

# KIC 007344999

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007344999-01	OBS	No	0.706241	131.772984	23.1	2.580	8.1	8.9	1.63	7187	0.91	19943.68
007344999-02	OBS	No	0.706248	132.022672	26.5	1.393	8.8	9.3	1.63	7187	0.87	19943.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007344999-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007344999-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

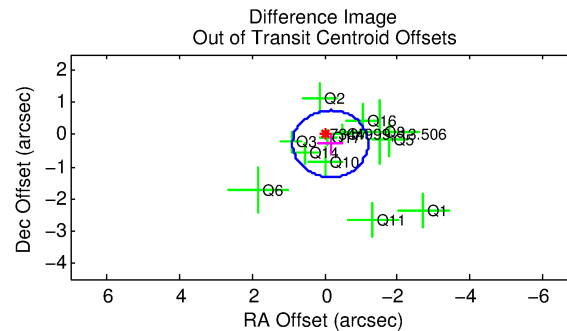
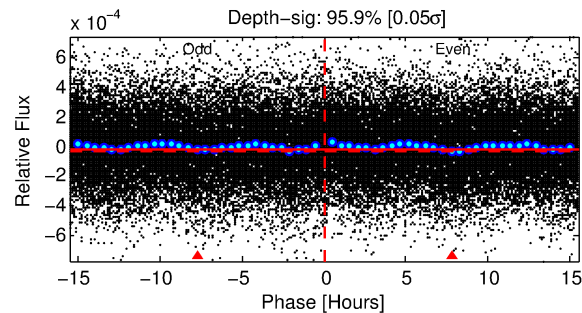
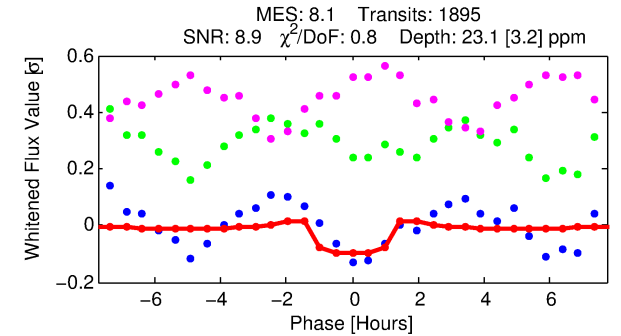
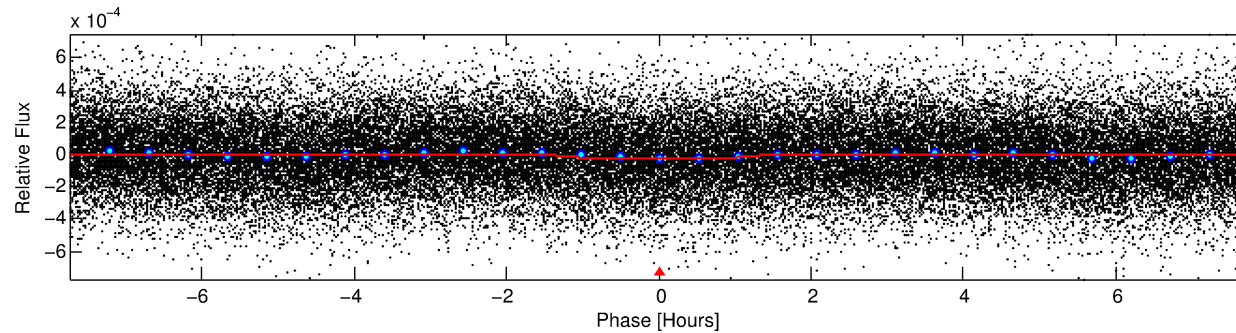
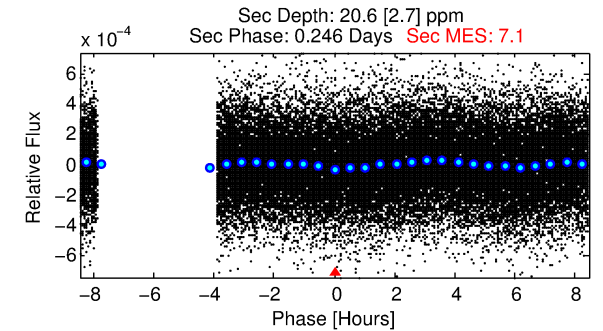
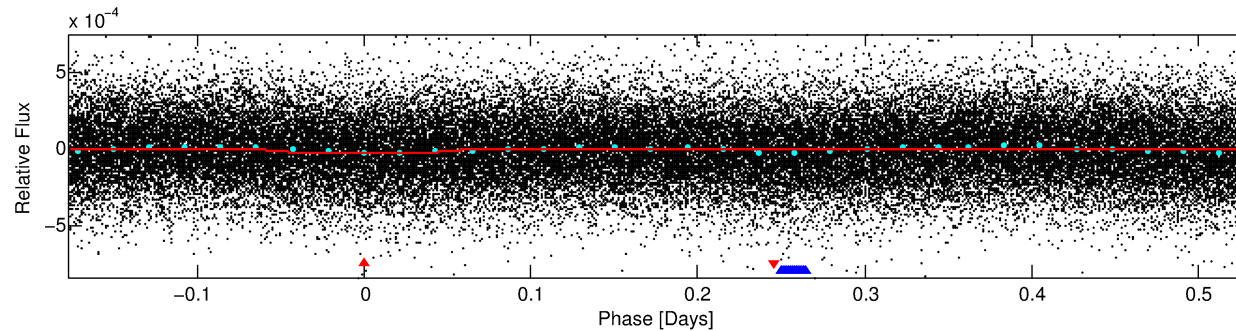
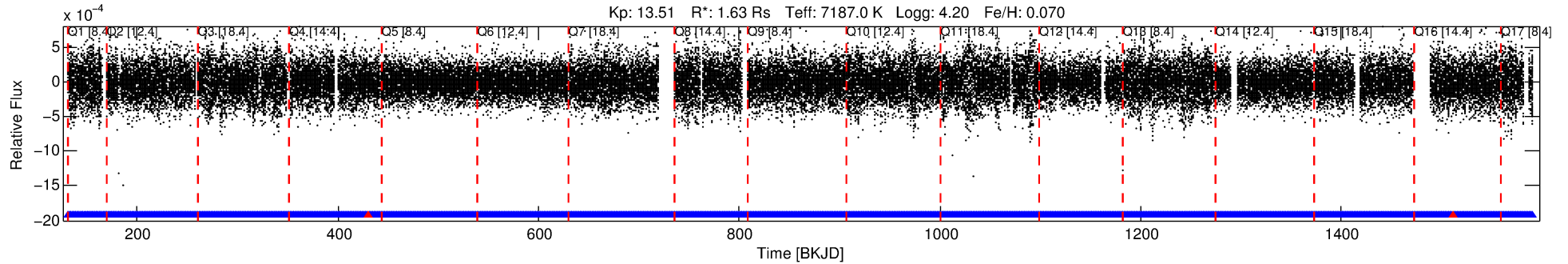
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007344999-01

No Significant Match Found

# DV One-Page Summary

KIC: 7344999 Candidate: 1 of 2 Period: 0.706 d



## DV Fit Results:

Period = 0.70624 [0.00001] d  
Epoch = 131.7730 [0.0027] BKJD  
Rp/R\* = 0.0051 [0.0016]  
a/R\* = 1.32 [1.11]  
b = 0.90 [0.41]  
Seff = 19943.68 [8500.39]  
Teq = 3030 [323] K  
Rp = 0.91 [0.42] Re  
a = 0.0179 [0.0049] AU  
Ag = 4.35 [3.29] [1.02σ]  
Teffp = 6768 [1129] K [3.18σ]

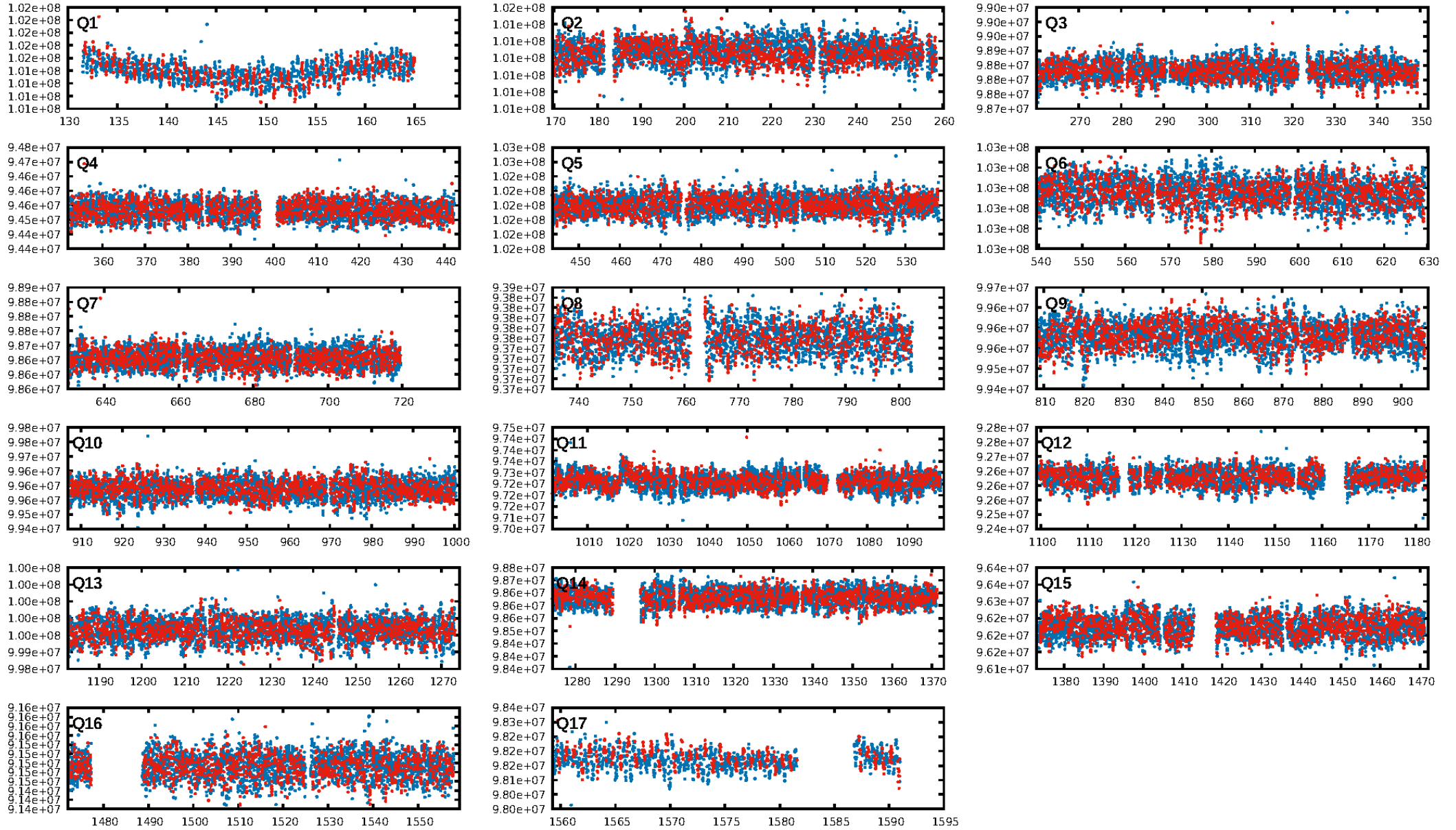
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.12e-14  
RollingBand-fgt: 1.00 [1808/1810]  
GhostDiagnostic-chr: 2.391  
Centroid-sig: 22.7%  
Centroid-so: 0.987 arcsec [1.15σ]  
OotOffset-rm: 0.326 arcsec [0.94σ]  
KicOffset-rm: 0.377 arcsec [1.20σ]  
OotOffset-st: 4/3/2/3 [12]  
KicOffset-st: 4/3/2/3 [12]  
DiffImageQuality-fgm: 0.75 [9/12]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:27:36 Z

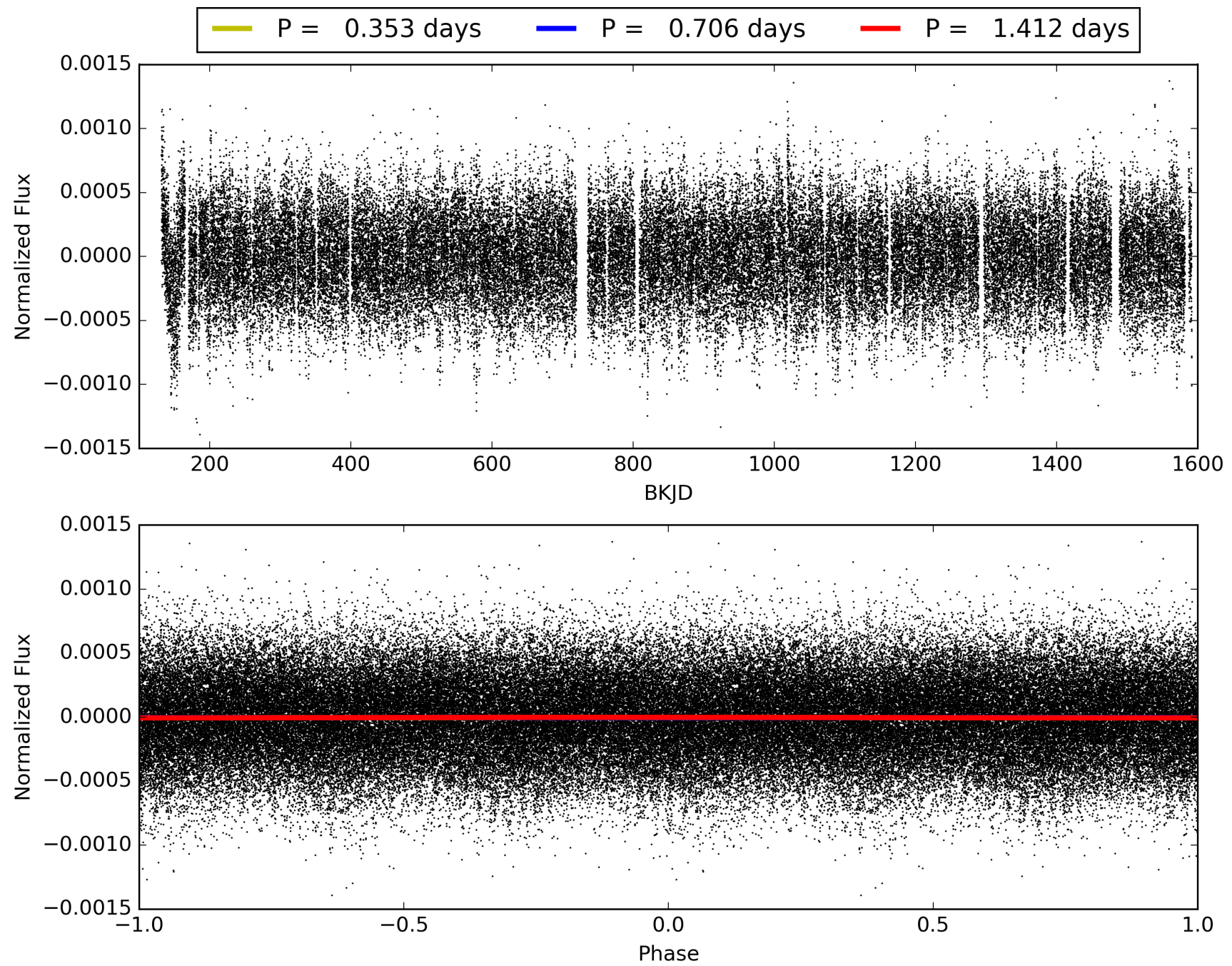
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007344999-01, PDC Light Curves



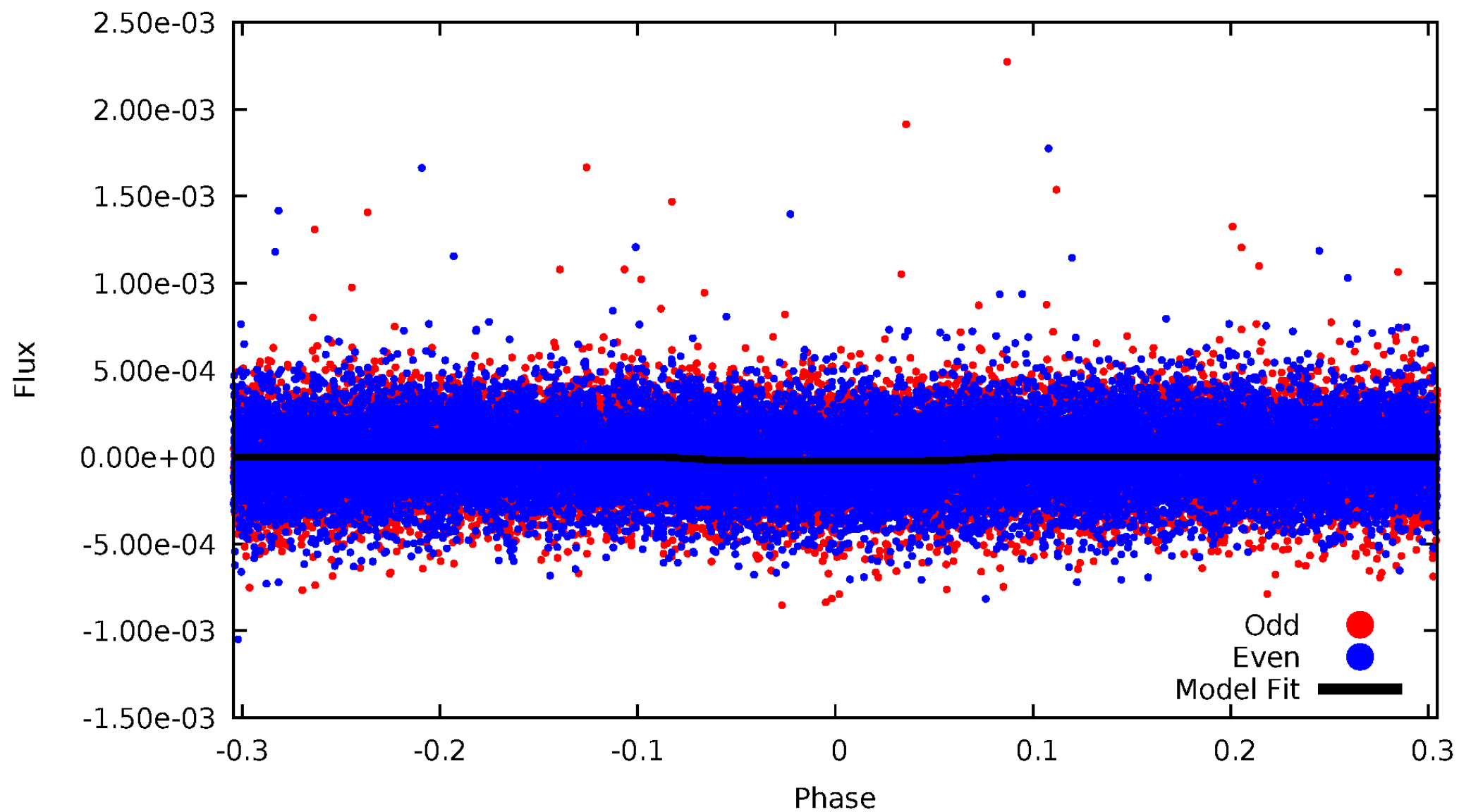


TCE 007344999-01



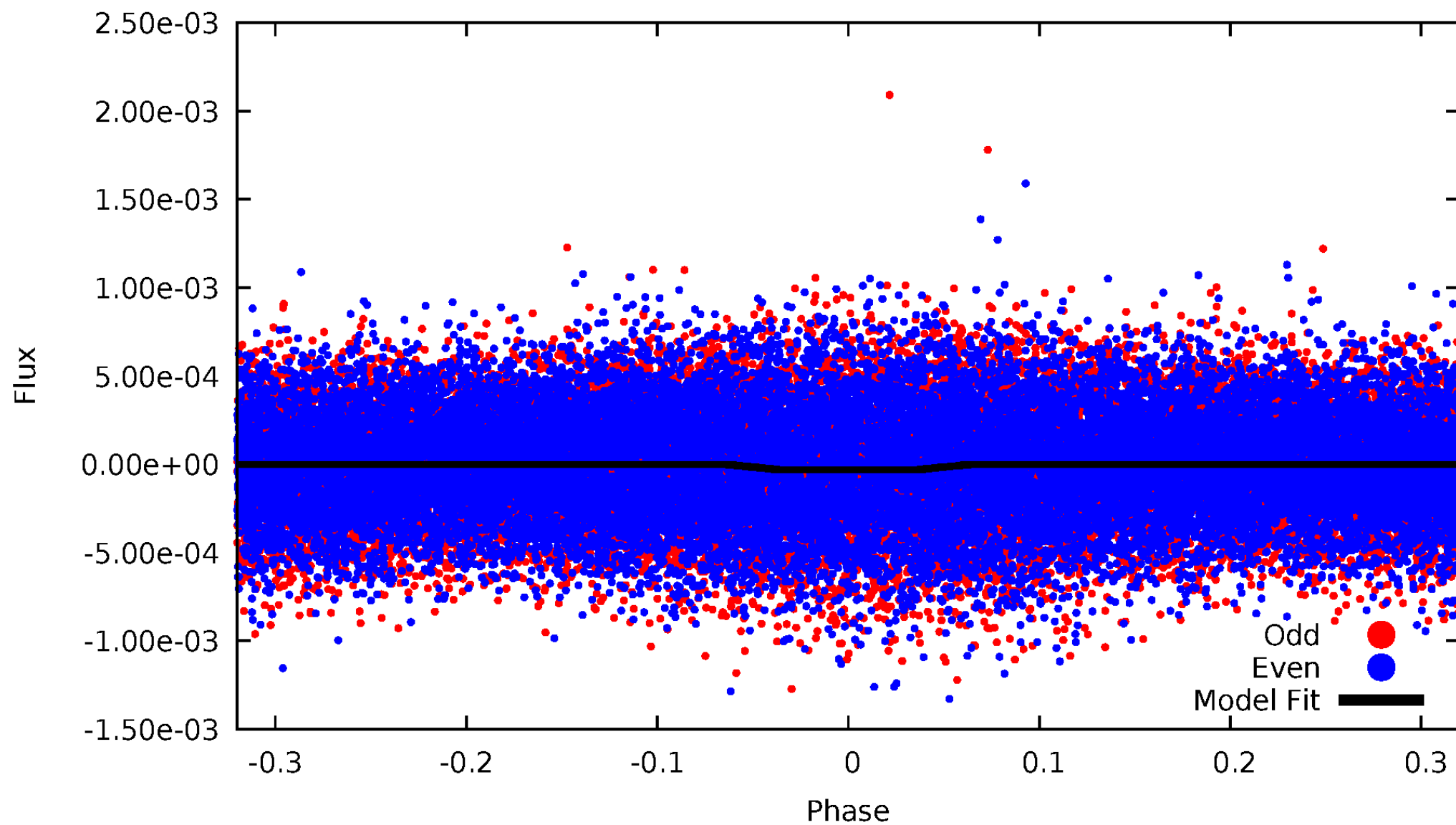
# DV Odd/Even

TCE 007344999-01

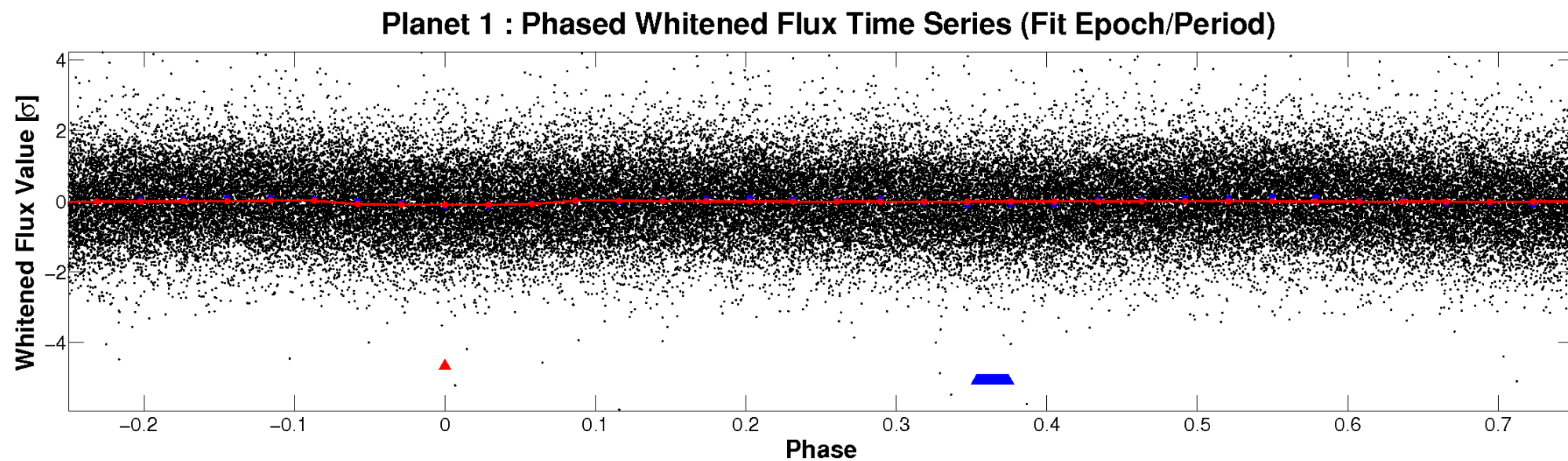
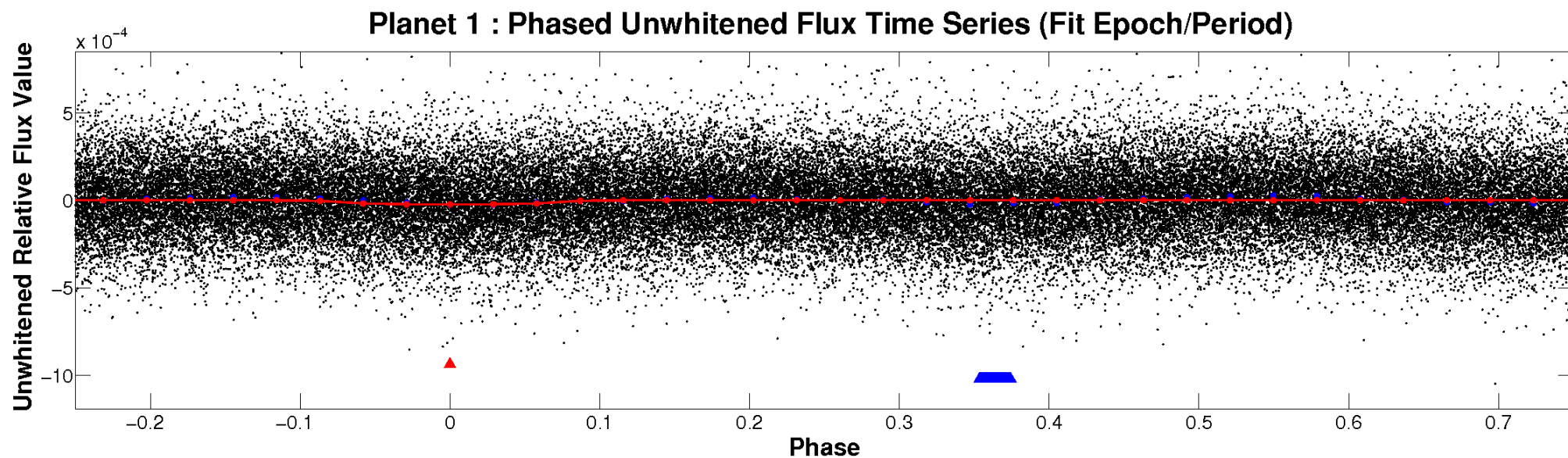


# ALT Odd/Even

TCE 007344999-01



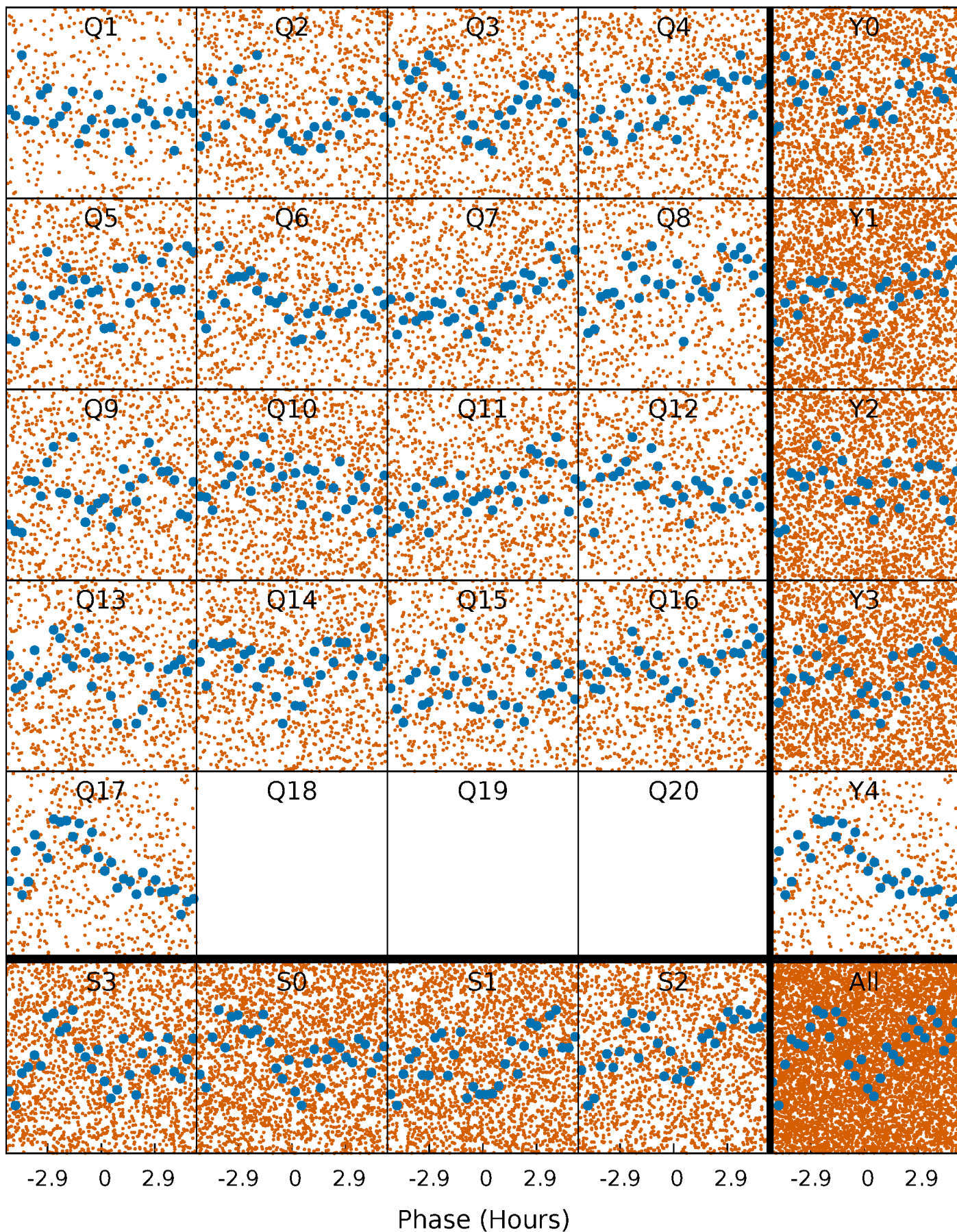
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

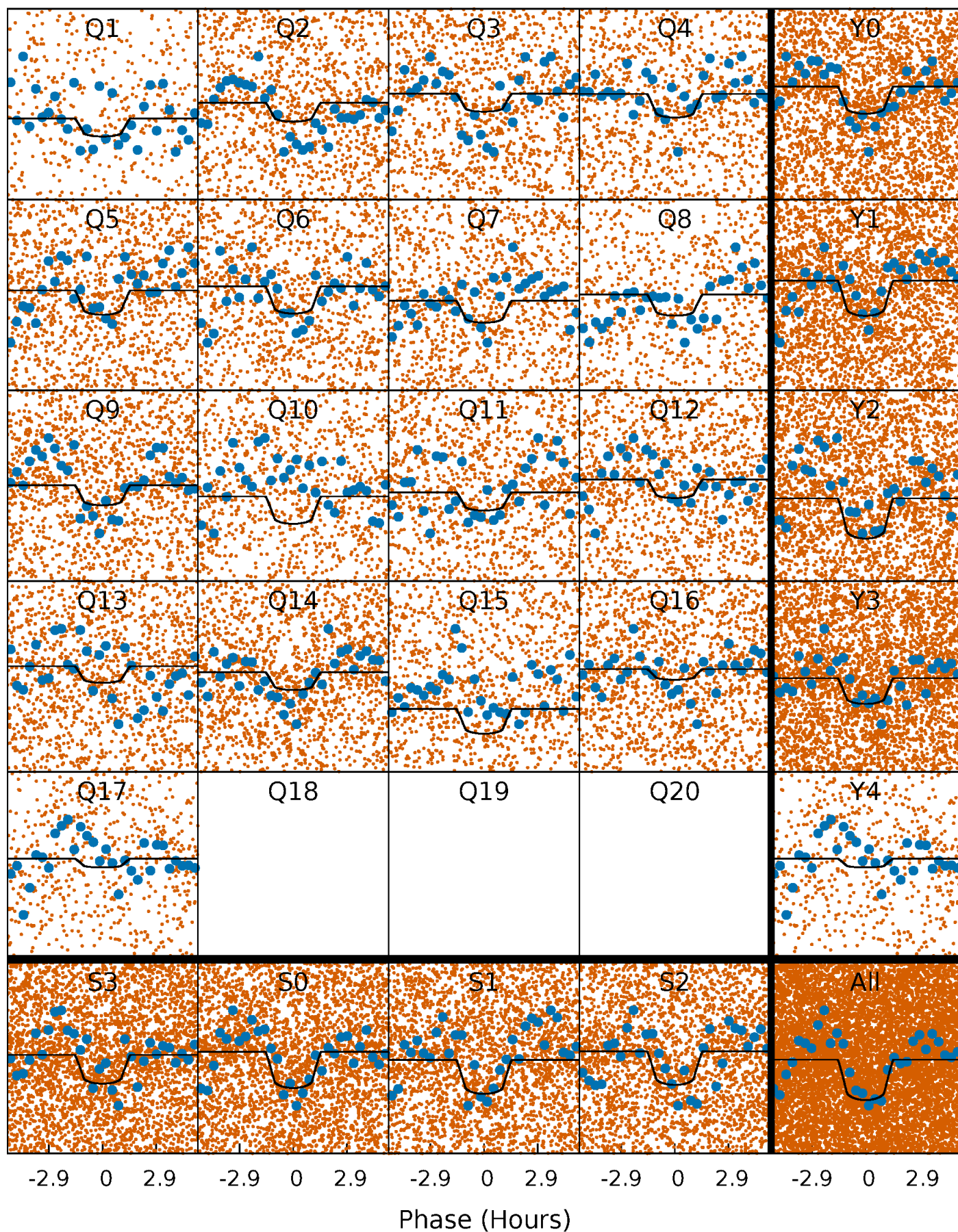
TCE 007344999-01 P= 0.706241 Days  $T_0=131.772984$  (BKJD)





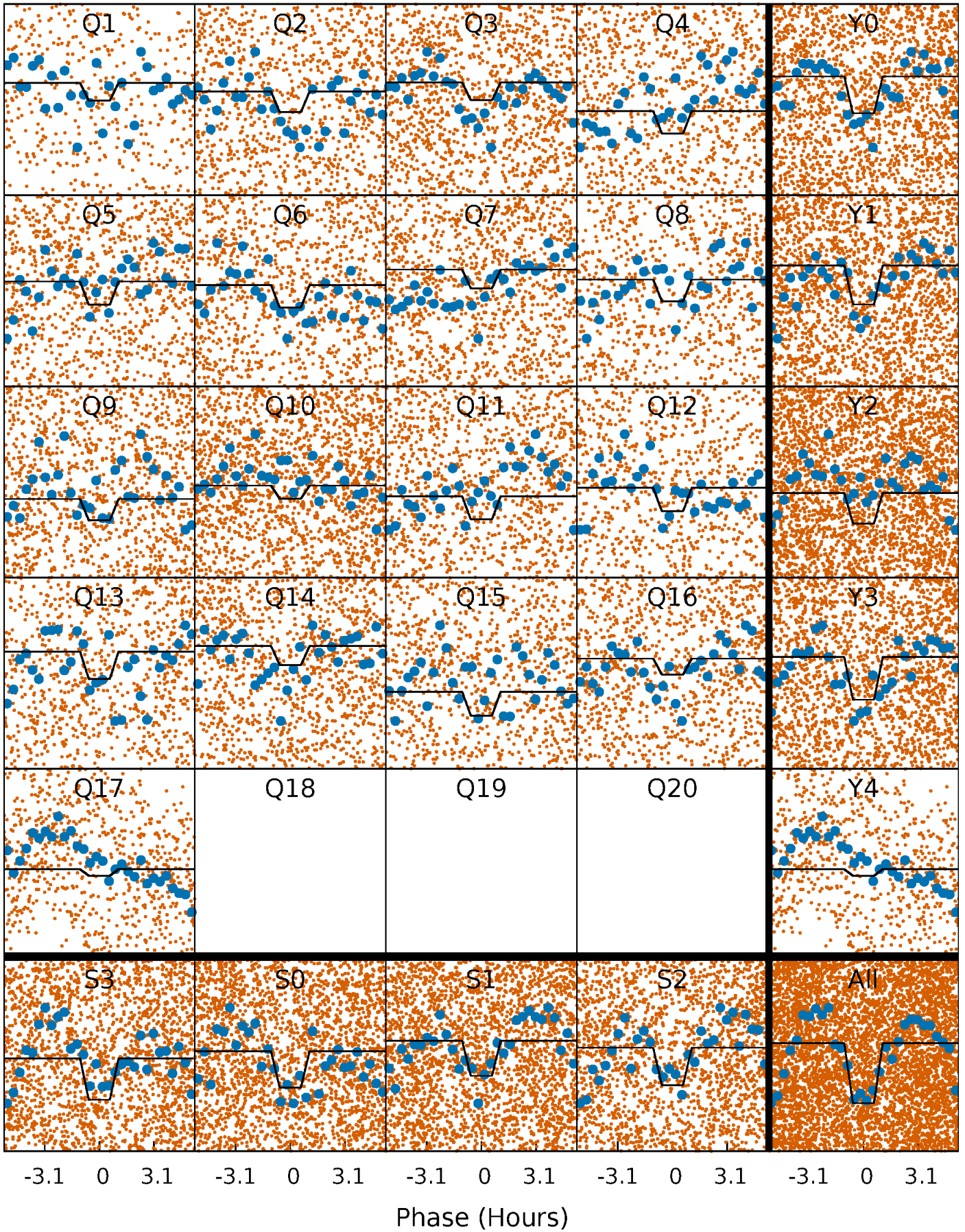
# DV Quarter-Phased Transit Curves

TCE 007344999-01   P= 0.706241 Days    $T_0=131.772984$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007344999-01 P= 0.706255 Days  $T_0=131.772679$  (BKJD)

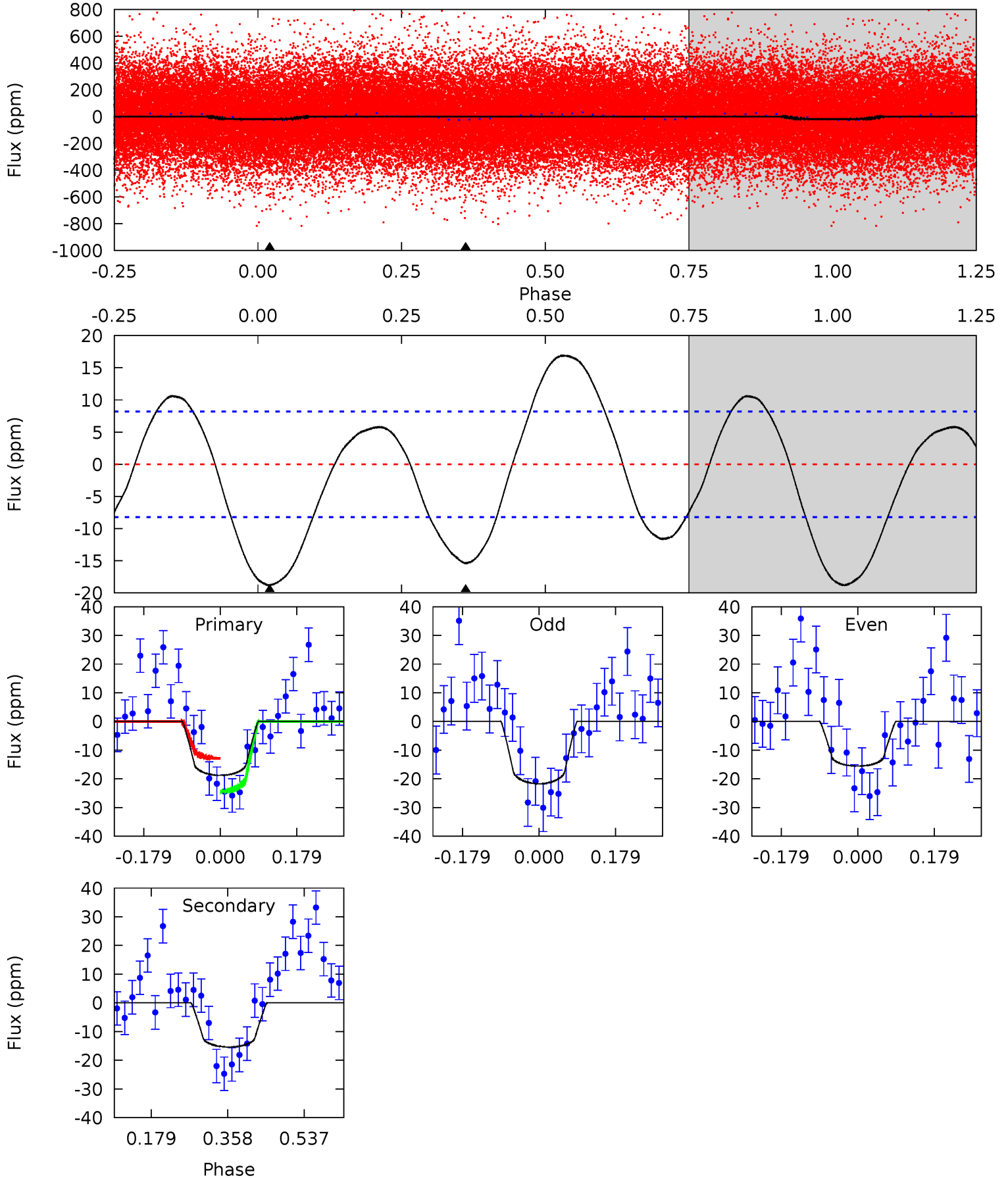




# DV Model-Shift Uniqueness Test

007344999-01, P = 0.706241 Days, E = 131.066743 Days

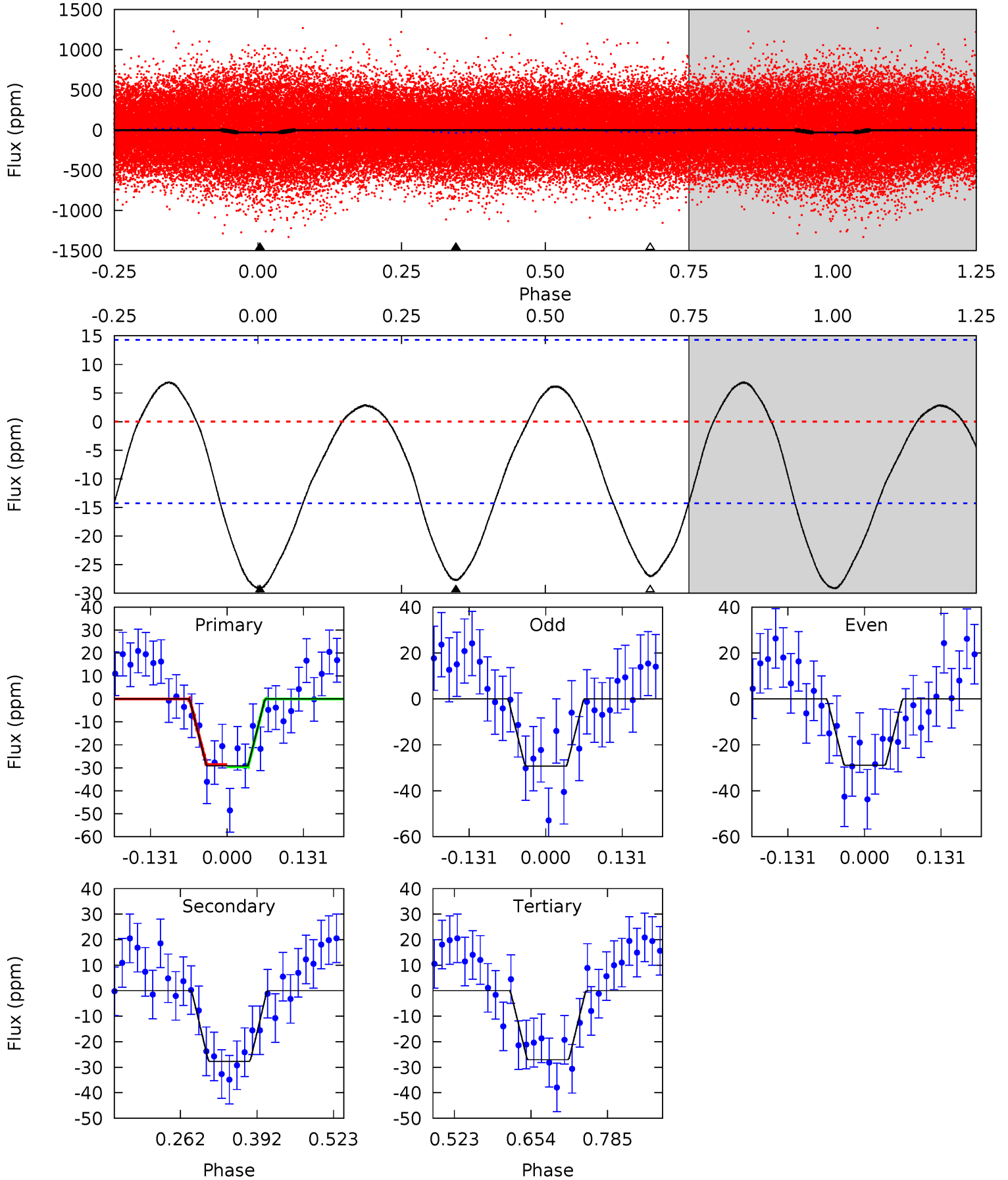
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	8.33	0	0	4.44	1.34	5.04	10.2	10.2	8.33	8.33	1.66	1.13	0.47	3.14



# Alt Model-Shift Uniqueness Test

007344999-01, P = 0.706255 Days, E = 131.066424 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
9.21	8.75	8.55	0	4.51	1.51	3.58	0.66	9.21	0.21	8.75	0.07	1.67	0.19	0.15





### Stellar Parameters For KIC 007344999

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7187^{+200}_{-300}$	$4.196^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.633^{+0.547}_{-0.252}$	$1.526^{+0.211}_{-0.211}$	$0.494^{+0.244}_{-0.259}$
	+3%/-4%	+2%/-5%	+286%/-500%	+33%/-15%	+14%/-14%	+49%/-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 007344999-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-15 \pm 2$	$0.93^{+0.34}_{-0.33}$	$4288^{+358}_{-269}$	$6132^{+1681}_{-955}$	$3.102^{+4.390}_{-1.476}$
Alt.	$-28 \pm 3$	$1.01^{+0.38}_{-0.29}$	$4291^{+334}_{-269}$	$6801^{+1540}_{-980}$	$4.585^{+4.654}_{-2.104}$

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

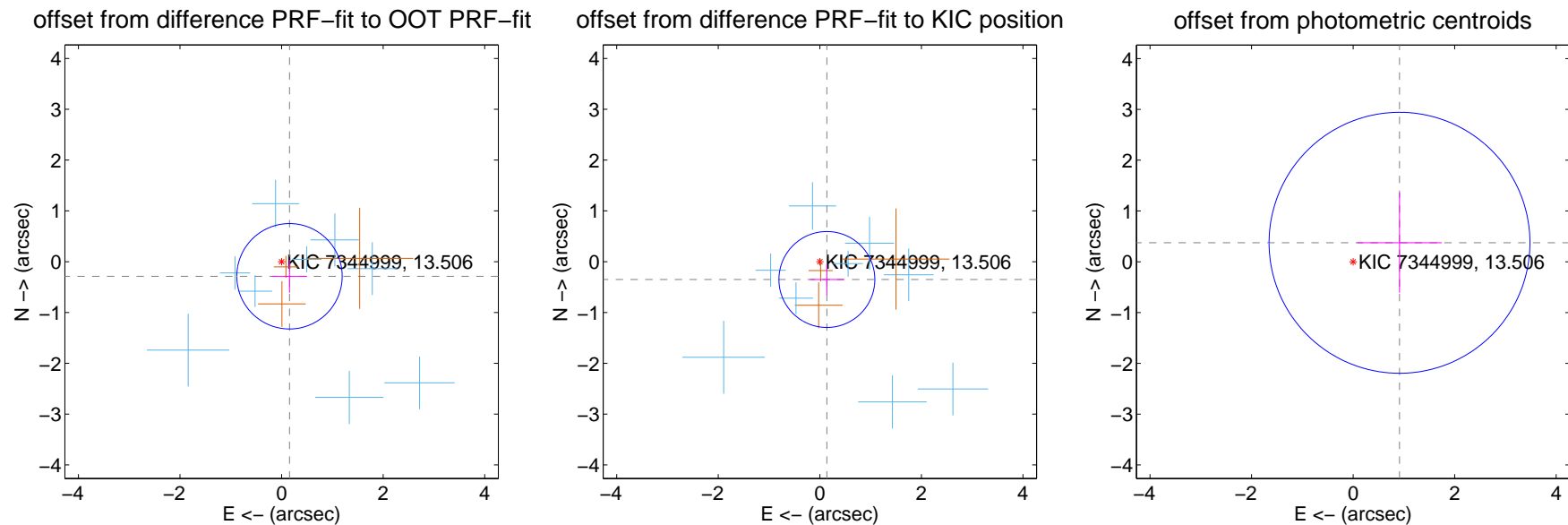
## DV Centroid Data

Supplemental centroid analysis for 007344999-01. Kepler magnitude: 13.51. Transit SNR 8.89

There are 9 quarters with good PRF difference image offsets

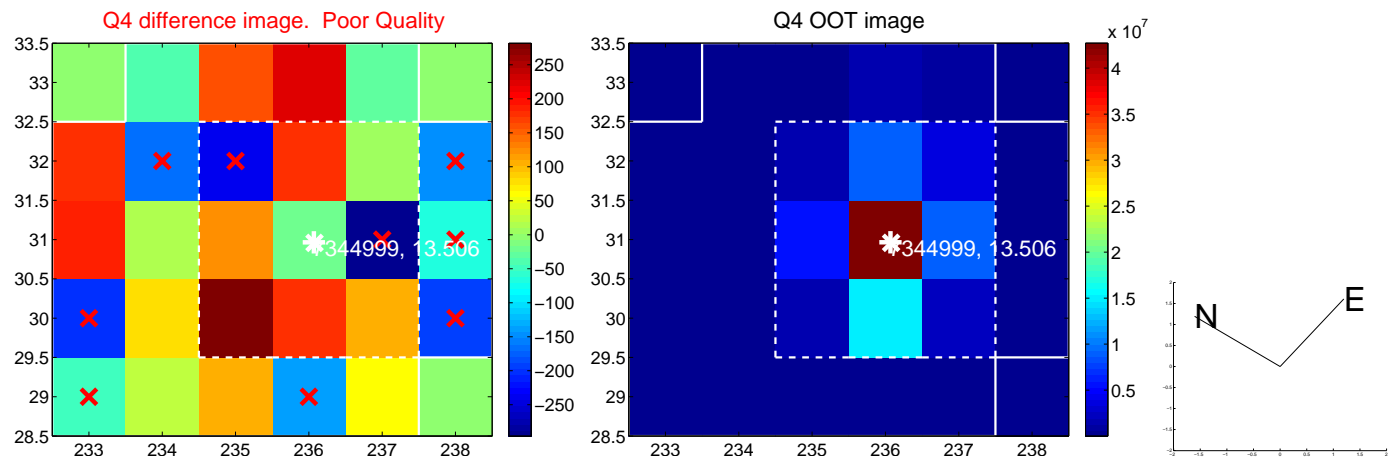
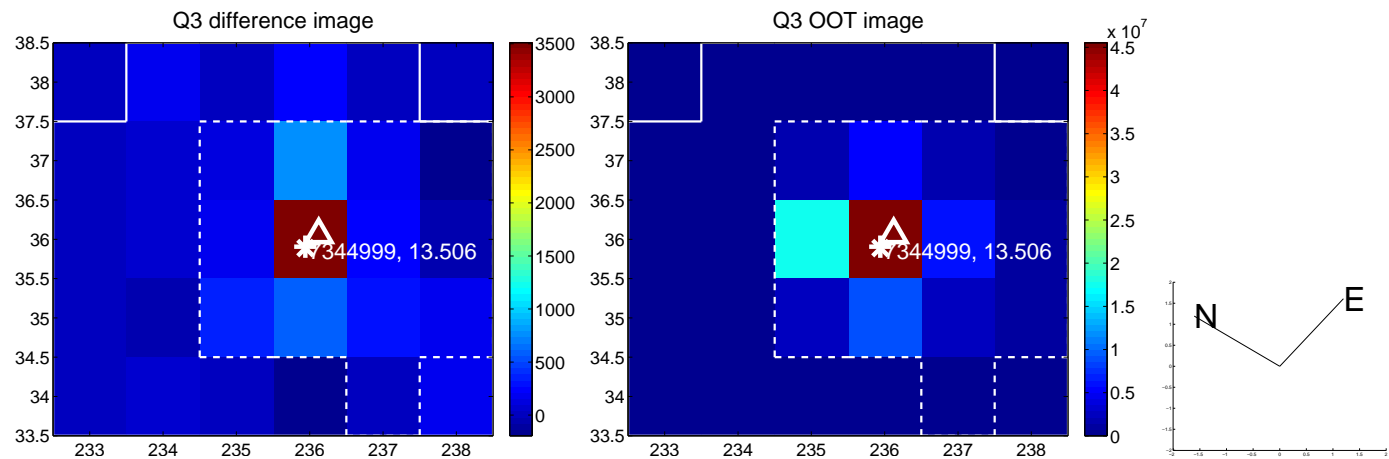
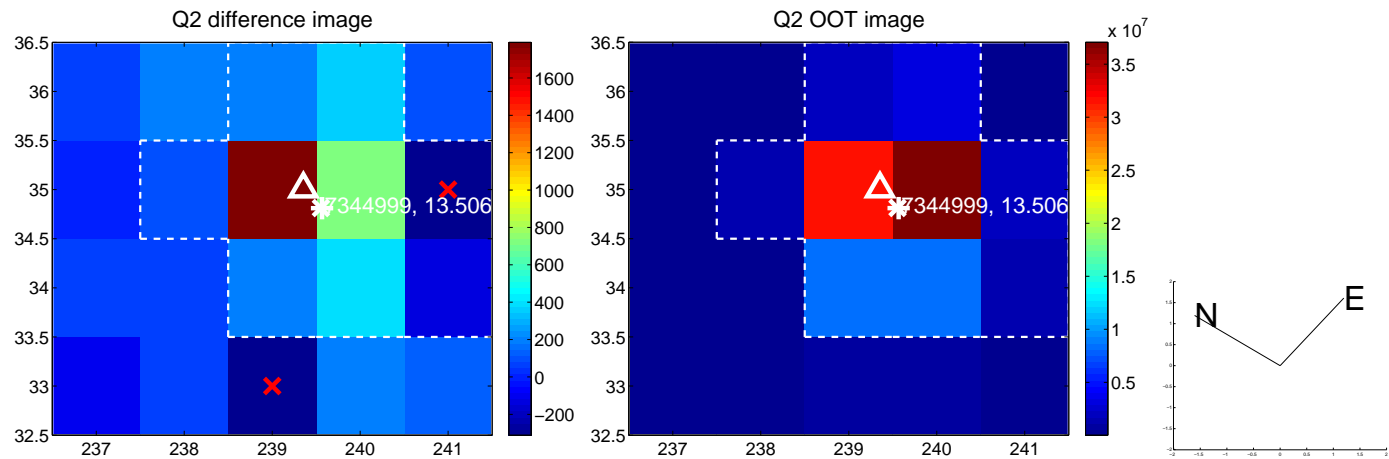
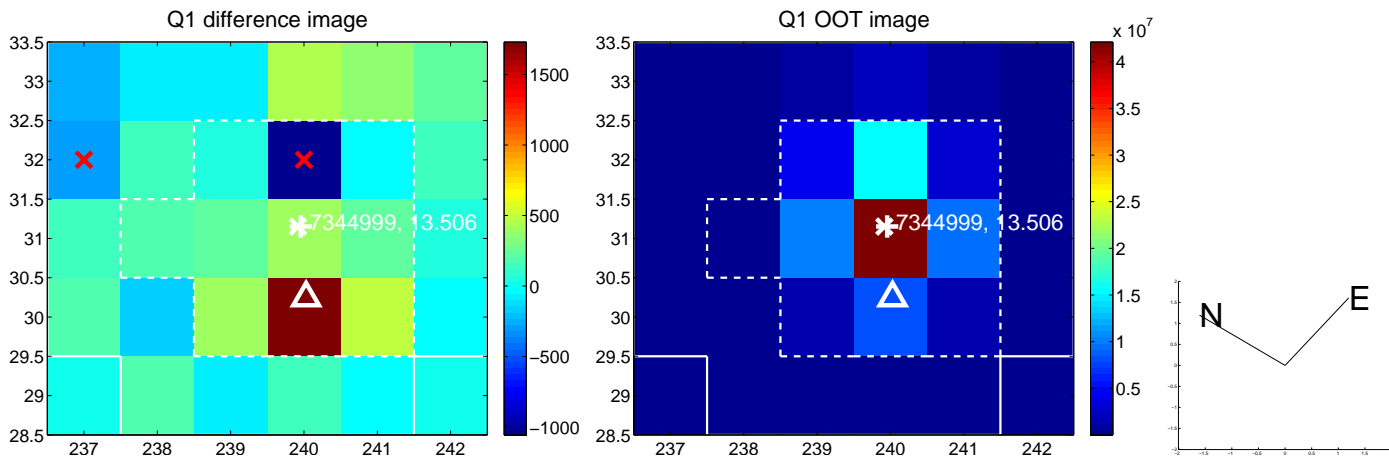
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.326 \pm 0.346$	0.94	$-0.156 \pm 0.346$	$-0.287 \pm 0.324$
PRF-fit source offset from KIC position	$0.377 \pm 0.315$	1.20	$-0.138 \pm 0.333$	$-0.350 \pm 0.304$
photometric centroid source offset	$0.99 \pm 0.86$	1.15	$-0.91 \pm 0.83$	$0.37 \pm 0.99$

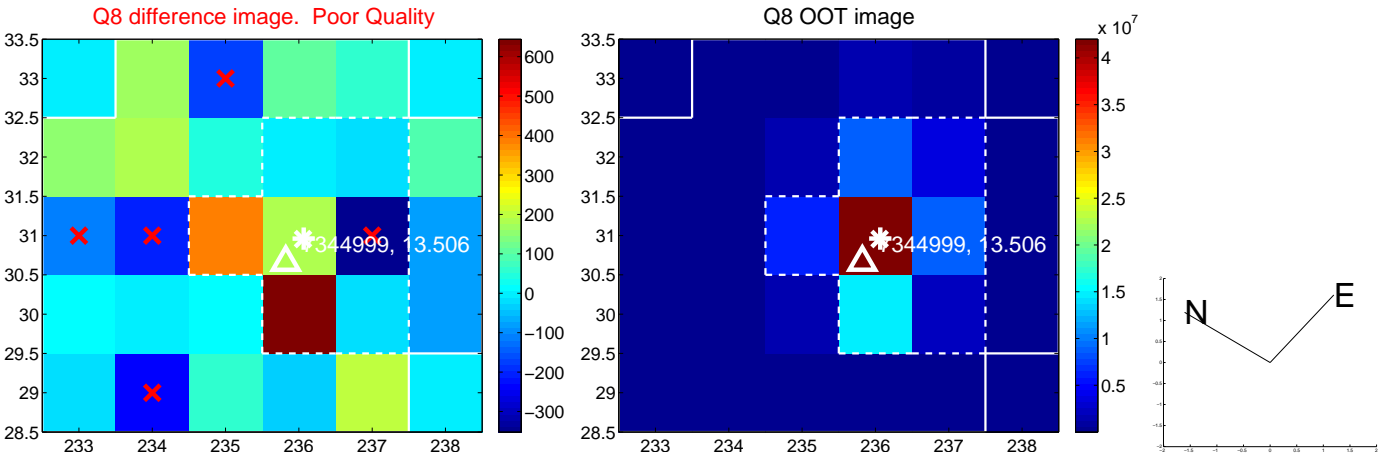
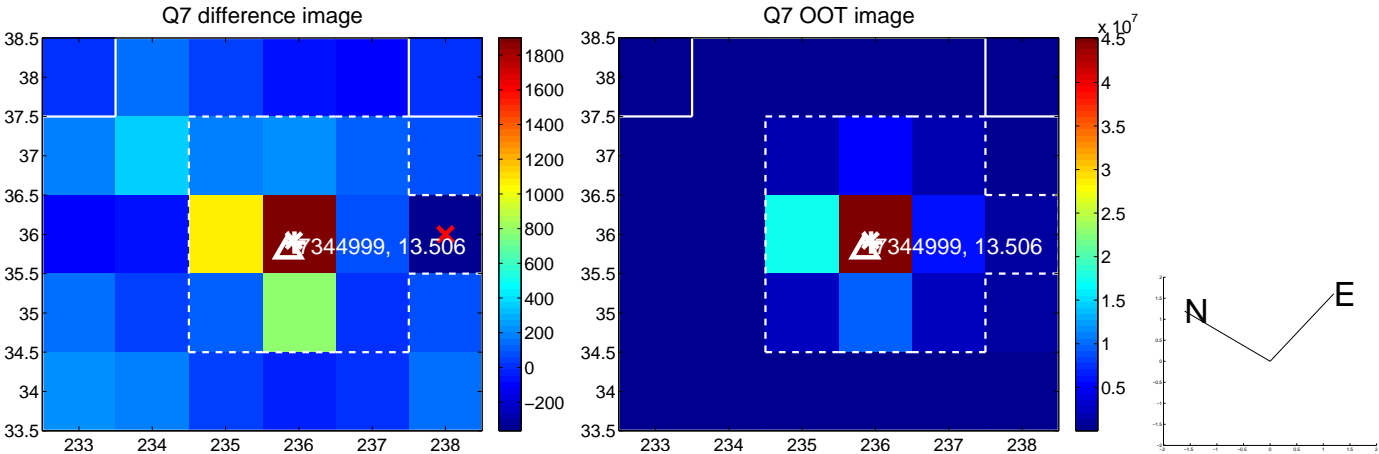
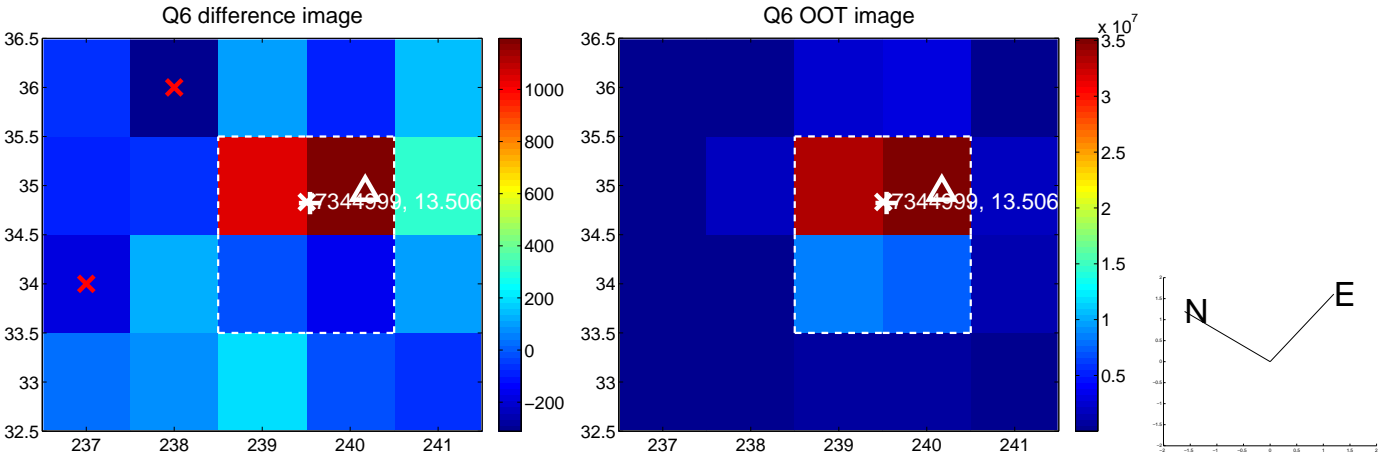
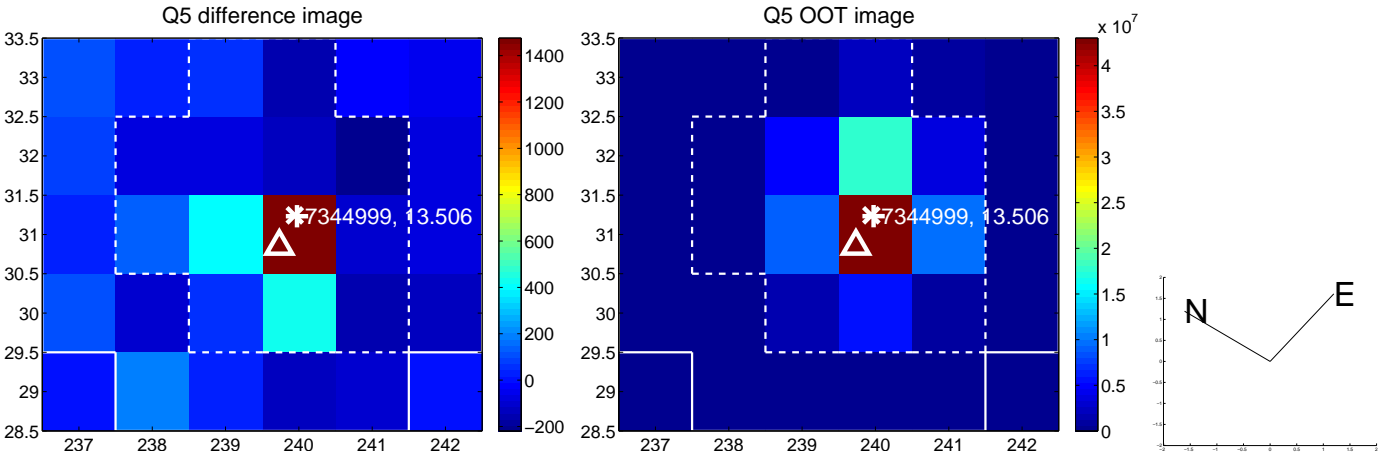


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

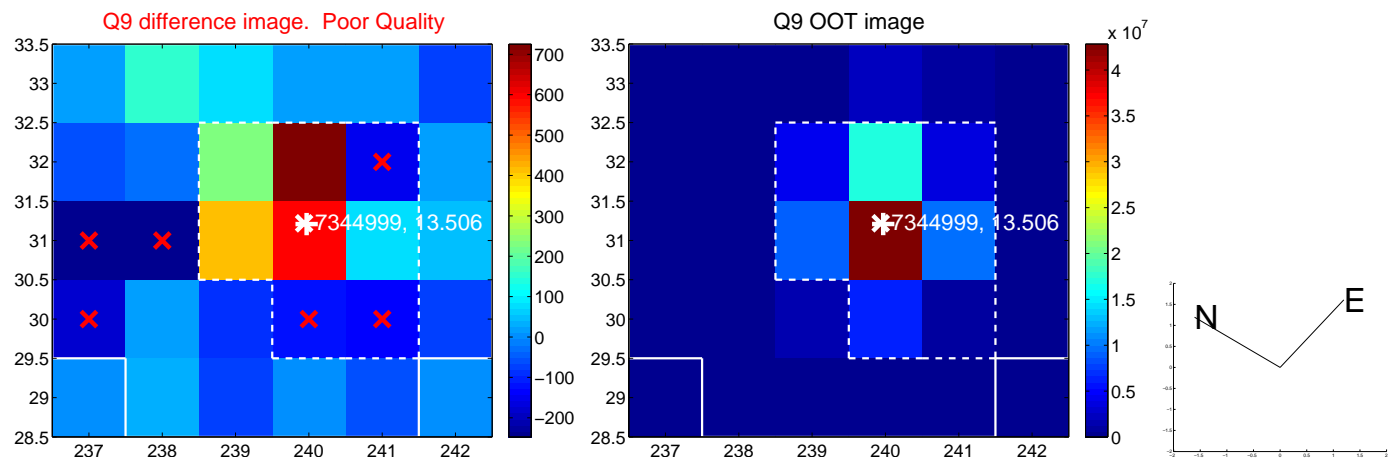


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

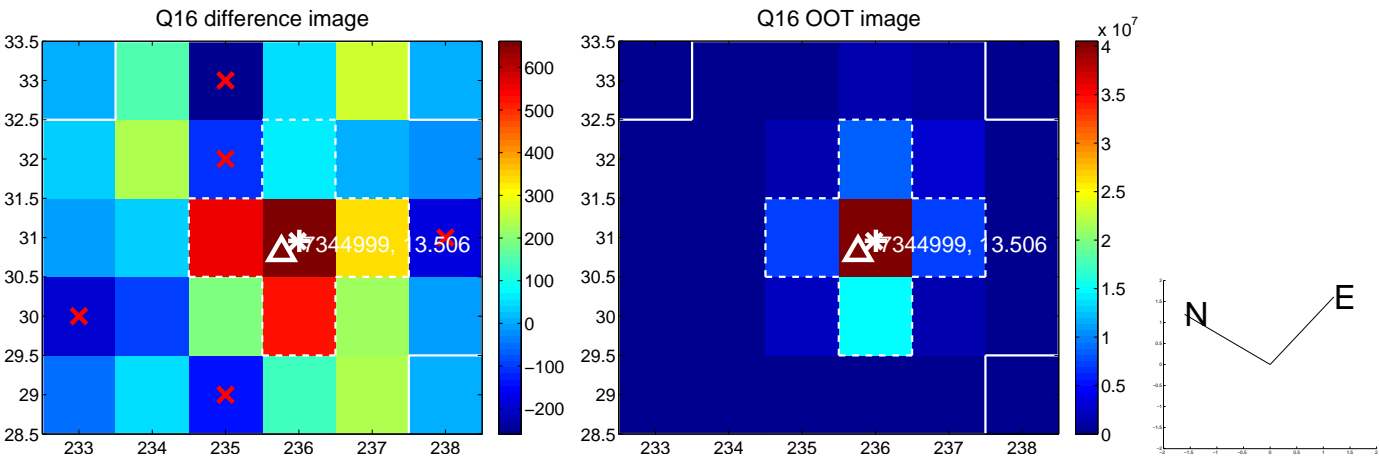
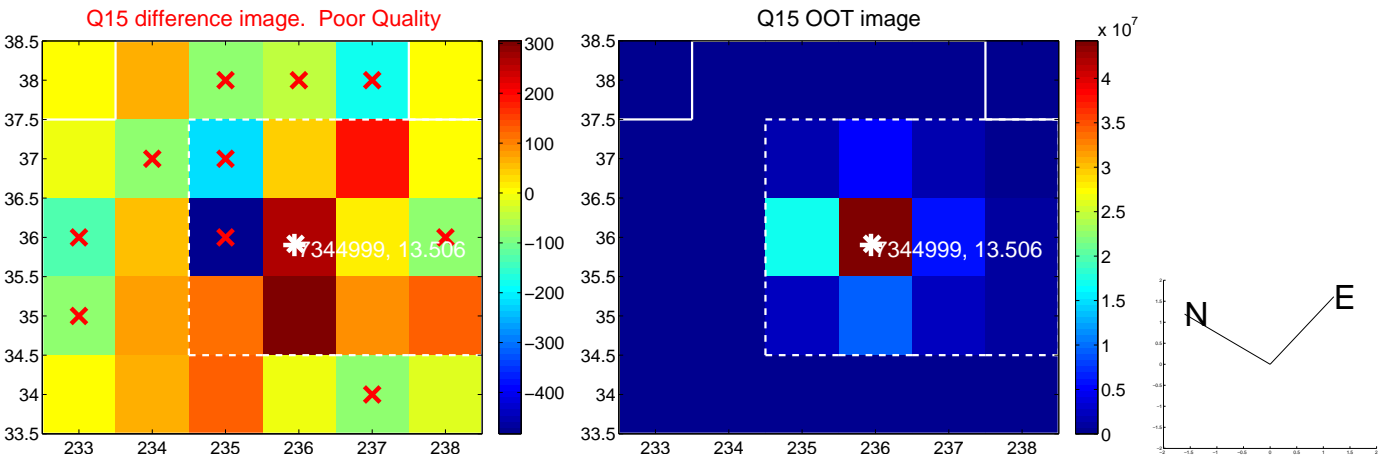
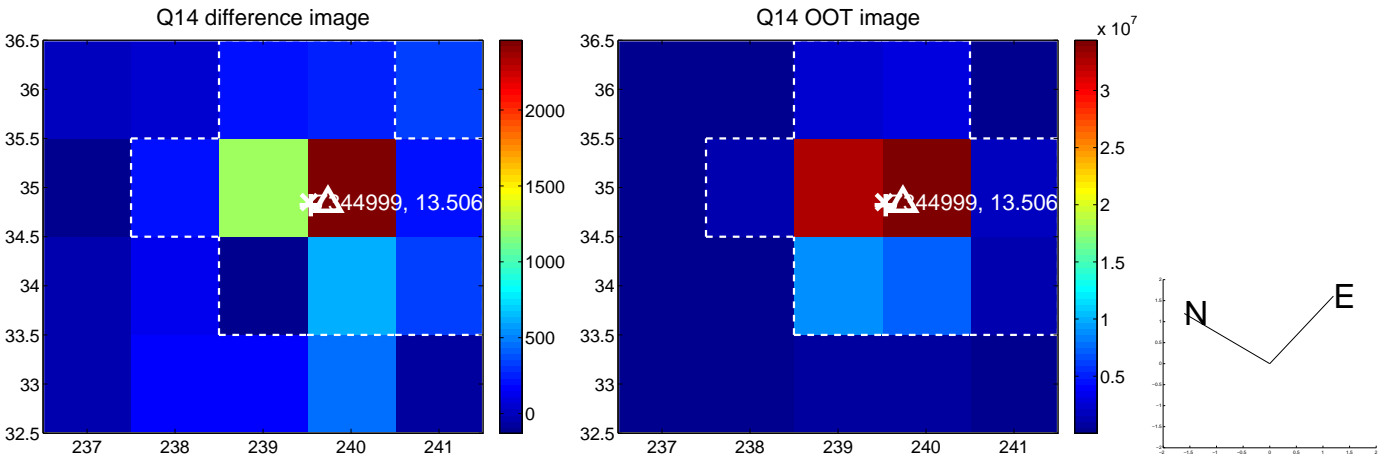
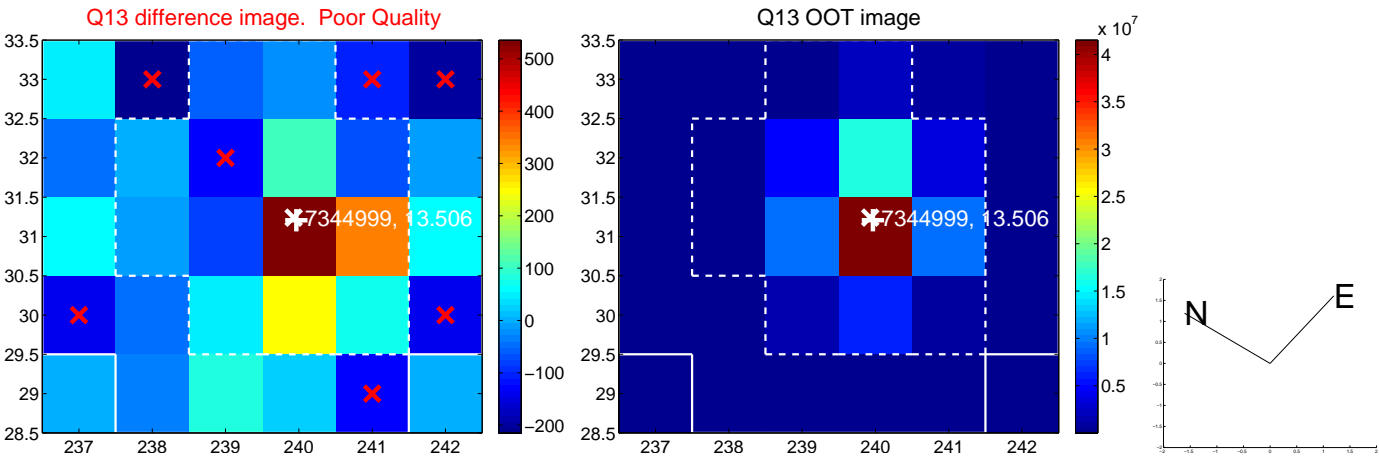




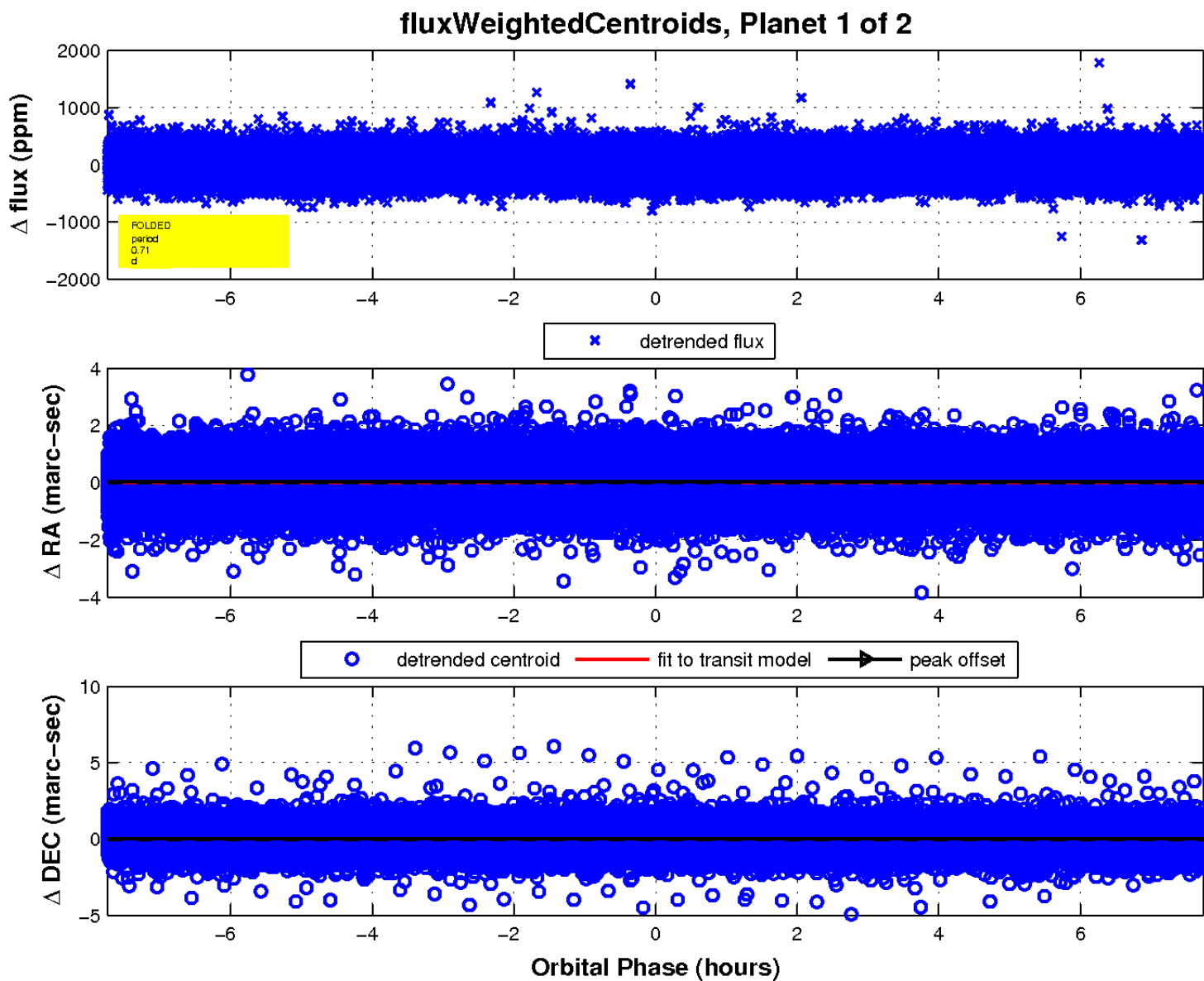
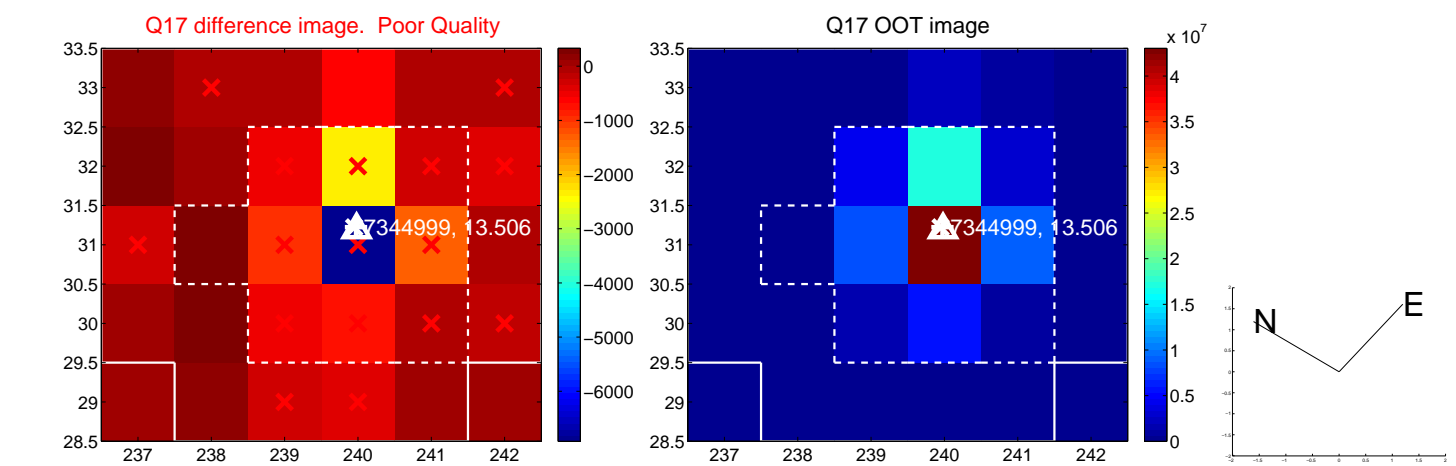
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

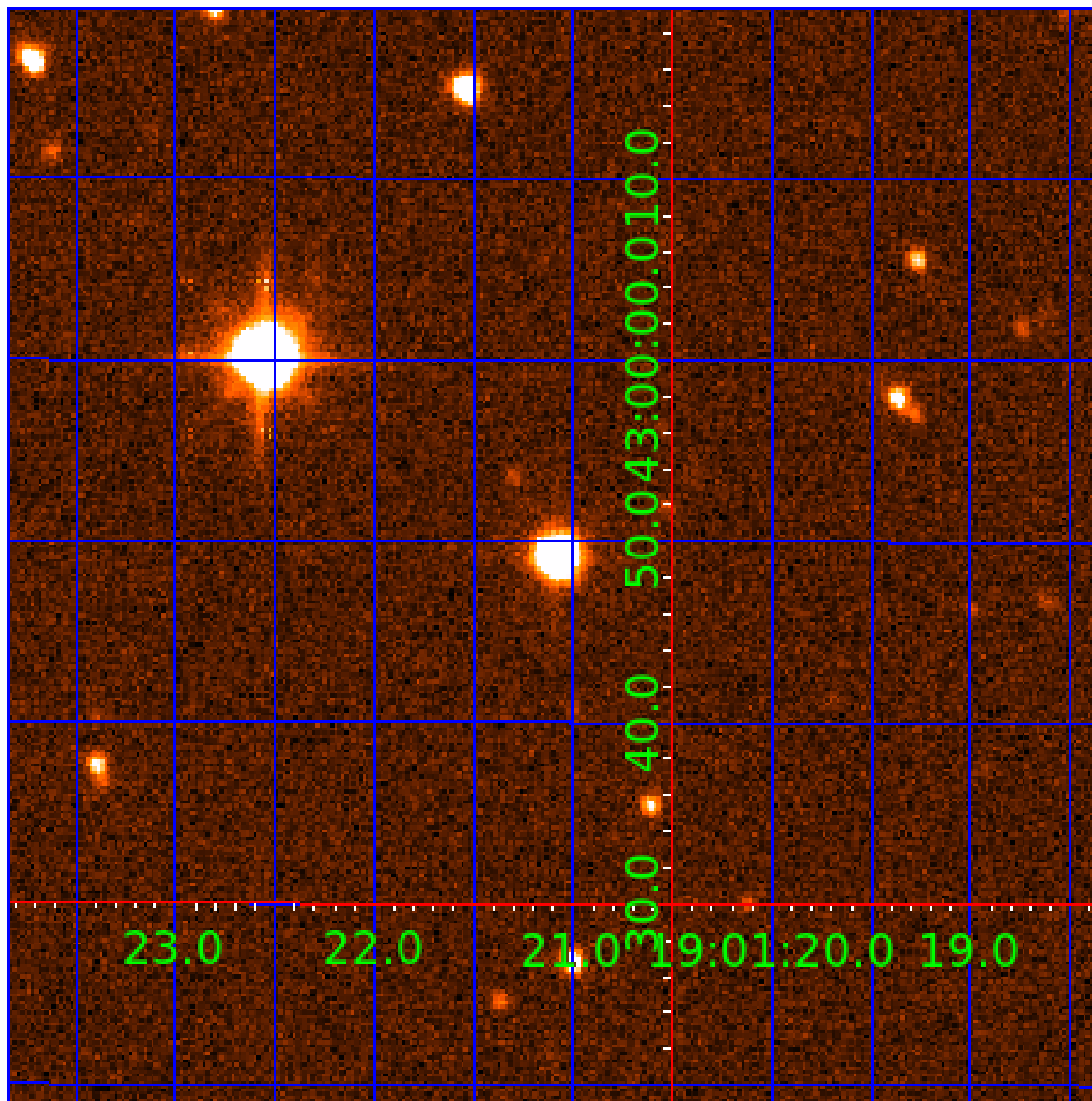


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007344999

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007344999-01	OBS	No	0.706241	131.772984	23.1	2.580	8.1	8.9	1.63	7187	0.91	19943.68
007344999-02	OBS	No	0.706248	132.022672	26.5	1.393	8.8	9.3	1.63	7187	0.87	19943.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007344999-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007344999-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

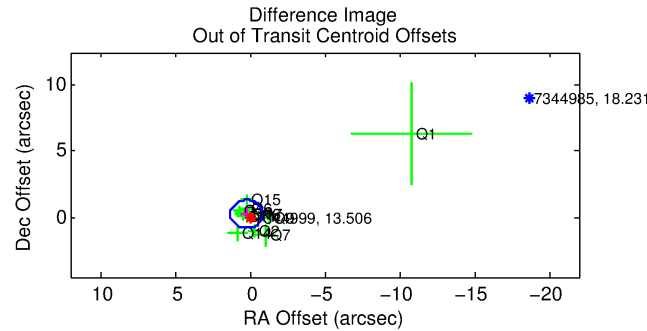
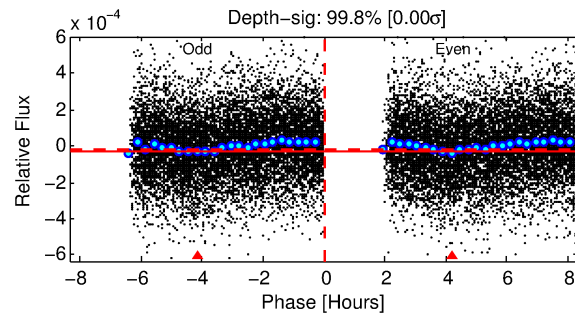
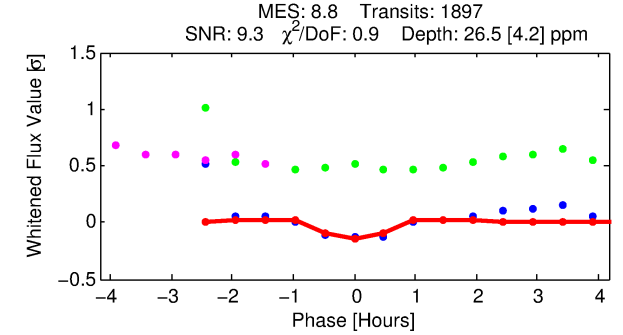
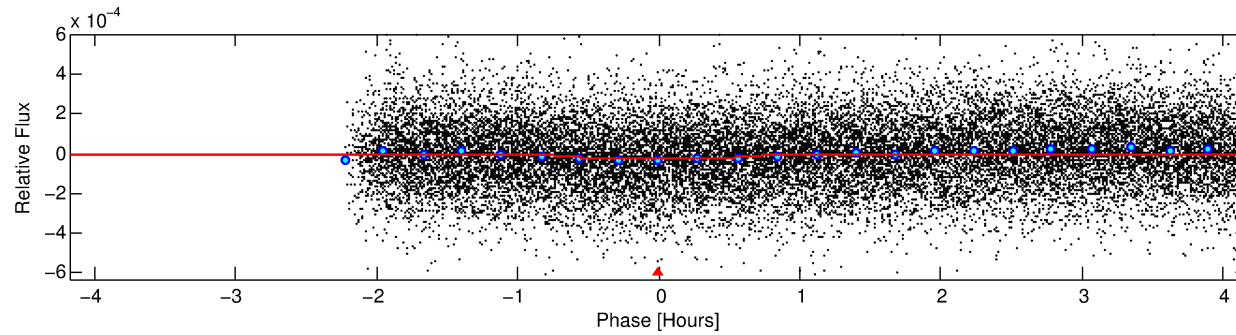
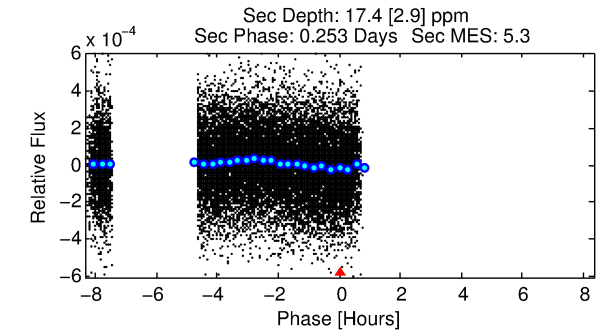
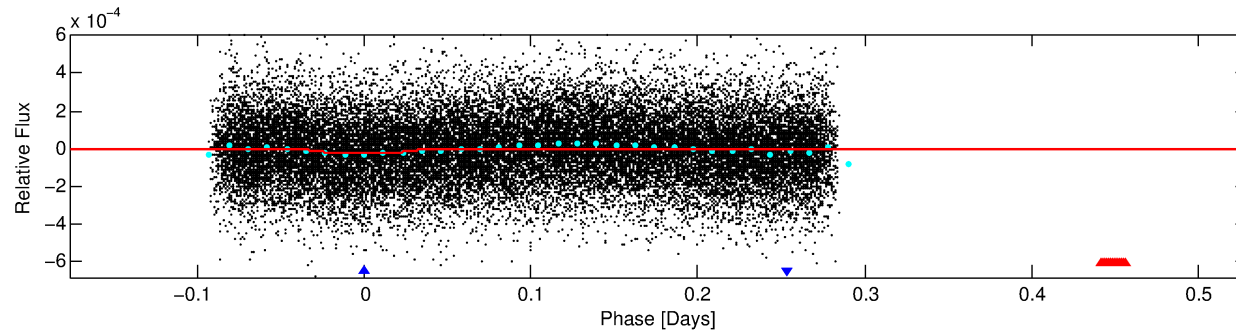
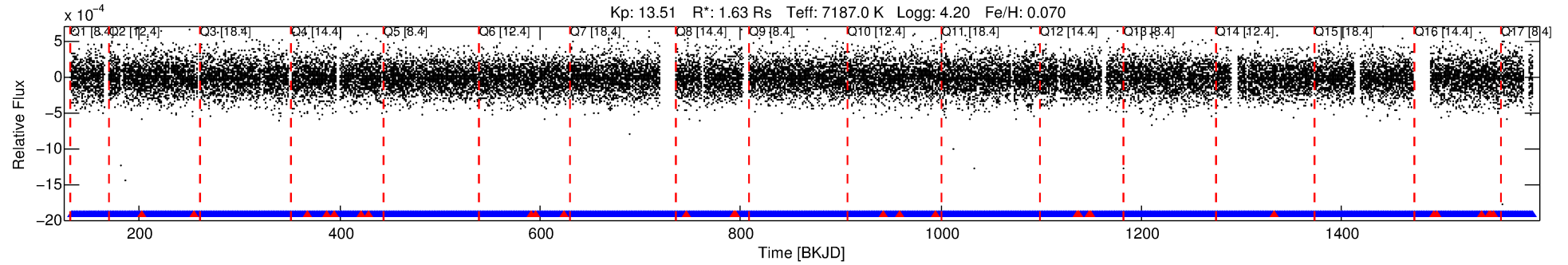
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007344999-02

No Significant Match Found

# DV One-Page Summary

KIC: 7344999 Candidate: 2 of 2 Period: 0.706 d



## DV Fit Results:

Period = 0.70625 [0.00001] d  
Epoch = 132.0227 [0.0020] BKJD  
Rp/R\* = 0.0049 [0.0013]  
a/R\* = 3.46 [4.71]  
b = 0.50 [2.26]  
Seff = 19943.41 [8500.28]  
Teq = 3030 [323] K  
Rp = 0.87 [0.37] Re  
a = 0.0179 [0.0049] AU  
Ag = 4.00 [2.71] [1.11σ]  
Teffp = 6626 [953] K [3.57σ]

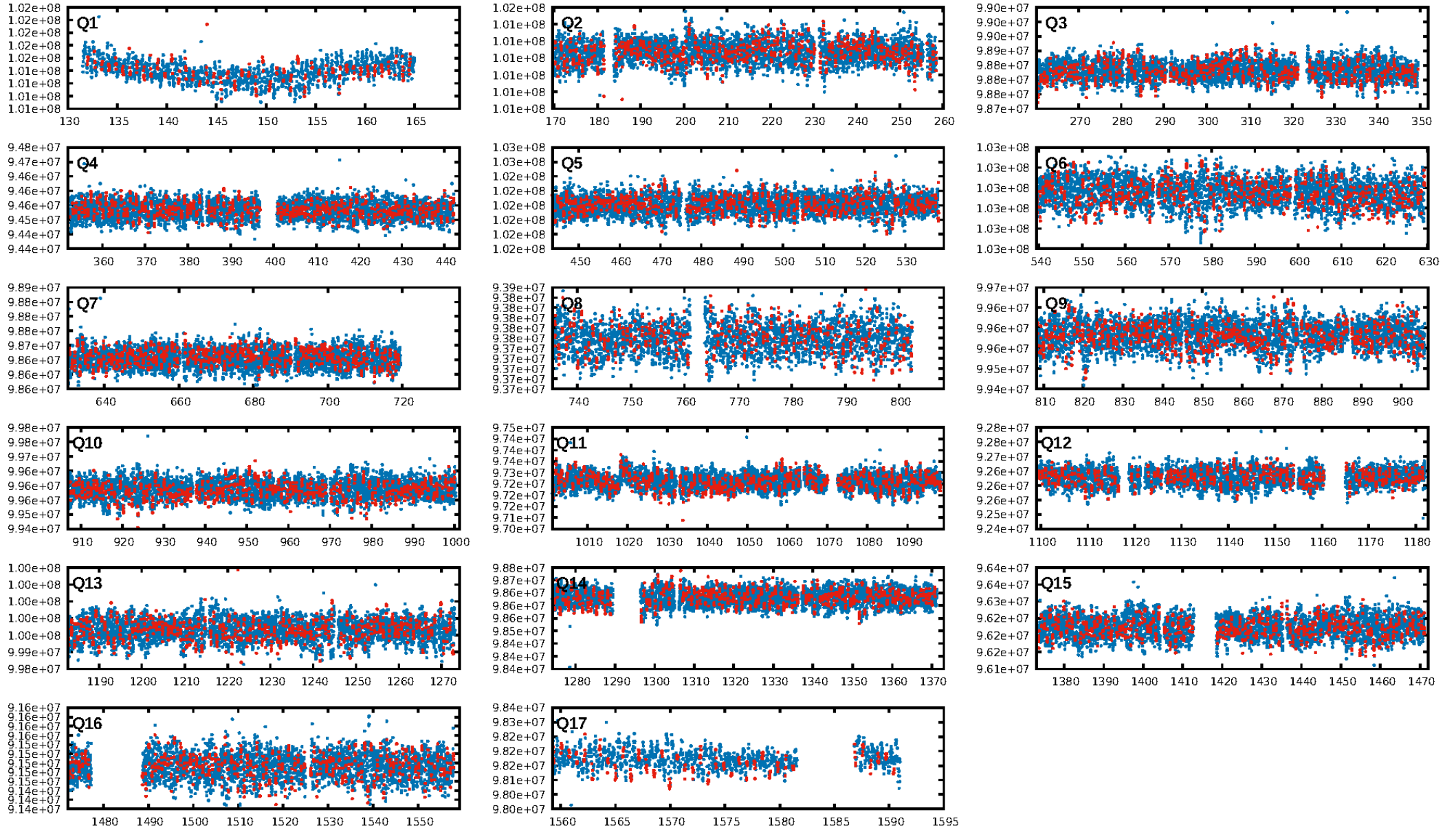
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.71e-15  
RollingBand-fgt: 0.99 [1785/1812]  
GhostDiagnostic-chr: 4.264  
Centroid-sig: 24.2%  
Centroid-so: 0.973 arcsec [0.83σ]  
OotOffset-rm: 0.335 arcsec [0.94σ]  
KicOffset-rm: 0.302 arcsec [0.71σ]  
OotOffset-st: 4/4/1/3 [12]  
KicOffset-st: 4/4/1/3 [12]  
DiffImageQuality-fgm: 0.92 [11/12]  
DiffImageOverlap-fno: 0.00 [0/17]

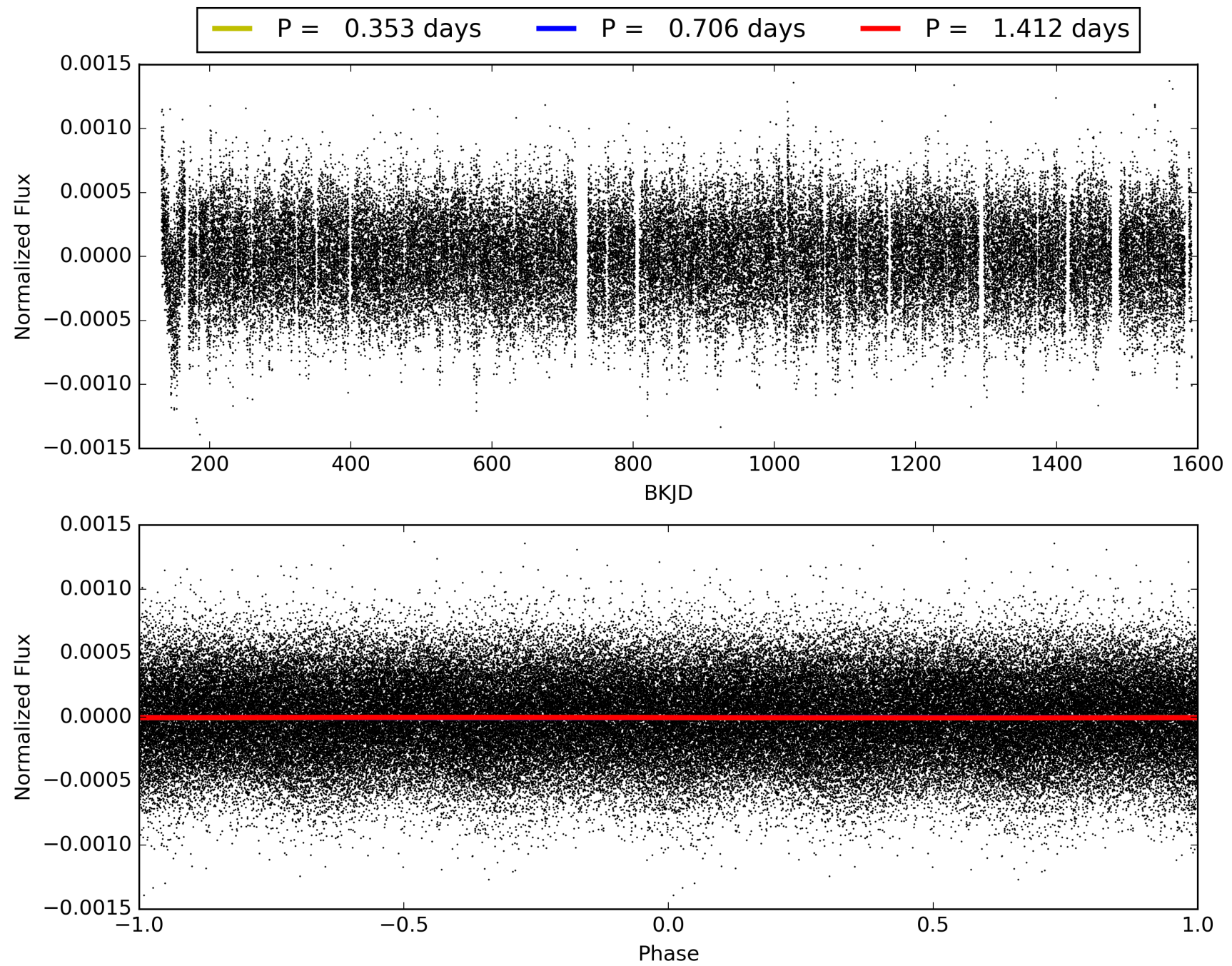
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:27:47 Z

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

# TCE 007344999-02, PDC Light Curves



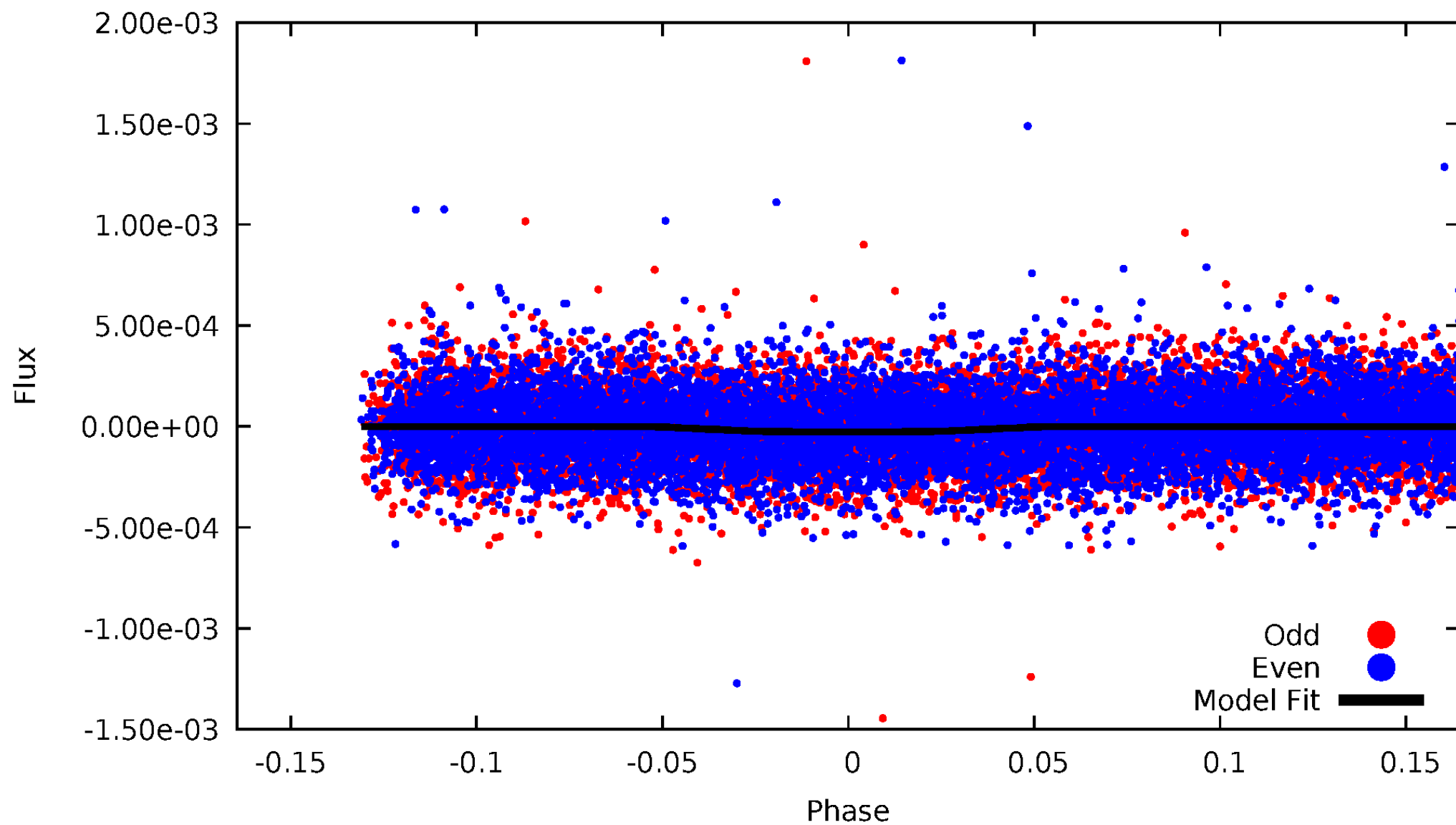
TCE 007344999-02





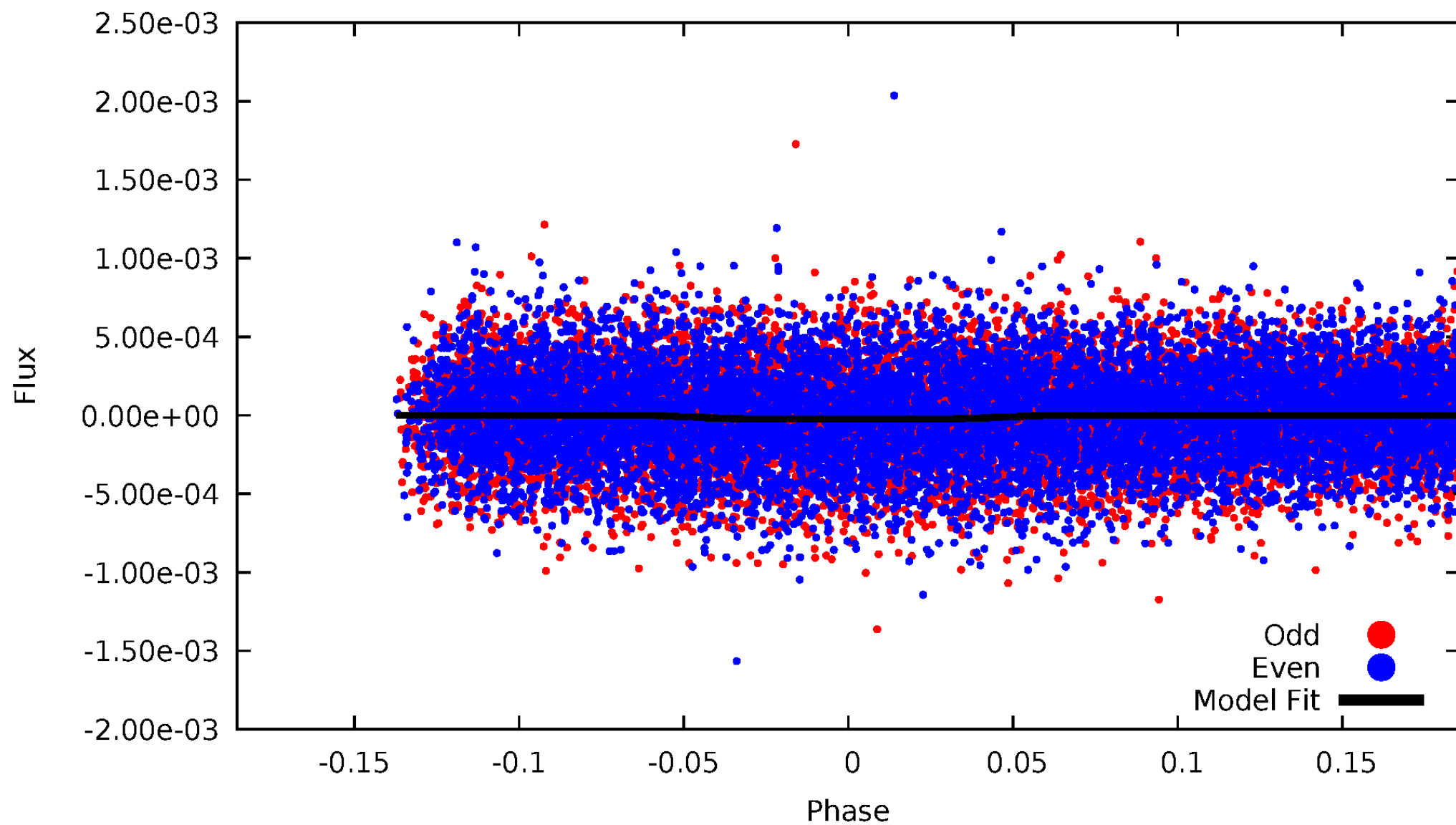
# DV Odd/Even

TCE 007344999-02



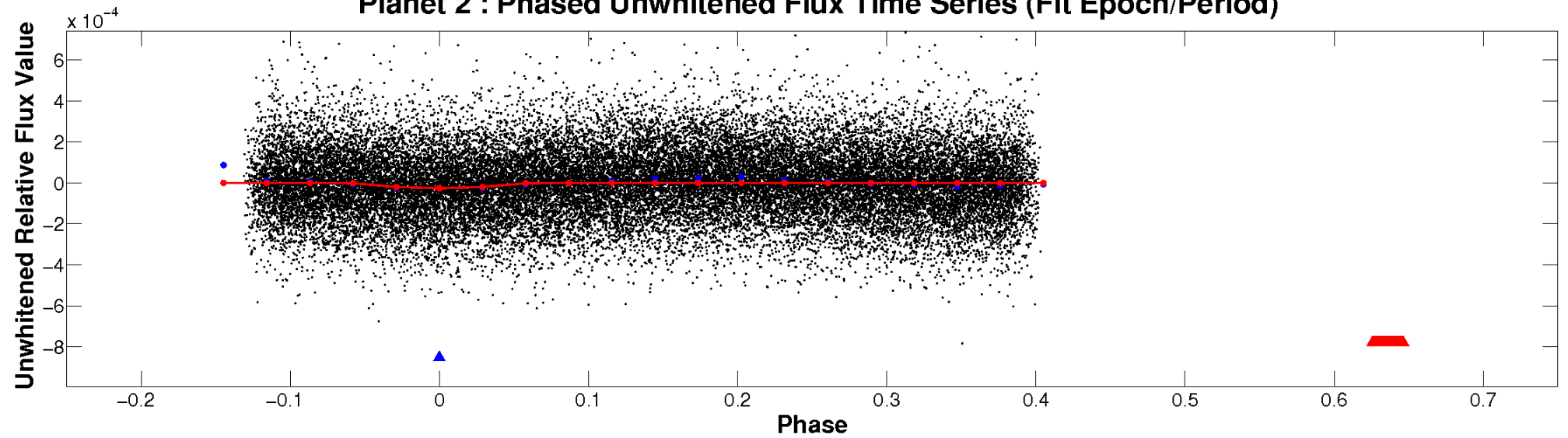
# ALT Odd/Even

TCE 007344999-02

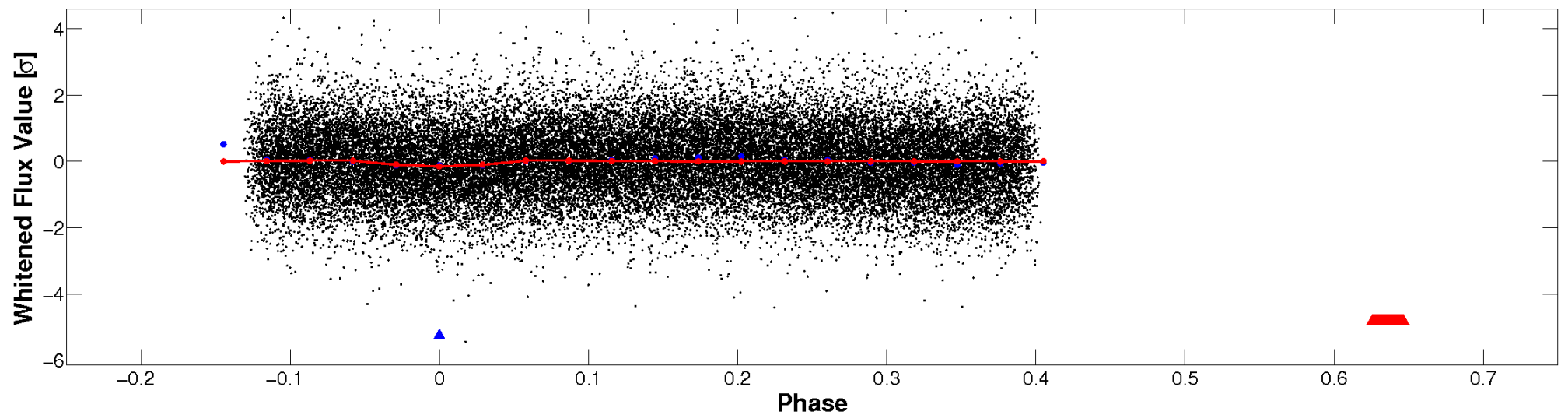


# Non-Whitened Vs. Whitened Light Curve

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

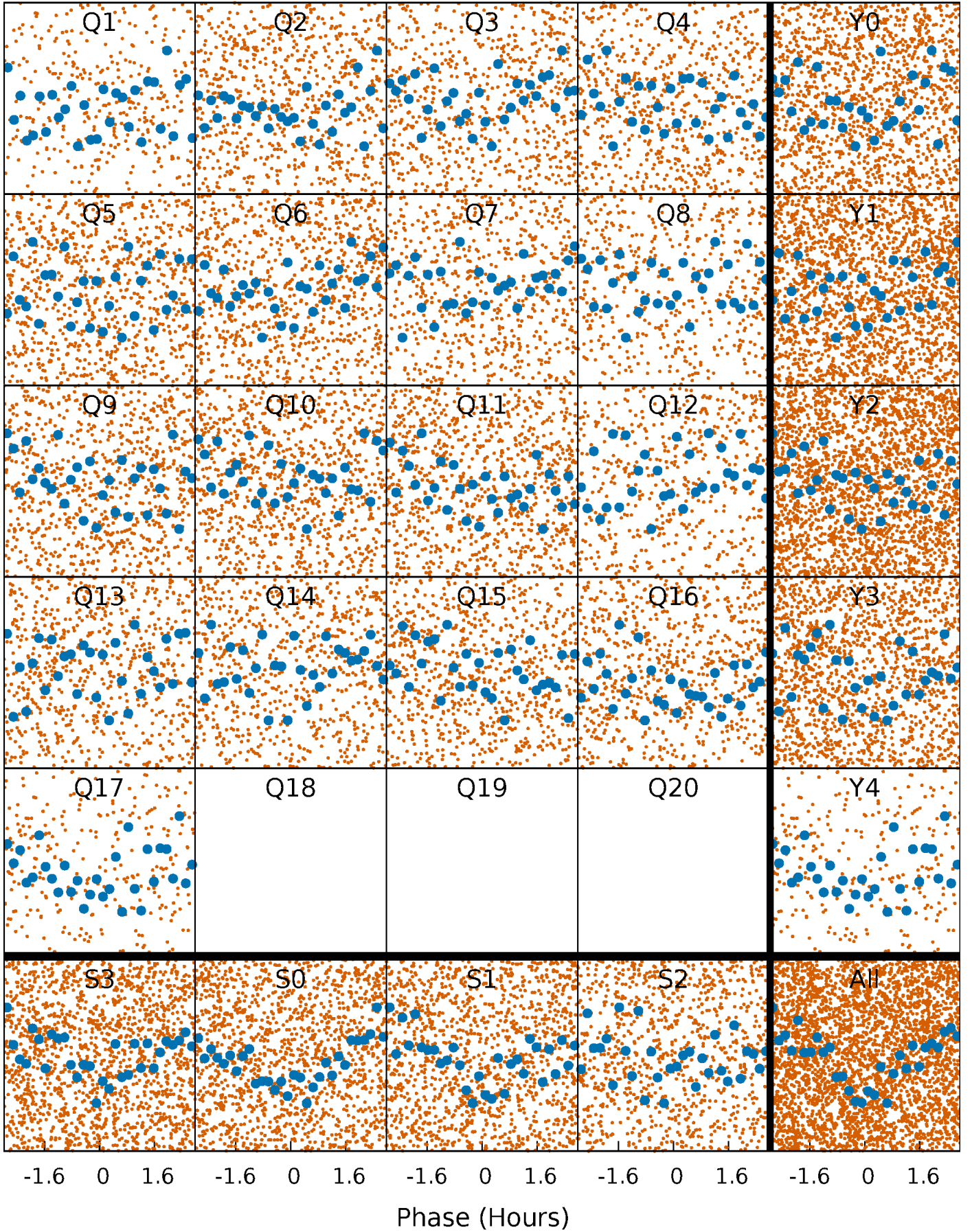


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

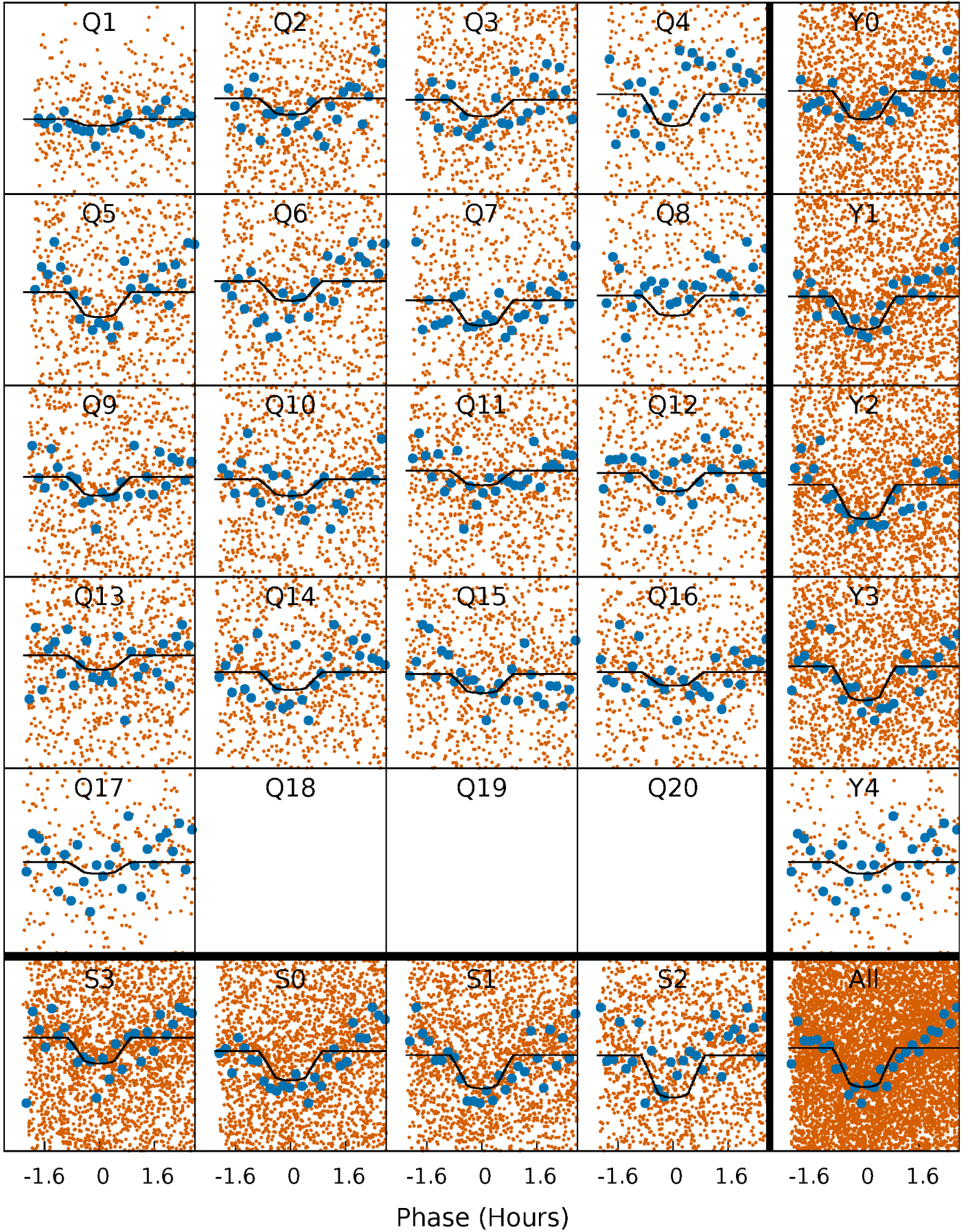
TCE 007344999-02   P= 0.706248 Days    $T_0=132.022672$  (BKJD)





# DV Quarter-Phased Transit Curves

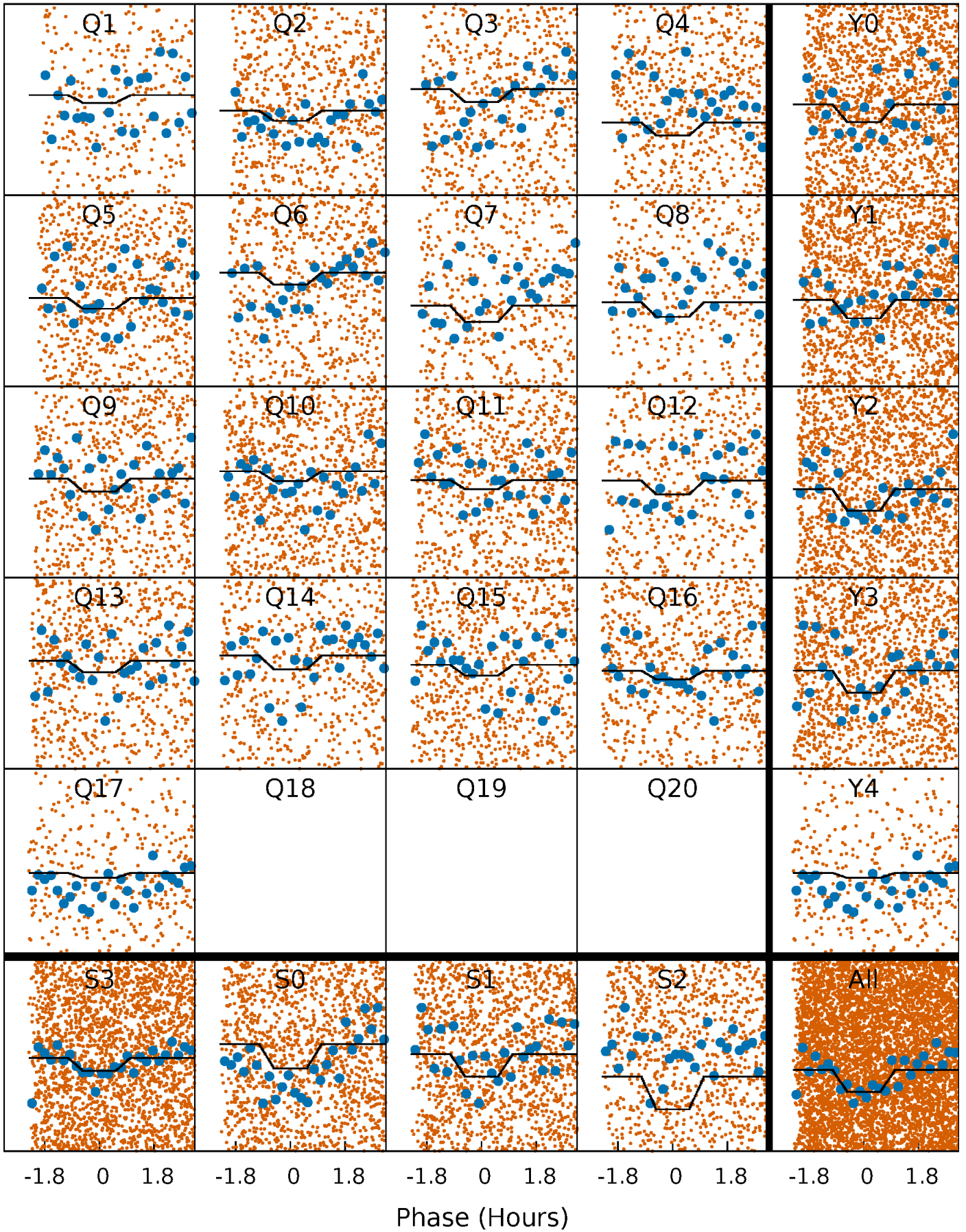
TCE 007344999-02     $P = 0.706248$  Days     $T_0 = 132.022672$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

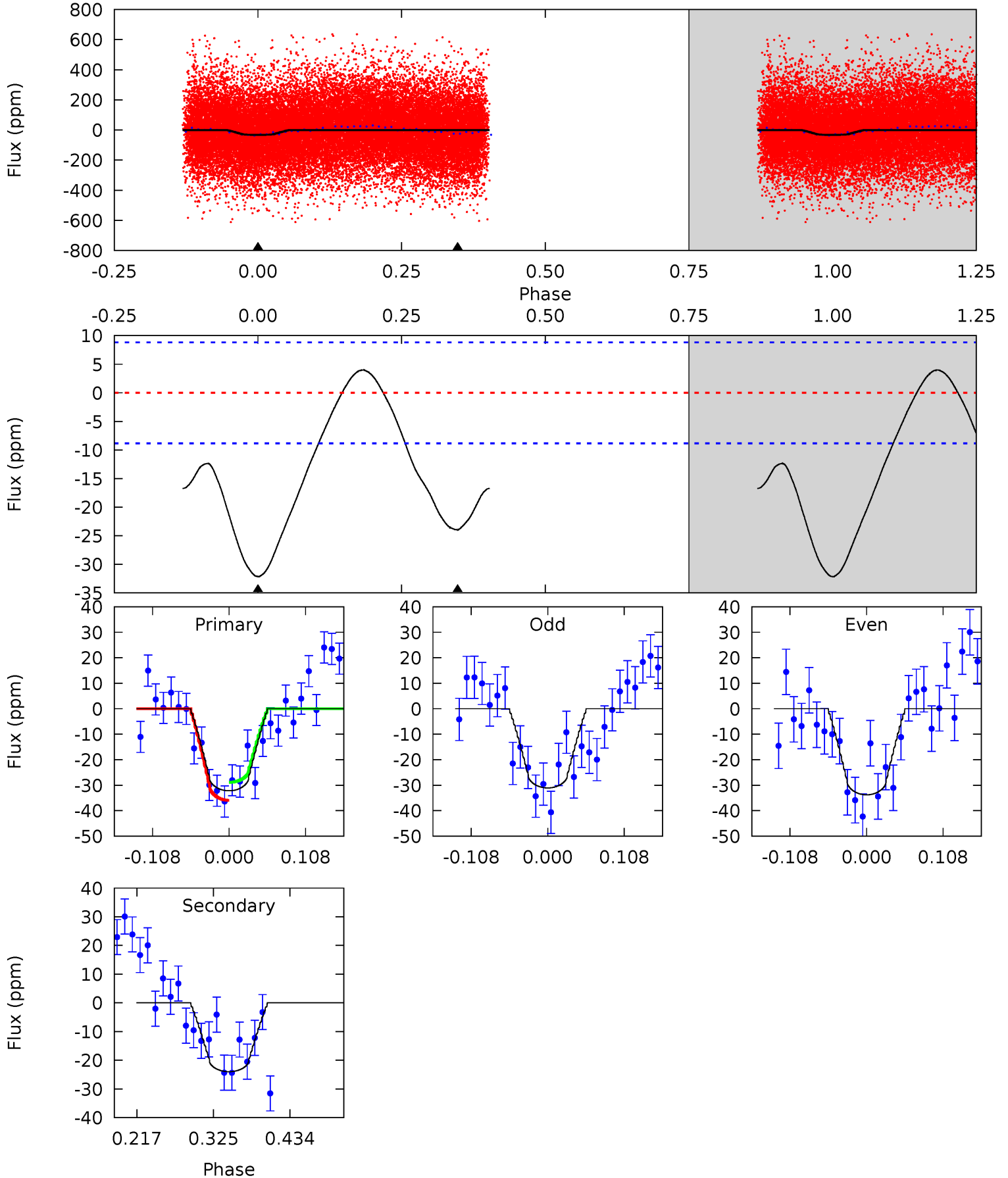
TCE 007344999-02   P= 0.706250 Days    $T_0=132.022903$  (BKJD)



# DV Model-Shift Uniqueness Test

007344999-02, P = 0.706248 Days, E = 131.316424 Days

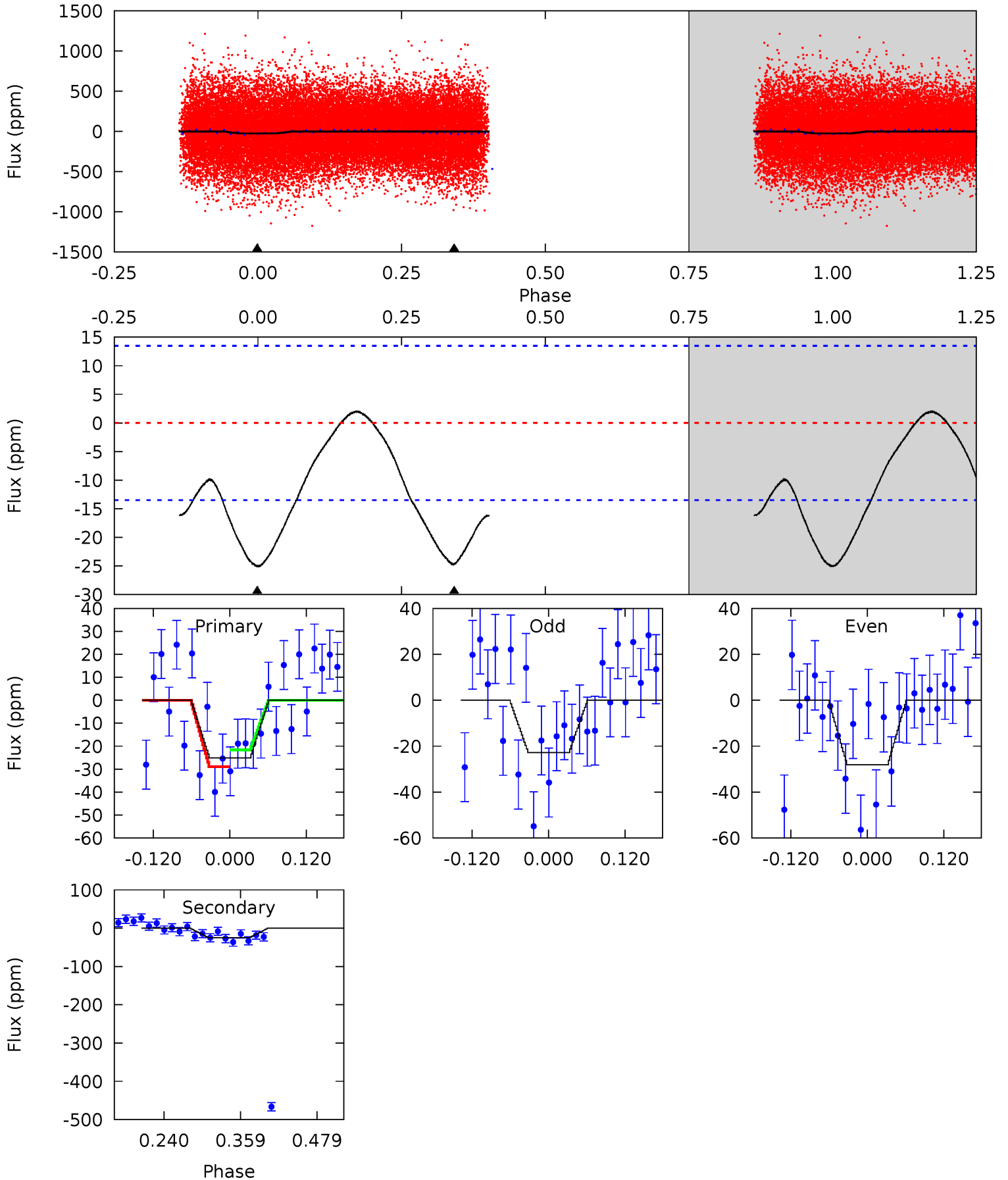
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	12.3	0	0	4.55	1.61	2.79	16.6	16.6	12.3	12.3	0.70	0.97	0.11	1.81



# Alt Model-Shift Uniqueness Test

007344999-02, P = 0.706250 Days, E = 131.316653 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
8.41	8.31	0	0	4.53	1.56	1.23	8.41	8.41	8.31	8.31	0.89	1.41	0.07	1.18



### Stellar Parameters For KIC 007344999

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7187^{+200}_{-300}$	$4.196^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.633^{+0.547}_{-0.252}$	$1.526^{+0.211}_{-0.211}$	$0.494^{+0.244}_{-0.259}$
	+3%/-4%	+2%/-5%	+286%/-500%	+33%/-15%	+14%/-14%	+49%/-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 007344999-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-24 \pm 2$	$0.91^{+0.29}_{-0.24}$	$4272^{+339}_{-228}$	$7052^{+1364}_{-980}$	$5.146^{+4.482}_{-2.193}$
Alt.	$-25 \pm 3$	$0.91^{+0.28}_{-0.26}$	$4287^{+338}_{-227}$	$7117^{+1625}_{-963}$	$5.202^{+4.993}_{-2.077}$

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

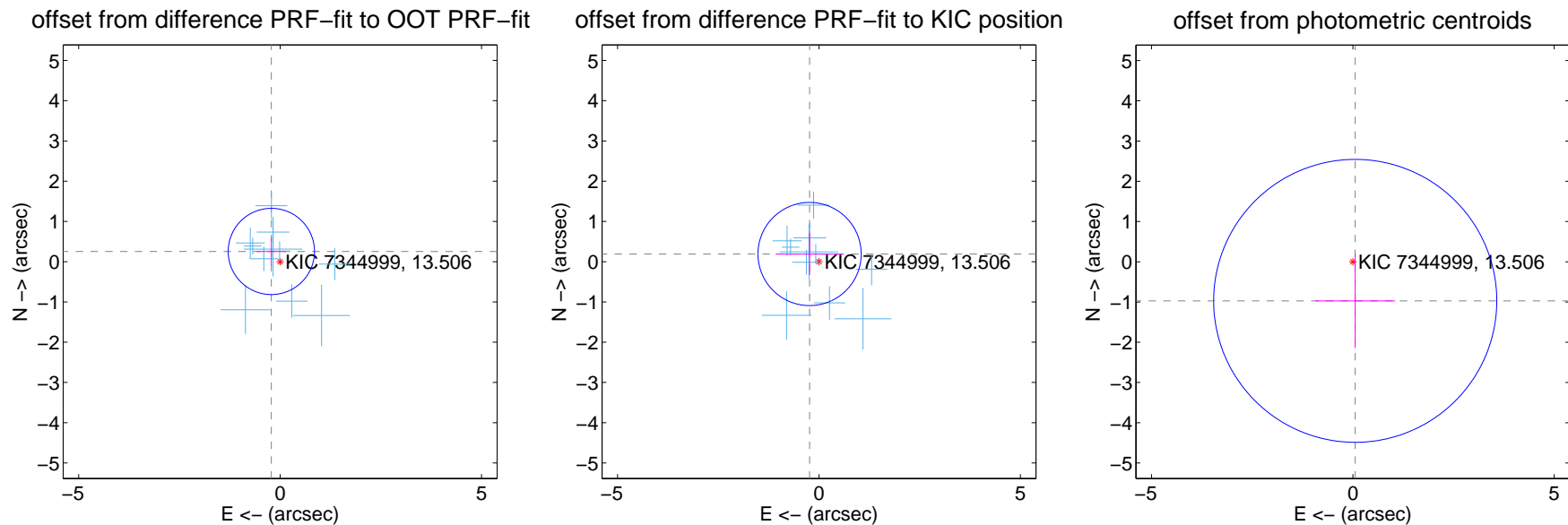
## DV Centroid Data

Supplemental centroid analysis for 007344999-02. Kepler magnitude: 13.51. Transit SNR 9.28

There are 11 quarters with good PRF difference image offsets

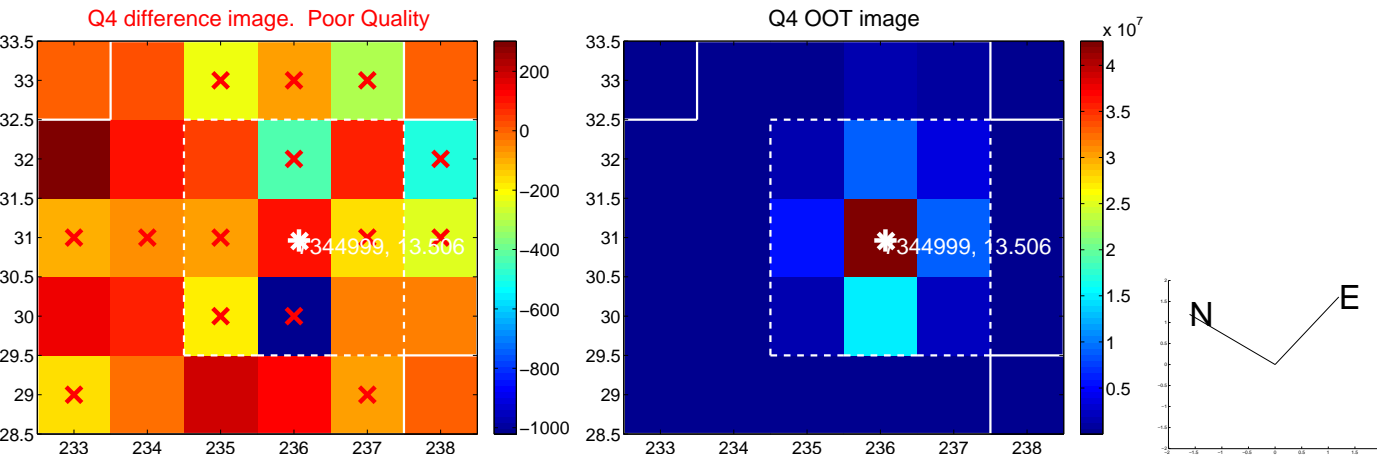
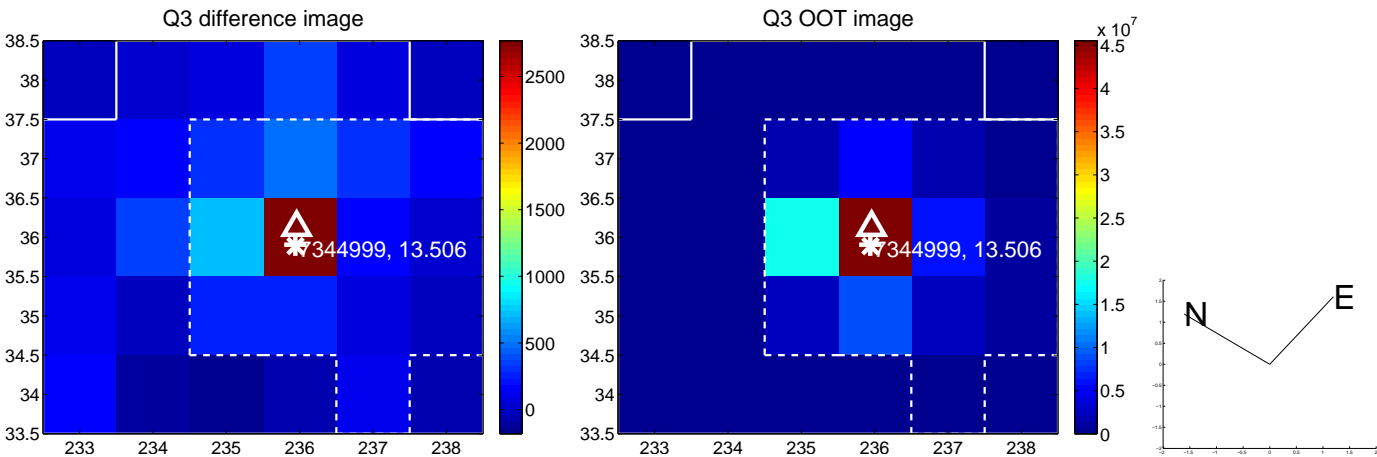
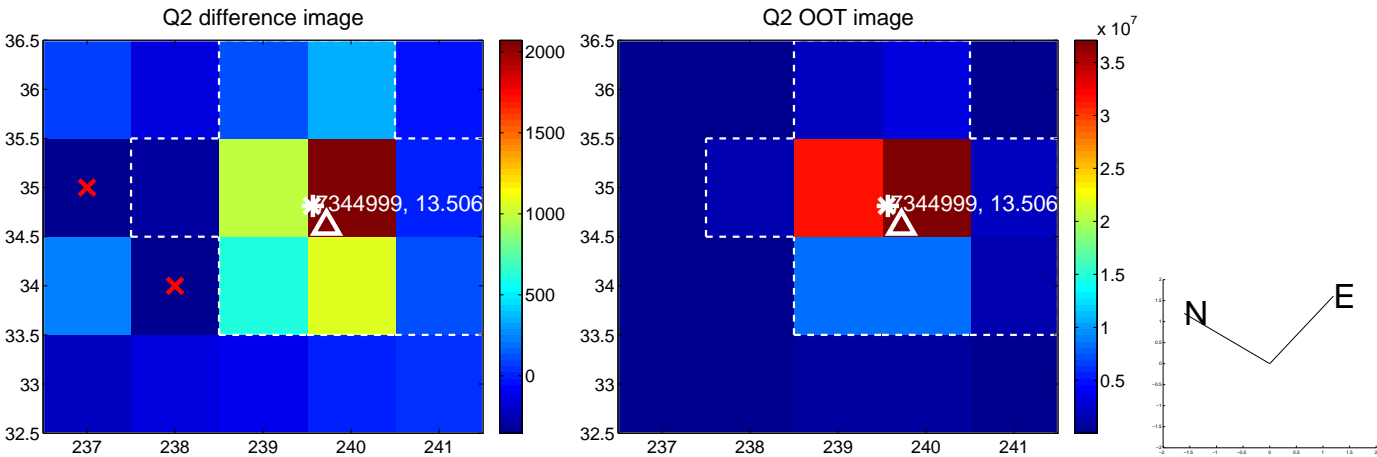
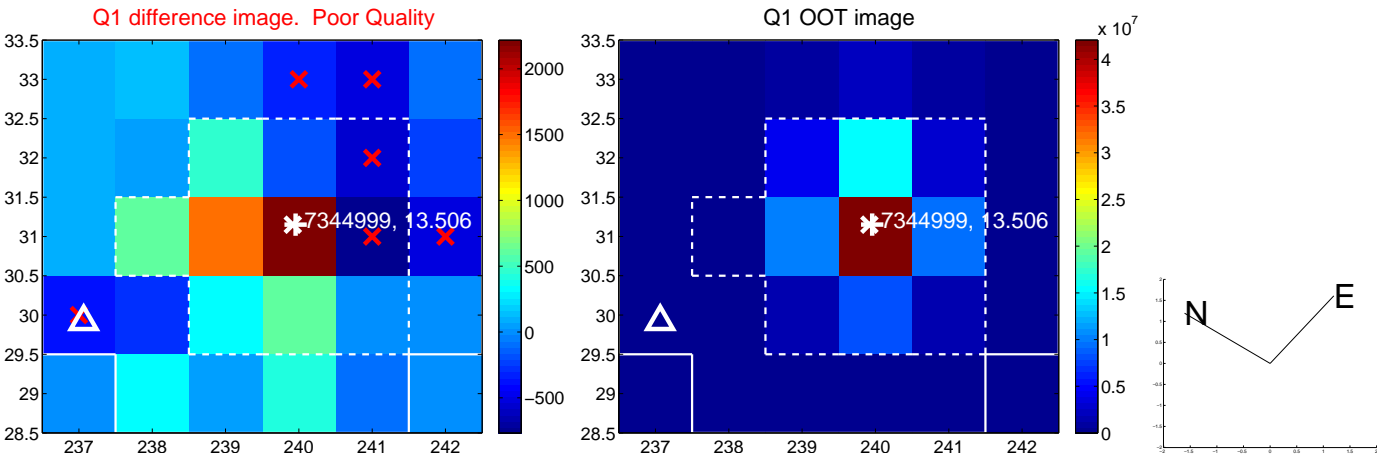
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.335 \pm 0.357$	0.94	$0.218 \pm 0.366$	$0.255 \pm 0.351$
PRF-fit source offset from KIC position	$0.302 \pm 0.427$	0.71	$0.233 \pm 0.841$	$0.191 \pm 0.527$
photometric centroid source offset	$0.97 \pm 1.17$	0.83	$-0.06 \pm 0.99$	$-0.97 \pm 1.17$



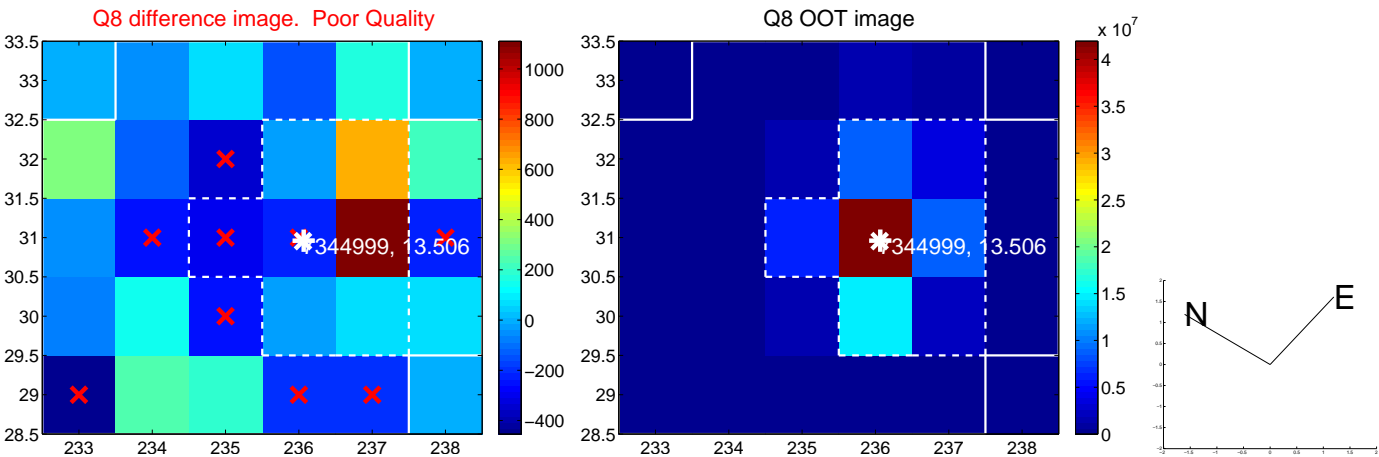
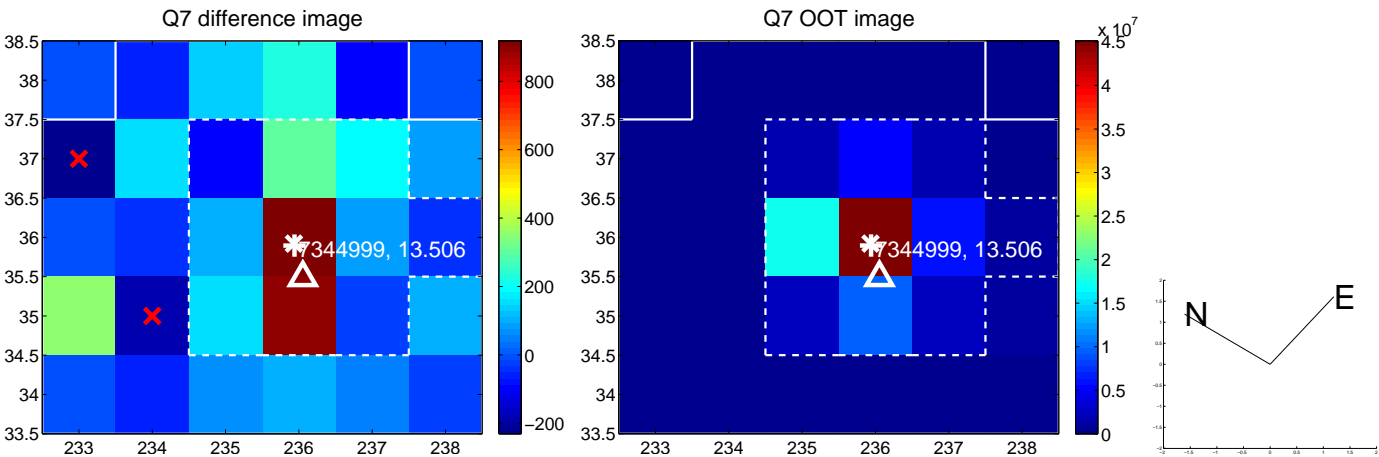
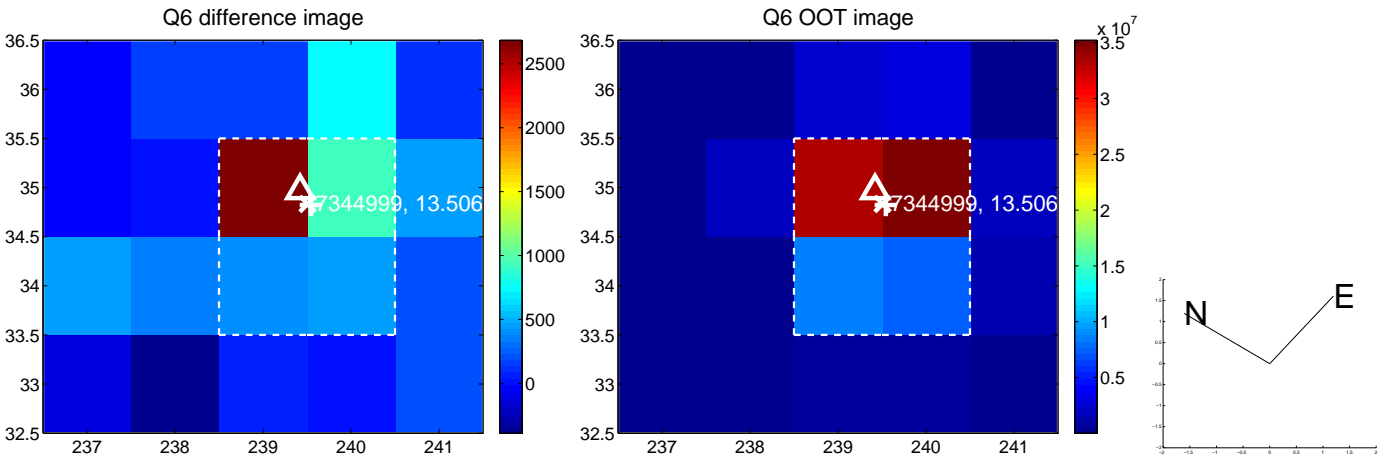
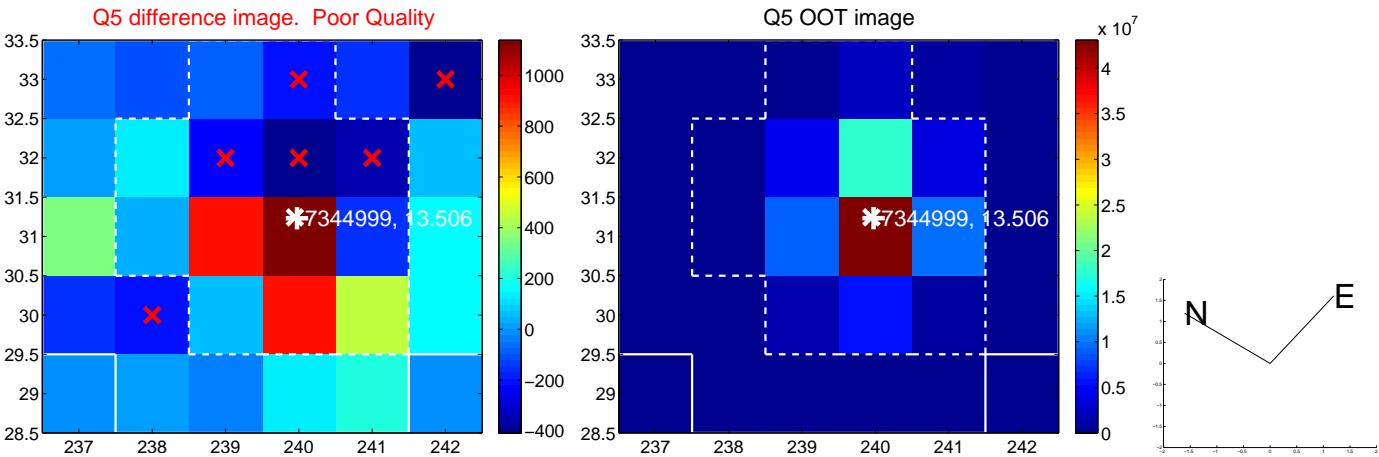
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

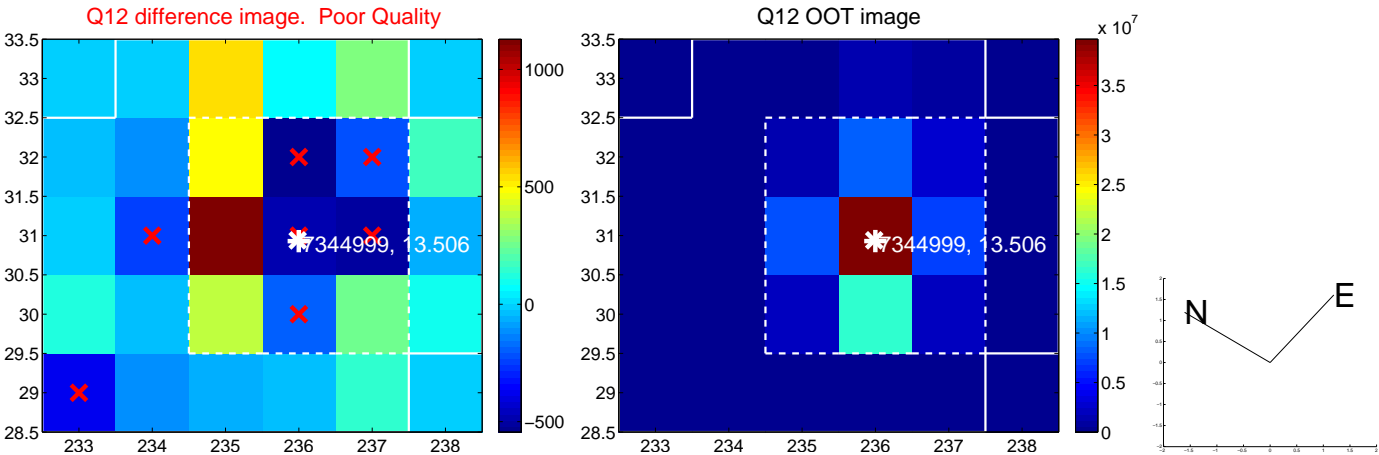
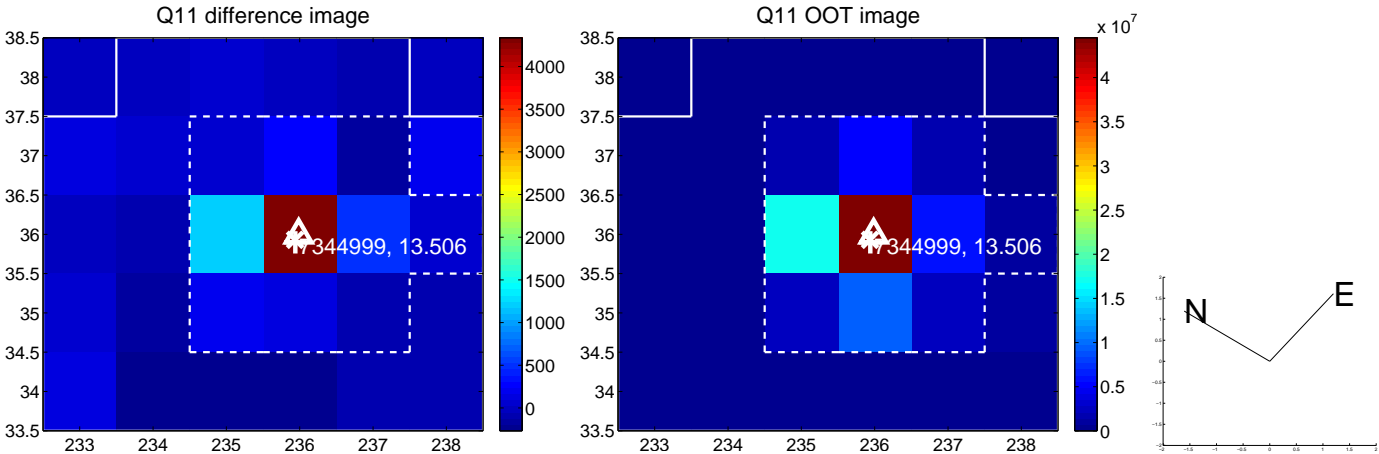
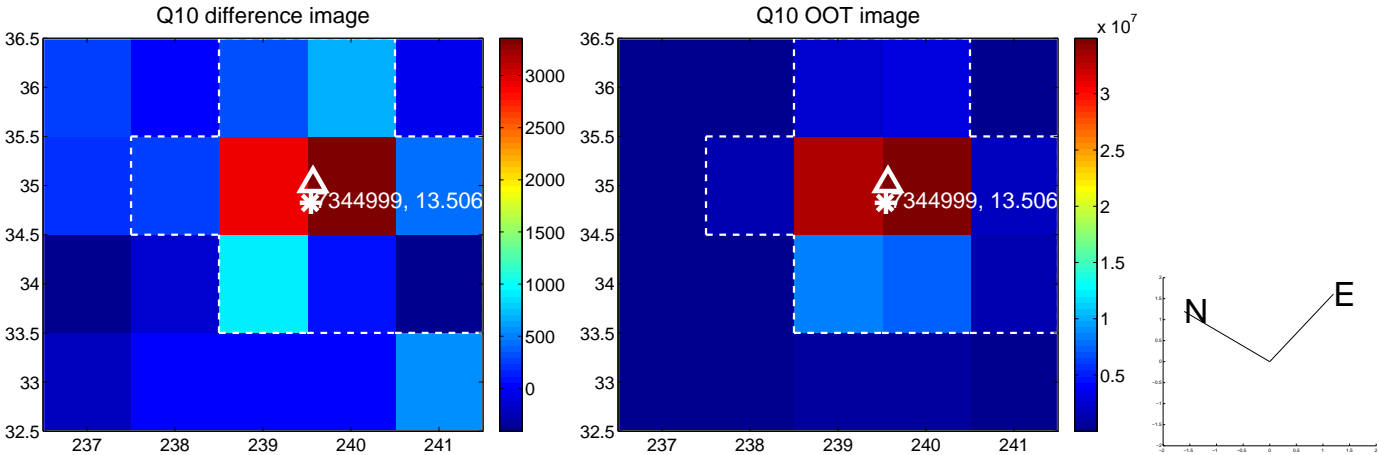
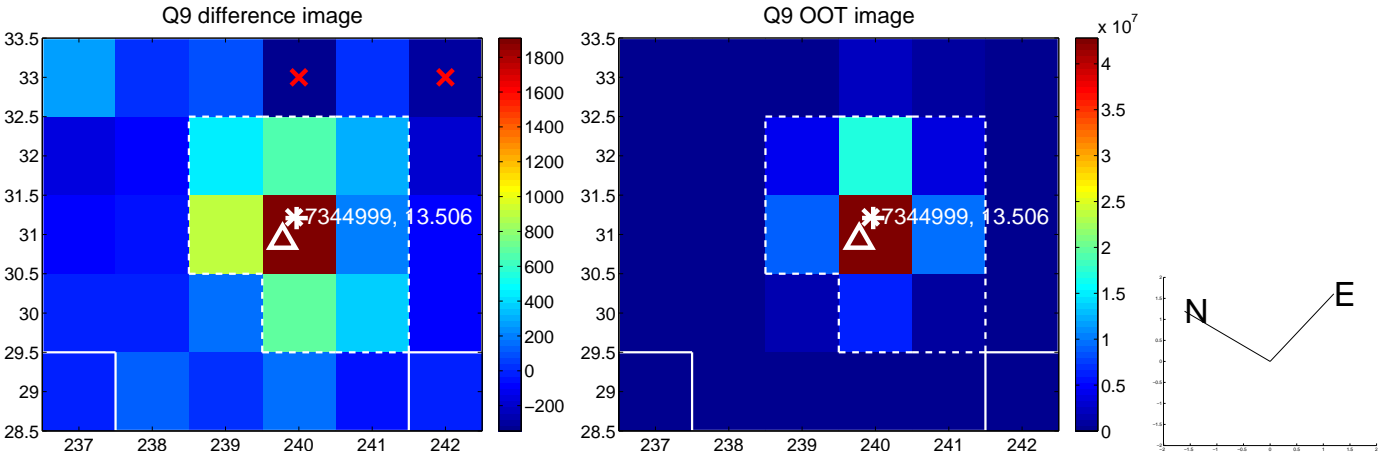




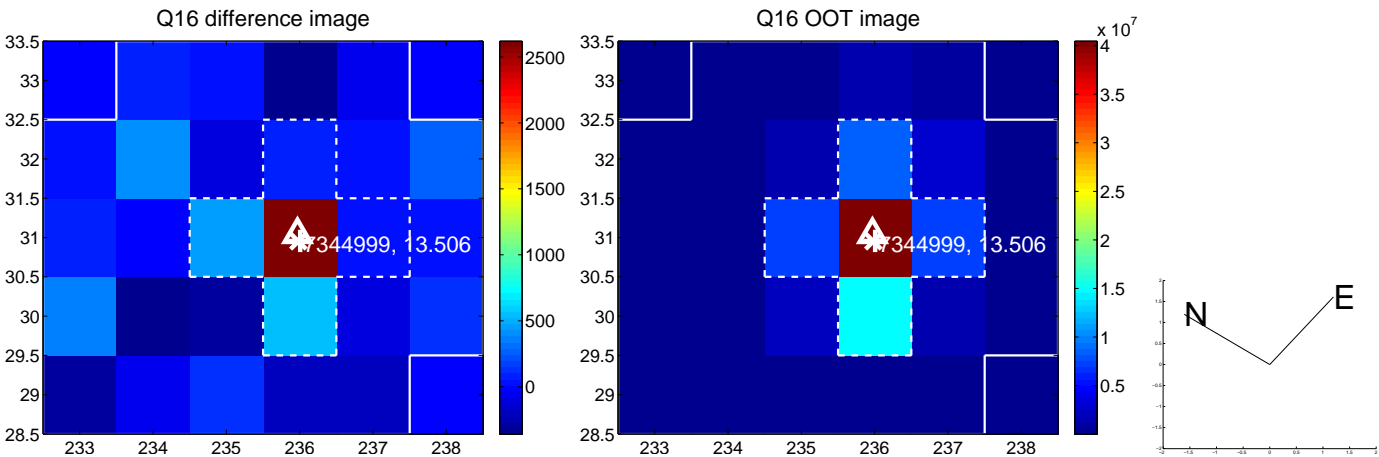
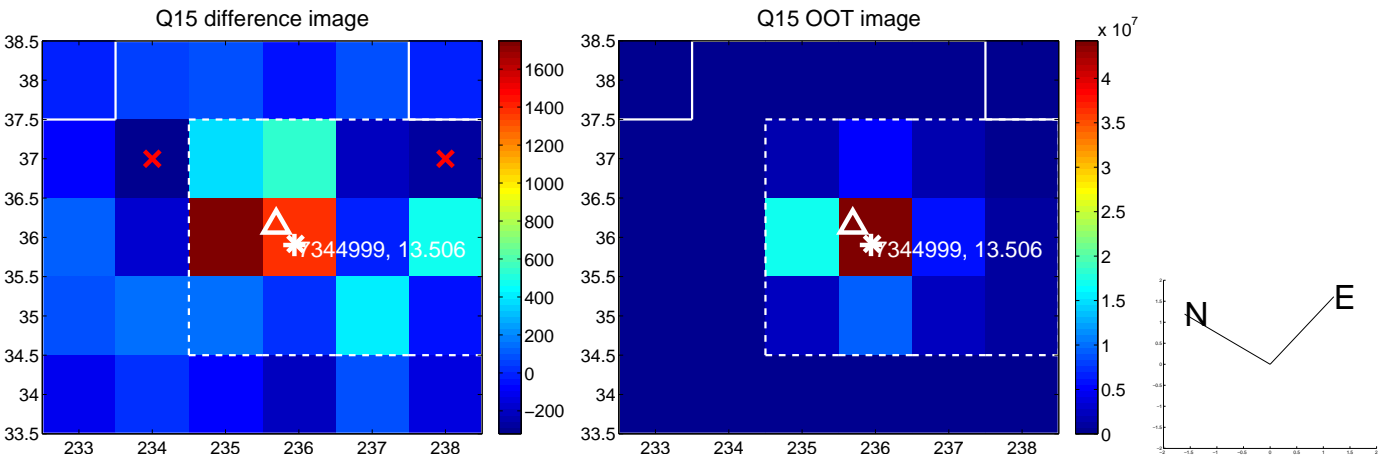
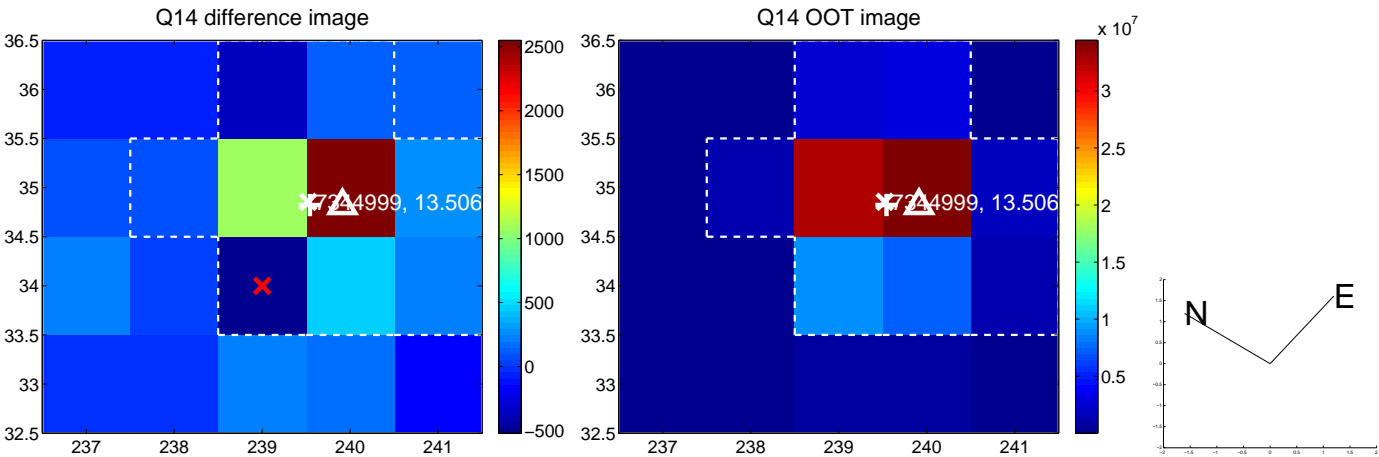
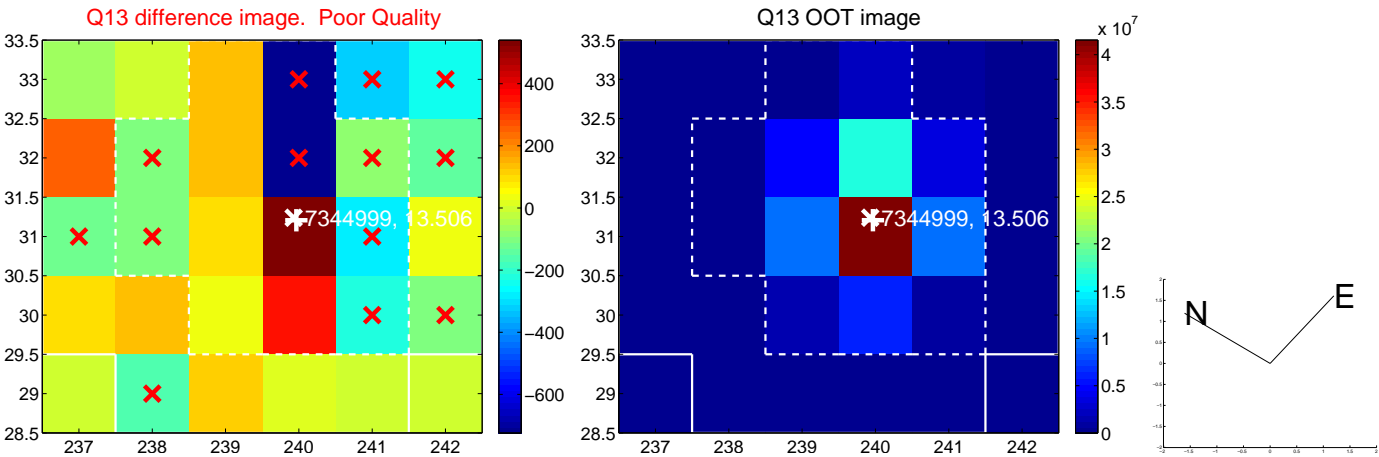
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



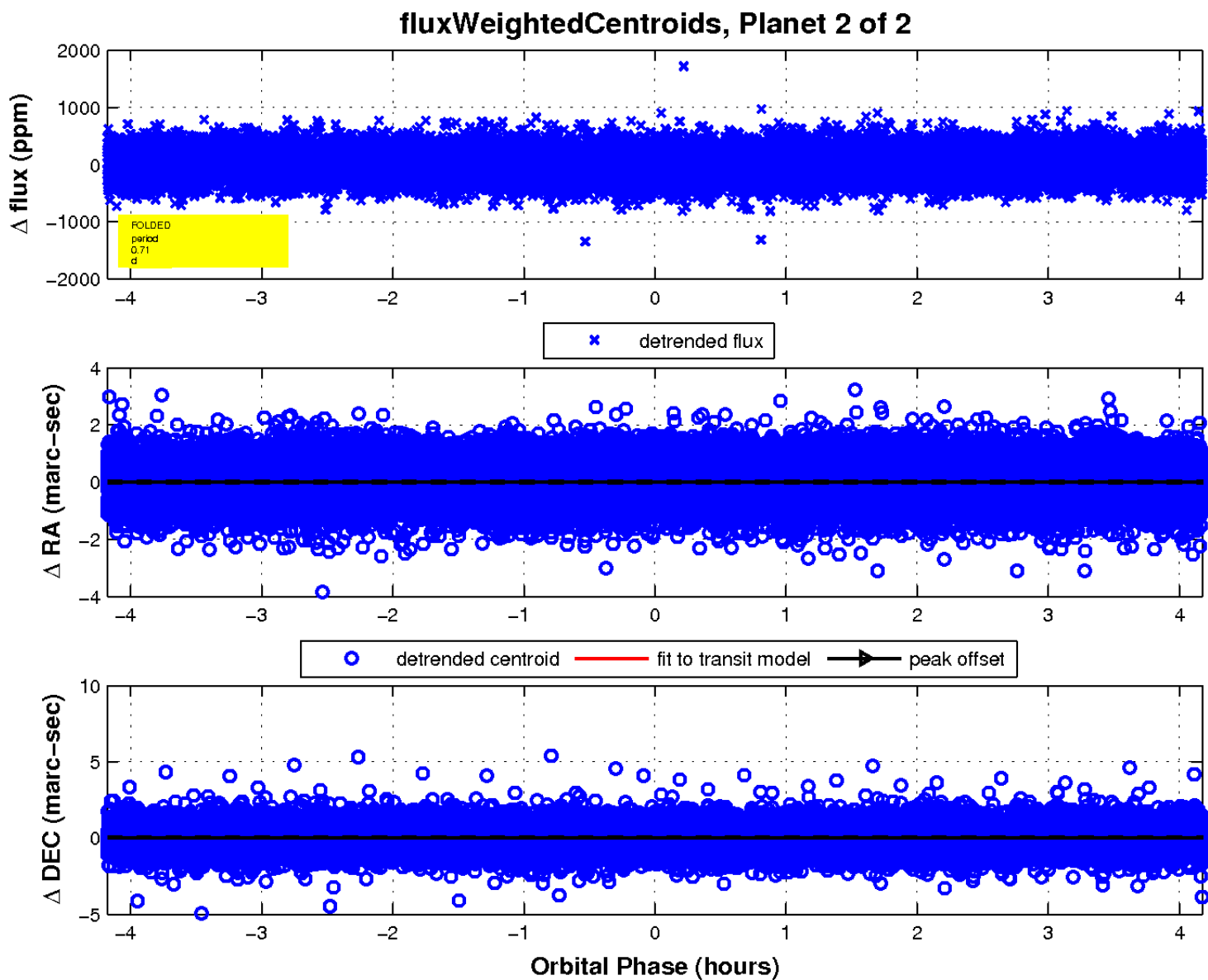
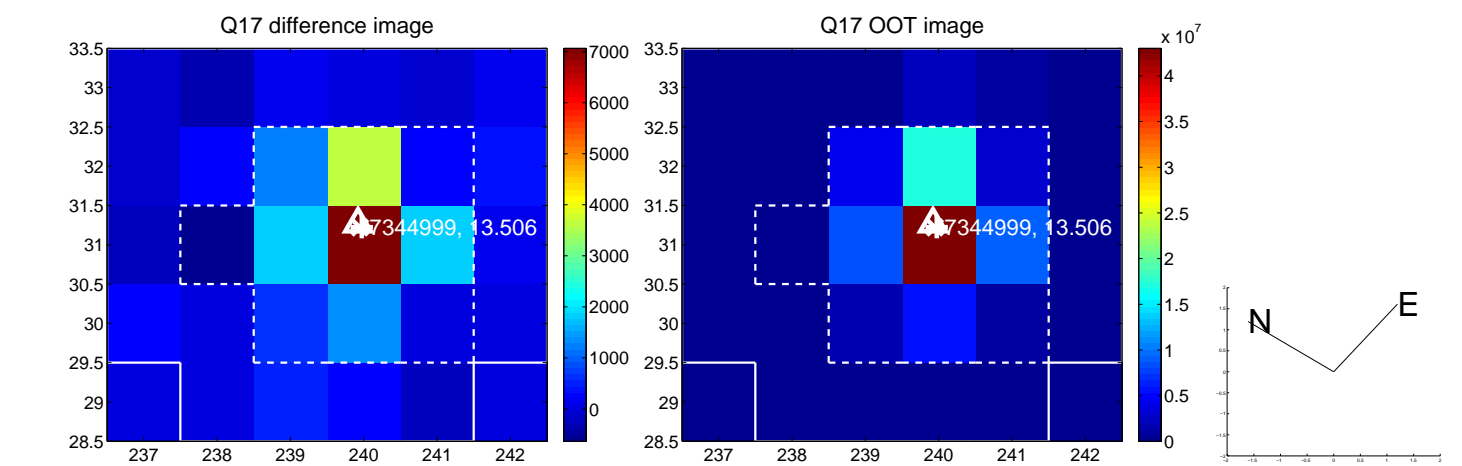
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

