

# KIC 004248763

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004248763-01	OBS	No	499.874418	459.638870	768.5	4.578	19.4	3.4	0.72	4353	2.23	0.14
004248763-02	OBS	No	427.595603	192.022934	543.1	1.257	16.1	2.1	0.72	4353	1.94	0.17
004248763-03	OBS	No	463.642704	460.839735	2592.3	15.647	17.2	7.9	0.72	4353	3.69	0.15
004248763-04	OBS	No	505.934946	239.359323	208.6	15.000	11.9	-1.0	0.72	4353	0.99	0.14
004248763-05	OBS	No	374.800098	412.514487	1511.3	5.394	21.5	5.1	0.72	4353	3.26	0.20
004248763-06	OBS	No	219.422992	347.587085	1711.7	3.196	13.5	9.0	0.72	4353	2.84	0.41
004248763-07	OBS	No	427.606299	191.258723	311.8	12.500	15.2	-1.0	0.72	4353	1.21	0.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004248763-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
004248763-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
004248763-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
004248763-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

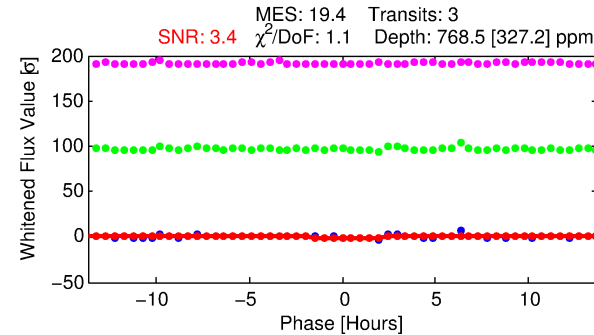
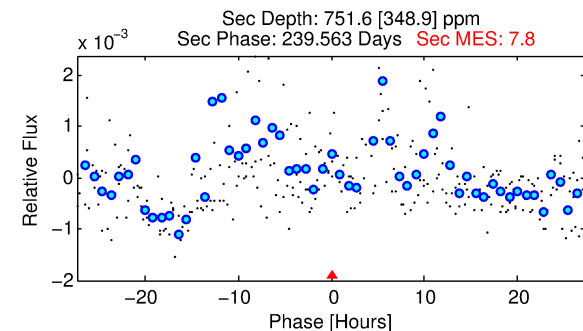
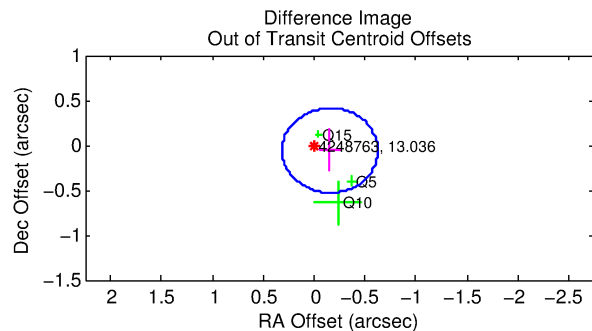
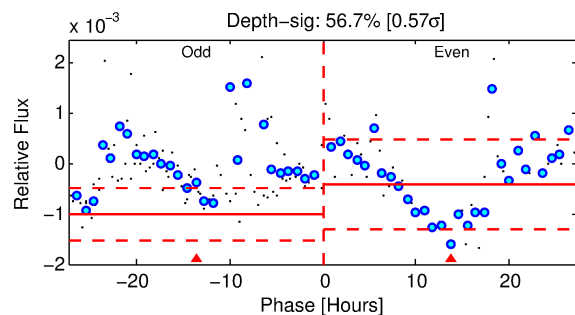
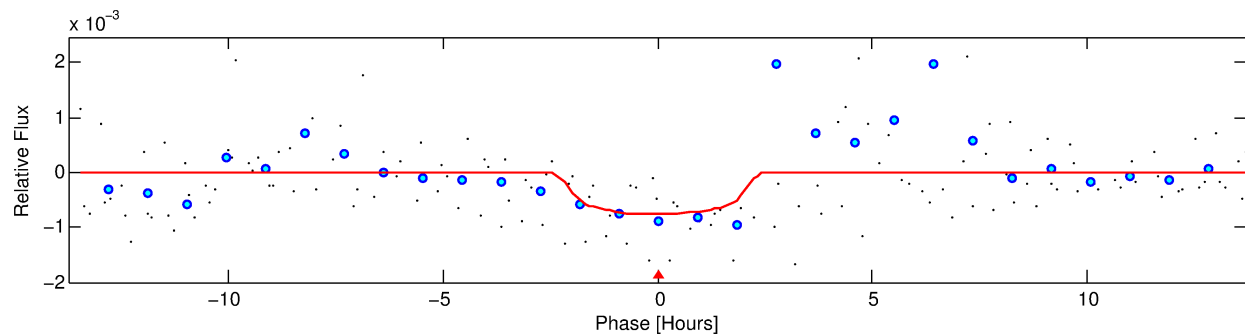
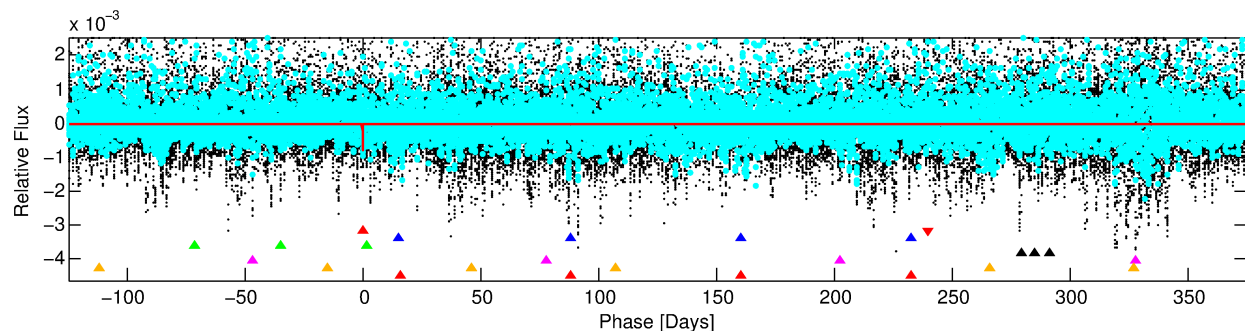
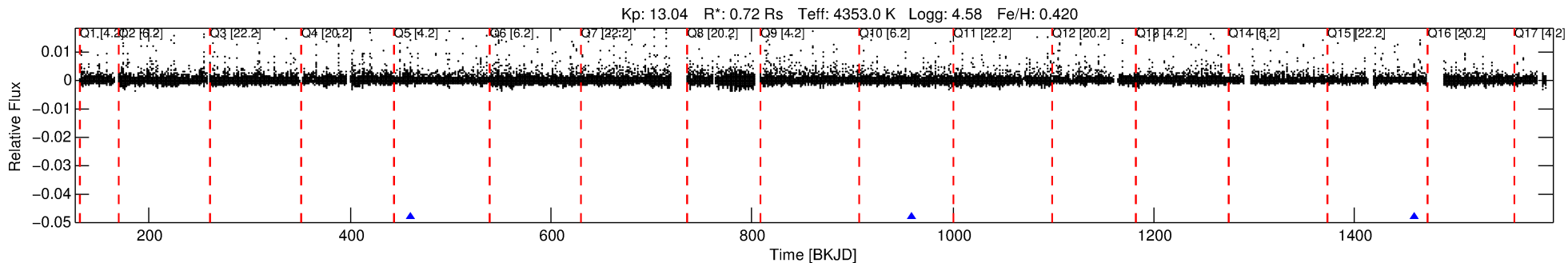
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004248763-01

No Significant Match Found

# DV One-Page Summary

KIC: 4248763 Candidate: 1 of 7 Period: 499.874 d



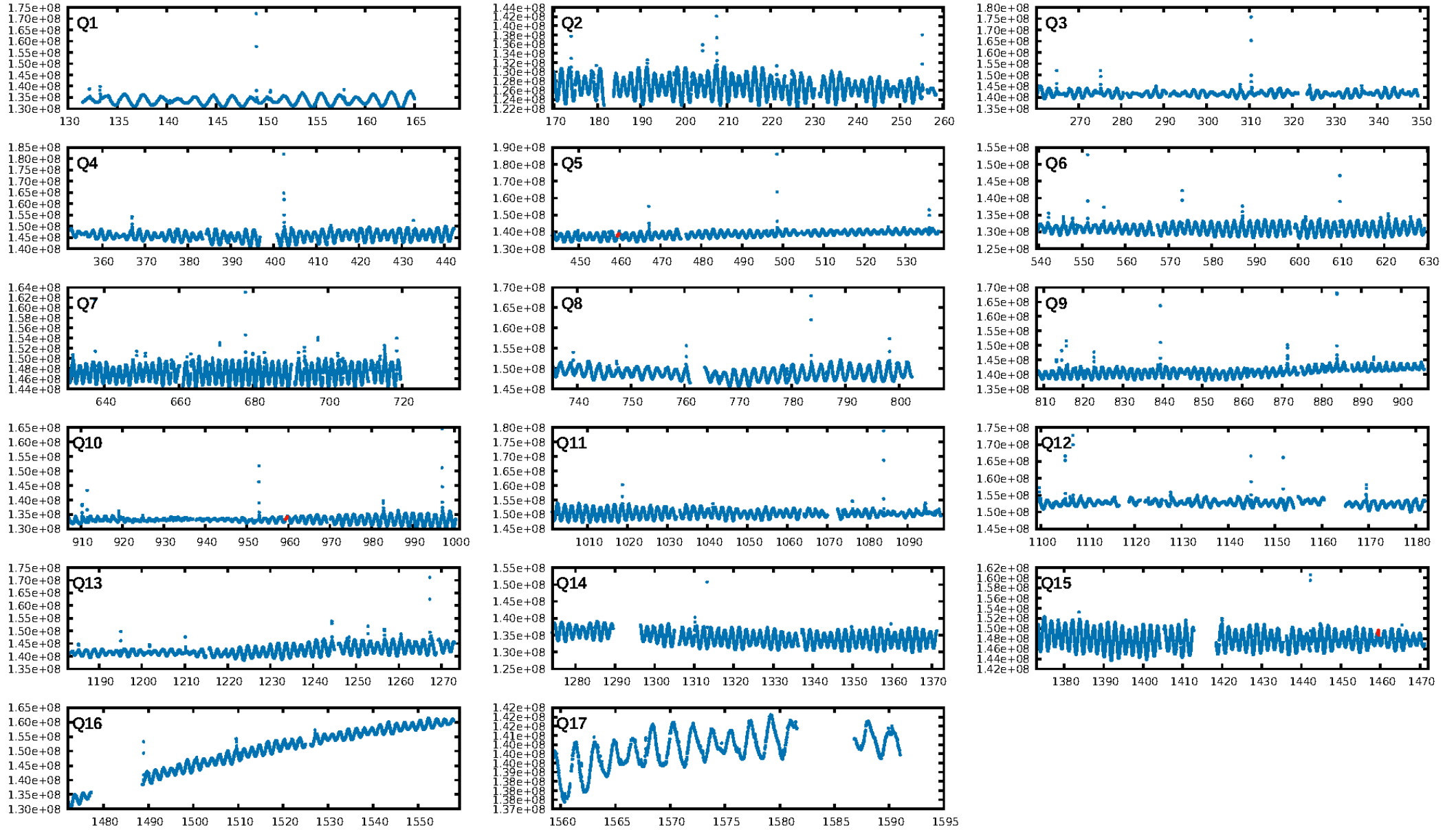
## DV Fit Results:

Period = 499.87442 [0.01181] d  
Epoch = 459.6389 [0.0170] BKJD  
Rp/R\* = 0.0283 [0.0402]  
a/R\* = 562.46 [2437.10]  
b = 0.78 [2.27]  
Seff = 0.14 [0.03]  
Teq = 155 [7] K  
Rp = 2.23 [3.18] Re  
a = 1.1033 [0.0842] AU  
Ag = 101231.50 [292174.31] [0.35σ]  
Teffp = 4287 [3096] K [1.33σ]

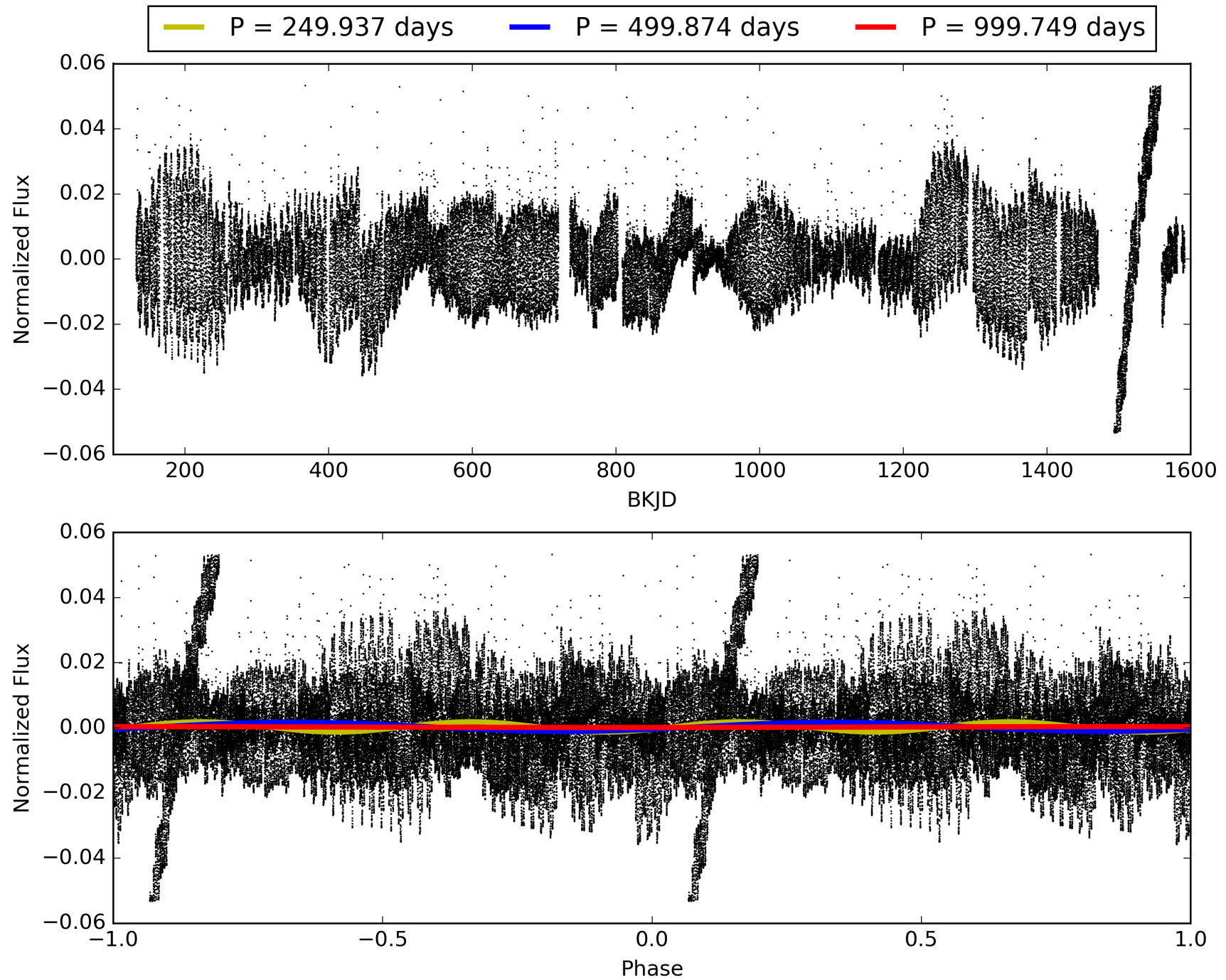
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [53.34σ]  
LongPeriod-sig: 100.0% [9.27σ]  
ModelChiSquare2-sig: 40.3%  
ModelChiSquareGof-sig: 98.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.6631  
Centroid-sig: 98.3%  
Centroid-so: 0.587 arcsec [0.76σ]  
OotOffset-rm: 0.166 arcsec [1.06σ]  
KicOffset-rm: 0.669 arcsec [3.77σ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.00 [0/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 004248763-01, PDC Light Curves



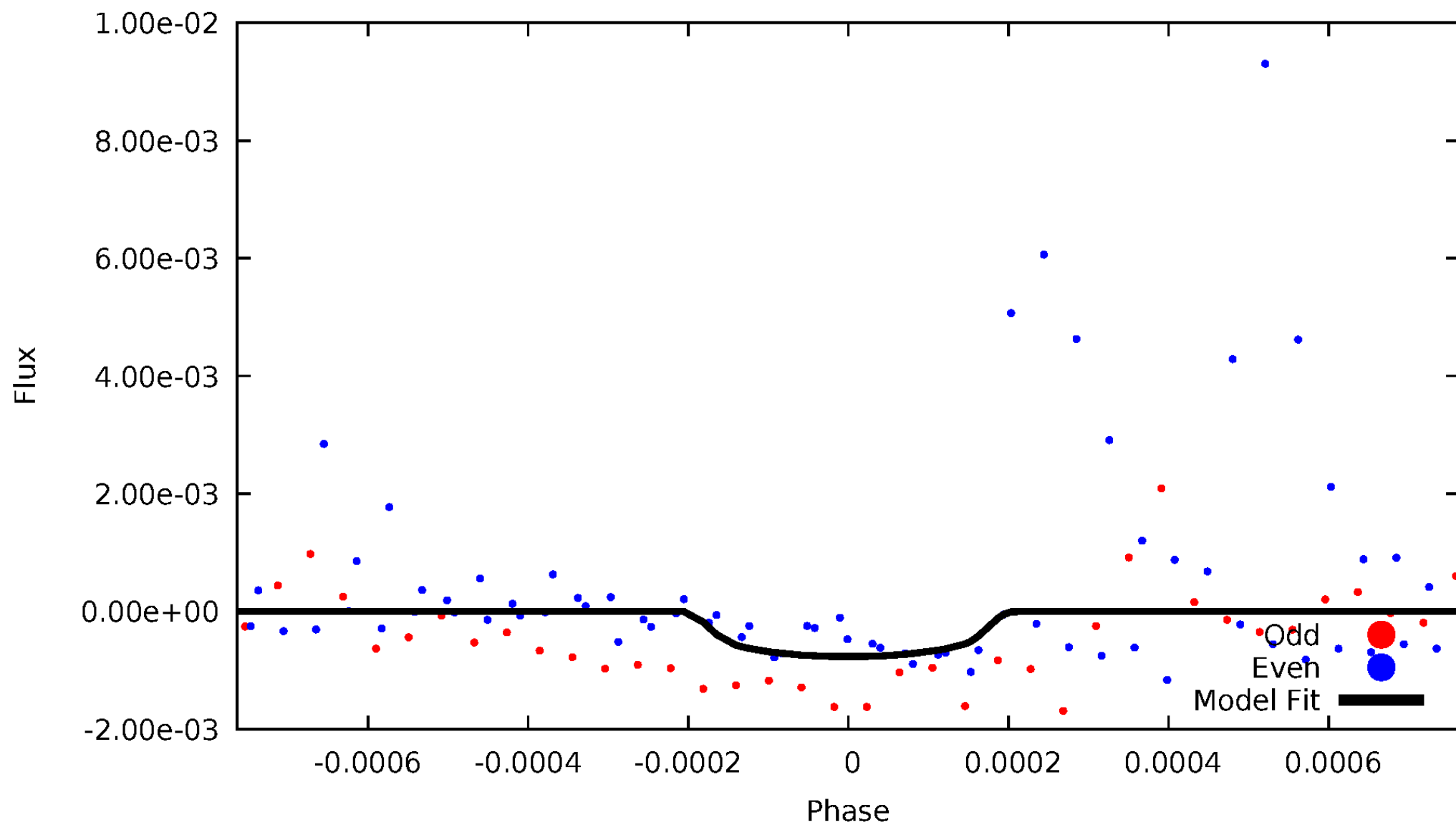
TCE 004248763-01





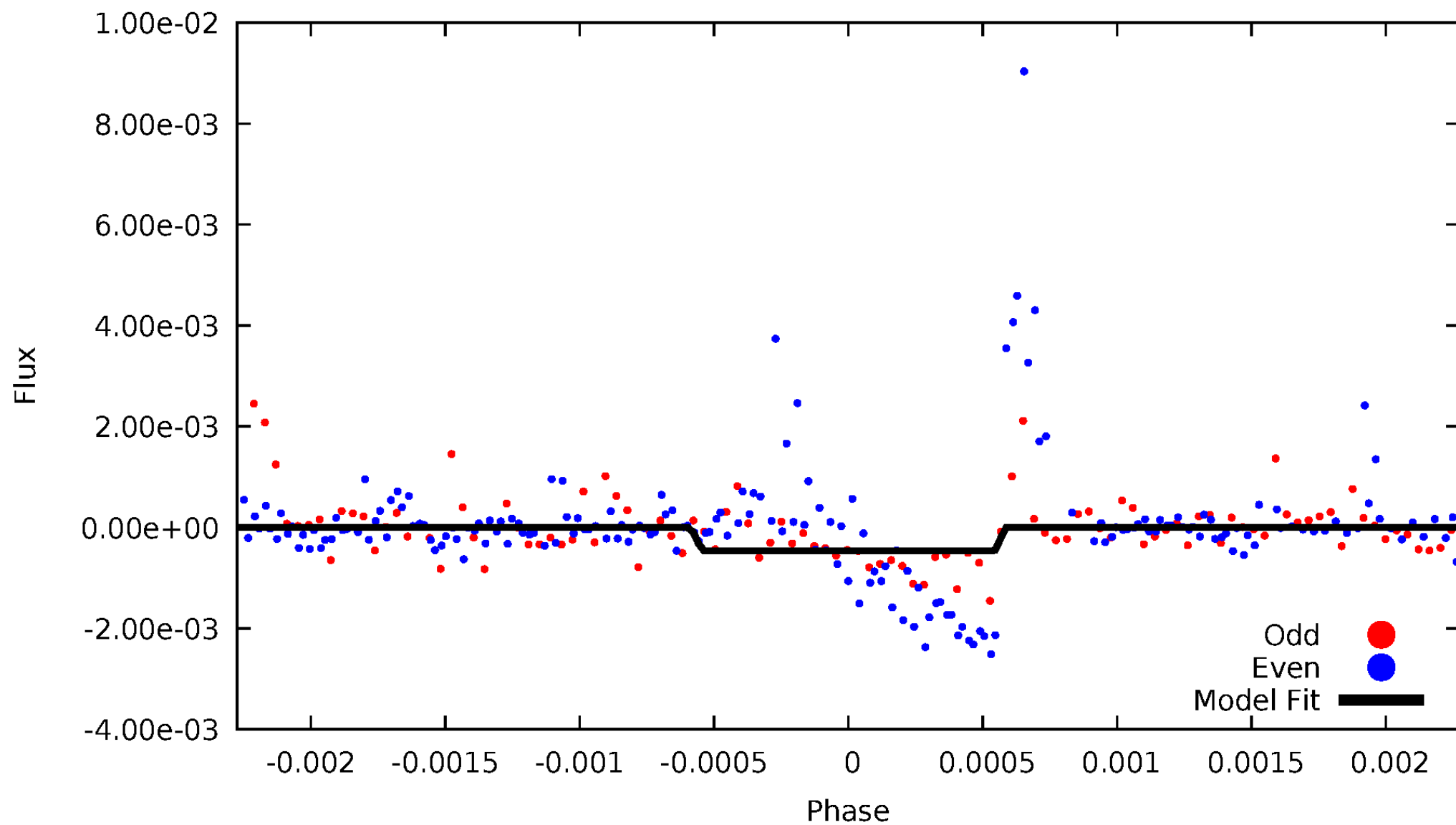
# DV Odd/Even

TCE 004248763-01



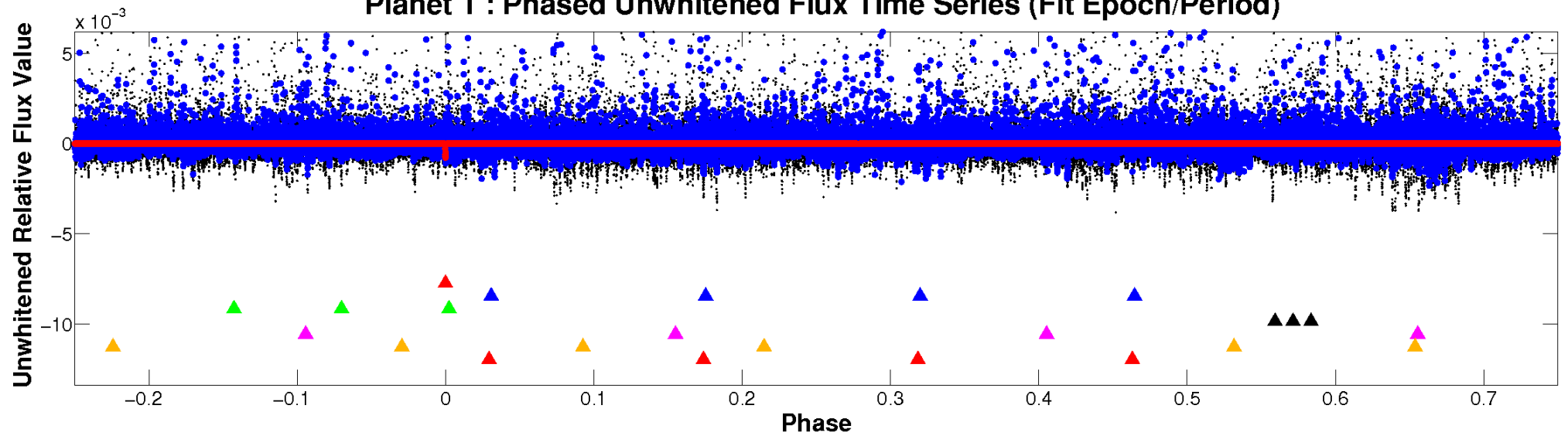
# ALT Odd/Even

TCE 004248763-01

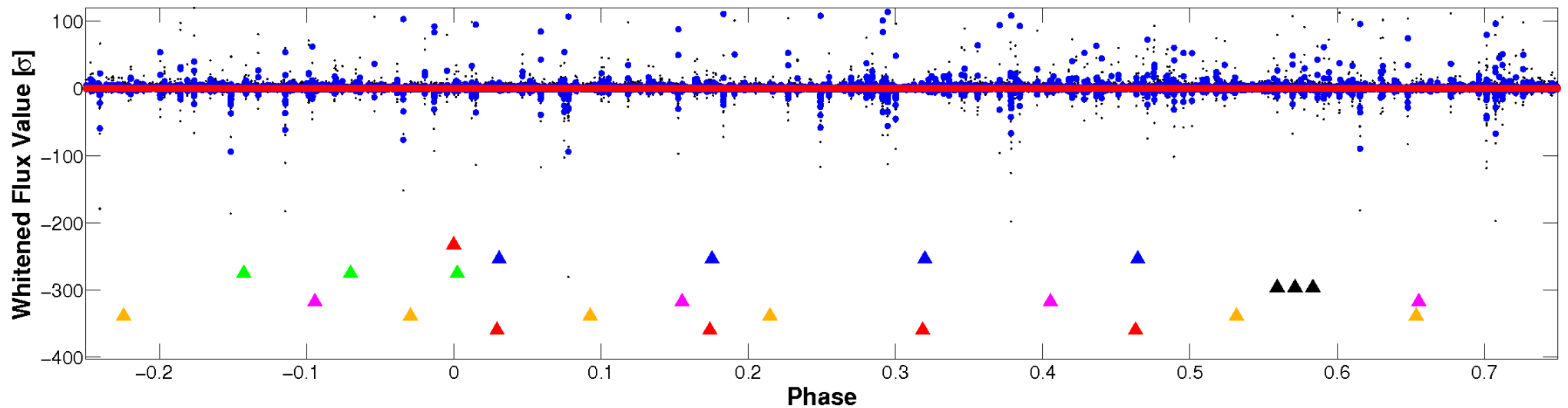


# Non-Whitened Vs. Whitened Light Curve

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

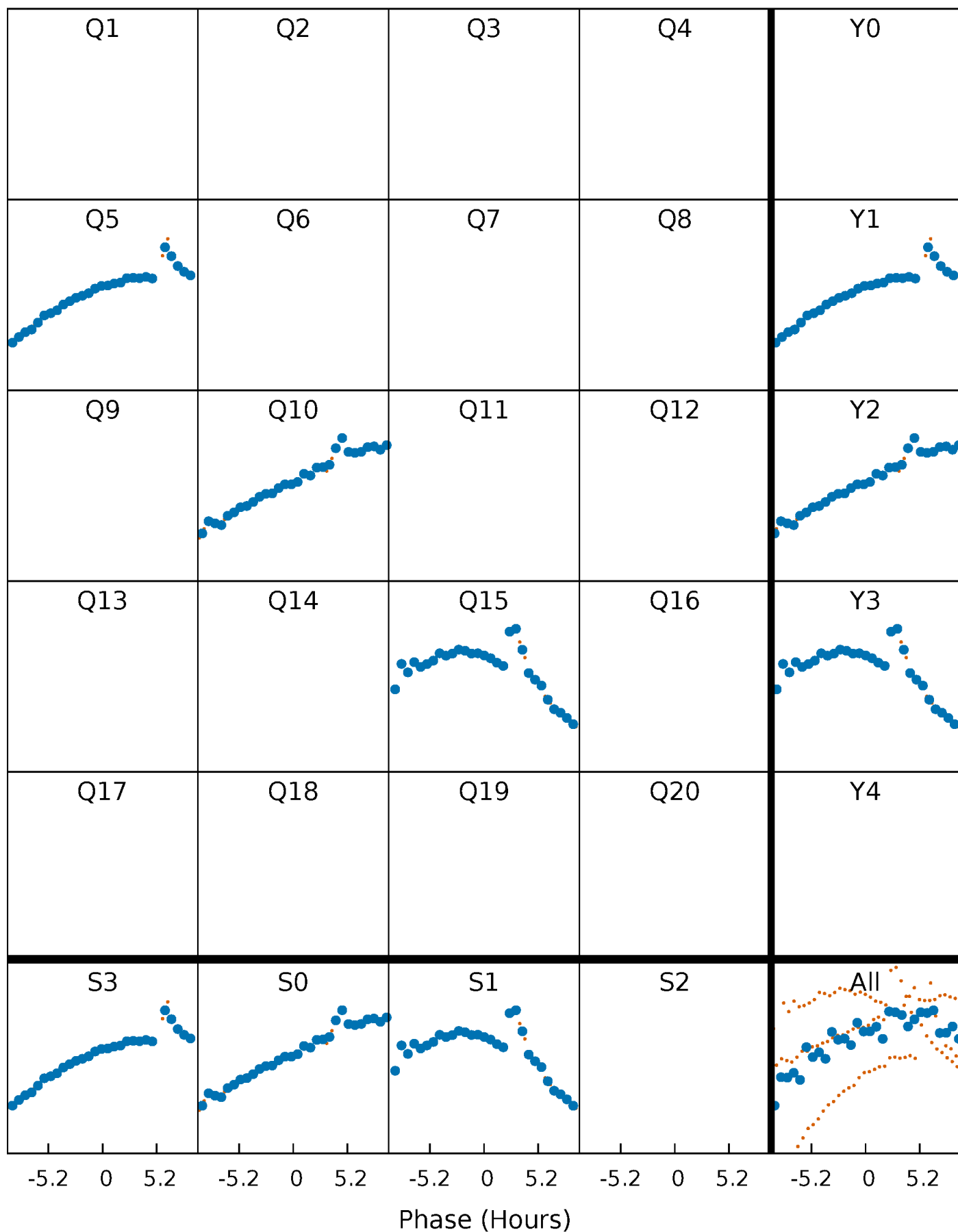


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



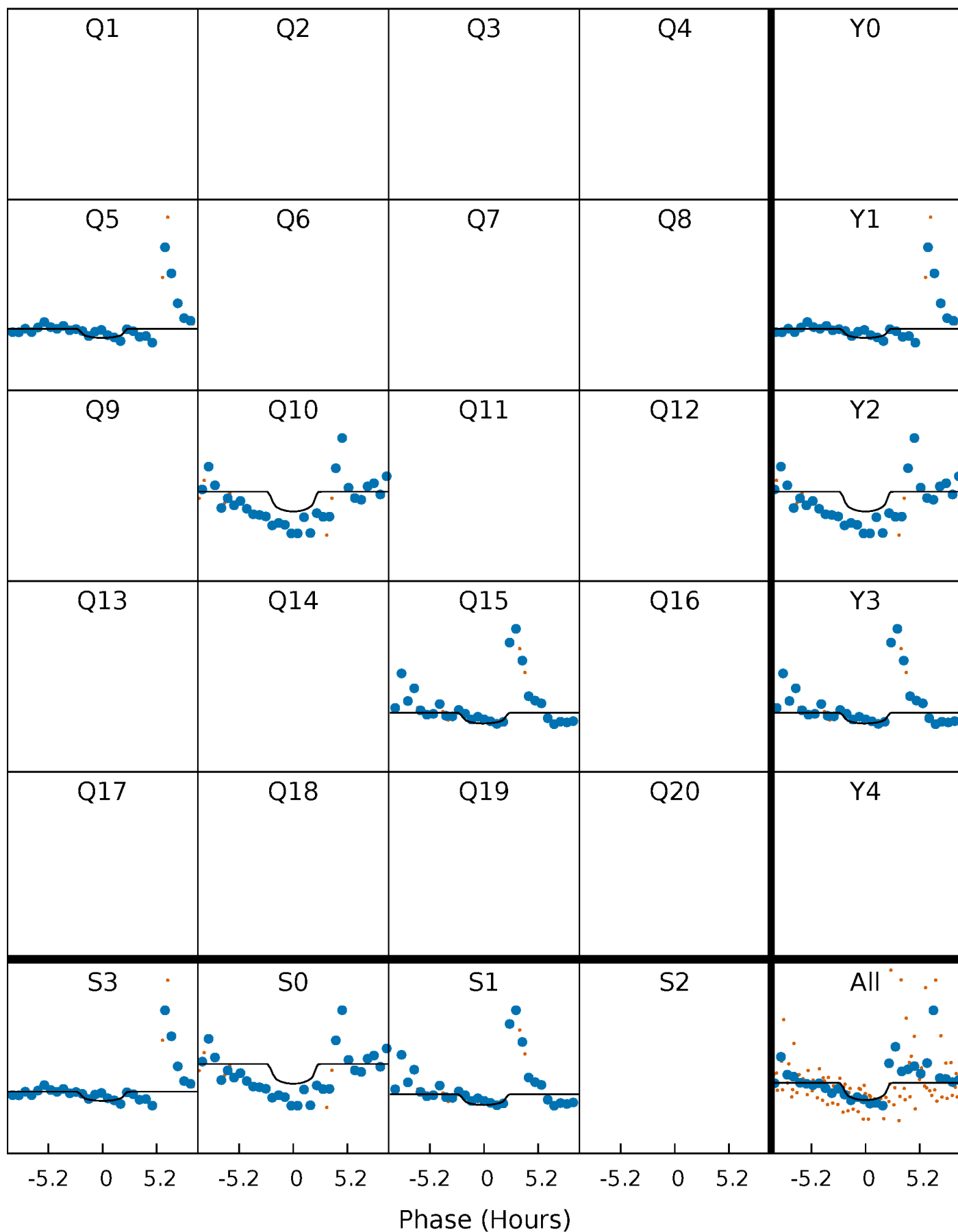
# PDC Quarter-Phased Transit Curves

TCE 004248763-01 P=499.874418 Days  $T_0=459.638870$  (BKJD)



# DV Quarter-Phased Transit Curves

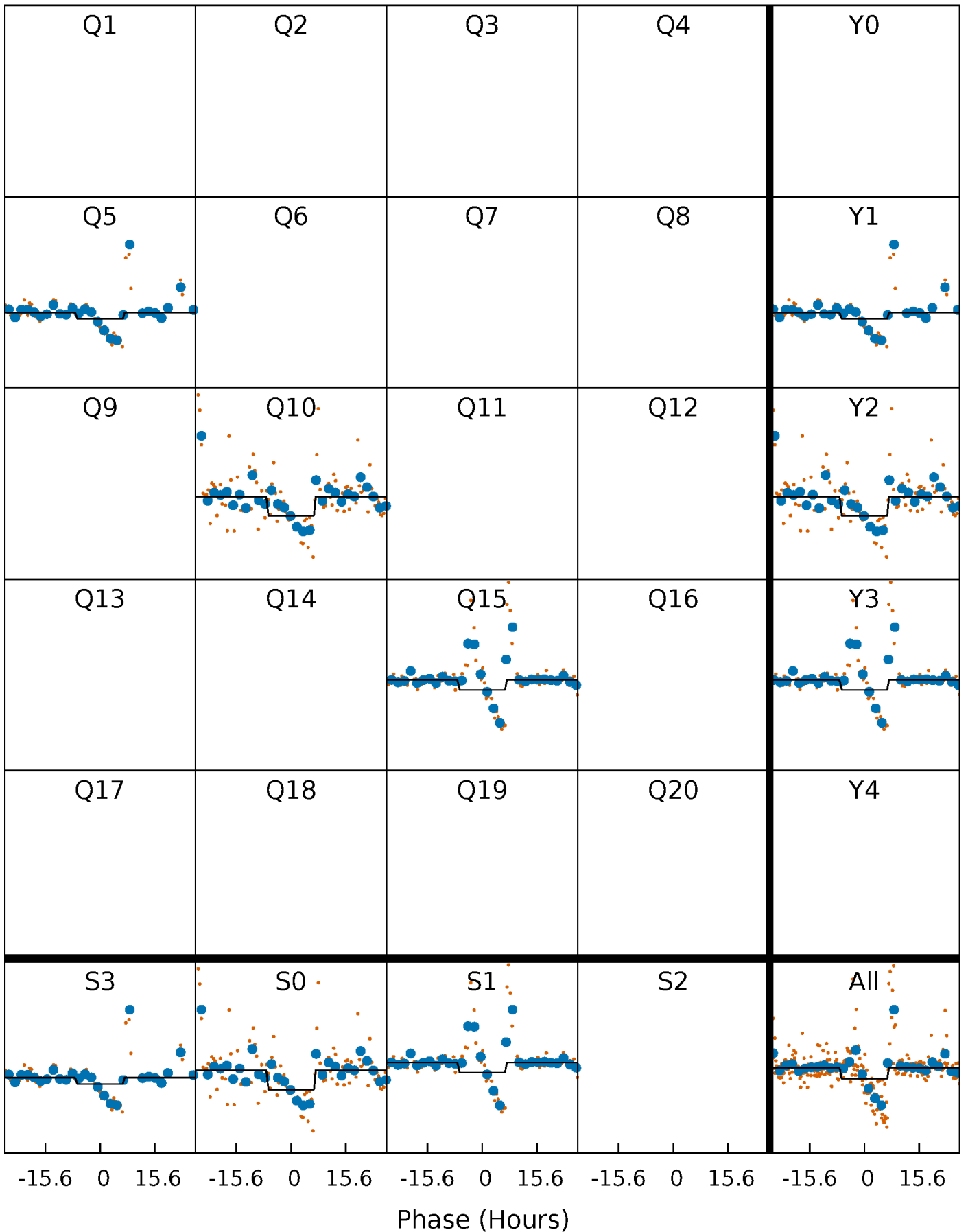
TCE 004248763-01 P=499.874418 Days  $T_0=459.638870$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

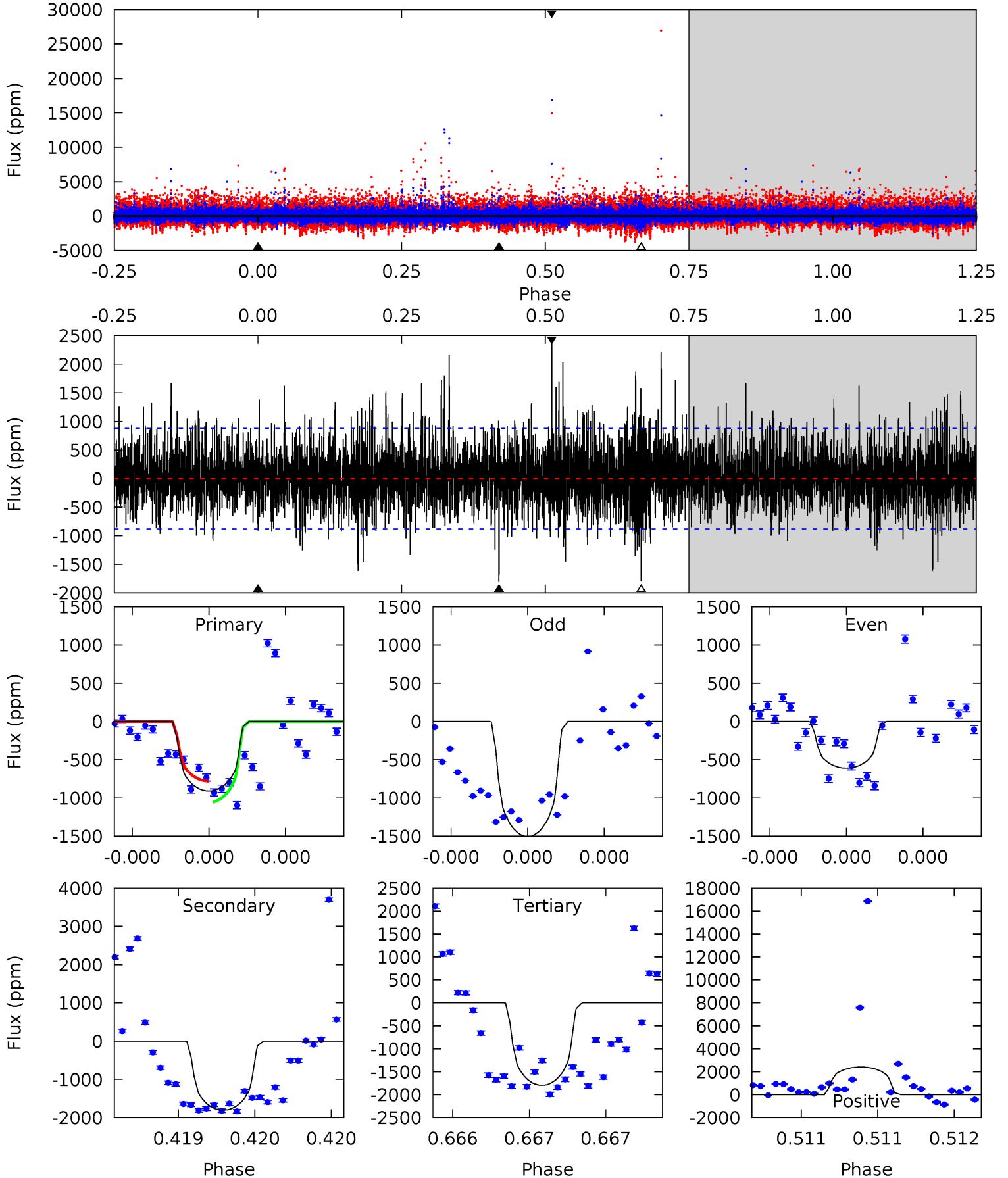
TCE 004248763-01 P=499.811689 Days  $T_0=459.572326$  (BKJD)



# DV Model-Shift Uniqueness Test

004248763-01, P = 499.874418 Days, E = 459.638870 Days

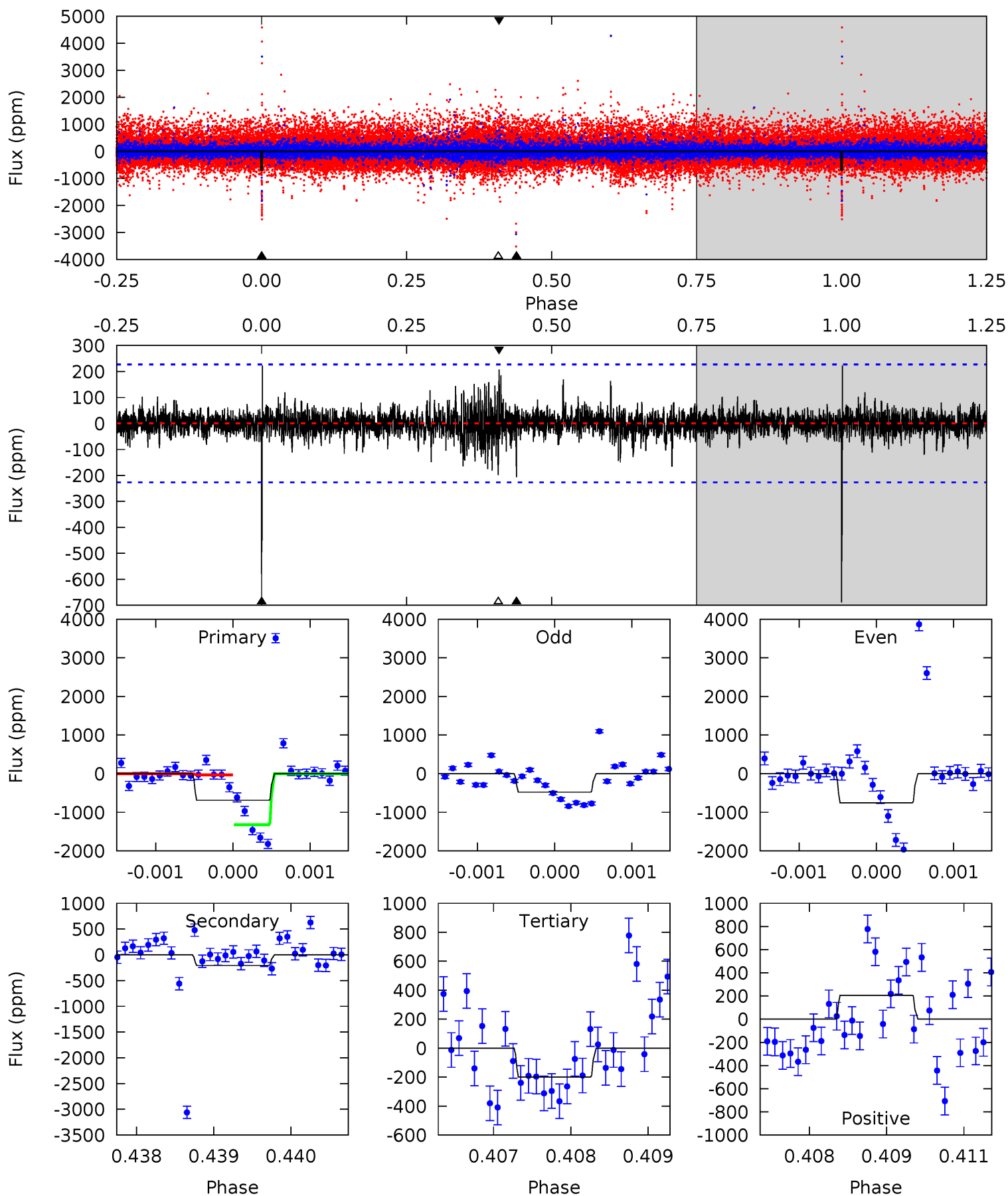
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.76	11.4	11.4	15.3	5.60	3.52	2.67	-5.61	-9.53	0.06	-3.86	1.02	1.49	0.57	0.88



# Alt Model-Shift Uniqueness Test

004248763-01, P = 499.811689 Days, E = 459.572326 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
16.5	4.94	4.75	4.95	5.43	3.25	0.85	11.7	11.5	0.18	-0.01	2.32	1.16	0.24	15.6



### Stellar Parameters For KIC 004248763

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4353^{+155}_{-172}$	$4.575^{+0.060}_{-0.016}$	$0.420^{+0.050}_{-0.300}$	$0.723^{+0.028}_{-0.066}$	$0.716^{+0.042}_{-0.052}$	$2.673^{+0.727}_{-0.166}$
	+4%/-4%	+1%/-0%	+12%/-71%	+4%/-9%	+6%/-7%	+27%/-6%
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 004248763-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1807 \pm 158$	$3.07^{+2.59}_{-2.01}$	$215^{+9}_{-9}$	$4497^{+2677}_{-897}$	$129202^{+975661}_{-91459}$
Alt.	$-206 \pm 42$	$2.82^{+2.46}_{-1.87}$	$215^{+9}_{-9}$	$3186^{+1537}_{-520}$	$17303^{+145963}_{-12512}$

$T_{\text{max}}$  = 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

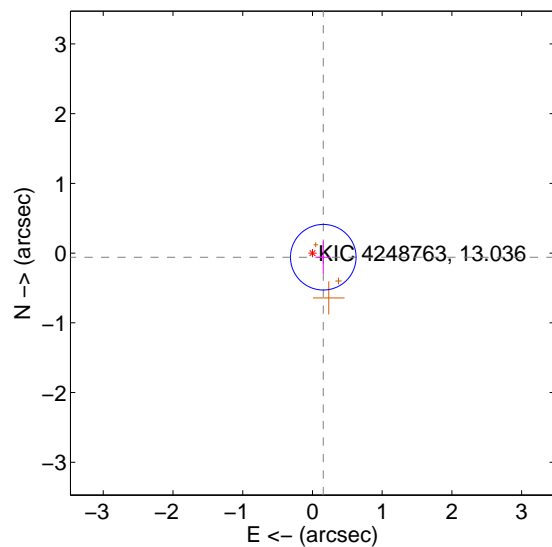
Supplemental centroid analysis for 004248763-01. Kepler magnitude: 13.04. Transit SNR 3.37

There are 0 quarters with good PRF difference image offsets

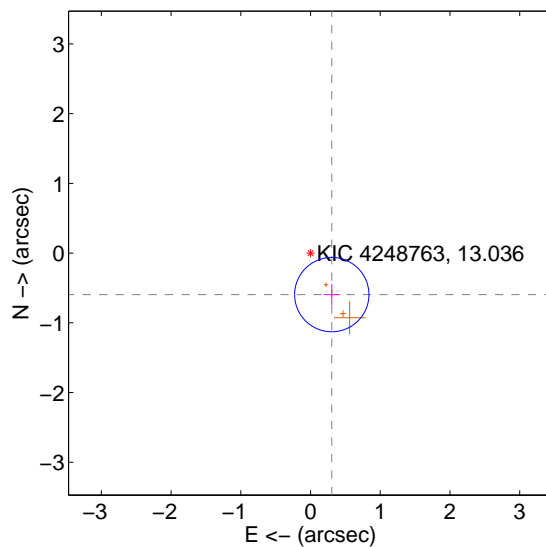
The direct PRF centroid is offset from the target star catalog position by about 0.60 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.166 \pm 0.157$	1.06	$-0.155 \pm 0.100$	$-0.059 \pm 0.230$
PRF-fit source offset from KIC position	$0.669 \pm 0.178$	3.77	$-0.305 \pm 0.119$	$-0.595 \pm 0.151$
photometric centroid source offset	$0.59 \pm 0.77$	0.76	$-0.18 \pm 0.68$	$-0.56 \pm 0.78$

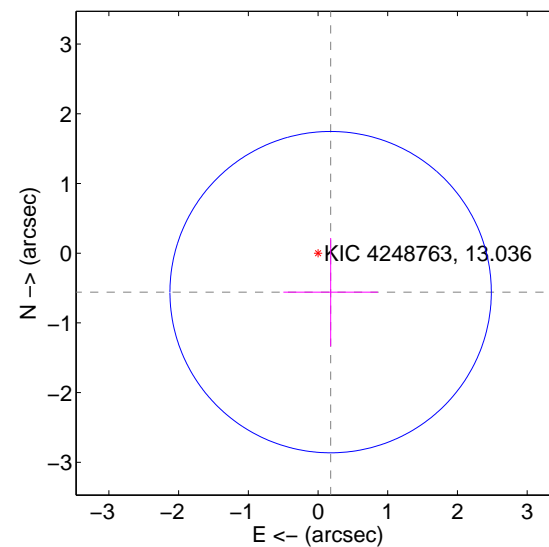
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



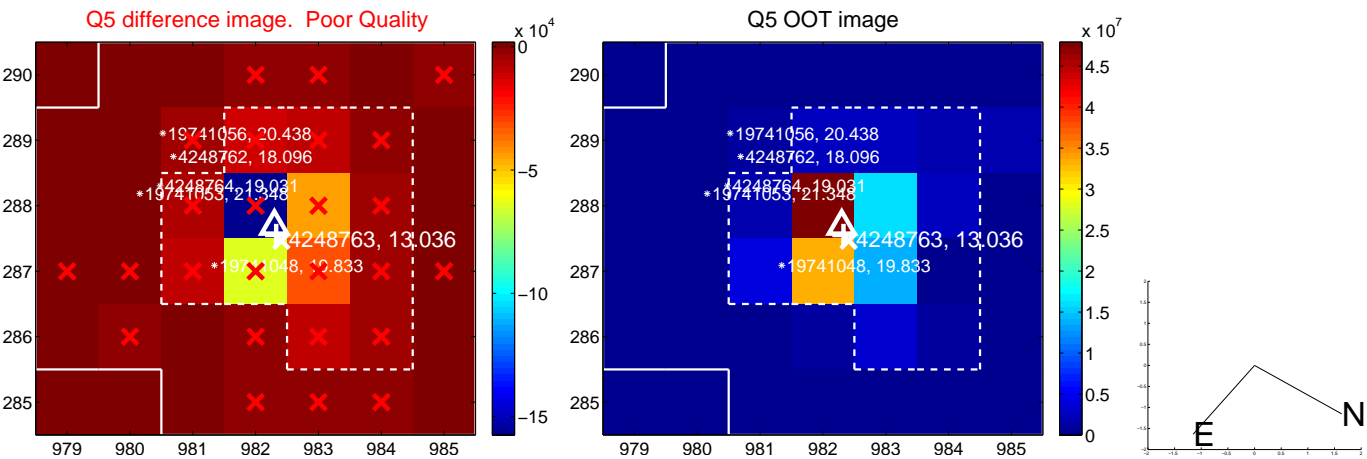
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



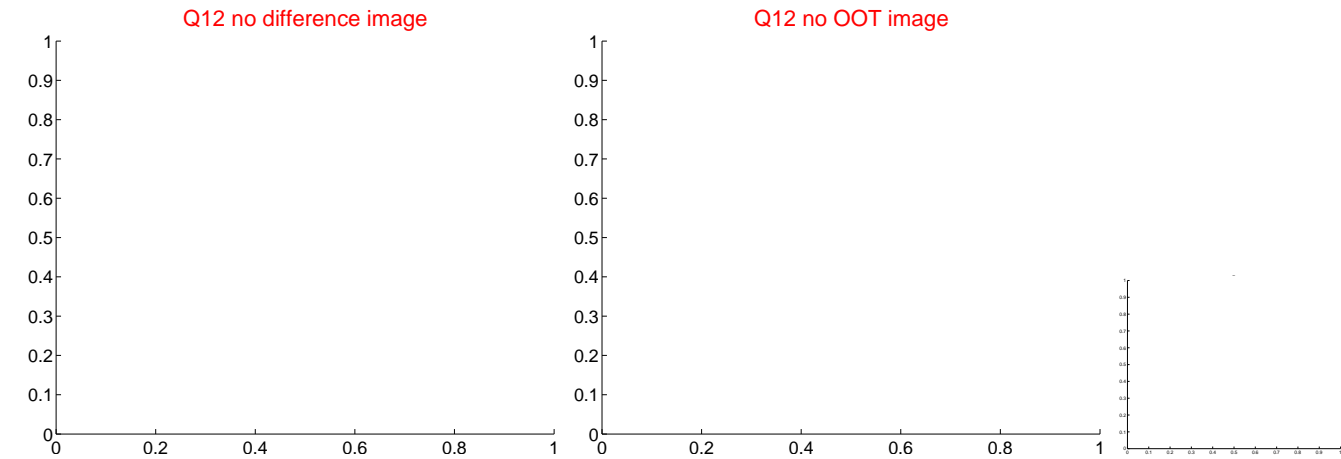
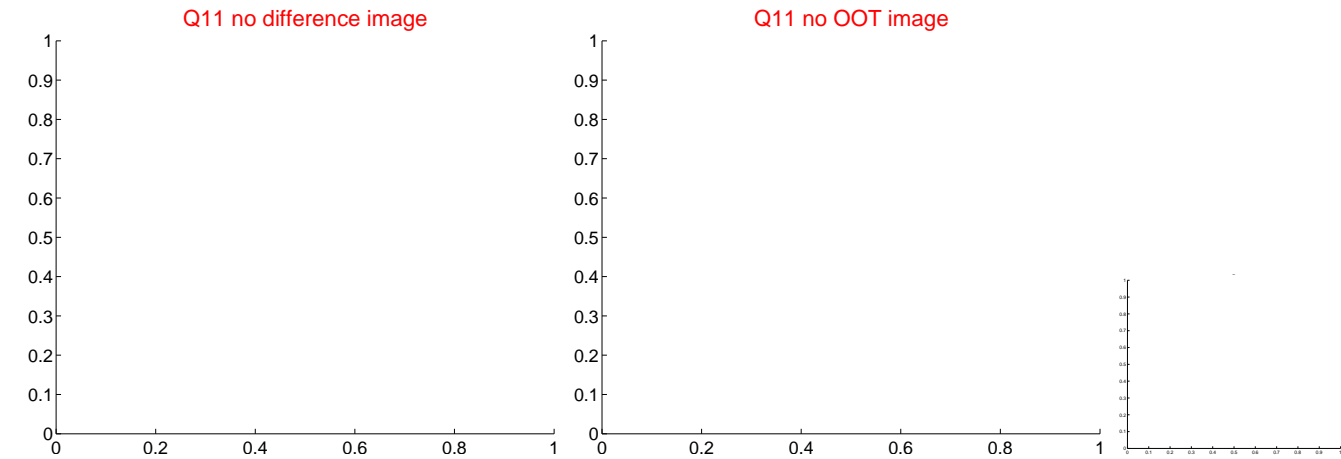
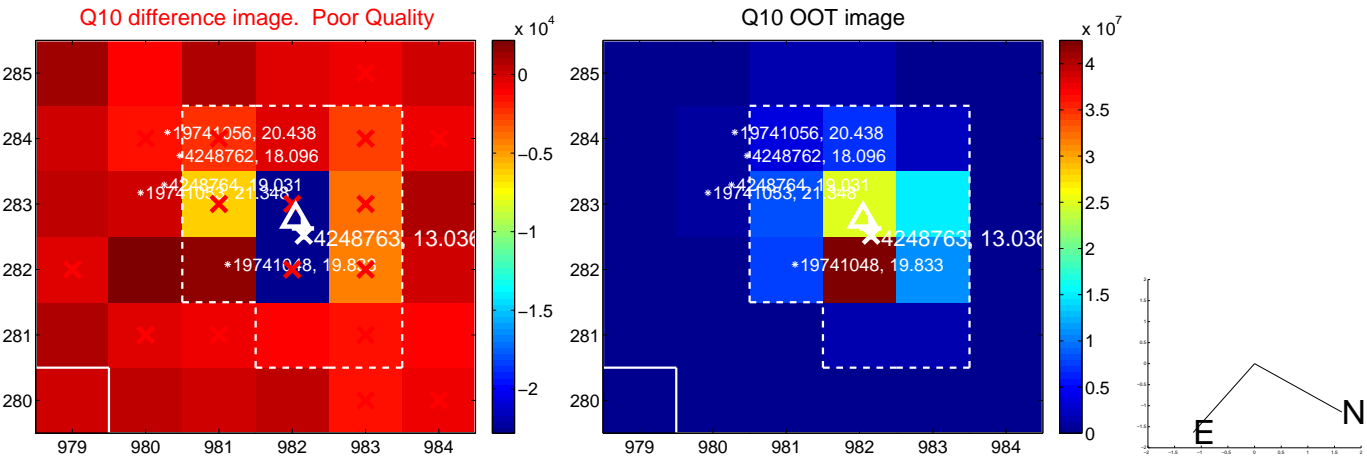
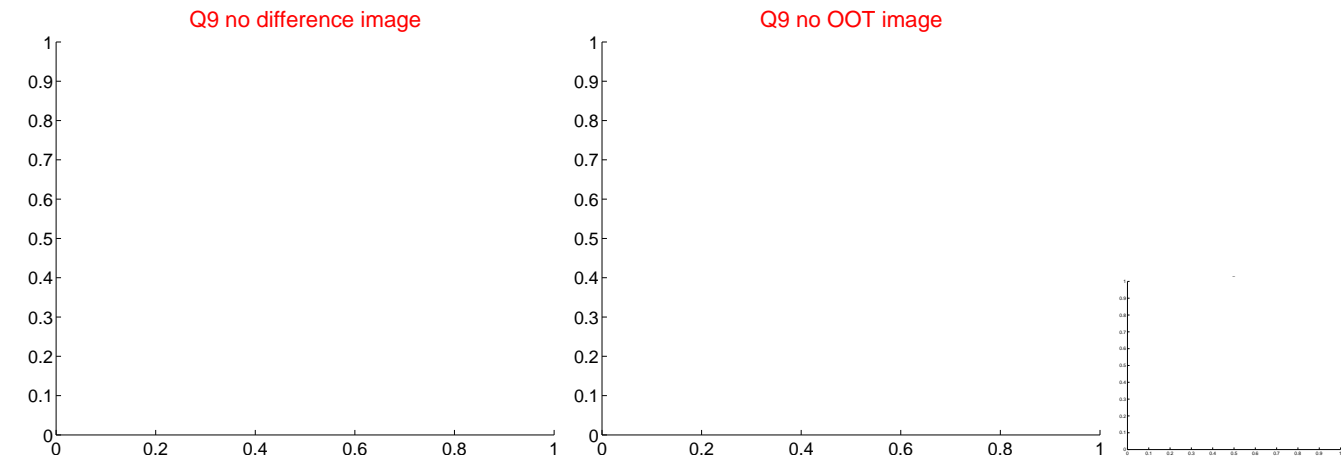
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



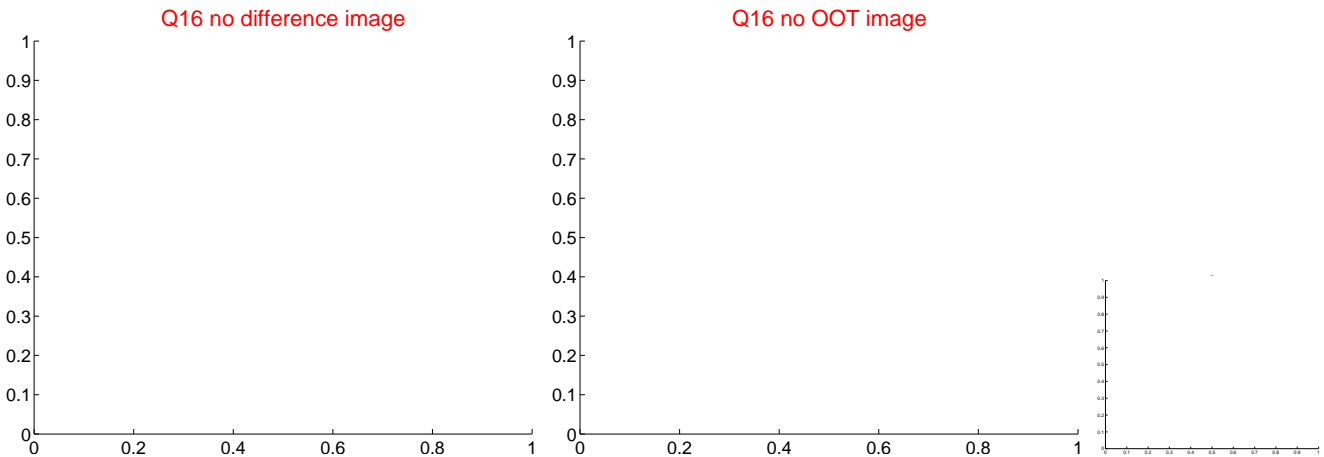
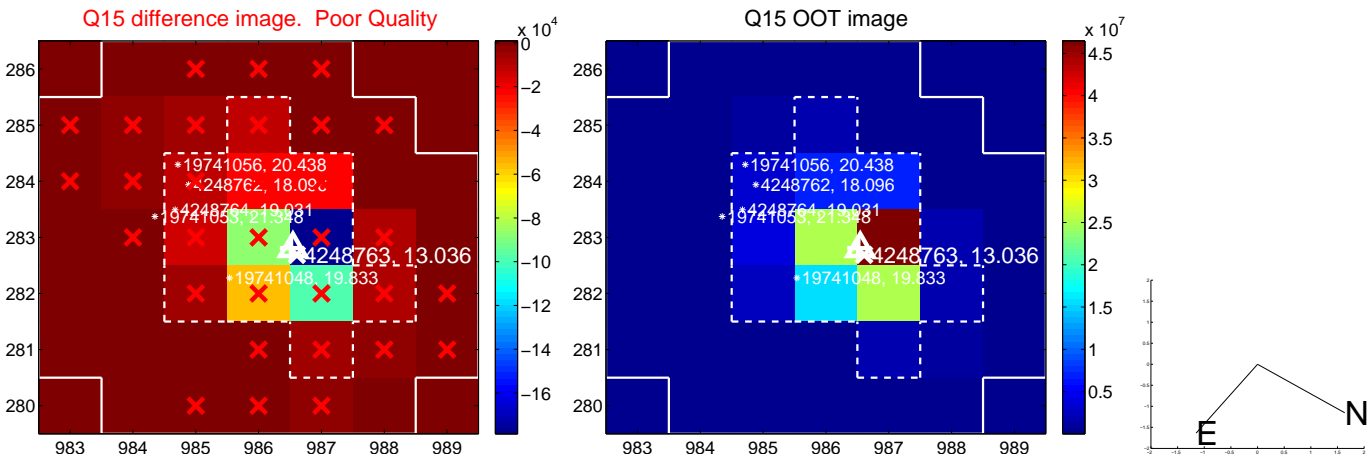
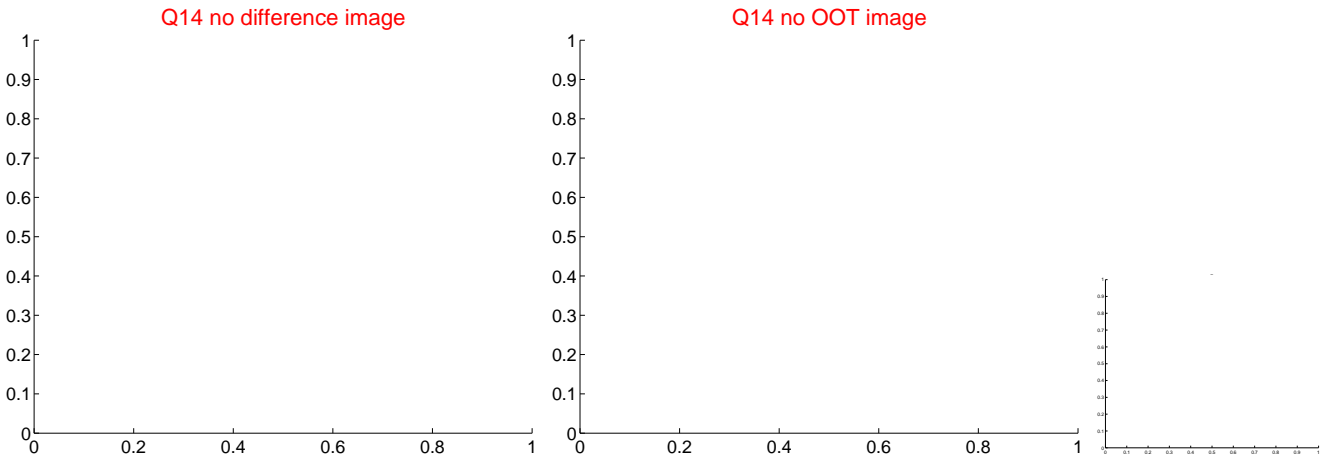
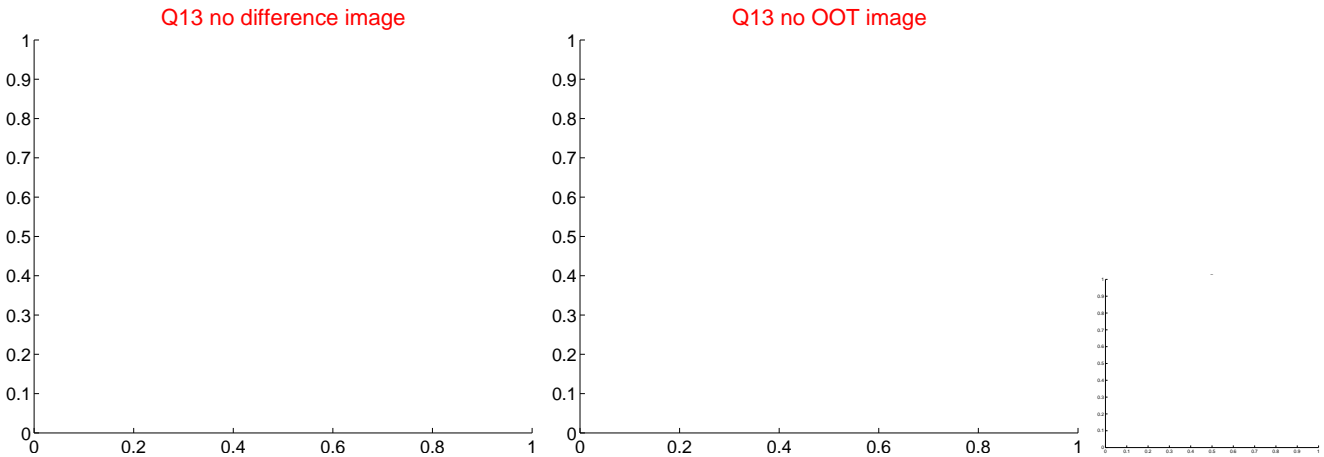
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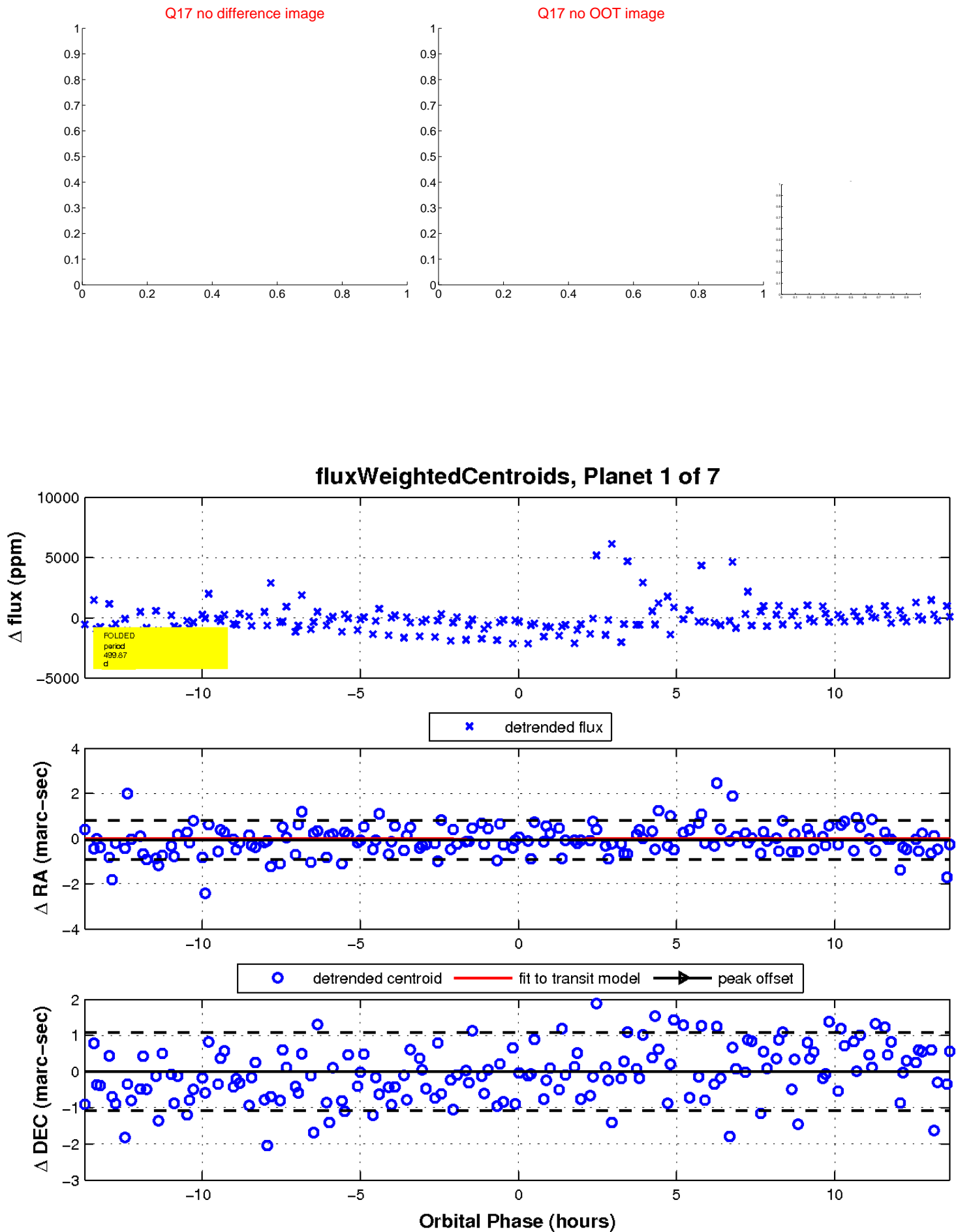
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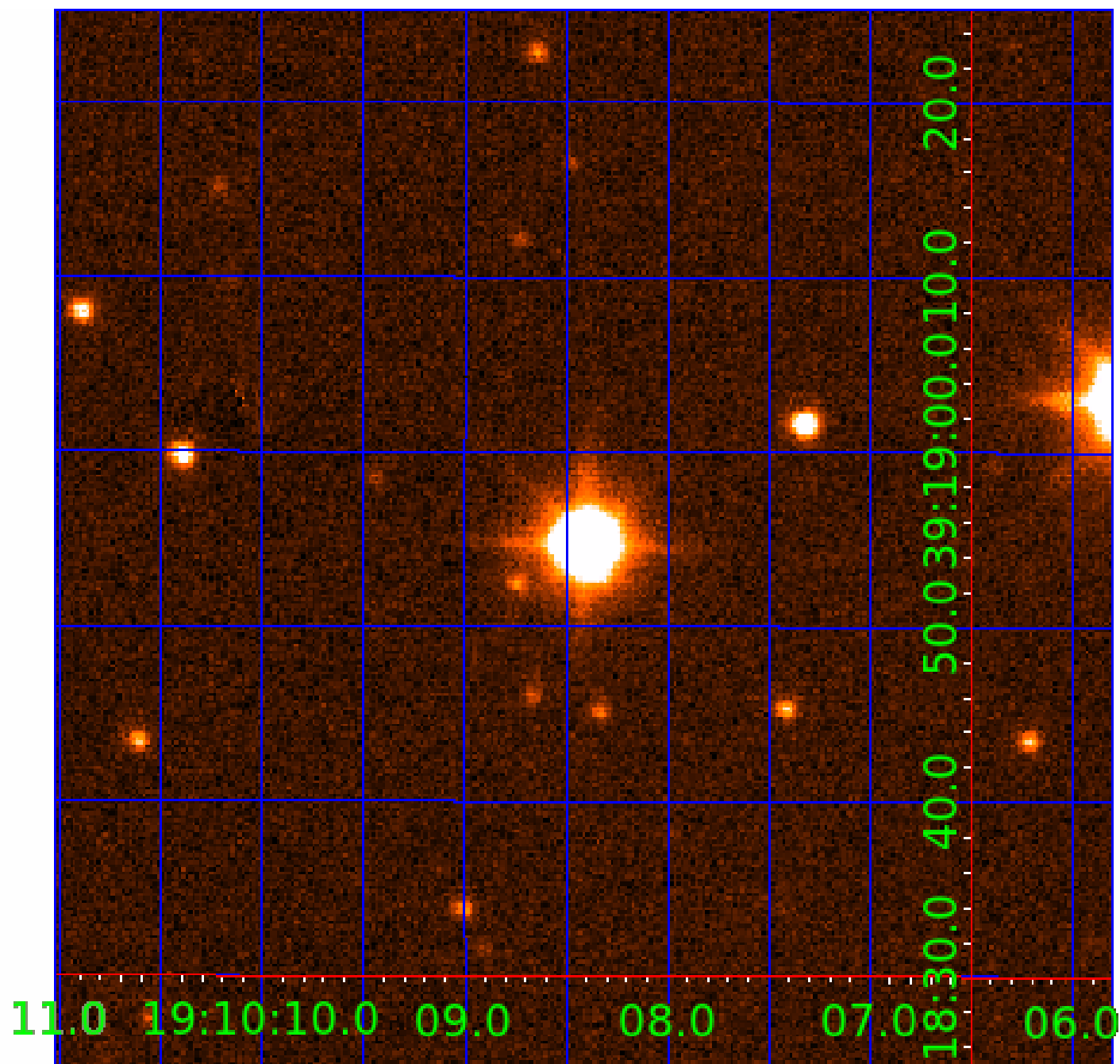
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 004248763

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

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004248763-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
004248763-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
004248763-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
004248763-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

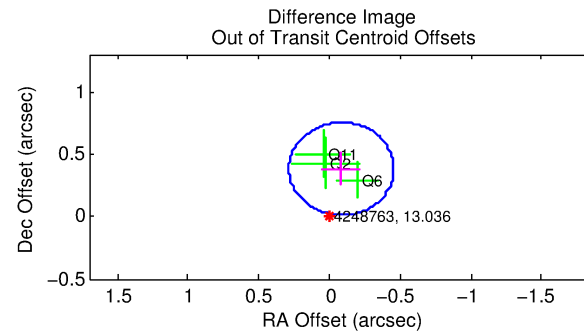
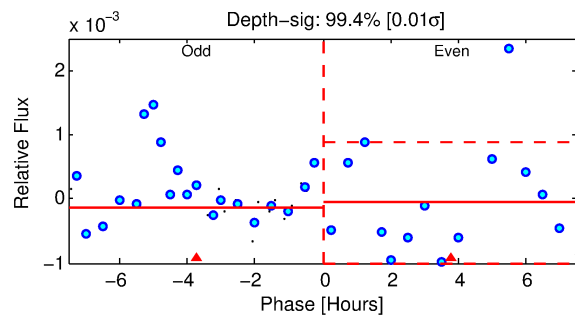
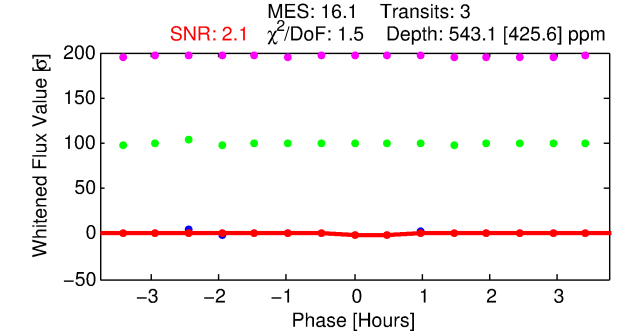
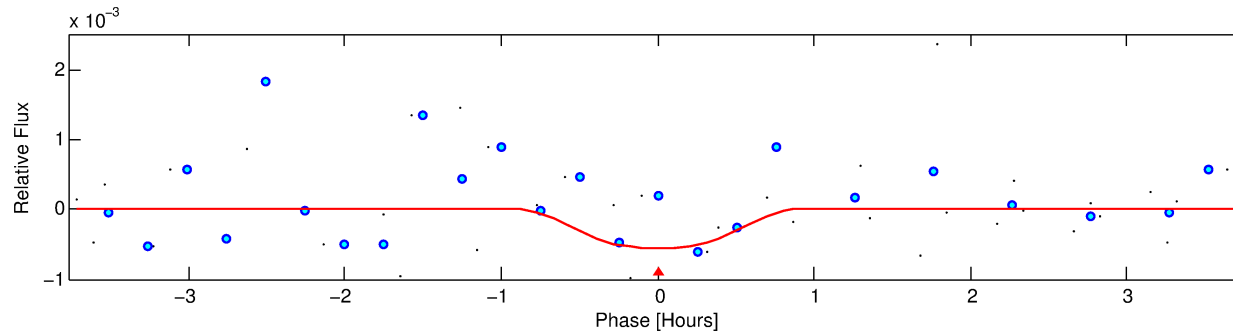
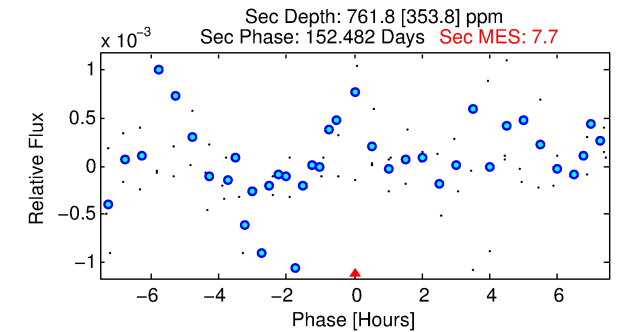
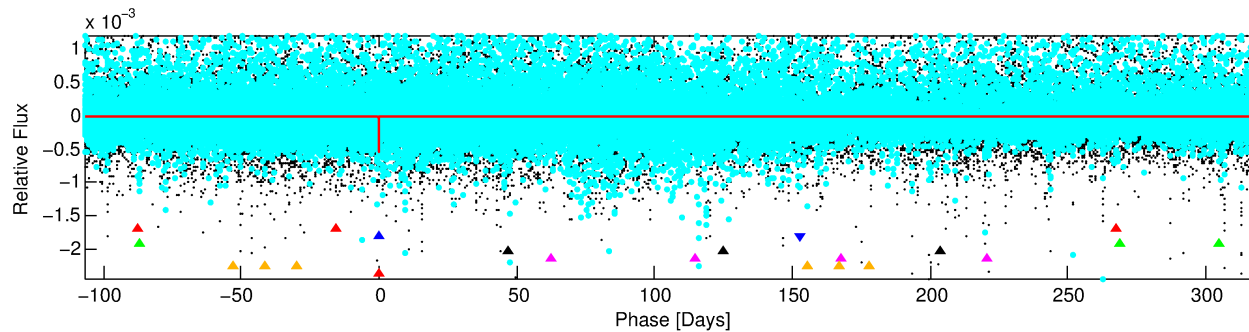
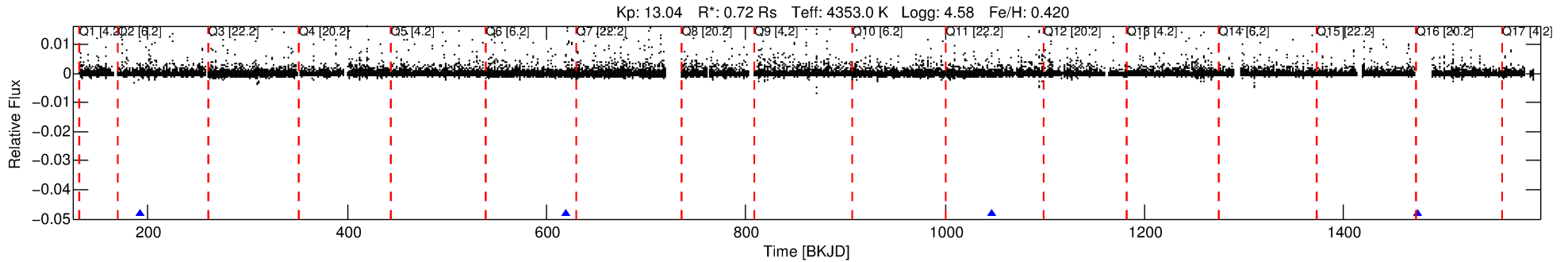
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004248763-02

No Significant Match Found

# DV One-Page Summary

KIC: 4248763 Candidate: 2 of 7 Period: 427.596 d



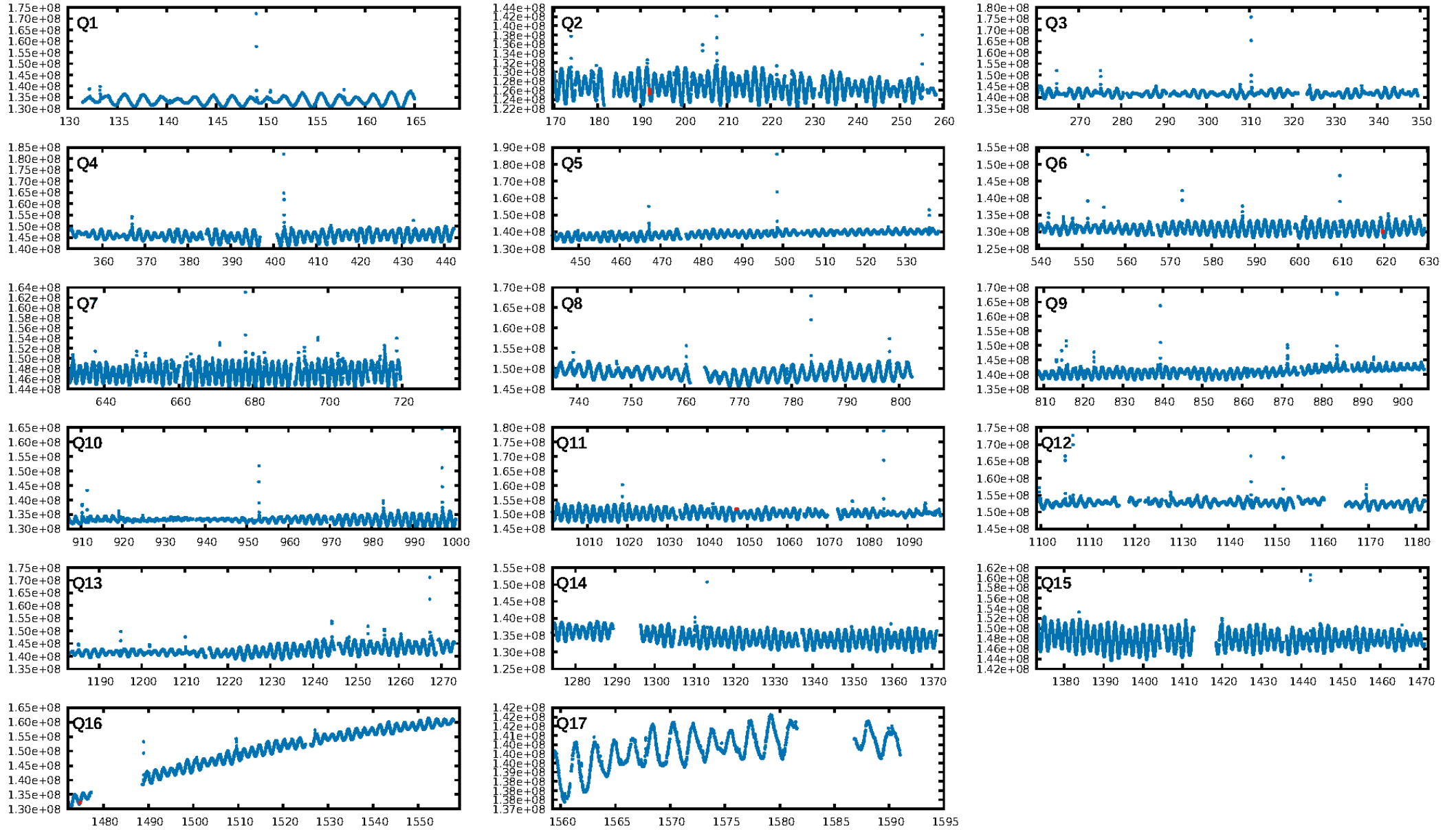
## DV Fit Results:

Period = 427.59560 [0.01452] d  
Epoch = 192.0229 [0.0161] BKJD  
Rp/R\* = 0.0246 [0.2947]  
a/R\* = 1635.21 [61747.37]  
b = 0.81 [16.81]  
Seff = 0.17 [0.03]  
Teq = 164 [8] K  
Rp = 1.94 [23.25] Re  
a = 0.9942 [0.0759] AU  
Ag = 109685.14 [2625144.02] [0.04σ]  
Teffp = 4608 [27570] K [0.16σ]

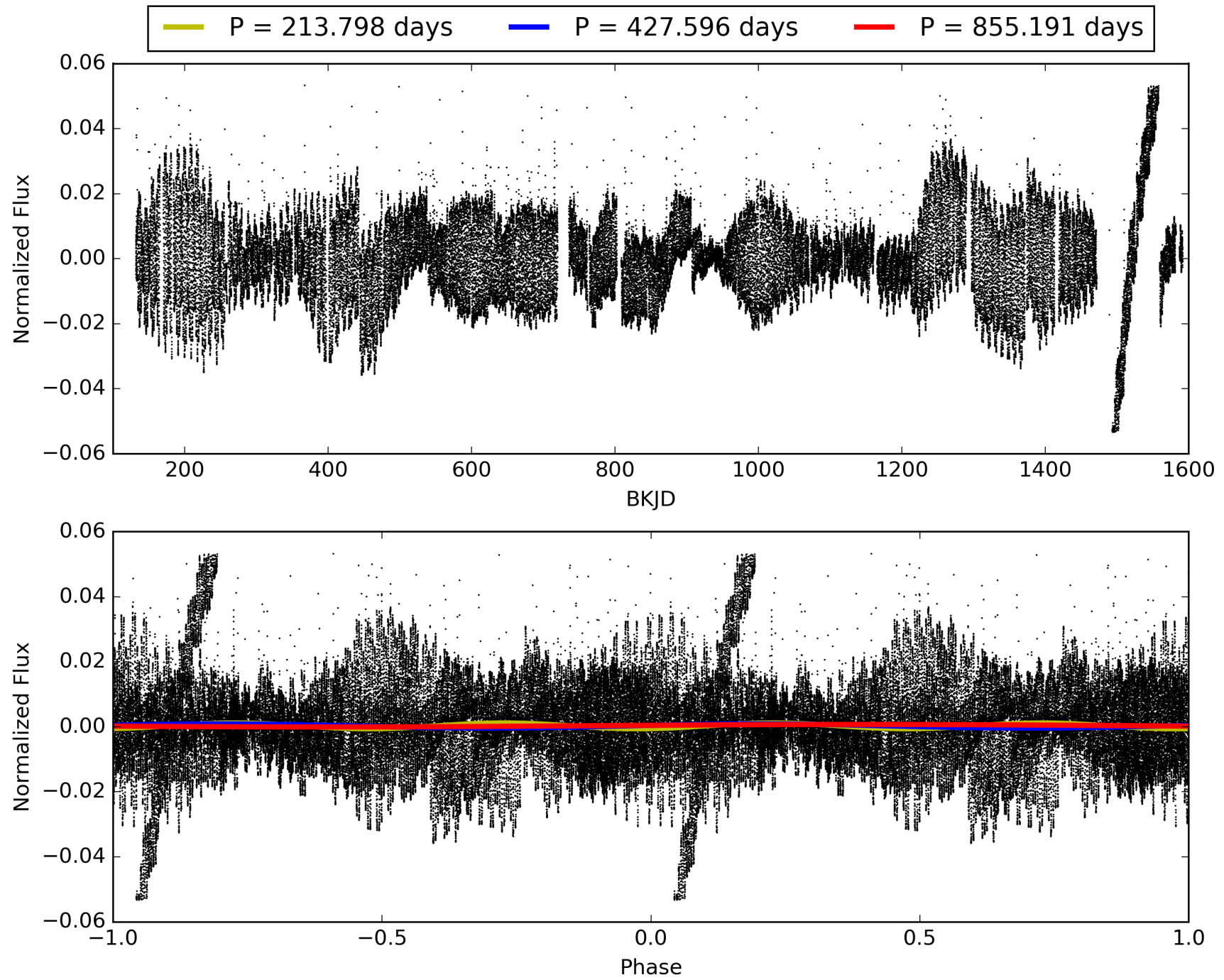
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [228.76σ]  
LongPeriod-sig: 1.6% [0.02σ]  
ModelChiSquare2-sig: 5.2%  
ModelChiSquareGof-sig: 80.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.817  
Centroid-sig: 89.7%  
Centroid-so: 0.606 arcsec [0.34σ]  
OotOffset-rm: 0.392 arcsec [3.16σ]  
KicOffset-rm: 0.312 arcsec [2.12σ]  
OotOffset-st: 2/1/0/0 [3]  
KicOffset-st: 2/1/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 0.00 [0/3]

# TCE 004248763-02, PDC Light Curves



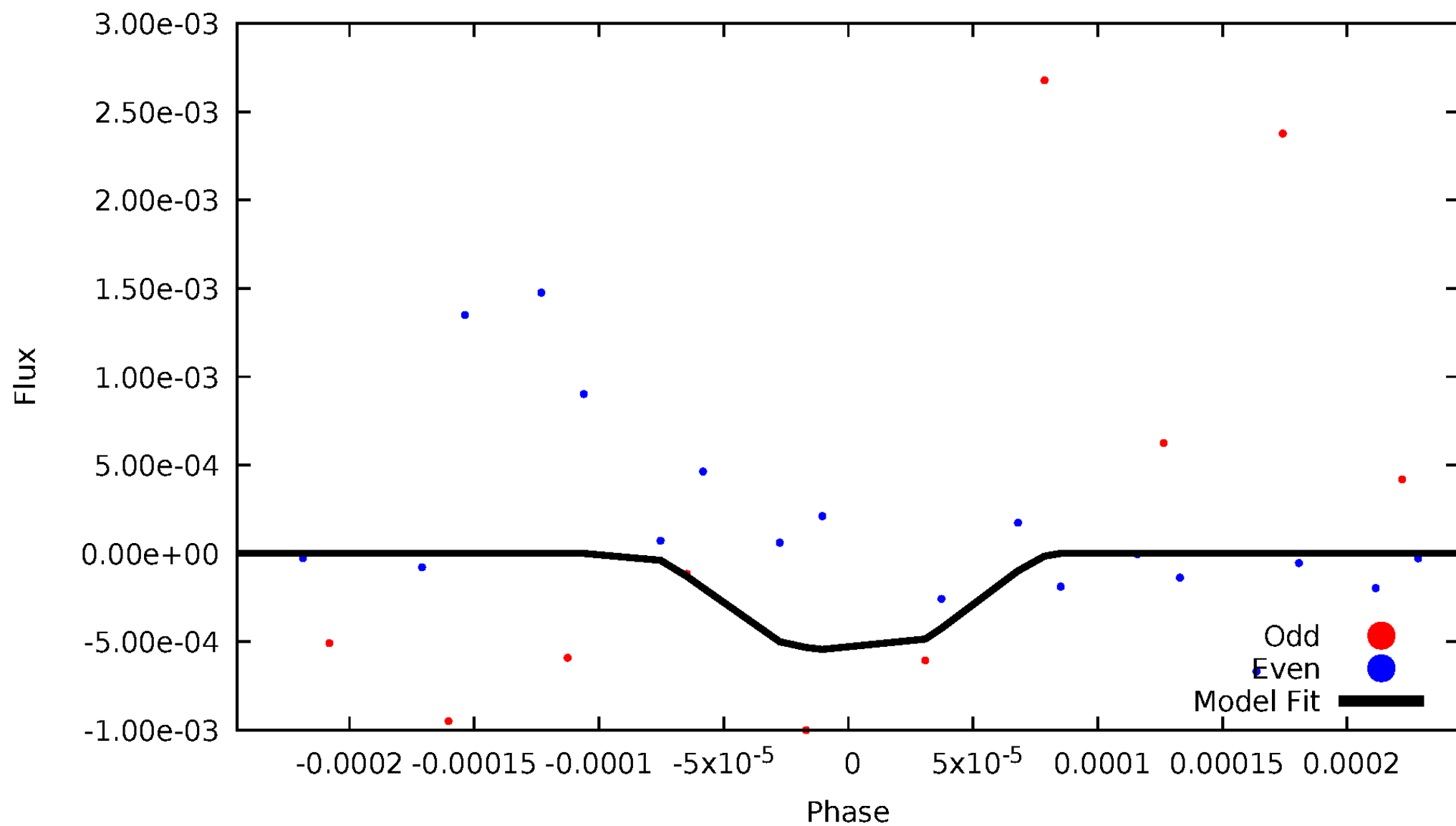
TCE 004248763-02





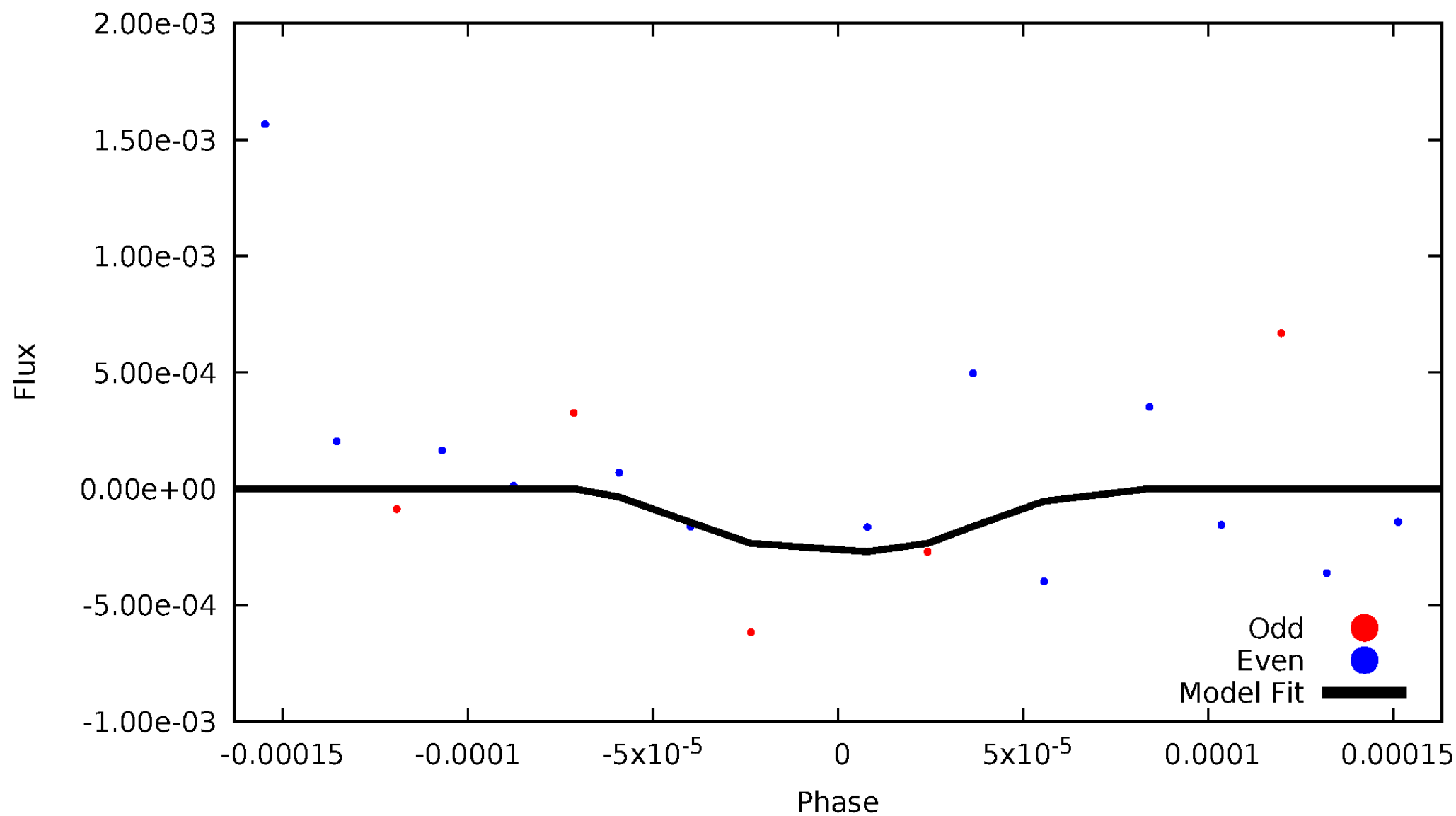
# DV Odd/Even

TCE 004248763-02



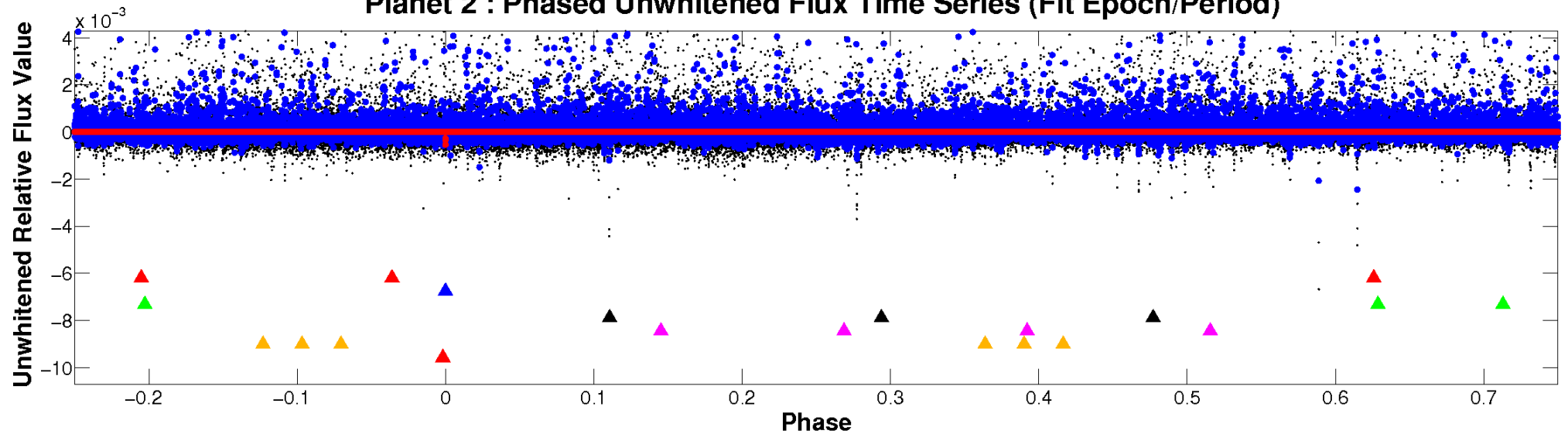
# ALT Odd/Even

TCE 004248763-02

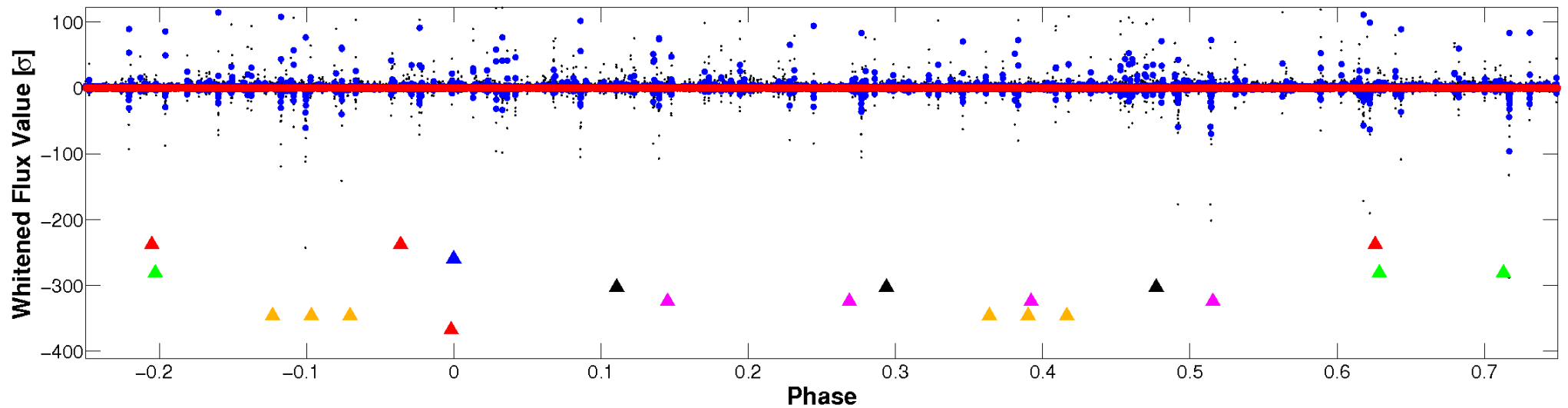


# Non-Whitened Vs. Whitened Light Curve

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

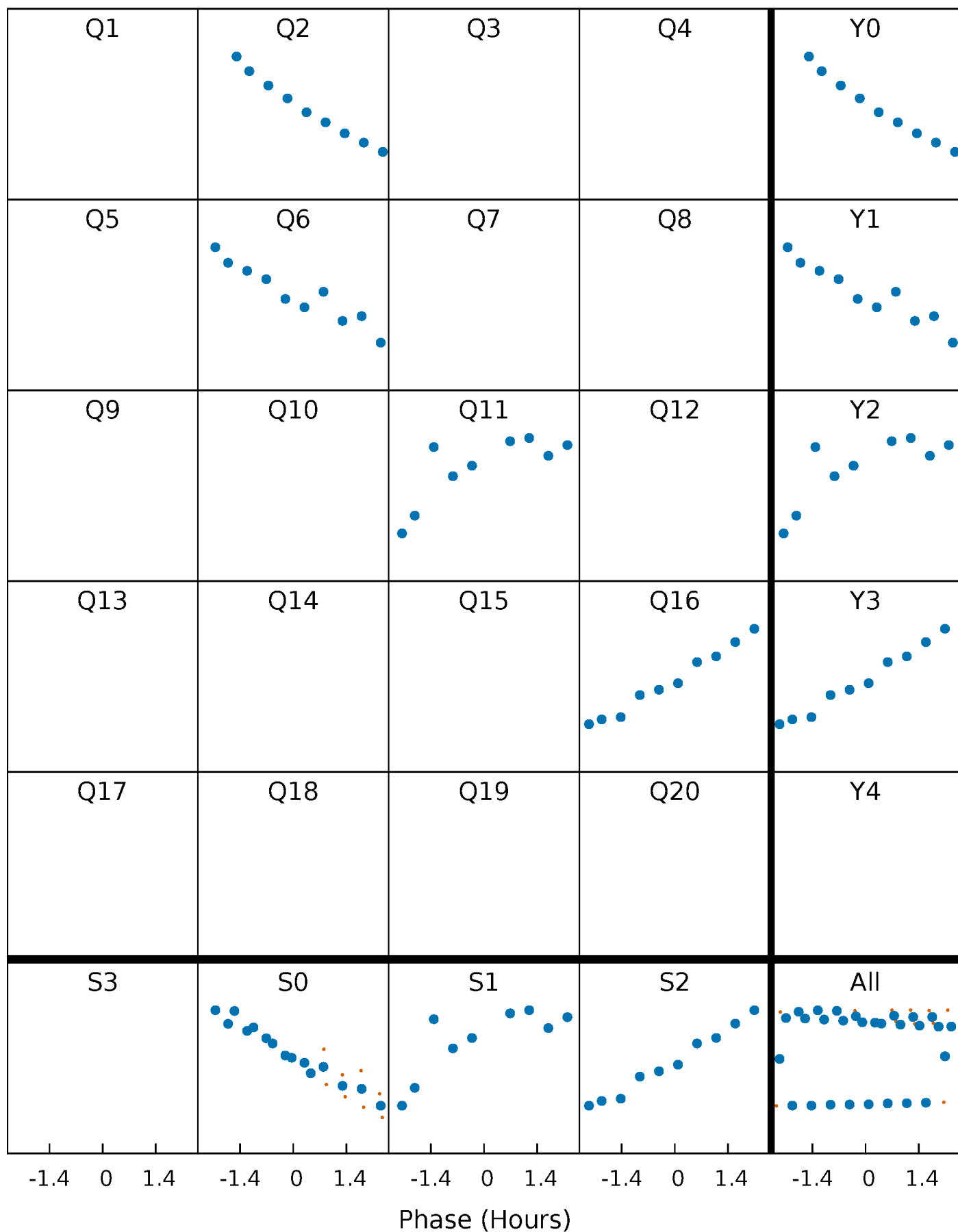


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



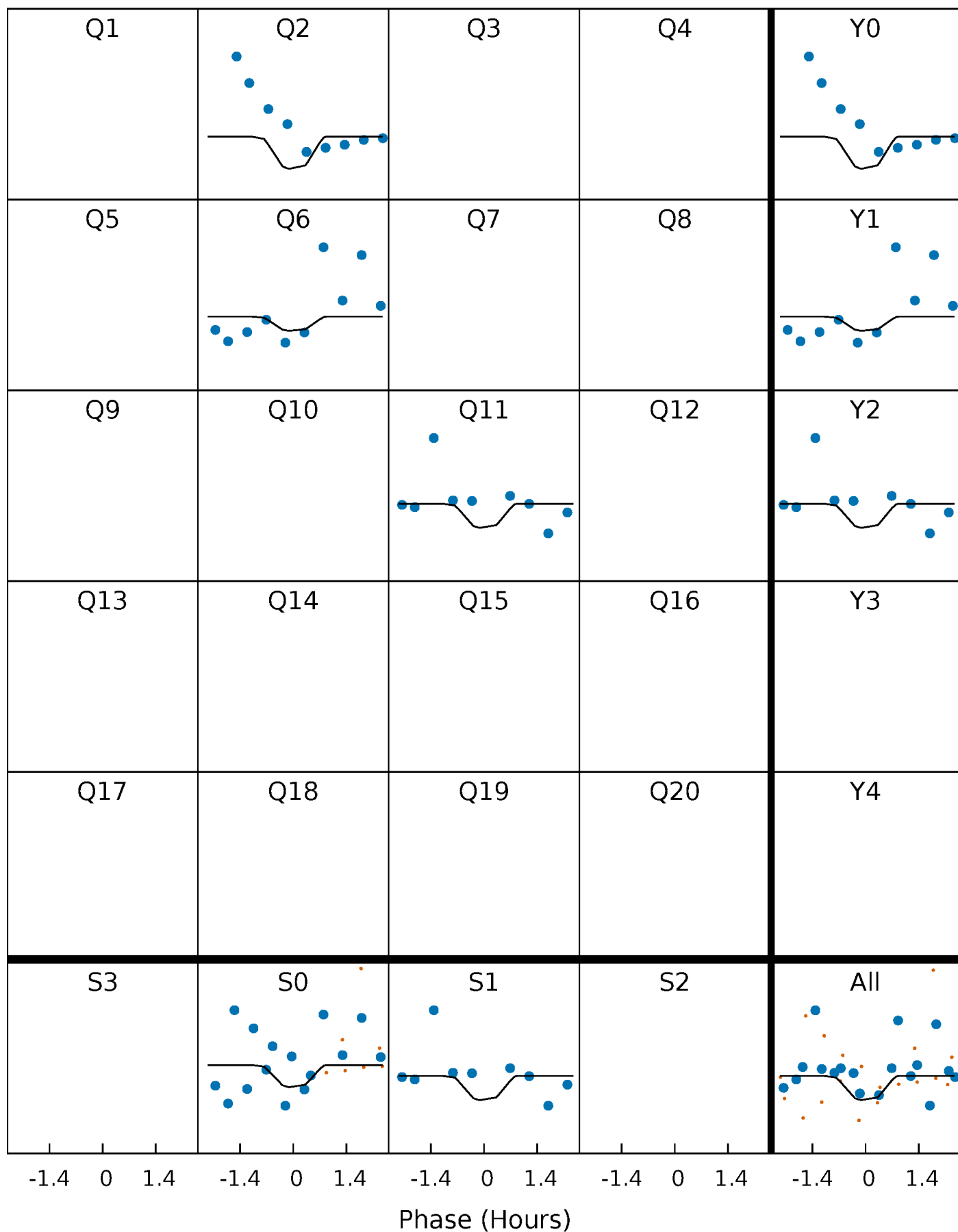
# PDC Quarter-Phased Transit Curves

TCE 004248763-02 P=427.595603 Days  $T_0=192.022934$  (BKJD)



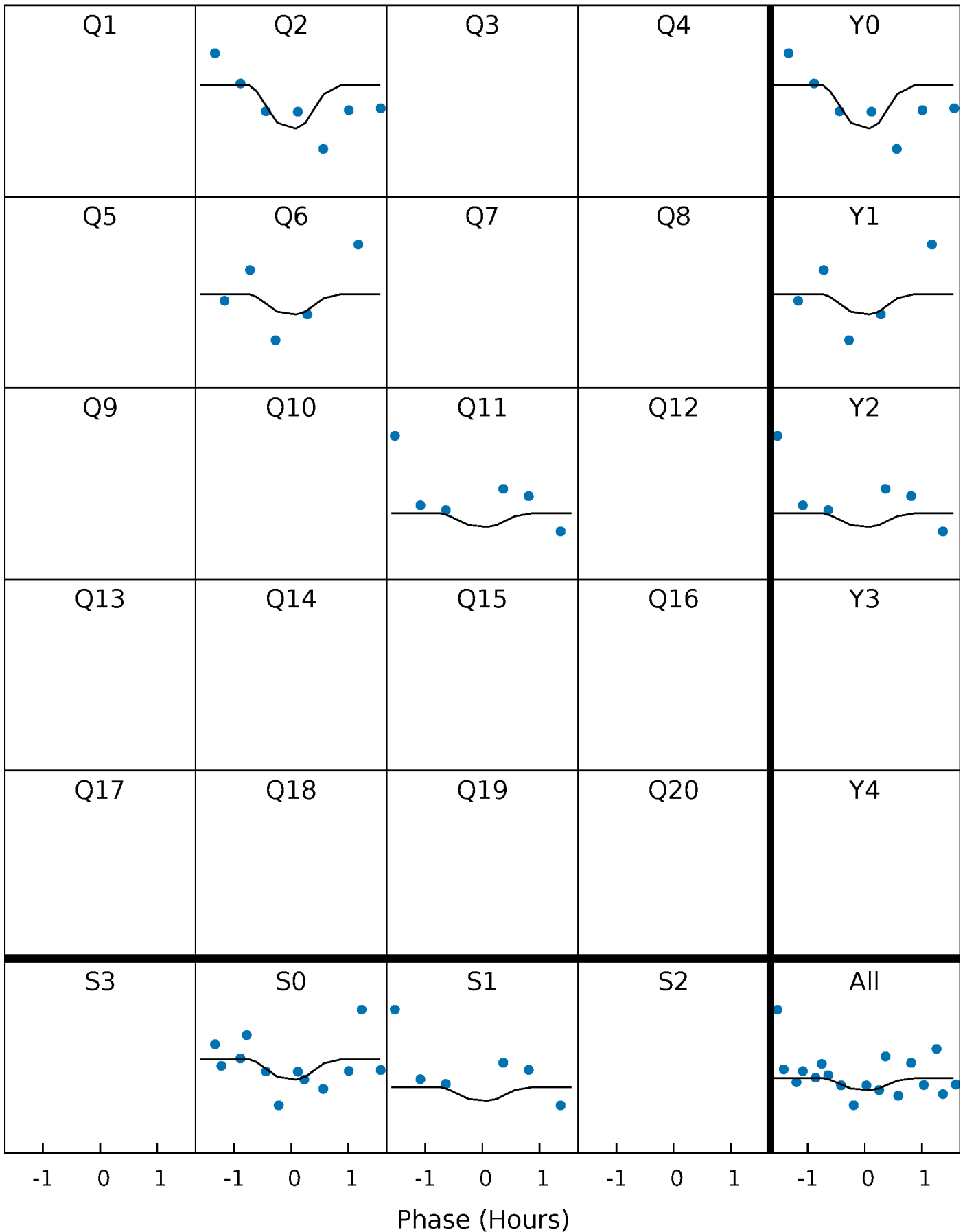
# DV Quarter-Phased Transit Curves

TCE 004248763-02 P=427.595603 Days  $T_0=192.022934$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

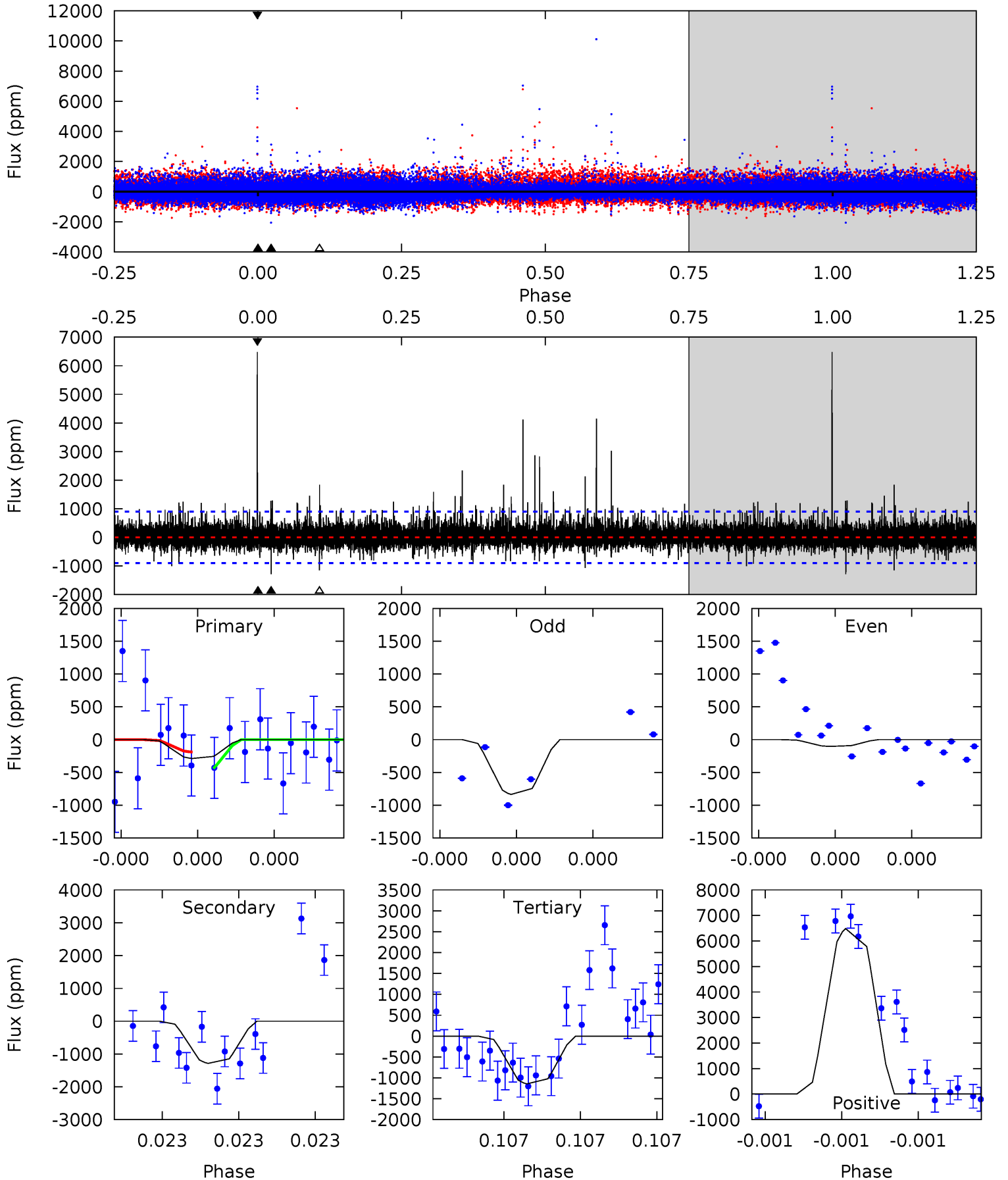
TCE 004248763-02 P=427.606299 Days  $T_0=192.015079$  (BKJD)



# DV Model-Shift Uniqueness Test

004248763-02, P = 427.595603 Days, E = 192.022934 Days

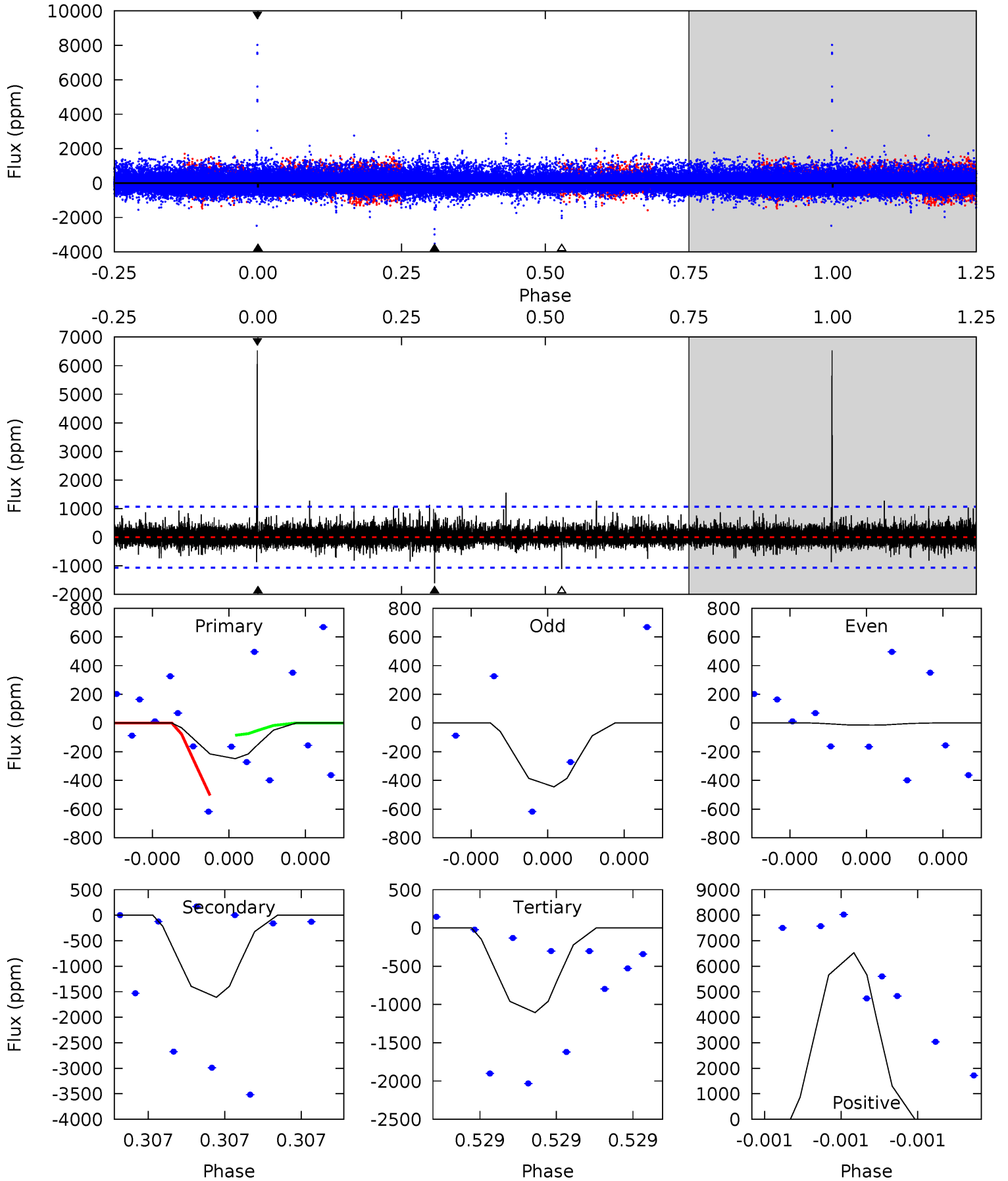
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.85	8.27	7.37	41.7	5.78	3.79	1.56	-5.52	-39.9	0.91	-33.4	0.89	-1.98	0.83	0.80



# Alt Model-Shift Uniqueness Test

004248763-02, P = 427.606299 Days, E = 192.015079 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
1.37	8.84	6.08	35.9	5.85	3.90	1.03	-4.71	-34.5	2.76	-27.0	1.08	-0.06	0.80	1.02





### Stellar Parameters For KIC 004248763

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4353^{+155}_{-172}$	$4.575^{+0.060}_{-0.016}$	$0.420^{+0.050}_{-0.300}$	$0.723^{+0.028}_{-0.066}$	$0.716^{+0.042}_{-0.052}$	$2.673^{+0.727}_{-0.166}$
	+4%/-4%	+1%/-0%	+12%/-71%	+4%/-9%	+6%/-7%	+27%/-6%
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 004248763-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1286 \pm 155$	$16.27^{+16.88}_{-11.30}$	$227^{+8}_{-10}$	$2548^{+997}_{-405}$	$2742^{+26352}_{-2122}$
Alt.	$-1609 \pm 182$	$15.42^{+17.56}_{-10.80}$	$227^{+9}_{-8}$	$2664^{+1107}_{-444}$	$3714^{+35812}_{-2930}$

$T_{max}$  = 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

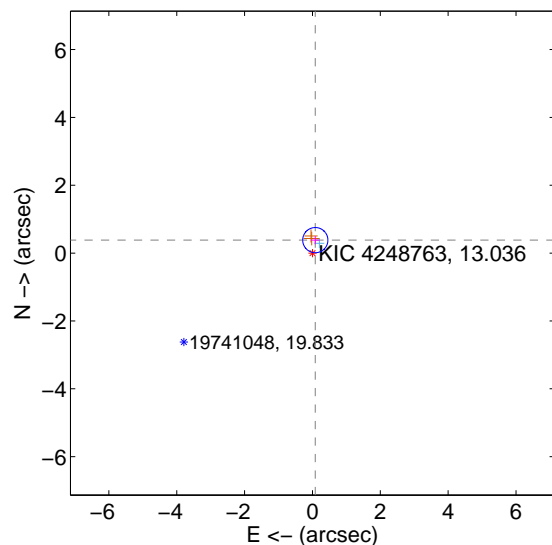
Supplemental centroid analysis for 004248763-02. Kepler magnitude: 13.04. Transit SNR 2.10

There are 1 quarters with good PRF difference image offsets

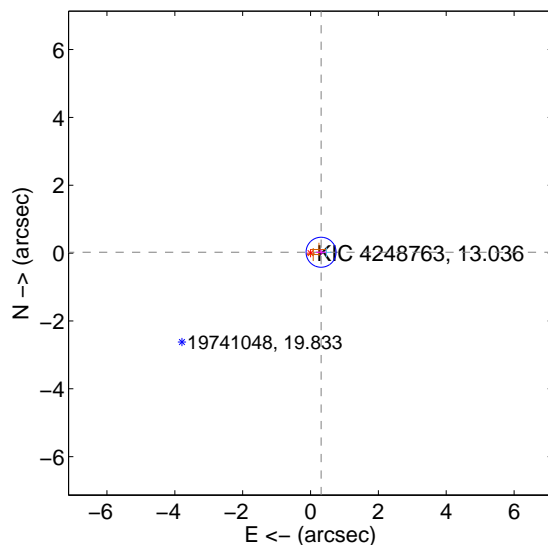
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.392 \pm 0.124$	3.16	$-0.084 \pm 0.132$	$0.382 \pm 0.123$
PRF-fit source offset from KIC position	$0.312 \pm 0.147$	2.12	$-0.311 \pm 0.148$	$0.025 \pm 0.078$
photometric centroid source offset	$0.61 \pm 1.78$	0.34	$-0.54 \pm 1.74$	$-0.27 \pm 1.93$

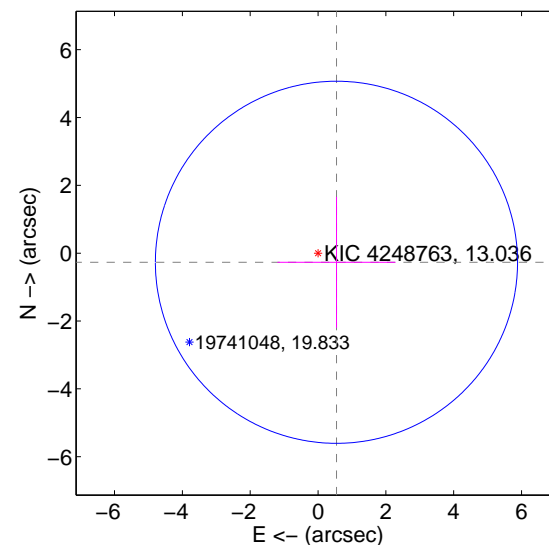
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

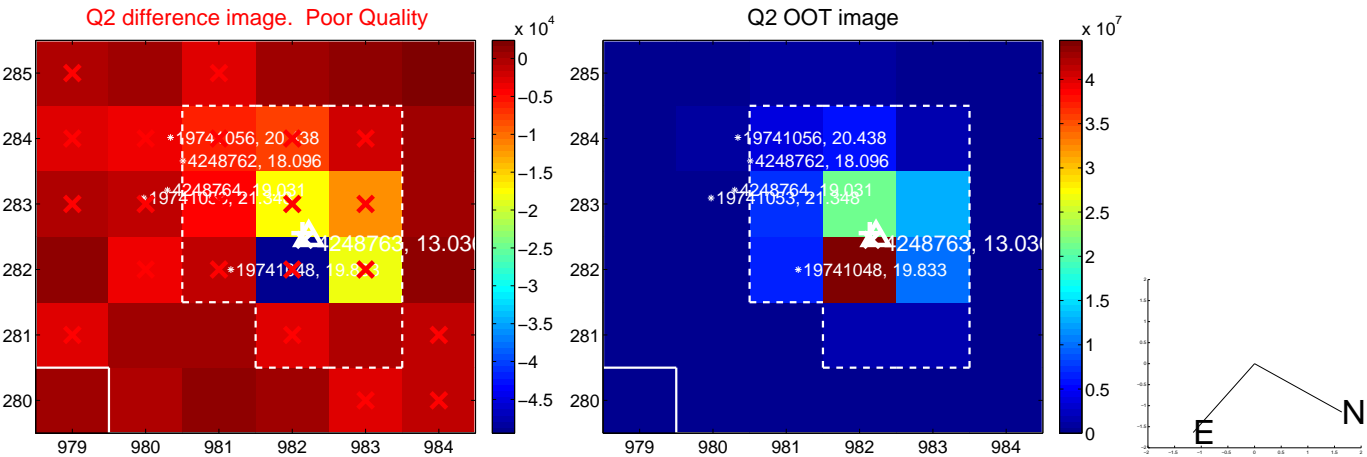


offset from photometric centroids

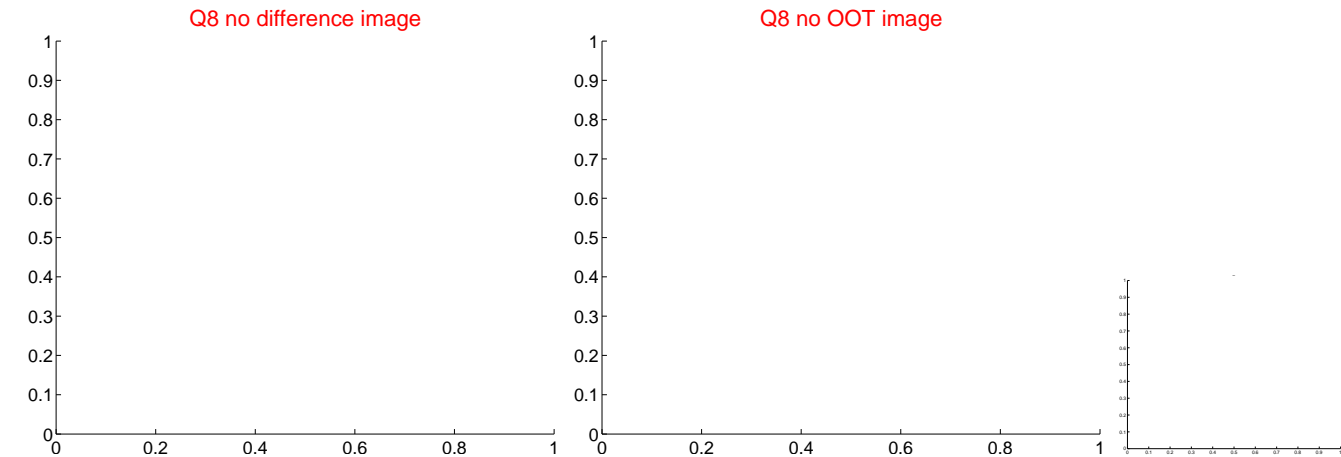
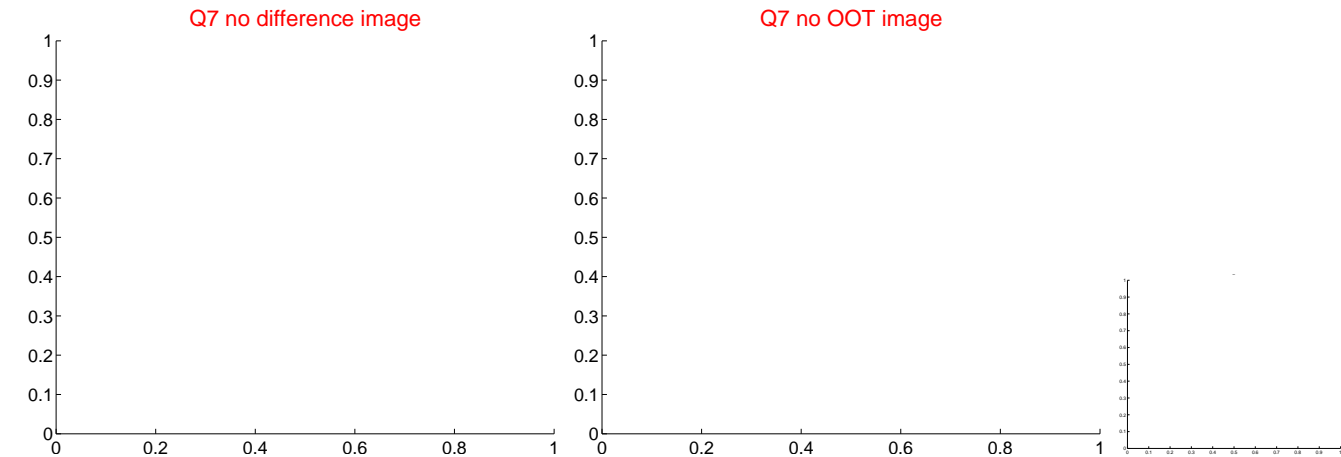
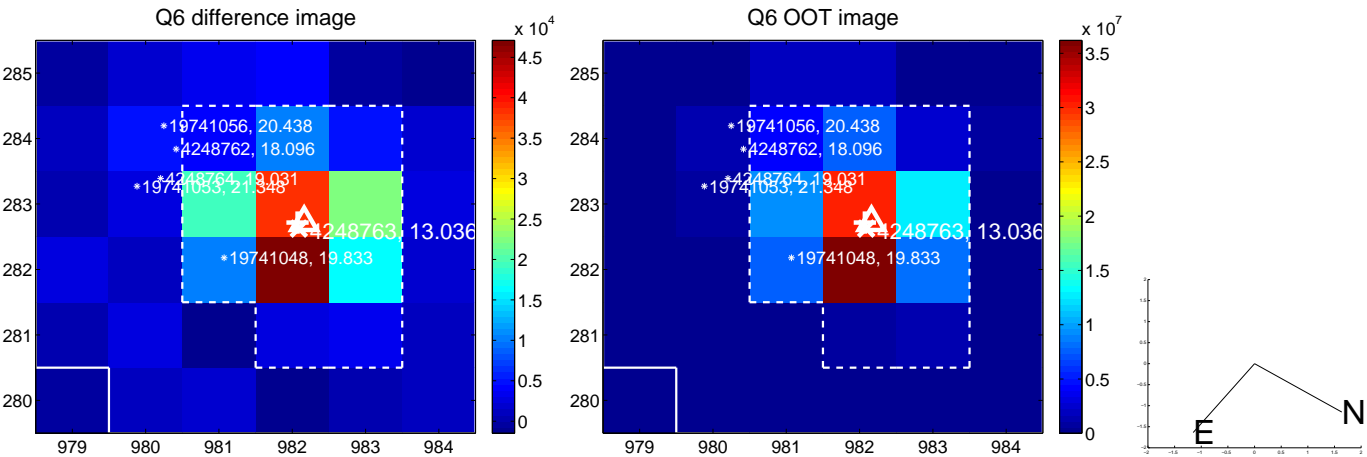


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

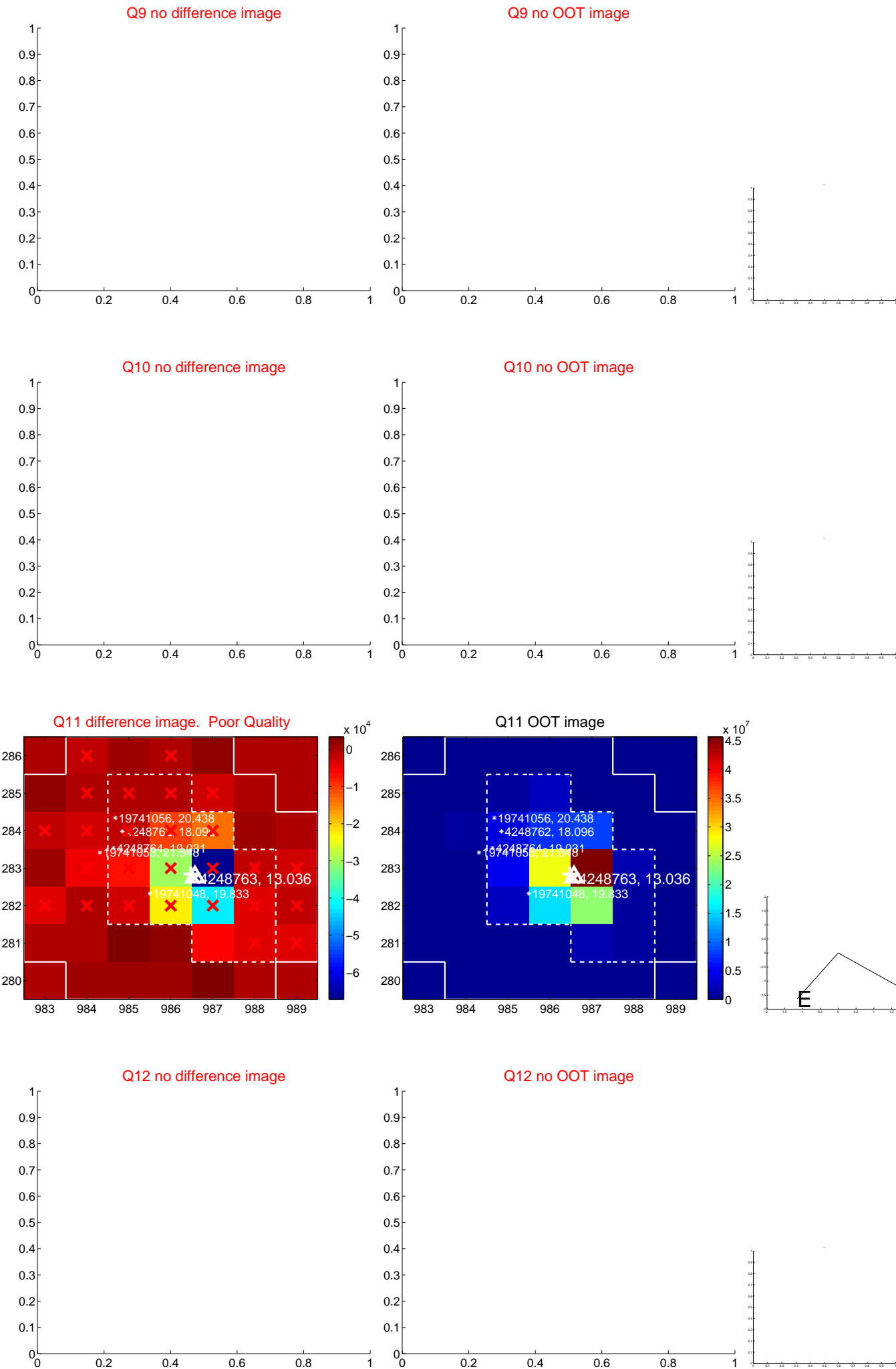
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



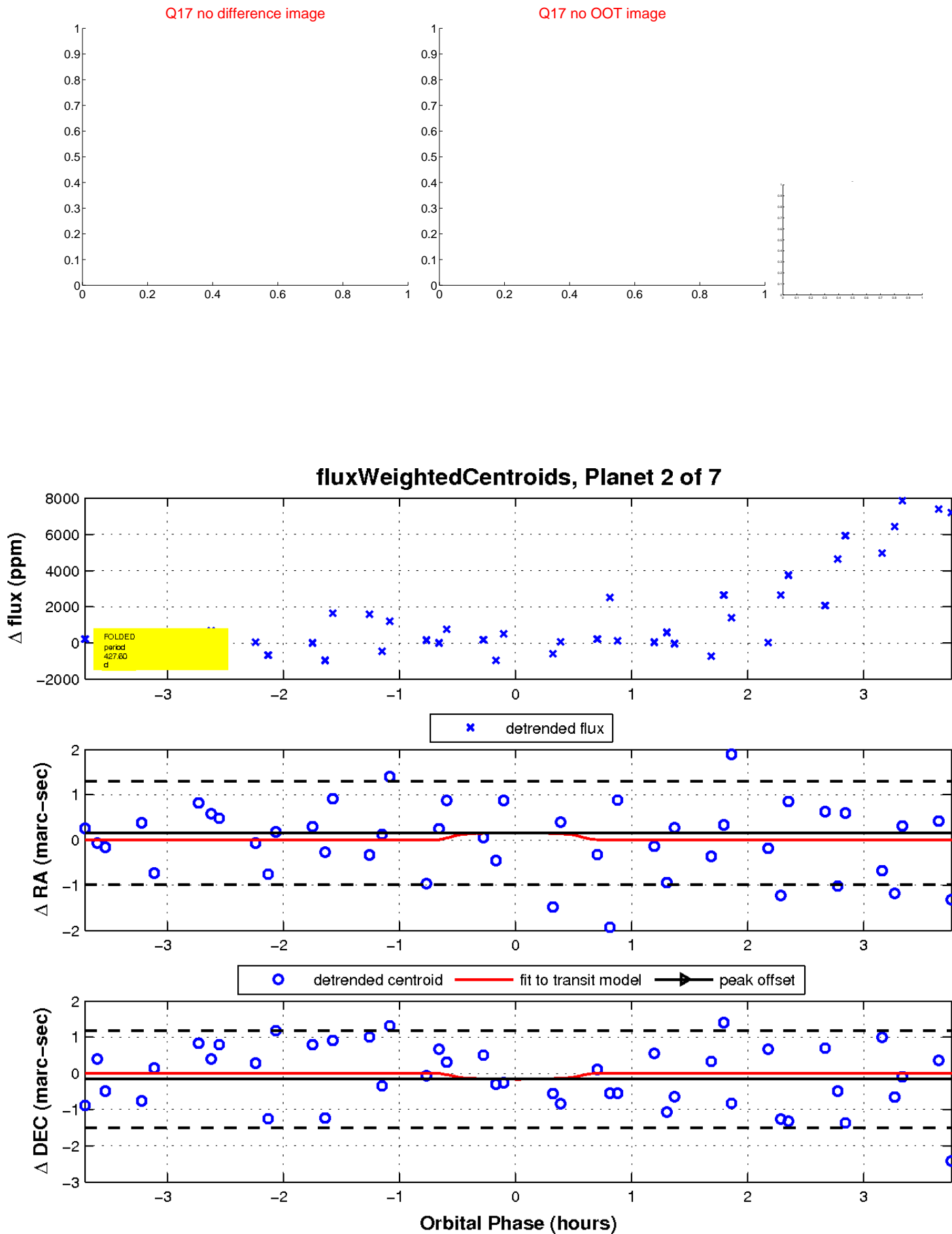
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

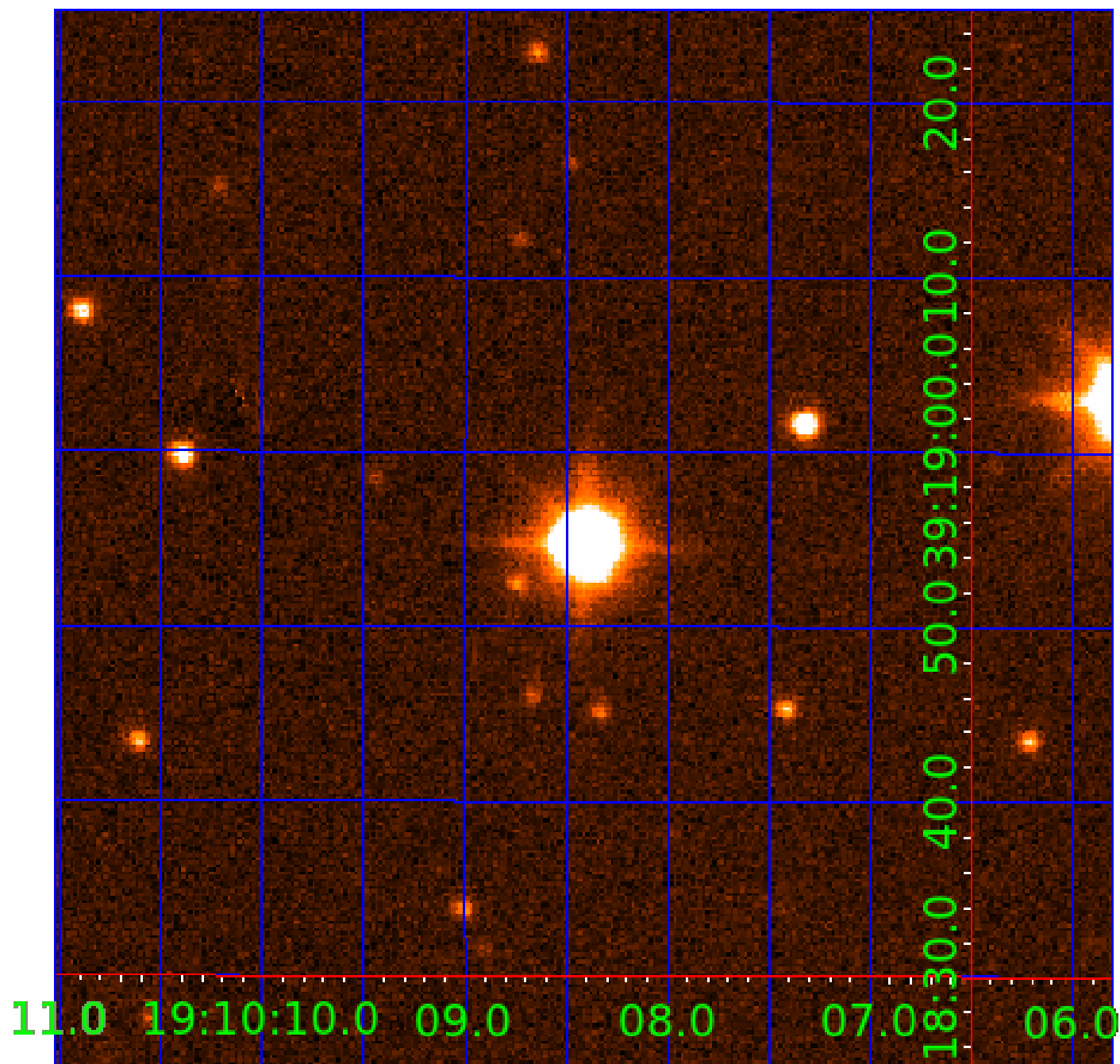


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 004248763

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004248763-01	OBS	No	499.874418	459.638870	768.5	4.578	19.4	3.4	0.72	4353	2.23	0.14
004248763-02	OBS	No	427.595603	192.022934	543.1	1.257	16.1	2.1	0.72	4353	1.94	0.17
004248763-03	OBS	No	463.642704	460.839735	2592.3	15.647	17.2	7.9	0.72	4353	3.69	0.15
004248763-04	OBS	No	505.934946	239.359323	208.6	15.000	11.9	-1.0	0.72	4353	0.99	0.14
004248763-05	OBS	No	374.800098	412.514487	1511.3	5.394	21.5	5.1	0.72	4353	3.26	0.20
004248763-06	OBS	No	219.422992	347.587085	1711.7	3.196	13.5	9.0	0.72	4353	2.84	0.41
004248763-07	OBS	No	427.606299	191.258723	311.8	12.500	15.2	-1.0	0.72	4353	1.21	0.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004248763-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
004248763-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
004248763-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
004248763-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

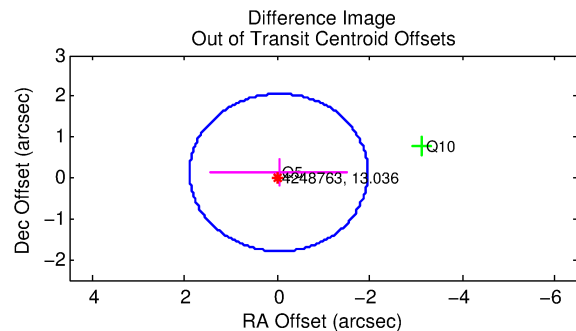
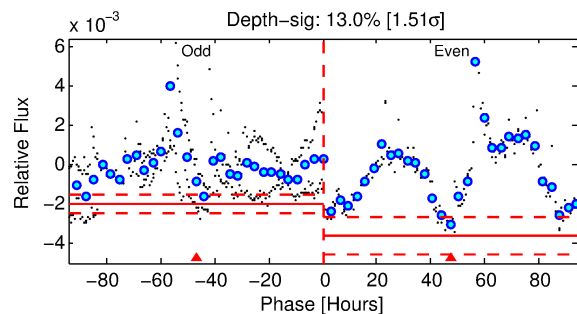
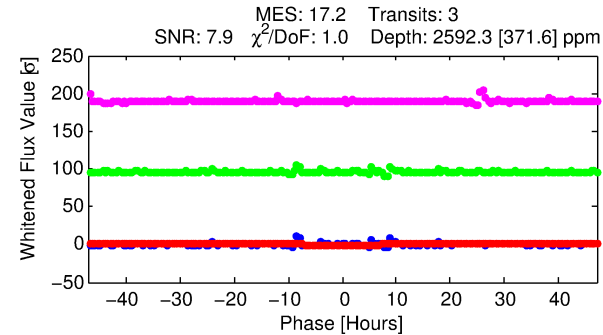
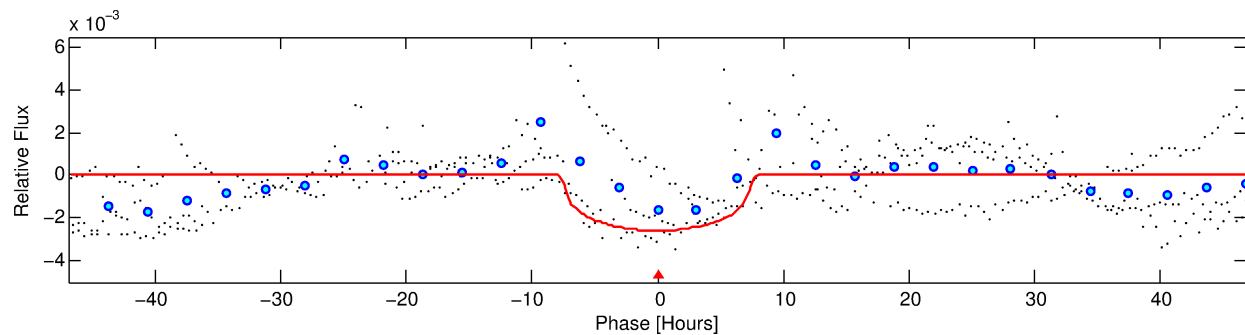
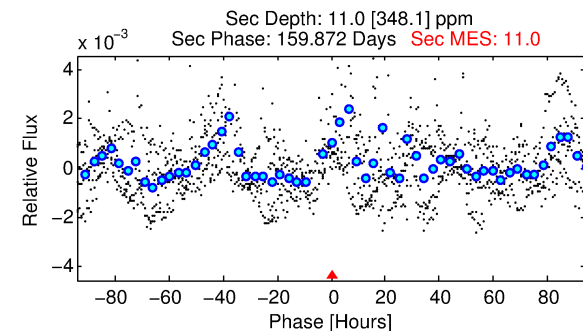
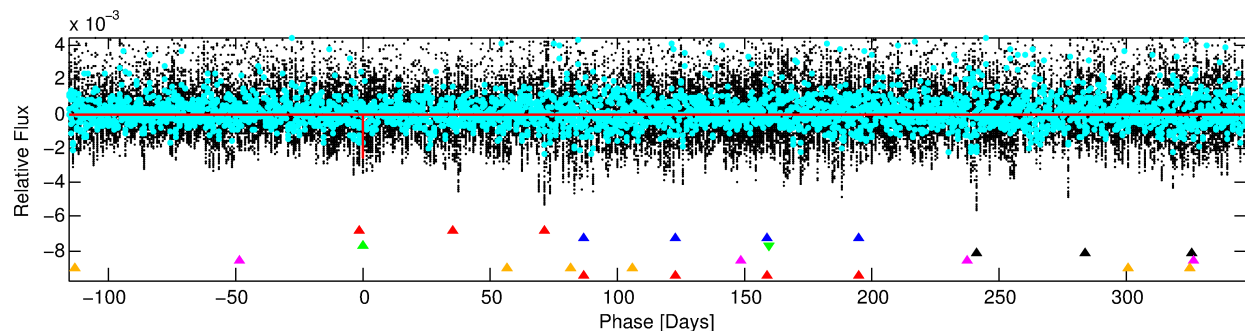
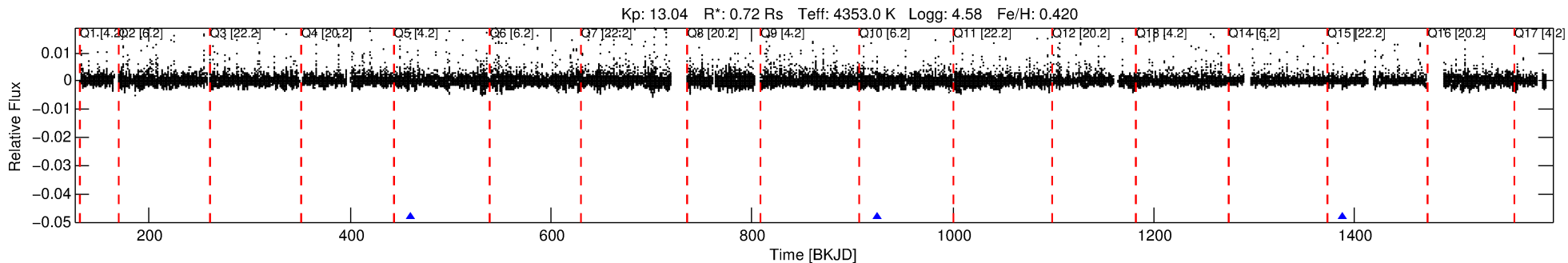
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004248763-03

No Significant Match Found

# DV One-Page Summary

KIC: 4248763 Candidate: 3 of 7 Period: 463.643 d



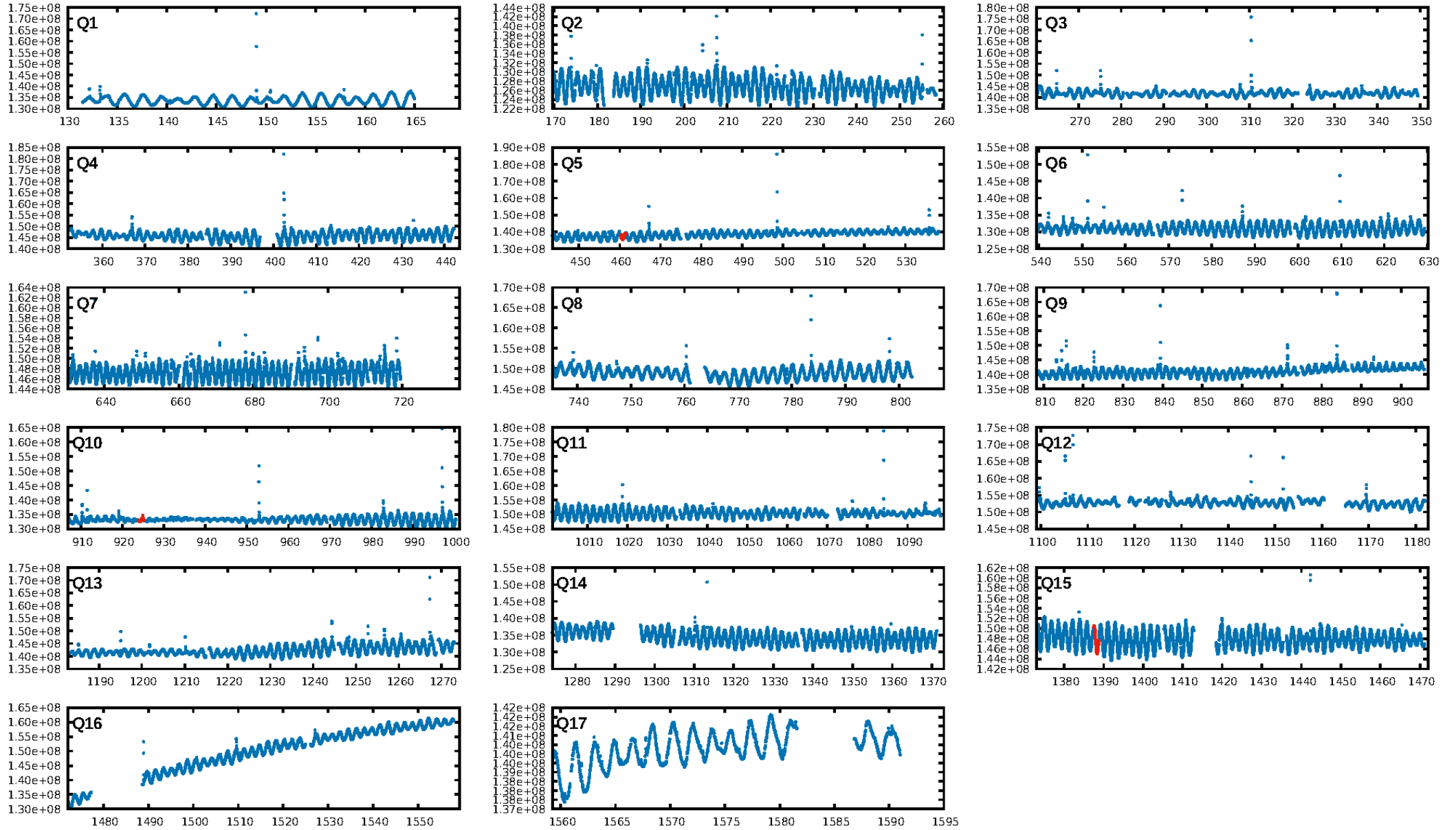
## DV Fit Results:

Period = 463.64270 [0.00551] d  
Epoch = 460.8397 [0.0081] BKJD  
Rp/R\* = 0.0468 [0.0060]  
a/R\* = 205.73 [57.07]  
b = 0.52 [0.39]  
Seff = 0.15 [0.03]  
Teq = 159 [8] K  
Rp = 3.69 [0.58] Re  
a = 1.0493 [0.0801] AU  
Ag = 487.01 [15480.10] [0.03σ]  
Teffp = 1158 [9200] K [0.11σ]

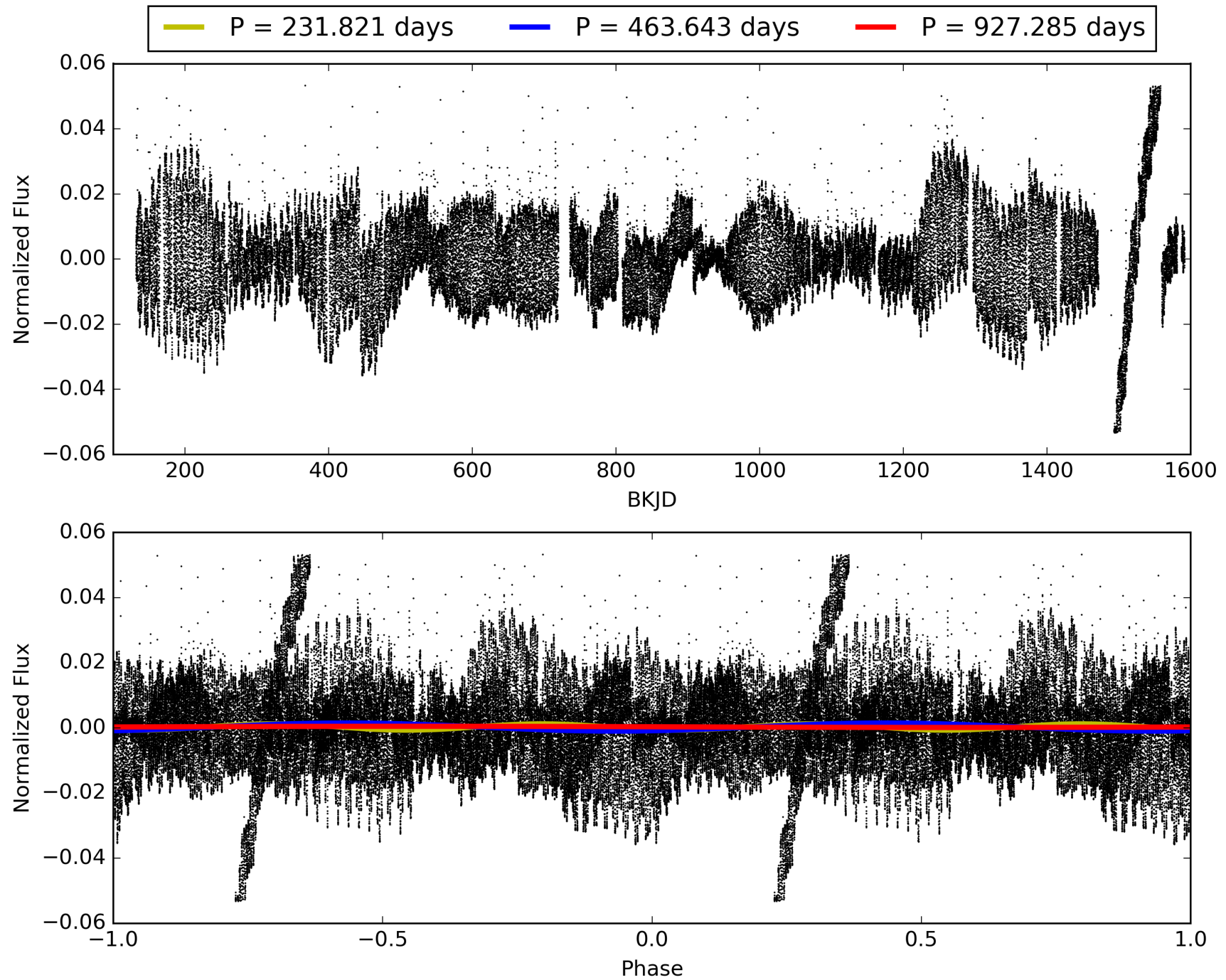
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [43.18σ]  
LongPeriod-sig: 100.0% [53.34σ]  
ModelChiSquare2-sig: 5.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -2.462  
Centroid-sig: 42.1%  
Centroid-so: 0.697 arcsec [3.64σ]  
OotOffset-rm: 0.133 arcsec [0.21σ]  
KicOffset-rm: 0.360 arcsec [2.67σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.50 [1/2]

# TCE 004248763-03, PDC Light Curves

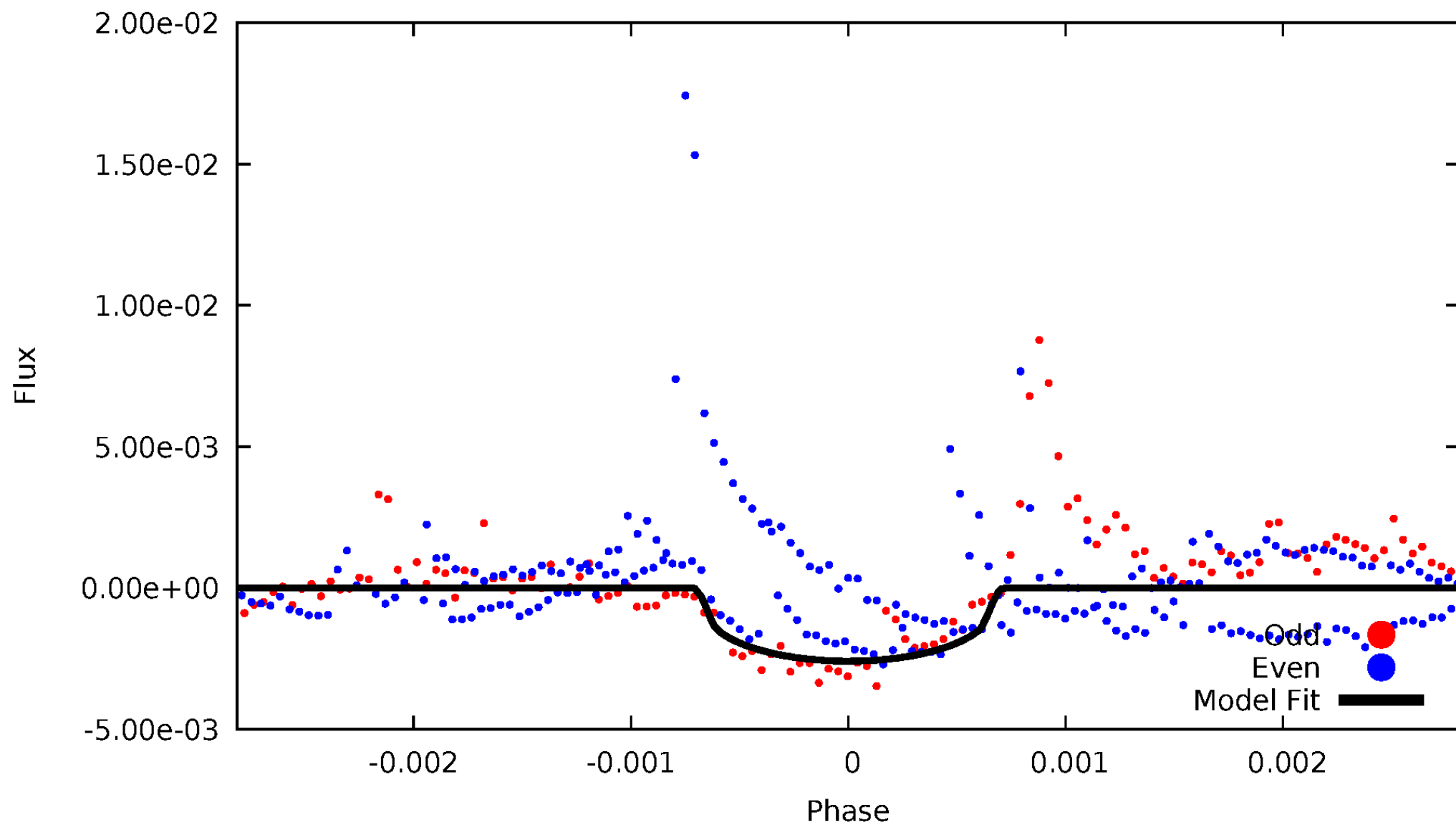


TCE 004248763-03



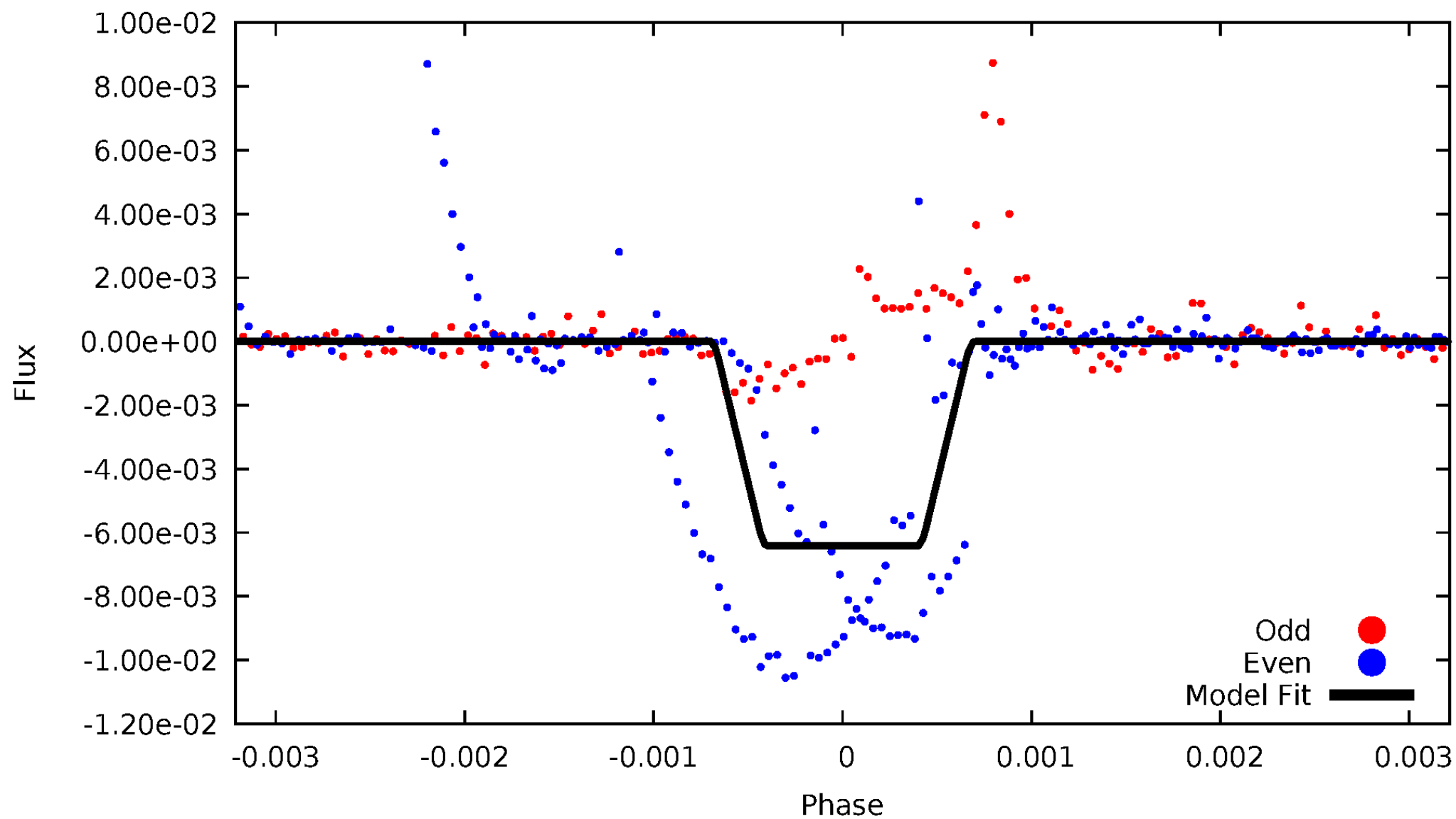
# DV Odd/Even

TCE 004248763-03



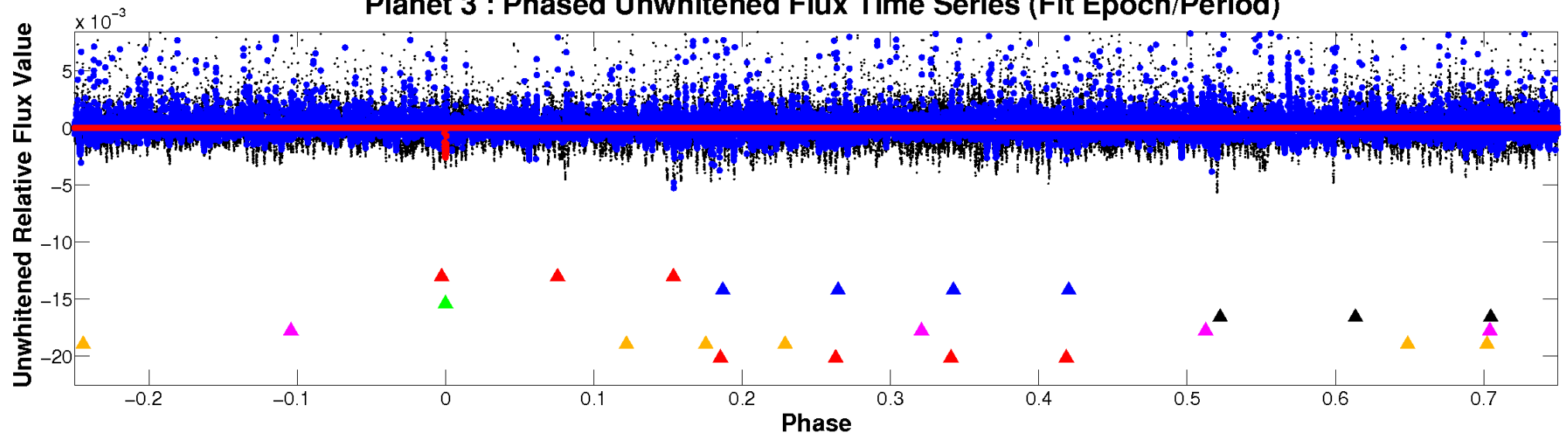
# ALT Odd/Even

TCE 004248763-03

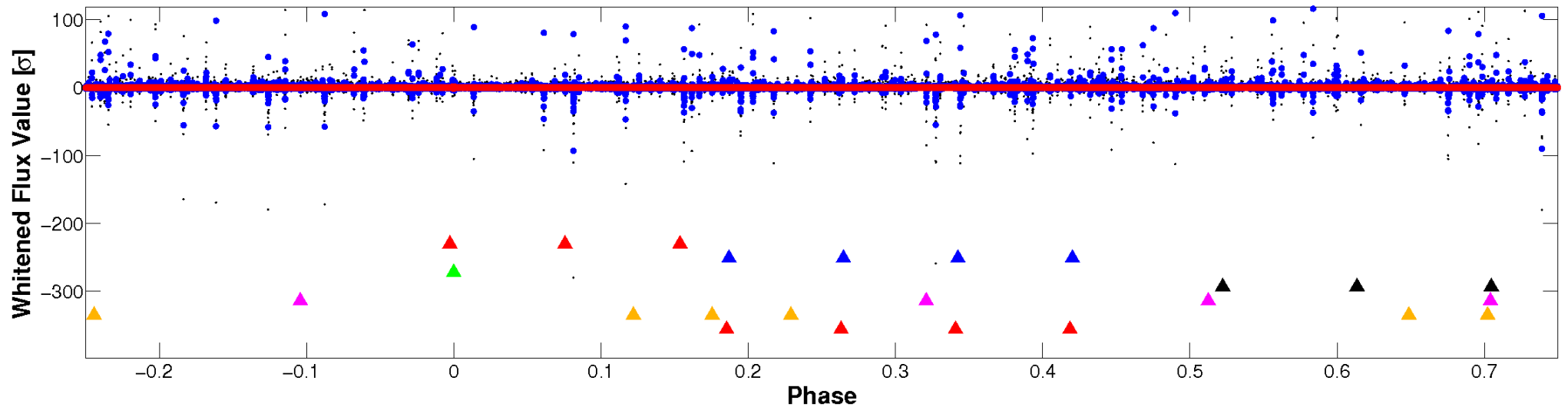


# Non-Whitened Vs. Whitened Light Curve

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

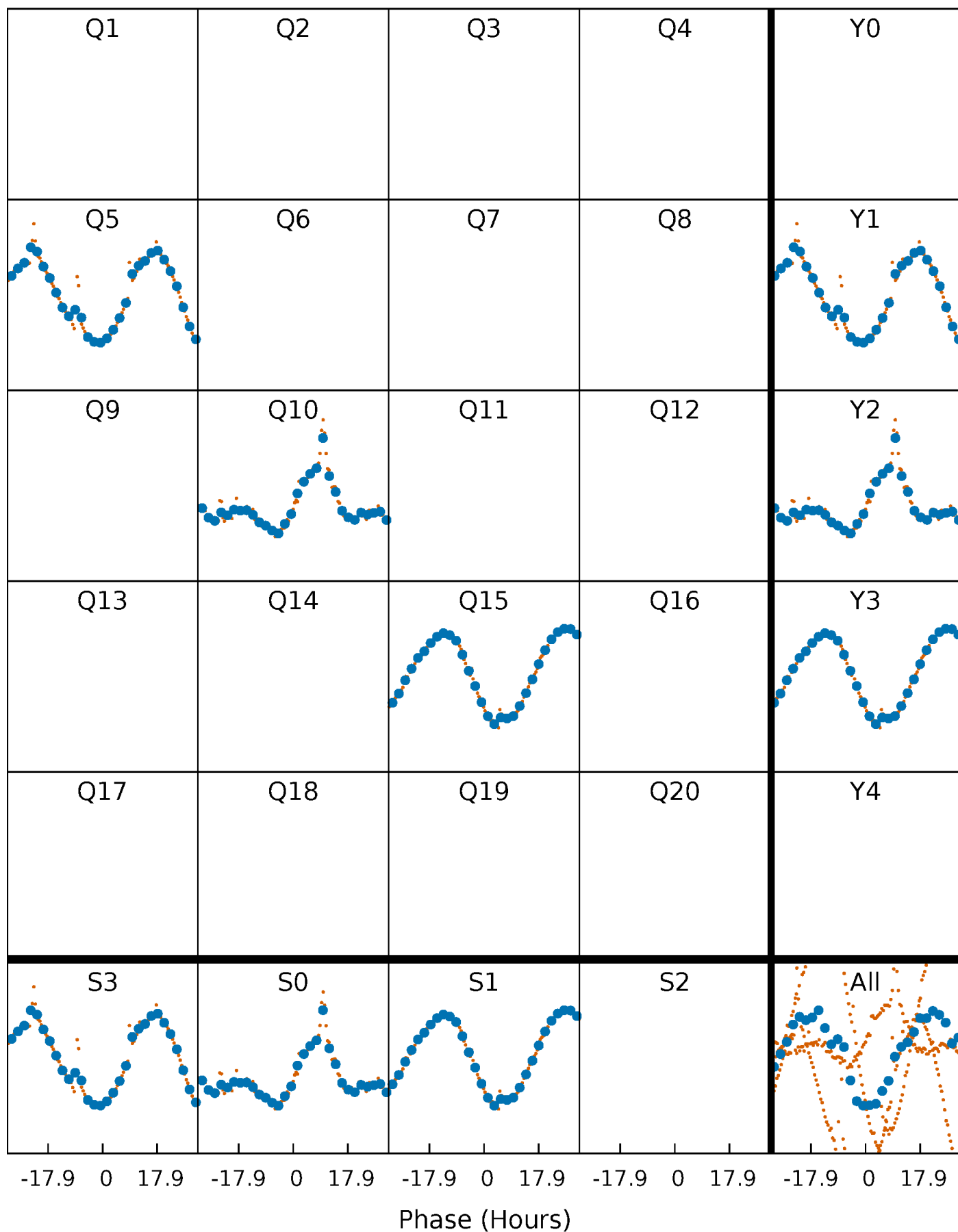


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

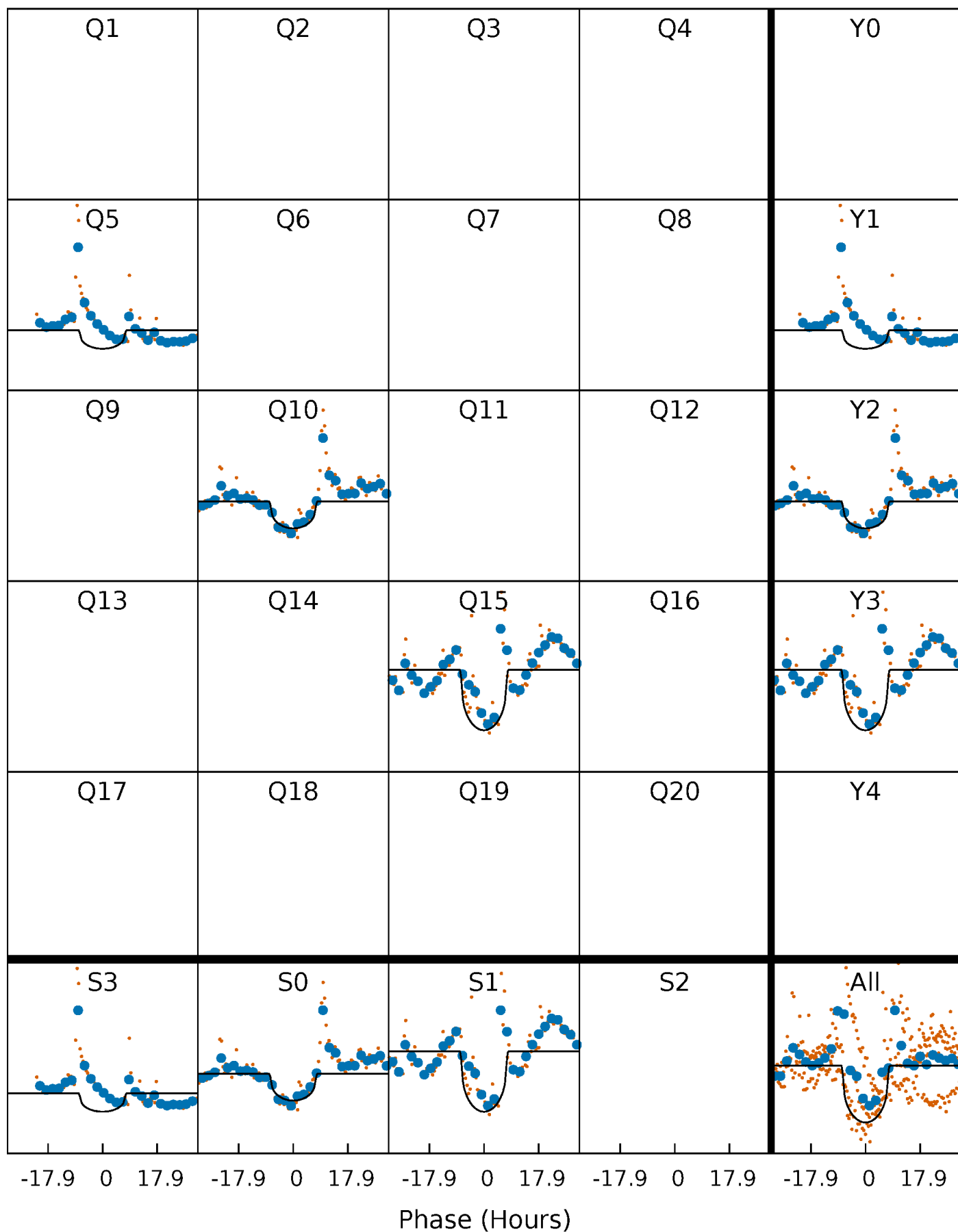
TCE 004248763-03     $P=463.642704$  Days     $T_0=460.839735$  (BKJD)





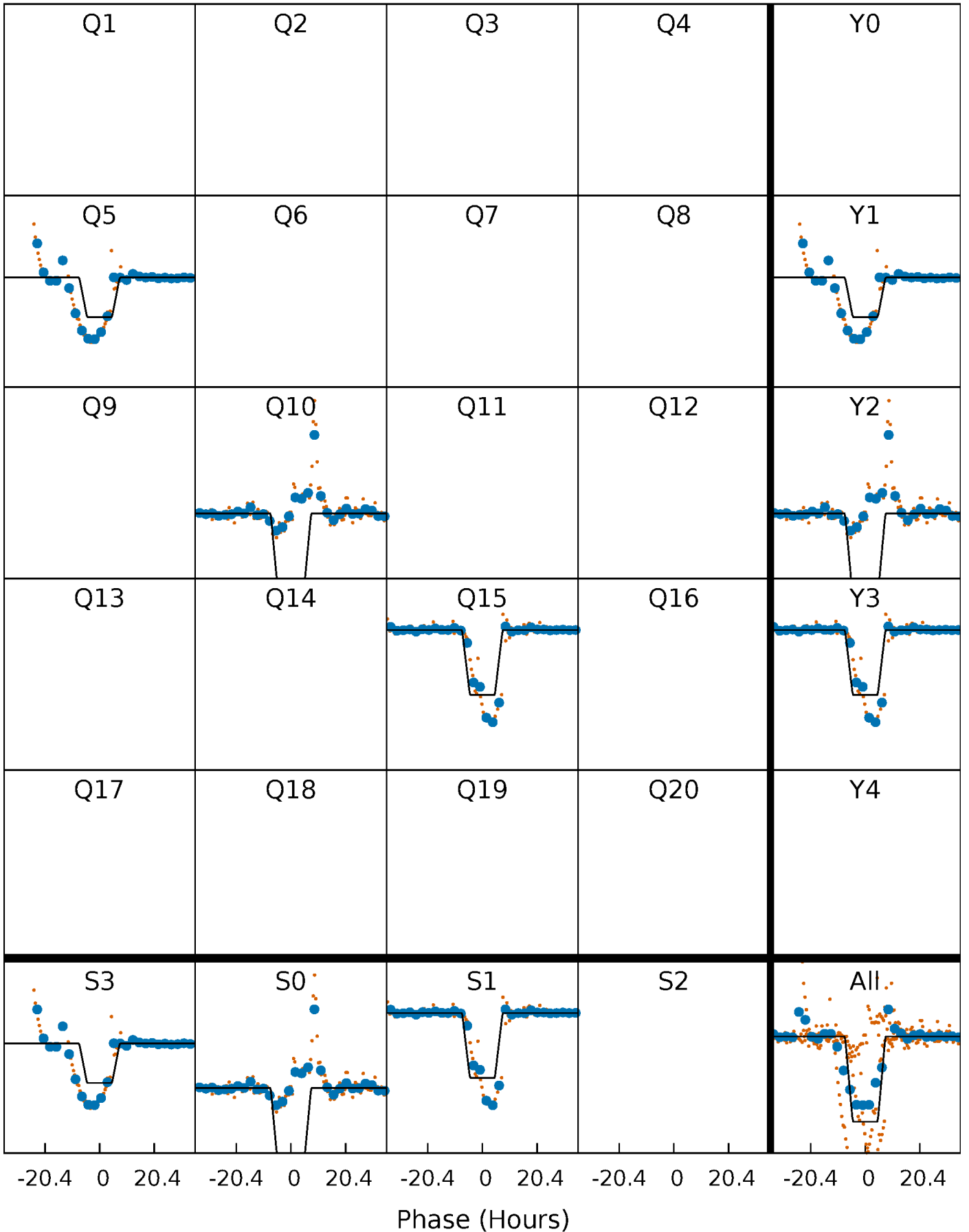
# DV Quarter-Phased Transit Curves

TCE 004248763-03     $P=463.642704$  Days     $T_0=460.839735$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

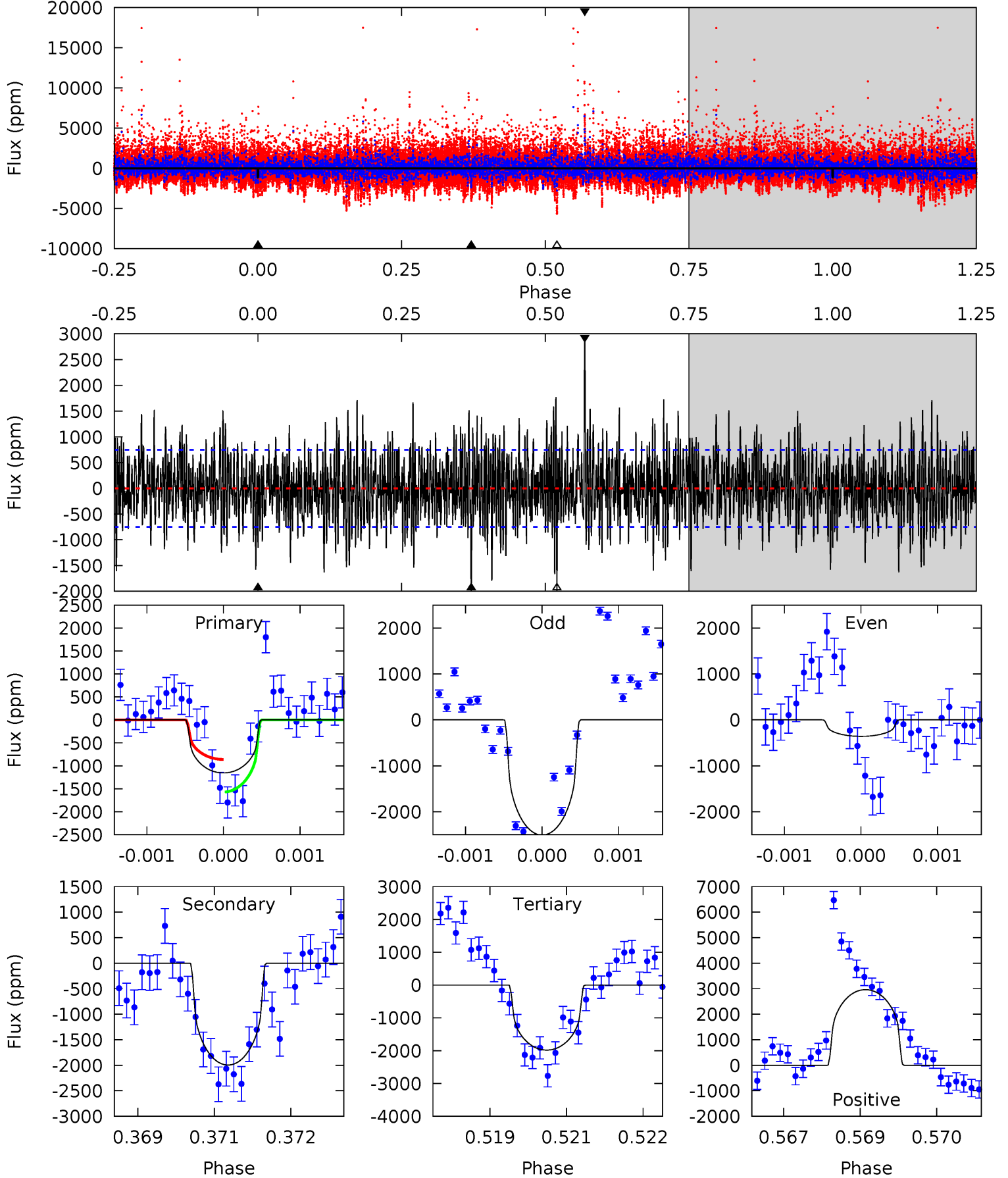
TCE 004248763-03     $P=463.501253$  Days     $T_0=461.019851$  (BKJD)



# DV Model-Shift Uniqueness Test

004248763-03, P = 463.642704 Days, E = 460.839735 Days

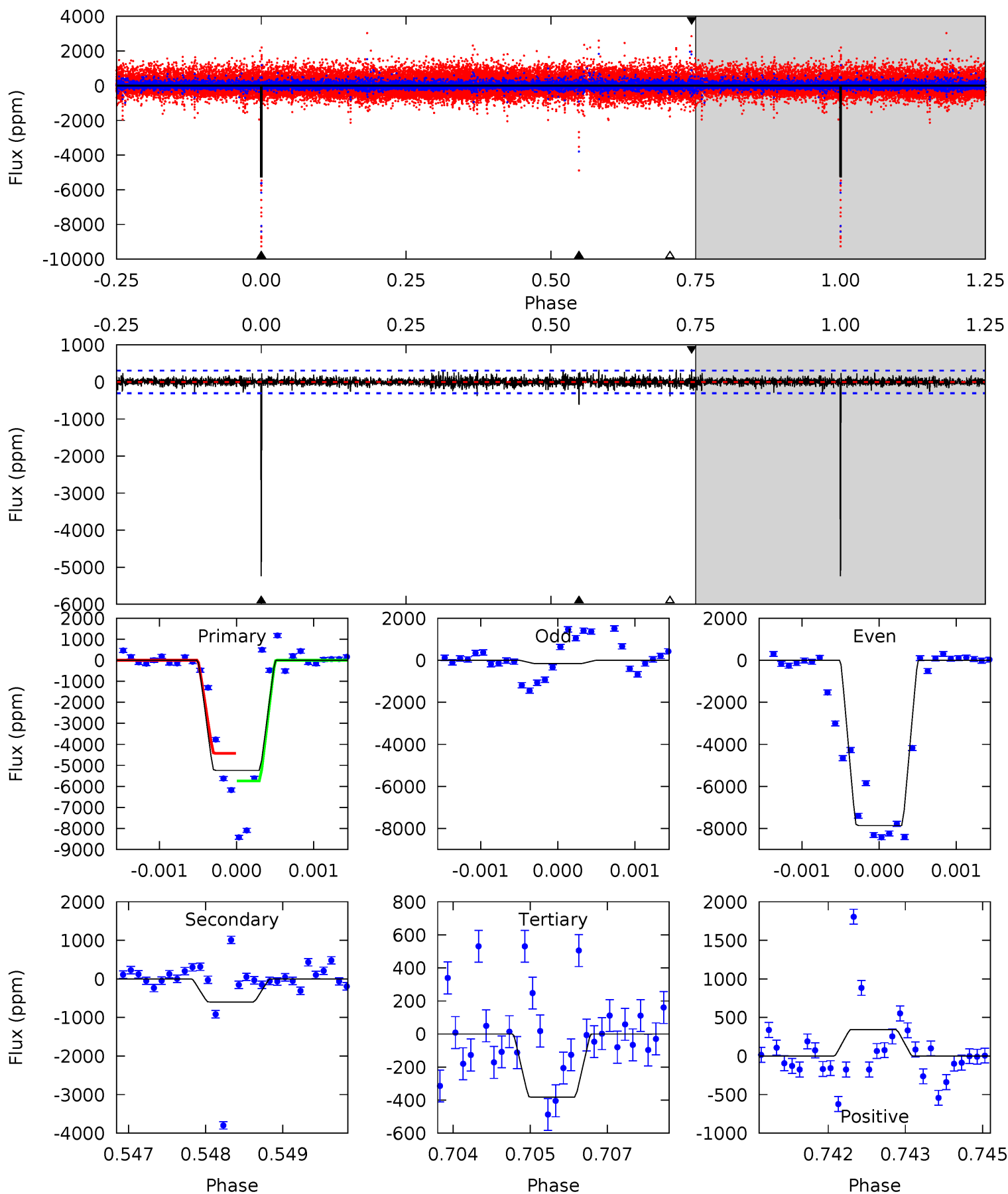
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.30	14.3	14.2	21.3	5.38	3.18	3.99	-5.95	-13.0	0.09	-6.95	4.03	0.84	0.60	2.54



# Alt Model-Shift Uniqueness Test

004248763-03, P = 463.501253 Days, E = 461.019851 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
92.9	10.6	6.78	6.10	5.40	3.20	1.16	86.1	86.8	3.83	4.51	76.6	0.71	0.06	11.6



### Stellar Parameters For KIC 004248763

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4353^{+155}_{-172}$	$4.575^{+0.060}_{-0.016}$	$0.420^{+0.050}_{-0.300}$	$0.723^{+0.028}_{-0.066}$	$0.716^{+0.042}_{-0.052}$	$2.673^{+0.727}_{-0.166}$
	+4%/-4%	+1%/-0%	+12%/-71%	+4%/-9%	+6%/-7%	+27%/-6%
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 004248763-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1996 \pm 139$	$3.64^{+0.50}_{-0.47}$	$221^{+9}_{-9}$	$4284^{+282}_{-256}$	$91422^{+31682}_{-21038}$
Alt.	$-598 \pm 56$	$6.22^{+0.53}_{-0.56}$	$221^{+8}_{-9}$	$2977^{+110}_{-111}$	$9436^{+1996}_{-1658}$

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

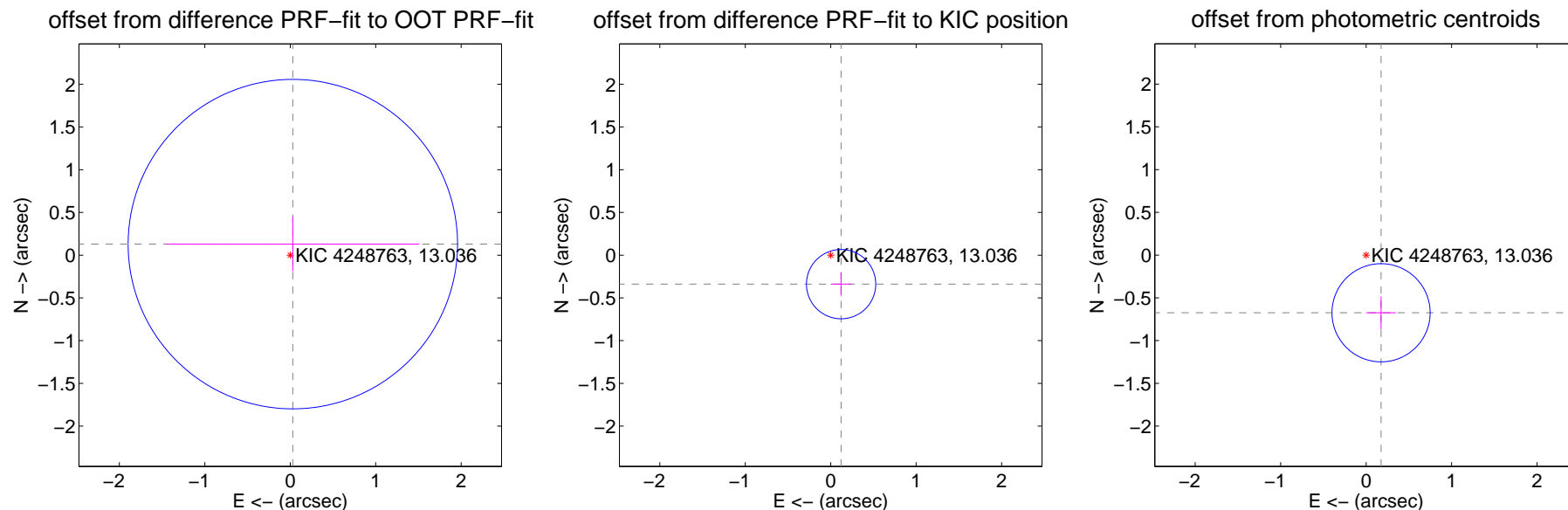
## DV Centroid Data

Supplemental centroid analysis for 004248763-03. Kepler magnitude: 13.04. Transit SNR 7.88

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.133 \pm 0.642$	0.21	$-0.030 \pm 1.479$	$0.129 \pm 0.318$
PRF-fit source offset from KIC position	$0.360 \pm 0.135$	2.67	$-0.122 \pm 0.121$	$-0.339 \pm 0.137$
photometric centroid source offset	$0.70 \pm 0.19$	3.64	$-0.17 \pm 0.17$	$-0.67 \pm 0.19$

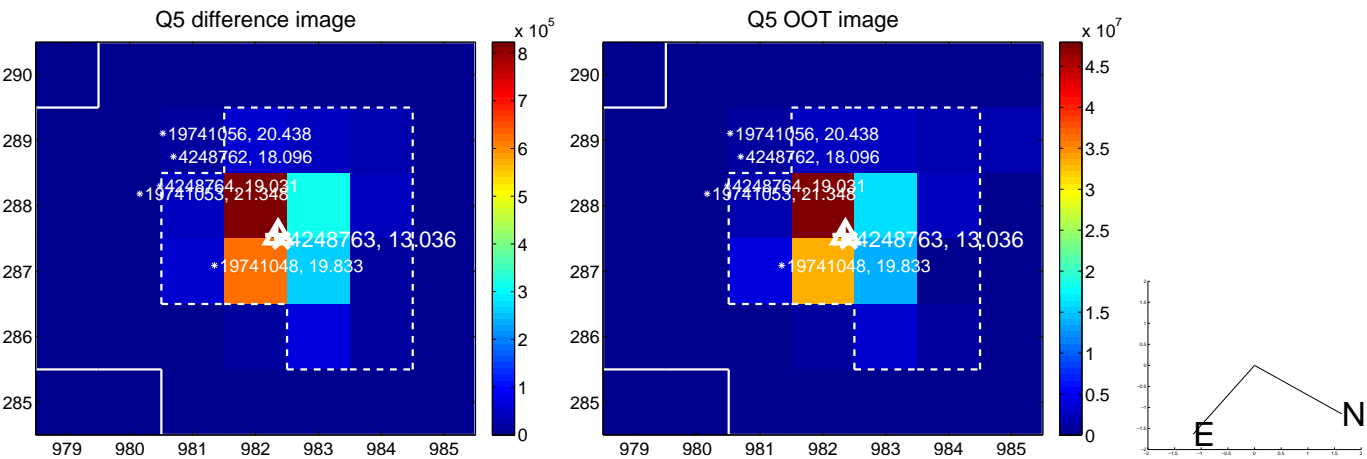


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

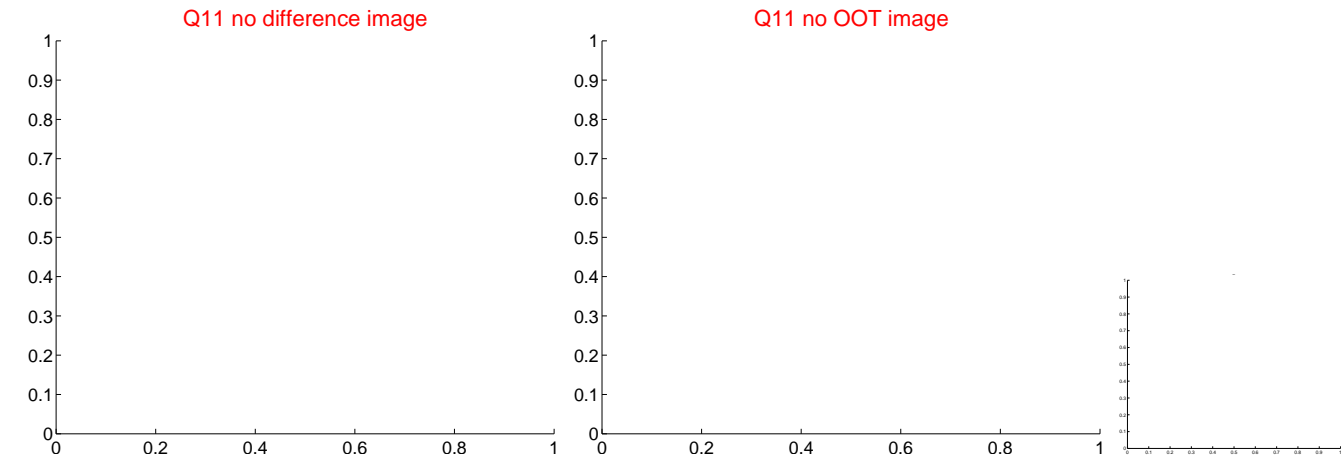
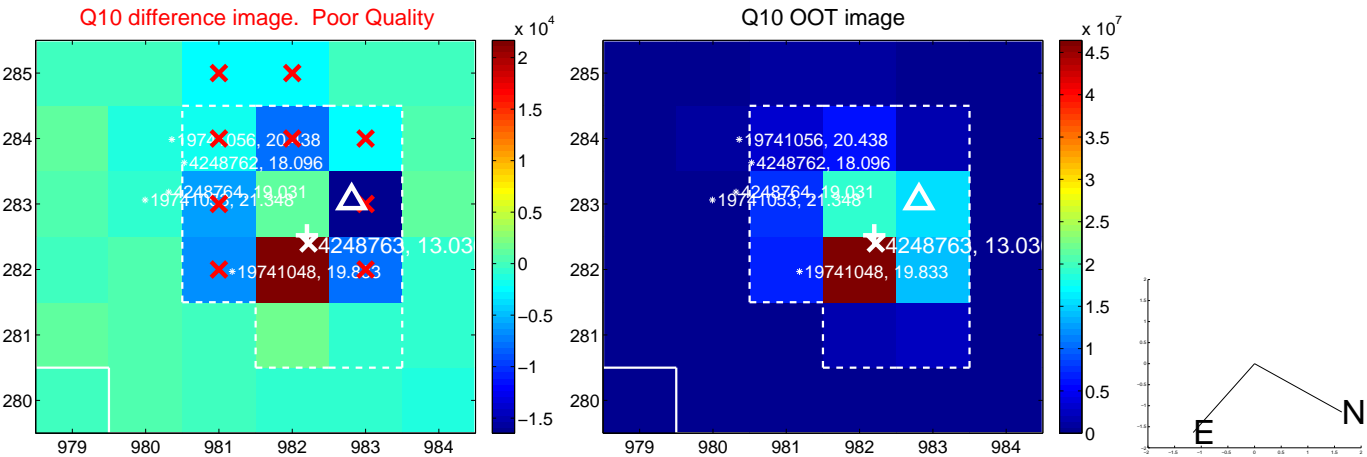


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





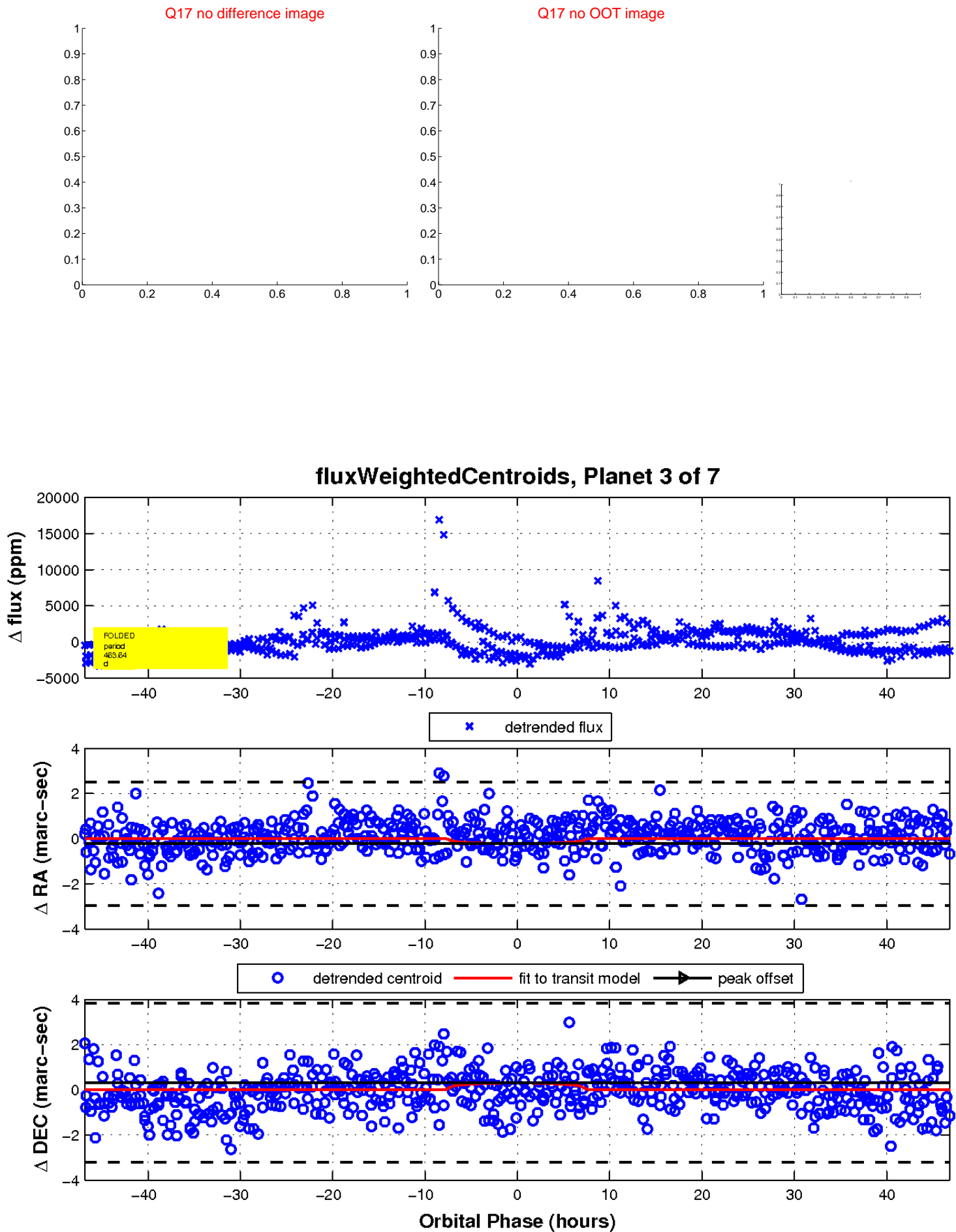
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

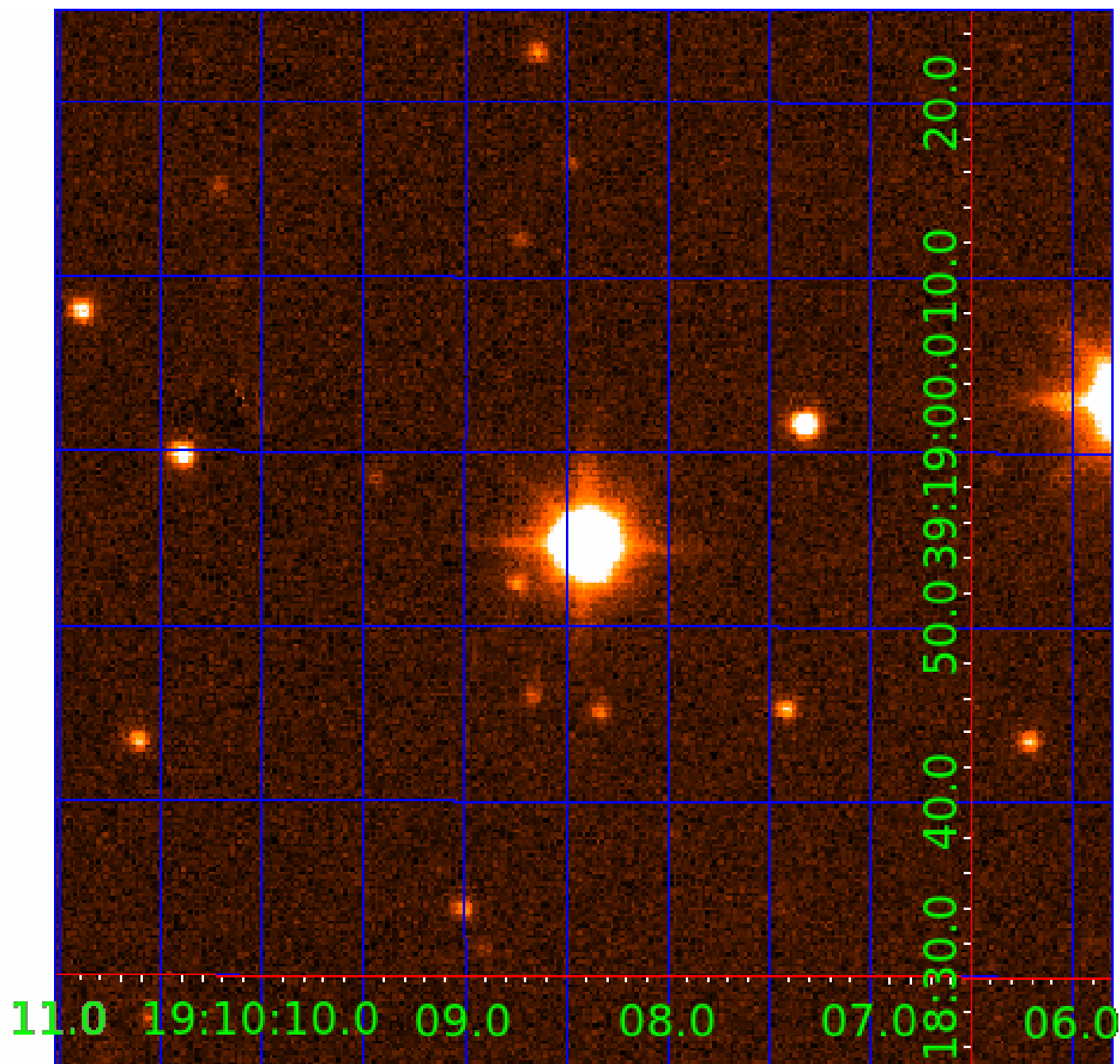


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 004248763

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004248763-01	OBS	No	499.874418	459.638870	768.5	4.578	19.4	3.4	0.72	4353	2.23	0.14
004248763-02	OBS	No	427.595603	192.022934	543.1	1.257	16.1	2.1	0.72	4353	1.94	0.17
004248763-03	OBS	No	463.642704	460.839735	2592.3	15.647	17.2	7.9	0.72	4353	3.69	0.15
004248763-04	OBS	No	505.934946	239.359323	208.6	15.000	11.9	-1.0	0.72	4353	0.99	0.14
004248763-05	OBS	No	374.800098	412.514487	1511.3	5.394	21.5	5.1	0.72	4353	3.26	0.20
004248763-06	OBS	No	219.422992	347.587085	1711.7	3.196	13.5	9.0	0.72	4353	2.84	0.41
004248763-07	OBS	No	427.606299	191.258723	311.8	12.500	15.2	-1.0	0.72	4353	1.21	0.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004248763-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
004248763-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
004248763-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
004248763-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

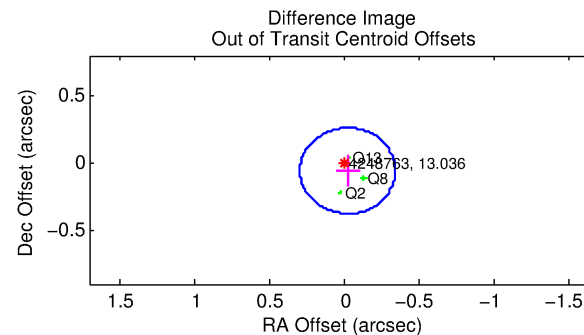
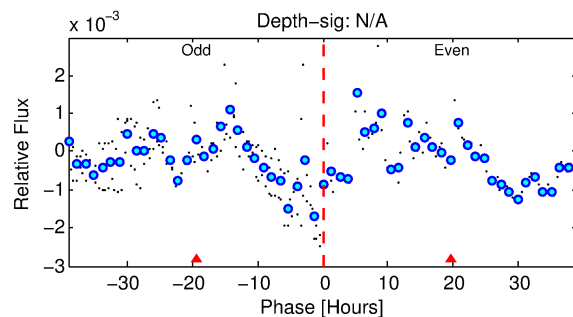
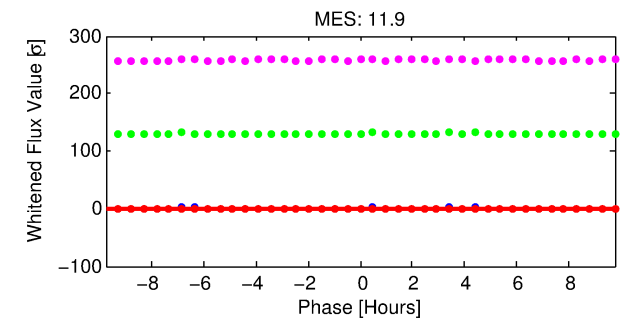
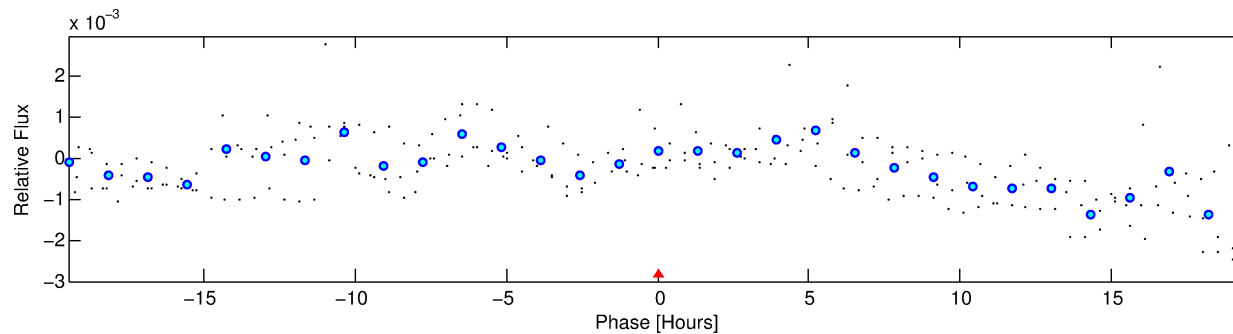
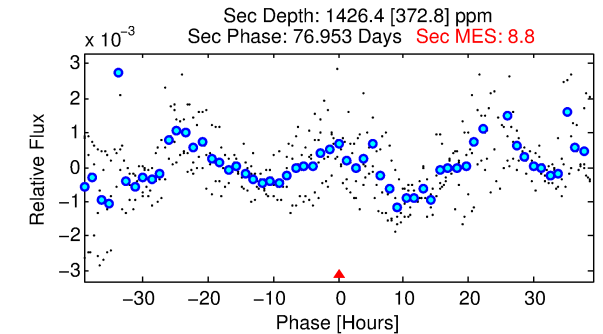
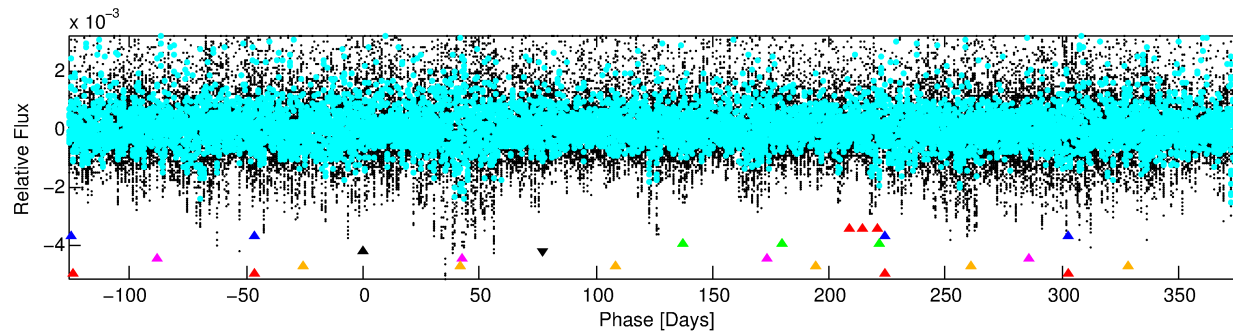
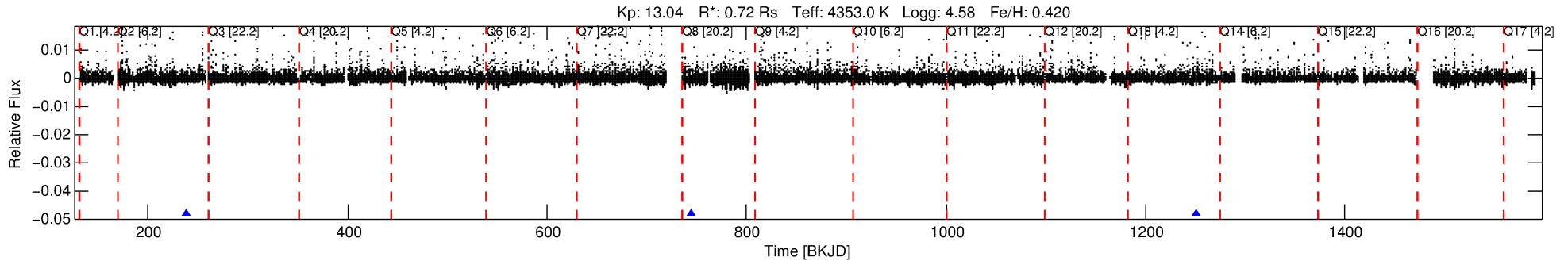
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004248763-04

No Significant Match Found

# DV One-Page Summary

KIC: 4248763 Candidate: 4 of 7 Period: 505.935 d



## TPS TCE Results:

Period = 505.93495 d  
Epoch = 239.3593 BKJD

DV fit results are unavailable

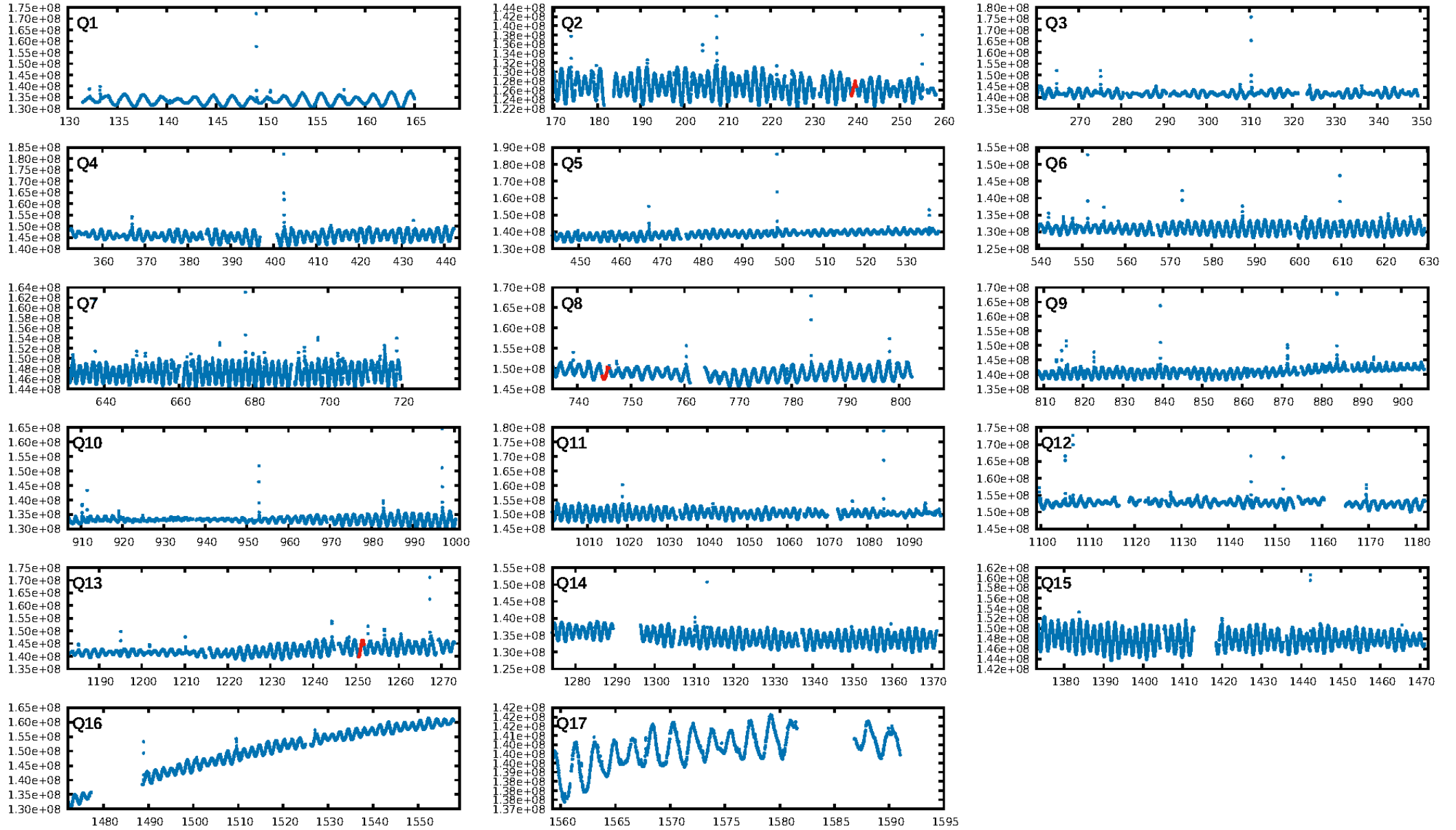
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.27 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.8723  
Centroid-sig: 56.7%  
Centroid-so: 0.229 arcsec [0.19 $\sigma$ ]  
OotOffset-rm: 0.064 arcsec [0.60 $\sigma$ ]  
KicOffset-rm: 0.533 arcsec [7.04 $\sigma$ ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

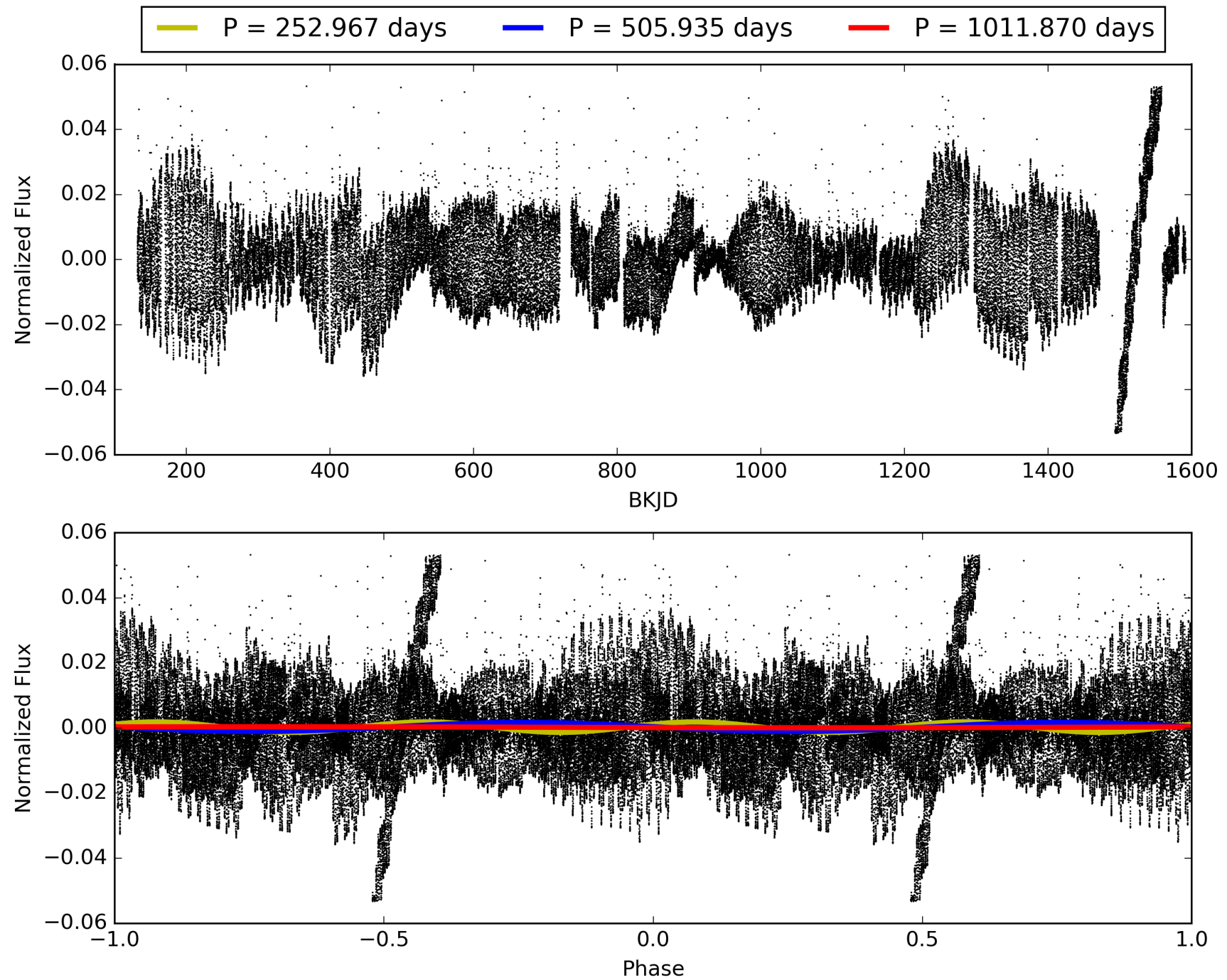
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:02:53 Z

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

# TCE 004248763-04, PDC Light Curves



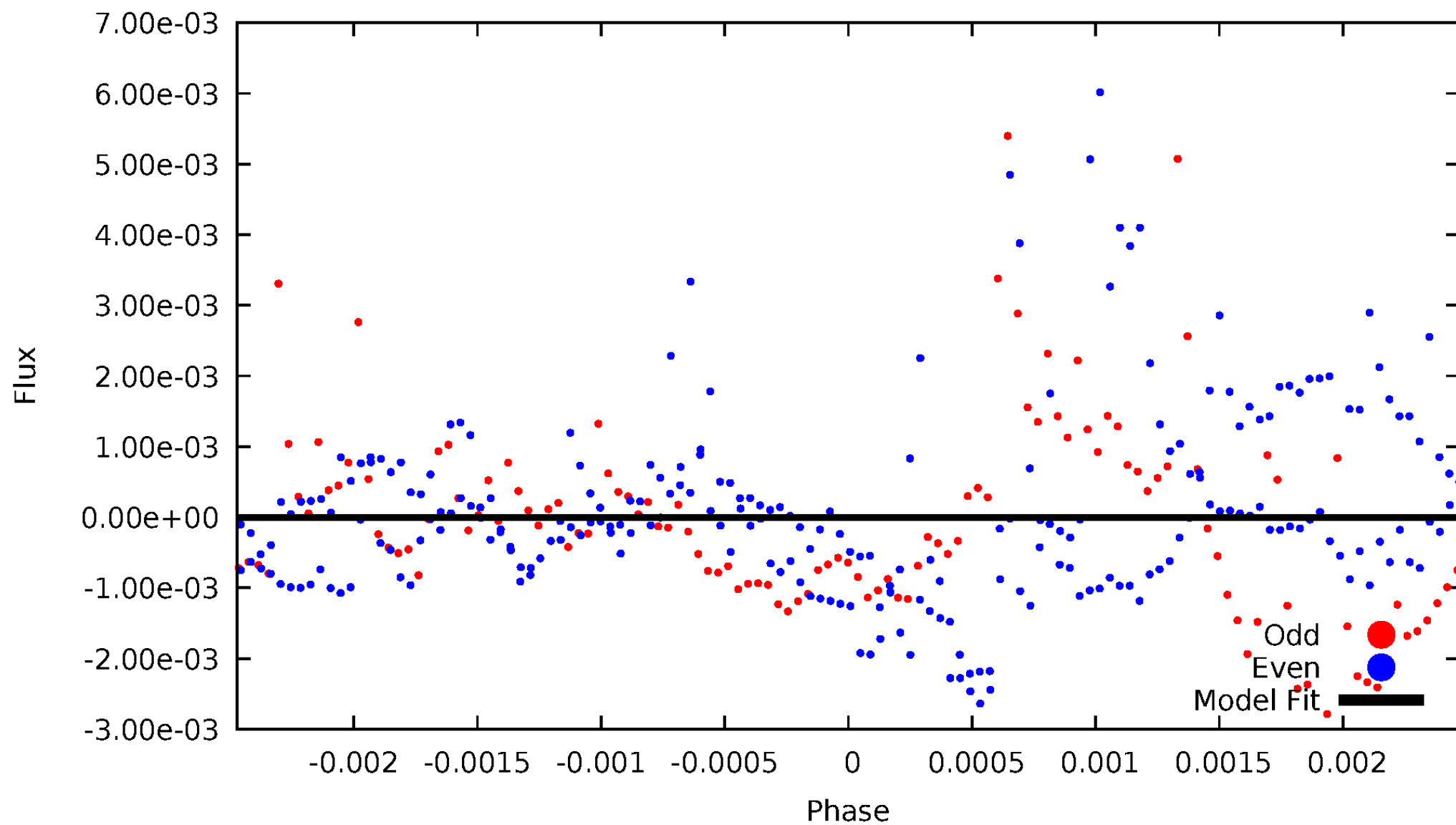
TCE 004248763-04





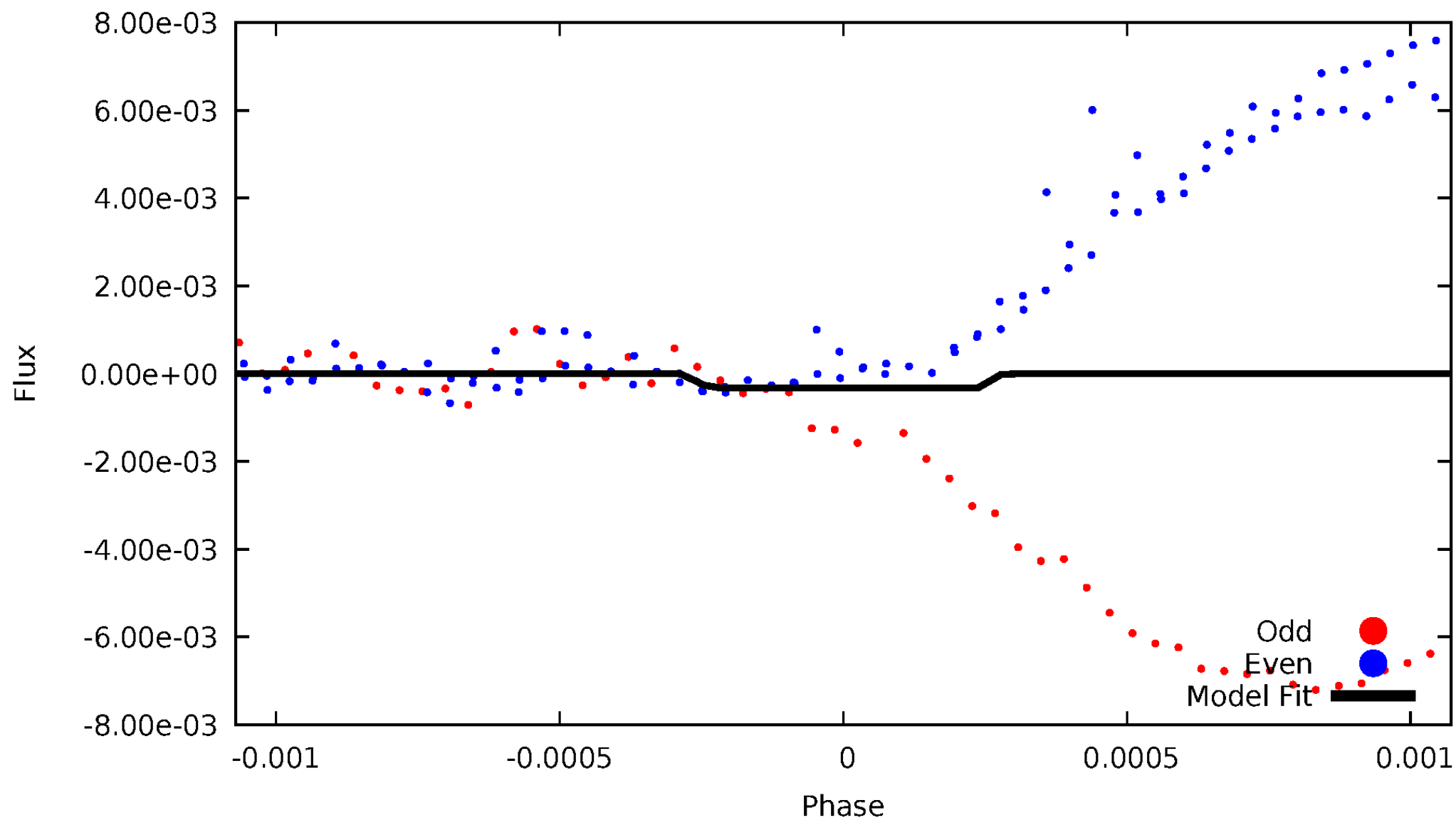
# DV Odd/Even

TCE 004248763-04



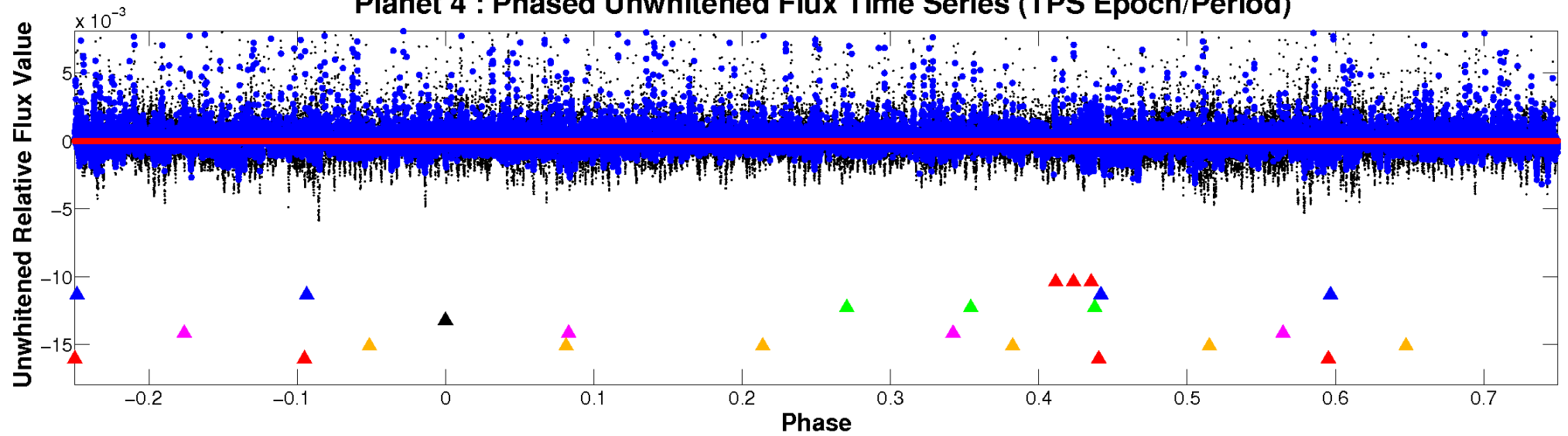
# ALT Odd/Even

TCE 004248763-04



# Non-Whitened Vs. Whitened Light Curve

**Planet 4 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

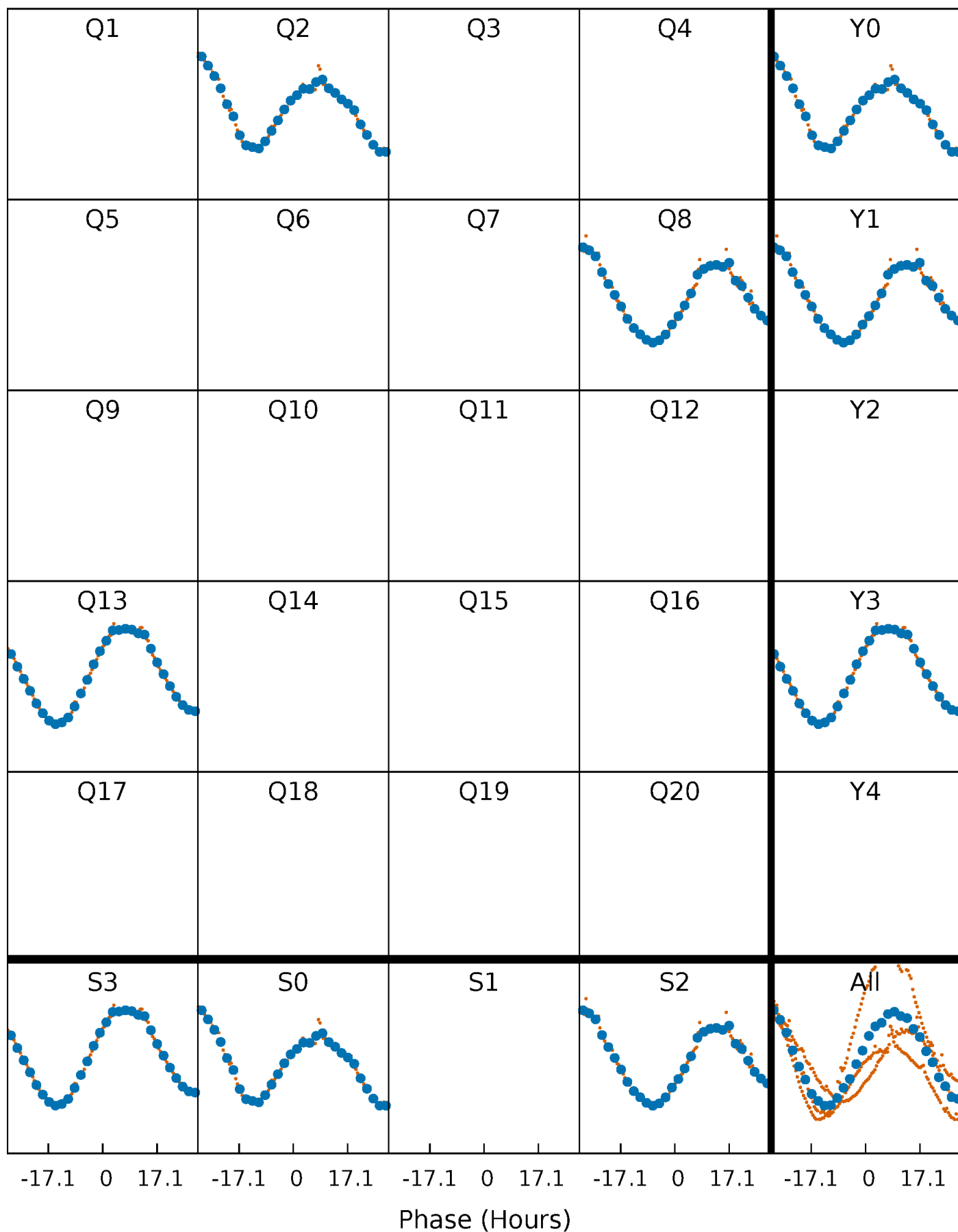


**Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



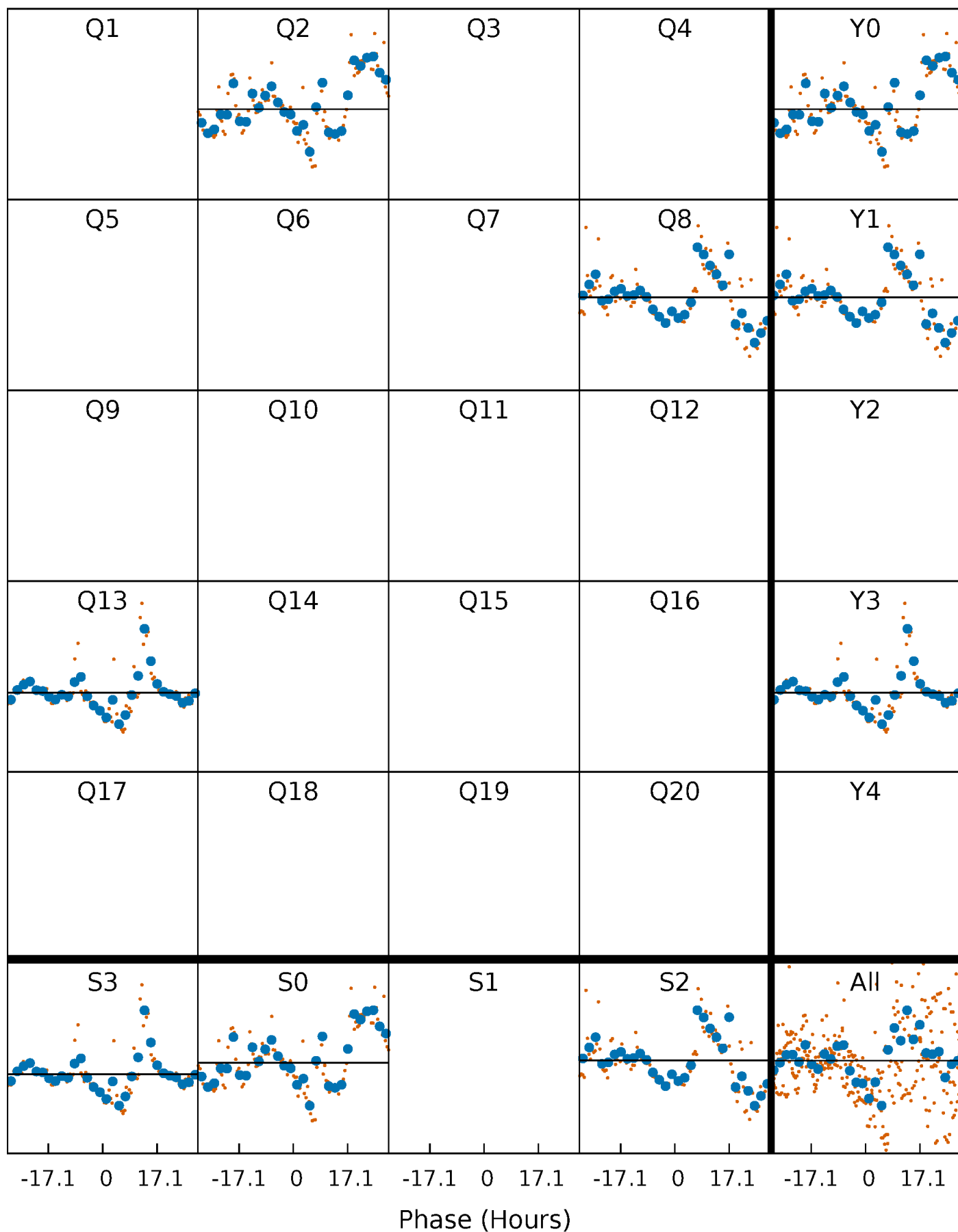
# PDC Quarter-Phased Transit Curves

TCE 004248763-04   P=505.934946 Days    $T_0=239.359323$  (BKJD)



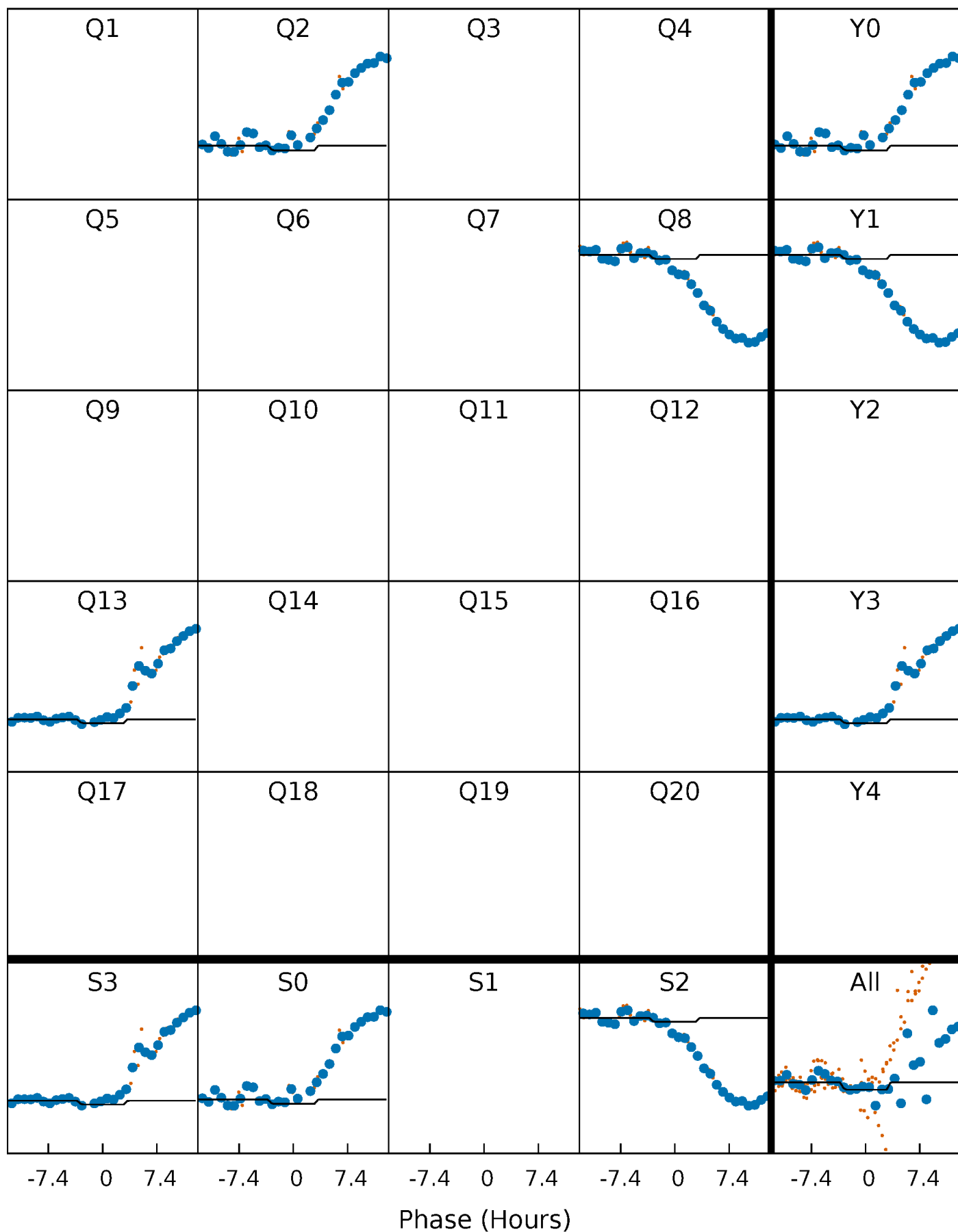
# DV Quarter-Phased Transit Curves

TCE 004248763-04     $P=505.934946$  Days     $T_0=239.359323$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

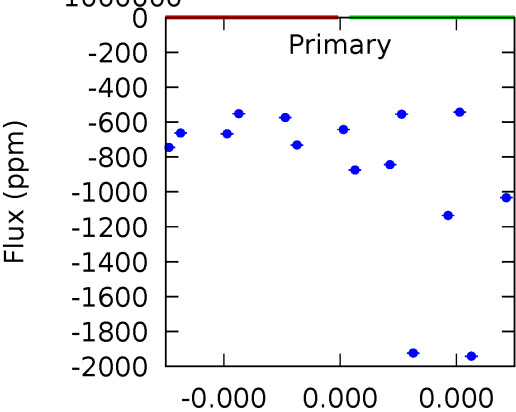
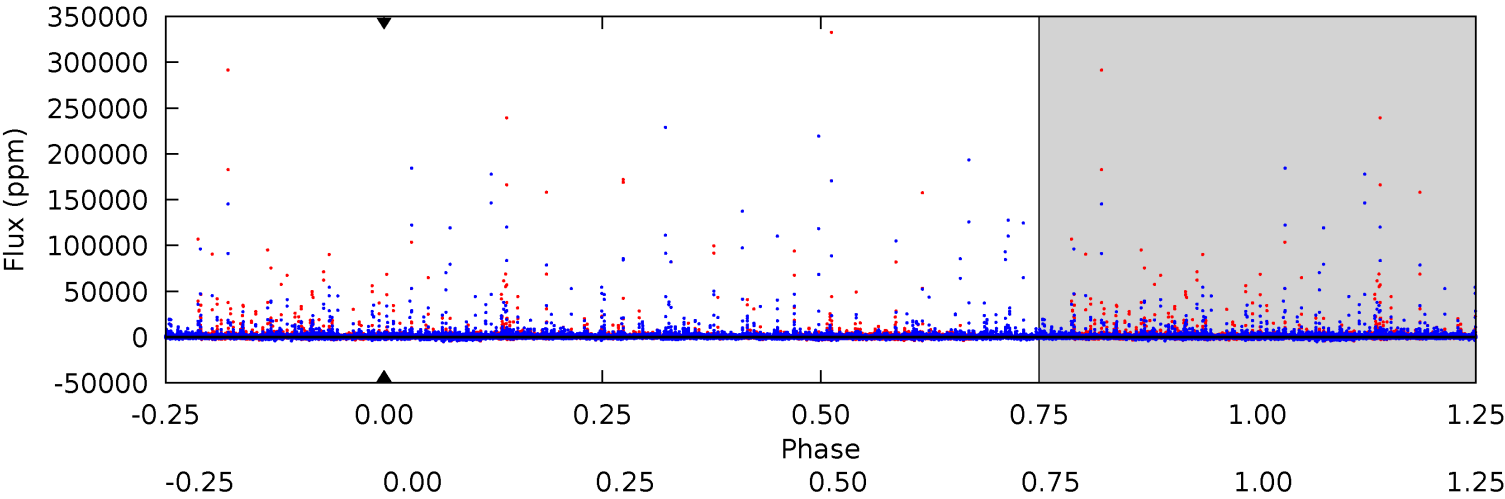
TCE 004248763-04 P=505.934946 Days  $T_0=238.814516$  (BKJD)



DV Model-Shift Uniqueness Test

004248763-04, P = 505.934946 Days, E = 239.359323 Days

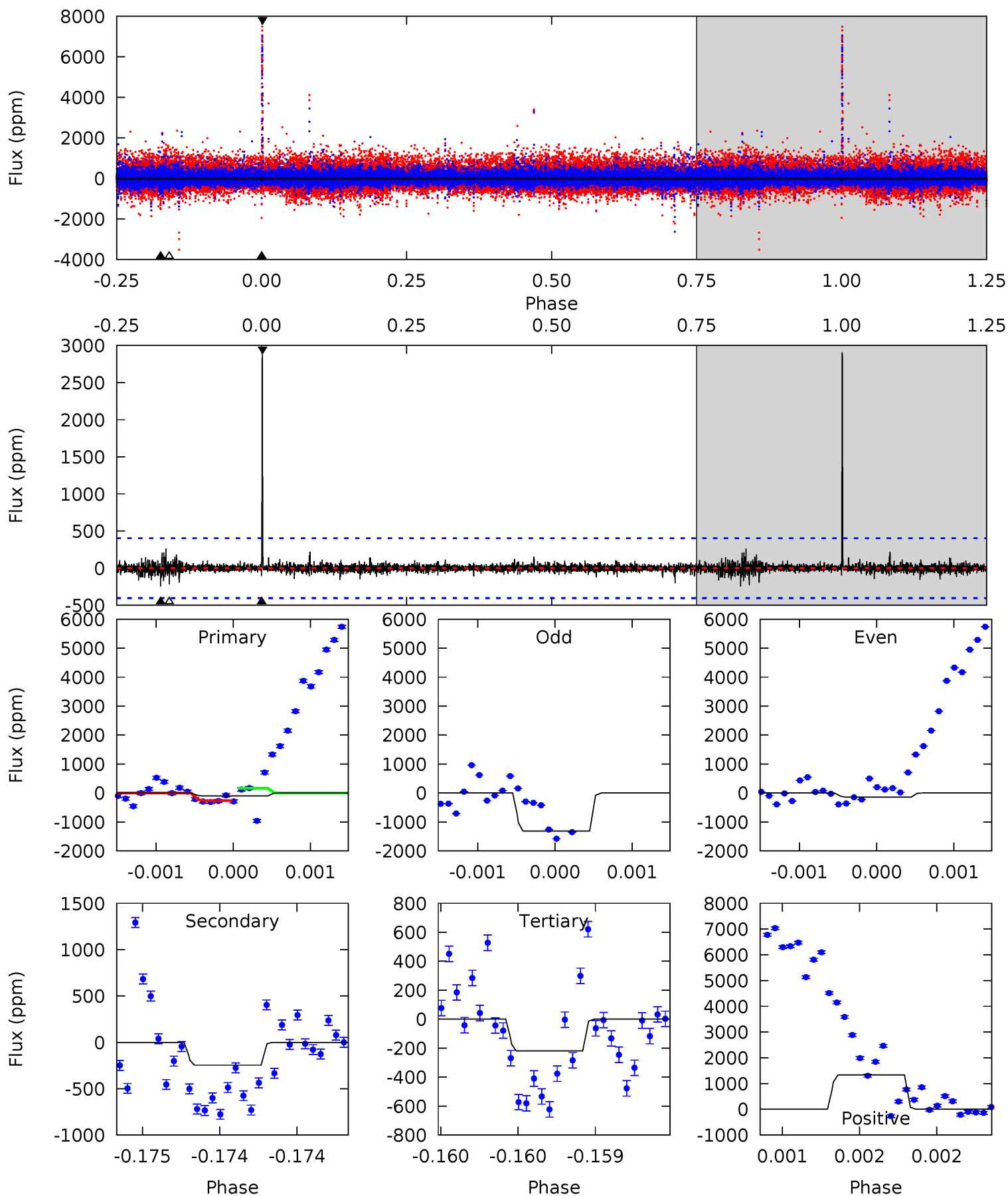
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

004248763-04, P = 505.934946 Days, E = 238.814516 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
1.34	3.38	3.01	18.4	5.56	3.47	1.04	-1.66	-17.0	0.37	-15.0	7.46	-5.83	0.92	0.71





### Stellar Parameters For KIC 004248763

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4353^{+155}_{-172}$	$4.575^{+0.060}_{-0.016}$	$0.420^{+0.050}_{-0.300}$	$0.723^{+0.028}_{-0.066}$	$0.716^{+0.042}_{-0.052}$	$2.673^{+0.727}_{-0.166}$
	+4%/-4%	+1%/-0%	+12%/-71%	+4%/-9%	+6%/-7%	+27%/-6%
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 004248763-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$5.45^{+5.82}_{-3.94}$	$215^{+8}_{-9}$	$-3659^{+15430}_{-7043}$	$-47914.399^{+4610662.646}_{-3370217.014}$
Alt.	$-245 \pm 73$	$5.73^{+6.07}_{-3.96}$	$214^{+9}_{-10}$	$2671^{+1131}_{-423}$	$4999^{+45474}_{-3879}$

$T_{\text{max}}$  = 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

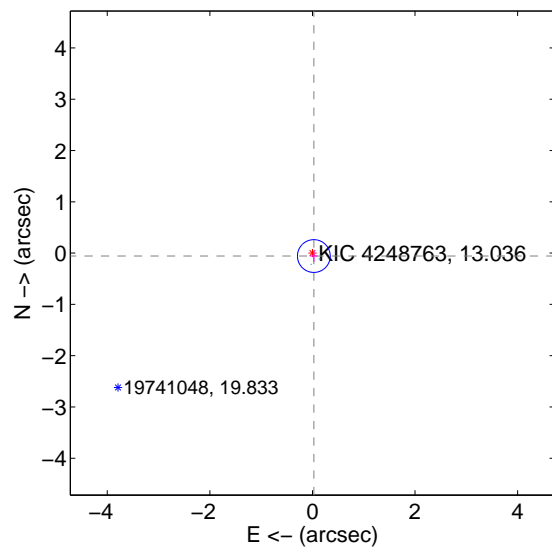
Supplemental centroid analysis for 004248763-04. Kepler magnitude: 13.04. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

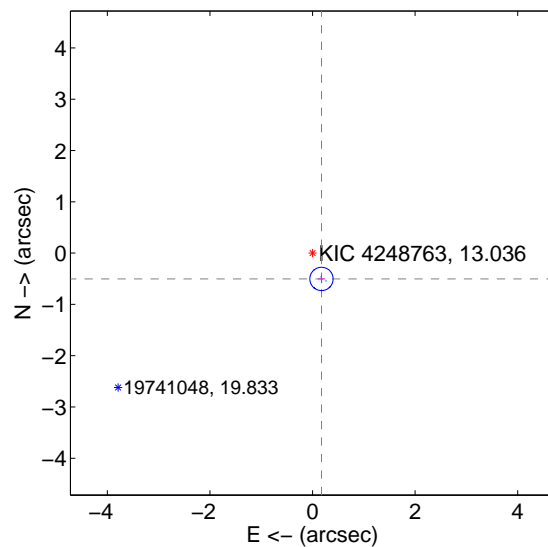
The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.064 \pm 0.106$	0.60	$-0.027 \pm 0.075$	$-0.057 \pm 0.112$
PRF-fit source offset from KIC position	<b><math>0.533 \pm 0.076</math></b>	<b>7.04</b>	$-0.174 \pm 0.071$	$-0.503 \pm 0.076$
photometric centroid source offset	$0.23 \pm 1.23$	0.19	$-0.21 \pm 1.23$	$0.08 \pm 1.24$

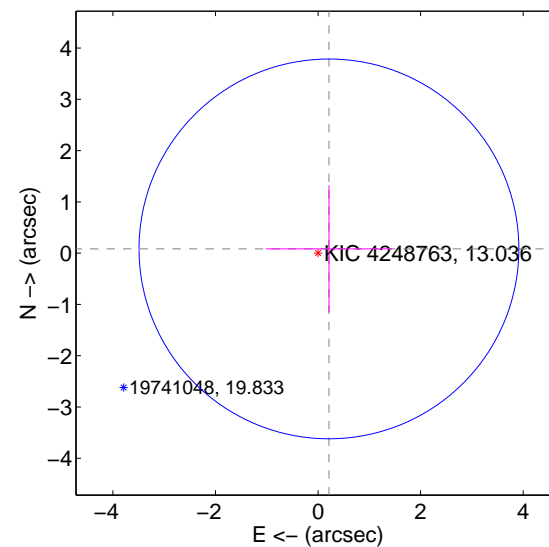
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

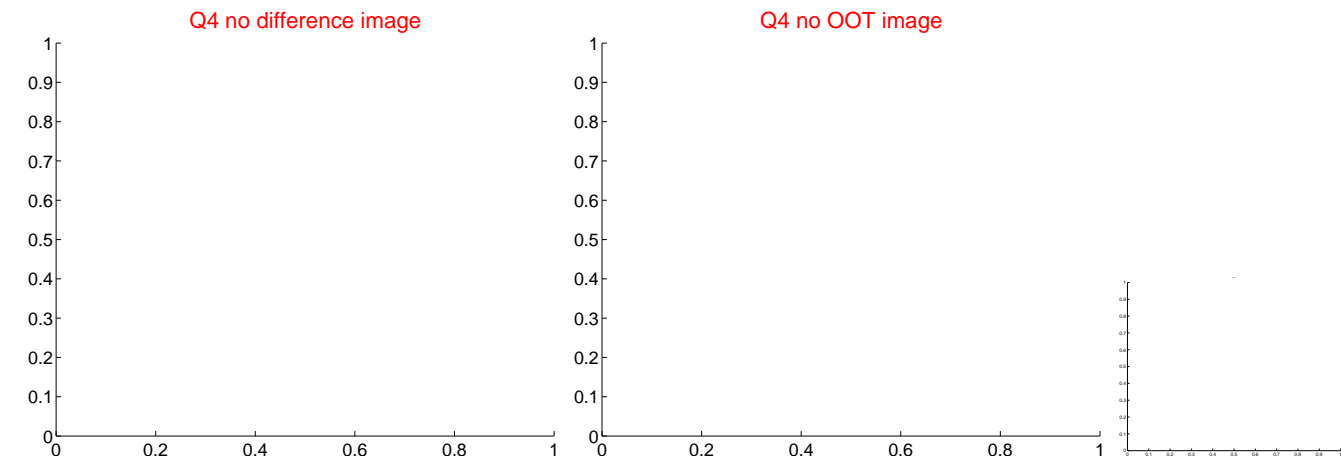
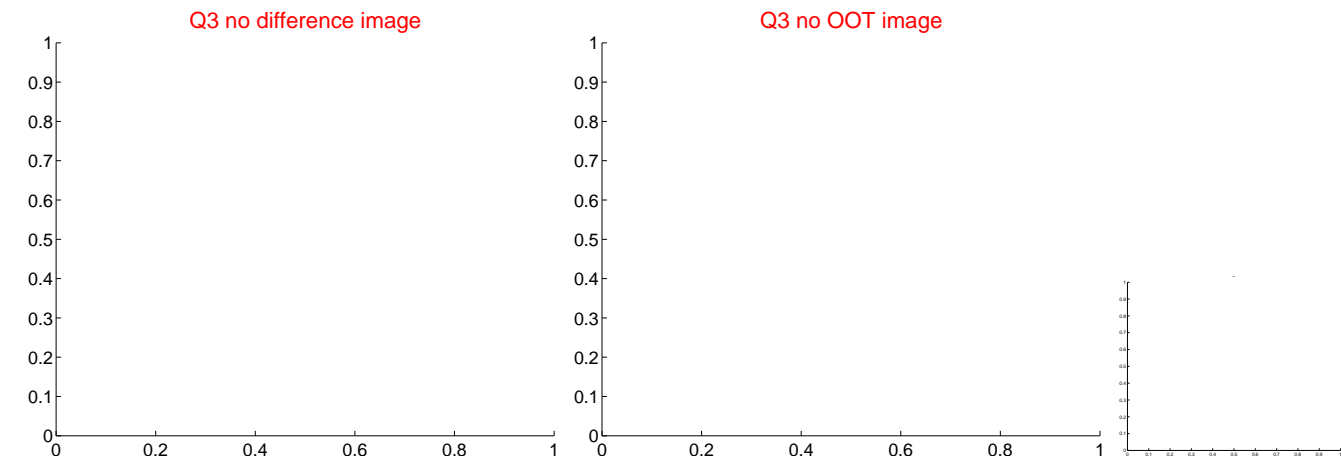
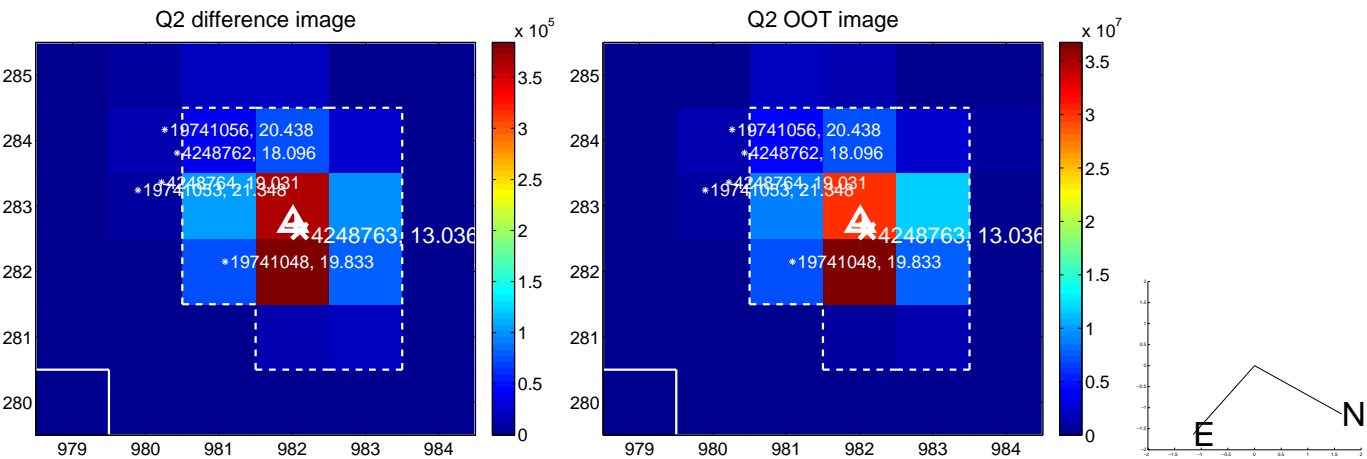


offset from photometric centroids

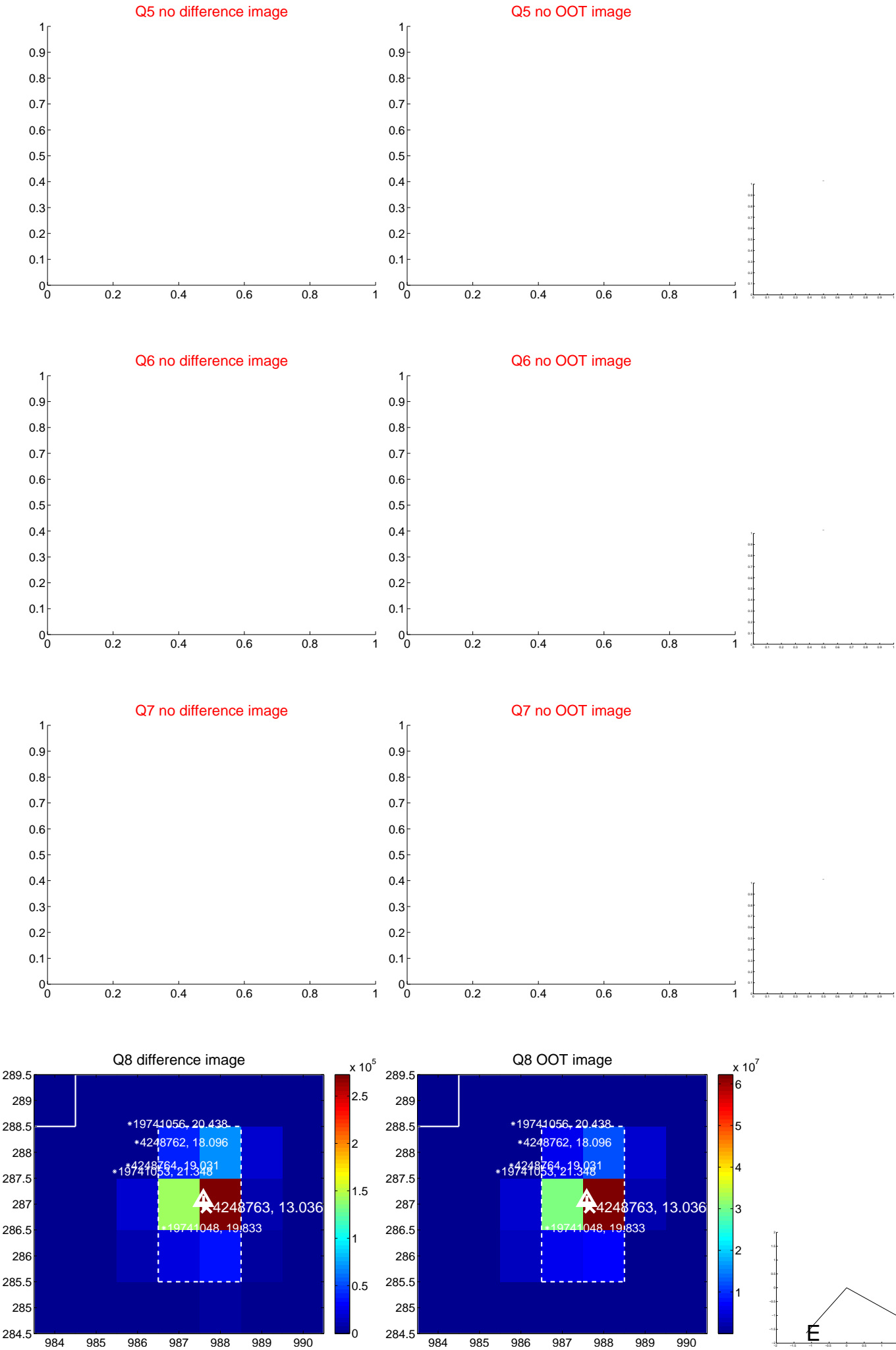


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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



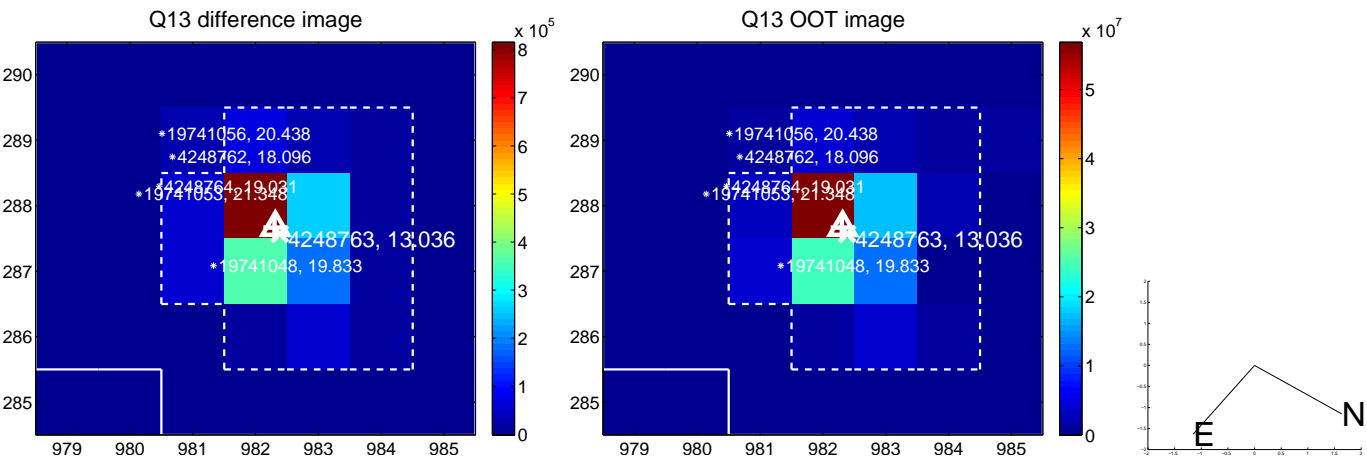
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



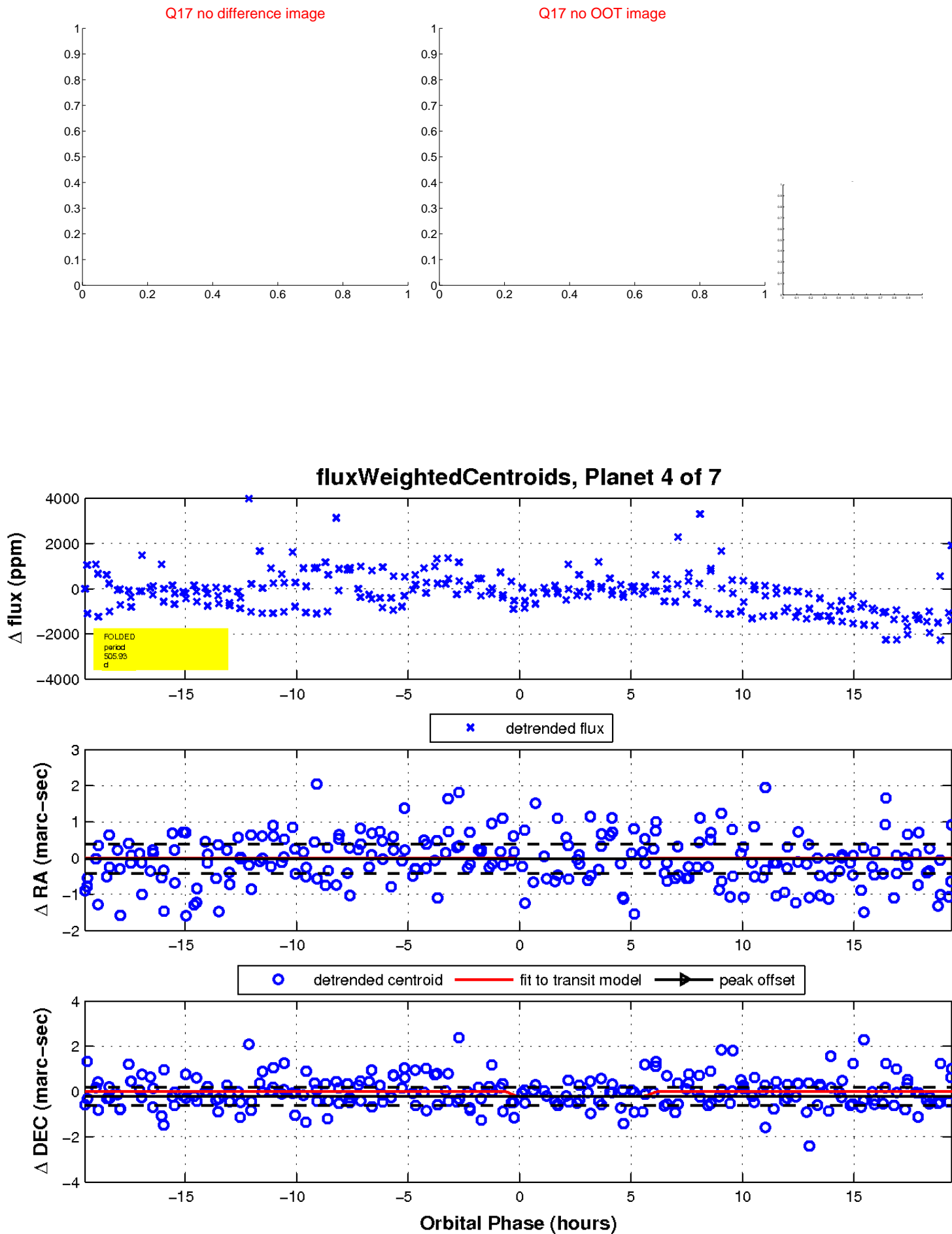
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

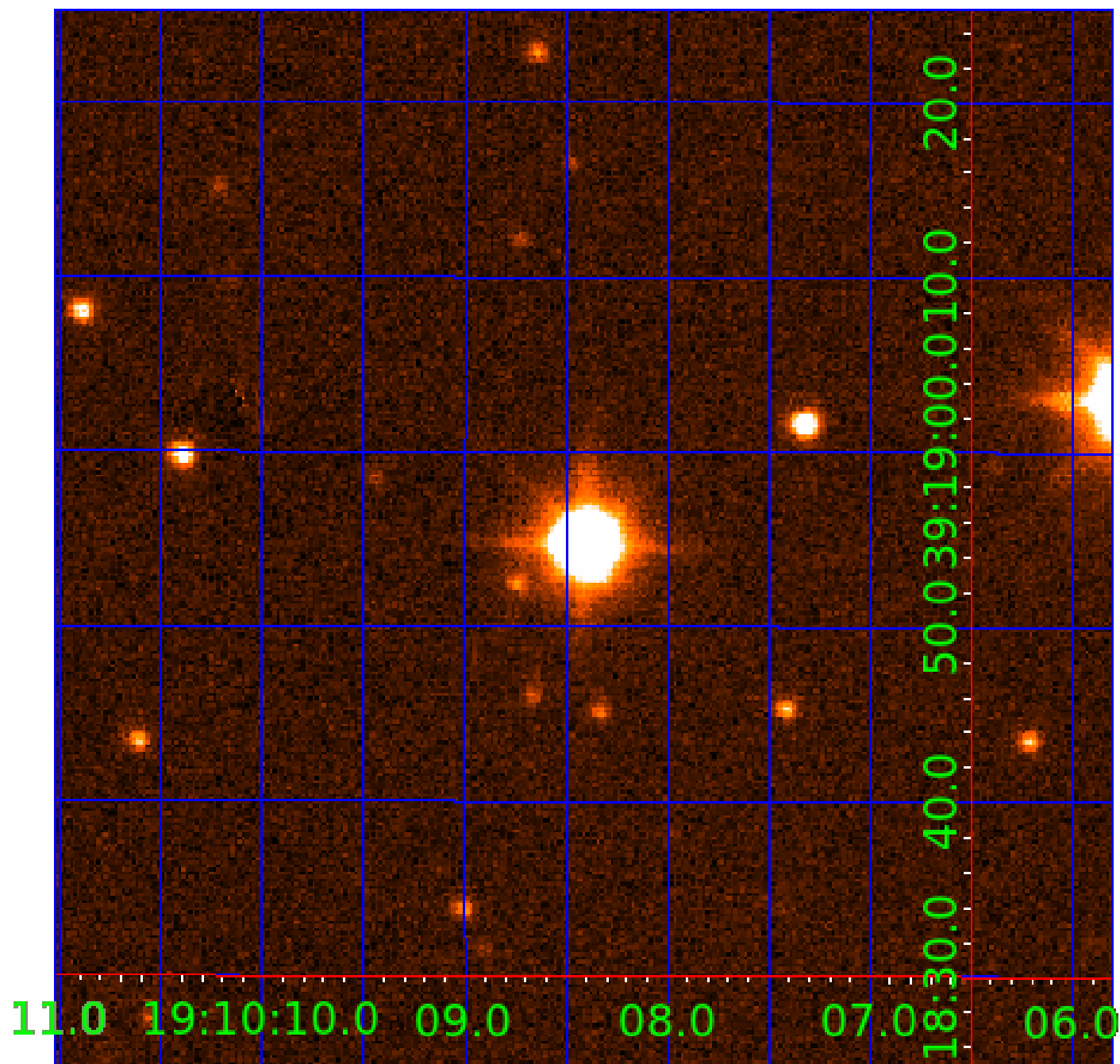


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 004248763

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004248763-01	OBS	No	499.874418	459.638870	768.5	4.578	19.4	3.4	0.72	4353	2.23	0.14
004248763-02	OBS	No	427.595603	192.022934	543.1	1.257	16.1	2.1	0.72	4353	1.94	0.17
004248763-03	OBS	No	463.642704	460.839735	2592.3	15.647	17.2	7.9	0.72	4353	3.69	0.15
004248763-04	OBS	No	505.934946	239.359323	208.6	15.000	11.9	-1.0	0.72	4353	0.99	0.14
004248763-05	OBS	No	374.800098	412.514487	1511.3	5.394	21.5	5.1	0.72	4353	3.26	0.20
004248763-06	OBS	No	219.422992	347.587085	1711.7	3.196	13.5	9.0	0.72	4353	2.84	0.41
004248763-07	OBS	No	427.606299	191.258723	311.8	12.500	15.2	-1.0	0.72	4353	1.21	0.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004248763-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
004248763-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
004248763-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
004248763-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

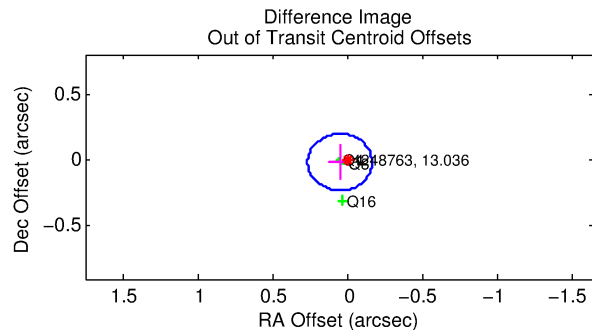
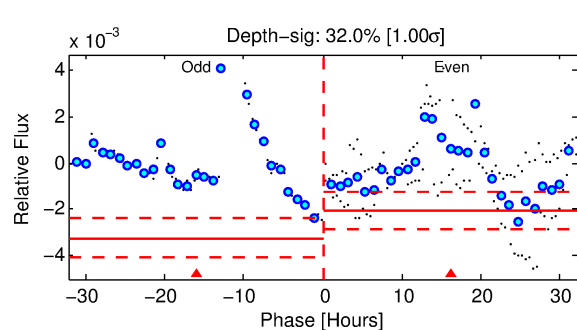
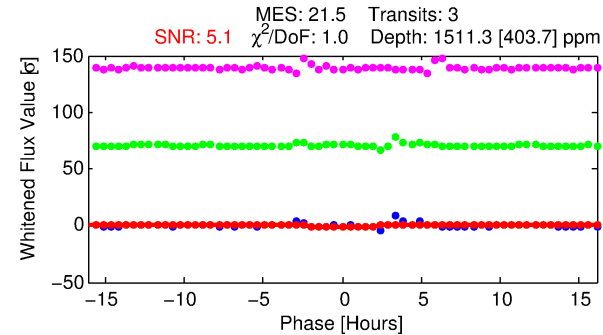
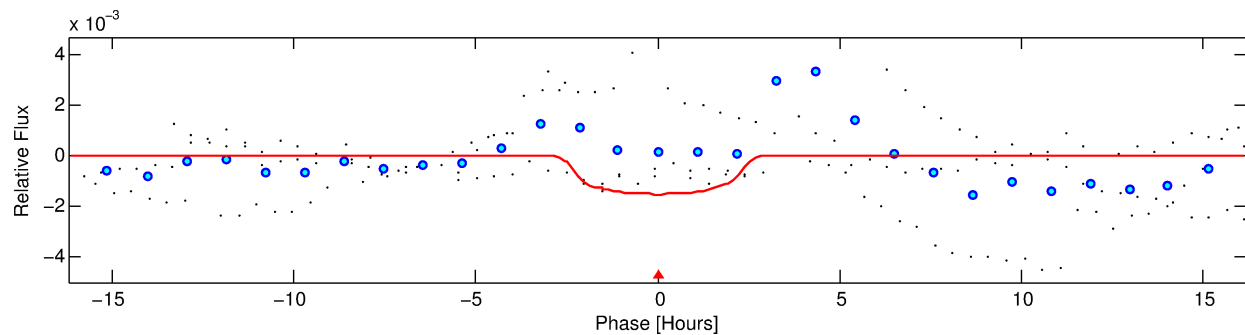
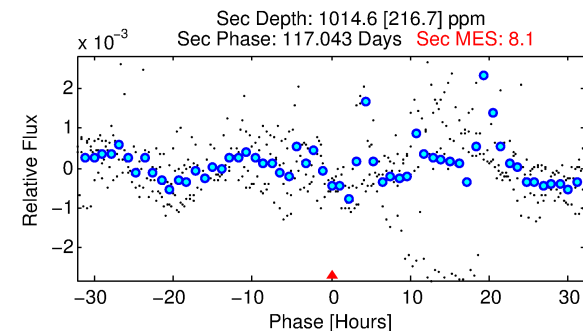
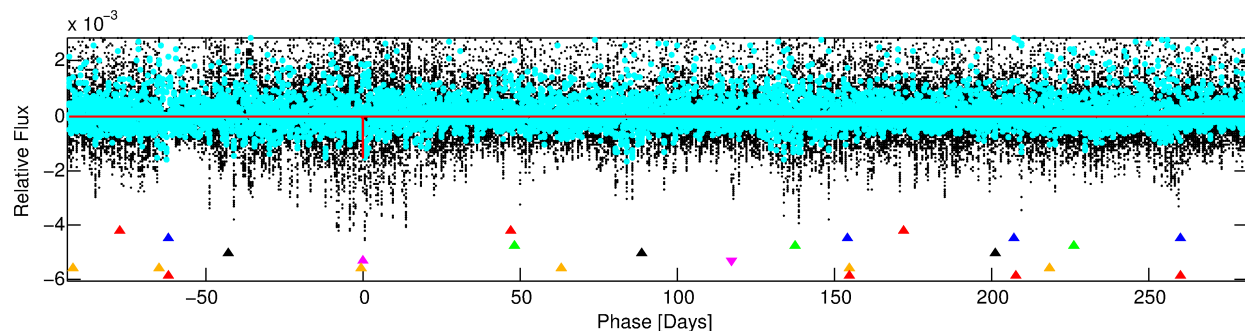
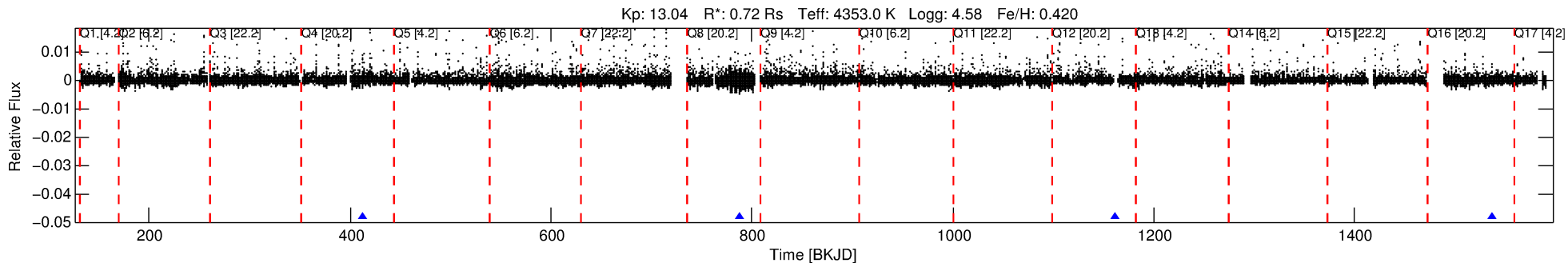
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004248763-05

No Significant Match Found

# DV One-Page Summary

KIC: 4248763 Candidate: 5 of 7 Period: 374.800 d



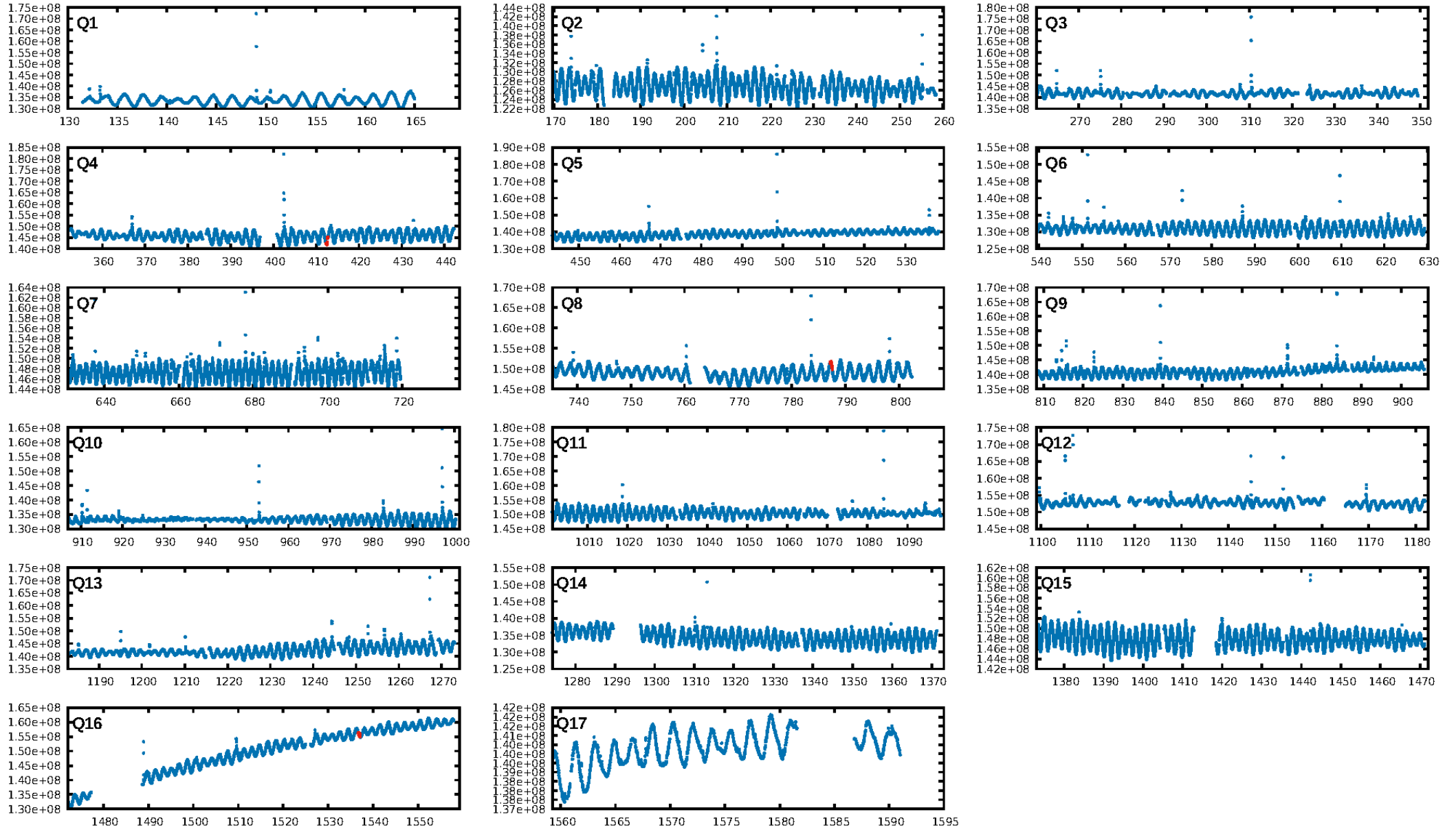
## DV Fit Results:

Period = 374.80010 [0.00467] d  
Epoch = 412.5145 [0.0093] BKJD  
Rp/R\* = 0.0414 [0.0116]  
a/R\* = 330.93 [226.39]  
b = 0.83 [0.26]  
Seff = 0.20 [0.04]  
Teq = 171 [8] K  
Rp = 3.26 [0.96] Re  
a = 0.9106 [0.0695] AU  
Ag = 43485.03 [26536.57] [1.64σ]  
**Teffp = 3821 [593] K [6.16σ]**

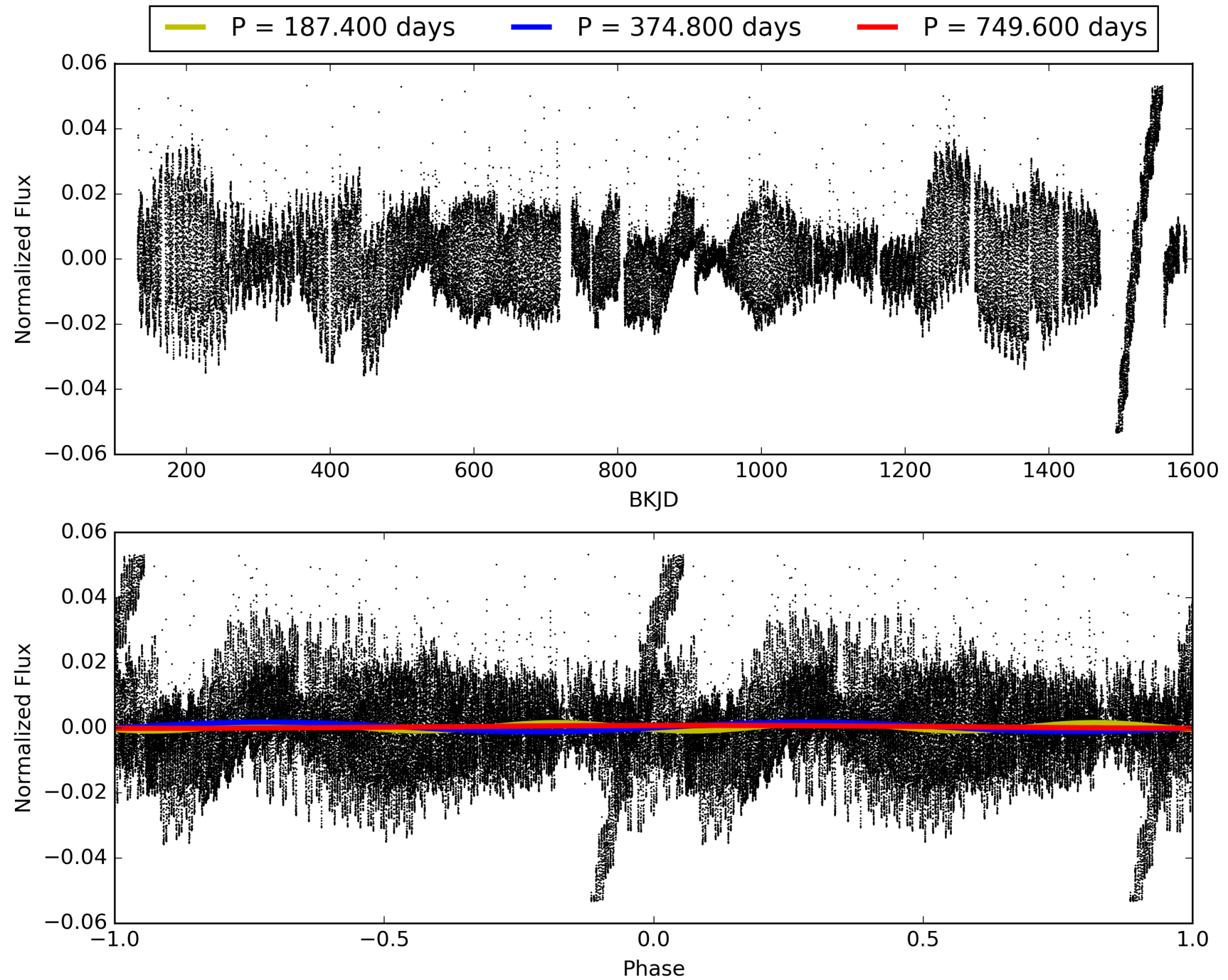
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [594.76σ]  
LongPeriod-sig: 100.0% [228.76σ]  
ModelChiSquare2-sig: 4.5%  
ModelChiSquareGof-sig: 97.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.9175  
Centroid-sig: 13.6%  
**Centroid-so: 0.834 arcsec [3.10σ]**  
OotOffset-rm: 0.052 arcsec [0.72σ]  
**KicOffset-rm: 0.473 arcsec [5.38σ]**  
OotOffset-st: 0/0/3/0 [3]  
KicOffset-st: 0/0/3/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 004248763-05, PDC Light Curves

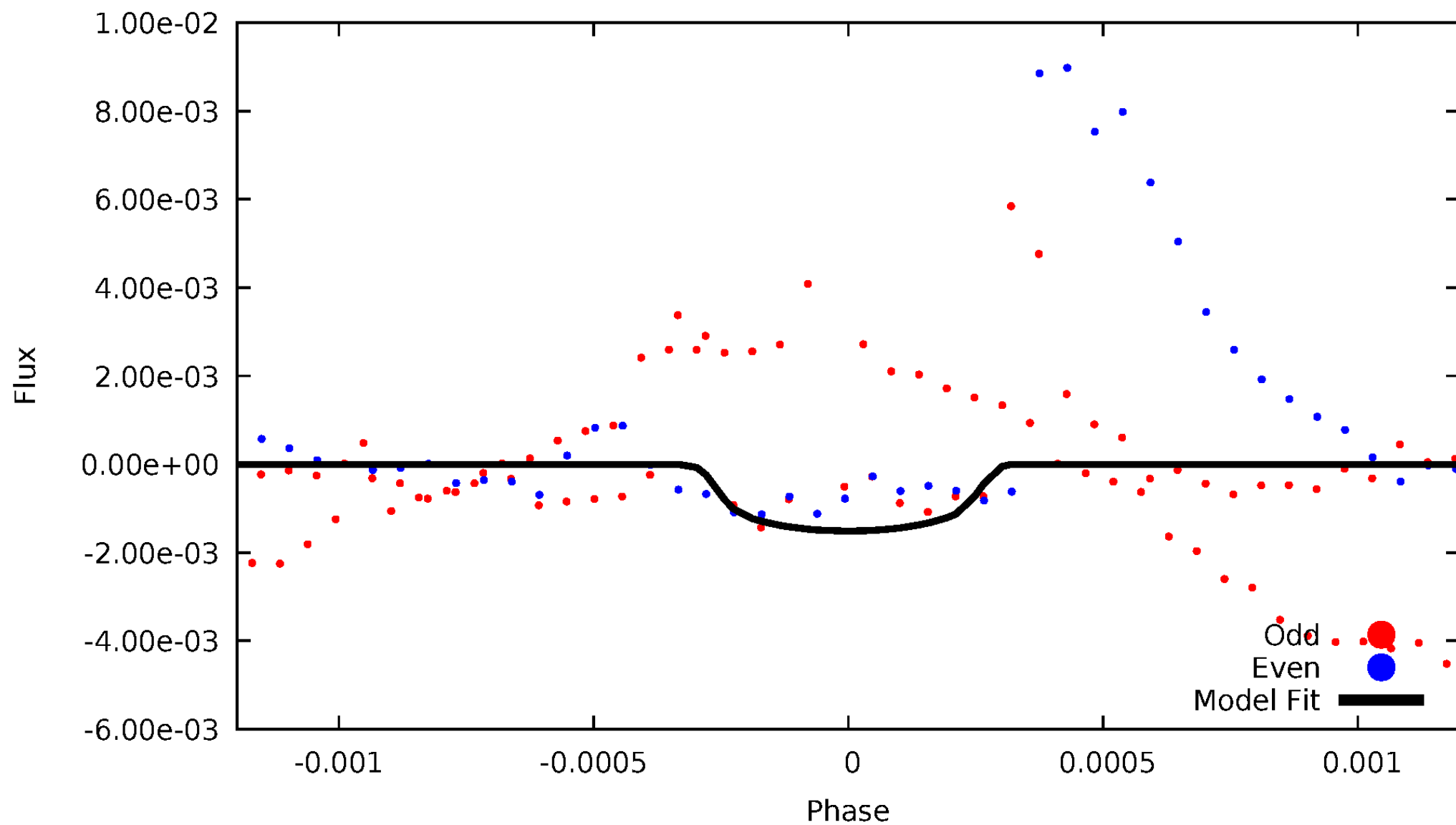


TCE 004248763-05



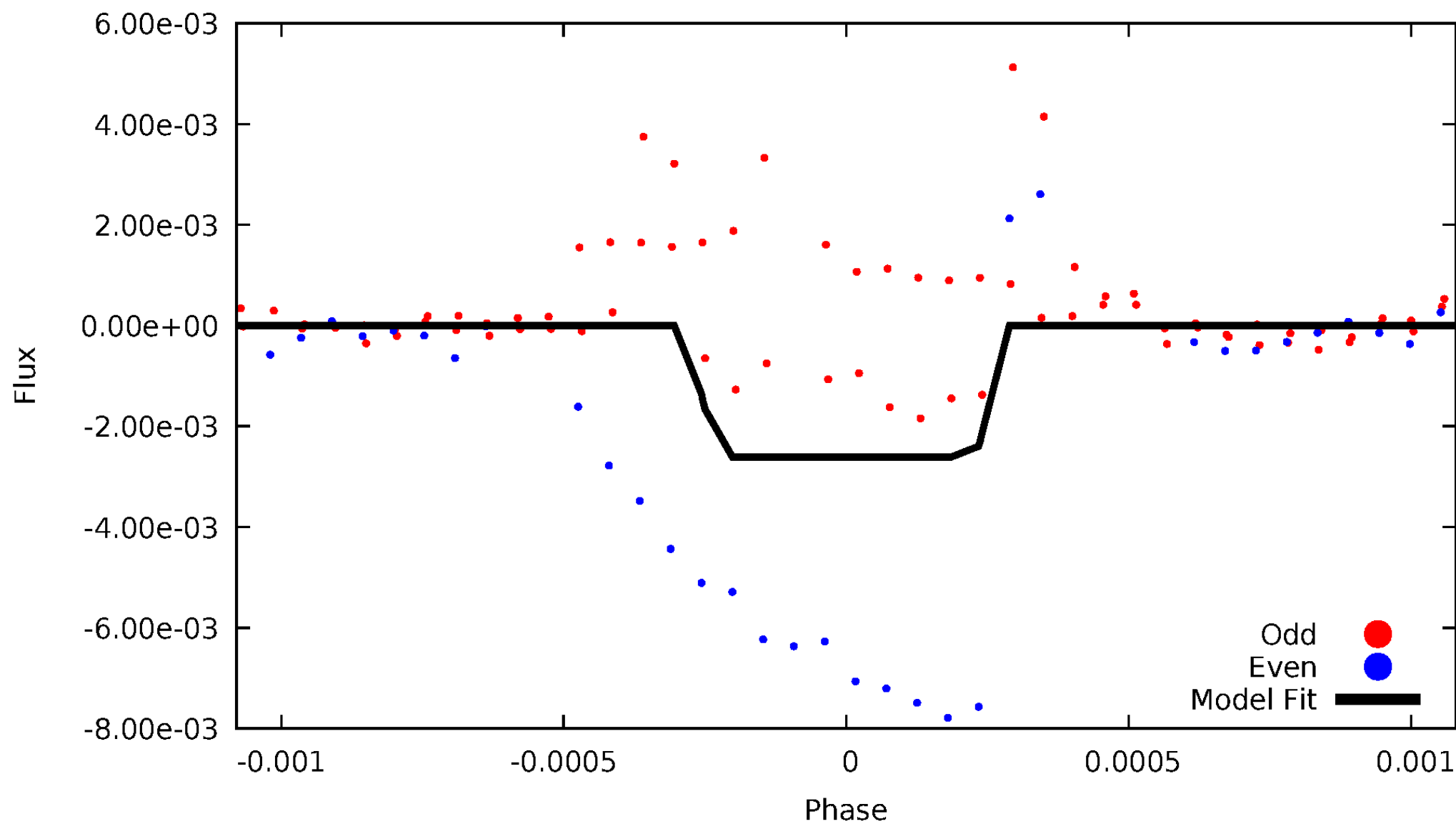
# DV Odd/Even

TCE 004248763-05



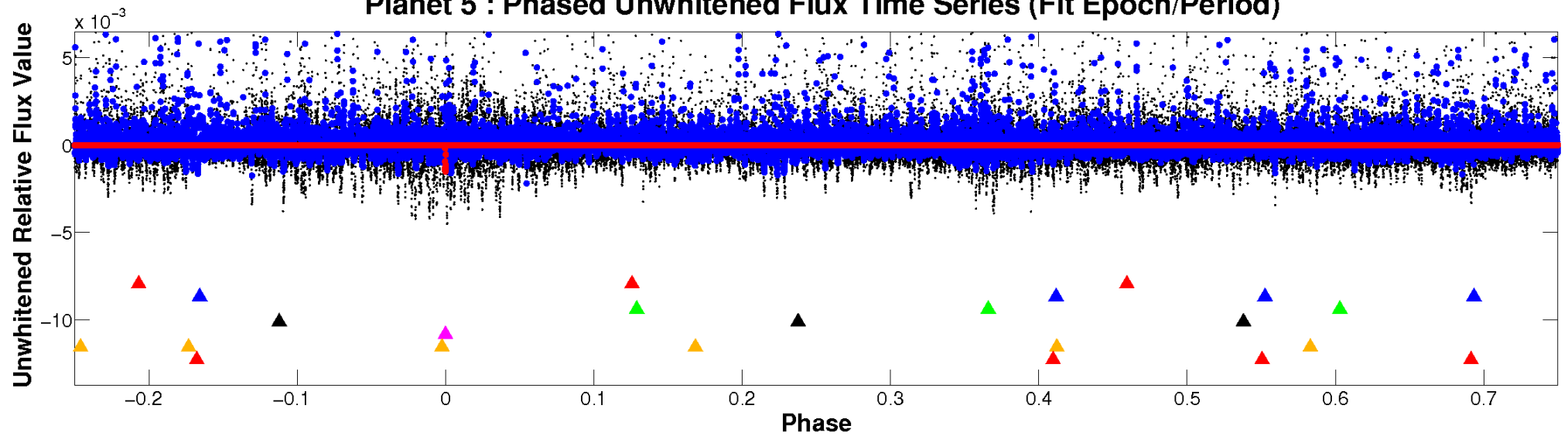
# ALT Odd/Even

TCE 004248763-05

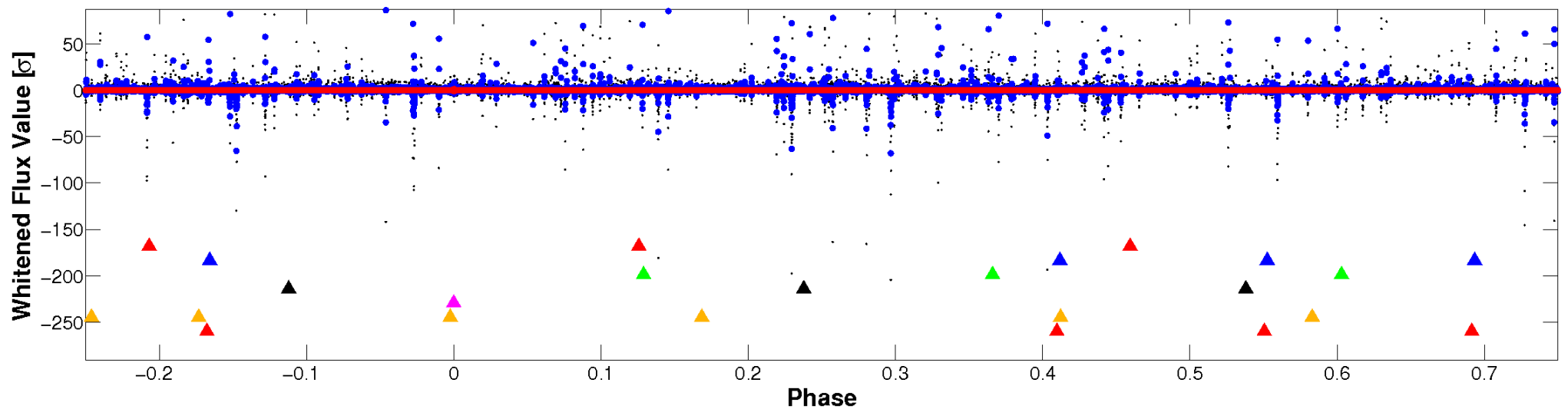


# Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

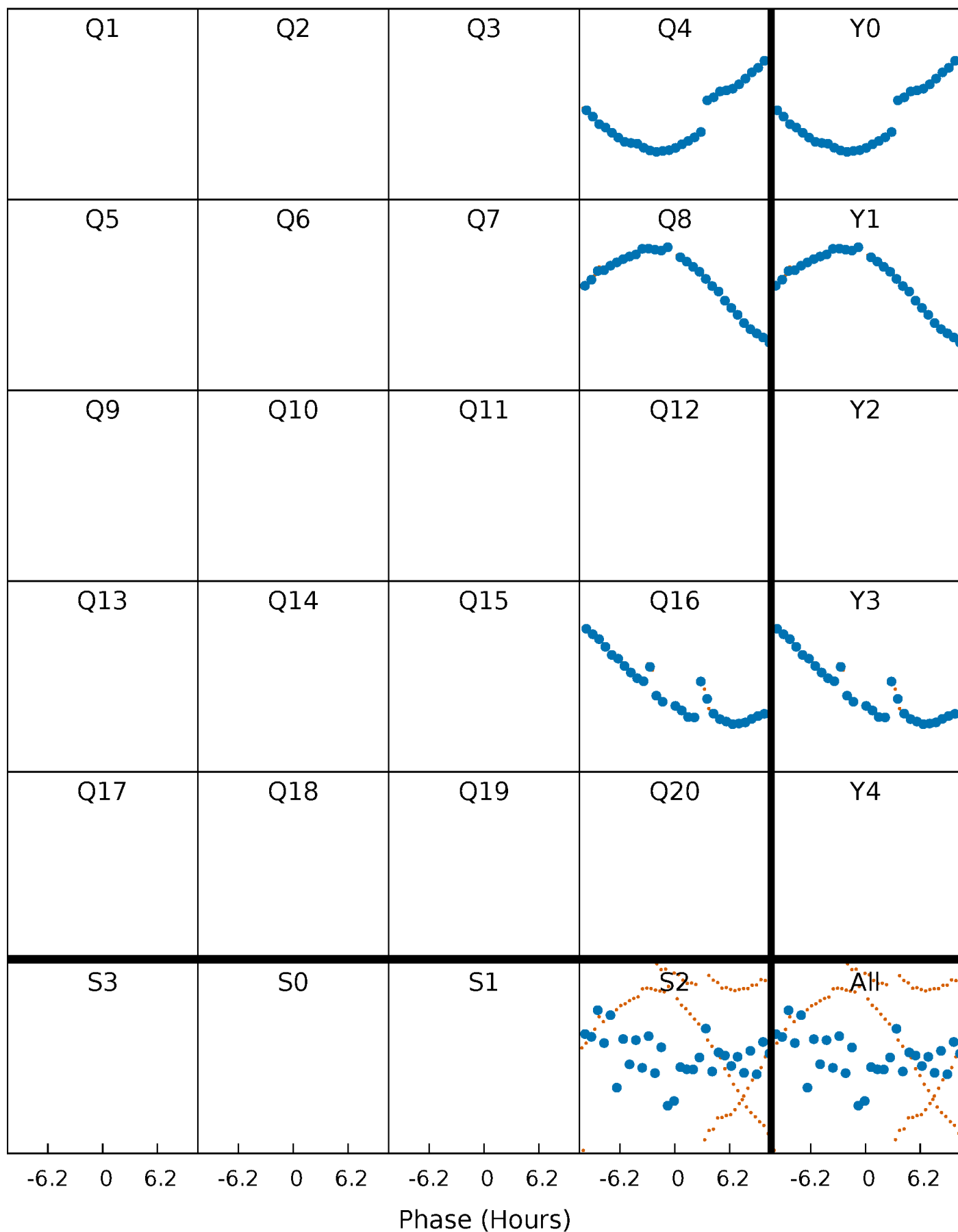


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

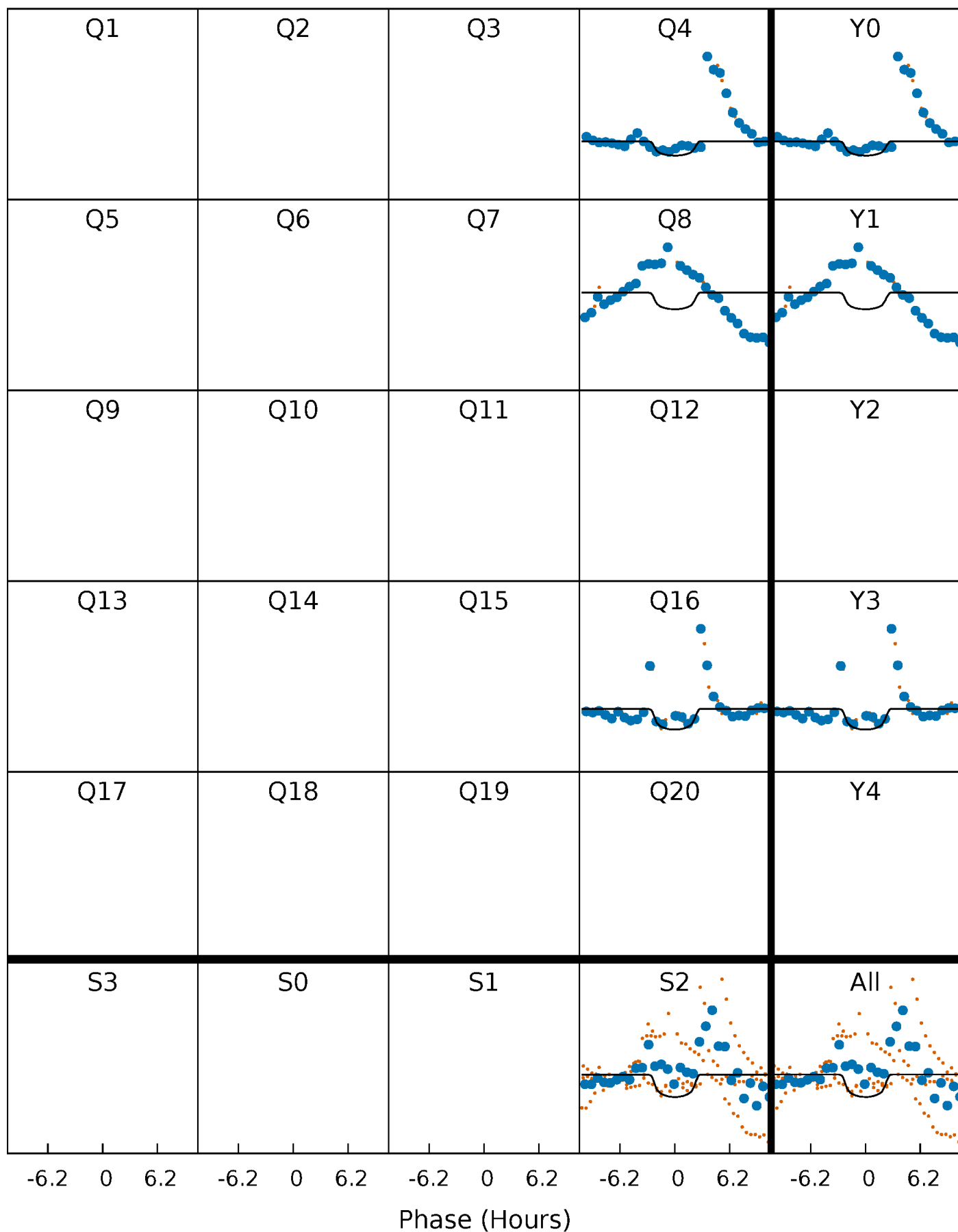
TCE 004248763-05     $P=374.800098$  Days     $T_0=412.514487$  (BKJD)





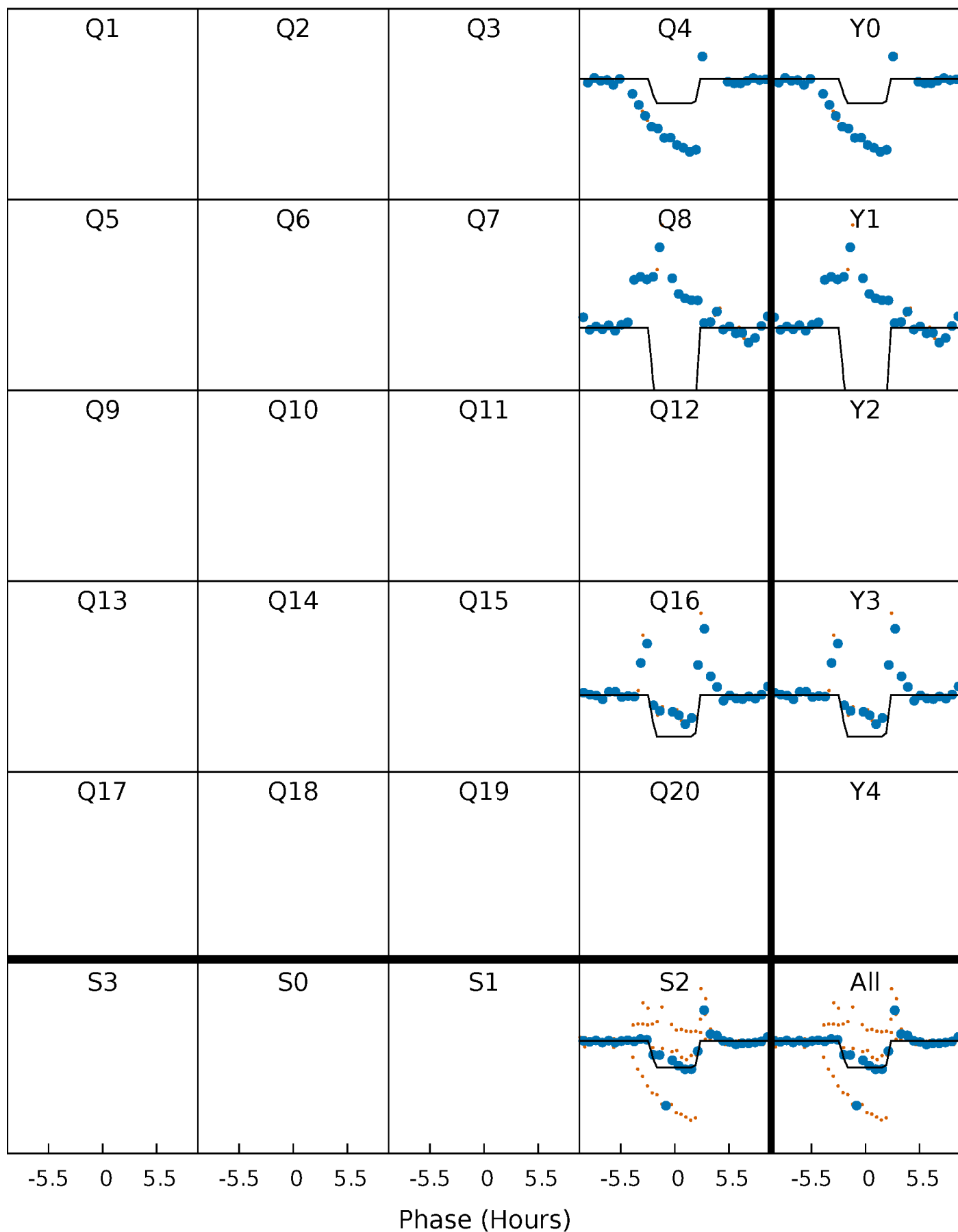
# DV Quarter-Phased Transit Curves

TCE 004248763-05     $P=374.800098$  Days     $T_0=412.514487$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

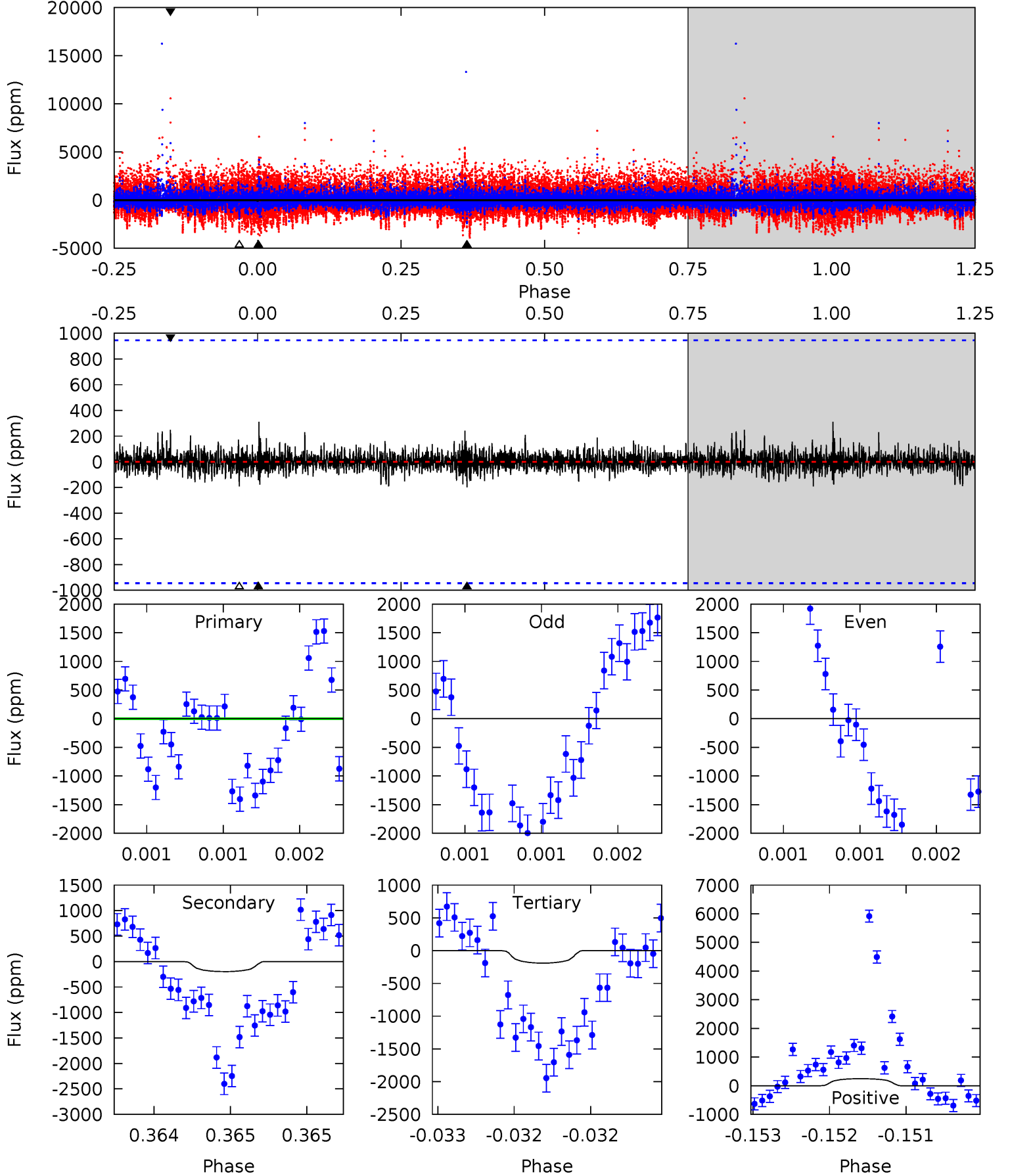
TCE 004248763-05     $P=374.792357$  Days     $T_0=412.546791$  (BKJD)



# DV Model-Shift Uniqueness Test

004248763-05,  $P = 374.800098$  Days,  $E = 37.714389$  Days

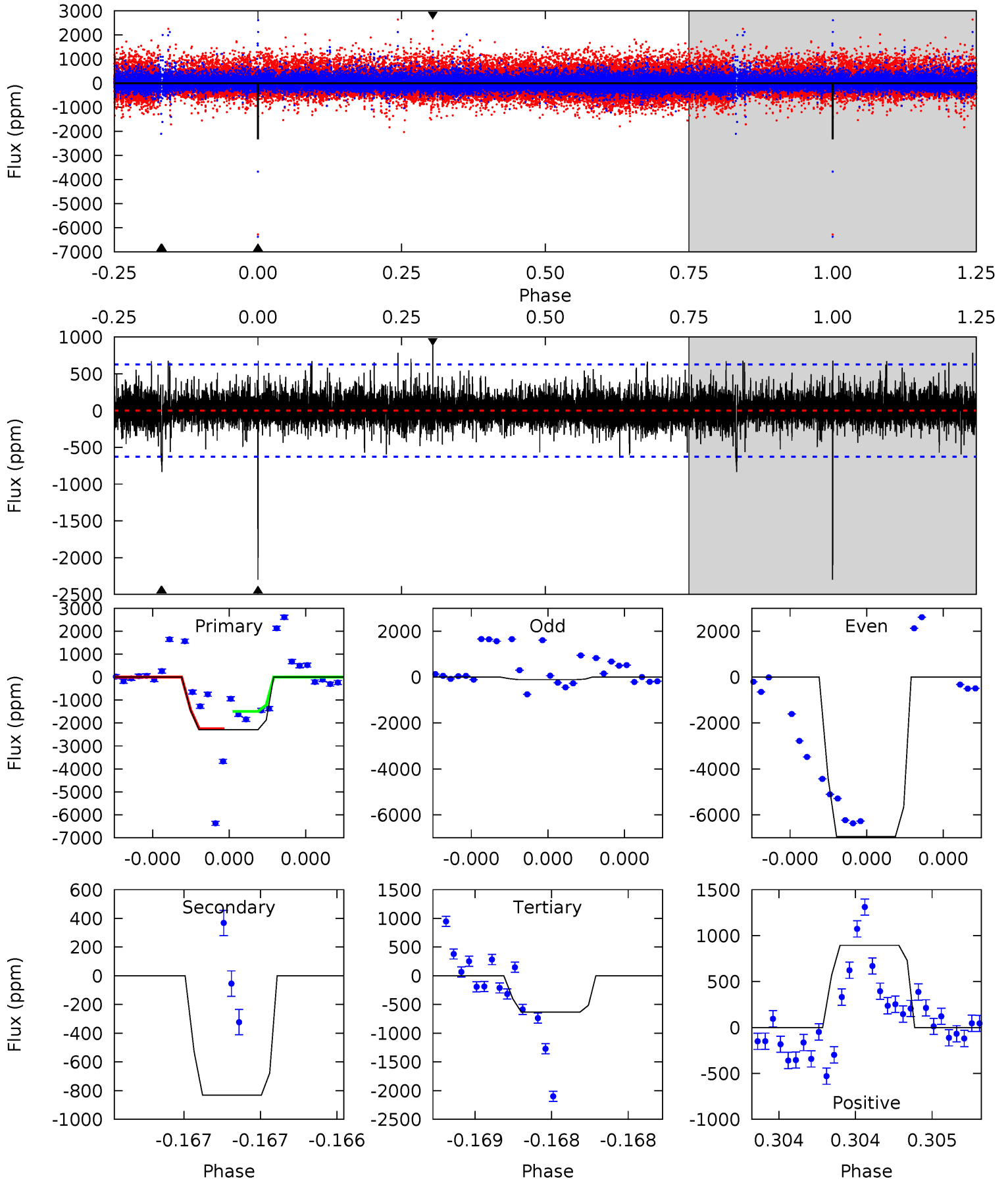
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.53	1.16	1.12	1.45	5.54	3.42	0.30	-0.59	-0.92	0.04	-0.29	0.65	-0.48	0.61	1.07



# Alt Model-Shift Uniqueness Test

004248763-05, P = 374.792357 Days, E = 37.754434 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.4	7.39	5.61	7.95	5.57	3.48	1.17	14.8	12.4	1.78	-0.56	39.9	1.72	0.28	3.18



### Stellar Parameters For KIC 004248763

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4353^{+155}_{-172}$	$4.575^{+0.060}_{-0.016}$	$0.420^{+0.050}_{-0.300}$	$0.723^{+0.028}_{-0.066}$	$0.716^{+0.042}_{-0.052}$	$2.673^{+0.727}_{-0.166}$
	+4%/-4%	+1%/-0%	+12%/-71%	+4%/-9%	+6%/-7%	+27%/-6%
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 004248763-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-198 \pm 171$	$3.21^{+1.00}_{-0.86}$	$236^{+10}_{-9}$	$3024^{+471}_{-769}$	$8328^{+12788}_{-7535}$
Alt.	$-832 \pm 113$	$3.99^{+0.91}_{-0.89}$	$237^{+9}_{-11}$	$3568^{+331}_{-264}$	$24289^{+15676}_{-8925}$

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

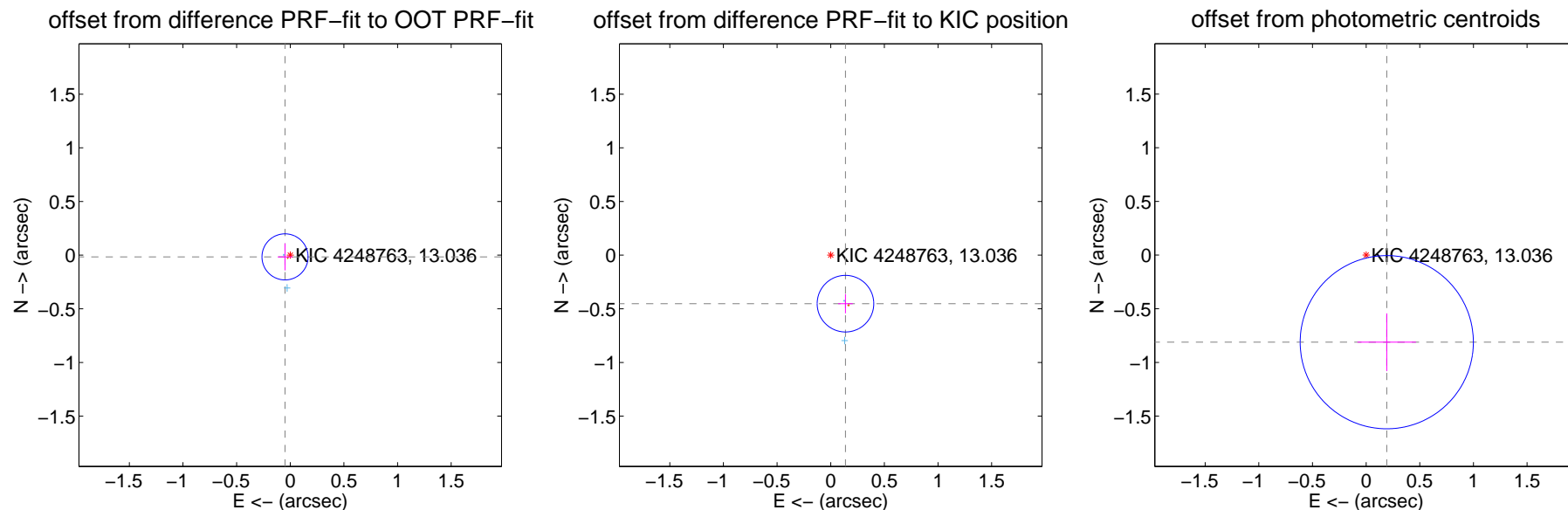
## DV Centroid Data

Supplemental centroid analysis for 004248763-05. Kepler magnitude: 13.04. Transit SNR 5.08

There are 2 quarters with good PRF difference image offsets

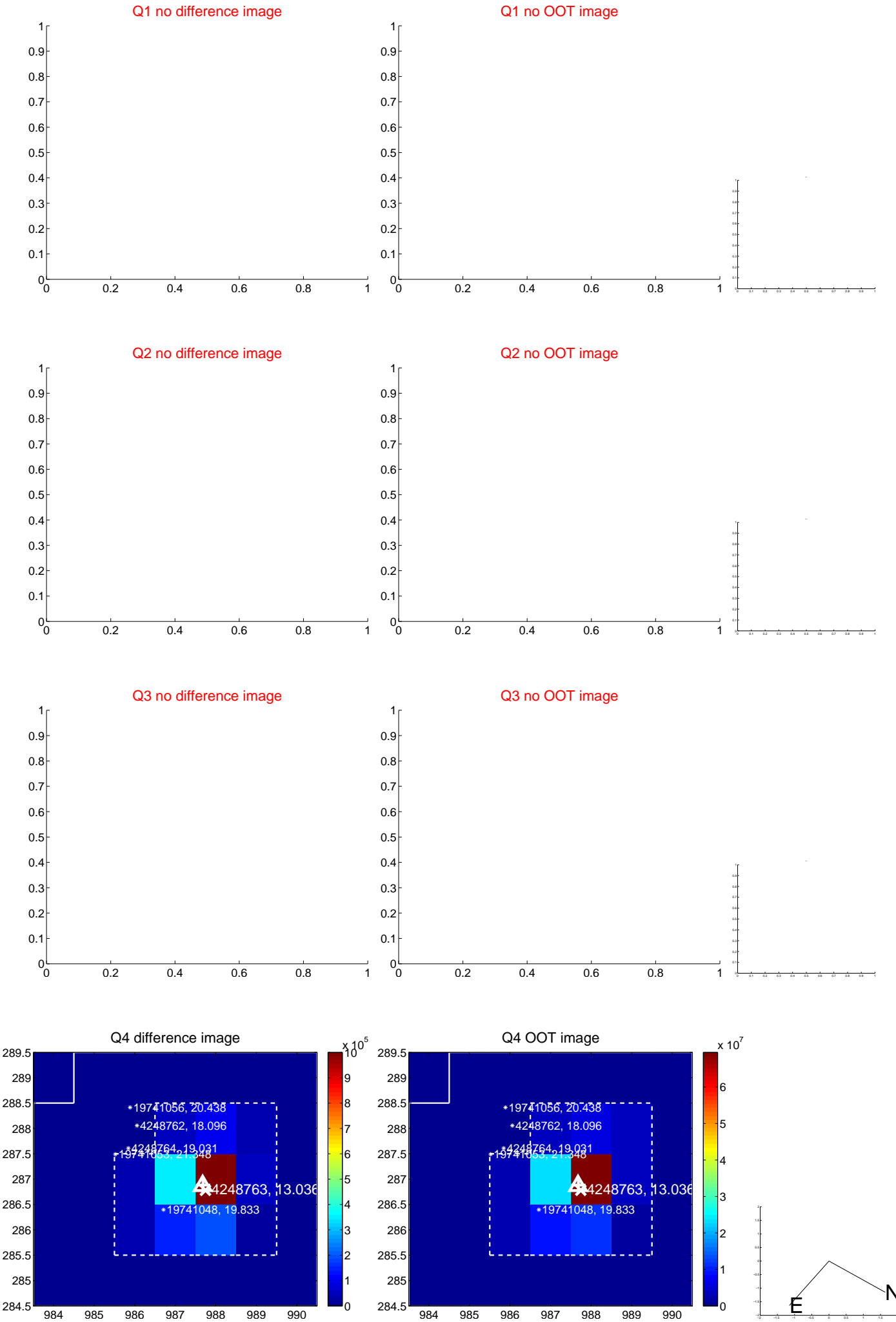
The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.052 \pm 0.072$	0.72	$0.049 \pm 0.068$	$-0.016 \pm 0.126$
PRF-fit source offset from KIC position	$0.473 \pm 0.088$	5.38	$-0.137 \pm 0.068$	$-0.452 \pm 0.090$
photometric centroid source offset	$0.83 \pm 0.27$	3.10	$-0.19 \pm 0.27$	$-0.81 \pm 0.27$

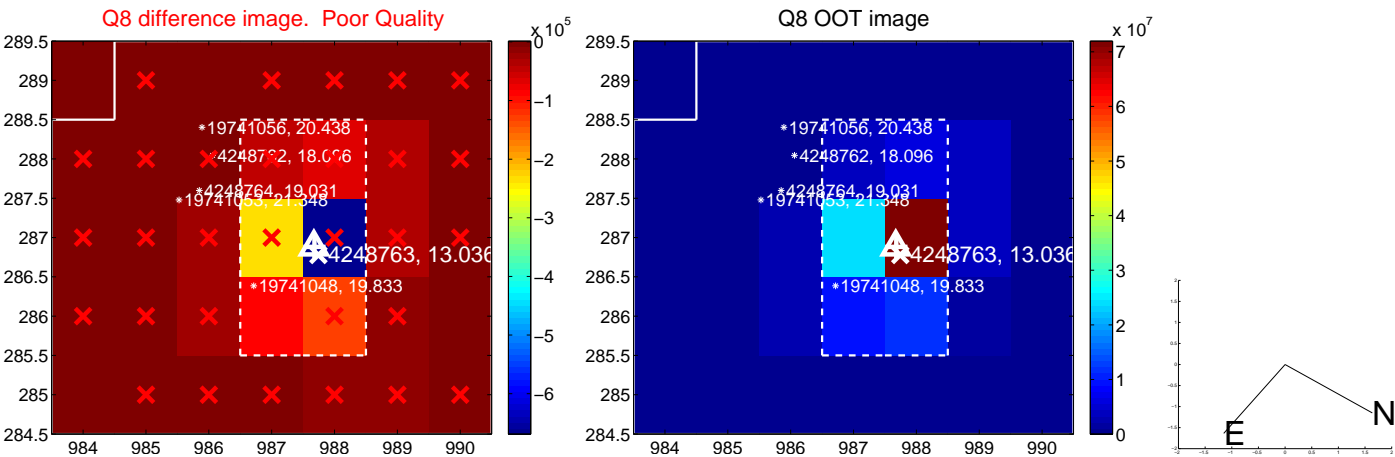
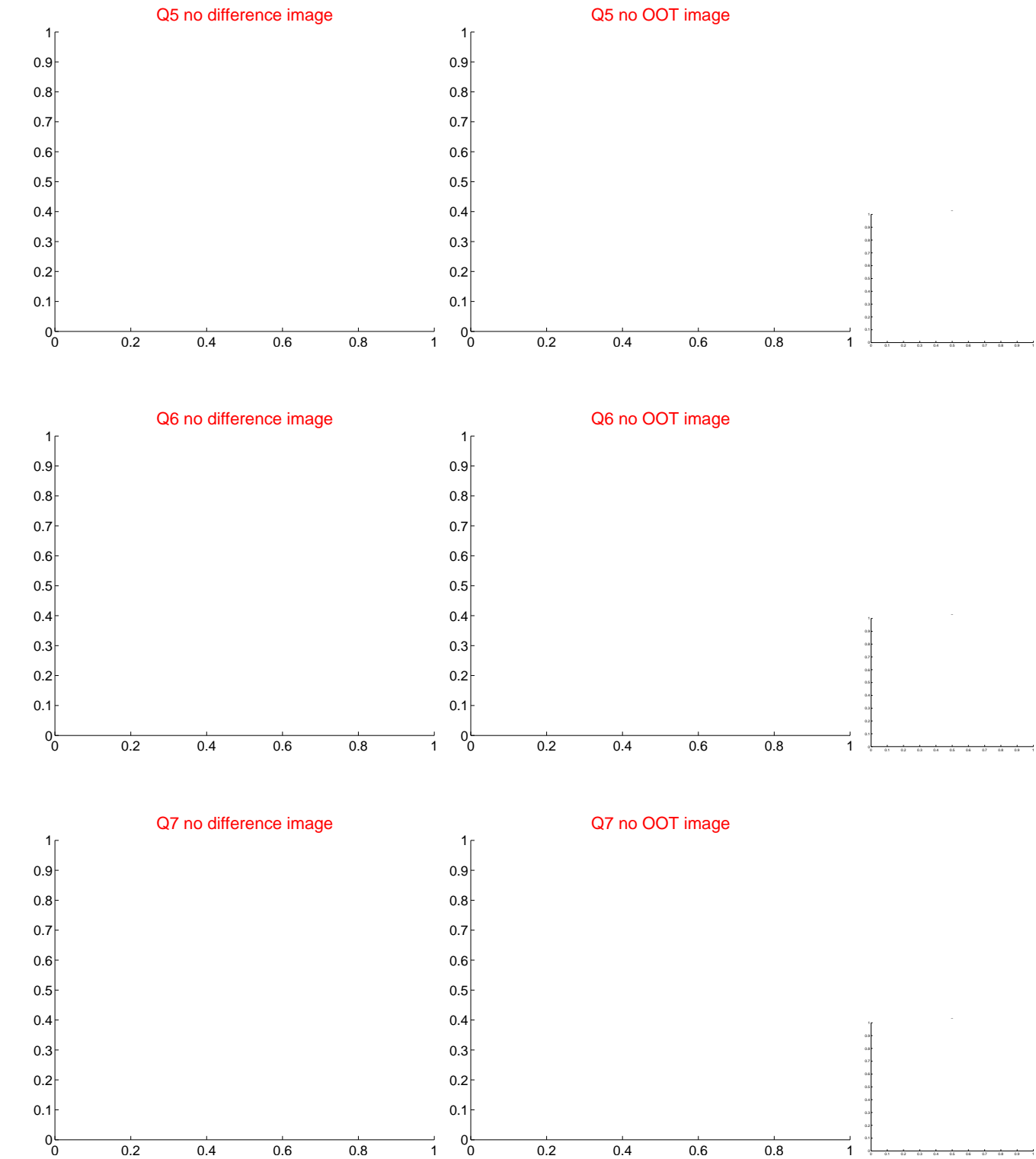


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

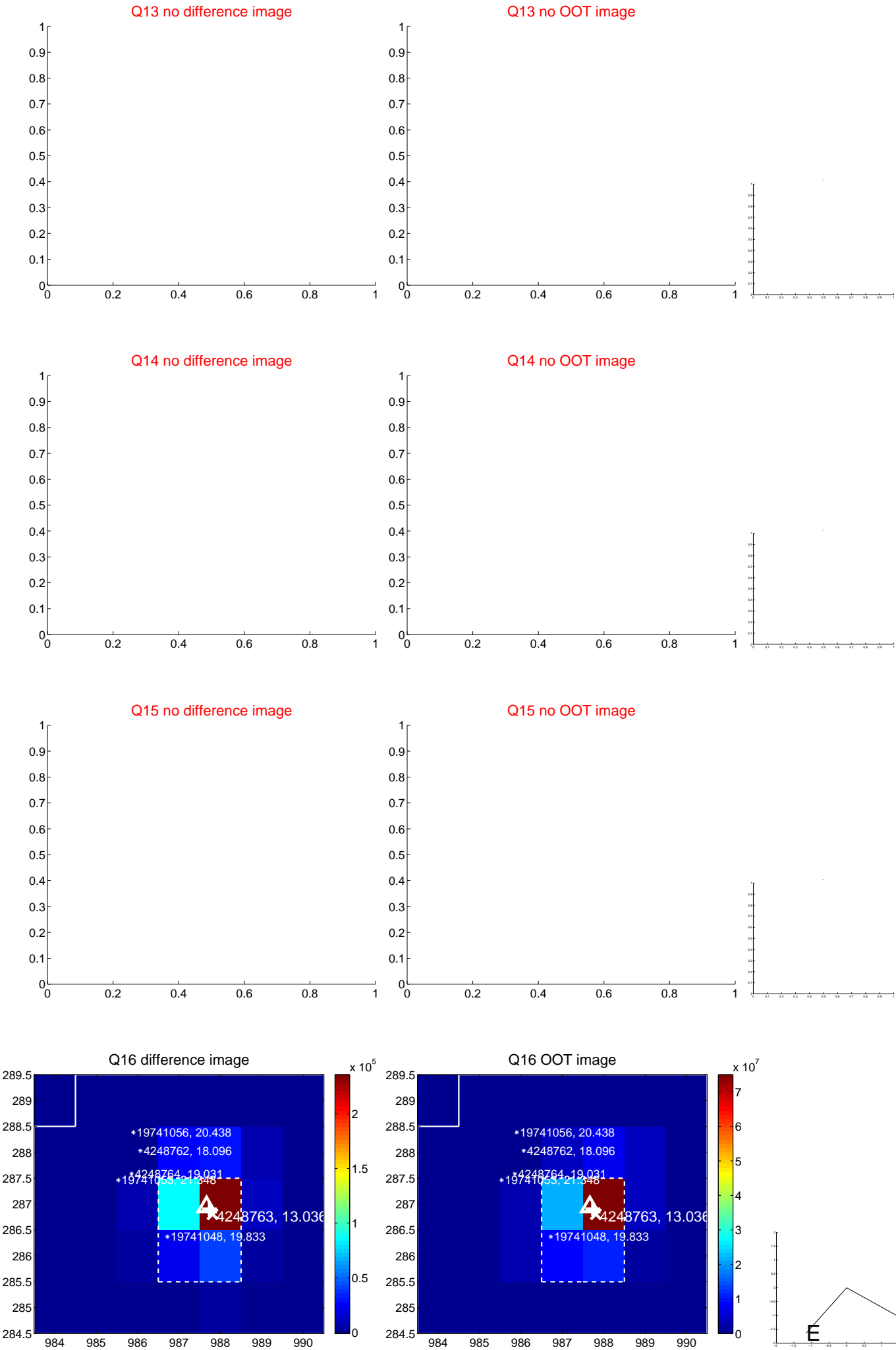




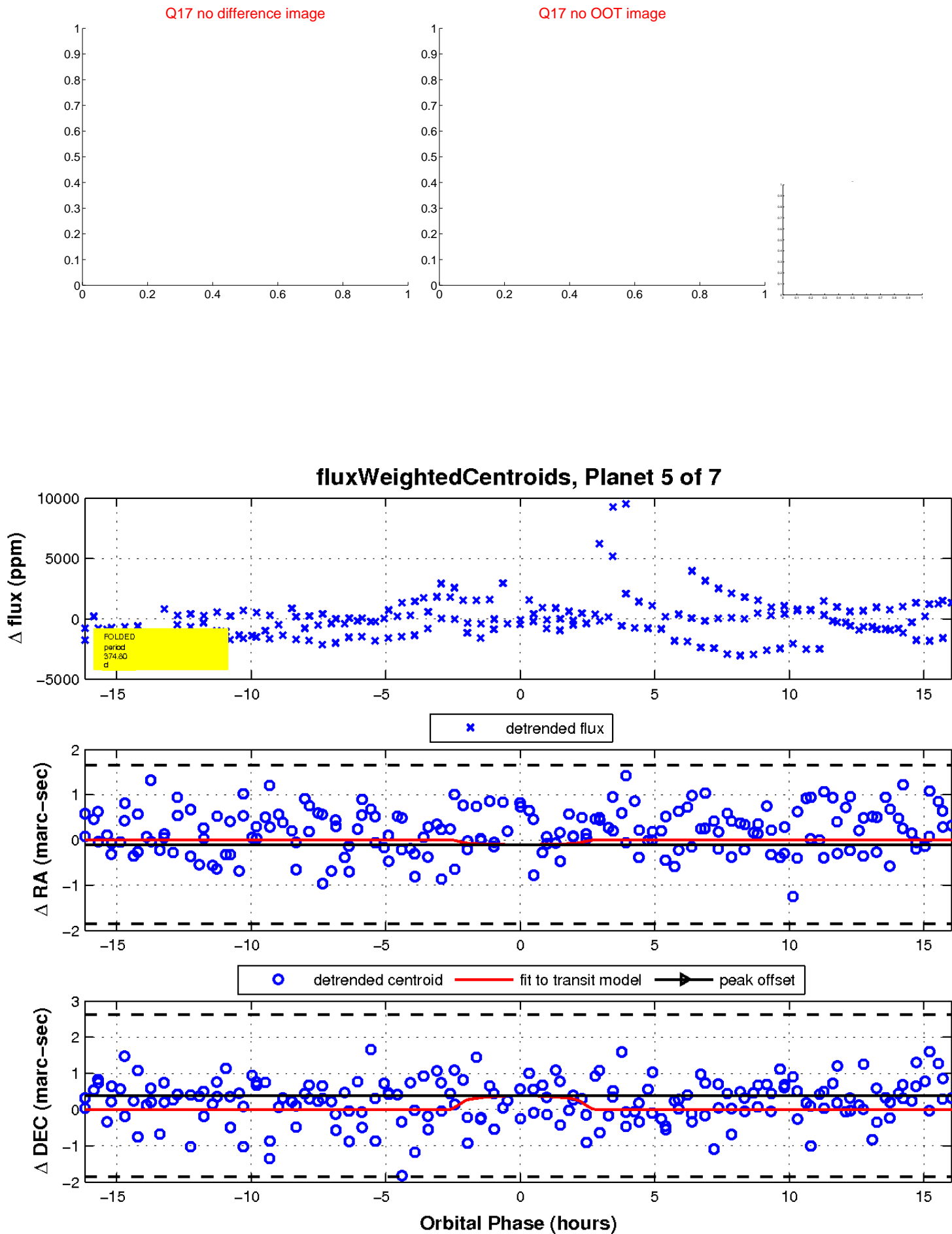
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

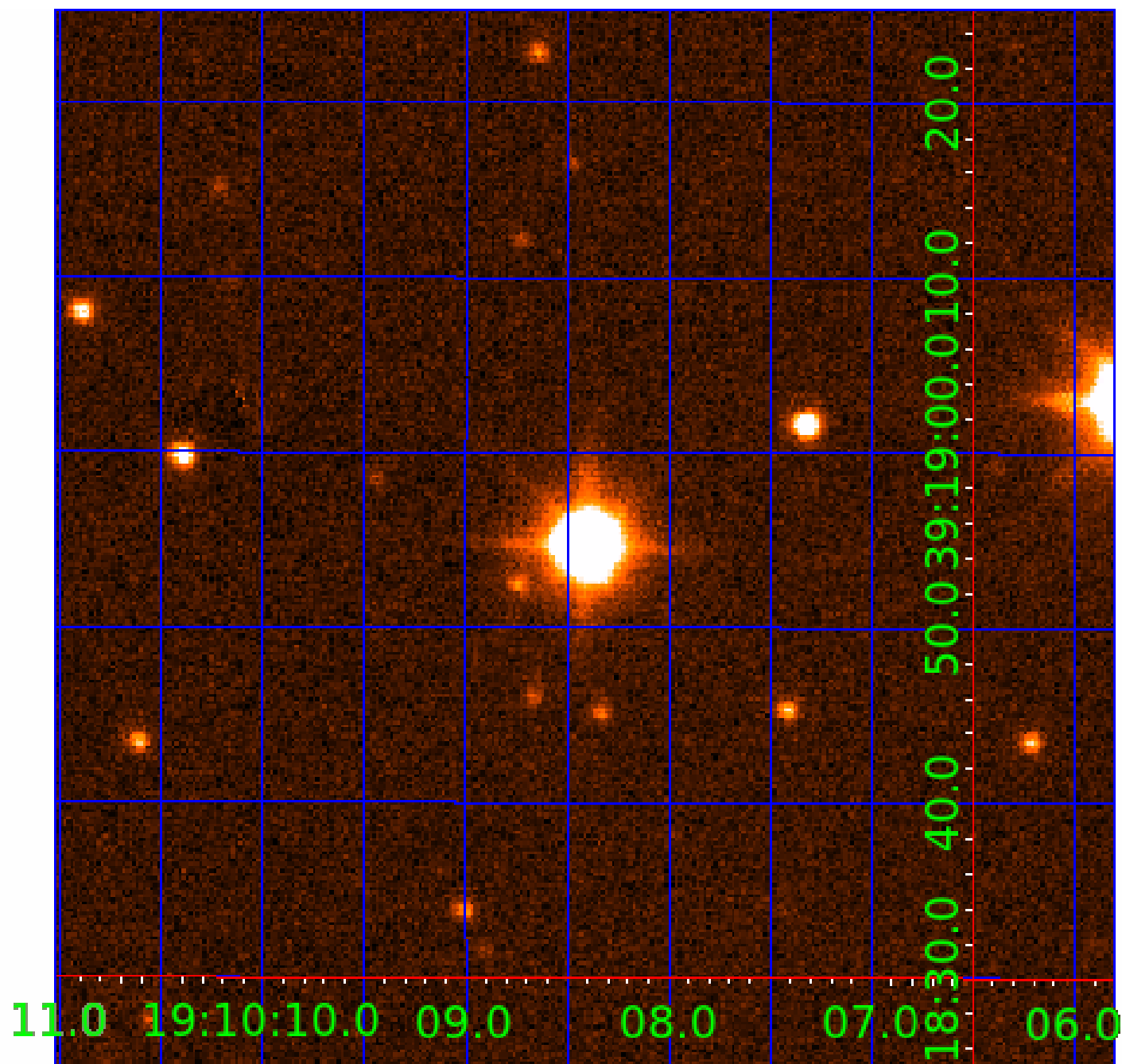


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 004248763

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004248763-01	OBS	No	499.874418	459.638870	768.5	4.578	19.4	3.4	0.72	4353	2.23	0.14
004248763-02	OBS	No	427.595603	192.022934	543.1	1.257	16.1	2.1	0.72	4353	1.94	0.17
004248763-03	OBS	No	463.642704	460.839735	2592.3	15.647	17.2	7.9	0.72	4353	3.69	0.15
004248763-04	OBS	No	505.934946	239.359323	208.6	15.000	11.9	-1.0	0.72	4353	0.99	0.14
004248763-05	OBS	No	374.800098	412.514487	1511.3	5.394	21.5	5.1	0.72	4353	3.26	0.20
004248763-06	OBS	No	219.422992	347.587085	1711.7	3.196	13.5	9.0	0.72	4353	2.84	0.41
004248763-07	OBS	No	427.606299	191.258723	311.8	12.500	15.2	-1.0	0.72	4353	1.21	0.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004248763-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
004248763-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
004248763-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
004248763-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

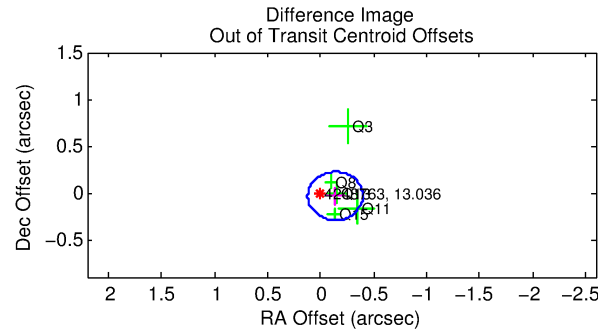
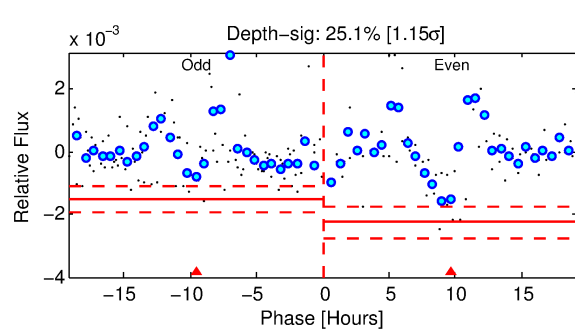
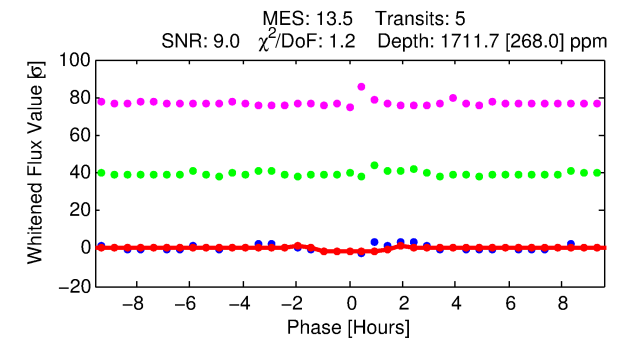
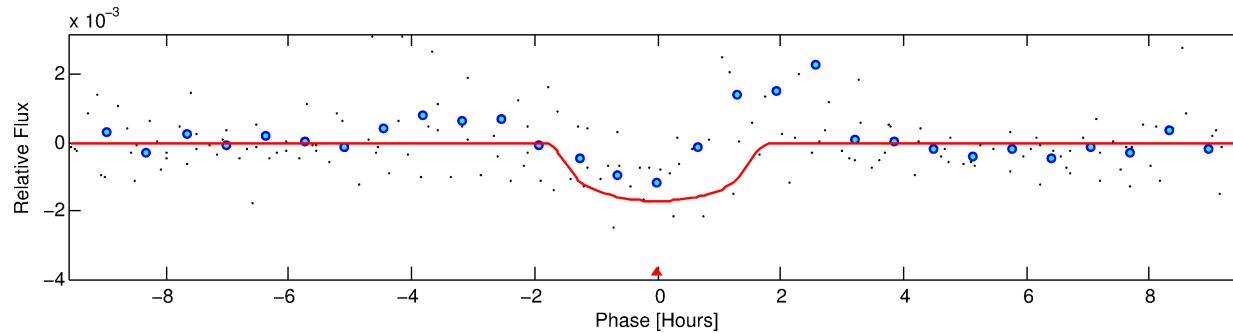
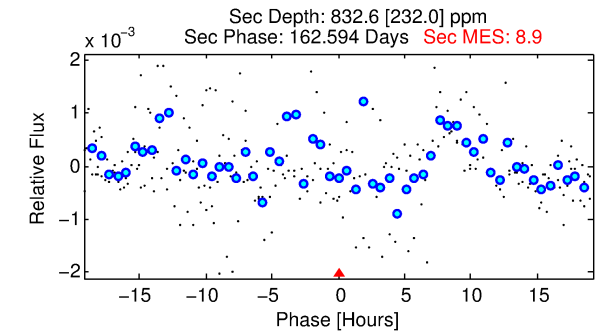
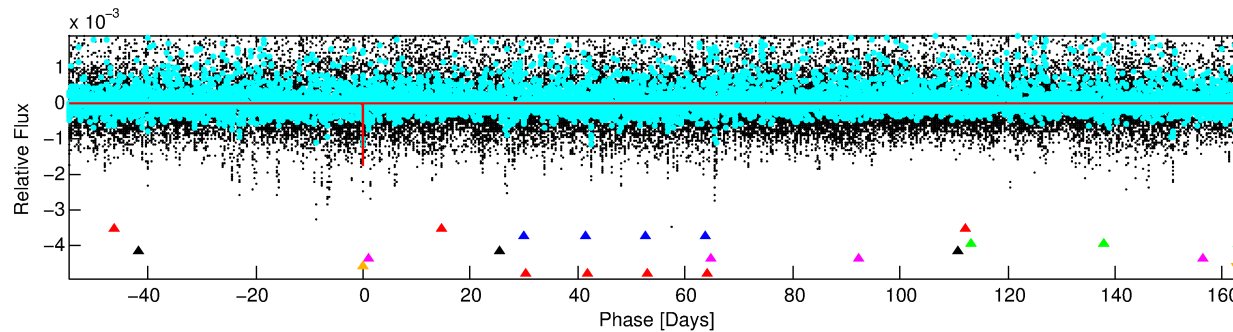
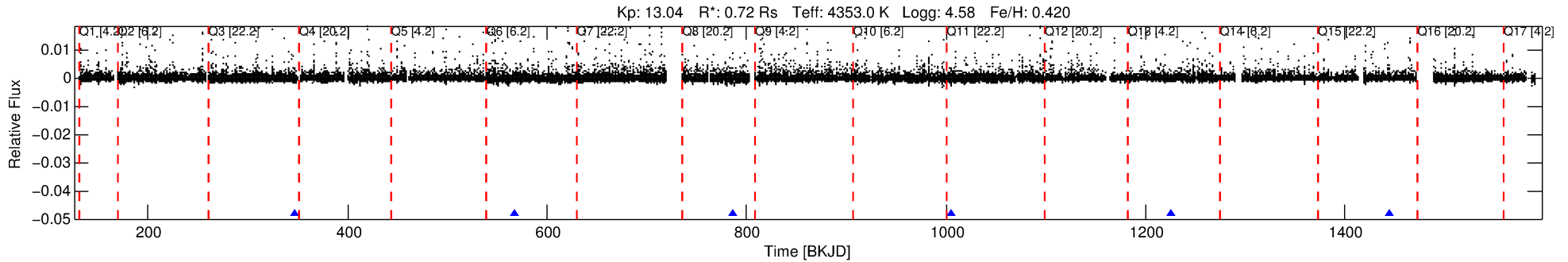
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004248763-06

No Significant Match Found

# DV One-Page Summary

KIC: 4248763 Candidate: 6 of 7 Period: 219.423 d



## DV Fit Results:

Period = 219.42299 [0.00133] d  
Epoch = 347.5871 [0.0060] BKJD  
Rp/R\* = 0.0360 [0.0464]  
a/R\* = 541.62 [1881.95]  
b = 0.08 [42.05]  
Seff = 0.41 [0.08]  
Teq = 205 [10] K  
Rp = 2.84 [3.67] Re  
a = 0.6373 [0.0486] AU  
Ag = 23041.85 [59728.97] [0.39σ]  
Teffp = 3896 [2528] K [1.46σ]

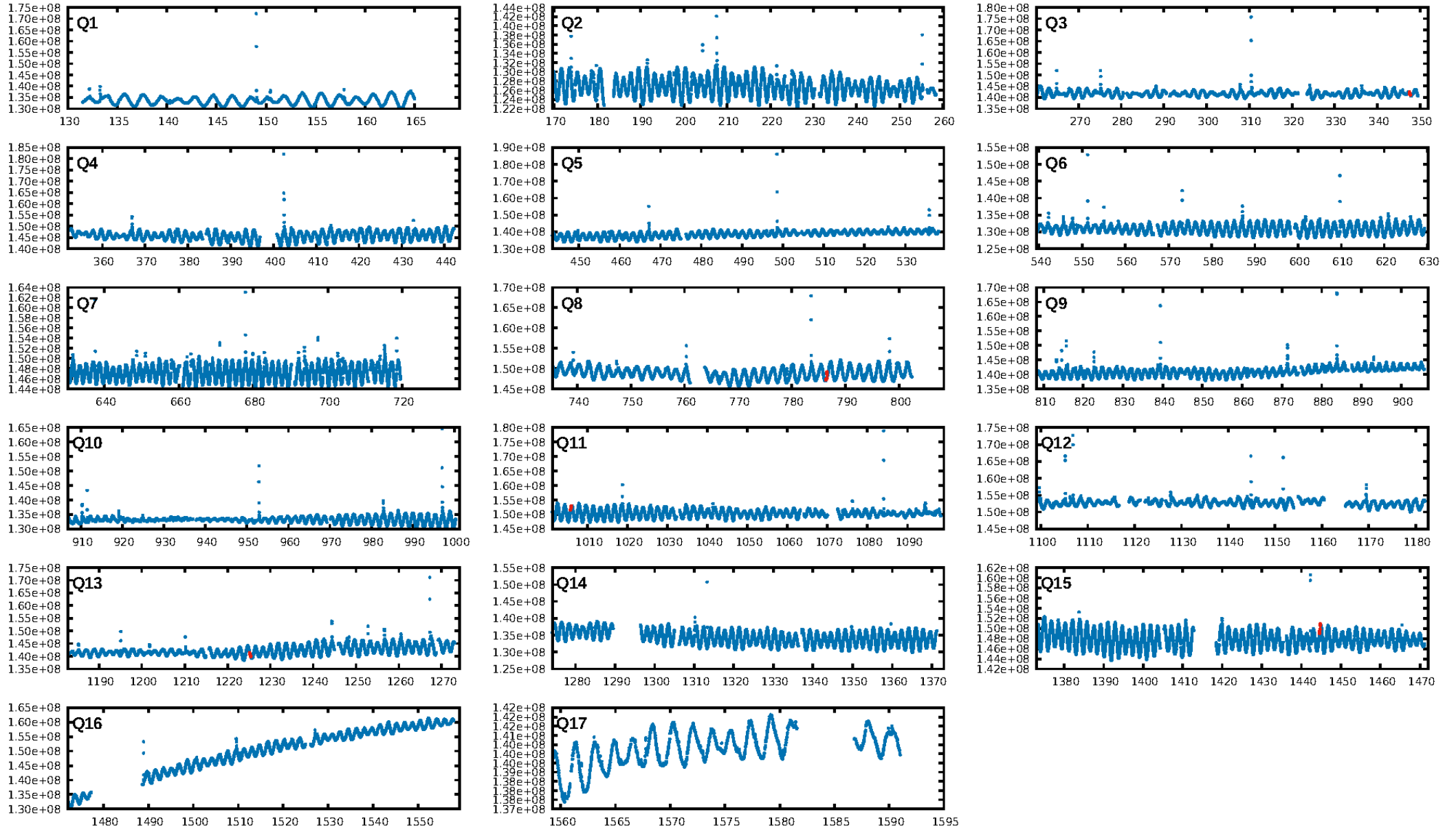
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [594.76σ]  
ModelChiSquare2-sig: 19.4%  
ModelChiSquareGof-sig: 98.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 5.851  
Centroid-sig: 38.8%  
Centroid-so: 0.483 arcsec [1.81σ]  
OotOffset-rm: 0.144 arcsec [1.67σ]  
OotOffset-st: 0.3/1/1 [5]  
KicOffset-rm: 0.627 arcsec [4.55σ]  
KicOffset-st: 0.3/1/1 [5]  
DiffImageQuality-fgm: 0.60 [3/5]  
DiffImageOverlap-fno: 1.00 [5/5]

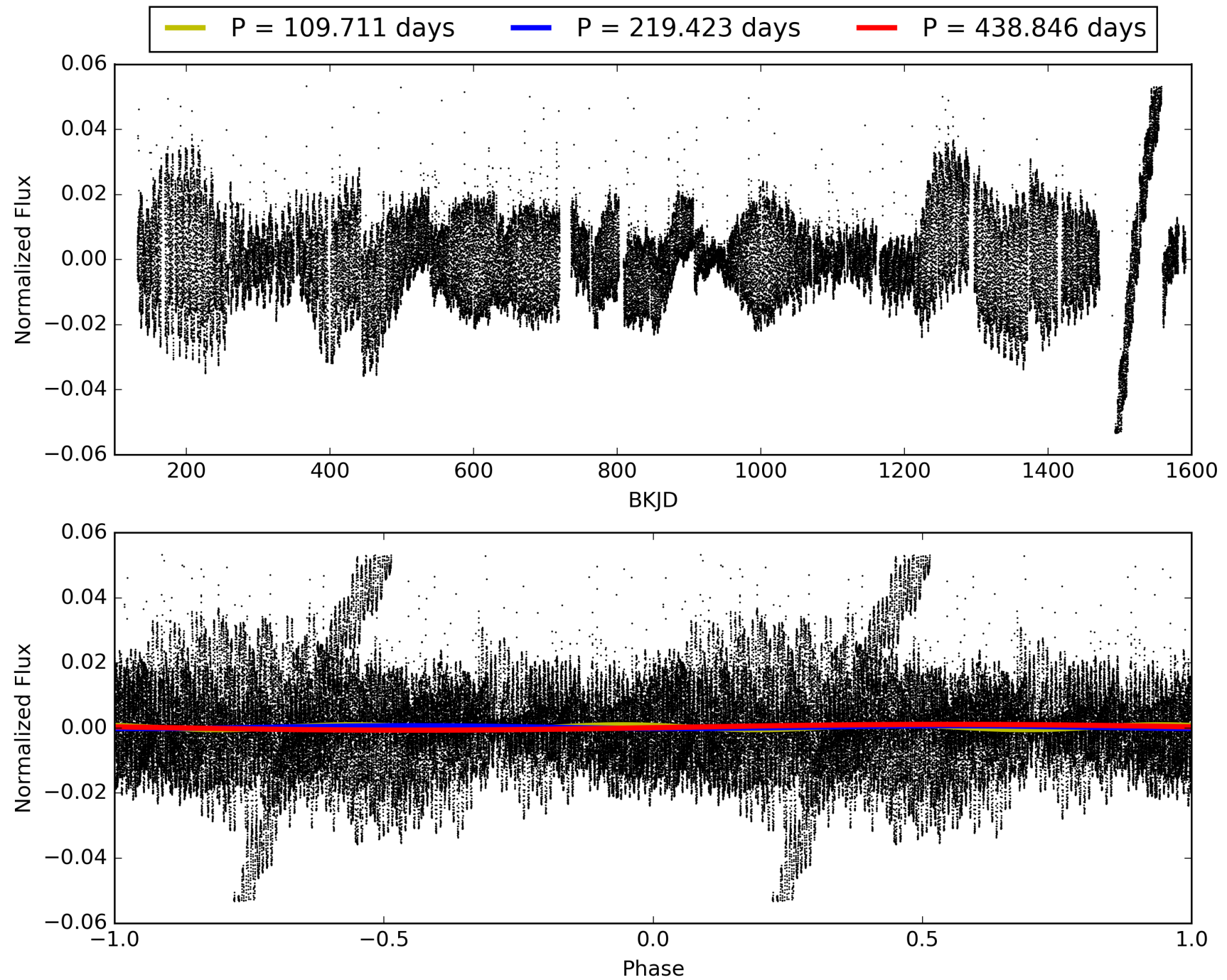
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:03:17 Z

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

# TCE 004248763-06, PDC Light Curves



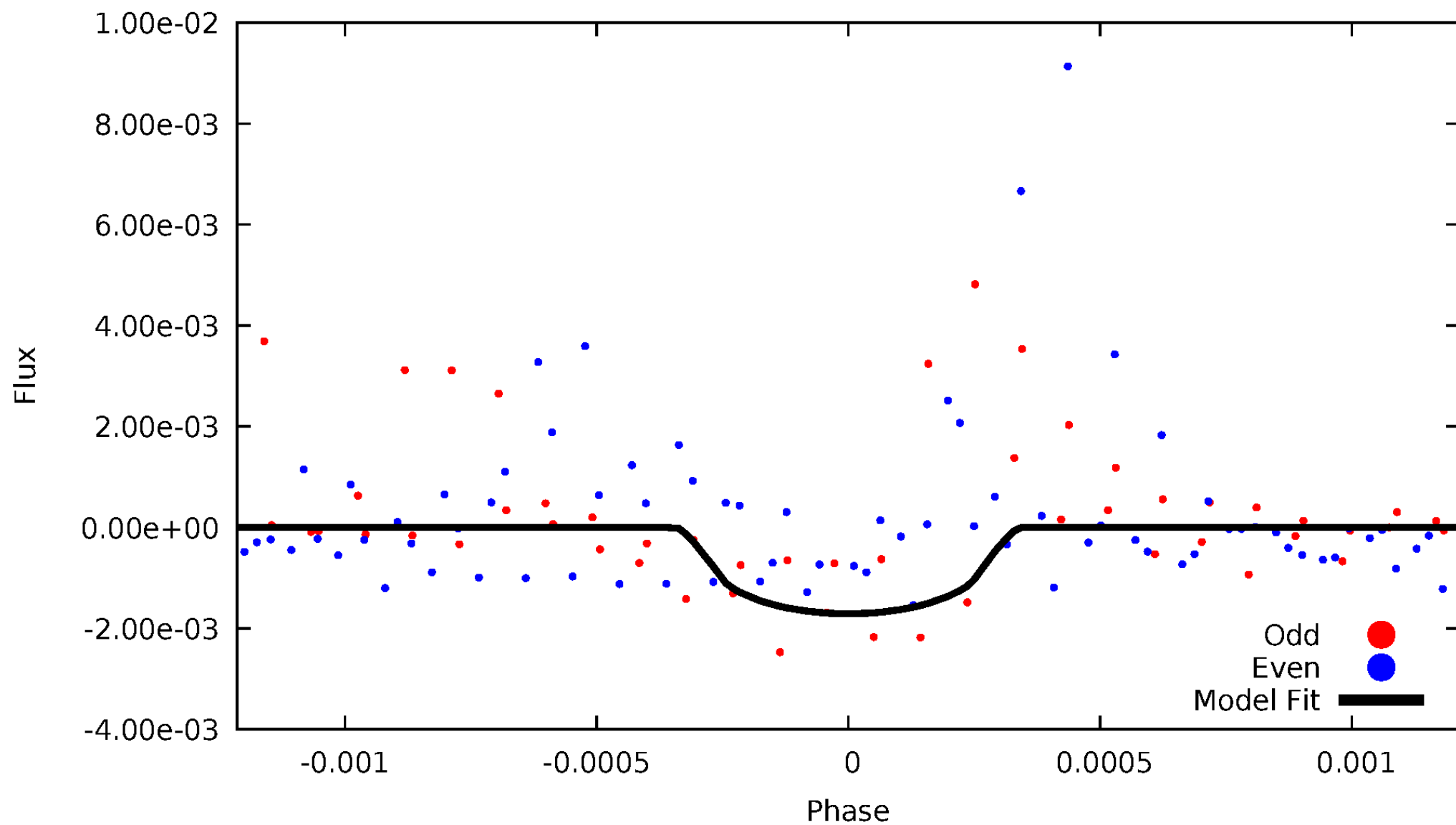
TCE 004248763-06





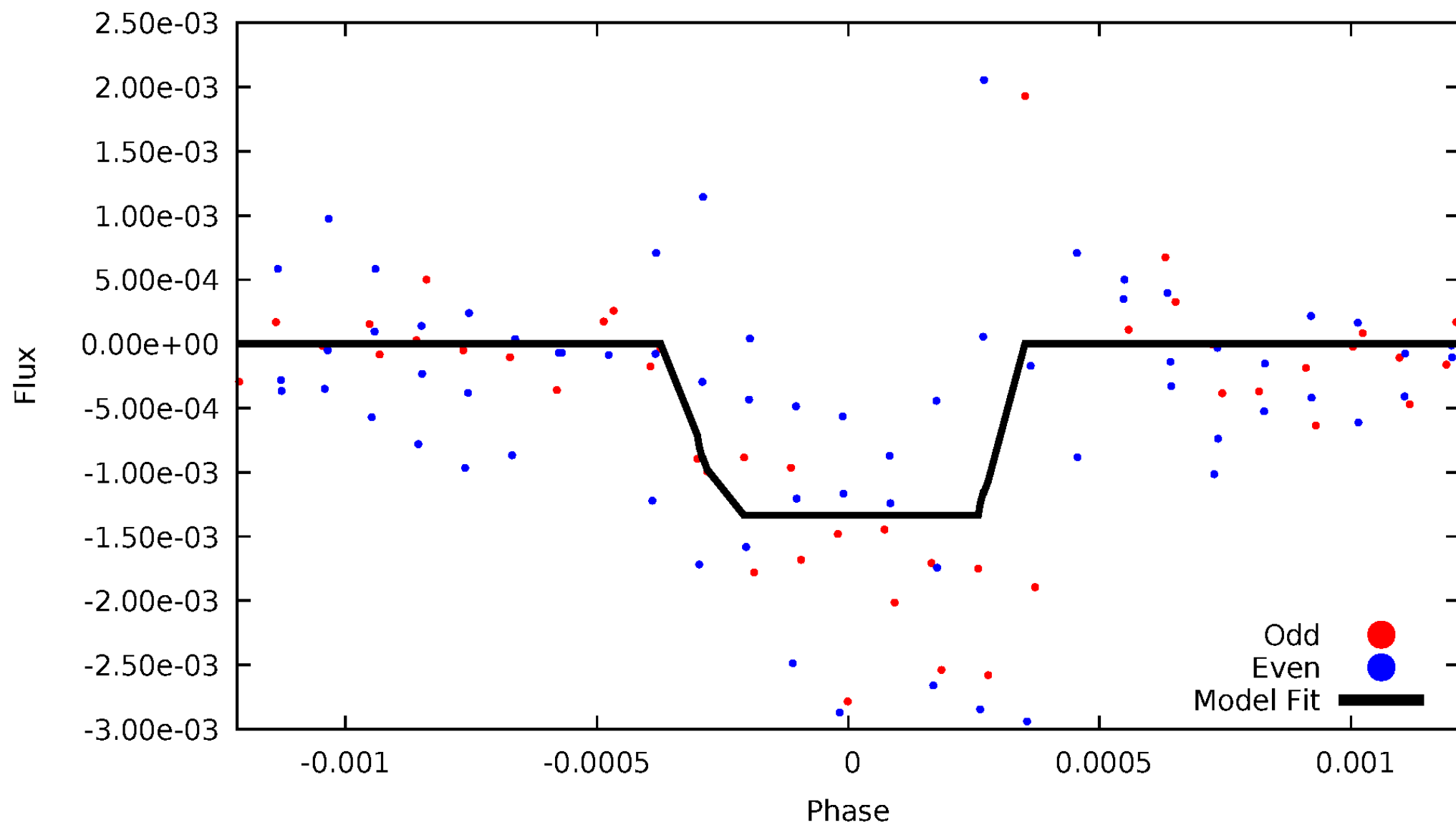
# DV Odd/Even

TCE 004248763-06



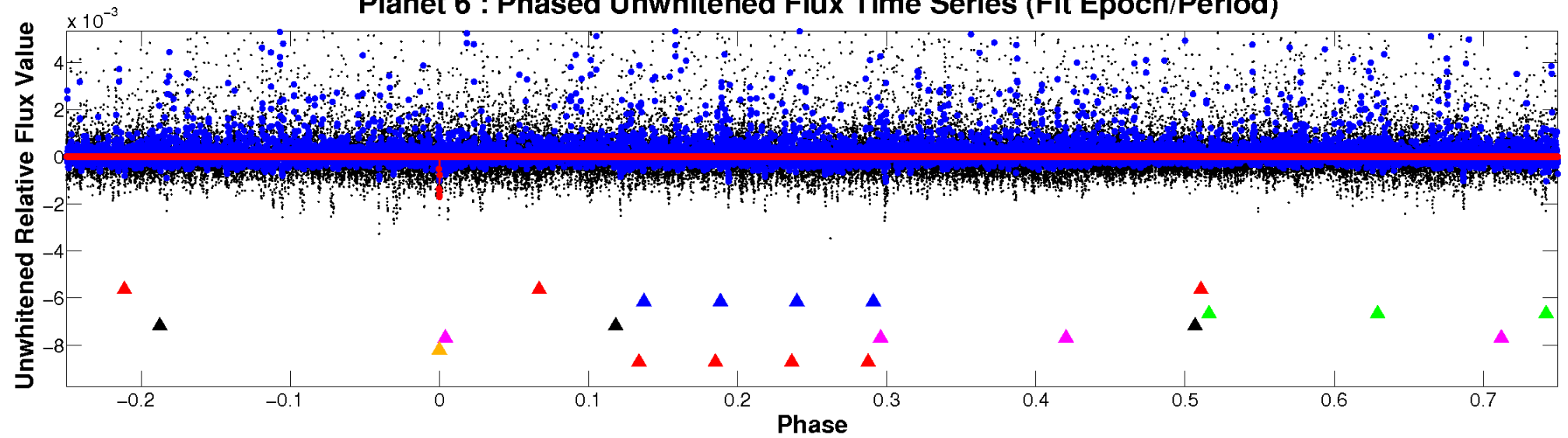
# ALT Odd/Even

TCE 004248763-06

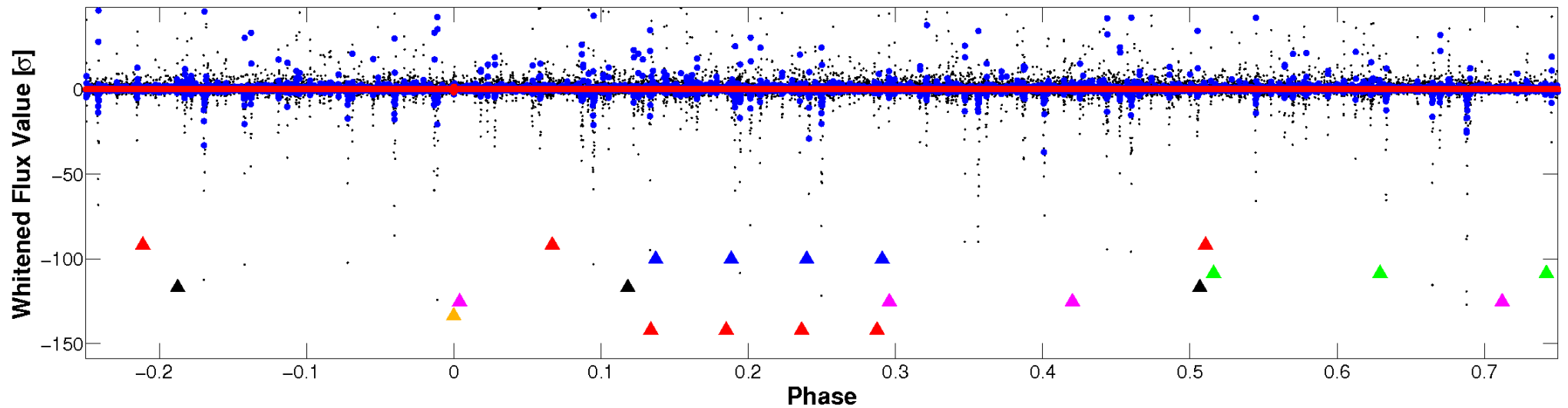


# Non-Whitened Vs. Whitened Light Curve

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

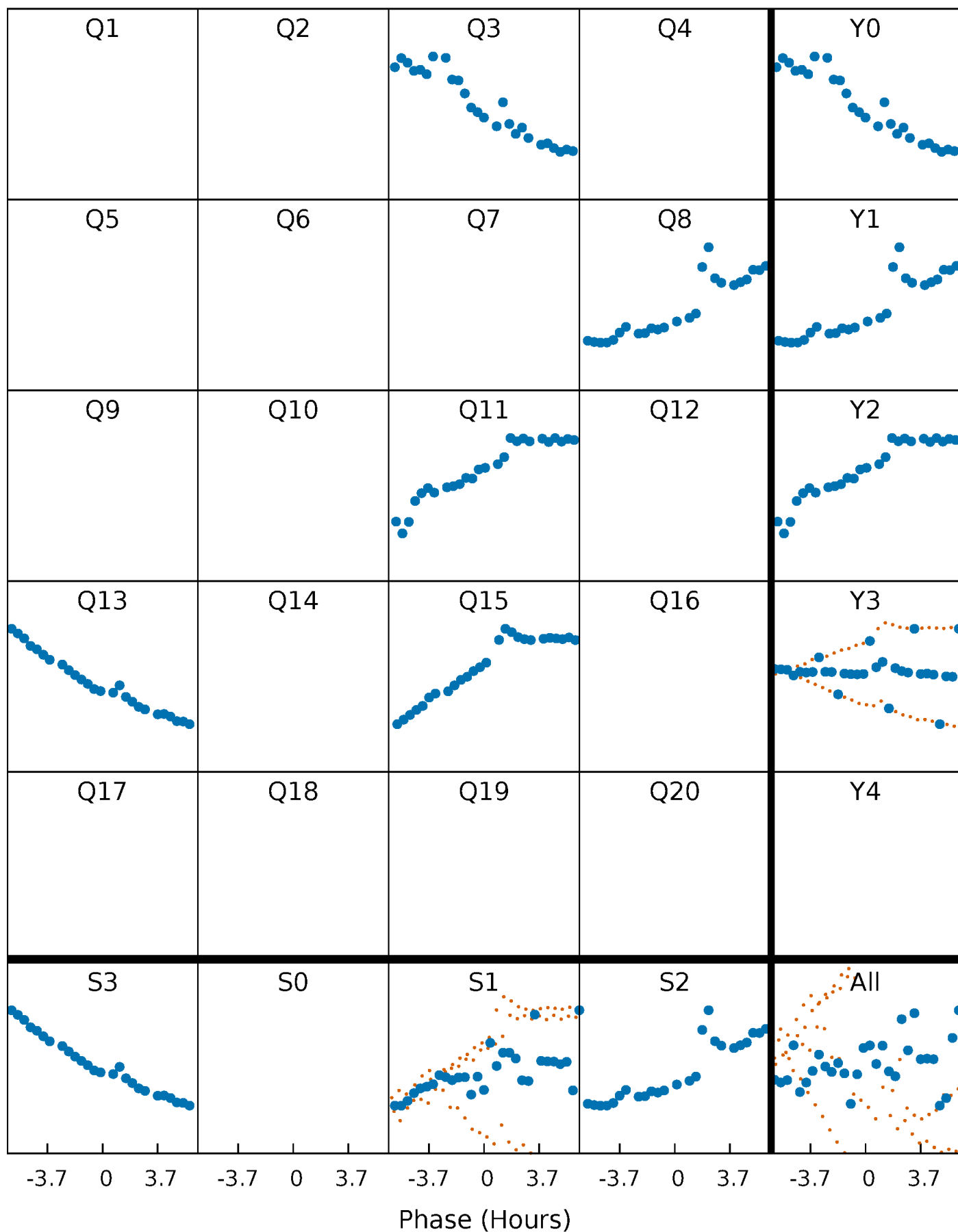


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



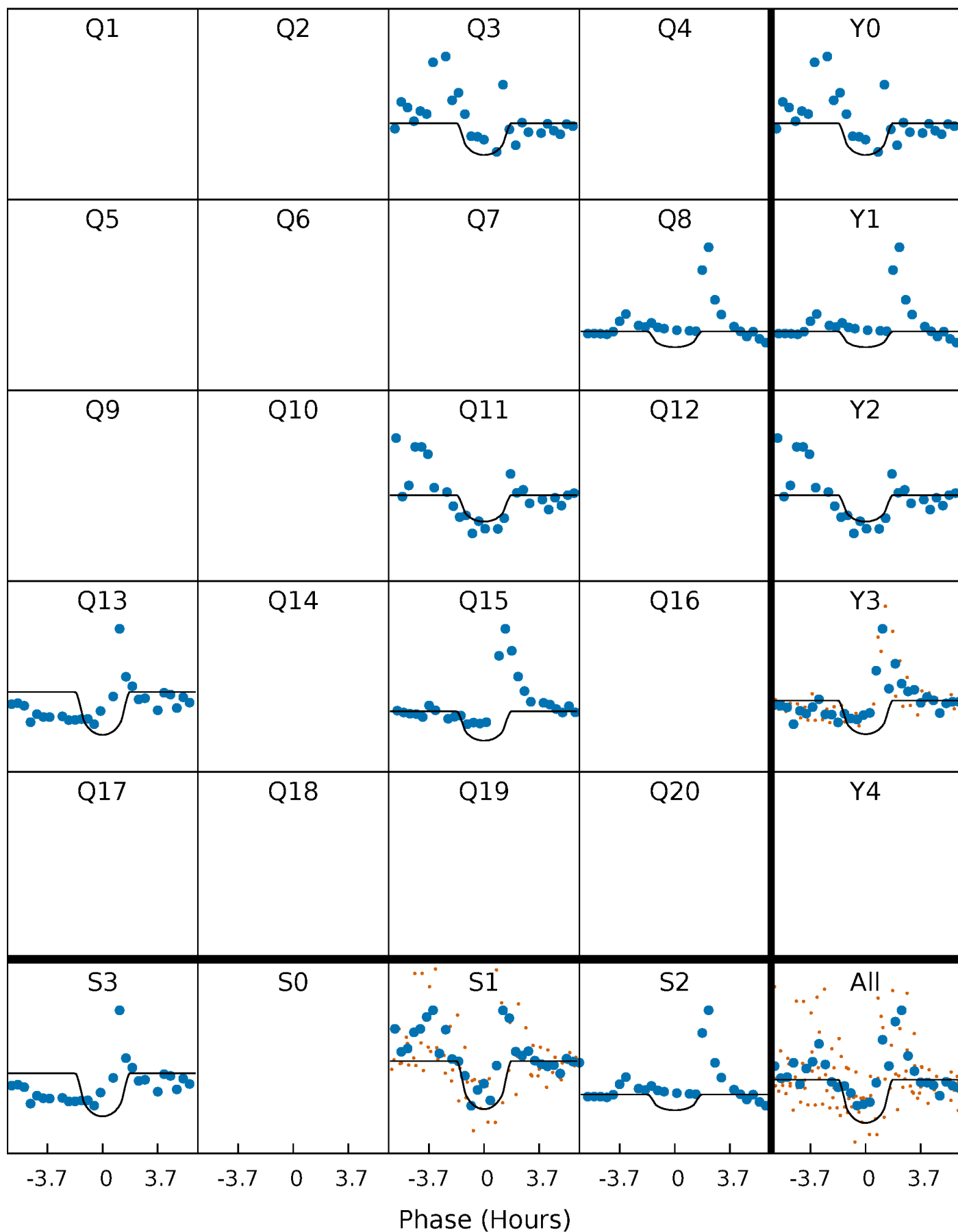
# PDC Quarter-Phased Transit Curves

TCE 004248763-06 P=219.422992 Days  $T_0=347.587085$  (BKJD)



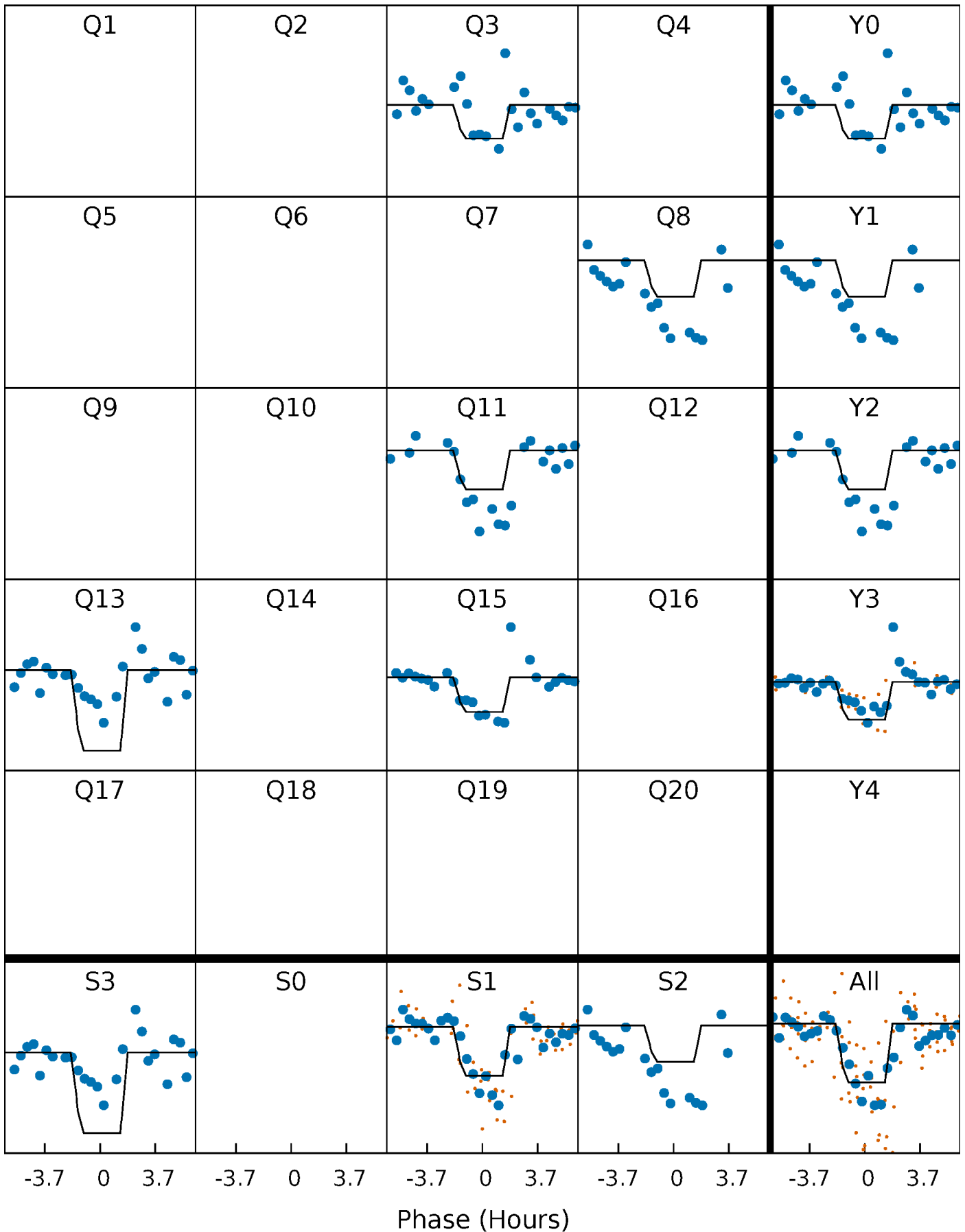
# DV Quarter-Phased Transit Curves

TCE 004248763-06     $P=219.422992$  Days     $T_0=347.587085$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

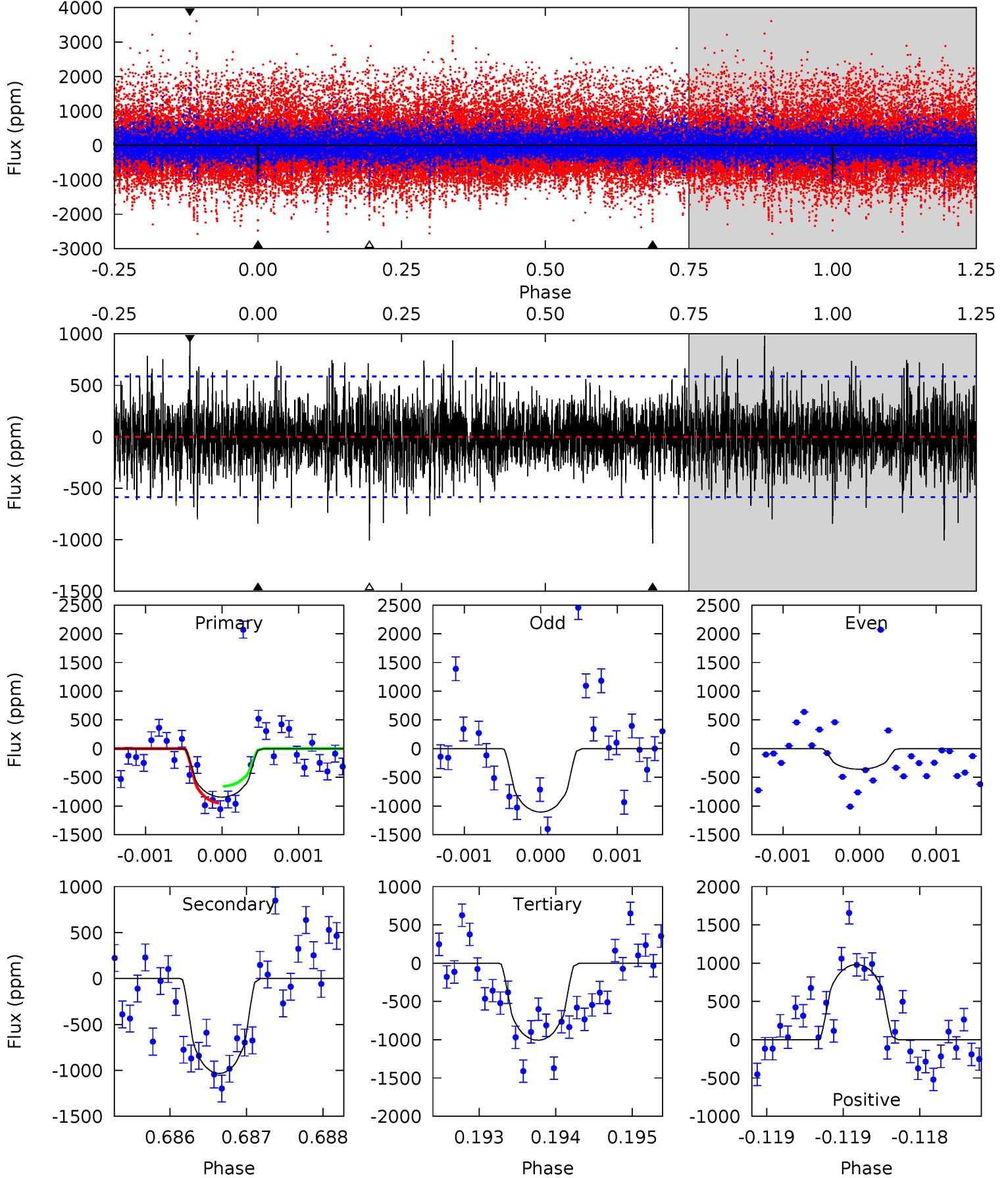
TCE 004248763-06 P=219.416624 Days  $T_0=347.576612$  (BKJD)



# DV Model-Shift Uniqueness Test

004248763-06, P = 219.422992 Days, E = 128.164093 Days

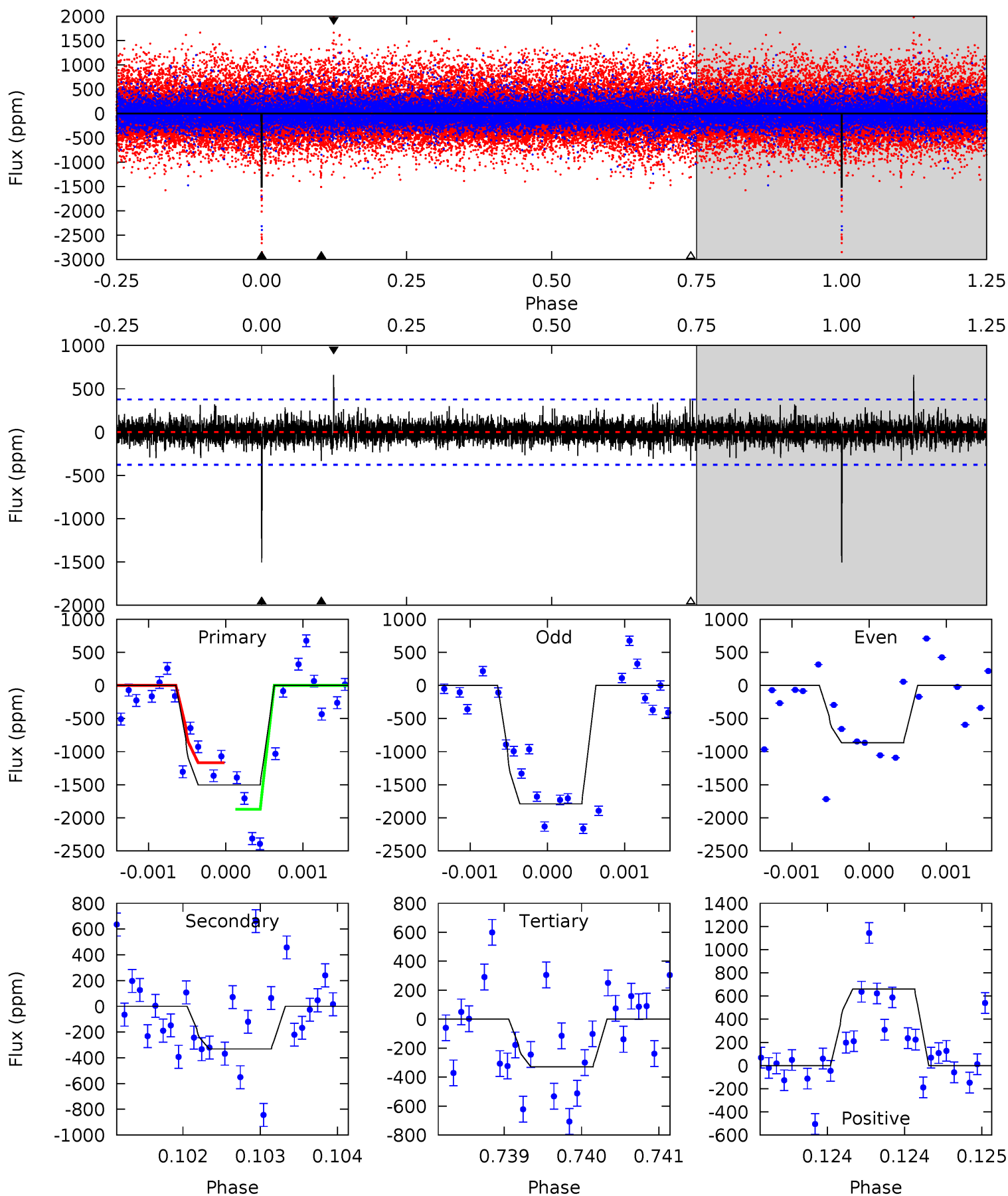
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.94	9.71	9.45	9.22	5.51	3.39	1.97	-1.52	-1.28	0.25	0.49	3.24	1.25	0.49	1.37



# Alt Model-Shift Uniqueness Test

004248763-06, P = 219.416624 Days, E = 128.159988 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
22.1	4.87	4.85	9.70	5.55	3.44	1.16	17.3	12.4	0.03	-4.82	6.59	1.02	0.30	0





### Stellar Parameters For KIC 004248763

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4353^{+155}_{-172}$	$4.575^{+0.060}_{-0.016}$	$0.420^{+0.050}_{-0.300}$	$0.723^{+0.028}_{-0.066}$	$0.716^{+0.042}_{-0.052}$	$2.673^{+0.727}_{-0.166}$
	+4%/-4%	+1%/-0%	+12%/-71%	+4%/-9%	+6%/-7%	+27%/-6%
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 004248763-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1033 \pm 106$	$3.74^{+3.43}_{-2.40}$	$283^{+11}_{-12}$	$3755^{+1823}_{-679}$	$16568^{+110839}_{-12098}$
Alt.	$-331 \pm 68$	$3.84^{+3.19}_{-2.35}$	$283^{+11}_{-12}$	$3099^{+1204}_{-459}$	$4866^{+28100}_{-3397}$

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

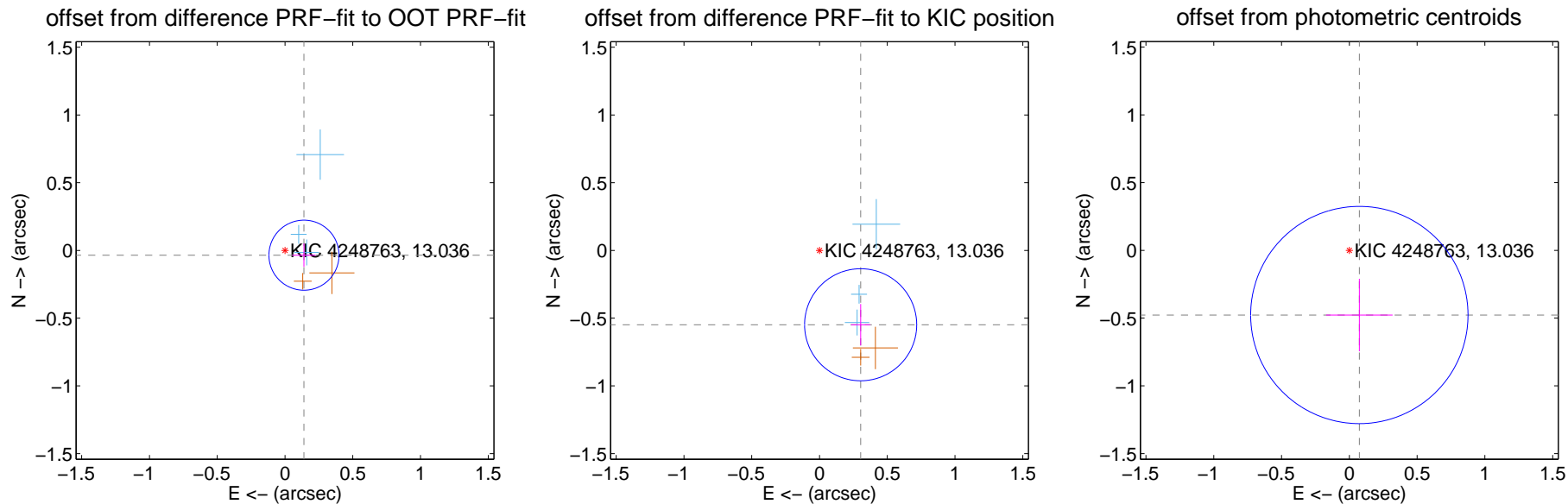
## DV Centroid Data

Supplemental centroid analysis for 004248763-06. Kepler magnitude: 13.04. Transit SNR 8.99

There are 3 quarters with good PRF difference image offsets

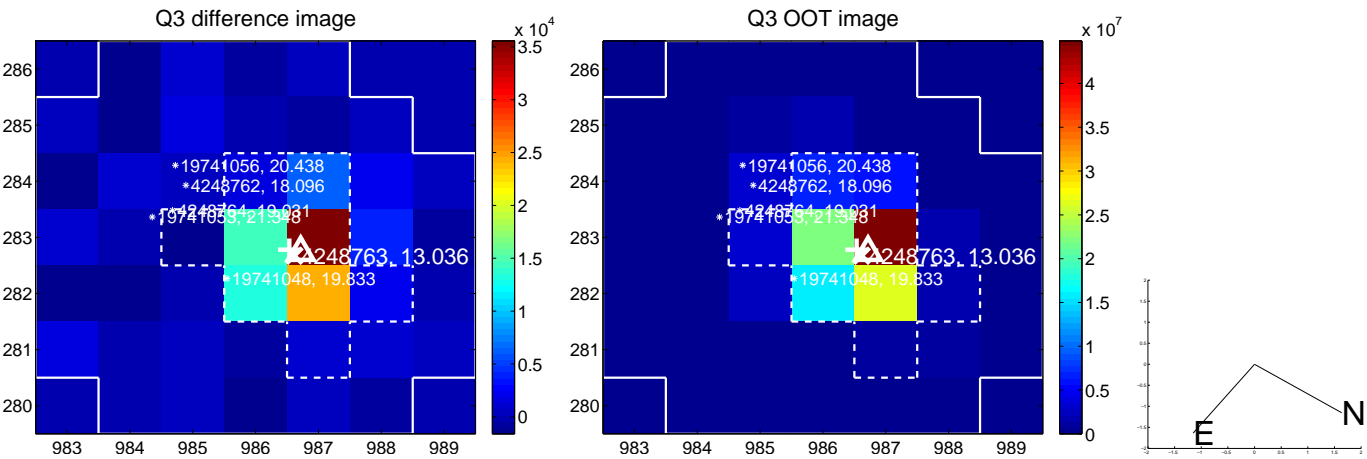
The direct PRF centroid is offset from the target star catalog position by about 0.59 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.144 \pm 0.086$	1.67	$-0.140 \pm 0.086$	$-0.035 \pm 0.087$
PRF-fit source offset from KIC position	$0.627 \pm 0.138$	4.55	$-0.304 \pm 0.070$	$-0.549 \pm 0.153$
photometric centroid source offset	$0.48 \pm 0.27$	1.81	$-0.07 \pm 0.25$	$-0.48 \pm 0.27$

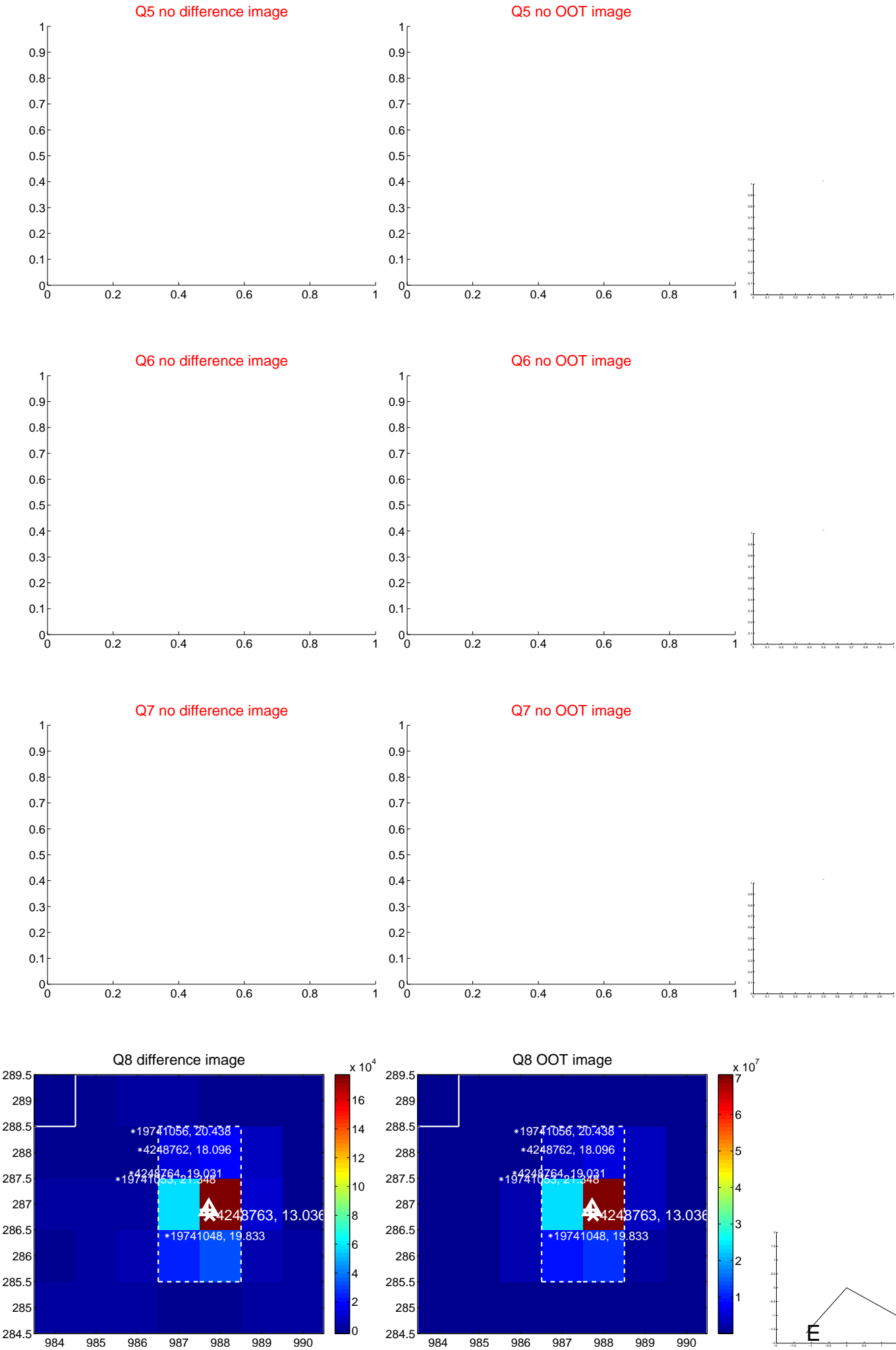


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

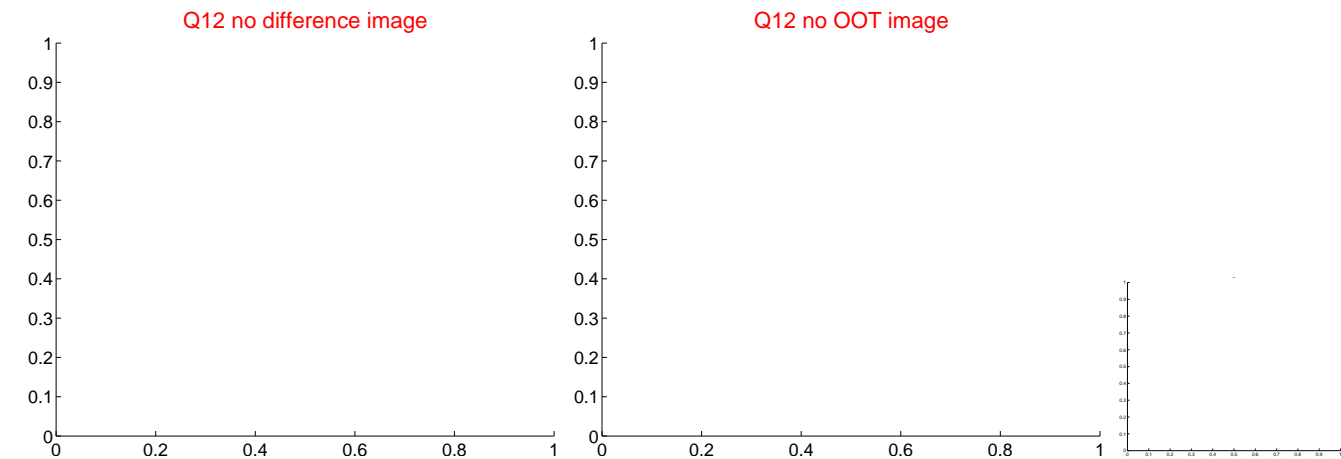
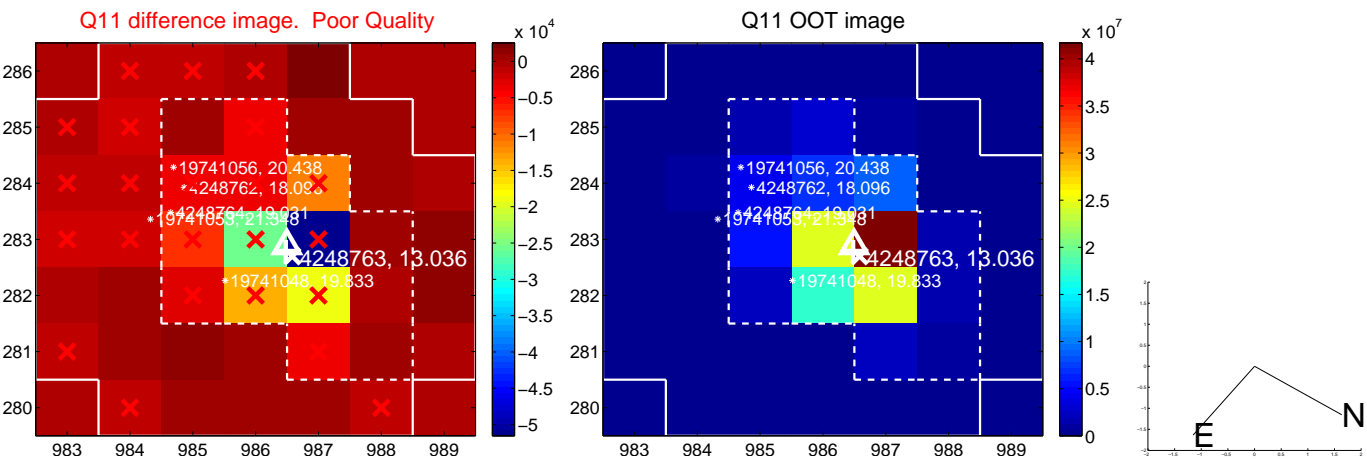
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



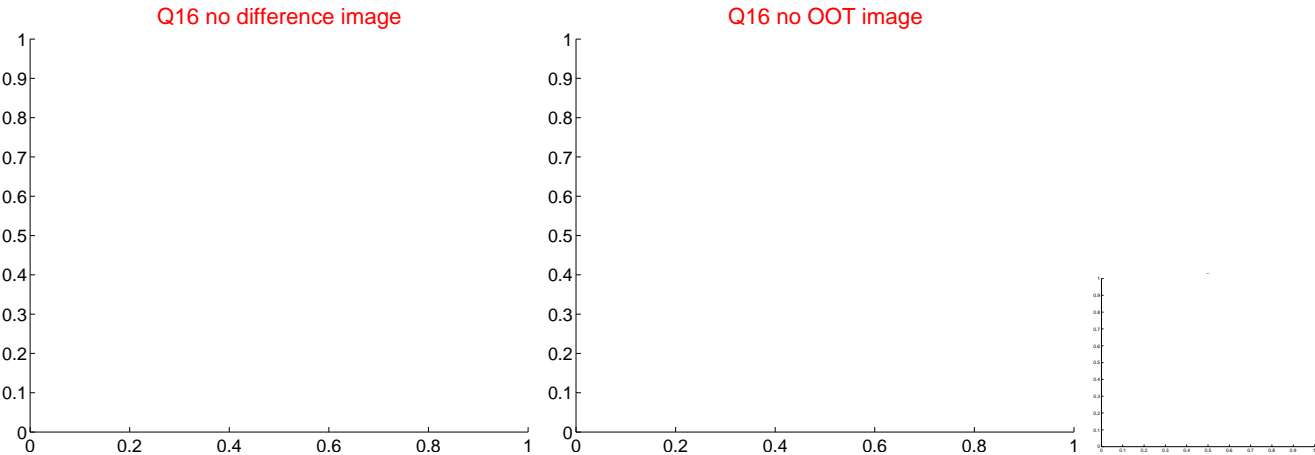
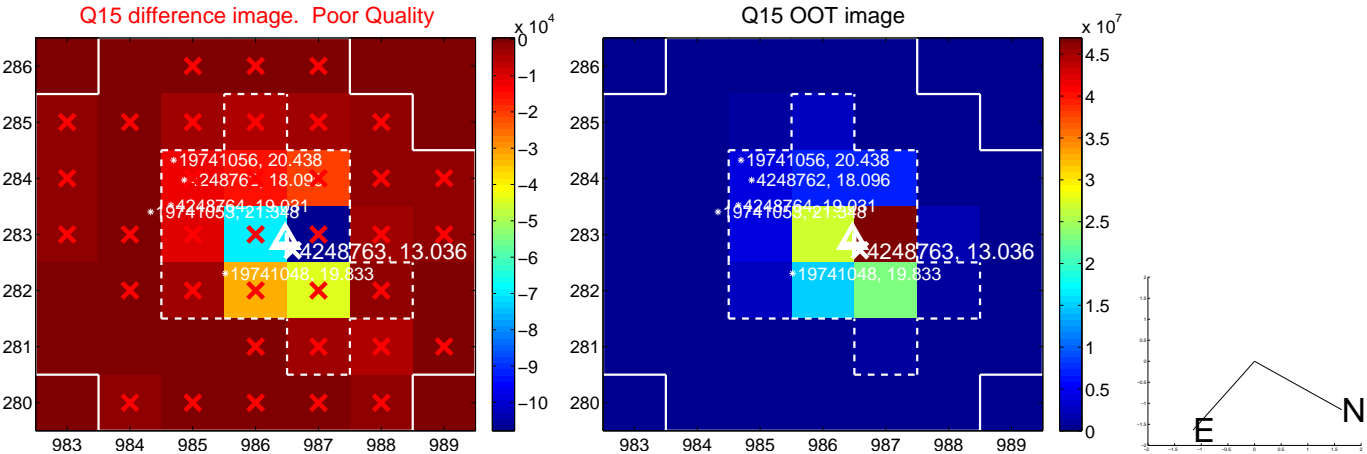
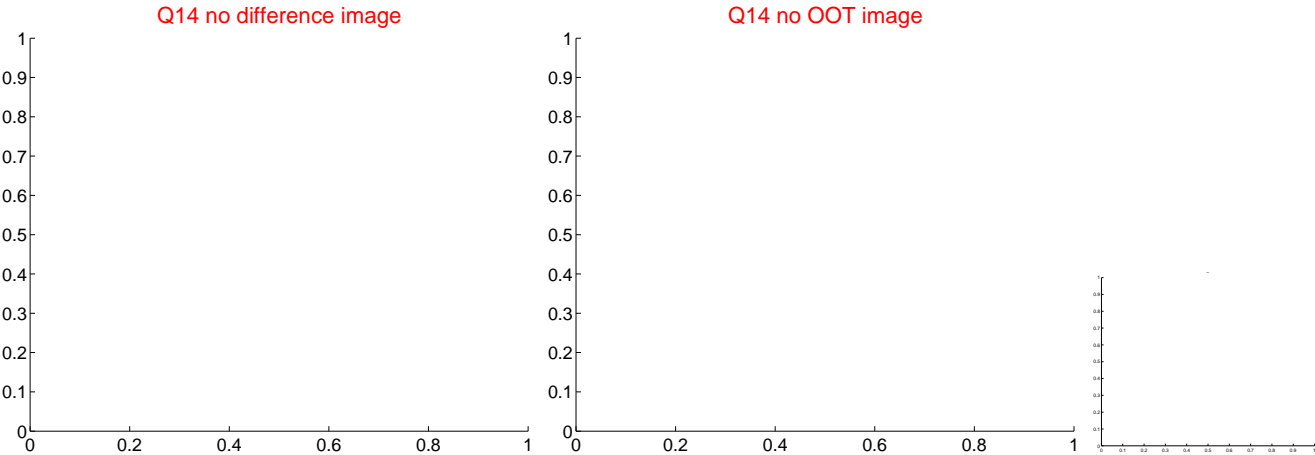
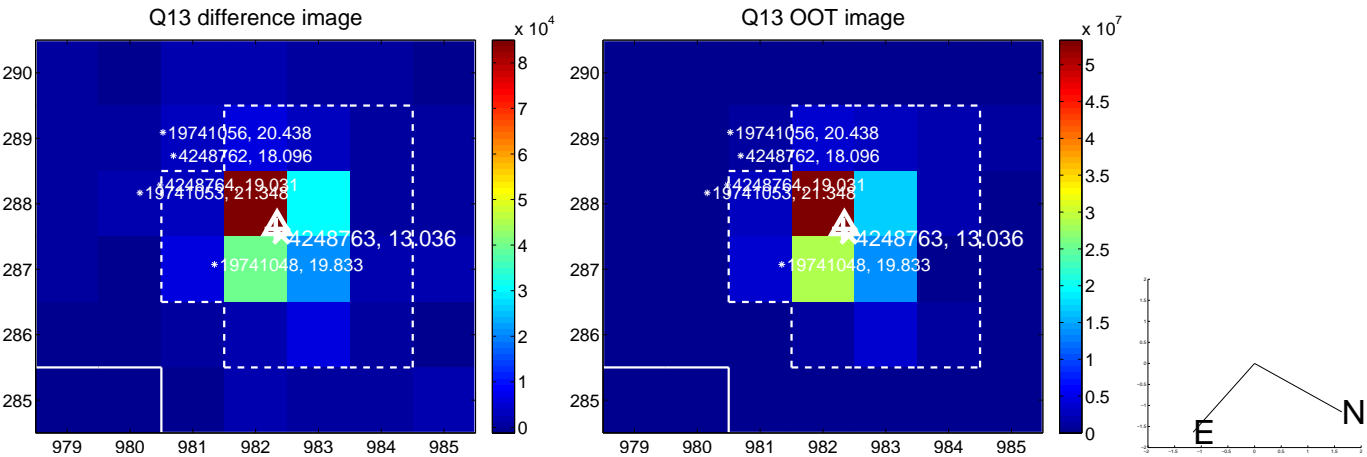
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



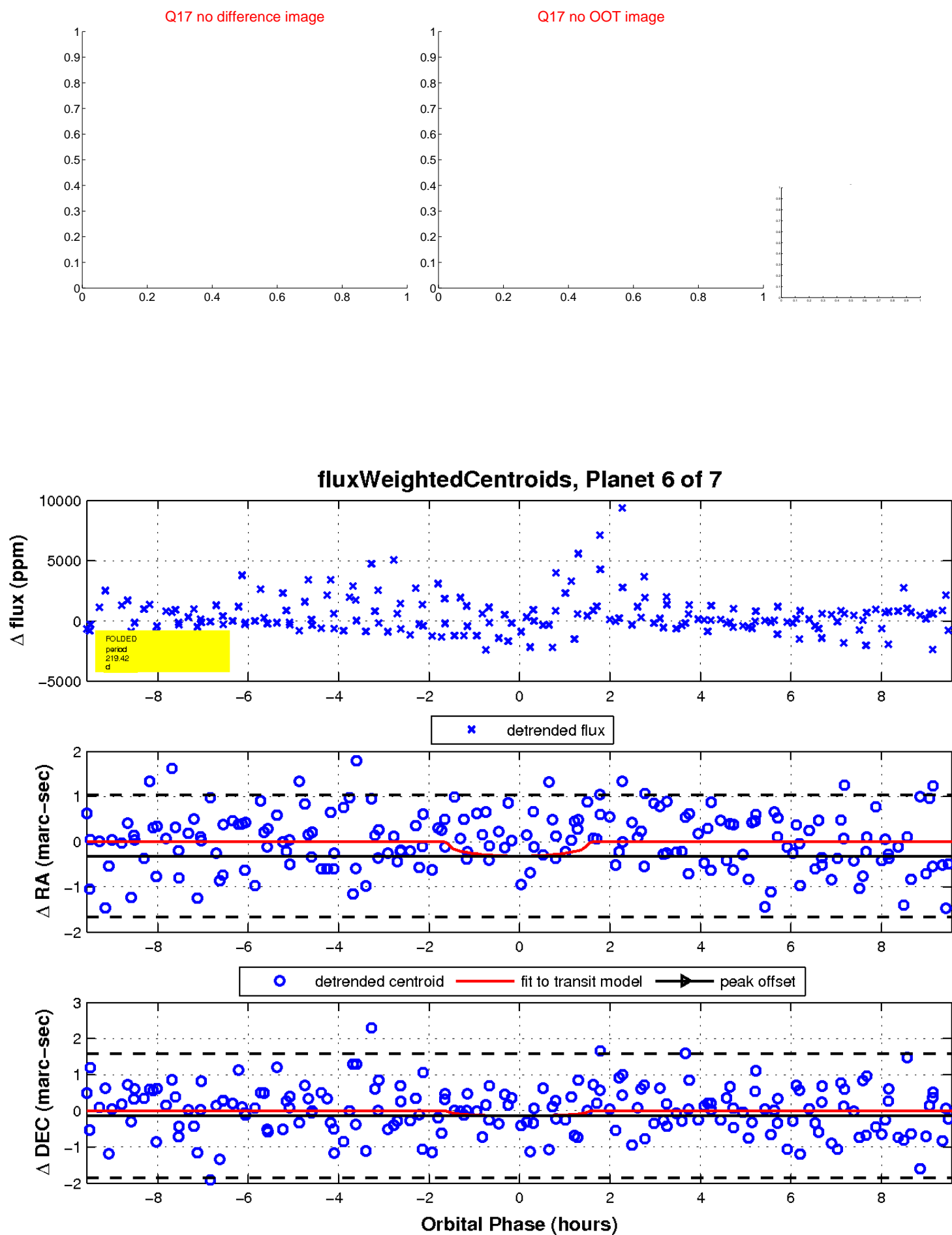
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

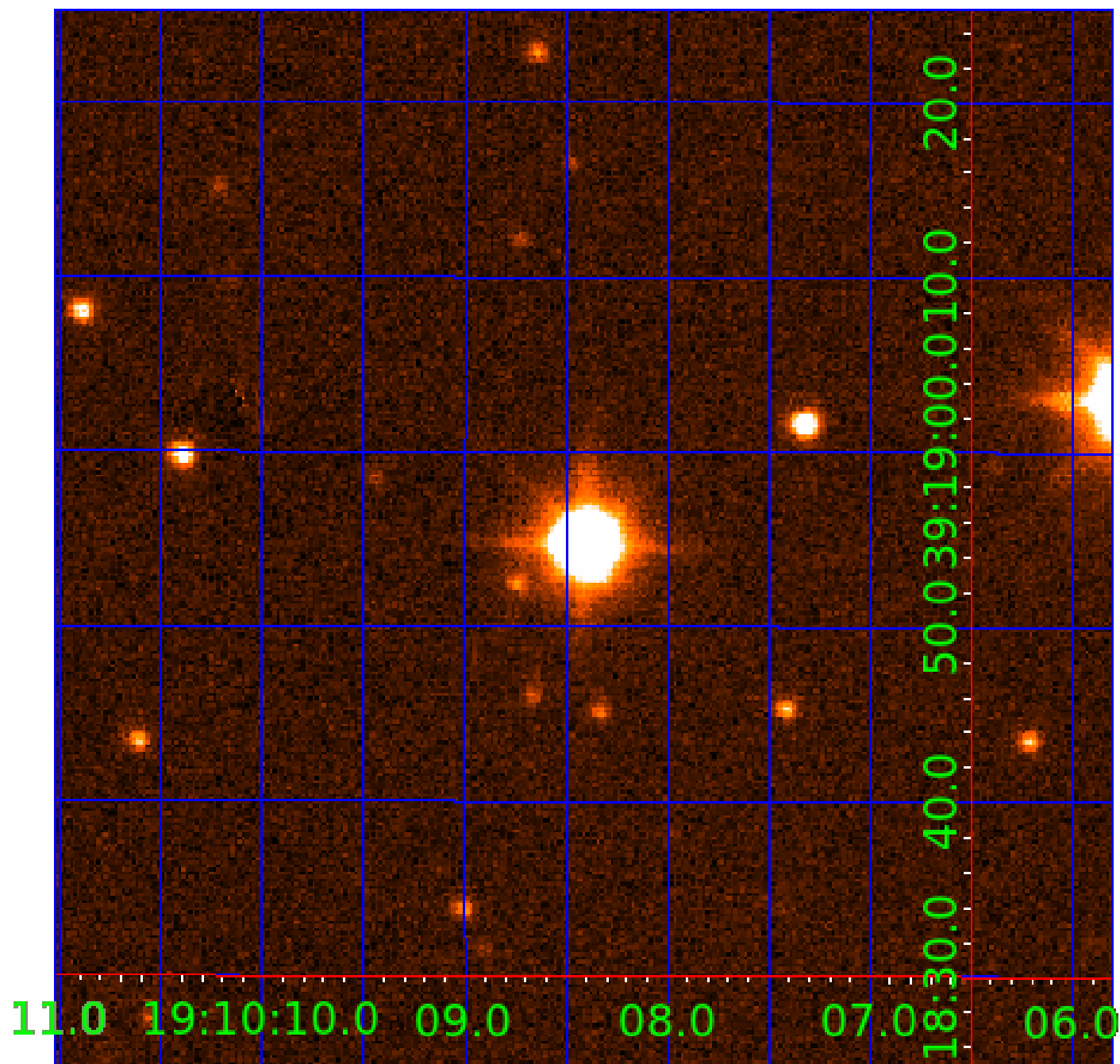


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 004248763

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004248763-01	OBS	No	499.874418	459.638870	768.5	4.578	19.4	3.4	0.72	4353	2.23	0.14
004248763-02	OBS	No	427.595603	192.022934	543.1	1.257	16.1	2.1	0.72	4353	1.94	0.17
004248763-03	OBS	No	463.642704	460.839735	2592.3	15.647	17.2	7.9	0.72	4353	3.69	0.15
004248763-04	OBS	No	505.934946	239.359323	208.6	15.000	11.9	-1.0	0.72	4353	0.99	0.14
004248763-05	OBS	No	374.800098	412.514487	1511.3	5.394	21.5	5.1	0.72	4353	3.26	0.20
004248763-06	OBS	No	219.422992	347.587085	1711.7	3.196	13.5	9.0	0.72	4353	2.84	0.41
004248763-07	OBS	No	427.606299	191.258723	311.8	12.500	15.2	-1.0	0.72	4353	1.21	0.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004248763-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
004248763-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
004248763-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004248763-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
004248763-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

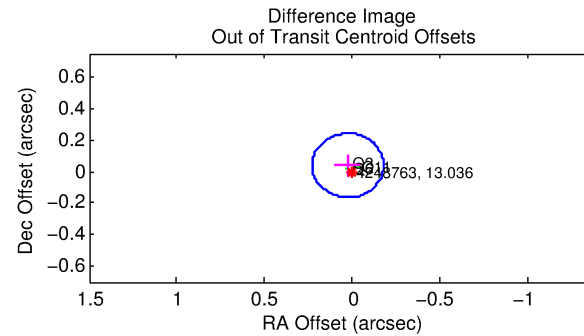
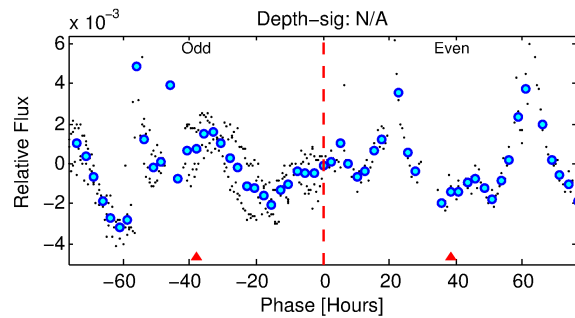
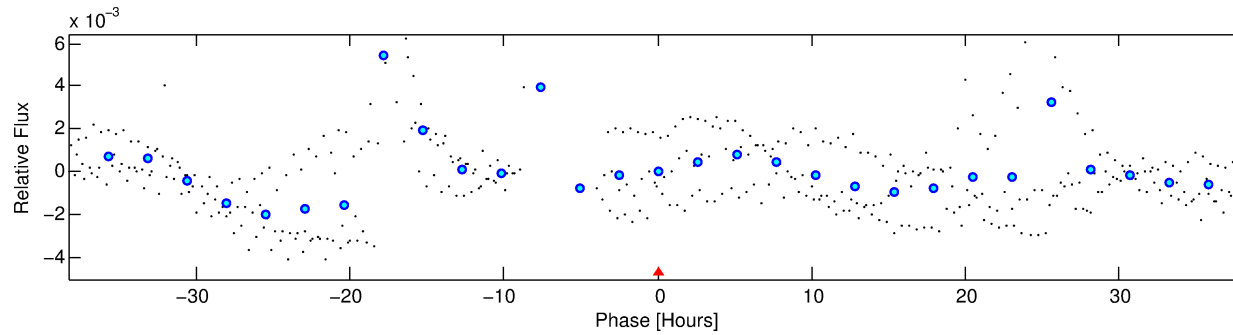
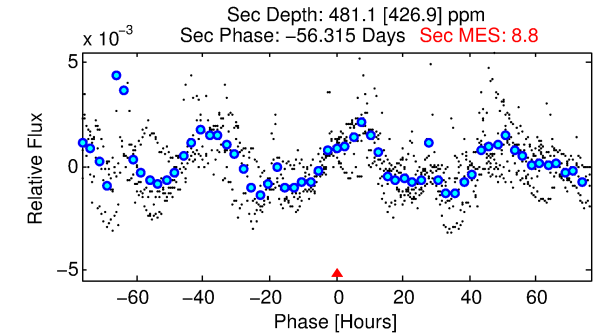
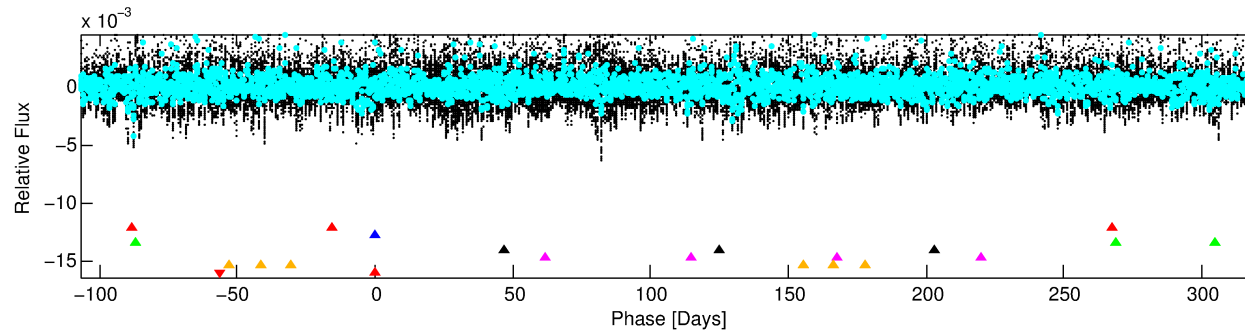
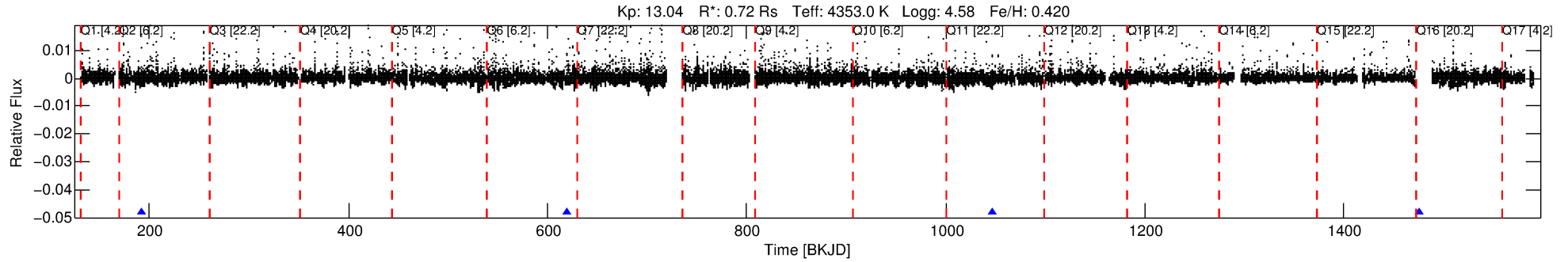
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004248763-07

No Significant Match Found

# DV One-Page Summary

KIC: 4248763 Candidate: 7 of 7 Period: 427.606 d



## TPS TCE Results:

Period = 427.60630 d  
Epoch = 191.2587 BKJD

DV fit results are unavailable

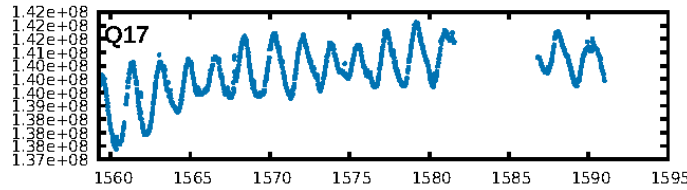
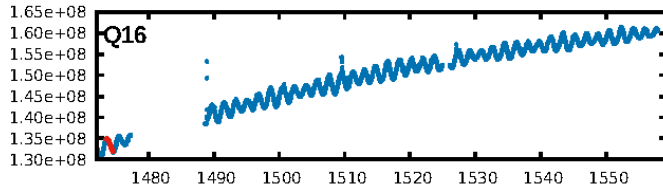
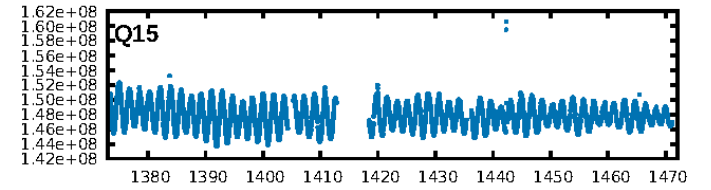
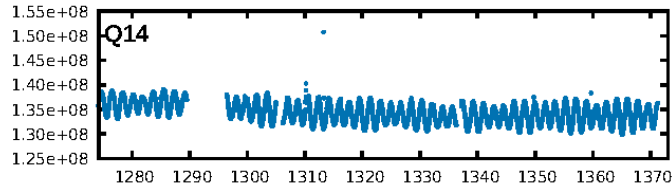
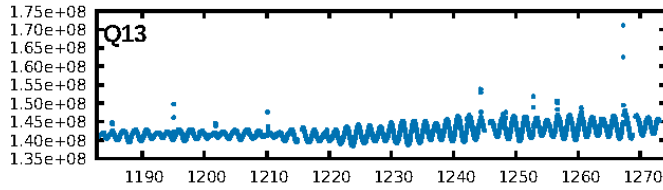
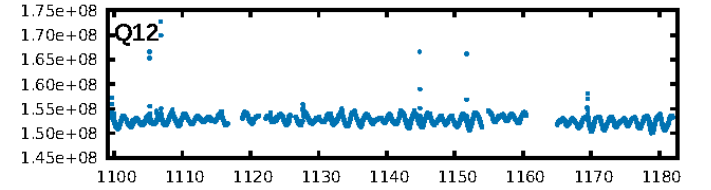
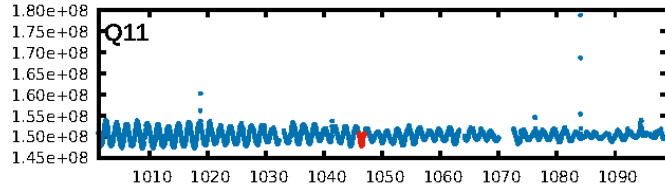
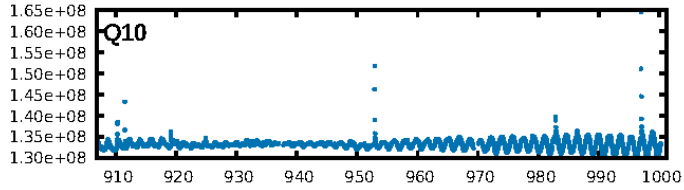
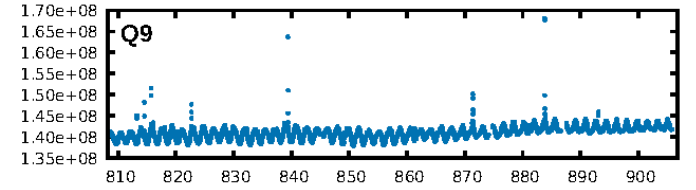
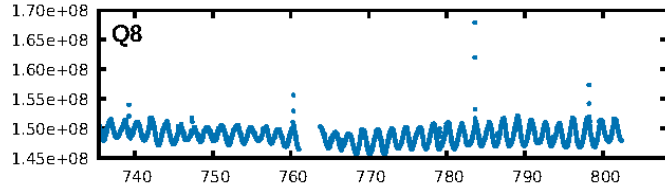
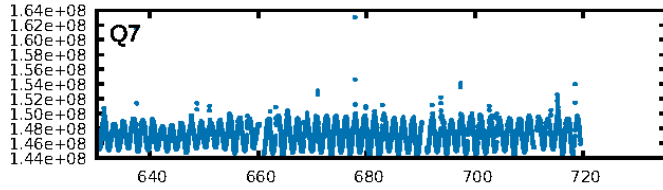
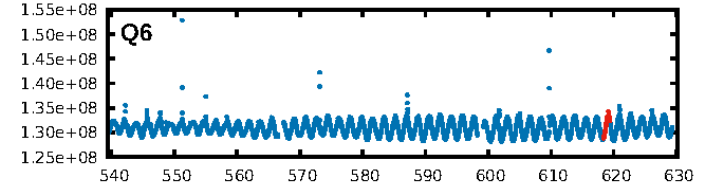
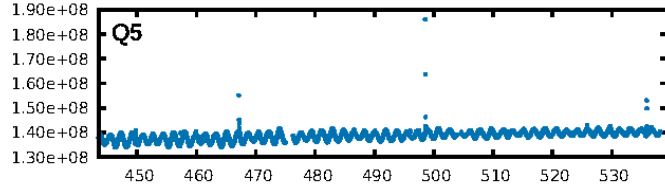
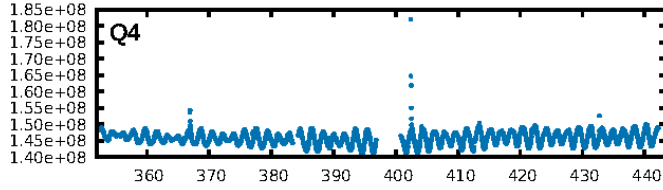
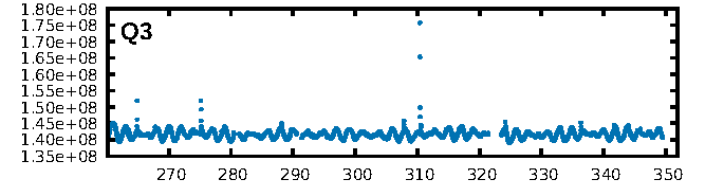
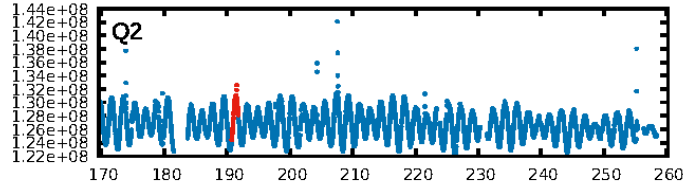
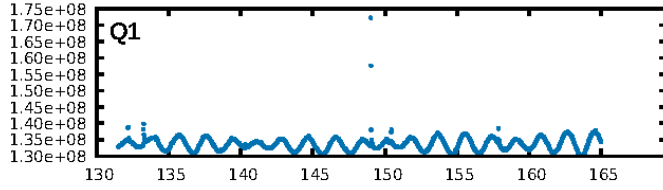
## DV Diagnostic Results:

ShortPeriod-sig: 1.6% [0.02 $\sigma$ ]  
LongPeriod-sig: 100.0% [43.18 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.5274  
Centroid-sig: 81.6%  
Centroid-so: 0.639 arcsec [9.76 $\sigma$ ]  
OotOffset-rm: 0.048 arcsec [0.70 $\sigma$ ]  
KicOffset-rm: 0.352 arcsec [4.83 $\sigma$ ]  
OotOffset-st: 2/1/0/0 [3]  
KicOffset-st: 2/1/0/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 0.00 [0/3]

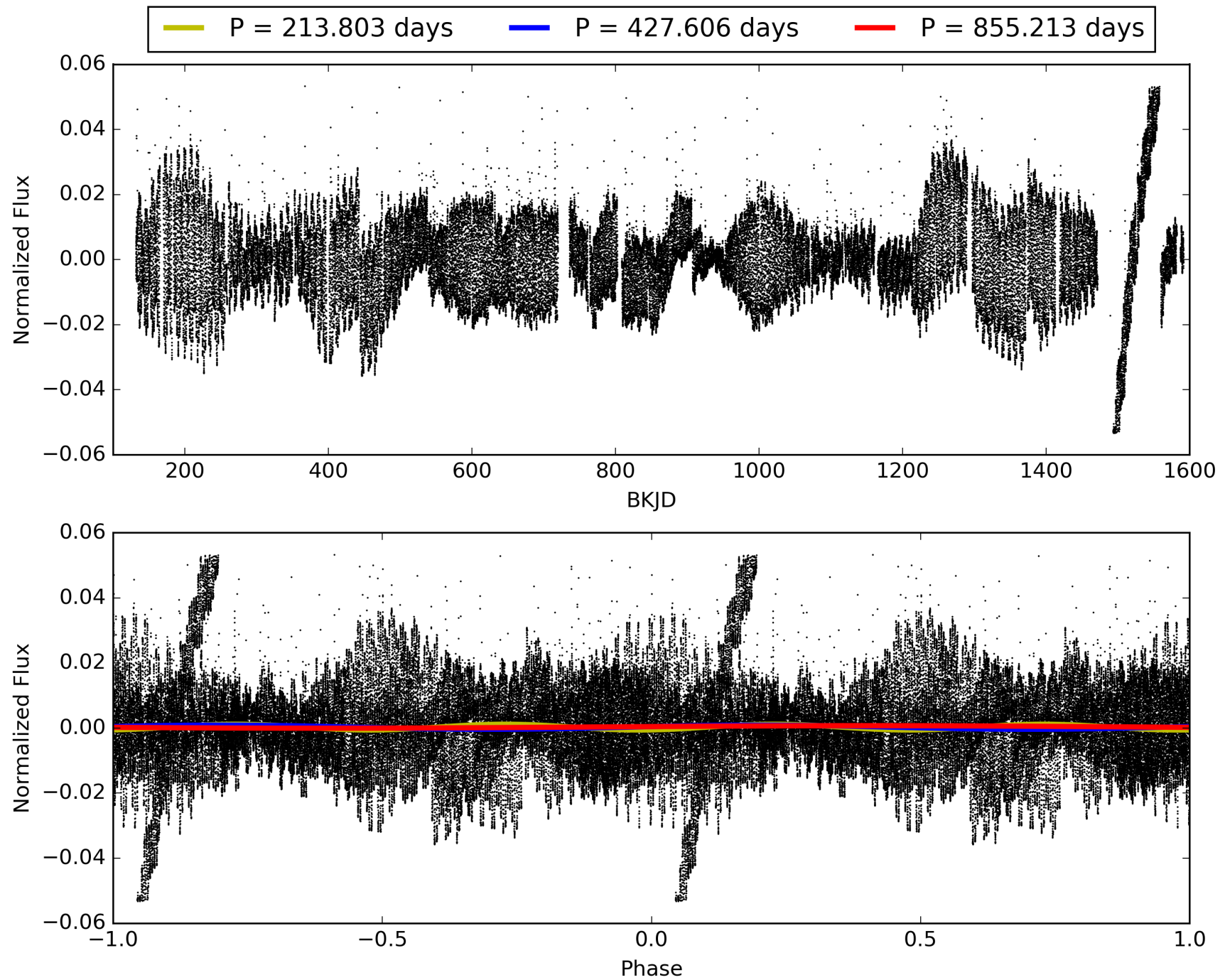
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:03:26 Z

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

# TCE 004248763-07, PDC Light Curves

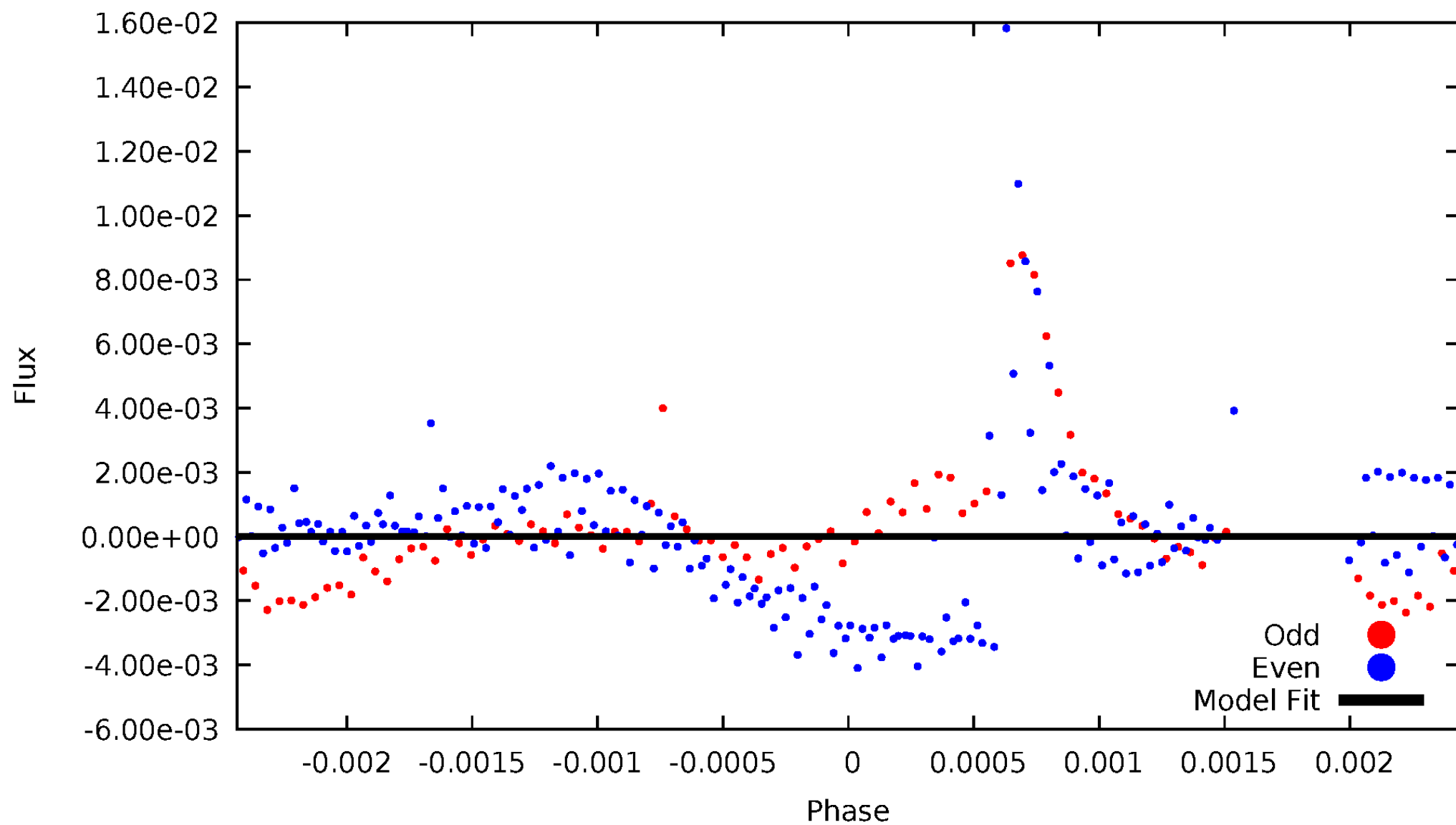


TCE 004248763-07



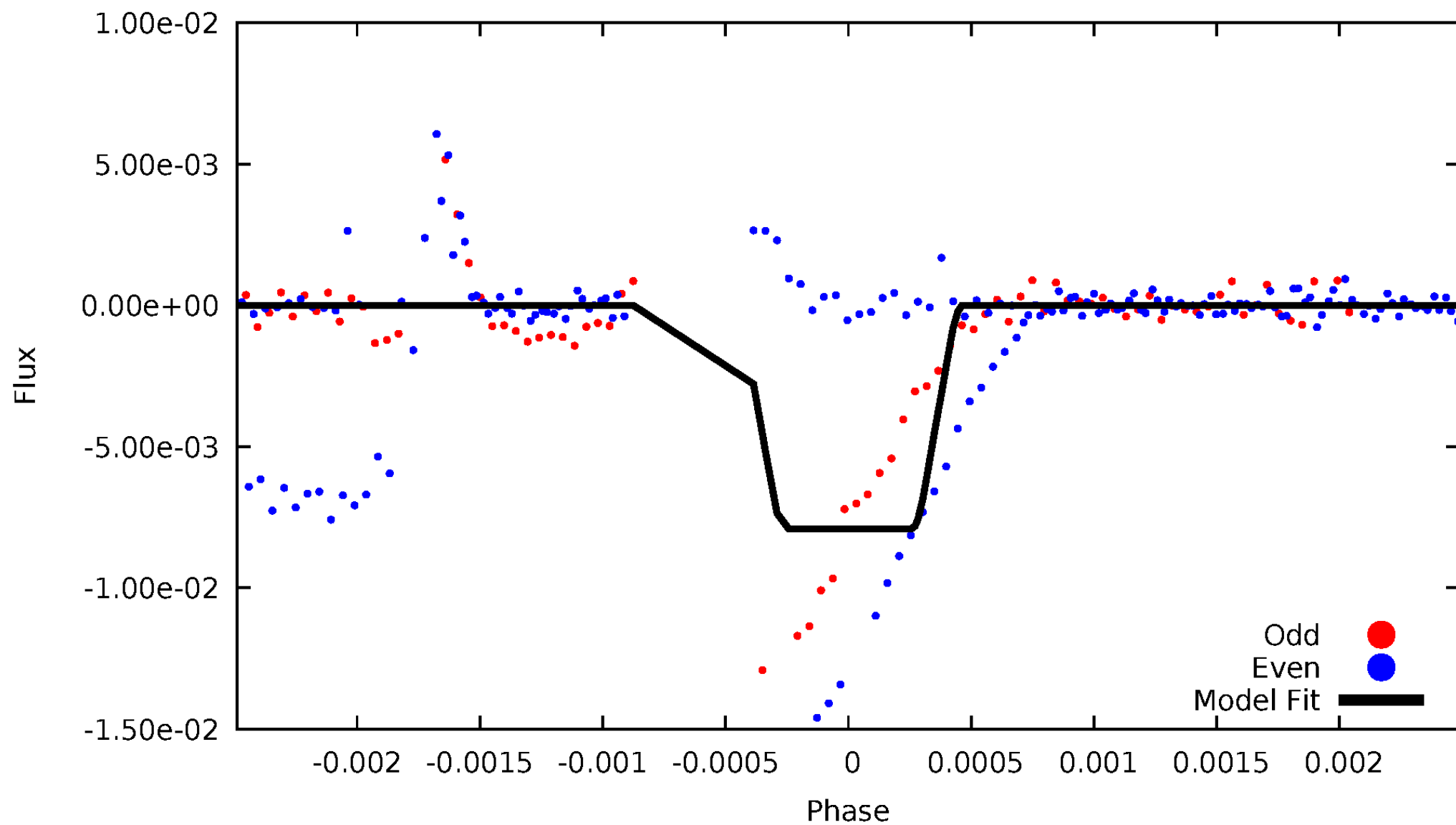
# DV Odd/Even

TCE 004248763-07

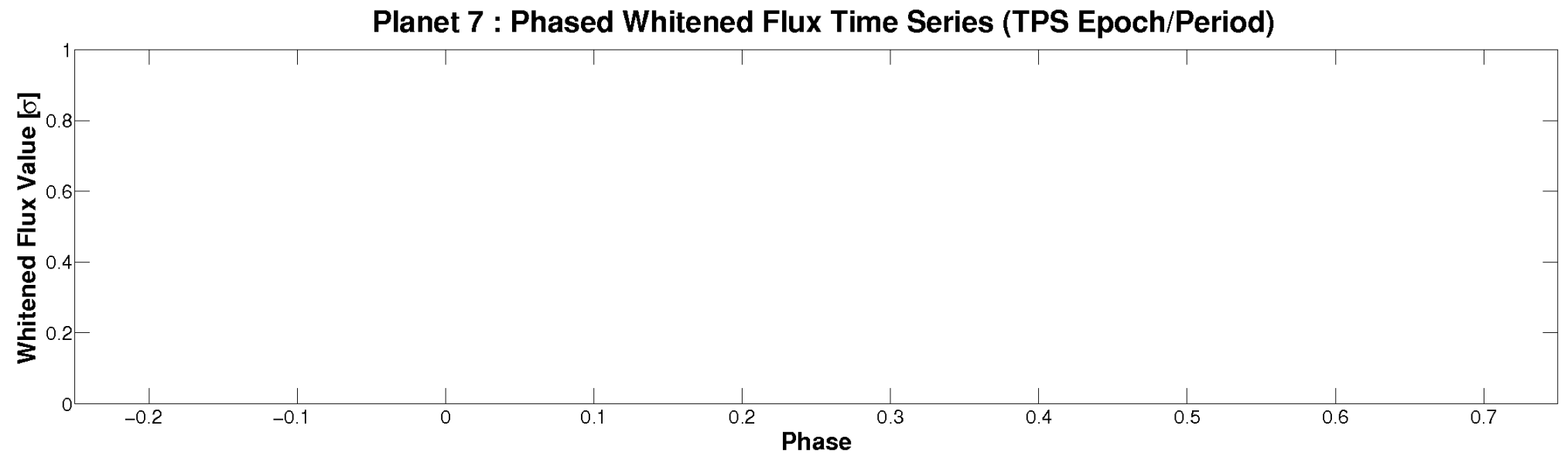
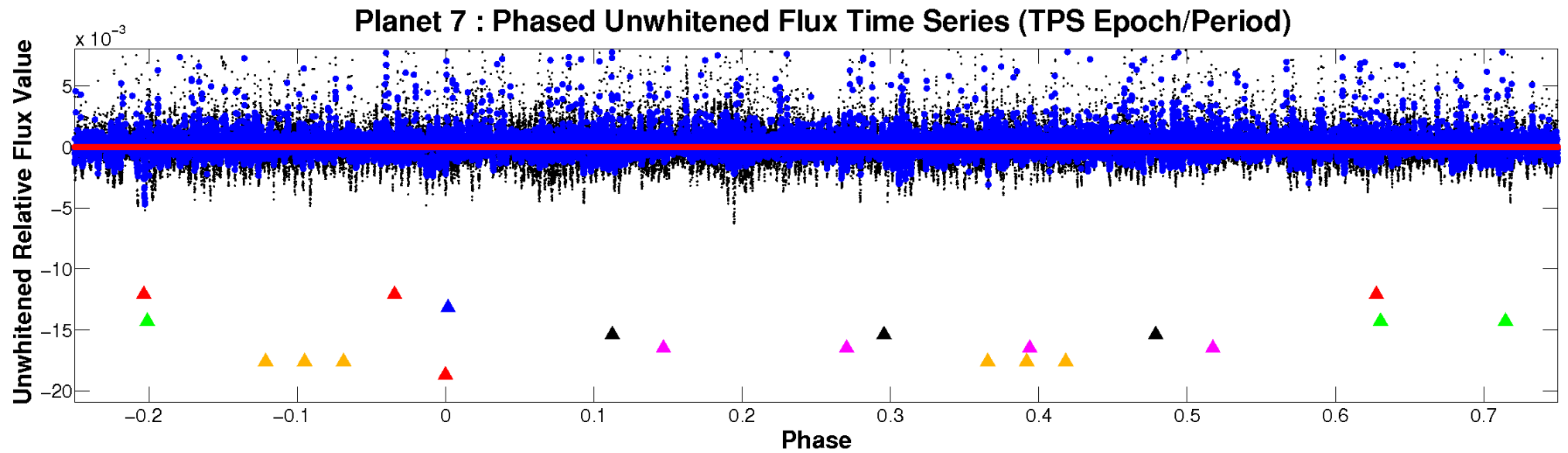


# ALT Odd/Even

TCE 004248763-07

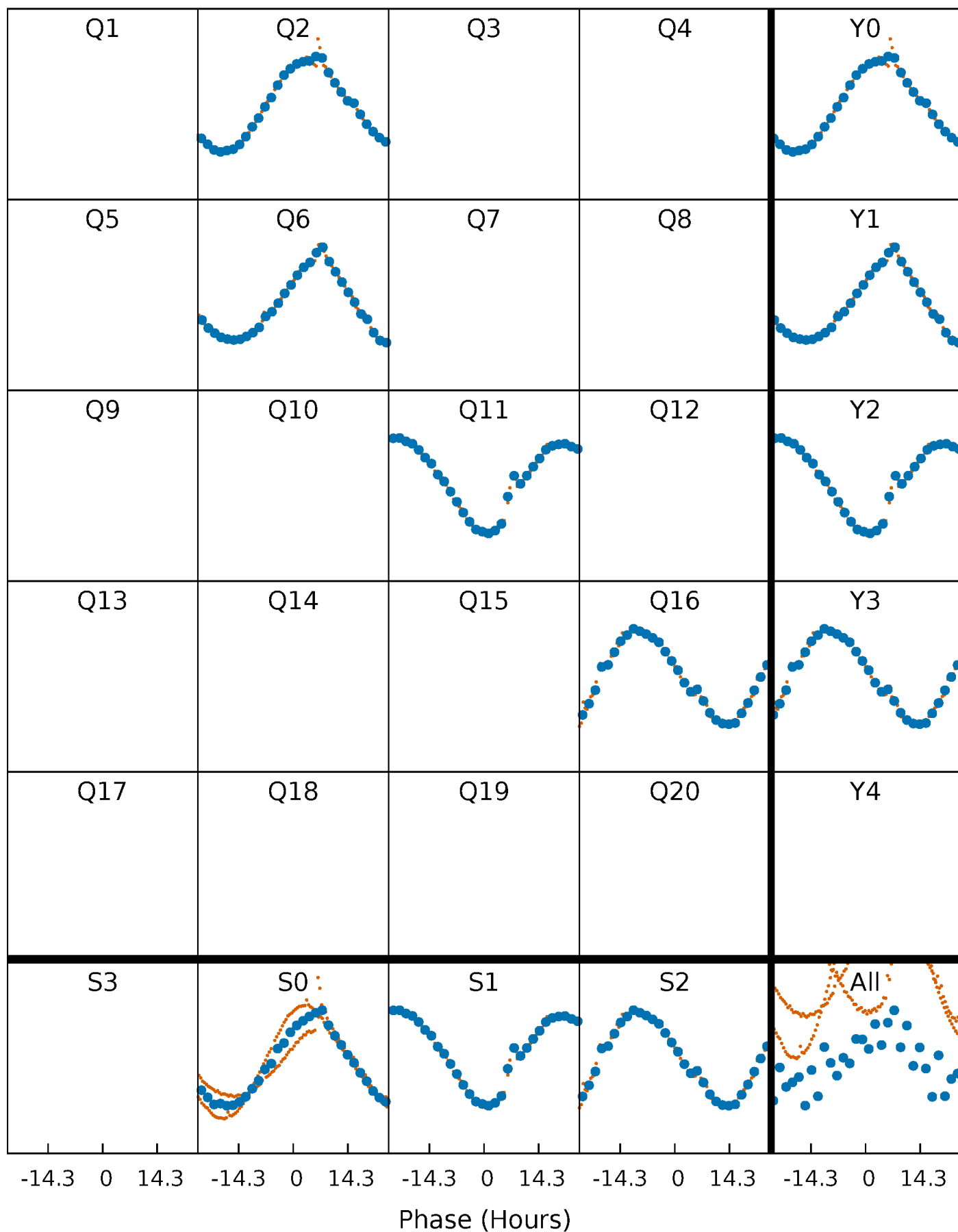


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

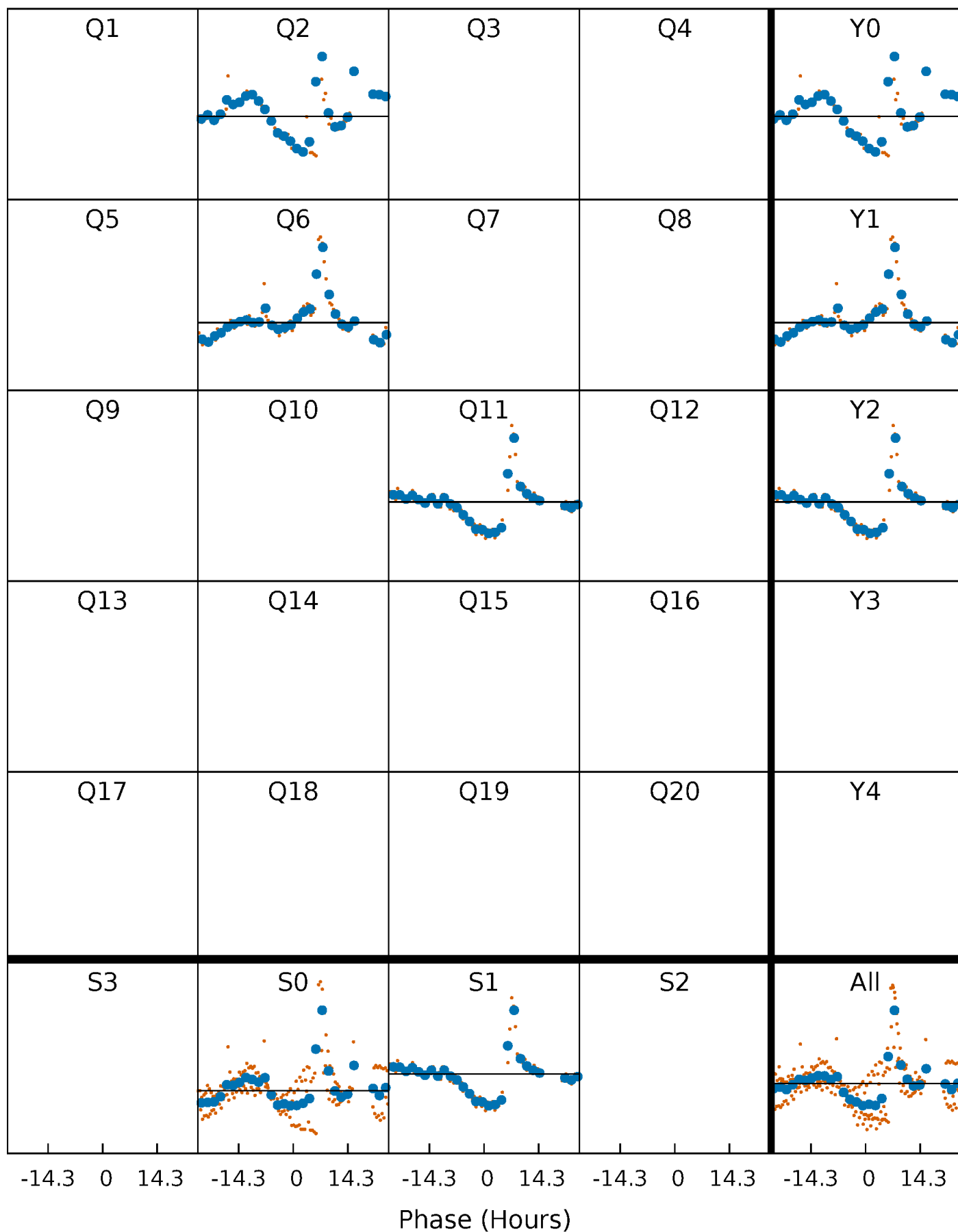
TCE 004248763-07 P=427.606299 Days  $T_0=191.258723$  (BKJD)





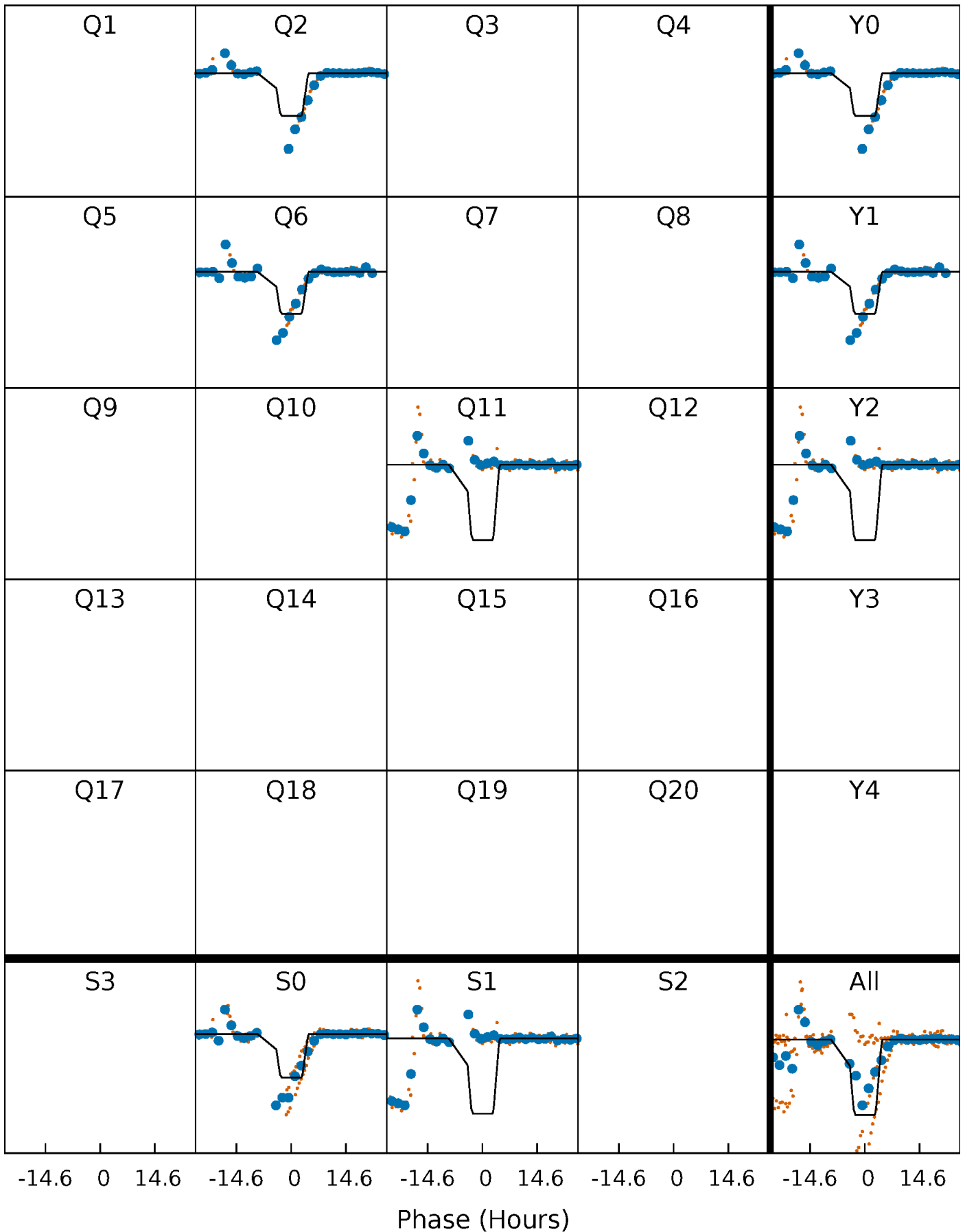
# DV Quarter-Phased Transit Curves

TCE 004248763-07     $P=427.606299$  Days     $T_0=191.258723$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

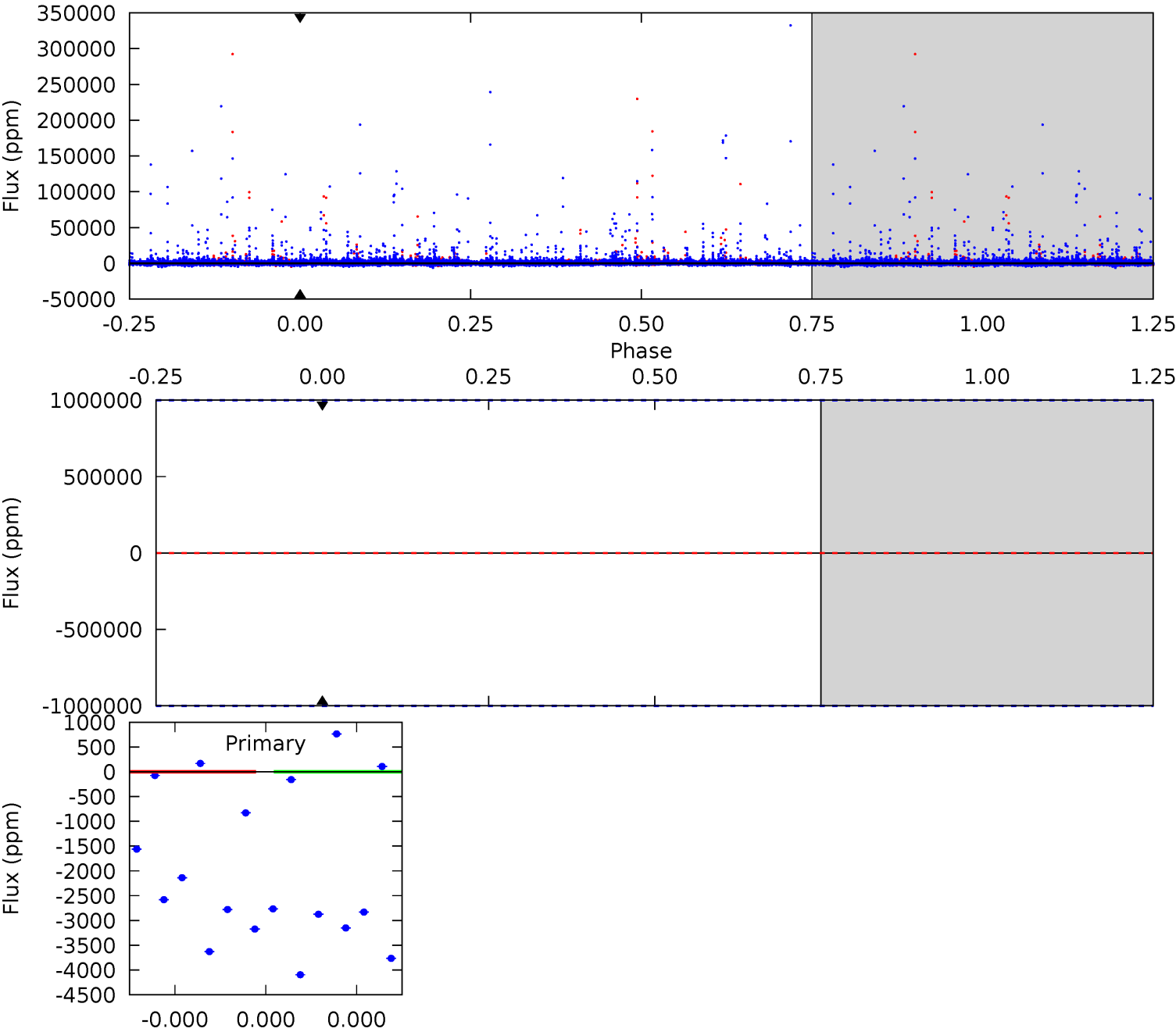
TCE 004248763-07     $P=427.606299$  Days     $T_0=192.277299$  (BKJD)



# DV Model-Shift Uniqueness Test

004248763-07, P = 427.606299 Days, E = 191.258723 Days

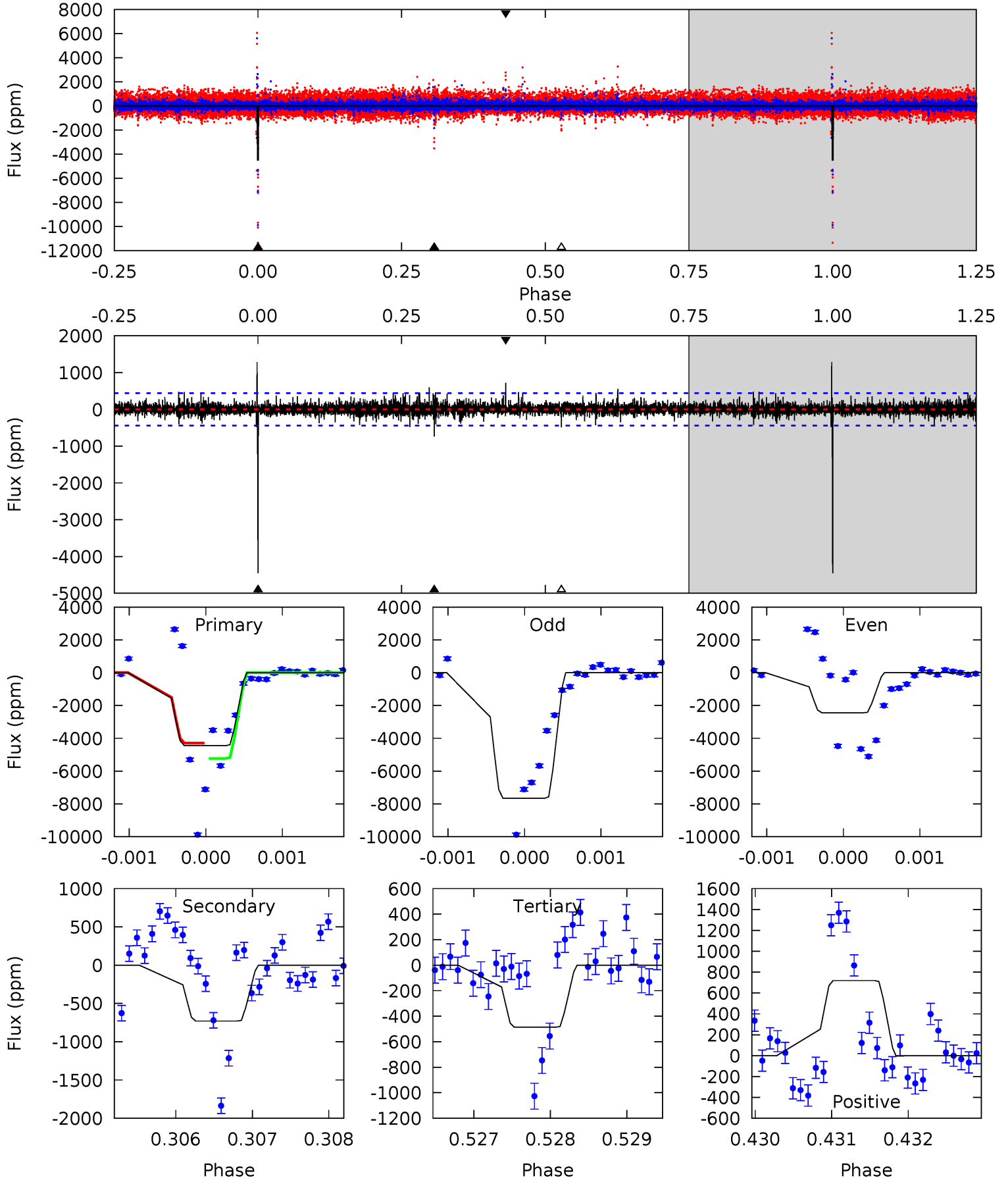
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

004248763-07, P = 427.606299 Days, E = 192.277299 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
55.2	9.06	6.04	8.94	5.48	3.33	1.21	49.2	46.3	3.03	0.13	40.8	0.80	0.22	0



### Stellar Parameters For KIC 004248763

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4353^{+155}_{-172}$	$4.575^{+0.060}_{-0.016}$	$0.420^{+0.050}_{-0.300}$	$0.723^{+0.028}_{-0.066}$	$0.716^{+0.042}_{-0.052}$	$2.673^{+0.727}_{-0.166}$
	+4%/-4%	+1%/-0%	+12%/-71%	+4%/-9%	+6%/-7%	+27%/-6%
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 004248763-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$5.44^{+5.82}_{-3.93}$	$227^{+9}_{-10}$	$-3723^{+16086}_{-7678}$	$-42893.942^{+3843162.450}_{-3203726.739}$
Alt.	$-730 \pm 81$	$8.21^{+7.16}_{-4.90}$	$227^{+8}_{-10}$	$2825^{+893}_{-424}$	$5869^{+31695}_{-4172}$

$T_{\text{max}}$  = 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

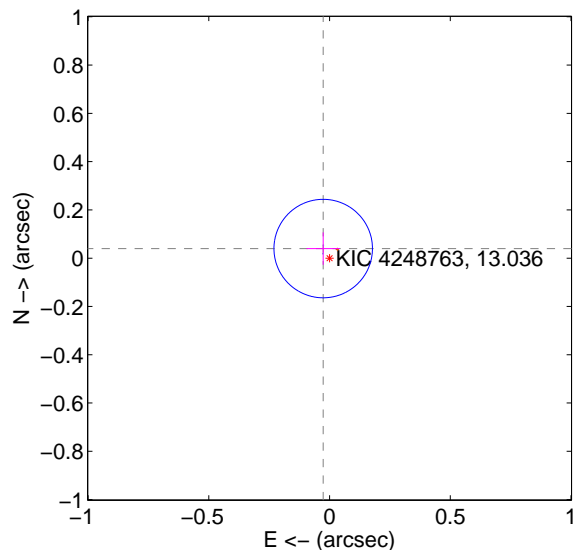
Supplemental centroid analysis for 004248763-07. Kepler magnitude: 13.04. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

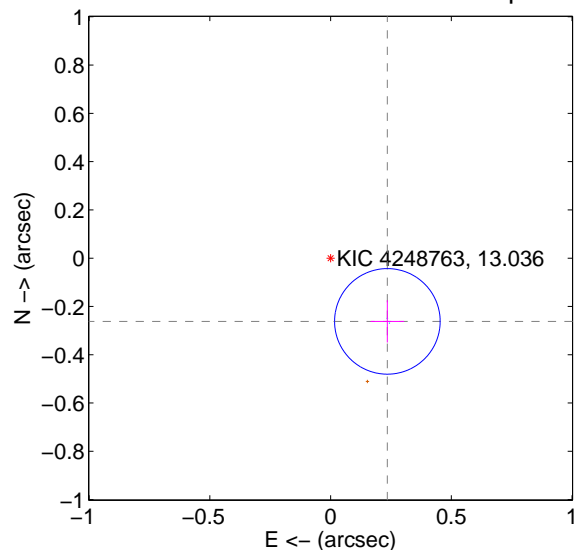
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.048 \pm 0.068$	0.70	$0.026 \pm 0.069$	$0.040 \pm 0.067$
PRF-fit source offset from KIC position	$0.352 \pm 0.073$	4.83	$-0.235 \pm 0.069$	$-0.262 \pm 0.087$
photometric centroid source offset	$0.64 \pm 0.07$	9.76	$-0.26 \pm 0.05$	$-0.58 \pm 0.07$

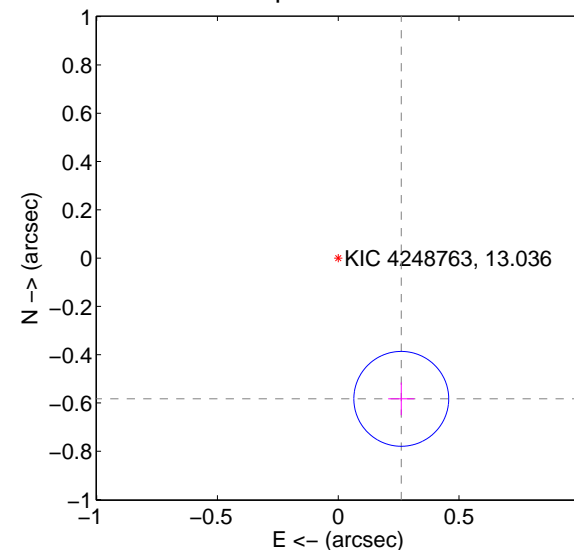
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

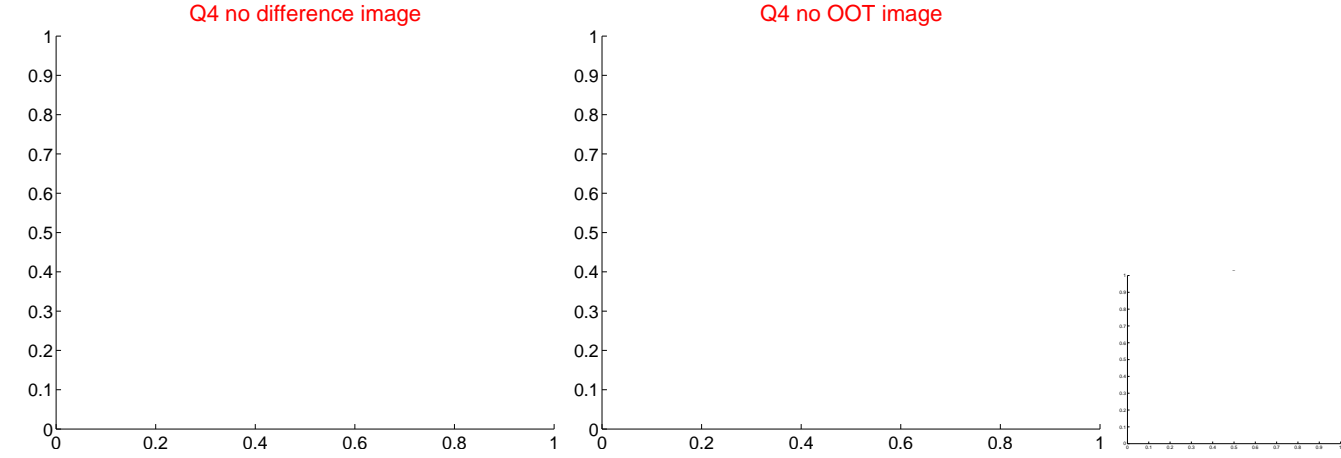
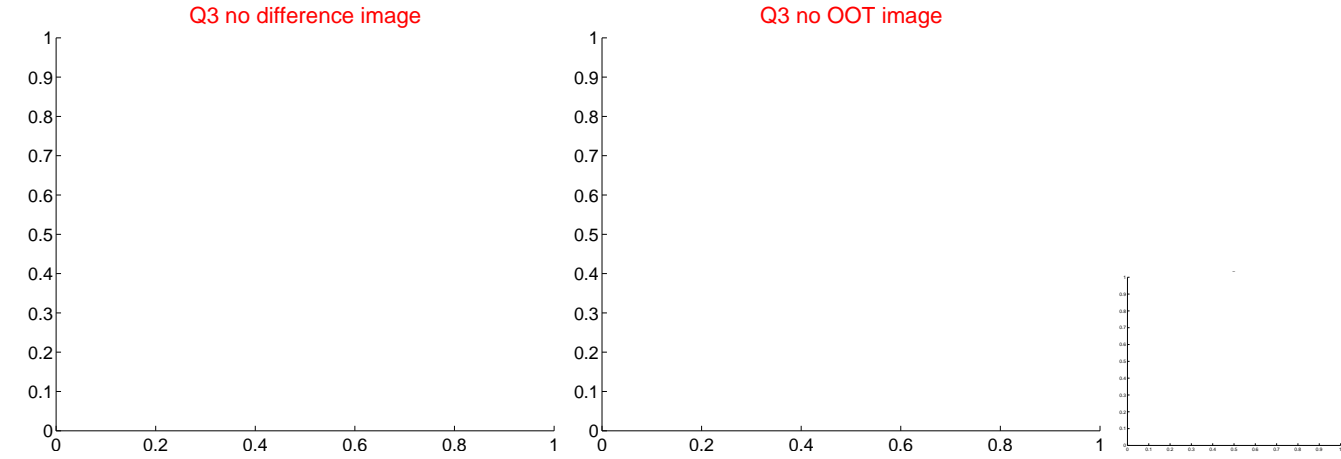
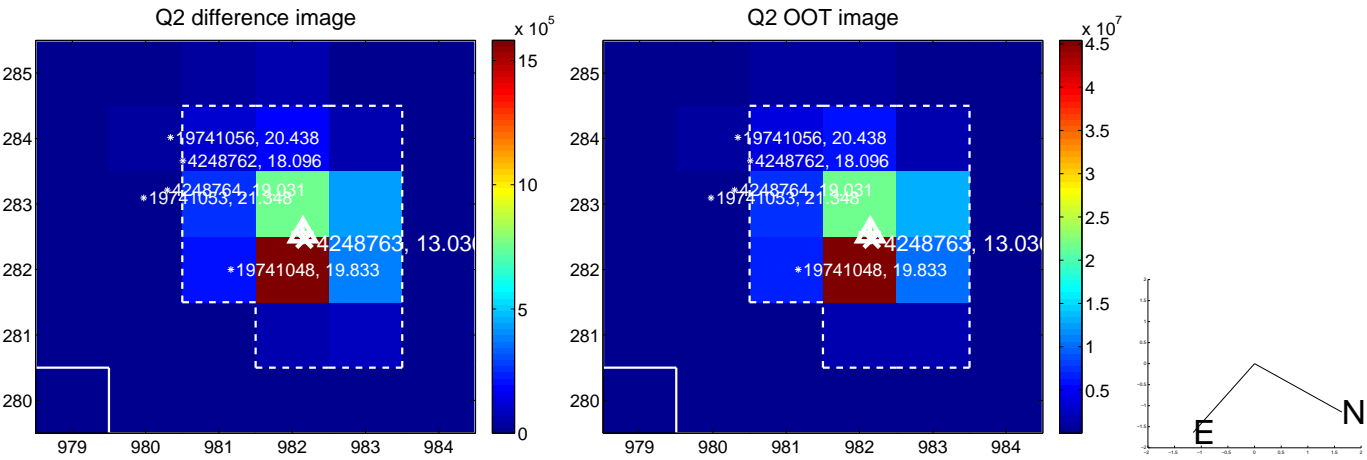


offset from photometric centroids

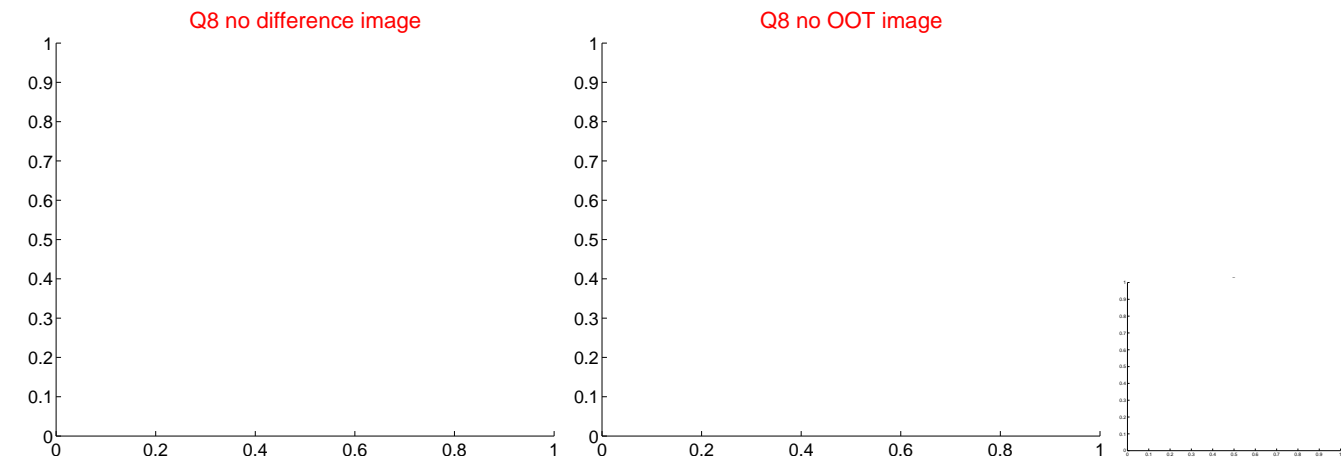
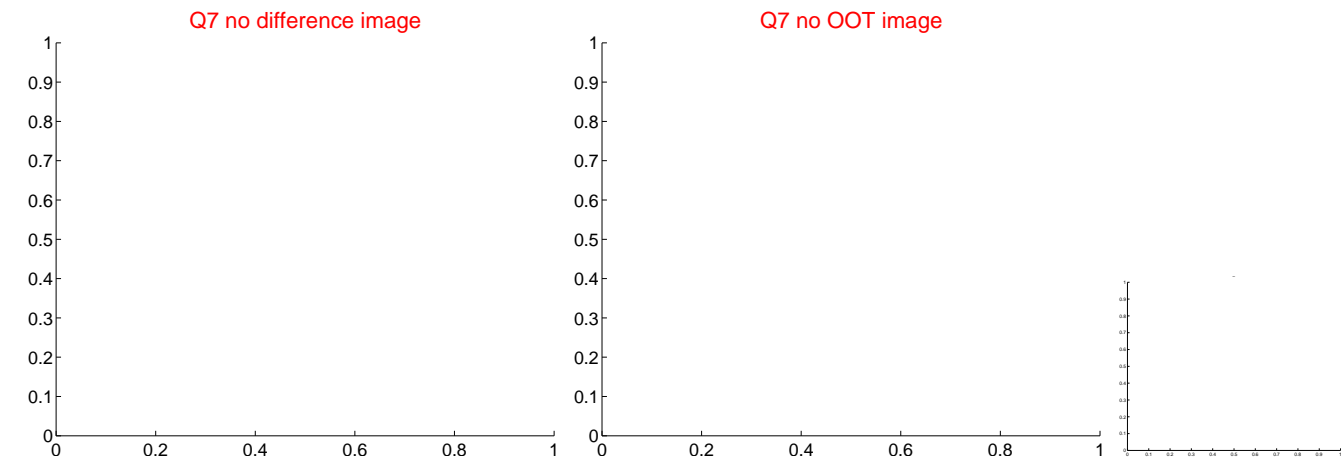
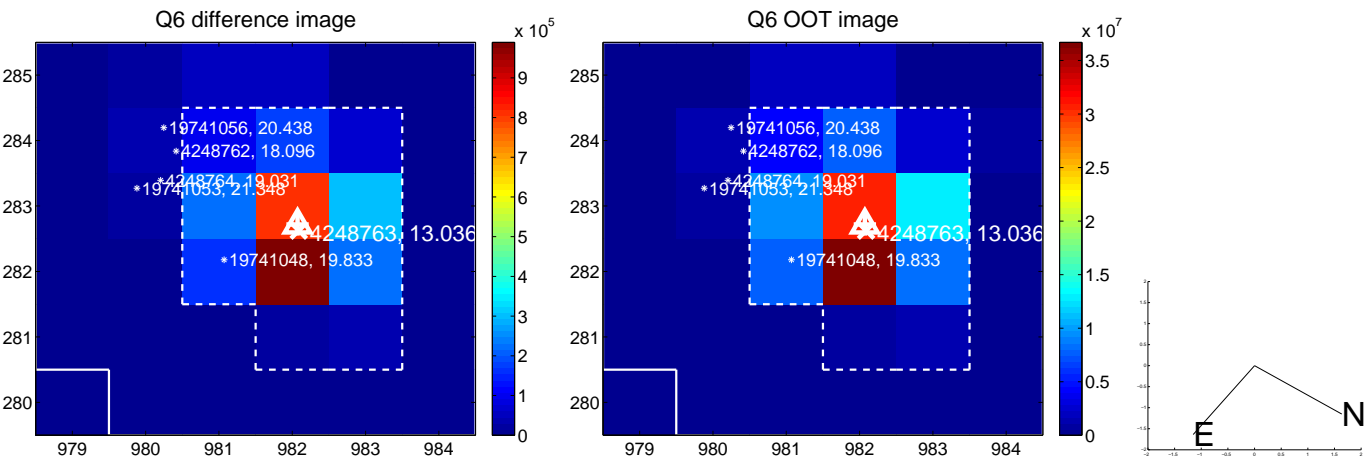


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

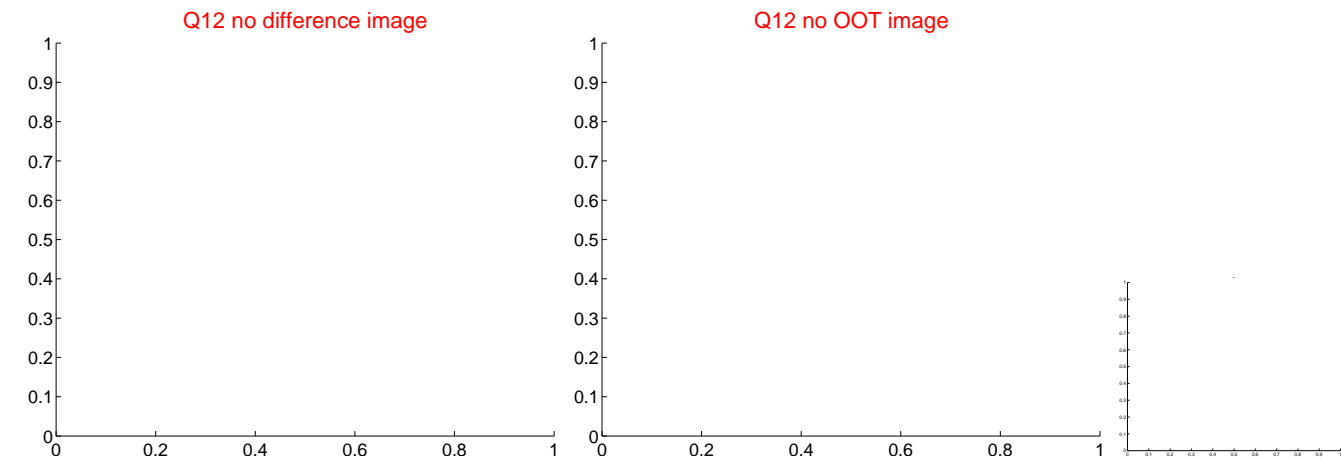
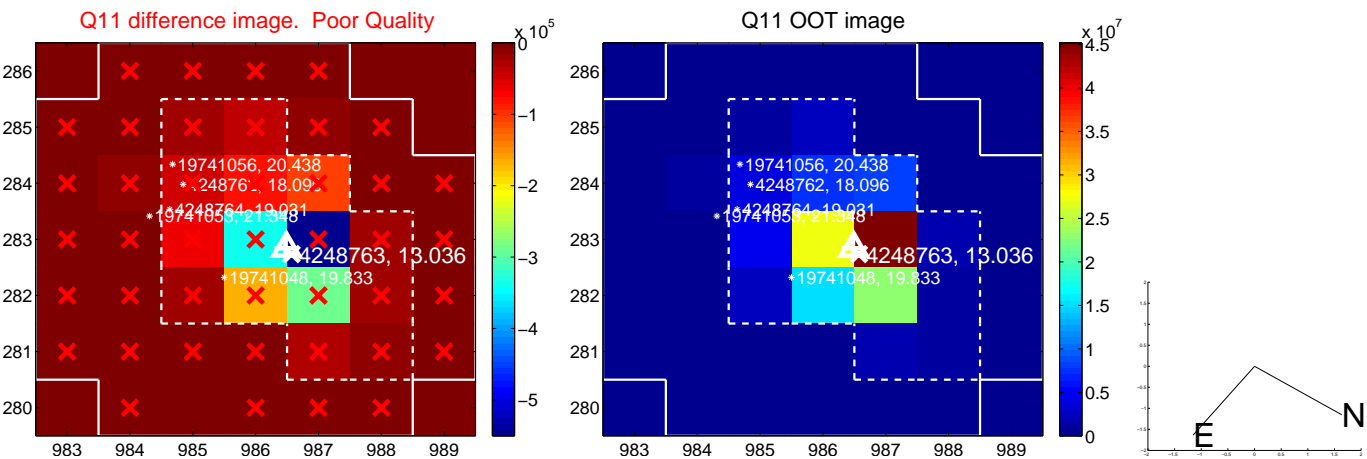


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





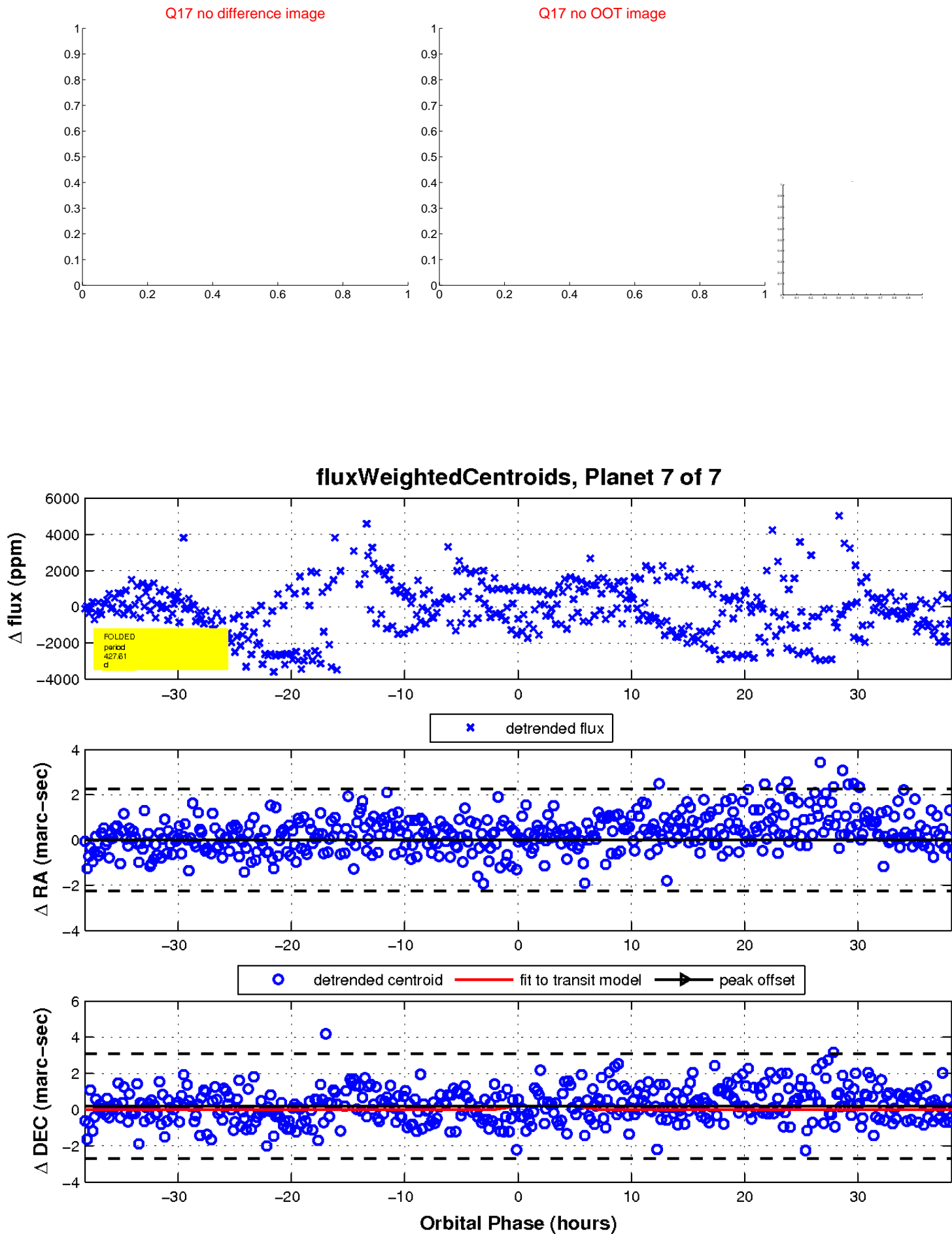
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : 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

