

# KIC 006960592

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006960592-01	OBS	No	296.631480	343.848886	80.5	5.442	8.8	2.4	2.04	7331	2.12	10.10
006960592-02	OBS	No	0.676140	131.529944	226.9	2.000	8.1	-1.0	2.04	7331	3.12	33681.71
006960592-03	OBS	No	301.855610	344.655316	549.3	7.590	17.5	11.3	2.04	7331	9.02	9.87
006960592-04	OBS	No	204.312868	232.296791	212.5	6.592	8.9	6.1	2.04	7331	3.46	16.61
006960592-05	OBS	No	350.468830	340.266178	274.3	3.758	7.7	7.6	2.04	7331	3.91	8.09

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006960592-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006960592-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS
006960592-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
006960592-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006960592-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—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.

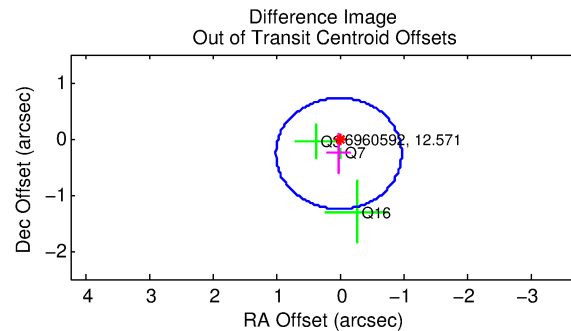
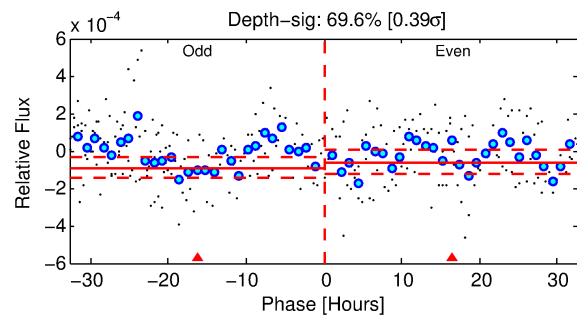
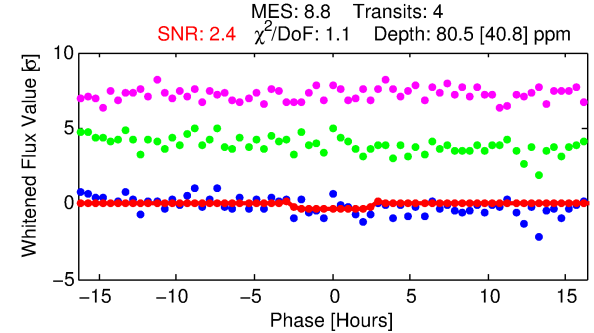
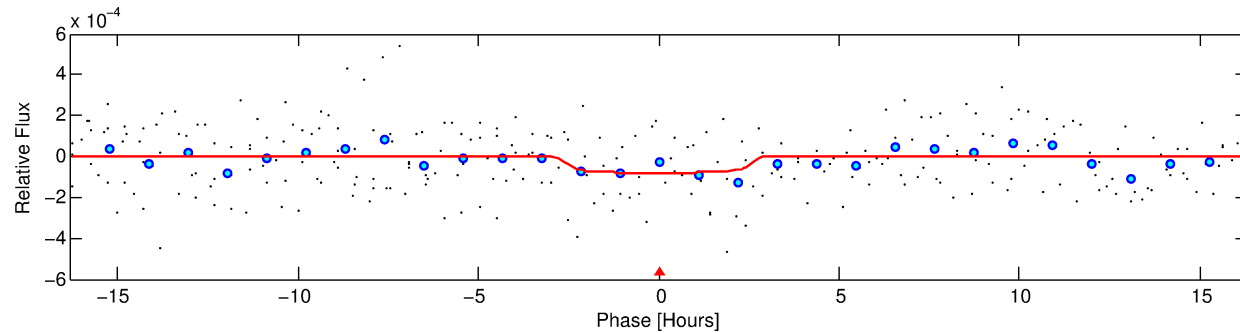
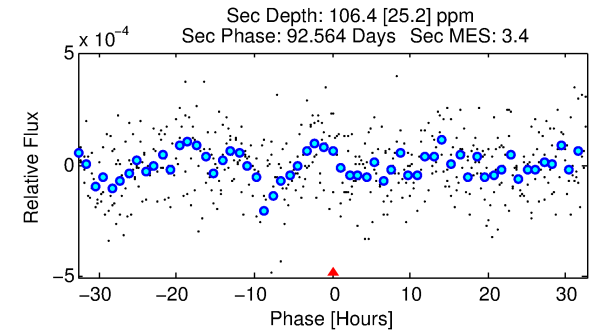
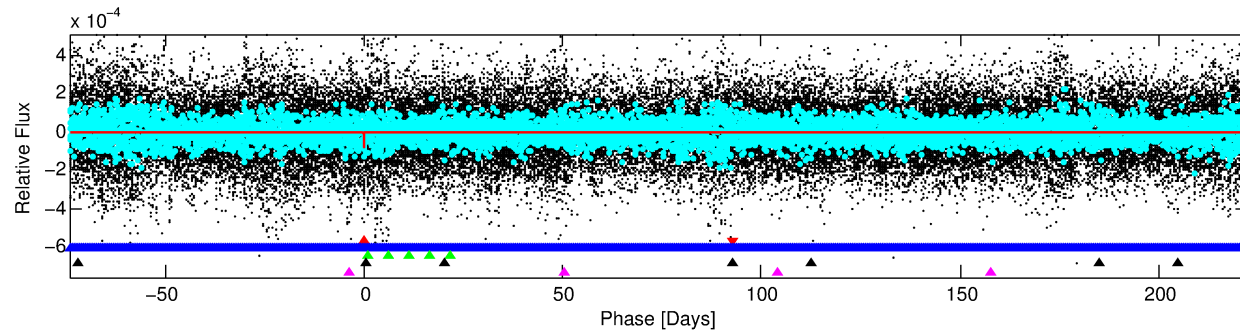
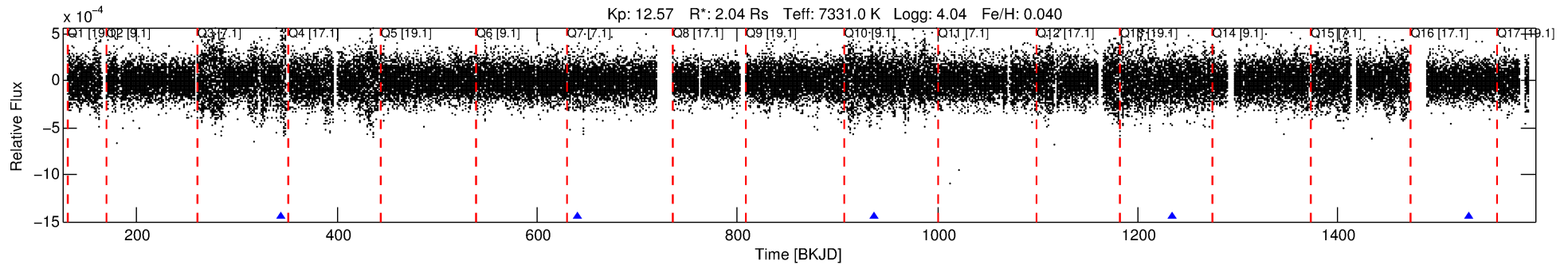
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006960592-01

No Significant Match Found

# DV One-Page Summary

KIC: 6960592 Candidate: 1 of 5 Period: 296.631 d



## DV Fit Results:

Period = 296.63148 [0.01050] d  
Epoch = 343.8489 [0.0300] BKJD  
Rp/R\* = 0.0095 [0.0080]  
a/R\* = 191.59 [946.72]  
b = 0.90 [1.07]  
Seff = 10.10 [3.65]  
Teff = 455 [41] K  
Rp = 2.12 [1.86] Re  
a = 1.0329 [0.2245] AU  
Ag = 13909.71 [23954.99] [0.58 $\sigma$ ]  
Teffp = 7633 [3250] K [2.21 $\sigma$ ]

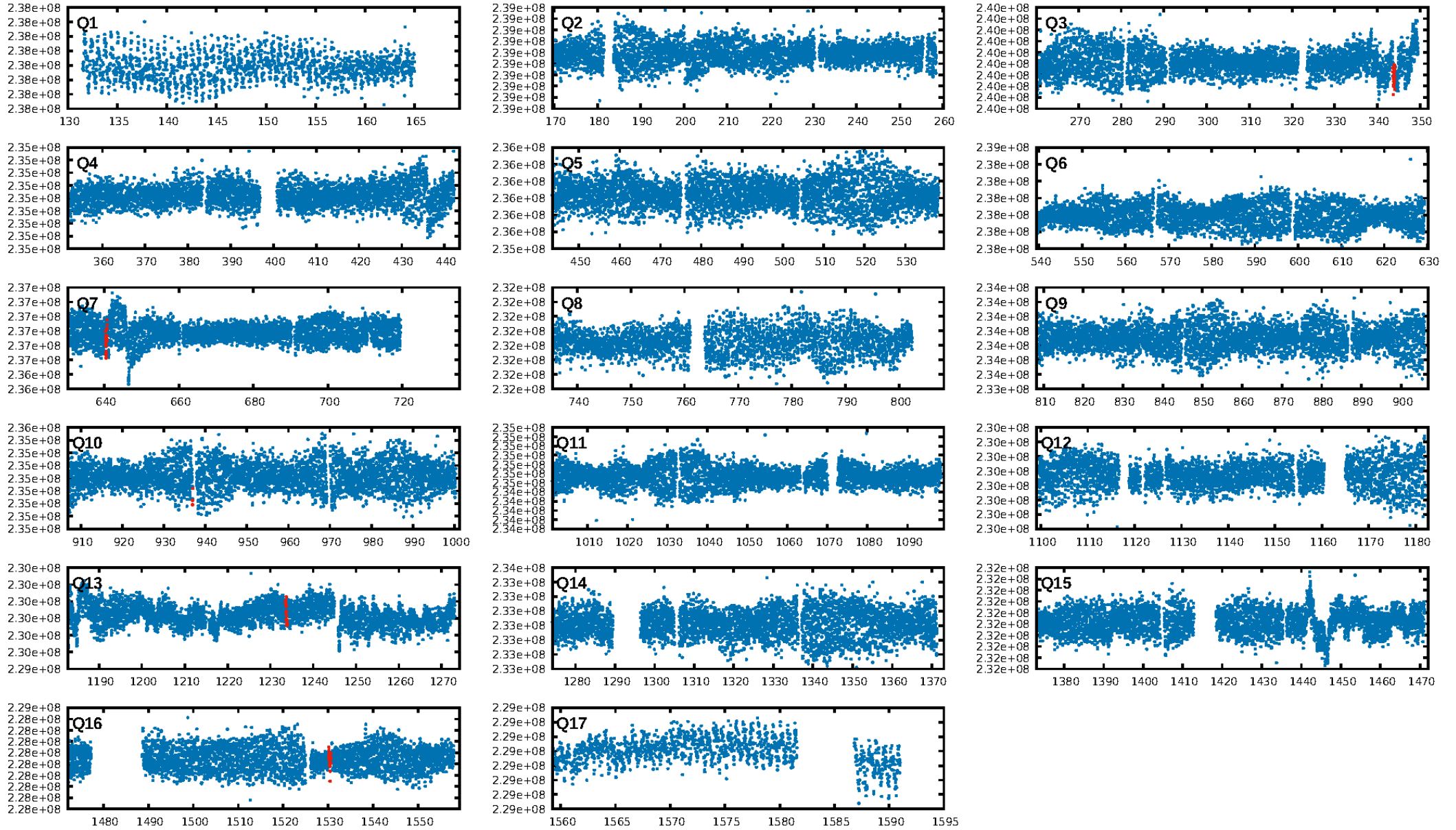
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [259.20 $\sigma$ ]  
LongPeriod-sig: 100.0% [13.42 $\sigma$ ]  
ModelChiSquare2-sig: 13.8%  
ModelChiSquareGof-sig: 85.8%  
**Bootstrap-pfa: 2.78e-10**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 1.226  
Centroid-sig: 31.7%  
Centroid-so: 1.893 arcsec [0.80 $\sigma$ ]  
OotOffset-rm: 0.268 arcsec [0.81 $\sigma$ ]  
OotOffset-st: 0.2/1/0 [3]  
KicOffset-rm: 0.236 arcsec [0.86 $\sigma$ ]  
KicOffset-st: 0.2/1/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 0.00 [0/4]

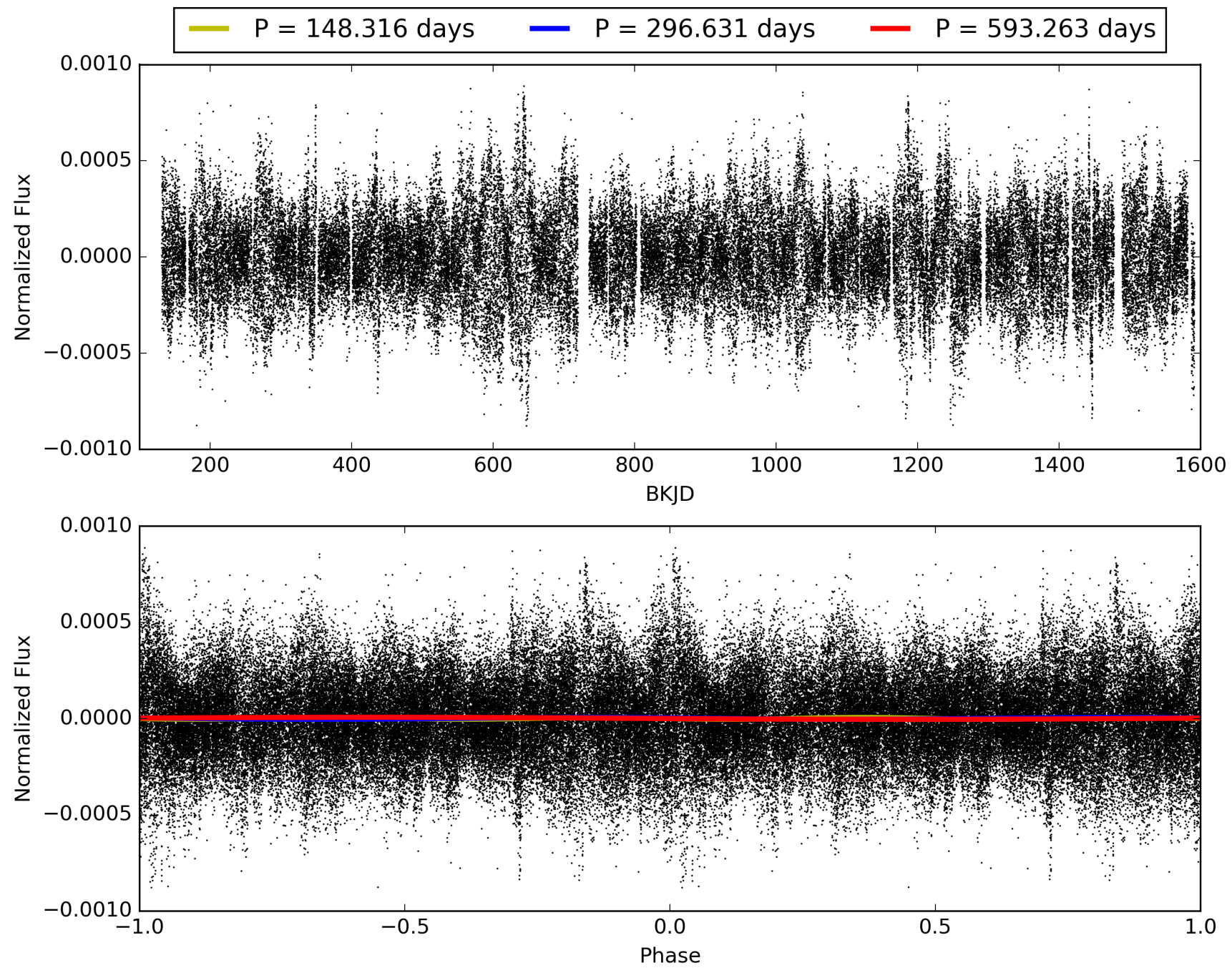
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:23:04 Z

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

# TCE 006960592-01, PDC Light Curves



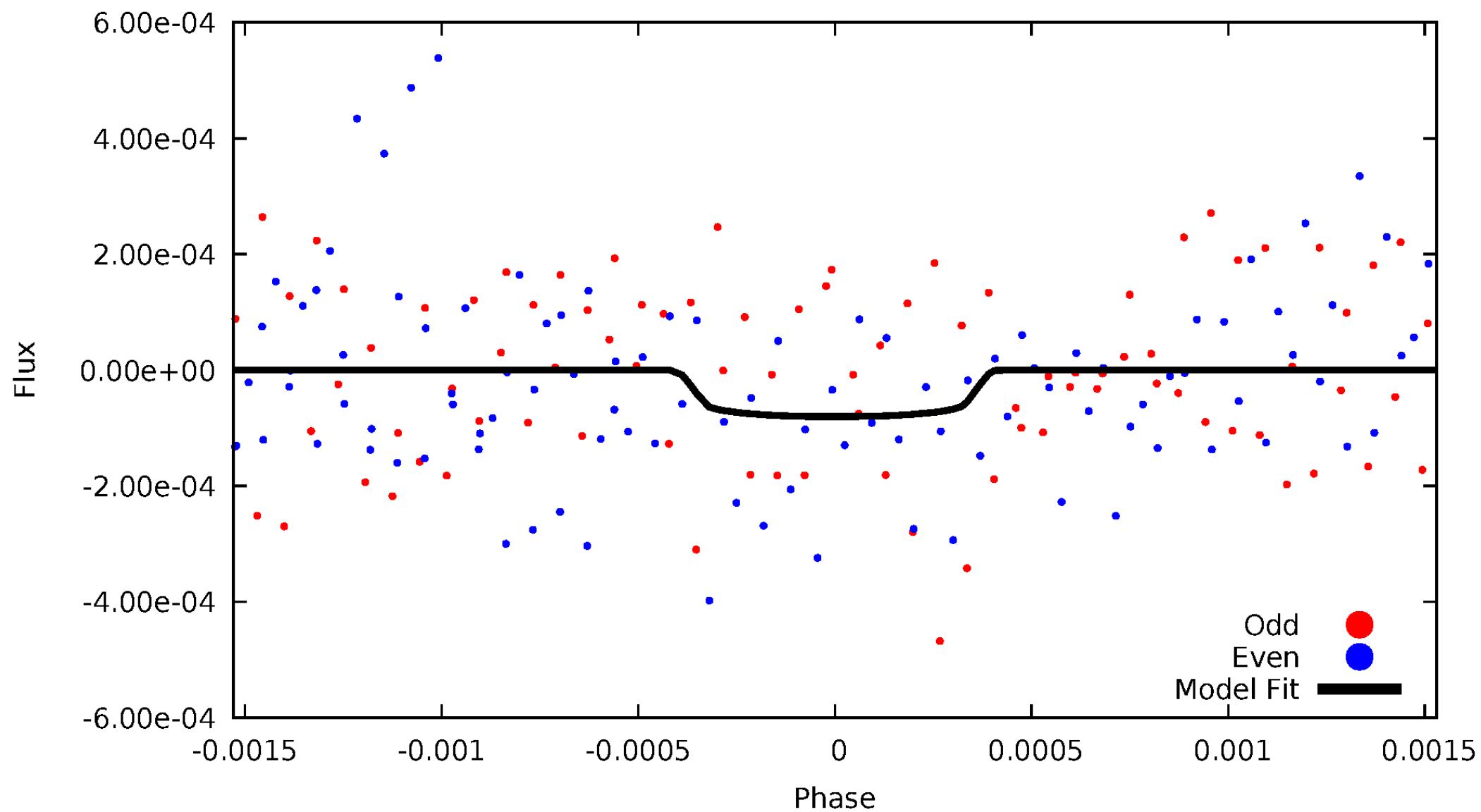
TCE 006960592-01





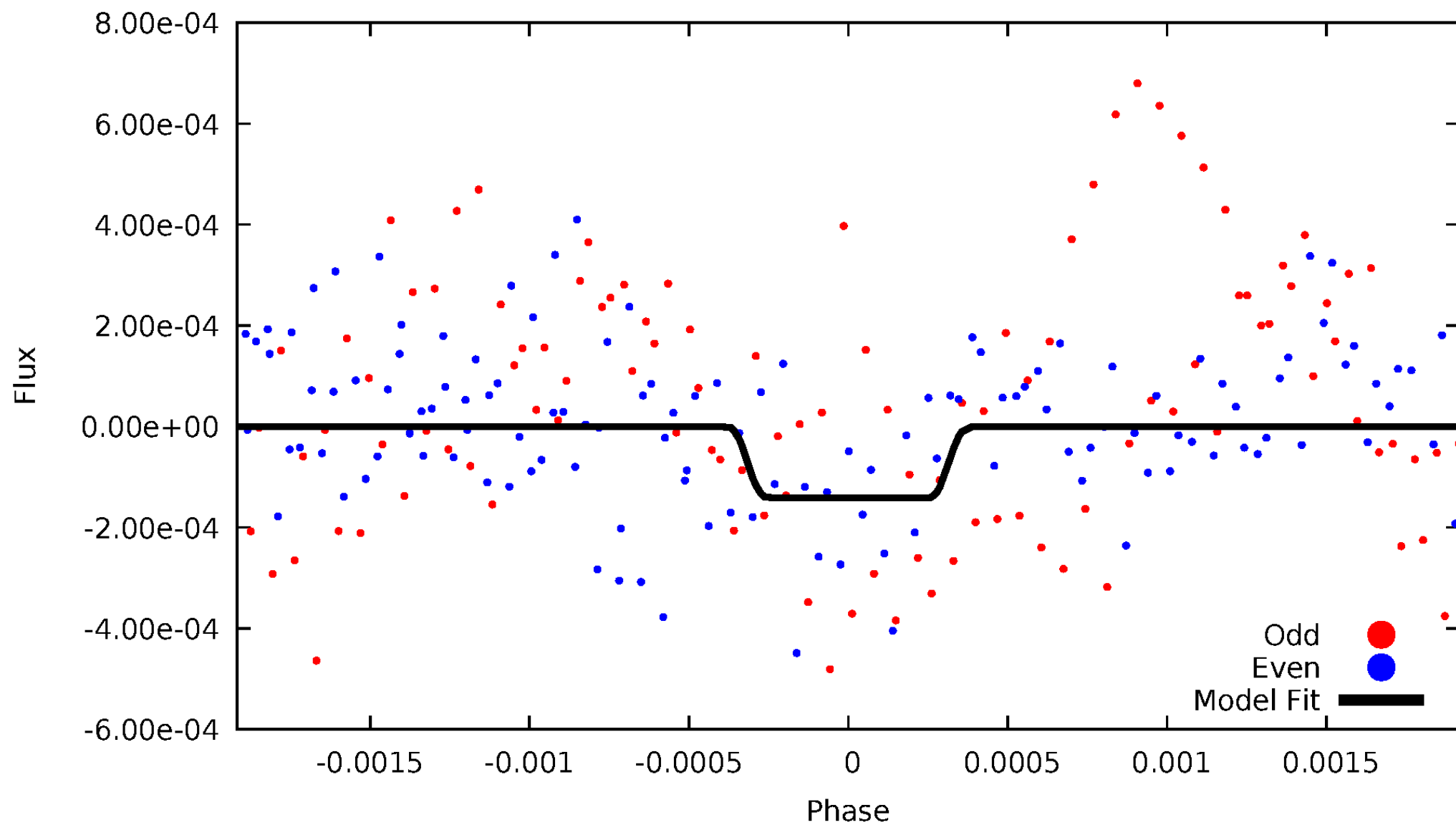
# DV Odd/Even

TCE 006960592-01

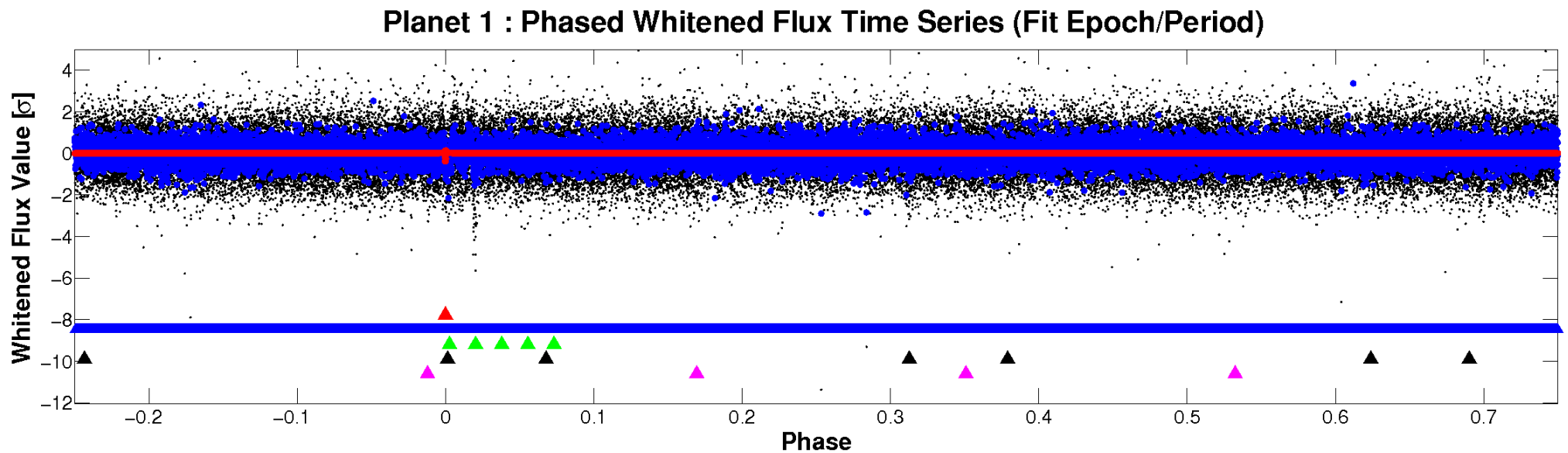
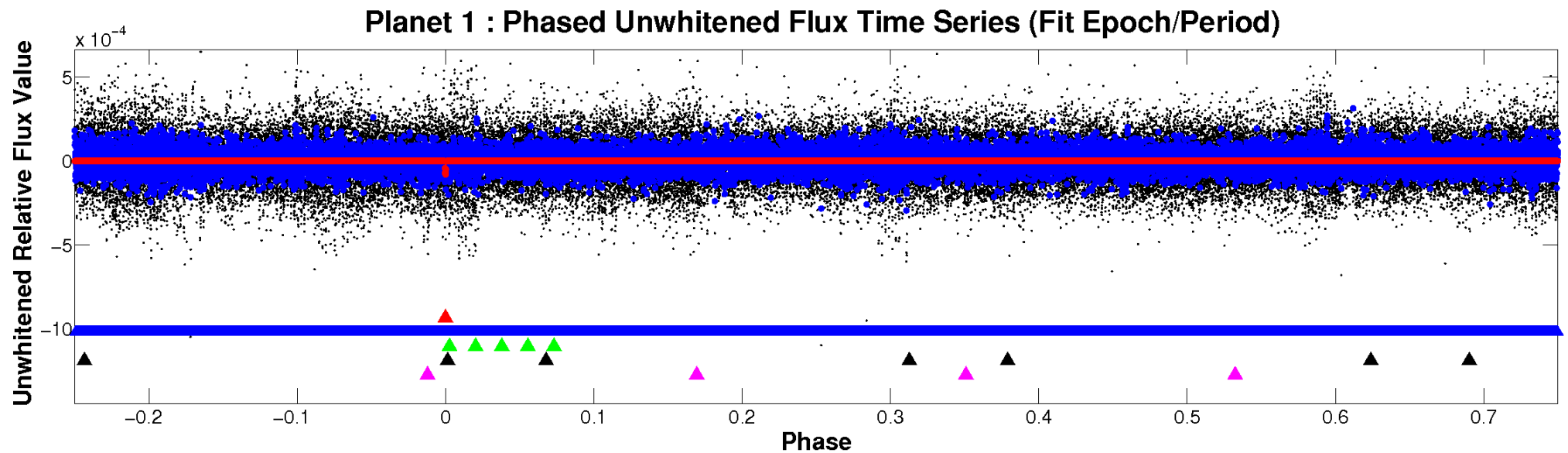


# ALT Odd/Even

TCE 006960592-01

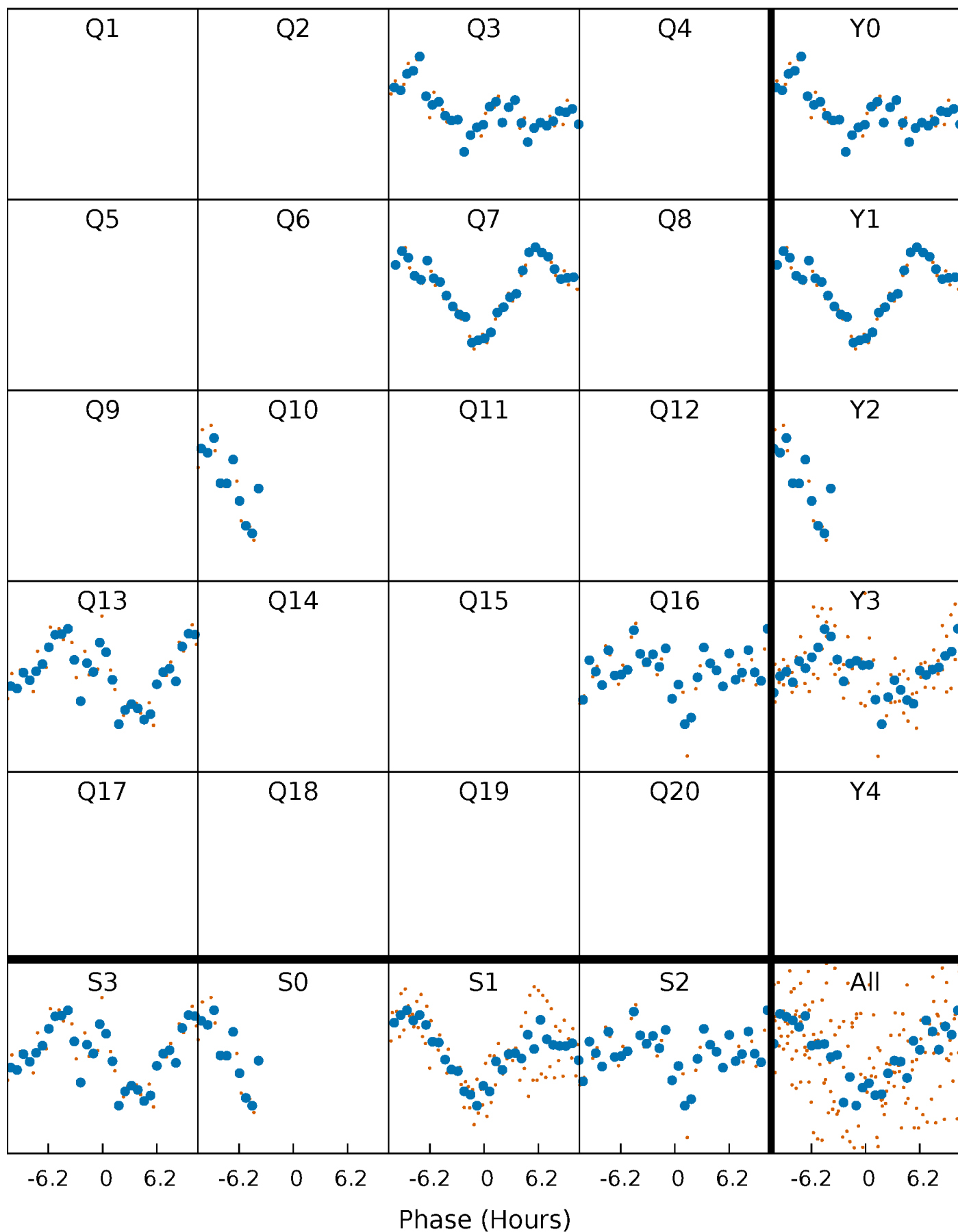


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

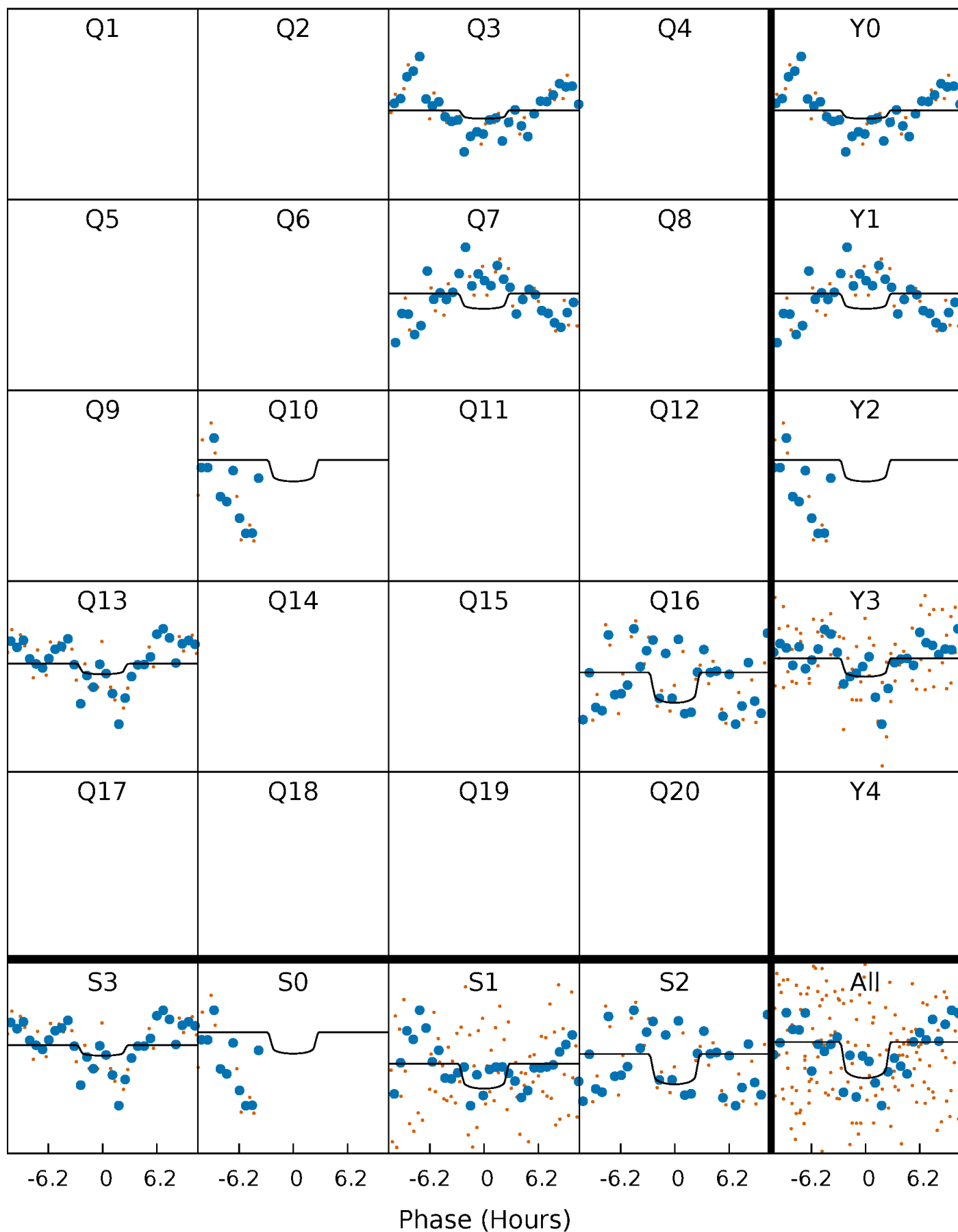
TCE 006960592-01 P=296.631480 Days  $T_0=343.848886$  (BKJD)





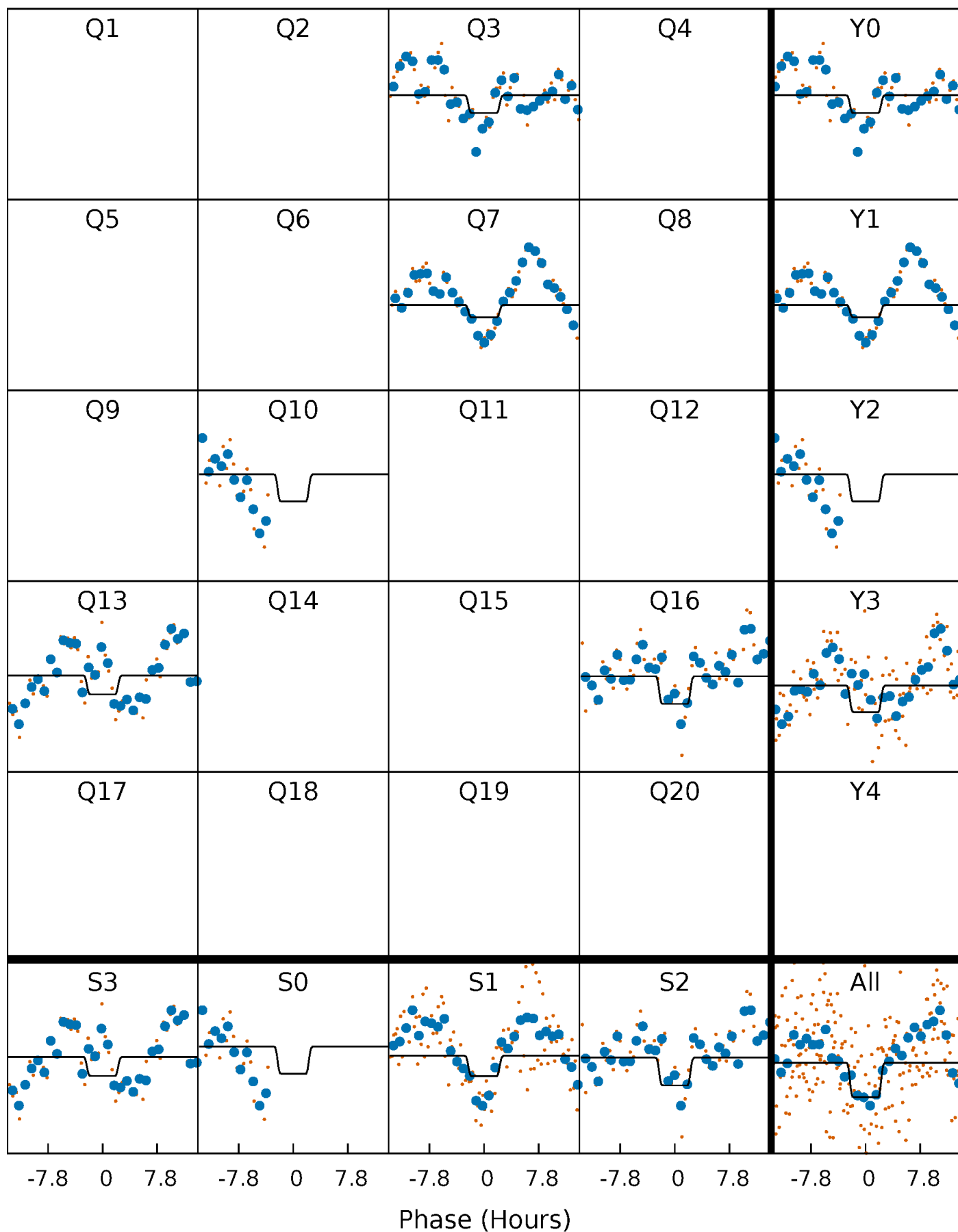
# DV Quarter-Phased Transit Curves

TCE 006960592-01     $P=296.631480$  Days     $T_0=343.848886$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

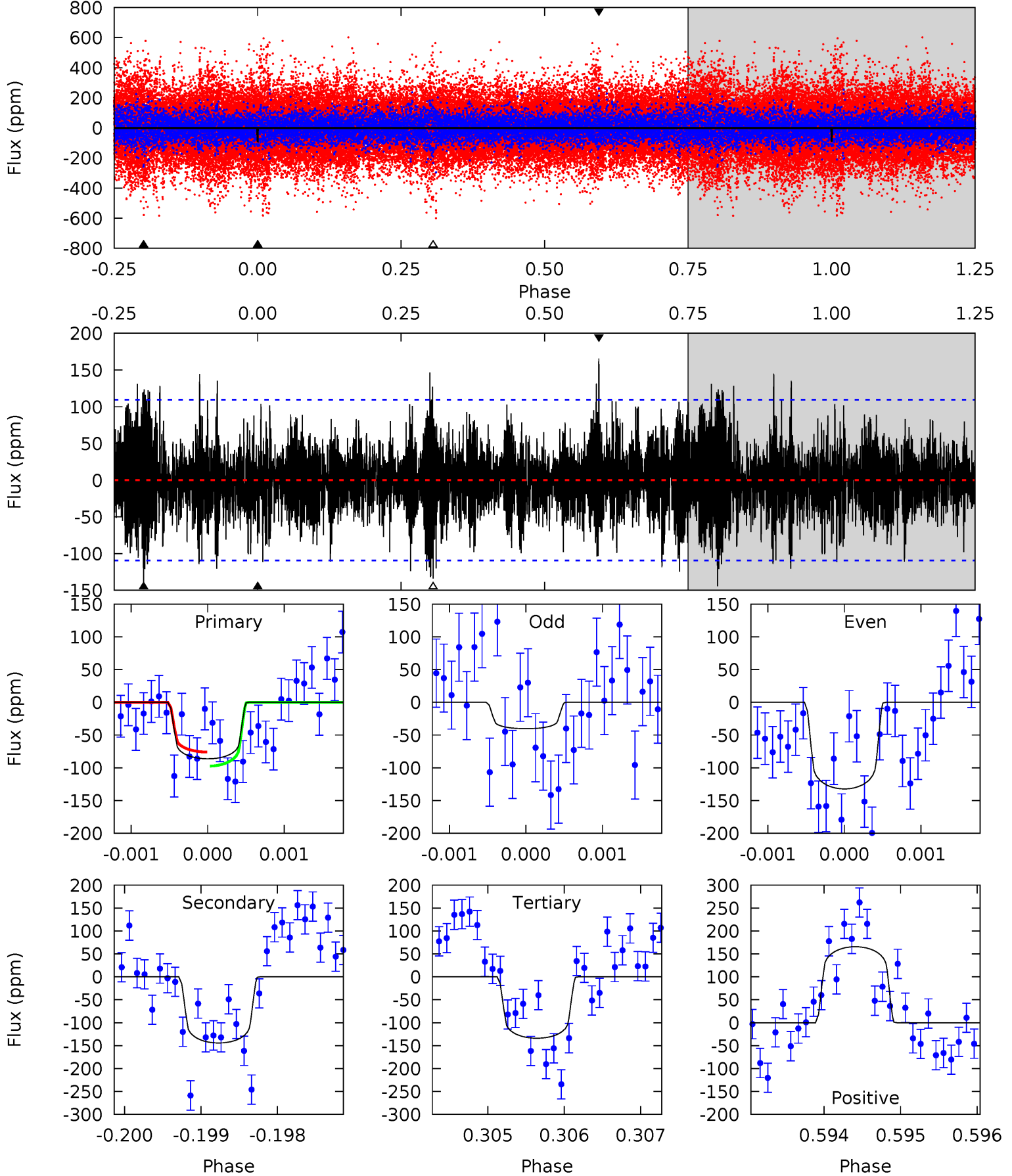
TCE 006960592-01 P=296.647613 Days  $T_0=343.802203$  (BKJD)



# DV Model-Shift Uniqueness Test

006960592-01, P = 296.631480 Days, E = 47.217406 Days

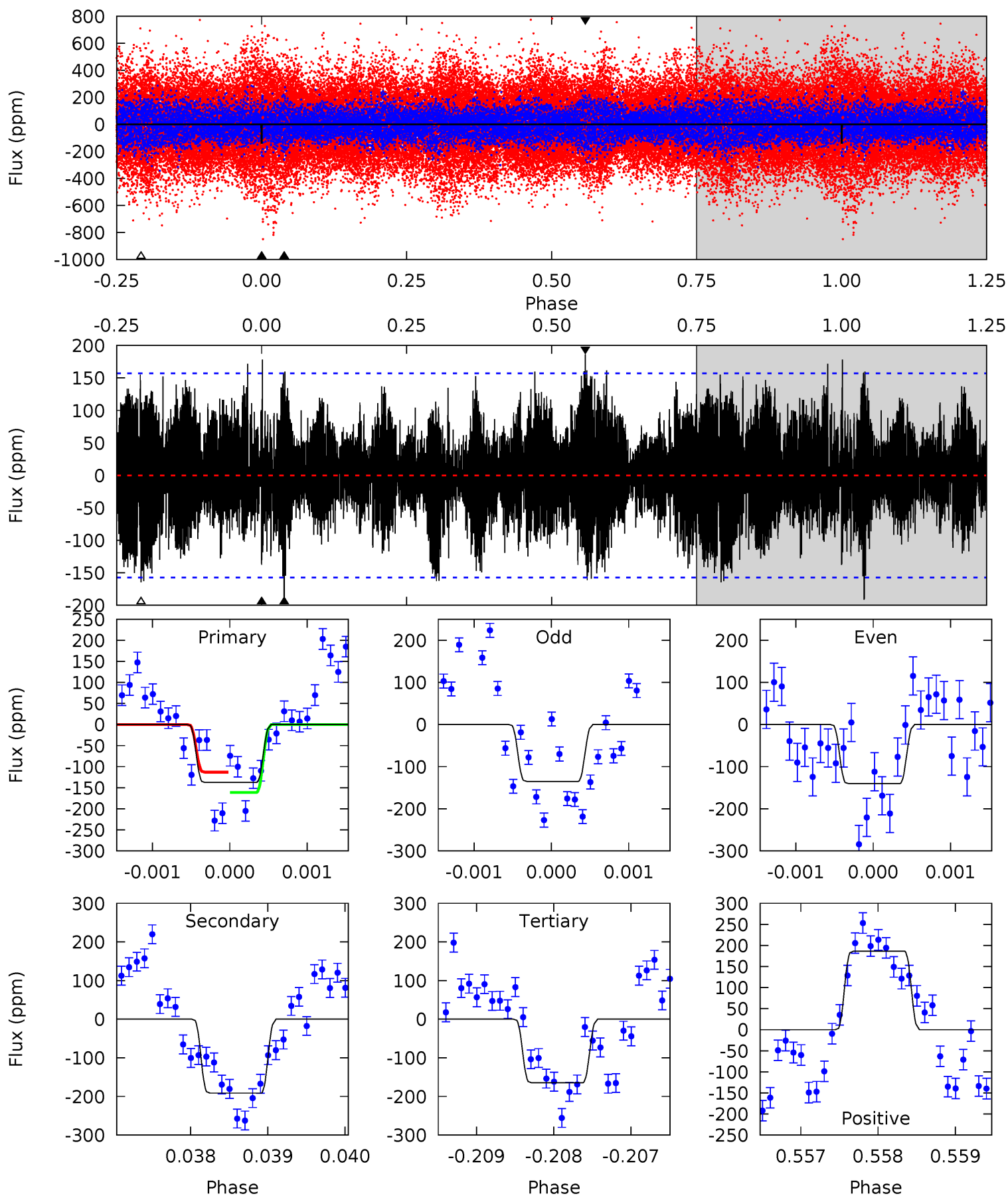
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.33	7.24	6.72	8.31	5.49	3.35	1.98	-2.39	-3.98	0.52	-1.07	2.31	0.74	0.53	0.54



# Alt Model-Shift Uniqueness Test

006960592-01, P = 296.647613 Days, E = 47.154590 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
4.82	6.70	5.77	6.52	5.51	3.38	2.01	-0.94	-1.70	0.93	0.18	0.09	0.98	0.49	0.84





### Stellar Parameters For KIC 006960592

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7331^{+203}_{-330}$	$4.041^{+0.170}_{-0.170}$	$0.040^{+0.200}_{-0.350}$	$2.041^{+0.532}_{-0.478}$	$1.668^{+0.193}_{-0.289}$	$0.276^{+0.260}_{-0.135}$
	+3%/-5%	+4%/-4%	+500%/-875%	+26%/-23%	+12%/-17%	+94%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 006960592-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-144 \pm 20$	$2.43^{+1.78}_{-1.56}$	$632^{+46}_{-43}$	$7720^{+9434}_{-1964}$	$14746^{+100997}_{-10180}$
Alt.	$-191 \pm 29$	$2.77^{+1.69}_{-1.42}$	$630^{+46}_{-43}$	$7603^{+4892}_{-1634}$	$14199^{+48757}_{-8735}$

$T_{max}$  = 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

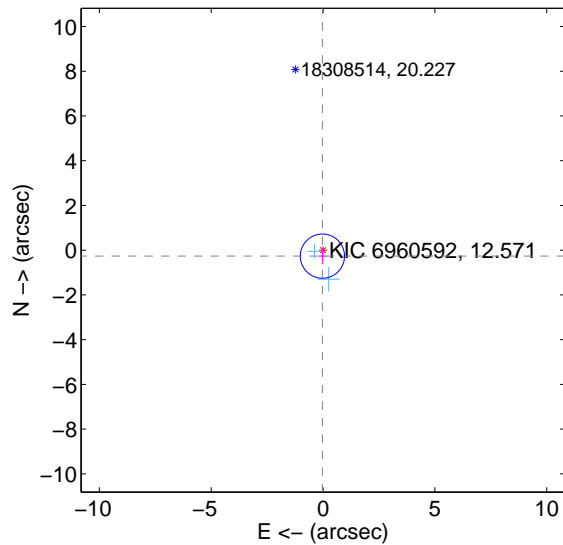
Supplemental centroid analysis for 006960592-01. Kepler magnitude: 12.57. Transit SNR 2.37

There are 3 quarters with good PRF difference image offsets

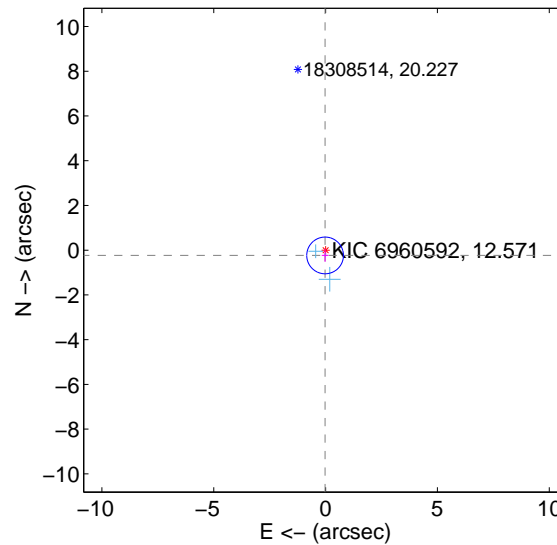
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.268 \pm 0.329$	0.81	$0.028 \pm 0.189$	$-0.266 \pm 0.349$
PRF-fit source offset from KIC position	$0.236 \pm 0.273$	0.86	$0.022 \pm 0.147$	$-0.235 \pm 0.284$
photometric centroid source offset	$1.89 \pm 2.37$	0.80	$-1.21 \pm 2.34$	$1.45 \pm 2.39$

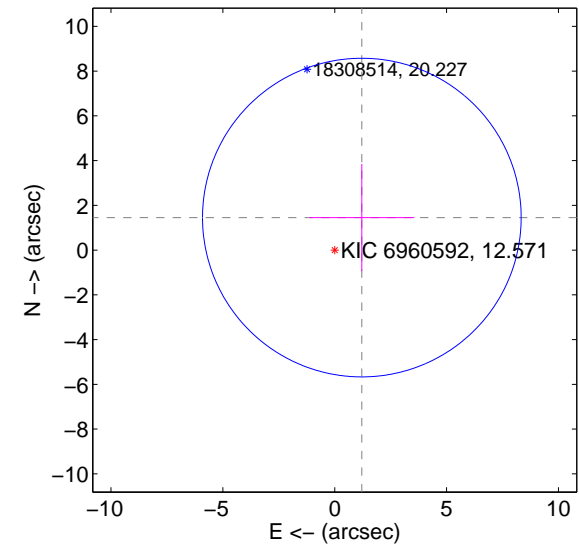
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



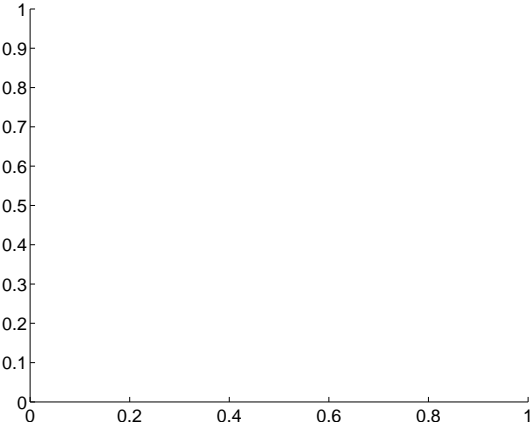
offset from photometric centroids



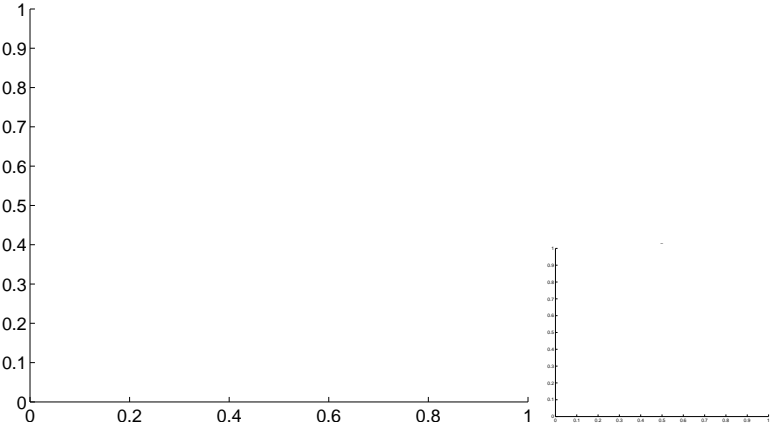
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

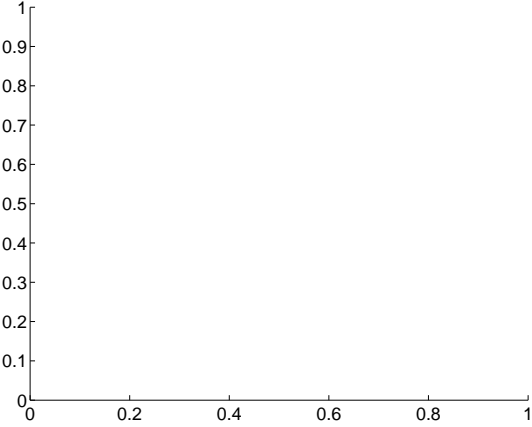
Q1 no difference image



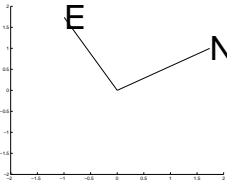
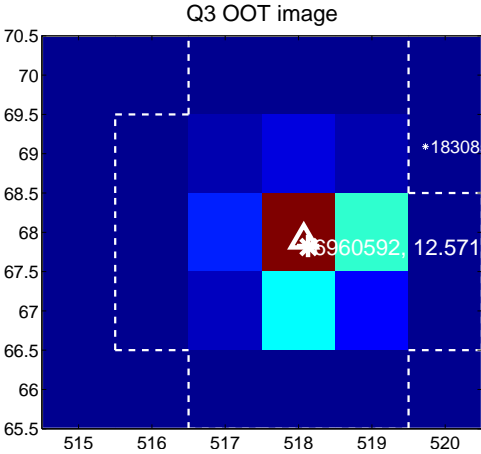
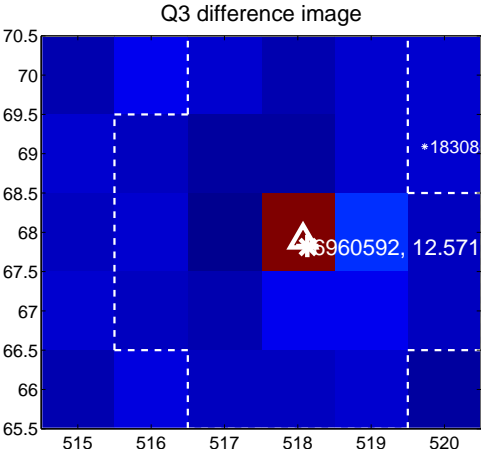
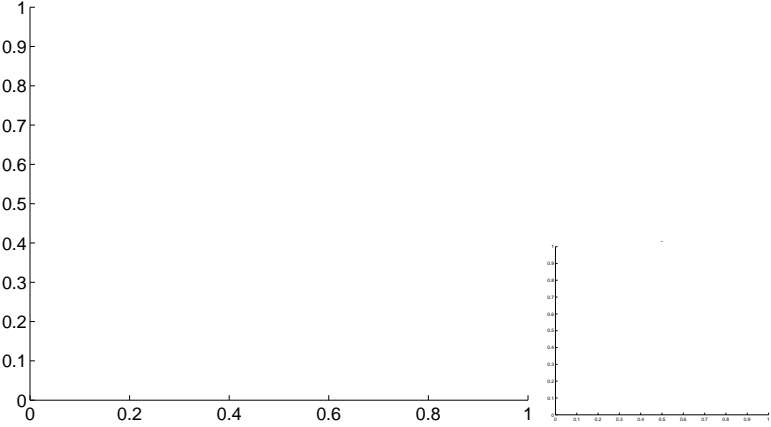
Q1 no OOT image



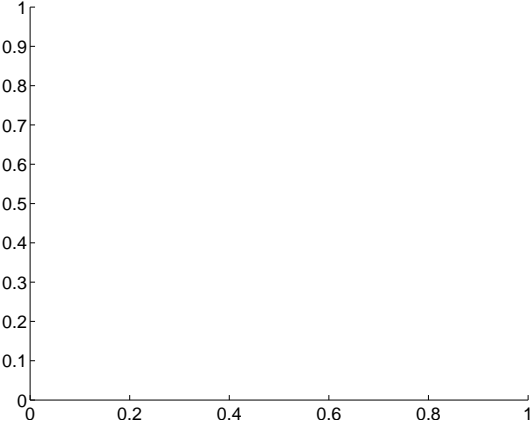
Q2 no difference image



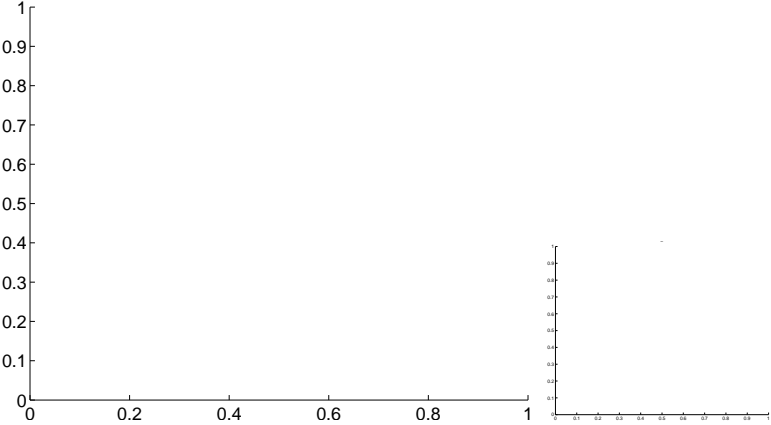
Q2 no OOT image



Q4 no difference image



Q4 no OOT image



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

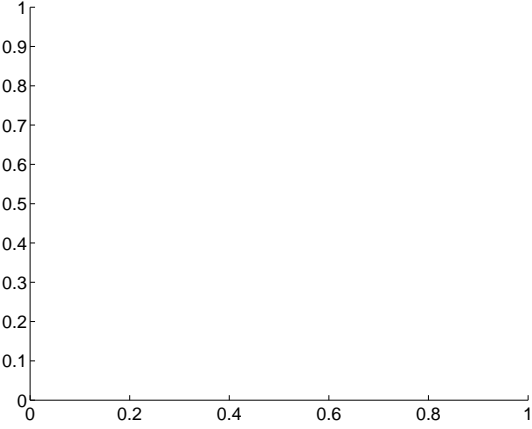
Q5 no difference image



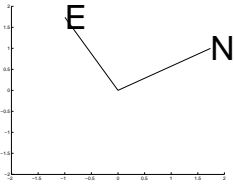
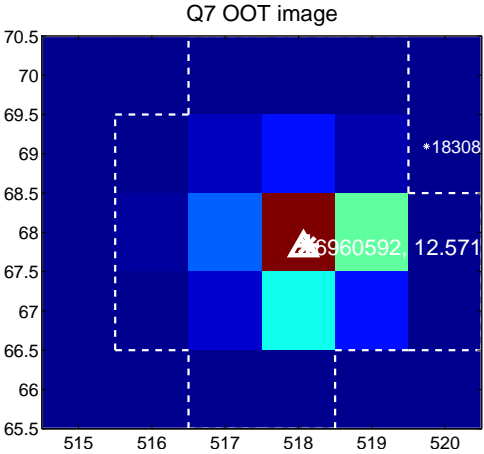
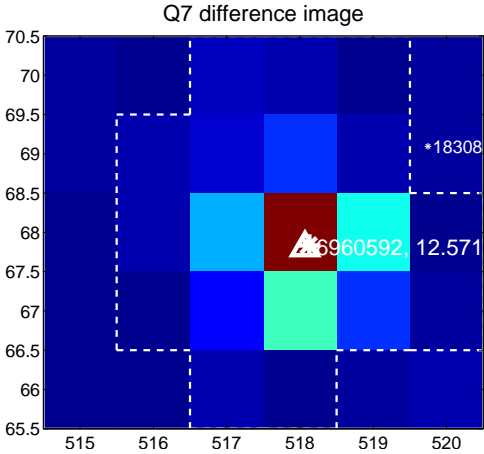
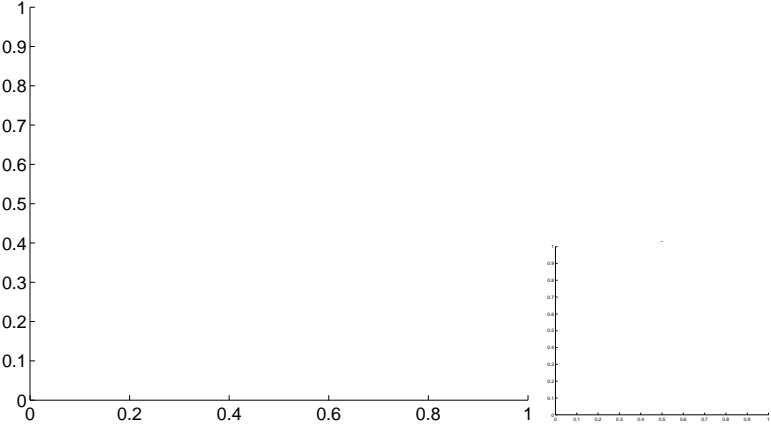
Q5 no OOT image



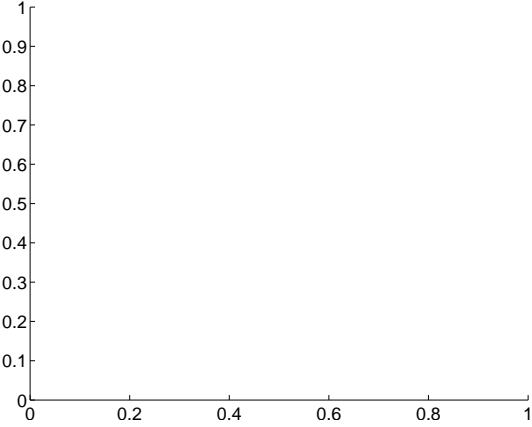
Q6 no difference image



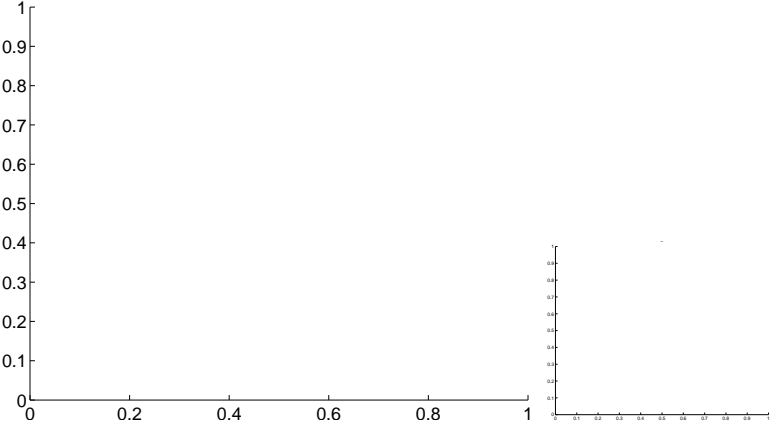
Q6 no OOT image



Q8 no difference image



Q8 no OOT image

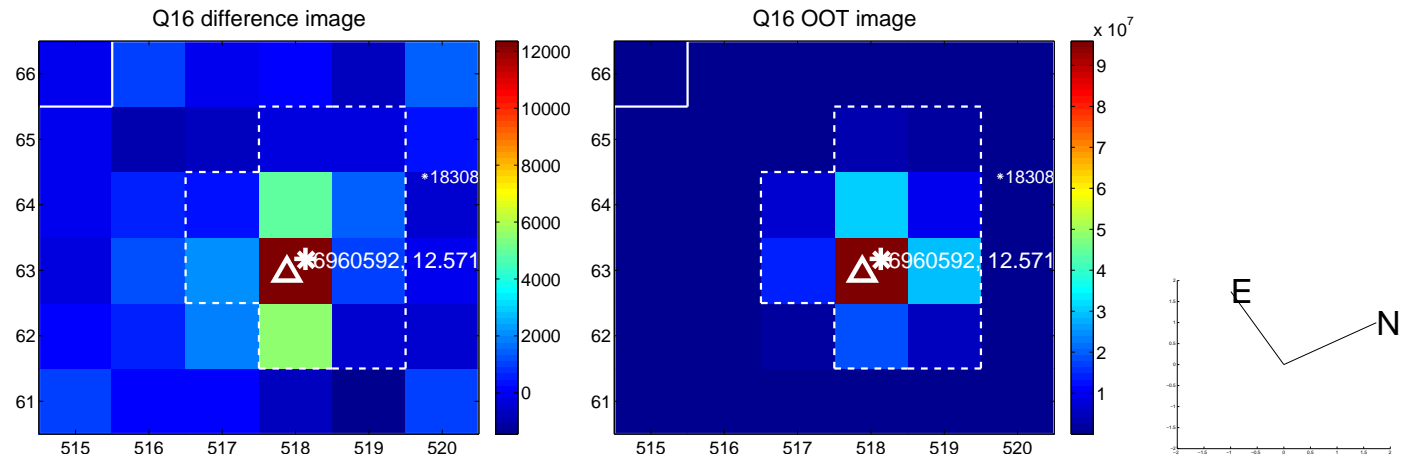
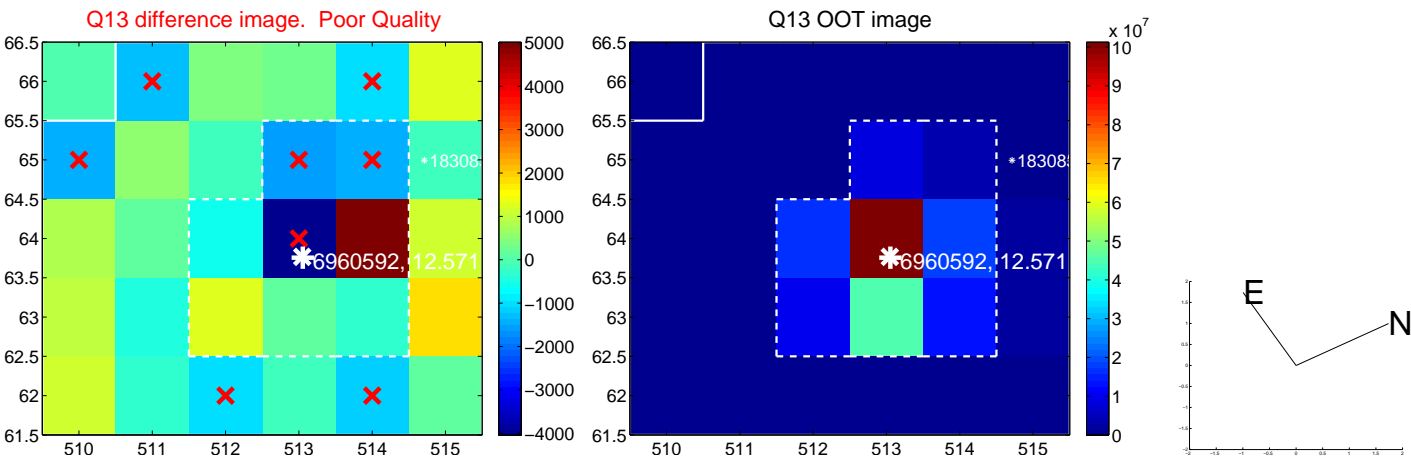




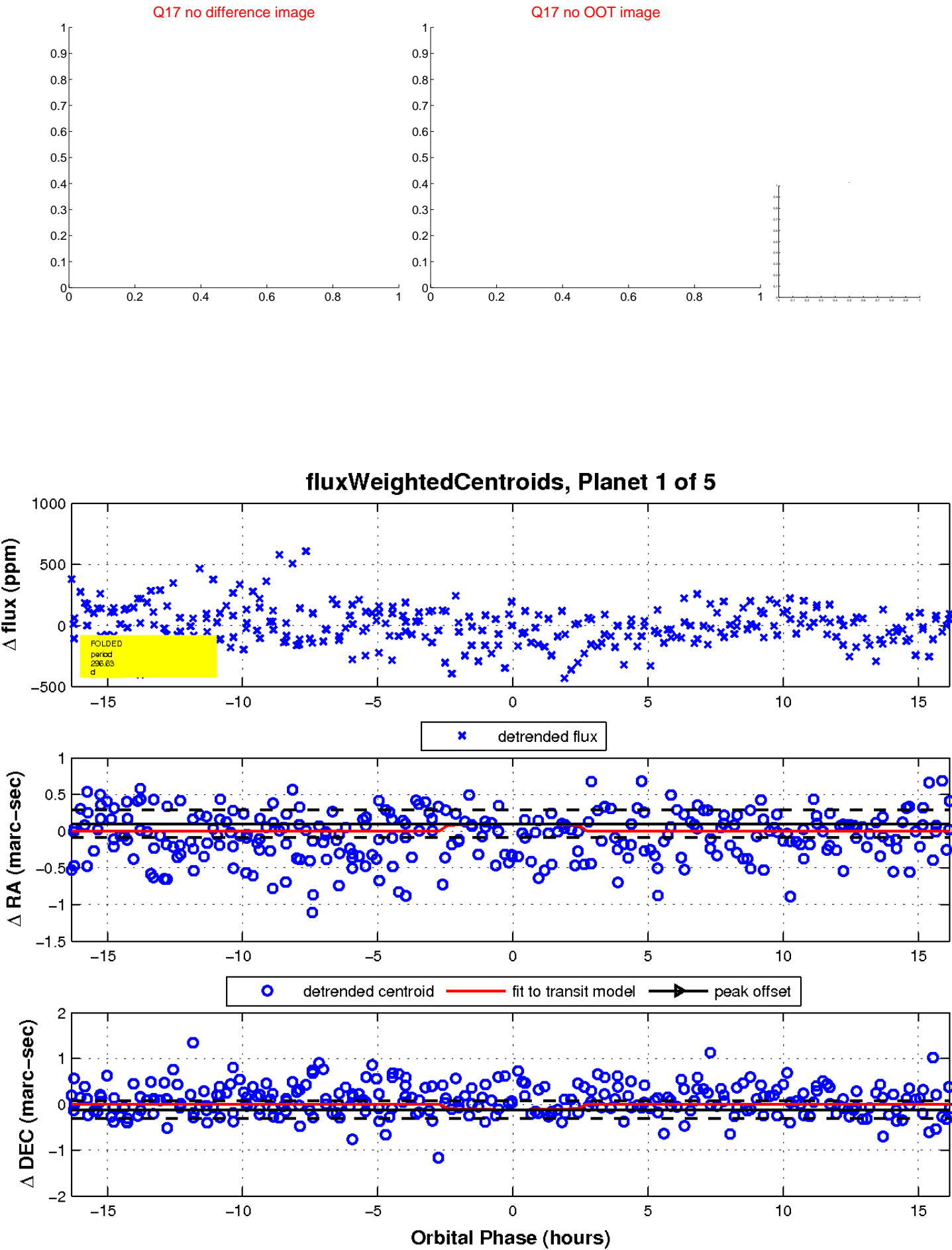
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

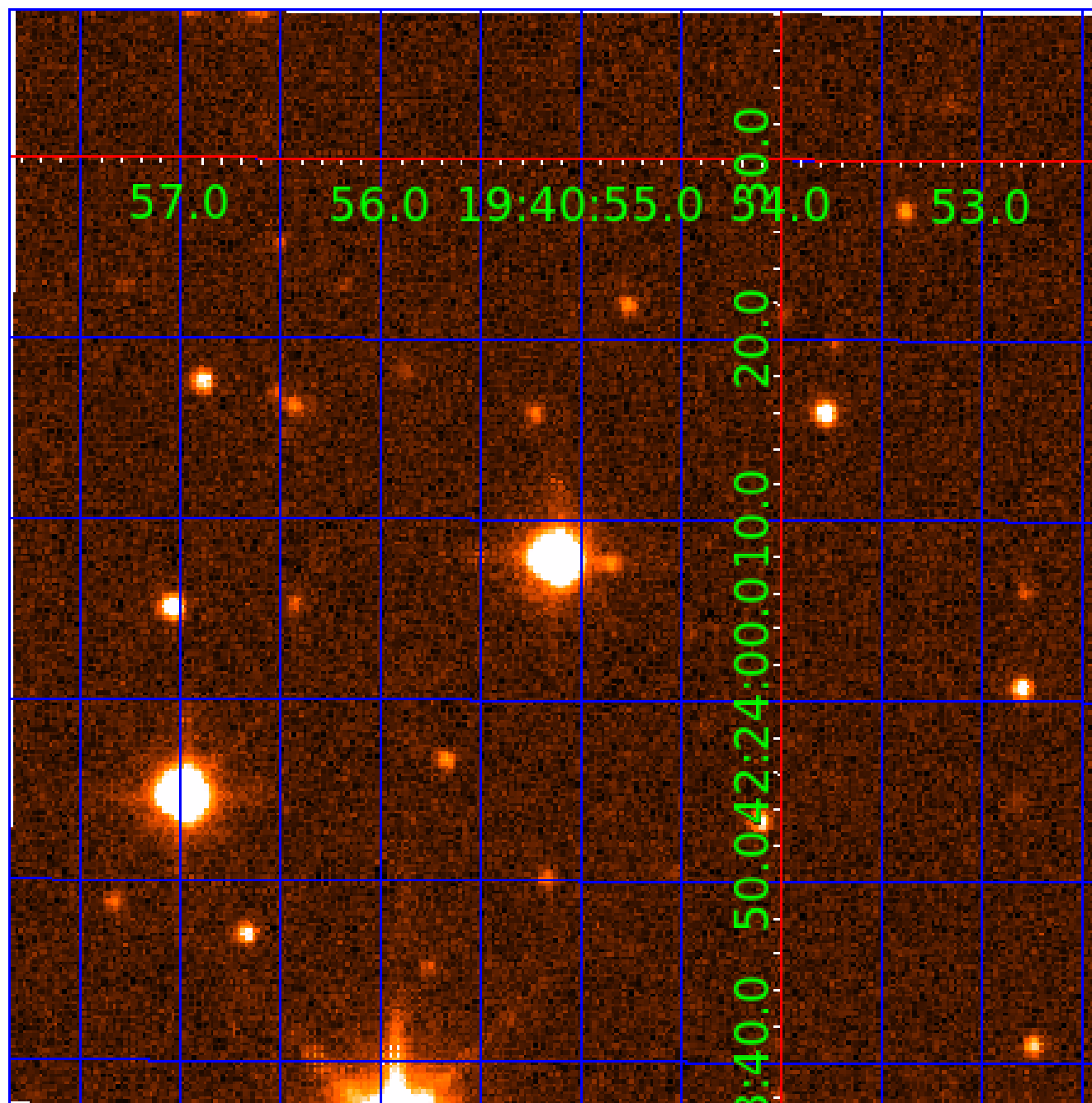


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination





# KIC 006960592

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006960592-01	OBS	No	296.631480	343.848886	80.5	5.442	8.8	2.4	2.04	7331	2.12	10.10
006960592-02	OBS	No	0.676140	131.529944	226.9	2.000	8.1	-1.0	2.04	7331	3.12	33681.71
006960592-03	OBS	No	301.855610	344.655316	549.3	7.590	17.5	11.3	2.04	7331	9.02	9.87
006960592-04	OBS	No	204.312868	232.296791	212.5	6.592	8.9	6.1	2.04	7331	3.46	16.61
006960592-05	OBS	No	350.468830	340.266178	274.3	3.758	7.7	7.6	2.04	7331	3.91	8.09

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006960592-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006960592-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS
006960592-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
006960592-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006960592-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—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.

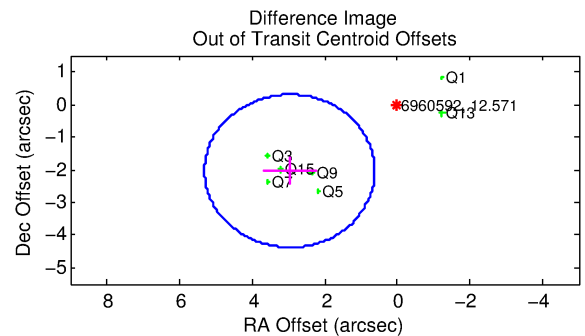
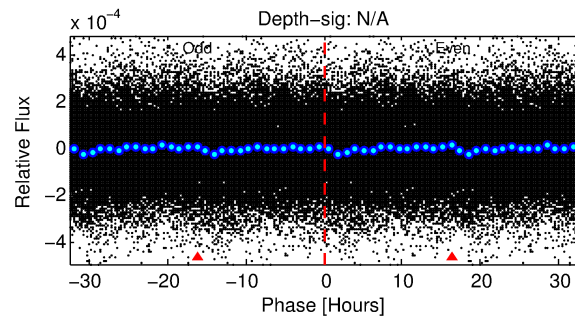
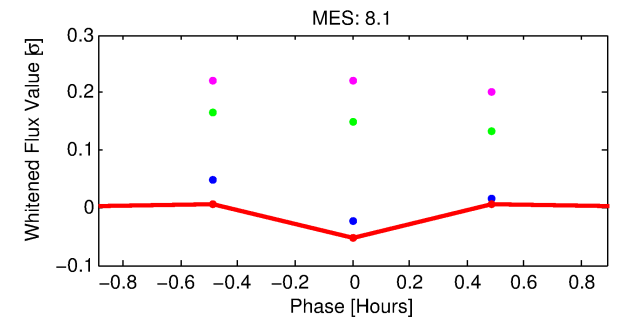
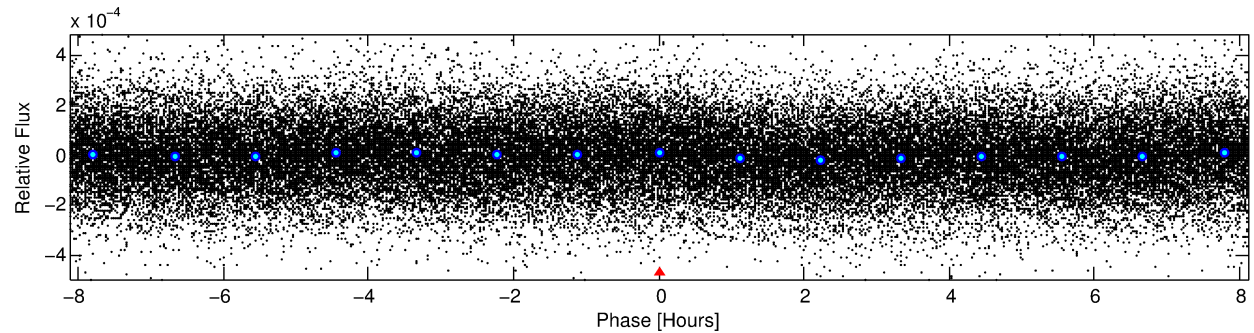
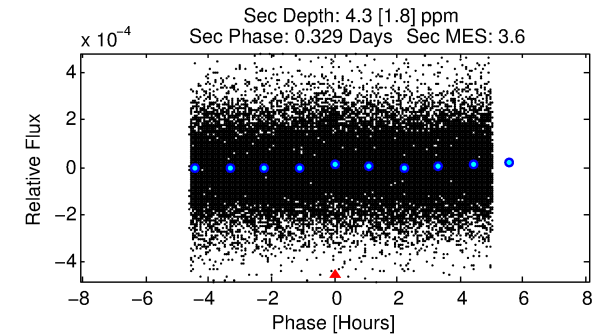
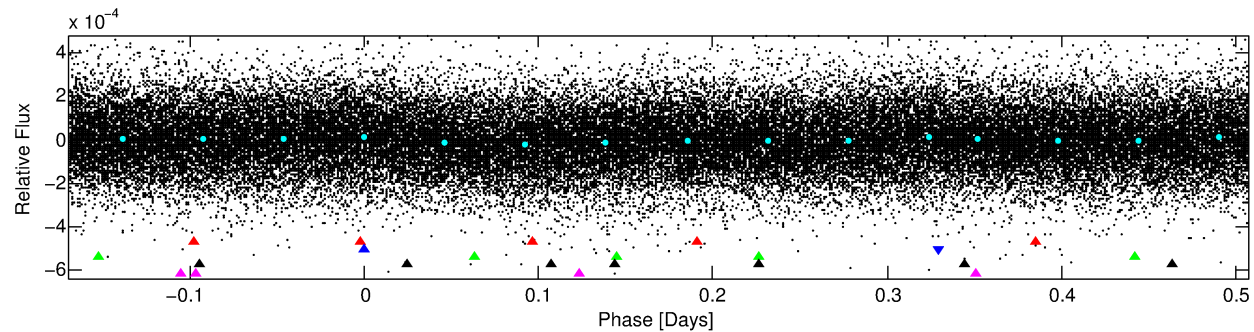
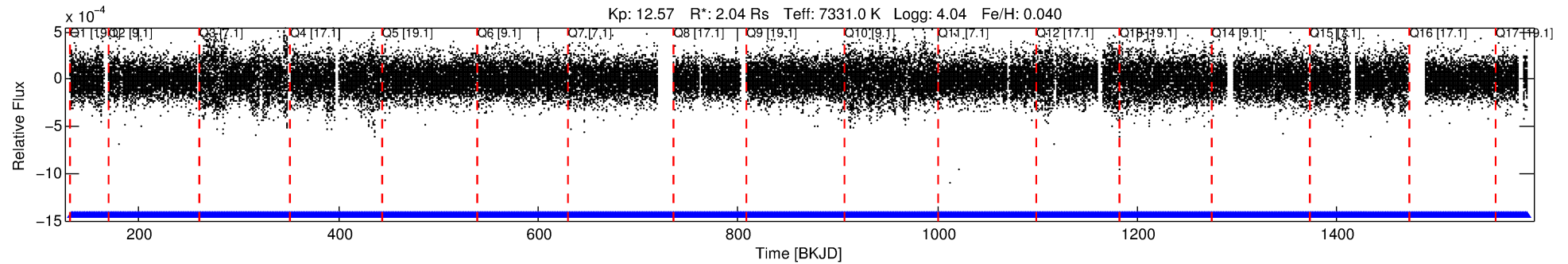
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006960592-02

No Significant Match Found

# DV One-Page Summary

KIC: 6960592 Candidate: 2 of 5 Period: 0.676 d



## TPS TCE Results:

Period = 0.67614 d  
Epoch = 131.5299 BKJD

DV fit results are unavailable

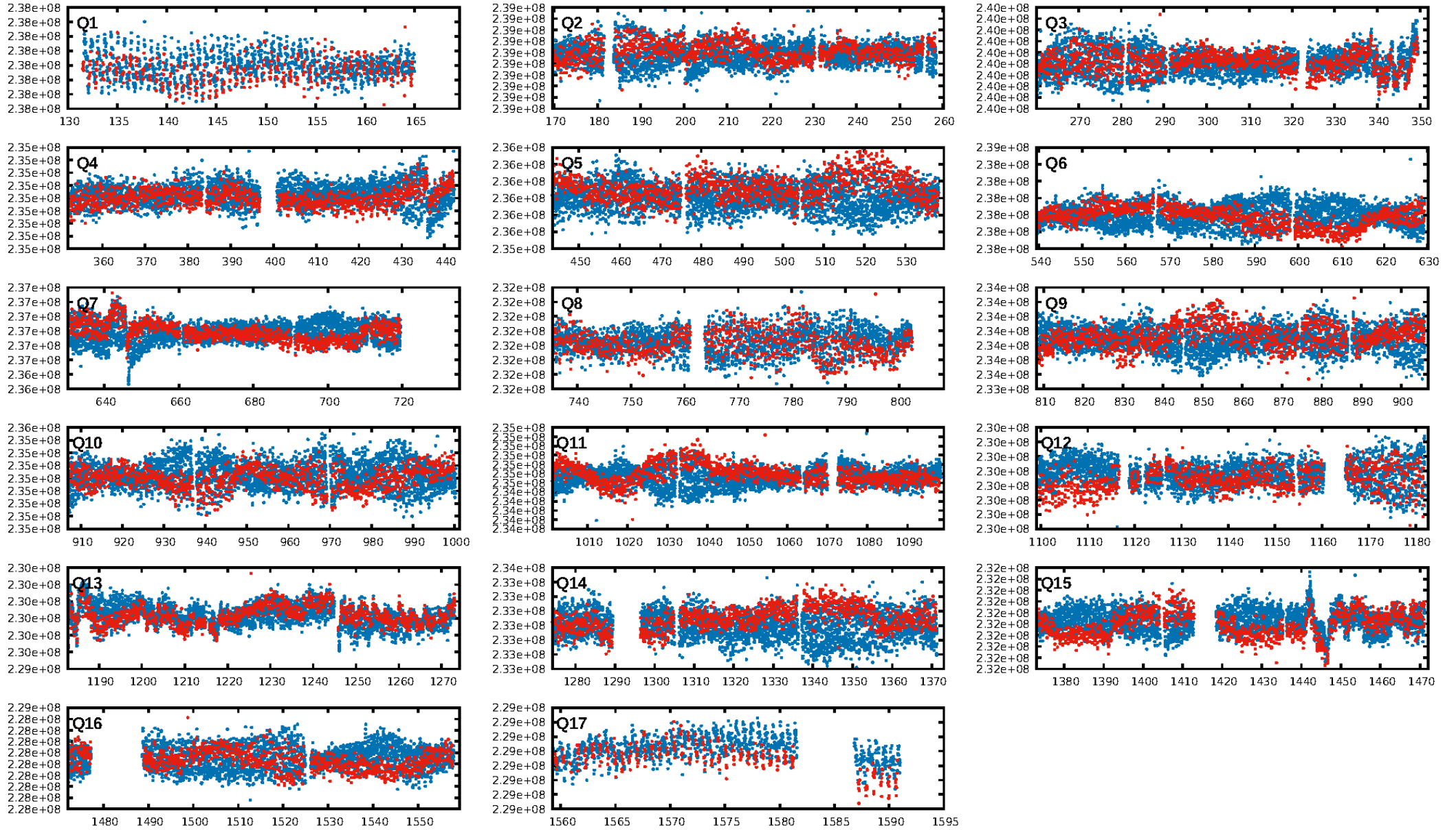
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [709.46σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.79e-14  
RollingBand-fgt: 1.00 [1895/1895]  
GhostDiagnostic-chr: 0.7039  
Centroid-sig: 4.7%  
Centroid-so: 1.856 arcsec [1.68σ]  
OotOffset-rm: 3.597 arcsec [4.61σ]  
KicOffset-rm: 3.614 arcsec [4.21σ]  
OotOffset-st: 0/3/0/4 [7]  
KicOffset-st: 0/3/0/4 [7]  
DiffImageQuality-fgm: 0.29 [2/7]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:23:15 Z

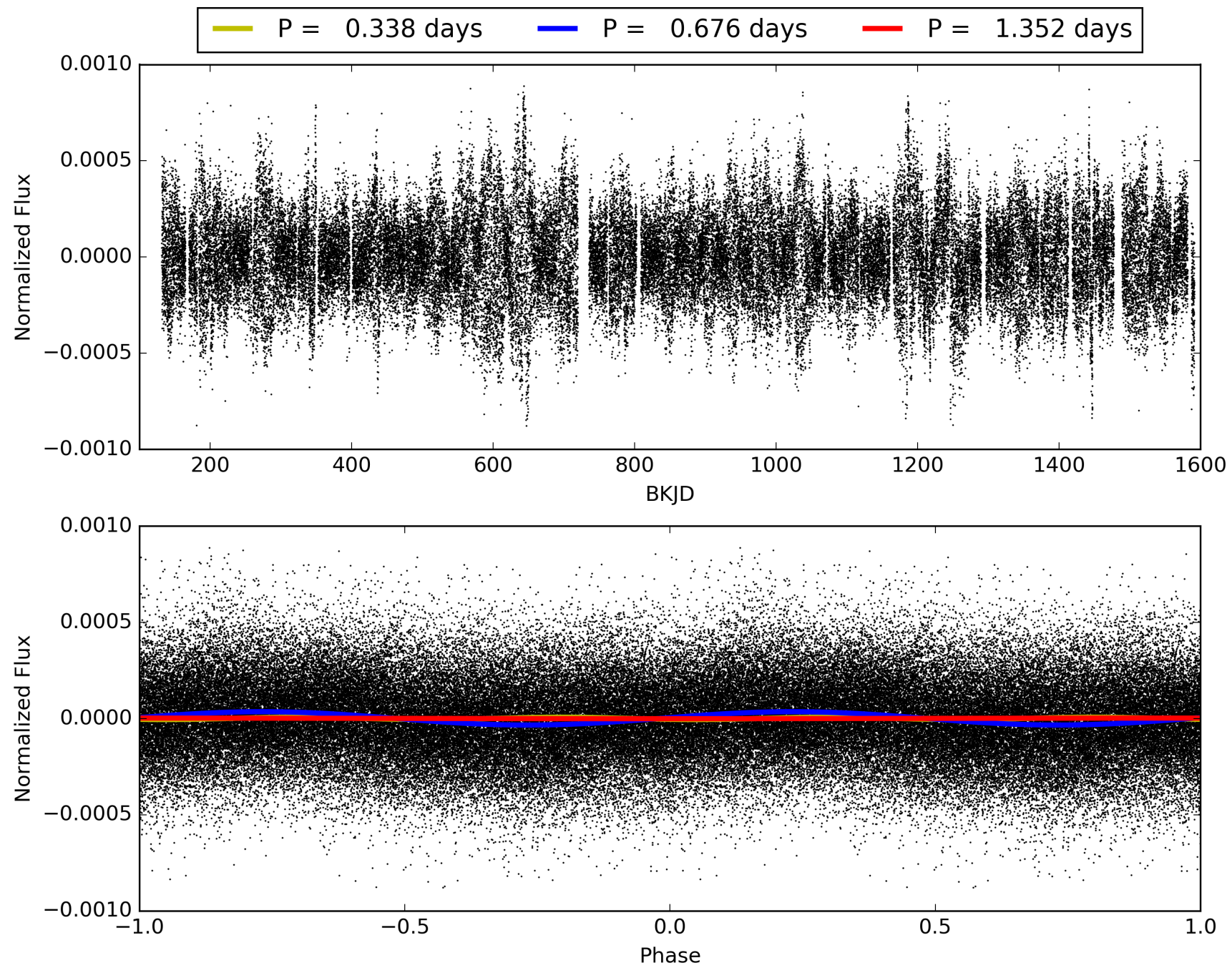
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006960592-02, PDC Light Curves



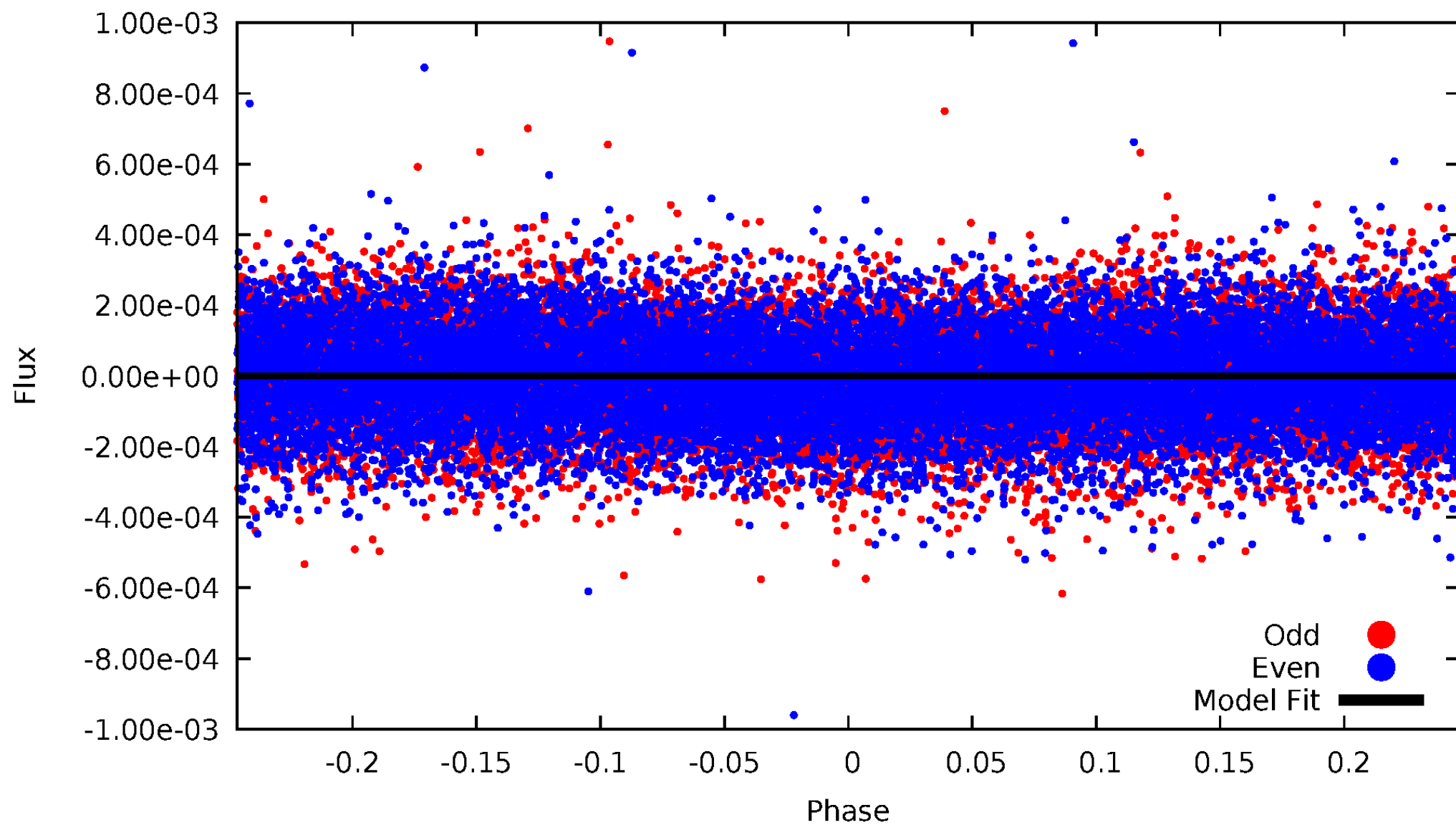


TCE 006960592-02



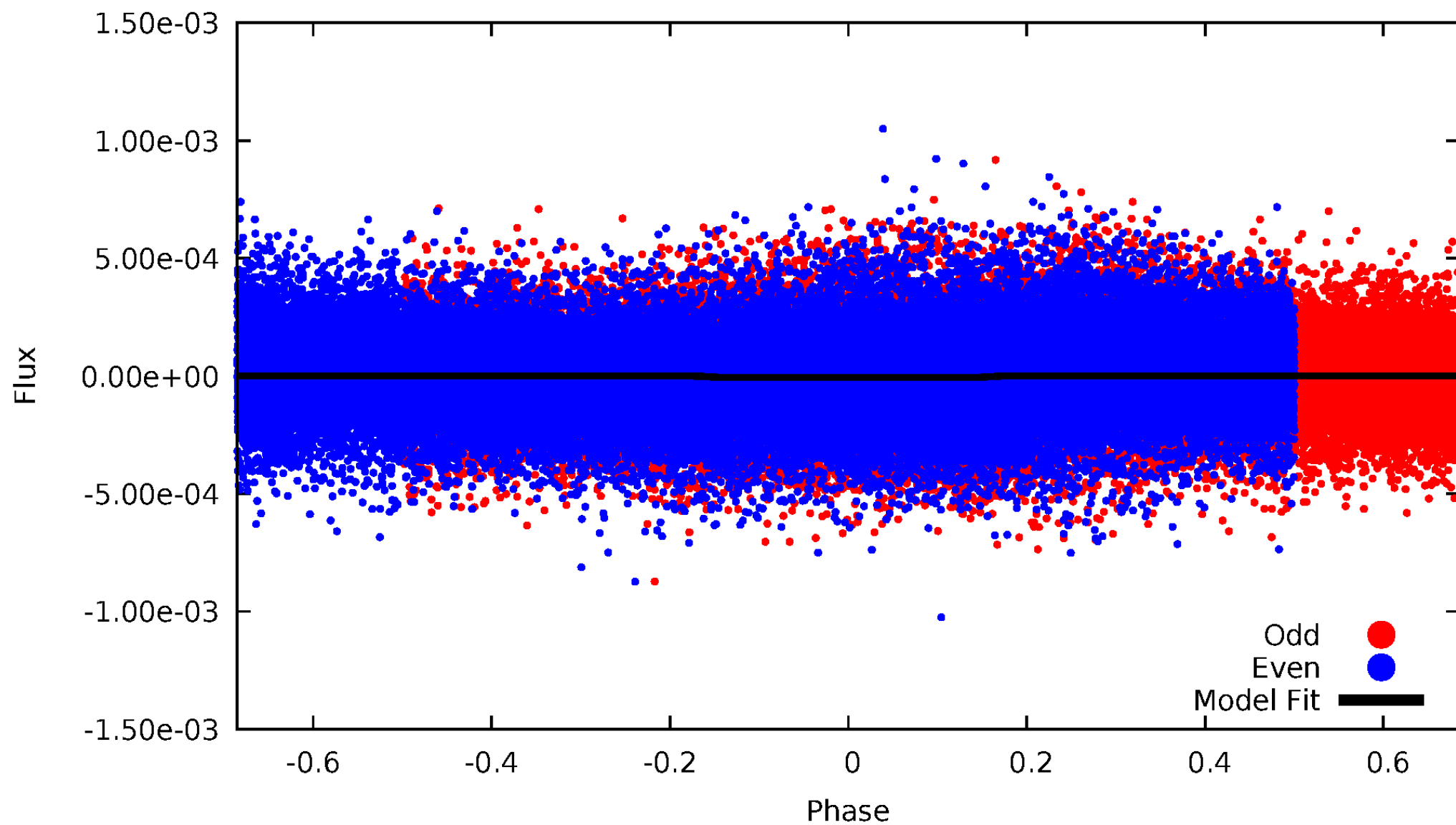
# DV Odd/Even

TCE 006960592-02



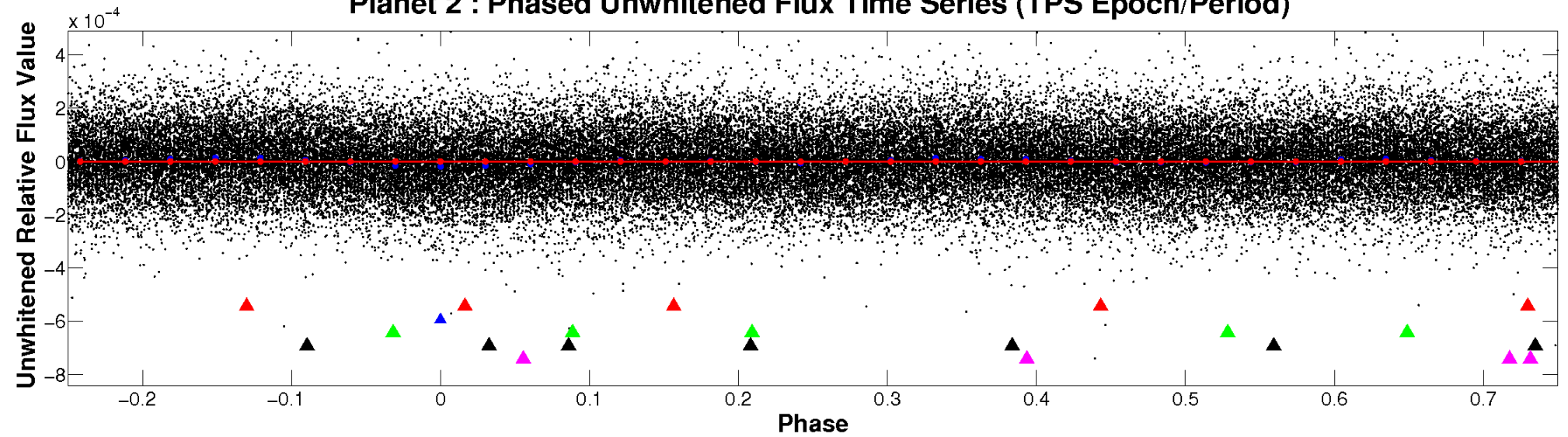
# ALT Odd/Even

TCE 006960592-02

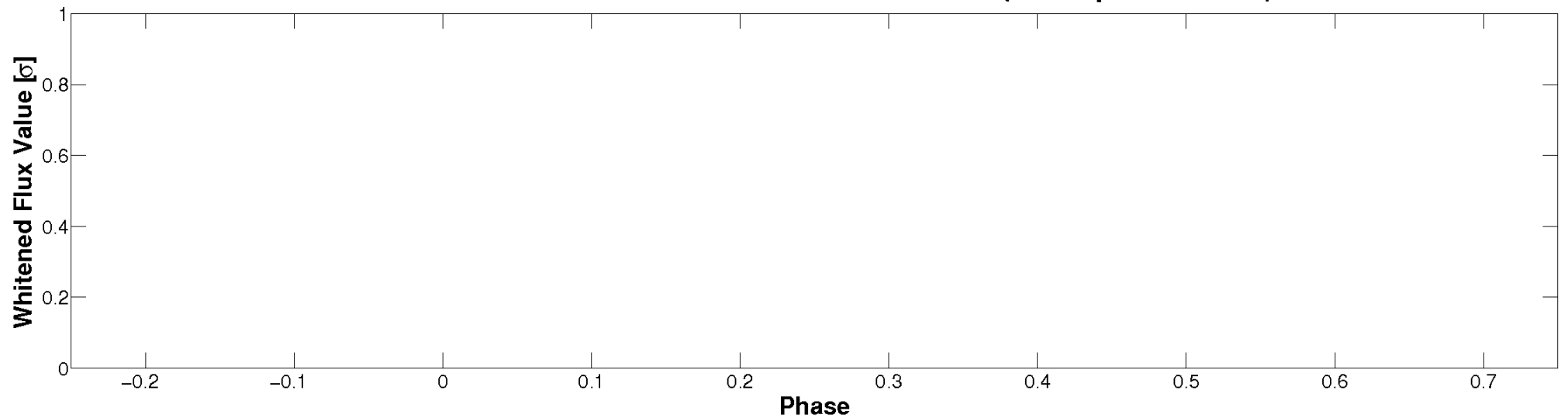


# Non-Whitened Vs. Whitened Light Curve

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



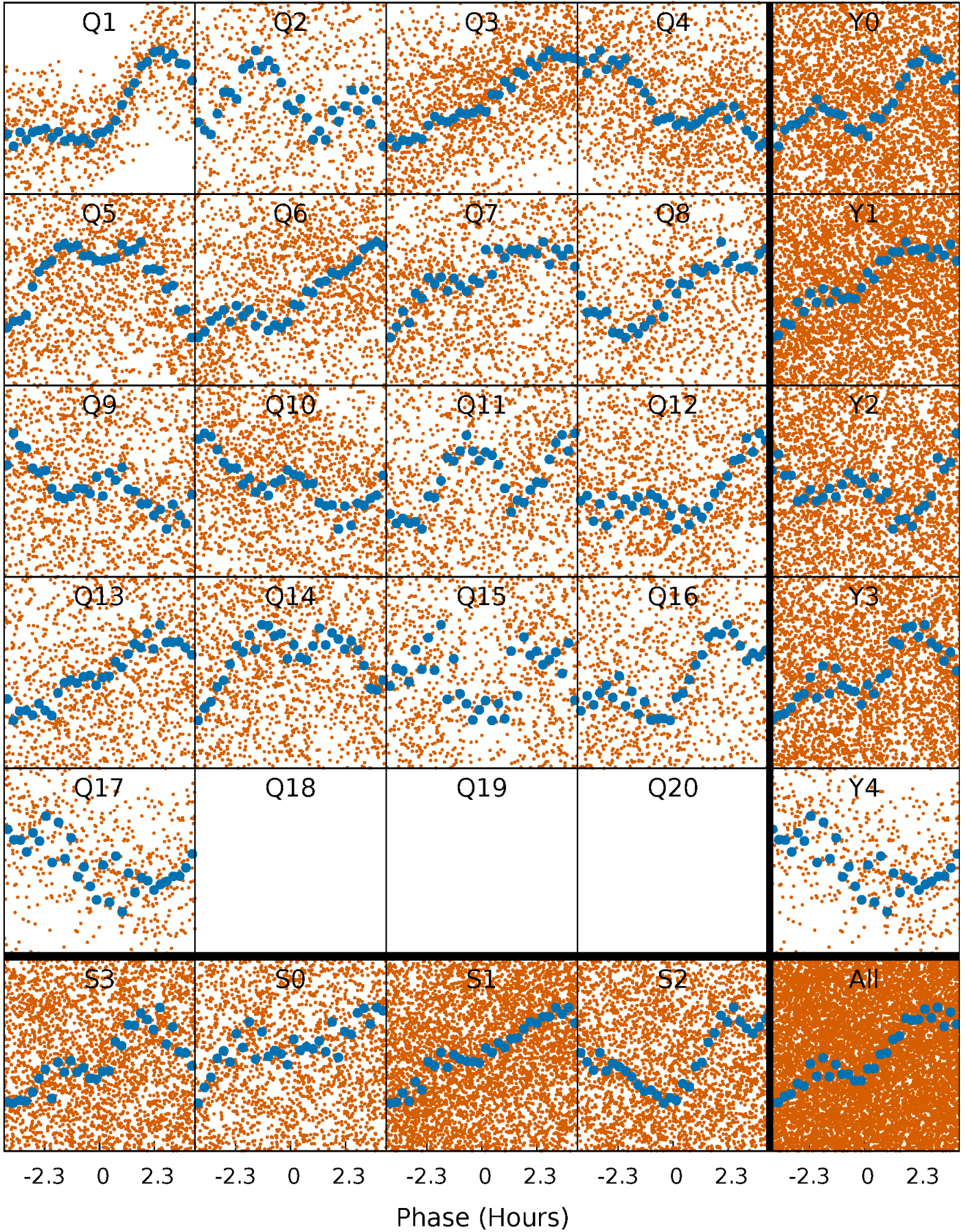
**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**





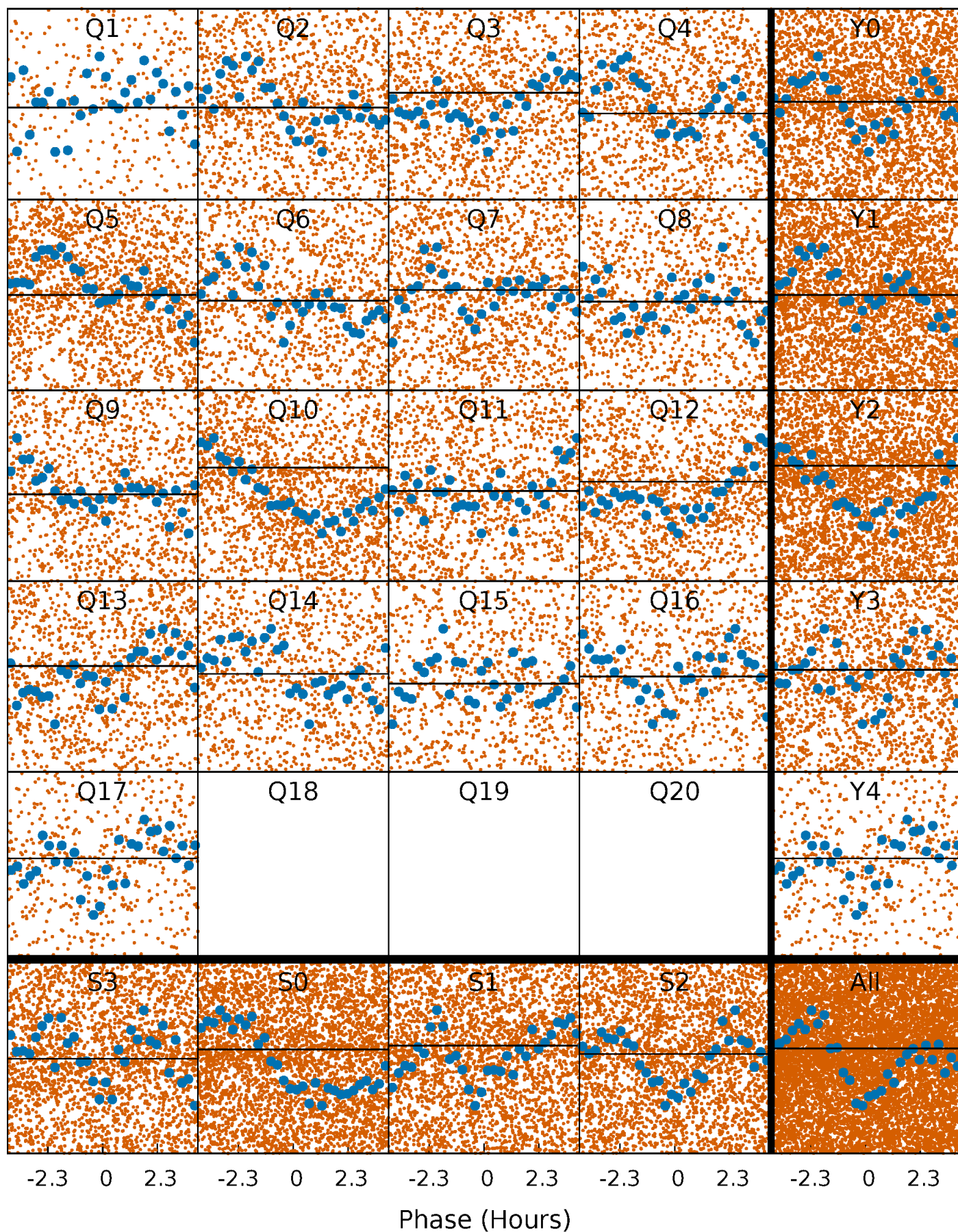
# PDC Quarter-Phased Transit Curves

TCE 006960592-02 P= 0.676140 Days  $T_0=131.529944$  (BKJD)



# DV Quarter-Phased Transit Curves

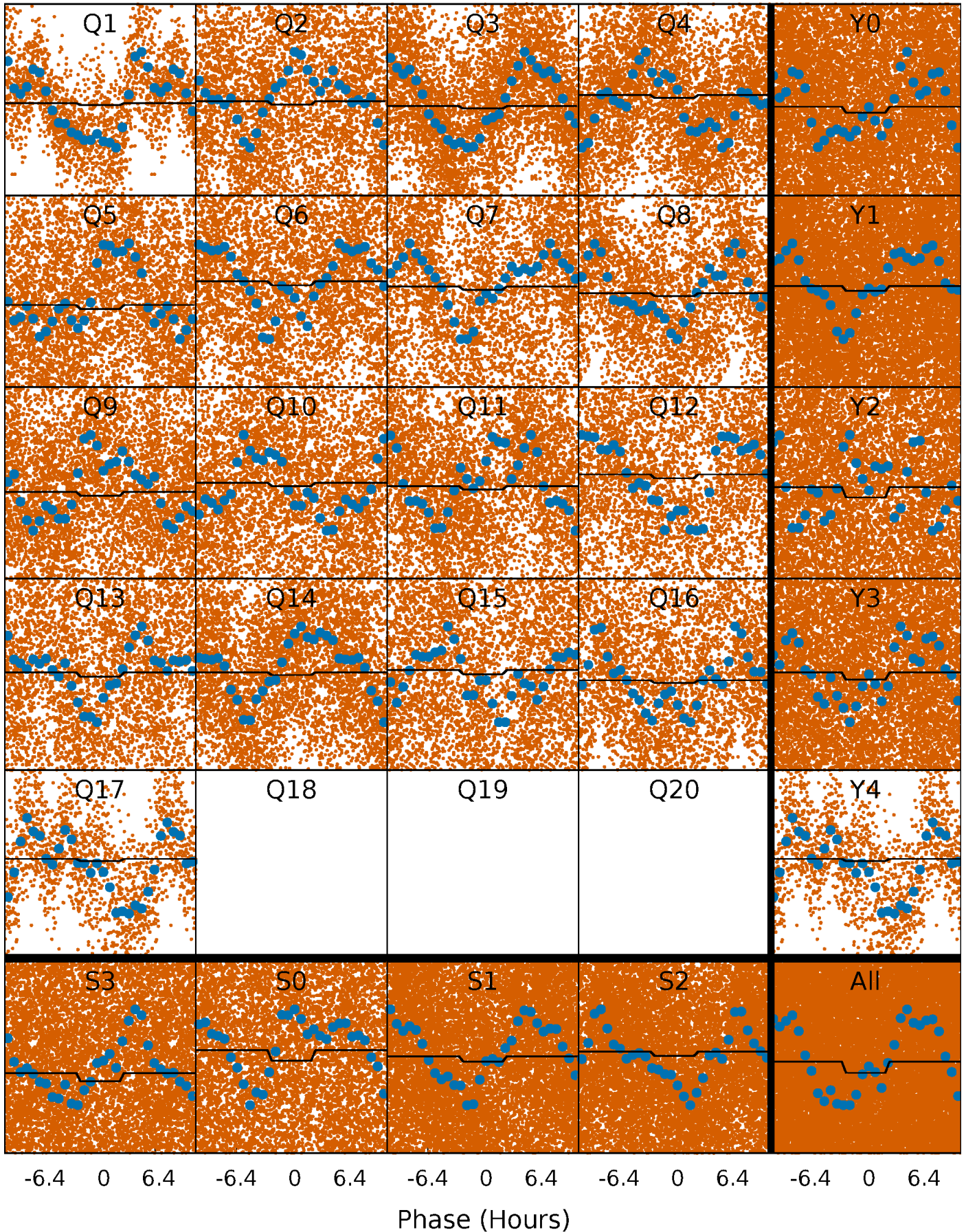
TCE 006960592-02 P= 0.676140 Days  $T_0=131.529944$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

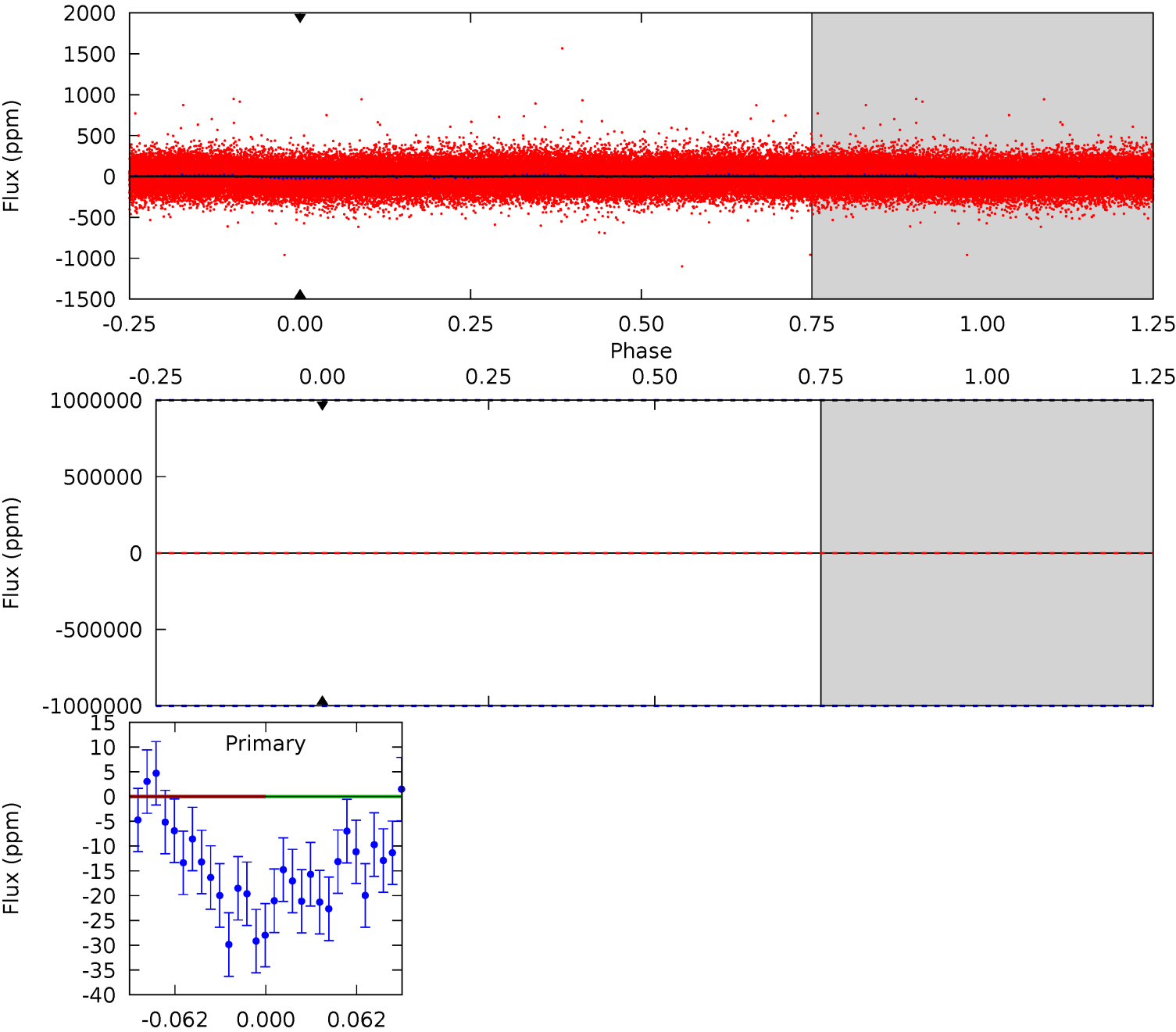
TCE 006960592-02   P= 0.676140 Days    $T_0=132.120779$  (BKJD)



DV Model-Shift Uniqueness Test

006960592-02, P = 0.676140 Days, E = 130.853804 Days

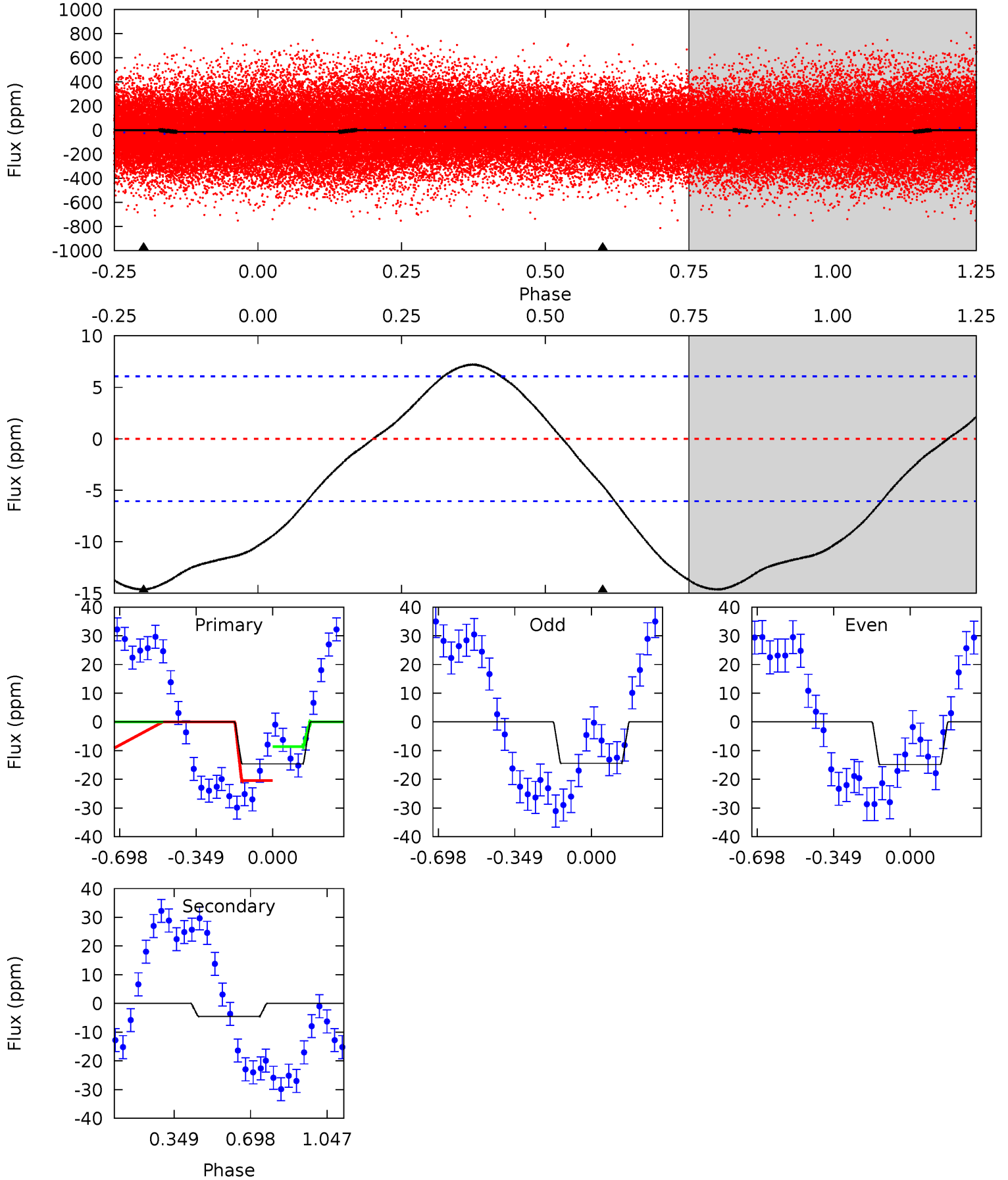
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

006960592-02, P = 0.676140 Days, E = 131.444639 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	3.23	0	0	4.30	0.94	0.86	10.4	10.4	3.23	3.23	0.15	0.87	0.33	4.59



### Stellar Parameters For KIC 006960592

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7331^{+203}_{-330}$	$4.041^{+0.170}_{-0.170}$	$0.040^{+0.200}_{-0.350}$	$2.041^{+0.532}_{-0.478}$	$1.668^{+0.193}_{-0.289}$	$0.276^{+0.260}_{-0.135}$
	+3%/-5%	+4%/-4%	+500%/-875%	+26%/-23%	+12%/-17%	+94%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 006960592-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$16.08^{+18.43}_{-11.42}$	$4793^{+372}_{-320}$	$4604^{+38999}_{-37677}$	$0.673^{+139.082}_{-99.117}$
Alt.	$-5 \pm 1$	$15.41^{+15.80}_{-10.83}$	$4815^{+364}_{-358}$	$-4126^{+293}_{-236}$	$0.003^{+0.035}_{-0.003}$

$T_{max}$  = 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

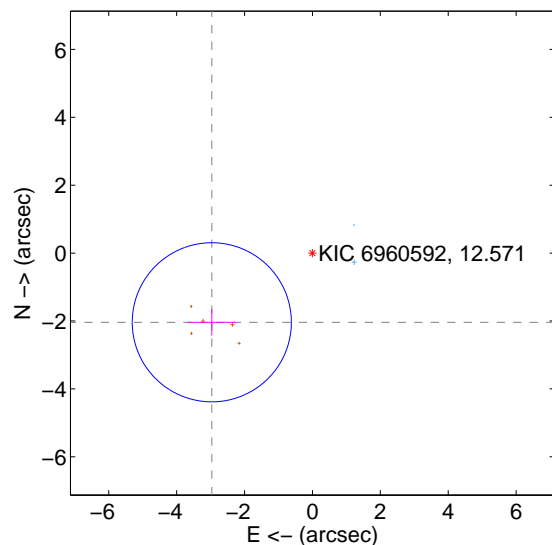
Supplemental centroid analysis for 006960592-02. Kepler magnitude: 12.57. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

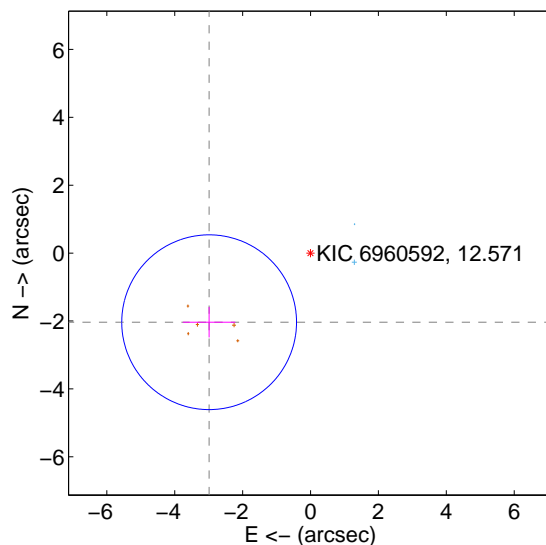
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.597 \pm 0.781$	4.61	$2.964 \pm 0.711$	$-2.038 \pm 0.389$
PRF-fit source offset from KIC position	$3.614 \pm 0.858$	4.21	$2.986 \pm 0.773$	$-2.036 \pm 0.447$
photometric centroid source offset	$1.86 \pm 1.11$	1.68	$1.76 \pm 1.10$	$0.58 \pm 1.11$

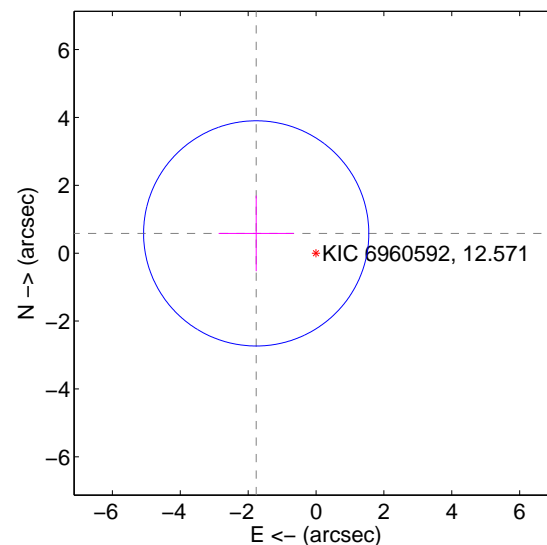
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

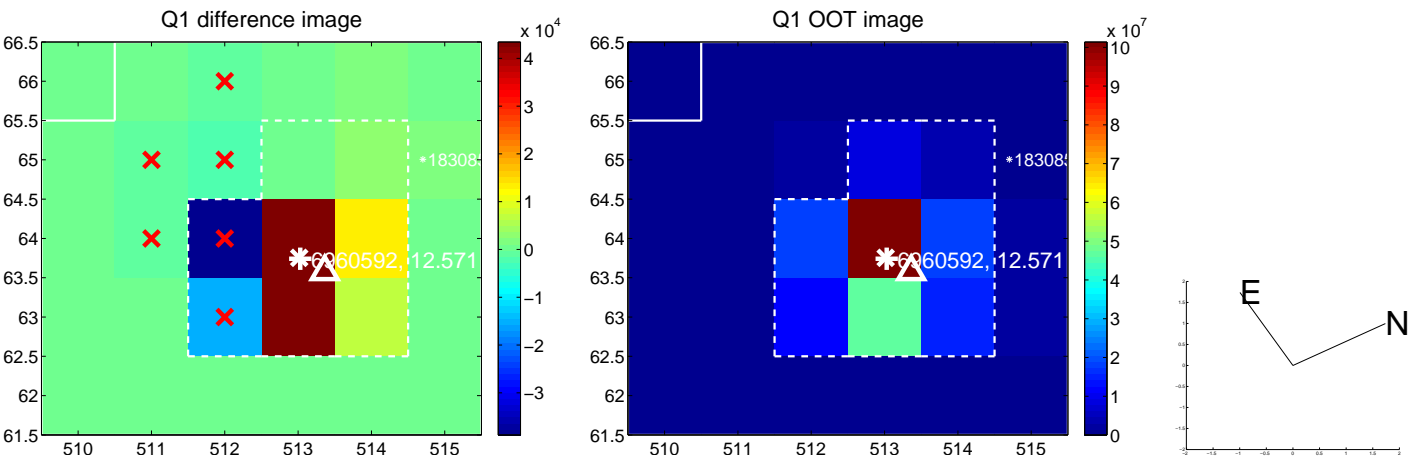


offset from photometric centroids



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.

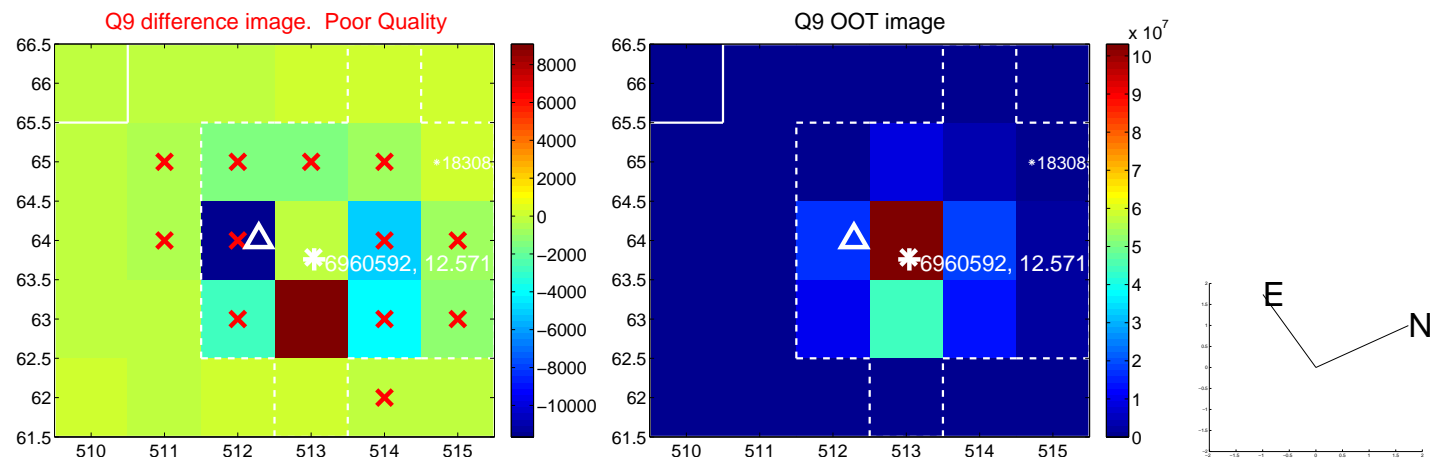
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



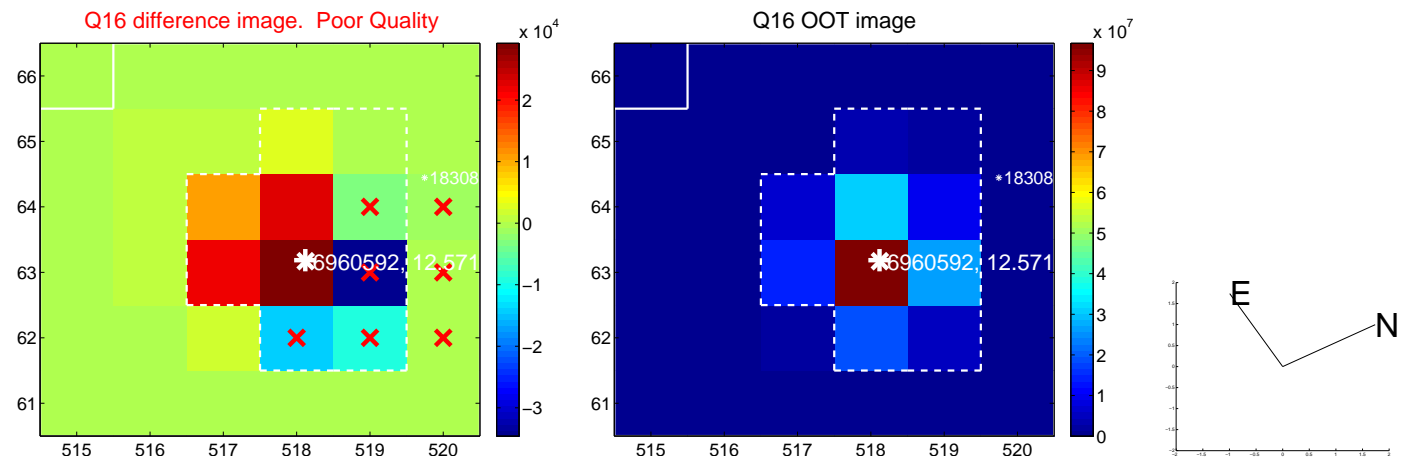
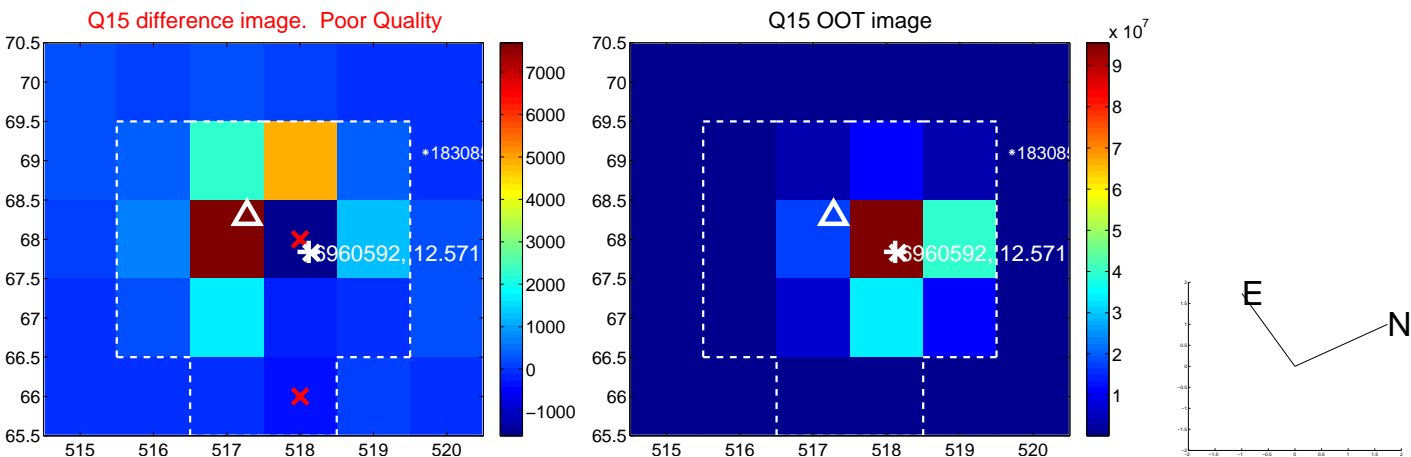
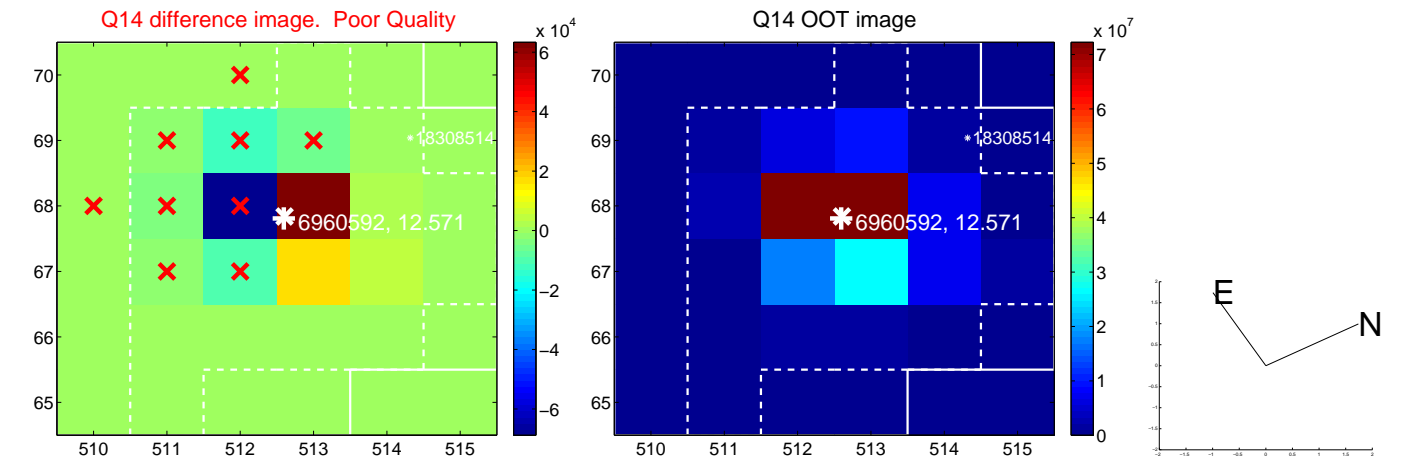
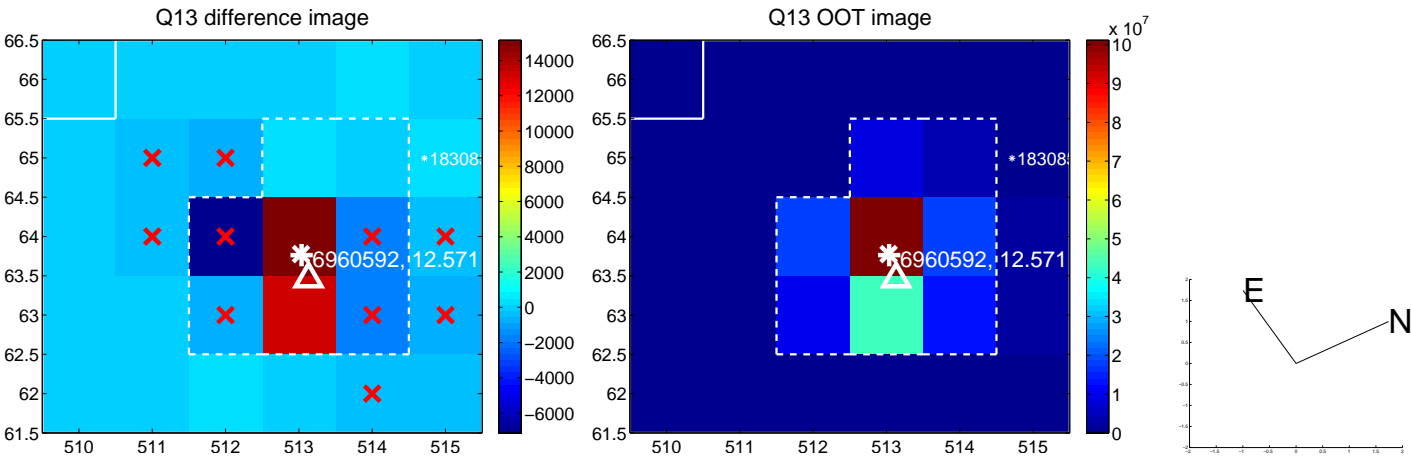




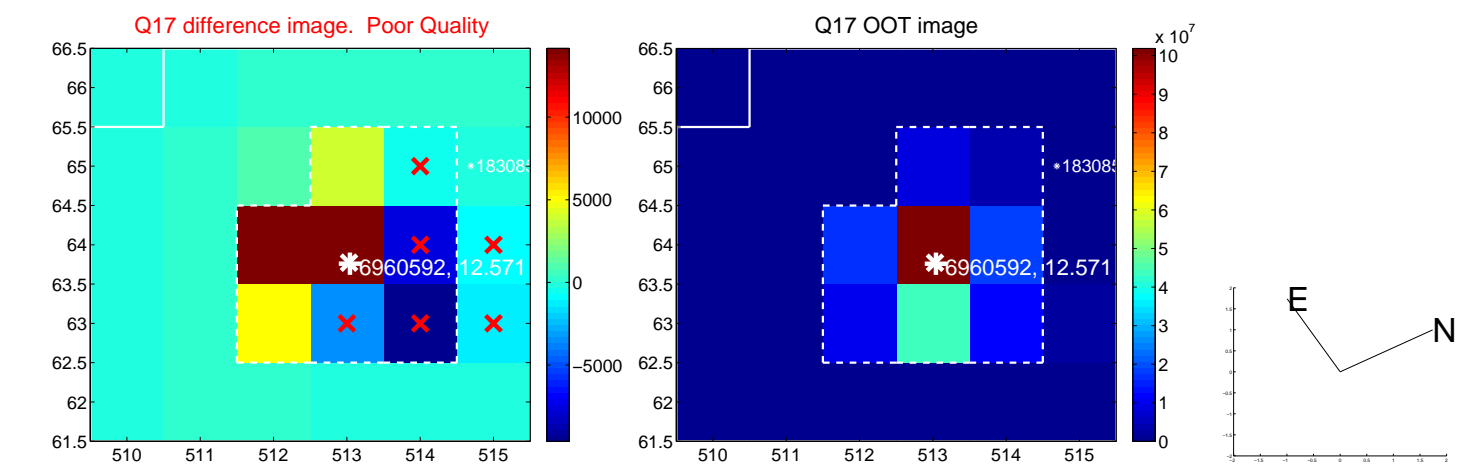
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



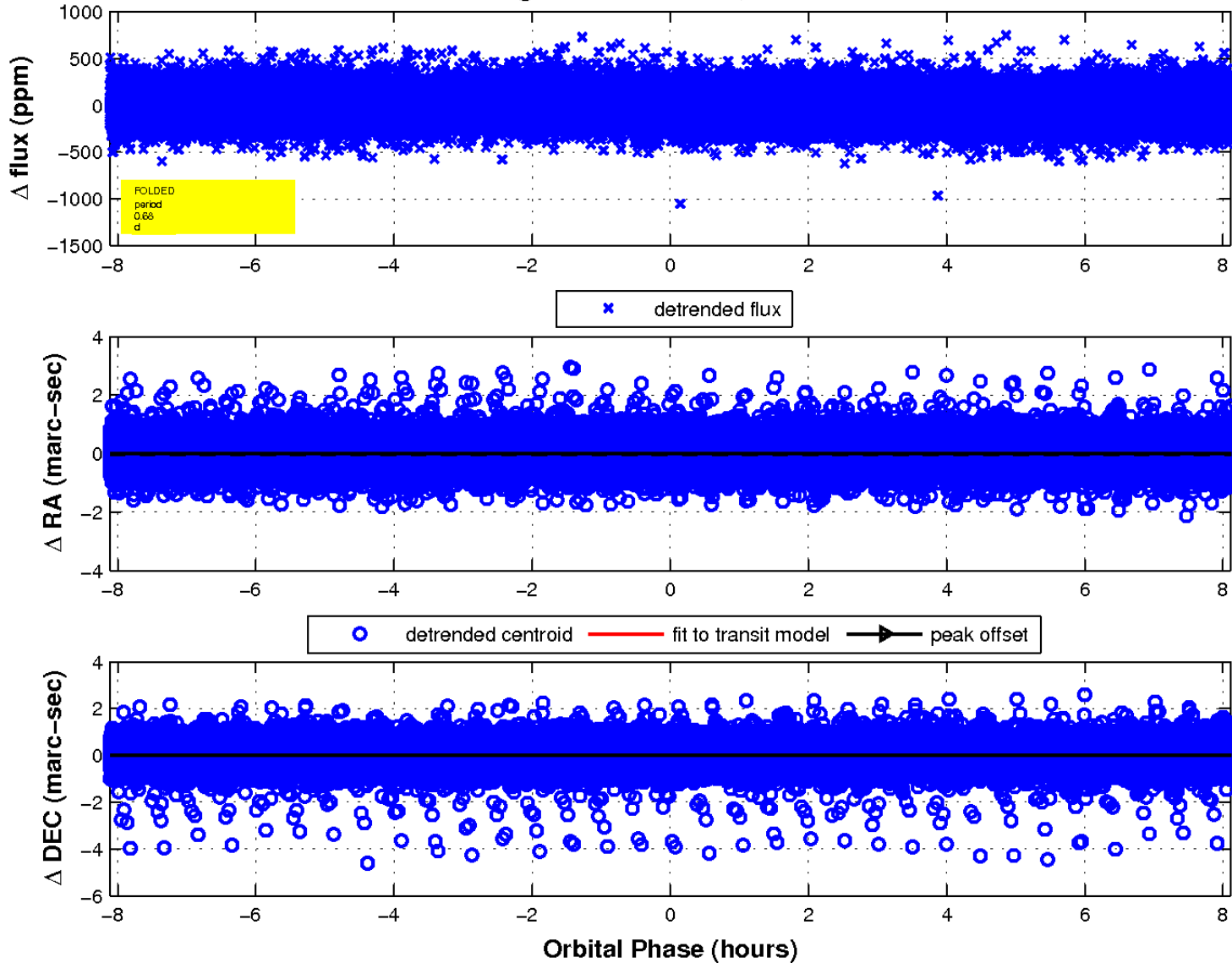
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

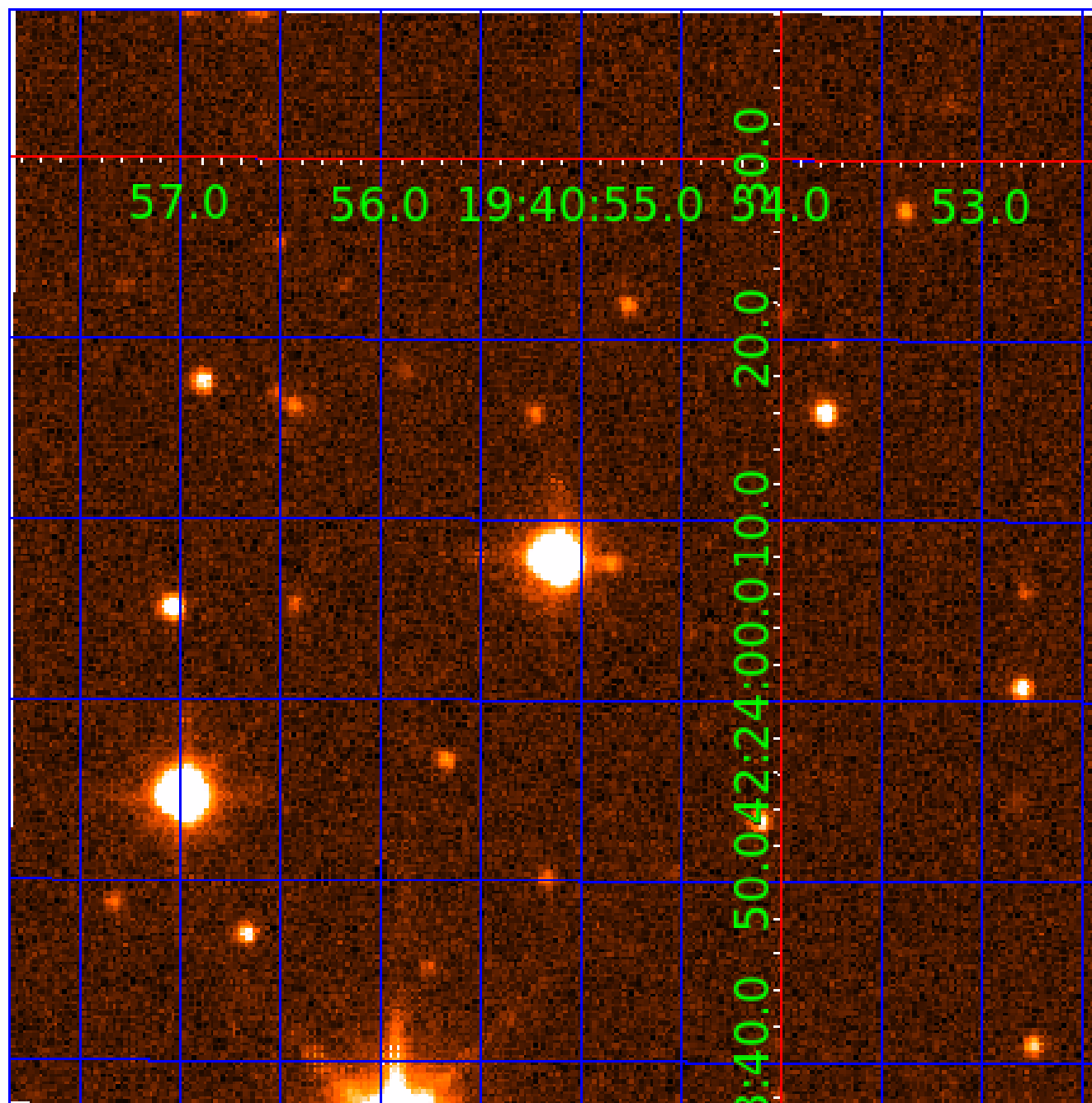


fluxWeightedCentroids, Planet 2 of 5



UKIRT Image

Declination



# KIC 006960592

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006960592-01	OBS	No	296.631480	343.848886	80.5	5.442	8.8	2.4	2.04	7331	2.12	10.10
006960592-02	OBS	No	0.676140	131.529944	226.9	2.000	8.1	-1.0	2.04	7331	3.12	33681.71
006960592-03	OBS	No	301.855610	344.655316	549.3	7.590	17.5	11.3	2.04	7331	9.02	9.87
006960592-04	OBS	No	204.312868	232.296791	212.5	6.592	8.9	6.1	2.04	7331	3.46	16.61
006960592-05	OBS	No	350.468830	340.266178	274.3	3.758	7.7	7.6	2.04	7331	3.91	8.09

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006960592-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006960592-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS
006960592-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
006960592-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006960592-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—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.

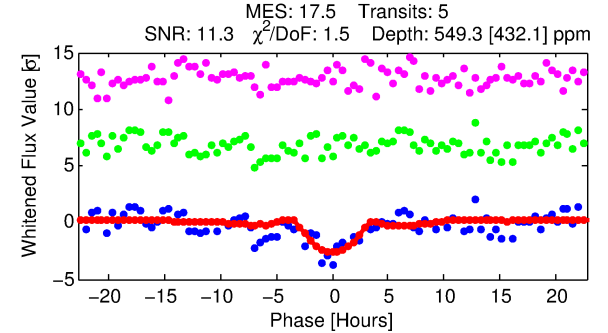
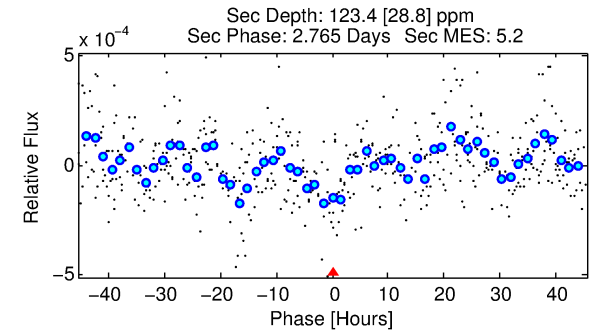
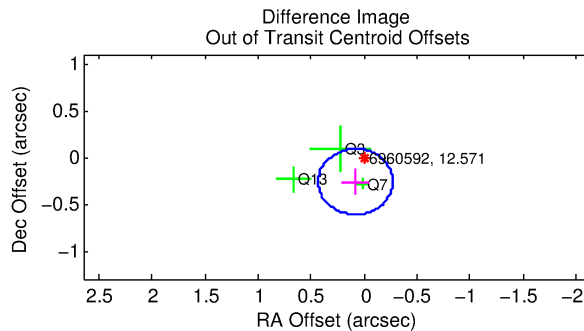
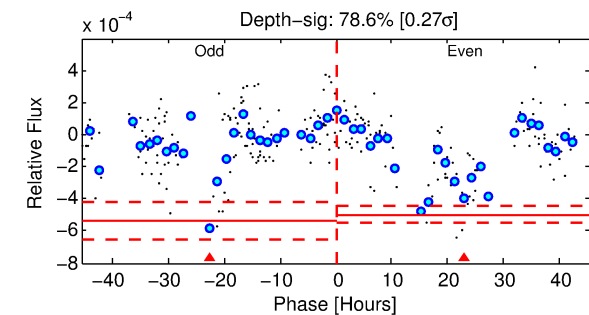
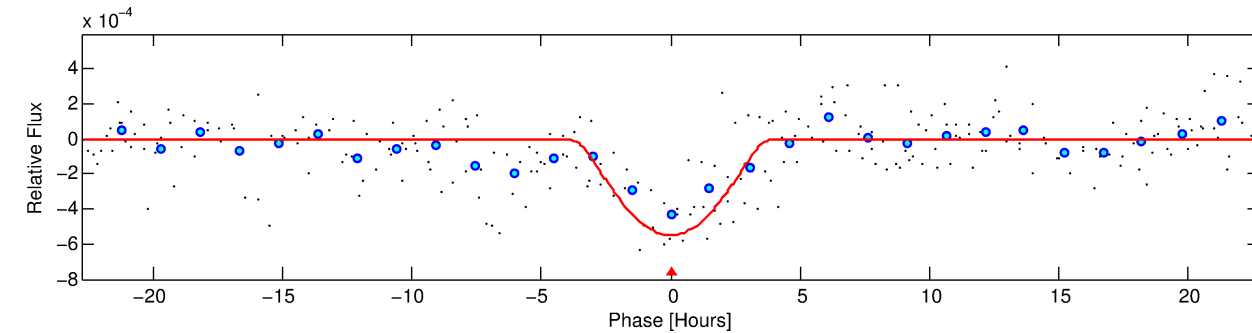
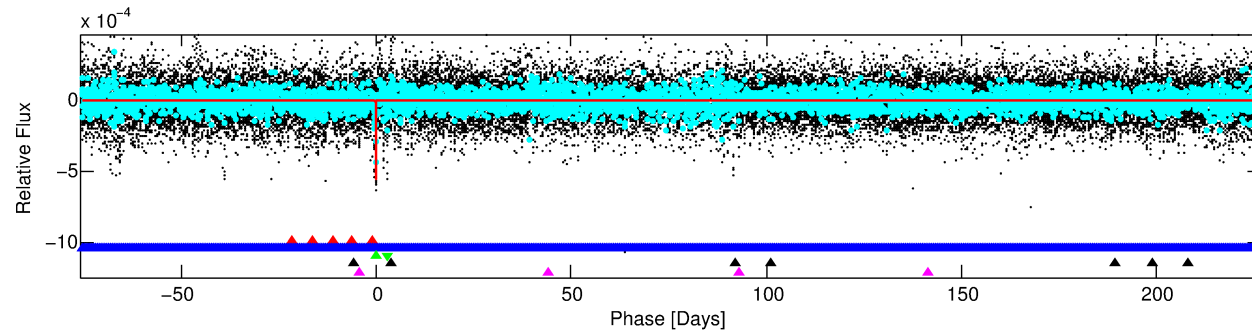
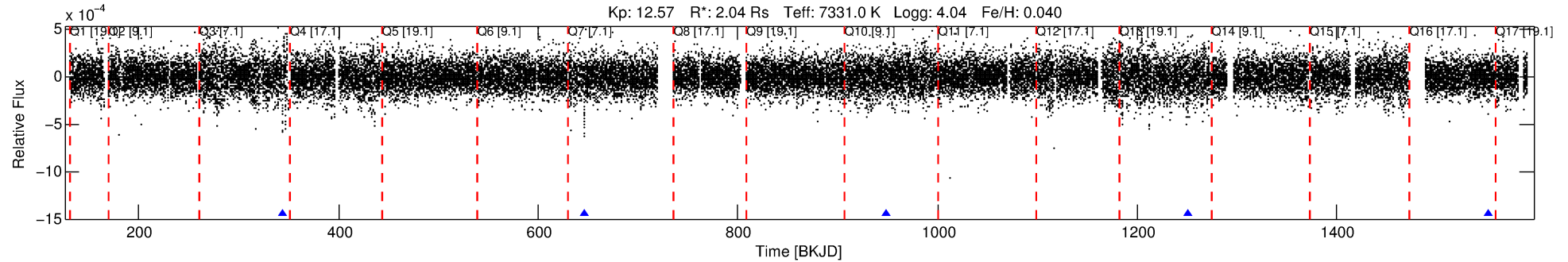
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006960592-03

No Significant Match Found

# DV One-Page Summary

KIC: 6960592 Candidate: 3 of 5 Period: 301.856 d



## DV Fit Results:

Period = 301.85561 [0.00785] d  
Epoch = 344.6553 [0.0178] BKJD  
Rp/R\* = 0.0405 [0.1121]  
a/R\* = 87.34 [61.66]  
b = 1.00 [0.14]  
Seff = 9.87 [3.57]  
Teq = 452 [41] K  
Rp = 9.02 [25.08] Re  
a = 1.0450 [0.2271] AU  
Ag = 912.05 [5063.62] [0.18 $\sigma$ ]  
Teffp = 3840 [5325] K [0.64 $\sigma$ ]

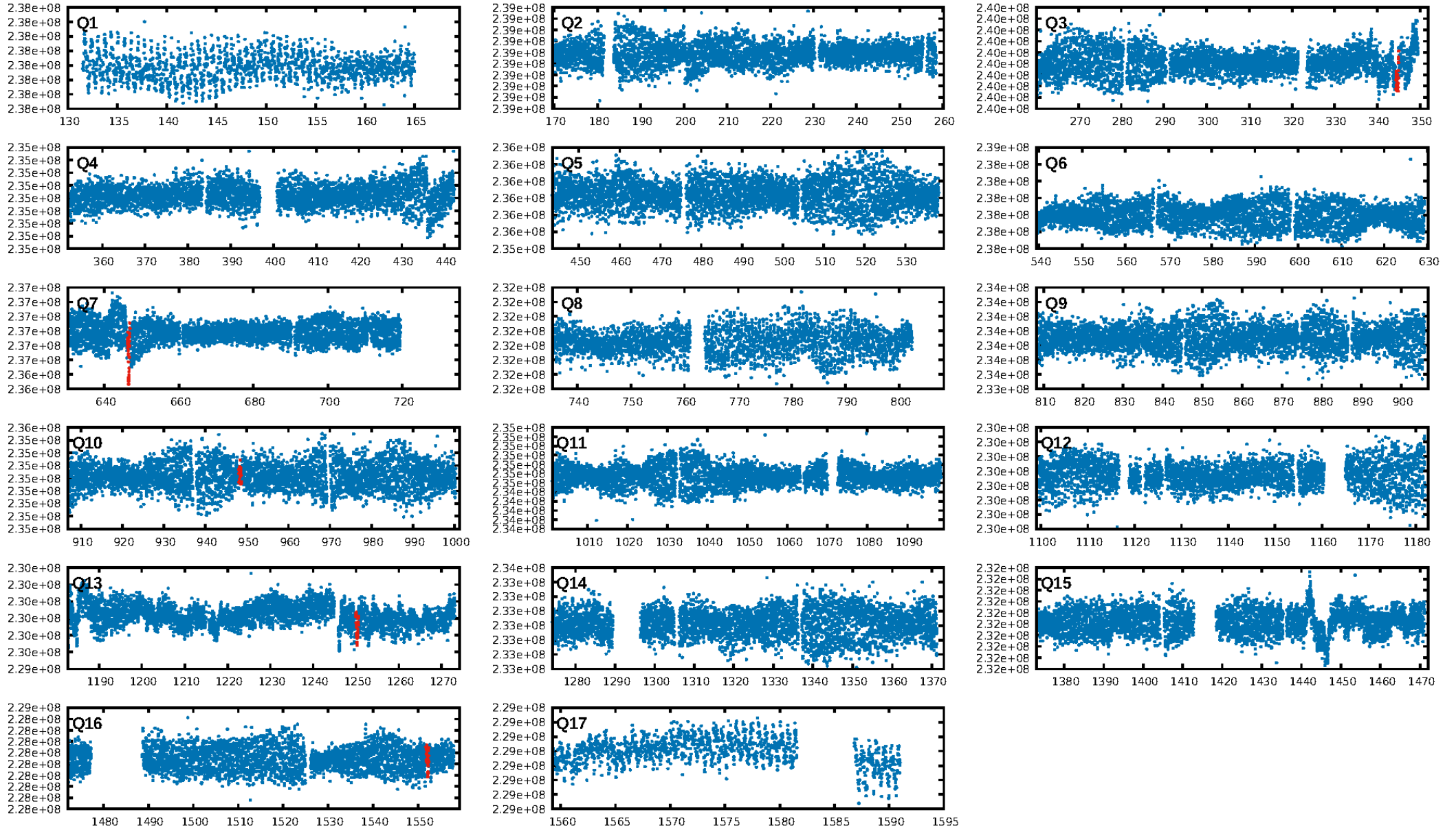
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.42 $\sigma$ ]  
LongPeriod-sig: 100.0% [137.75 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGo-sig: 97.9%  
Bootstrap-pfa: 3.04e-21  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 35.71  
Centroid-sig: 0.2%  
Centroid-so: 0.809 arcsec [2.17 $\sigma$ ]  
OotOffset-rm: 0.274 arcsec [2.33 $\sigma$ ]  
KicOffset-rm: 0.268 arcsec [1.96 $\sigma$ ]  
OotOffset-st: 0/2/0/1 [3]  
KicOffset-st: 0/2/0/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 0.00 [0/5]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:23:28 Z

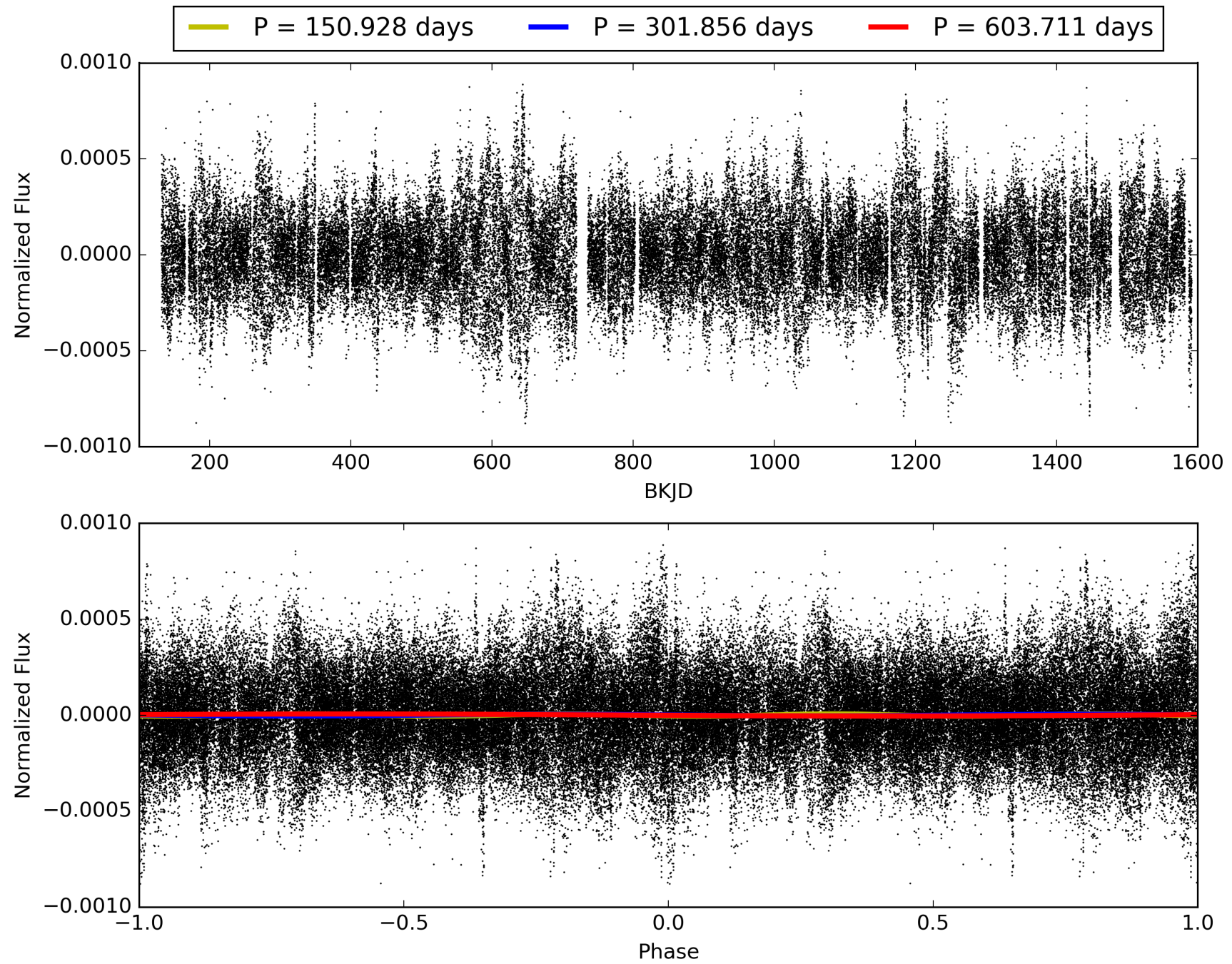
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006960592-03, PDC Light Curves



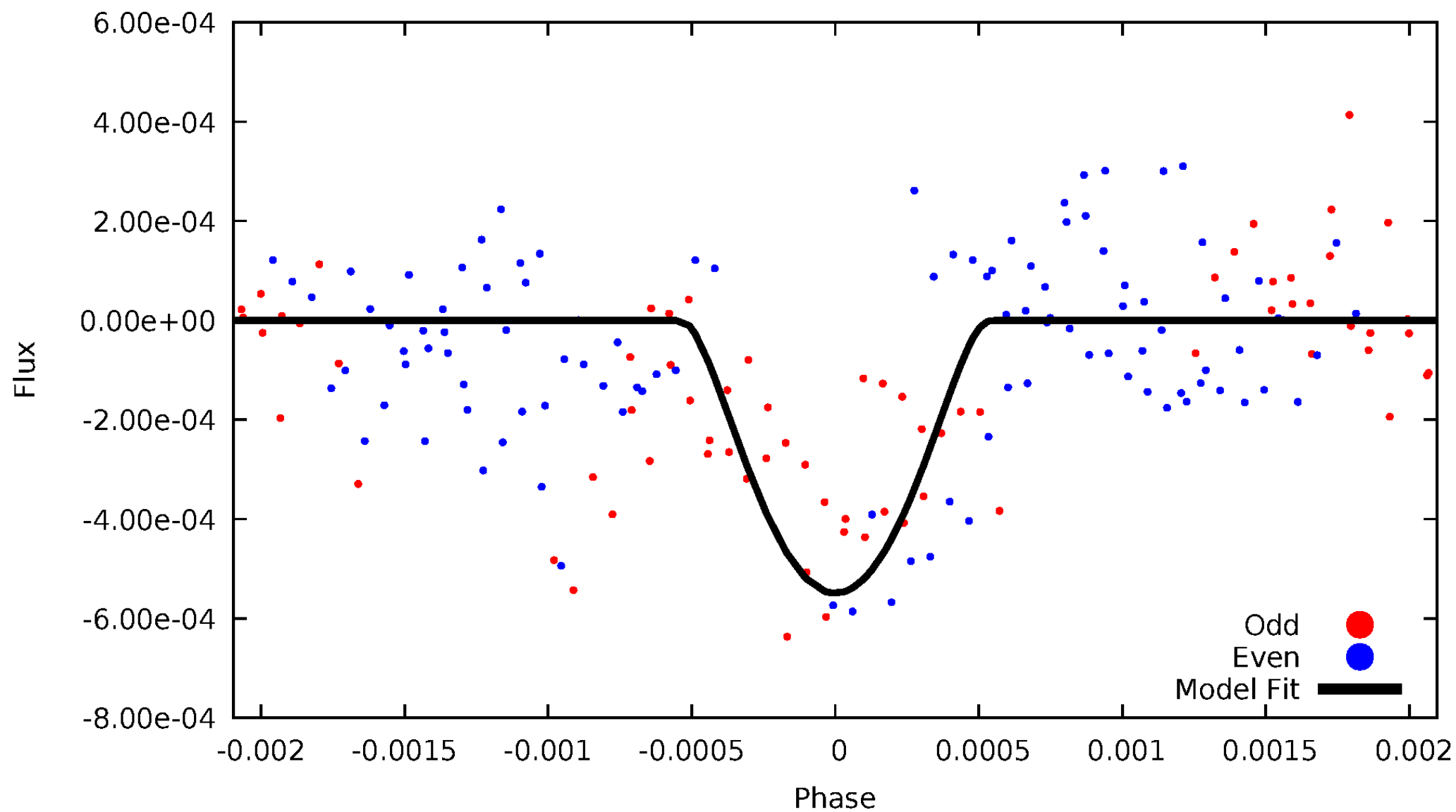


TCE 006960592-03



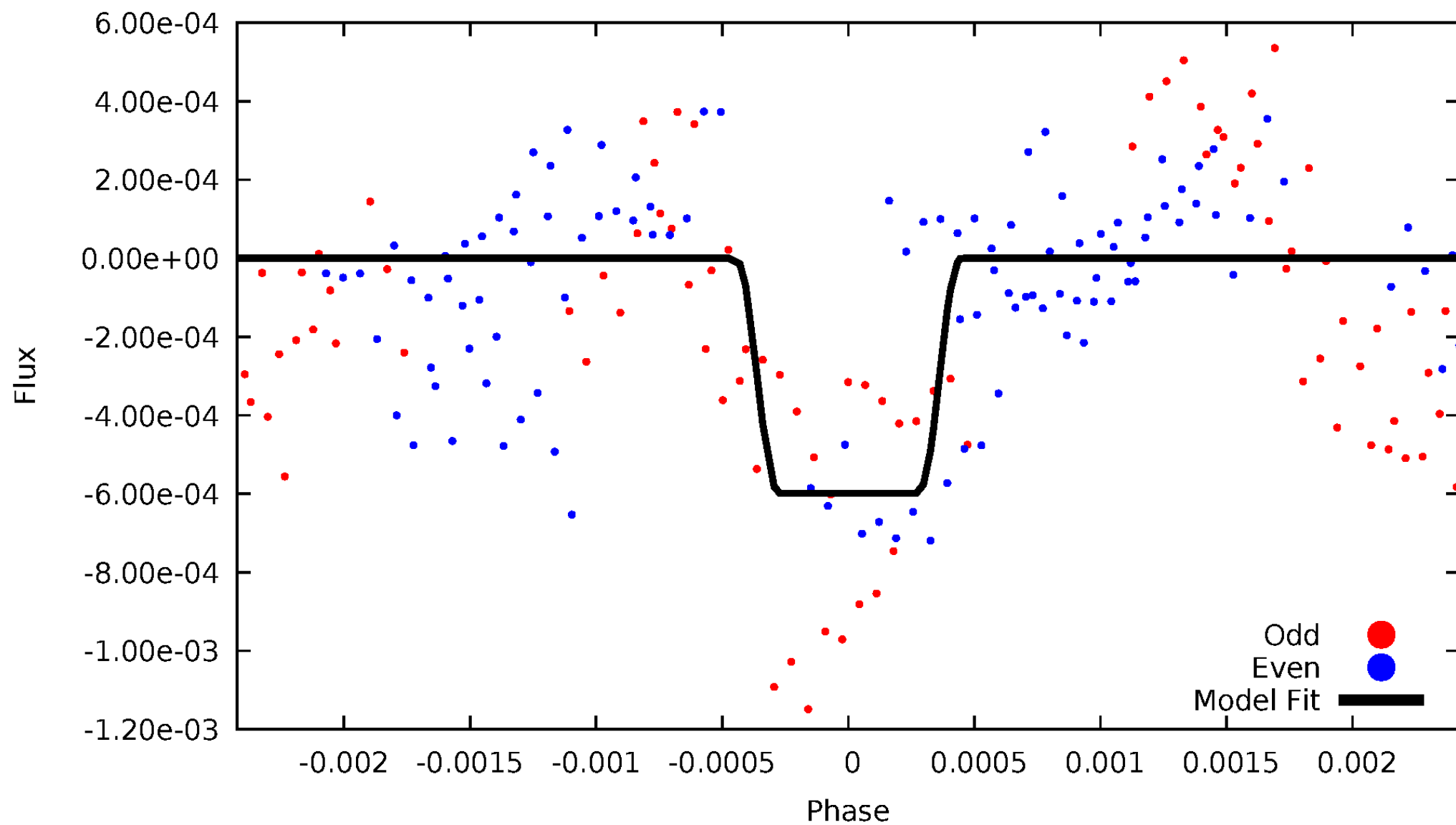
# DV Odd/Even

TCE 006960592-03

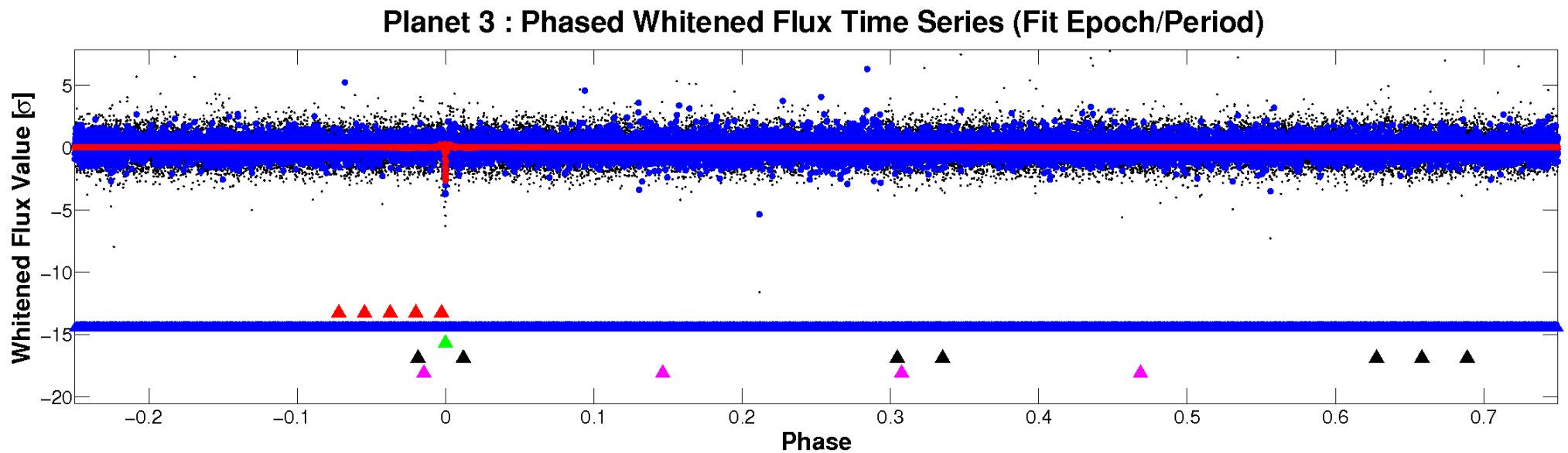
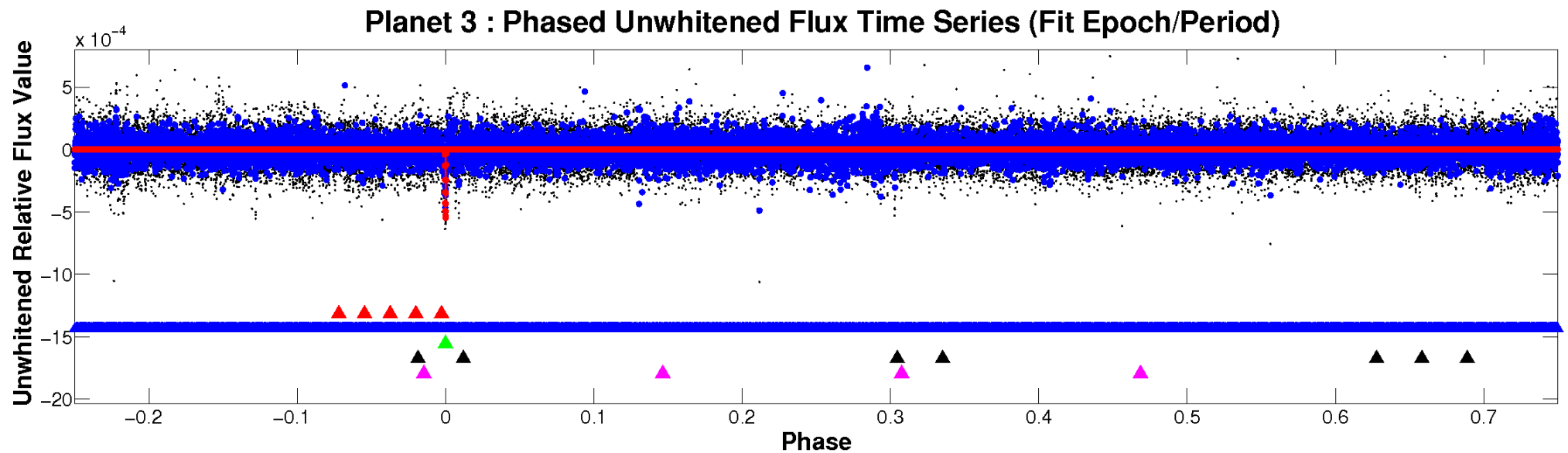


# ALT Odd/Even

TCE 006960592-03

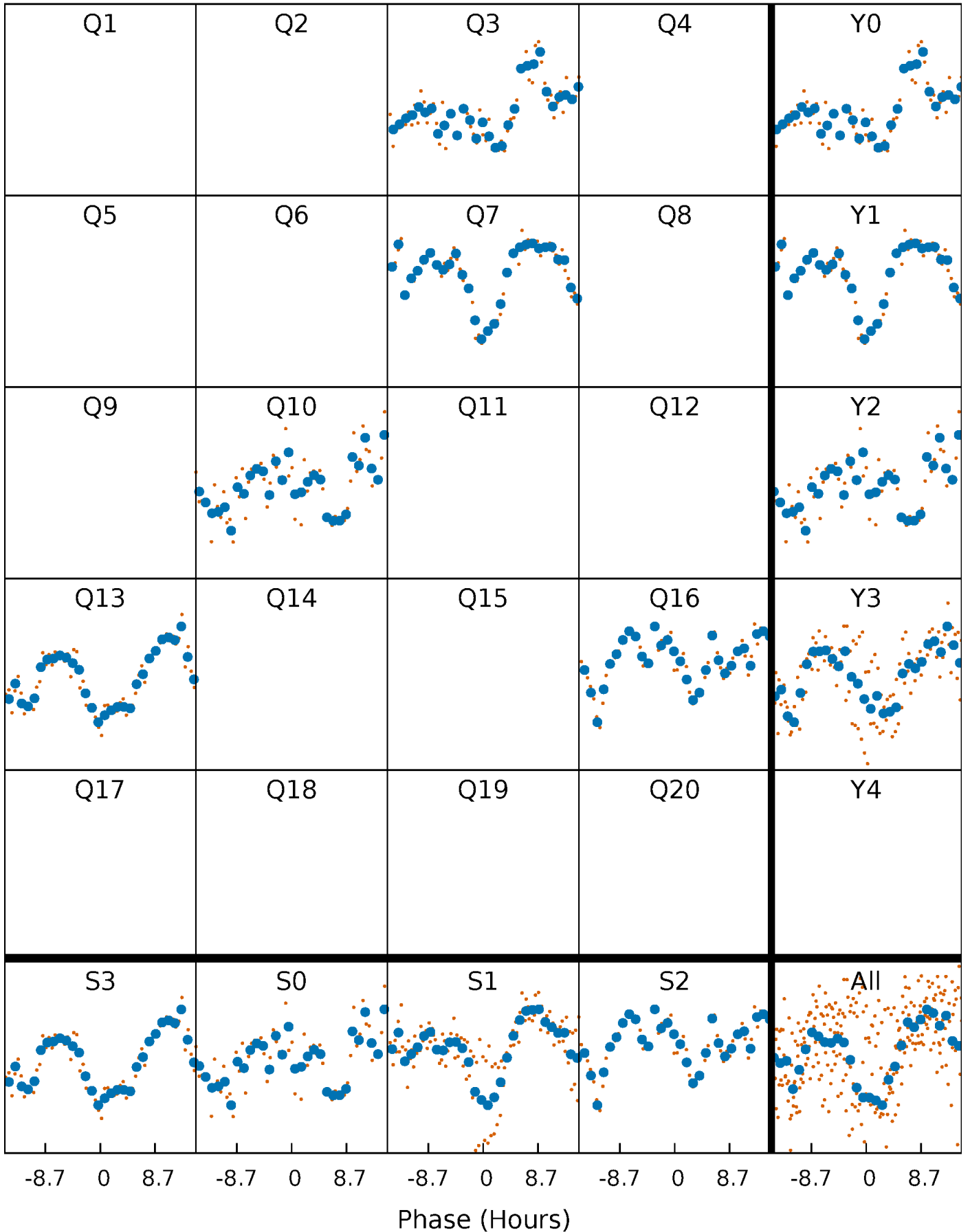


# Non-Whitened Vs. Whitened Light Curve



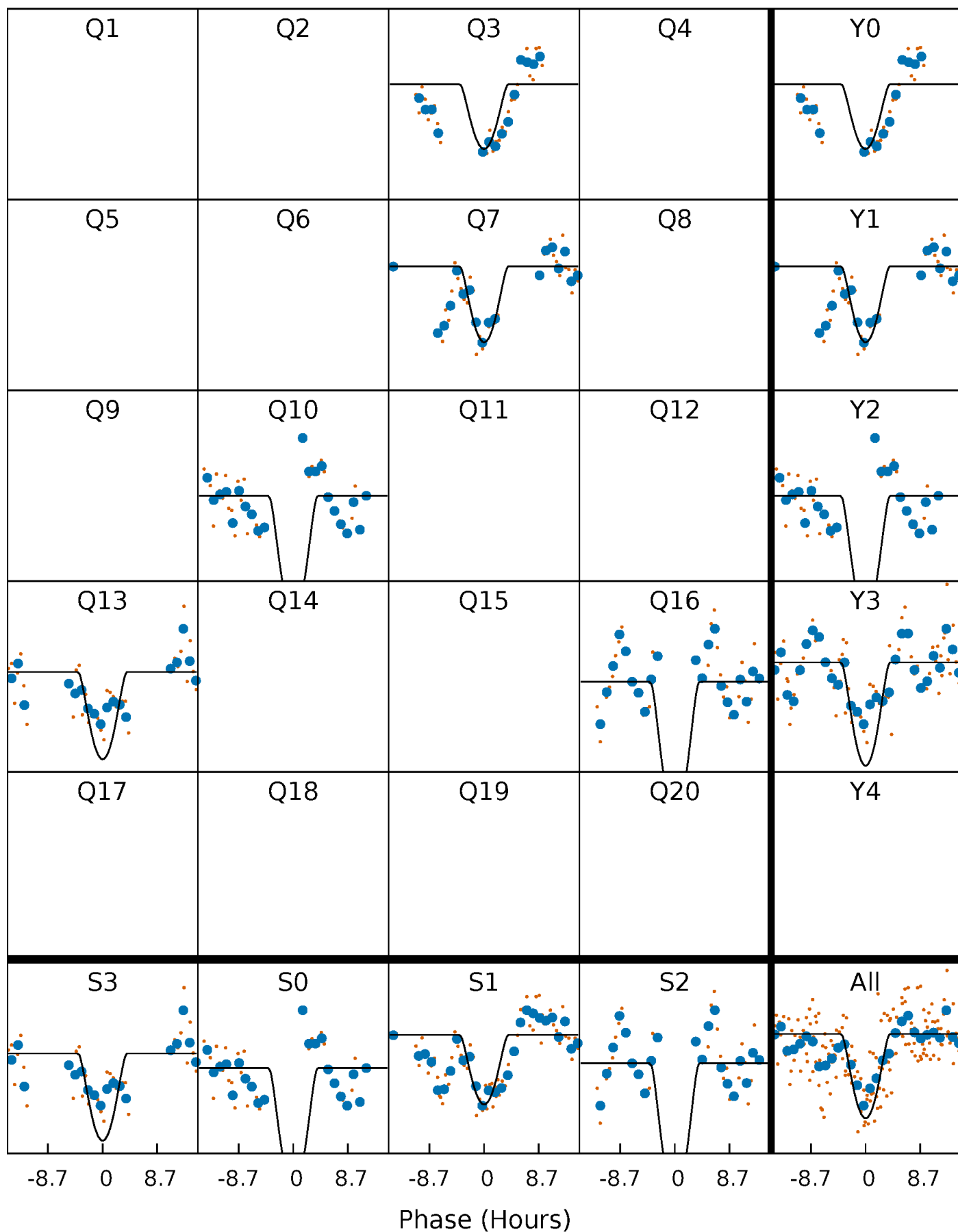
# PDC Quarter-Phased Transit Curves

TCE 006960592-03     $P=301.855610$  Days     $T_0=344.655316$  (BKJD)



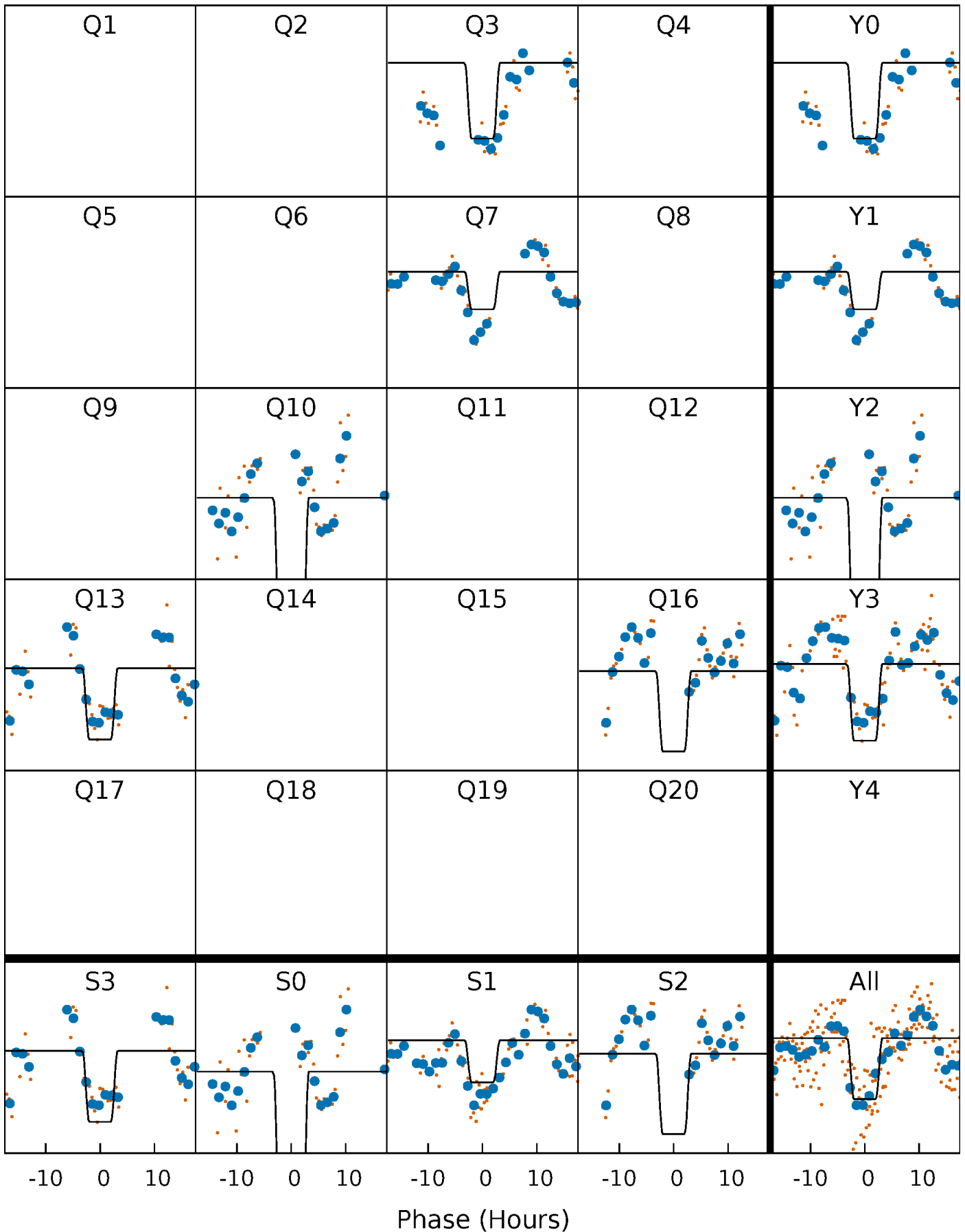
# DV Quarter-Phased Transit Curves

TCE 006960592-03     $P=301.855610$  Days     $T_0=344.655316$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

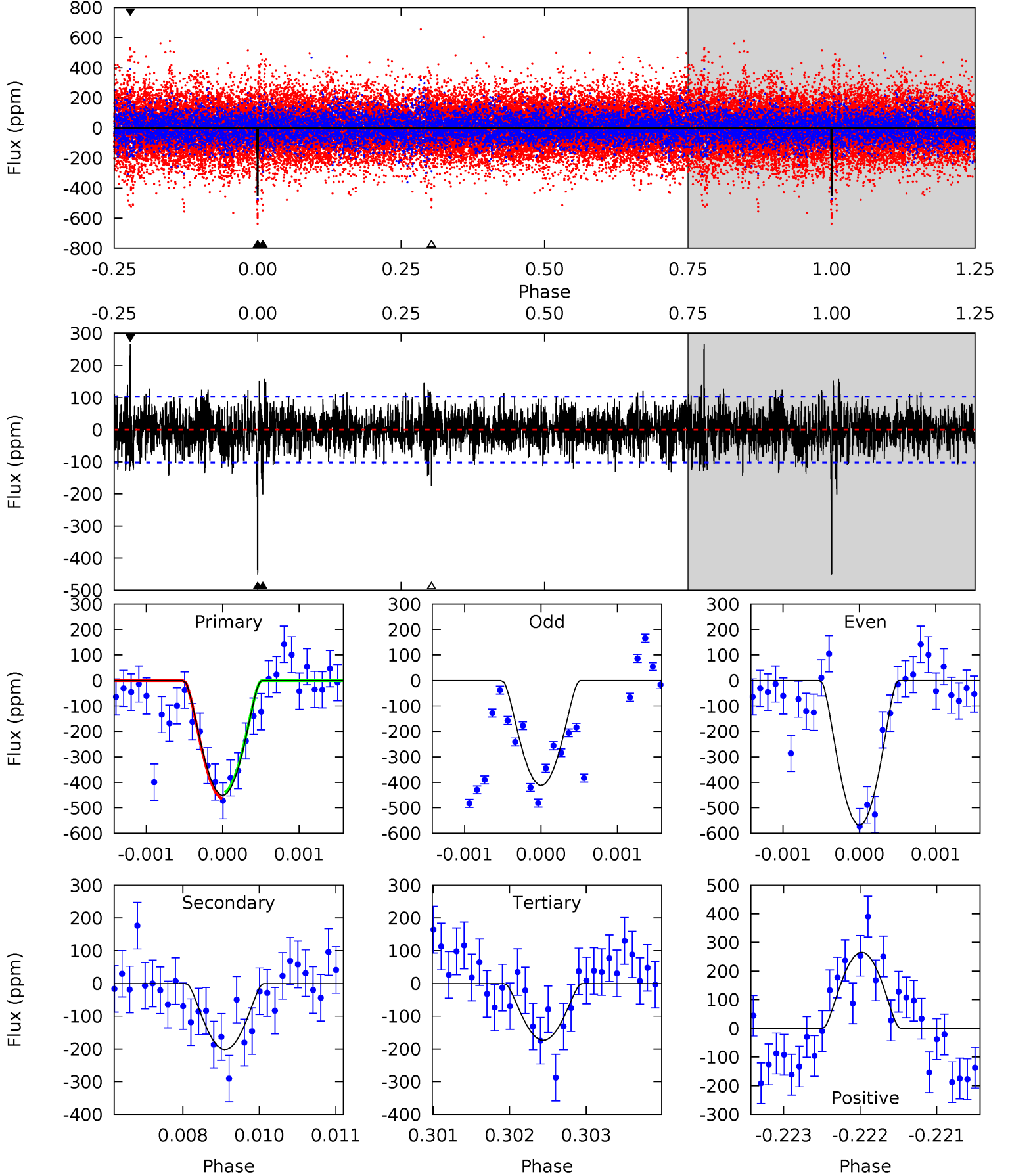
TCE 006960592-03     $P=301.851360$  Days     $T_0=344.698116$  (BKJD)



# DV Model-Shift Uniqueness Test

006960592-03,  $P = 301.855610$  Days,  $E = 42.799706$  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
24.0	10.7	9.25	14.1	5.44	3.27	2.39	14.7	9.85	1.49	-3.40	3.94	0.29	0.37	0.62

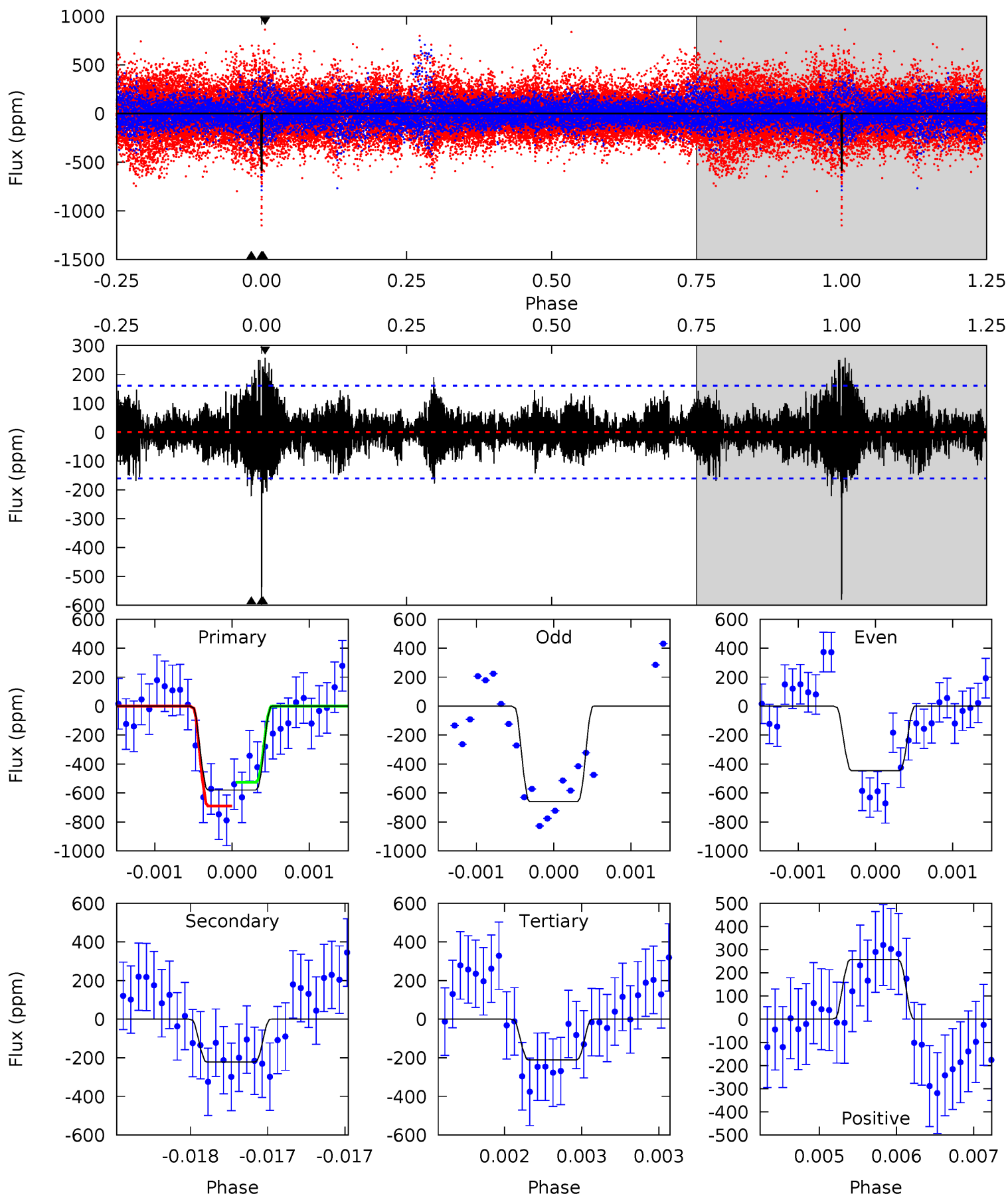




# Alt Model-Shift Uniqueness Test

006960592-03, P = 301.851360 Days, E = 42.846756 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
19.8	7.57	7.21	8.75	5.48	3.33	1.86	12.6	11.0	0.36	-1.18	3.57	0.90	0.31	2.73



### Stellar Parameters For KIC 006960592

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7331^{+203}_{-330}$	$4.041^{+0.170}_{-0.170}$	$0.040^{+0.200}_{-0.350}$	$2.041^{+0.532}_{-0.478}$	$1.668^{+0.193}_{-0.289}$	$0.276^{+0.260}_{-0.135}$
	+3%/-5%	+4%/-4%	+500%/-875%	+26%/-23%	+12%/-17%	+94%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 006960592-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-202 \pm 19$	$21.48^{+20.37}_{-14.91}$	$628^{+44}_{-44}$	$3303^{+1668}_{-550}$	$260^{+2390}_{-192}$
Alt.	$-222 \pm 29$	$19.03^{+19.16}_{-13.60}$	$630^{+50}_{-48}$	$3510^{+2191}_{-665}$	$365^{+3988}_{-273}$

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

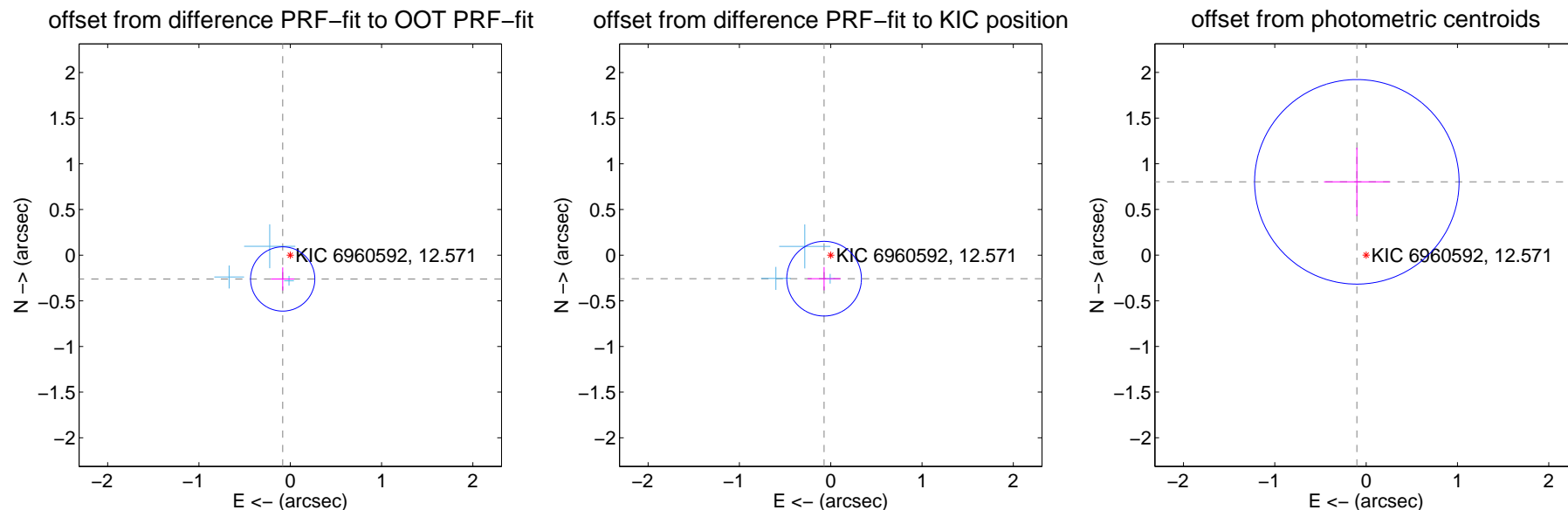
## DV Centroid Data

Supplemental centroid analysis for 006960592-03. Kepler magnitude: 12.57. Transit SNR 11.29

There are 3 quarters with good PRF difference image offsets

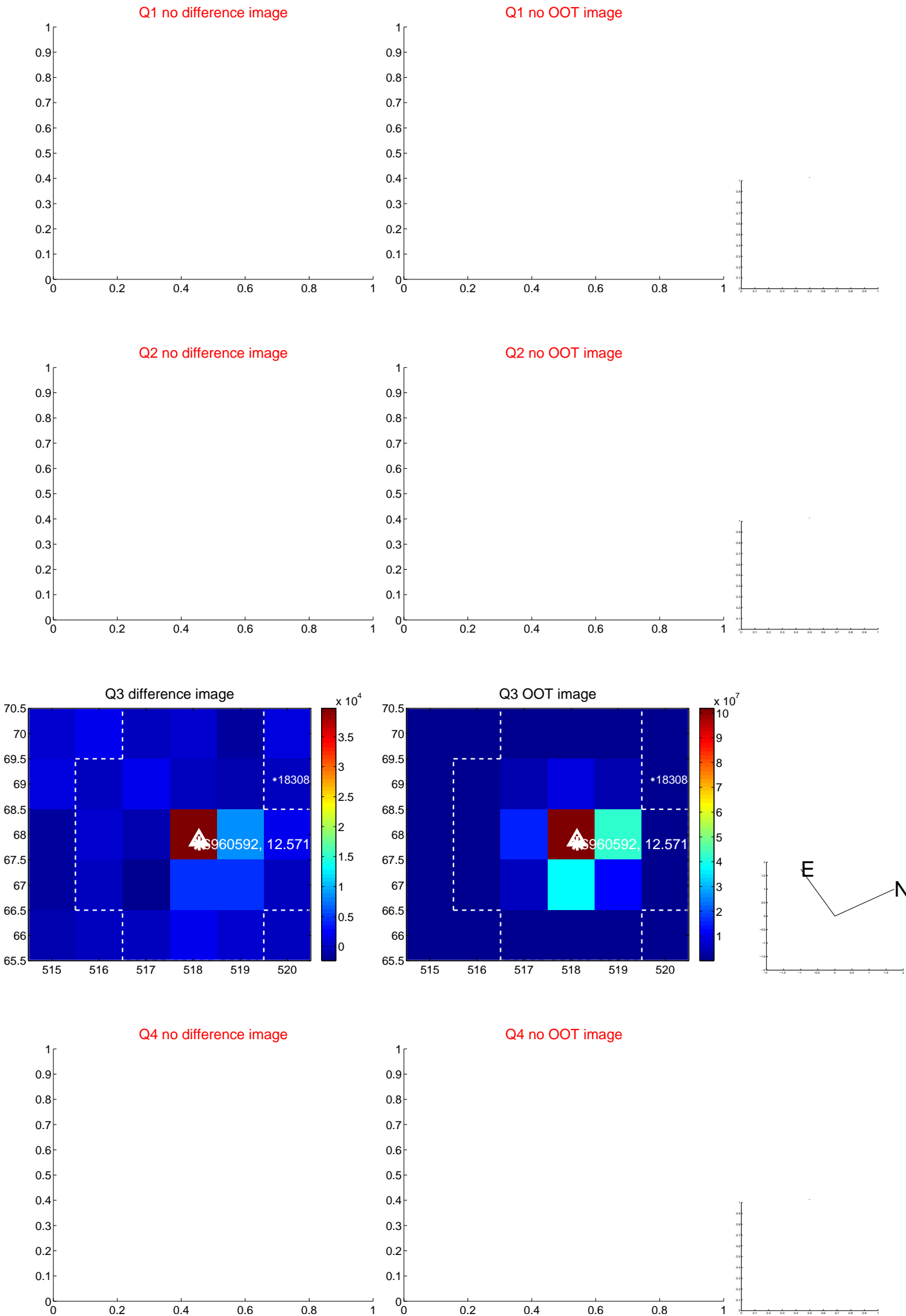
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.274 \pm 0.117$	2.33	$0.083 \pm 0.128$	$-0.261 \pm 0.126$
PRF-fit source offset from KIC position	$0.268 \pm 0.136$	1.96	$0.073 \pm 0.181$	$-0.258 \pm 0.128$
photometric centroid source offset	$0.81 \pm 0.37$	2.17	$0.10 \pm 0.36$	$0.80 \pm 0.37$

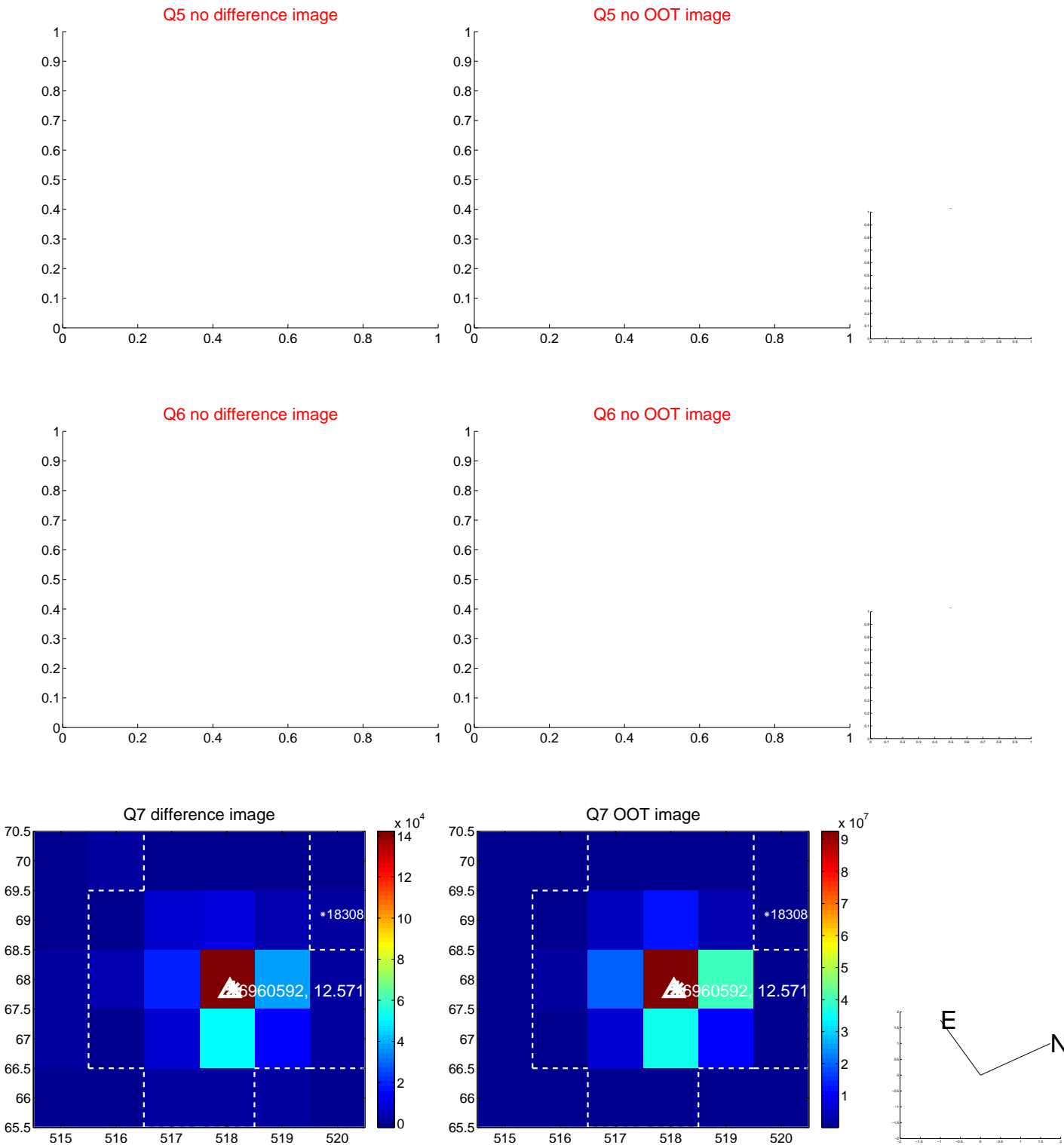


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

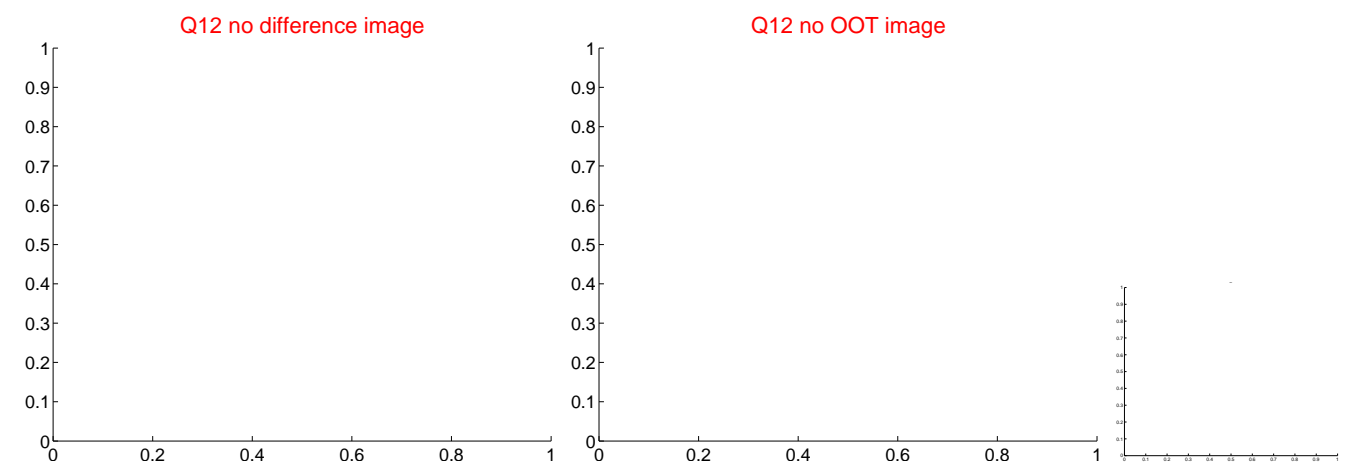
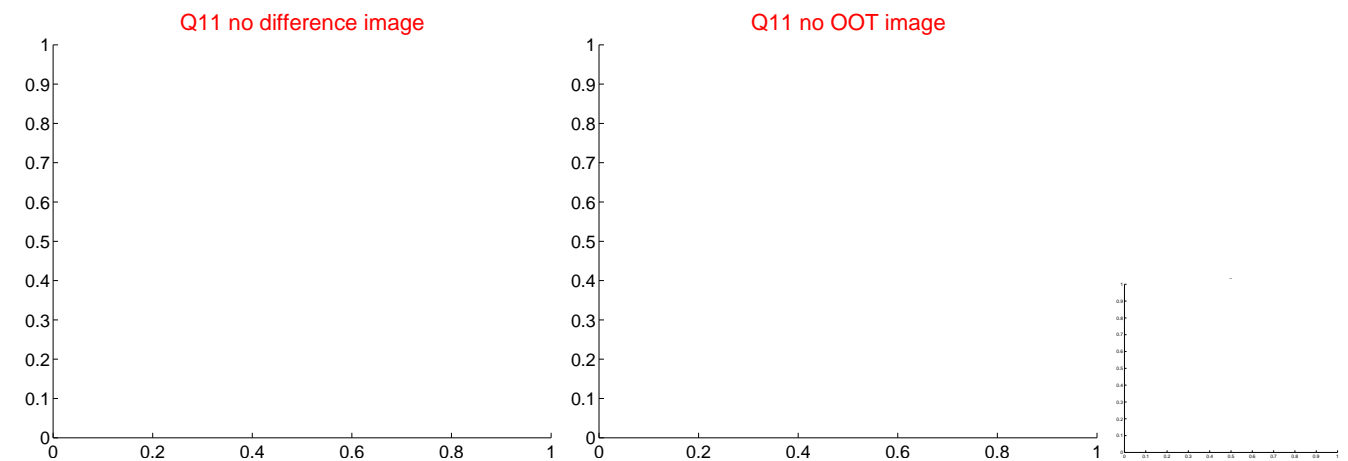
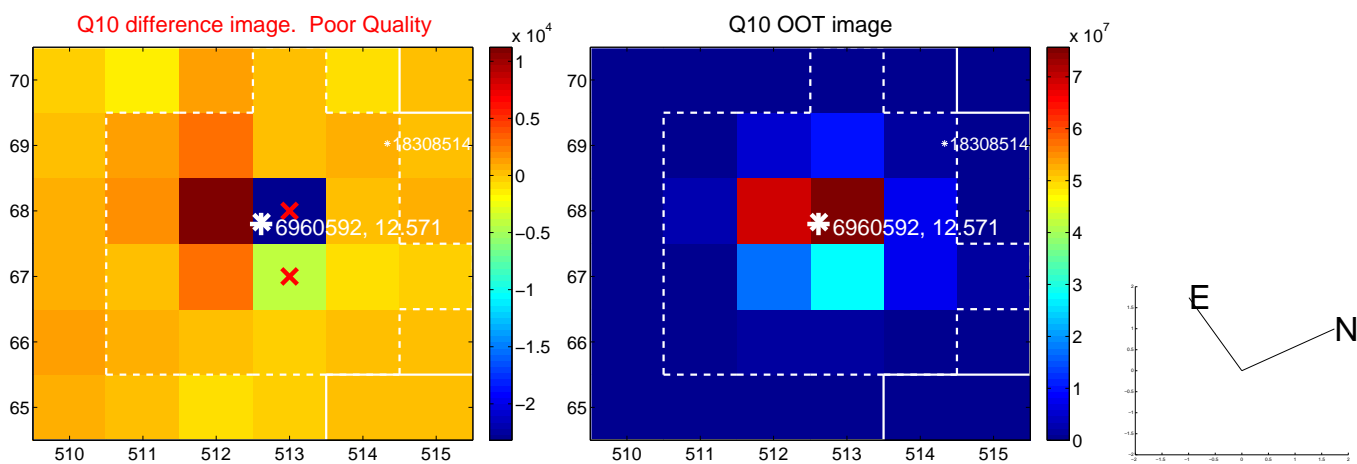
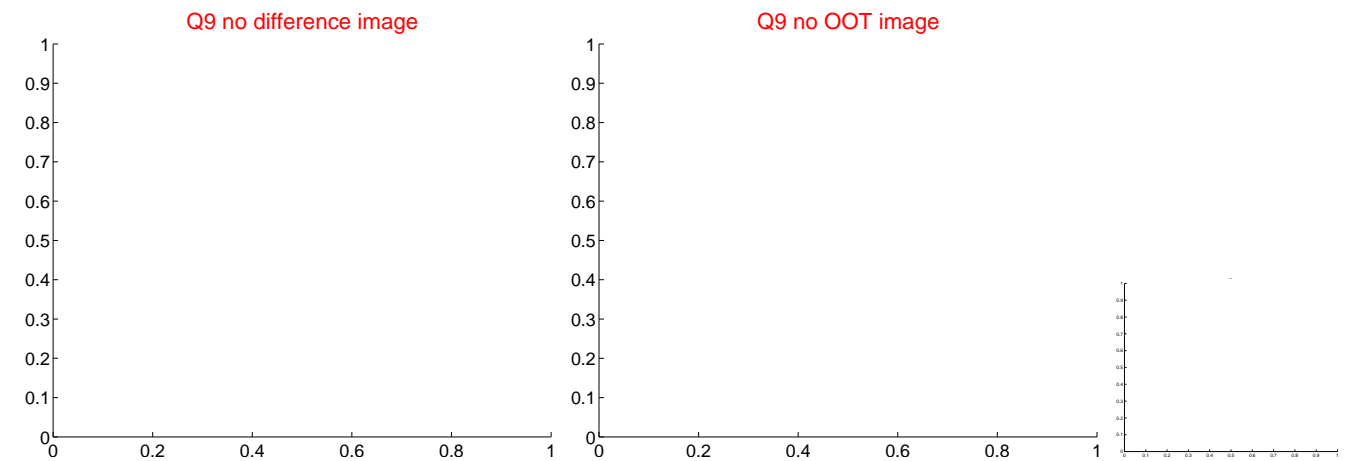
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



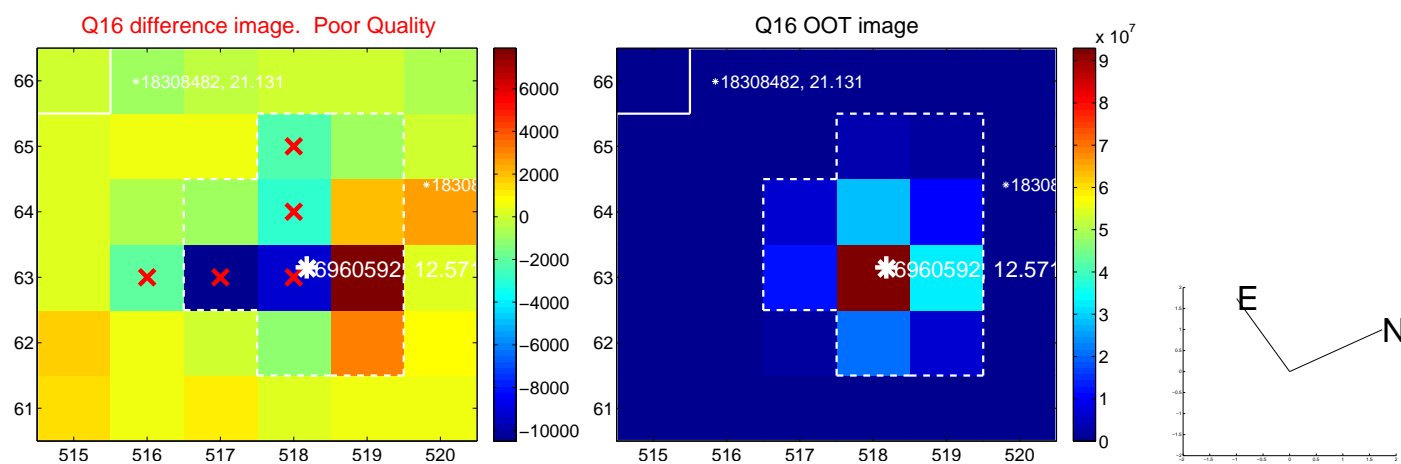
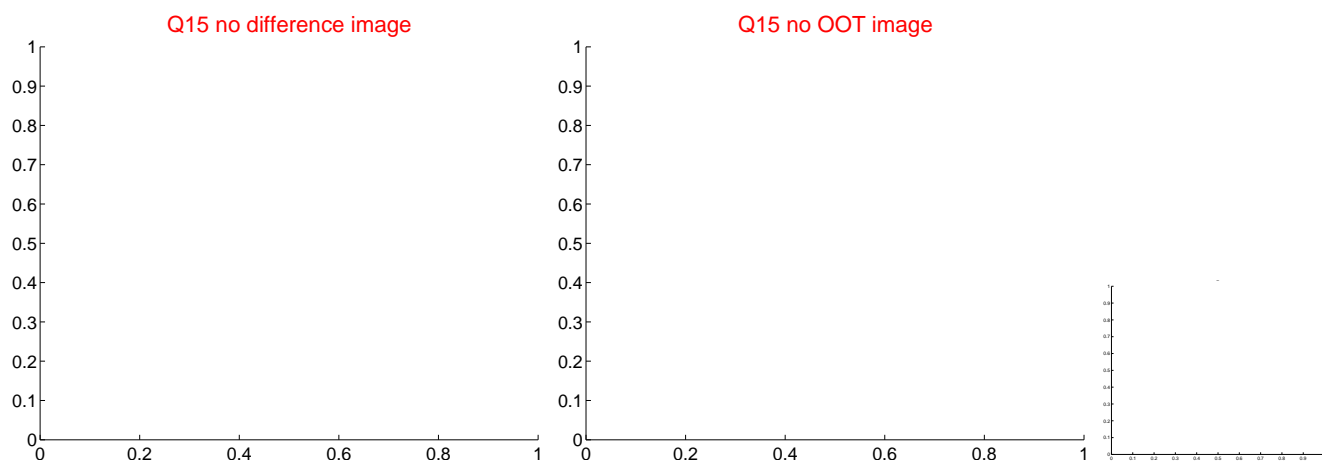
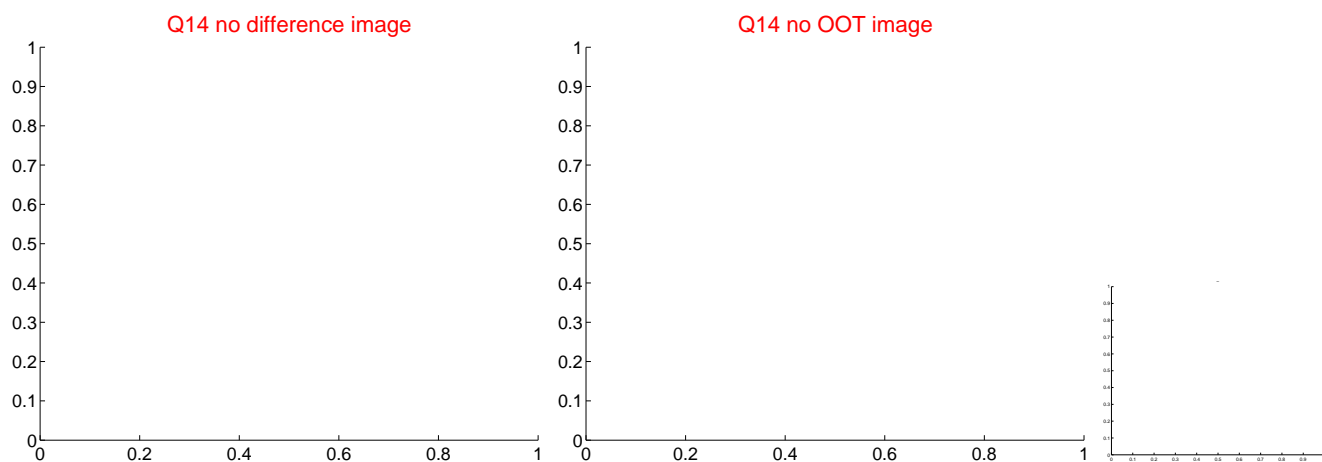
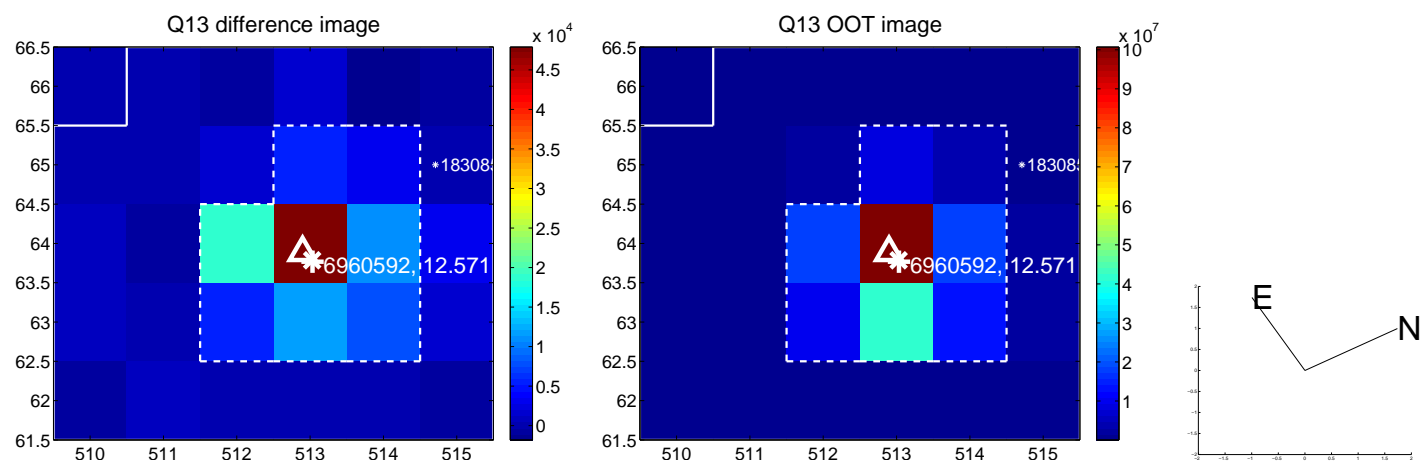
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



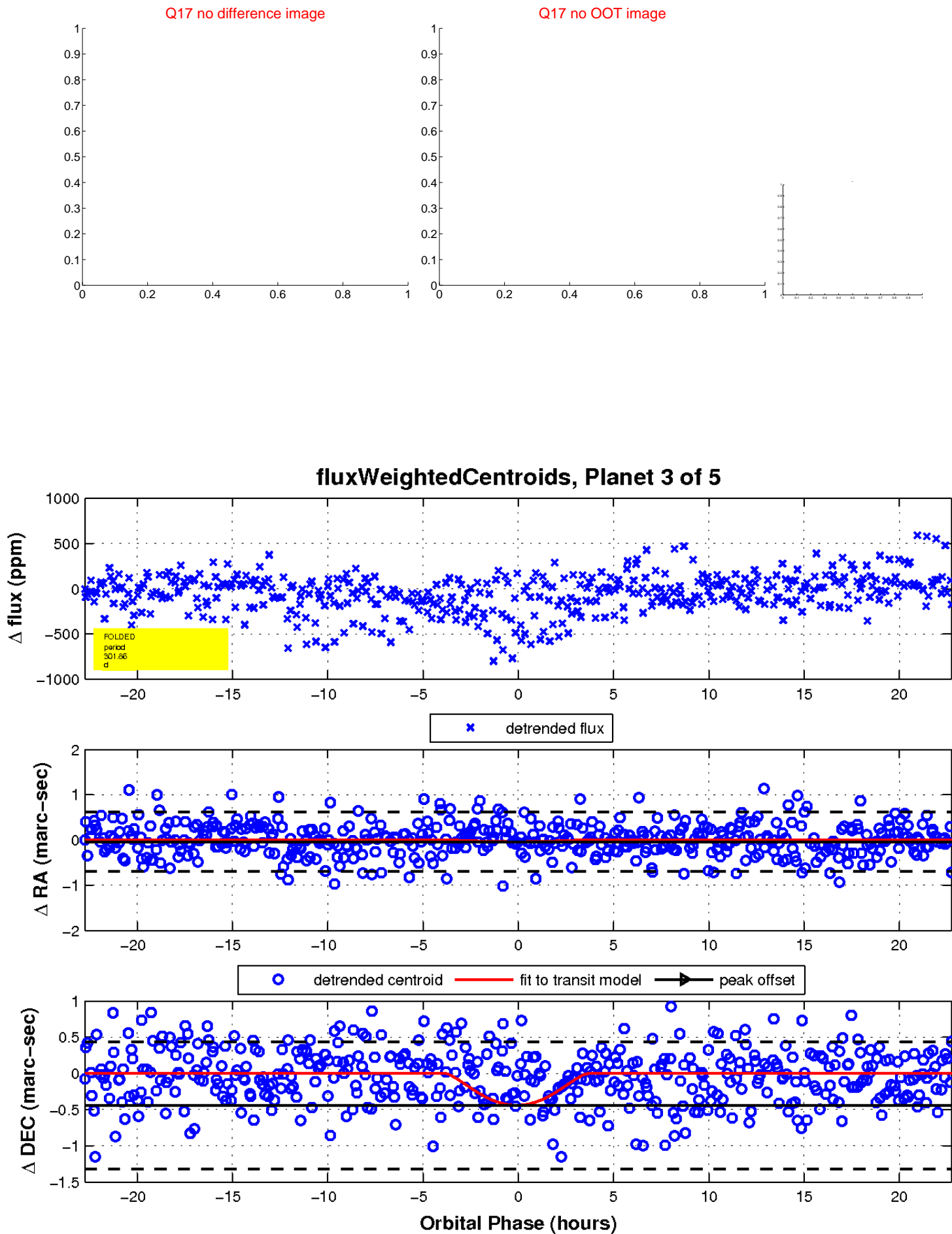
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



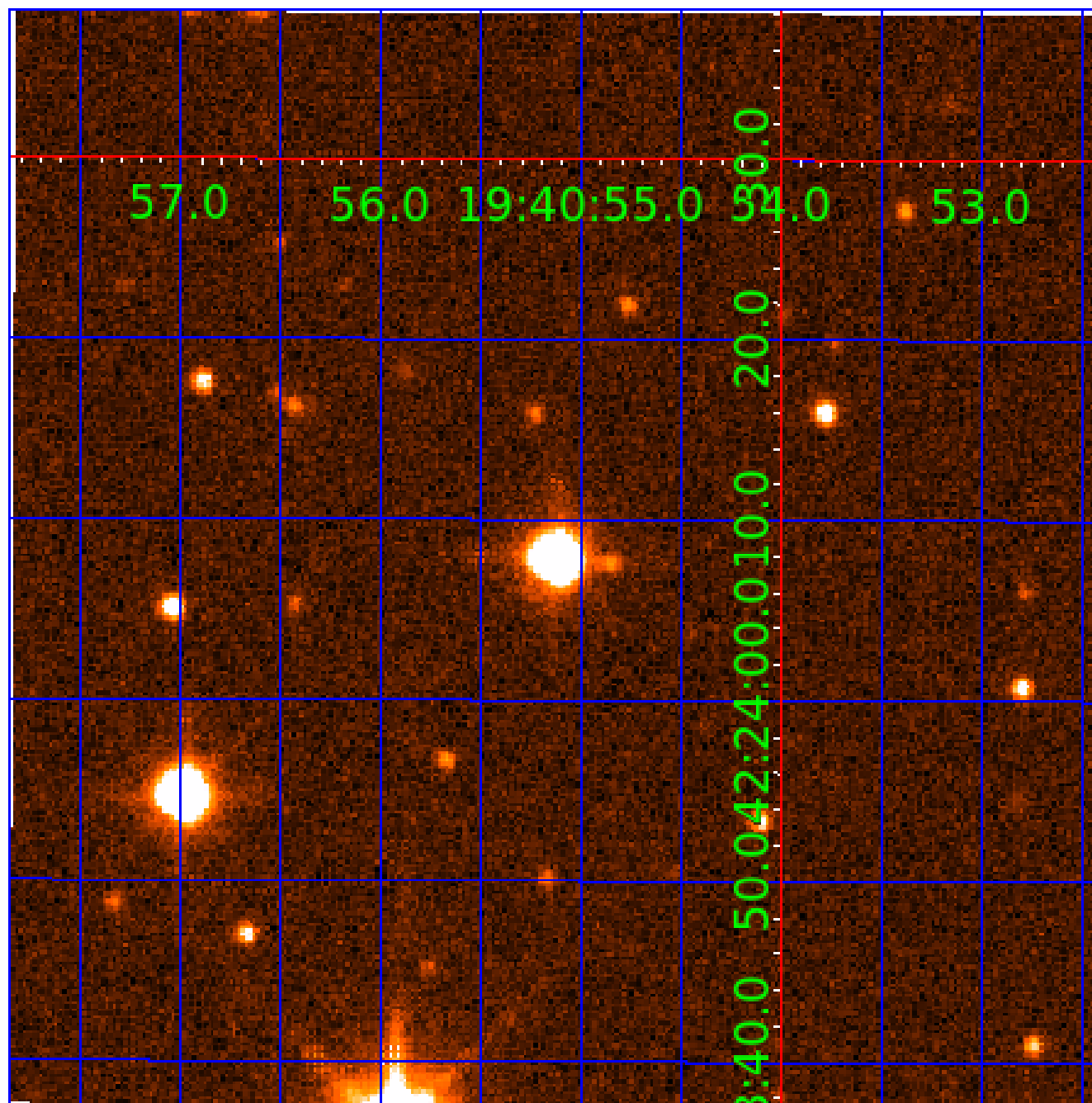
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 006960592

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006960592-01	OBS	No	296.631480	343.848886	80.5	5.442	8.8	2.4	2.04	7331	2.12	10.10
006960592-02	OBS	No	0.676140	131.529944	226.9	2.000	8.1	-1.0	2.04	7331	3.12	33681.71
006960592-03	OBS	No	301.855610	344.655316	549.3	7.590	17.5	11.3	2.04	7331	9.02	9.87
006960592-04	OBS	No	204.312868	232.296791	212.5	6.592	8.9	6.1	2.04	7331	3.46	16.61
006960592-05	OBS	No	350.468830	340.266178	274.3	3.758	7.7	7.6	2.04	7331	3.91	8.09

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006960592-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006960592-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS
006960592-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
006960592-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006960592-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—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.

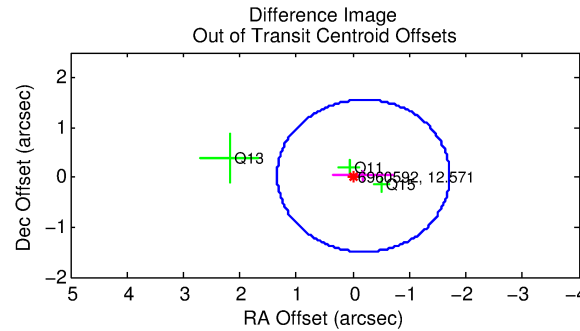
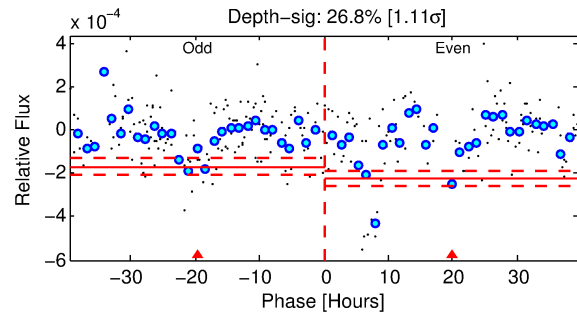
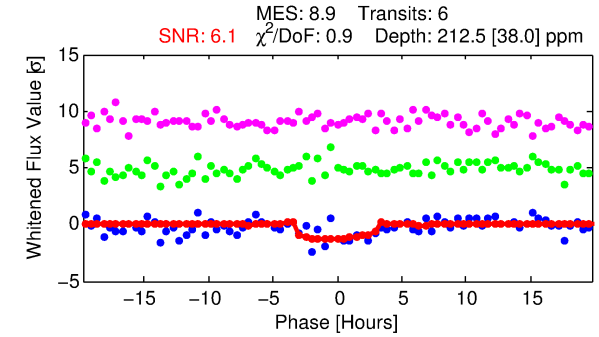
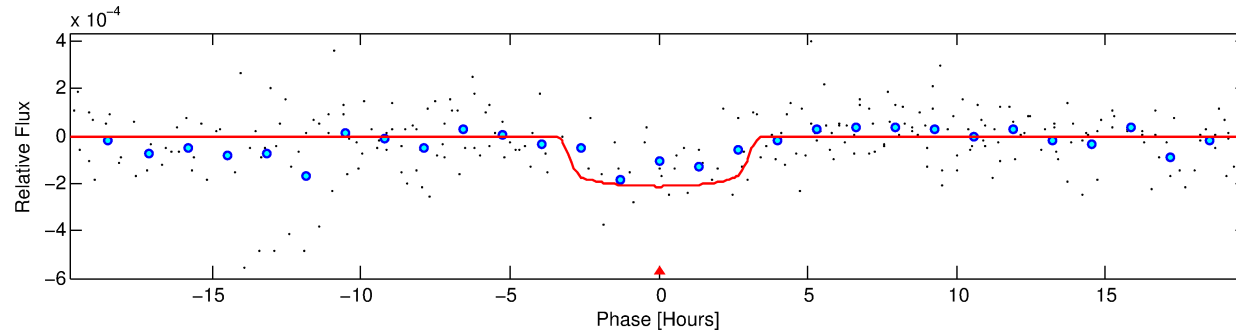
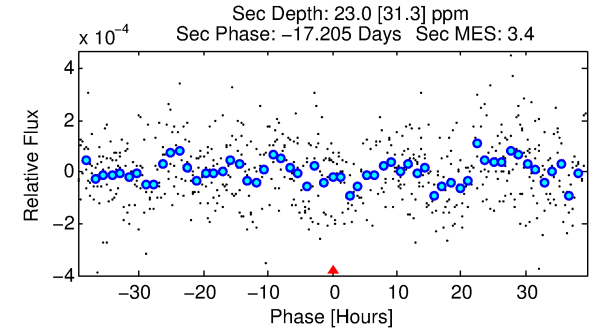
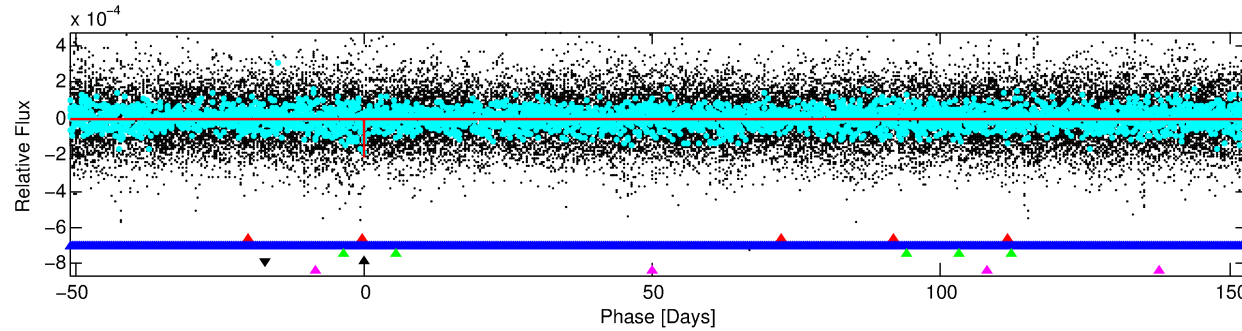
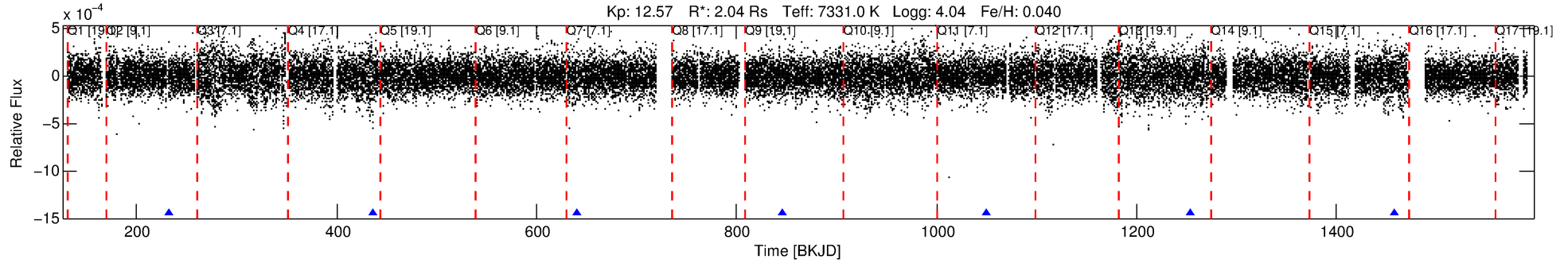
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006960592-04

No Significant Match Found

# DV One-Page Summary

KIC: 6960592 Candidate: 4 of 5 Period: 204.313 d



## DV Fit Results:

Period = 204.31287 [0.00442] d  
Epoch = 232.2968 [0.0168] BKJD  
Rp/R\* = 0.0155 [0.0027]  
a/R\* = 108.91 [98.09]  
b = 0.91 [0.18]  
Seff = 16.61 [6.01]  
Teff = 515 [47] K  
Rp = 3.46 [1.09] Re  
a = 0.8056 [0.1751] AU  
Ag = 685.36 [987.36] [0.69σ]  
Teffp = 4072 [1443] K [2.46σ]

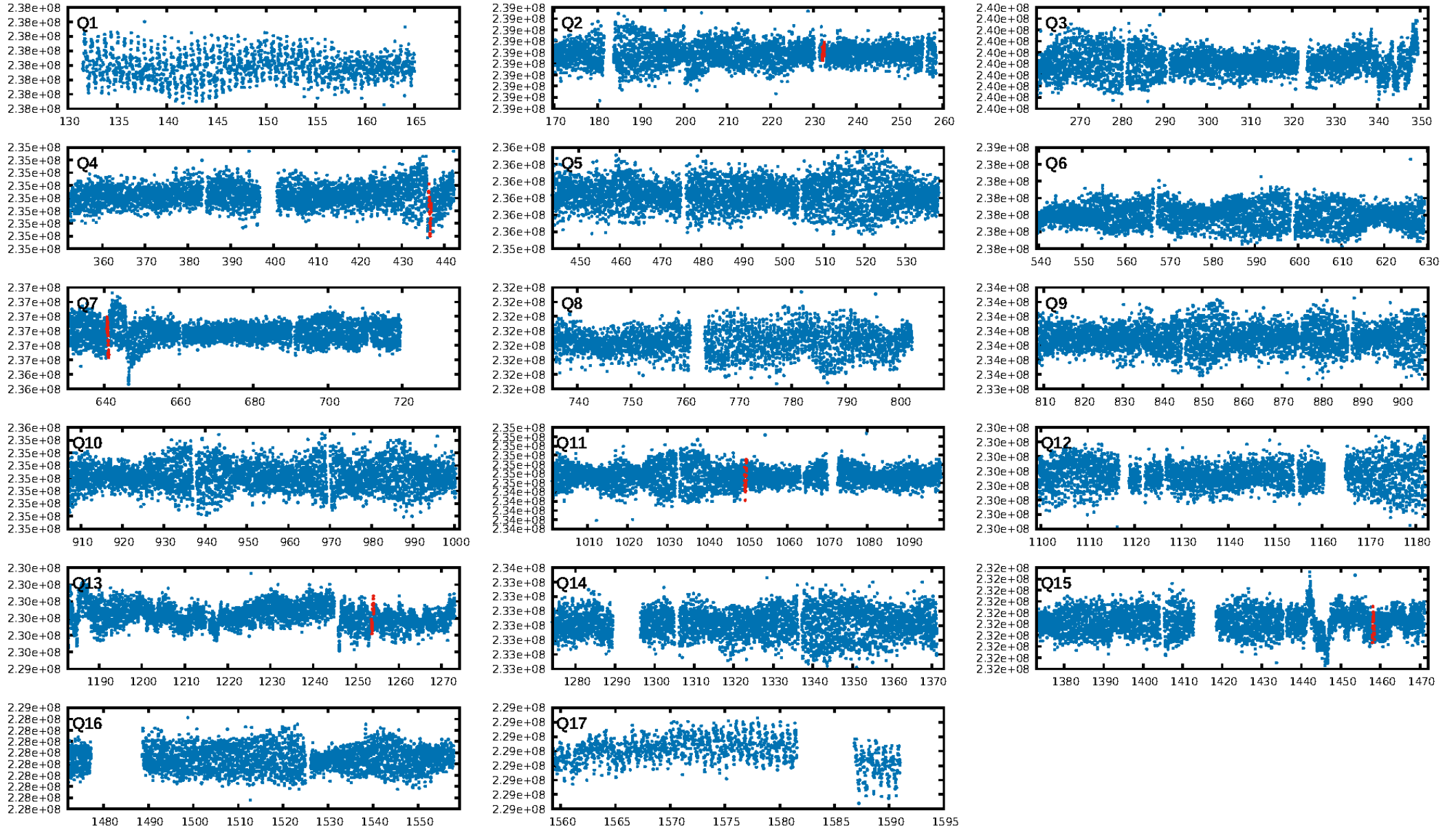
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [709.46σ]  
LongPeriod-sig: 100.0% [259.20σ]  
ModelChiSquare2-sig: 10.2%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.68e-11**  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: -3.88  
Centroid-sig: 36.9%  
Centroid-so: 0.563 arcsec [0.74σ]  
OotOffset-rm: 0.189 arcsec [0.37σ]  
KicOffset-rm: 0.107 arcsec [0.27σ]  
OotOffset-st: 0/2/0/1 [3]  
KicOffset-st: 0/2/0/1 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 0.00 [0/4]

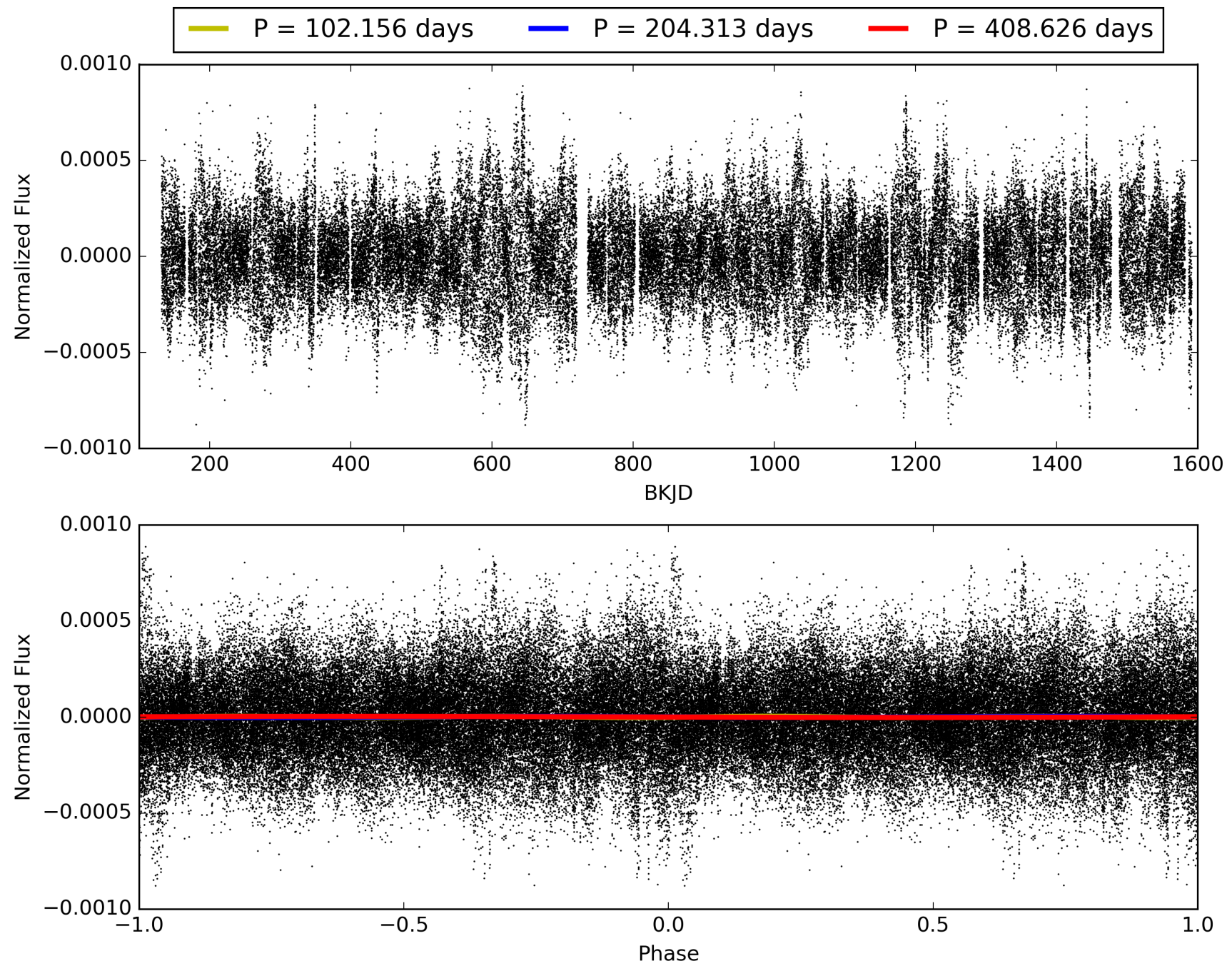
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:23:35 Z

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

# TCE 006960592-04, PDC Light Curves

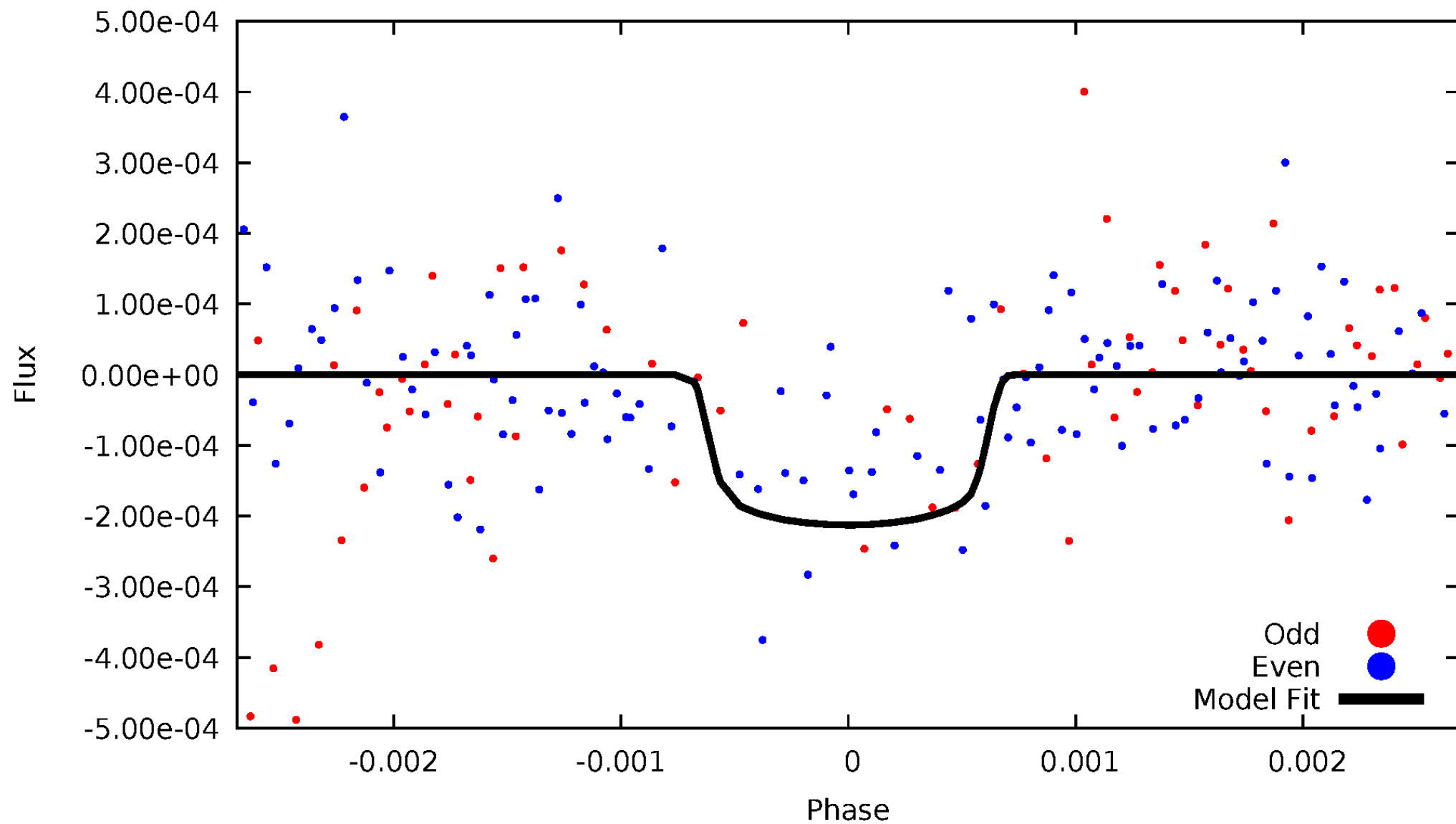


TCE 006960592-04



# DV Odd/Even

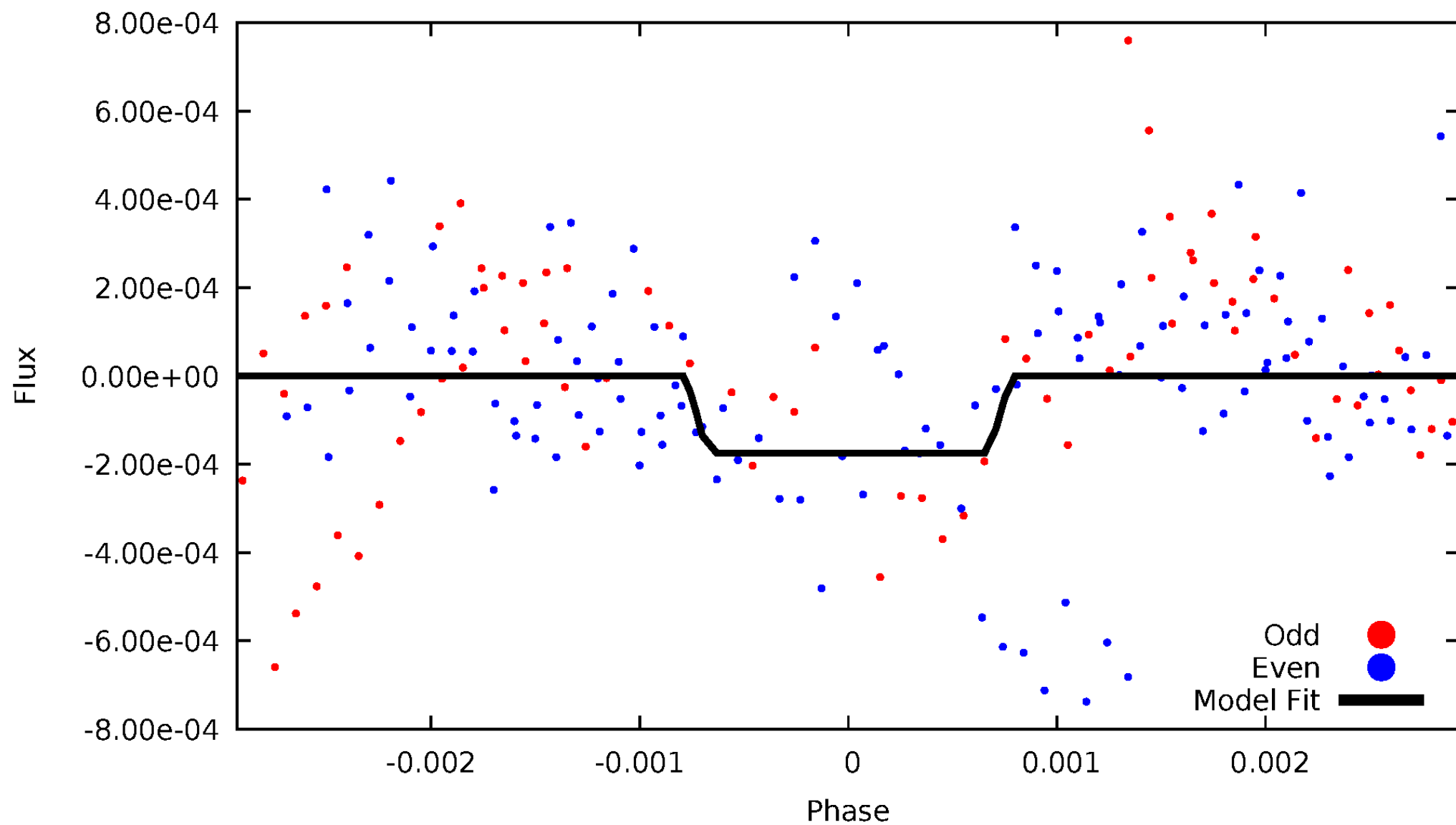
TCE 006960592-04





# ALT Odd/Even

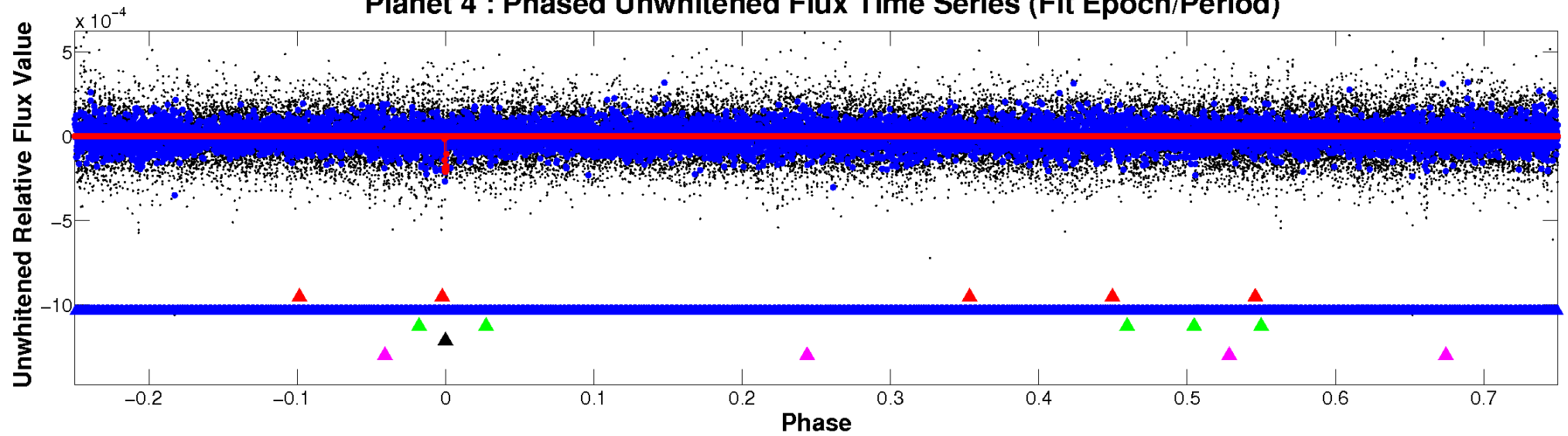
TCE 006960592-04



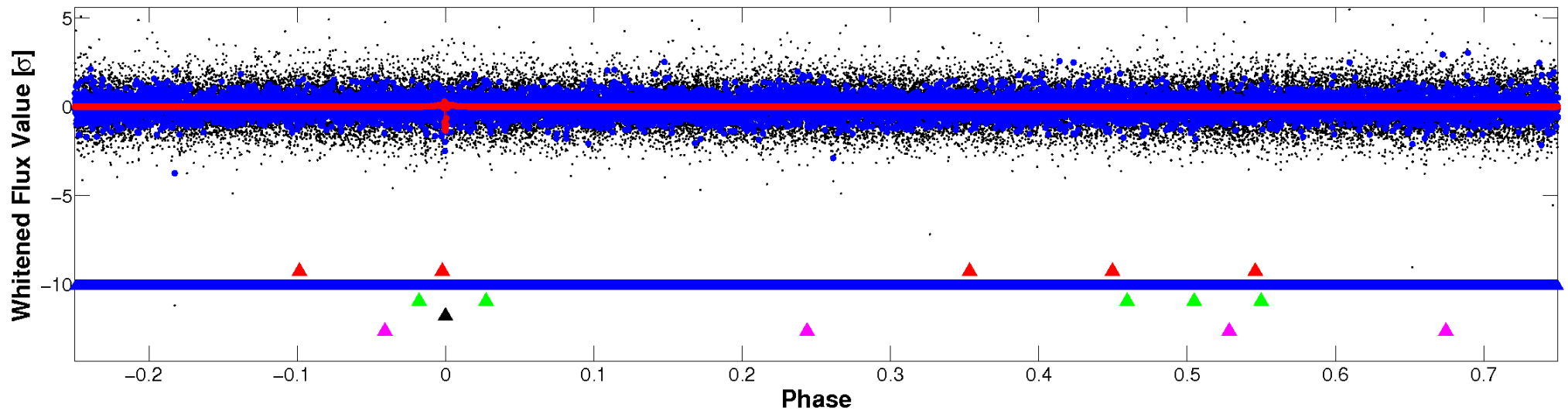


# Non-Whitened Vs. Whitened Light Curve

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

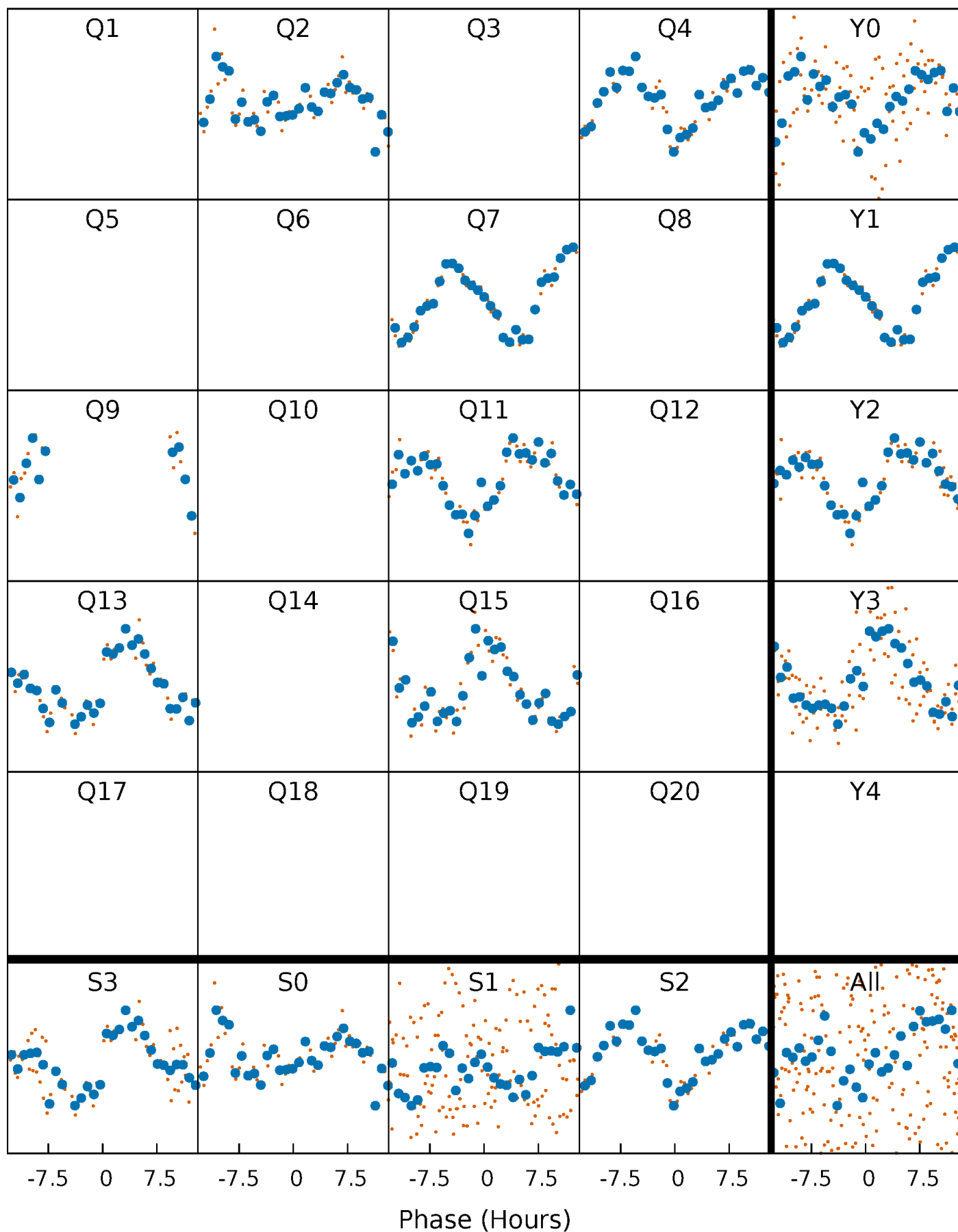


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



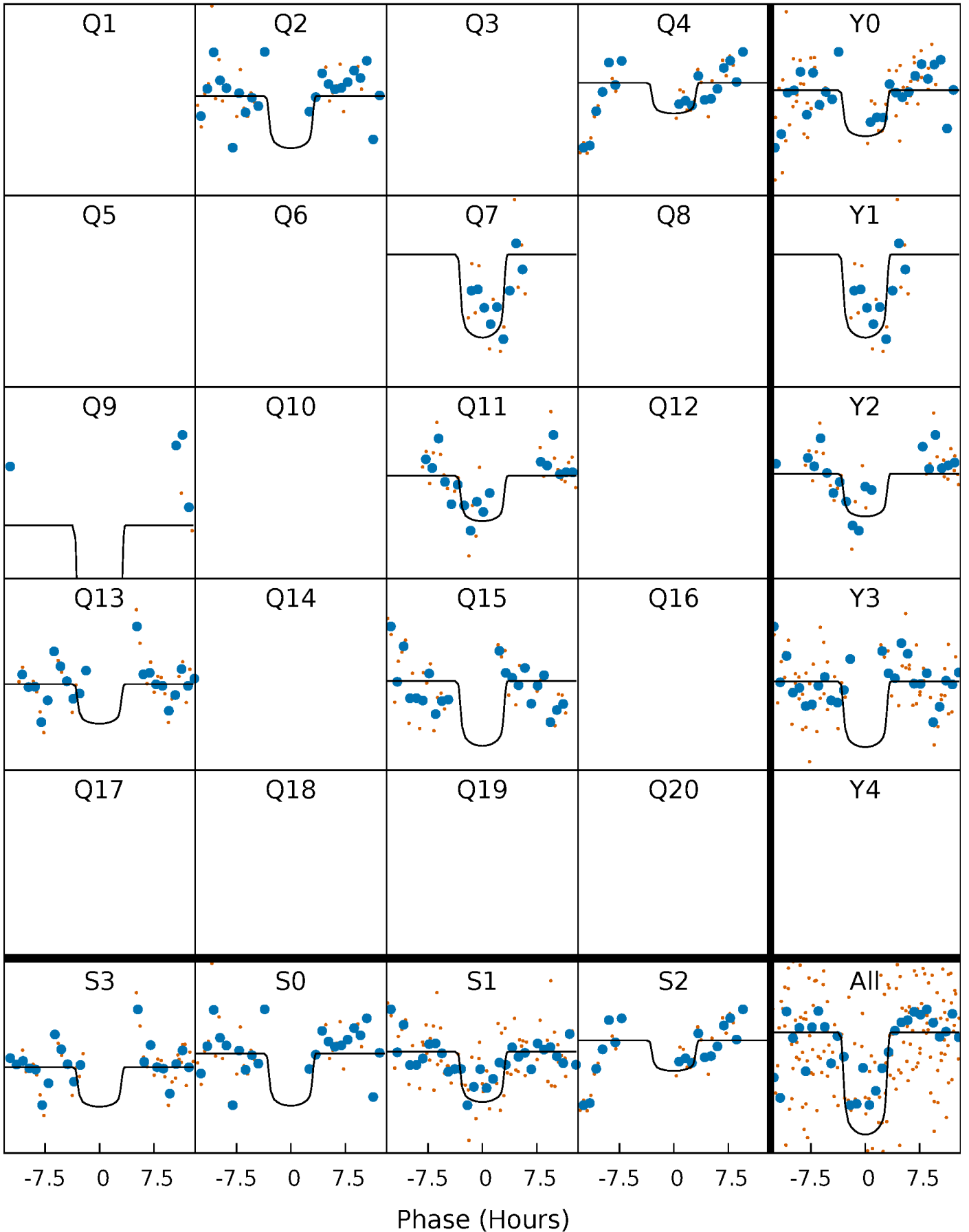
# PDC Quarter-Phased Transit Curves

TCE 006960592-04     $P=204.312868$  Days     $T_0=232.296791$  (BKJD)



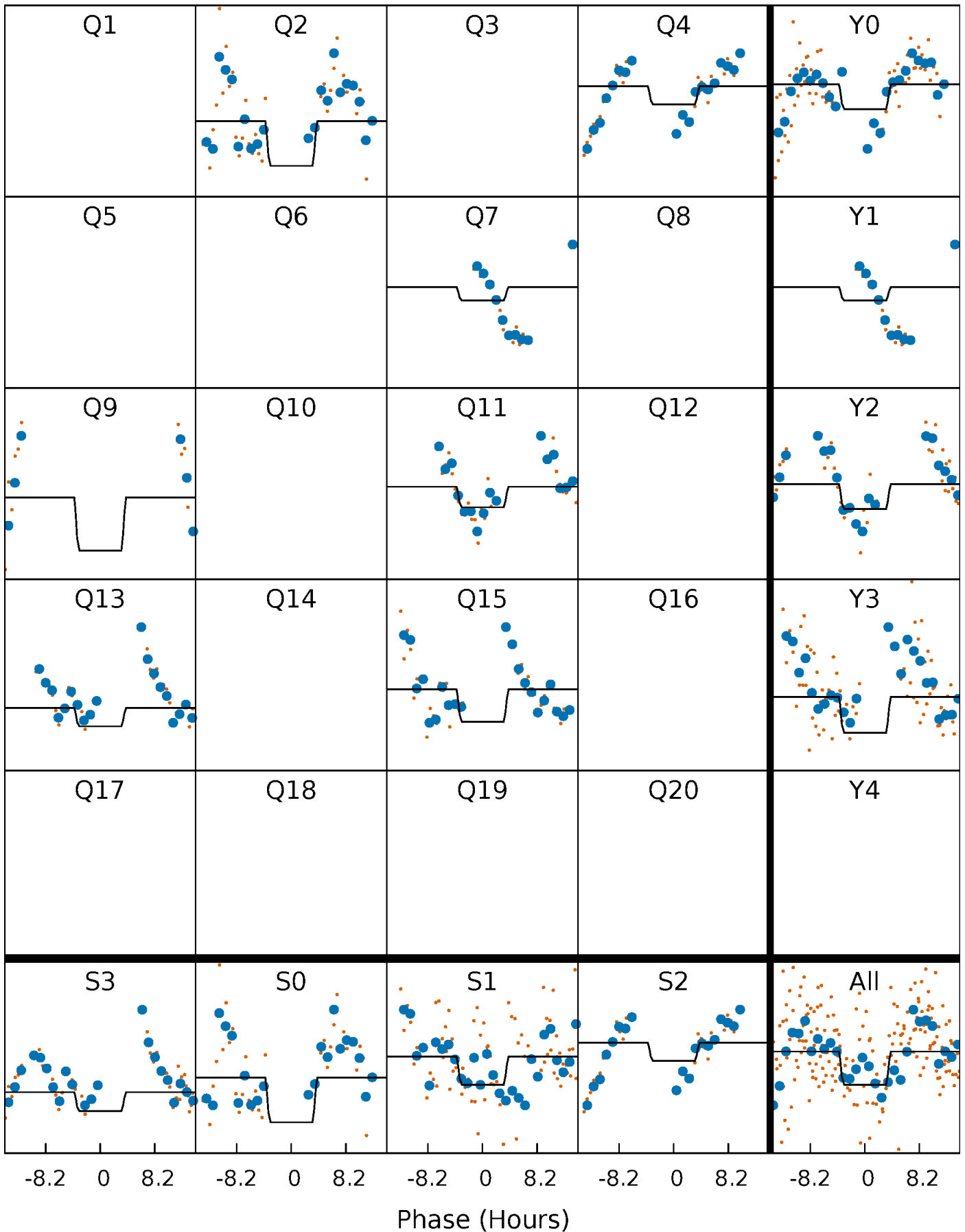
# DV Quarter-Phased Transit Curves

TCE 006960592-04     $P=204.312868$  Days     $T_0=232.296791$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

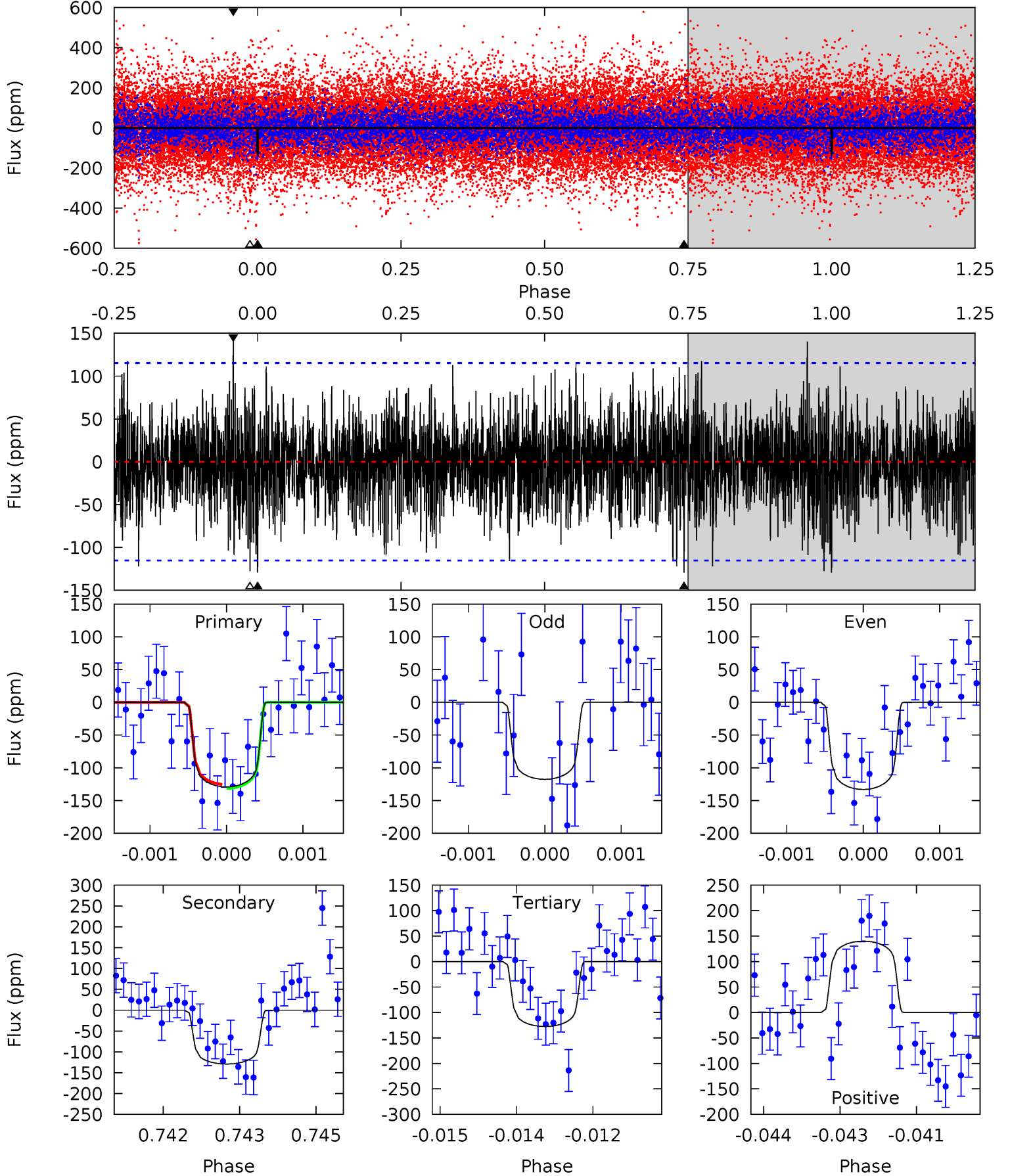
TCE 006960592-04     $P=204.301544$  Days     $T_0=232.291337$  (BKJD)



# DV Model-Shift Uniqueness Test

006960592-04, P = 204.312868 Days, E = 27.983923 Days

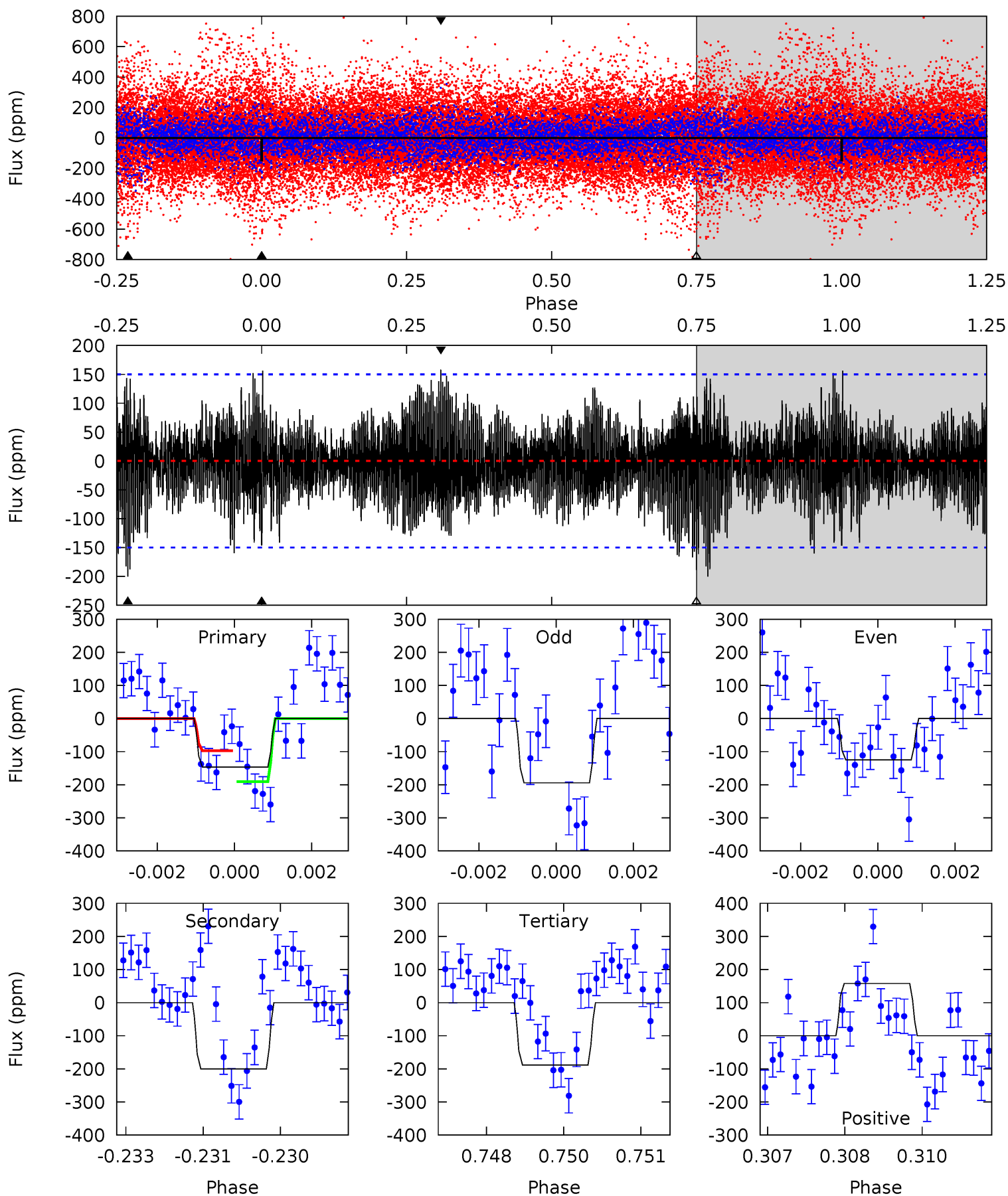
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.05	6.05	5.97	6.56	5.39	3.20	1.70	0.07	-0.51	0.07	-0.51	0.33	0.57	0.52	0.14



# Alt Model-Shift Uniqueness Test

006960592-04, P = 204.301544 Days, E = 27.989793 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
5.25	7.18	6.75	5.66	5.38	3.17	1.85	-1.50	-0.41	0.43	1.52	1.17	1.62	0.44	1.67



### Stellar Parameters For KIC 006960592

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7331^{+203}_{-330}$	$4.041^{+0.170}_{-0.170}$	$0.040^{+0.200}_{-0.350}$	$2.041^{+0.532}_{-0.478}$	$1.668^{+0.193}_{-0.289}$	$0.276^{+0.260}_{-0.135}$
	+3%/-5%	+4%/-4%	+500%/-875%	+26%/-23%	+12%/-17%	+94%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 006960592-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-129 \pm 21$	$3.47^{+0.79}_{-0.77}$	$719^{+56}_{-56}$	$6163^{+748}_{-611}$	$3736^{+2553}_{-1337}$
Alt.	$-200 \pm 28$	$2.91^{+0.79}_{-0.69}$	$716^{+51}_{-53}$	$7558^{+1341}_{-906}$	$8075^{+6573}_{-3102}$

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



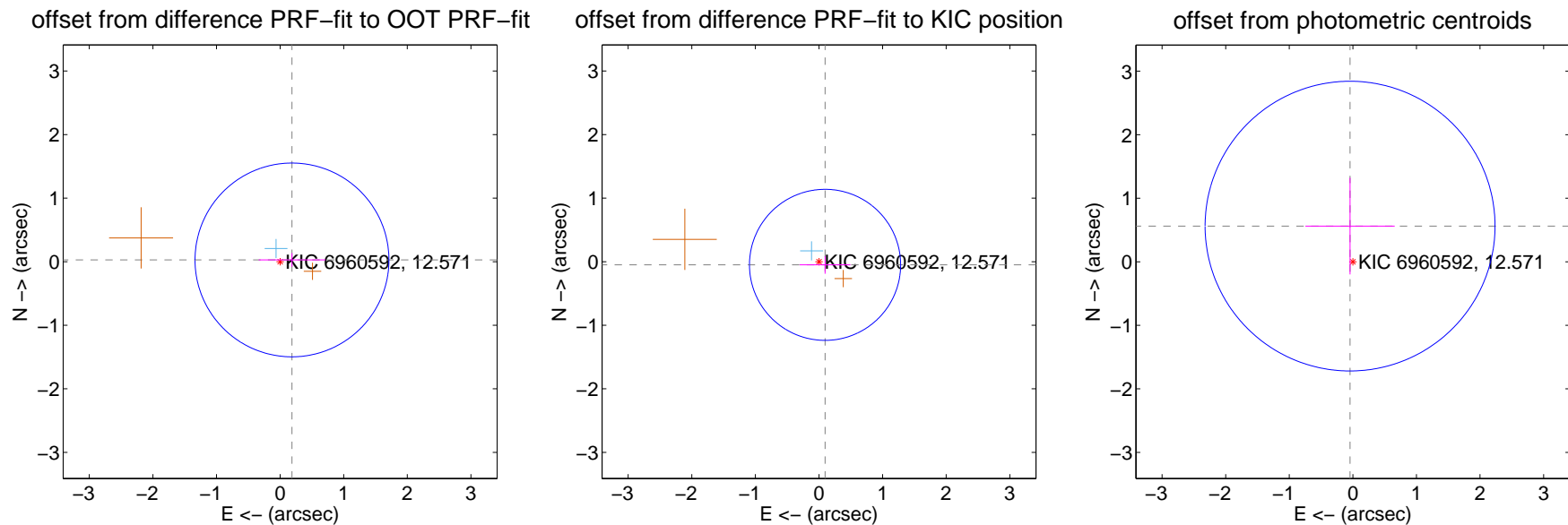
## DV Centroid Data

Supplemental centroid analysis for 006960592-04. Kepler magnitude: 12.57. Transit SNR 6.05

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.189 \pm 0.508$	0.37	$-0.187 \pm 0.524$	$0.028 \pm 0.108$
PRF-fit source offset from KIC position	$0.107 \pm 0.396$	0.27	$-0.095 \pm 0.399$	$-0.050 \pm 0.140$
photometric centroid source offset	$0.56 \pm 0.76$	0.74	$0.04 \pm 0.70$	$0.56 \pm 0.76$

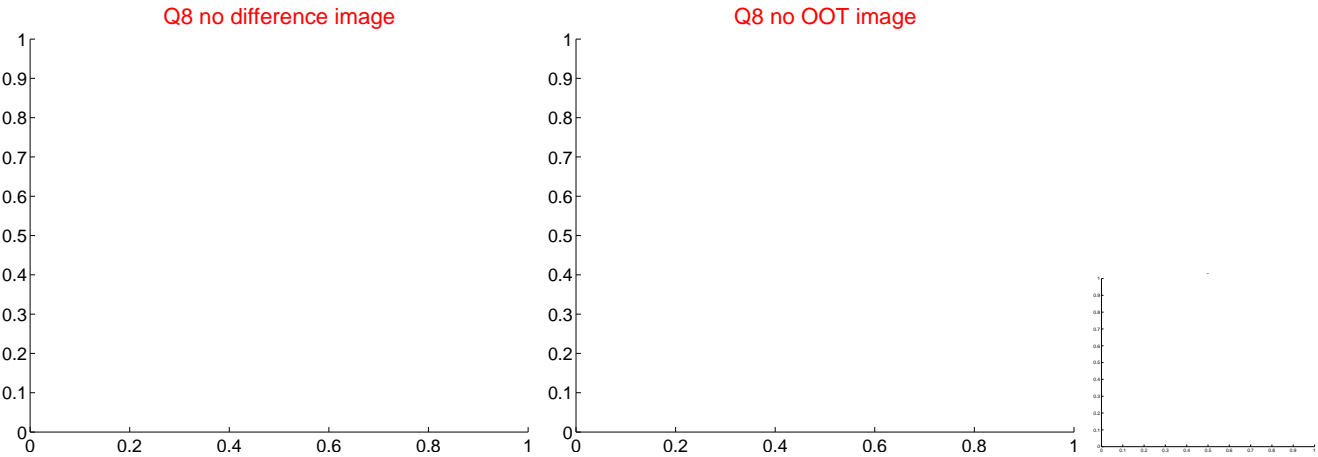
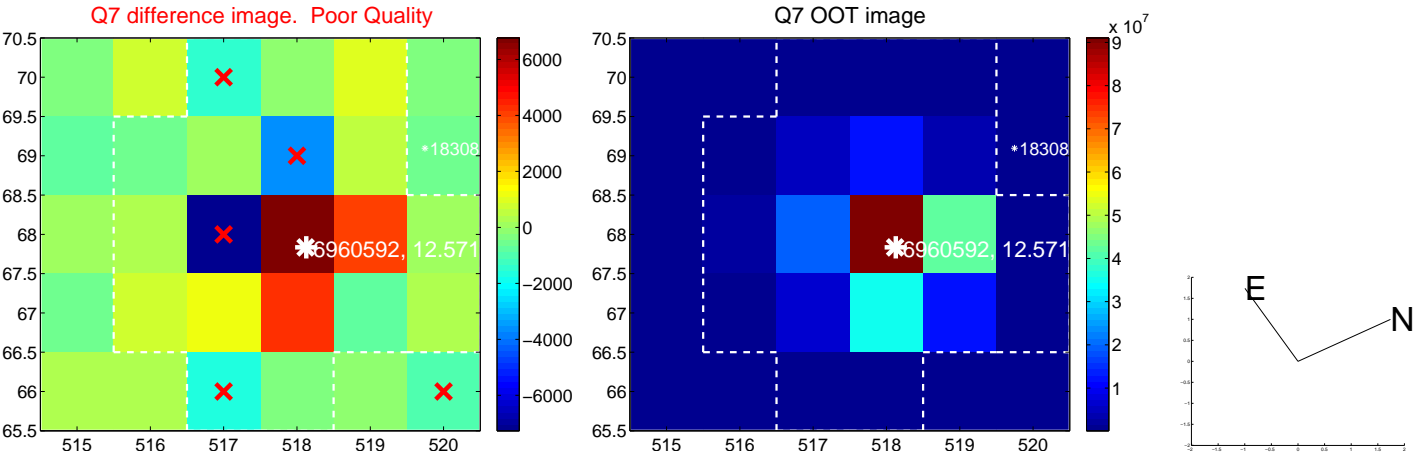


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

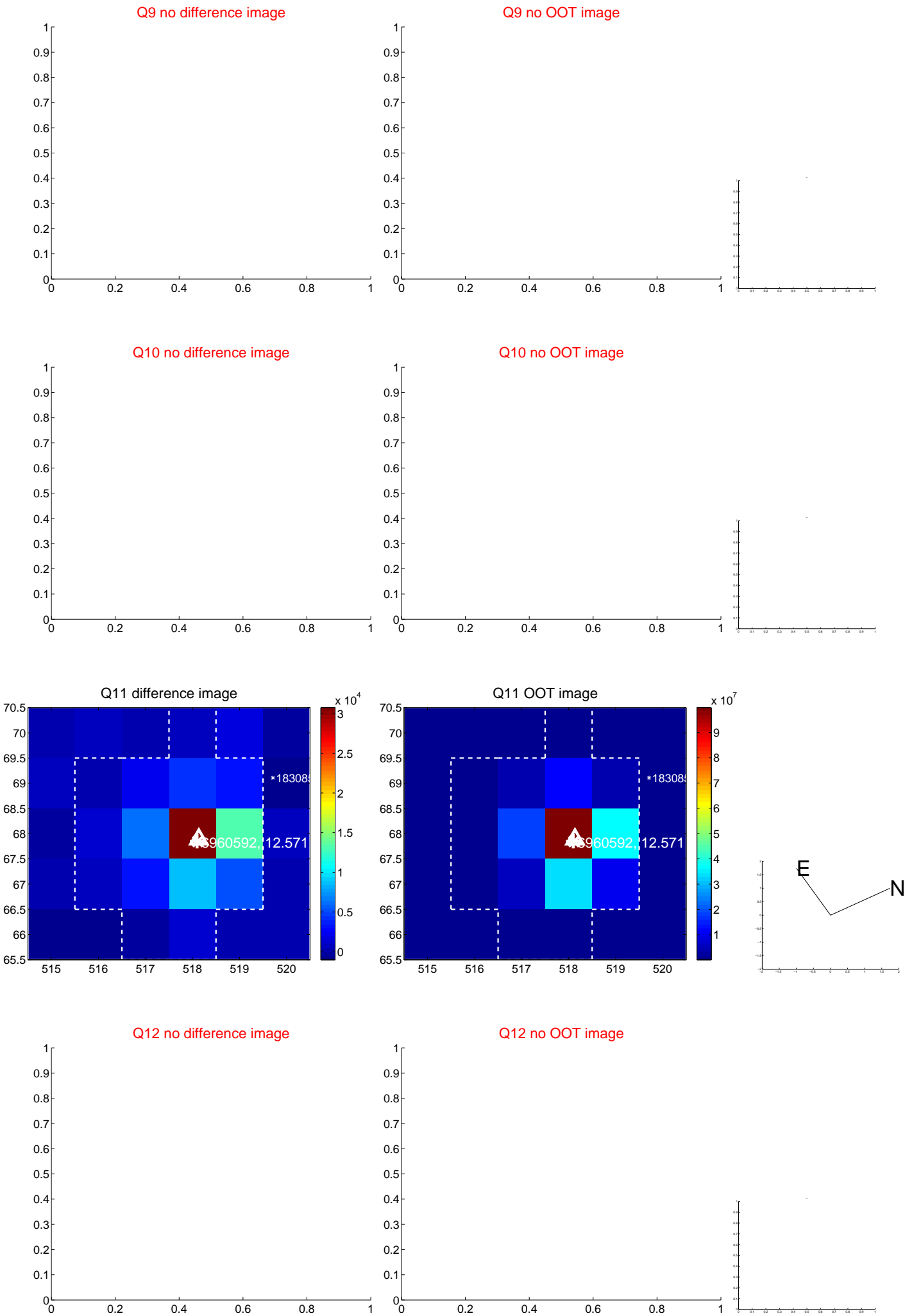
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



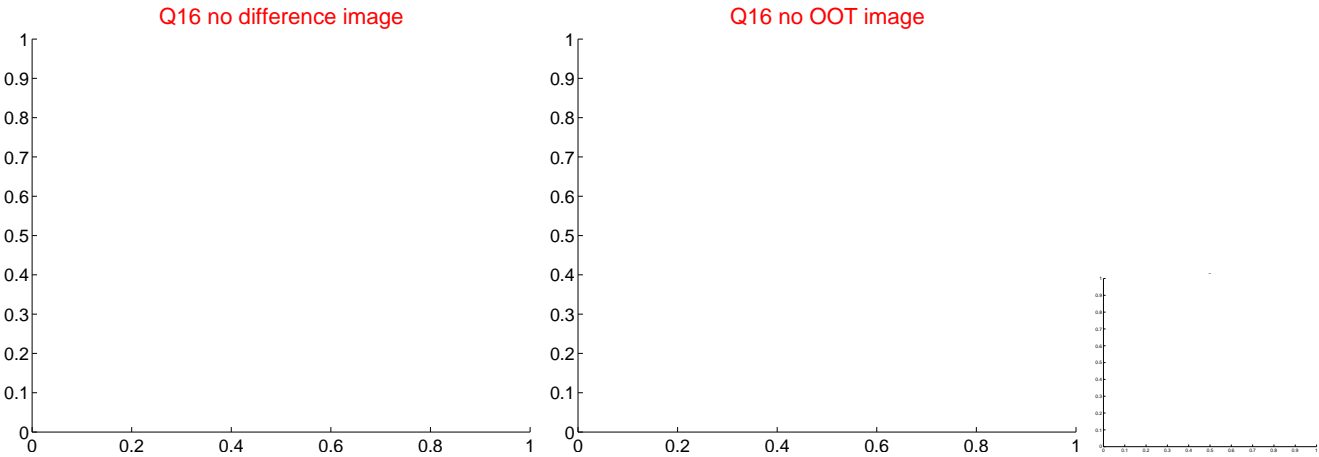
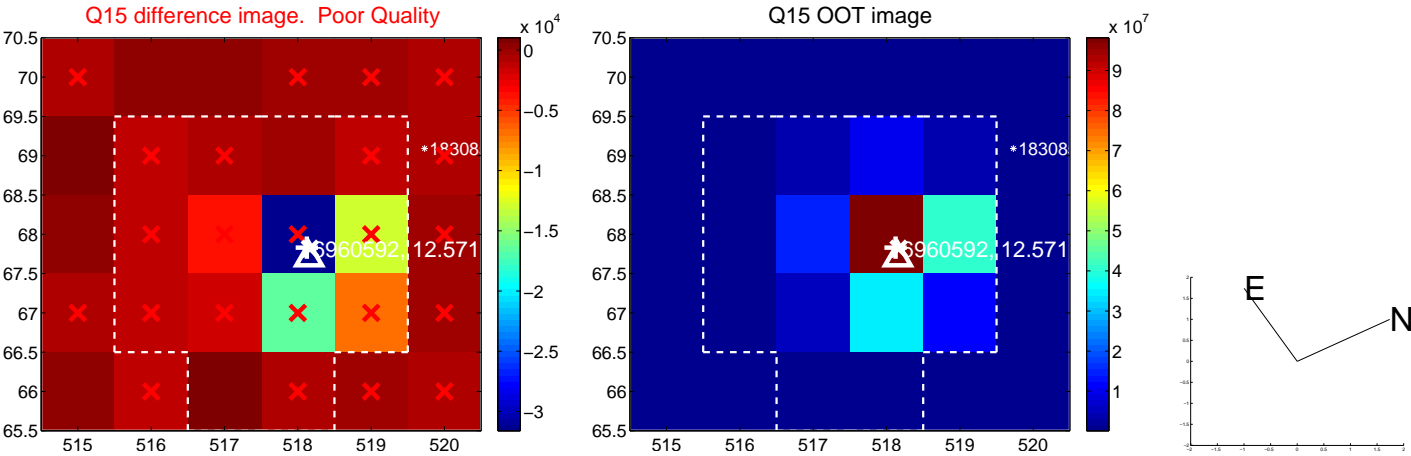
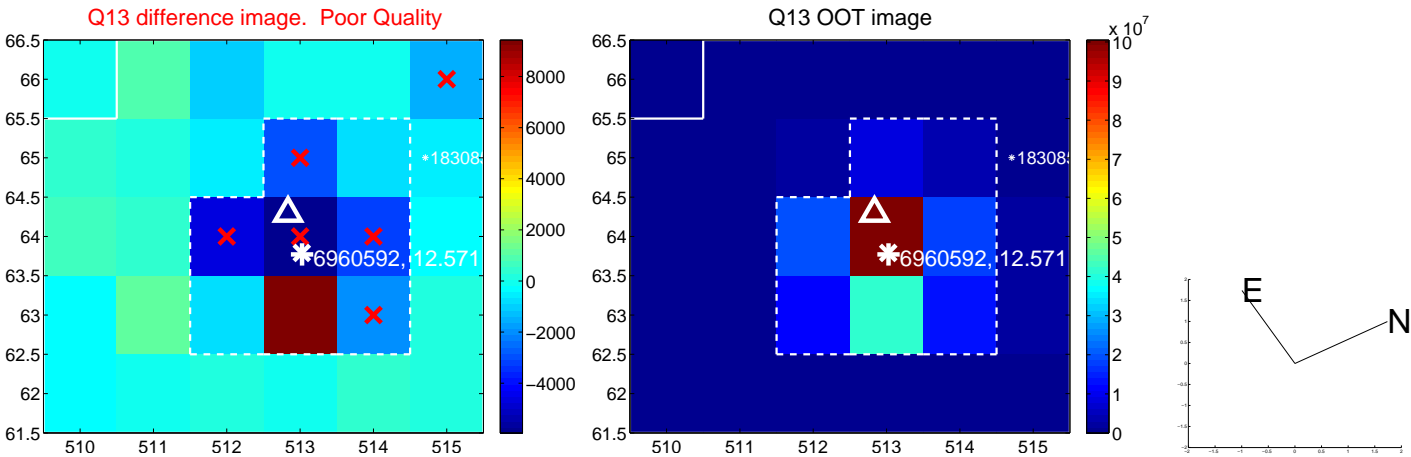
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



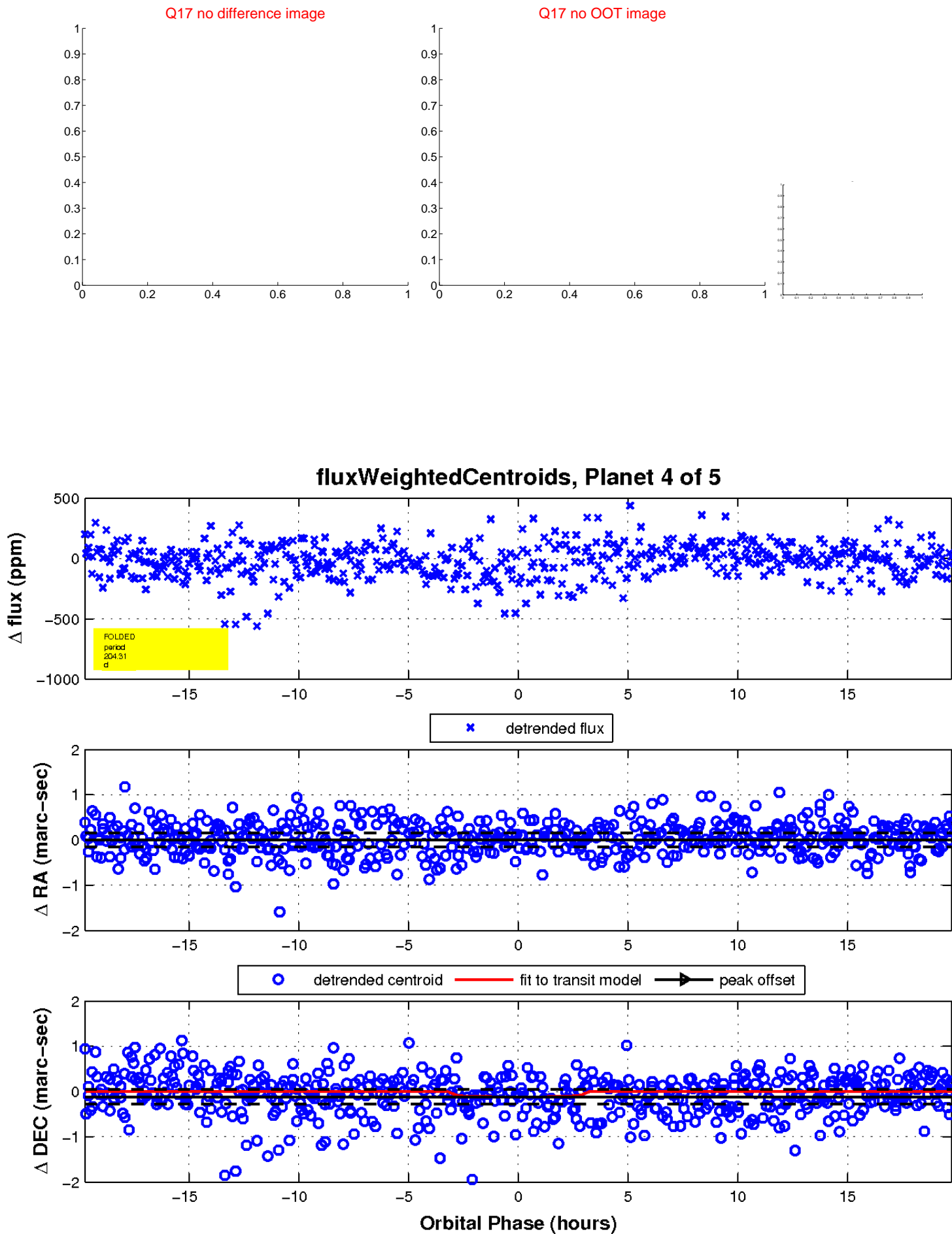
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

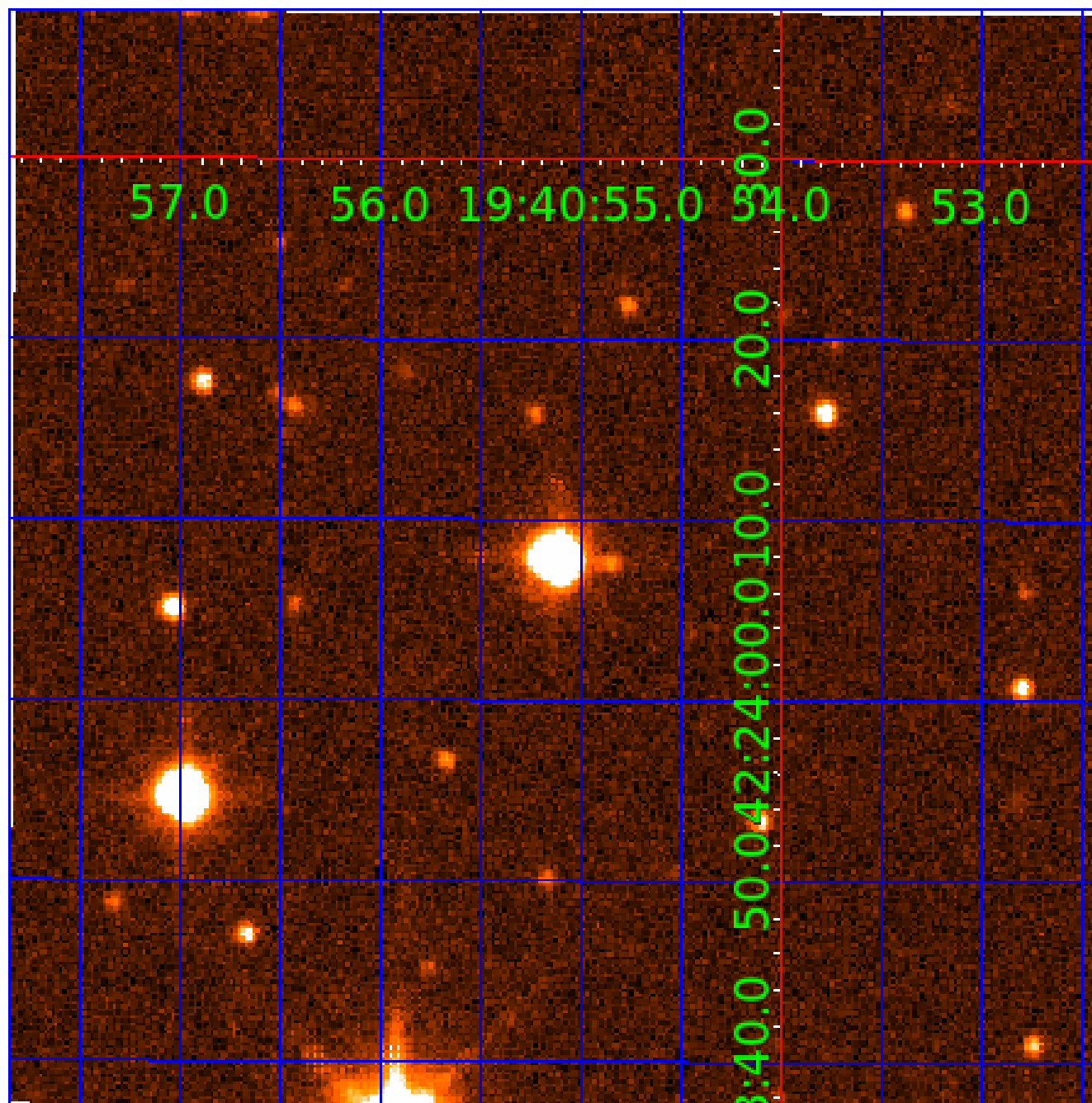


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 006960592

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006960592-01	OBS	No	296.631480	343.848886	80.5	5.442	8.8	2.4	2.04	7331	2.12	10.10
006960592-02	OBS	No	0.676140	131.529944	226.9	2.000	8.1	-1.0	2.04	7331	3.12	33681.71
006960592-03	OBS	No	301.855610	344.655316	549.3	7.590	17.5	11.3	2.04	7331	9.02	9.87
006960592-04	OBS	No	204.312868	232.296791	212.5	6.592	8.9	6.1	2.04	7331	3.46	16.61
006960592-05	OBS	No	350.468830	340.266178	274.3	3.758	7.7	7.6	2.04	7331	3.91	8.09

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006960592-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006960592-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS
006960592-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
006960592-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006960592-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—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.

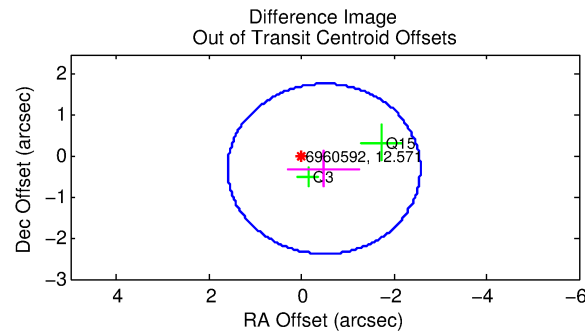
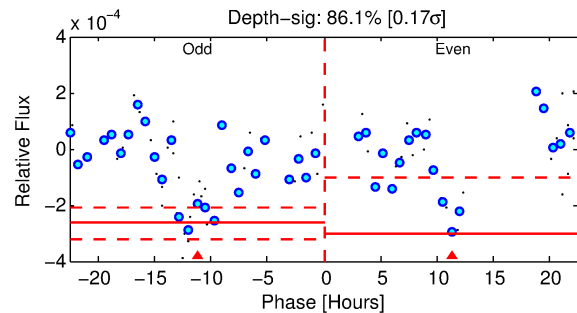
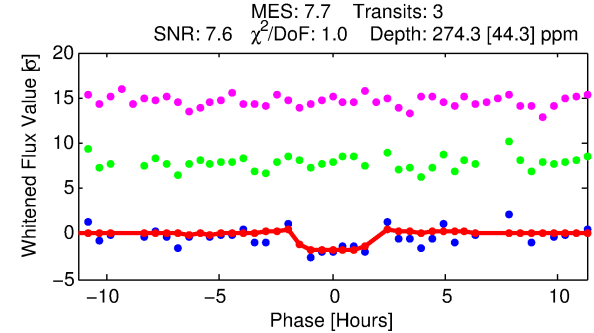
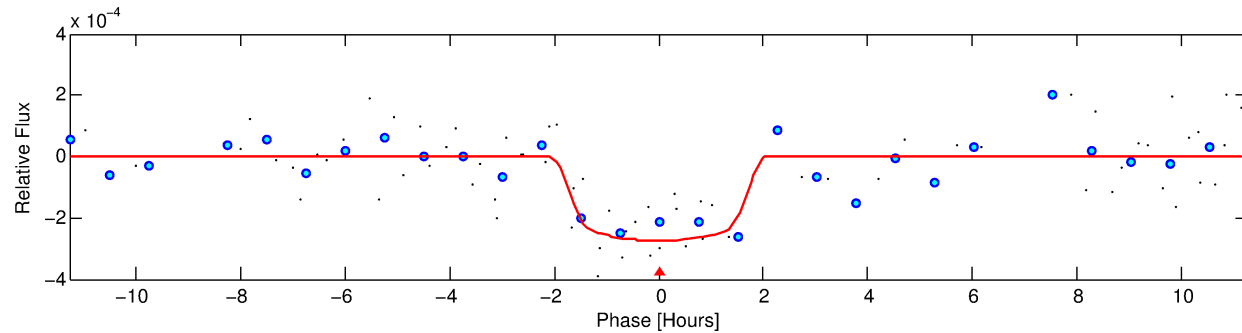
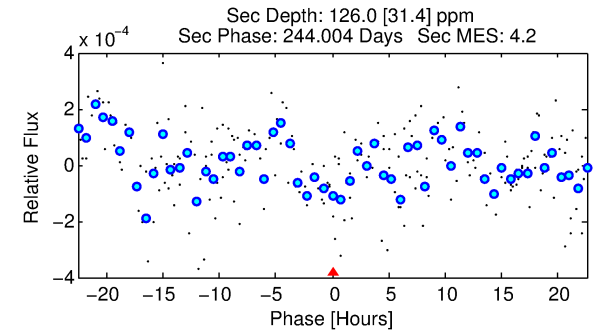
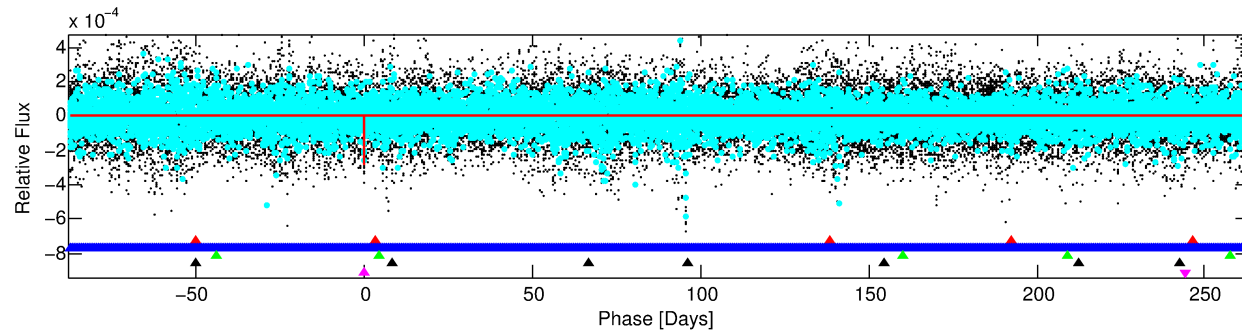
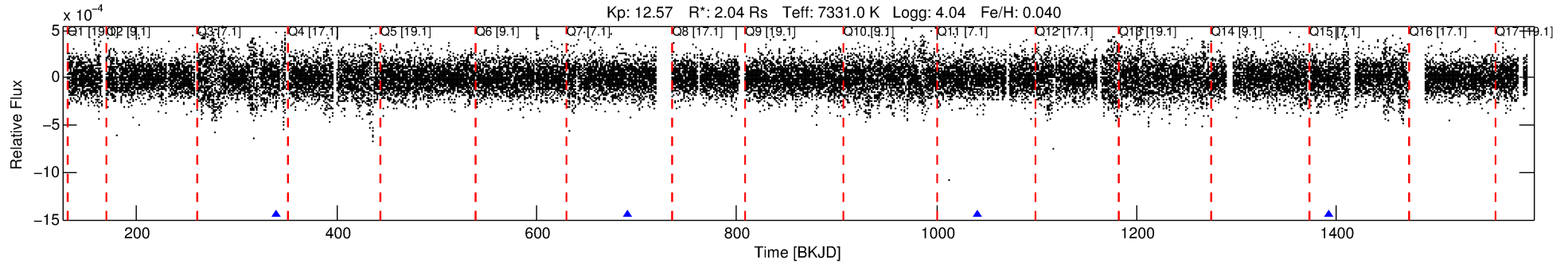
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006960592-05

No Significant Match Found

# DV One-Page Summary

KIC: 6960592 Candidate: 5 of 5 Period: 350.469 d



## DV Fit Results:

Period = 350.46883 [0.00503] d  
Epoch = 340.2662 [0.0299] BKJD  
Rp/R\* = 0.0175 [0.0076]  
a/R\* = 342.14 [904.84]  
b = 0.90 [0.63]  
Seff = 8.09 [2.92]  
Teff = 430 [39] K  
Rp = 3.91 [1.97] Re  
a = 1.1544 [0.2509] AU  
Ag = 6048.54 [5743.20] [1.05σ]  
Teffp = 5863 [1340] K [4.05σ]

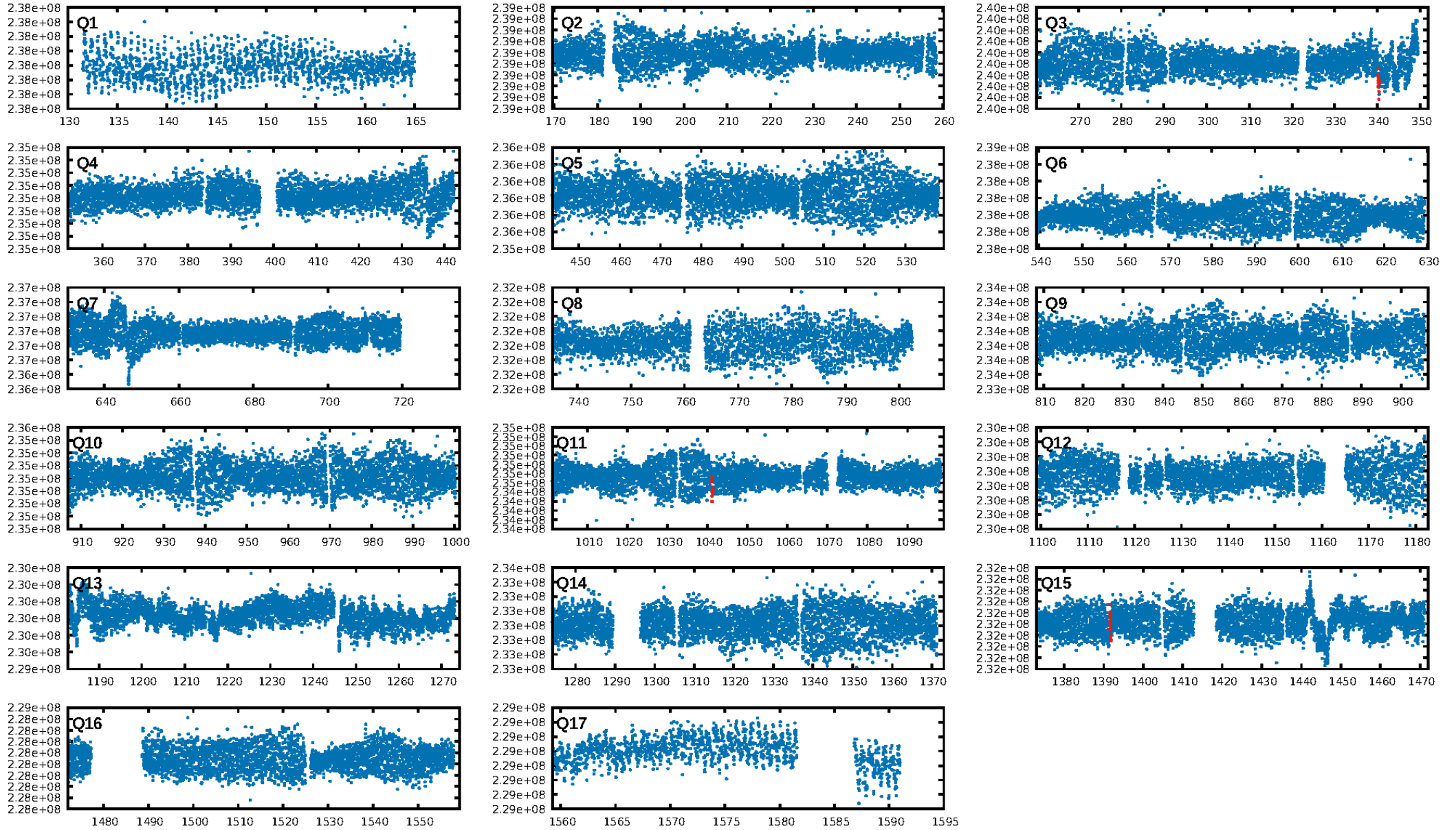
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [137.75σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 64.6%  
ModelChiSquareGof-sig: 98.1%  
**Bootstrap-pfa: 3.64e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -5.47  
Centroid-sig: 31.8%  
Centroid-so: 0.844 arcsec [0.80σ]  
OotOffset-rm: 0.575 arcsec [0.83σ]  
OotOffset-st: 0/2/0/0 [2]  
KicOffset-rm: 0.537 arcsec [0.83σ]  
KicOffset-st: 0/2/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.00 [0/2]

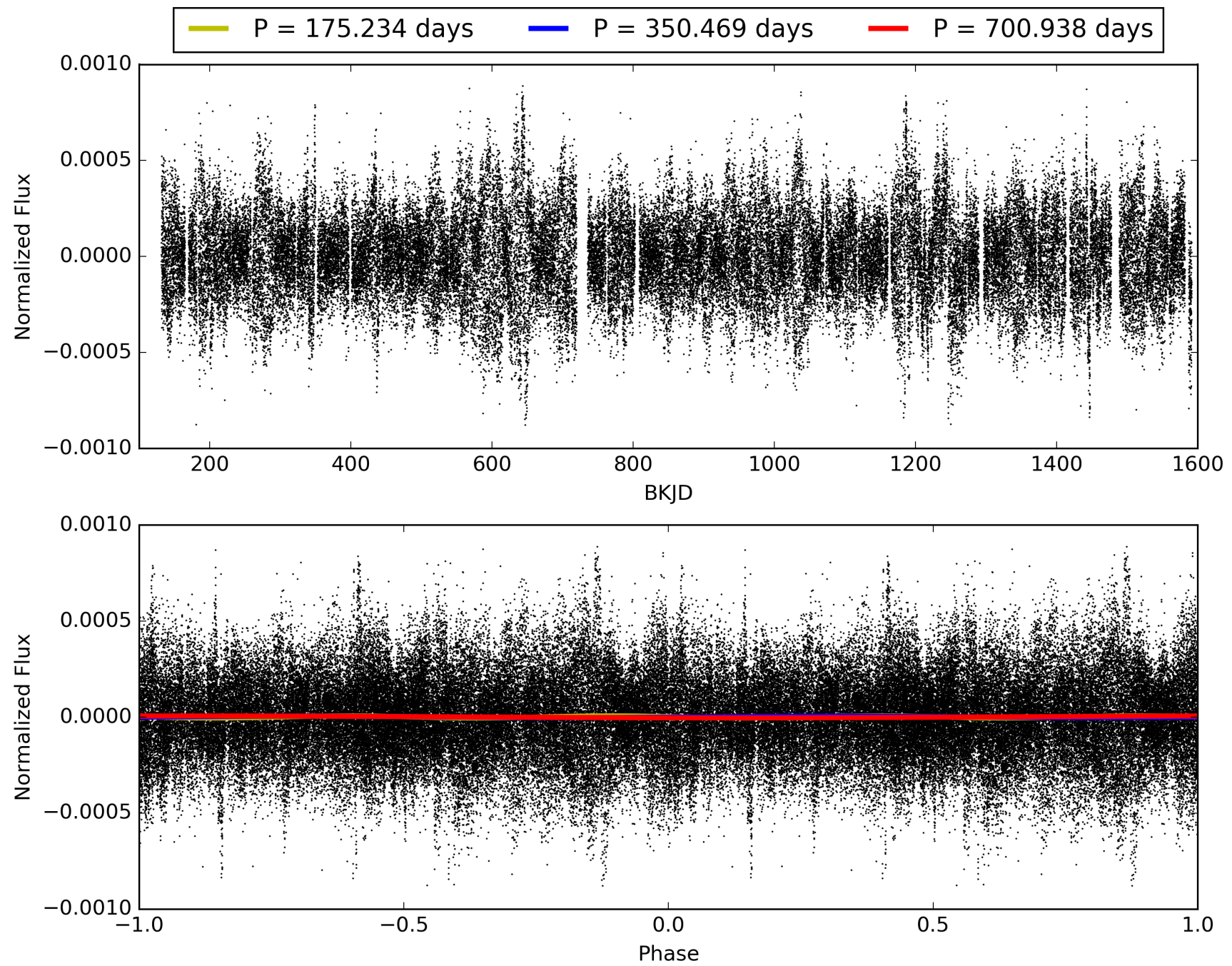
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:23:46 Z

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

# TCE 006960592-05, PDC Light Curves

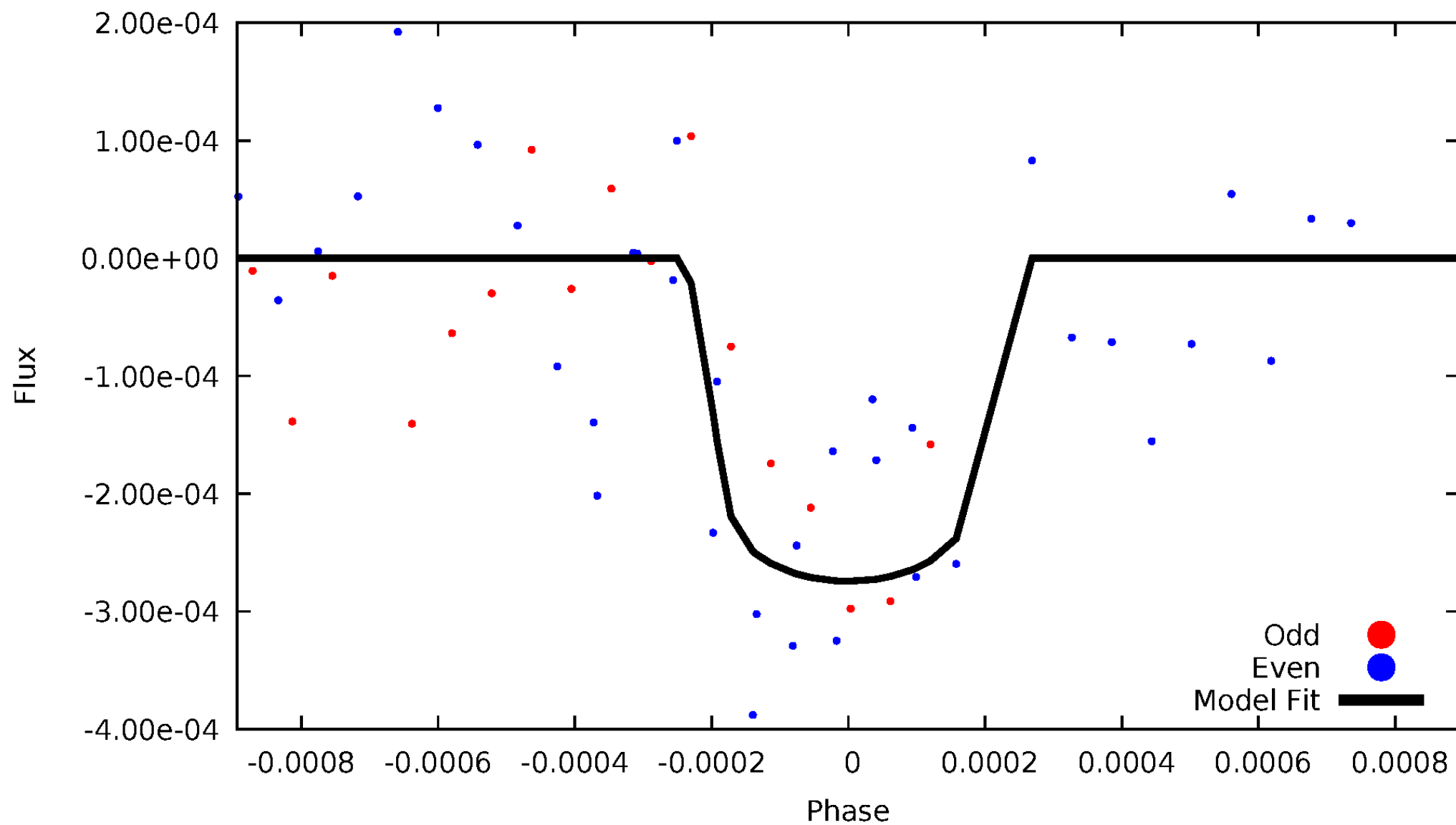


TCE 006960592-05



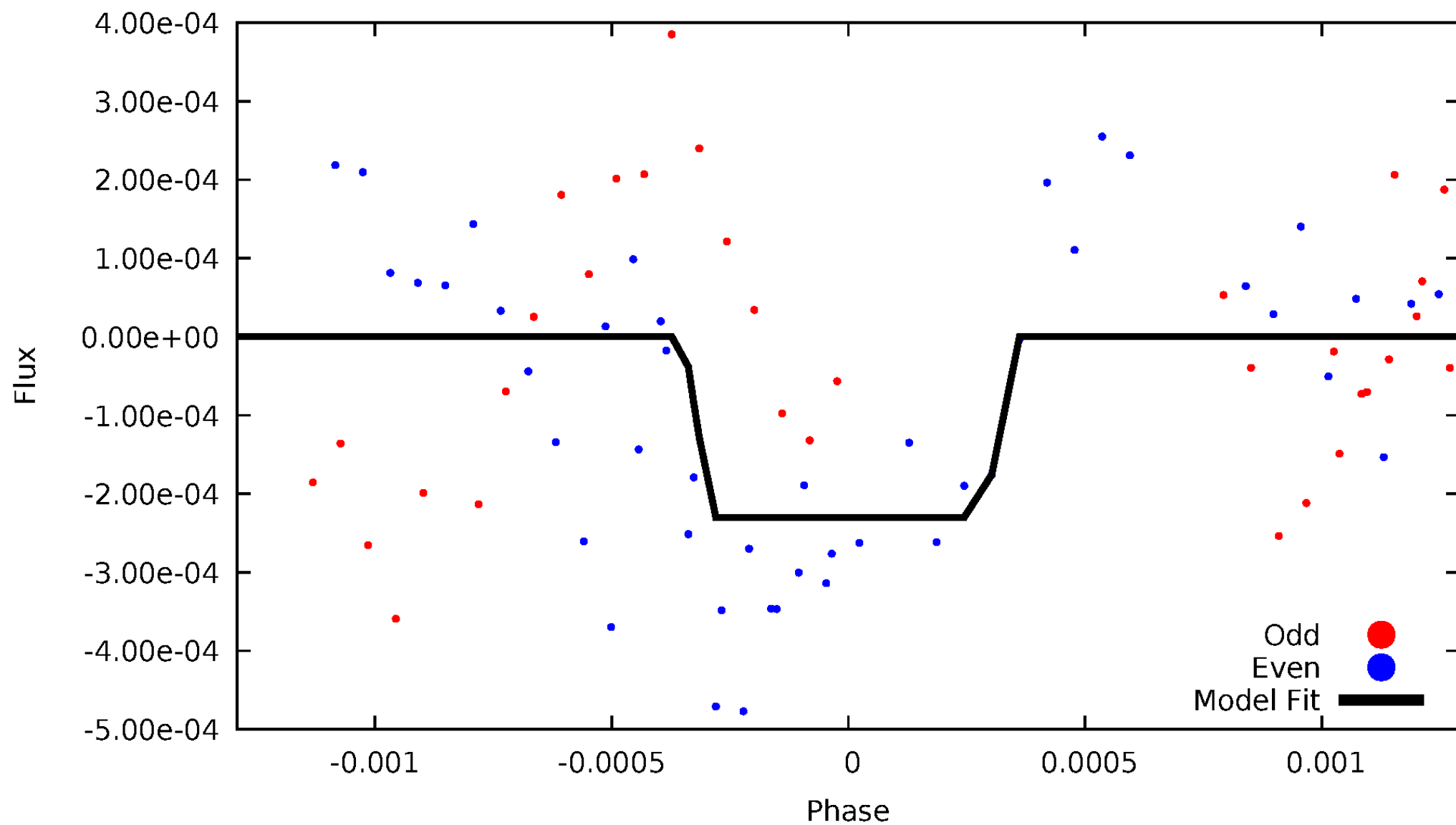
# DV Odd/Even

TCE 006960592-05



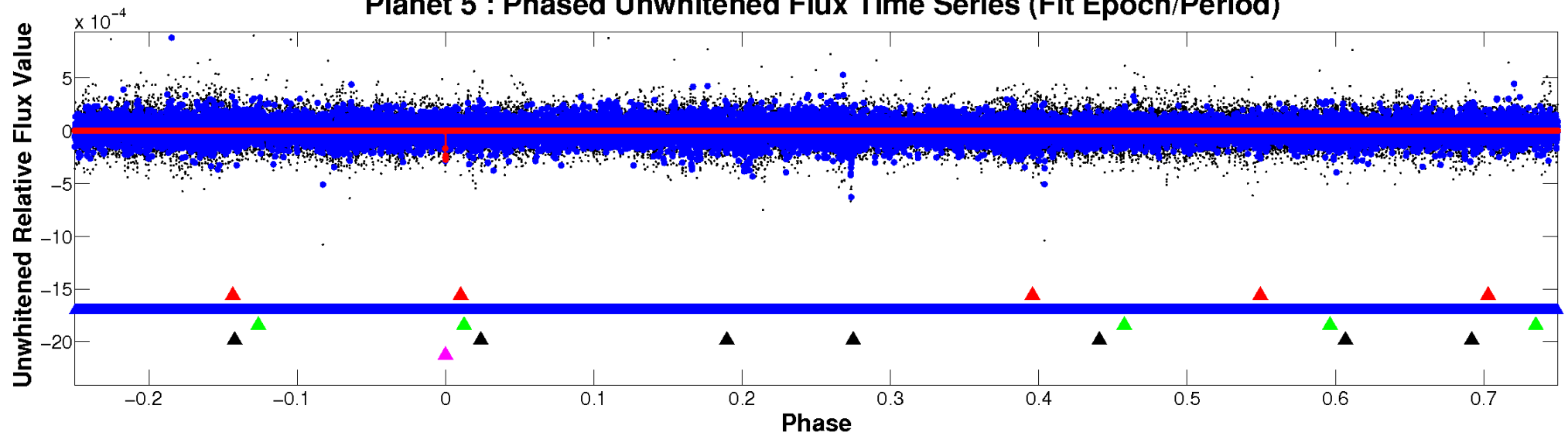
# ALT Odd/Even

TCE 006960592-05

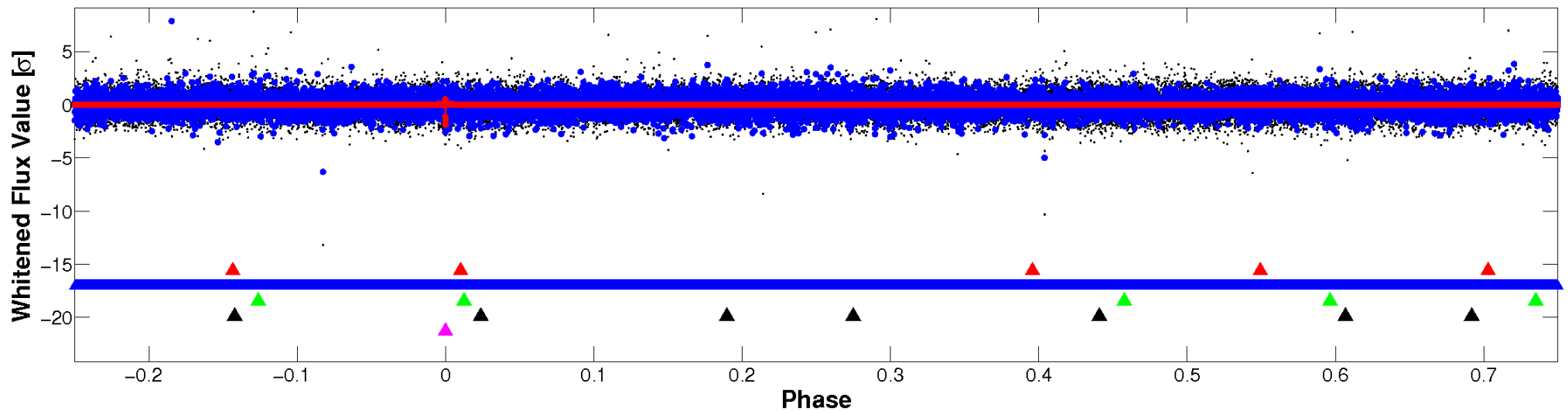


# Non-Whitened Vs. Whitened Light Curve

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



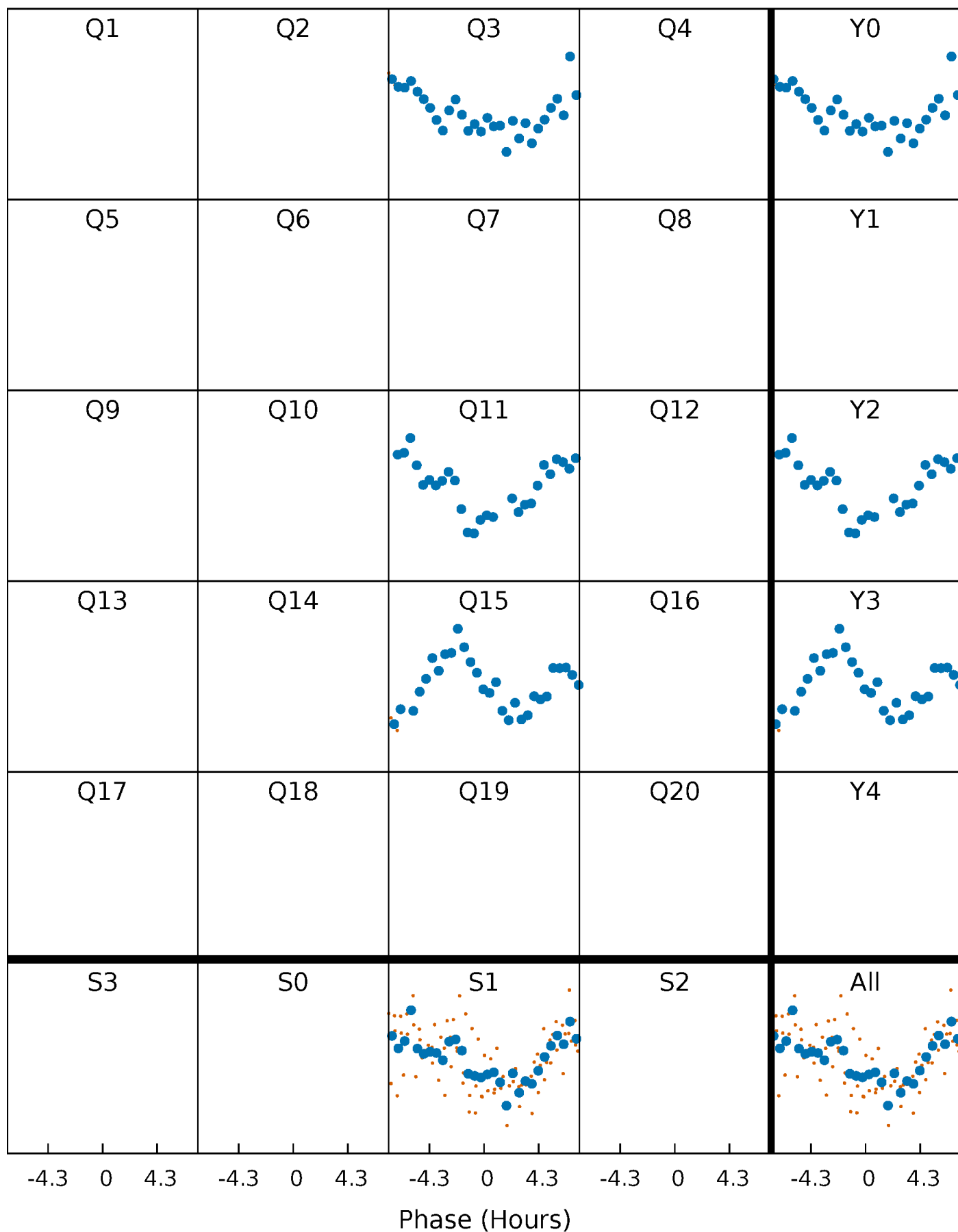
Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)





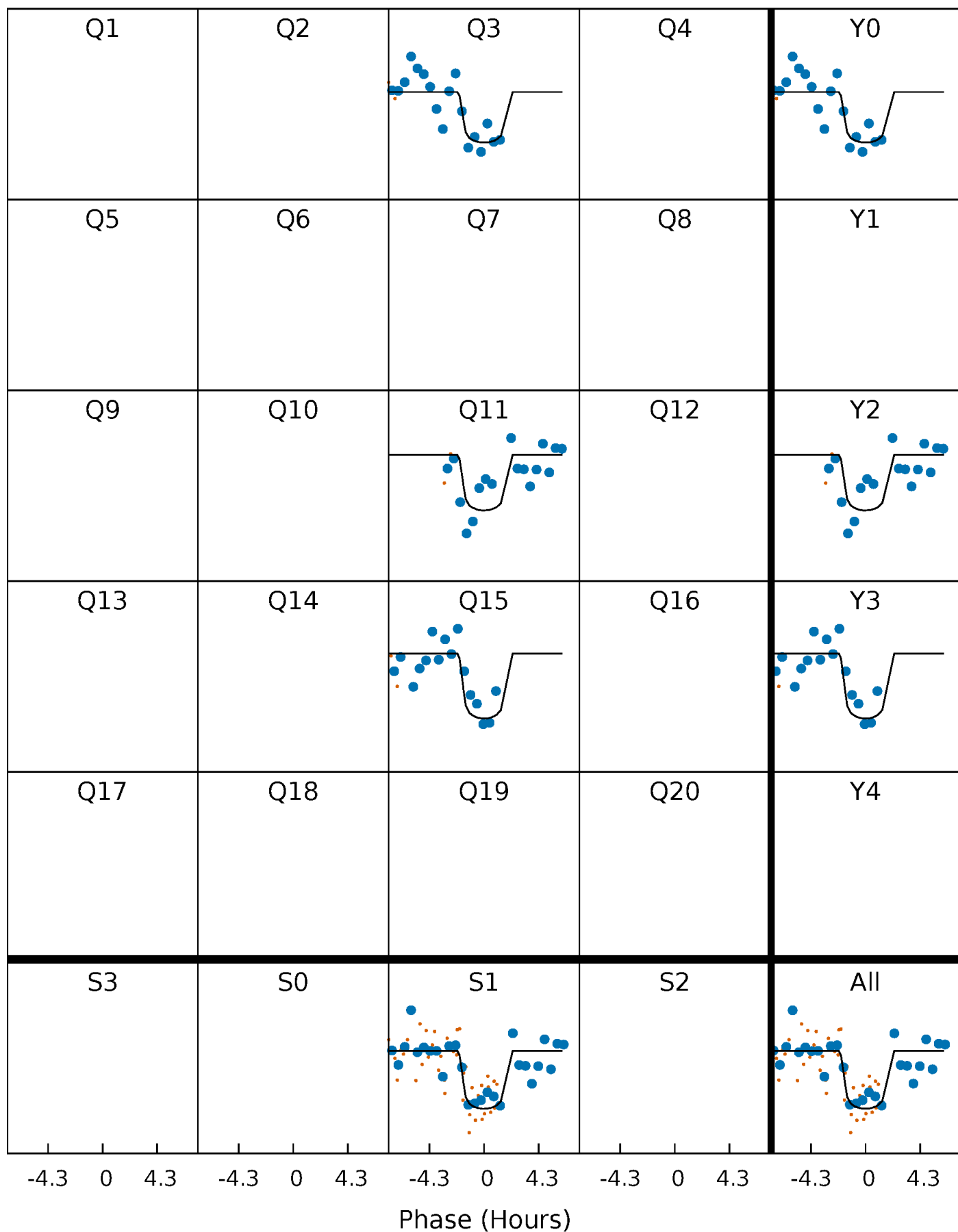
# PDC Quarter-Phased Transit Curves

TCE 006960592-05     $P=350.468830$  Days     $T_0=340.266178$  (BKJD)



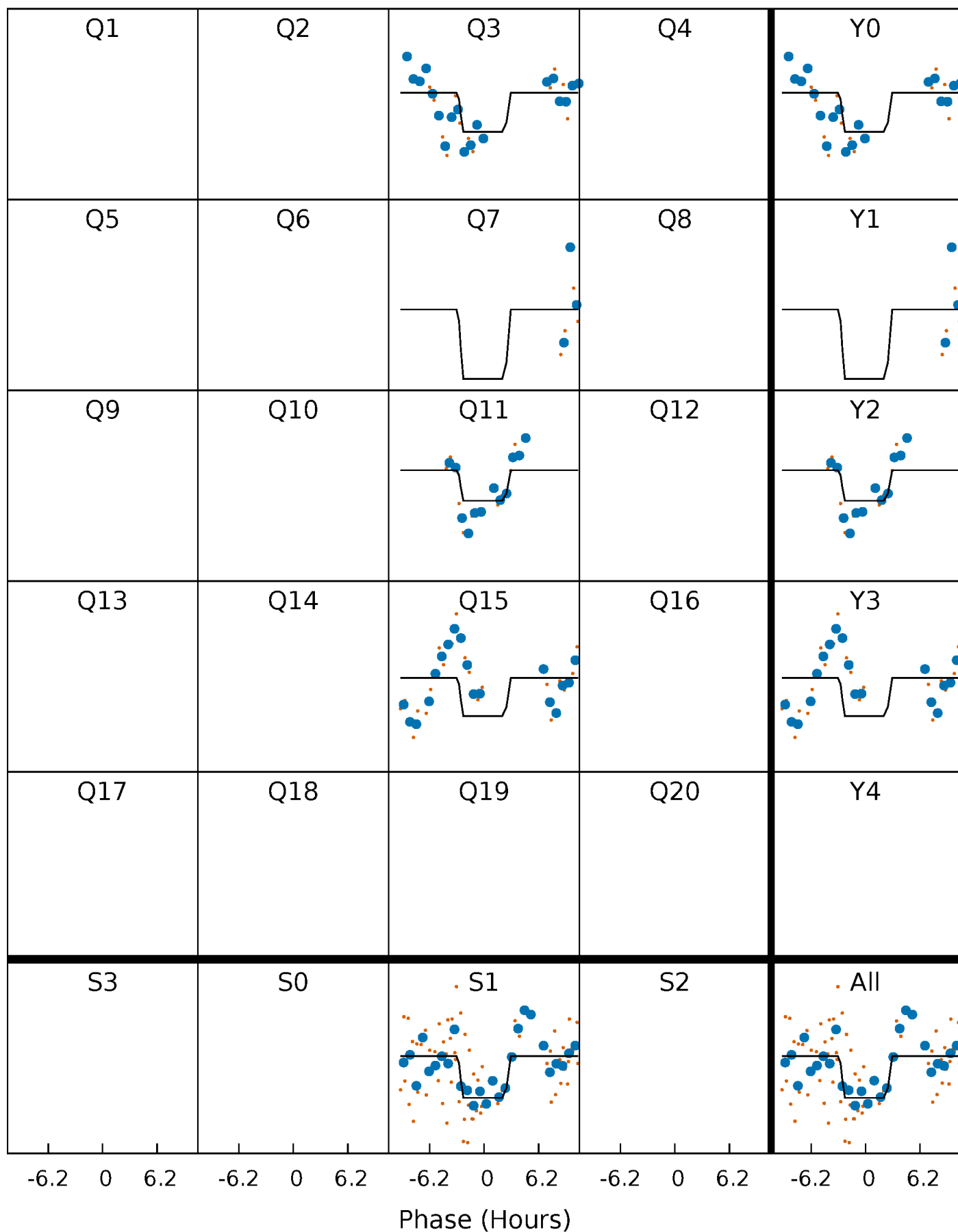
# DV Quarter-Phased Transit Curves

TCE 006960592-05     $P=350.468830$  Days     $T_0=340.266178$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

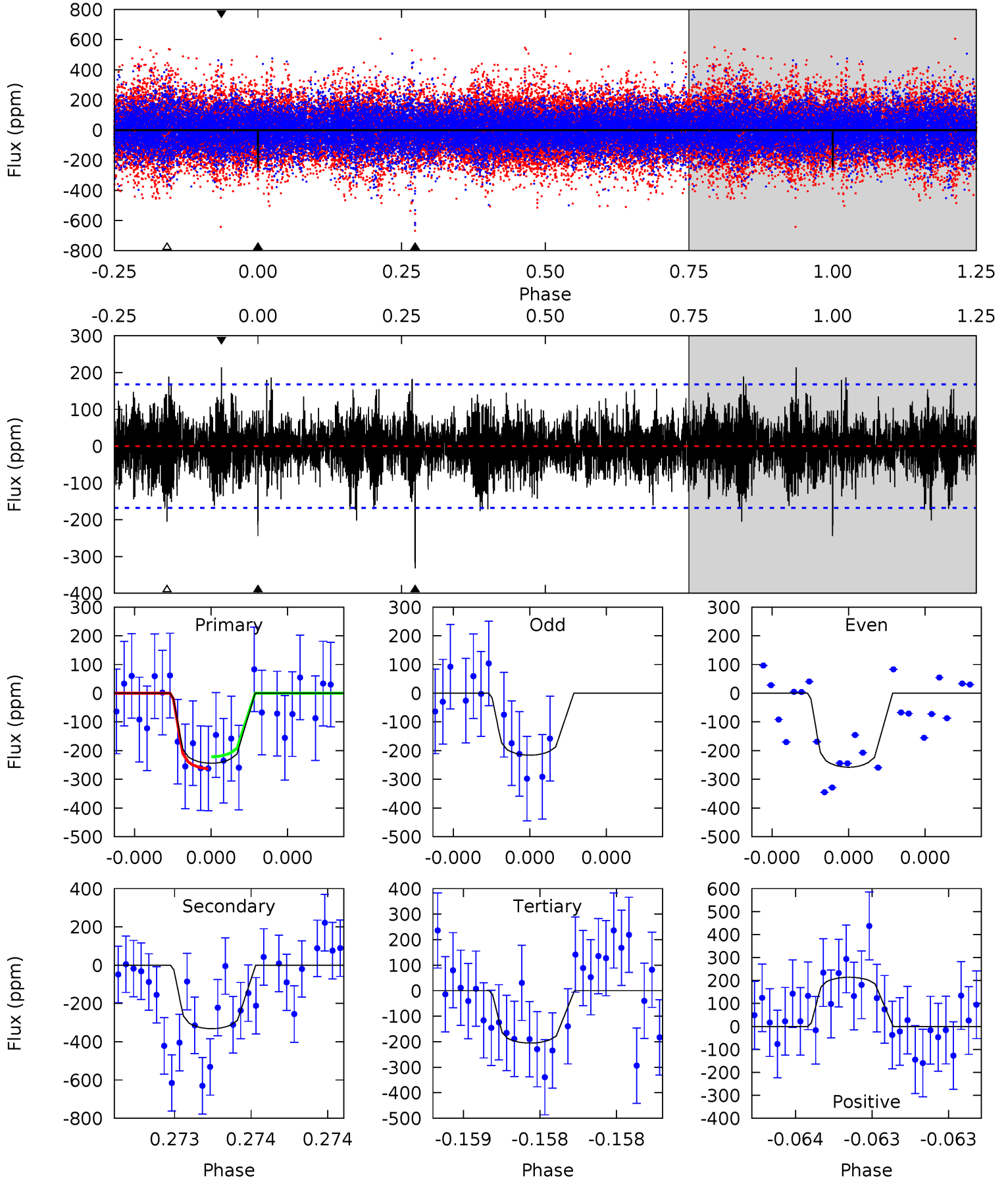
TCE 006960592-05     $P=350.469910$  Days     $T_0=340.313205$  (BKJD)



# DV Model-Shift Uniqueness Test

006960592-05, P = 350.468830 Days, E = 340.266178 Days

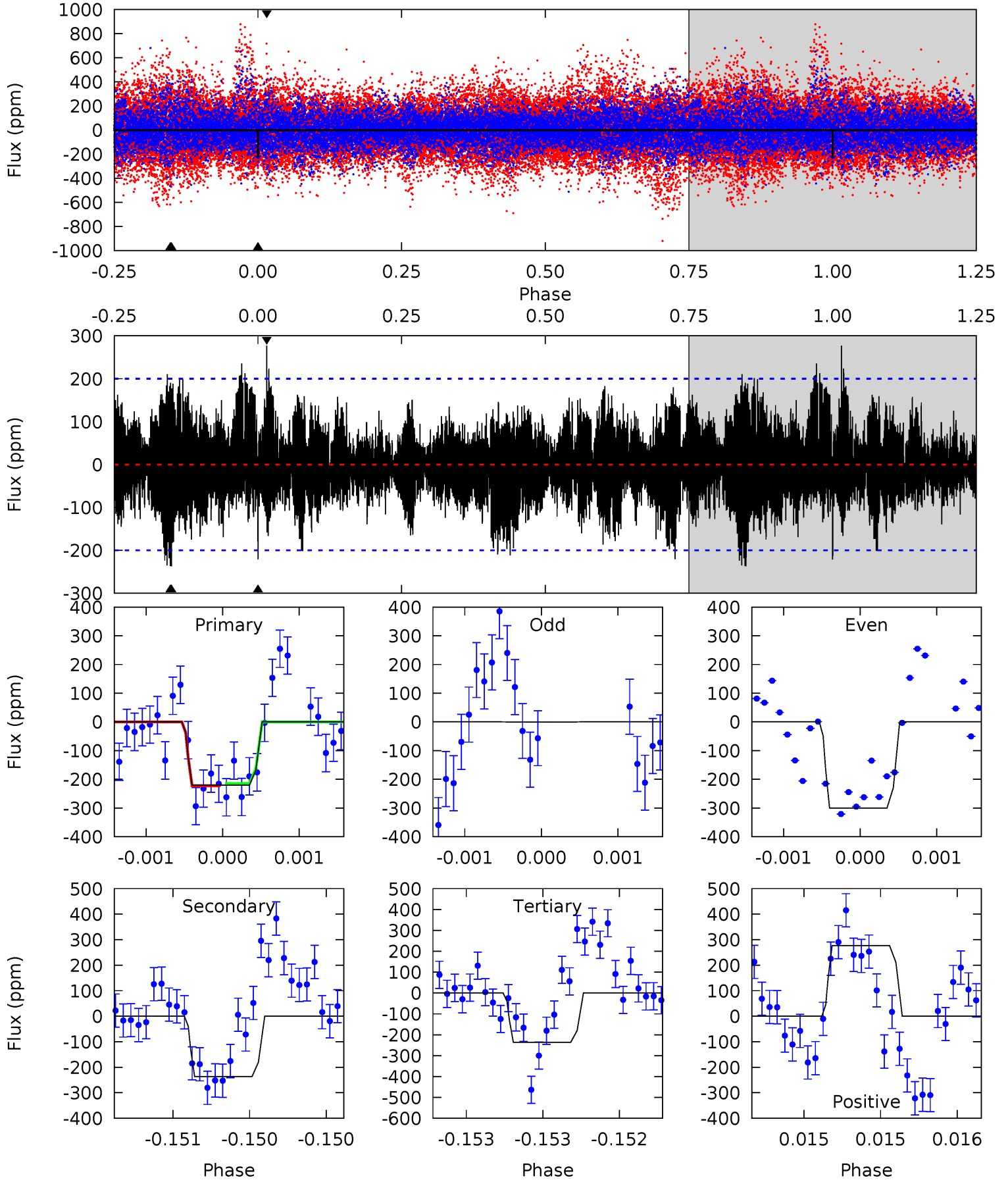
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.13	11.1	6.83	7.13	5.59	3.50	1.64	1.30	1.00	4.22	3.92	0.68	0.99	0.39	0.69



# Alt Model-Shift Uniqueness Test

006960592-05,  $P = 350.469910$  Days,  $E = 340.313205$  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
6.09	6.52	6.51	7.64	5.51	3.39	1.80	-0.43	-1.55	0.01	-1.11	3.64	0.69	0.54	0.10



### Stellar Parameters For KIC 006960592

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7331^{+203}_{-330}$	$4.041^{+0.170}_{-0.170}$	$0.040^{+0.200}_{-0.350}$	$2.041^{+0.532}_{-0.478}$	$1.668^{+0.193}_{-0.289}$	$0.276^{+0.260}_{-0.135}$
	+3%/-5%	+4%/-4%	+500%/-875%	+26%/-23%	+12%/-17%	+94%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 006960592-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-332 \pm 30$	$3.98^{+1.80}_{-1.62}$	$600^{+45}_{-45}$	$7341^{+3016}_{-1350}$	$15158^{+28402}_{-8129}$
Alt.	$-237 \pm 36$	$3.43^{+1.92}_{-1.67}$	$602^{+42}_{-45}$	$7219^{+3903}_{-1328}$	$14286^{+37648}_{-8194}$

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

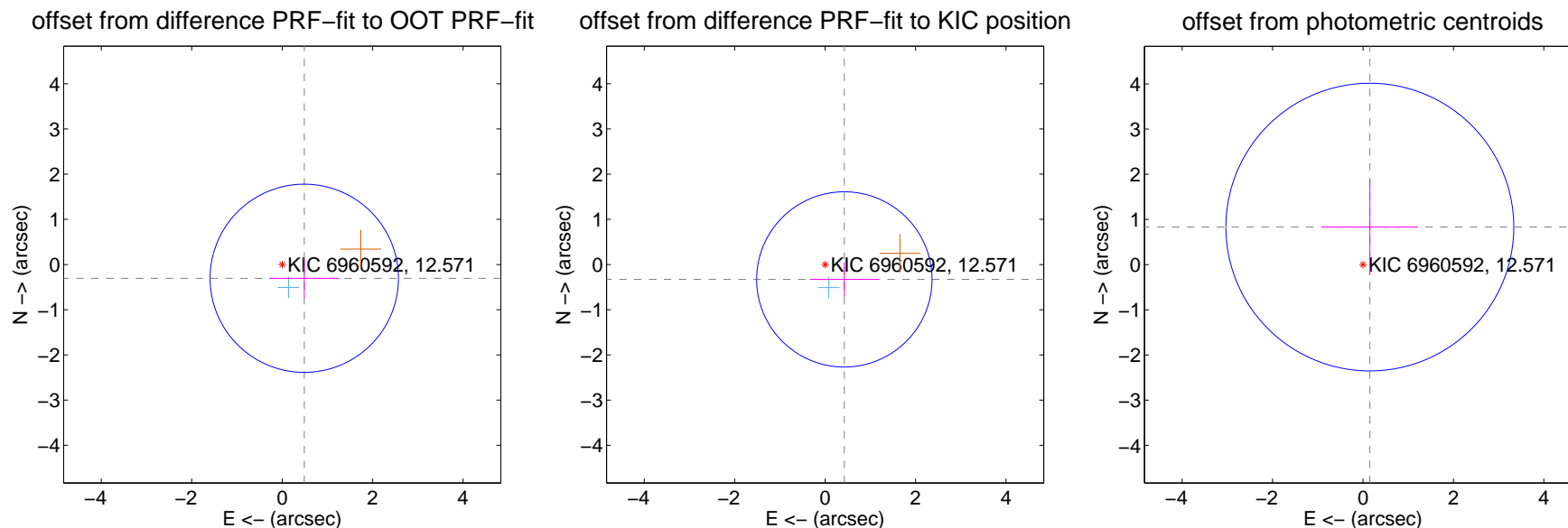
## DV Centroid Data

Supplemental centroid analysis for 006960592-05. Kepler magnitude: 12.57. Transit SNR 7.57

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.575 \pm 0.694$	0.83	$-0.488 \pm 0.773$	$-0.304 \pm 0.429$
PRF-fit source offset from KIC position	$0.537 \pm 0.646$	0.83	$-0.425 \pm 0.762$	$-0.329 \pm 0.383$
photometric centroid source offset	$0.84 \pm 1.06$	0.80	$-0.15 \pm 1.07$	$0.83 \pm 1.06$



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.

Q1 no difference image



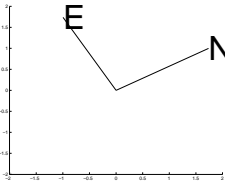
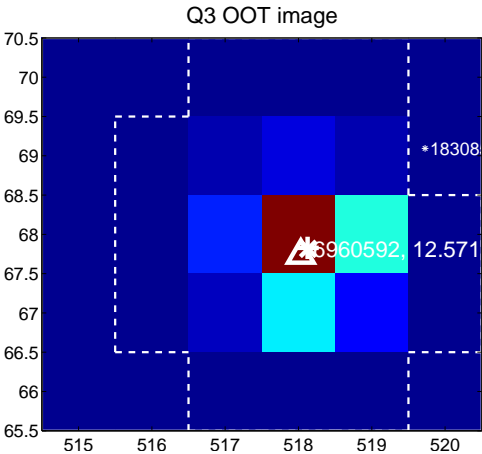
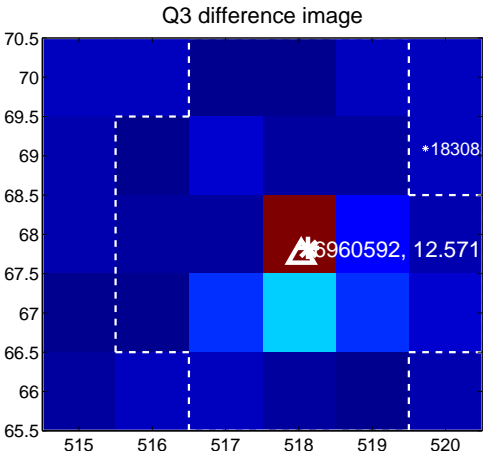
Q1 no OOT image



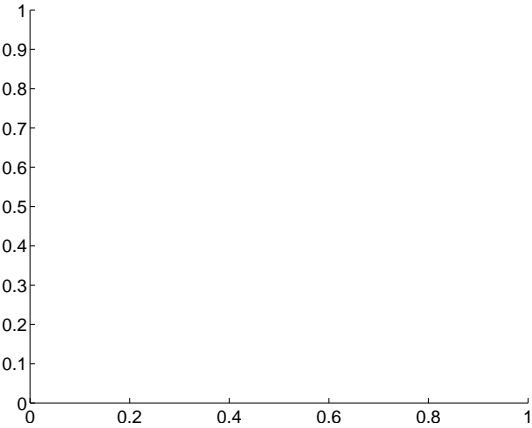
Q2 no difference image



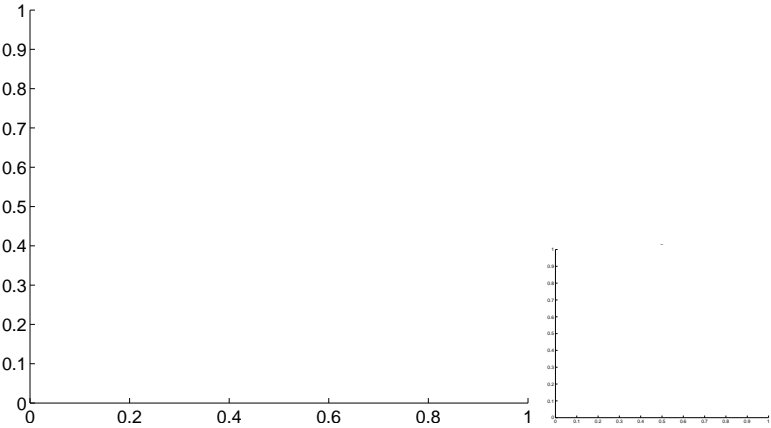
Q2 no OOT image



Q4 no difference image



Q4 no OOT image





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.

Q13 no difference image



Q13 no OOT image



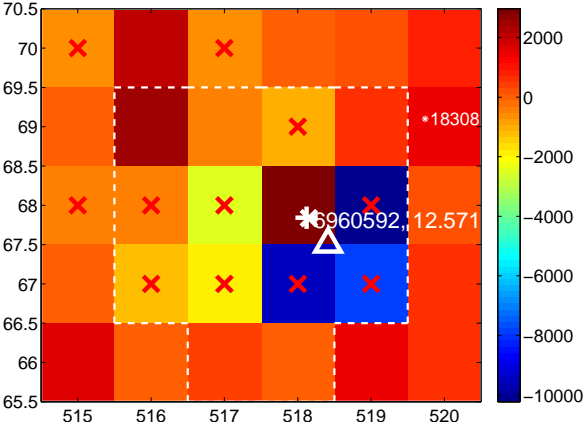
Q14 no difference image



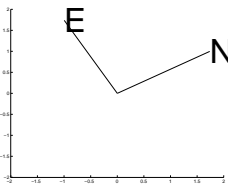
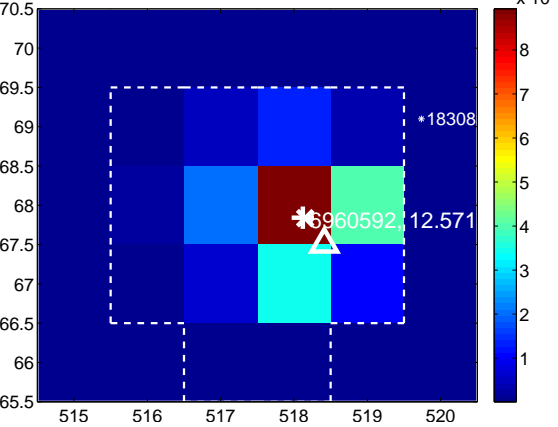
Q14 no OOT image



Q15 difference image. Poor Quality



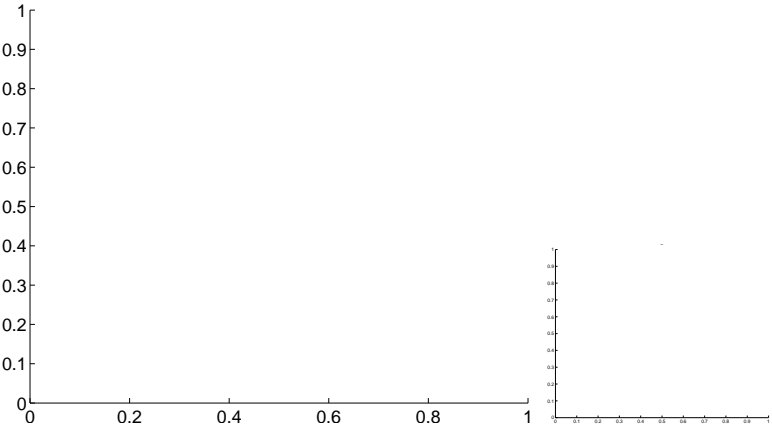
Q15 OOT image



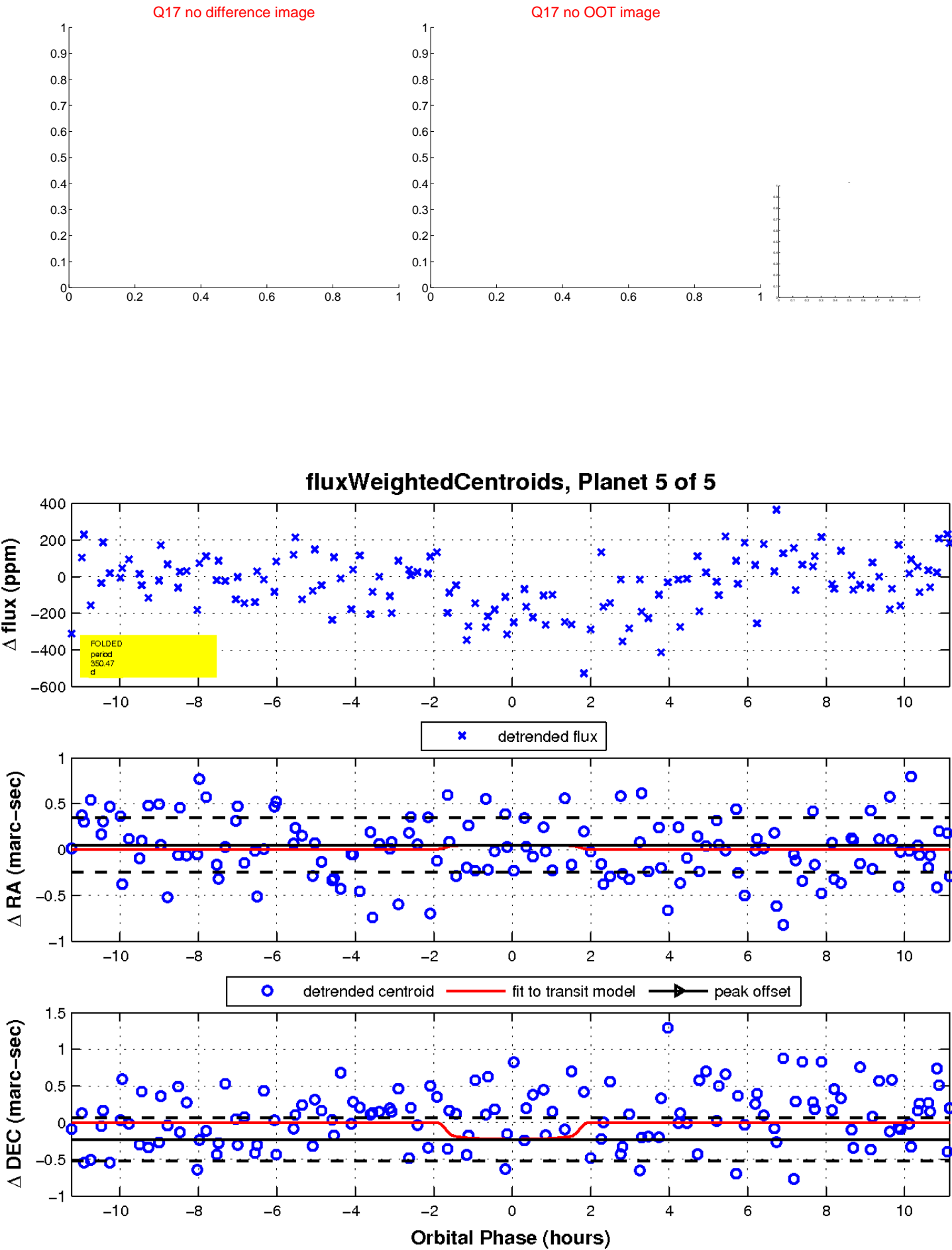
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

