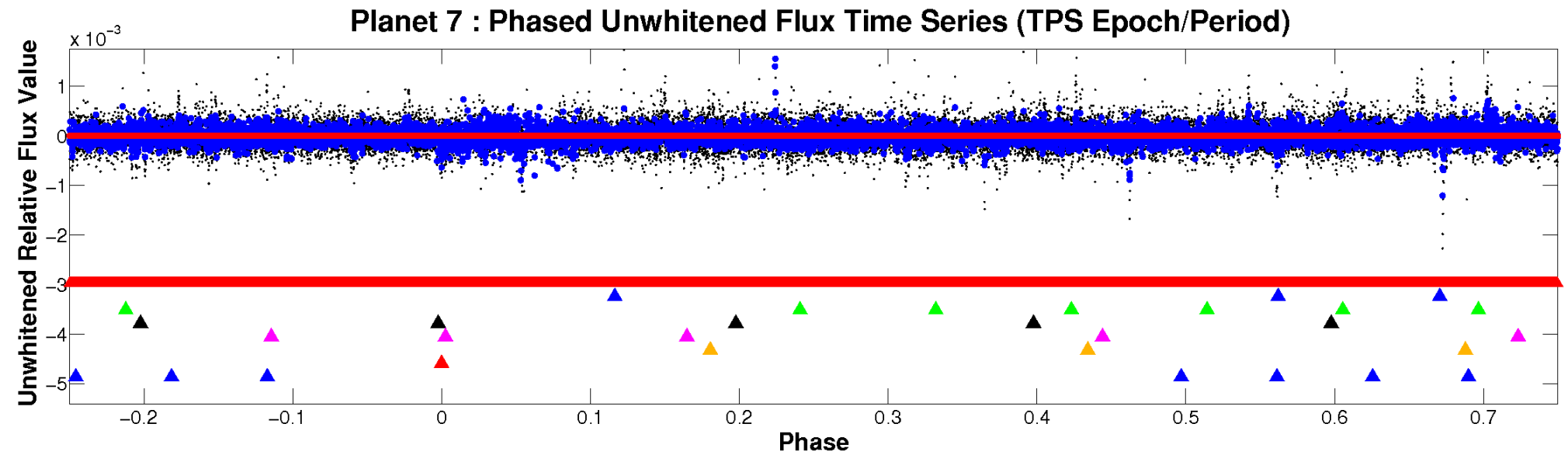


# ALT Odd/Even

TCE 007117367-07

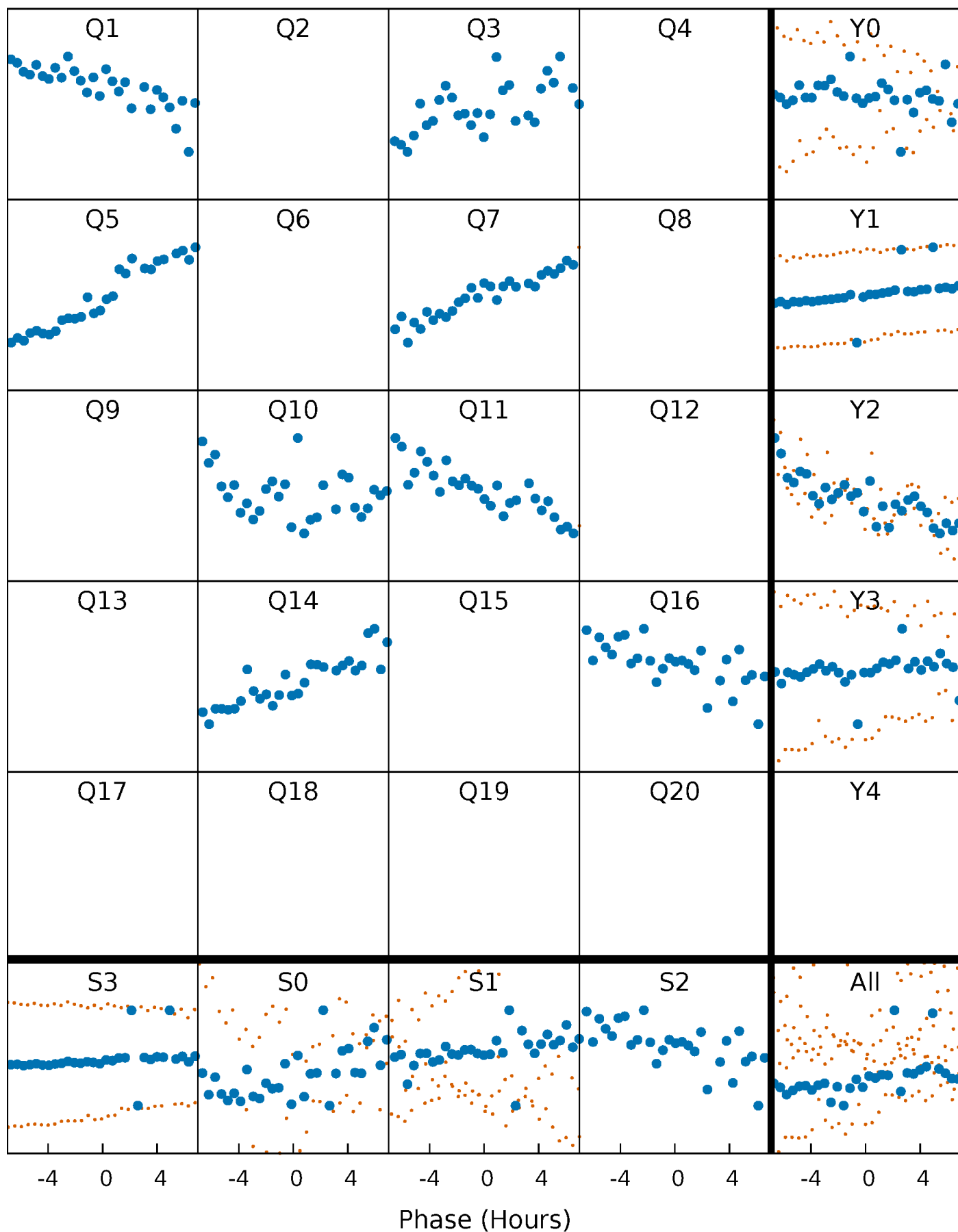


# Non-Whitened Vs. Whitened Light Curve



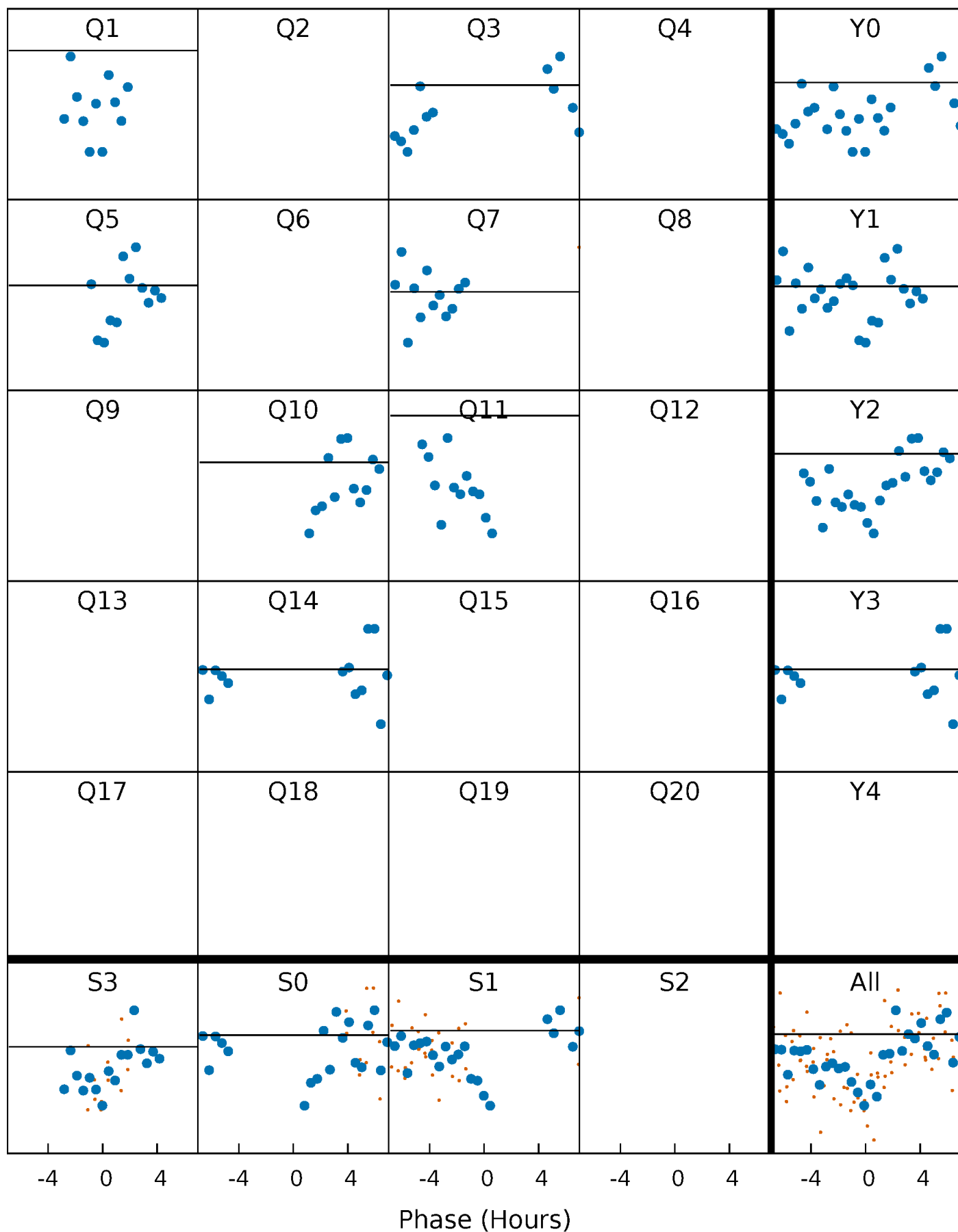
# PDC Quarter-Phased Transit Curves

TCE 007117367-07 P=188.407371 Days  $T_0=153.688218$  (BKJD)



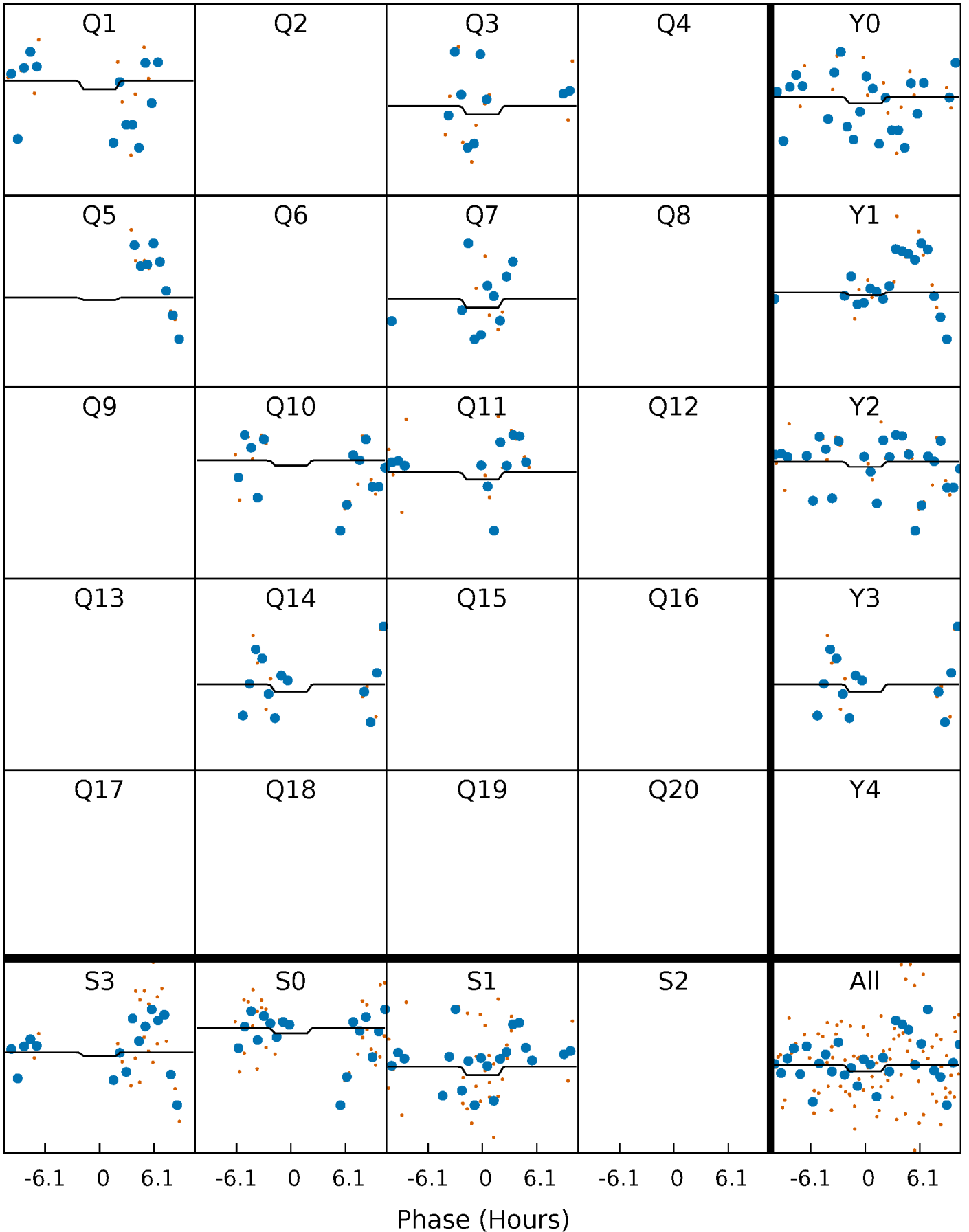
# DV Quarter-Phased Transit Curves

TCE 007117367-07     $P=188.407371$  Days     $T_0=153.688218$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

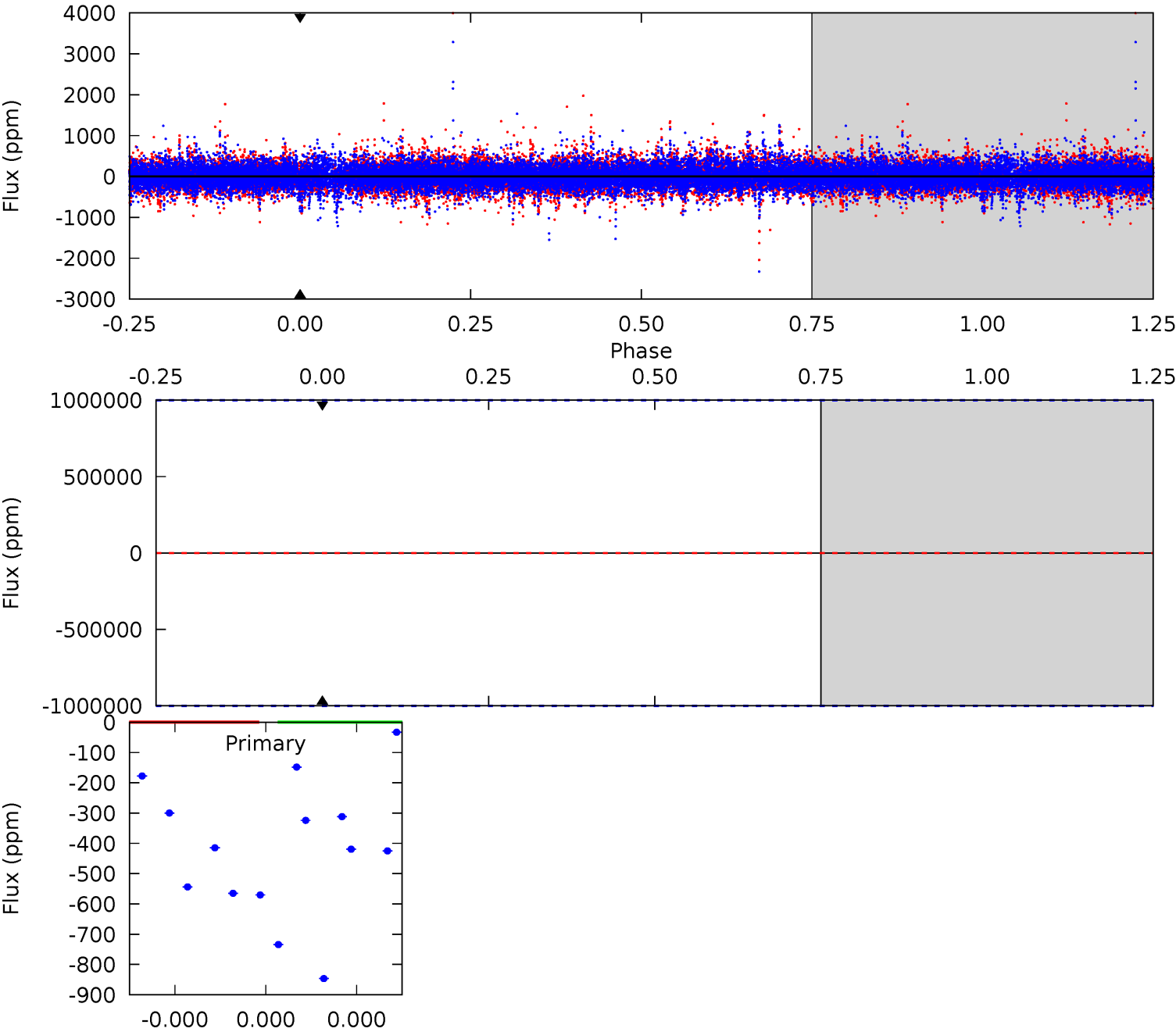
TCE 007117367-07     $P=188.407371$  Days     $T_0=153.496493$  (BKJD)



# DV Model-Shift Uniqueness Test

007117367-07, P = 188.407371 Days, E = 153.688218 Days

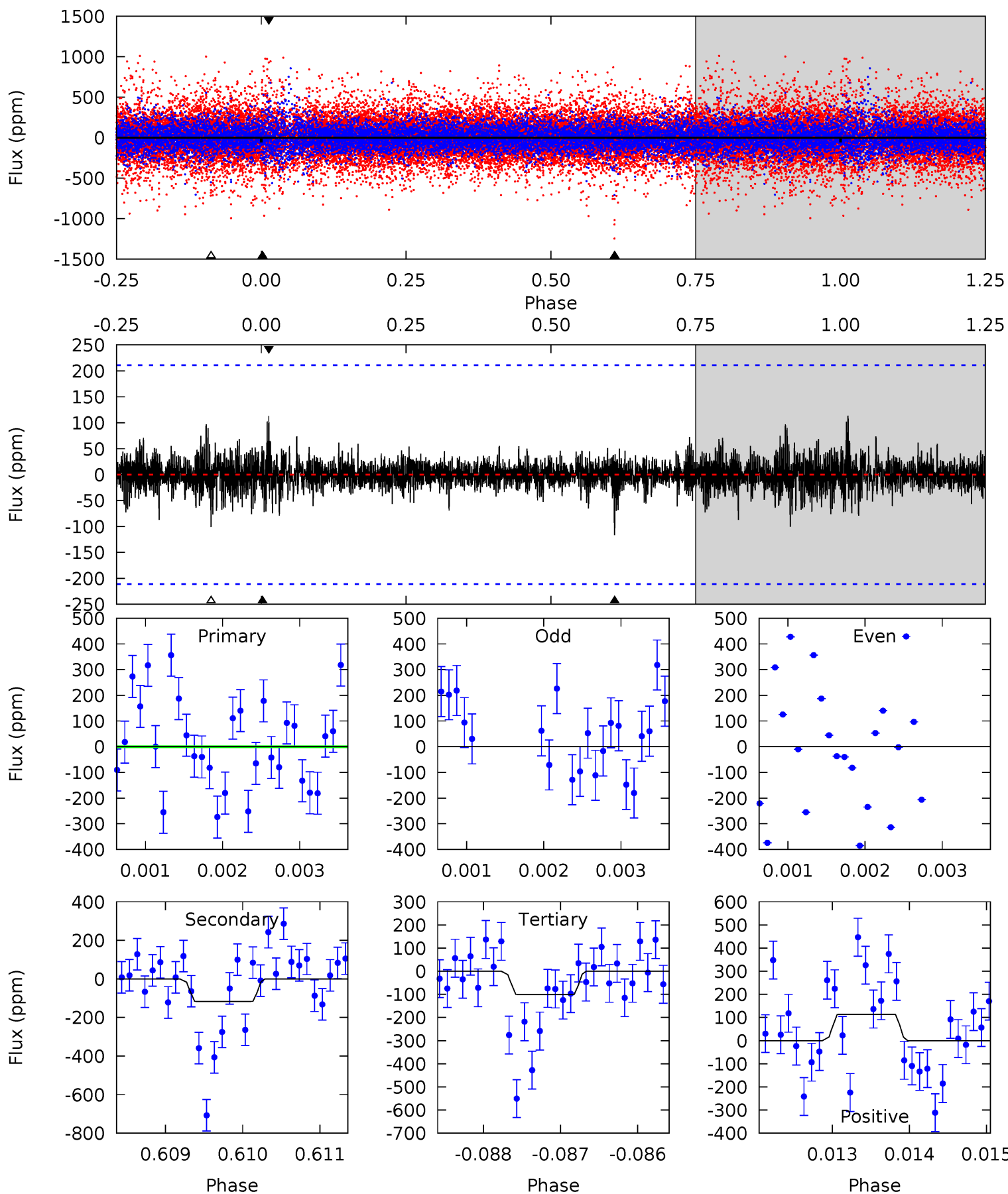
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007117367-07, P = 188.407371 Days, E = 153.496493 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
1.17	3.01	2.60	2.92	5.44	3.28	0.53	-1.43	-1.75	0.41	0.08	0.18	1.58	0.49	0.26



### Stellar Parameters For KIC 007117367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6124^{+165}_{-202}$	$4.401^{+0.070}_{-0.210}$	$0.040^{+0.250}_{-0.300}$	$1.096^{+0.375}_{-0.150}$	$1.099^{+0.166}_{-0.135}$	$1.175^{+0.447}_{-0.619}$
	+3%/-3%	+2%/-5%	+625%/-750%	+34%/-14%	+15%/-12%	+38%/-53%
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 007117367-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$9.57^{+10.38}_{-6.76}$	$492^{+39}_{-23}$	$4553^{+20619}_{-25251}$	$4143^{+497147}_{-420802}$
Alt.	$-116 \pm 39$	$9.03^{+8.97}_{-6.19}$	$494^{+40}_{-26}$	$3008^{+1381}_{-509}$	$322^{+2942}_{-245}$

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



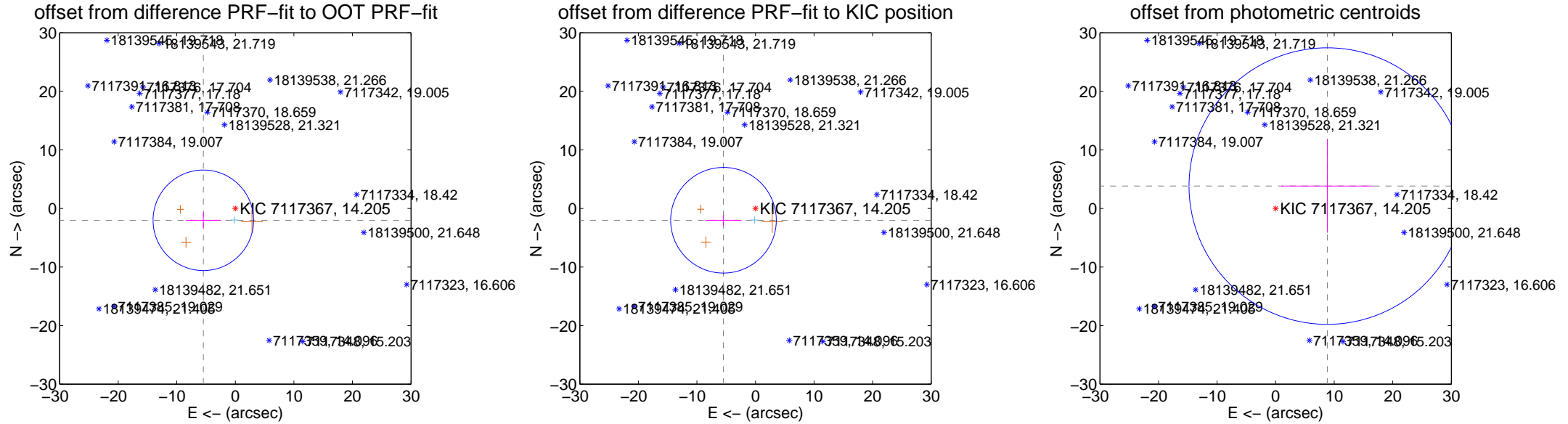
## DV Centroid Data

Supplemental centroid analysis for 007117367-07. Kepler magnitude: 14.21. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

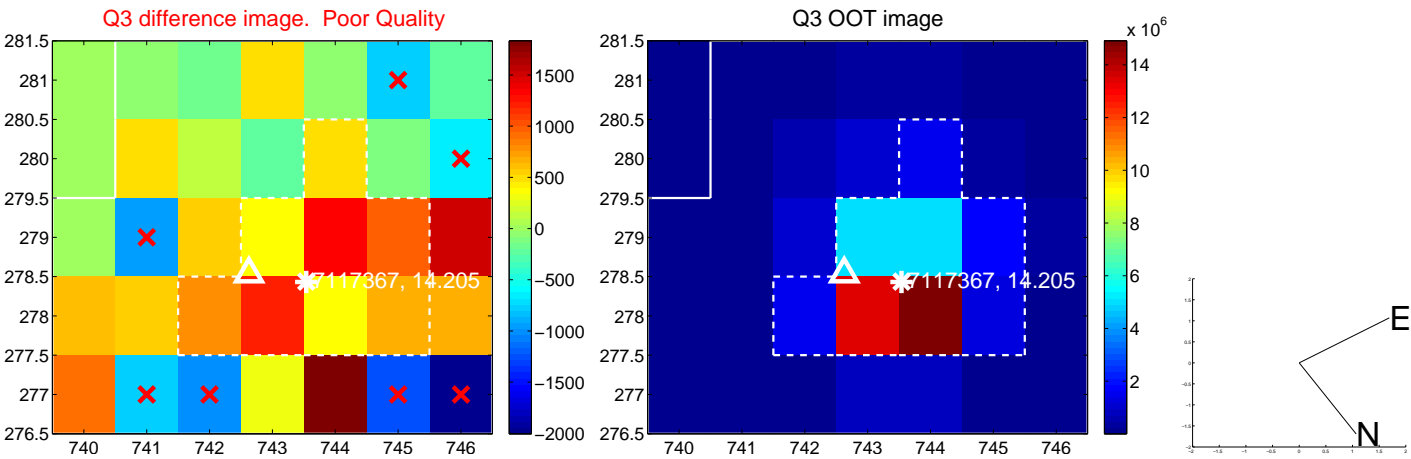
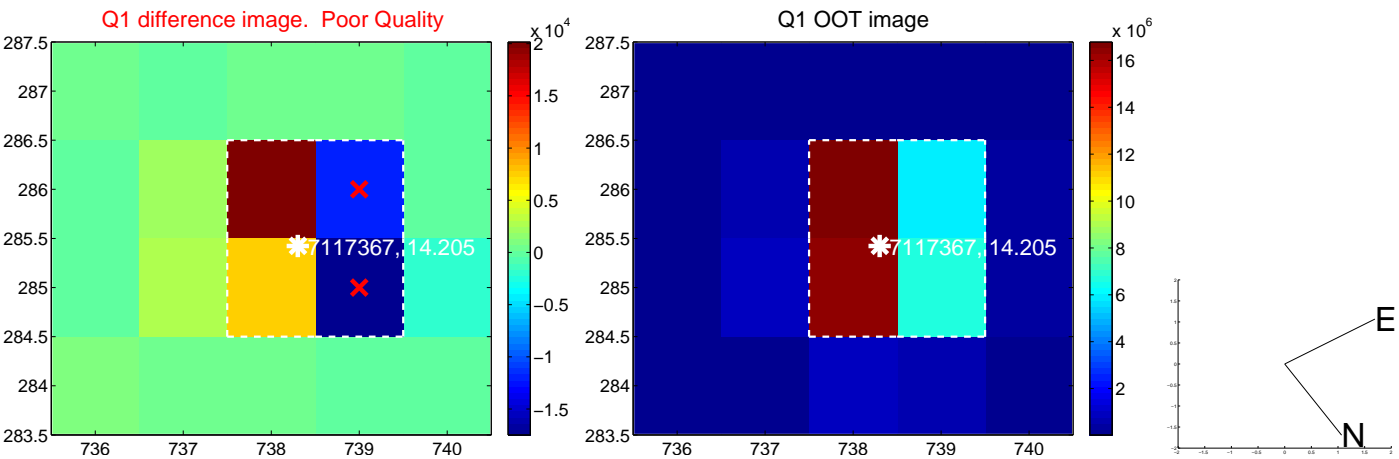
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.828 \pm 2.861$	2.04	$5.465 \pm 3.009$	$-2.024 \pm 1.369$
PRF-fit source offset from KIC position	$5.827 \pm 3.006$	1.94	$5.467 \pm 3.111$	$-2.016 \pm 0.900$
photometric centroid source offset	$9.61 \pm 7.87$	1.22	$-8.82 \pm 7.85$	$3.82 \pm 7.97$

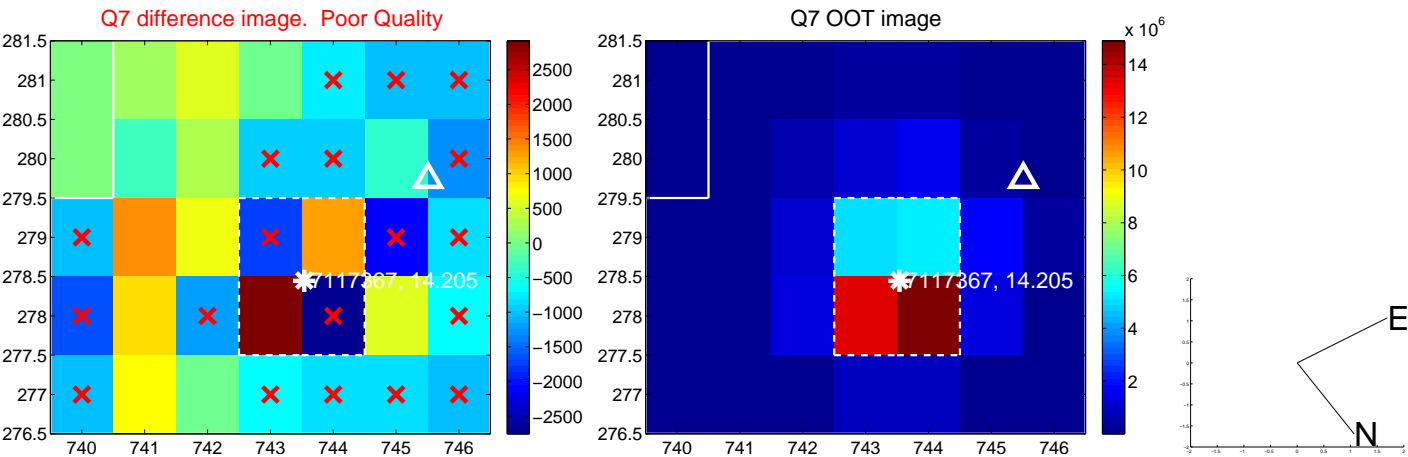
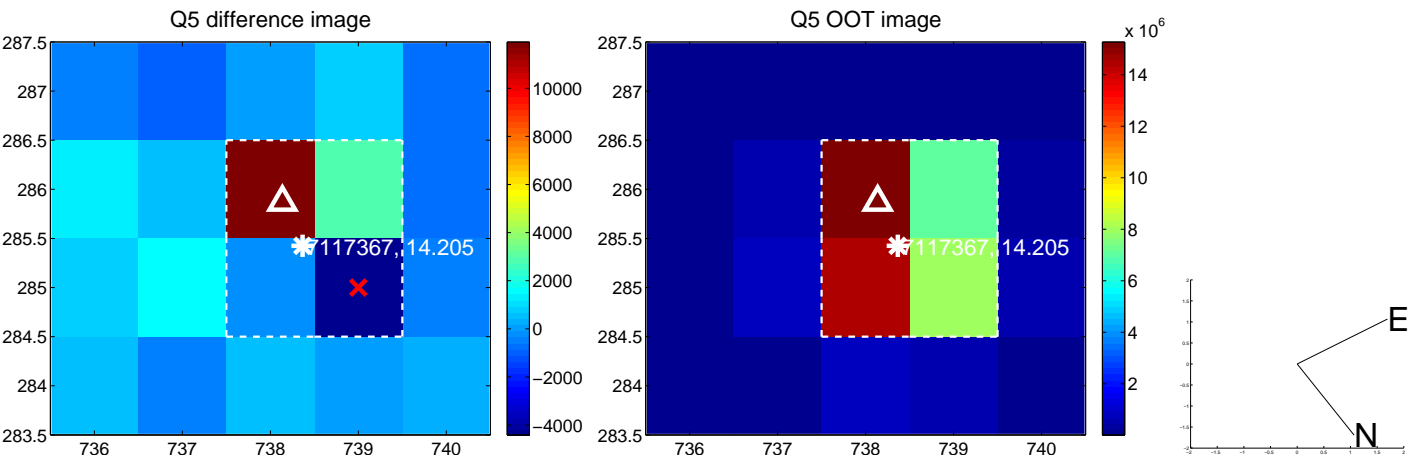


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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



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



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

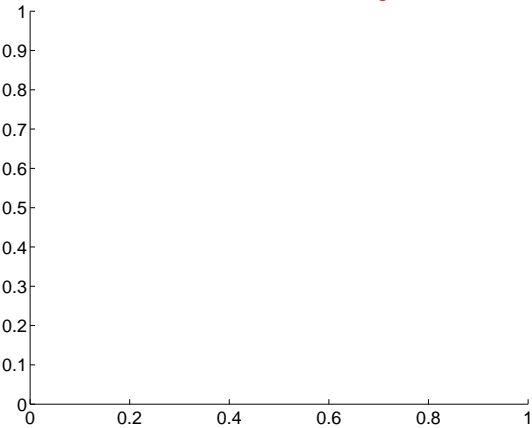
Q9 no difference image



Q9 no OOT image



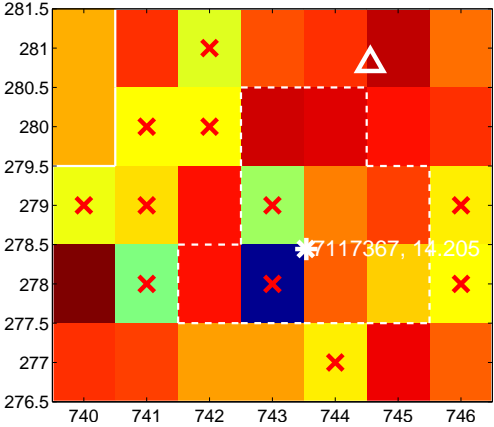
Q10 no difference image



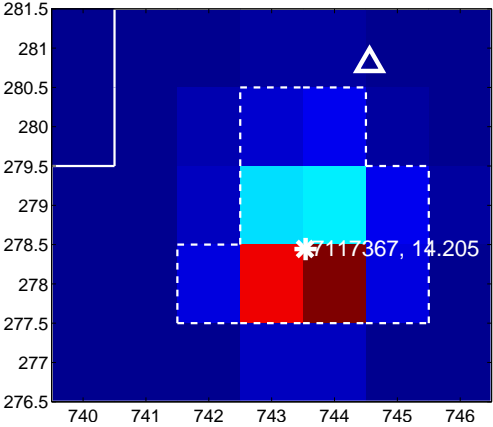
Q10 no OOT image



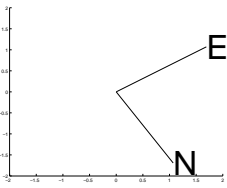
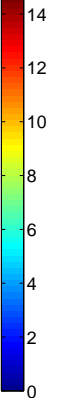
Q11 difference image. Poor Quality



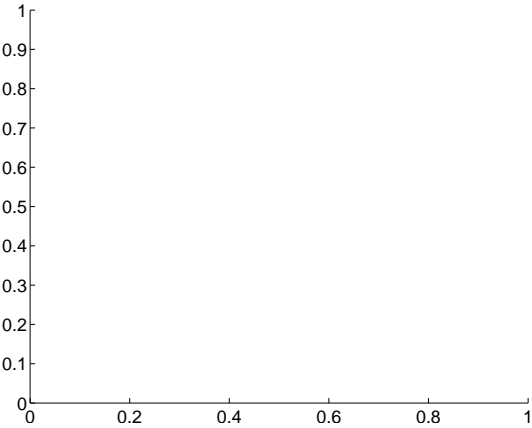
Q11 OOT image



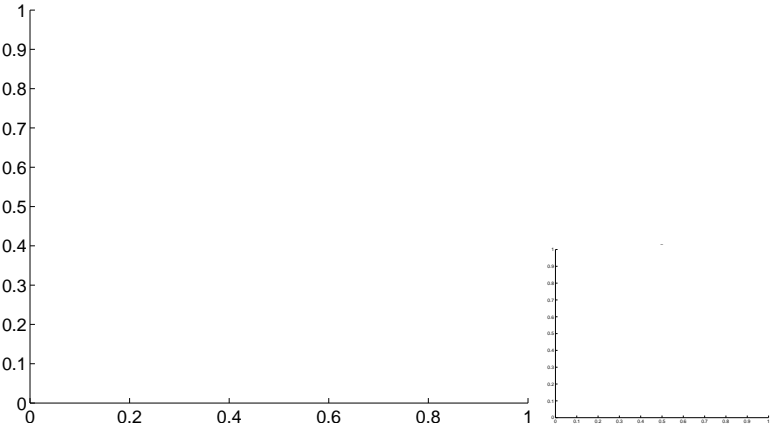
$\times 10^6$



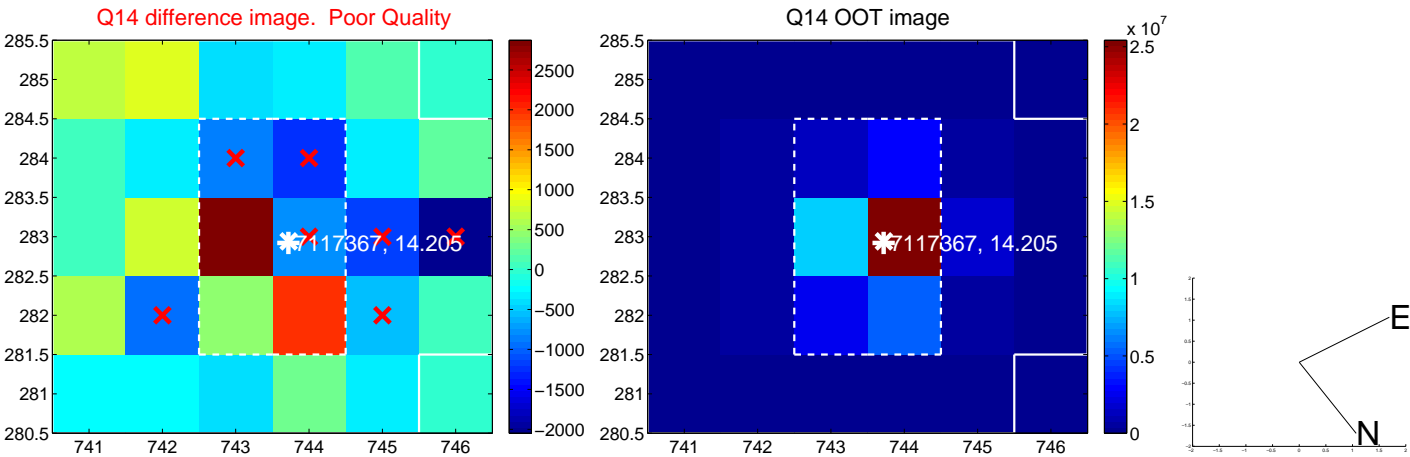
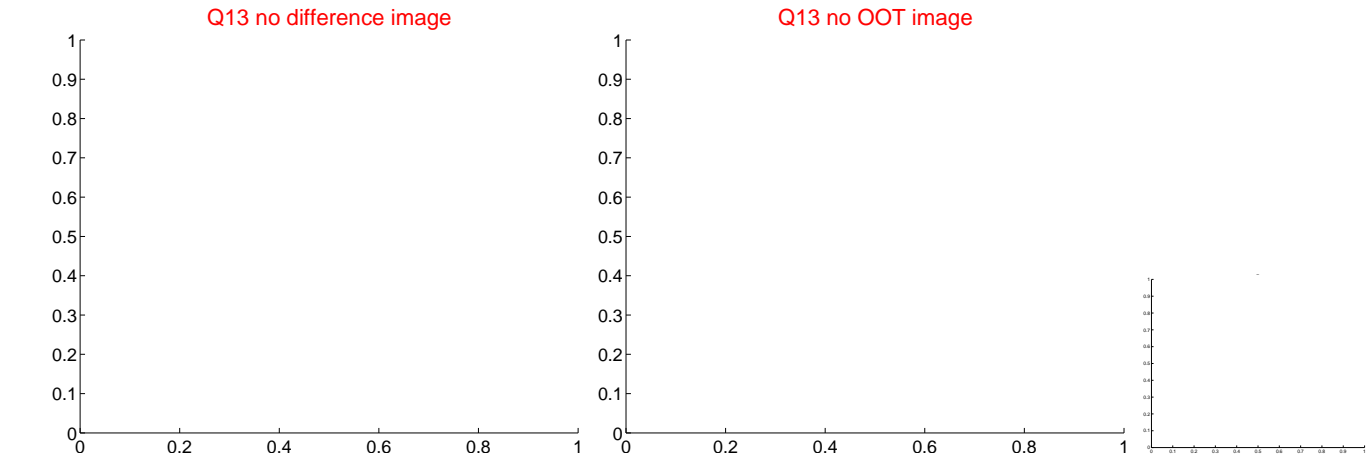
Q12 no difference image



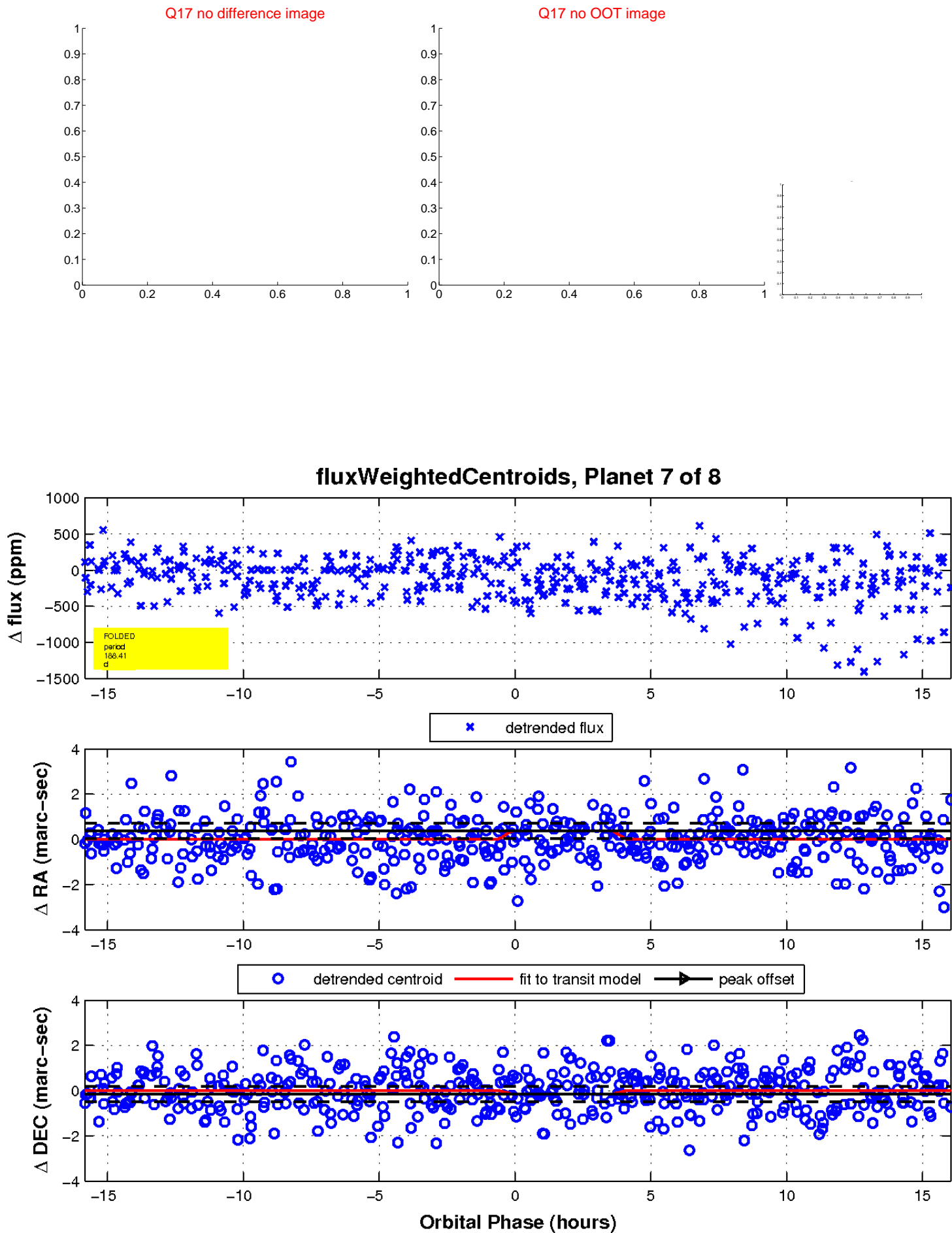
Q12 no OOT image



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

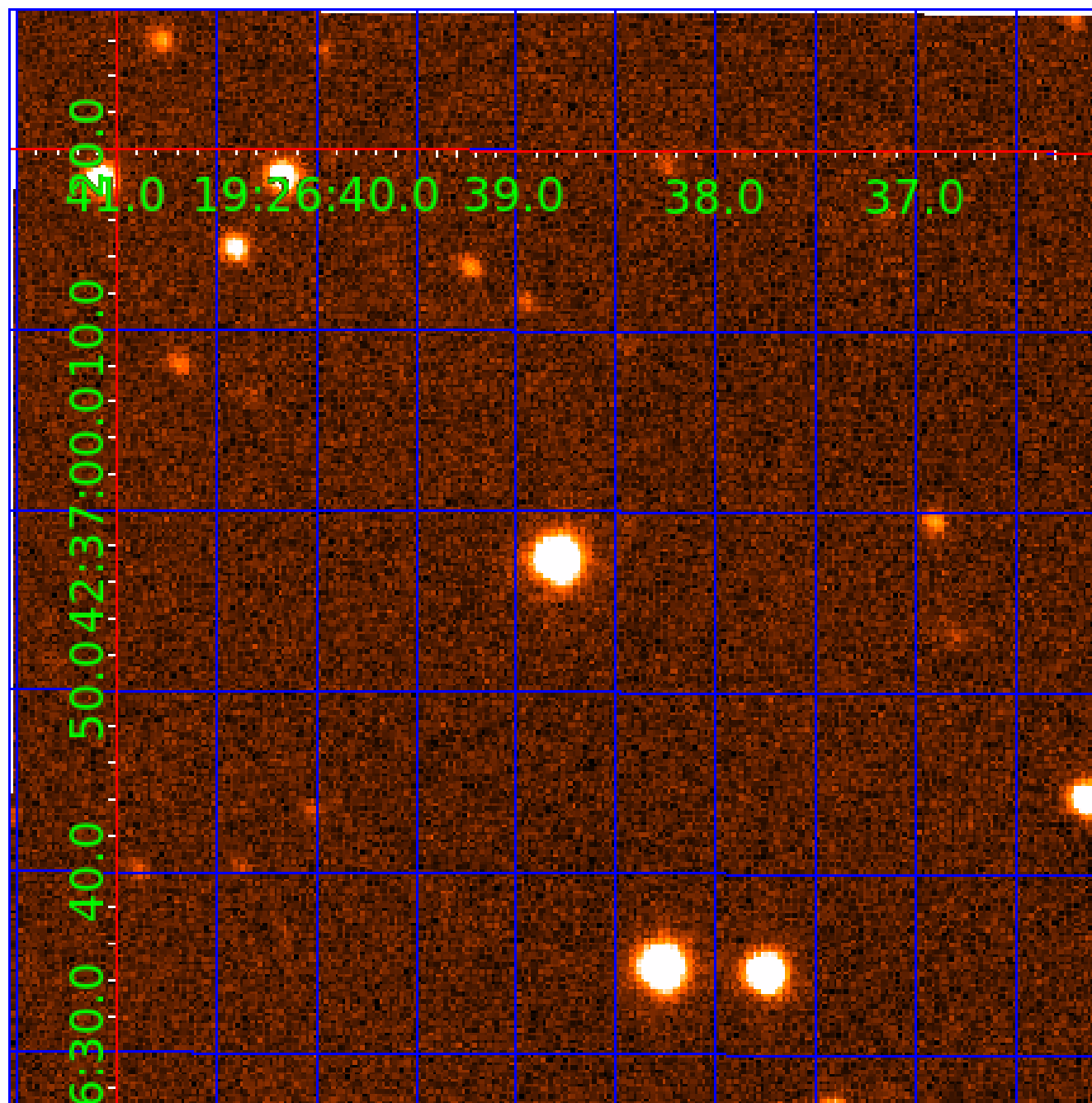


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007117367

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007117367-01	OBS	No	0.566775	131.840915	12.0	2.455	7.9	4.3	1.10	6124	0.45	7889.11
007117367-02	OBS	No	460.787180	280.053603	698.7	6.281	15.0	9.3	1.10	6124	3.26	1.04
007117367-03	OBS	No	205.582047	199.067749	369.0	9.000	10.8	-1.0	1.10	6124	2.10	3.05
007117367-04	OBS	No	263.770300	266.301694	620.3	3.137	11.1	6.8	1.10	6124	2.90	2.19
007117367-06	OBS	No	517.431159	471.695739	328.5	5.291	10.2	4.7	1.10	6124	2.30	0.89
007117367-07	OBS	No	188.407371	153.688218	781.8	3.500	10.2	-1.0	1.10	6124	3.06	3.43
007117367-08	OBS	No	200.525987	247.318456	372.2	9.085	8.8	5.2	1.10	6124	2.23	3.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007117367-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
007117367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_FEW_DIFFS
007117367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS
007117367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
007117367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007117367-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007117367-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_UNCERTAIN

**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.

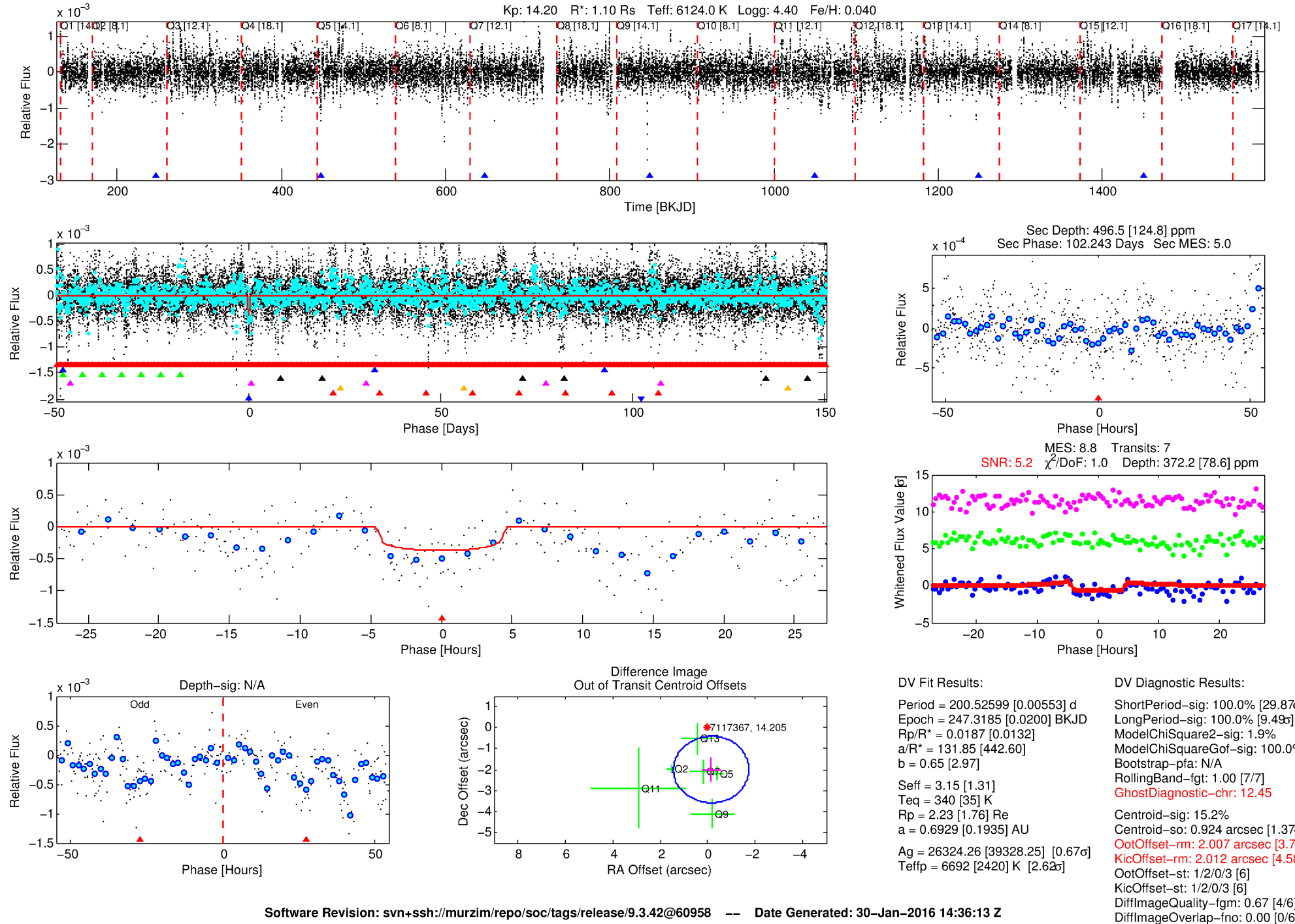
Ephemeris Match Information For 007117367-08

No Significant Match Found



# DV One-Page Summary

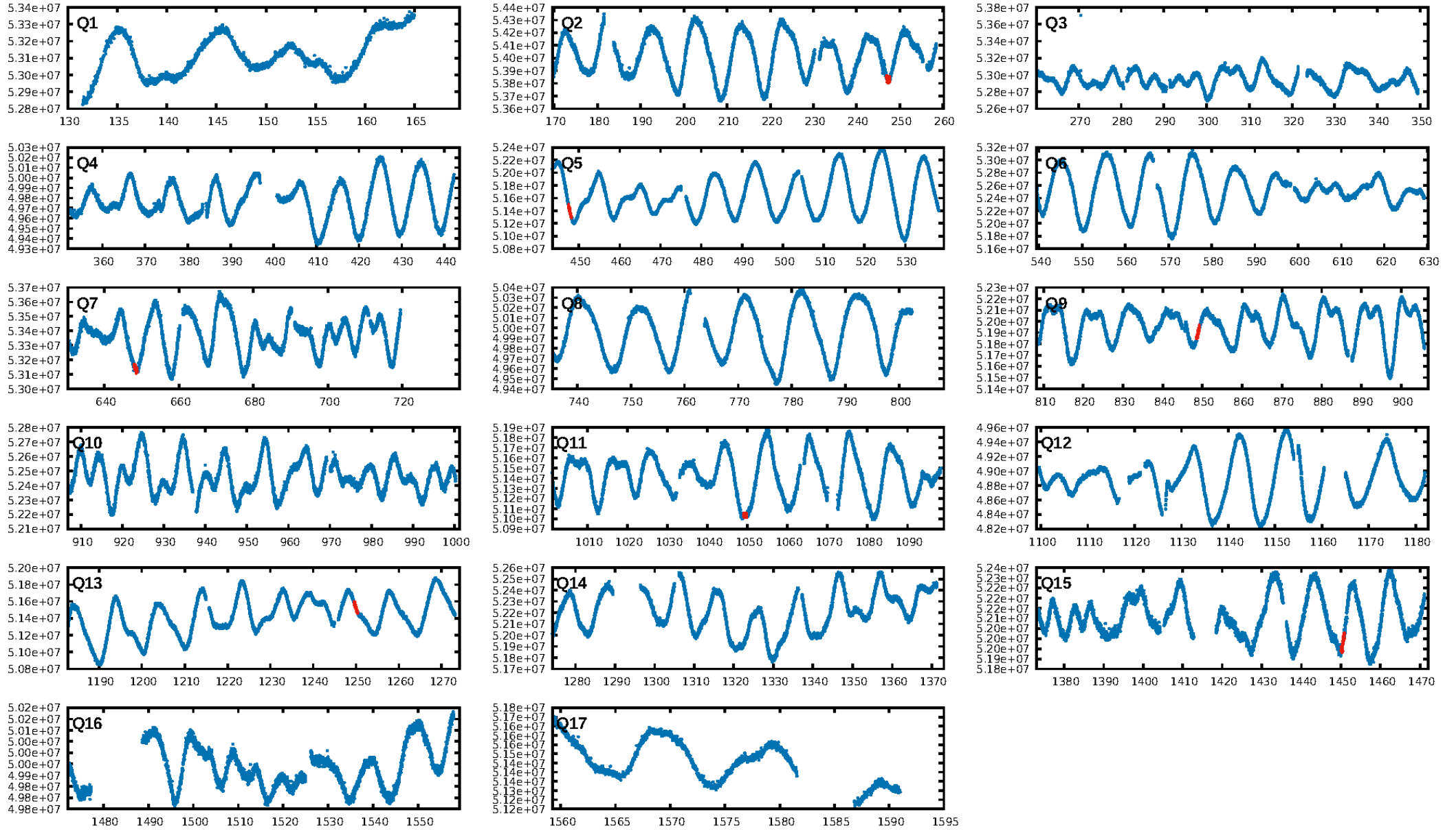
KIC: 7117367 Candidate: 8 of 8 Period: 200.526 d



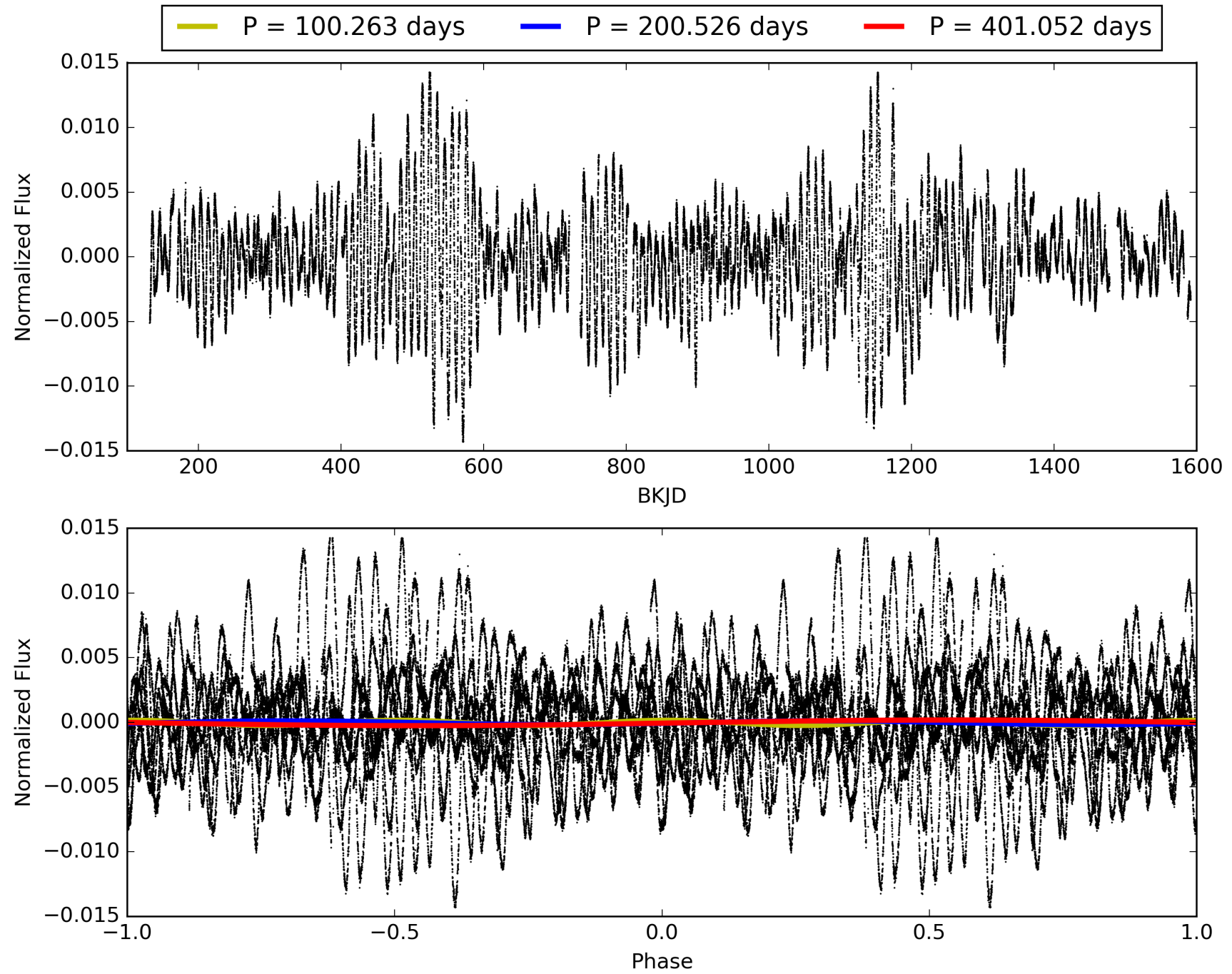
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:36:13 Z

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

# TCE 007117367-08, PDC Light Curves

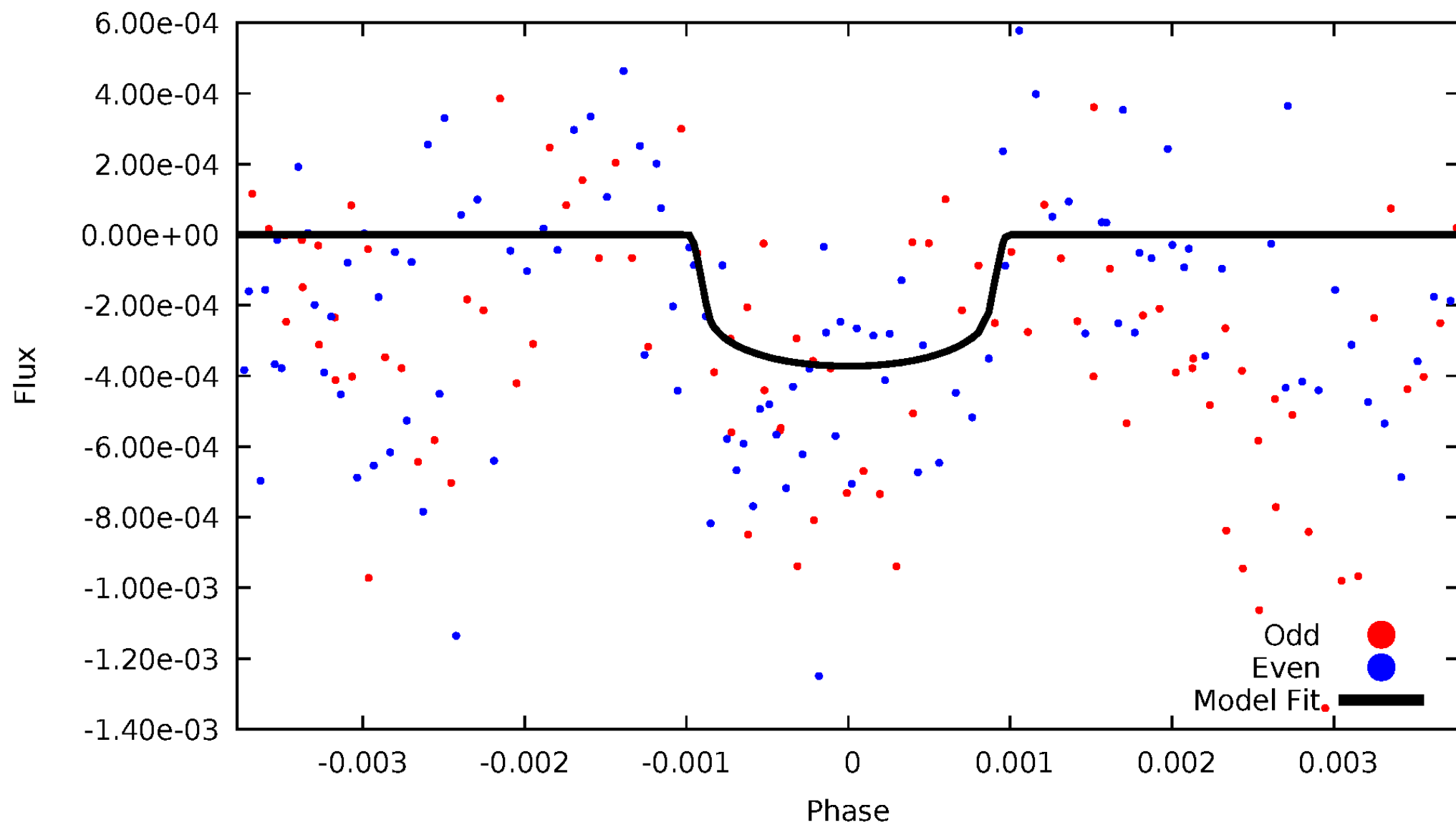


TCE 007117367-08



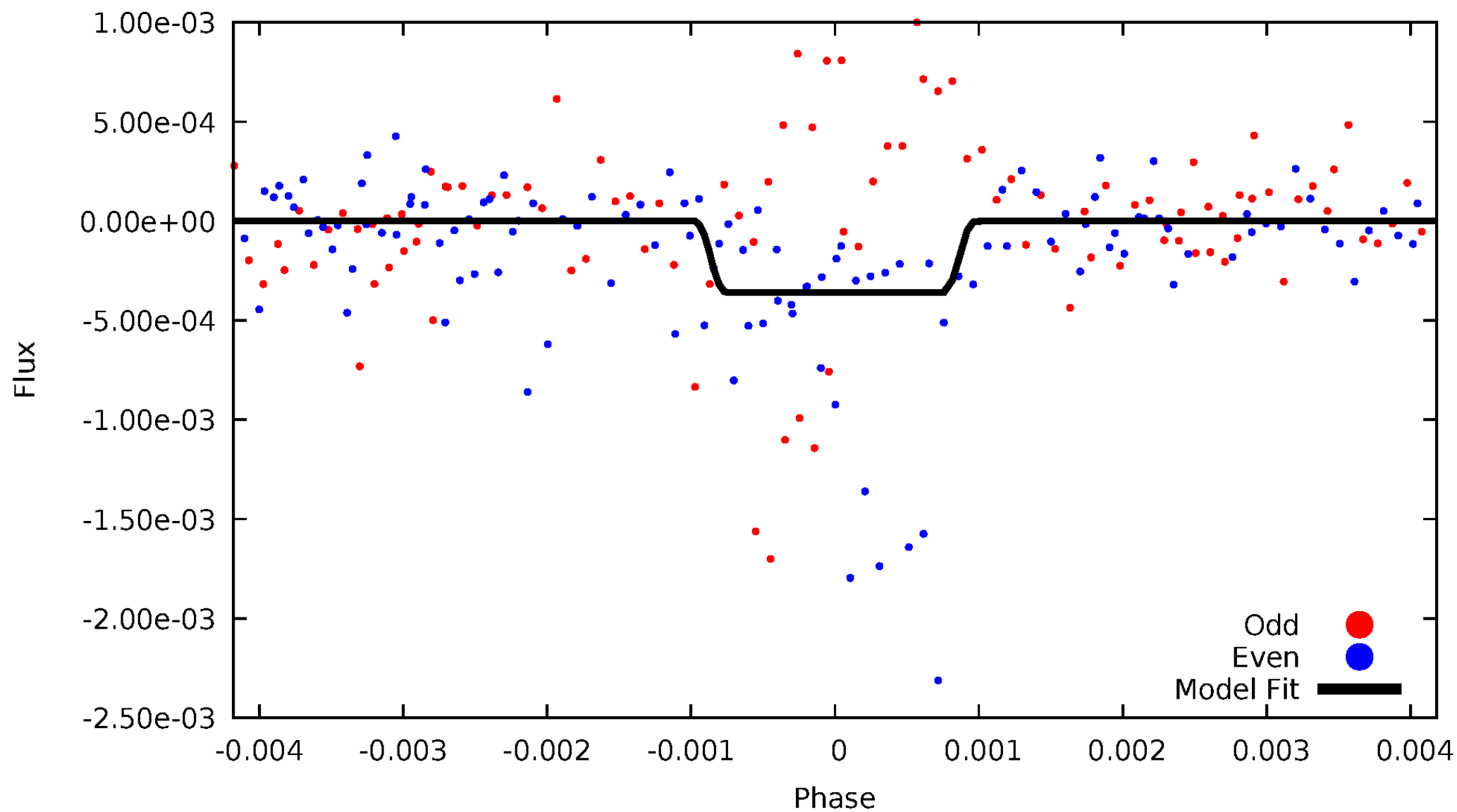
# DV Odd/Even

TCE 007117367-08



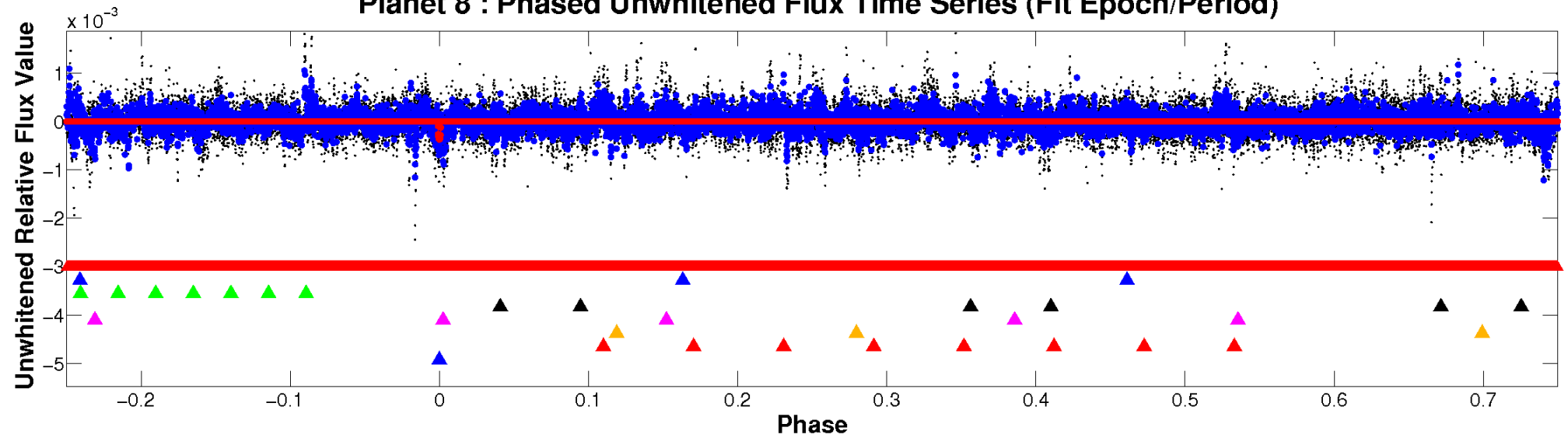
# ALT Odd/Even

TCE 007117367-08

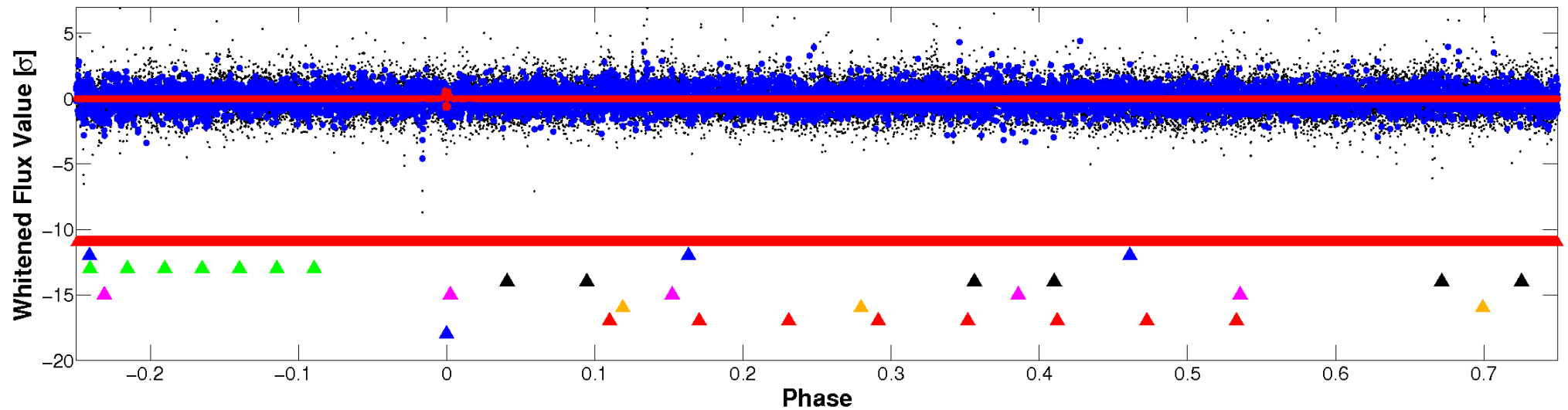


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

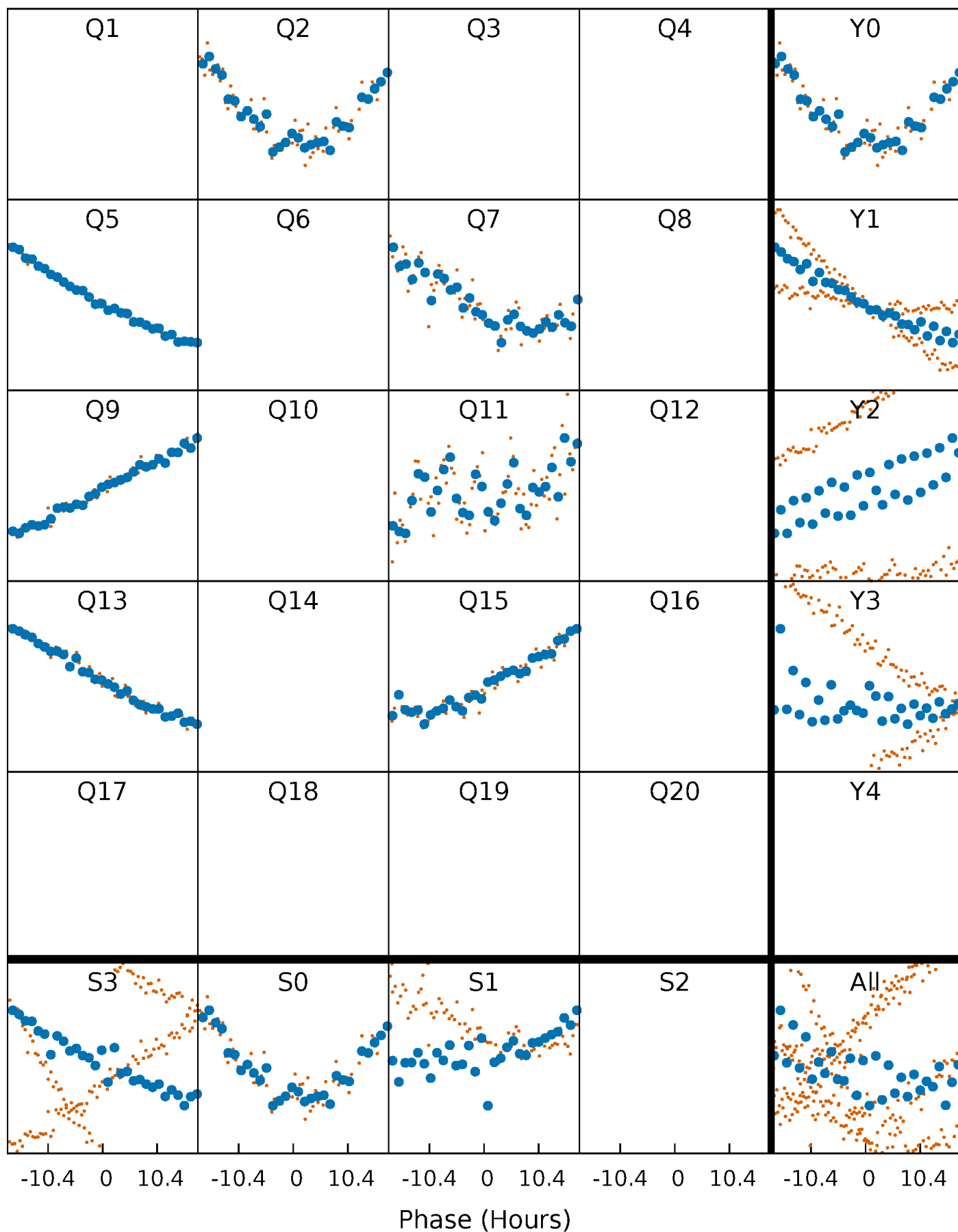


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



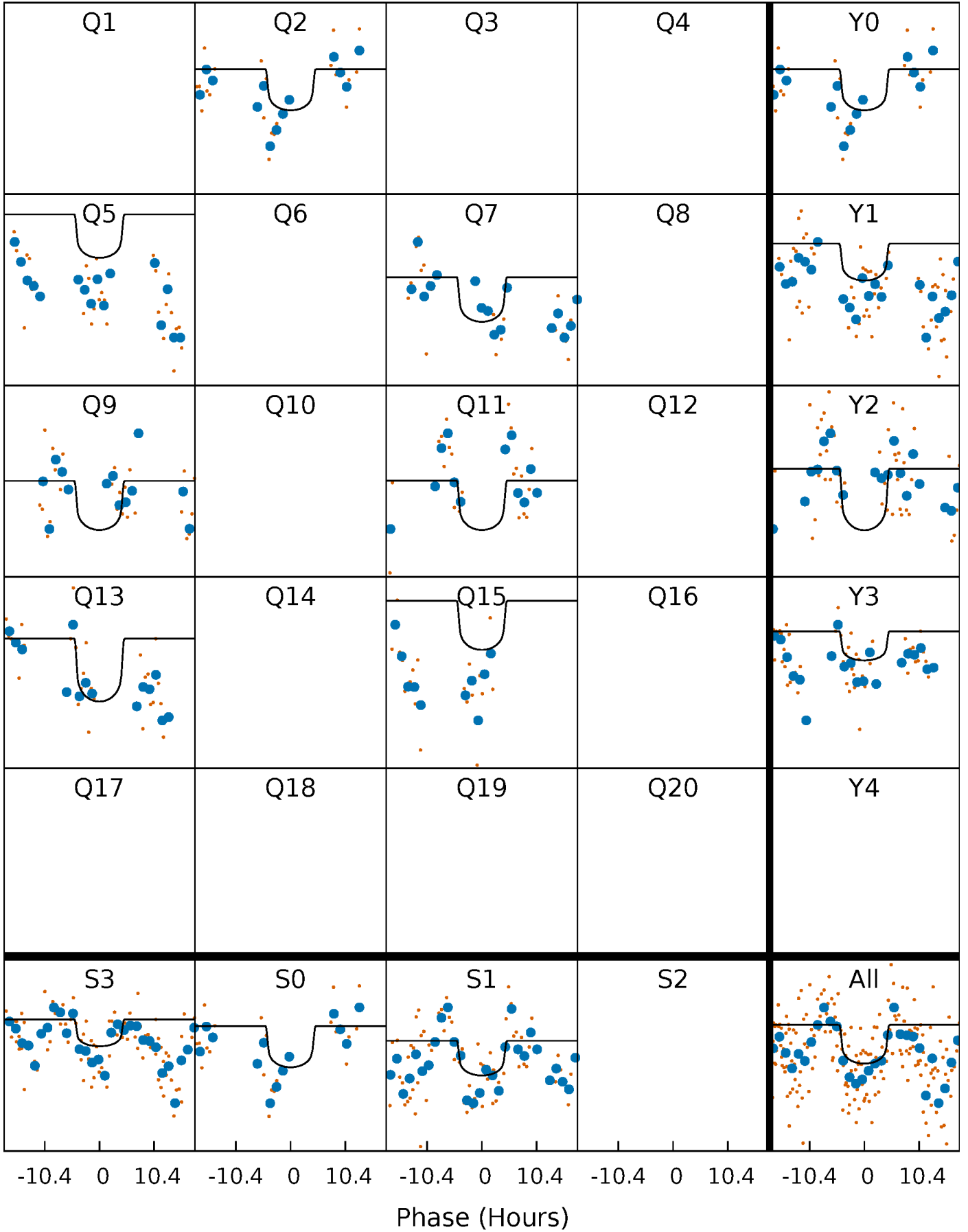
# PDC Quarter-Phased Transit Curves

TCE 007117367-08 P=200.525987 Days  $T_0=247.318456$  (BKJD)



# DV Quarter-Phased Transit Curves

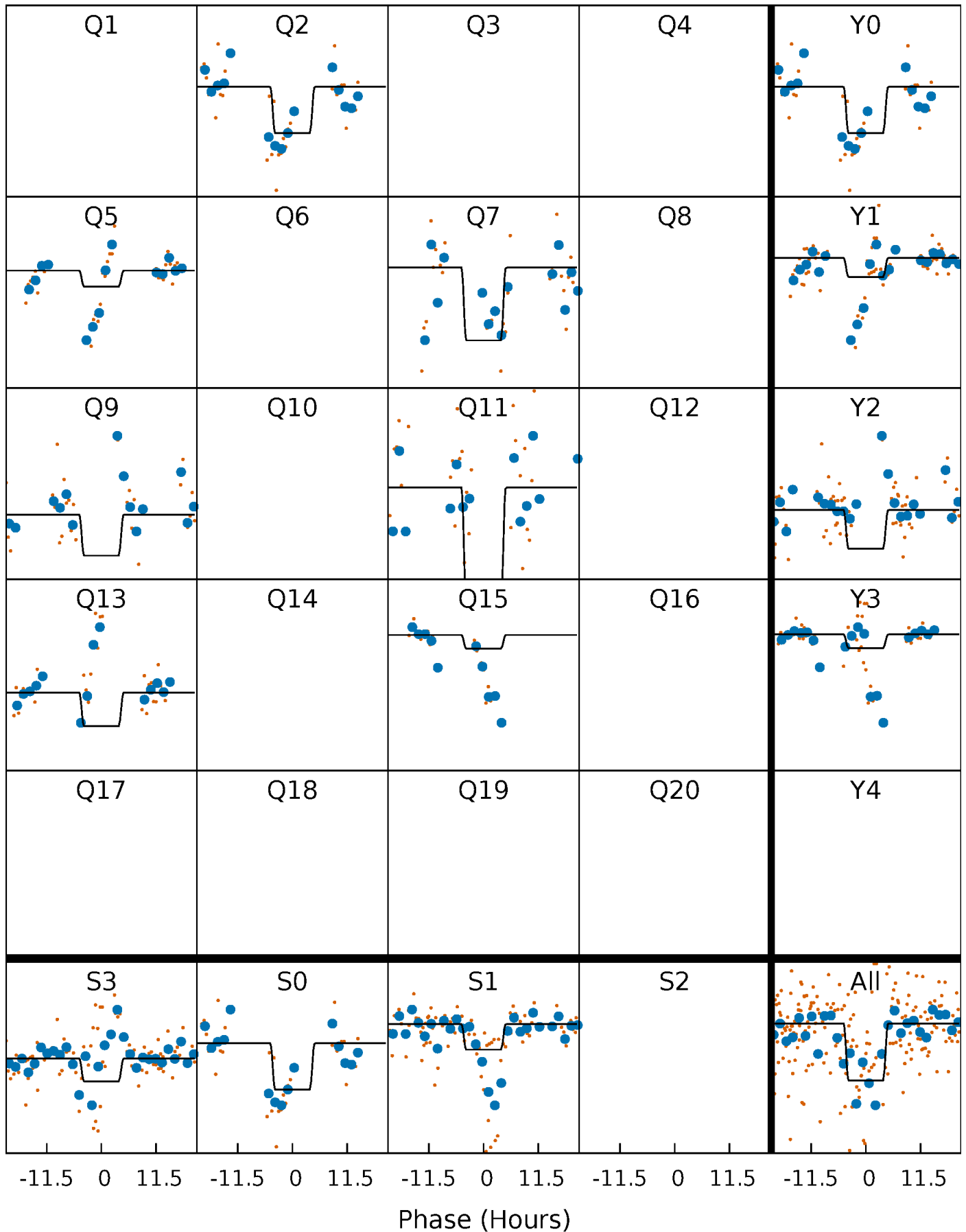
TCE 007117367-08     $P=200.525987$  Days     $T_0=247.318456$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

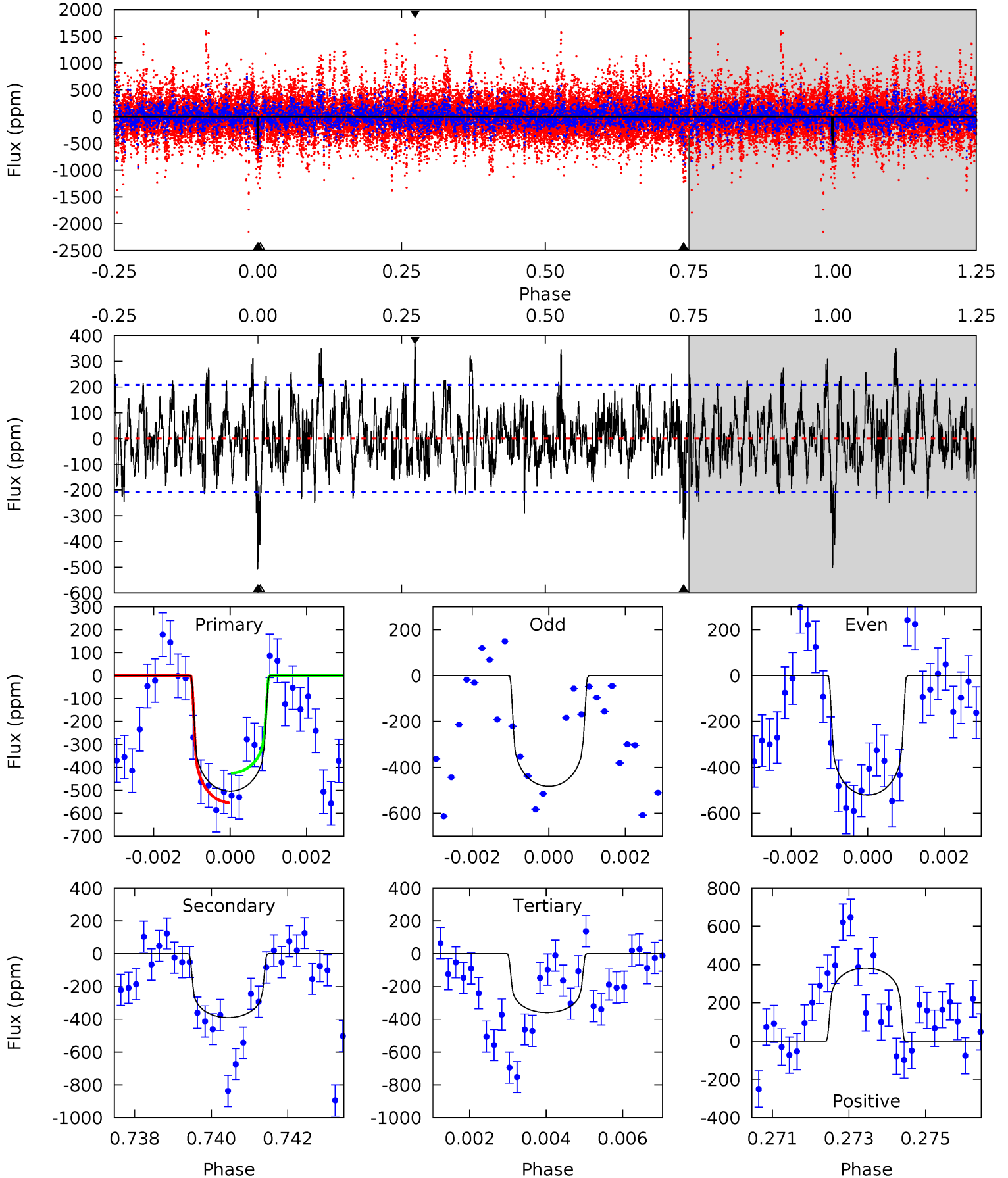
TCE 007117367-08     $P=200.521335$  Days     $T_0=247.288736$  (BKJD)



# DV Model-Shift Uniqueness Test

007117367-08, P = 200.525987 Days, E = 46.792469 Days

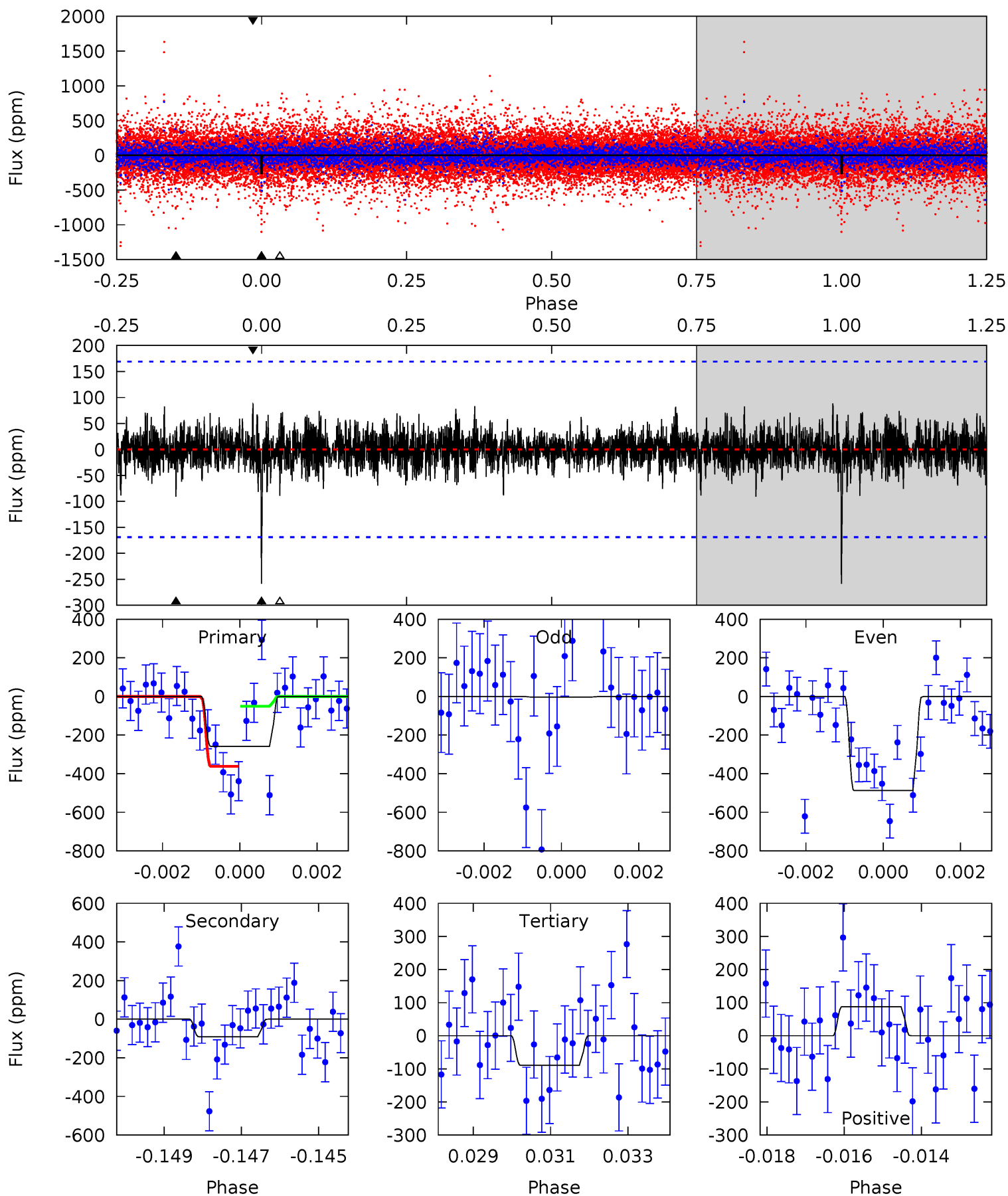
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	9.98	9.20	9.79	5.33	3.10	2.55	3.71	3.12	0.78	0.19	0.48	1.15	0.43	1.62



# Alt Model-Shift Uniqueness Test

007117367-08, P = 200.521335 Days, E = 46.767401 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.15	2.87	2.82	2.77	5.33	3.10	0.77	5.34	5.38	0.05	0.09	8.43	0.65	0.25	4.74



### Stellar Parameters For KIC 007117367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6124^{+165}_{-202}$	$4.401^{+0.070}_{-0.210}$	$0.040^{+0.250}_{-0.300}$	$1.096^{+0.375}_{-0.150}$	$1.099^{+0.166}_{-0.135}$	$1.175^{+0.447}_{-0.619}$
	+3%/-3%	+2%/-5%	+625%/-750%	+34%/-14%	+15%/-12%	+38%/-53%
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 007117367-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-389 \pm 39$	$2.50^{+1.64}_{-1.41}$	$484^{+35}_{-26}$	$6143^{+3772}_{-1254}$	$16037^{+66572}_{-9962}$
Alt.	$-91 \pm 32$	$2.48^{+1.75}_{-1.30}$	$484^{+41}_{-27}$	$4381^{+1766}_{-722}$	$3561^{+13238}_{-2333}$

$T_{max}$  = 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

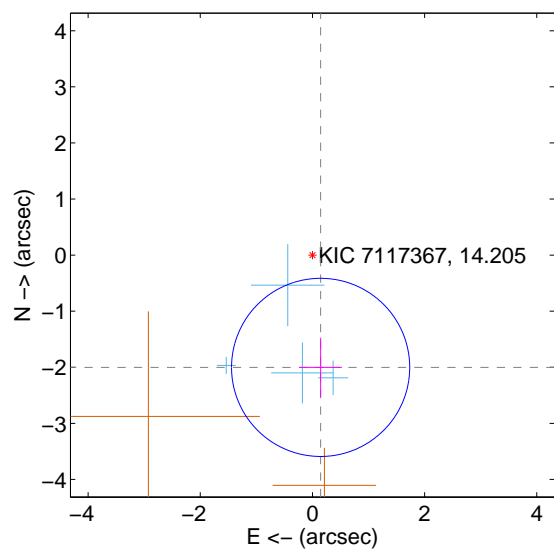
Supplemental centroid analysis for 007117367-08. Kepler magnitude: 14.21. Transit SNR 5.16

There are 4 quarters with good PRF difference image offsets

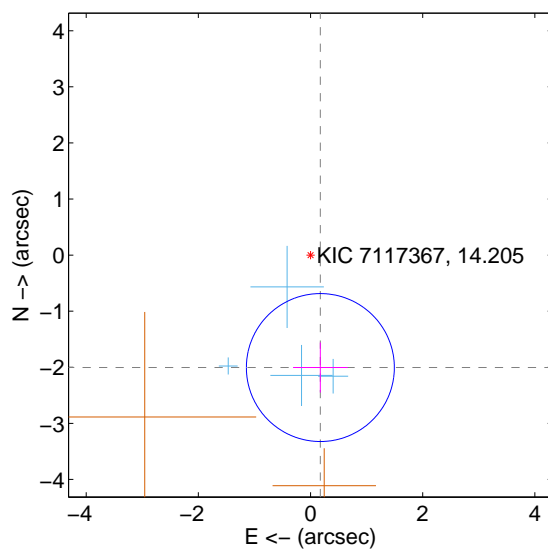
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.007 \pm 0.529$	$3.79$	$-0.146 \pm 0.381$	$-2.002 \pm 0.529$
PRF-fit source offset from KIC position	$2.012 \pm 0.440$	$4.58$	$-0.175 \pm 0.486$	$-2.005 \pm 0.445$
photometric centroid source offset	$0.92 \pm 0.67$	$1.37$	$-0.78 \pm 0.67$	$-0.50 \pm 0.68$

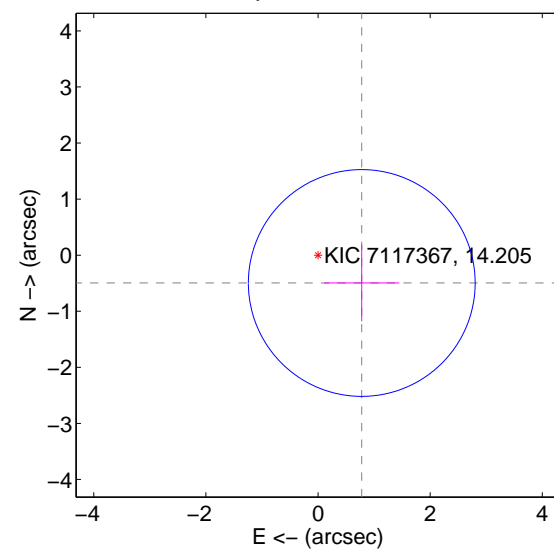
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



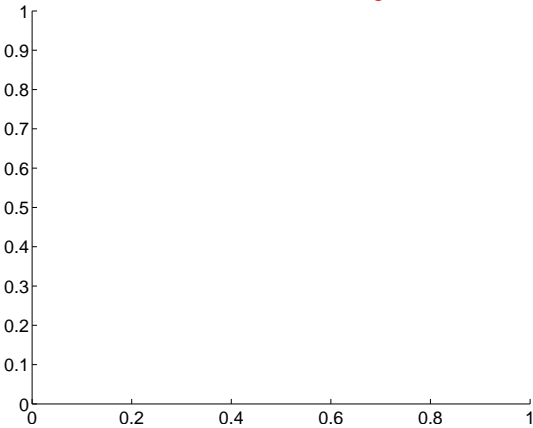
offset from photometric centroids



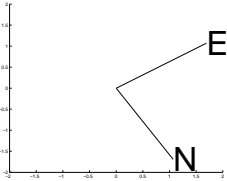
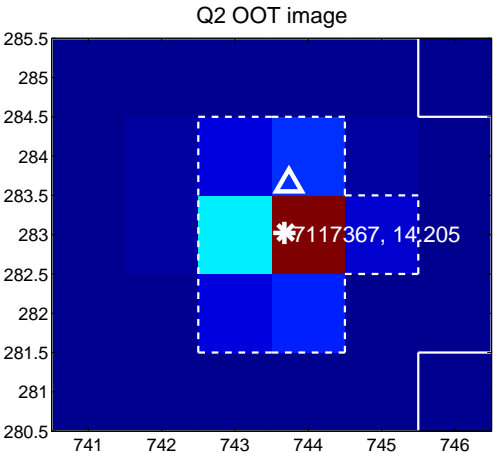
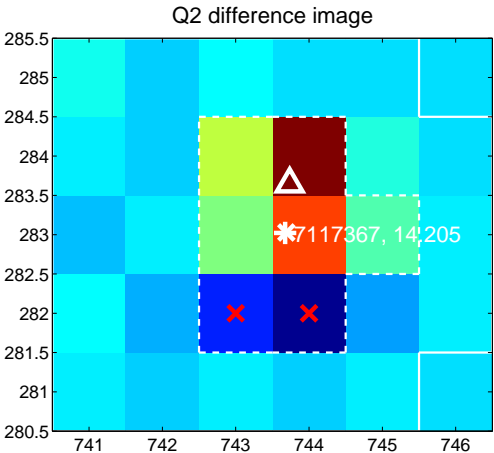
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

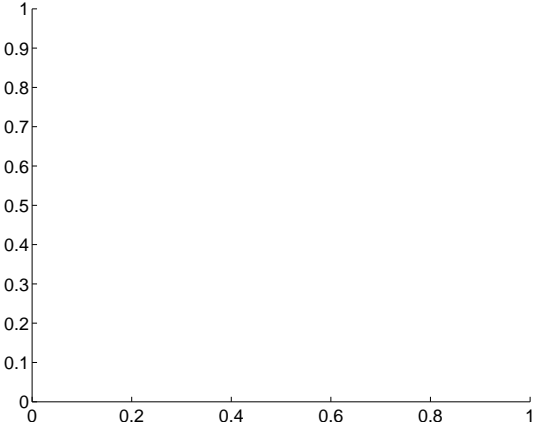
Q1 no difference image



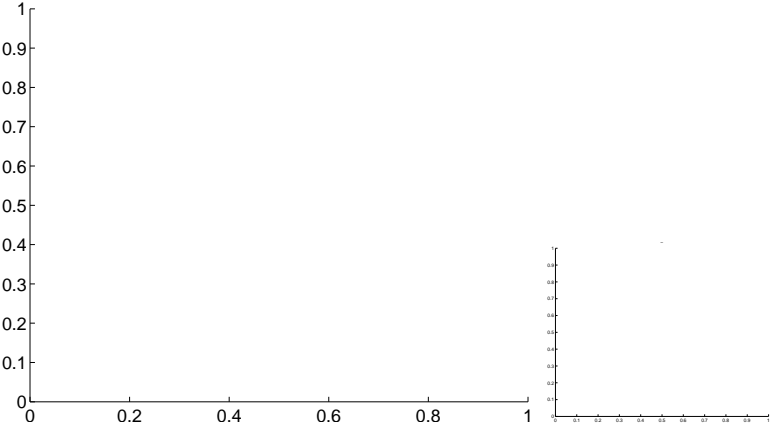
Q1 no OOT image



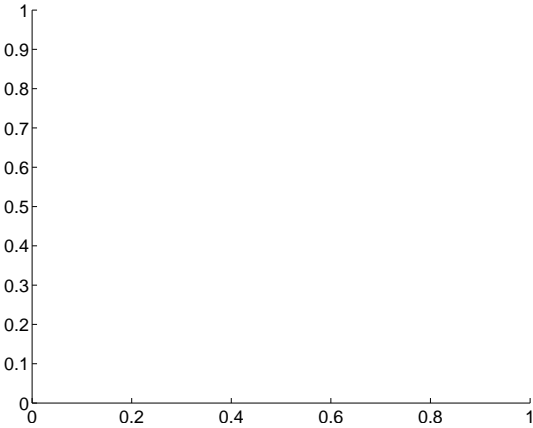
Q3 no difference image



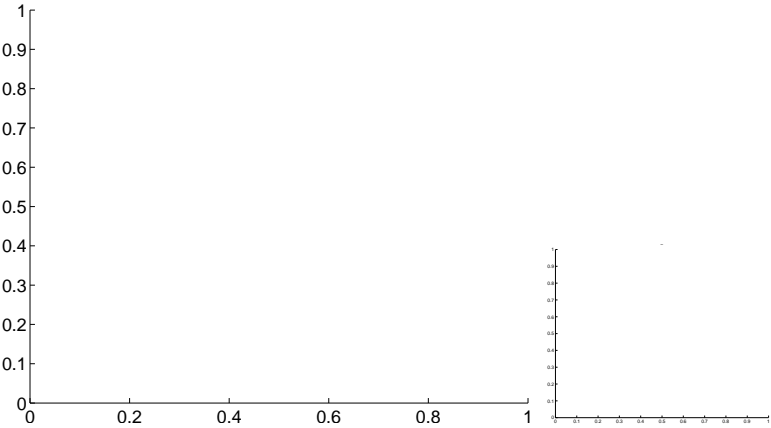
Q3 no OOT image



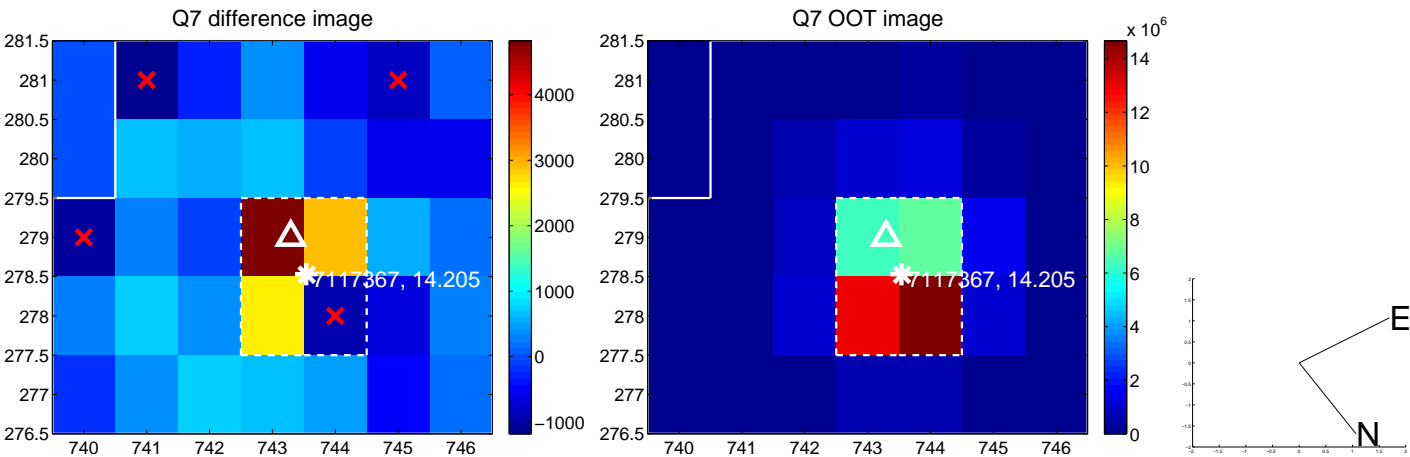
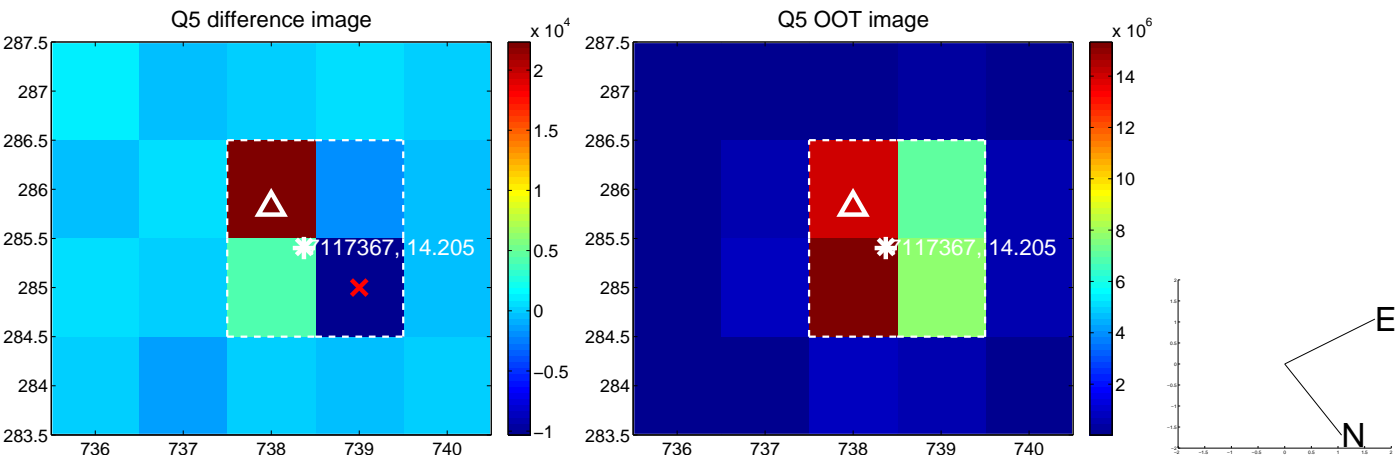
Q4 no difference image



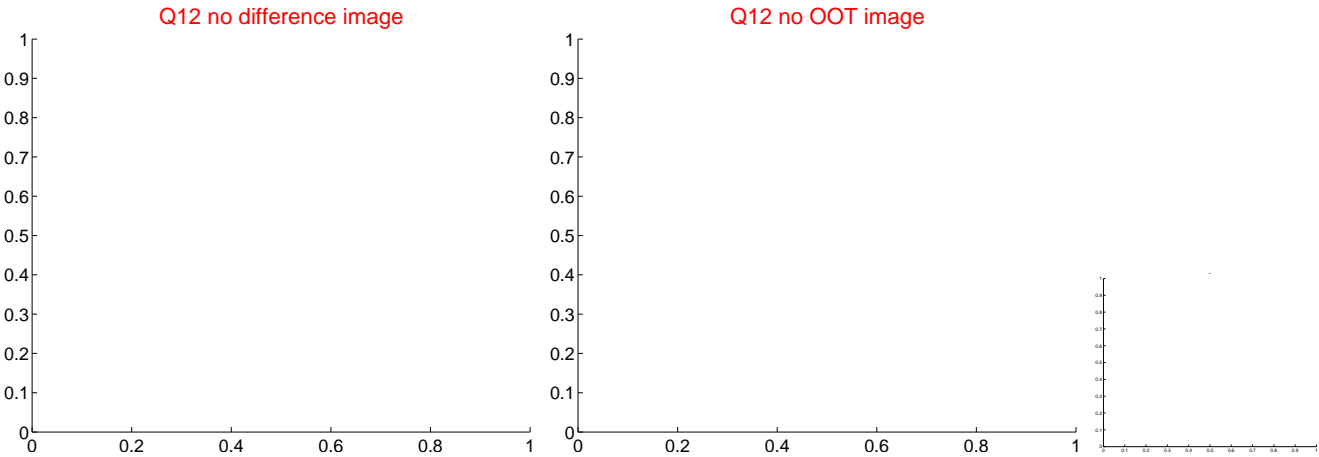
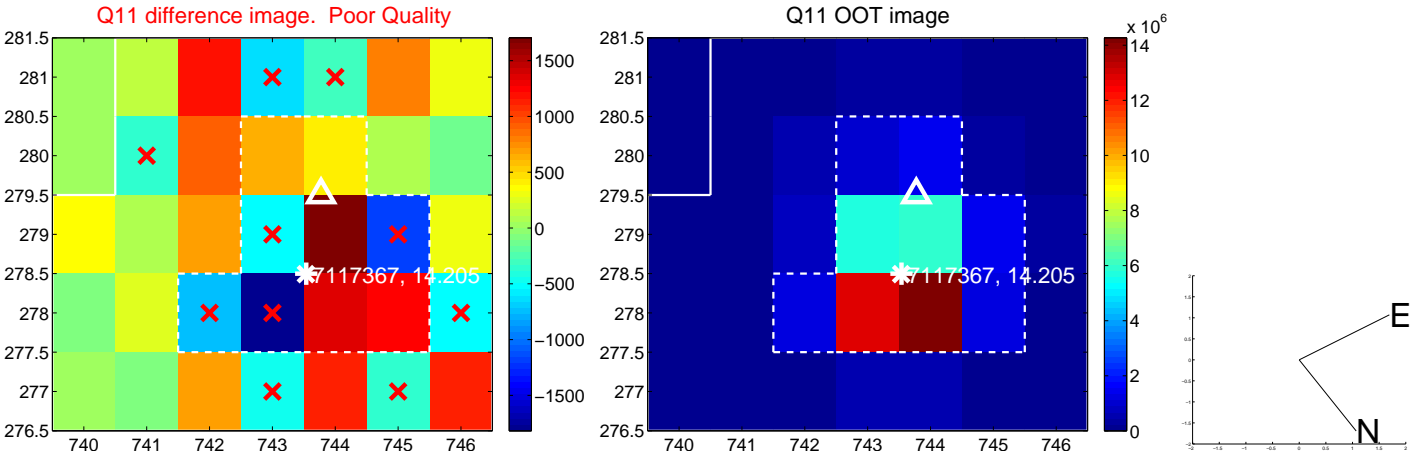
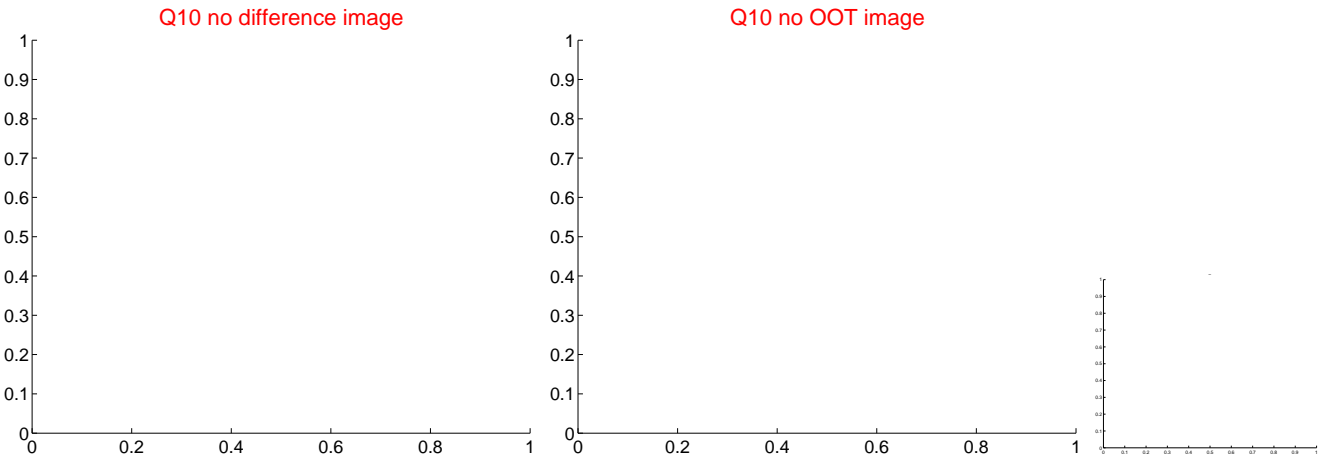
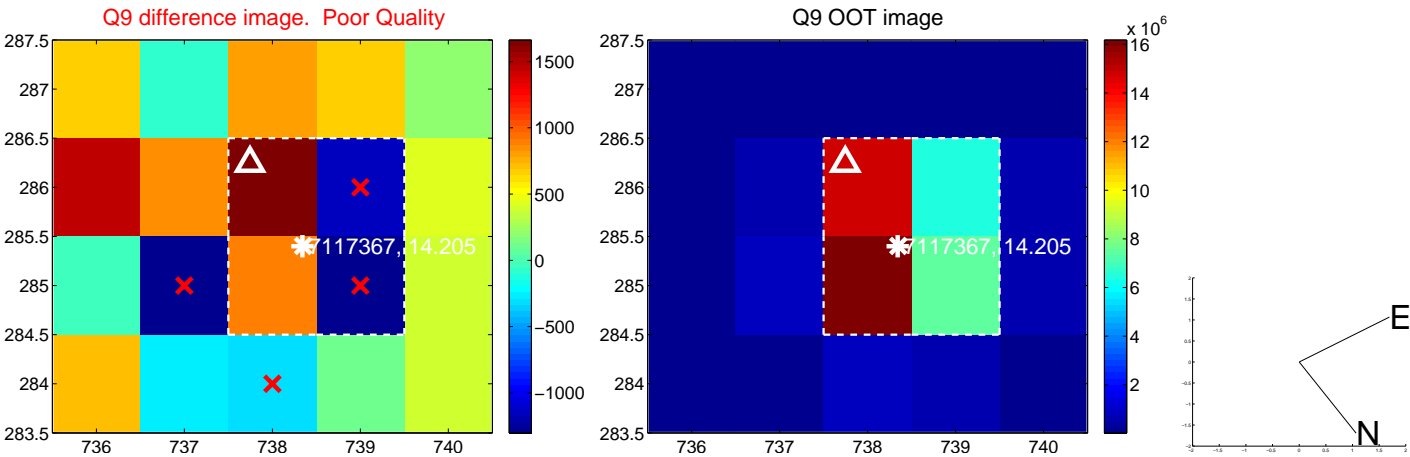
Q4 no OOT image



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

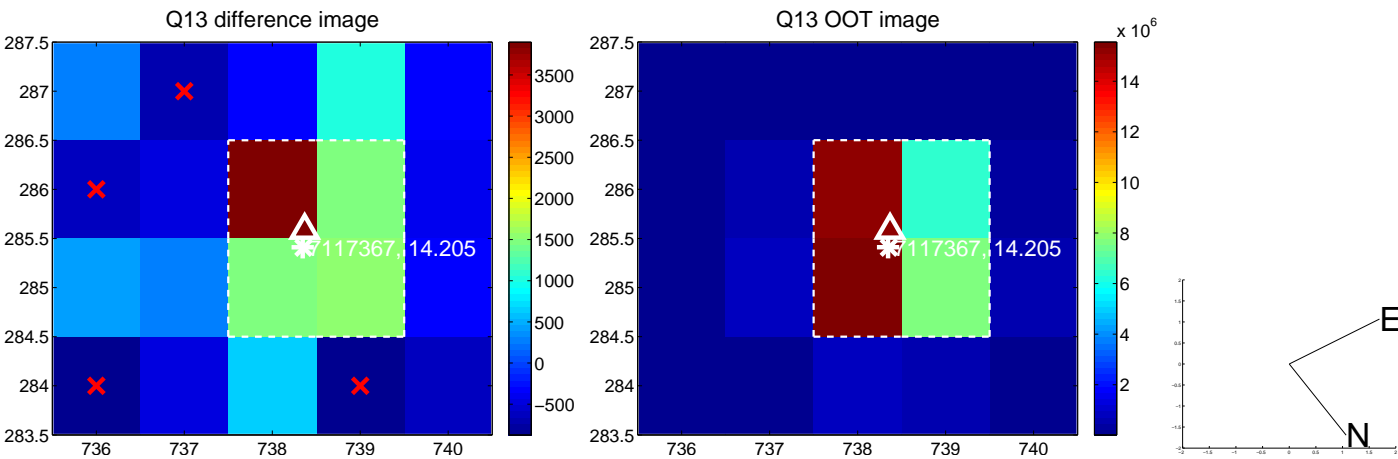


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

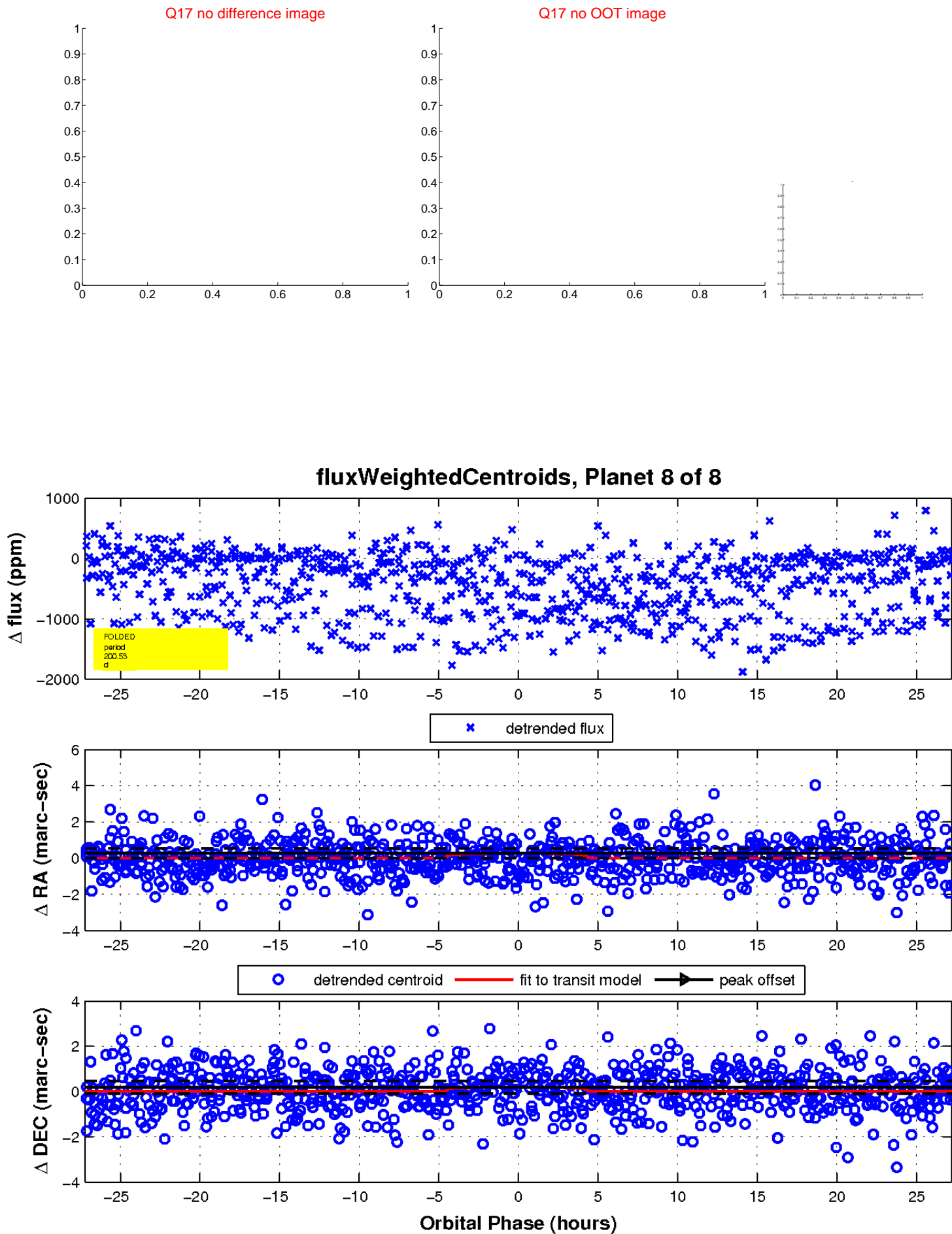




white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



UKIRT Image

Declination

