

# KIC 008308352

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008308352-01	OBS	No	164.947941	279.051898	2158.8	26.804	22.4	23.7	0.83	5671	4.70	2.06
008308352-02	OBS	No	577.312313	380.271215	3675.8	39.873	11.4	25.0	0.83	5671	5.62	0.39
008308352-03	OBS	No	369.059828	232.896942	2469.6	32.763	10.2	12.9	0.83	5671	5.07	0.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008308352-01	OBS	FP	0.00	1	0	1	1	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
008308352-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008308352-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

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

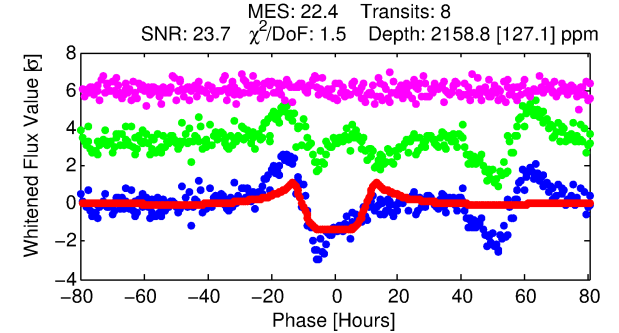
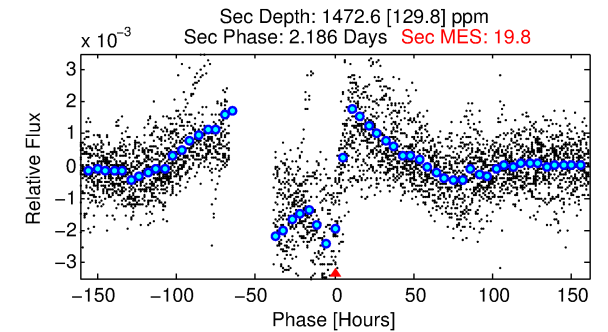
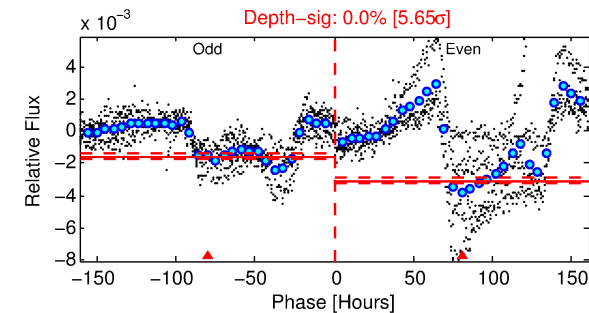
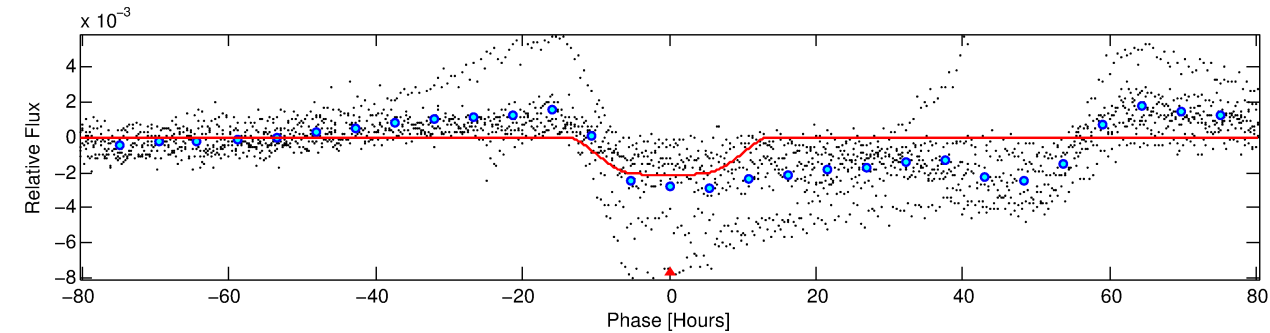
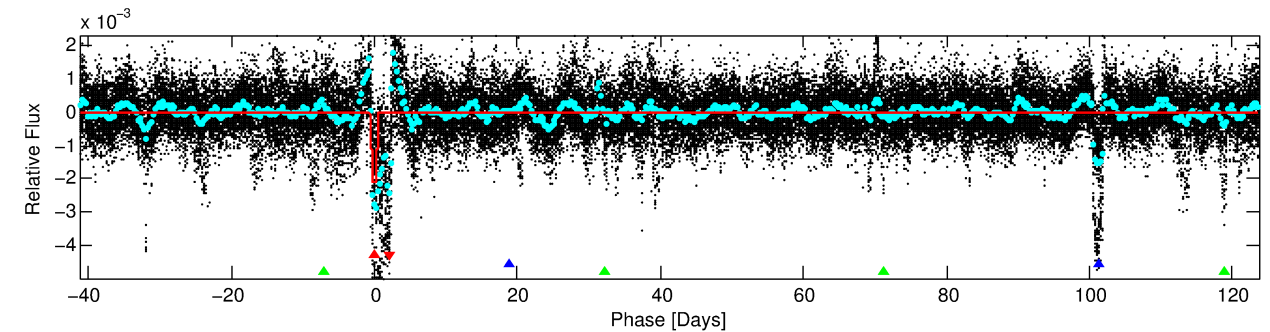
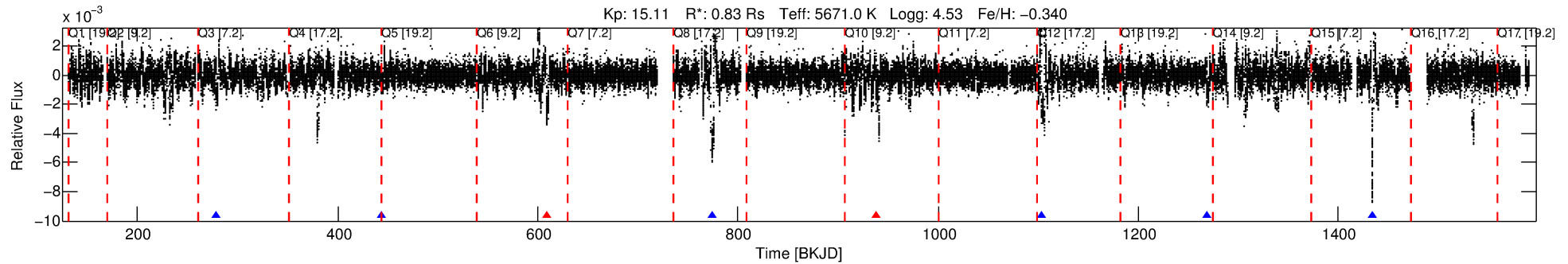
## Ephemeris Match Information For 008308352-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
008308352-01	8308352	008308347-01	8308347	1:1	5.1	1	0	15.47	15.10	3.70	Direct-PRF	0	0.44	1.68

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 8308352 Candidate: 1 of 3 Period: 164.948 d



## DV Fit Results:

Period = 164.94794 [0.00441] d  
Epoch = 279.0519 [0.0171] BKJD  
Rp/R\* = 0.0520 [0.0019]  
a/R\* = 23.73 [1.47]  
b = 0.92 [0.01]  
Seff = 2.06 [0.64]  
Teq = 305 [24] K  
Rp = 4.70 [1.16] Re  
a = 0.5558 [0.1121] AU  
Ag = 11333.26 [3501.63] [3.24 $\sigma$ ]  
Teffp = 4871 [200] K [22.63 $\sigma$ ]

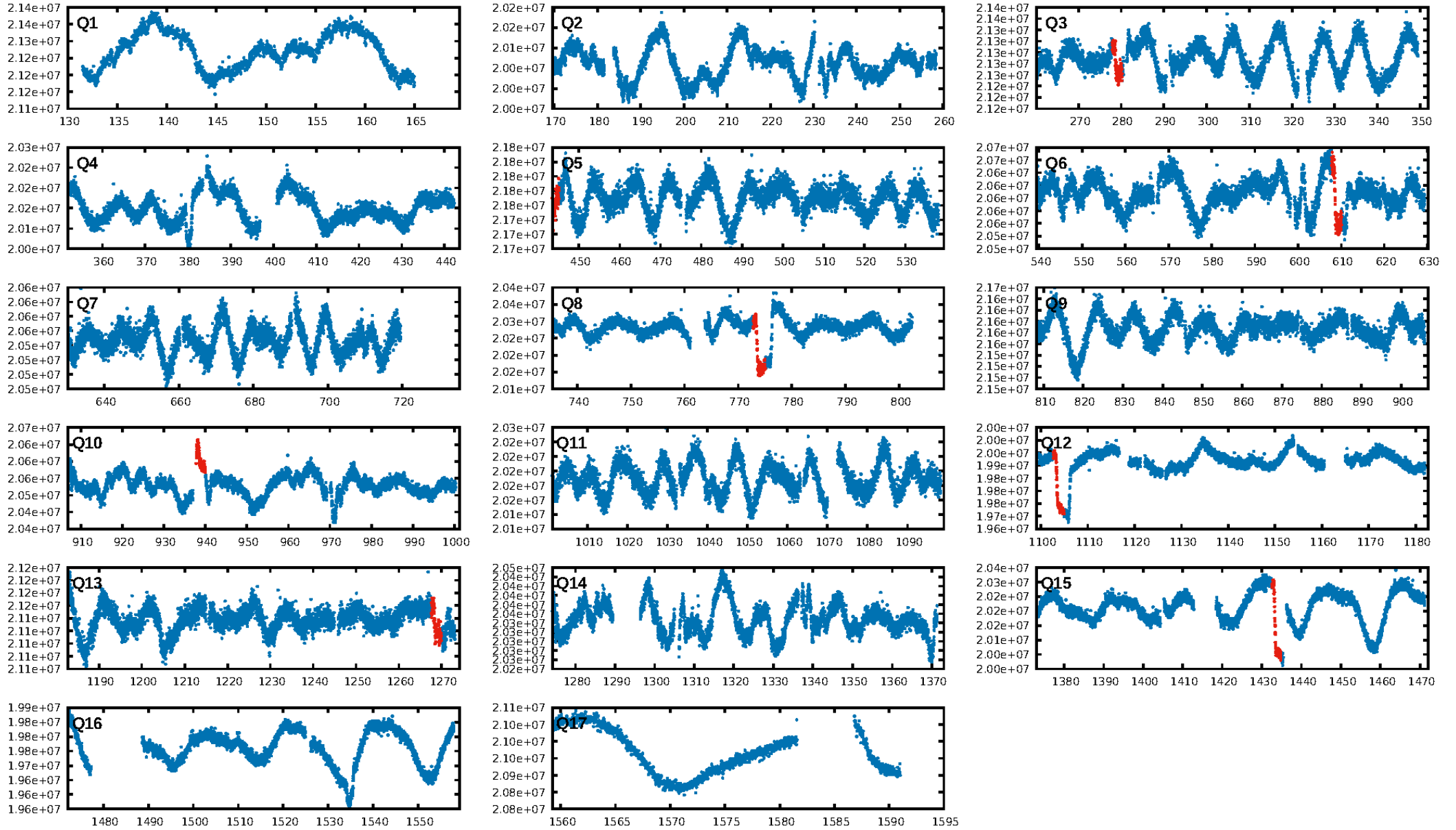
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [115.72 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 1.8%  
Bootstrap-pfa: 1.51e-57  
RollingBand-fgt: 0.75 [6/8]  
GhostDiagnostic-chr: -0.1775  
Centroid-sig: 0.0%  
Centroid-so: 10.619 arcsec [20.88 $\sigma$ ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [2/2]

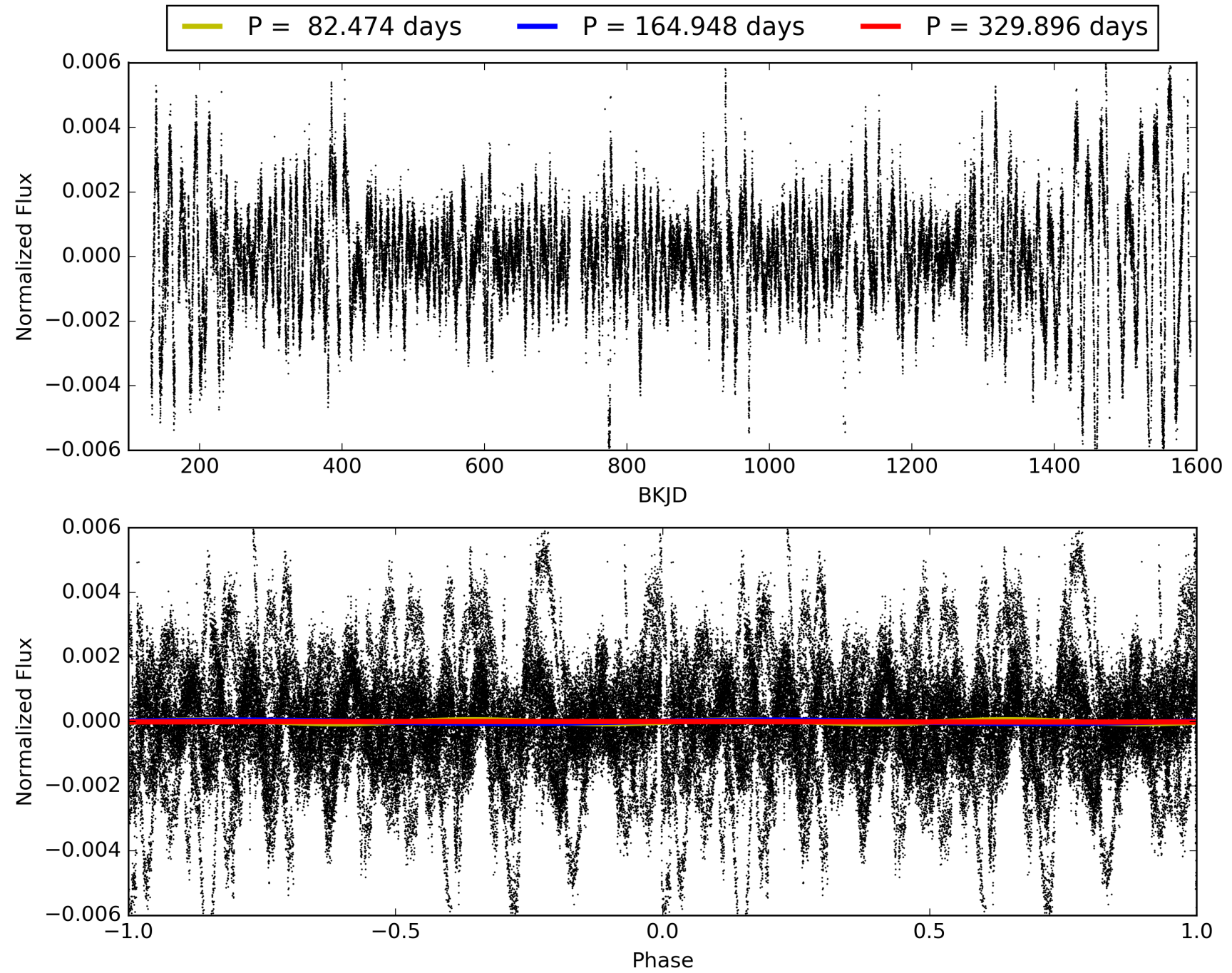
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:44:32 Z

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

# TCE 008308352-01, PDC Light Curves

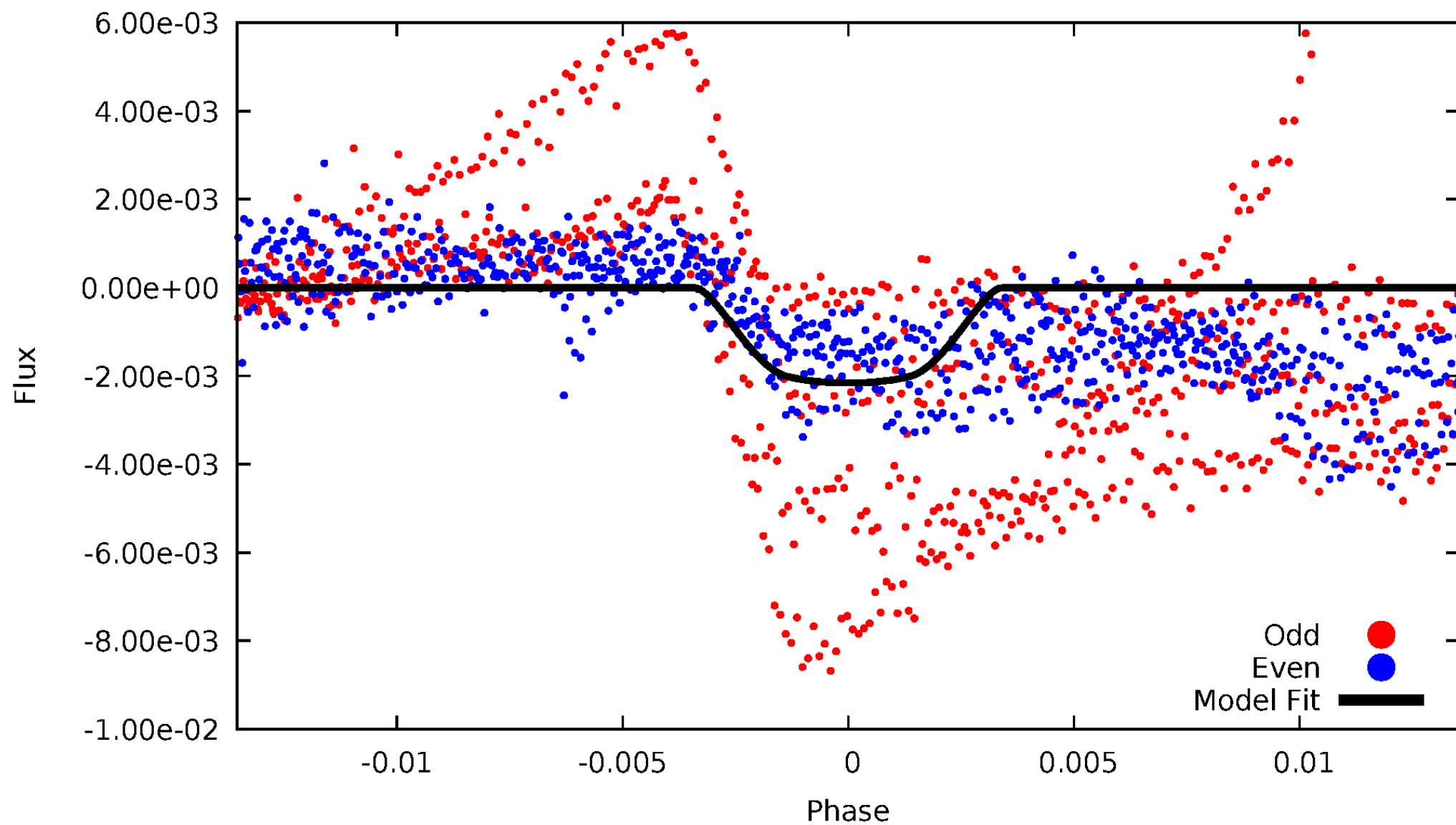


# TCE 008308352-01



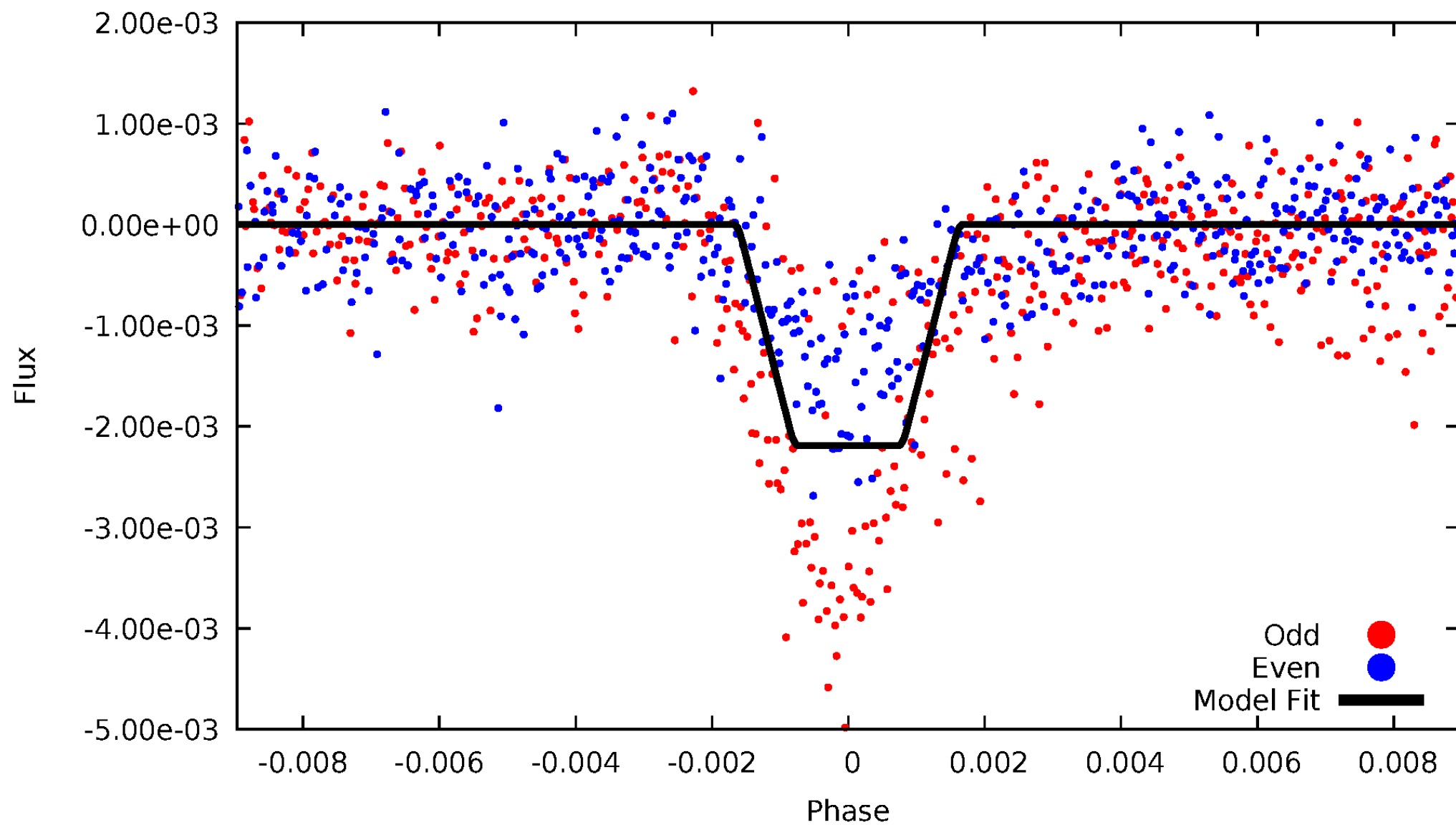
# DV Odd/Even

TCE 008308352-01



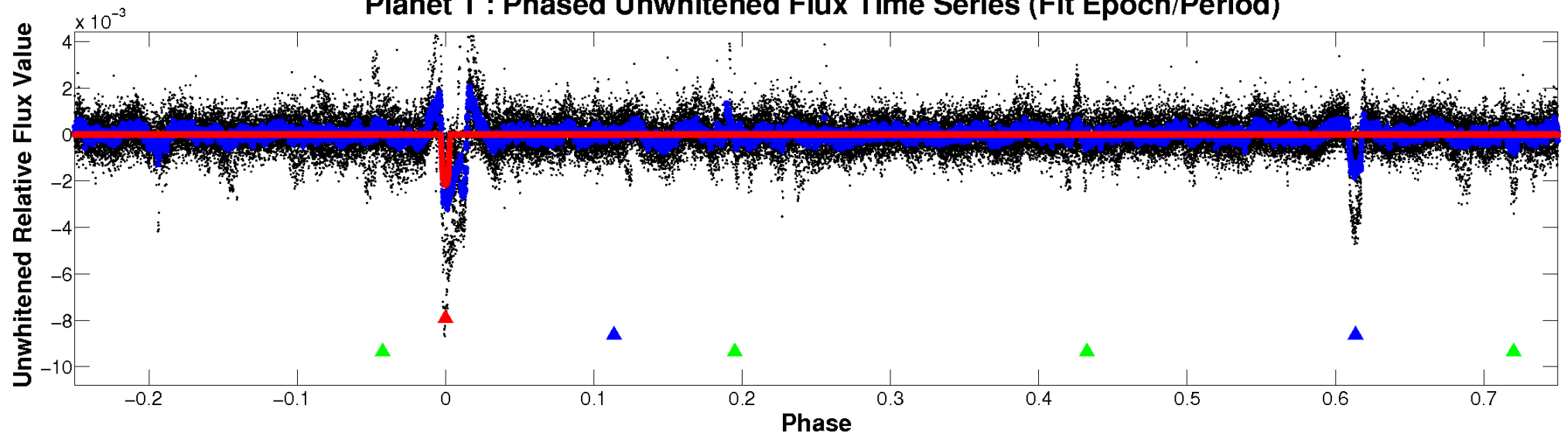
# ALT Odd/Even

TCE 008308352-01

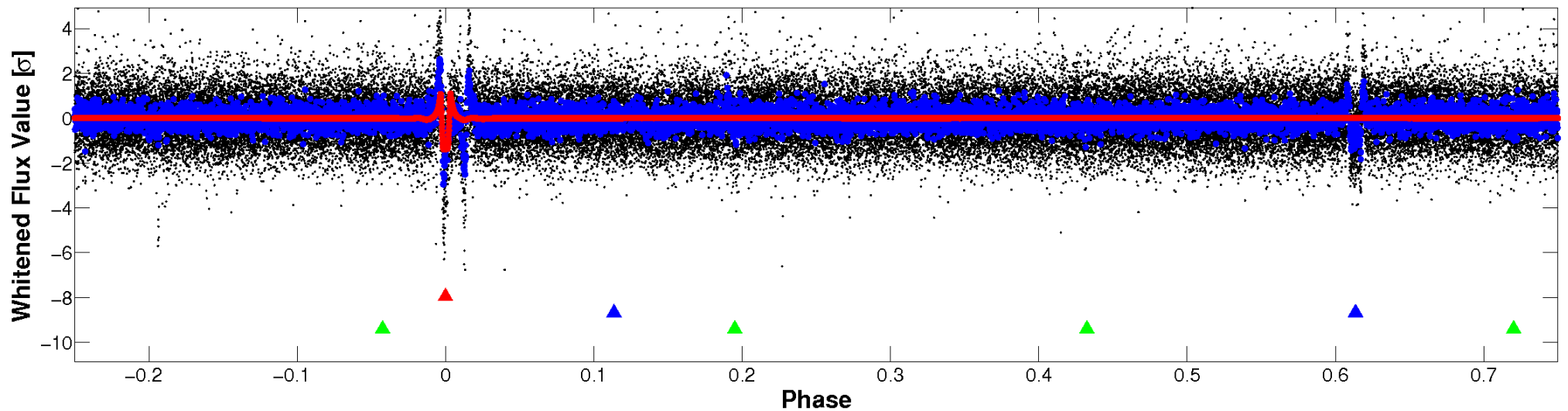


# Non-Whitened Vs. Whitened Light Curve

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

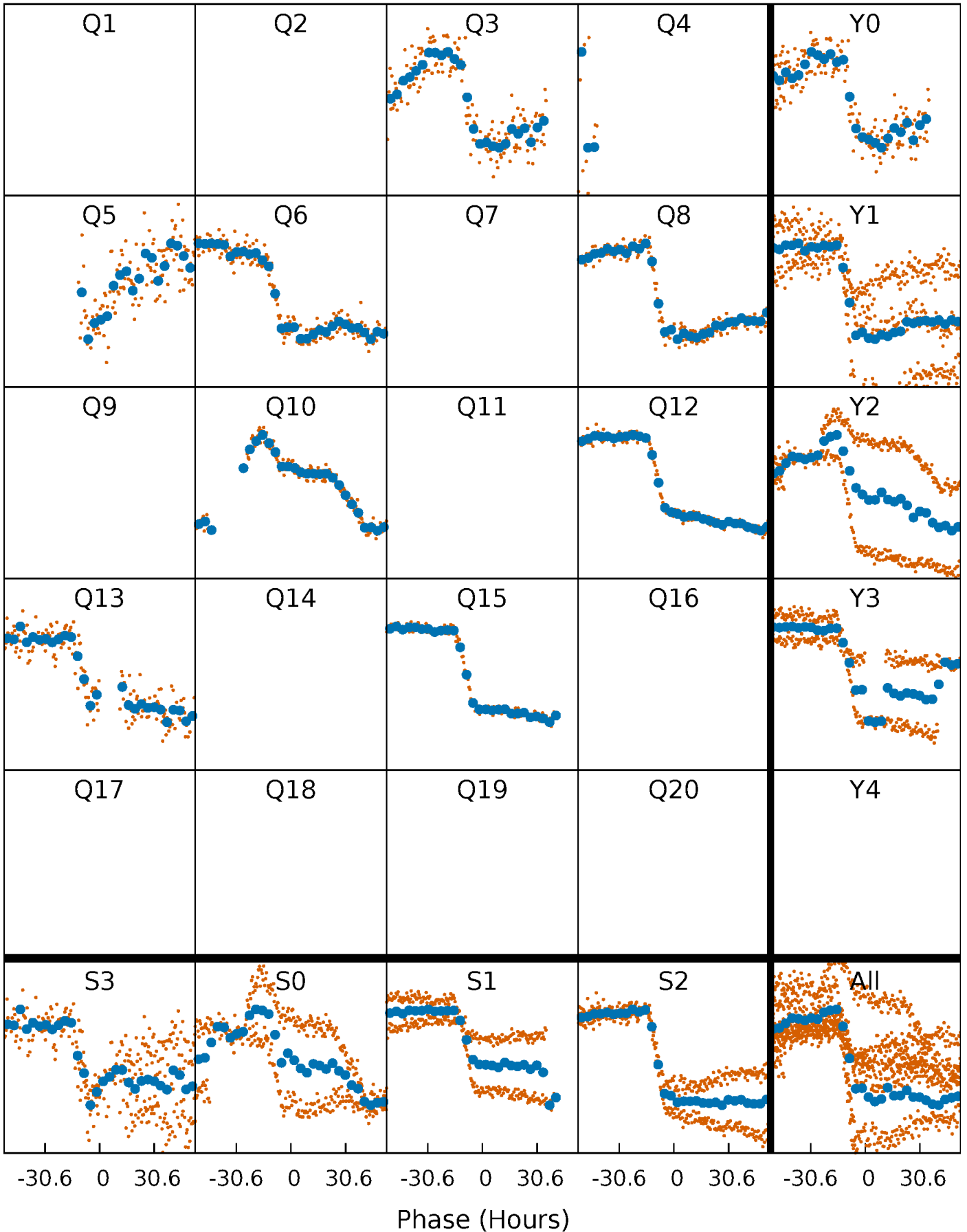


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

TCE 008308352-01 P=164.947941 Days  $T_0=279.051897$  (BKJD)



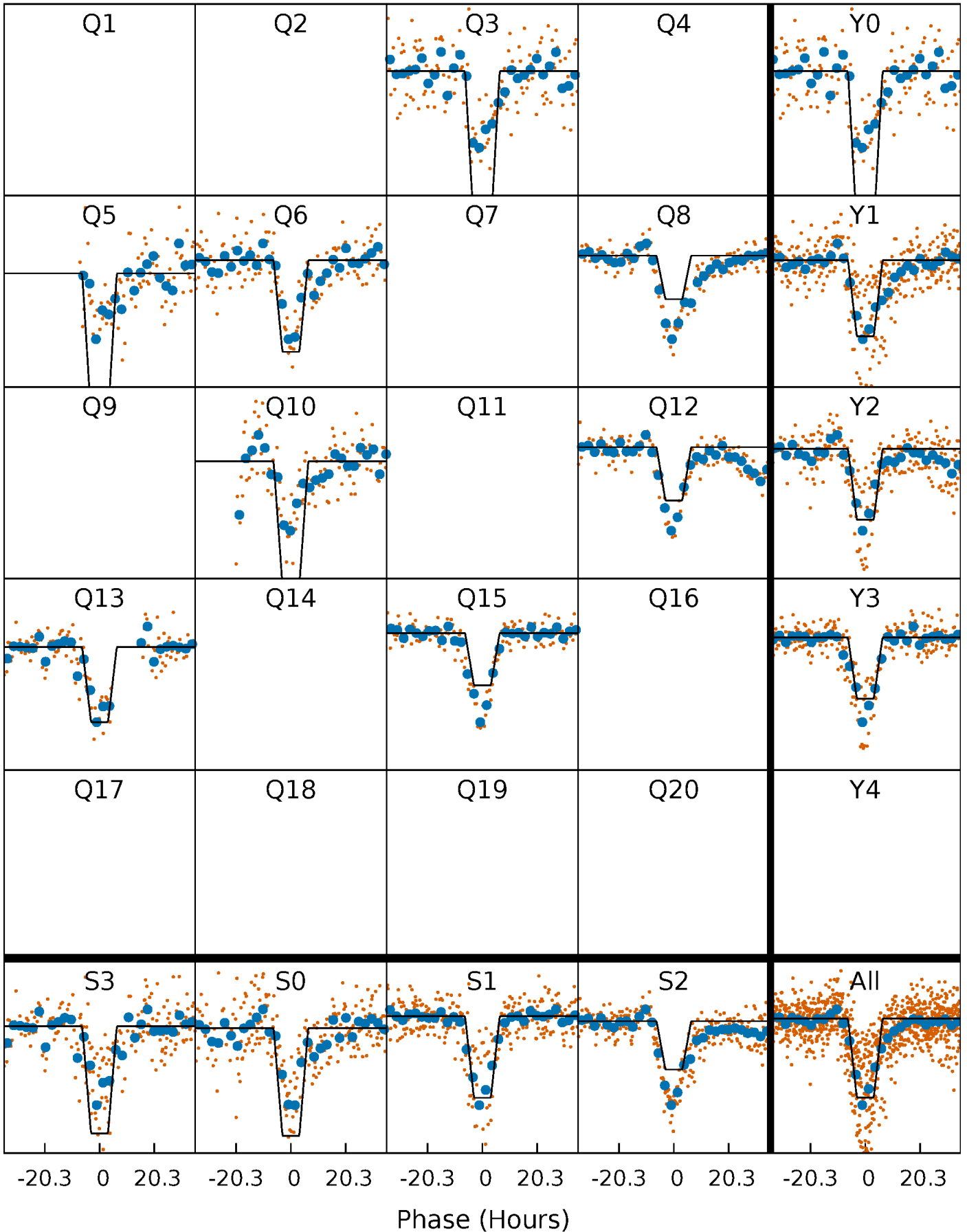
# DV Quarter-Phased Transit Curves

TCE 008308352-01 P=164.947941 Days  $T_0=279.051897$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

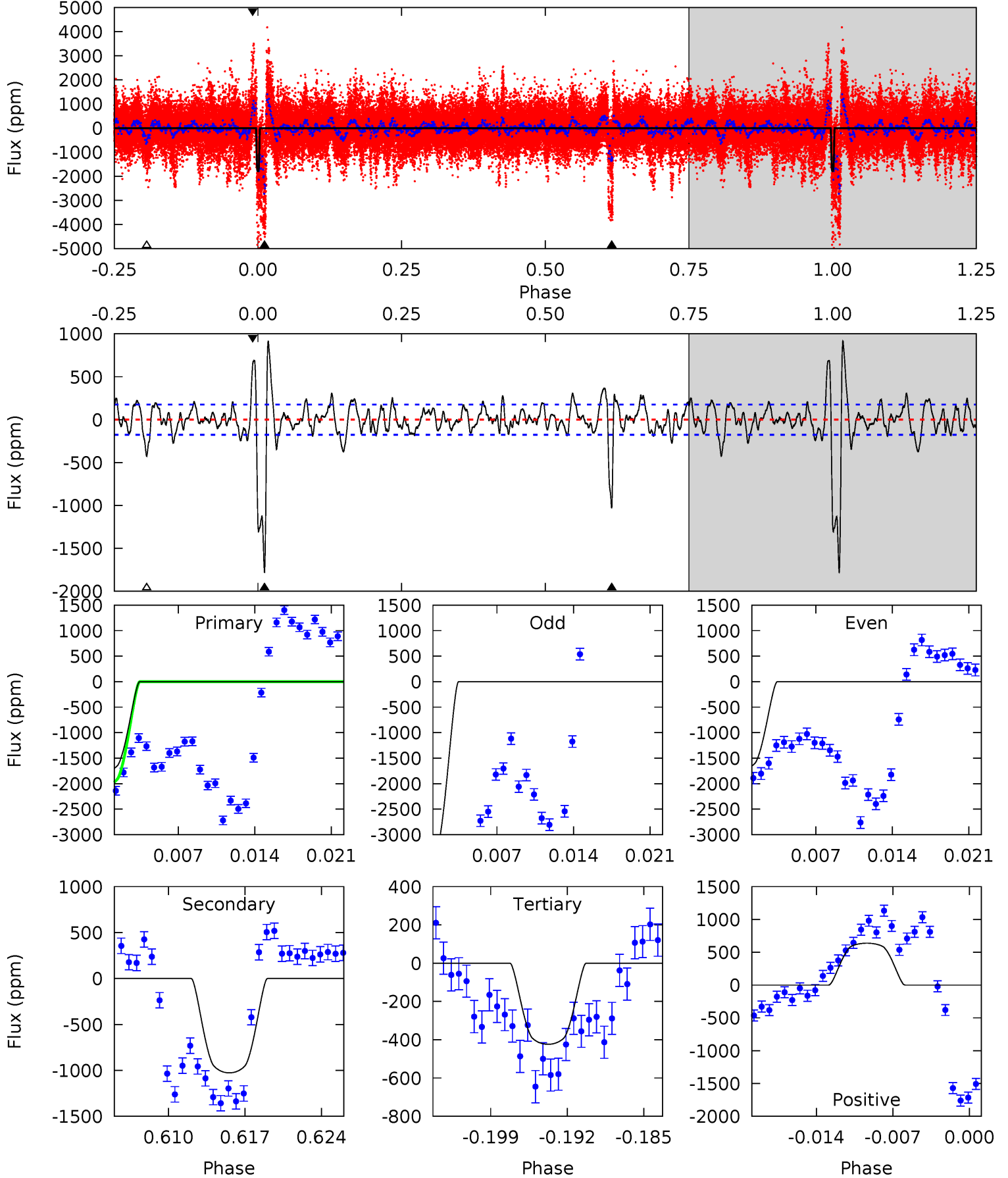
TCE 008308352-01 P=164.946507 Days  $T_0=278.864640$  (BKJD)



# DV Model-Shift Uniqueness Test

008308352-01, P = 164.947941 Days, E = 114.103956 Days

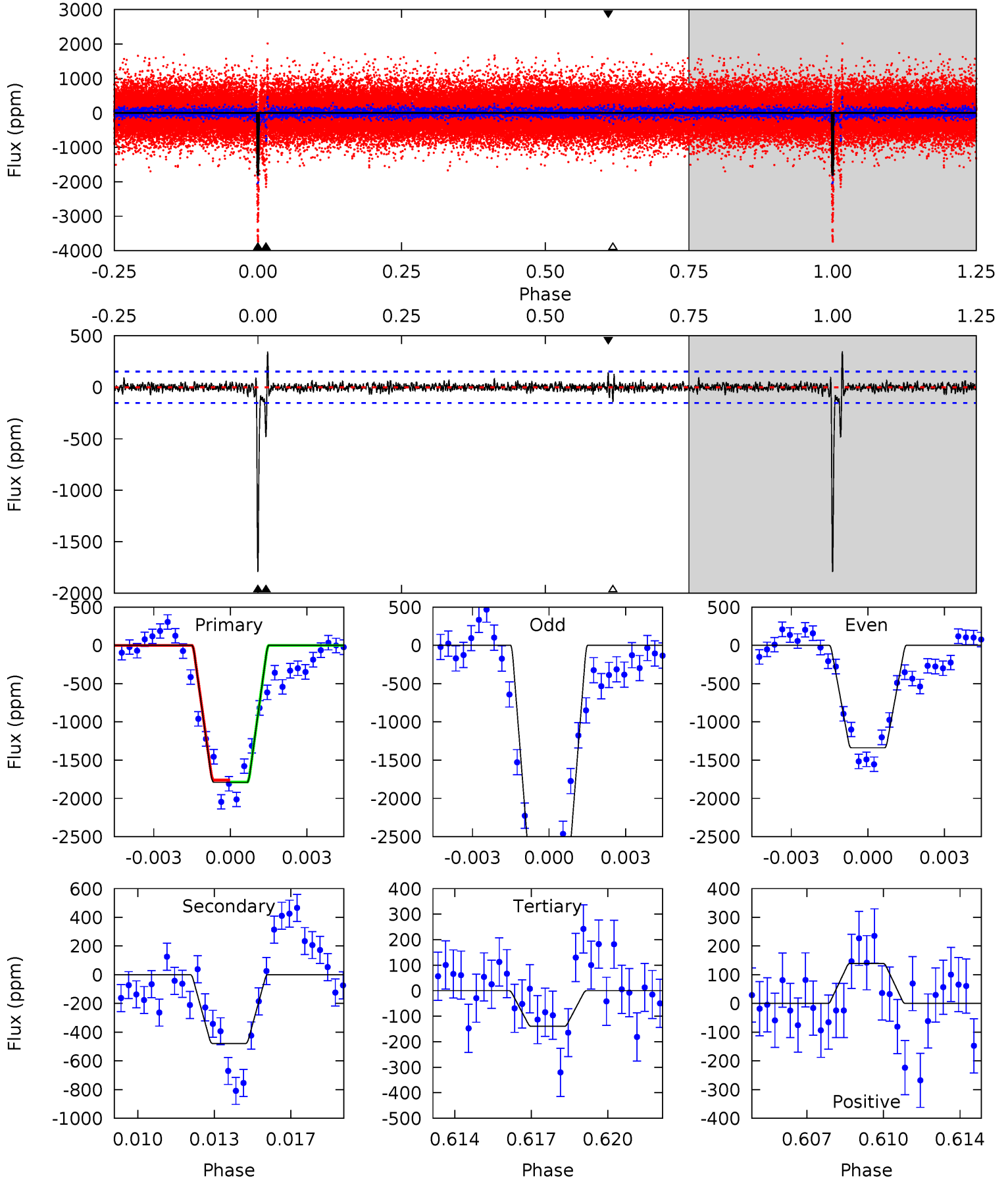
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.6	29.8	12.3	18.5	5.10	2.70	4.74	39.3	33.1	17.5	11.3	28.1	1.53	0.34	0



# Alt Model-Shift Uniqueness Test

008308352-01, P = 164.946507 Days, E = 113.918133 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
61.2	16.4	4.77	4.76	5.23	2.94	0.92	56.4	56.5	11.6	11.6	30.7	1.16	0.16	0.44



### Stellar Parameters For KIC 008308352

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5671^{+169}_{-169}$	$4.527^{+0.055}_{-0.154}$	$-0.340^{+0.300}_{-0.300}$	$0.828^{+0.203}_{-0.087}$	$0.842^{+0.097}_{-0.078}$	$2.085^{+0.577}_{-0.900}$
	+3%/-3%	+1%/-3%	+88%/-88%	+25%/-11%	+12%/-9%	+28%/-43%
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 008308352-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1027 \pm 35$	$4.82^{+0.65}_{-0.38}$	$434^{+27}_{-21}$	$4604^{+140}_{-142}$	$7404^{+1203}_{-1454}$
Alt.	$-478 \pm 29$	$4.34^{+0.56}_{-0.37}$	$433^{+27}_{-19}$	$4147^{+122}_{-121}$	$4284^{+793}_{-846}$

$T_{max}$  = 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

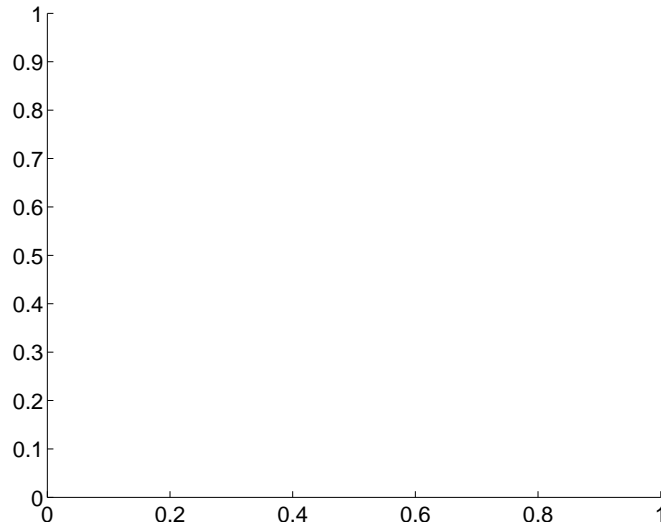
Supplemental centroid analysis for 008308352-01. Kepler magnitude: 15.11. Transit SNR 23.67

There are 0 quarters with good PRF difference image offsets

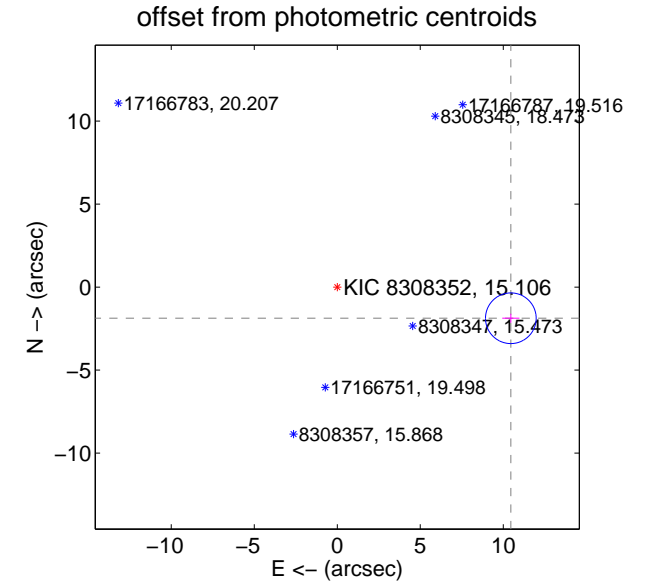
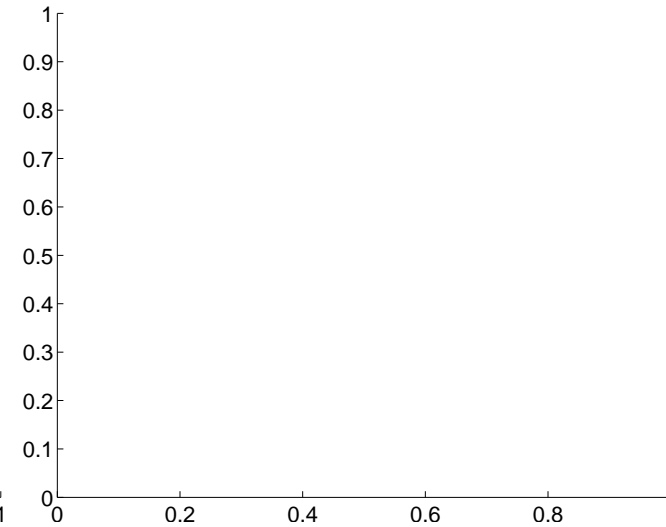
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$10.62 \pm 0.51$	20.88	$-10.45 \pm 0.51$	$-1.88 \pm 0.27$

There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC

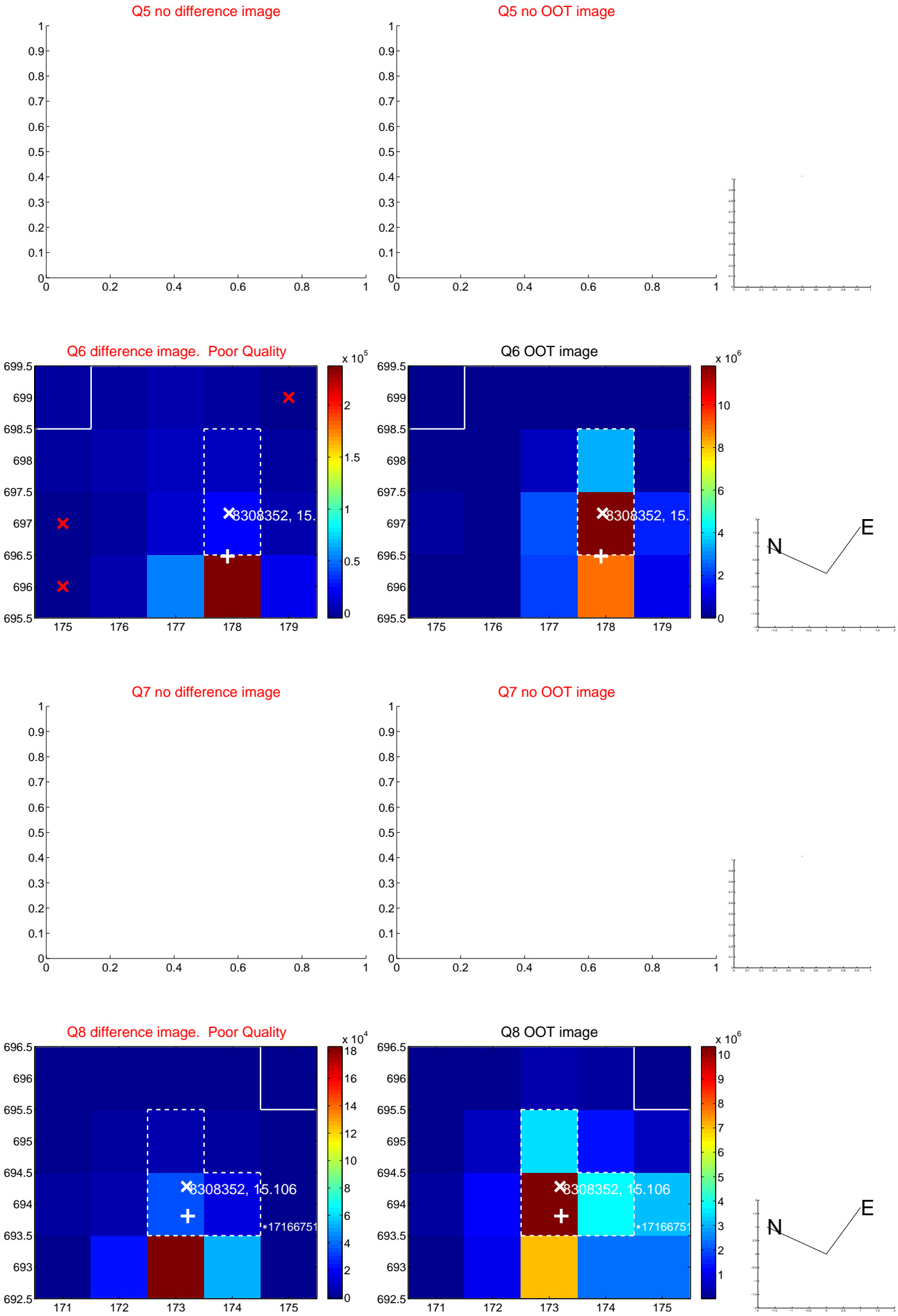


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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



white  $\times$ : 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.



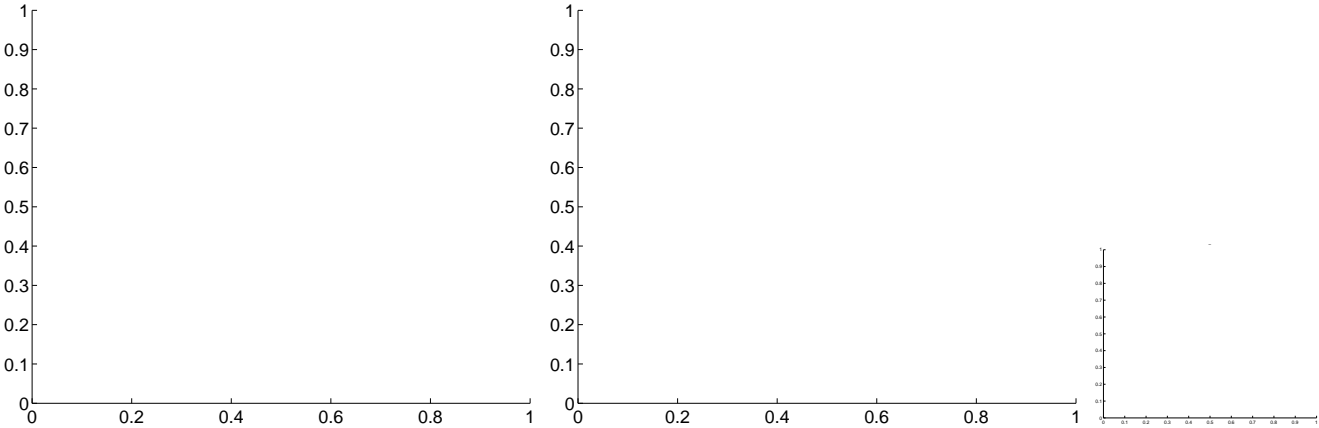
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



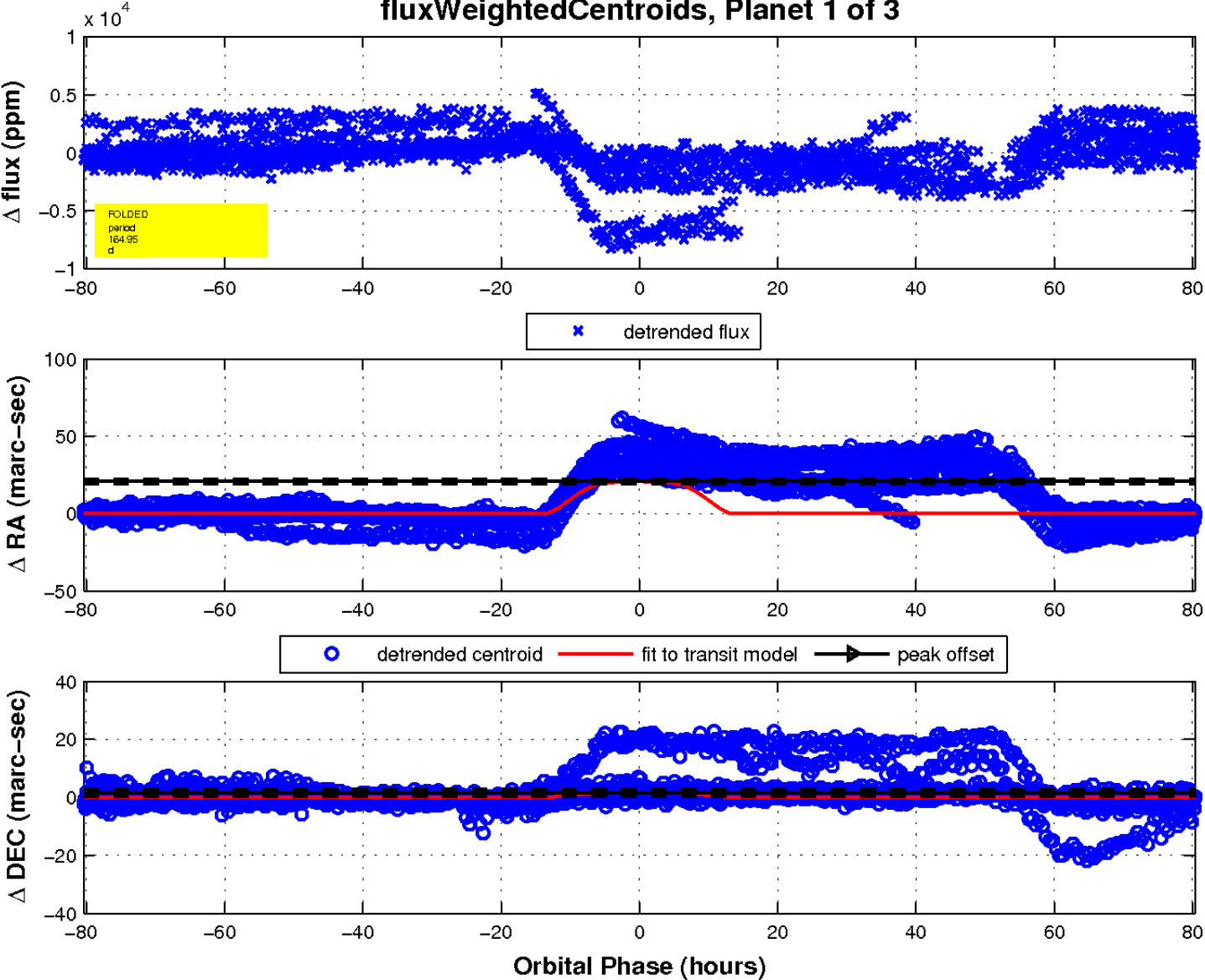
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q17 no difference image

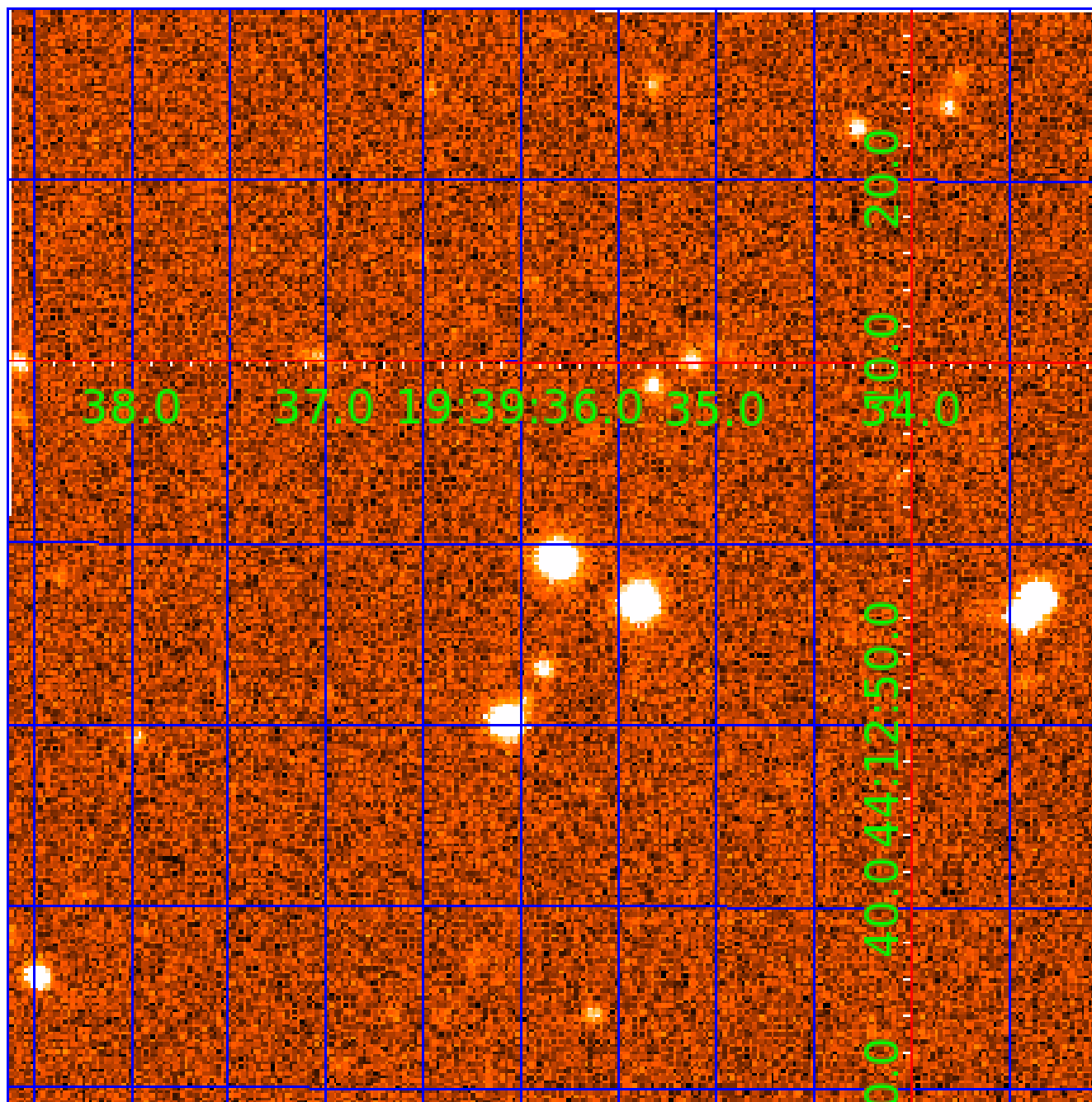
Q17 no OOT image



fluxWeightedCentroids, Planet 1 of 3



## UKIRT Image



# KIC 008308352

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008308352-01	OBS	No	164.947941	279.051898	2158.8	26.804	22.4	23.7	0.83	5671	4.70	2.06
008308352-02	OBS	No	577.312313	380.271215	3675.8	39.873	11.4	25.0	0.83	5671	5.62	0.39
008308352-03	OBS	No	369.059828	232.896942	2469.6	32.763	10.2	12.9	0.83	5671	5.07	0.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008308352-01	OBS	FP	0.00	1	0	1	1	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
008308352-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008308352-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

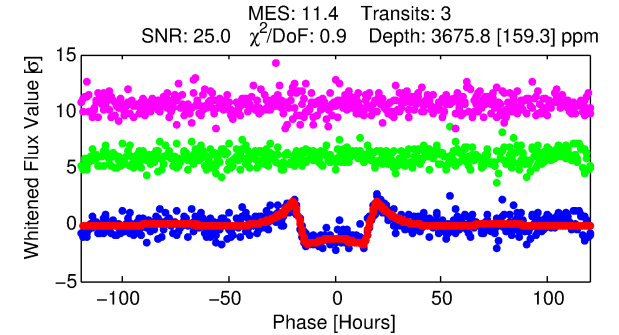
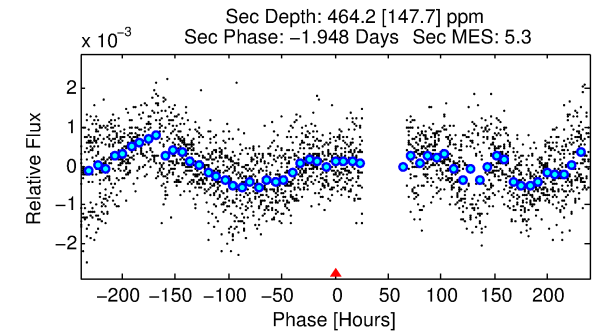
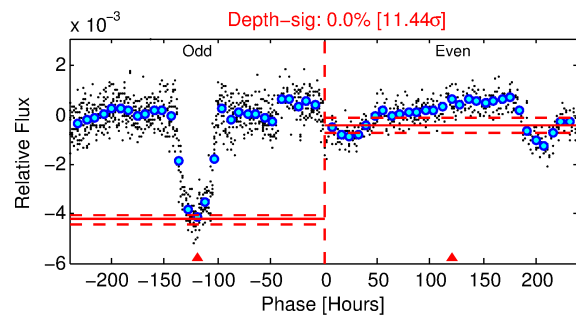
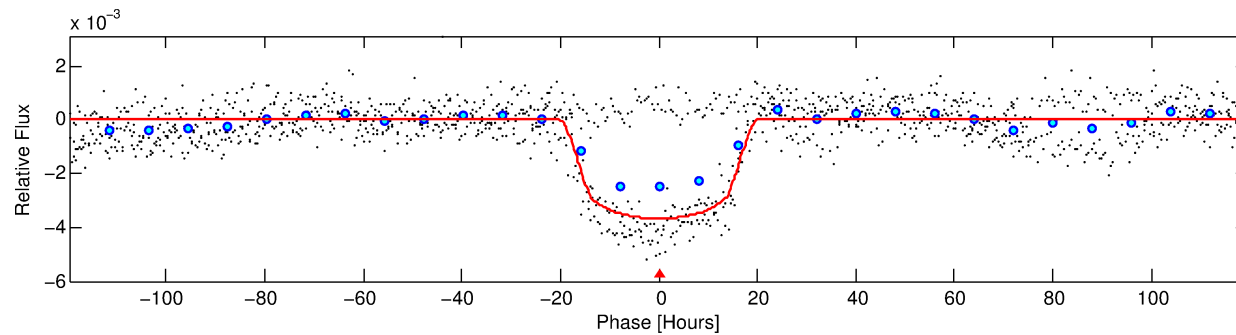
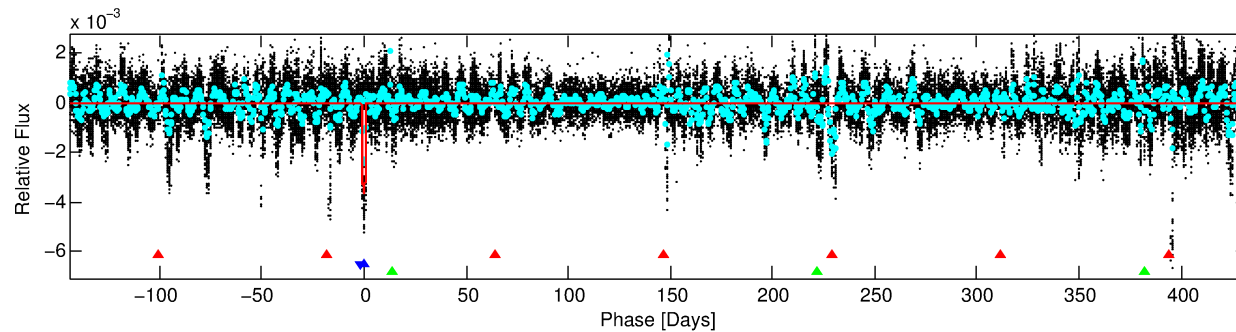
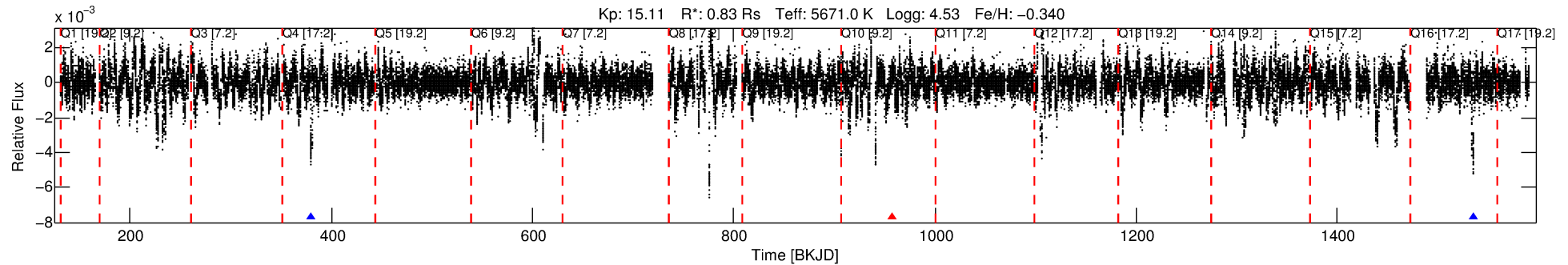
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008308352-02

No Significant Match Found

# DV One-Page Summary

KIC: 8308352 Candidate: 2 of 3 Period: 577.312 d



## DV Fit Results:

Period = 577.31231 [0.00871] d  
Epoch = 380.2712 [0.0104] BKJD  
Rp/R\* = 0.0622 [0.0017]  
a/R\* = 75.10 [3.95]  
b = 0.82 [0.02]  
Seff = 0.39 [0.12]  
Teq = 201 [16] K  
Rp = 5.62 [1.39] Re  
a = 1.2813 [0.2585] AU  
Ag = 13265.08 [5730.92] [2.31 $\sigma$ ]  
Teffp = 3337 [287] K [10.91 $\sigma$ ]

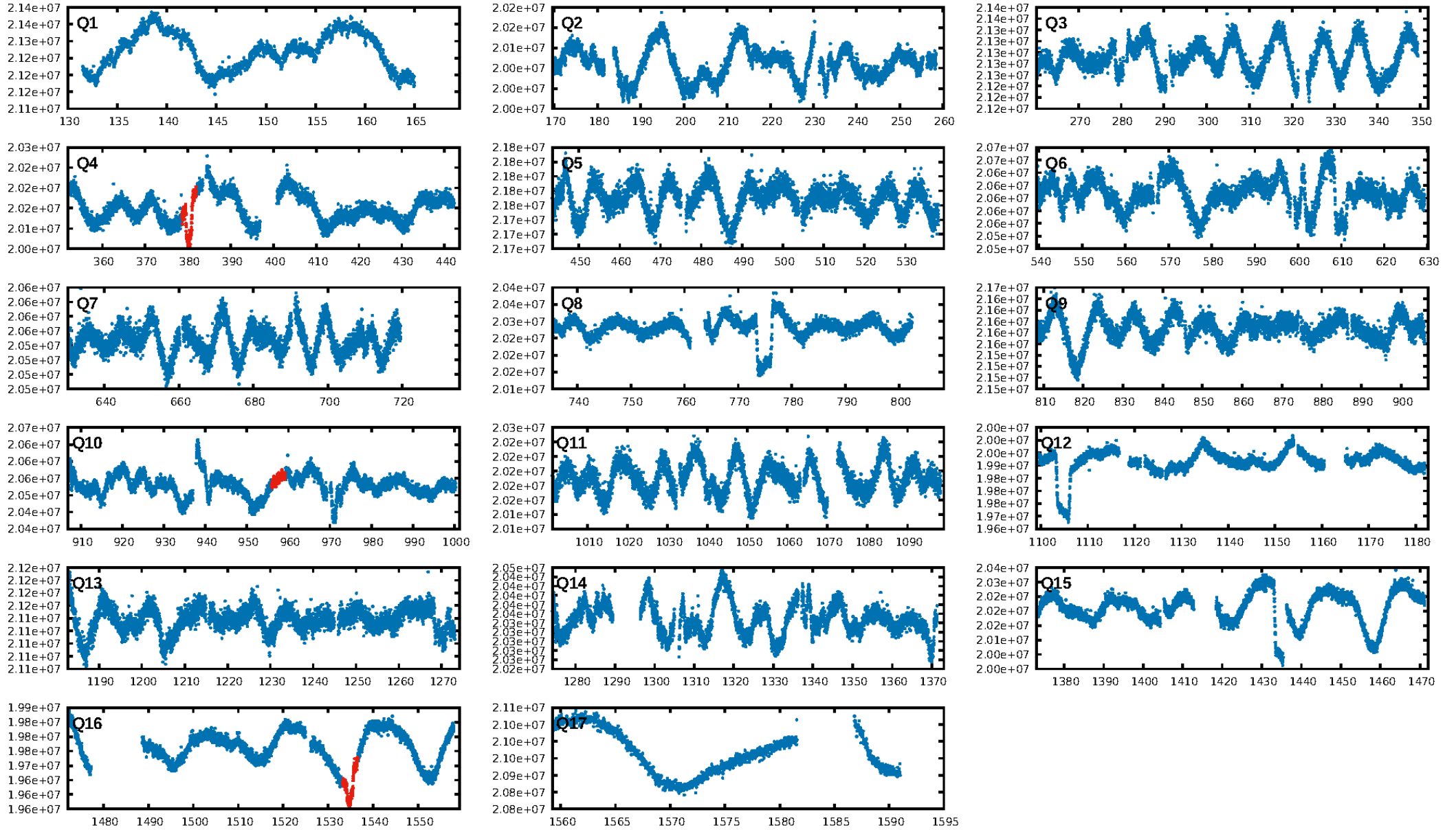
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [96.85 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.71e-15  
RollingBand-fgt: 0.67 [2/3]  
GhostDiagnostic-chr: -0.05388  
Centroid-sig: 0.0%  
Centroid-so: 8.750 arcsec [24.76 $\sigma$ ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0 [0]  
KicOffset-st: 0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [2/2]

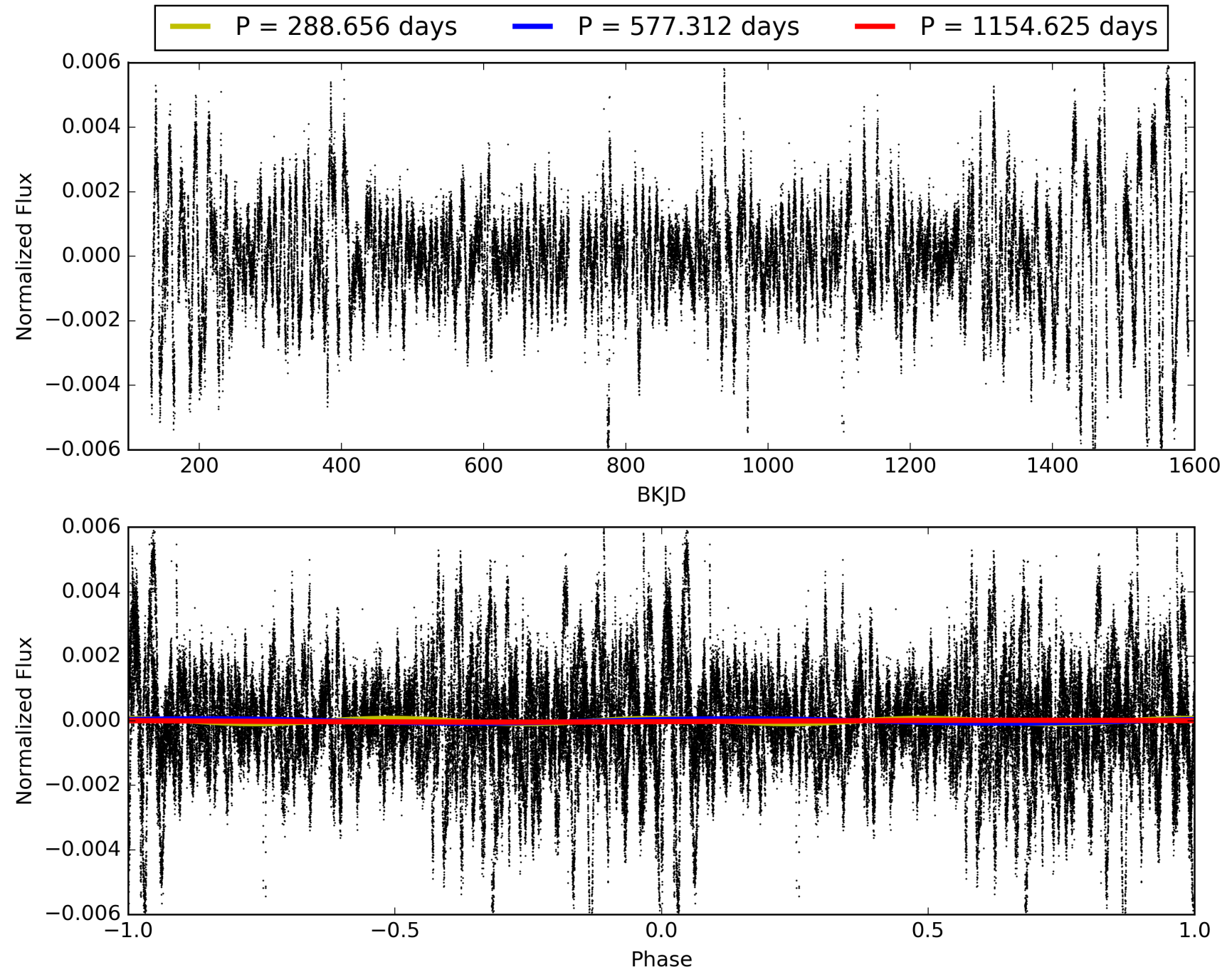
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:44:40 Z

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

# TCE 008308352-02, PDC Light Curves

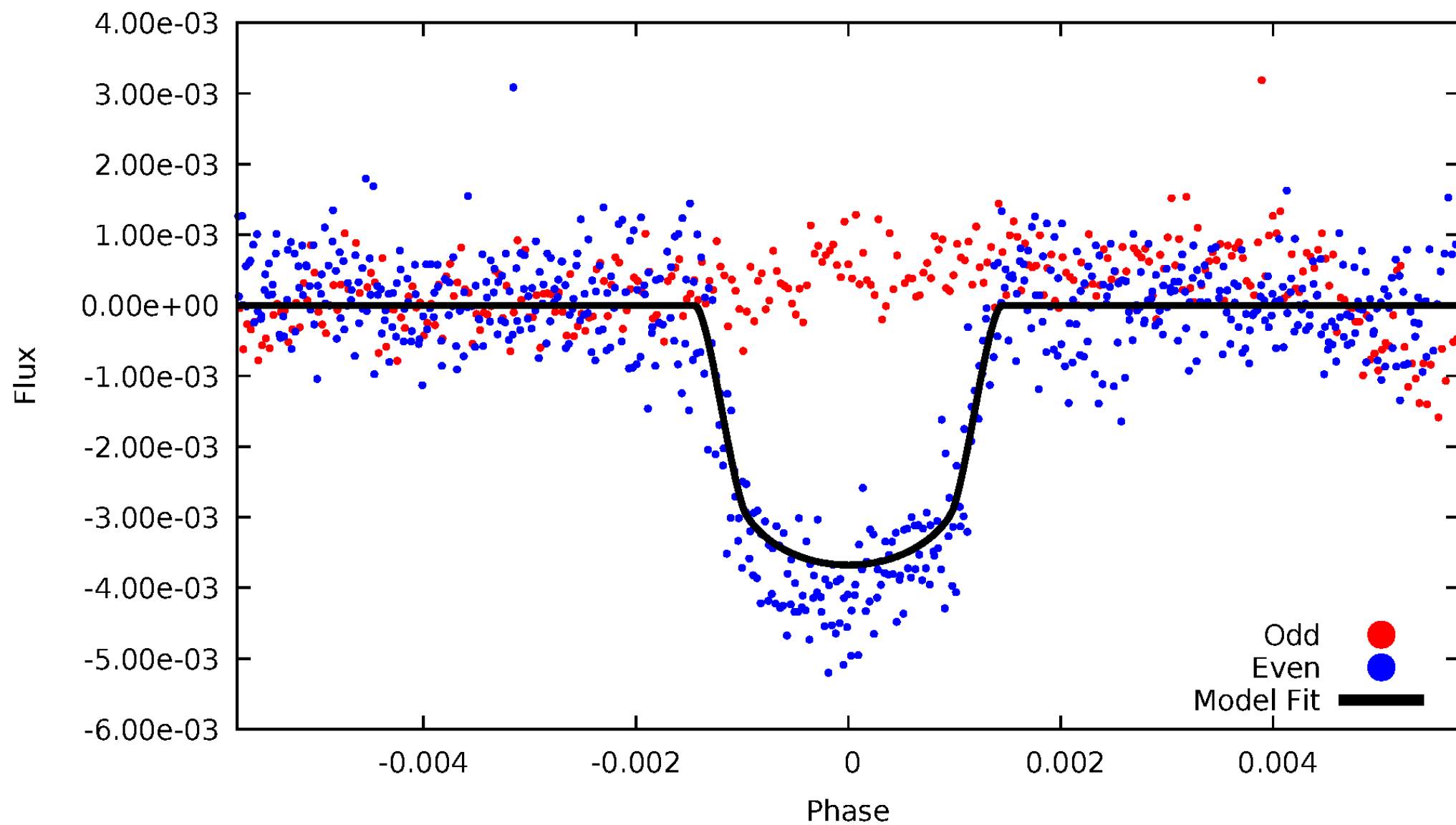


# TCE 008308352-02



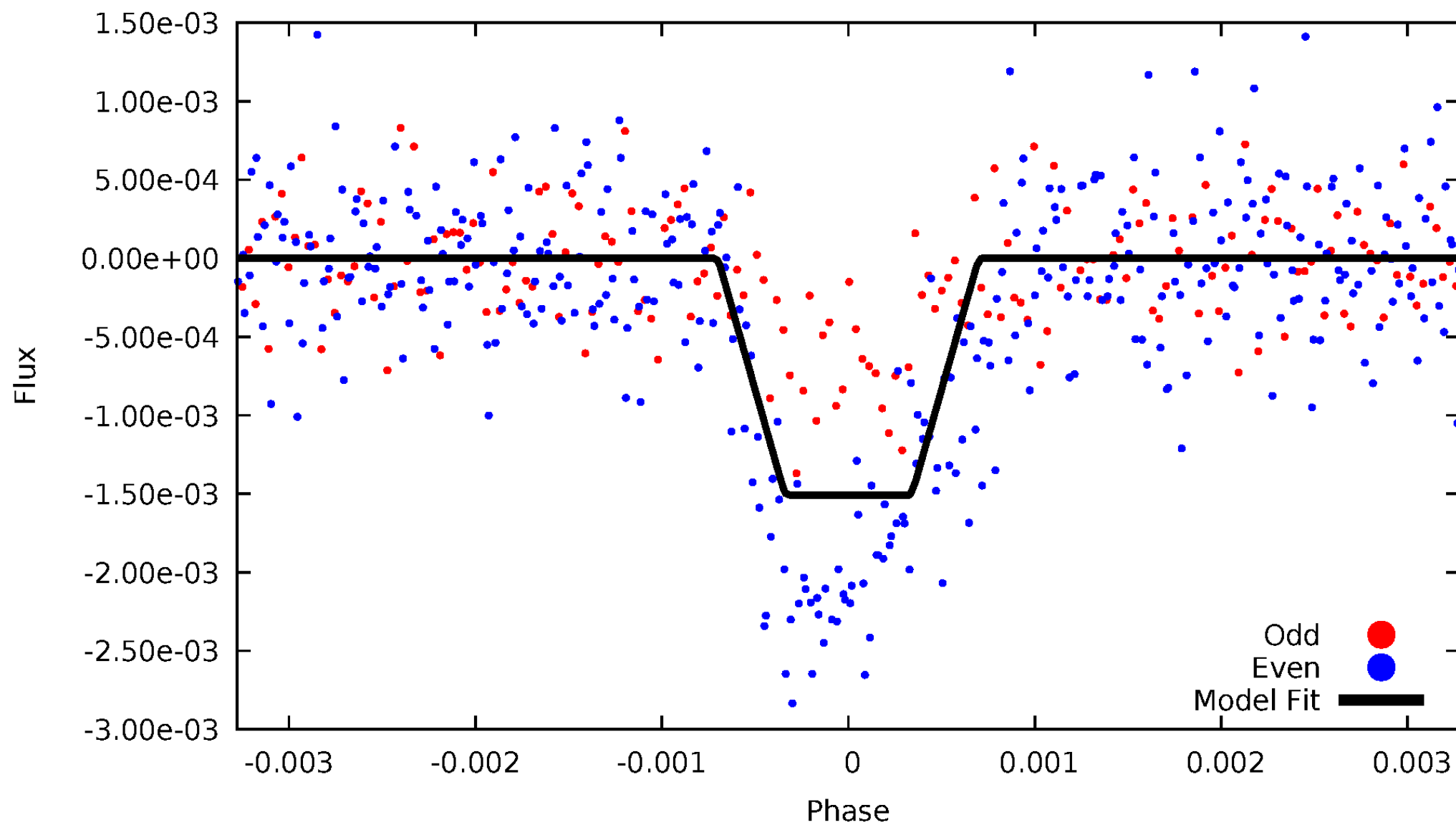
# DV Odd/Even

TCE 008308352-02



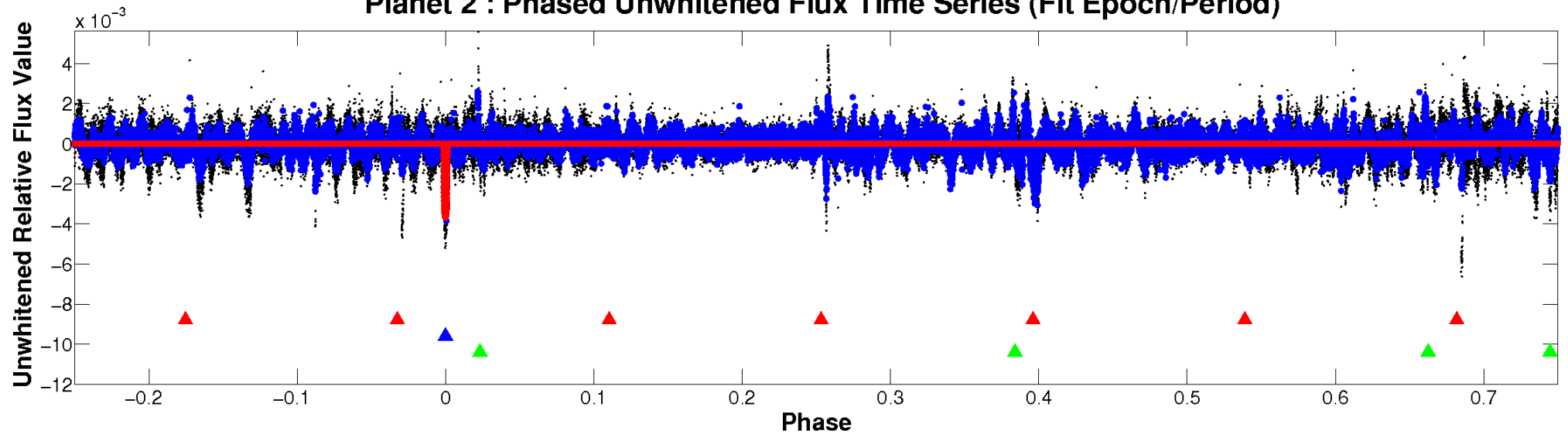
# ALT Odd/Even

TCE 008308352-02

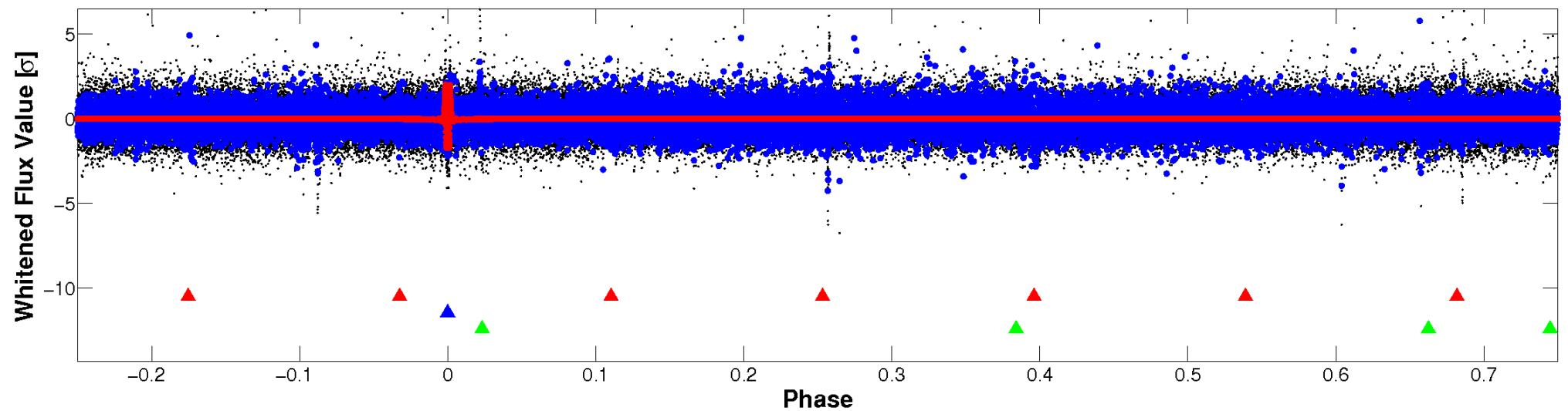


# Non-Whitened Vs. Whitened Light Curve

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

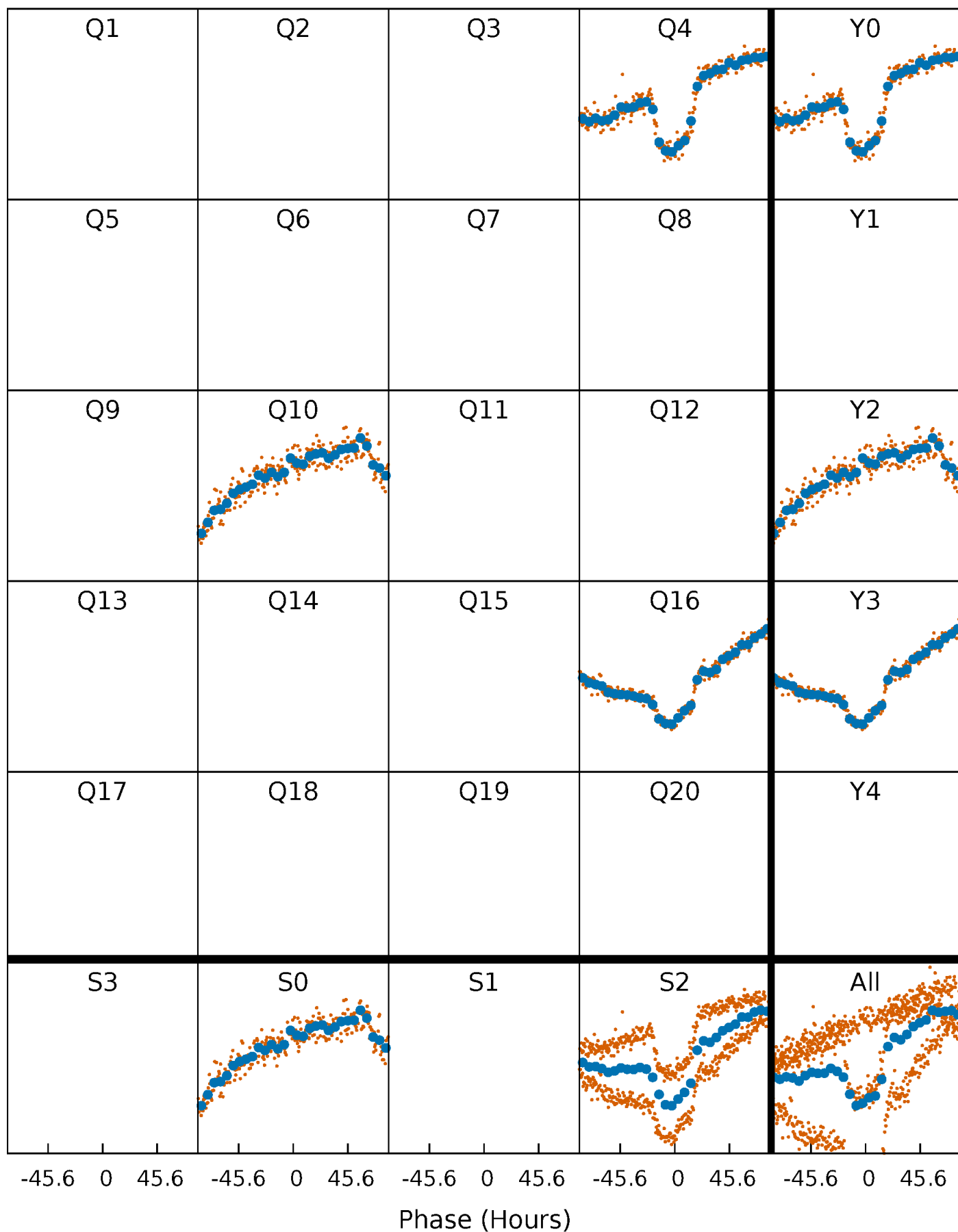


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



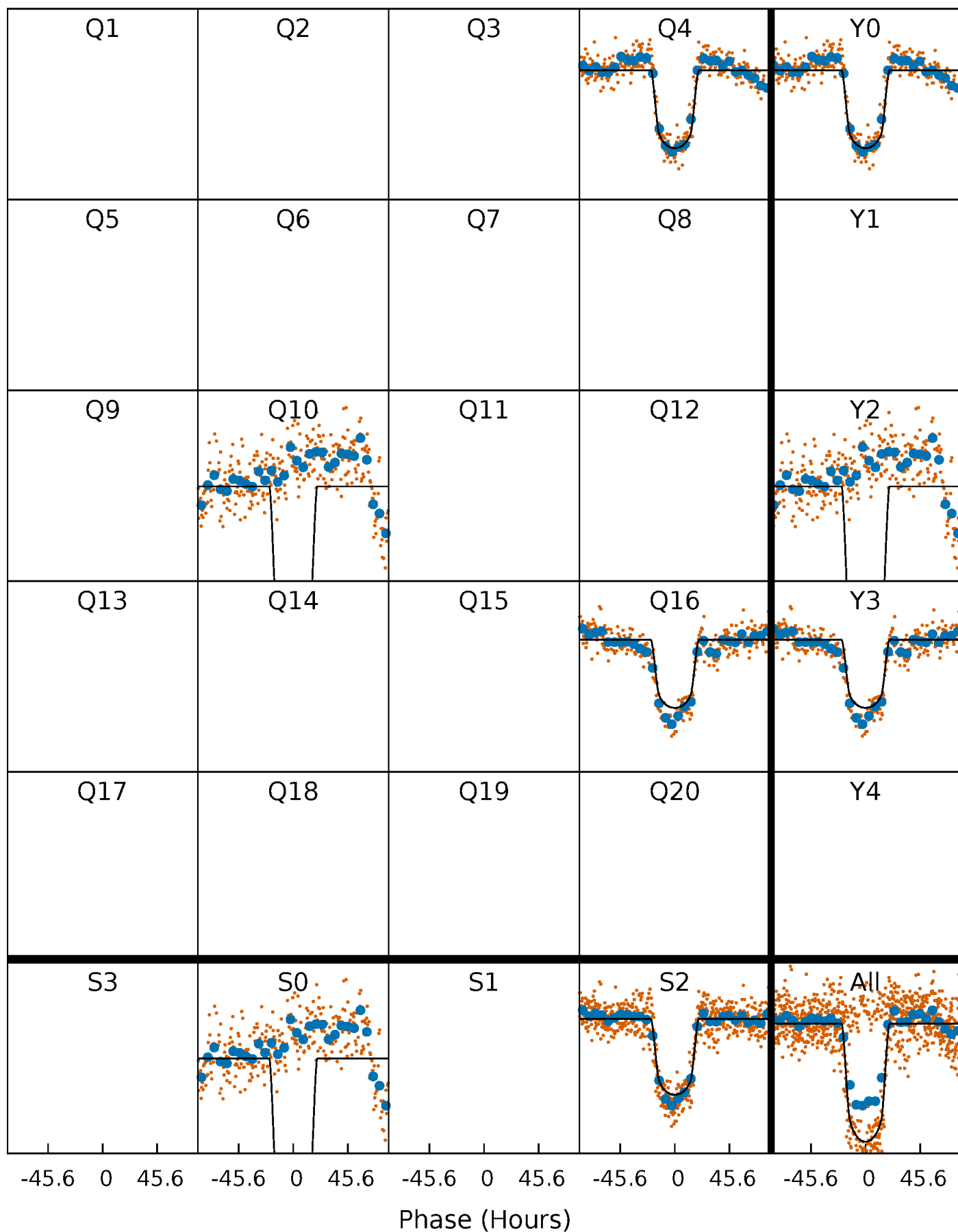
# PDC Quarter-Phased Transit Curves

TCE 008308352-02     $P=577.312313$  Days     $T_0=380.271215$  (BKJD)



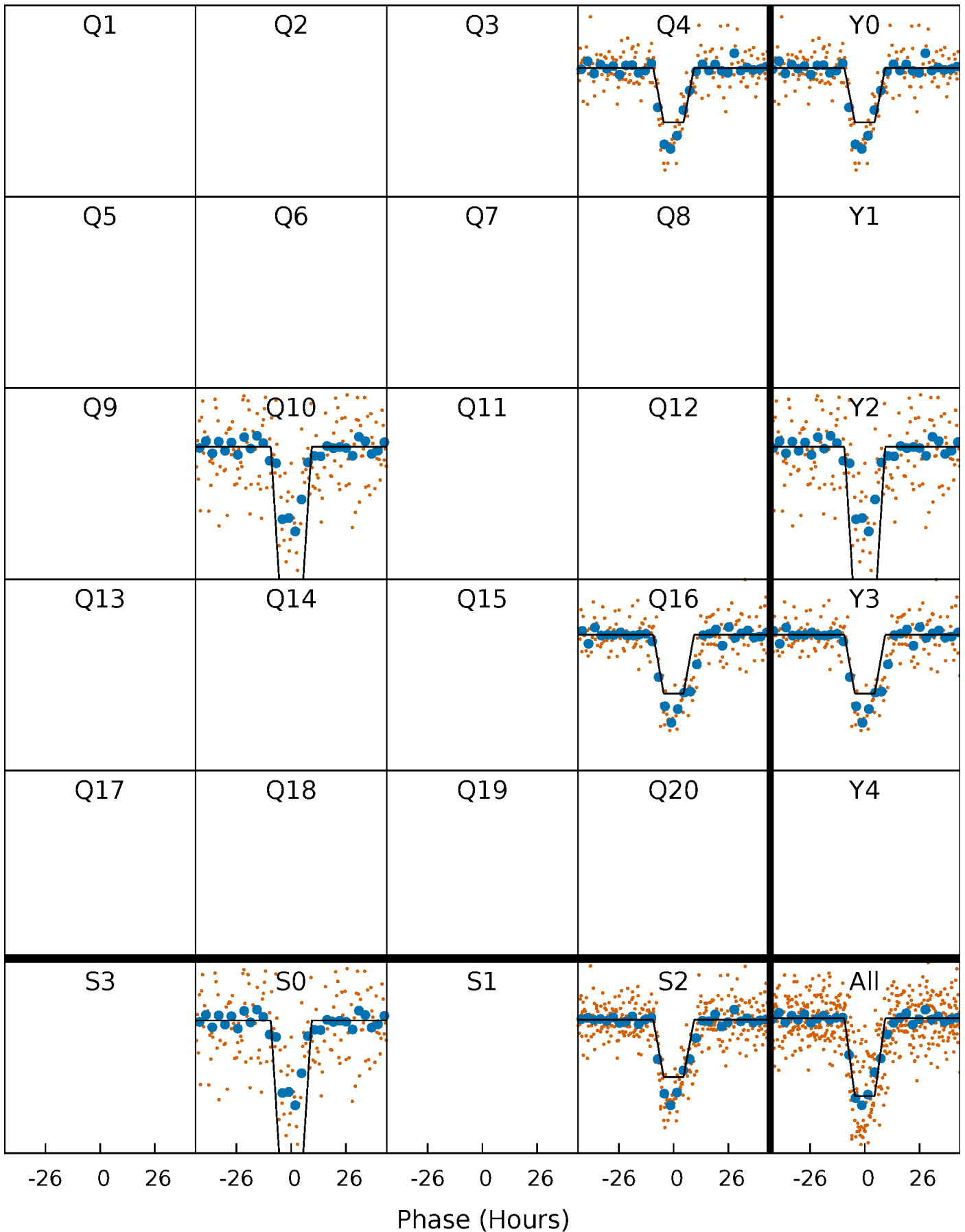
# DV Quarter-Phased Transit Curves

TCE 008308352-02 P=577.312313 Days  $T_0=380.271215$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

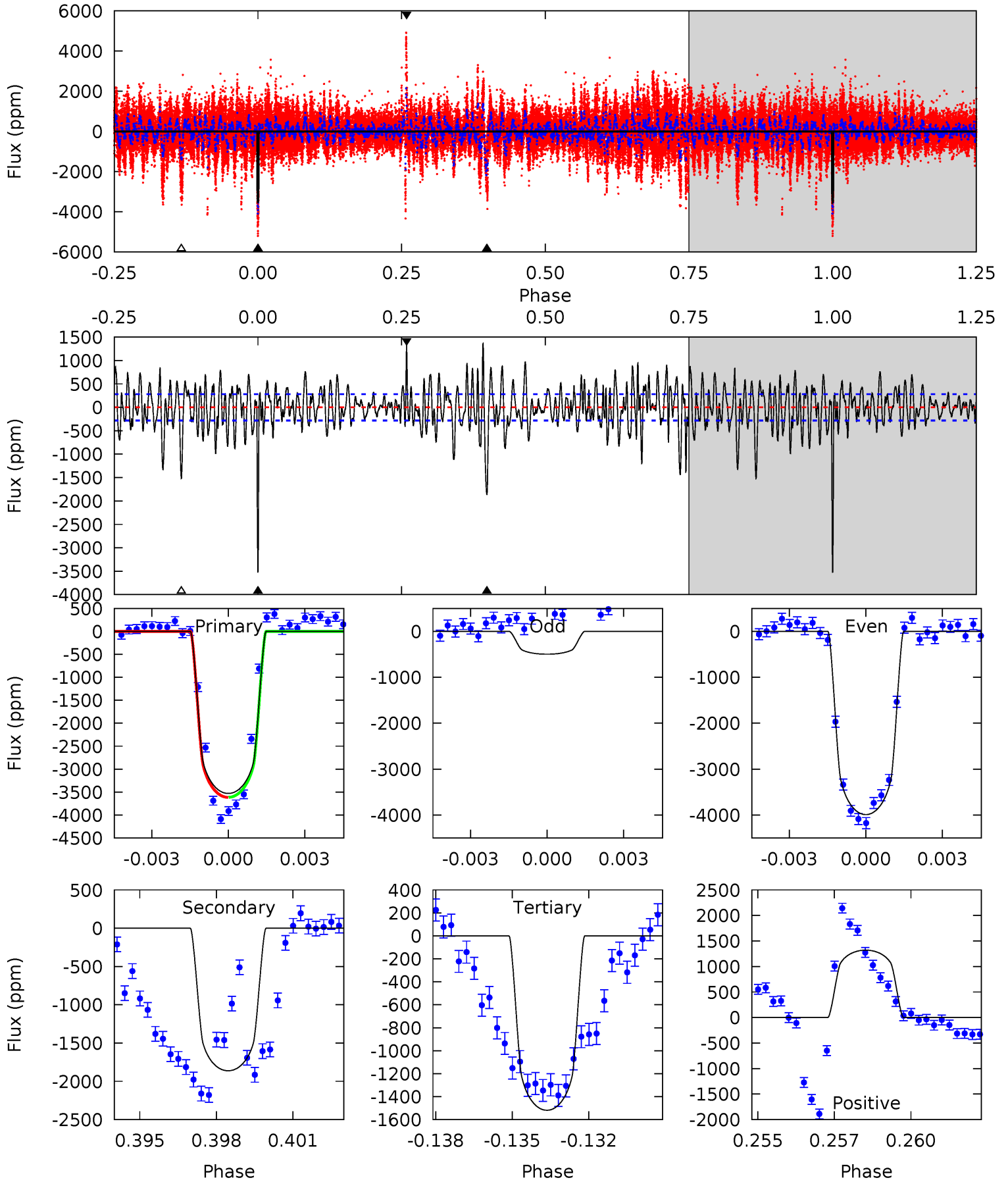
TCE 008308352-02 P=577.322993 Days  $T_0=379.848865$  (BKJD)



# DV Model-Shift Uniqueness Test

008308352-02, P = 577.312313 Days, E = 380.271215 Days

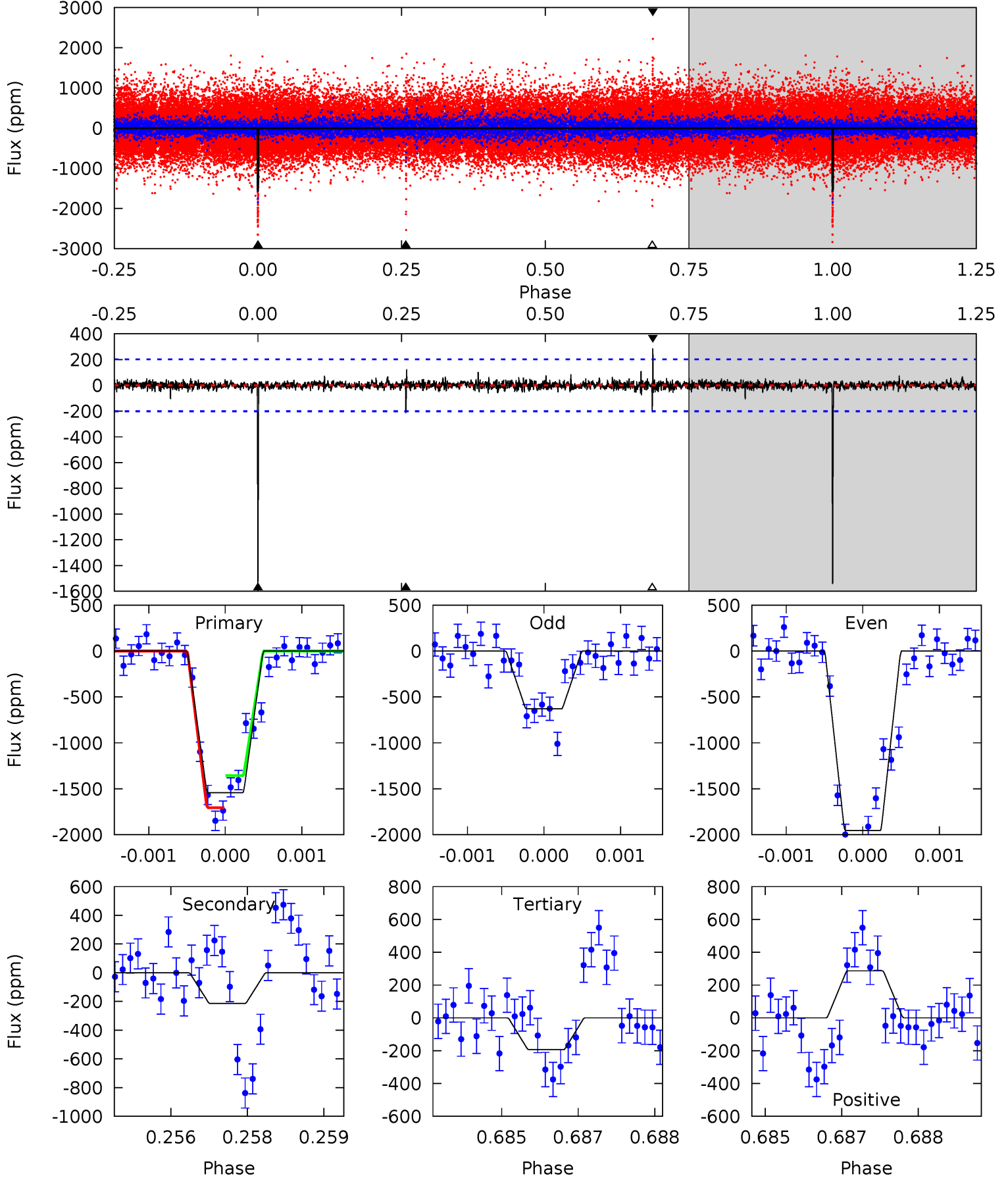
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.0	34.8	28.4	24.7	5.26	2.98	7.56	37.6	41.3	6.42	10.1	33.7	0.68	0.28	0.02



# Alt Model-Shift Uniqueness Test

008308352-02, P = 577.322993 Days, E = 379.848865 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
41.3	5.74	5.18	7.67	5.39	3.19	0.56	36.1	33.6	0.56	-1.93	17.0	0.79	0.16	4.68



### Stellar Parameters For KIC 008308352

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5671^{+169}_{-169}$	$4.527^{+0.055}_{-0.154}$	$-0.340^{+0.300}_{-0.300}$	$0.828^{+0.203}_{-0.087}$	$0.842^{+0.097}_{-0.078}$	$2.085^{+0.577}_{-0.900}$
	+3%/-3%	+1%/-3%	+88%/-88%	+25%/-11%	+12%/-9%	+28%/-43%
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 008308352-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1862 \pm 53$	$5.76^{+0.70}_{-0.42}$	$285^{+16}_{-13}$	$4826^{+146}_{-131}$	$50295^{+7822}_{-9146}$
Alt.	$-214 \pm 37$	$3.60^{+0.45}_{-0.32}$	$286^{+17}_{-14}$	$3850^{+149}_{-156}$	$14763^{+3935}_{-3527}$

$T_{\text{max}}$  = 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

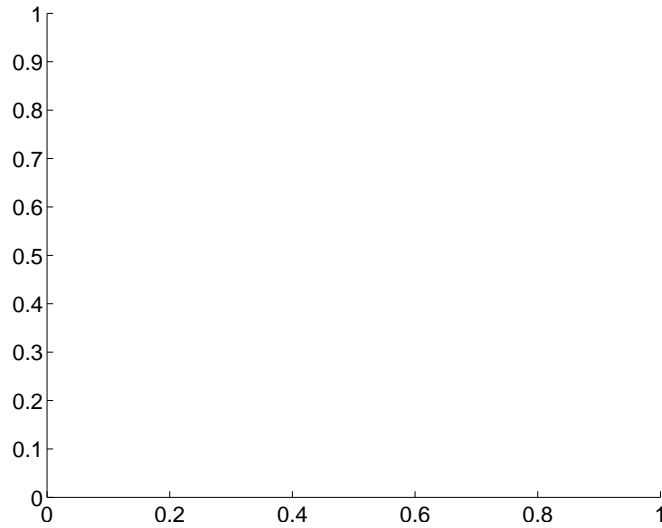
Supplemental centroid analysis for 008308352-02. Kepler magnitude: 15.11. Transit SNR 25.00

There are 0 quarters with good PRF difference image offsets

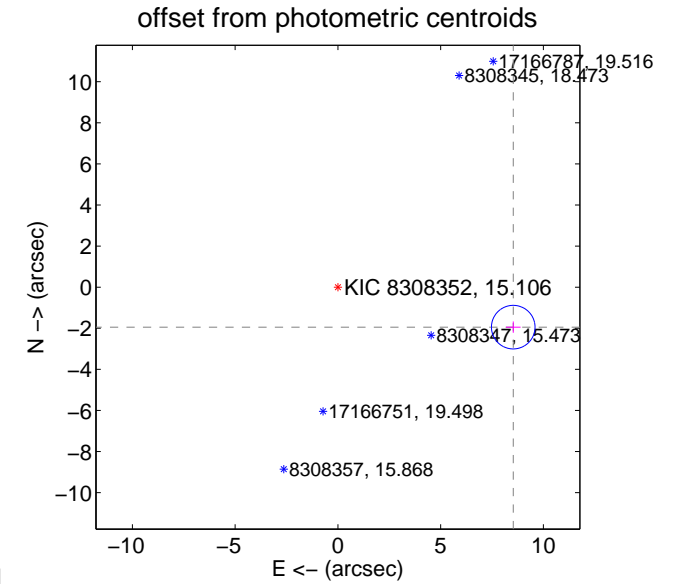
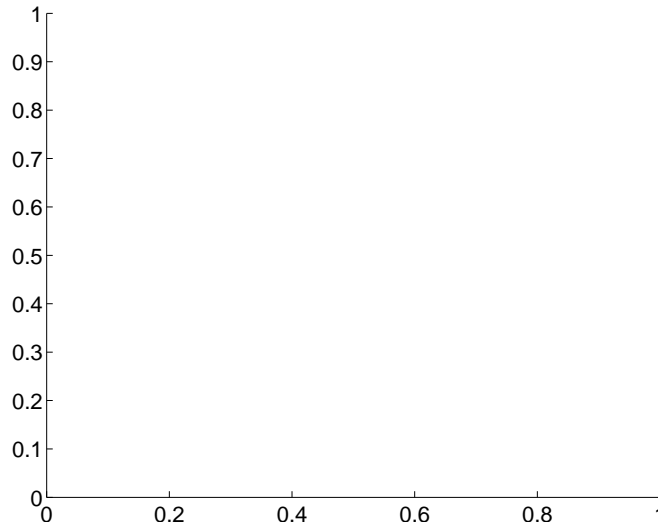
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$8.75 \pm 0.35$	$24.76$	$-8.53 \pm 0.36$	$-1.94 \pm 0.28$

There is no PRF-fit offset from OOT-fit

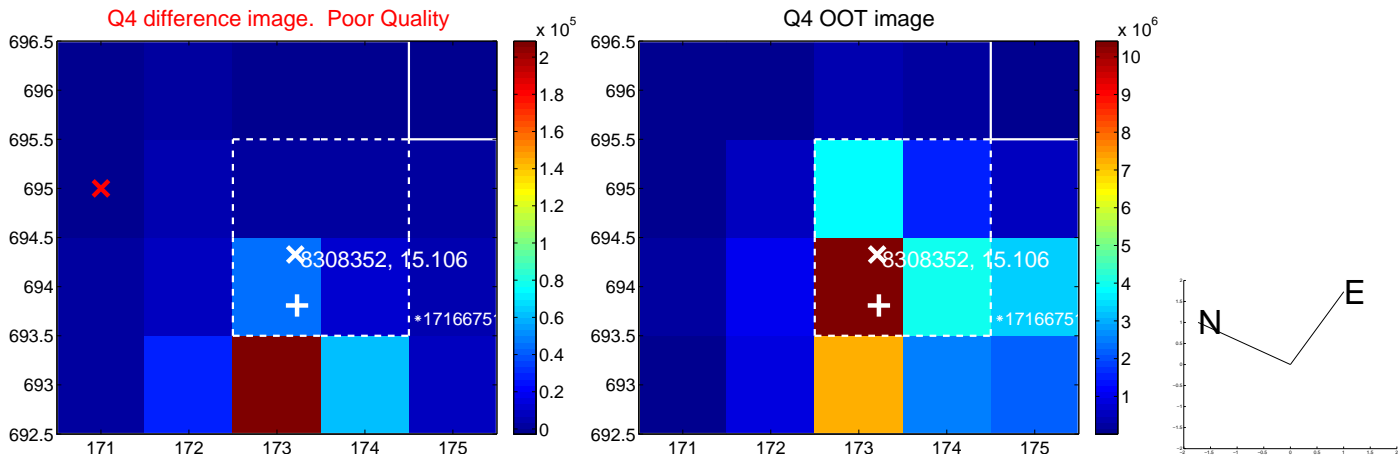
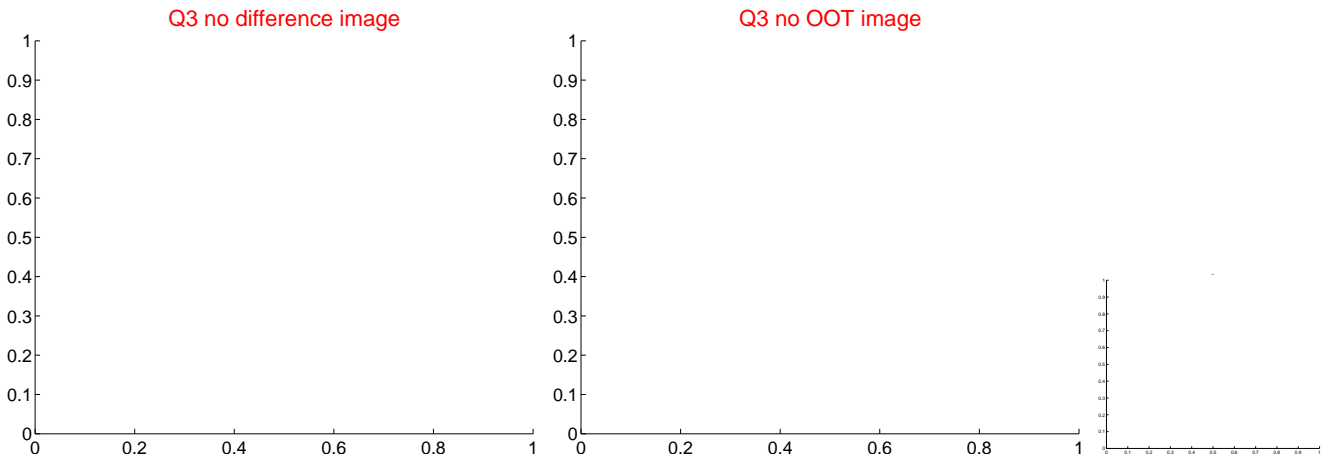
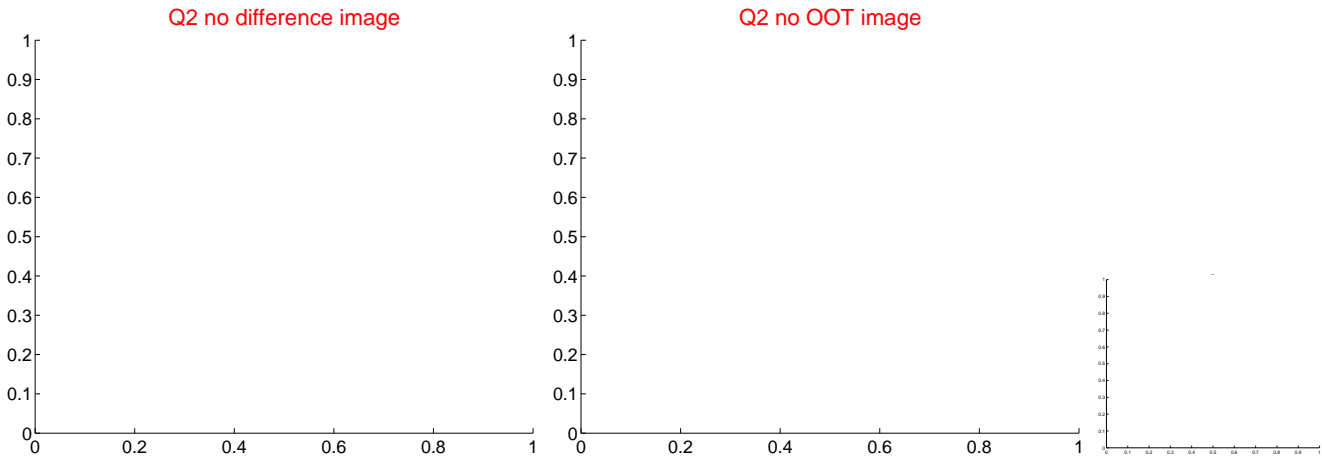
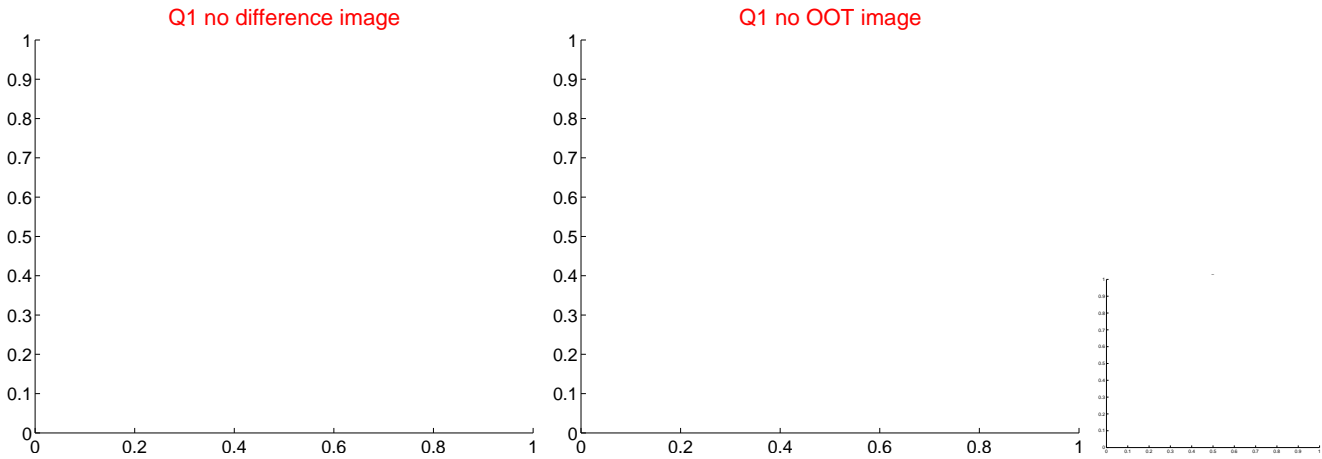


There is no PRF-fit offset from KIC

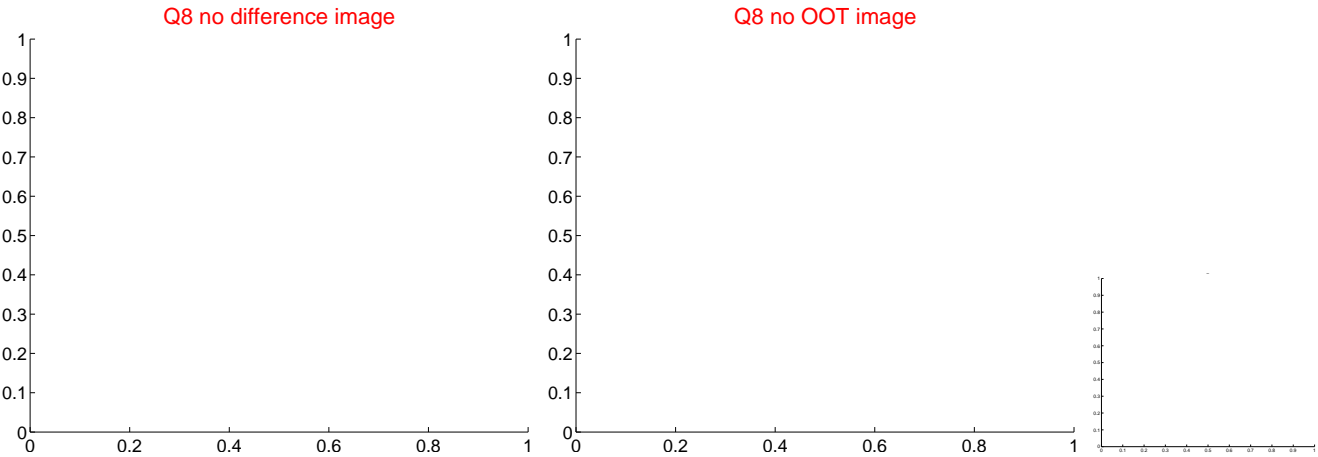
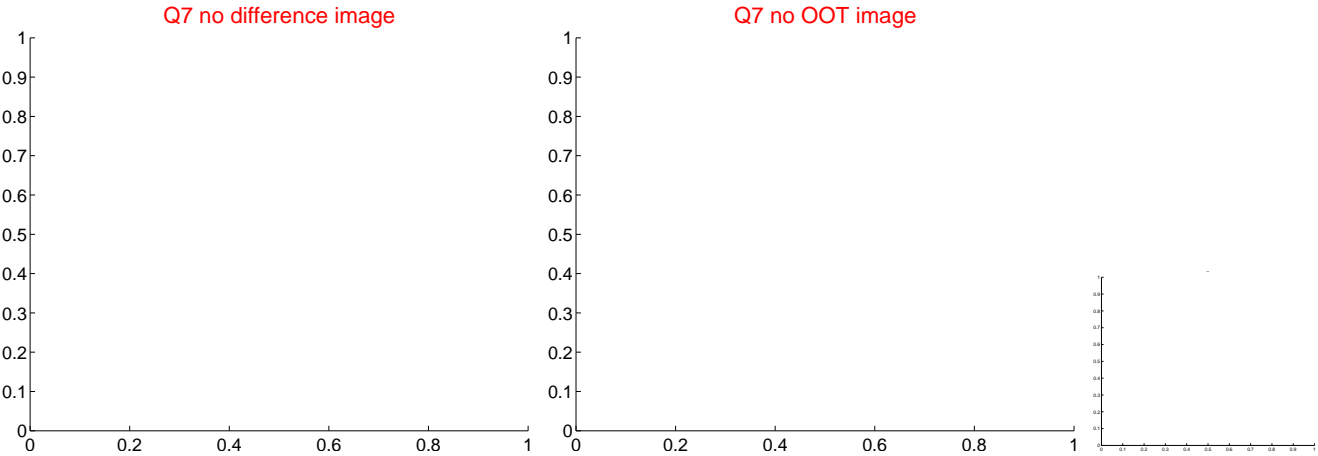
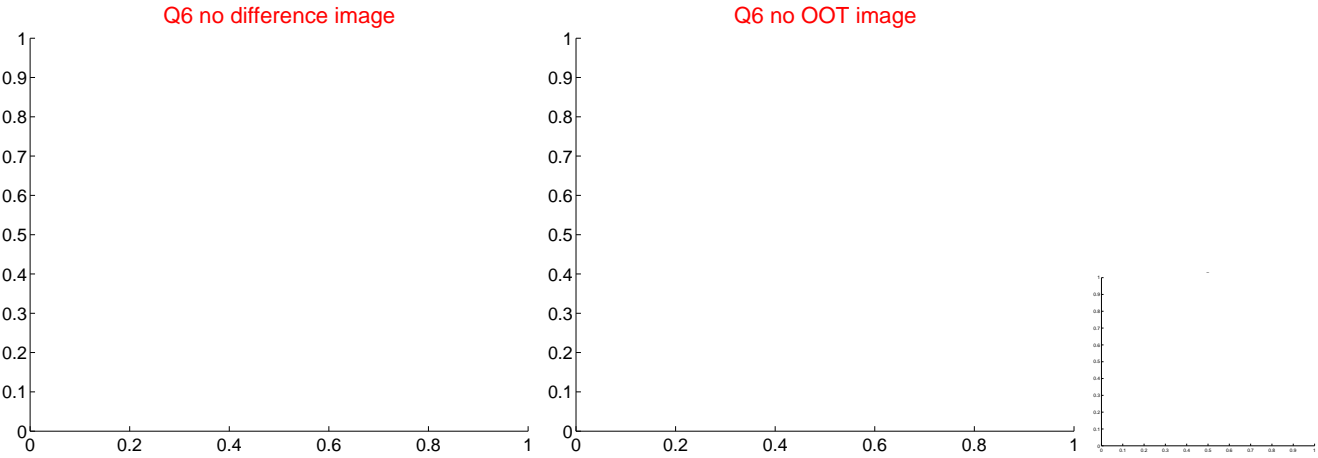
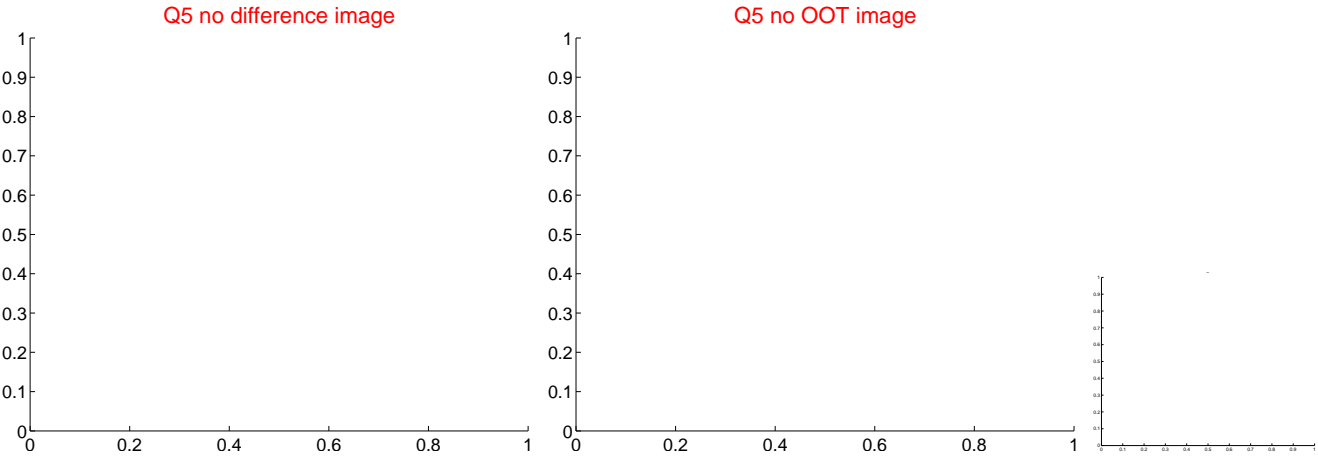


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

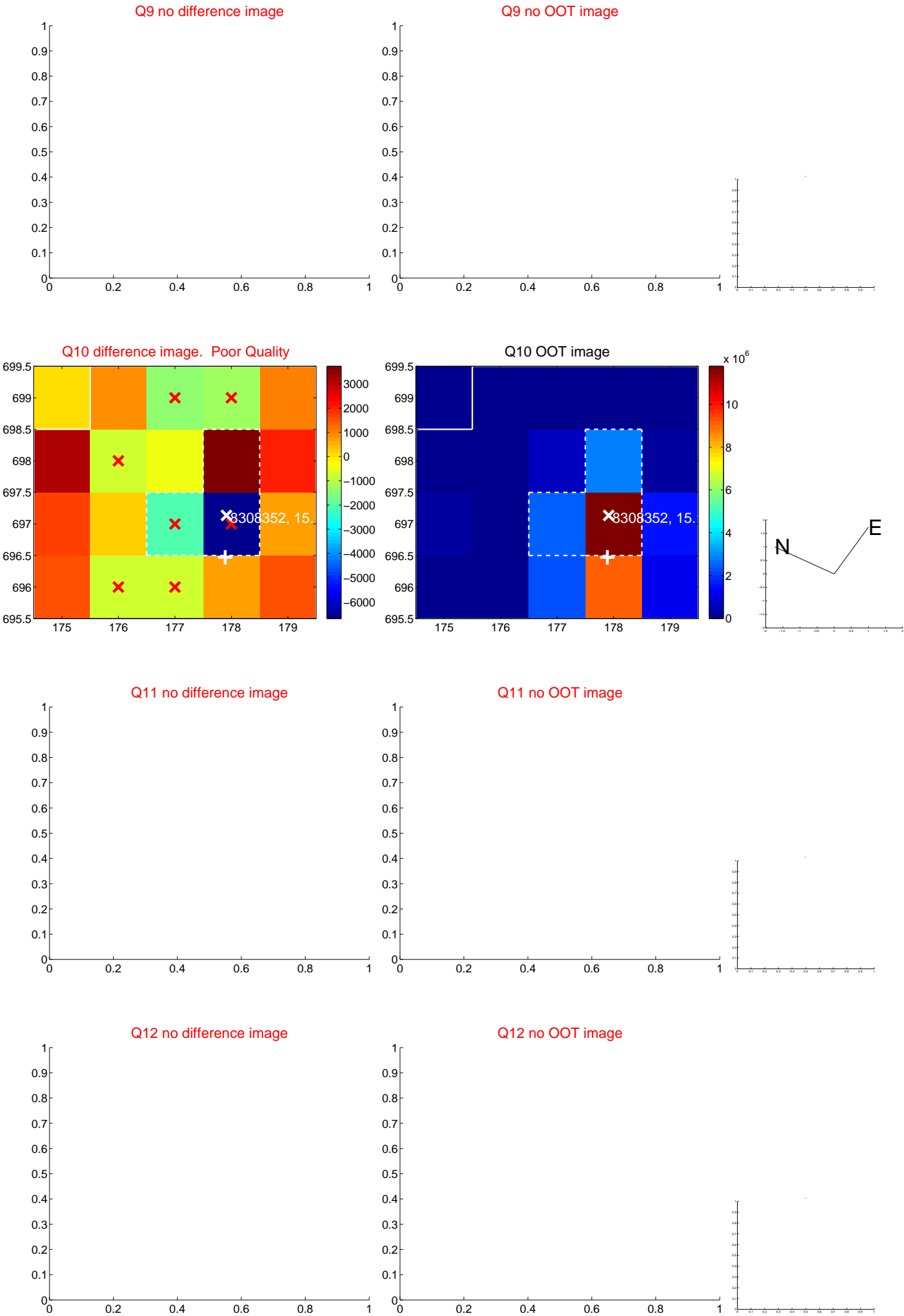
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



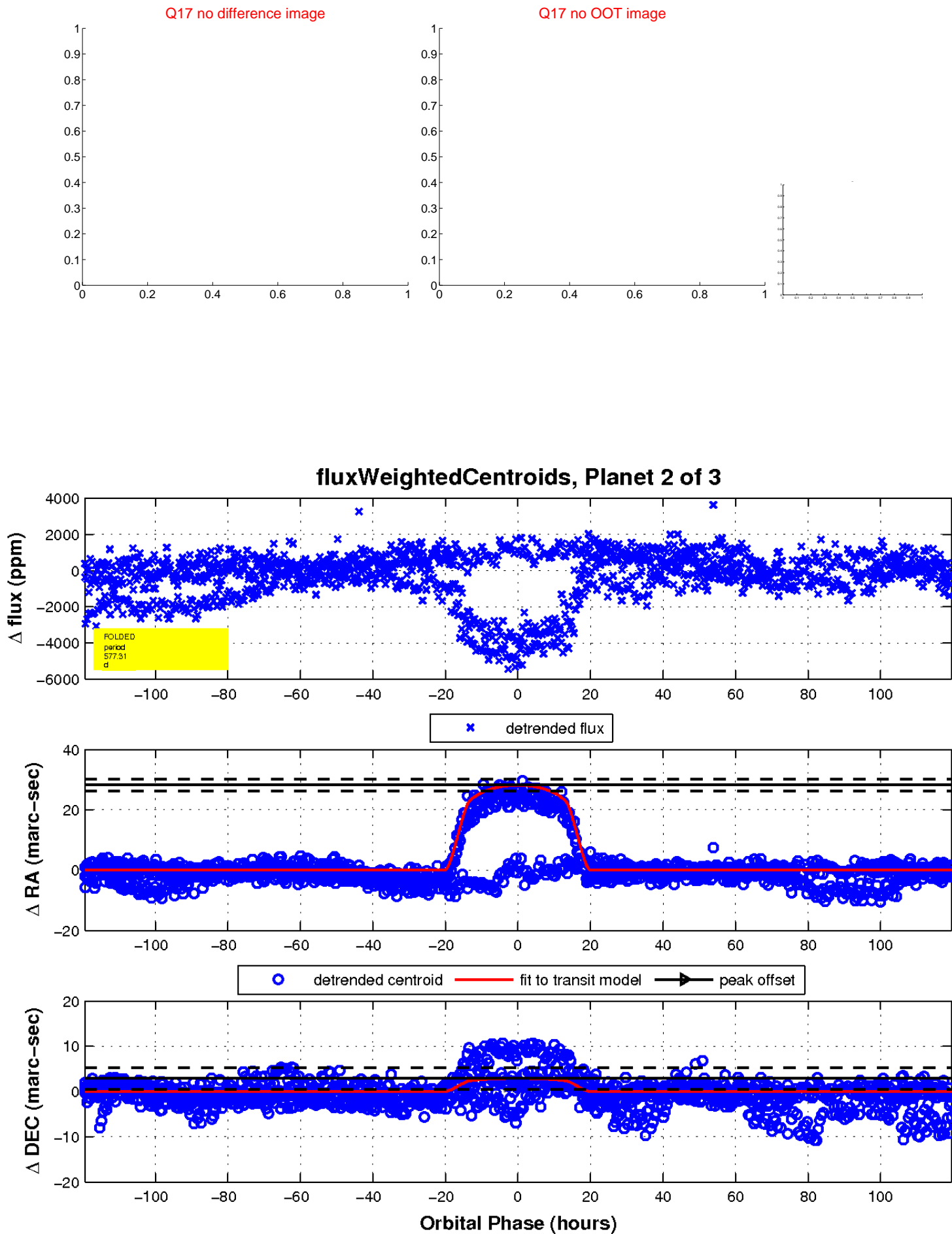
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

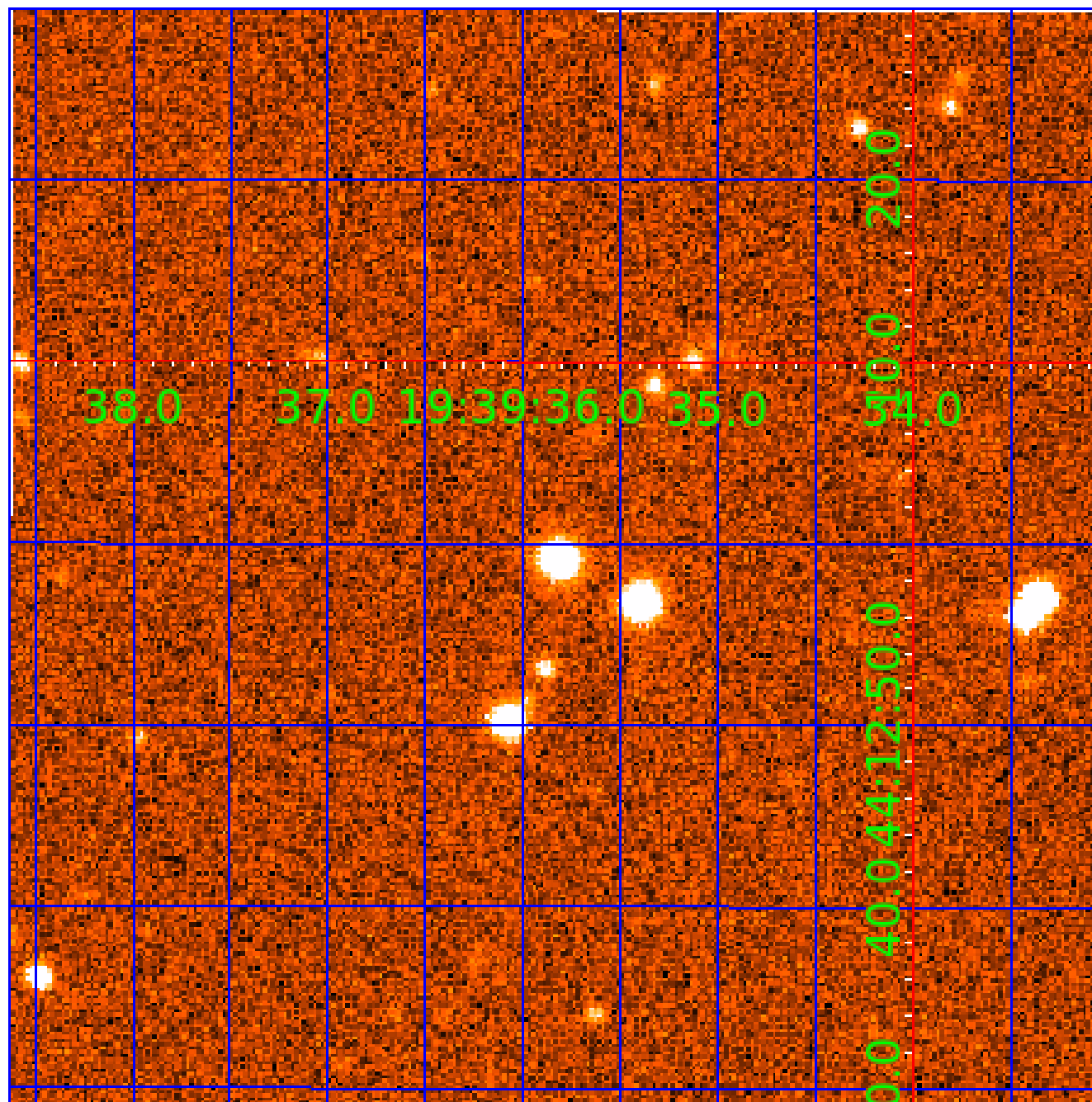


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 008308352

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008308352-01	OBS	No	164.947941	279.051898	2158.8	26.804	22.4	23.7	0.83	5671	4.70	2.06
008308352-02	OBS	No	577.312313	380.271215	3675.8	39.873	11.4	25.0	0.83	5671	5.62	0.39
008308352-03	OBS	No	369.059828	232.896942	2469.6	32.763	10.2	12.9	0.83	5671	5.07	0.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008308352-01	OBS	FP	0.00	1	0	1	1	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
008308352-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008308352-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

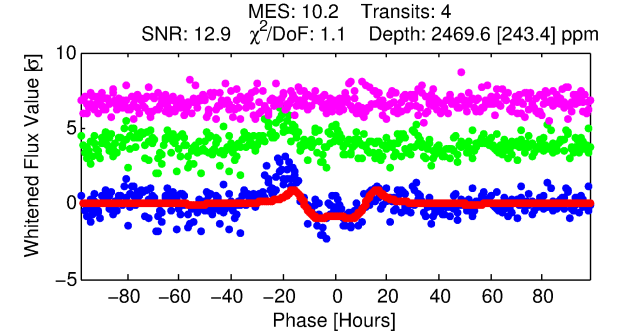
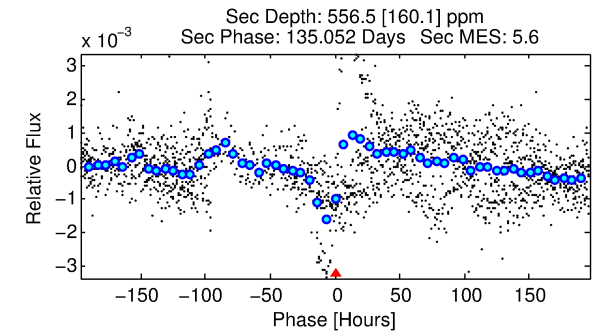
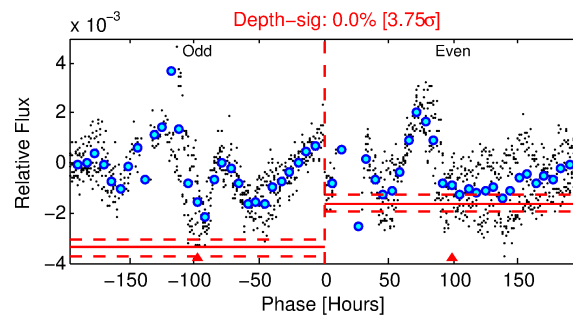
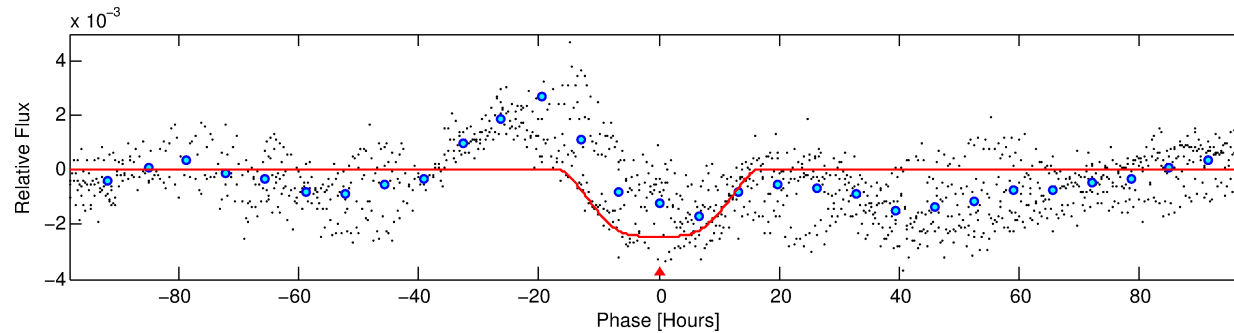
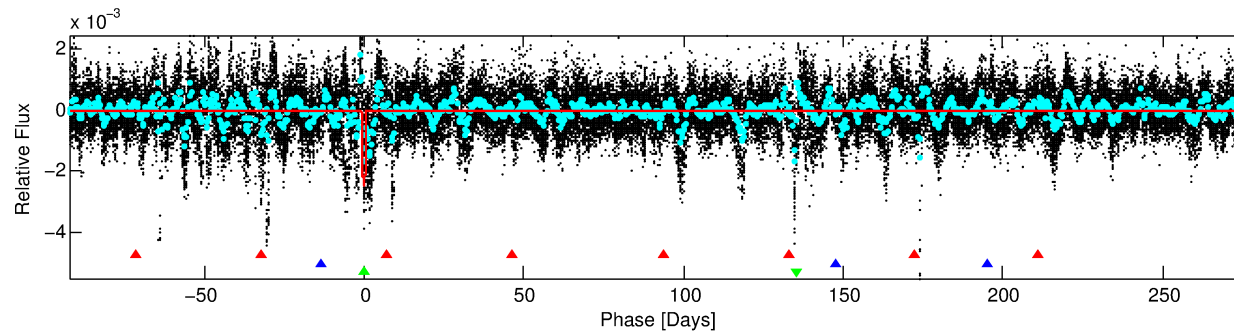
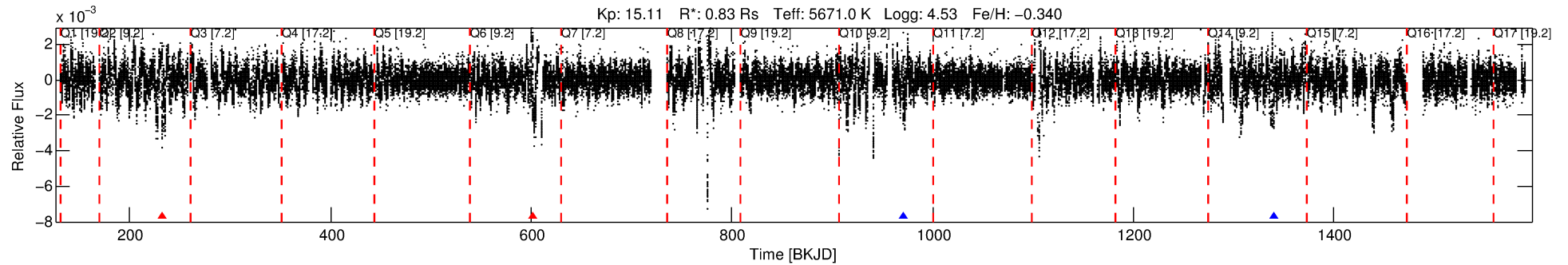
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008308352-03

No Significant Match Found

# DV One-Page Summary

KIC: 8308352 Candidate: 3 of 3 Period: 369.060 d



## DV Fit Results:

Period = 369.05983 [0.01602] d  
Epoch = 232.8969 [0.0287] BKJD  
Rp/R\* = 0.0561 [0.0031]  
a/R\* = 43.32 [2.57]  
b = 0.93 [0.01]  
Seff = 0.70 [0.22]  
Teq = 233 [18] K  
Rp = 5.07 [1.27] Re  
a = 0.9509 [0.1918] AU  
Ag = 10777.82 [4536.86] [2.38σ]  
Teffp = 3678 [303] K [11.34σ]

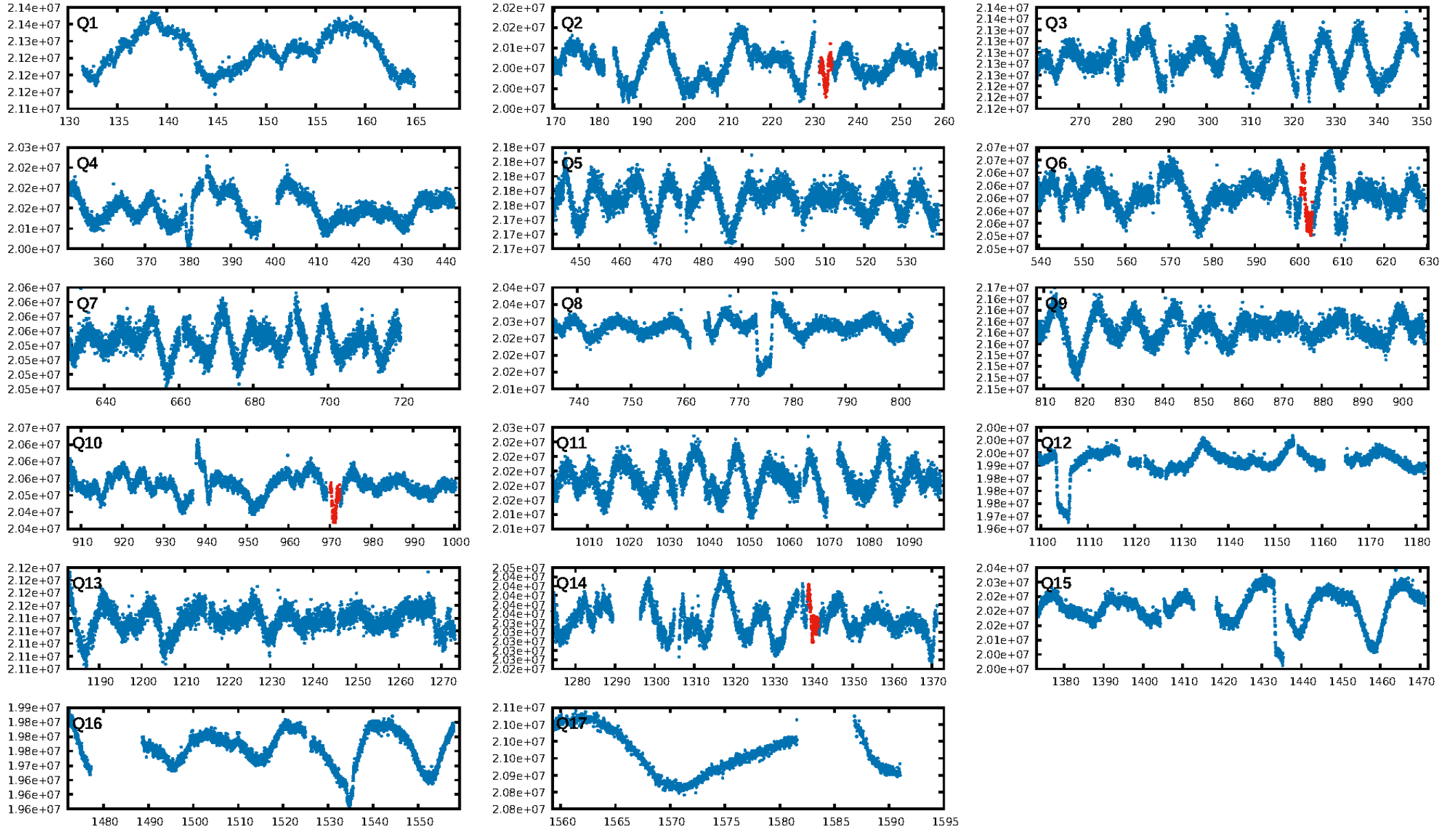
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [115.72σ]  
LongPeriod-sig: 100.0% [96.85σ]  
ModelChiSquare2-sig: 1.8%  
ModelChiSquareGof-sig: 98.3%  
Bootstrap-pfa: 3.89e-14  
RollingBand-fgt: 0.50 [2/4]  
GhostDiagnostic-chr: 0.9963  
Centroid-sig: 52.5%  
Centroid-so: 1.301 arcsec [1.20σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: N/A

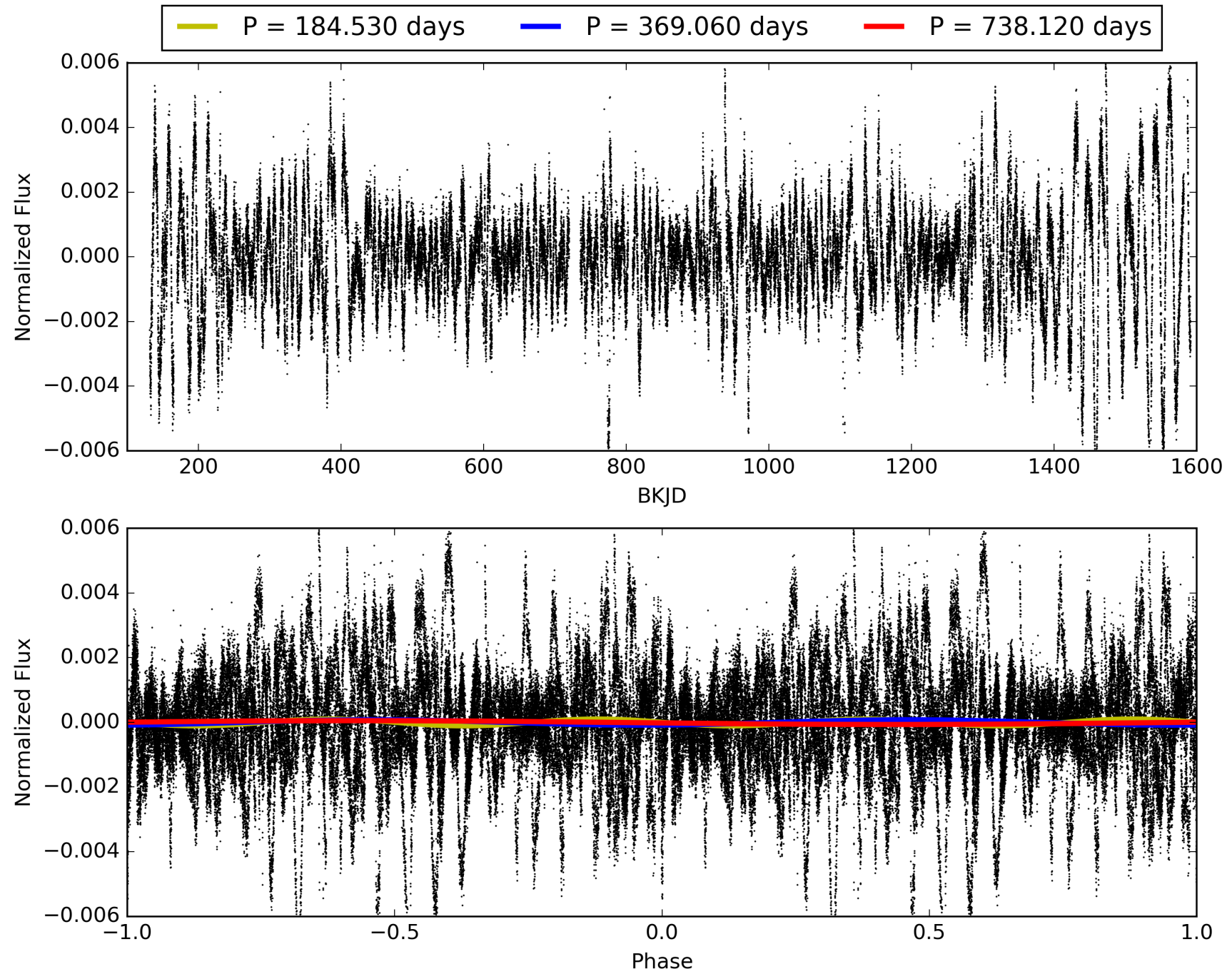
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:44:48 Z

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

# TCE 008308352-03, PDC Light Curves

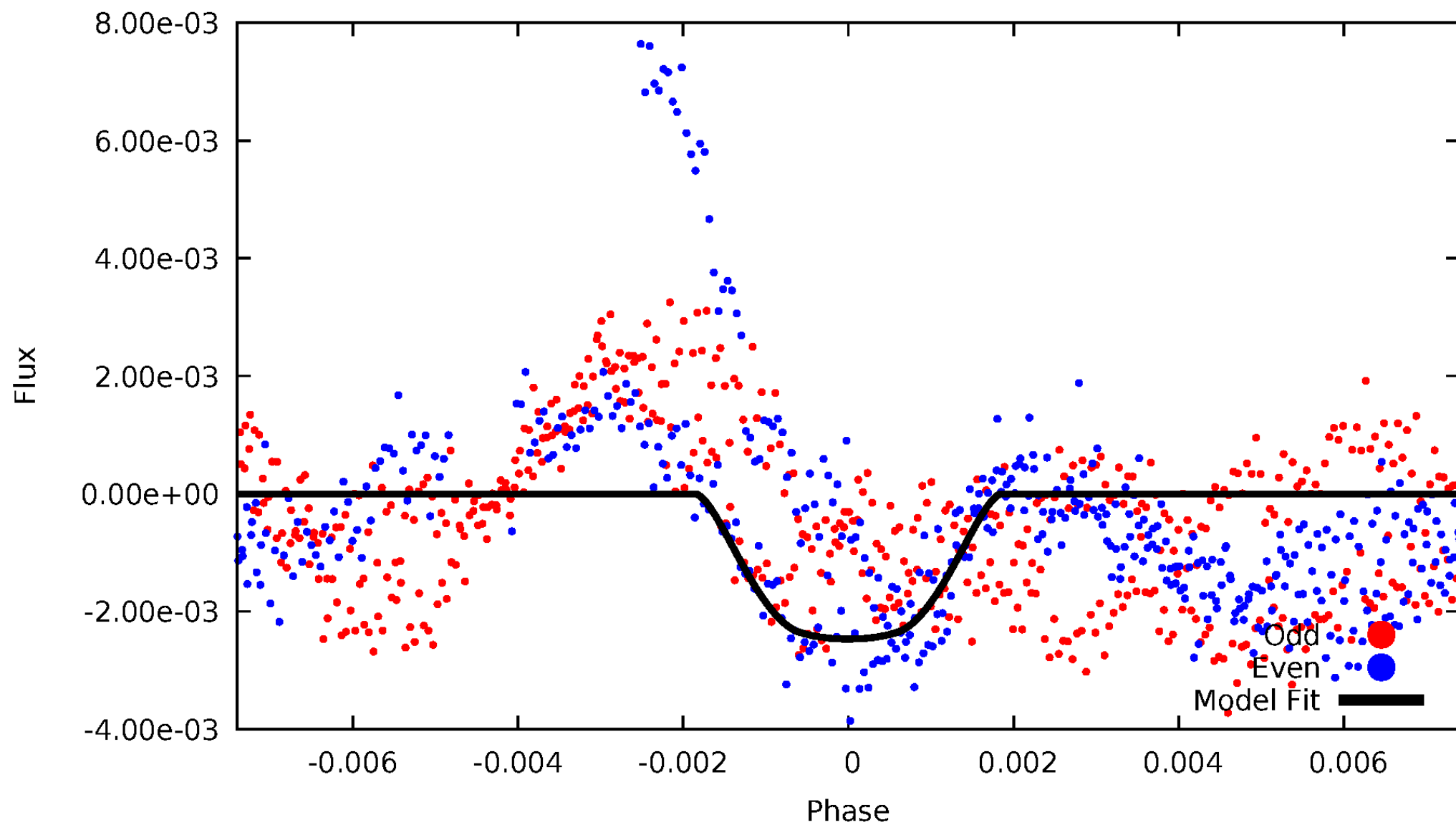


TCE 008308352-03



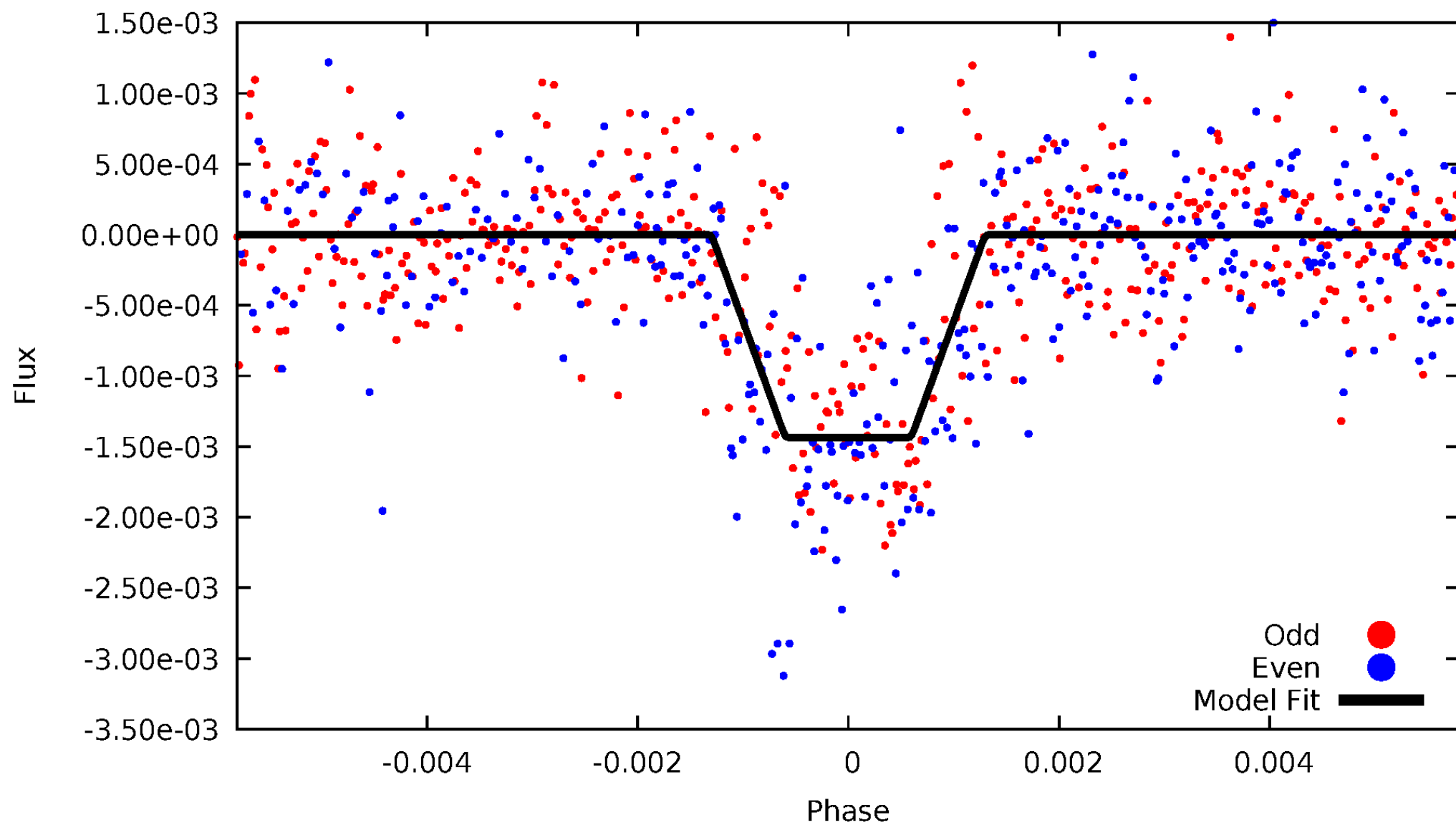
# DV Odd/Even

TCE 008308352-03



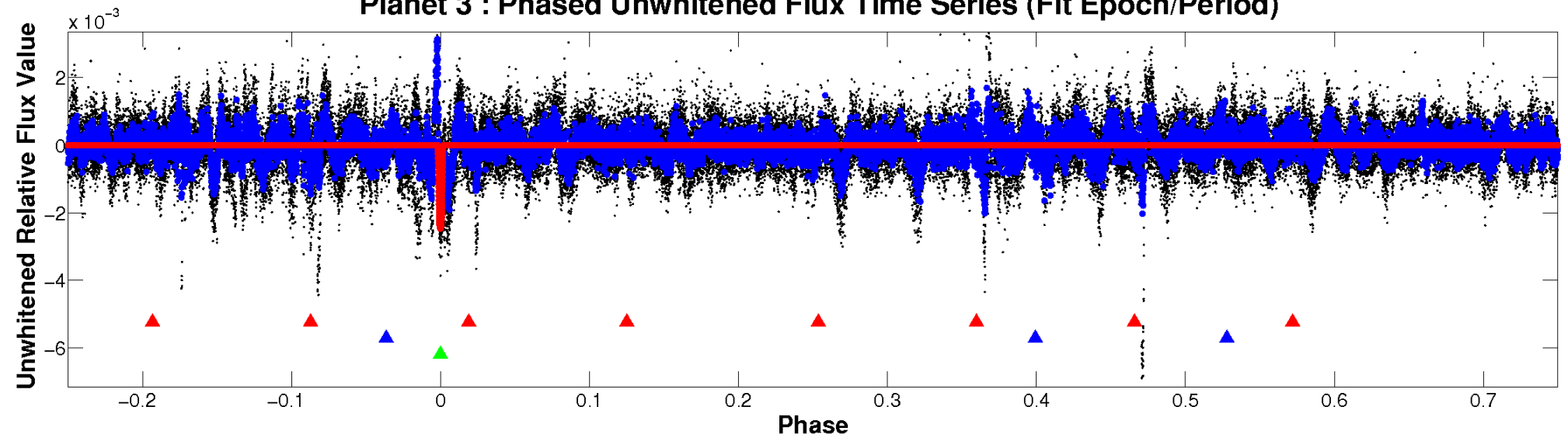
# ALT Odd/Even

TCE 008308352-03

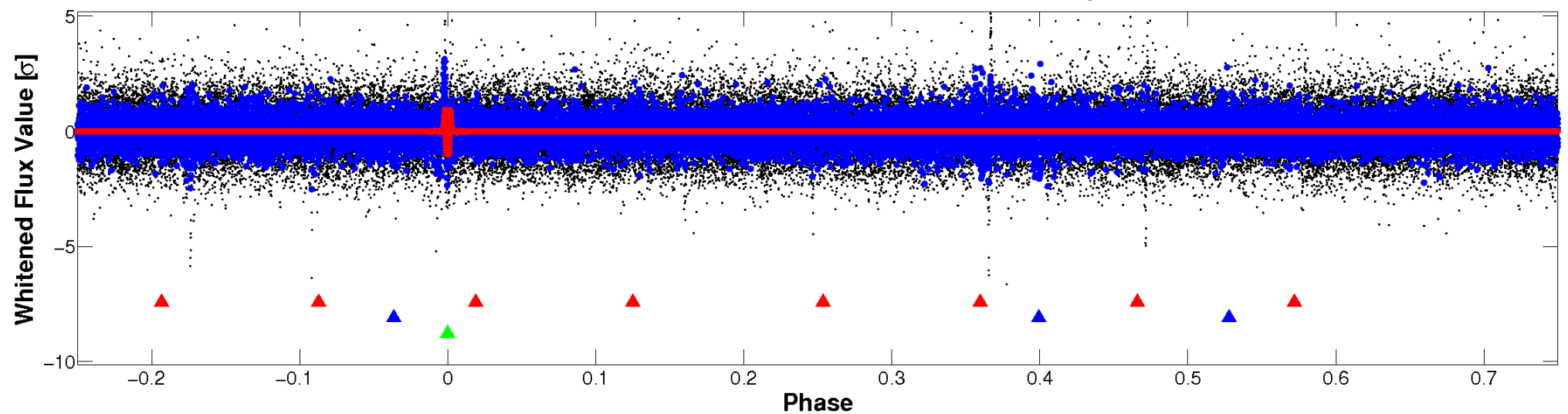


# Non-Whitened Vs. Whitened Light Curve

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

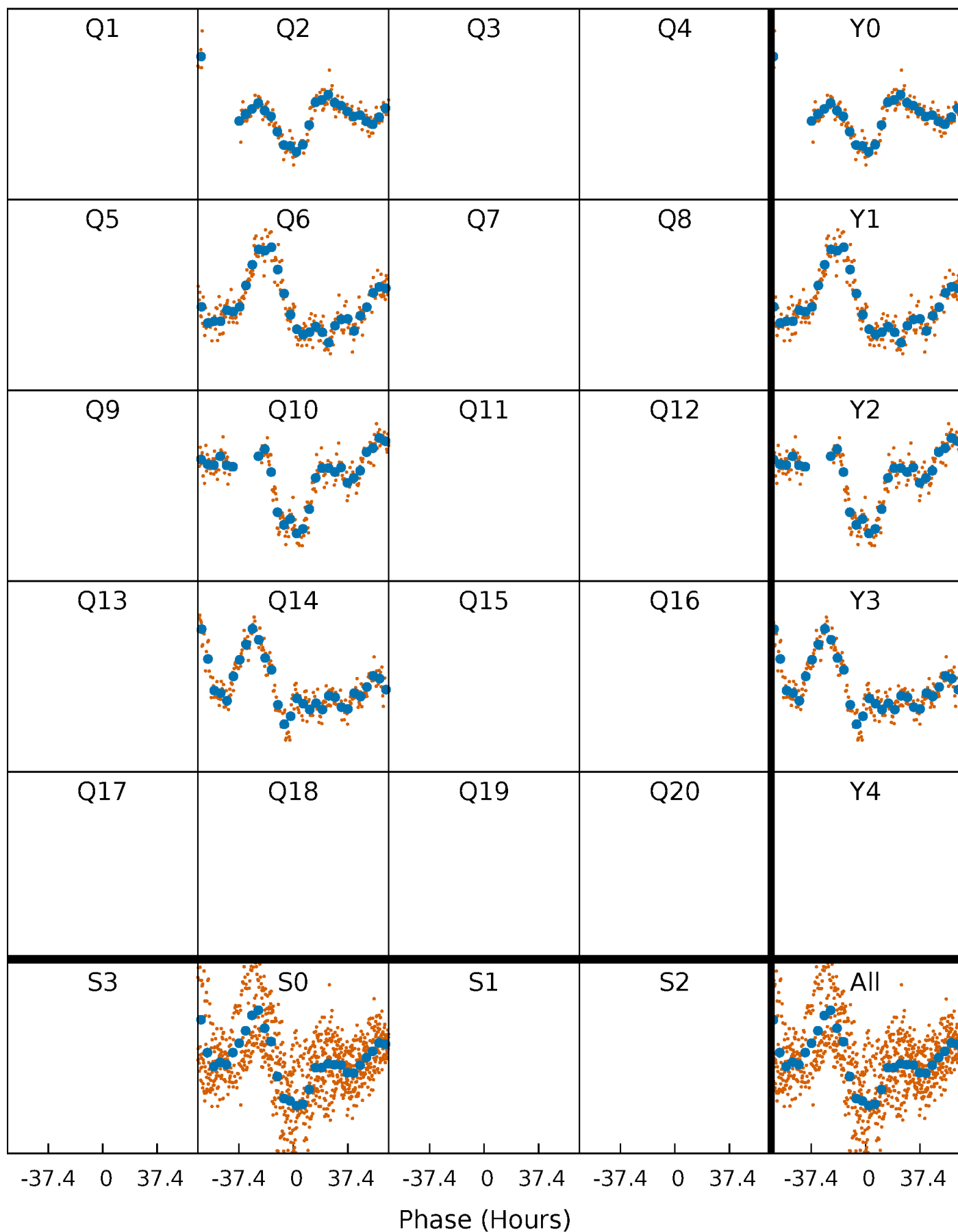


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



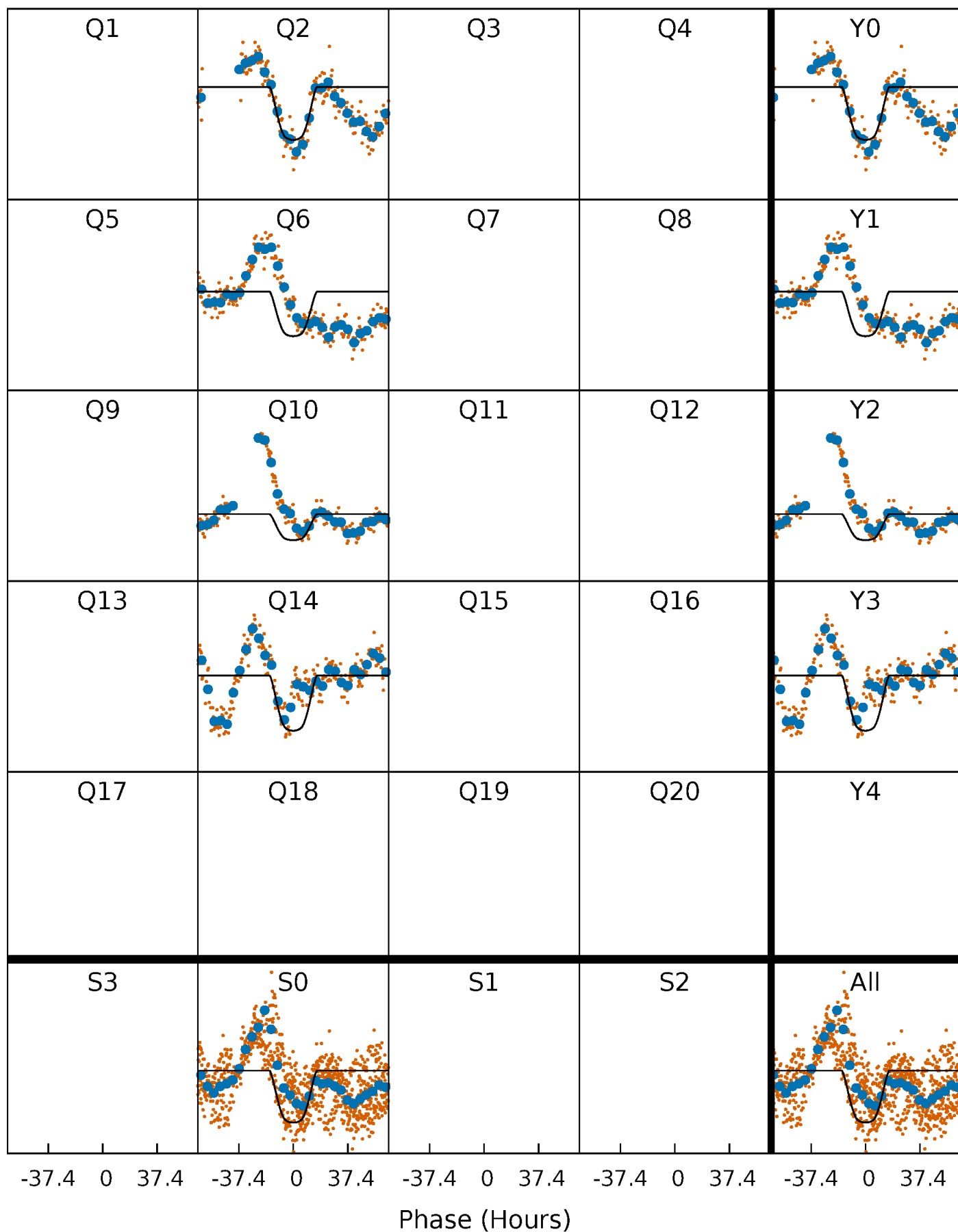
# PDC Quarter-Phased Transit Curves

TCE 008308352-03     $P=369.059828$  Days     $T_0=232.896941$  (BKJD)



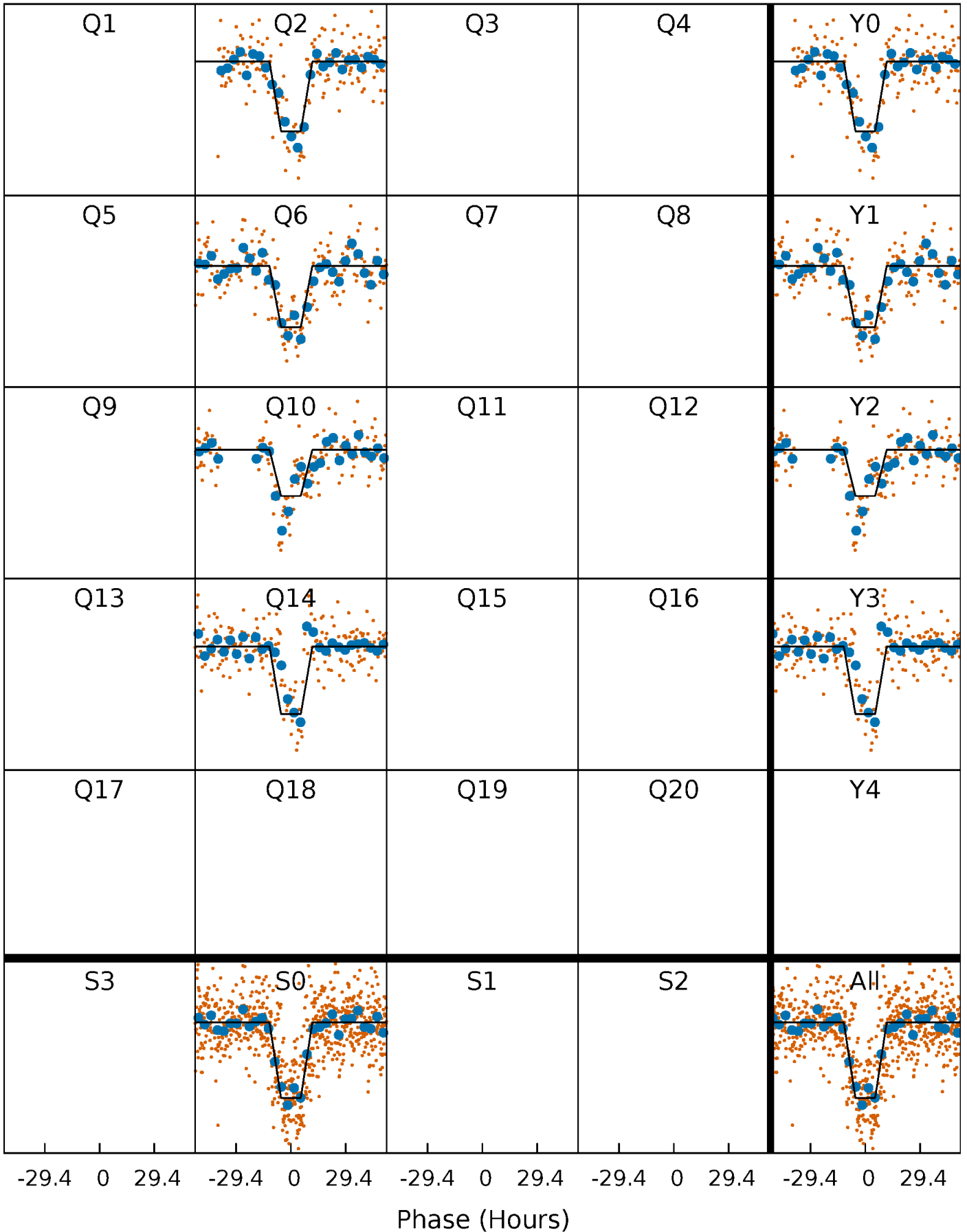
# DV Quarter-Phased Transit Curves

TCE 008308352-03     $P=369.059828$  Days     $T_0=232.896941$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

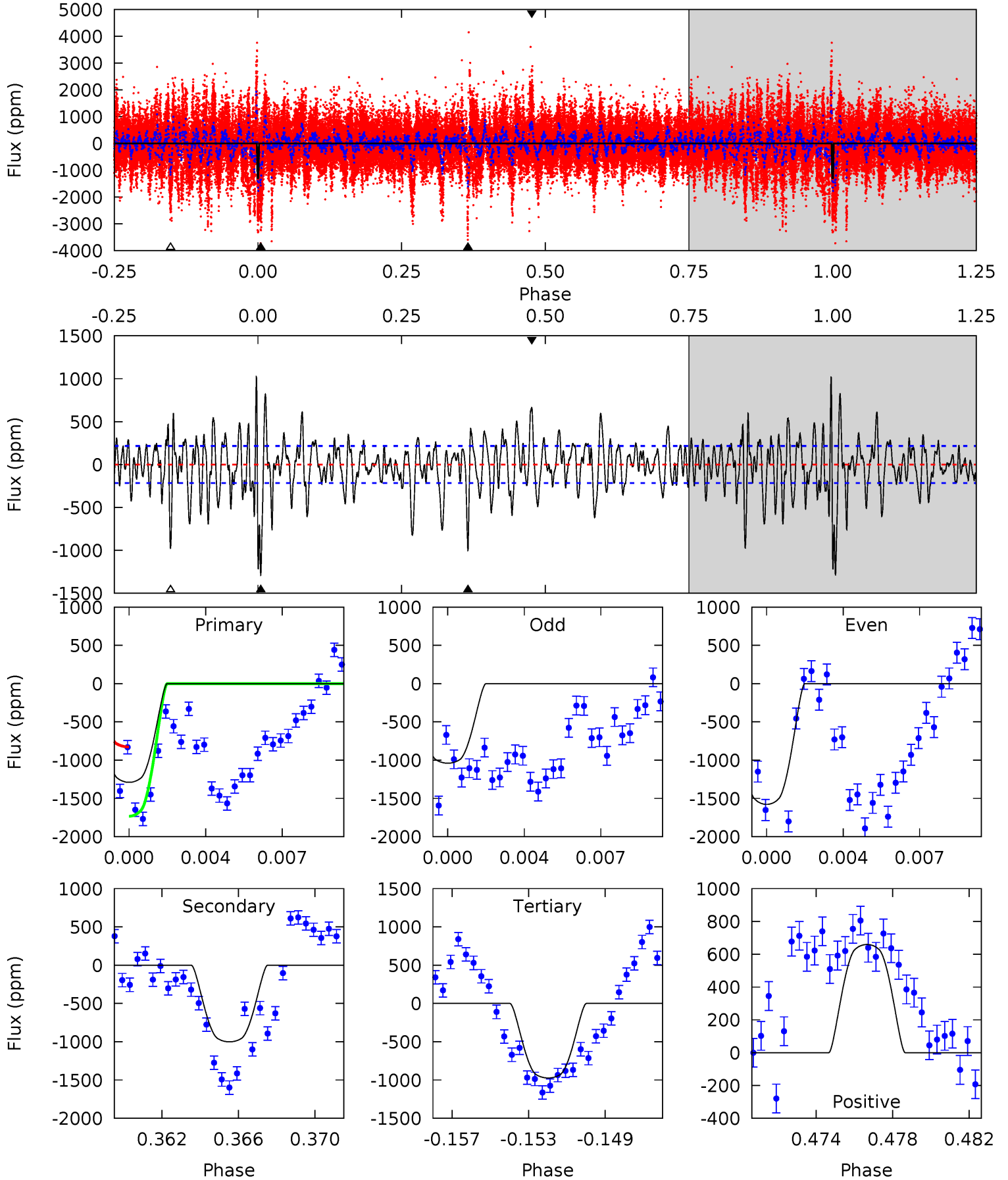
TCE 008308352-03     $P=368.900681$  Days     $T_0=233.025202$  (BKJD)



# DV Model-Shift Uniqueness Test

008308352-03, P = 369.059828 Days, E = 232.896941 Days

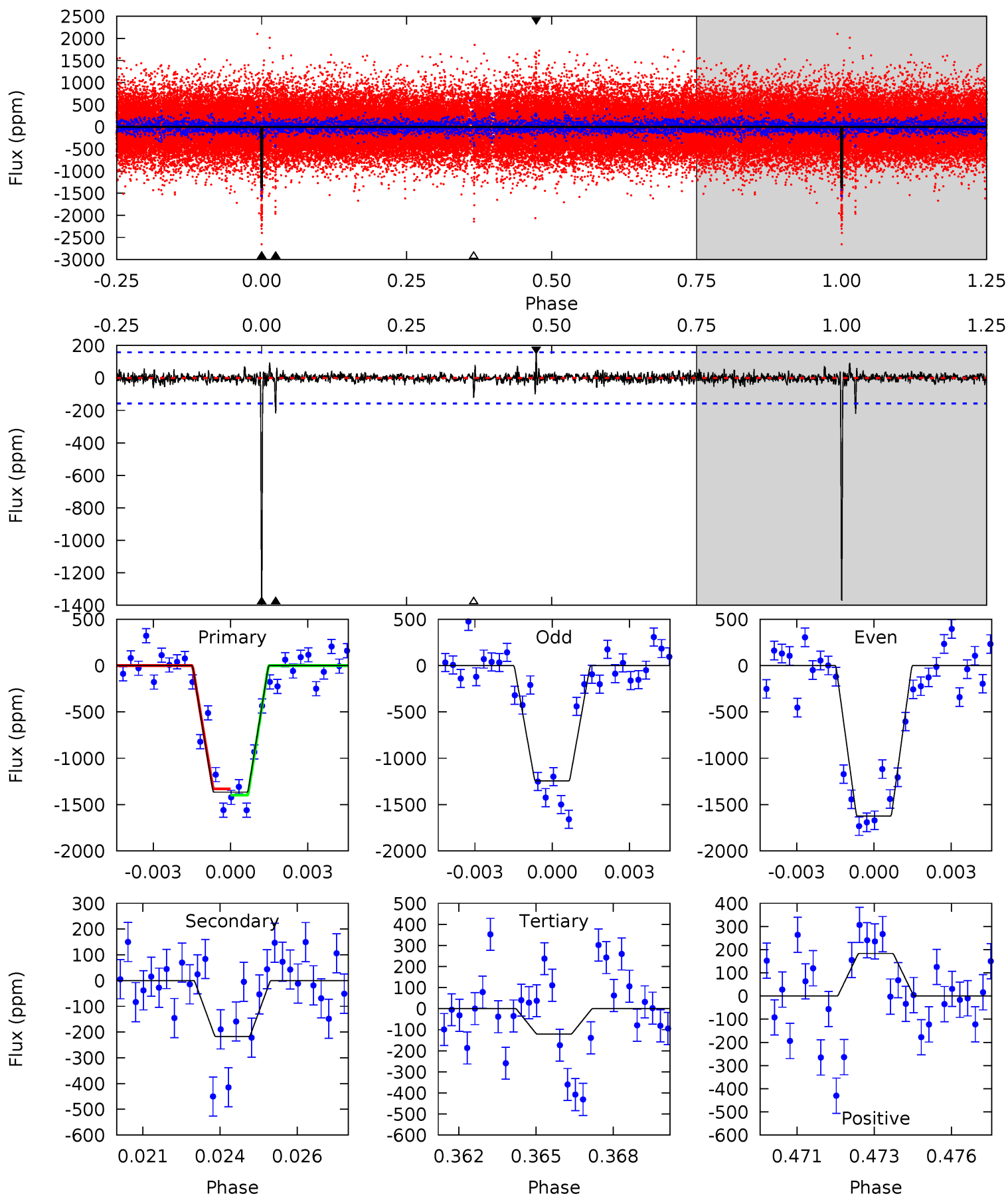
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.1	24.2	23.5	15.9	5.21	2.90	6.21	7.63	15.2	0.67	8.26	6.45	1.27	0.44	10.9



# Alt Model-Shift Uniqueness Test

008308352-03, P = 368.900681 Days, E = 233.025202 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
45.7	7.26	4.05	6.14	5.28	3.01	0.60	41.6	39.5	3.21	1.12	6.42	0.94	0.12	1.16



### Stellar Parameters For KIC 008308352

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5671^{+169}_{-169}$	$4.527^{+0.055}_{-0.154}$	$-0.340^{+0.300}_{-0.300}$	$0.828^{+0.203}_{-0.087}$	$0.842^{+0.097}_{-0.078}$	$2.085^{+0.577}_{-0.900}$
	+3%/-3%	+1%/-3%	+88%/-88%	+25%/-11%	+12%/-9%	+28%/-43%
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 008308352-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1001 \pm 41$	$5.24^{+0.71}_{-0.48}$	$332^{+19}_{-15}$	$4452^{+140}_{-151}$	$18090^{+3552}_{-3729}$
Alt.	$-217 \pm 30$	$3.56^{+0.50}_{-0.41}$	$331^{+21}_{-15}$	$3874^{+179}_{-157}$	$8533^{+2586}_{-2166}$

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

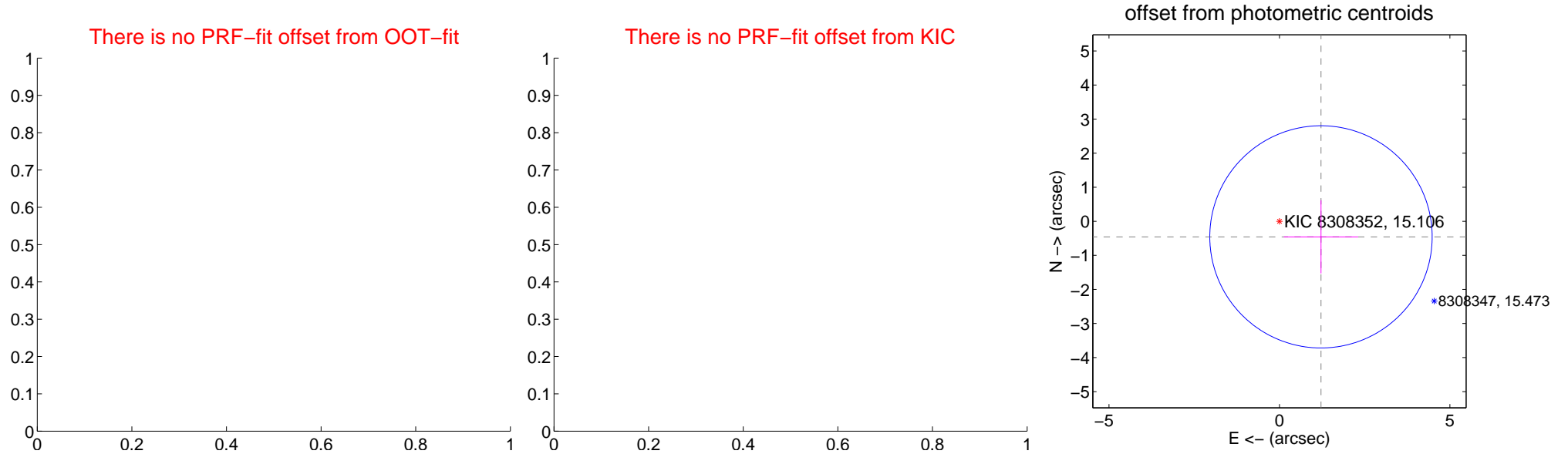
## DV Centroid Data

Supplemental centroid analysis for 008308352-03. Kepler magnitude: 15.11. Transit SNR 12.90

There are 0 quarters with good PRF difference image offsets

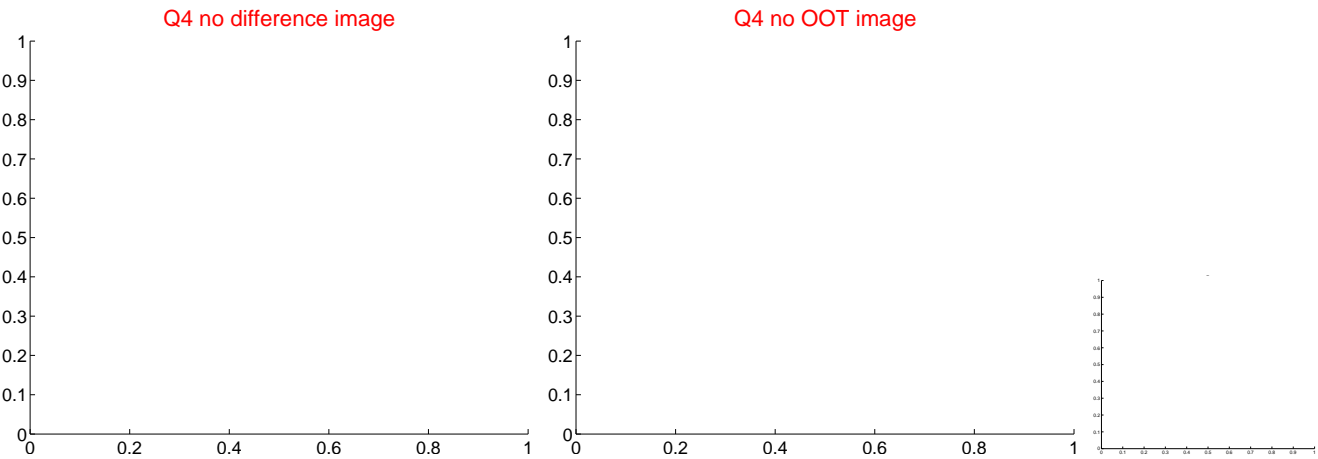
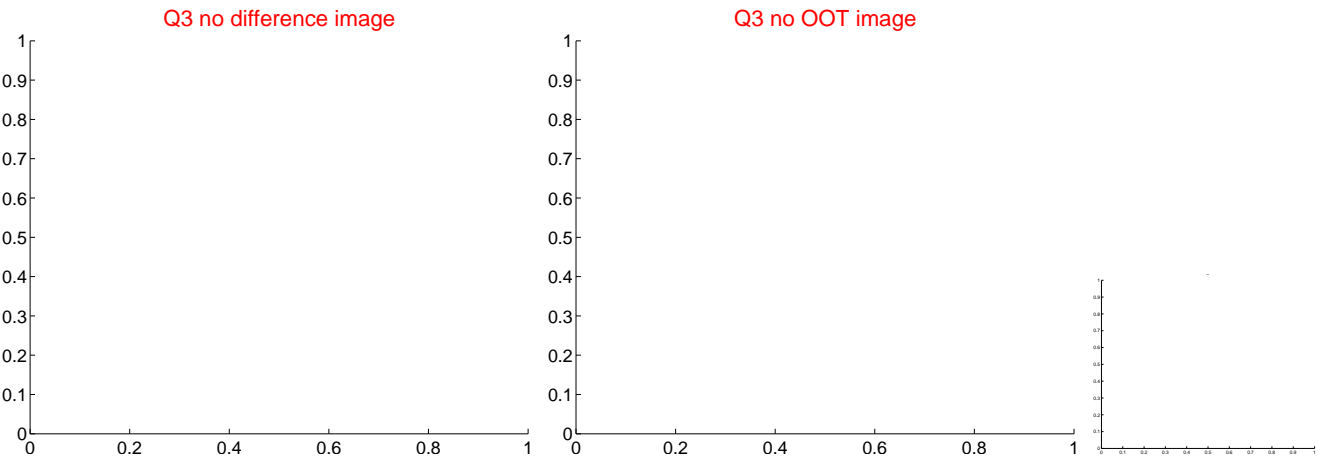
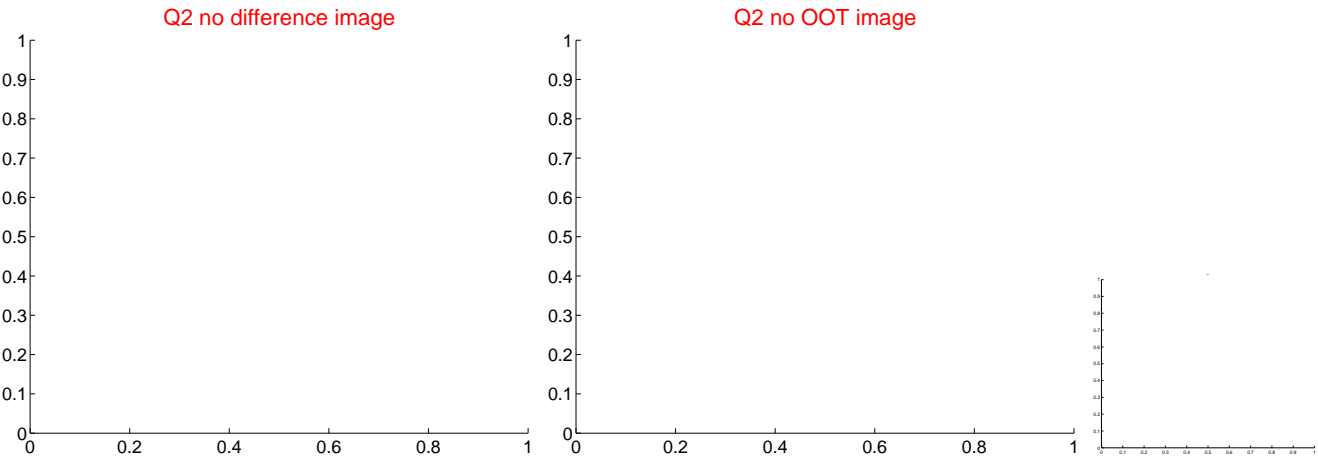
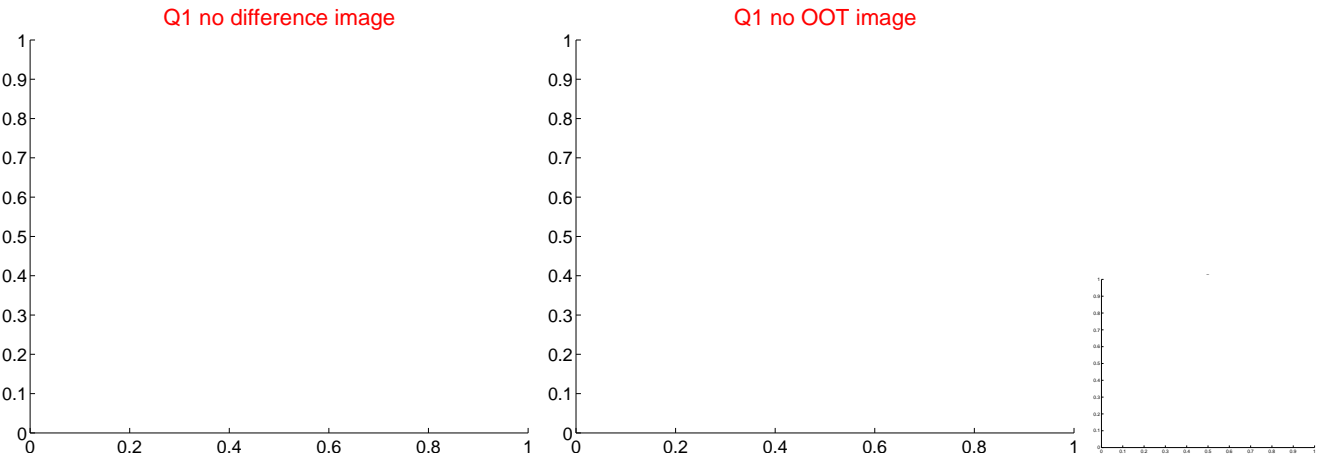
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$1.30 \pm 1.09$	1.20	$-1.22 \pm 1.09$	$-0.46 \pm 1.07$

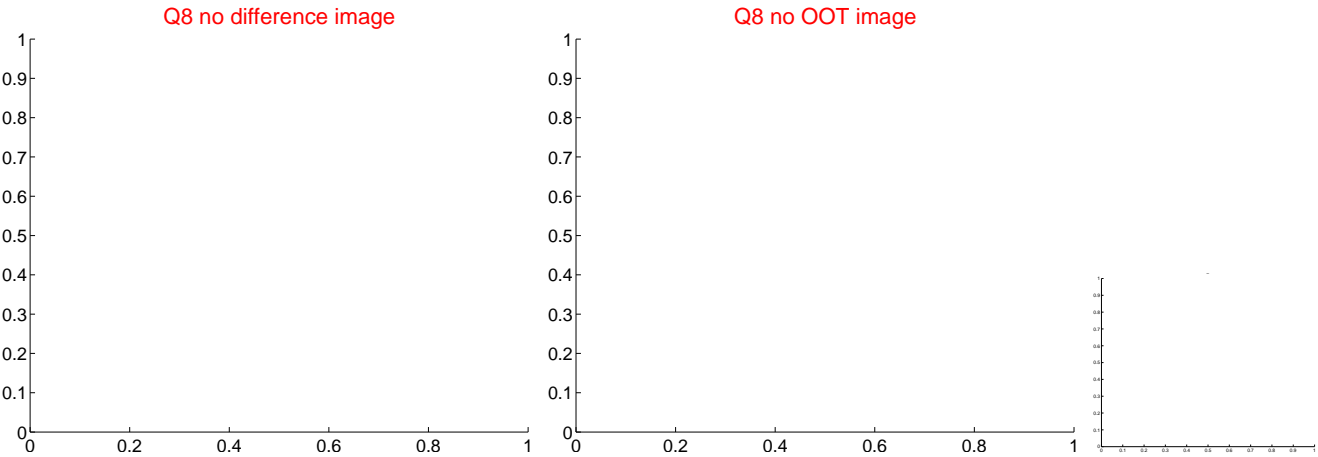
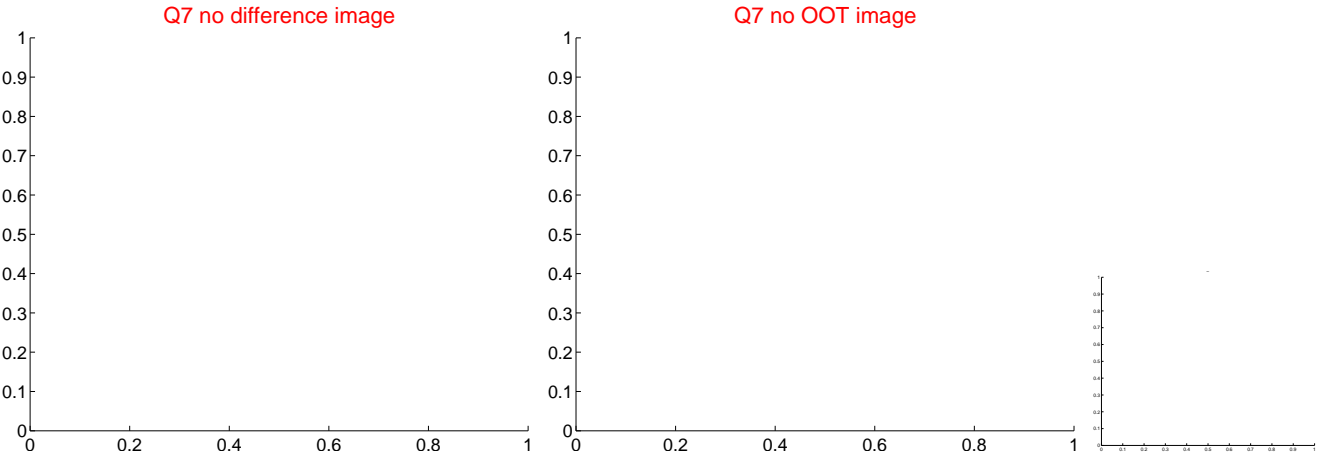
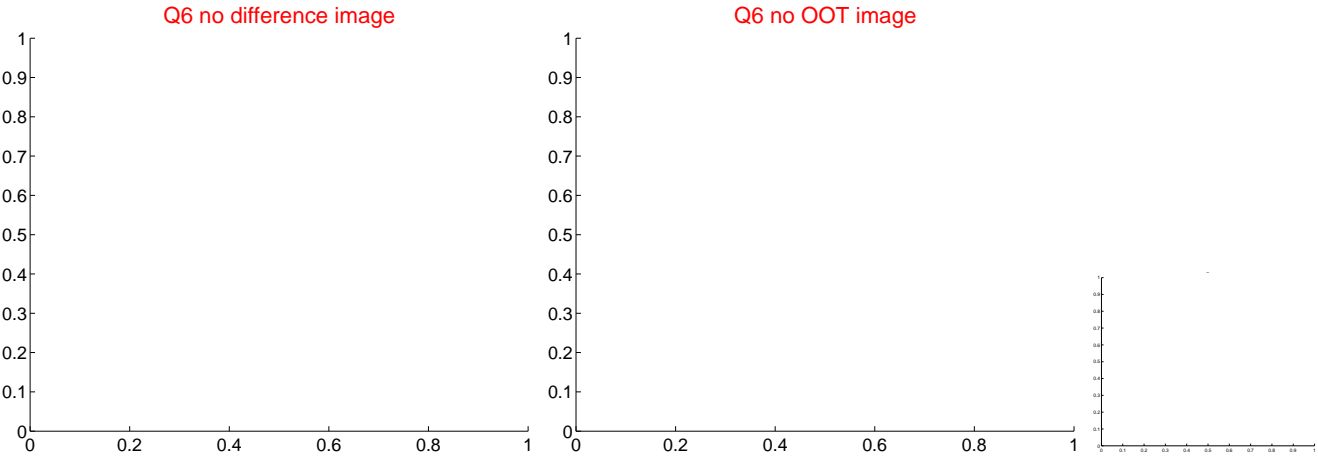
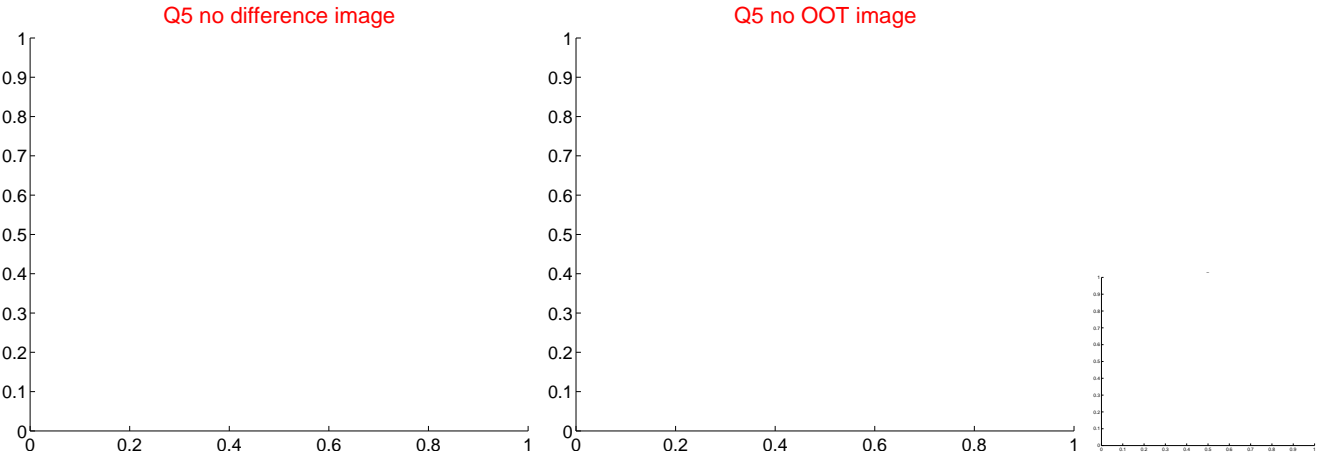


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

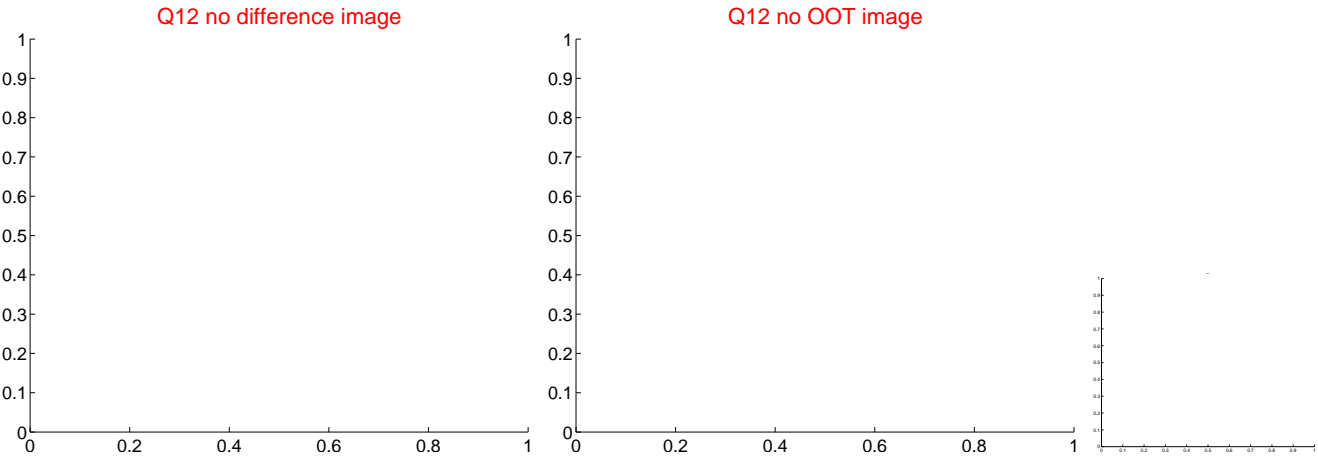
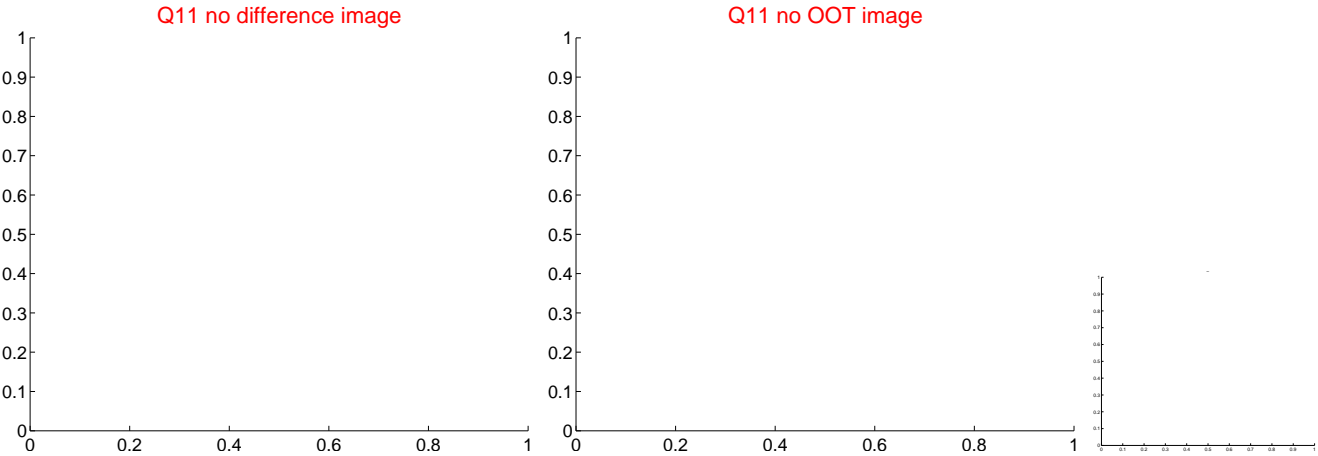
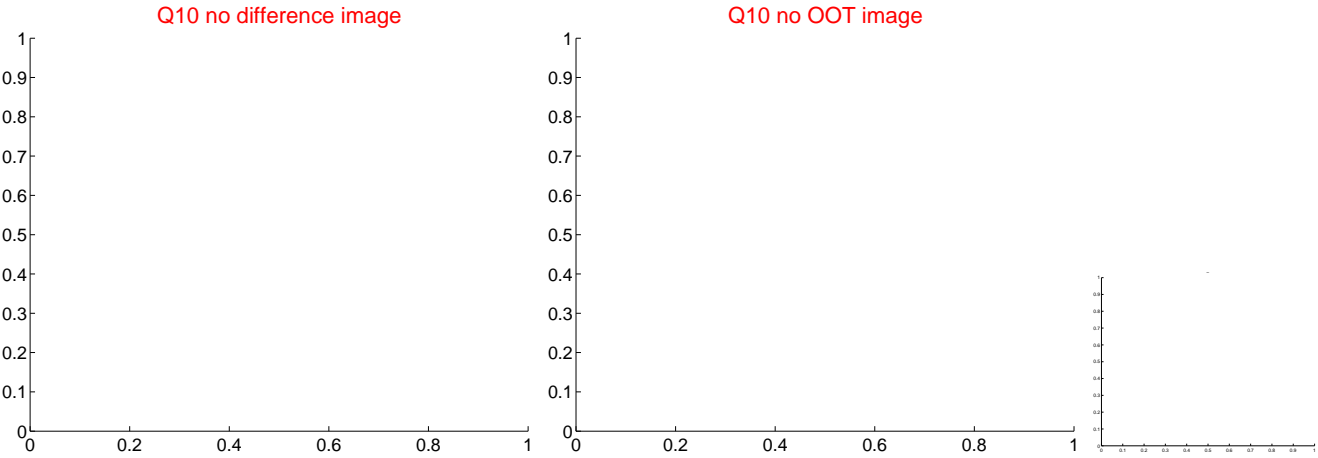
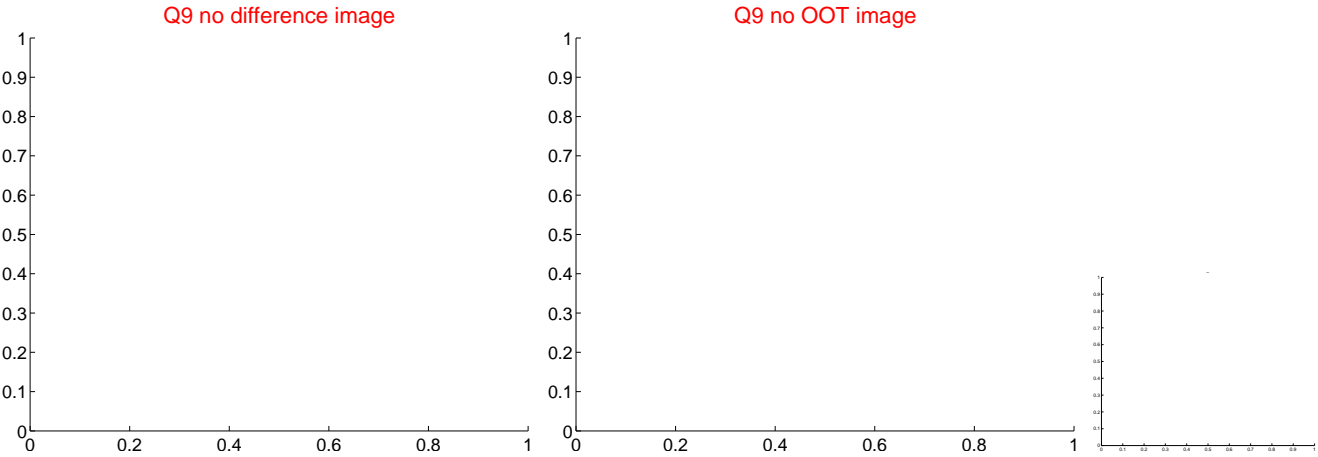
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



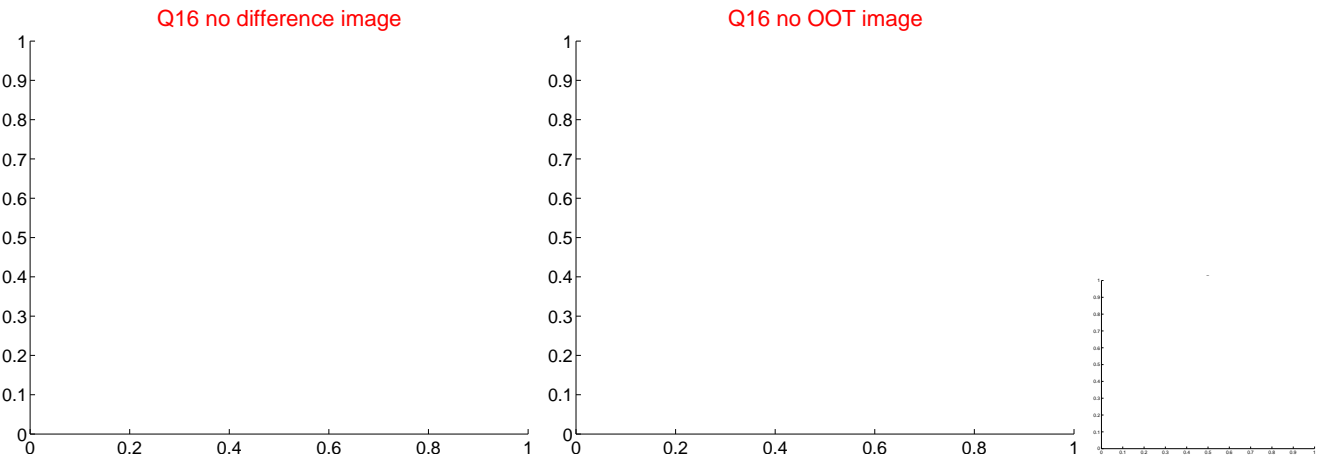
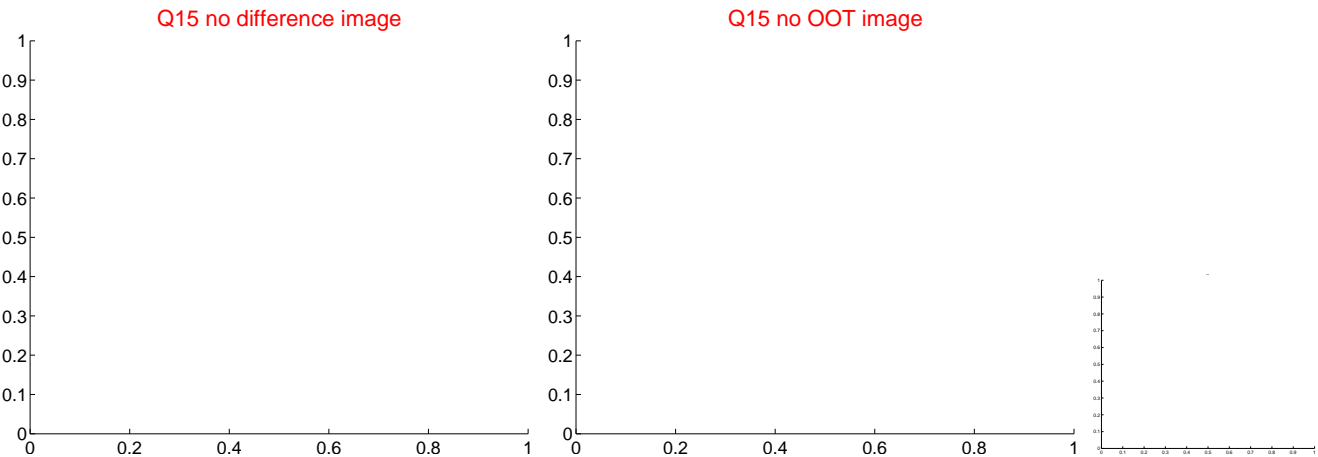
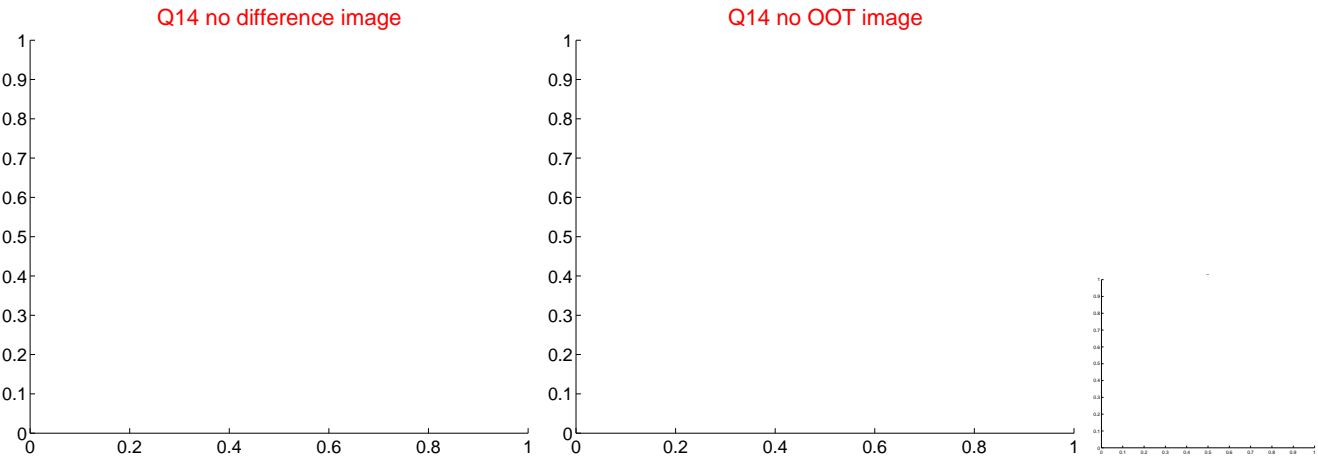
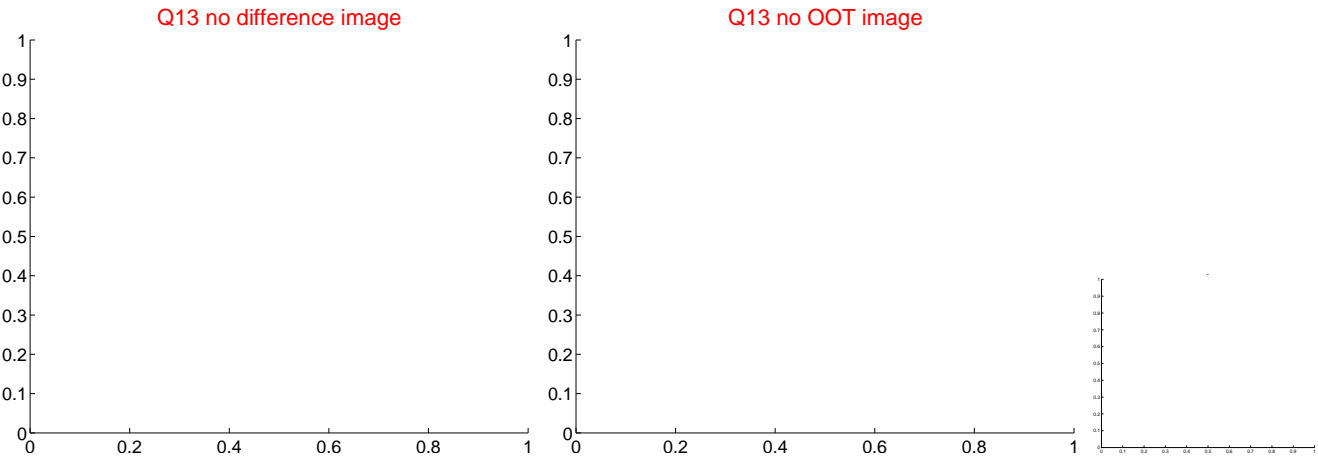
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



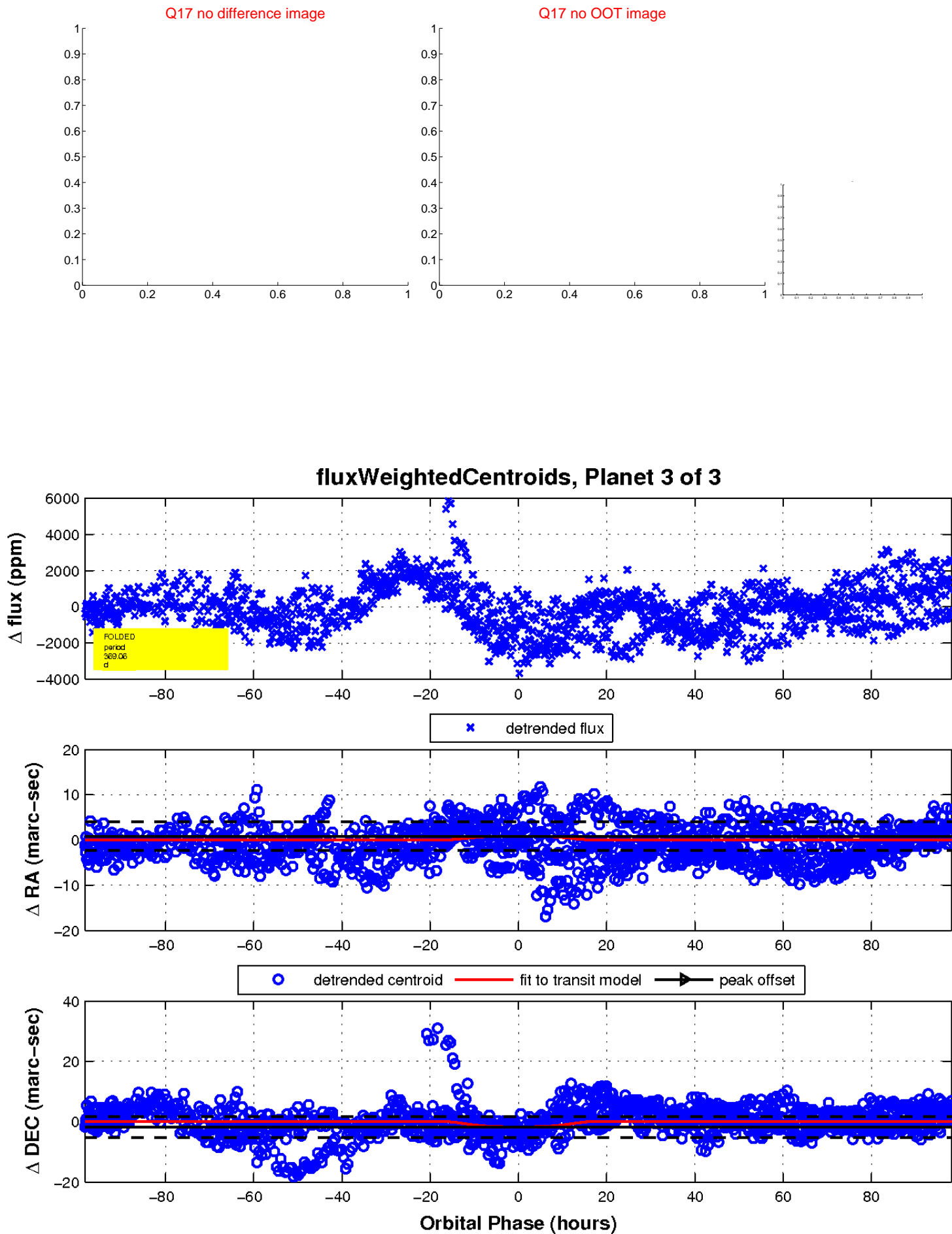
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

