

# KIC 003758403

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003758403-01	OBS	No	0.818218	131.980227	47.5	1.570	9.9	6.7	1.71	6979	1.33	16220.27
003758403-02	OBS	No	0.818239	131.644361	58.8	2.046	9.5	7.8	1.71	6979	1.52	16219.72
003758403-03	OBS	No	95.839320	153.799071	1195.2	3.894	8.1	7.5	1.71	6979	7.09	28.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003758403-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003758403-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
003758403-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

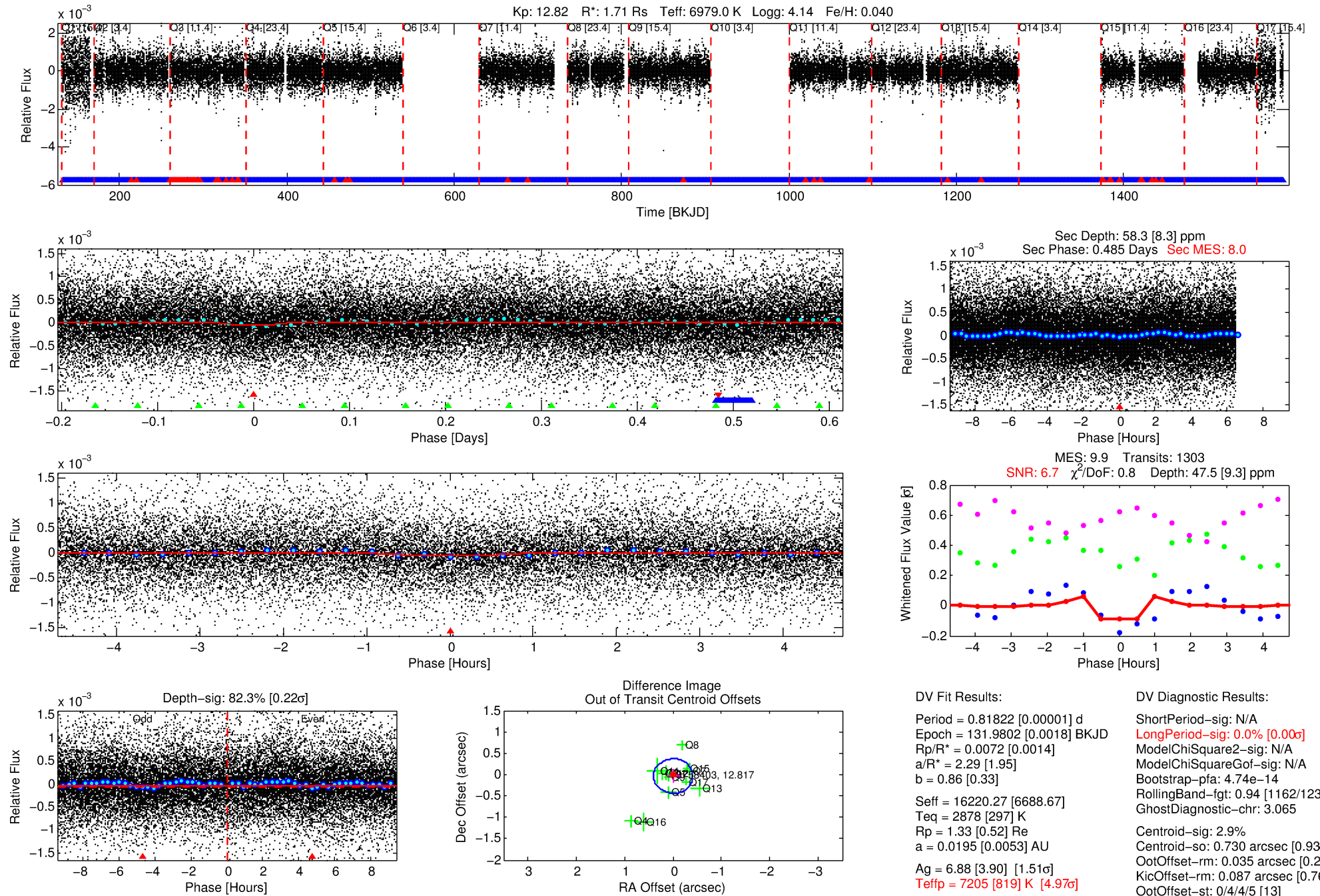
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003758403-01

No Significant Match Found

# DV One-Page Summary

KIC: 3758403 Candidate: 1 of 3 Period: 0.818 d



## DV Fit Results:

Period = 0.81822 [0.00001] d  
Epoch = 131.9802 [0.0018] BKJD  
Rp/R\* = 0.0072 [0.0014]  
a/R\* = 2.29 [1.95]  
b = 0.86 [0.33]  
Seff = 16220.27 [6688.67]  
Teff = 2878 [297] K  
Rp = 1.33 [0.52] Re  
a = 0.0195 [0.0053] AU  
Ag = 6.88 [3.90] [1.51 $\sigma$ ]  
**Teffp = 7205 [819] K [4.97 $\sigma$ ]**

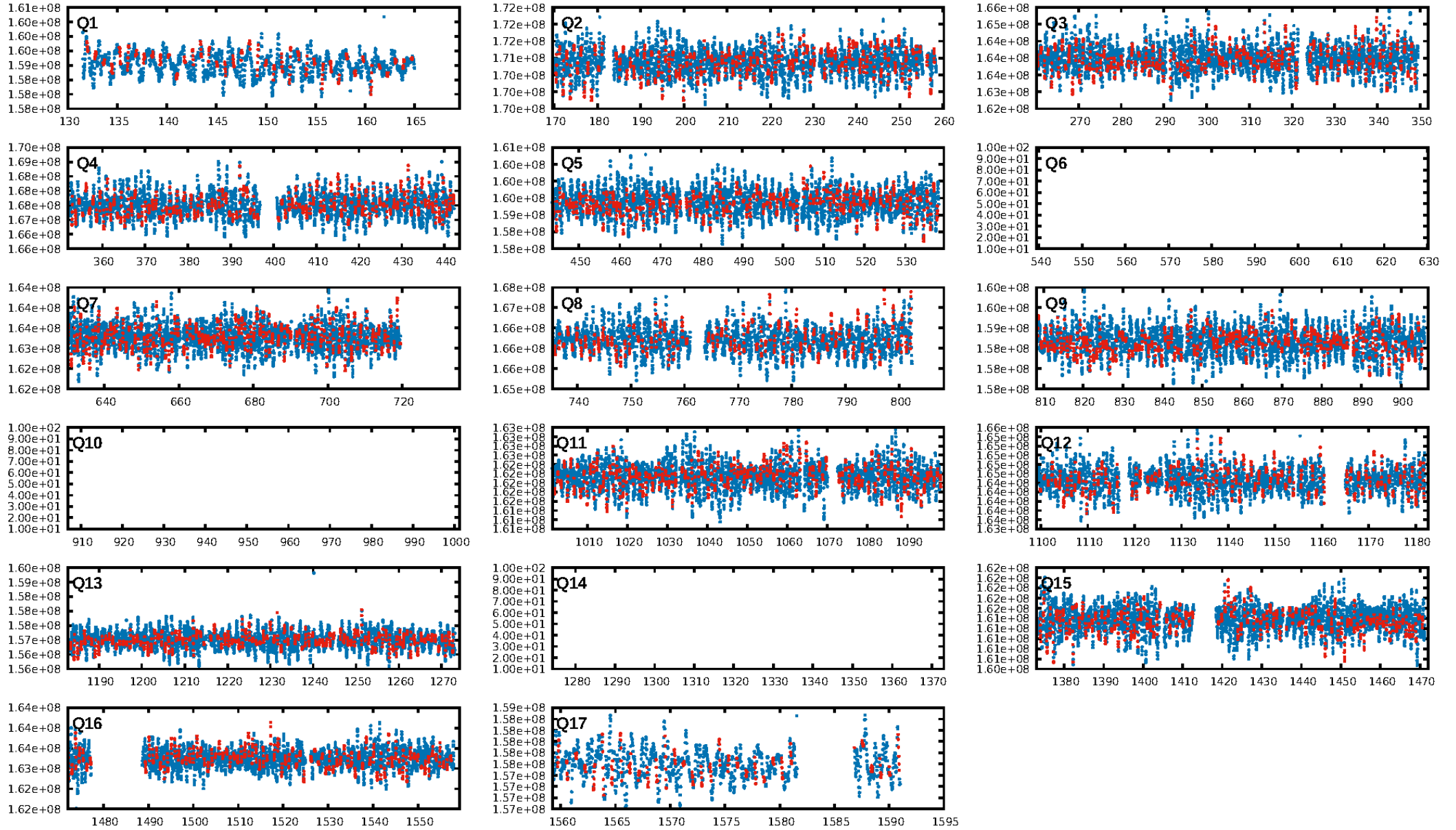
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
**LongPeriod-sig: 0.0% [0.00 $\sigma$ ]**  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.74e-14  
RollingBand-fgt: 0.94 [1162/1230]  
GhostDiagnostic-chr: 3.065  
Centroid-sig: 2.9%  
Centroid-so: 0.730 arcsec [0.93 $\sigma$ ]  
OotOffset-rm: 0.035 arcsec [0.26 $\sigma$ ]  
KicOffset-rm: 0.087 arcsec [0.76 $\sigma$ ]  
OotOffset-st: 0/4/4/5 [13]  
KicOffset-st: 0/4/4/5 [13]  
DiffImageQuality-fgm: 0.62 [8/13]  
DiffImageOverlap-fno: 1.00 [14/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:01:18 Z

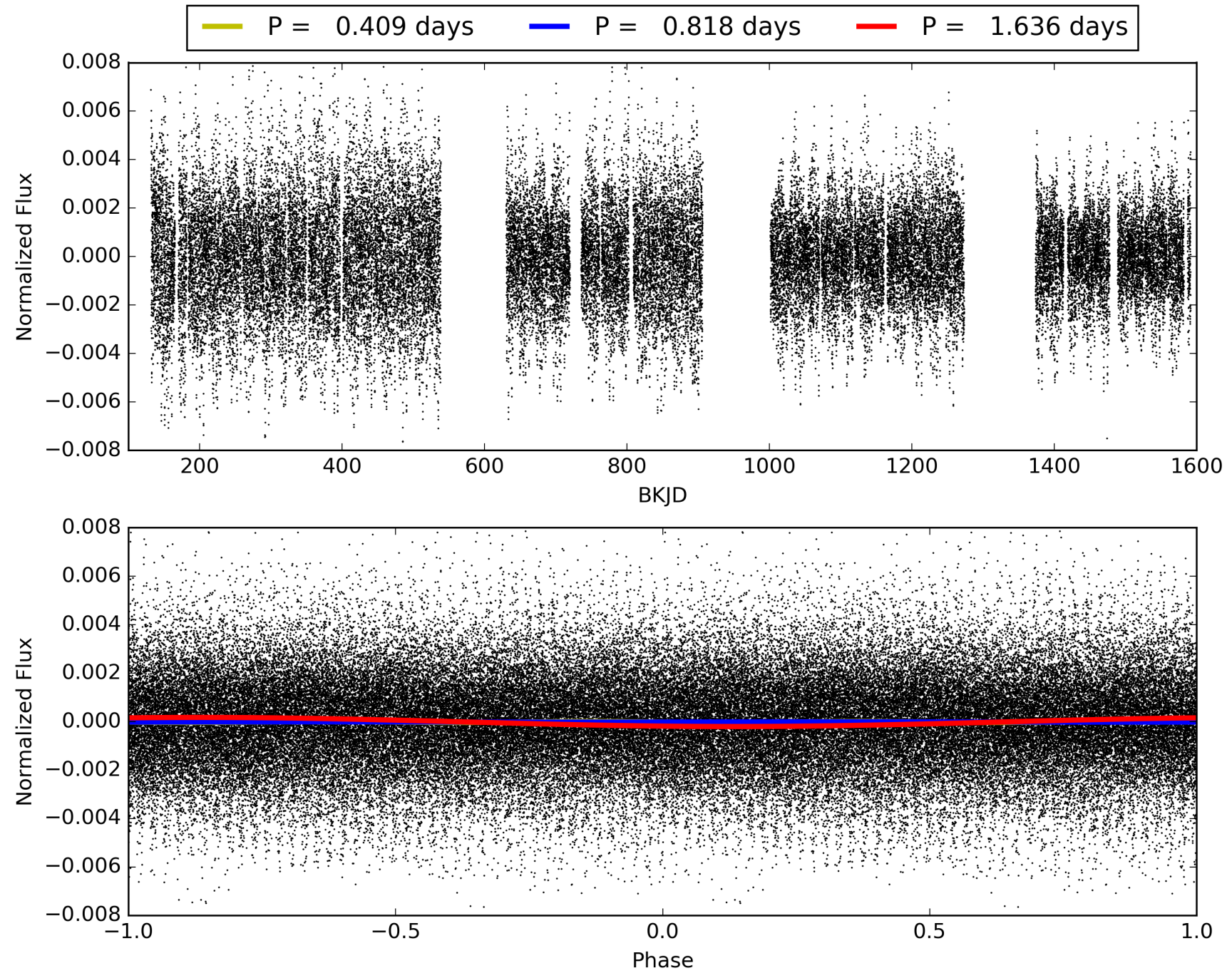
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003758403-01, PDC Light Curves





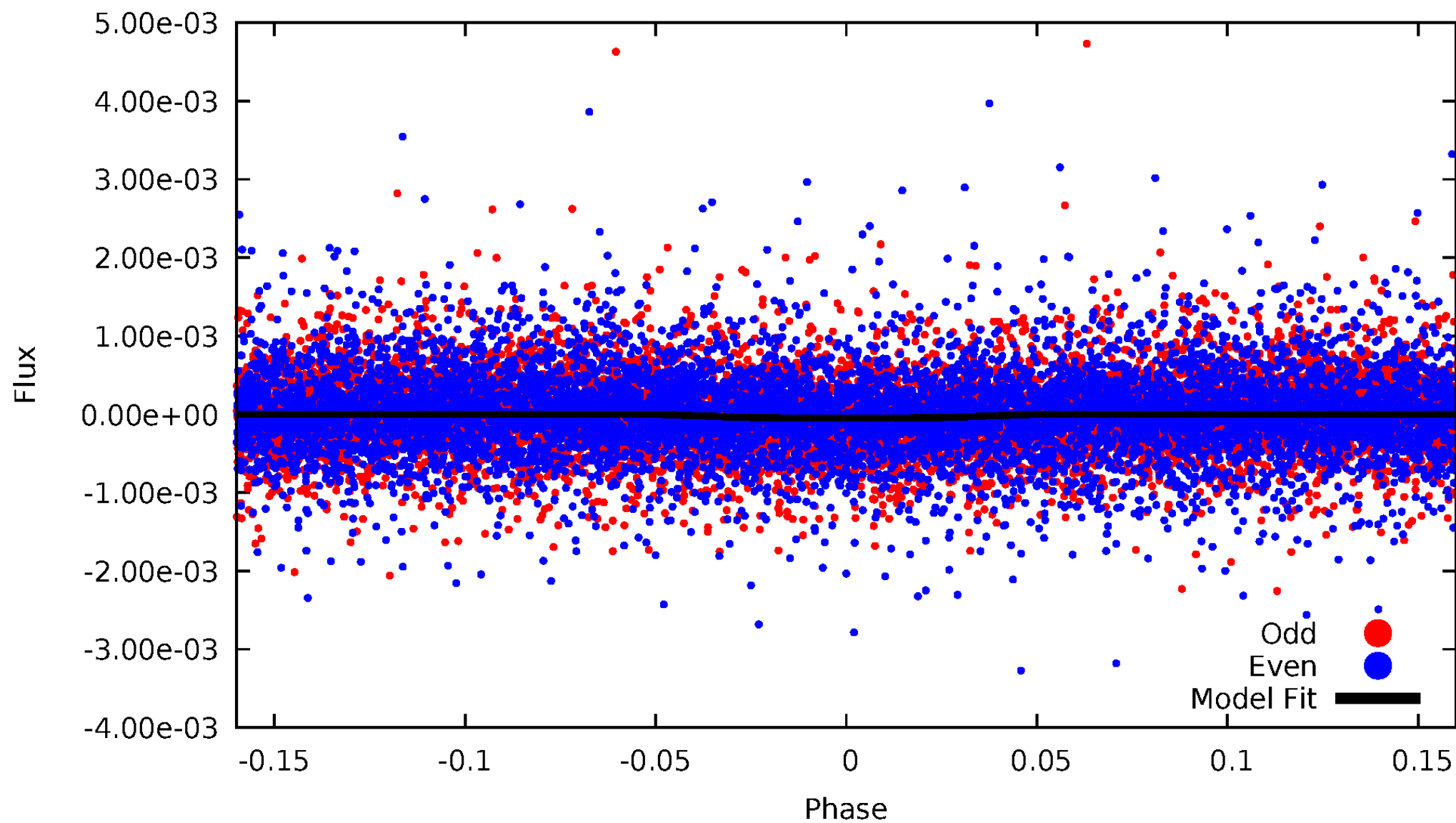
# TCE 003758403-01





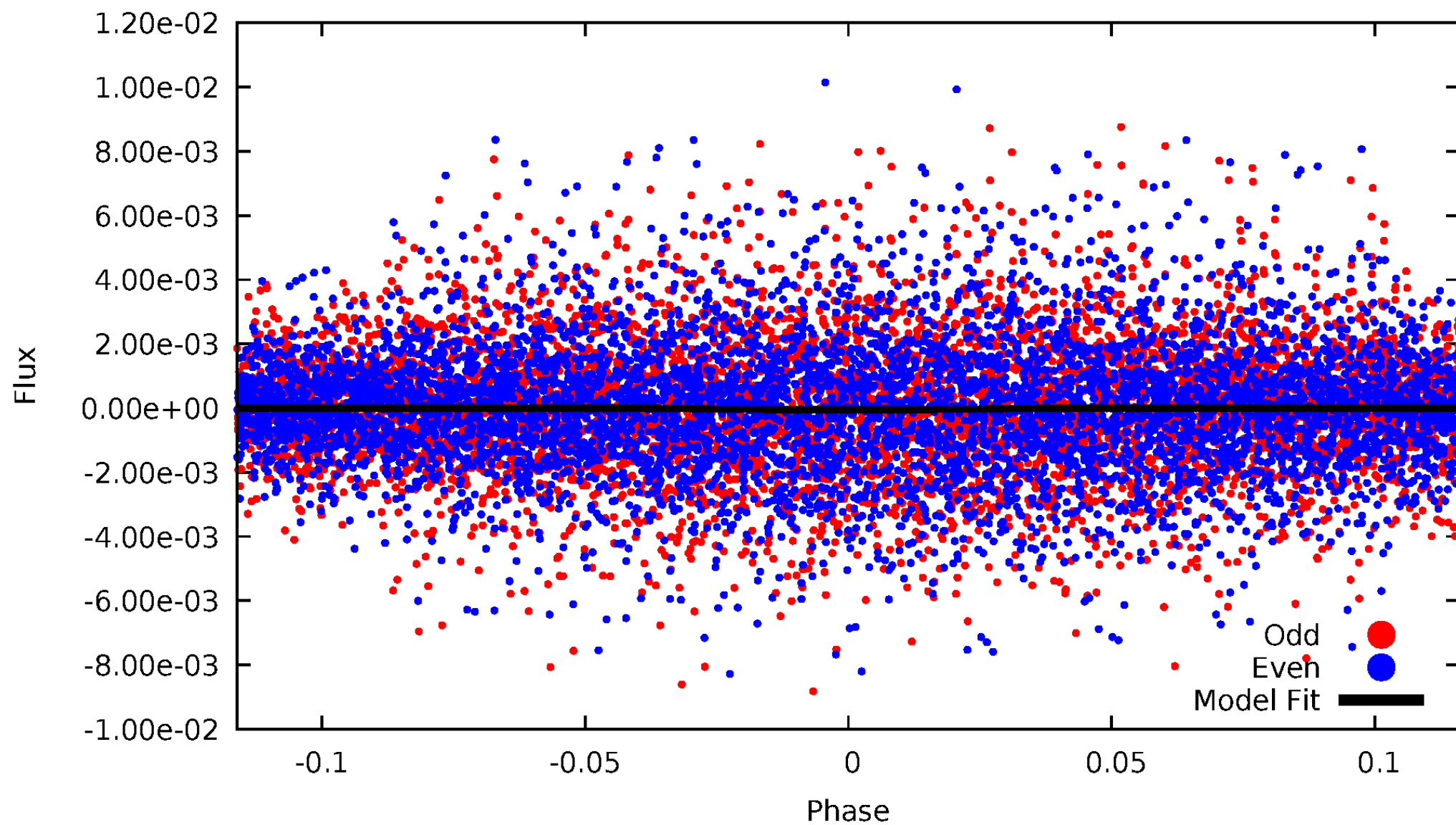
# DV Odd/Even

TCE 003758403-01



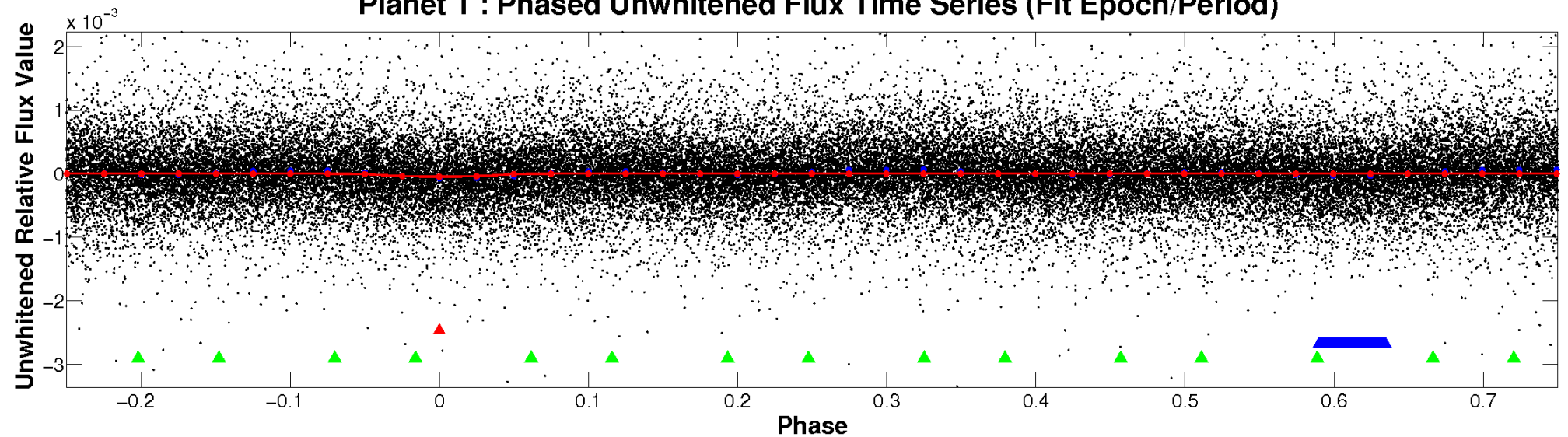
# ALT Odd/Even

TCE 003758403-01

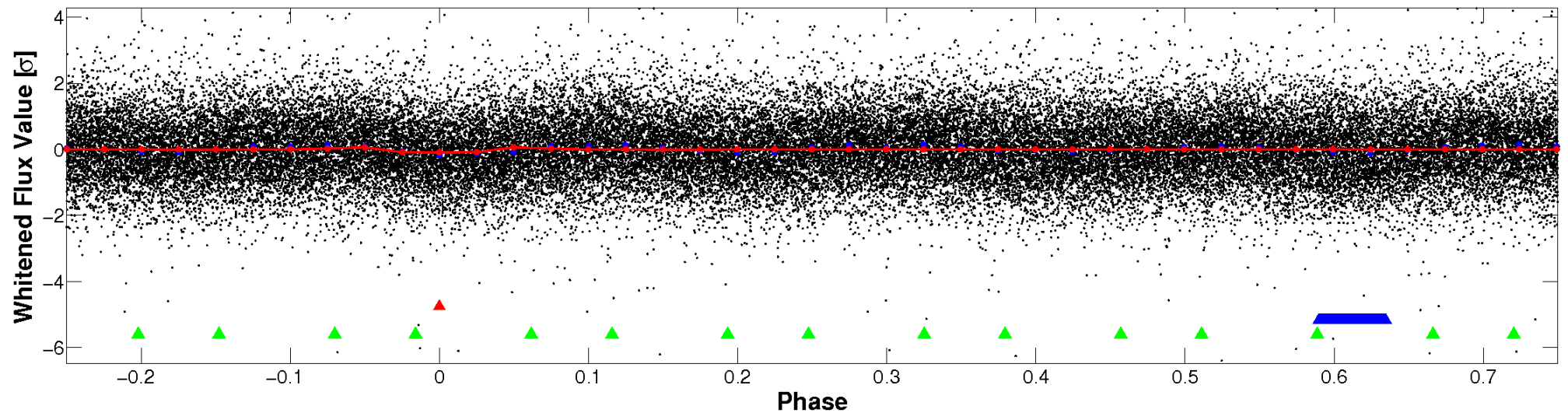


# Non-Whitened Vs. Whitened Light Curve

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



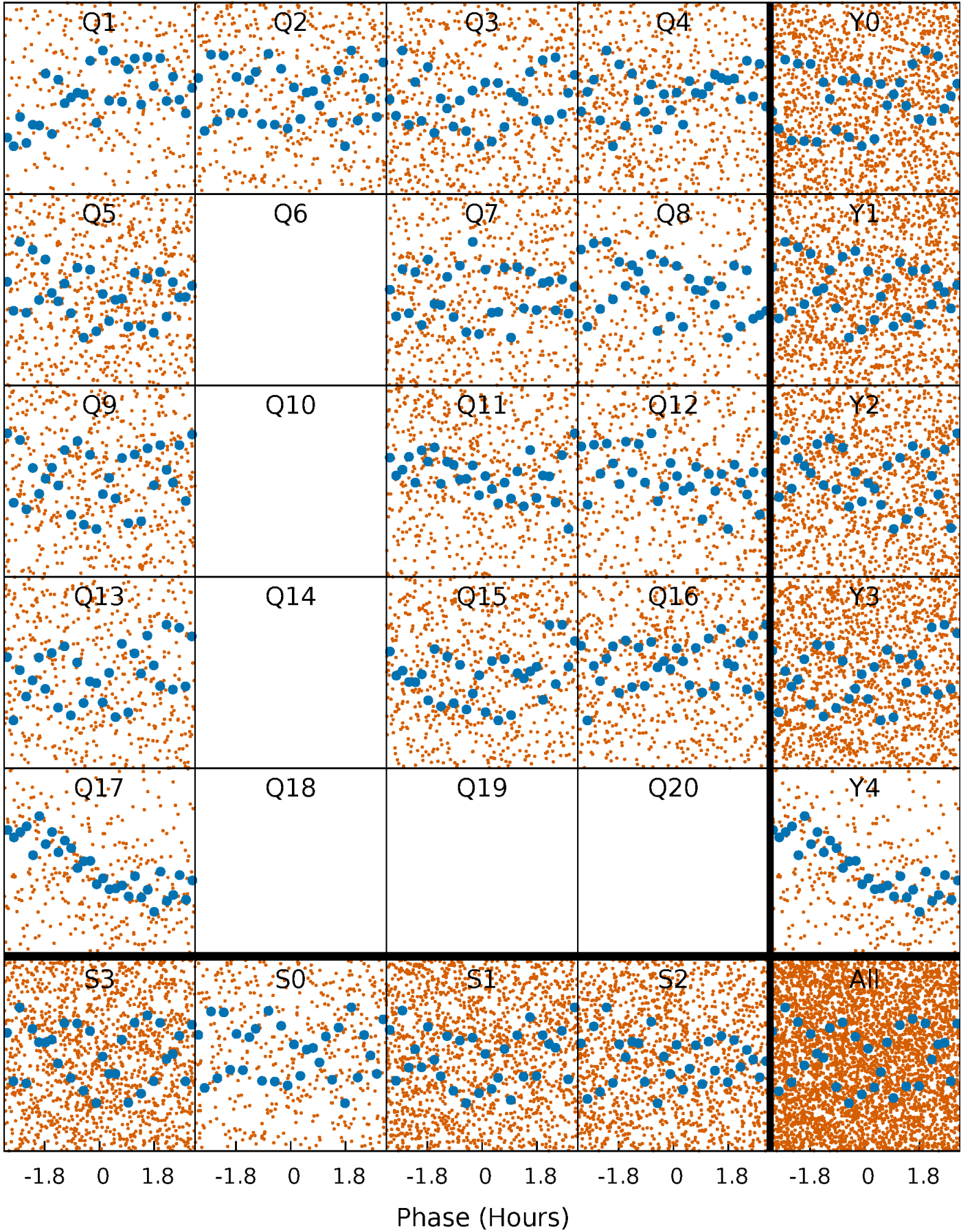
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





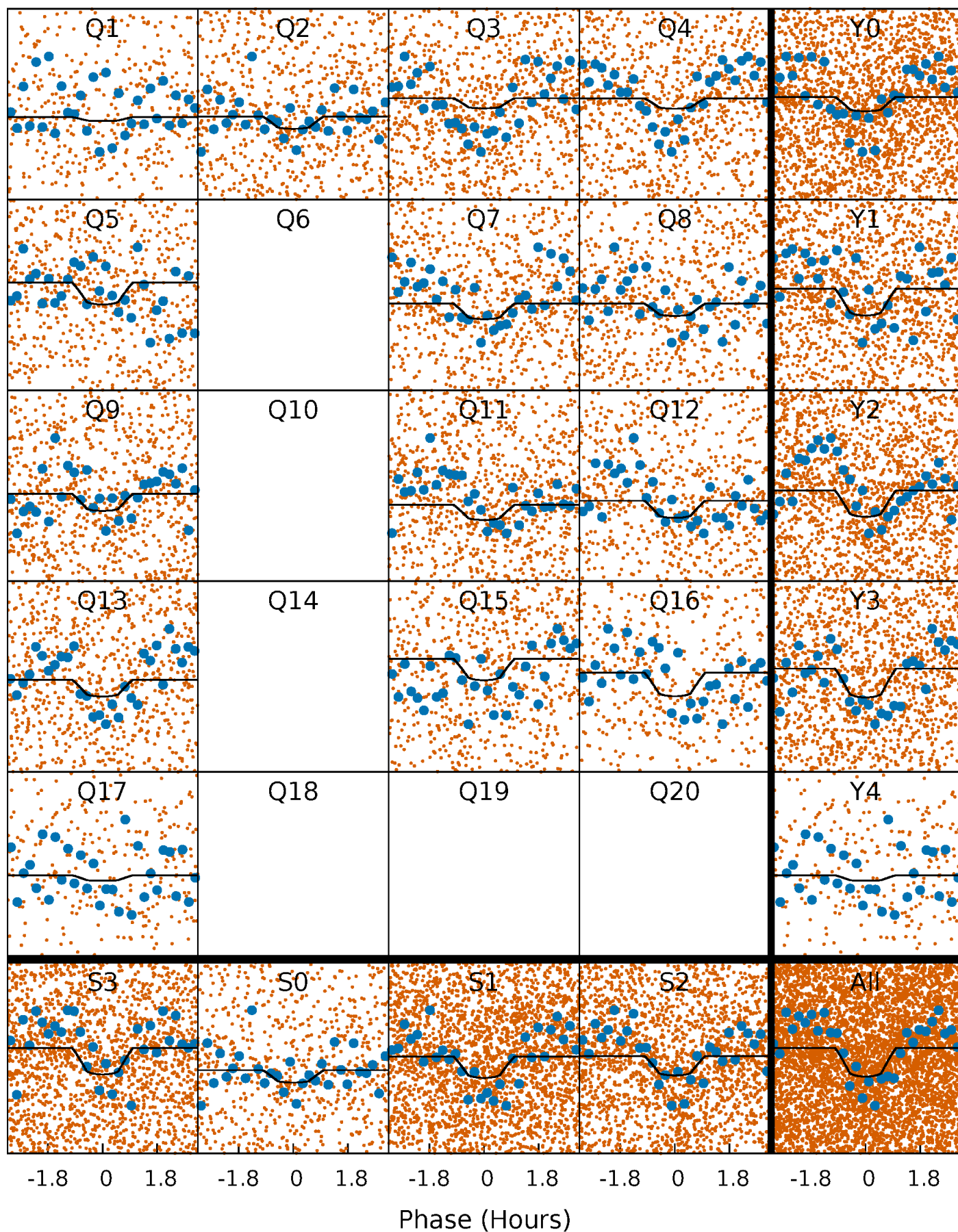
# PDC Quarter-Phased Transit Curves

TCE 003758403-01   P= 0.818218 Days    $T_0=131.980227$  (BKJD)



# DV Quarter-Phased Transit Curves

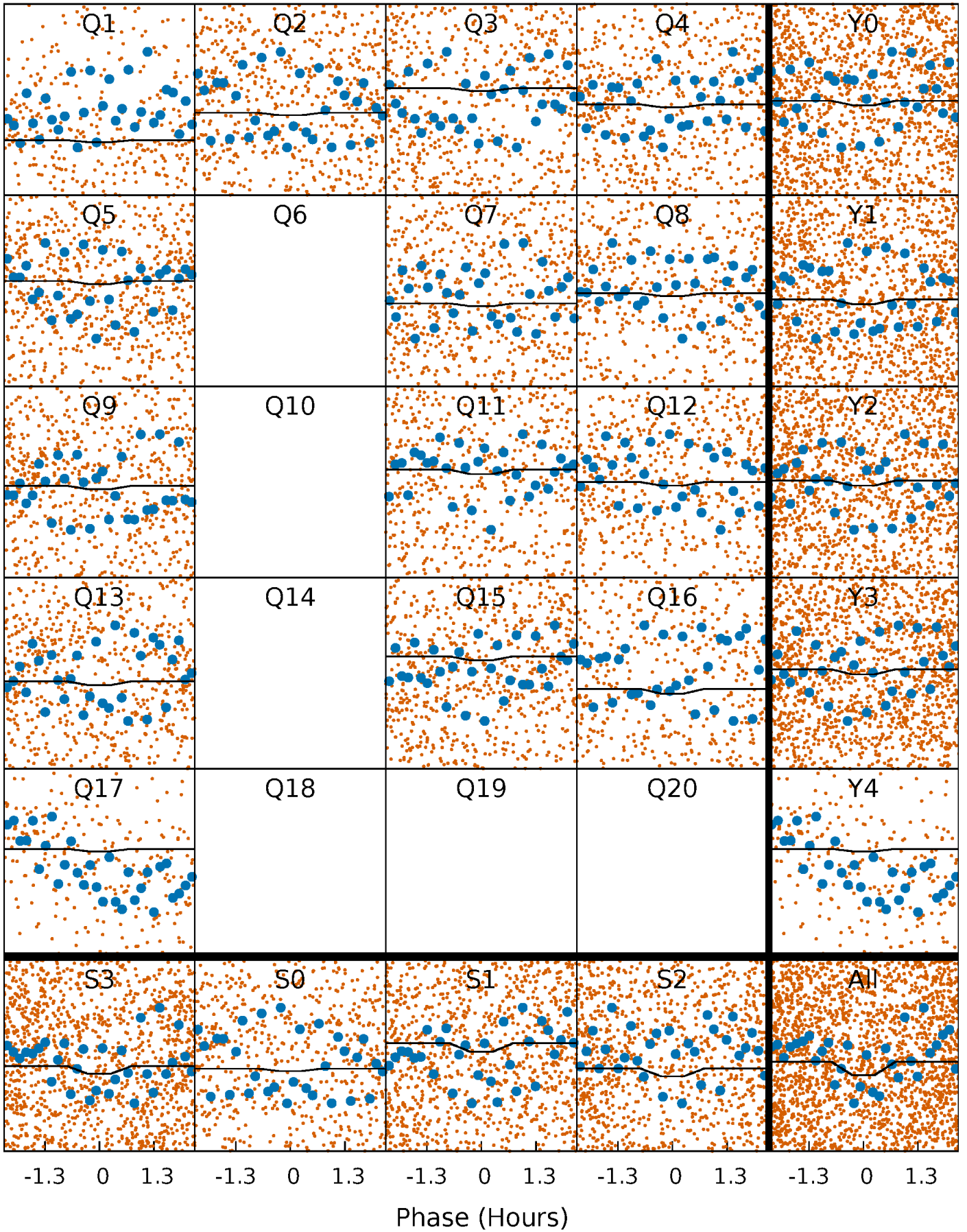
TCE 003758403-01   P= 0.818218 Days    $T_0=131.980227$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 003758403-01   P= 0.818231 Days    $T_0=131.976447$  (BKJD)

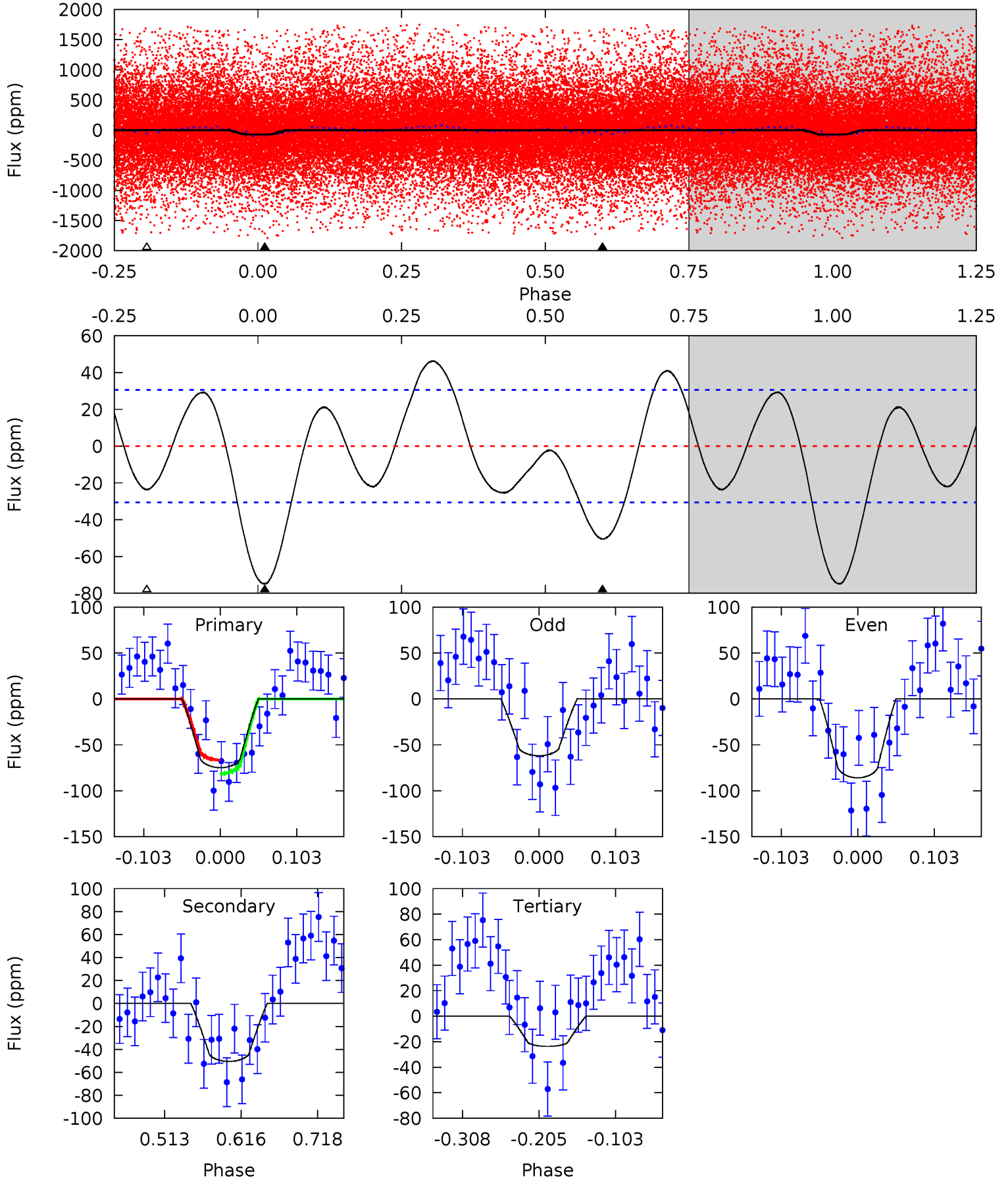




# DV Model-Shift Uniqueness Test

003758403-01, P = 0.818218 Days, E = 131.162009 Days

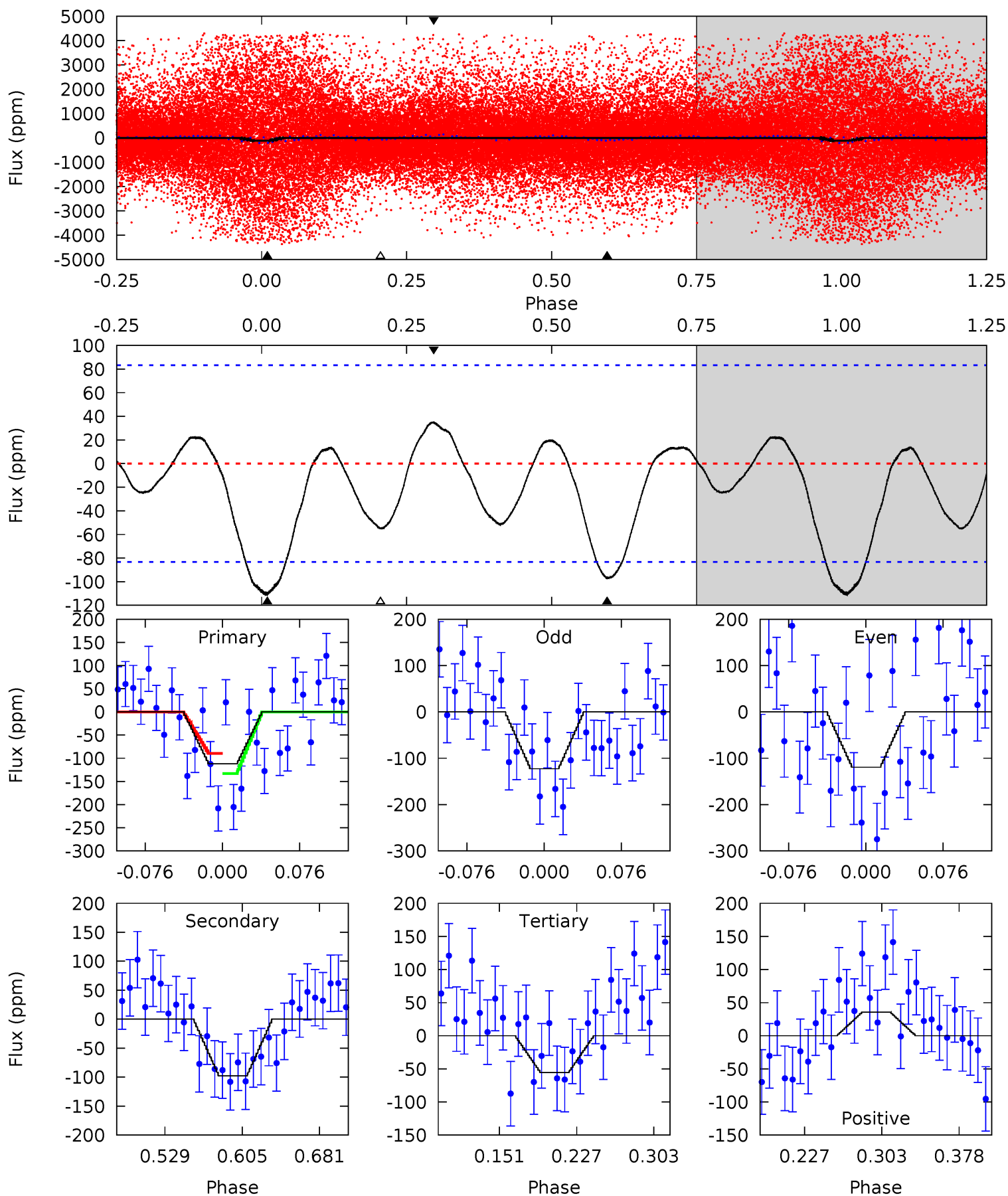
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	7.52	3.52	0	4.56	1.63	3.39	7.63	11.2	4.00	7.52	1.81	0.93	0.38	0



# Alt Model-Shift Uniqueness Test

003758403-01, P = 0.818231 Days, E = 131.158216 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
6.22	5.43	3.08	1.97	4.62	1.78	1.36	3.14	4.25	2.35	3.46	0.09	0.82	0.24	1.22



### Stellar Parameters For KIC 003758403

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6979^{+166}_{-291}$	$4.145^{+0.132}_{-0.198}$	$0.040^{+0.200}_{-0.350}$	$1.705^{+0.571}_{-0.308}$	$1.481^{+0.216}_{-0.216}$	$0.421^{+0.270}_{-0.220}$
	+2%/-4%	+3%/-5%	+500%/-875%	+33%/-18%	+15%/-15%	+64%/-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 003758403-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-50 \pm 7$	$1.34^{+0.38}_{-0.30}$	$4026^{+323}_{-235}$	$6800^{+1053}_{-749}$	$5.779^{+3.775}_{-2.282}$
Alt.	$-98 \pm 18$	$1.30^{+0.35}_{-0.29}$	$4038^{+312}_{-255}$	$8375^{+1771}_{-1014}$	$12^{+8}_{-5}$

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



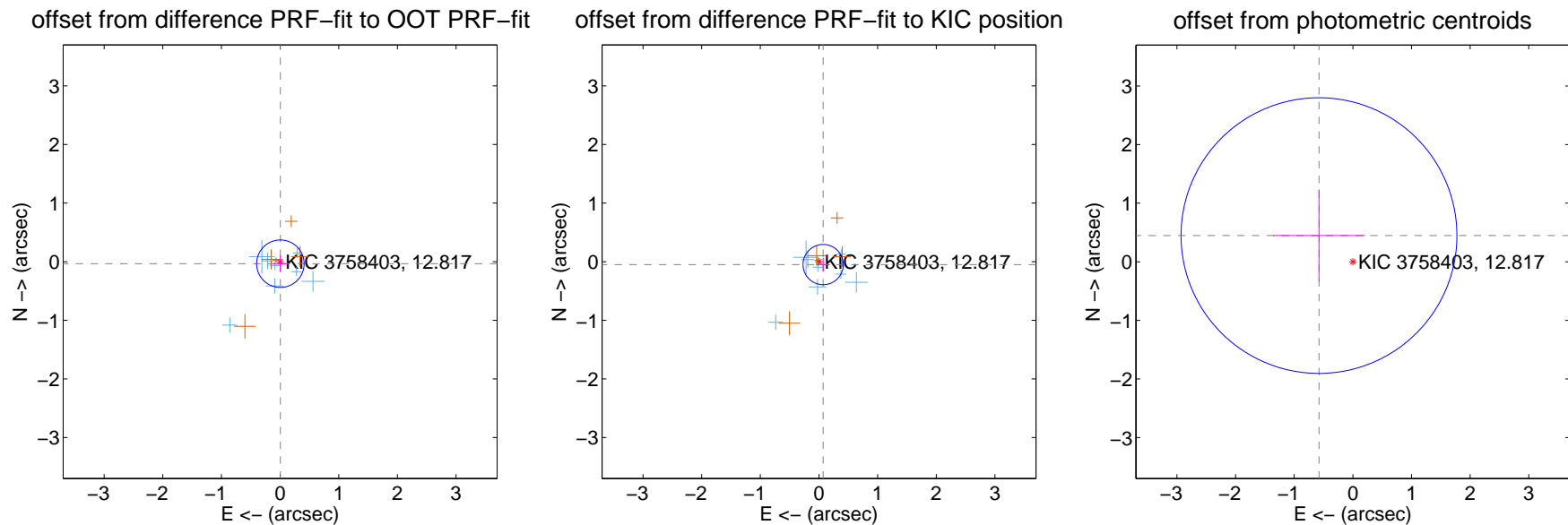
## DV Centroid Data

Supplemental centroid analysis for 003758403-01. Kepler magnitude: 12.82. Transit SNR 6.67

There are 8 quarters with good PRF difference image offsets

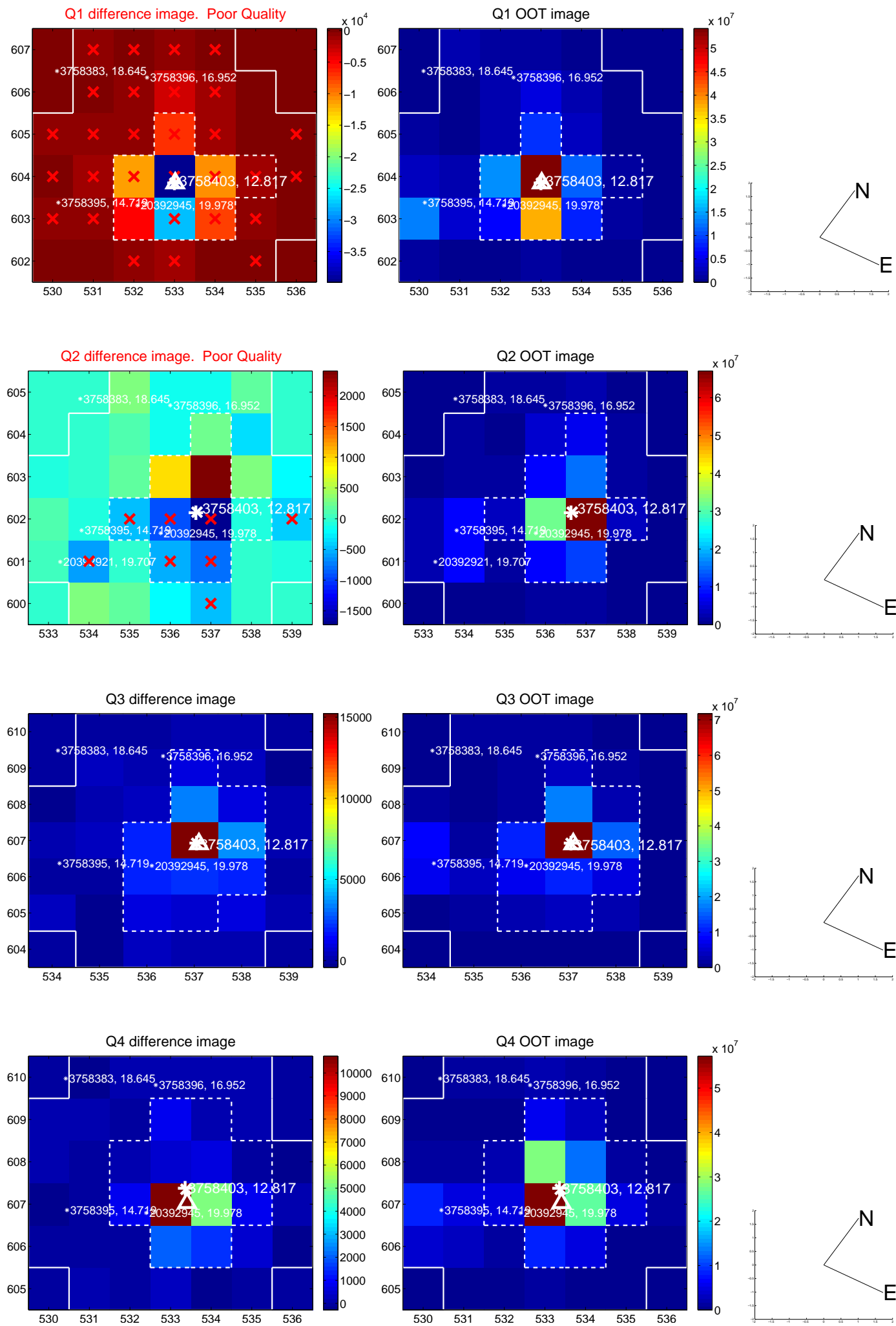
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.035 \pm 0.135$	0.26	$-0.005 \pm 0.127$	$-0.034 \pm 0.144$
PRF-fit source offset from KIC position	$0.087 \pm 0.114$	0.76	$-0.071 \pm 0.114$	$-0.049 \pm 0.116$
photometric centroid source offset	$0.73 \pm 0.78$	0.93	$0.58 \pm 0.78$	$0.45 \pm 0.79$

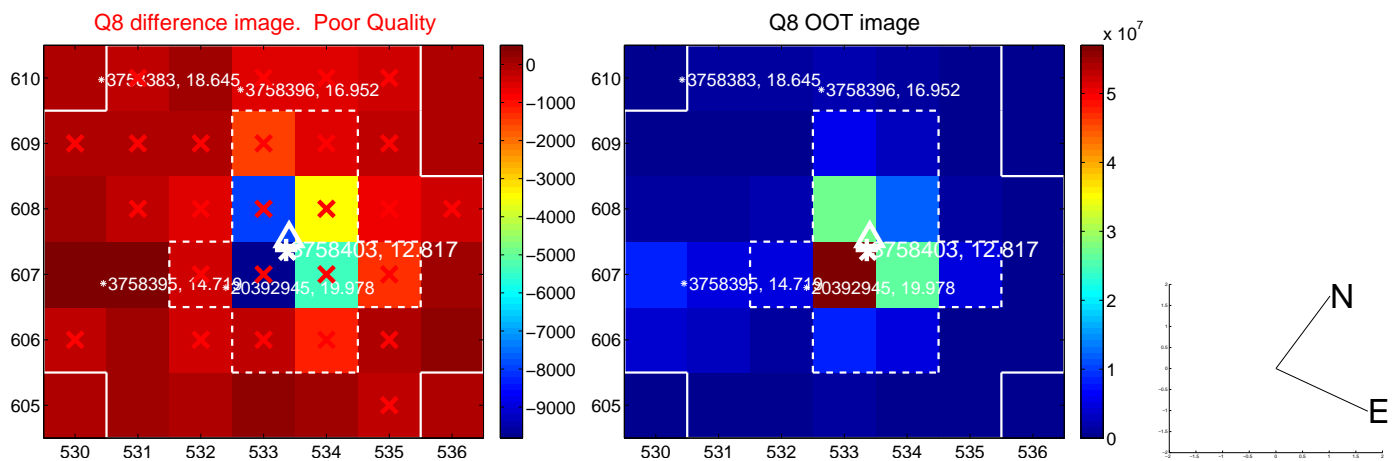
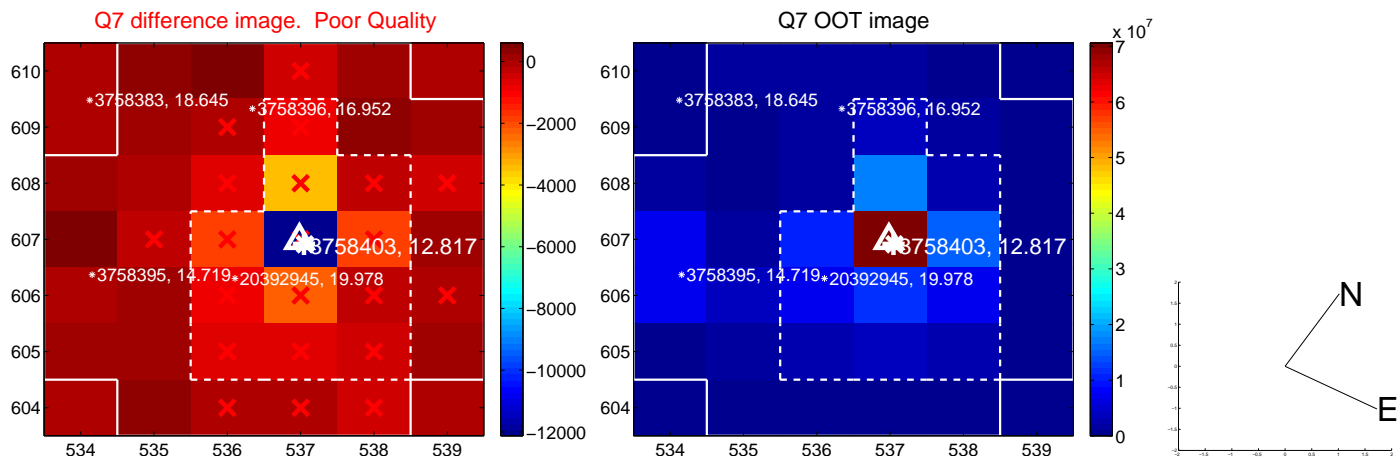
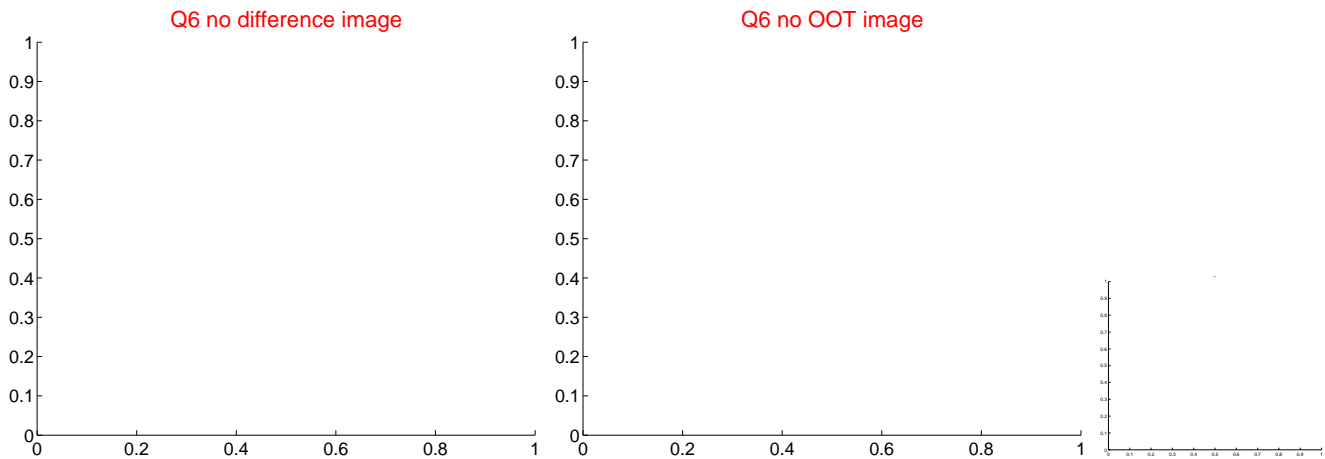
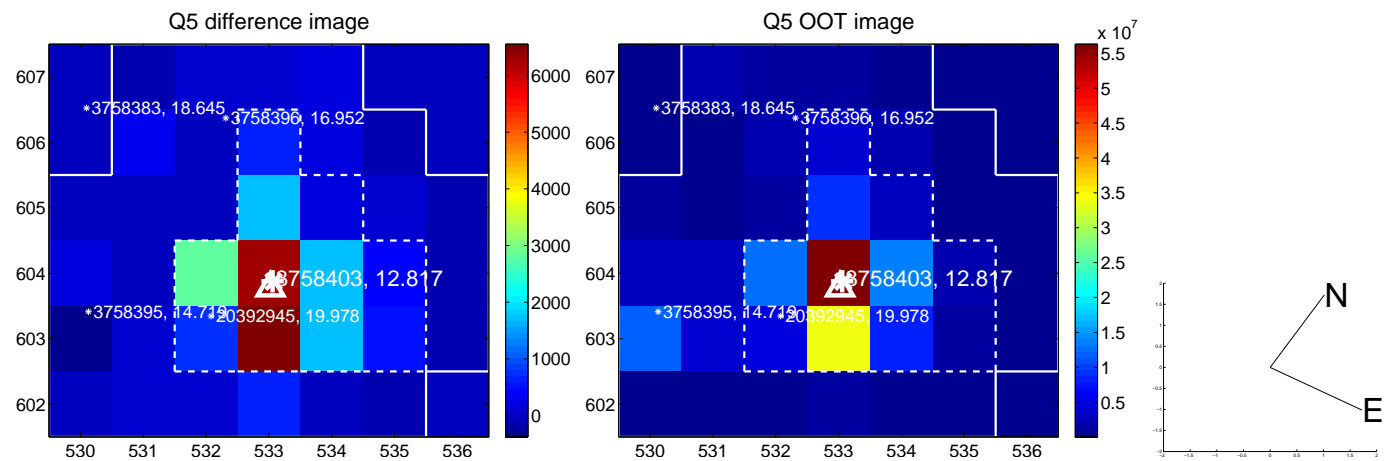


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

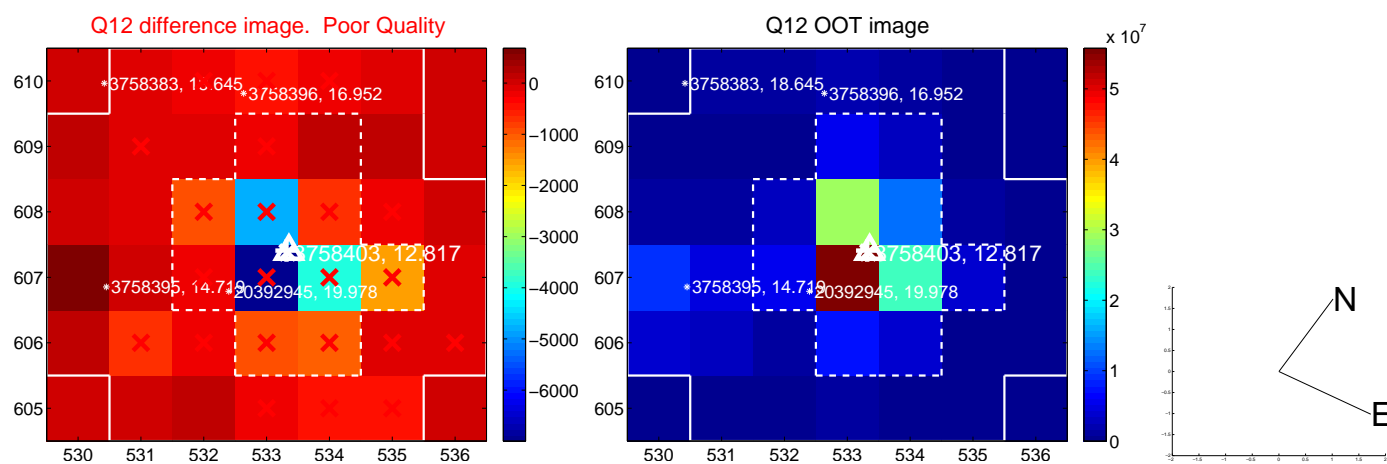
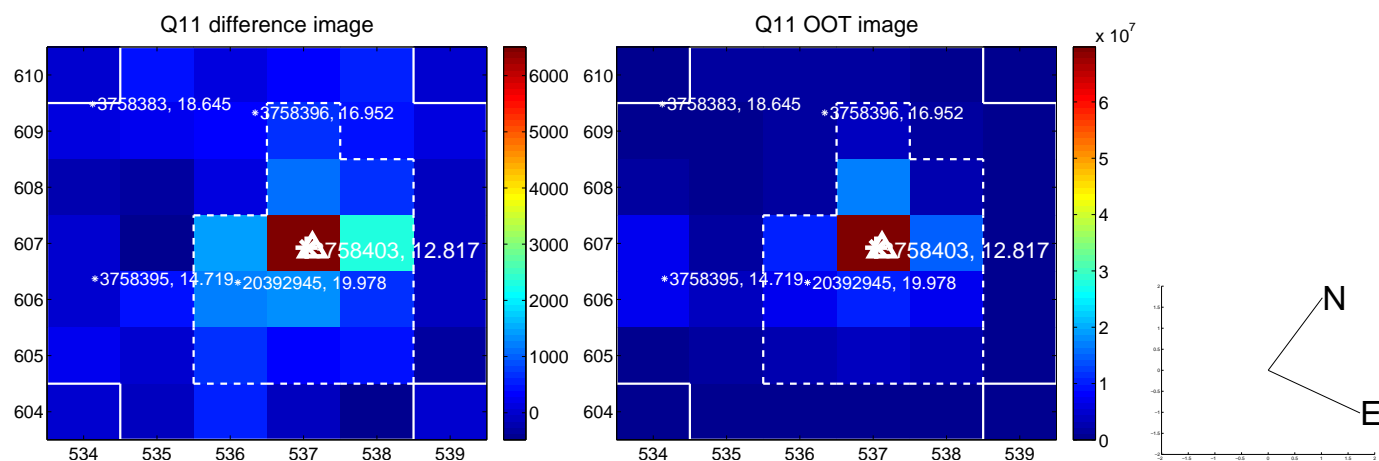
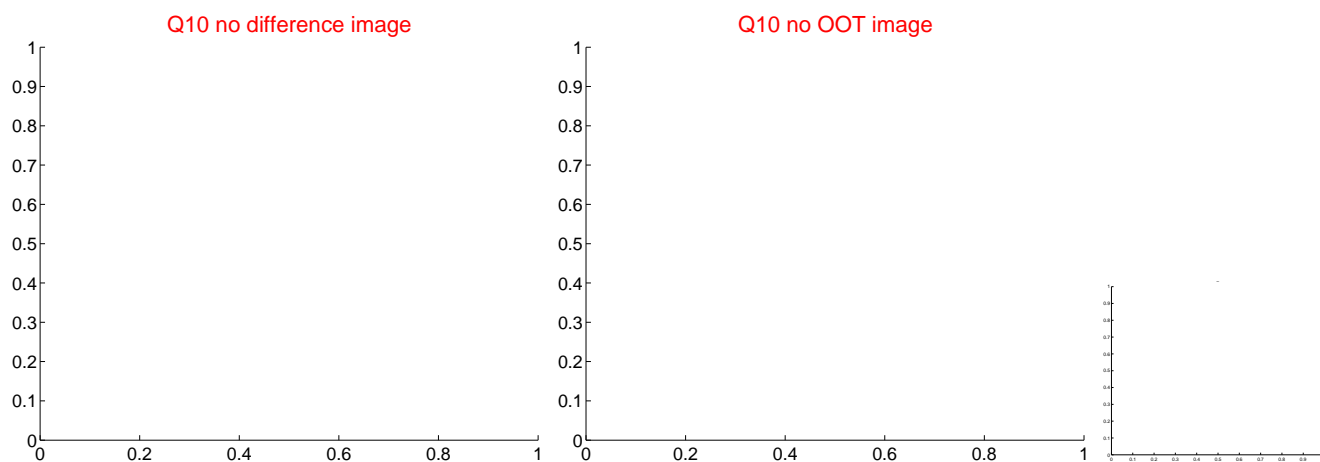
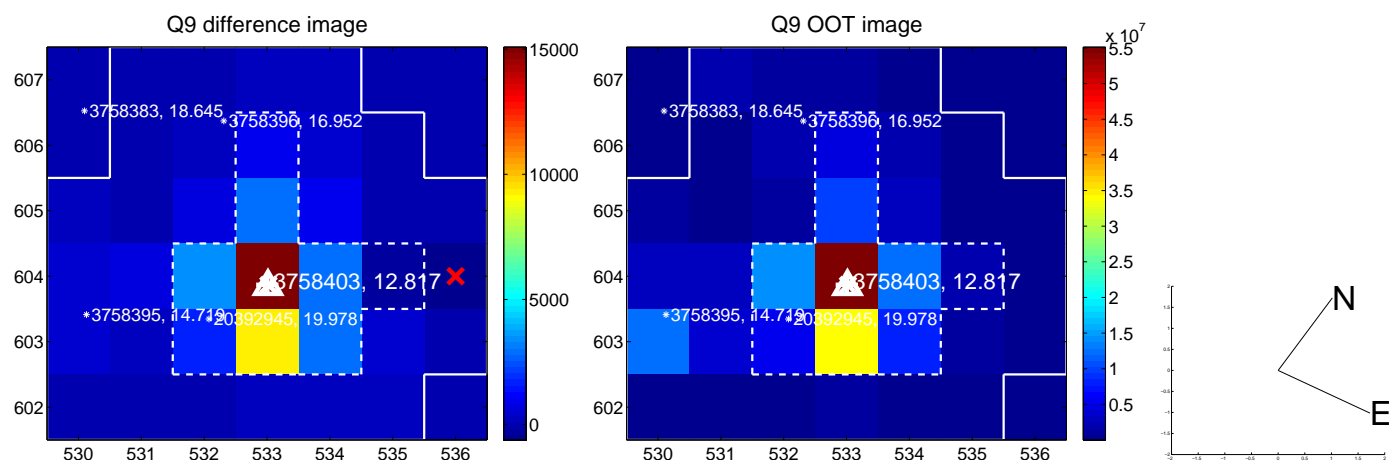


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

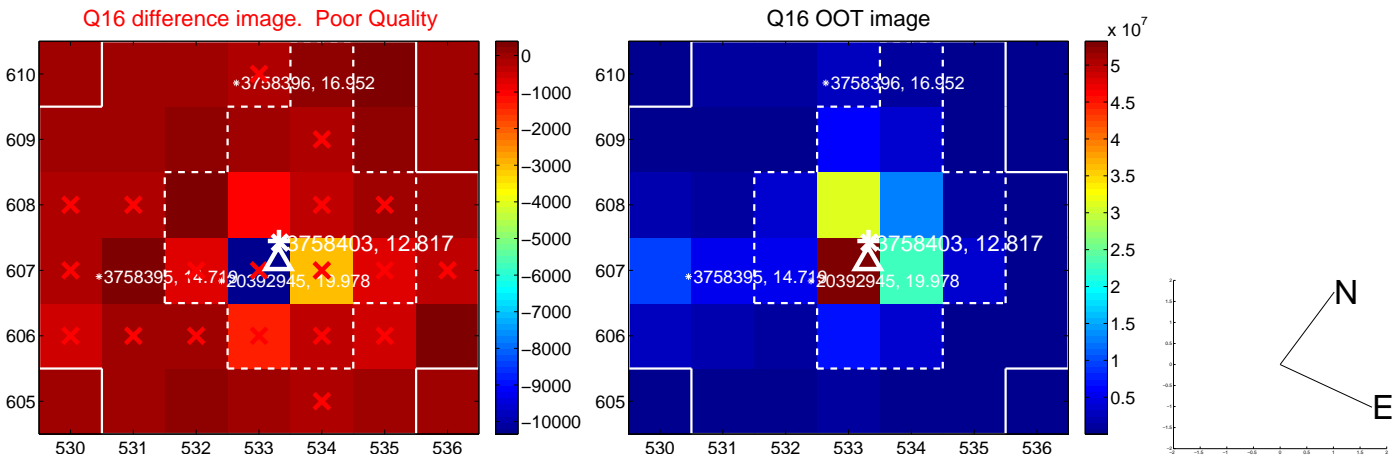
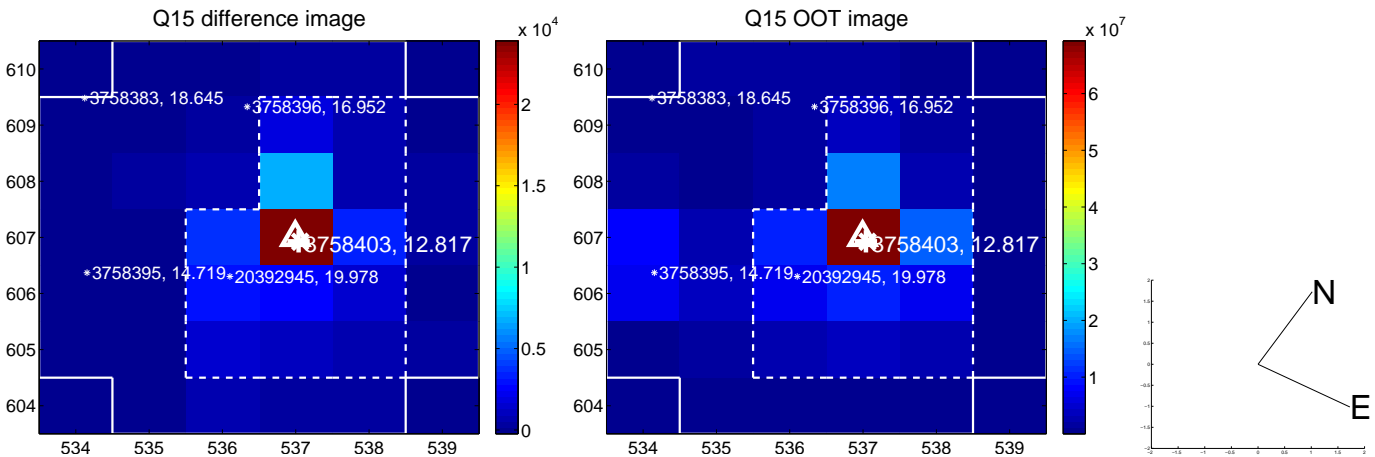
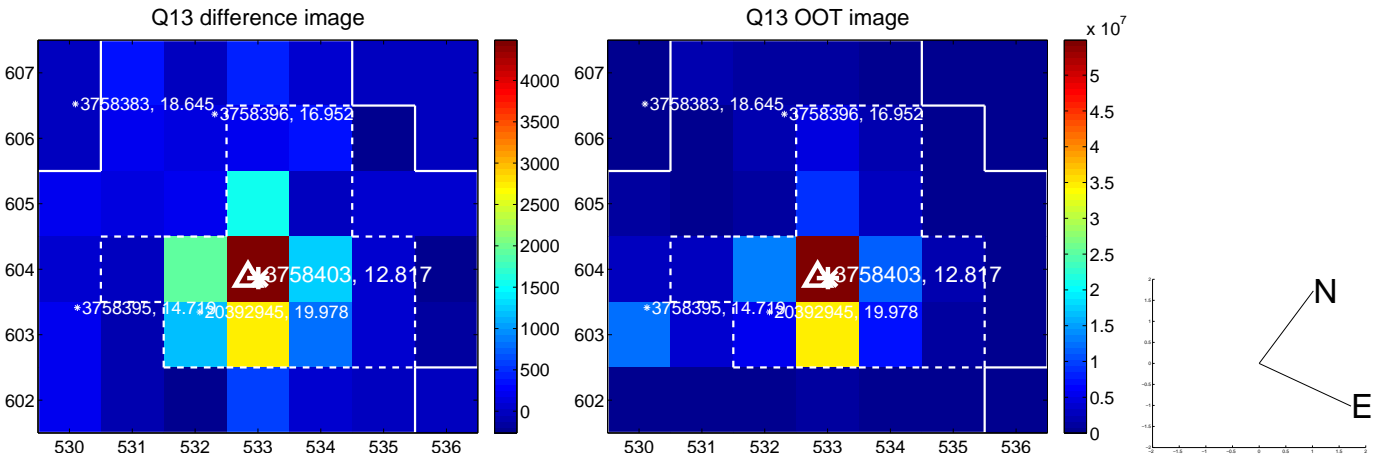




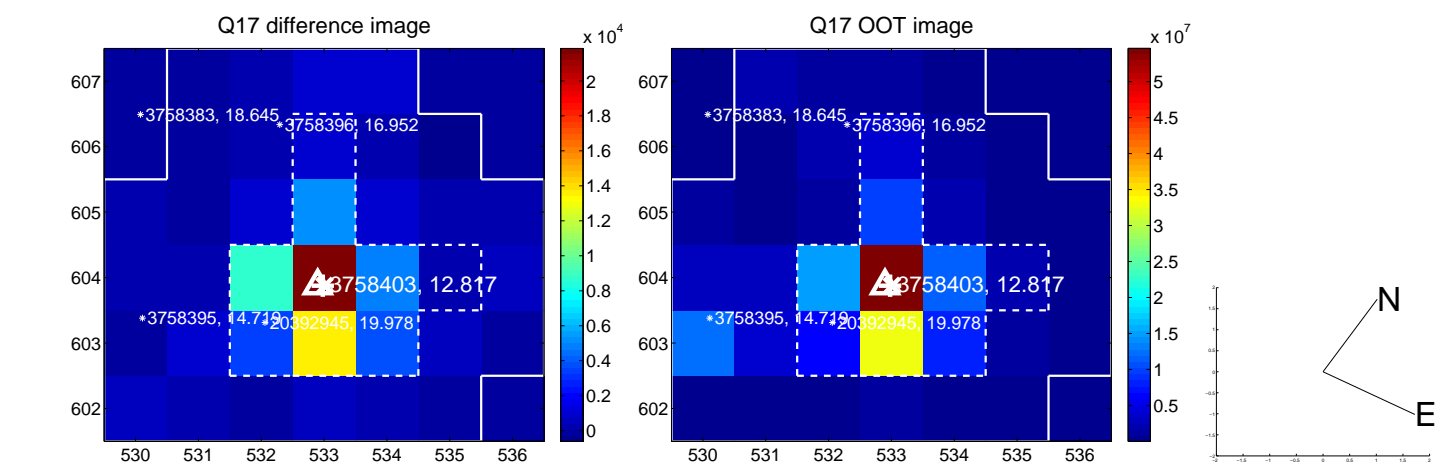
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



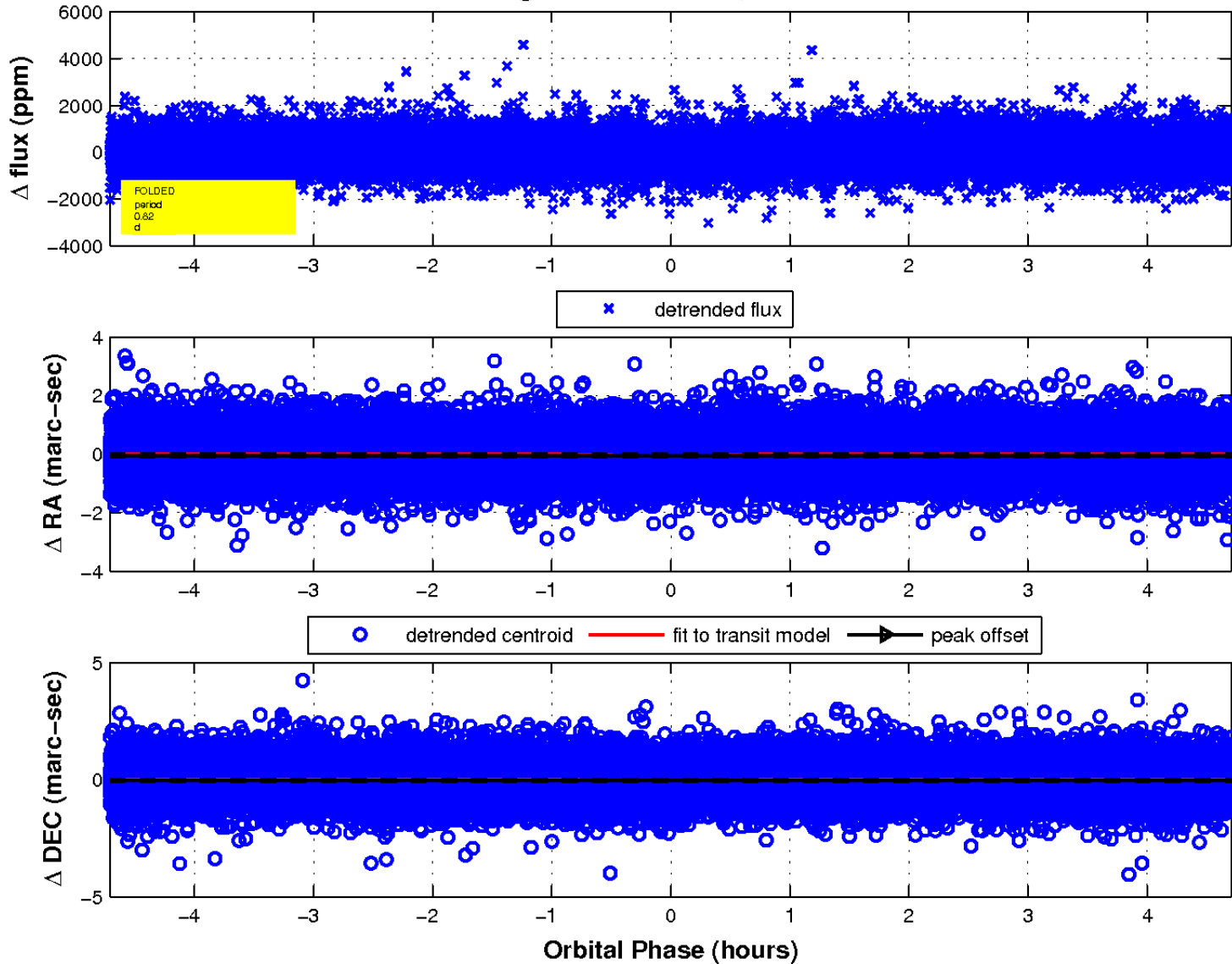
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

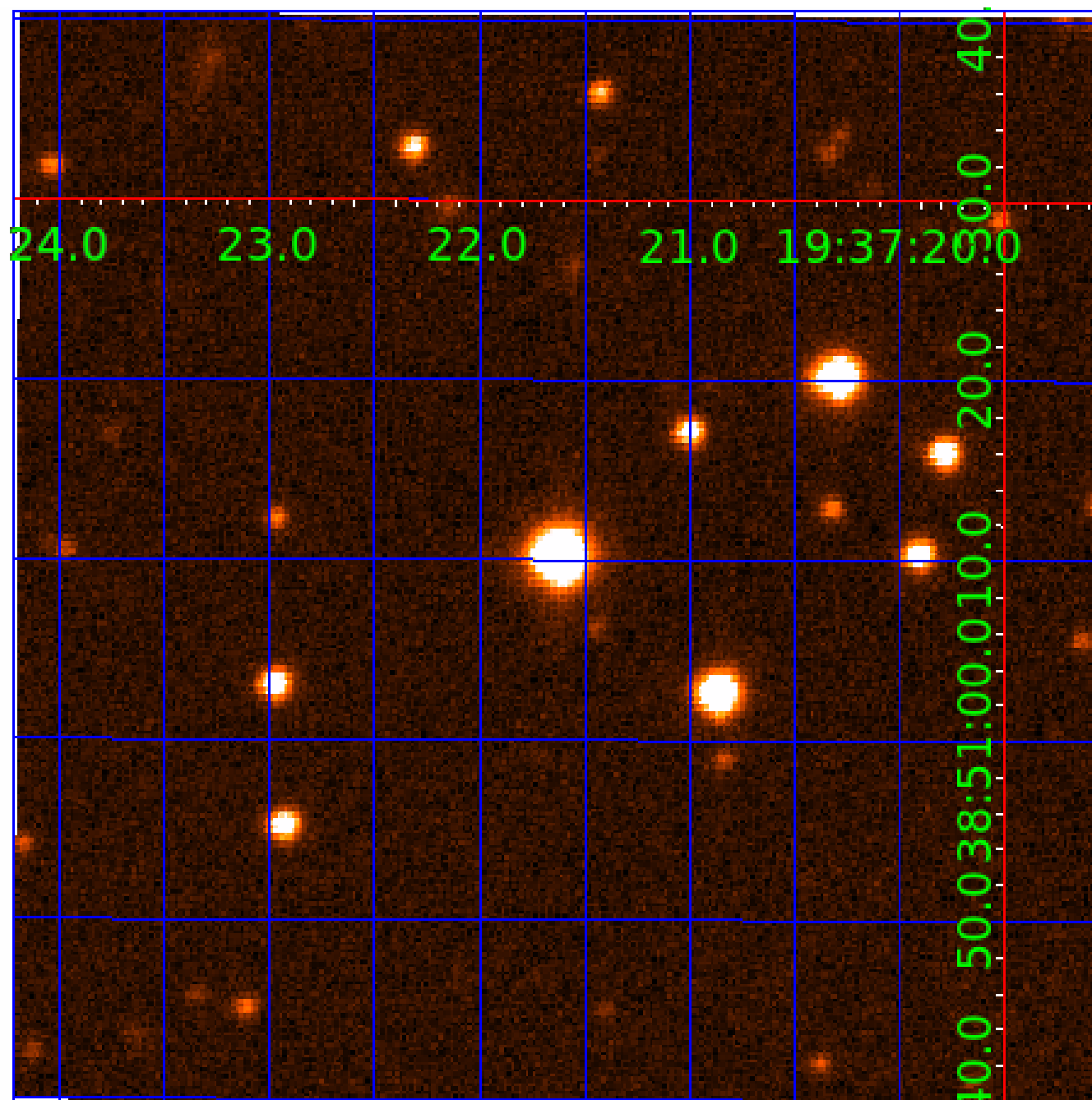


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



# KIC 003758403

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003758403-01	OBS	No	0.818218	131.980227	47.5	1.570	9.9	6.7	1.71	6979	1.33	16220.27
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003758403-03	OBS	No	95.839320	153.799071	1195.2	3.894	8.1	7.5	1.71	6979	7.09	28.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003758403-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003758403-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
003758403-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

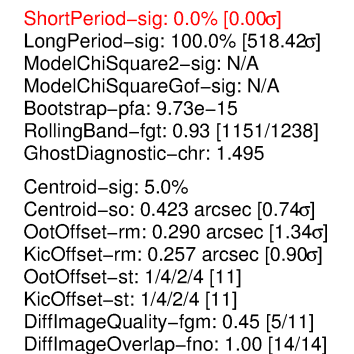
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003758403-02

No Significant Match Found

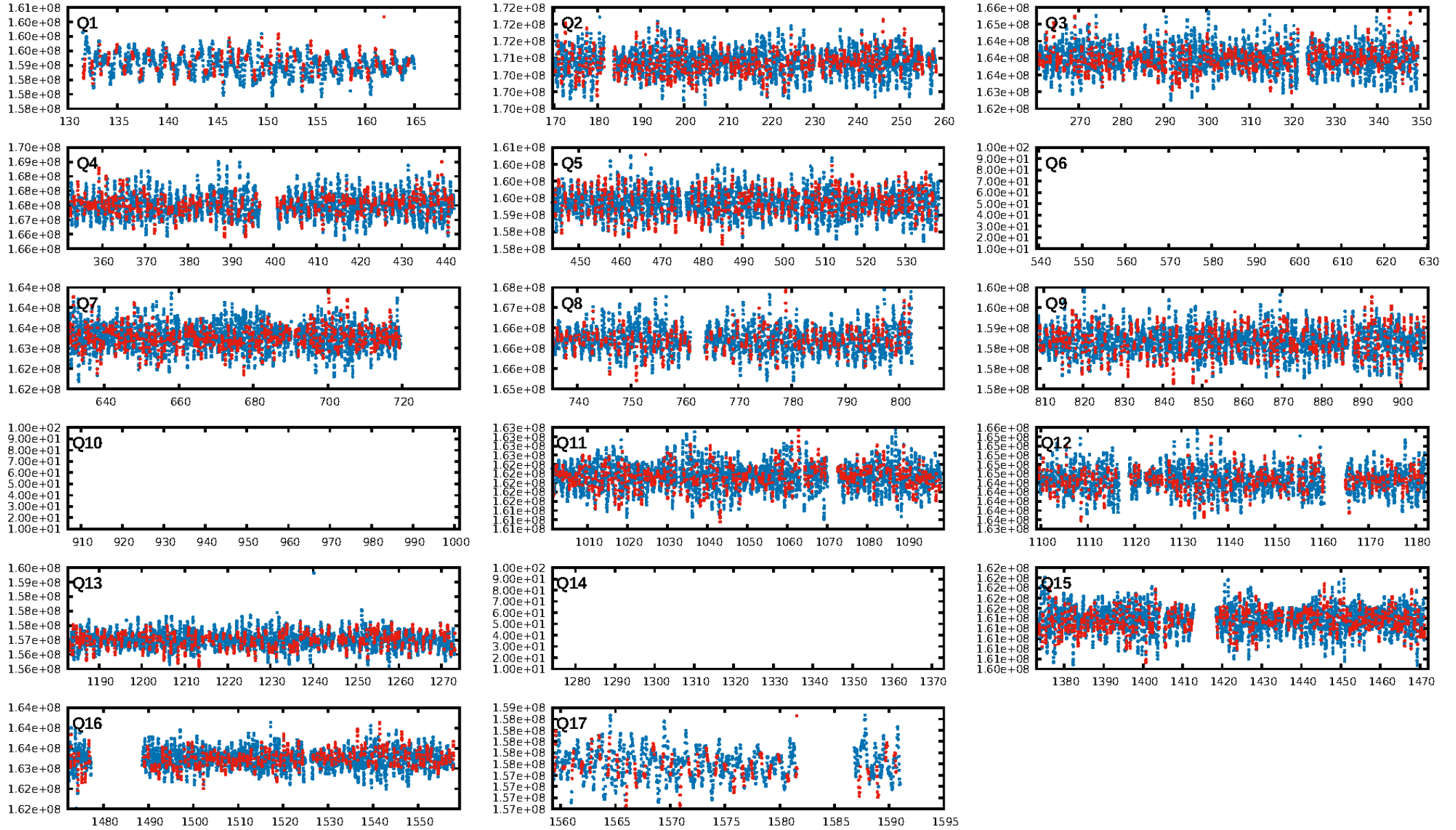


## KIC: 3758403    Candidate: 2 of 3    Period: 0.818 d

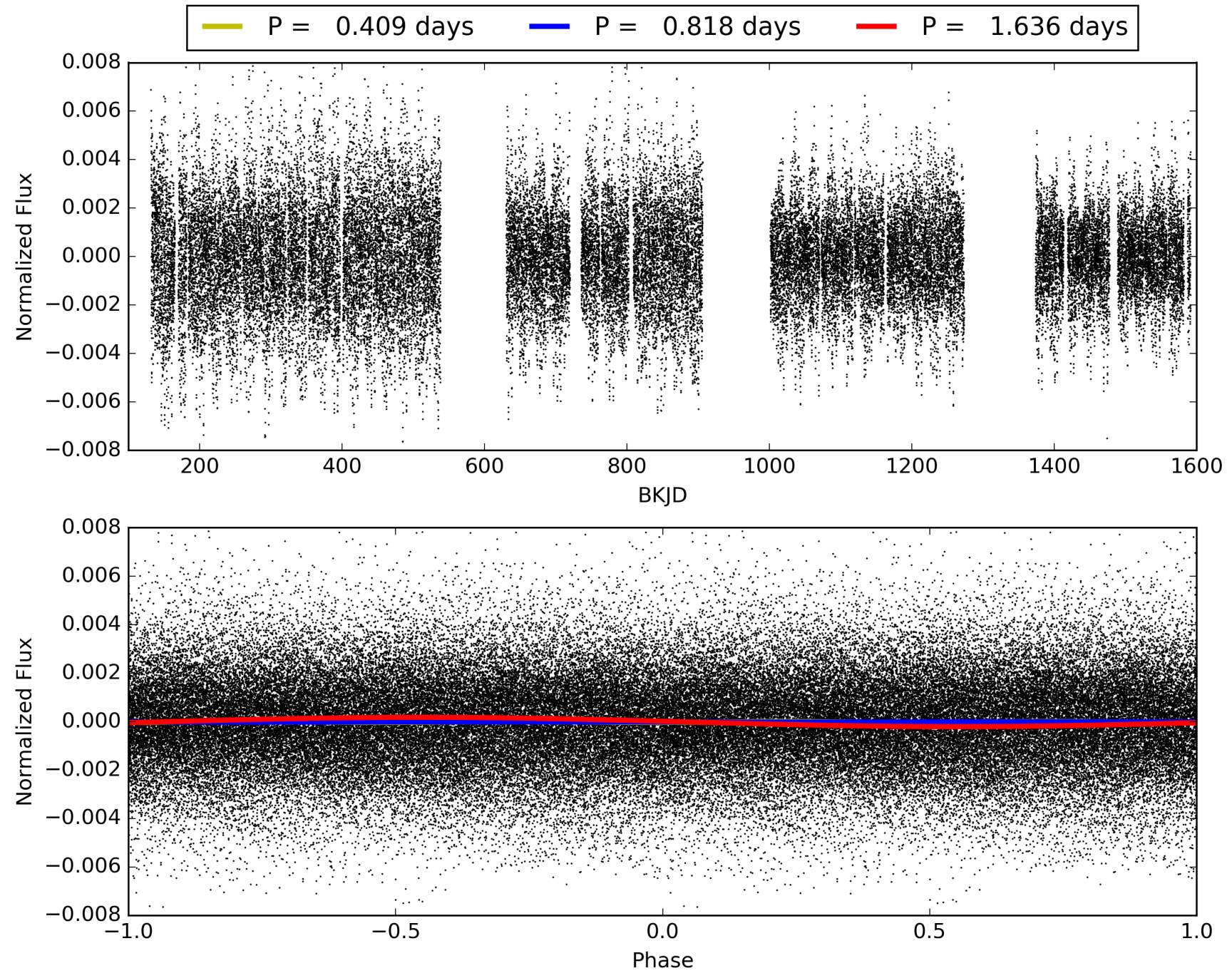


**This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center**

# TCE 003758403-02, PDC Light Curves



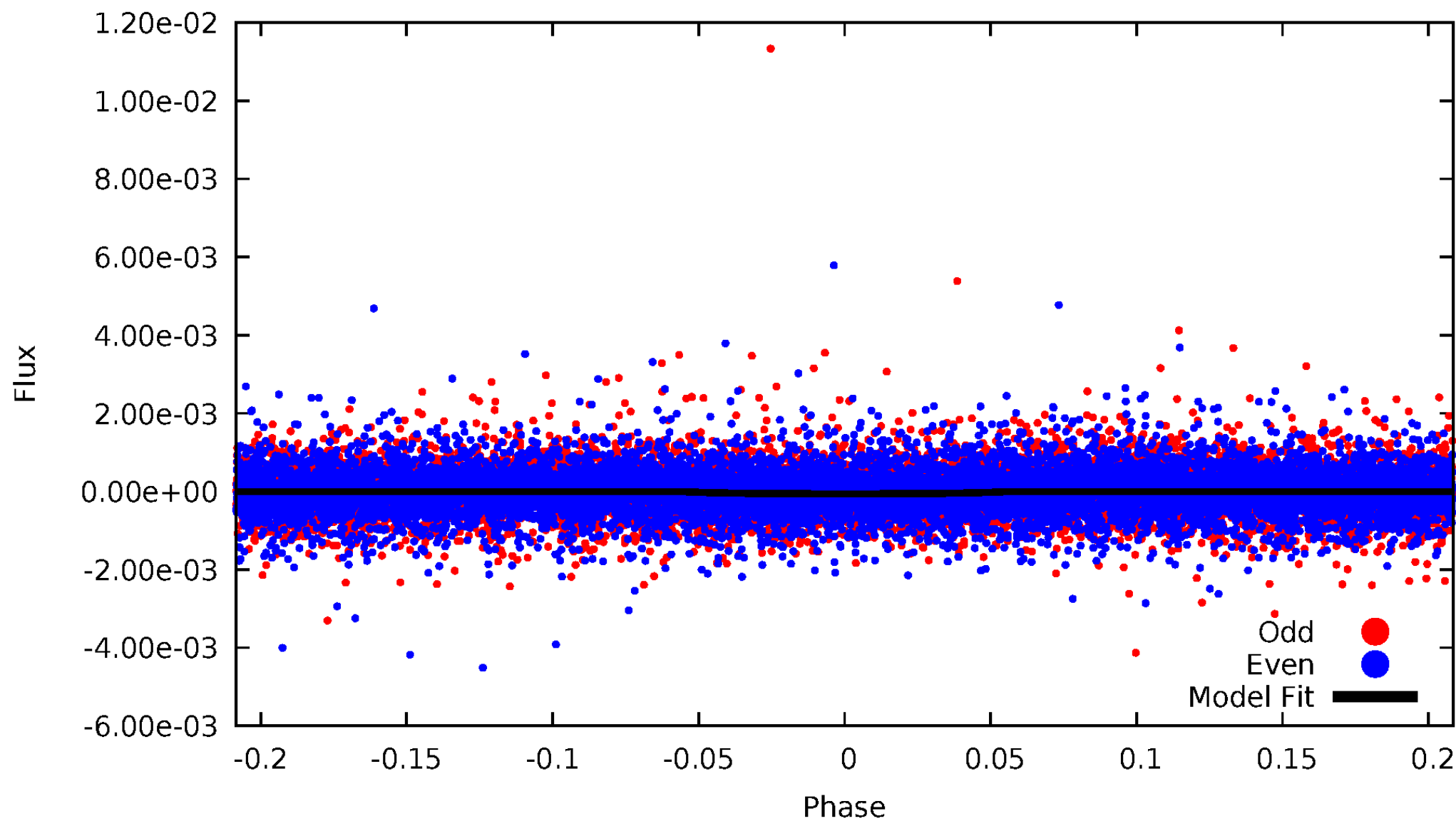
# TCE 003758403-02





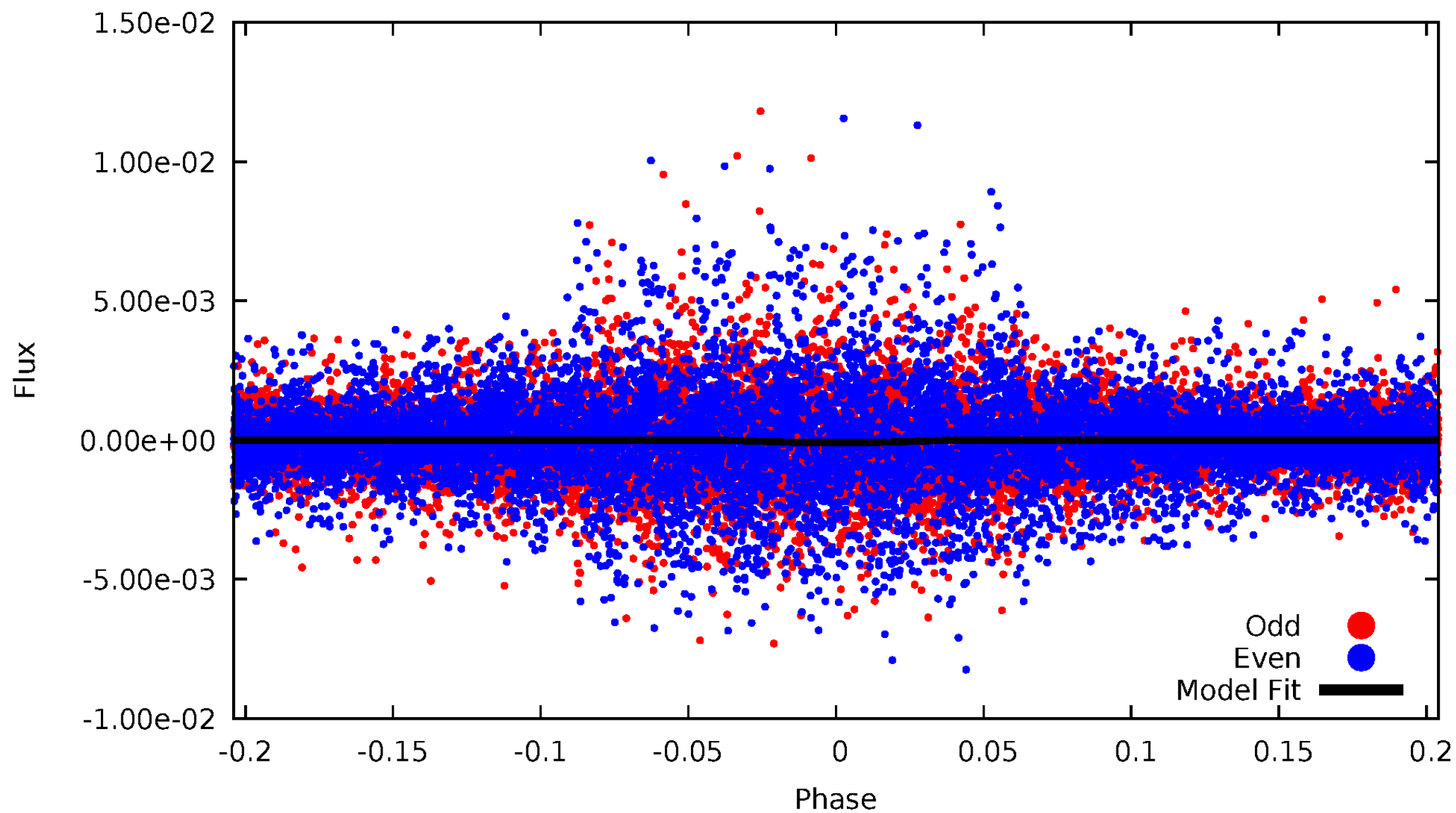
# DV Odd/Even

TCE 003758403-02



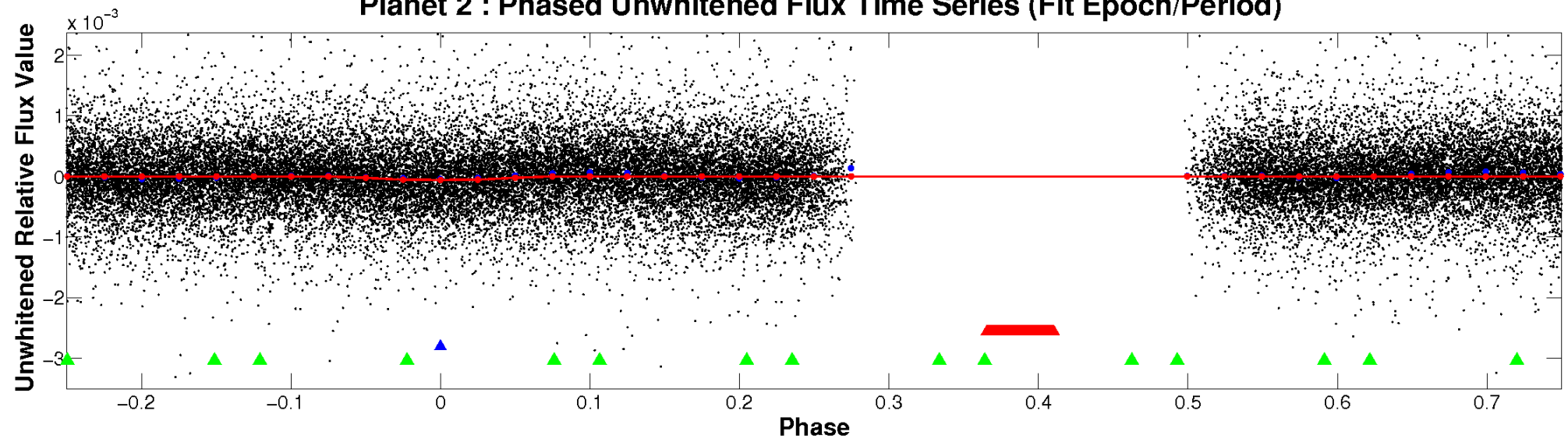
# ALT Odd/Even

TCE 003758403-02

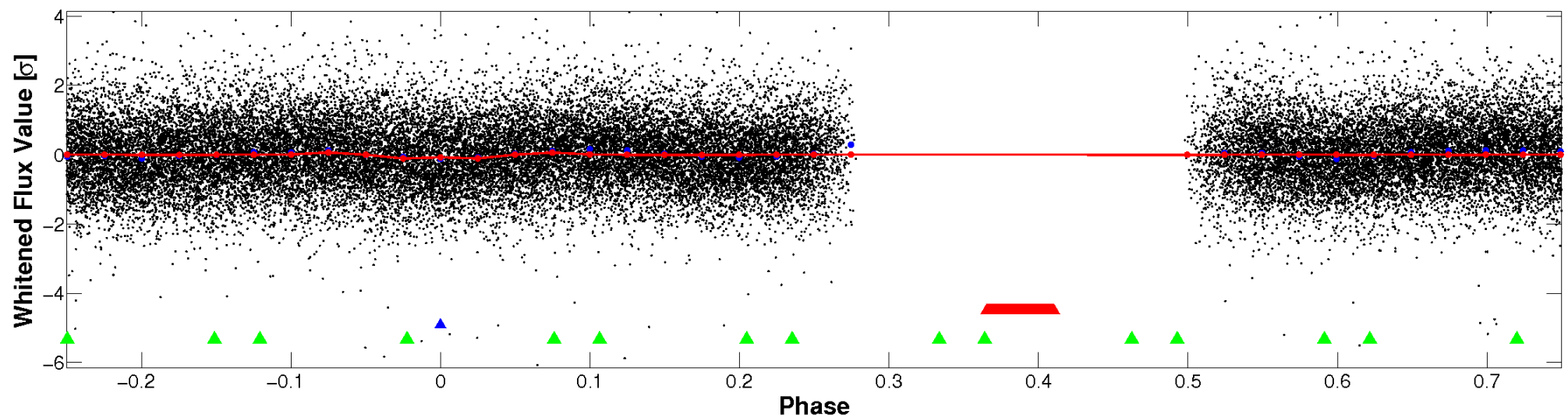


# Non-Whitened Vs. Whitened Light Curve

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



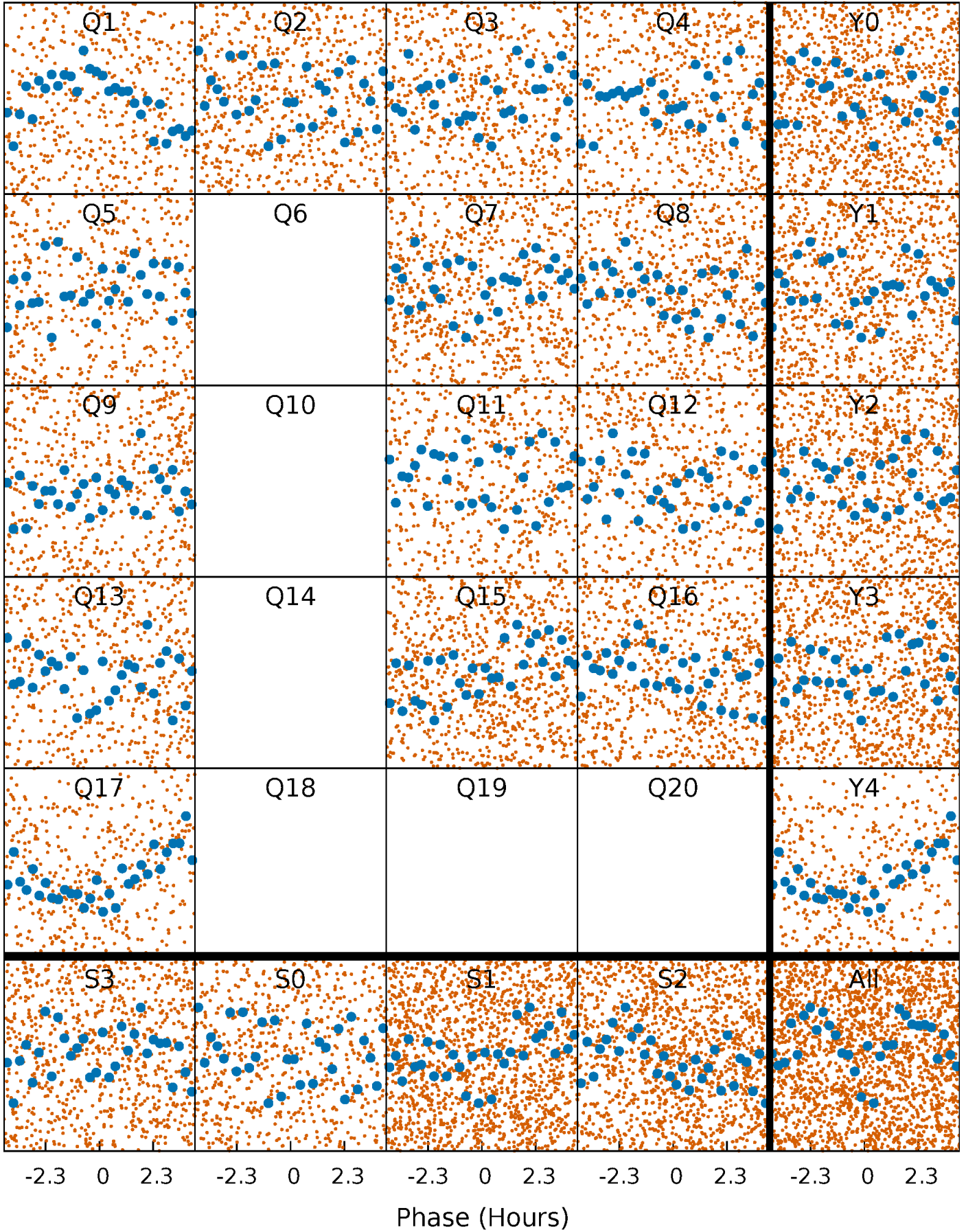
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





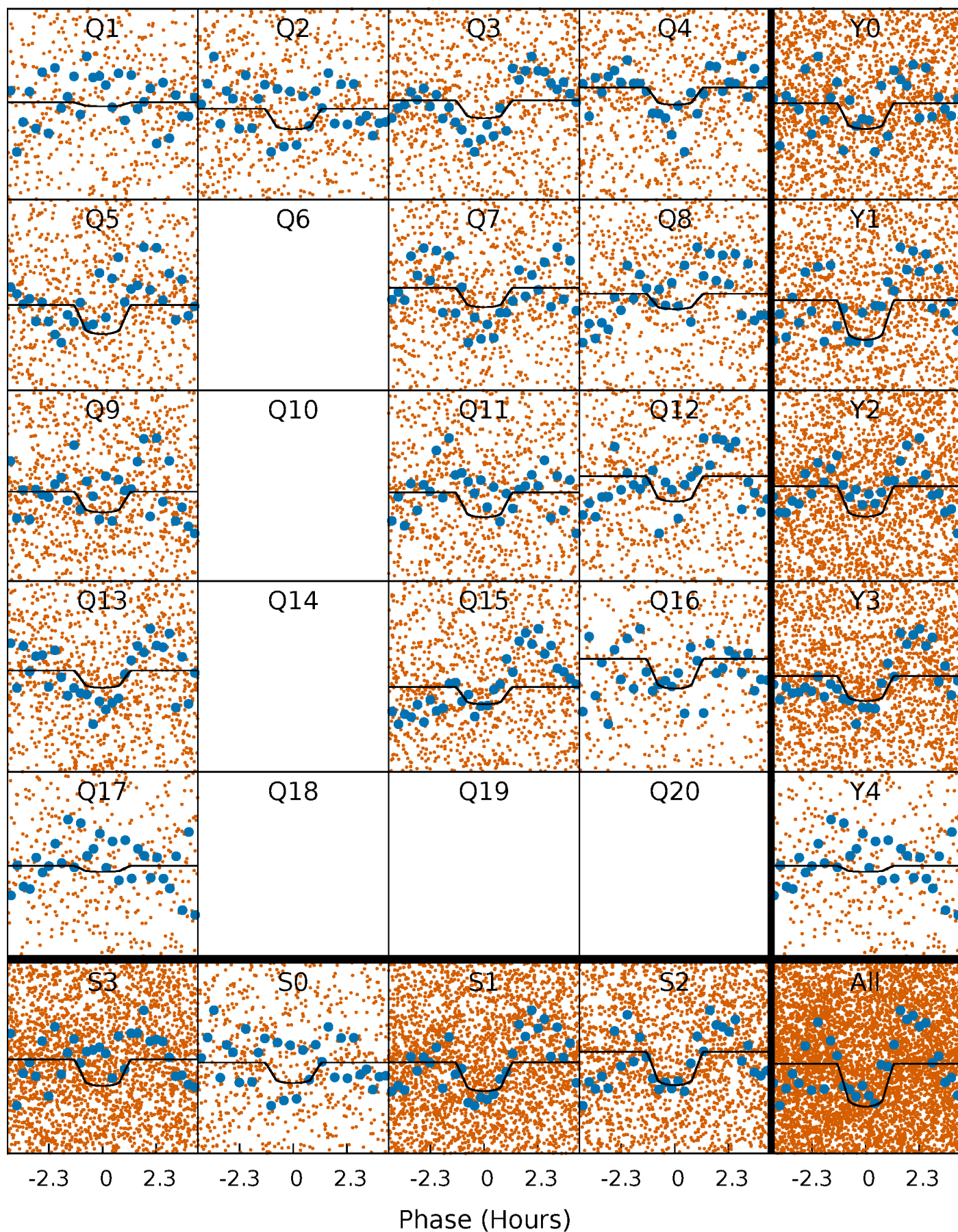
# PDC Quarter-Phased Transit Curves

TCE 003758403-02   P= 0.818239 Days    $T_0=131.644361$  (BKJD)



# DV Quarter-Phased Transit Curves

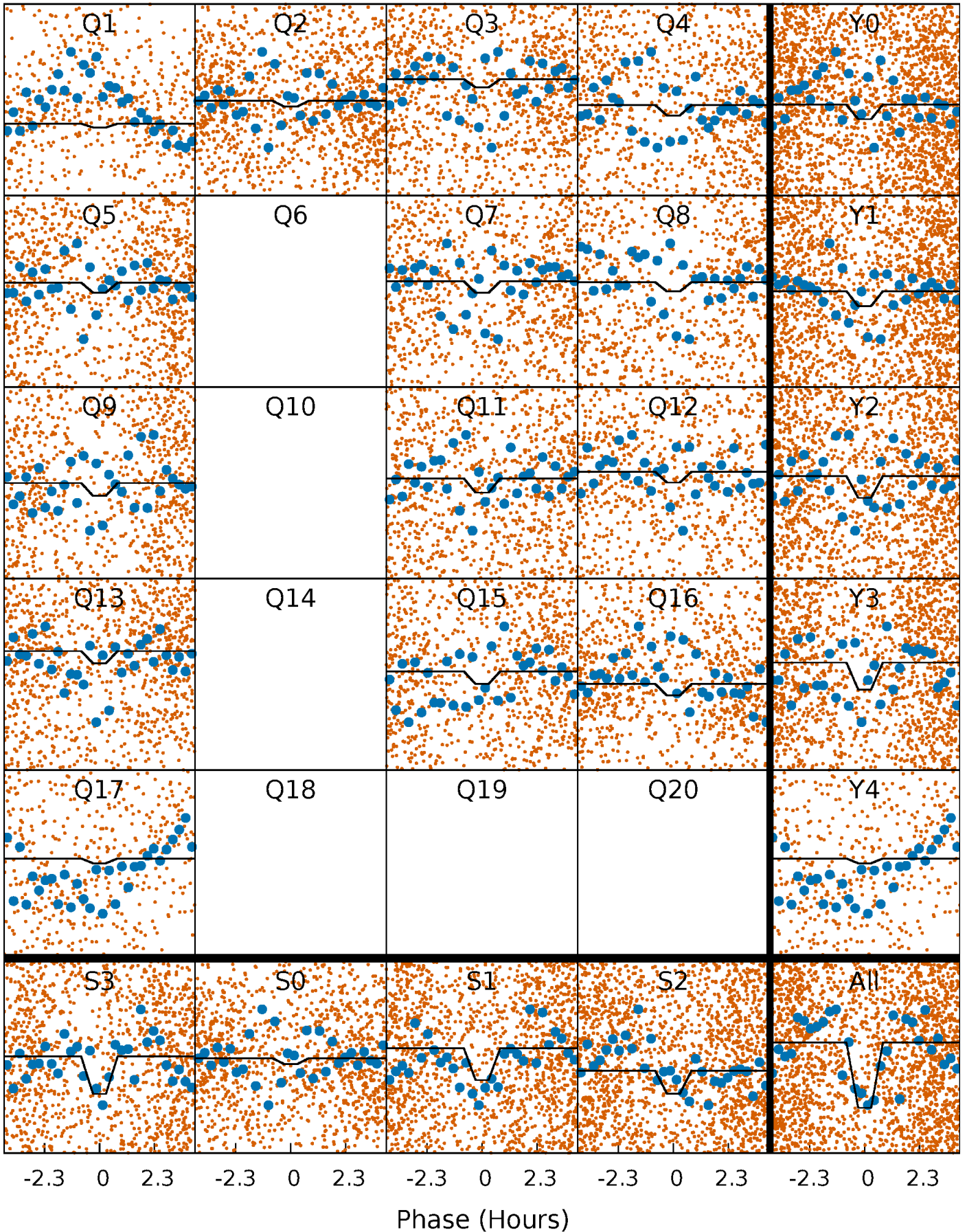
TCE 003758403-02   P= 0.818239 Days    $T_0=131.644361$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

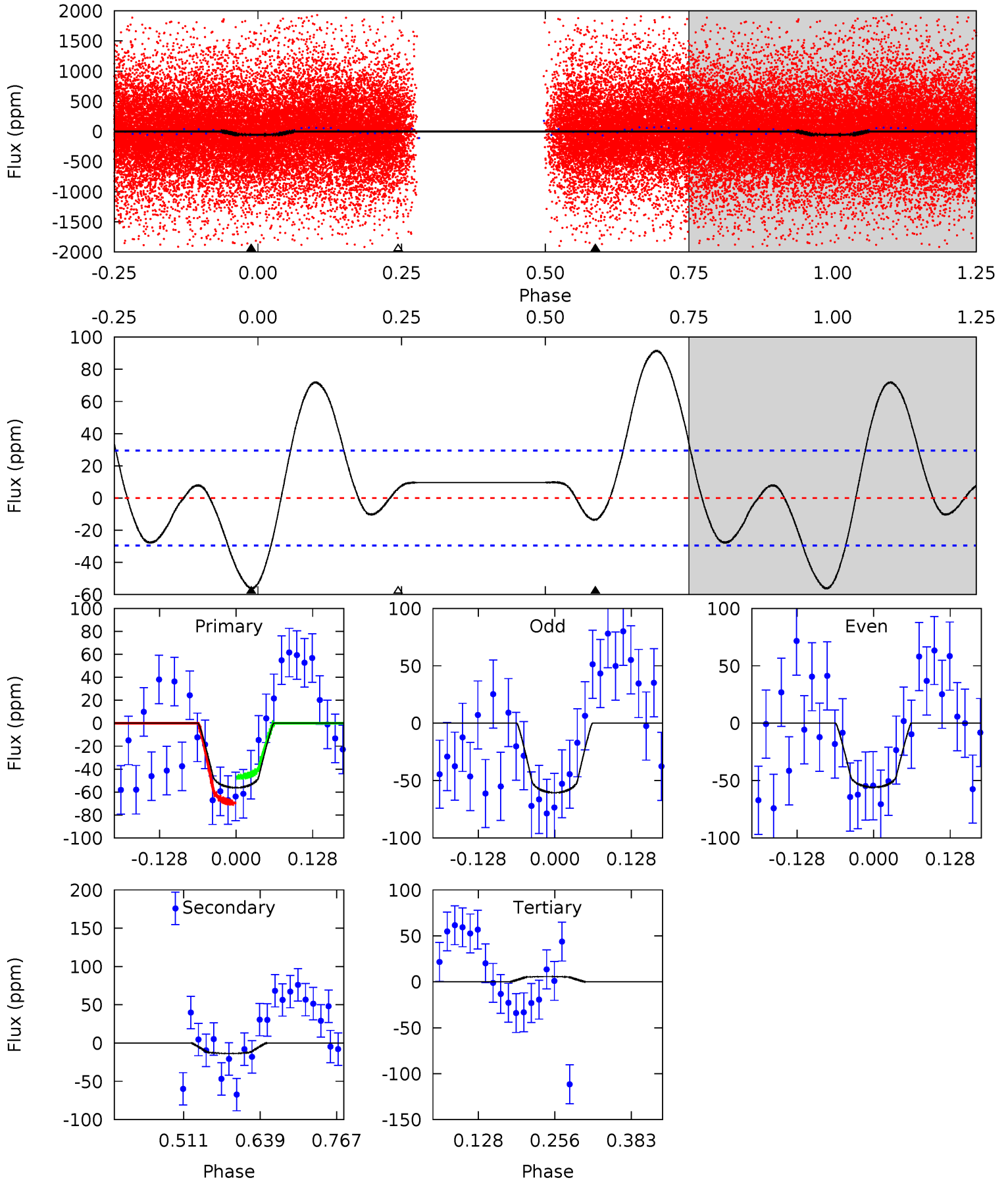
TCE 003758403-02 P= 0.818240 Days  $T_0=131.644472$  (BKJD)



# DV Model-Shift Uniqueness Test

003758403-02, P = 0.818239 Days, E = 130.826122 Days

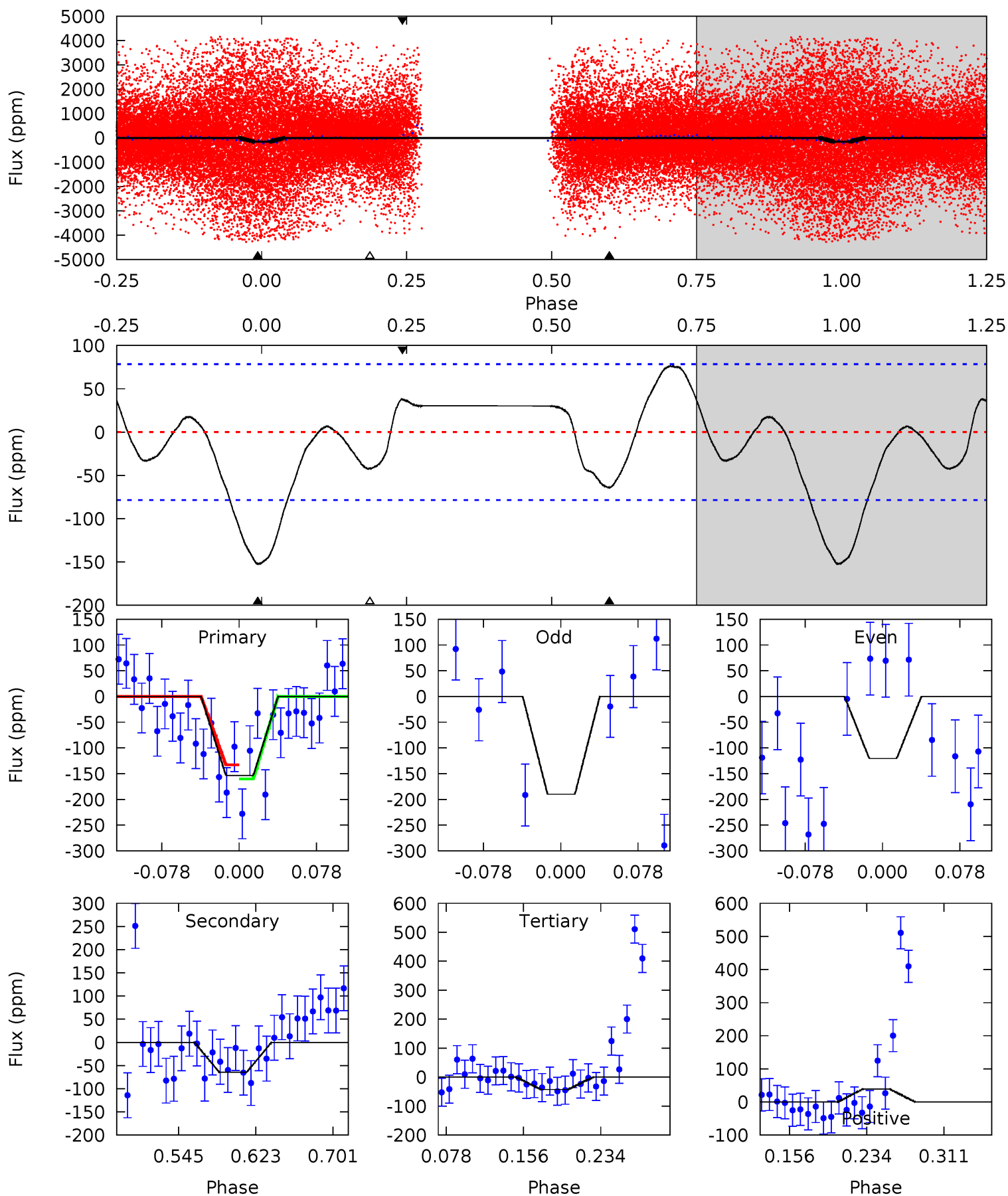
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.59	2.08	-0.88	0	4.51	1.52	4.51	9.47	8.59	2.96	2.08	0.36	0.73	0.62	1.75



# Alt Model-Shift Uniqueness Test

003758403-02, P = 0.818240 Days, E = 130.826232 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
9.03	3.80	2.52	2.28	4.62	1.76	2.00	6.51	6.75	1.28	1.52	2.03	0.50	0.33	0.81



### Stellar Parameters For KIC 003758403

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6979^{+166}_{-291}$	$4.145^{+0.132}_{-0.198}$	$0.040^{+0.200}_{-0.350}$	$1.705^{+0.571}_{-0.308}$	$1.481^{+0.216}_{-0.216}$	$0.421^{+0.270}_{-0.220}$
	+2%/-4%	+3%/-5%	+500%/-875%	+33%/-18%	+15%/-15%	+64%/-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 003758403-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-14 \pm 7$	$1.55^{+0.46}_{-0.38}$	$4018^{+333}_{-243}$	$4463^{+830}_{-908}$	$1.160^{+1.184}_{-0.633}$
Alt.	$-65 \pm 17$	$1.74^{+0.44}_{-0.39}$	$4031^{+305}_{-242}$	$6284^{+969}_{-774}$	$4.227^{+3.386}_{-1.819}$

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



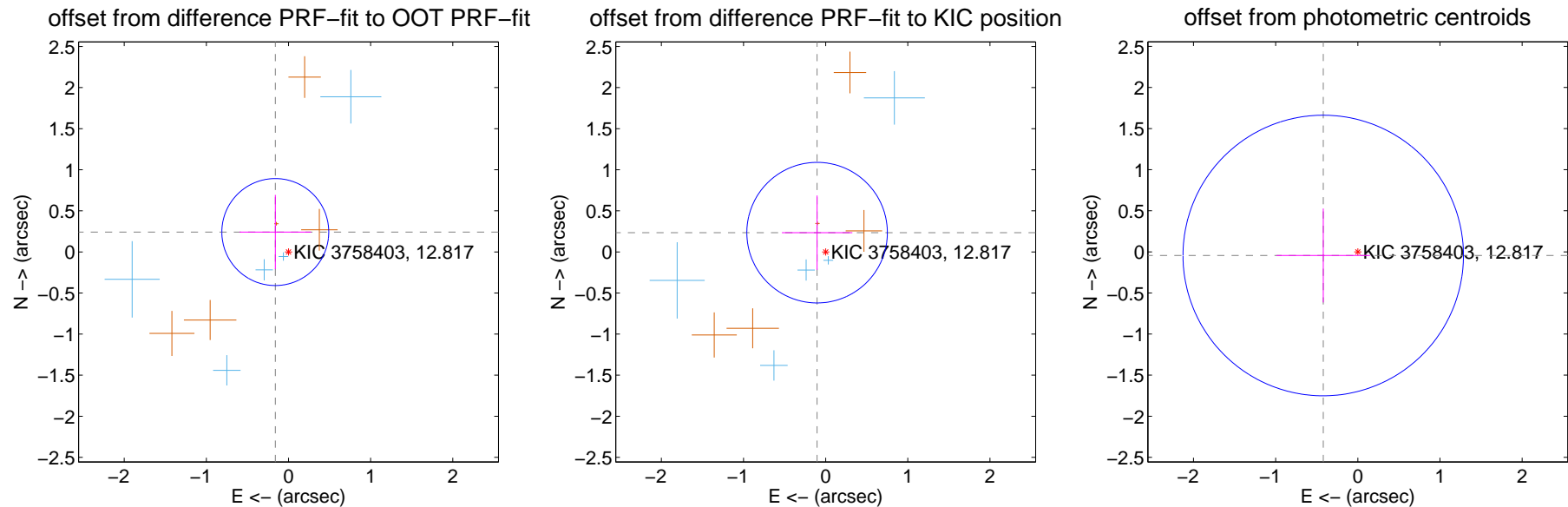
## DV Centroid Data

Supplemental centroid analysis for 003758403-02. Kepler magnitude: 12.82. Transit SNR 7.75

There are 5 quarters with good PRF difference image offsets

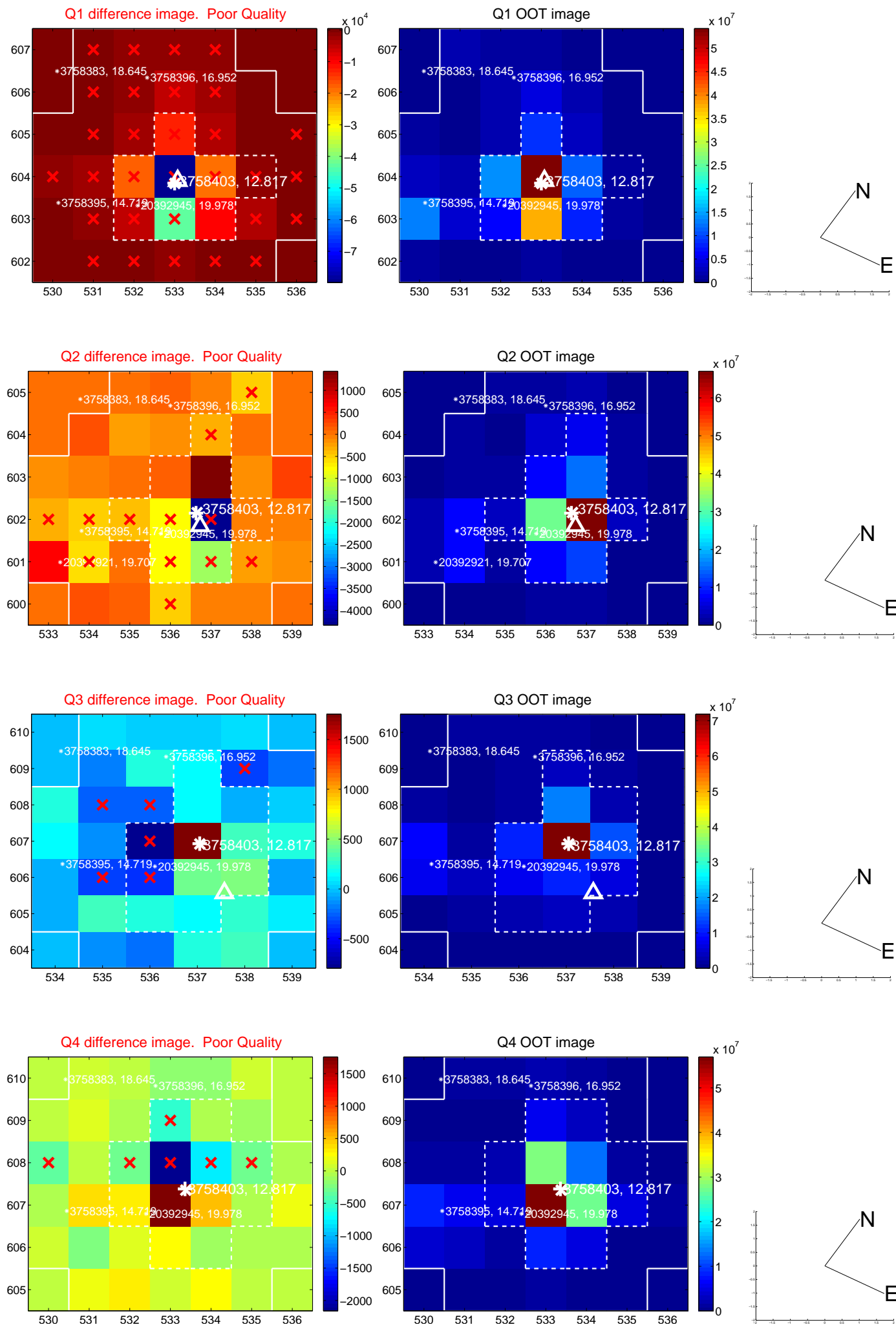
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.290 \pm 0.217$	1.34	$0.161 \pm 0.435$	$0.242 \pm 0.452$
PRF-fit source offset from KIC position	$0.257 \pm 0.285$	0.90	$0.104 \pm 0.429$	$0.234 \pm 0.453$
photometric centroid source offset	$0.42 \pm 0.57$	0.74	$0.42 \pm 0.57$	$-0.04 \pm 0.57$

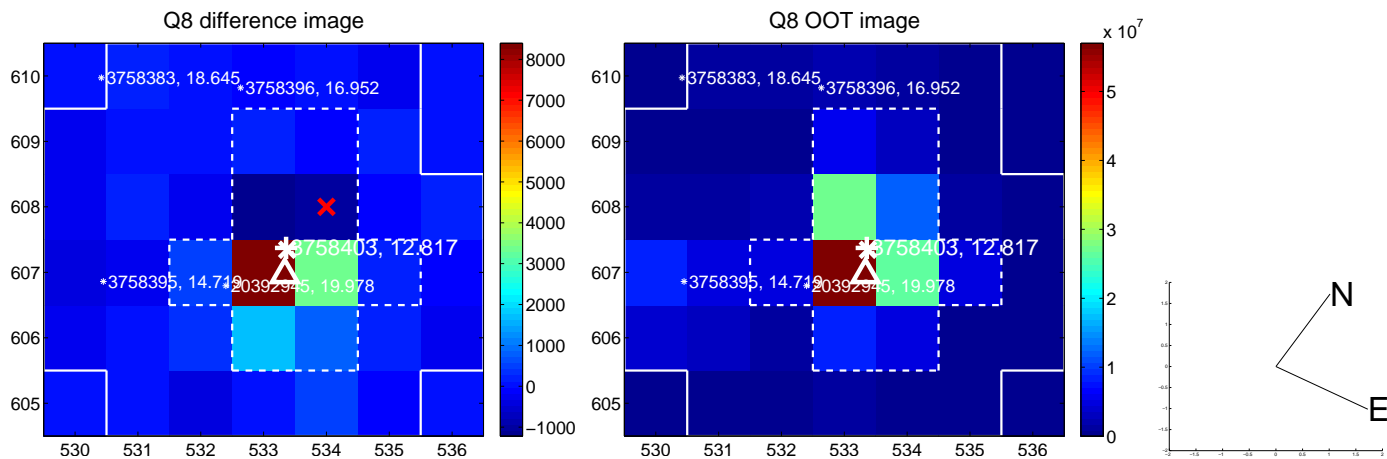
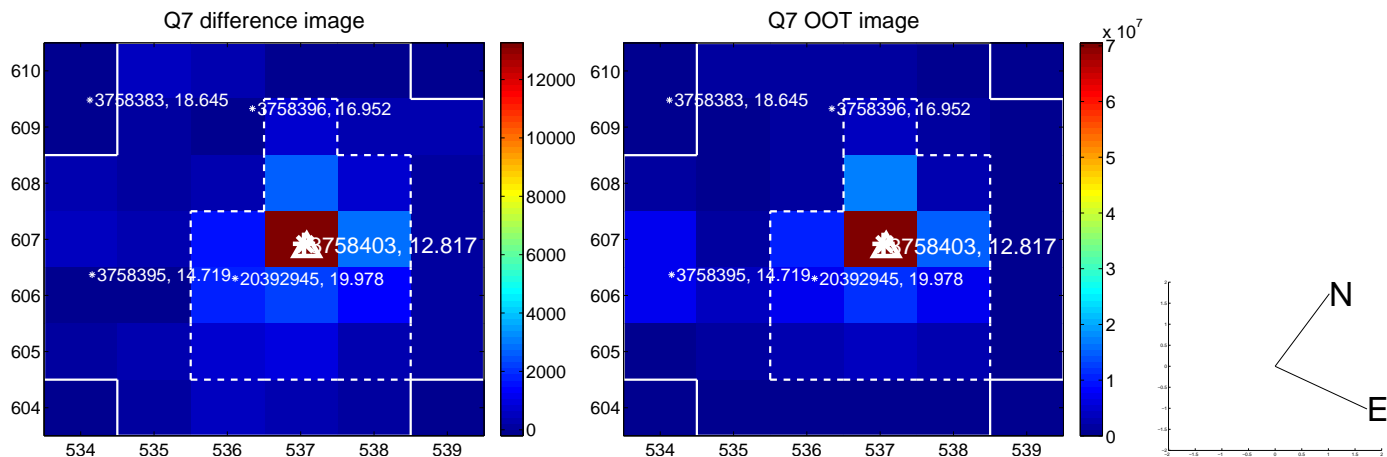
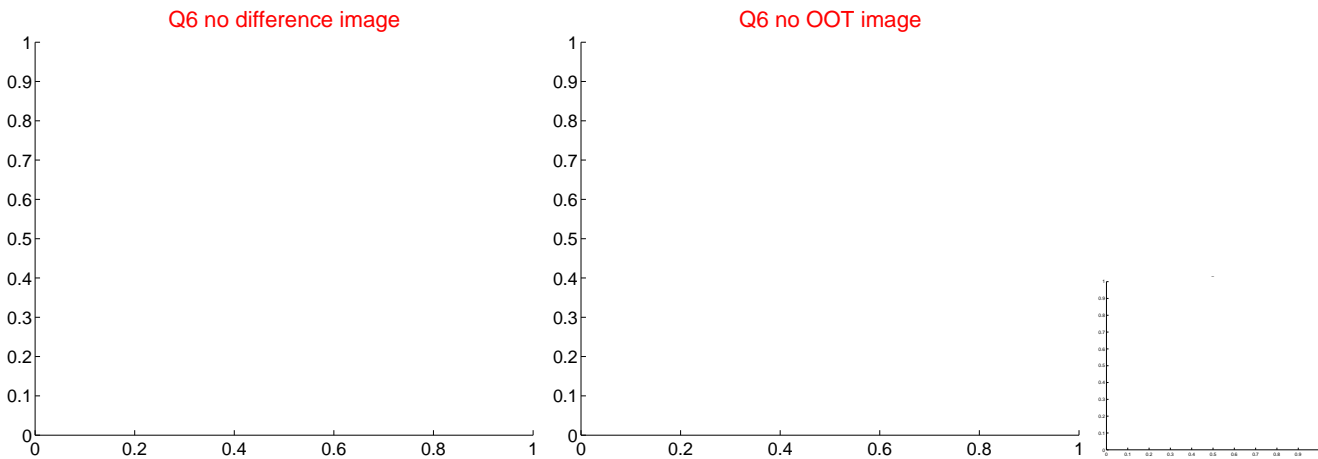
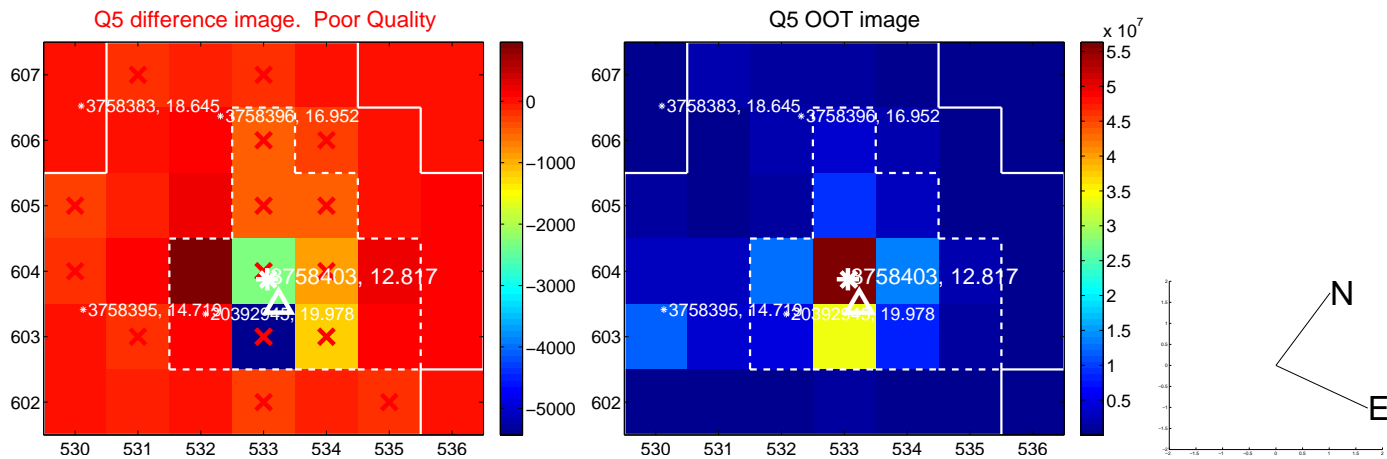


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

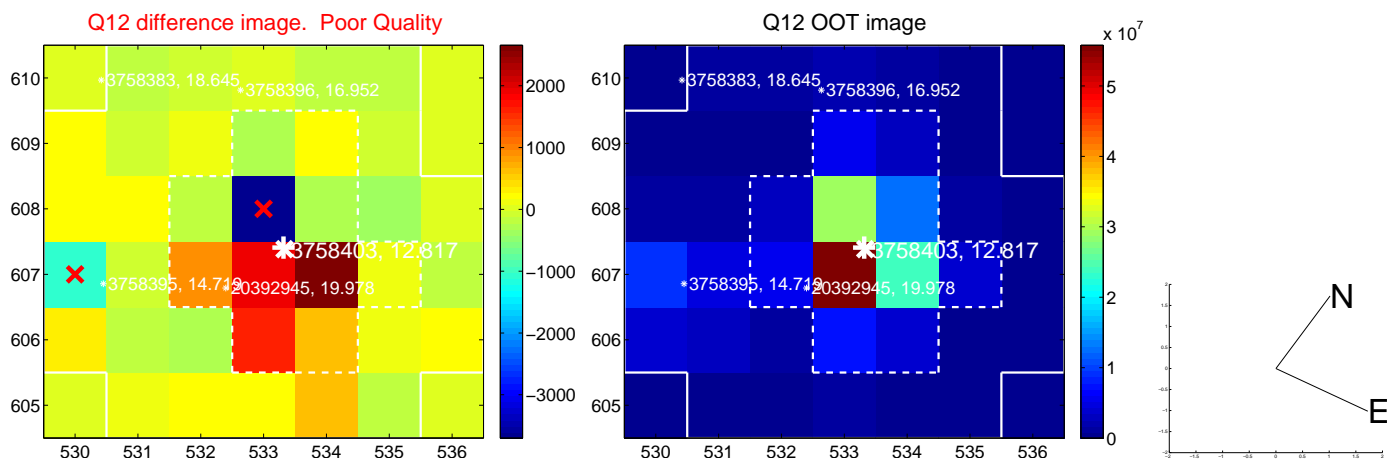
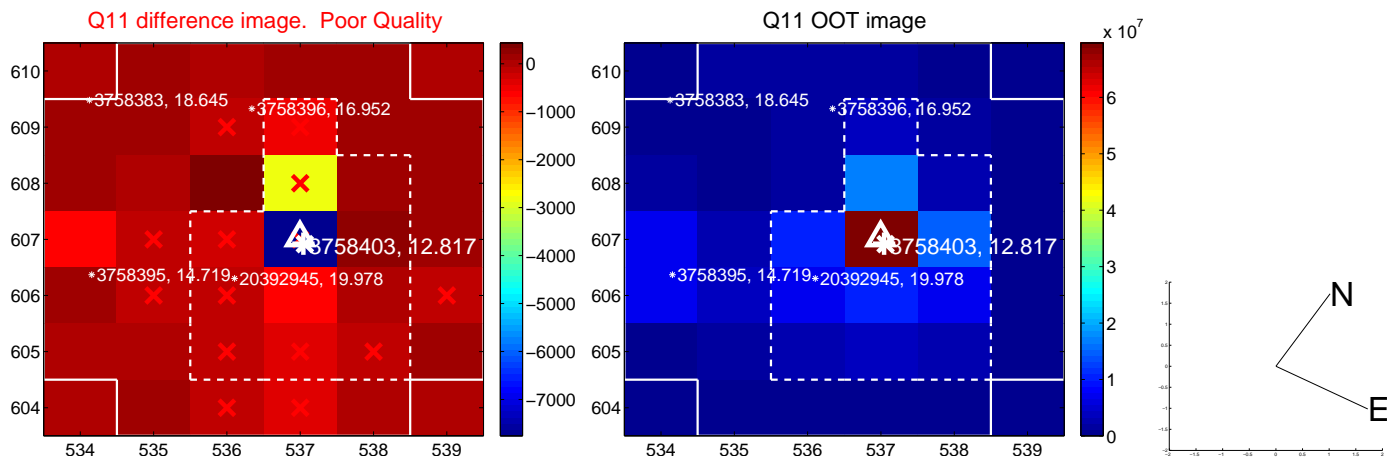
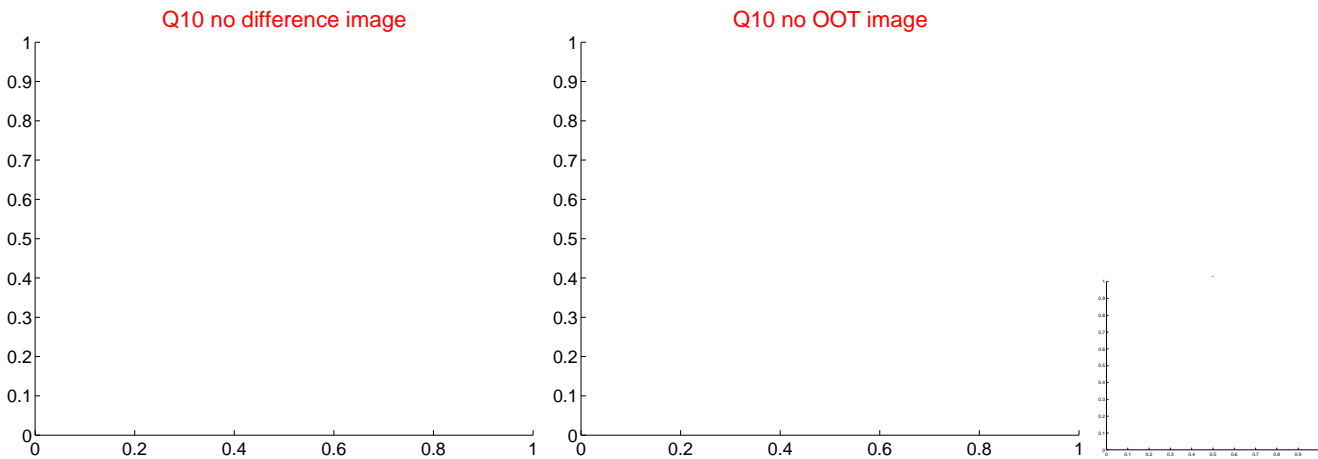
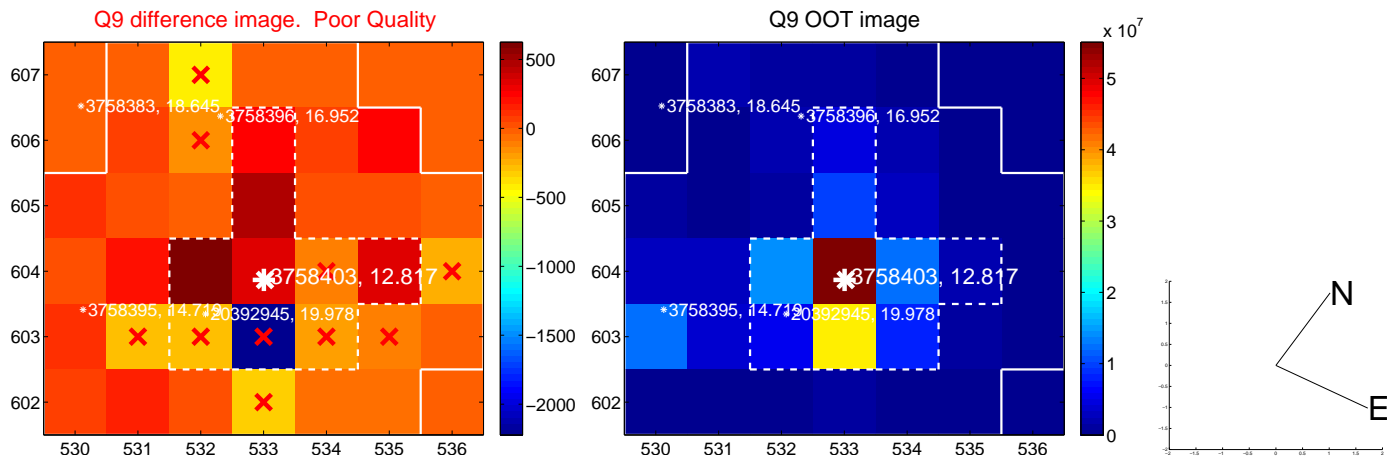
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



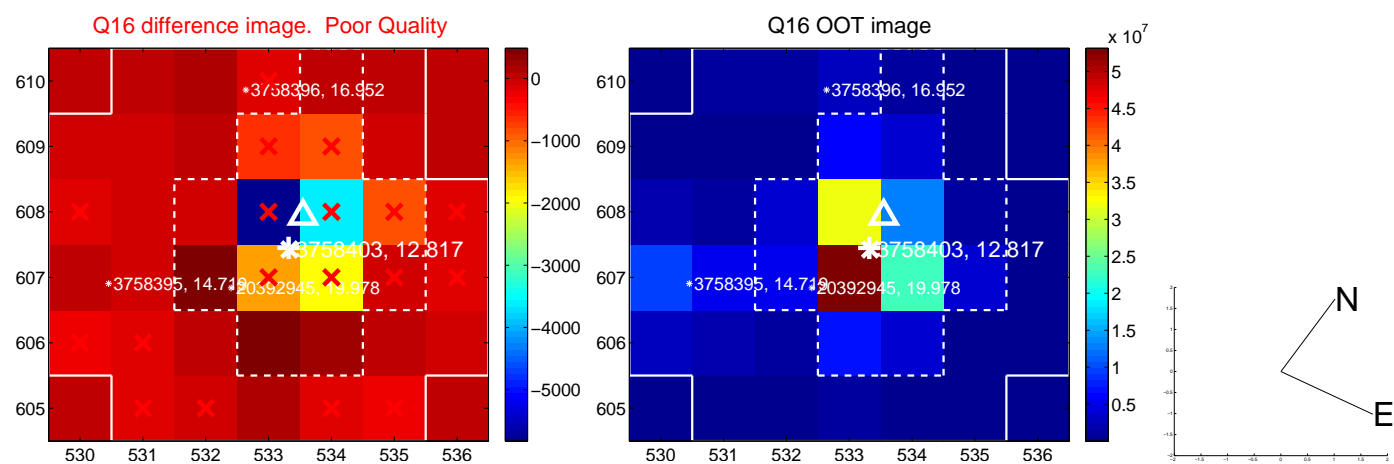
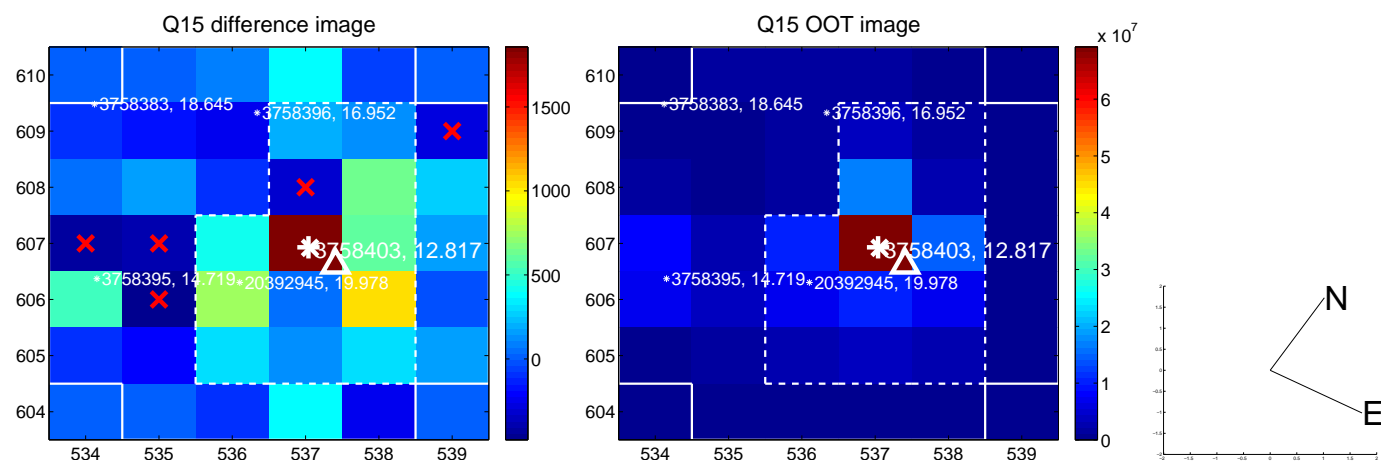
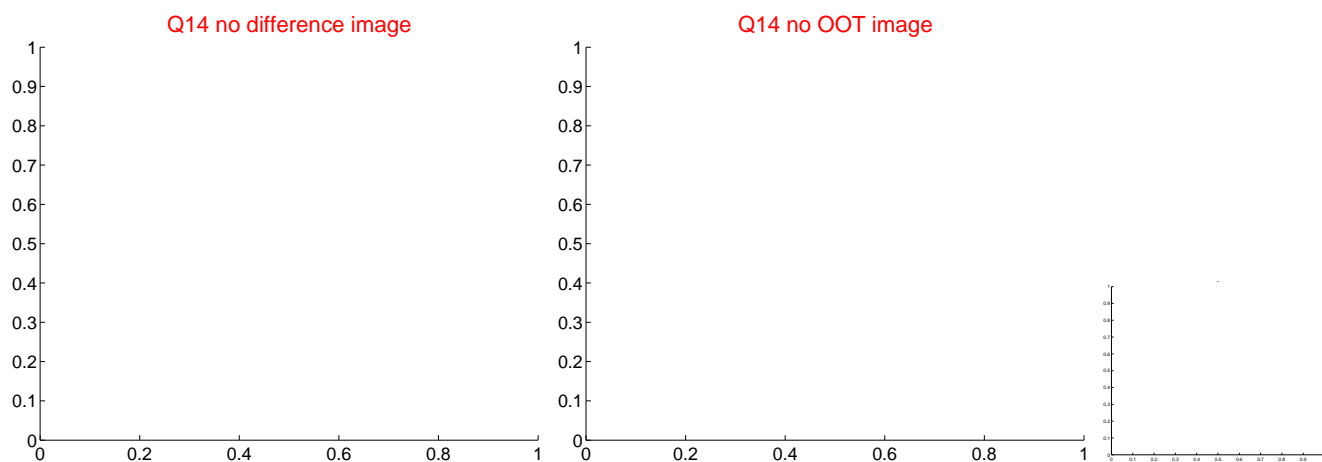
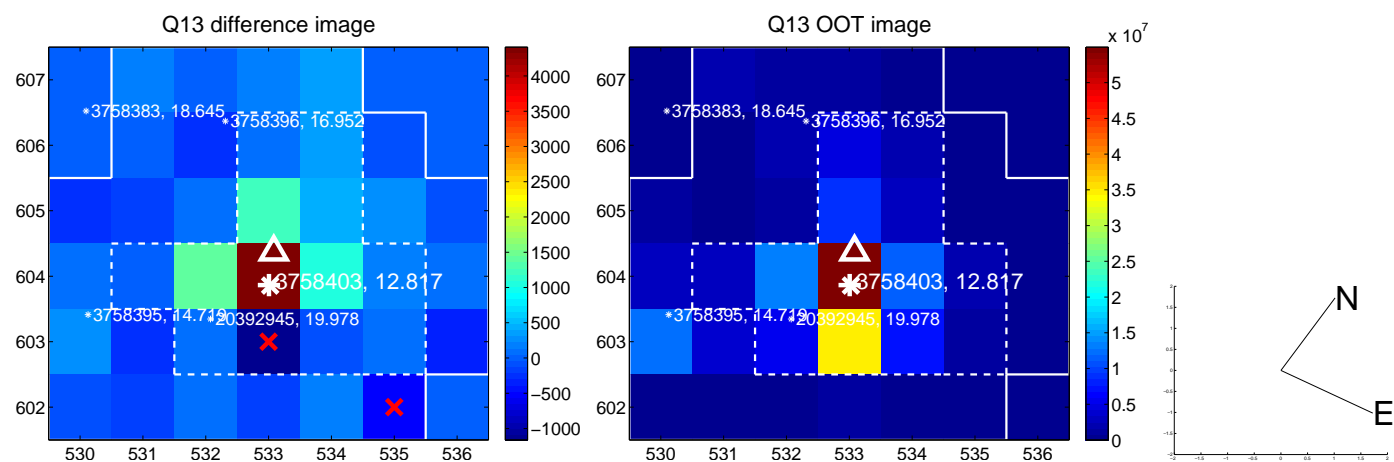
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

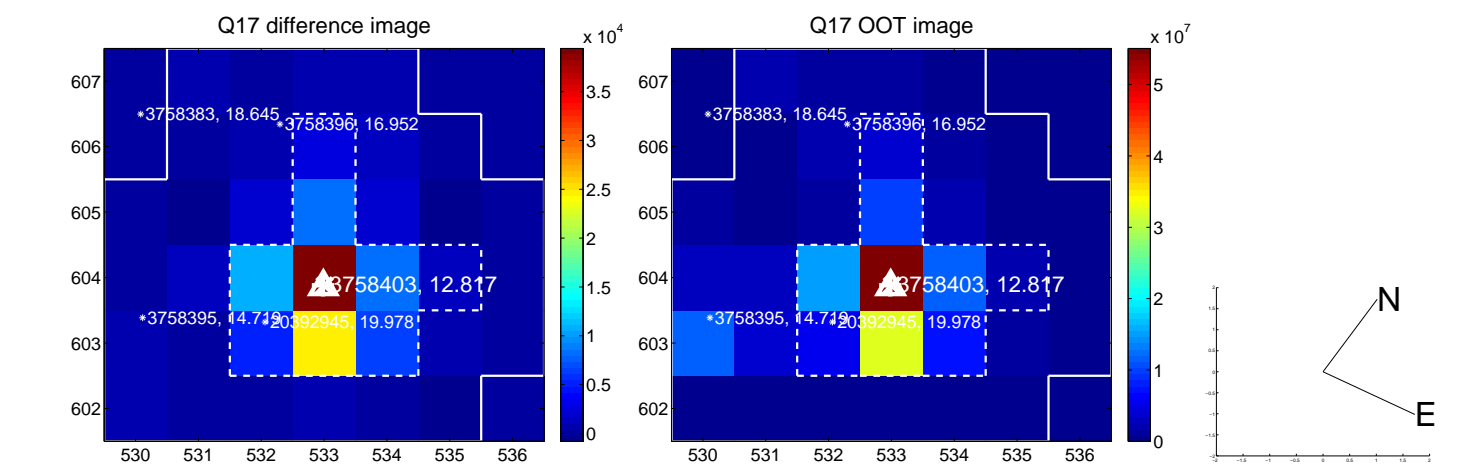


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

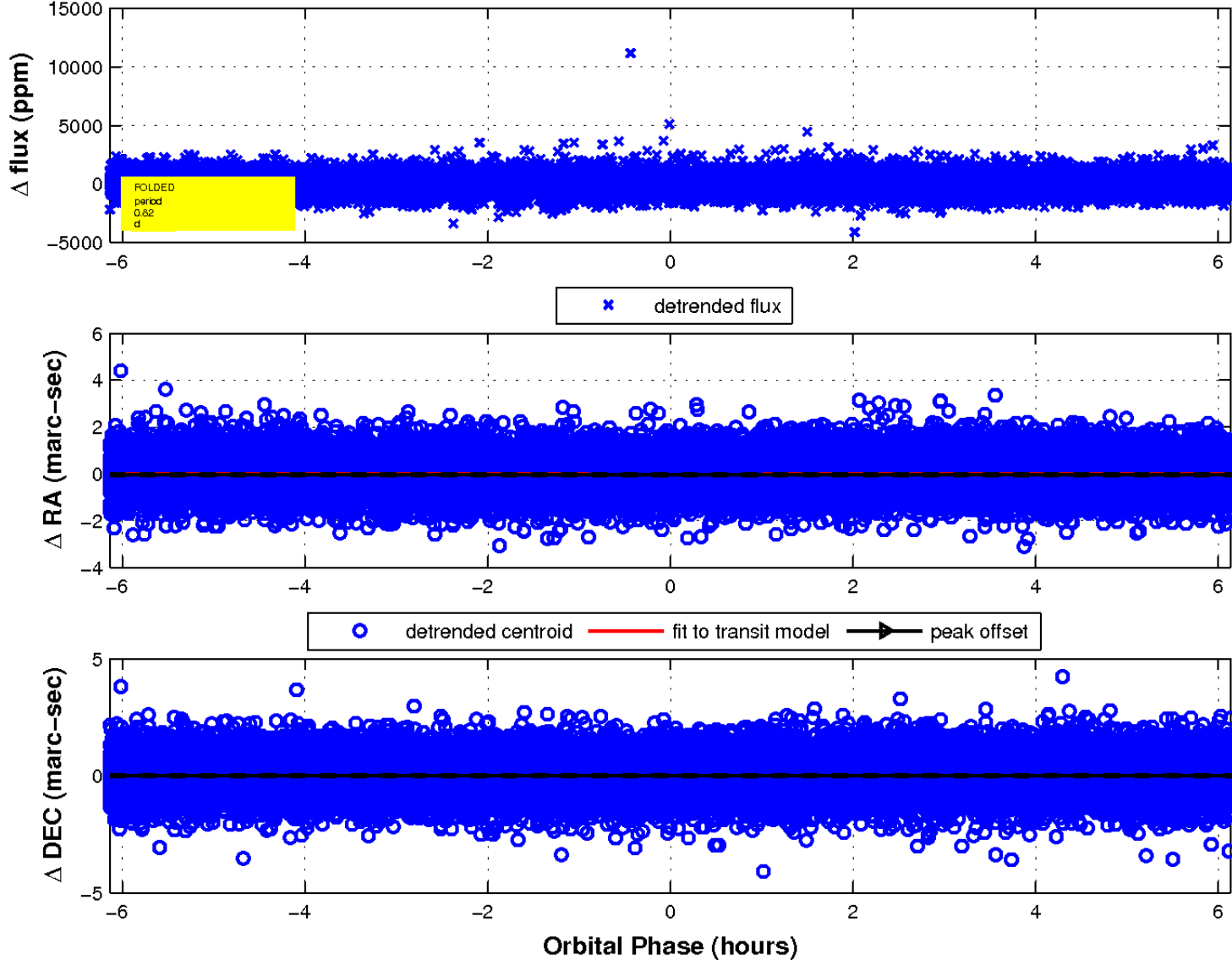




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

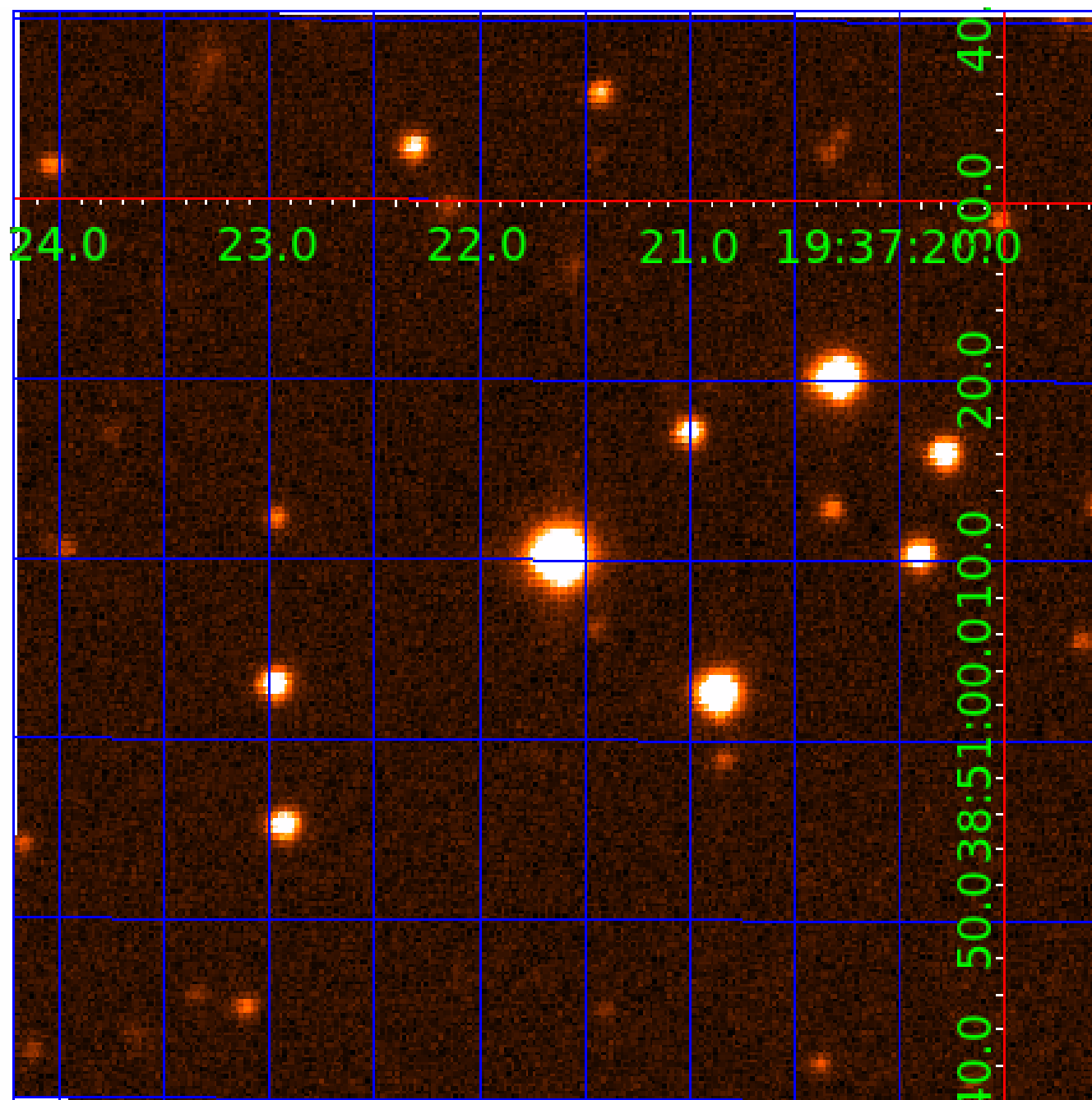


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



# KIC 003758403

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003758403-01	OBS	No	0.818218	131.980227	47.5	1.570	9.9	6.7	1.71	6979	1.33	16220.27
003758403-02	OBS	No	0.818239	131.644361	58.8	2.046	9.5	7.8	1.71	6979	1.52	16219.72
003758403-03	OBS	No	95.839320	153.799071	1195.2	3.894	8.1	7.5	1.71	6979	7.09	28.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003758403-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003758403-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
003758403-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

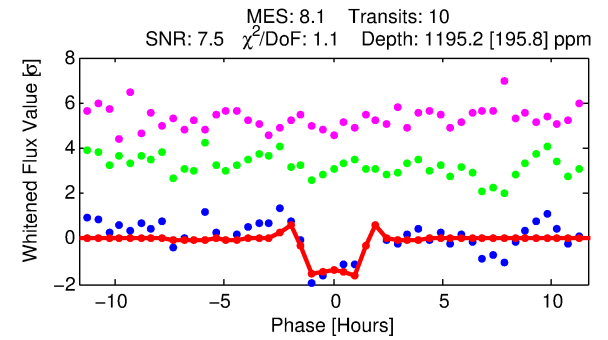
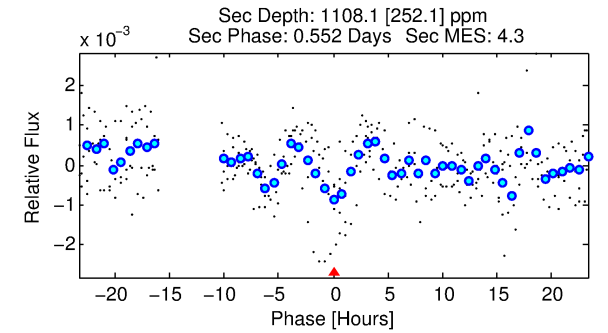
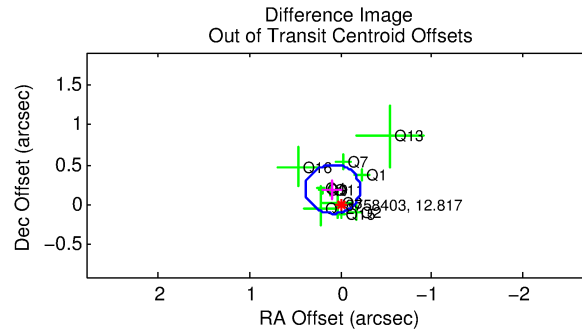
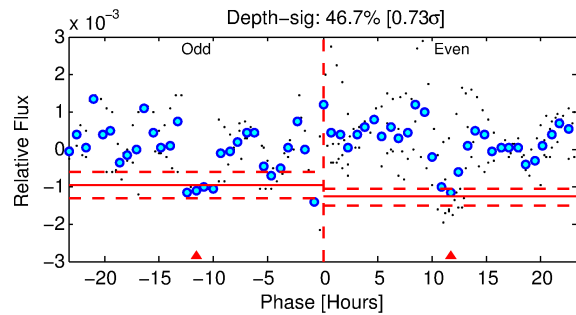
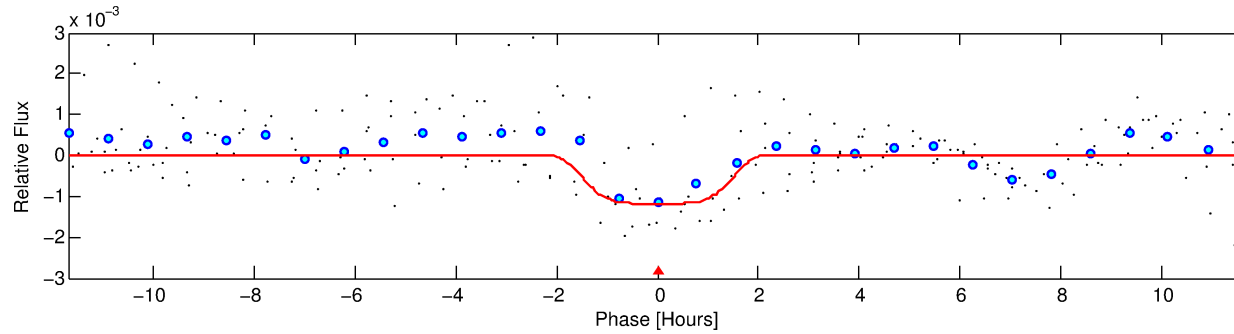
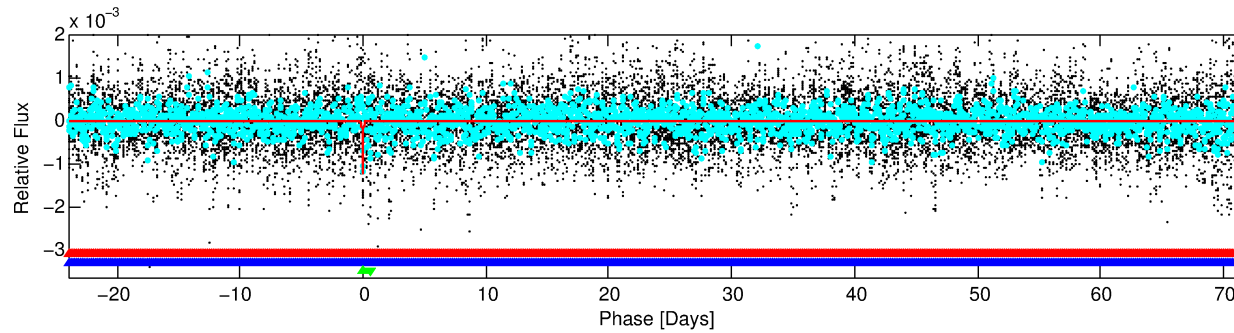
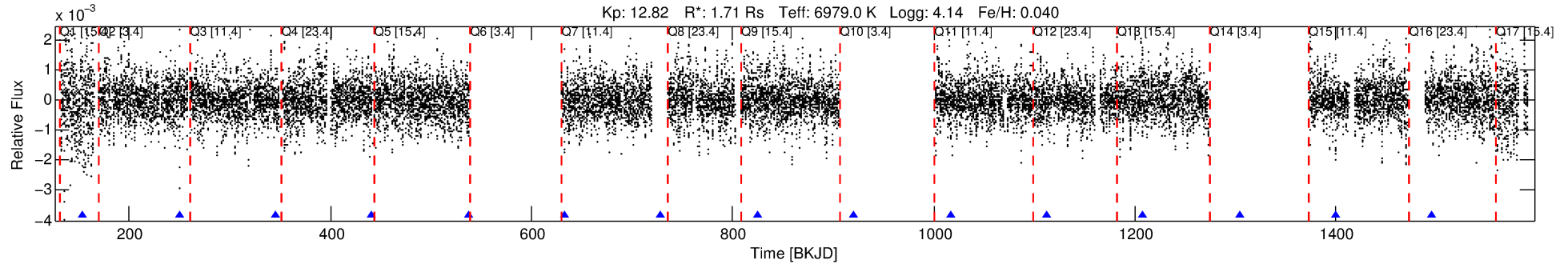
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003758403-03

No Significant Match Found

# DV One-Page Summary

KIC: 3758403 Candidate: 3 of 3 Period: 95.839 d



## DV Fit Results:

Period = 95.83932 [0.00097] d  
Epoch = 153.7991 [0.0086] BKJD  
Rp/R\* = 0.0381 [0.0039]  
a/R\* = 85.44 [20.33]  
b = 0.93 [0.03]  
Seff = 28.30 [11.67]  
Teq = 588 [61] K  
Rp = 7.09 [2.48] Re  
a = 0.4672 [0.1262] AU  
Ag = 2649.46 [1285.41] [2.06 $\sigma$ ]  
Teffp = 6524 [567] K [10.40 $\sigma$ ]

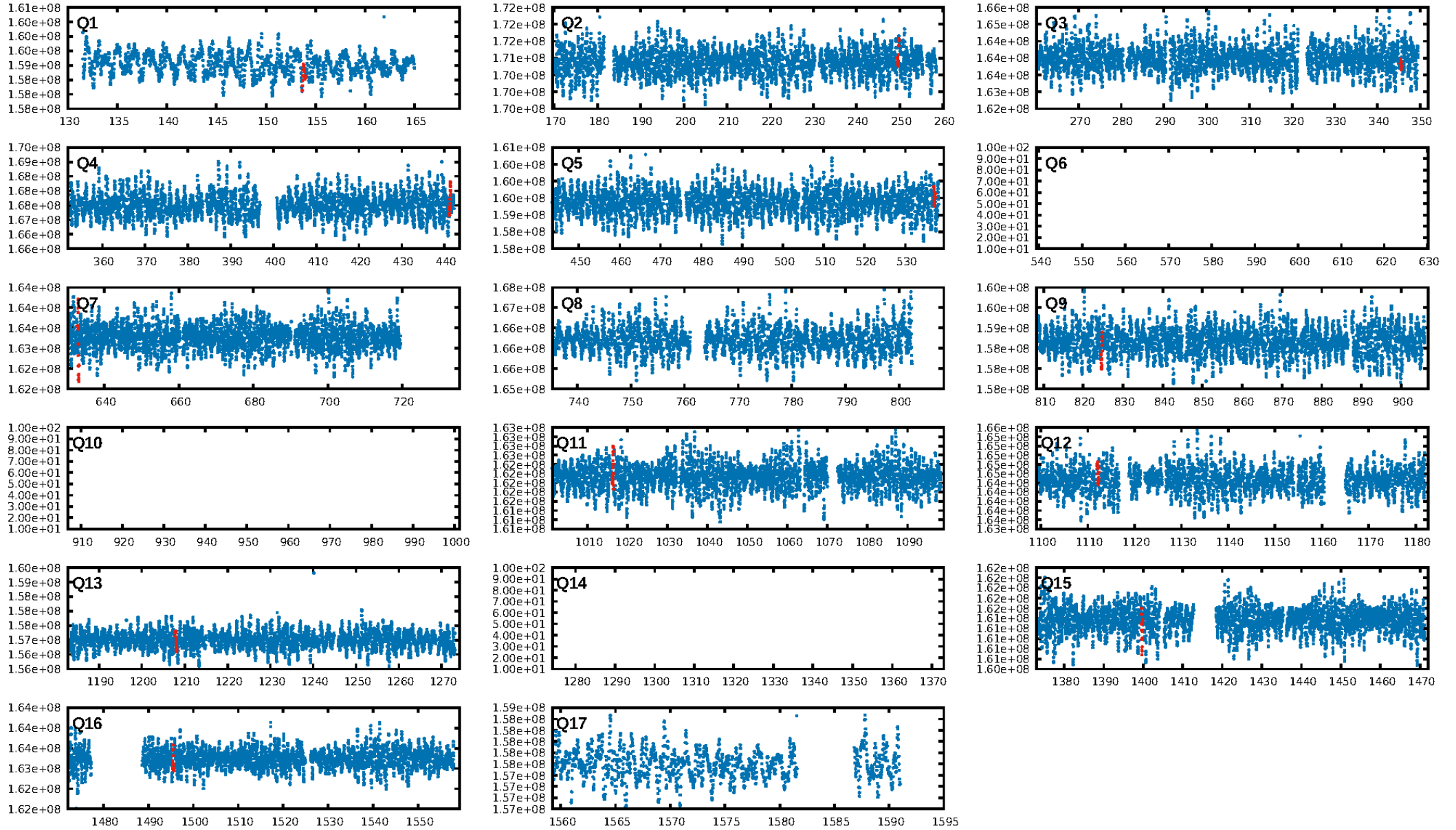
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [518.42 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 7.9%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 7.33e-11**  
RollingBand-fgt: 1.00 [9/9]  
GhostDiagnostic-chr: -2.181  
Centroid-sig: 3.9%  
**Centroid-so: 0.854 arcsec [3.08 $\sigma$ ]**  
OotOffset-rm: 0.214 arcsec [2.11 $\sigma$ ]  
KicOffset-rm: 0.168 arcsec [1.55 $\sigma$ ]  
OotOffset-st: 1/4/3/3 [11]  
KicOffset-st: 1/4/3/3 [11]  
DiffImageQuality-fgm: 0.64 [7/11]  
DiffImageOverlap-fno: 0.00 [0/12]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:01:34 Z

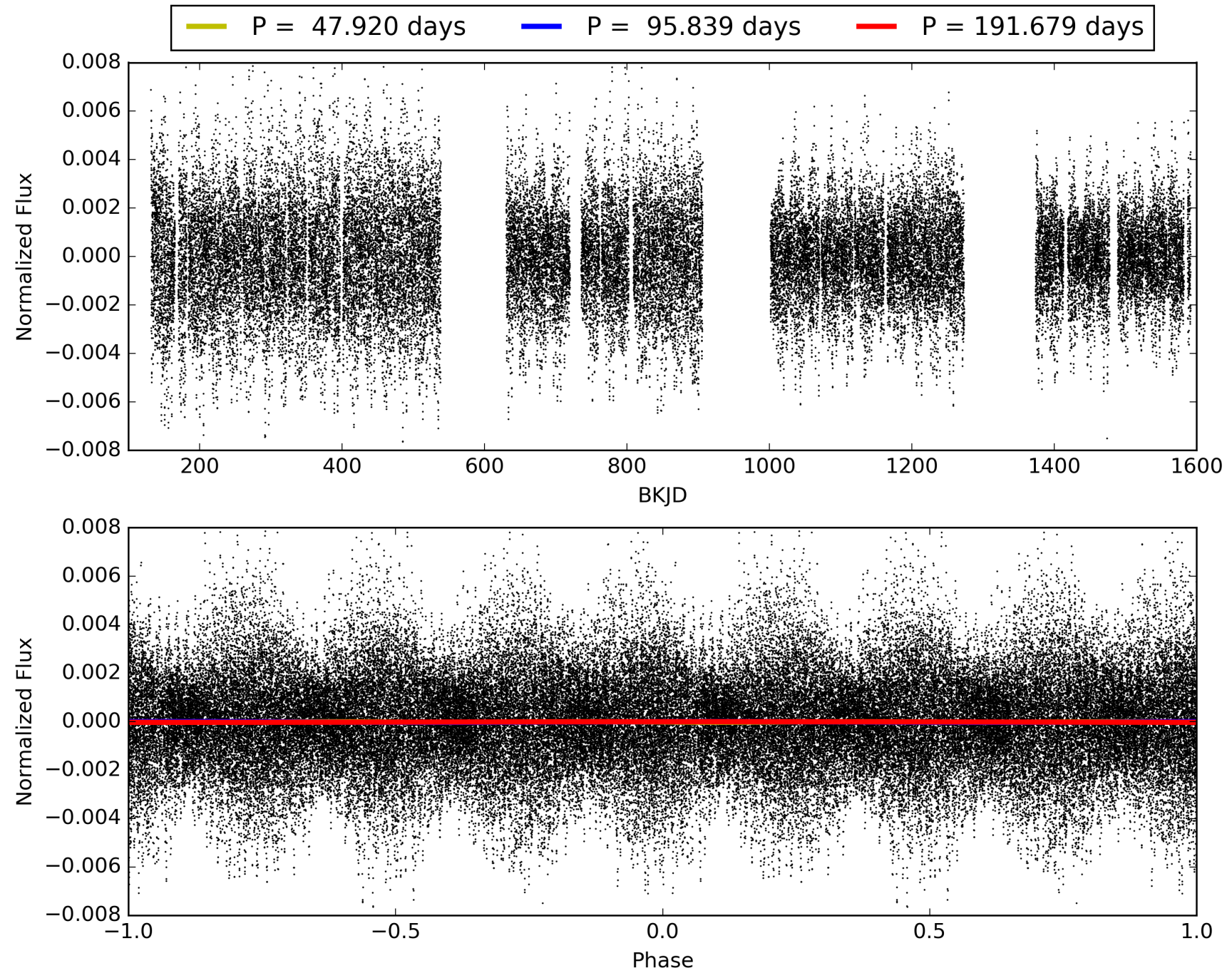
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003758403-03, PDC Light Curves



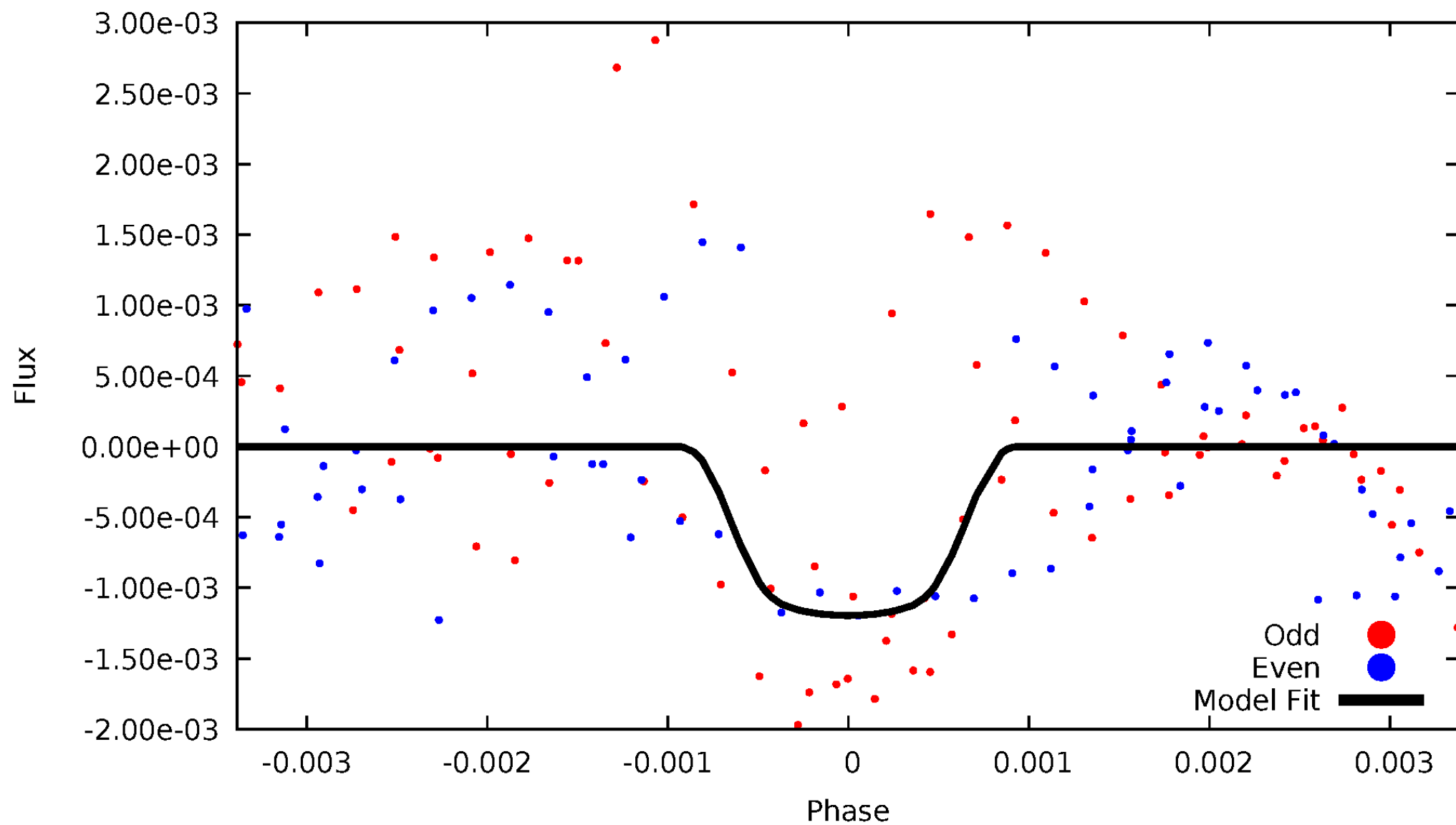


# TCE 003758403-03



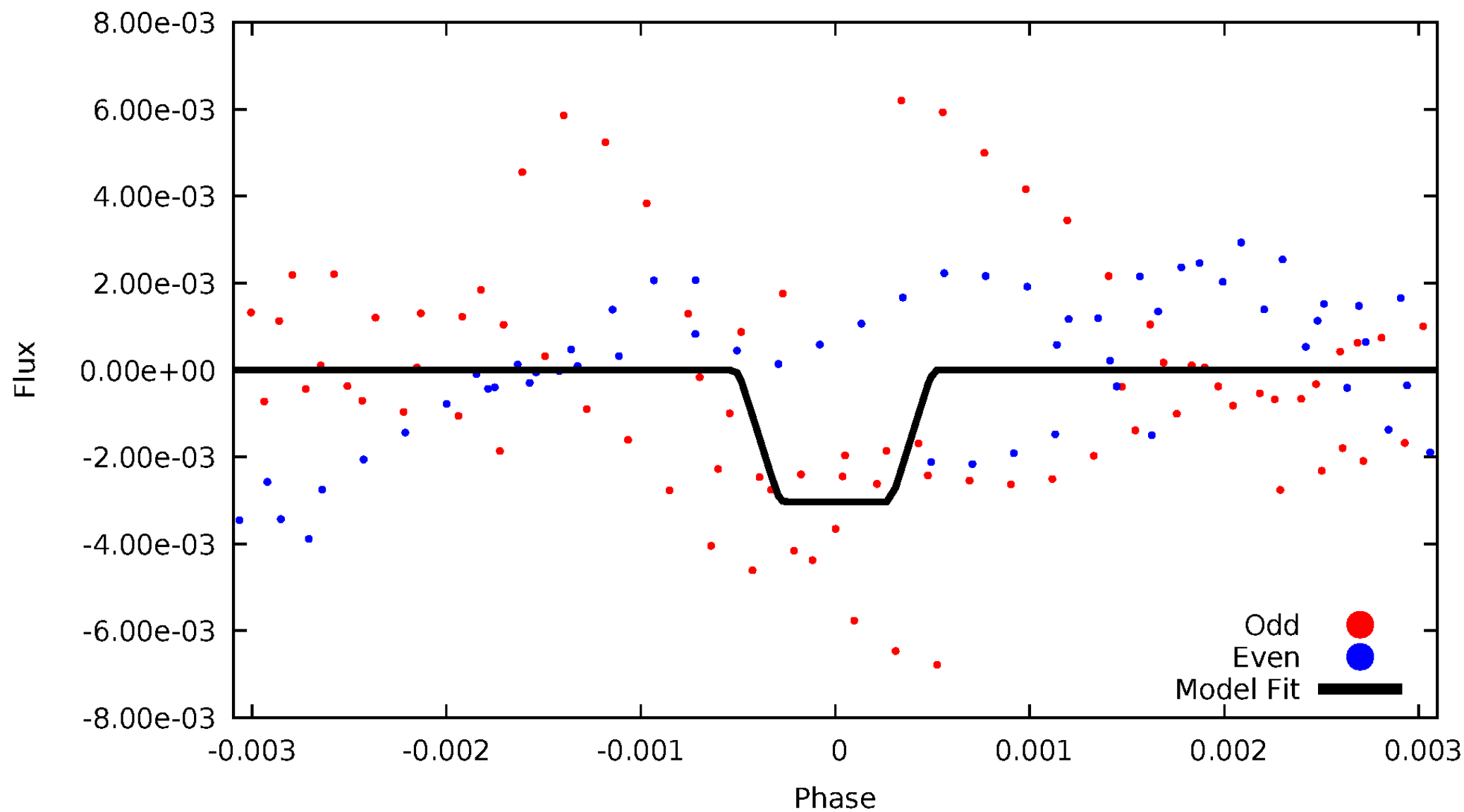
# DV Odd/Even

TCE 003758403-03



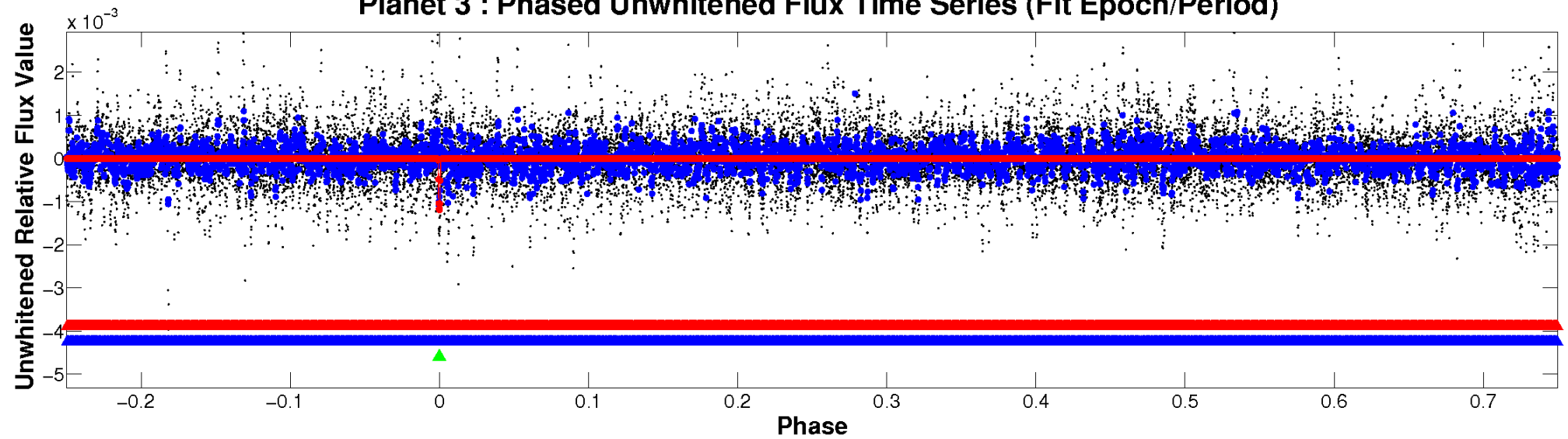
# ALT Odd/Even

TCE 003758403-03

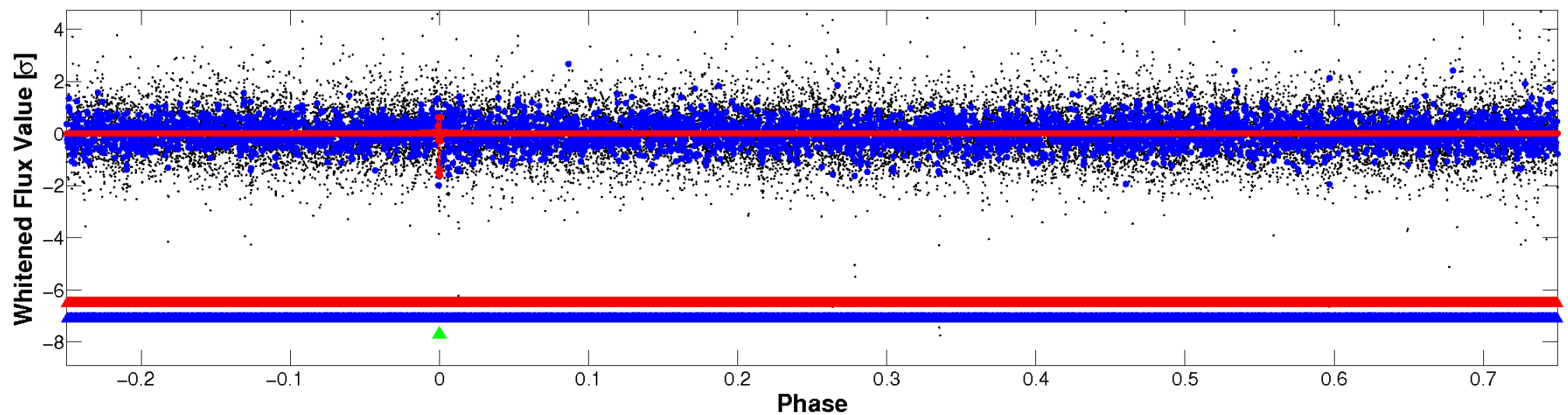


# Non-Whitened Vs. Whitened Light Curve

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

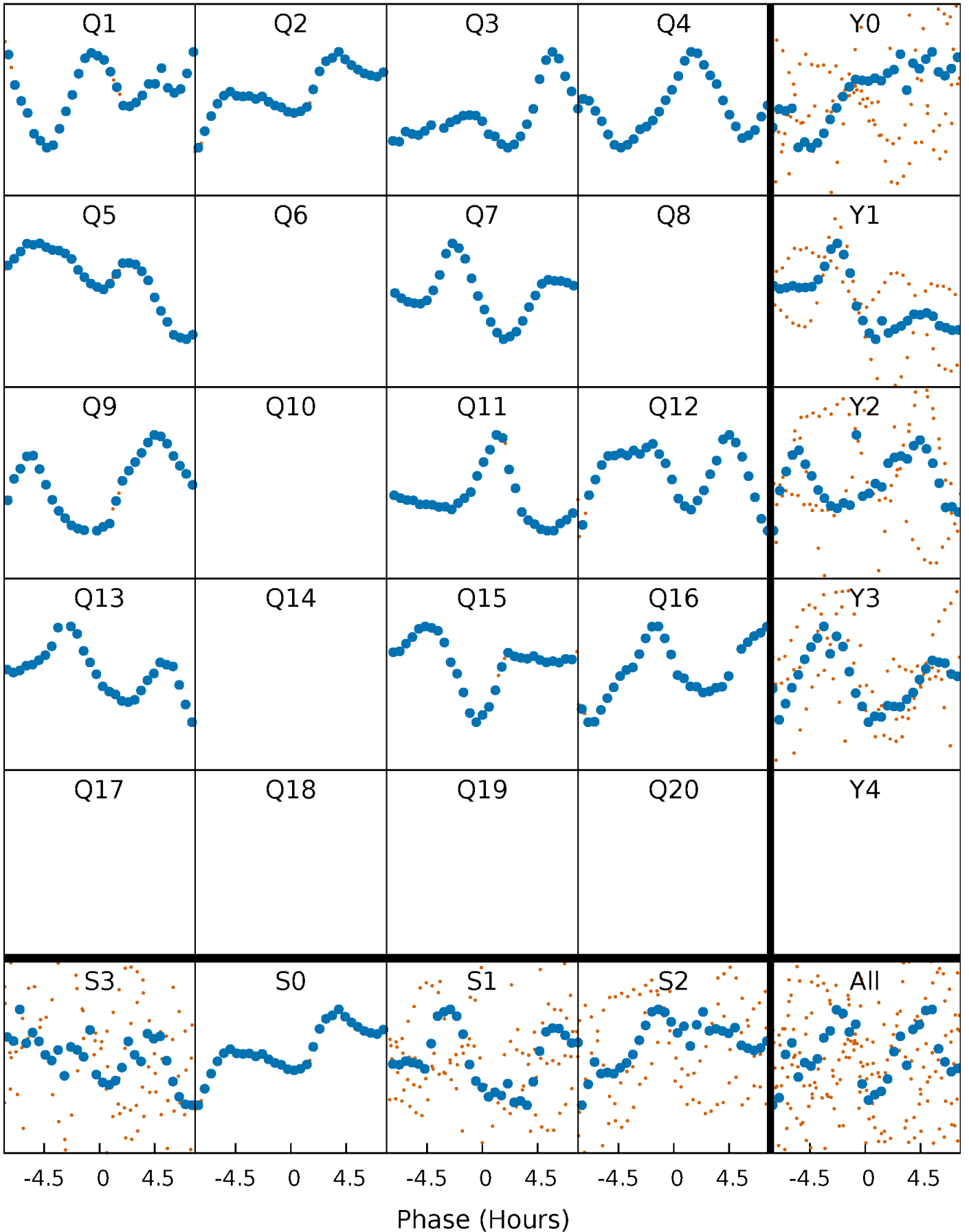


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



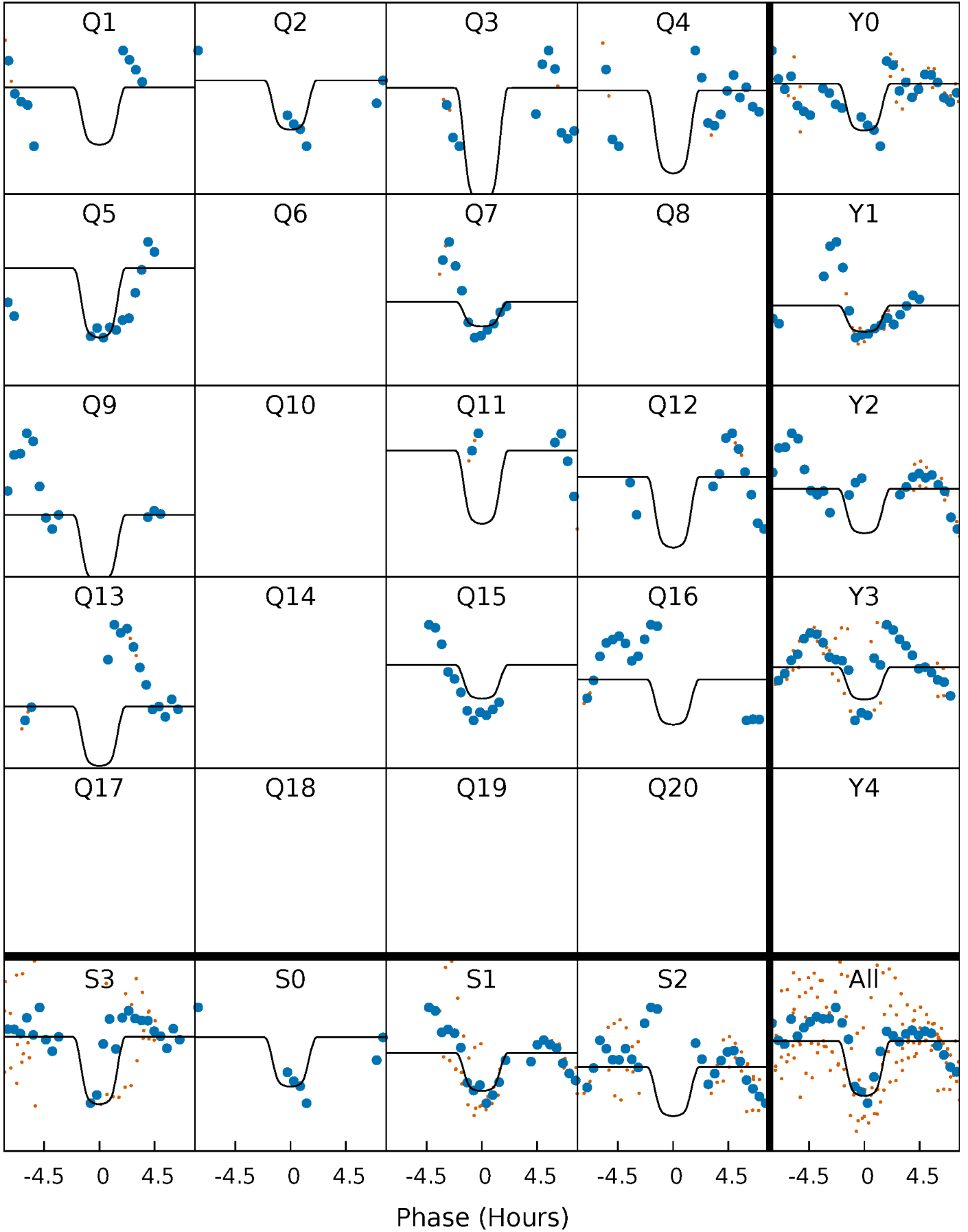
# PDC Quarter-Phased Transit Curves

TCE 003758403-03 P= 95.839320 Days  $T_0=153.799071$  (BKJD)



# DV Quarter-Phased Transit Curves

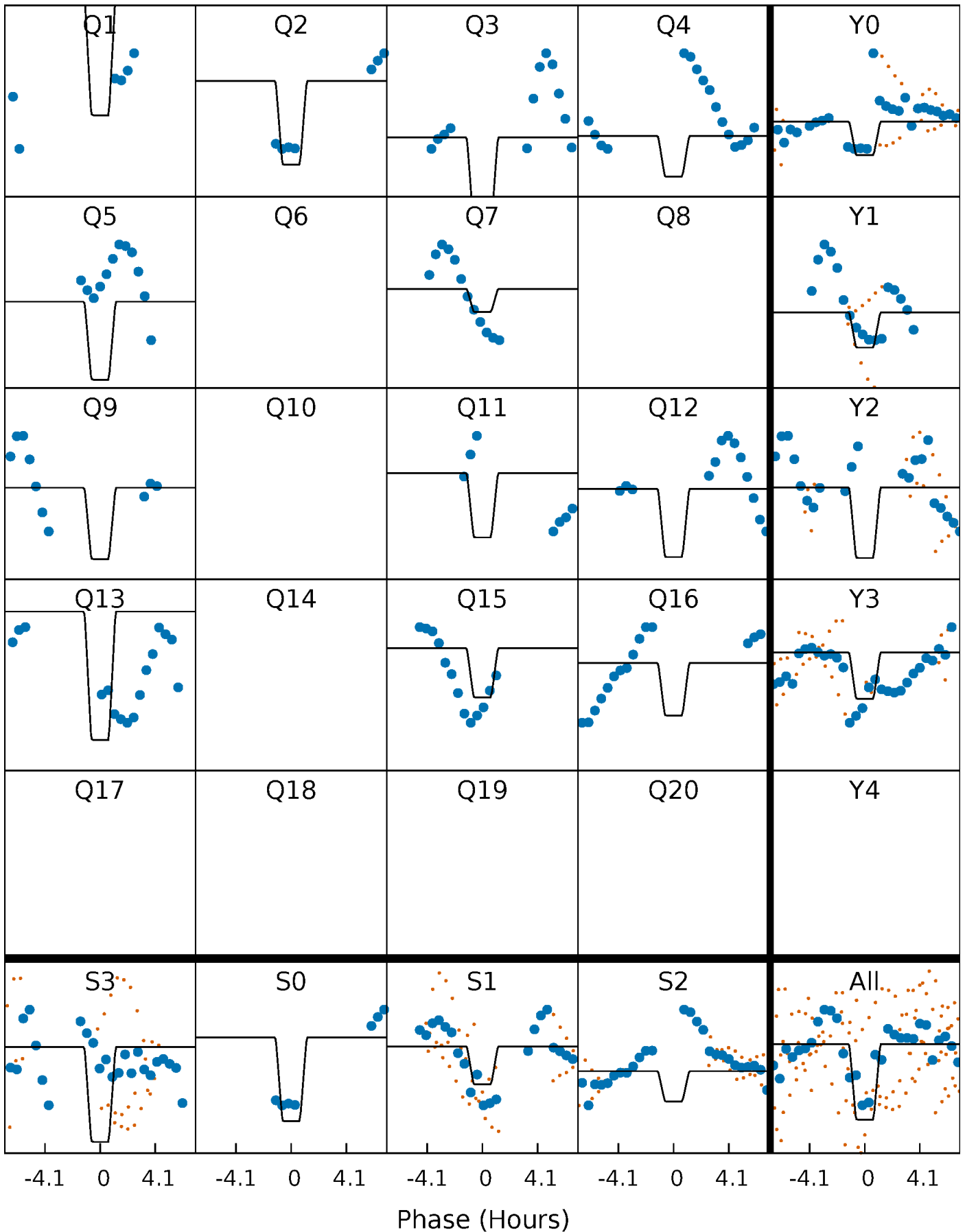
TCE 003758403-03 P= 95.839320 Days  $T_0=153.799071$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

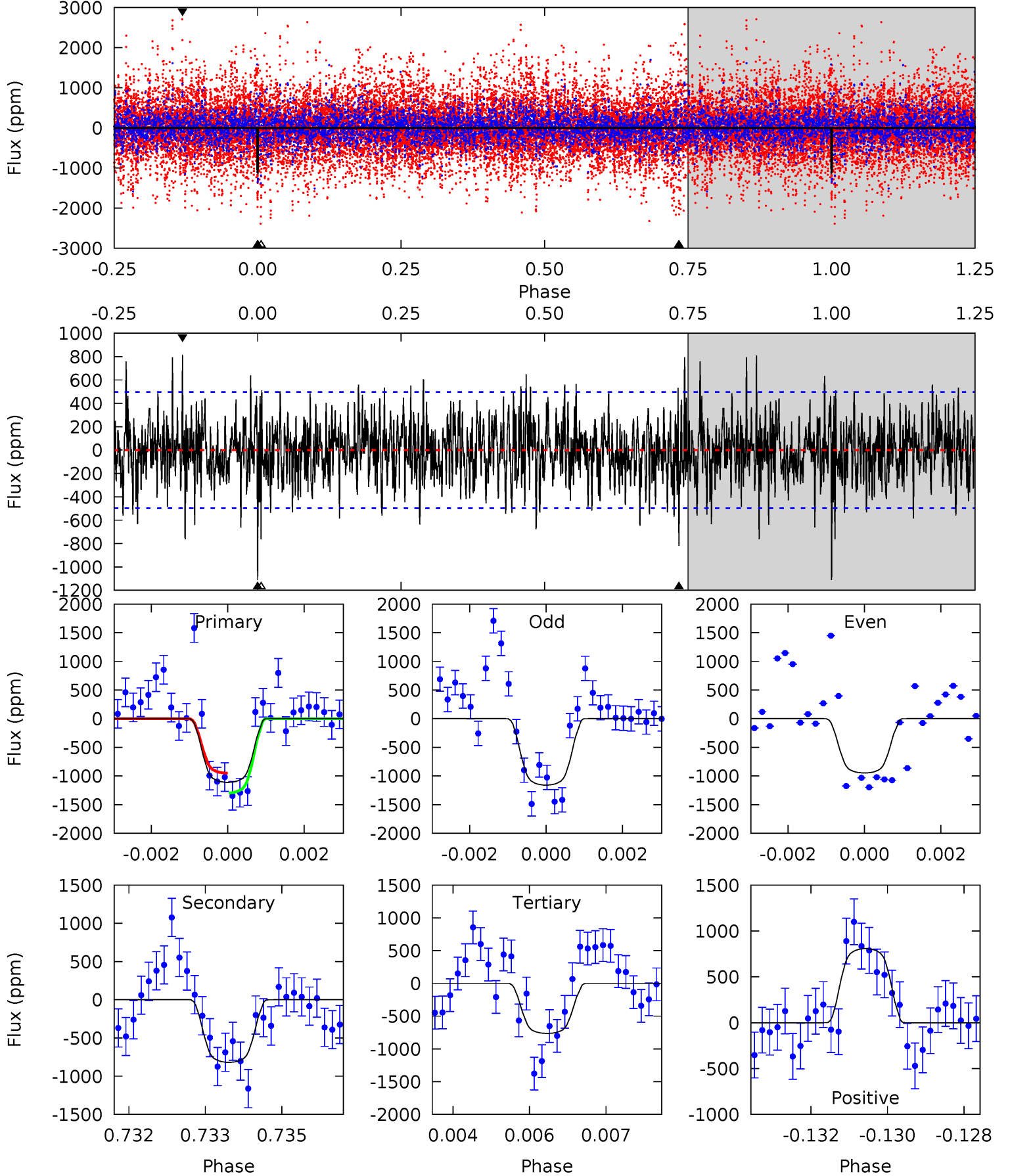
TCE 003758403-03 P= 95.837163 Days  $T_0=153.841103$  (BKJD)



# DV Model-Shift Uniqueness Test

003758403-03, P = 95.839320 Days, E = 57.959751 Days

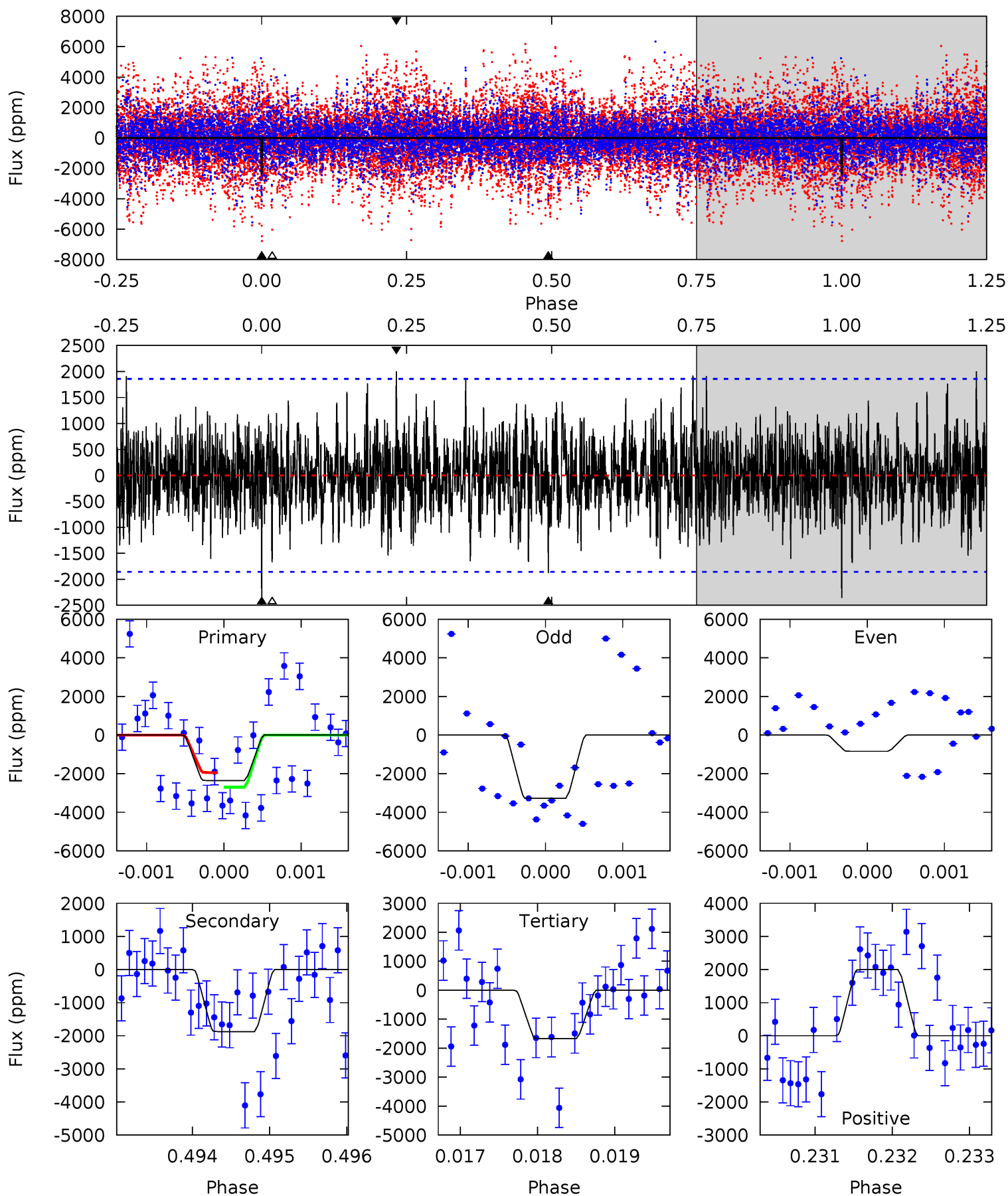
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	8.79	8.20	8.68	5.34	3.11	2.30	3.73	3.26	0.59	0.12	1.02	0.14	0.42	1.86



# Alt Model-Shift Uniqueness Test

003758403-03, P = 95.837163 Days, E = 58.003940 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
6.92	5.50	4.91	5.87	5.45	3.29	1.57	2.01	1.05	0.59	-0.37	2.80	0.79	0.46	1.11



### Stellar Parameters For KIC 003758403

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6979^{+166}_{-291}$	$4.145^{+0.132}_{-0.198}$	$0.040^{+0.200}_{-0.350}$	$1.705^{+0.571}_{-0.308}$	$1.481^{+0.216}_{-0.216}$	$0.421^{+0.270}_{-0.220}$
	+2%/-4%	+3%/-5%	+500%/-875%	+33%/-18%	+15%/-15%	+64%/-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 003758403-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	-819±93	$7.22^{+1.38}_{-1.15}$	$823^{+66}_{-52}$	$5987^{+401}_{-370}$	$1879^{+753}_{-548}$
Alt.	-1875±341	$10.41^{+1.92}_{-1.38}$	$822^{+66}_{-52}$	$6090^{+408}_{-384}$	$2051^{+807}_{-638}$

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

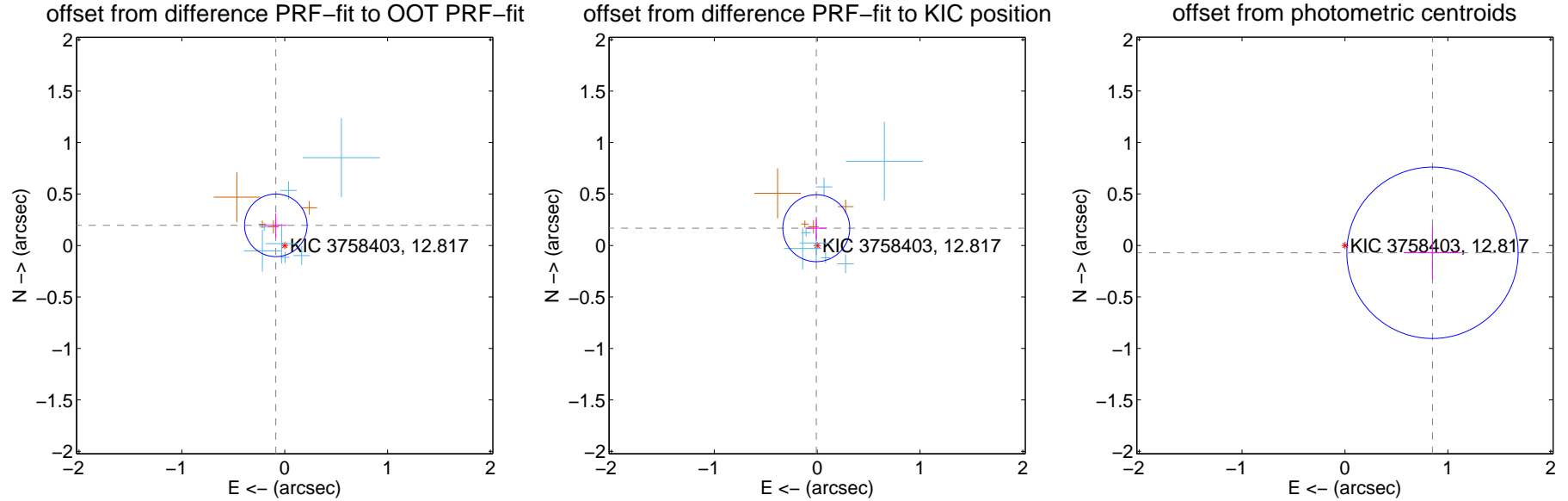
## DV Centroid Data

Supplemental centroid analysis for 003758403-03. Kepler magnitude: 12.82. Transit SNR 7.55

There are 7 quarters with good PRF difference image offsets

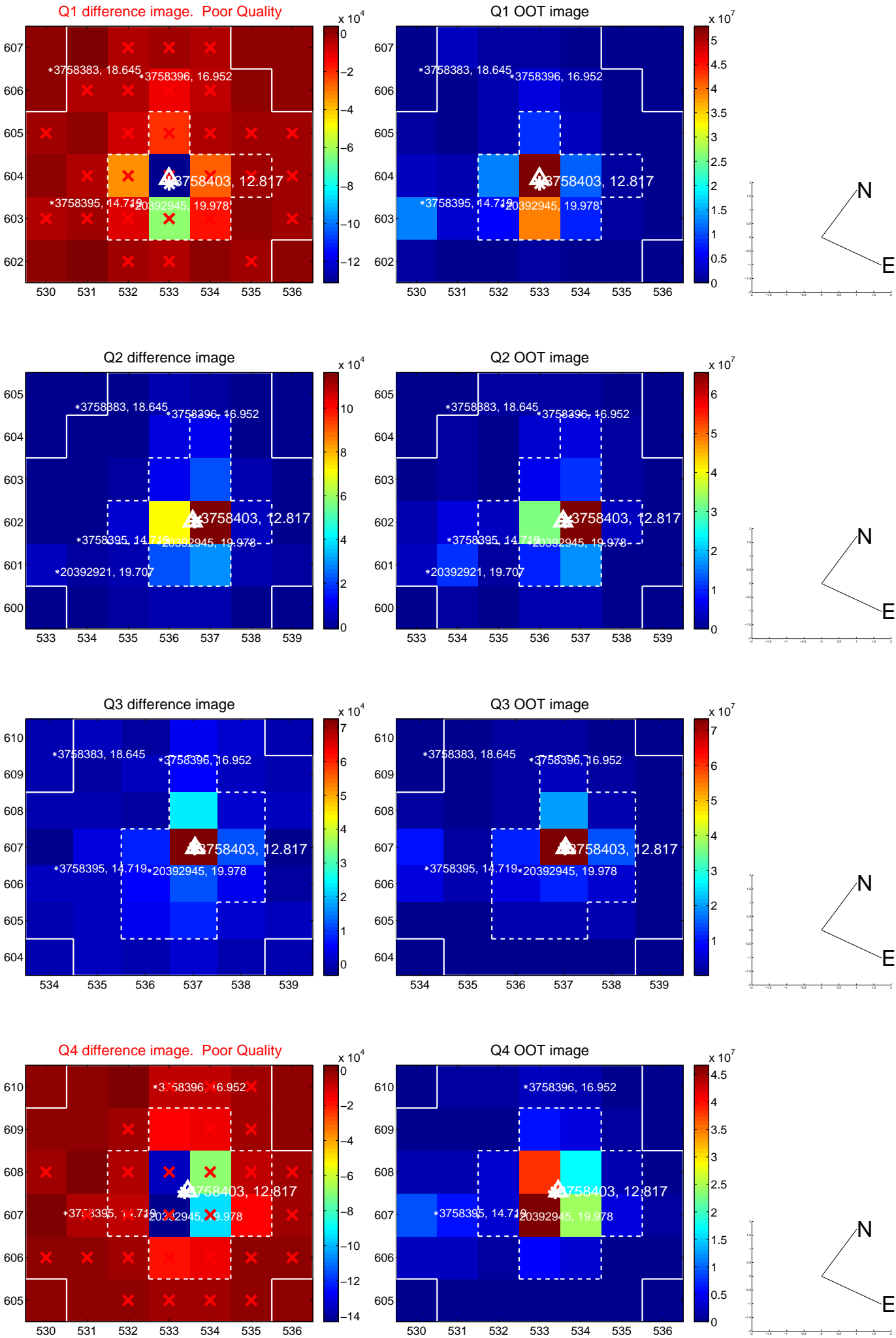
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.214 \pm 0.101$	2.11	$0.087 \pm 0.105$	$0.196 \pm 0.116$
PRF-fit source offset from KIC position	$0.168 \pm 0.108$	1.55	$0.008 \pm 0.101$	$0.168 \pm 0.109$
photometric centroid source offset	$0.85 \pm 0.28$	3.08	$-0.85 \pm 0.28$	$-0.07 \pm 0.26$



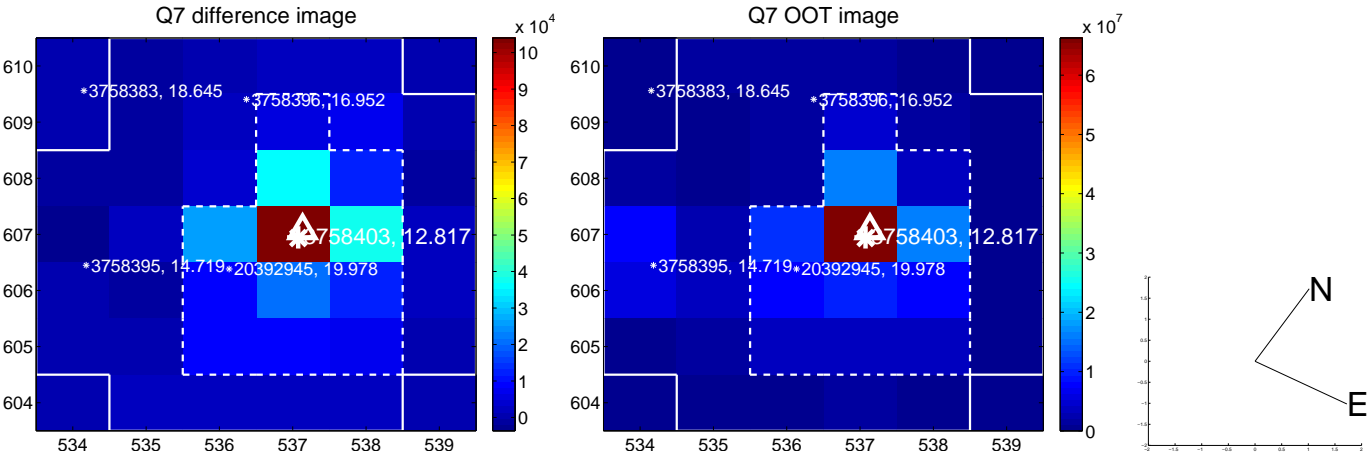
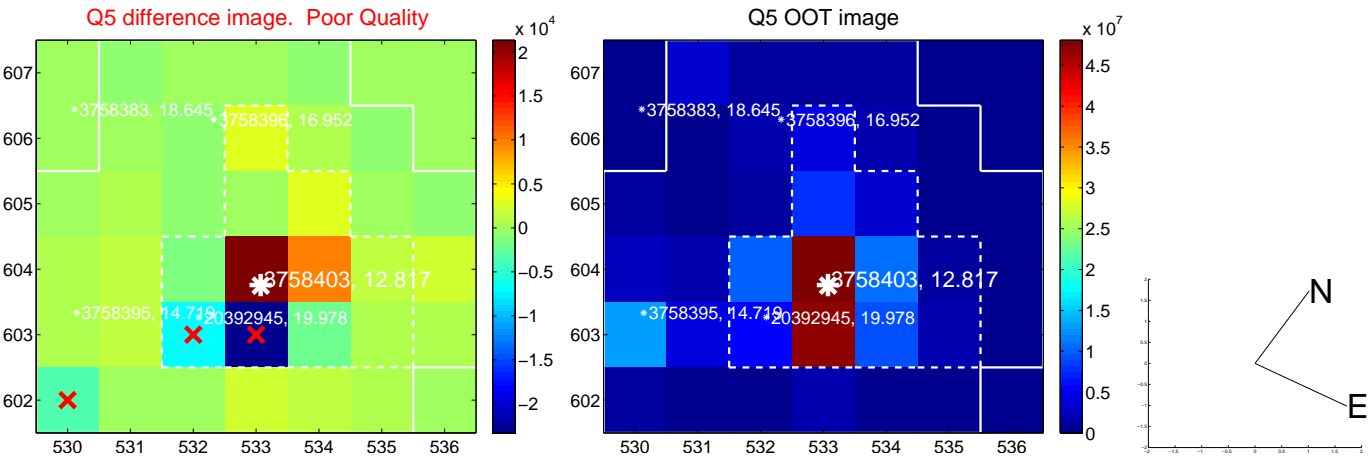
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

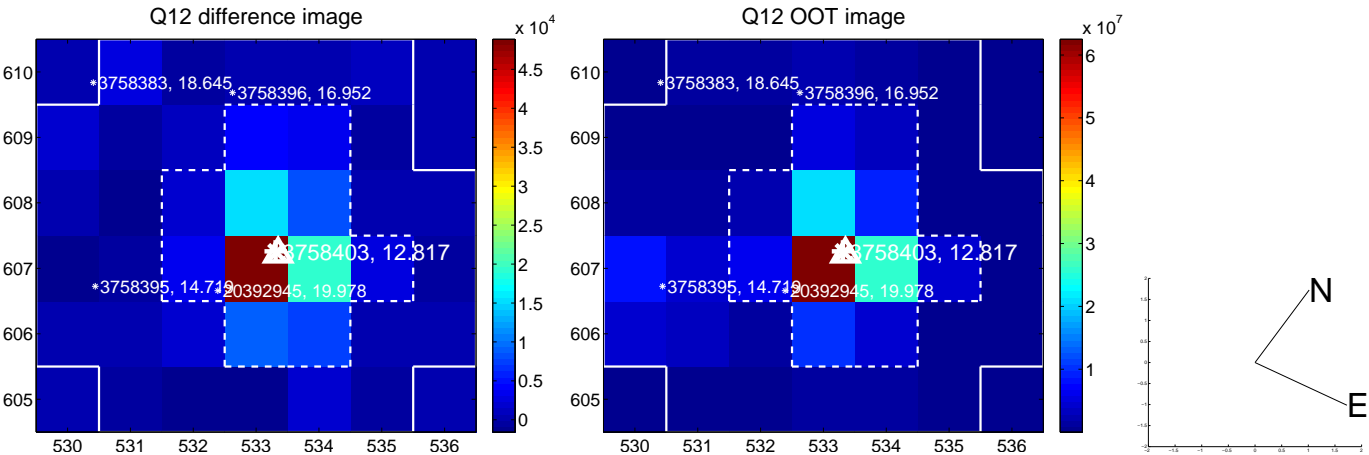
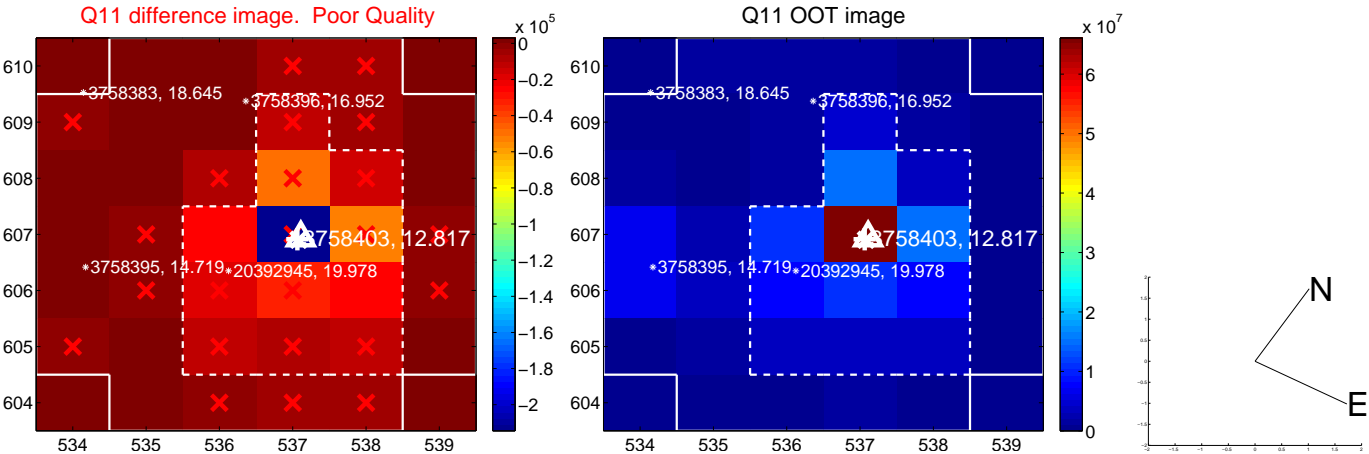
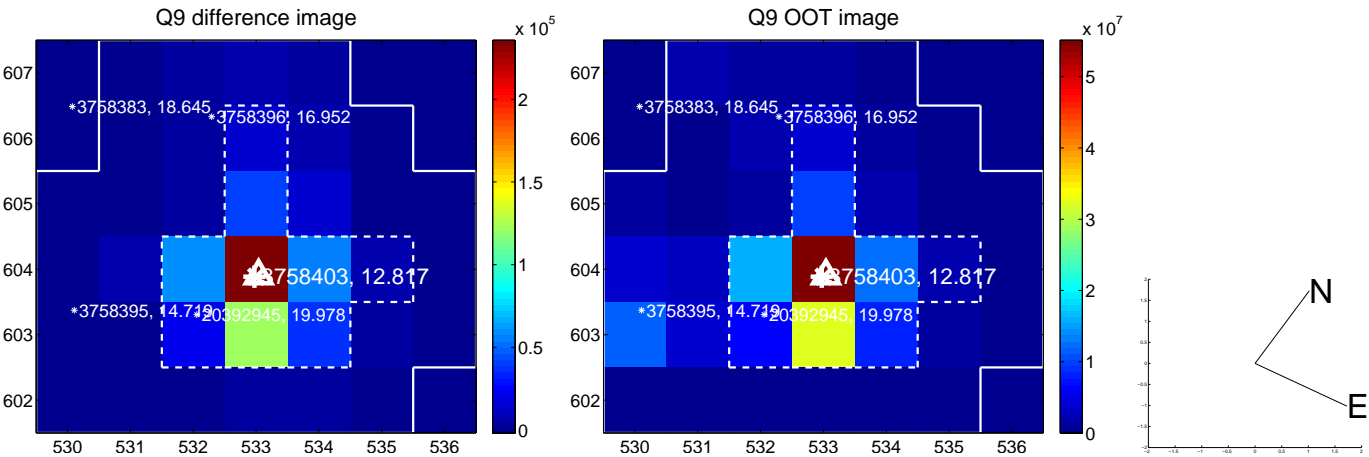




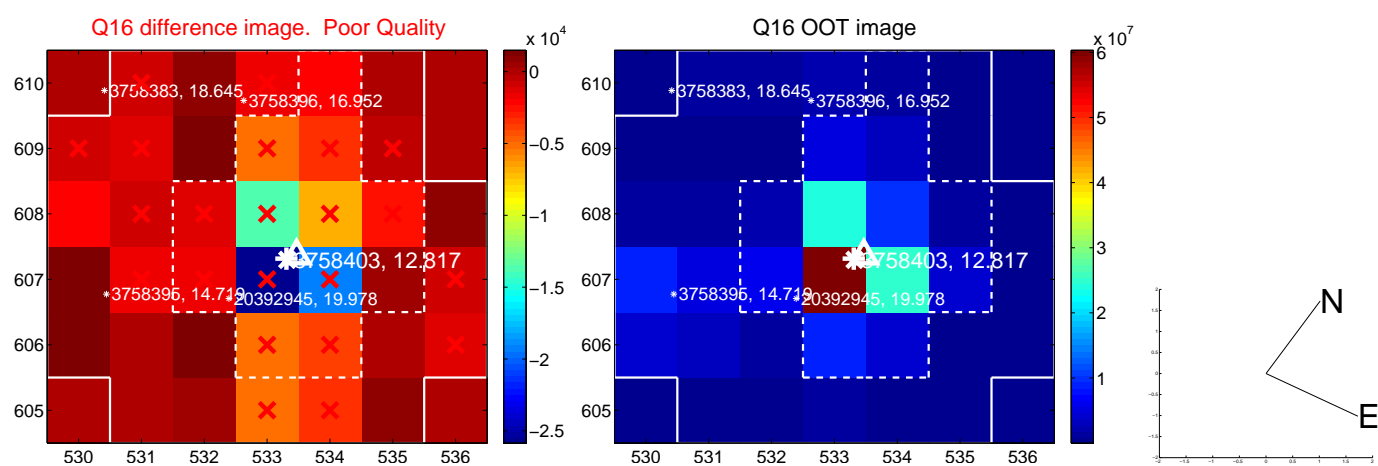
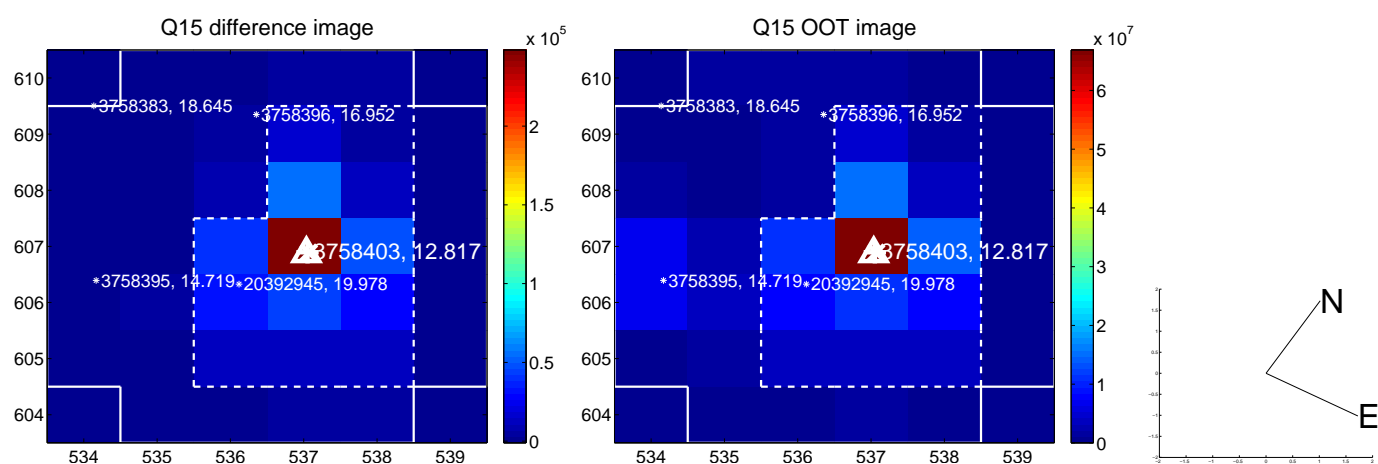
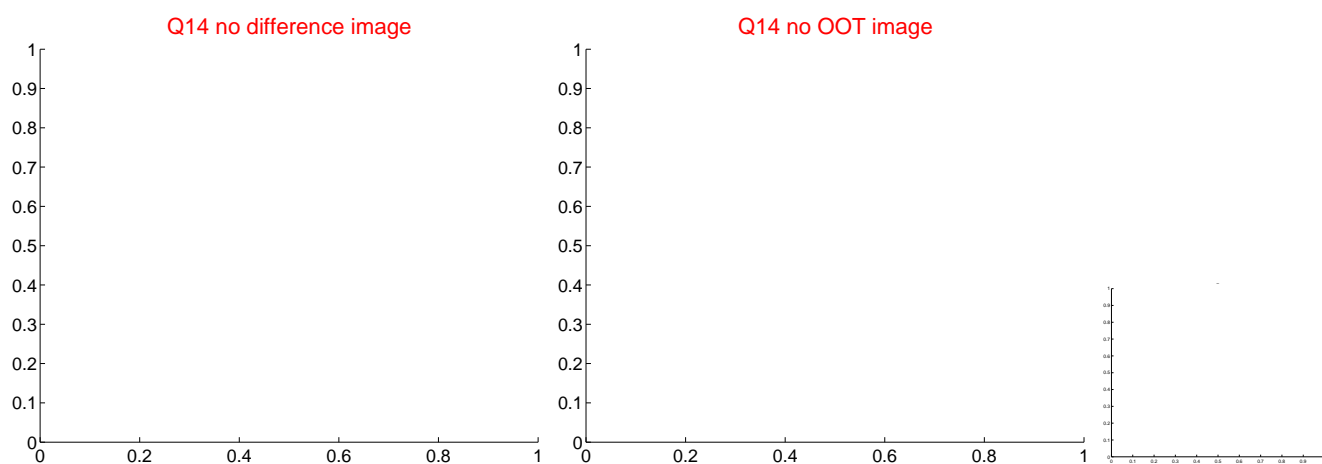
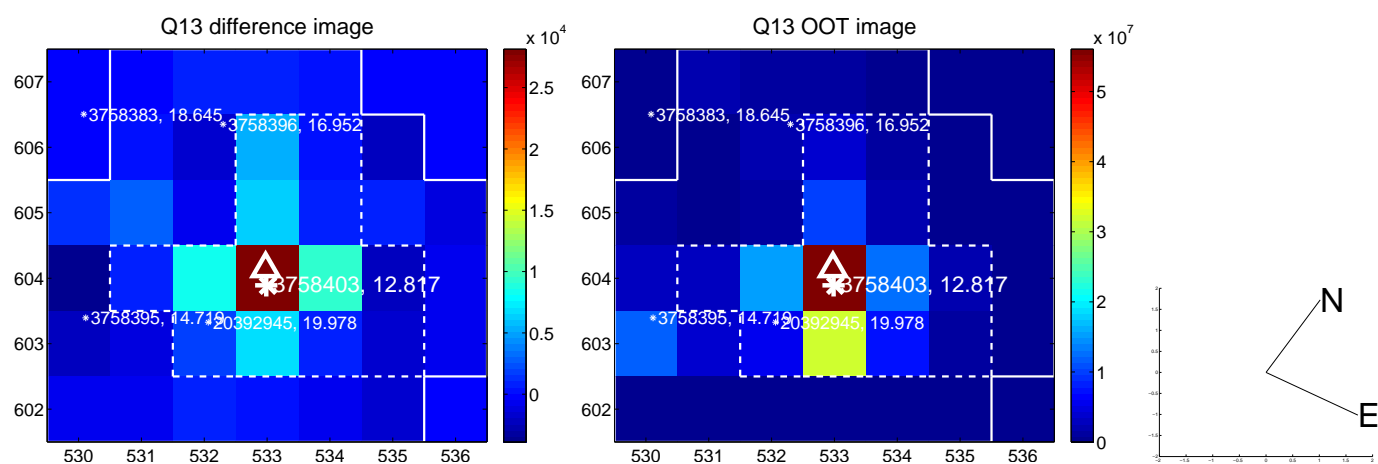
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



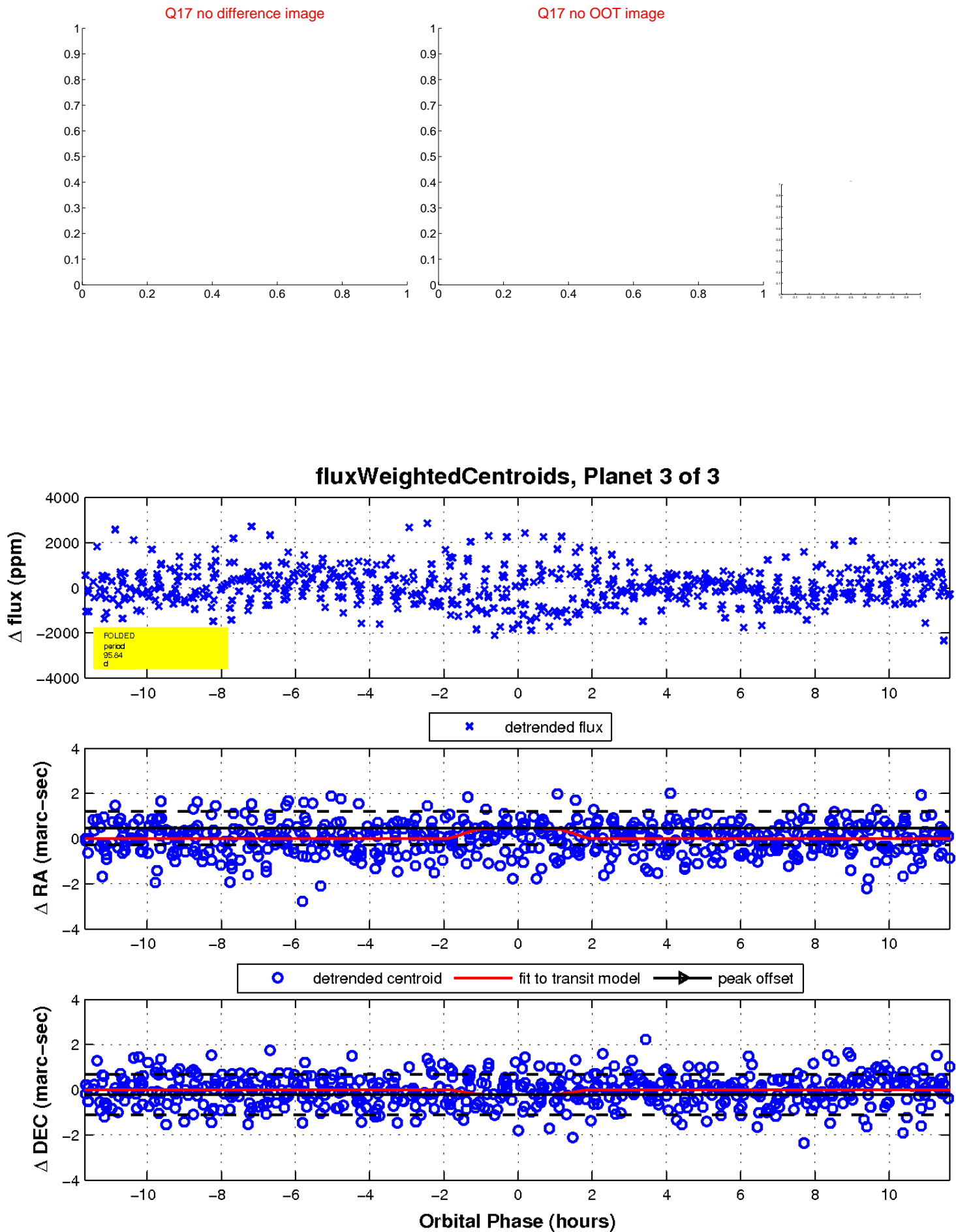
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

