

# KIC 008608544

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008608544-01	OBS	8159.01	348.695538	343.794652	322.0	12.561	8.6	8.4	1.16	6450	2.52	1.97
008608544-02	OBS	8159.02	353.023558	350.077901	401.7	15.688	8.2	8.8	1.16	6450	2.40	1.93
008608544-03	OBS	No	356.563644	338.503463	266.8	26.383	7.9	7.8	1.16	6450	1.99	1.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008608544-01	OBS	FP	0.01	1	0	0	0	INCONSISTENT_TRANS—CENT_FEW_DIFFS
008608544-02	OBS	PC	0.57	0	0	0	0	CENT_FEW_DIFFS
008608544-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—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.

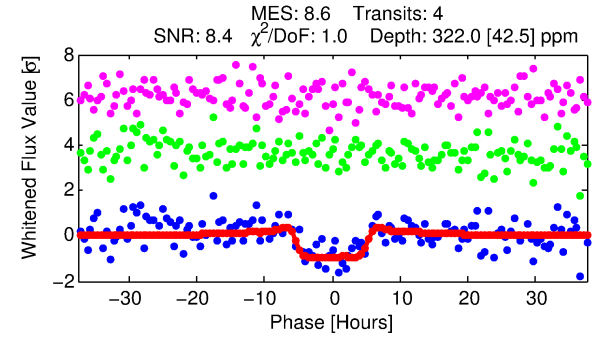
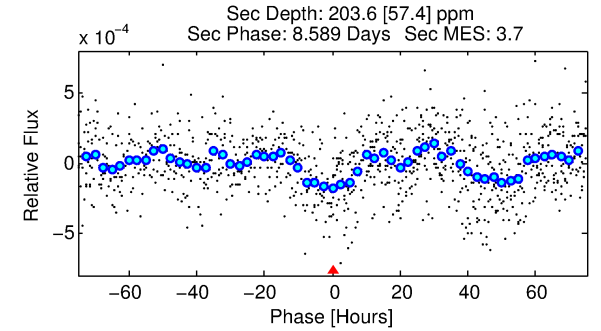
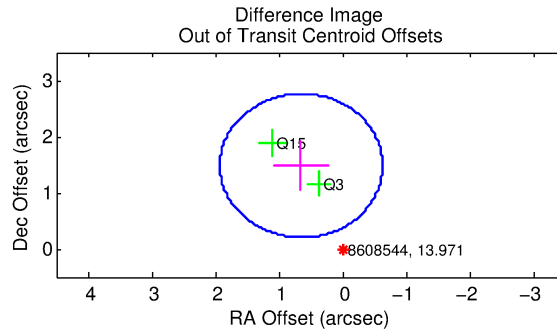
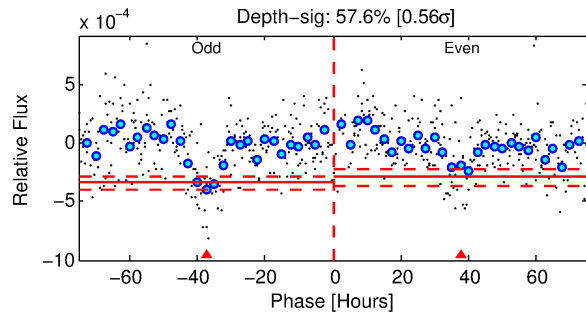
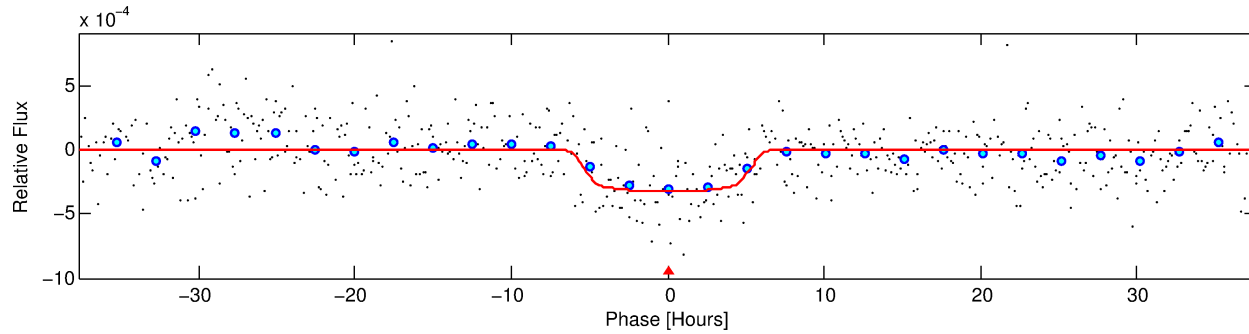
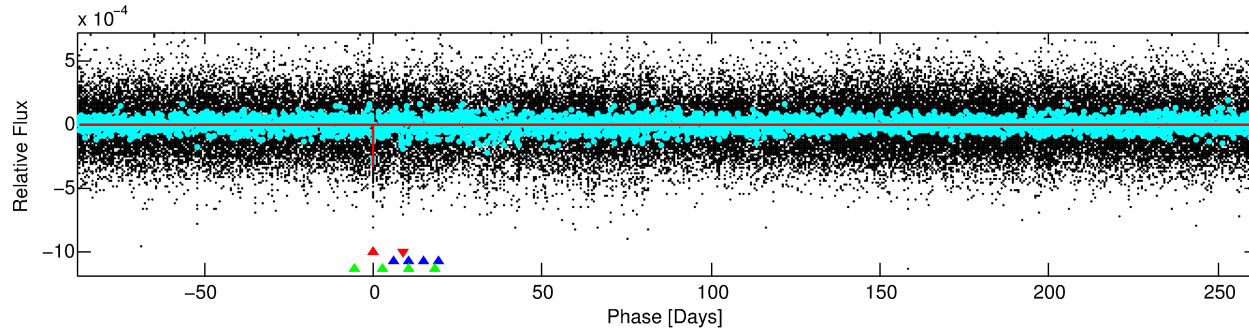
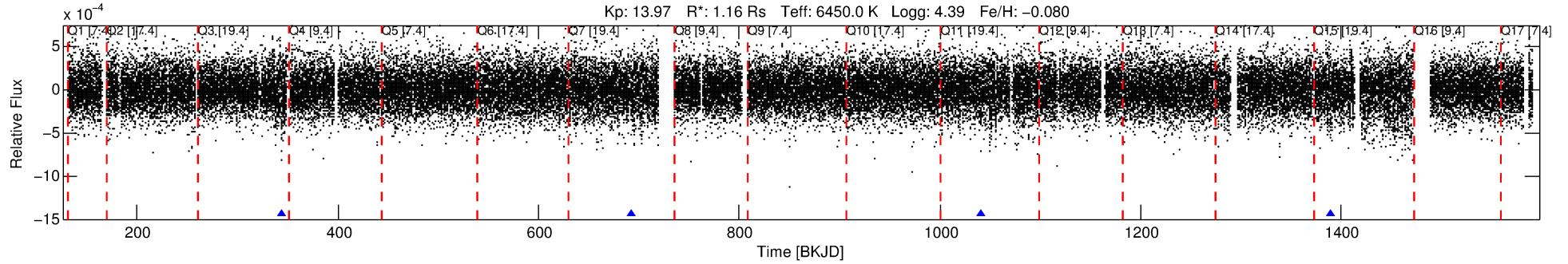
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008608544-01

No Significant Match Found

# DV One-Page Summary

KIC: 8608544 Candidate: 1 of 3 Period: 348.696 d



## DV Fit Results:

Period = 348.69554 [0.01033] d  
Epoch = 343.7947 [0.0193] BKJD  
Rp/R\* = 0.0200 [0.0019]  
a/R\* = 84.58 [29.74]  
b = 0.94 [0.05]  
Seff = 1.97 [0.82]  
Teq = 302 [32] K  
Rp = 2.52 [0.88] Re  
a = 1.0258 [0.2863] AU  
Ag = 18490.03 [9740.94] [1.90 $\sigma$ ]  
Teffp = 5444 [493] K [10.40 $\sigma$ ]

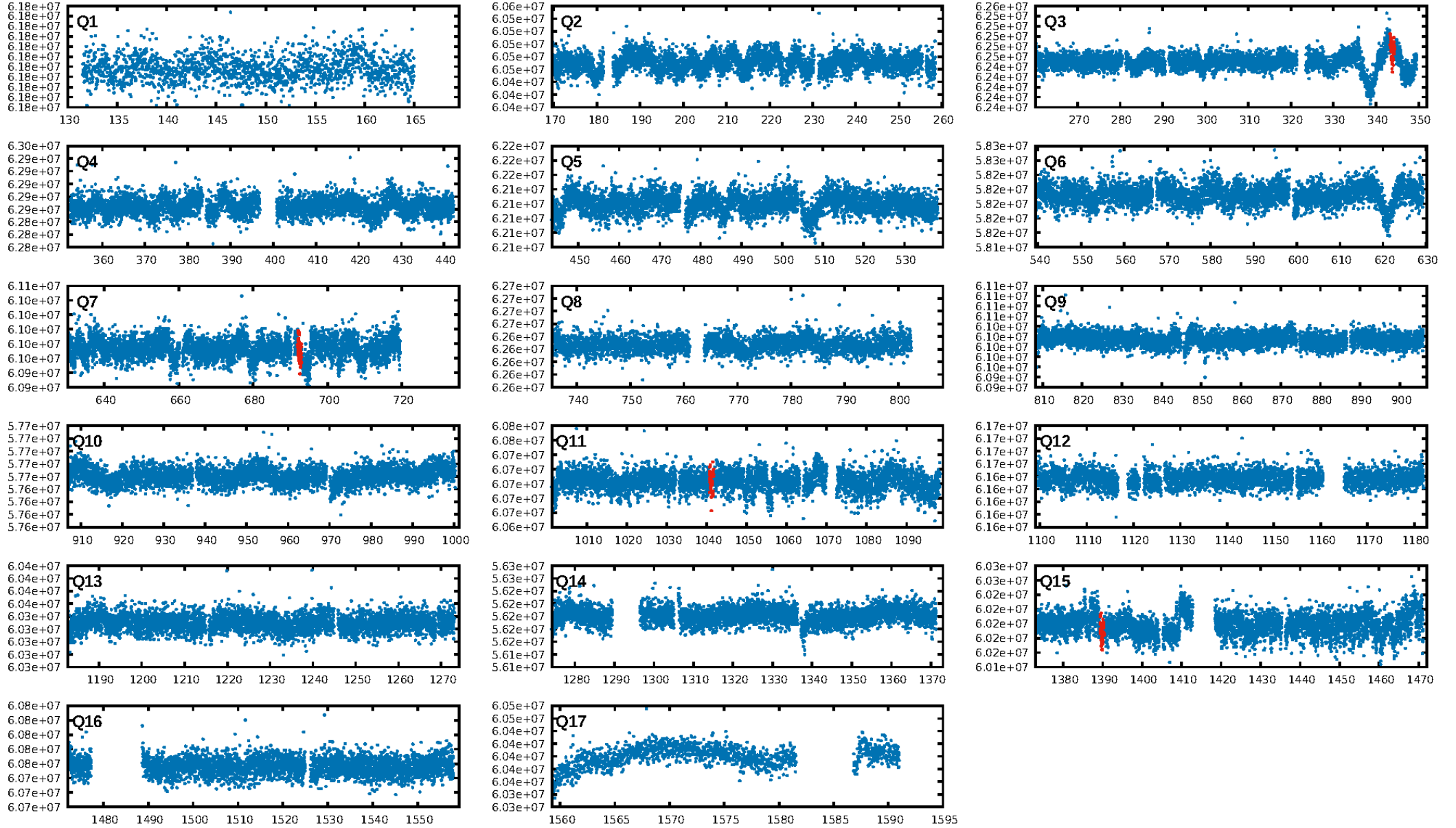
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [5.17 $\sigma$ ]  
ModelChiSquare2-sig: 24.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.55e-13  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 3.454  
Centroid-sig: 61.9%  
Centroid-so: 0.288 arcsec [0.37 $\sigma$ ]  
OotOffset-rm: 1.617 arcsec [3.79 $\sigma$ ]  
KicOffset-rm: 1.335 arcsec [3.19 $\sigma$ ]  
OotOffset-st: 0/2/0/0 [2]  
KicOffset-st: 0/2/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

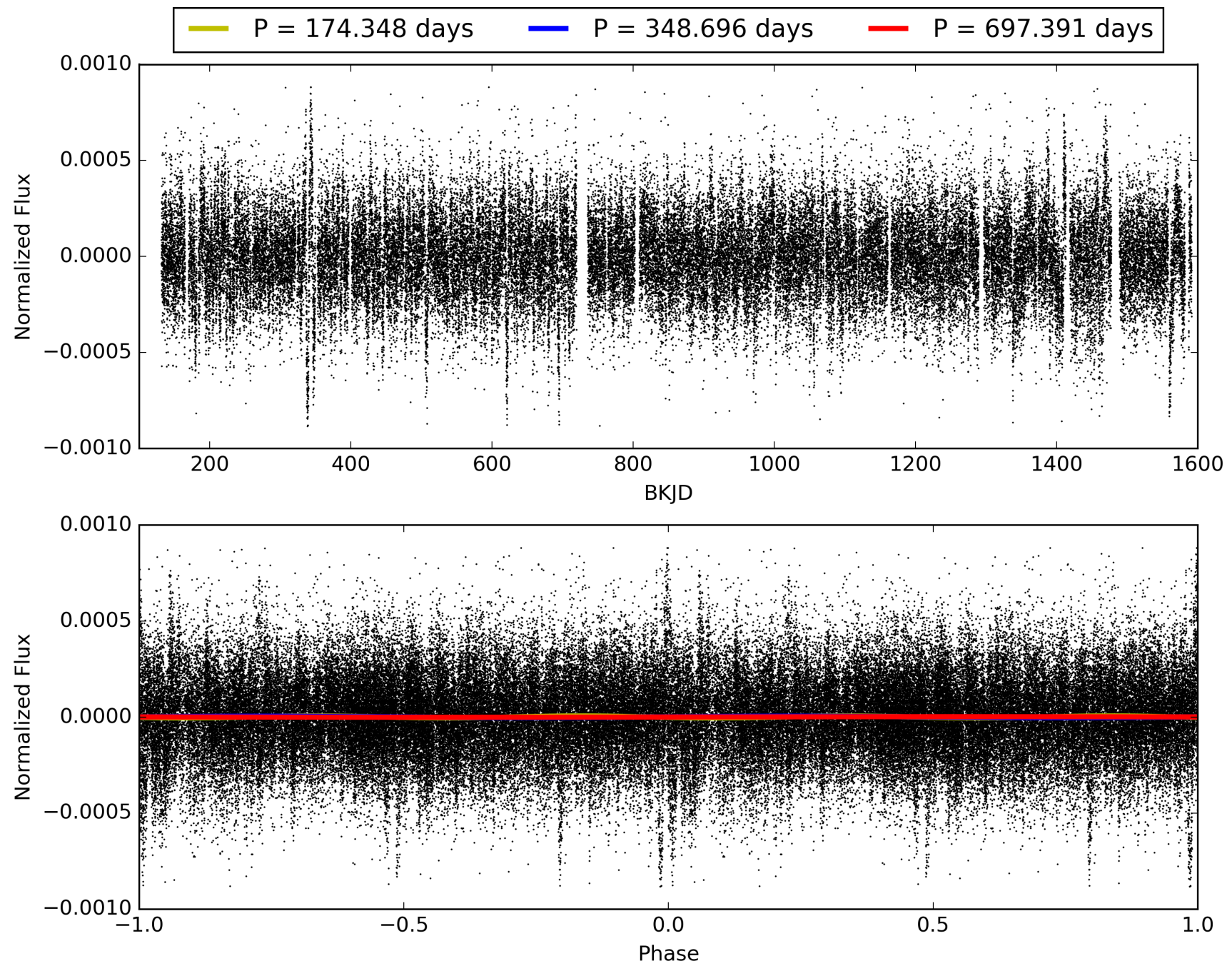
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:02:41 Z

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

# TCE 008608544-01, PDC Light Curves

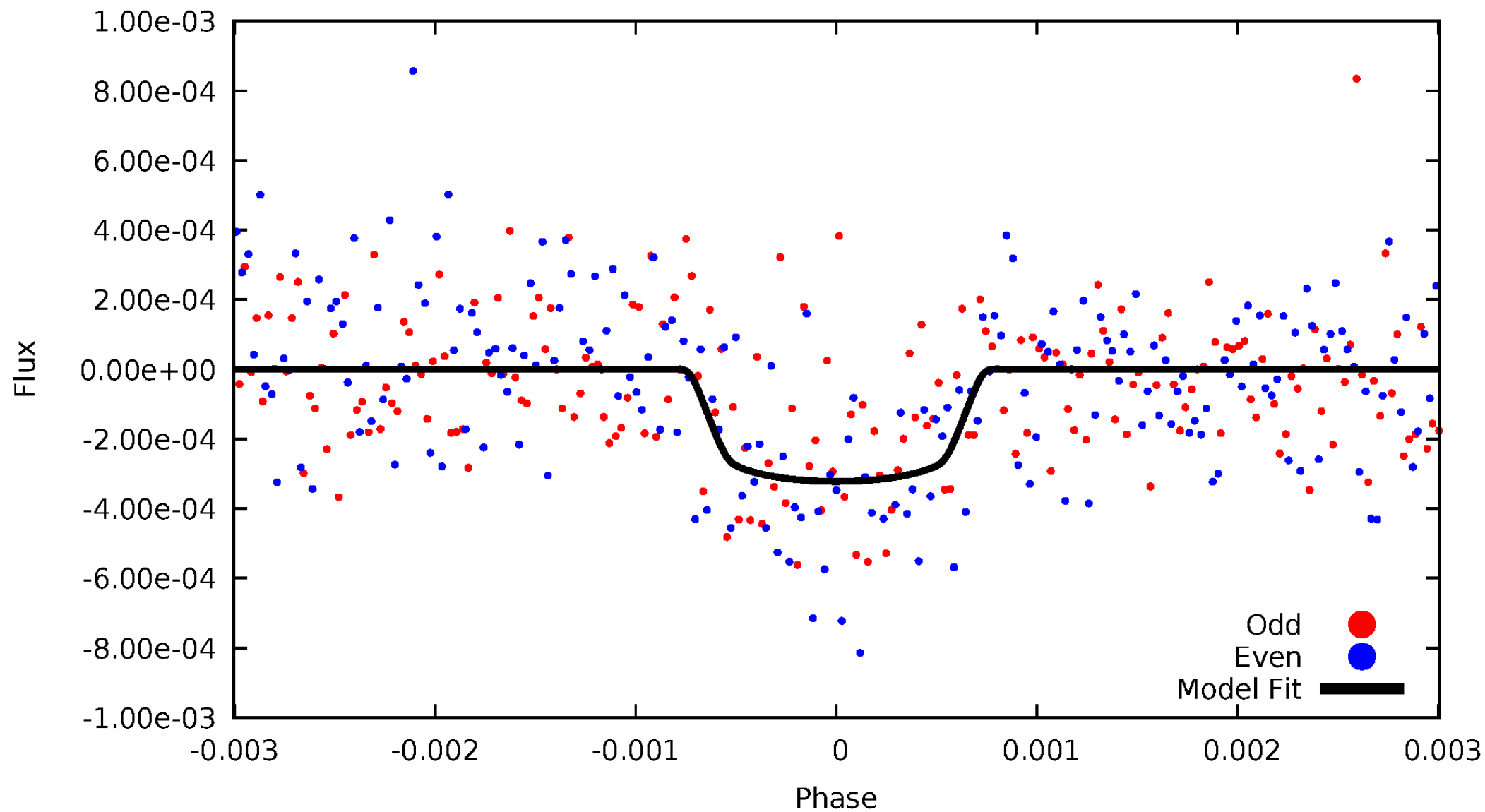


TCE 008608544-01



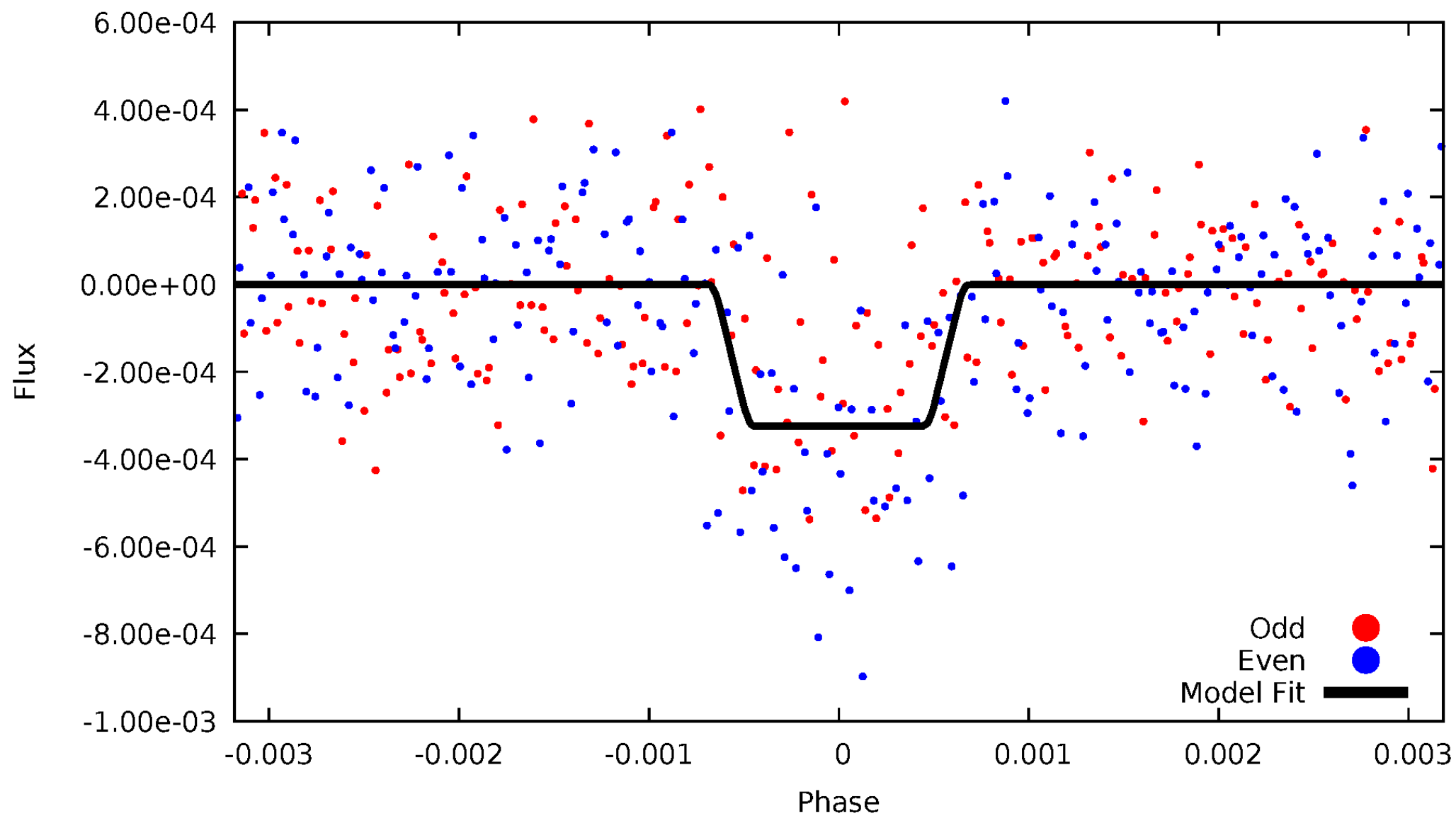
# DV Odd/Even

TCE 008608544-01



# ALT Odd/Even

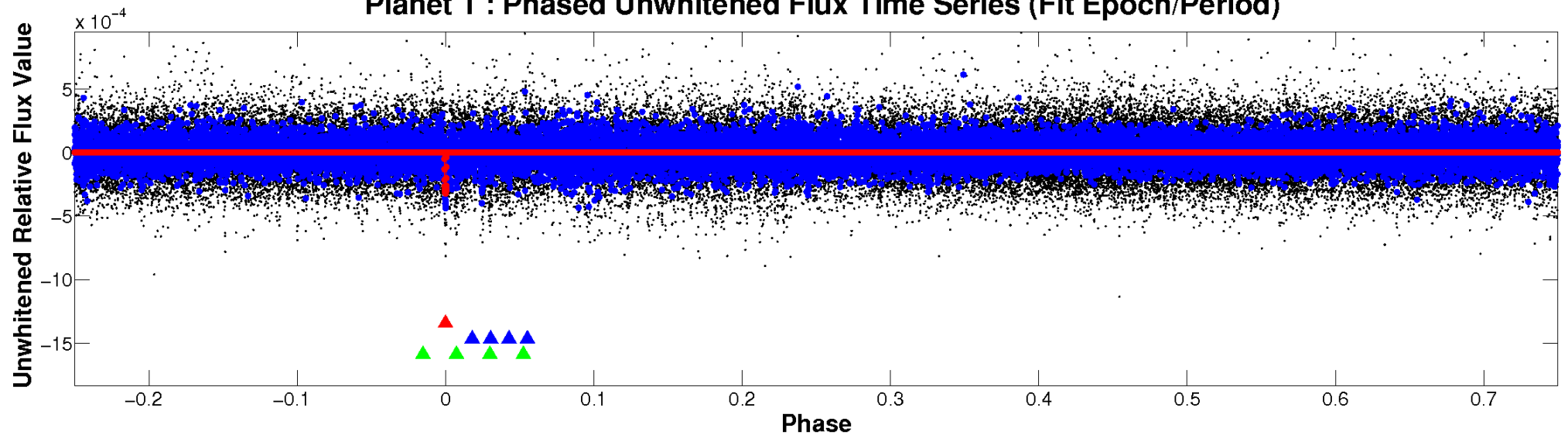
TCE 008608544-01



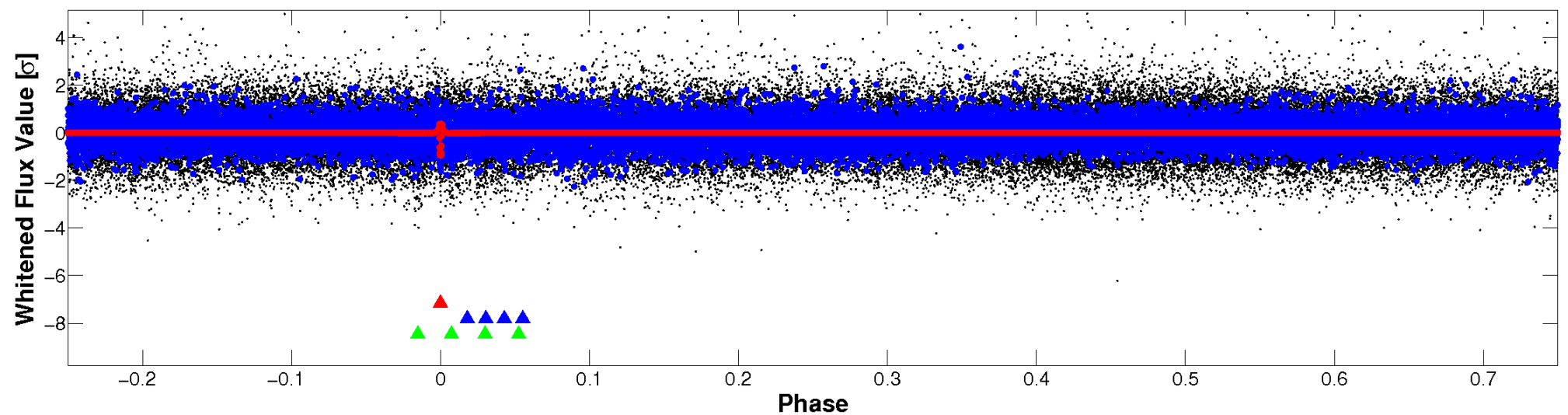


# Non-Whitened Vs. Whitened Light Curve

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

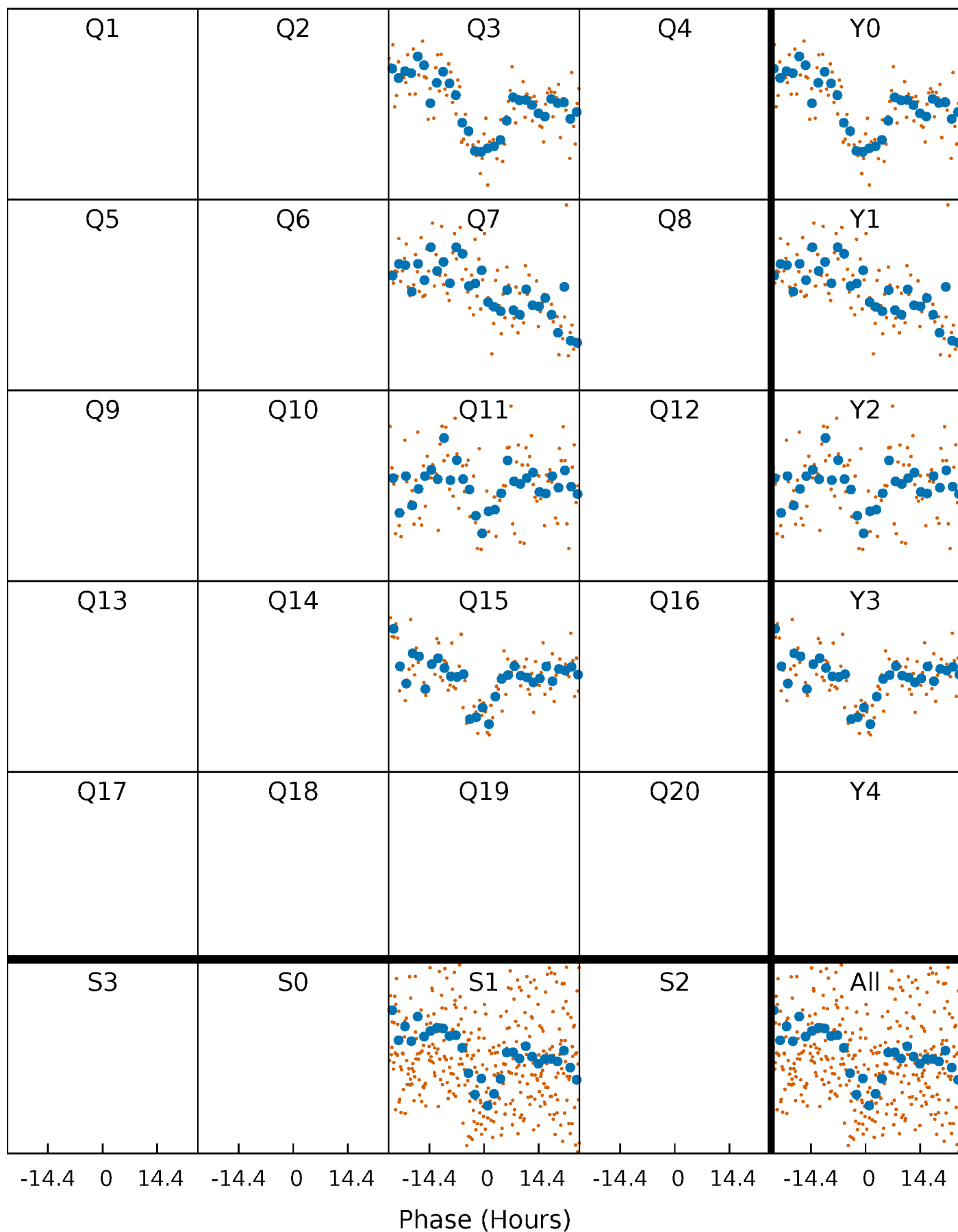


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

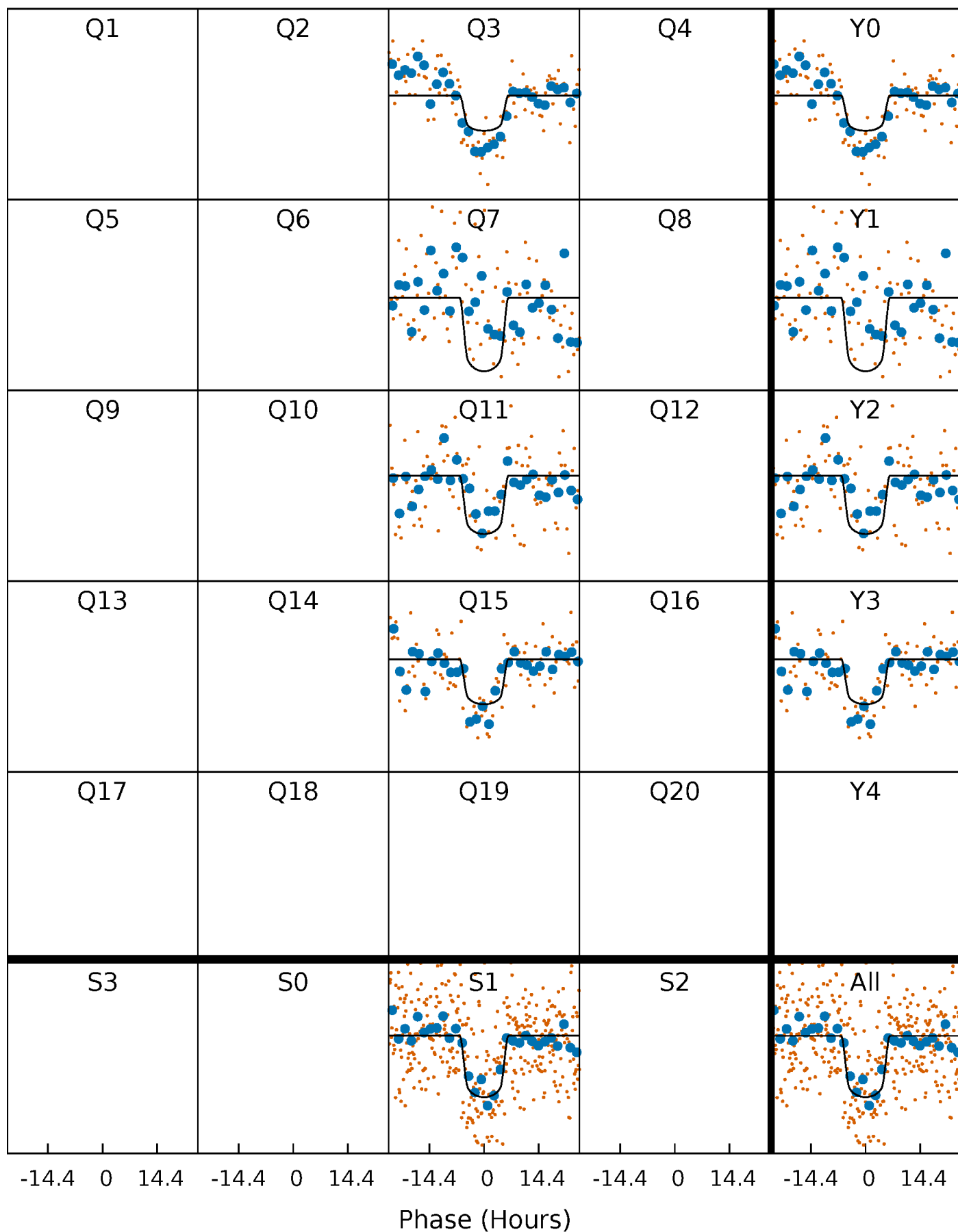
TCE 008608544-01 P=348.695538 Days  $T_0=343.794651$  (BKJD)





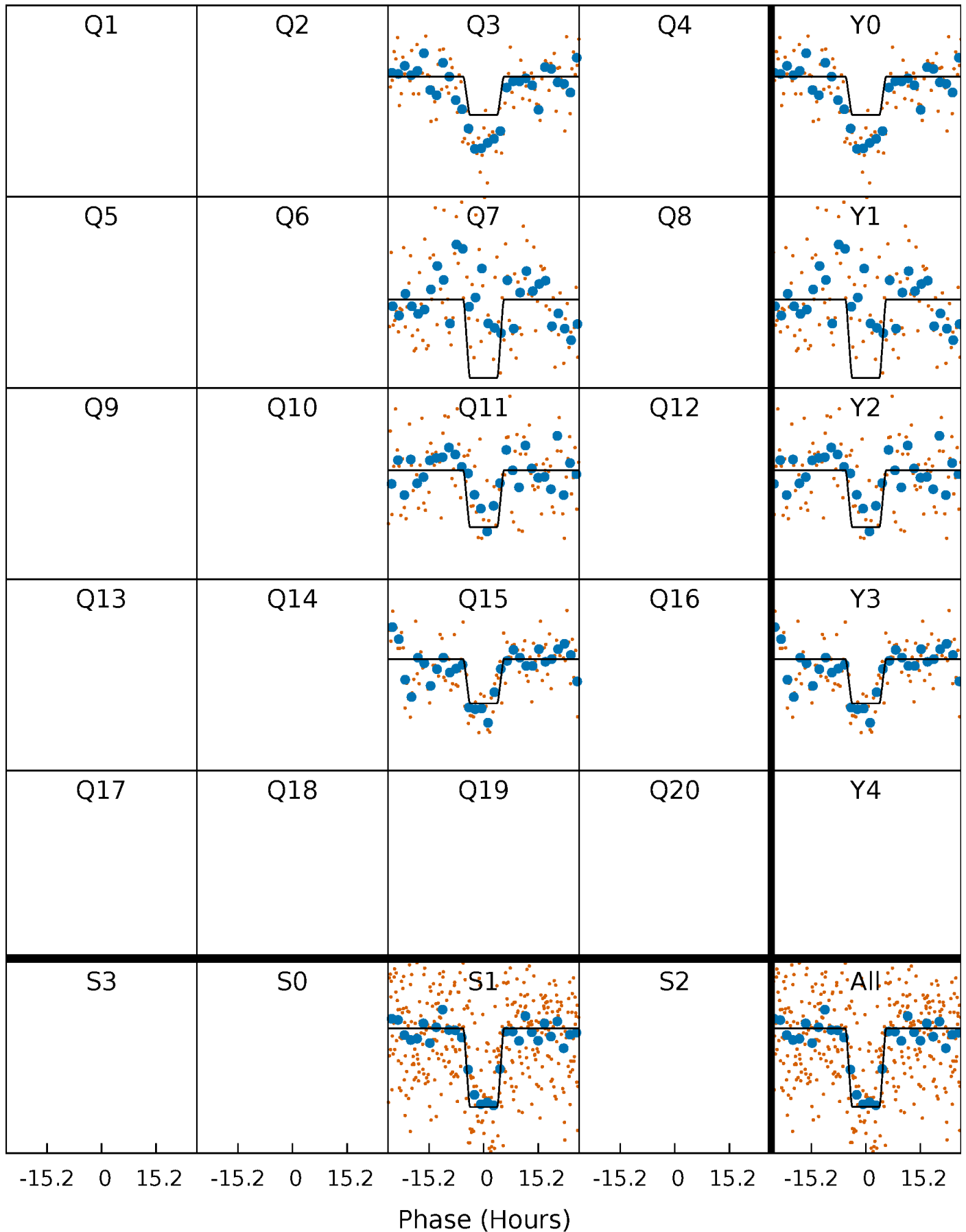
# DV Quarter-Phased Transit Curves

TCE 008608544-01 P=348.695538 Days  $T_0=343.794651$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

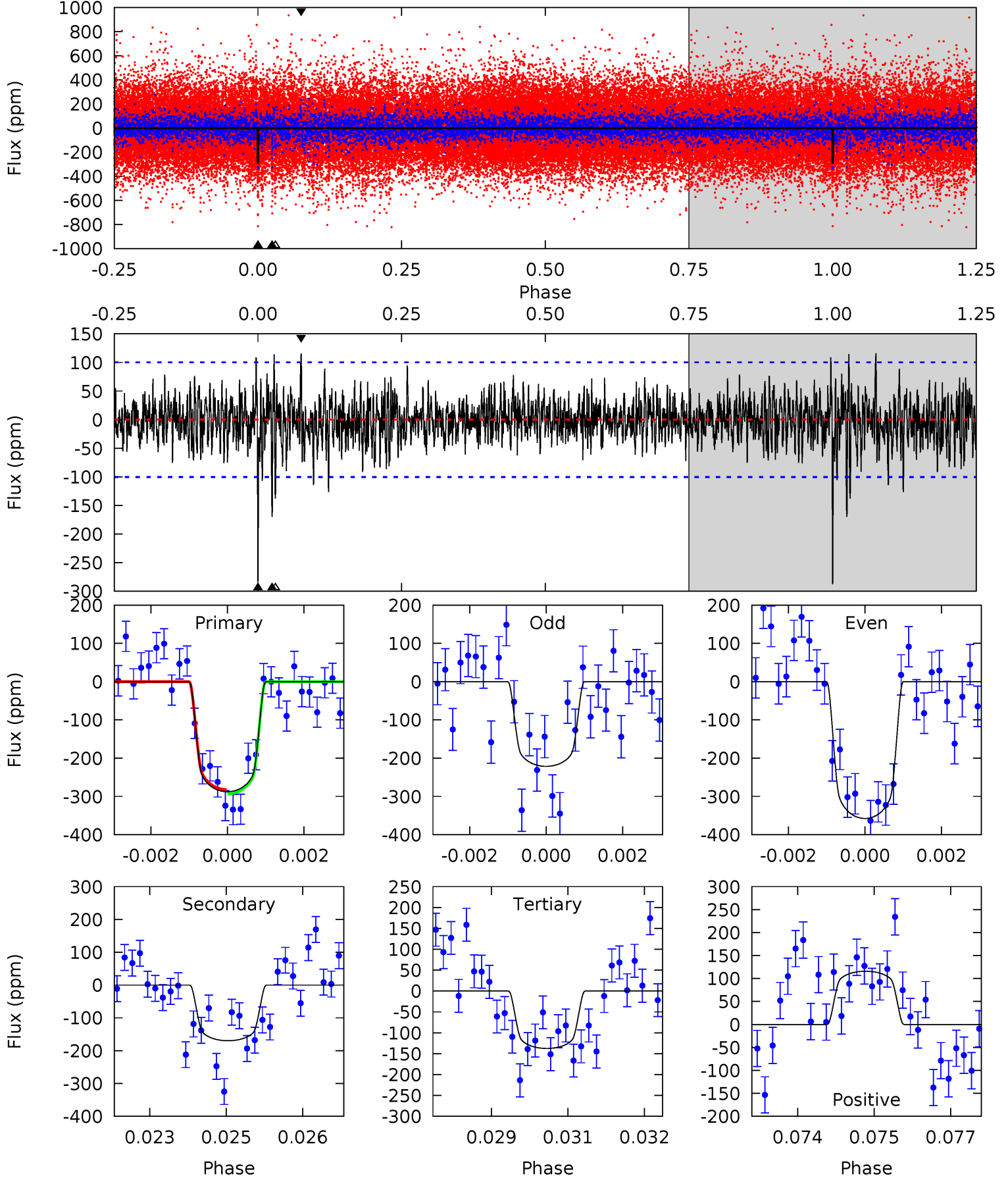
TCE 008608544-01 P=348.691890 Days  $T_0=343.791707$  (BKJD)



# DV Model-Shift Uniqueness Test

008608544-01, P = 348.695538 Days, E = 343.794651 Days

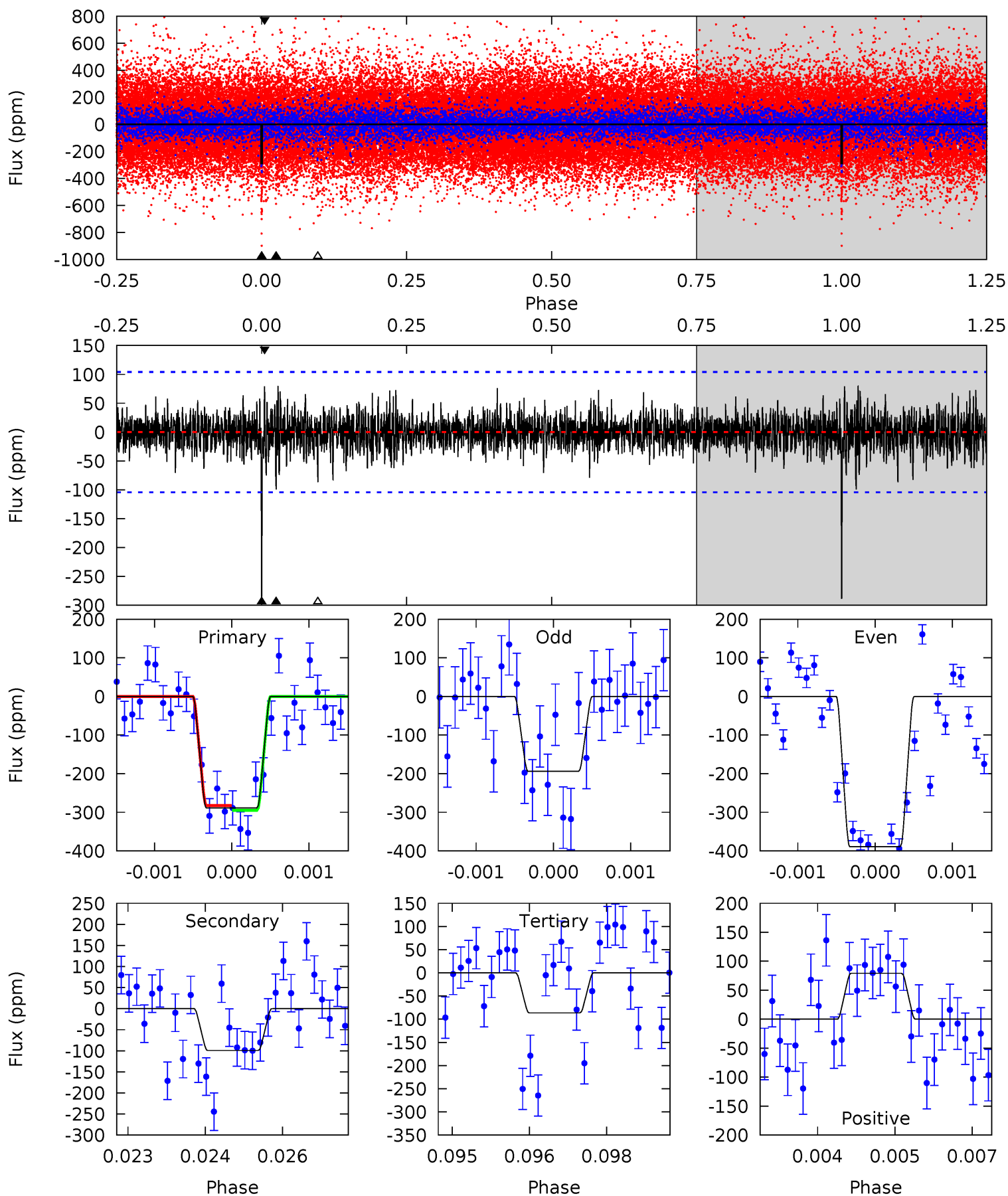
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	9.10	7.38	6.21	5.37	3.17	1.59	8.05	9.21	1.72	2.89	3.67	0.99	0.29	0.30



# Alt Model-Shift Uniqueness Test

008608544-01, P = 348.691890 Days, E = 343.791707 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
14.9	5.14	4.48	4.10	5.40	3.20	1.12	10.5	10.8	0.66	1.04	5.05	1.06	0.22	0.33



### Stellar Parameters For KIC 008608544

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6450^{+144}_{-192}$	$4.386^{+0.067}_{-0.216}$	$-0.080^{+0.250}_{-0.300}$	$1.155^{+0.389}_{-0.130}$	$1.183^{+0.172}_{-0.157}$	$1.081^{+0.306}_{-0.564}$
	+2%/-3%	+2%/-5%	+312%/-375%	+34%/-11%	+15%/-13%	+28%/-52%
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 008608544-01 / KOI 8159.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-170 \pm 19$	$2.61^{+0.48}_{-0.33}$	$429^{+30}_{-19}$	$5224^{+322}_{-273}$	$14017^{+4397}_{-4029}$
Alt.	$-99 \pm 19$	$2.36^{+0.45}_{-0.33}$	$429^{+31}_{-20}$	$4876^{+328}_{-301}$	$9954^{+4076}_{-3234}$

$T_{\text{max}}$  = 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

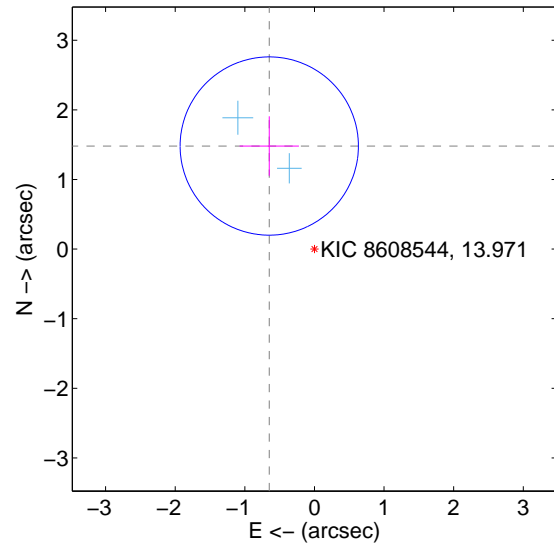
Supplemental centroid analysis for 008608544-01. Kepler magnitude: 13.97. Transit SNR 8.41

There are 2 quarters with good PRF difference image offsets

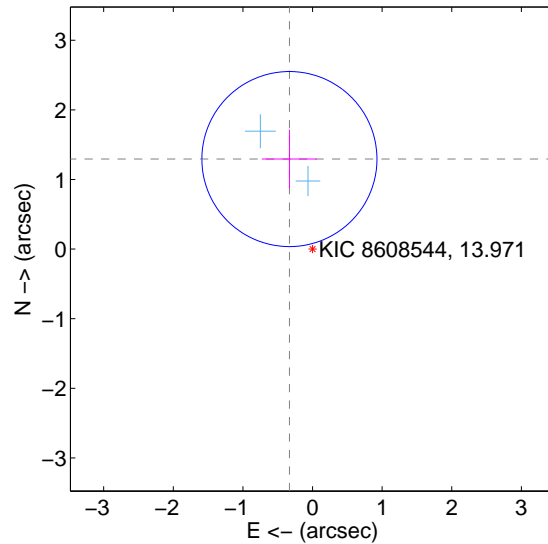
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.617 \pm 0.427$	3.79	$0.649 \pm 0.427$	$1.481 \pm 0.427$
PRF-fit source offset from KIC position	$1.335 \pm 0.419$	3.19	$0.332 \pm 0.395$	$1.293 \pm 0.421$
photometric centroid source offset	$0.29 \pm 0.78$	0.37	$-0.29 \pm 0.78$	$0.01 \pm 0.98$

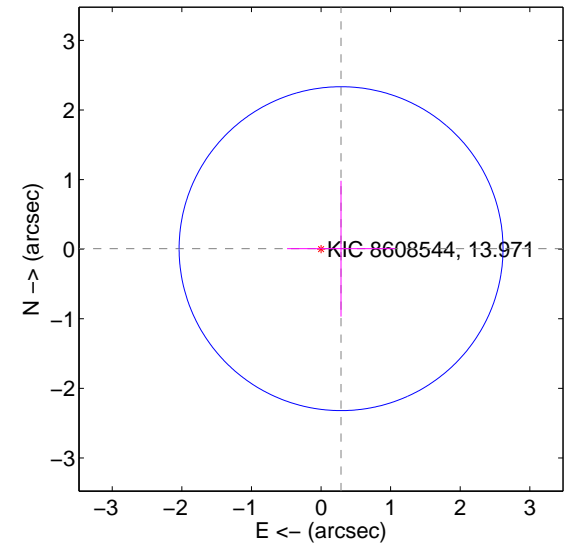
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



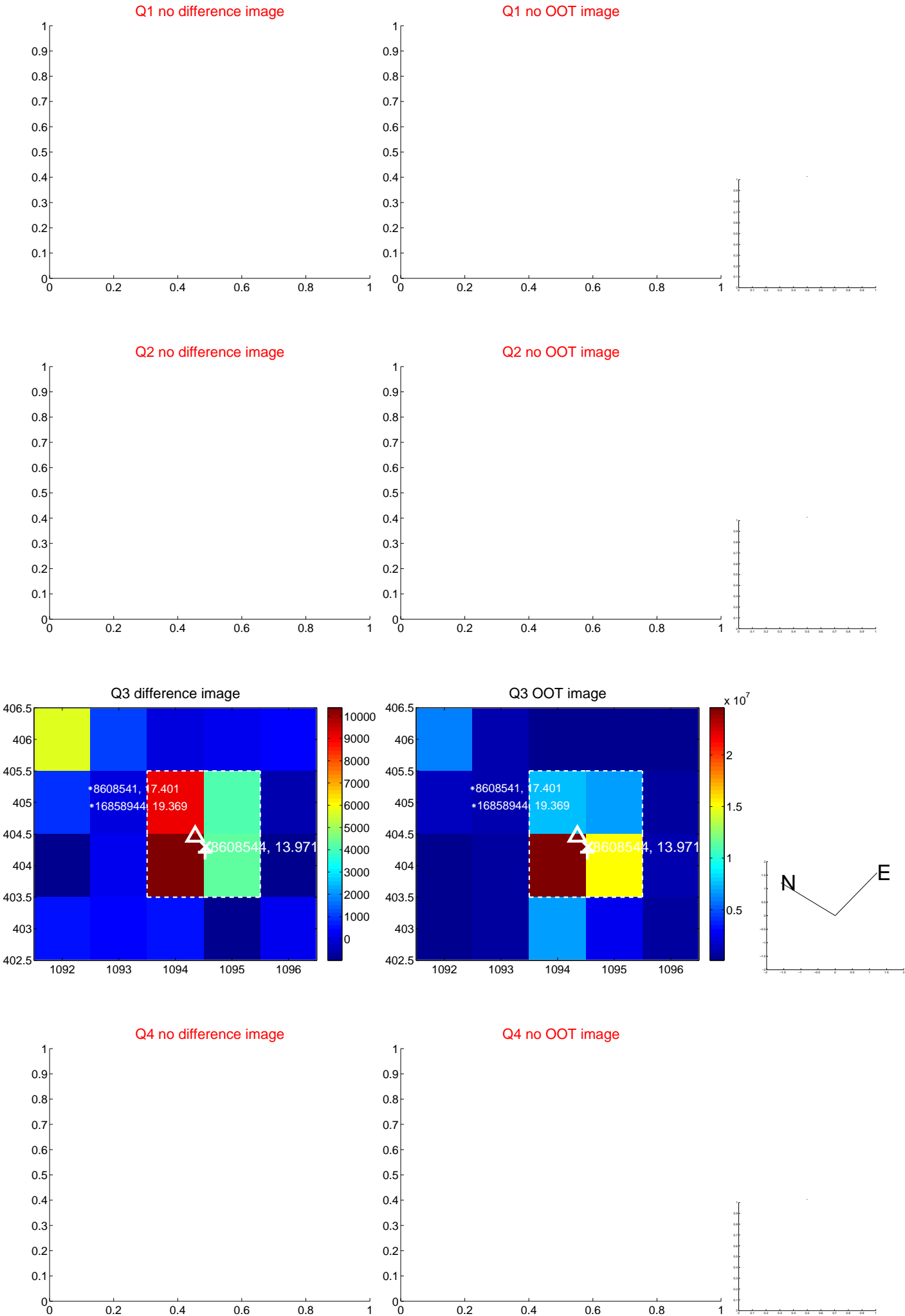
offset from photometric centroids



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.



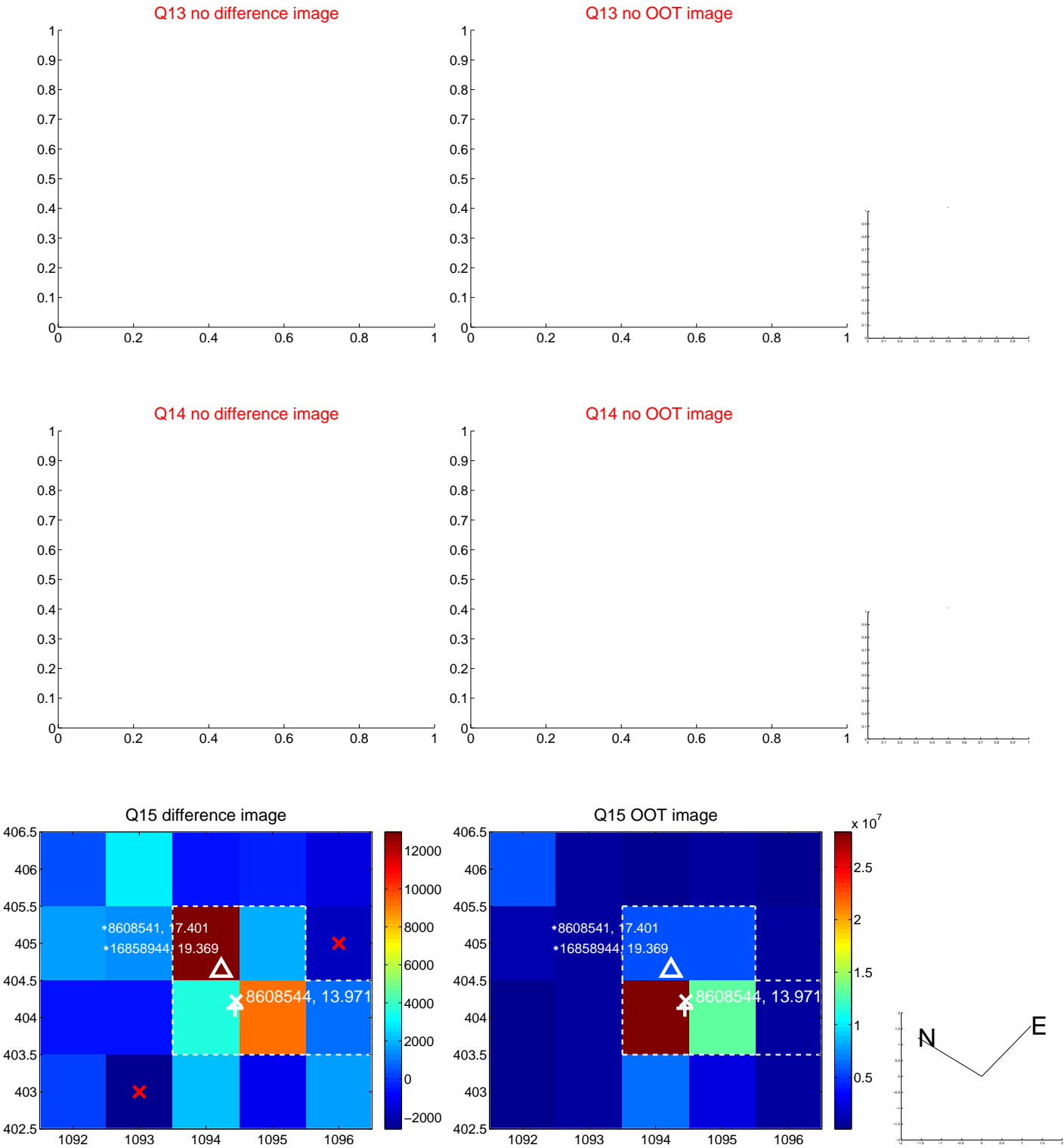
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



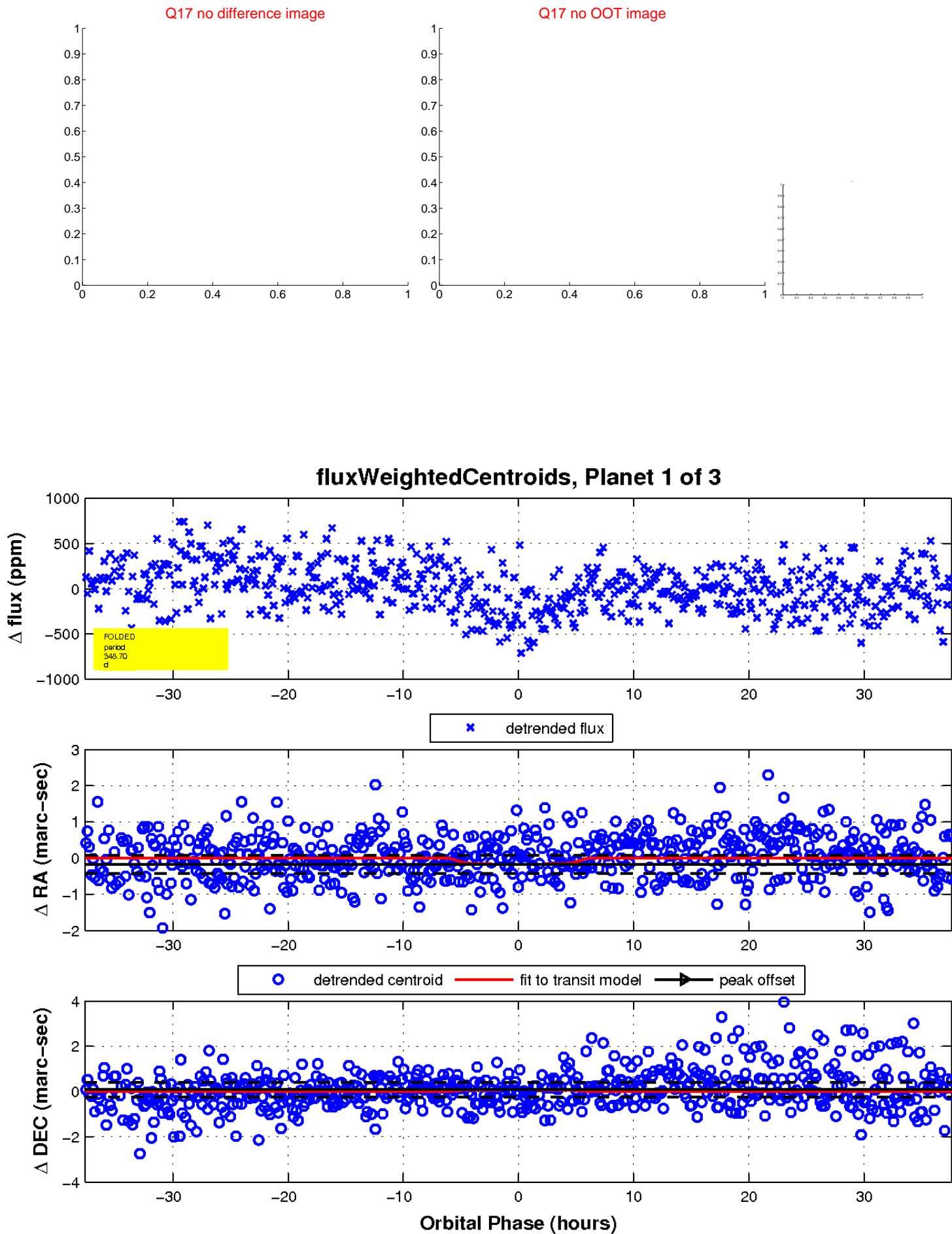
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

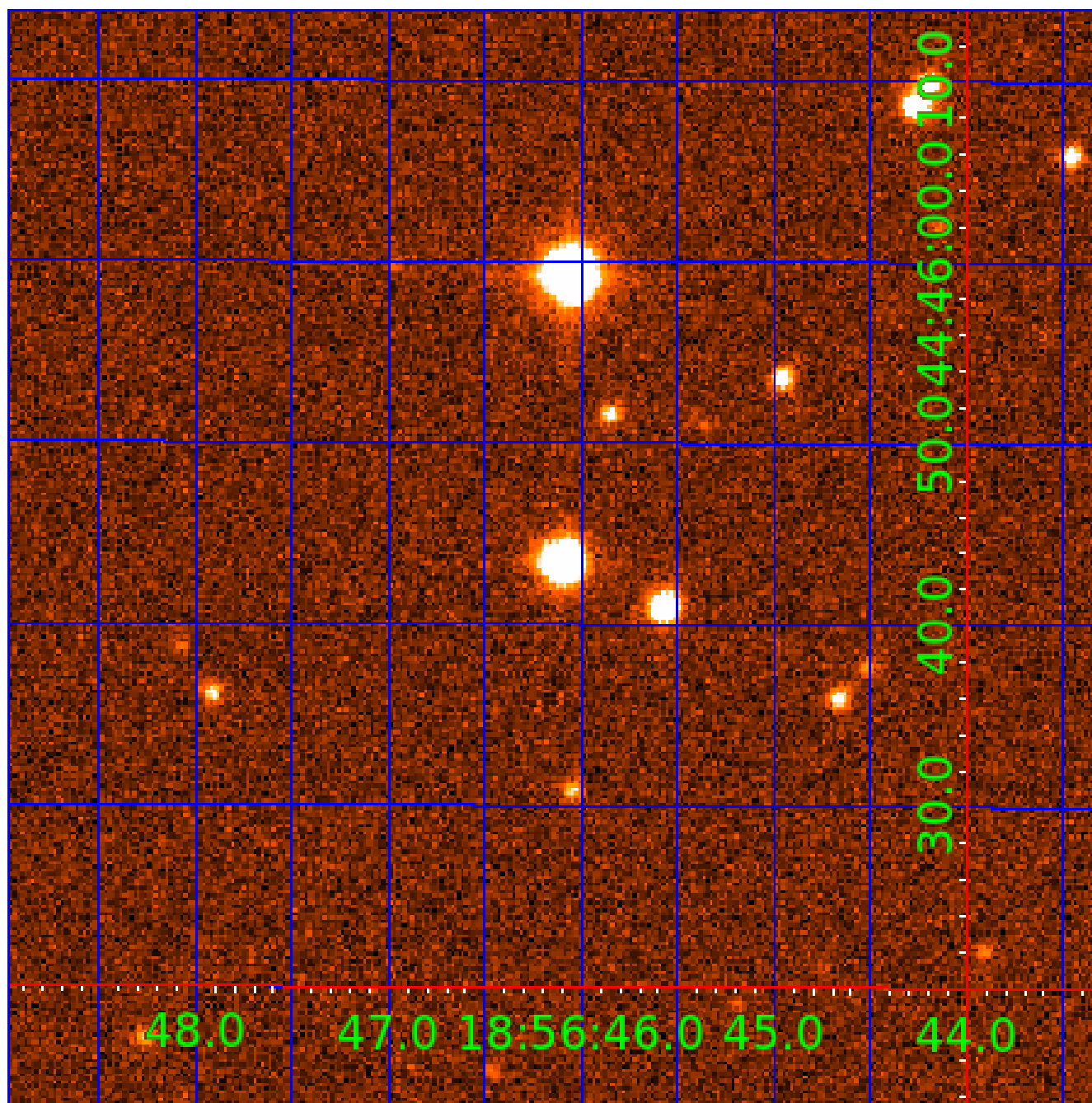


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008608544

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008608544-01	OBS	8159.01	348.695538	343.794652	322.0	12.561	8.6	8.4	1.16	6450	2.52	1.97
008608544-02	OBS	8159.02	353.023558	350.077901	401.7	15.688	8.2	8.8	1.16	6450	2.40	1.93
008608544-03	OBS	No	356.563644	338.503463	266.8	26.383	7.9	7.8	1.16	6450	1.99	1.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008608544-01	OBS	FP	0.01	1	0	0	0	INCONSISTENT_TRANS—CENT_FEW_DIFFS
008608544-02	OBS	PC	0.57	0	0	0	0	CENT_FEW_DIFFS
008608544-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—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.

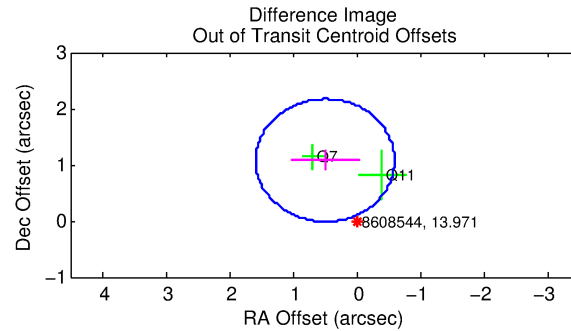
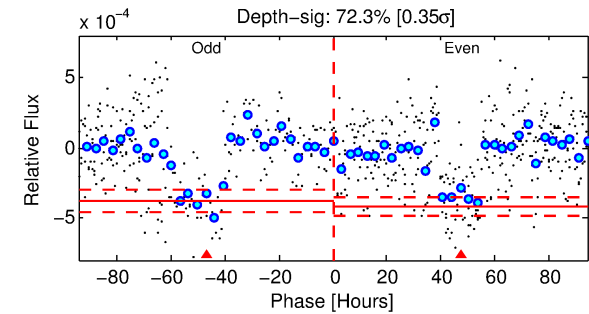
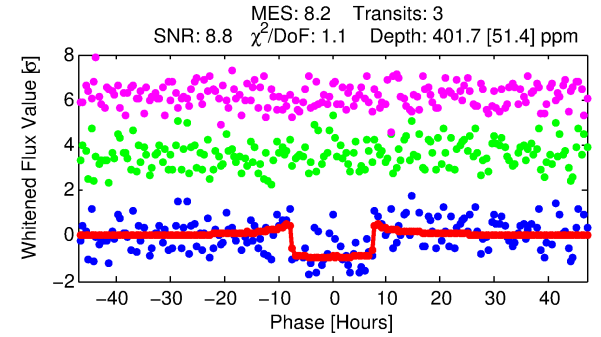
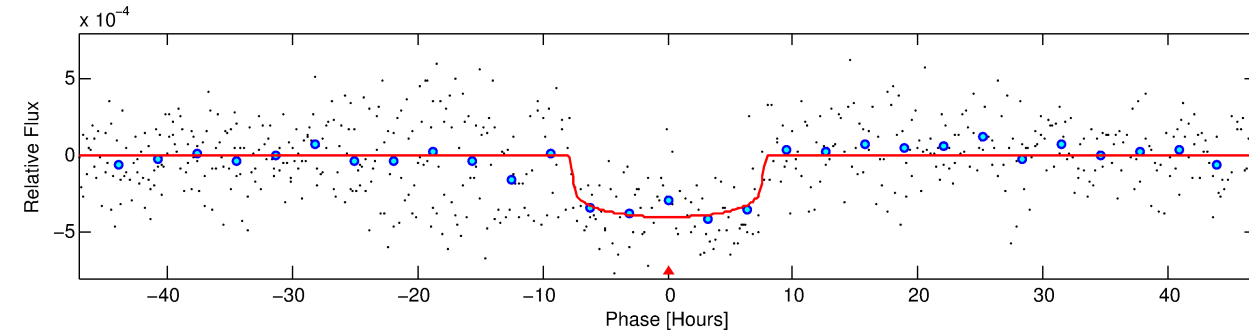
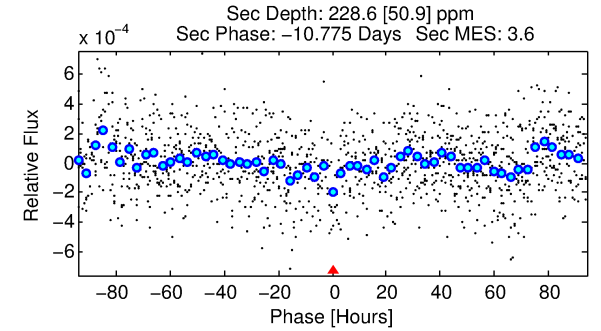
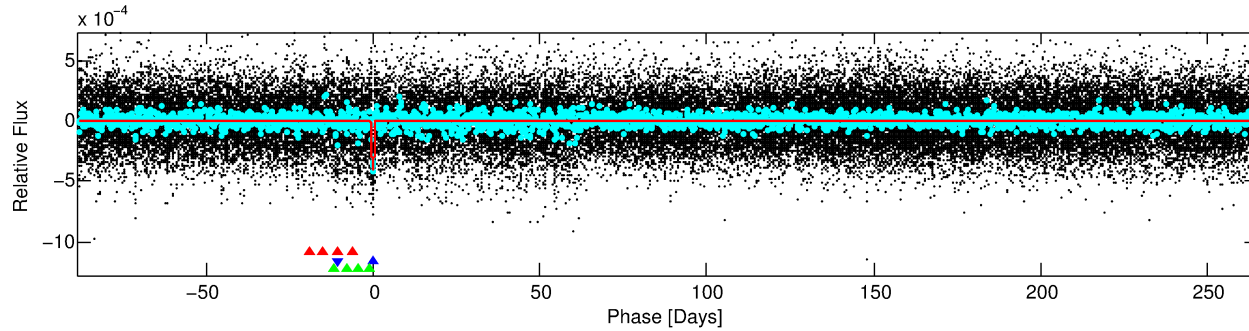
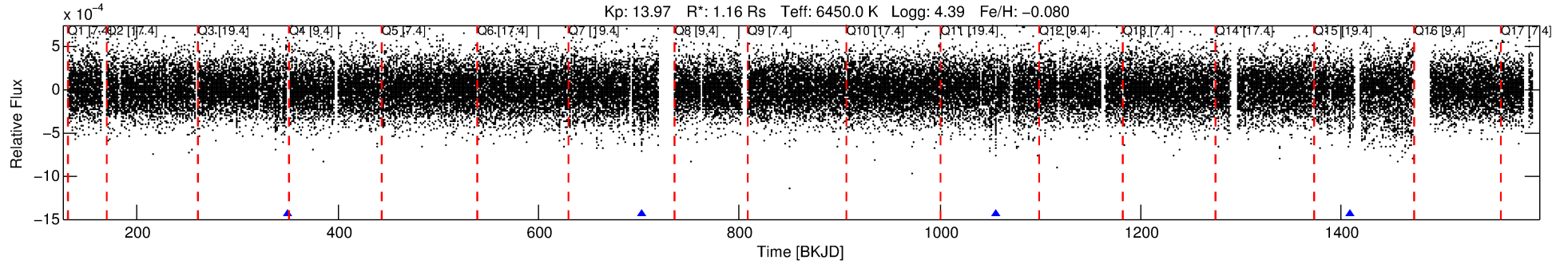
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008608544-02

No Significant Match Found

# DV One-Page Summary

KIC: 8608544 Candidate: 2 of 3 Period: 353.024 d



## DV Fit Results:

Period = 353.02356 [0.01231] d  
Epoch = 350.0779 [0.0293] BKJD  
Rp/R\* = 0.0190 [0.0071]  
a/R\* = 148.80 [285.89]  
b = 0.54 [2.54]  
Seff = 1.93 [0.81]  
Teq = 301 [31] K  
Rp = 2.40 [1.20] Re  
a = 1.0342 [0.2887] AU  
Ag = 23355.86 [20350.29] [1.15σ]  
Teffp = 5747 [1125] K [4.84σ]

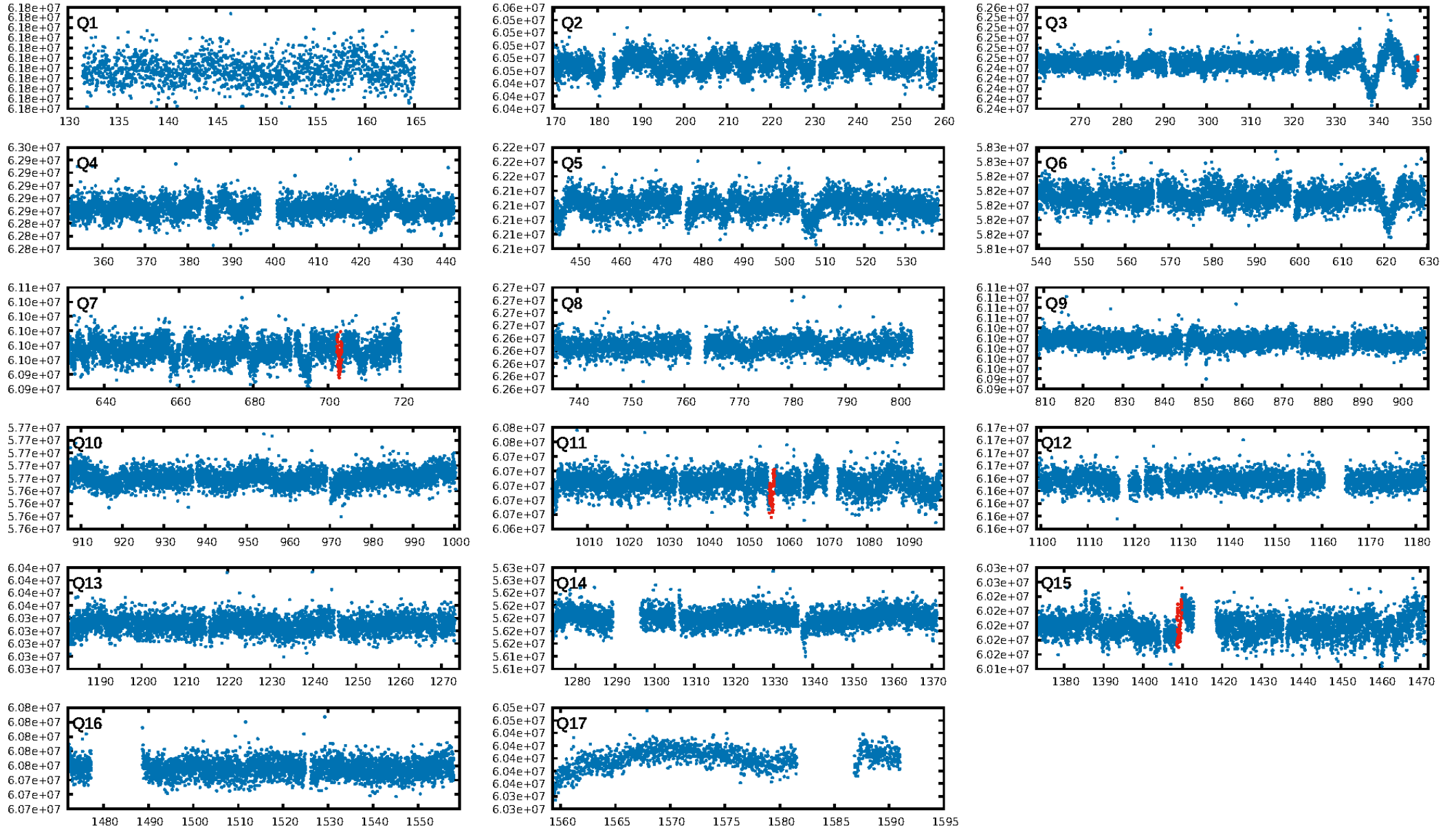
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.17σ]  
LongPeriod-sig: 99.4% [2.77σ]  
ModelChiSquare2-sig: 61.3%  
ModelChiSquareGof-sig: 99.7%  
**Bootstrap-pfa: 2.12e-12**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -8.541  
Centroid-sig: 2.9%  
Centroid-so: 1.275 arcsec [1.82σ]  
**OotOffset-rm: 1.184 arcsec [3.25σ]**  
**KicOffset-rm: 0.943 arcsec [3.84σ]**  
OotOffset-st: 0/2/0/0 [2]  
KicOffset-st: 0/2/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

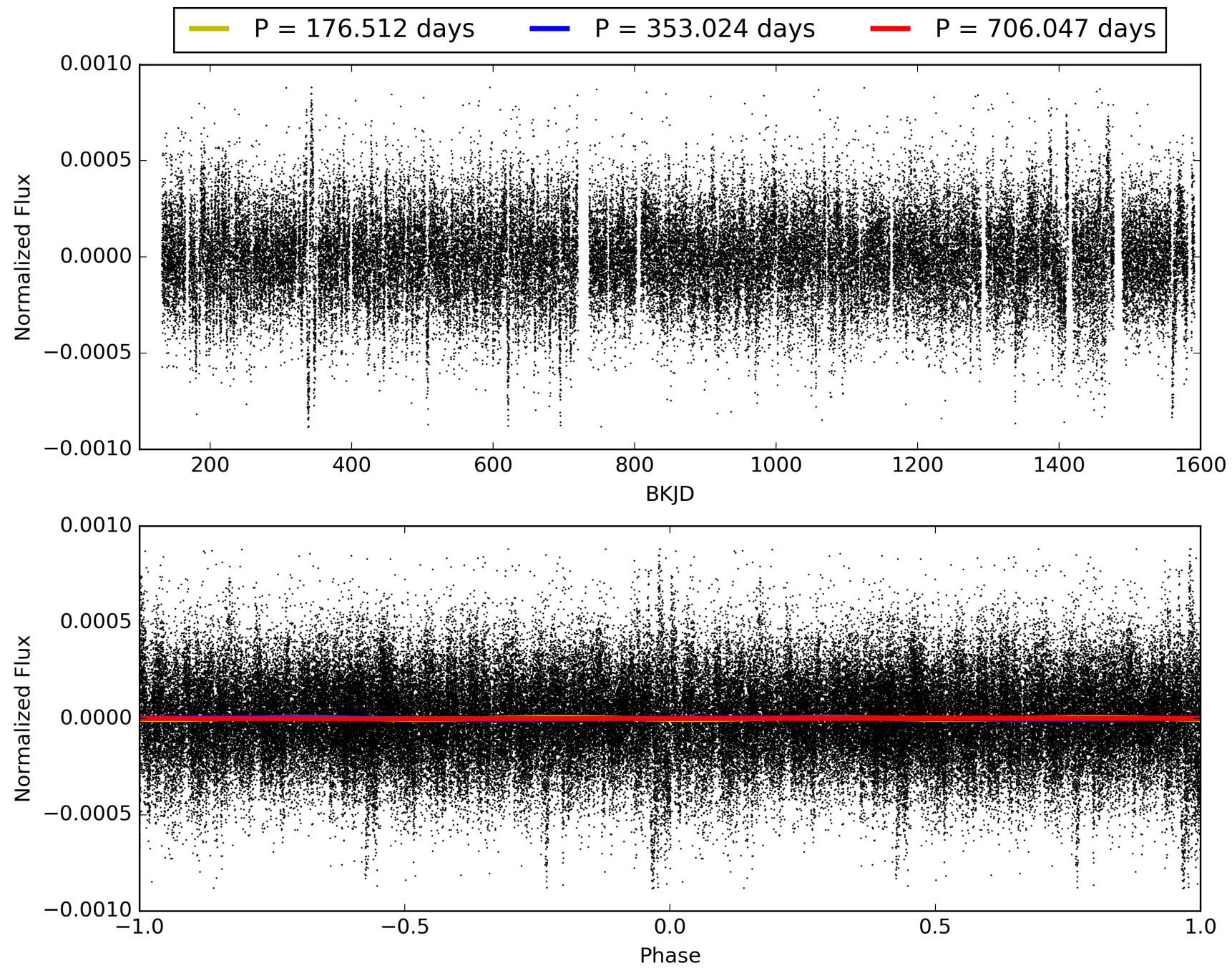
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:02:50 Z

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

# TCE 008608544-02, PDC Light Curves

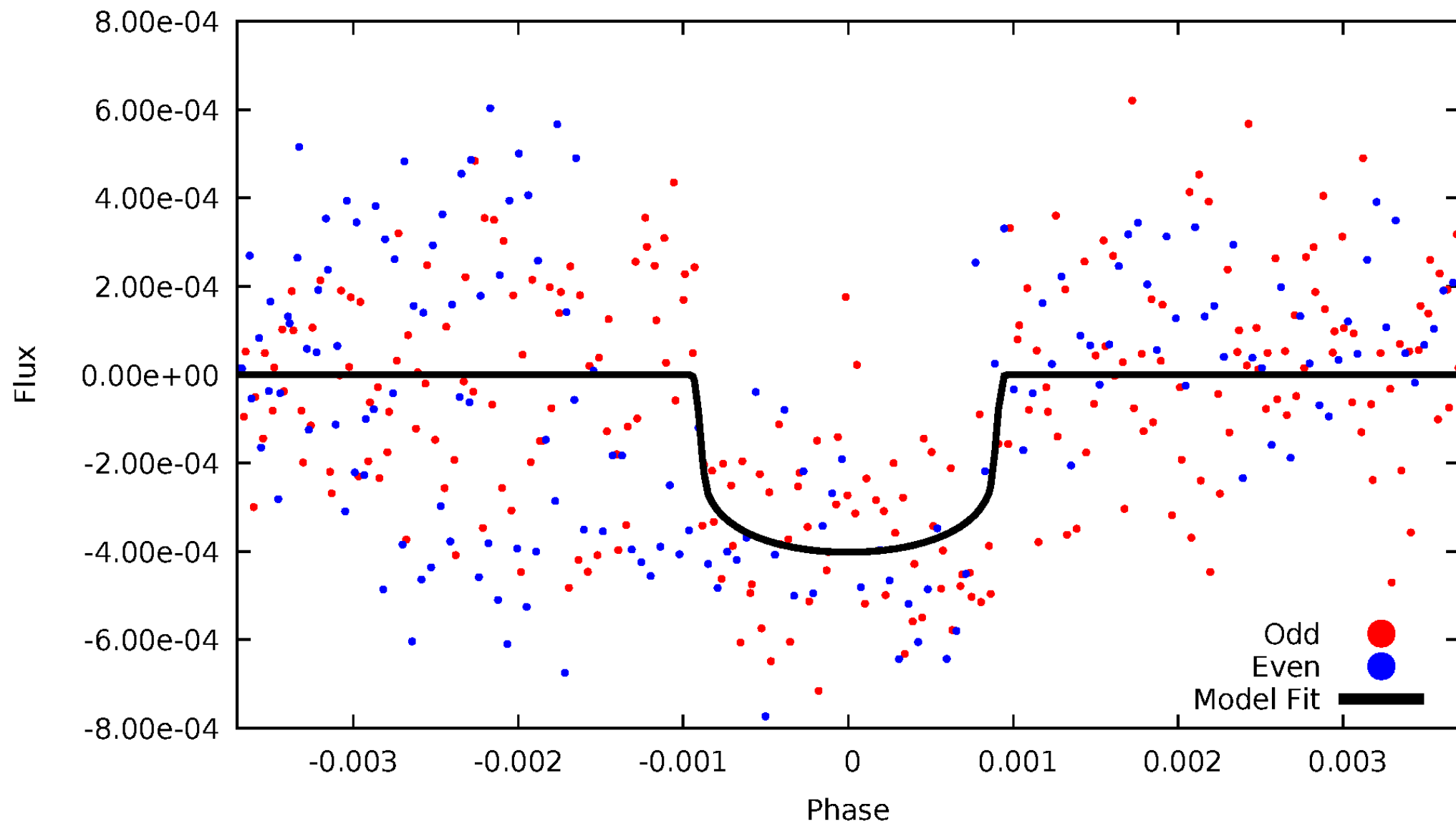


TCE 008608544-02



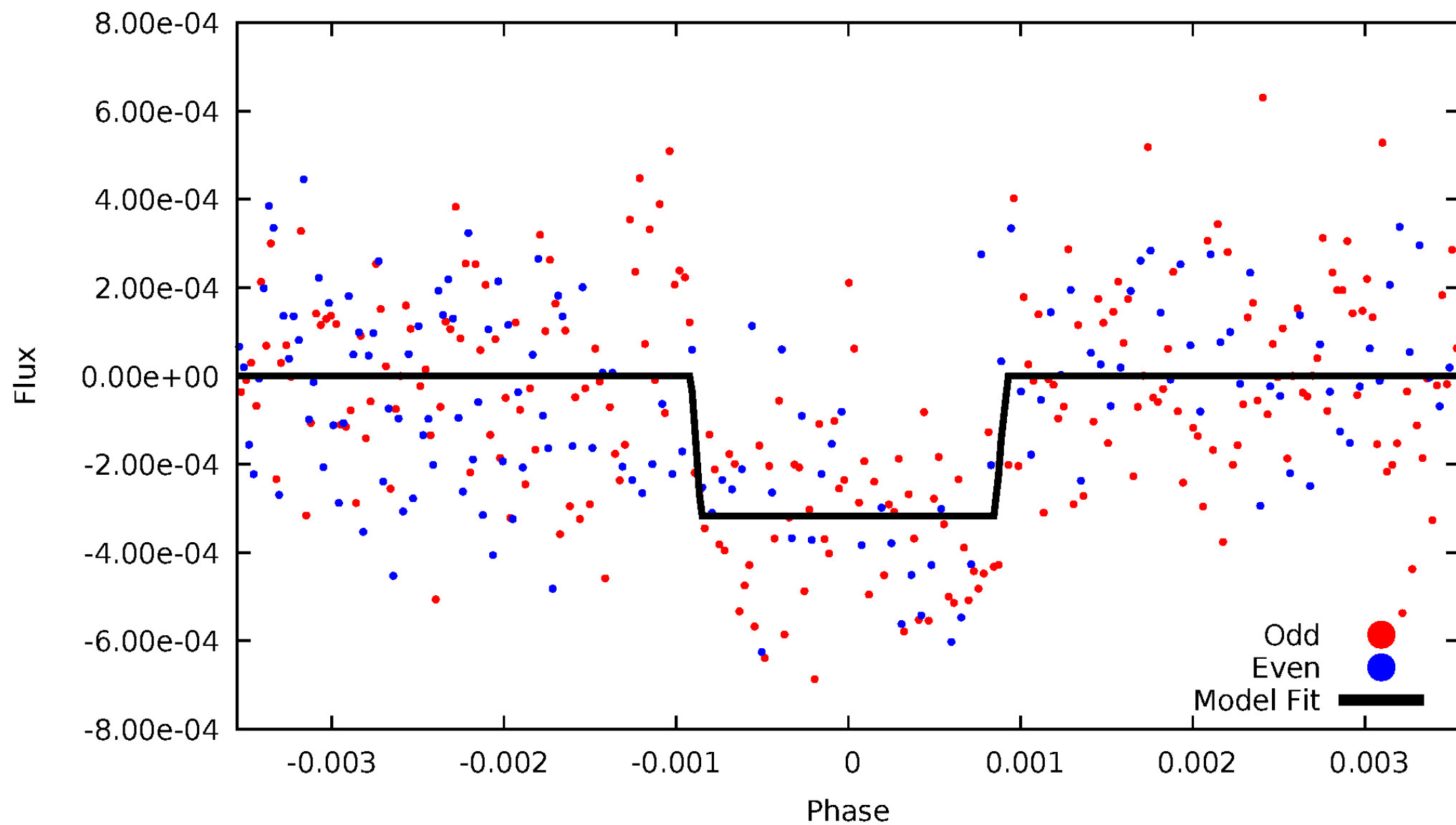
# DV Odd/Even

TCE 008608544-02



# ALT Odd/Even

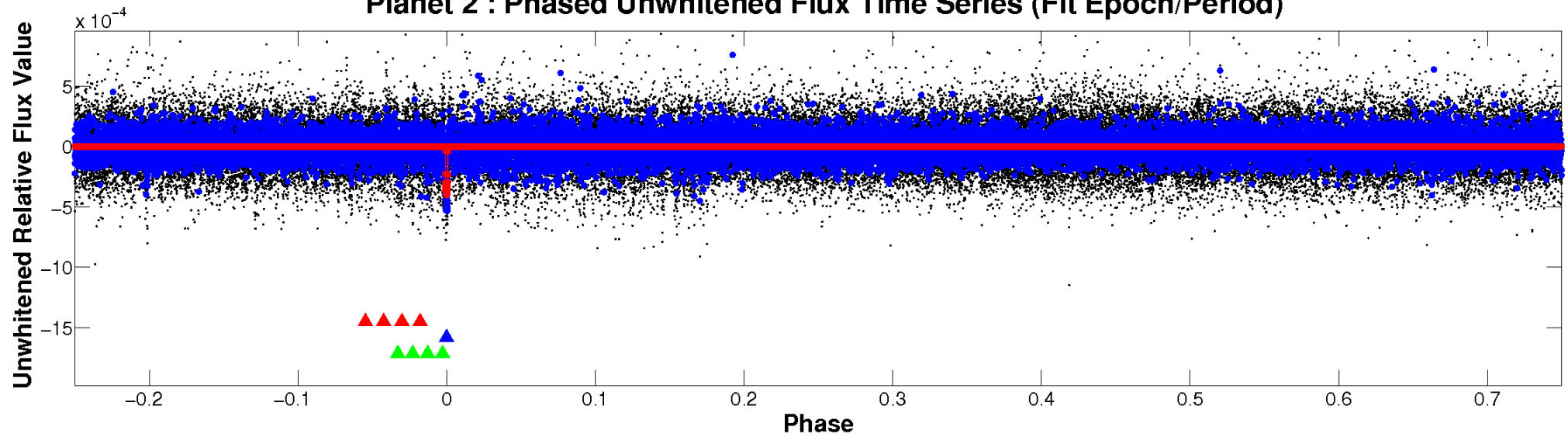
TCE 008608544-02



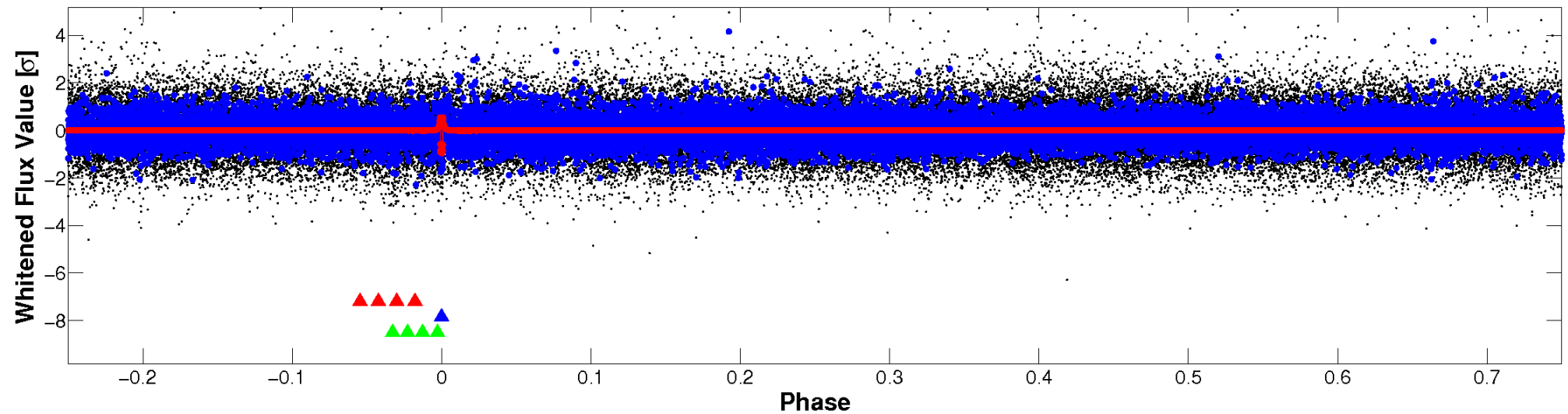


# Non-Whitened Vs. Whitened Light Curve

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

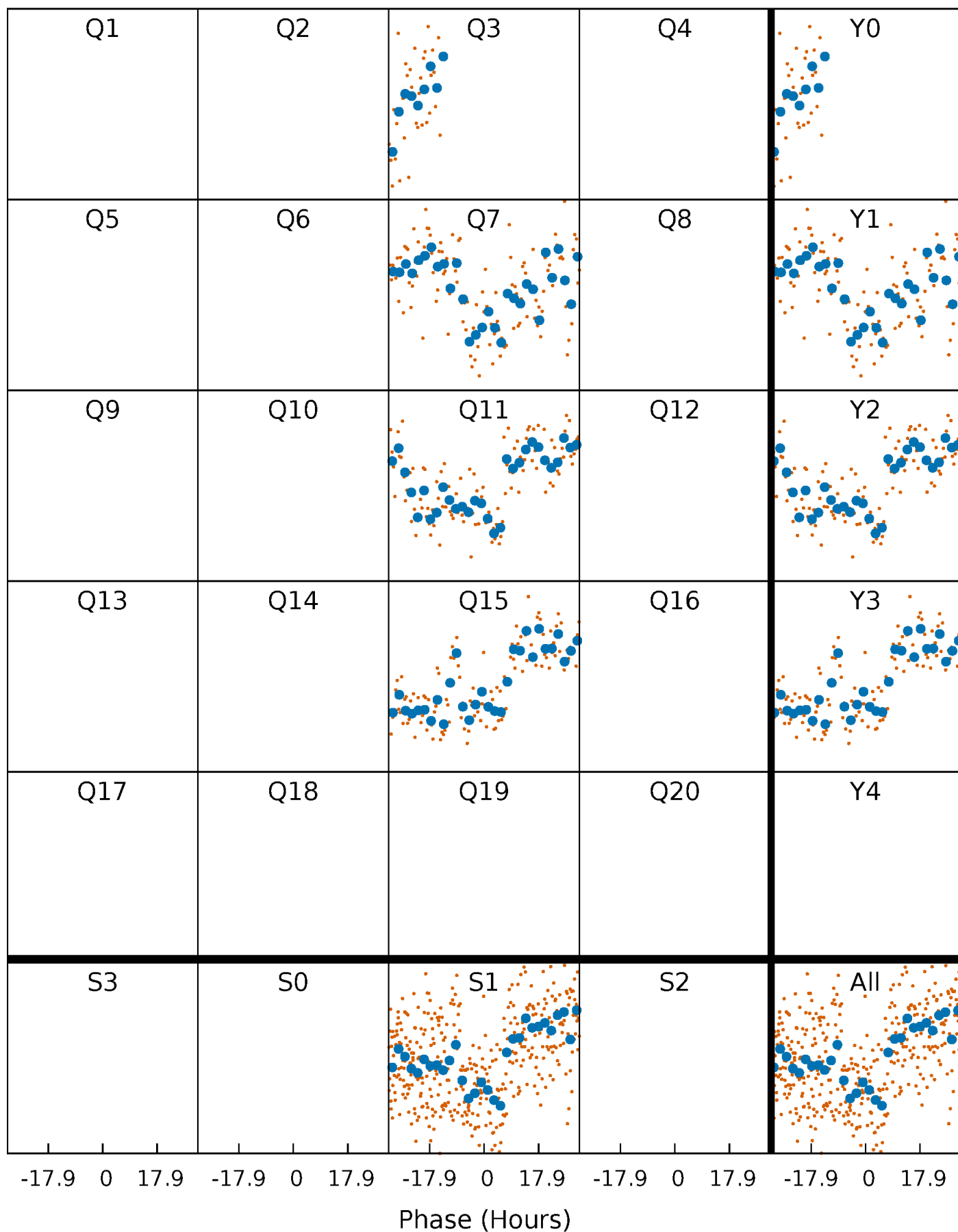


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



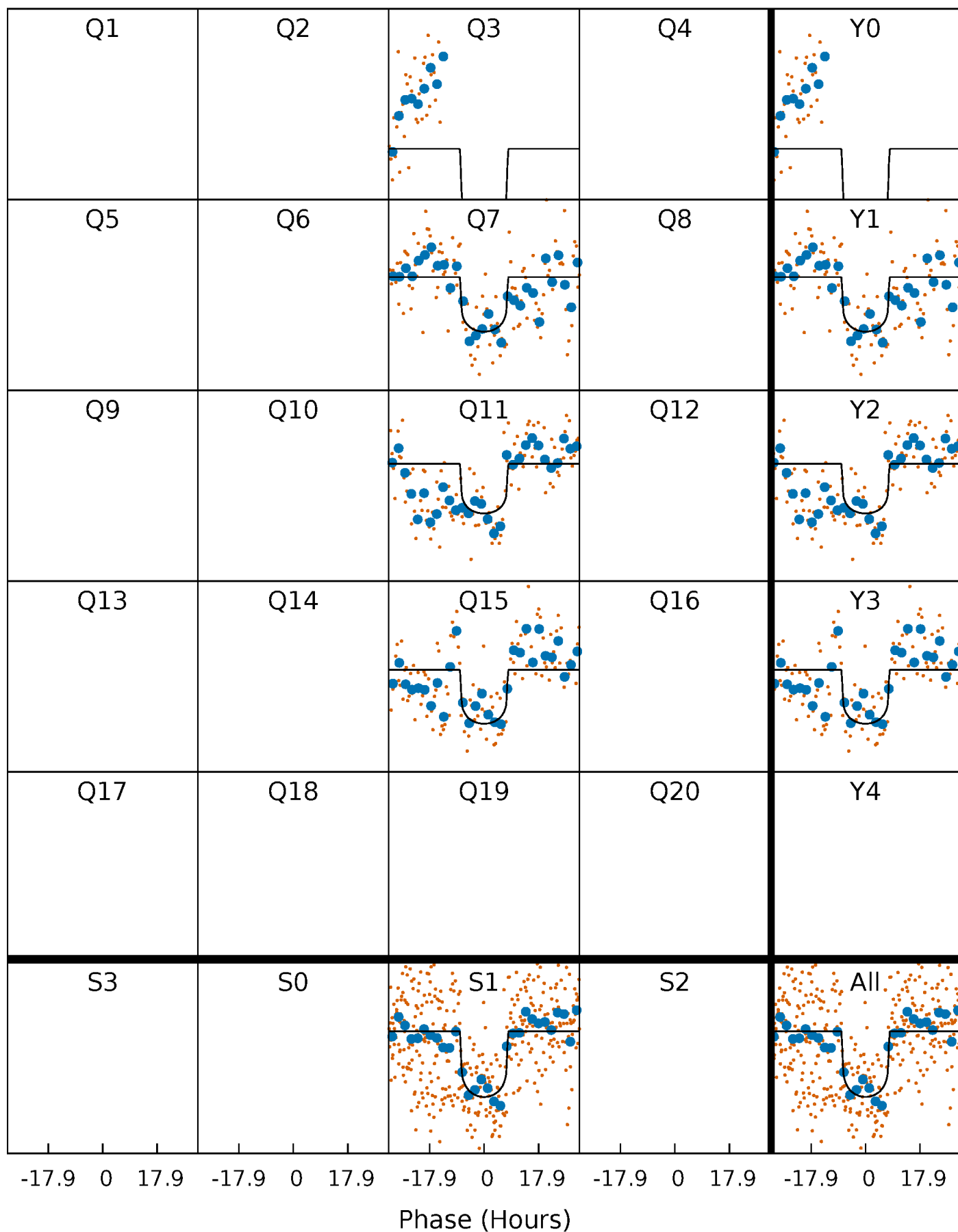
# PDC Quarter-Phased Transit Curves

TCE 008608544-02     $P=353.023558$  Days     $T_0=350.077901$  (BKJD)



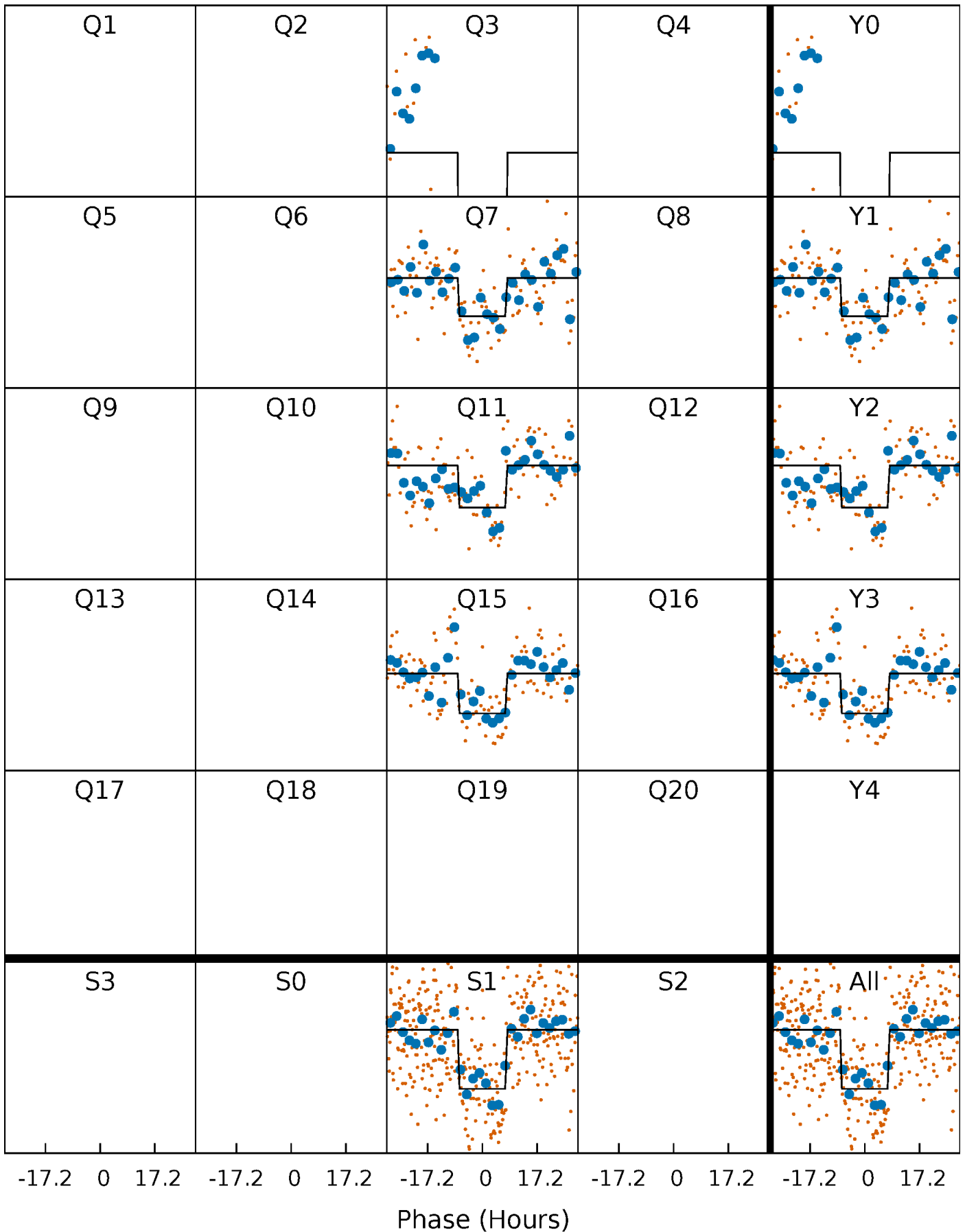
# DV Quarter-Phased Transit Curves

TCE 008608544-02     $P=353.023558$  Days     $T_0=350.077901$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

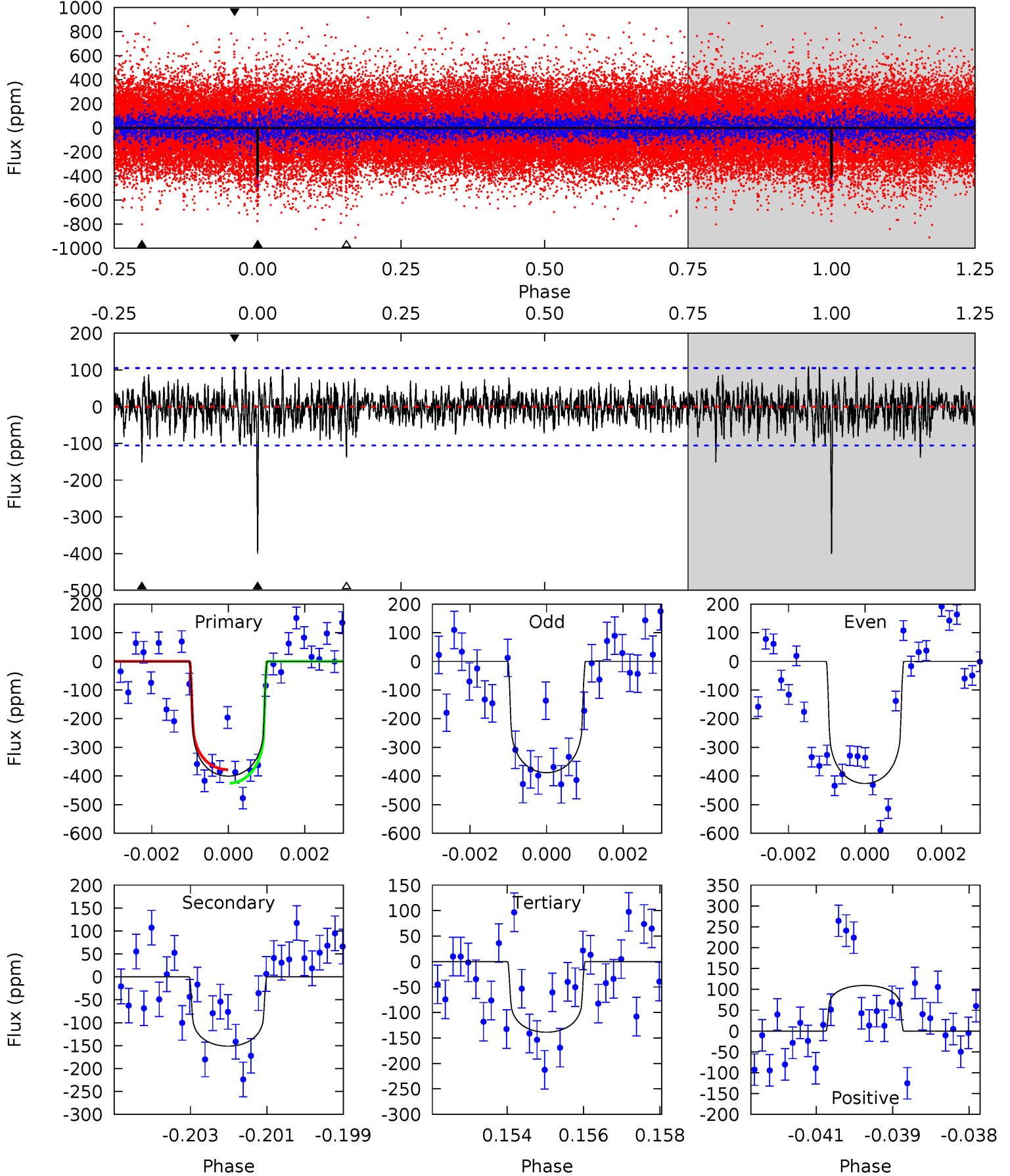
TCE 008608544-02 P=353.016994 Days  $T_0=350.090707$  (BKJD)



# DV Model-Shift Uniqueness Test

008608544-02, P = 353.023558 Days, E = 350.077901 Days

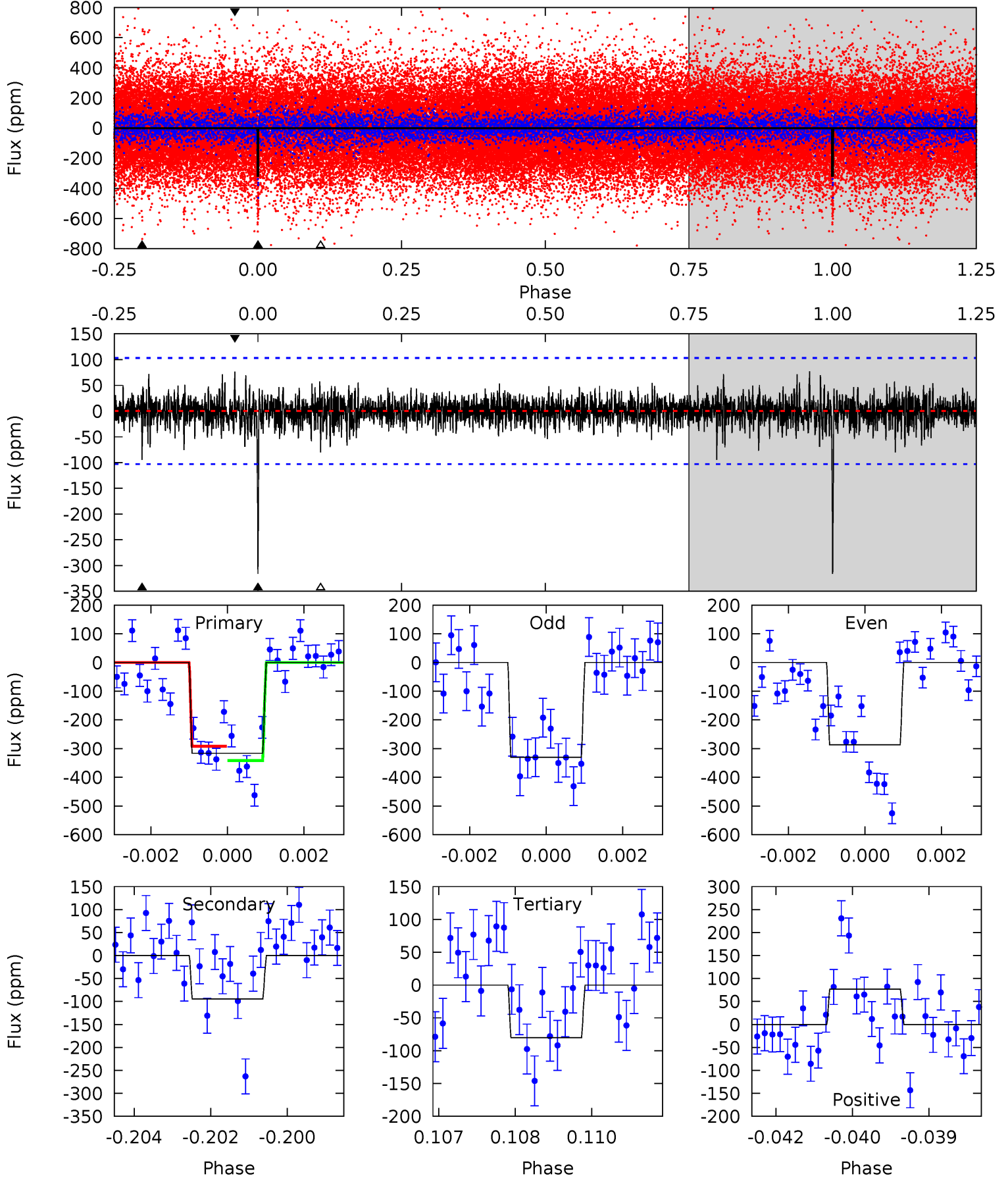
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	7.65	7.02	5.53	5.34	3.11	1.52	13.3	14.7	0.63	2.12	0.91	0.94	0.21	1.20



# Alt Model-Shift Uniqueness Test

008608544-02,  $P = 353.016994$  Days,  $E = 350.090707$  Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	4.91	4.16	3.98	5.34	3.12	0.95	12.2	12.4	0.75	0.93	1.05	1.07	0.20	1.29





### Stellar Parameters For KIC 008608544

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6450^{+144}_{-192}$	$4.386^{+0.067}_{-0.216}$	$-0.080^{+0.250}_{-0.300}$	$1.155^{+0.389}_{-0.130}$	$1.183^{+0.172}_{-0.157}$	$1.081^{+0.306}_{-0.564}$
	+2%/-3%	+2%/-5%	+312%/-375%	+34%/-11%	+15%/-13%	+28%/-52%
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 008608544-02 / KOI 8159.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-151 \pm 20$	$2.49^{+1.03}_{-0.95}$	$428^{+31}_{-21}$	$5267^{+1288}_{-711}$	$13877^{+22638}_{-6990}$
Alt.	$-95 \pm 19$	$2.38^{+0.93}_{-0.93}$	$427^{+32}_{-19}$	$4870^{+1137}_{-613}$	$9654^{+16196}_{-4838}$

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

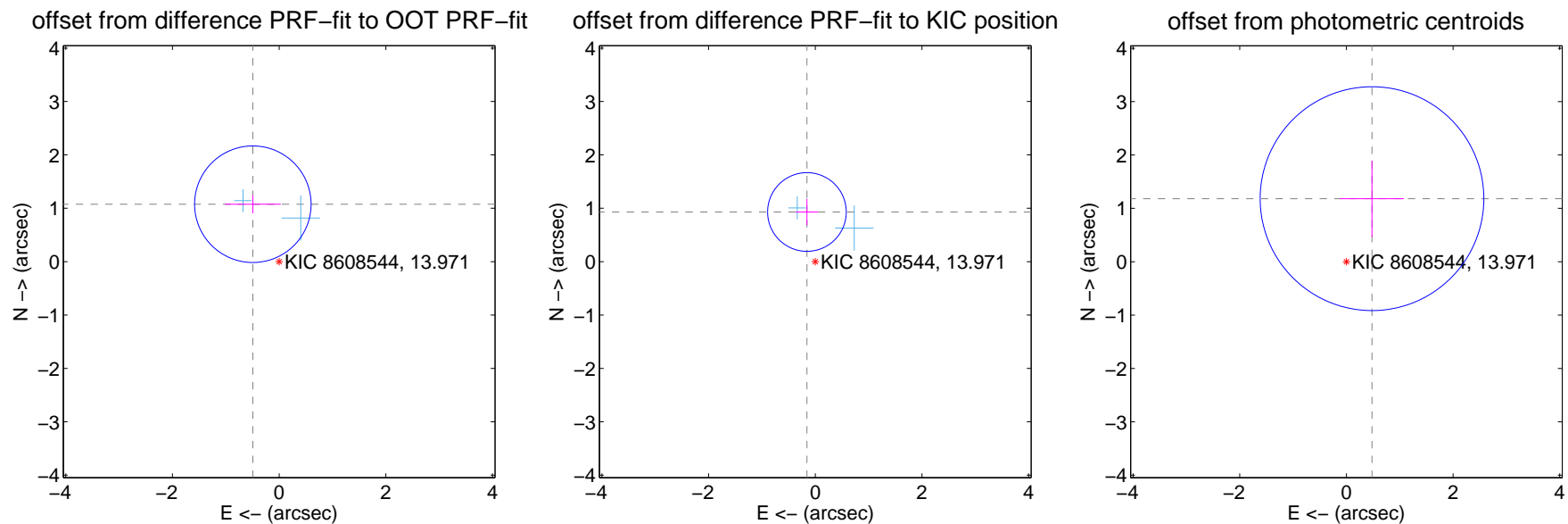
## DV Centroid Data

Supplemental centroid analysis for 008608544-02. Kepler magnitude: 13.97. Transit SNR 8.82

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.184 \pm 0.364$	3.25	$0.493 \pm 0.523$	$1.076 \pm 0.169$
PRF-fit source offset from KIC position	$0.943 \pm 0.246$	3.84	$0.156 \pm 0.209$	$0.930 \pm 0.247$
photometric centroid source offset	$1.28 \pm 0.70$	1.82	$-0.48 \pm 0.60$	$1.18 \pm 0.71$

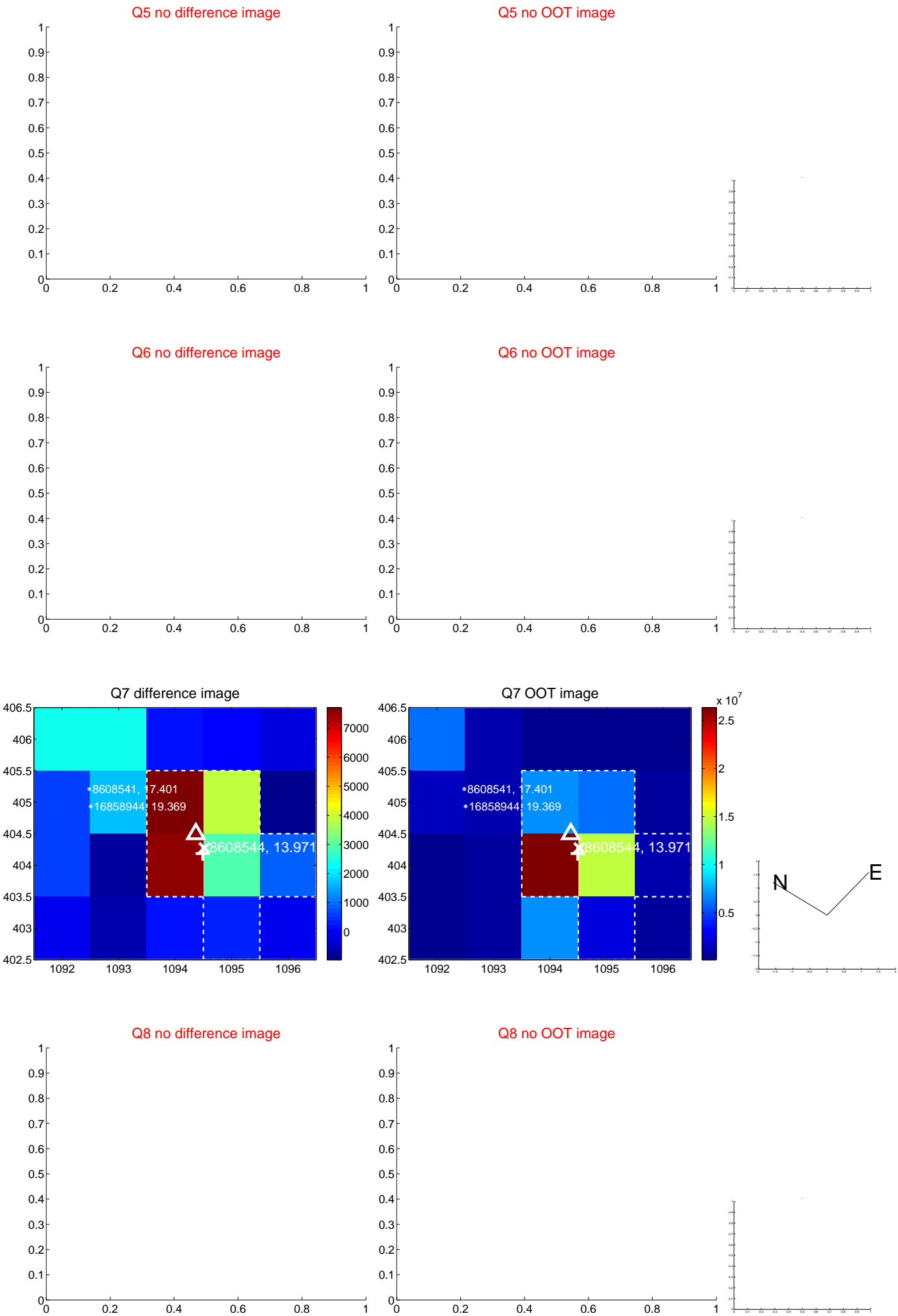


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

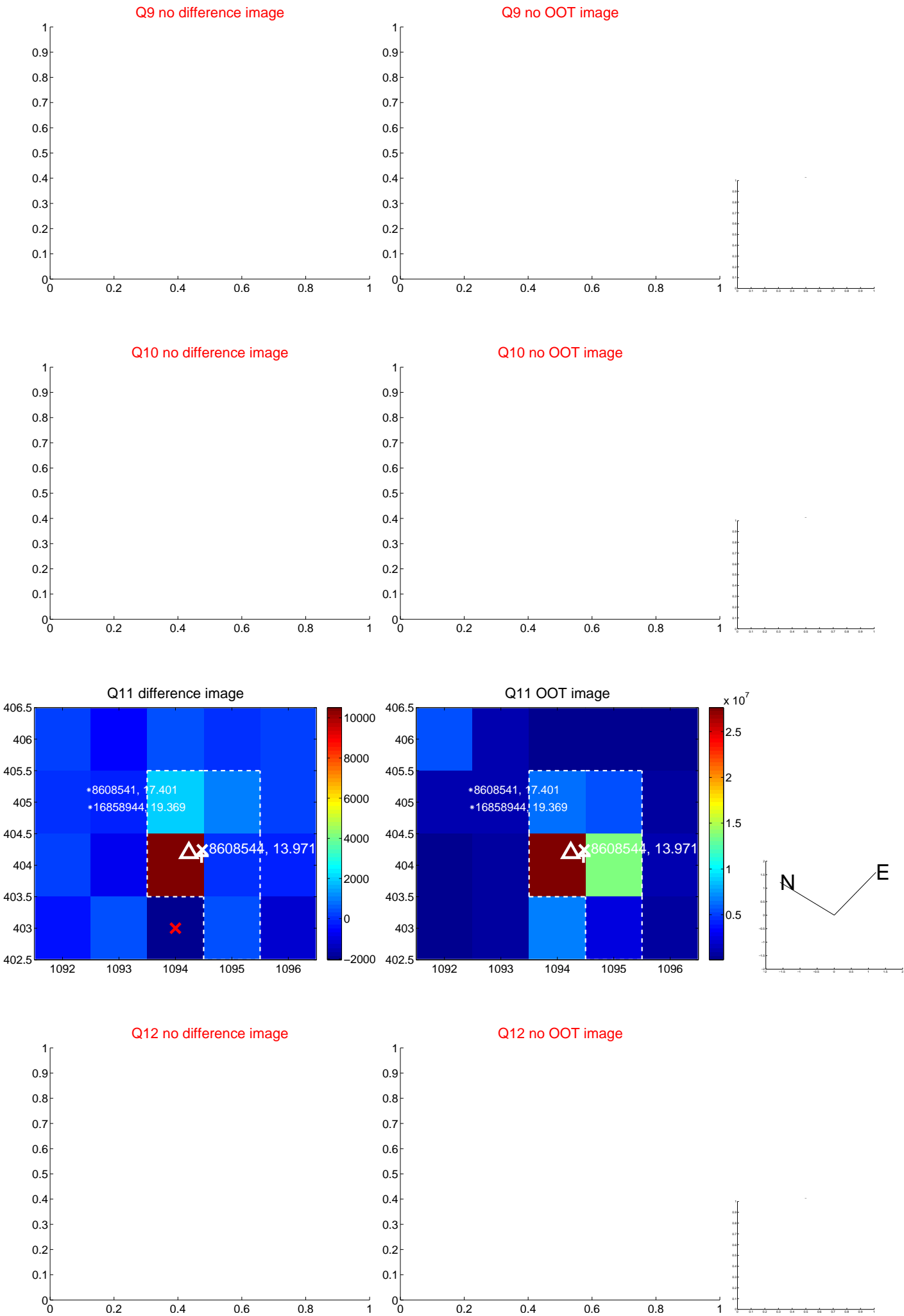
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



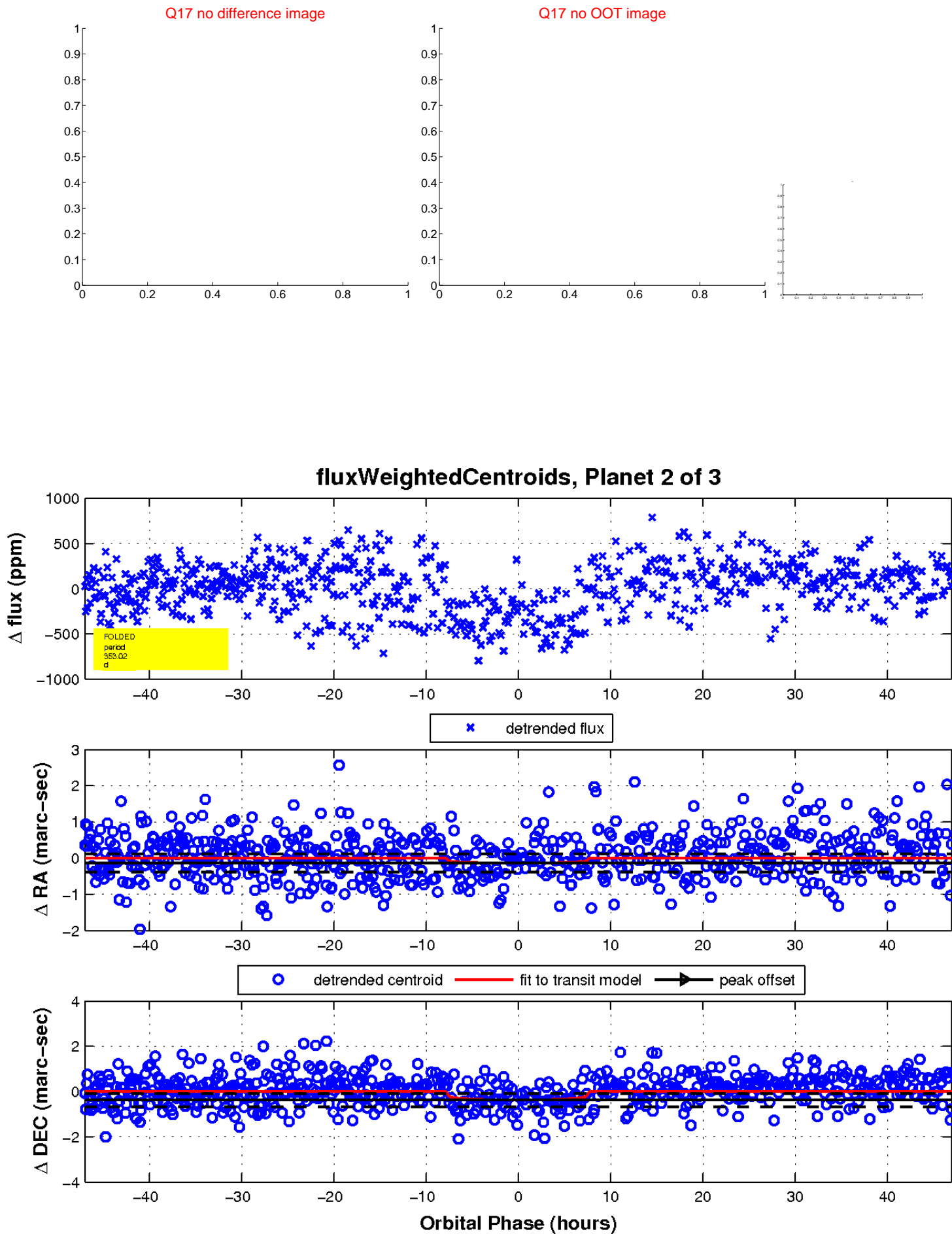
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

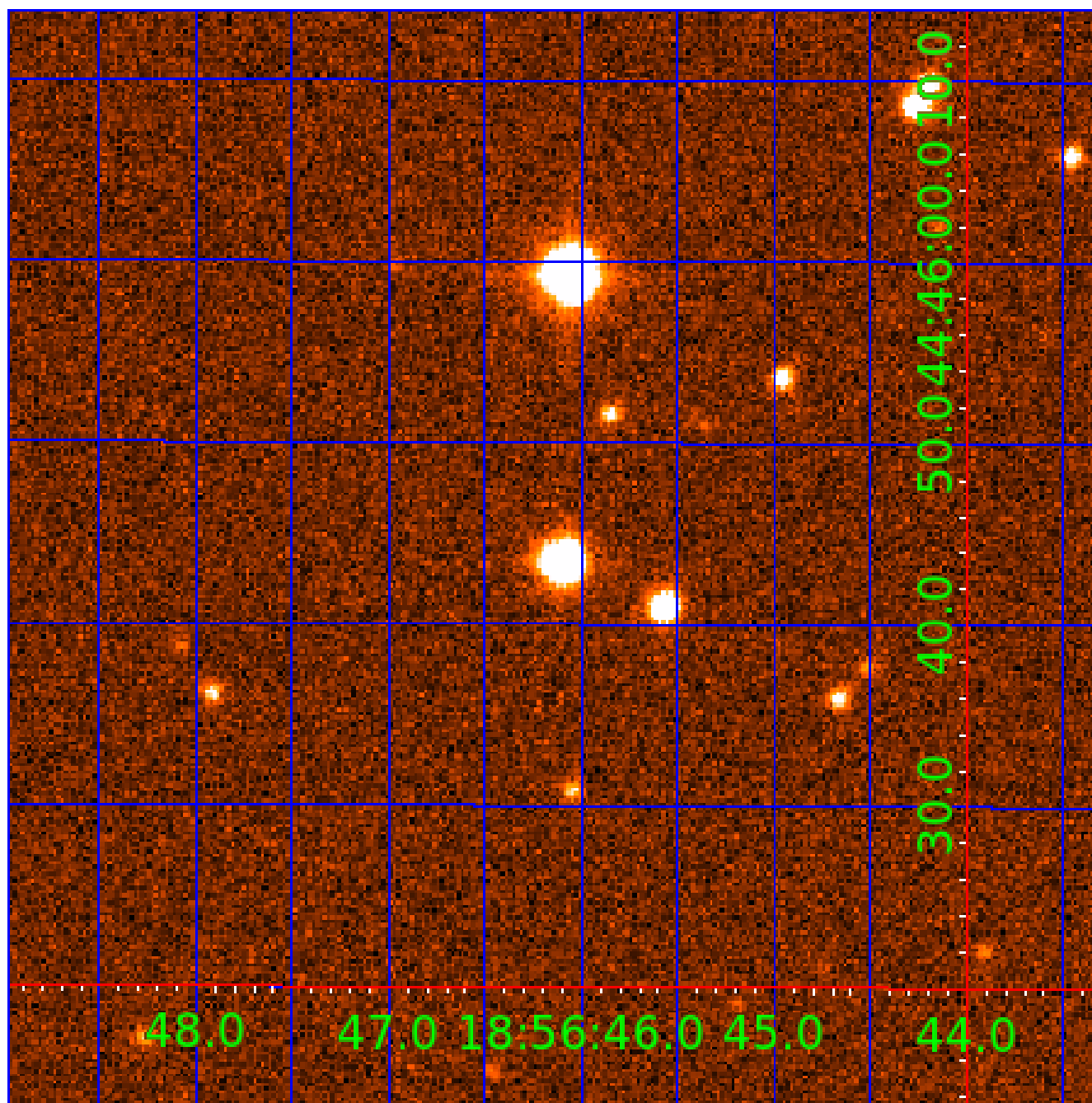


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008608544

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008608544-01	OBS	8159.01	348.695538	343.794652	322.0	12.561	8.6	8.4	1.16	6450	2.52	1.97
008608544-02	OBS	8159.02	353.023558	350.077901	401.7	15.688	8.2	8.8	1.16	6450	2.40	1.93
008608544-03	OBS	No	356.563644	338.503463	266.8	26.383	7.9	7.8	1.16	6450	1.99	1.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008608544-01	OBS	FP	0.01	1	0	0	0	INCONSISTENT_TRANS—CENT_FEW_DIFFS
008608544-02	OBS	PC	0.57	0	0	0	0	CENT_FEW_DIFFS
008608544-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—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.

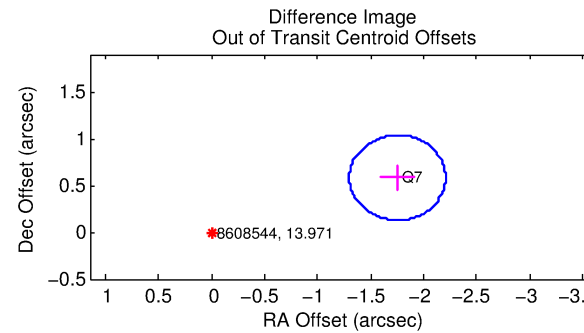
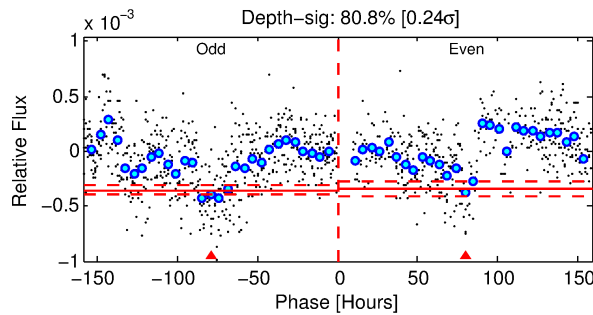
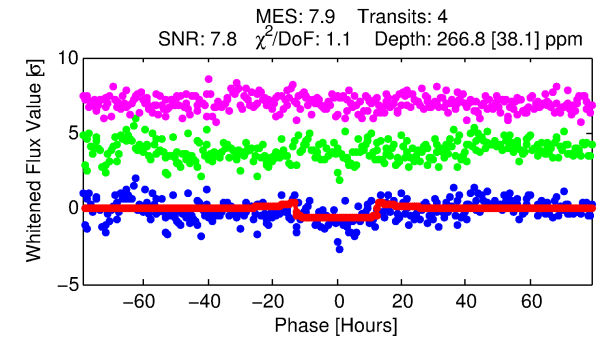
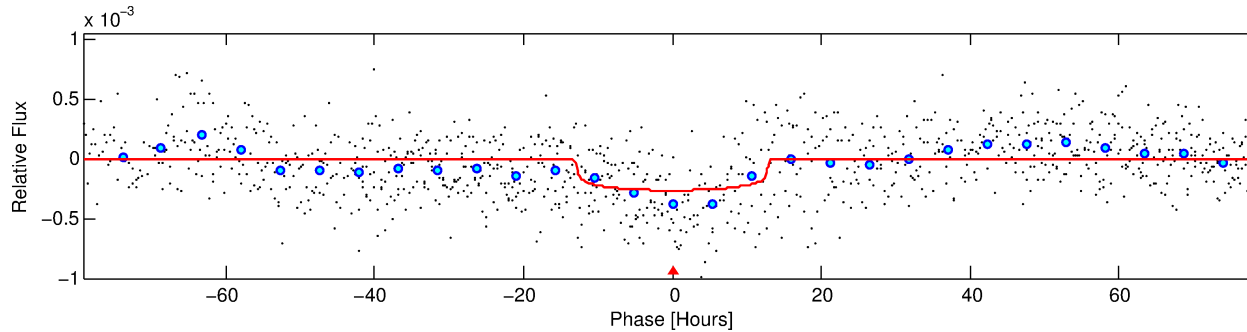
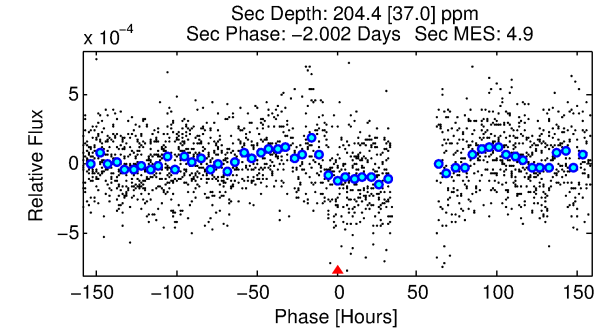
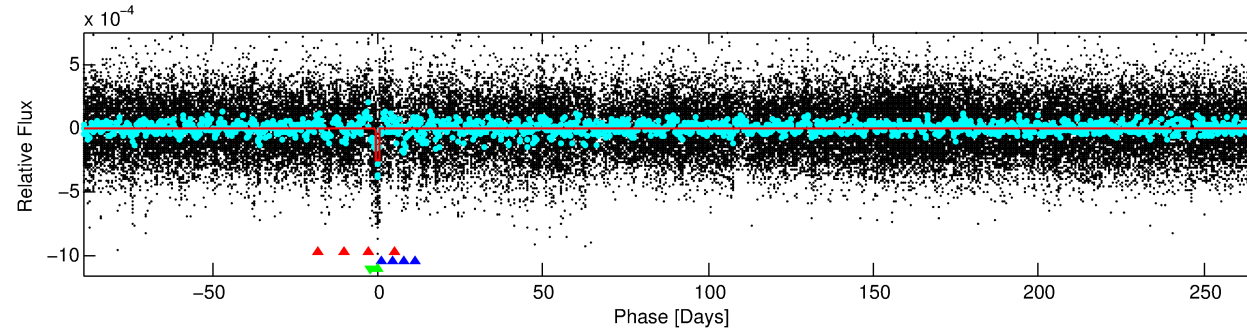
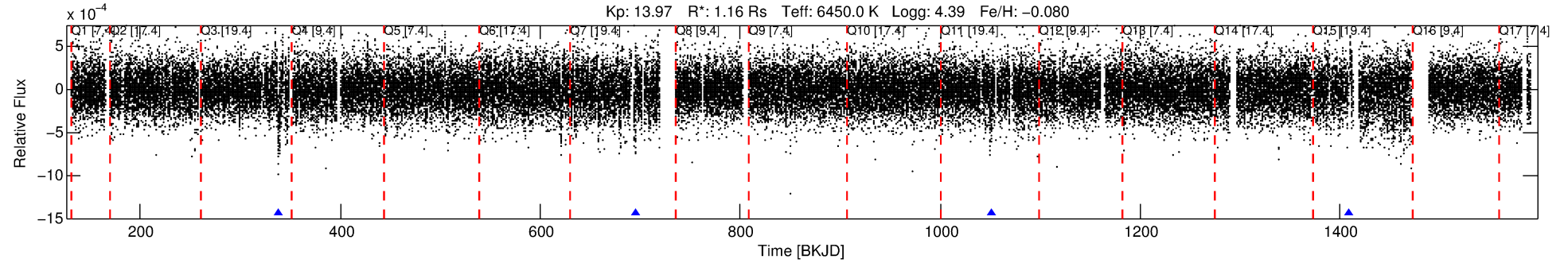
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008608544-03

No Significant Match Found

# DV One-Page Summary

KIC: 8608544 Candidate: 3 of 3 Period: 356.564 d



## DV Fit Results:

Period = 356.56364 [0.01284] d  
Epoch = 338.5035 [0.0206] BKJD  
Rp/R\* = 0.0157 [0.0034]  
a/R\* = 82.67 [89.31]  
b = 0.63 [1.05]  
Seff = 1.91 [0.80]  
Teq = 300 [31] K  
Rp = 1.98 [0.80] Re  
a = 1.0411 [0.2906] AU  
Ag = 30946.17 [19181.12] [1.61σ]  
Teffp = 6146 [750] K [7.79σ]

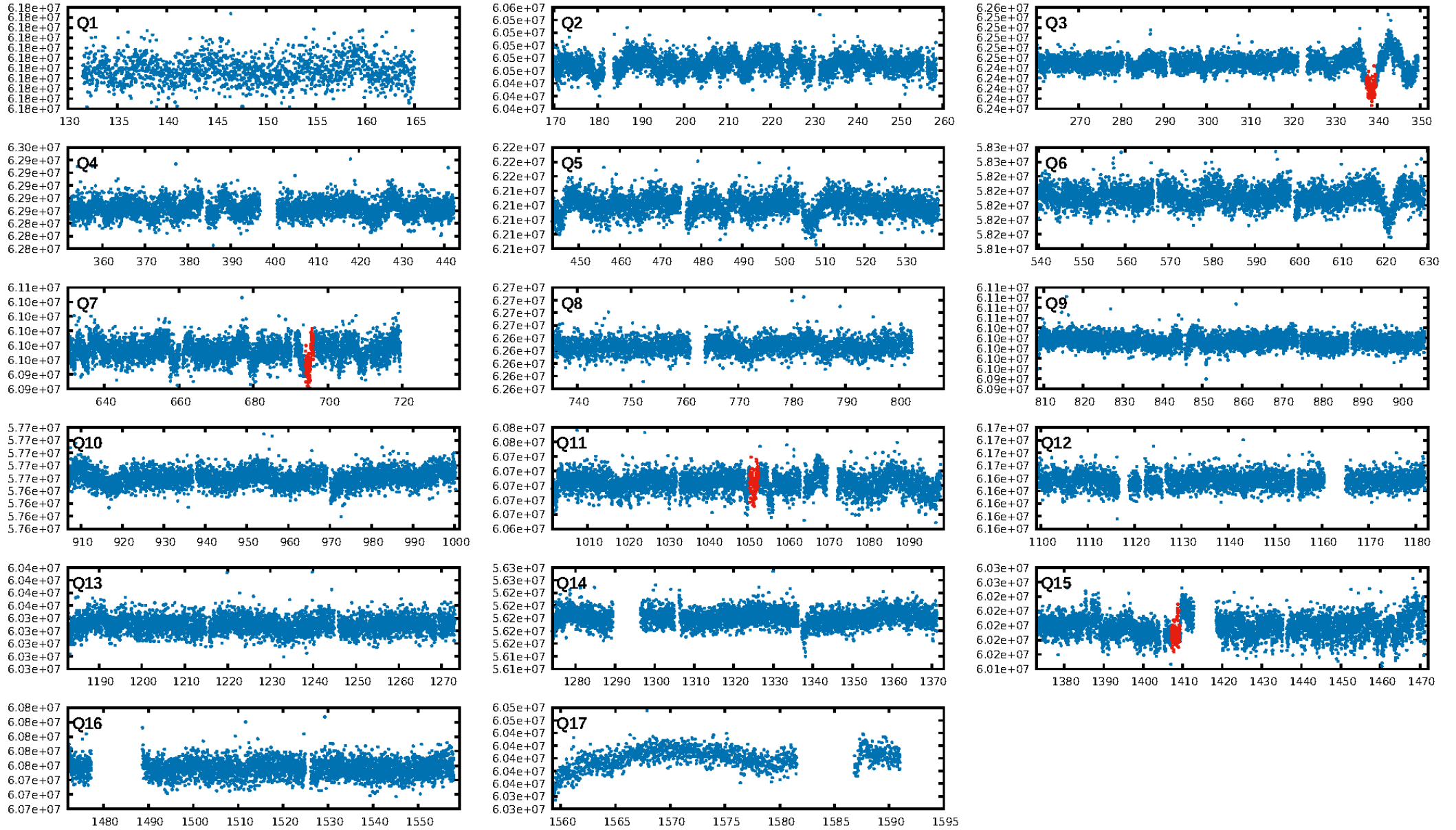
## DV Diagnostic Results:

ShortPeriod-sig: 99.4% [2.77σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.2%  
ModelChiSquareGof-sig: 99.7%  
**Bootstrap-pfa: 1.23e-11**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -3.304  
Centroid-sig: 2.0%  
**Centroid-so: 2.239 arcsec [3.24σ]**  
**OotOffset-rm: 1.846 arcsec [12.20σ]**  
**KicOffset-rm: 2.151 arcsec [14.11σ]**  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [3/3]

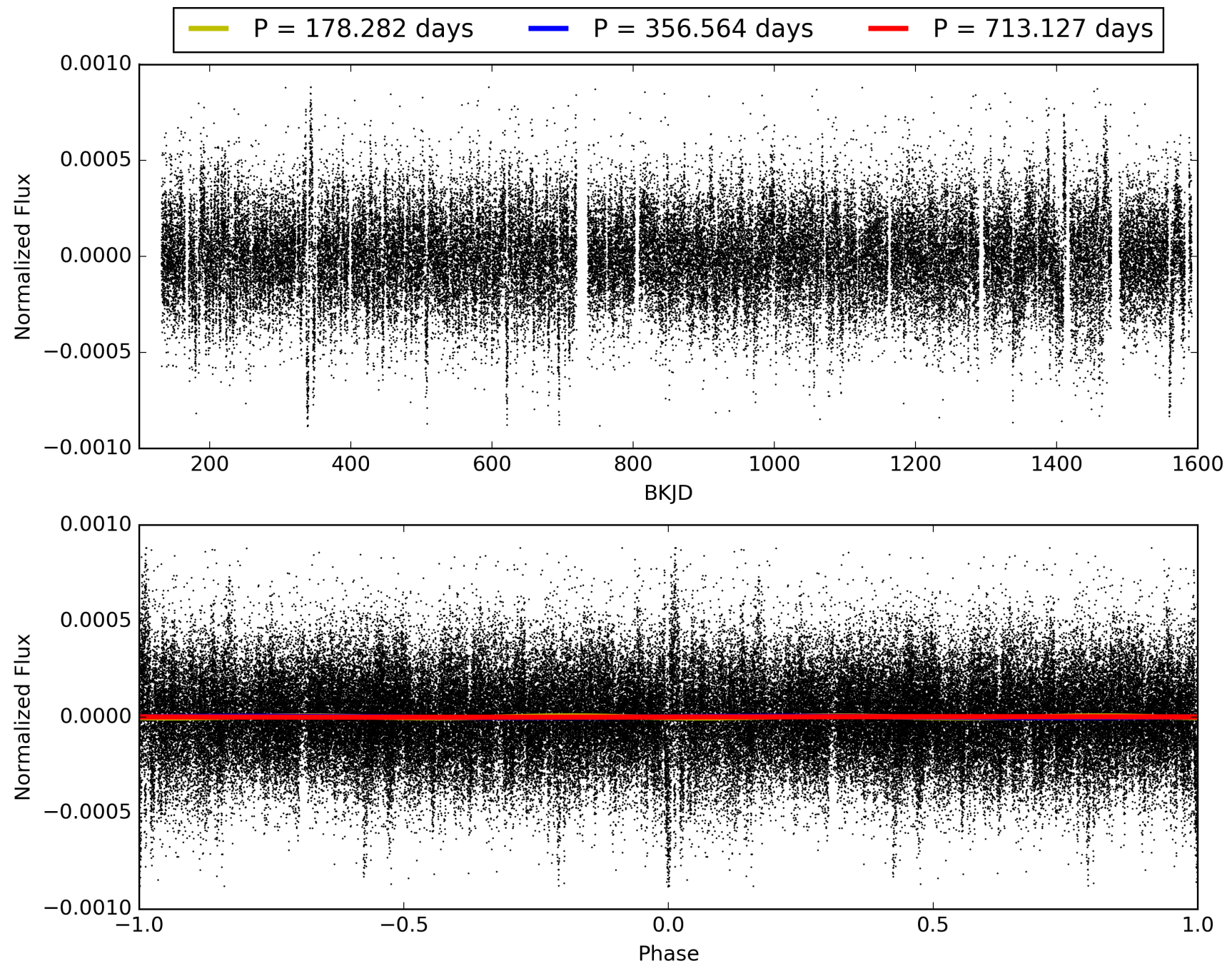
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:02:58 Z

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

# TCE 008608544-03, PDC Light Curves

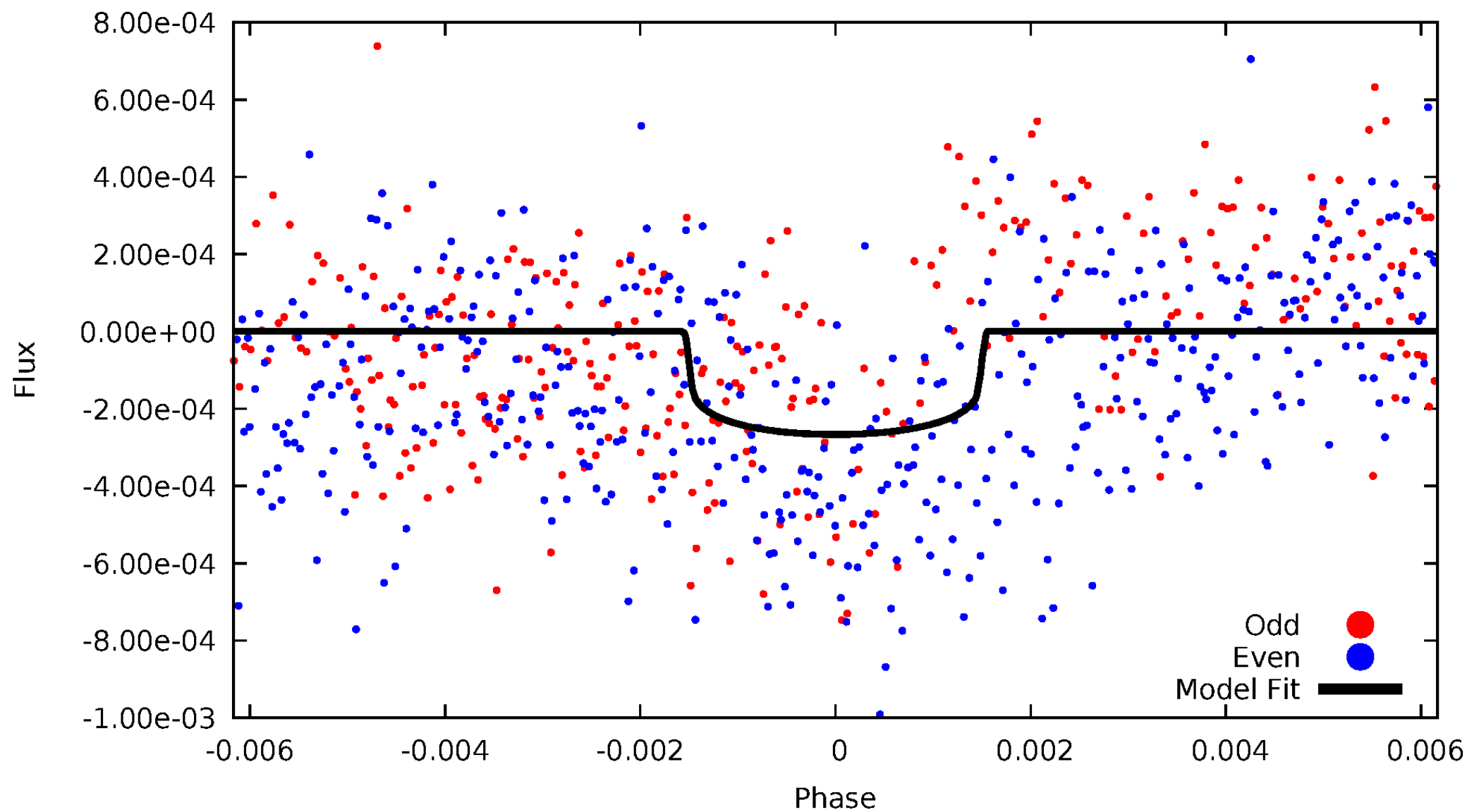


TCE 008608544-03



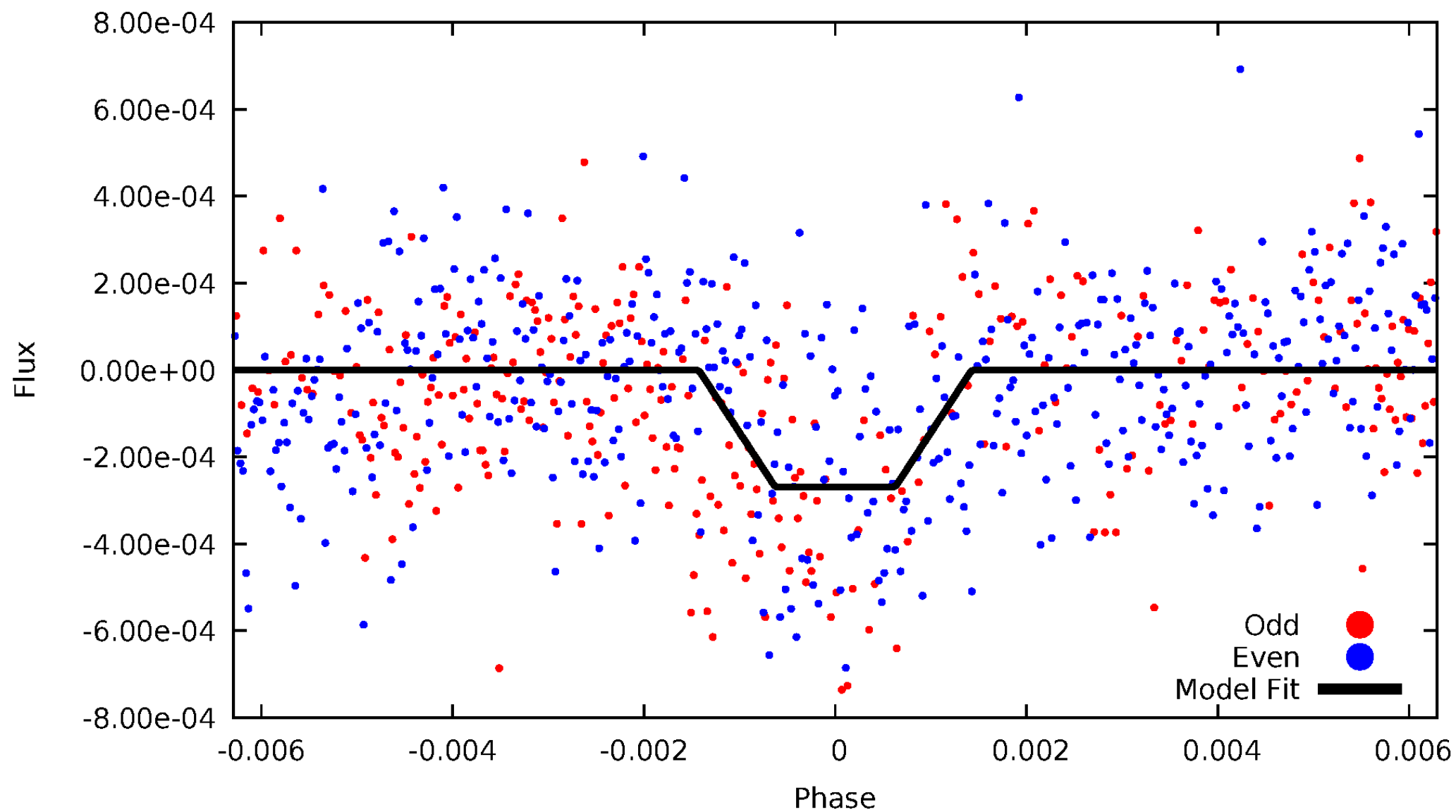
# DV Odd/Even

TCE 008608544-03



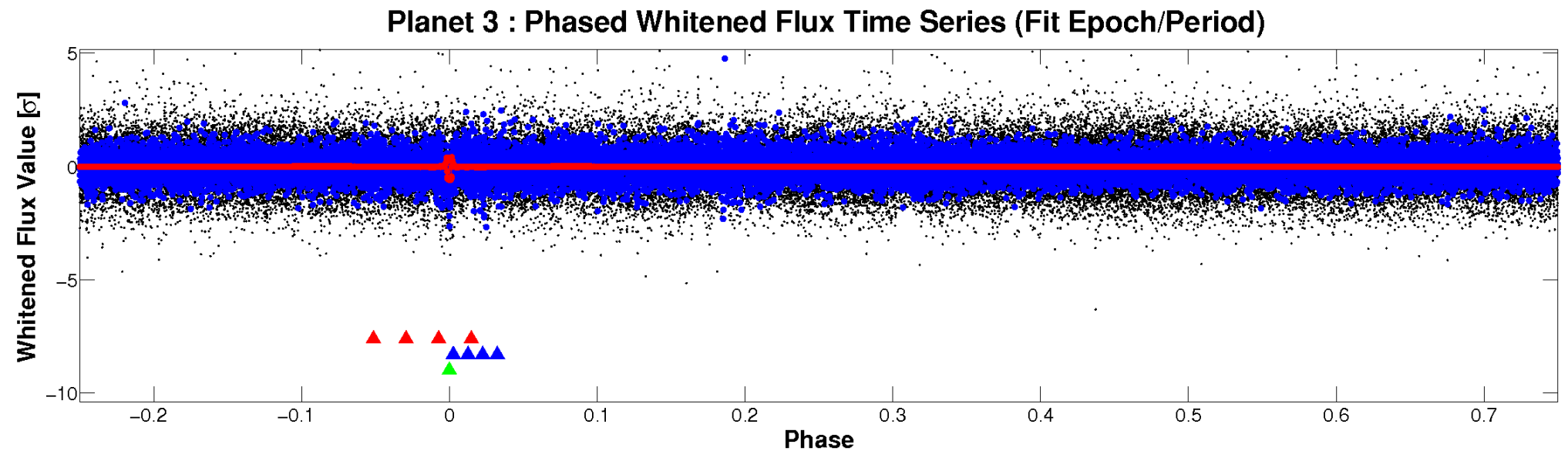
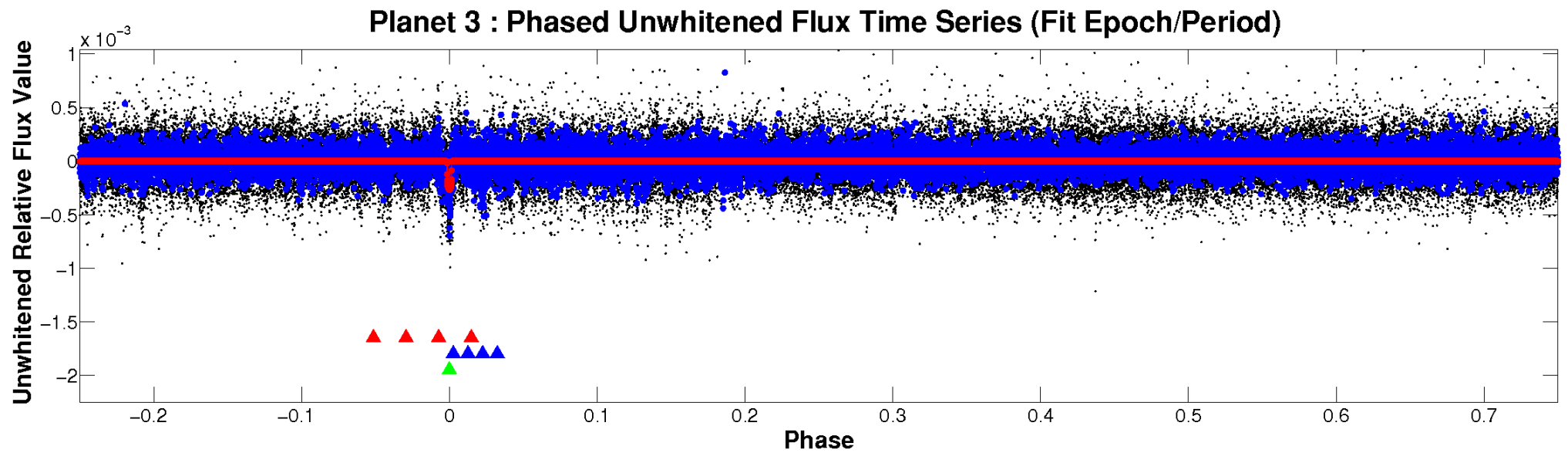
# ALT Odd/Even

TCE 008608544-03





# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

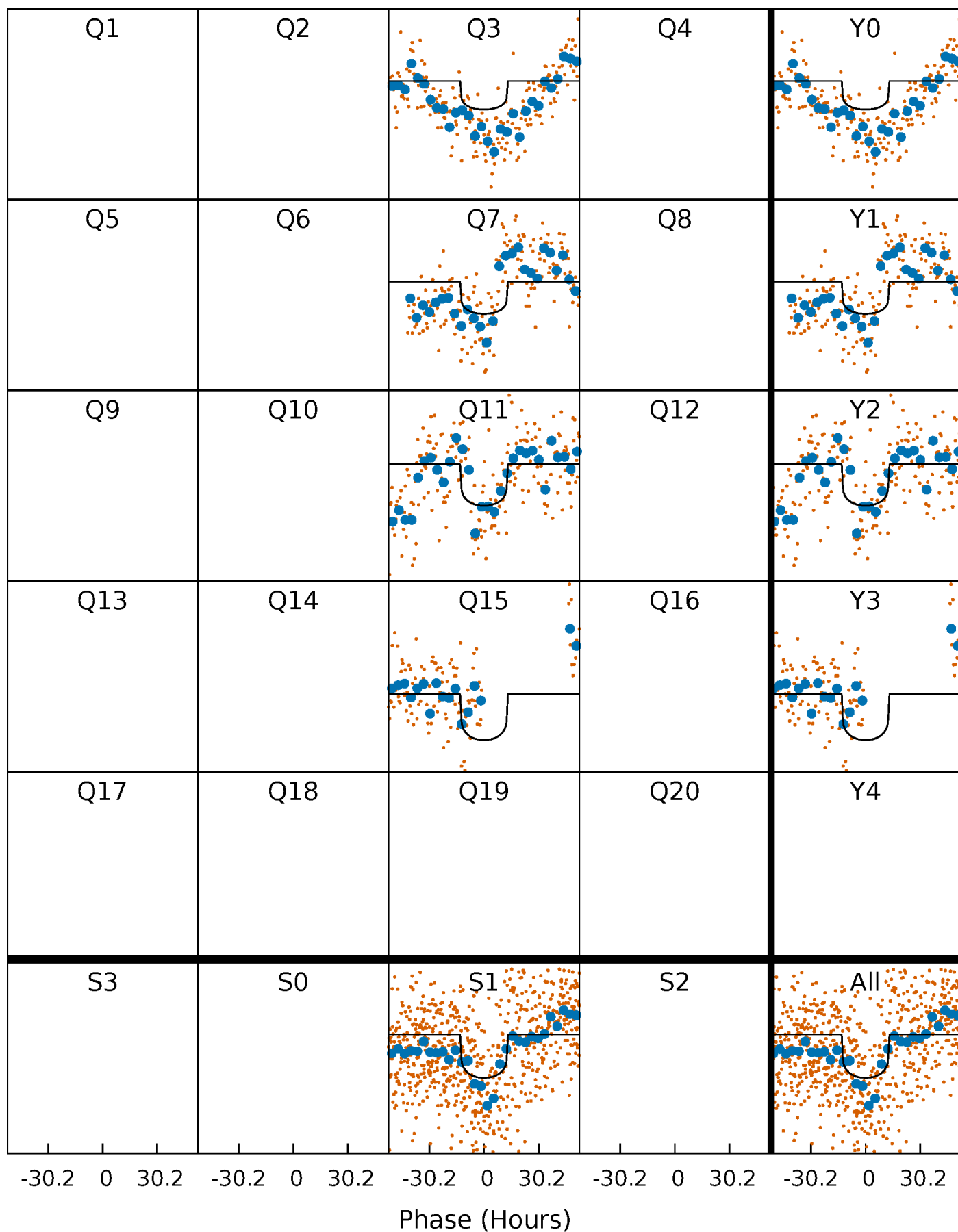
TCE 008608544-03     $P=356.563644$  Days     $T_0=338.503463$  (BKJD)





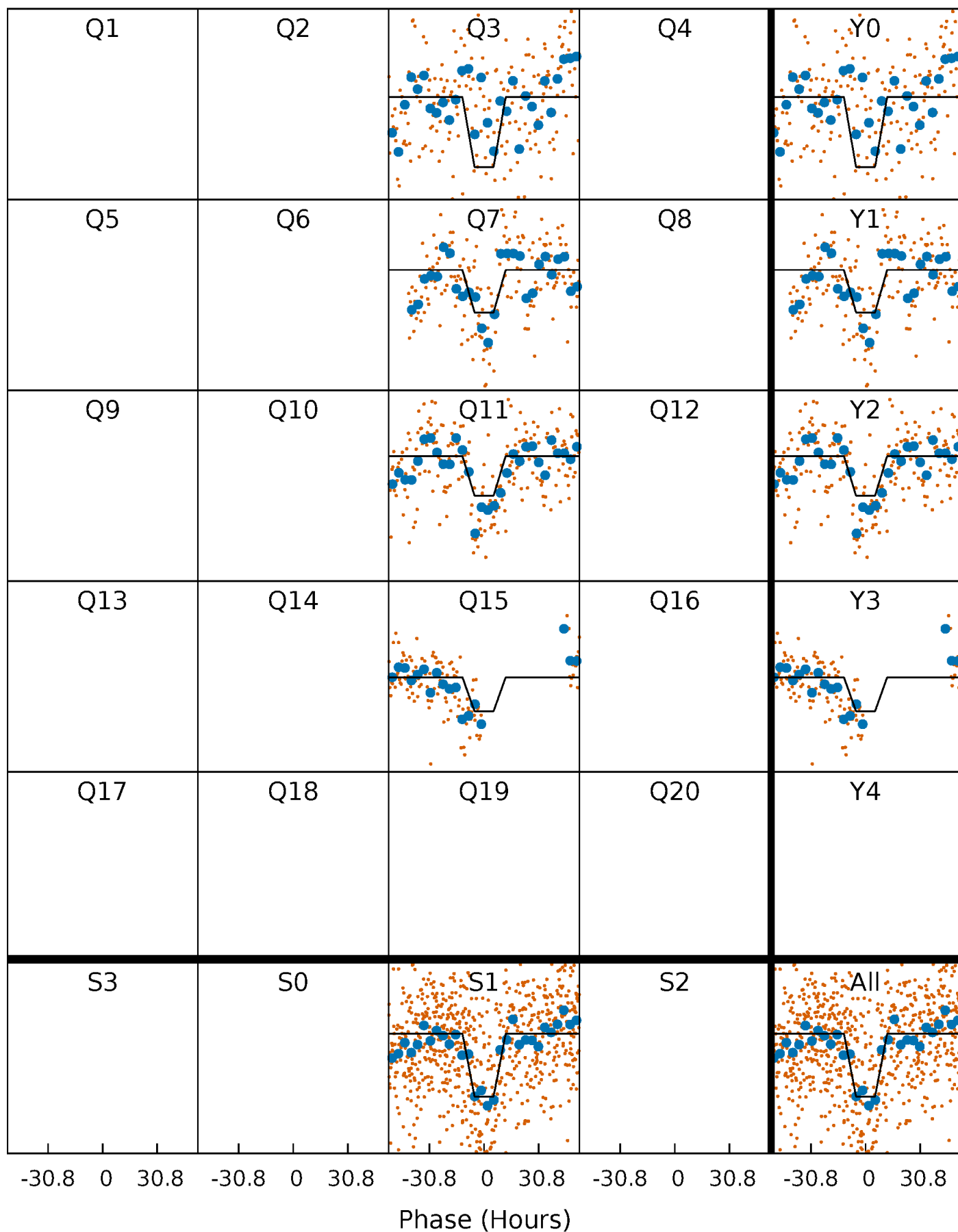
# DV Quarter-Phased Transit Curves

TCE 008608544-03     $P=356.563644$  Days     $T_0=338.503463$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

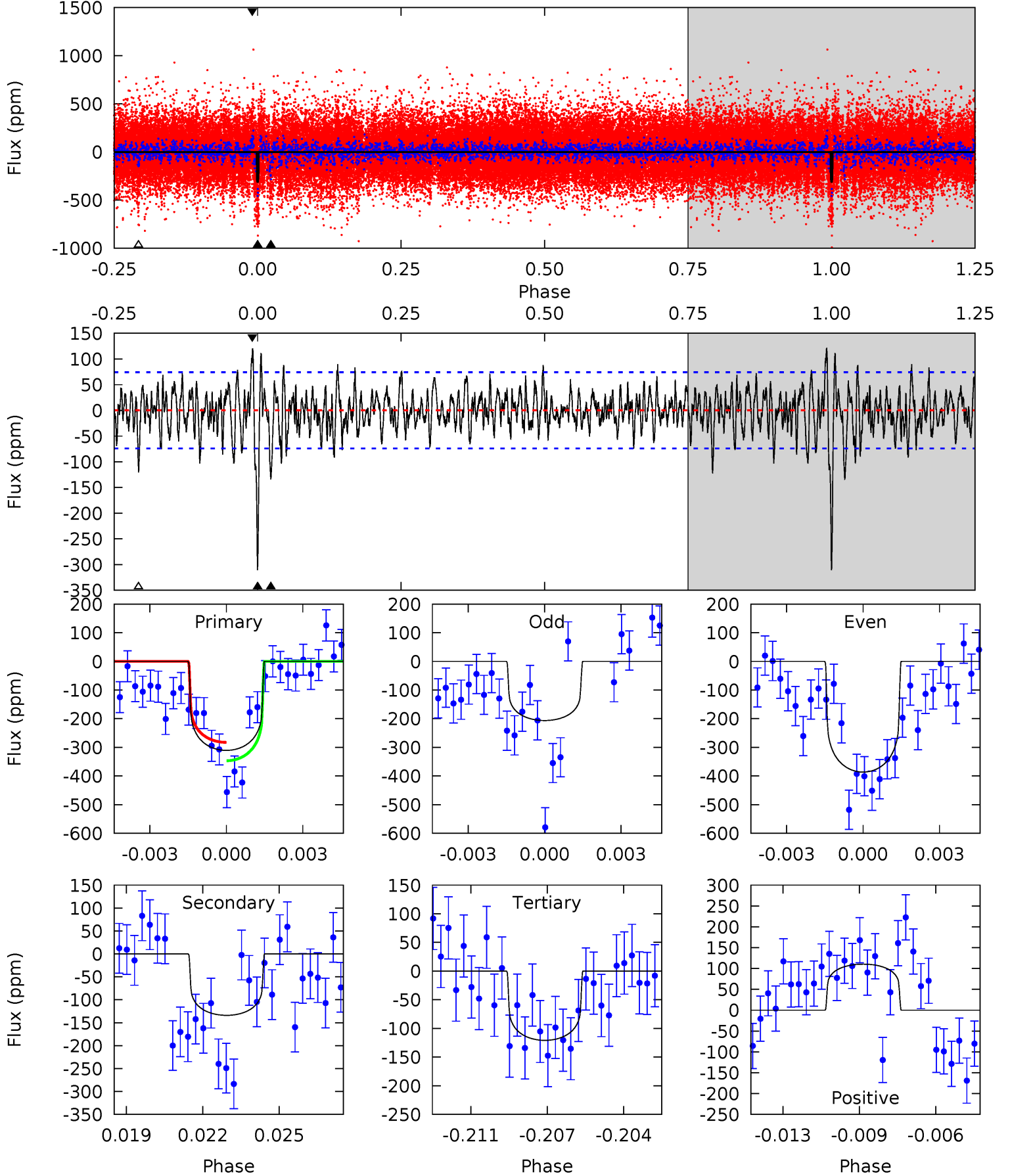
TCE 008608544-03 P=356.572433 Days  $T_0=338.492537$  (BKJD)



# DV Model-Shift Uniqueness Test

008608544-03, P = 356.563644 Days, E = 338.503463 Days

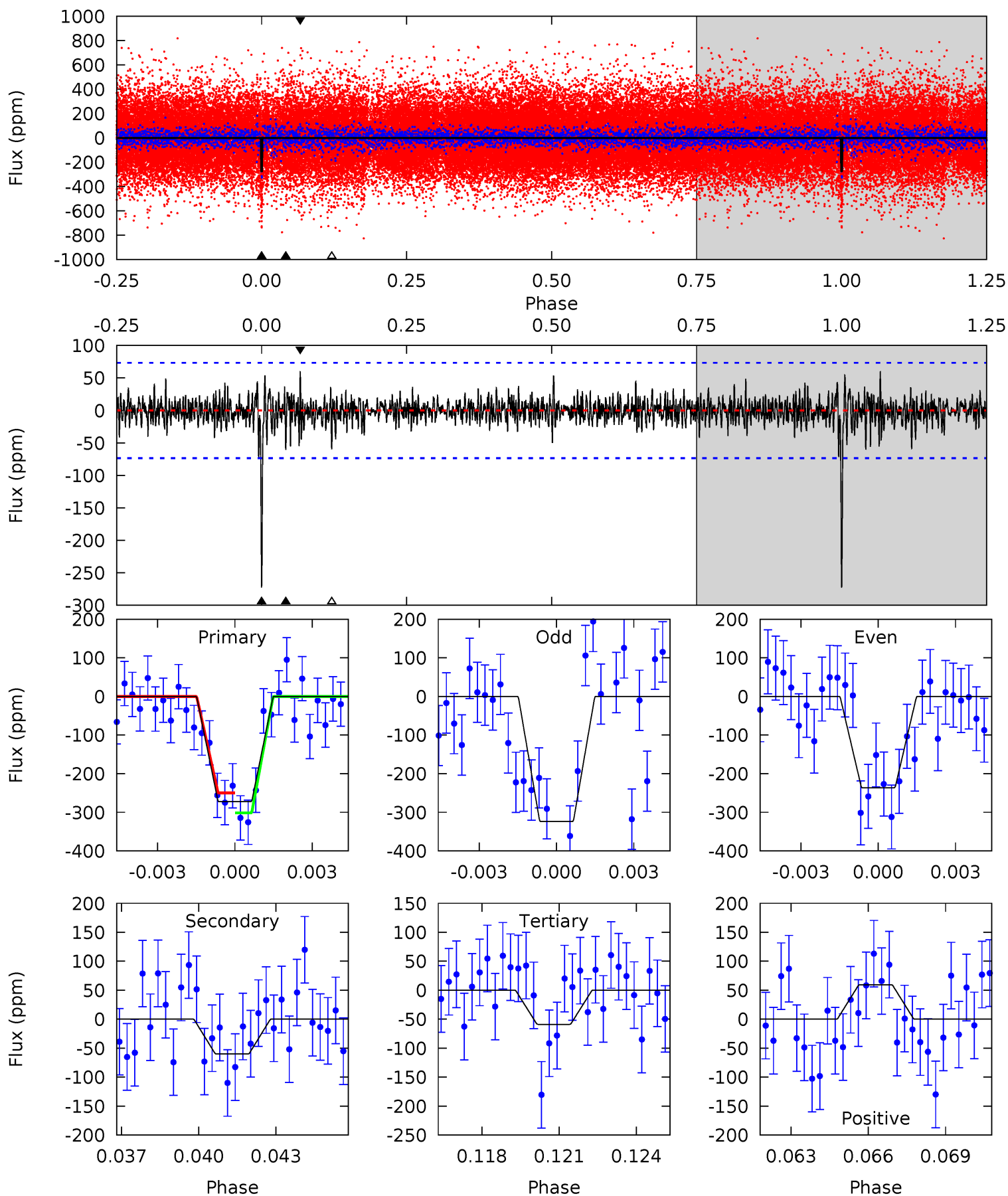
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	9.48	8.55	7.82	5.24	2.95	2.28	13.4	14.2	0.93	1.67	6.27	1.10	0.28	2.25



# Alt Model-Shift Uniqueness Test

008608544-03, P = 356.572433 Days, E = 338.492537 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
19.5	4.30	4.22	4.25	5.26	2.98	1.05	15.3	15.3	0.09	0.05	3.09	0.86	0.18	1.84



### Stellar Parameters For KIC 008608544

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6450^{+144}_{-192}$	$4.386^{+0.067}_{-0.216}$	$-0.080^{+0.250}_{-0.300}$	$1.155^{+0.389}_{-0.130}$	$1.183^{+0.172}_{-0.157}$	$1.081^{+0.306}_{-0.564}$
	+2%/-3%	+2%/-5%	+312%/-375%	+34%/-11%	+15%/-13%	+28%/-52%
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 008608544-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-134 \pm 14$	$2.09^{+0.57}_{-0.49}$	$425^{+32}_{-21}$	$5511^{+755}_{-506}$	$18135^{+12643}_{-6819}$
Alt.	$-60 \pm 14$	$2.17^{+0.53}_{-0.47}$	$426^{+32}_{-21}$	$4581^{+498}_{-420}$	$7478^{+5540}_{-3121}$

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

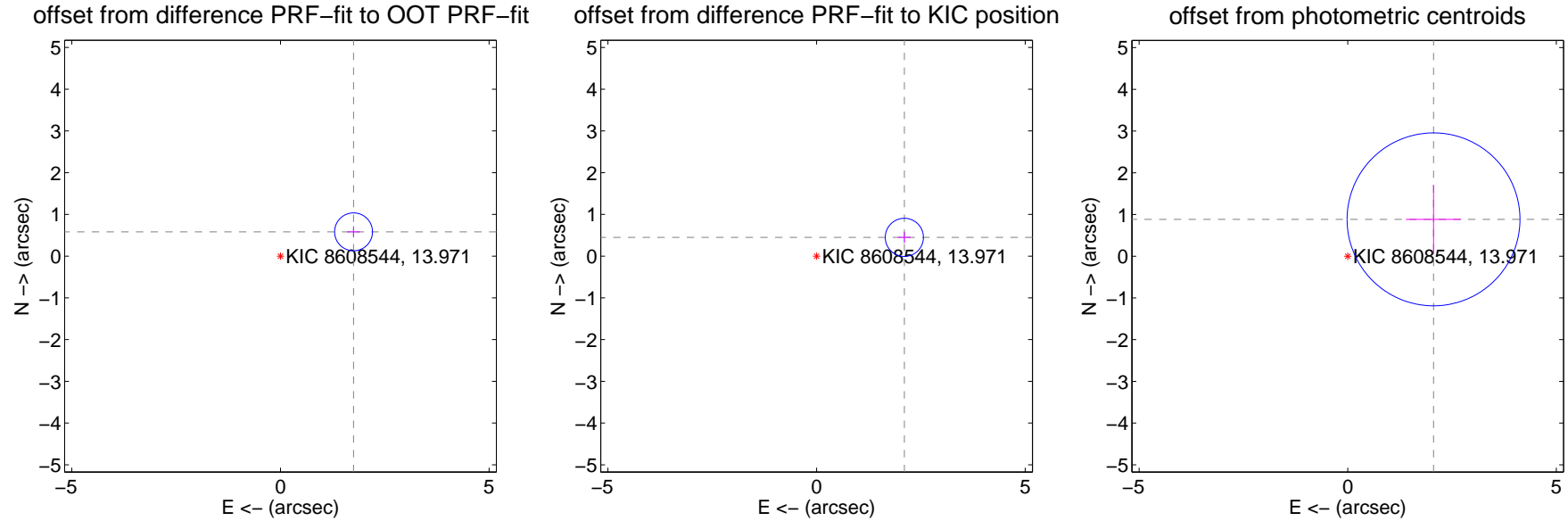
## DV Centroid Data

Supplemental centroid analysis for 008608544-03. Kepler magnitude: 13.97. Transit SNR 7.77

There are 1 quarters with good PRF difference image offsets

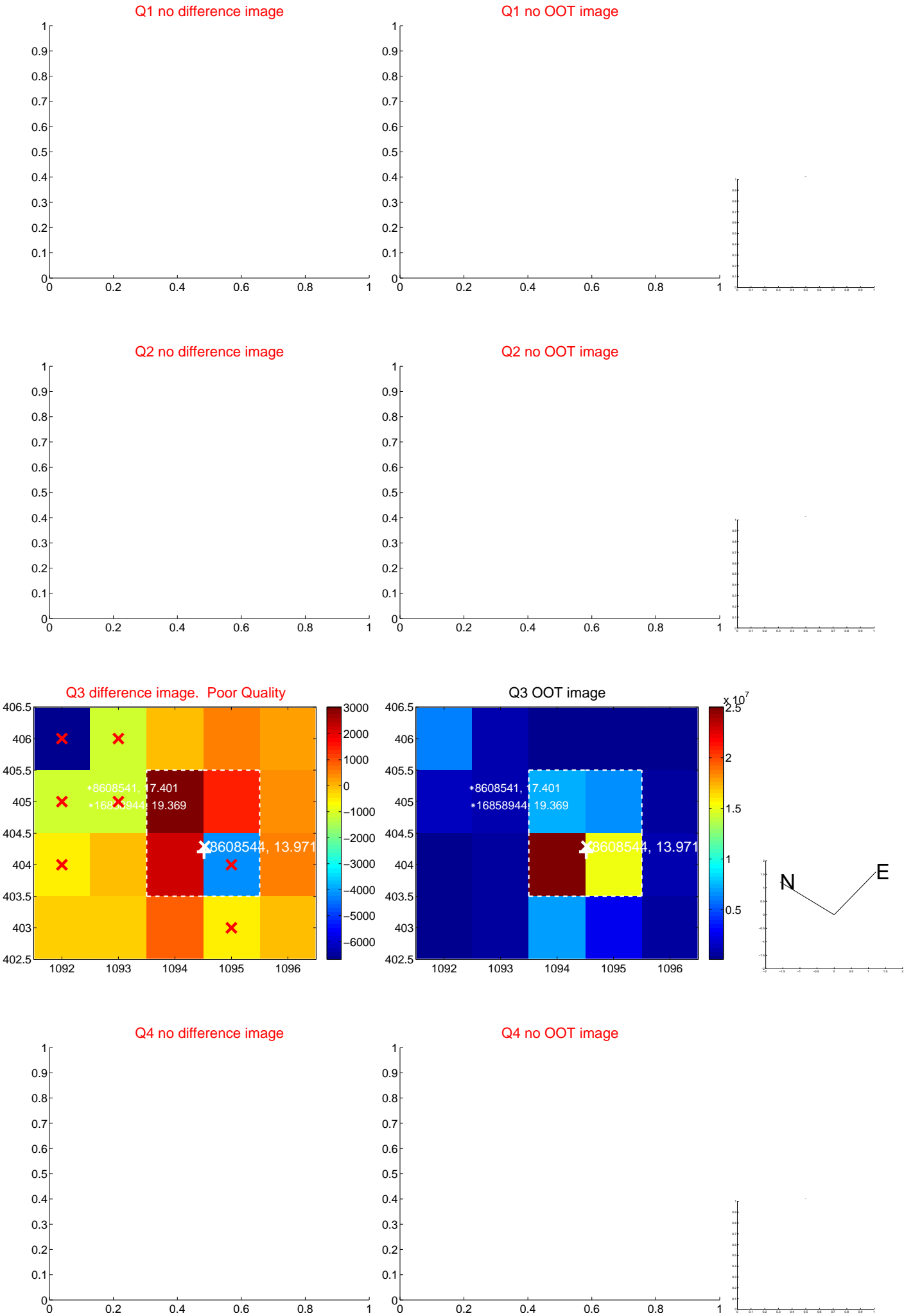
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.846 \pm 0.151$	12.20	$-1.752 \pm 0.153$	$0.582 \pm 0.134$
PRF-fit source offset from KIC position	$2.151 \pm 0.152$	14.11	$-2.104 \pm 0.153$	$0.450 \pm 0.134$
photometric centroid source offset	$2.24 \pm 0.69$	3.24	$-2.06 \pm 0.66$	$0.88 \pm 0.83$



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 ×: 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.

Q5 no difference image



Q5 no OOT image



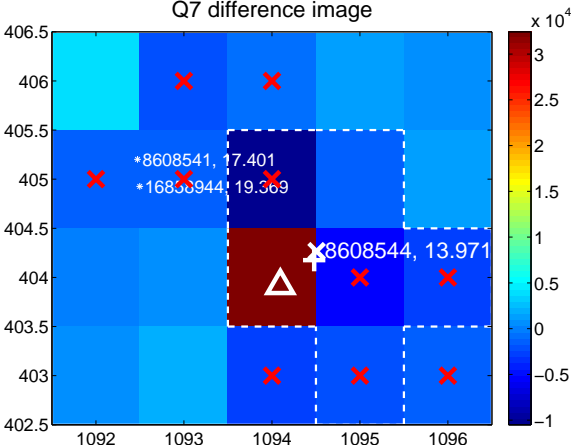
Q6 no difference image



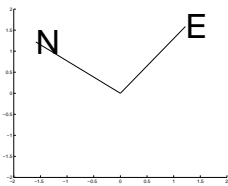
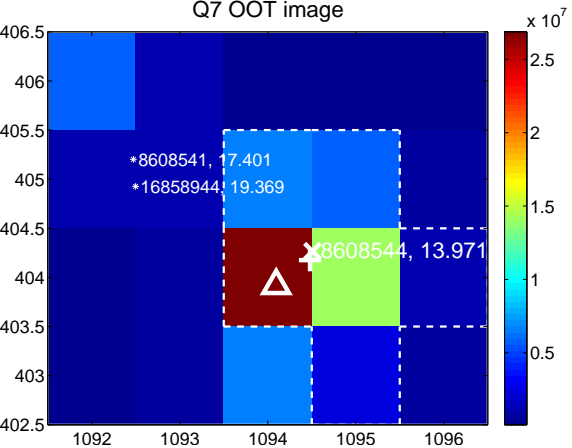
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image

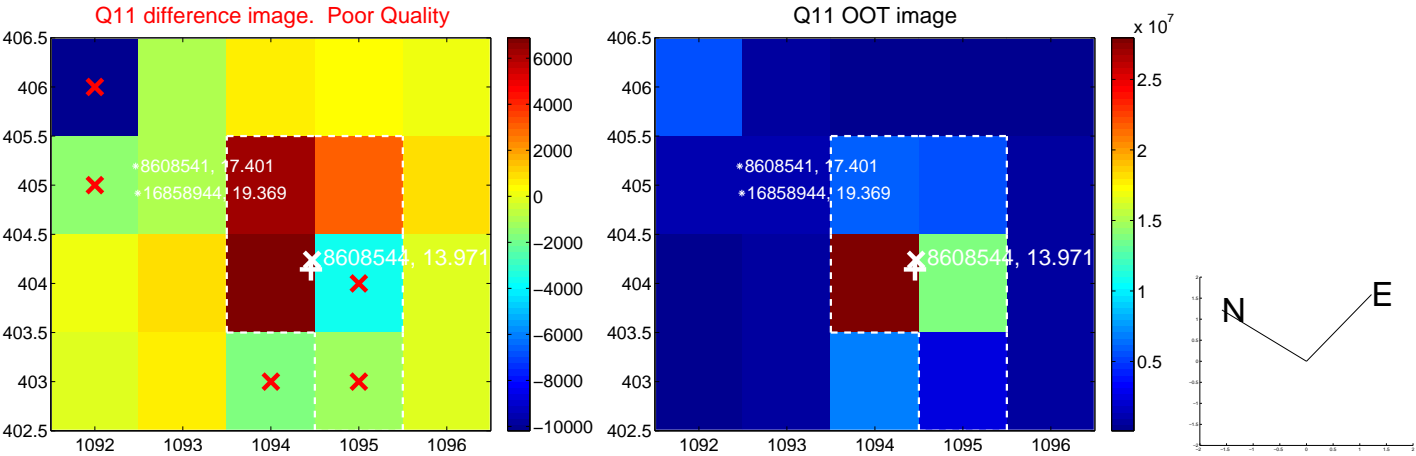


Q8 no OOT image





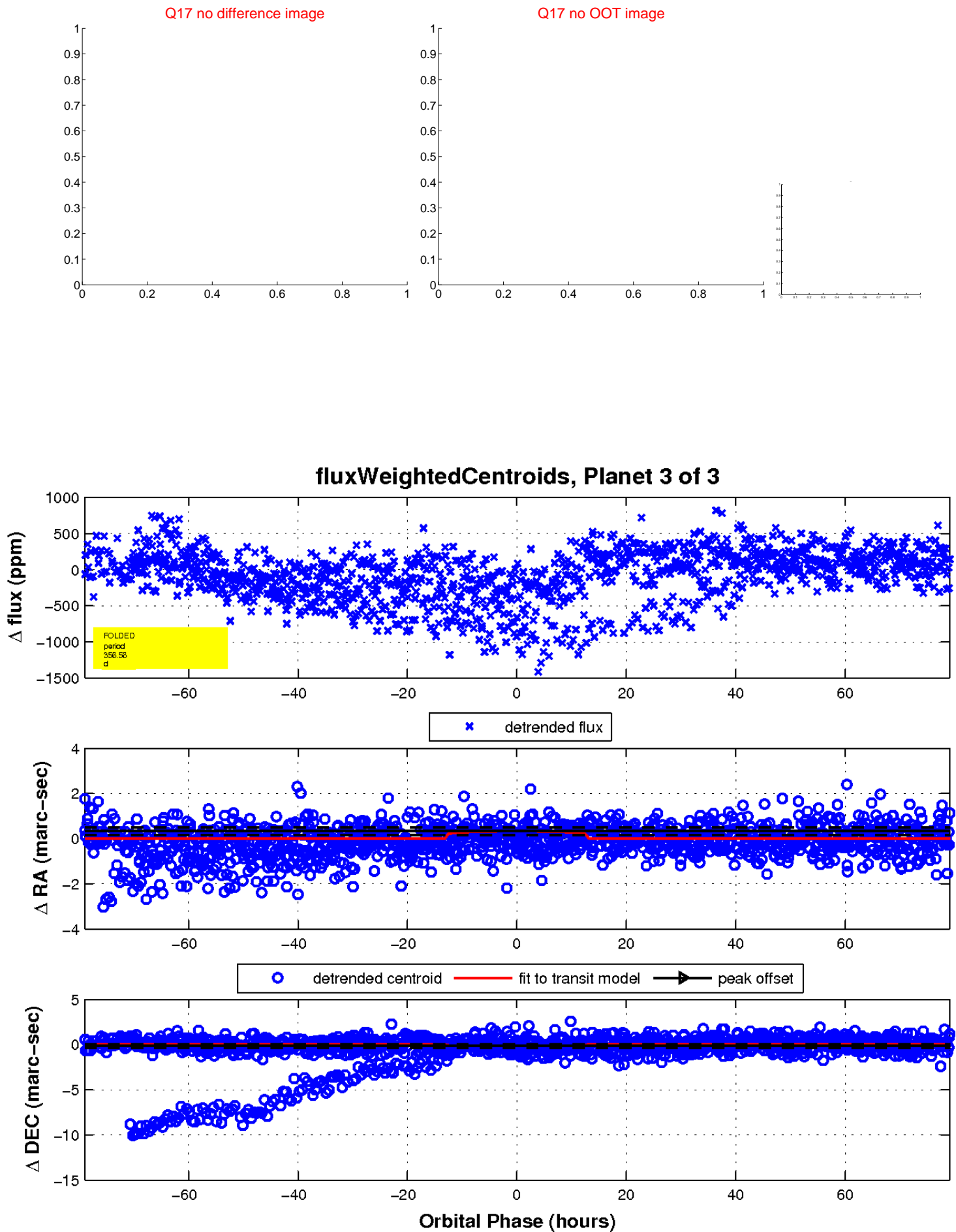
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

