

# KIC 005853692

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005853692-01	OBS	No	4.648812	132.555230	11.5	10.494	7.7	5.2	1.79	6287	0.75	1356.11
005853692-02	OBS	No	4.645354	135.681719	0.0	34.073	9.8	0.0	1.79	6287	0.01	1357.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005853692-01	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
005853692-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT

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

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

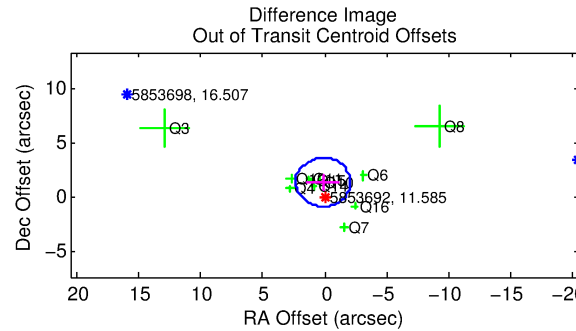
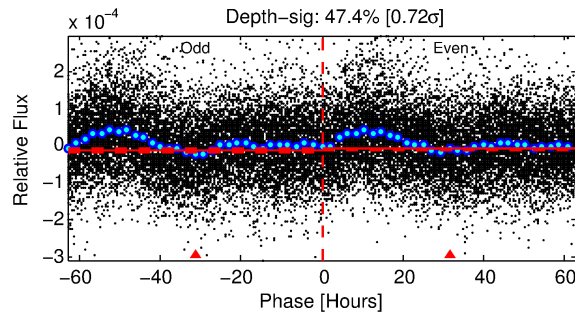
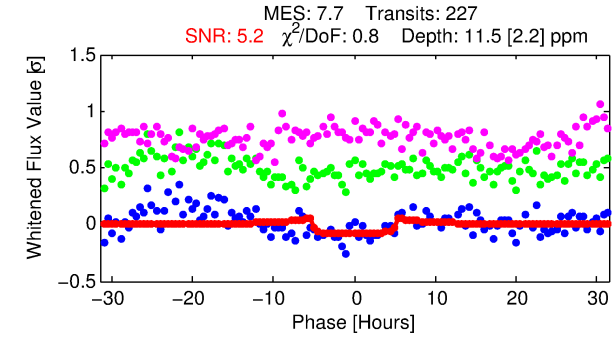
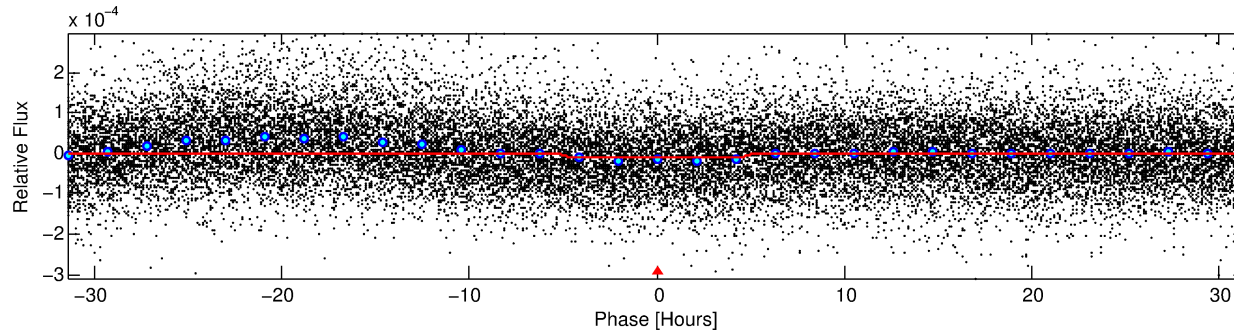
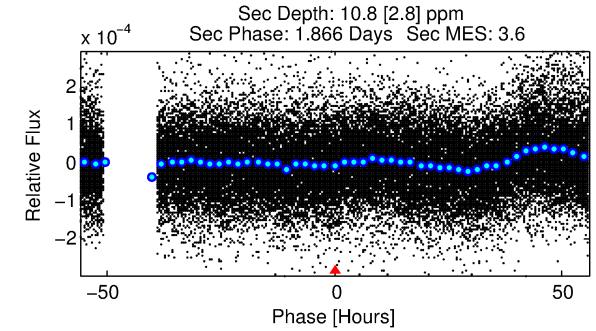
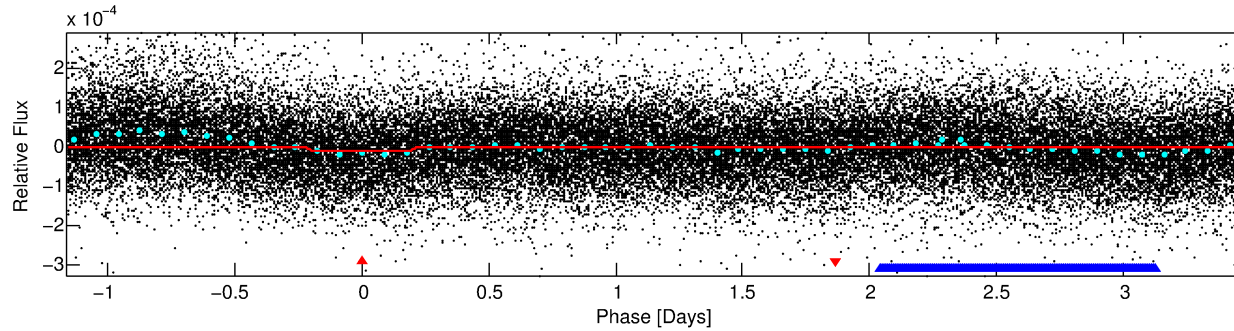
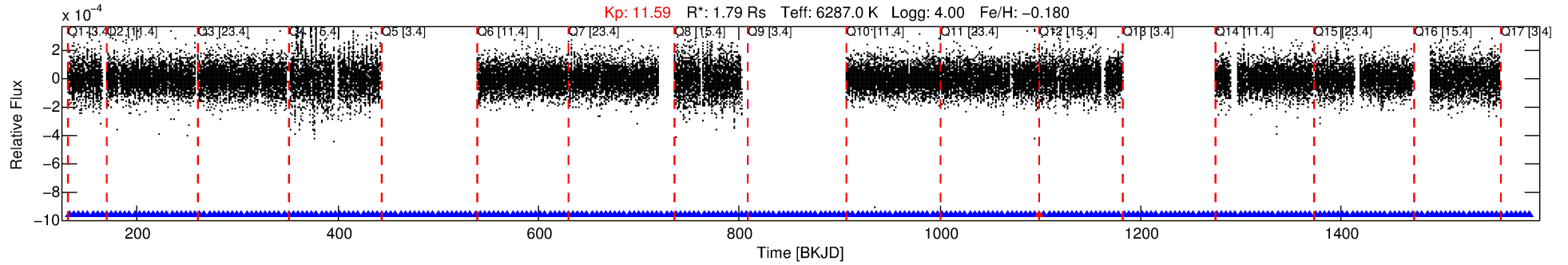
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005853692-01

No Significant Match Found

# DV One-Page Summary

KIC: 5853692 Candidate: 1 of 2 Period: 4.649 d



## DV Fit Results:

Period = 4.64881 [0.00009] d  
Epoch = 132.5552 [0.0129] BKJD  
Rp/R\* = 0.0039 [0.0008]  
a/R\* = 1.46 [0.77]  
b = 0.95 [0.10]  
Seff = 1356.11 [625.21]  
Teq = 1547 [178] K  
Rp = 0.75 [0.25] Re  
a = 0.0574 [0.0157] AU  
Ag = 34.66 [22.52] [1.49σ]  
Teffp = 5805 [703] K [5.87σ]

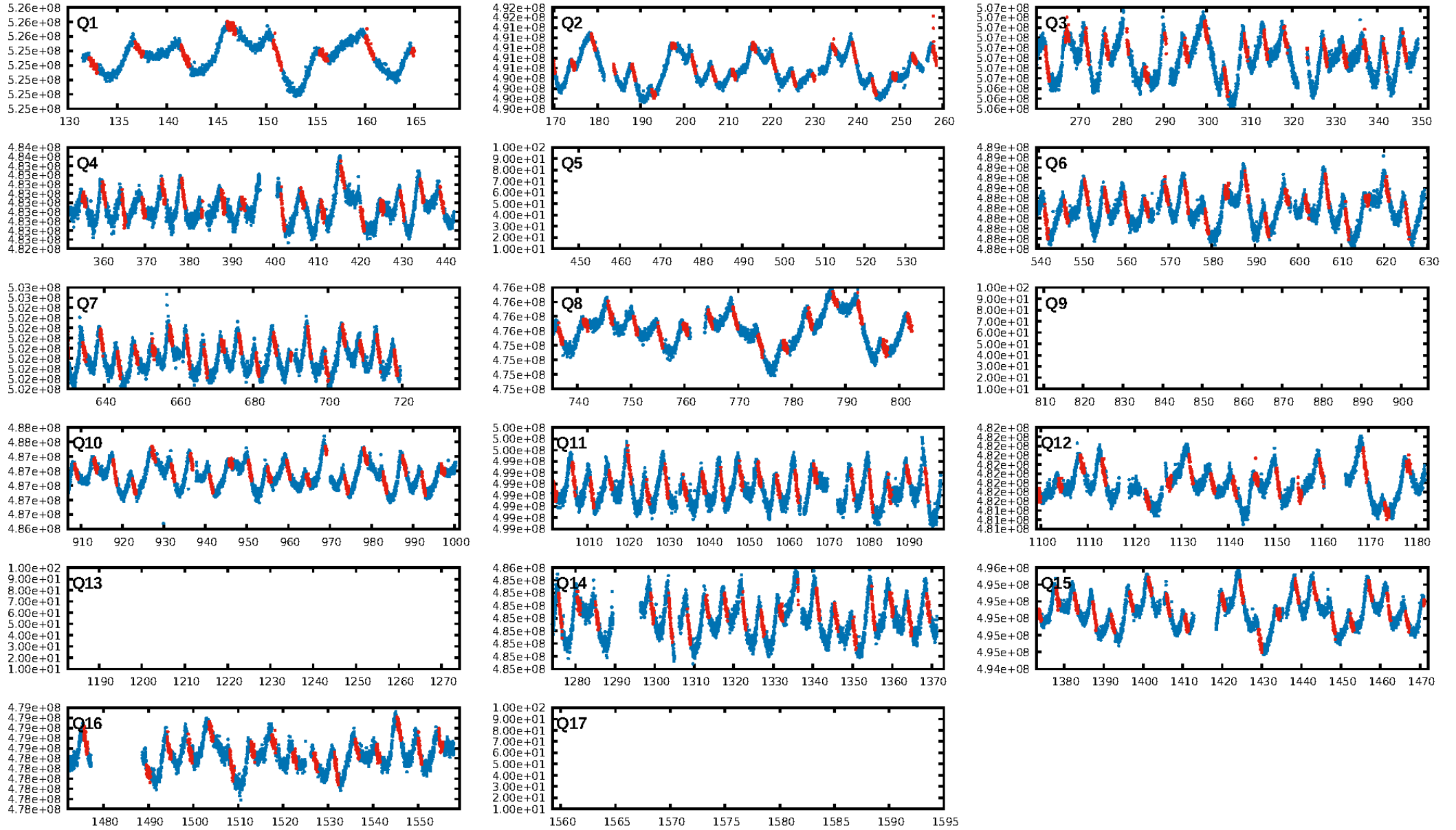
## DV Diagnostic Results:

ShortPeriod-sig: 0.2% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [218/219]  
GhostDiagnostic-chr: -0.1791  
Centroid-sig: 0.0%  
Centroid-so: 3.502 arcsec [2.29σ]  
OotOffset-rm: 1.400 arcsec [1.90σ]  
KicOffset-rm: 1.354 arcsec [1.41σ]  
OotOffset-st: 3/4/4/0 [11]  
KicOffset-st: 3/4/4/0 [11]  
DiffImageQuality-fgm: 0.55 [6/11]  
DiffImageOverlap-fno: 1.00 [13/13]

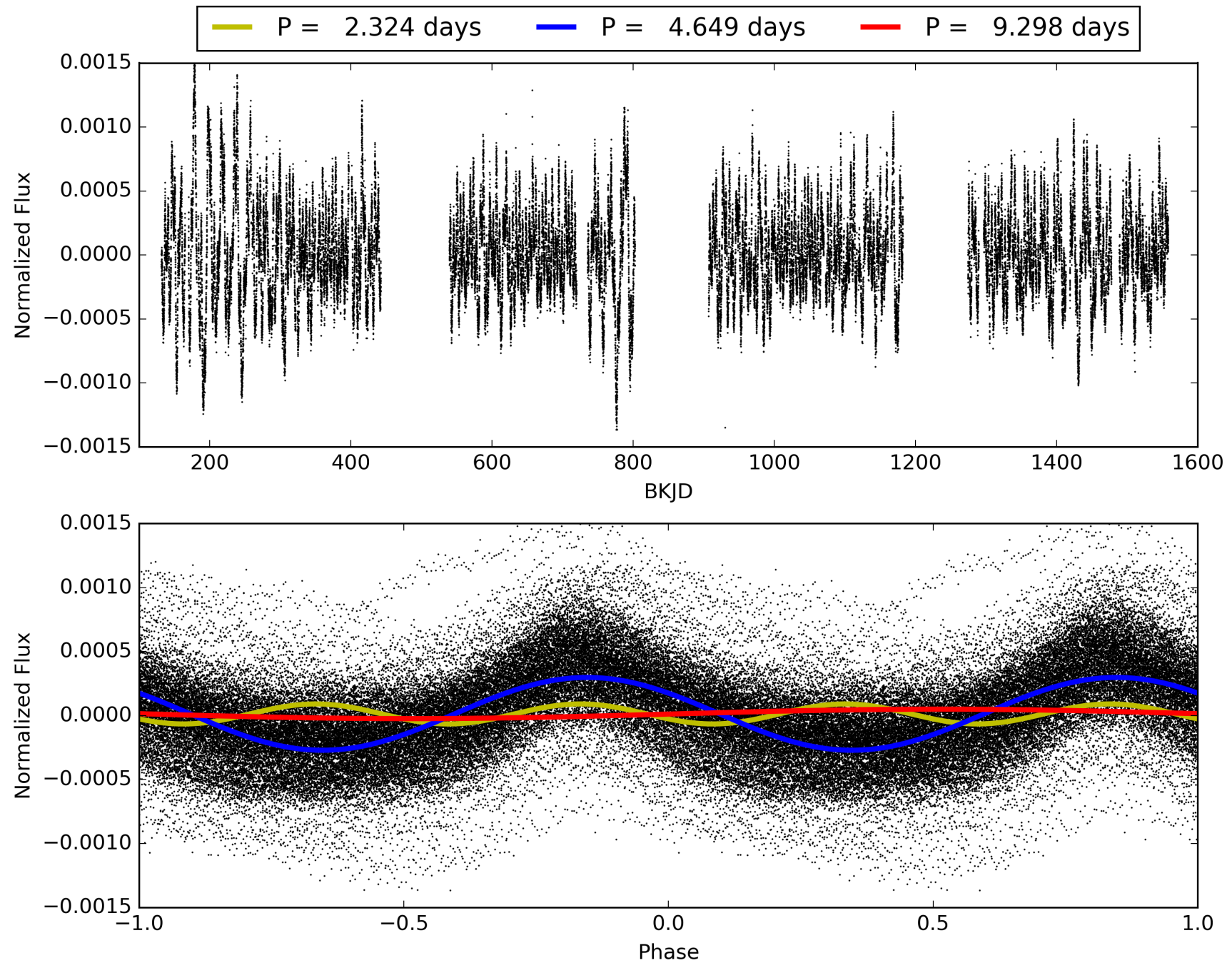
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:10:38 Z

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

# TCE 005853692-01, PDC Light Curves

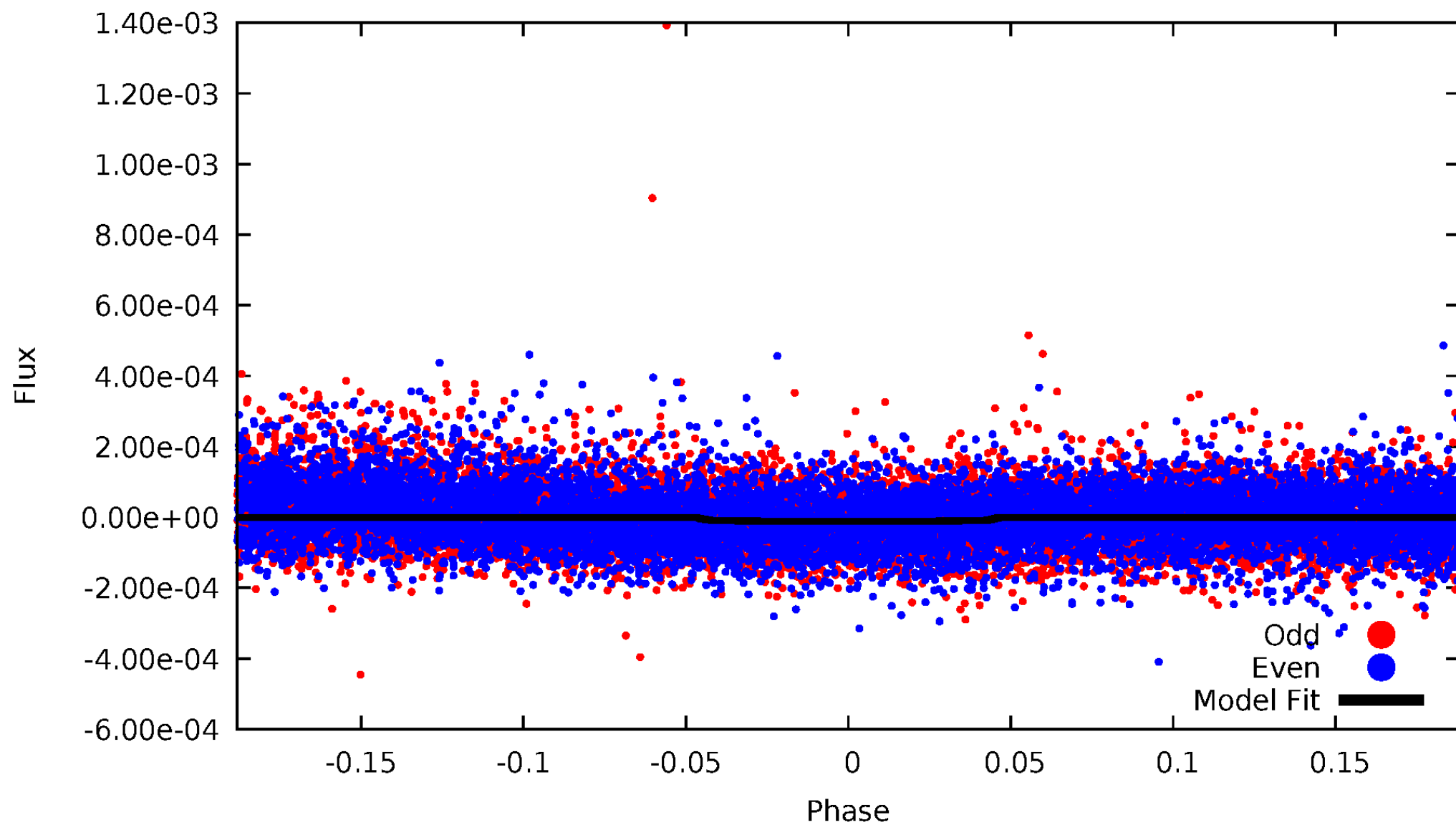


TCE 005853692-01



# DV Odd/Even

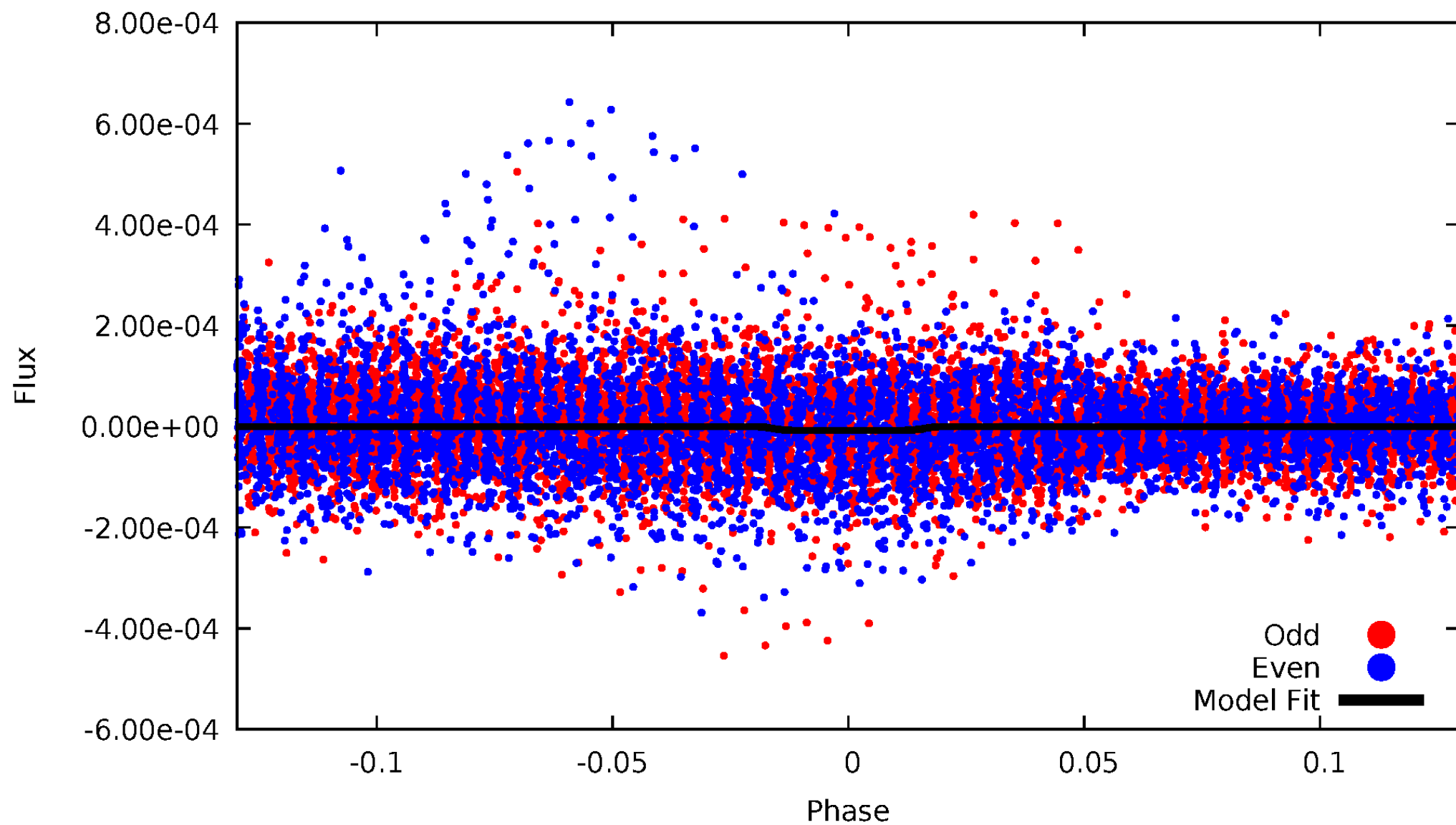
TCE 005853692-01





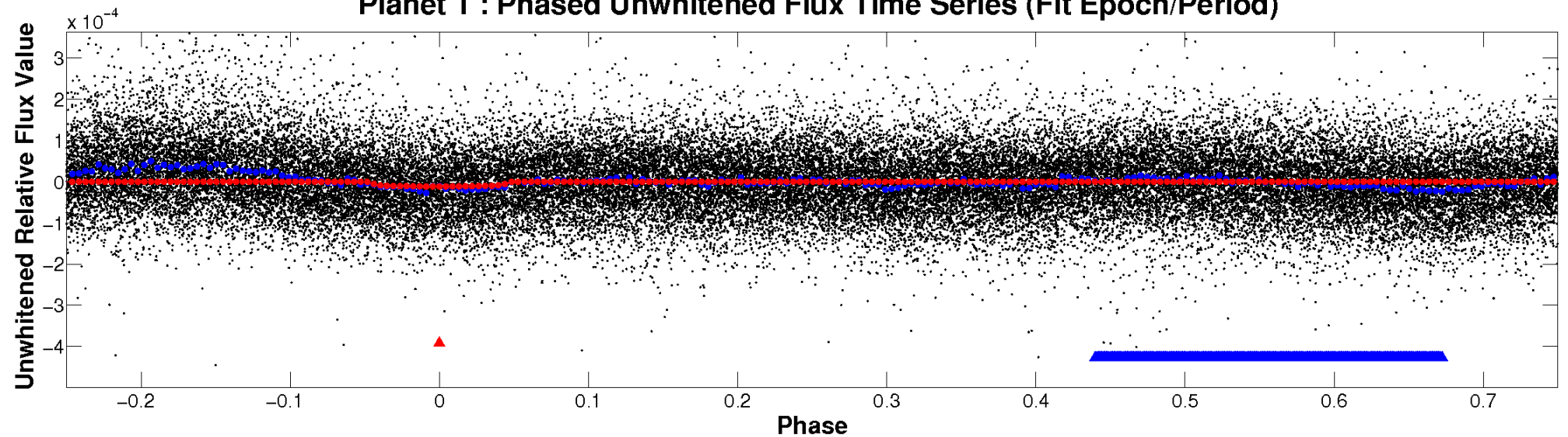
# ALT Odd/Even

TCE 005853692-01

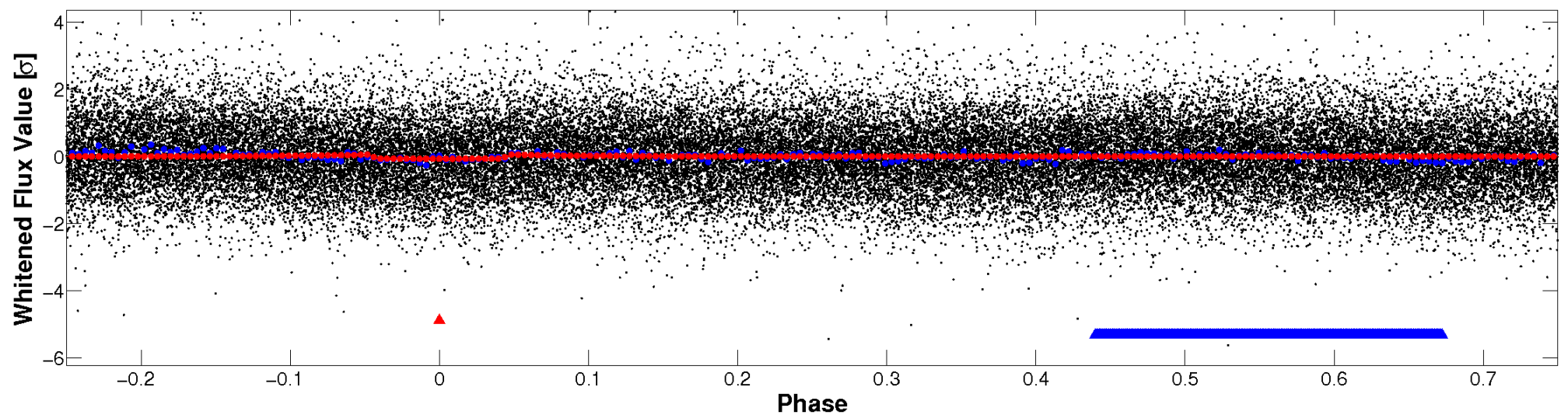


# Non-Whitened Vs. Whitened Light Curve

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

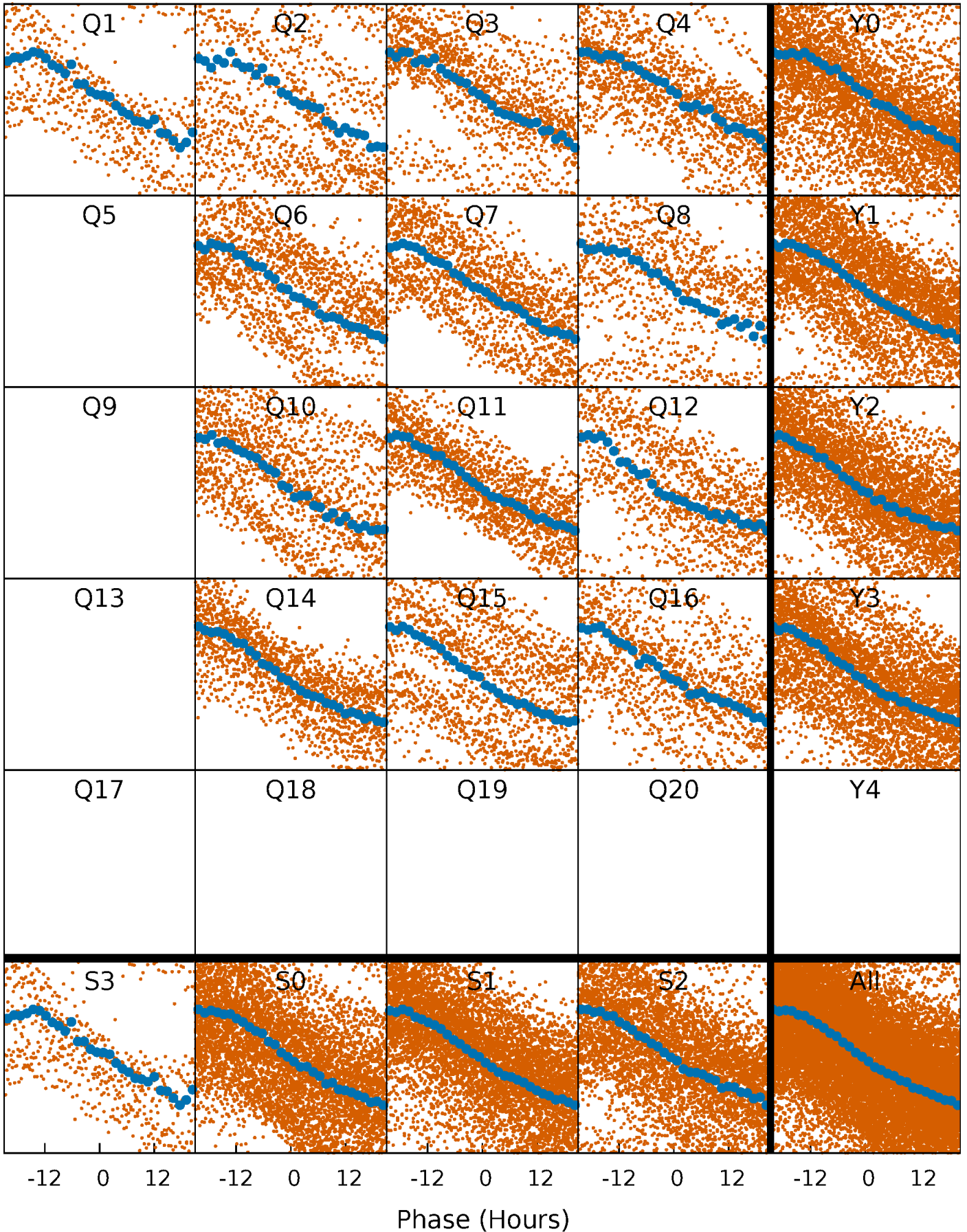


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

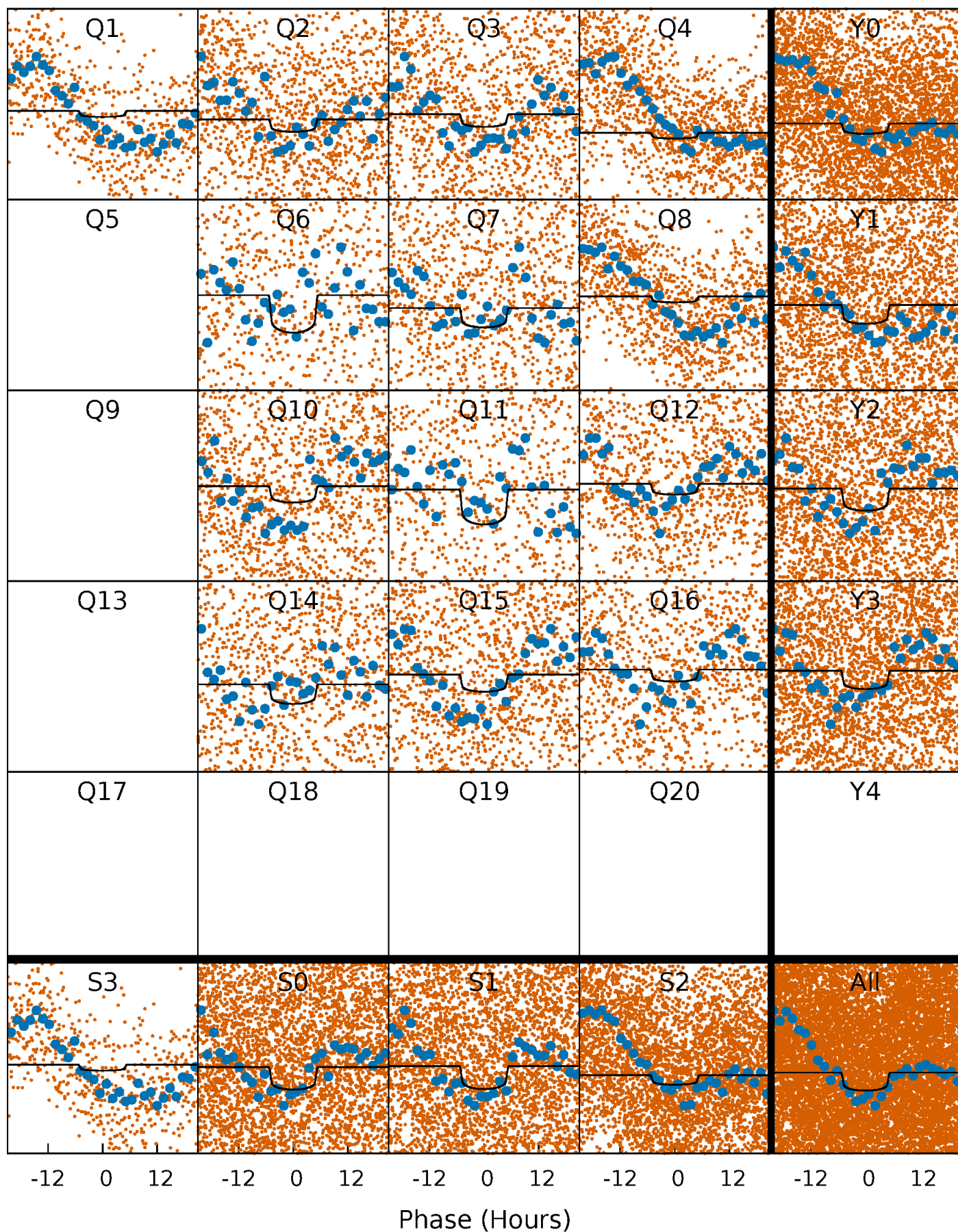
TCE 005853692-01   P= 4.648812 Days    $T_0=132.555230$  (BKJD)





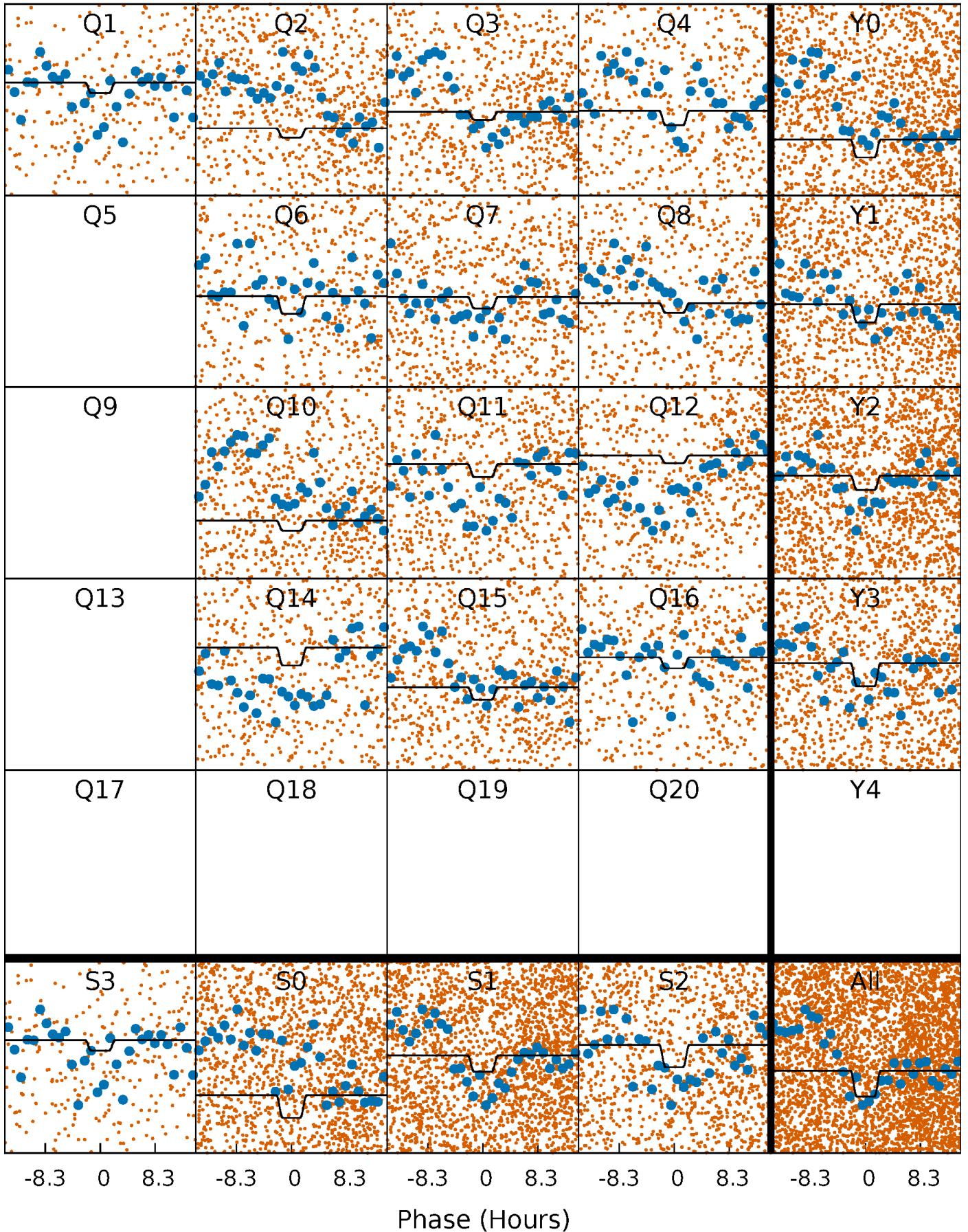
# DV Quarter-Phased Transit Curves

TCE 005853692-01 P= 4.648812 Days  $T_0=132.555230$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

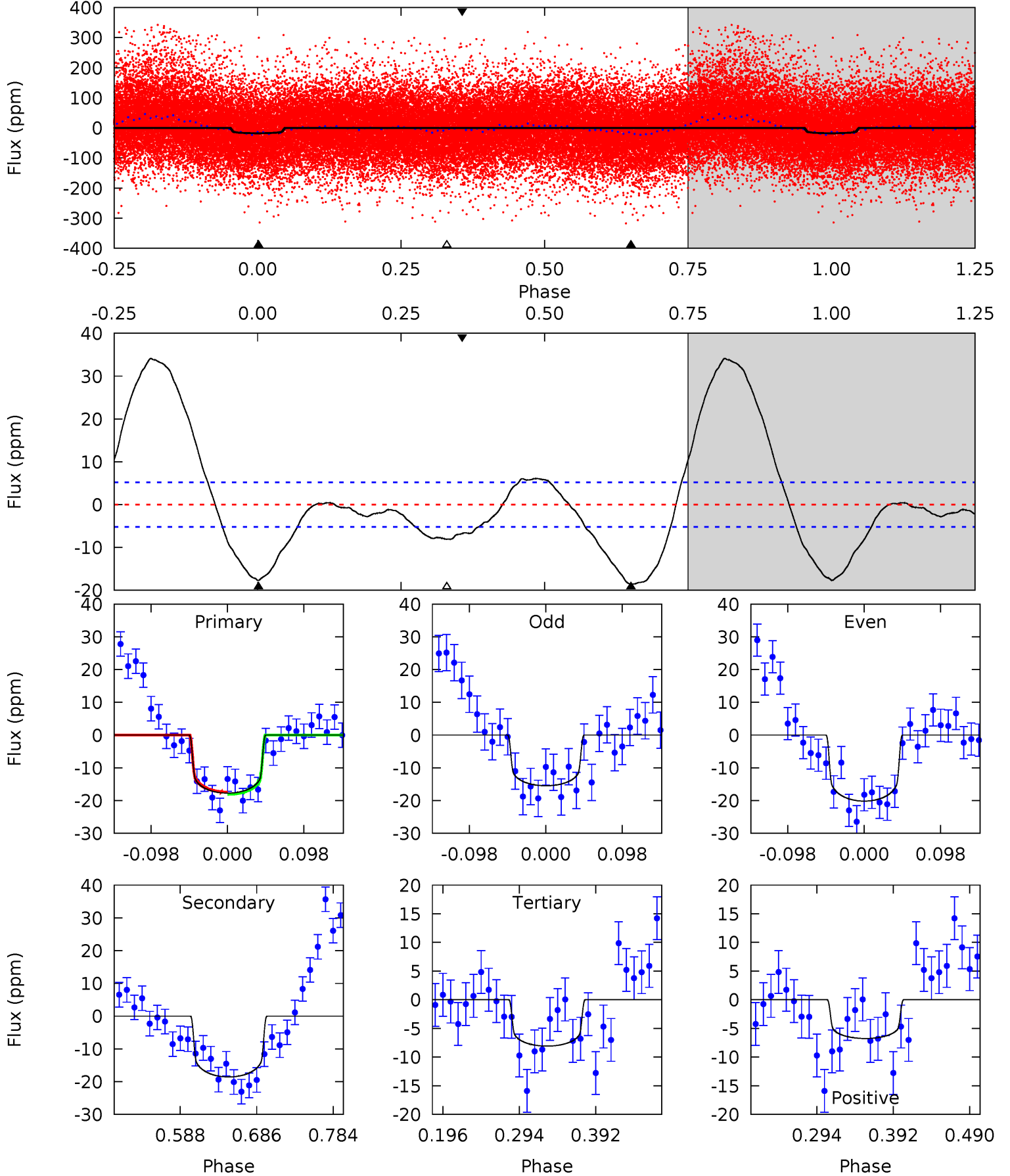
TCE 005853692-01 P= 4.648371 Days  $T_0=132.653989$  (BKJD)



# DV Model-Shift Uniqueness Test

005853692-01, P = 4.648812 Days, E = 127.906418 Days

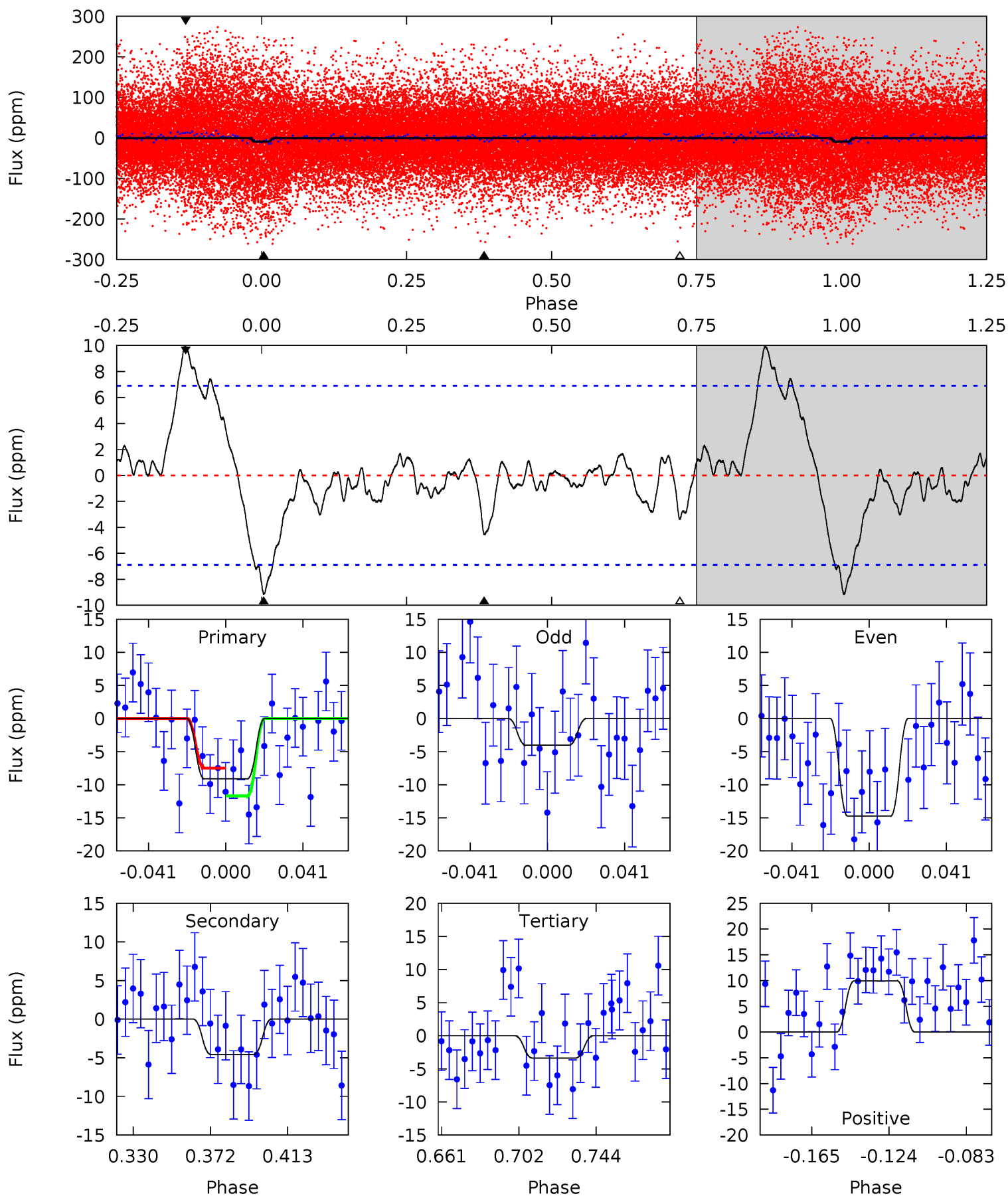
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.6	16.3	7.10	-5.93	4.57	1.65	11.1	8.47	21.5	9.20	22.2	2.06	0.98	0.65	0.28



# Alt Model-Shift Uniqueness Test

005853692-01, P = 4.648371 Days, E = 128.005618 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
6.29	3.15	2.33	6.84	4.75	2.04	1.78	3.97	-0.55	0.83	-3.69	3.67	0.94	0.52	1.45





### Stellar Parameters For KIC 005853692

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6287^{+160}_{-176}$	$4.001^{+0.266}_{-0.114}$	$-0.180^{+0.300}_{-0.250}$	$1.787^{+0.400}_{-0.489}$	$1.166^{+0.212}_{-0.173}$	$0.288^{+0.409}_{-0.109}$
	+3%/-3%	+7%/-3%	+167%/-139%	+22%/-27%	+18%/-15%	+142%/-38%
Source	PHO1	FLK73	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 005853692-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-19 \pm 1$	$0.73^{+0.20}_{-0.18}$	$2124^{+134}_{-166}$	$6593^{+925}_{-641}$	$63^{+48}_{-23}$
Alt.	$-5 \pm 1$	$0.51^{+0.17}_{-0.16}$	$2122^{+135}_{-164}$	$5548^{+1117}_{-749}$	$32^{+36}_{-17}$

$T_{max}$  = 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

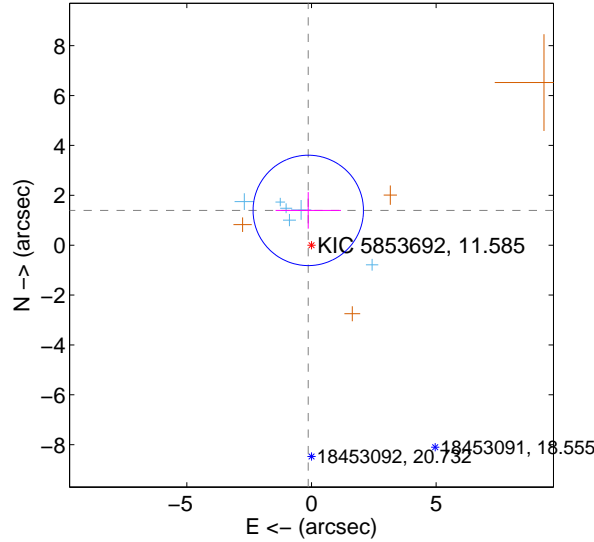
Supplemental centroid analysis for 005853692-01. **Kepler magnitude: 11.59.** Transit SNR 5.18

There are 6 quarters with good PRF difference image offsets

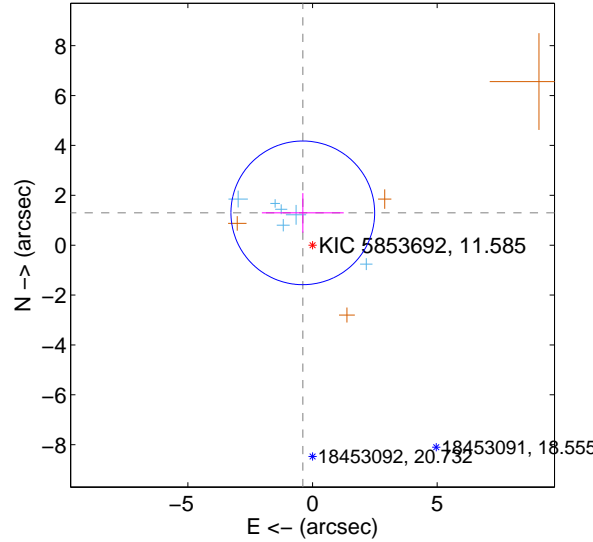
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.400 \pm 0.738$	1.90	$0.129 \pm 1.310$	$1.394 \pm 0.733$
PRF-fit source offset from KIC position	$1.354 \pm 0.960$	1.41	$0.390 \pm 1.641$	$1.297 \pm 0.792$
photometric centroid source offset	$3.50 \pm 1.53$	2.29	$0.51 \pm 1.85$	$-3.46 \pm 1.52$

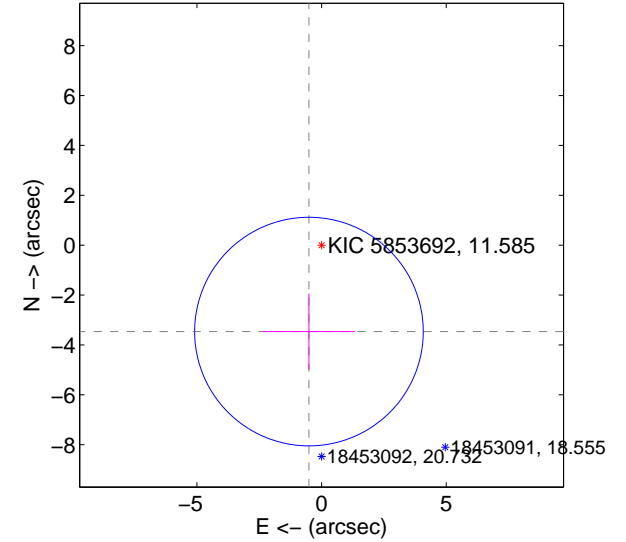
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

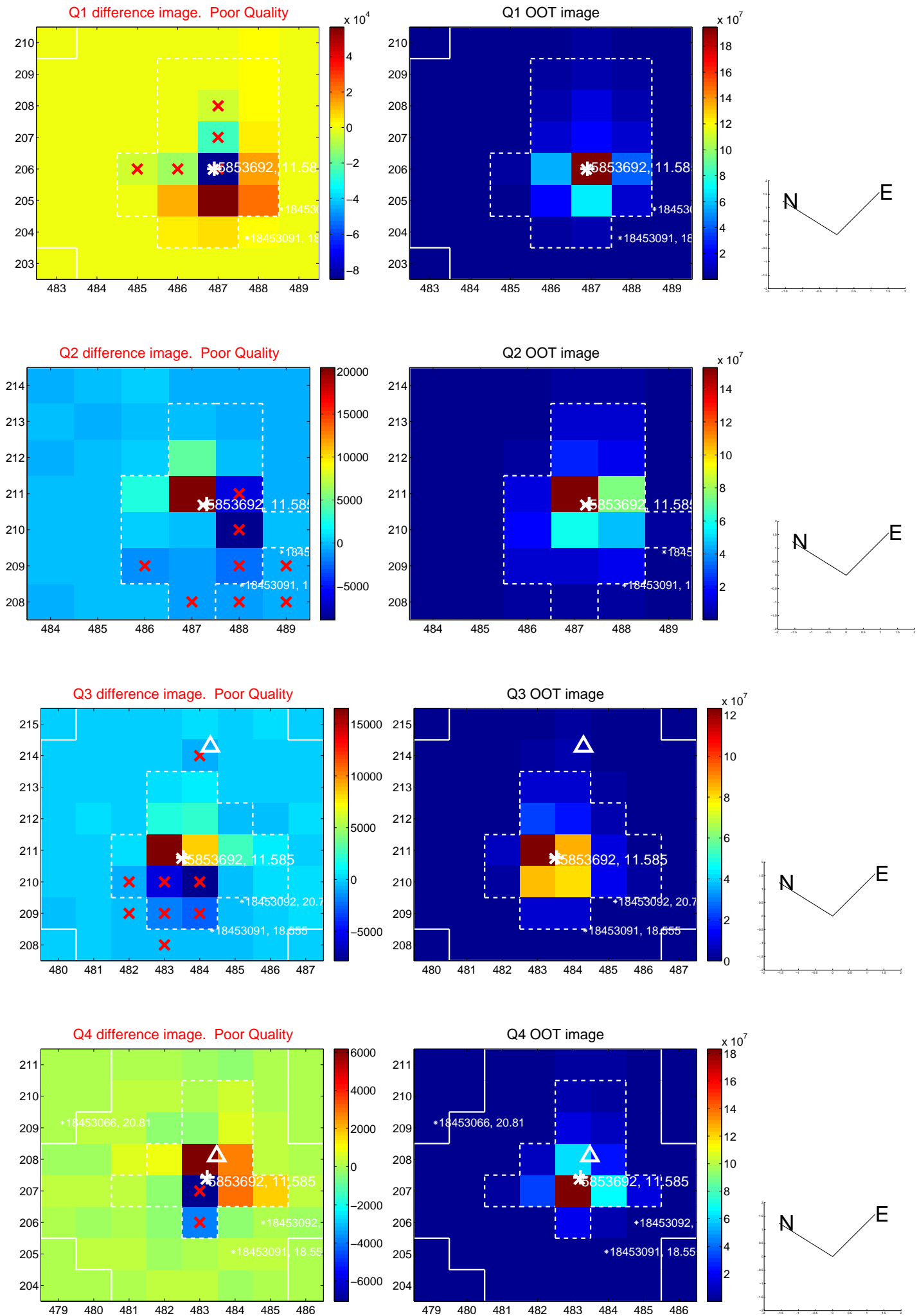


offset from photometric centroids



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.

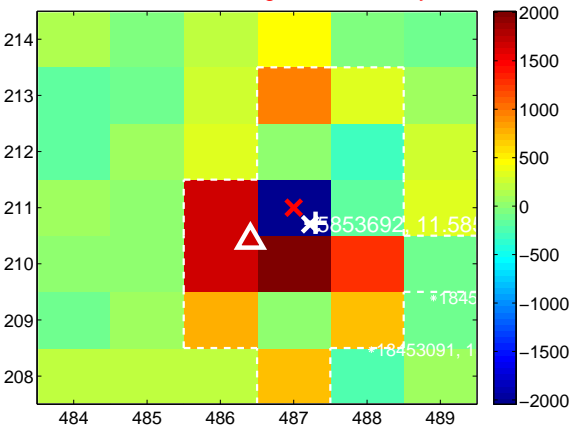
Q5 no difference image



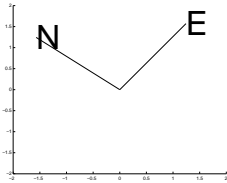
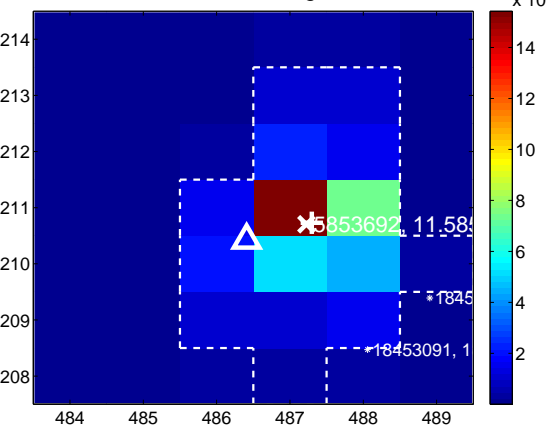
Q5 no OOT image



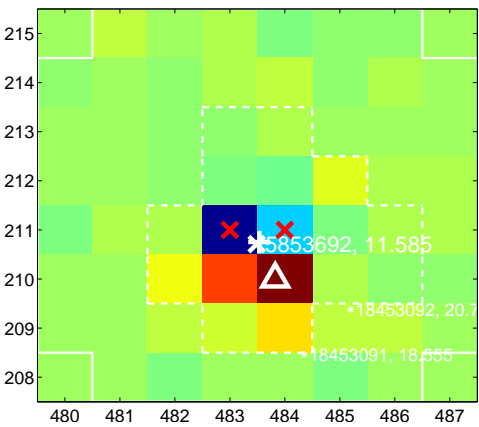
Q6 difference image. Poor Quality



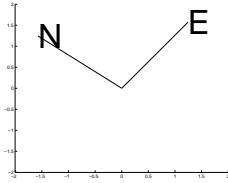
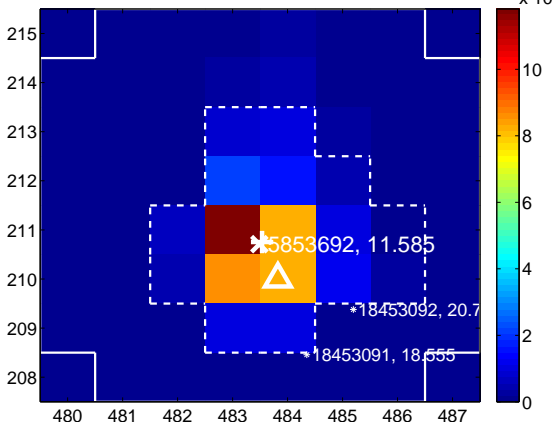
Q6 OOT image



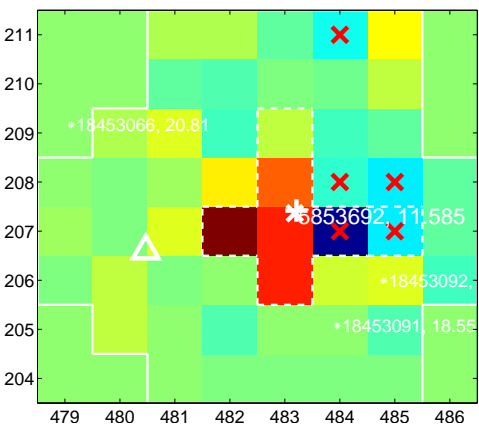
Q7 difference image. Poor Quality



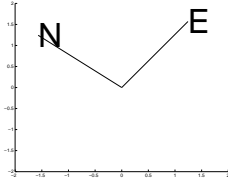
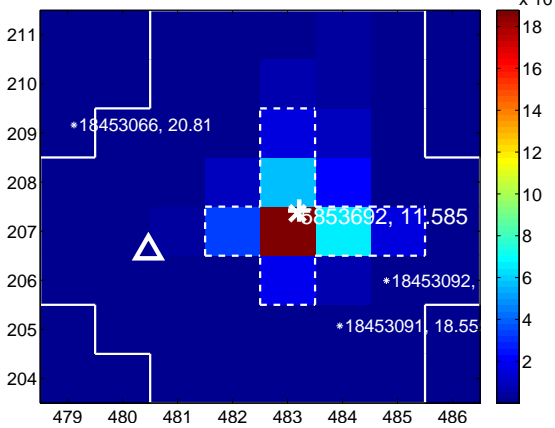
Q7 OOT image



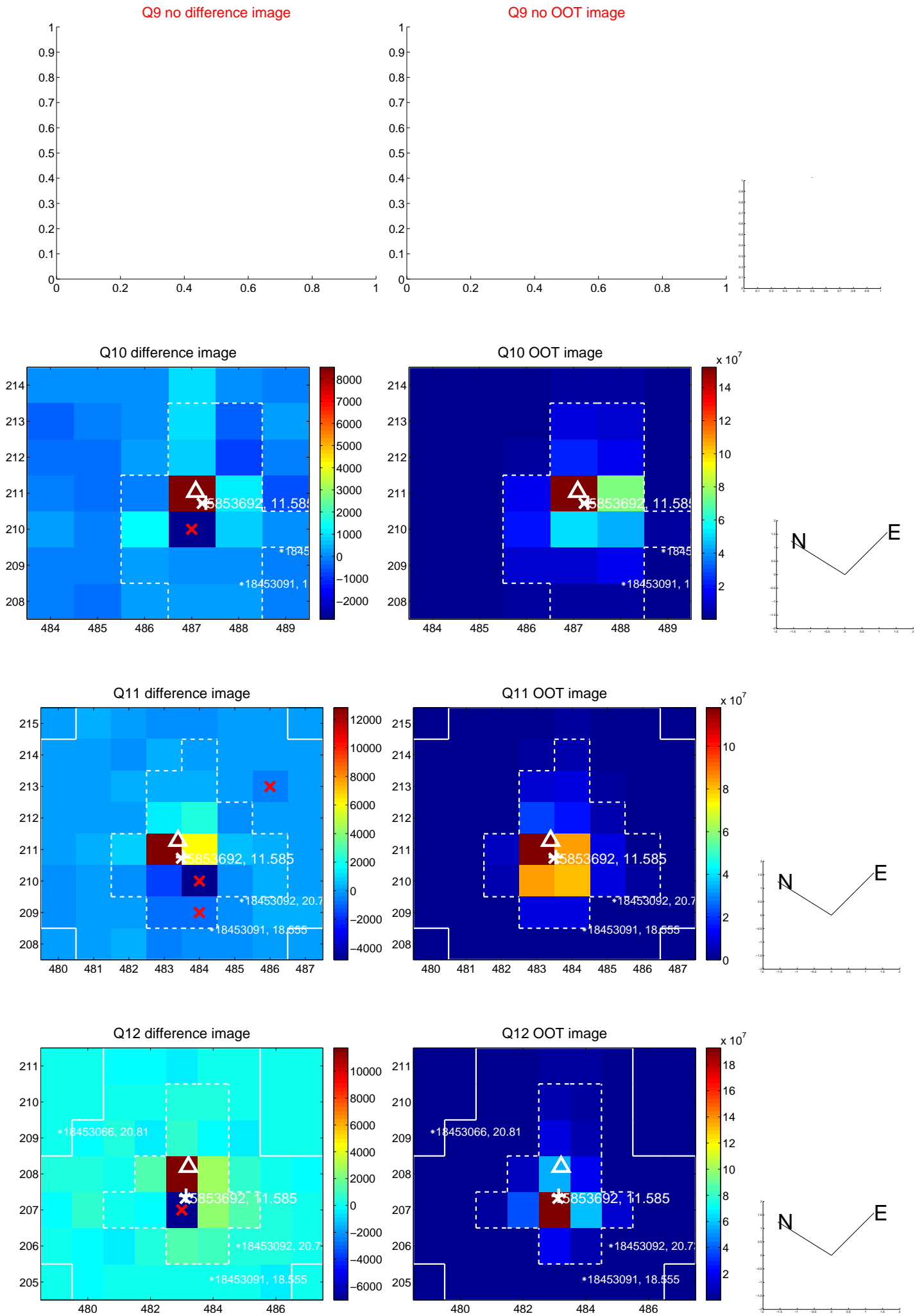
Q8 difference image. Poor Quality



Q8 OOT image



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



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

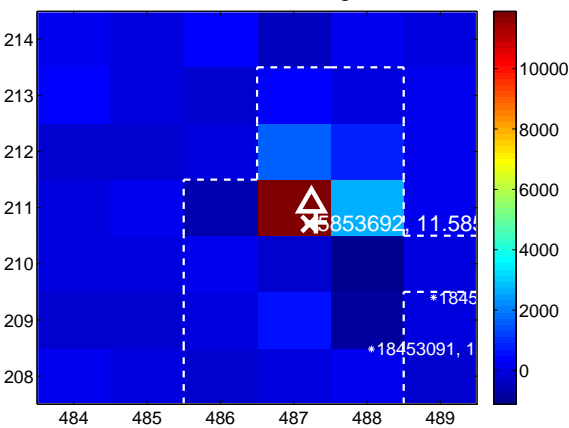
Q13 no difference image



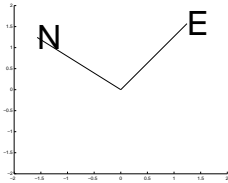
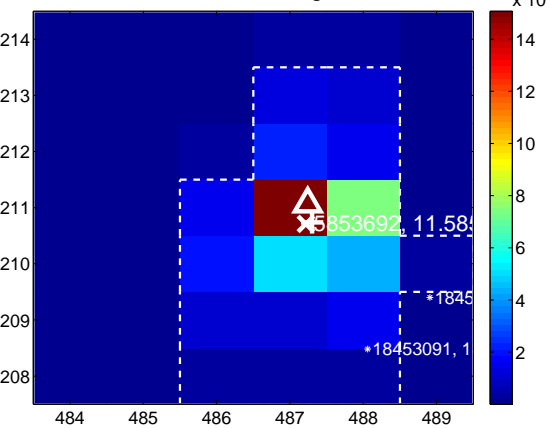
Q13 no OOT image



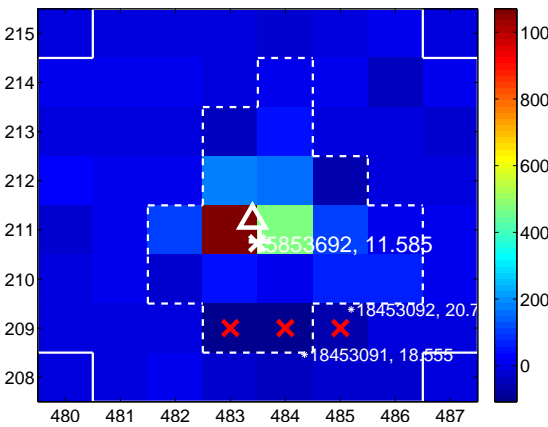
Q14 difference image



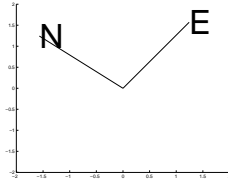
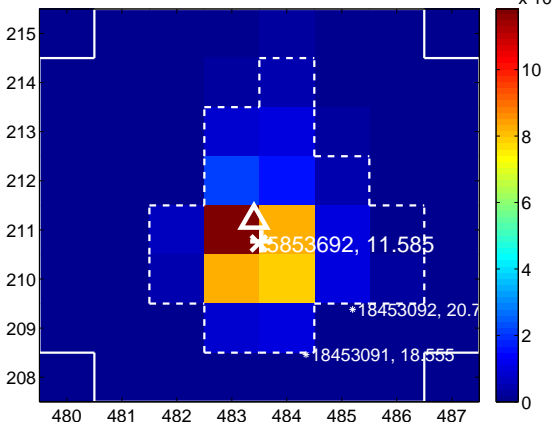
Q14 OOT image



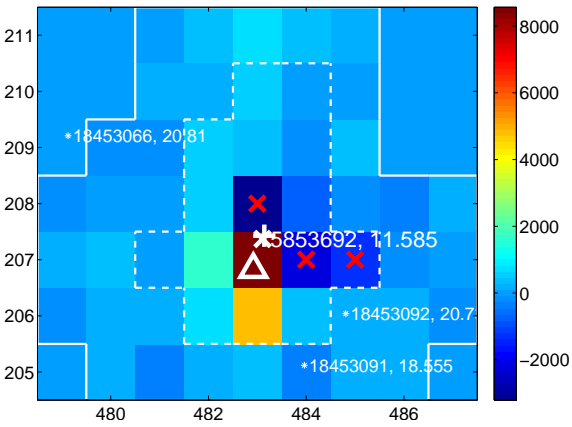
Q15 difference image



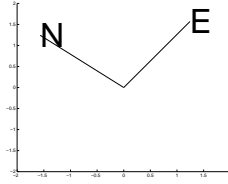
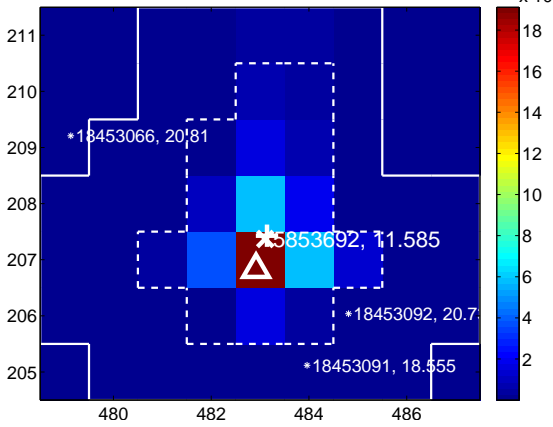
Q15 OOT image



Q16 difference image

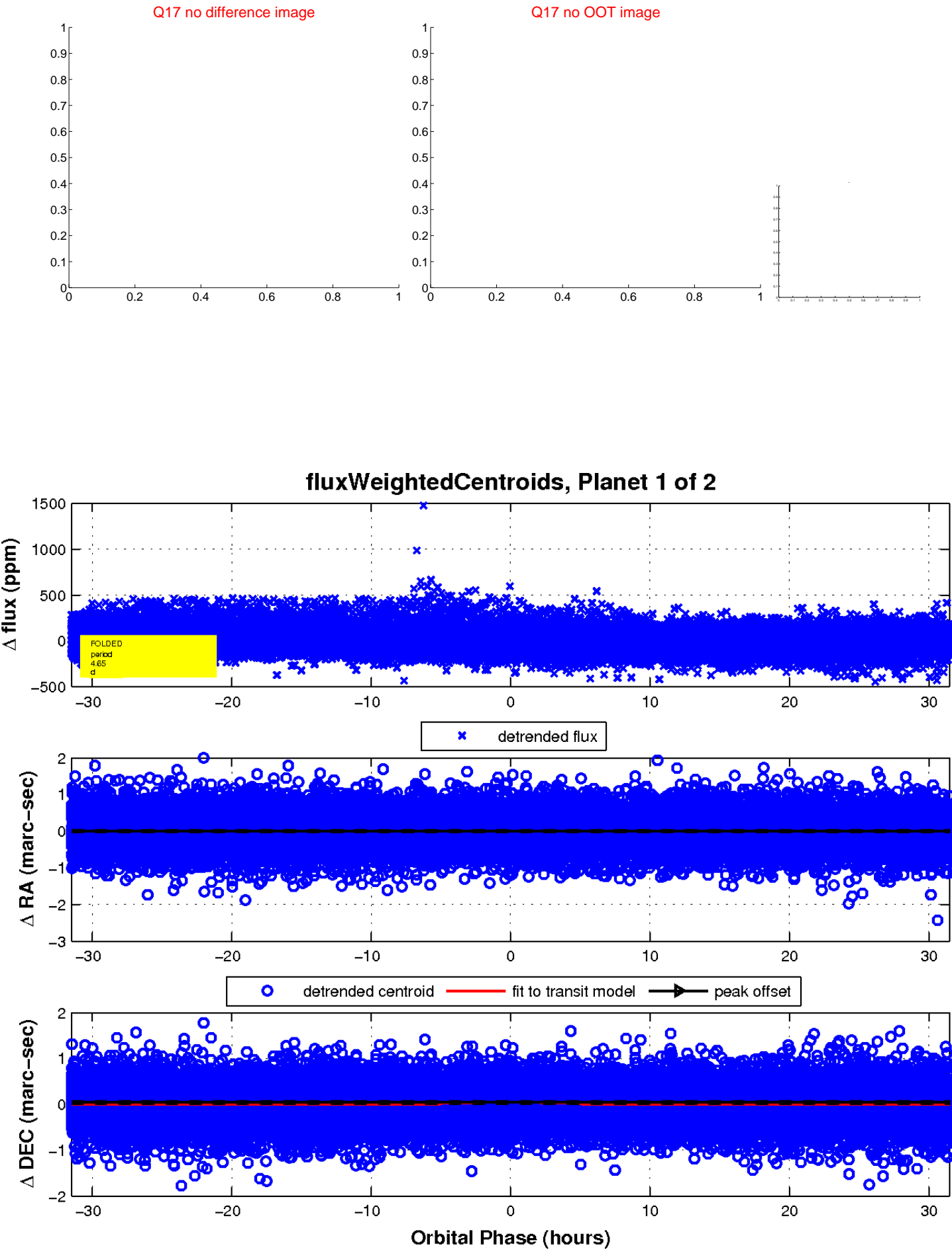


Q16 OOT image

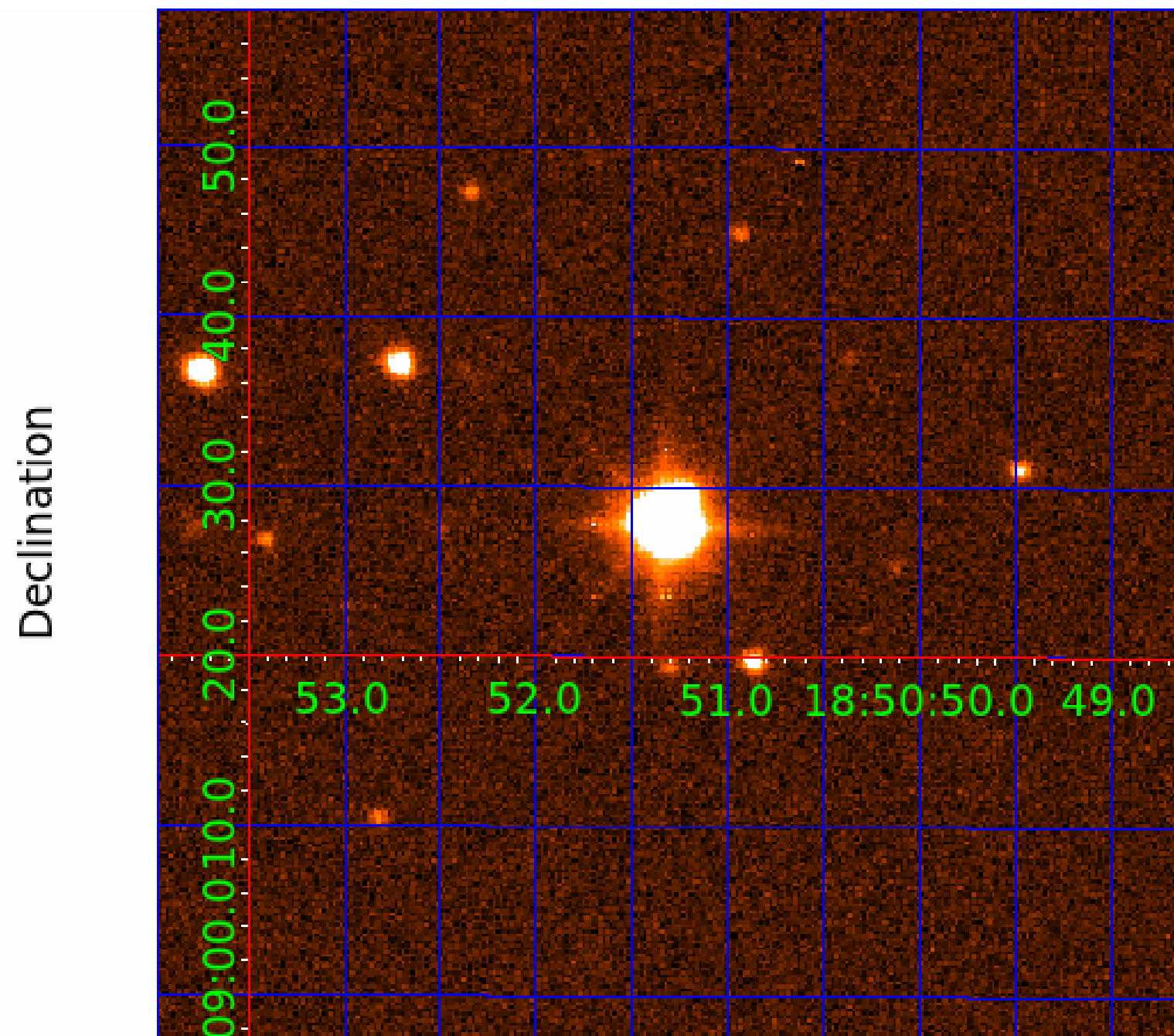




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 005853692

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005853692-01	OBS	No	4.648812	132.555230	11.5	10.494	7.7	5.2	1.79	6287	0.75	1356.11
005853692-02	OBS	No	4.645354	135.681719	0.0	34.073	9.8	0.0	1.79	6287	0.01	1357.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005853692-01	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
005853692-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT

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

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

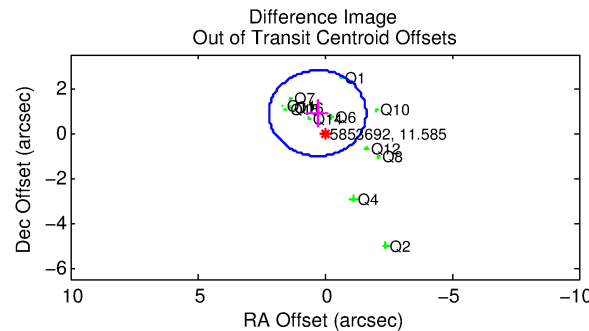
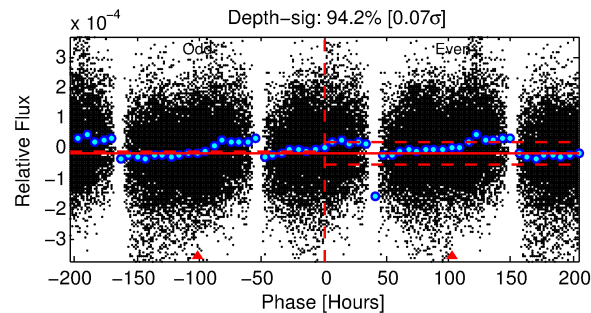
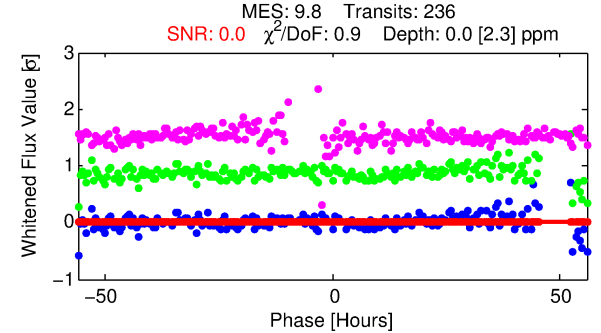
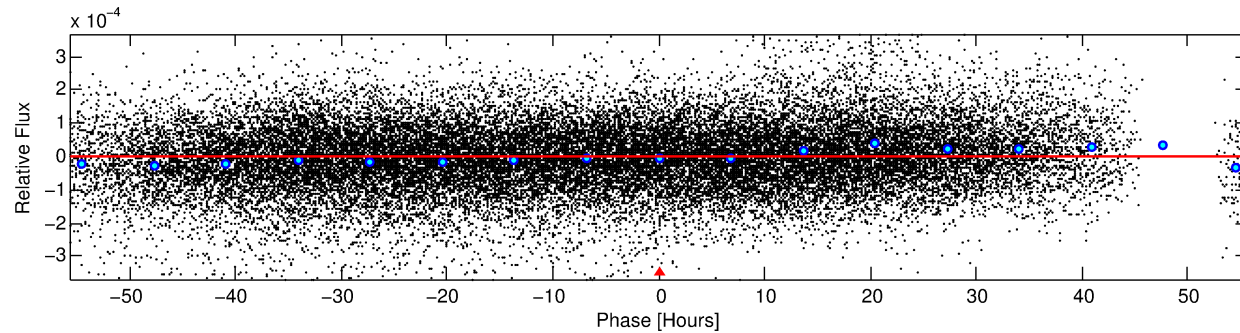
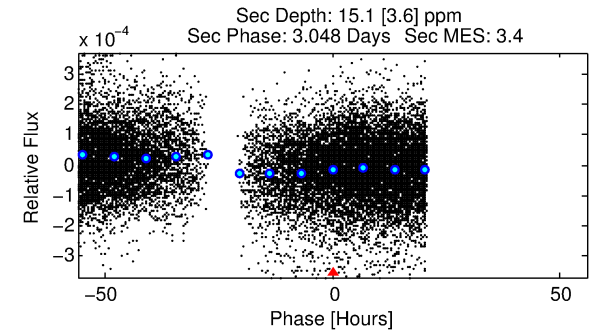
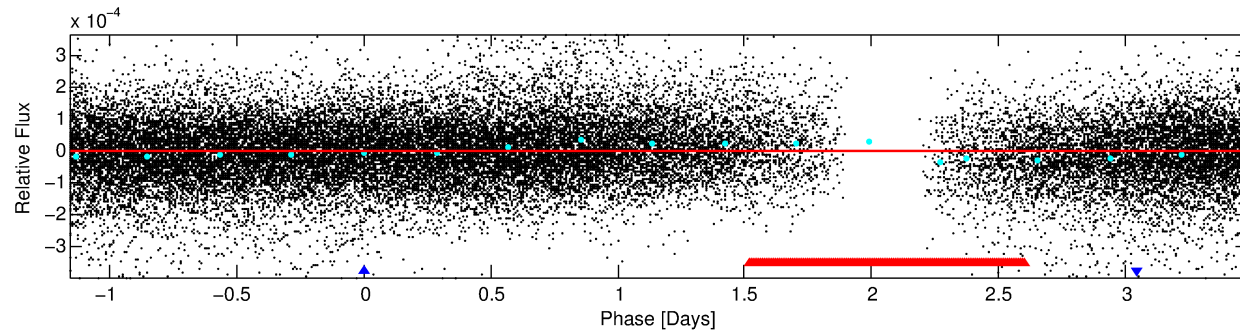
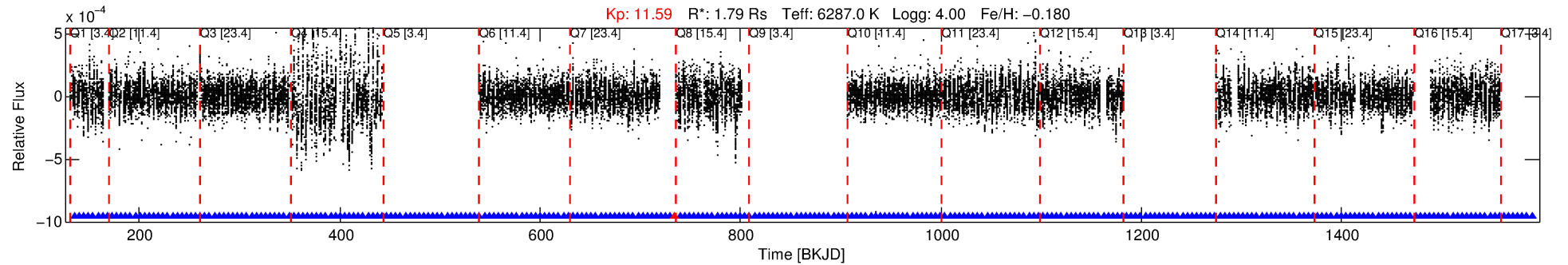
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005853692-02

No Significant Match Found

# DV One-Page Summary

KIC: 5853692 Candidate: 2 of 2 Period: 4.645 d



## DV Fit Results:

Period = 4.64535 [0.26864] d  
Epoch = 135.6817 [39.2608] BKJD  
Rp/R\* = 0.0001 [0.0162]  
a/R\* = 1.22 [95.60]  
b = 0.01 [18817.22]  
Seff = 1357.46 [634.52]  
Teq = 1548 [181] K  
Rp = 0.01 [3.15] Re  
a = 0.0574 [0.0159] AU  
Ag = 184402.05 [95418359.15] [0.00σ]  
Teffp = 49589 [6415111] K [0.01σ]

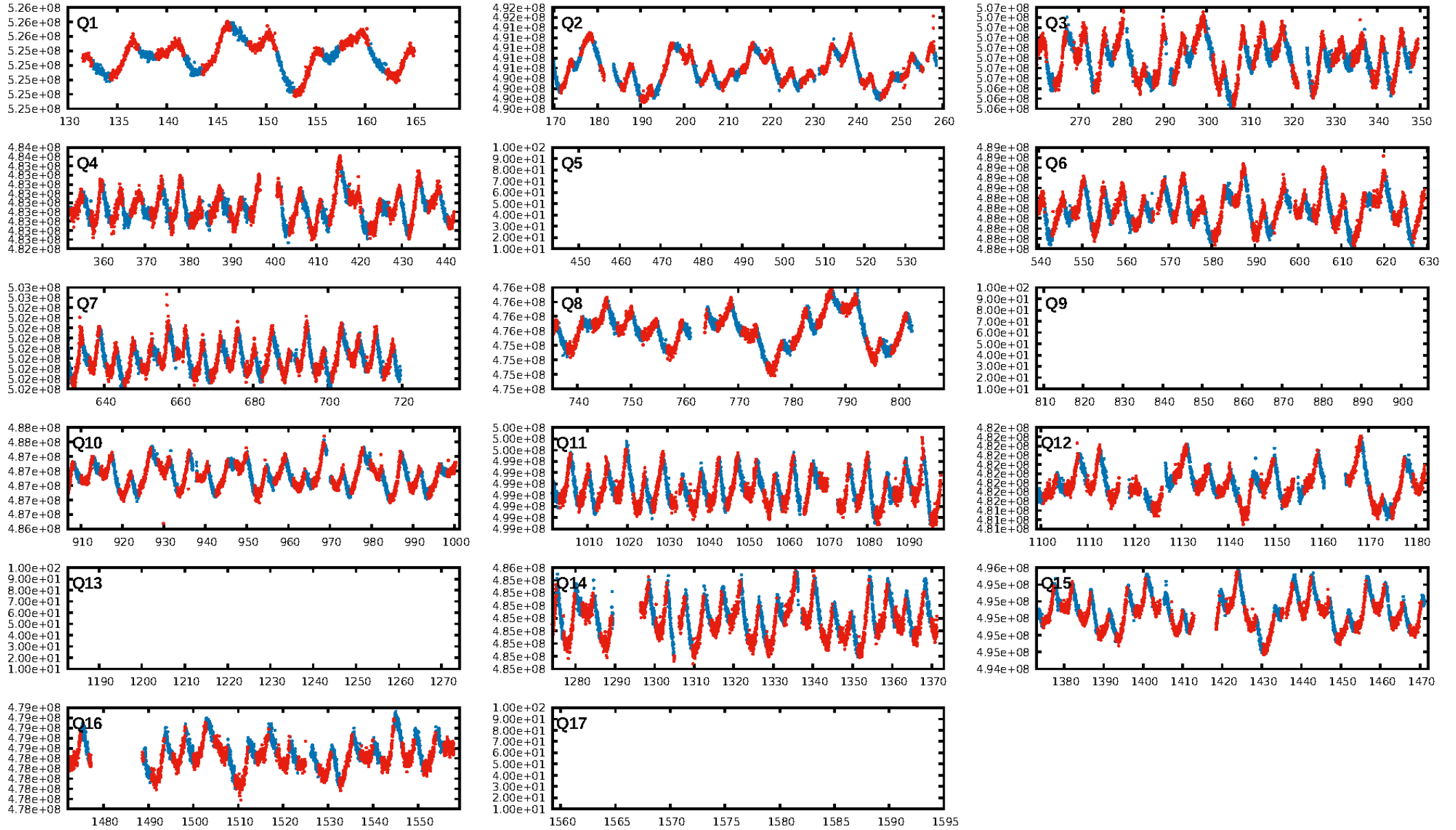
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.2% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [227/228]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
QotOffset-rm: 0.922 arcsec [1.45σ]  
KicOffset-rm: 0.945 arcsec [1.39σ]  
QotOffset-st: 4/3/4/1 [12]  
KicOffset-st: 4/3/4/1 [12]  
DiffImageQuality-fgm: 0.75 [9/12]  
DiffImageOverlap-fno: 0.00 [0/13]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:10:50 Z

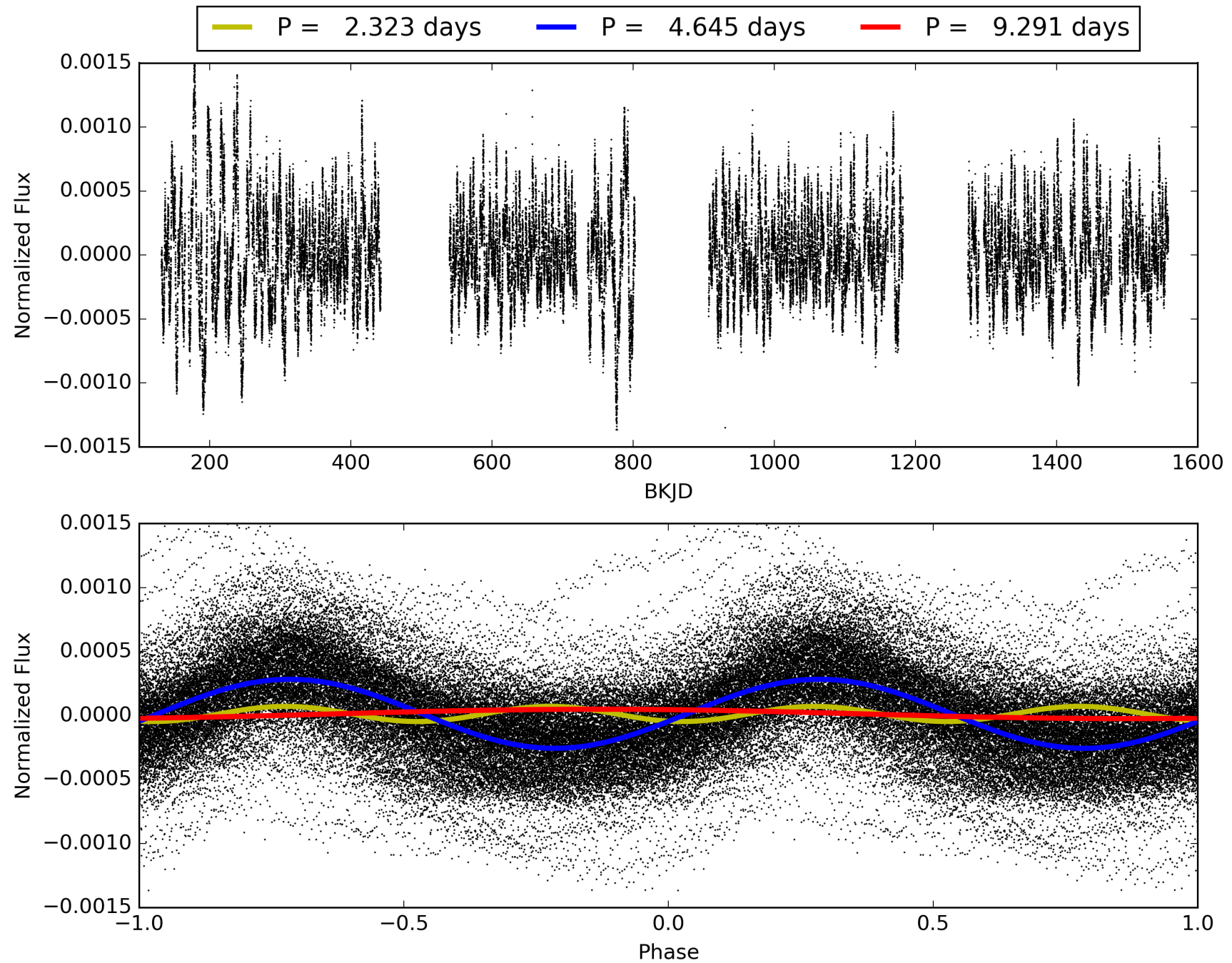
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005853692-02, PDC Light Curves



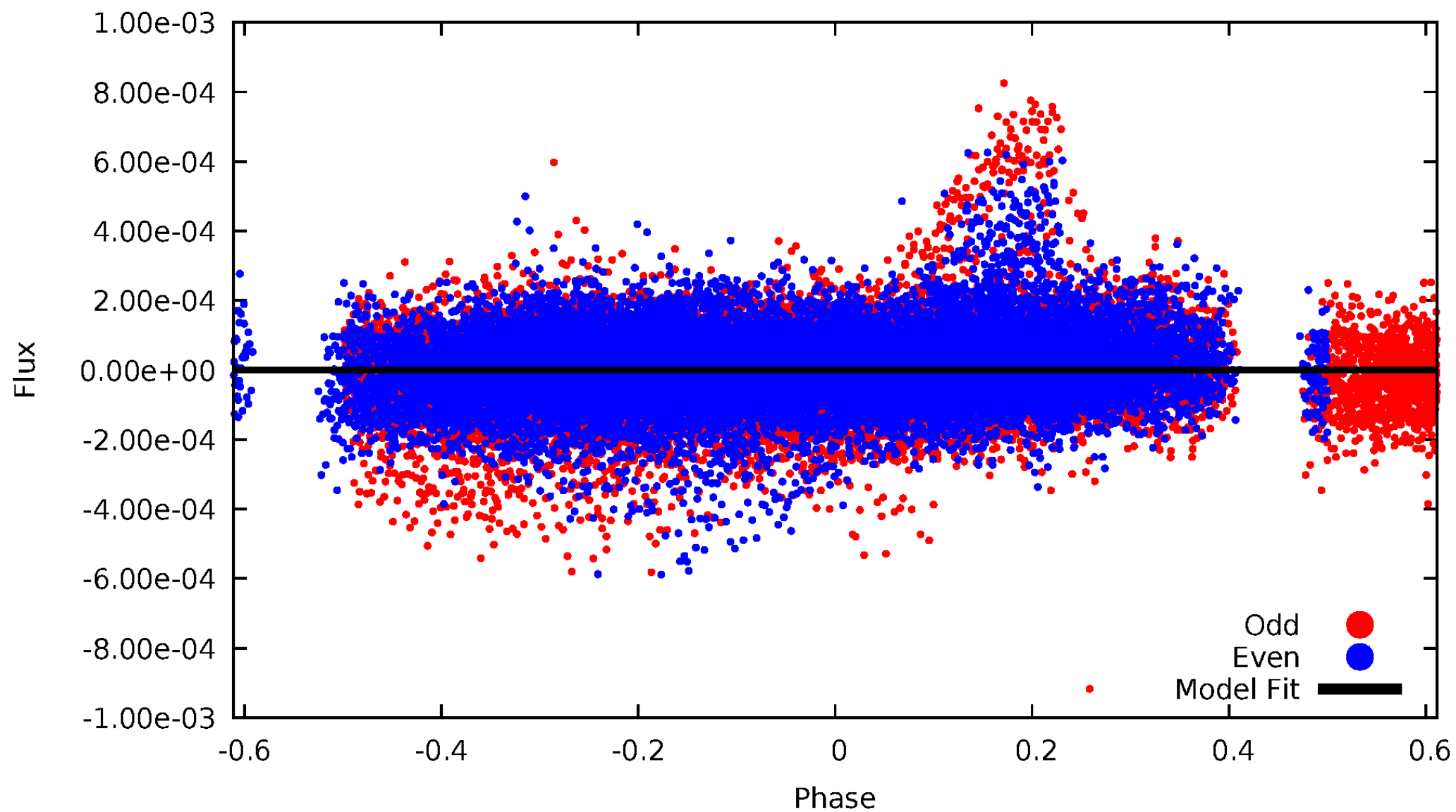


TCE 005853692-02



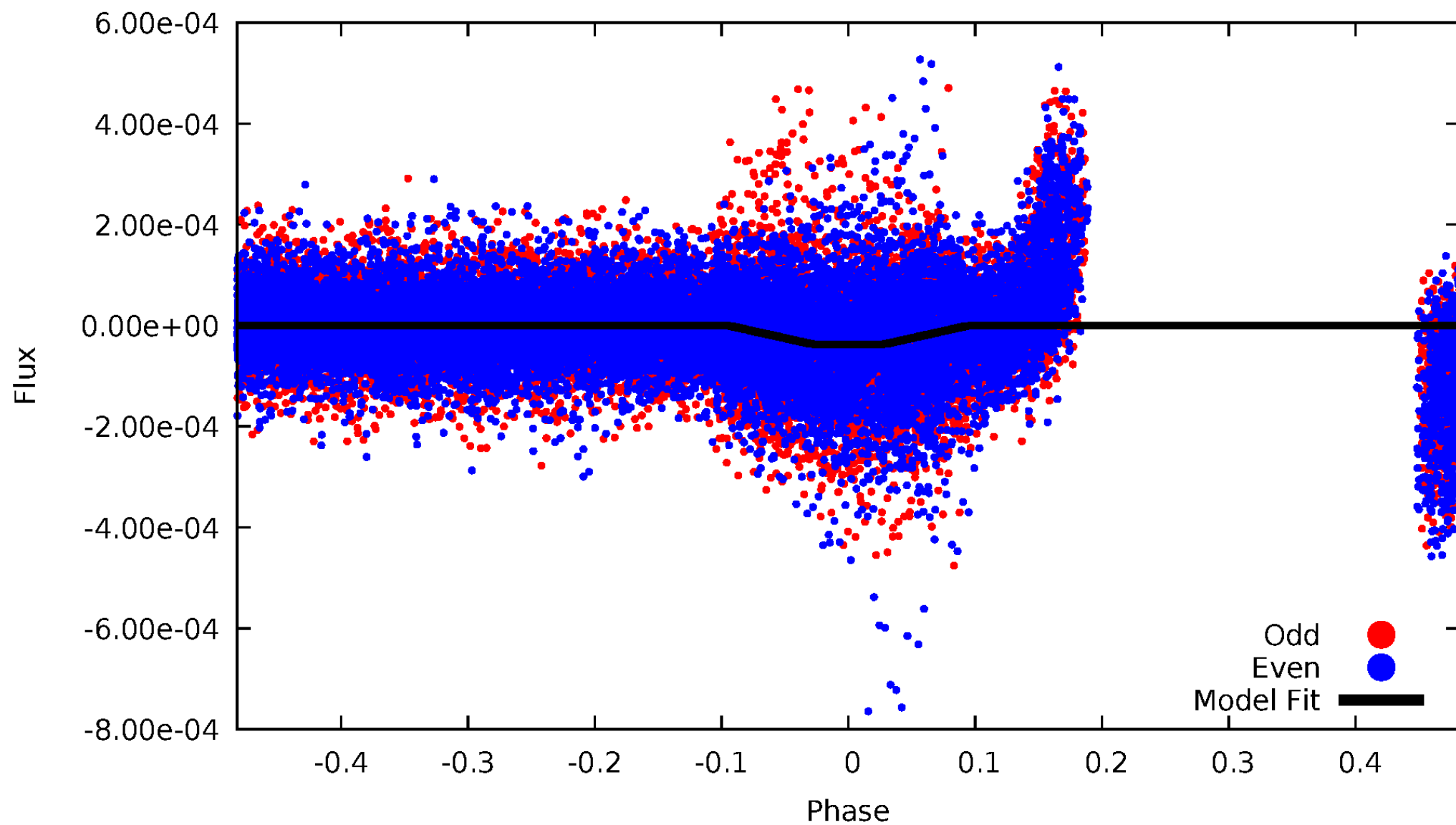
DV Odd/Even

TCE 005853692-02



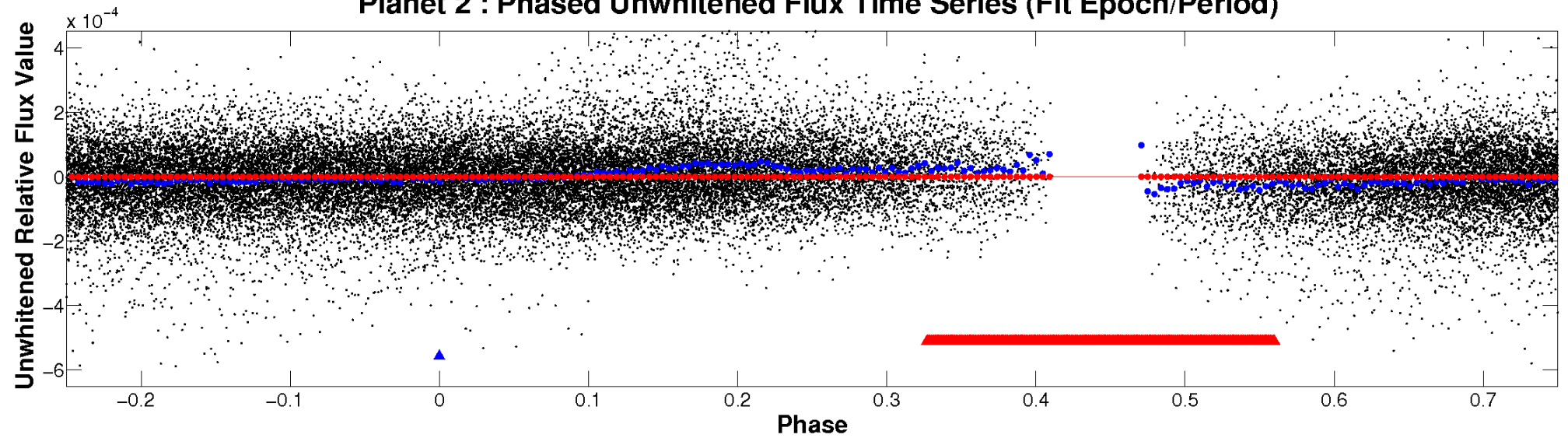
# ALT Odd/Even

TCE 005853692-02

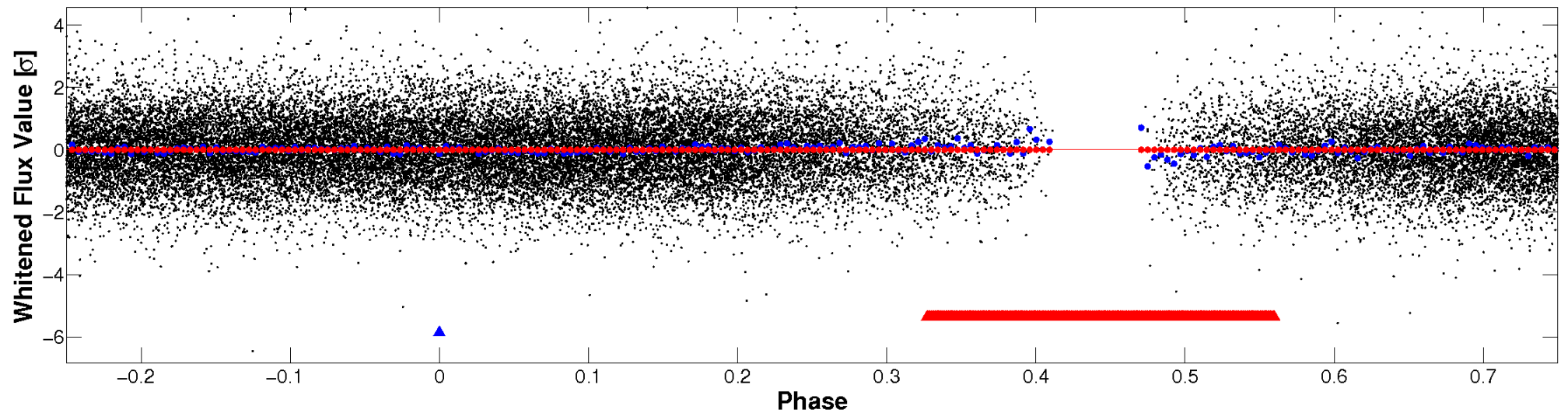


# Non-Whitened Vs. Whitened Light Curve

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



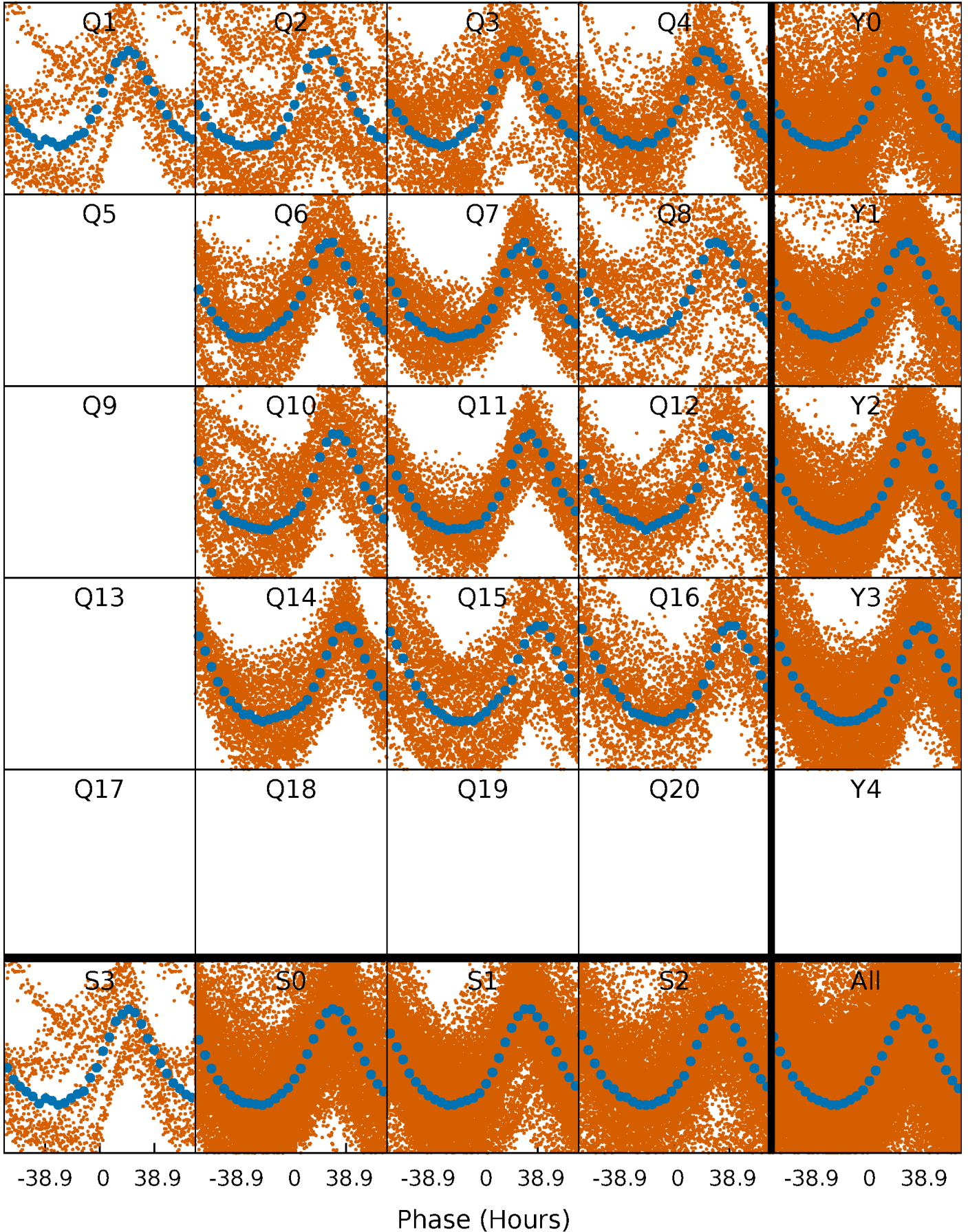
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

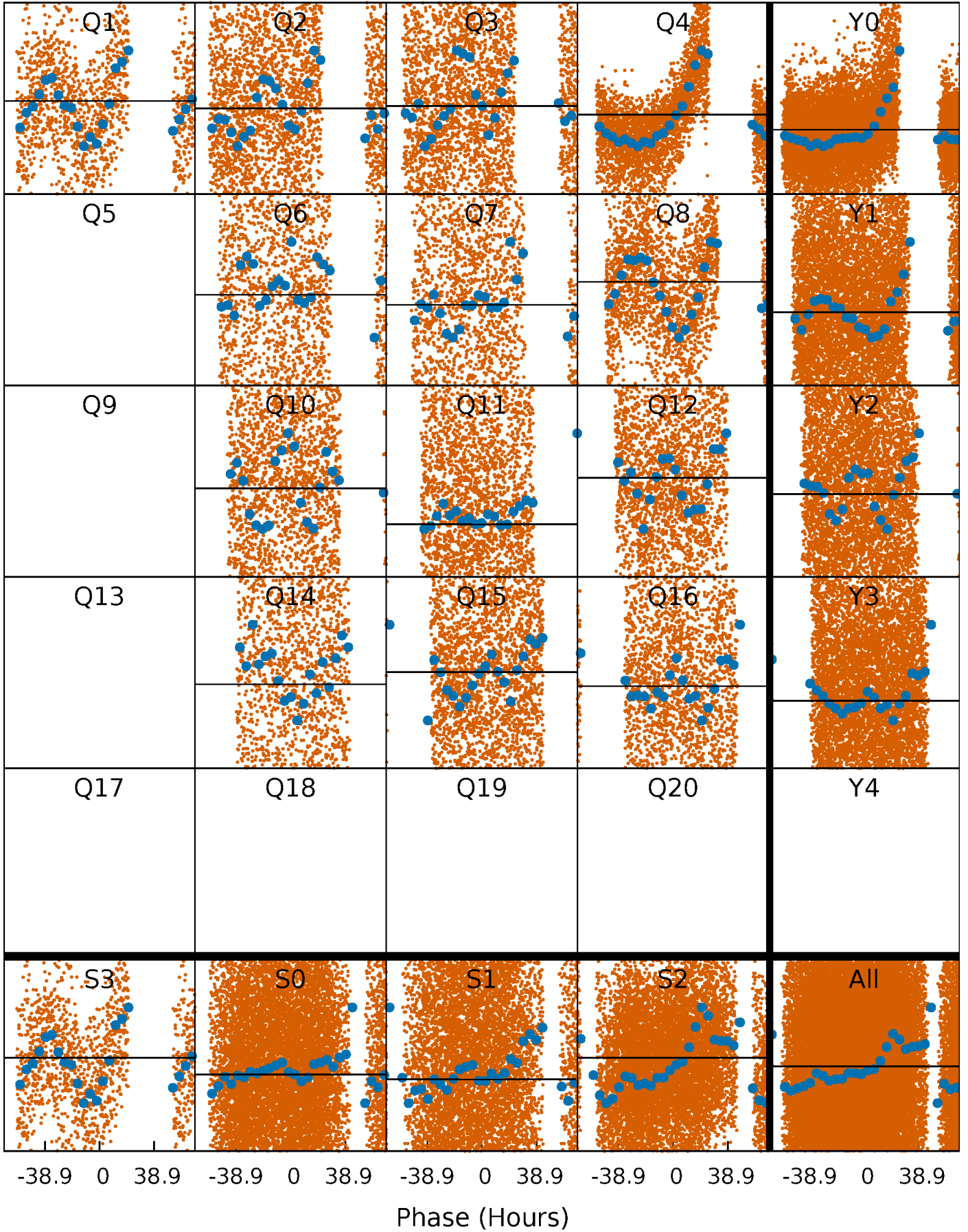
TCE 005853692-02     $P = 4.645354$  Days     $T_0 = 135.681719$  (BKJD)





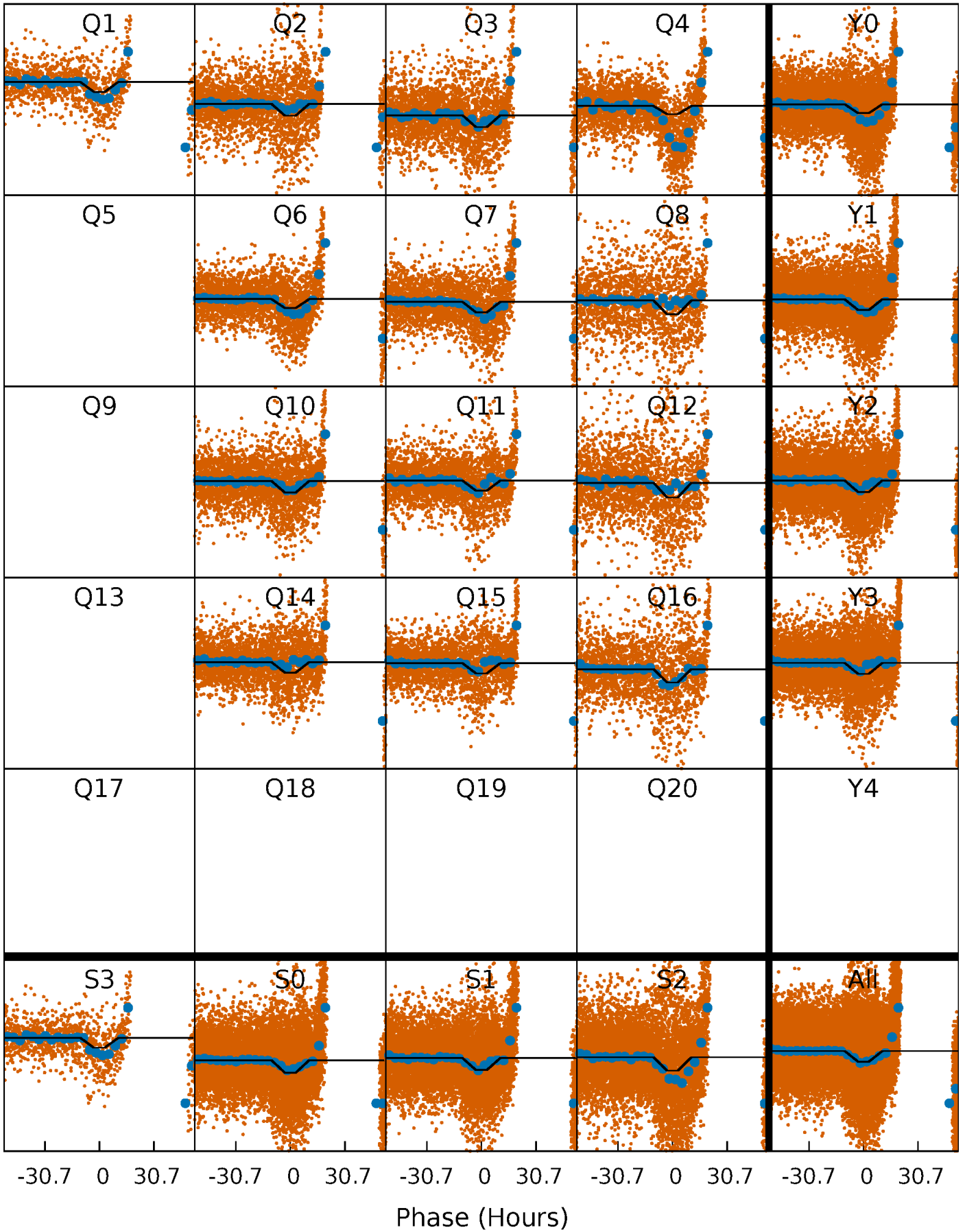
# DV Quarter-Phased Transit Curves

TCE 005853692-02     $P = 4.645354$  Days     $T_0 = 135.681719$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

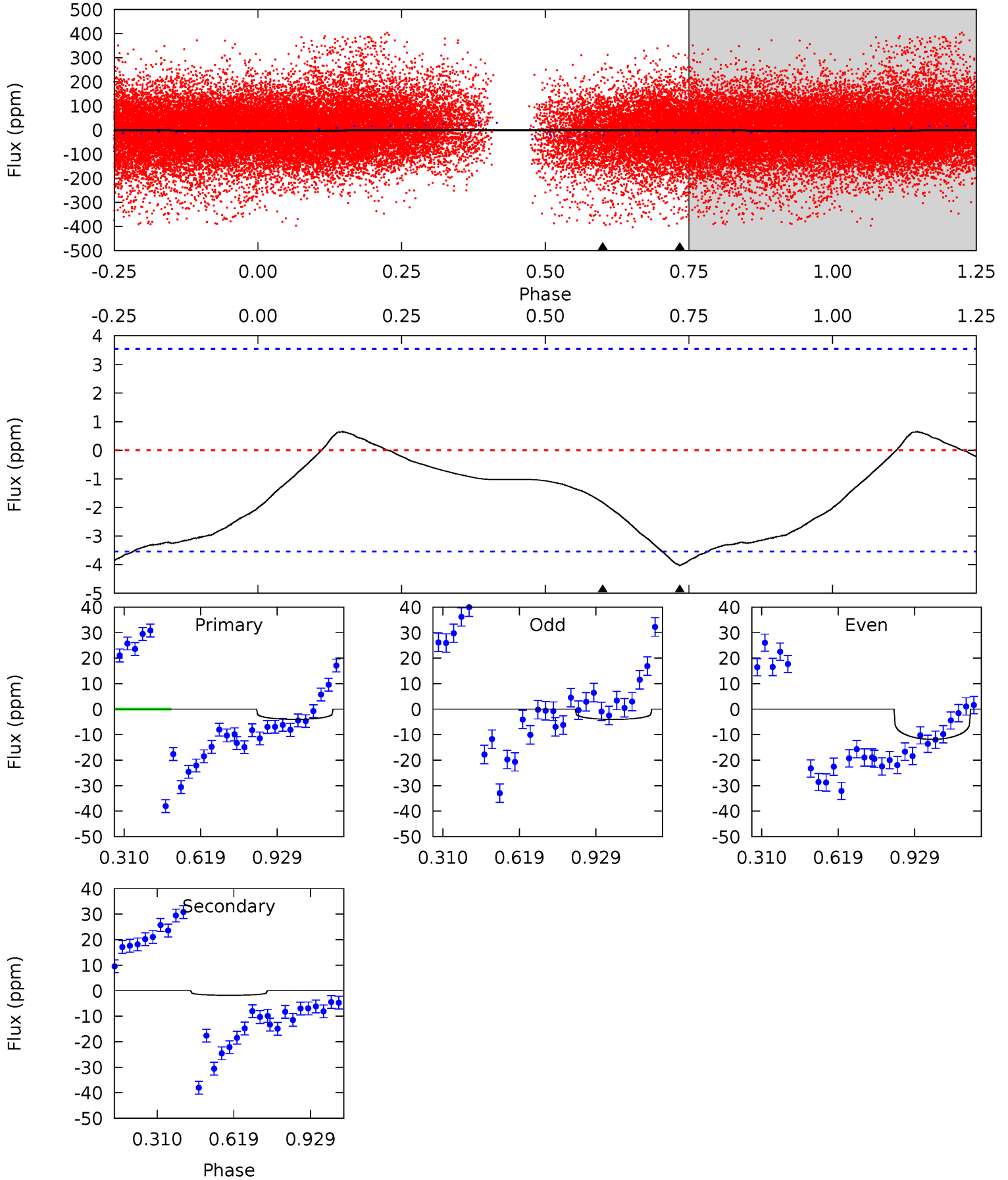
TCE 005853692-02   P= 4.648371 Days    $T_0=135.793605$  (BKJD)



# DV Model-Shift Uniqueness Test

005853692-02, P = 4.645354 Days, E = 131.036365 Days

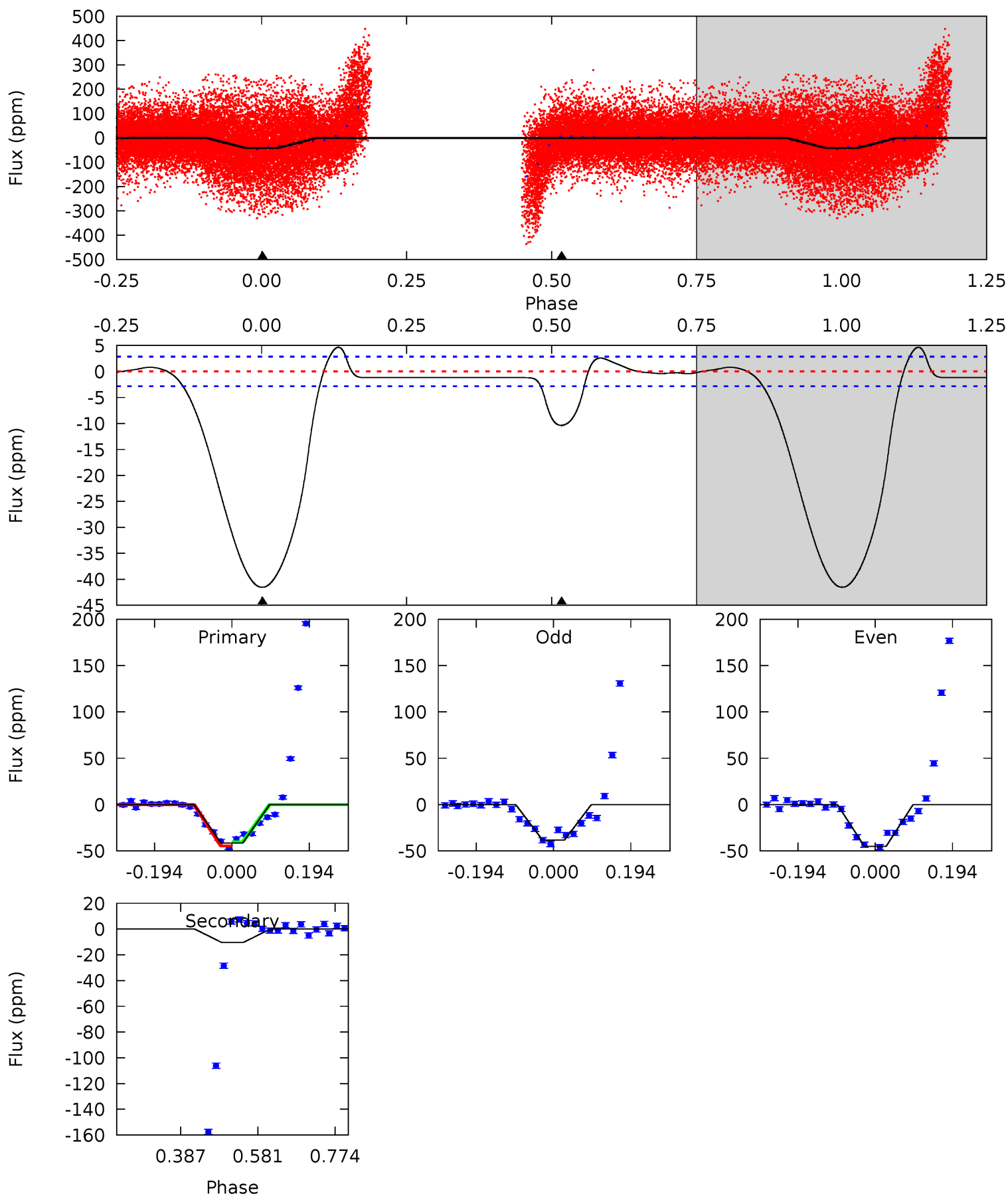
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.91	2.23	0	0	4.32	1.02	0.63	4.91	4.91	2.23	2.23	4.93	-0.34	0.14	5.04



# Alt Model-Shift Uniqueness Test

005853692-02, P = 4.648371 Days, E = 131.145234 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
64.4	16.1	0	0	4.42	1.30	0.63	64.4	64.4	16.1	16.1	5.18	0.98	0.10	2.38



### Stellar Parameters For KIC 005853692

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6287^{+160}_{-176}$	$4.001^{+0.266}_{-0.114}$	$-0.180^{+0.300}_{-0.250}$	$1.787^{+0.400}_{-0.489}$	$1.166^{+0.212}_{-0.173}$	$0.288^{+0.409}_{-0.109}$
	+3%/-3%	+7%/-3%	+167%/-139%	+22%/-27%	+18%/-15%	+142%/-38%
Source	PHO1	FLK73	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 005853692-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-2\pm 1$	$2.06^{+2.38}_{-1.47}$	$2128^{+157}_{-172}$	$2645^{+1563}_{-5021}$	$0.704^{+7.532}_{-0.563}$
Alt.	$-10\pm 1$	$2.50^{+2.48}_{-1.79}$	$2128^{+127}_{-183}$	$3457^{+2292}_{-753}$	$3.065^{+33.791}_{-2.307}$

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

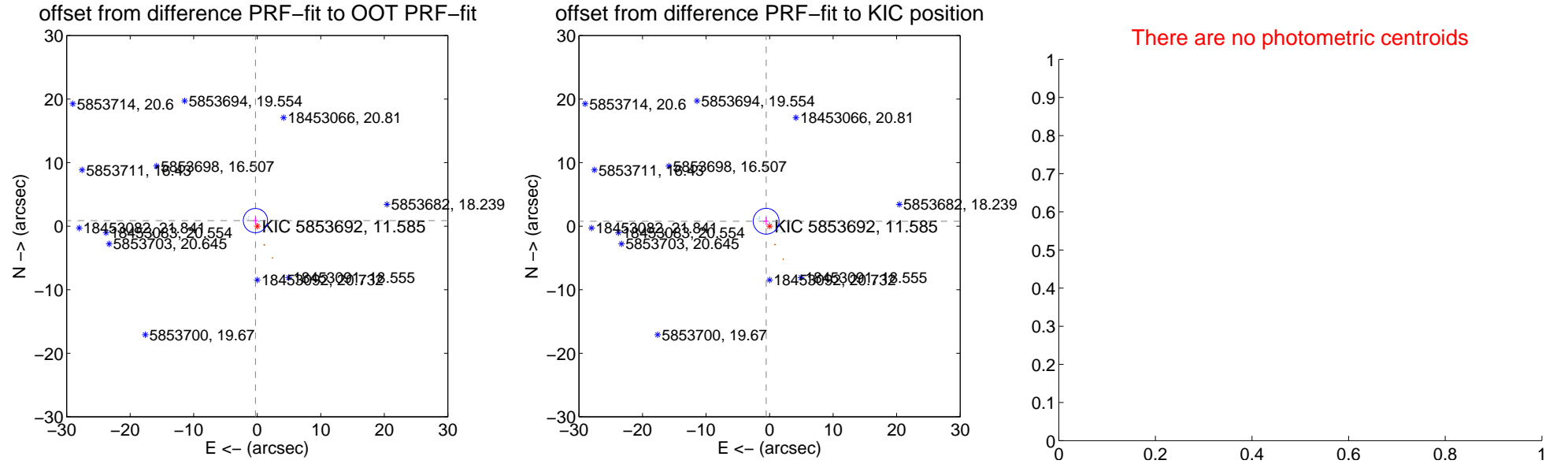
## DV Centroid Data

Supplemental centroid analysis for 005853692-02. **Kepler magnitude: 11.59.** Transit SNR 0.00

There are 9 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

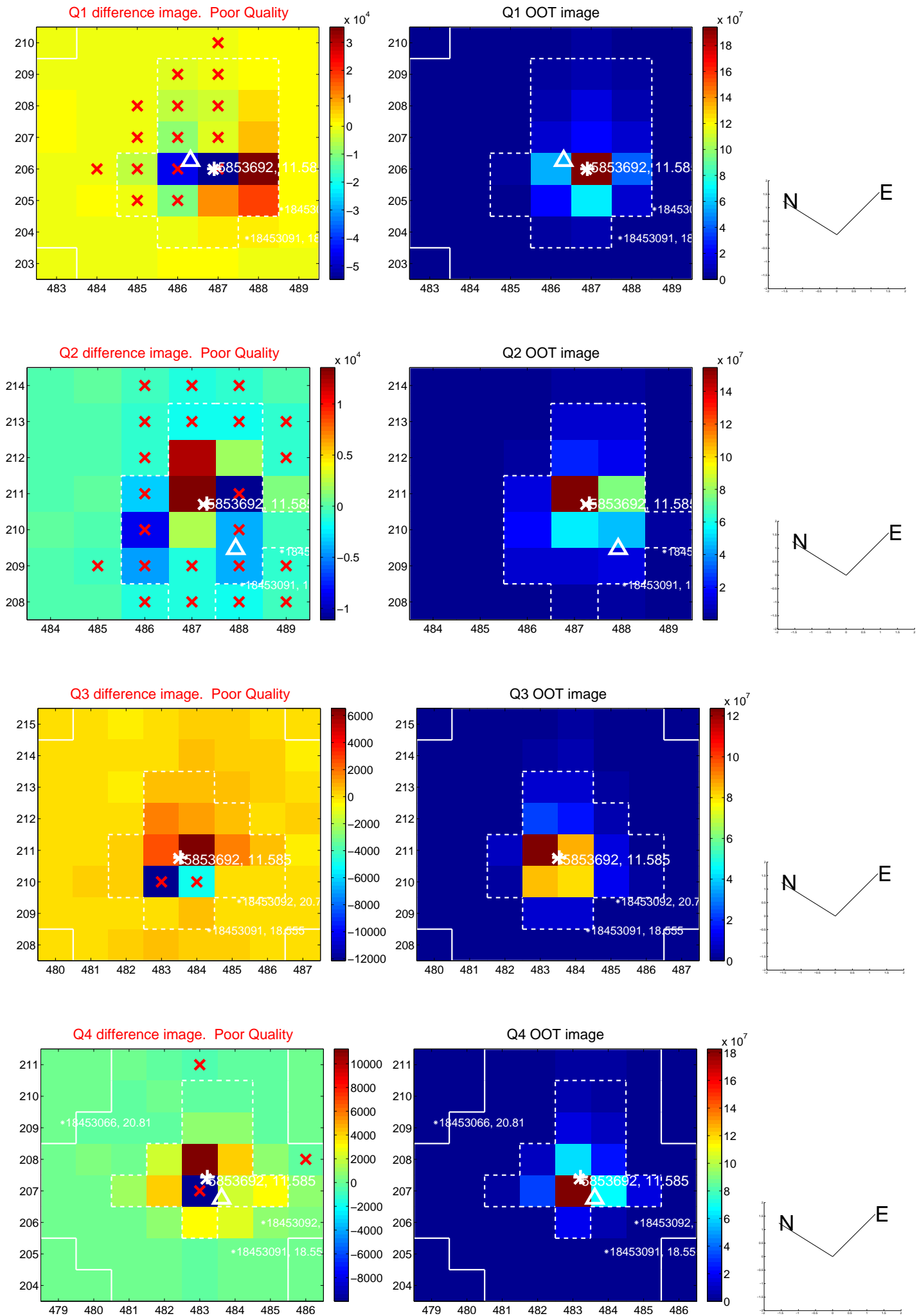
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.922 \pm 0.636$	1.45	$0.284 \pm 0.415$	$0.878 \pm 0.580$
PRF-fit source offset from KIC position	$0.945 \pm 0.678$	1.39	$0.539 \pm 0.439$	$0.776 \pm 0.605$
photometric centroid source offset	—	—	—	—



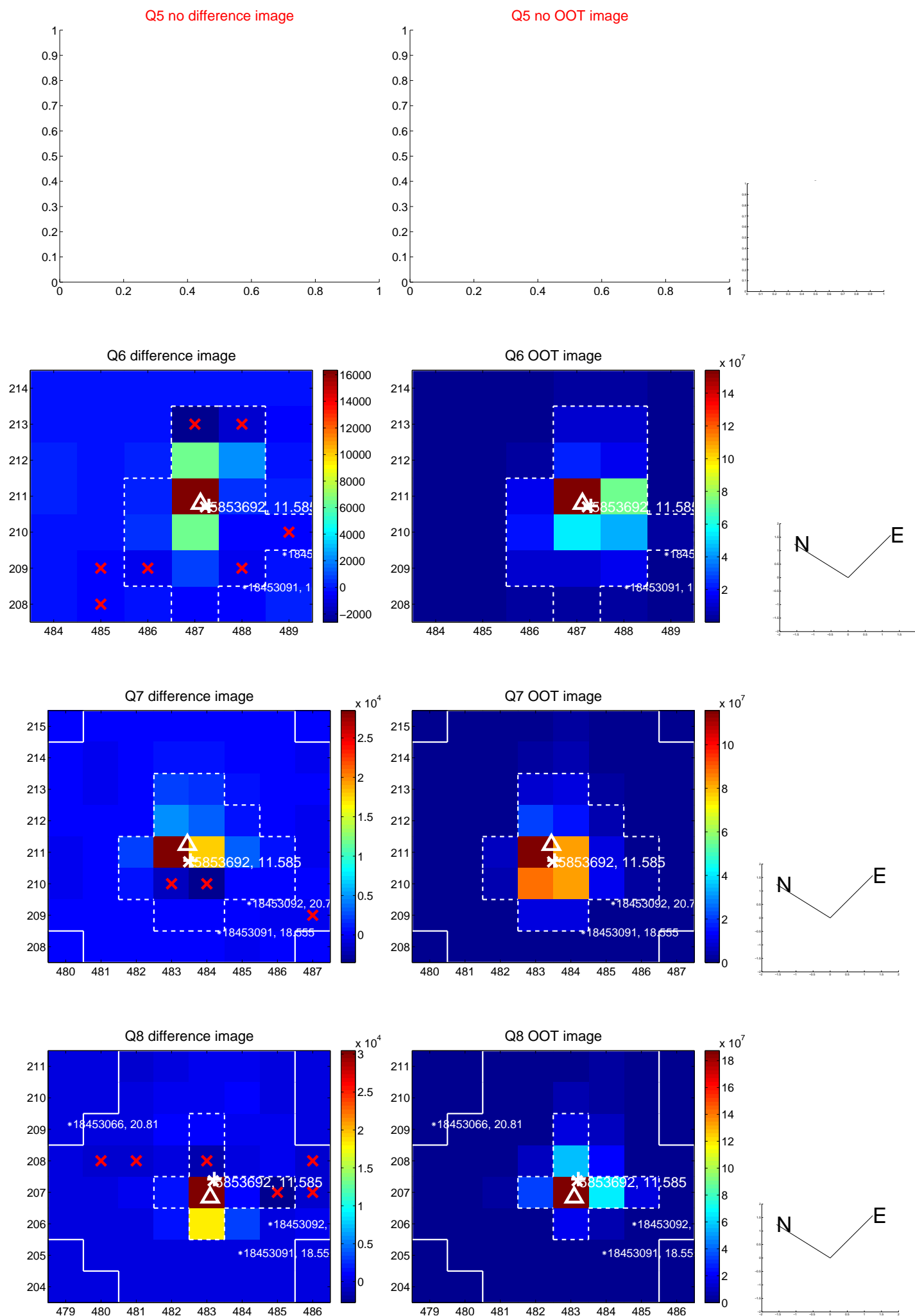
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



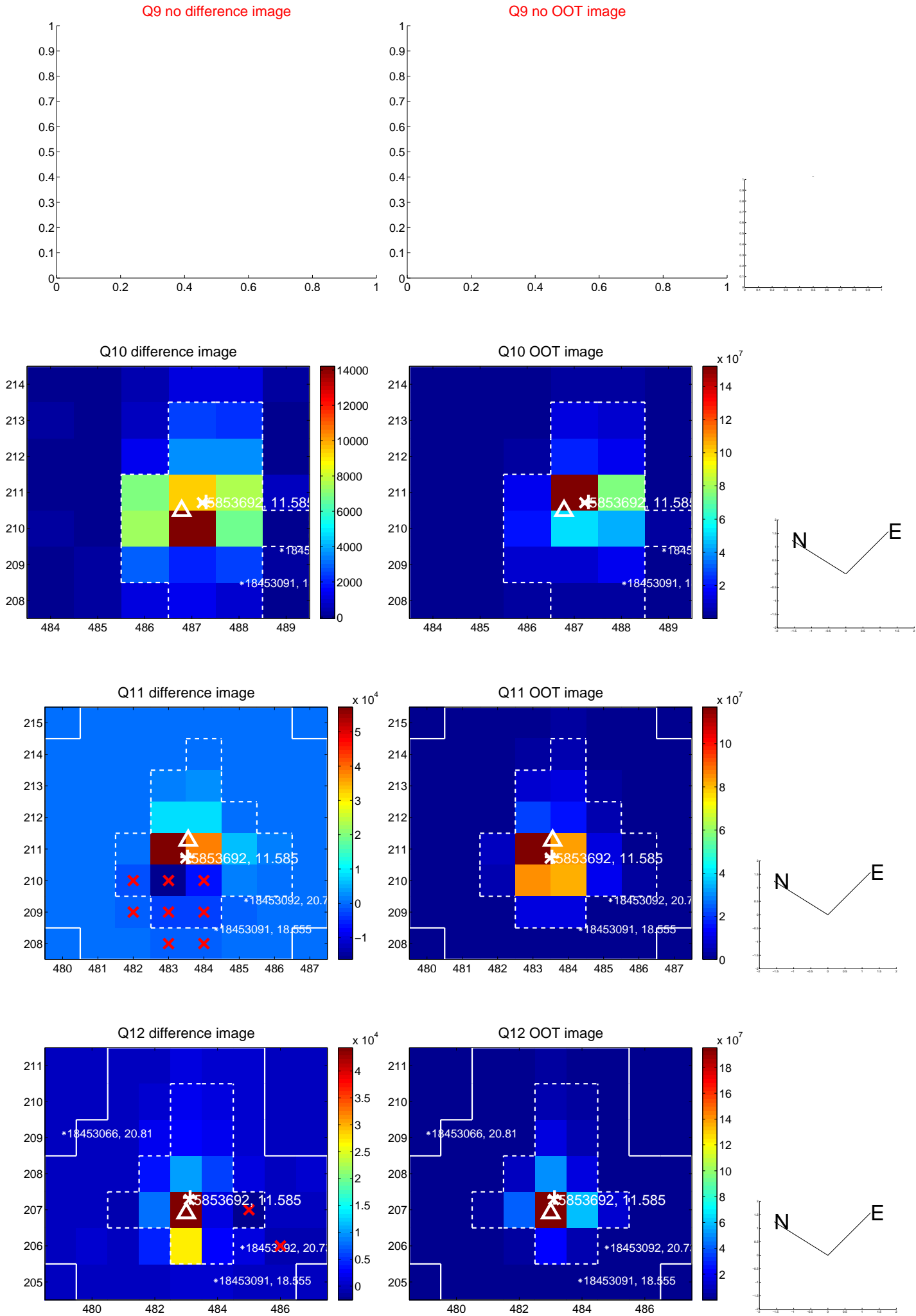
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



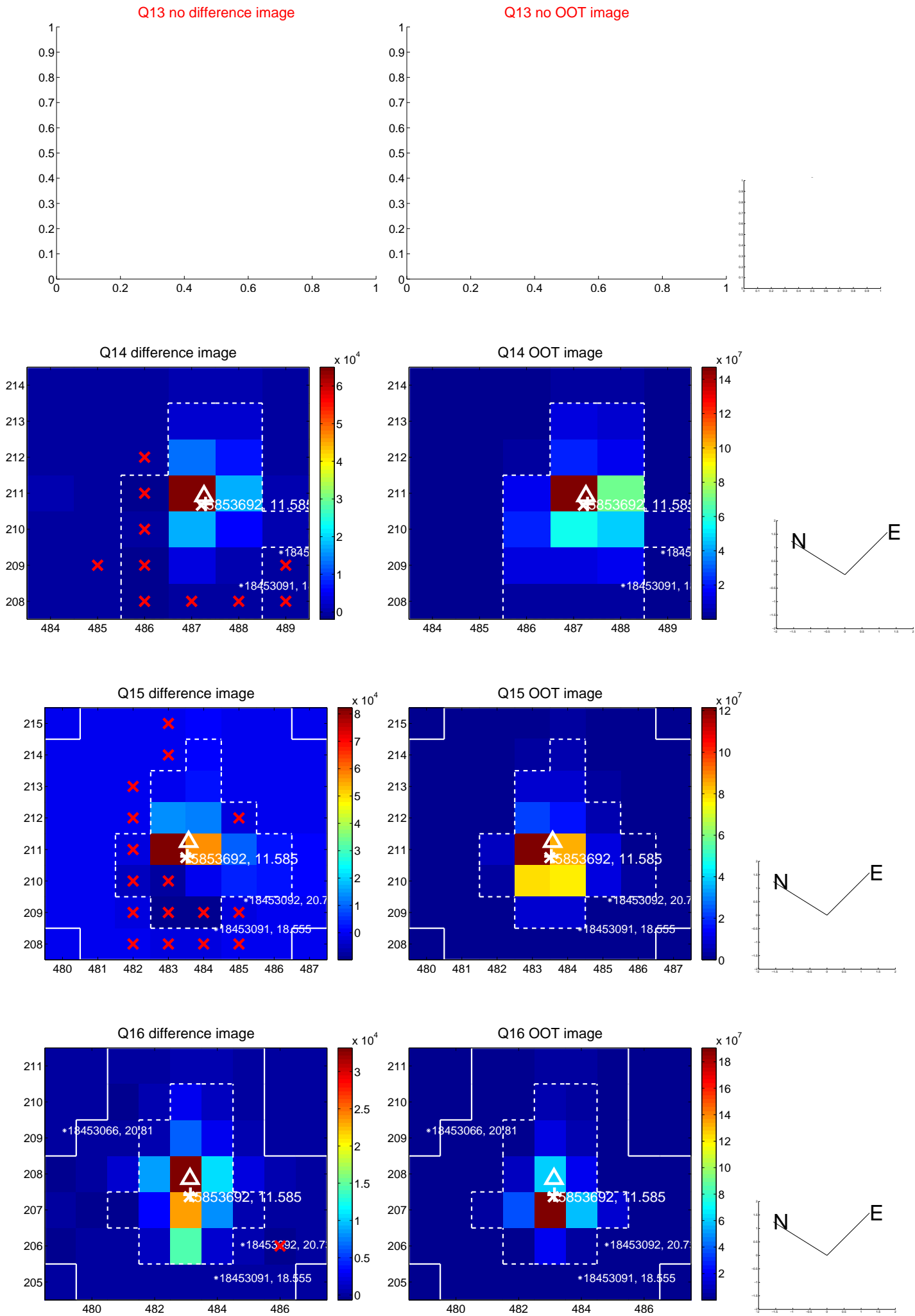
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

