

# KIC 006352349

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006352349-01	OBS	No	1.316901	132.803291	28.6	6.077	7.7	7.5	1.11	6078	0.62	2664.16
006352349-02	OBS	No	378.065316	230.686583	530.8	3.633	7.3	7.5	1.11	6078	3.01	1.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006352349-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST
006352349-02	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

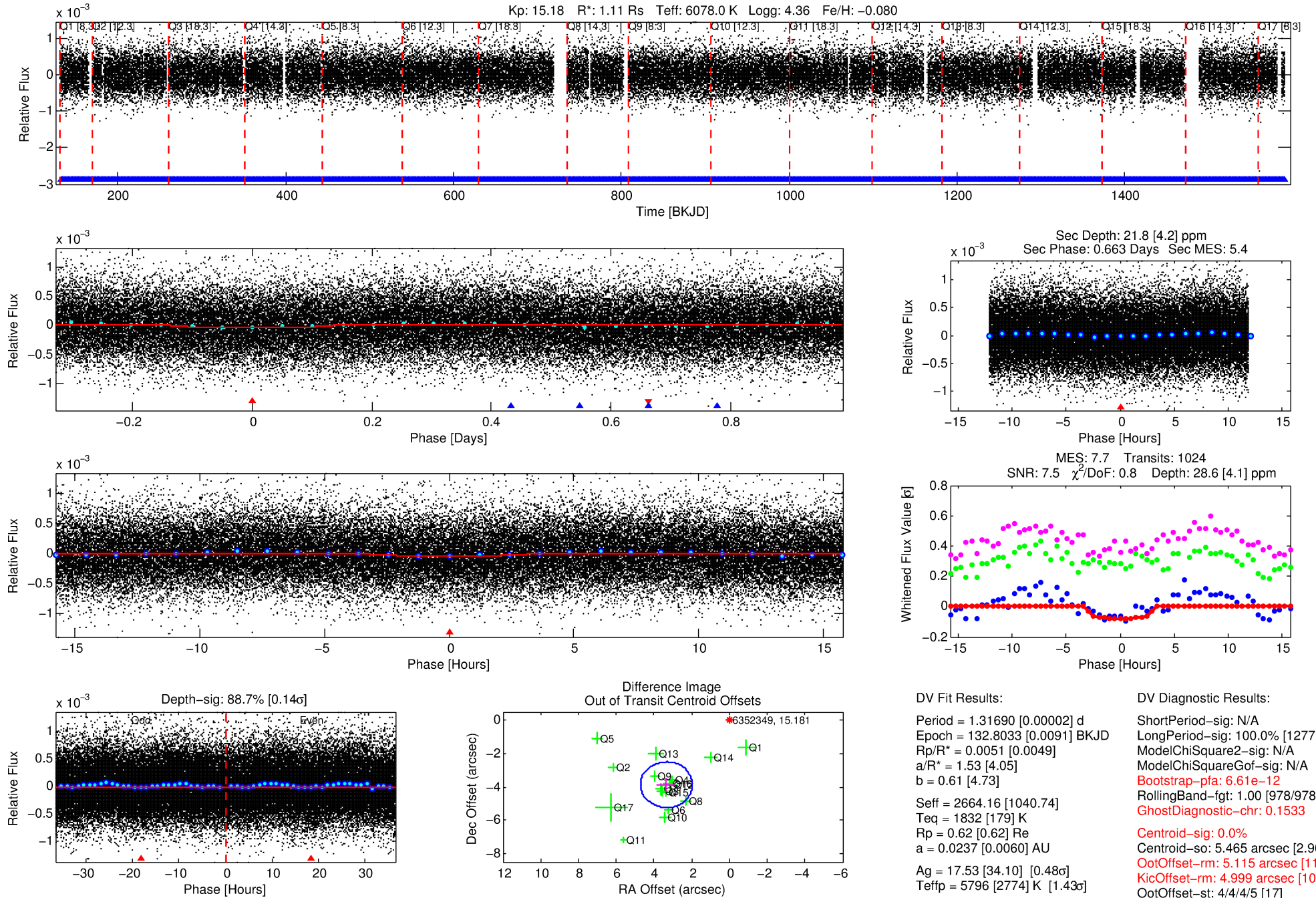
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006352349-01

No Significant Match Found

# DV One-Page Summary

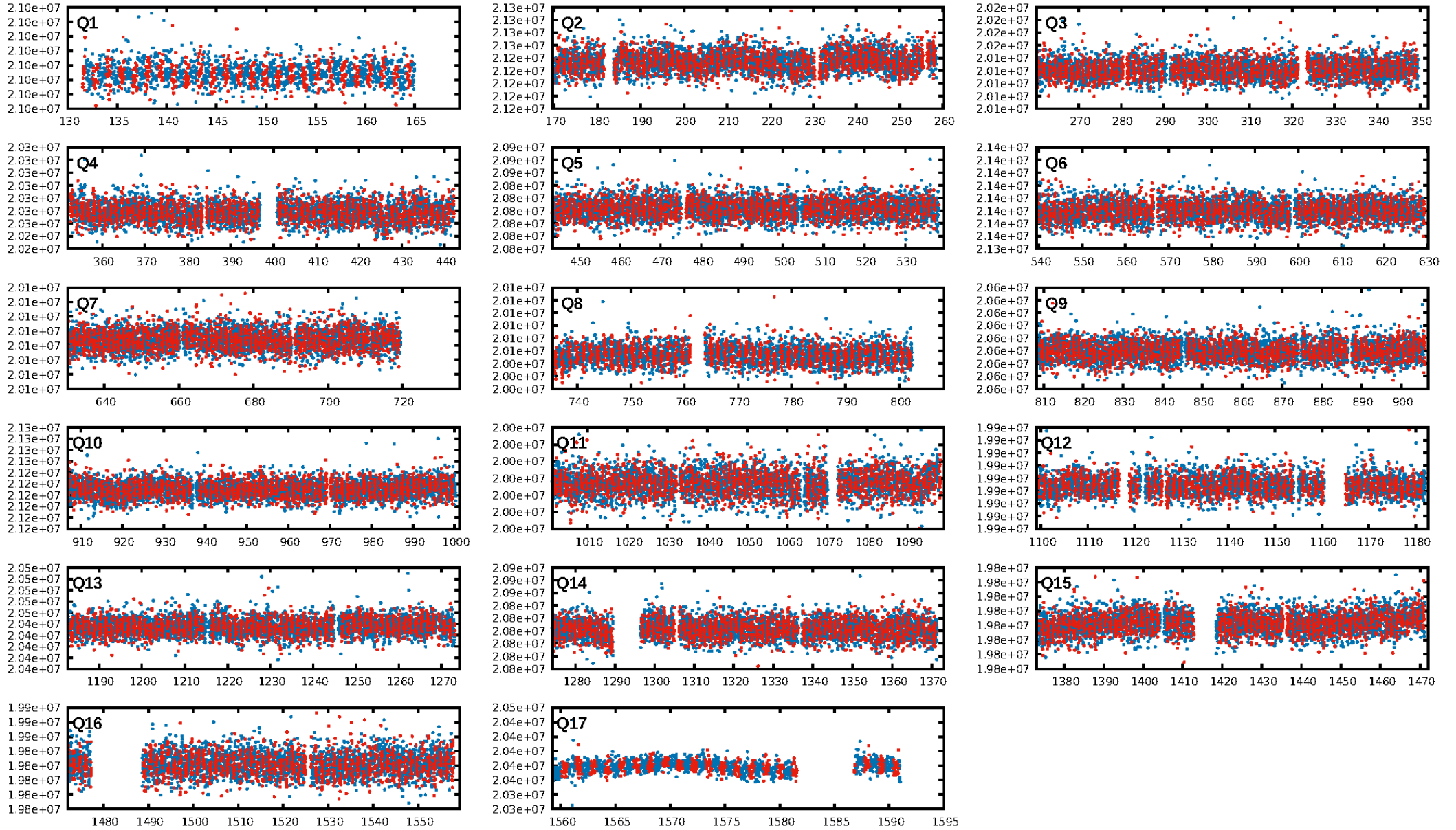
KIC: 6352349 Candidate: 1 of 2 Period: 1.317 d



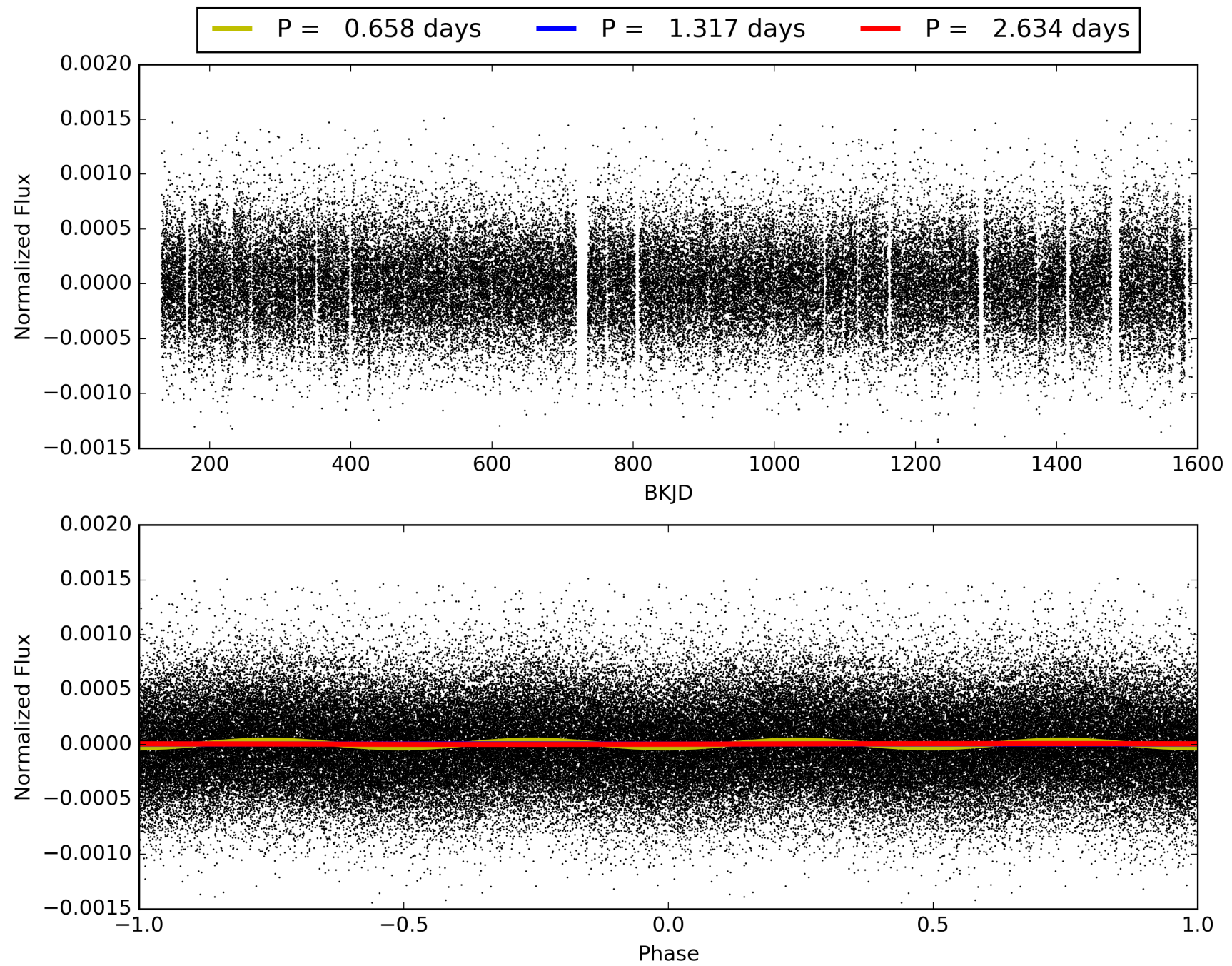
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:19:47 Z

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

# TCE 006352349-01, PDC Light Curves

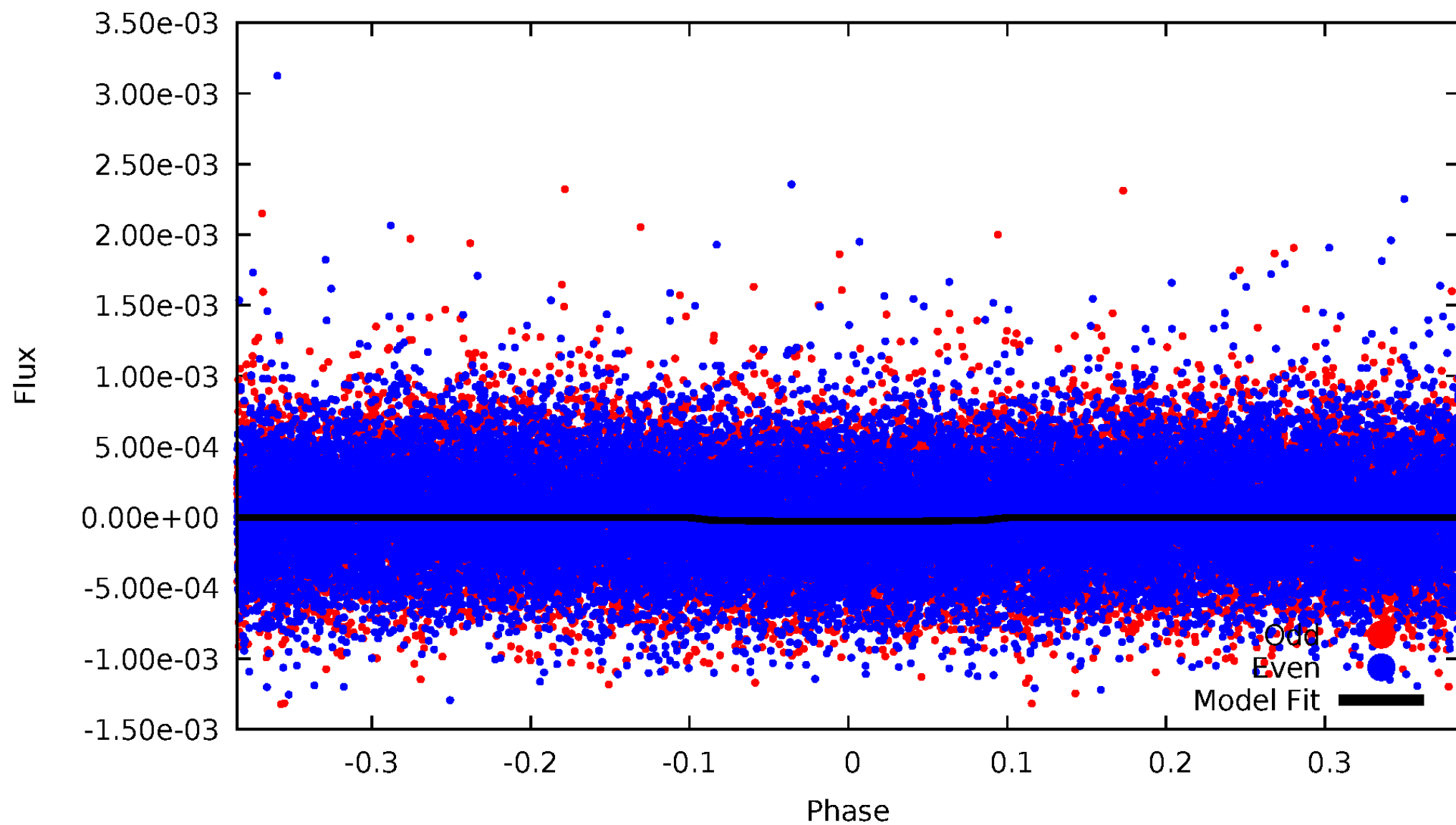


TCE 006352349-01



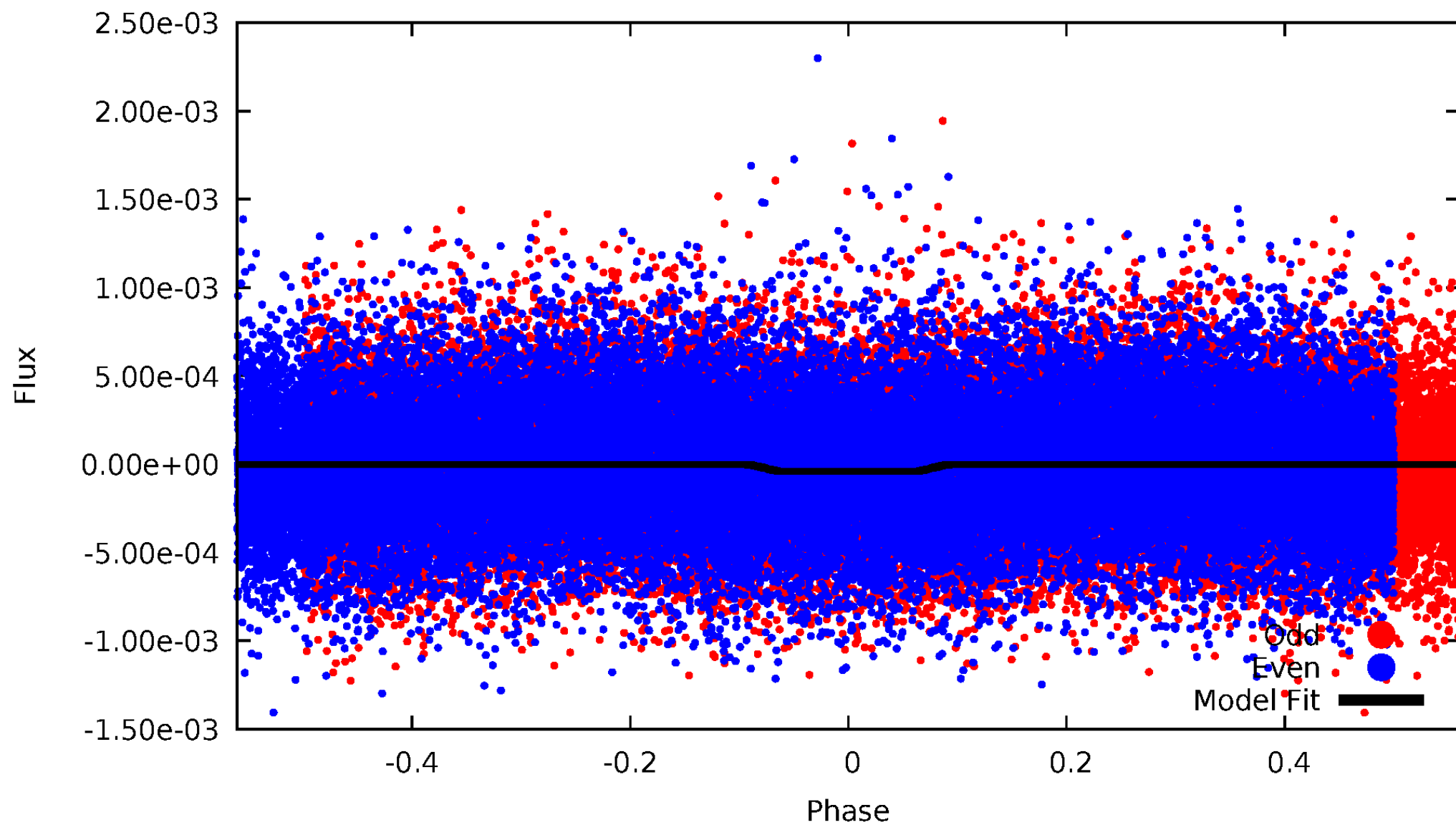
# DV Odd/Even

TCE 006352349-01



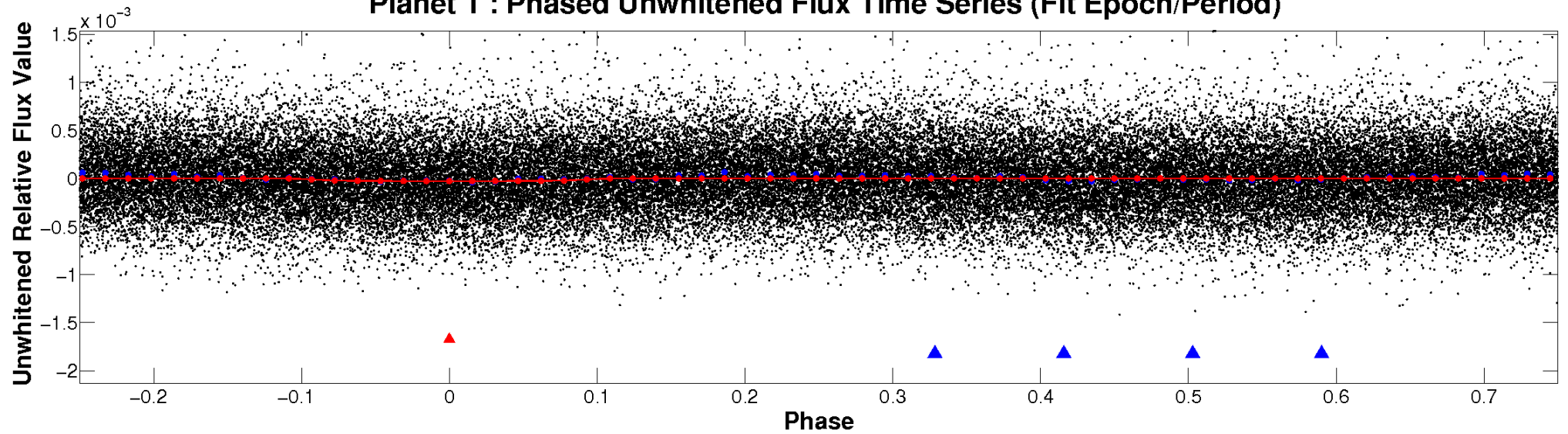
# ALT Odd/Even

TCE 006352349-01

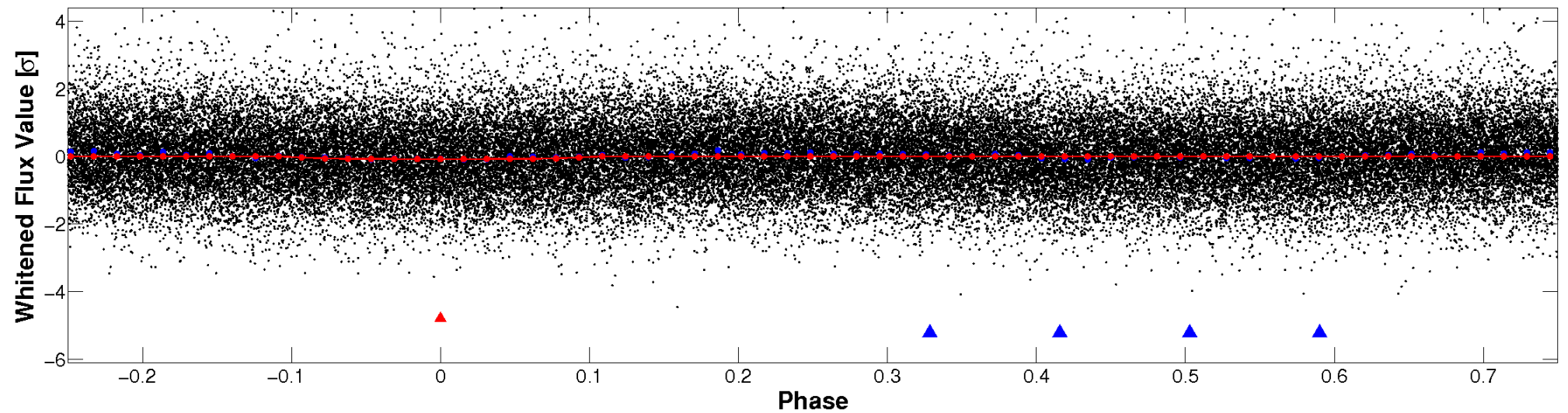


# Non-Whitened Vs. Whitened Light Curve

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

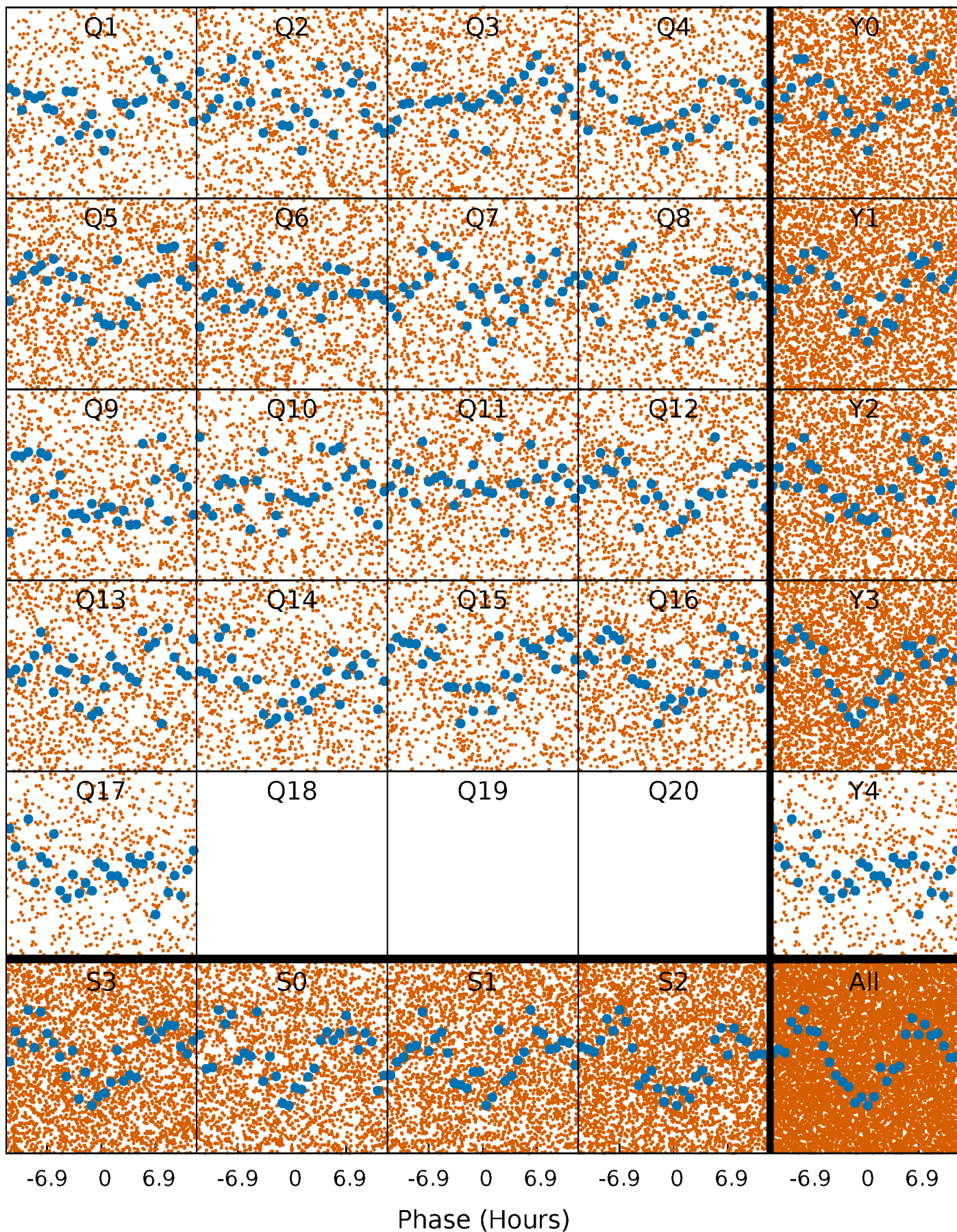


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



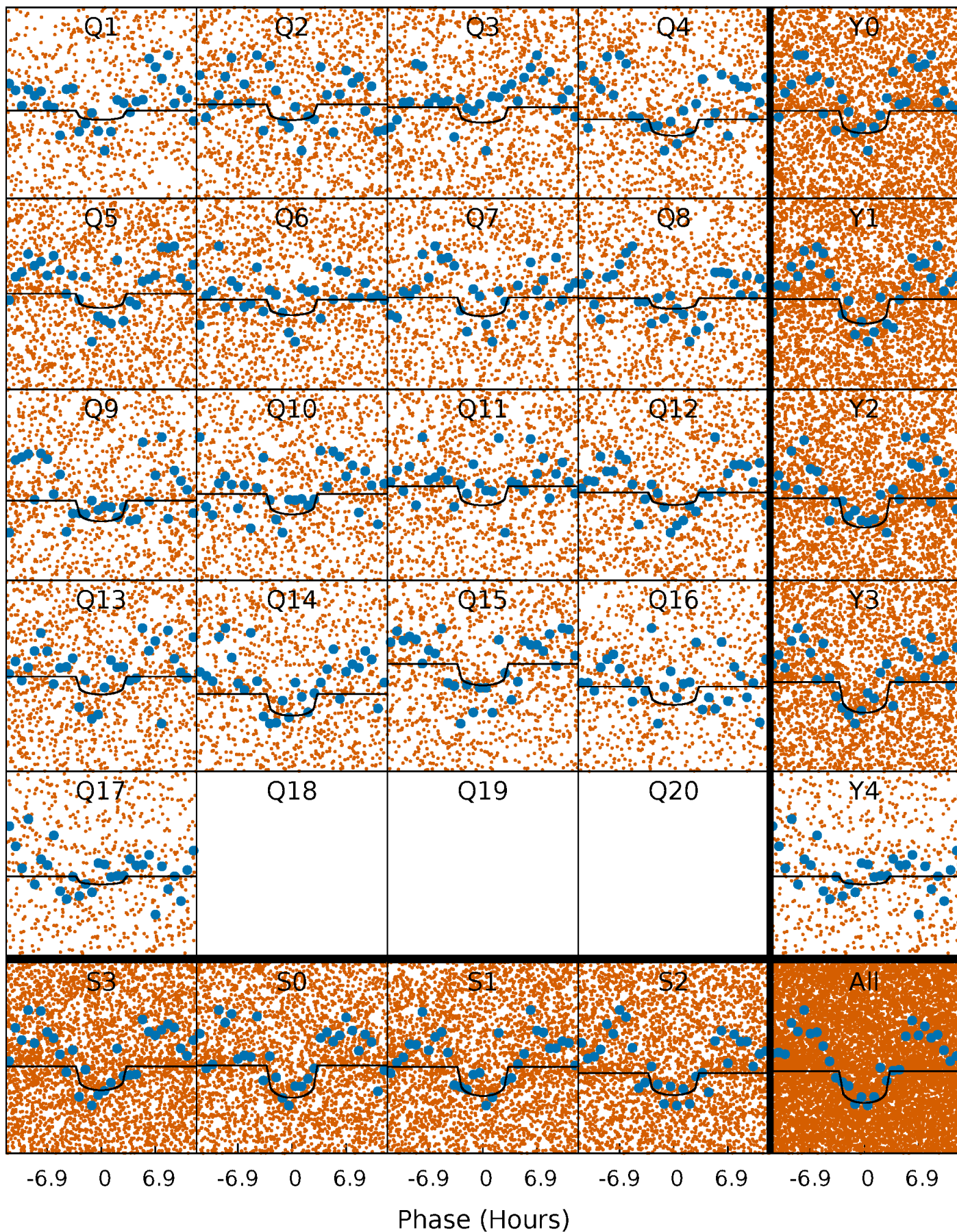
# PDC Quarter-Phased Transit Curves

TCE 006352349-01 P= 1.316901 Days  $T_0=132.803291$  (BKJD)



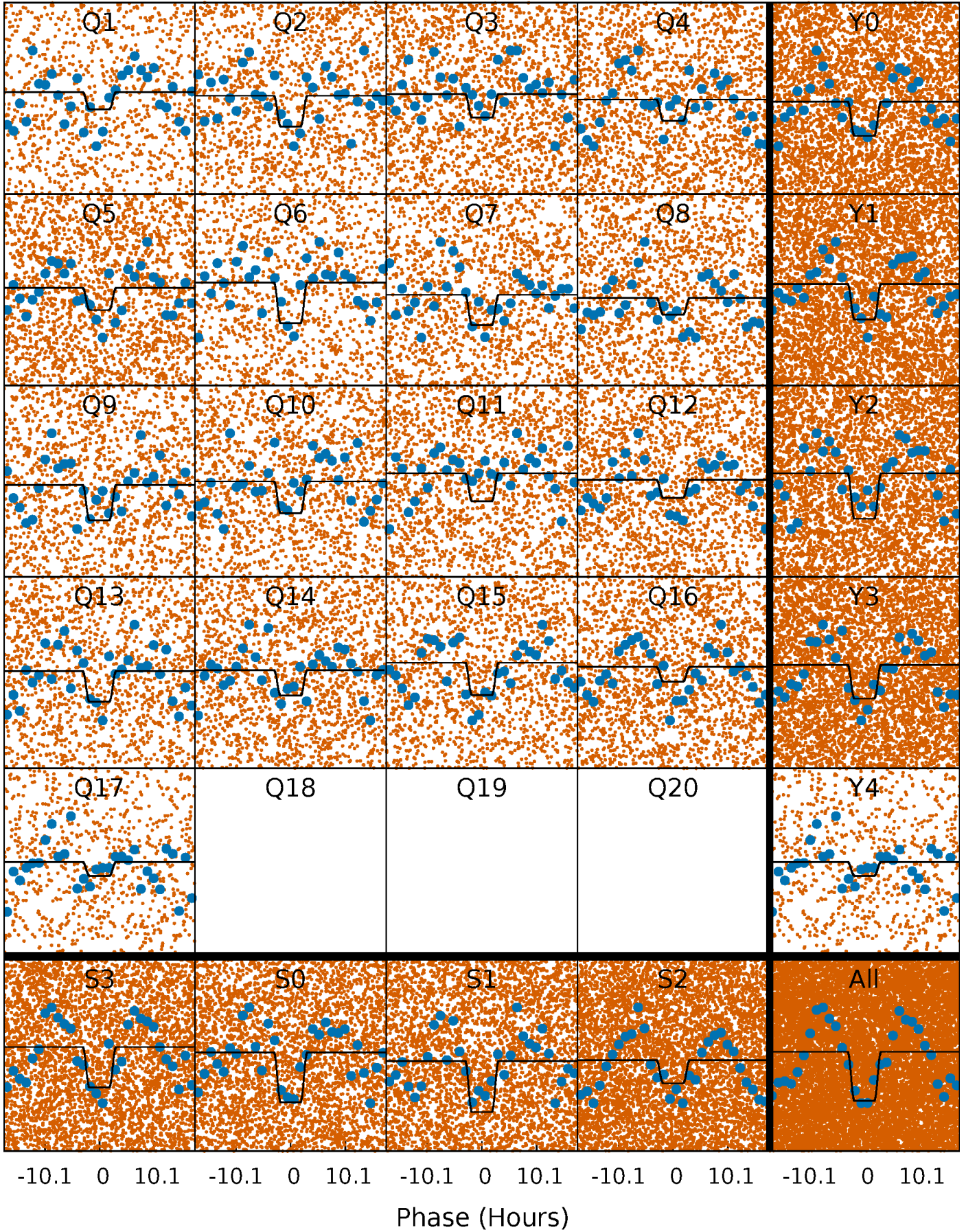
# DV Quarter-Phased Transit Curves

TCE 006352349-01 P= 1.316901 Days  $T_0=132.803291$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

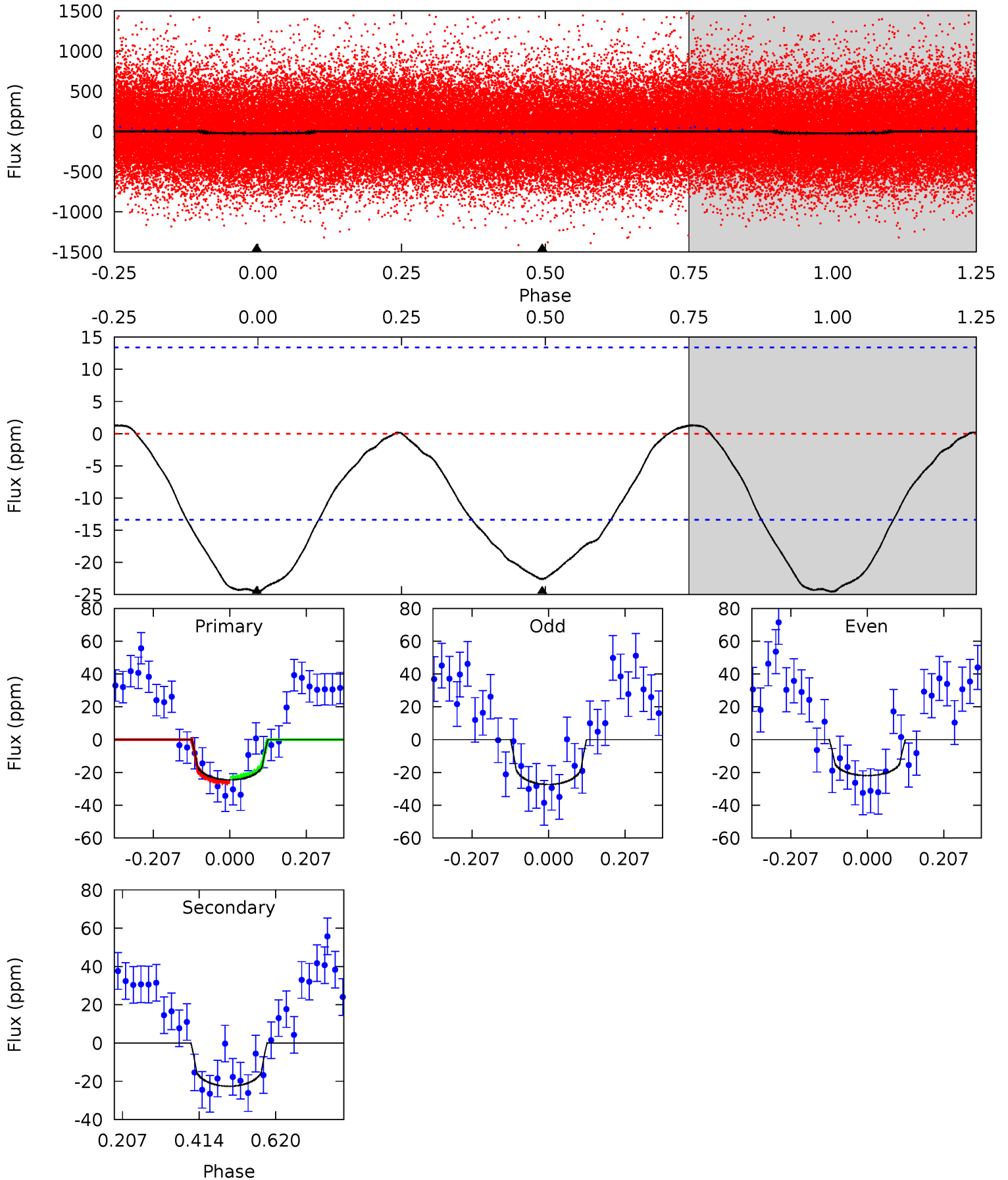
TCE 006352349-01 P= 1.316843 Days  $T_0=132.821194$  (BKJD)



# DV Model-Shift Uniqueness Test

006352349-01, P = 1.316901 Days, E = 131.486390 Days

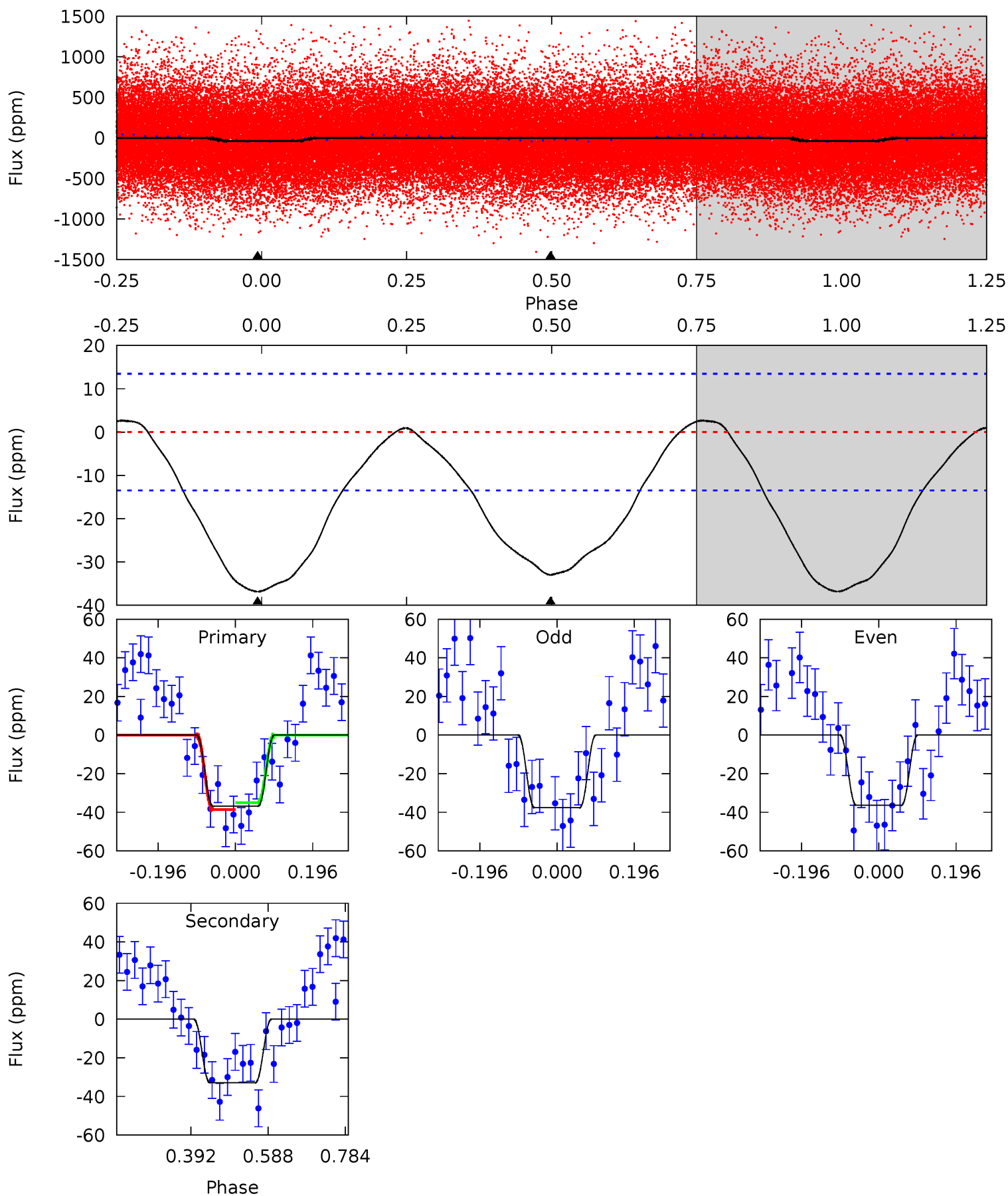
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.08	7.44	0	0	4.41	1.26	0.37	8.08	8.08	7.44	7.44	0.90	0.81	0.05	0.50



# Alt Model-Shift Uniqueness Test

006352349-01, P = 1.316843 Days, E = 131.504351 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	10.8	0	0	4.42	1.29	0.74	12.1	12.1	10.8	10.8	0.21	0.87	0.07	0.58



### Stellar Parameters For KIC 006352349

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6078^{+183}_{-201}$	$4.361^{+0.108}_{-0.201}$	$-0.080^{+0.250}_{-0.300}$	$1.108^{+0.332}_{-0.179}$	$1.025^{+0.164}_{-0.123}$	$1.061^{+0.597}_{-0.544}$
	+3%/-3%	+2%/-5%	+312%/-375%	+30%/-16%	+16%/-12%	+56%/-51%
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 006352349-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-23 \pm 3$	$0.75^{+0.56}_{-0.47}$	$2602^{+187}_{-158}$	$5409^{+3800}_{-1156}$	$13^{+74}_{-9}$
Alt.	$-33 \pm 3$	$0.83^{+0.69}_{-0.44}$	$2587^{+188}_{-147}$	$5588^{+3057}_{-1218}$	$15^{+54}_{-10}$

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

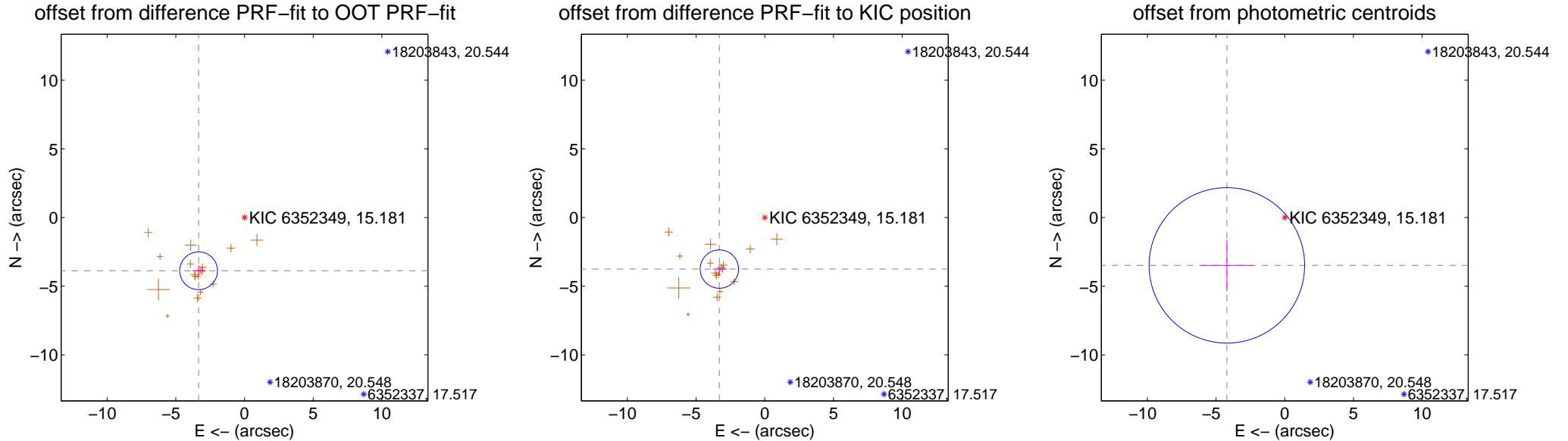
## DV Centroid Data

Supplemental centroid analysis for 006352349-01. Kepler magnitude: 15.18. Transit SNR 7.51

There are 0 quarters with good PRF difference image offsets

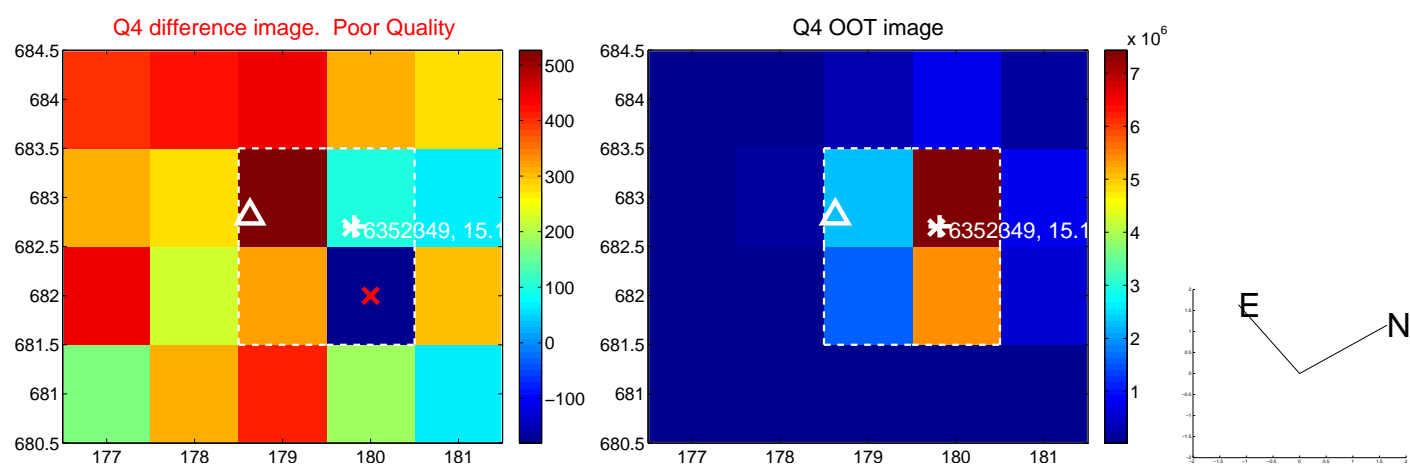
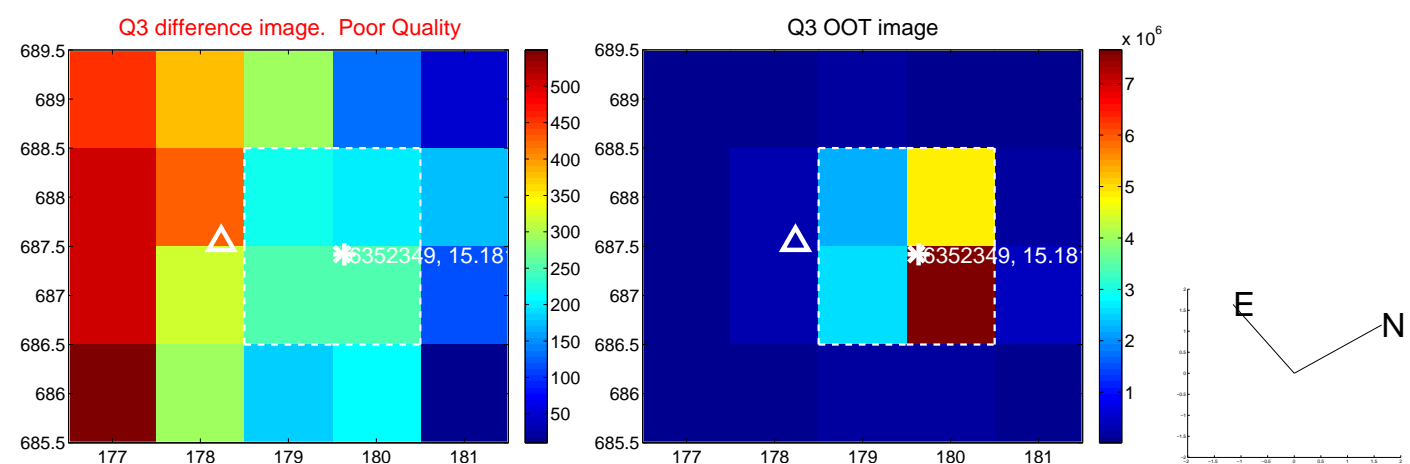
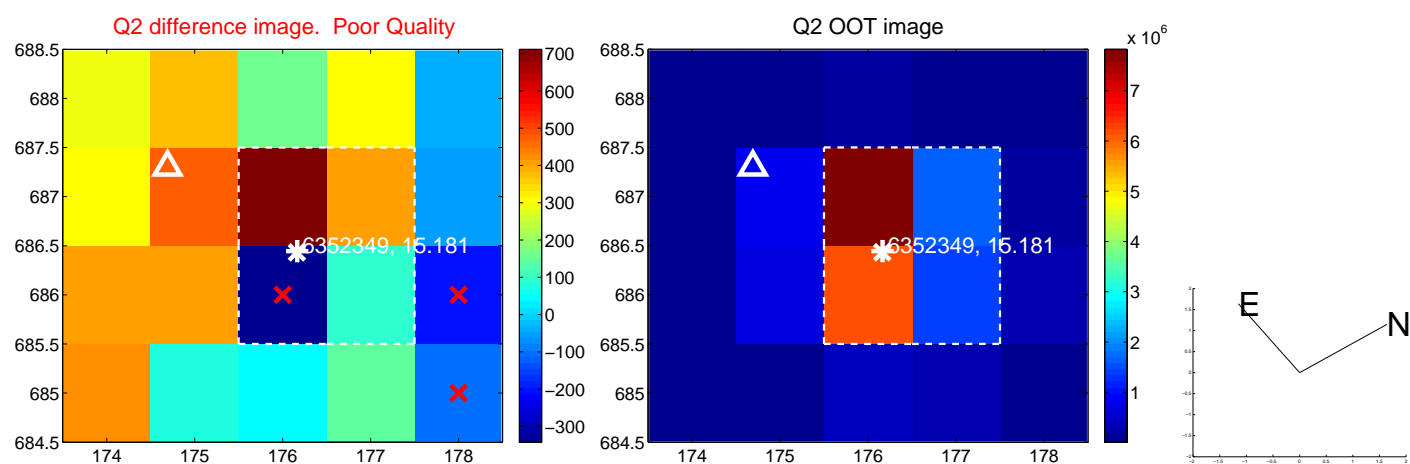
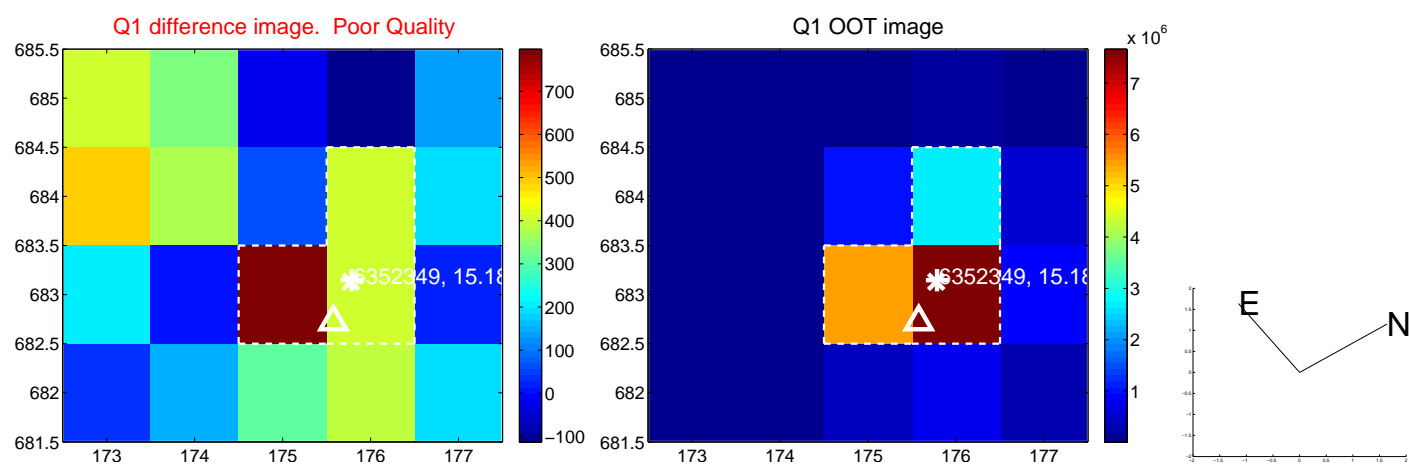
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.115 \pm 0.458$	11.17	$3.341 \pm 0.455$	$-3.874 \pm 0.392$
PRF-fit source offset from KIC position	$4.999 \pm 0.465$	10.74	$3.304 \pm 0.466$	$-3.751 \pm 0.383$
photometric centroid source offset	$5.47 \pm 1.89$	2.90	$4.21 \pm 1.89$	$-3.48 \pm 1.87$

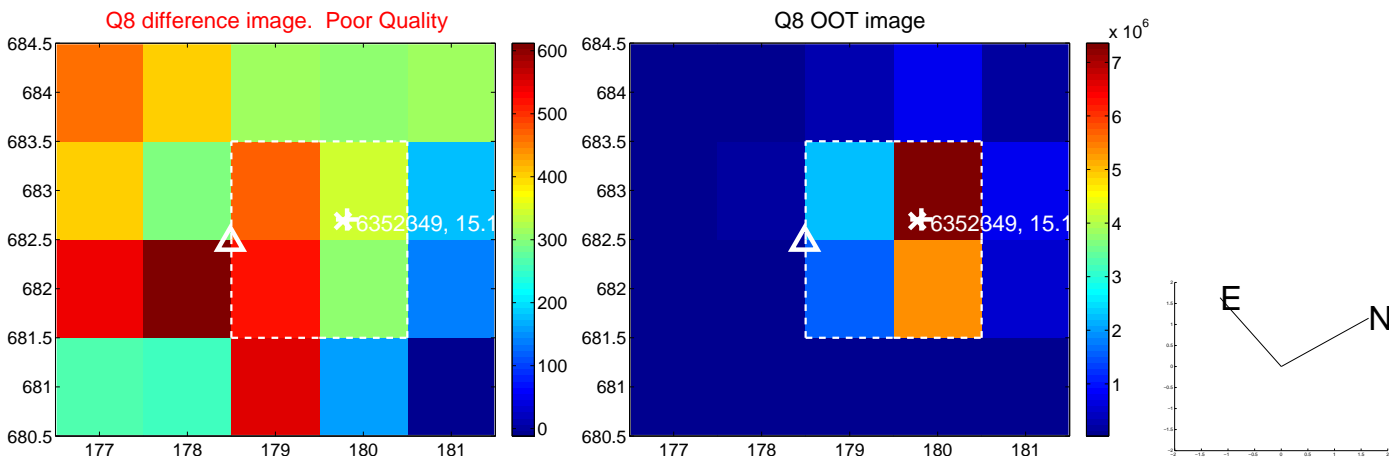
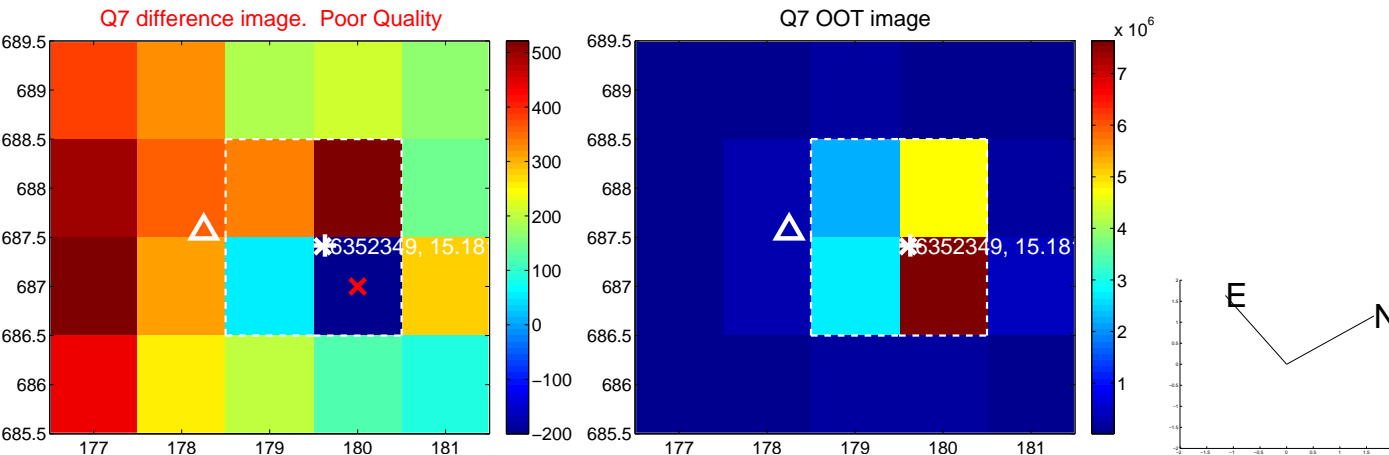
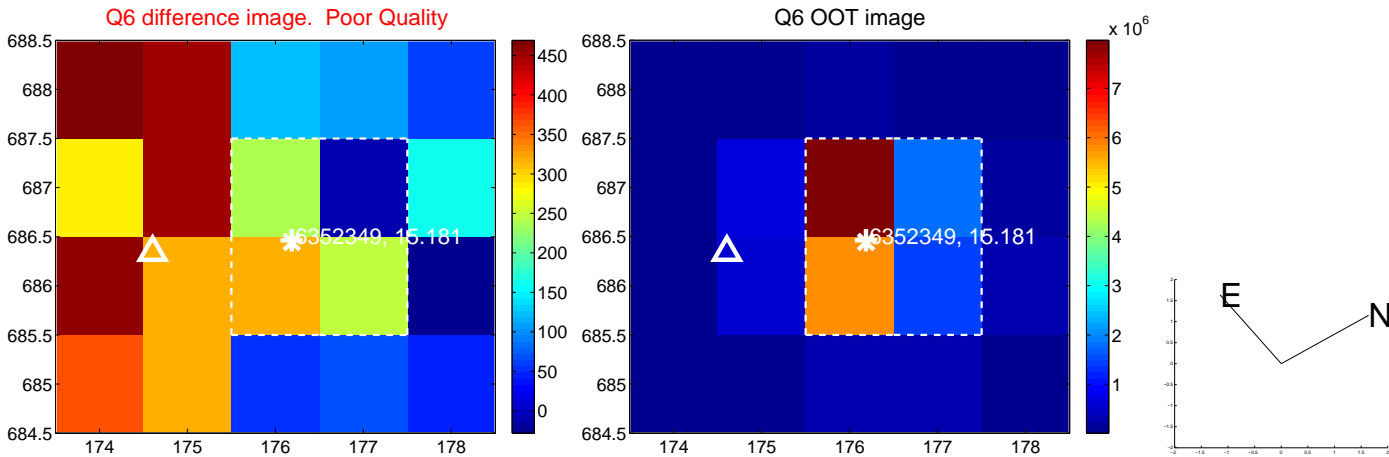
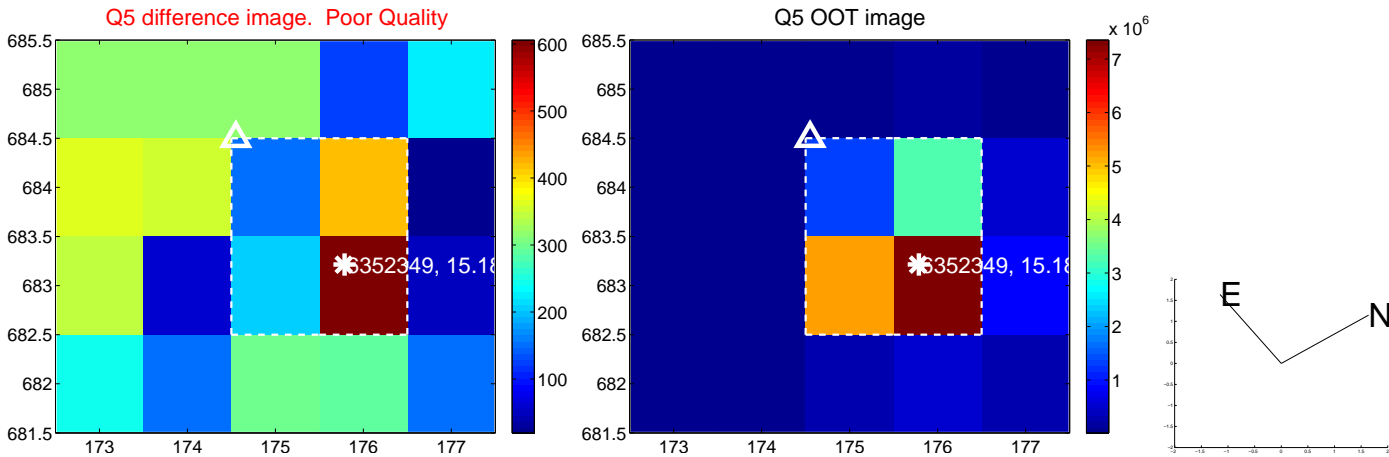


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

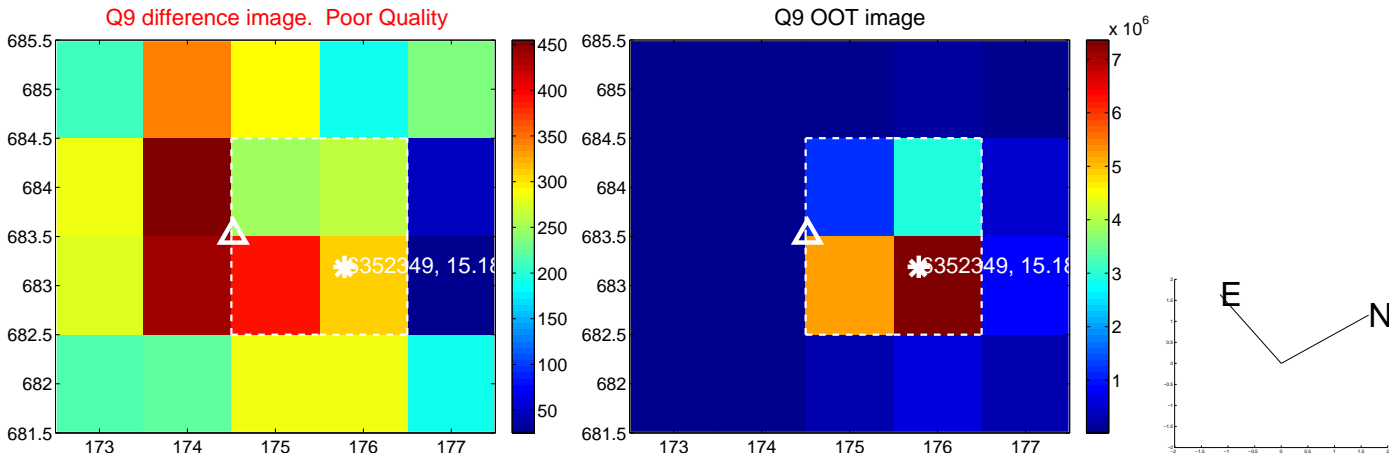
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



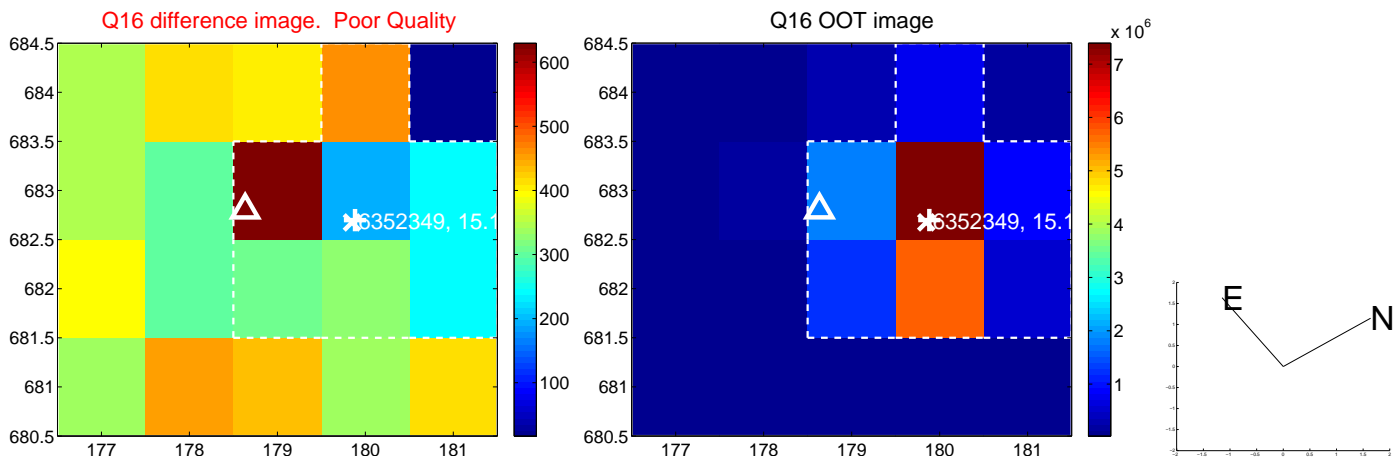
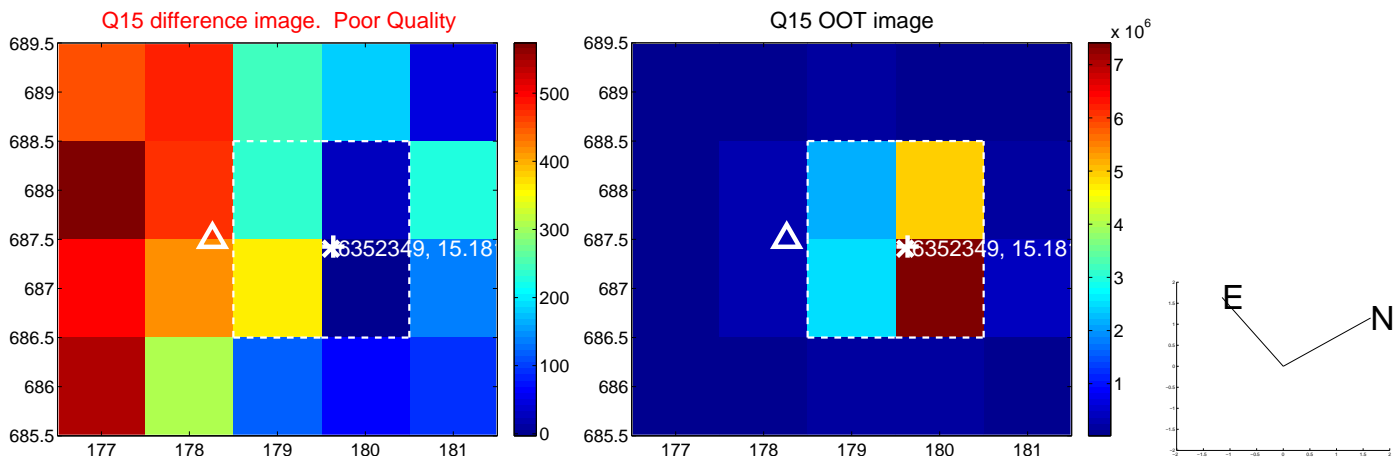
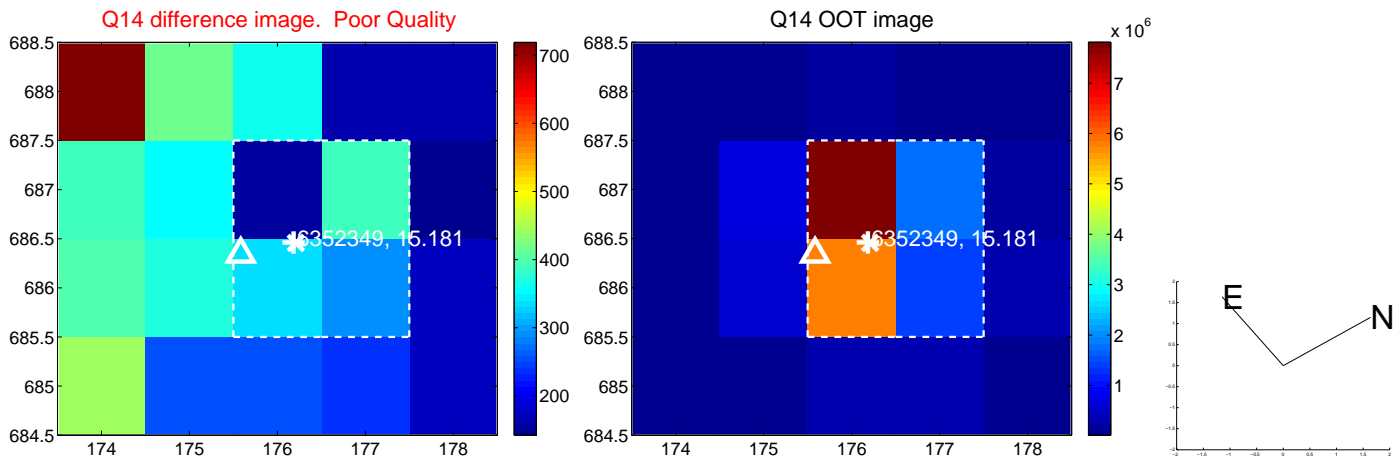
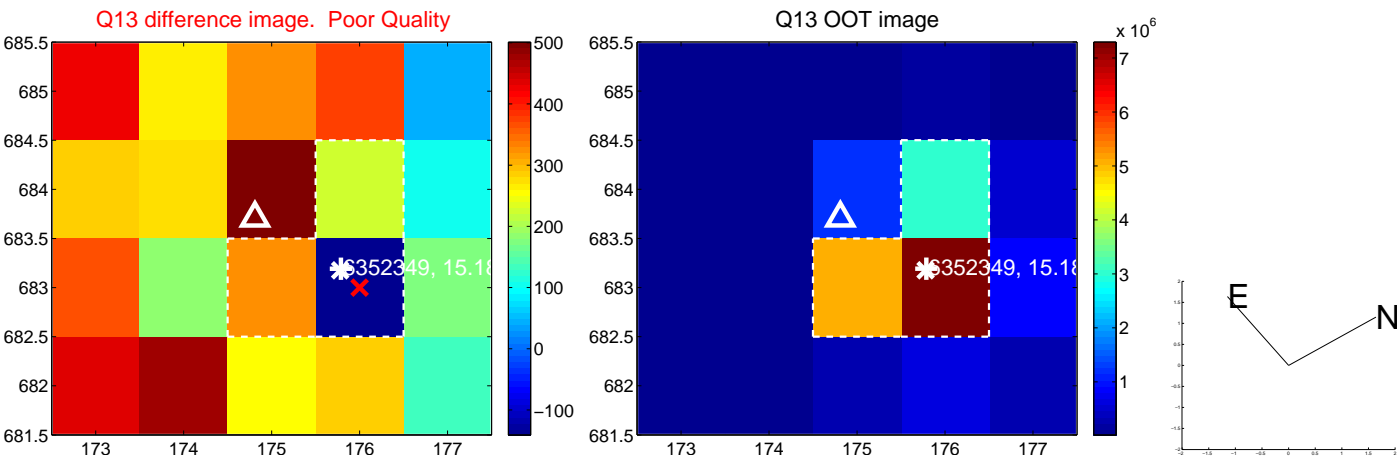
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



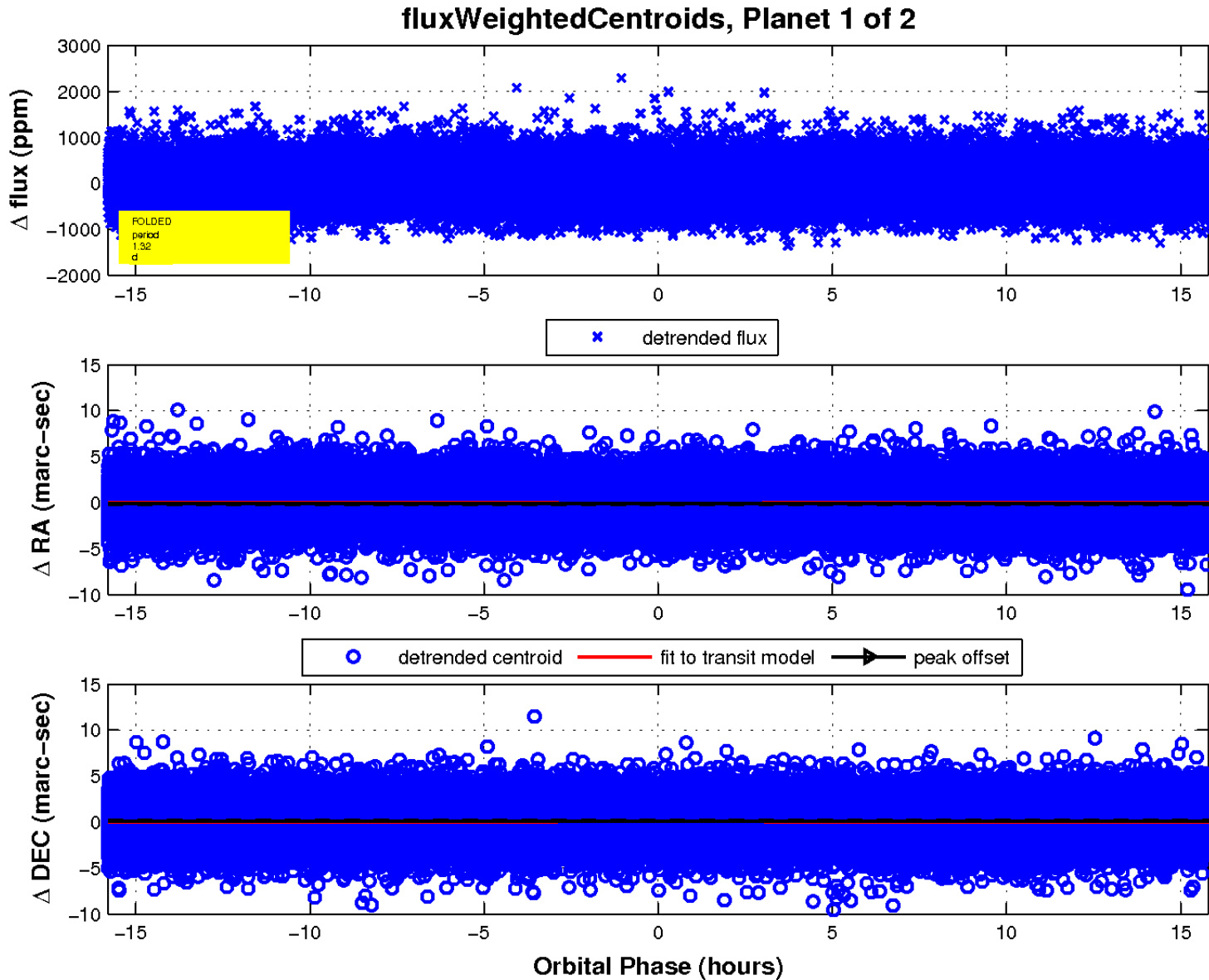
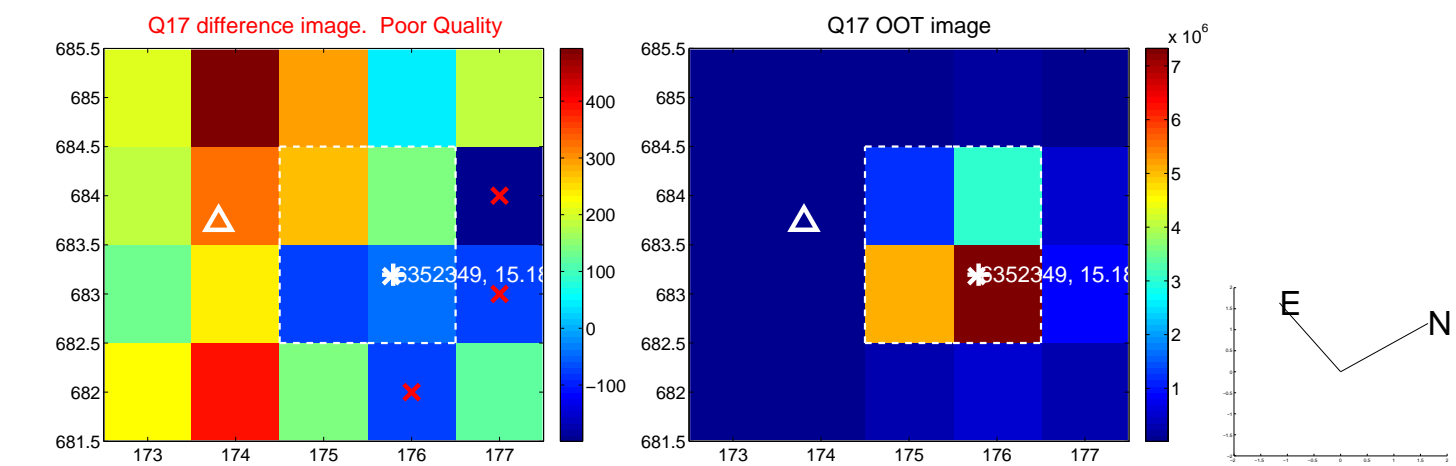
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

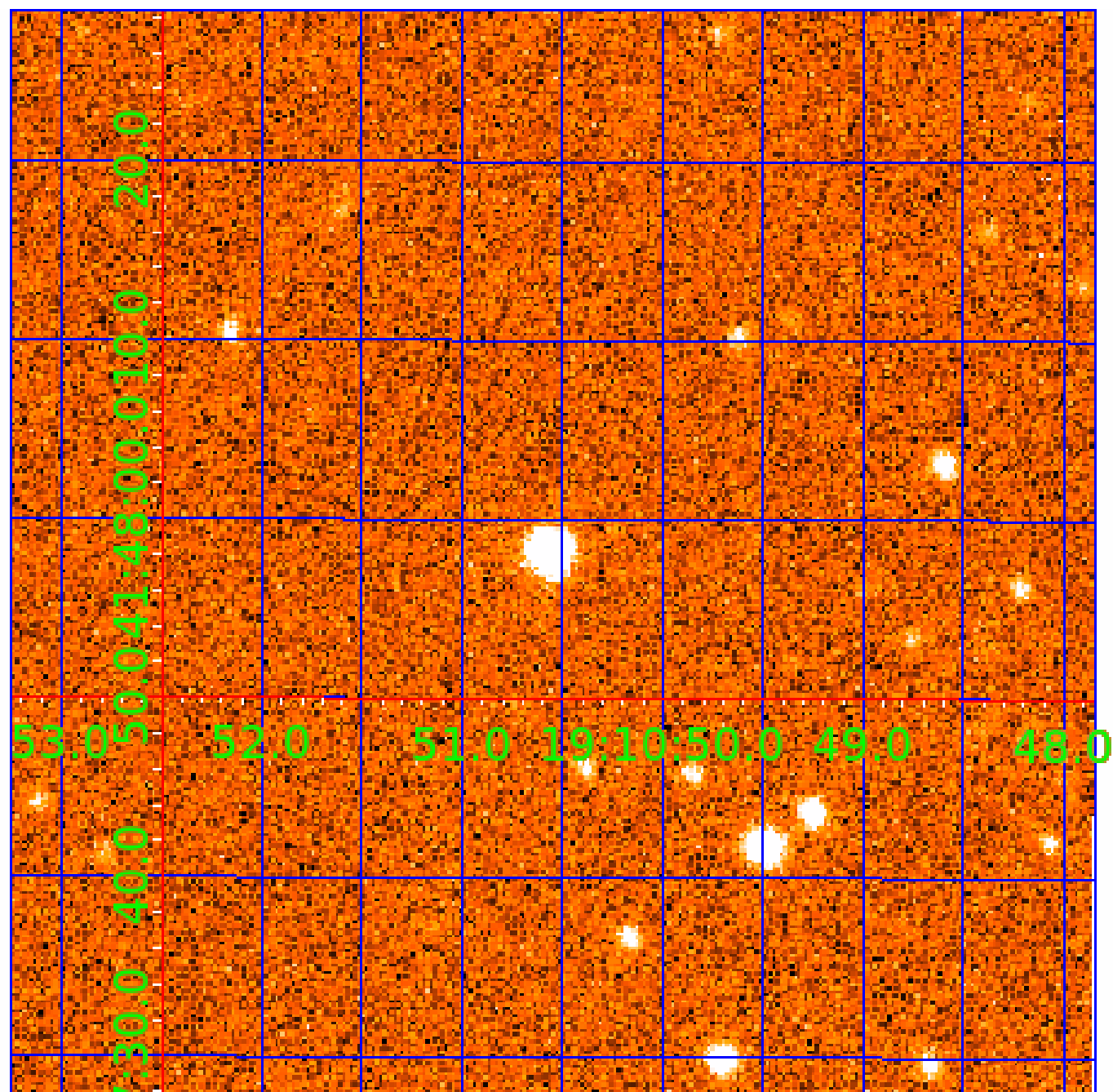


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006352349

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006352349-01	OBS	No	1.316901	132.803291	28.6	6.077	7.7	7.5	1.11	6078	0.62	2664.16
006352349-02	OBS	No	378.065316	230.686583	530.8	3.633	7.3	7.5	1.11	6078	3.01	1.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006352349-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST
006352349-02	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

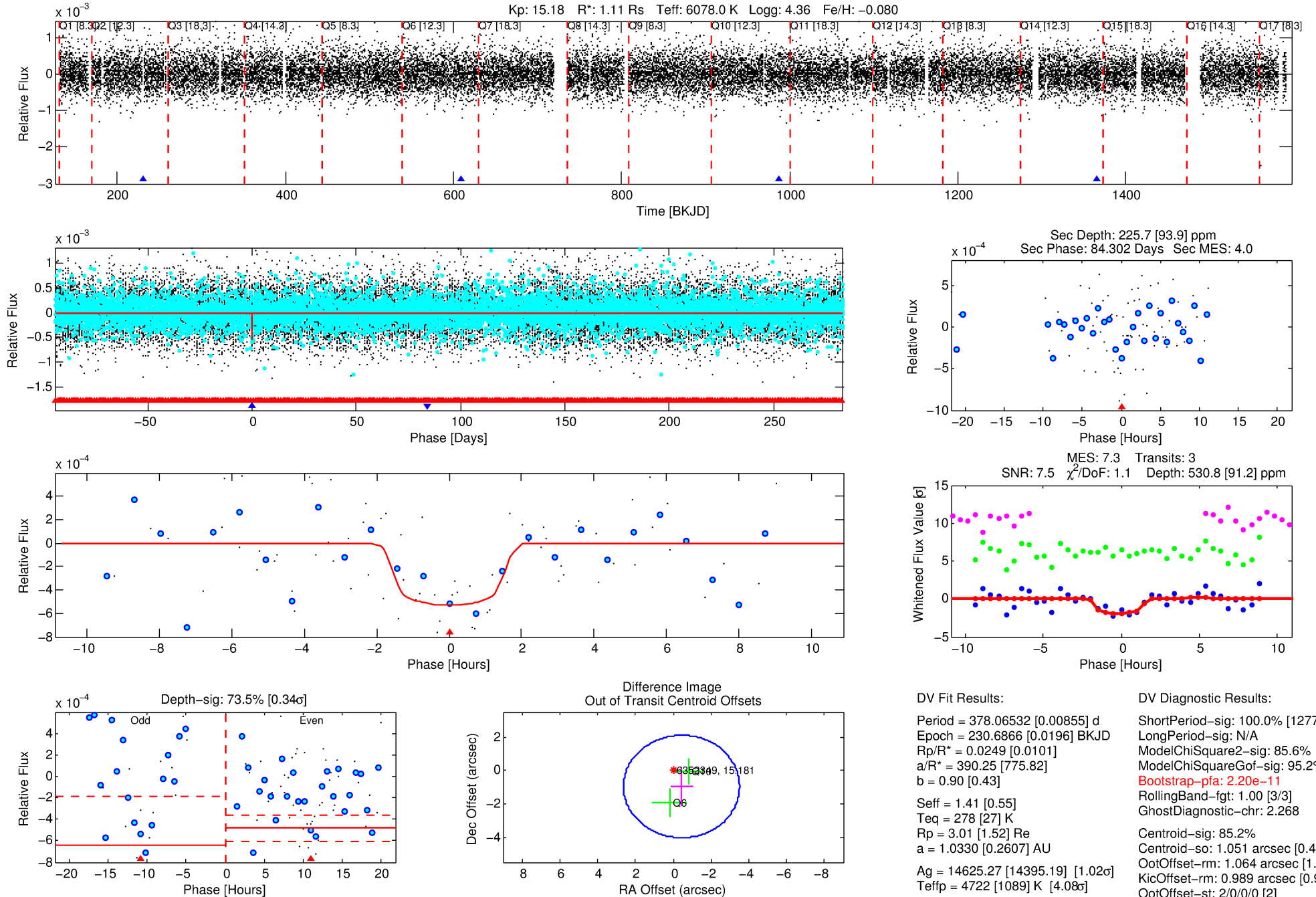
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006352349-02

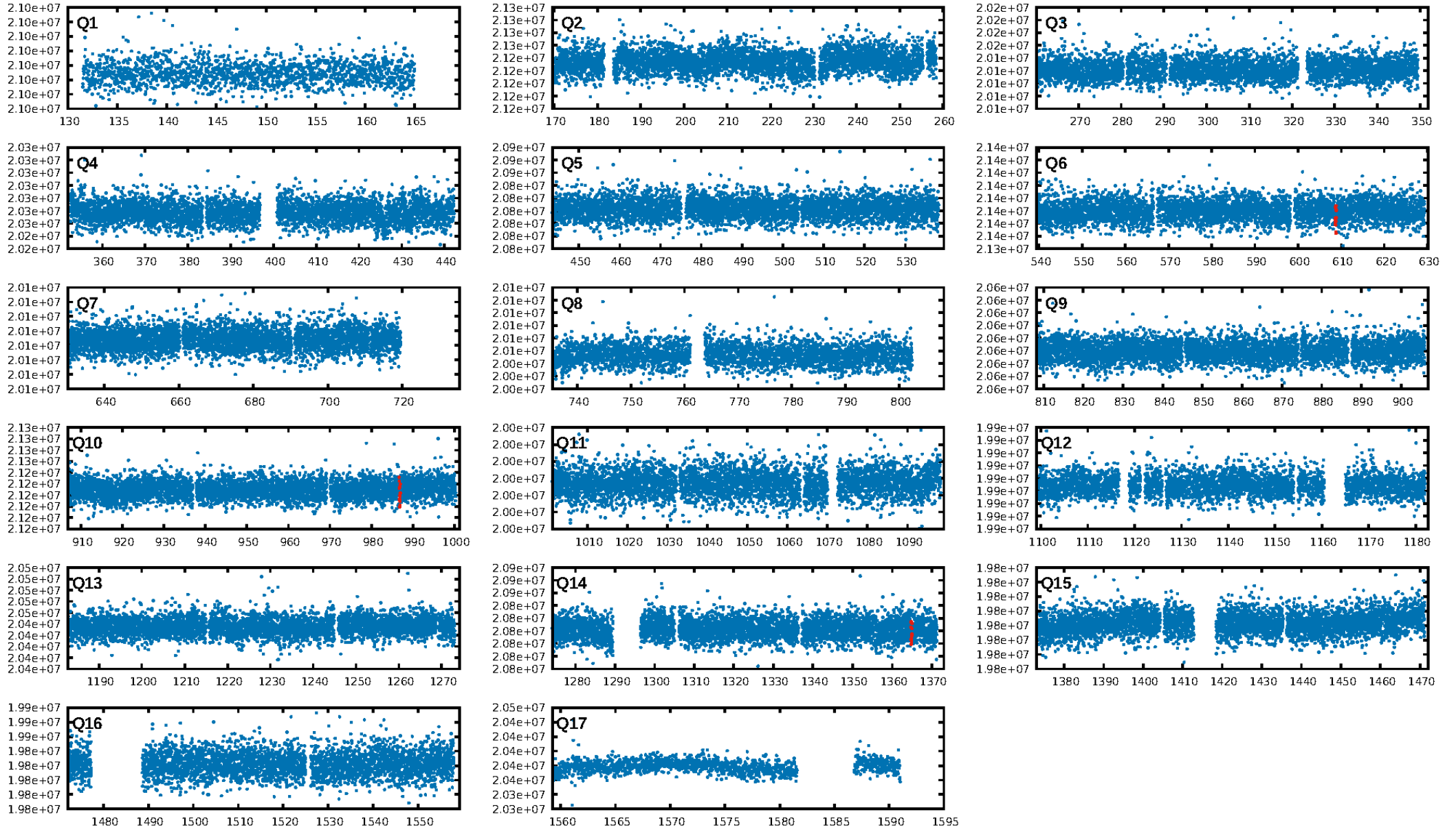
No Significant Match Found

# DV One-Page Summary

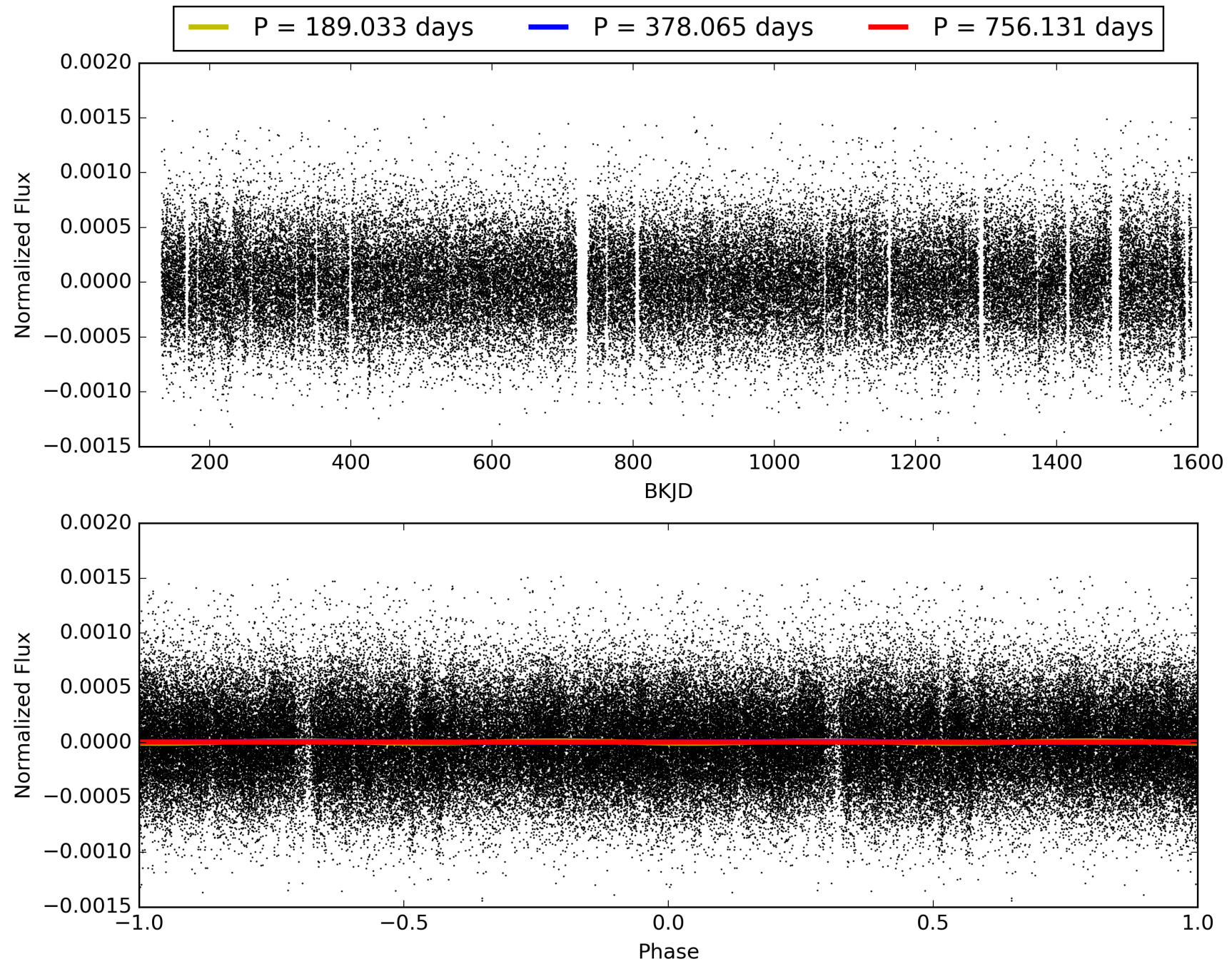
KIC: 6352349 Candidate: 2 of 2 Period: 378.065 d



# TCE 006352349-02, PDC Light Curves

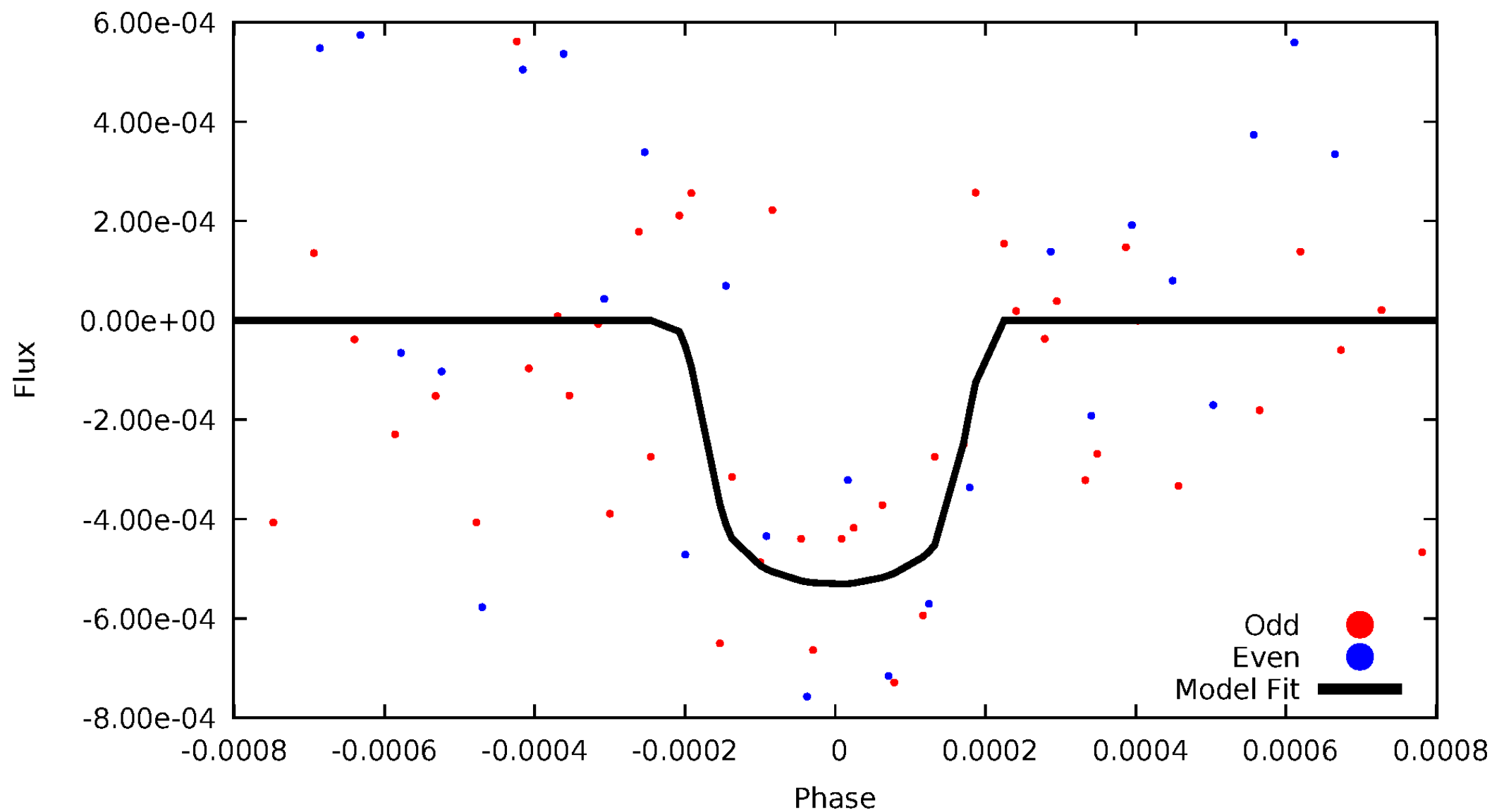


TCE 006352349-02



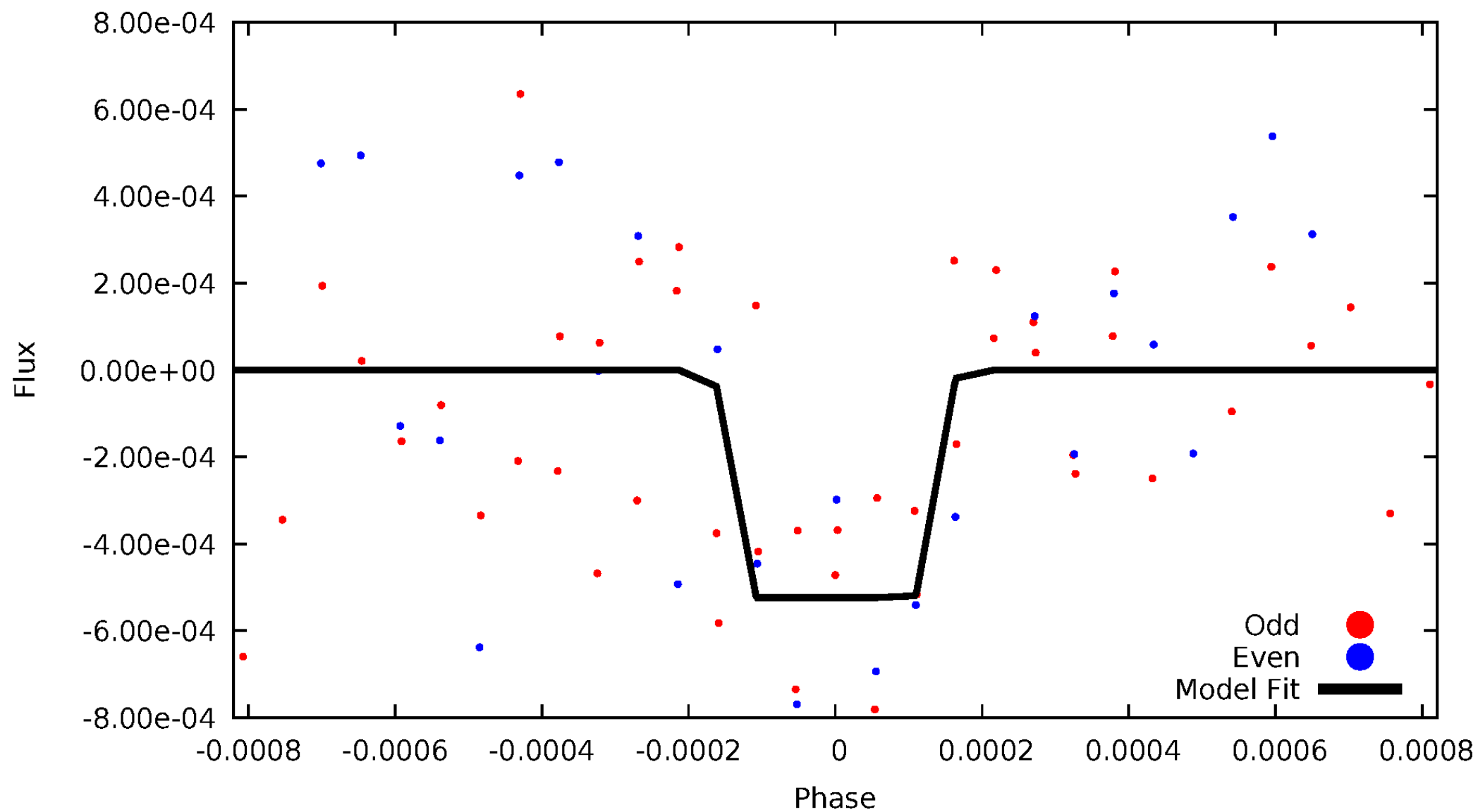
# DV Odd/Even

TCE 006352349-02



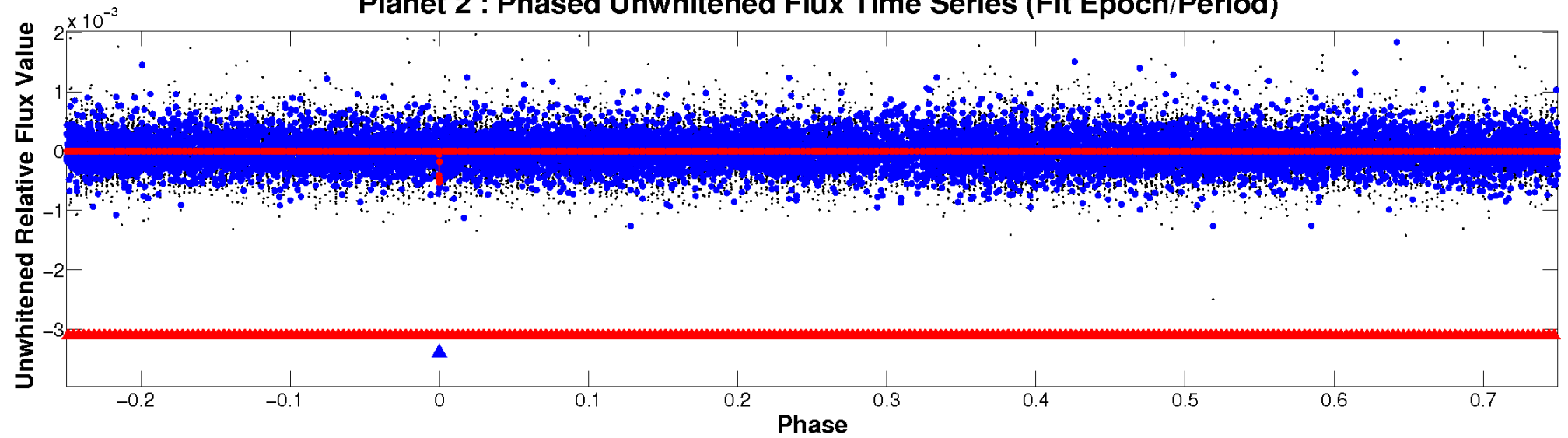
# ALT Odd/Even

TCE 006352349-02

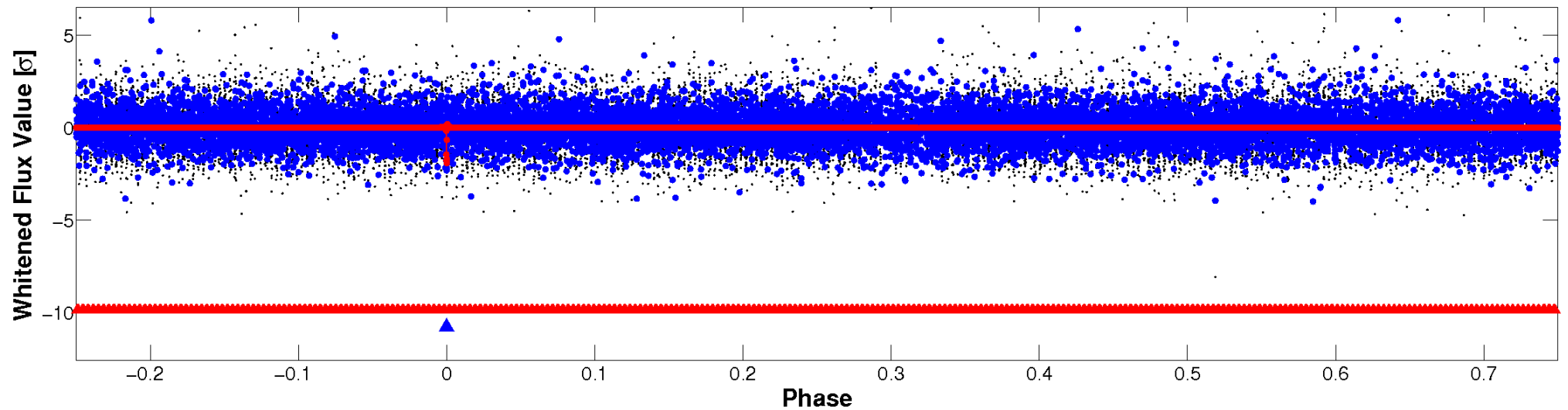


# Non-Whitened Vs. Whitened Light Curve

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

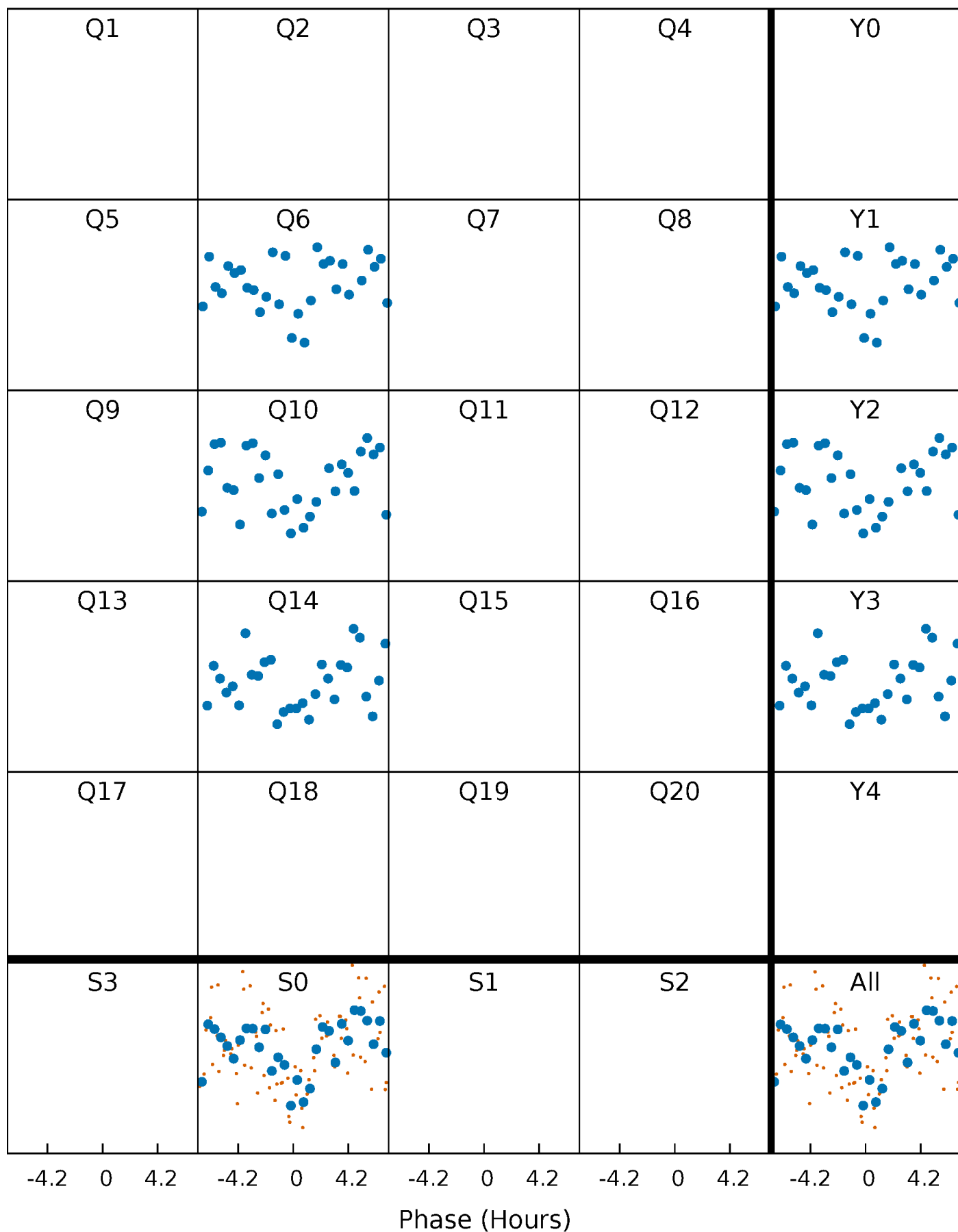


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



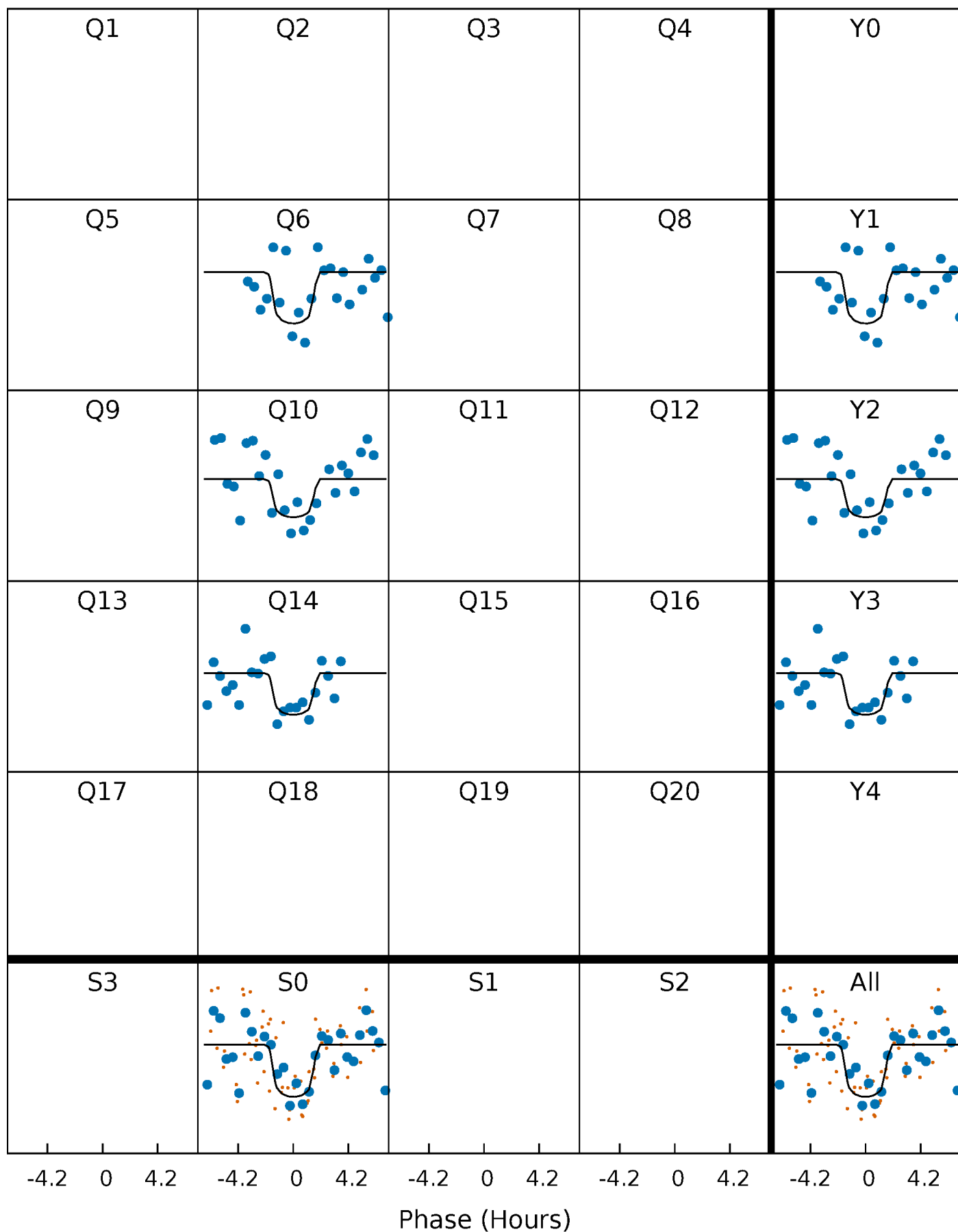
# PDC Quarter-Phased Transit Curves

TCE 006352349-02     $P=378.065316$  Days     $T_0=230.686583$  (BKJD)



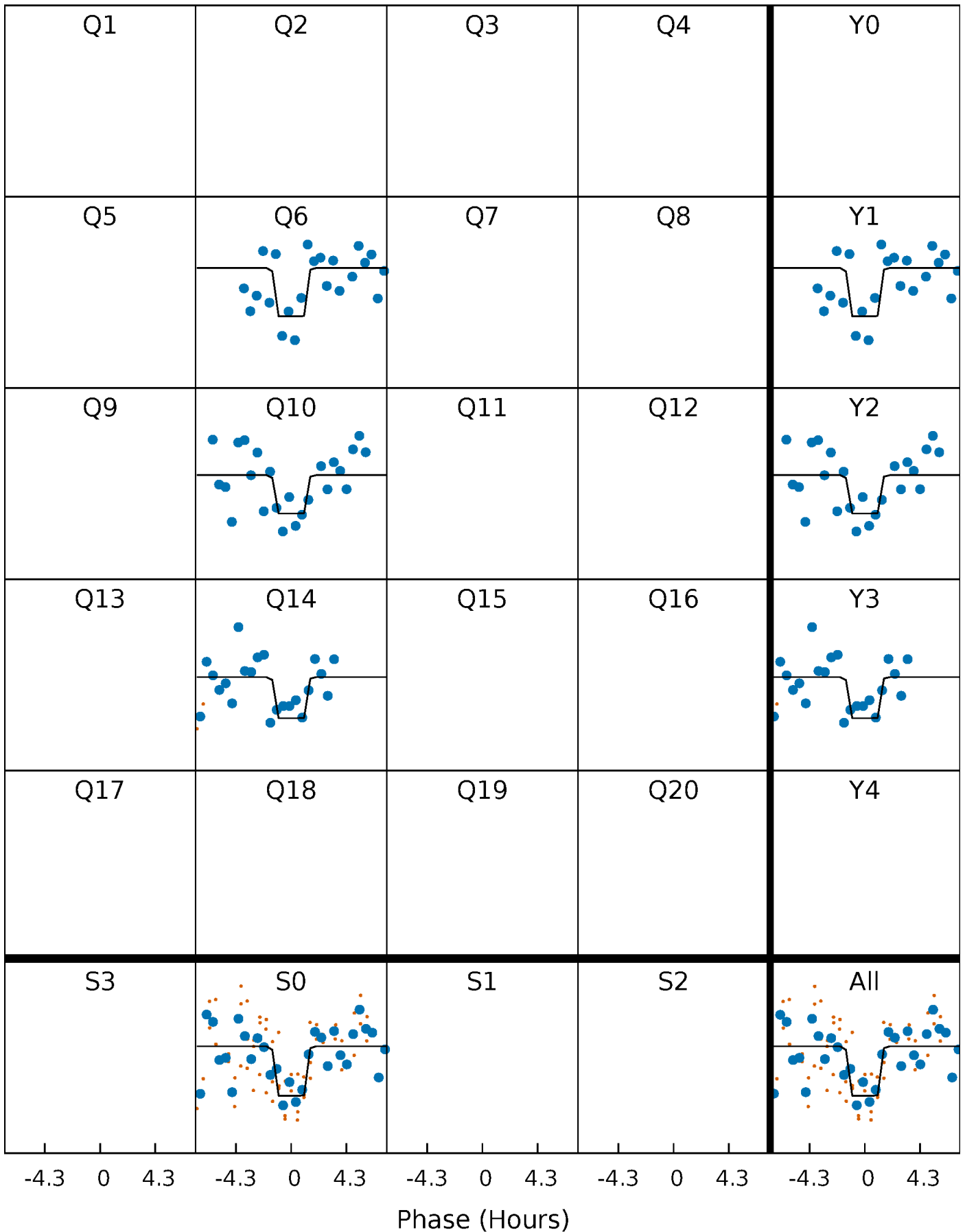
# DV Quarter-Phased Transit Curves

TCE 006352349-02 P=378.065316 Days  $T_0=230.686583$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

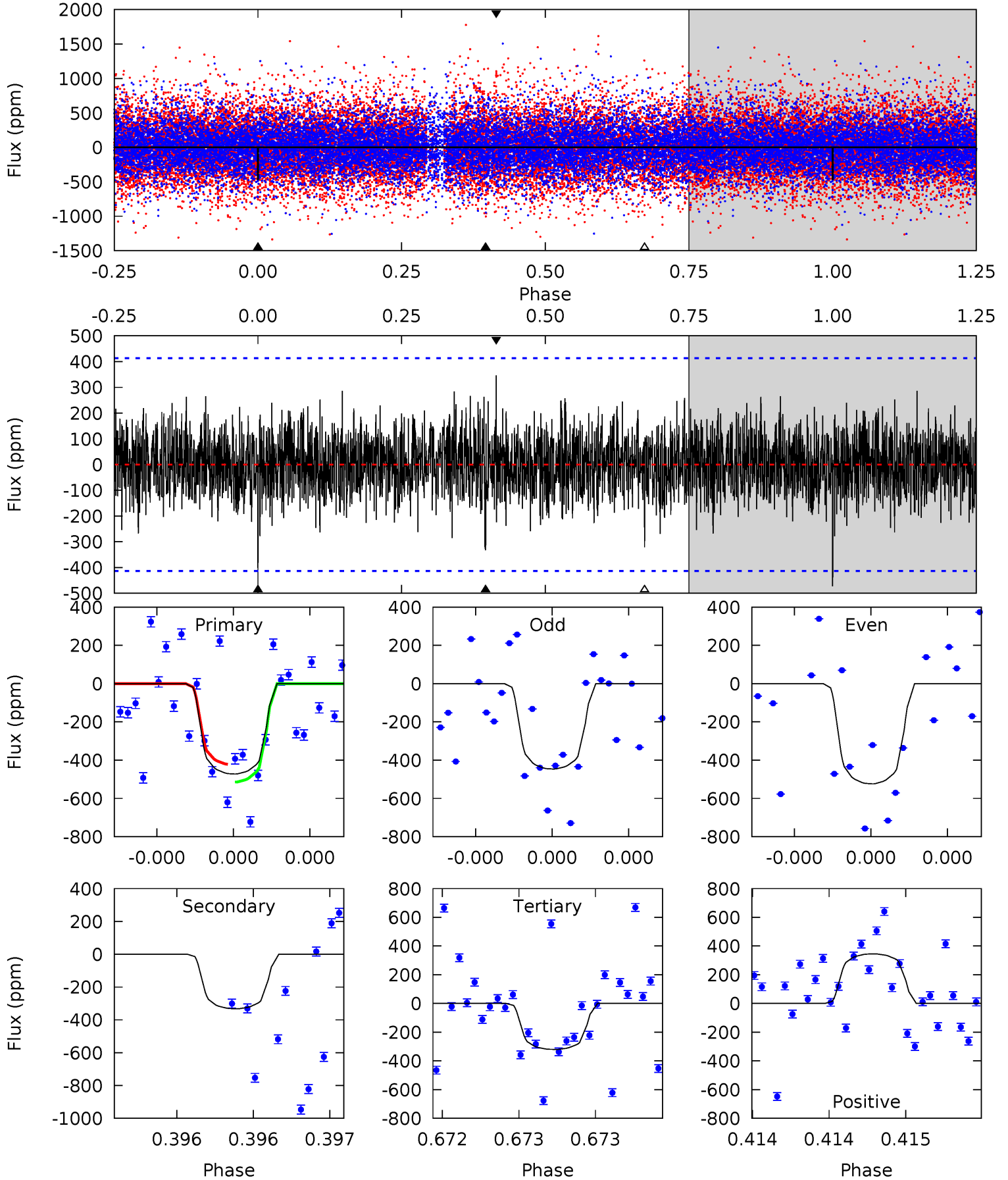
TCE 006352349-02 P=378.061727 Days  $T_0=230.699459$  (BKJD)



# DV Model-Shift Uniqueness Test

006352349-02, P = 378.065316 Days, E = 230.686583 Days

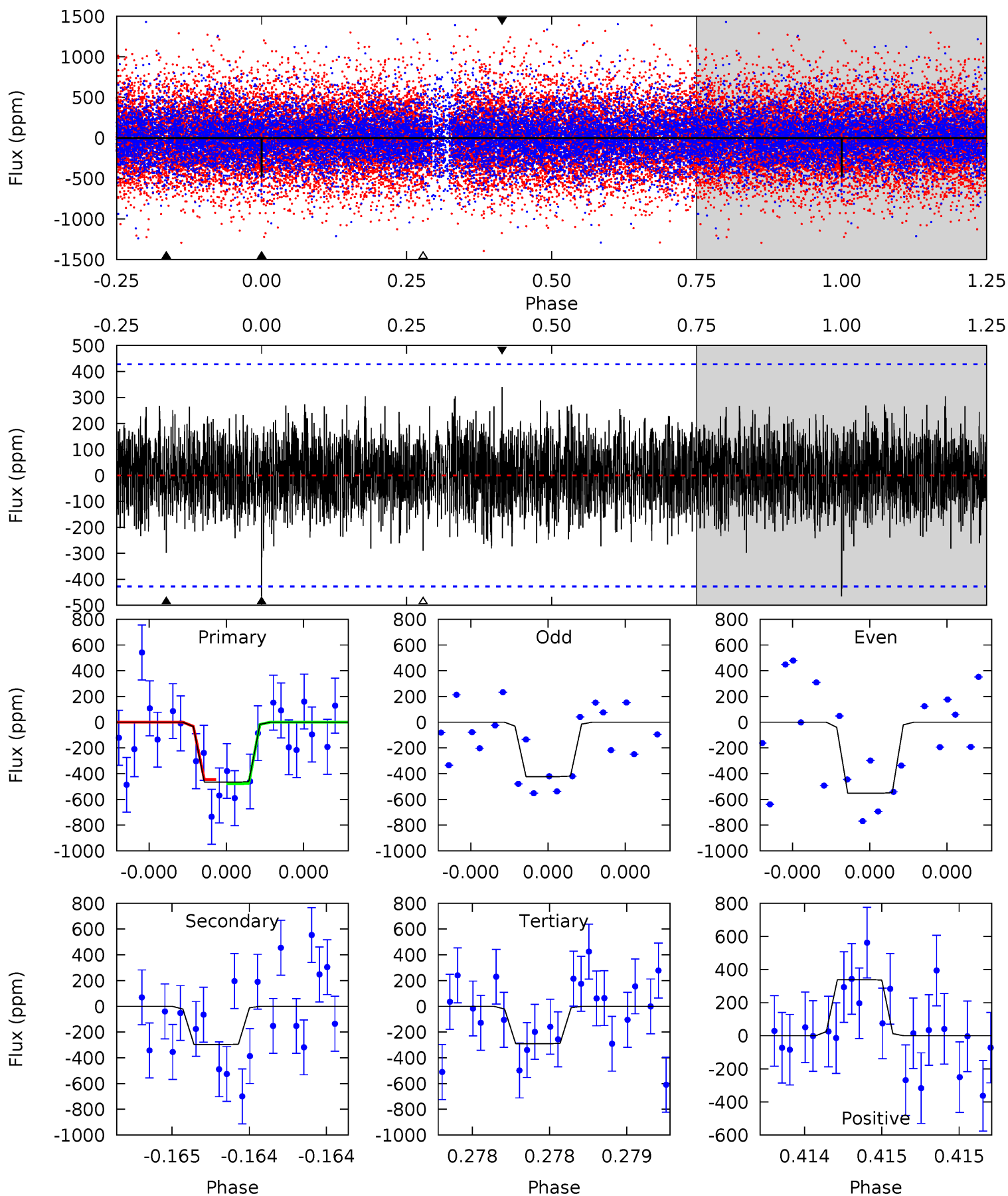
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.42	4.52	4.35	4.70	5.61	3.54	1.14	2.07	1.72	0.17	-0.18	0.51	0.90	0.42	0.63



# Alt Model-Shift Uniqueness Test

006352349-02, P = 378.061727 Days, E = 230.699459 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.13	3.91	3.82	4.46	5.62	3.55	1.10	2.31	1.67	0.09	-0.55	0.81	1.07	0.42	0.21



### Stellar Parameters For KIC 006352349

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6078^{+183}_{-201}$	$4.361^{+0.108}_{-0.201}$	$-0.080^{+0.250}_{-0.300}$	$1.108^{+0.332}_{-0.179}$	$1.025^{+0.164}_{-0.123}$	$1.061^{+0.597}_{-0.544}$
	+3%/-3%	+2%/-5%	+312%/-375%	+30%/-16%	+16%/-12%	+56%/-51%
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 006352349-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-333 \pm 74$	$3.16^{+1.28}_{-1.33}$	$392^{+29}_{-22}$	$5232^{+1638}_{-755}$	$19467^{+38756}_{-9891}$
Alt.	$-297 \pm 76$	$2.89^{+1.31}_{-1.21}$	$393^{+31}_{-23}$	$5249^{+1744}_{-763}$	$20401^{+42388}_{-11303}$

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

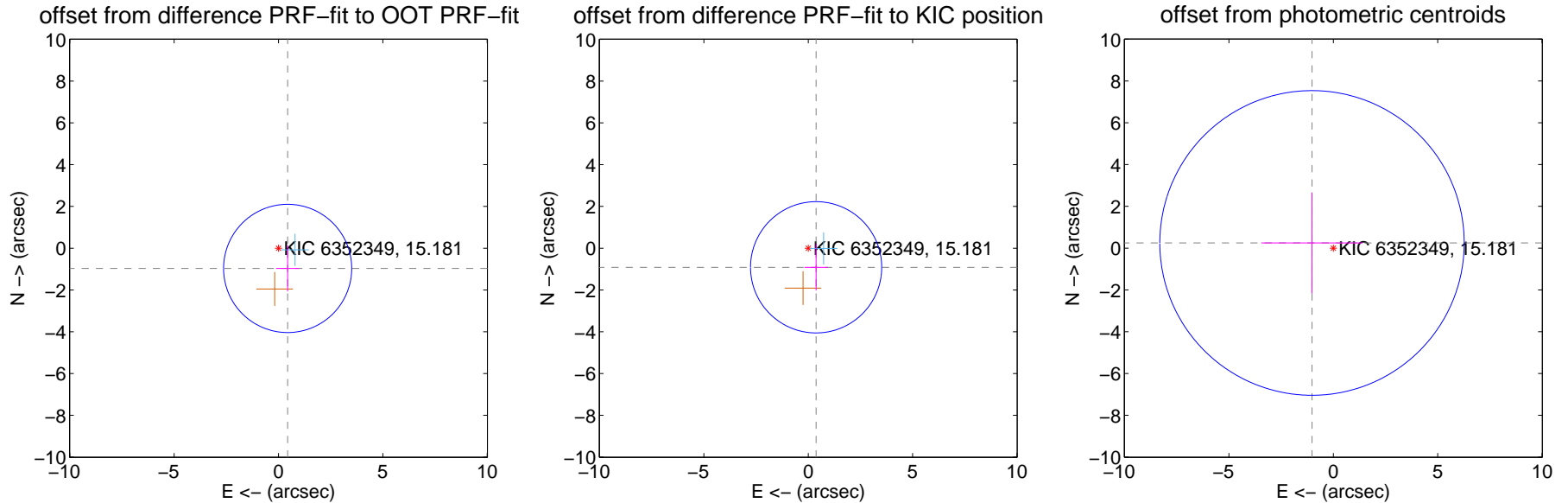
## DV Centroid Data

Supplemental centroid analysis for 006352349-02. Kepler magnitude: 15.18. Transit SNR 7.52

There are 1 quarters with good PRF difference image offsets

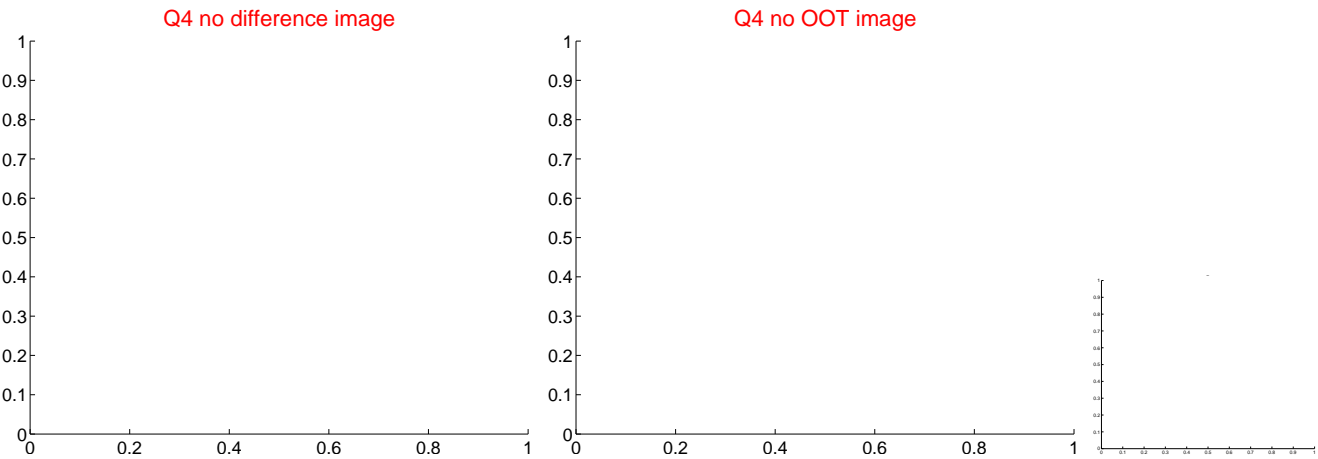
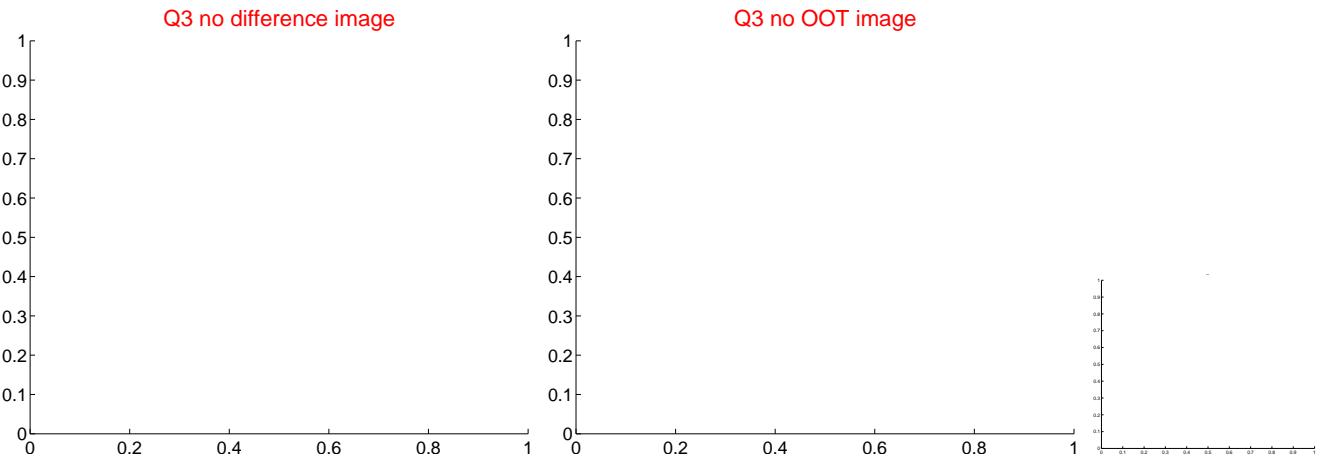
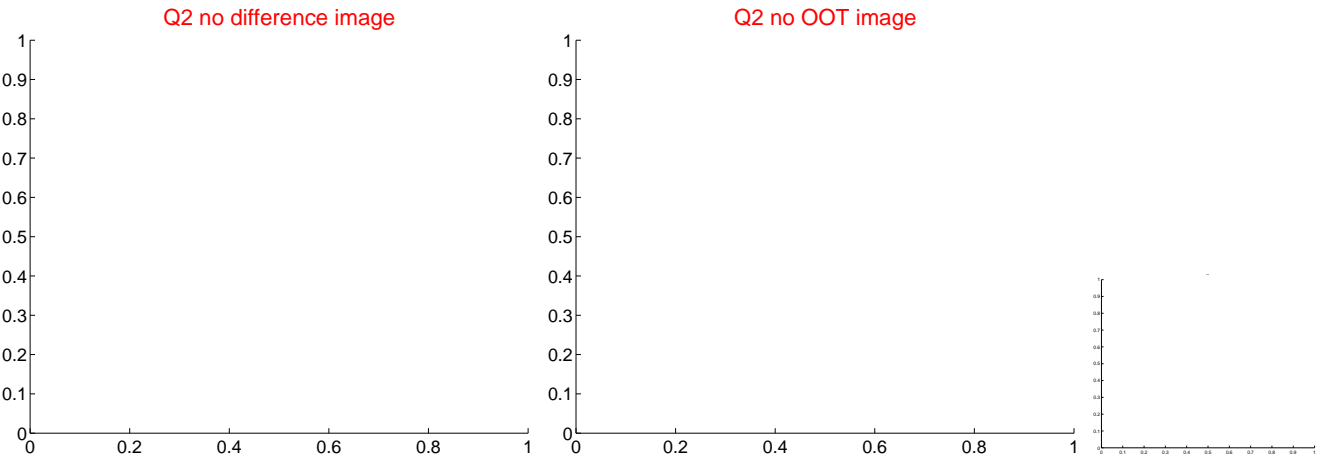
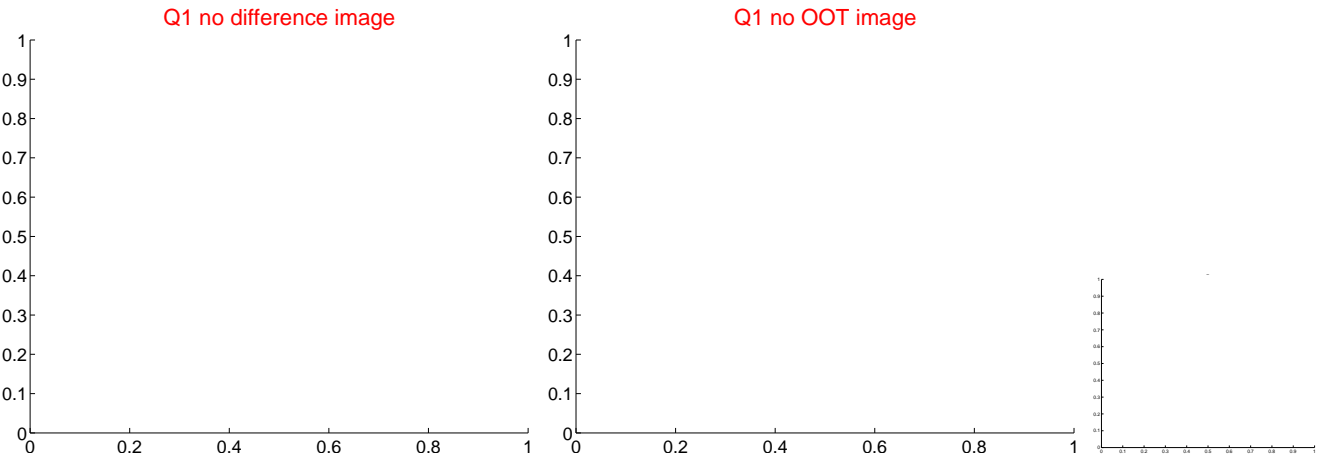
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.064 \pm 1.023$	1.04	$-0.439 \pm 0.554$	$-0.969 \pm 1.095$
PRF-fit source offset from KIC position	$0.989 \pm 1.048$	0.94	$-0.377 \pm 0.558$	$-0.915 \pm 1.110$
photometric centroid source offset	$1.05 \pm 2.43$	0.43	$1.02 \pm 2.43$	$0.25 \pm 2.42$

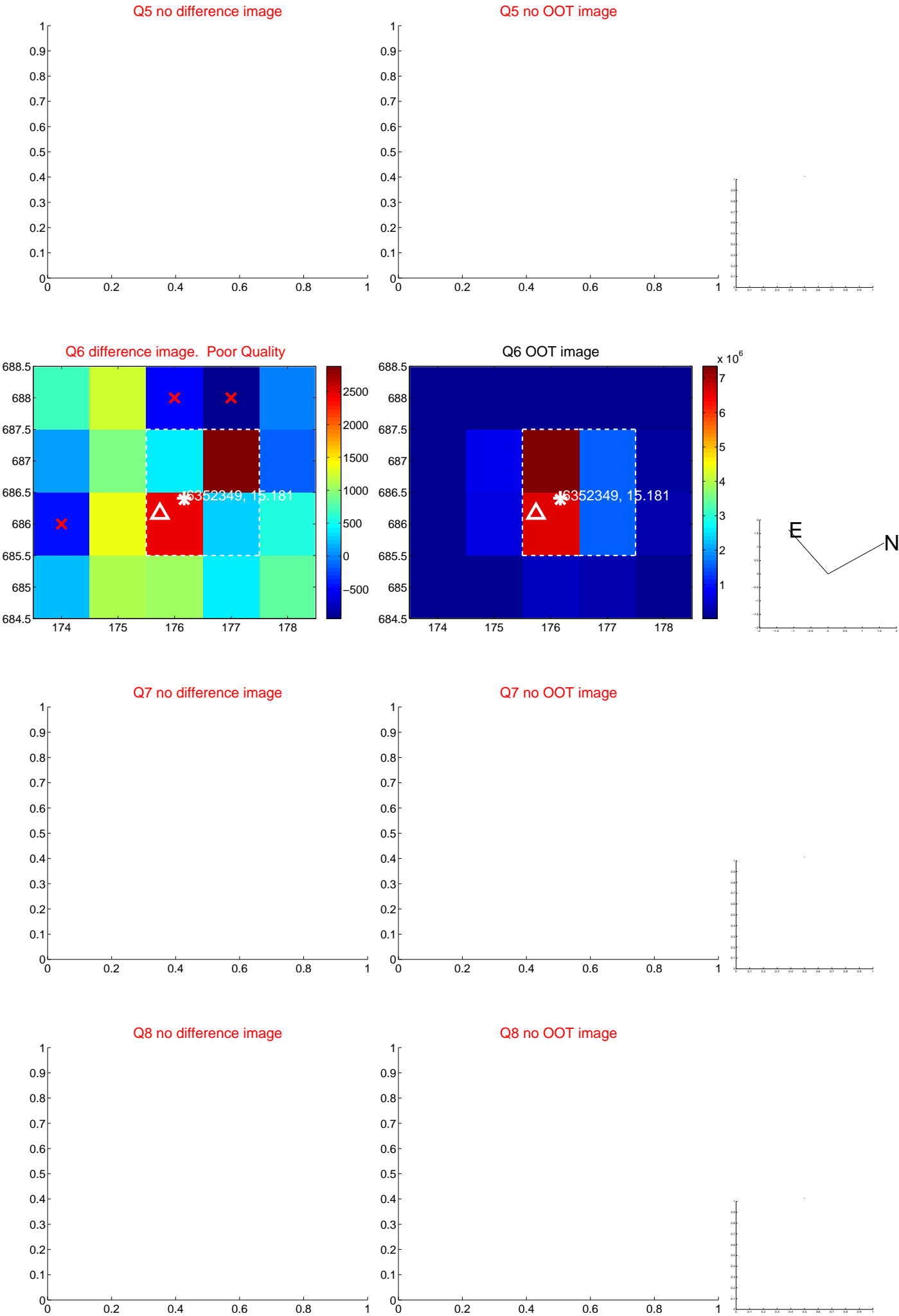


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

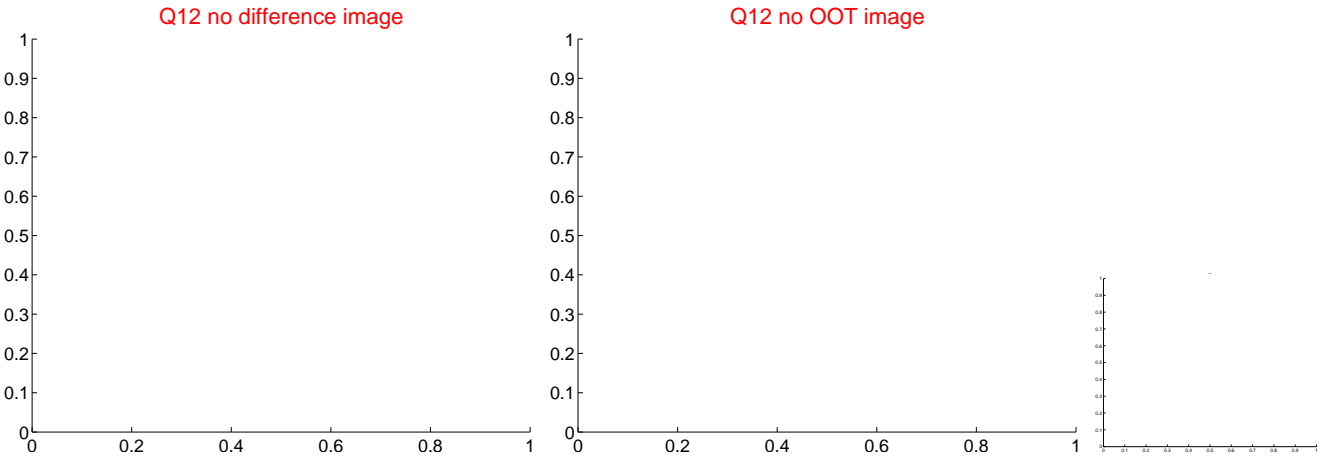
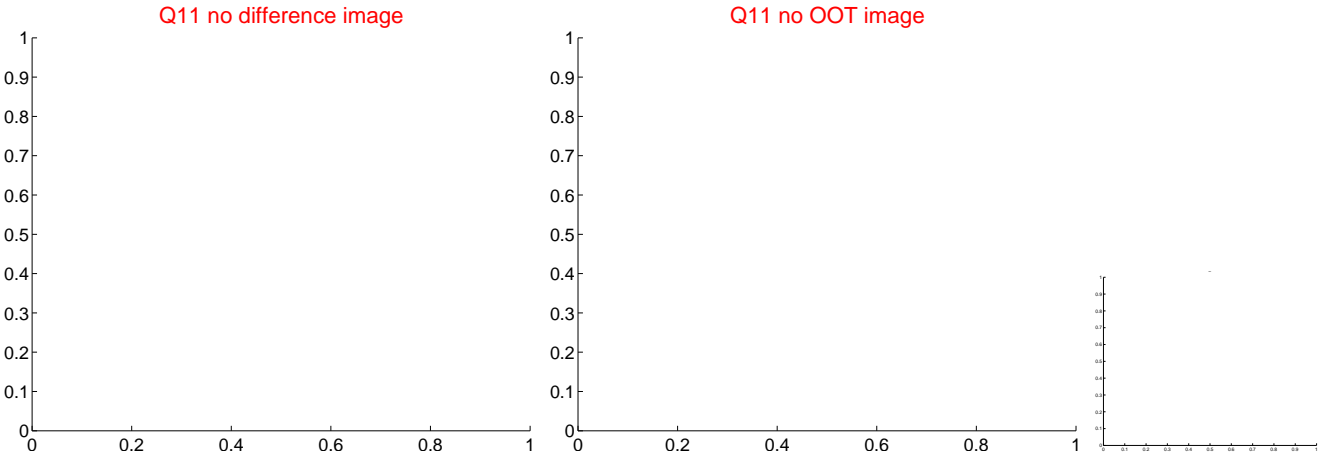
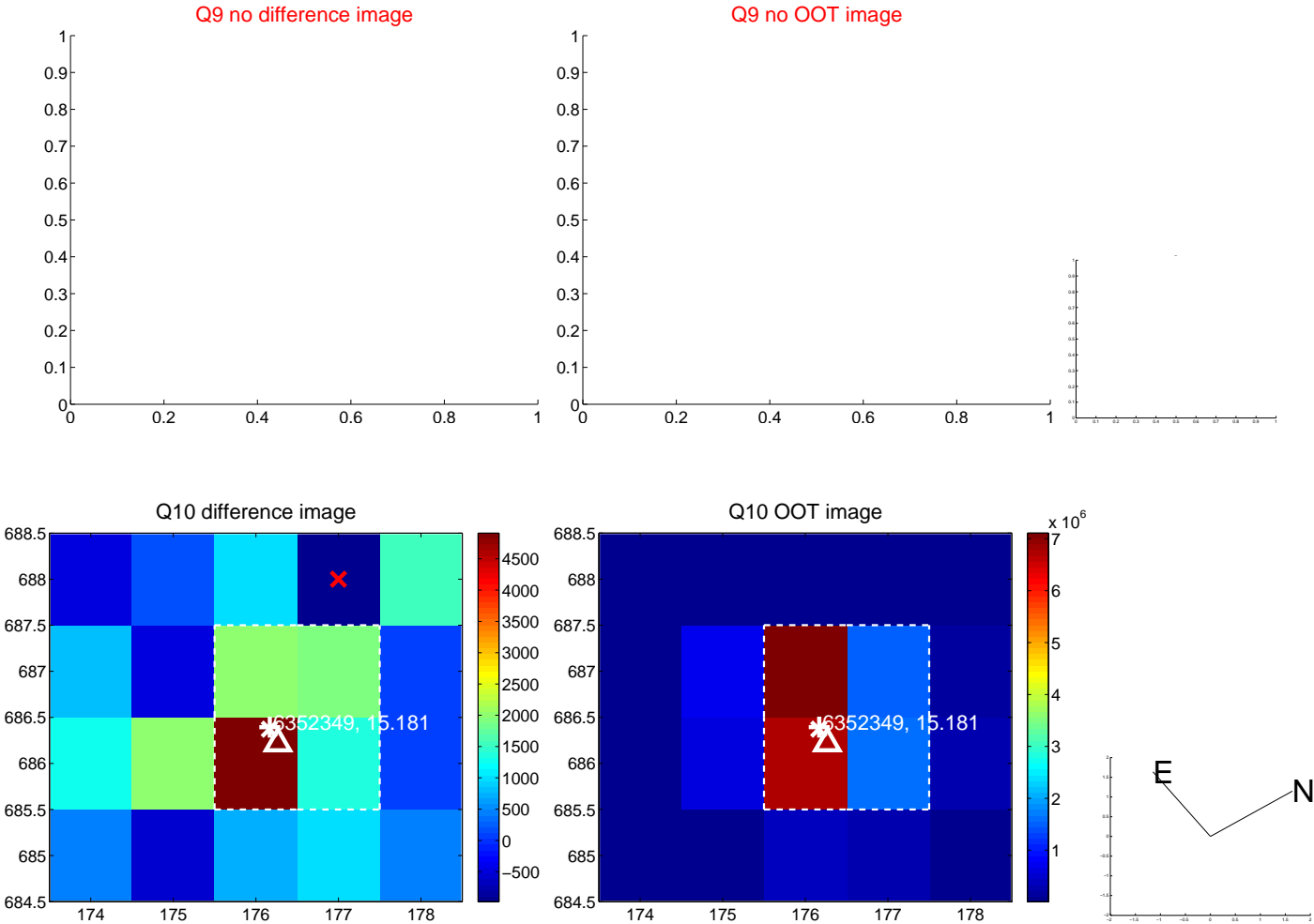
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



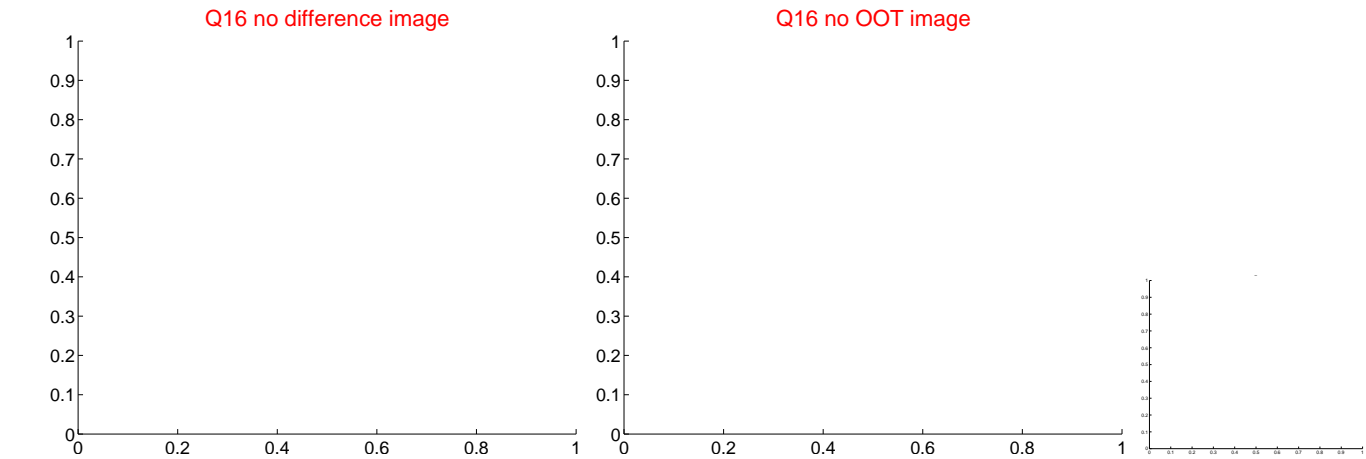
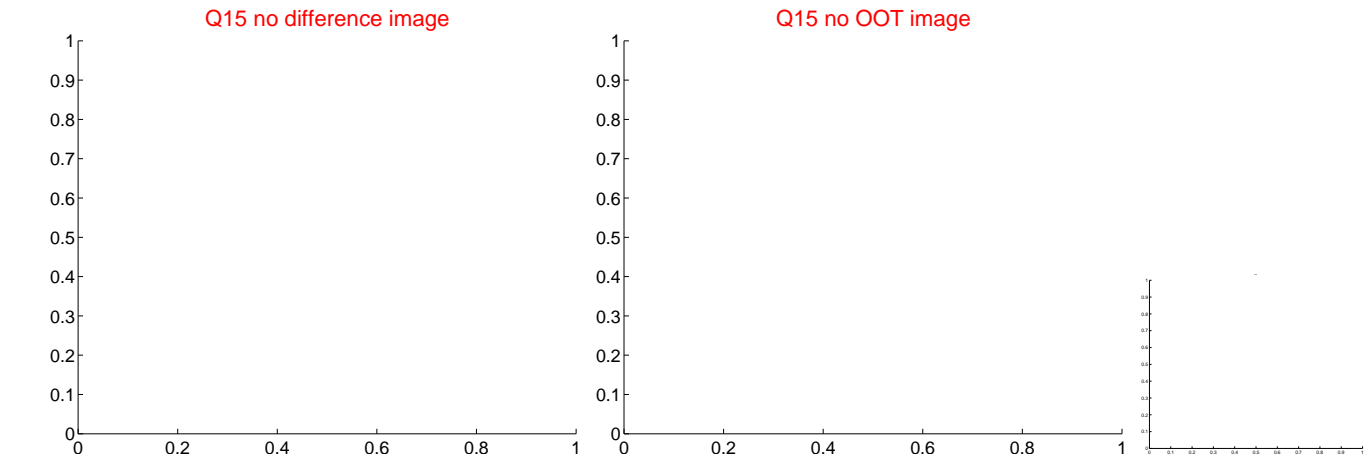
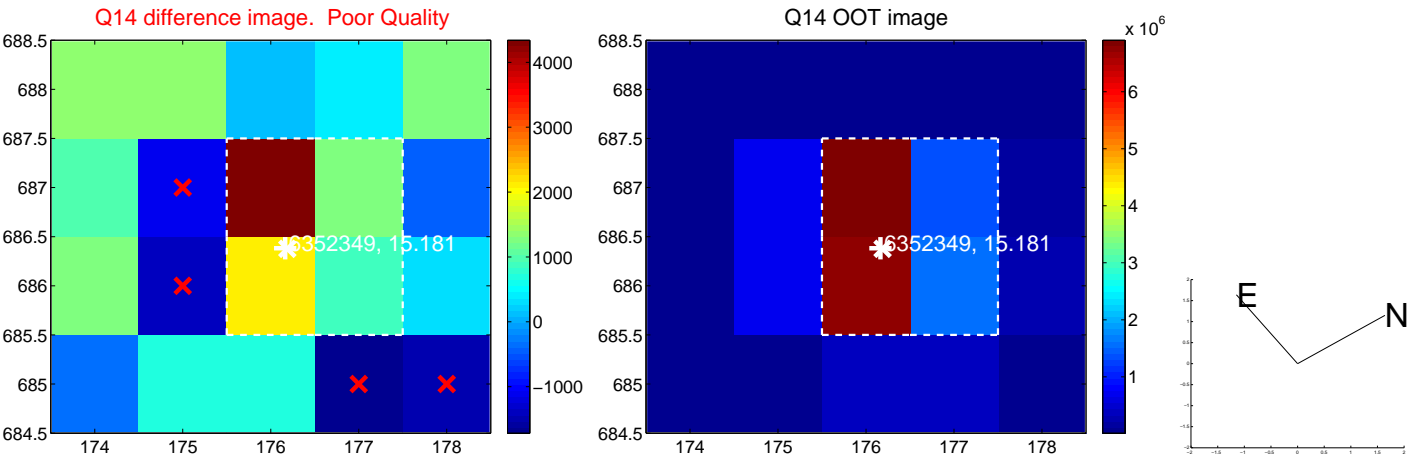
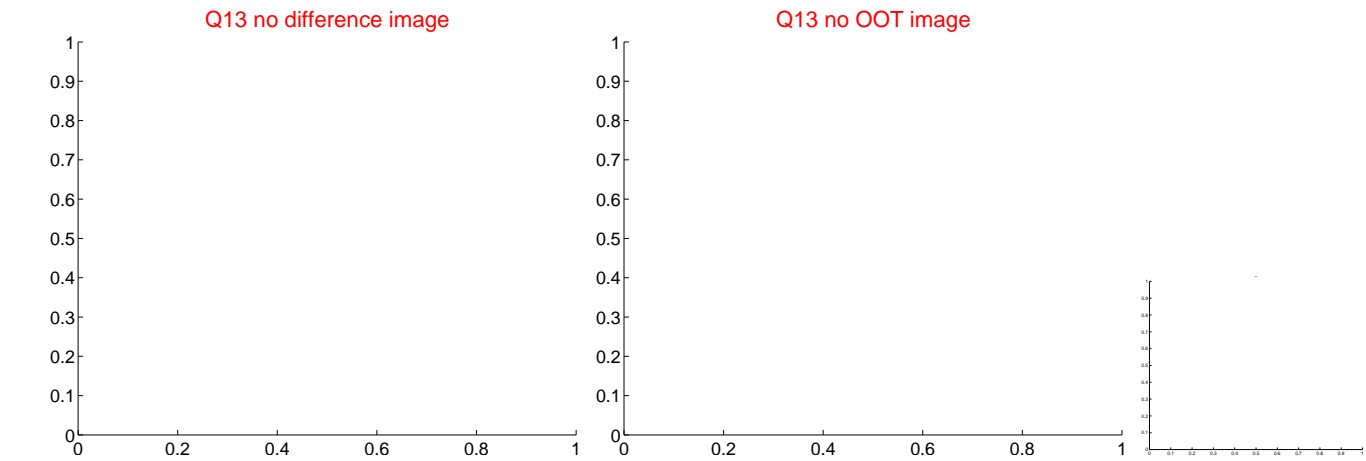
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



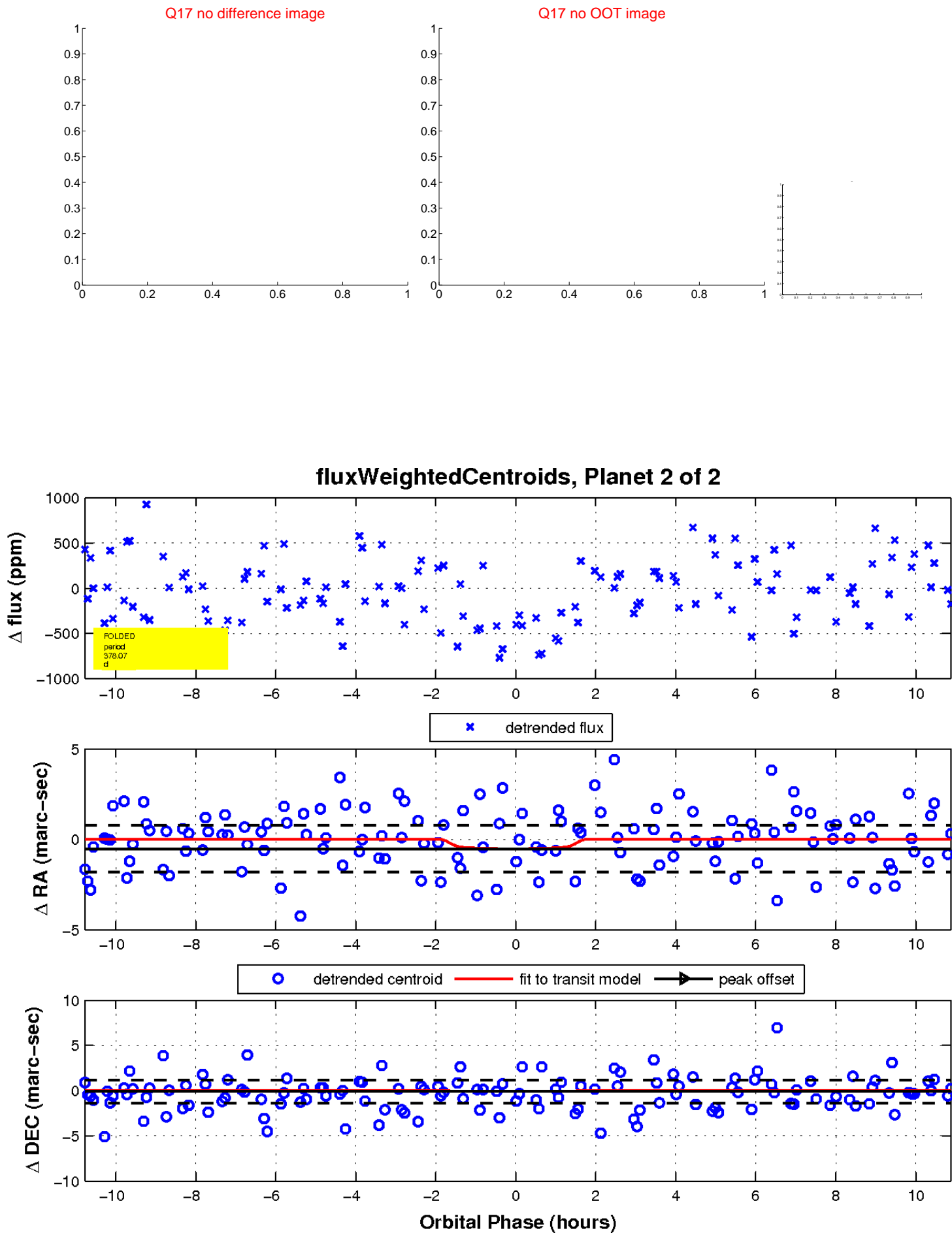
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

