

# KIC 003832966

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003832966-01	OBS	No	335.407768	275.656457	910.0	2.054	18.1	6.1	0.71	5340	2.33	0.54
003832966-02	OBS	No	313.604322	398.931623	1476.3	5.280	17.7	6.7	0.71	5340	2.74	0.59
003832966-03	OBS	No	282.295461	393.295137	637.6	2.373	15.7	5.0	0.71	5340	1.81	0.68
003832966-04	OBS	No	509.909483	438.529211	653.2	4.352	17.6	3.2	0.71	5340	1.82	0.31
003832966-05	OBS	No	324.015736	427.329660	447.0	3.107	15.5	2.8	0.71	5340	1.57	0.56
003832966-06	OBS	No	387.352186	357.012356	379.5	9.000	17.3	-1.0	0.71	5340	1.37	0.44

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003832966-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_POS_DV
003832966-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003832966-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003832966-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
003832966-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
003832966-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

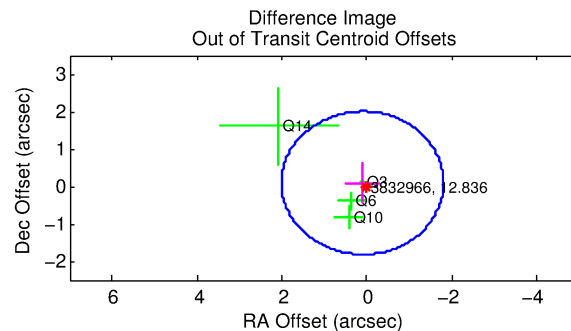
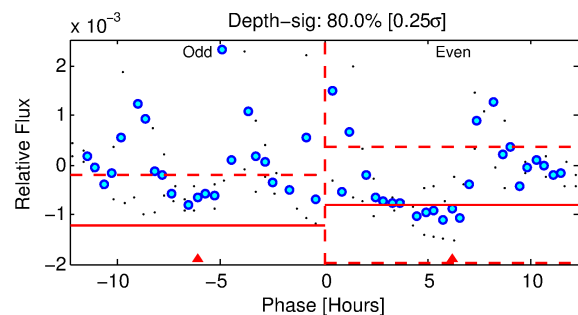
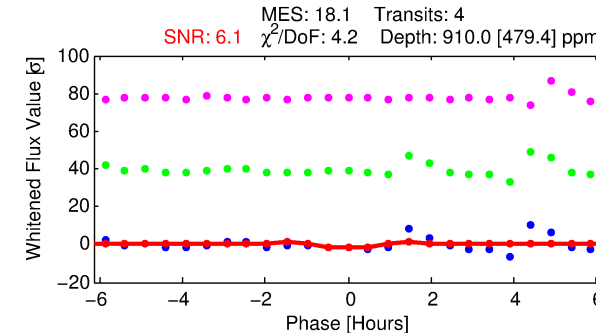
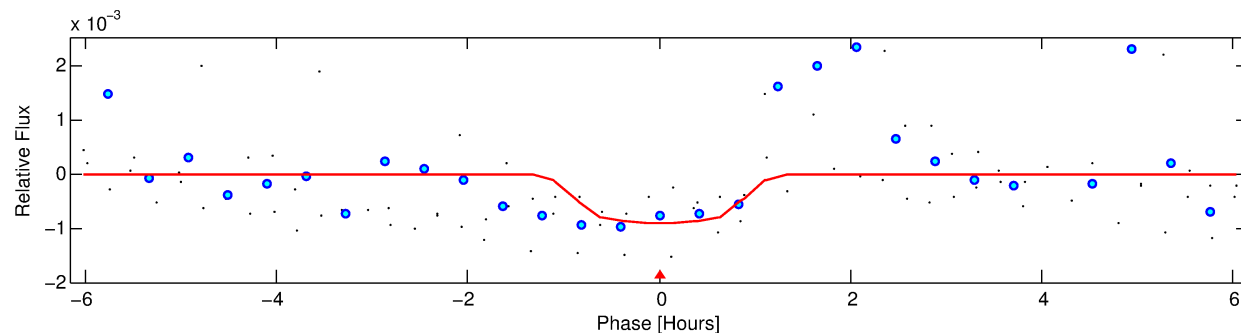
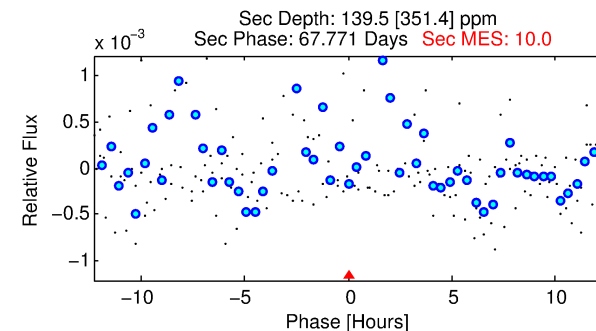
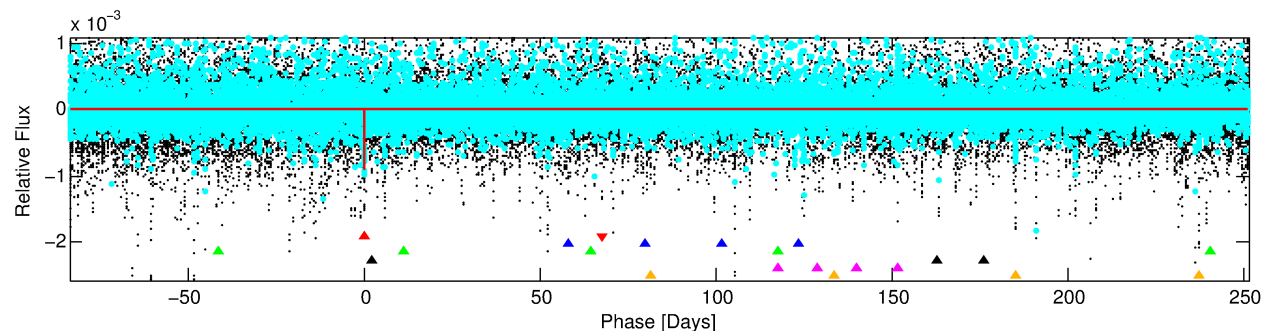
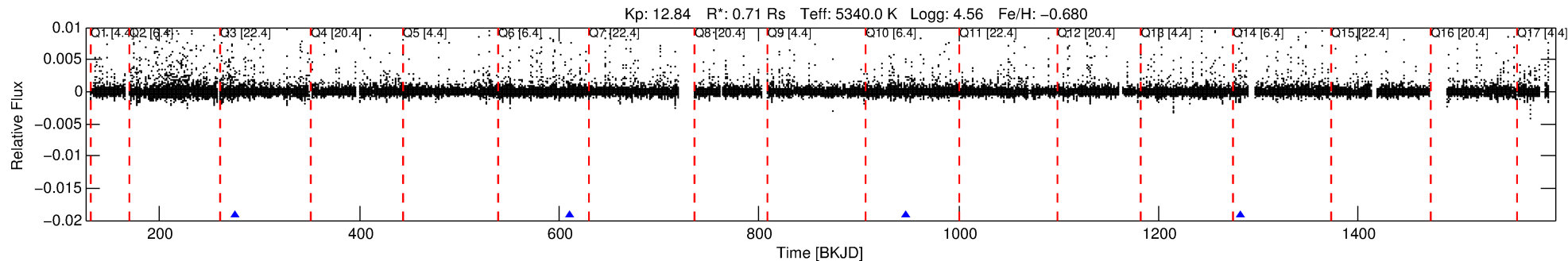
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003832966-01

No Significant Match Found

# DV One-Page Summary

KIC: 3832966 Candidate: 1 of 6 Period: 335.408 d



## DV Fit Results:

Period = 335.40777 [0.01103] d  
Epoch = 275.6565 [0.0224] BKJD  
Rp/R\* = 0.0299 [0.2674]  
a/R\* = 902.26 [34625.95]  
b = 0.73 [24.65]  
Seff = 0.54 [0.10]  
Teq = 218 [10] K  
Rp = 2.33 [20.80] Re  
a = 0.8295 [0.0782] AU  
Ag = 9735.01 [175628.12] [0.06 $\sigma$ ]  
Teffp = 3354 [15129] K [0.21 $\sigma$ ]

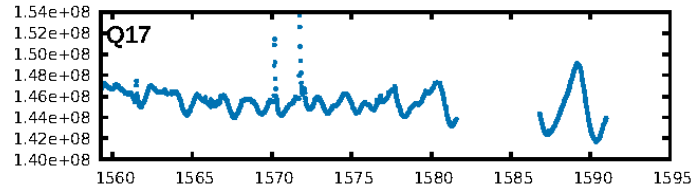
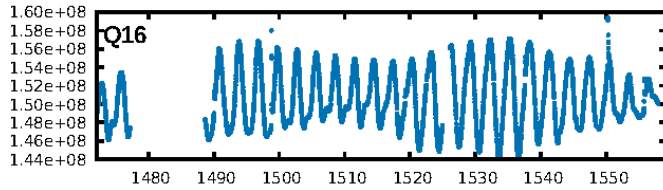
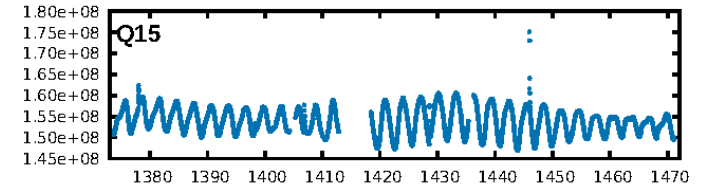
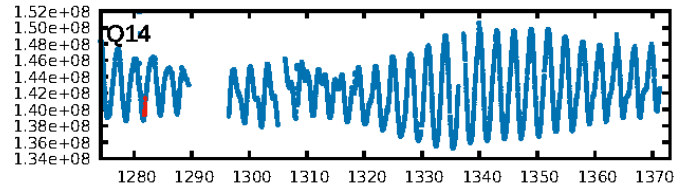
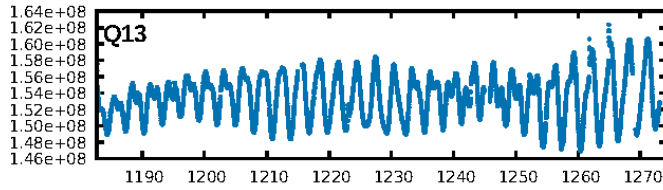
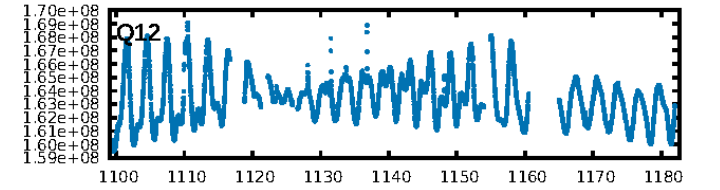
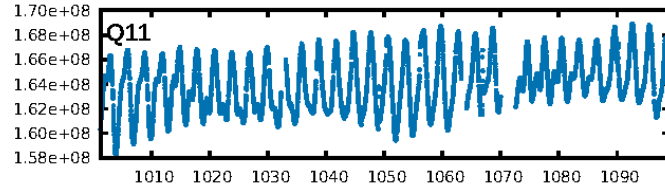
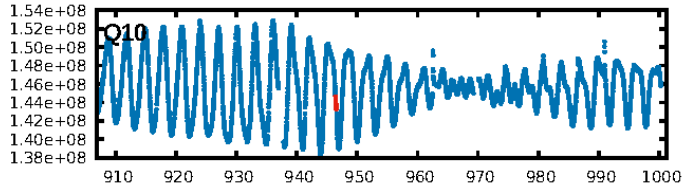
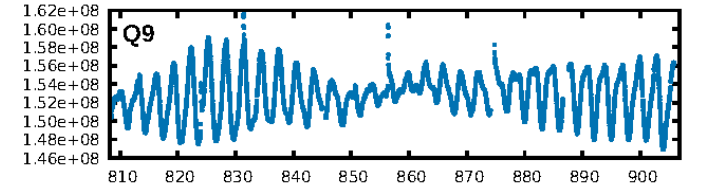
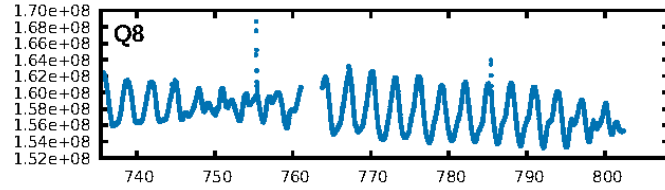
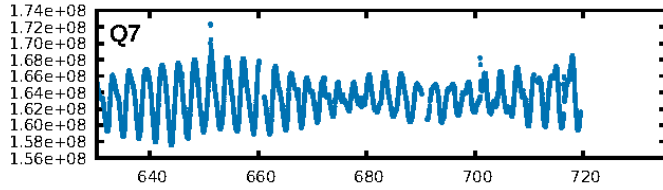
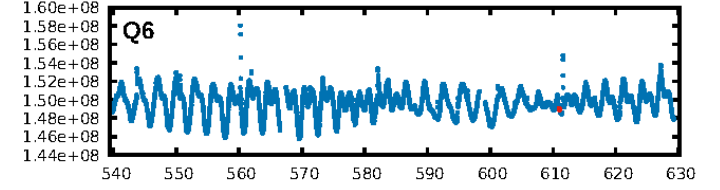
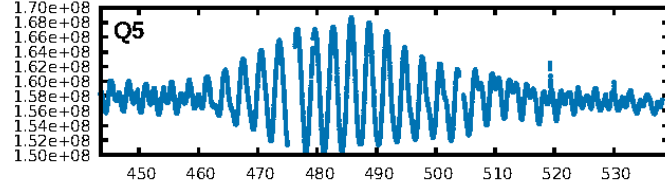
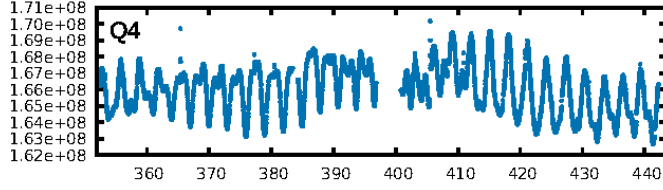
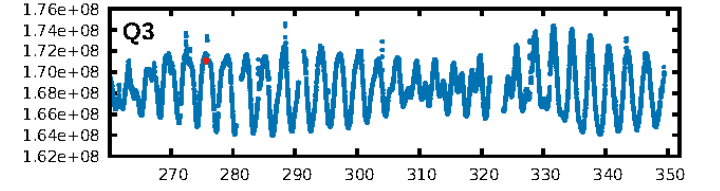
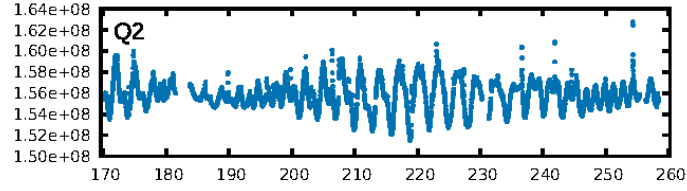
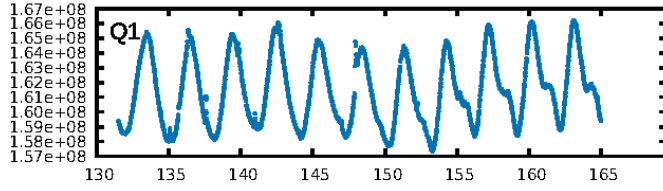
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [73.41 $\sigma$ ]  
LongPeriod-sig: 100.0% [135.05 $\sigma$ ]  
ModelChiSquare2-sig: 0.6%  
ModelChiSquareGof-sig: 6.8%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.7714  
Centroid-sig: 18.3%  
Centroid-so: 0.610 arcsec [1.03 $\sigma$ ]  
OotOffset-rm: 0.133 arcsec [0.21 $\sigma$ ]  
KicOffset-rm: 0.351 arcsec [0.65 $\sigma$ ]  
OotOffset-st: 3/1/0/0 [4]  
KicOffset-st: 3/1/0/0 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 1.00 [4/4]

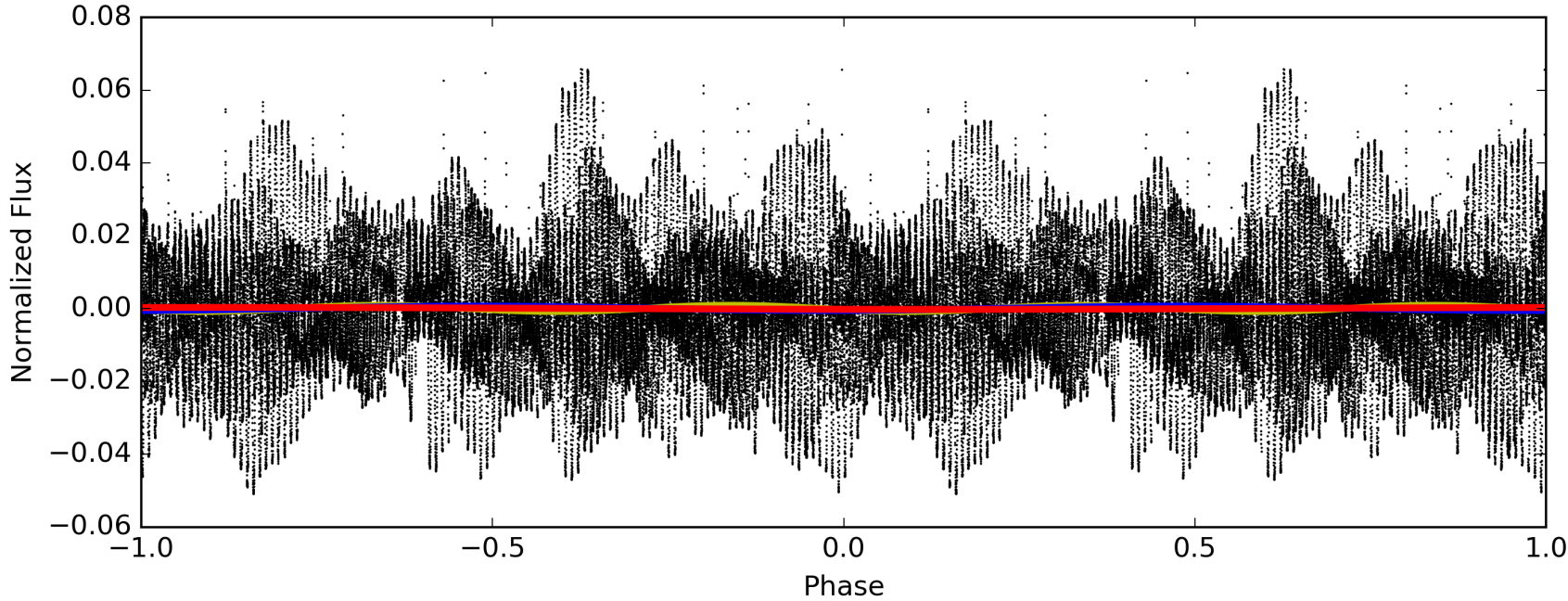
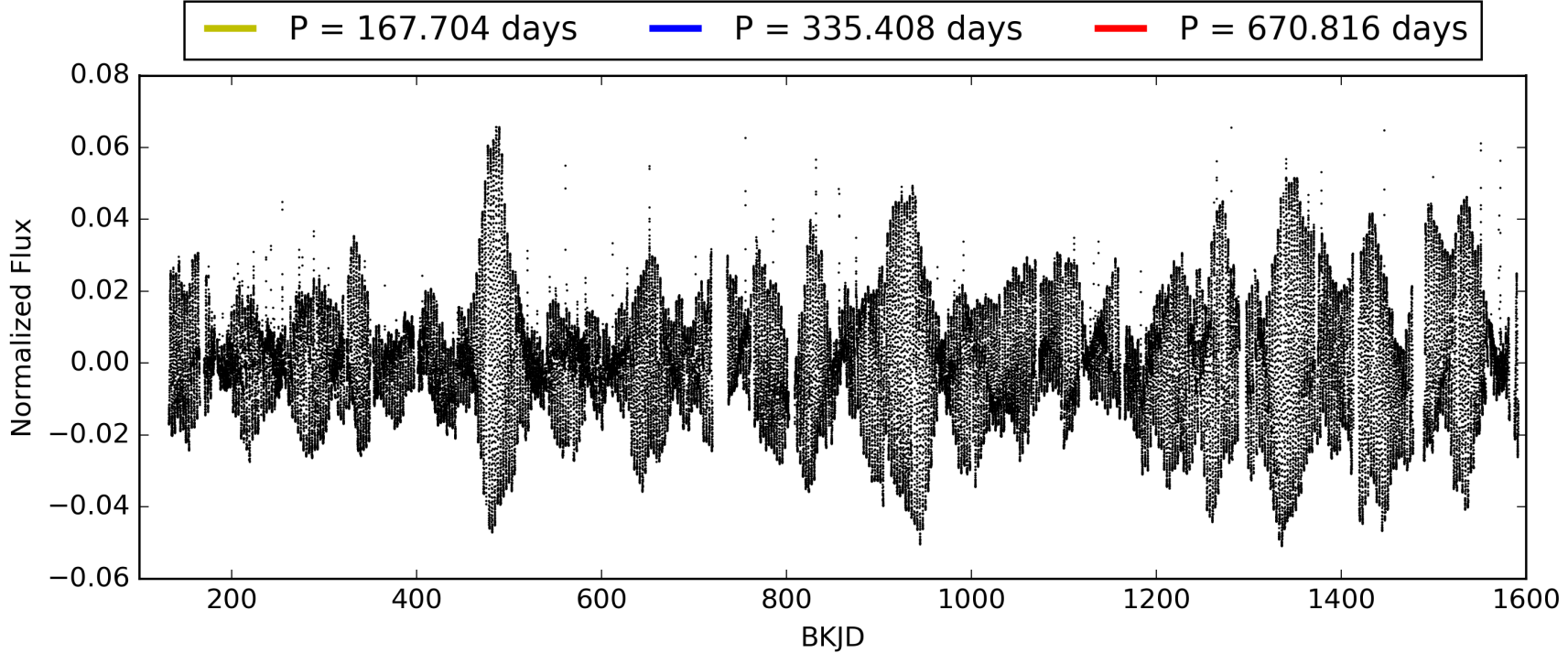
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:46:11 Z

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

# TCE 003832966-01, PDC Light Curves



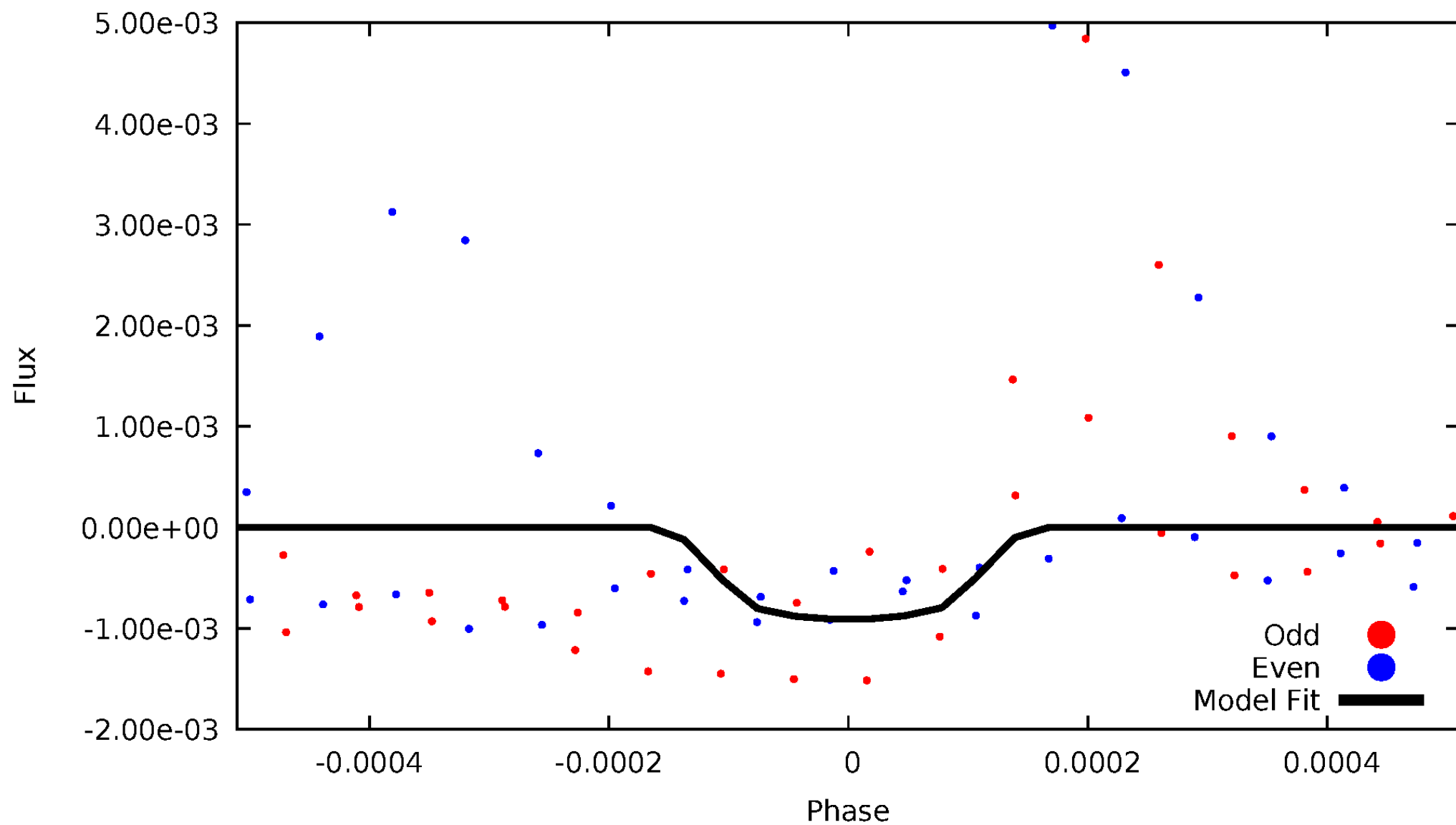
TCE 003832966-01





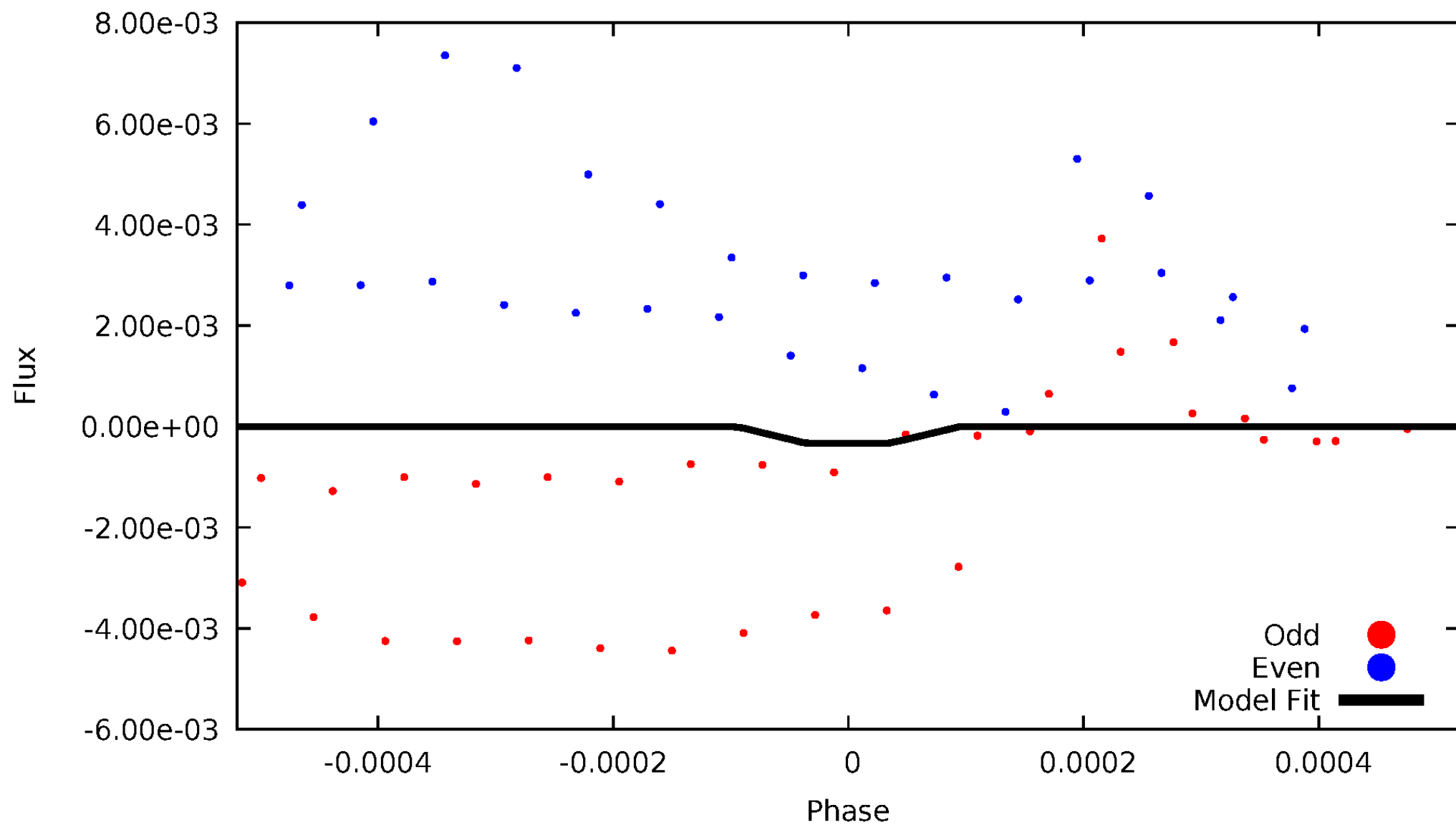
# DV Odd/Even

TCE 003832966-01



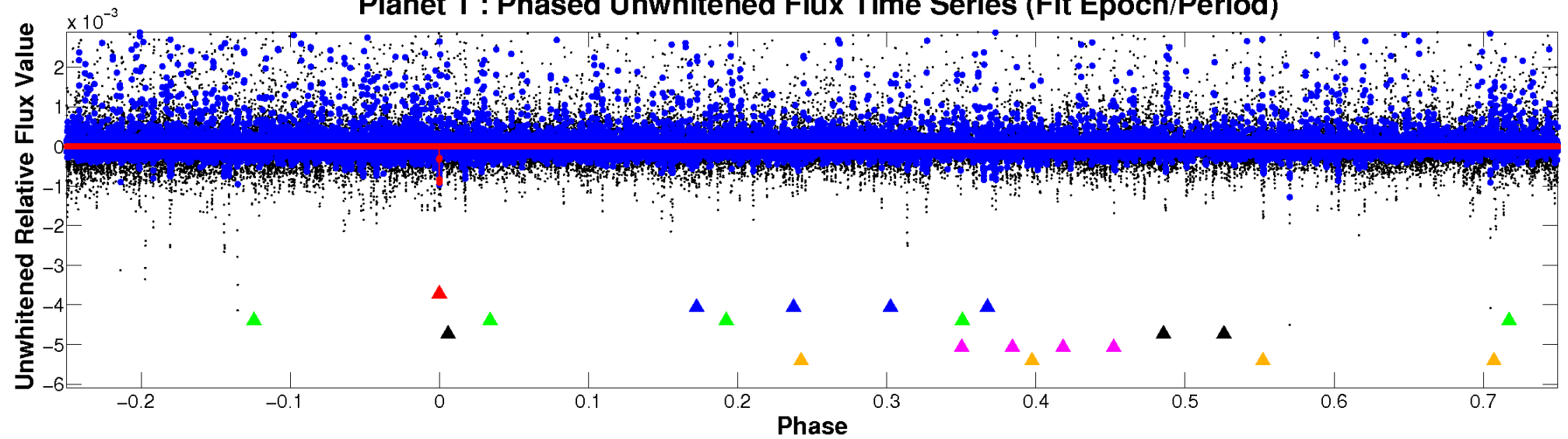
# ALT Odd/Even

TCE 003832966-01

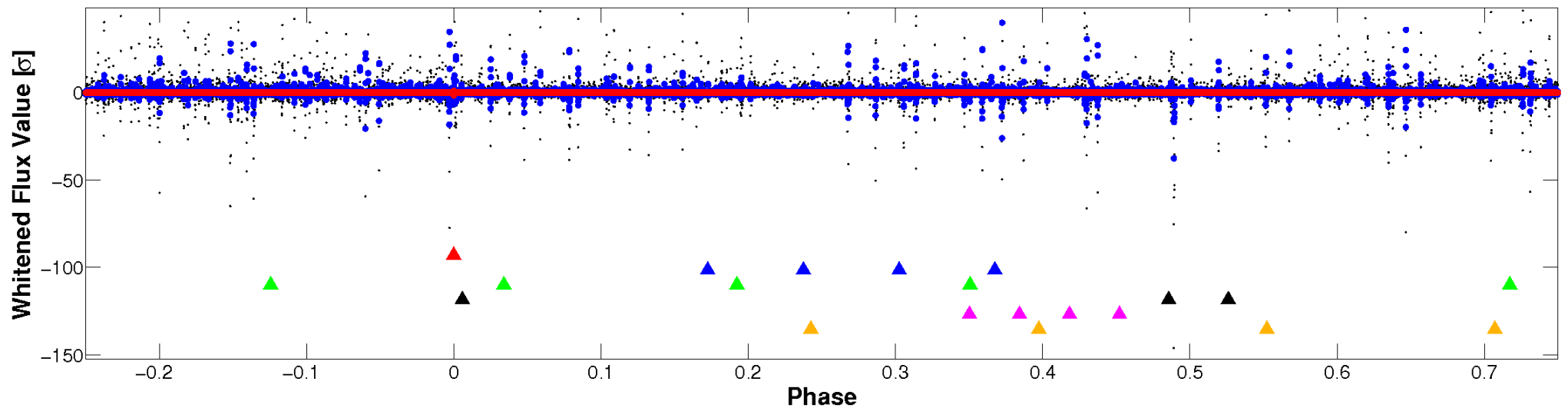


# Non-Whitened Vs. Whitened Light Curve

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

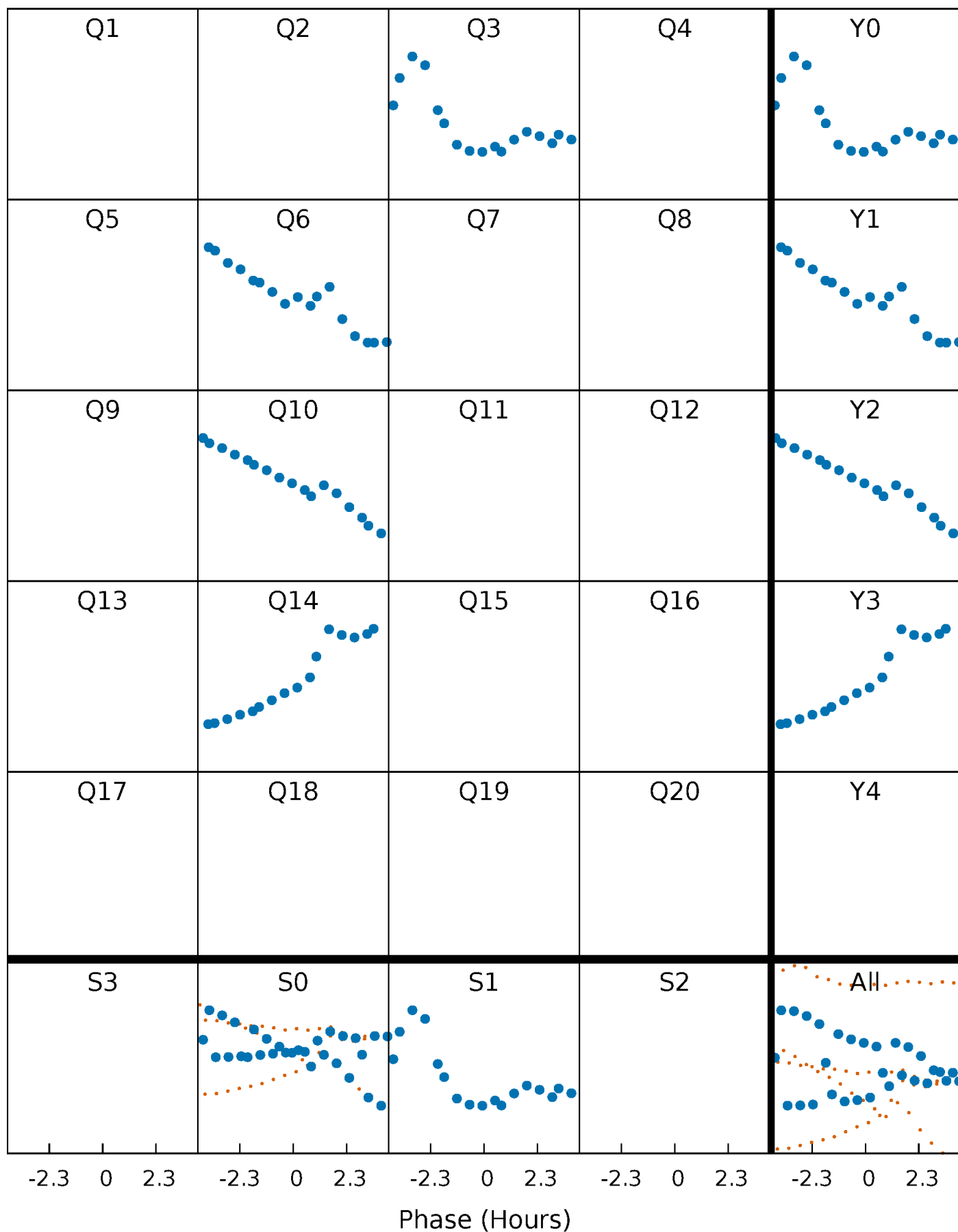


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



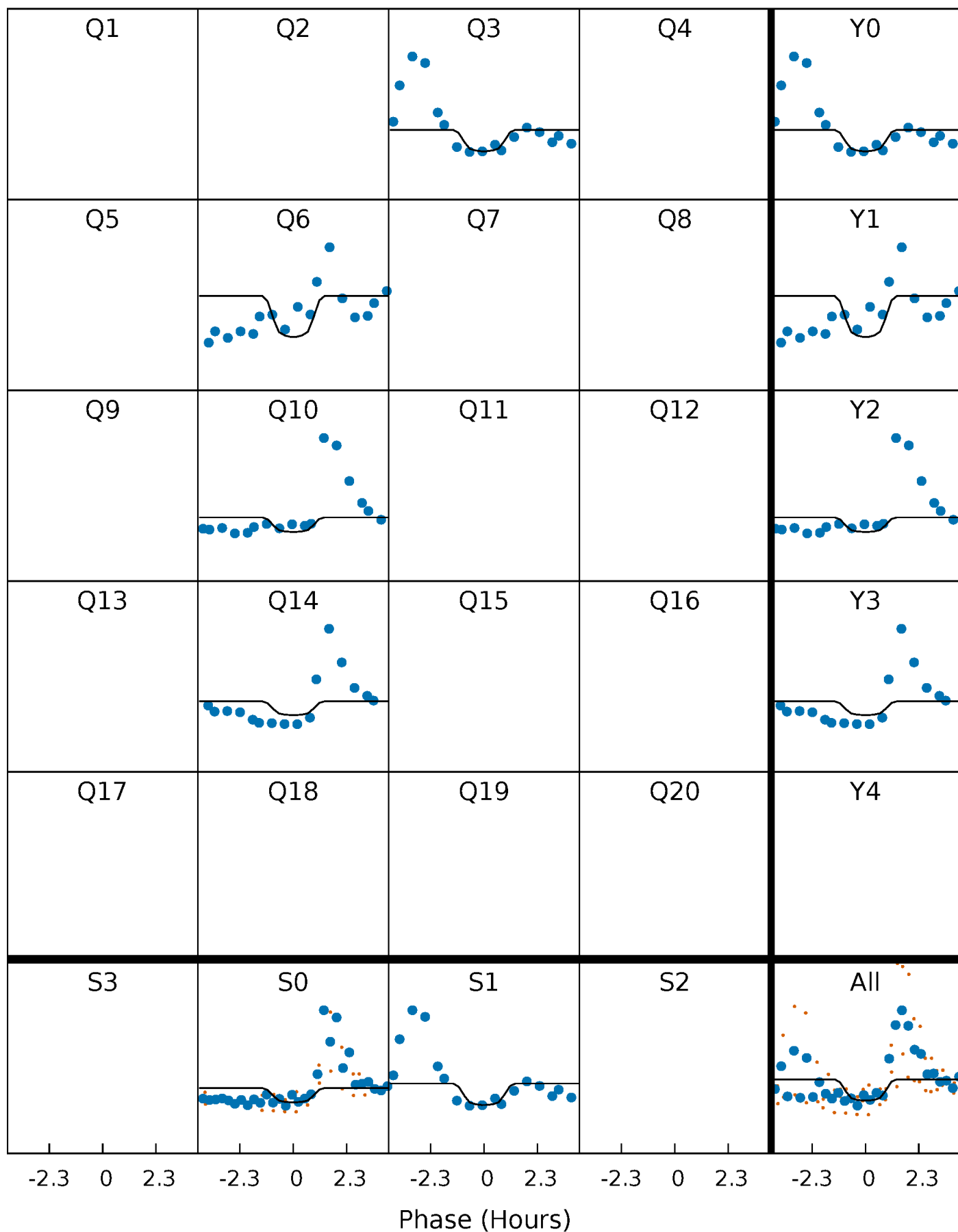
# PDC Quarter-Phased Transit Curves

TCE 003832966-01 P=335.407768 Days  $T_0=275.656457$  (BKJD)



# DV Quarter-Phased Transit Curves

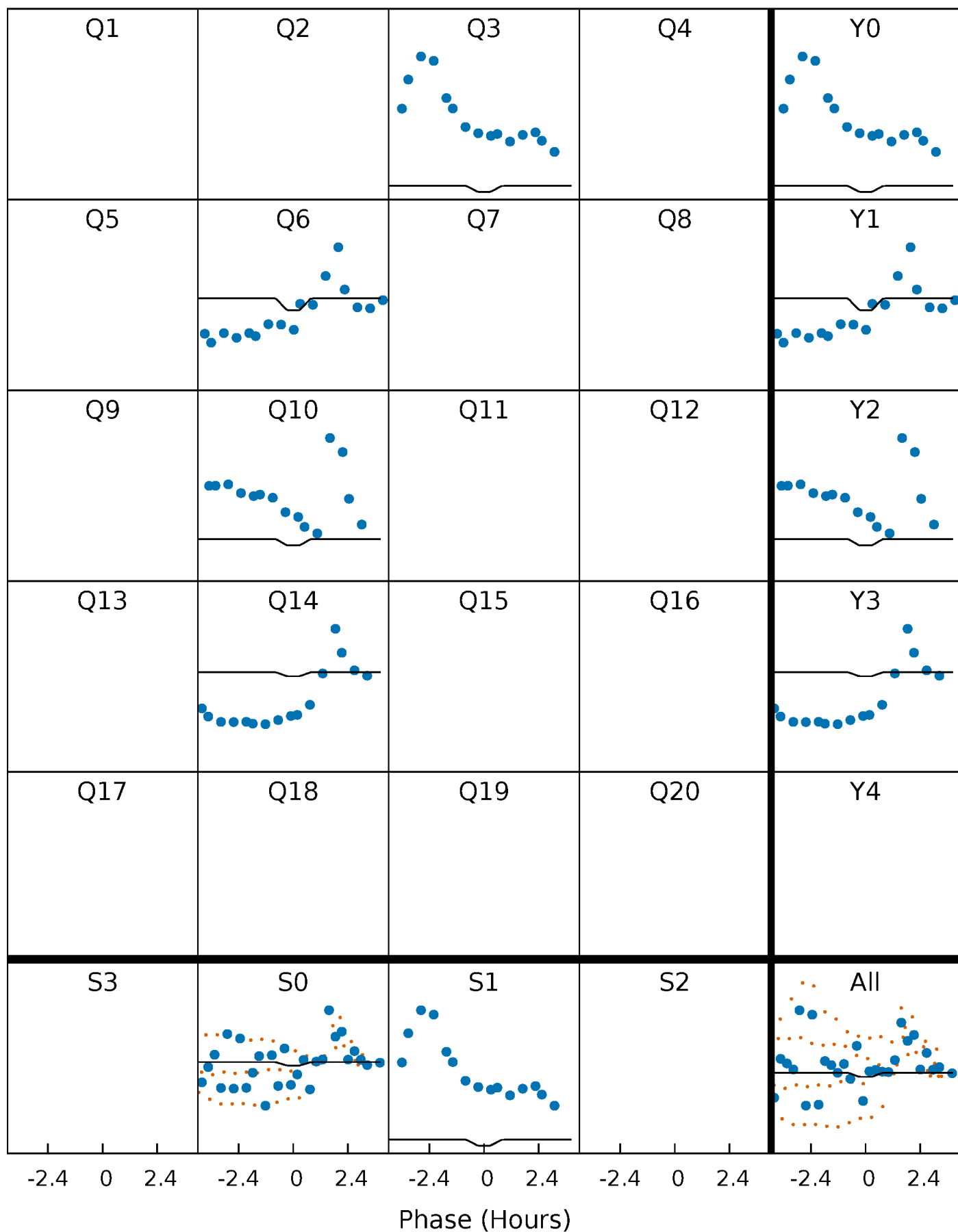
TCE 003832966-01 P=335.407768 Days  $T_0=275.656457$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

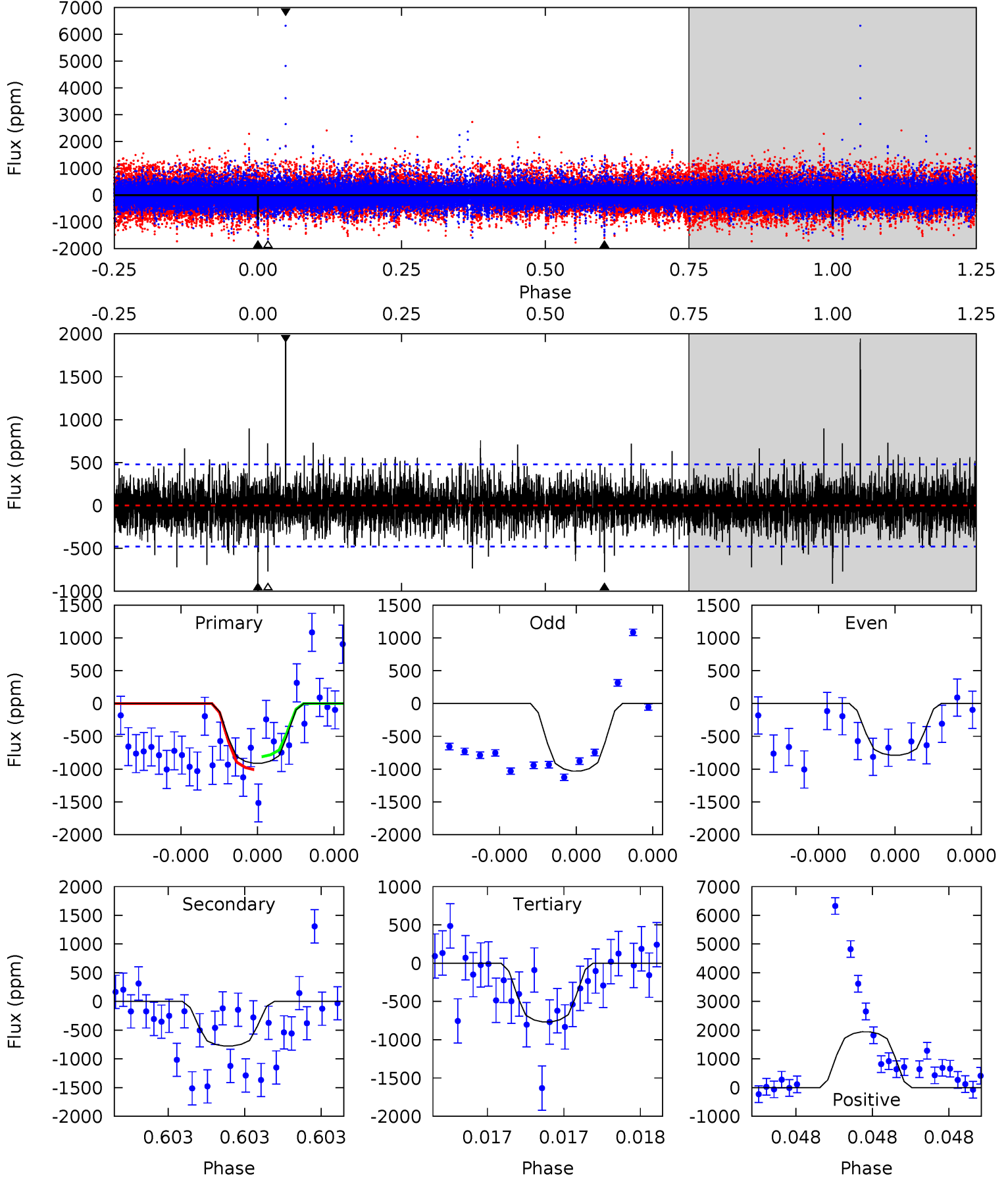
TCE 003832966-01 P=335.410076 Days  $T_0=275.643752$  (BKJD)



# DV Model-Shift Uniqueness Test

003832966-01, P = 335.407768 Days, E = 275.656457 Days

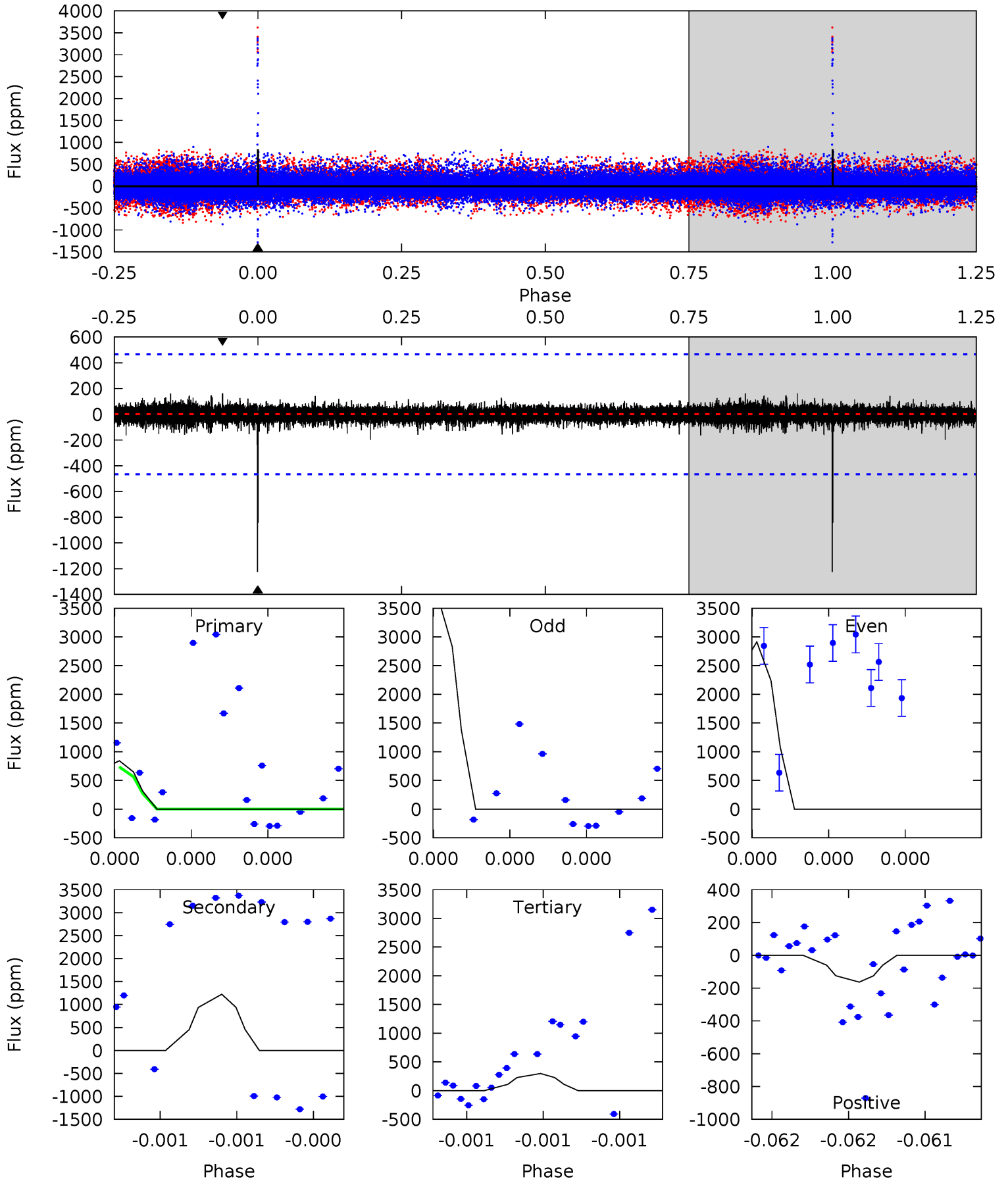
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	9.18	9.10	23.0	5.68	3.64	1.89	1.70	-12.2	0.09	-13.8	1.15	1.13	0.68	1.17



# Alt Model-Shift Uniqueness Test

003832966-01, P = 335.410076 Days, E = 275.643752 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	15.1	3.65	2.01	5.73	3.72	0.41	6.71	8.35	11.4	13.0	4.39	-0.01	0.12	1.82



### Stellar Parameters For KIC 003832966

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5340^{+160}_{-144}$	$4.562^{+0.082}_{-0.060}$	$-0.680^{+0.300}_{-0.300}$	$0.713^{+0.075}_{-0.075}$	$0.676^{+0.086}_{-0.029}$	$2.630^{+0.978}_{-0.554}$
	+3%/-3%	+2%/-1%	+44%/-44%	+11%/-11%	+13%/-4%	+37%/-21%
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 003832966-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-775 \pm 84$	$15.12^{+15.79}_{-10.61}$	$304^{+12}_{-12}$	$2782^{+1214}_{-456}$	$1311^{+13687}_{-998}$
Alt.	$-1224 \pm 81$	$13.66^{+16.30}_{-9.66}$	$305^{+11}_{-12}$	$3039^{+1462}_{-578}$	$2641^{+26483}_{-2105}$

$T_{max}$  = 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

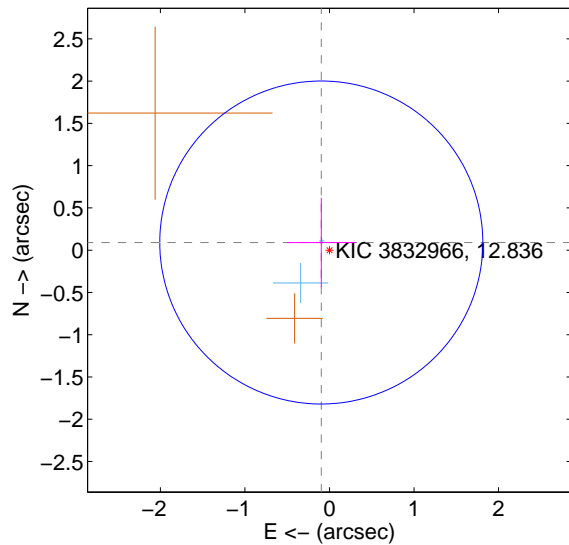
Supplemental centroid analysis for 003832966-01. Kepler magnitude: 12.84. Transit SNR 6.10

There are 2 quarters with good PRF difference image offsets

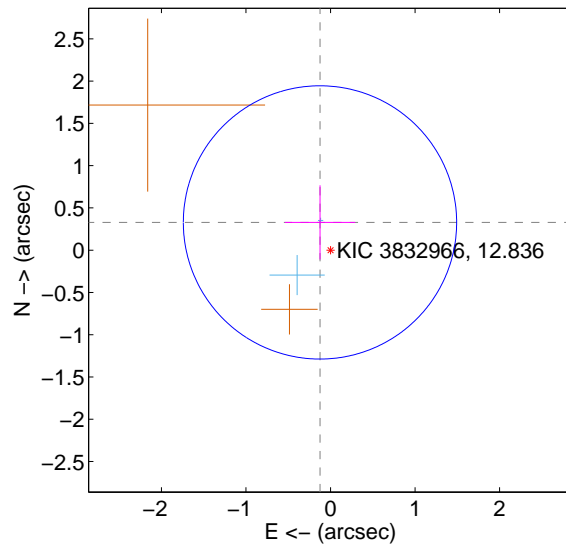
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.133 \pm 0.637$	0.21	$0.097 \pm 0.406$	$0.091 \pm 0.529$
PRF-fit source offset from KIC position	$0.351 \pm 0.539$	0.65	$0.124 \pm 0.417$	$0.328 \pm 0.439$
photometric centroid source offset	$0.61 \pm 0.59$	1.03	$0.54 \pm 0.56$	$-0.29 \pm 0.69$

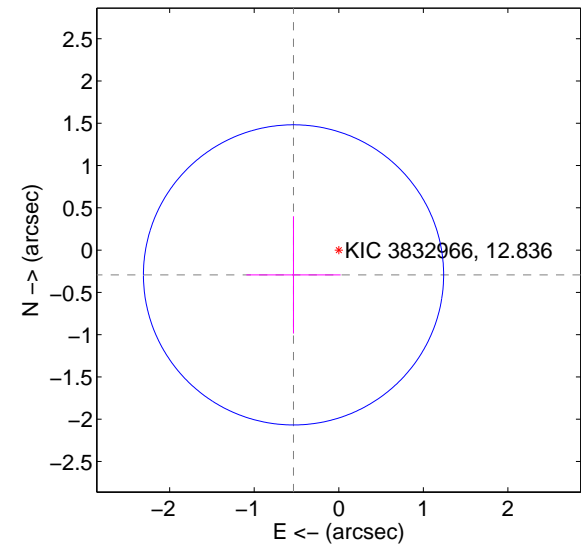
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



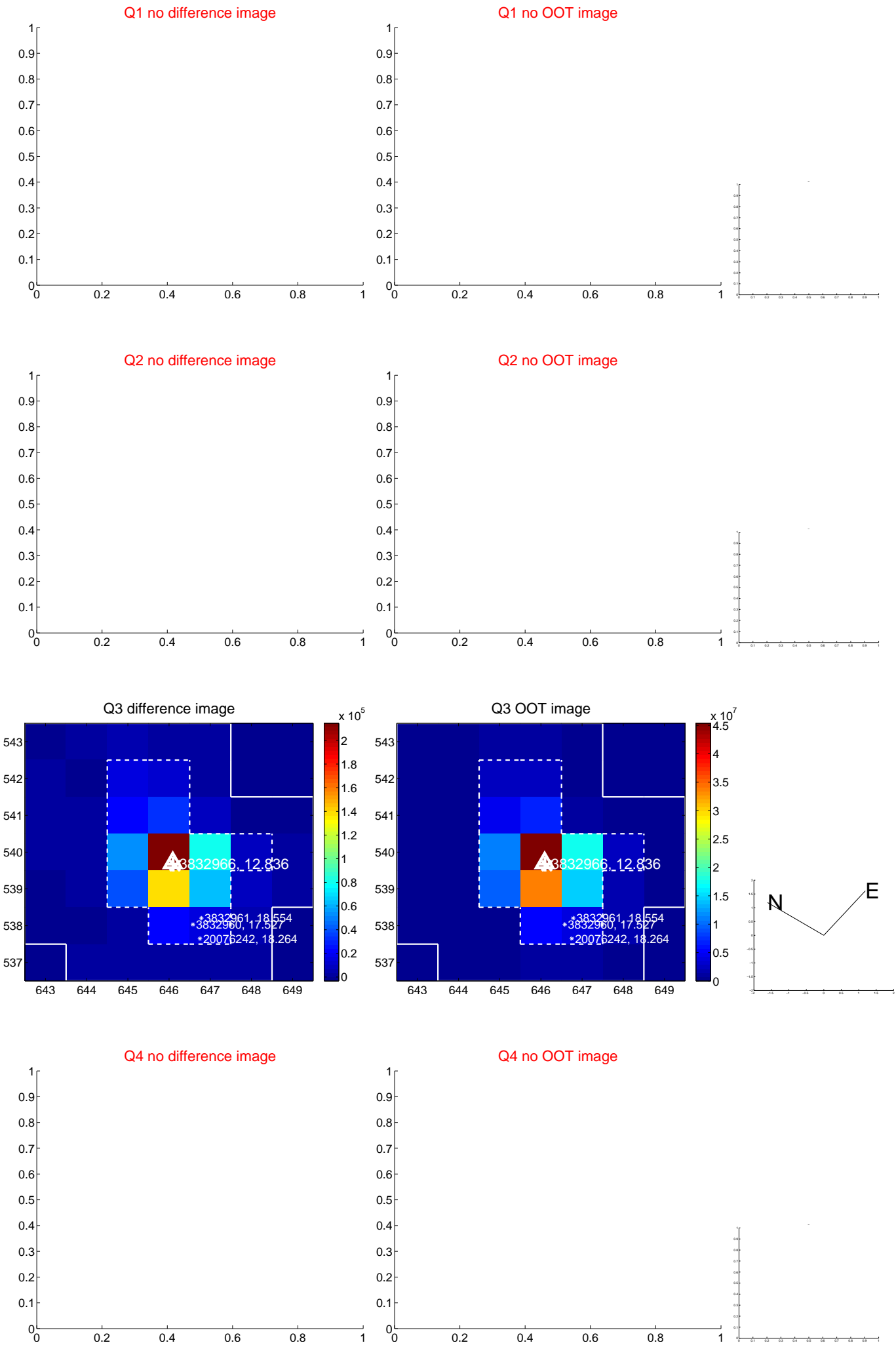
offset from photometric centroids



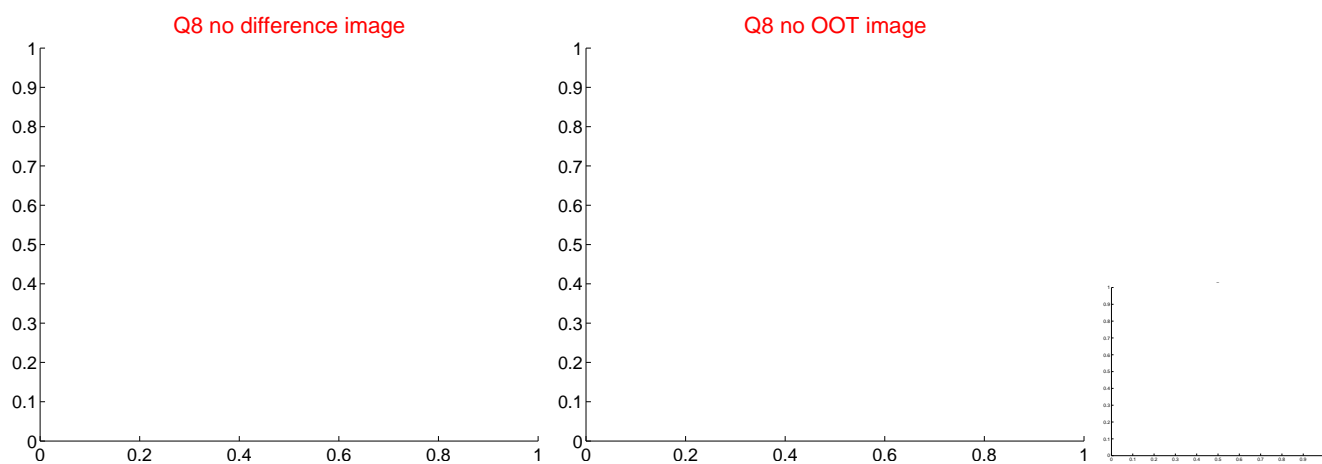
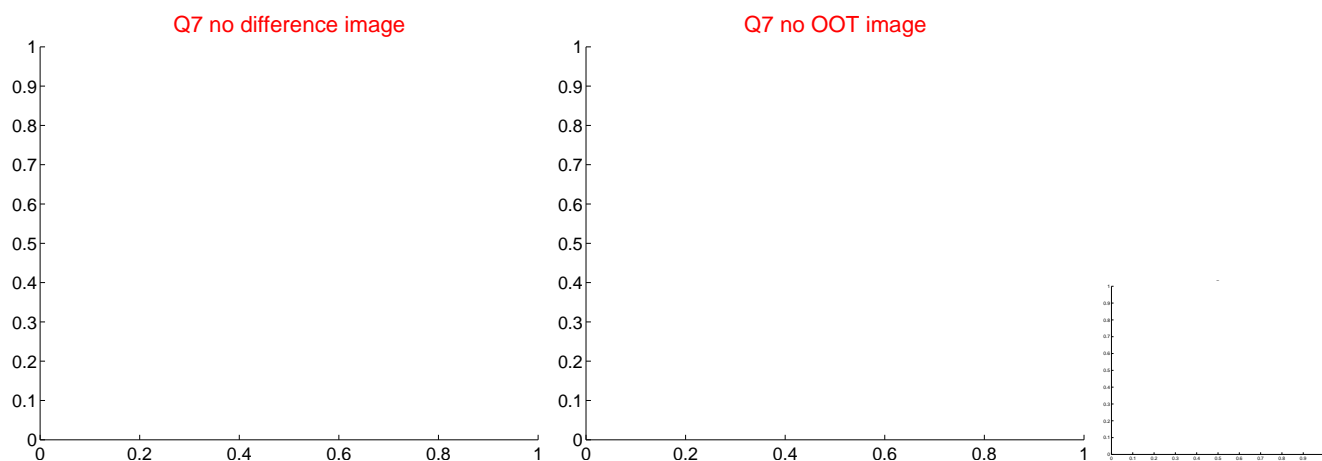
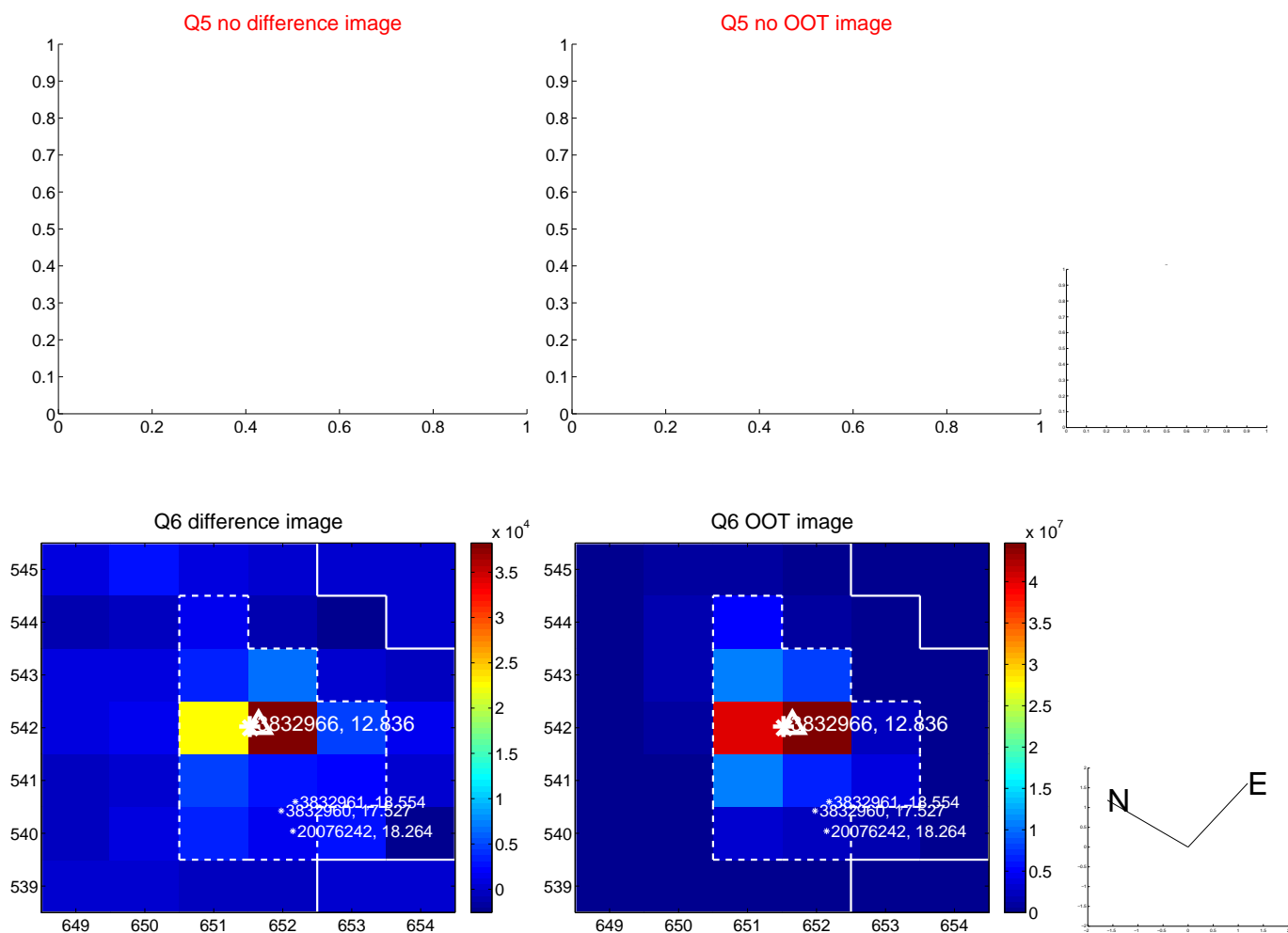
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



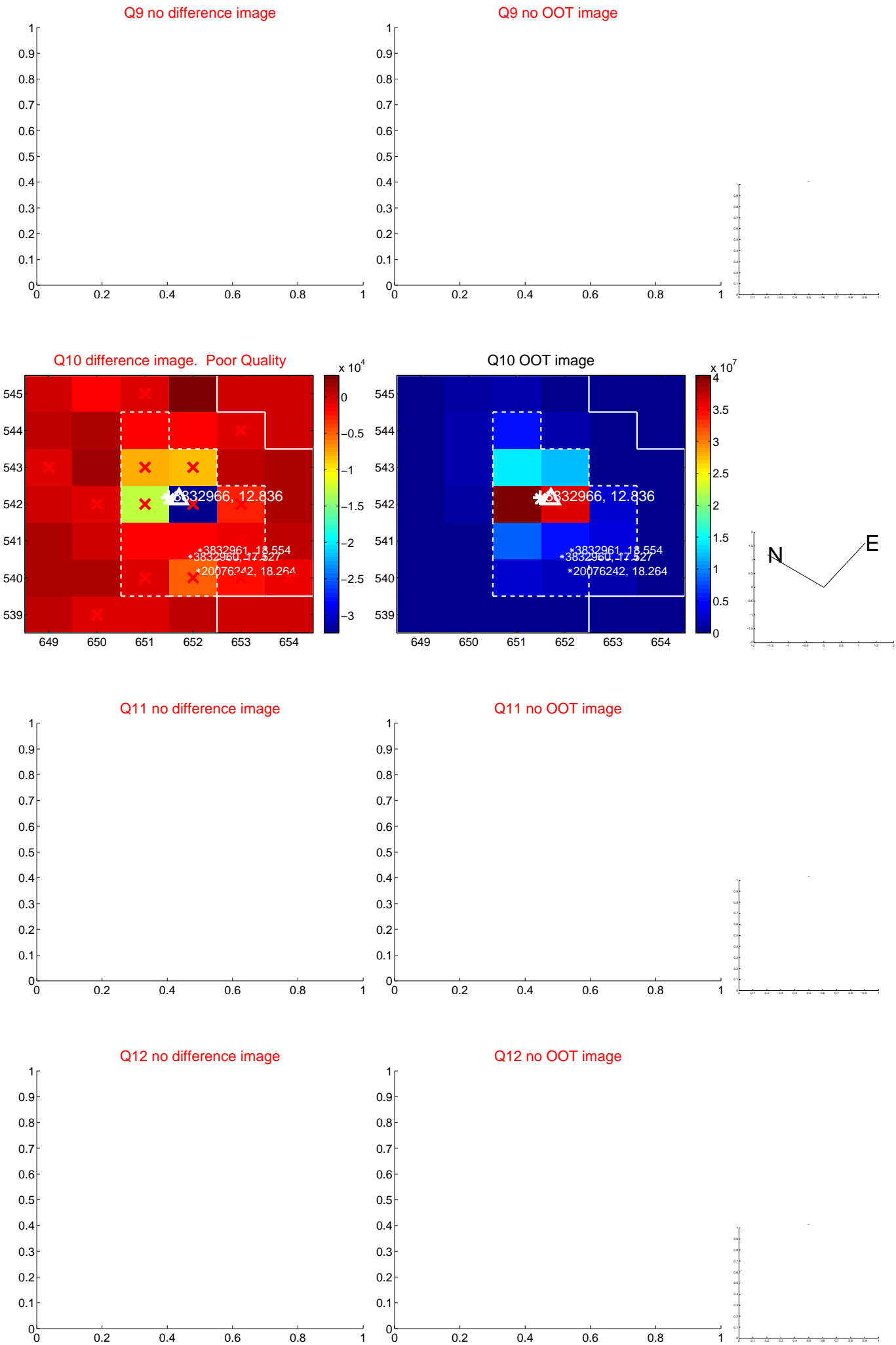
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



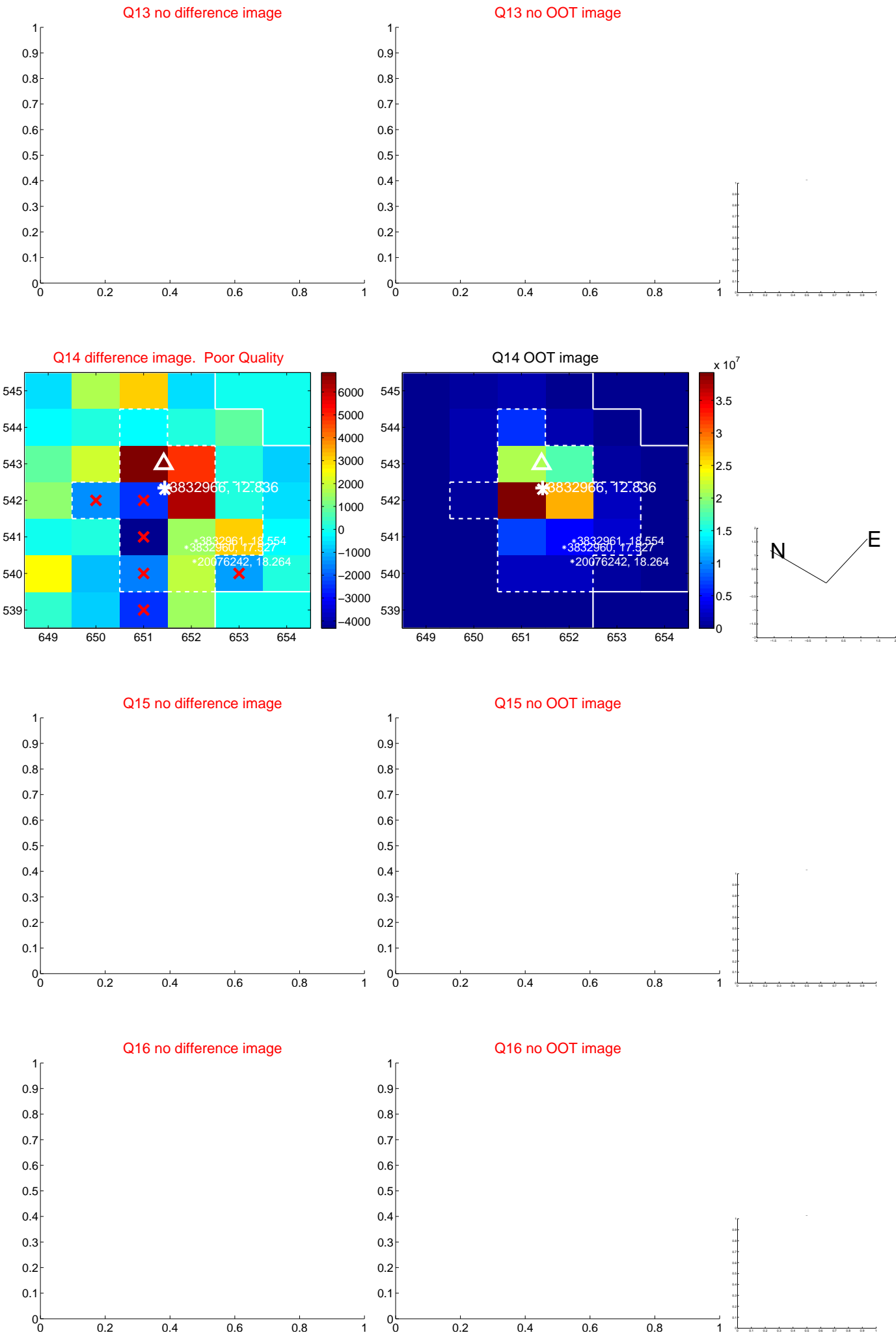
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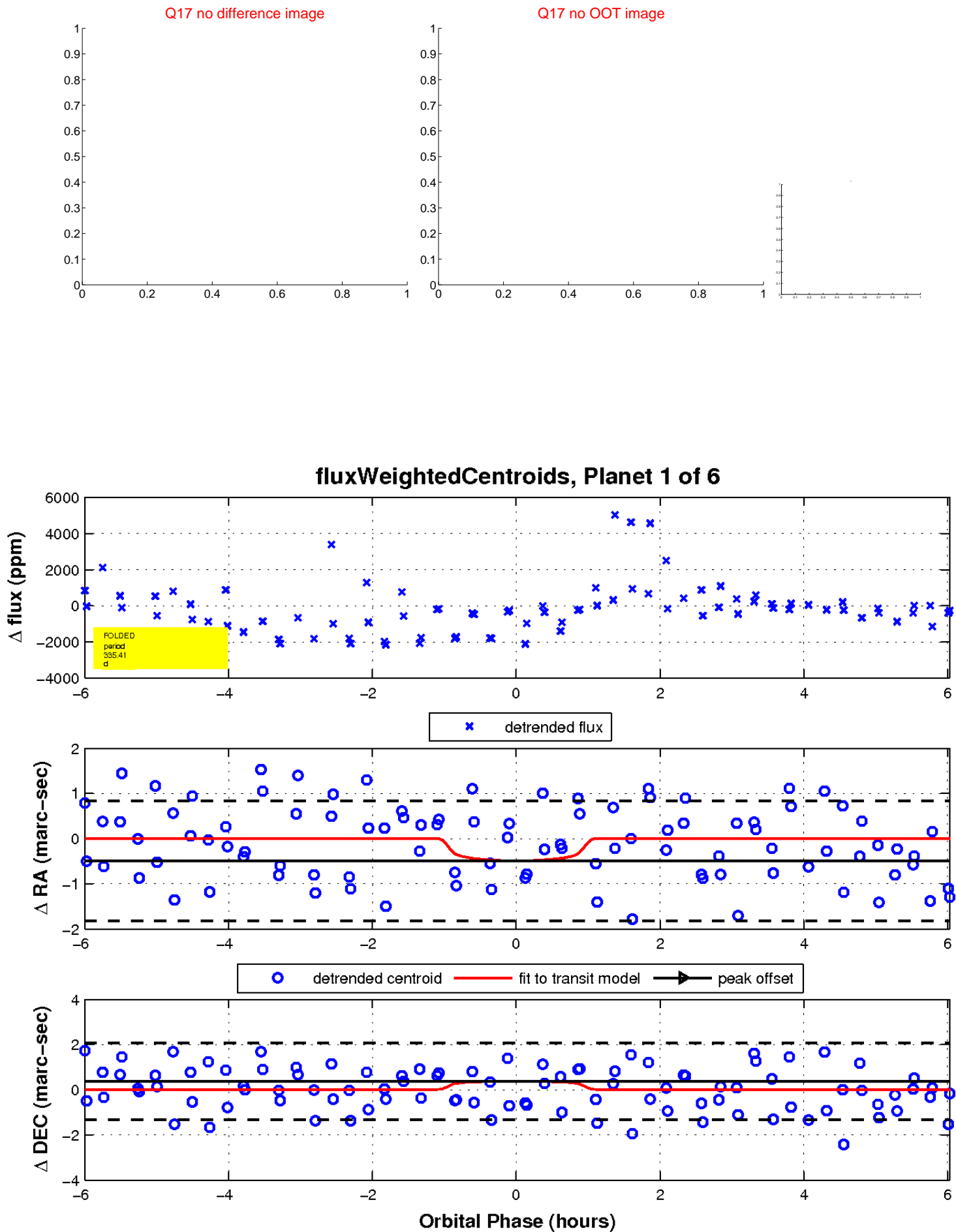
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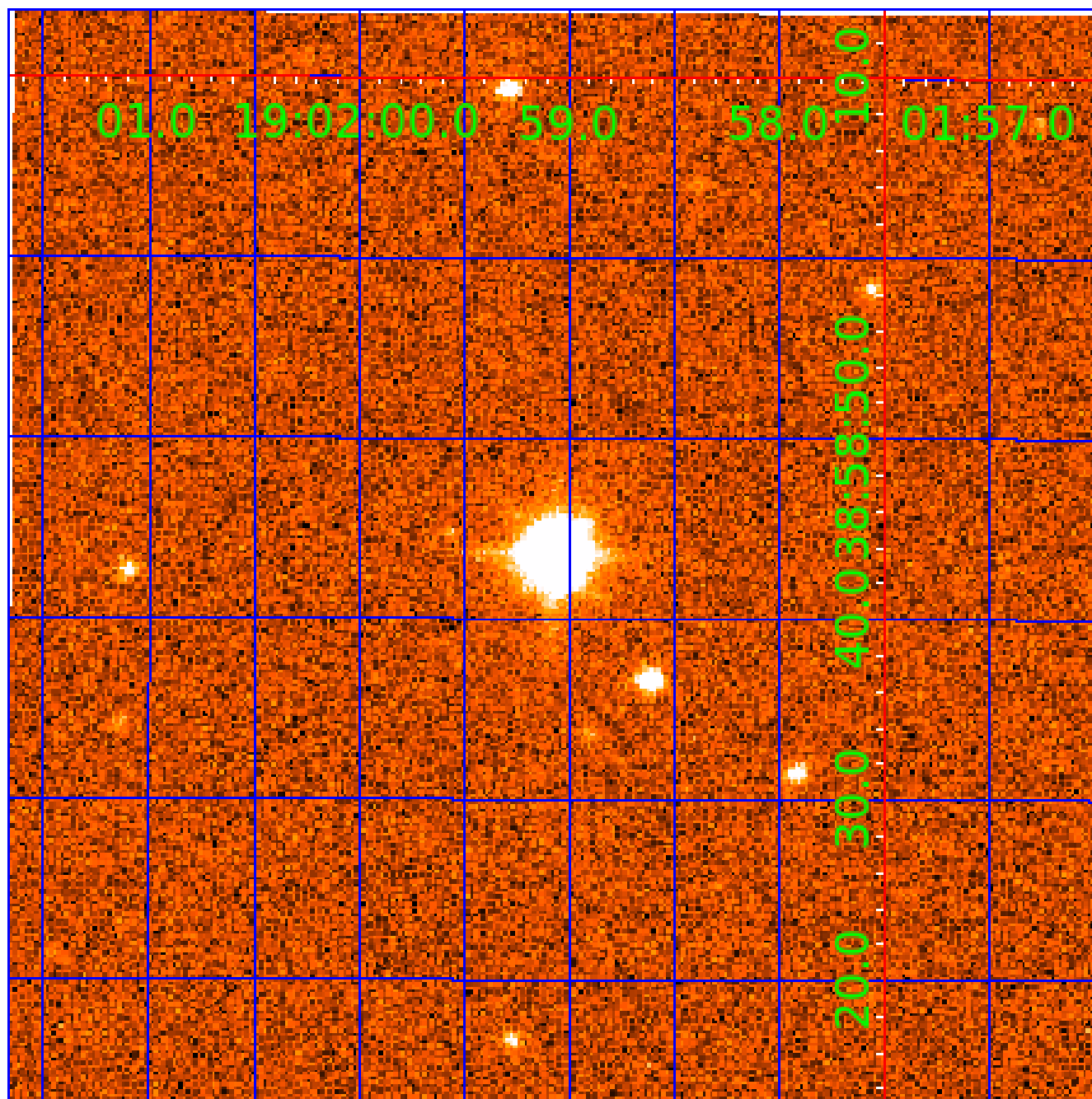
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UKIRT Image

Declination



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003832966-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003832966-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
003832966-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
003832966-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

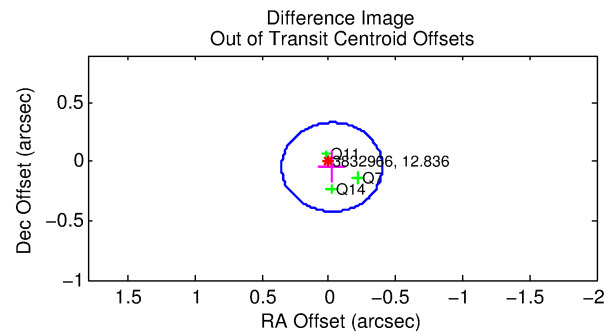
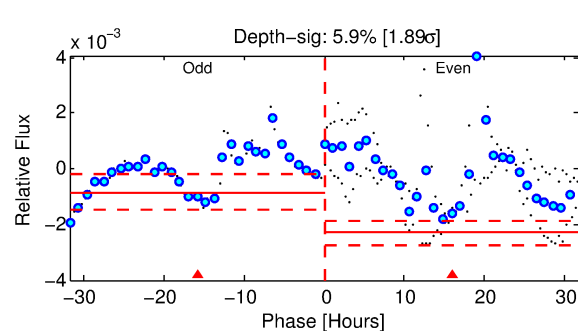
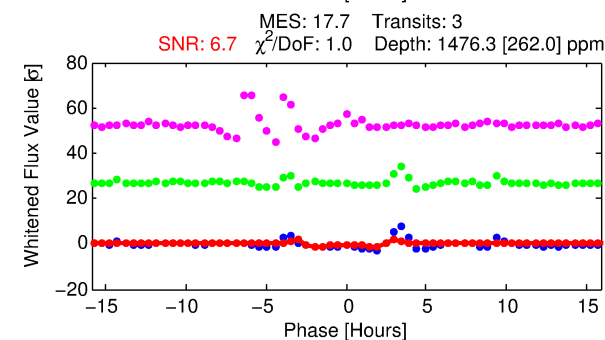
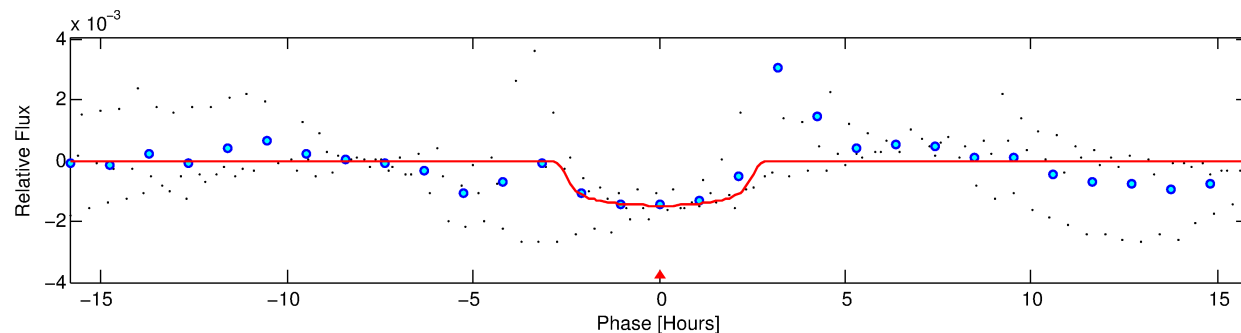
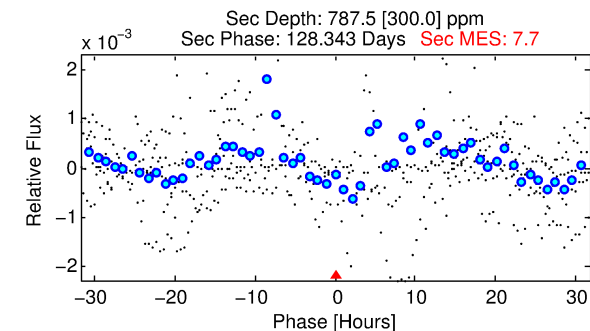
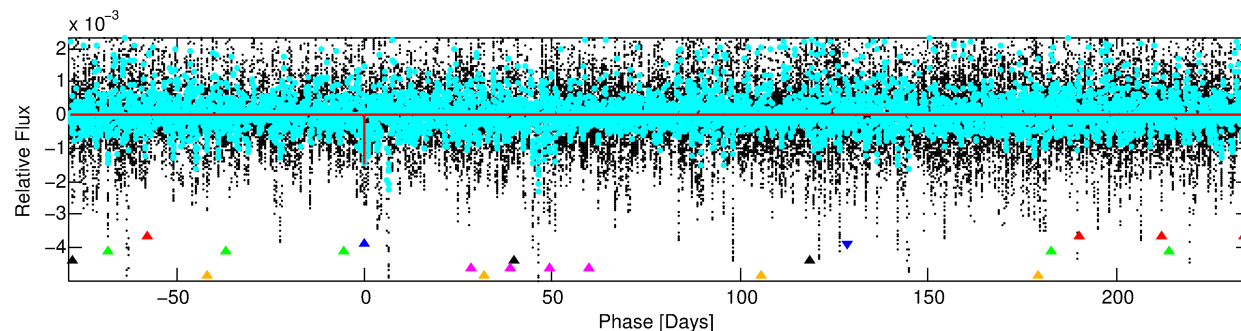
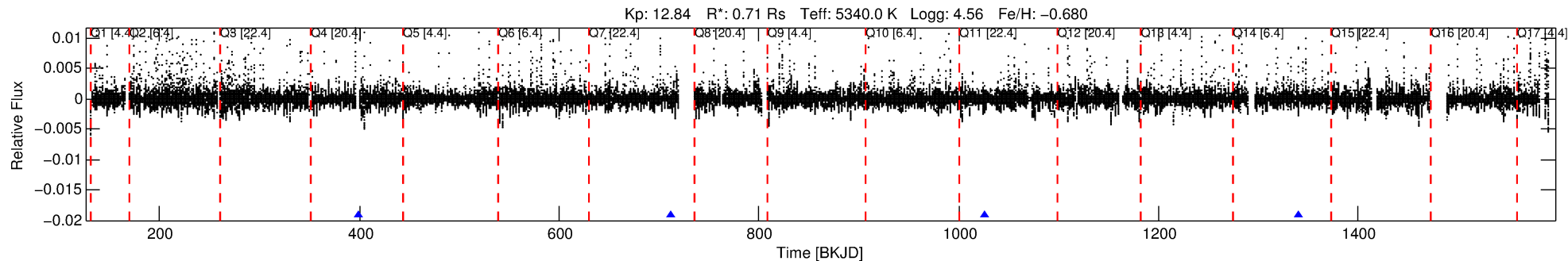
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003832966-02

No Significant Match Found

# DV One-Page Summary

KIC: 3832966 Candidate: 2 of 6 Period: 313.604 d



## DV Fit Results:

Period = 313.60432 [0.00383] d  
Epoch = 398.9316 [0.0077] BKJD  
Rp/R\* = 0.0352 [0.0334]  
a/R\* = 446.55 [1761.67]  
b = 0.32 [11.10]  
Seff = 0.59 [0.11]  
Teq = 223 [10] K  
Rp = 2.74 [2.61] Re  
a = 0.7931 [0.0747] AU  
Ag = 36331.10 [70481.86] [0.52σ]  
Teff = 4768 [2310] K [1.97σ]

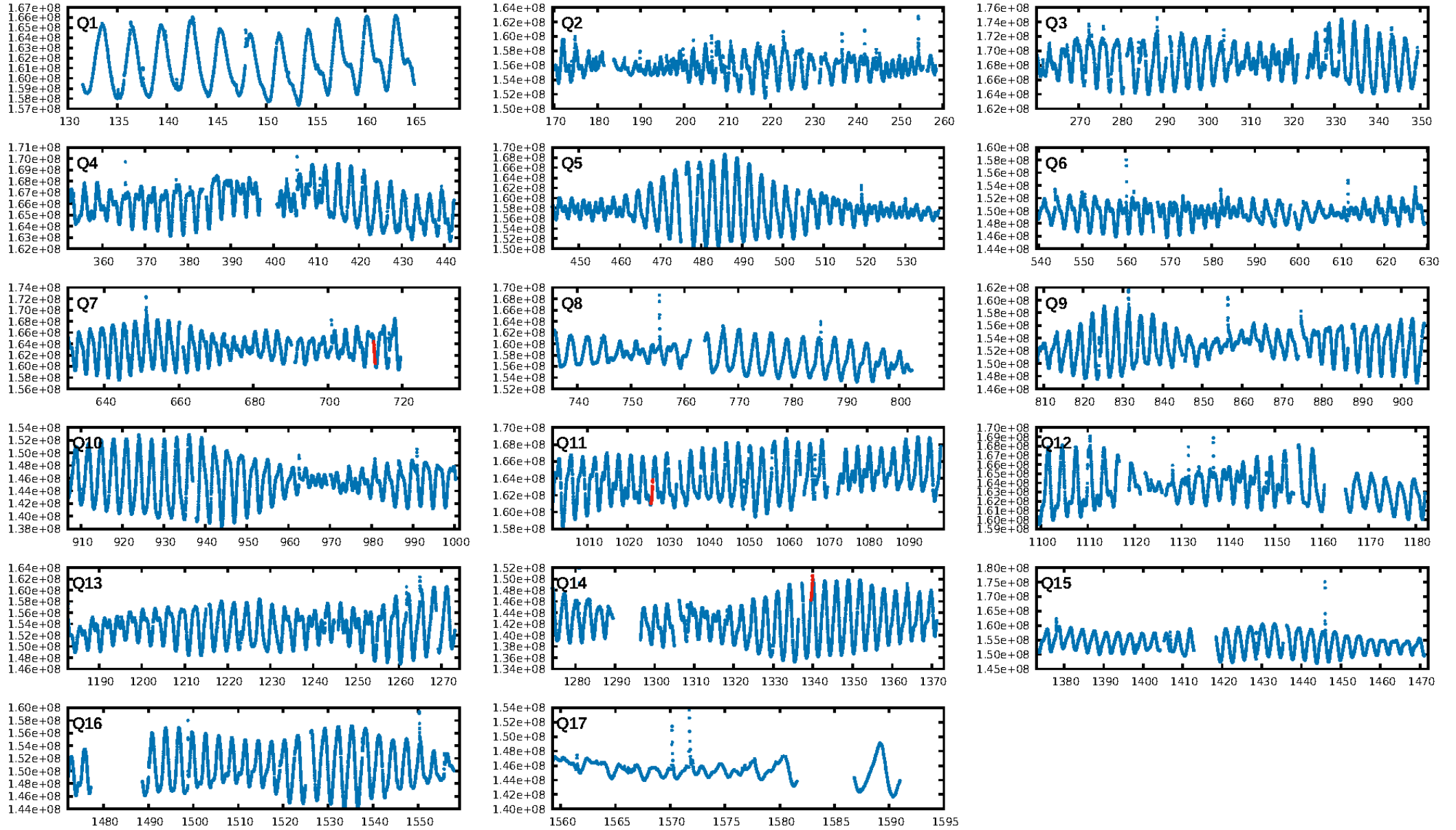
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [129.81σ]  
LongPeriod-sig: 100.0% [40.79σ]  
ModelChiSquare2-sig: 2.4%  
ModelChiSquareGof-sig: 75.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -3.372  
**Centroid-sig: 0.2%**  
Centroid-so: 0.813 arcsec [2.28σ]  
OotOffset-rm: 0.051 arcsec [0.40σ]  
KicOffset-rm: 0.176 arcsec [1.01σ]  
OotOffset-st: 1/2/0/0 [3]  
KicOffset-st: 1/2/0/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

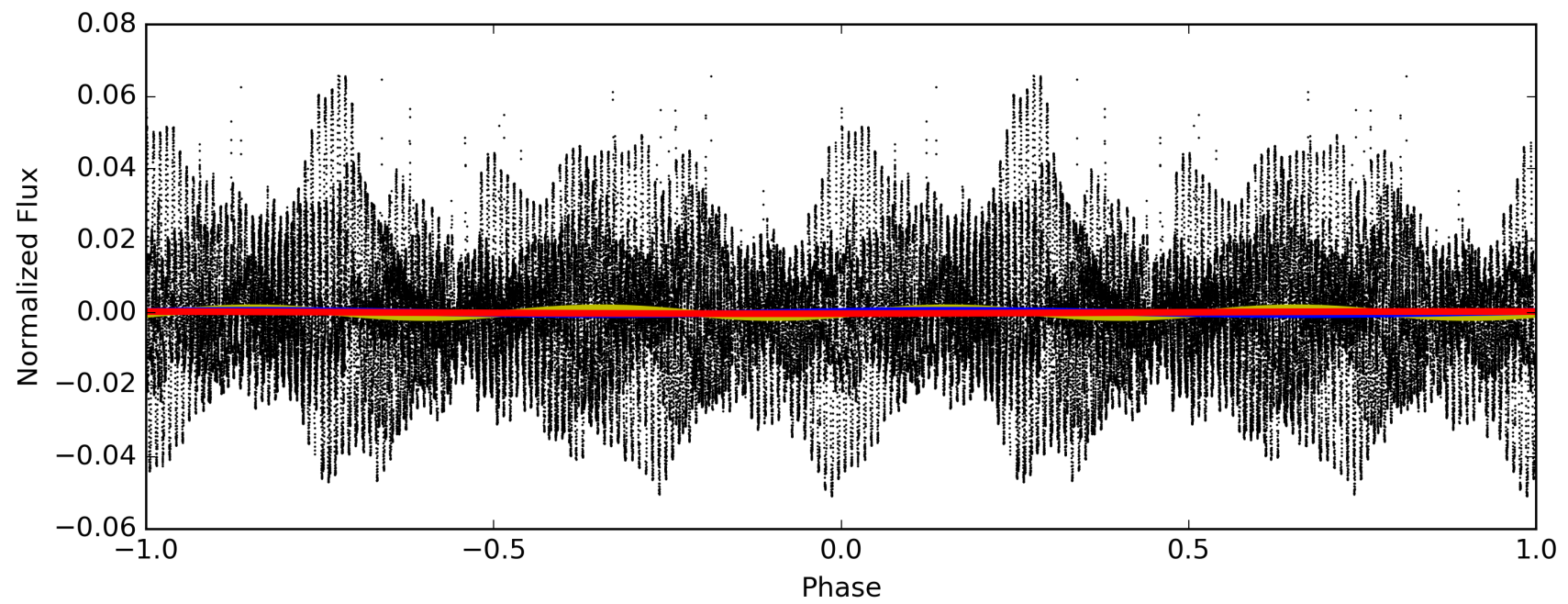
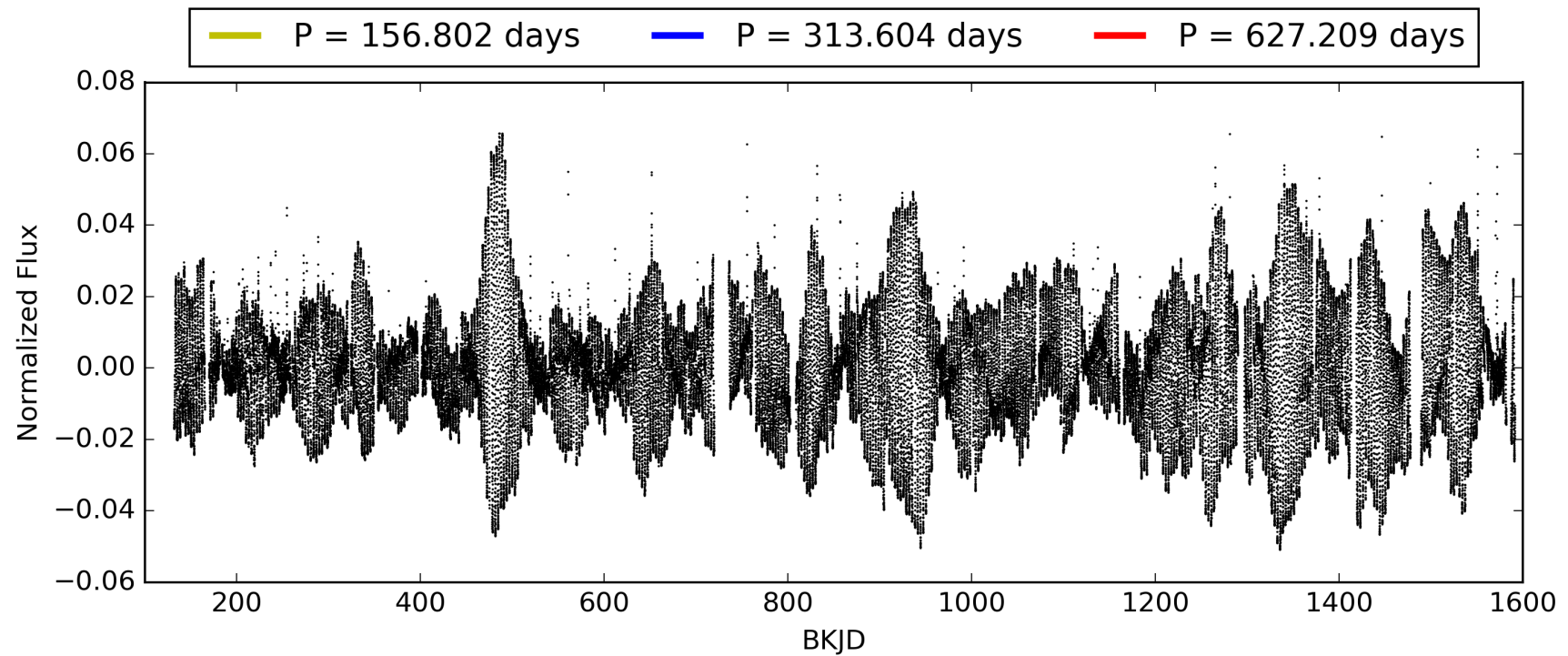
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:46:23 Z

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

# TCE 003832966-02, PDC Light Curves



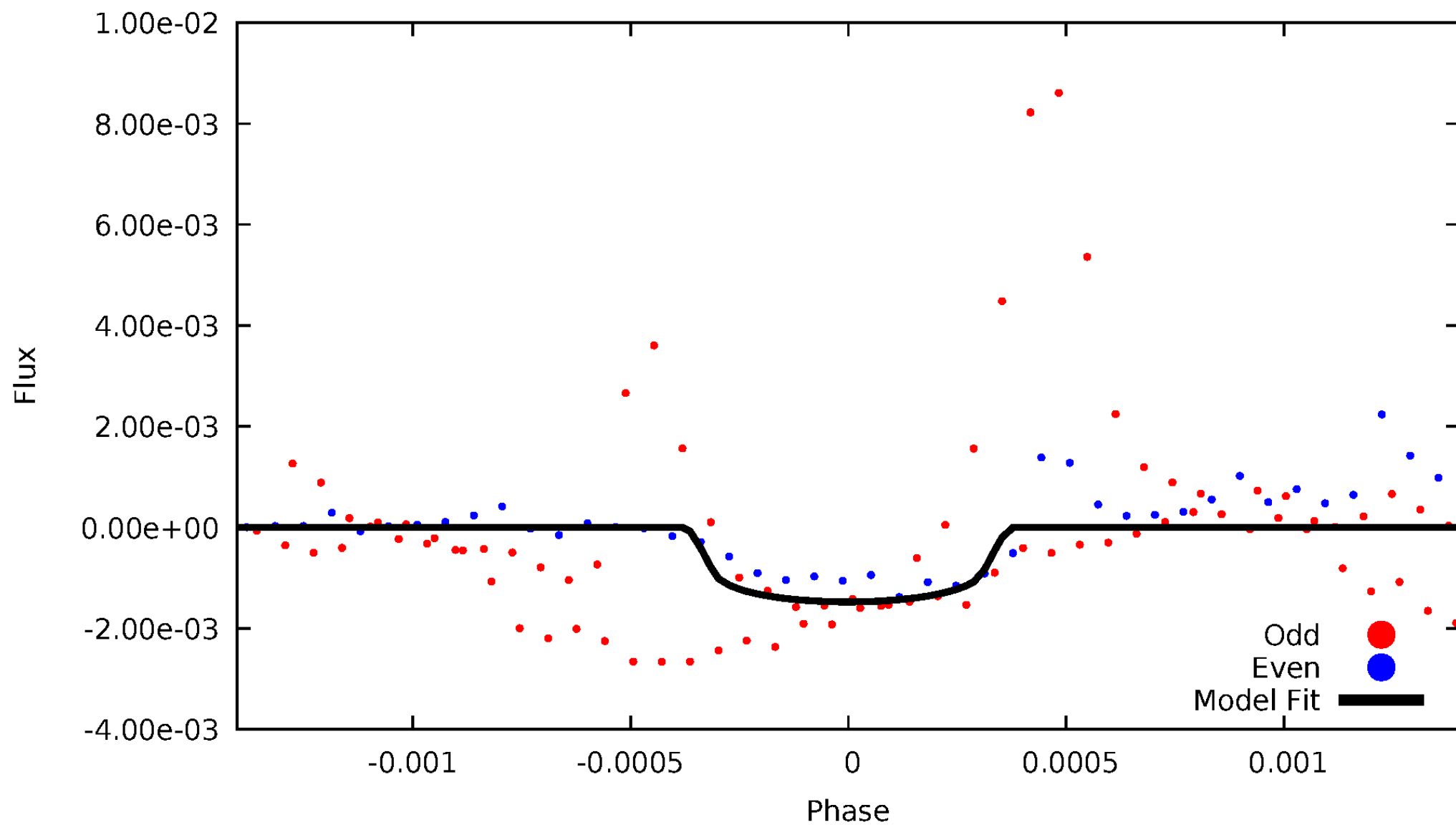
TCE 003832966-02





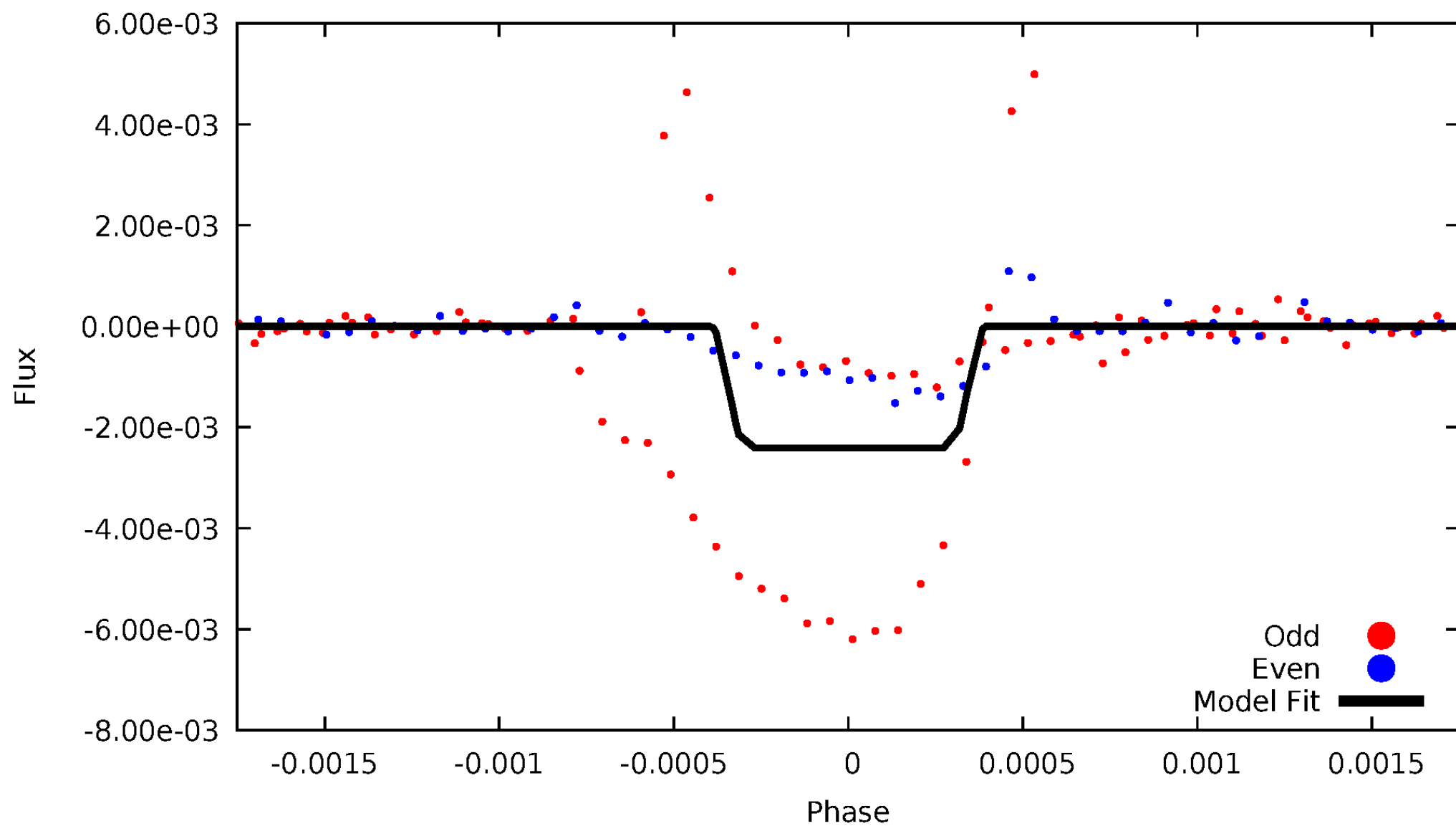
# DV Odd/Even

TCE 003832966-02



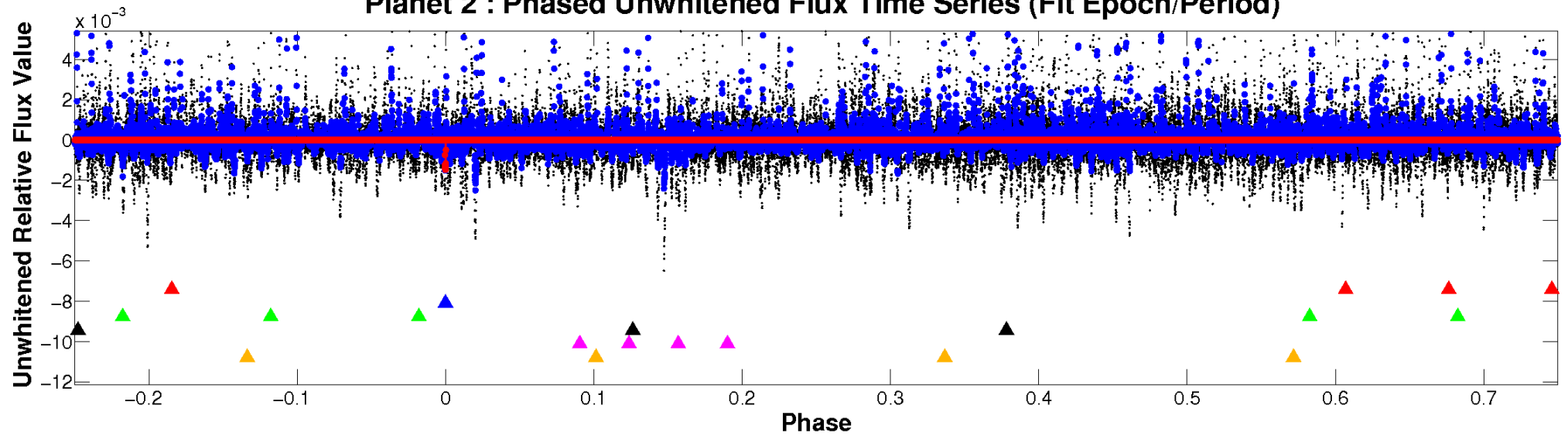
# ALT Odd/Even

TCE 003832966-02

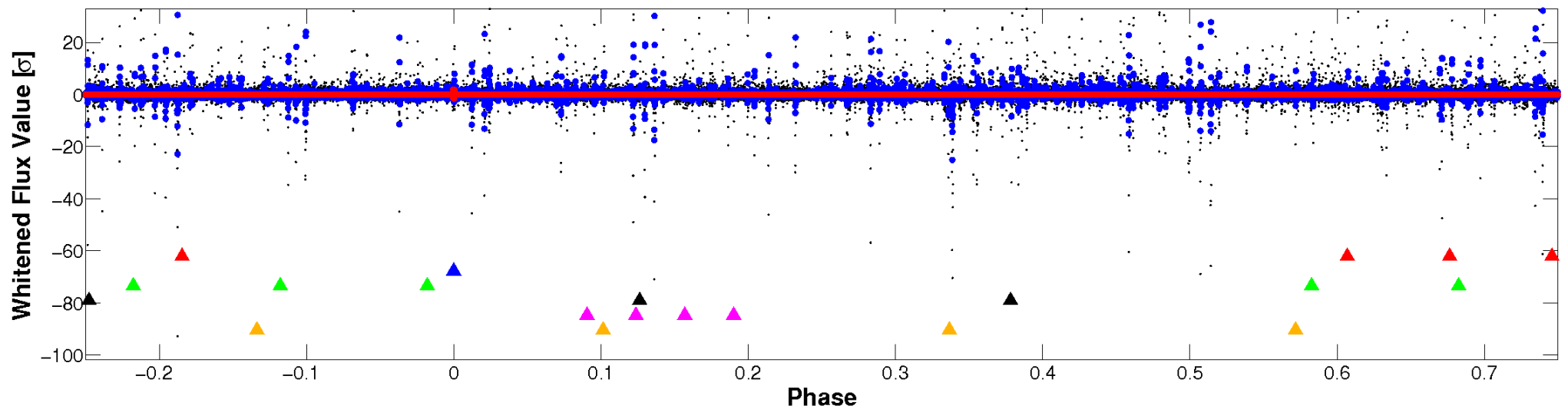


# Non-Whitened Vs. Whitened Light Curve

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

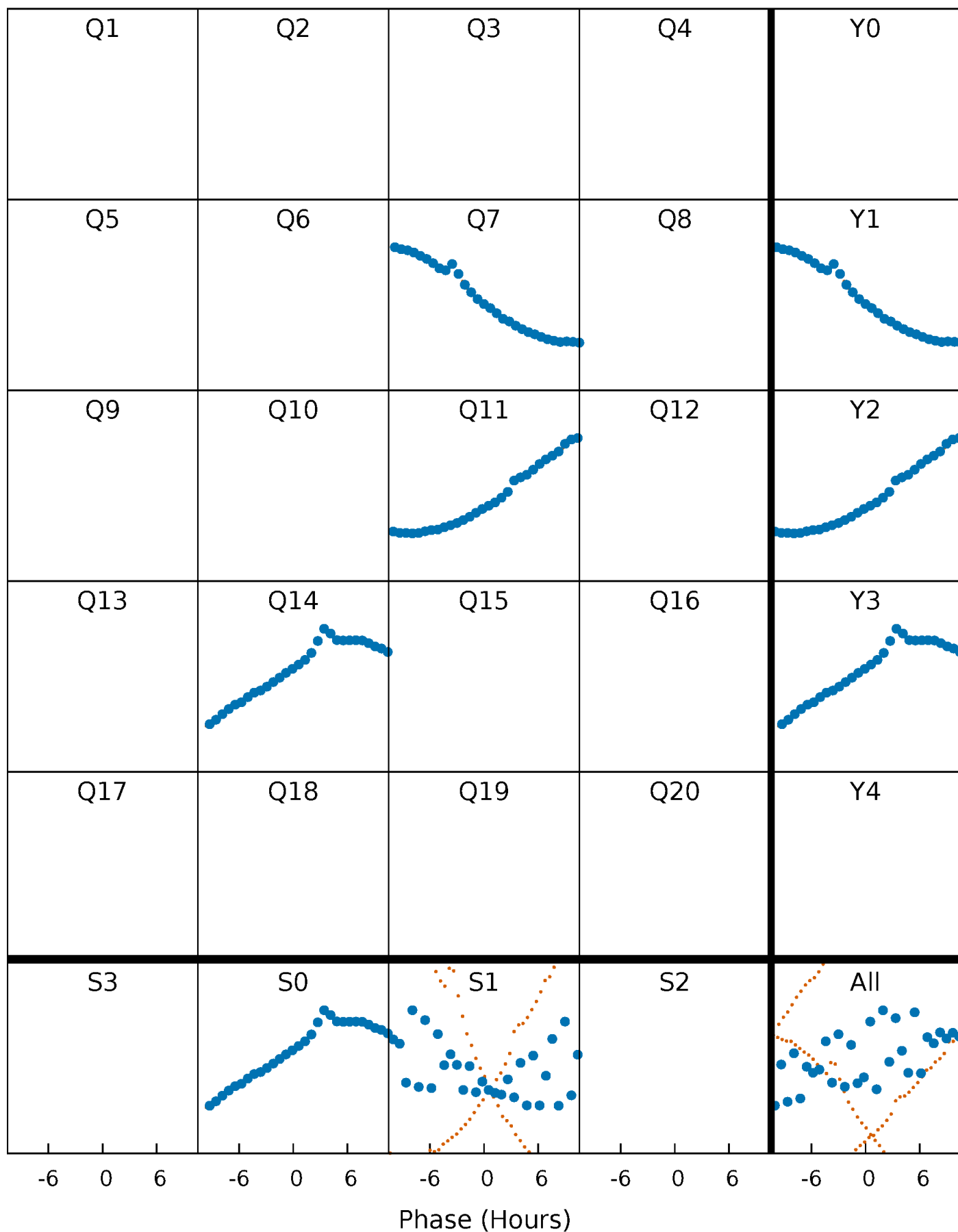


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



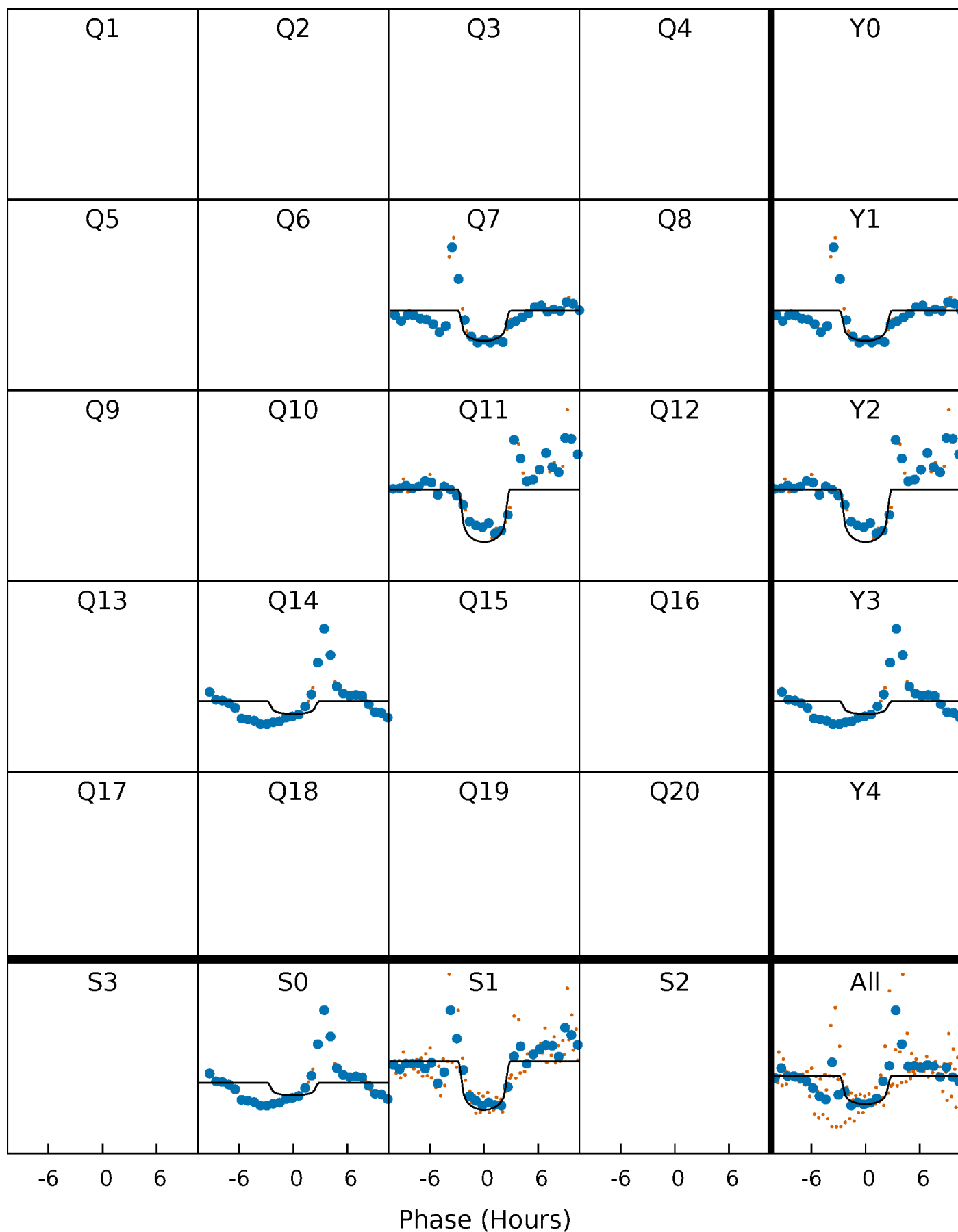
# PDC Quarter-Phased Transit Curves

TCE 003832966-02     $P=313.604322$  Days     $T_0=398.931623$  (BKJD)



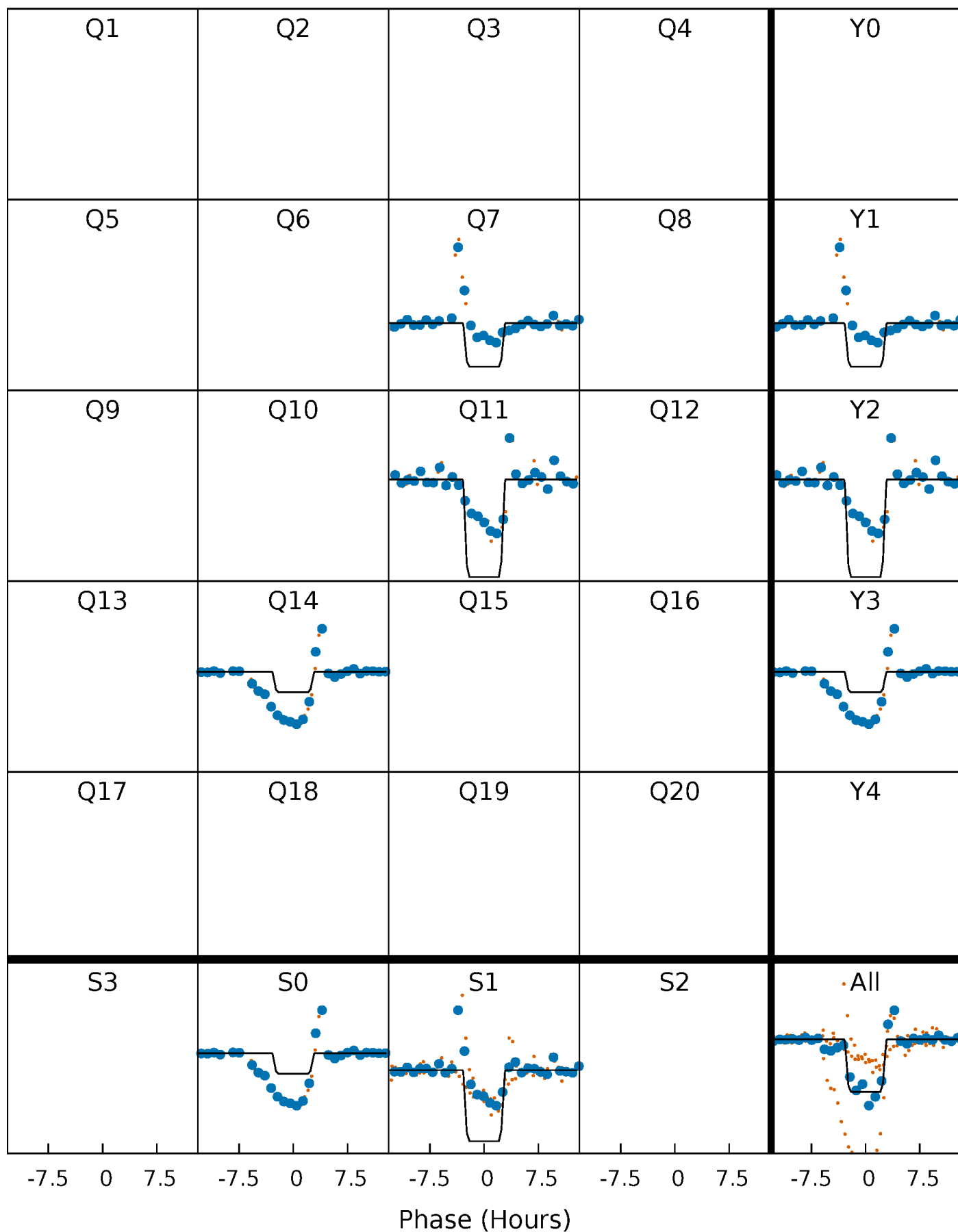
# DV Quarter-Phased Transit Curves

TCE 003832966-02     $P=313.604322$  Days     $T_0=398.931623$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

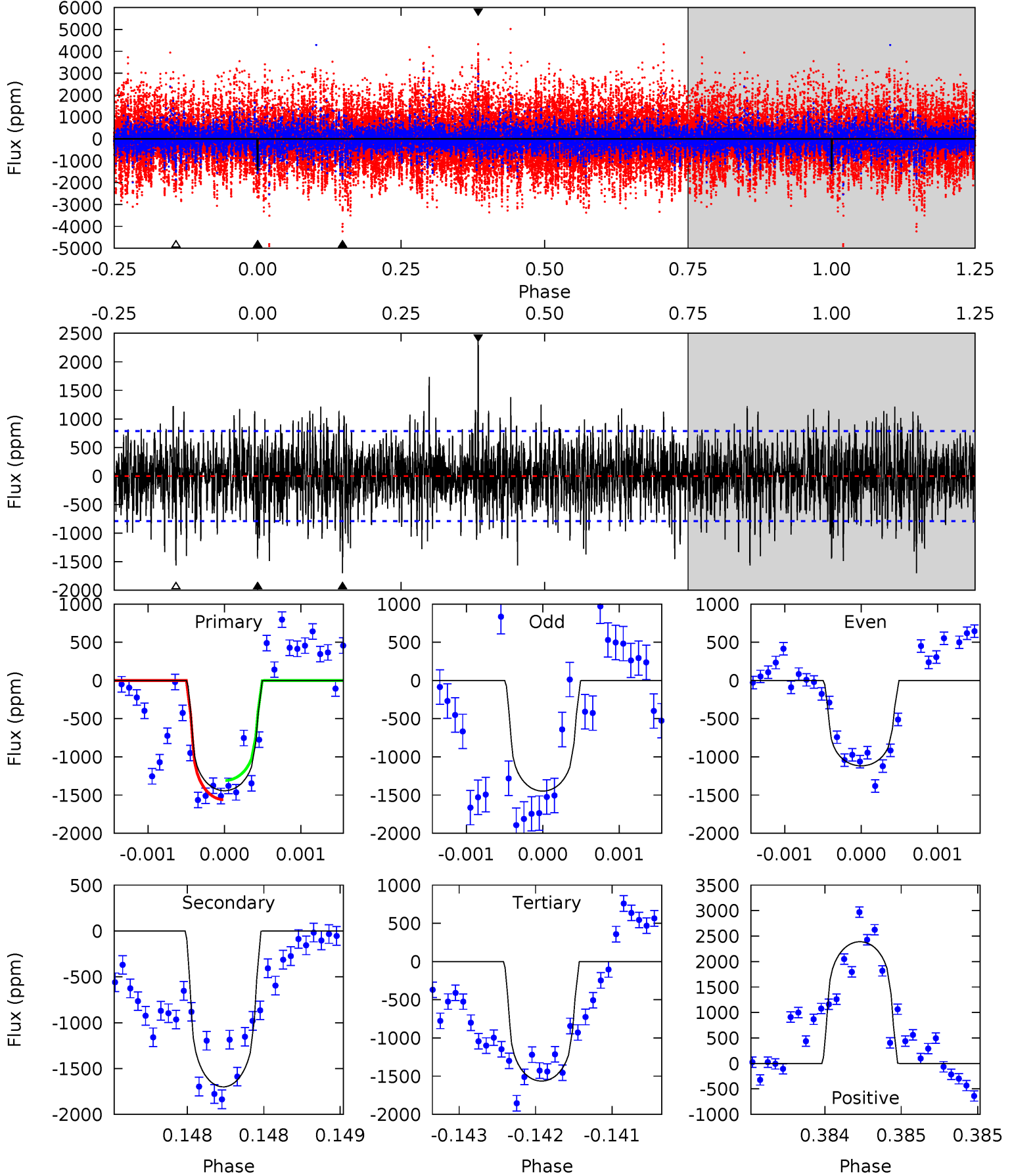
TCE 003832966-02     $P=313.593845$  Days     $T_0=398.947431$  (BKJD)



# DV Model-Shift Uniqueness Test

003832966-02, P = 313.604322 Days, E = 85.327301 Days

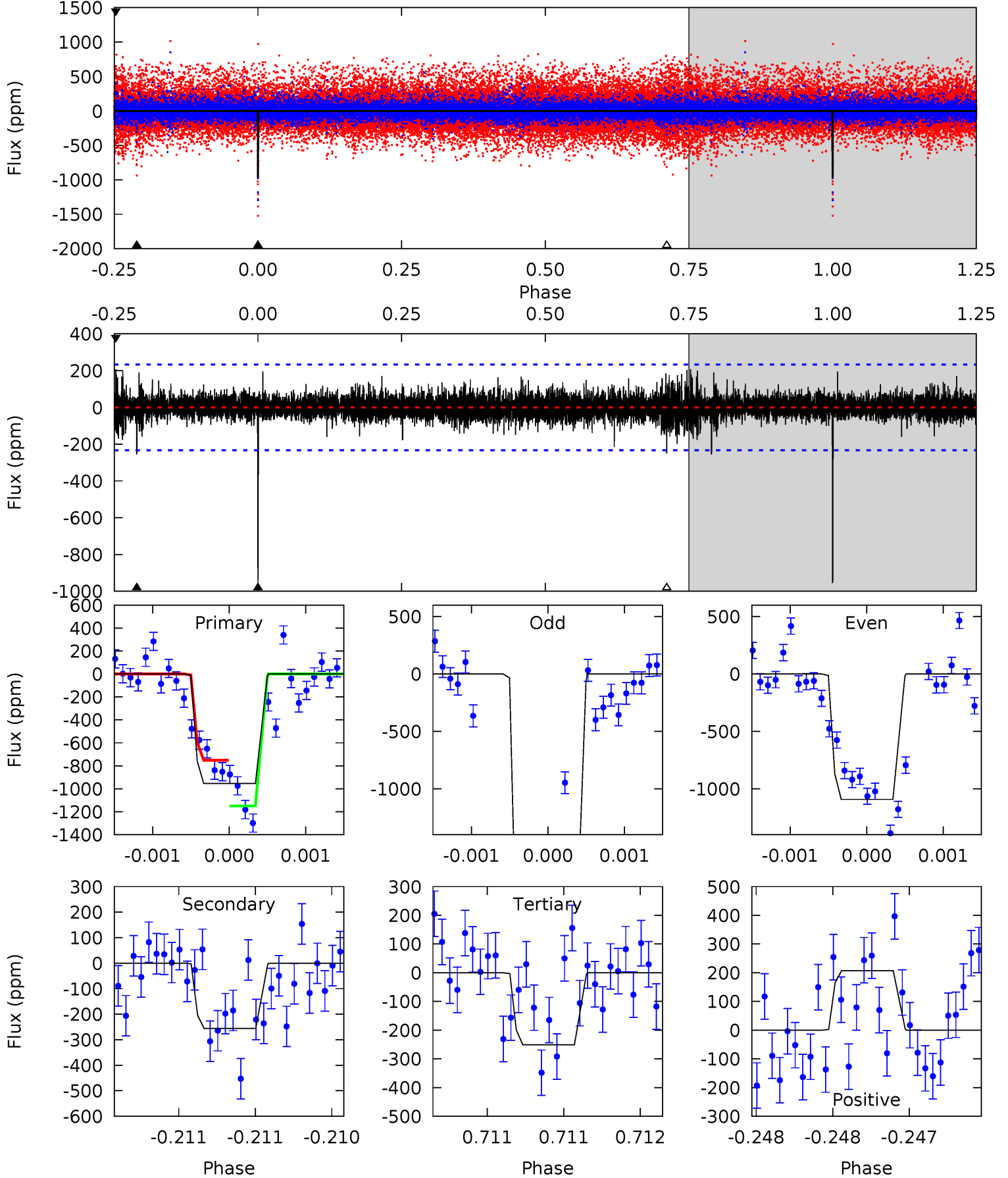
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	11.9	10.9	16.7	5.50	3.37	2.83	-0.85	-6.61	0.95	-4.81	0.99	0.95	0.58	0.89



# Alt Model-Shift Uniqueness Test

003832966-02, P = 313.593845 Days, E = 85.353586 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
22.5	6.02	5.90	4.88	5.50	3.36	0.98	16.6	17.6	0.12	1.14	24.3	2.22	0.18	4.73





### Stellar Parameters For KIC 003832966

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5340^{+160}_{-144}$	$4.562^{+0.082}_{-0.060}$	$-0.680^{+0.300}_{-0.300}$	$0.713^{+0.075}_{-0.075}$	$0.676^{+0.086}_{-0.029}$	$2.630^{+0.978}_{-0.554}$
	+3%/-3%	+2%/-1%	+44%/-44%	+11%/-11%	+13%/-4%	+37%/-21%
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 003832966-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1700 \pm 143$	$3.20^{+2.53}_{-1.85}$	$312^{+13}_{-11}$	$5387^{+3078}_{-1143}$	$58854^{+265899}_{-40402}$
Alt.	$-256 \pm 42$	$3.95^{+2.67}_{-2.20}$	$312^{+11}_{-12}$	$3471^{+1133}_{-493}$	$5672^{+22300}_{-3674}$

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

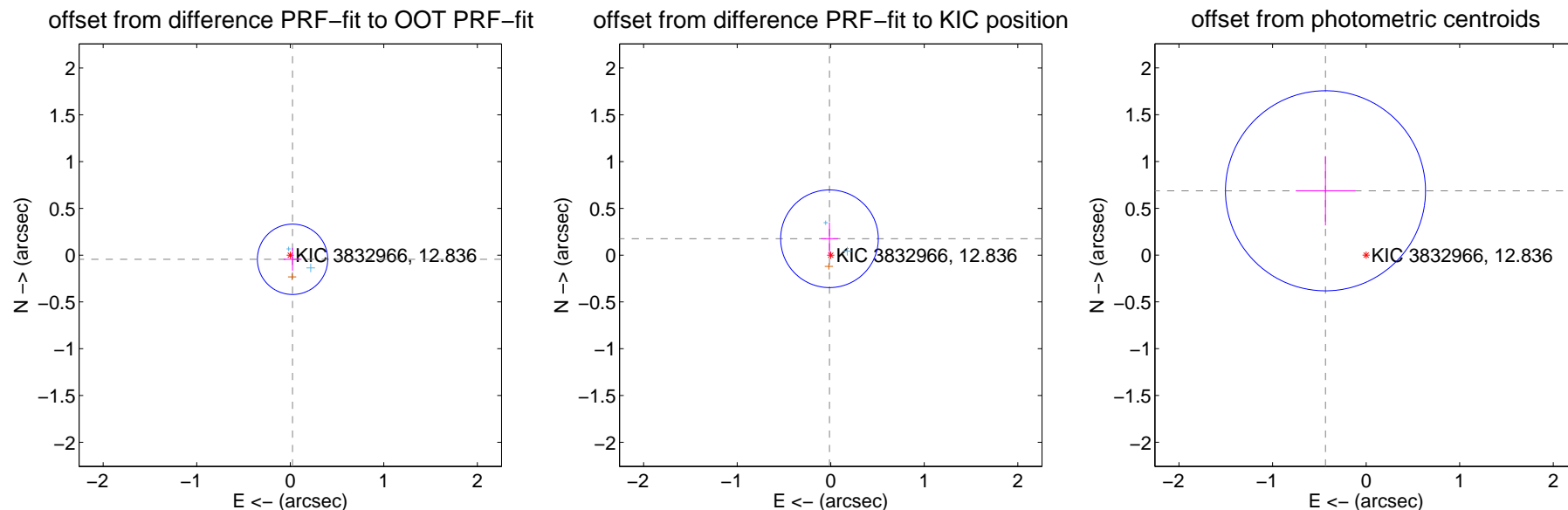
## DV Centroid Data

Supplemental centroid analysis for 003832966-02. Kepler magnitude: 12.84. Transit SNR 6.75

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.051 \pm 0.125$	0.40	$-0.024 \pm 0.096$	$-0.044 \pm 0.122$
PRF-fit source offset from KIC position	$0.176 \pm 0.174$	1.01	$0.013 \pm 0.092$	$0.175 \pm 0.174$
photometric centroid source offset	$0.81 \pm 0.36$	2.28	$0.43 \pm 0.32$	$0.69 \pm 0.37$

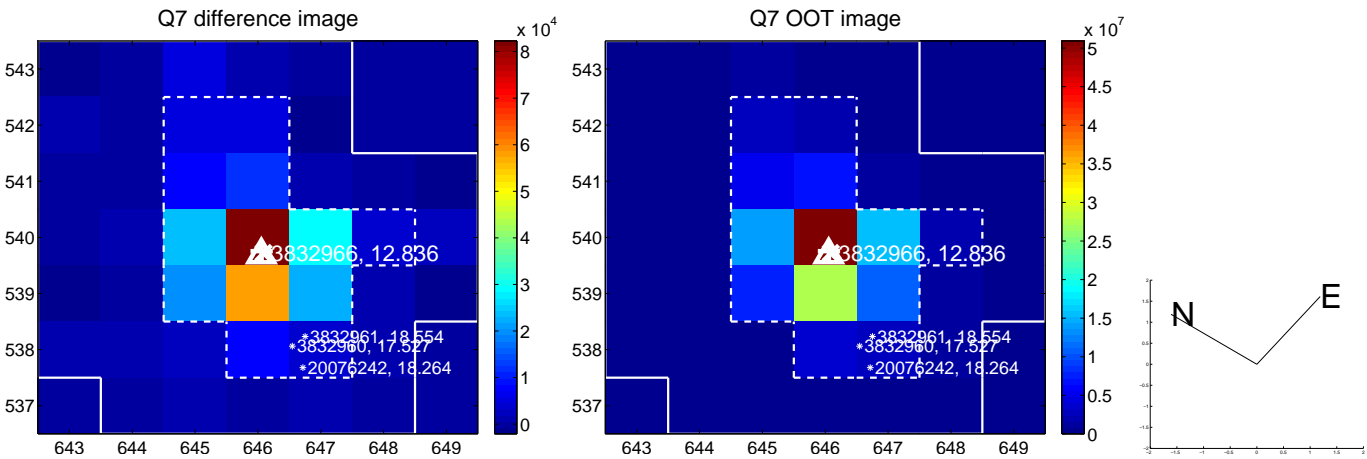


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

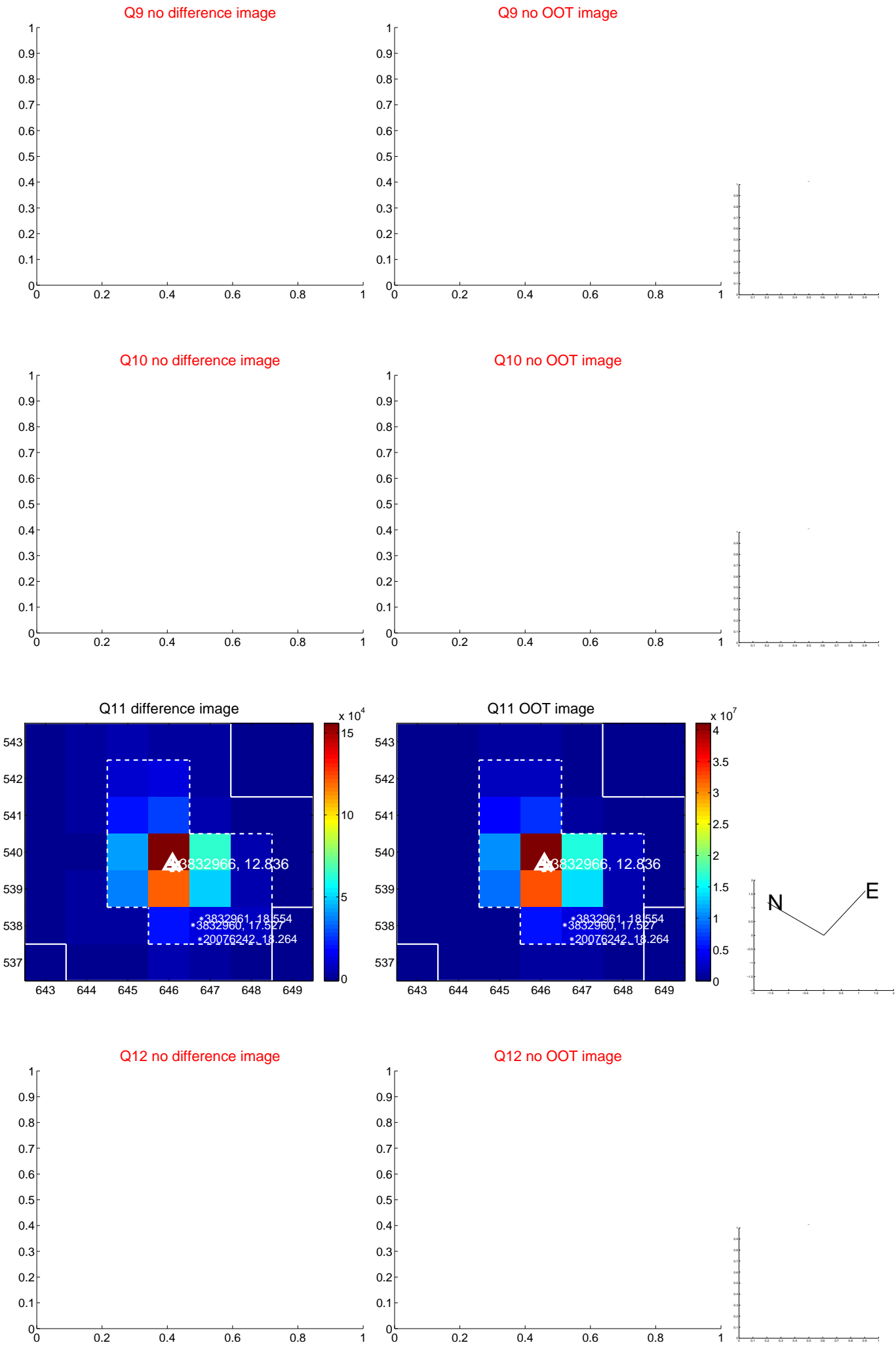
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



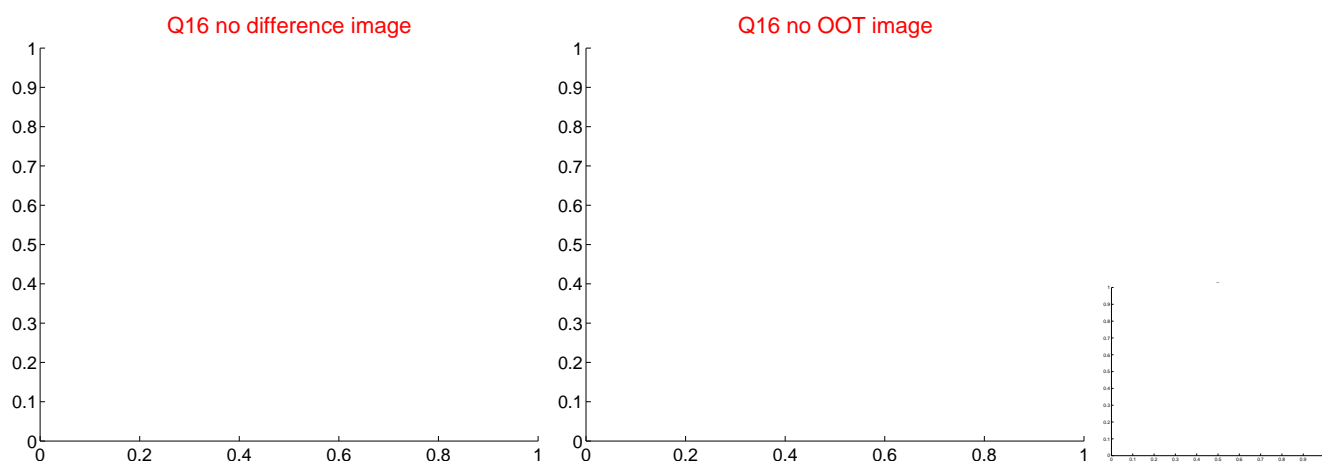
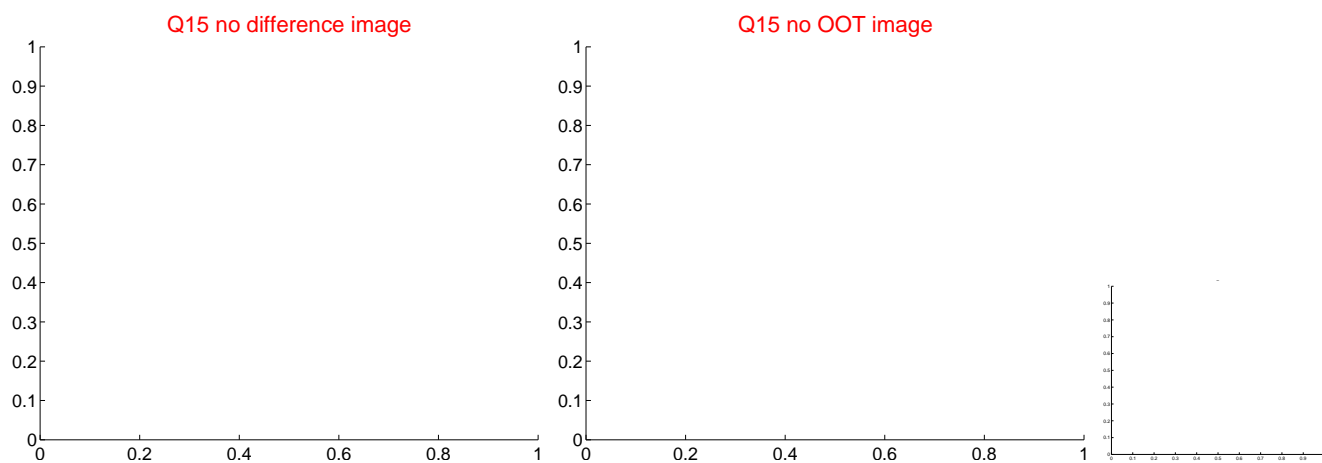
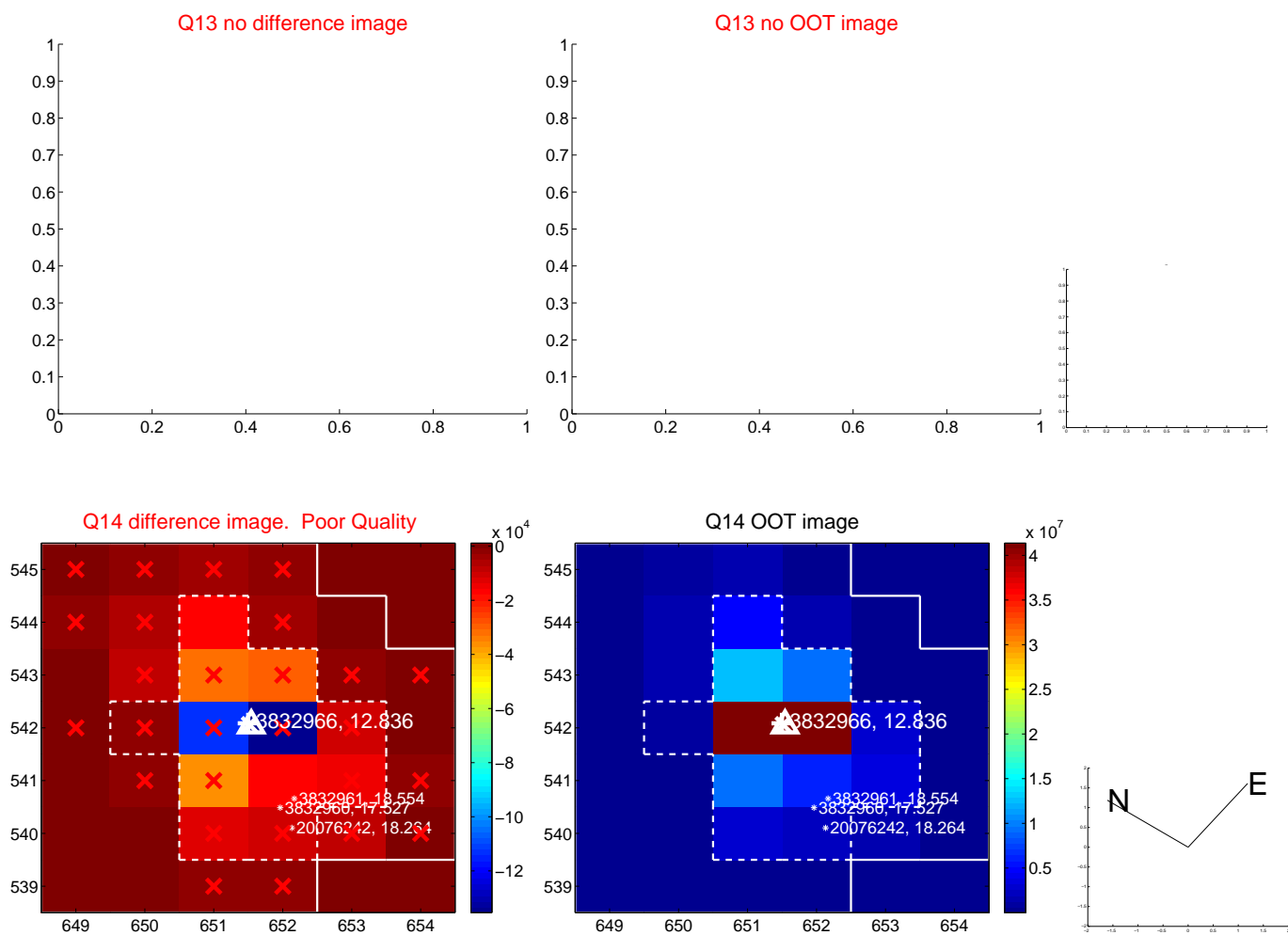
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



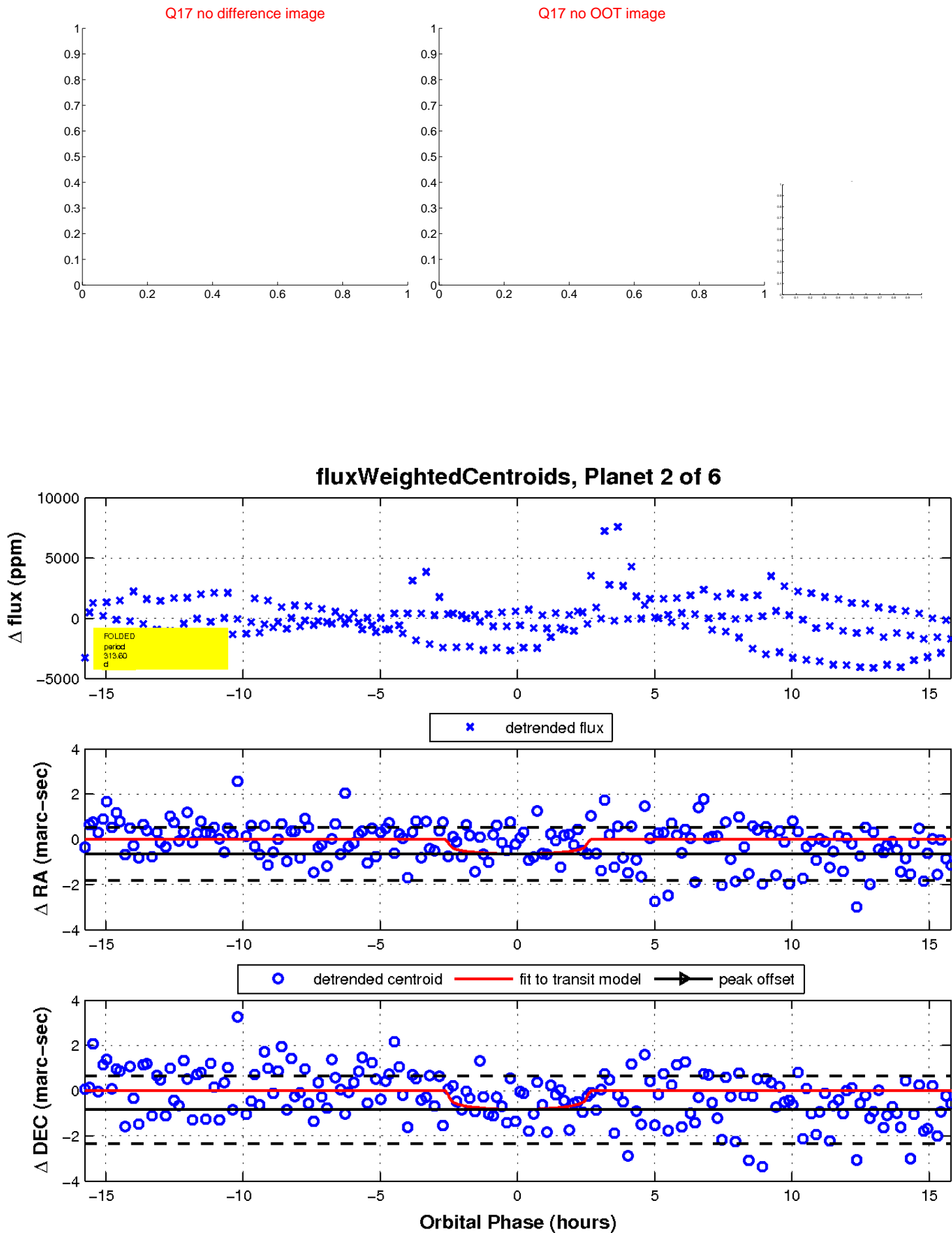
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

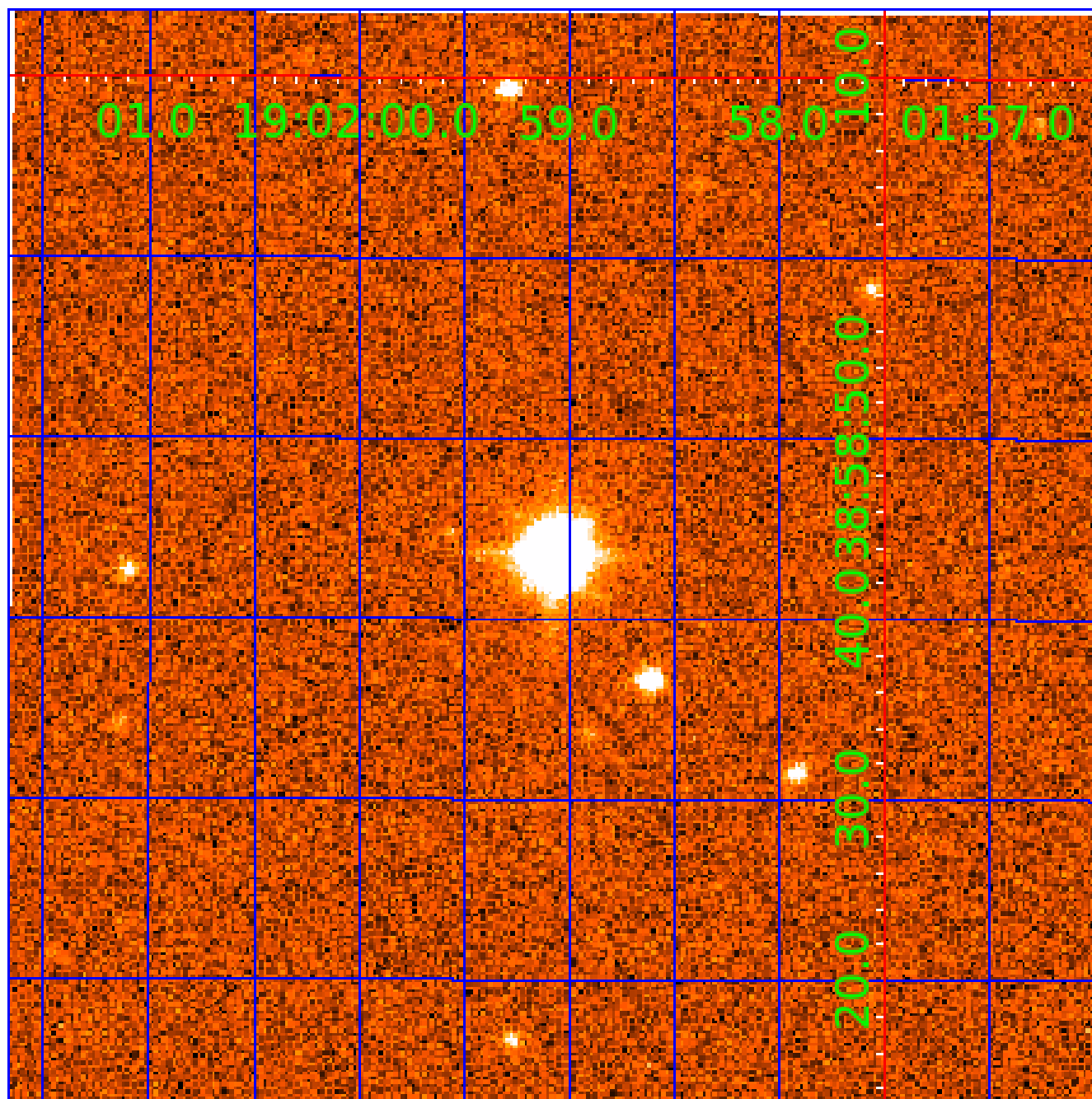


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination





# KIC 003832966

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003832966-01	OBS	No	335.407768	275.656457	910.0	2.054	18.1	6.1	0.71	5340	2.33	0.54
003832966-02	OBS	No	313.604322	398.931623	1476.3	5.280	17.7	6.7	0.71	5340	2.74	0.59
003832966-03	OBS	No	282.295461	393.295137	637.6	2.373	15.7	5.0	0.71	5340	1.81	0.68
003832966-04	OBS	No	509.909483	438.529211	653.2	4.352	17.6	3.2	0.71	5340	1.82	0.31
003832966-05	OBS	No	324.015736	427.329660	447.0	3.107	15.5	2.8	0.71	5340	1.57	0.56
003832966-06	OBS	No	387.352186	357.012356	379.5	9.000	17.3	-1.0	0.71	5340	1.37	0.44

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003832966-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_POS_DV
003832966-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003832966-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003832966-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
003832966-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
003832966-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

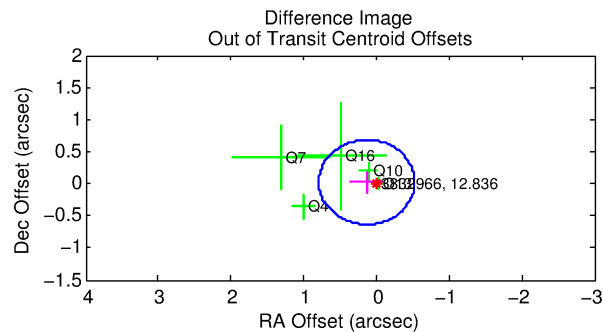
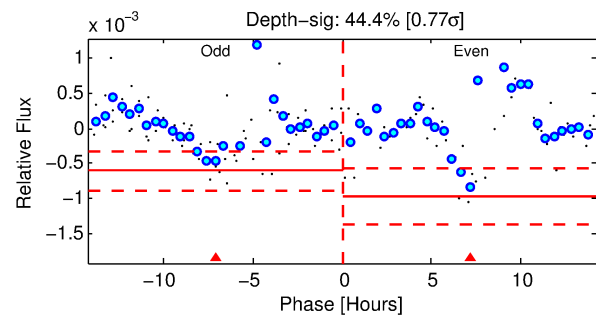
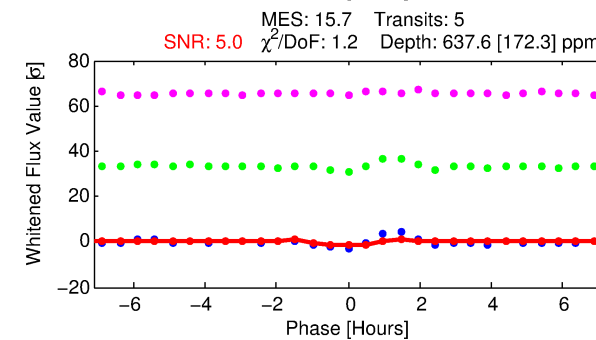
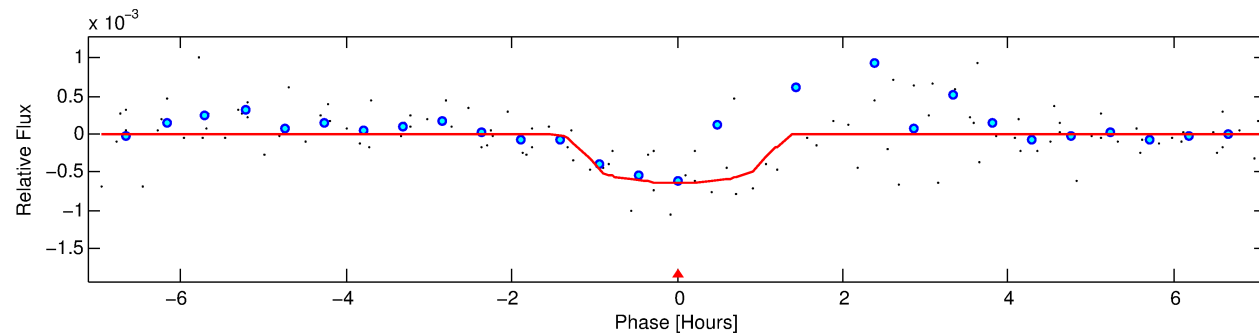
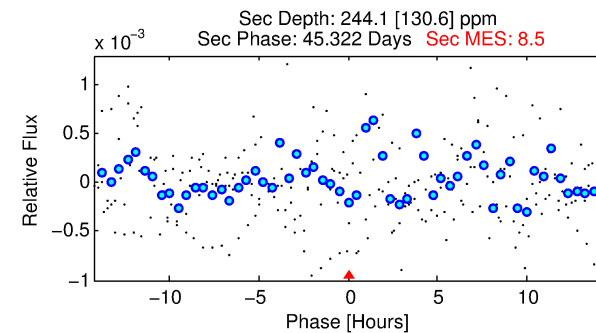
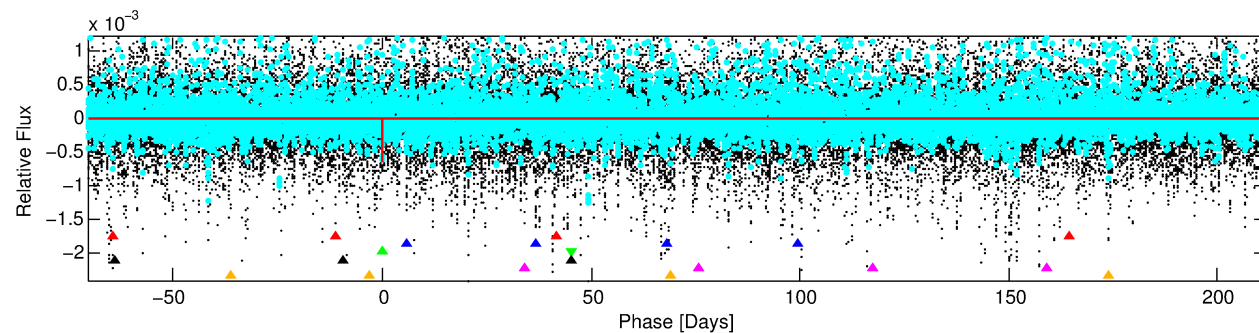
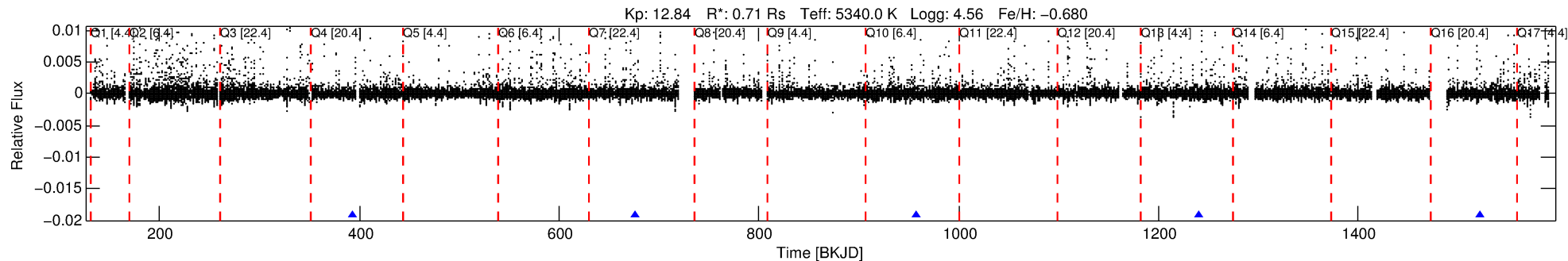
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003832966-03

No Significant Match Found

# DV One-Page Summary

KIC: 3832966 Candidate: 3 of 6 Period: 282.295 d



## DV Fit Results:

Period = 282.29546 [0.00263] d  
Epoch = 393.2951 [0.0074] BKJD  
Rp/R\* = 0.0233 [0.0445]  
a/R\* = 870.78 [7107.25]  
b = 0.36 [19.90]  
Seff = 0.68 [0.13]  
Teq = 231 [11] K  
Rp = 1.81 [3.47] Re  
a = 0.7394 [0.0697] AU  
Ag = 22438.72 [86804.47] [0.26σ]  
Teff = 4378 [4233] K [0.98σ]

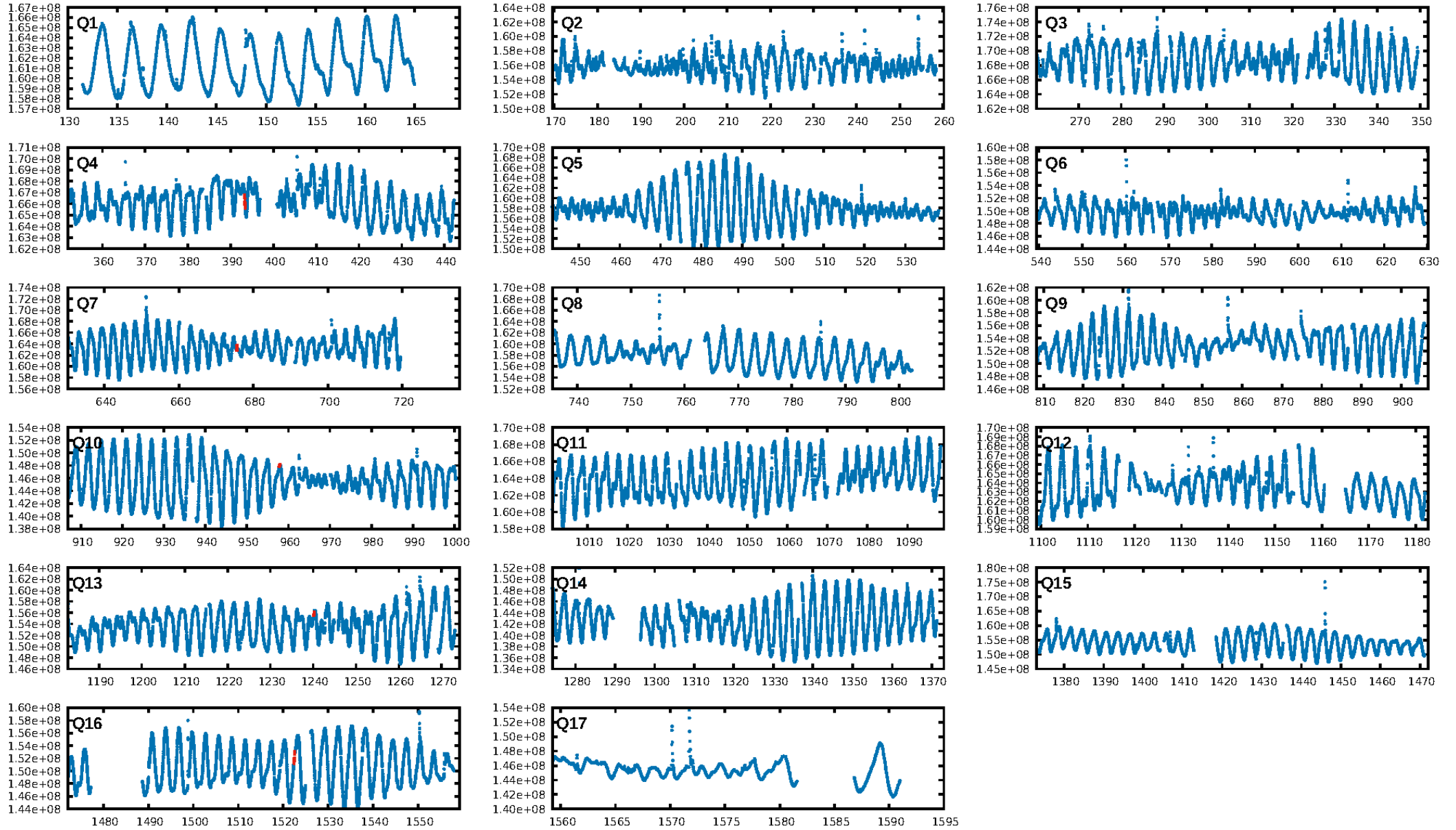
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [129.81σ]  
ModelChiSquare2-sig: 52.6%  
ModelChiSquareGof-sig: 99.3%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 0.2679  
Centroid-sig: 35.1%  
Centroid-so: 0.859 arcsec [1.16σ]  
OotOffset-rm: 0.139 arcsec [0.63σ]  
KicOffset-rm: 0.248 arcsec [1.23σ]  
OotOffset-st: 1/1/2/1 [5]  
KicOffset-st: 1/1/2/1 [5]  
DiffImageQuality-fgm: 0.40 [2/5]  
DiffImageOverlap-fno: 1.00 [5/5]

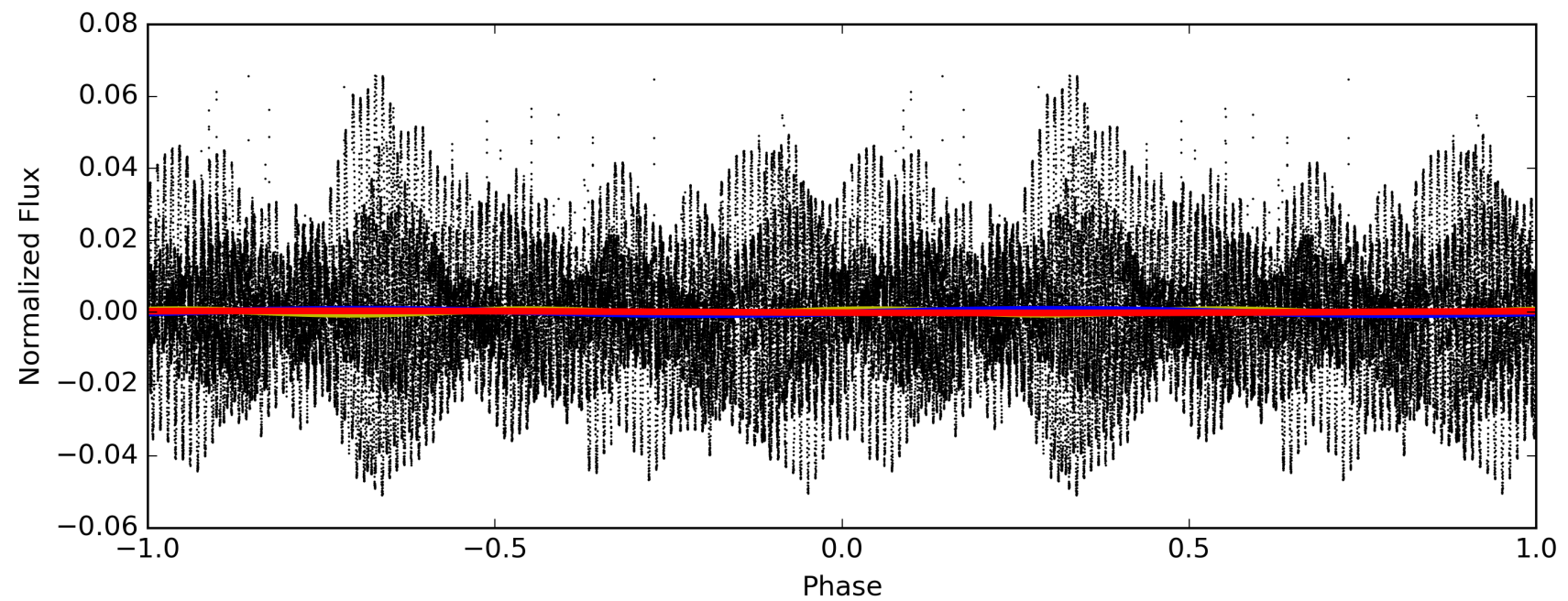
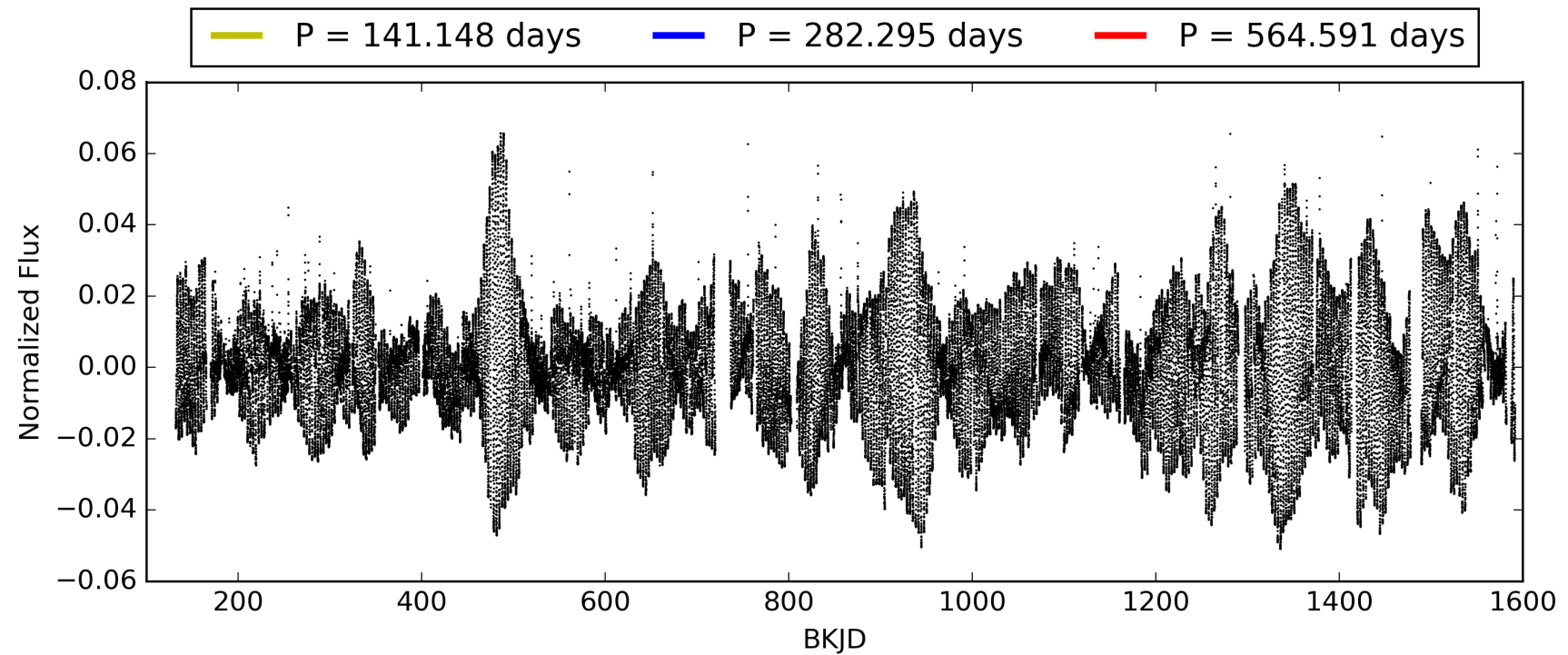
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:46:41 Z

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

# TCE 003832966-03, PDC Light Curves

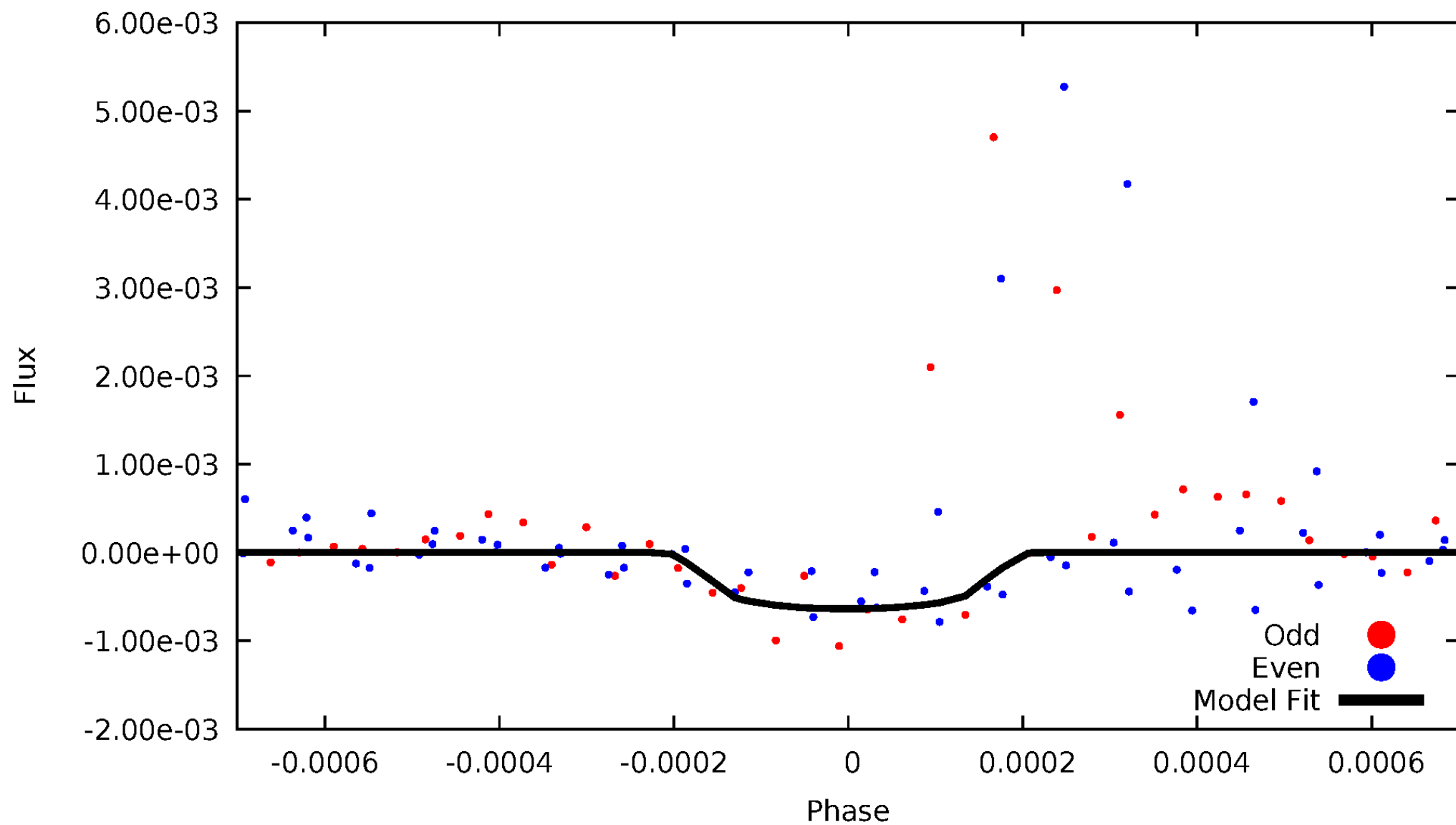


TCE 003832966-03



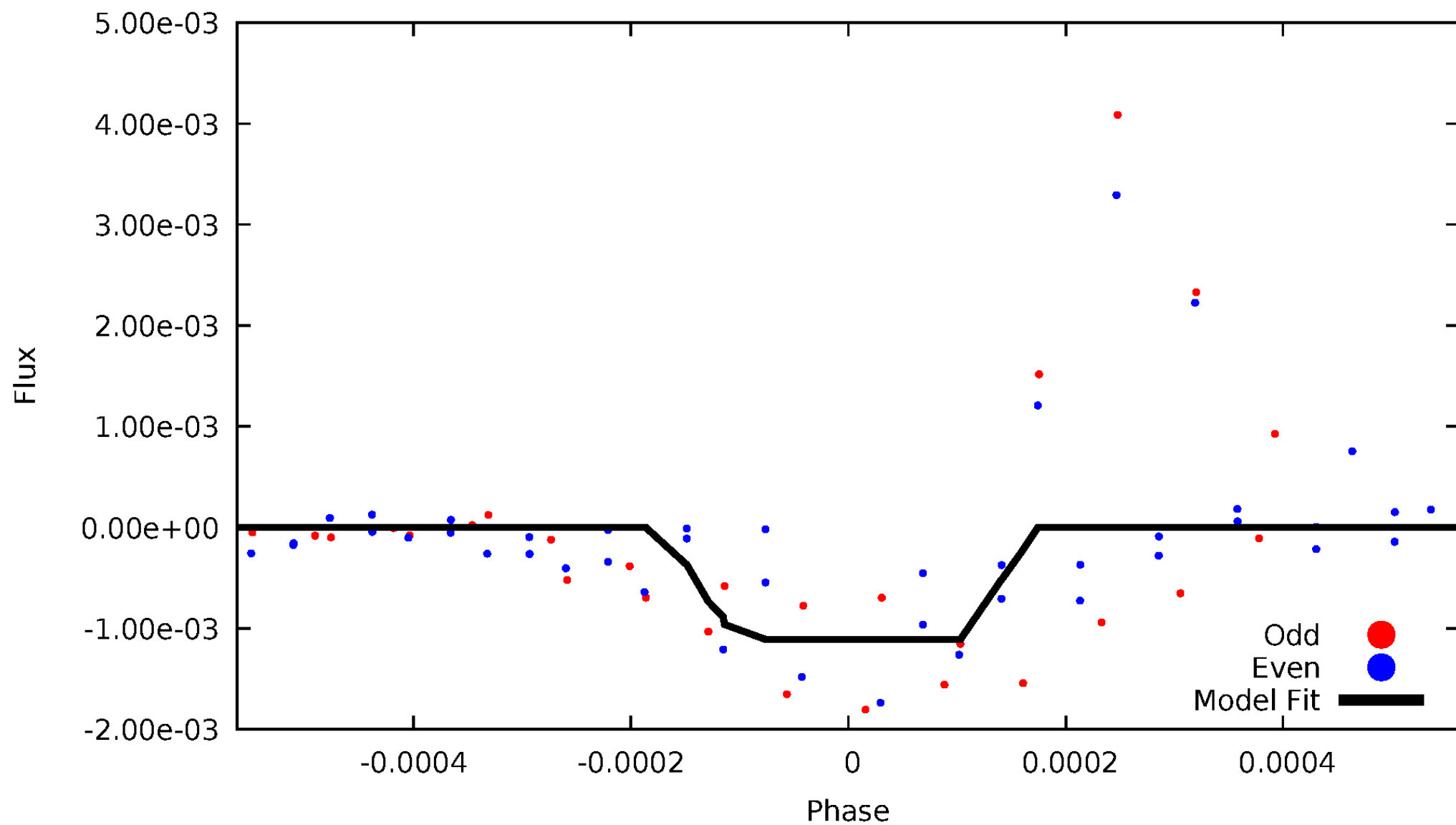
# DV Odd/Even

TCE 003832966-03



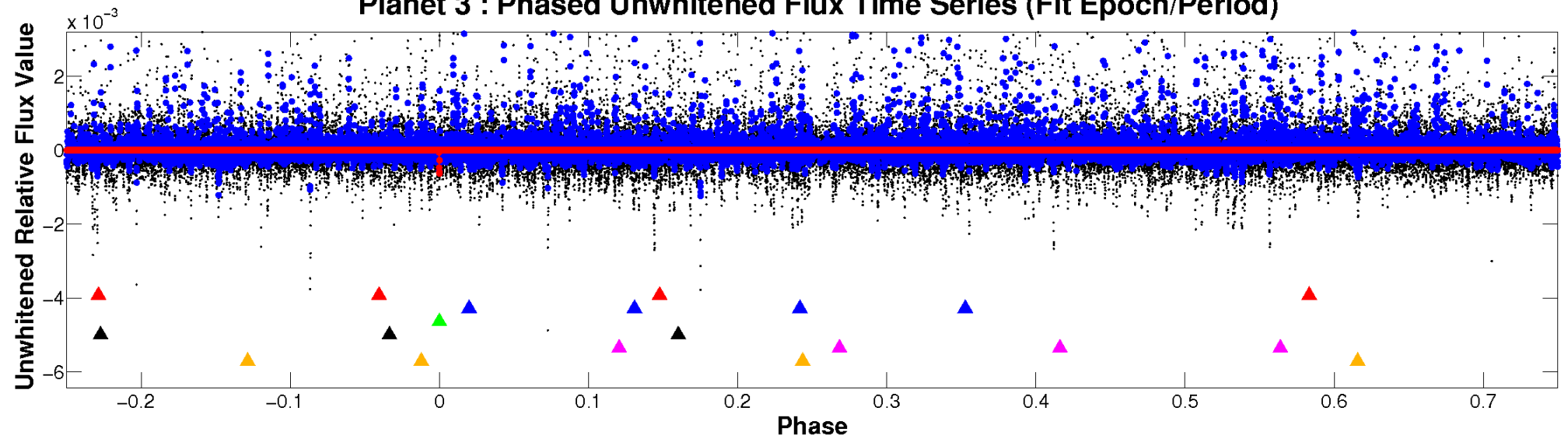
# ALT Odd/Even

TCE 003832966-03

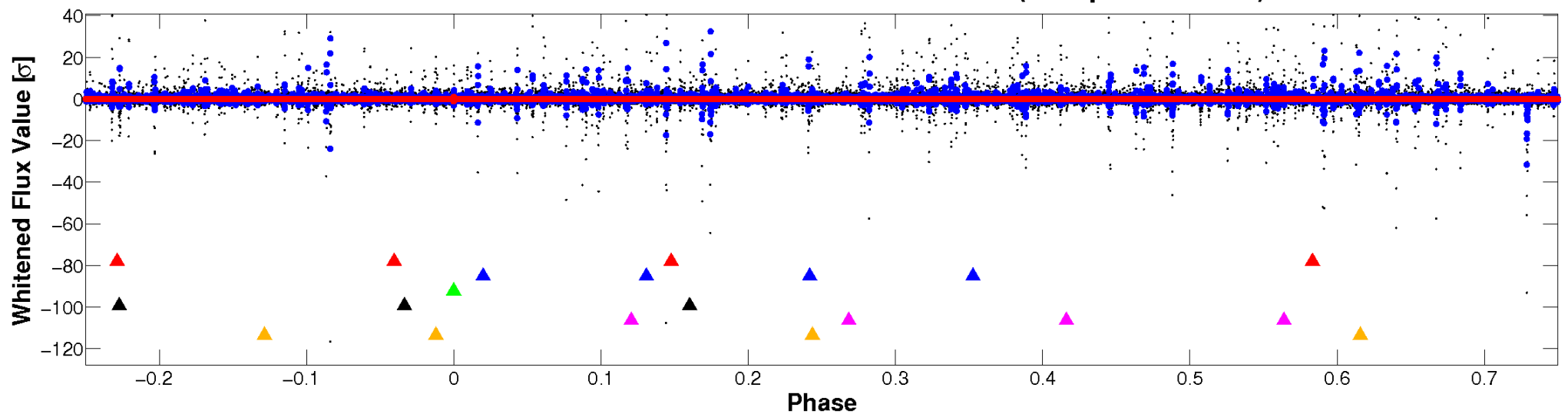


# Non-Whitened Vs. Whitened Light Curve

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



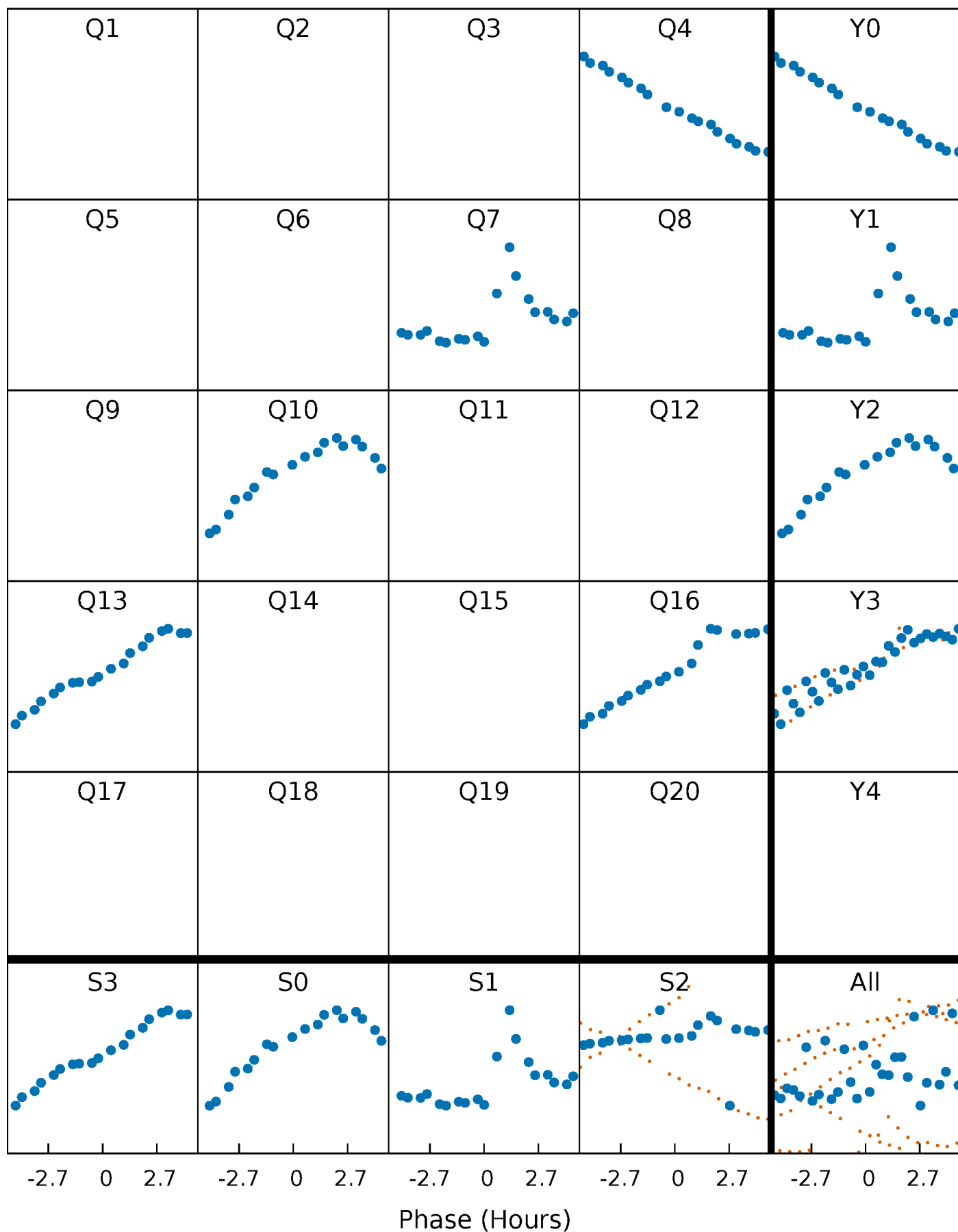
**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

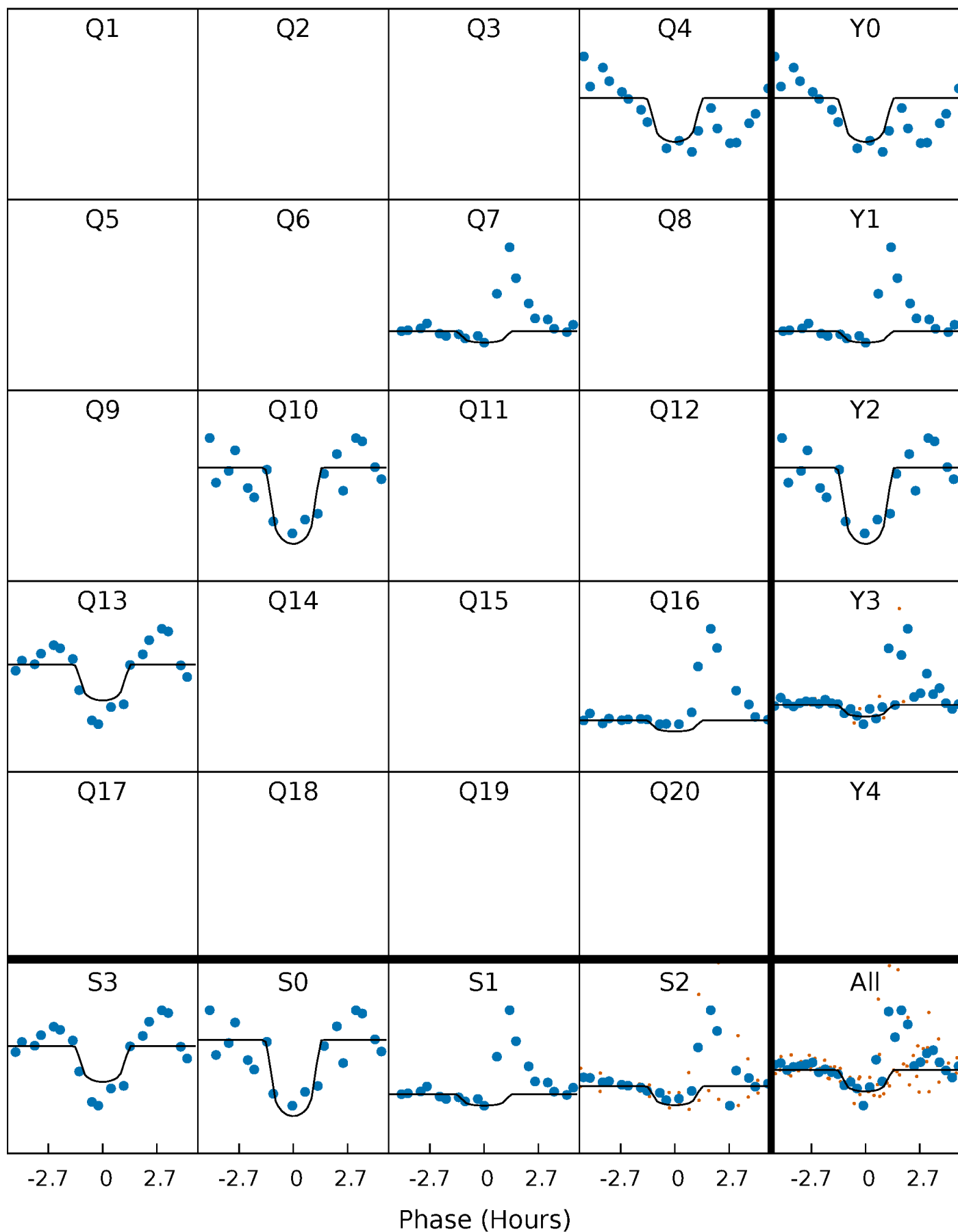
TCE 003832966-03     $P=282.295461$  Days     $T_0=393.295137$  (BKJD)





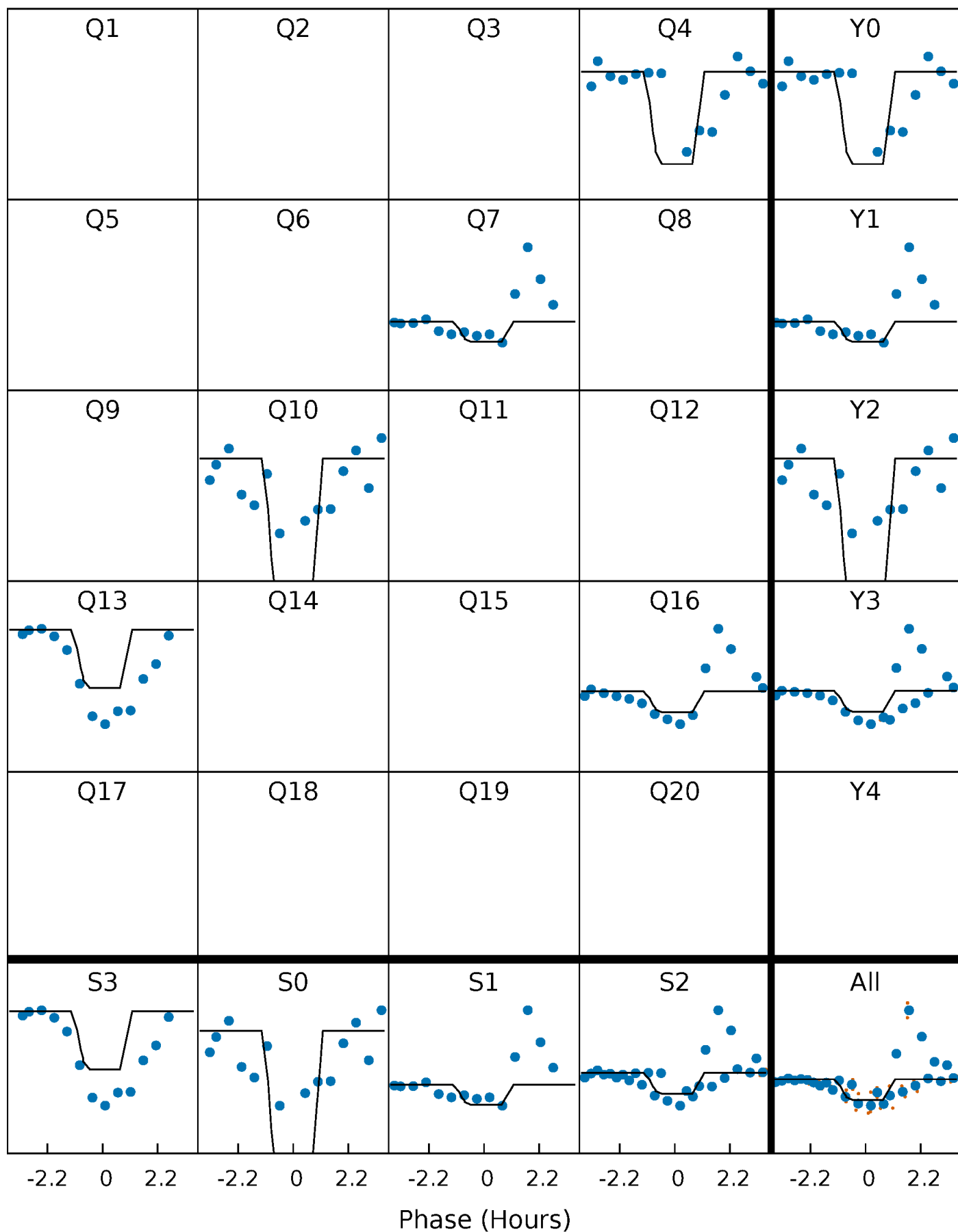
# DV Quarter-Phased Transit Curves

TCE 003832966-03     $P=282.295461$  Days     $T_0=393.295137$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

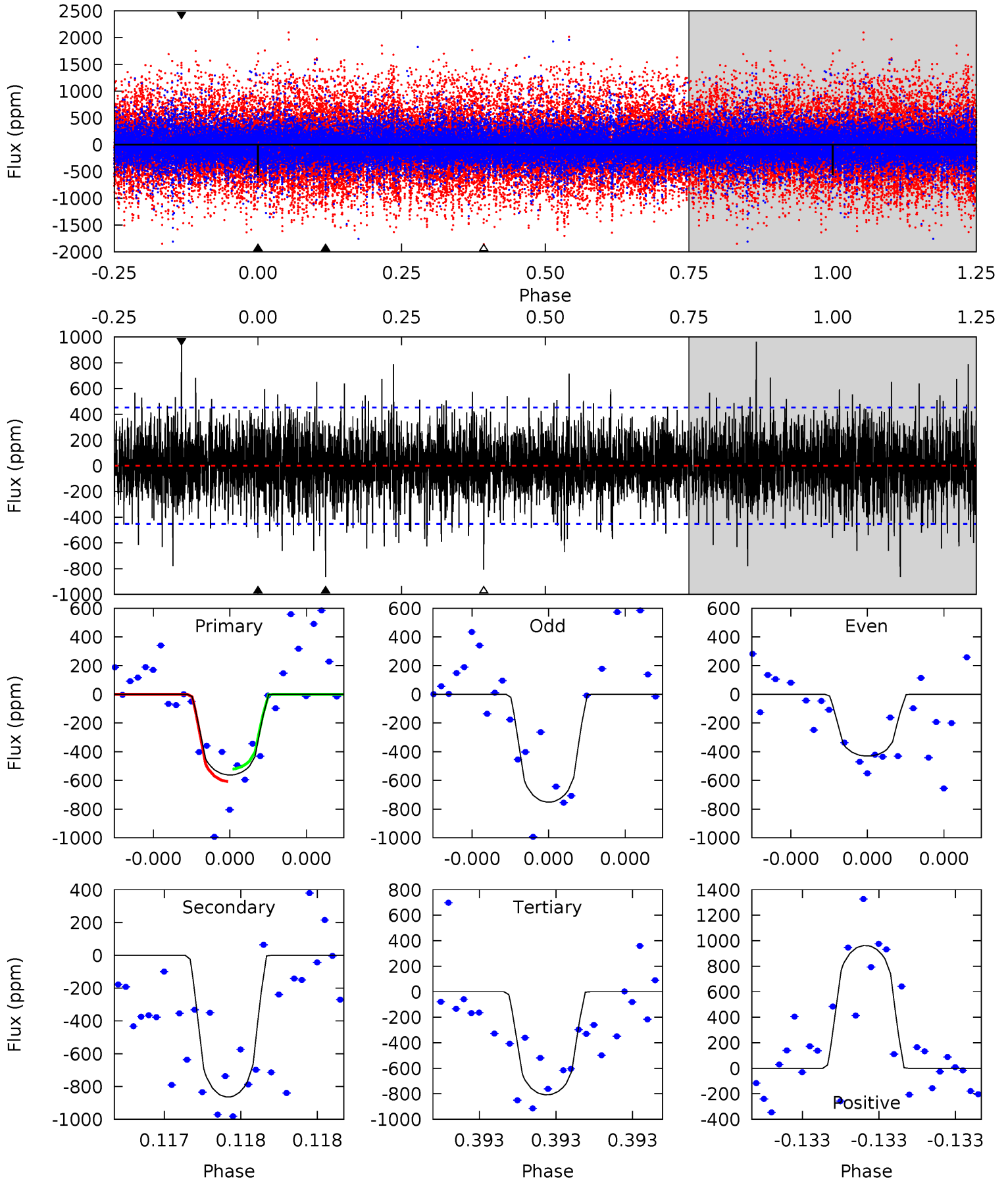
TCE 003832966-03     $P=282.303167$  Days     $T_0=393.264494$  (BKJD)



# DV Model-Shift Uniqueness Test

003832966-03, P = 282.295461 Days, E = 110.999676 Days

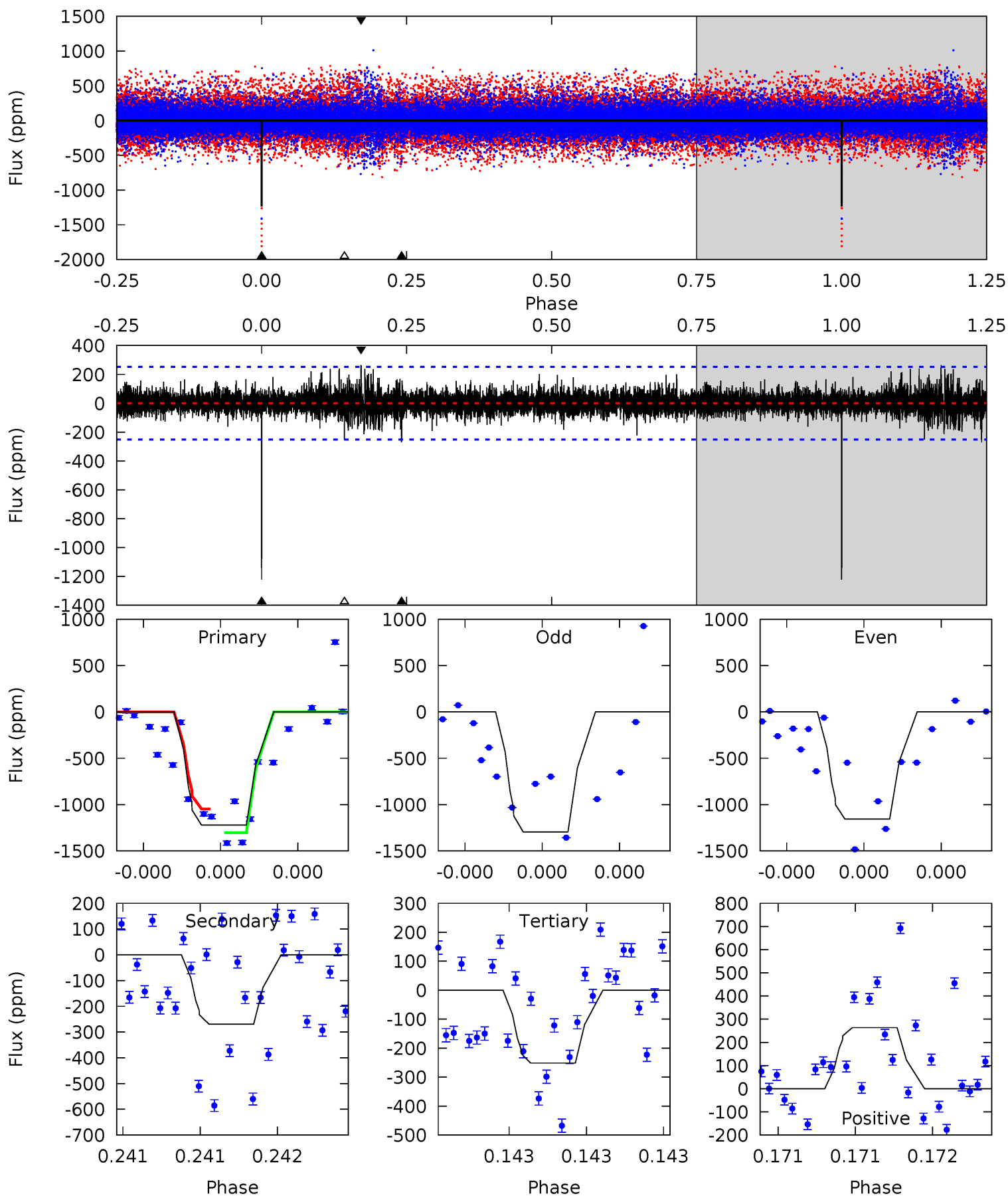
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.97	10.7	10.0	11.9	5.61	3.53	2.19	-3.04	-4.95	0.69	-1.22	1.54	0.51	0.53	0.54



# Alt Model-Shift Uniqueness Test

003832966-03, P = 282.303167 Days, E = 110.961327 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
27.4	6.05	5.65	5.92	5.66	3.61	1.11	21.8	21.5	0.40	0.12	1.39	1.23	0.18	2.76



### Stellar Parameters For KIC 003832966

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5340^{+160}_{-144}$	$4.562^{+0.082}_{-0.060}$	$-0.680^{+0.300}_{-0.300}$	$0.713^{+0.075}_{-0.075}$	$0.676^{+0.086}_{-0.029}$	$2.630^{+0.978}_{-0.554}$
	+3%/-3%	+2%/-1%	+44%/-44%	+11%/-11%	+13%/-4%	+37%/-21%
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 003832966-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-863 \pm 81$	$2.87^{+2.87}_{-1.95}$	$322^{+12}_{-12}$	$4842^{+3855}_{-1089}$	$31404^{+291885}_{-23320}$
Alt.	$-269 \pm 45$	$3.66^{+3.07}_{-2.35}$	$322^{+14}_{-13}$	$3610^{+1669}_{-640}$	$6468^{+39036}_{-4676}$

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

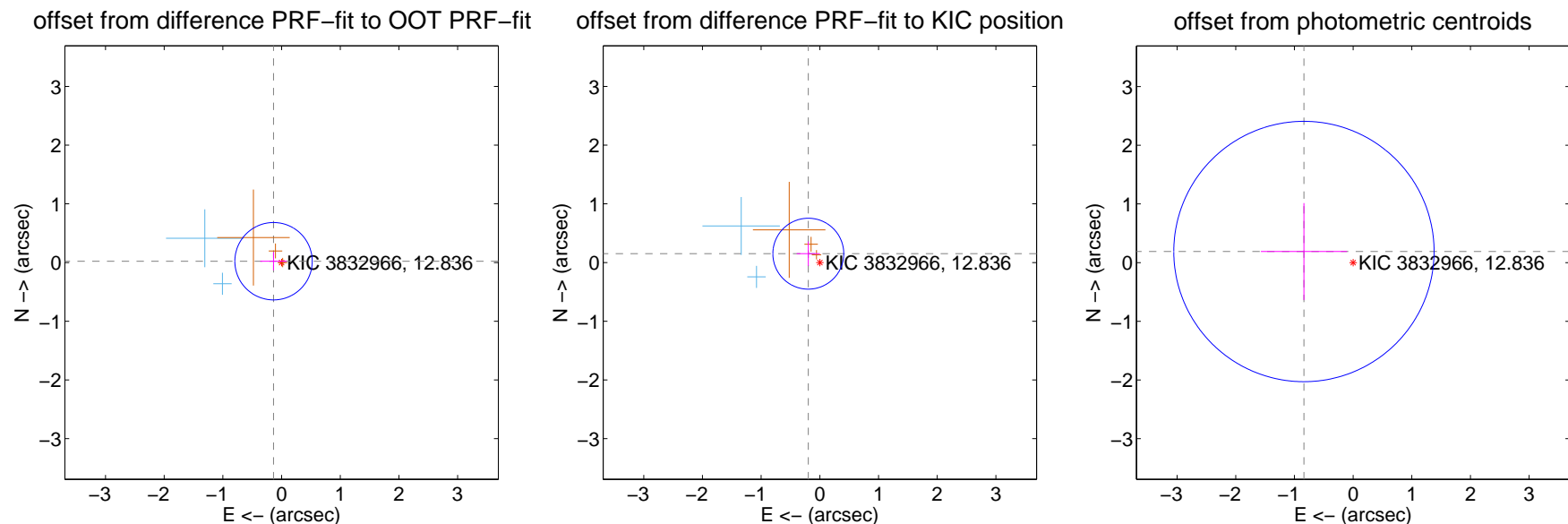
## DV Centroid Data

Supplemental centroid analysis for 003832966-03. Kepler magnitude: 12.84. Transit SNR 4.96

There are 2 quarters with good PRF difference image offsets

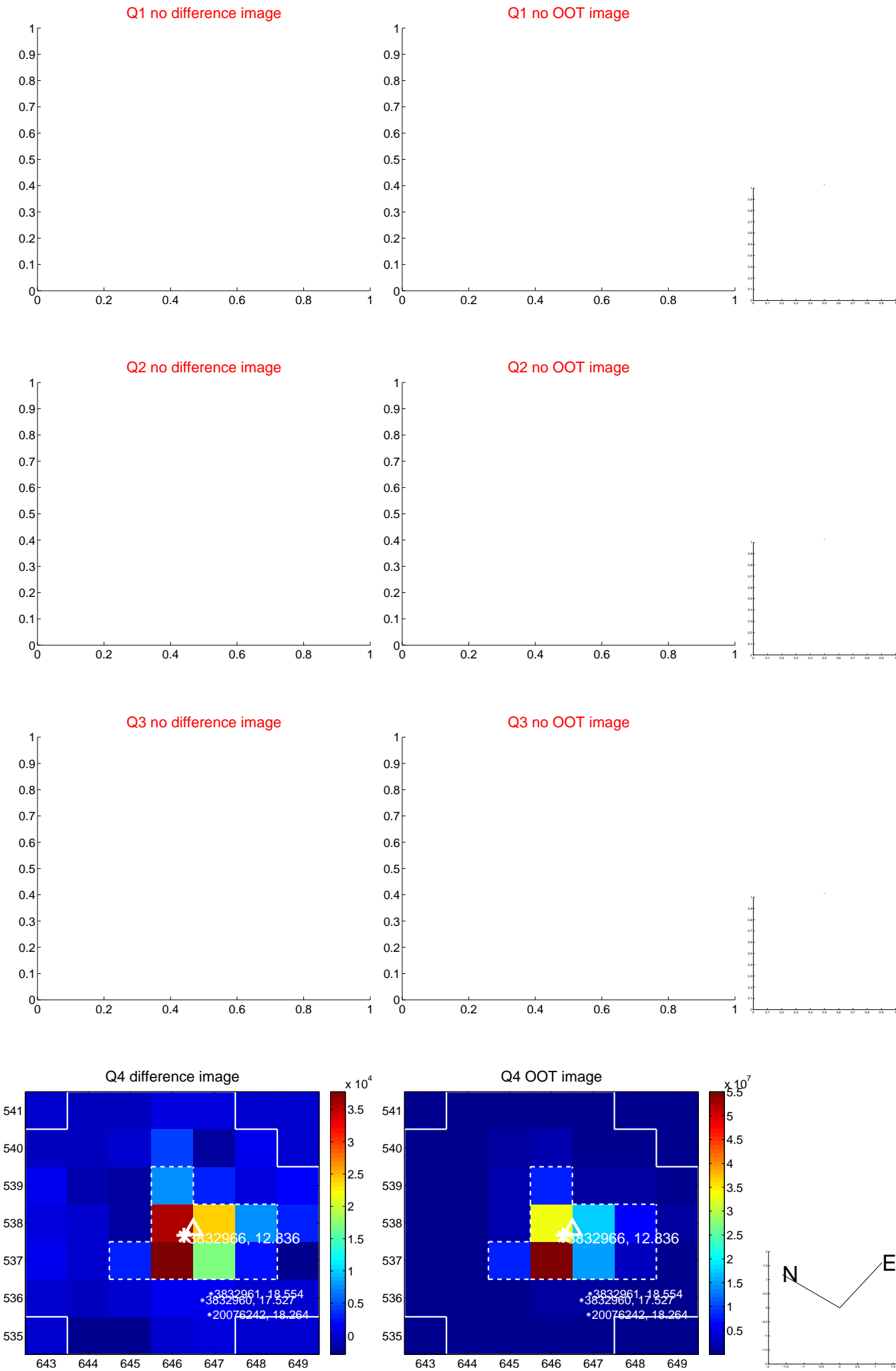
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.139 \pm 0.220$	0.63	$0.137 \pm 0.226$	$0.023 \pm 0.155$
PRF-fit source offset from KIC position	$0.248 \pm 0.201$	1.23	$0.197 \pm 0.197$	$0.151 \pm 0.208$
photometric centroid source offset	$0.86 \pm 0.74$	1.16	$0.84 \pm 0.73$	$0.19 \pm 0.83$

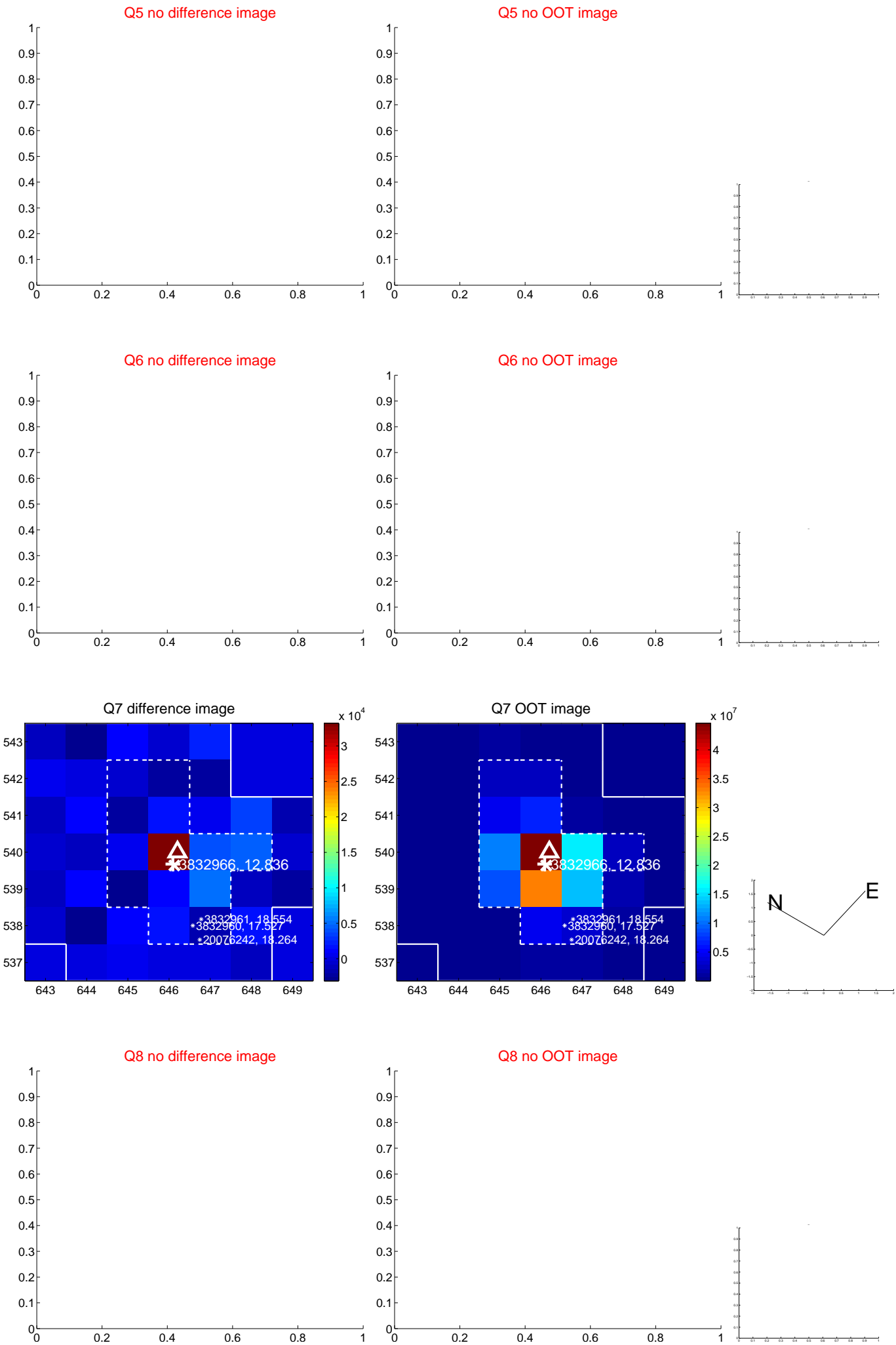


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

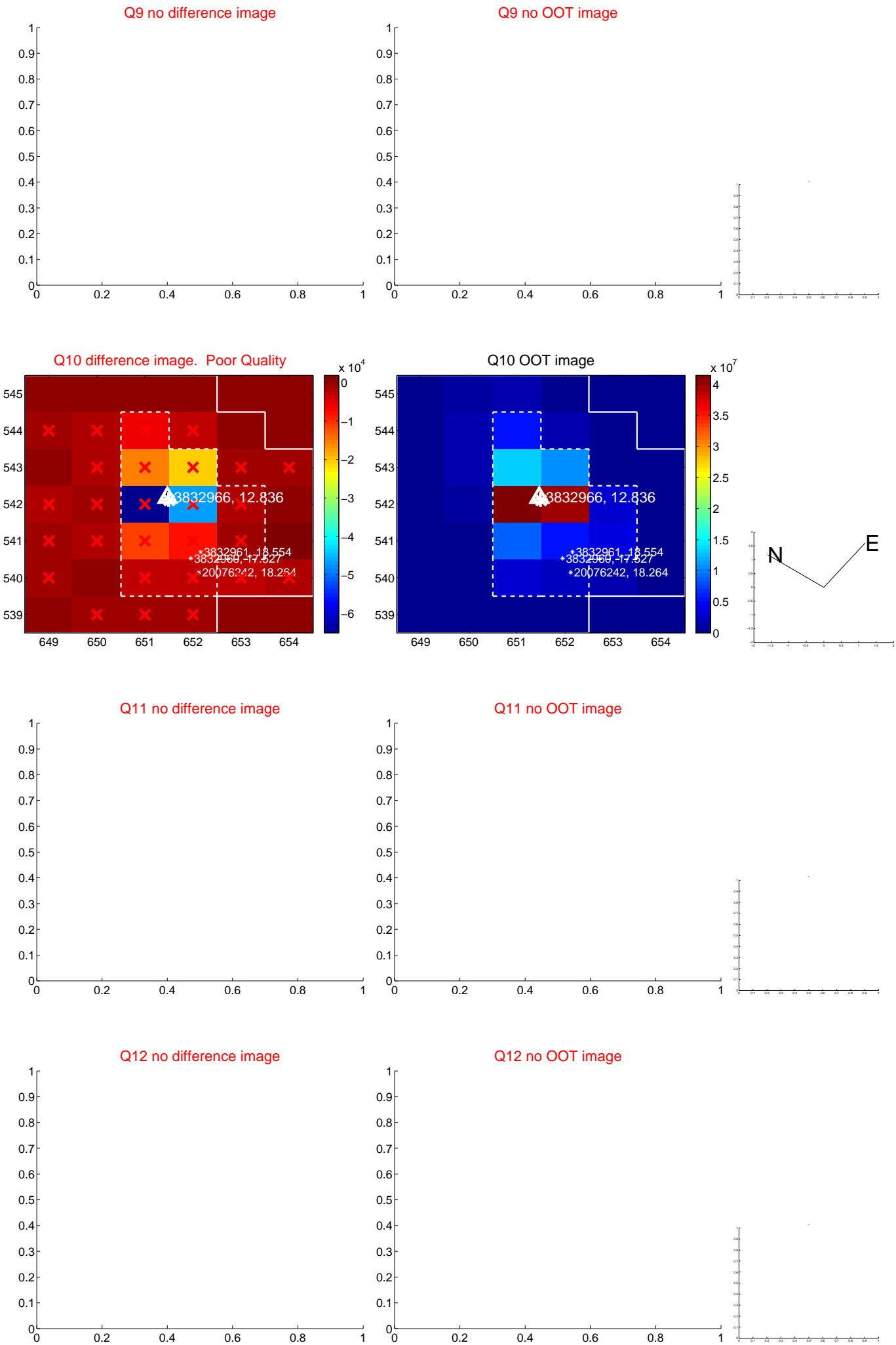


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

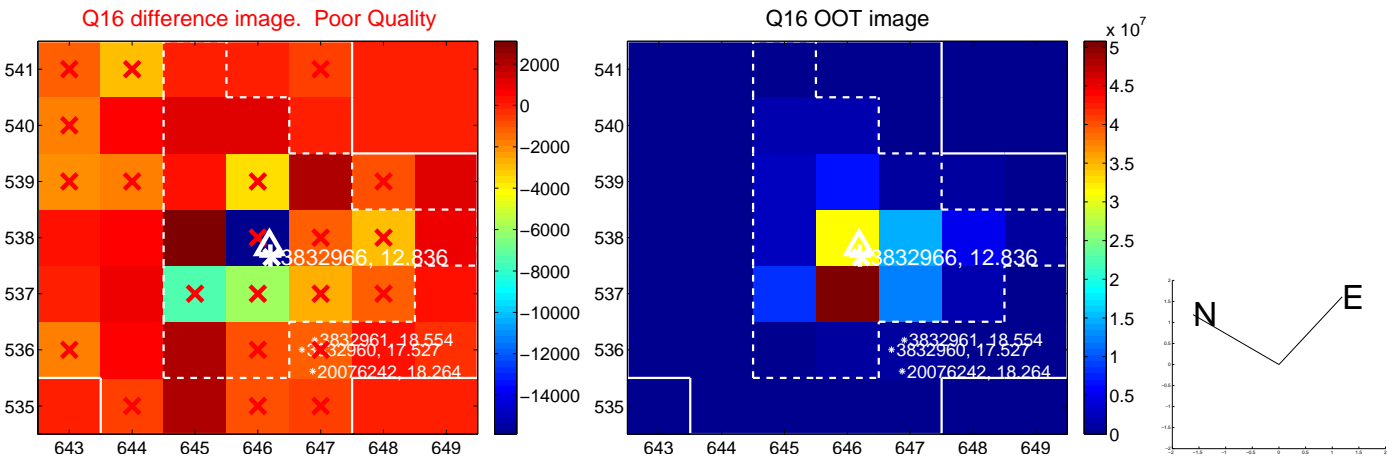
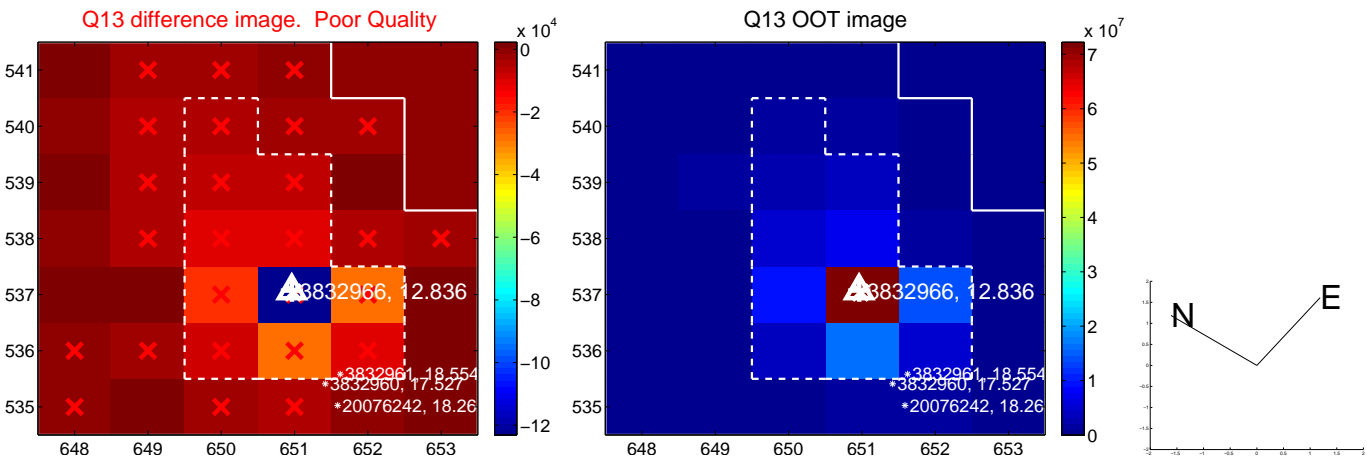




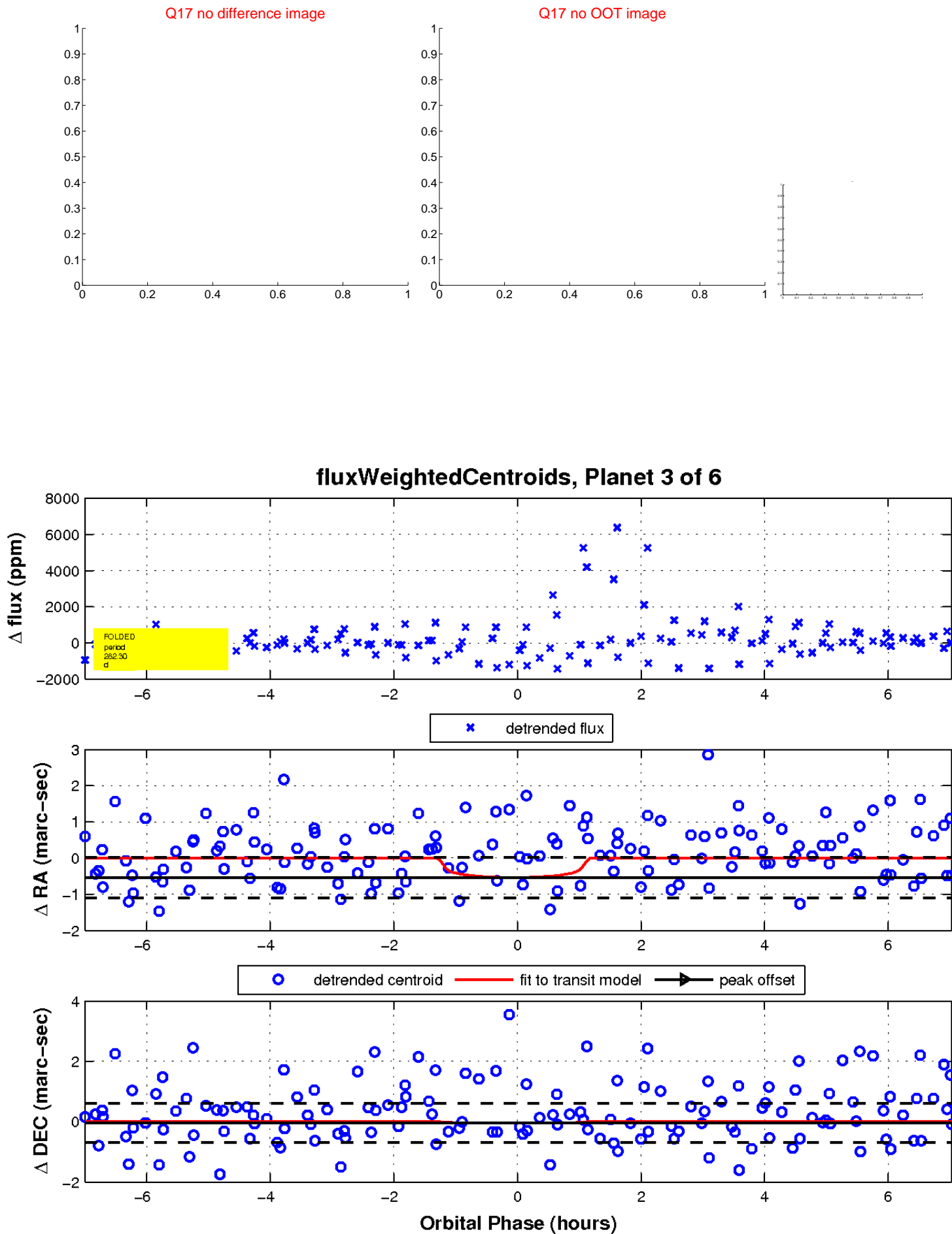
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

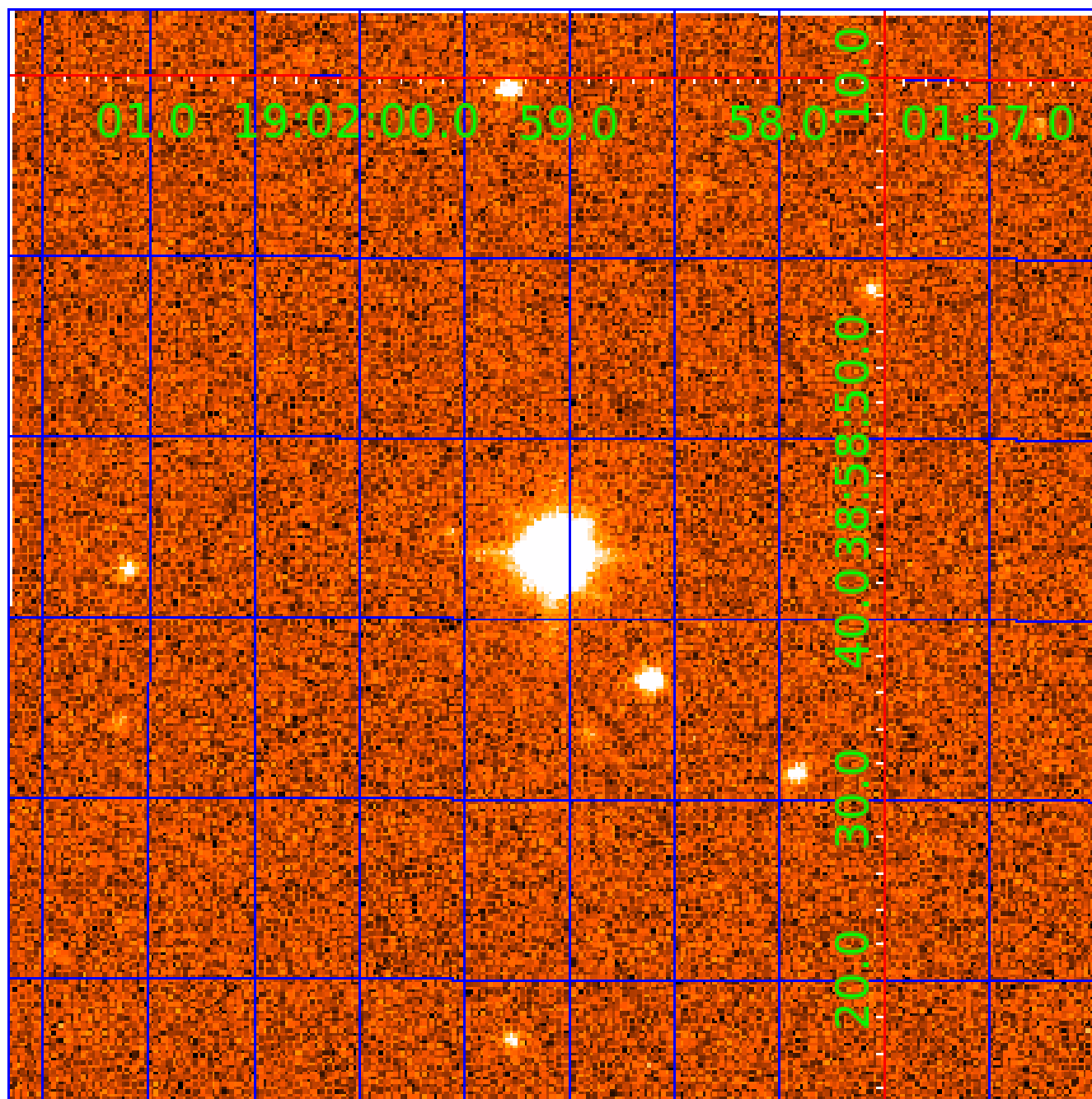


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 003832966

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003832966-01	OBS	No	335.407768	275.656457	910.0	2.054	18.1	6.1	0.71	5340	2.33	0.54
003832966-02	OBS	No	313.604322	398.931623	1476.3	5.280	17.7	6.7	0.71	5340	2.74	0.59
003832966-03	OBS	No	282.295461	393.295137	637.6	2.373	15.7	5.0	0.71	5340	1.81	0.68
003832966-04	OBS	No	509.909483	438.529211	653.2	4.352	17.6	3.2	0.71	5340	1.82	0.31
003832966-05	OBS	No	324.015736	427.329660	447.0	3.107	15.5	2.8	0.71	5340	1.57	0.56
003832966-06	OBS	No	387.352186	357.012356	379.5	9.000	17.3	-1.0	0.71	5340	1.37	0.44

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003832966-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_POS_DV
003832966-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003832966-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003832966-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
003832966-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
003832966-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

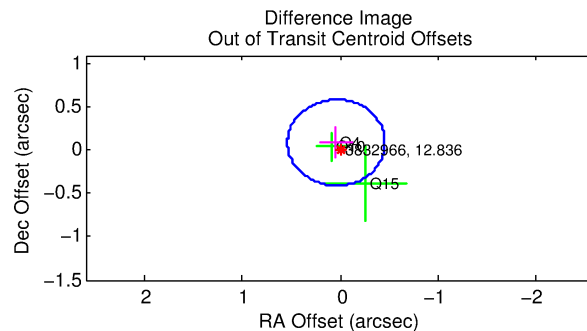
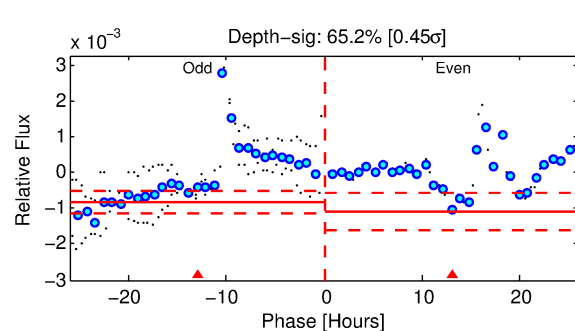
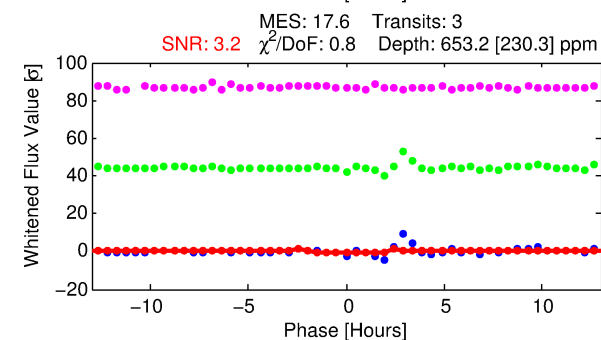
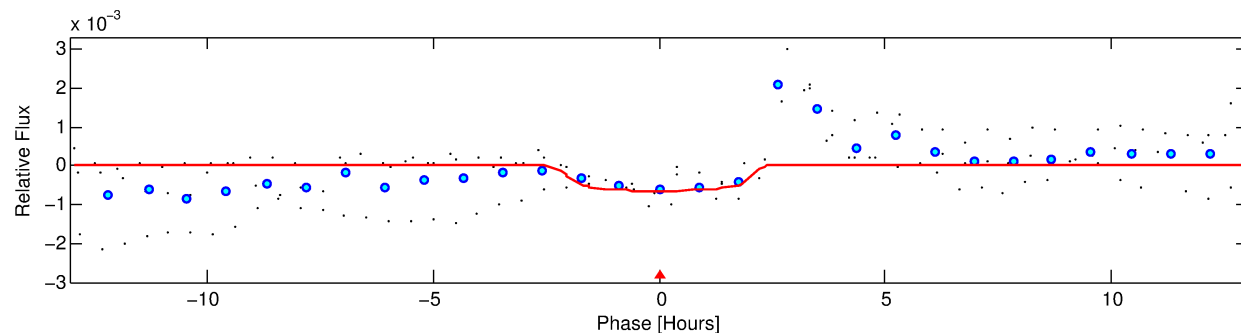
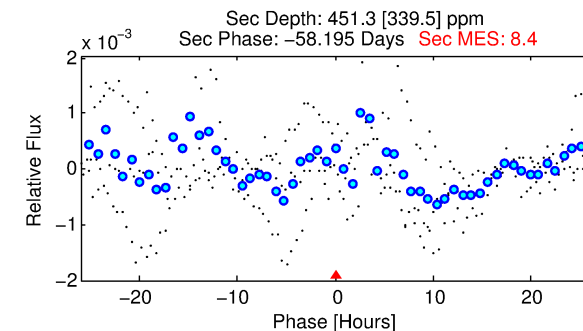
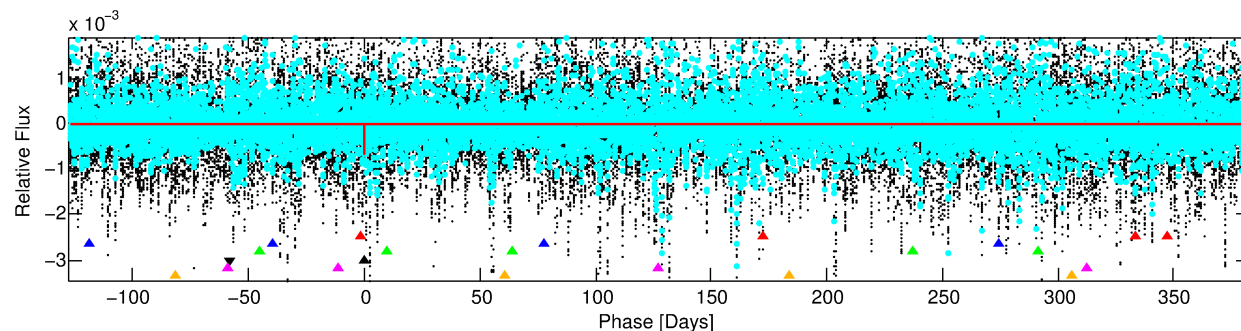
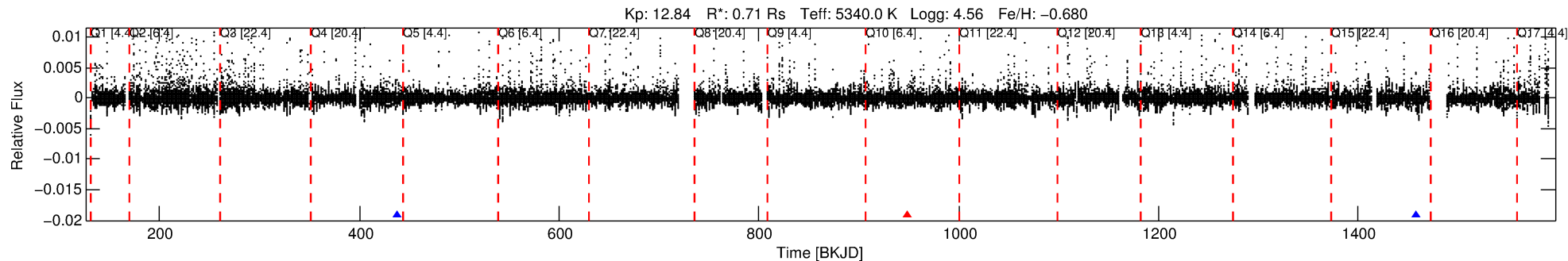
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003832966-04

No Significant Match Found

# DV One-Page Summary

KIC: 3832966 Candidate: 4 of 6 Period: 509.909 d



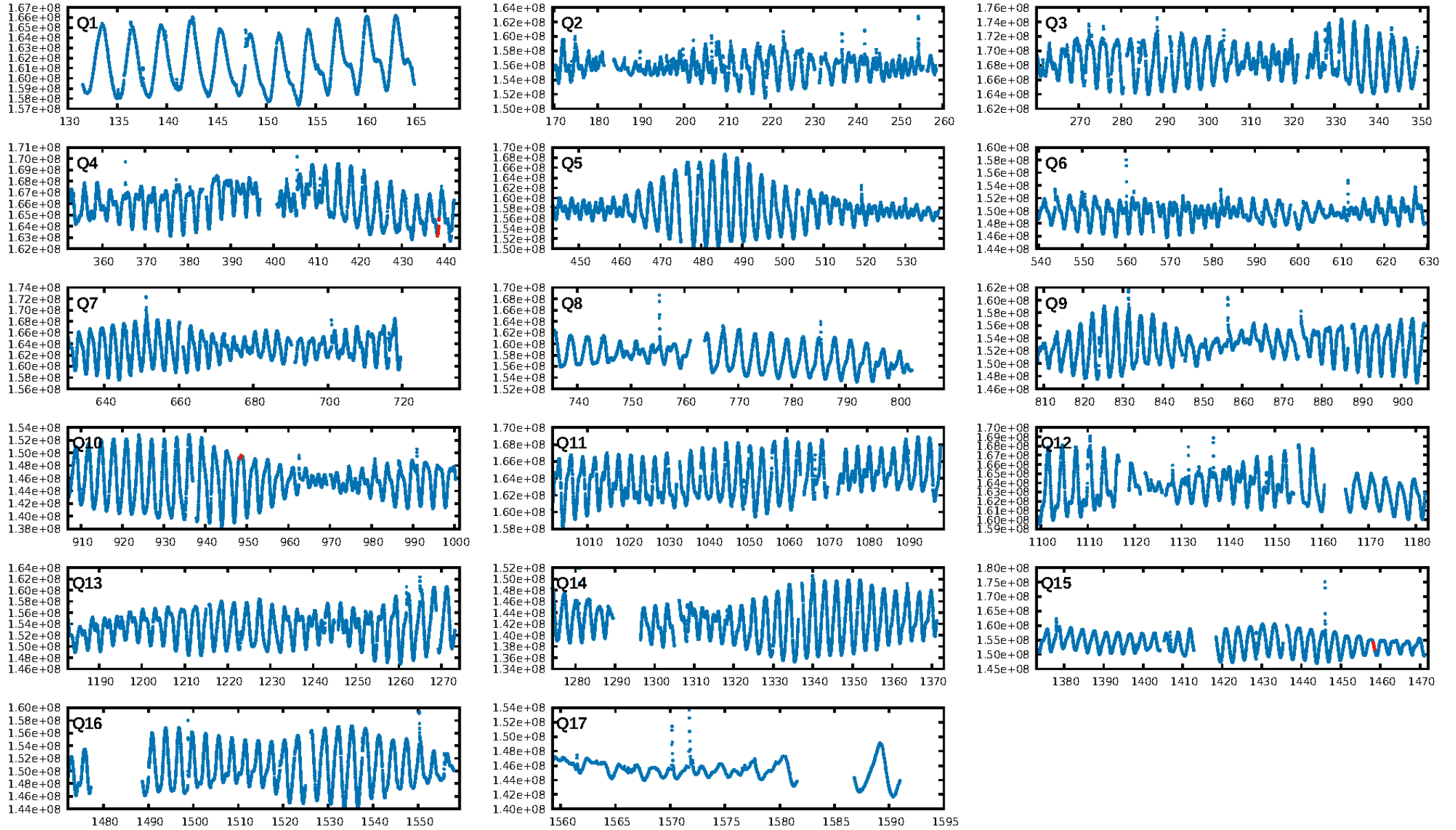
## DV Fit Results:

Period = 509.90948 [0.00578] d  
Epoch = 438.5292 [0.0084] BKJD  
Rp/R\* = 0.0234 [0.0395]  
a/R\* = 868.80 [6032.88]  
b = 0.32 [19.31]  
Seff = 0.31 [0.06]  
Teq = 190 [9] K  
Rp = 1.82 [3.08] Re  
a = 1.0967 [0.1033] AU  
Ag = 89910.19 [311075.63] [0.29σ]  
Teffp = 5086 [4398] K [1.11σ]

## DV Diagnostic Results:

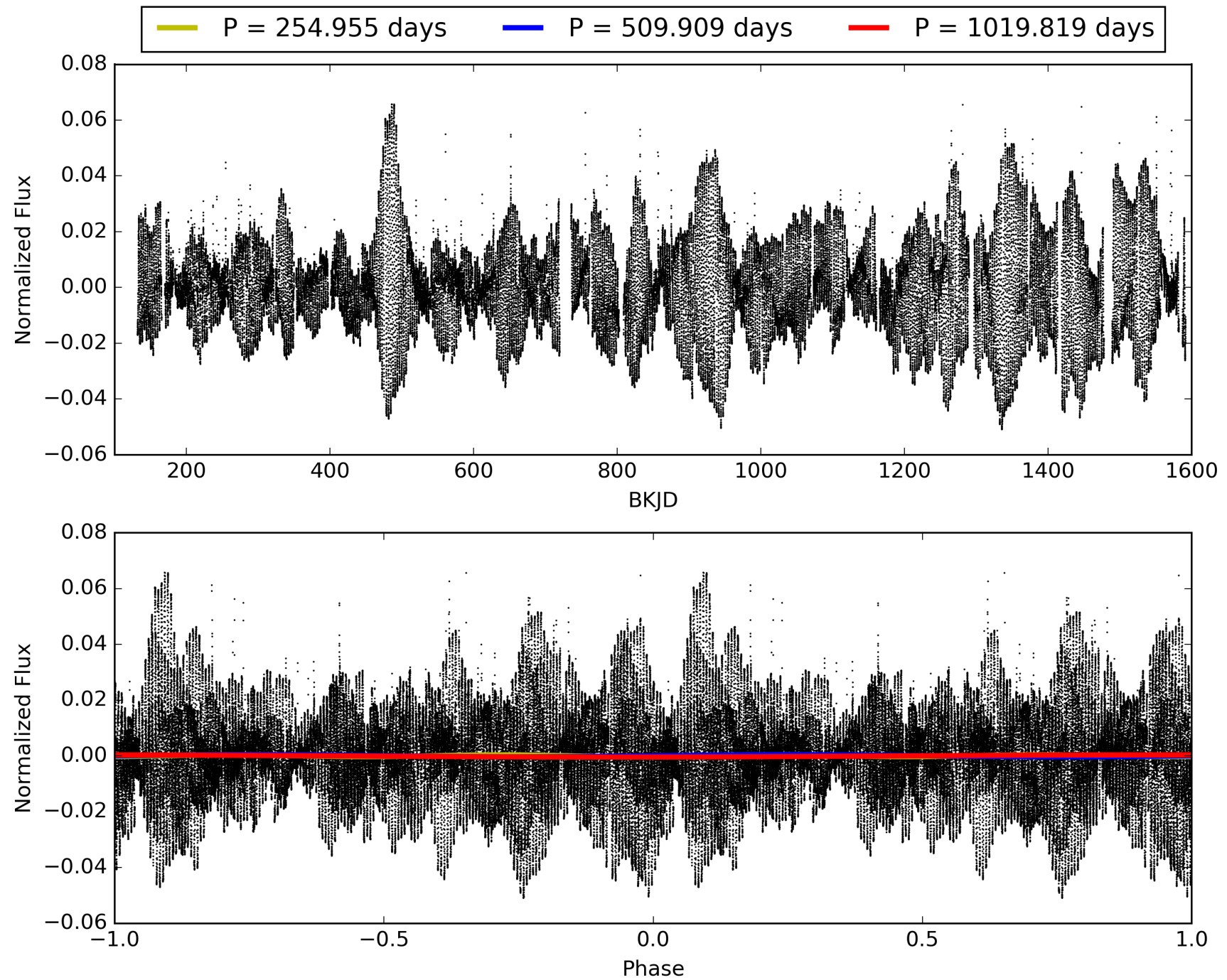
ShortPeriod-sig: 100.0% [294.23σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 94.0%  
ModelChiSquareGof-sig: 97.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.67 [2/3]  
GhostDiagnostic-chr: 0.5321  
Centroid-sig: 4.7%  
Centroid-so: 1.176 arcsec [1.58σ]  
OotOffset-rm: 0.098 arcsec [0.59σ]  
KicOffset-rm: 0.201 arcsec [1.21σ]  
OotOffset-st: 1/1/1/0 [3]  
KicOffset-st: 1/1/1/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 003832966-04, PDC Light Curves





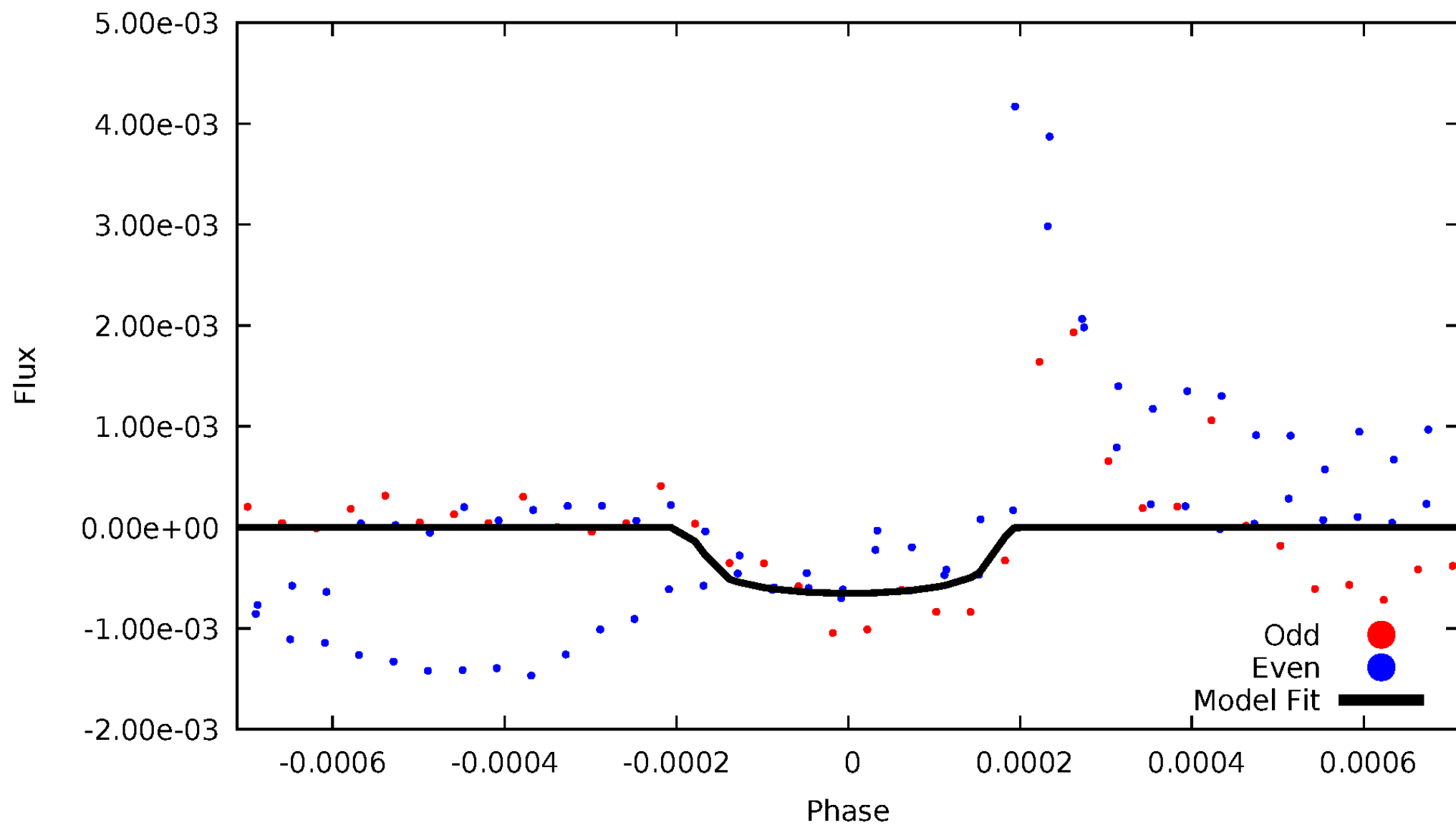
TCE 003832966-04





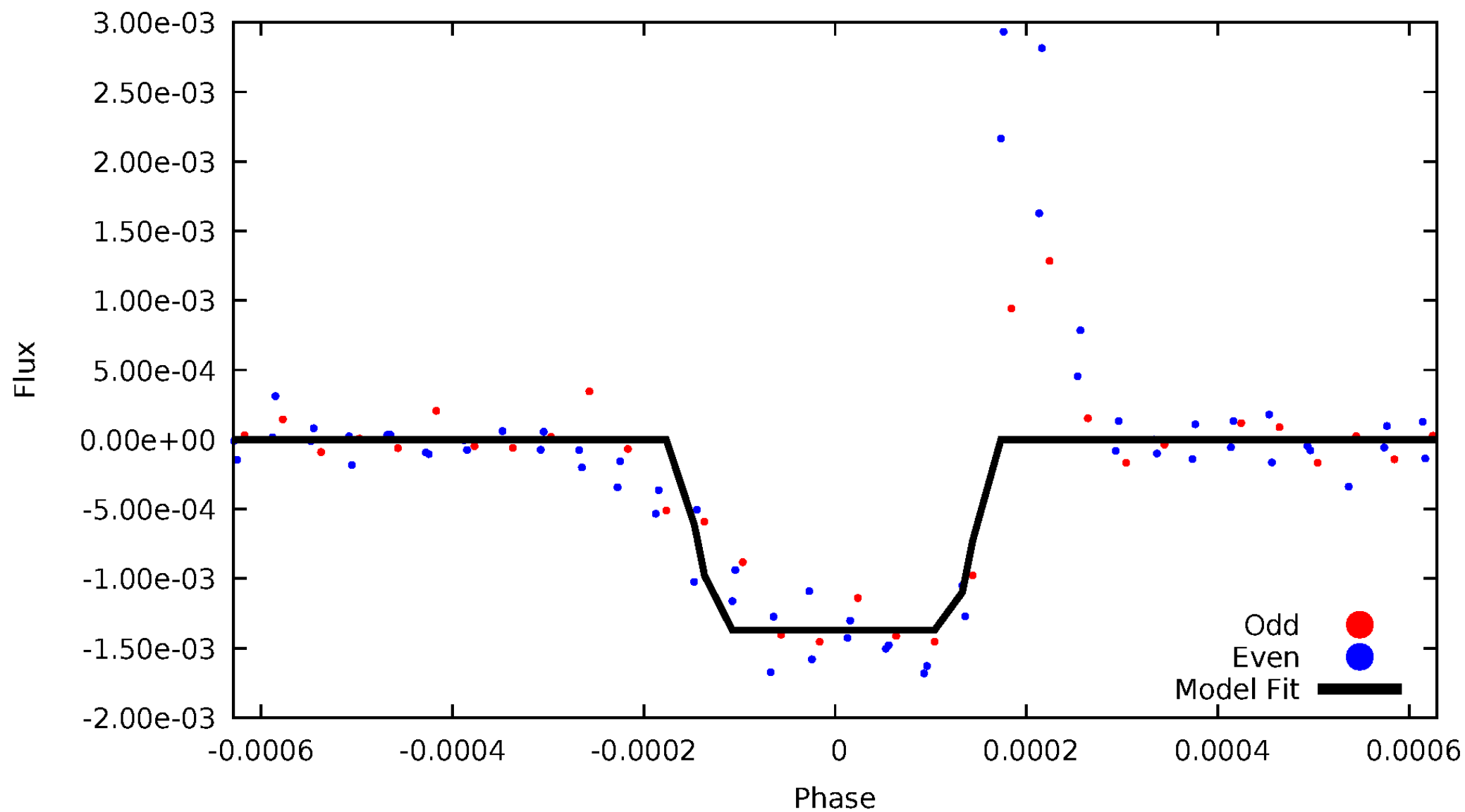
# DV Odd/Even

TCE 003832966-04



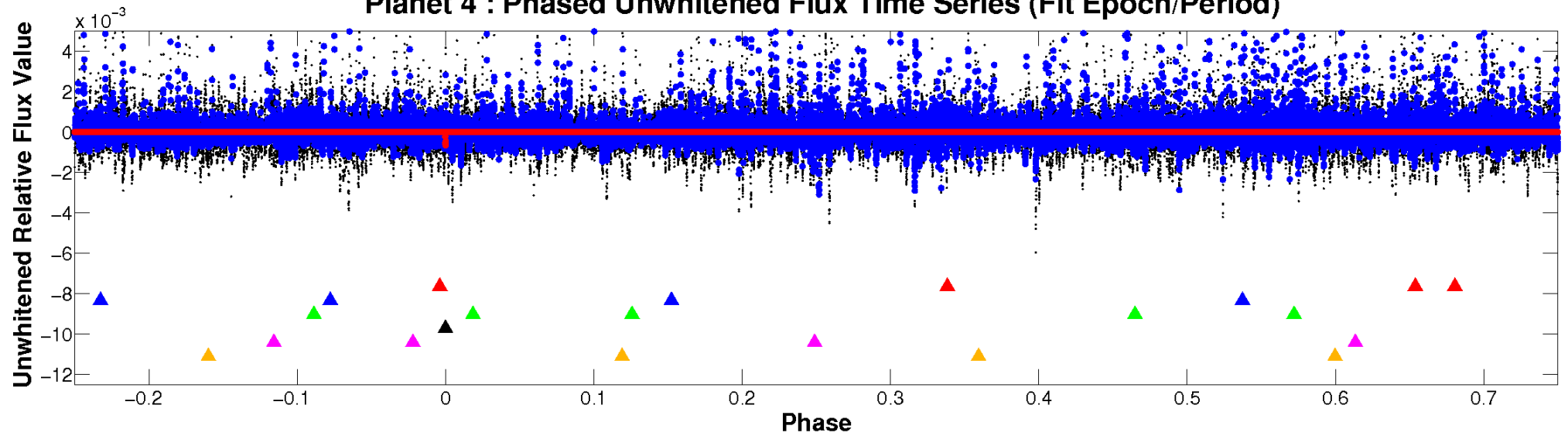
# ALT Odd/Even

TCE 003832966-04

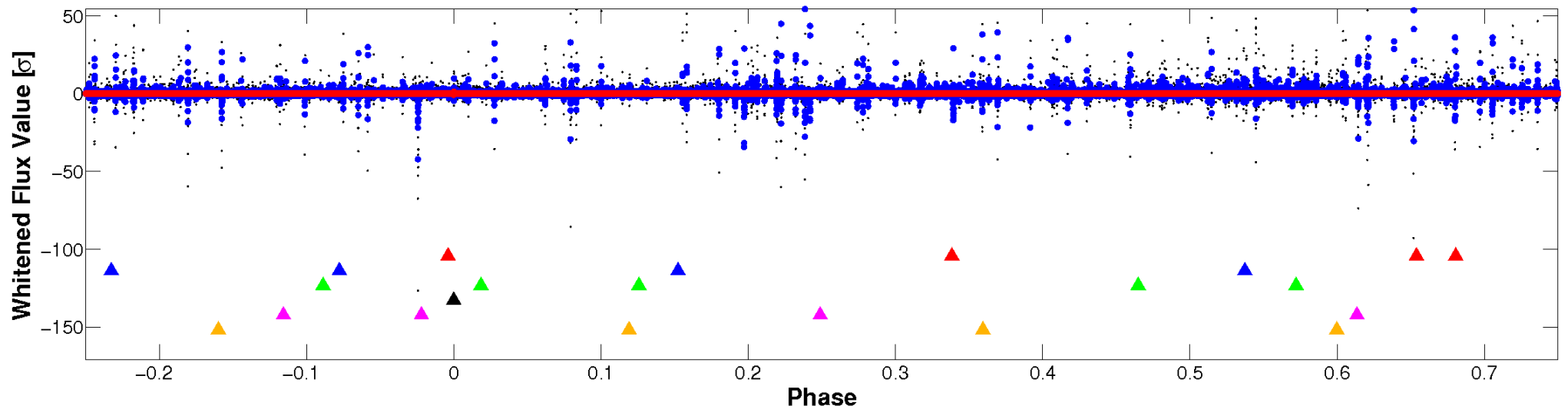


# Non-Whitened Vs. Whitened Light Curve

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

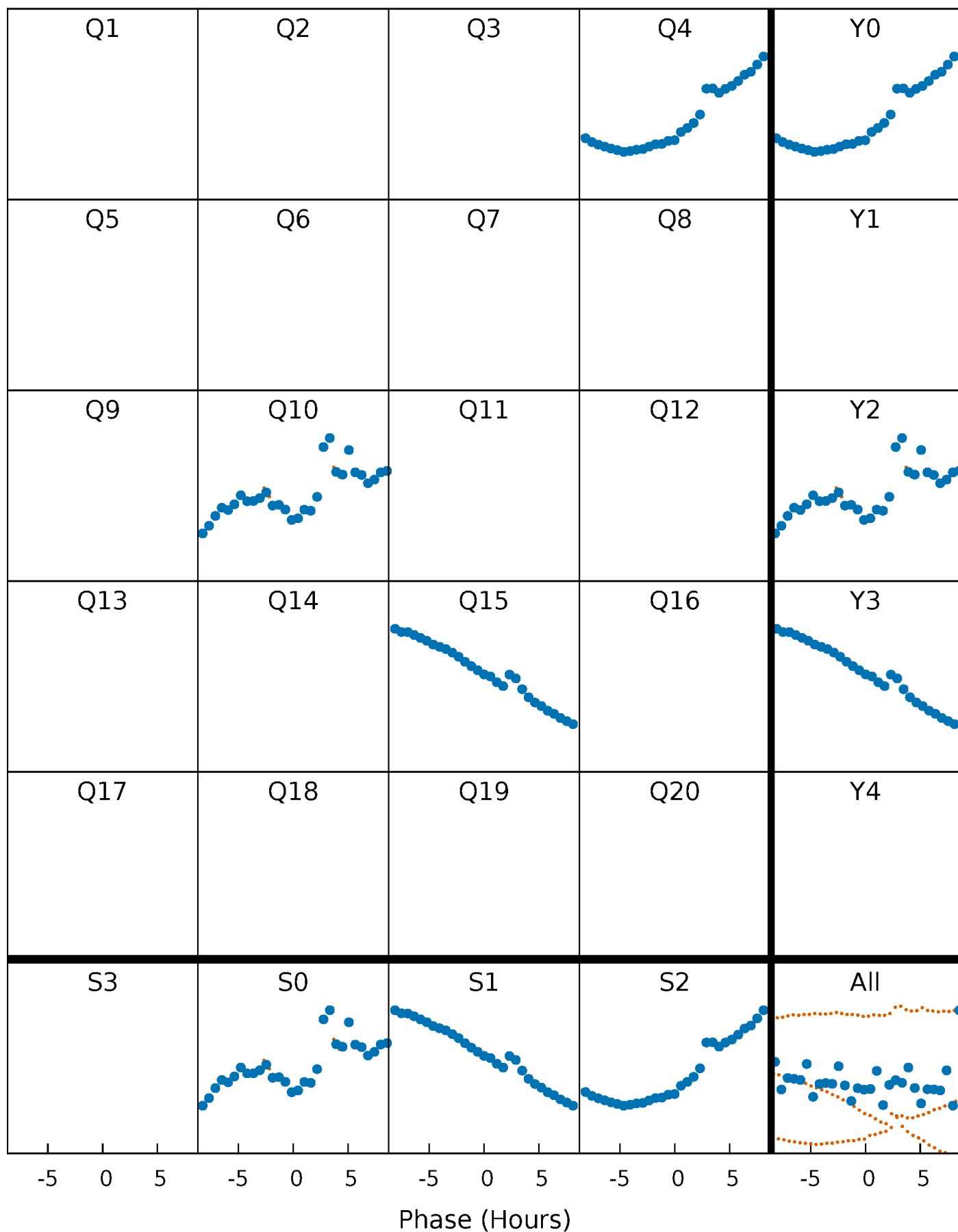


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



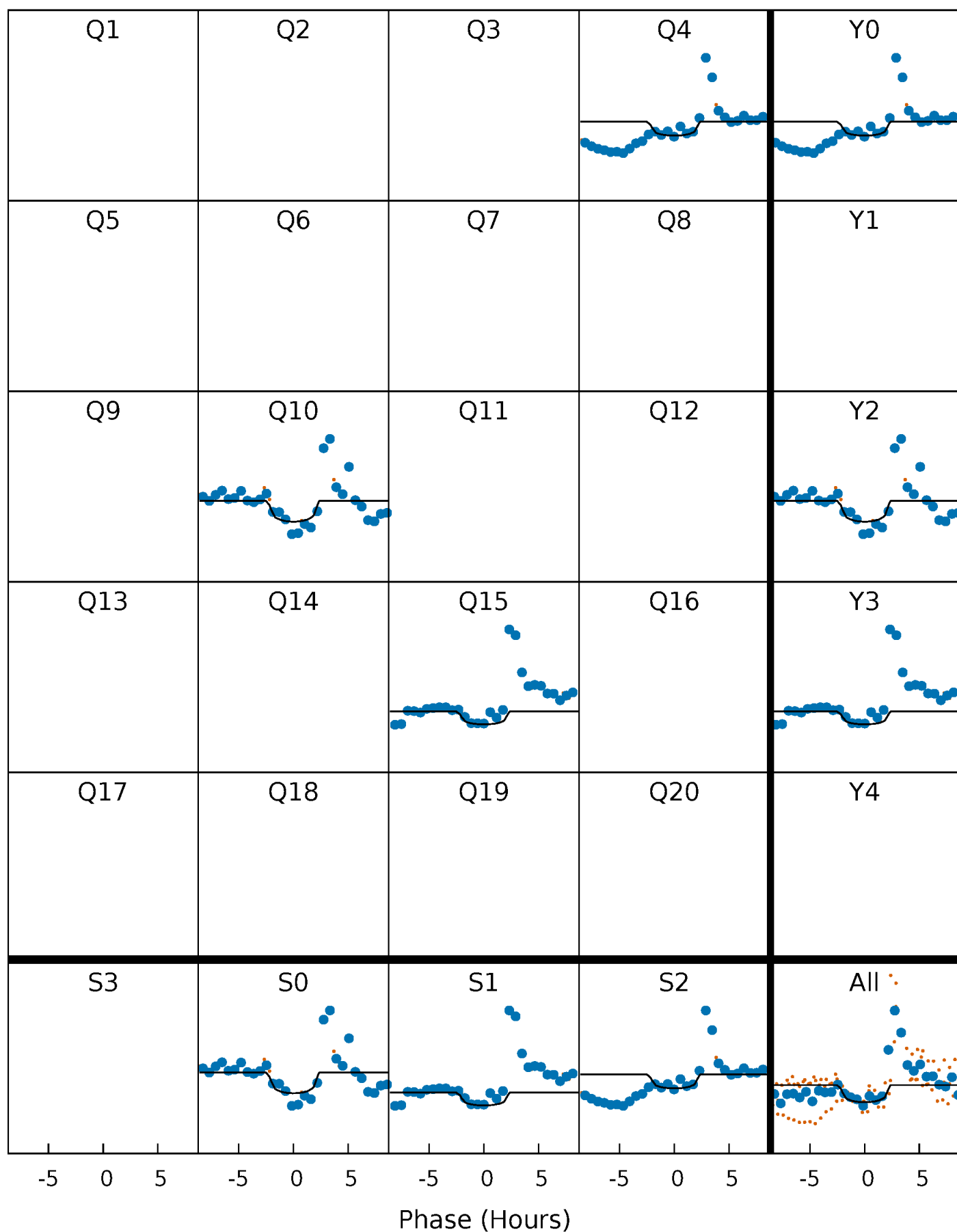
# PDC Quarter-Phased Transit Curves

TCE 003832966-04 P=509.909483 Days  $T_0=438.529211$  (BKJD)



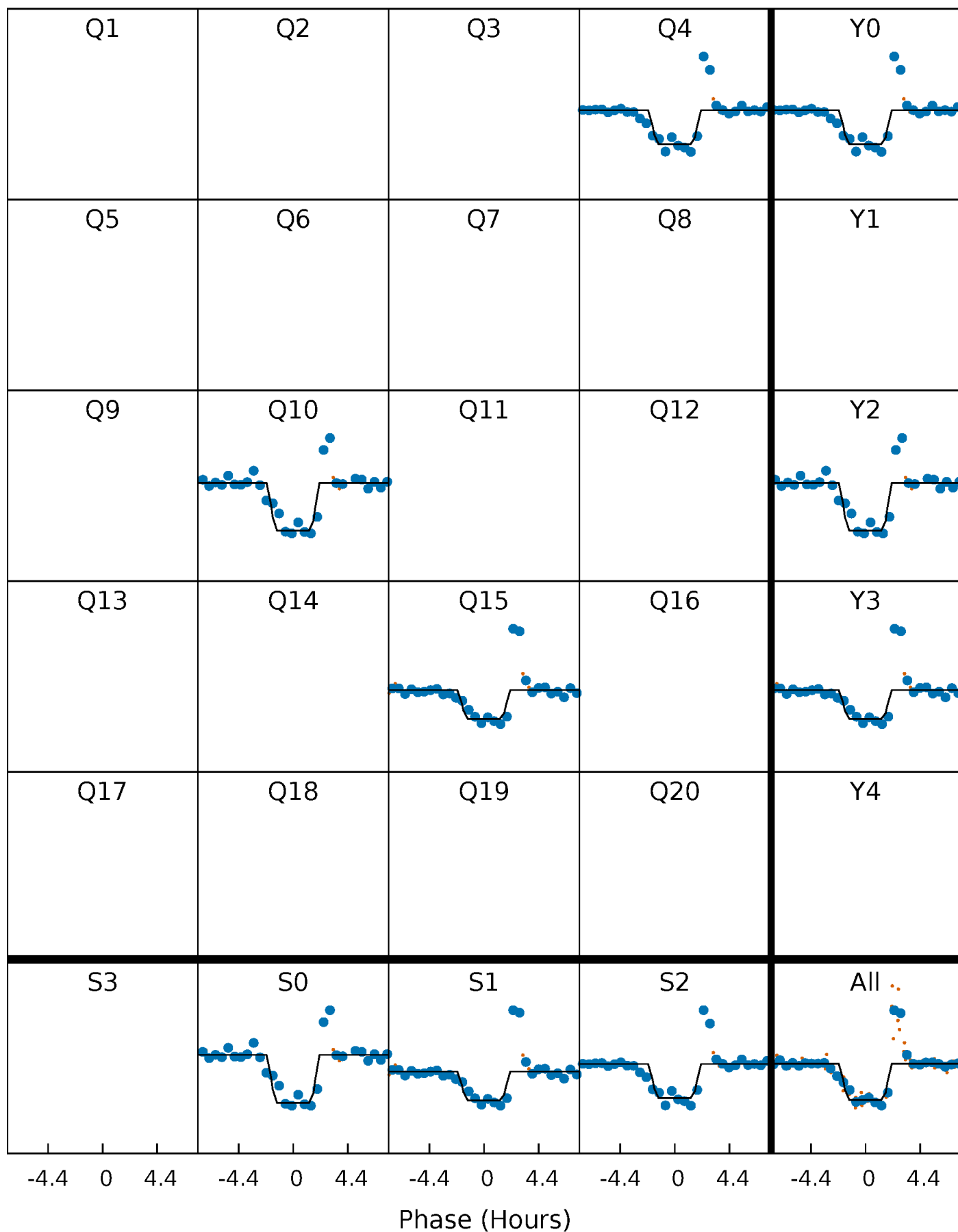
# DV Quarter-Phased Transit Curves

TCE 003832966-04     $P=509.909483$  Days     $T_0=438.529211$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

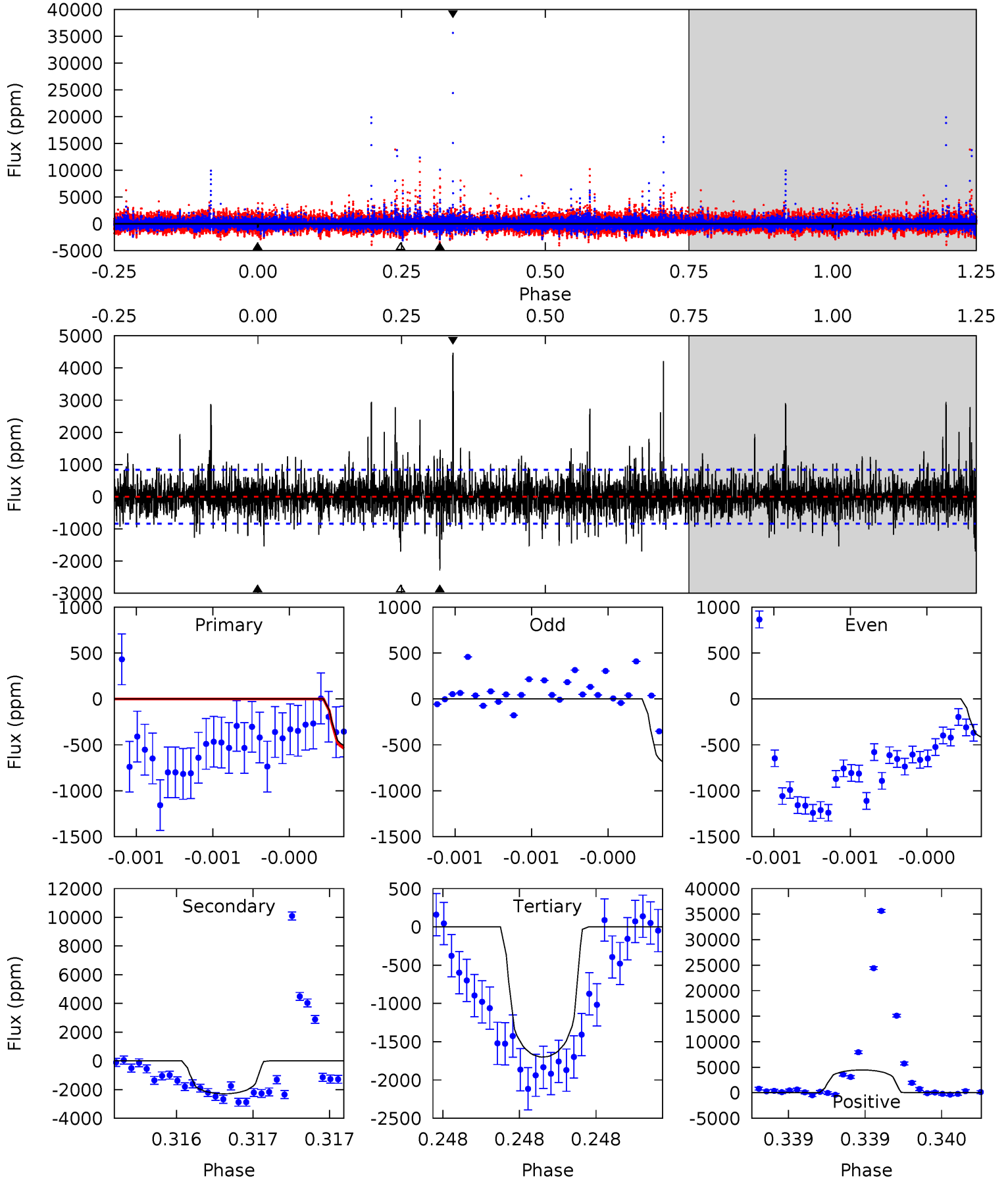
TCE 003832966-04 P=509.899056 Days  $T_0=438.559200$  (BKJD)



# DV Model-Shift Uniqueness Test

003832966-04, P = 509.909483 Days, E = 438.529211 Days

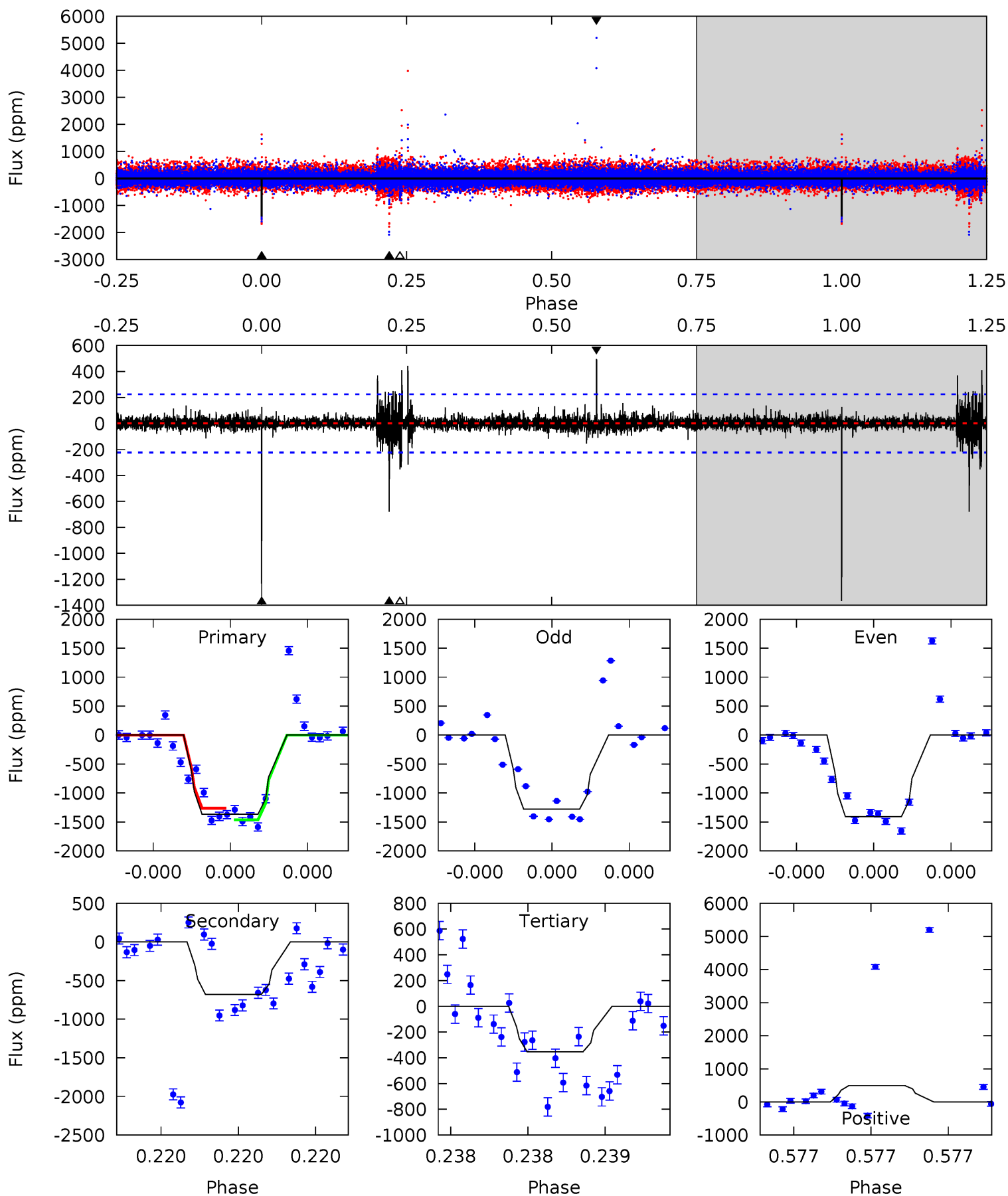
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.84	15.4	11.4	30.0	5.62	3.56	2.76	-7.57	-26.2	3.96	-14.7	0.60	1.00	0.66	0.24



# Alt Model-Shift Uniqueness Test

003832966-04, P = 509.899056 Days, E = 438.559200 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
34.6	17.2	8.94	12.5	5.67	3.62	0.95	25.7	22.1	8.25	4.65	1.24	0.99	0.27	2.57





### Stellar Parameters For KIC 003832966

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5340^{+160}_{-144}$	$4.562^{+0.082}_{-0.060}$	$-0.680^{+0.300}_{-0.300}$	$0.713^{+0.075}_{-0.075}$	$0.676^{+0.086}_{-0.029}$	$2.630^{+0.978}_{-0.554}$
	+3%/-3%	+2%/-1%	+44%/-44%	+11%/-11%	+13%/-4%	+37%/-21%
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 003832966-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-2291 \pm 149$	$3.01^{+2.71}_{-2.00}$	$265^{+11}_{-10}$	$5975^{+6010}_{-1500}$	$175925^{+1344210}_{-128970}$
Alt.	$-678 \pm 39$	$3.53^{+2.86}_{-2.34}$	$266^{+11}_{-11}$	$4315^{+2504}_{-835}$	$37689^{+279981}_{-26560}$

$T_{\text{max}}$  = 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

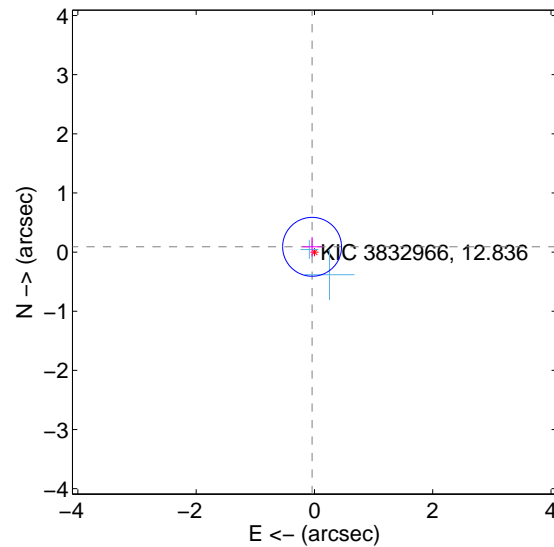
Supplemental centroid analysis for 003832966-04. Kepler magnitude: 12.84. Transit SNR 3.19

There are 3 quarters with good PRF difference image offsets

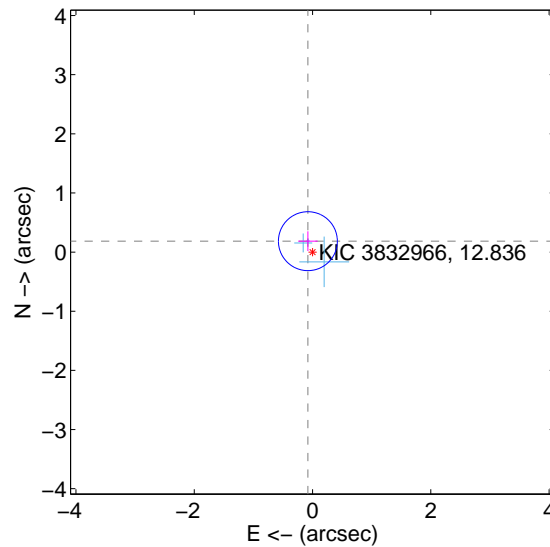
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.098 \pm 0.166$	0.59	$0.040 \pm 0.164$	$0.089 \pm 0.166$
PRF-fit source offset from KIC position	$0.201 \pm 0.166$	1.21	$0.078 \pm 0.164$	$0.185 \pm 0.166$
photometric centroid source offset	$1.18 \pm 0.74$	1.58	$0.87 \pm 0.69$	$0.80 \pm 0.81$

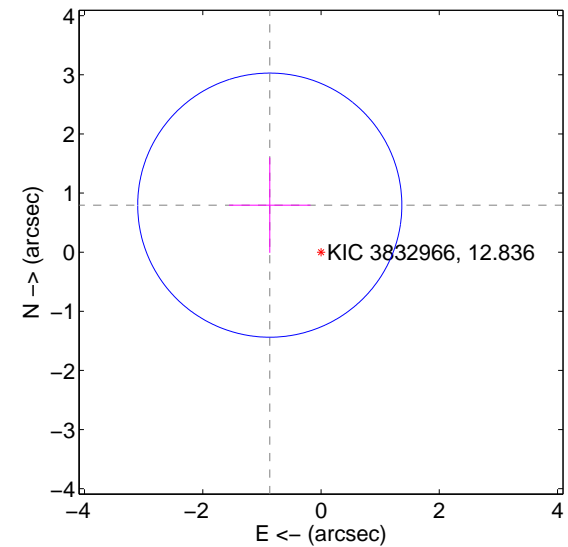
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

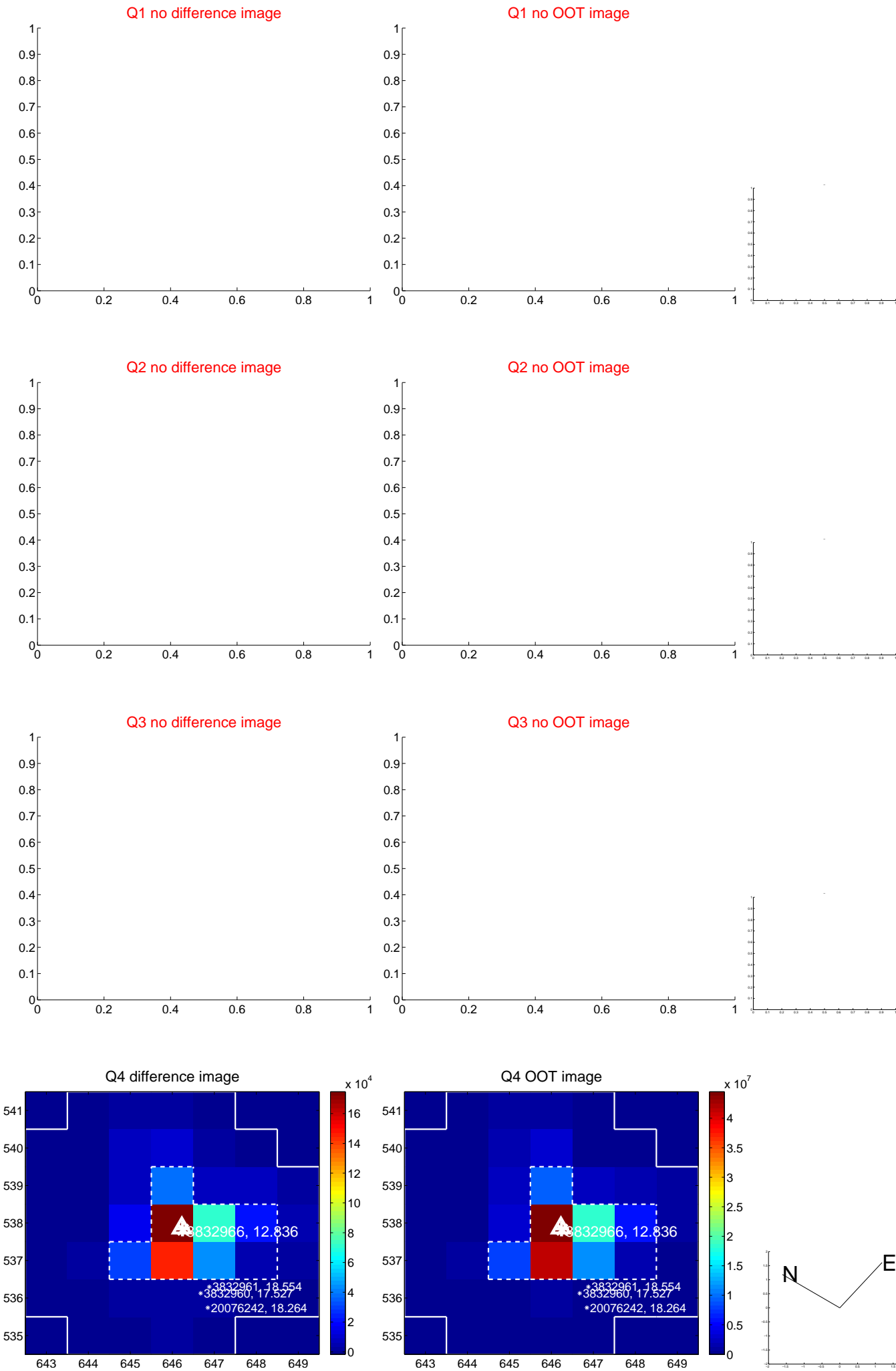


offset from photometric centroids



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.

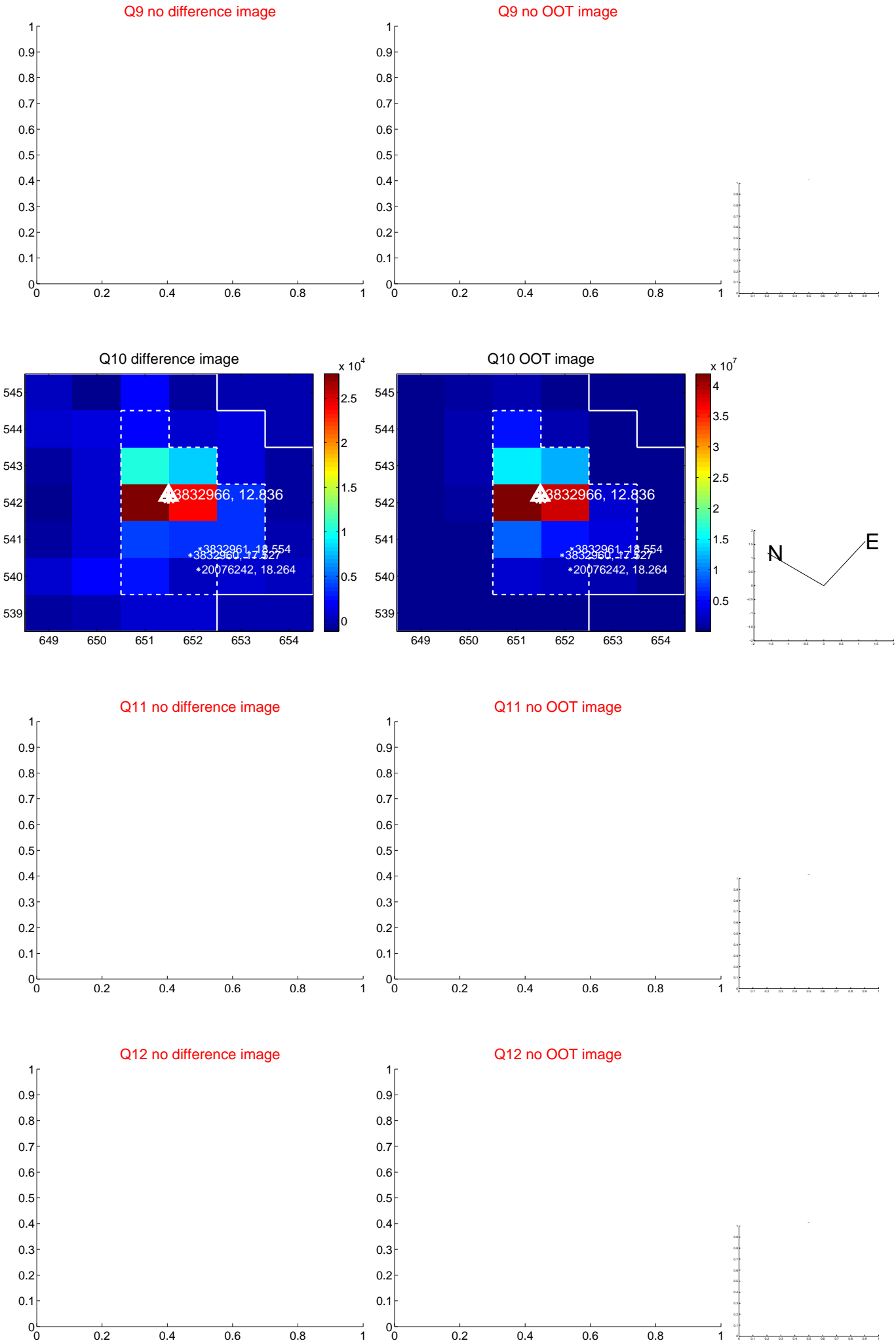
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



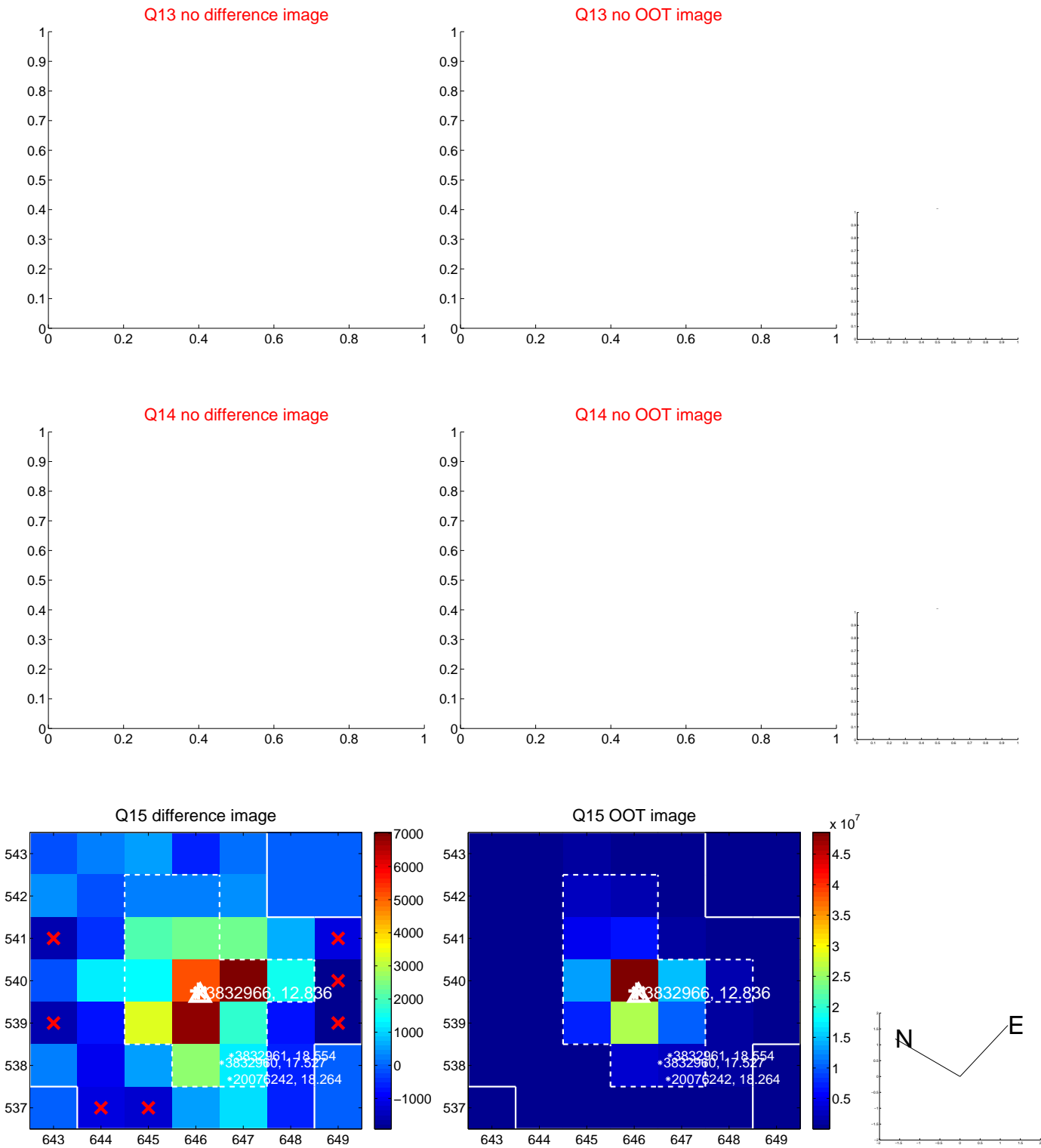
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



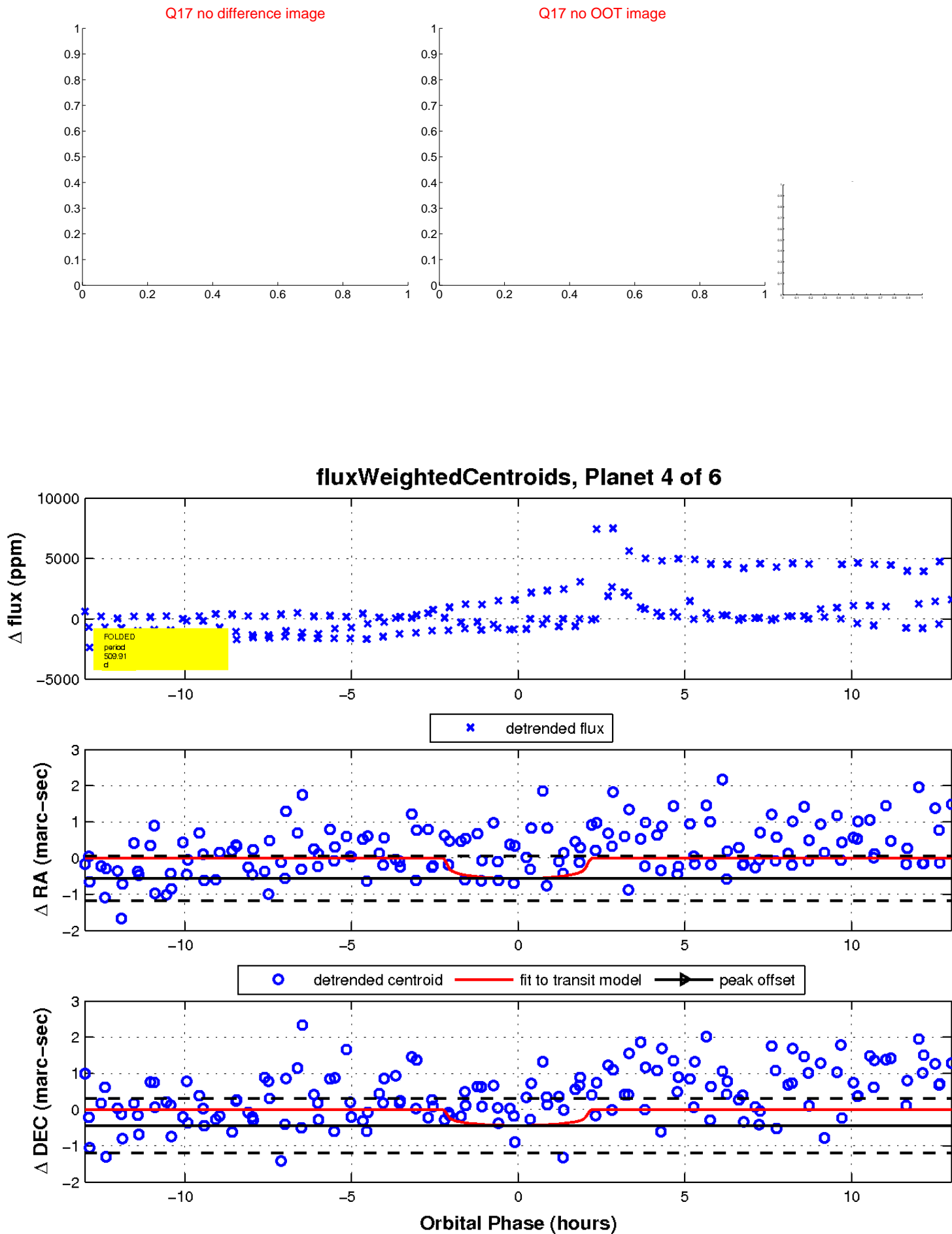
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

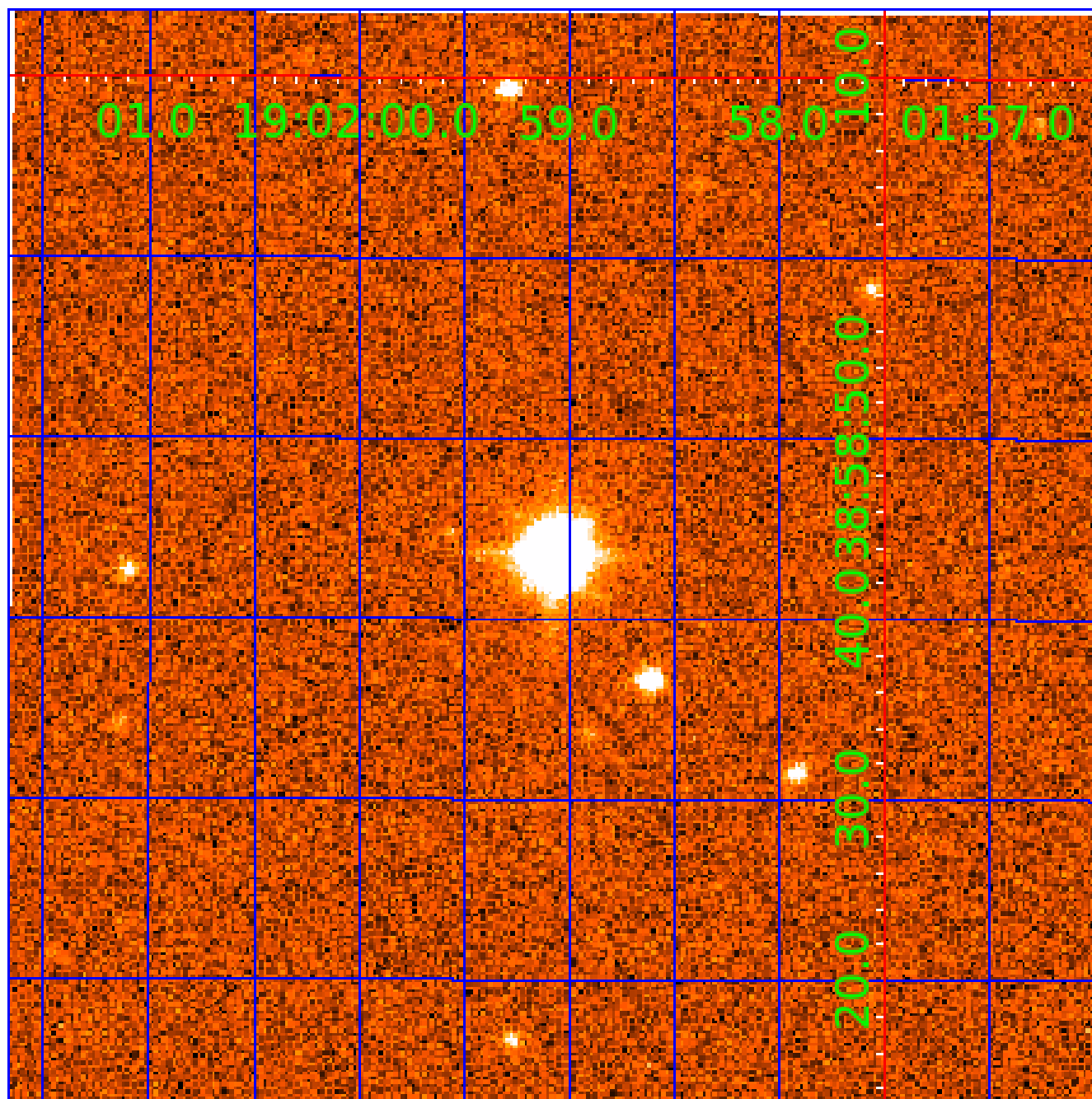


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination





# KIC 003832966

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003832966-01	OBS	No	335.407768	275.656457	910.0	2.054	18.1	6.1	0.71	5340	2.33	0.54
003832966-02	OBS	No	313.604322	398.931623	1476.3	5.280	17.7	6.7	0.71	5340	2.74	0.59
003832966-03	OBS	No	282.295461	393.295137	637.6	2.373	15.7	5.0	0.71	5340	1.81	0.68
003832966-04	OBS	No	509.909483	438.529211	653.2	4.352	17.6	3.2	0.71	5340	1.82	0.31
003832966-05	OBS	No	324.015736	427.329660	447.0	3.107	15.5	2.8	0.71	5340	1.57	0.56
003832966-06	OBS	No	387.352186	357.012356	379.5	9.000	17.3	-1.0	0.71	5340	1.37	0.44

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003832966-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_POS_DV
003832966-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003832966-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003832966-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
003832966-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
003832966-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

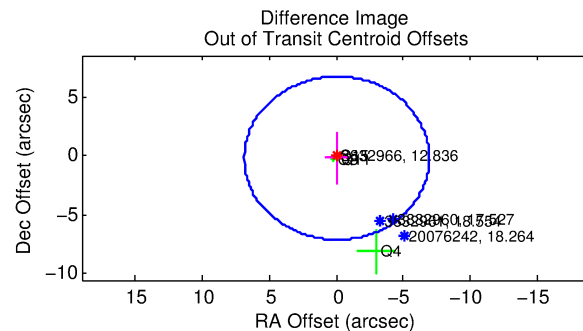
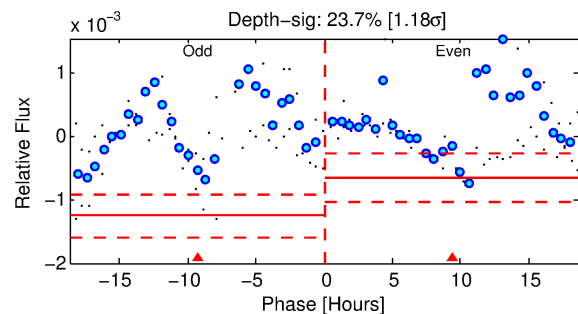
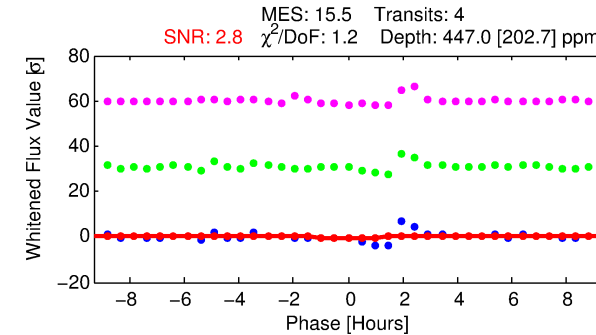
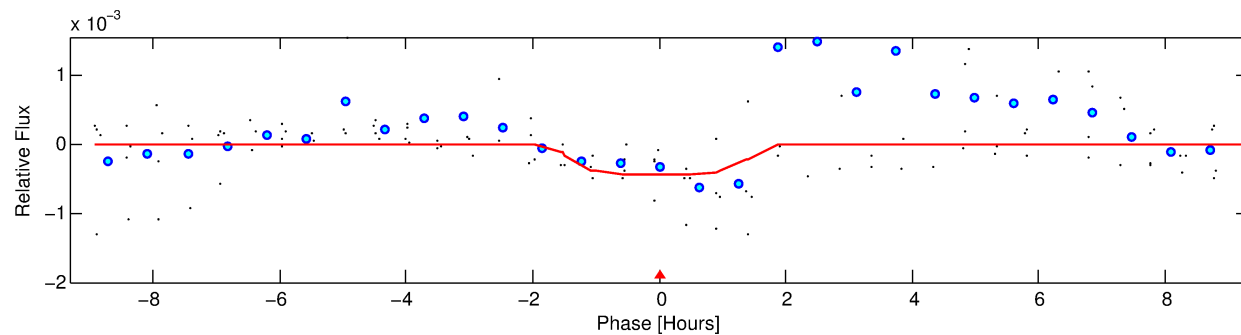
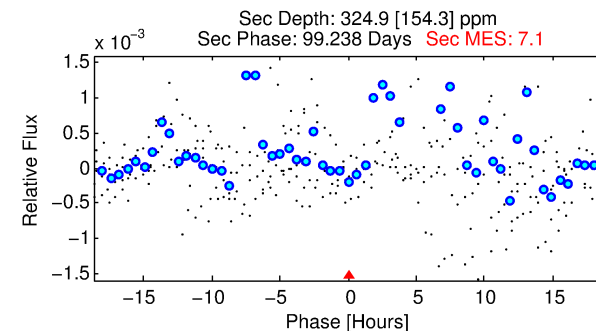
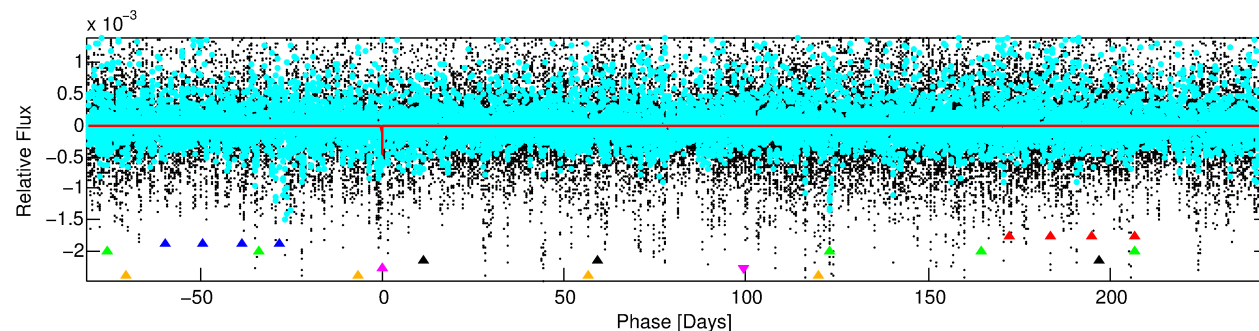
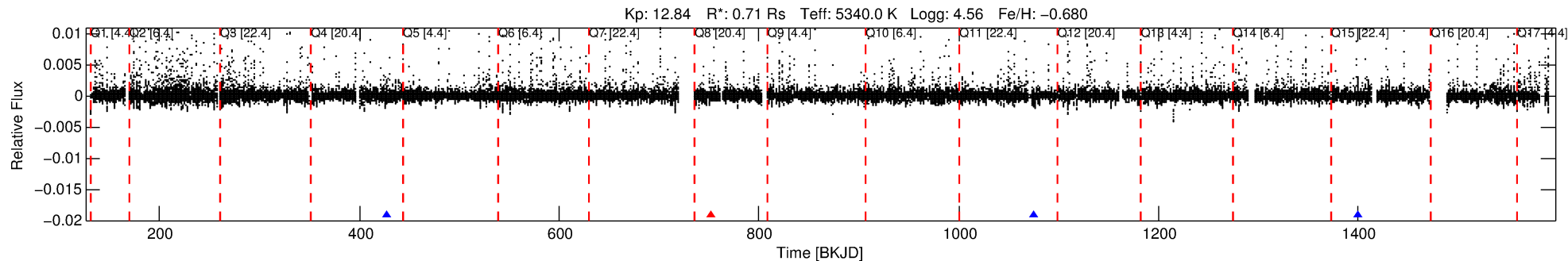
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003832966-05

No Significant Match Found

# DV One-Page Summary

KIC: 3832966 Candidate: 5 of 6 Period: 324.016 d



## DV Fit Results:

Period = 324.01574 [0.00670] d  
Epoch = 427.3297 [0.0136] BKJD  
Rp/R\* = 0.0202 [0.0634]  
a/R\* = 653.15 [8766.04]  
b = 0.61 [14.15]  
Seff = 0.56 [0.11]  
Teq = 221 [10] K  
Rp = 1.57 [4.94] Re  
a = 0.8106 [0.0764] AU  
Ag = 47624.00 [300177.22] [0.16σ]  
Teff = 5046 [7951] K [0.61σ]

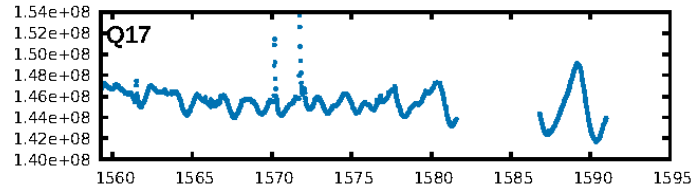
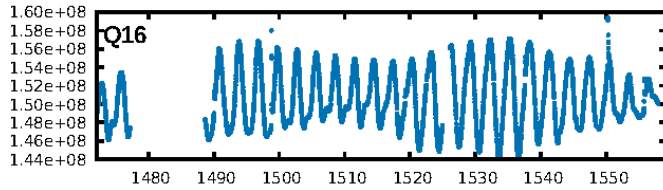
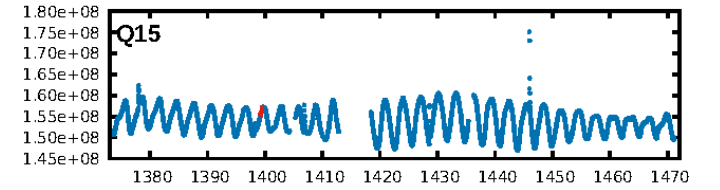
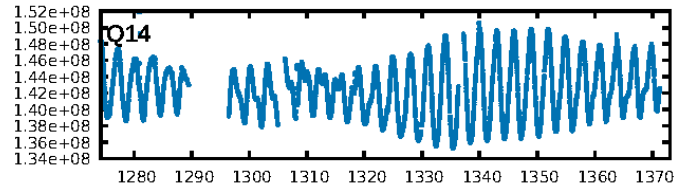
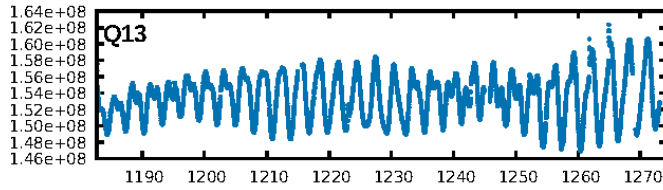
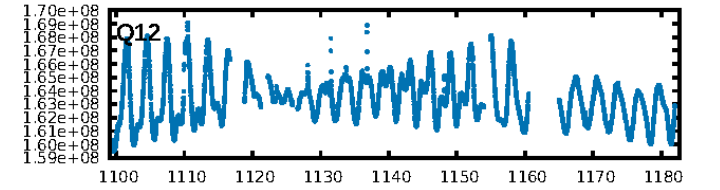
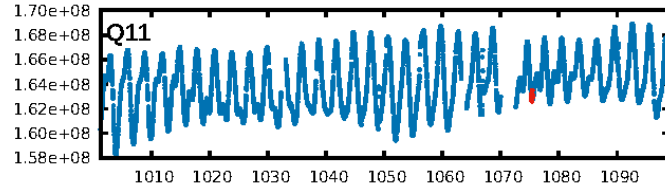
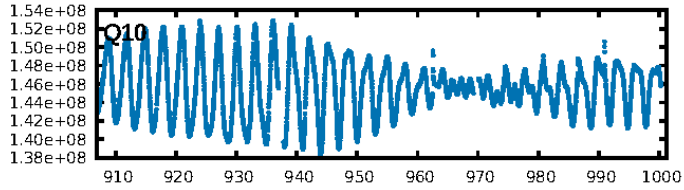
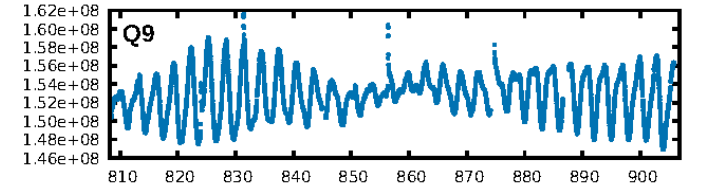
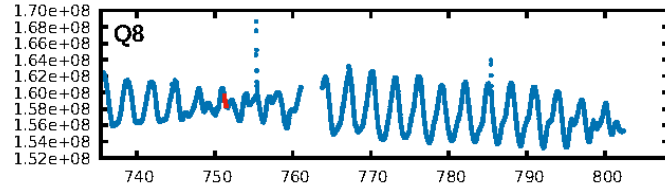
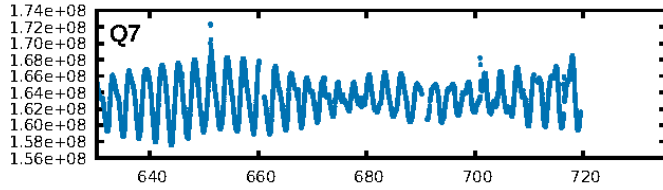
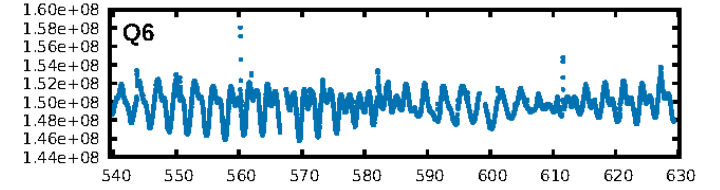
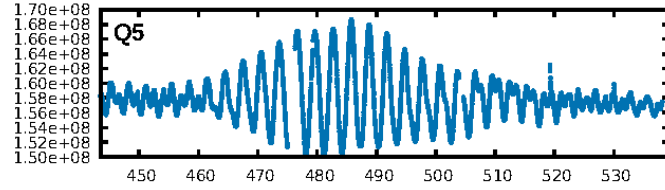
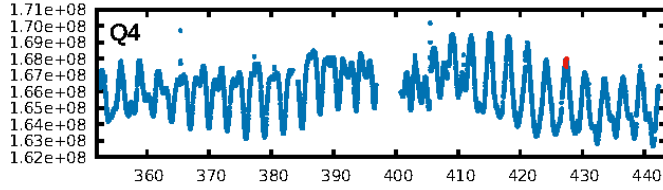
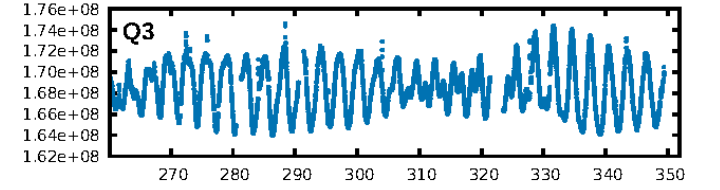
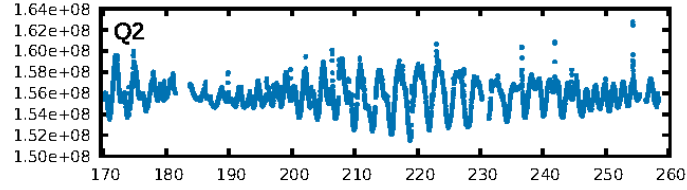
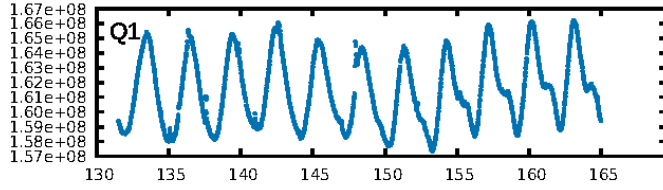
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [40.79σ]  
LongPeriod-sig: 100.0% [73.41σ]  
ModelChiSquare2-sig: 48.3%  
ModelChiSquareGof-sig: 80.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.75 [3/4]  
GhostDiagnostic-chr: 0.6797  
Centroid-sig: 45.7%  
Centroid-so: 0.923 arcsec [0.97σ]  
OotOffset-rm: 0.203 arcsec [0.09σ]  
KicOffset-rm: 0.057 arcsec [0.03σ]  
OotOffset-st: 0/2/2/0 [4]  
KicOffset-st: 0/2/2/0 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [4/4]

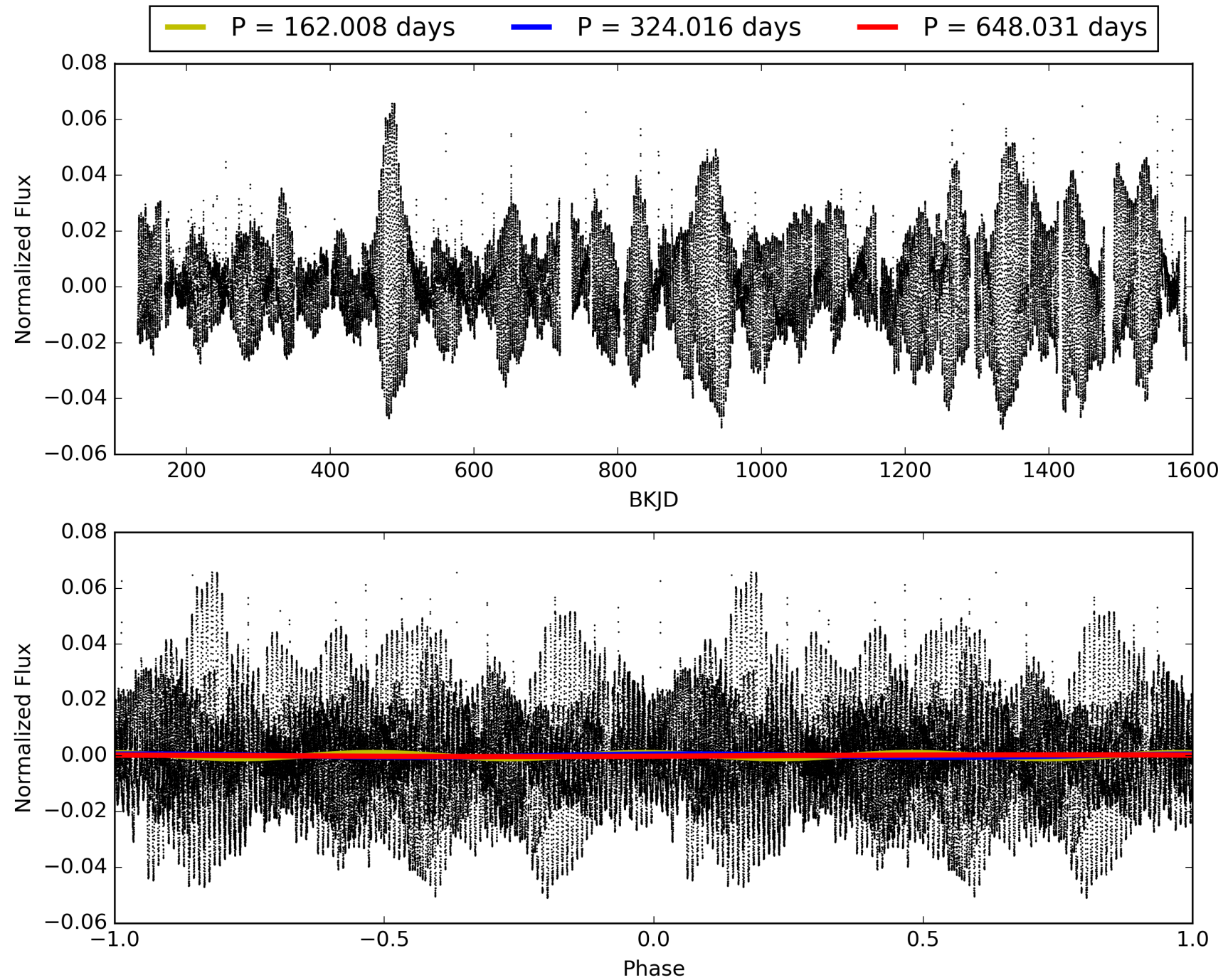
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:47:14 Z

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

# TCE 003832966-05, PDC Light Curves

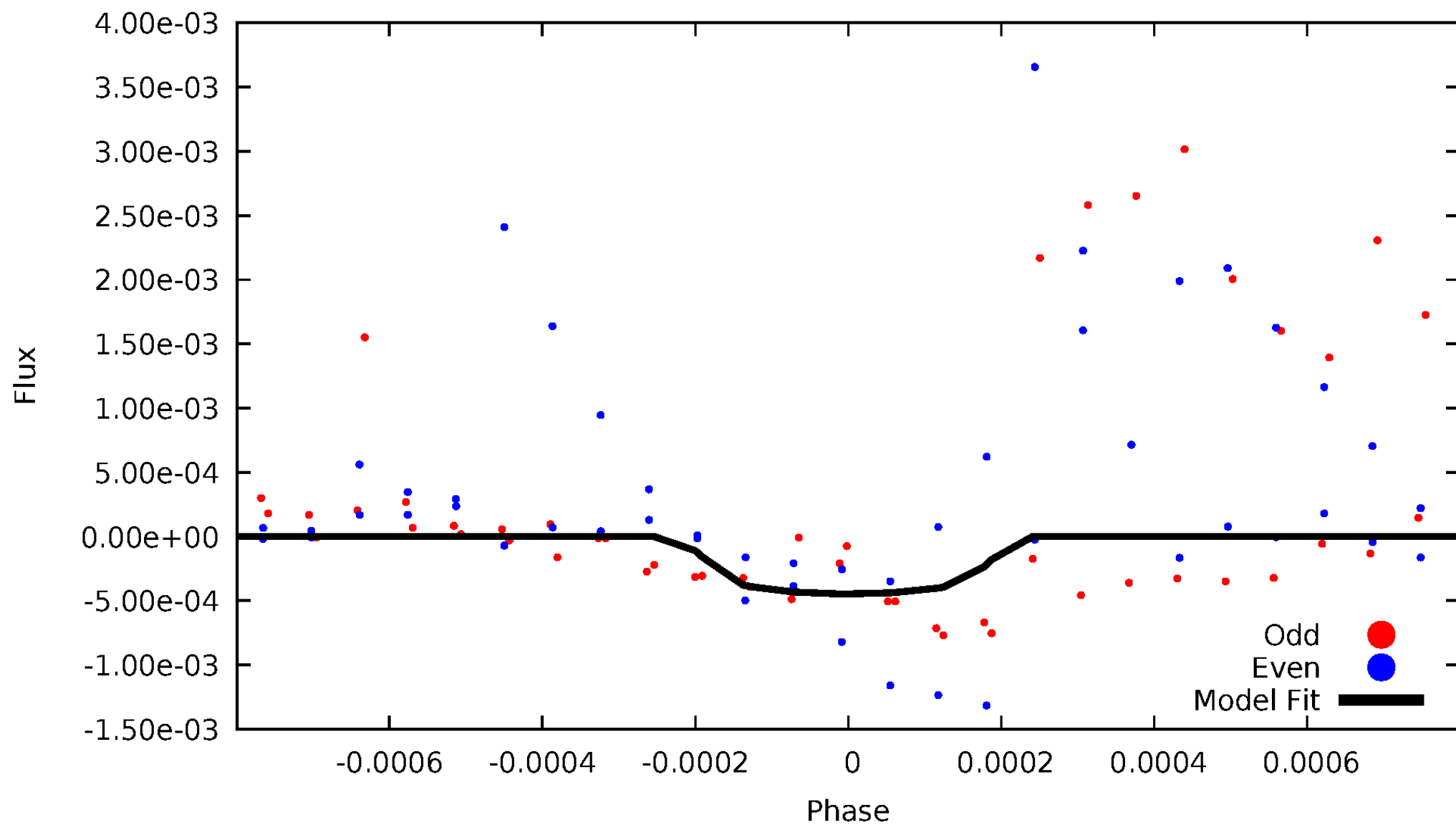


TCE 003832966-05



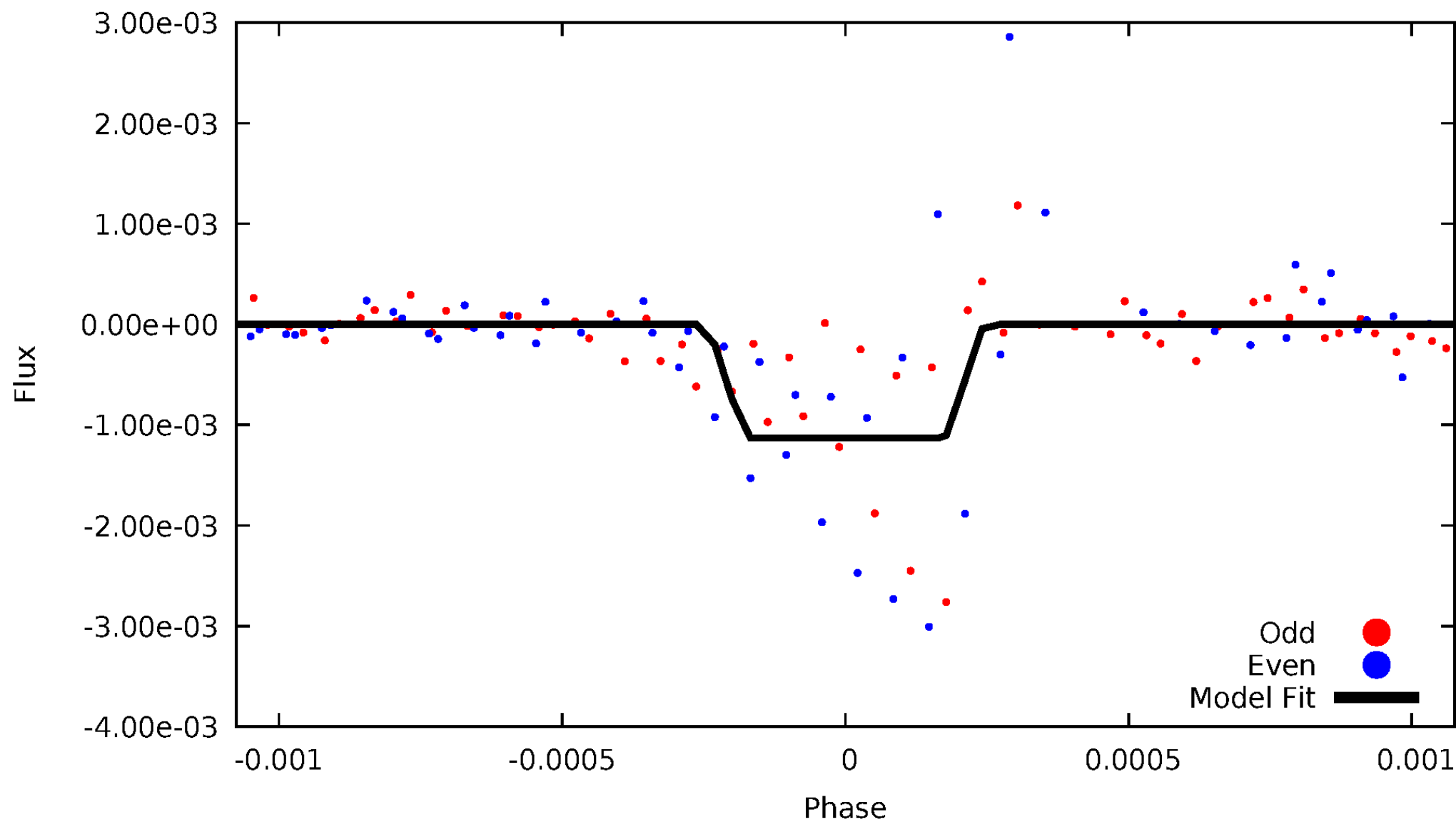
# DV Odd/Even

TCE 003832966-05



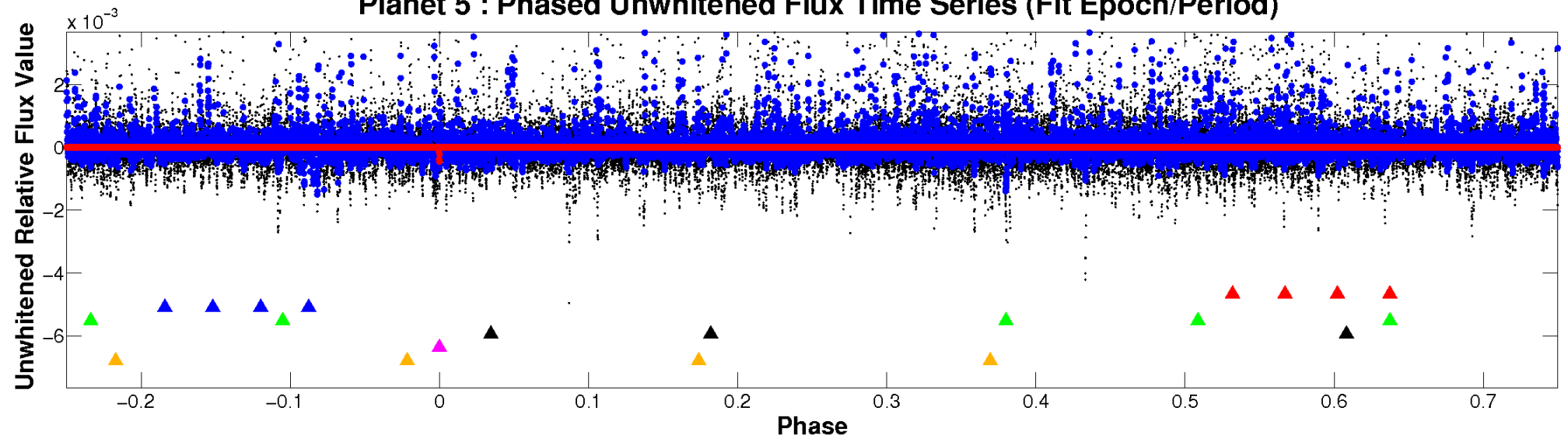
# ALT Odd/Even

TCE 003832966-05

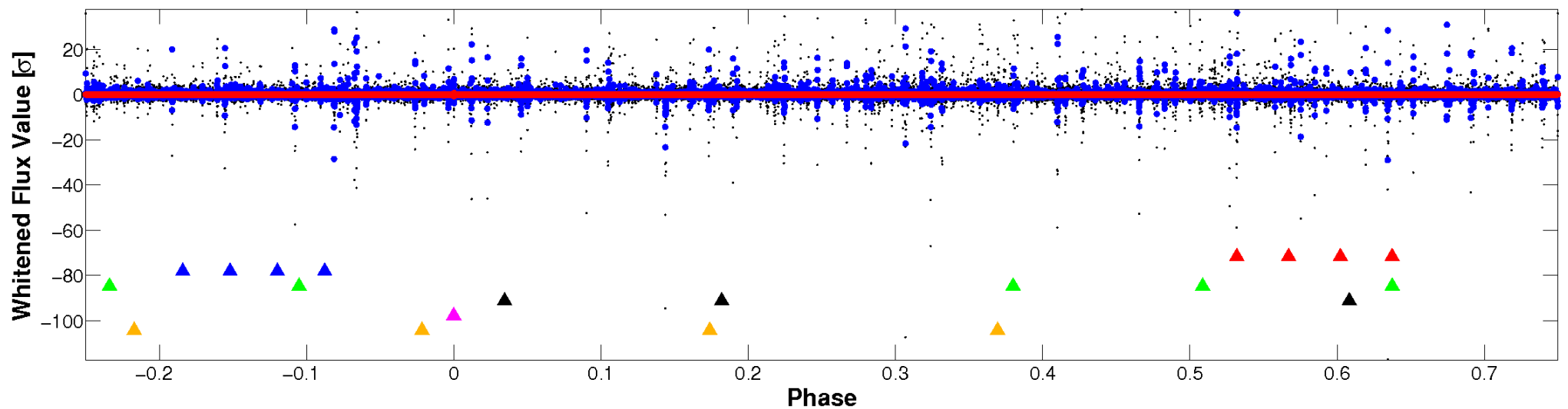


# Non-Whitened Vs. Whitened Light Curve

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



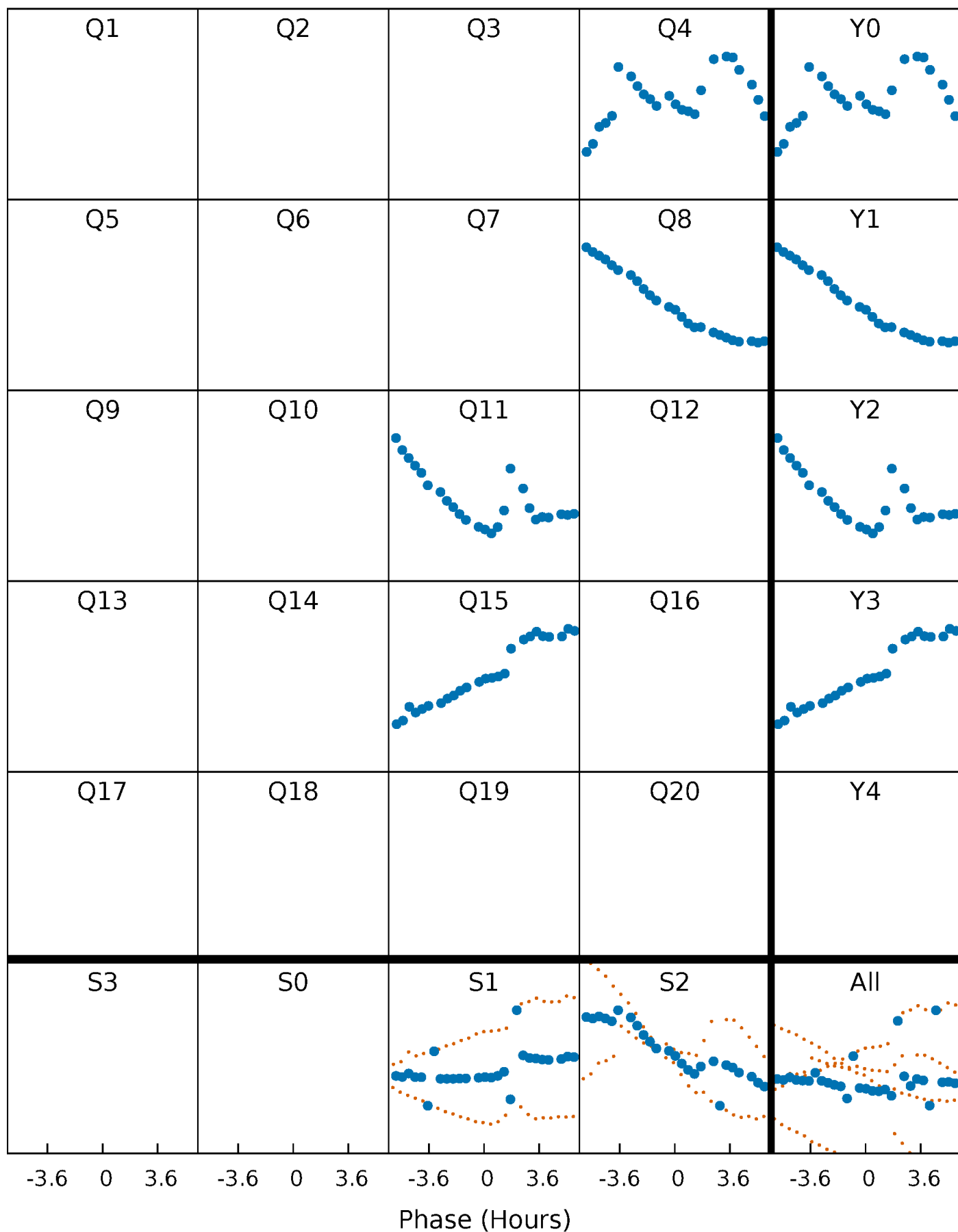
## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

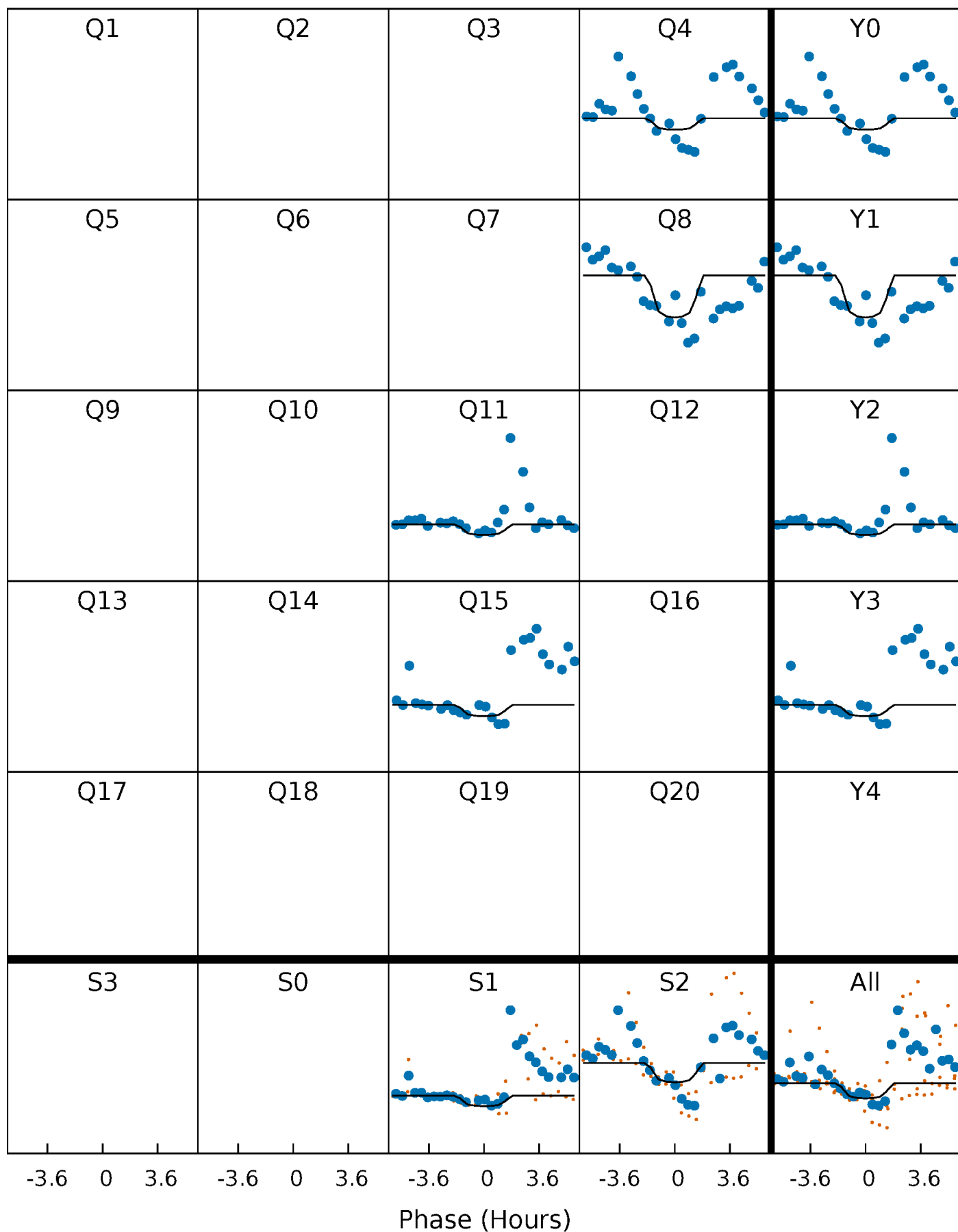
TCE 003832966-05     $P=324.015736$  Days     $T_0=427.329660$  (BKJD)





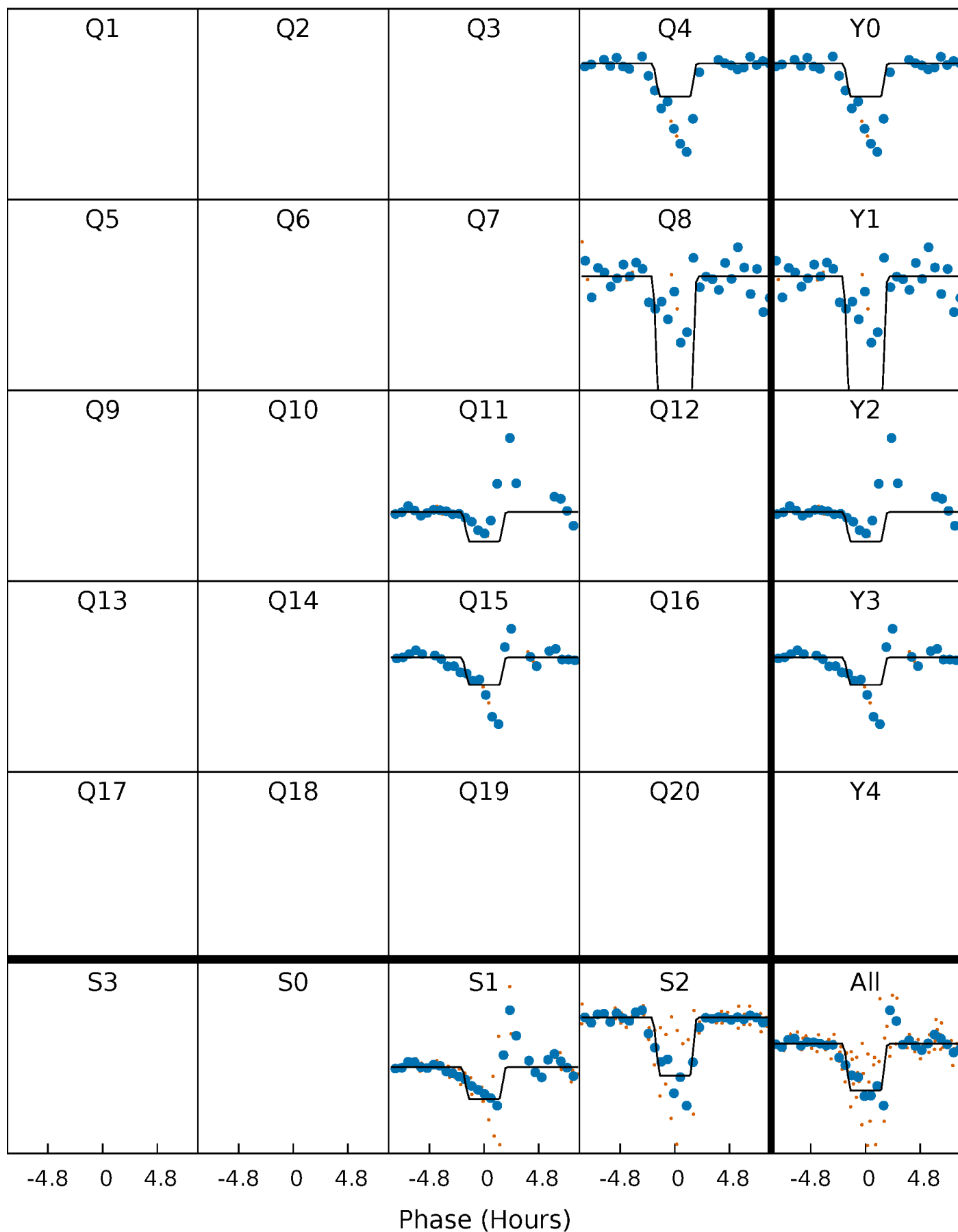
# DV Quarter-Phased Transit Curves

TCE 003832966-05     $P=324.015736$  Days     $T_0=427.329660$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

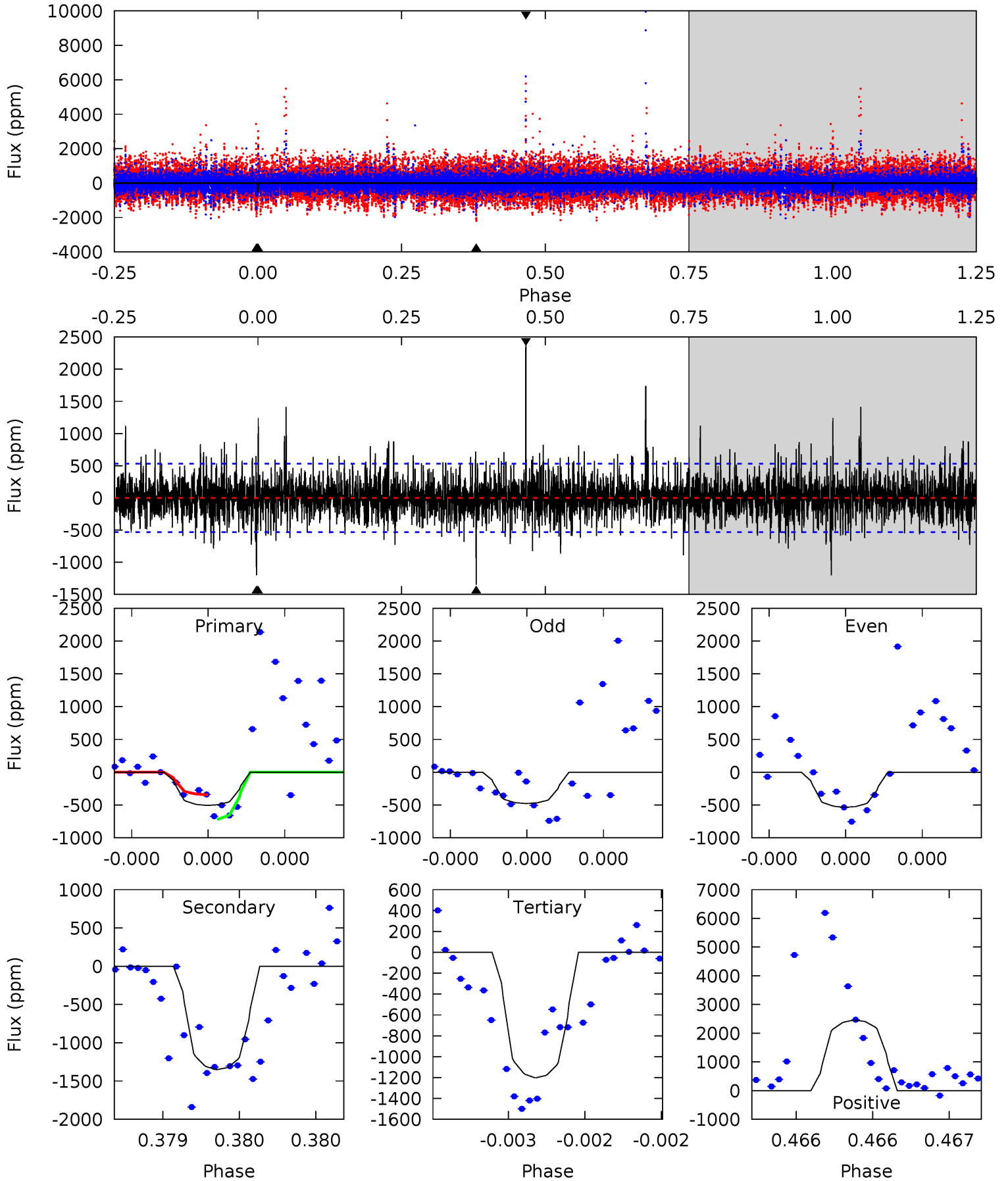
TCE 003832966-05     $P=324.013177$  Days     $T_0=427.340336$  (BKJD)



# DV Model-Shift Uniqueness Test

003832966-05, P = 324.015736 Days, E = 103.313924 Days

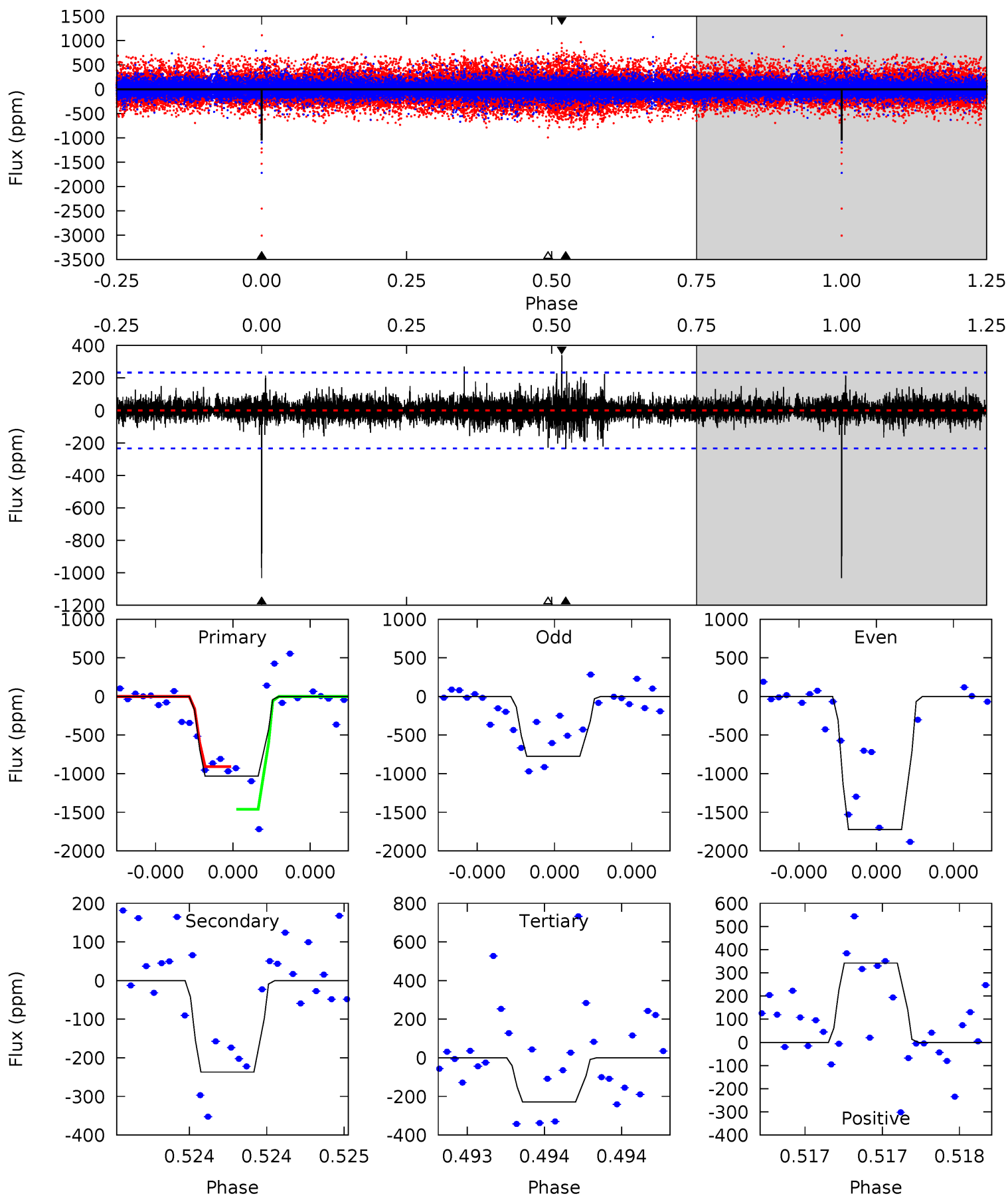
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.33	14.2	12.7	25.8	5.60	3.52	2.42	-7.32	-20.5	1.56	-11.6	0.24	1.06	0.65	2.00



# Alt Model-Shift Uniqueness Test

003832966-05, P = 324.013177 Days, E = 103.327159 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
24.7	5.67	5.47	8.19	5.59	3.50	1.01	19.2	16.5	0.20	-2.52	11.5	1.13	0.25	7.02



### Stellar Parameters For KIC 003832966

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5340^{+160}_{-144}$	$4.562^{+0.082}_{-0.060}$	$-0.680^{+0.300}_{-0.300}$	$0.713^{+0.075}_{-0.075}$	$0.676^{+0.086}_{-0.029}$	$2.630^{+0.978}_{-0.554}$
	+3%/-3%	+2%/-1%	+44%/-44%	+11%/-11%	+13%/-4%	+37%/-21%
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 003832966-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1350 \pm 95$	$3.87^{+3.97}_{-2.62}$	$309^{+12}_{-13}$	$4707^{+3593}_{-1043}$	$33423^{+291255}_{-25146}$
Alt.	$-237 \pm 42$	$4.25^{+4.19}_{-2.84}$	$308^{+12}_{-11}$	$3368^{+1613}_{-616}$	$5145^{+40577}_{-3936}$

$T_{max}$  = 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

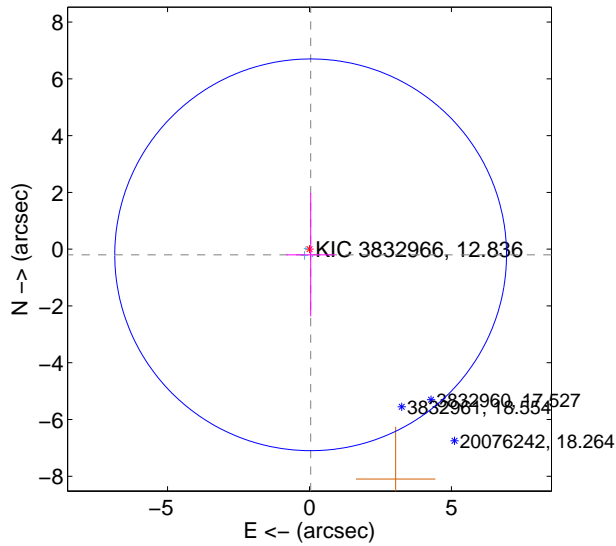
Supplemental centroid analysis for 003832966-05. Kepler magnitude: 12.84. Transit SNR 2.77

There are 3 quarters with good PRF difference image offsets

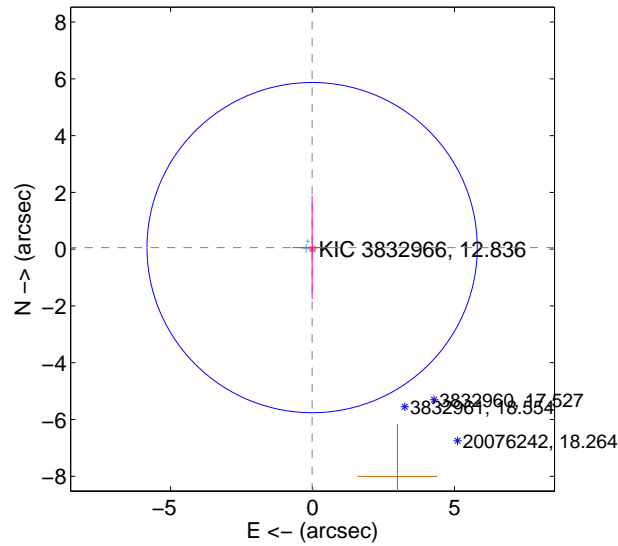
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.203 \pm 2.300$	0.09	$-0.041 \pm 0.857$	$-0.199 \pm 2.173$
PRF-fit source offset from KIC position	$0.057 \pm 1.939$	0.03	$0.014 \pm 0.698$	$0.055 \pm 1.825$
photometric centroid source offset	$0.92 \pm 0.96$	0.97	$-0.87 \pm 0.95$	$0.29 \pm 1.03$

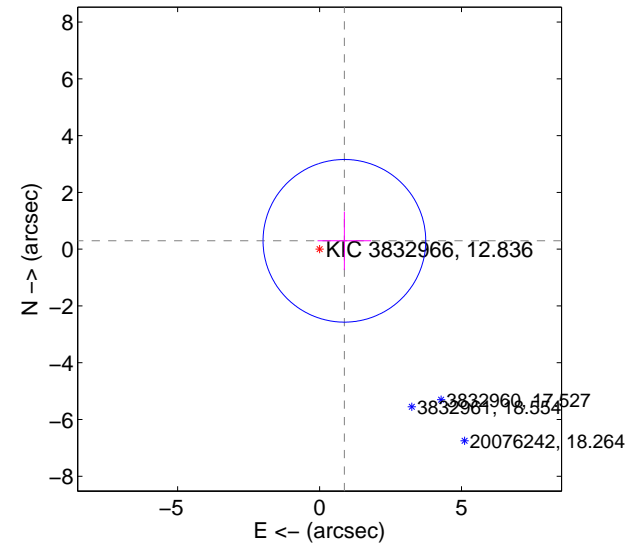
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

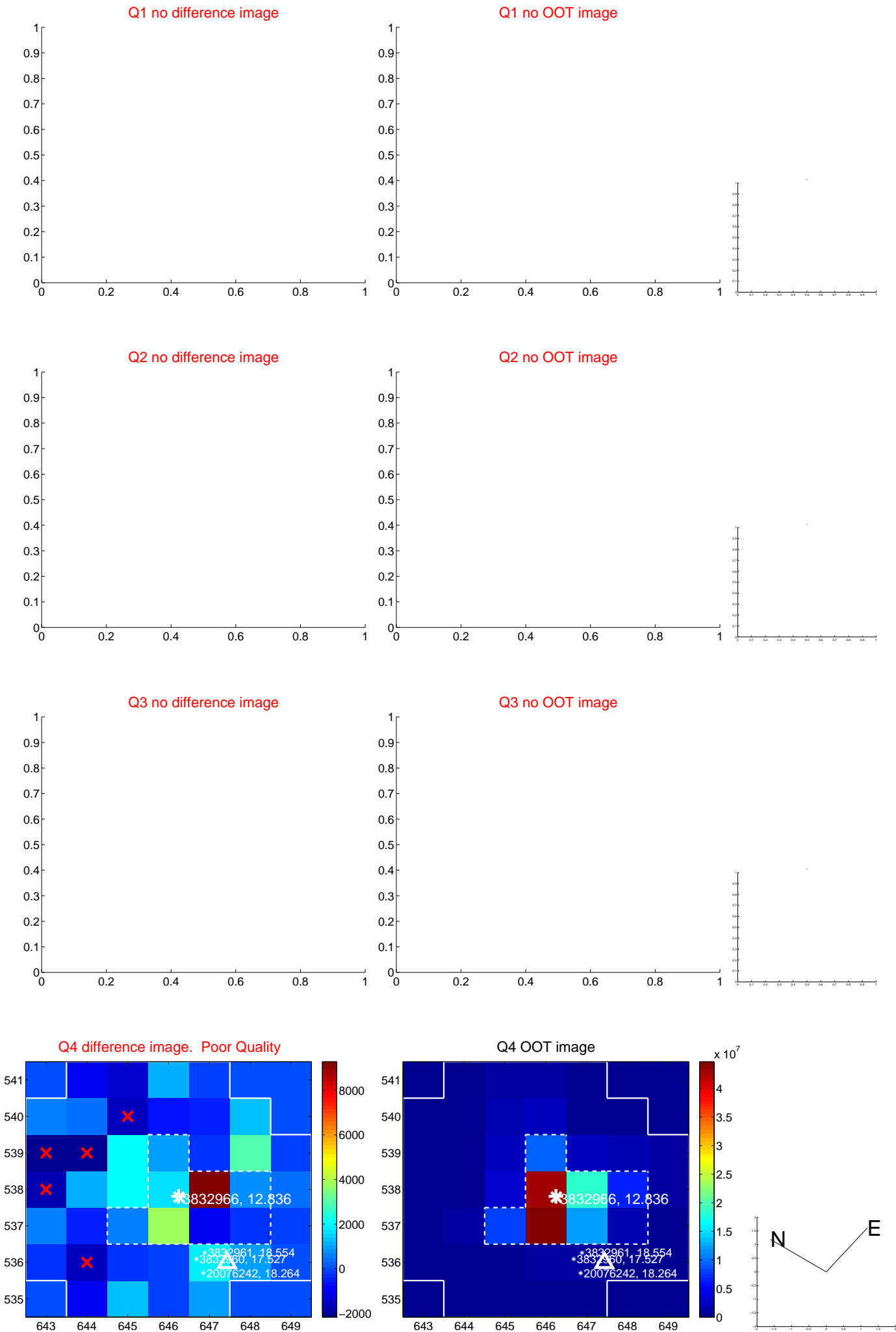


offset from photometric centroids

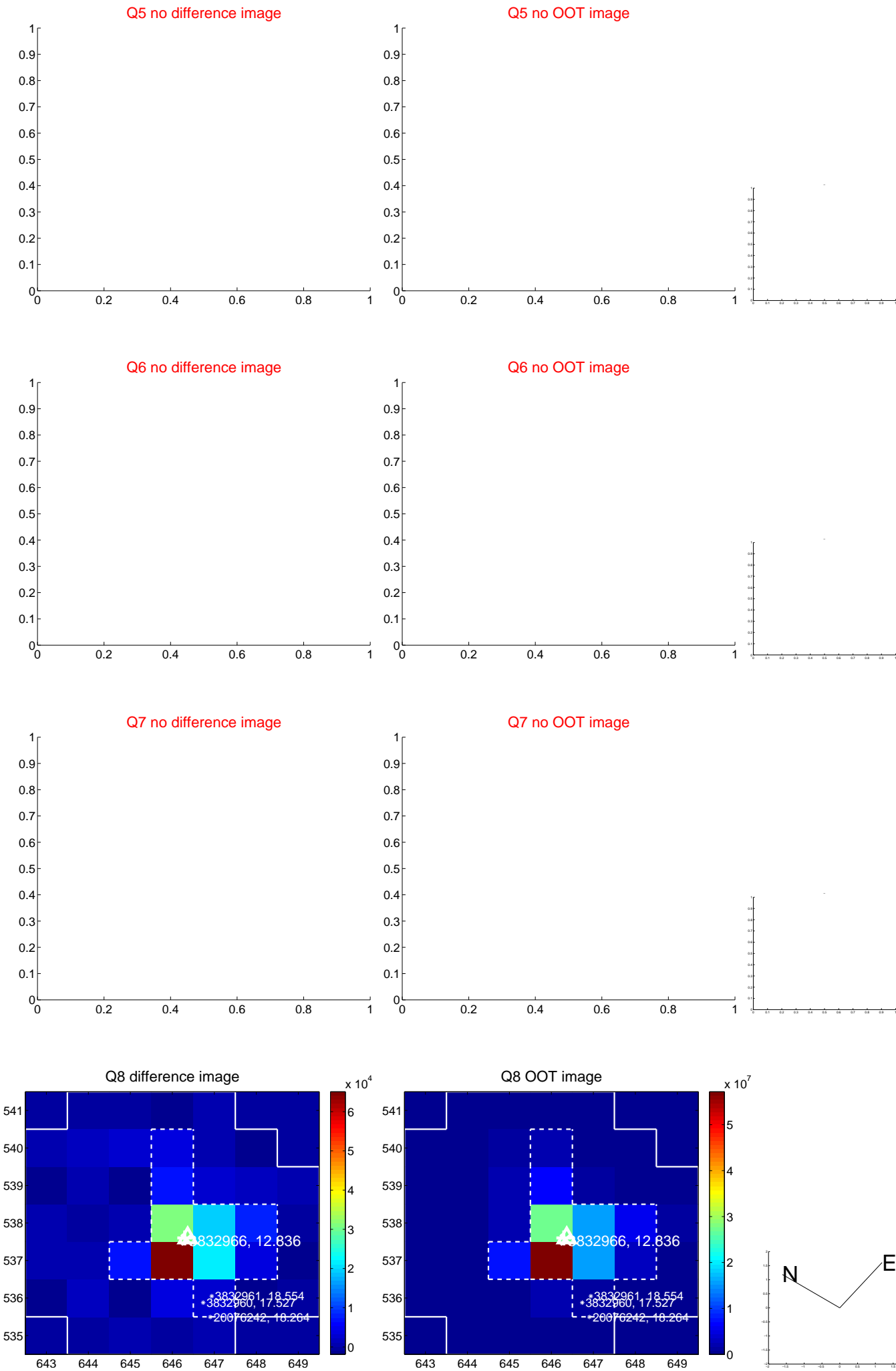


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

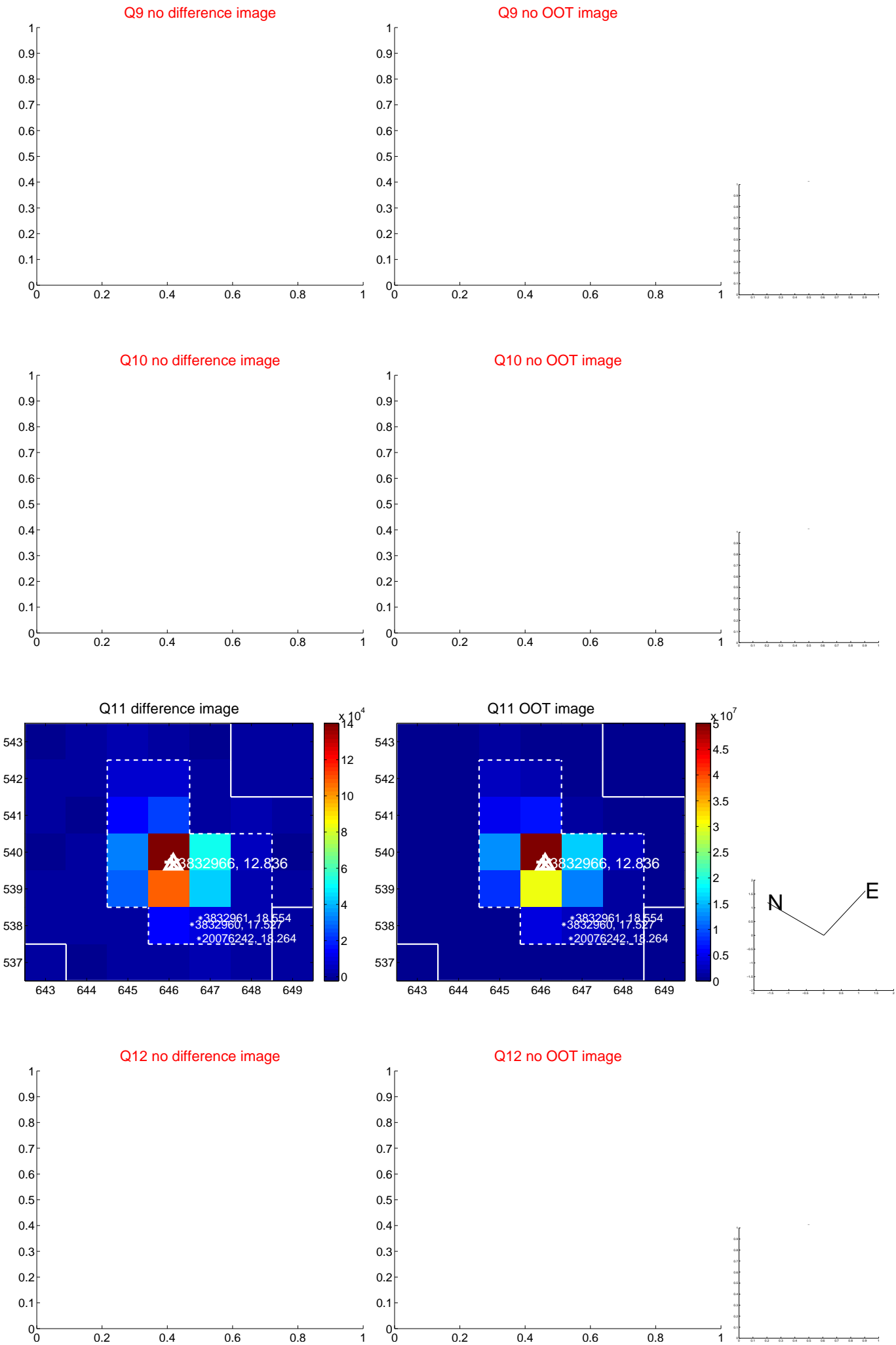


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

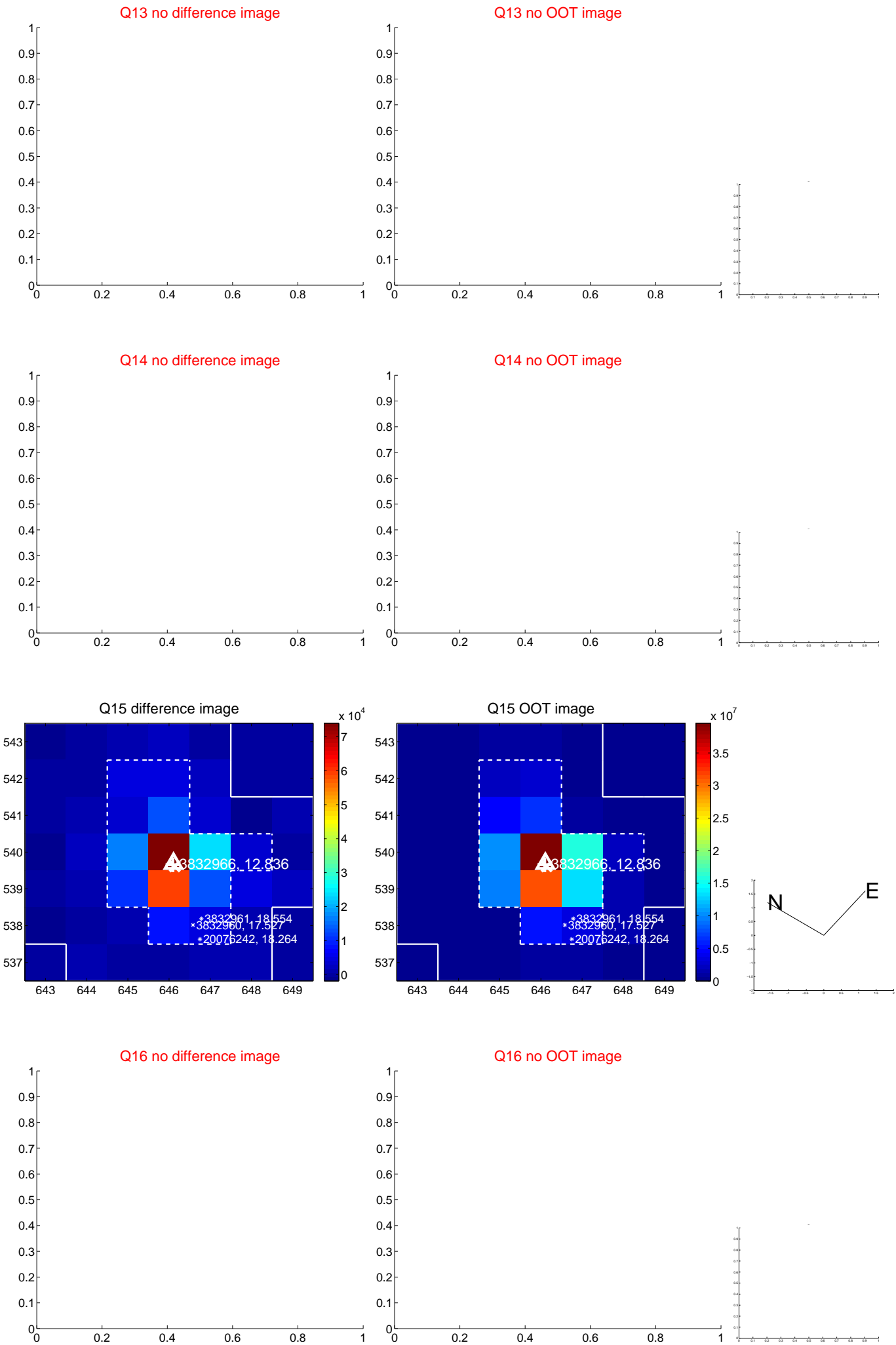




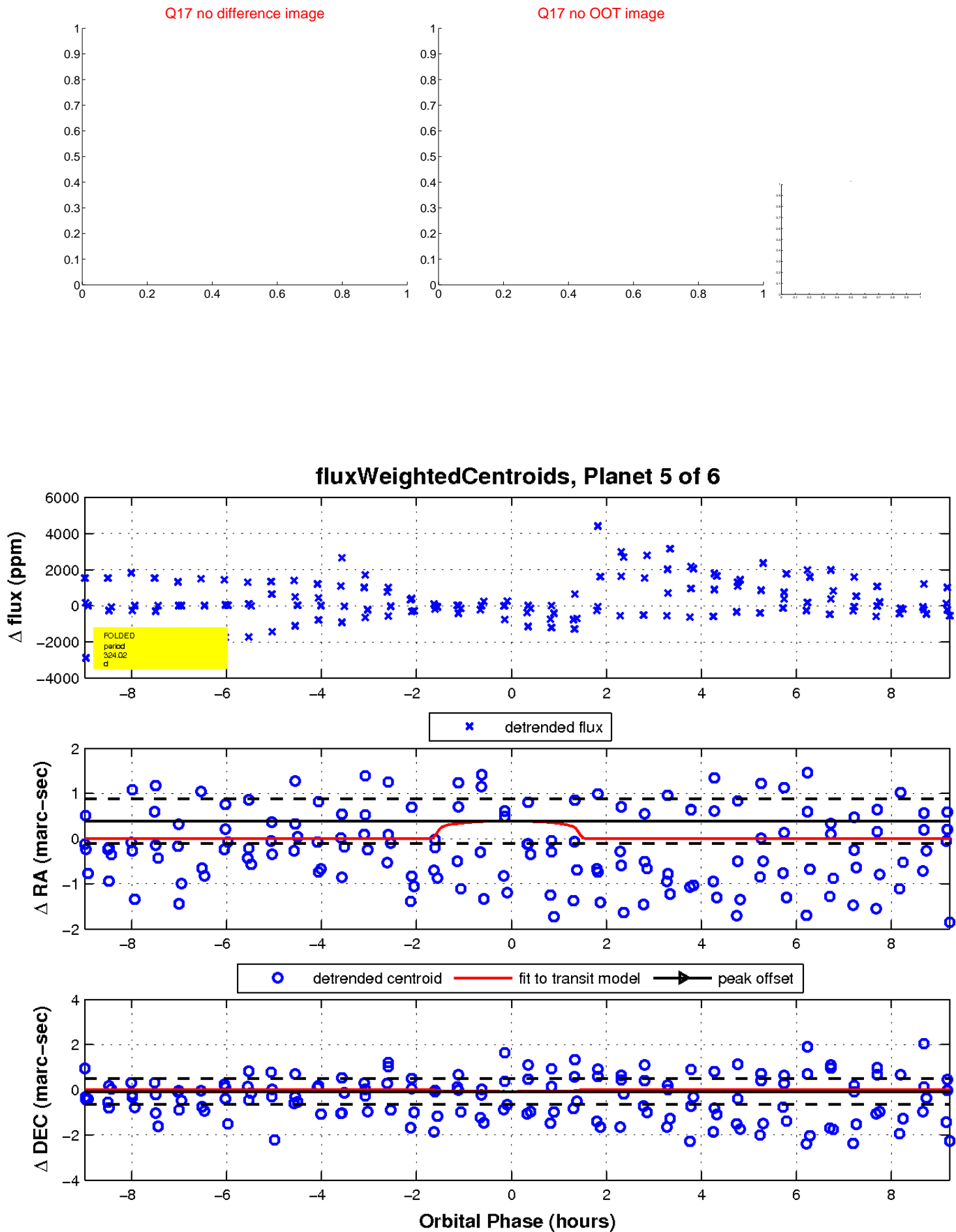
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

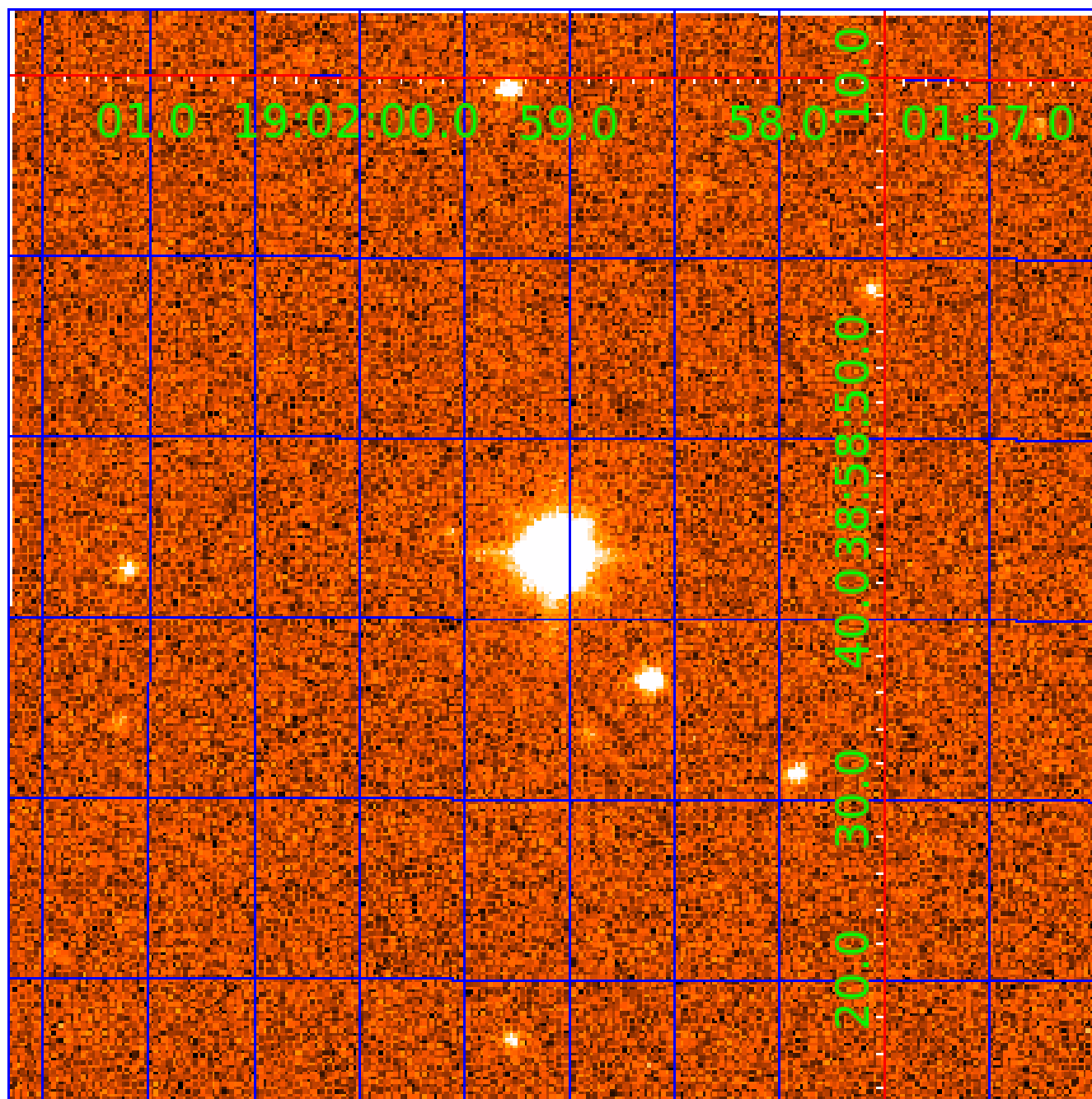


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 003832966

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003832966-01	OBS	No	335.407768	275.656457	910.0	2.054	18.1	6.1	0.71	5340	2.33	0.54
003832966-02	OBS	No	313.604322	398.931623	1476.3	5.280	17.7	6.7	0.71	5340	2.74	0.59
003832966-03	OBS	No	282.295461	393.295137	637.6	2.373	15.7	5.0	0.71	5340	1.81	0.68
003832966-04	OBS	No	509.909483	438.529211	653.2	4.352	17.6	3.2	0.71	5340	1.82	0.31
003832966-05	OBS	No	324.015736	427.329660	447.0	3.107	15.5	2.8	0.71	5340	1.57	0.56
003832966-06	OBS	No	387.352186	357.012356	379.5	9.000	17.3	-1.0	0.71	5340	1.37	0.44

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003832966-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_POS_DV
003832966-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003832966-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003832966-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
003832966-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
003832966-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

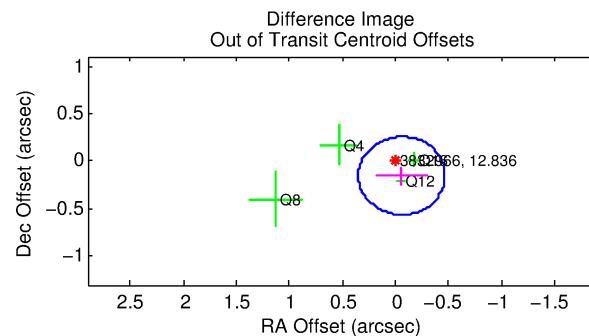
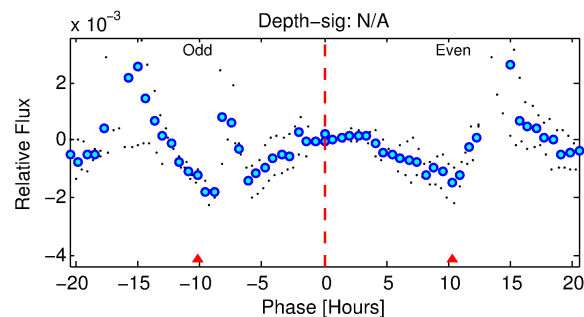
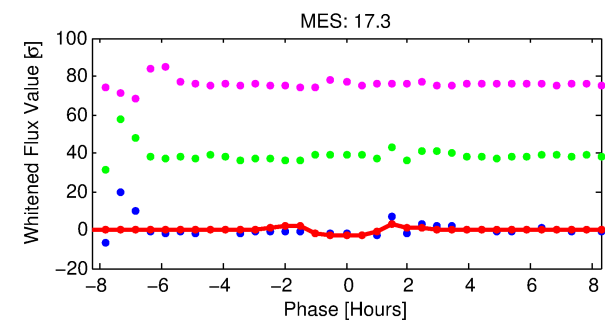
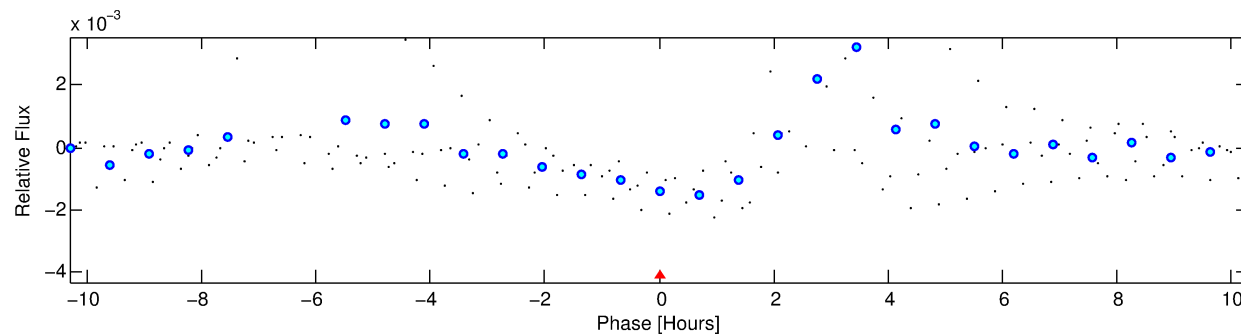
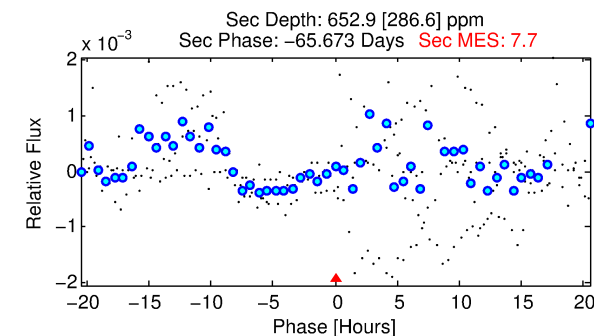
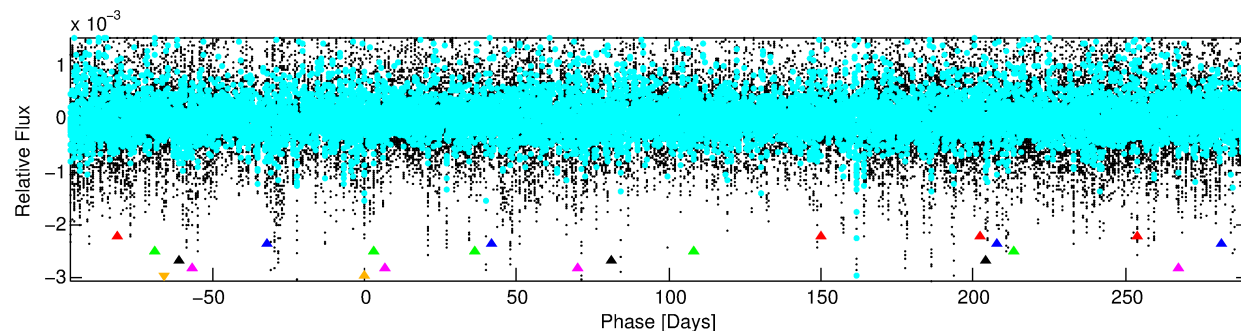
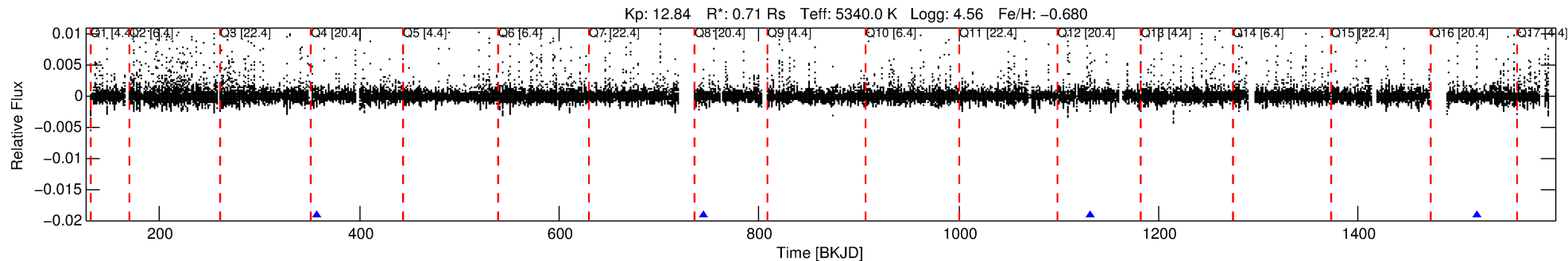
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003832966-06

No Significant Match Found

# DV One-Page Summary

KIC: 3832966 Candidate: 6 of 6 Period: 387.352 d



## TPS TCE Results:

Period = 387.35219 d  
Epoch = 357.0124 BKJD

DV fit results are unavailable

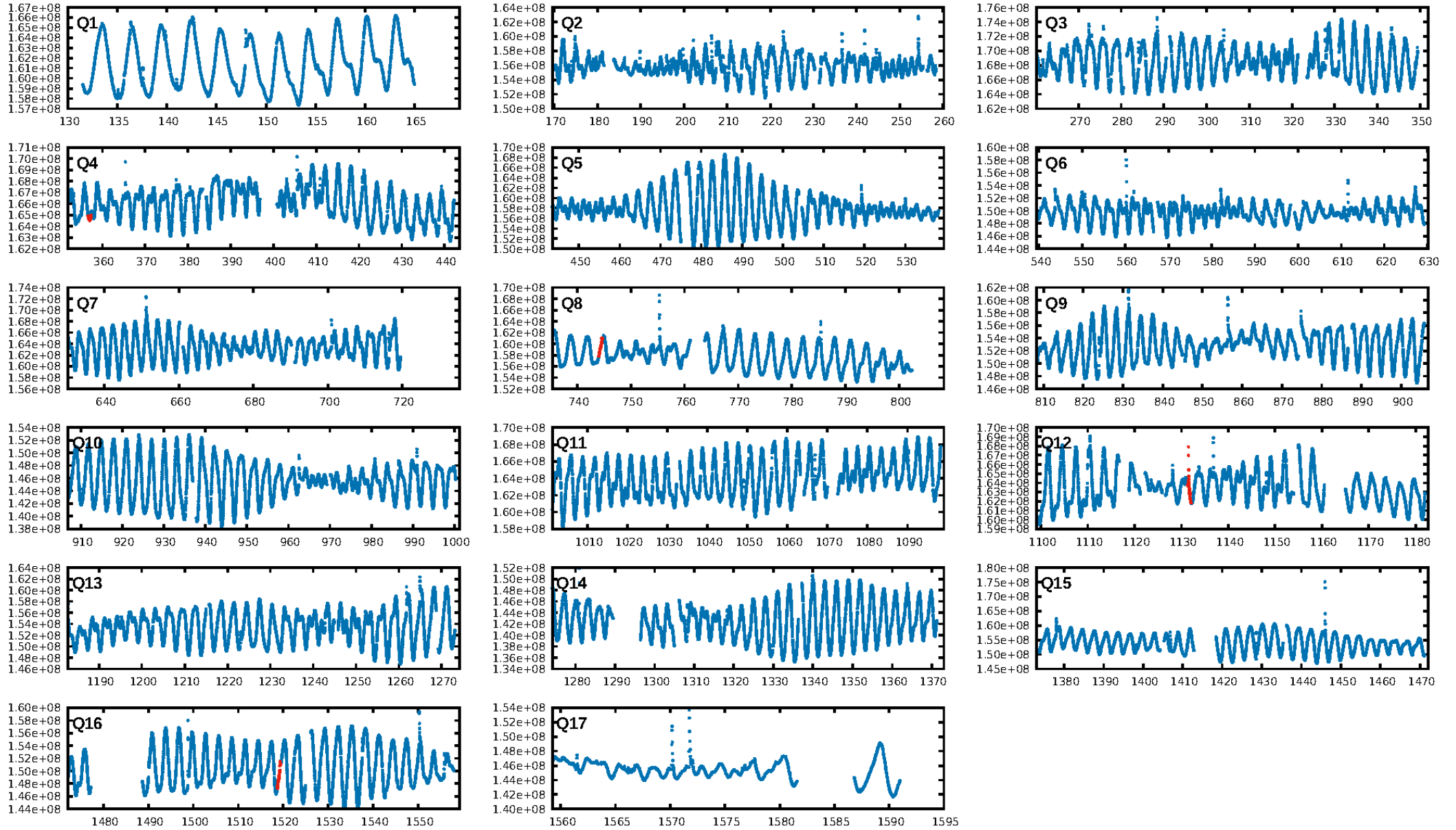
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [135.05σ]  
LongPeriod-sig: 100.0% [294.23σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
**GhostDiagnostic-chr: -1.193**  
Centroid-sig: 26.2%  
Centroid-so: 0.425 arcsec [0.84σ]  
OotOffset-rm: 0.164 arcsec [1.20σ]  
OotOffset-st: 0/0/4/0 [4]  
KicOffset-rm: 0.041 arcsec [0.24σ]  
KicOffset-st: 0/0/4/0 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:47:32 Z

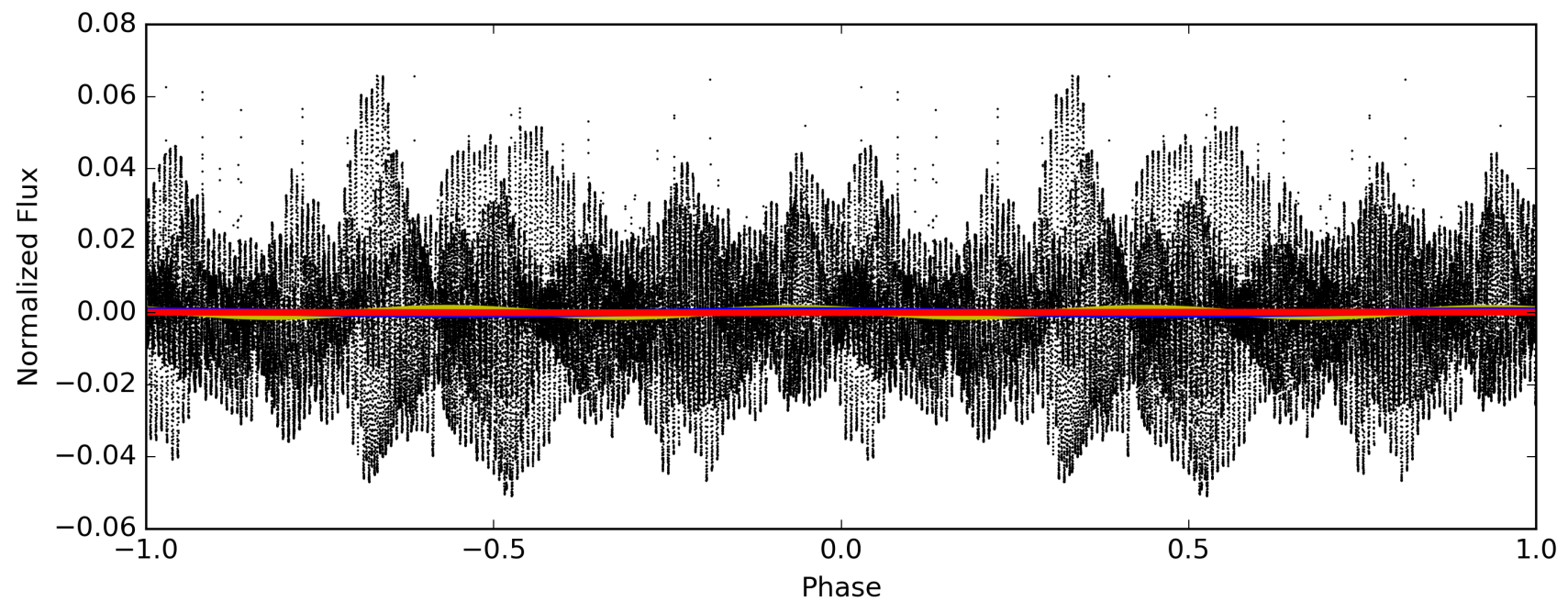
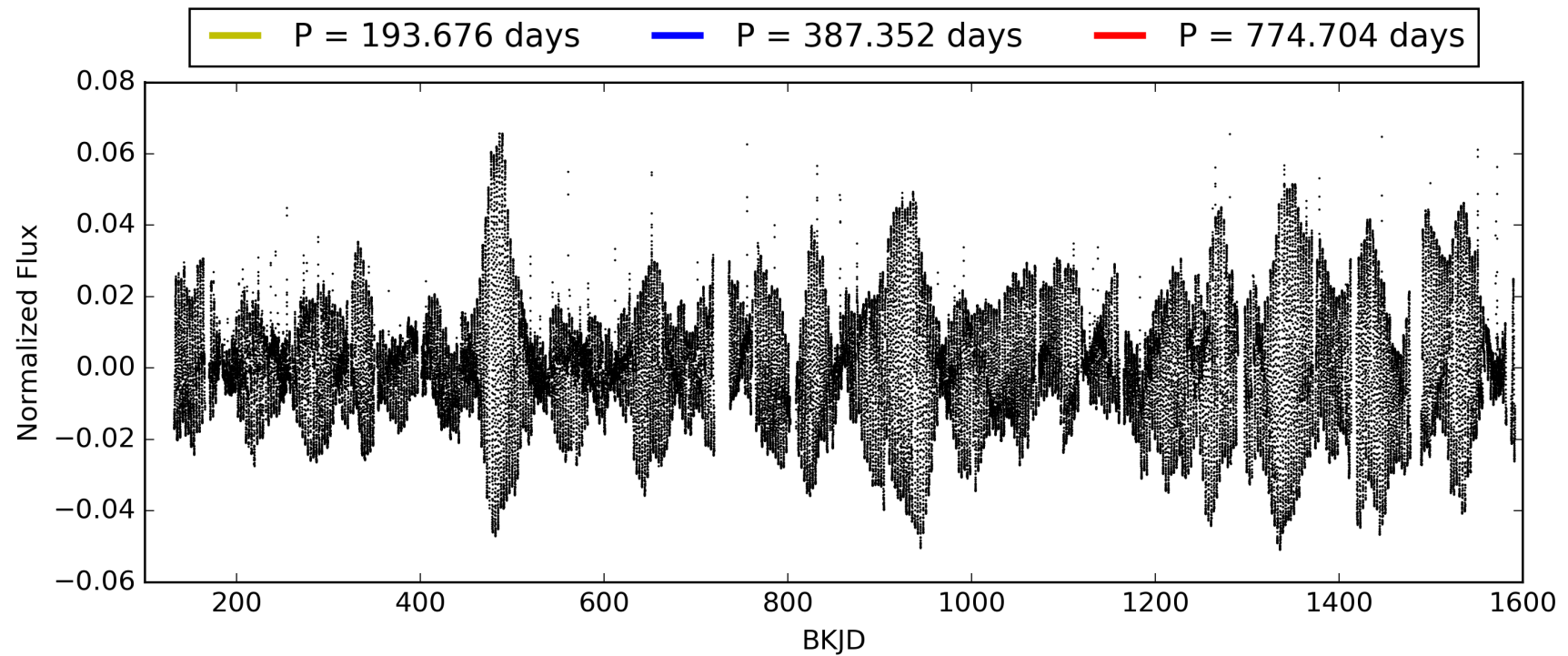
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003832966-06, PDC Light Curves





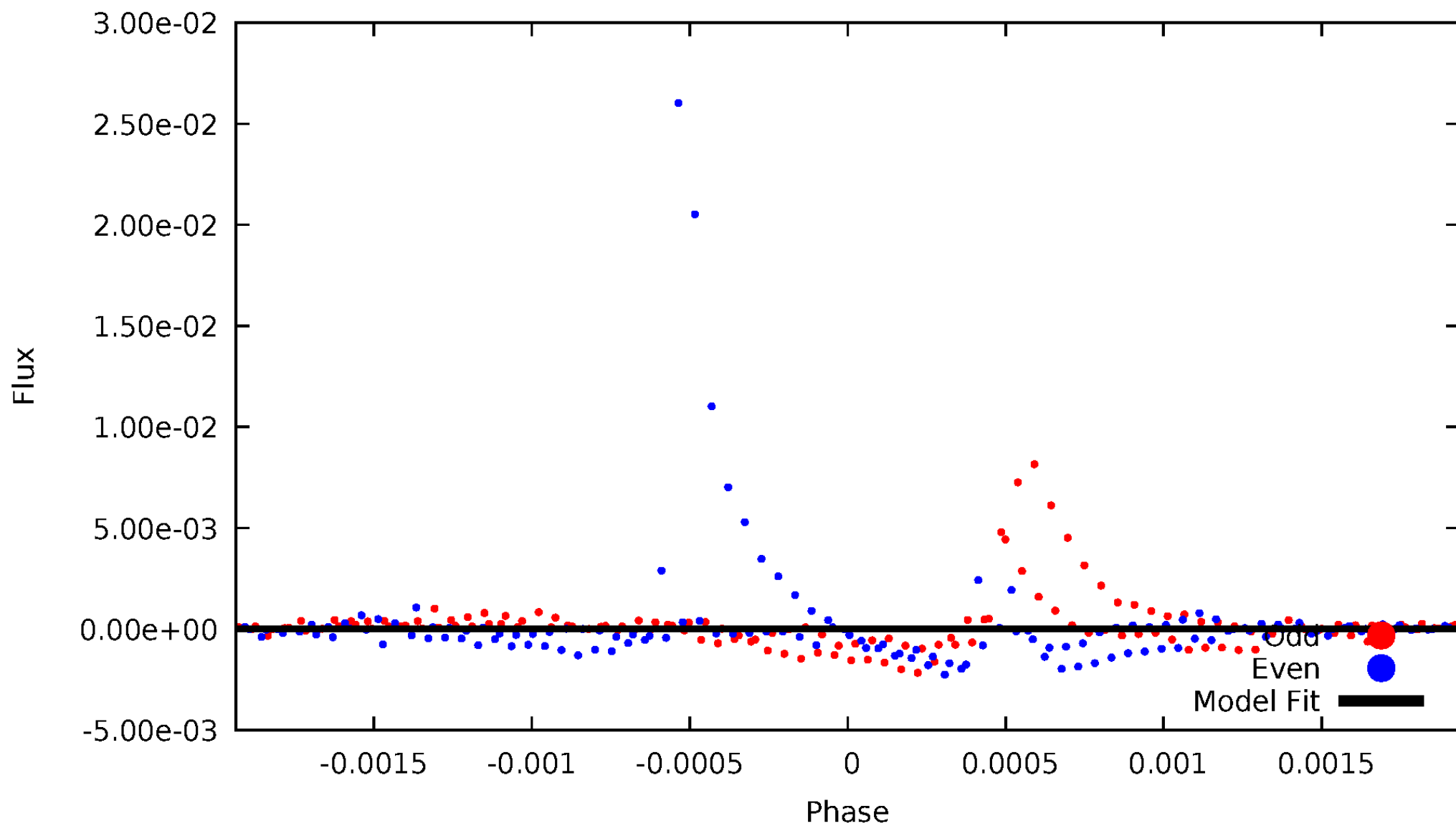
TCE 003832966-06





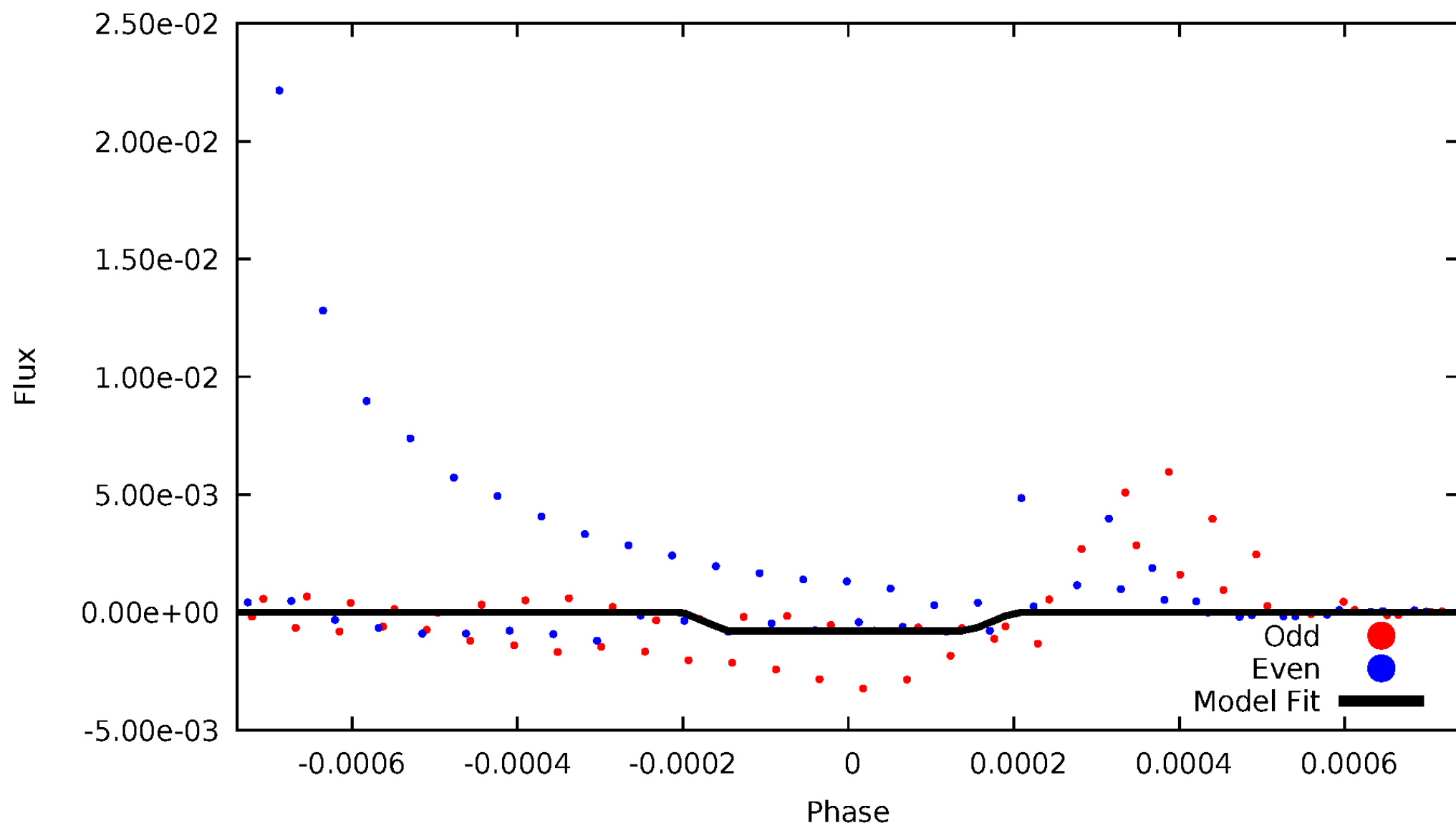
# DV Odd/Even

TCE 003832966-06



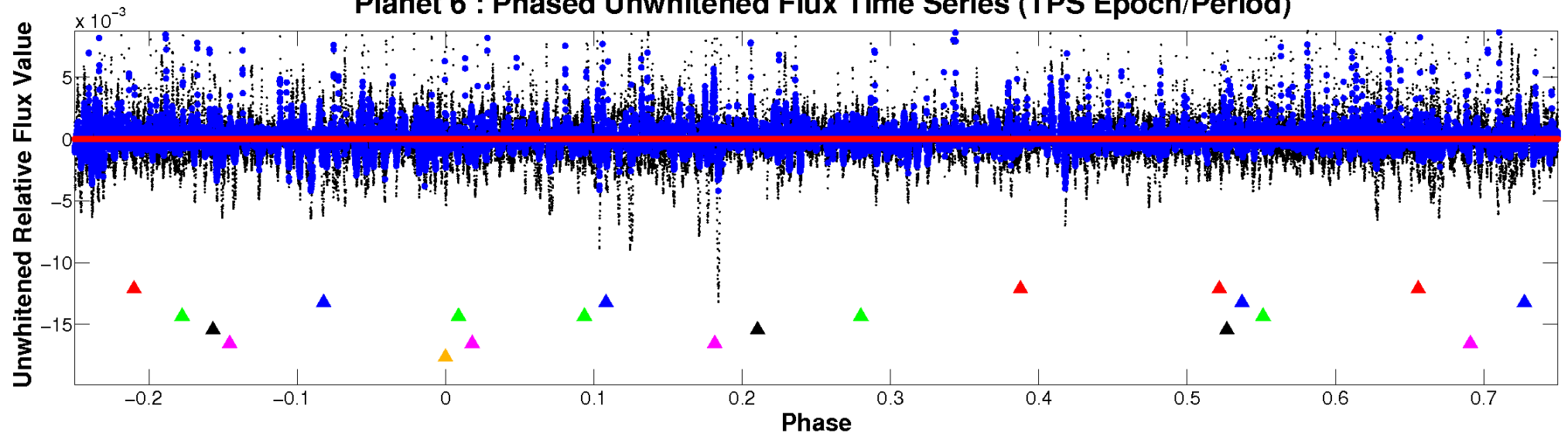
# ALT Odd/Even

TCE 003832966-06



# Non-Whitened Vs. Whitened Light Curve

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

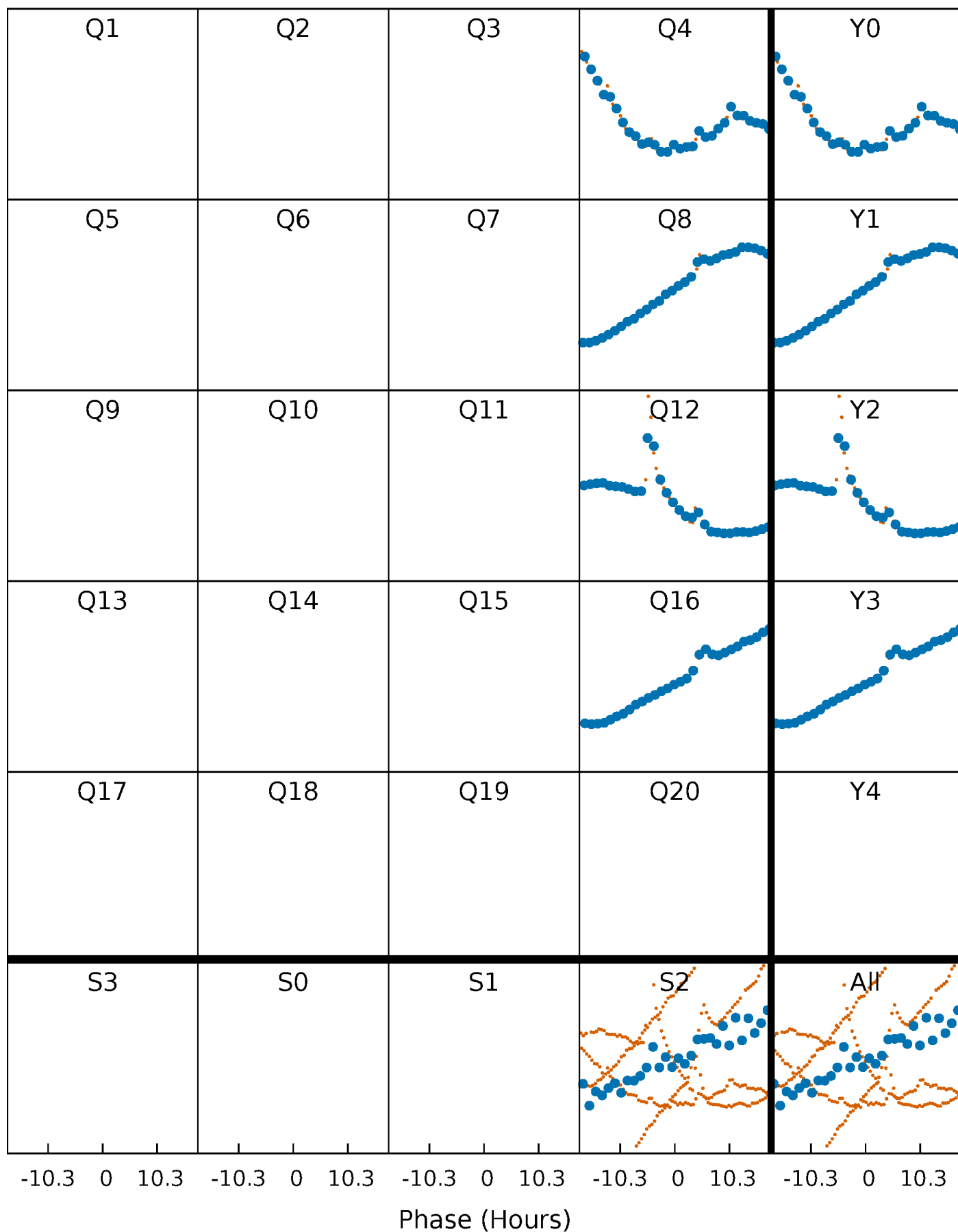


**Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



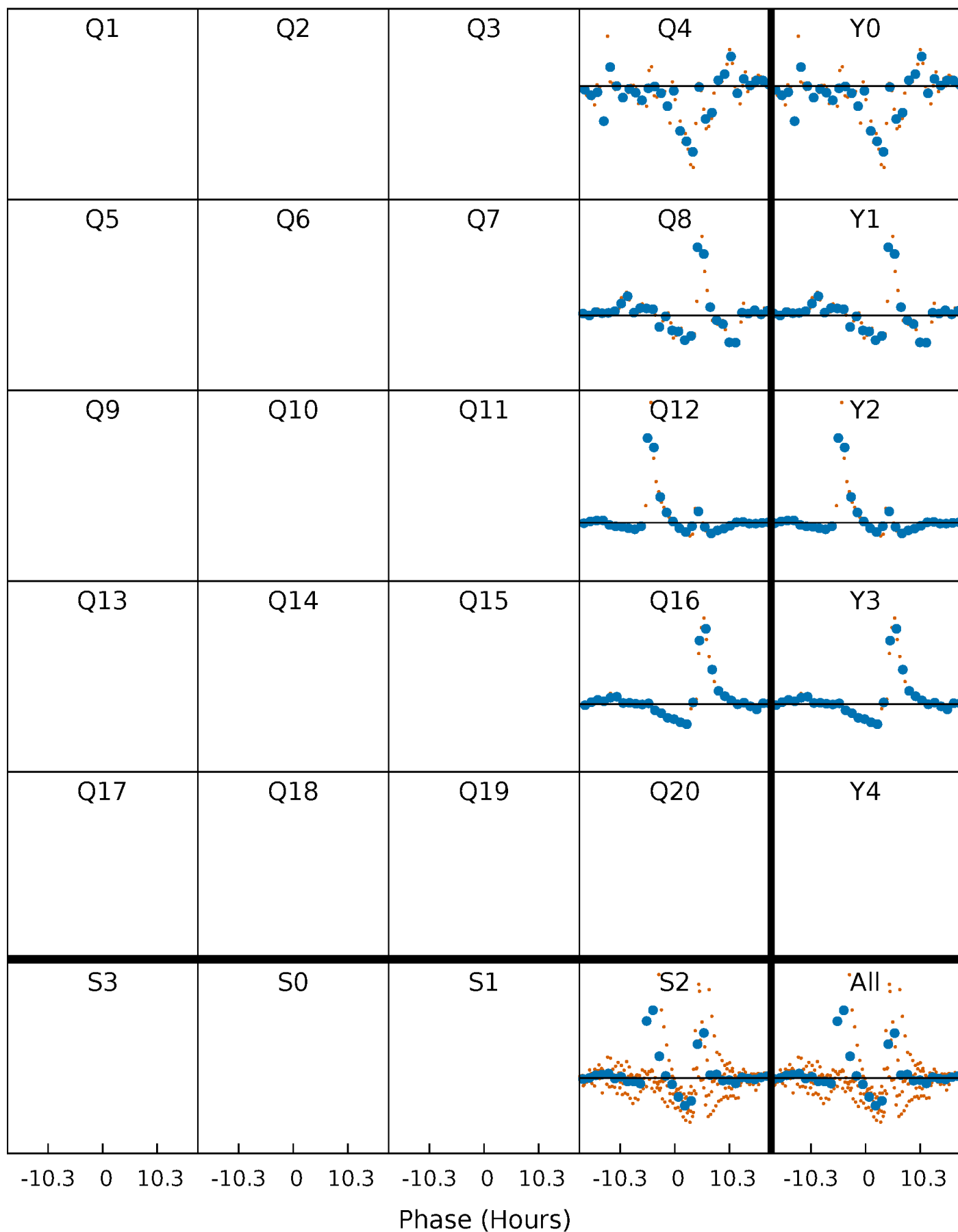
# PDC Quarter-Phased Transit Curves

TCE 003832966-06     $P=387.352186$  Days     $T_0=357.012356$  (BKJD)



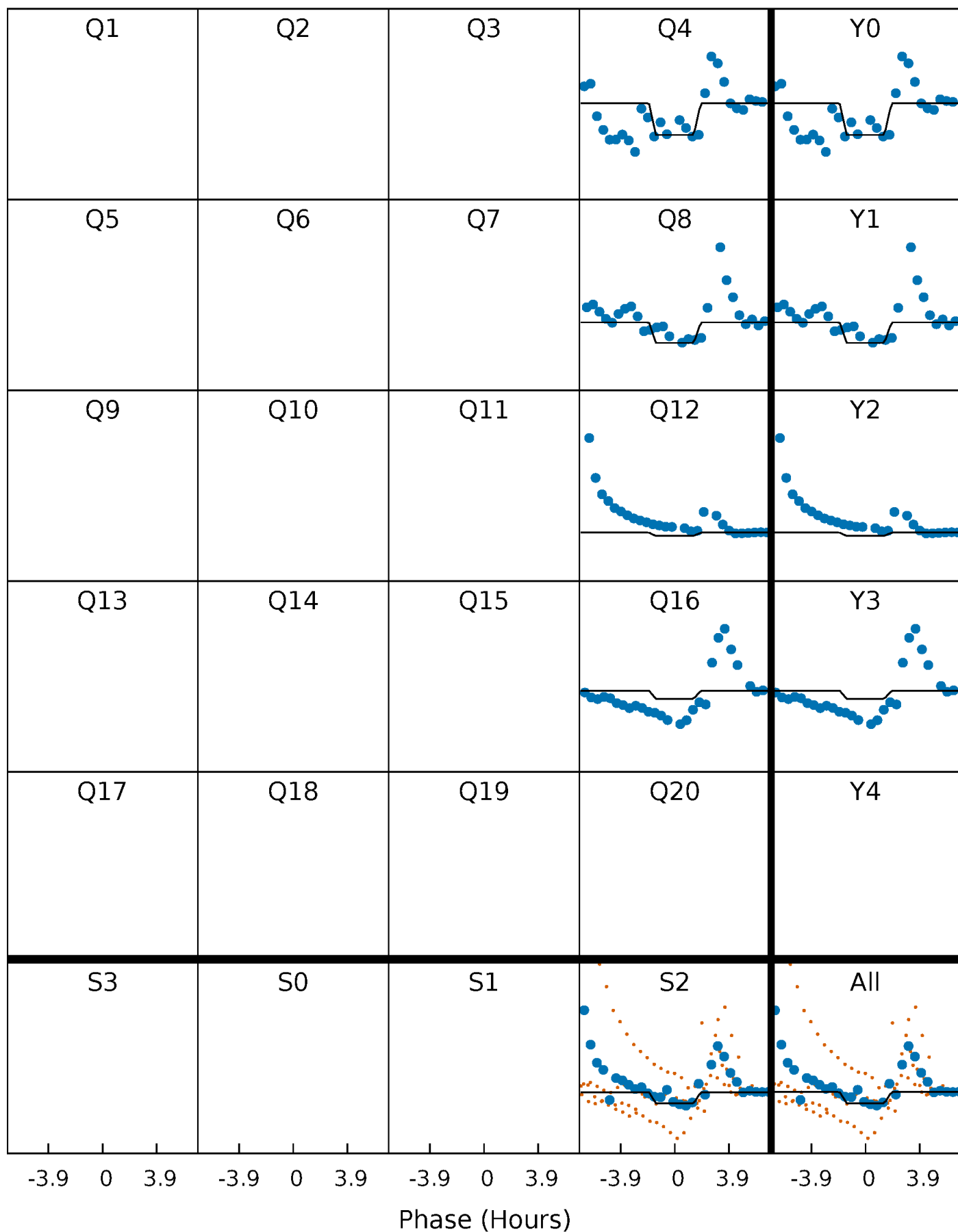
# DV Quarter-Phased Transit Curves

TCE 003832966-06     $P=387.352186$  Days     $T_0=357.012356$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

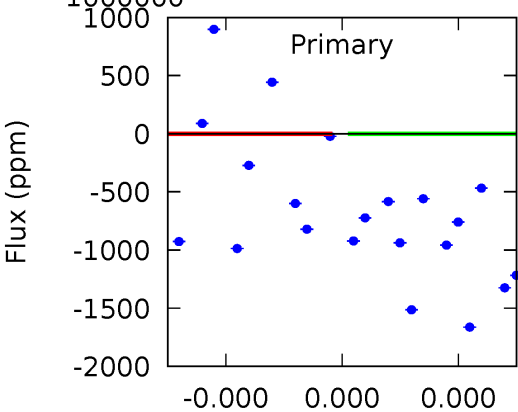
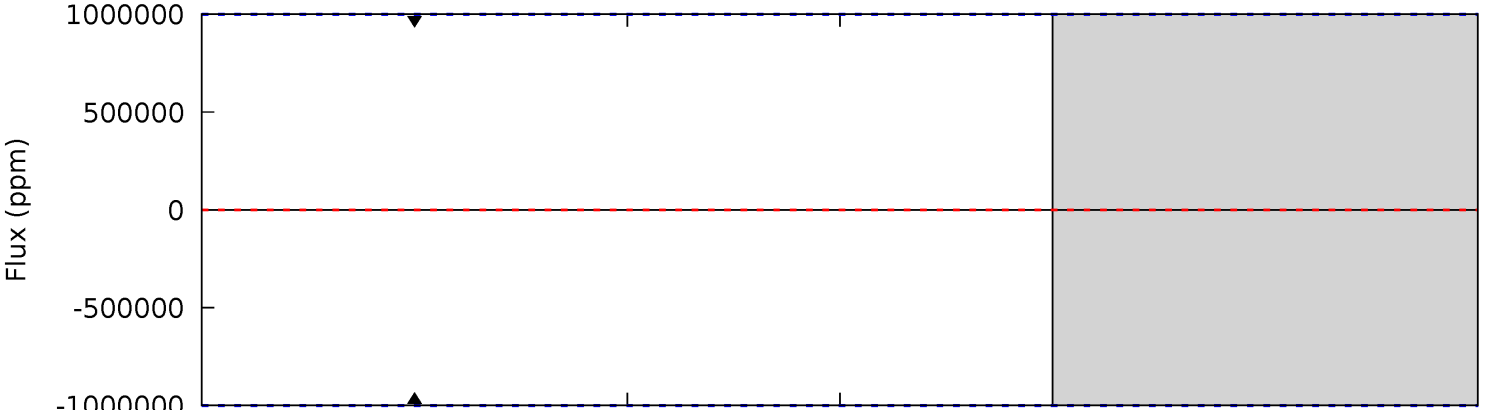
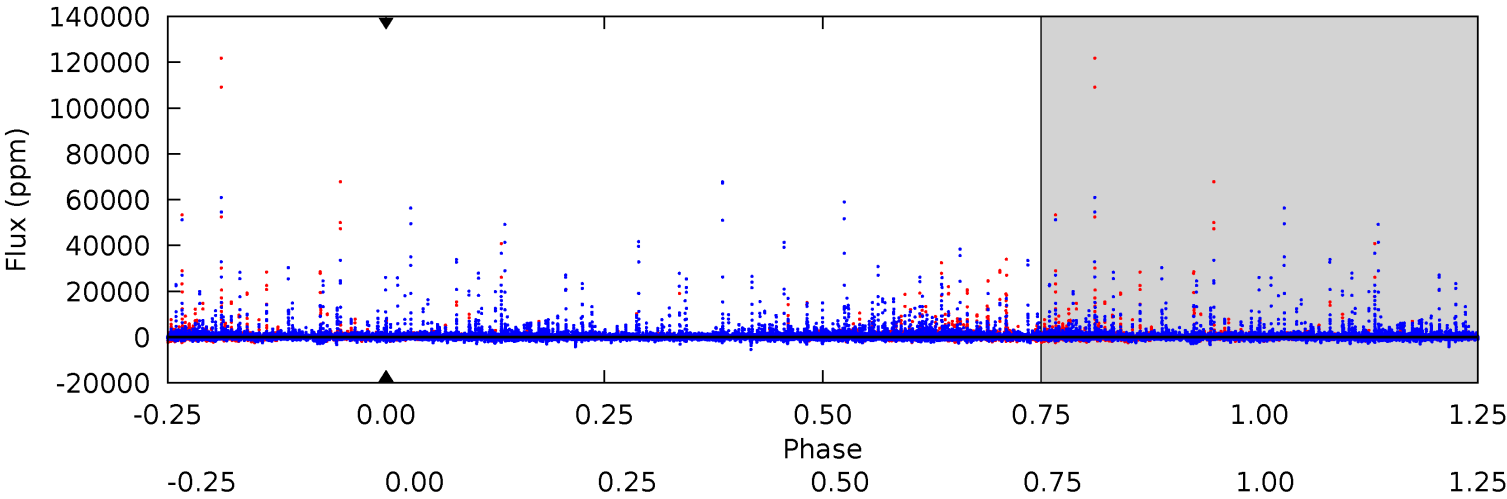
TCE 003832966-06     $P=387.352186$  Days     $T_0=357.091241$  (BKJD)



# DV Model-Shift Uniqueness Test

003832966-06, P = 387.352186 Days, E = 357.012356 Days

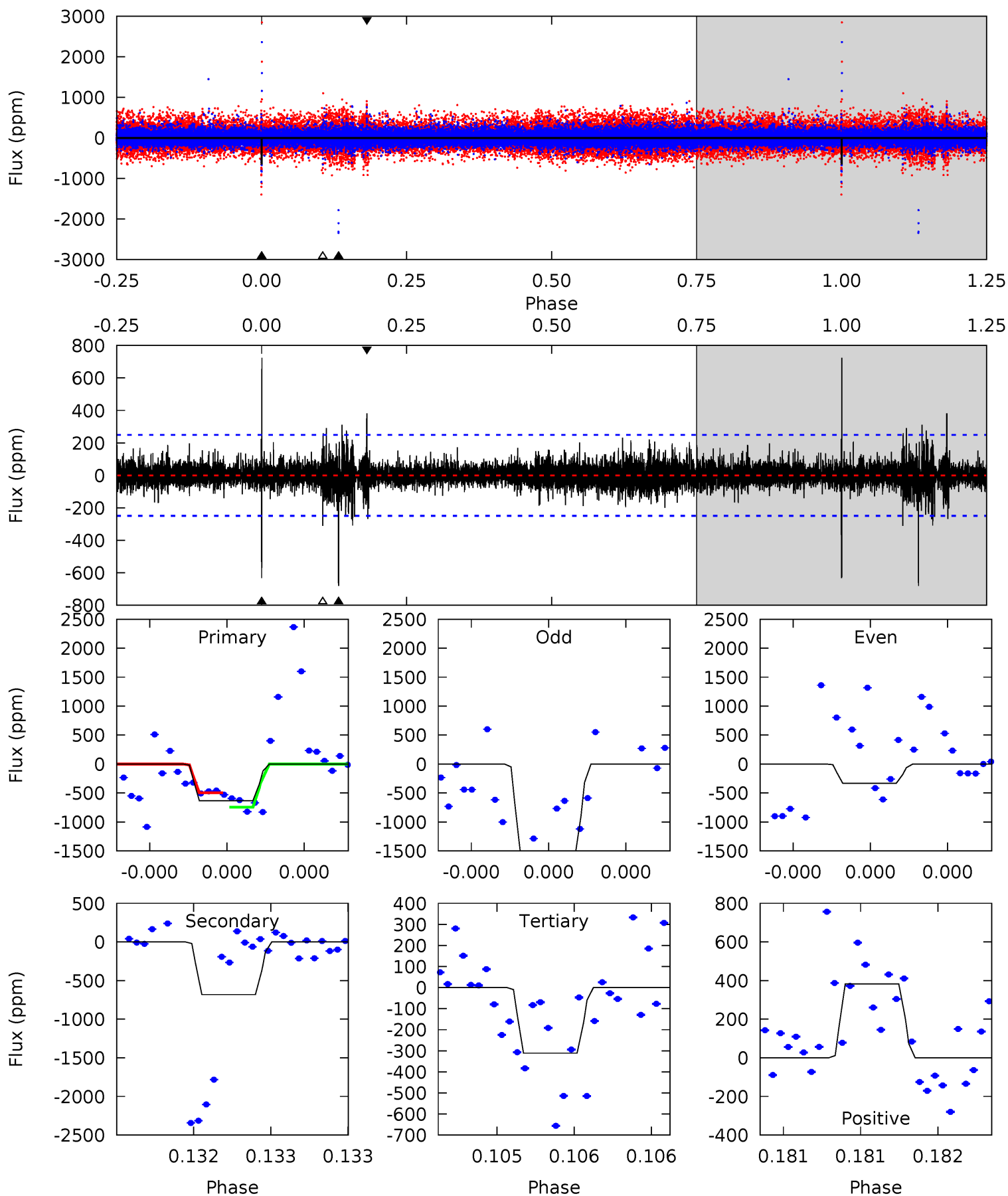
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

003832966-06, P = 387.352186 Days, E = 357.091241 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
14.2	15.3	6.99	8.60	5.61	3.54	1.12	7.23	5.62	8.32	6.71	14.8	1.07	0.51	0





### Stellar Parameters For KIC 003832966

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5340^{+160}_{-144}$	$4.562^{+0.082}_{-0.060}$	$-0.680^{+0.300}_{-0.300}$	$0.713^{+0.075}_{-0.075}$	$0.676^{+0.086}_{-0.029}$	$2.630^{+0.978}_{-0.554}$
	+3%/-3%	+2%/-1%	+44%/-44%	+11%/-11%	+13%/-4%	+37%/-21%
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 003832966-06 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$5.92^{+5.70}_{-3.97}$	$290^{+11}_{-11}$	$-3050^{+21189}_{-12367}$	$-3323.051^{+2703720.819}_{-2169967.446}$
Alt.	$-681 \pm 44$	$6.38^{+5.91}_{-4.12}$	$291^{+12}_{-12}$	$3489^{+1720}_{-625}$	$7861^{+56687}_{-5786}$

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

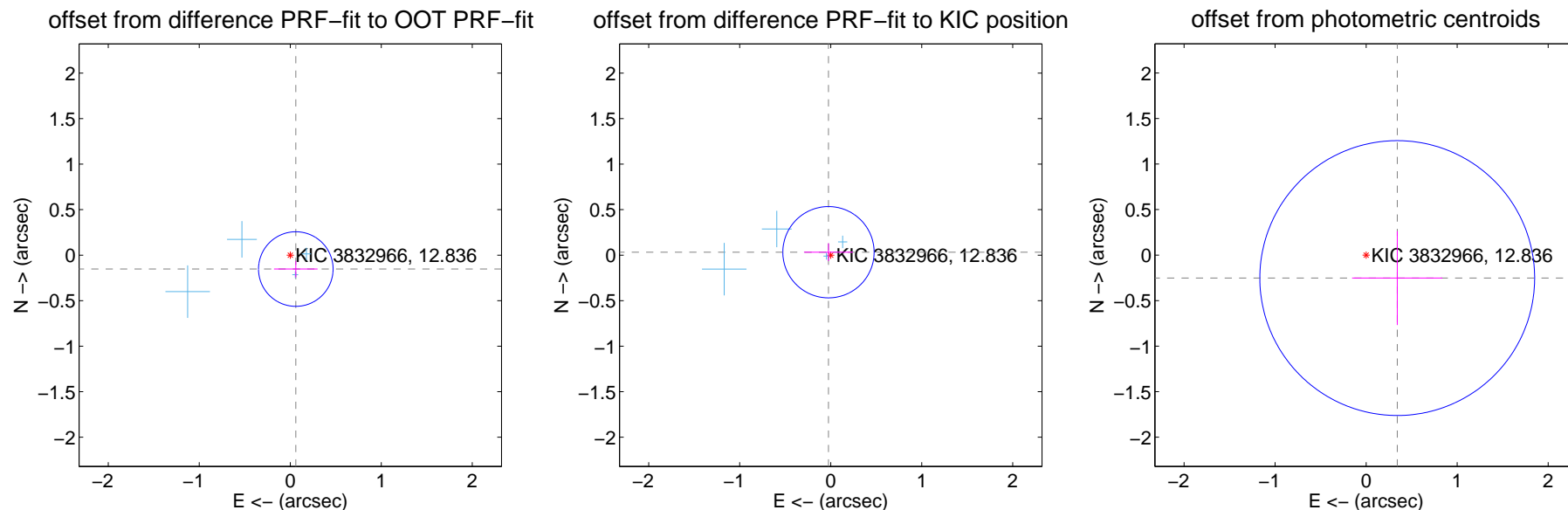
## DV Centroid Data

Supplemental centroid analysis for 003832966-06. Kepler magnitude: 12.84. Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

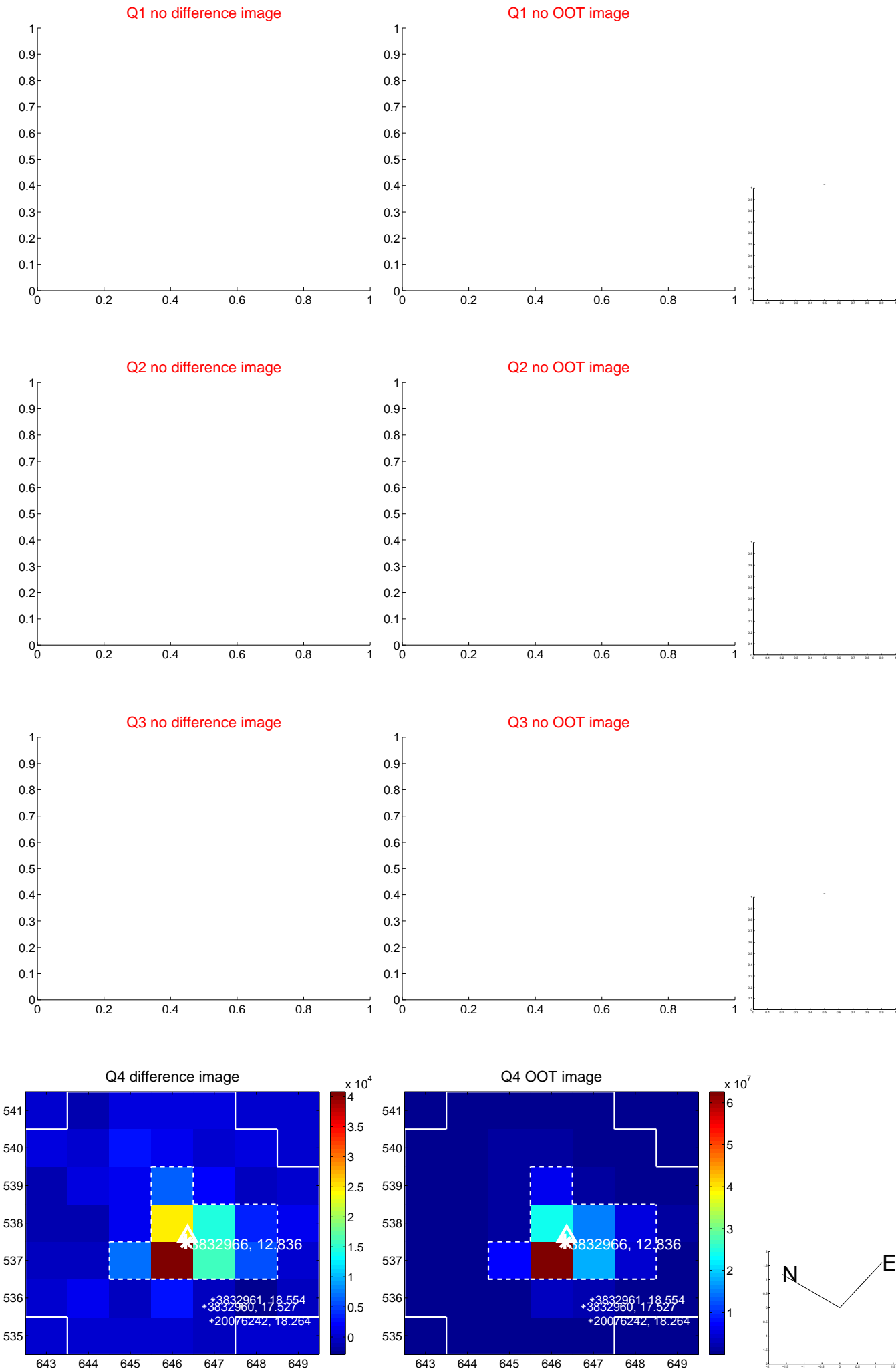
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.164 \pm 0.137$	1.20	$-0.061 \pm 0.240$	$-0.153 \pm 0.091$
PRF-fit source offset from KIC position	$0.041 \pm 0.167$	0.24	$0.025 \pm 0.269$	$0.032 \pm 0.098$
photometric centroid source offset	$0.42 \pm 0.50$	0.84	$-0.34 \pm 0.50$	$-0.25 \pm 0.52$

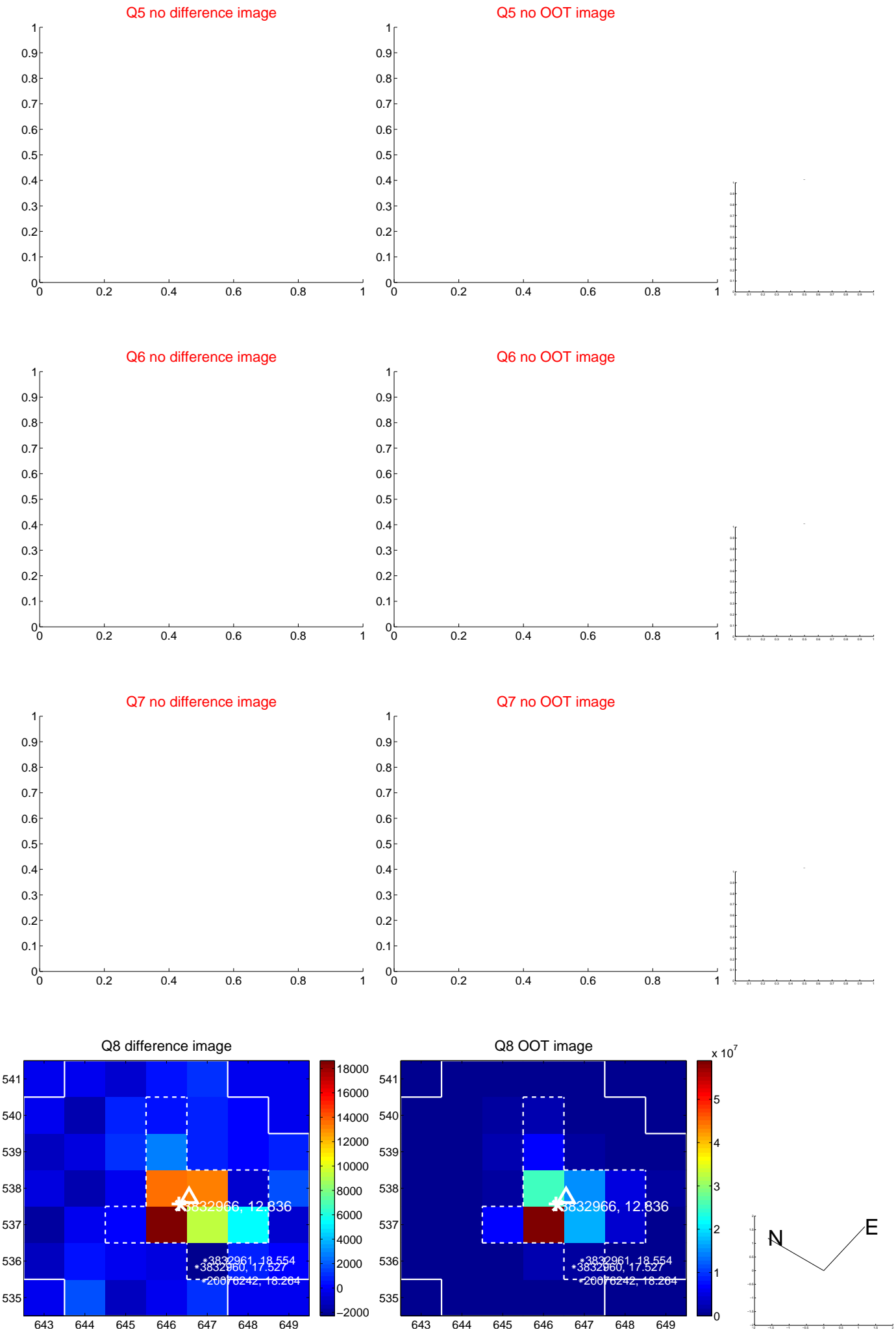


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

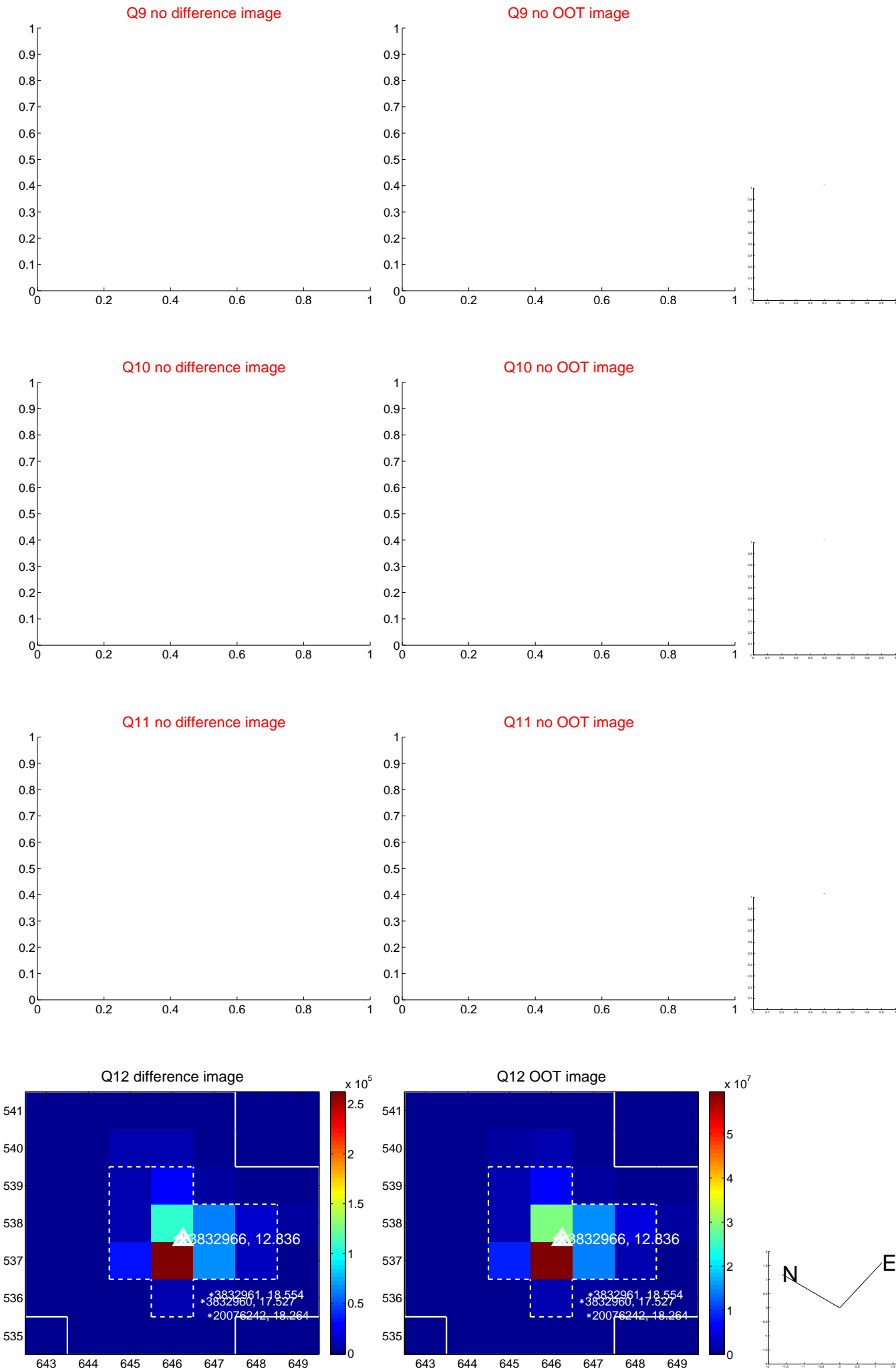
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



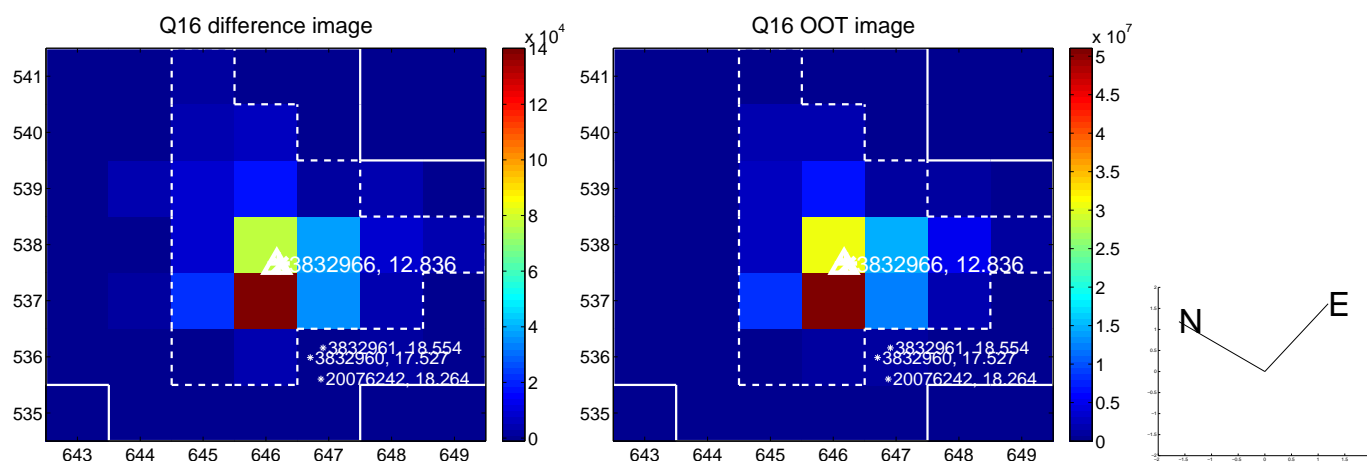
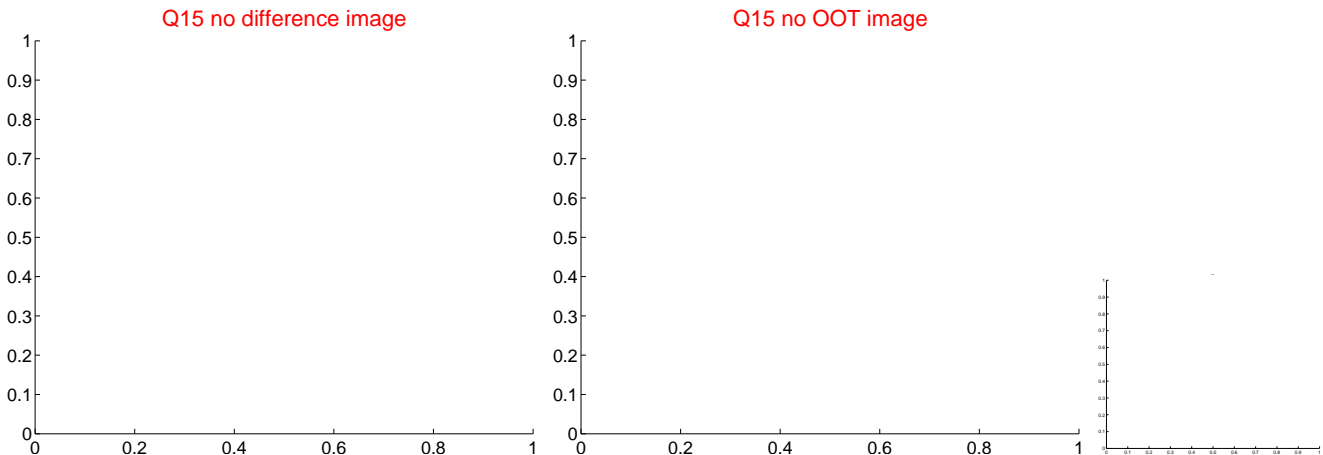
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



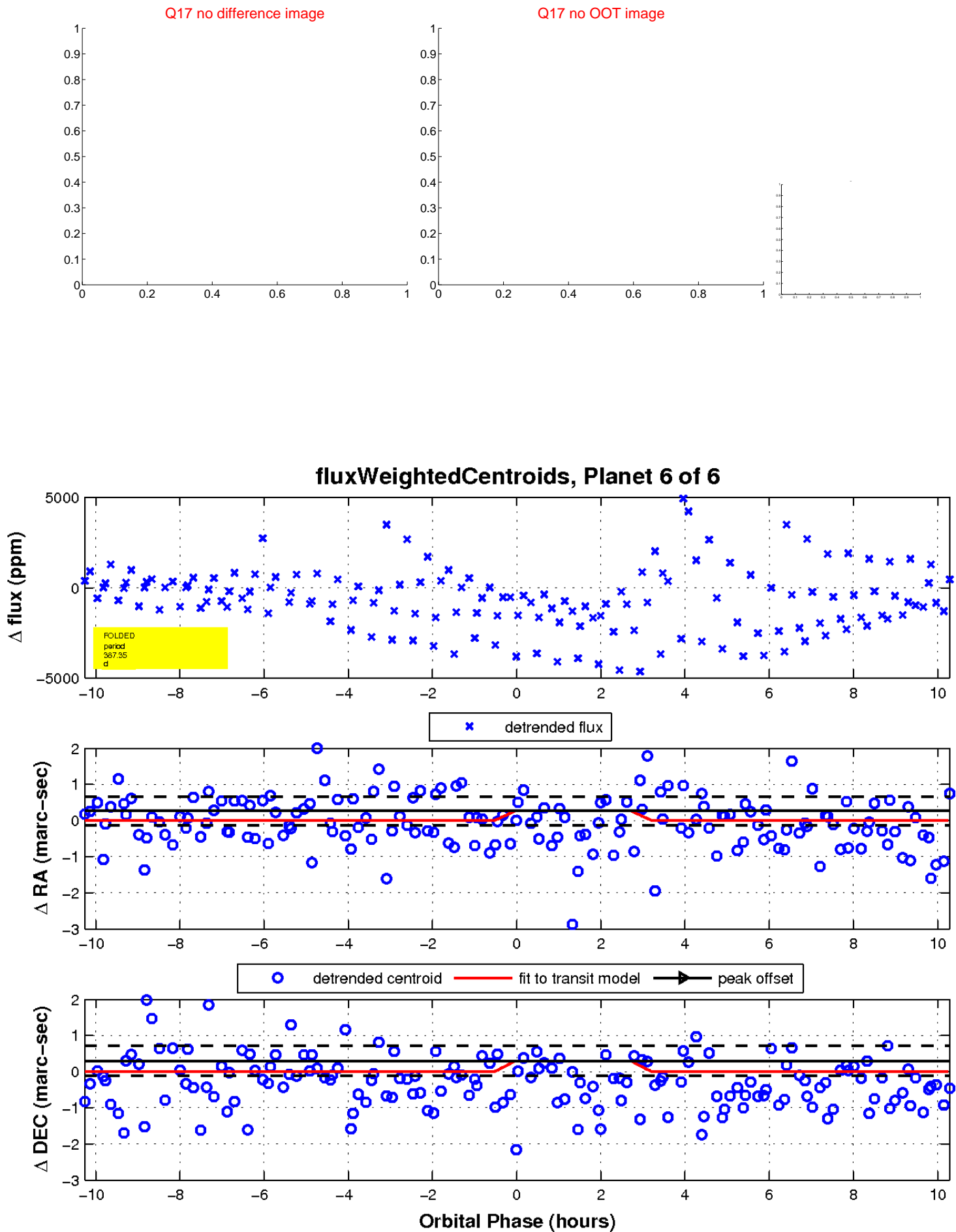
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

