

# KIC 008817759

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008817759-01	OBS	No	3.263867	133.560119	38.0	12.611	8.2	8.5	0.96	6215	0.62	648.07
008817759-02	OBS	No	282.373323	247.042514	573.8	12.655	9.3	8.1	0.96	6215	2.87	1.69
008817759-03	OBS	No	375.739027	140.188640	717.5	46.968	8.0	9.2	0.96	6215	3.26	1.16

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008817759-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008817759-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008817759-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—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.

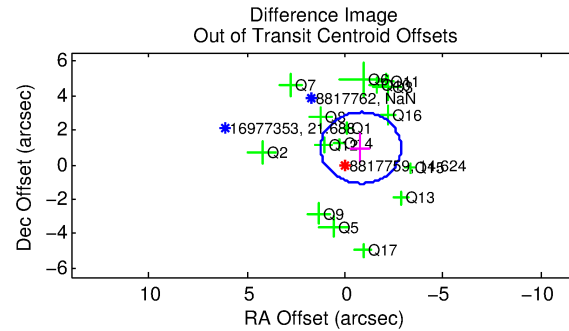
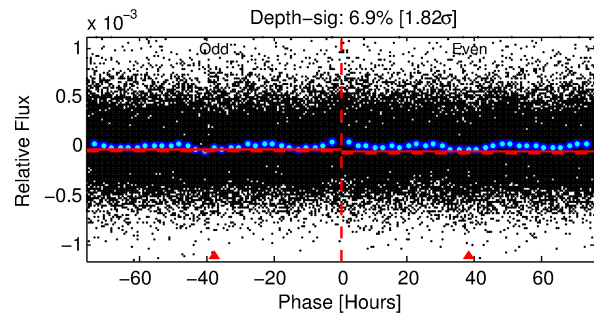
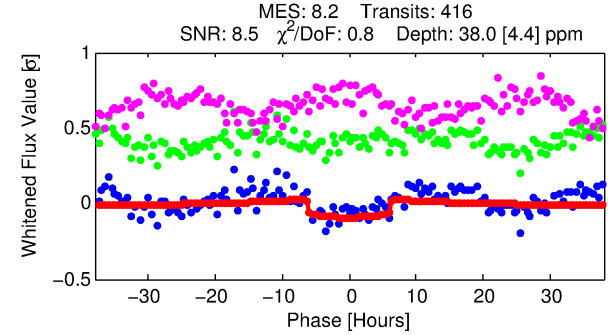
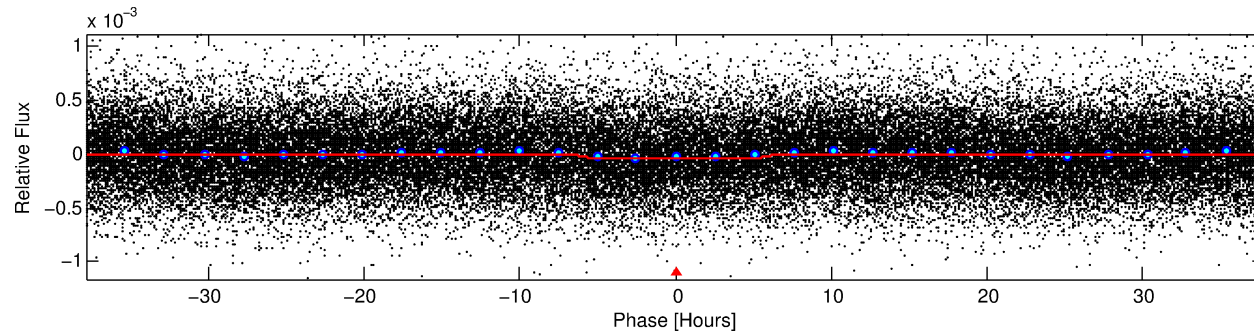
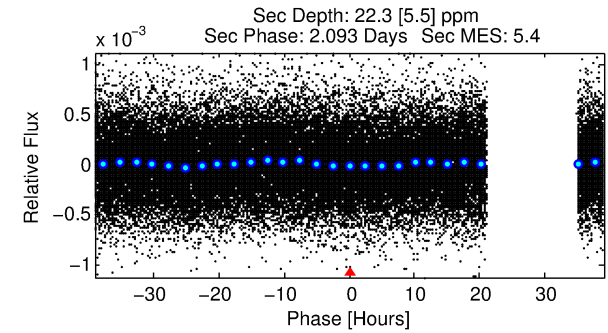
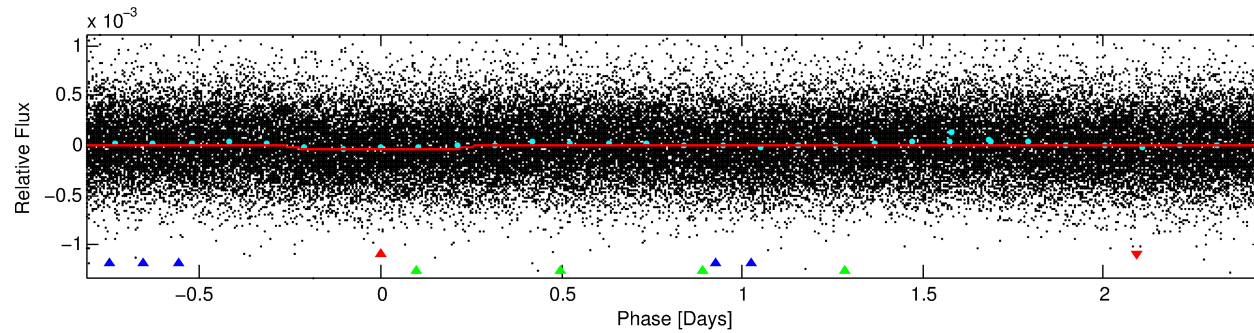
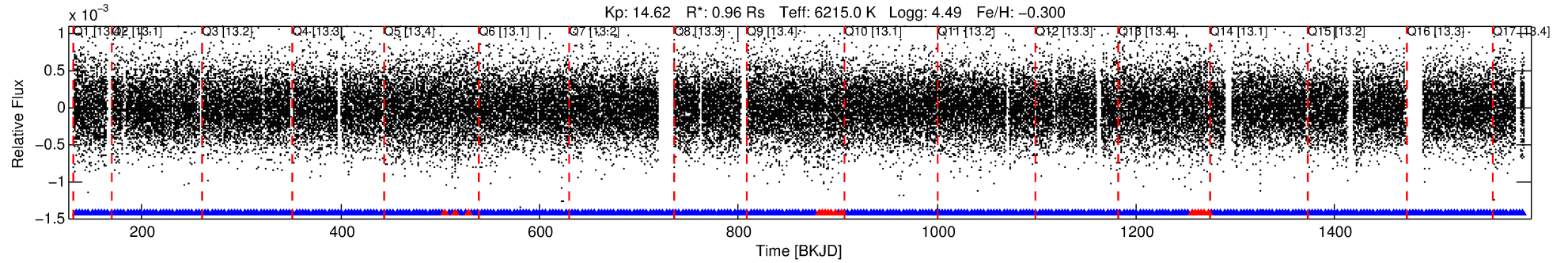
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008817759-01

No Significant Match Found

# DV One-Page Summary

KIC: 8817759 Candidate: 1 of 3 Period: 3.264 d



## DV Fit Results:

Period = 3.26387 [0.00006] d  
Epoch = 133.5601 [0.0114] BKJD  
Rp/R\* = 0.0060 [0.0032]  
a/R\* = 1.70 [3.07]  
b = 0.66 [2.35]  
Seff = 648.07 [261.57]  
Teff = 1287 [130] K  
Rp = 0.63 [0.38] Re  
a = 0.0435 [0.0112] AU  
Ag = 59.32 [68.43] [0.85σ]  
Teffp = 5520 [1516] K [2.78σ]

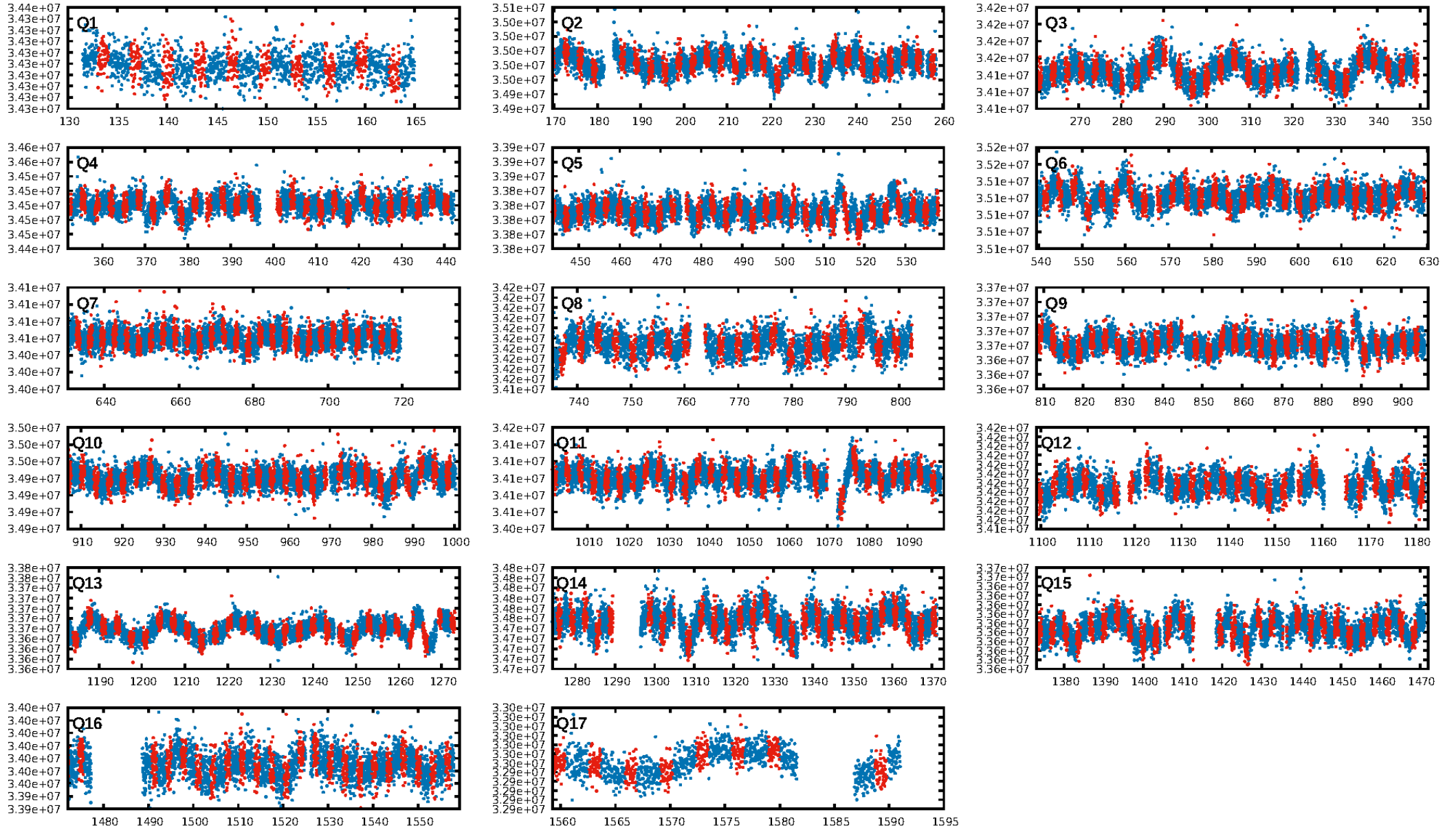
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [374.95σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.48e-14  
RollingBand-fgt: 0.96 [382/398]  
GhostDiagnostic-chr: 6.889  
Centroid-sig: 42.3%  
Centroid-so: 1.252 arcsec [0.90σ]  
OotOffset-rm: 1.262 arcsec [1.84σ]  
KicOffset-rm: 1.182 arcsec [1.73σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.19 [3/16]  
DiffImageOverlap-fno: 1.00 [17/17]

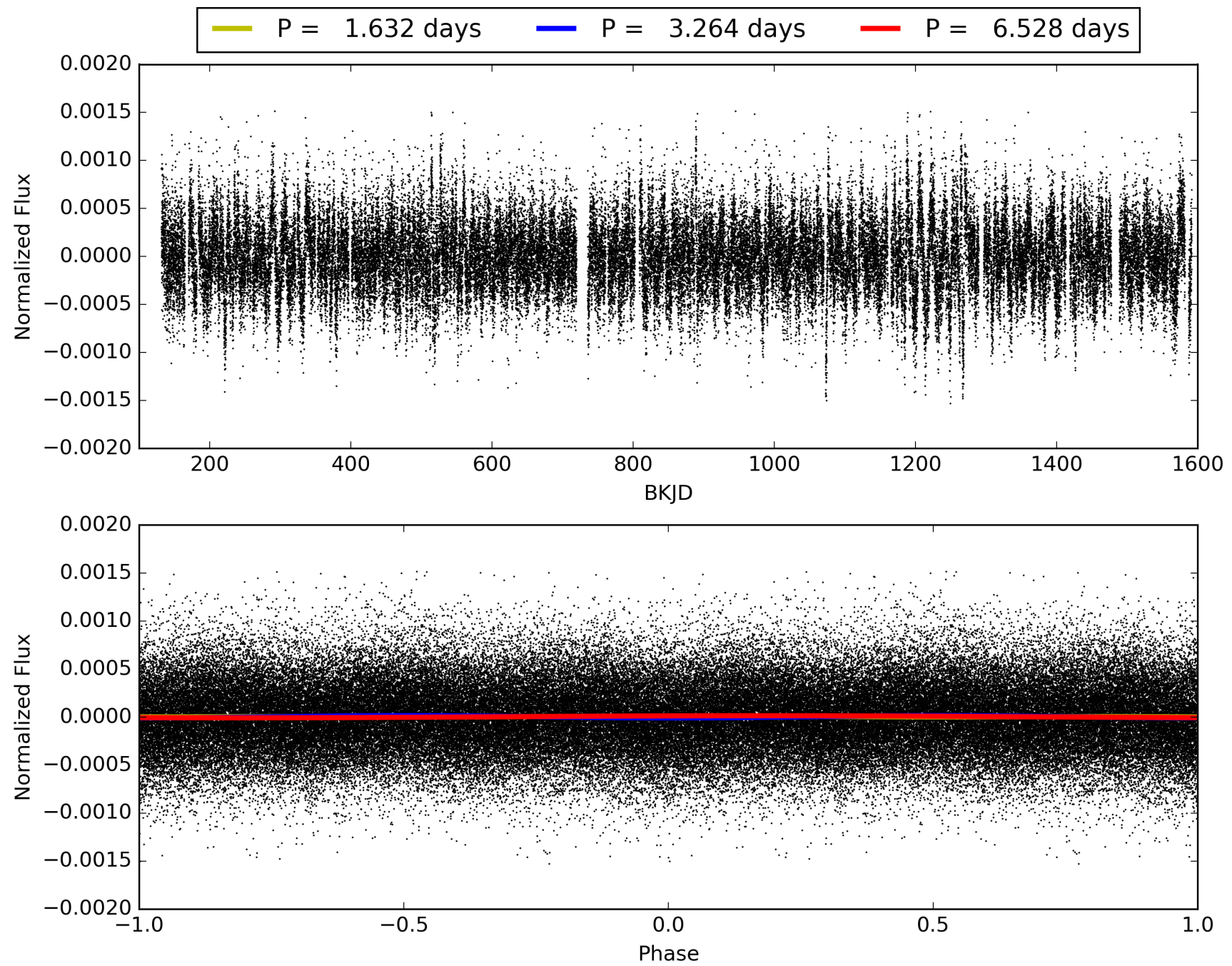
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:56:30 Z

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

# TCE 008817759-01, PDC Light Curves



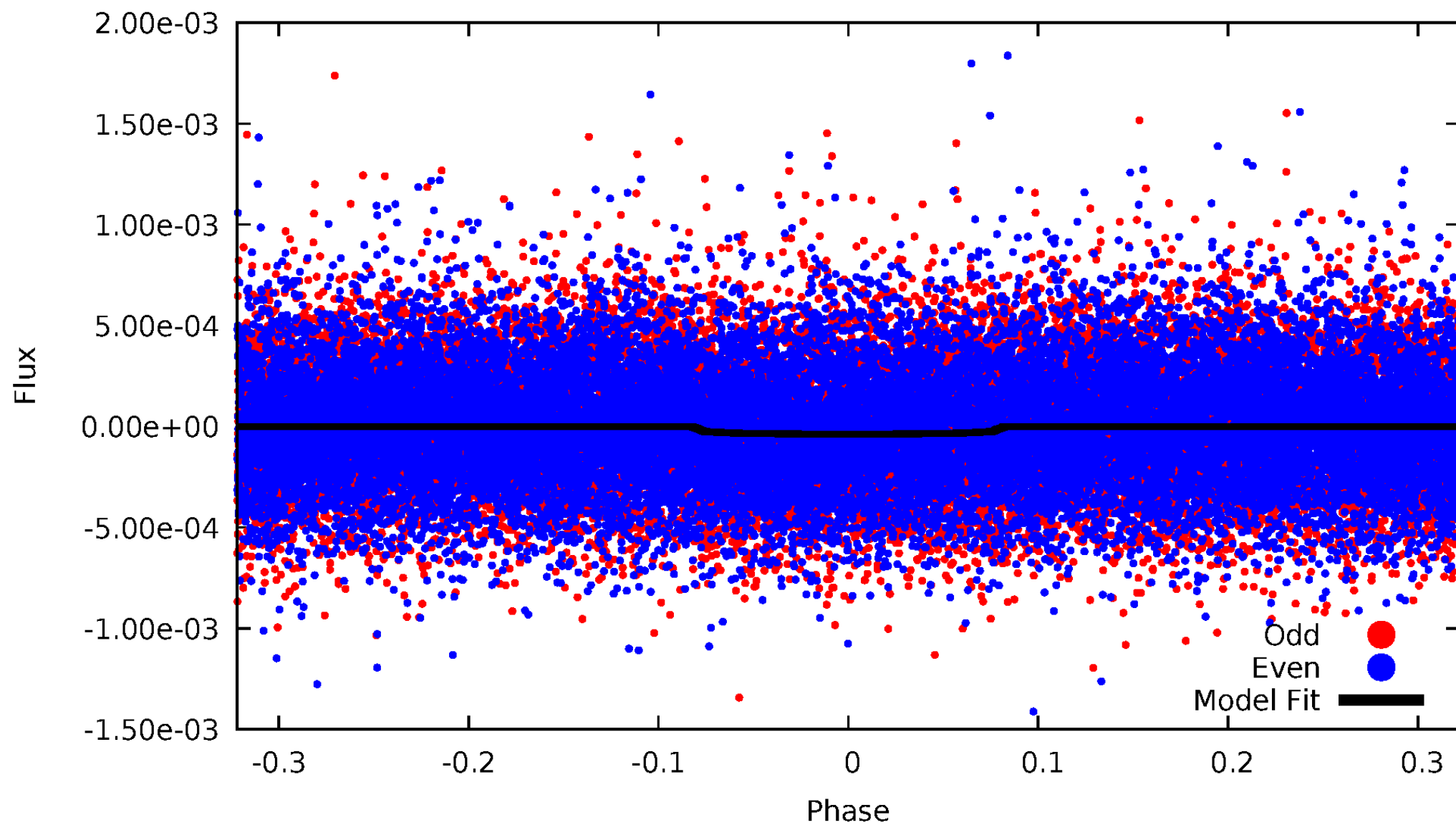
TCE 008817759-01





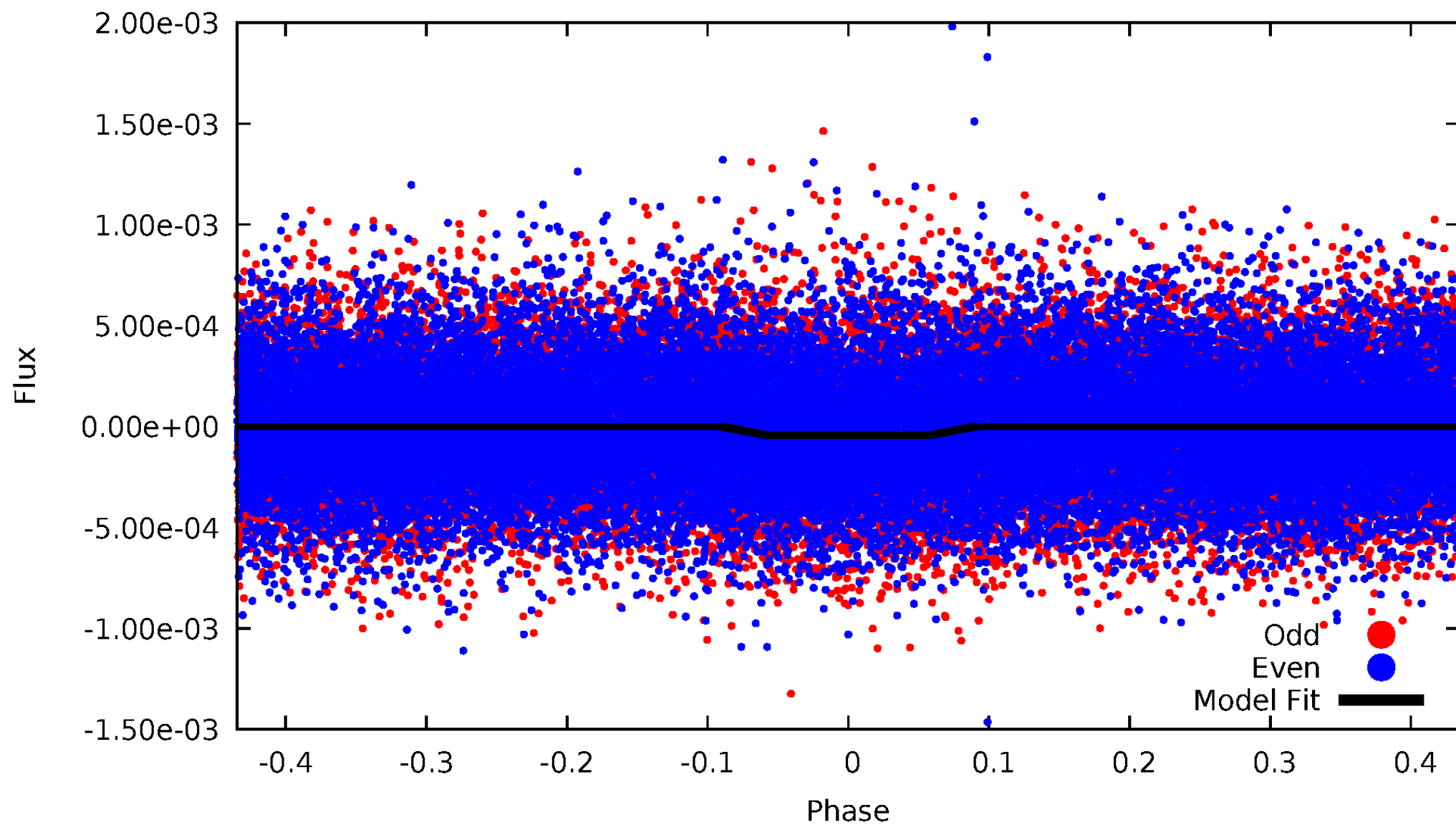
# DV Odd/Even

TCE 008817759-01



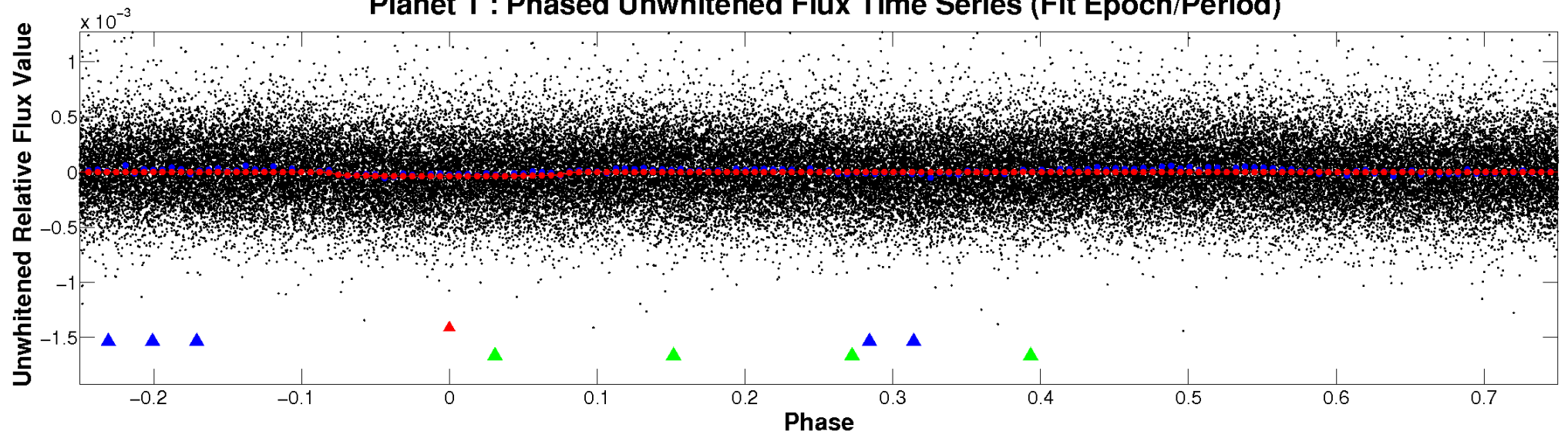
# ALT Odd/Even

TCE 008817759-01

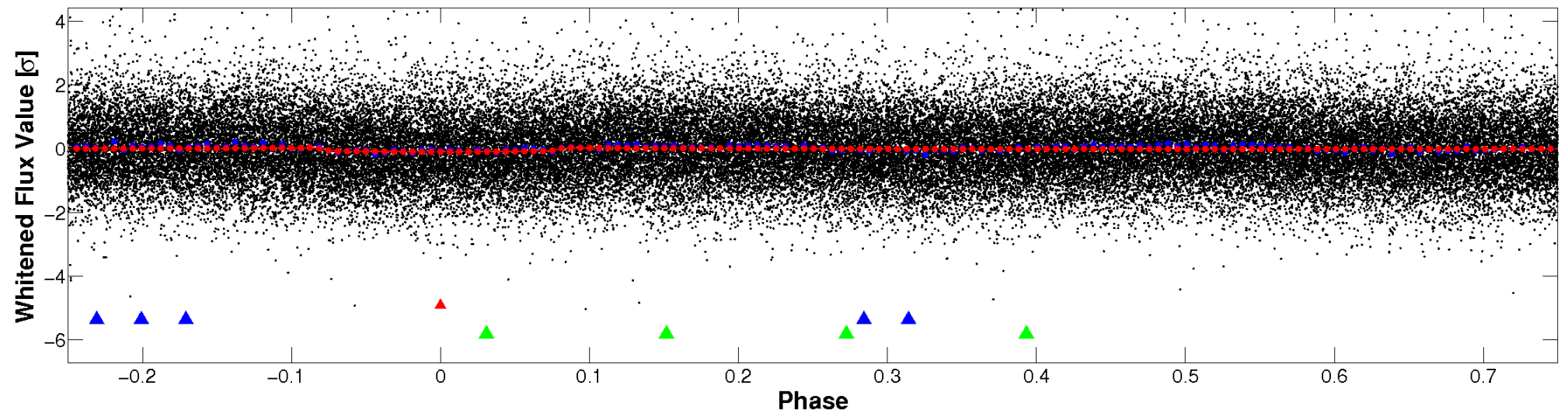


# Non-Whitened Vs. Whitened Light Curve

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

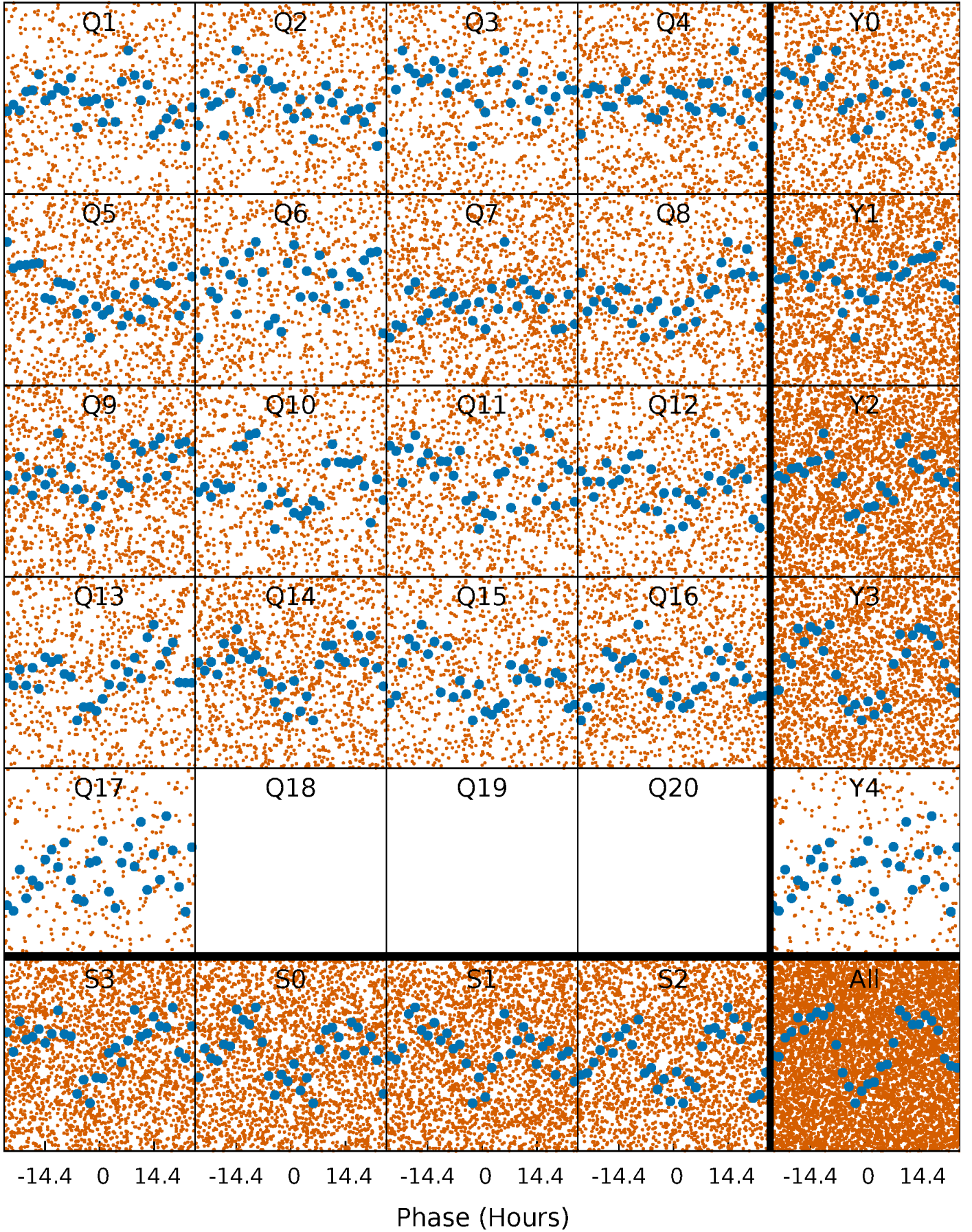


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

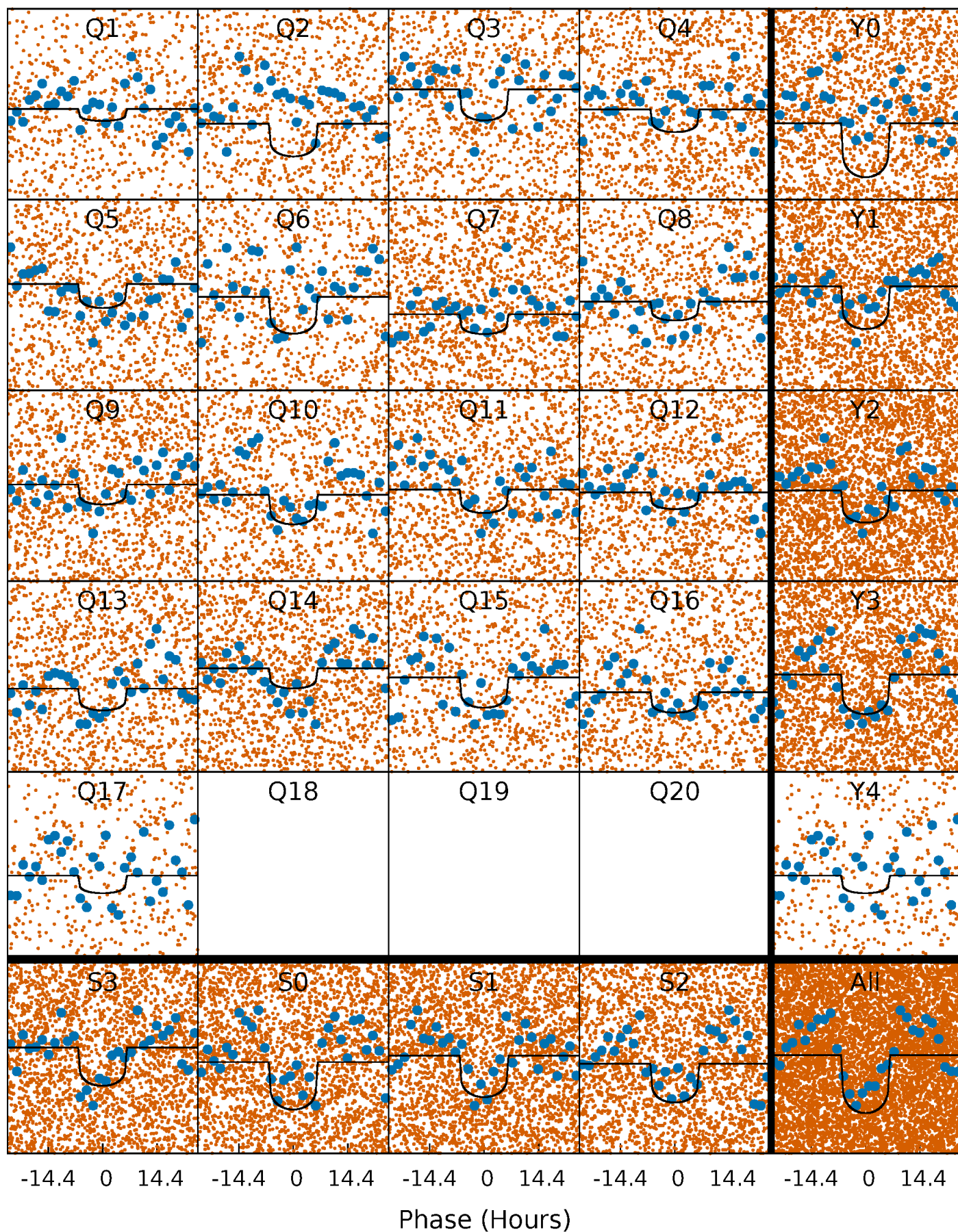
TCE 008817759-01   P= 3.263867 Days    $T_0=133.560119$  (BKJD)





# DV Quarter-Phased Transit Curves

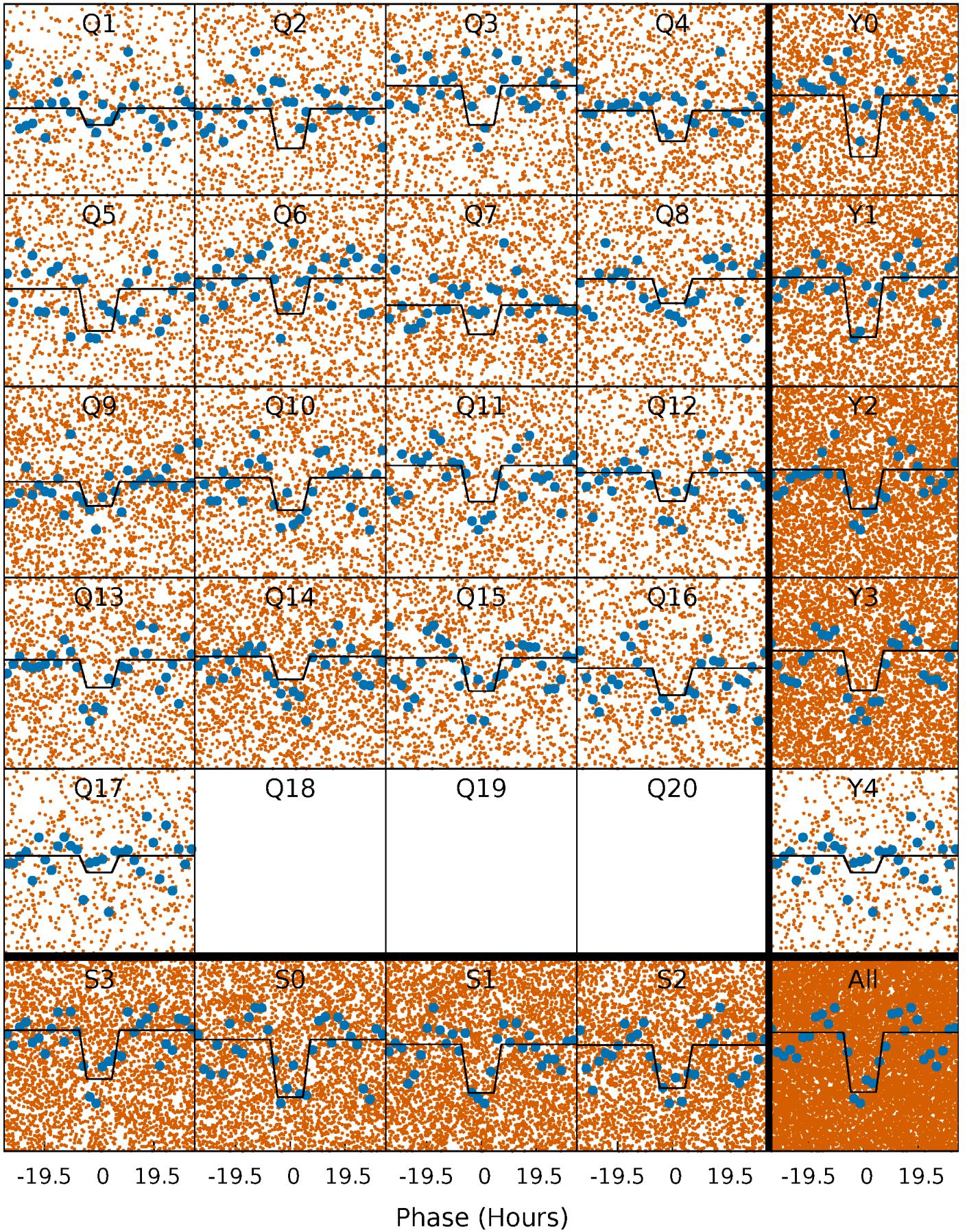
TCE 008817759-01 P= 3.263867 Days  $T_0=133.560119$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

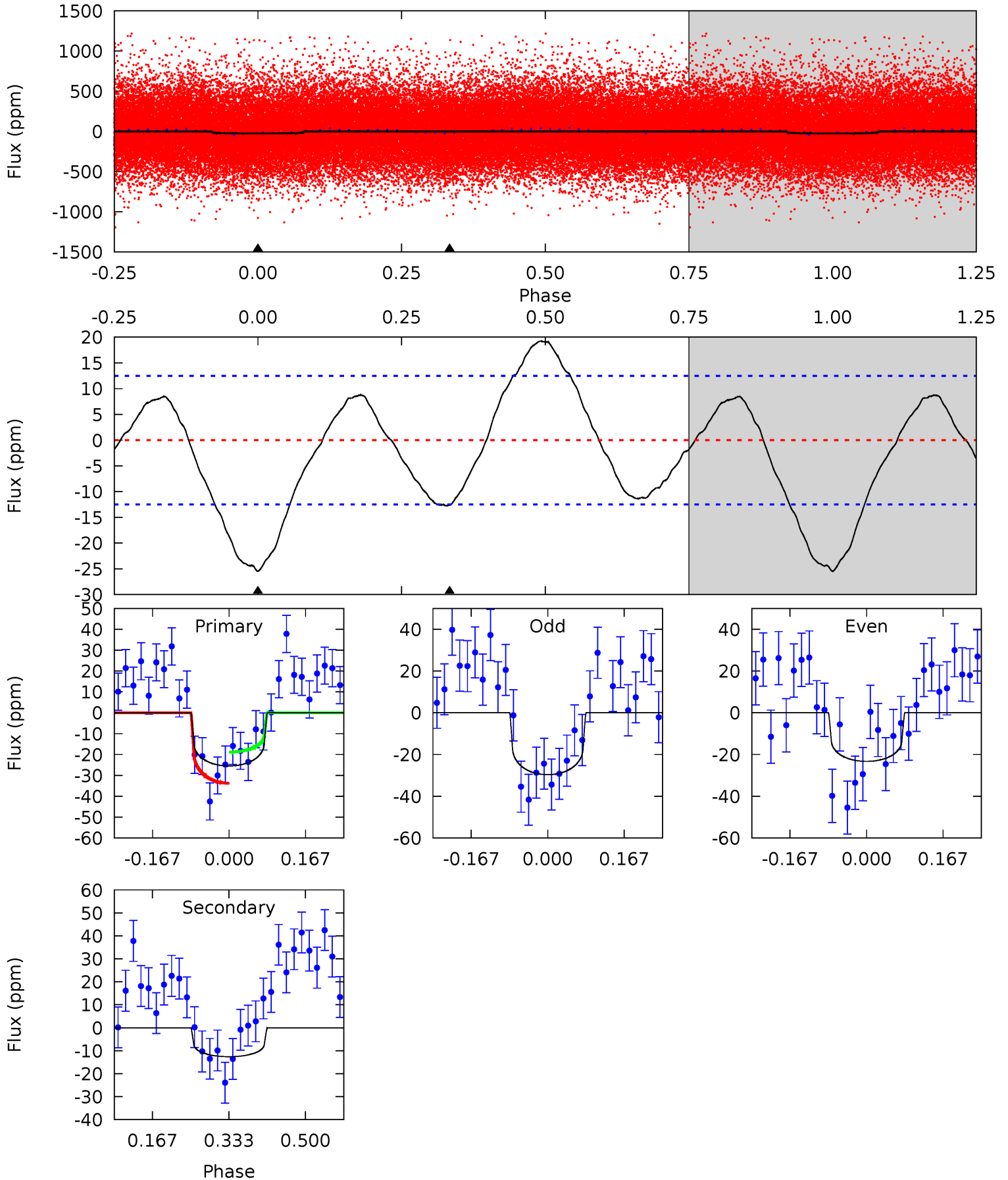
TCE 008817759-01 P= 3.264130 Days  $T_0=133.469702$  (BKJD)



# DV Model-Shift Uniqueness Test

008817759-01, P = 3.263867 Days, E = 130.296252 Days

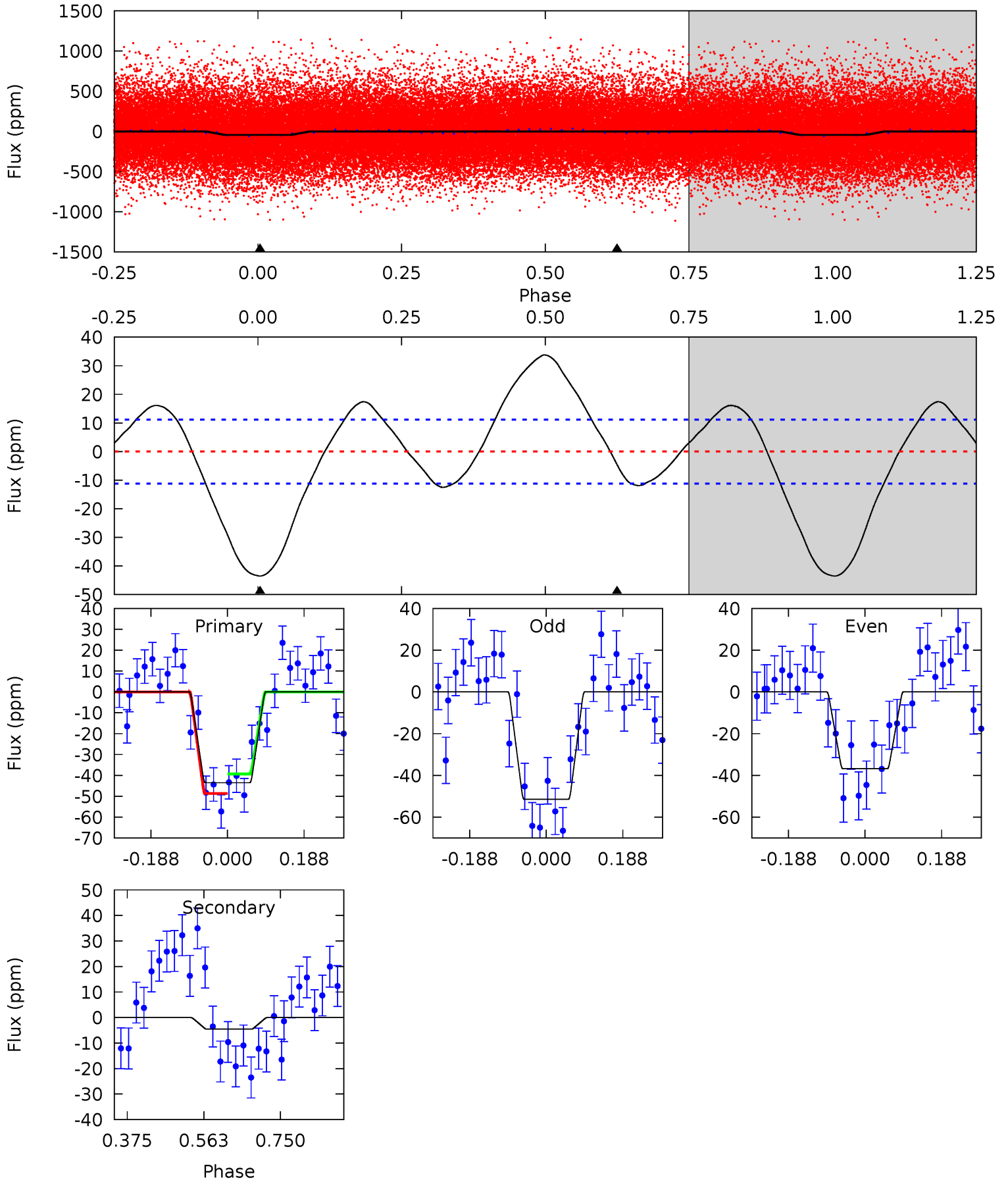
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.10	4.51	0	0	4.46	1.38	3.18	9.10	9.10	4.51	4.51	1.14	1.57	0.43	2.69



# Alt Model-Shift Uniqueness Test

008817759-01, P = 3.264130 Days, E = 130.205572 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
17.2	1.79	0	0	4.43	1.32	3.95	17.2	17.2	1.79	1.79	2.87	1.15	0.44	1.84





### Stellar Parameters For KIC 008817759

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6215^{+175}_{-219}$	$4.488^{+0.052}_{-0.208}$	$-0.300^{+0.300}_{-0.300}$	$0.957^{+0.291}_{-0.097}$	$1.027^{+0.134}_{-0.134}$	$1.652^{+0.442}_{-0.835}$
	+3%/-4%	+1%/-5%	+100%/-100%	+30%/-10%	+13%/-13%	+27%/-51%
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 008817759-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-13 \pm 3$	$0.67^{+0.37}_{-0.34}$	$1828^{+146}_{-89}$	$4801^{+1807}_{-718}$	$28^{+87}_{-16}$
Alt.	$-5 \pm 3$	$0.72^{+0.40}_{-0.33}$	$1836^{+120}_{-93}$	$3798^{+1074}_{-677}$	$7.837^{+24.273}_{-5.379}$

$T_{max}$  = 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

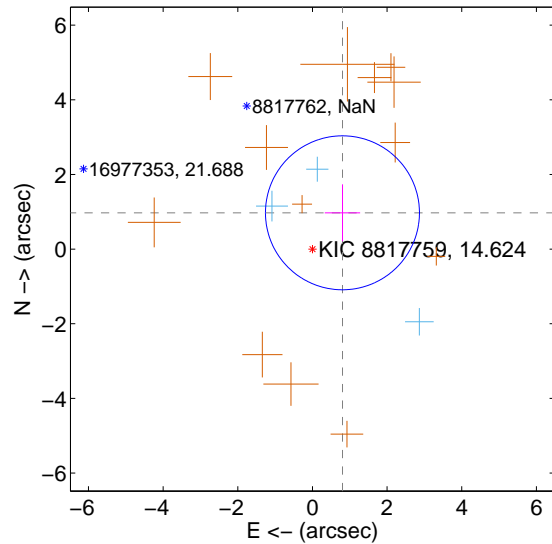
Supplemental centroid analysis for 008817759-01. Kepler magnitude: 14.62. Transit SNR 8.45

There are 3 quarters with good PRF difference image offsets

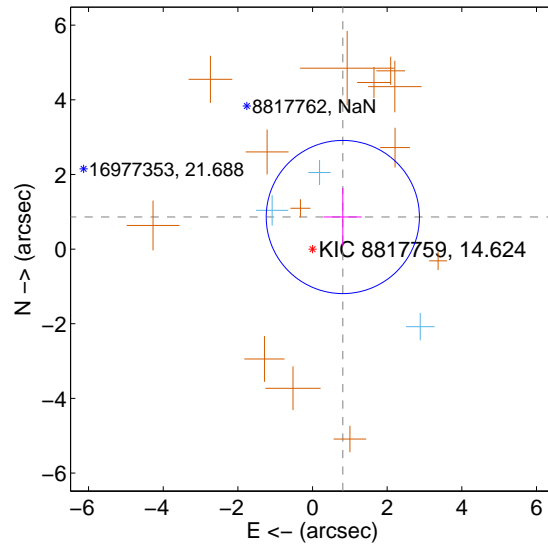
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.262 \pm 0.687$	1.84	$-0.804 \pm 0.474$	$0.972 \pm 0.764$
PRF-fit source offset from KIC position	$1.182 \pm 0.684$	1.73	$-0.812 \pm 0.503$	$0.859 \pm 0.779$
photometric centroid source offset	$1.25 \pm 1.38$	0.90	$-1.25 \pm 1.38$	$-0.12 \pm 1.38$

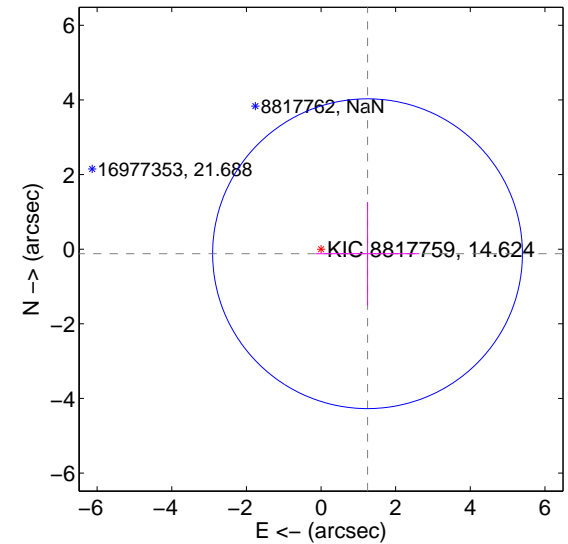
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

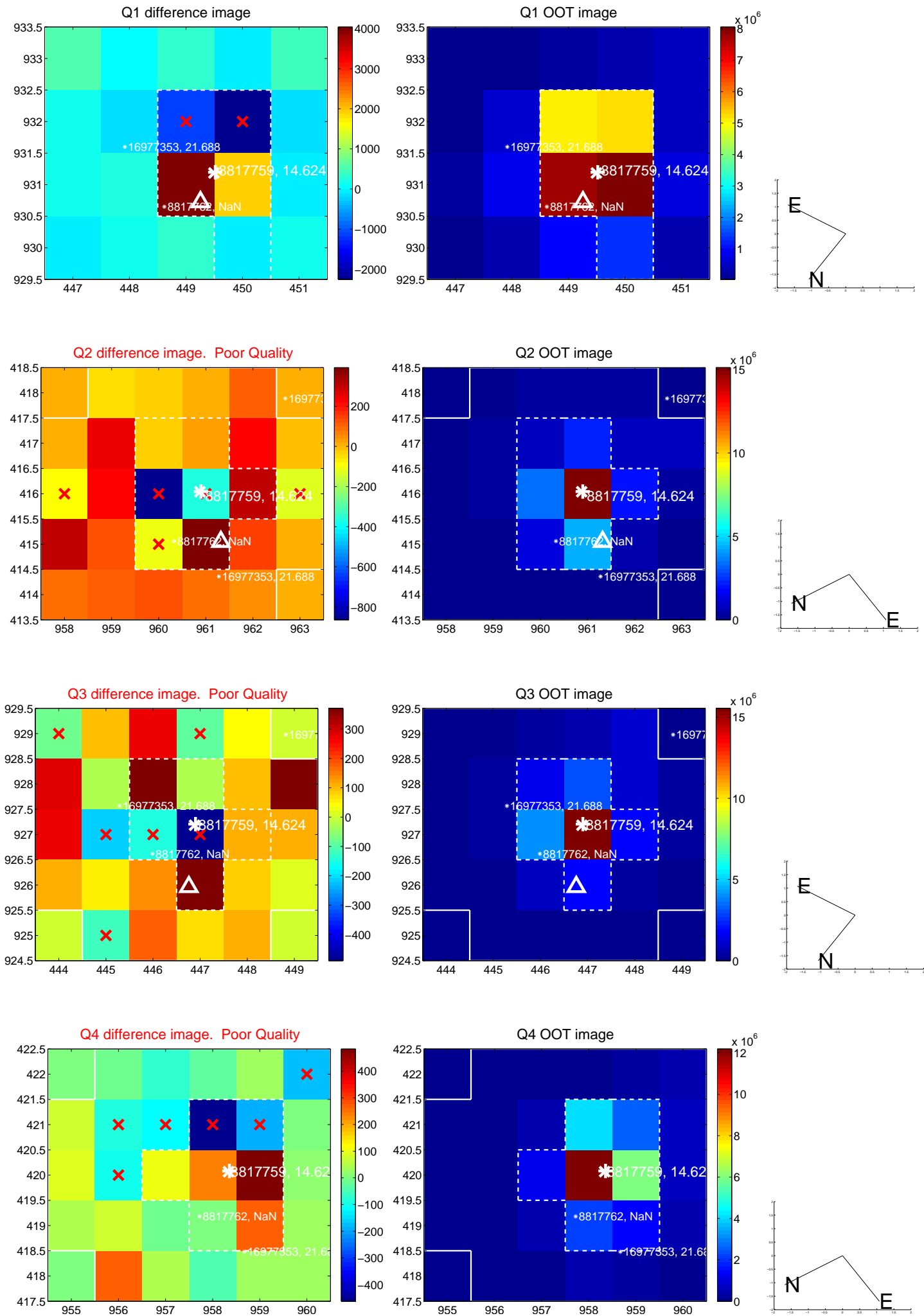


offset from photometric centroids

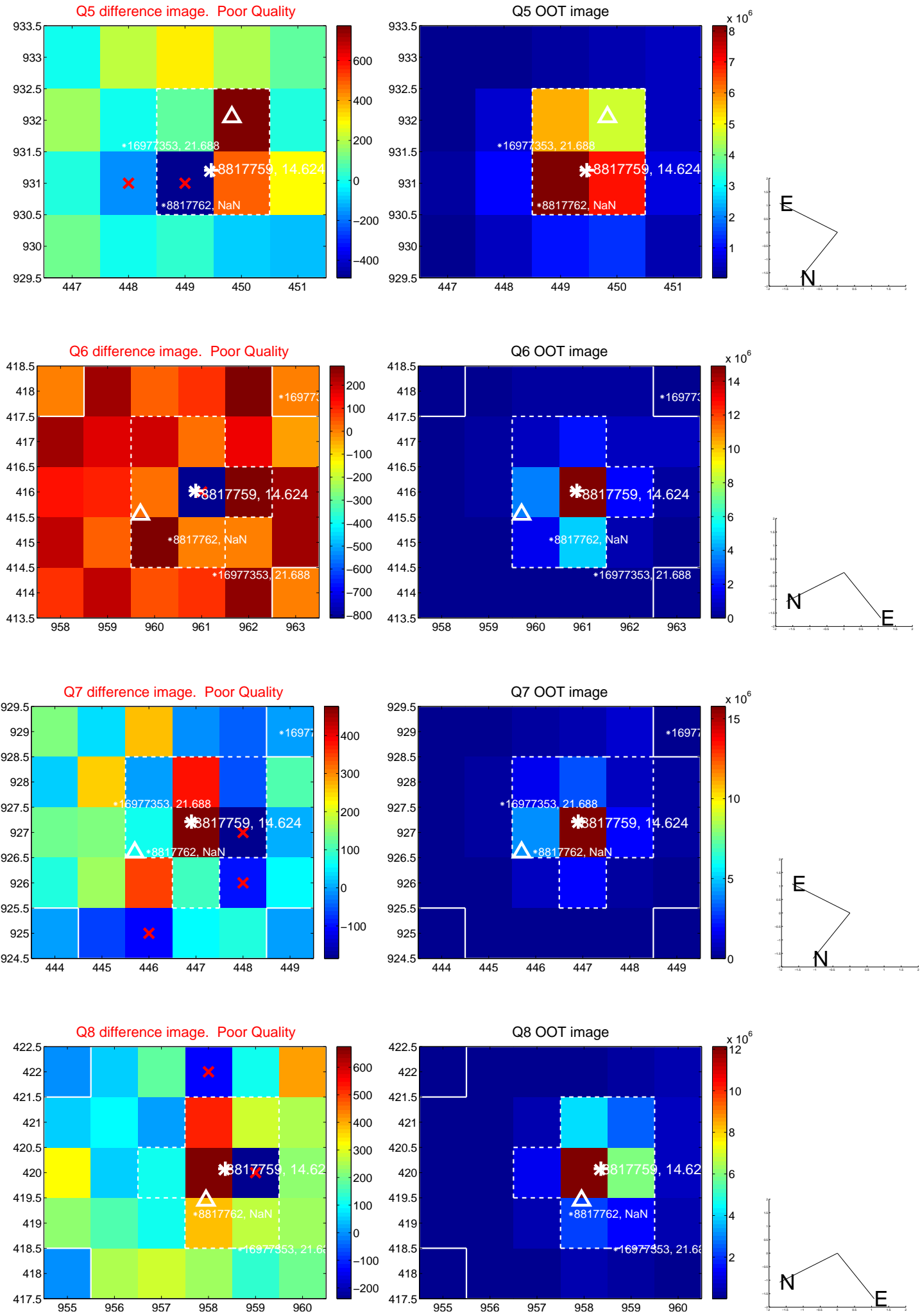


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

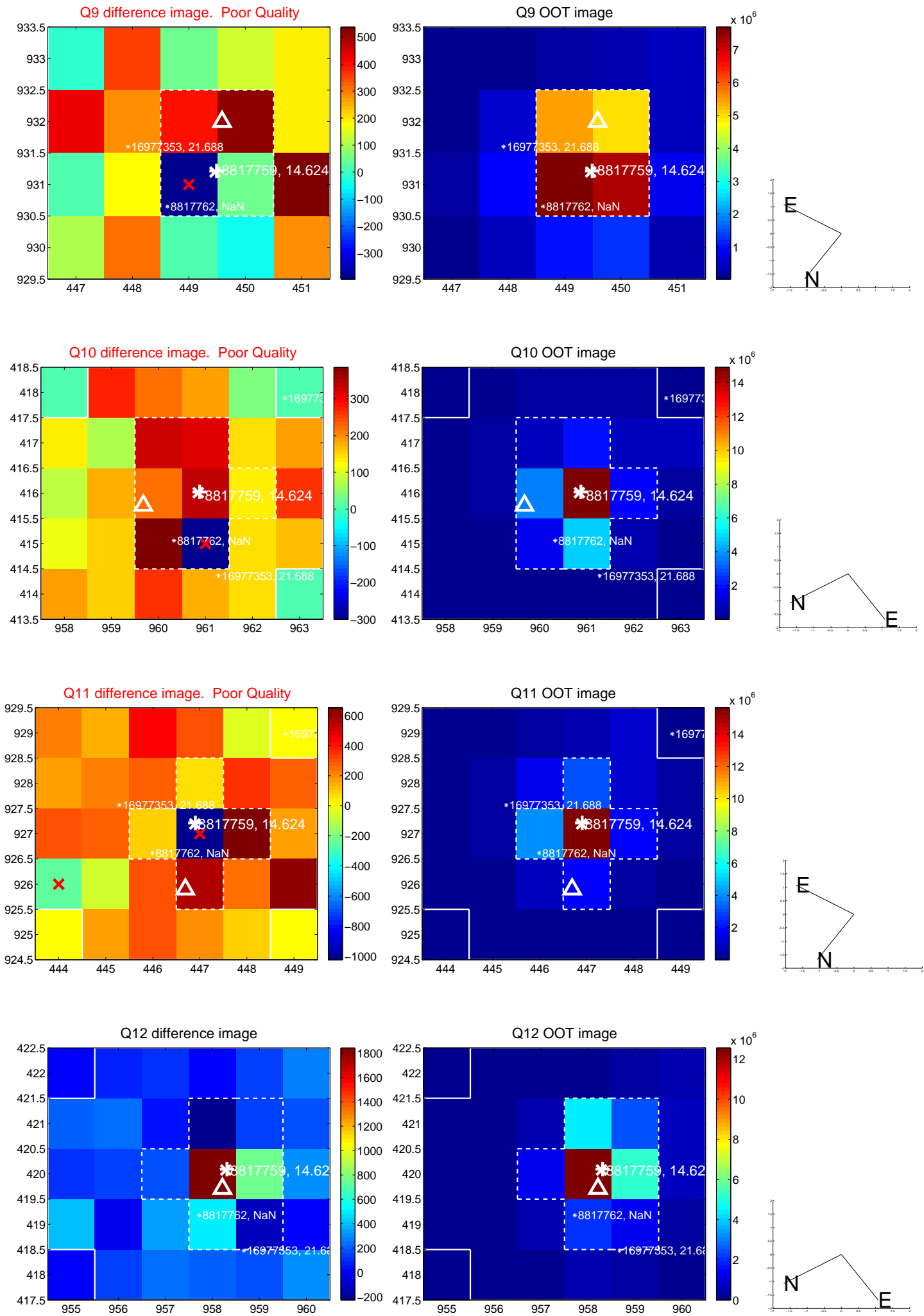


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

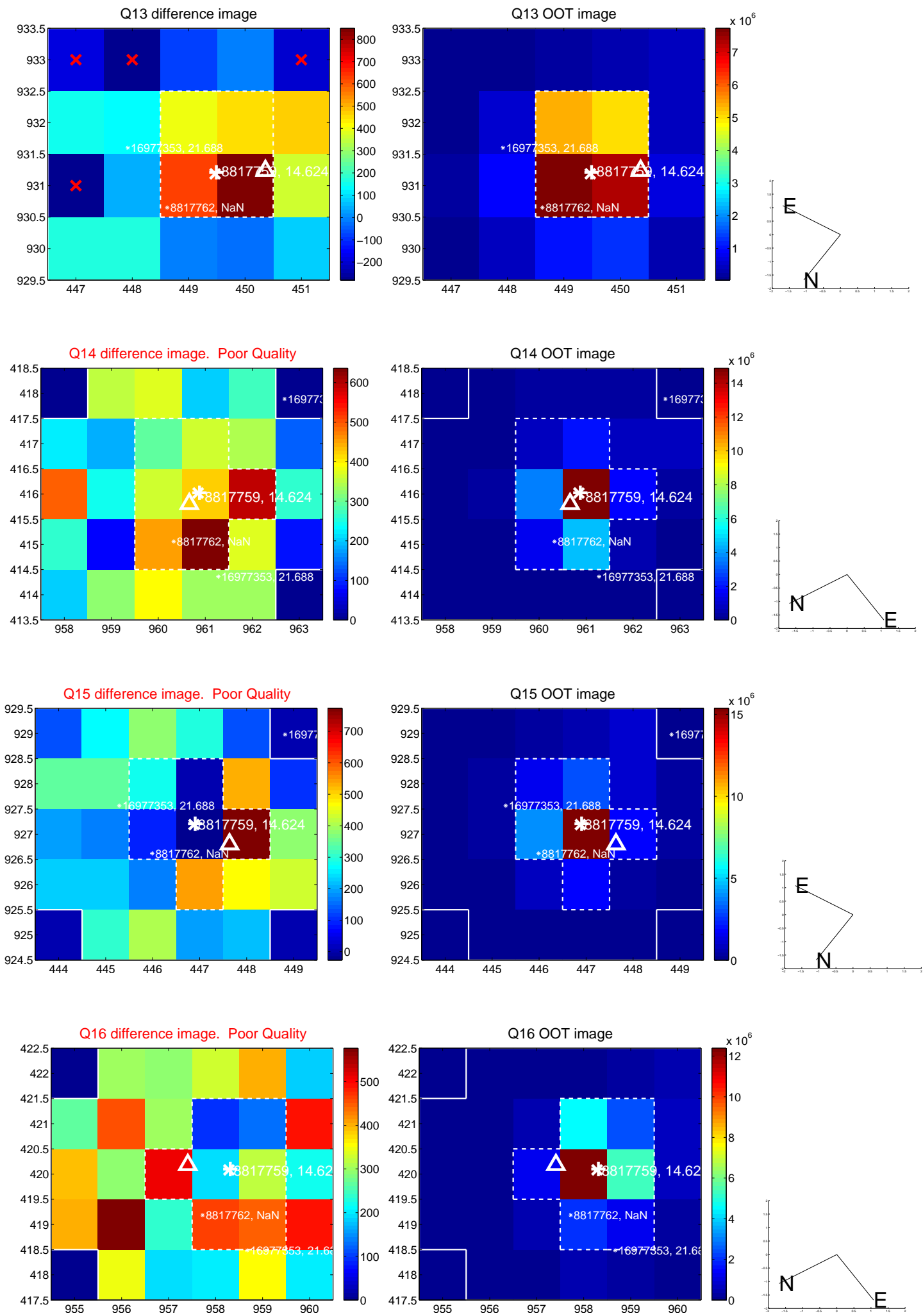




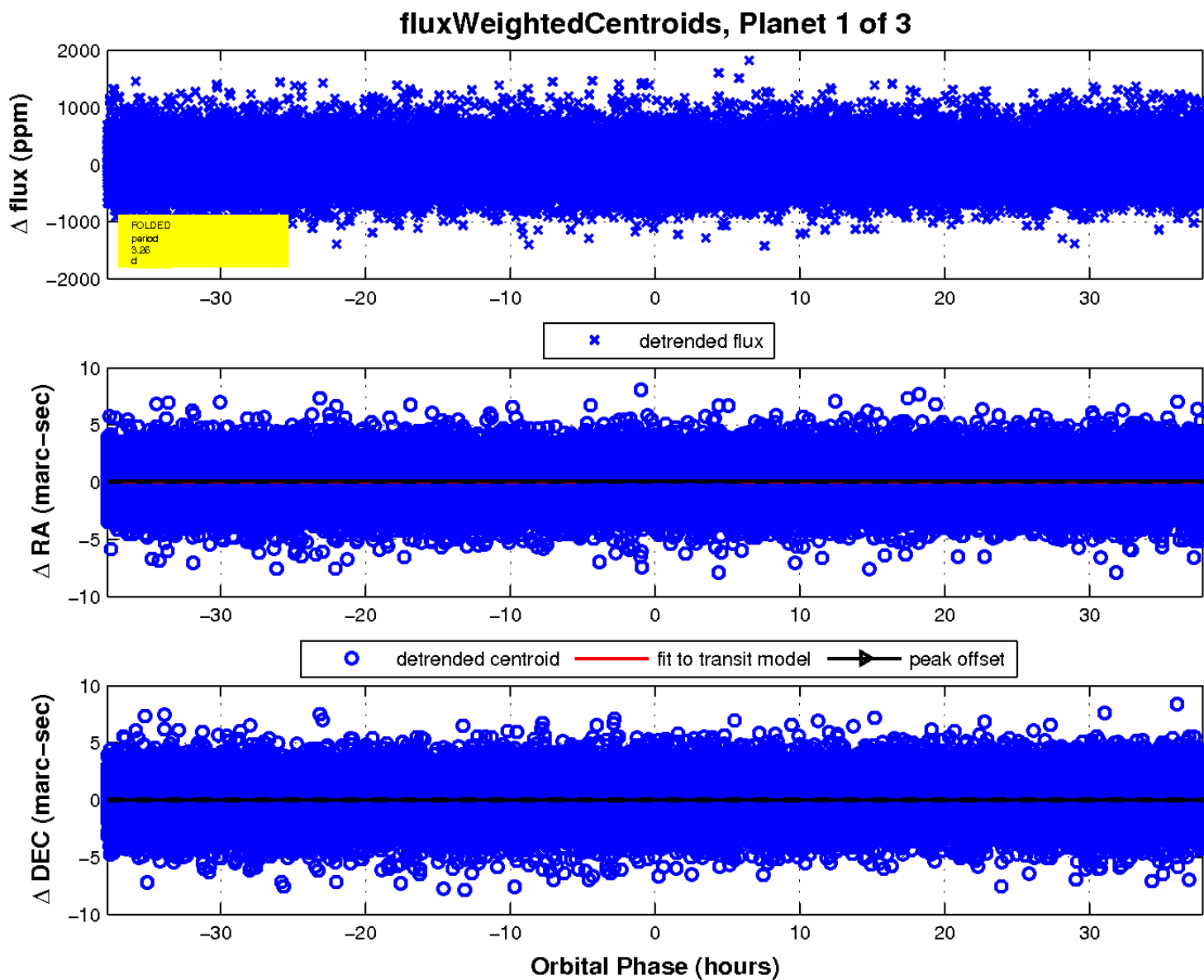
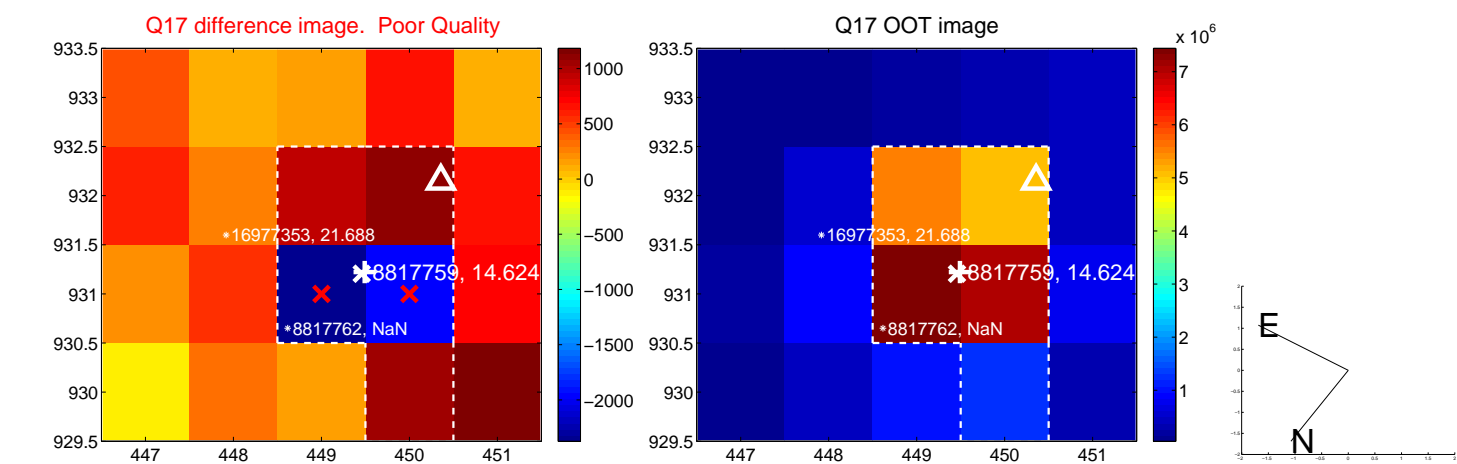
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



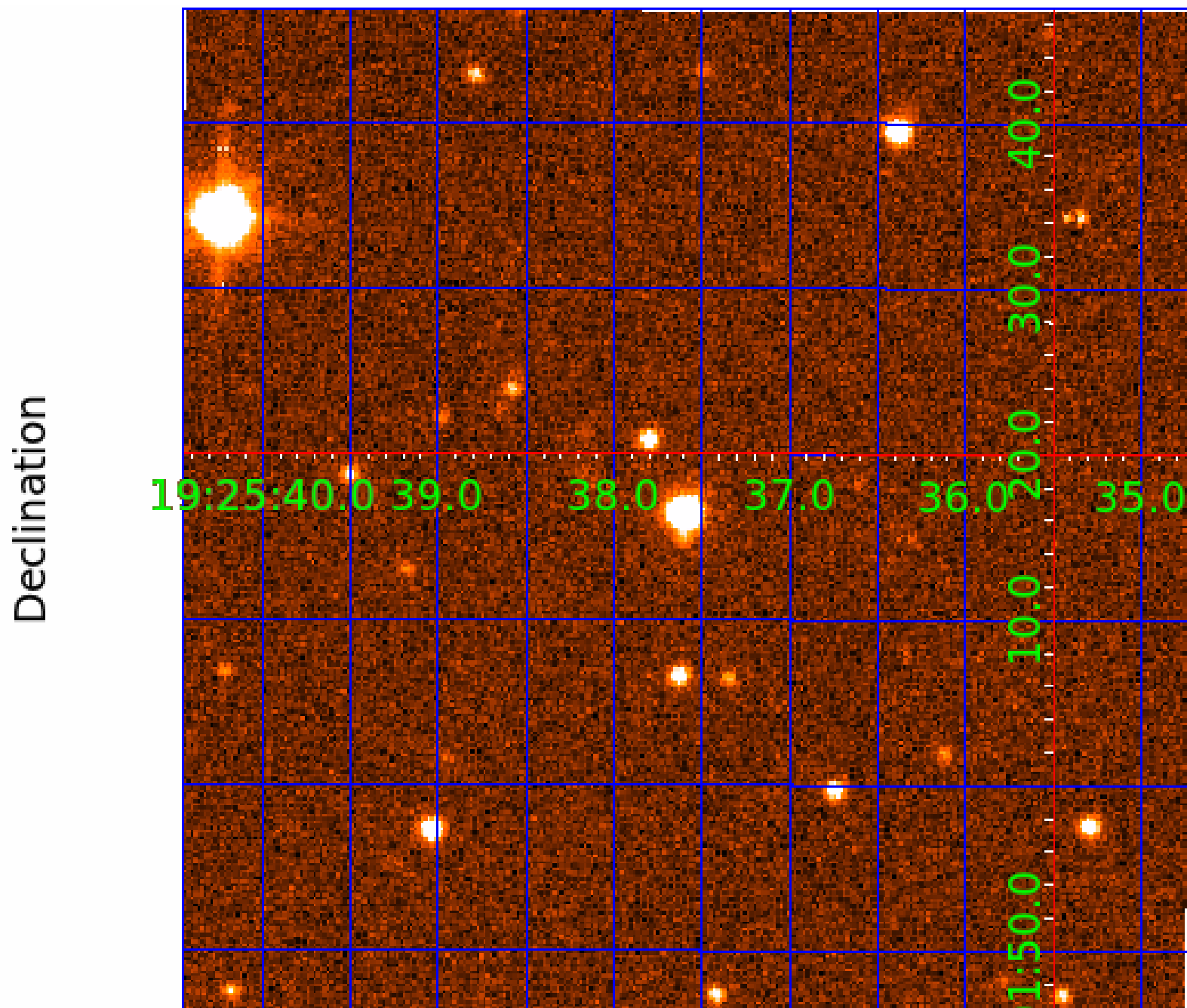
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 008817759

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008817759-01	OBS	No	3.263867	133.560119	38.0	12.611	8.2	8.5	0.96	6215	0.62	648.07
008817759-02	OBS	No	282.373323	247.042514	573.8	12.655	9.3	8.1	0.96	6215	2.87	1.69
008817759-03	OBS	No	375.739027	140.188640	717.5	46.968	8.0	9.2	0.96	6215	3.26	1.16

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008817759-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008817759-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008817759-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—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.

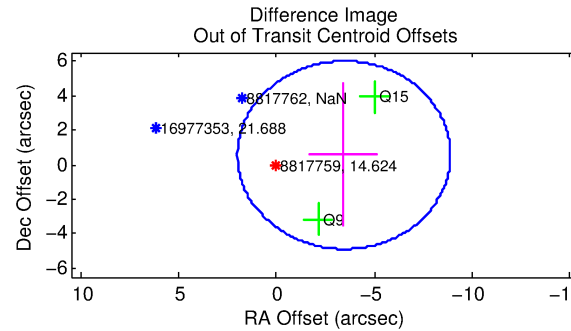
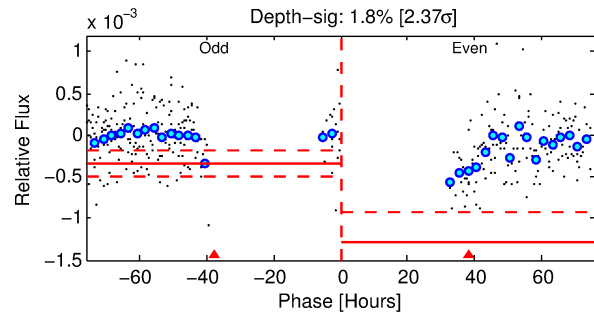
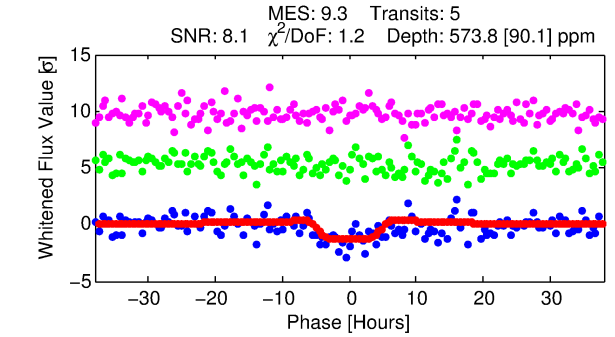
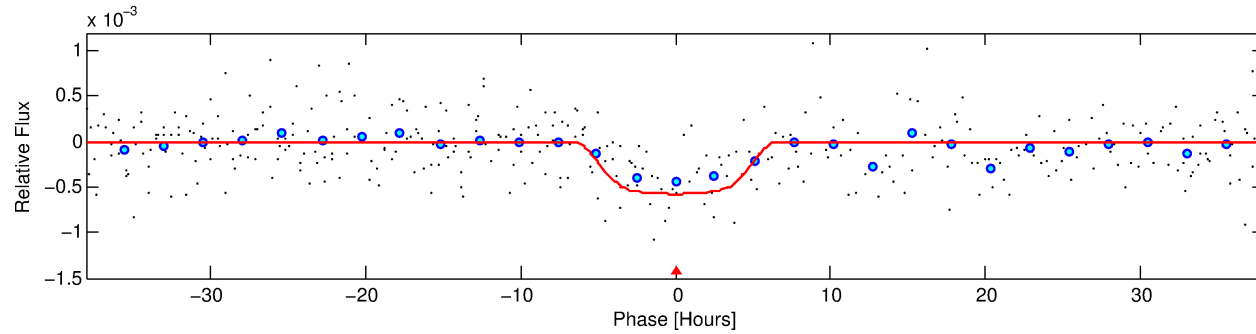
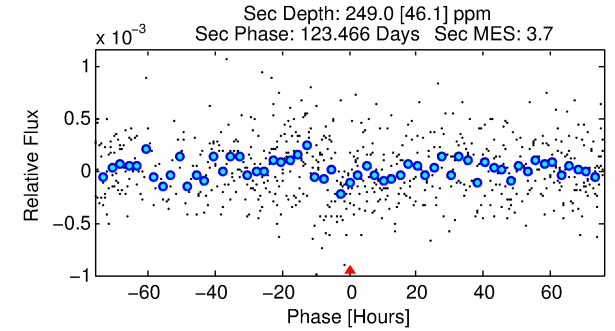
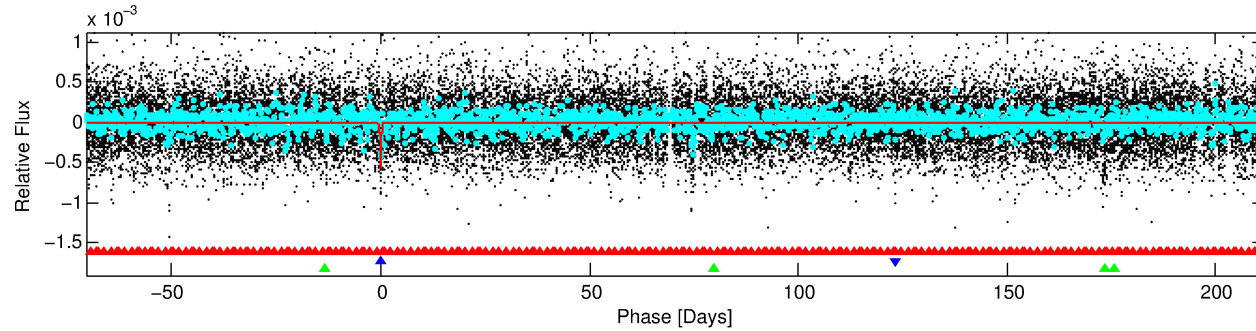
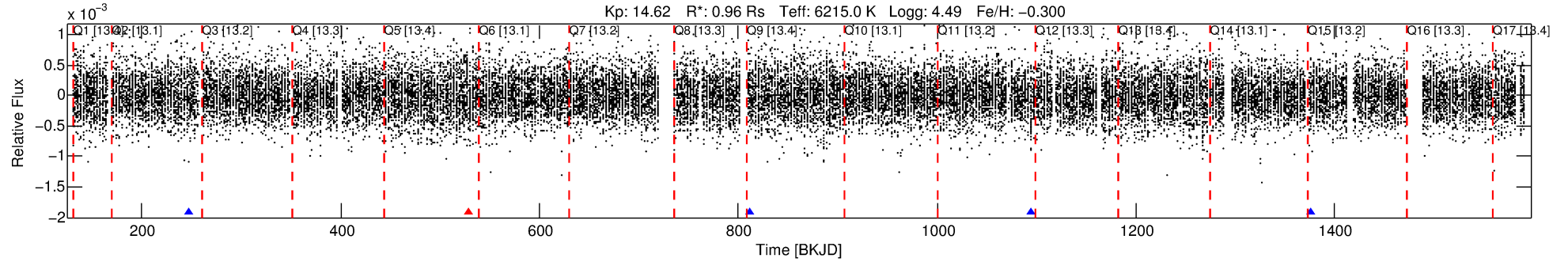
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008817759-02

No Significant Match Found

# DV One-Page Summary

KIC: 8817759 Candidate: 2 of 3 Period: 282.373 d



## DV Fit Results:

Period = 282.37332 [0.01365] d  
Epoch = 247.0425 [0.0295] BKJD  
Rp/R\* = 0.0274 [0.0029]  
a/R\* = 65.60 [18.65]  
b = 0.95 [0.03]  
Seff = 1.69 [0.68]  
Teff = 291 [29] K  
Rp = 2.86 [0.92] Re  
a = 0.8502 [0.2194] AU  
Ag = 12068.62 [5675.62] [2.13 $\sigma$ ]  
Teffp = 4714 [369] K [11.95 $\sigma$ ]

## DV Diagnostic Results:

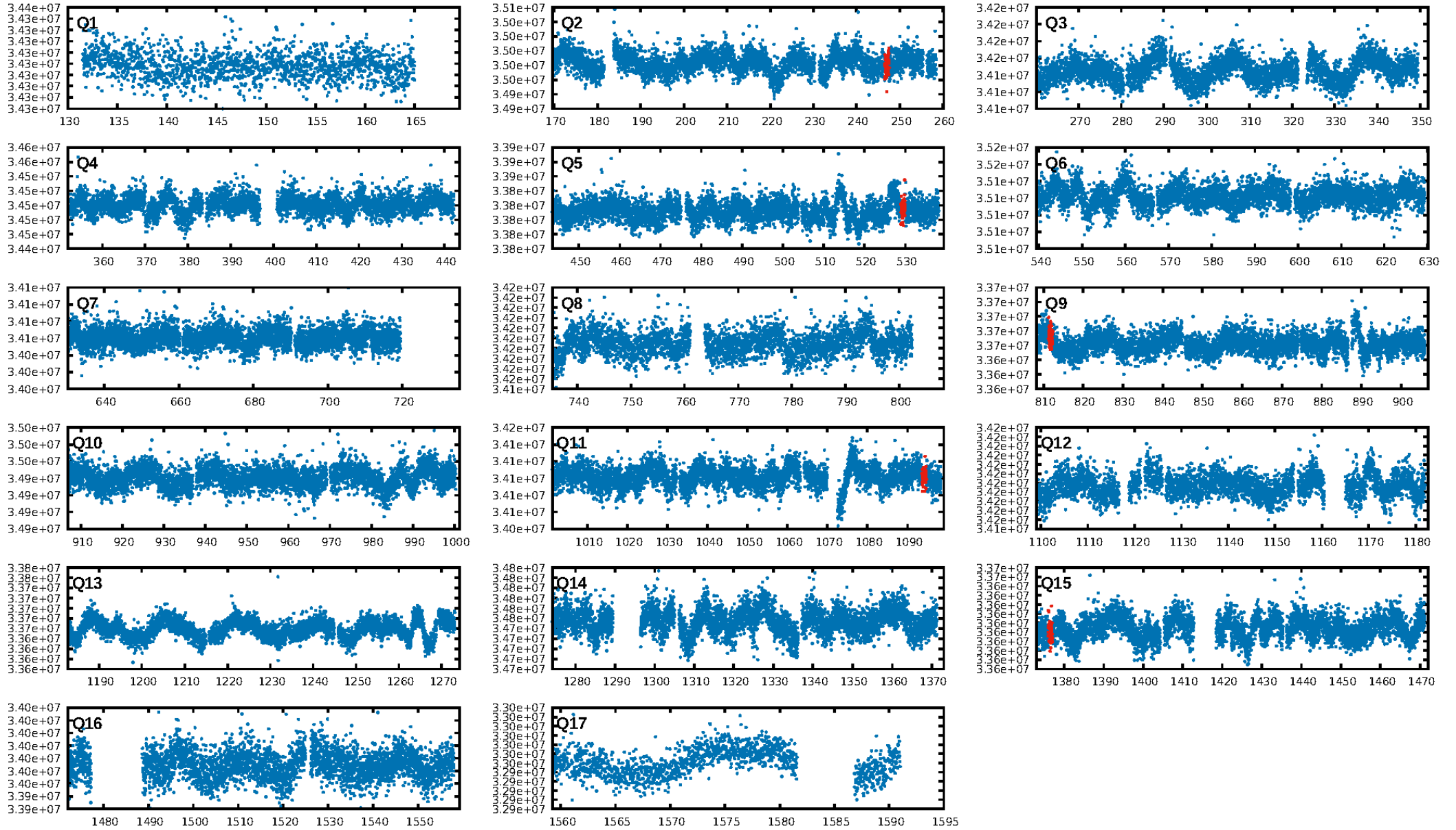
ShortPeriod-sig: 100.0% [374.95 $\sigma$ ]  
LongPeriod-sig: 100.0% [46.07 $\sigma$ ]  
ModelChiSquare2-sig: 0.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.27e-13  
RollingBand-fgt: 0.80 [4/5]  
GhostDiagnostic-chr: -0.4601  
Centroid-sig: 31.7%  
Centroid-so: 0.961 arcsec [0.99 $\sigma$ ]  
OotOffset-rm: 3.490 arcsec [1.92 $\sigma$ ]  
KicOffset-rm: 3.534 arcsec [1.97 $\sigma$ ]  
OotOffset-st: 0/1/0/1 [2]  
KicOffset-st: 0/1/0/1 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 0.00 [0/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:56:41 Z

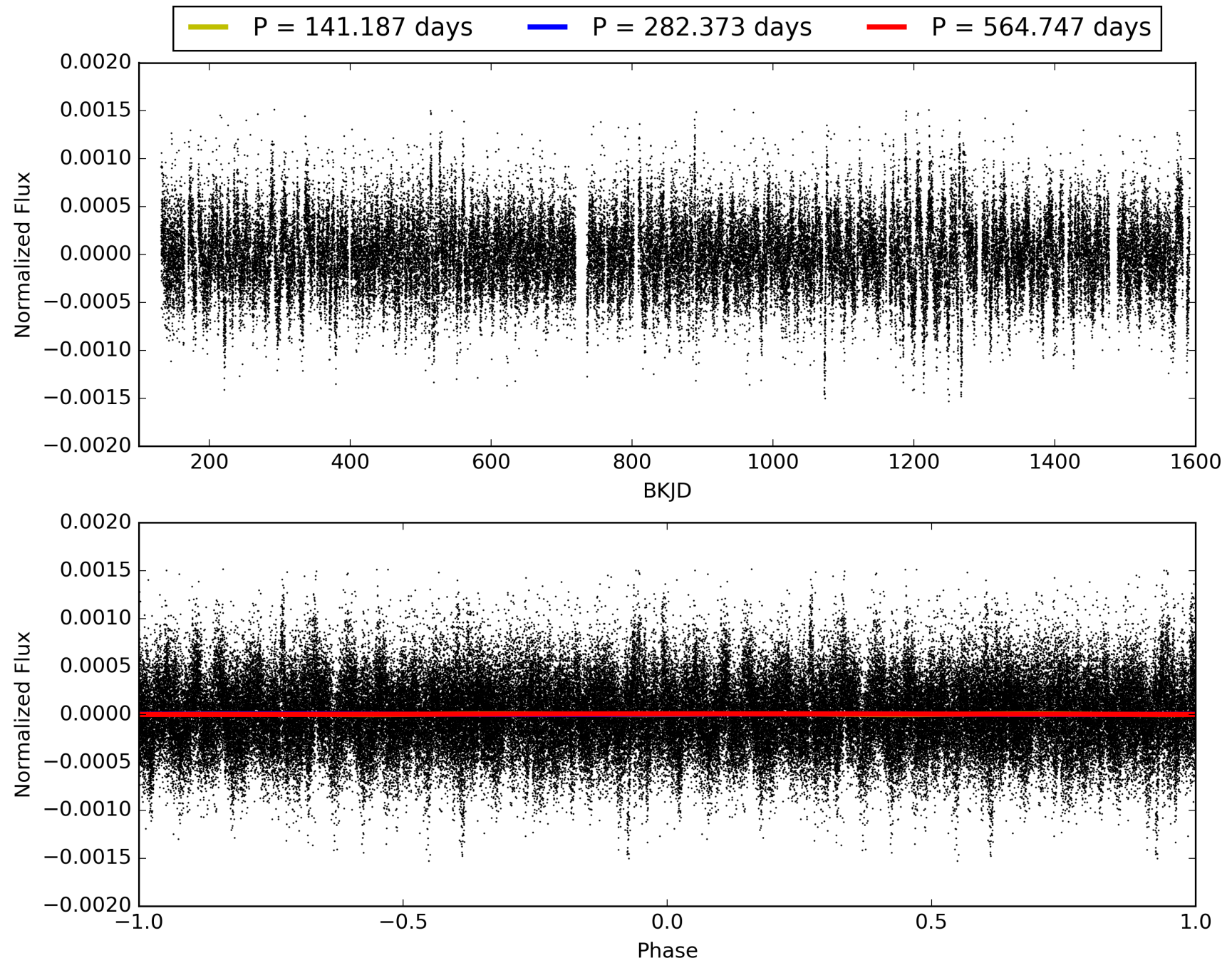
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008817759-02, PDC Light Curves

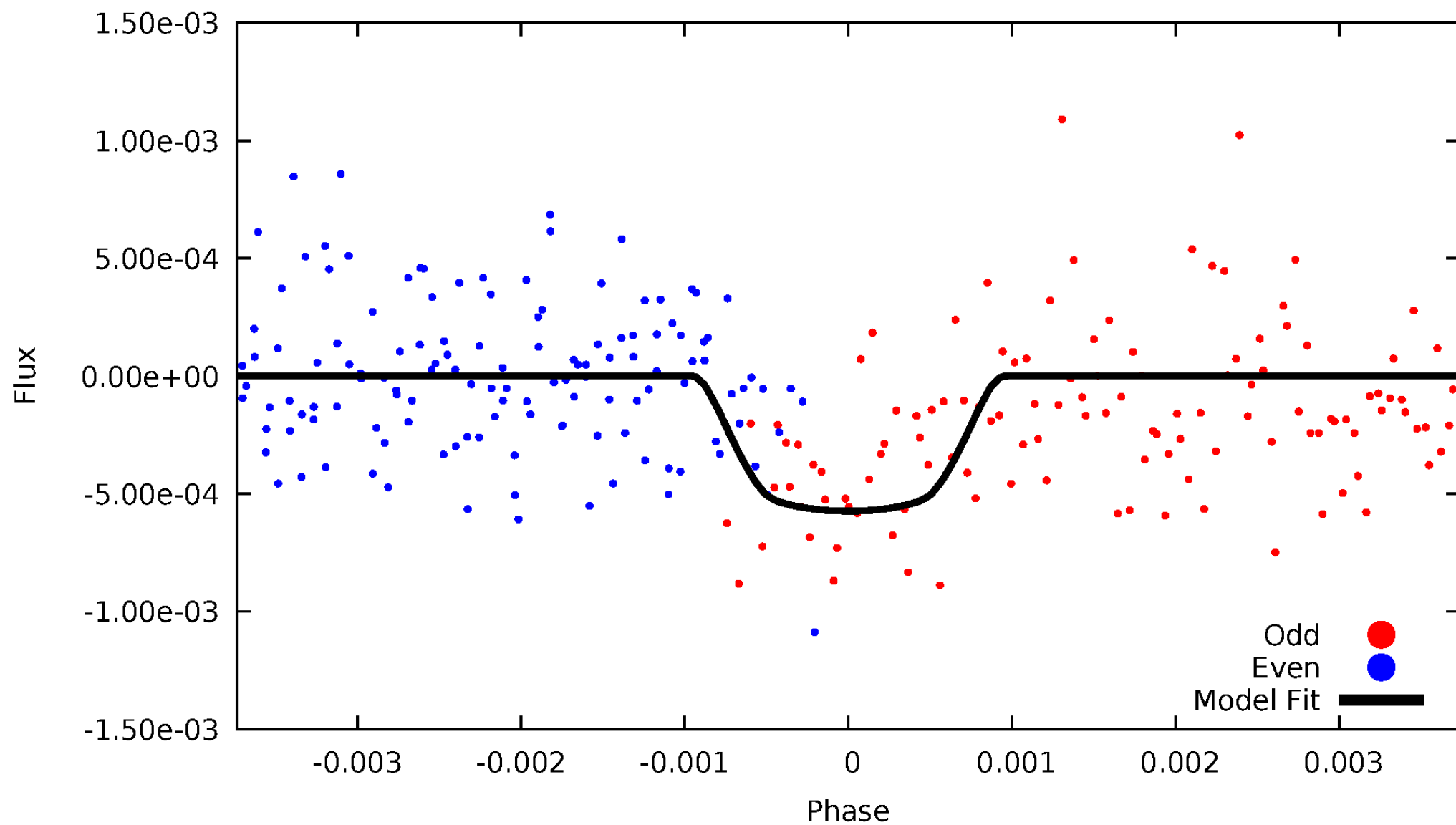


# TCE 008817759-02



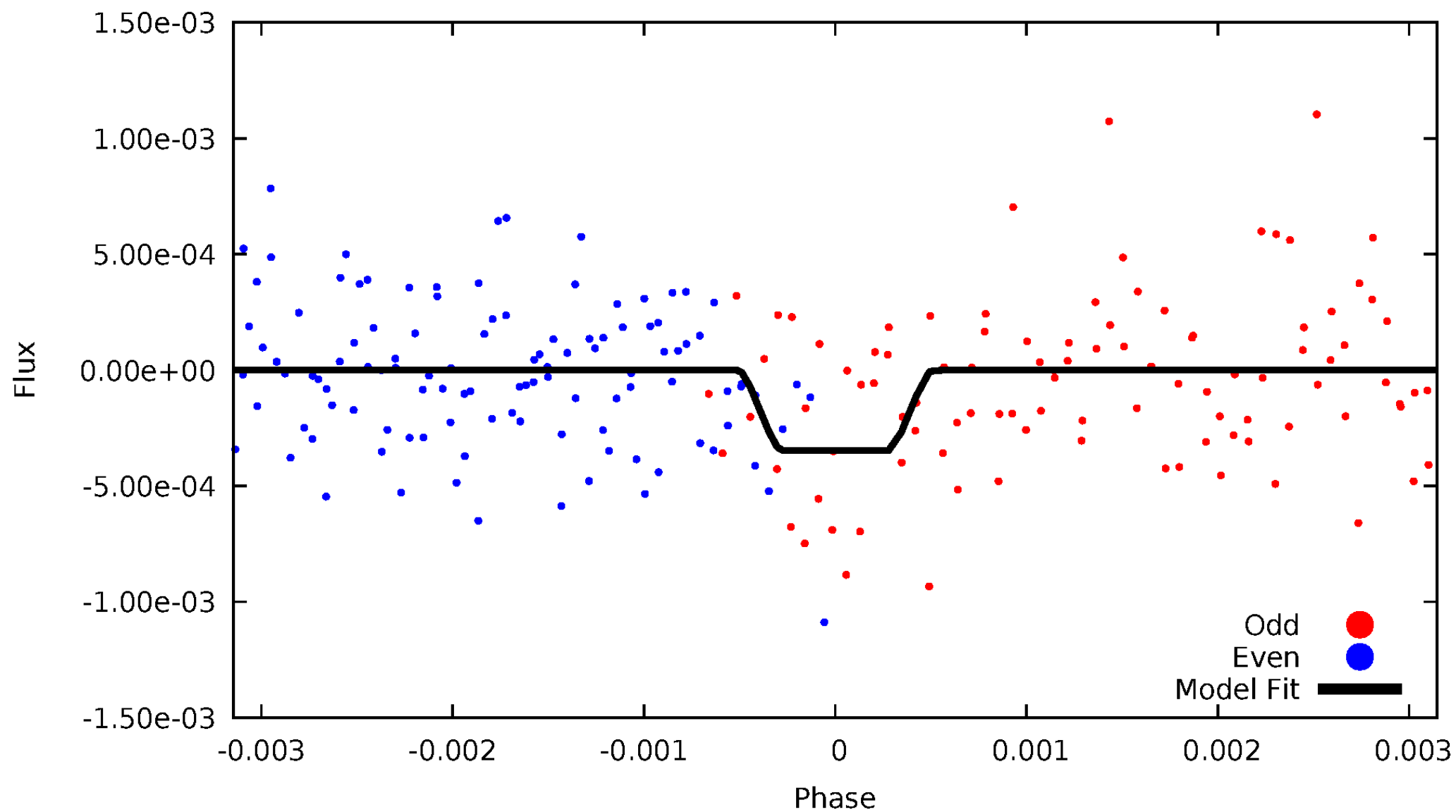
# DV Odd/Even

TCE 008817759-02



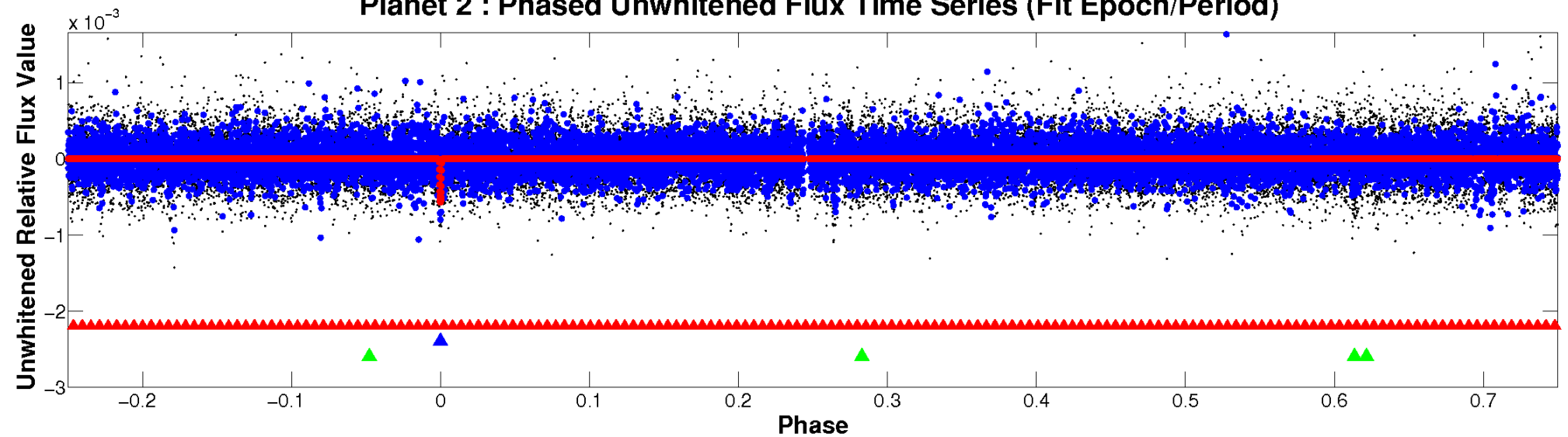
# ALT Odd/Even

TCE 008817759-02

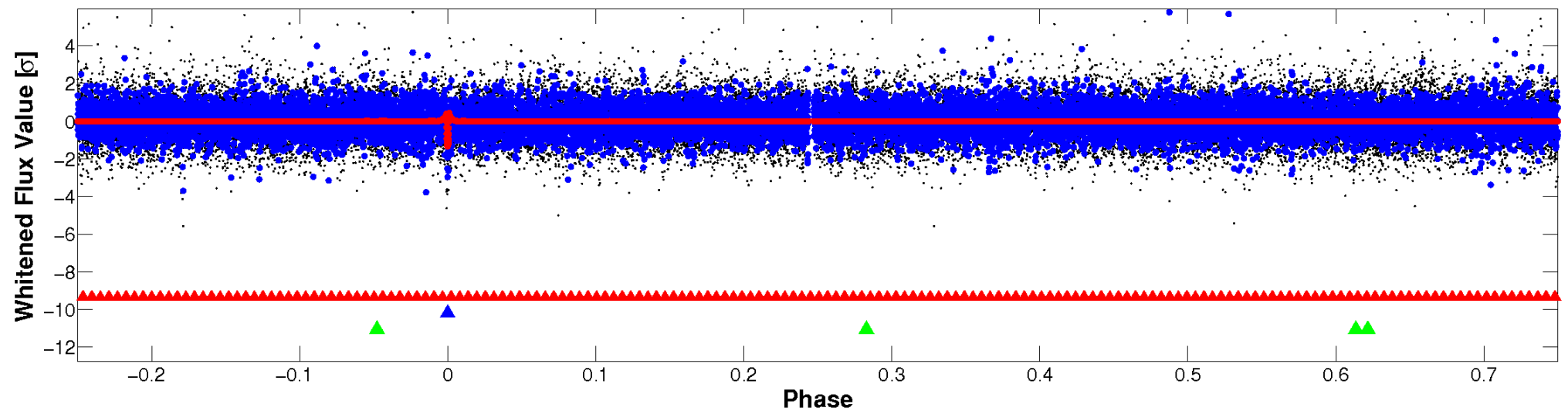


# Non-Whitened Vs. Whitened Light Curve

## 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

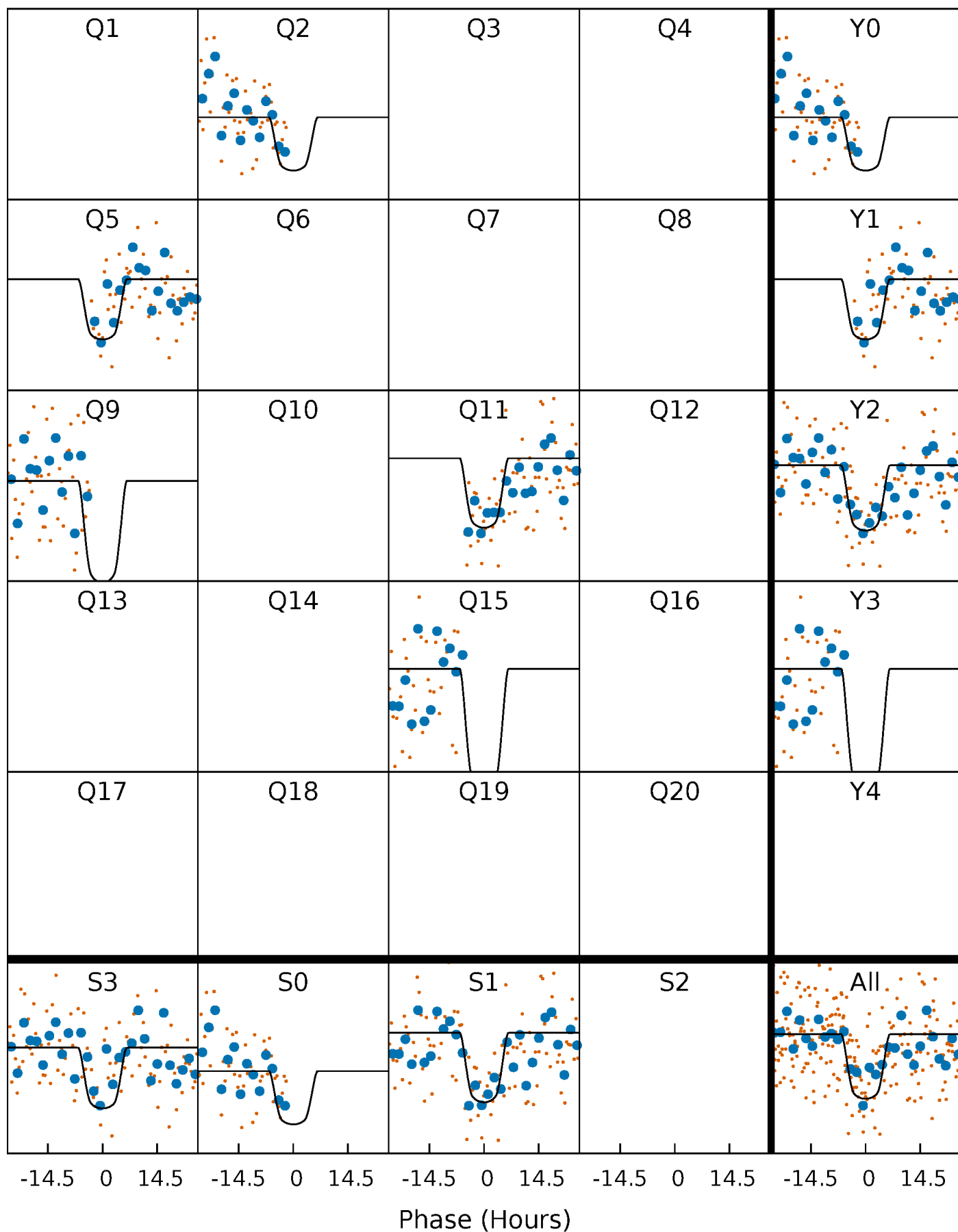
TCE 008817759-02 P=282.373323 Days  $T_0=247.042514$  (BKJD)





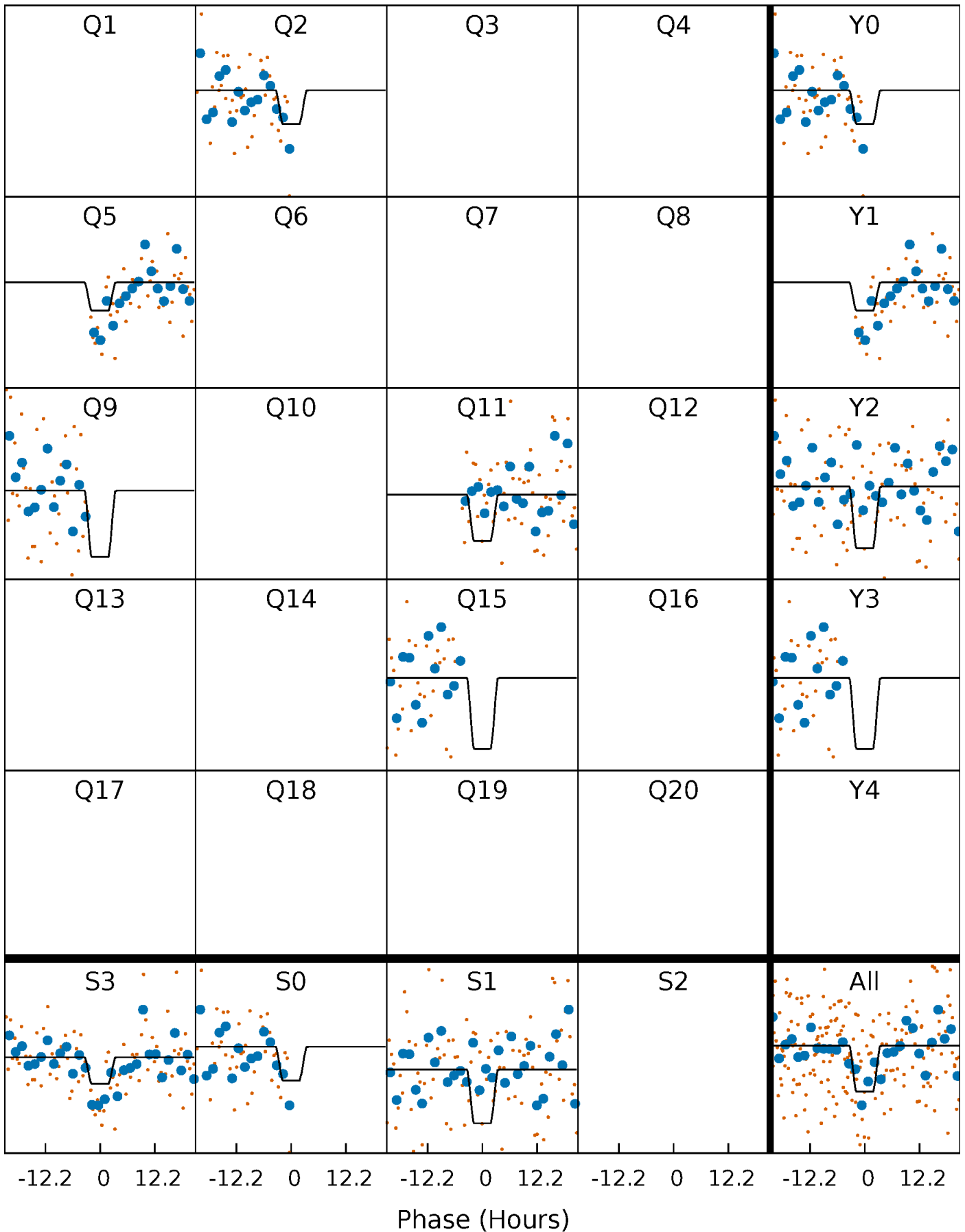
# DV Quarter-Phased Transit Curves

TCE 008817759-02     $P=282.373323$  Days     $T_0=247.042514$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

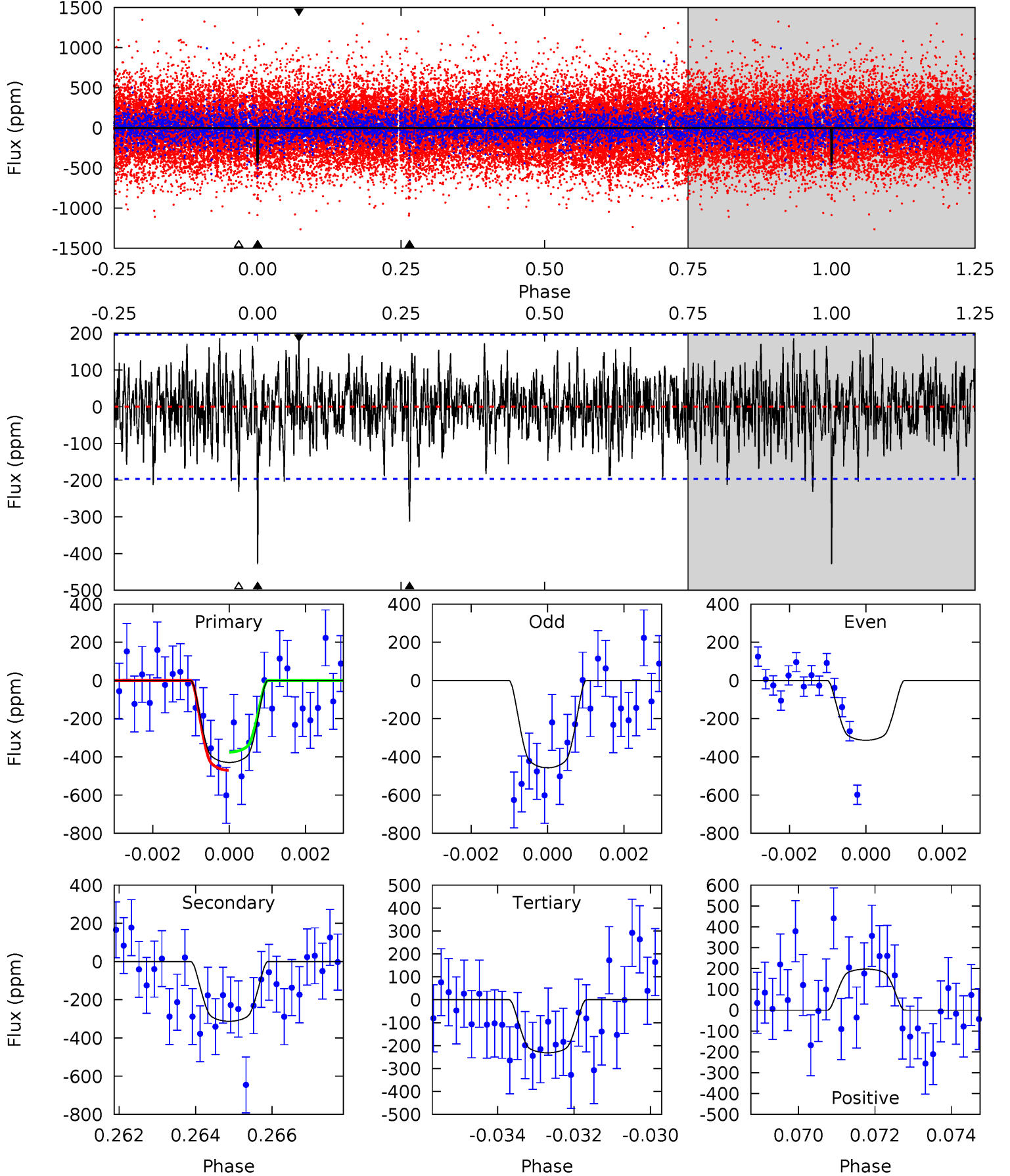
TCE 008817759-02     $P=282.379803$  Days     $T_0=247.000257$  (BKJD)



# DV Model-Shift Uniqueness Test

008817759-02, P = 282.373323 Days, E = 247.042514 Days

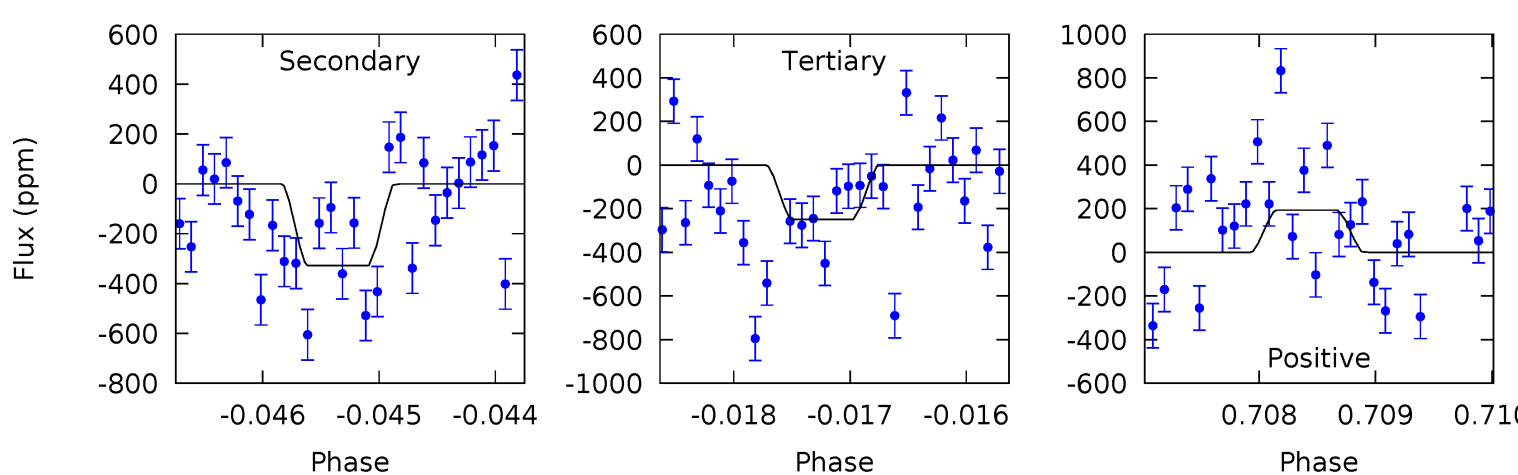
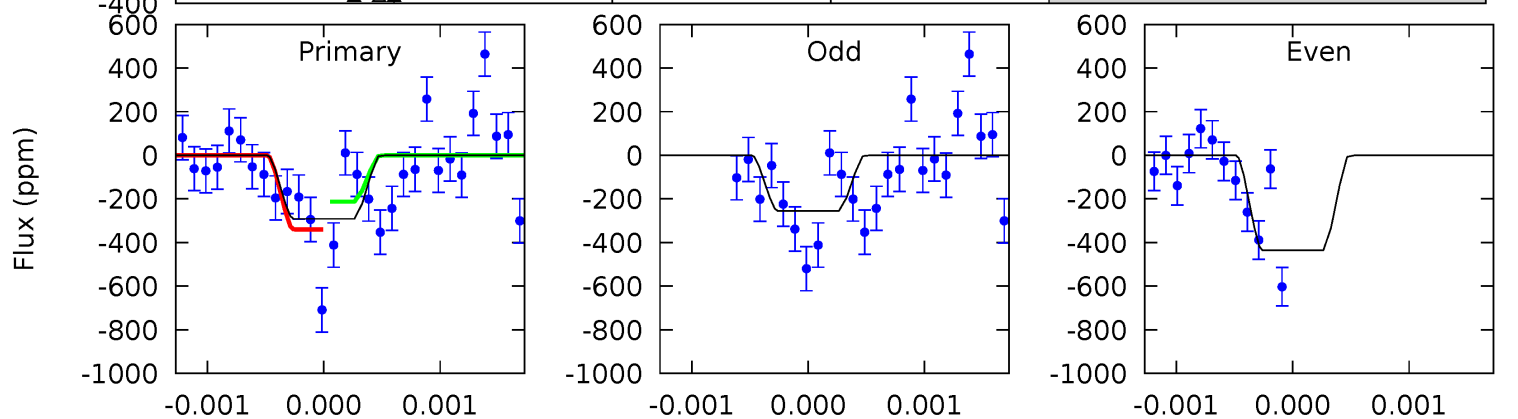
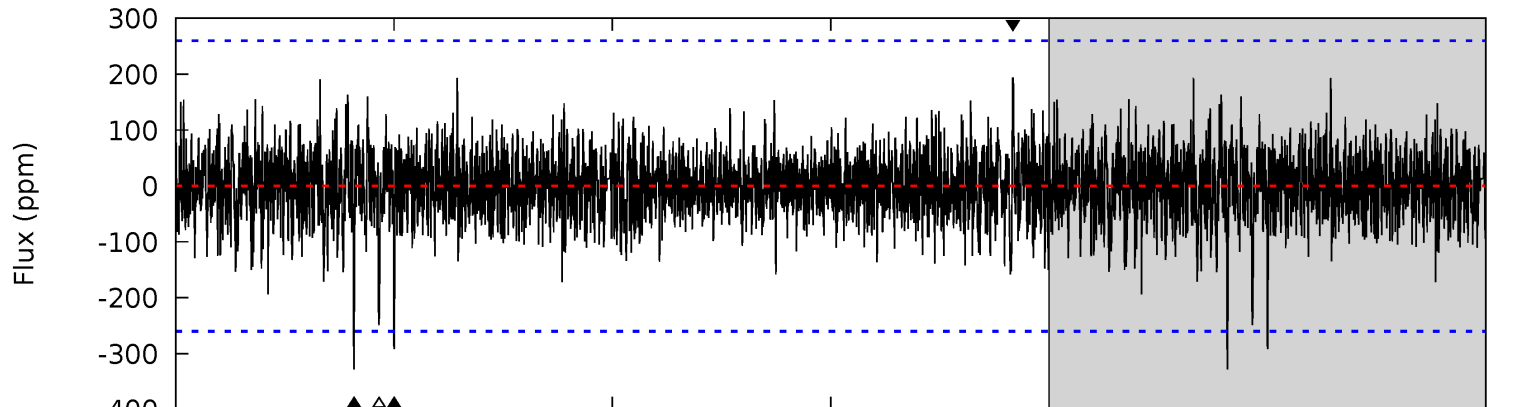
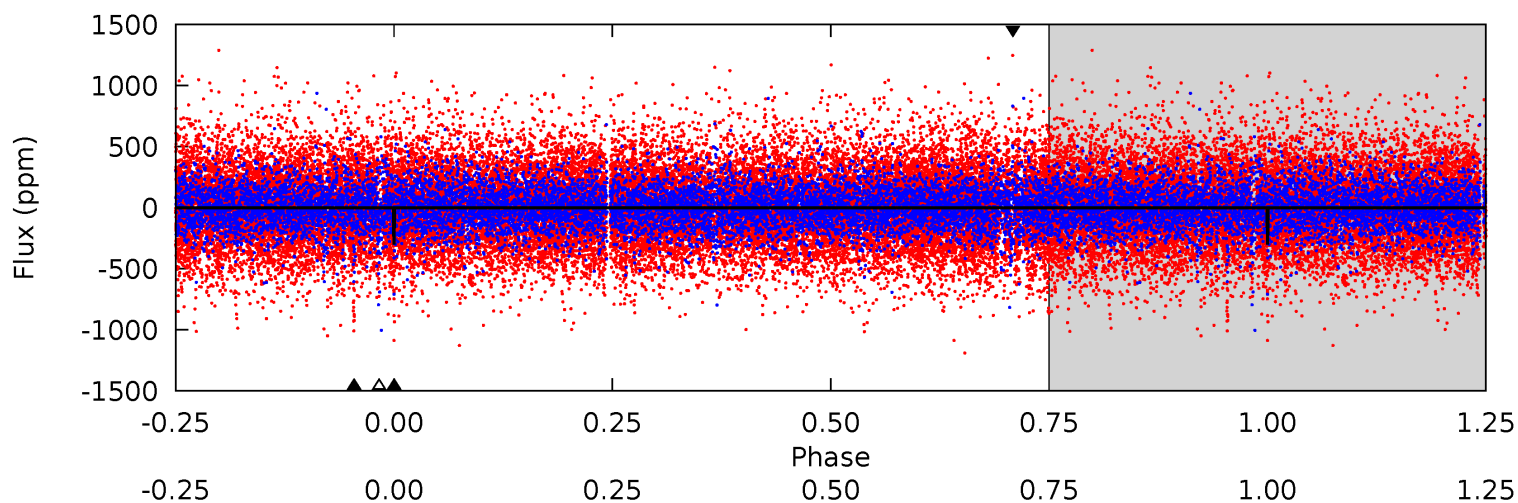
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	8.48	6.28	5.35	5.34	3.11	1.72	5.37	6.30	2.21	3.13	1.81	0.20	0.31	1.28



# Alt Model-Shift Uniqueness Test

008817759-02, P = 282.379803 Days, E = 247.000257 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
6.10	6.87	5.21	4.06	5.44	3.28	1.03	0.88	2.04	1.66	2.81	1.61	0.85	0.37	1.32





### Stellar Parameters For KIC 008817759

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6215^{+175}_{-219}$	$4.488^{+0.052}_{-0.208}$	$-0.300^{+0.300}_{-0.300}$	$0.957^{+0.291}_{-0.097}$	$1.027^{+0.134}_{-0.134}$	$1.652^{+0.442}_{-0.835}$
	+3%/-4%	+1%/-5%	+100%/-100%	+30%/-10%	+13%/-13%	+27%/-51%
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 008817759-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-313 \pm 37$	$3.01^{+0.53}_{-0.43}$	$416^{+28}_{-23}$	$5041^{+314}_{-281}$	$13406^{+4745}_{-3659}$
Alt.	$-328 \pm 48$	$2.00^{+0.46}_{-0.36}$	$416^{+27}_{-21}$	$6154^{+673}_{-507}$	$31977^{+17058}_{-10747}$

$T_{max}$  = 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

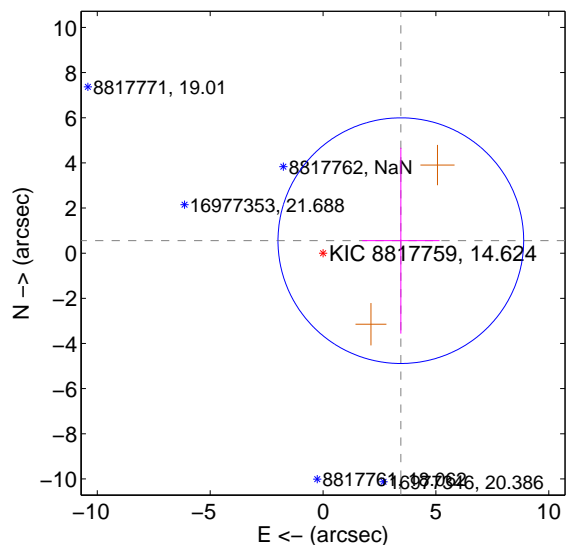
Supplemental centroid analysis for 008817759-02. Kepler magnitude: 14.62. Transit SNR 8.07

There are 0 quarters with good PRF difference image offsets

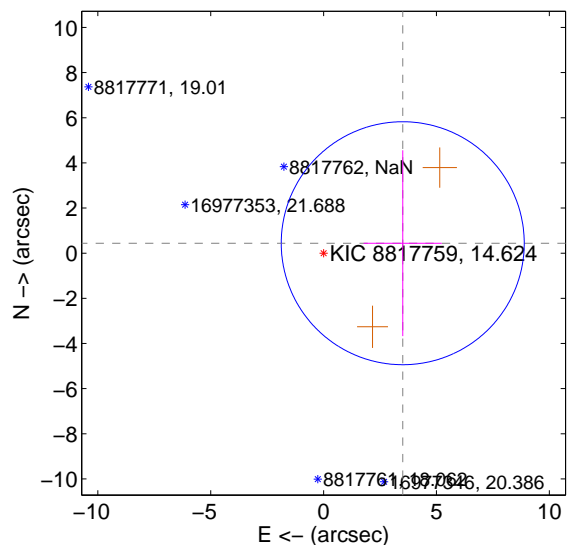
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.490 \pm 1.814$	1.92	$-3.446 \pm 1.714$	$0.554 \pm 4.114$
PRF-fit source offset from KIC position	$3.534 \pm 1.794$	1.97	$-3.506 \pm 1.732$	$0.441 \pm 4.117$
photometric centroid source offset	$0.96 \pm 0.97$	0.99	$-0.03 \pm 0.99$	$-0.96 \pm 0.97$

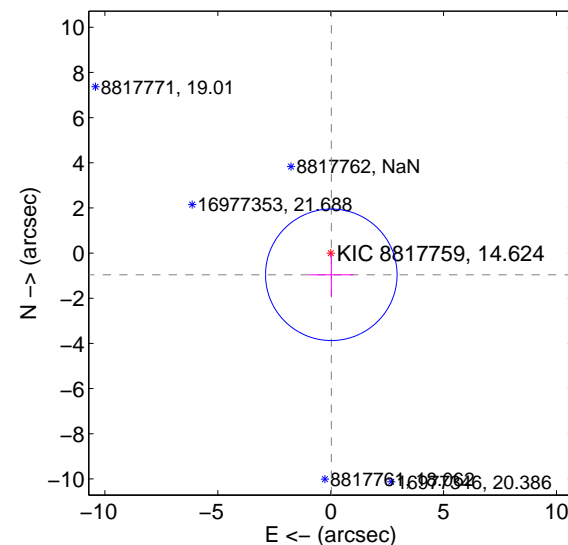
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

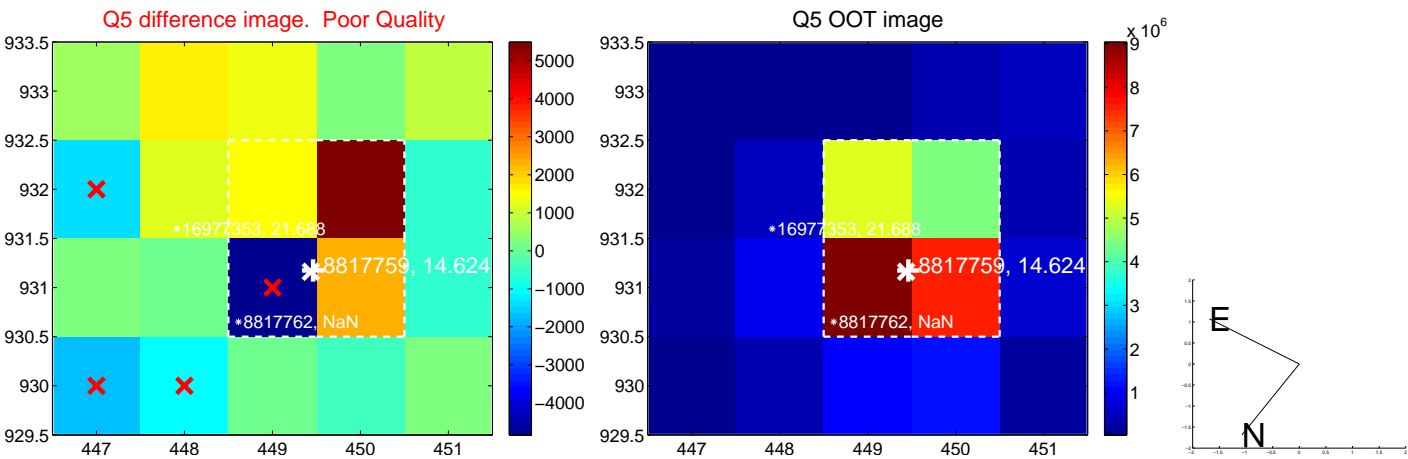


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

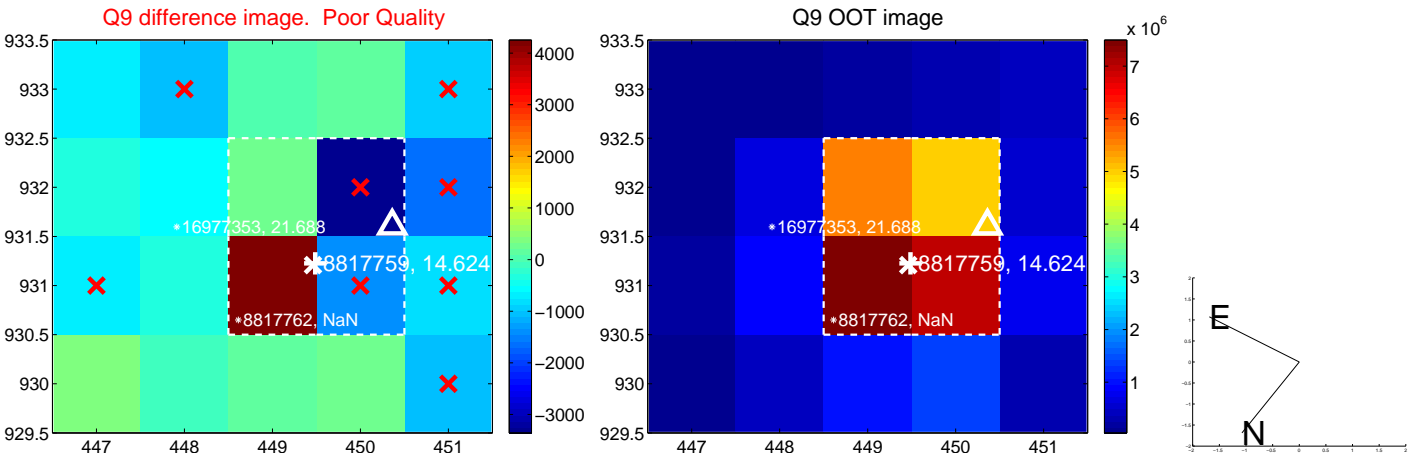


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

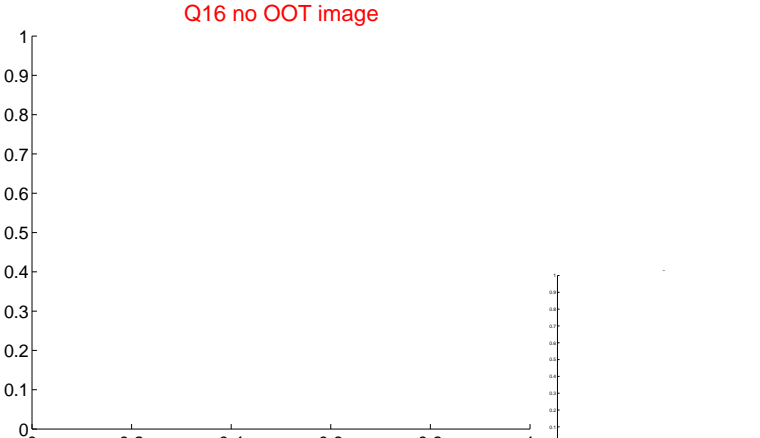
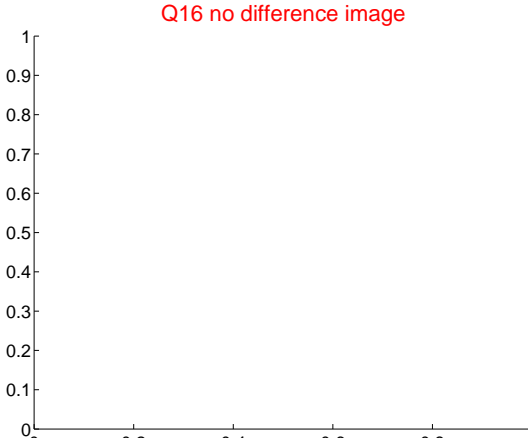
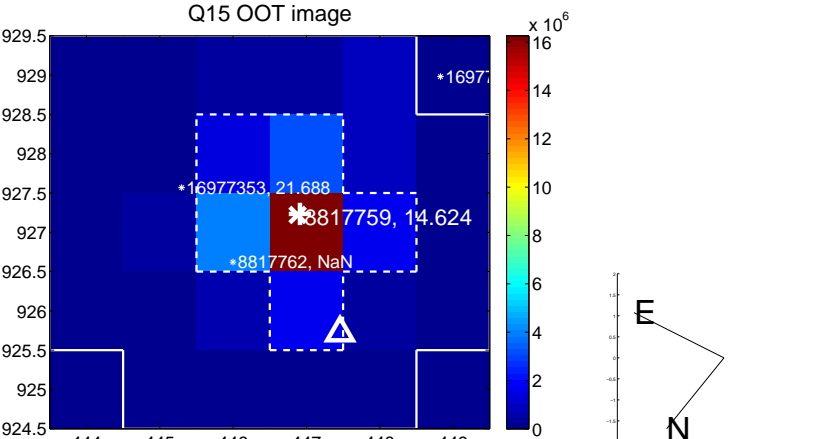
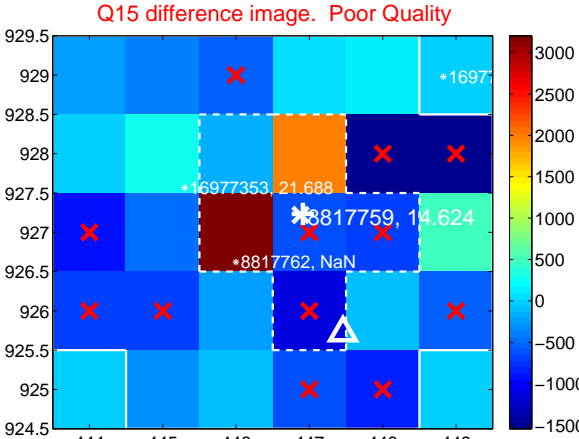
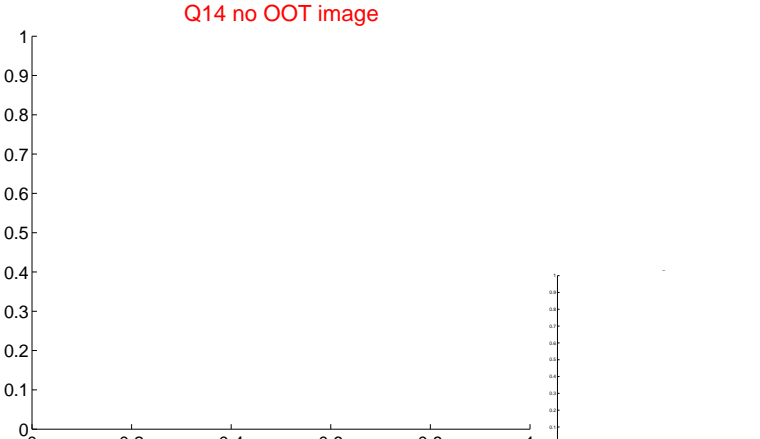
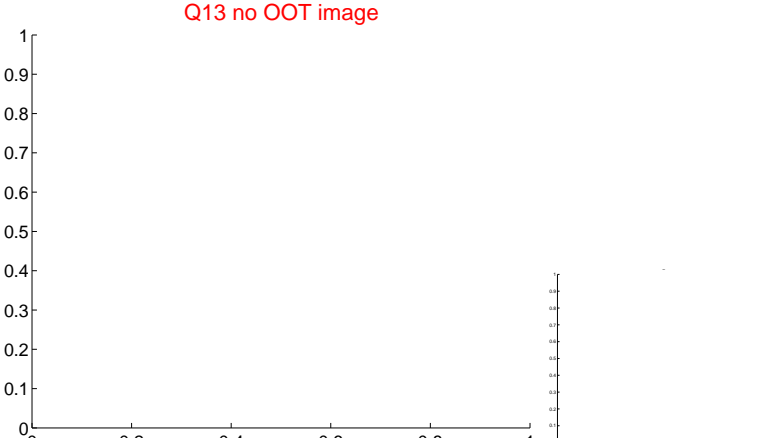
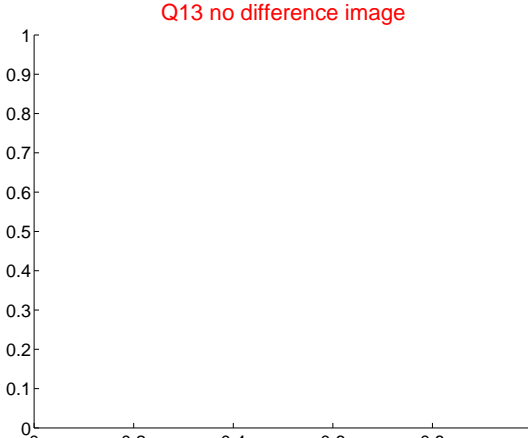




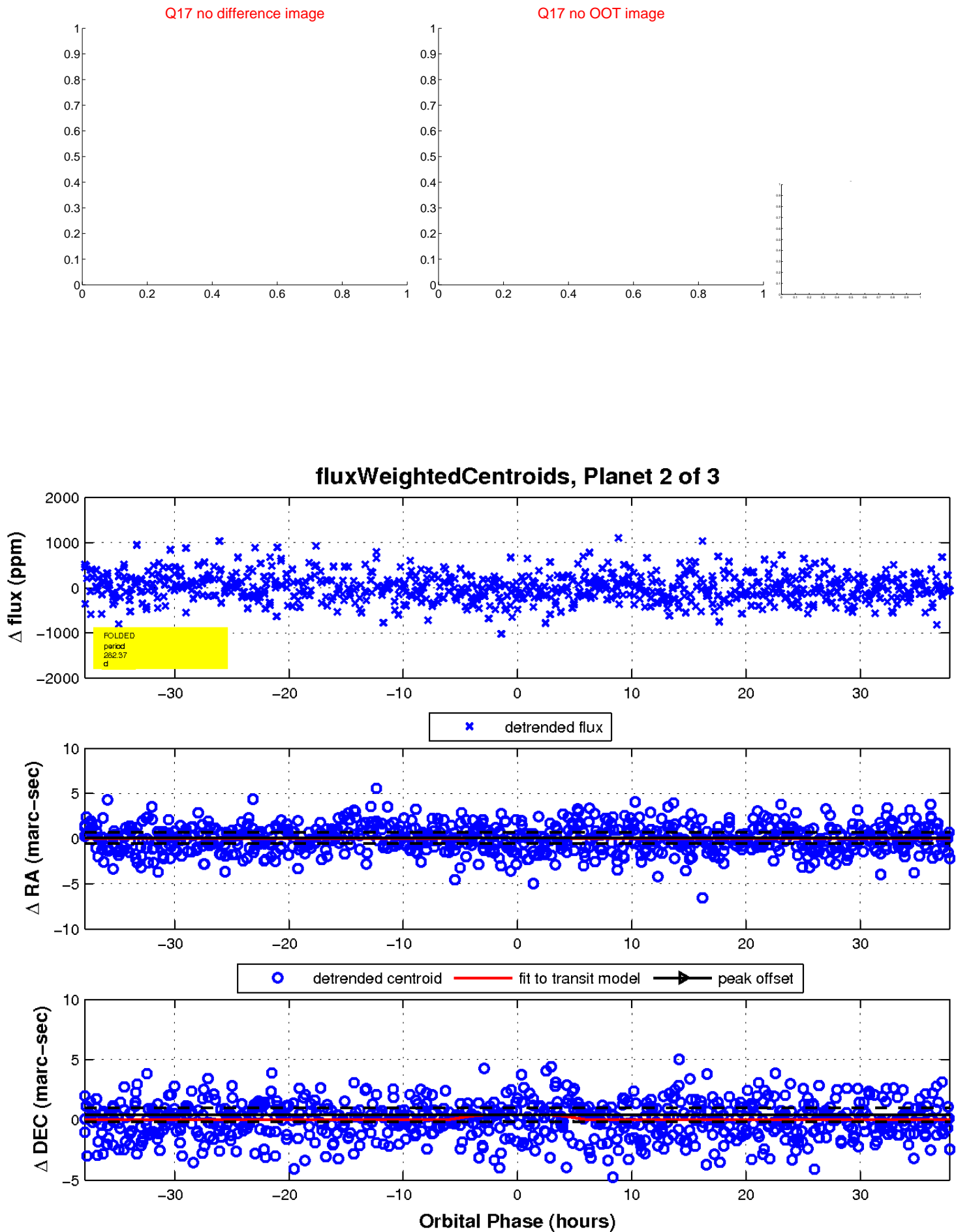
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



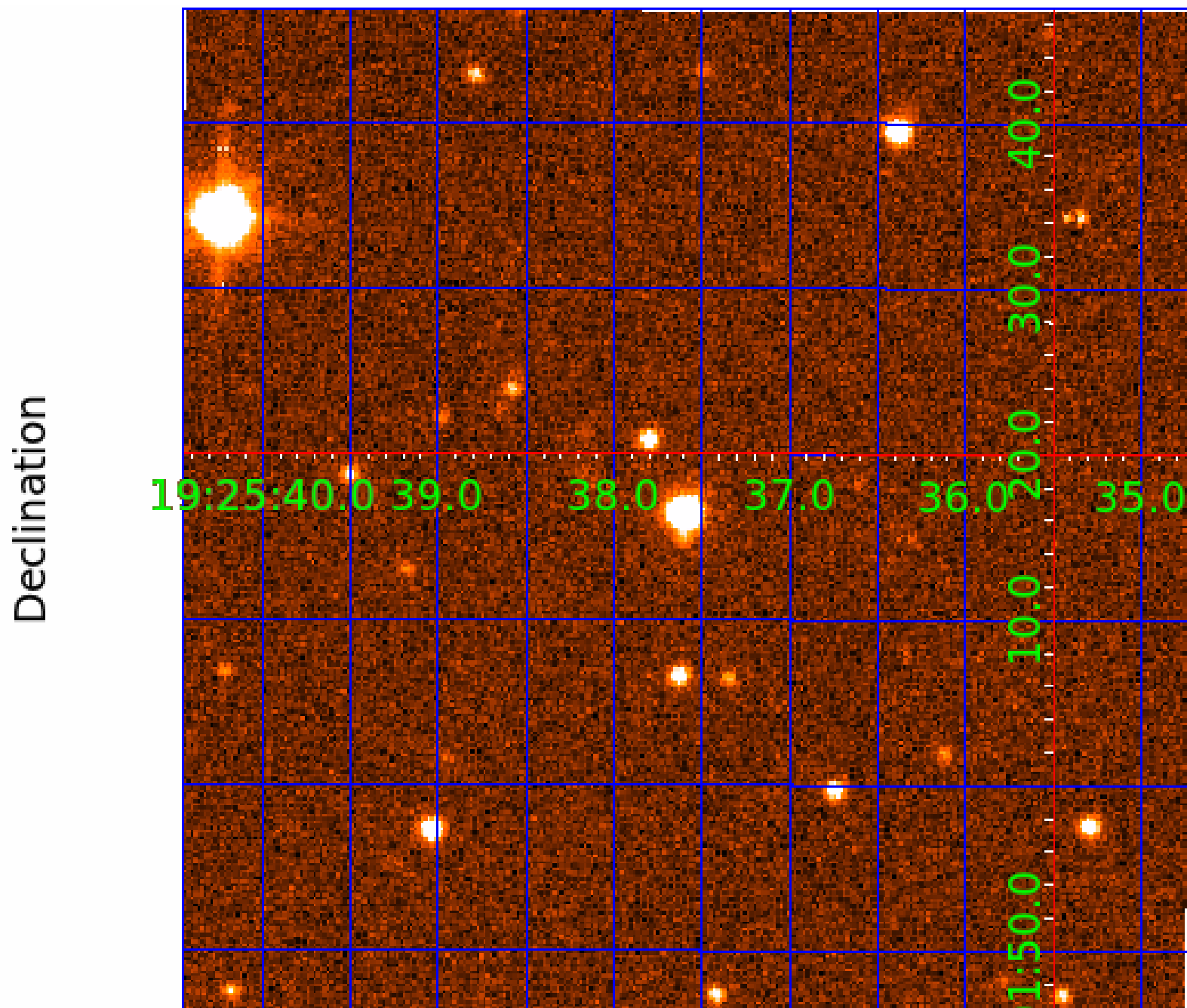
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



UKIRT Image



# KIC 008817759

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008817759-01	OBS	No	3.263867	133.560119	38.0	12.611	8.2	8.5	0.96	6215	0.62	648.07
008817759-02	OBS	No	282.373323	247.042514	573.8	12.655	9.3	8.1	0.96	6215	2.87	1.69
008817759-03	OBS	No	375.739027	140.188640	717.5	46.968	8.0	9.2	0.96	6215	3.26	1.16

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008817759-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008817759-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008817759-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—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.

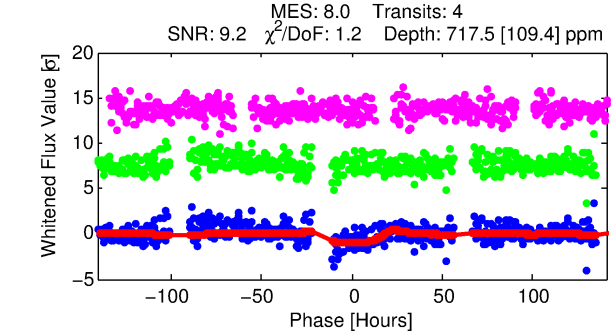
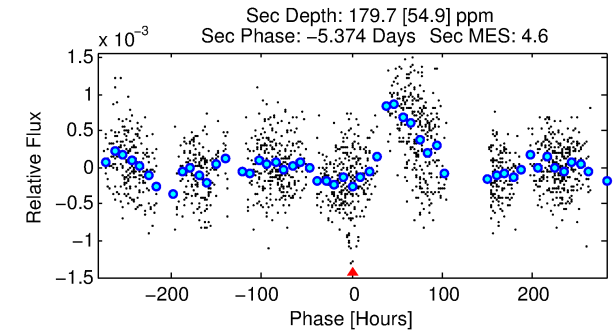
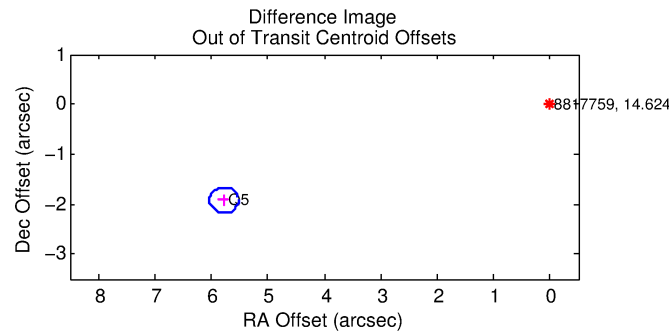
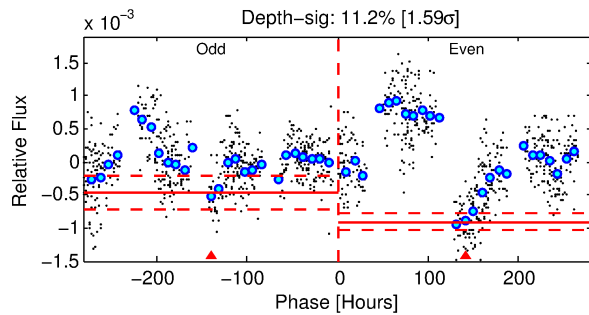
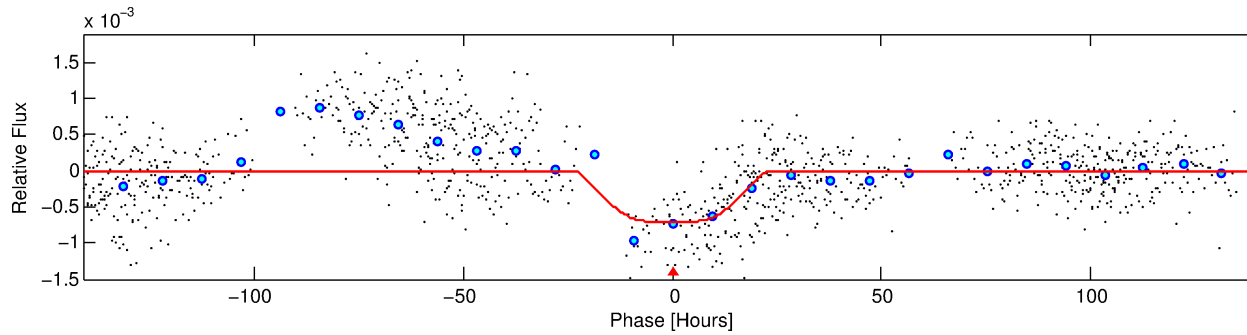
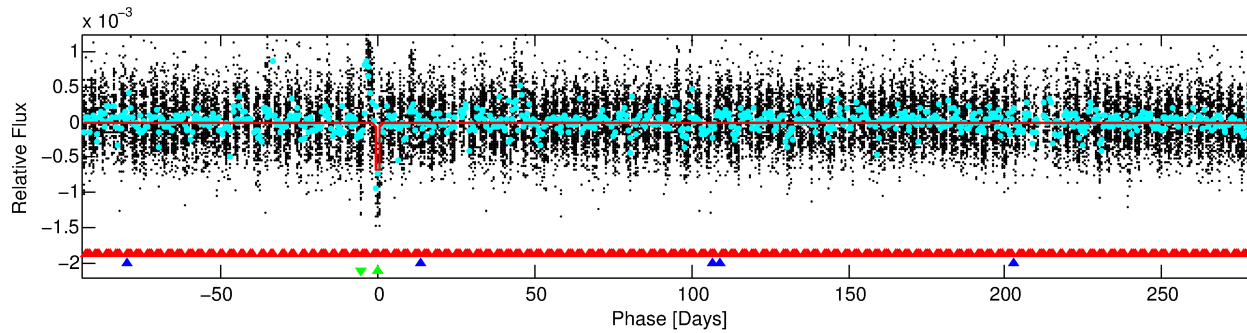
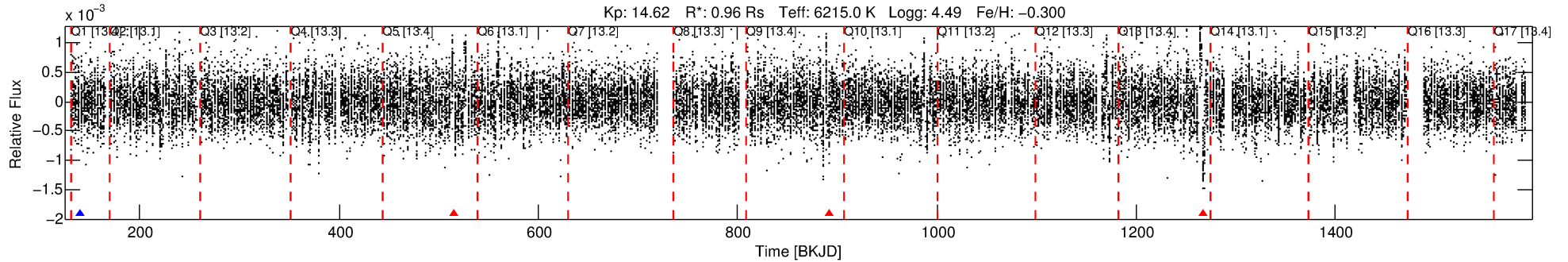
## Ephemeris Match Information For 008817759-03

No Significant Match Found



# DV One-Page Summary

KIC: 8817759 Candidate: 3 of 3 Period: 375.739 d



## DV Fit Results:

Period = 375.73903 [0.04067] d  
Epoch = 140.1886 [0.1109] BKJD  
Rp/R\* = 0.0312 [0.0028]  
a/R\* = 22.89 [3.36]  
b = 0.96 [0.01]  
Seff = 1.16 [0.47]  
Teq = 264 [27] K  
Rp = 3.26 [1.03] Re  
a = 1.0286 [0.2654] AU  
Ag = 9834.47 [5084.74] [1.93 $\sigma$ ]  
Teffp = 4072 [387] K [9.83 $\sigma$ ]

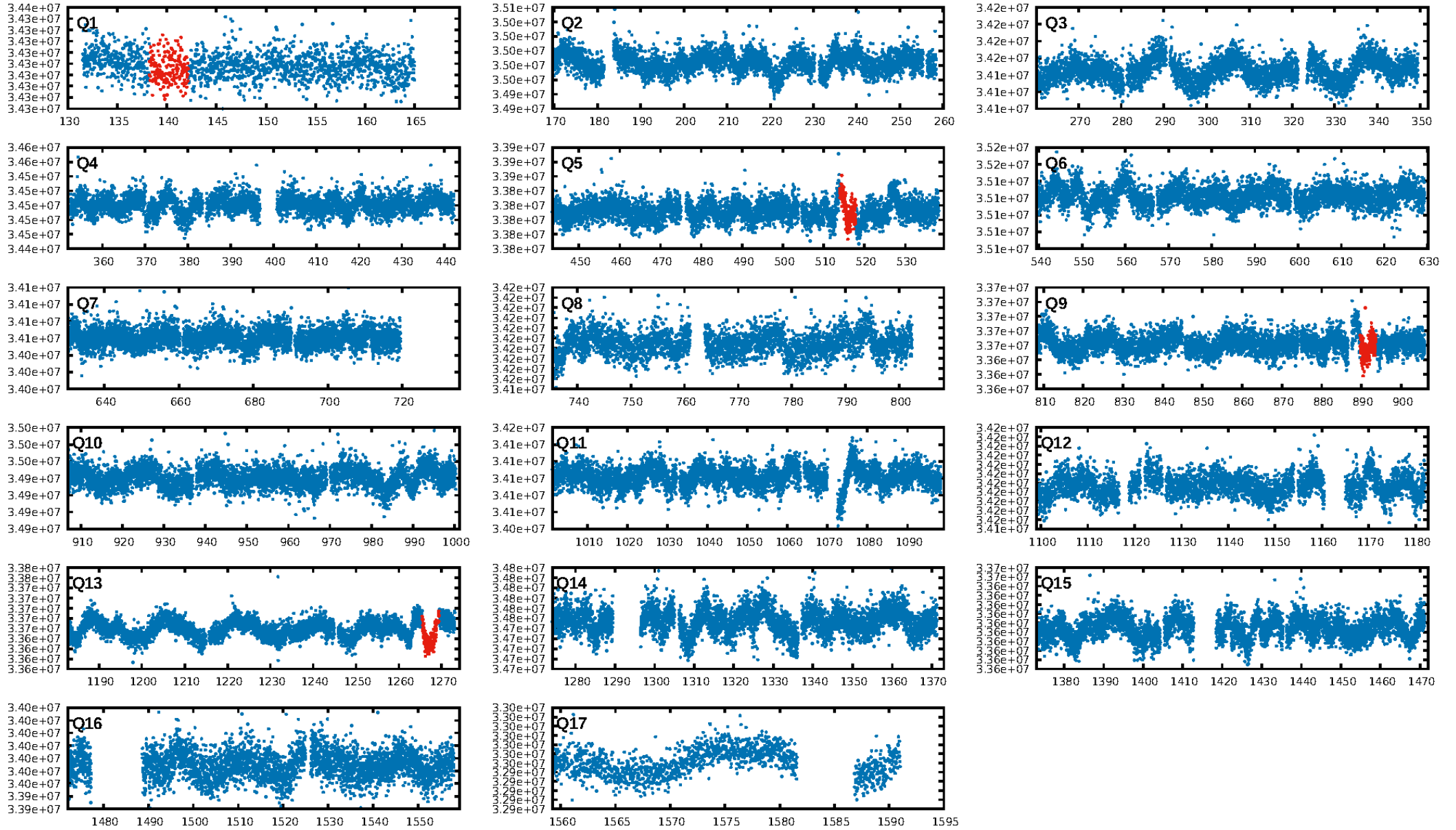
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.07 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 16.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.48e-08  
RollingBand-fgt: 0.00 [0/3]  
GhostDiagnostic-chr: 0.8628  
Centroid-sig: 2.7%  
Centroid-so: 1.199 arcsec [1.81 $\sigma$ ]  
OotOffset-rm: 6.086 arcsec [70.78 $\sigma$ ]  
KicOffset-rm: 6.068 arcsec [70.45 $\sigma$ ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 0.00 [0/3]

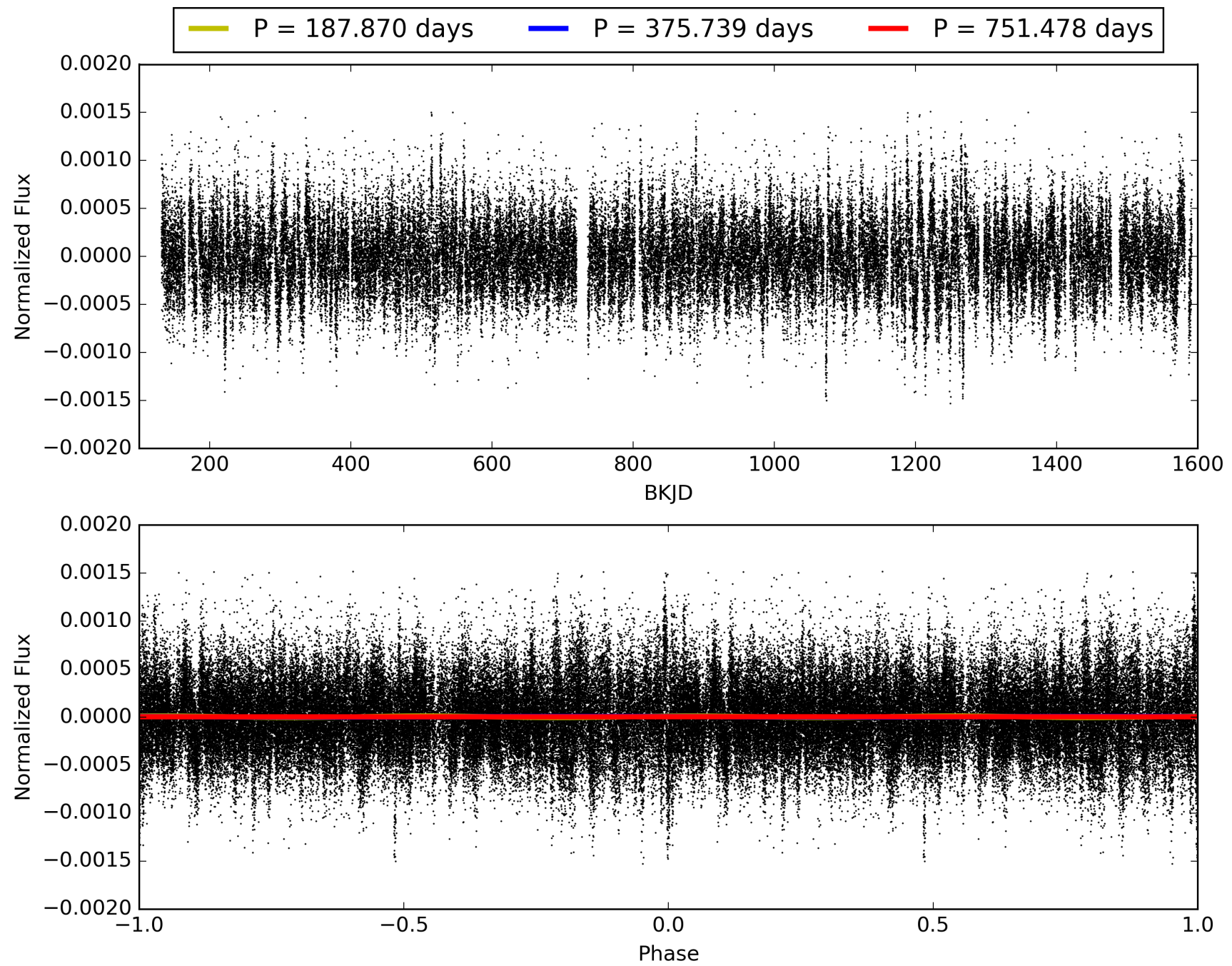
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:56:48 Z

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

# TCE 008817759-03, PDC Light Curves

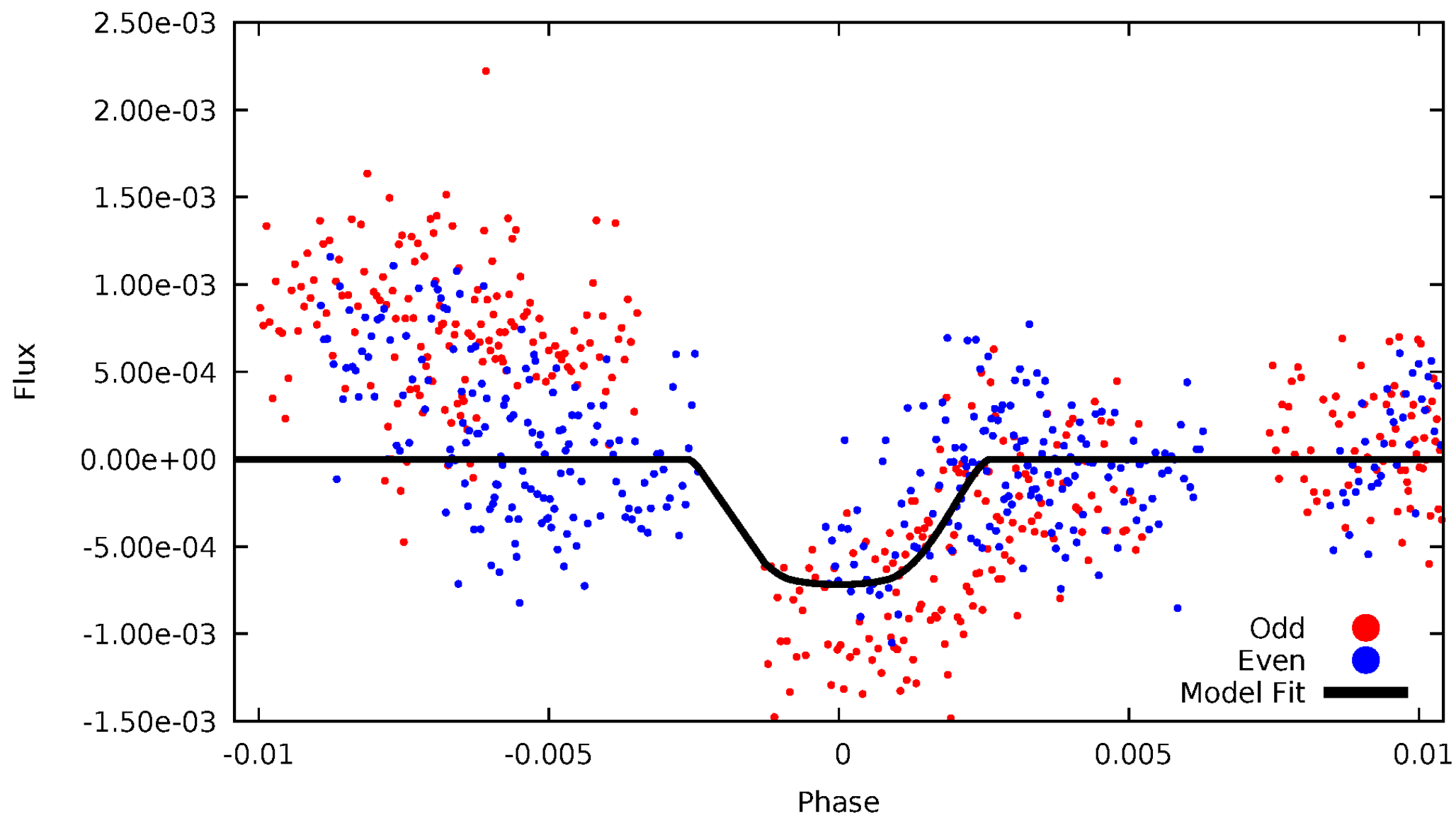


TCE 008817759-03



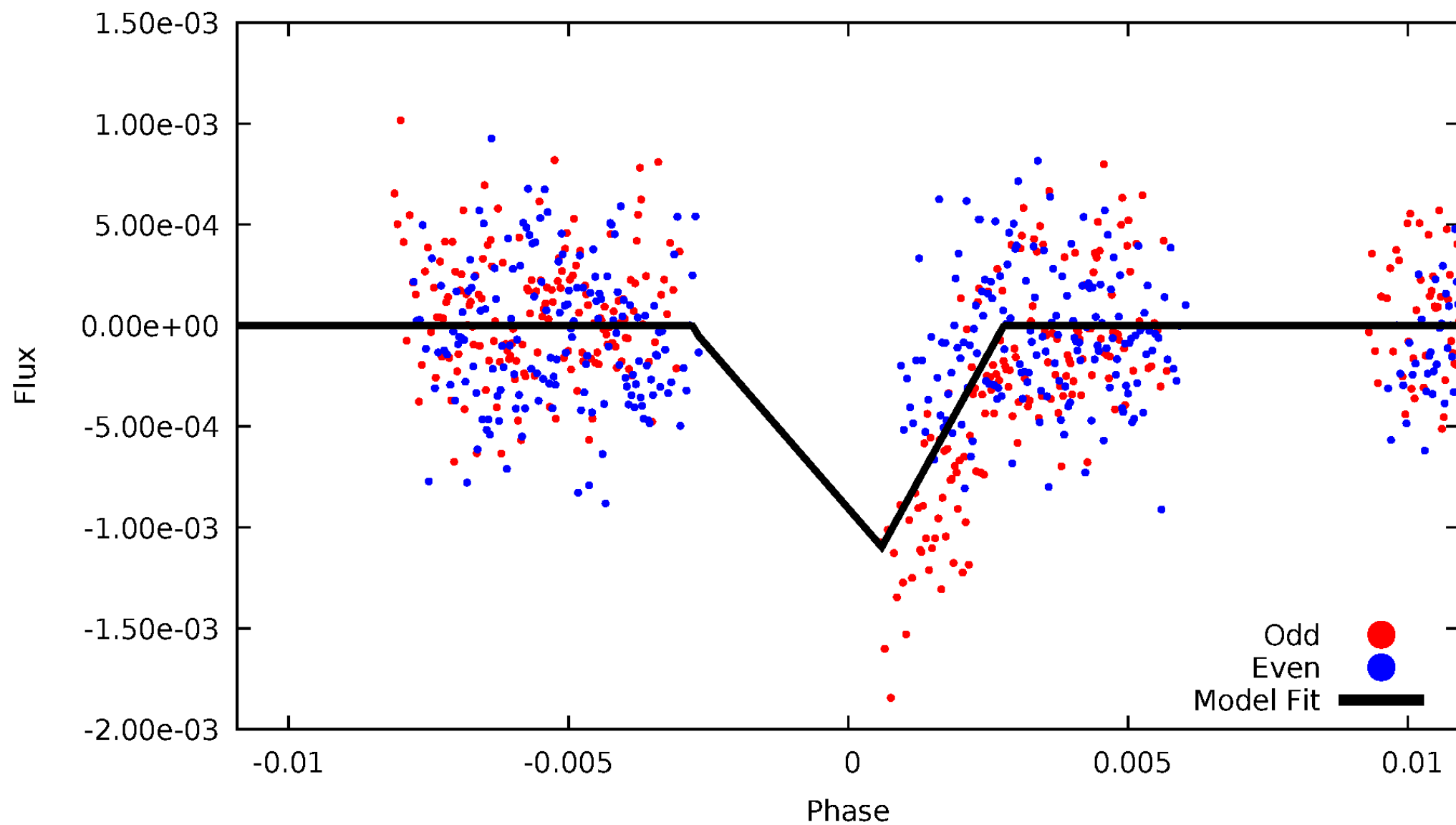
DV Odd/Even

TCE 008817759-03



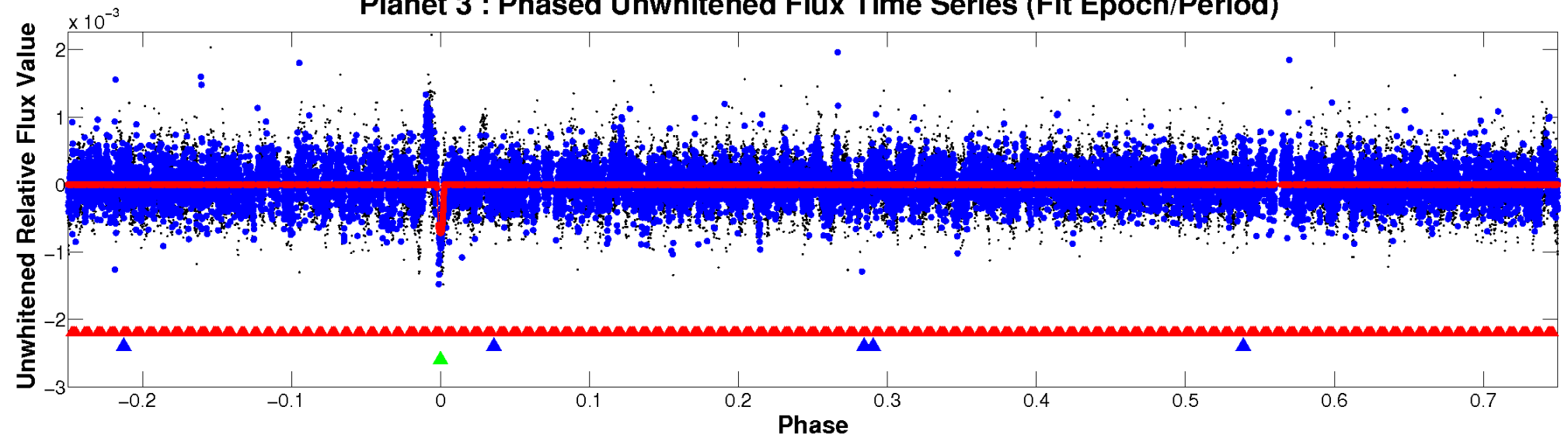
# ALT Odd/Even

TCE 008817759-03

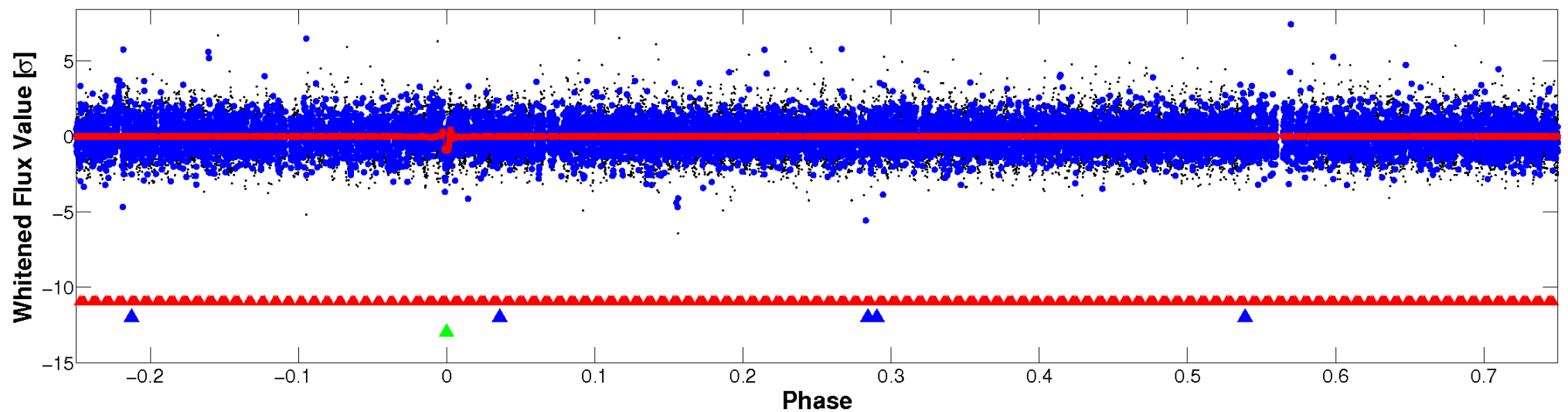


# Non-Whitened Vs. Whitened Light Curve

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



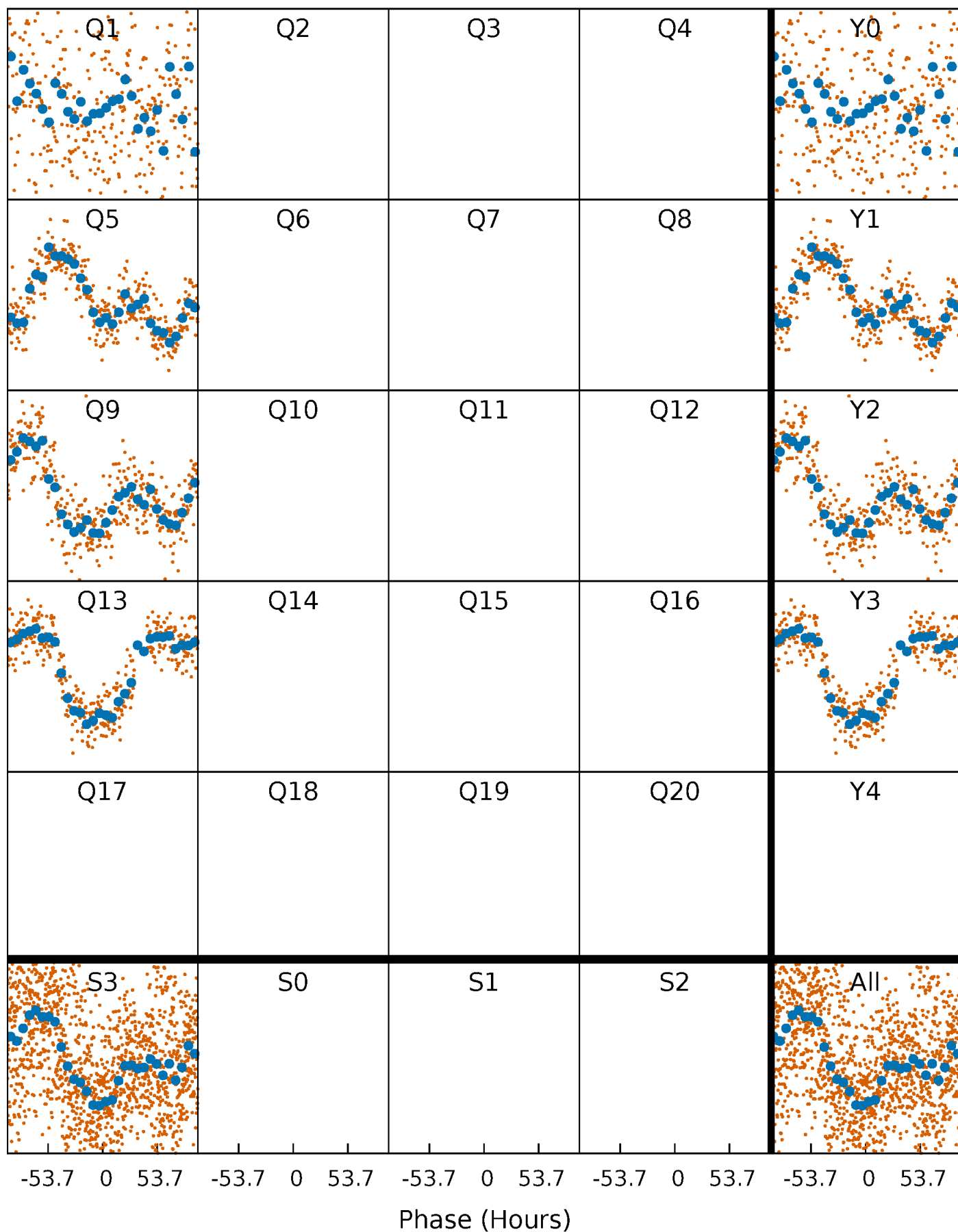
Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





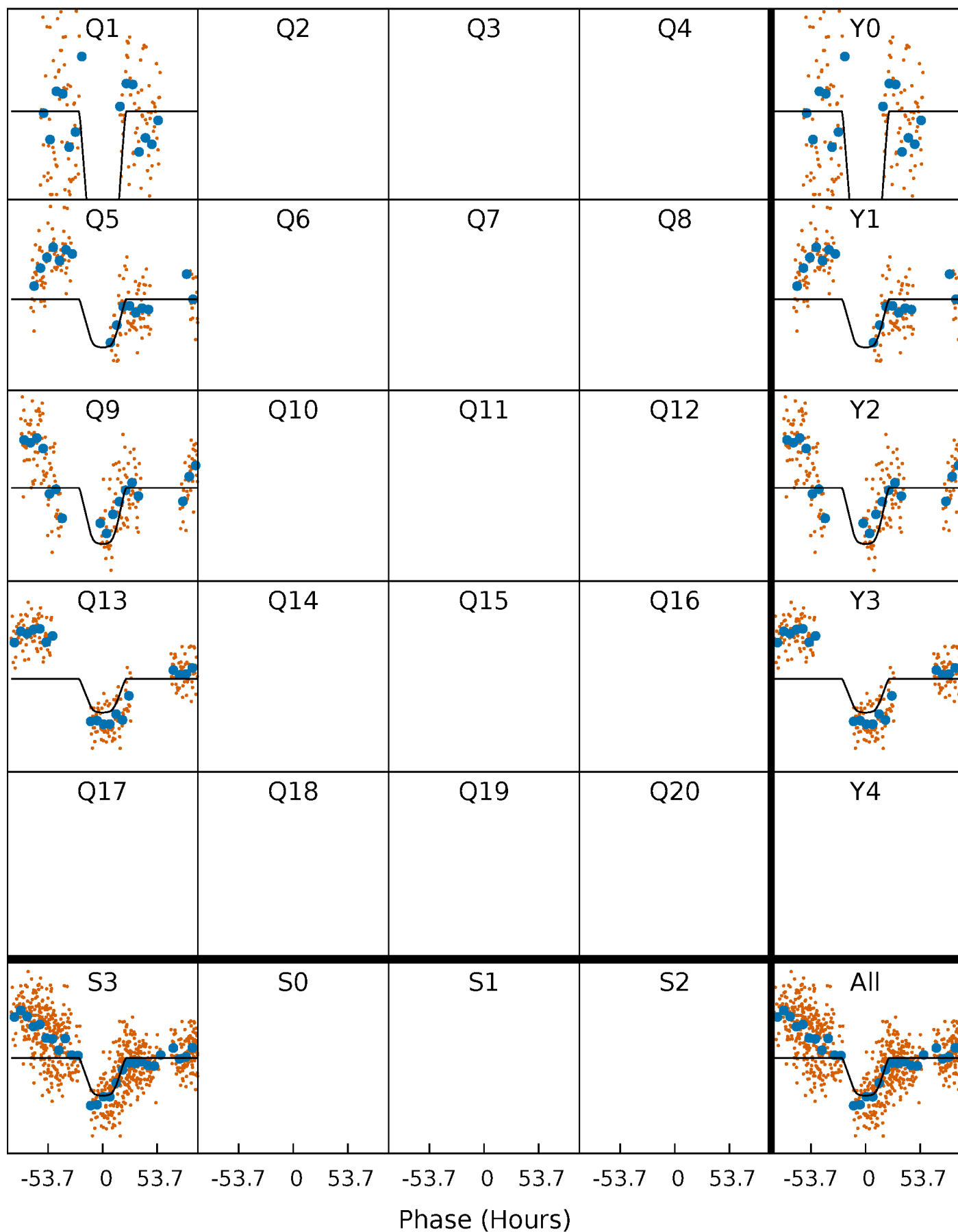
# PDC Quarter-Phased Transit Curves

TCE 008817759-03     $P=375.739027$  Days     $T_0=140.188640$  (BKJD)



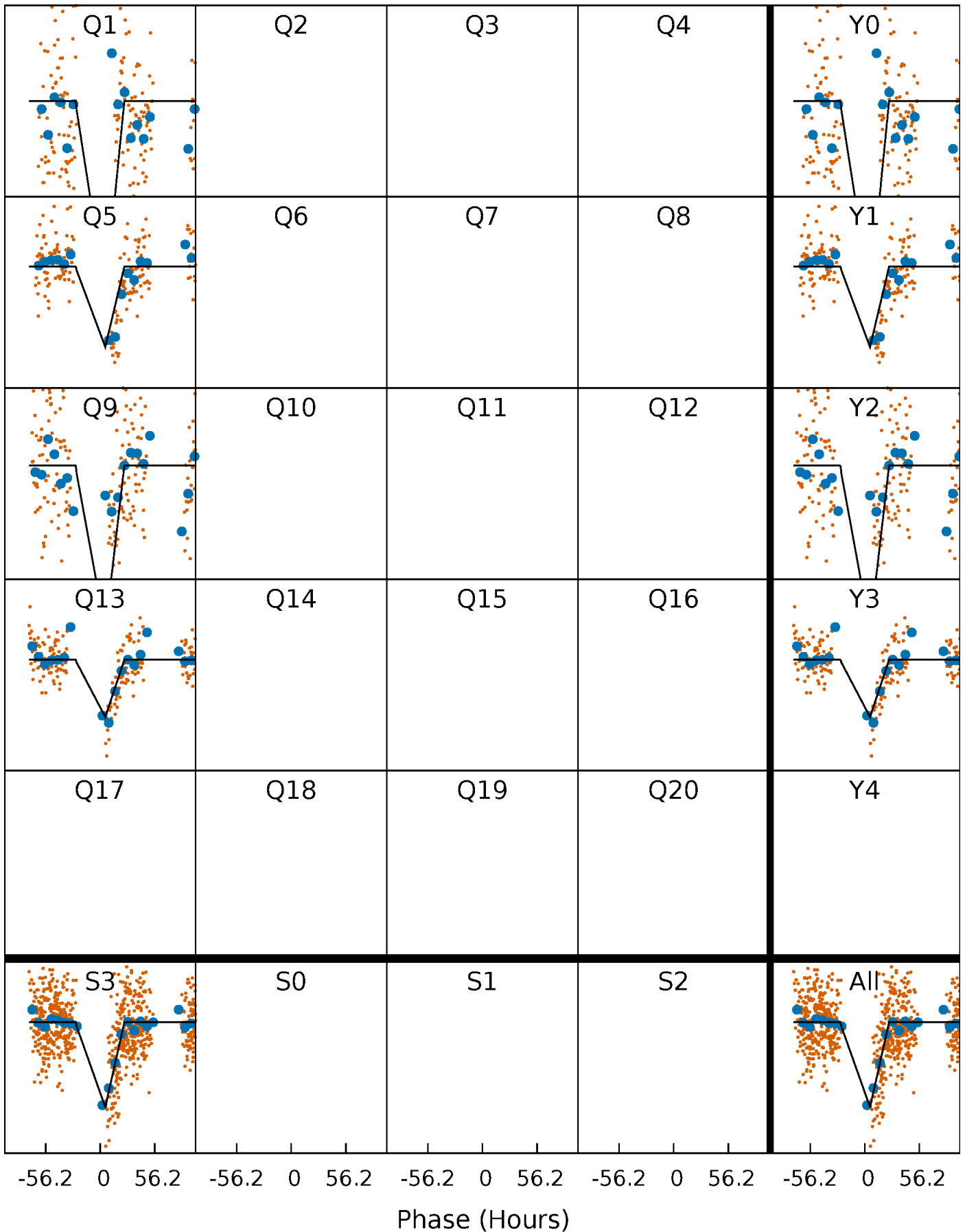
# DV Quarter-Phased Transit Curves

TCE 008817759-03 P=375.739027 Days  $T_0=140.188640$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

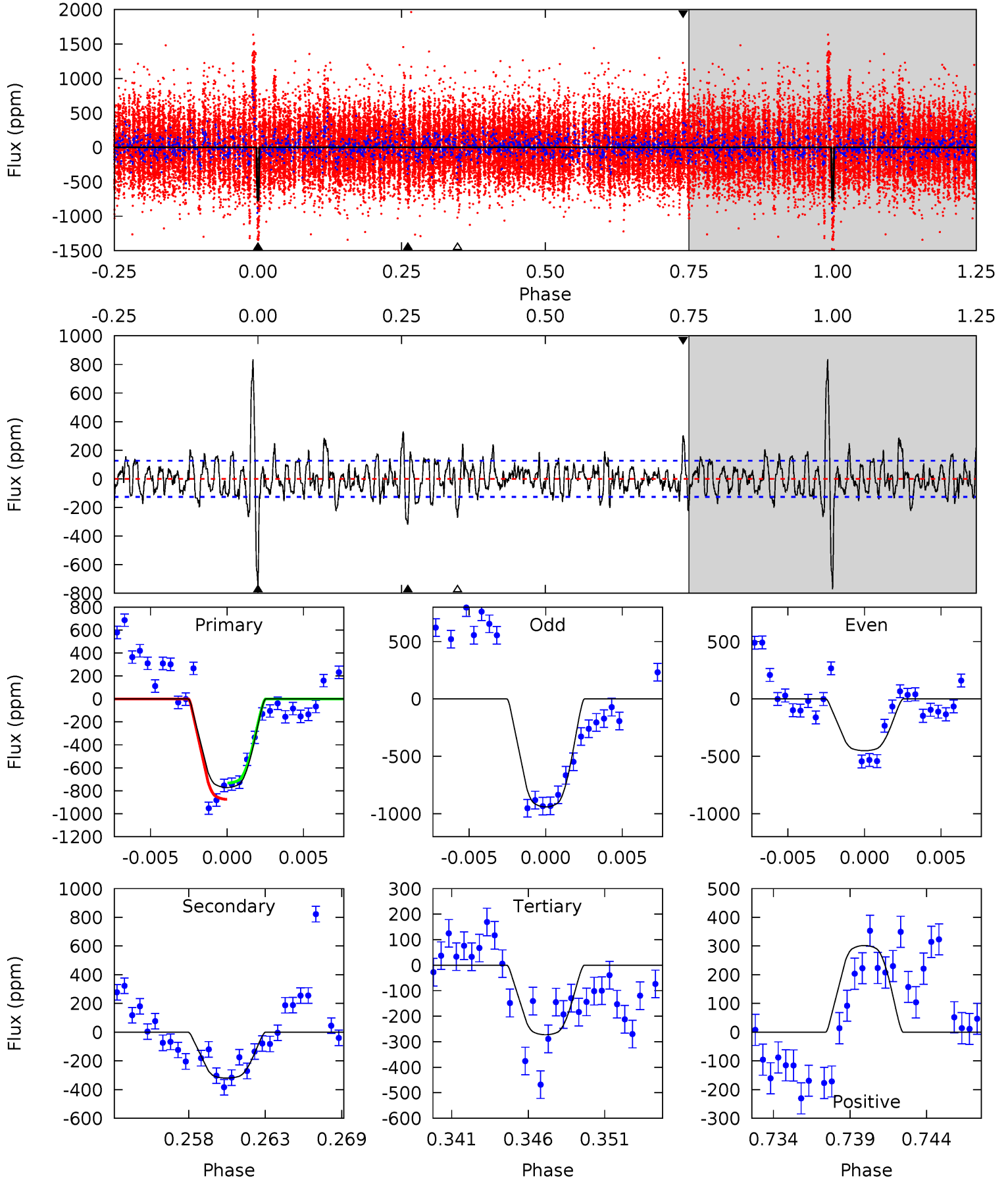
TCE 008817759-03 P=375.473476 Days  $T_0=140.282076$  (BKJD)



# DV Model-Shift Uniqueness Test

008817759-03, P = 375.739027 Days, E = 140.188640 Days

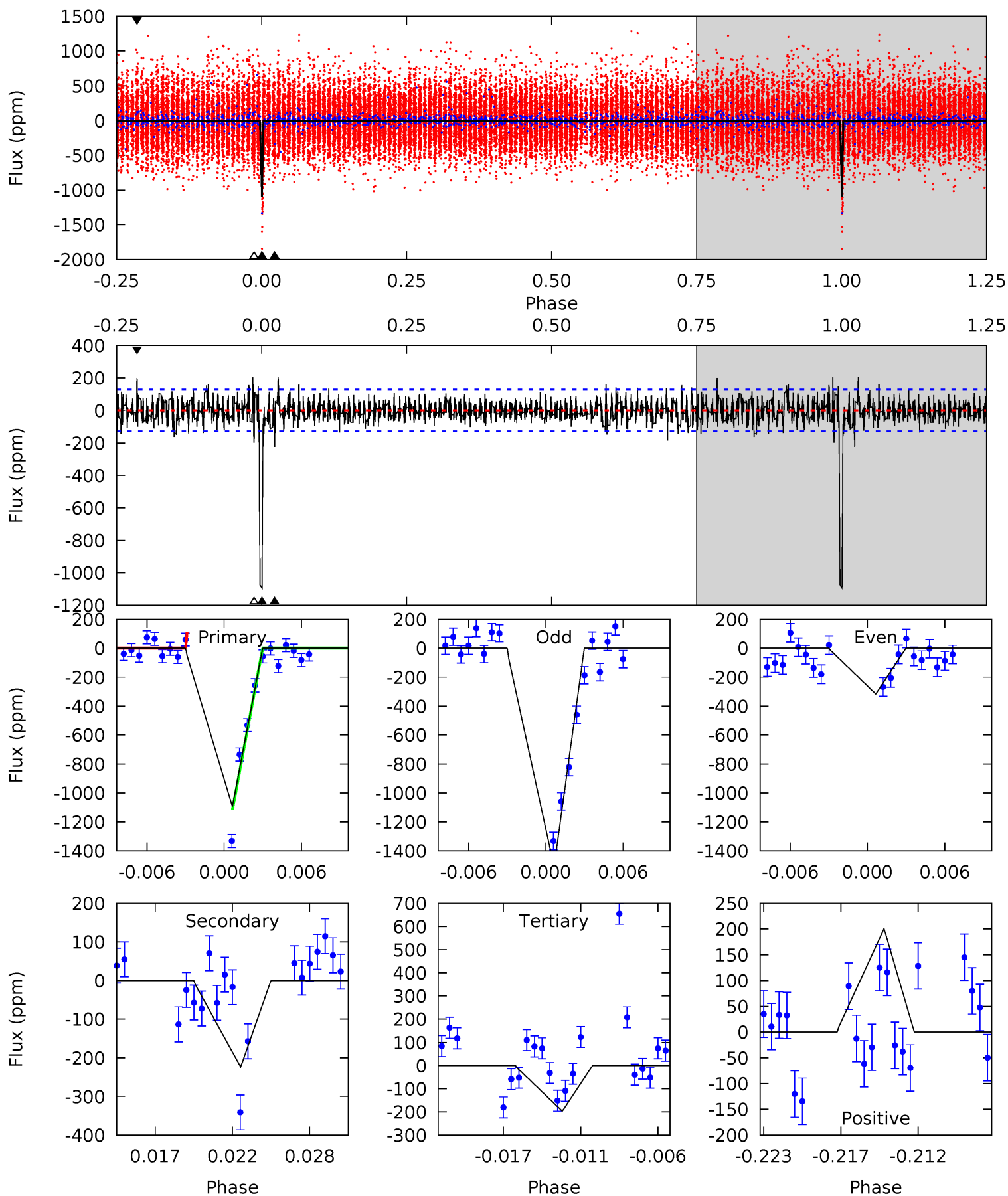
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.5	13.0	11.1	12.3	5.15	2.80	4.29	20.3	19.1	1.92	0.73	9.87	0.84	0.52	2.11



# Alt Model-Shift Uniqueness Test

008817759-03, P = 375.473476 Days, E = 140.282076 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
43.8	8.96	7.90	8.05	5.14	2.77	1.84	35.9	35.8	1.06	0.91	24.0	1.00	0.16	4.96



### Stellar Parameters For KIC 008817759

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6215^{+175}_{-219}$	$4.488^{+0.052}_{-0.208}$	$-0.300^{+0.300}_{-0.300}$	$0.957^{+0.291}_{-0.097}$	$1.027^{+0.134}_{-0.134}$	$1.652^{+0.442}_{-0.835}$
	+3%/-4%	+1%/-5%	+100%/-100%	+30%/-10%	+13%/-13%	+27%/-51%
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 008817759-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-320 \pm 25$	$3.38^{+0.60}_{-0.41}$	$376^{+25}_{-18}$	$4798^{+242}_{-215}$	$15880^{+4469}_{-4130}$
Alt.	$-224 \pm 25$	$4.08^{+0.71}_{-0.48}$	$377^{+27}_{-19}$	$4166^{+190}_{-161}$	$7663^{+2117}_{-2147}$

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



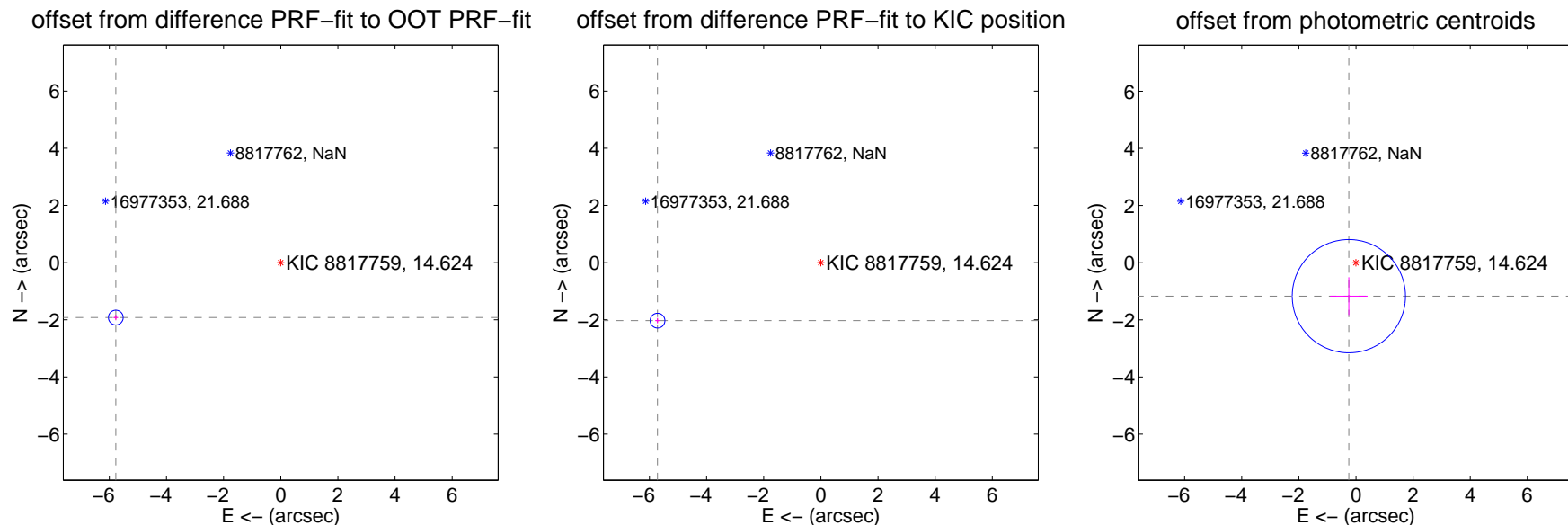
## DV Centroid Data

Supplemental centroid analysis for 008817759-03. Kepler magnitude: 14.62. Transit SNR 9.18

There are 0 quarters with good PRF difference image offsets

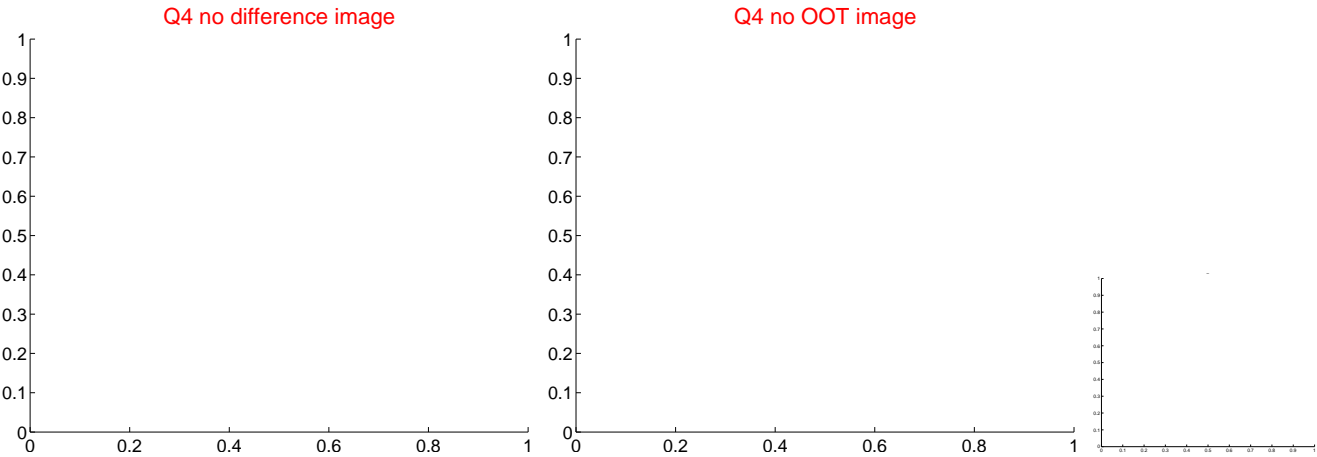
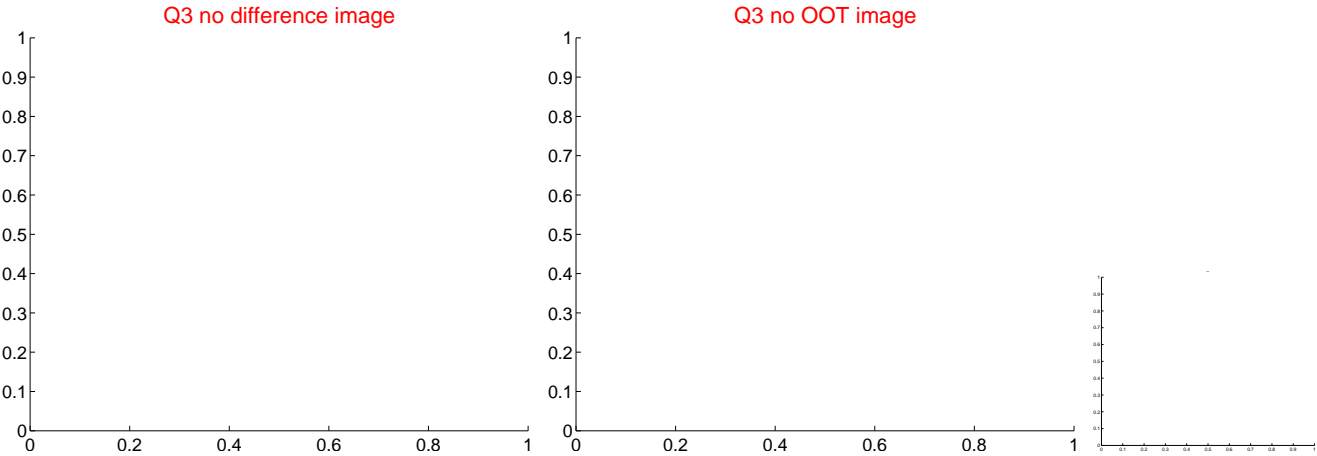
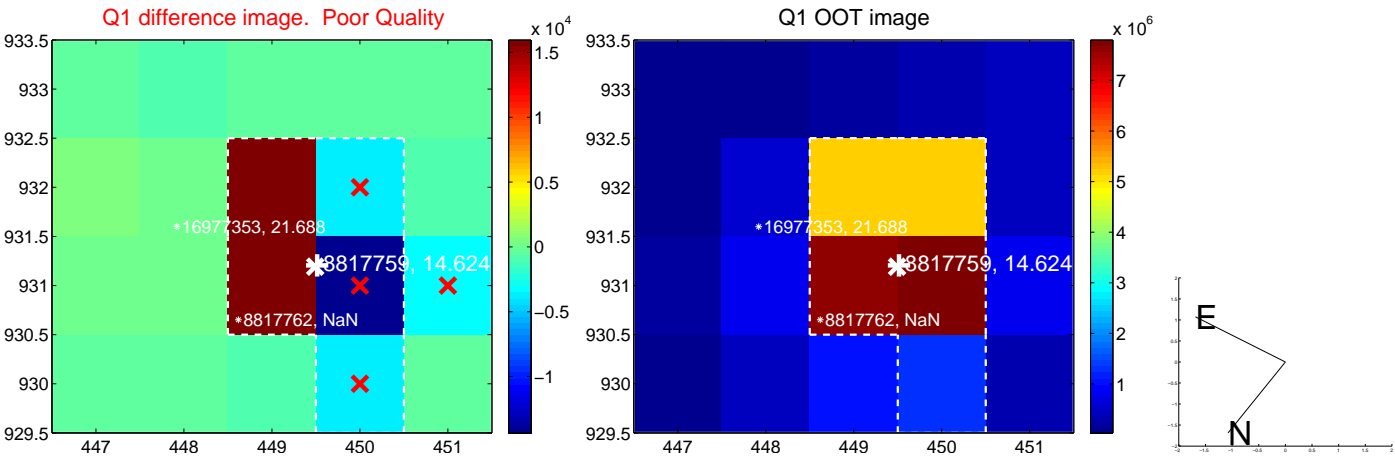
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.086 \pm 0.086$	70.78	$5.774 \pm 0.085$	$-1.923 \pm 0.096$
PRF-fit source offset from KIC position	$6.068 \pm 0.086$	70.45	$5.718 \pm 0.085$	$-2.031 \pm 0.096$
photometric centroid source offset	$1.20 \pm 0.66$	1.81	$0.25 \pm 0.65$	$-1.17 \pm 0.66$

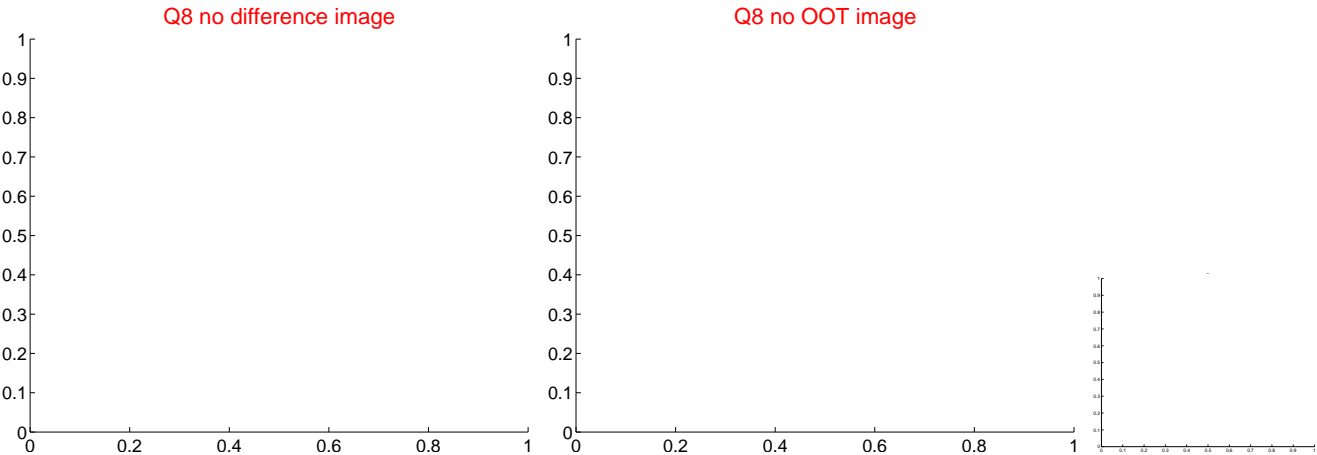
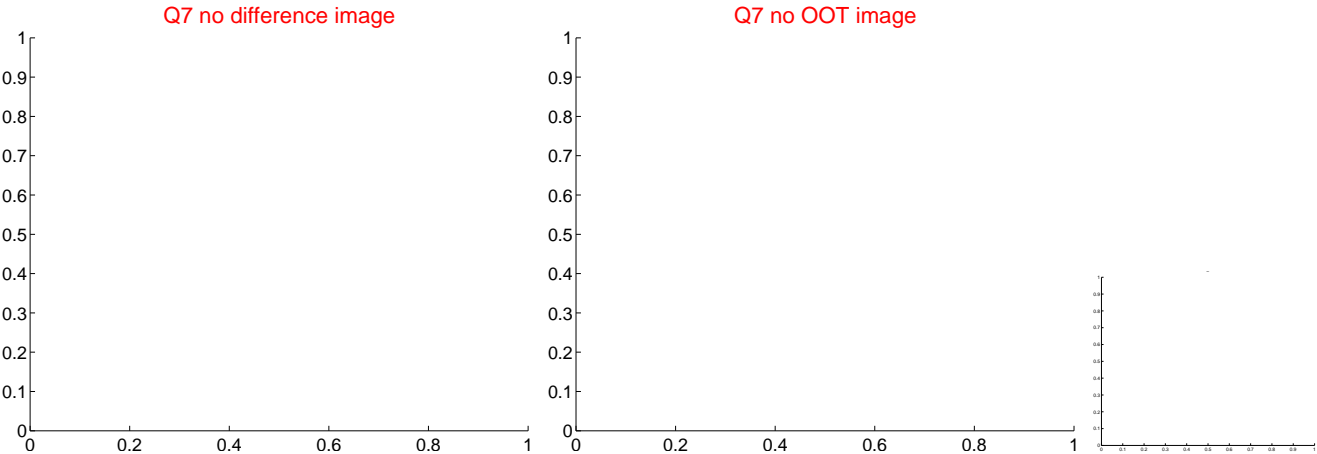
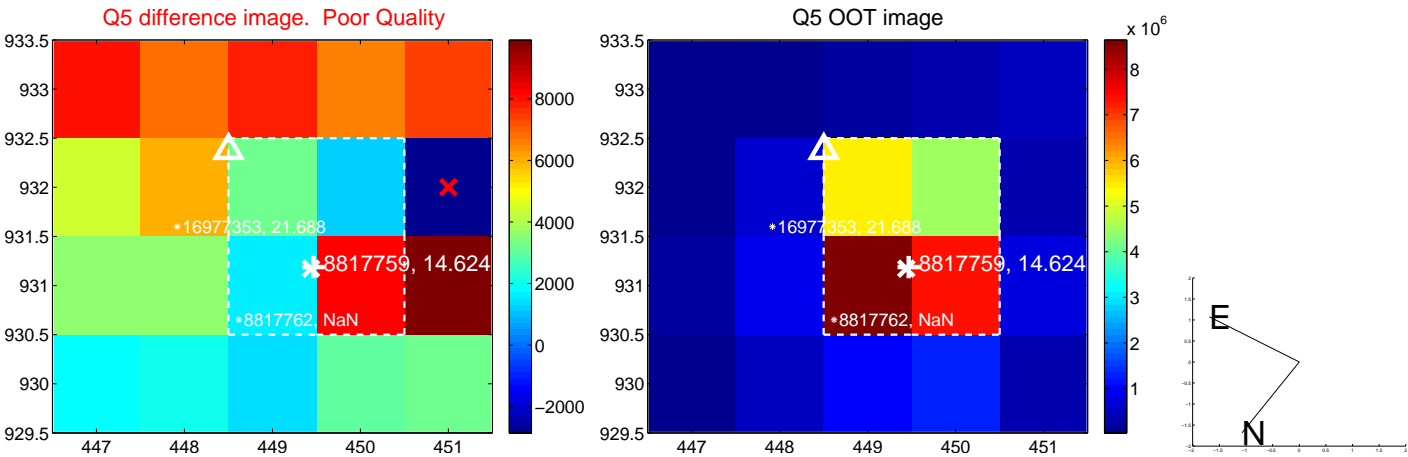


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

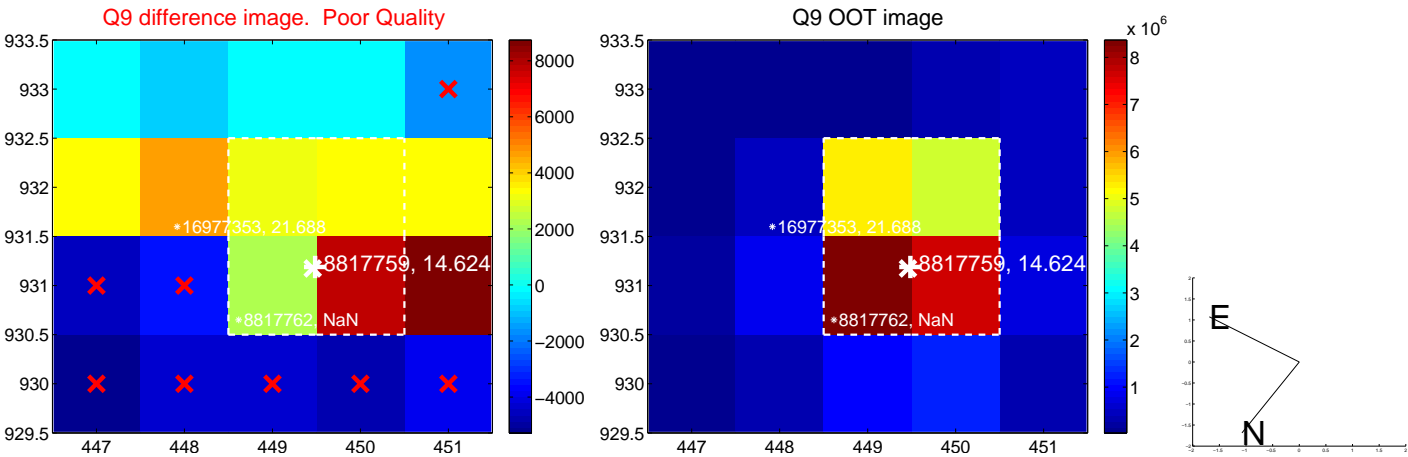
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



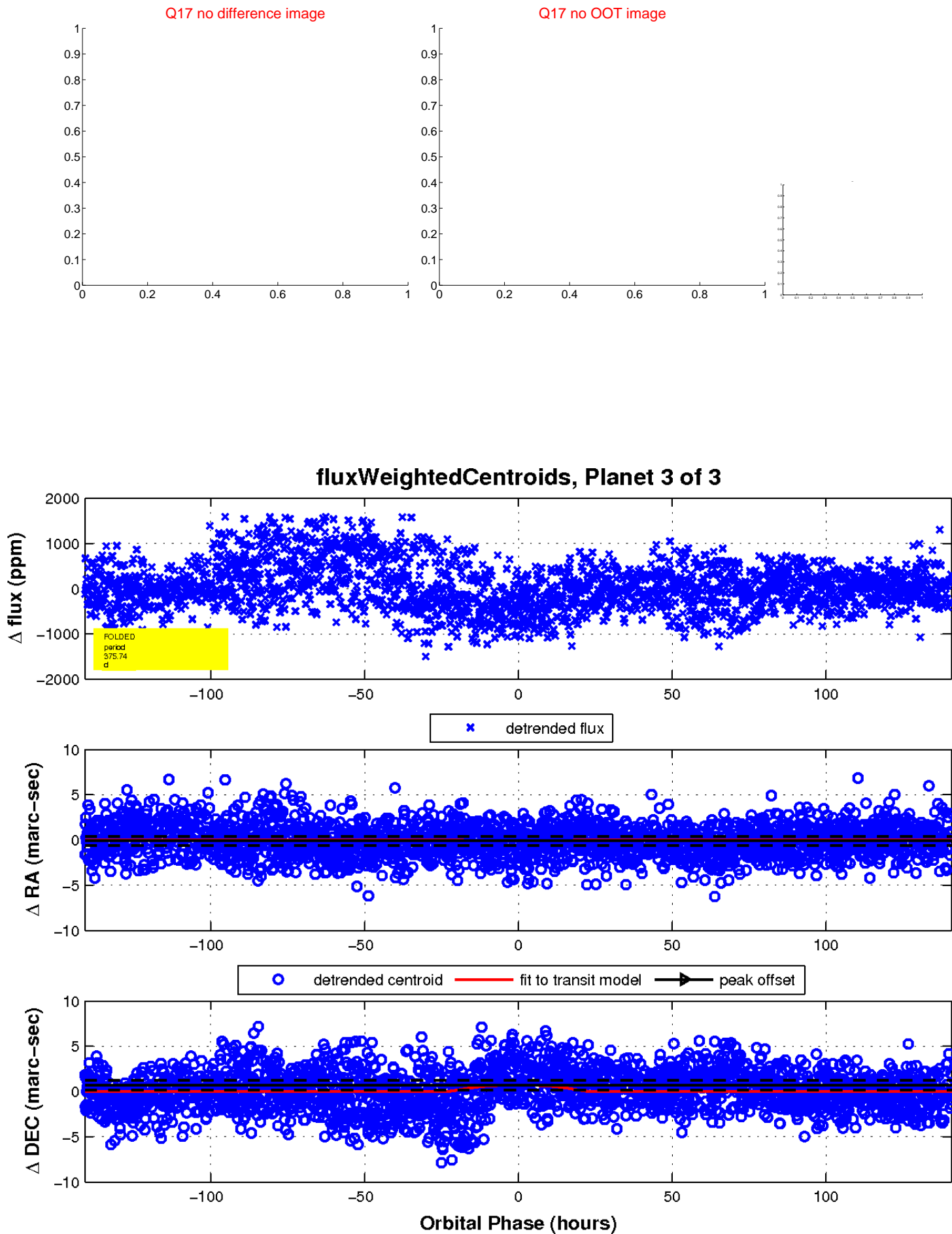
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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





UKIRT Image

