

# KIC 007117457

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007117457-01	OBS	No	0.566707	131.956373	0.0	3.387	8.4	0.0	0.84	5530	0.00	3418.91
007117457-02	OBS	No	133.122859	197.330243	691.1	6.523	8.1	7.6	0.84	5530	2.61	2.36

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007117457-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007117457-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

**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.

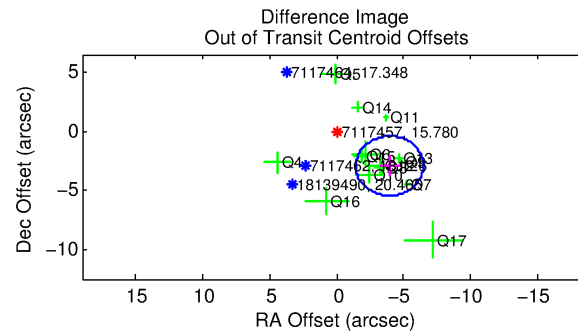
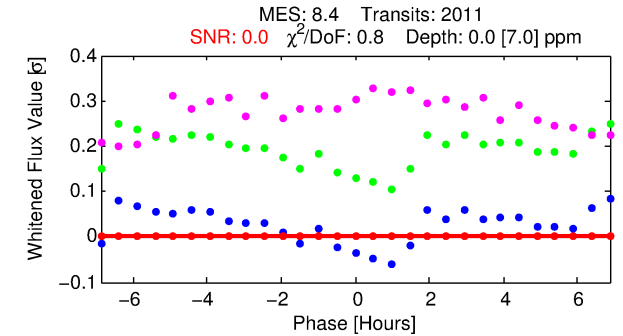
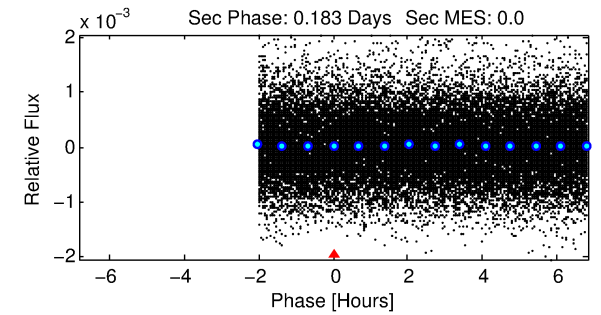
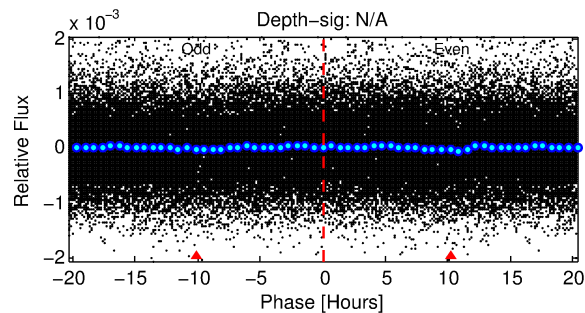
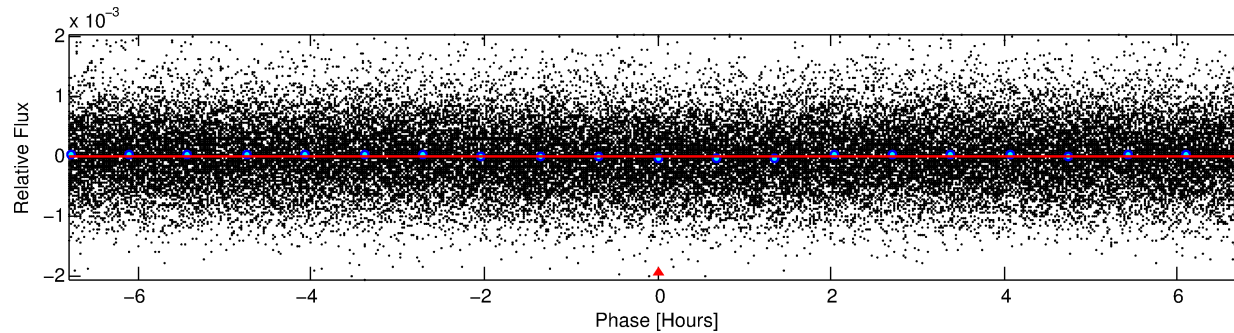
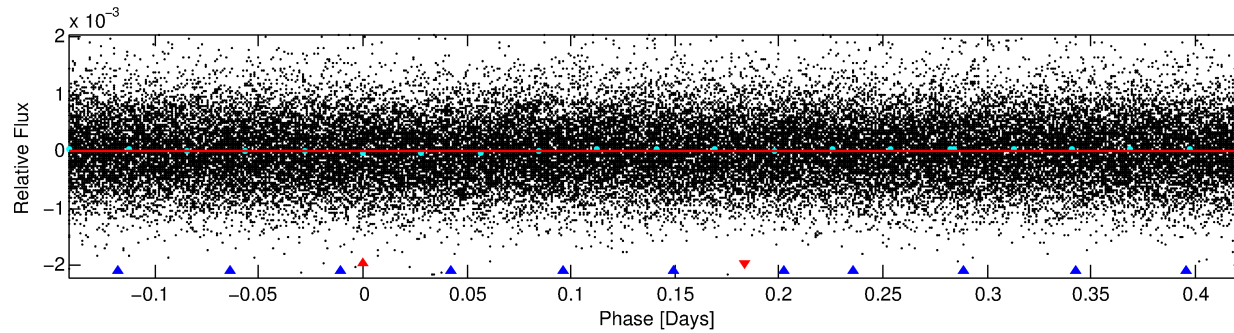
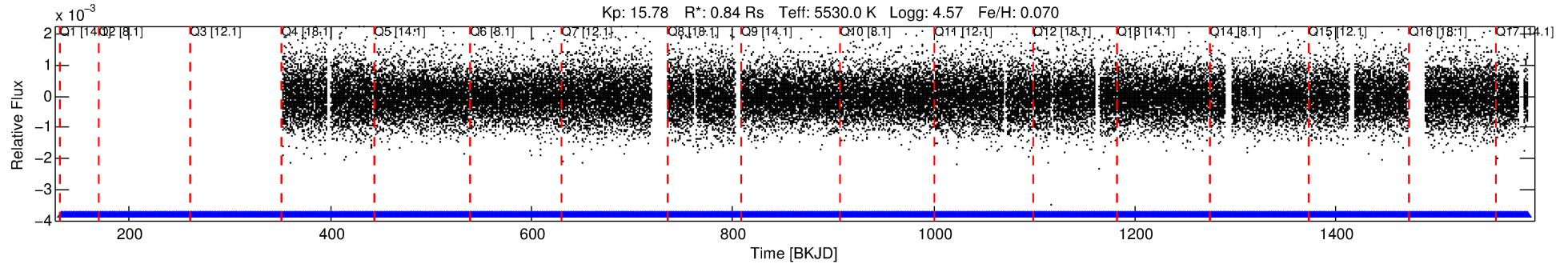
## Ephemeris Match Information For 007117457-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007117457-01	7117457	RR-Lyr-pri	7198959	1:1	1069.3	248	103	7.86	15.78	623300.00	Direct-PRF	0	2.14	7.30

**Notes:**  $P_1:P_2$  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.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  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: 7117457 Candidate: 1 of 2 Period: 0.567 d



## DV Fit Results:

Period = 0.56671 [0.38360] d  
Epoch = 131.9564 [169.7652] BKJD  
Rp/R\* = 0.0000 [0.0856]  
a/R\* = 1.39 [716.98]  
b = 0.30 [3334.32]  
Seff = 3418.91 [3275.18]  
Teq = 1950 [467] K  
Rp = 0.00 [7.89] Re  
a = 0.0132 [0.0065] AU  
Ag = N/A  
Teffp = N/A

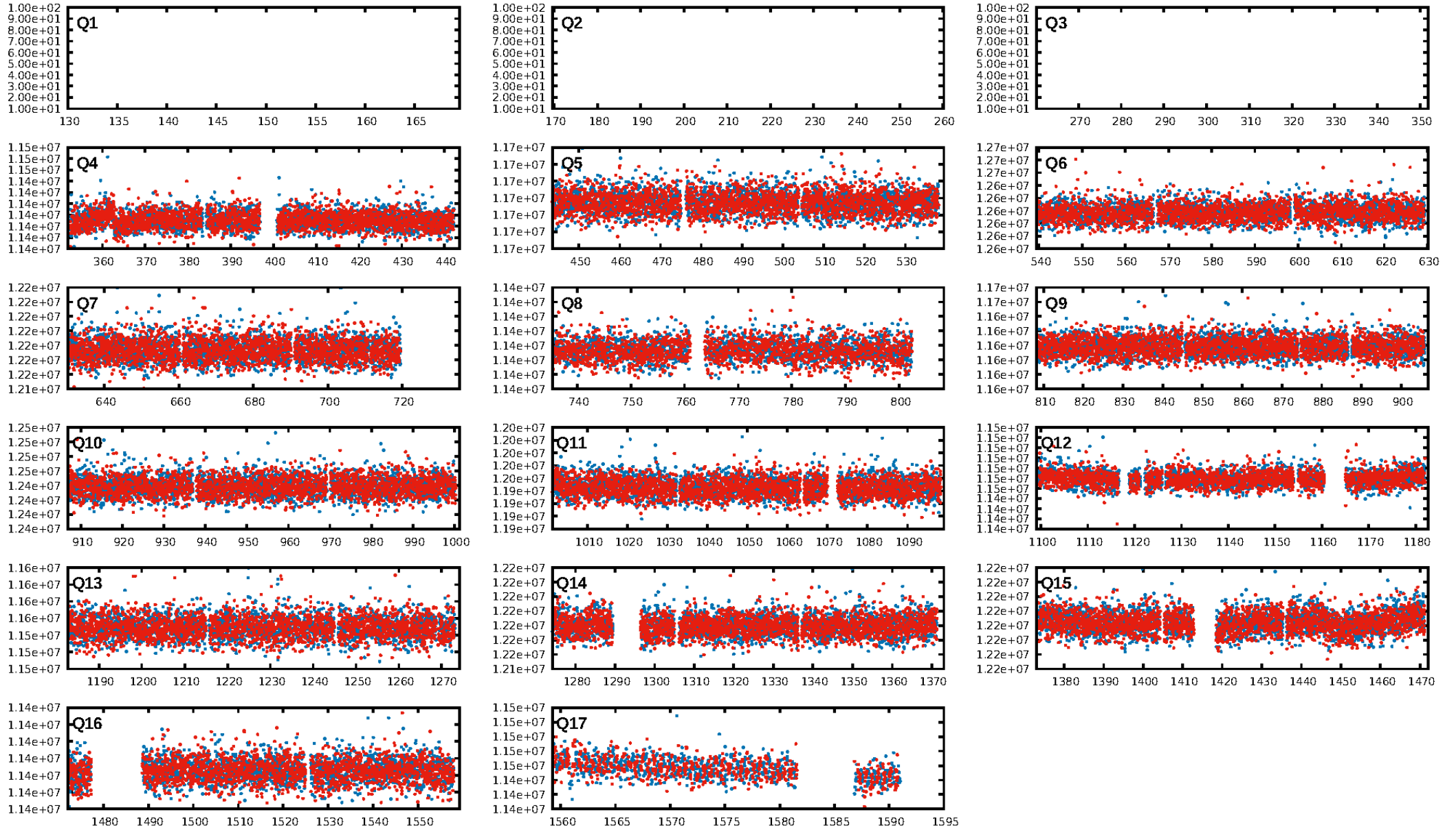
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [432.83σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.81e-15  
RollingBand-fgt: 1.00 [1964/1964]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 4.922 arcsec [5.86σ]  
KicOffset-rm: 4.366 arcsec [4.77σ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.07 [1/14]  
DiffImageOverlap-fno: 1.00 [14/14]

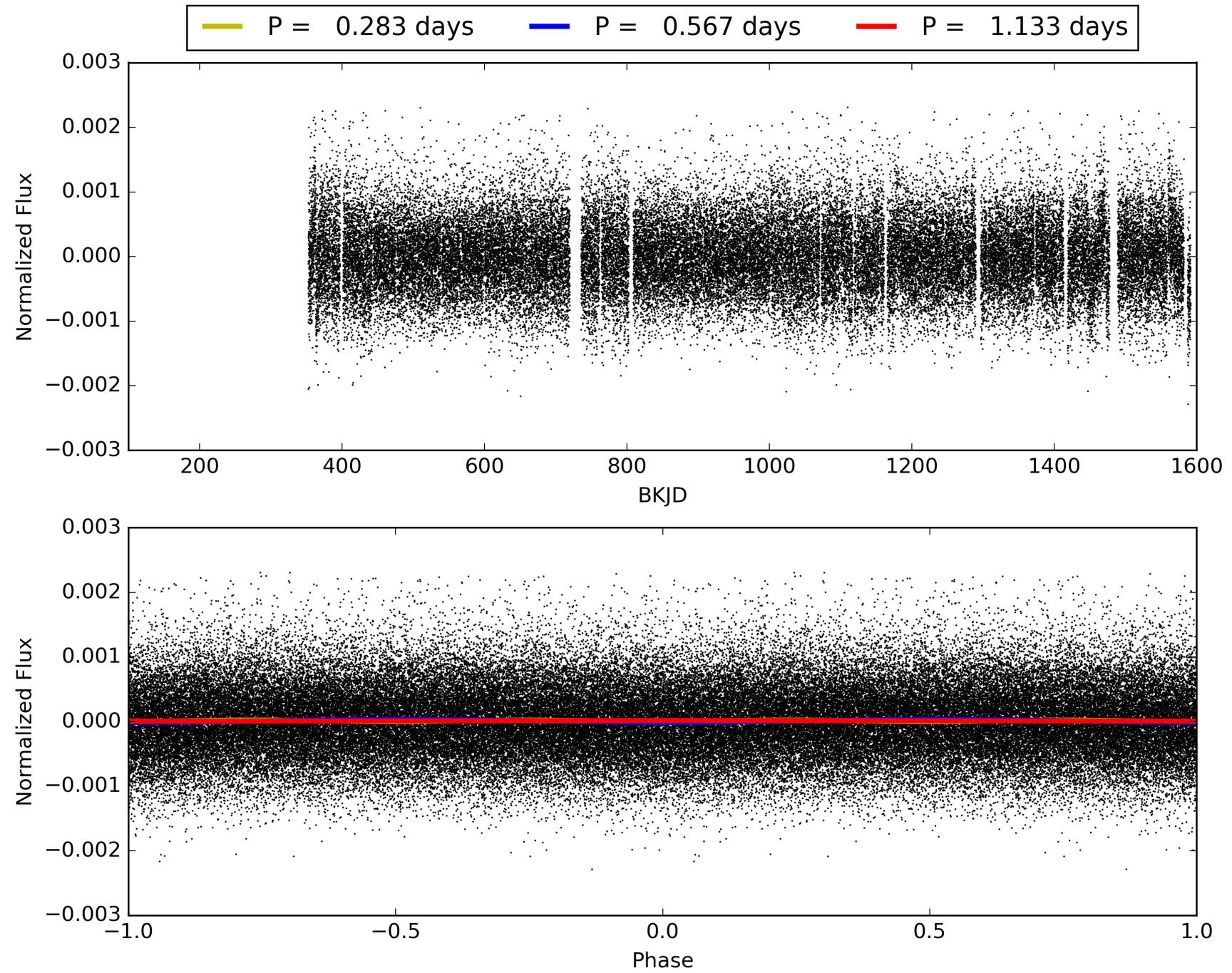
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:52:17 Z

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

# TCE 007117457-01, PDC Light Curves



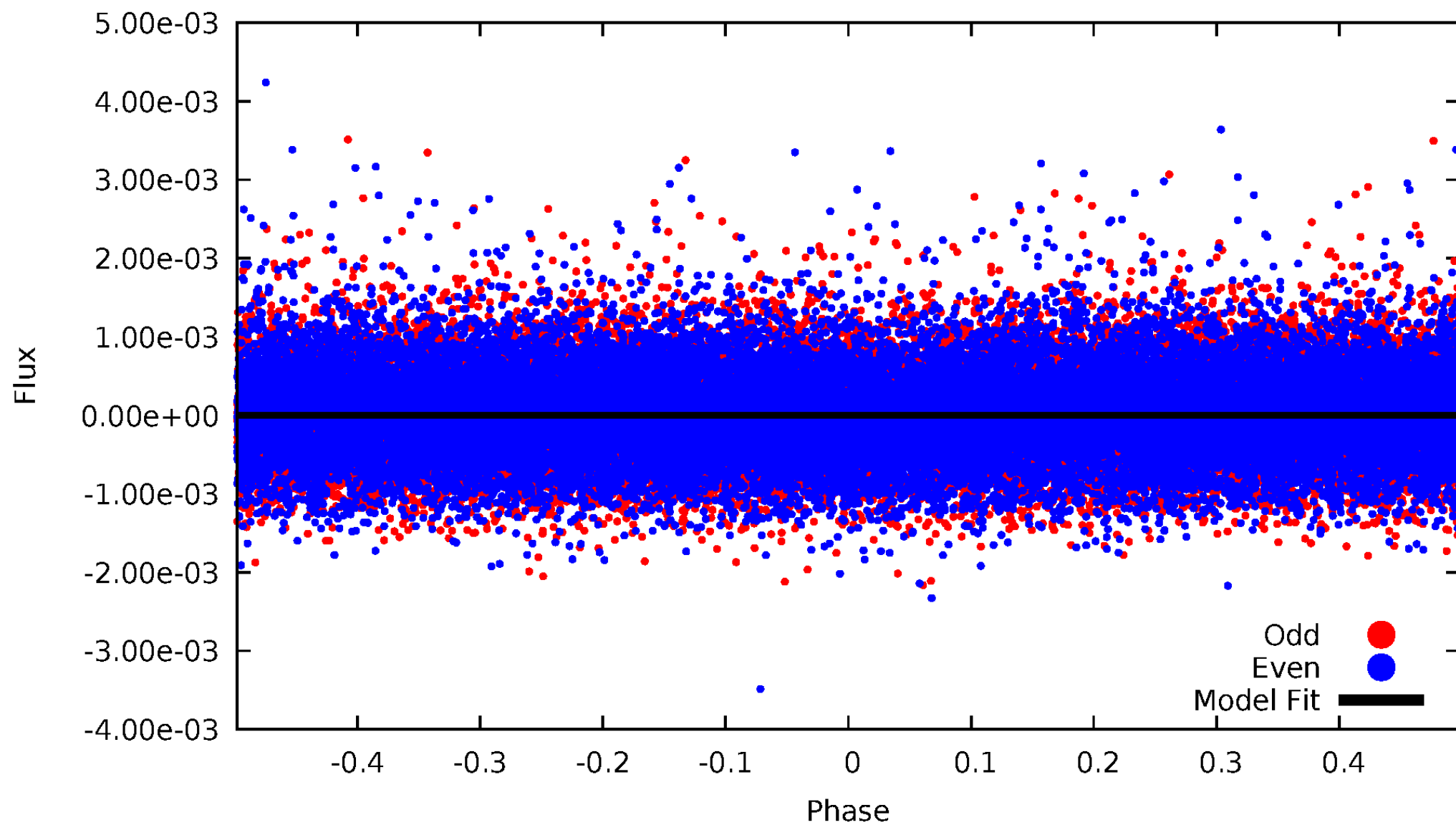
TCE 007117457-01





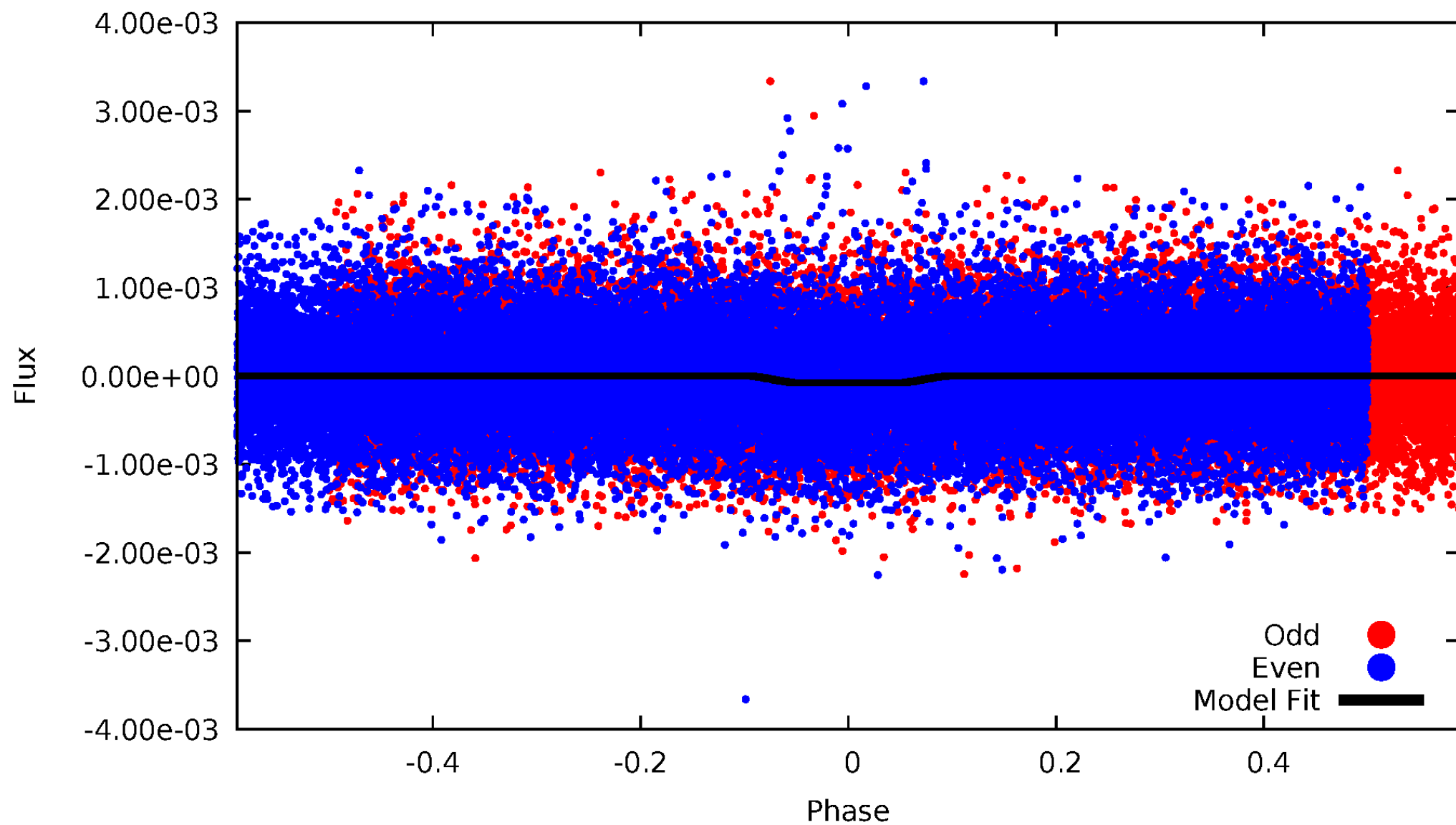
# DV Odd/Even

TCE 007117457-01

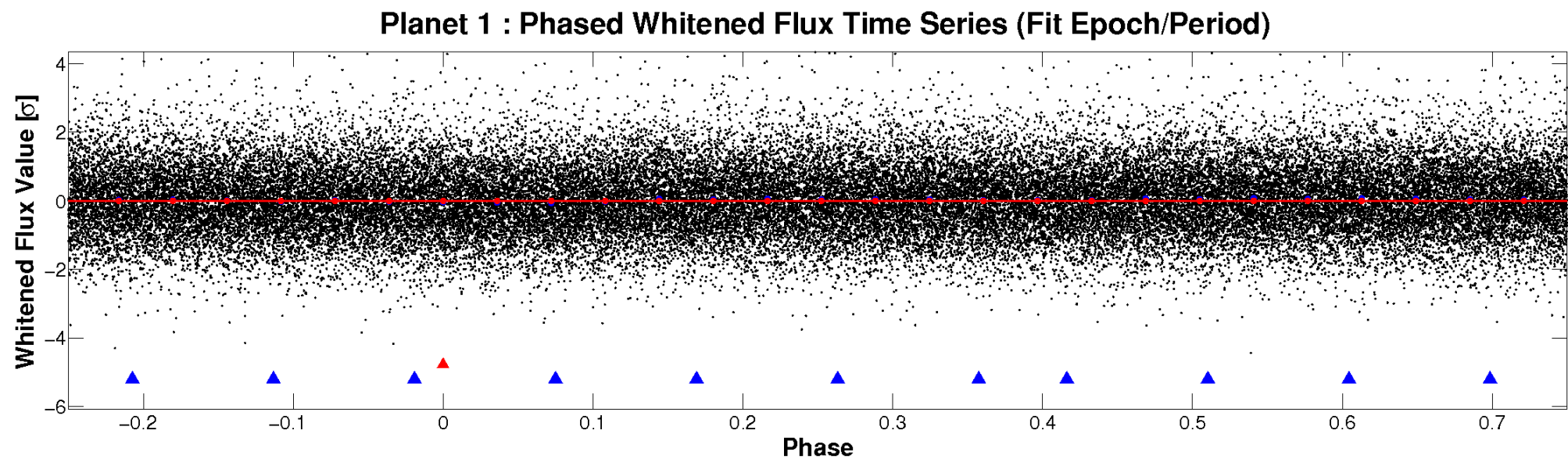
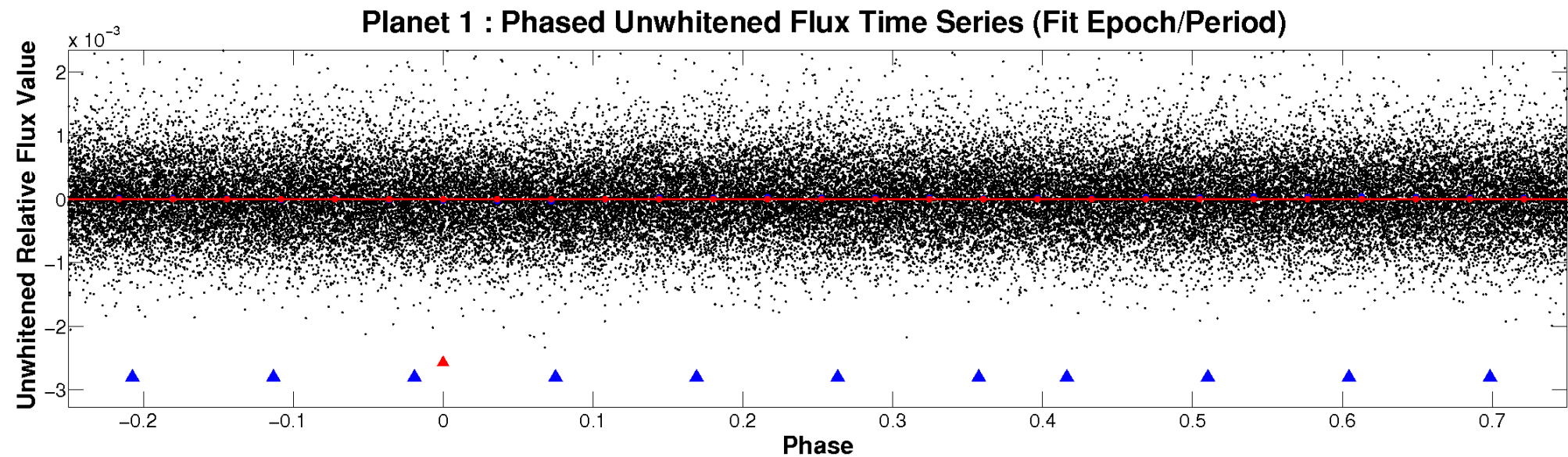


# ALT Odd/Even

TCE 007117457-01

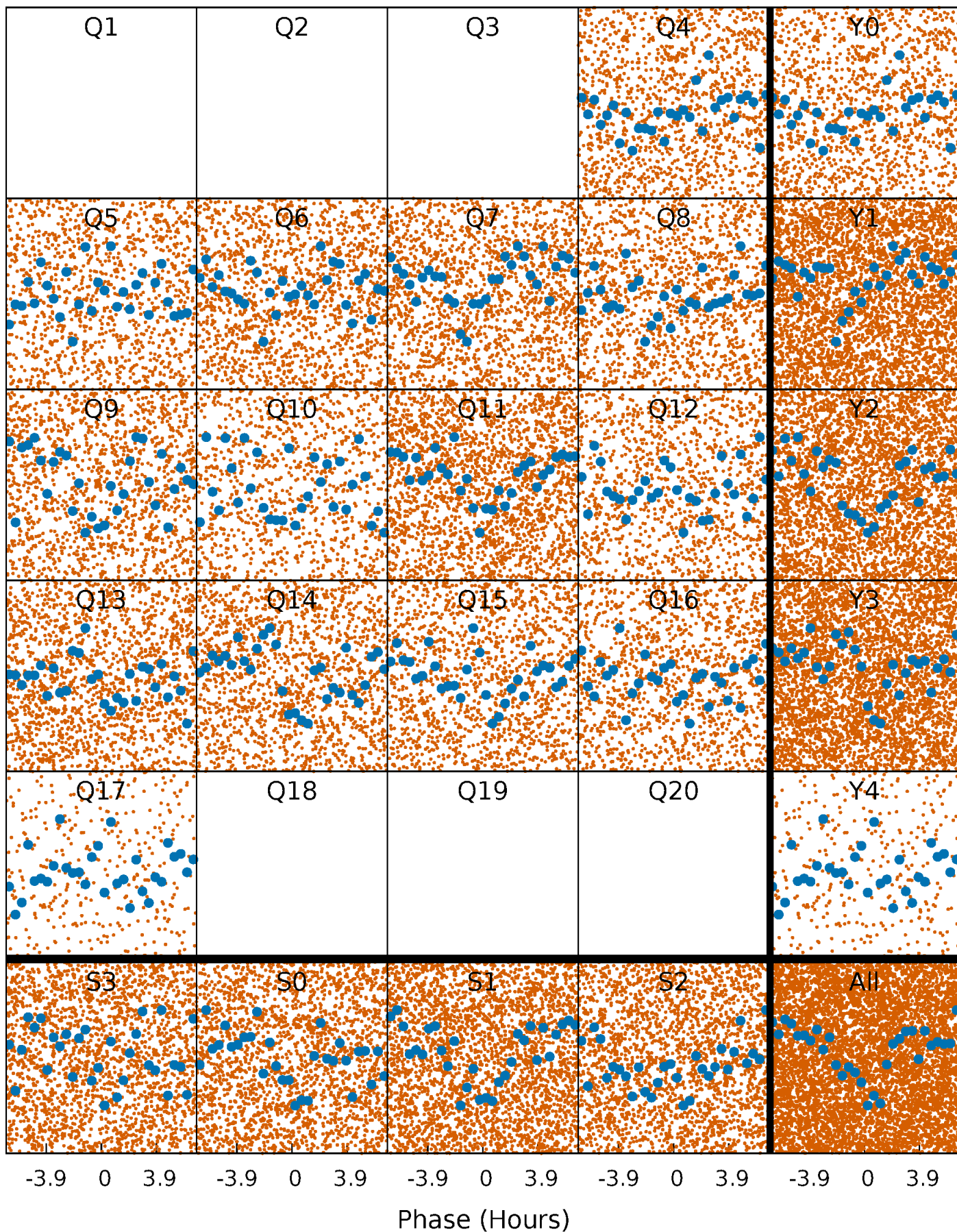


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

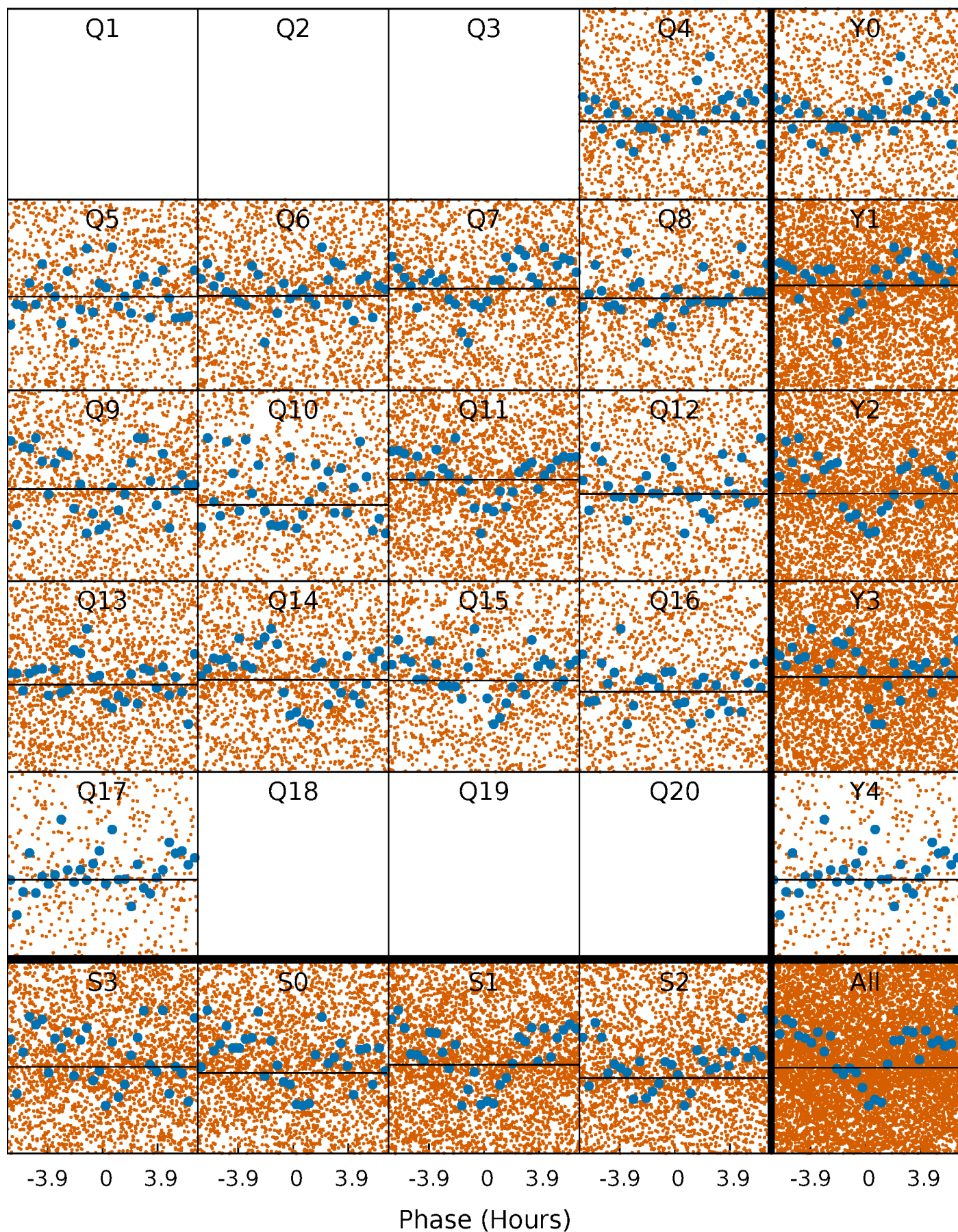
TCE 007117457-01 P= 0.566707 Days  $T_0=131.956373$  (BKJD)





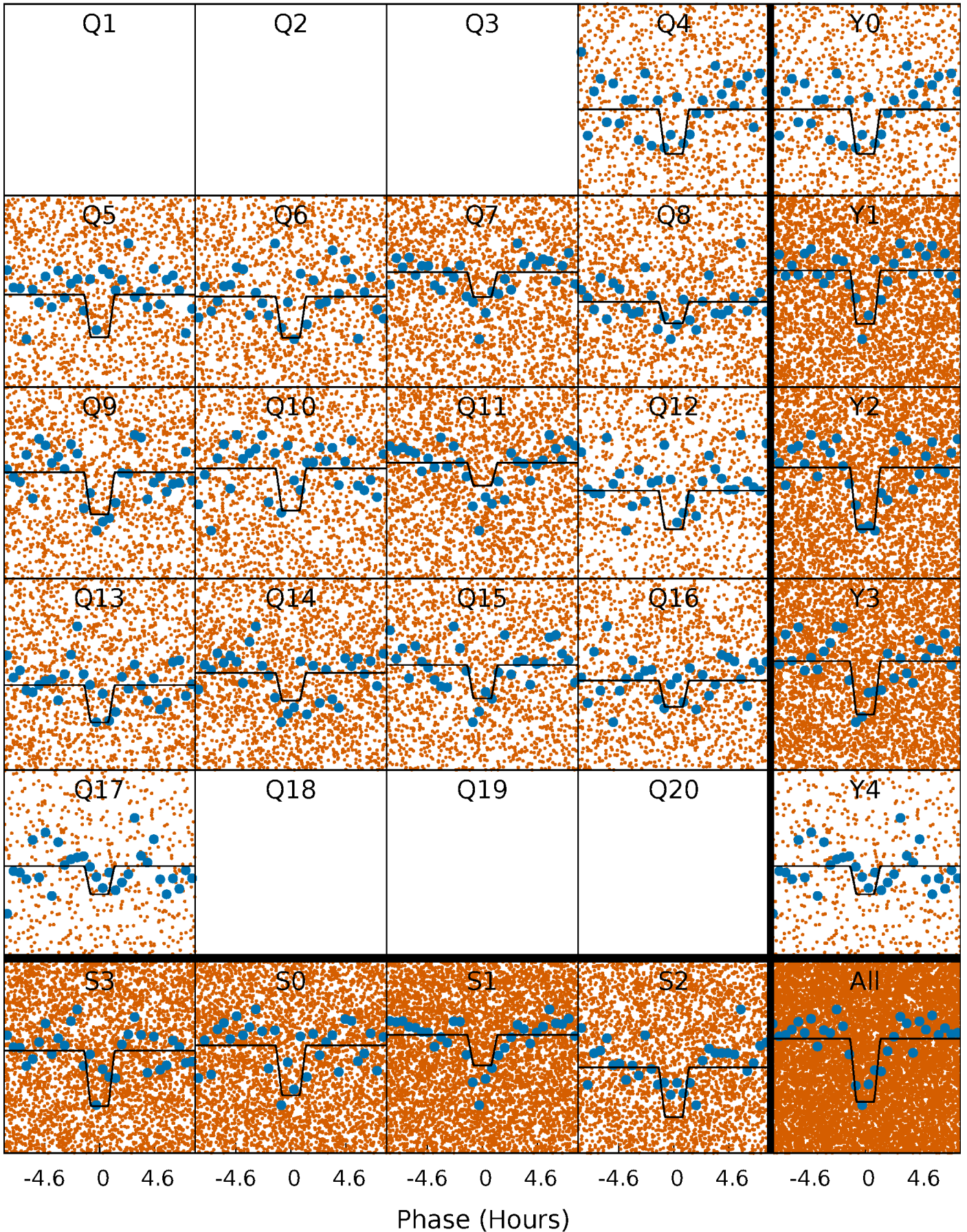
# DV Quarter-Phased Transit Curves

TCE 007117457-01 P= 0.566707 Days  $T_0=131.956373$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007117457-01 P= 0.566788 Days  $T_0=131.831064$  (BKJD)

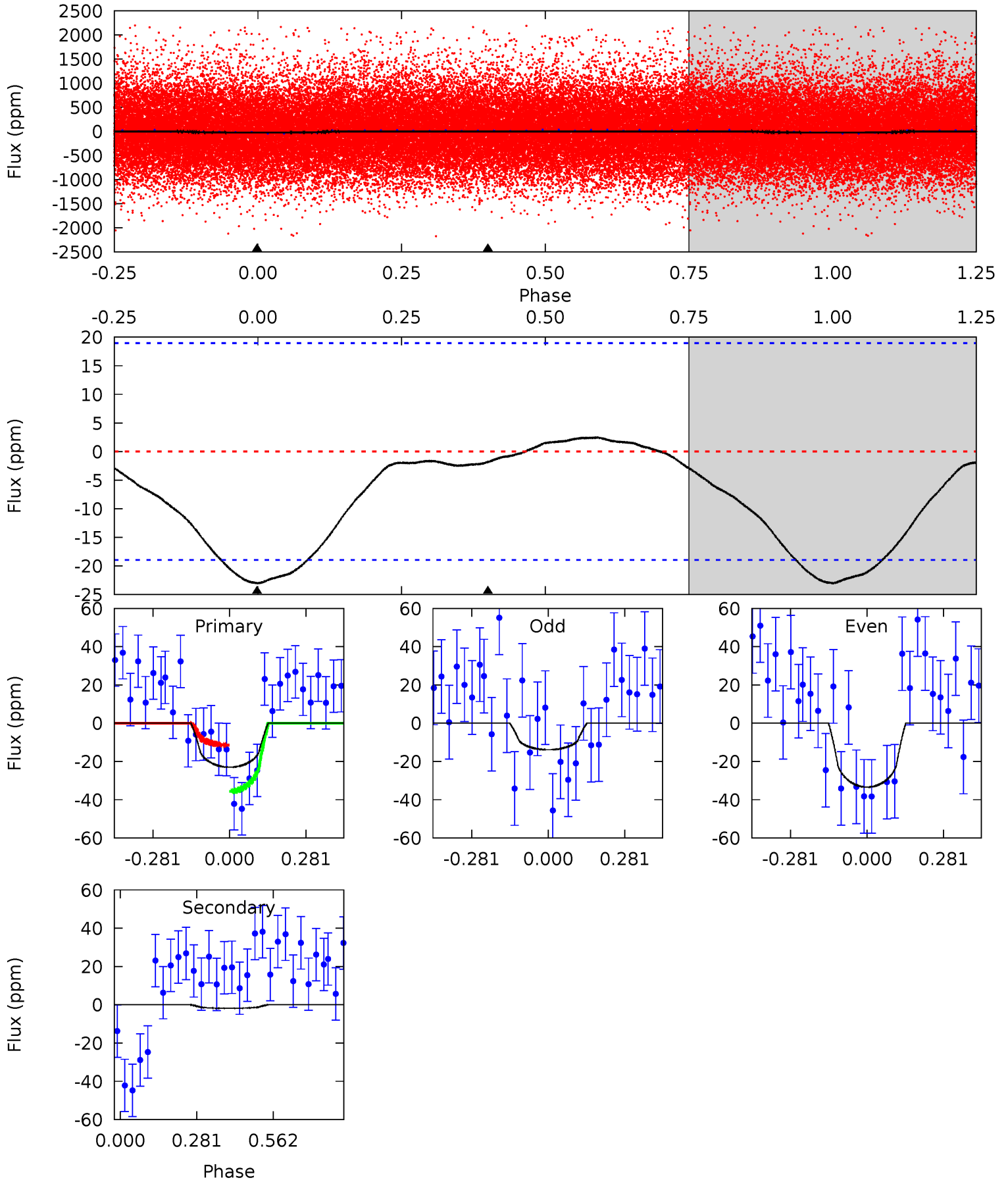




# DV Model-Shift Uniqueness Test

007117457-01, P = 0.566707 Days, E = 131.956373 Days

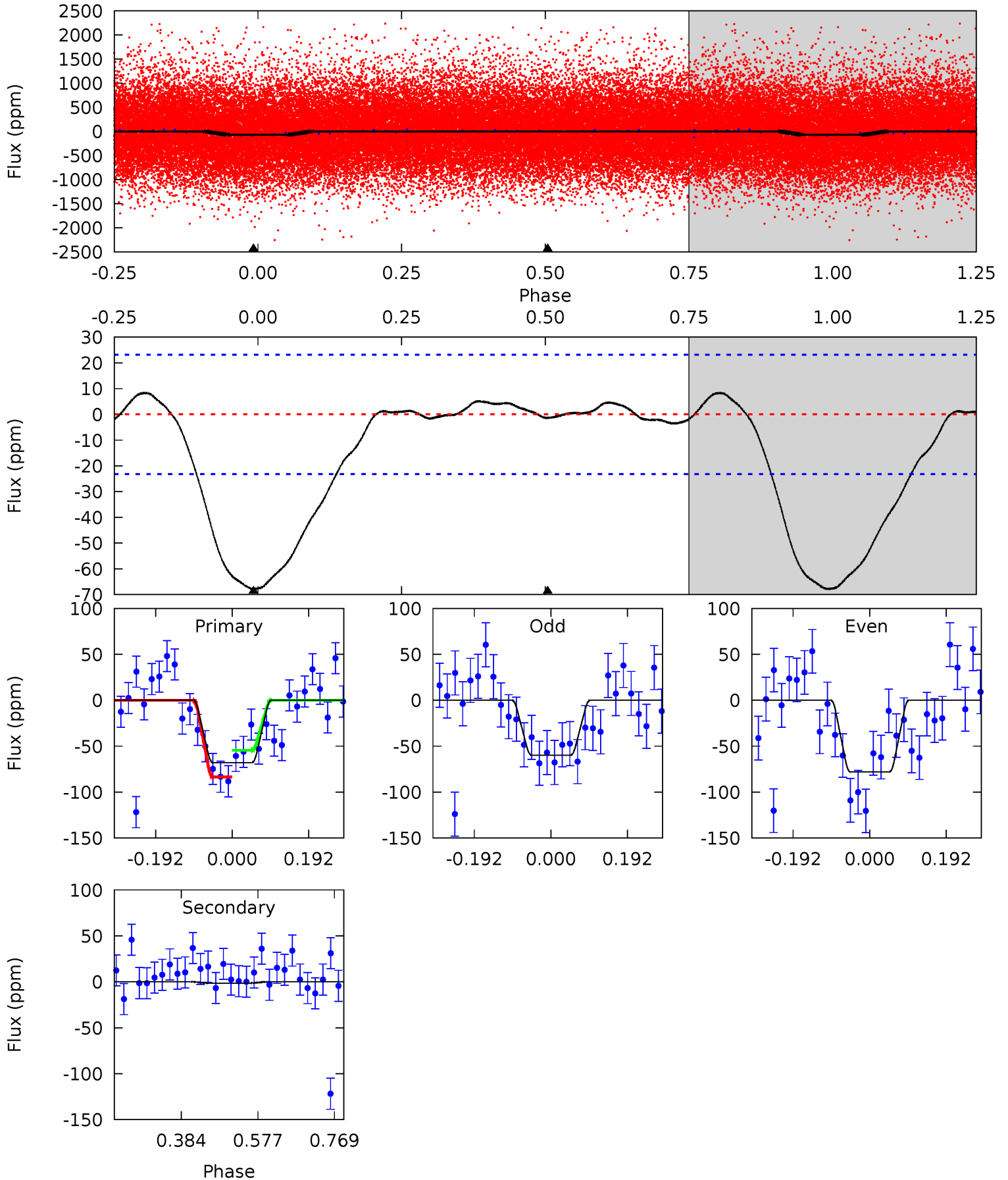
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.27	0.42	0	0	4.34	1.08	0.28	5.27	5.27	0.42	0.42	2.23	0.74	0.10	2.73



# Alt Model-Shift Uniqueness Test

007117457-01, P = 0.566788 Days, E = 131.831064 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	0.27	0	0	4.43	1.30	0.58	12.9	12.9	0.27	0.27	1.75	0.89	0.11	2.78





### Stellar Parameters For KIC 007117457

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5530^{+173}_{-192}$	$4.567^{+0.029}_{-0.162}$	$0.070^{+0.250}_{-0.300}$	$0.845^{+0.188}_{-0.075}$	$0.961^{+0.075}_{-0.112}$	$2.244^{+0.350}_{-0.936}$
	+3%/-3%	+1%/-4%	+357%/-429%	+22%/-9%	+8%/-12%	+16%/-42%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 007117457-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2 \pm 4$	$5.91^{+6.00}_{-4.19}$	$2762^{+955}_{-430}$	$-2931^{+332}_{-615}$	$0.003^{+0.047}_{-0.008}$
Alt.	$-1 \pm 5$	$5.92^{+6.76}_{-4.23}$	$2786^{+970}_{-443}$	$-2938^{+350}_{-646}$	$0.002^{+0.053}_{-0.010}$

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

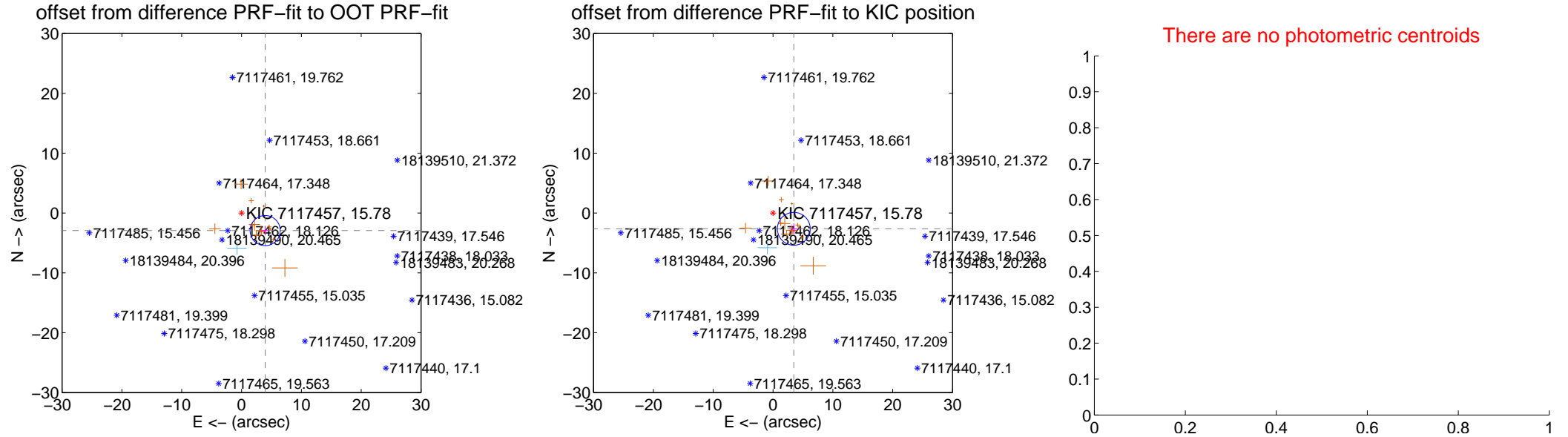
## DV Centroid Data

Supplemental centroid analysis for 007117457-01. Kepler magnitude: 15.78. Transit SNR 0.00

There are 1 quarters with good PRF difference image offsets

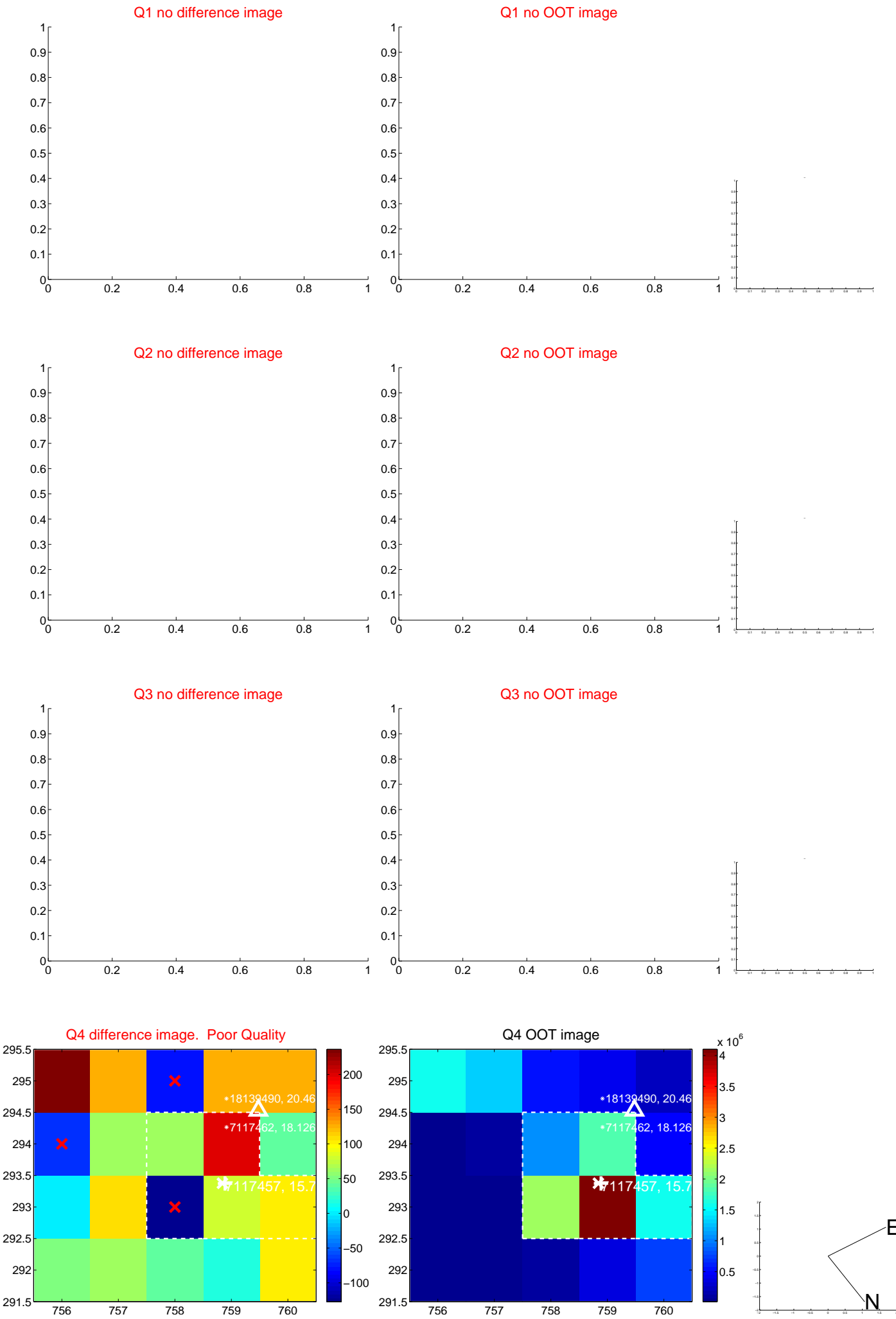
The direct PRF centroid is offset from the target star catalog position by about 0.64 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	4.922 $\pm$ 0.839	5.86	-3.950 $\pm$ 0.688	-2.937 $\pm$ 0.785
PRF-fit source offset from KIC position	4.366 $\pm$ 0.914	4.77	-3.477 $\pm$ 0.749	-2.640 $\pm$ 0.882
photometric centroid source offset	—	—	—	—

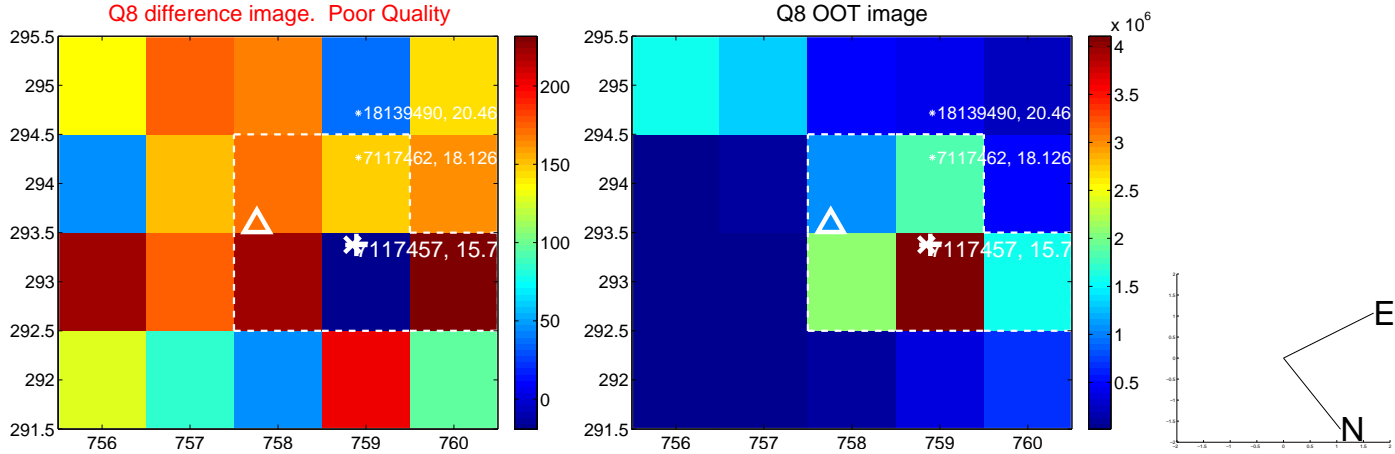
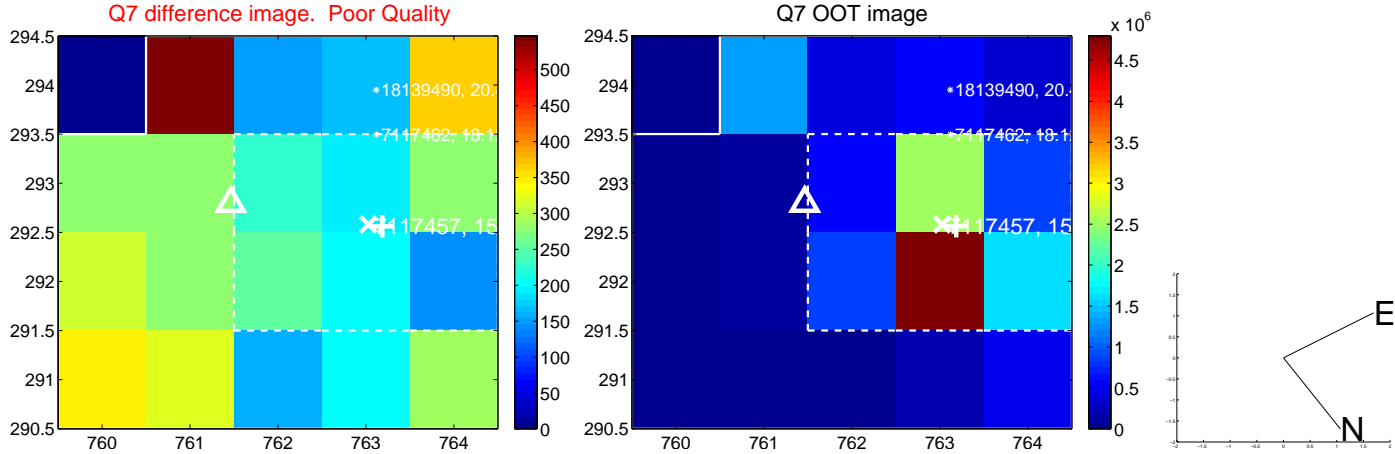
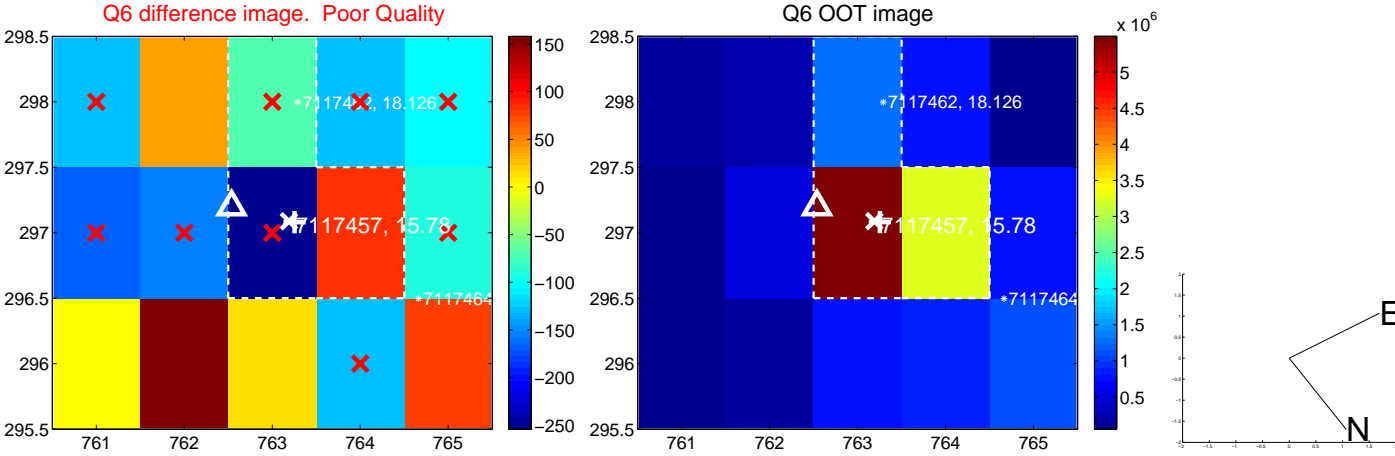
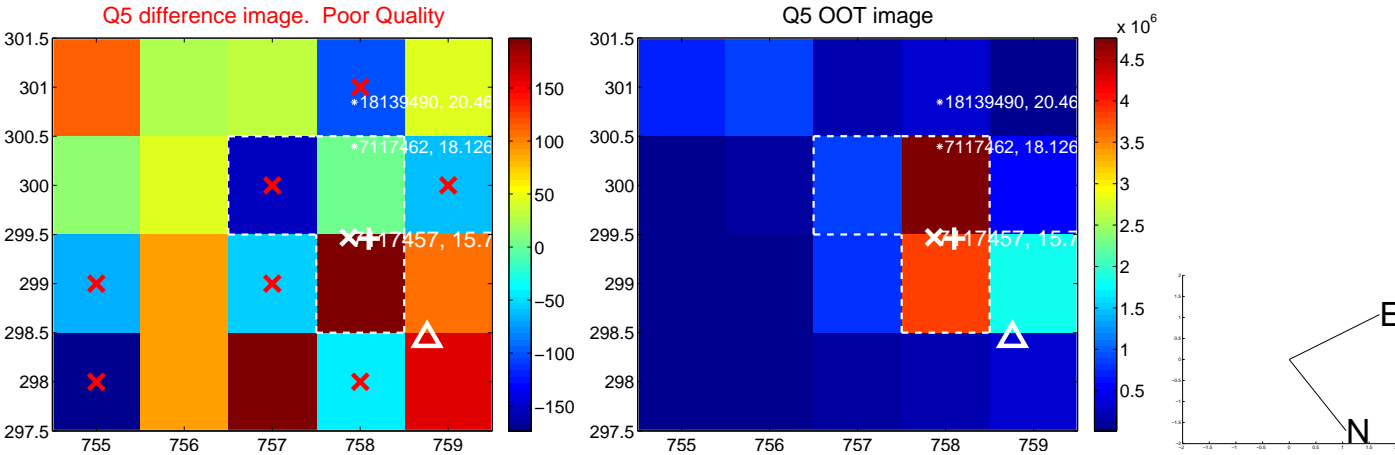


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

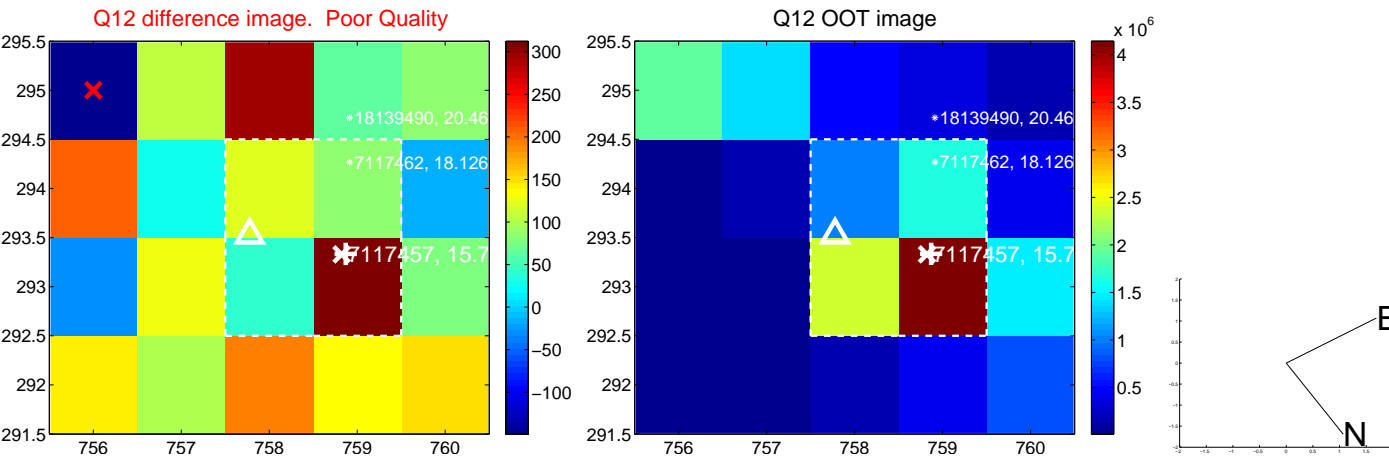
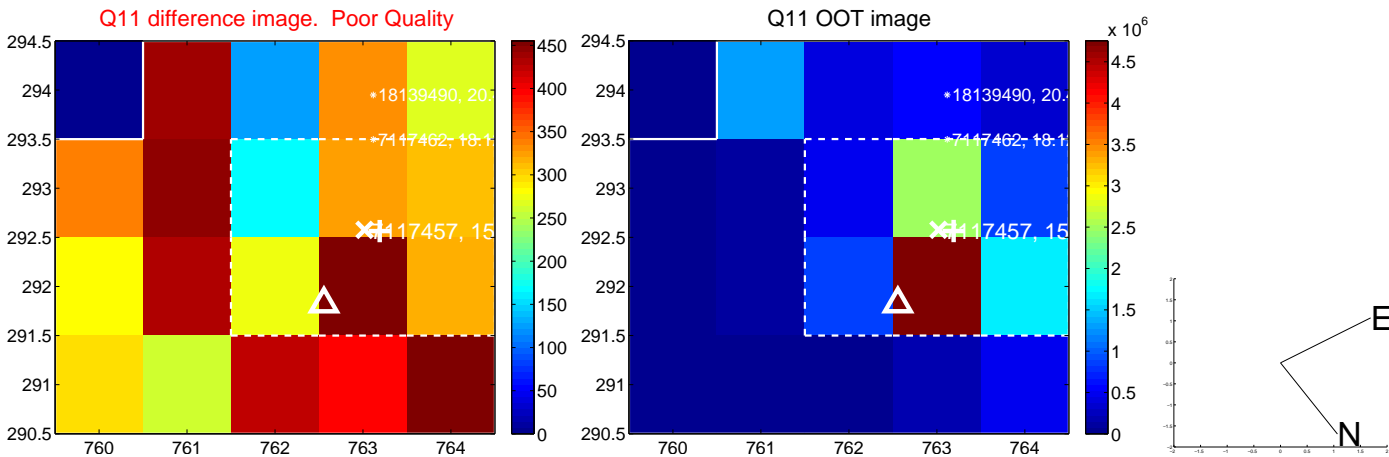
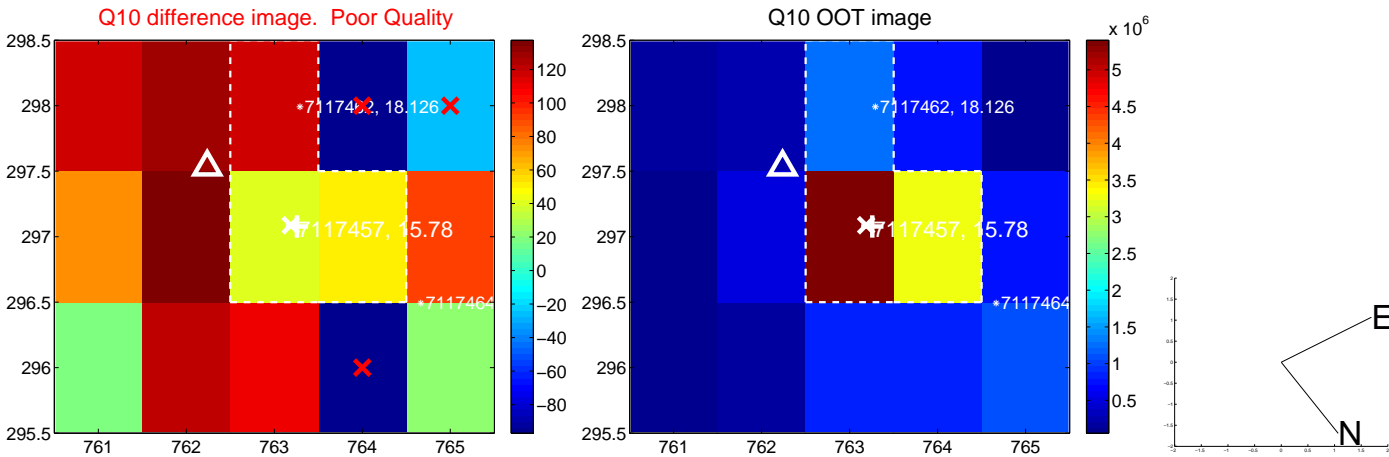
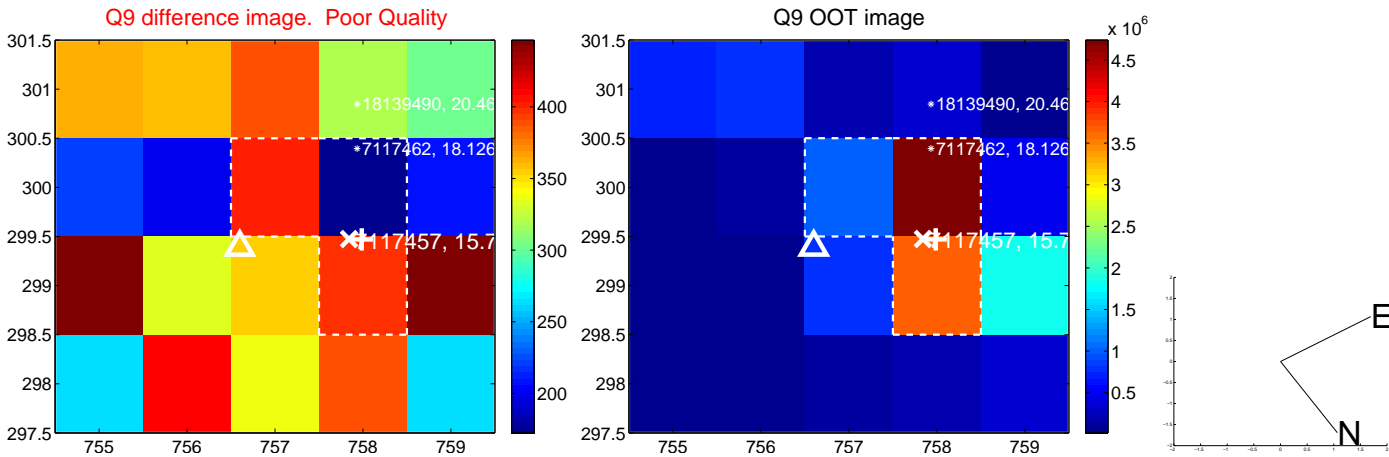


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

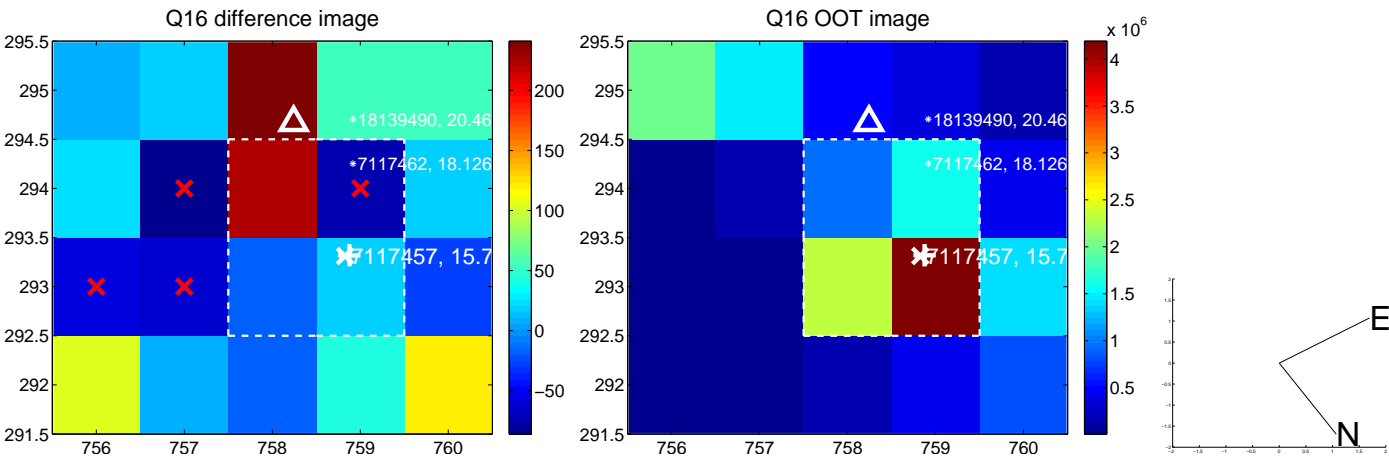
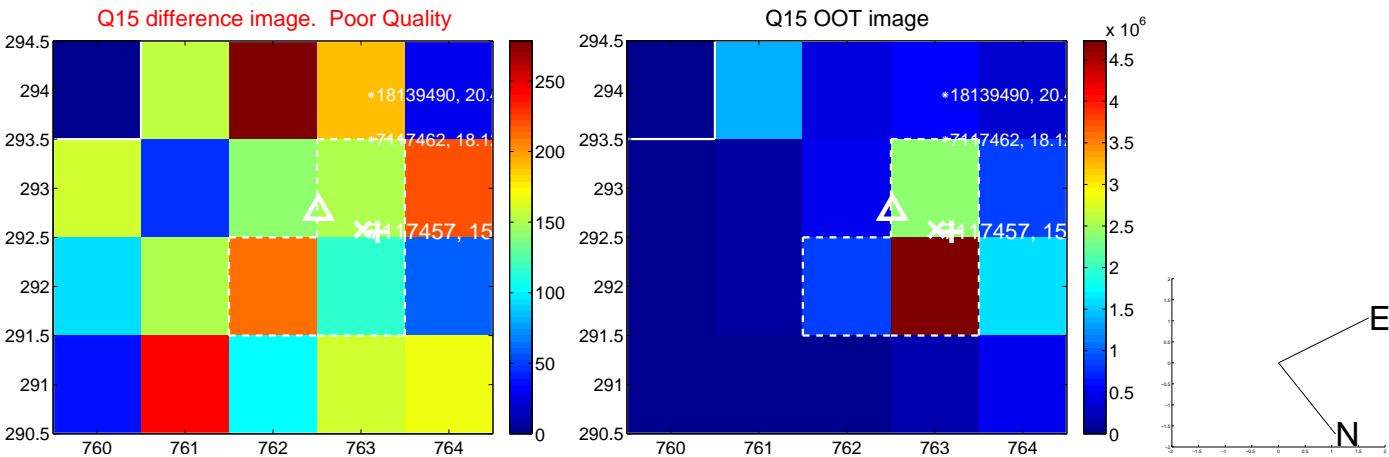
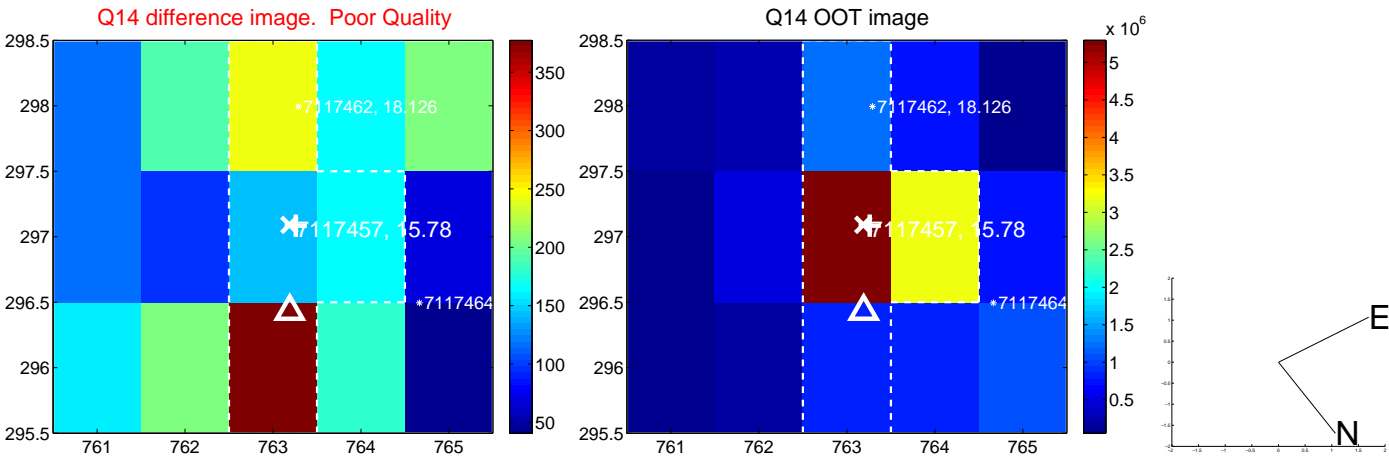
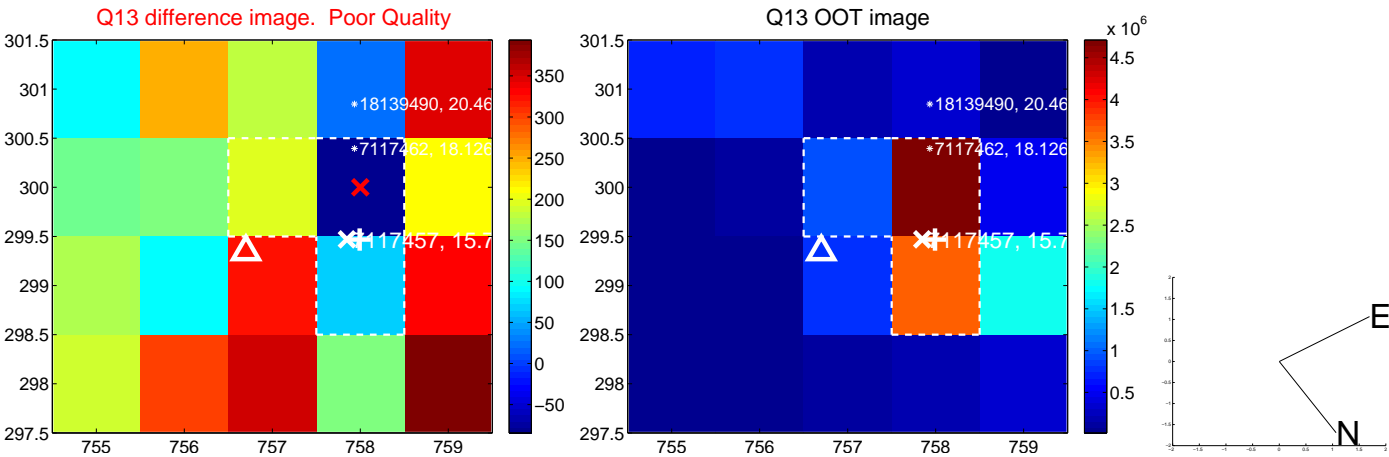




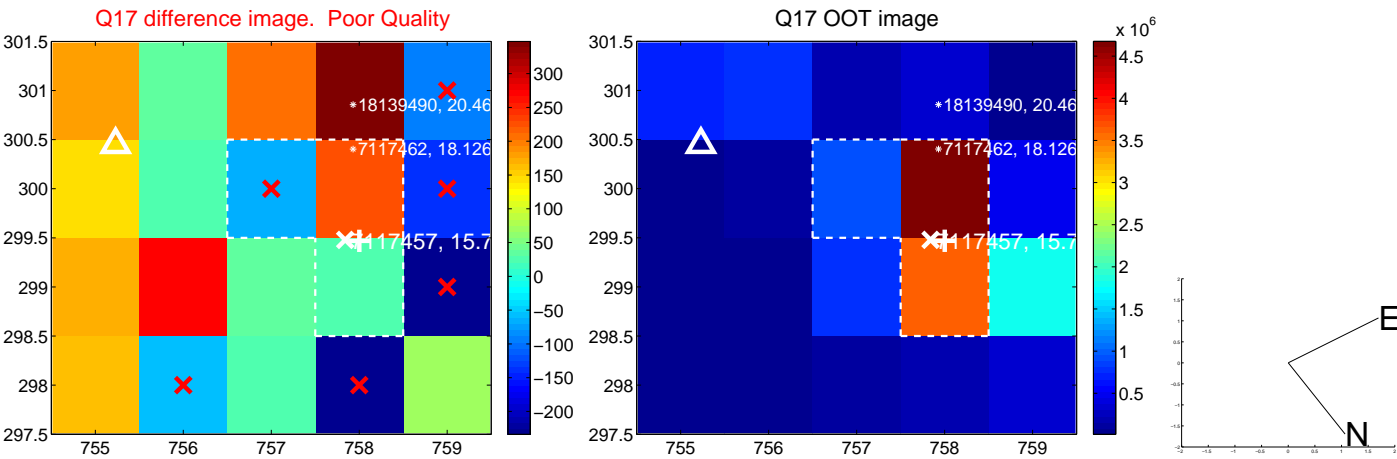
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

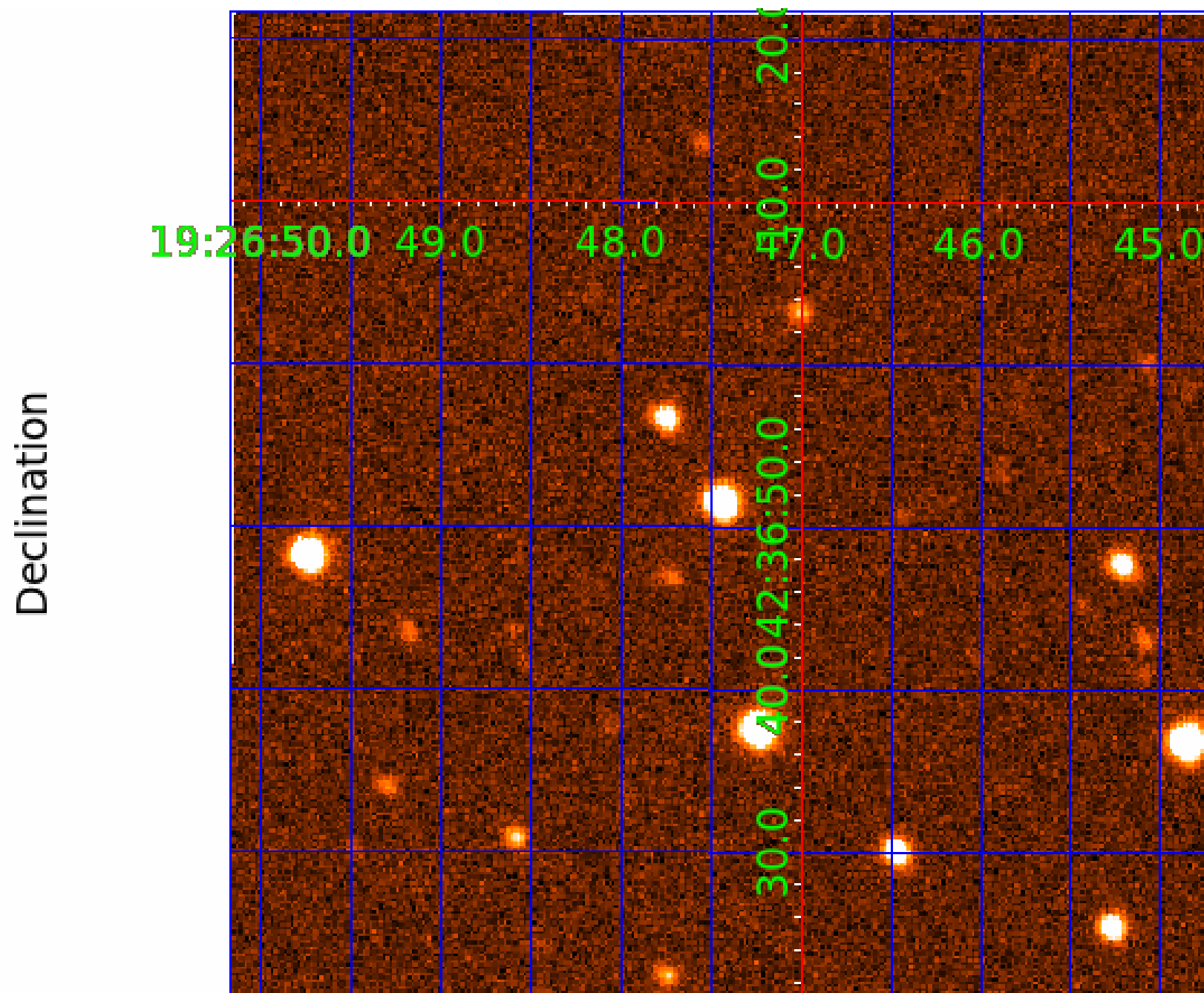


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image





# KIC 007117457

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007117457-01	OBS	No	0.566707	131.956373	0.0	3.387	8.4	0.0	0.84	5530	0.00	3418.91
007117457-02	OBS	No	133.122859	197.330243	691.1	6.523	8.1	7.6	0.84	5530	2.61	2.36

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007117457-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007117457-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

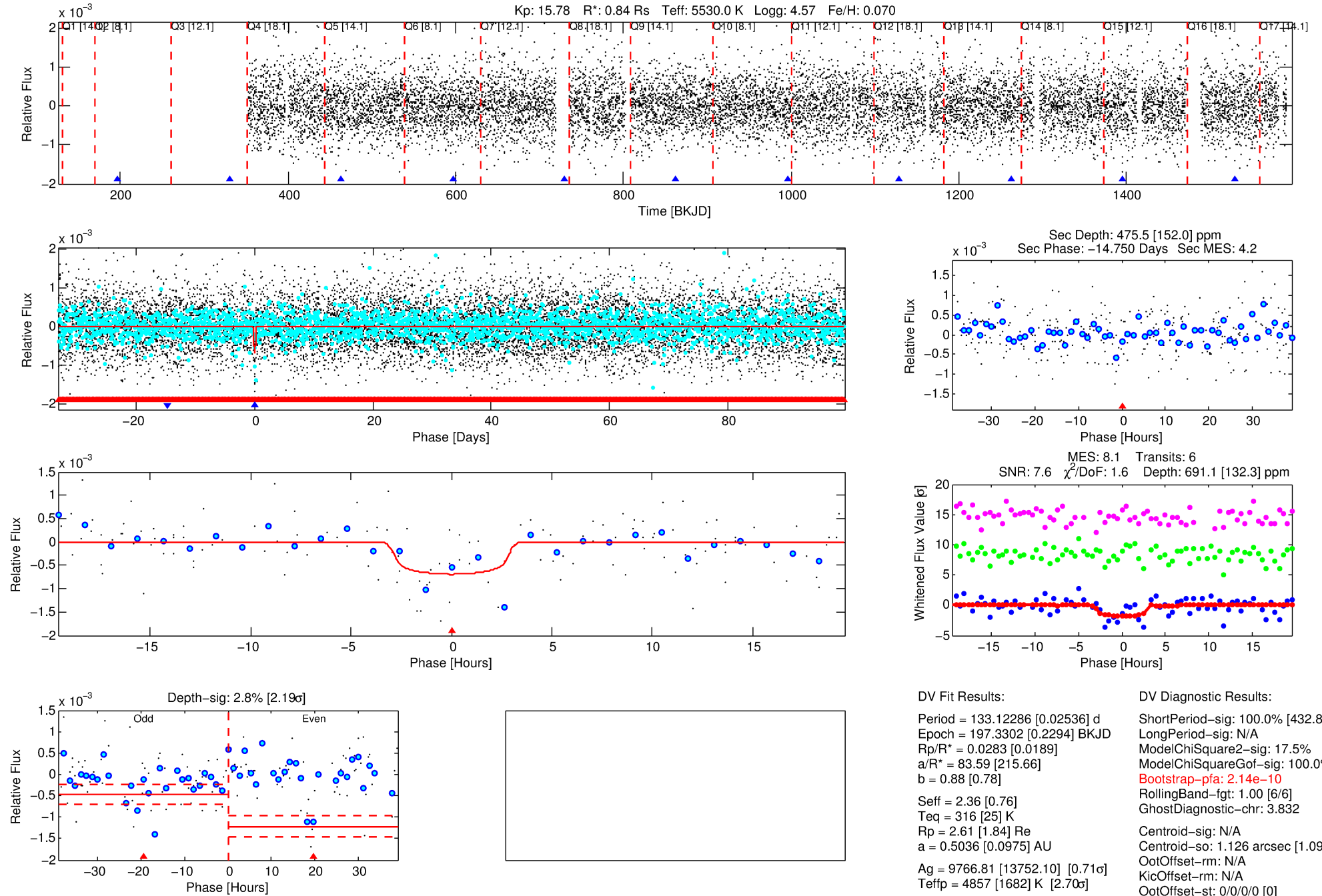
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007117457-02

No Significant Match Found

# DV One-Page Summary

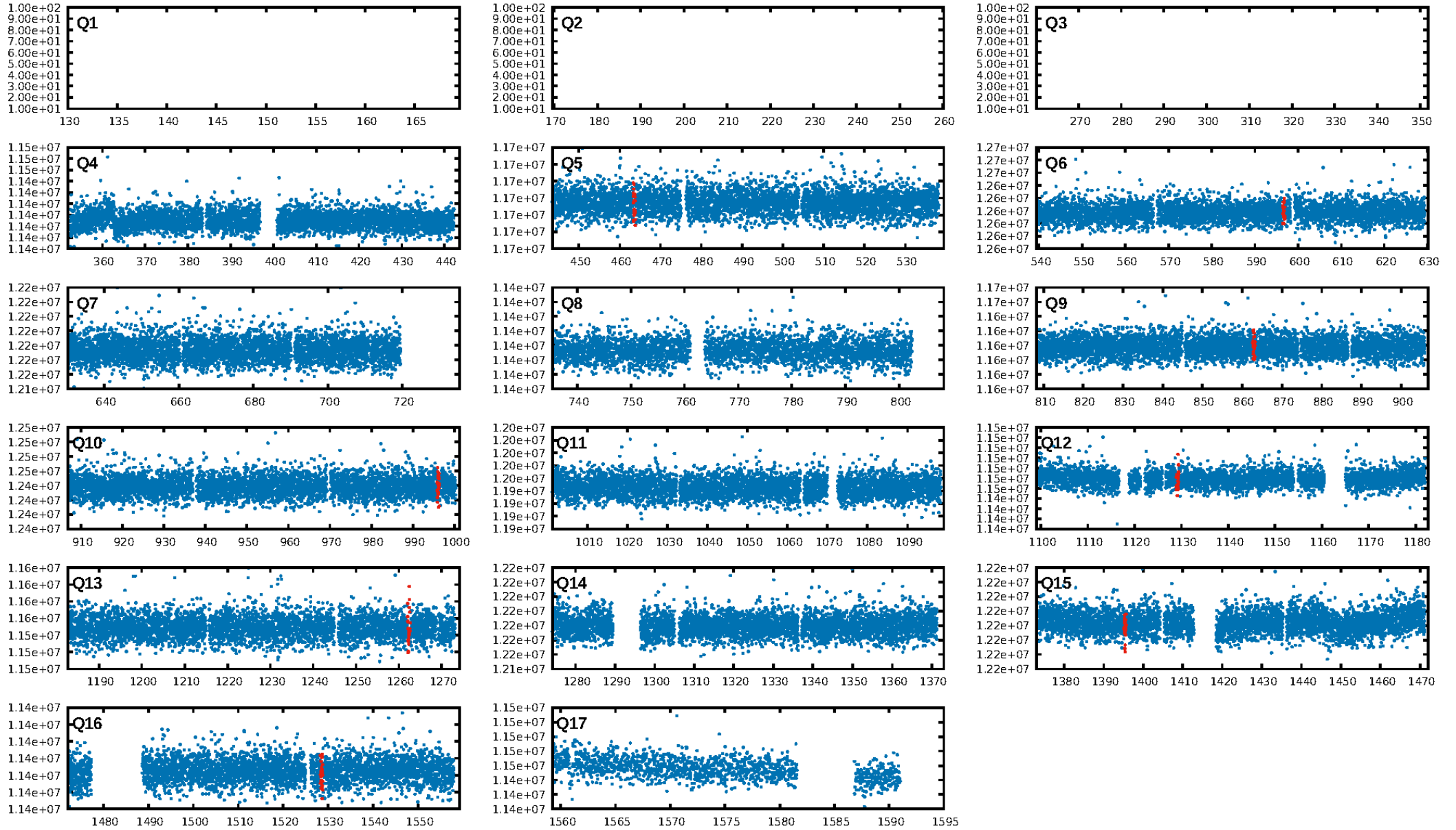
KIC: 7117457 Candidate: 2 of 2 Period: 133.123 d



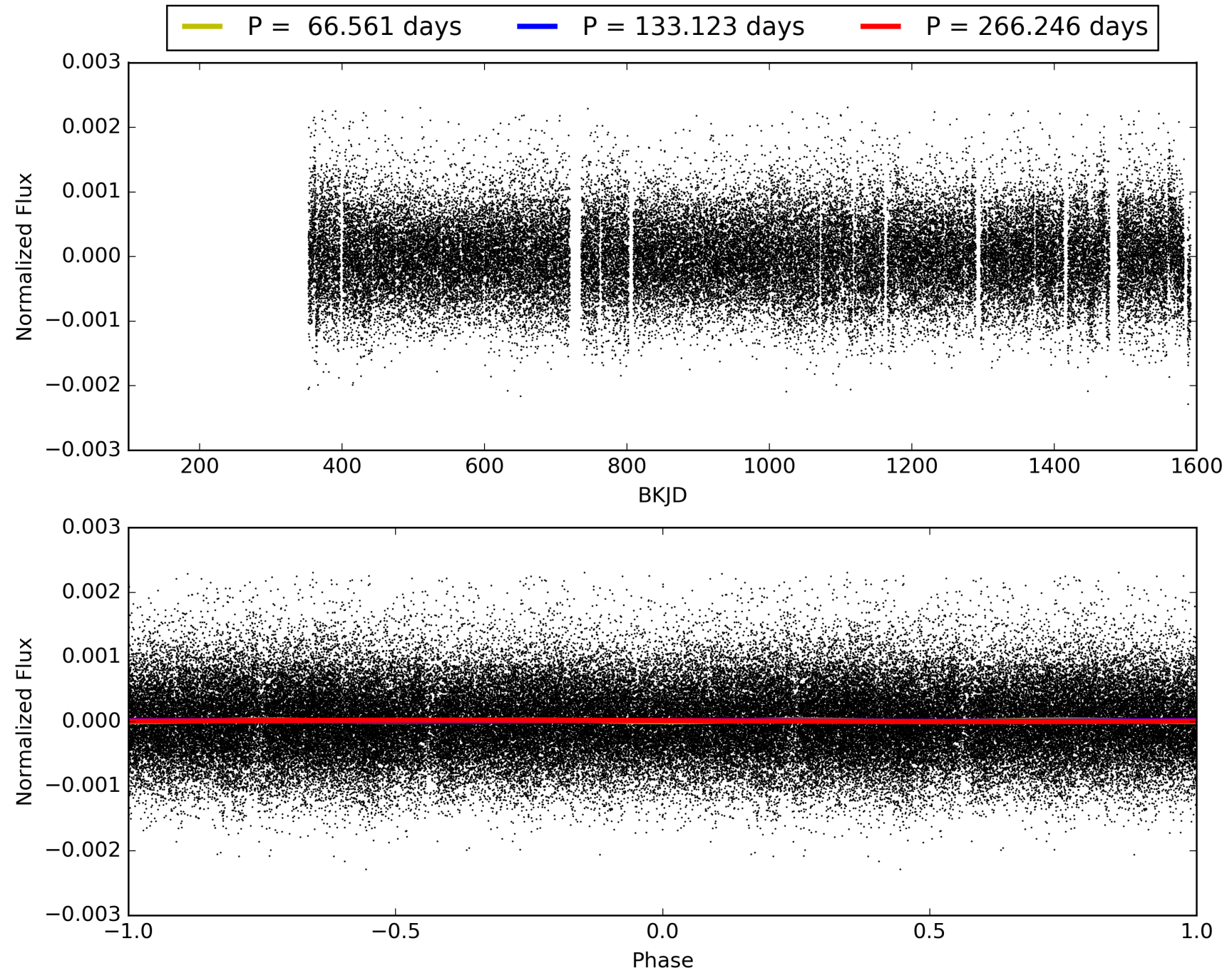
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:52:37 Z

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

# TCE 007117457-02, PDC Light Curves

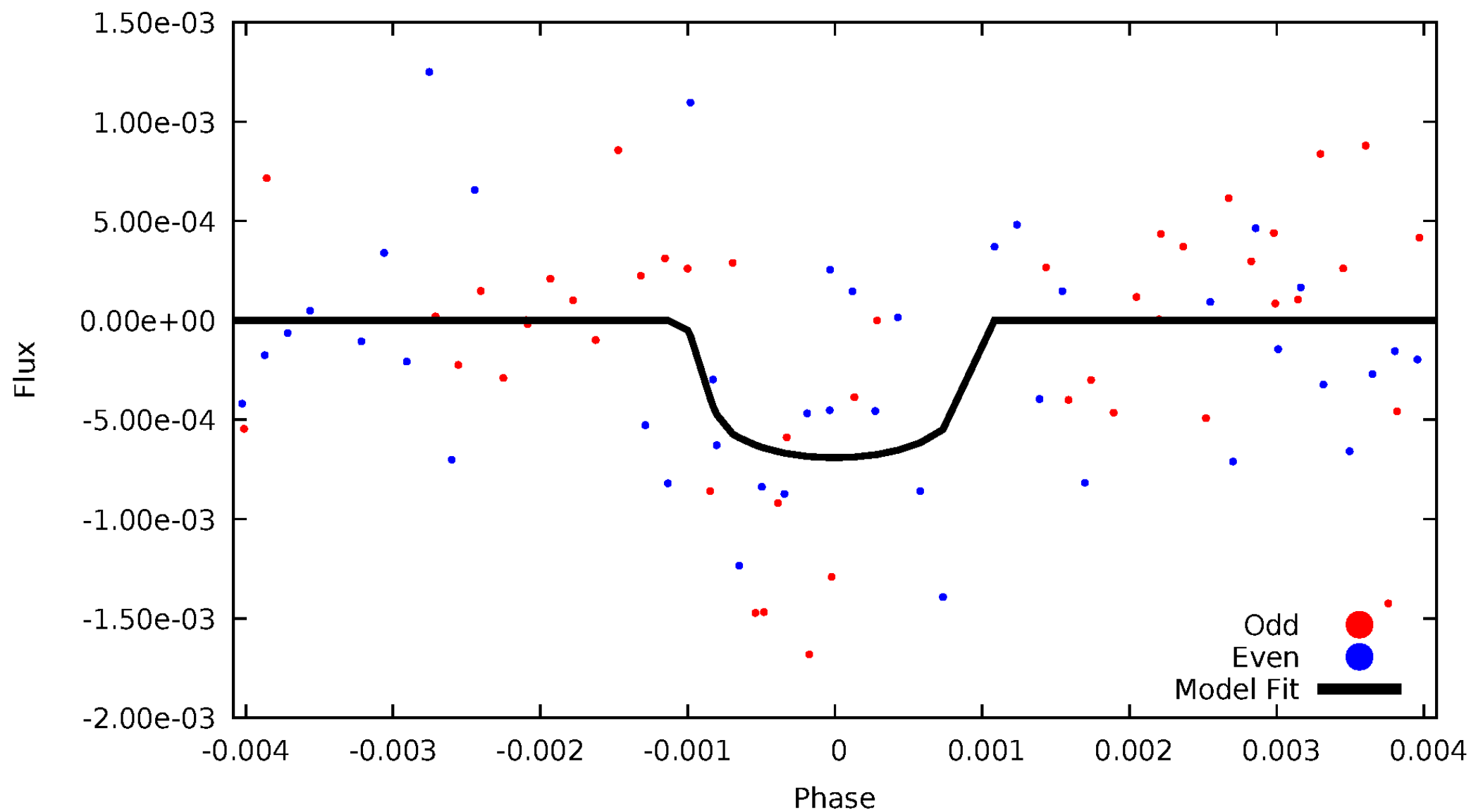


TCE 007117457-02



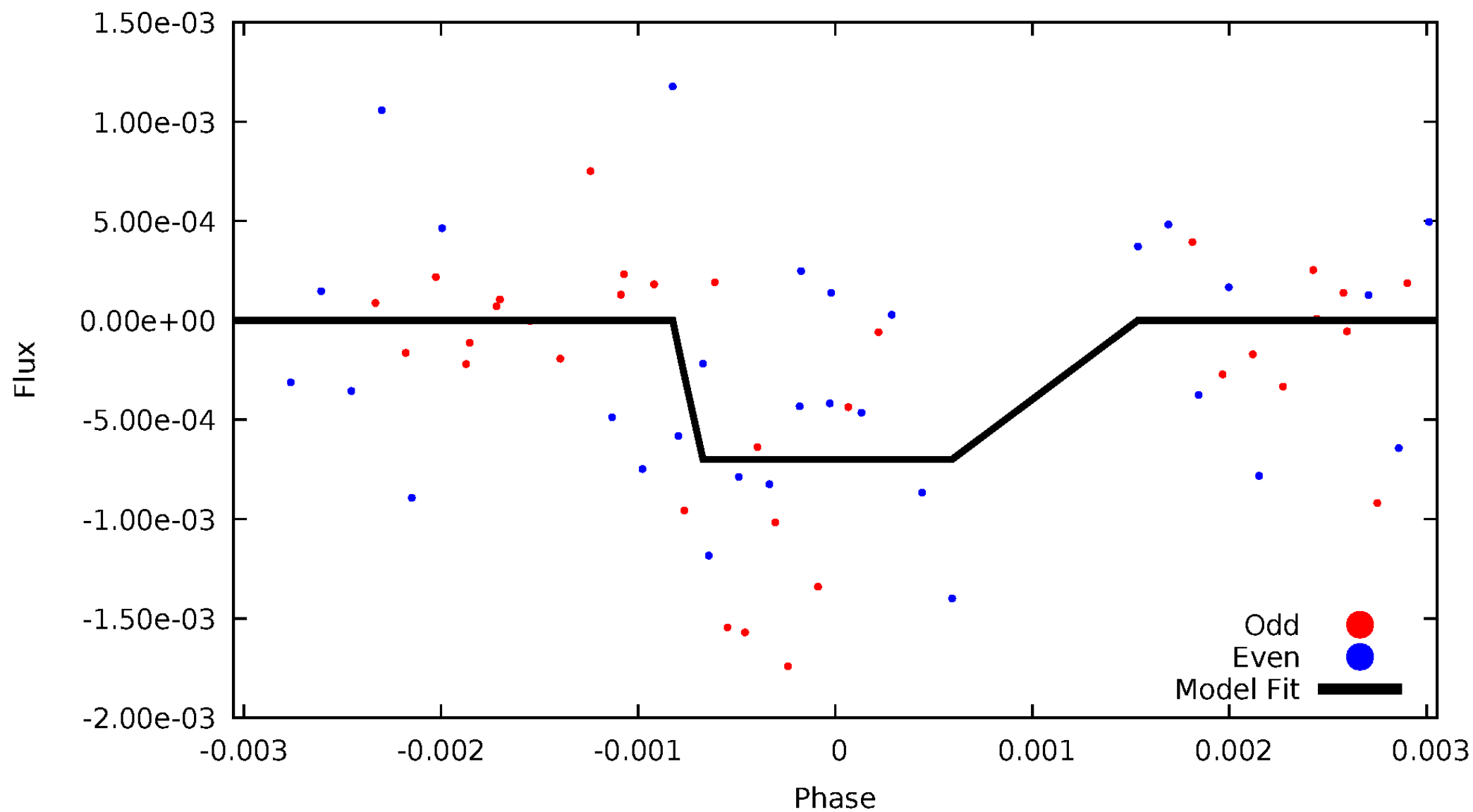
# DV Odd/Even

TCE 007117457-02



# ALT Odd/Even

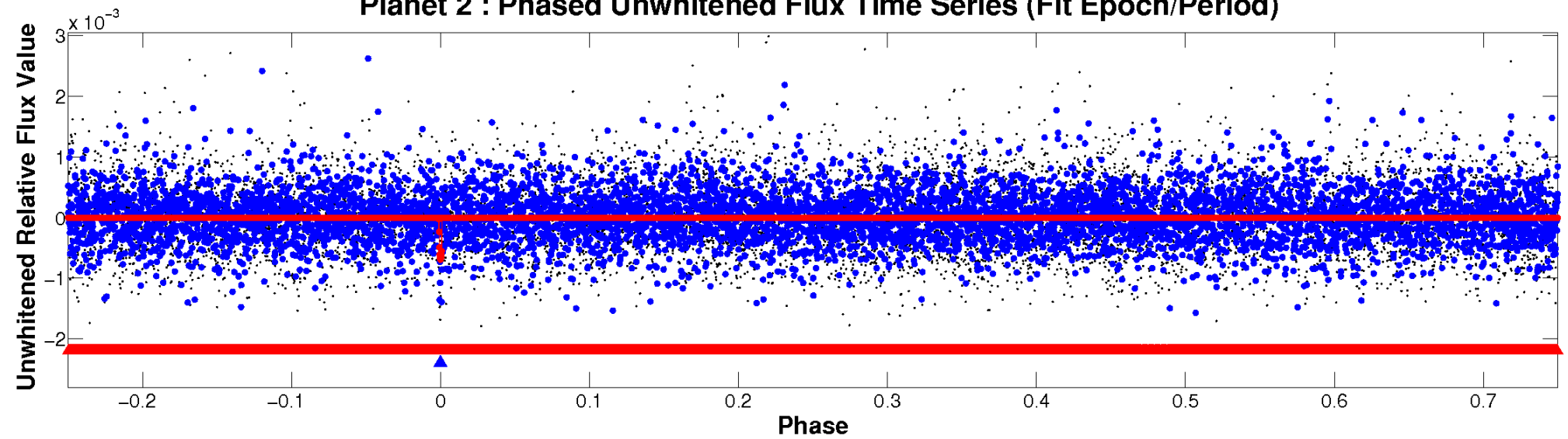
TCE 007117457-02



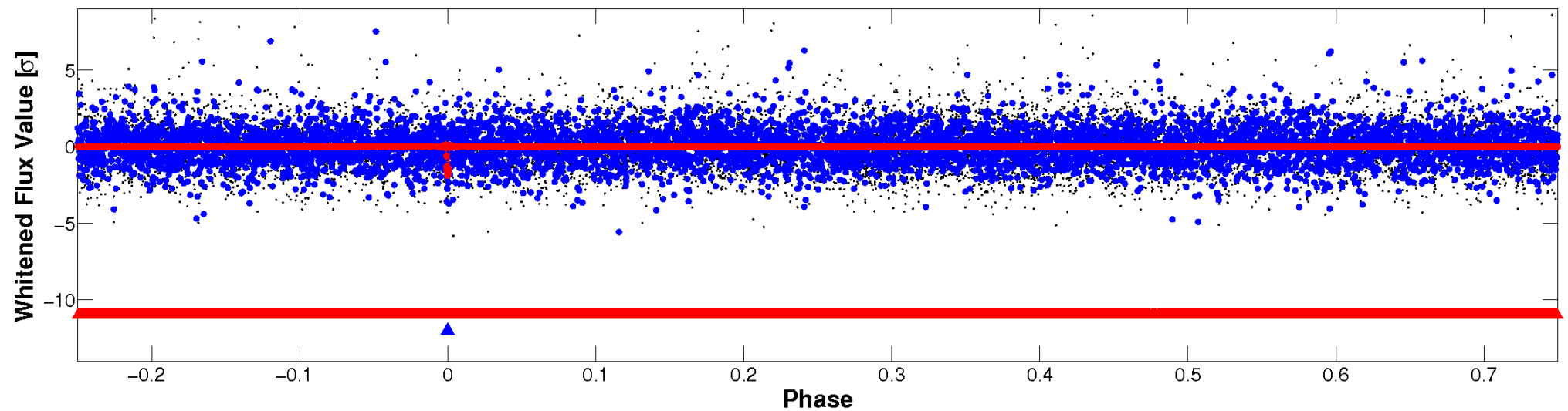


# Non-Whitened Vs. Whitened Light Curve

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

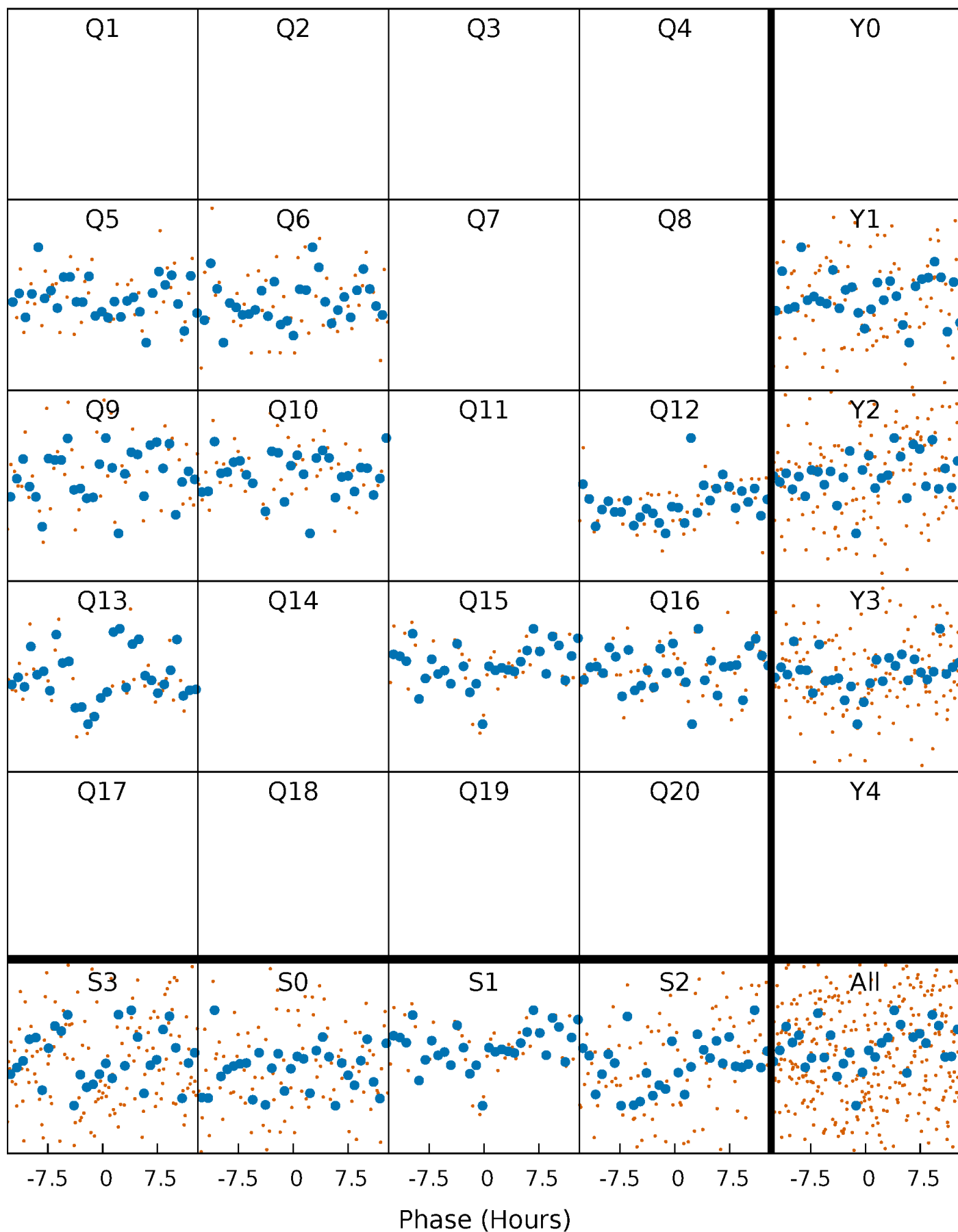


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



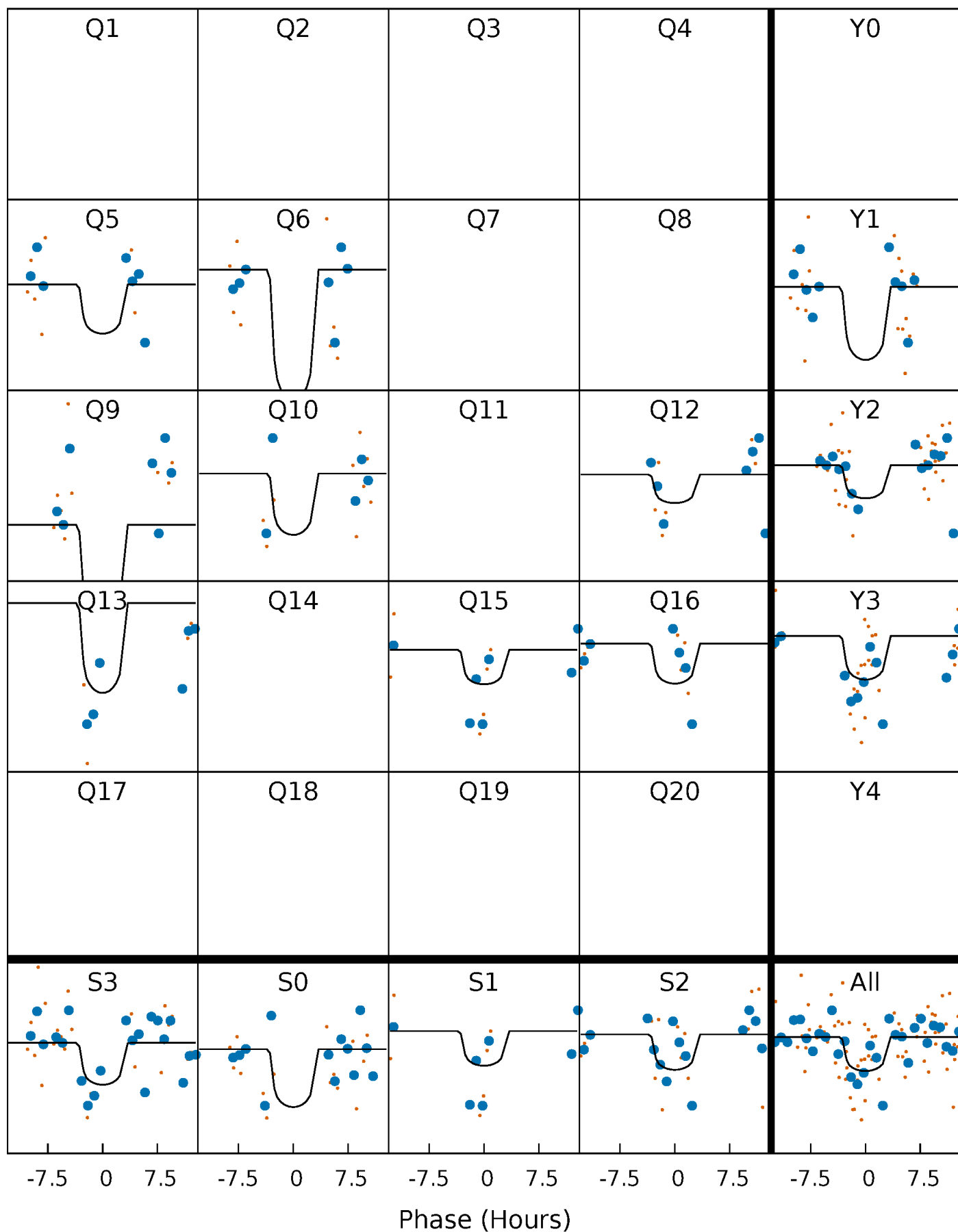
# PDC Quarter-Phased Transit Curves

TCE 007117457-02 P=133.122859 Days  $T_0=197.330243$  (BKJD)



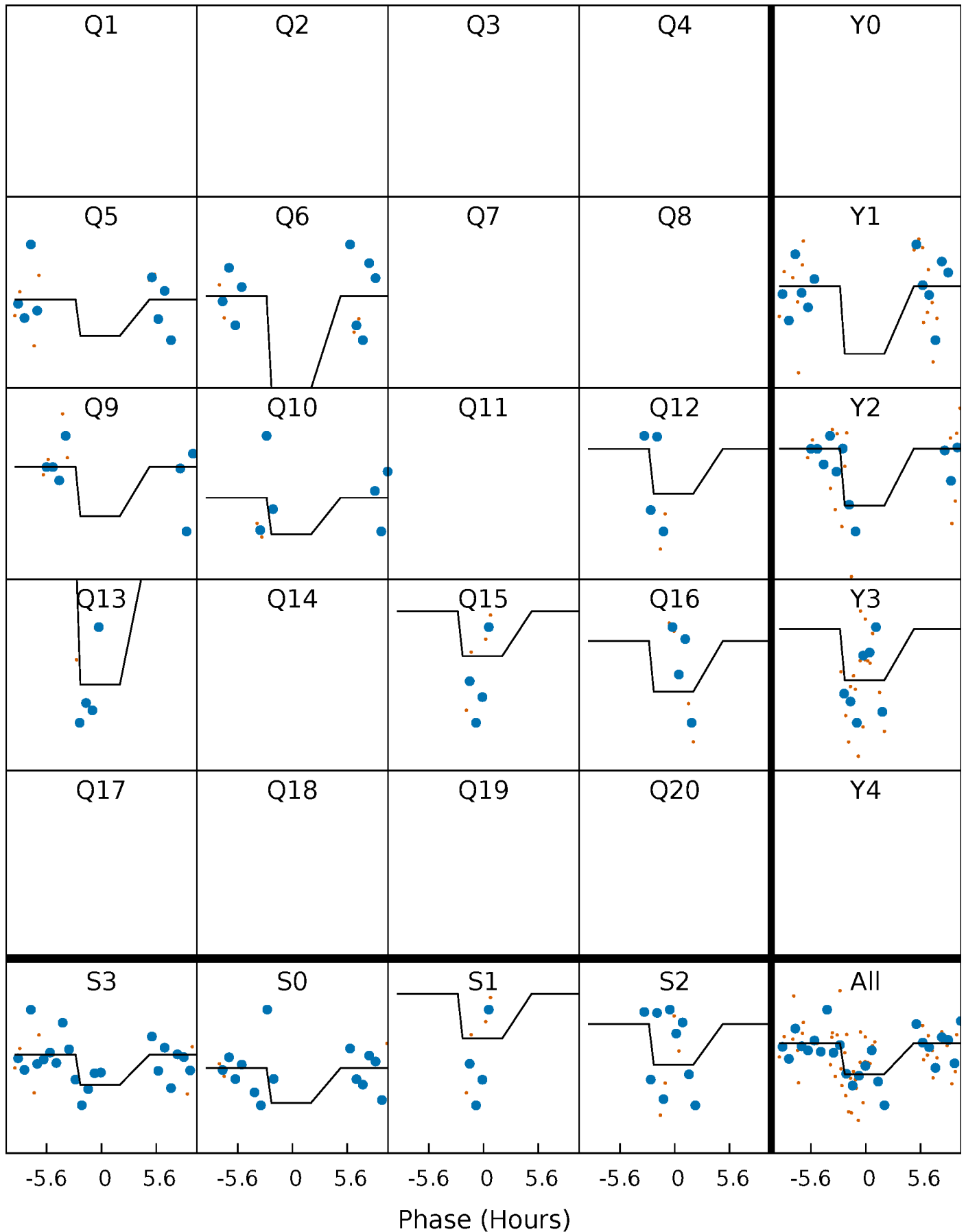
# DV Quarter-Phased Transit Curves

TCE 007117457-02 P=133.122859 Days  $T_0=197.330243$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

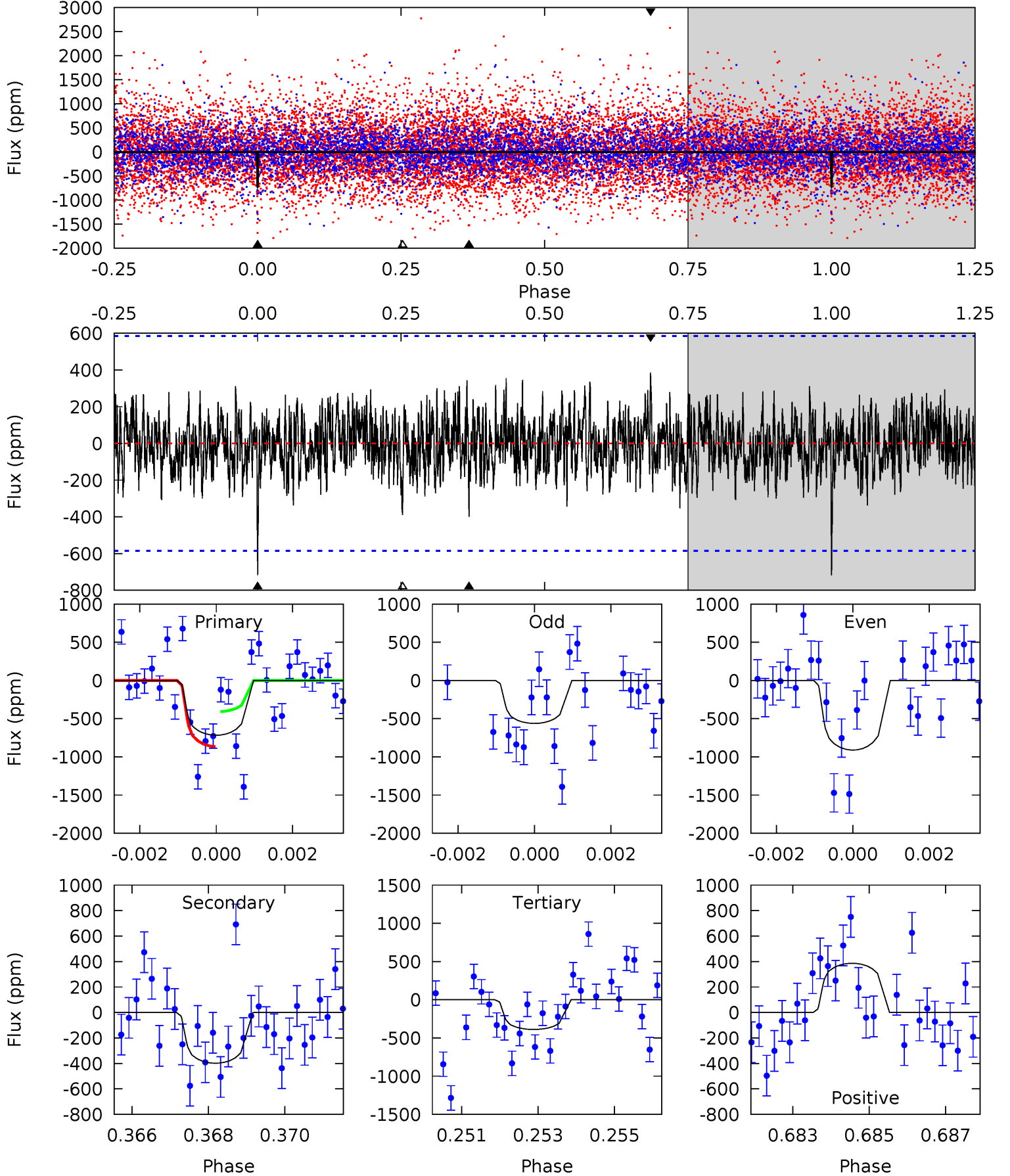
TCE 007117457-02 P=133.132727 Days  $T_0=197.250248$  (BKJD)



# DV Model-Shift Uniqueness Test

007117457-02,  $P = 133.122859$  Days,  $E = 197.330243$  Days

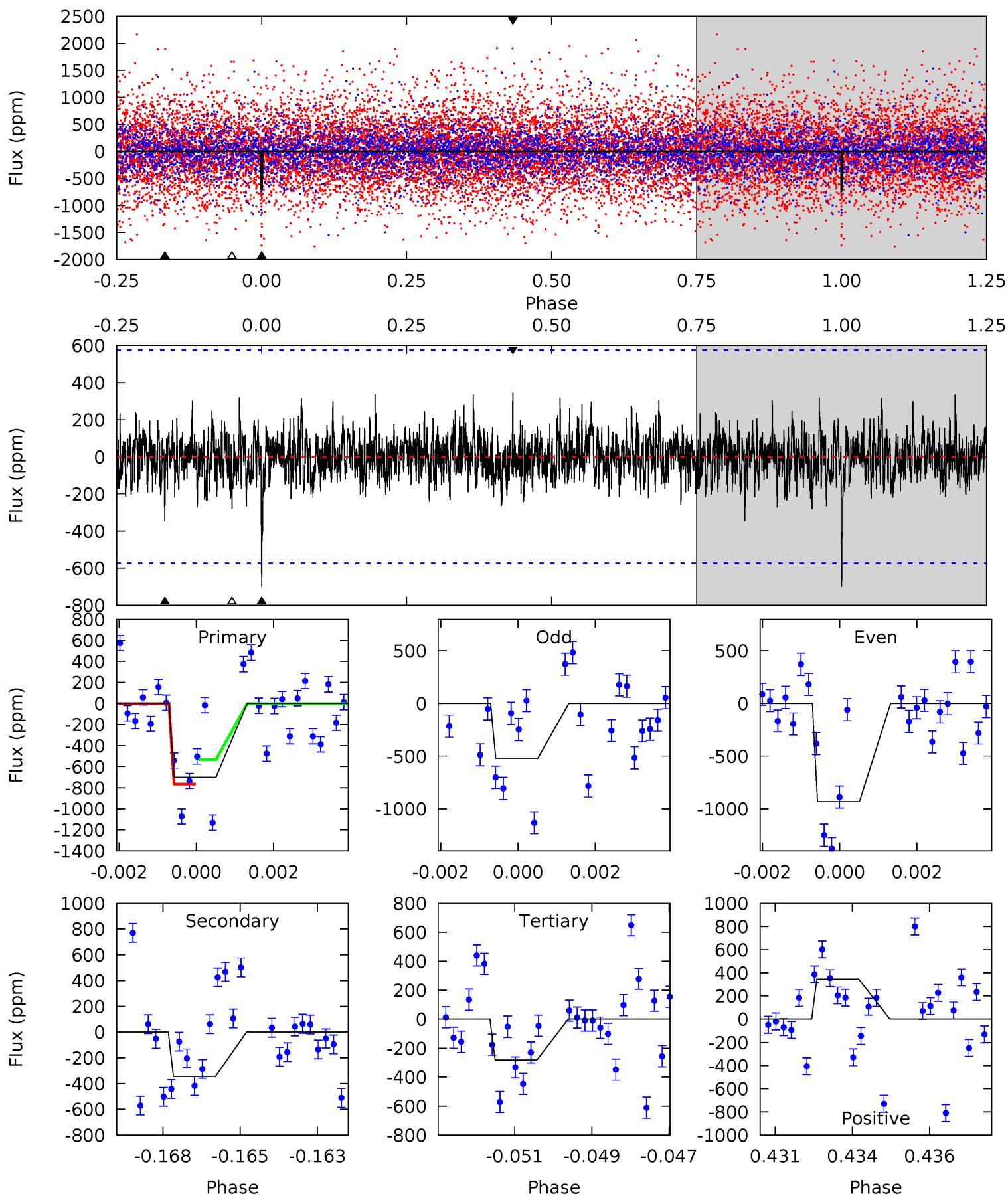
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.51	3.62	3.53	3.51	5.31	3.06	1.08	2.98	3.00	0.09	0.11	1.55	0.78	0.35	1.96



# Alt Model-Shift Uniqueness Test

007117457-02, P = 133.132727 Days, E = 197.250248 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
6.45	3.19	2.58	3.18	5.30	3.04	0.81	3.87	3.28	0.60	0.01	1.88	0.91	0.33	0.95





### Stellar Parameters For KIC 007117457

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5530^{+173}_{-192}$	$4.567^{+0.029}_{-0.162}$	$0.070^{+0.250}_{-0.300}$	$0.845^{+0.188}_{-0.075}$	$0.961^{+0.075}_{-0.112}$	$2.244^{+0.350}_{-0.936}$
	+3%/-3%	+1%/-4%	+357%/-429%	+22%/-9%	+8%/-12%	+16%/-42%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 007117457-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-399 \pm 110$	$2.84^{+1.93}_{-1.58}$	$451^{+25}_{-21}$	$4618^{+2094}_{-829}$	$6487^{+27100}_{-4353}$
Alt.	$-346 \pm 108$	$2.77^{+1.74}_{-1.54}$	$452^{+26}_{-21}$	$4572^{+1967}_{-743}$	$6097^{+23612}_{-3807}$

$T_{max}$  = 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

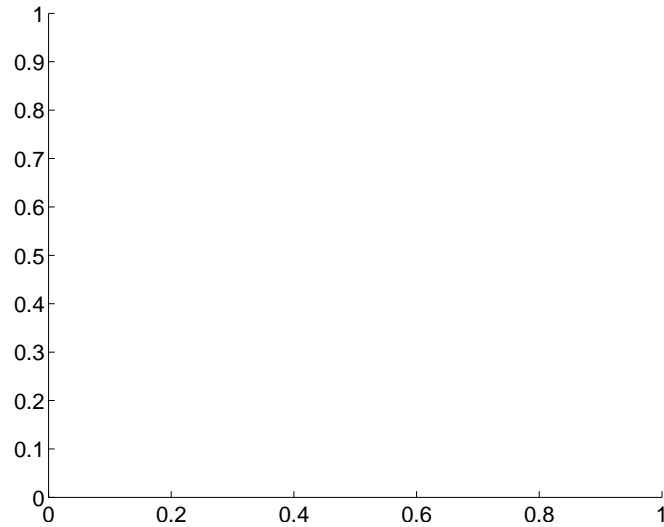
Supplemental centroid analysis for 007117457-02. Kepler magnitude: 15.78. Transit SNR 7.57

There are 0 quarters with good PRF difference image offsets

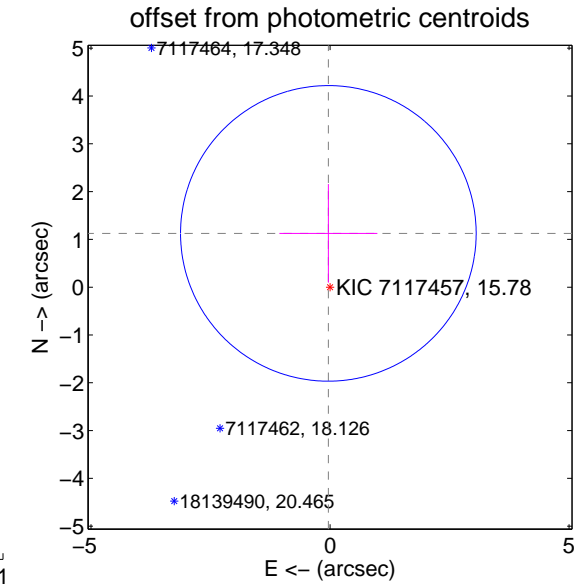
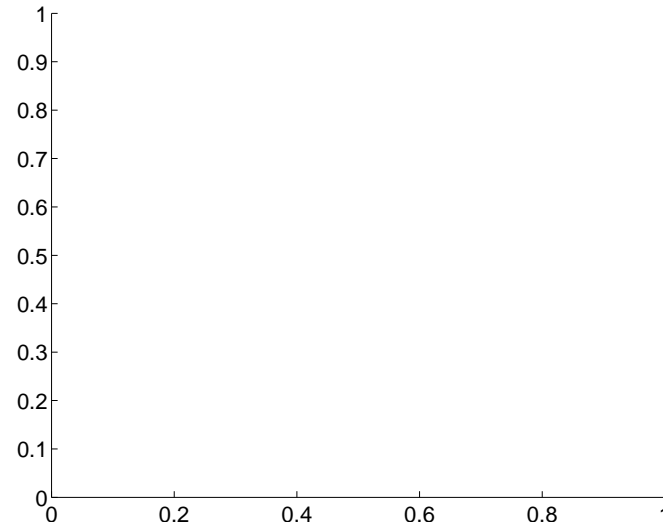
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$1.13 \pm 1.03$	1.09	$0.04 \pm 1.03$	$1.13 \pm 1.03$

There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC

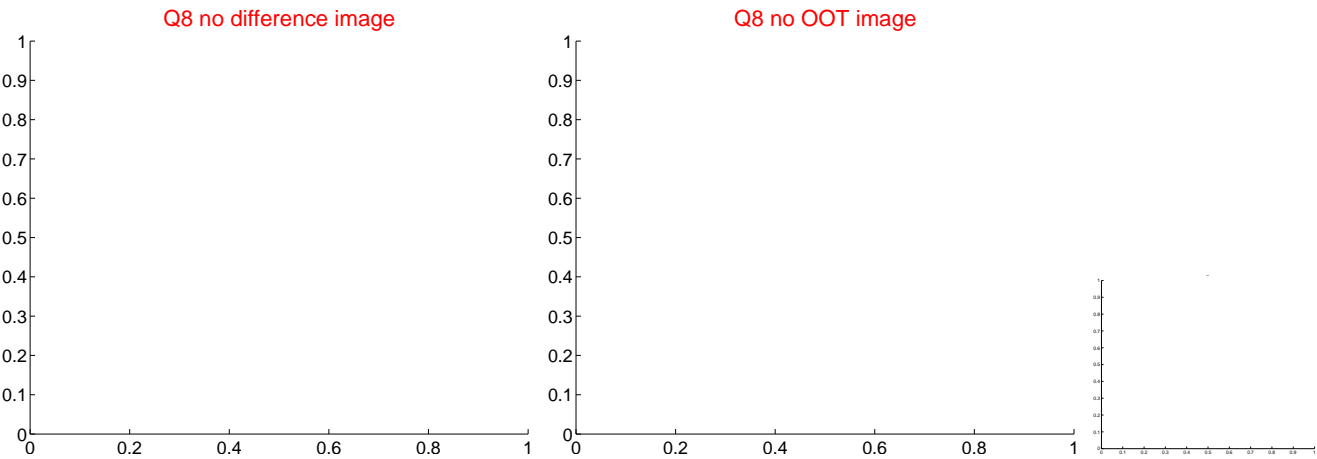
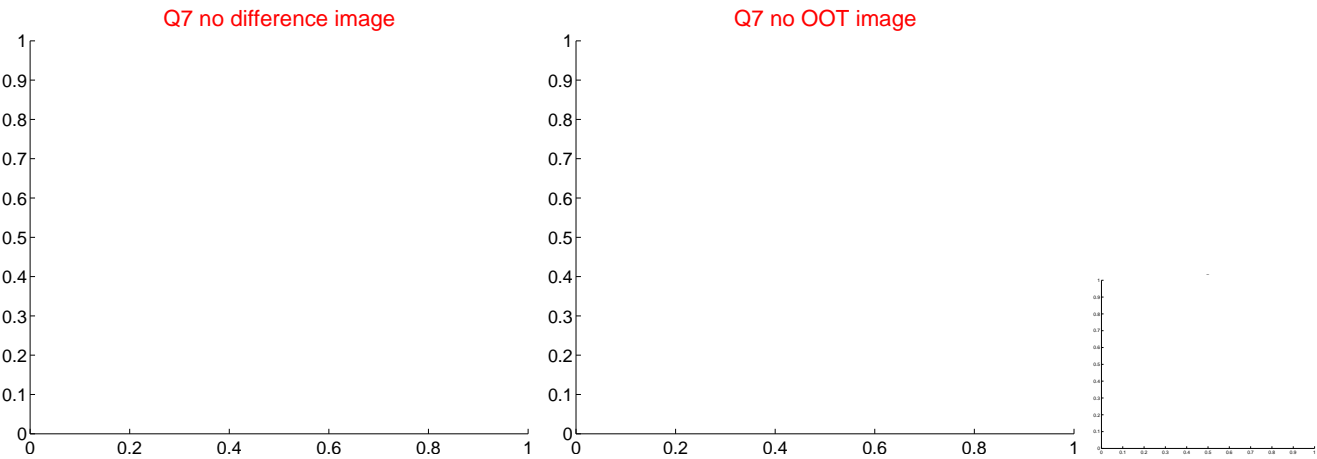
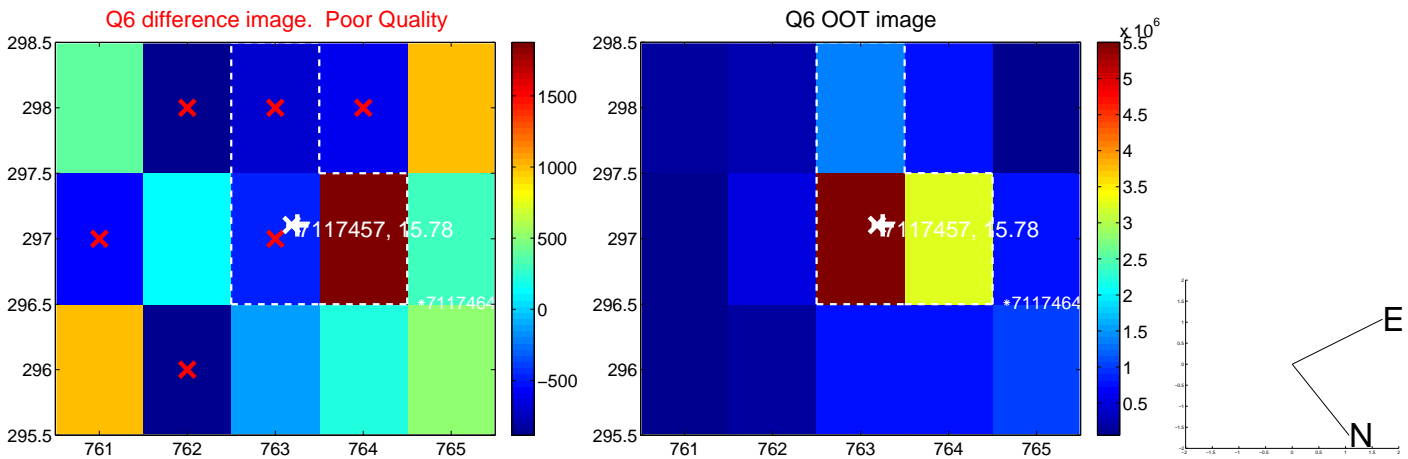
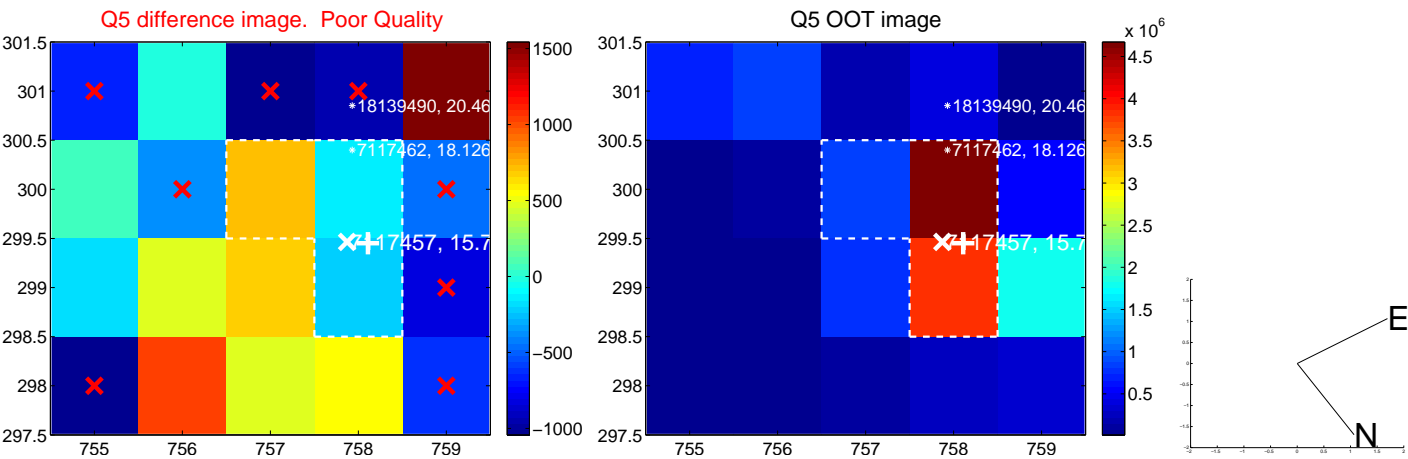


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

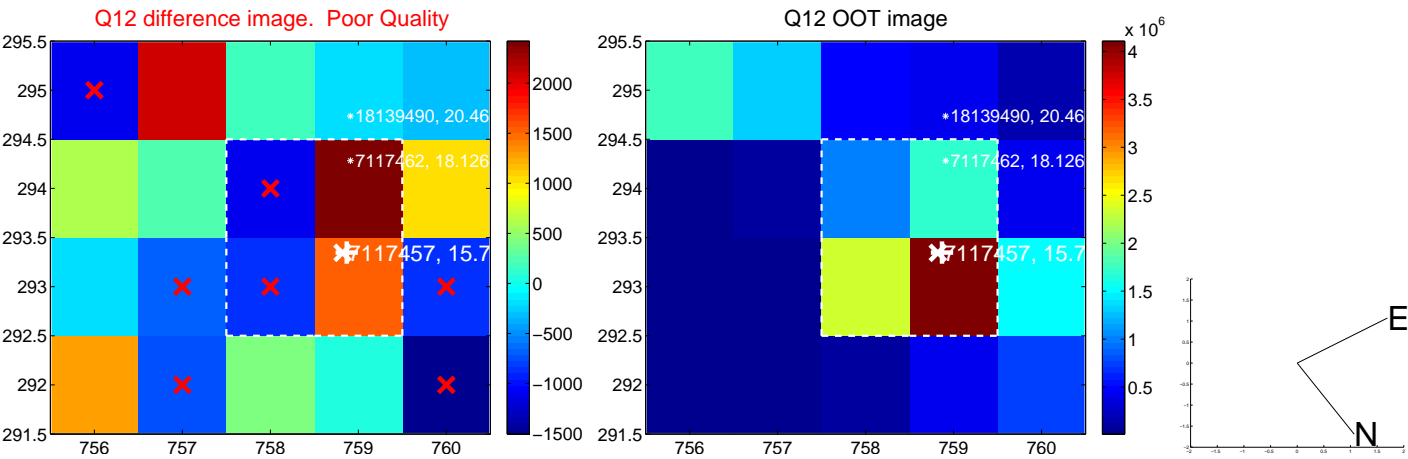
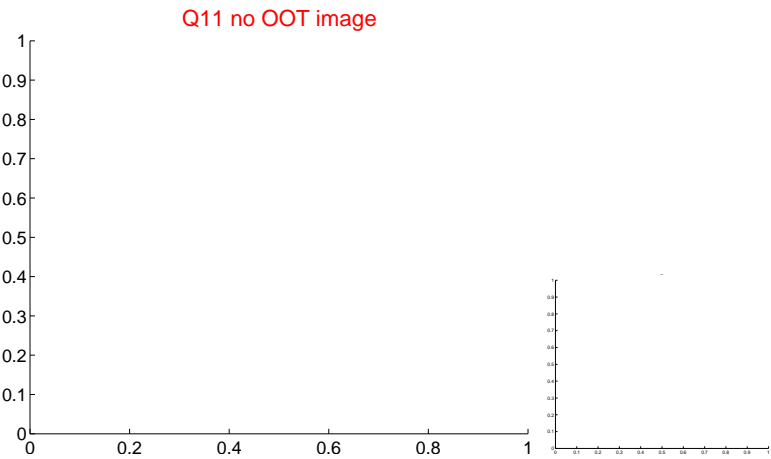
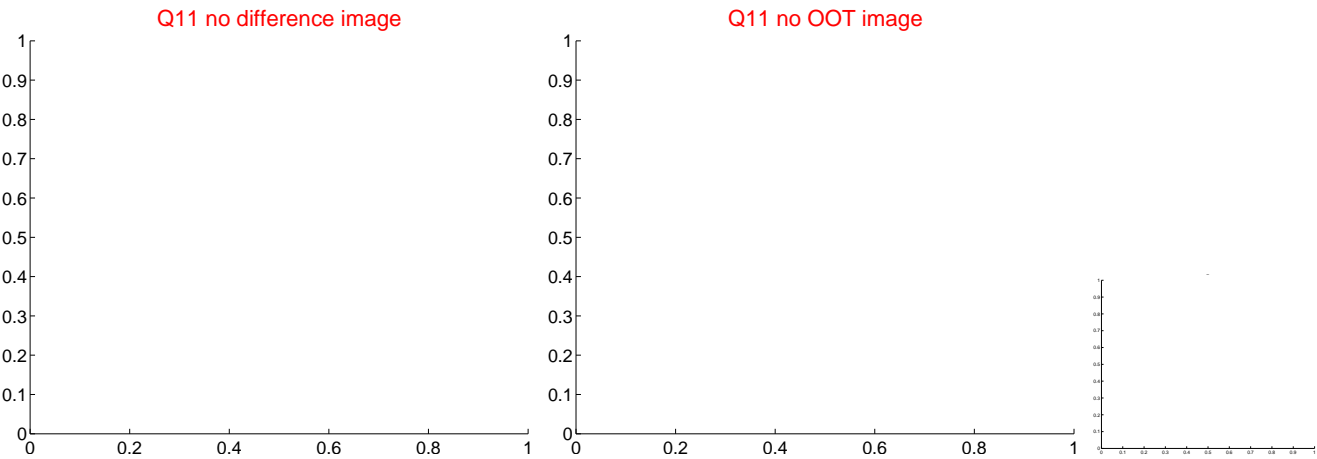
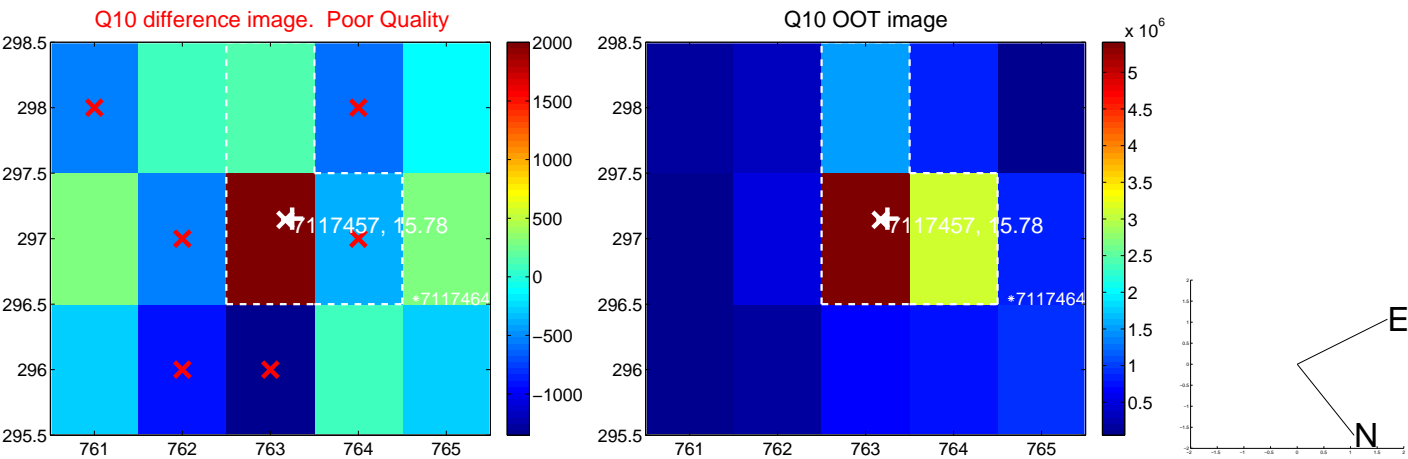
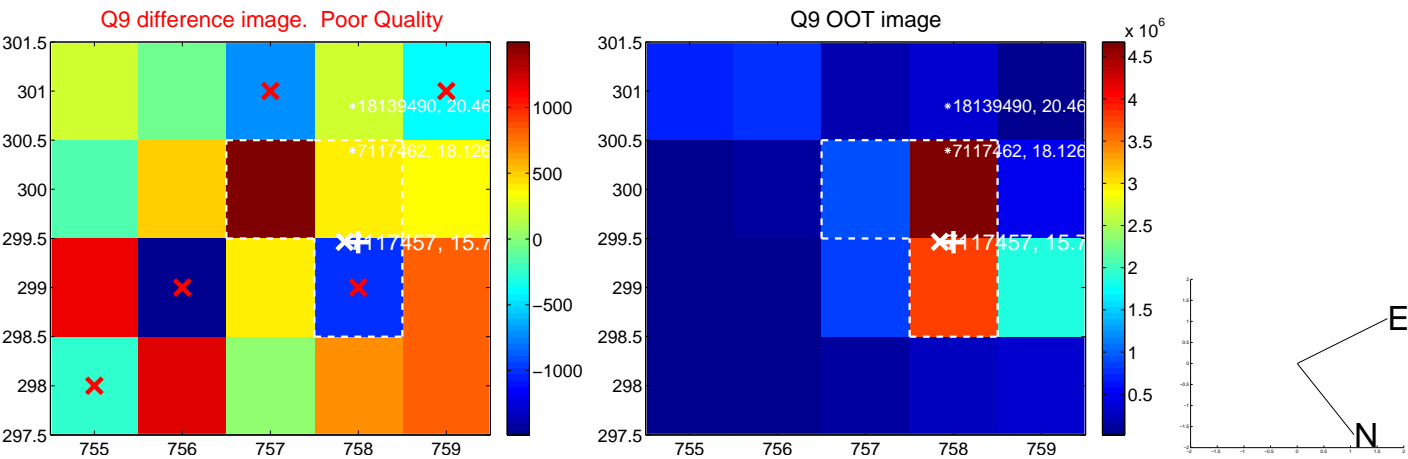
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



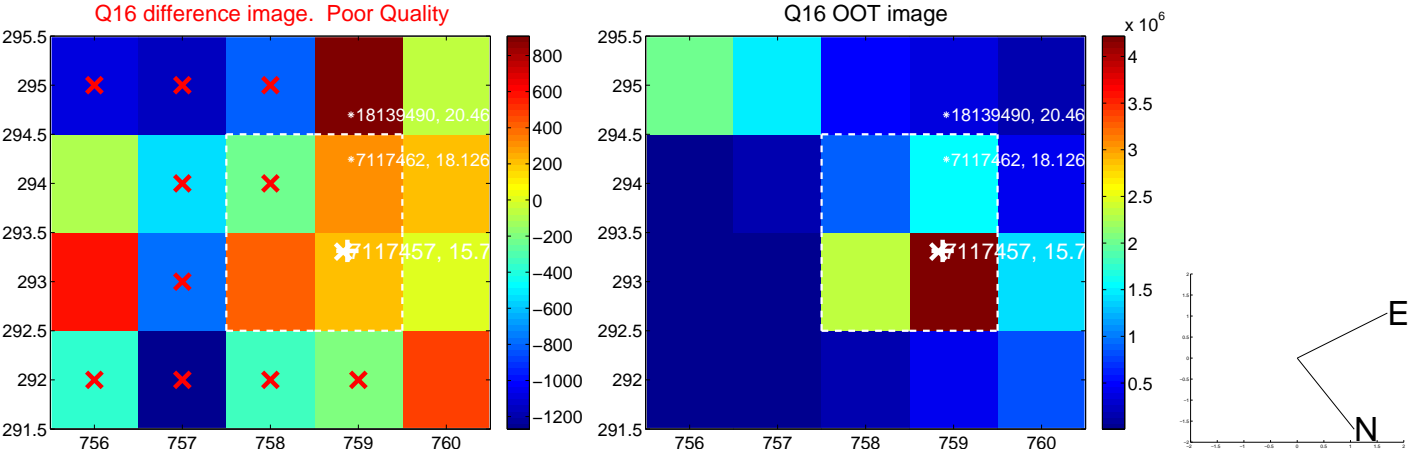
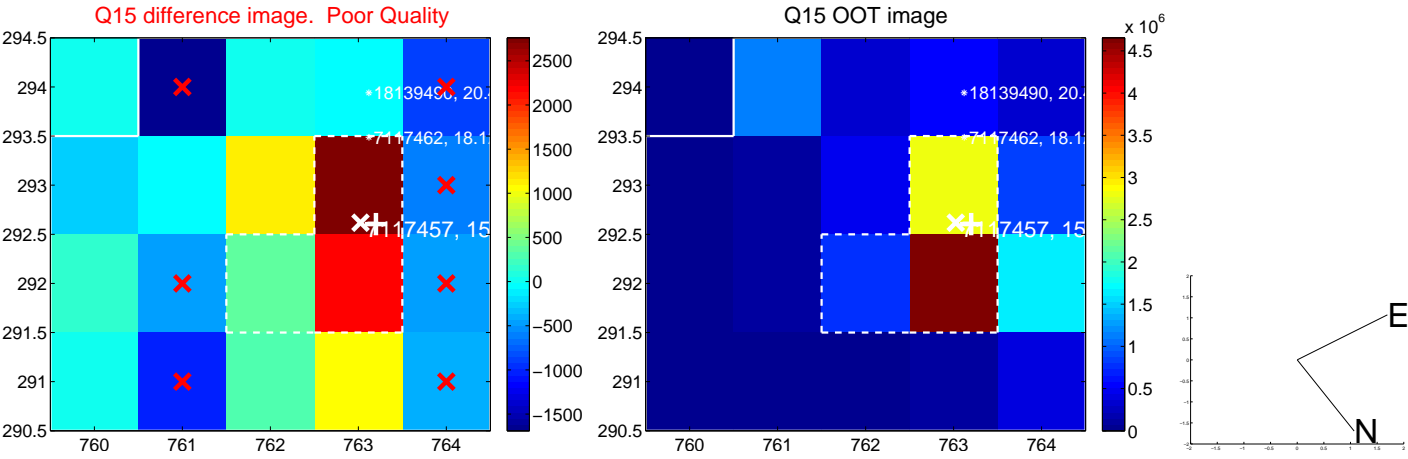
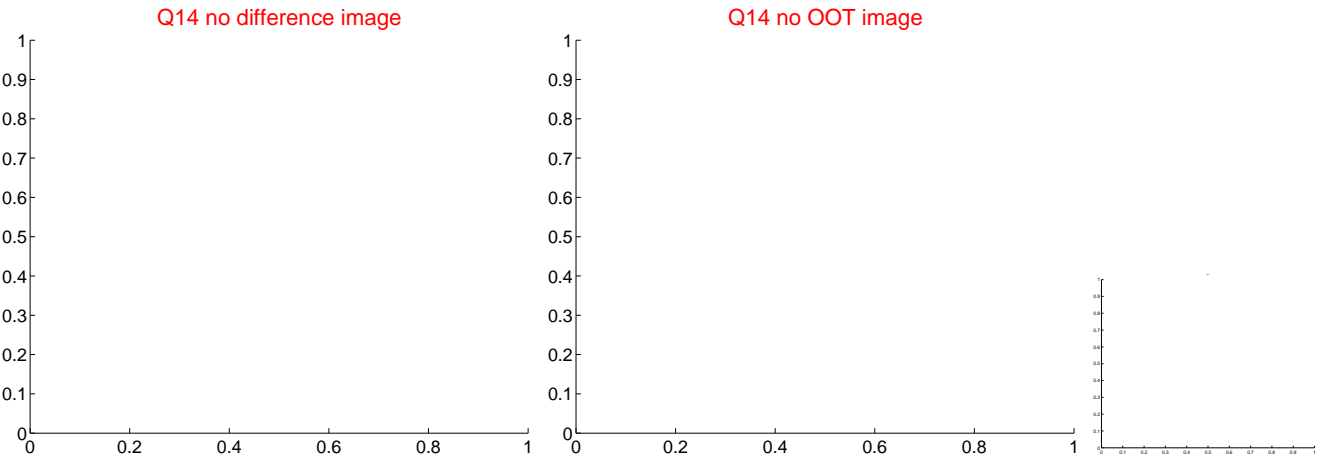
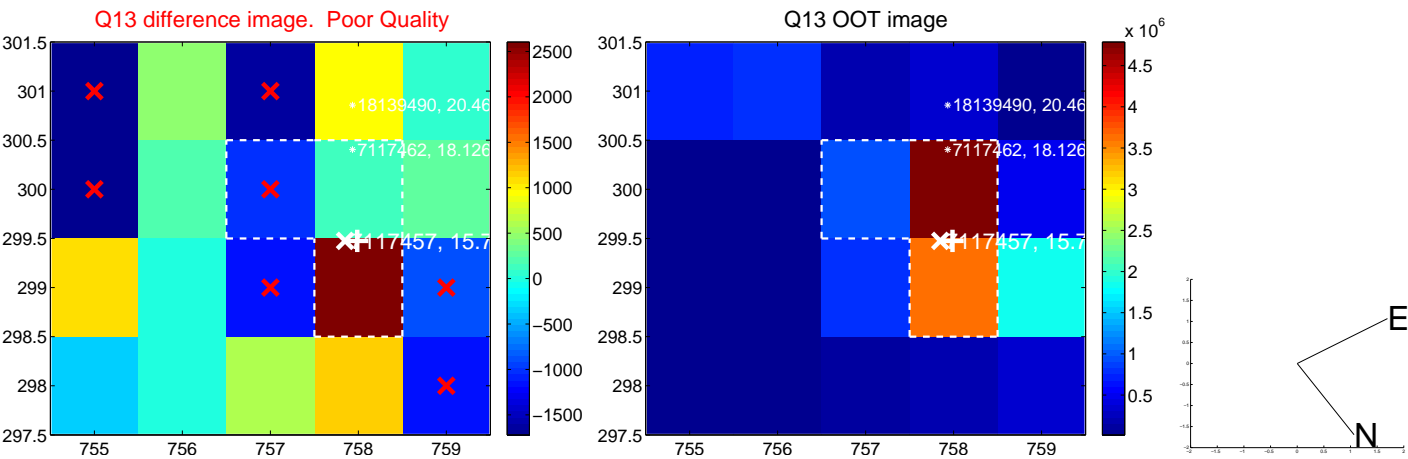
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

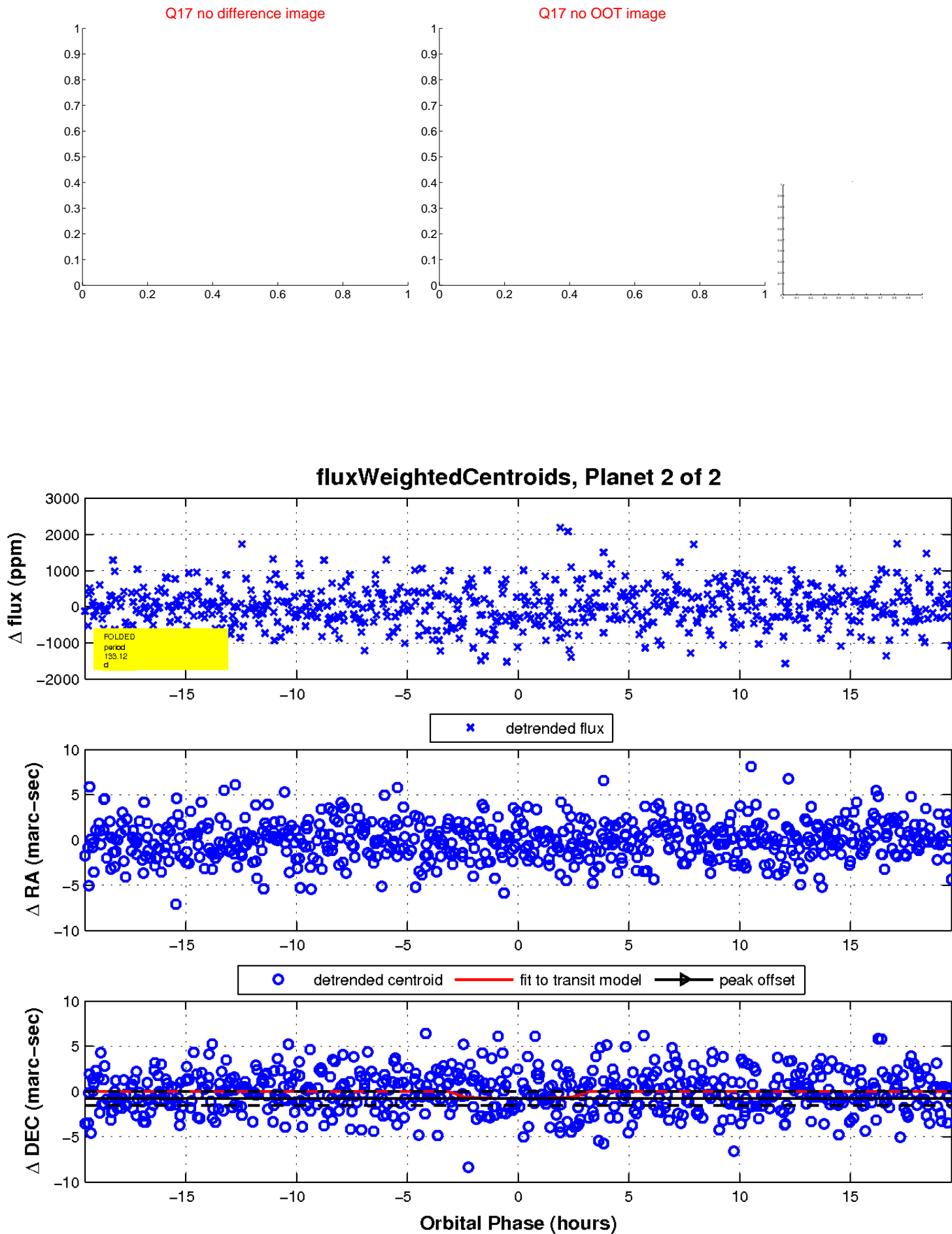


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

