

# KIC 003558803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003558803-01	OBS	6345.01	1.353452	131.671808	43.8	8.659	19.0	5.6	8.59	4850	5.50	0.00
003558803-02	OBS	No	26.890557	158.331830	651.3	2.791	14.3	13.0	8.59	4850	25.05	753.22
003558803-03	OBS	No	16.819263	147.638424	502.2	2.454	13.6	12.1	8.59	4850	22.79	1408.14
003558803-04	OBS	No	52.653629	145.420099	841.2	2.829	13.8	13.6	8.59	4850	30.52	307.48
003558803-05	OBS	No	109.340809	139.449797	1048.1	9.446	13.0	14.0	8.59	4850	34.72	116.06
003558803-06	OBS	No	41.807115	153.651917	851.4	5.370	13.0	12.7	8.59	4850	34.21	418.20
003558803-07	OBS	No	23.122790	154.403549	632.1	3.179	13.2	13.0	8.59	4850	42.09	921.16
003558803-08	OBS	No	8.633592	136.565481	442.3	3.706	13.1	13.5	8.59	4850	38.35	3426.10
003558803-09	OBS	No	97.651648	216.153876	1031.9	4.221	12.2	12.0	8.59	4850	27.88	134.94
003558803-10	OBS	No	15.234080	146.589122	378.5	1.500	12.3	-1.0	8.59	4850	16.19	1606.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558803-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003558803-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN—HALO_GHOST
003558803-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003558803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN
003558803-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
003558803-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003558803-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-10	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

**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.

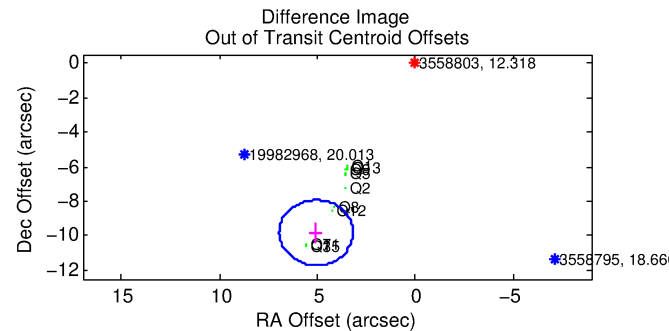
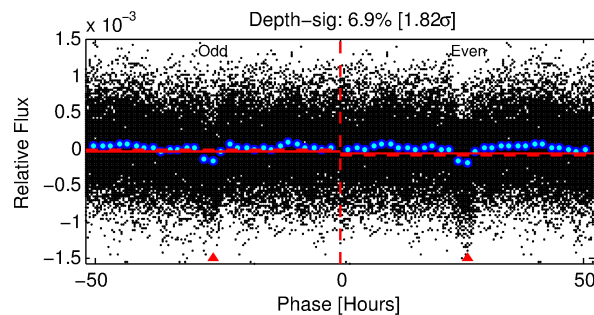
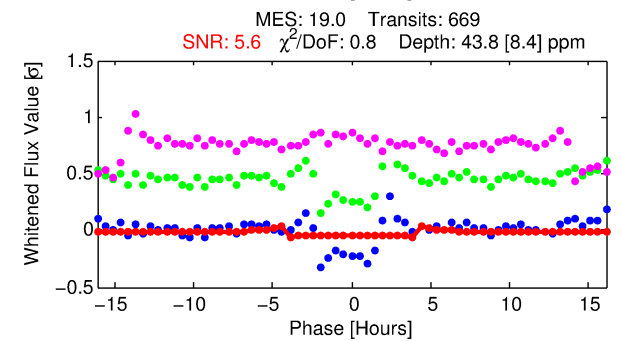
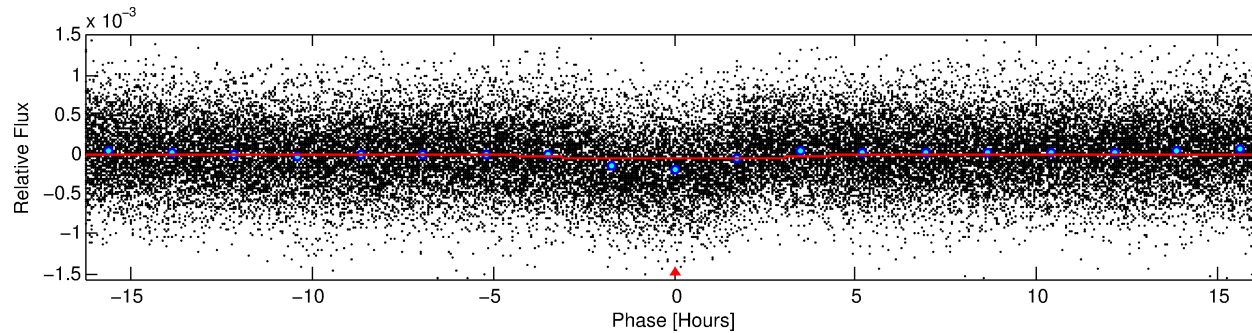
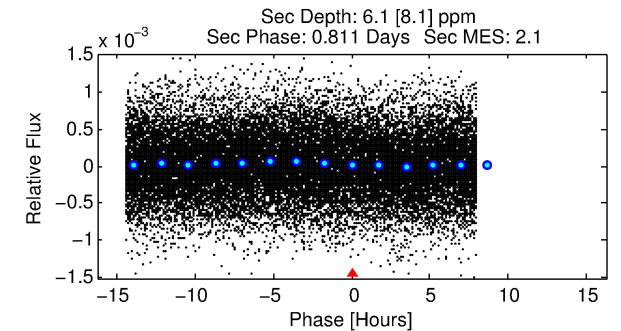
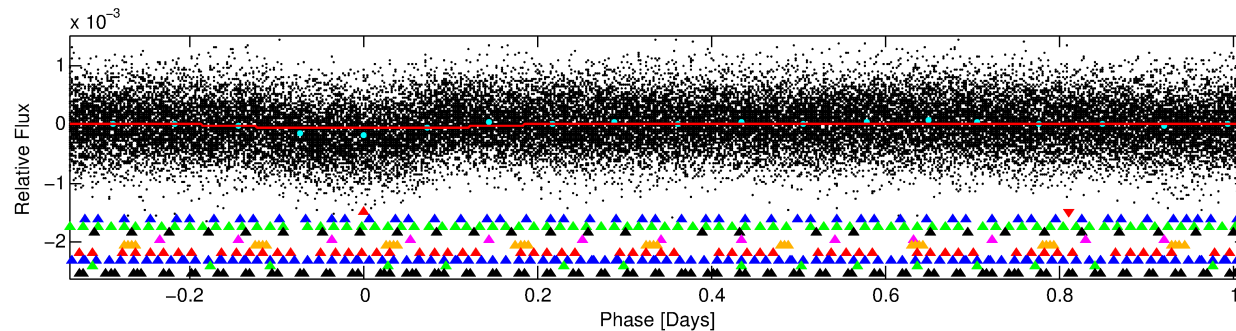
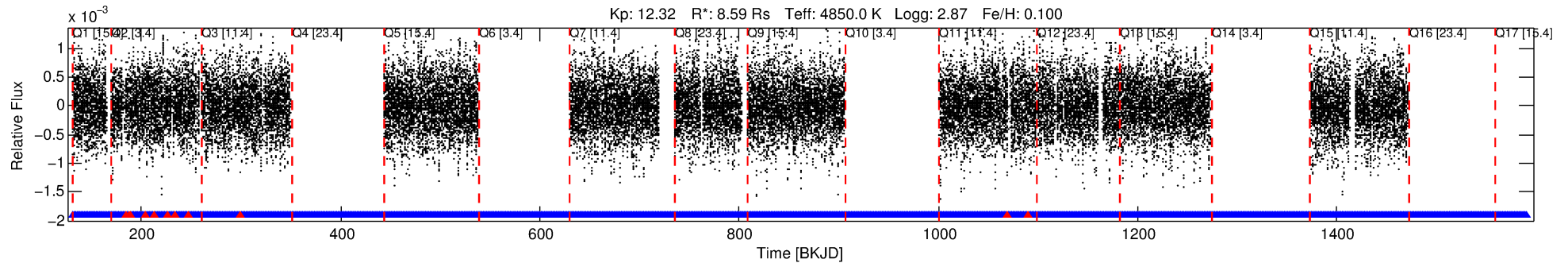
# Ephemeris Match Information For 003558803-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
003558803-01	3558803	003558822-pri	3558822	1:1	22.7	6	0	12.25	12.32	1334.10	Direct-PRF	0	1.90	0.00

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 3558803 Candidate: 1 of 10 Period: 1.353 d  
KOI: K06345.01 Corr: 0.828



## DV Fit Results:

Period = 1.35345 [0.00003] d  
Epoch = 131.6718 [0.0040] BKJD  
Rp/R\* = 0.0059 [0.0038]  
a/R\* = 1.34 [1.31]  
b = 0.19 [11.48]  
Seff = N/A  
Teq = N/A  
Rp = 5.50 [4.06] Re  
a = N/A  
Ag = N/A  
Teff = N/A

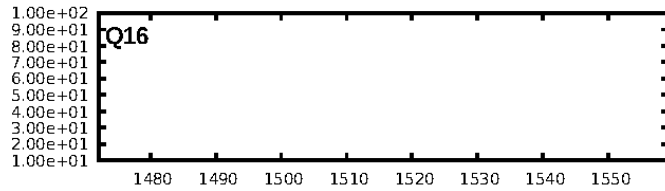
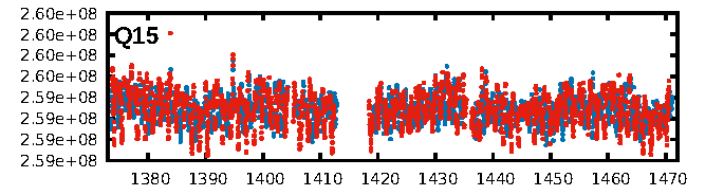
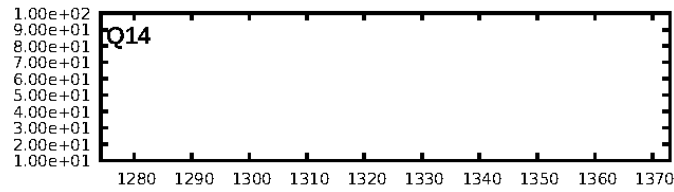
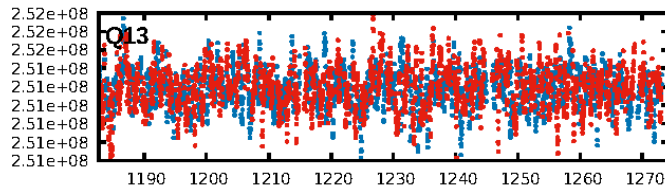
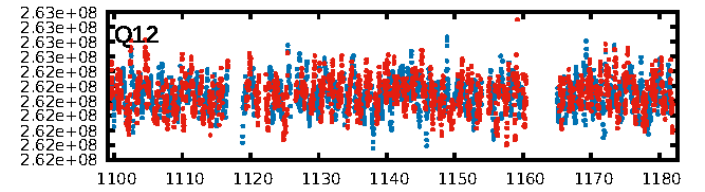
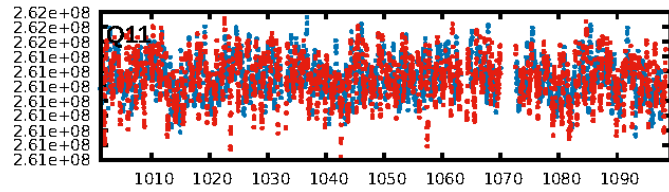
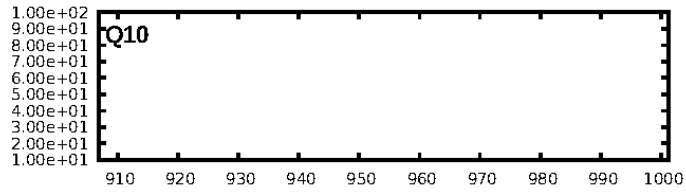
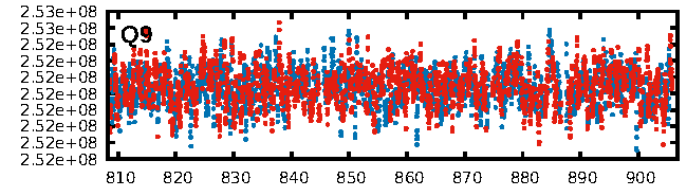
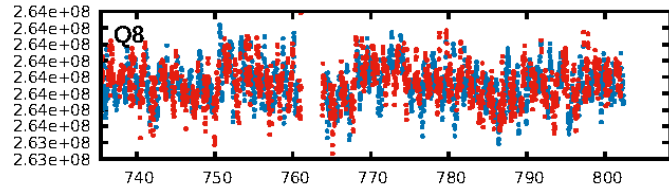
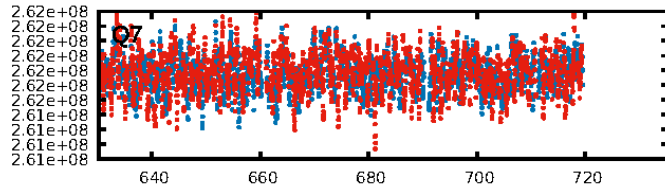
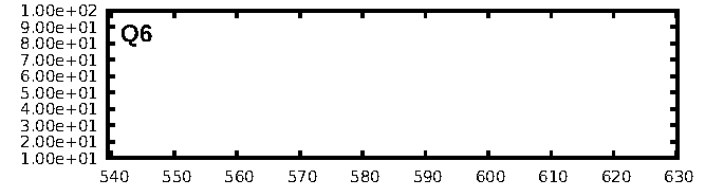
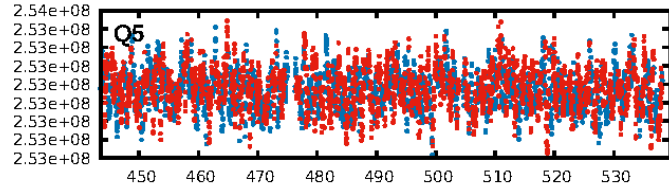
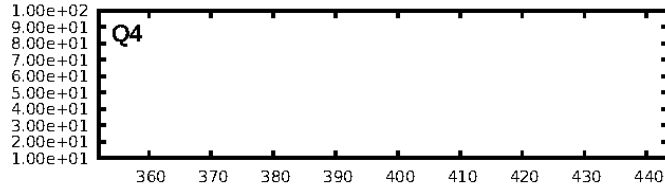
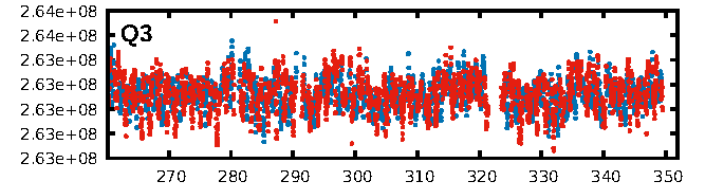
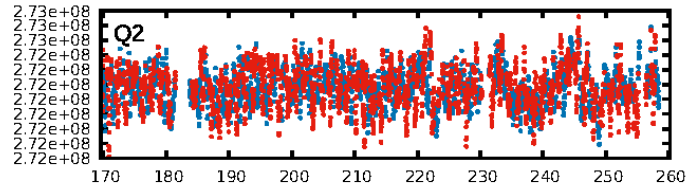
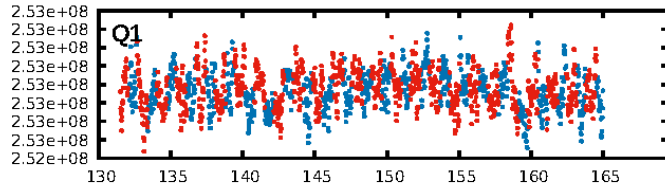
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [18.55σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [633/644]  
GhostDiagnostic-chr: -1.278  
Centroid-sig: 0.0%  
Centroid-so: 1.877 arcsec [3.23σ]  
OotOffset-rm: 11.062 arcsec [17.58σ]  
KicOffset-rm: 11.223 arcsec [17.48σ]  
OotOffset-st: 1/4/2/4 [11]  
KicOffset-st: 1/4/2/4 [11]  
DiffImageQuality-fgm: 1.00 [11/11]  
DiffImageOverlap-fno: 1.00 [11/11]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:09:31 Z

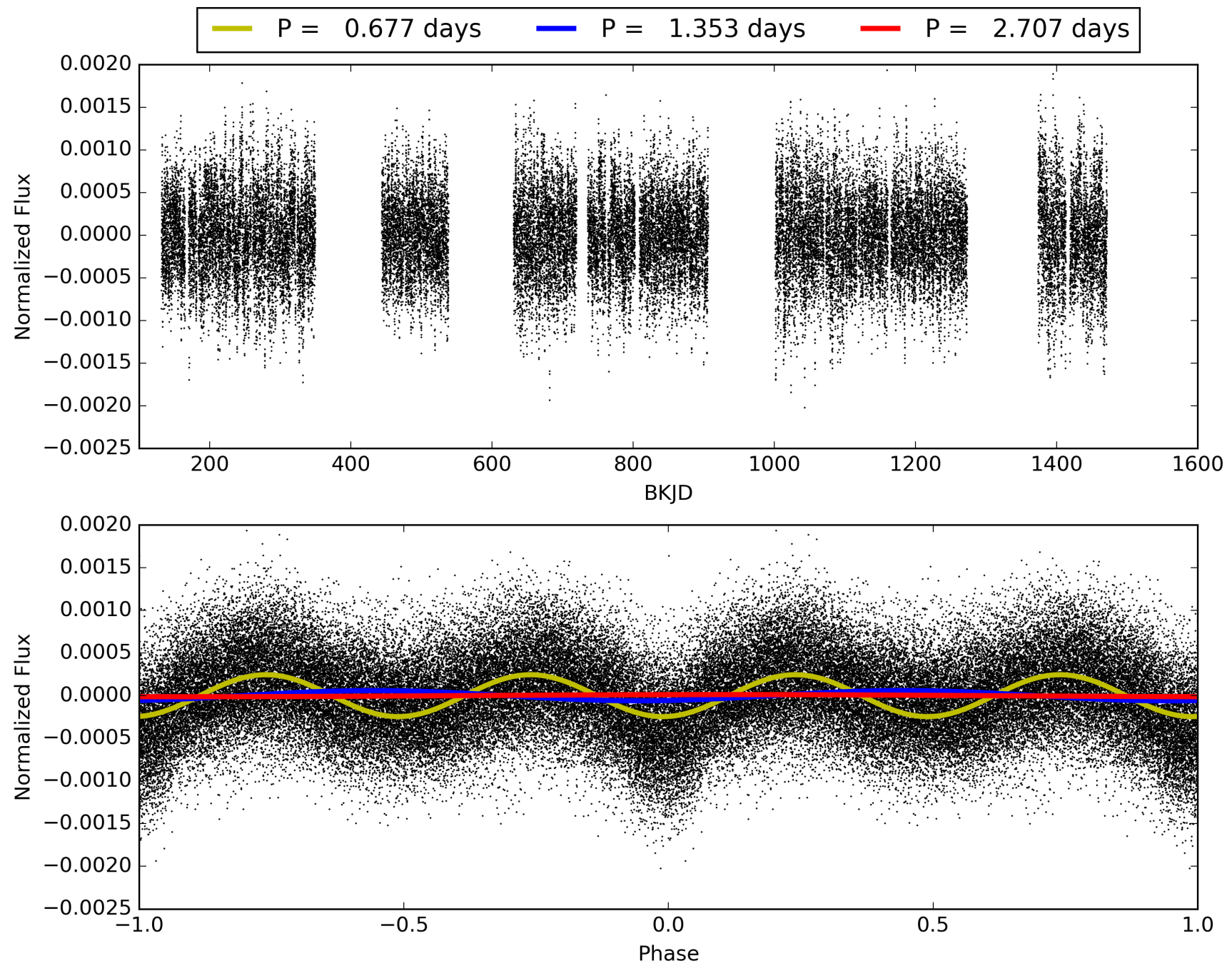
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003558803-01, PDC Light Curves



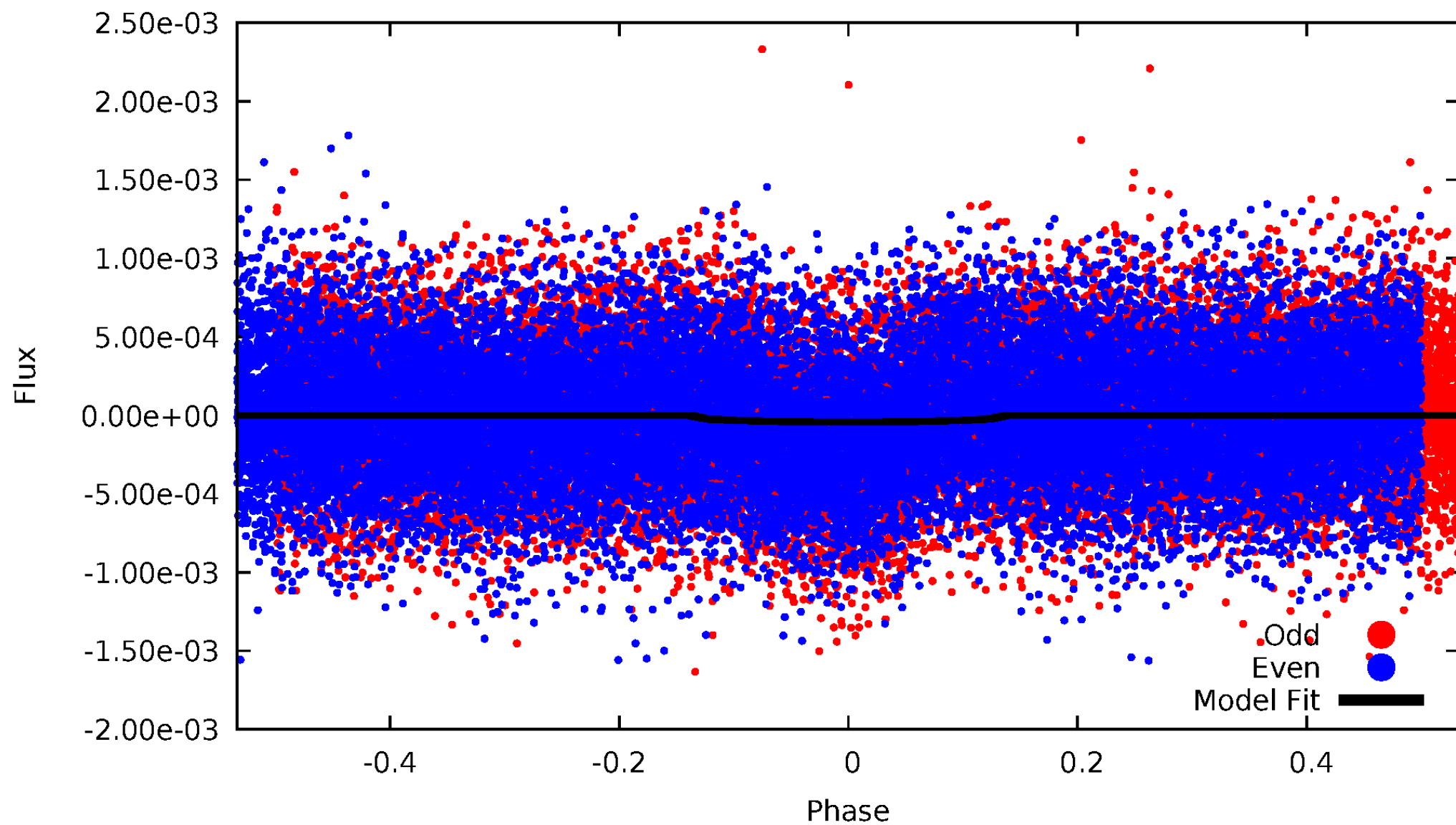


TCE 003558803-01



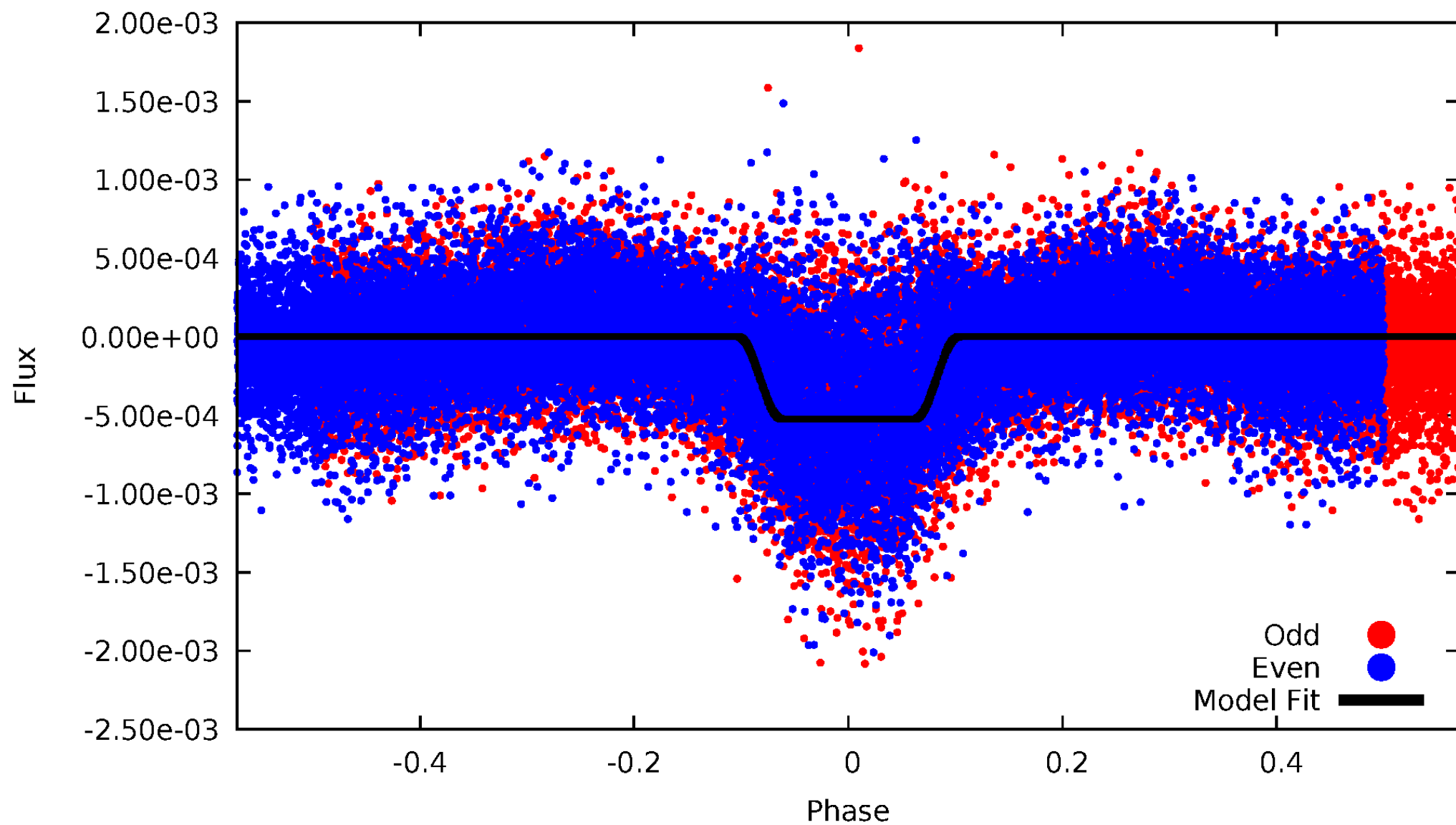
# DV Odd/Even

TCE 003558803-01

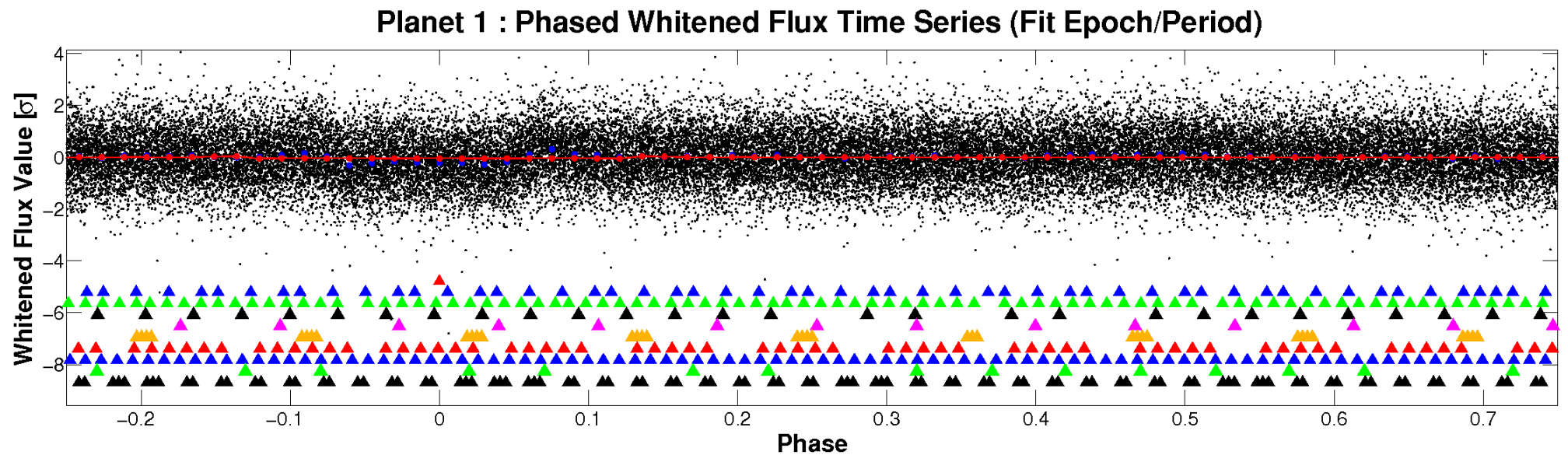
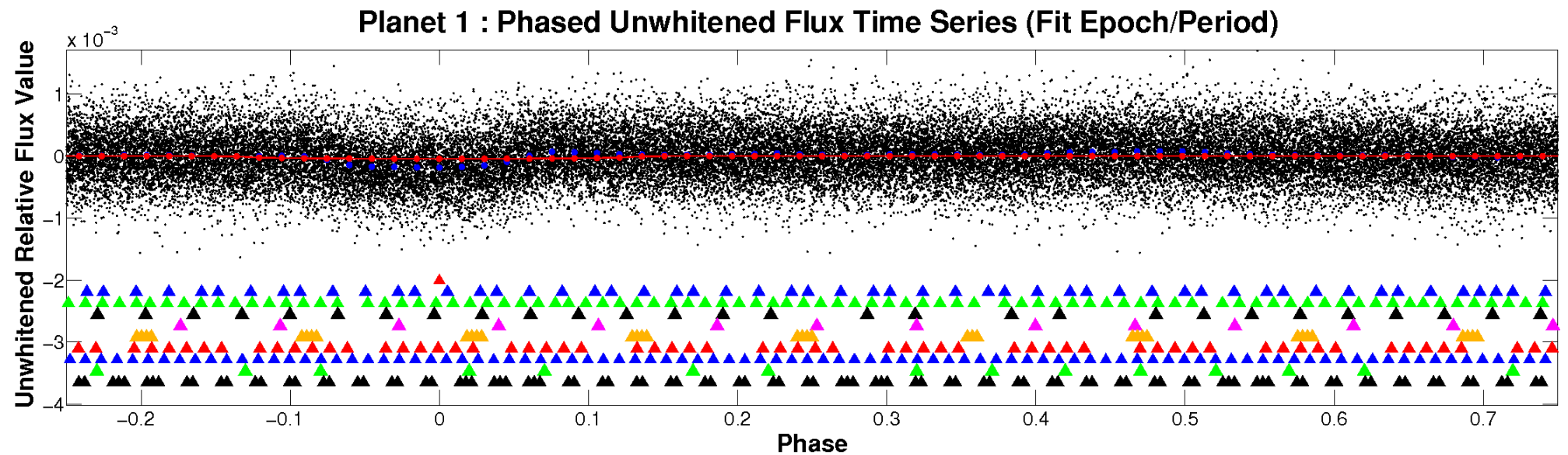


# ALT Odd/Even

TCE 003558803-01



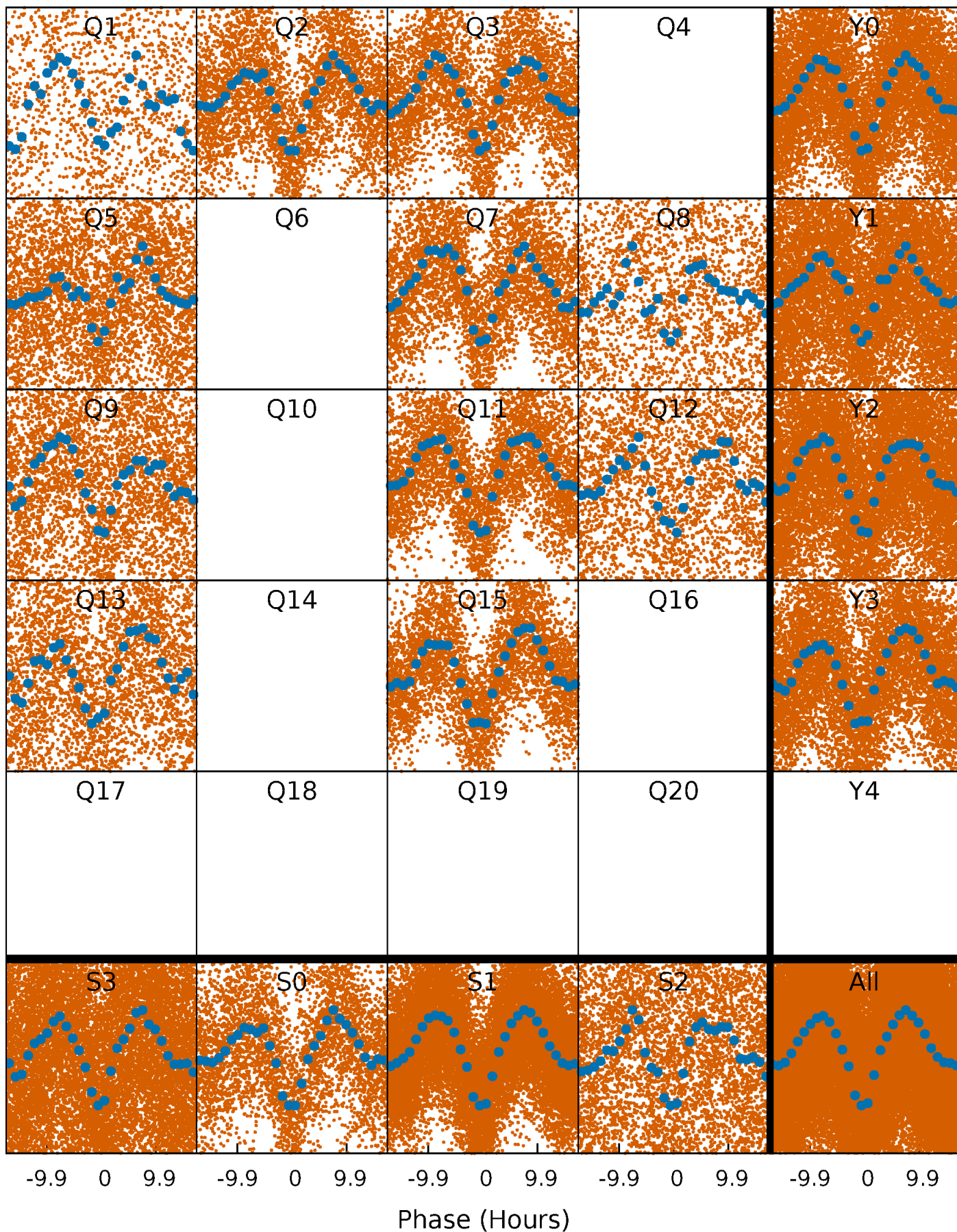
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

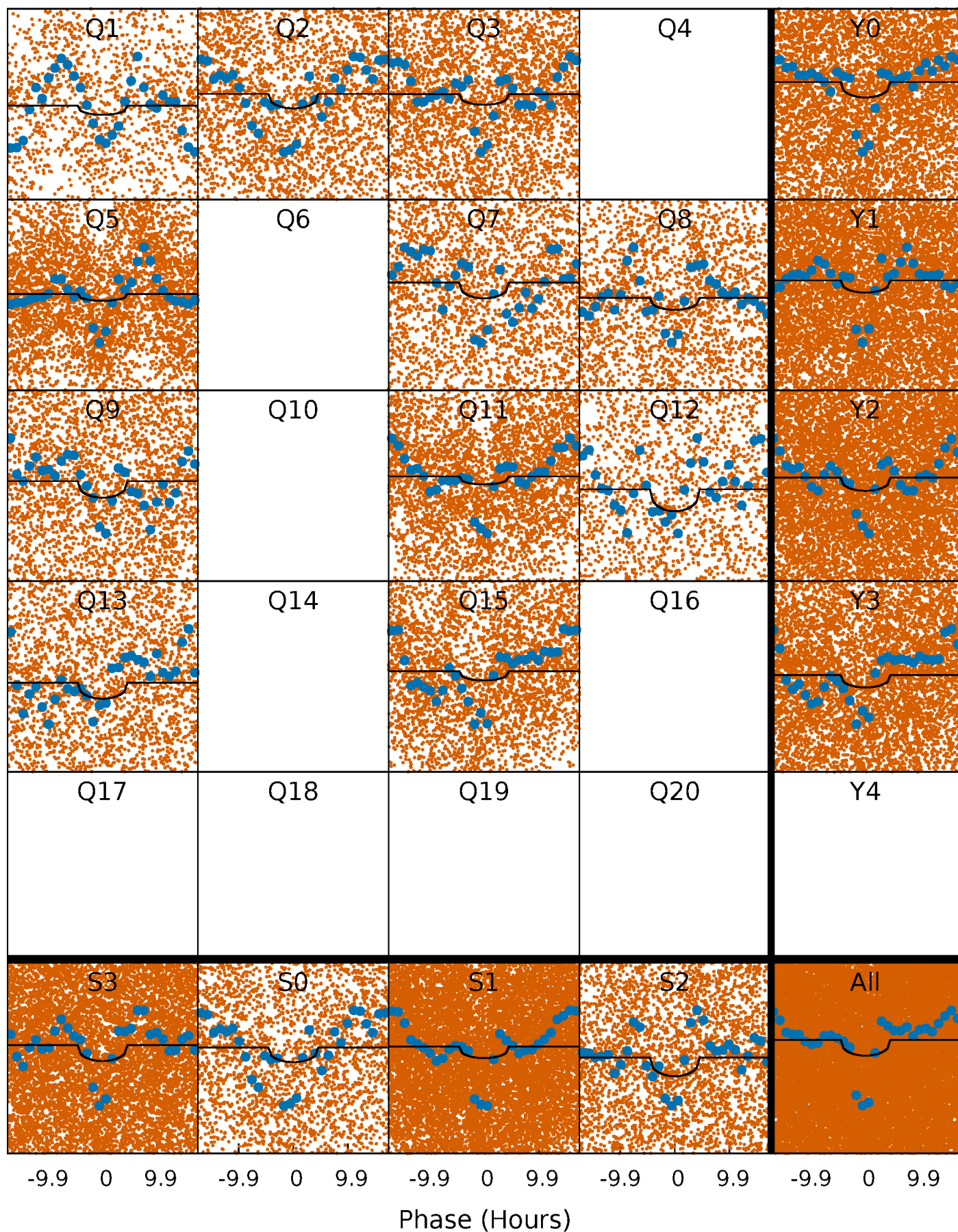
TCE 003558803-01 P= 1.353452 Days  $T_0=131.671808$  (BKJD)





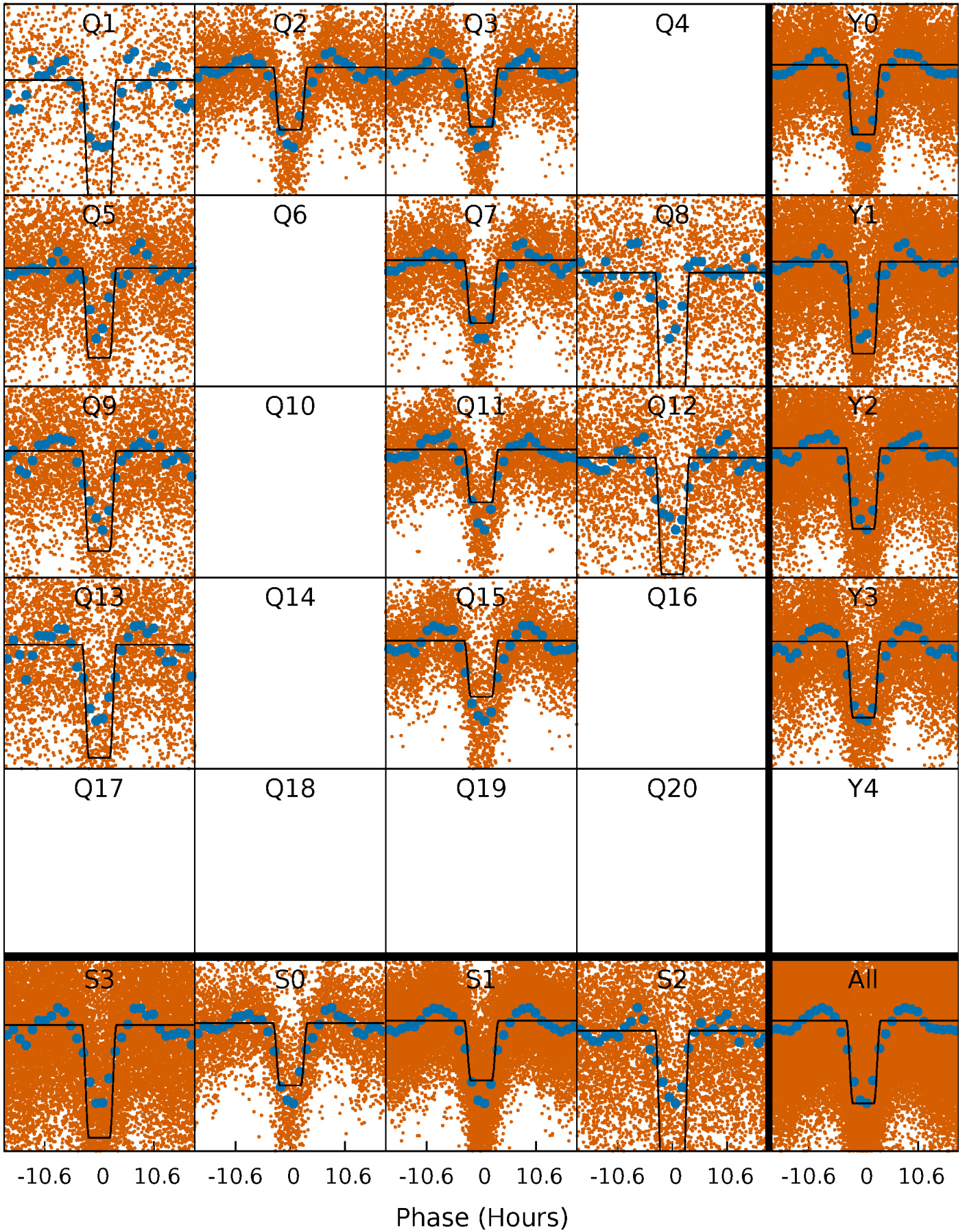
# DV Quarter-Phased Transit Curves

TCE 003558803-01 P= 1.353452 Days  $T_0=131.671808$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

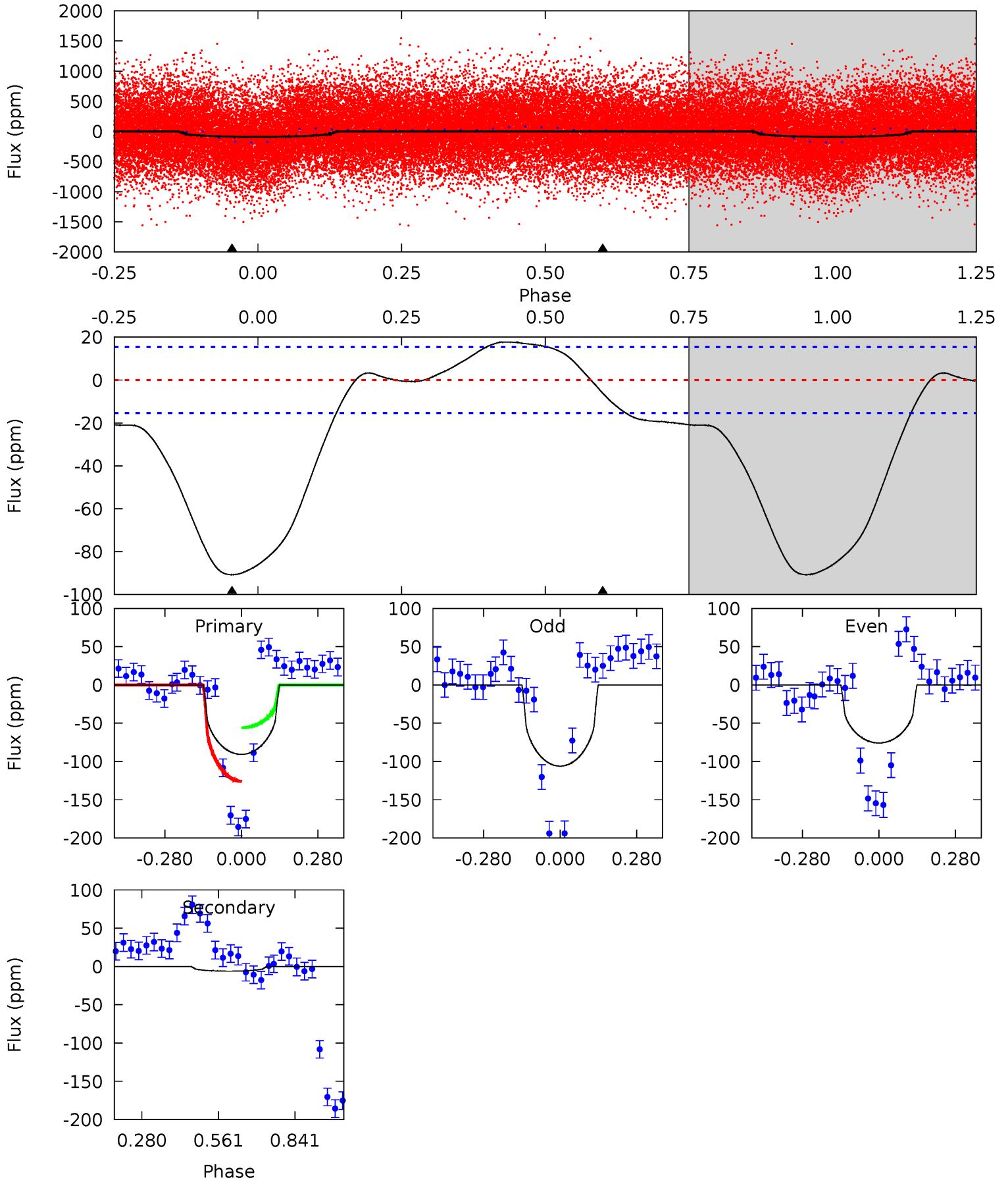
TCE 003558803-01   P= 1.353415 Days    $T_0=131.675857$  (BKJD)



# DV Model-Shift Uniqueness Test

003558803-01, P = 1.353452 Days, E = 130.318356 Days

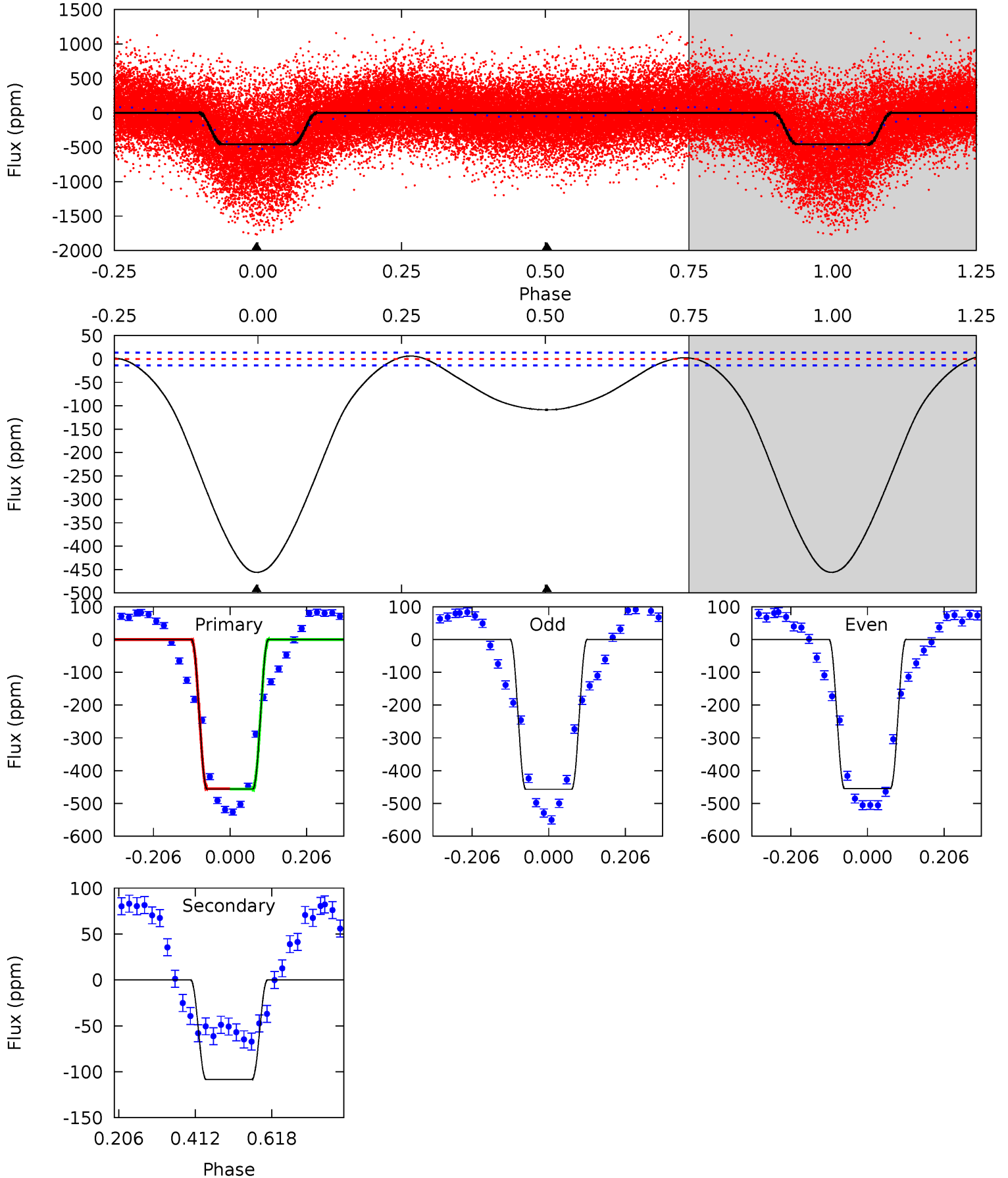
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.6	1.73	0	0	4.34	1.08	0.41	25.6	25.6	1.73	1.73	4.29	0.88	0.16	9.81



# Alt Model-Shift Uniqueness Test

003558803-01, P = 1.353415 Days, E = 130.322442 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
145.8	34.7	0	0	4.41	1.26	2.57	145.8	145.8	34.7	34.7	0.40	1.03	0.01	0.14





### Stellar Parameters For KIC 003558803

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4850^{+95}_{-143}$	$2.865^{+0.225}_{-0.164}$	$0.100^{+0.200}_{-0.300}$	$8.586^{+2.199}_{-3.024}$	$1.969^{+0.734}_{-0.897}$	$0.004^{+0.008}_{-0.002}$
	+2%/-3%	+8%/-6%	+200%/-300%	+26%/-35%	+37%/-46%	+175%/-41%
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 003558803-01 / KOI 6345.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-6 \pm 4$	$5.80^{+3.70}_{-3.32}$	$5038^{+336}_{-418}$	$-3953^{+7598}_{-388}$	$0.079^{+0.366}_{-0.057}$
Alt.	$-109 \pm 3$	$21.09^{+6.01}_{-4.90}$	$5028^{+368}_{-416}$	$-3857^{+480}_{-325}$	$0.124^{+0.072}_{-0.043}$

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



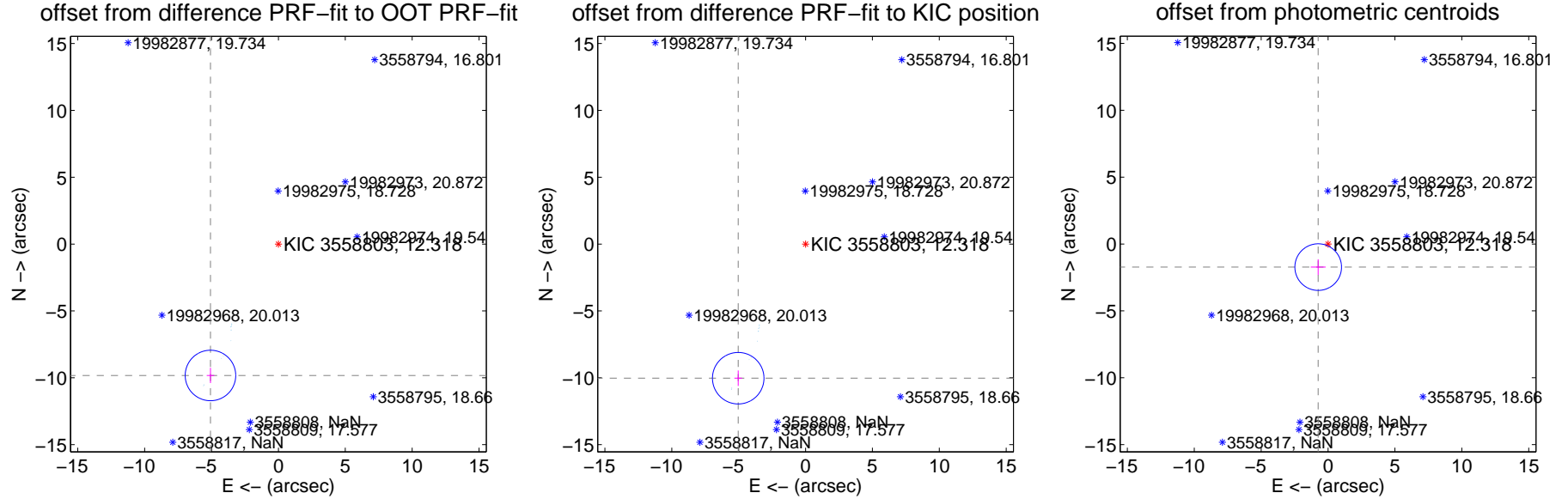
## DV Centroid Data

Supplemental centroid analysis for 003558803-01. Kepler magnitude: 12.32. Transit SNR 5.61

There are 11 quarters with good PRF difference image offsets

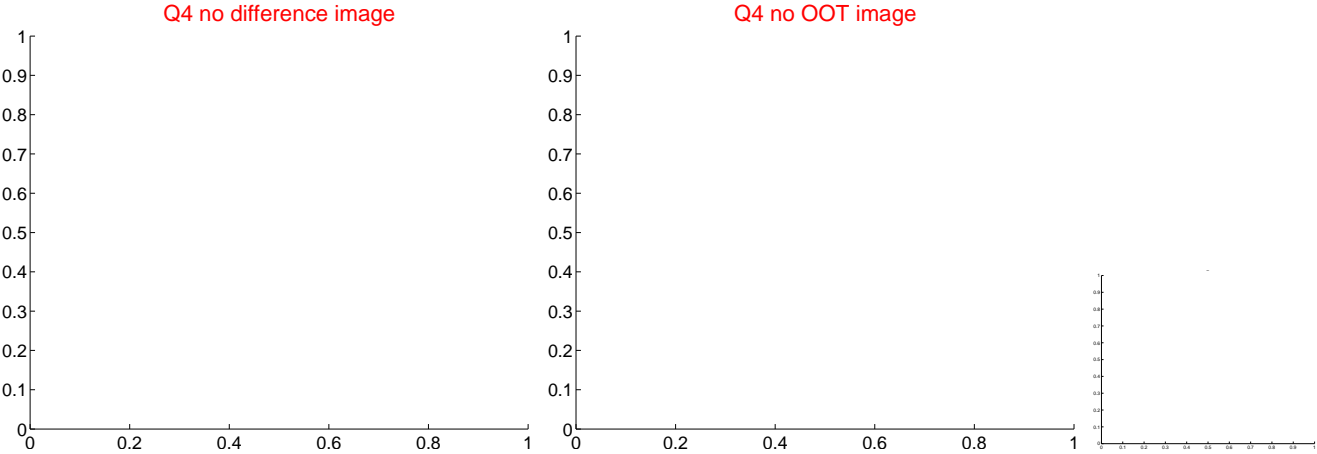
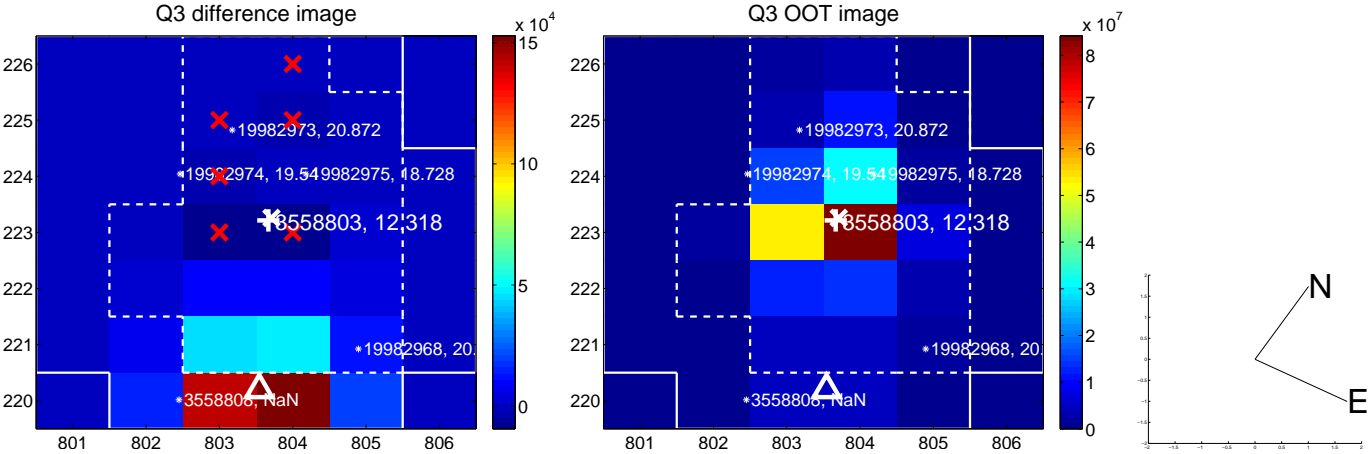
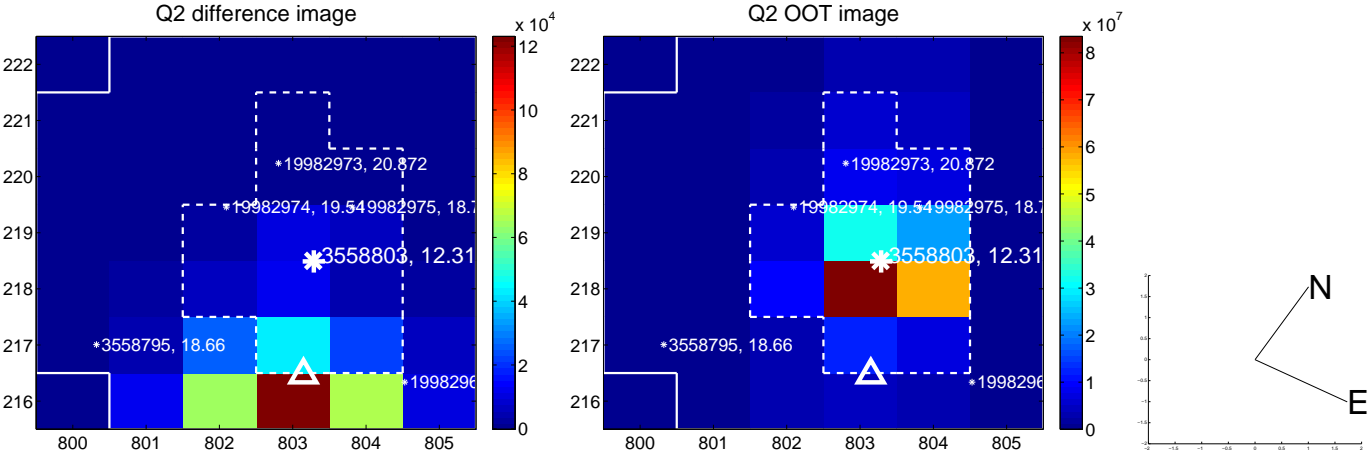
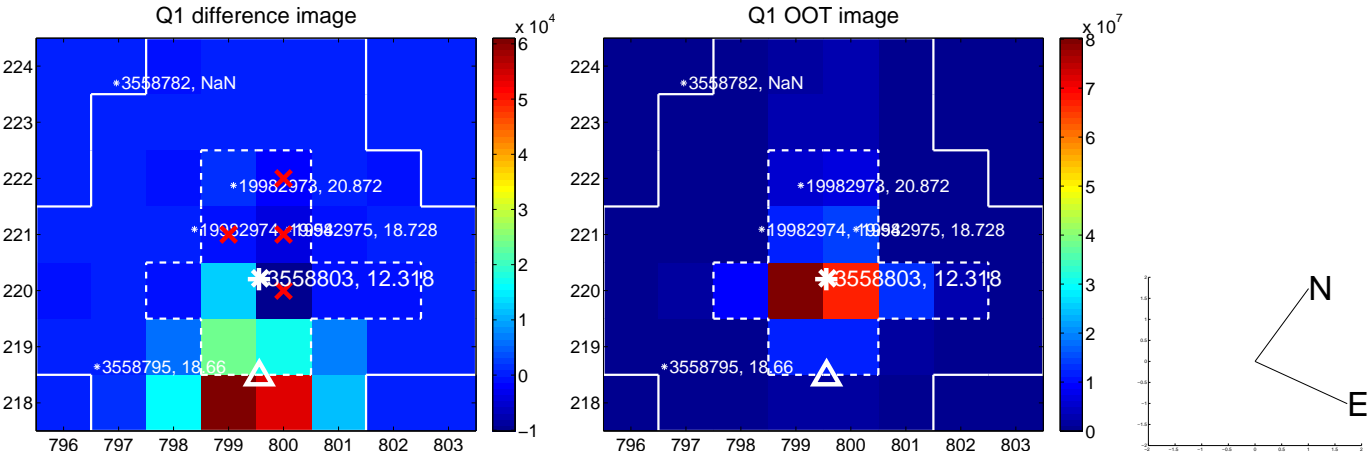
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.062 <math>\pm</math> 0.629</b>	<b>17.58</b>	5.079 $\pm$ 0.279	-9.827 $\pm$ 0.571
PRF-fit source offset from KIC position	<b>11.223 <math>\pm</math> 0.642</b>	<b>17.48</b>	5.033 $\pm$ 0.285	-10.031 $\pm$ 0.581
photometric centroid source offset	<b>1.88 <math>\pm</math> 0.58</b>	<b>3.23</b>	0.74 $\pm$ 0.55	-1.73 $\pm$ 0.59

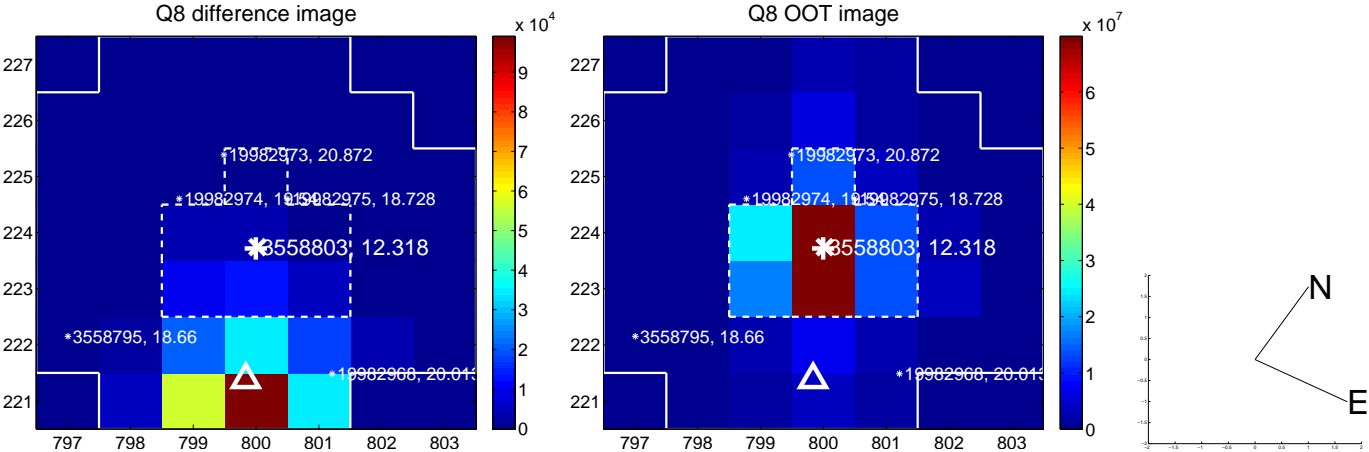
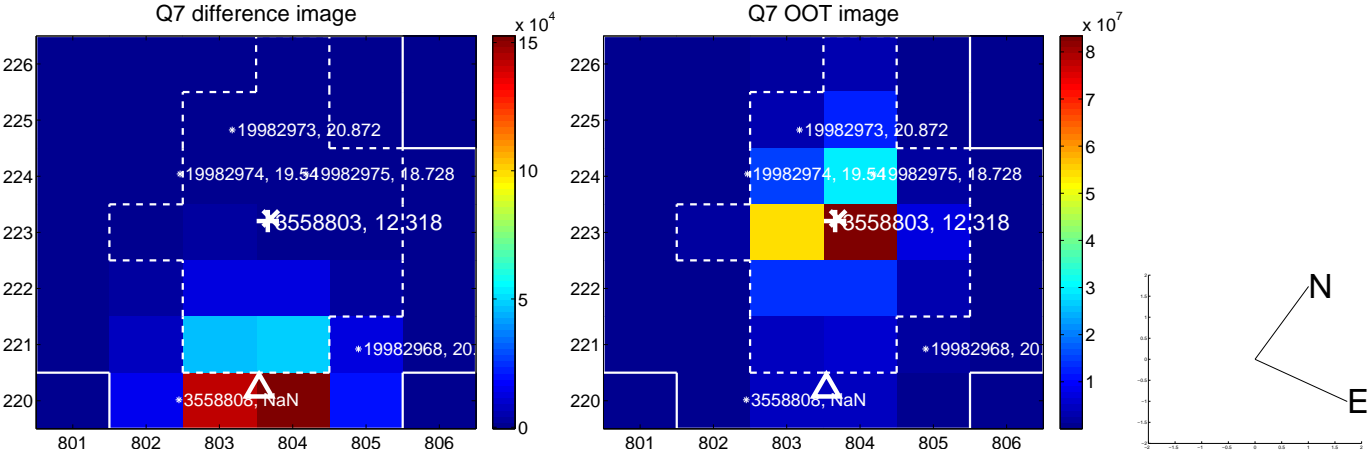
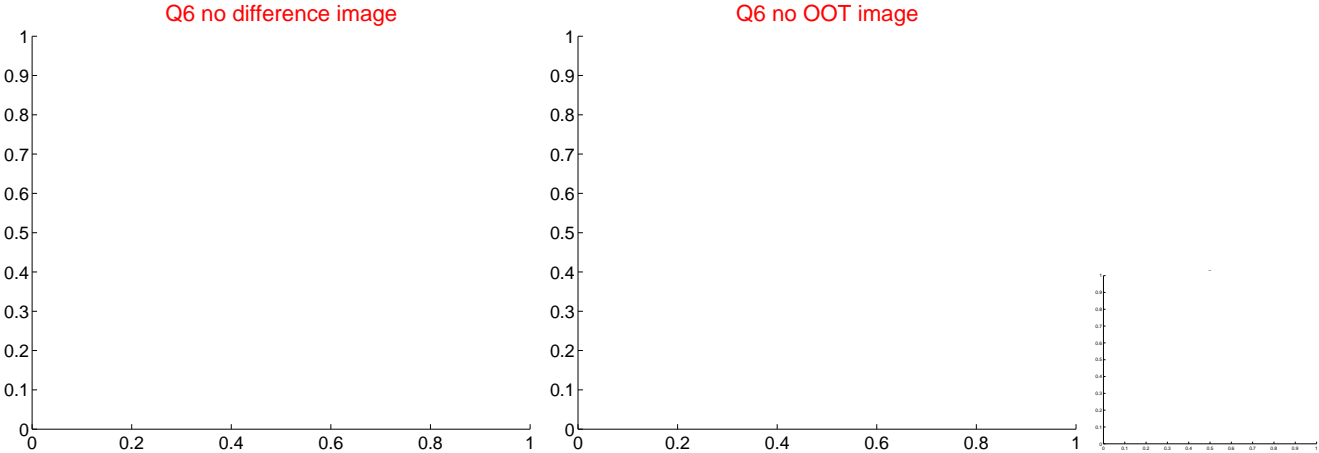
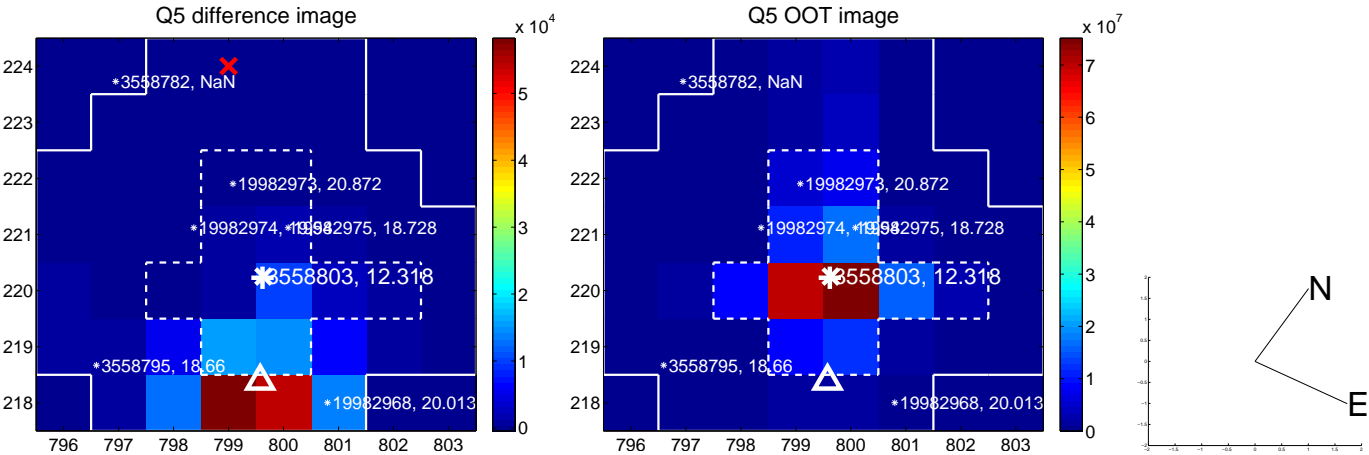


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

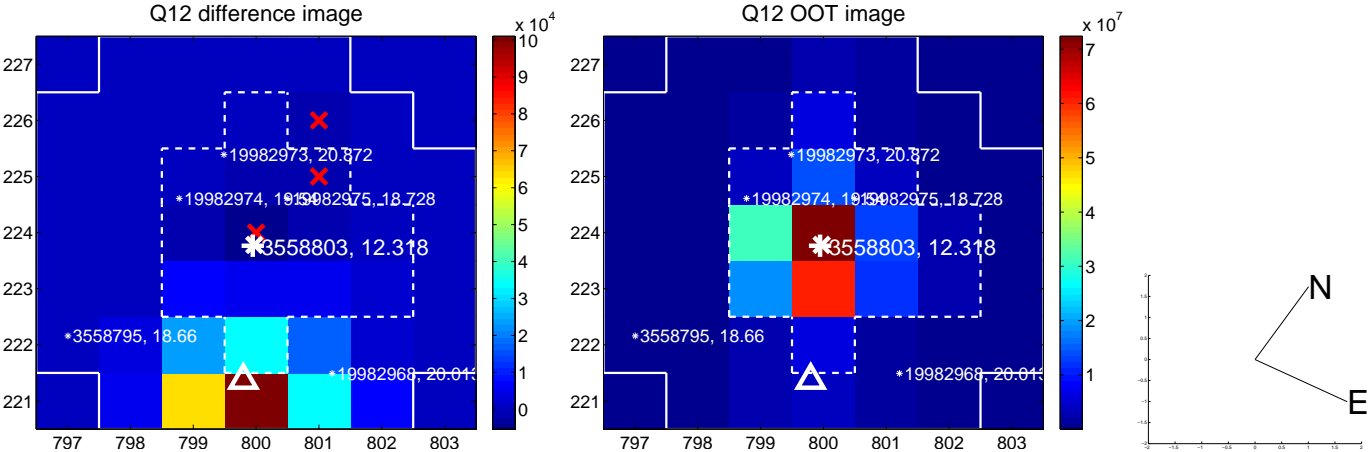
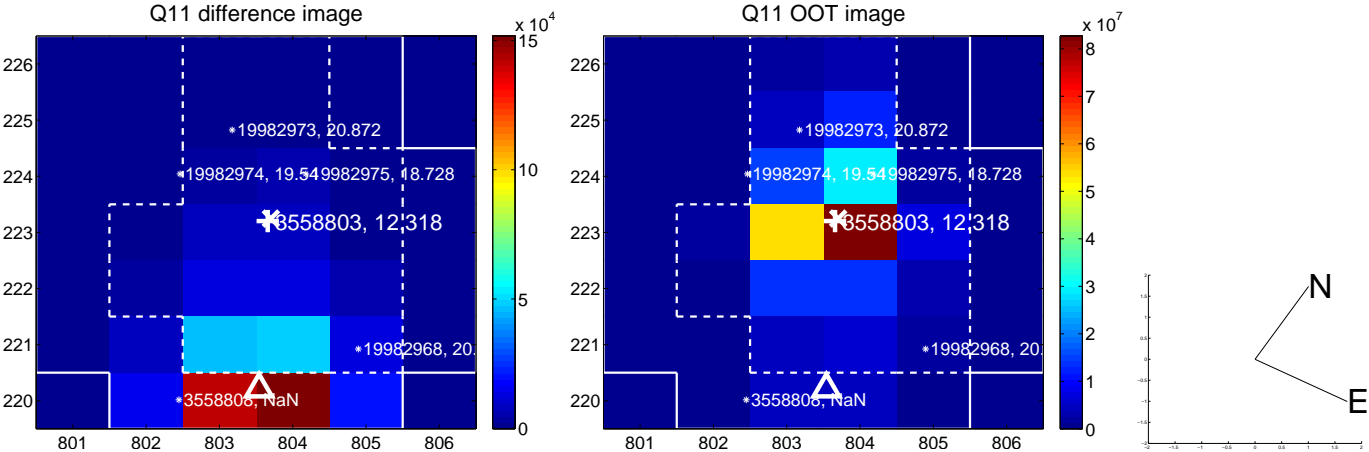
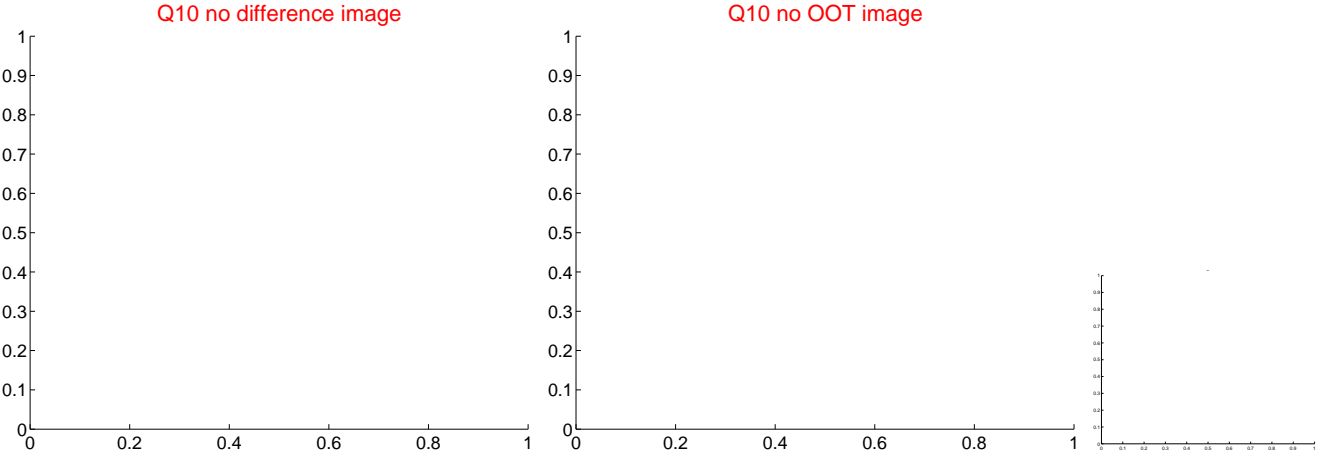
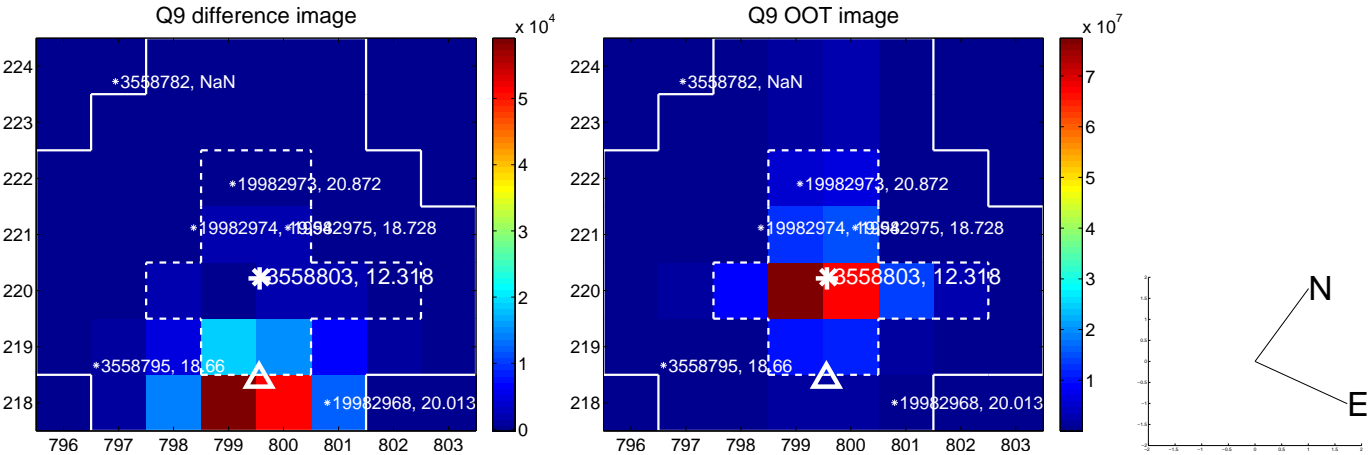
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



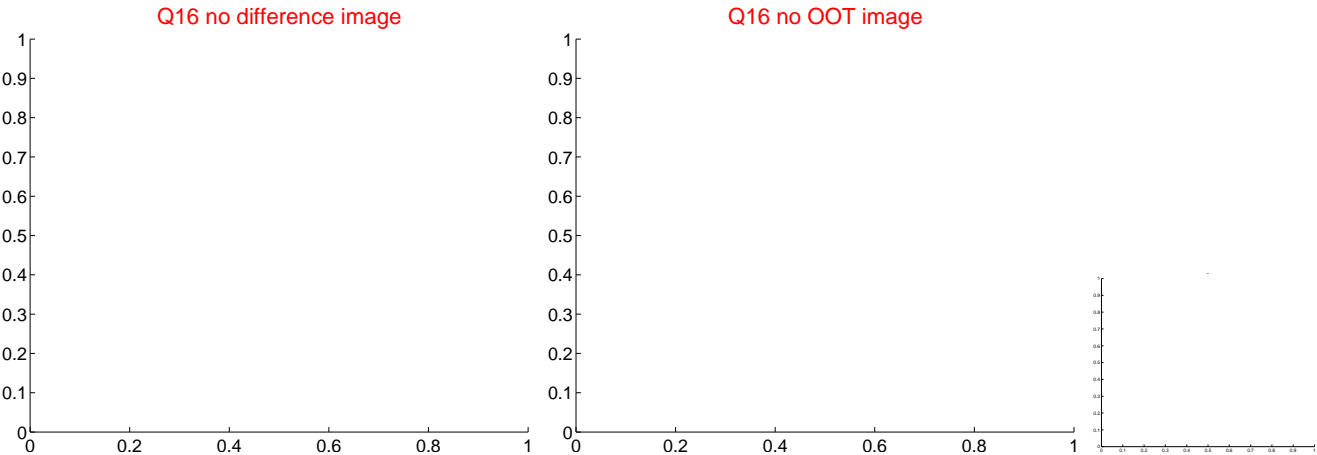
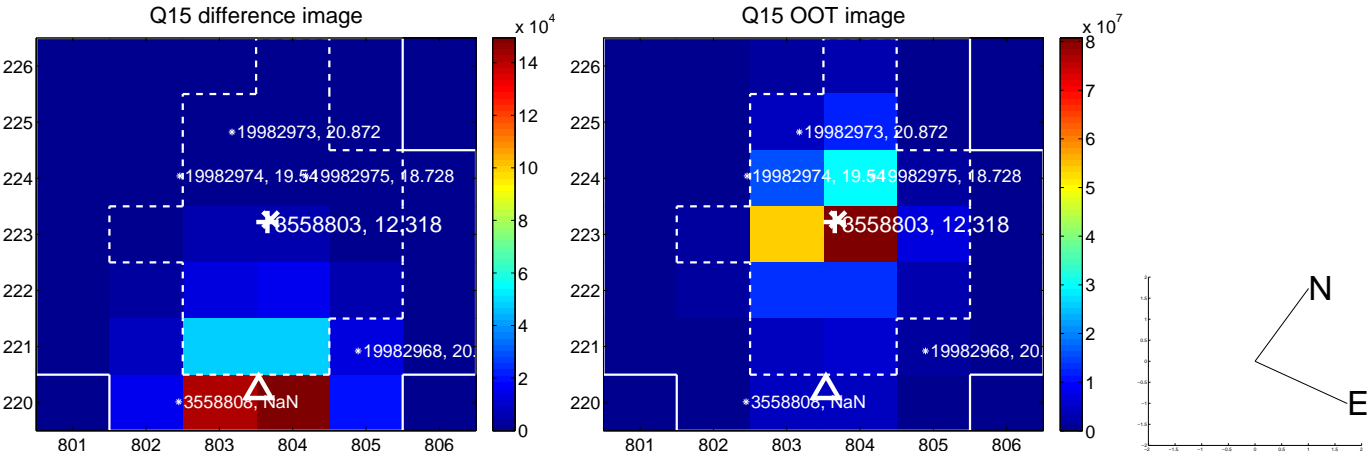
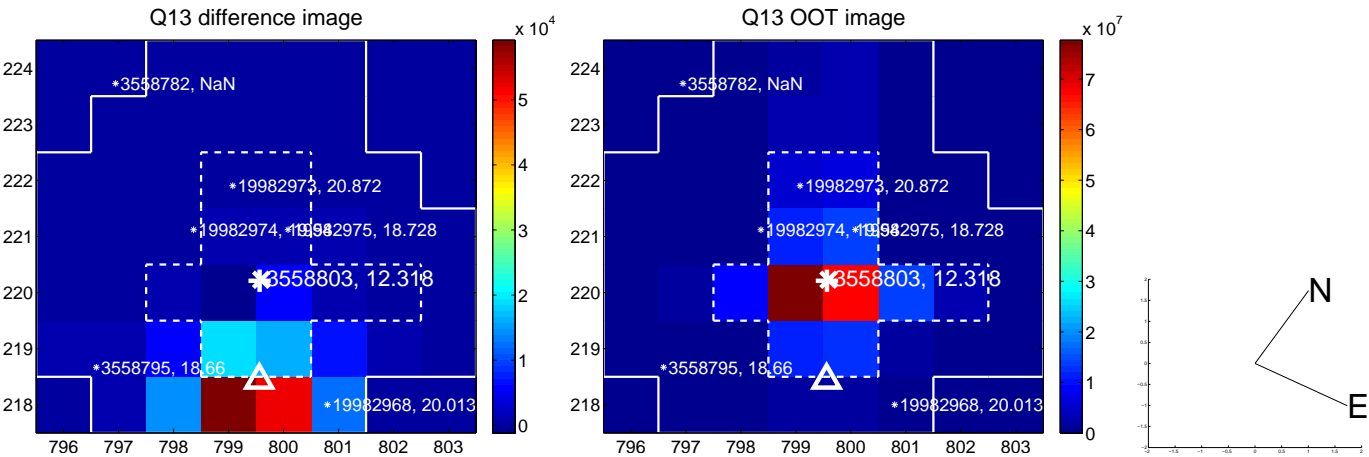
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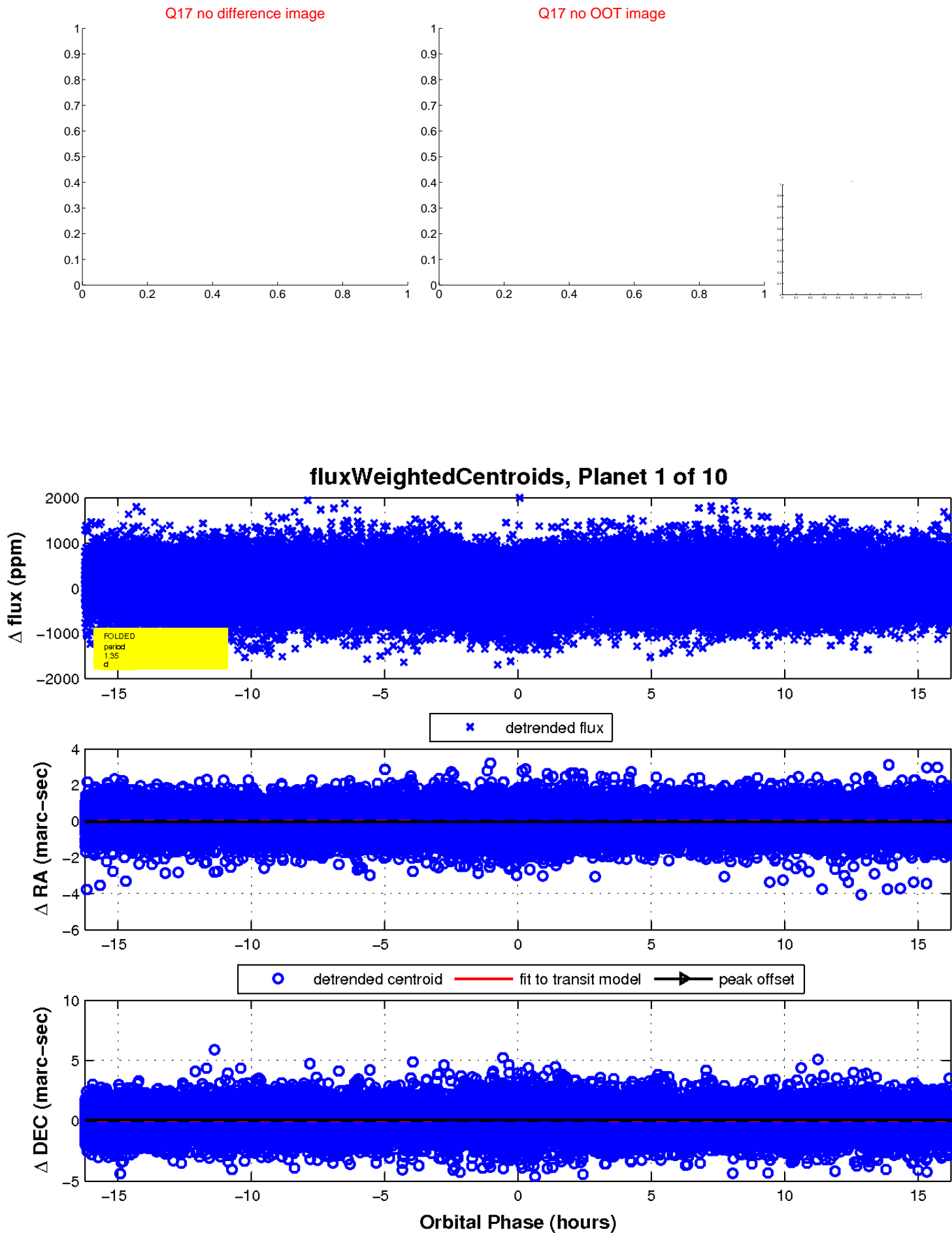


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

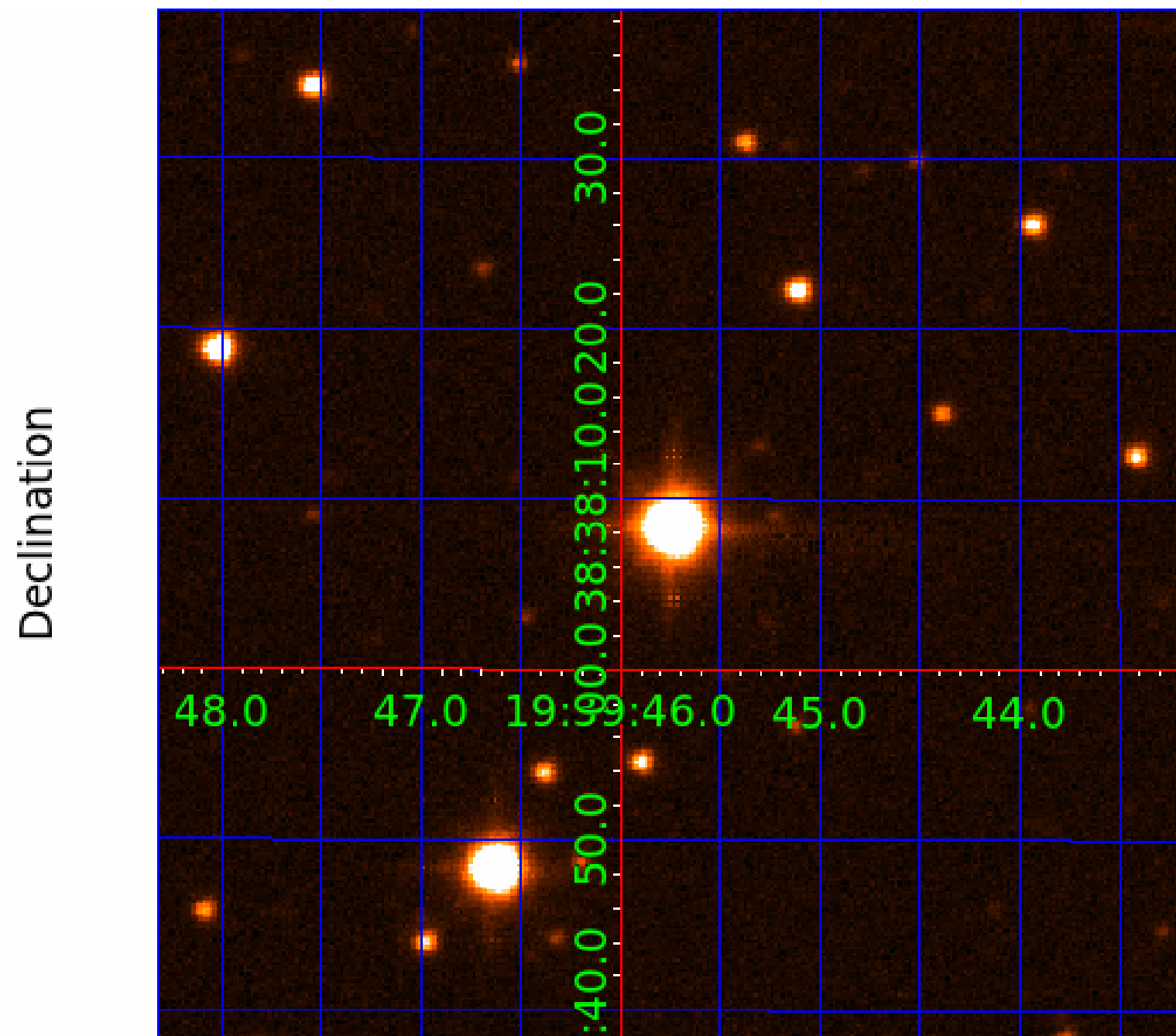




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 003558803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003558803-01	OBS	6345.01	1.353452	131.671808	43.8	8.659	19.0	5.6	8.59	4850	5.50	0.00
003558803-02	OBS	No	26.890557	158.331830	651.3	2.791	14.3	13.0	8.59	4850	25.05	753.22
003558803-03	OBS	No	16.819263	147.638424	502.2	2.454	13.6	12.1	8.59	4850	22.79	1408.14
003558803-04	OBS	No	52.653629	145.420099	841.2	2.829	13.8	13.6	8.59	4850	30.52	307.48
003558803-05	OBS	No	109.340809	139.449797	1048.1	9.446	13.0	14.0	8.59	4850	34.72	116.06
003558803-06	OBS	No	41.807115	153.651917	851.4	5.370	13.0	12.7	8.59	4850	34.21	418.20
003558803-07	OBS	No	23.122790	154.403549	632.1	3.179	13.2	13.0	8.59	4850	42.09	921.16
003558803-08	OBS	No	8.633592	136.565481	442.3	3.706	13.1	13.5	8.59	4850	38.35	3426.10
003558803-09	OBS	No	97.651648	216.153876	1031.9	4.221	12.2	12.0	8.59	4850	27.88	134.94
003558803-10	OBS	No	15.234080	146.589122	378.5	1.500	12.3	-1.0	8.59	4850	16.19	1606.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558803-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003558803-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN—HALO_GHOST
003558803-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003558803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN
003558803-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
003558803-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003558803-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-10	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

**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.

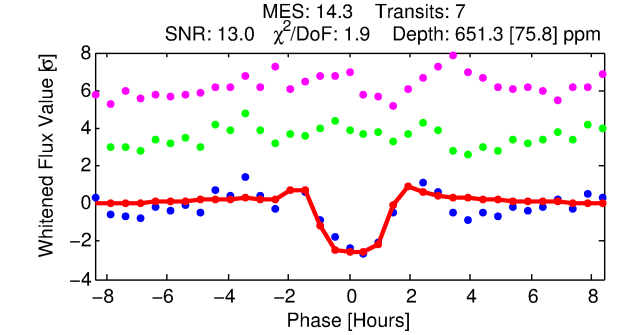
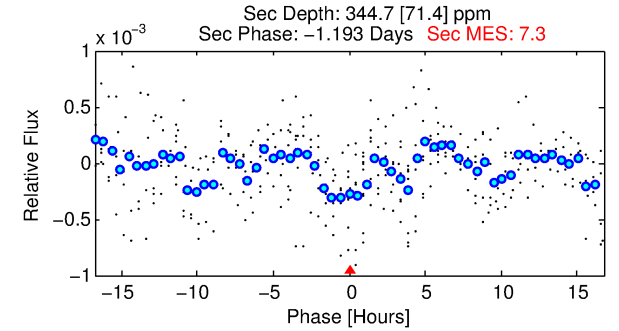
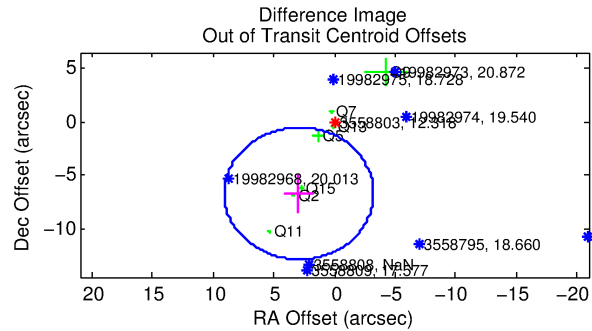
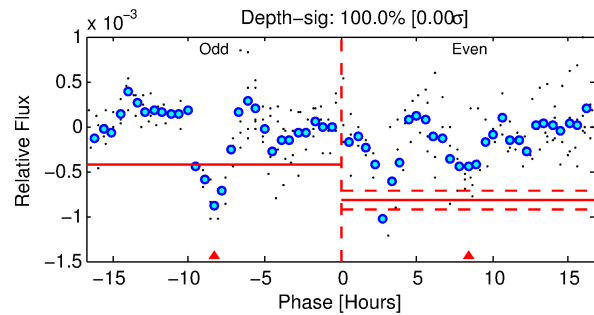
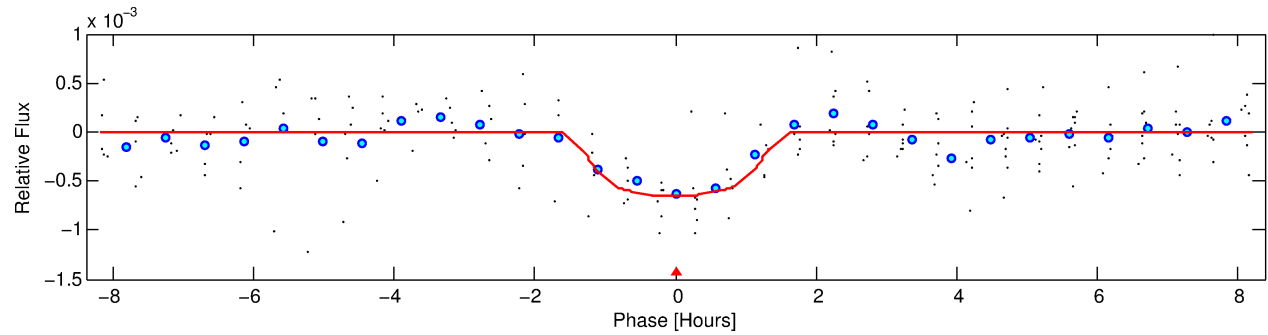
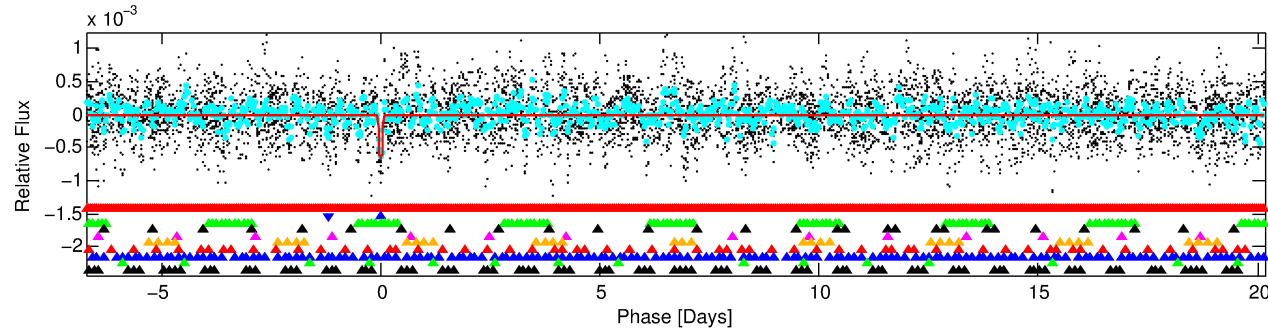
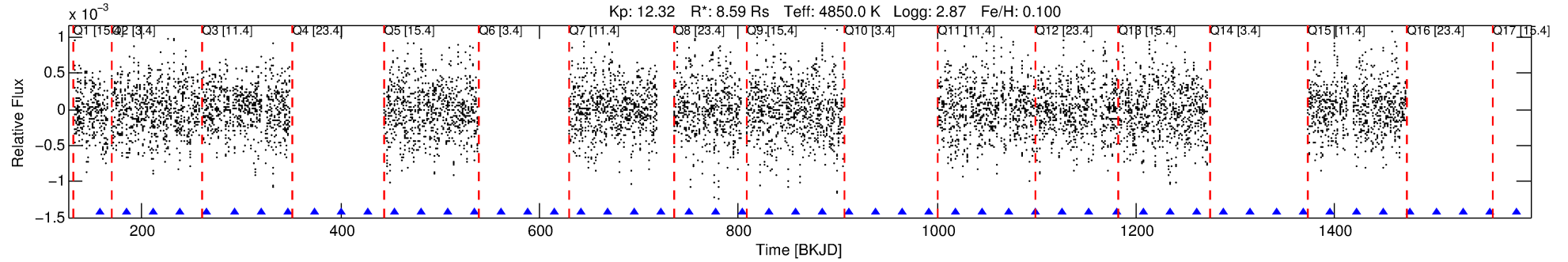
## Ephemeris Match Information For 003558803-02

No Significant Match Found

# DV One-Page Summary

KIC: 3558803 Candidate: 2 of 10 Period: 26.891 d  
KOI: K06345 Corr: No Ephemeris Match

Kp: 12.32 R\*: 8.59 Rs Teff: 4850.0 K Logg: 2.87 Fe/H: 0.100



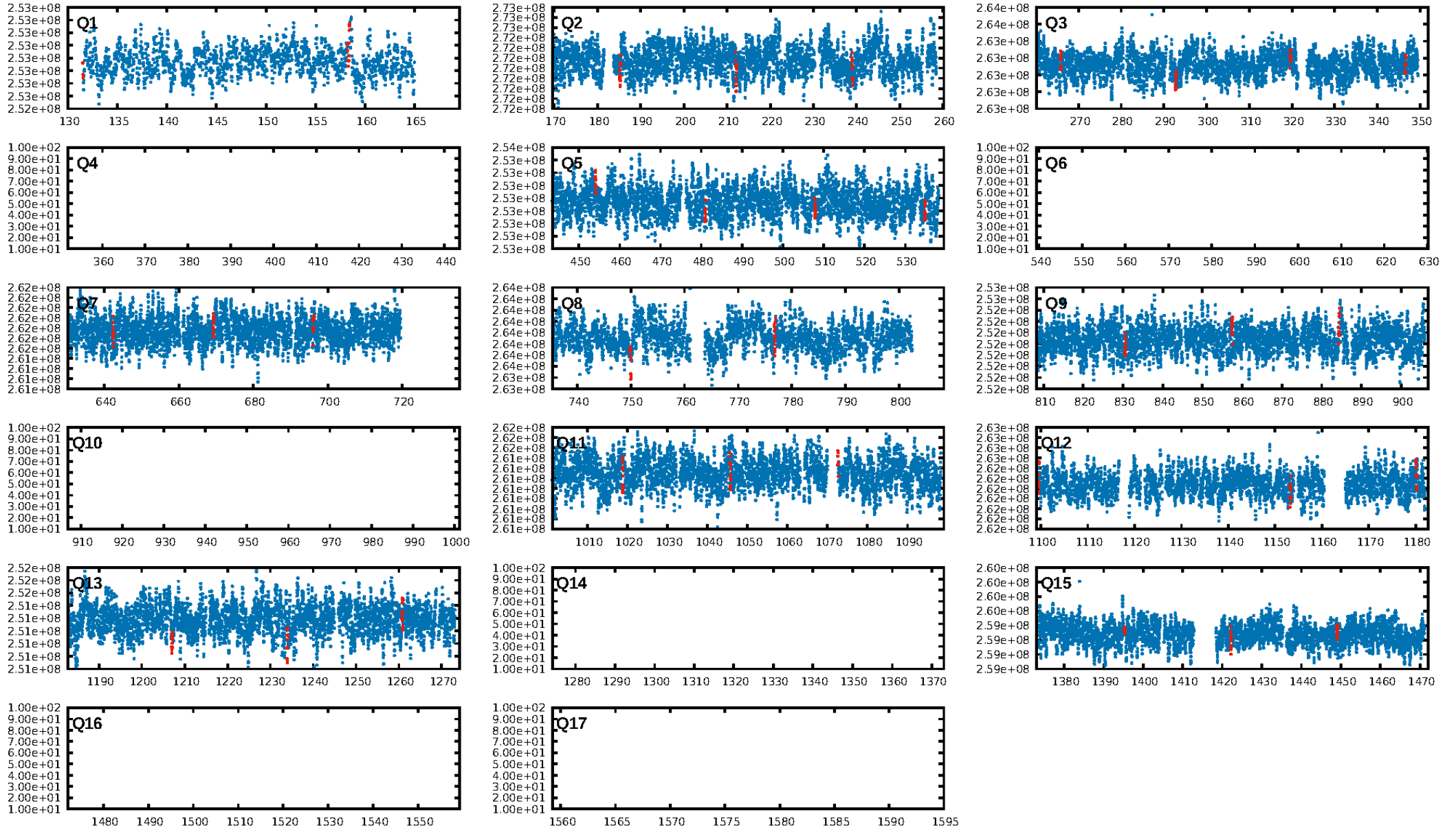
## DV Fit Results:

Period = 26.89056 [0.00018] d  
Epoch = 158.3318 [0.0060] BKJD  
Rp/R\* = 0.0267 [0.0368]  
a/R\* = 45.12 [219.61]  
b = 0.82 [1.96]  
Seff = 753.22 [326.88]  
Teq = 1336 [145] K  
Re = 25.05 [35.58] Re  
a = 0.2203 [0.0642] AU  
Ag = 14.67 [40.94] [0.33σ]  
Teff = 4042 [2791] K [0.97σ]

## DV Diagnostic Results:

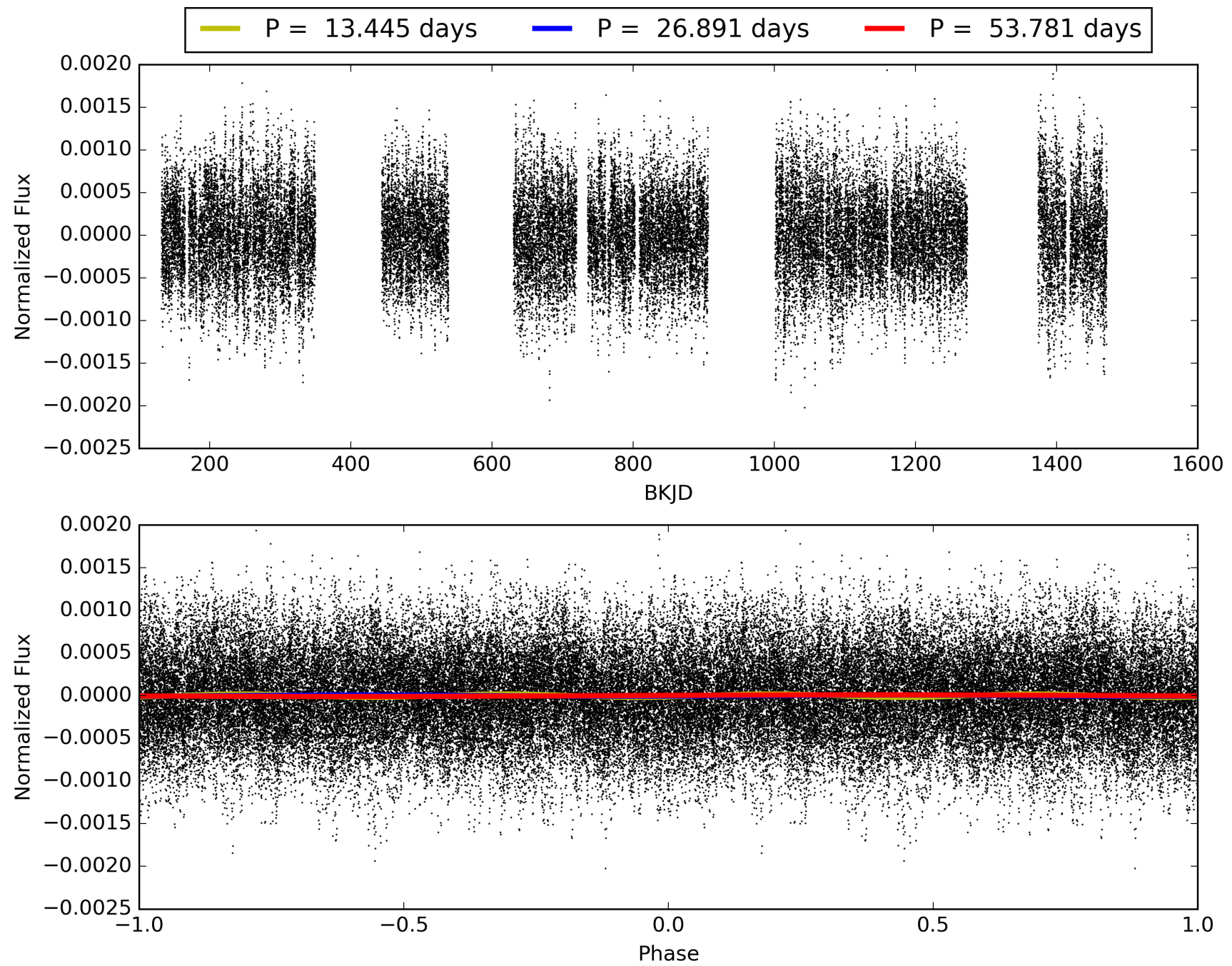
ShortPeriod-sig: 100.0% [21.37σ]  
LongPeriod-sig: 100.0% [59.15σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 84.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: -0.06397  
Centroid-sig: 4.5%  
Centroid-so: 0.501 arcsec [1.77σ]  
OotOffset-rm: 7.307 arcsec [3.56σ]  
KicOffset-rm: 7.348 arcsec [3.36σ]  
OotOffset-st: 1/3/0/3 [7]  
KicOffset-st: 1/3/0/3 [7]  
DiffImageQuality-fgm: 0.43 [3/7]  
DiffImageOverlap-fno: 0.45 [5/11]

# TCE 003558803-02, PDC Light Curves



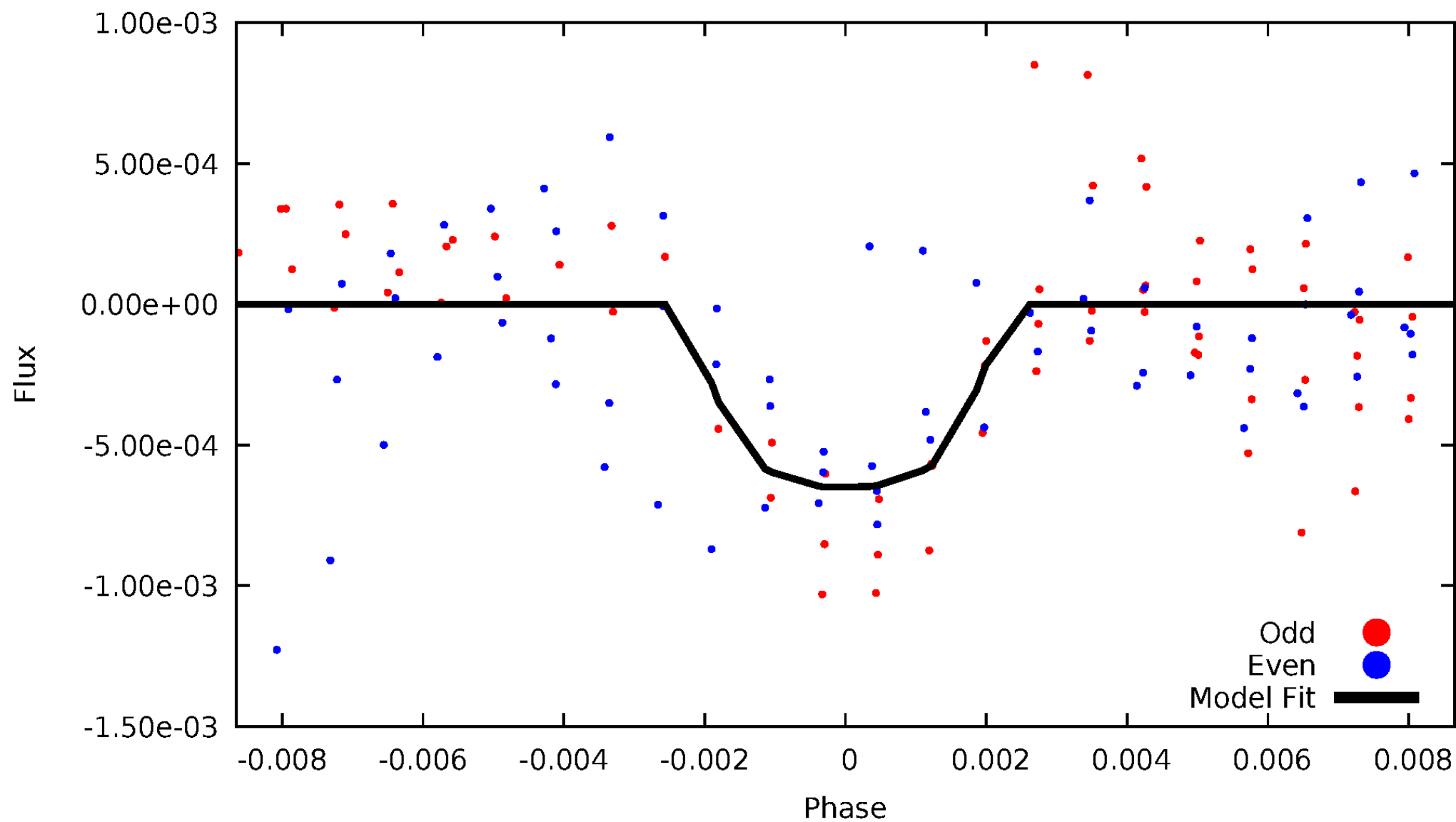


TCE 003558803-02



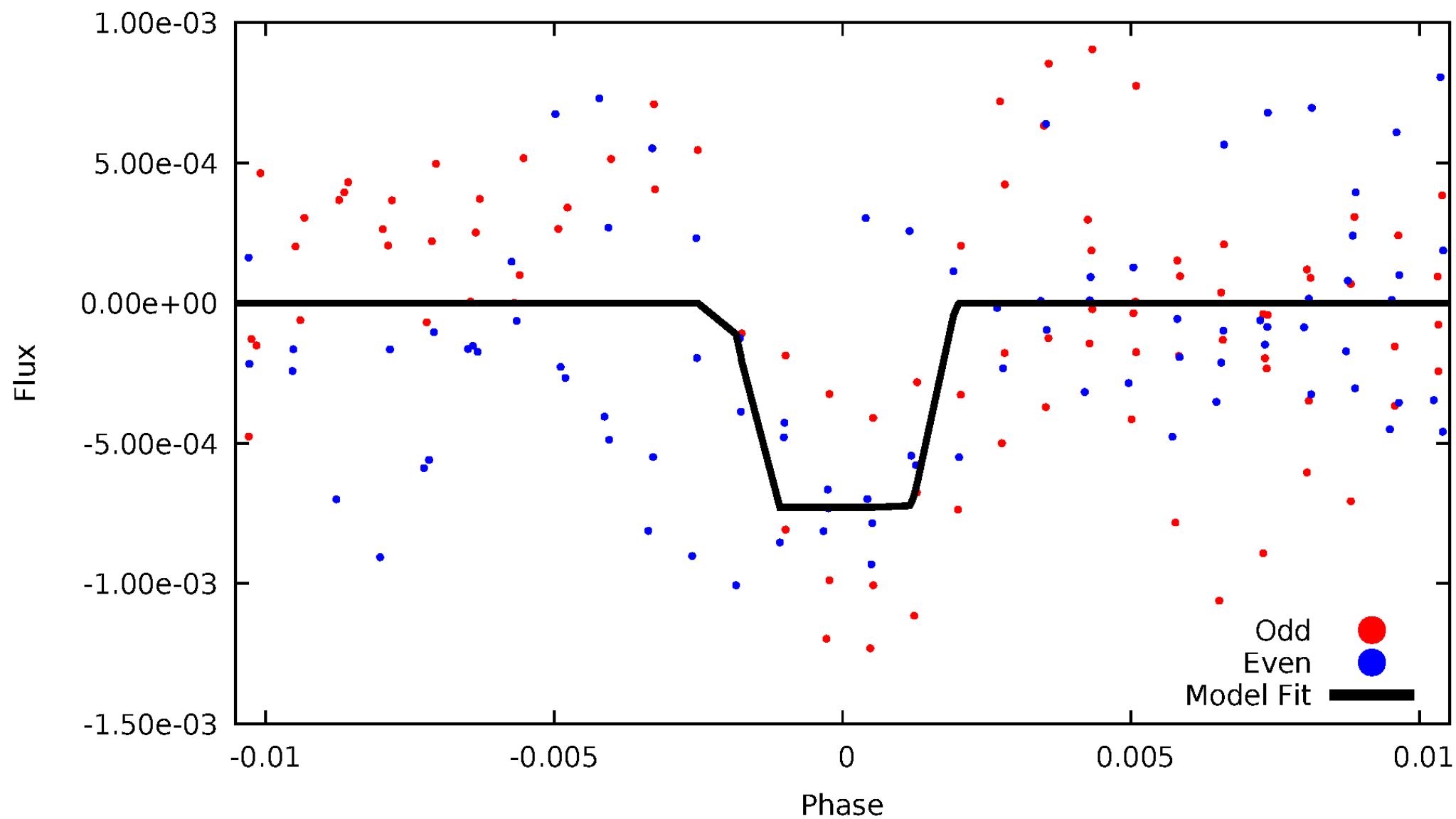
# DV Odd/Even

TCE 003558803-02



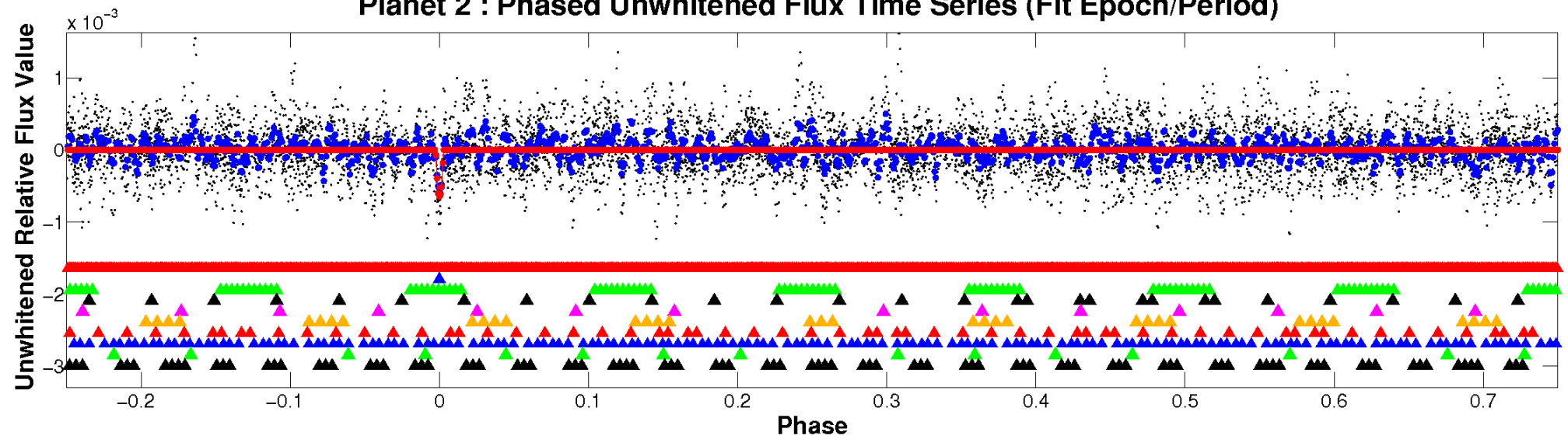
# ALT Odd/Even

TCE 003558803-02

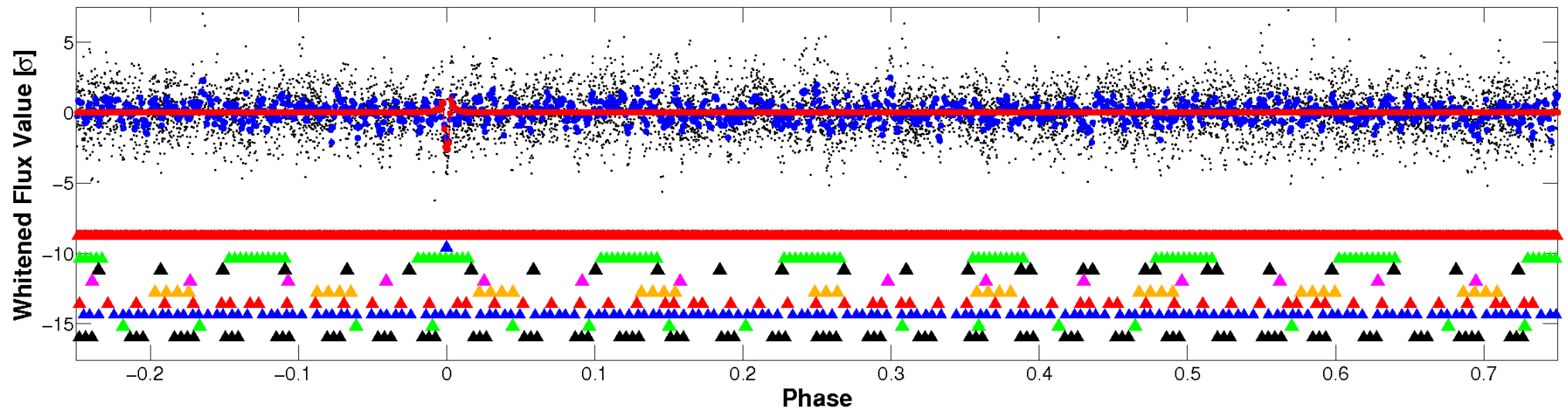


# Non-Whitened Vs. Whitened Light Curve

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



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



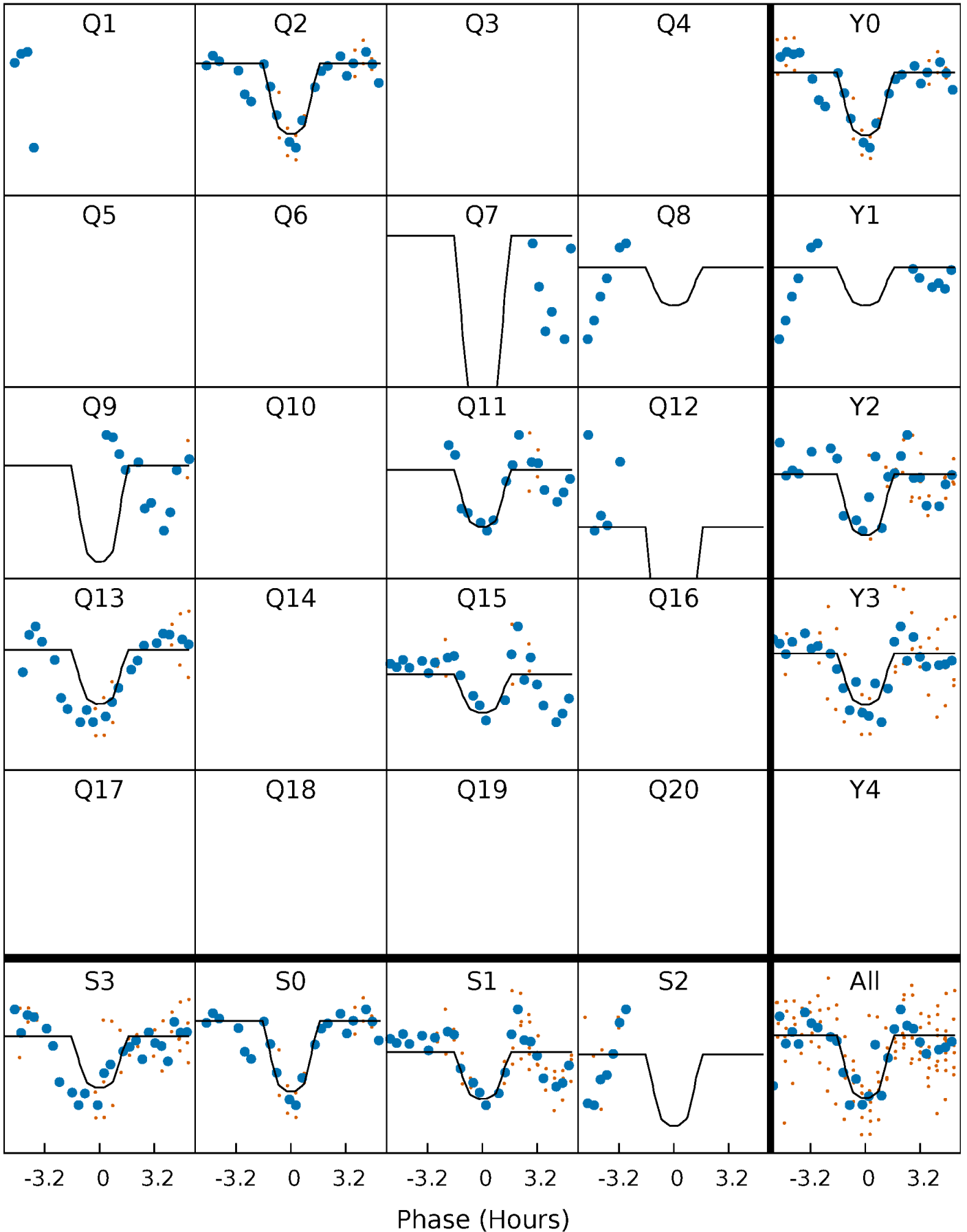
# PDC Quarter-Phased Transit Curves

TCE 003558803-02 P= 26.890557 Days  $T_0=158.331830$  (BKJD)



# DV Quarter-Phased Transit Curves

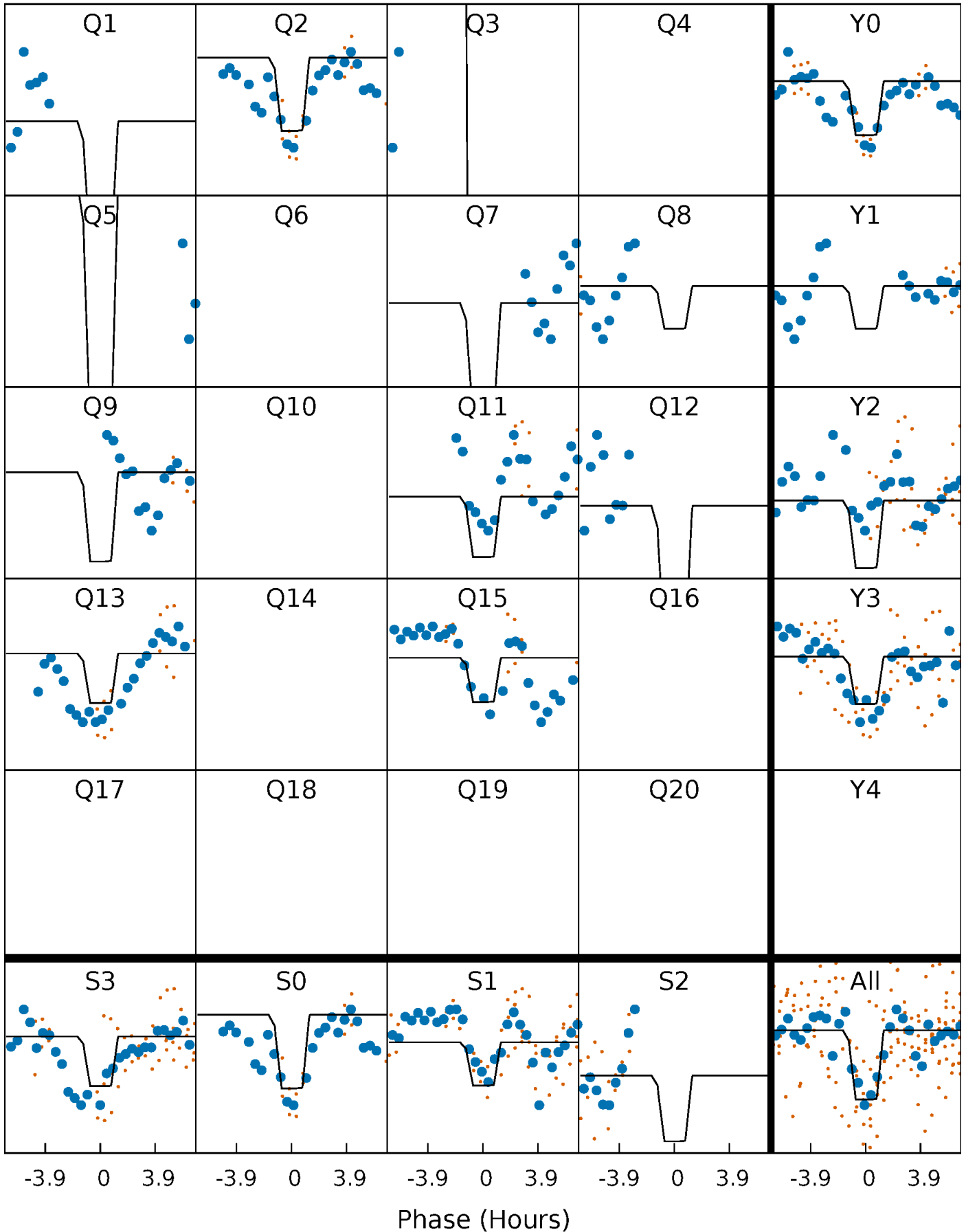
TCE 003558803-02 P= 26.890557 Days  $T_0=158.331830$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

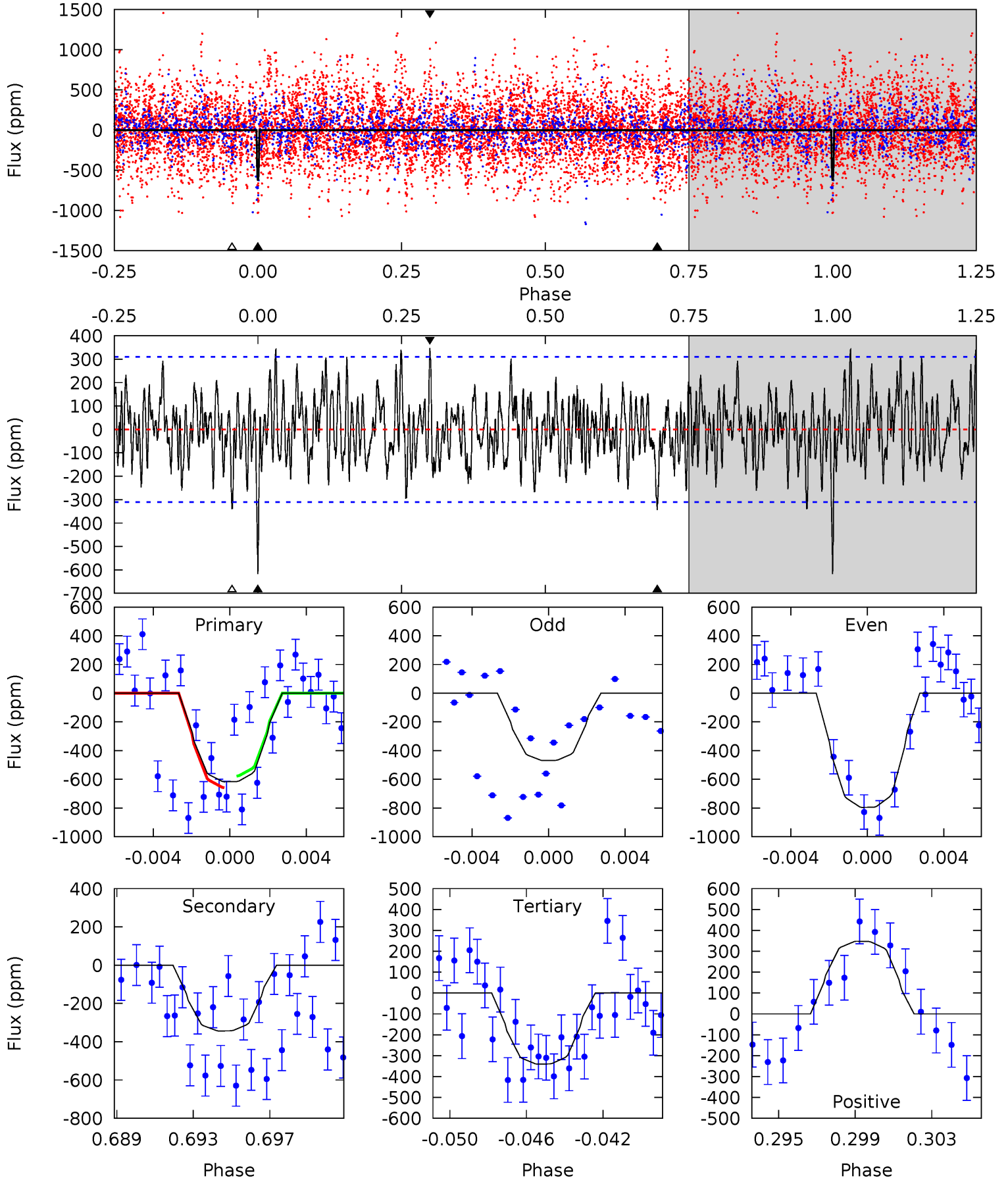
TCE 003558803-02 P= 26.890569 Days  $T_0=158.329953$  (BKJD)



# DV Model-Shift Uniqueness Test

003558803-02, P = 26.890557 Days, E = 131.441273 Days

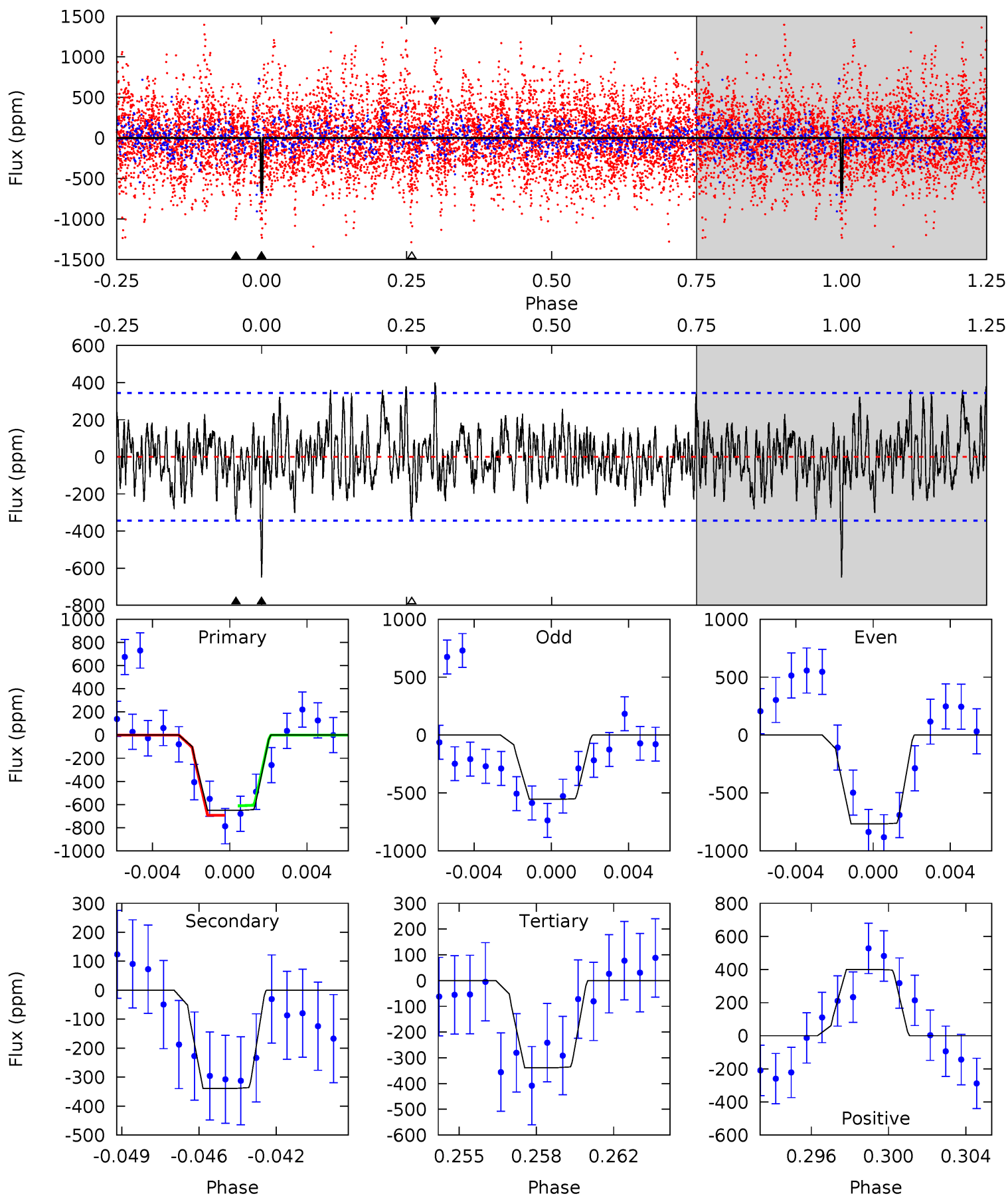
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	5.77	5.72	5.84	5.21	2.89	1.91	4.65	4.53	0.06	-0.06	2.74	0.91	0.36	0.68



# Alt Model-Shift Uniqueness Test

003558803-02, P = 26.890569 Days, E = 131.439384 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
9.86	5.14	5.13	6.07	5.21	2.89	1.76	4.73	3.79	0.01	-0.93	1.62	0.88	0.38	0.63



### Stellar Parameters For KIC 003558803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4850^{+95}_{-143}$	$2.865^{+0.225}_{-0.164}$	$0.100^{+0.200}_{-0.300}$	$8.586^{+2.199}_{-3.024}$	$1.969^{+0.734}_{-0.897}$	$0.004^{+0.008}_{-0.002}$
	+2%/-3%	+8%/-6%	+200%/-300%	+26%/-35%	+37%/-46%	+175%/-41%
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 003558803-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-344 \pm 60$	$34.82^{+31.27}_{-22.02}$	$1862^{+134}_{-160}$	$3673^{+1767}_{-662}$	$7.462^{+47.112}_{-5.295}$
Alt.	$-339 \pm 66$	$34.96^{+30.17}_{-22.66}$	$1851^{+137}_{-150}$	$3663^{+1880}_{-651}$	$7.311^{+50.939}_{-5.177}$

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

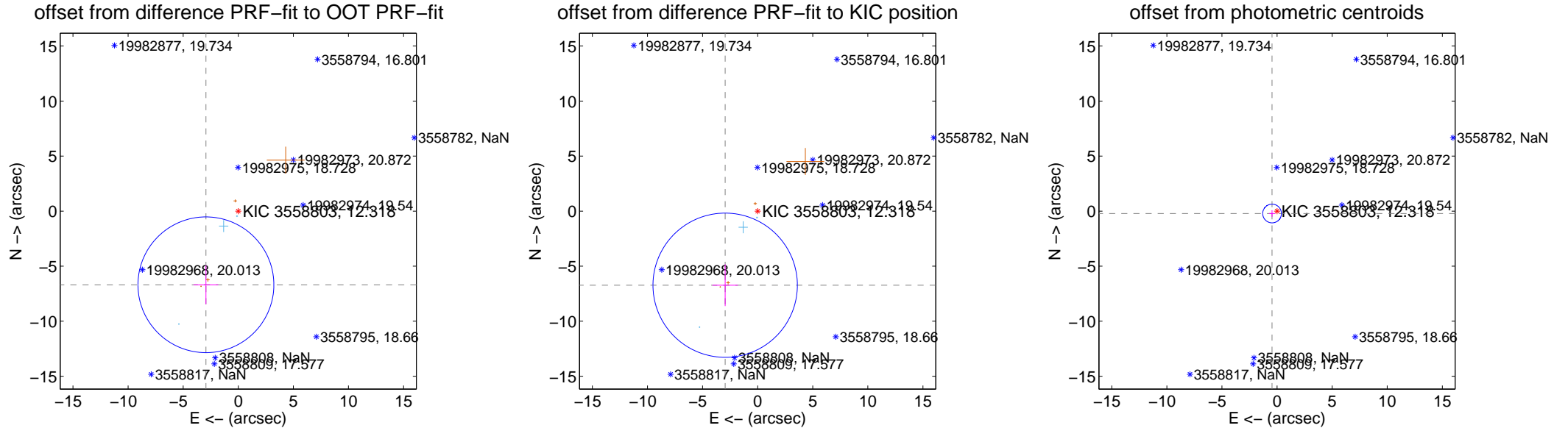
## DV Centroid Data

Supplemental centroid analysis for 003558803-02. Kepler magnitude: 12.32. Transit SNR 12.95

There are 3 quarters with good PRF difference image offsets

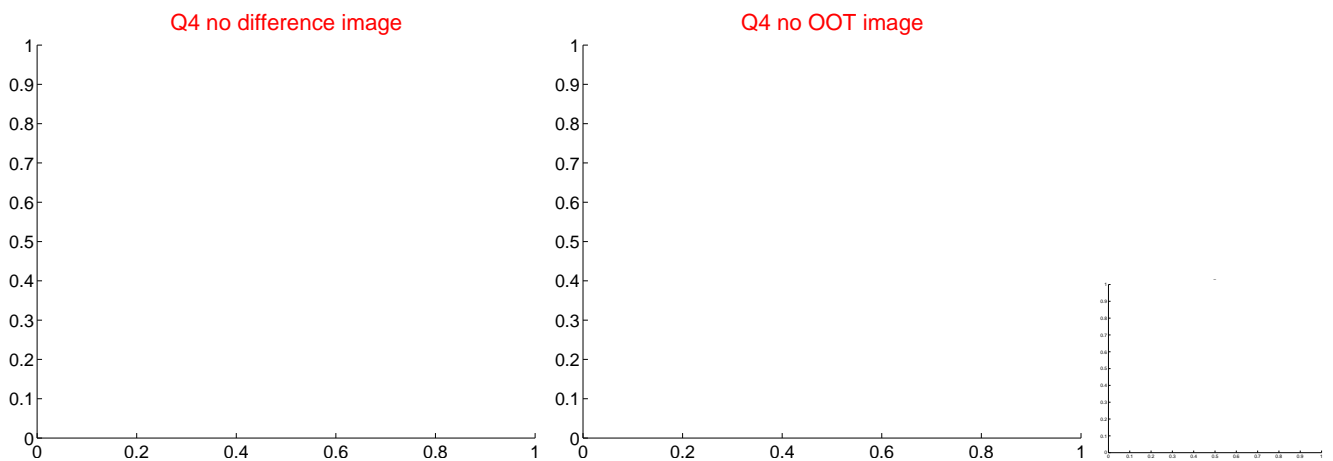
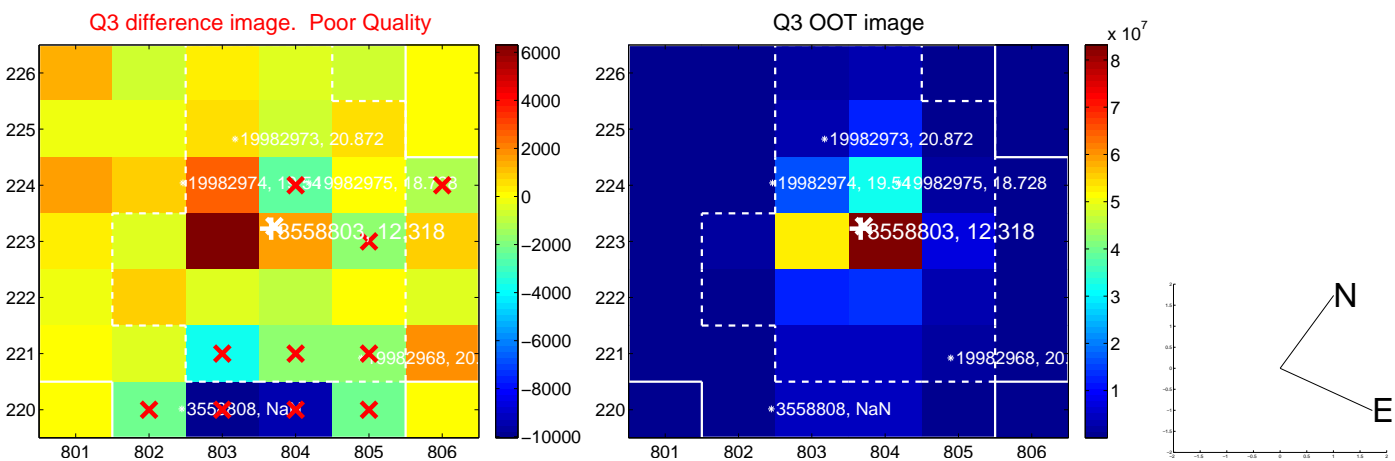
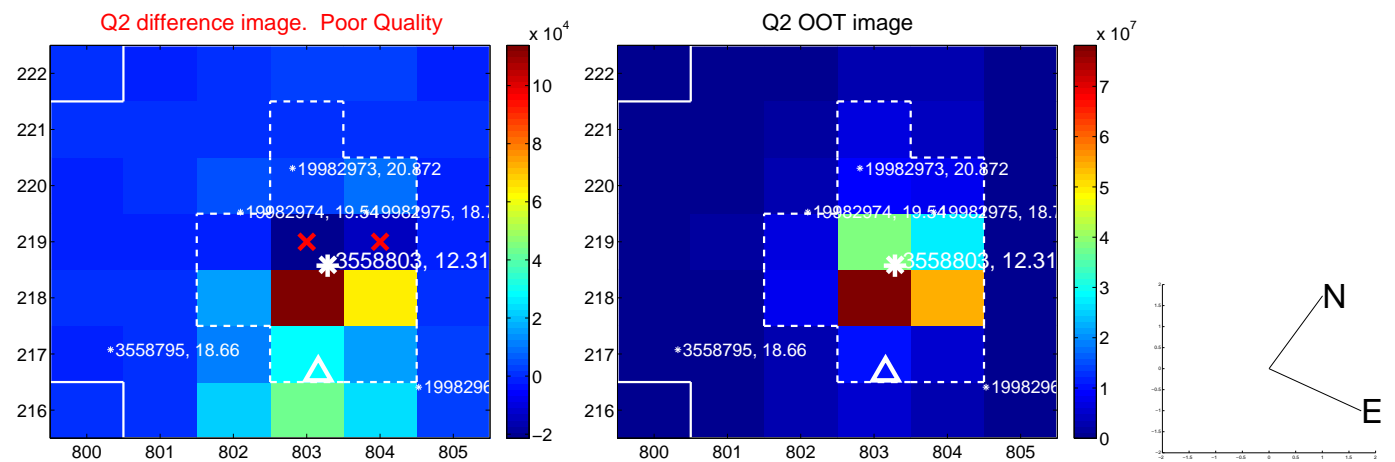
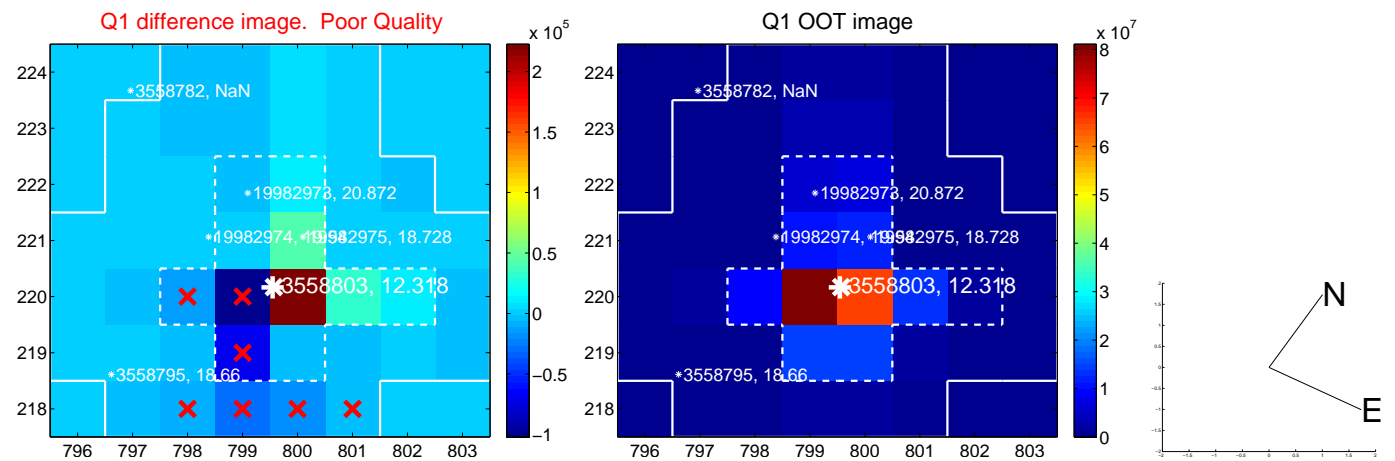
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$7.307 \pm 2.055$	3.56	$2.937 \pm 1.120$	$-6.691 \pm 1.766$
PRF-fit source offset from KIC position	$7.348 \pm 2.184$	3.36	$2.949 \pm 1.153$	$-6.731 \pm 1.894$
photometric centroid source offset	$0.50 \pm 0.28$	1.77	$0.45 \pm 0.28$	$-0.22 \pm 0.30$



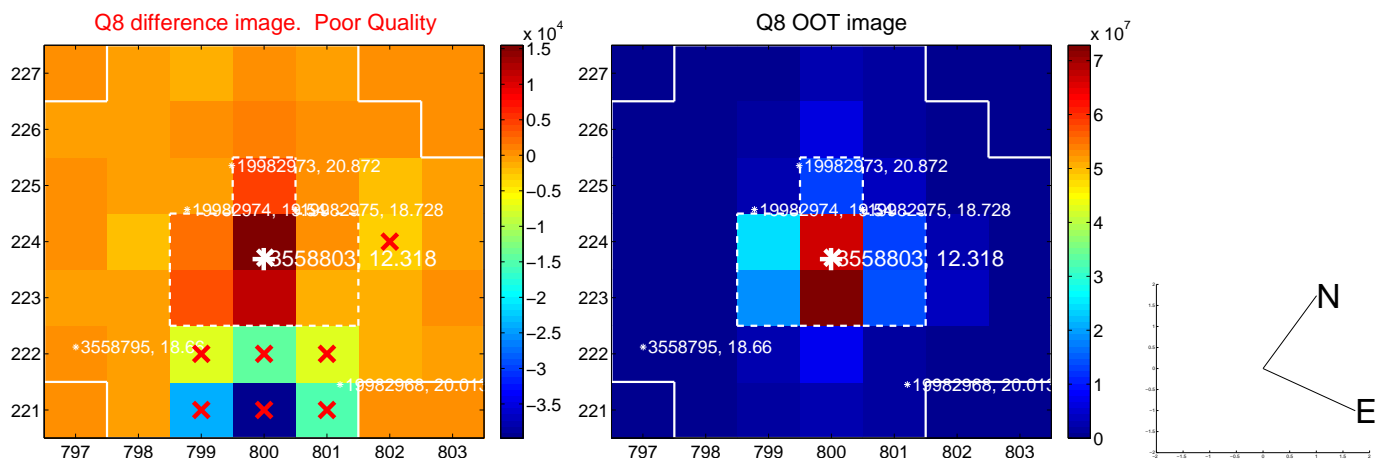
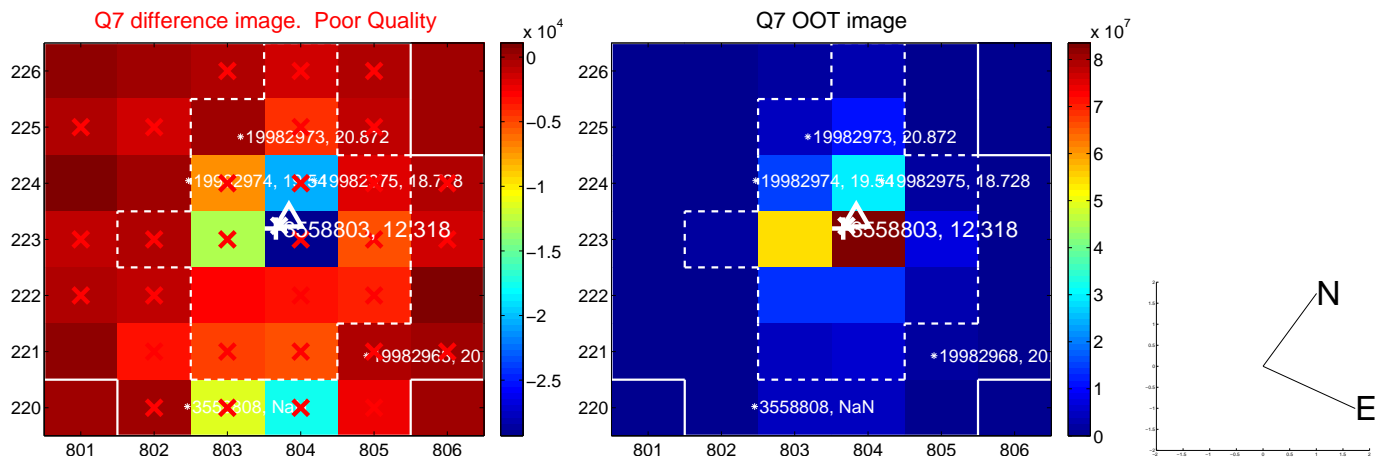
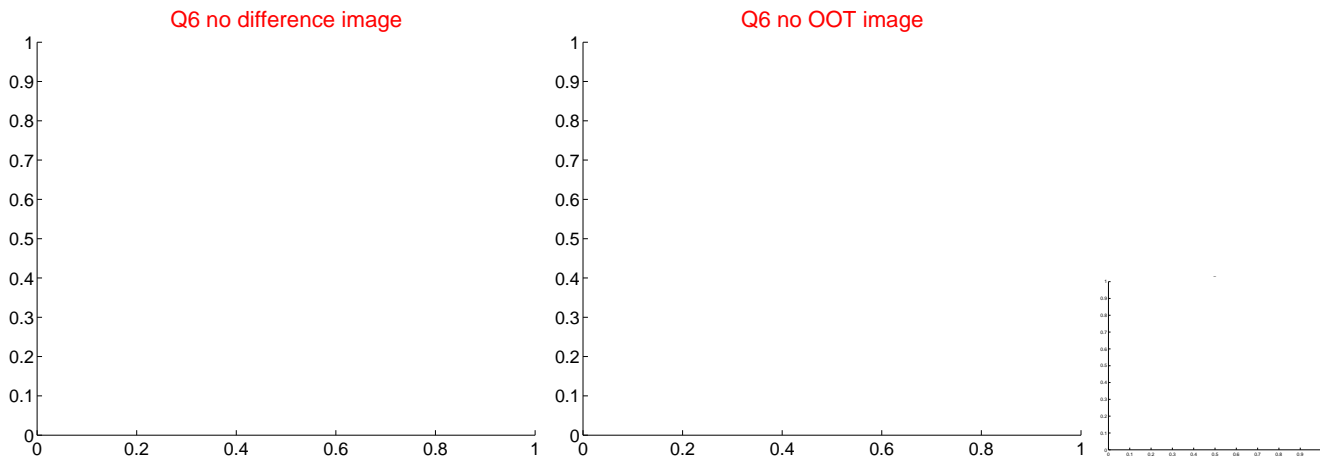
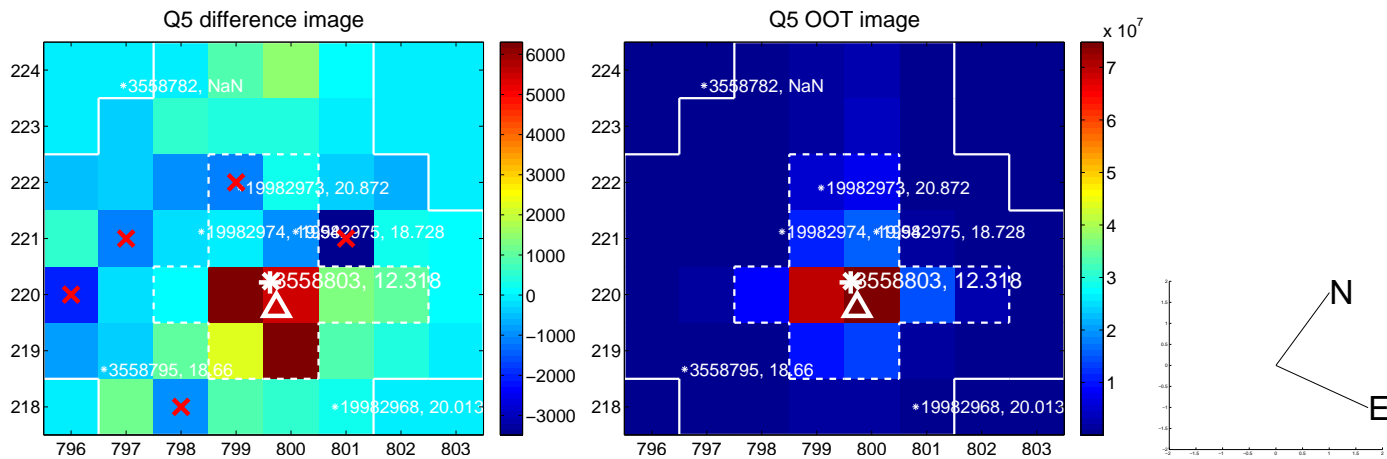
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

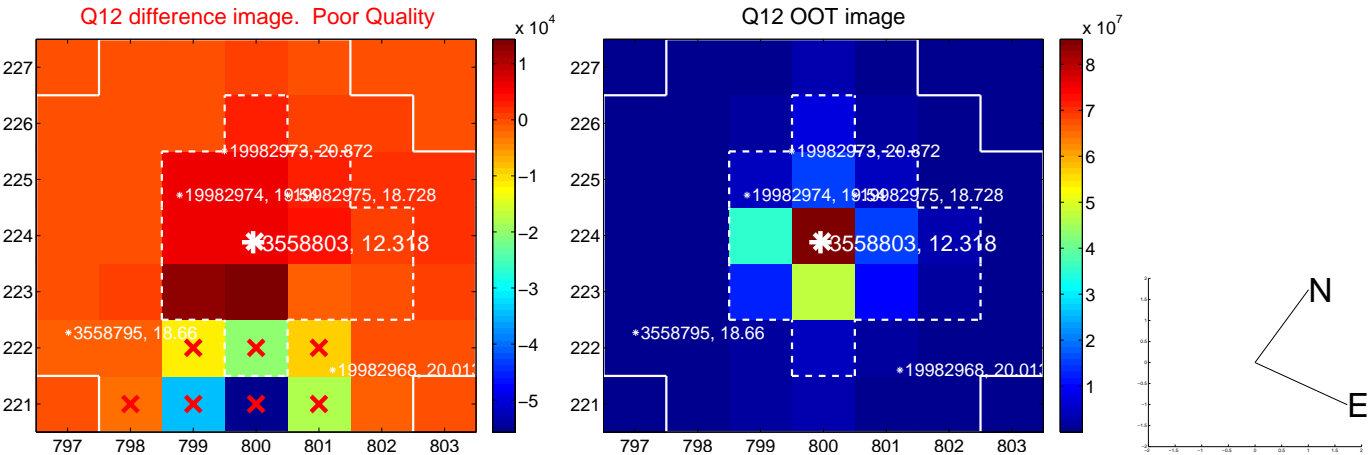
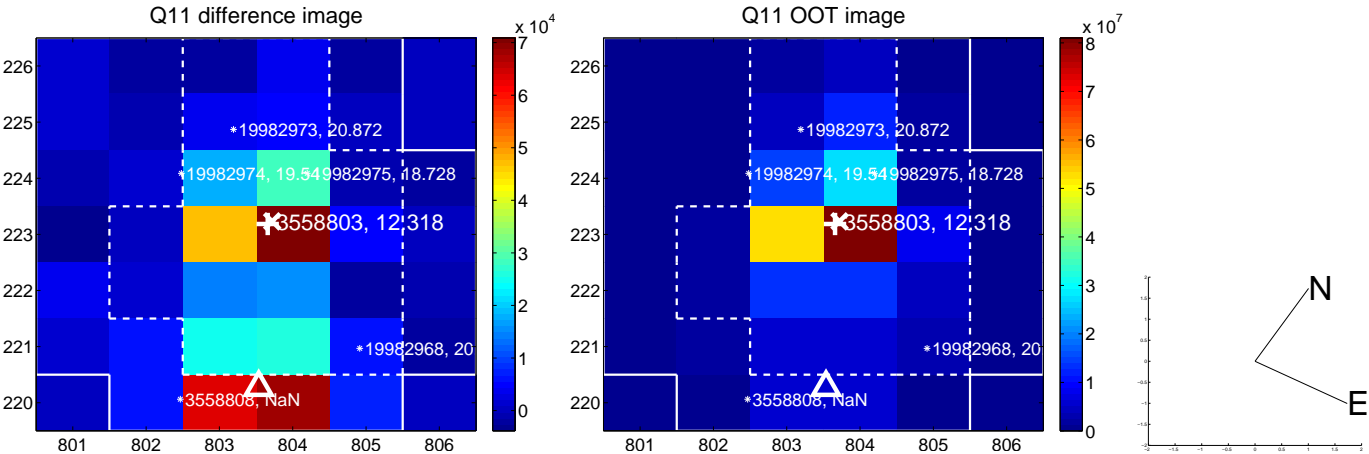
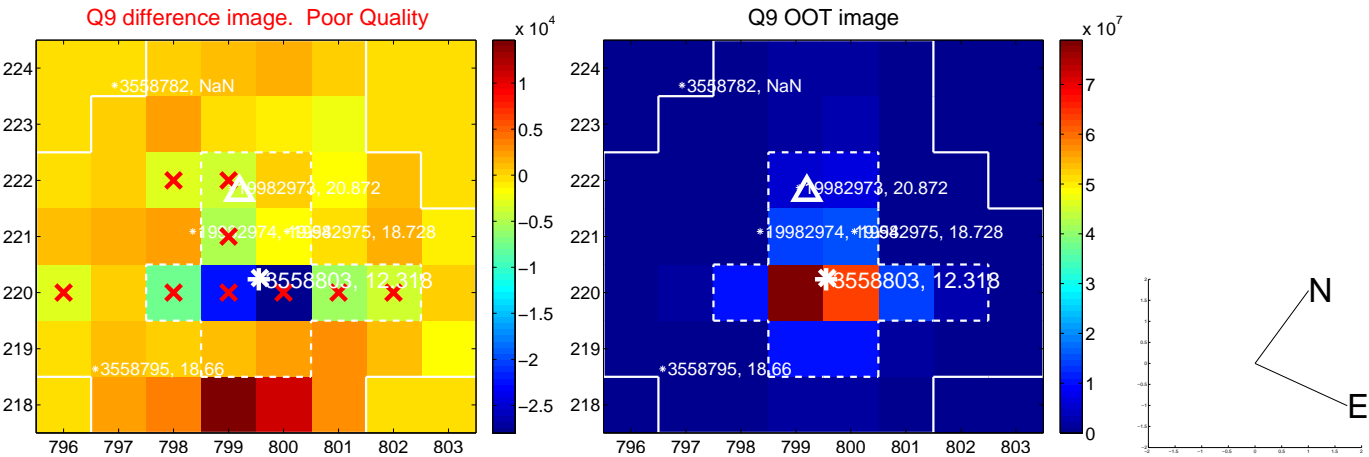




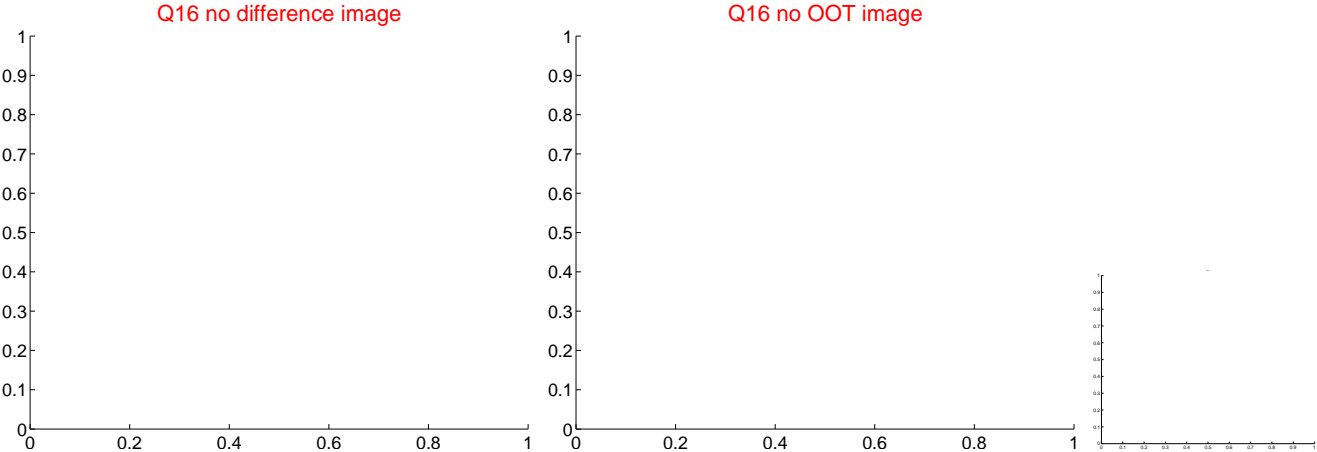
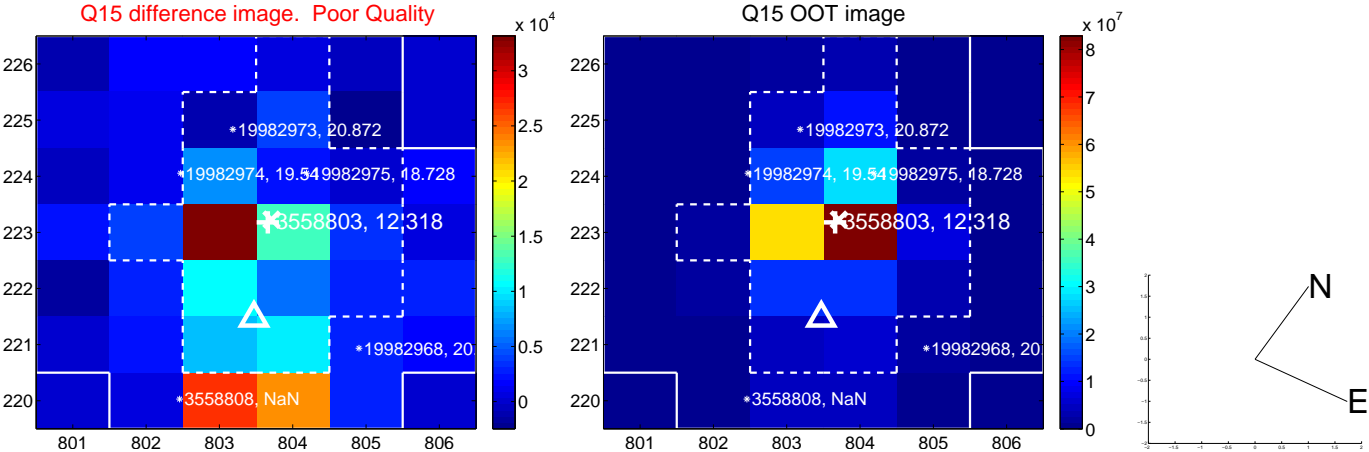
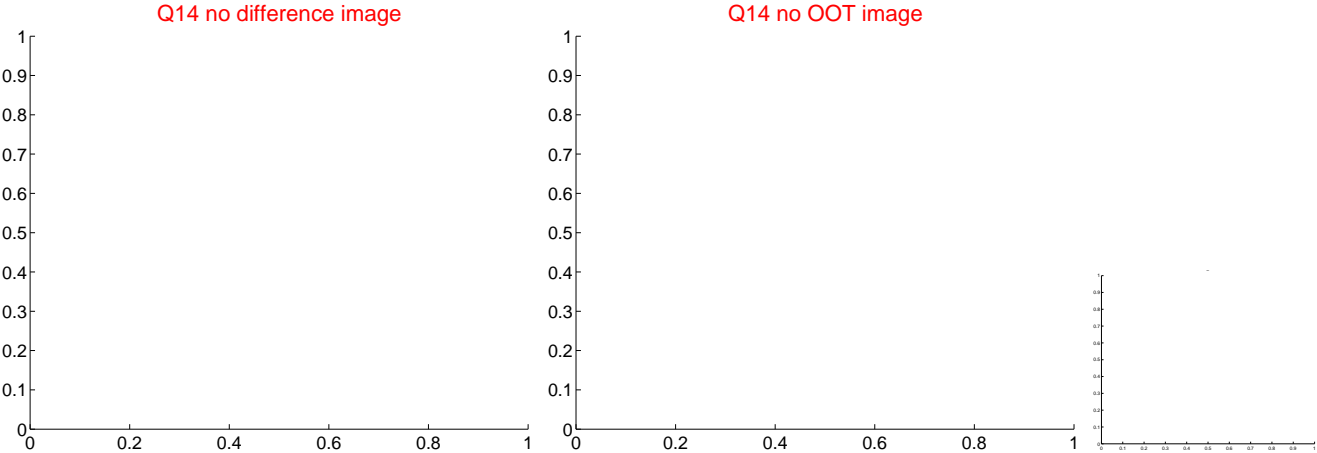
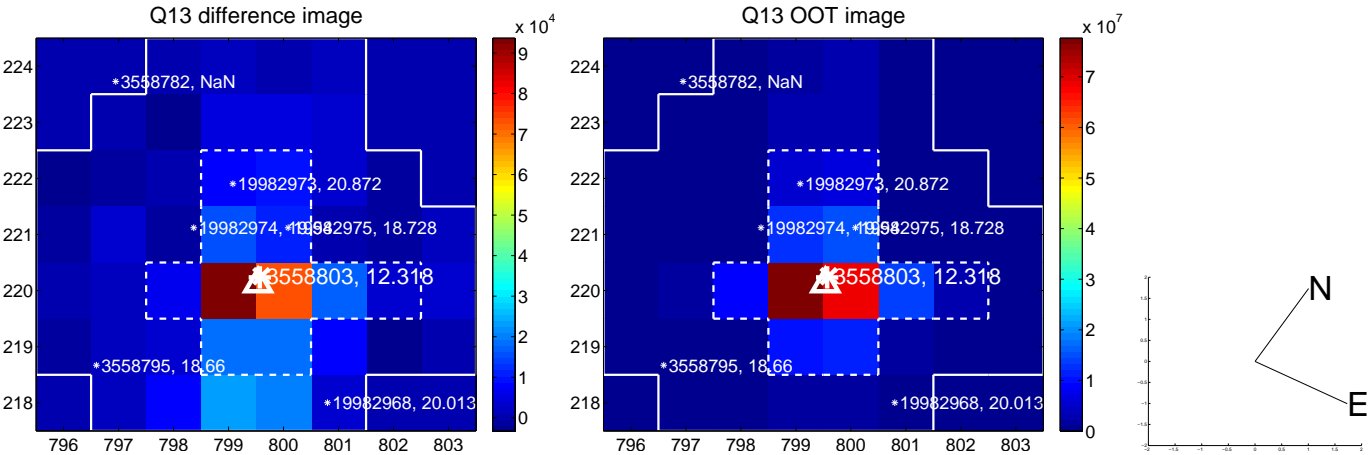
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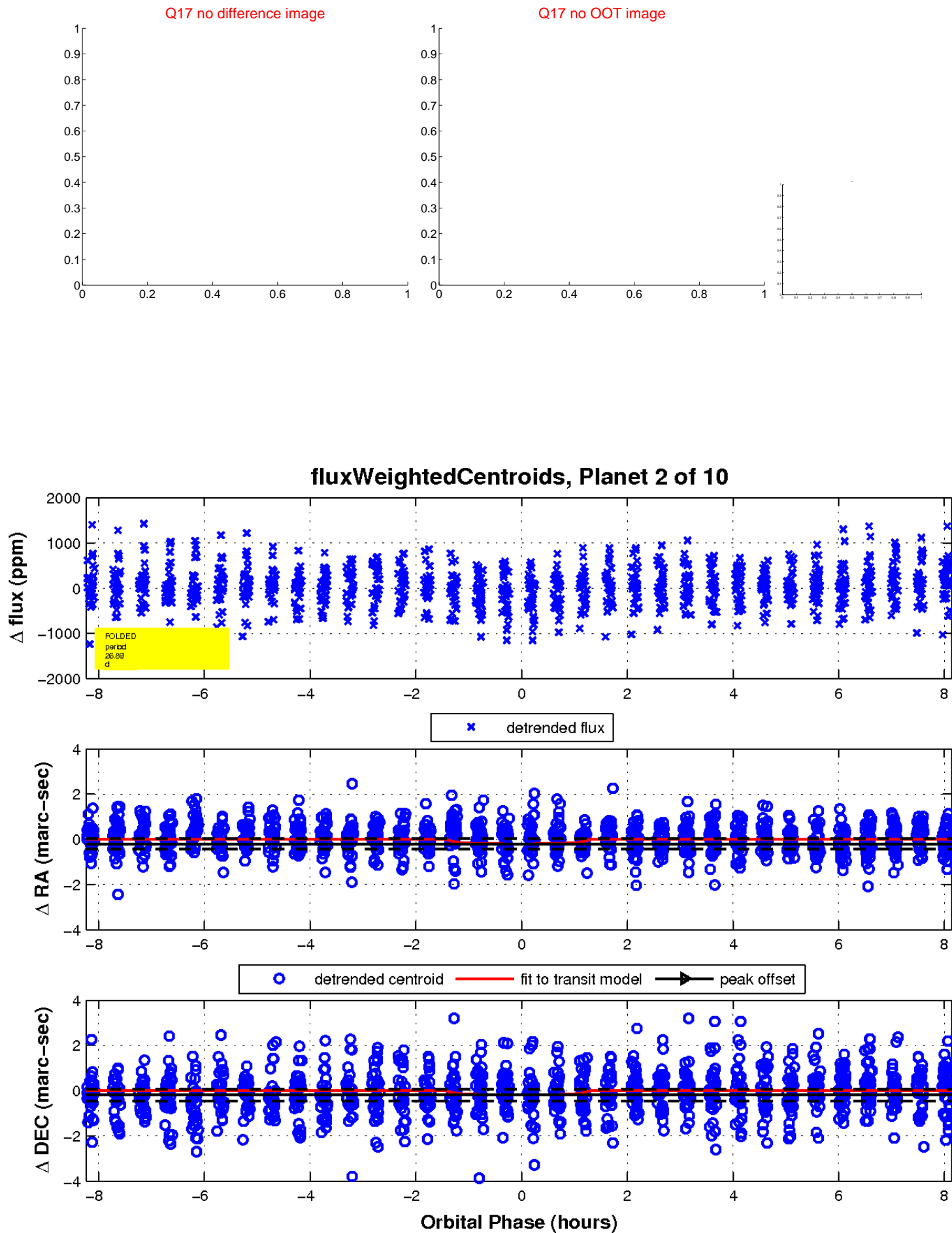
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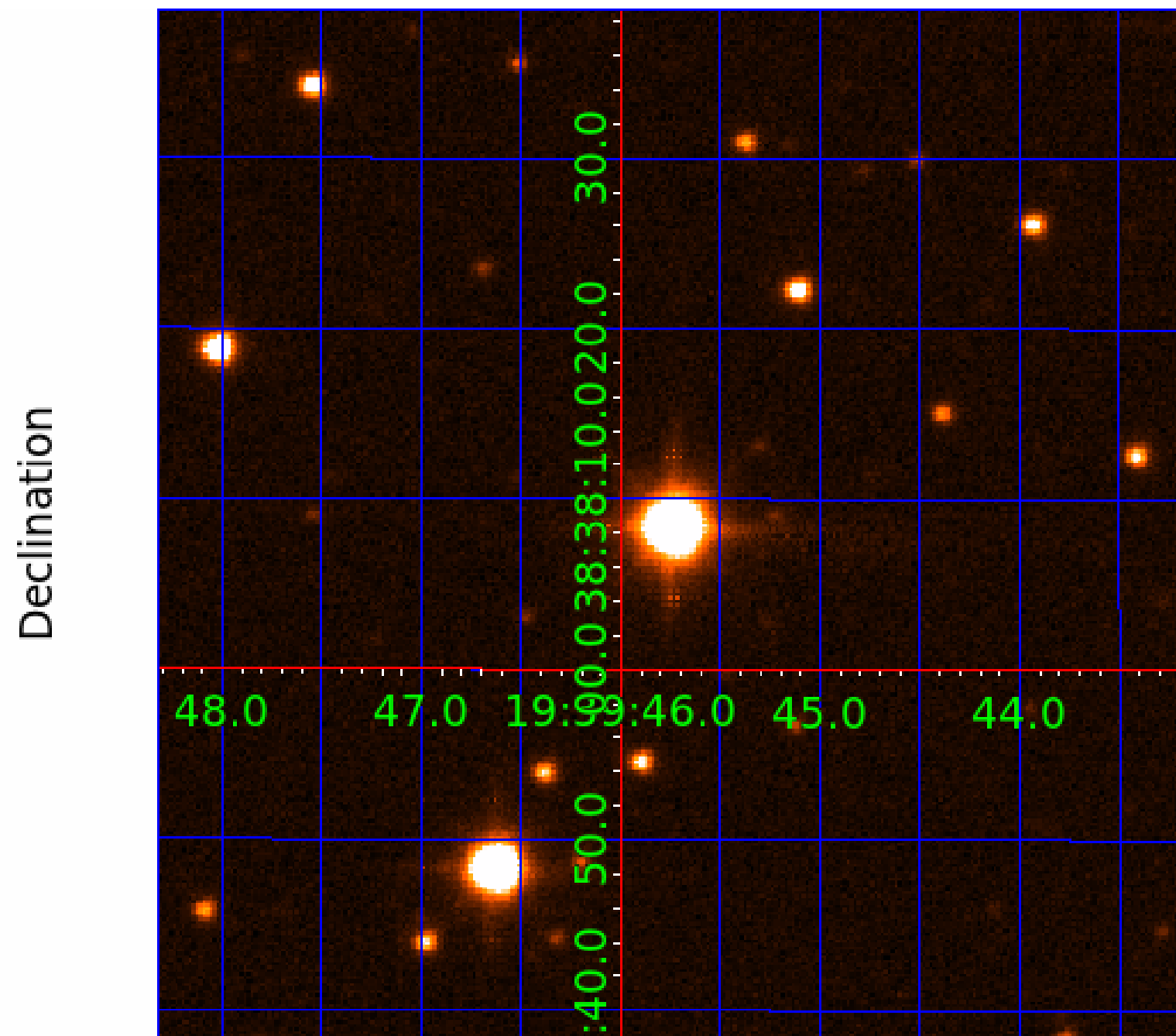
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 003558803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003558803-01	OBS	6345.01	1.353452	131.671808	43.8	8.659	19.0	5.6	8.59	4850	5.50	0.00
003558803-02	OBS	No	26.890557	158.331830	651.3	2.791	14.3	13.0	8.59	4850	25.05	753.22
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003558803-06	OBS	No	41.807115	153.651917	851.4	5.370	13.0	12.7	8.59	4850	34.21	418.20
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003558803-10	OBS	No	15.234080	146.589122	378.5	1.500	12.3	-1.0	8.59	4850	16.19	1606.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558803-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003558803-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN—HALO_GHOST
003558803-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003558803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN
003558803-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
003558803-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003558803-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-10	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

**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 003558803-03

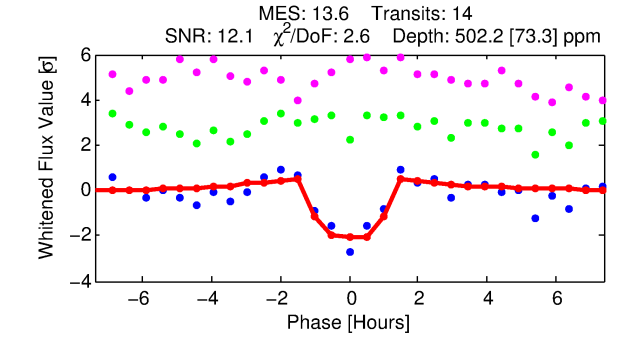
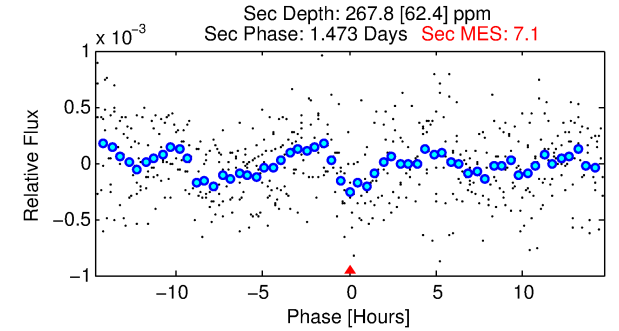
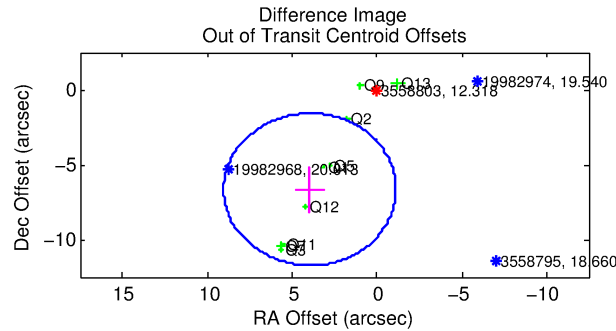
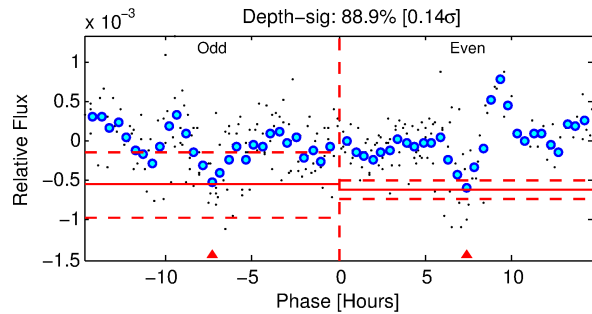
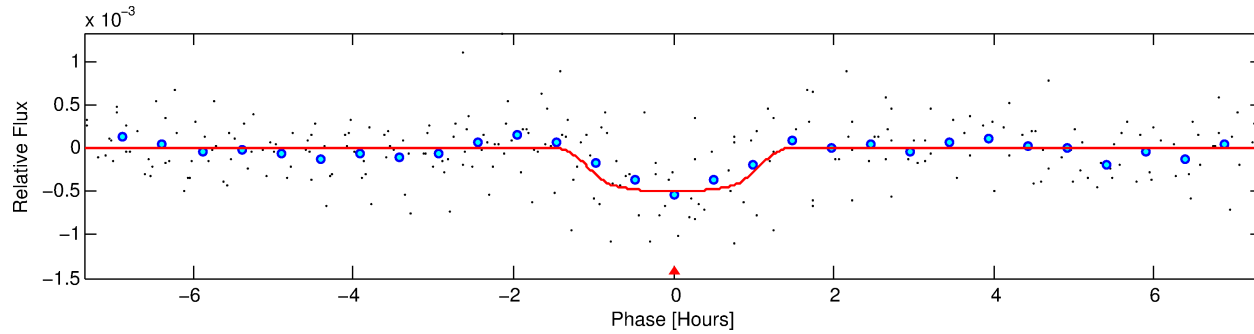
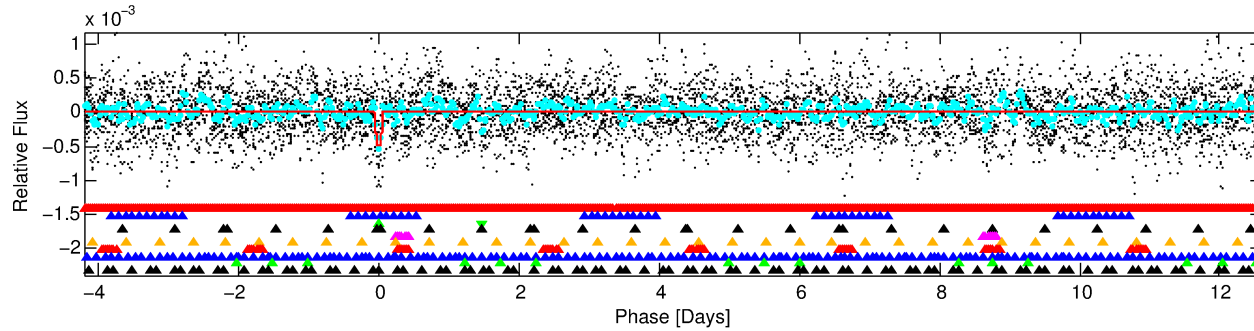
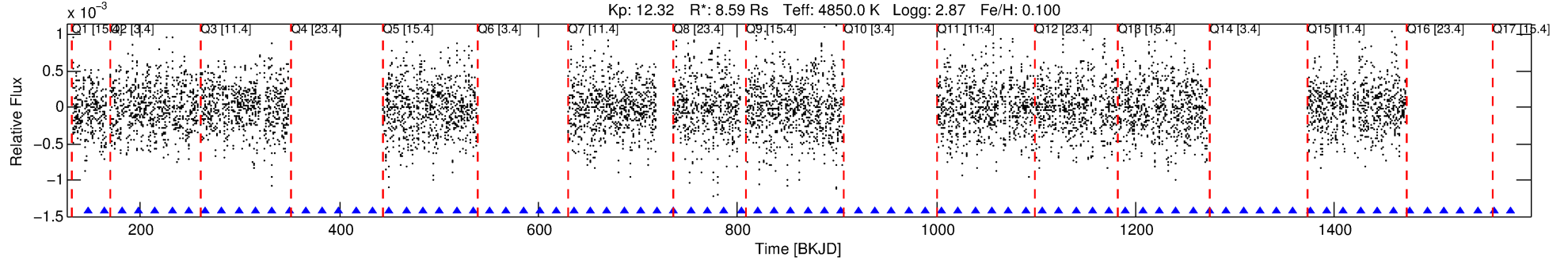
No Significant Match Found



# DV One-Page Summary

KIC: 3558803 Candidate: 3 of 10 Period: 16.819 d  
KOI: K06345 Corr: No Ephemeris Match

Kp: 12.32 R\*: 8.59 Rs Teff: 4850.0 K Logg: 2.87 Fe/H: 0.100



## DV Fit Results:

Period = 16.81926 [0.00016] d  
Epoch = 147.6384 [0.0069] BKJD  
Rp/R\* = 0.0243 [0.0208]  
a/R\* = 28.46 [88.82]  
b = 0.87 [0.91]  
Seff = 1408.14 [611.10]  
Teq = 1562 [169] K  
Rp = 22.79 [21.07] Re  
a = 0.1611 [0.0470] AU  
Ag = 7.36 [13.06] [0.49σ]  
Teffp = 3978 [1719] K [1.40σ]

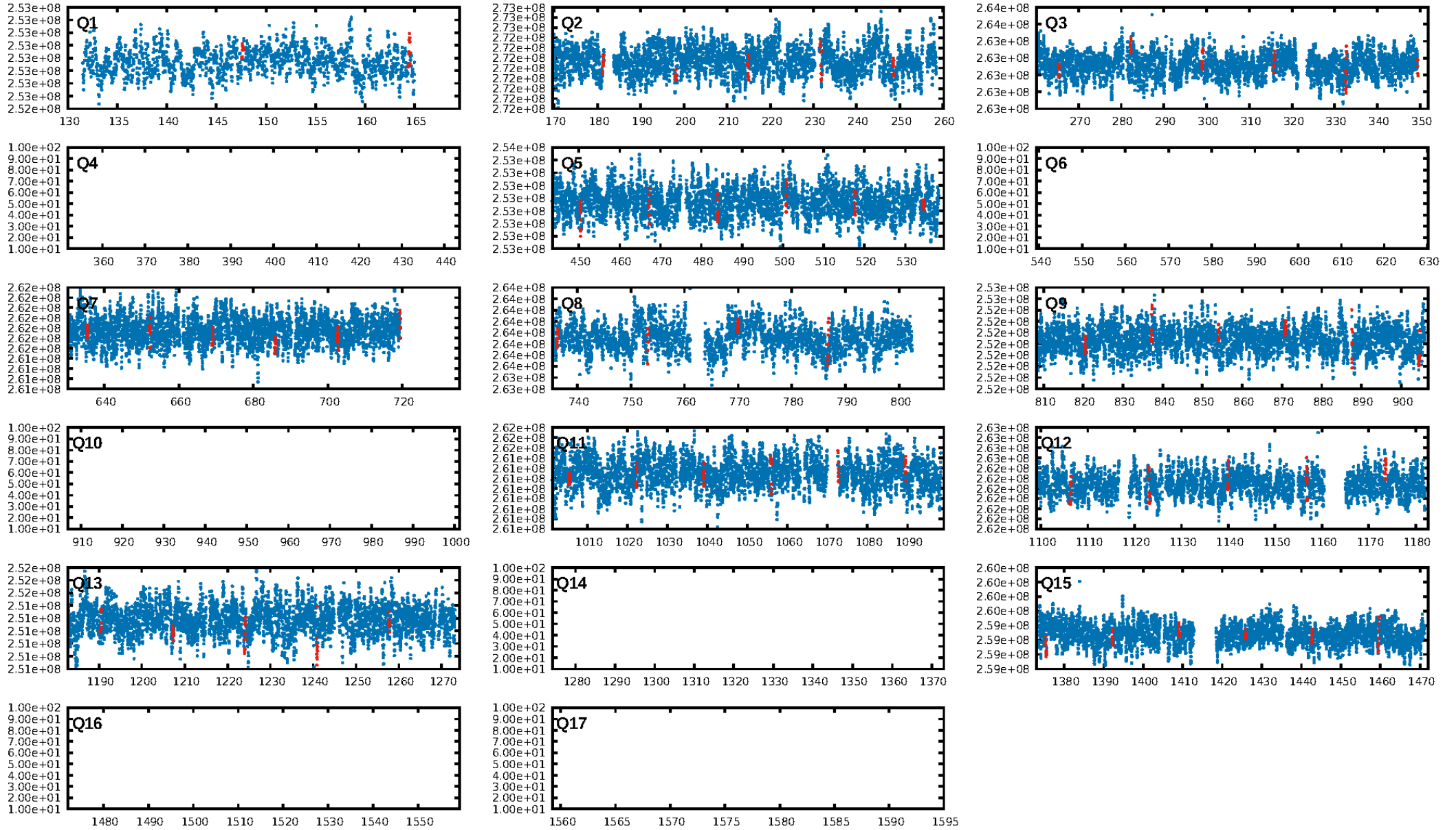
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.23σ]  
LongPeriod-sig: 100.0% [37.67σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 1.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [14/14]  
GhostDiagnostic-chr: 2.641  
Centroid-sig: 47.5%  
Centroid-so: 0.330 arcsec [1.07σ]  
OotOffset-rm: 7.737 arcsec [4.57σ]  
KicOffset-rm: 7.837 arcsec [4.80σ]  
OotOffset-st: 1/3/1/4 [9]  
KicOffset-st: 1/3/1/4 [9]  
DiffImageQuality-fgm: 0.56 [5/9]  
DiffImageOverlap-fno: 0.64 [7/11]

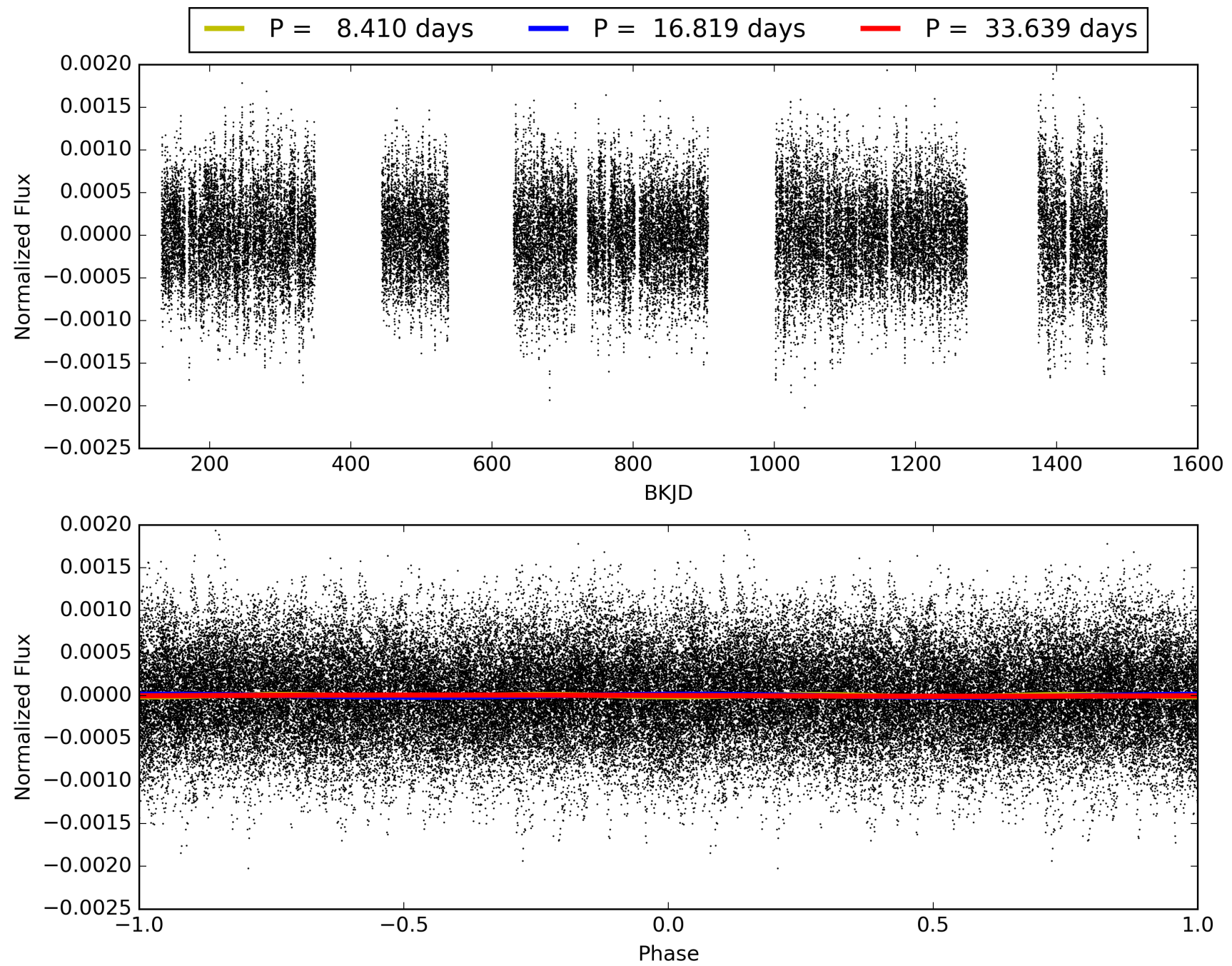
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:09:42 Z

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

# TCE 003558803-03, PDC Light Curves

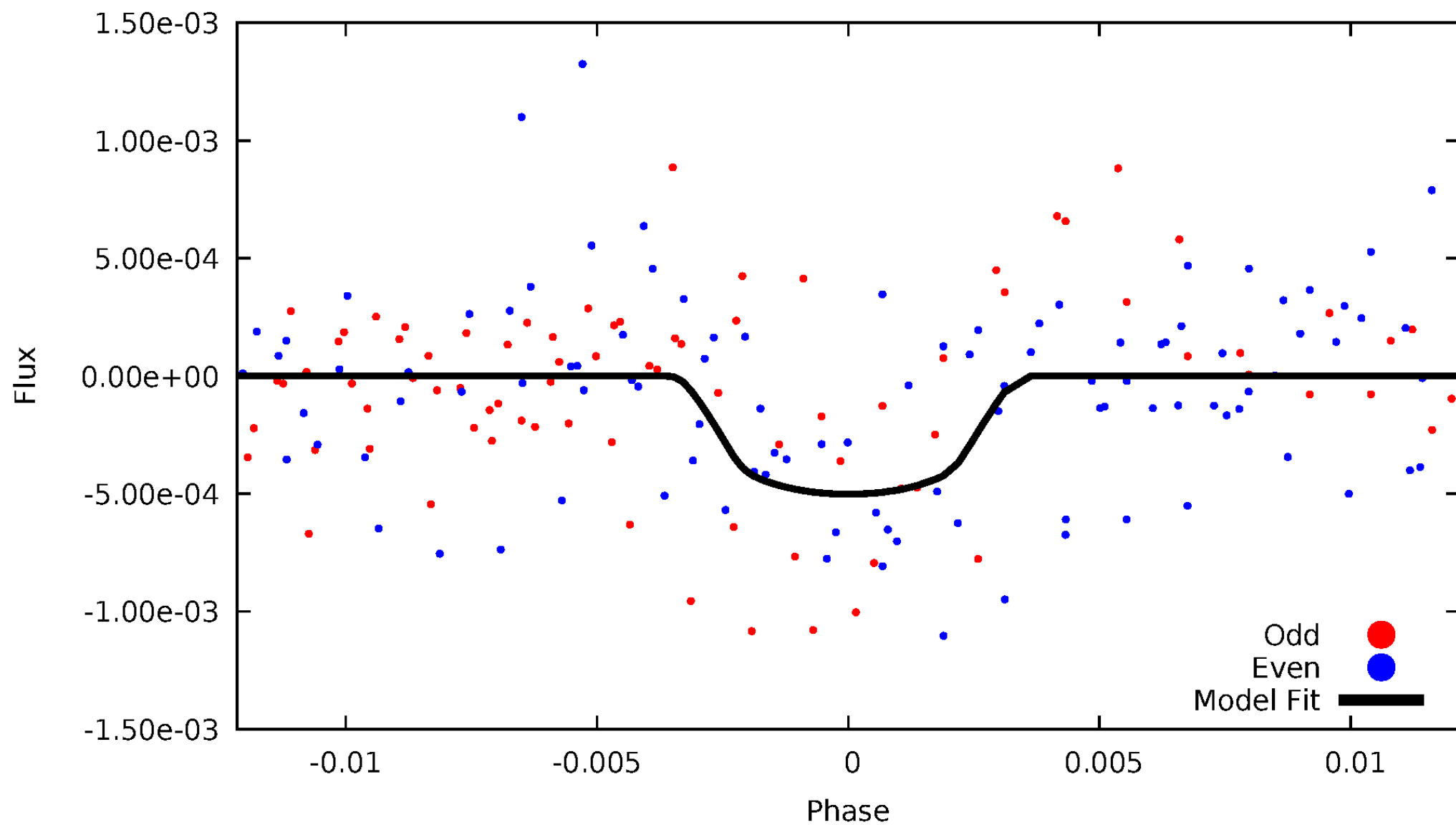


TCE 003558803-03



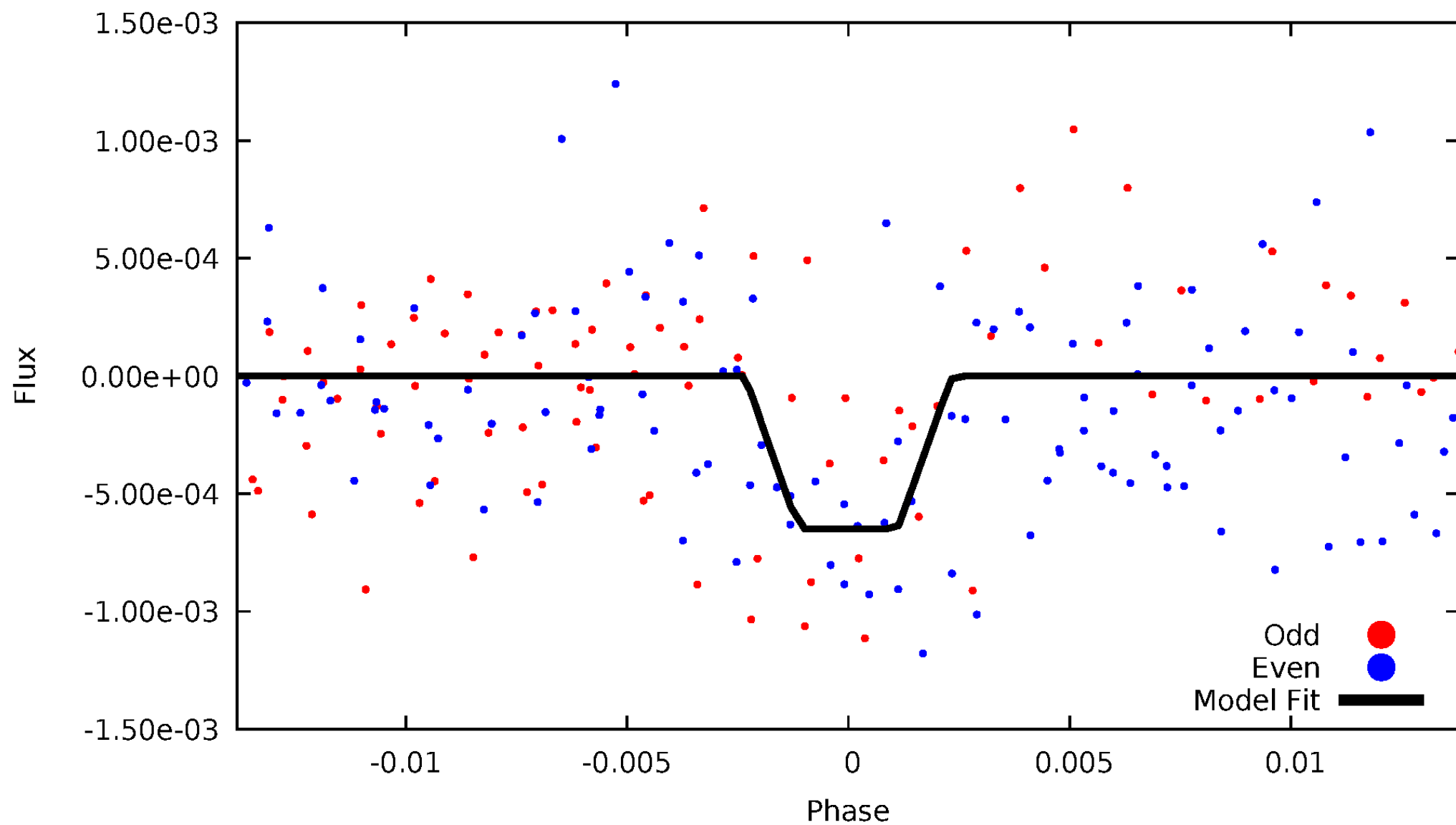
# DV Odd/Even

TCE 003558803-03



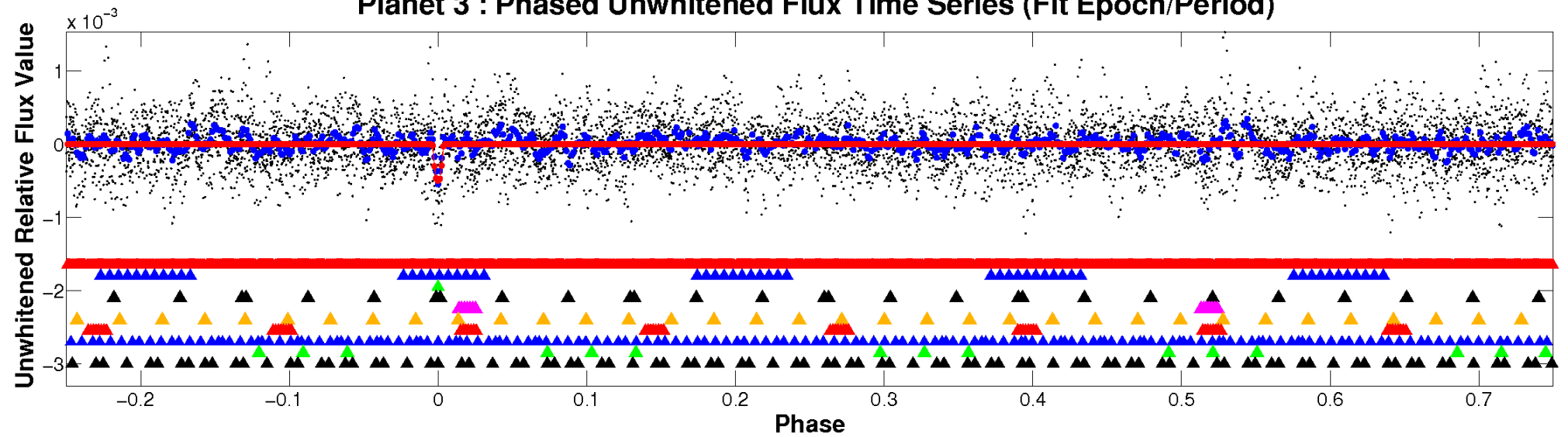
# ALT Odd/Even

TCE 003558803-03

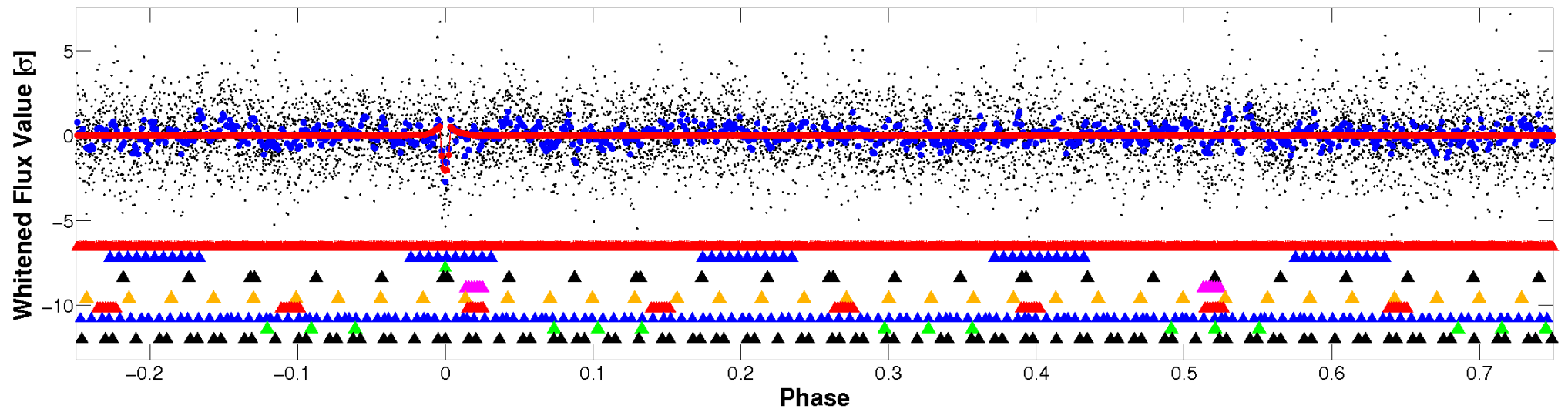


# Non-Whitened Vs. Whitened Light Curve

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



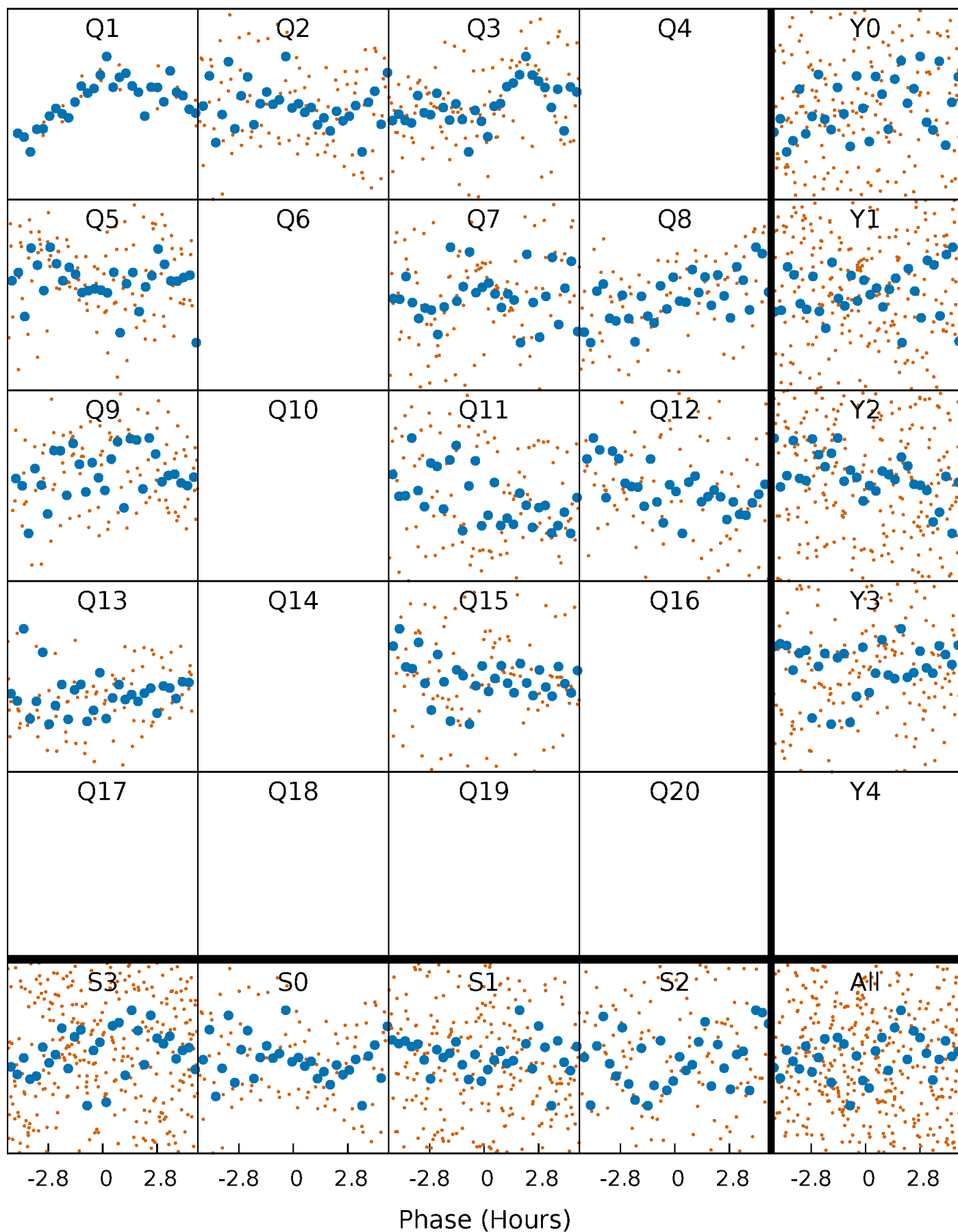
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





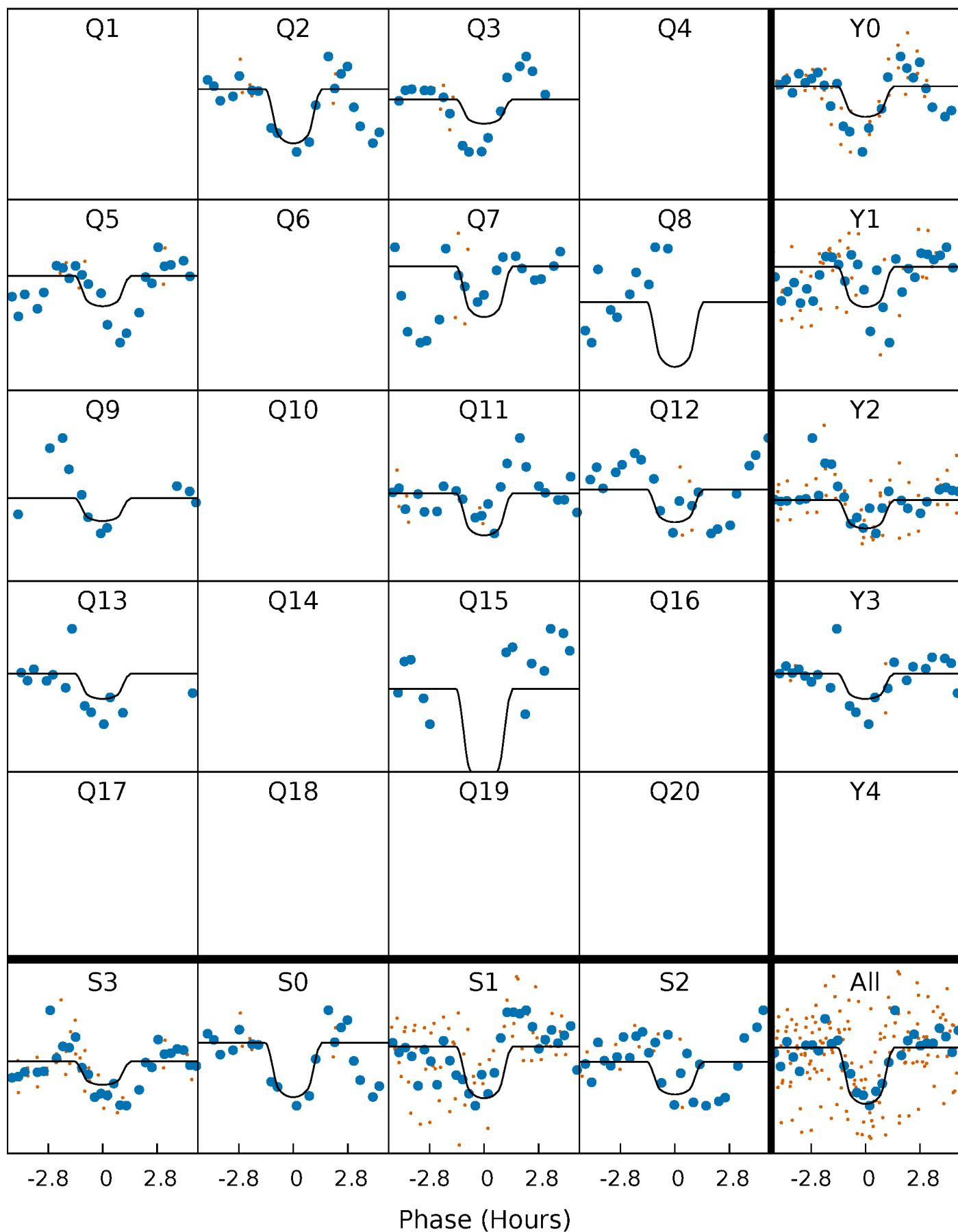
# PDC Quarter-Phased Transit Curves

TCE 003558803-03 P= 16.819263 Days  $T_0=147.638424$  (BKJD)



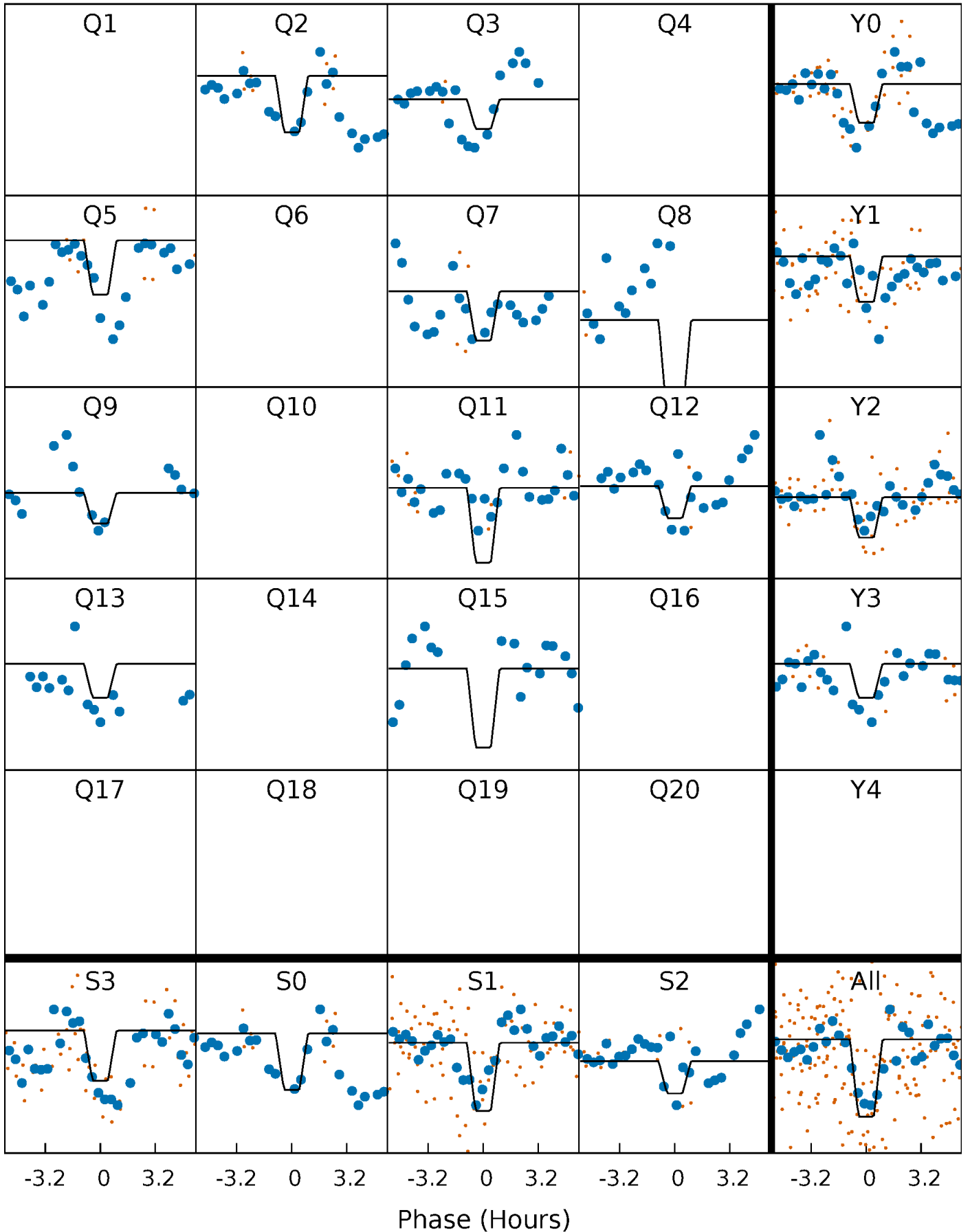
# DV Quarter-Phased Transit Curves

TCE 003558803-03 P= 16.819263 Days  $T_0=147.638424$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

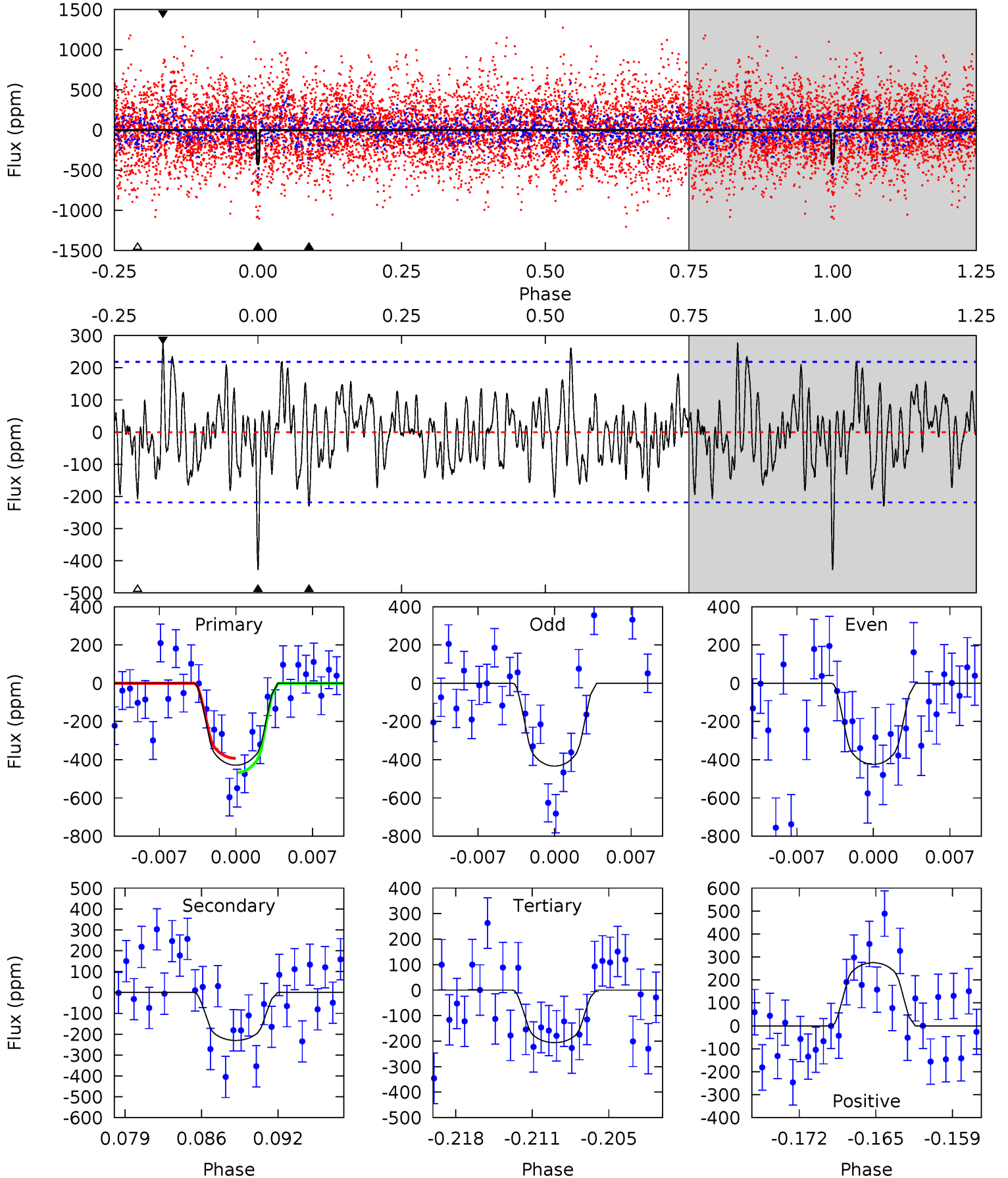
TCE 003558803-03 P= 16.819106 Days  $T_0=147.644790$  (BKJD)



# DV Model-Shift Uniqueness Test

003558803-03, P = 16.819263 Days, E = 130.819161 Days

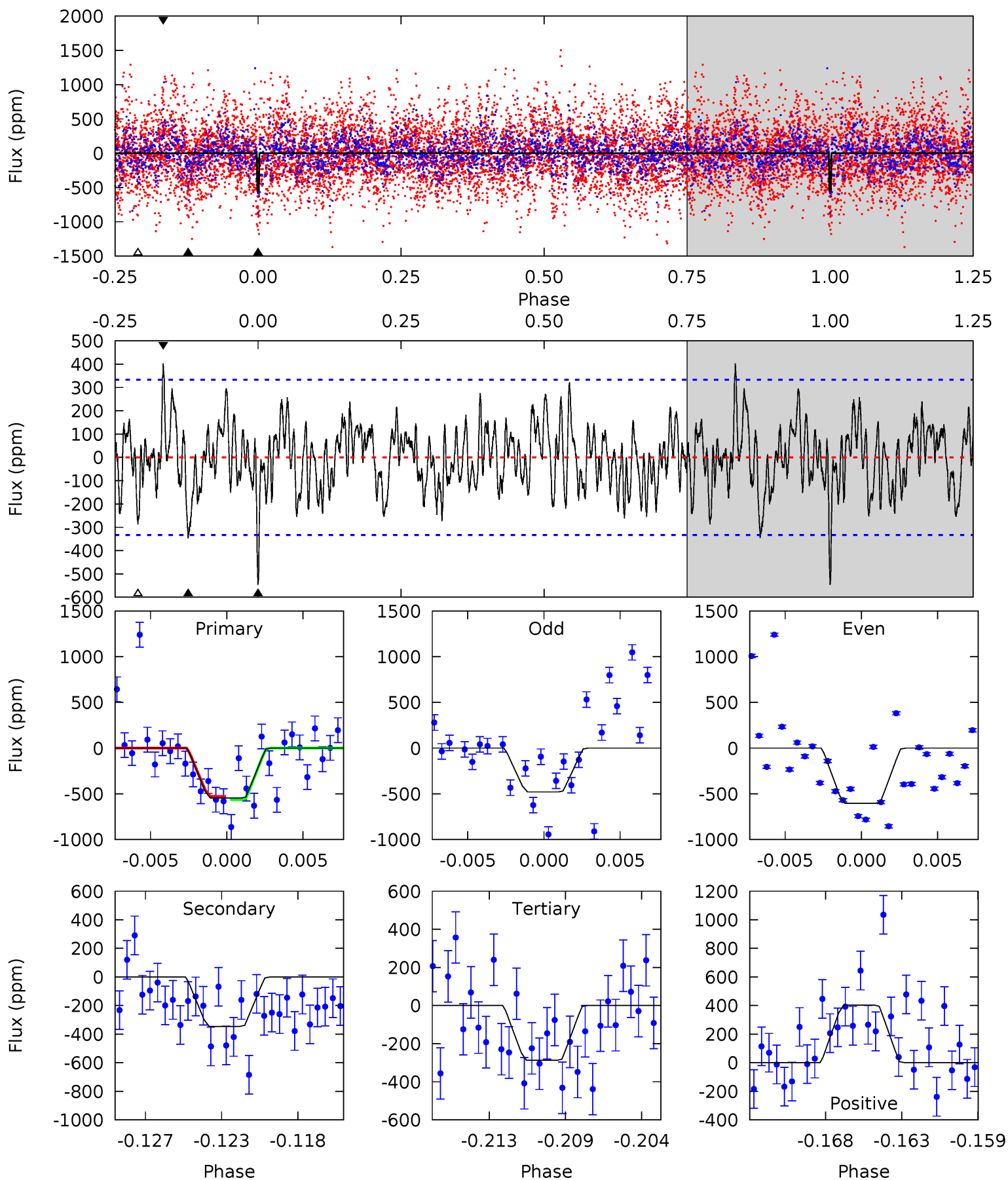
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	5.38	4.82	6.43	5.11	2.72	1.95	5.21	3.59	0.56	-1.05	0.10	0.73	0.39	0.88



# Alt Model-Shift Uniqueness Test

003558803-03, P = 16.819106 Days, E = 130.825684 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
8.48	5.37	4.46	6.25	5.18	2.84	1.82	4.02	2.23	0.91	-0.88	0.95	0.63	0.42	0.26



### Stellar Parameters For KIC 003558803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4850^{+95}_{-143}$	$2.865^{+0.225}_{-0.164}$	$0.100^{+0.200}_{-0.300}$	$8.586^{+2.199}_{-3.024}$	$1.969^{+0.734}_{-0.897}$	$0.004^{+0.008}_{-0.002}$
	+2%/-3%	+8%/-6%	+200%/-300%	+26%/-35%	+37%/-46%	+175%/-41%
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 003558803-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-230 \pm 43$	$23.47^{+20.13}_{-15.11}$	$2175^{+147}_{-170}$	$3935^{+2091}_{-762}$	$5.827^{+41.967}_{-4.095}$
Alt.	$-346 \pm 64$	$25.71^{+18.96}_{-14.71}$	$2172^{+144}_{-174}$	$4075^{+1614}_{-712}$	$7.264^{+30.010}_{-4.787}$

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



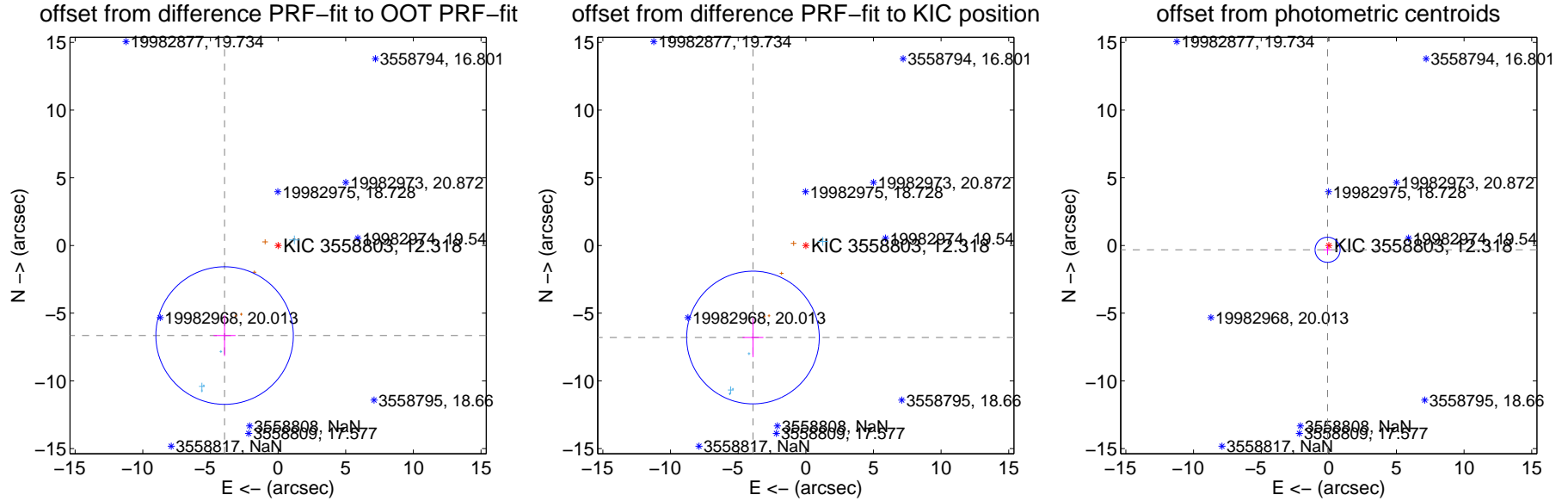
## DV Centroid Data

Supplemental centroid analysis for 003558803-03. Kepler magnitude: 12.32. Transit SNR 12.14

There are 5 quarters with good PRF difference image offsets

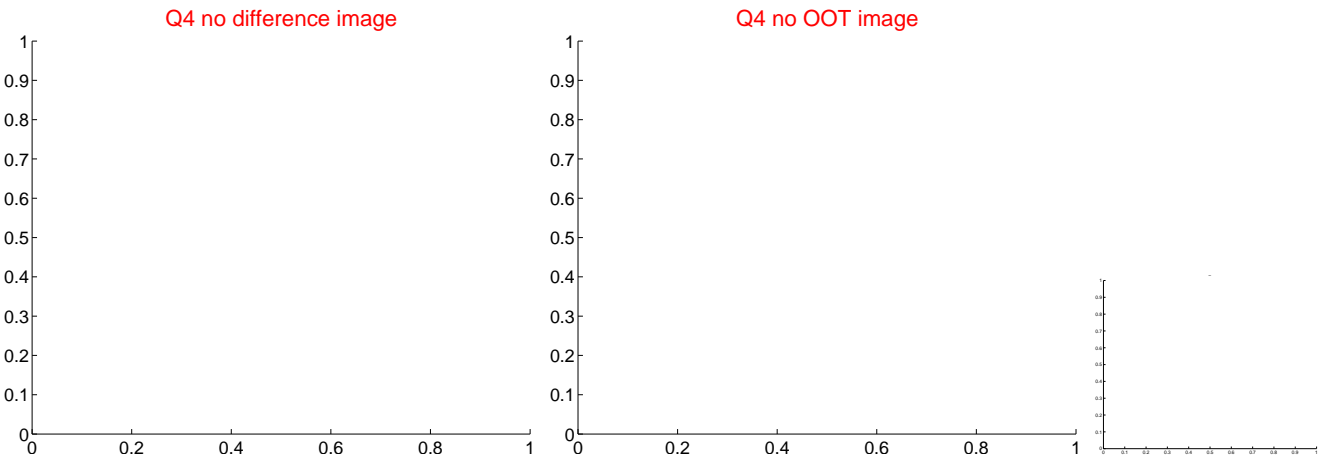
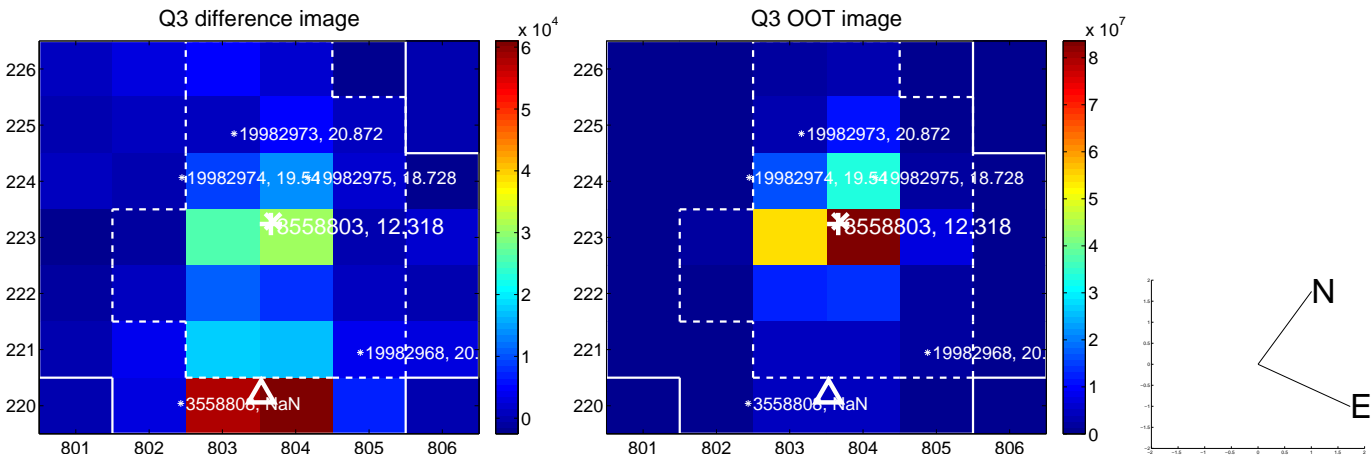
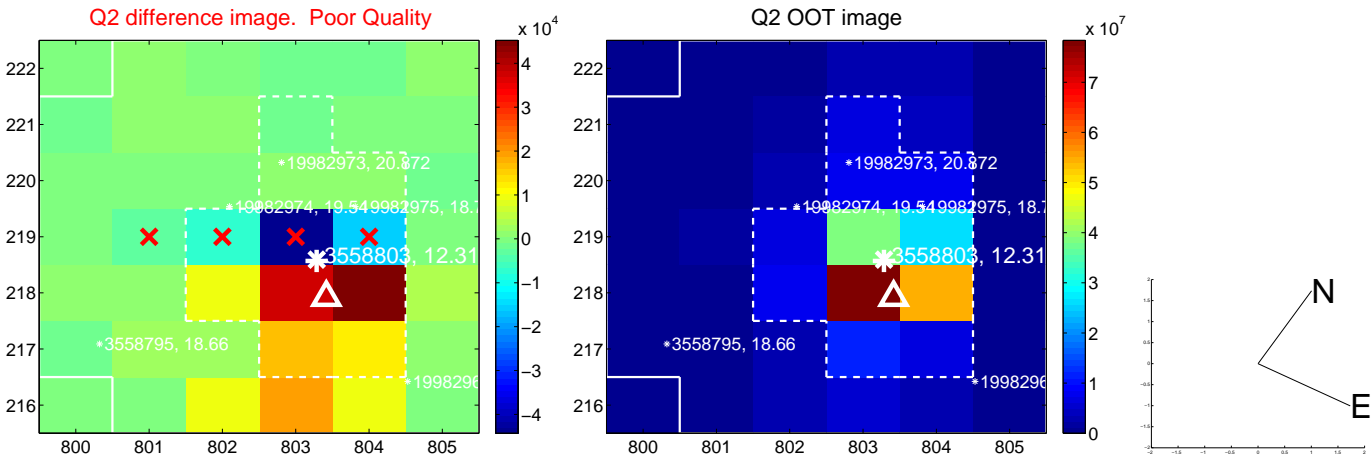
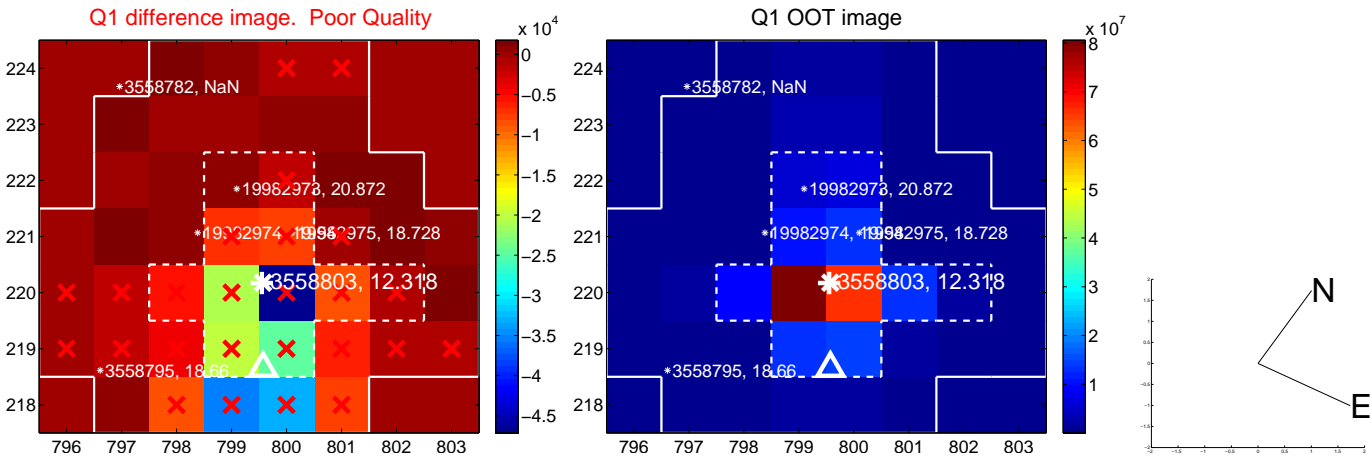
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>7.737 <math>\pm</math> 1.693</b>	<b>4.57</b>	$3.953 \pm 0.811$	$-6.651 \pm 1.502$
PRF-fit source offset from KIC position	<b>7.837 <math>\pm</math> 1.633</b>	<b>4.80</b>	$3.905 \pm 0.772$	$-6.795 \pm 1.451$
photometric centroid source offset	$0.33 \pm 0.31$	1.07	$0.09 \pm 0.29$	$-0.32 \pm 0.31$

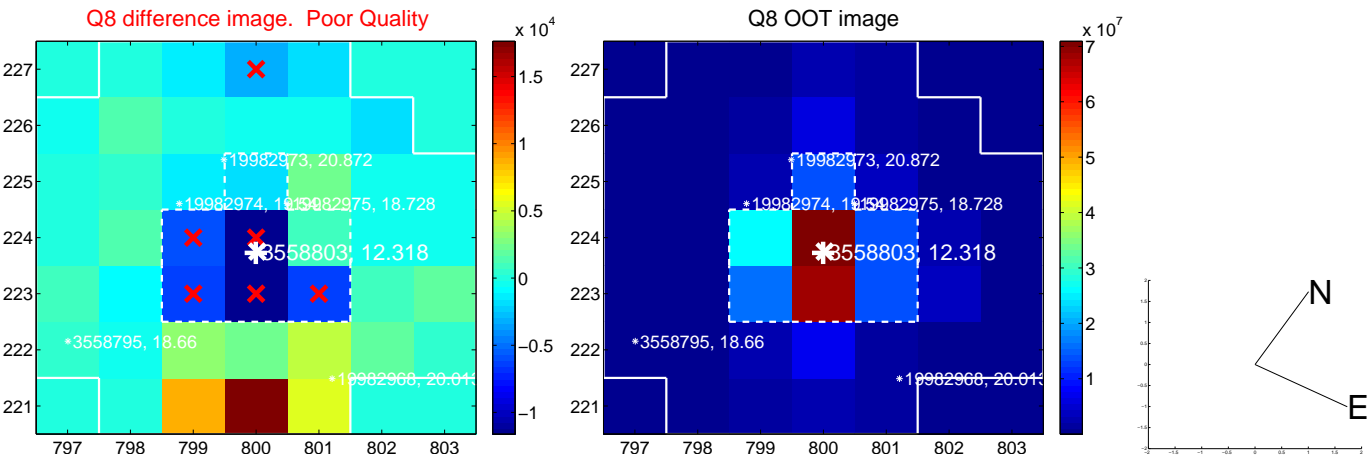
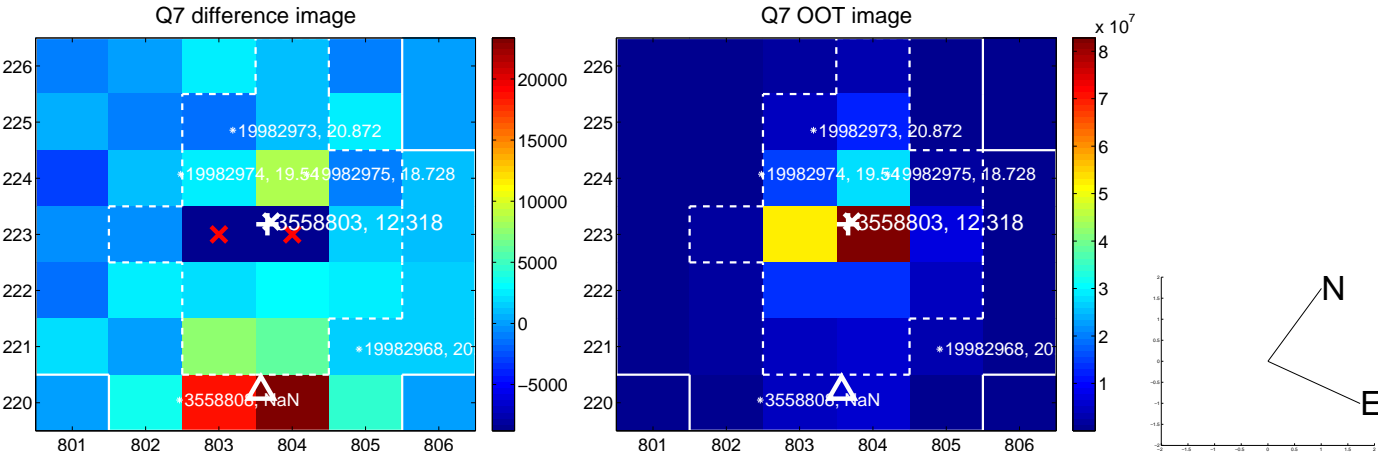
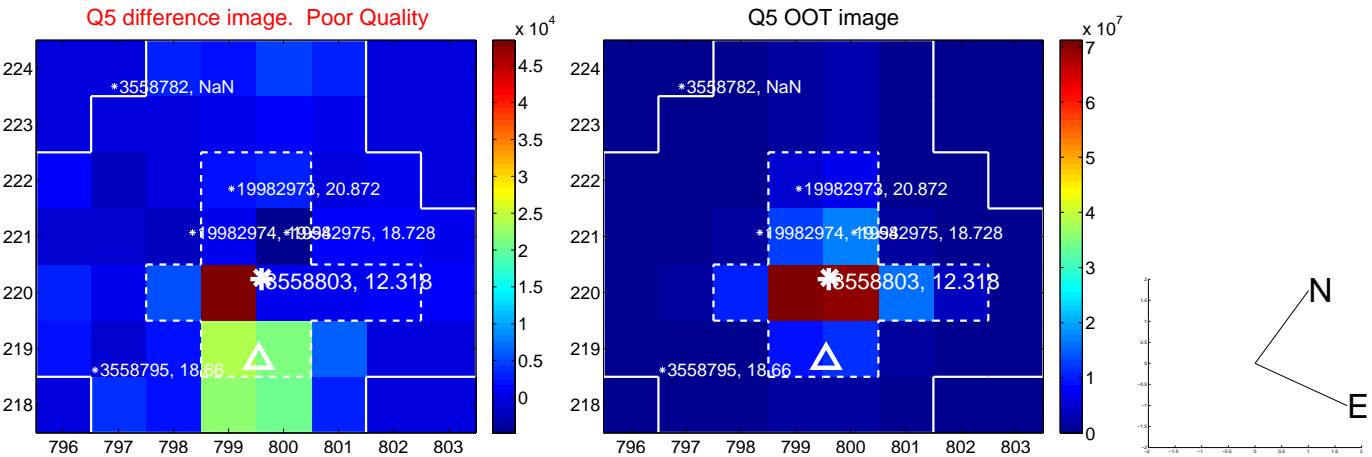


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

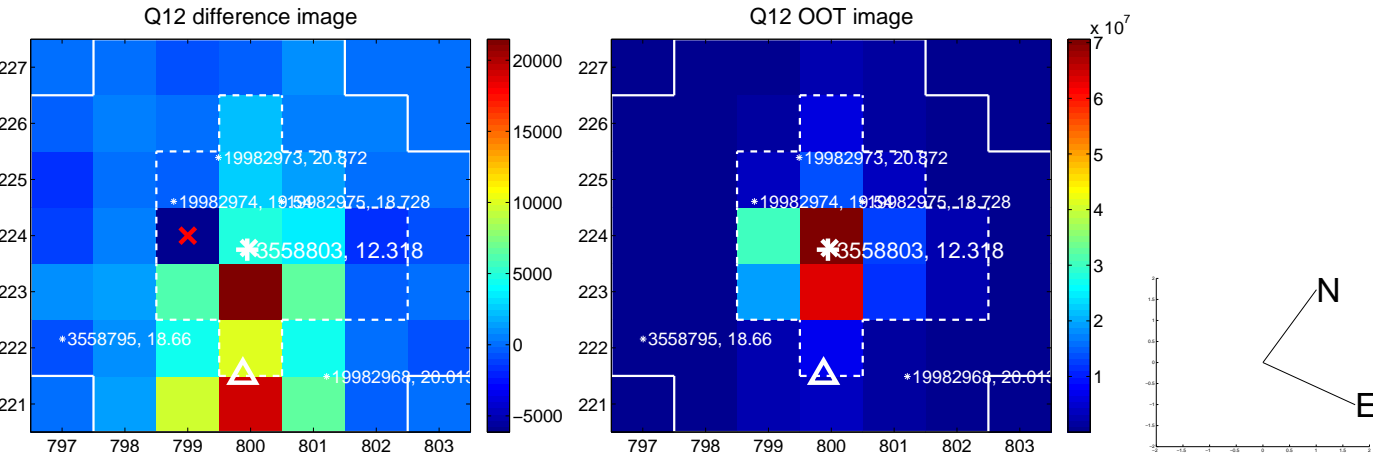
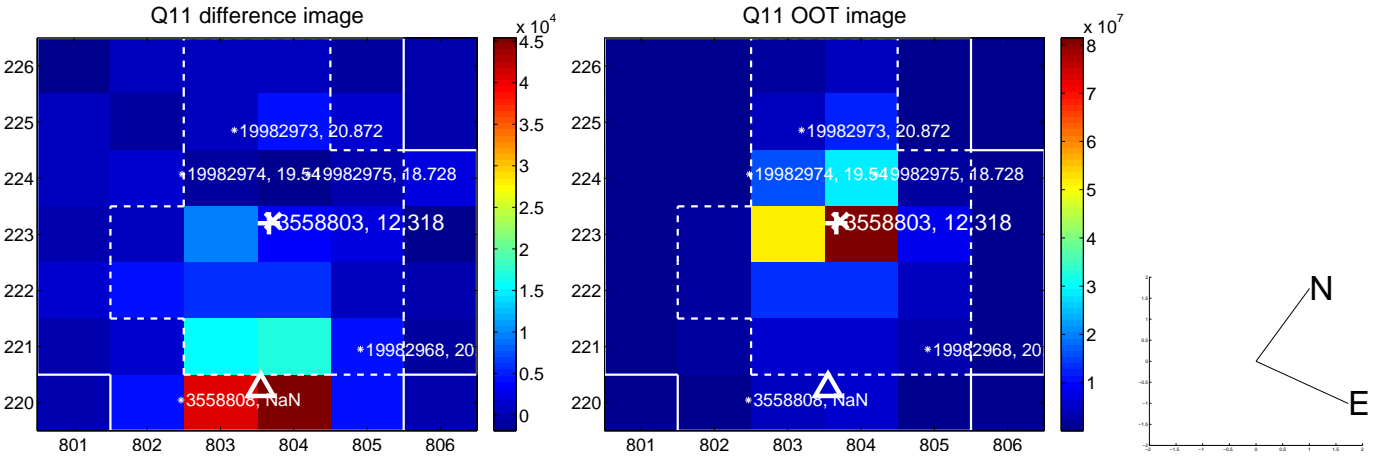
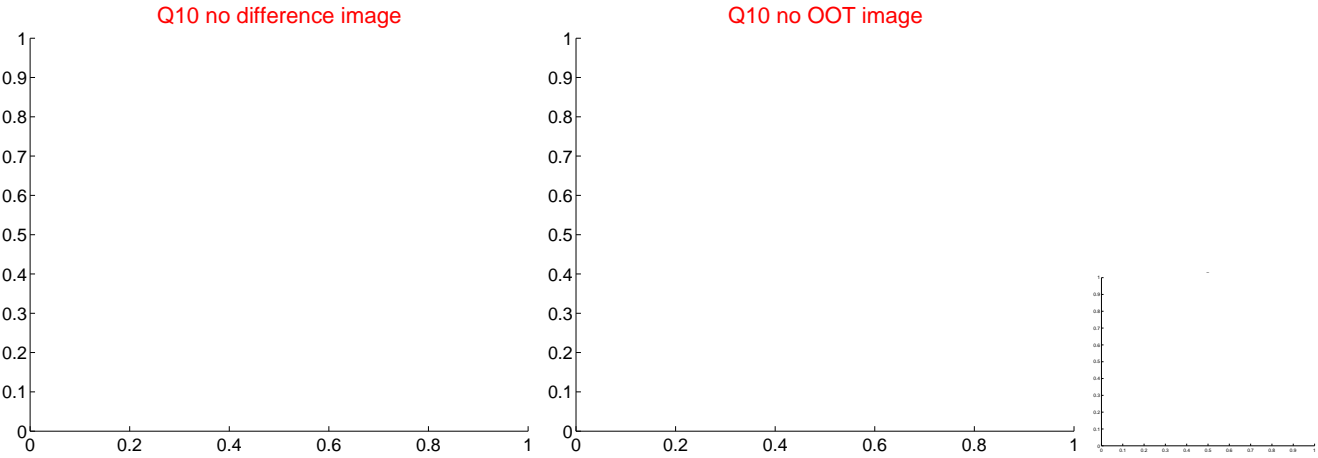
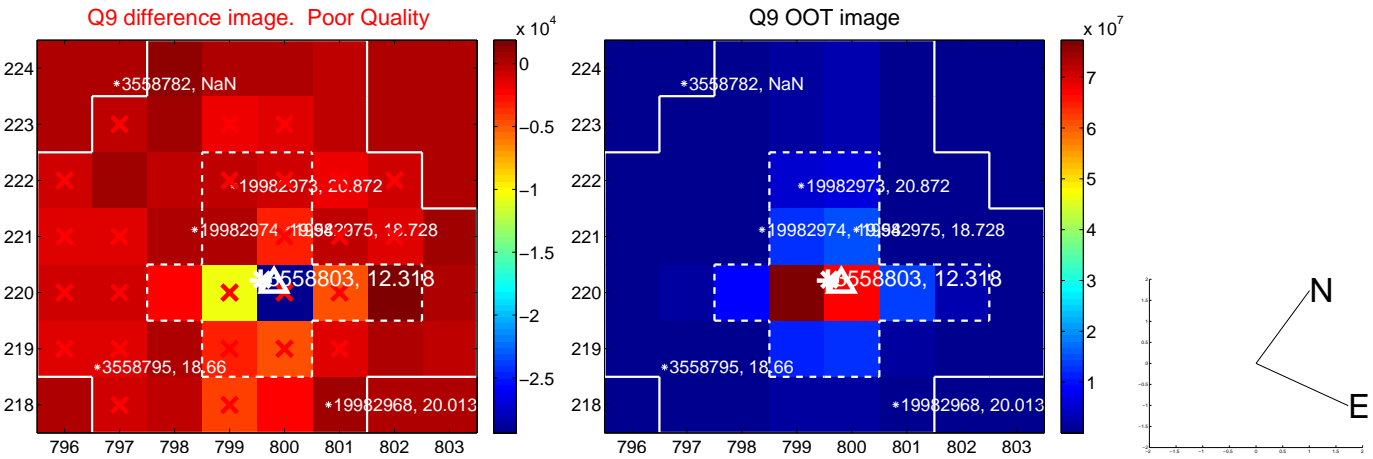
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



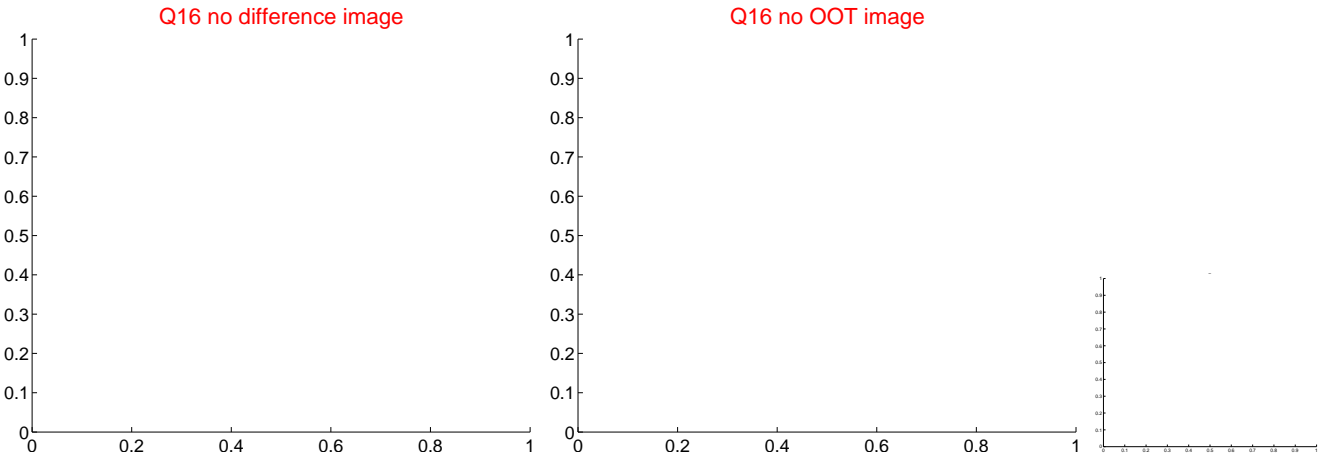
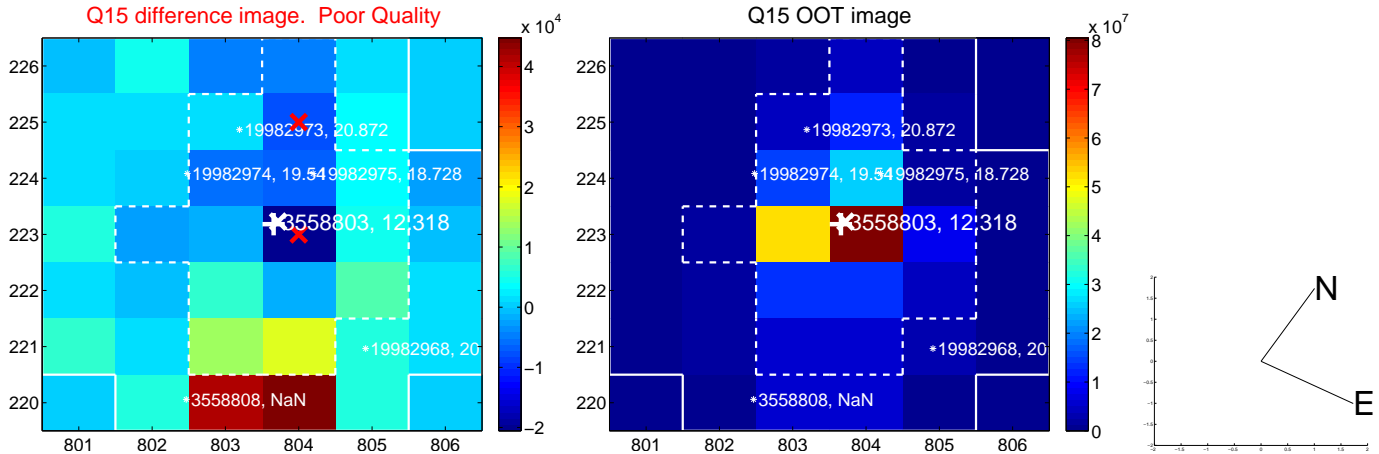
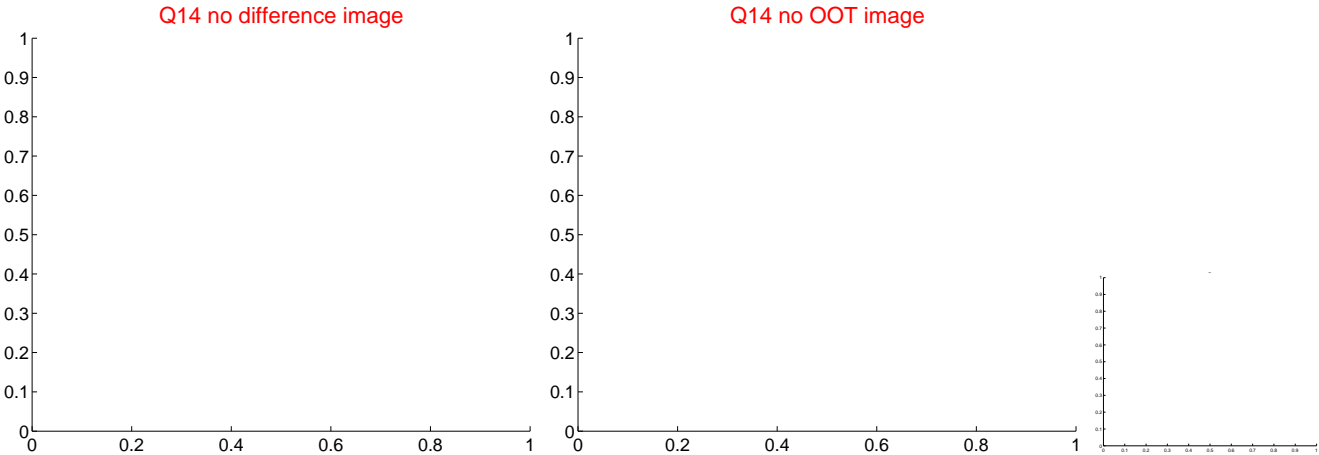
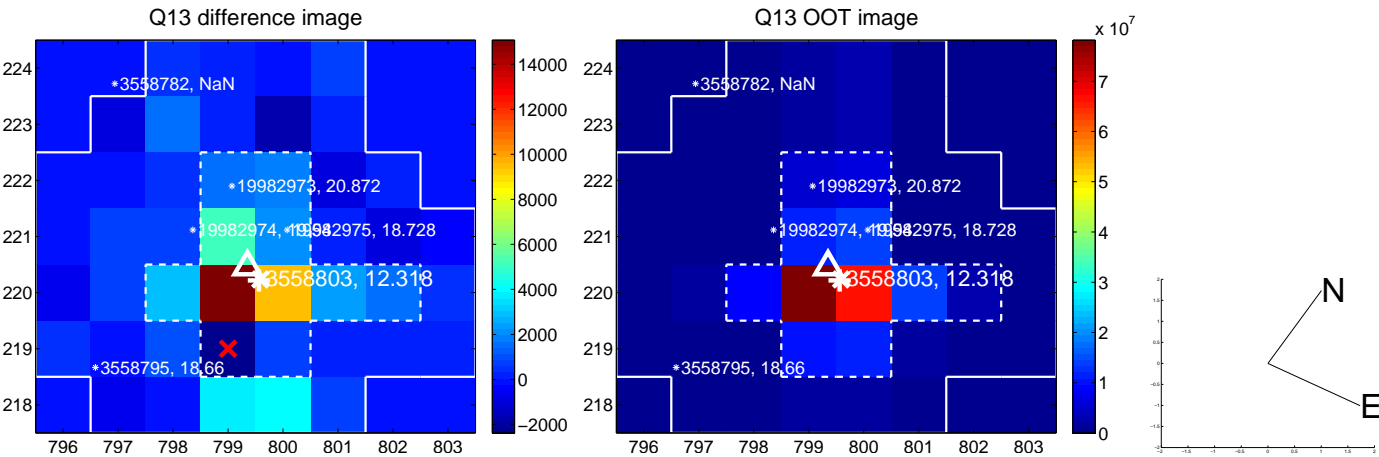
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



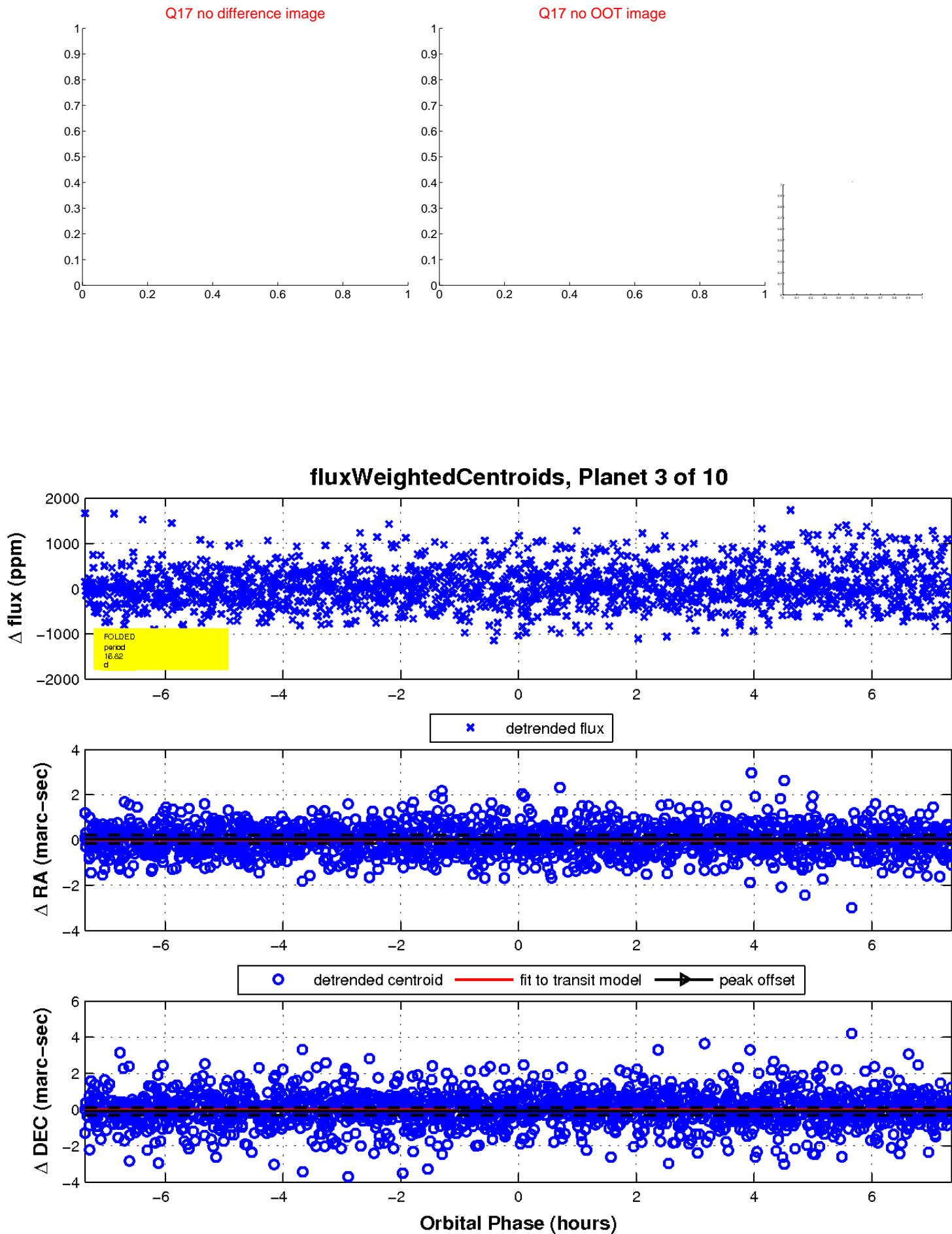
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

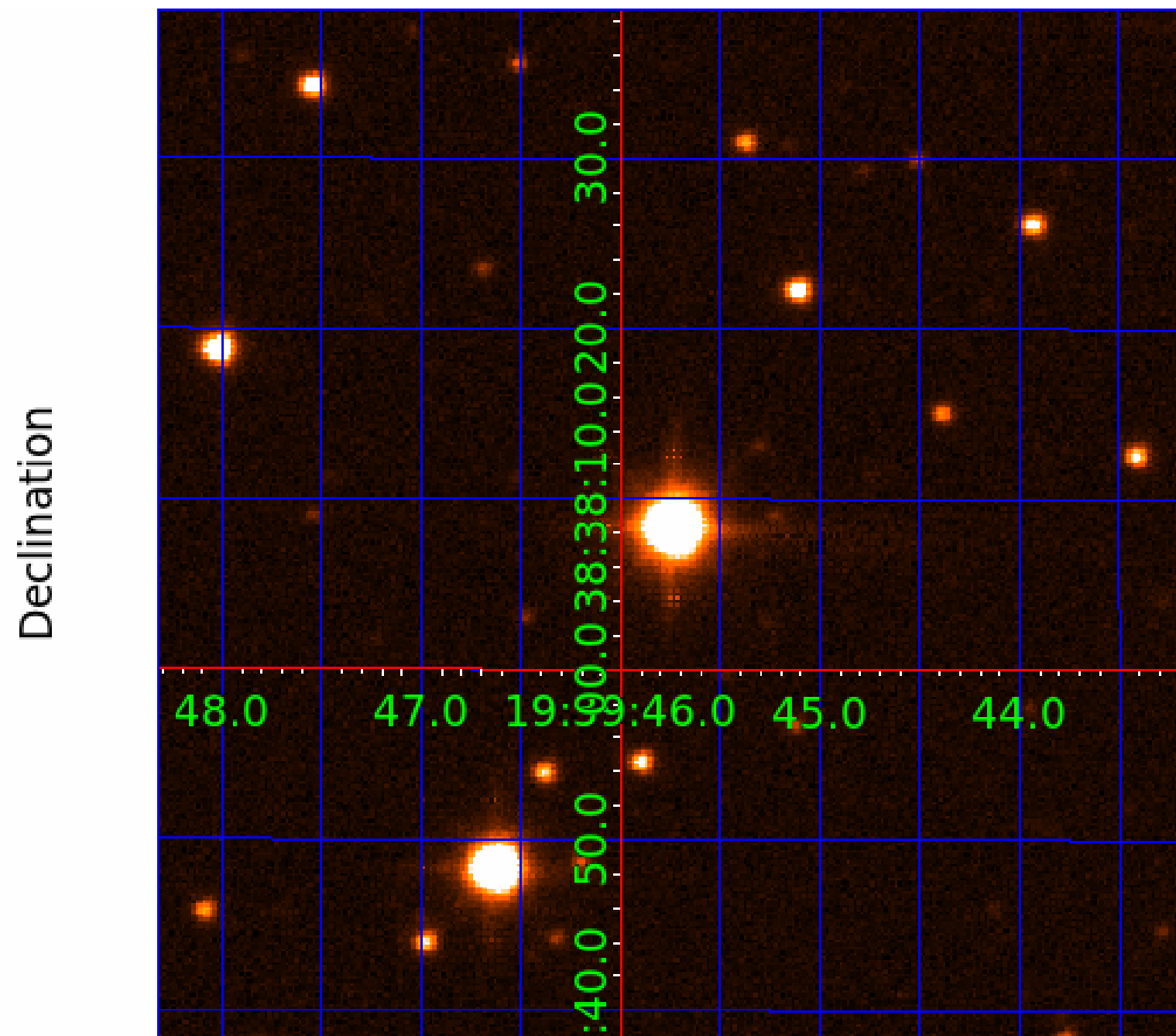


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image



## KIC 003558803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003558803-01	OBS	6345.01	1.353452	131.671808	43.8	8.659	19.0	5.6	8.59	4850	5.50	0.00
003558803-02	OBS	No	26.890557	158.331830	651.3	2.791	14.3	13.0	8.59	4850	25.05	753.22
003558803-03	OBS	No	16.819263	147.638424	502.2	2.454	13.6	12.1	8.59	4850	22.79	1408.14
003558803-04	OBS	No	52.653629	145.420099	841.2	2.829	13.8	13.6	8.59	4850	30.52	307.48
003558803-05	OBS	No	109.340809	139.449797	1048.1	9.446	13.0	14.0	8.59	4850	34.72	116.06
003558803-06	OBS	No	41.807115	153.651917	851.4	5.370	13.0	12.7	8.59	4850	34.21	418.20
003558803-07	OBS	No	23.122790	154.403549	632.1	3.179	13.2	13.0	8.59	4850	42.09	921.16
003558803-08	OBS	No	8.633592	136.565481	442.3	3.706	13.1	13.5	8.59	4850	38.35	3426.10
003558803-09	OBS	No	97.651648	216.153876	1031.9	4.221	12.2	12.0	8.59	4850	27.88	134.94
003558803-10	OBS	No	15.234080	146.589122	378.5	1.500	12.3	-1.0	8.59	4850	16.19	1606.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558803-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003558803-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN—HALO_GHOST
003558803-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003558803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN
003558803-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
003558803-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003558803-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-10	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

**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.

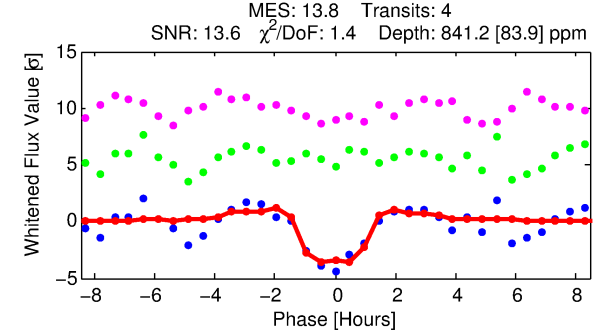
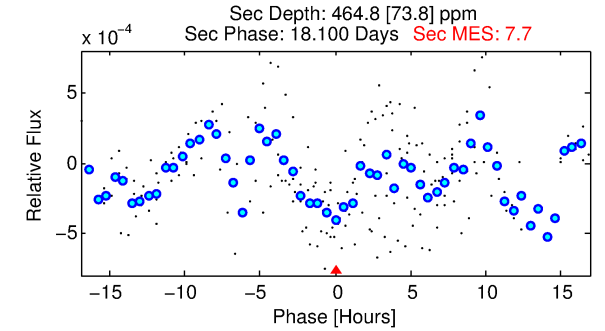
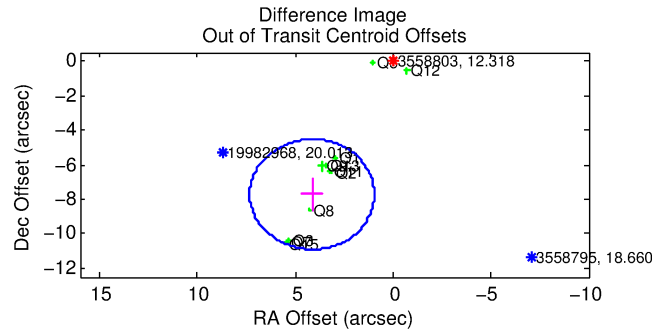
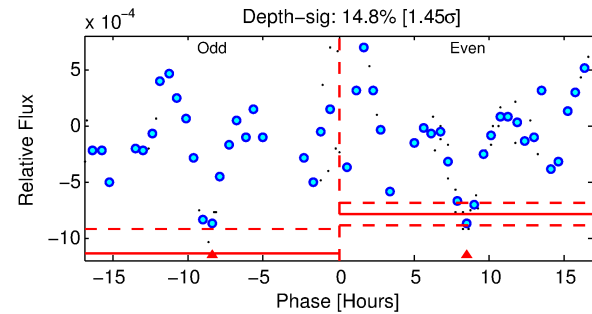
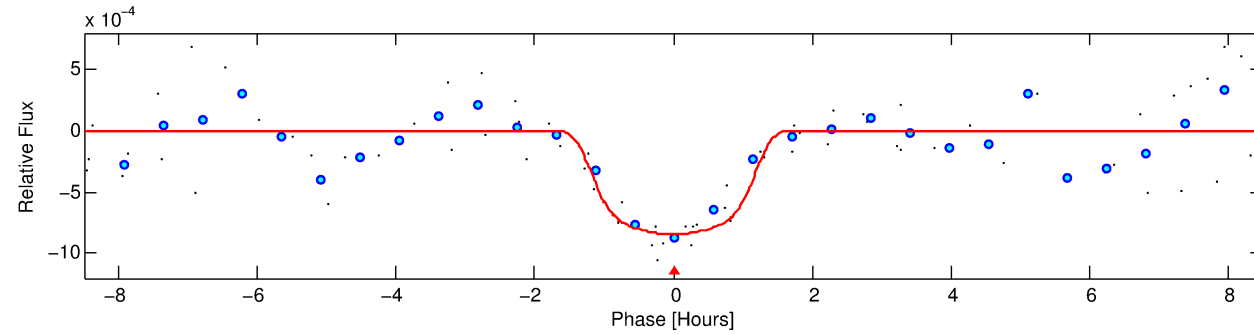
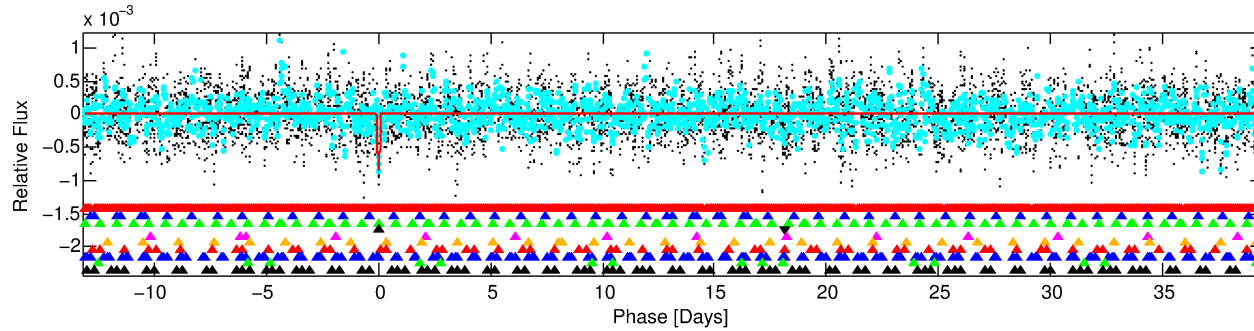
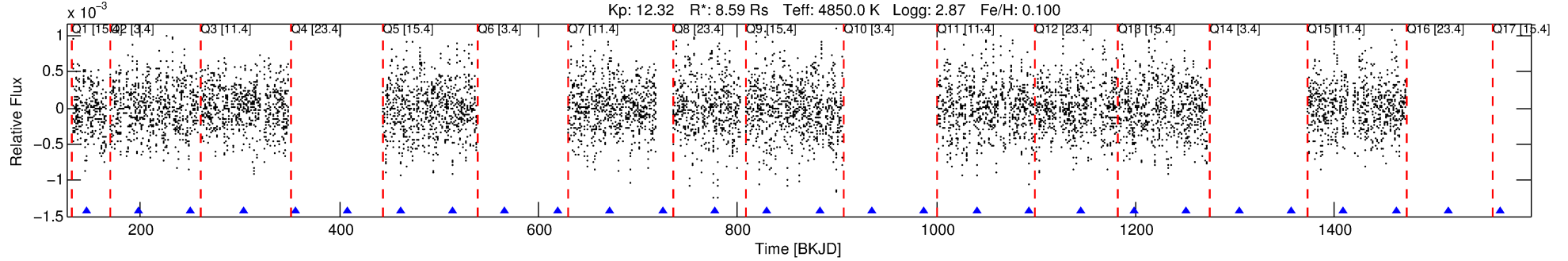
Ephemeris Match Information For 003558803-04

No Significant Match Found

# DV One-Page Summary

KIC: 3558803 Candidate: 4 of 10 Period: 52.654 d  
KOI: K06345 Corr: No Ephemeris Match

Kp: 12.32 R\*: 8.59 Rs Teff: 4850.0 K Logg: 2.87 Fe/H: 0.100



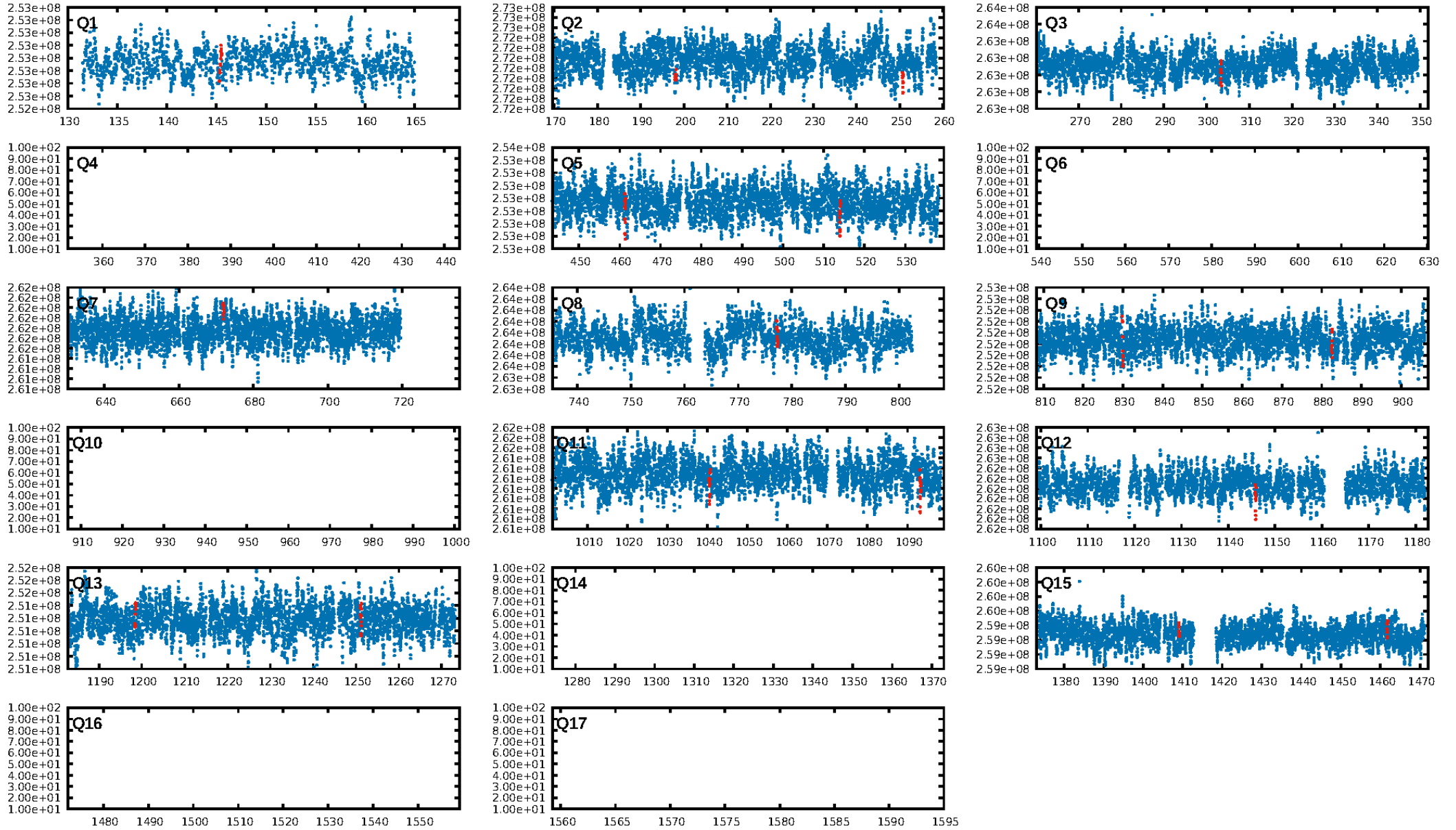
## DV Fit Results:

Period = 52.65363 [0.00049] d  
Epoch = 145.4201 [0.0067] BKJD  
Rp/R\* = 0.0326 [0.0156]  
a/R\* = 71.99 [125.92]  
b = 0.90 [0.39]  
Seff = 307.48 [133.44]  
Teq = 1068 [116] K  
Rp = 30.52 [18.17] Re  
a = 0.3448 [0.1005] AU  
Ag = 32.63 [34.56] [0.92σ]  
Teffp = 3946 [967] K [2.96σ]

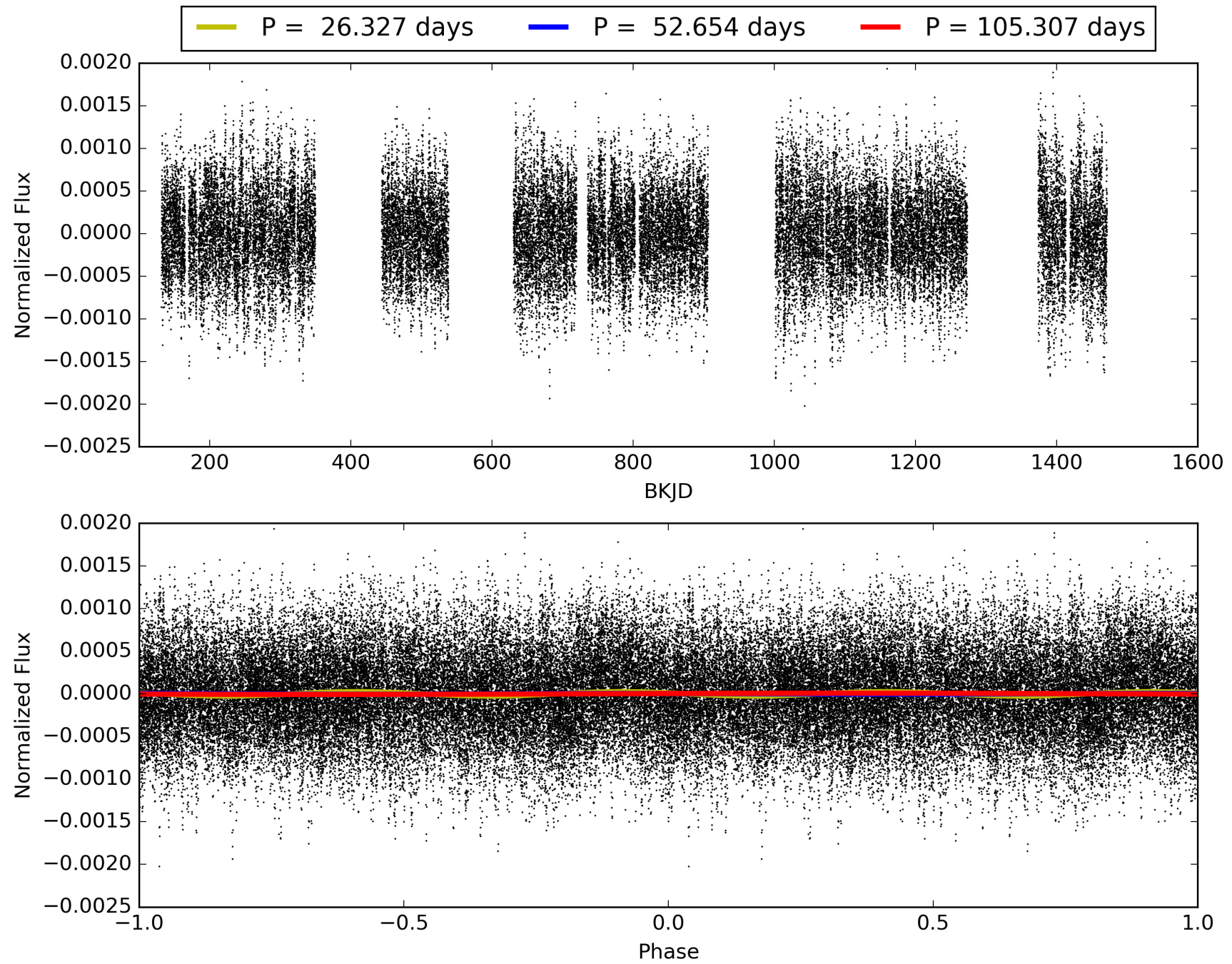
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [42.89σ]  
LongPeriod-sig: 100.0% [212.54σ]  
ModelChiSquare2-sig: 61.9%  
ModelChiSquareGof-sig: 97.6%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -4.494  
Centroid-sig: 0.0%  
Centroid-so: 0.188 arcsec [0.61σ]  
OotOffset-rm: 8.762 arcsec [8.26σ]  
KicOffset-rm: 8.842 arcsec [7.61σ]  
OotOffset-st: 1/4/2/4 [11]  
KicOffset-st: 1/4/2/4 [11]  
DiffImageQuality-fgm: 0.36 [4/11]  
DiffImageOverlap-fno: 0.18 [2/11]

# TCE 003558803-04, PDC Light Curves

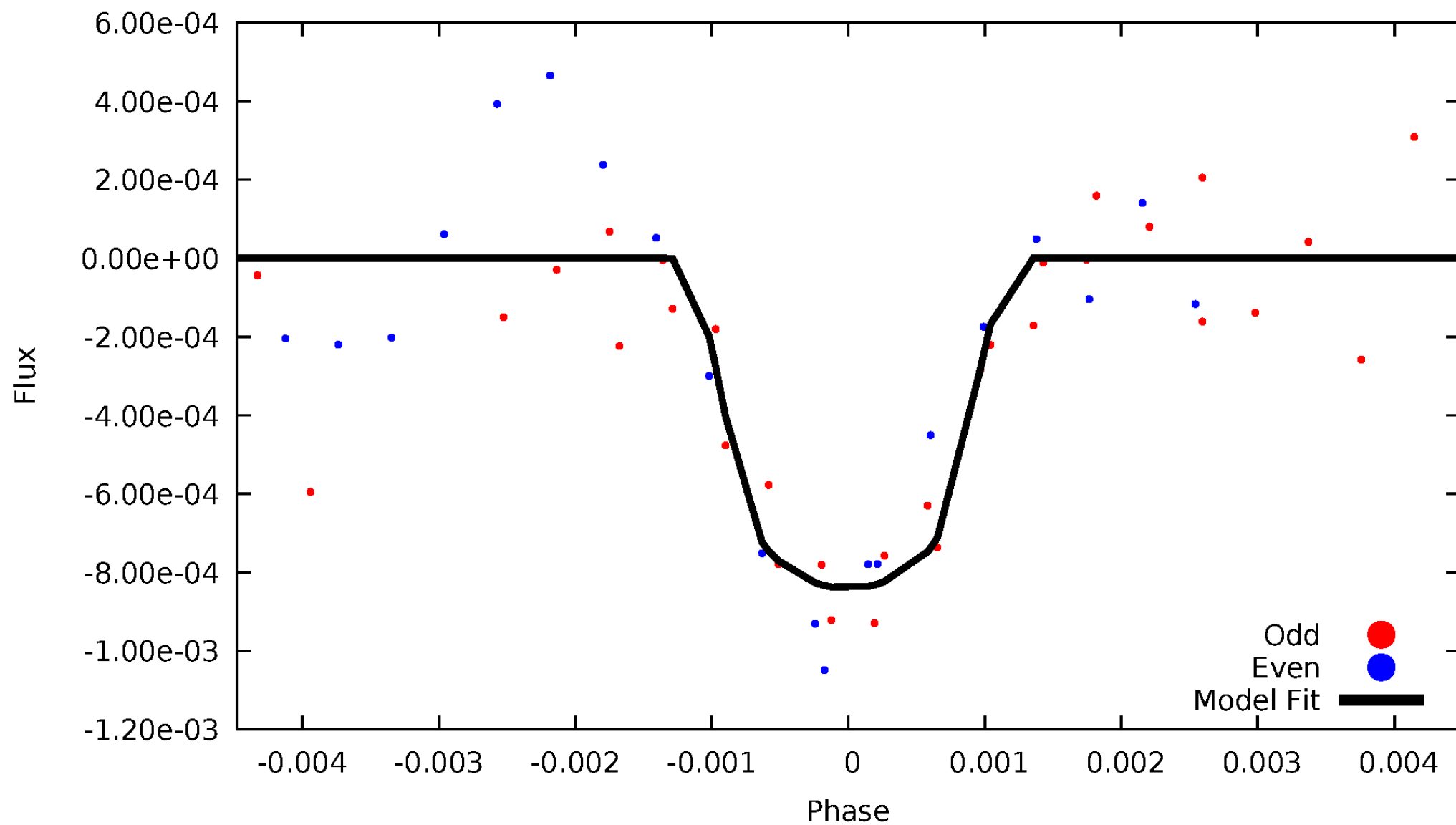


TCE 003558803-04



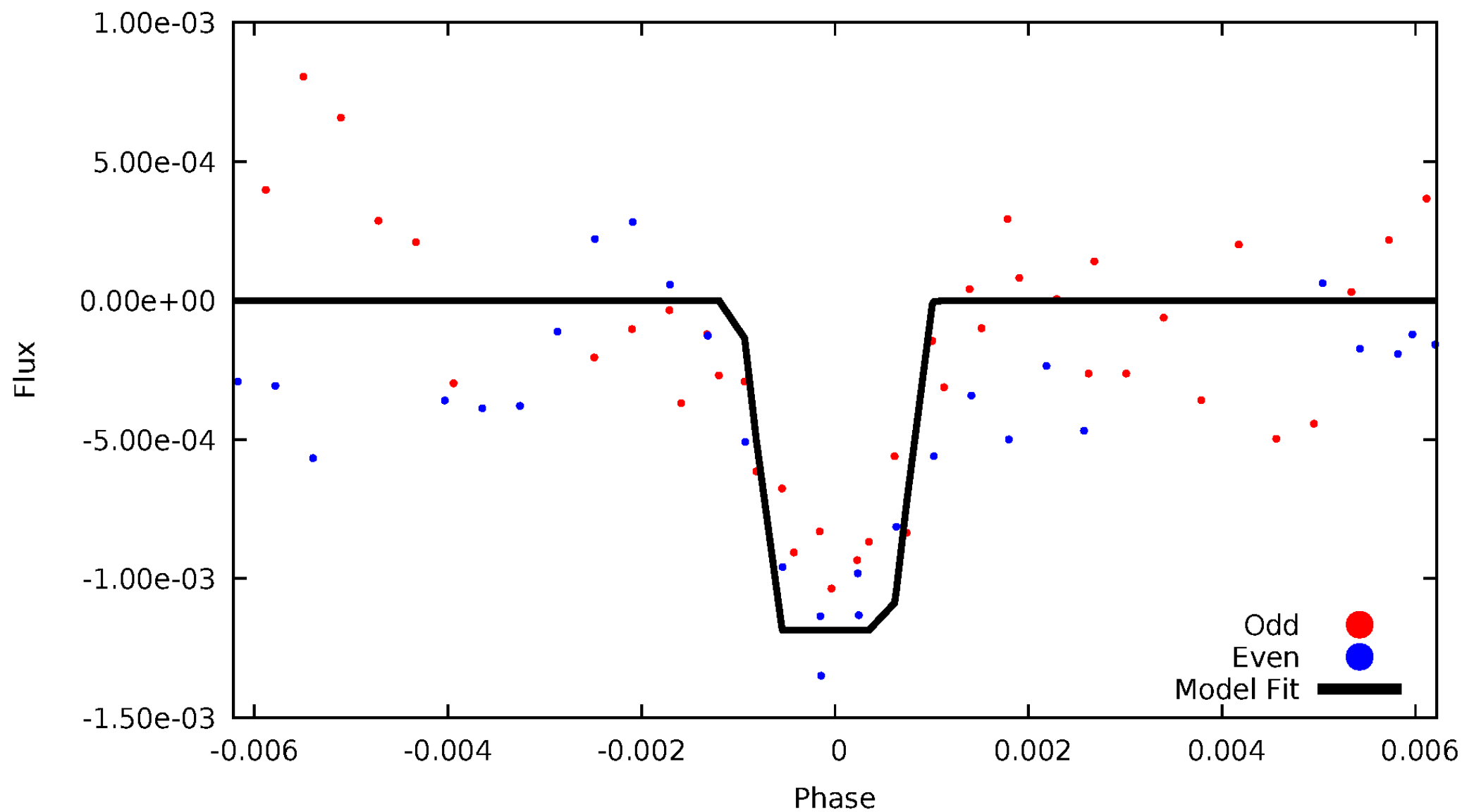
# DV Odd/Even

TCE 003558803-04



# ALT Odd/Even

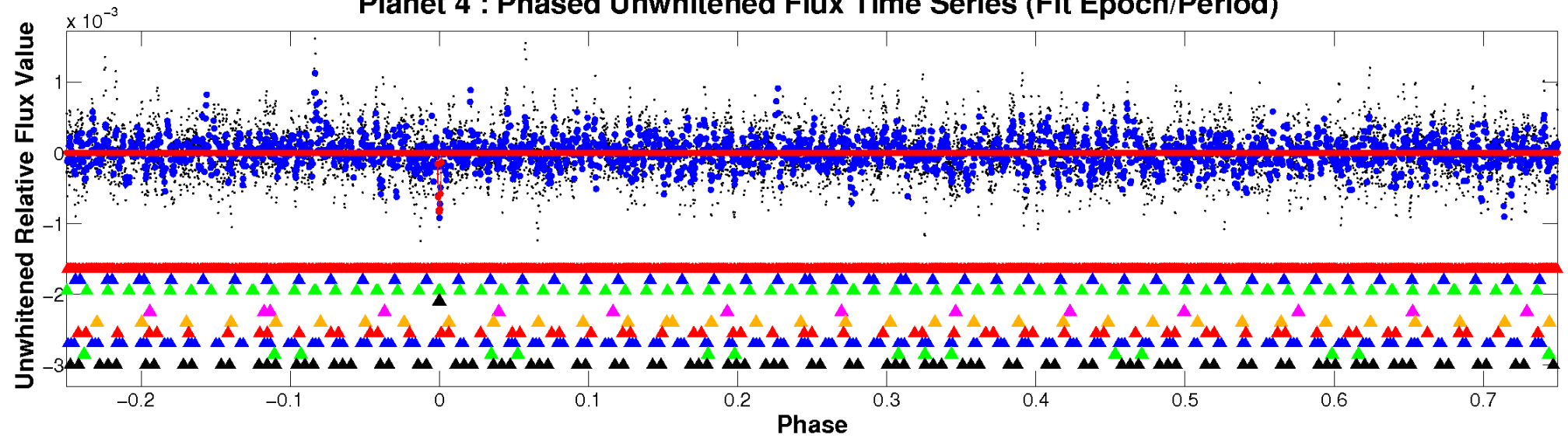
TCE 003558803-04



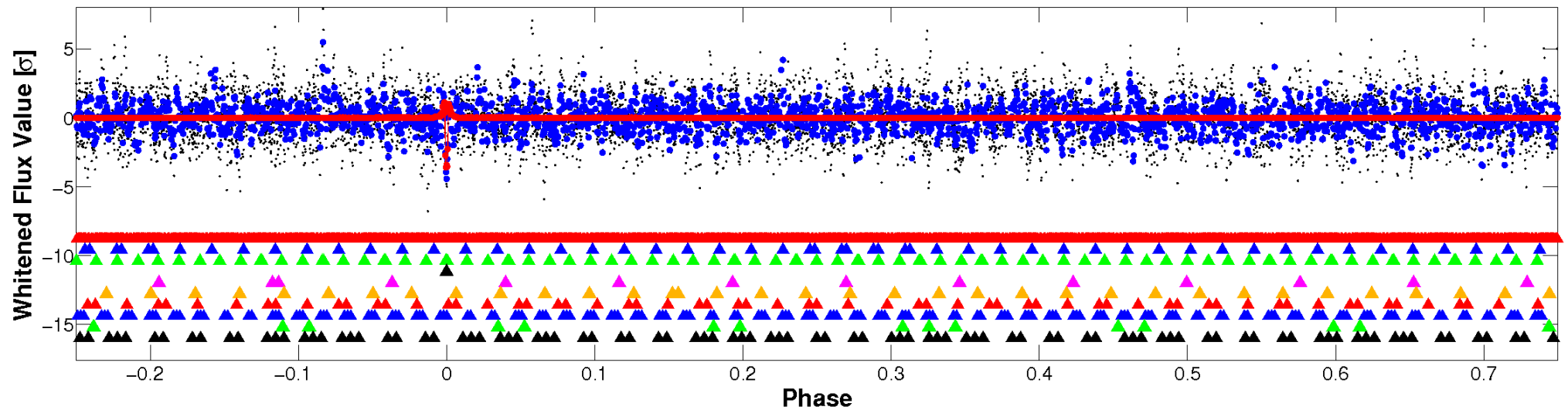


# Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

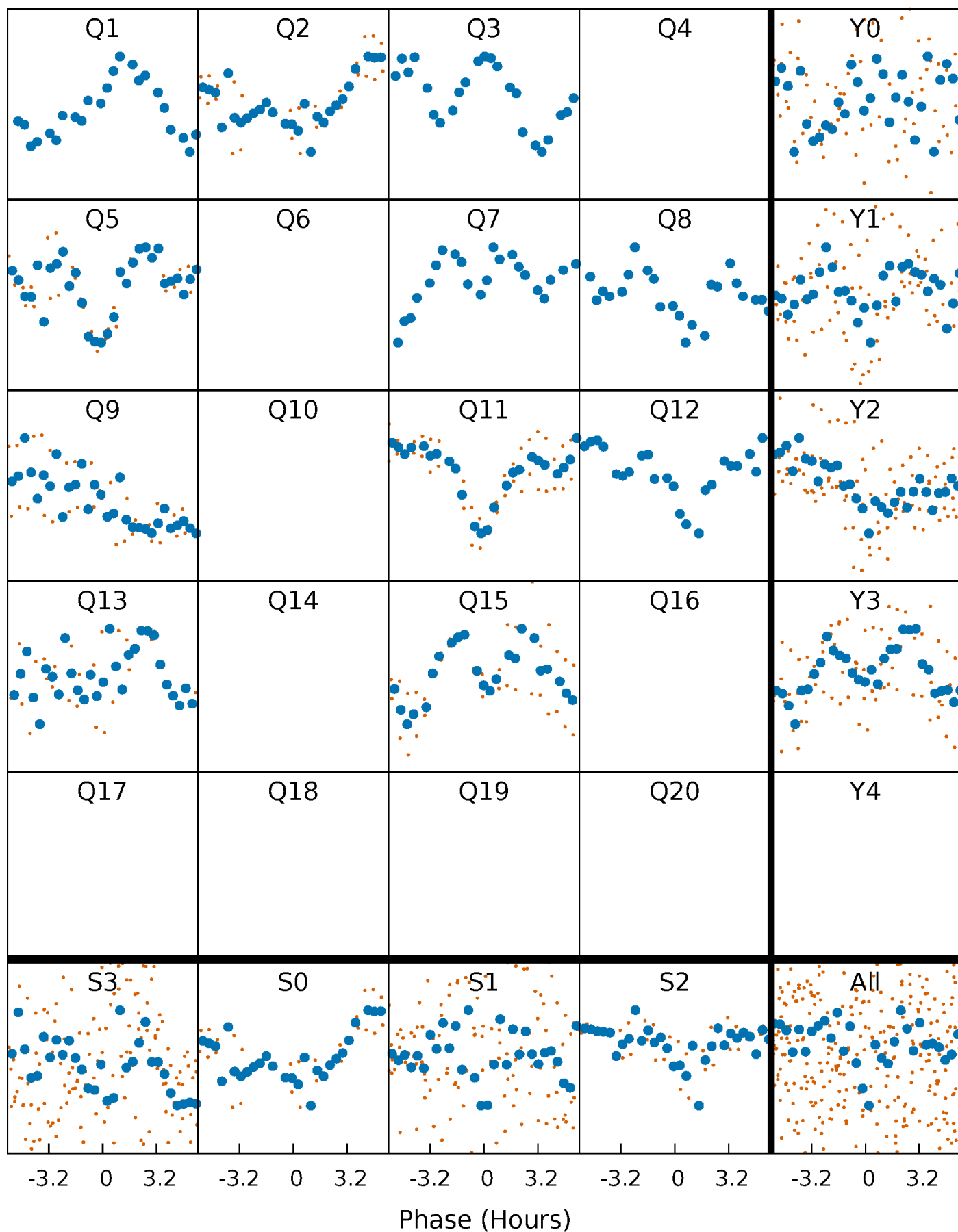


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



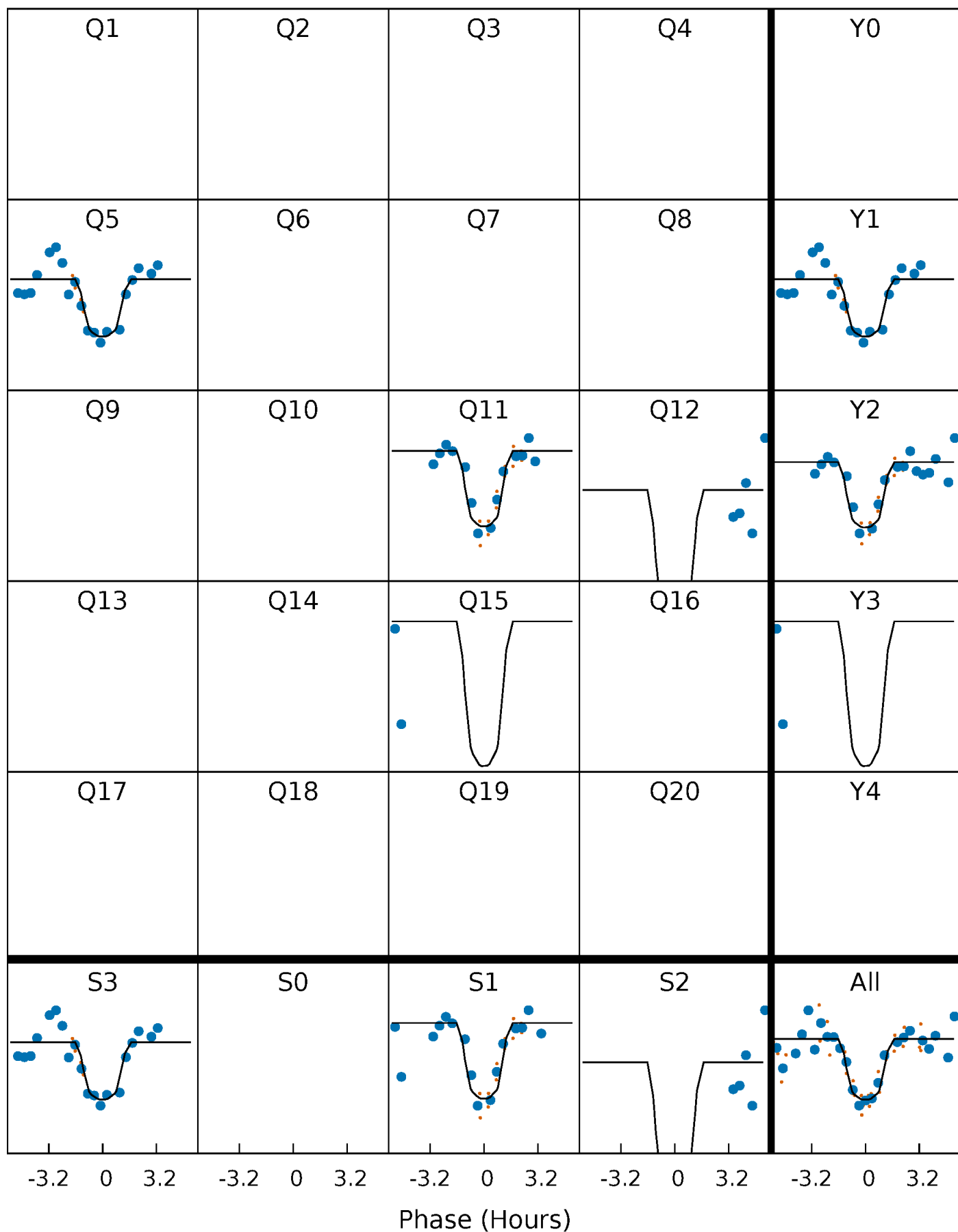
# PDC Quarter-Phased Transit Curves

TCE 003558803-04   P= 52.653629 Days    $T_0=145.420099$  (BKJD)



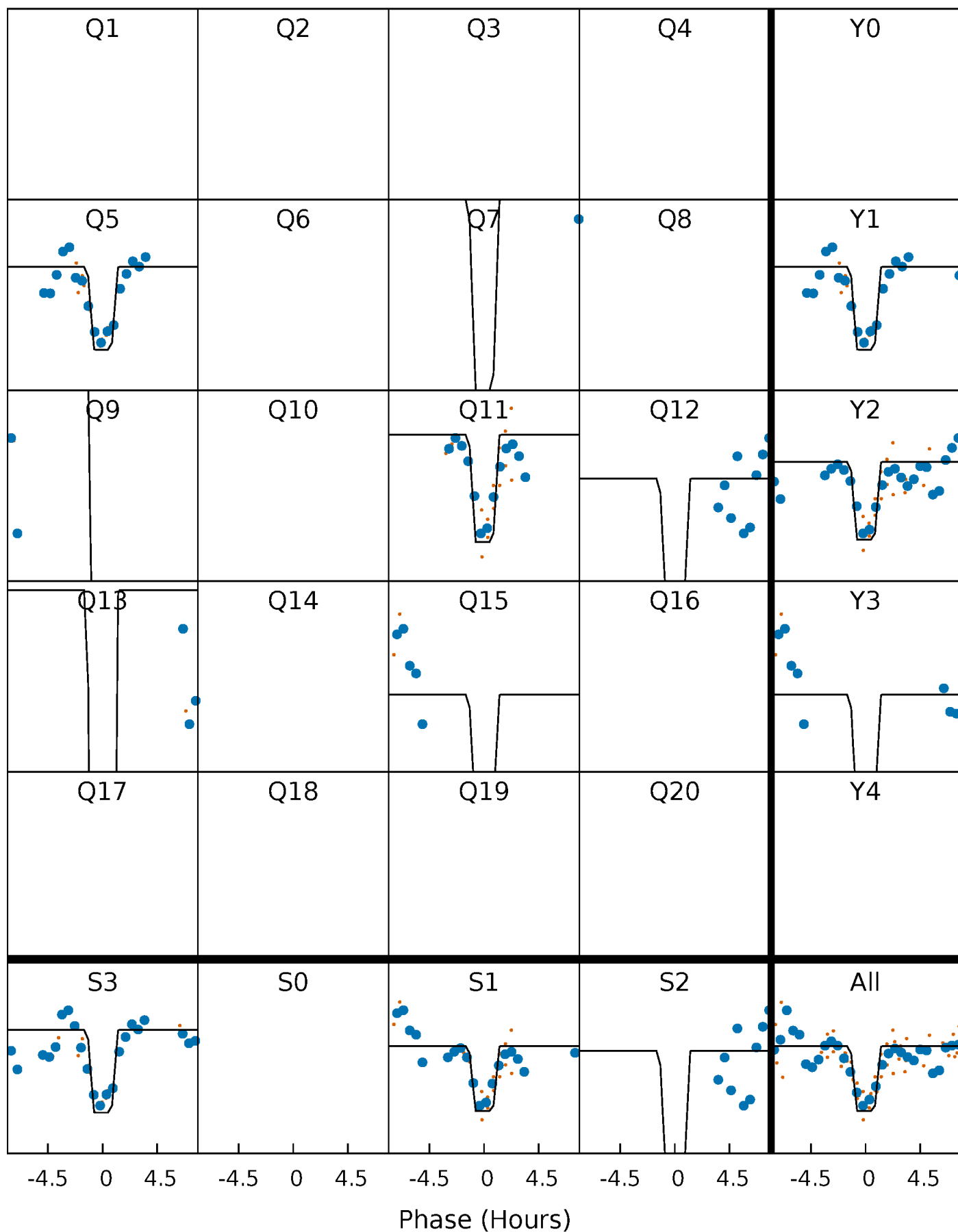
# DV Quarter-Phased Transit Curves

TCE 003558803-04   P= 52.653629 Days    $T_0=145.420099$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

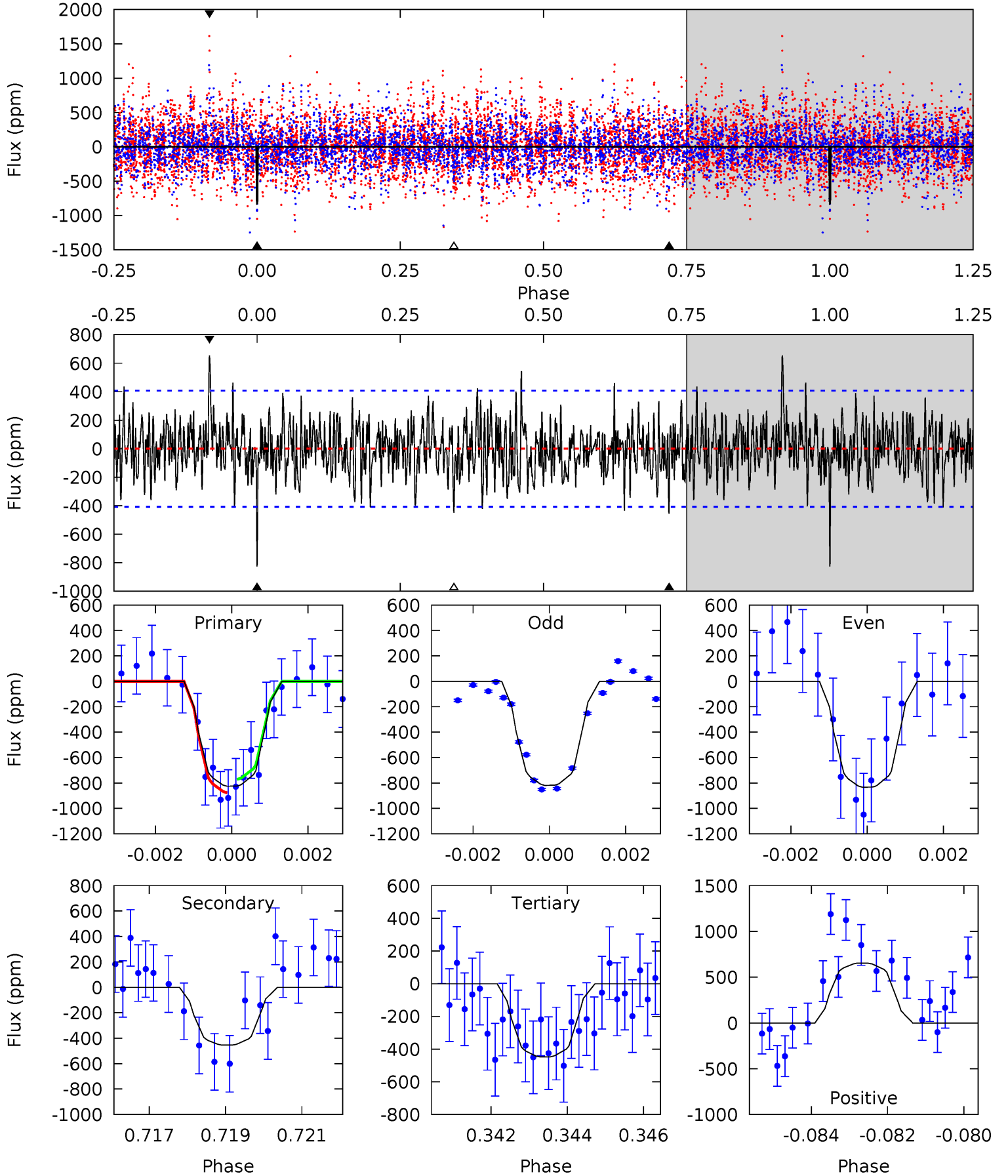
TCE 003558803-04   P= 52.653889 Days    $T_0=145.413746$  (BKJD)



# DV Model-Shift Uniqueness Test

003558803-04, P = 52.653629 Days, E = 92.766470 Days

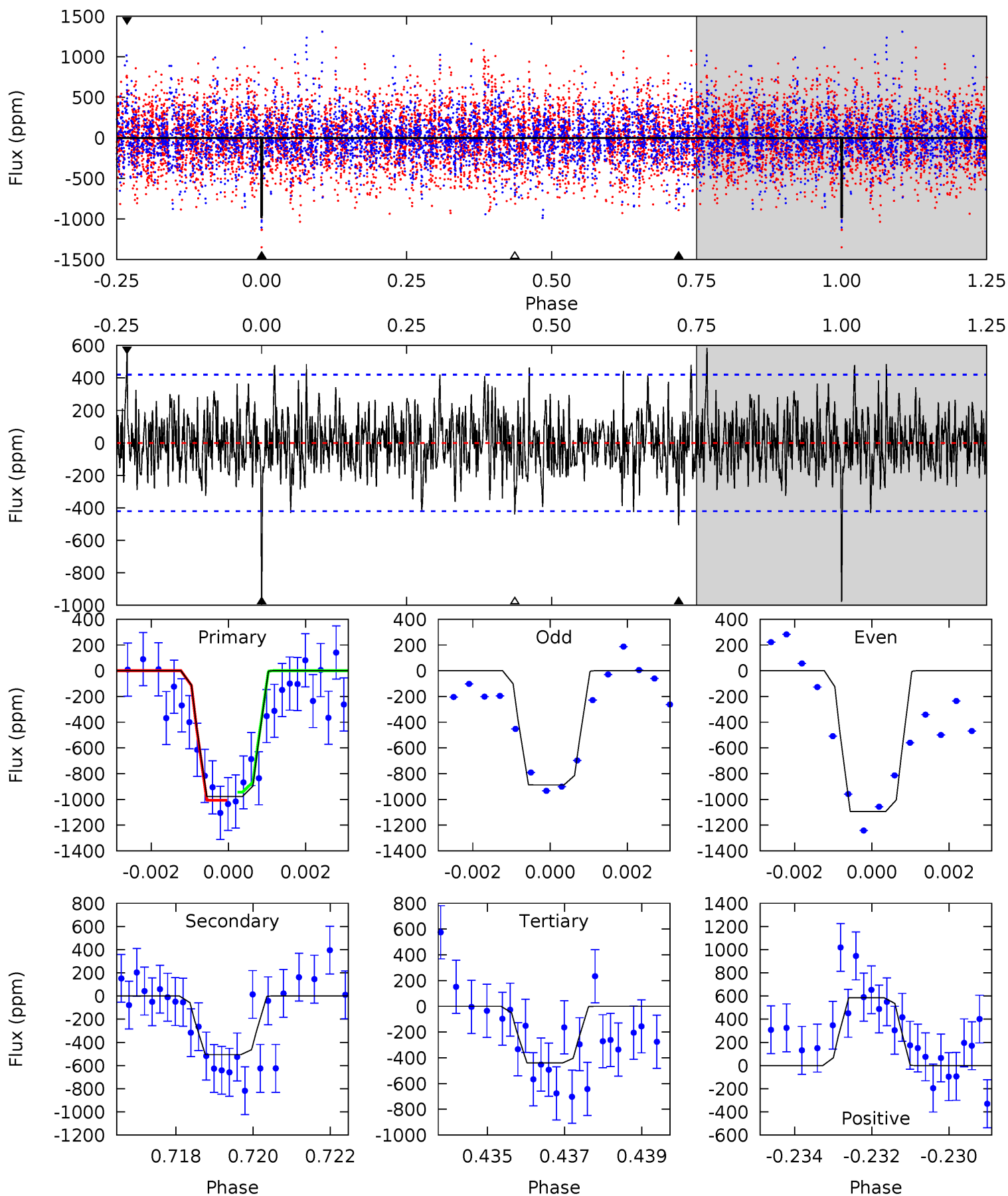
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	5.93	5.85	8.54	5.32	3.08	1.94	4.93	2.24	0.08	-2.61	0.10	1.00	0.44	0.69



# Alt Model-Shift Uniqueness Test

003558803-04, P = 52.653889 Days, E = 92.759857 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
12.4	6.42	5.58	7.42	5.33	3.10	1.78	6.82	4.99	0.84	-0.99	1.27	0.97	0.37	0.39



### Stellar Parameters For KIC 003558803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4850^{+95}_{-143}$	$2.865^{+0.225}_{-0.164}$	$0.100^{+0.200}_{-0.300}$	$8.586^{+2.199}_{-3.024}$	$1.969^{+0.734}_{-0.897}$	$0.004^{+0.008}_{-0.002}$
	+2%/-3%	+8%/-6%	+200%/-300%	+26%/-35%	+37%/-46%	+175%/-41%
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 003558803-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-454 \pm 77$	$30.35^{+17.29}_{-14.54}$	$1480^{+100}_{-121}$	$4046^{+1168}_{-505}$	$32^{+83}_{-18}$
Alt.	$-506 \pm 79$	$32.99^{+17.19}_{-15.08}$	$1490^{+102}_{-121}$	$4049^{+993}_{-470}$	$31^{+67}_{-17}$

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



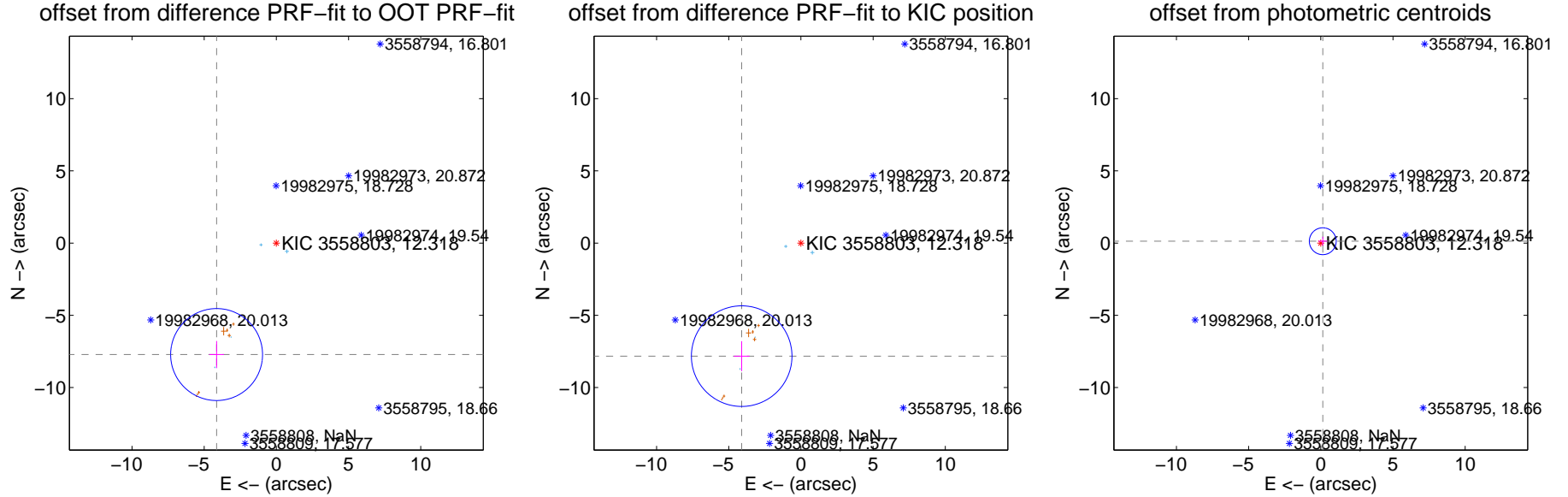
## DV Centroid Data

Supplemental centroid analysis for 003558803-04. Kepler magnitude: 12.32. Transit SNR 13.65

There are 4 quarters with good PRF difference image offsets

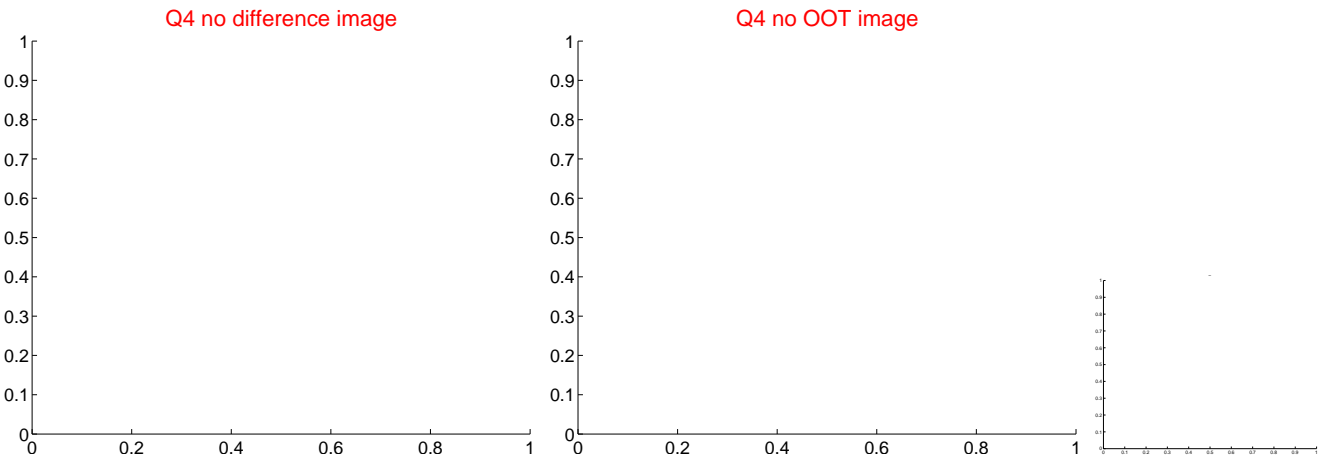
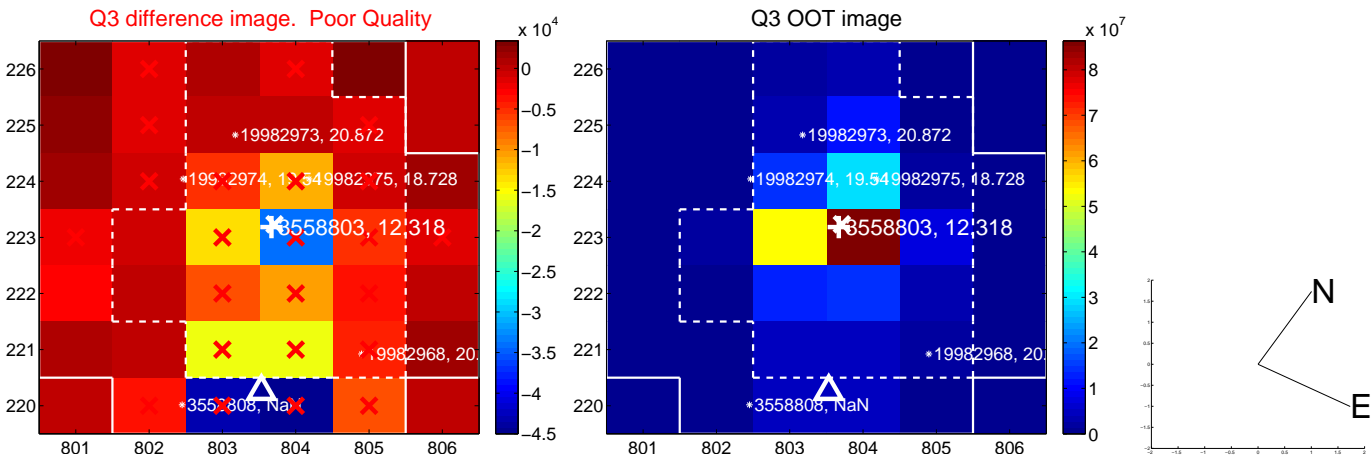
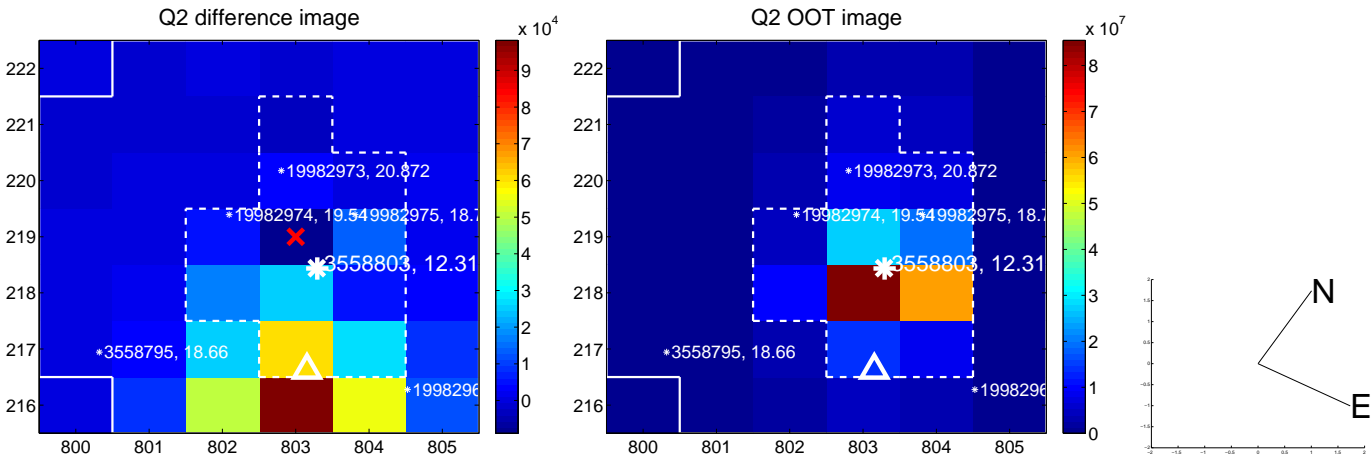
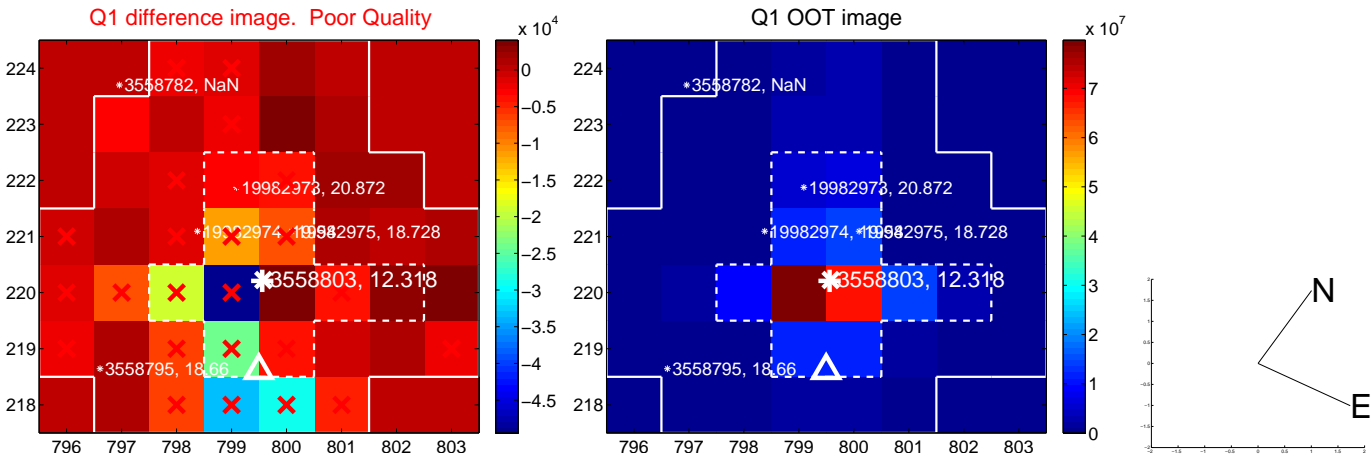
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>8.762 <math>\pm</math> 1.061</b>	<b>8.26</b>	4.144 $\pm$ 0.509	-7.720 $\pm$ 0.940
PRF-fit source offset from KIC position	<b>8.842 <math>\pm</math> 1.162</b>	<b>7.61</b>	4.107 $\pm$ 0.546	-7.830 $\pm$ 1.035
photometric centroid source offset	0.19 $\pm$ 0.31	0.61	-0.14 $\pm$ 0.30	0.13 $\pm$ 0.32

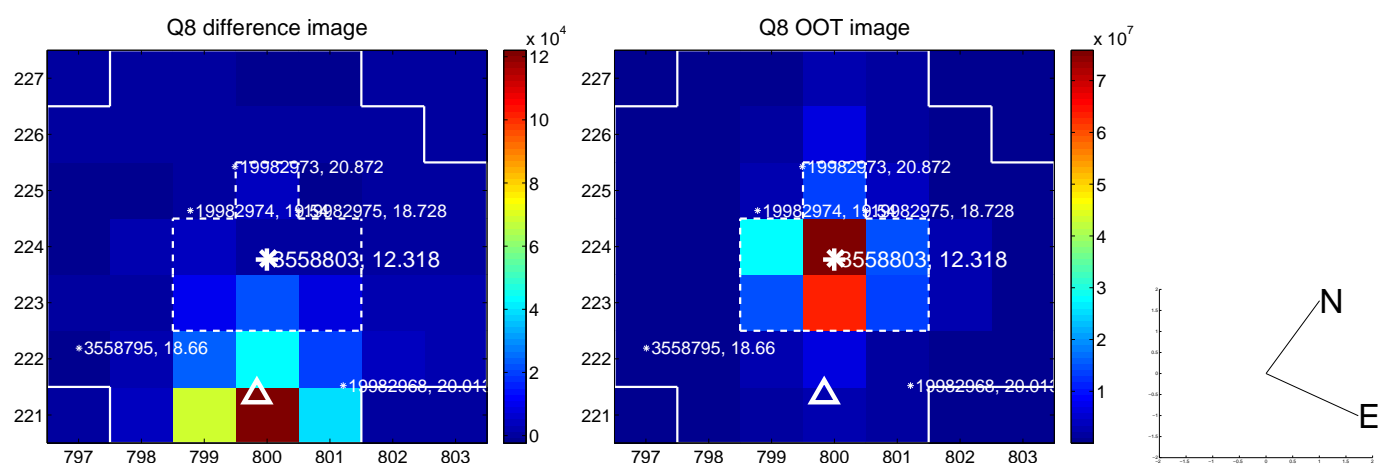
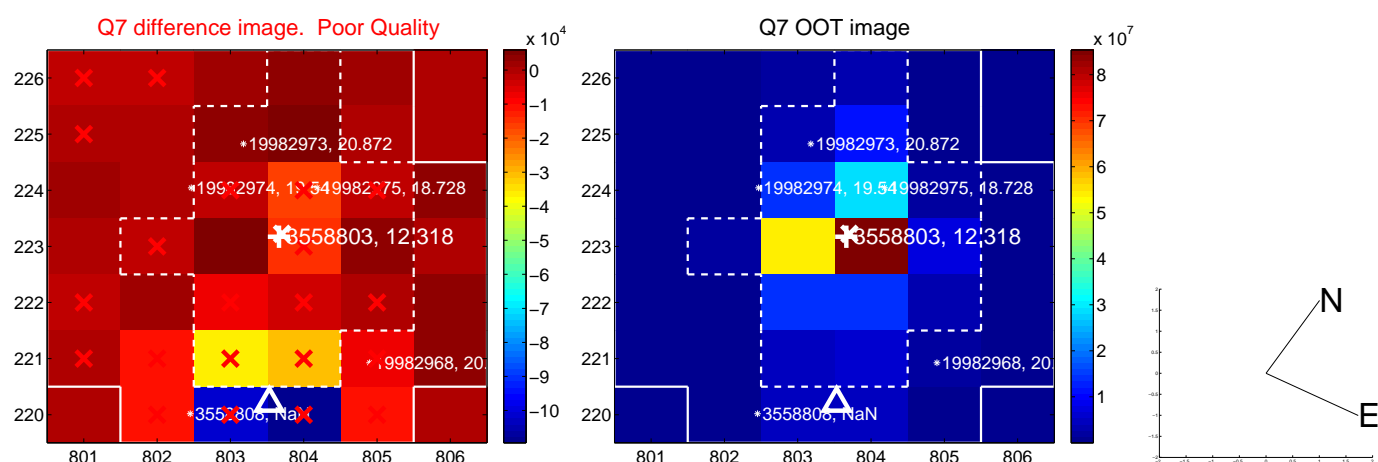
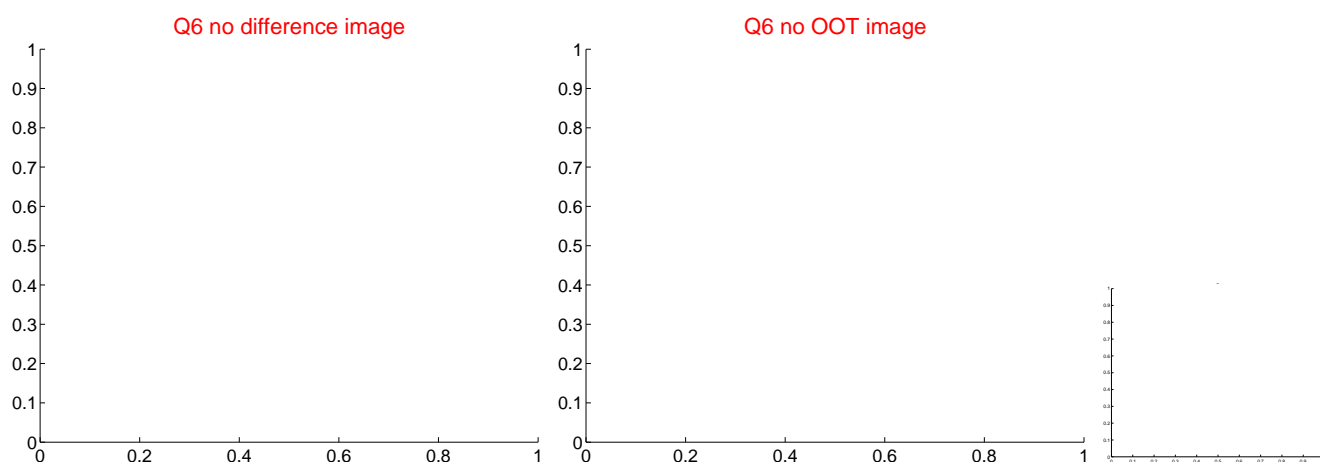
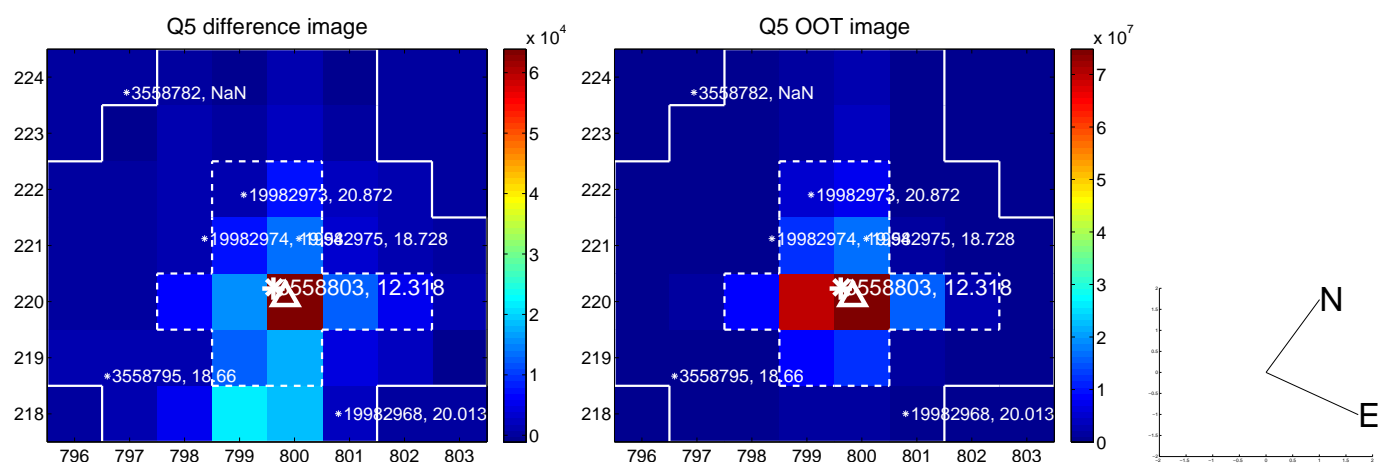


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

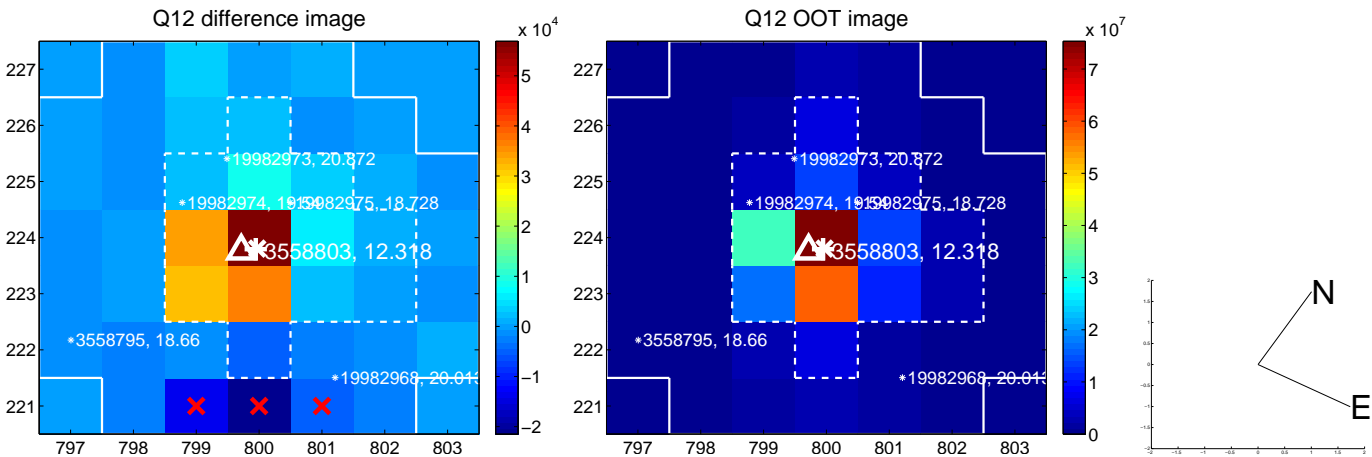
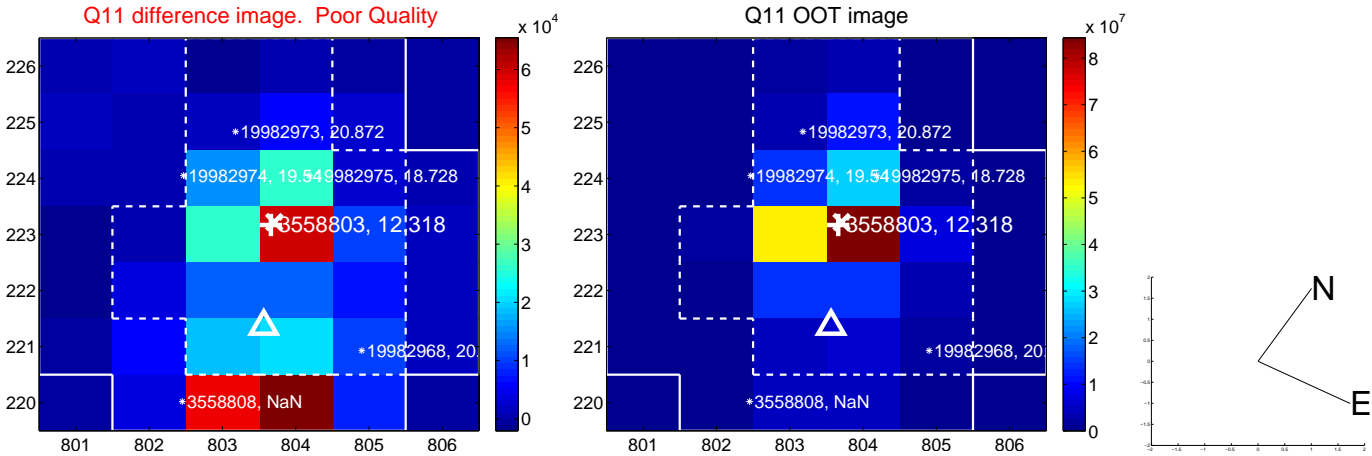
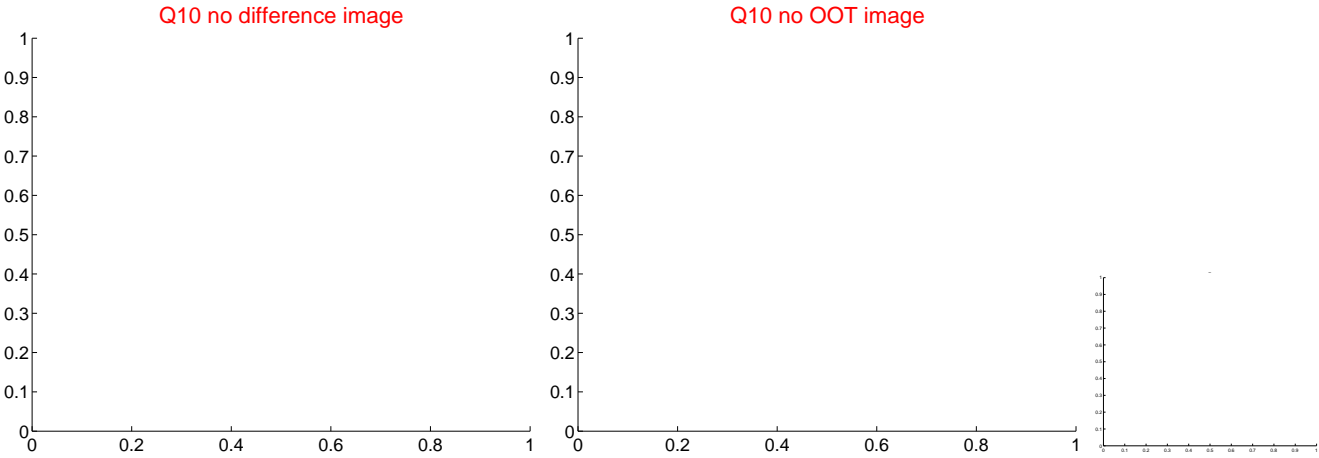
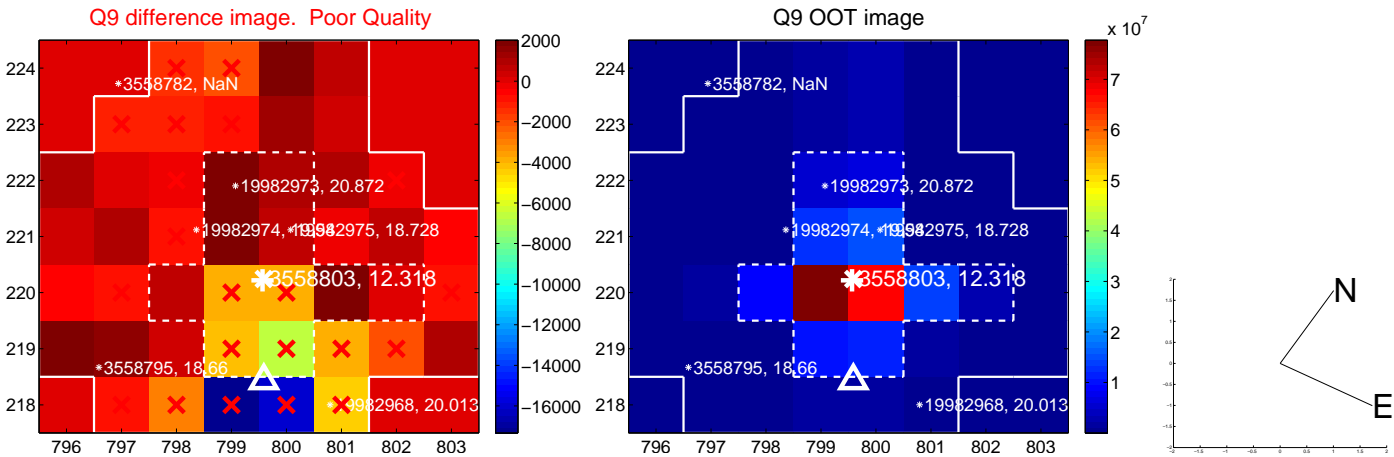
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



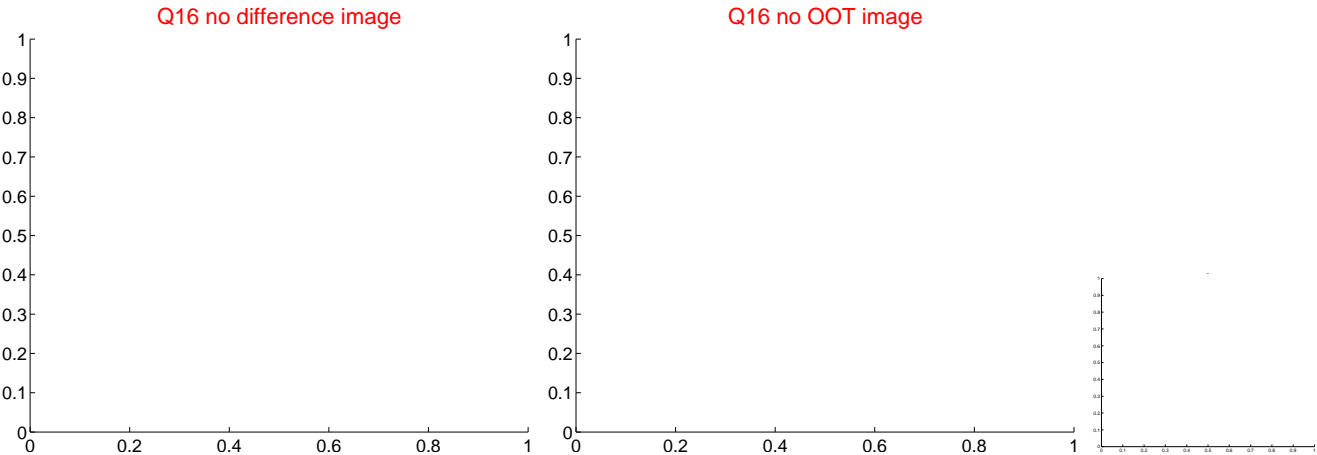
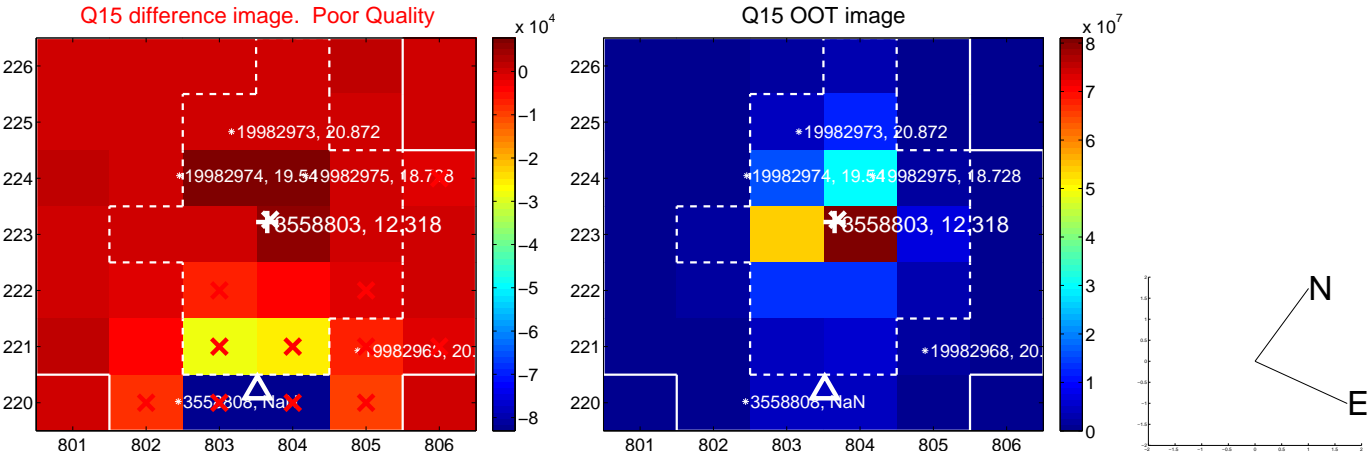
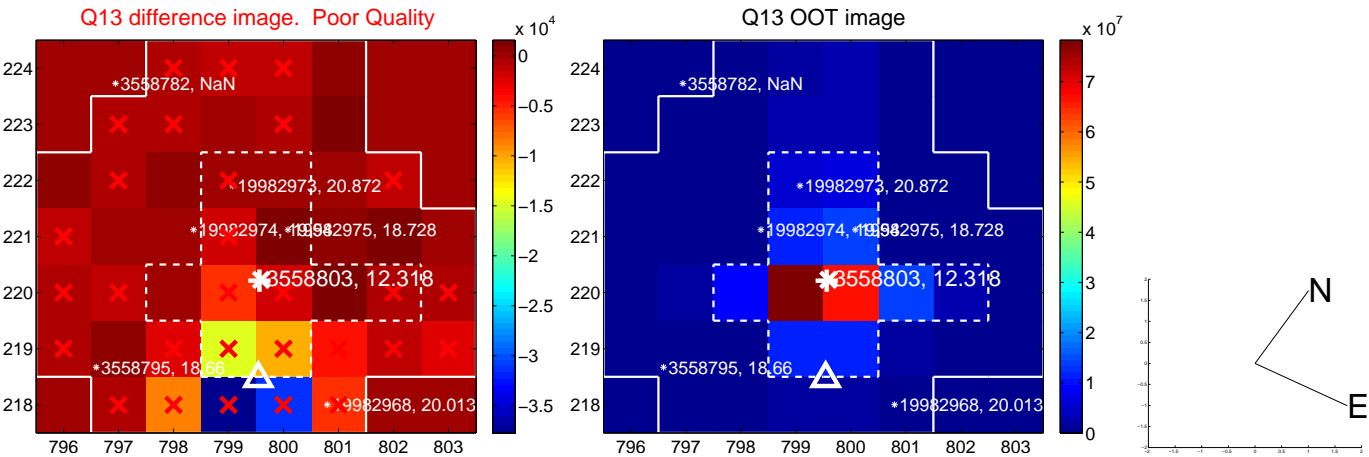
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



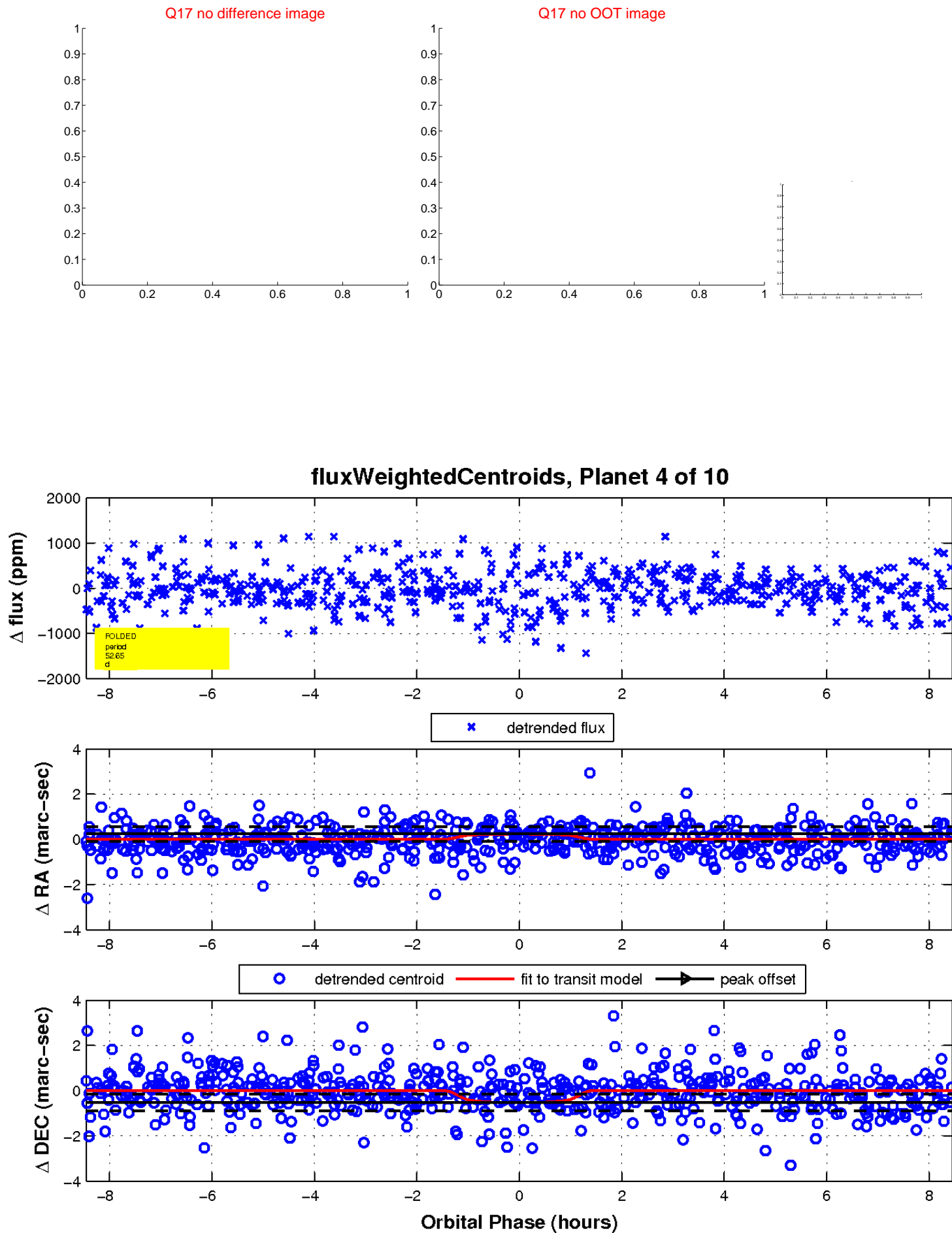
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



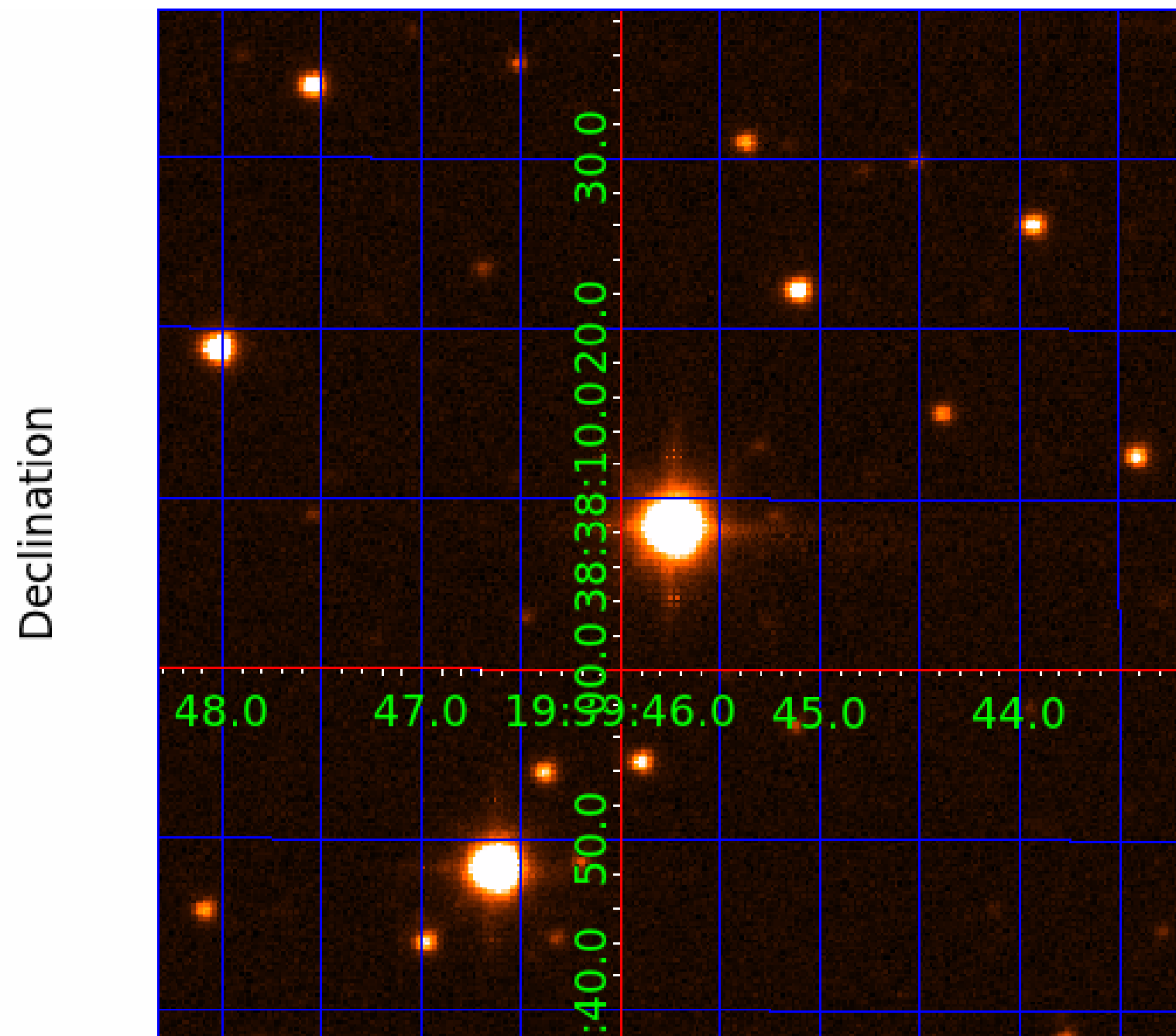
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





## KIC 003558803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003558803-01	OBS	6345.01	1.353452	131.671808	43.8	8.659	19.0	5.6	8.59	4850	5.50	0.00
003558803-02	OBS	No	26.890557	158.331830	651.3	2.791	14.3	13.0	8.59	4850	25.05	753.22
003558803-03	OBS	No	16.819263	147.638424	502.2	2.454	13.6	12.1	8.59	4850	22.79	1408.14
003558803-04	OBS	No	52.653629	145.420099	841.2	2.829	13.8	13.6	8.59	4850	30.52	307.48
003558803-05	OBS	No	109.340809	139.449797	1048.1	9.446	13.0	14.0	8.59	4850	34.72	116.06
003558803-06	OBS	No	41.807115	153.651917	851.4	5.370	13.0	12.7	8.59	4850	34.21	418.20
003558803-07	OBS	No	23.122790	154.403549	632.1	3.179	13.2	13.0	8.59	4850	42.09	921.16
003558803-08	OBS	No	8.633592	136.565481	442.3	3.706	13.1	13.5	8.59	4850	38.35	3426.10
003558803-09	OBS	No	97.651648	216.153876	1031.9	4.221	12.2	12.0	8.59	4850	27.88	134.94
003558803-10	OBS	No	15.234080	146.589122	378.5	1.500	12.3	-1.0	8.59	4850	16.19	1606.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558803-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003558803-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN—HALO_GHOST
003558803-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003558803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN
003558803-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
003558803-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003558803-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-10	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

**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.

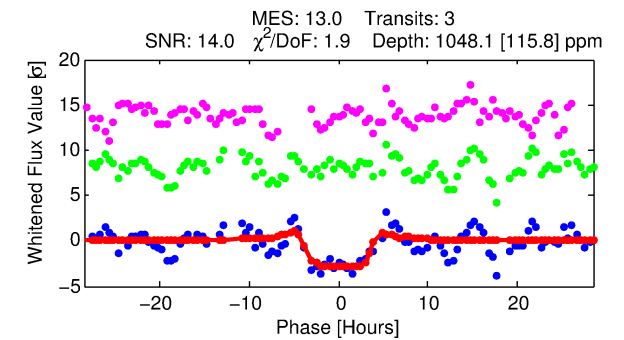
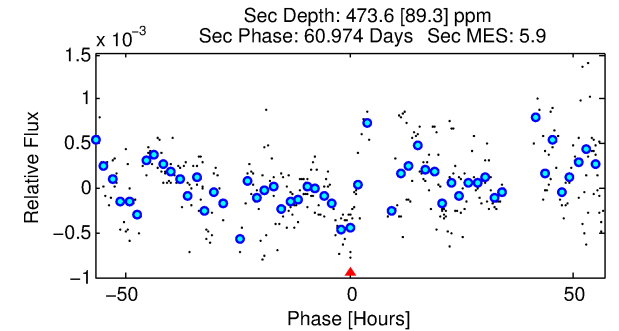
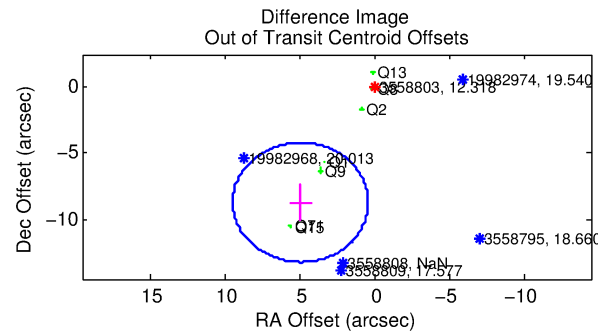
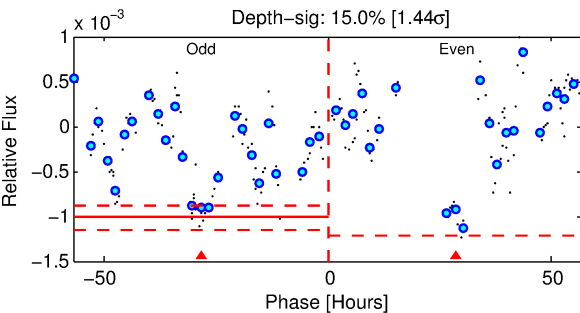
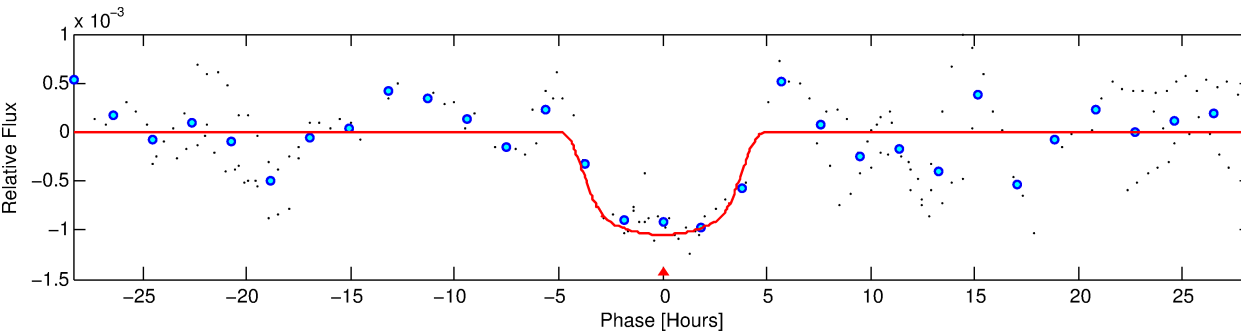
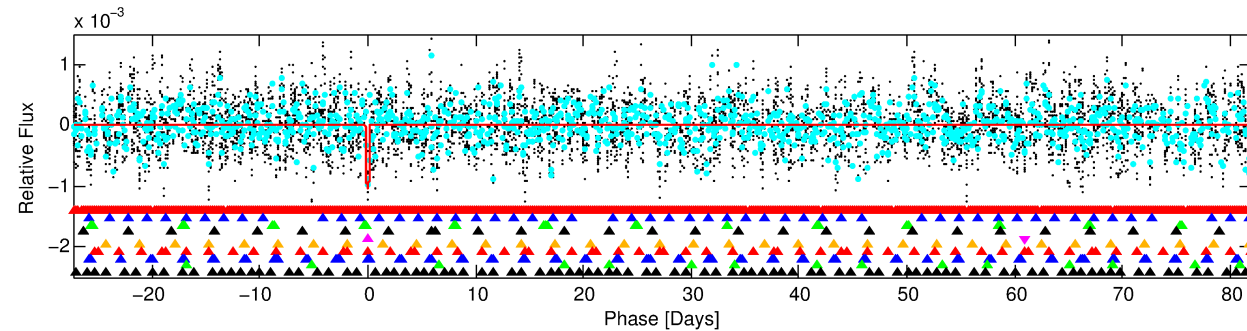
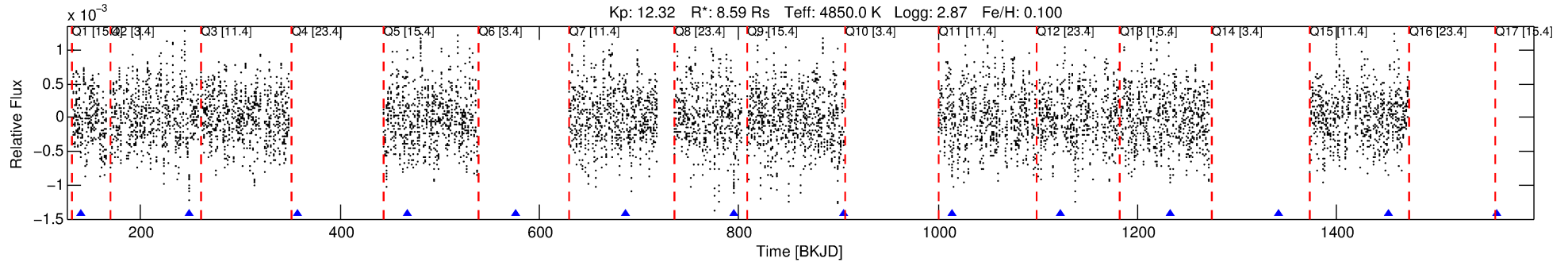
Ephemeris Match Information For 003558803-05

No Significant Match Found

# DV One-Page Summary

KIC: 3558803 Candidate: 5 of 10 Period: 109.341 d  
KOI: K06345 Corr: No Ephemeris Match

Kp: 12.32 R\*: 8.59 Rs Teff: 4850.0 K Logg: 2.87 Fe/H: 0.100



## DV Fit Results:

Period = 109.34081 [0.00589] d  
Epoch = 139.4498 [0.0460] BKJD  
Rp/R\* = 0.0371 [0.0050]  
a/R\* = 43.13 [19.56]  
b = 0.92 [0.09]  
Seff = 116.06 [50.37]  
Teq = 837 [91] K  
Rp = 34.72 [13.09] Re  
a = 0.5612 [0.1636] AU  
Ag = 68.06 [36.19] [1.85σ]  
Teffp = 3717 [325] K [8.54σ]

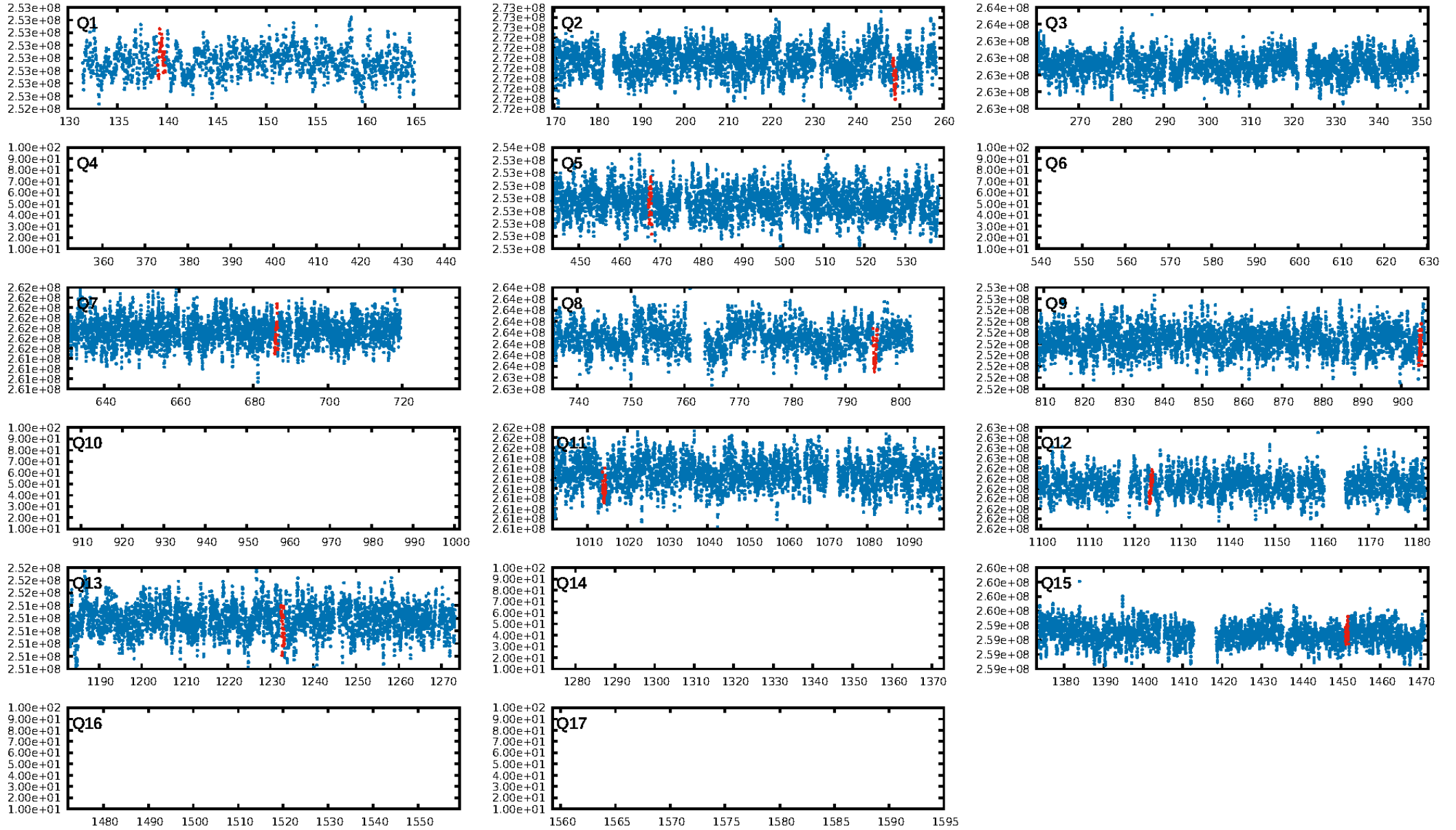
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.12σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 66.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.4154  
Centroid-sig: 29.5%  
Centroid-so: 0.457 arcsec [2.10σ]  
OotOffset-rm: 9.997 arcsec [6.63σ]  
KicOffset-rm: 10.157 arcsec [5.31σ]  
OotOffset-st: 1/3/1/3 [8]  
KicOffset-st: 1/3/1/3 [8]  
DiffImageQuality-fgm: 0.50 [4/8]  
DiffImageOverlap-fno: 0.00 [0/9]

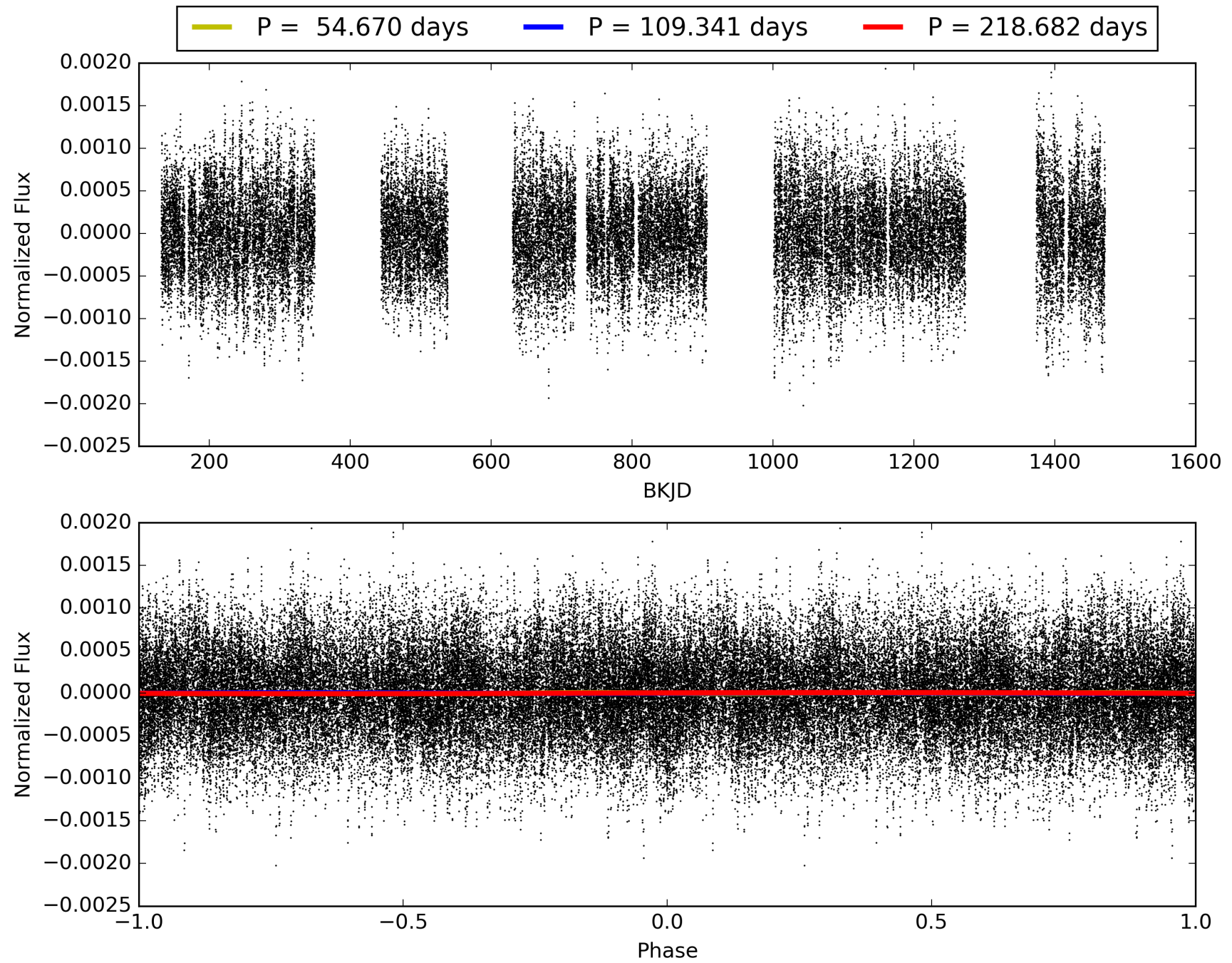
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:09:49 Z

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

# TCE 003558803-05, PDC Light Curves

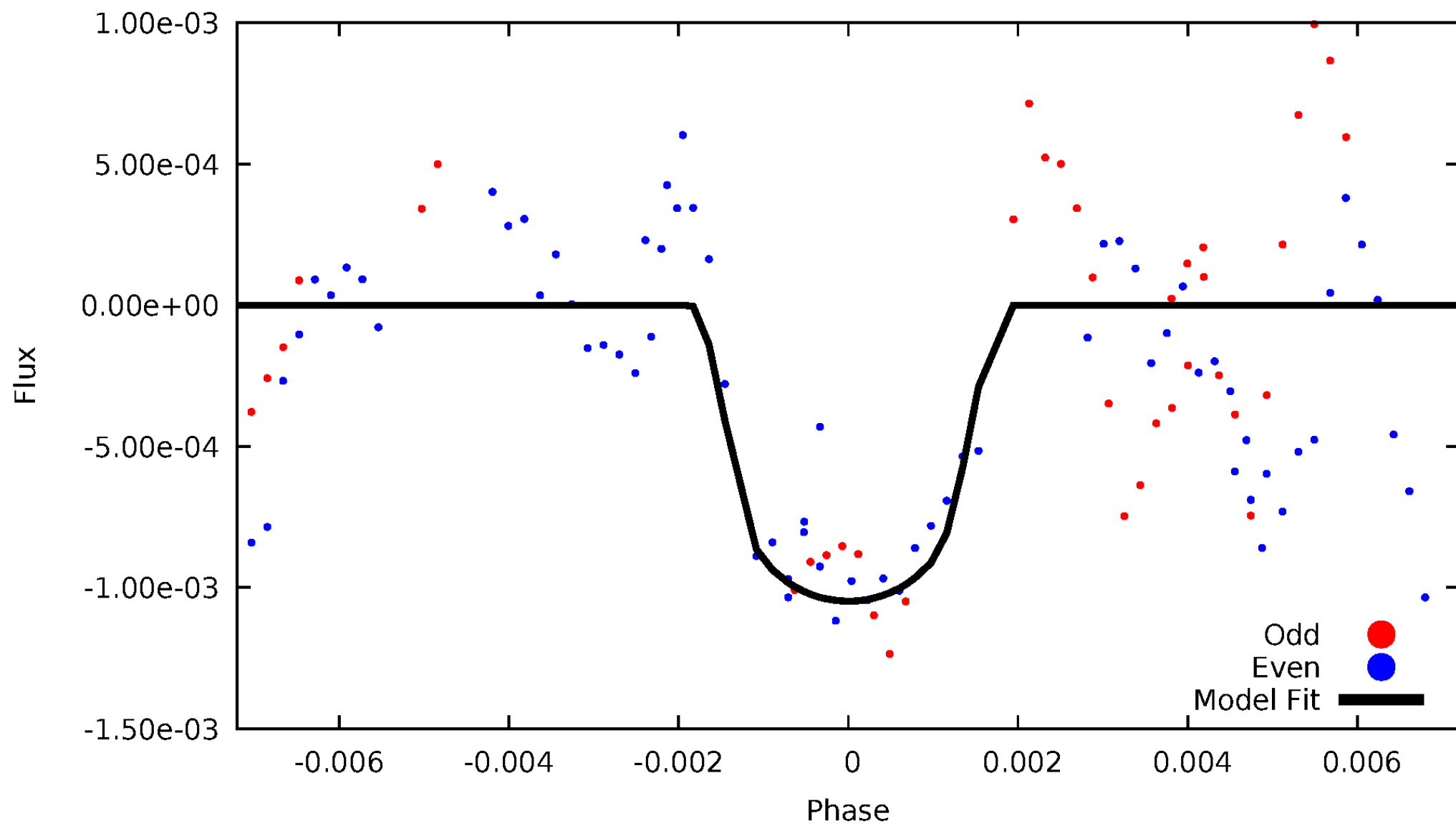


TCE 003558803-05



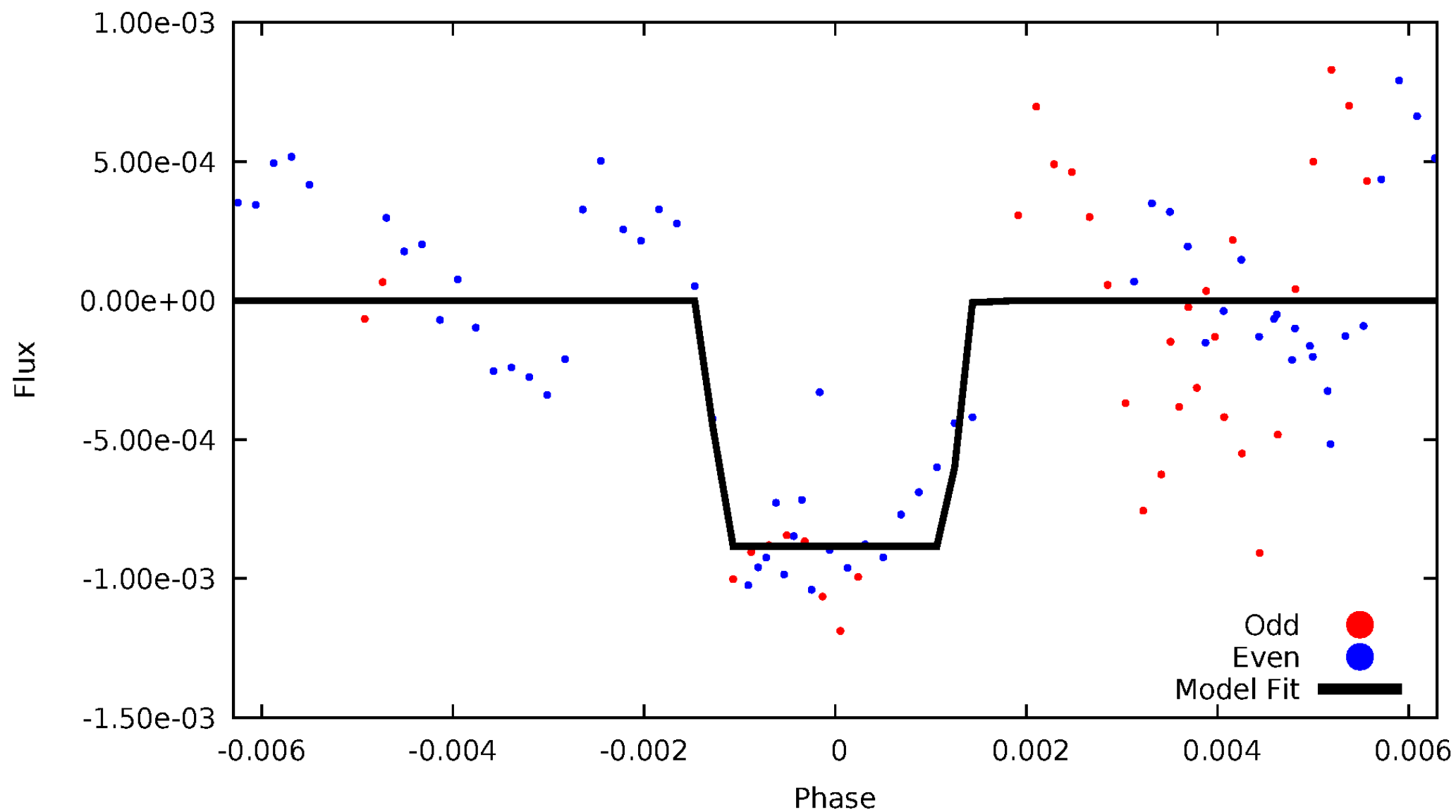
# DV Odd/Even

TCE 003558803-05



# ALT Odd/Even

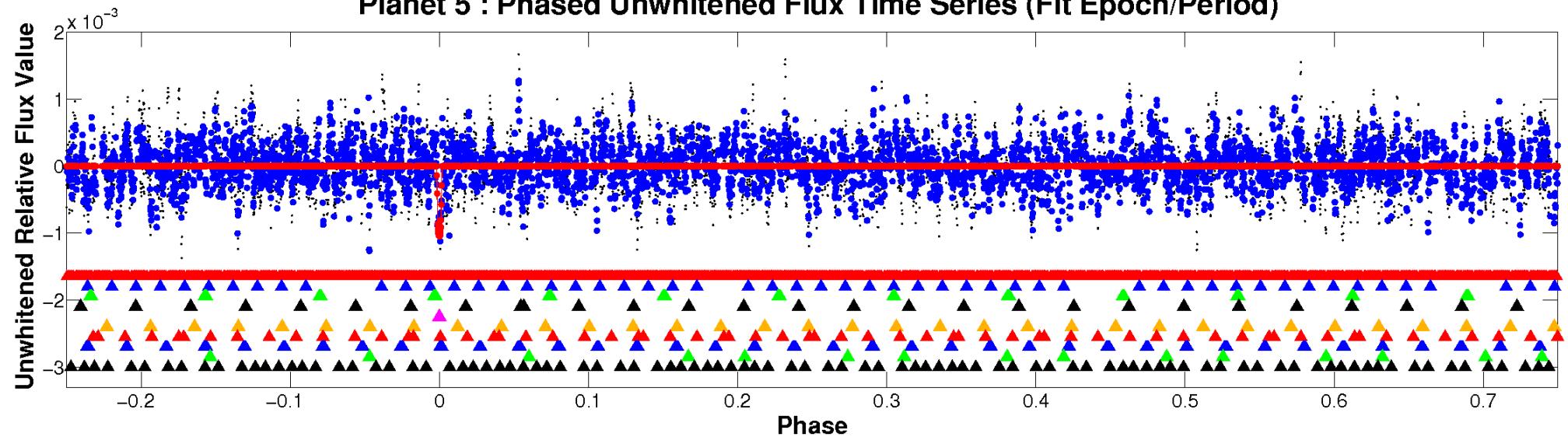
TCE 003558803-05



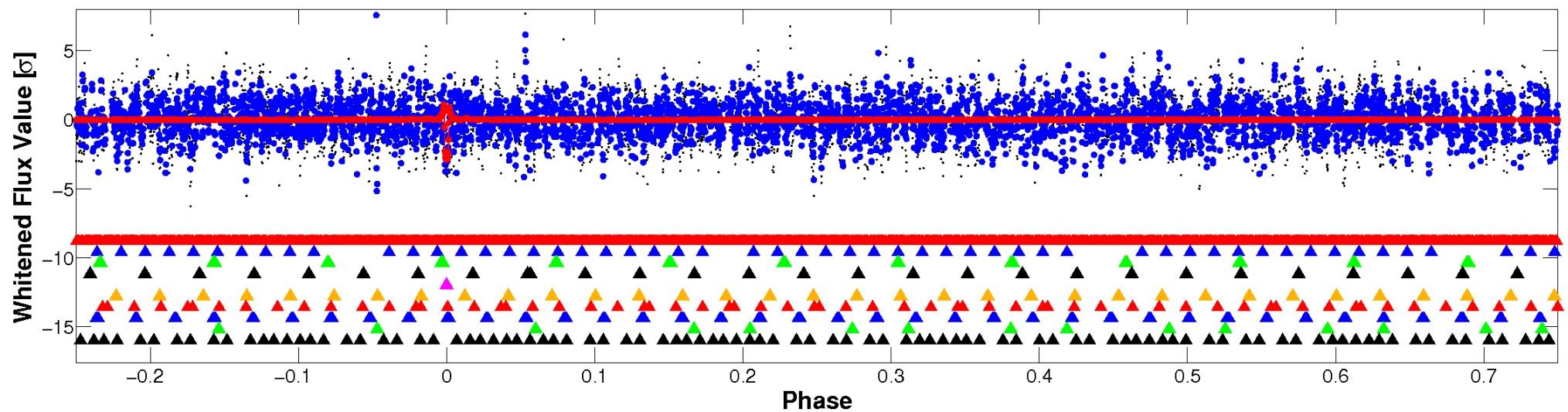


# Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



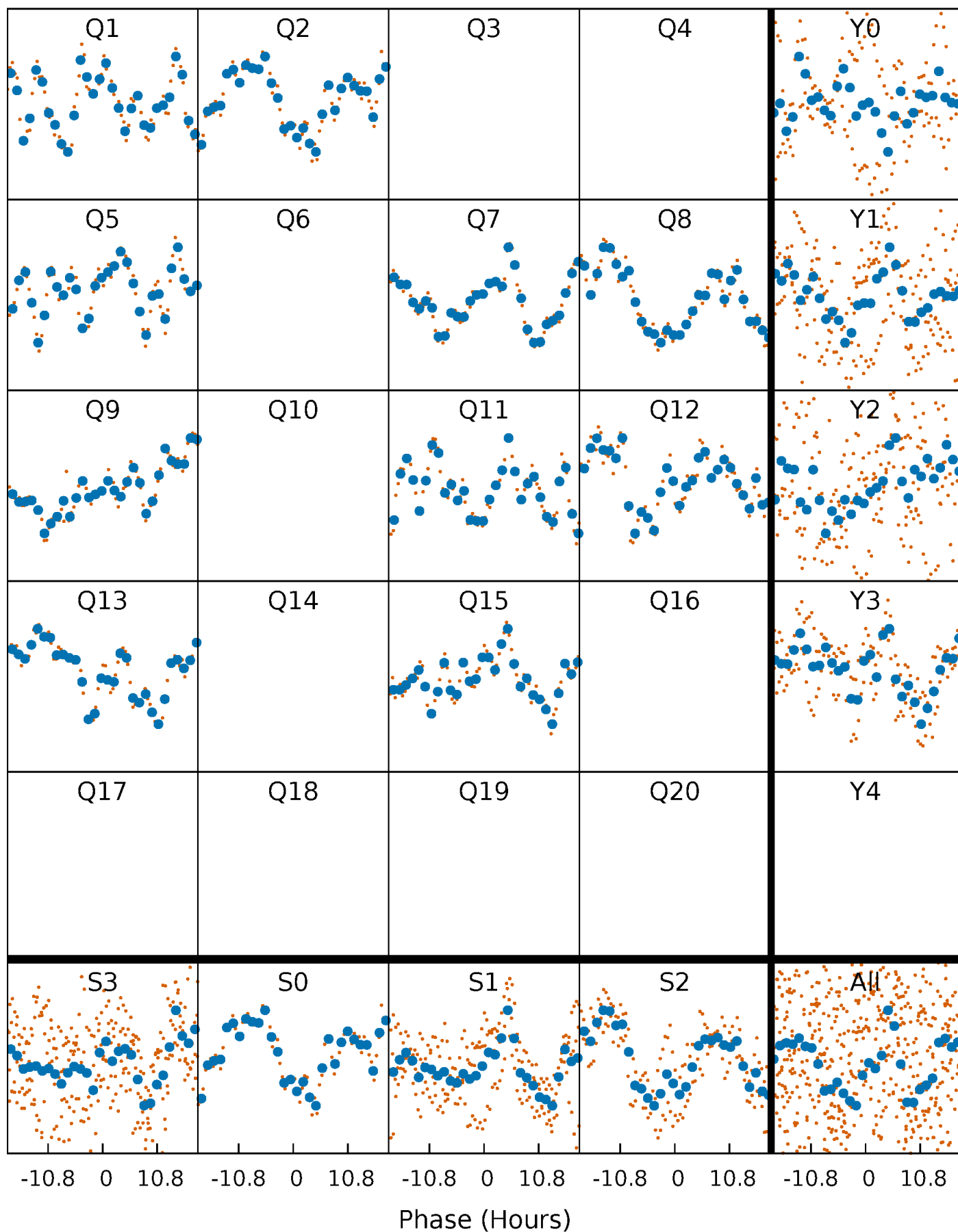
Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)





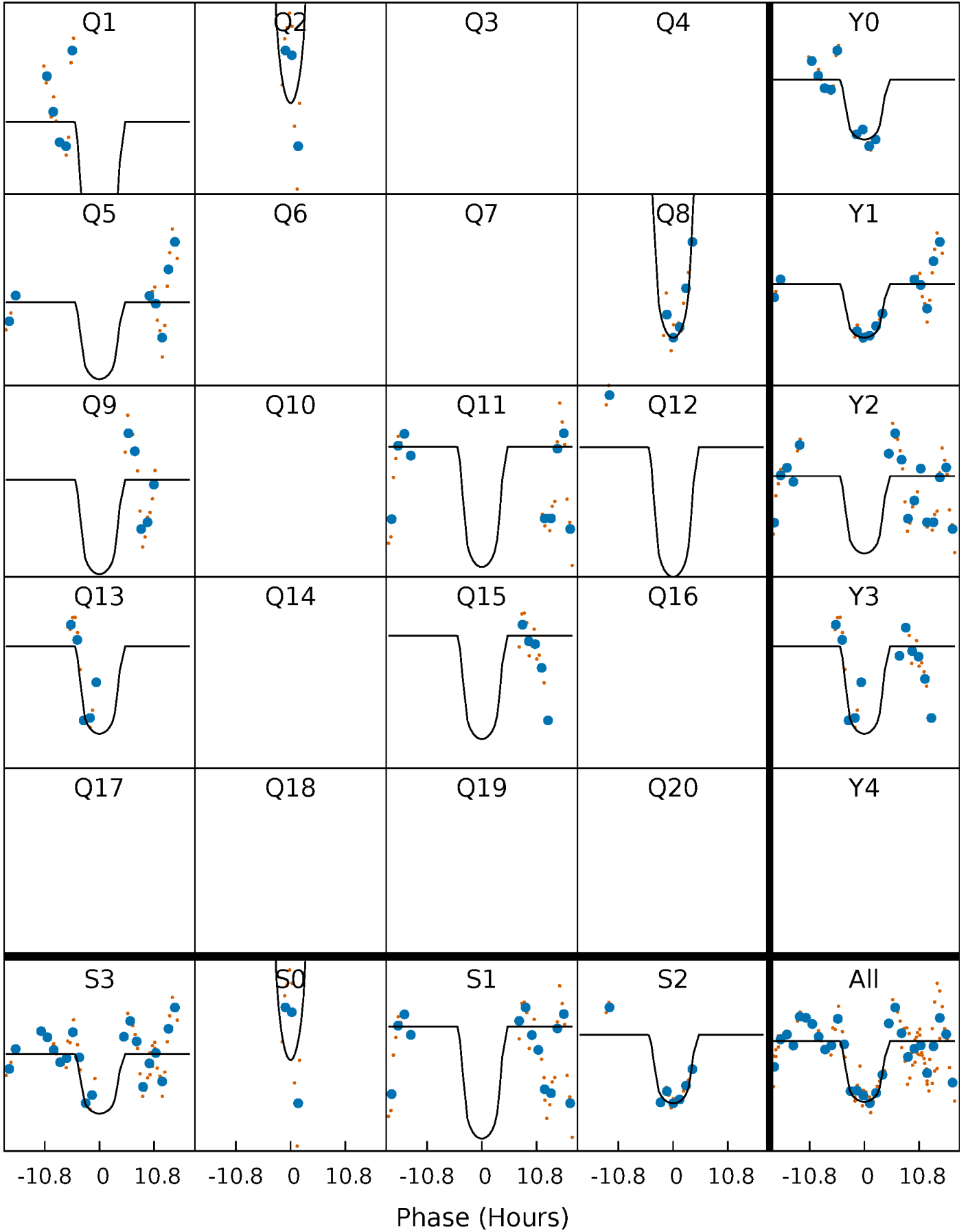
# PDC Quarter-Phased Transit Curves

TCE 003558803-05     $P=109.340809$  Days     $T_0=139.449797$  (BKJD)



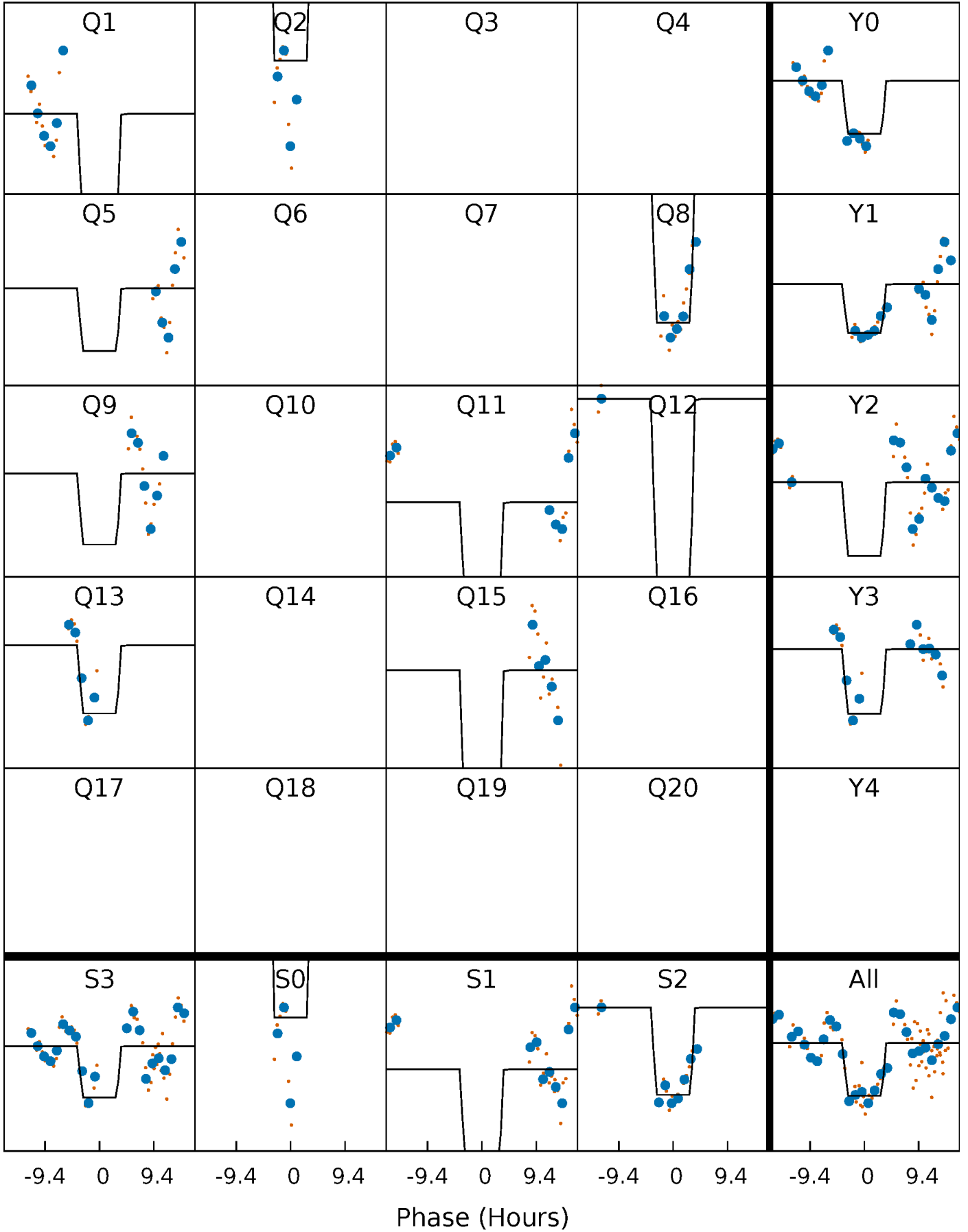
# DV Quarter-Phased Transit Curves

TCE 003558803-05     $P=109.340809$  Days     $T_0=139.449797$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

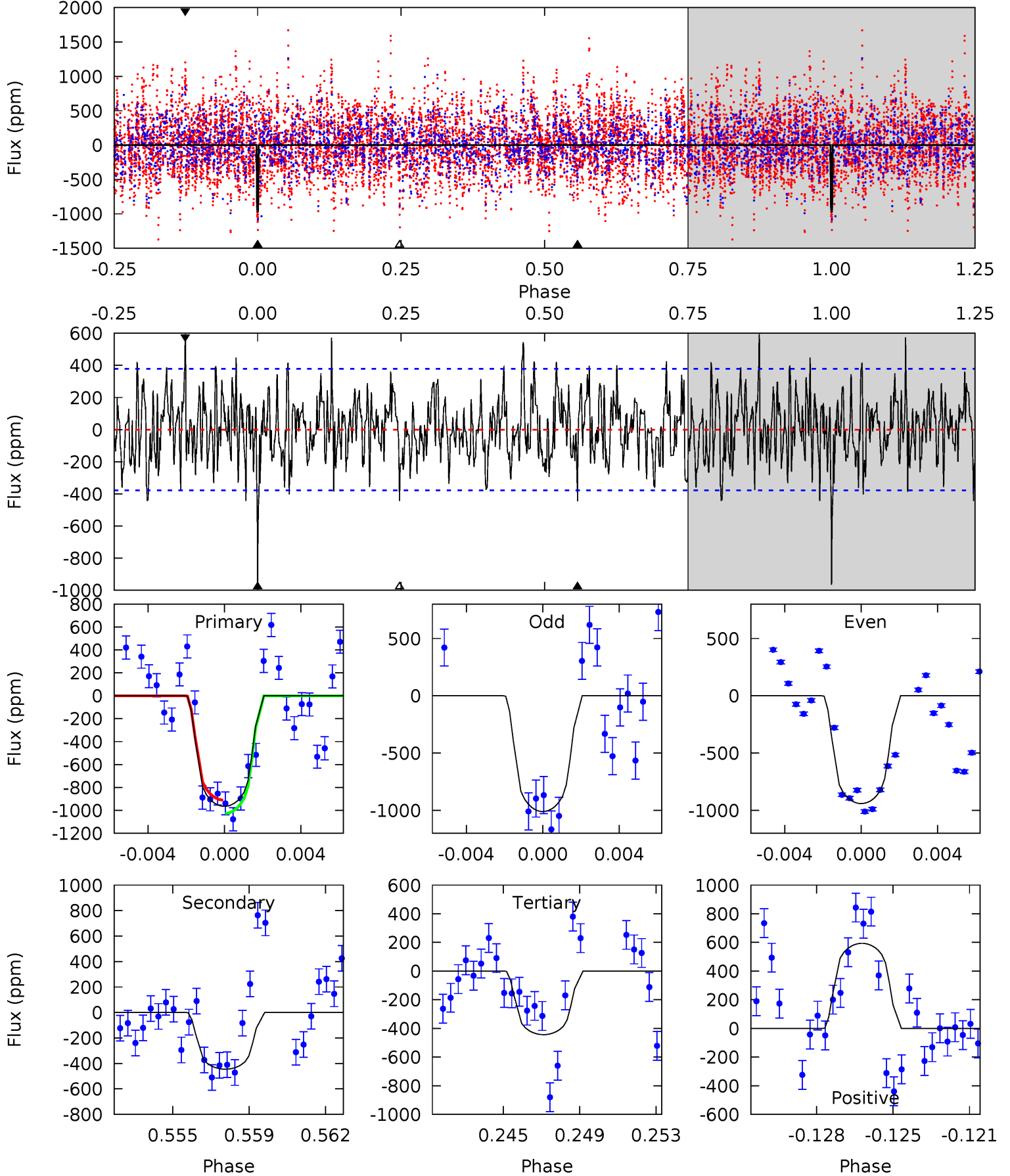
TCE 003558803-05     $P=109.333430$  Days     $T_0=139.504703$  (BKJD)



# DV Model-Shift Uniqueness Test

003558803-05,  $P = 109.340809$  Days,  $E = 30.108988$  Days

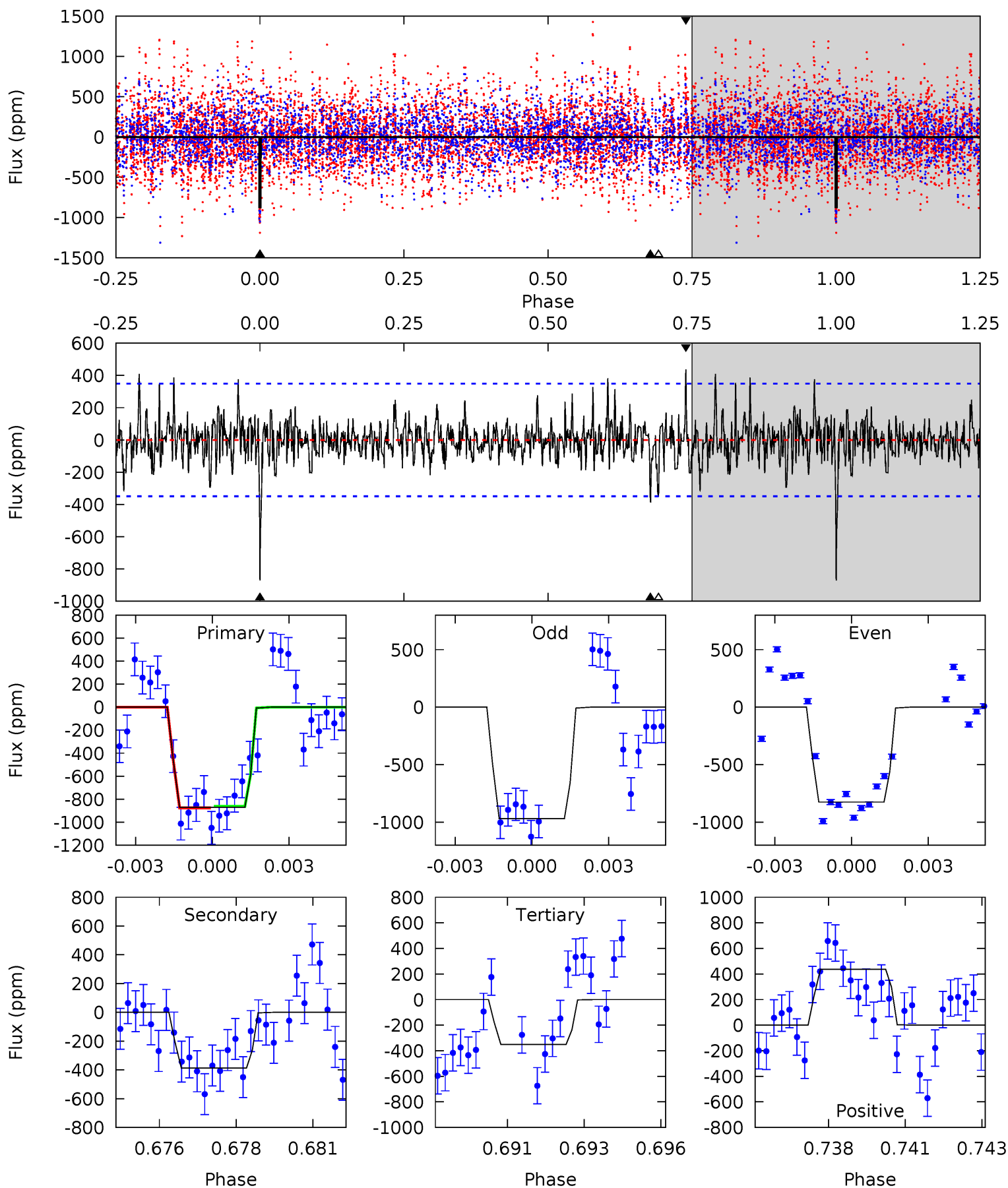
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	6.13	6.11	8.18	5.21	2.90	2.30	7.17	5.11	0.02	-2.05	0.44	0.95	0.38	0.80



# Alt Model-Shift Uniqueness Test

003558803-05, P = 109.333430 Days, E = 30.171273 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
13.2	5.84	5.30	6.60	5.29	3.02	1.48	7.87	6.58	0.54	-0.76	1.01	1.04	0.33	0.09



### Stellar Parameters For KIC 003558803

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4850^{+95}_{-143}$	$2.865^{+0.225}_{-0.164}$	$0.100^{+0.200}_{-0.300}$	$8.586^{+2.199}_{-3.024}$	$1.969^{+0.734}_{-0.897}$	$0.004^{+0.008}_{-0.002}$
	+2%/-3%	+8%/-6%	+200%/-300%	+26%/-35%	+37%/-46%	+175%/-41%
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 003558803-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-445 \pm 73$	$34.96^{+8.03}_{-8.30}$	$1163^{+82}_{-96}$	$3904^{+241}_{-211}$	$65^{+36}_{-21}$
Alt.	$-386 \pm 66$	$27.54^{+7.66}_{-7.13}$	$1158^{+79}_{-96}$	$4118^{+340}_{-302}$	$90^{+64}_{-35}$

$T_{\text{max}}$  = 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

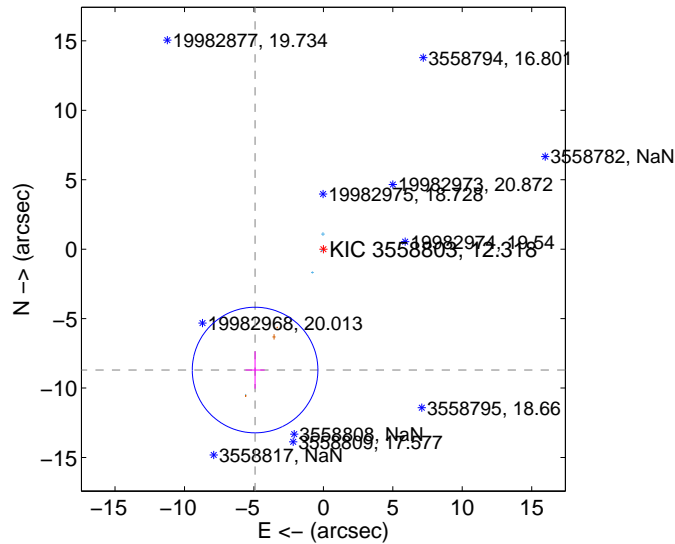
Supplemental centroid analysis for 003558803-05. Kepler magnitude: 12.32. Transit SNR 13.99

There are 4 quarters with good PRF difference image offsets

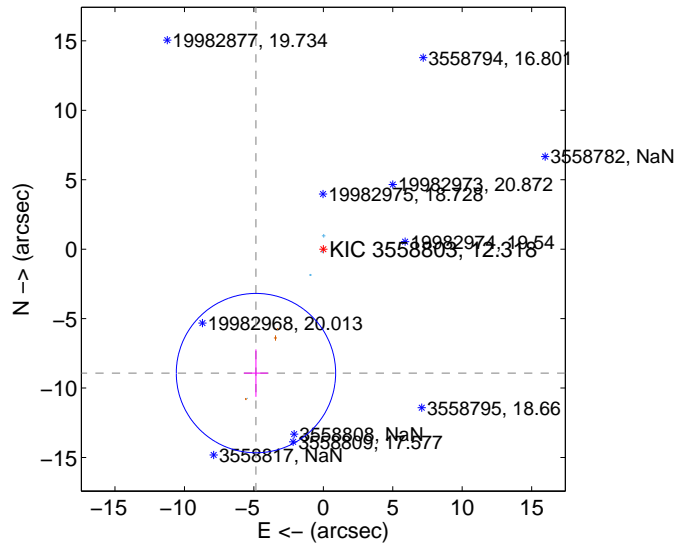
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>9.997 <math>\pm</math> 1.508</b>	<b>6.63</b>	4.917 $\pm$ 0.691	-8.704 $\pm$ 1.345
PRF-fit source offset from KIC position	<b>10.157 <math>\pm</math> 1.912</b>	<b>5.31</b>	4.850 $\pm$ 0.867	-8.925 $\pm$ 1.708
photometric centroid source offset	0.46 $\pm$ 0.22	2.10	-0.04 $\pm$ 0.21	-0.45 $\pm$ 0.22

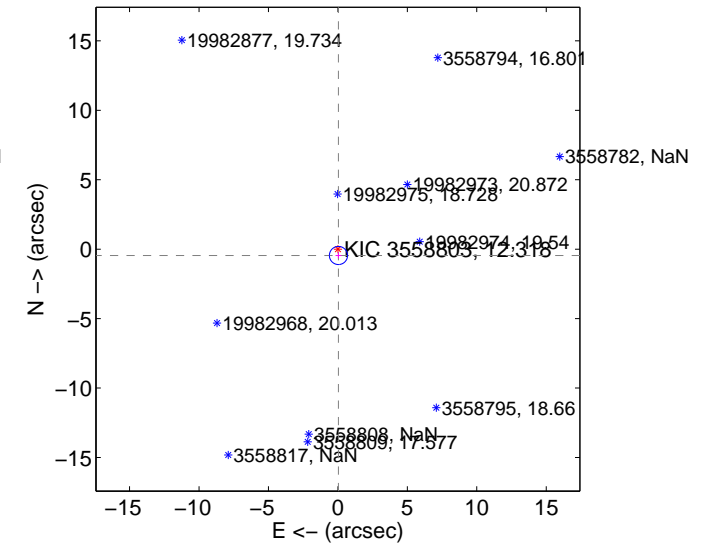
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



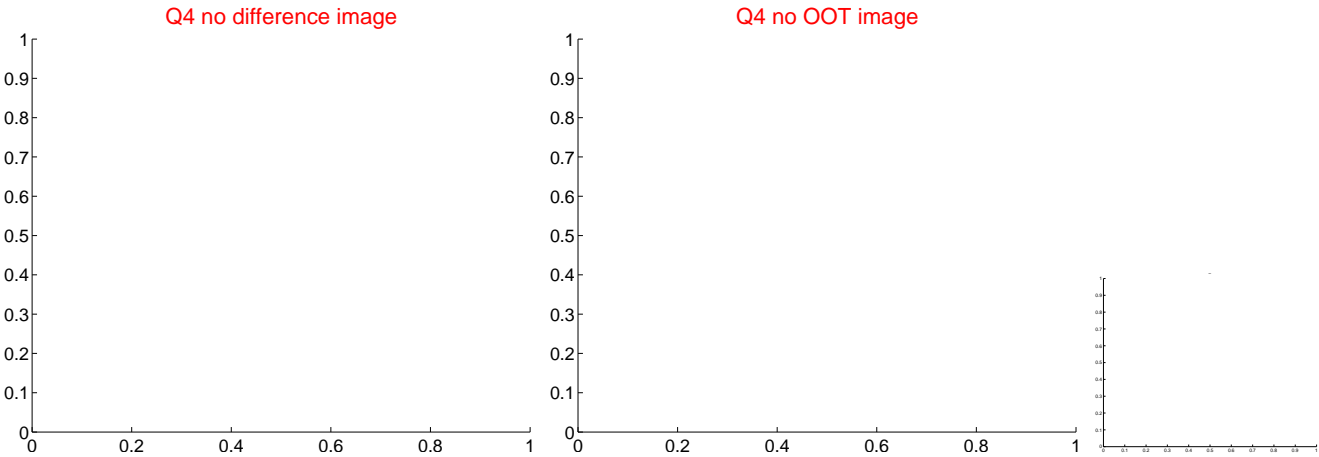
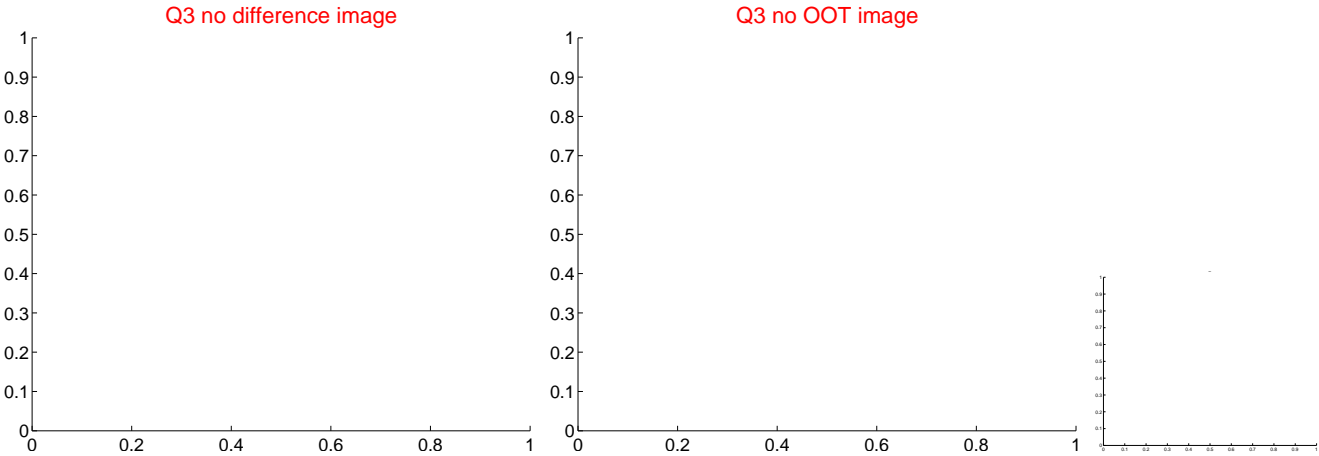
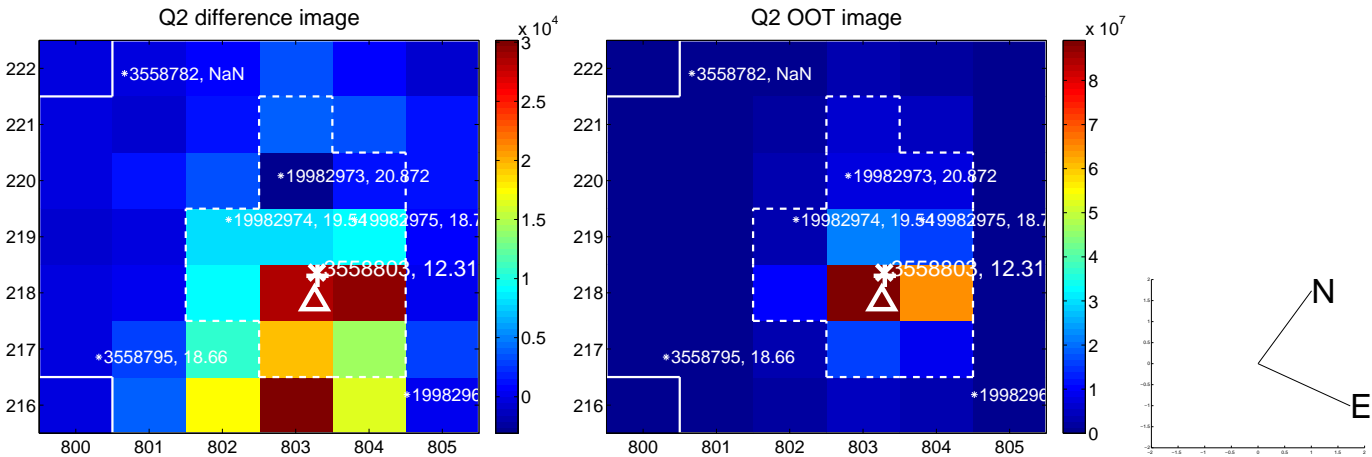
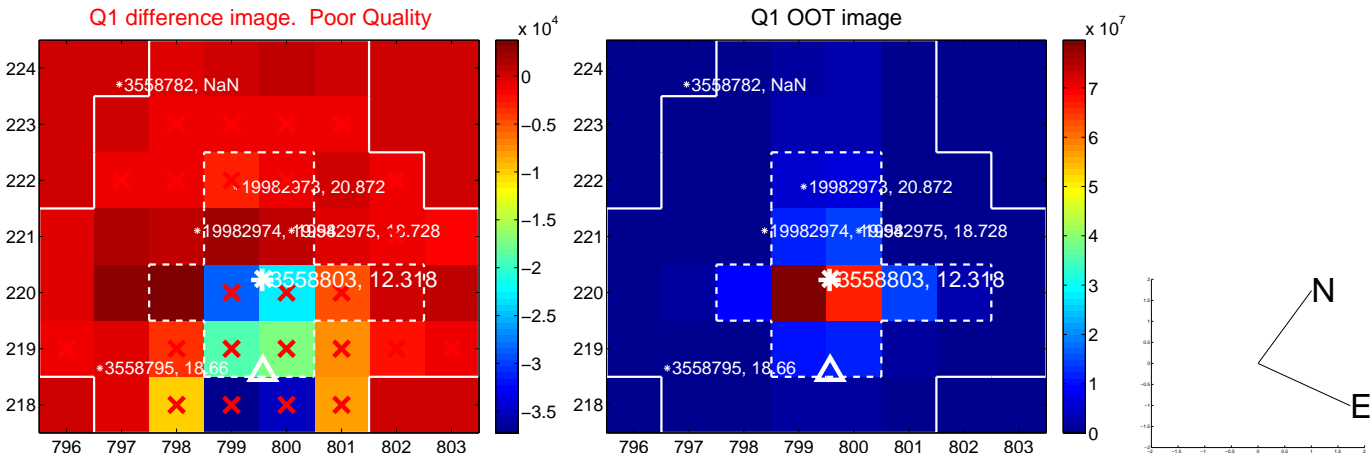
offset from photometric centroids



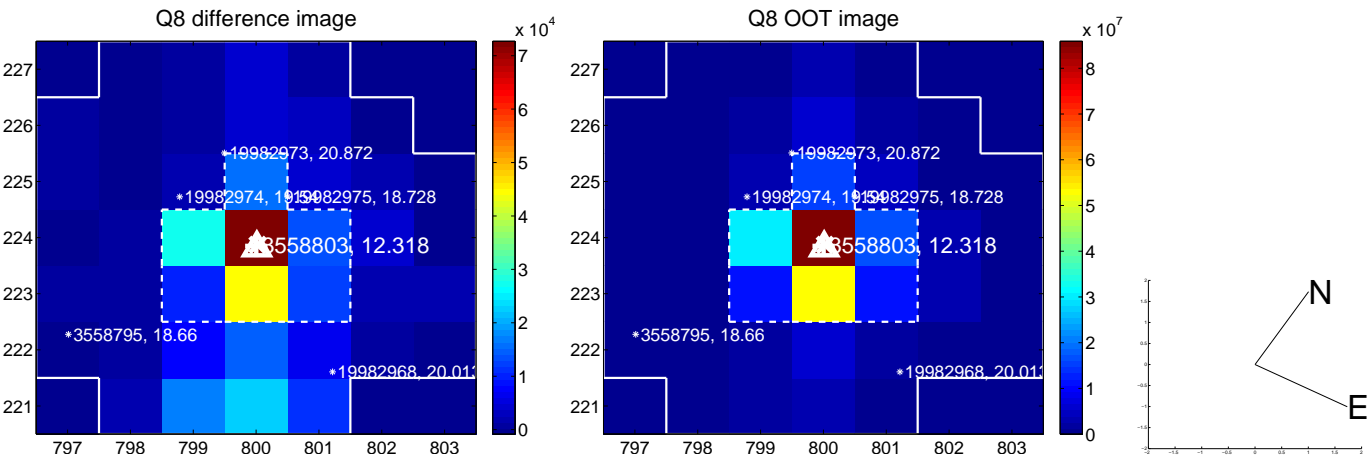
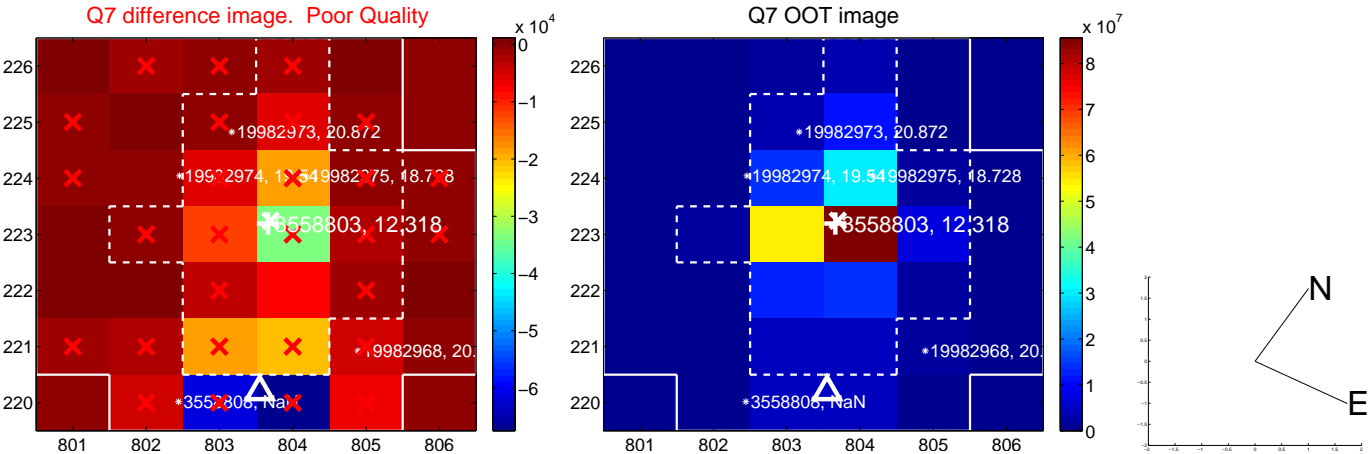
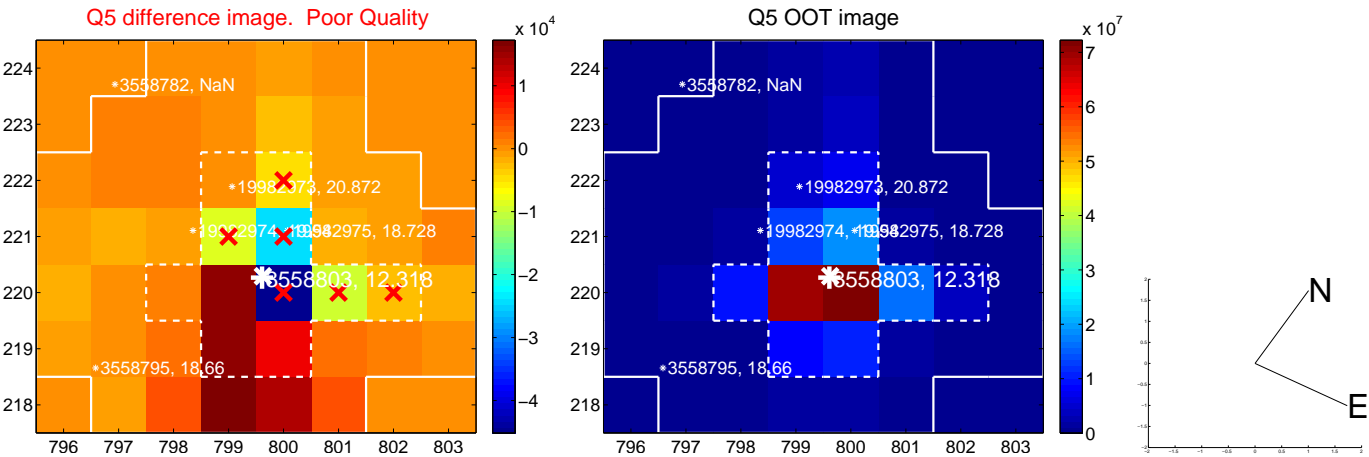
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



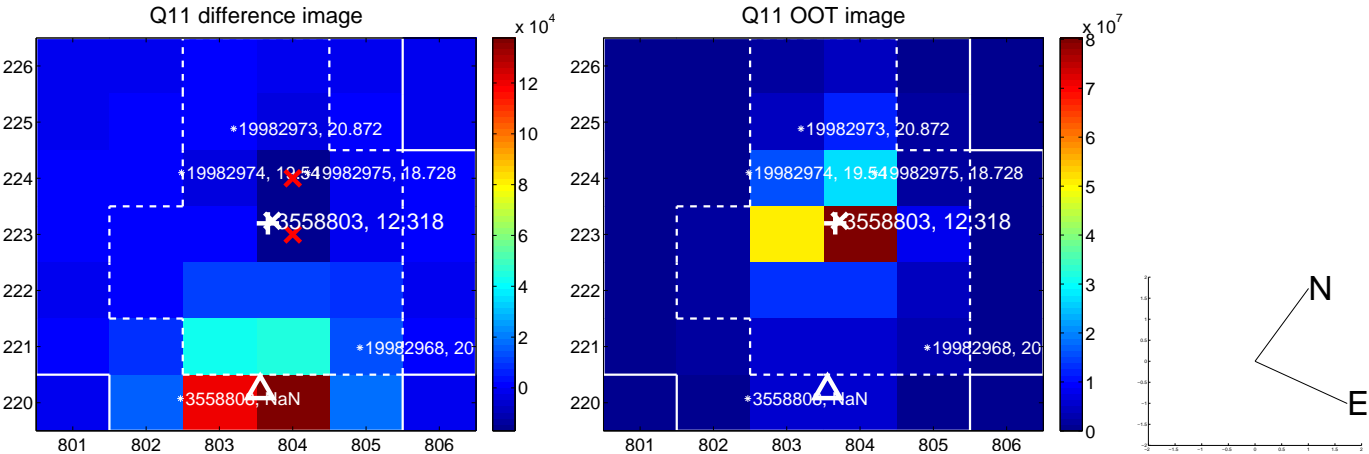
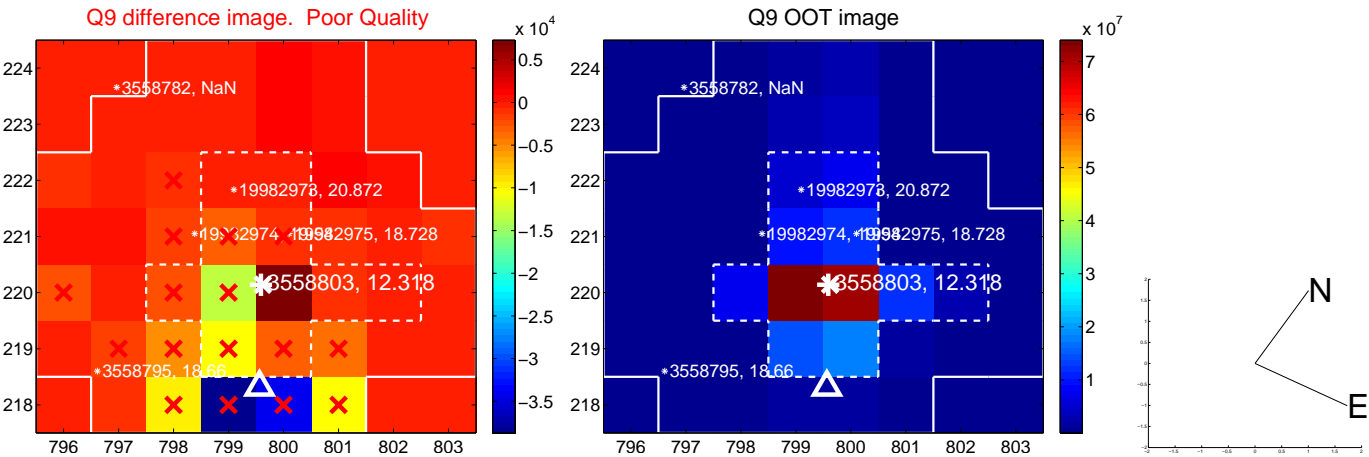
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



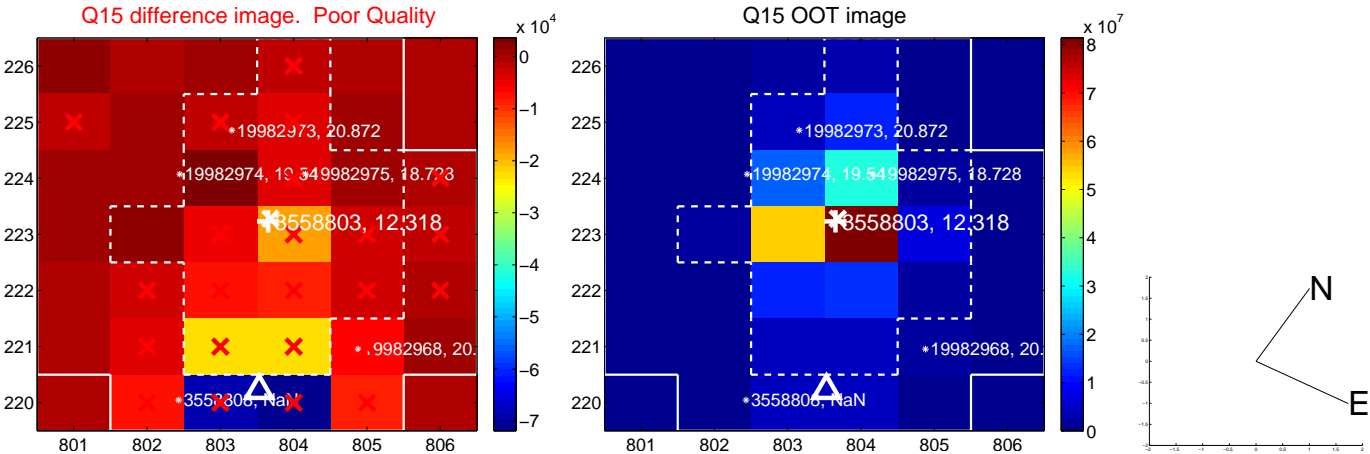
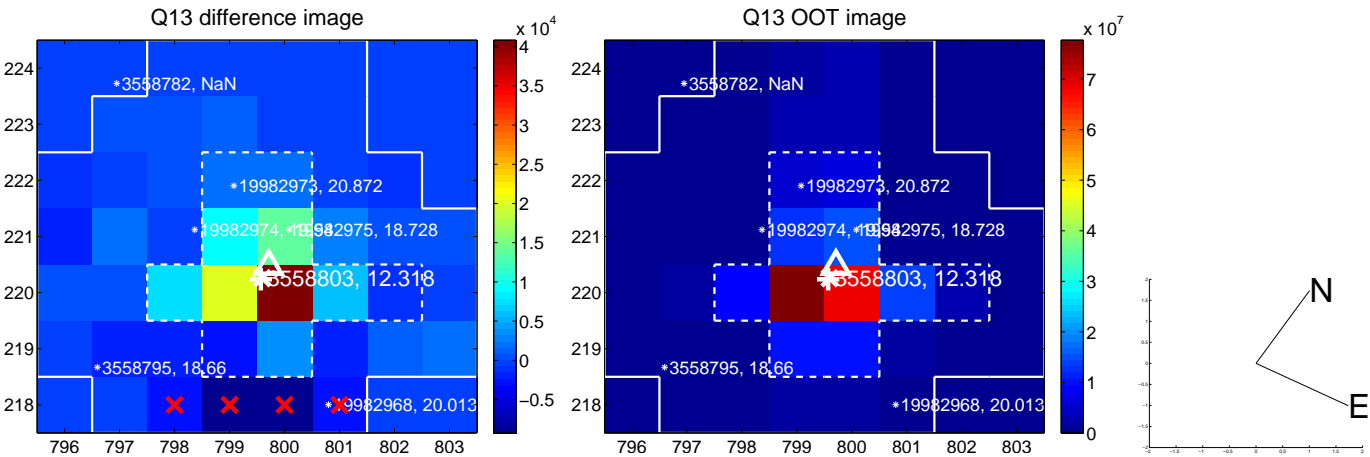
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



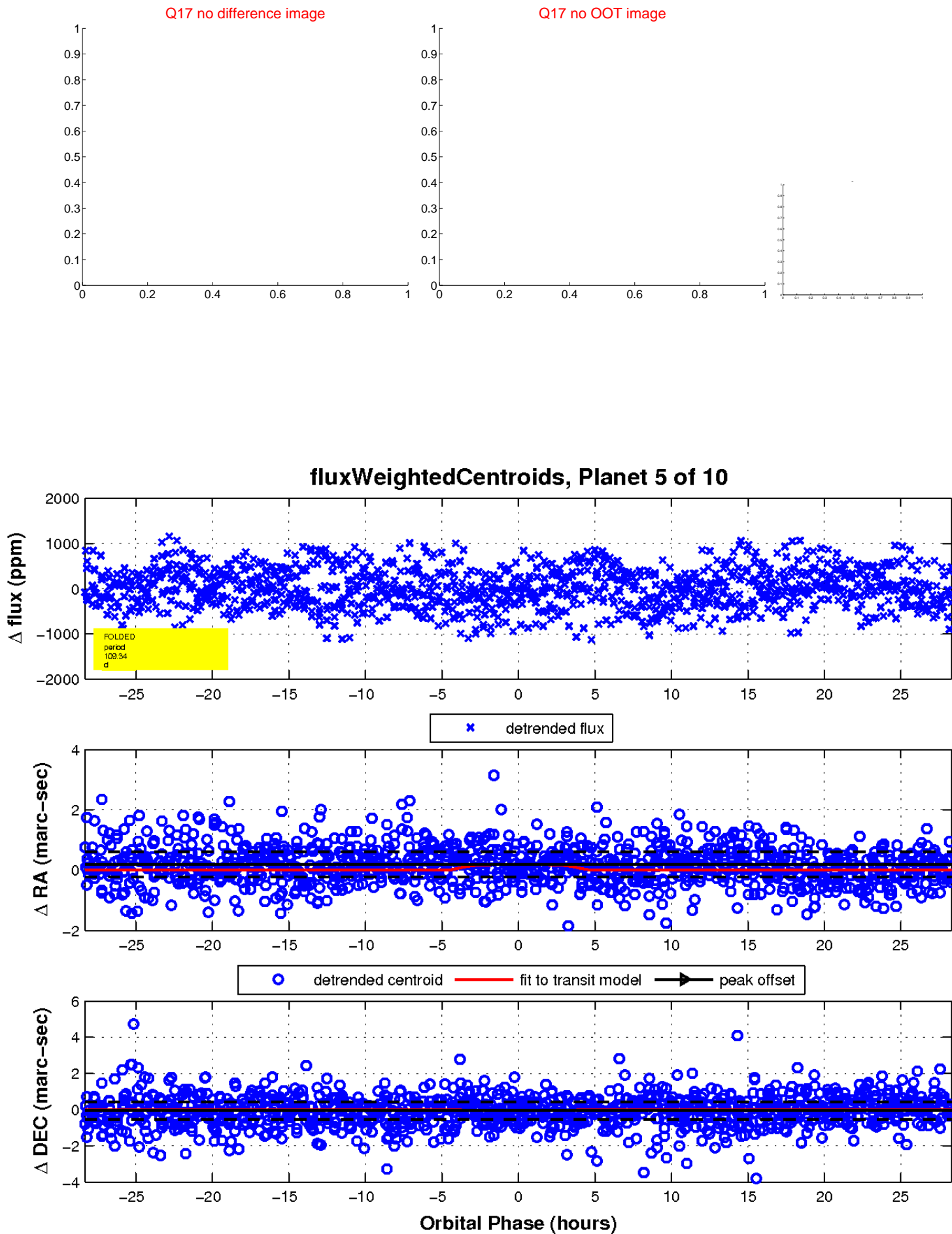
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



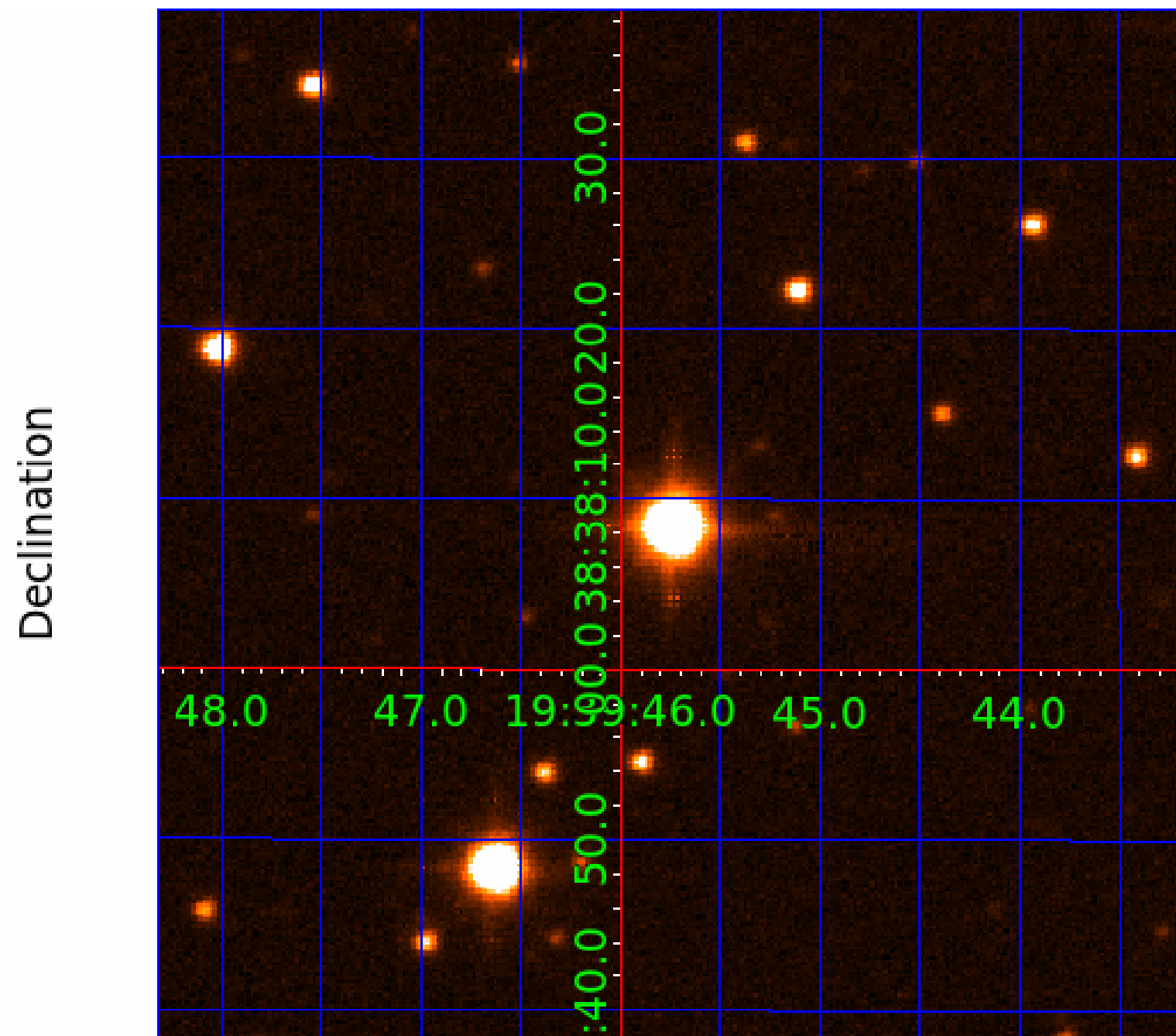
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



## KIC 003558803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003558803-01	OBS	6345.01	1.353452	131.671808	43.8	8.659	19.0	5.6	8.59	4850	5.50	0.00
003558803-02	OBS	No	26.890557	158.331830	651.3	2.791	14.3	13.0	8.59	4850	25.05	753.22
003558803-03	OBS	No	16.819263	147.638424	502.2	2.454	13.6	12.1	8.59	4850	22.79	1408.14
003558803-04	OBS	No	52.653629	145.420099	841.2	2.829	13.8	13.6	8.59	4850	30.52	307.48
003558803-05	OBS	No	109.340809	139.449797	1048.1	9.446	13.0	14.0	8.59	4850	34.72	116.06
003558803-06	OBS	No	41.807115	153.651917	851.4	5.370	13.0	12.7	8.59	4850	34.21	418.20
003558803-07	OBS	No	23.122790	154.403549	632.1	3.179	13.2	13.0	8.59	4850	42.09	921.16
003558803-08	OBS	No	8.633592	136.565481	442.3	3.706	13.1	13.5	8.59	4850	38.35	3426.10
003558803-09	OBS	No	97.651648	216.153876	1031.9	4.221	12.2	12.0	8.59	4850	27.88	134.94
003558803-10	OBS	No	15.234080	146.589122	378.5	1.500	12.3	-1.0	8.59	4850	16.19	1606.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558803-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003558803-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN—HALO_GHOST
003558803-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003558803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN
003558803-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
003558803-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003558803-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-10	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

**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.

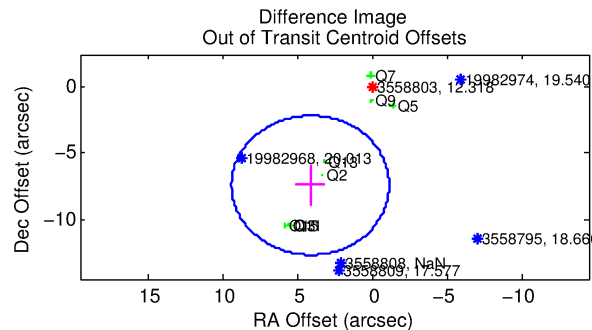
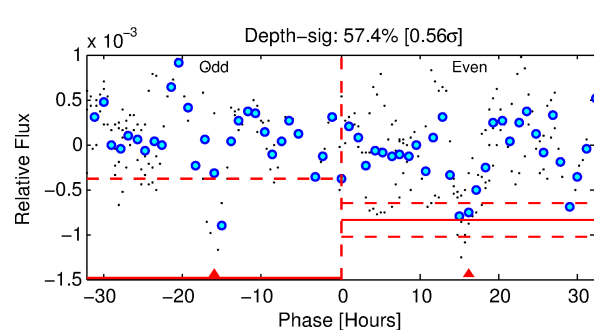
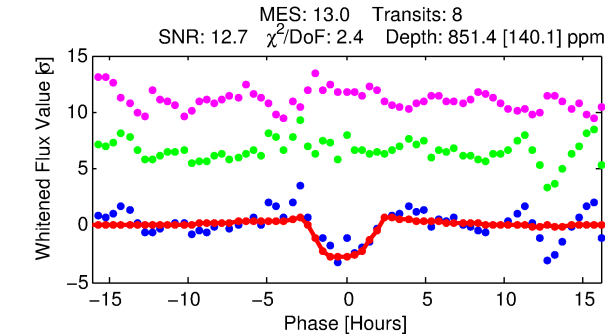
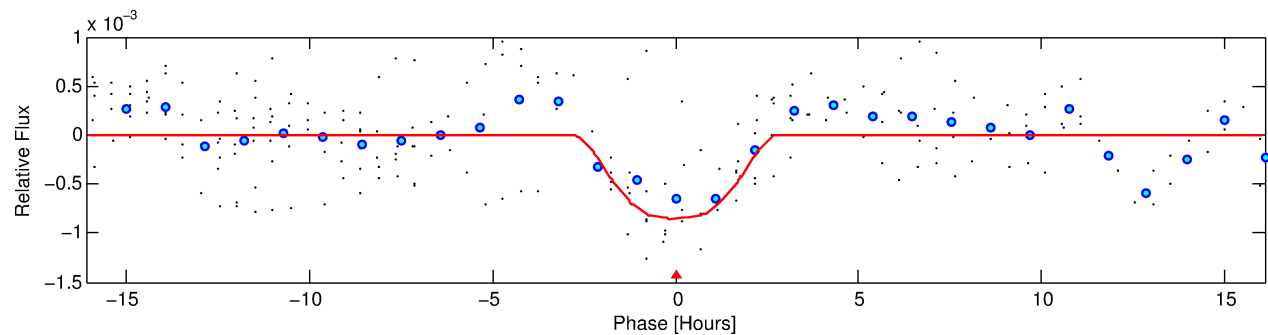
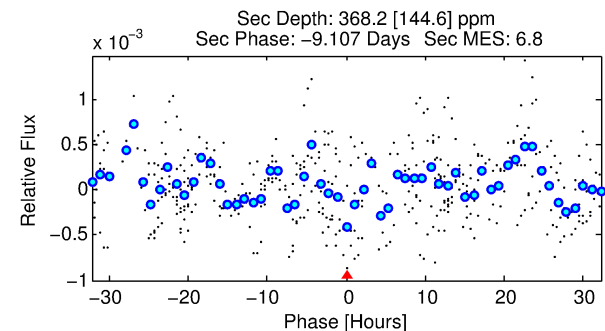
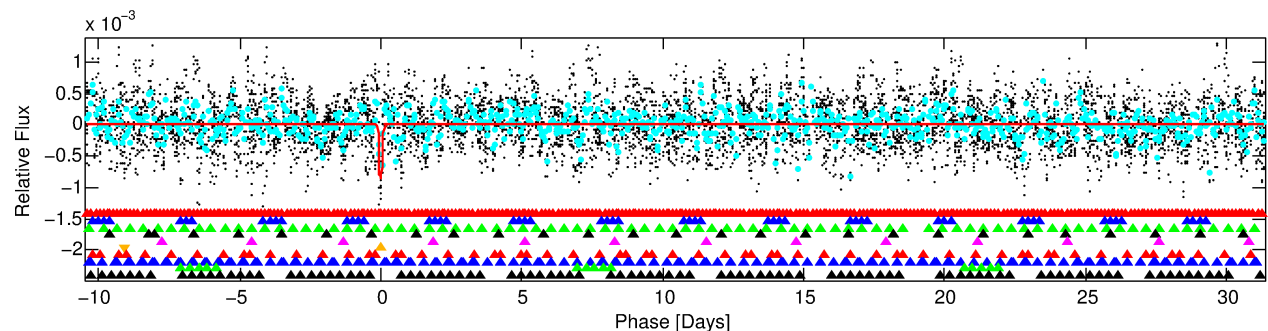
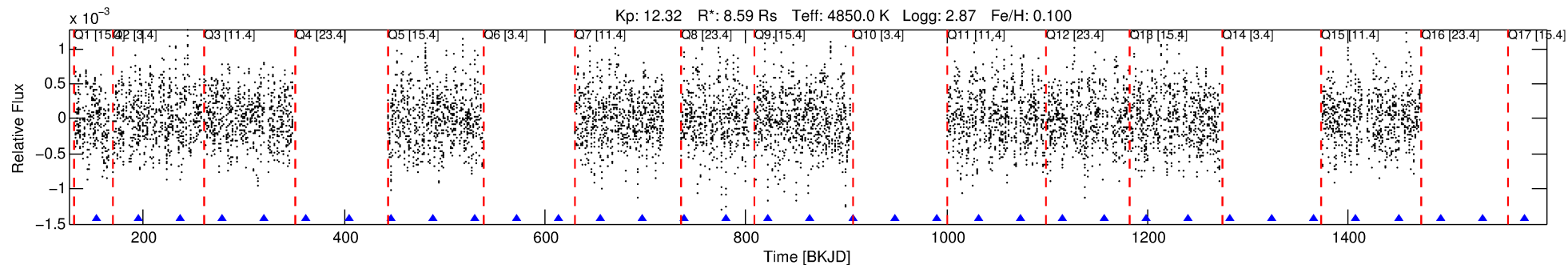
Ephemeris Match Information For 003558803-06

No Significant Match Found



# DV One-Page Summary

KIC: 3558803 Candidate: 6 of 10 Period: 41.807 d  
KOI: K06345 Corr: No Ephemeris Match



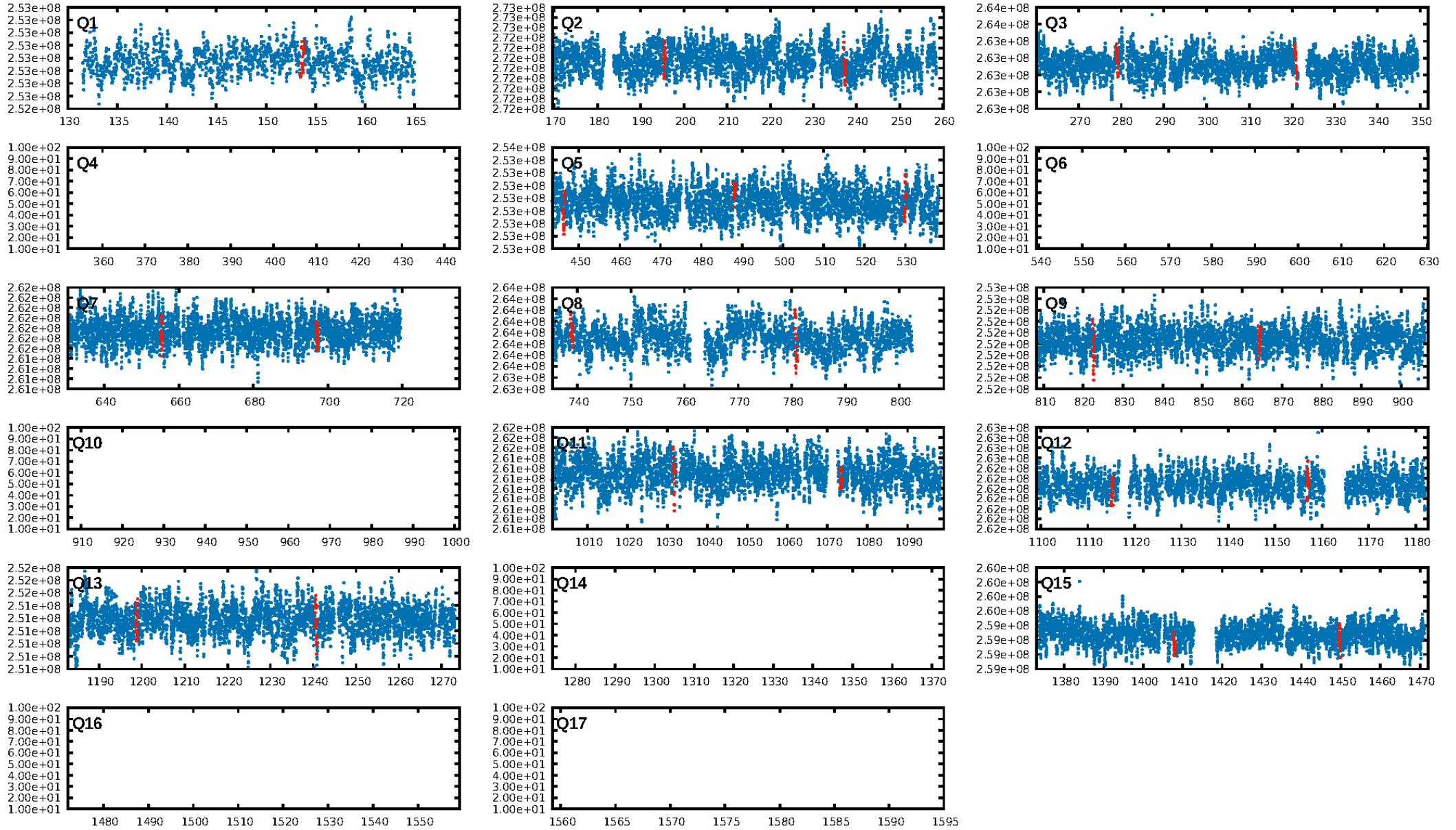
## DV Fit Results:

Period = 41.80711 [0.00102] d  
Epoch = 153.6519 [0.0176] BKJD  
Rp/R\* = 0.0365 [0.0045]  
a/R\* = 23.35 [5.04]  
b = 0.96 [0.02]  
Seff = 418.20 [181.49]  
Teq = 1153 [125] K  
Rp = 34.21 [12.77] Re  
a = 0.2956 [0.0862] AU  
Ag = 15.13 [9.44] [1.50 $\sigma$ ]  
Teffp = 3516 [421] K [5.38 $\sigma$ ]

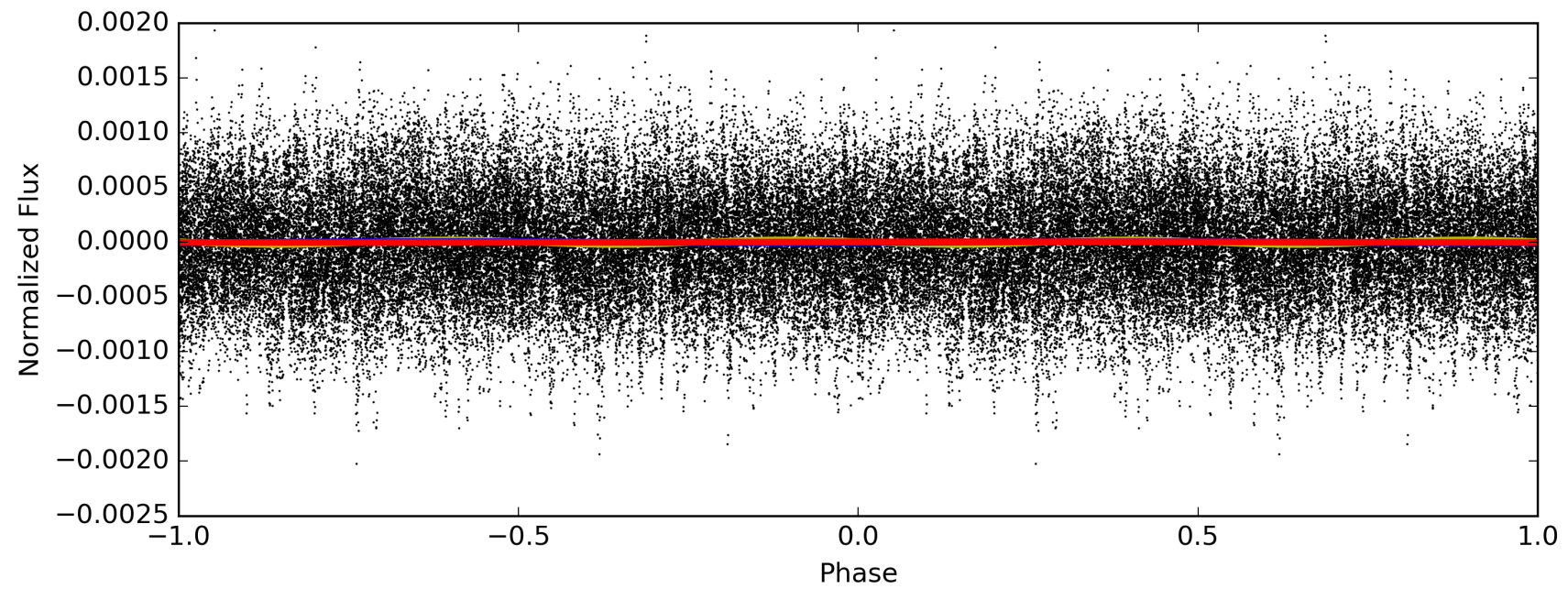
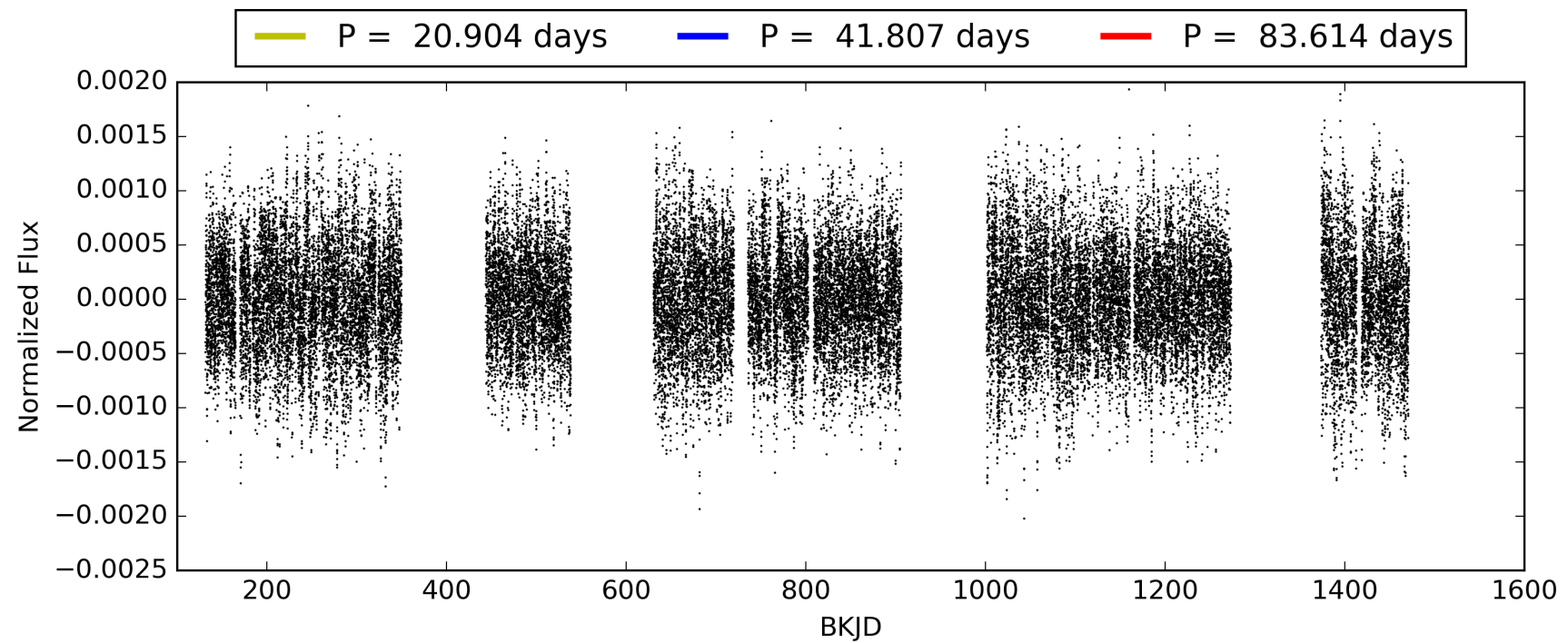
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [59.15 $\sigma$ ]  
LongPeriod-sig: 100.0% [42.89 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 0.9763  
Centroid-sig: 10.8%  
Centroid-so: 0.792 arcsec [3.29 $\sigma$ ]  
OotOffset-rm: 8.475 arcsec [4.82 $\sigma$ ]  
KicOffset-rm: 8.577 arcsec [4.83 $\sigma$ ]  
OotOffset-st: 1/4/0/3 [8]  
KicOffset-st: 1/4/0/3 [8]  
DiffImageQuality-fgm: 0.88 [7/8]  
DiffImageOverlap-fno: 0.00 [0/11]

# TCE 003558803-06, PDC Light Curves

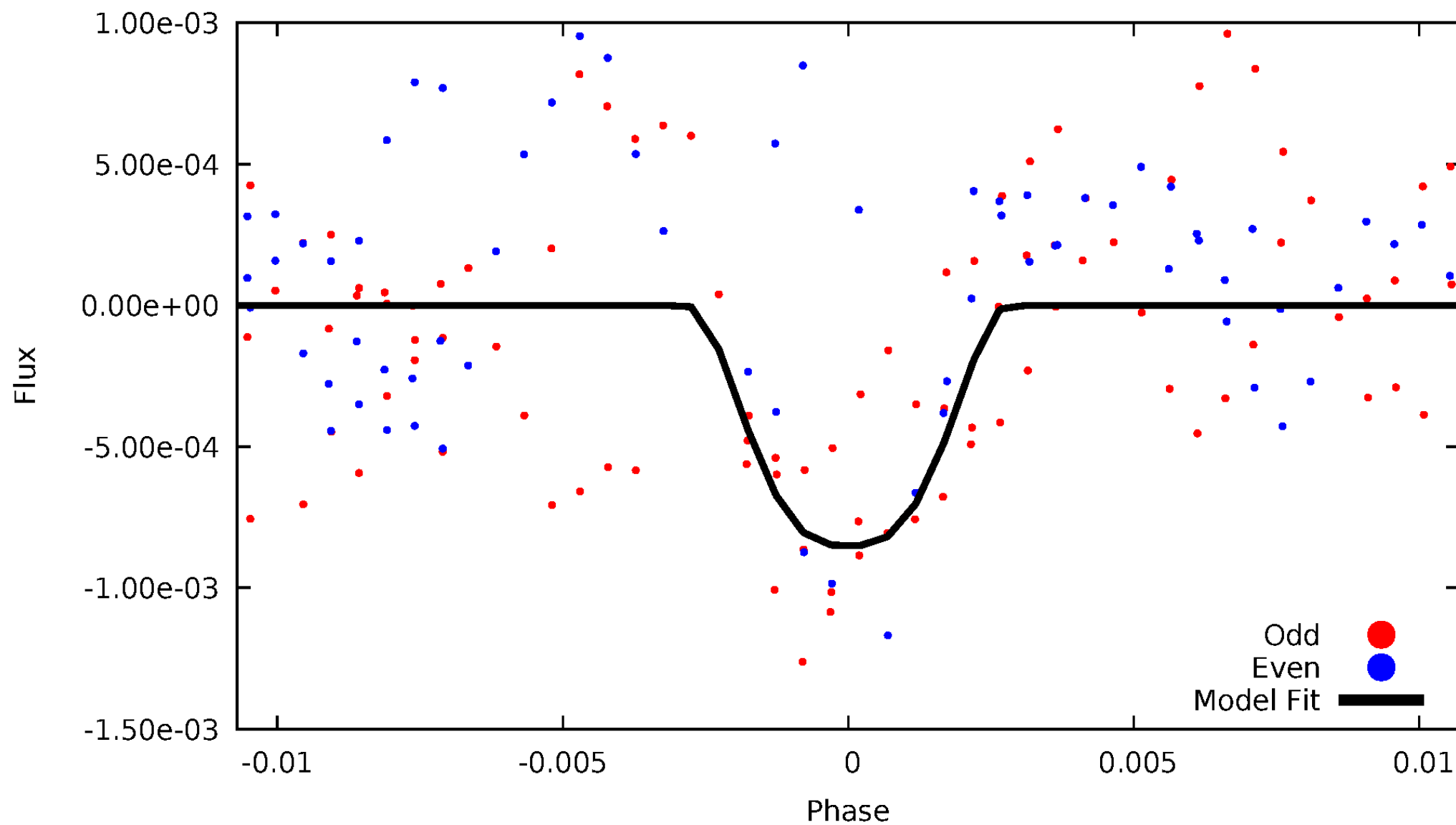


TCE 003558803-06



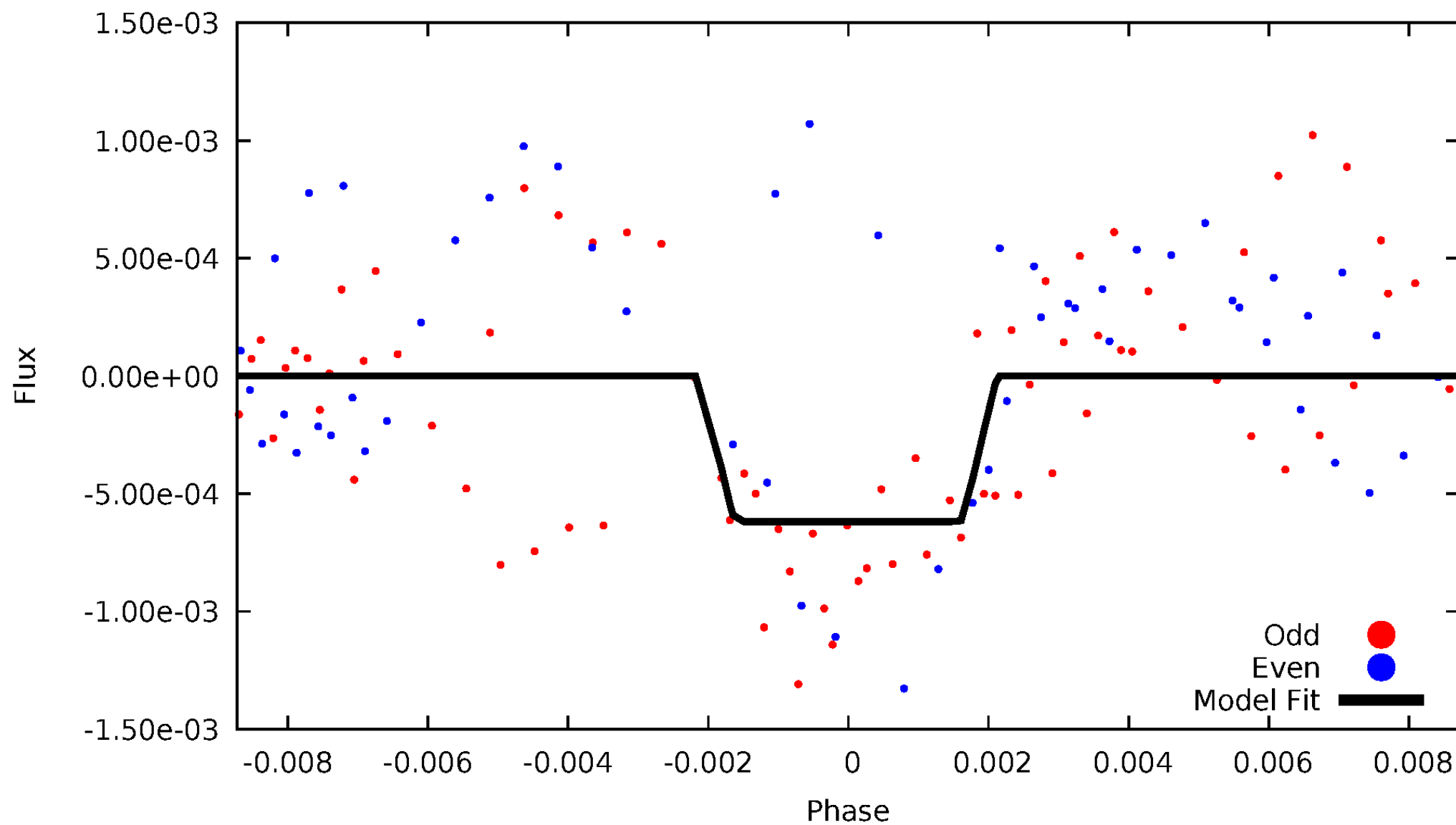
# DV Odd/Even

TCE 003558803-06



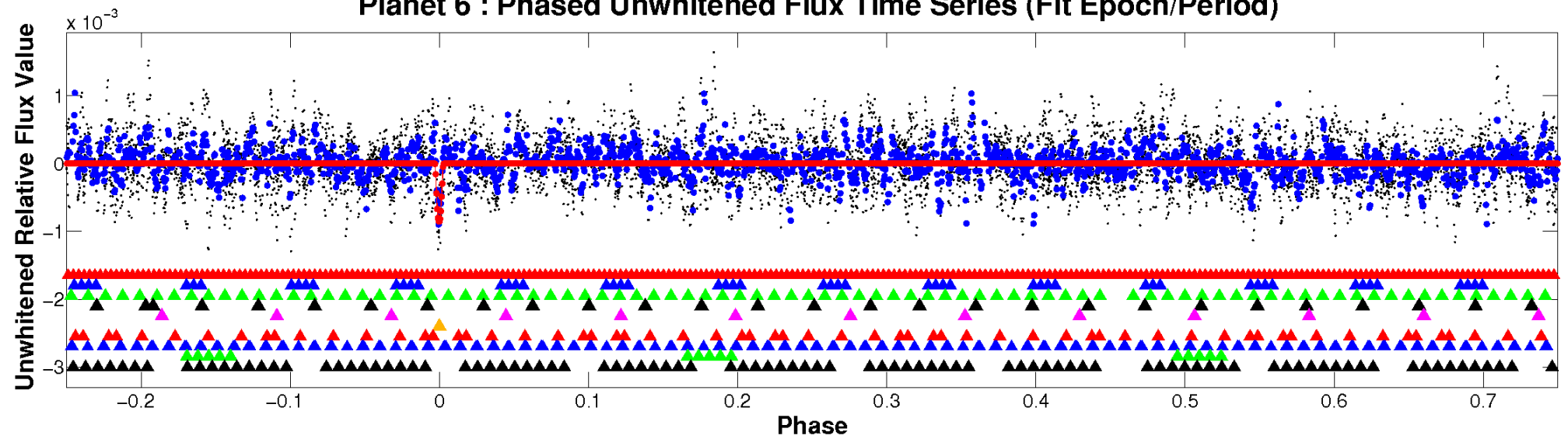
# ALT Odd/Even

TCE 003558803-06

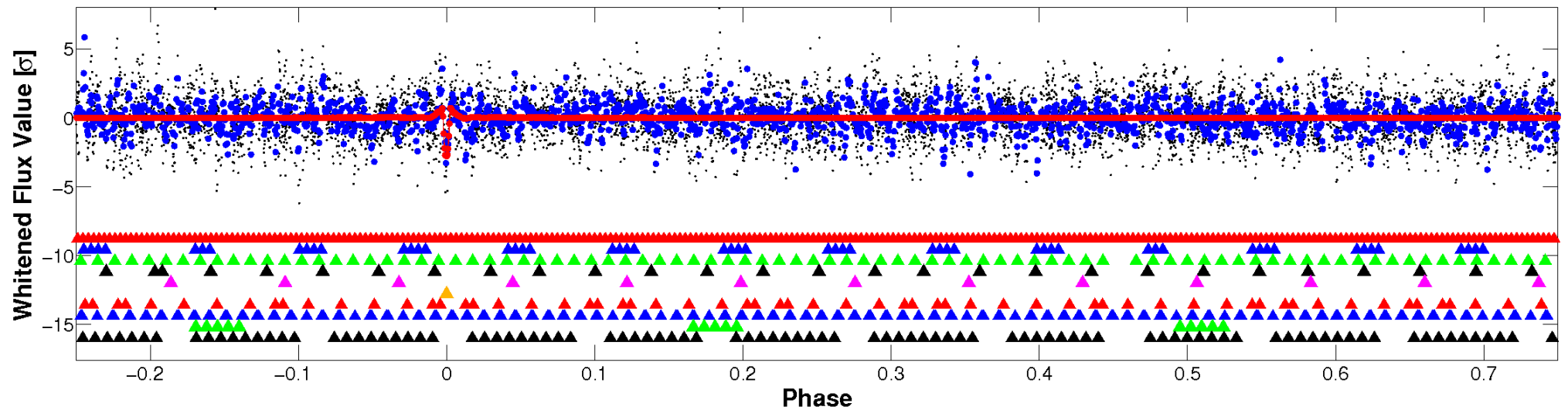


# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



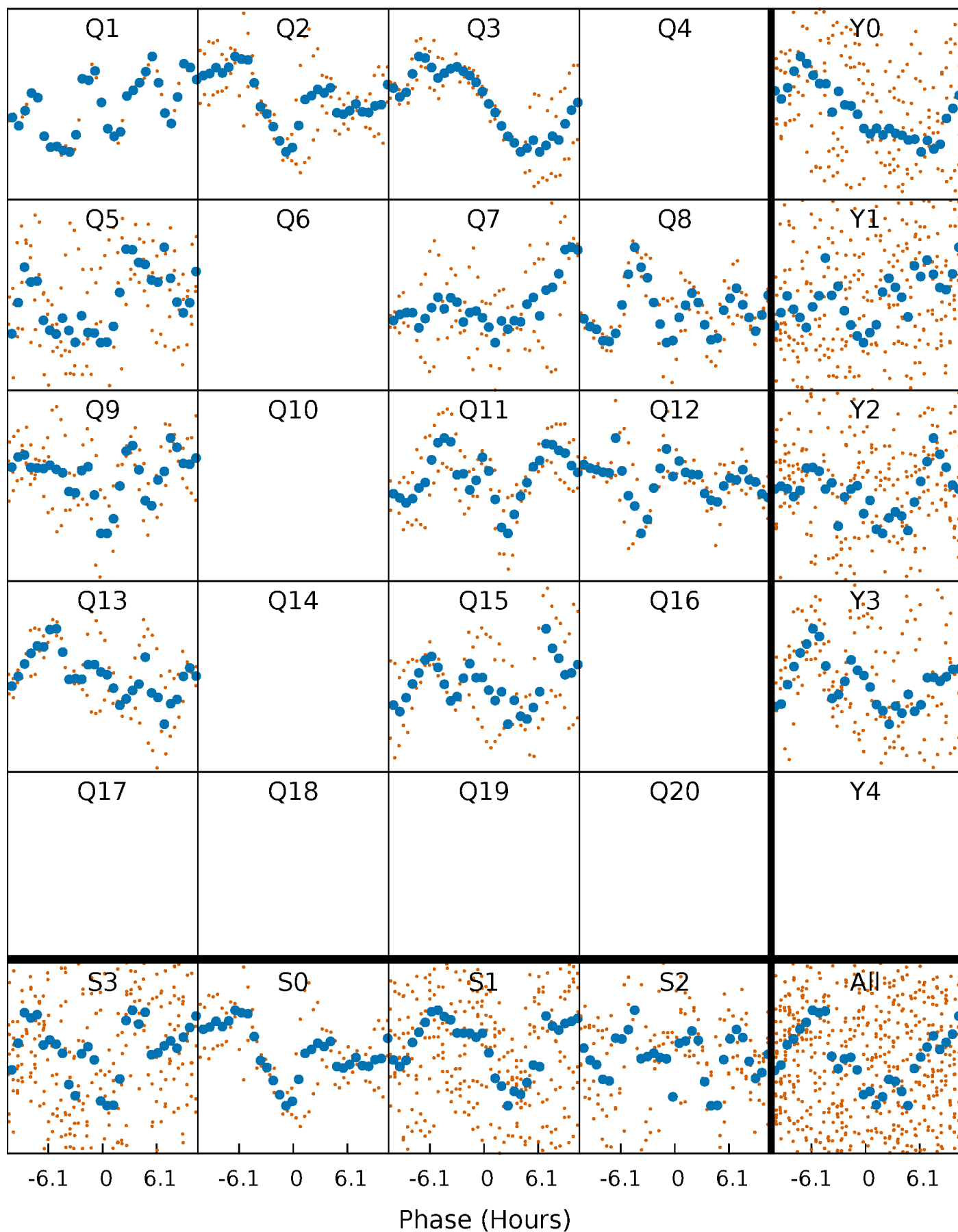
## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)





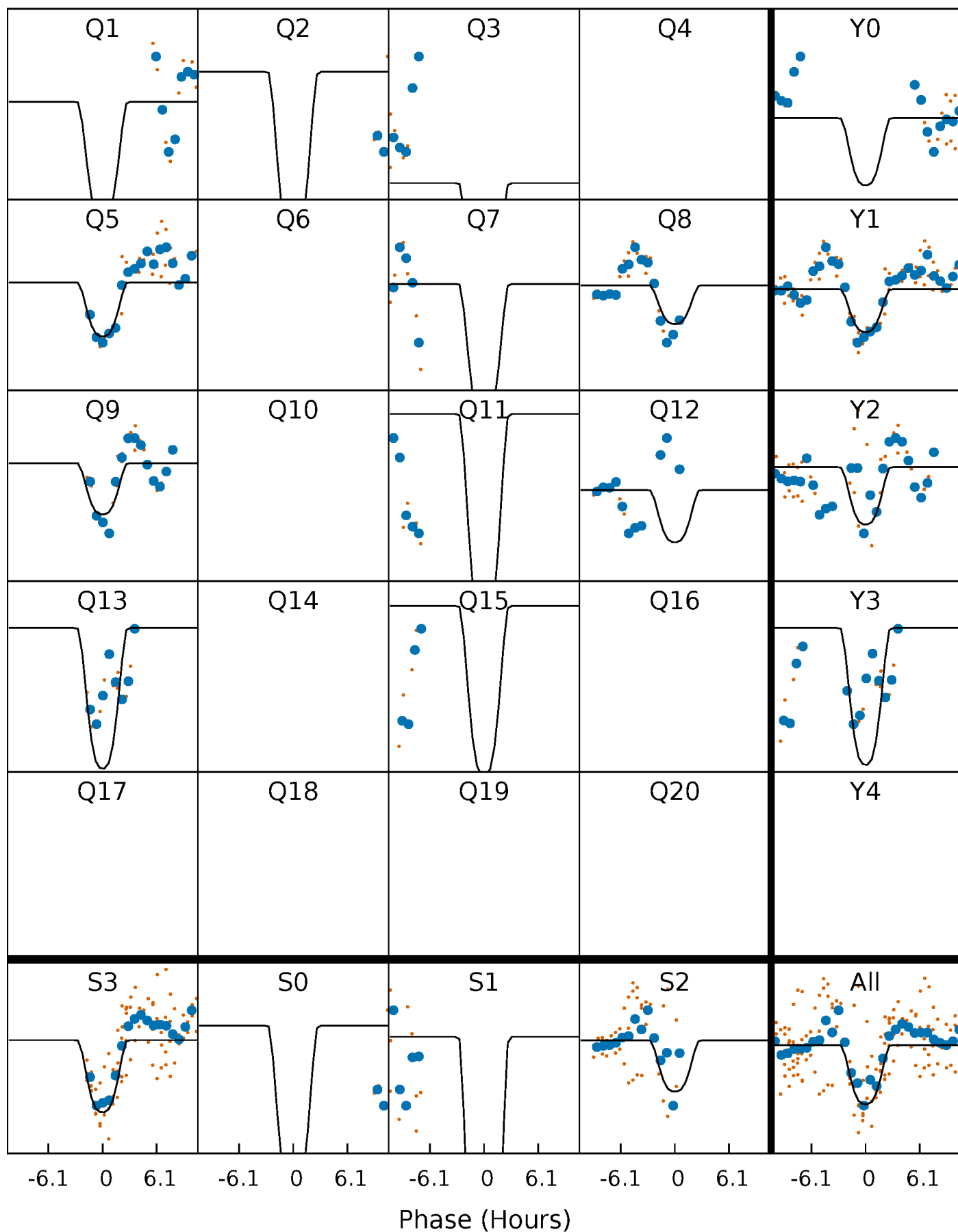
# PDC Quarter-Phased Transit Curves

TCE 003558803-06 P= 41.807115 Days  $T_0=153.651917$  (BKJD)



# DV Quarter-Phased Transit Curves

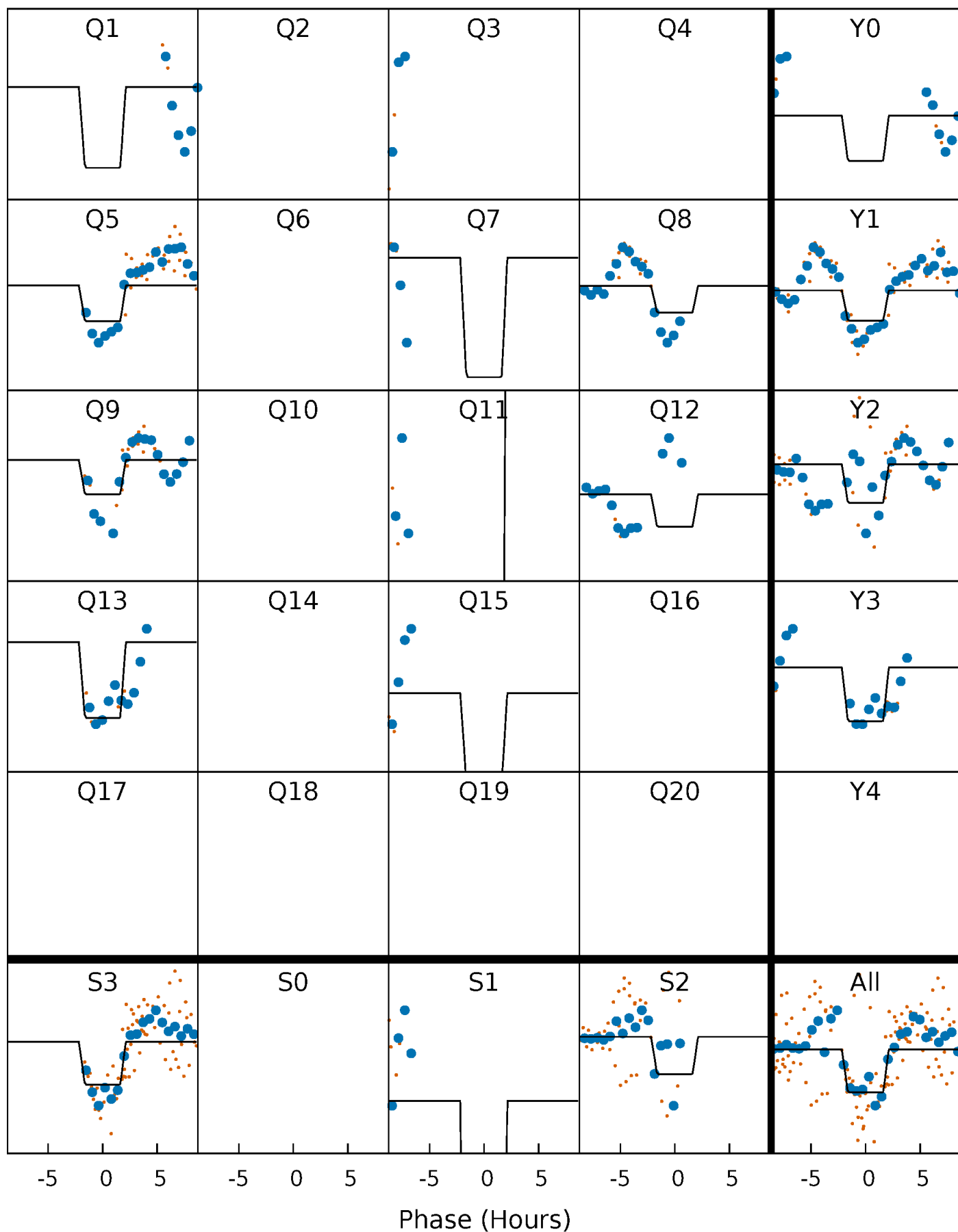
TCE 003558803-06 P= 41.807115 Days  $T_0=153.651917$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

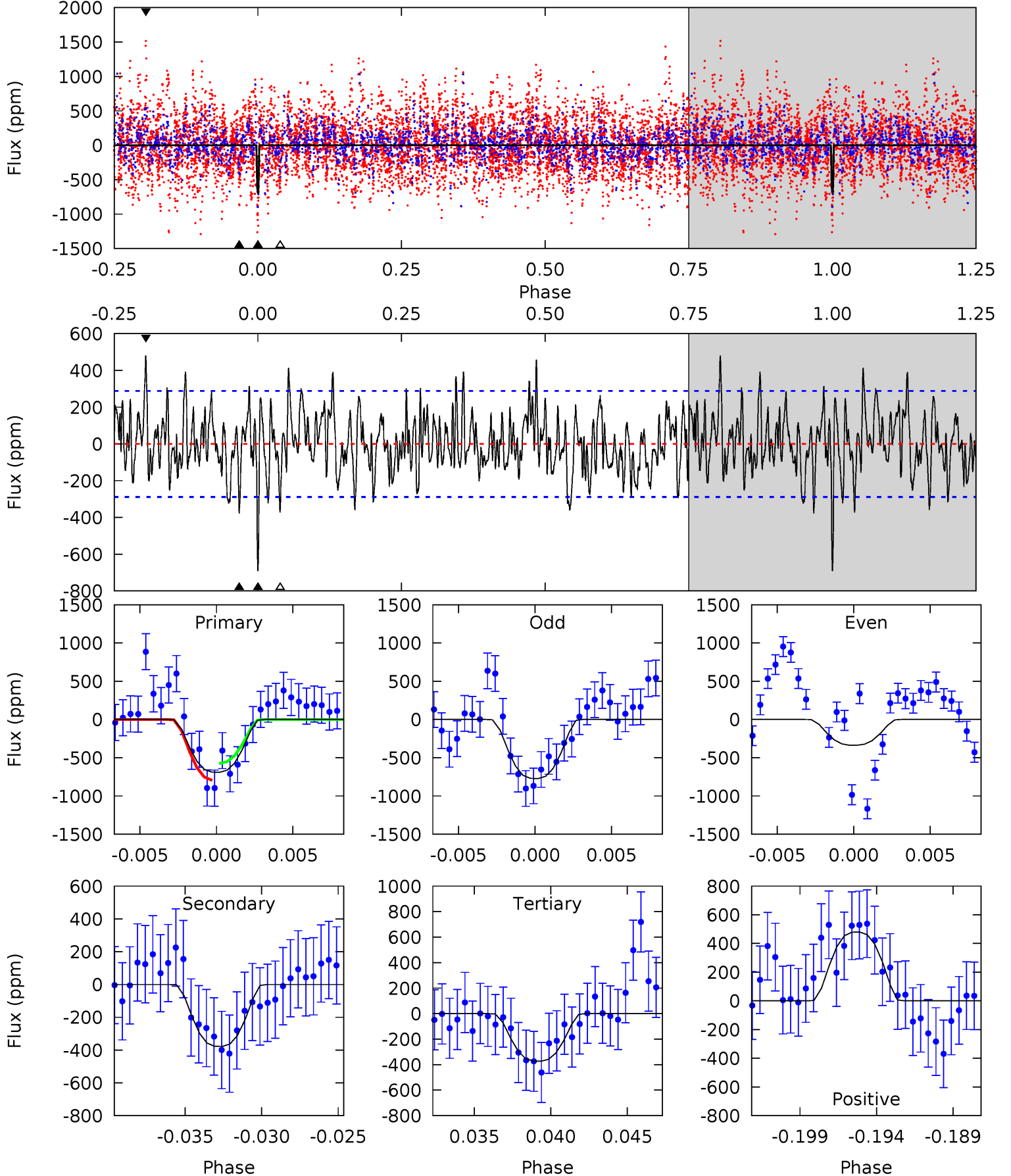
TCE 003558803-06 P= 41.806400 Days  $T_0=153.658964$  (BKJD)



# DV Model-Shift Uniqueness Test

003558803-06, P = 41.807115 Days, E = 111.844802 Days

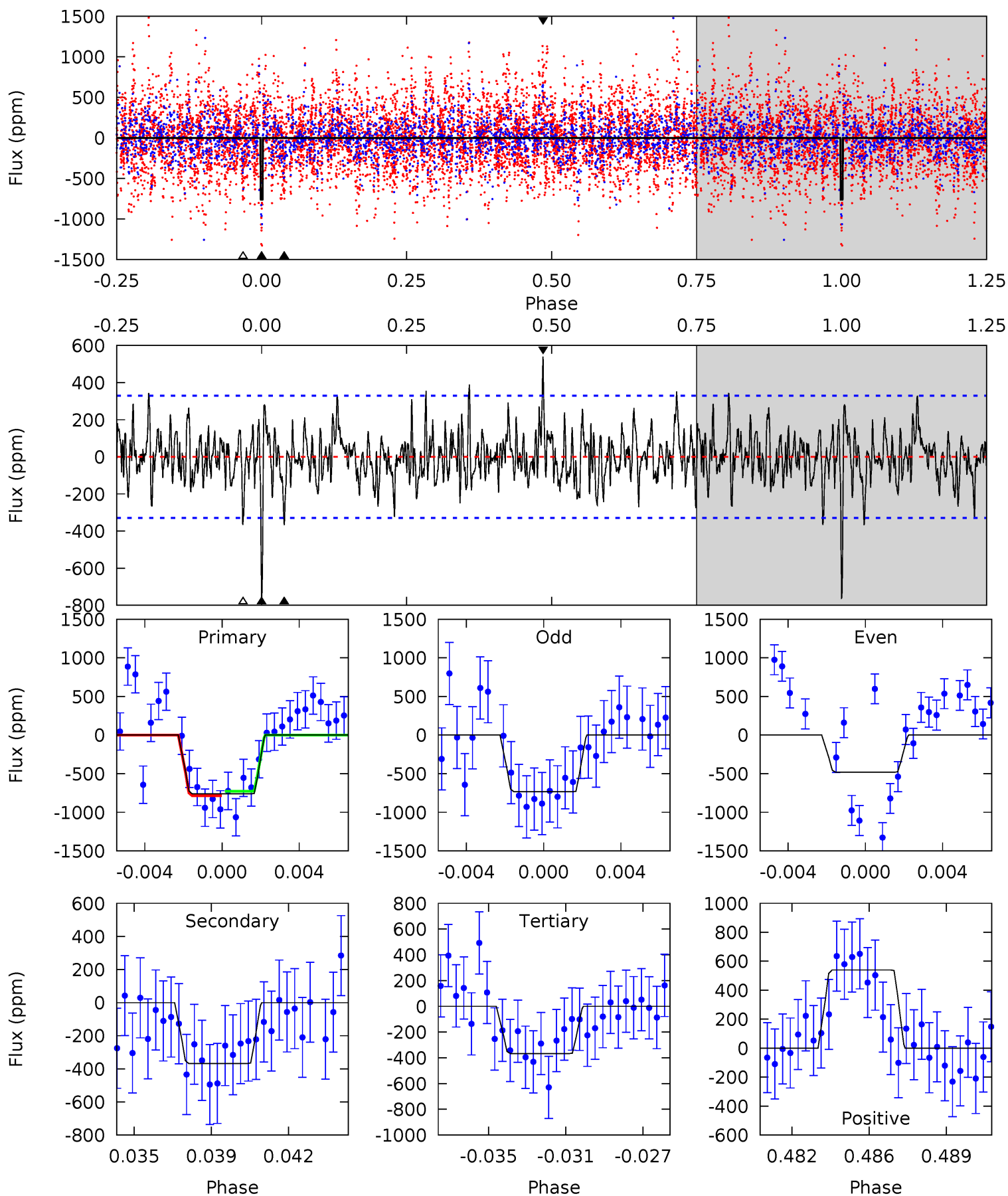
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	6.76	6.67	8.58	5.16	2.81	2.47	5.67	3.76	0.09	-1.83	3.77	0.17	0.41	1.94



# Alt Model-Shift Uniqueness Test

003558803-06, P = 41.806400 Days, E = 111.852564 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
12.0	5.81	5.81	8.54	5.21	2.89	1.77	6.23	3.50	0.00	-2.72	2.02	0.61	0.41	0.45



### Stellar Parameters For KIC 003558803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4850^{+95}_{-143}$	$2.865^{+0.225}_{-0.164}$	$0.100^{+0.200}_{-0.300}$	$8.586^{+2.199}_{-3.024}$	$1.969^{+0.734}_{-0.897}$	$0.004^{+0.008}_{-0.002}$
	+2%/-3%	+8%/-6%	+200%/-300%	+26%/-35%	+37%/-46%	+175%/-41%
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 003558803-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-378 \pm 56$	$34.28^{+7.73}_{-7.53}$	$1596^{+112}_{-130}$	$3801^{+214}_{-200}$	$16^{+9}_{-6}$
Alt.	$-368 \pm 63$	$23.39^{+6.51}_{-6.15}$	$1605^{+111}_{-126}$	$4363^{+375}_{-336}$	$33^{+25}_{-13}$

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

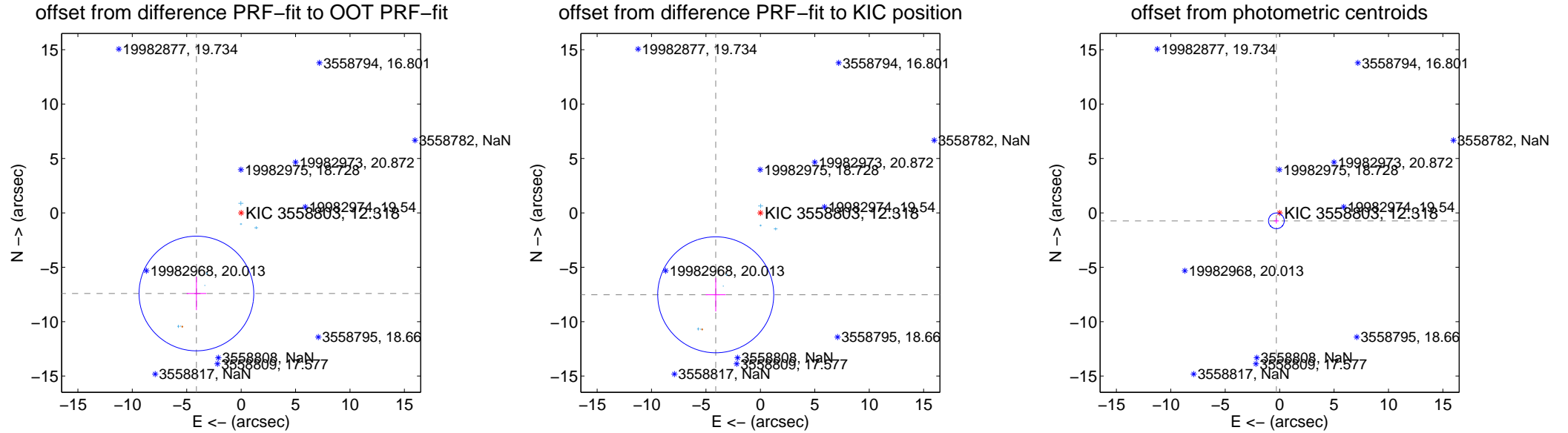
## DV Centroid Data

Supplemental centroid analysis for 003558803-06. Kepler magnitude: 12.32. Transit SNR 12.65

There are 7 quarters with good PRF difference image offsets

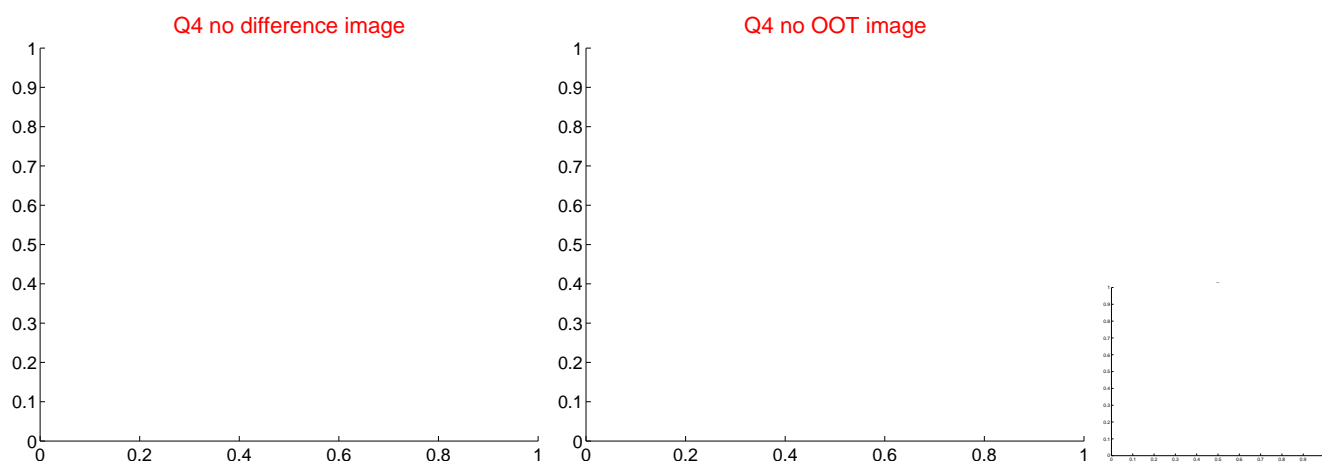
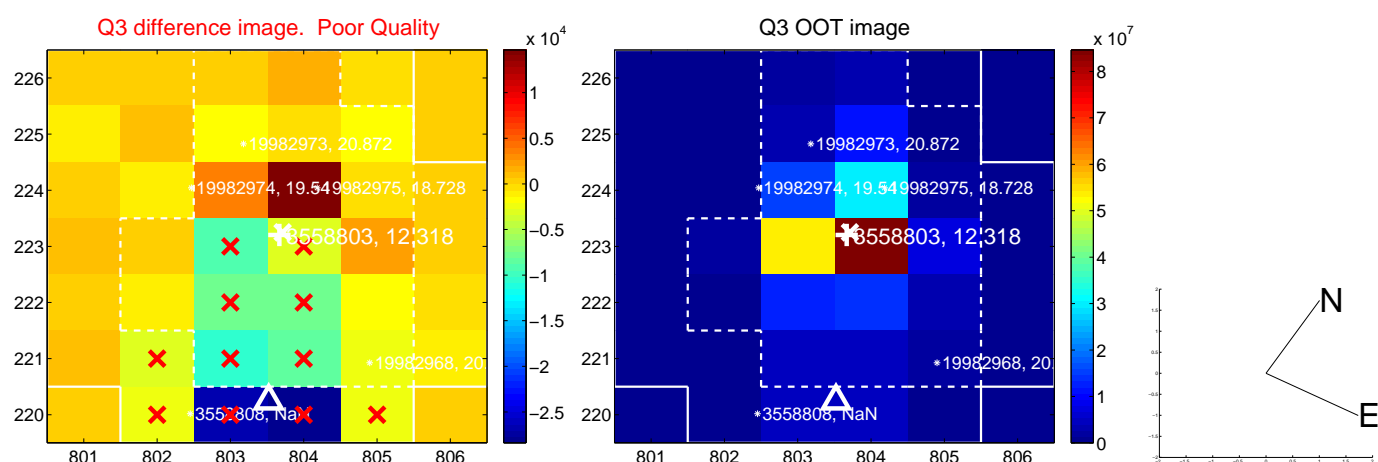
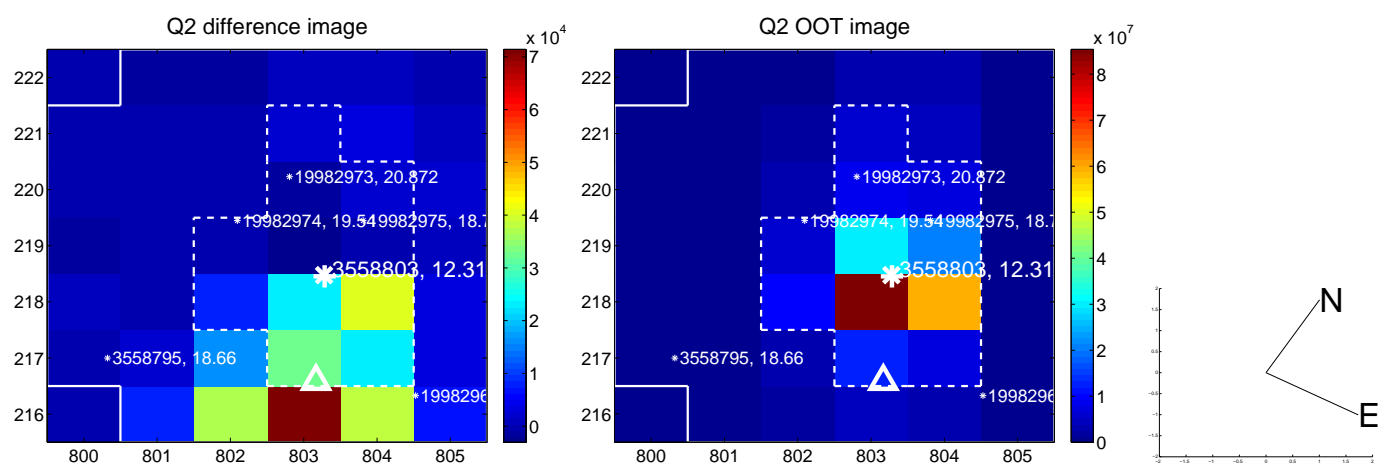
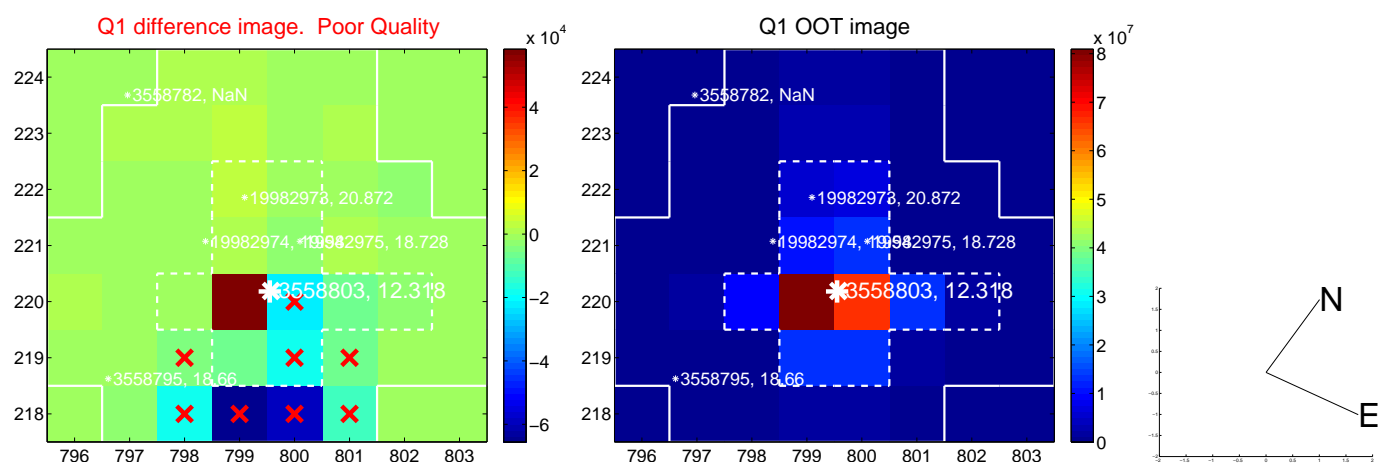
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$8.475 \pm 1.757$	4.82	$4.110 \pm 0.896$	$-7.411 \pm 1.527$
PRF-fit source offset from KIC position	$8.577 \pm 1.776$	4.83	$4.103 \pm 0.917$	$-7.532 \pm 1.536$
photometric centroid source offset	$0.79 \pm 0.24$	3.29	$0.30 \pm 0.23$	$-0.73 \pm 0.24$

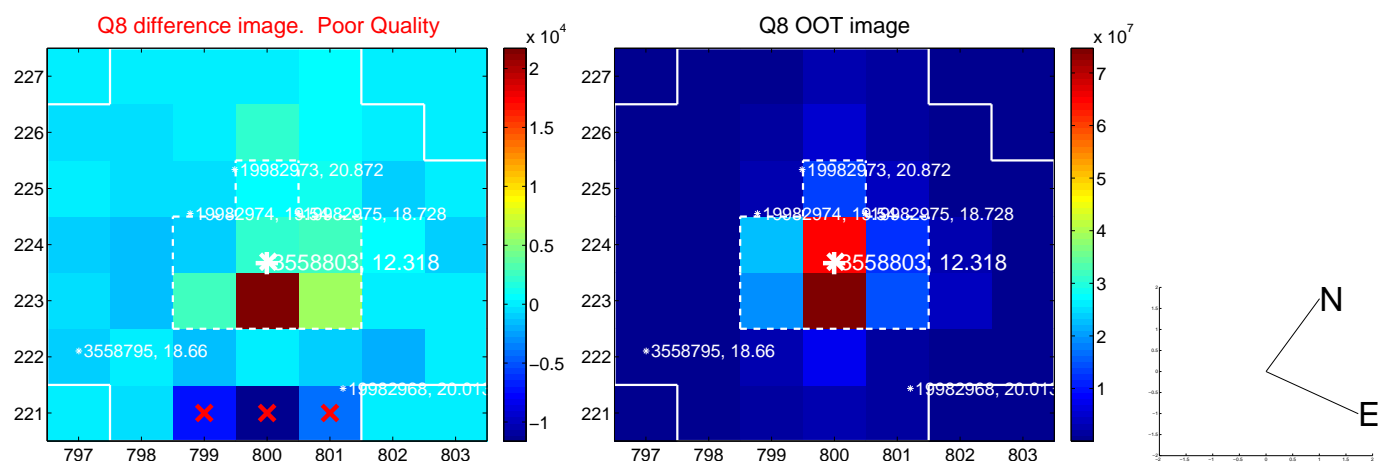
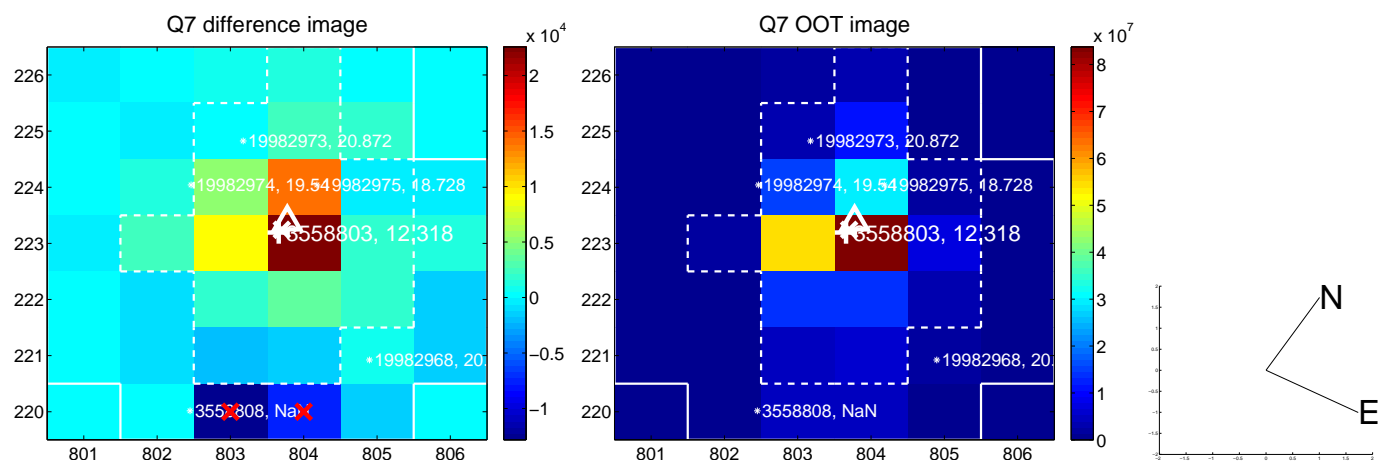
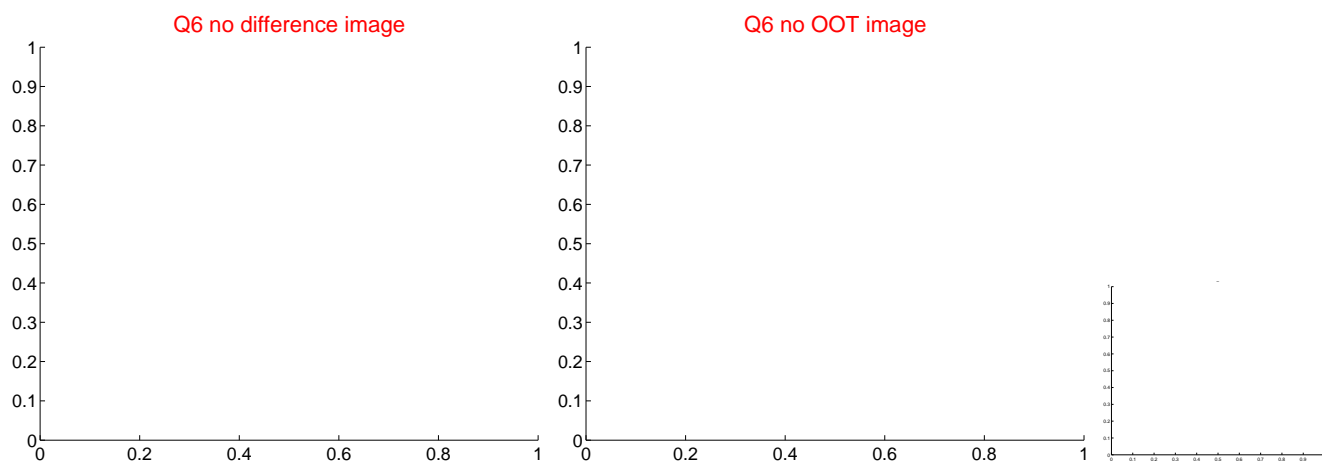
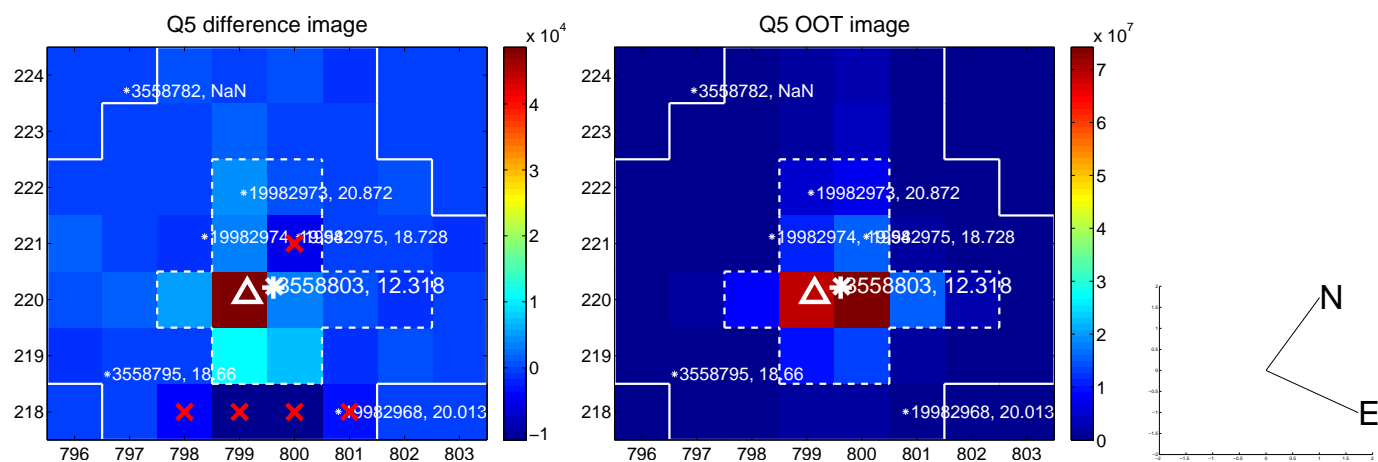


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

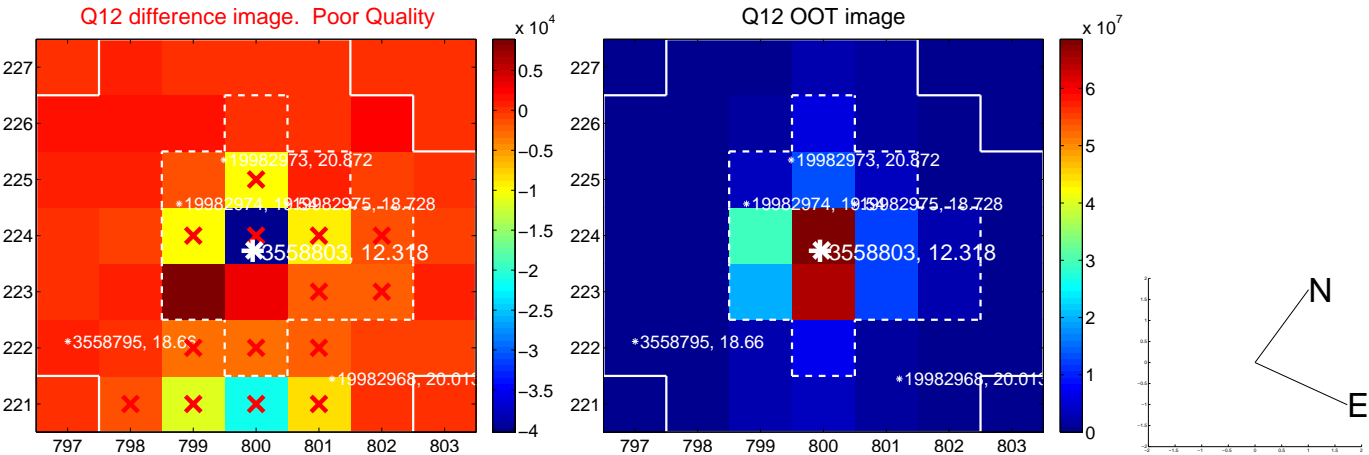
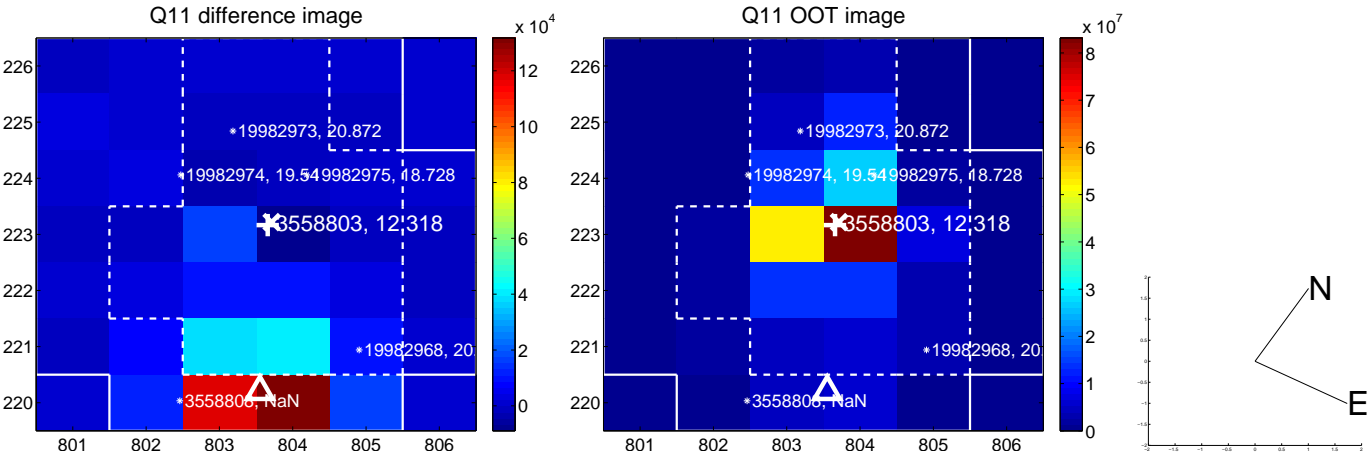
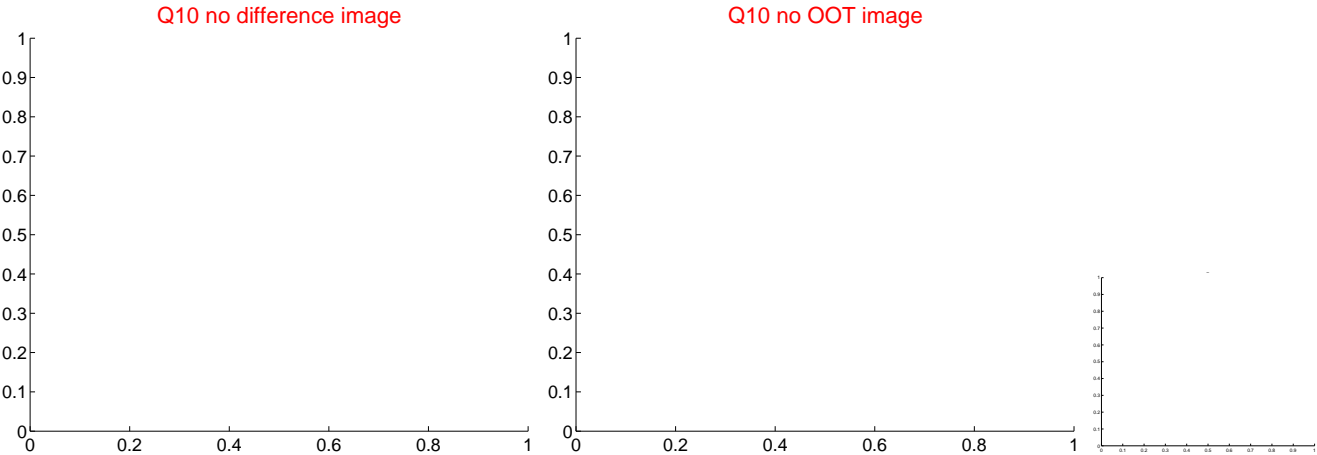
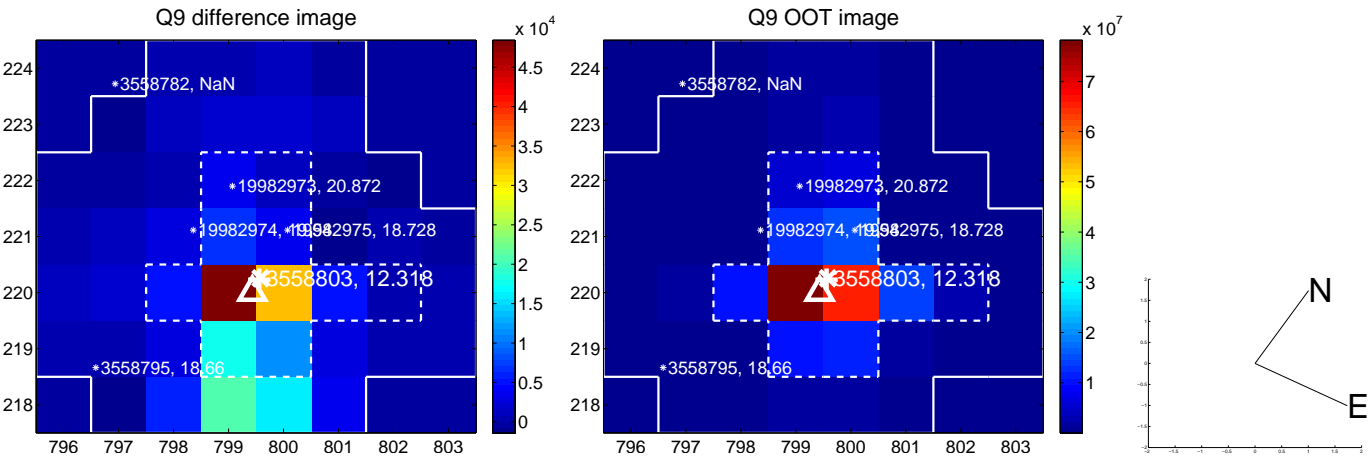
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

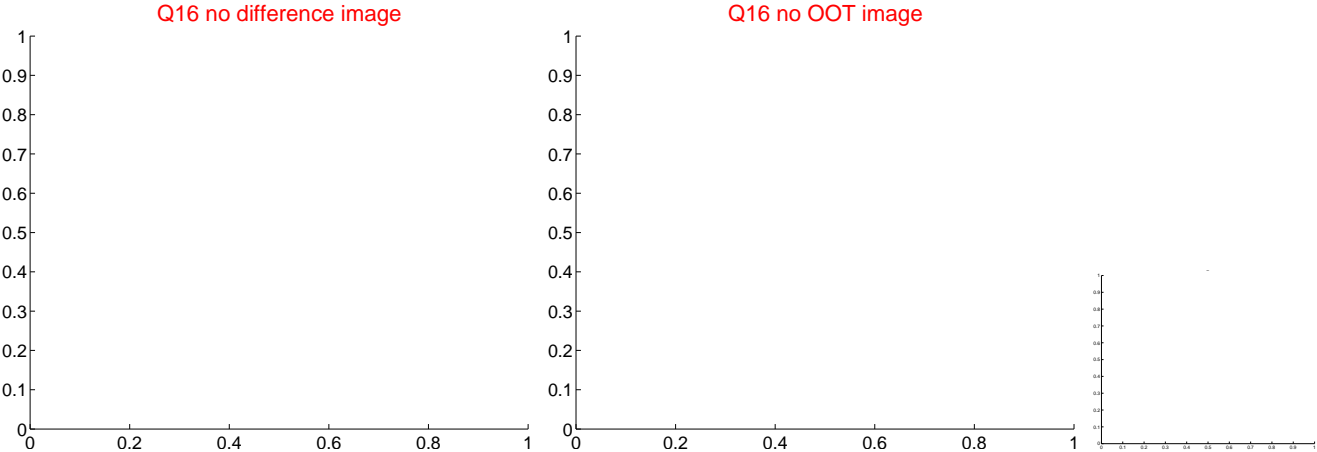
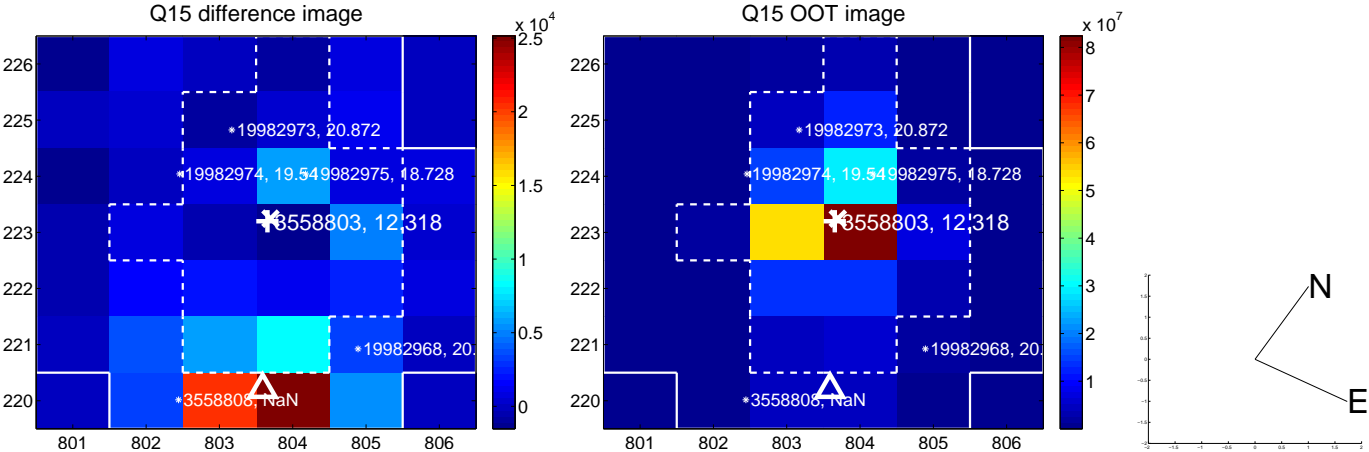
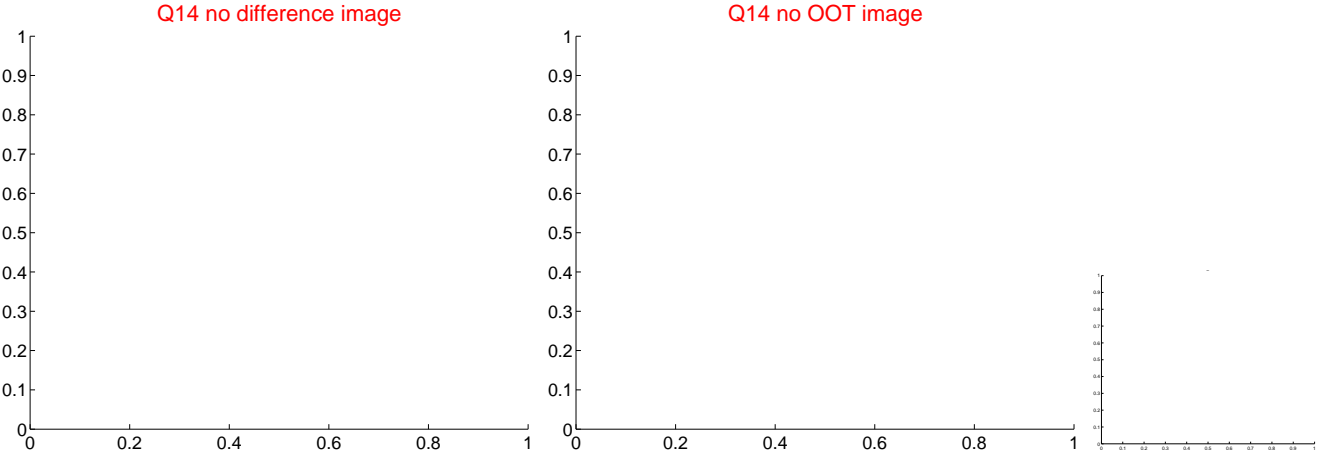
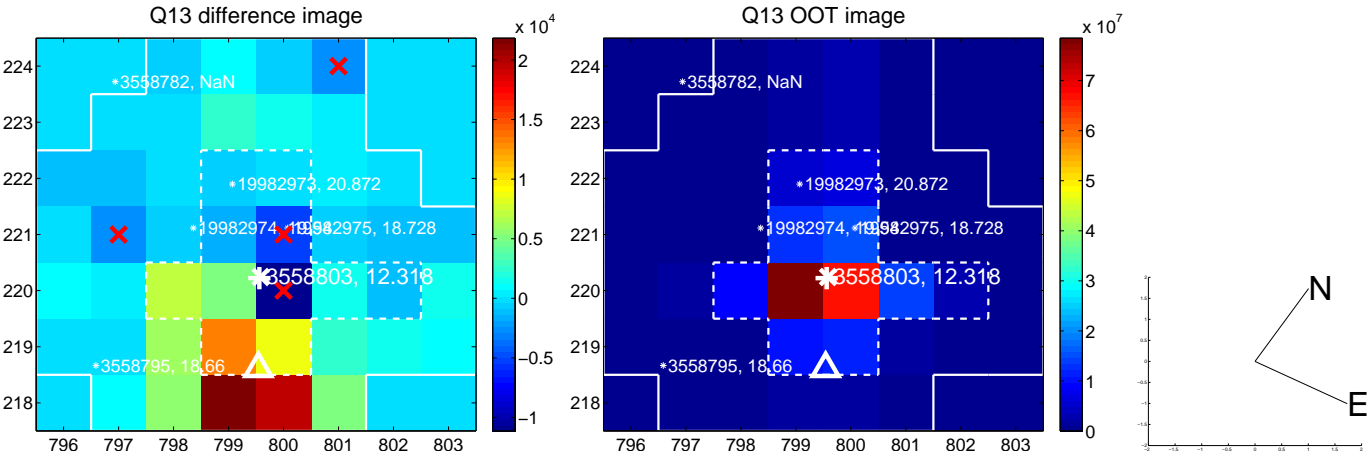


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

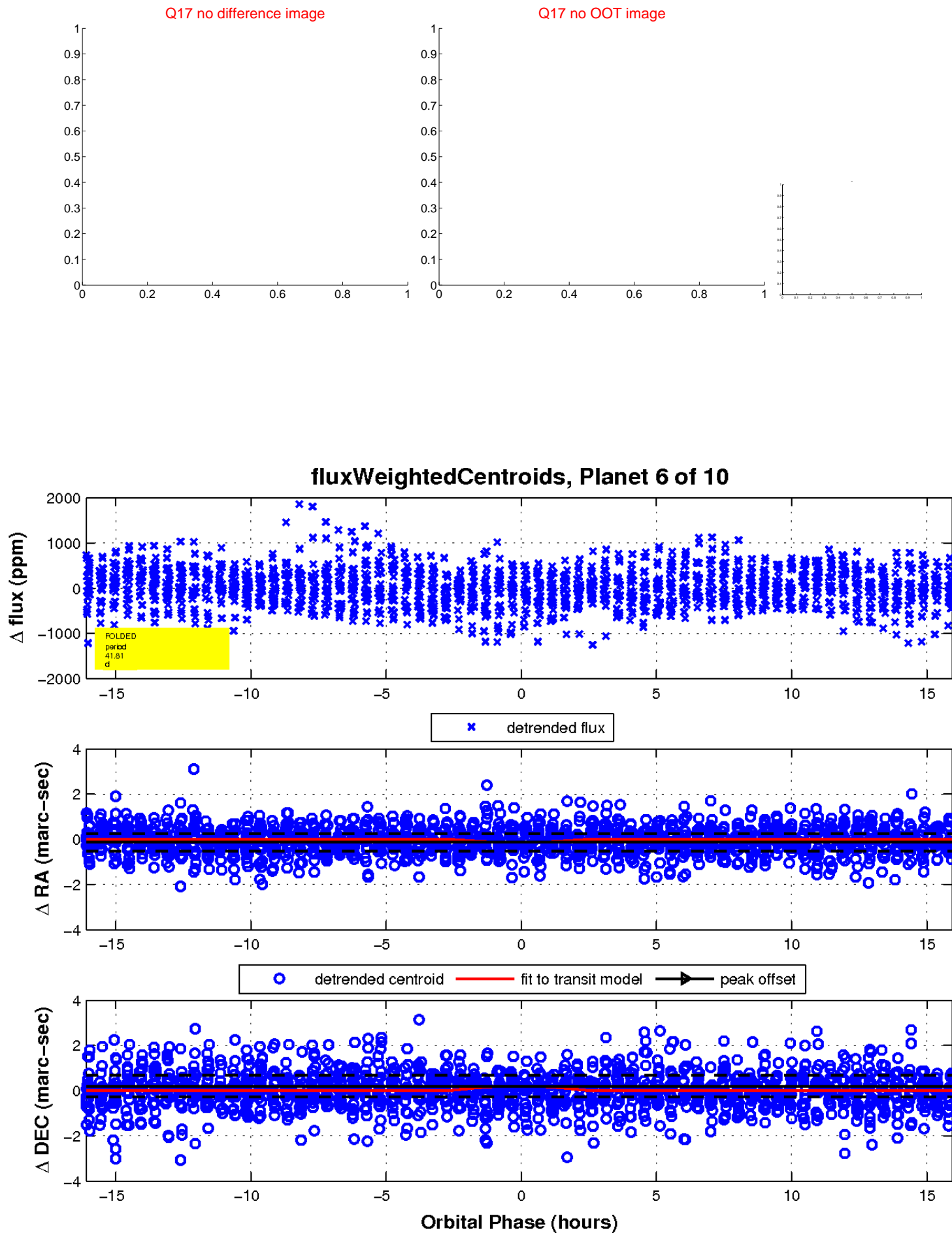




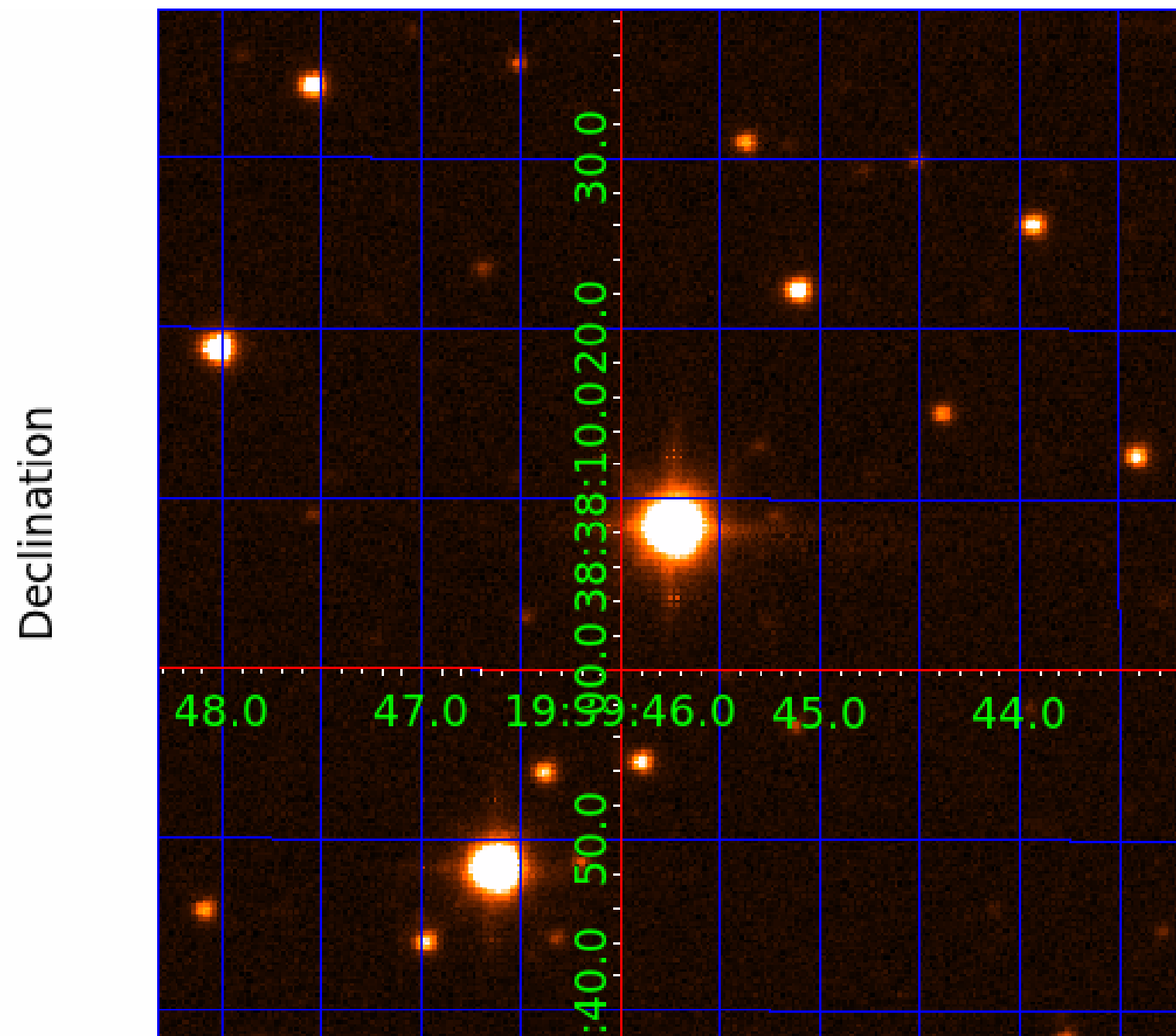
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



## KIC 003558803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003558803-01	OBS	6345.01	1.353452	131.671808	43.8	8.659	19.0	5.6	8.59	4850	5.50	0.00
003558803-02	OBS	No	26.890557	158.331830	651.3	2.791	14.3	13.0	8.59	4850	25.05	753.22
003558803-03	OBS	No	16.819263	147.638424	502.2	2.454	13.6	12.1	8.59	4850	22.79	1408.14
003558803-04	OBS	No	52.653629	145.420099	841.2	2.829	13.8	13.6	8.59	4850	30.52	307.48
003558803-05	OBS	No	109.340809	139.449797	1048.1	9.446	13.0	14.0	8.59	4850	34.72	116.06
003558803-06	OBS	No	41.807115	153.651917	851.4	5.370	13.0	12.7	8.59	4850	34.21	418.20
003558803-07	OBS	No	23.122790	154.403549	632.1	3.179	13.2	13.0	8.59	4850	42.09	921.16
003558803-08	OBS	No	8.633592	136.565481	442.3	3.706	13.1	13.5	8.59	4850	38.35	3426.10
003558803-09	OBS	No	97.651648	216.153876	1031.9	4.221	12.2	12.0	8.59	4850	27.88	134.94
003558803-10	OBS	No	15.234080	146.589122	378.5	1.500	12.3	-1.0	8.59	4850	16.19	1606.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558803-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003558803-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN—HALO_GHOST
003558803-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003558803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN
003558803-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
003558803-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003558803-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-10	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

**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.

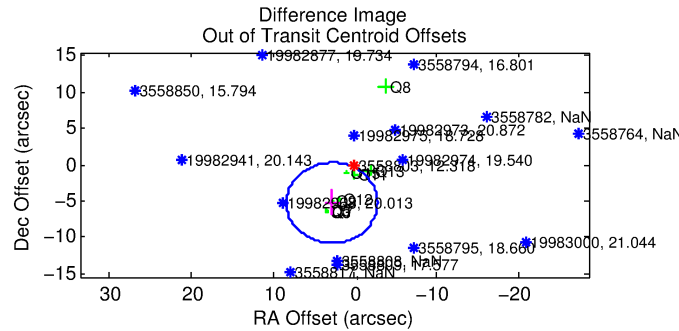
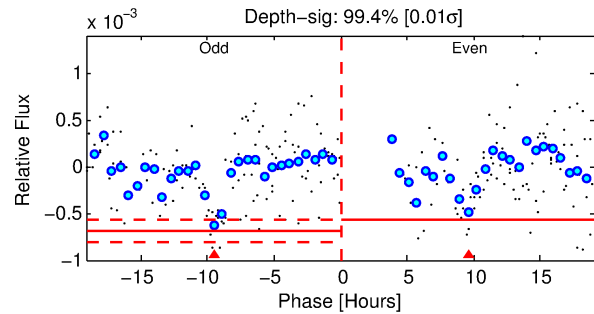
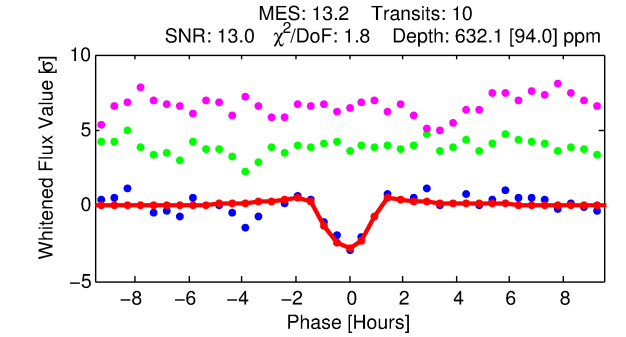
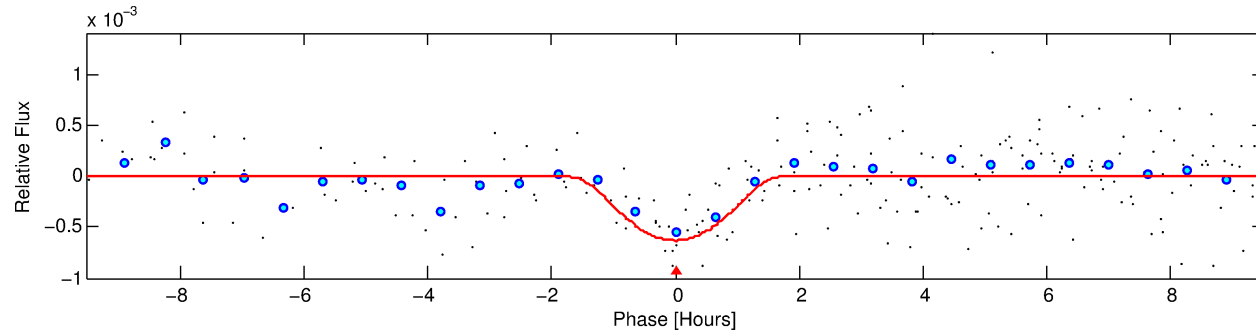
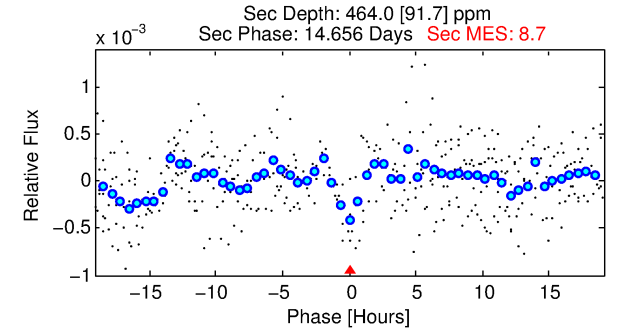
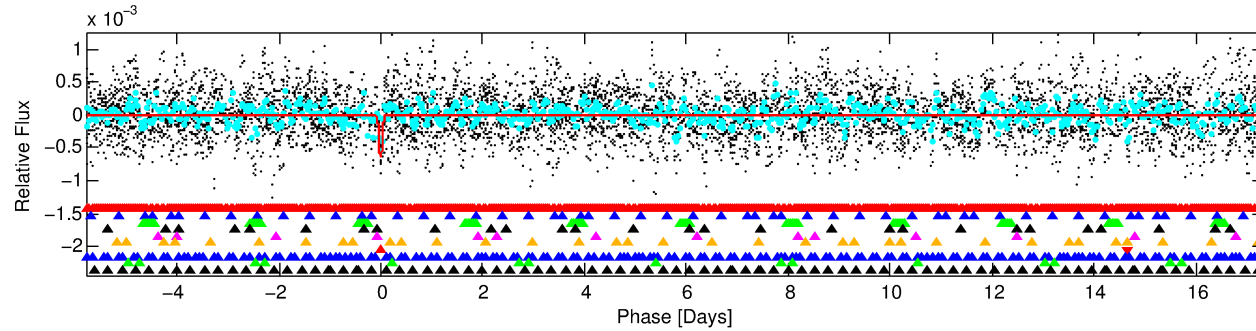
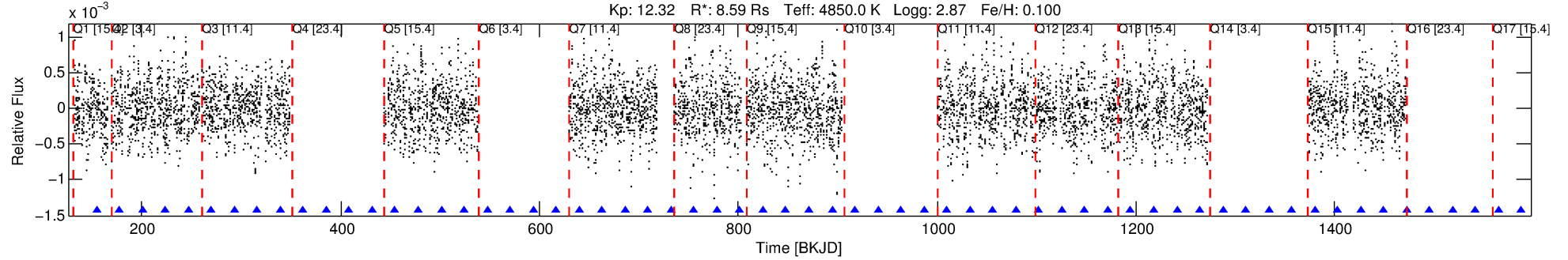
Ephemeris Match Information For 003558803-07

No Significant Match Found

# DV One-Page Summary

KIC: 3558803 Candidate: 7 of 10 Period: 23.123 d  
KOI: K06345 Corr: No Ephemeris Match

Kp: 12.32 R\*: 8.59 Rs Teff: 4850.0 K Logg: 2.87 Fe/H: 0.100



## DV Fit Results:

Period = 23.12279 [0.00028] d  
Epoch = 154.4035 [0.0107] BKJD  
Rp/R\* = 0.0449 [0.1276]  
a/R\* = 17.79 [13.68]  
b = 0.99 [0.20]  
Seff = 921.16 [399.76]  
Teq = 1405 [152] K  
Rp = 42.08 [120.46] Re  
a = 0.1992 [0.0581] AU  
Ag = 5.72 [32.59] [0.14σ]  
Teff = 3359 [4774] K [0.41σ]

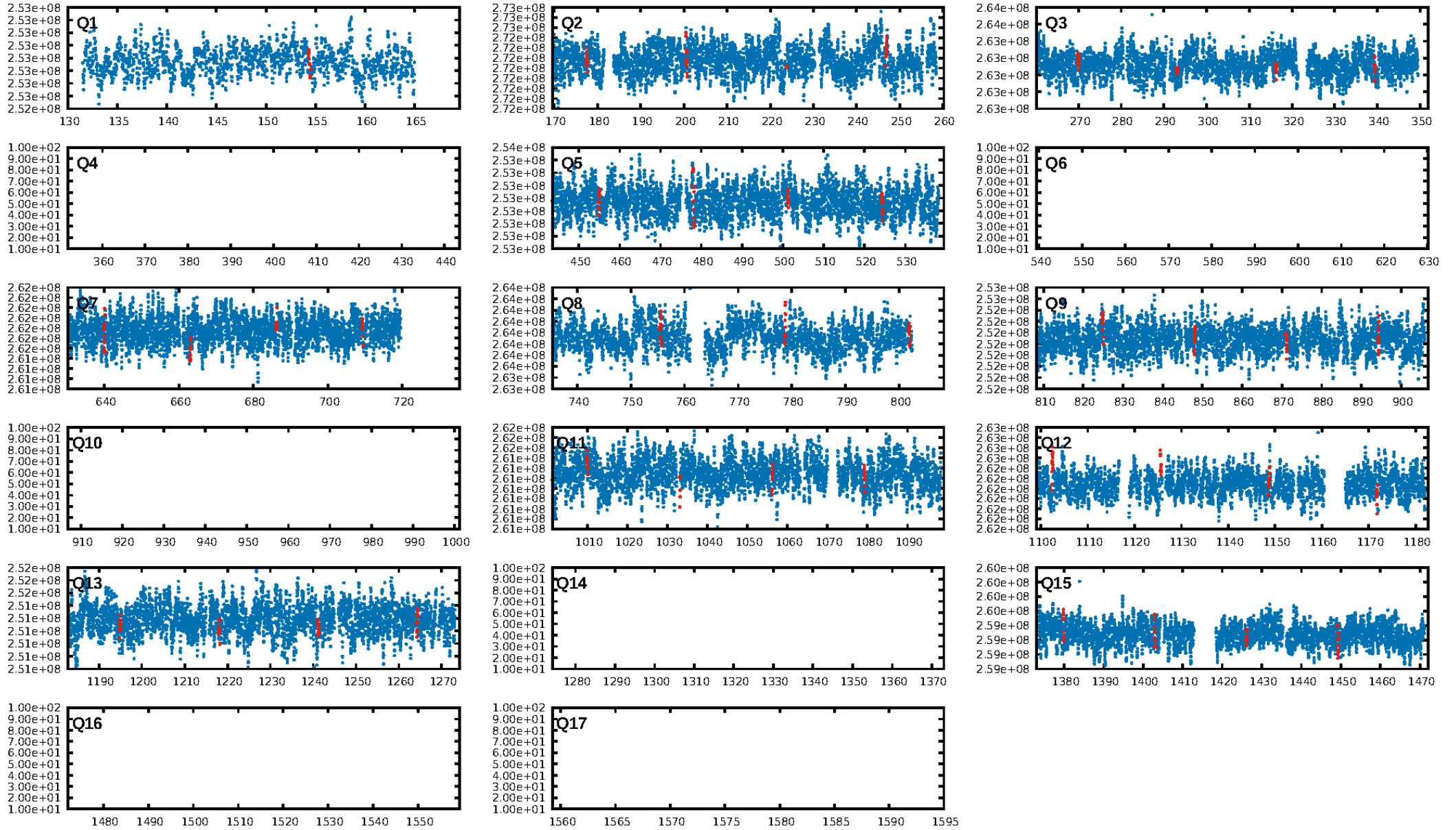
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [37.67σ]  
LongPeriod-sig: 100.0% [21.37σ]  
ModelChiSquare2-sig: 30.8%  
ModelChiSquareGof-sig: 99.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [10/10]  
GhostDiagnostic-chr: -0.09906  
Centroid-sig: 13.1%  
Centroid-so: 0.221 arcsec [0.70σ]  
OotOffset-rm: 5.958 arcsec [3.22σ]  
OotOffset-st: 0/4/2/3 [9]  
KicOffset-rm: 6.077 arcsec [2.91σ]  
KicOffset-st: 0/4/2/3 [9]  
DiffImageQuality-fgm: 0.22 [2/9]  
DiffImageOverlap-fno: 0.45 [5/11]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:09:55 Z

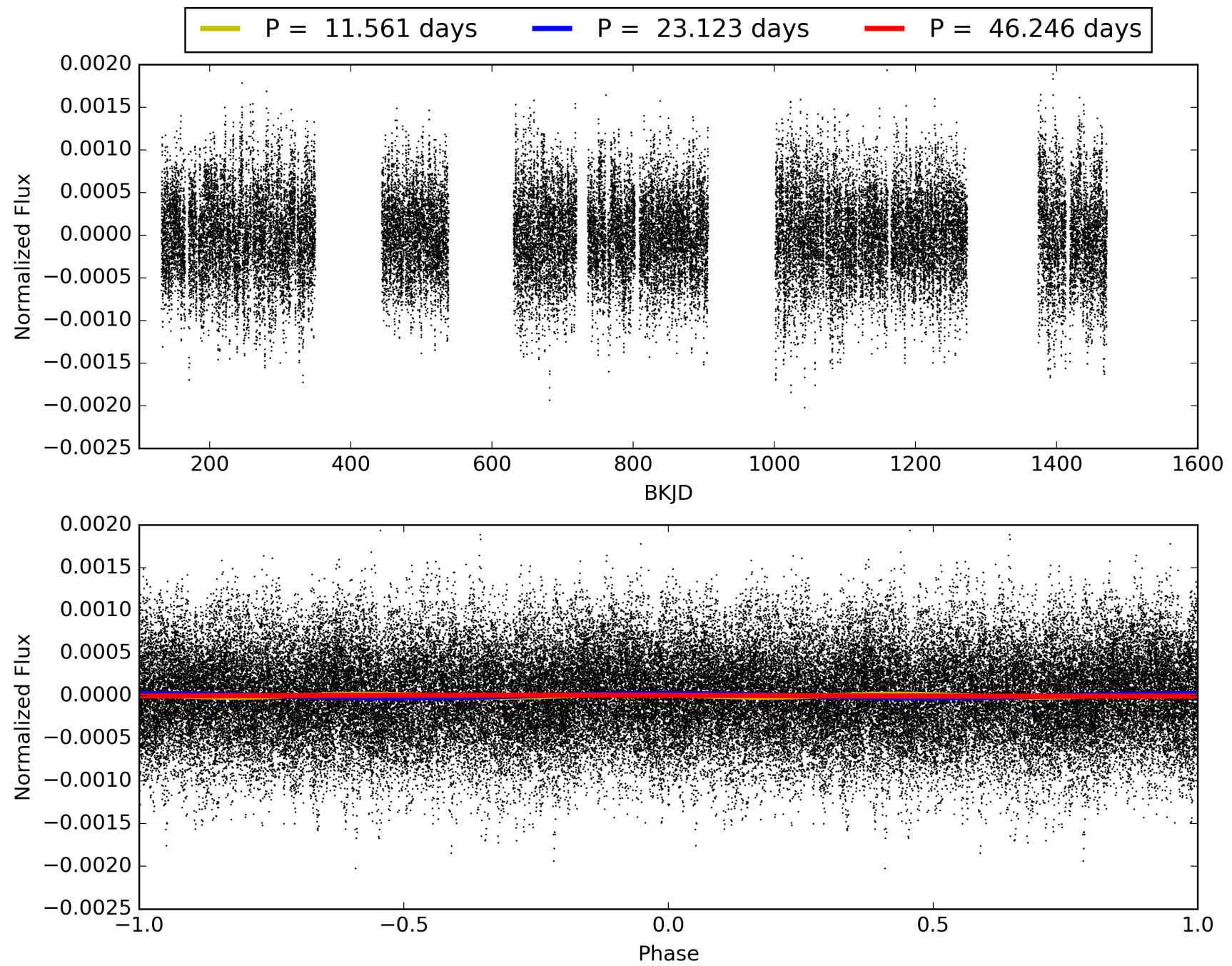
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003558803-07, PDC Light Curves



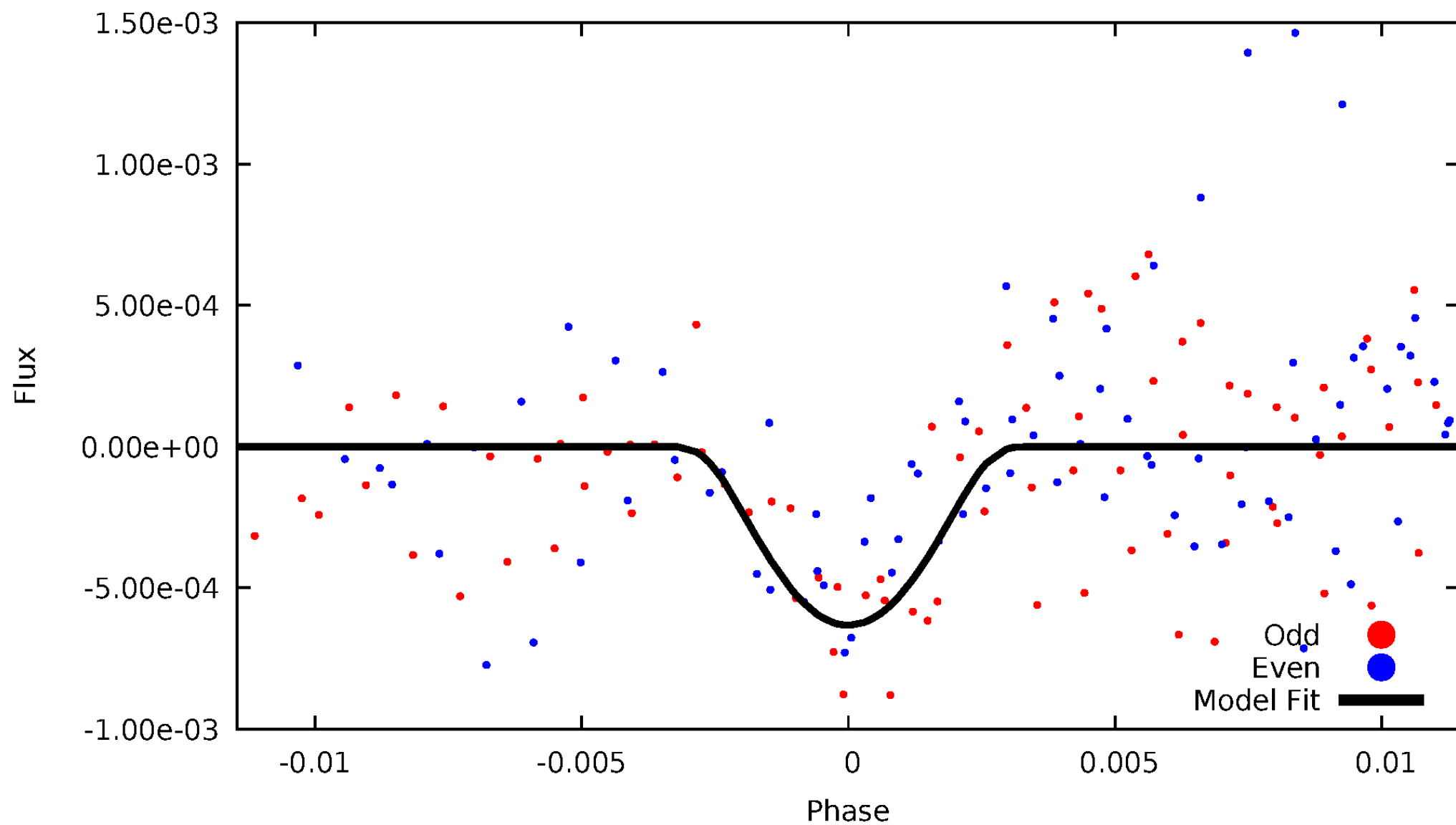


TCE 003558803-07



# DV Odd/Even

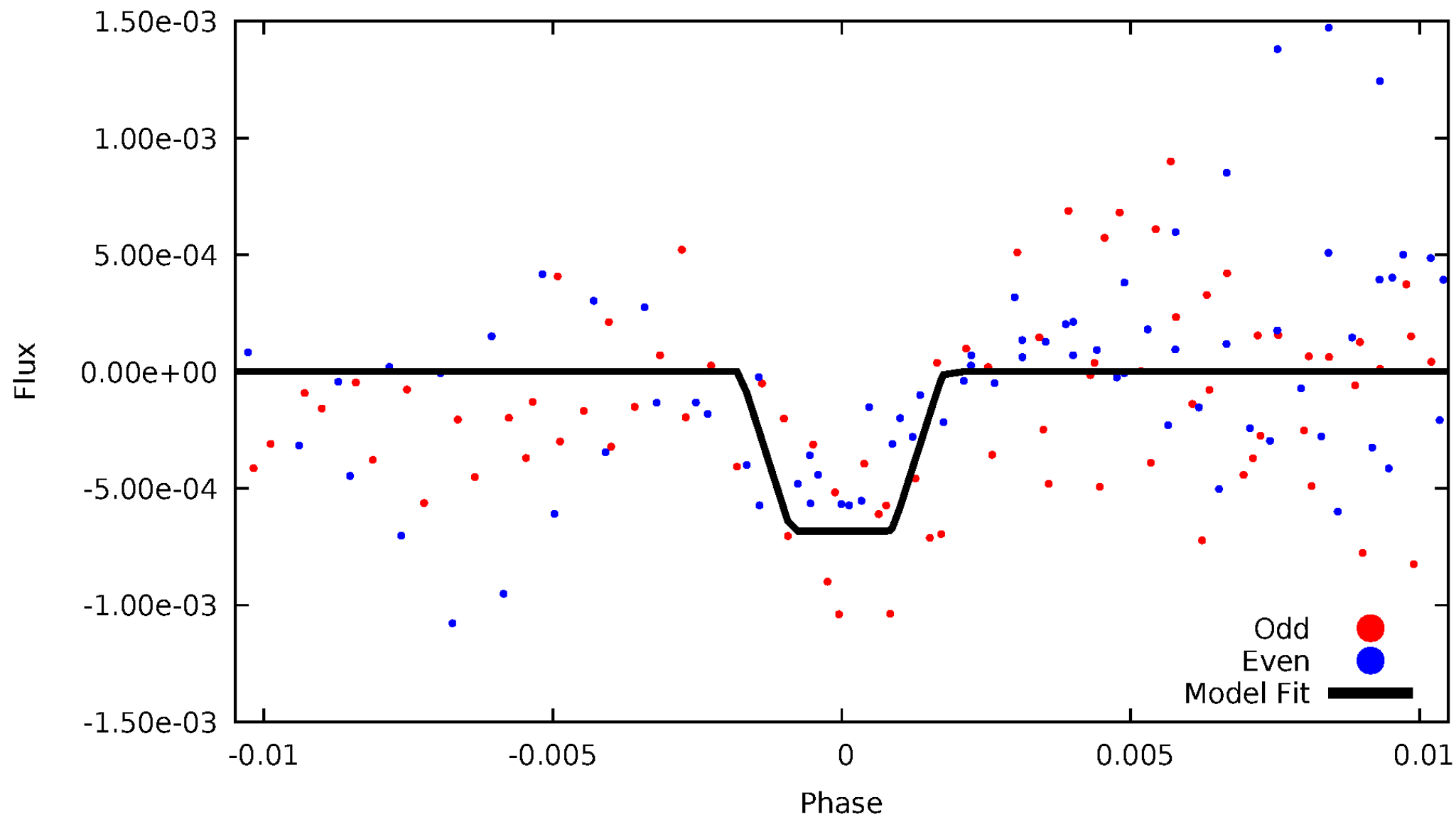
TCE 003558803-07





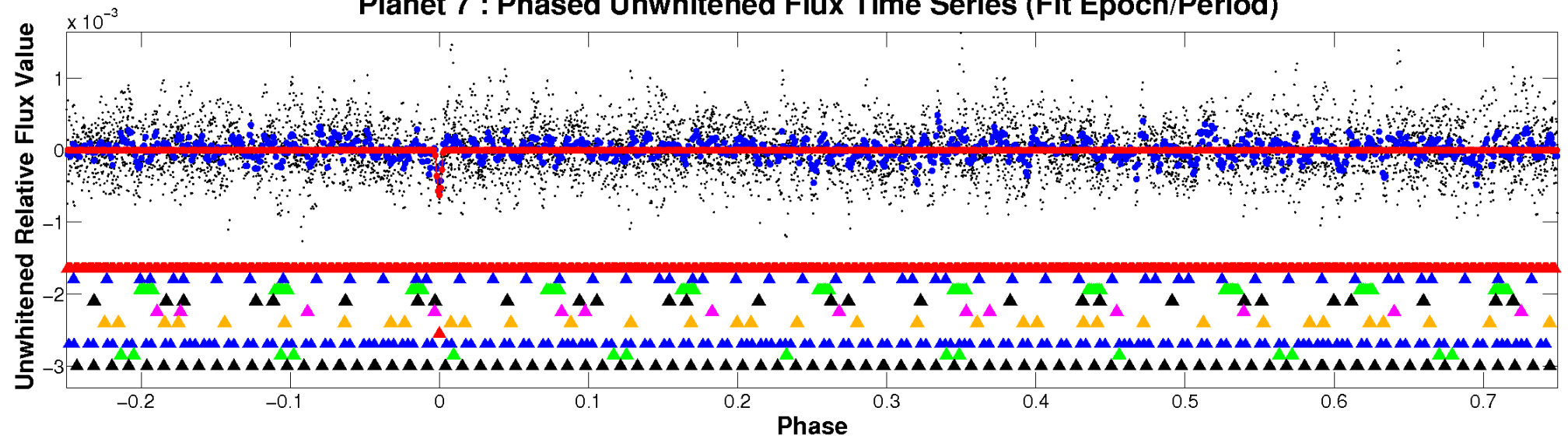
# ALT Odd/Even

TCE 003558803-07

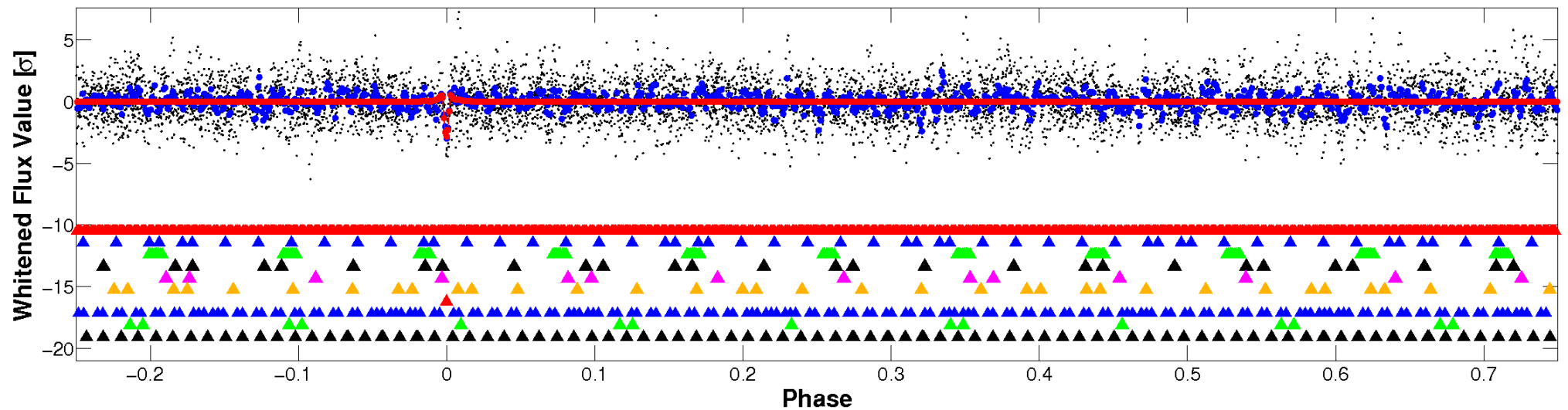


# Non-Whitened Vs. Whitened Light Curve

## Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

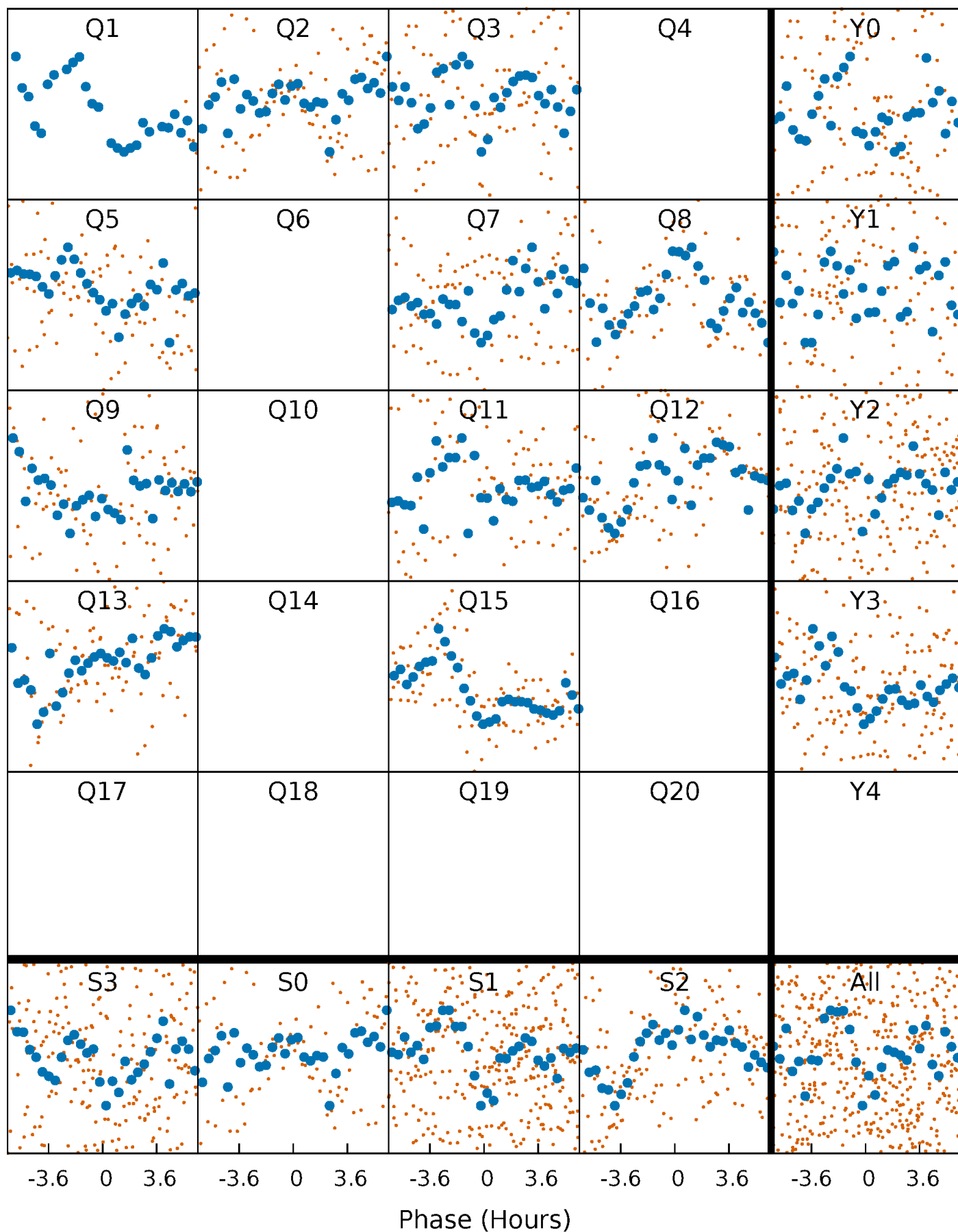


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



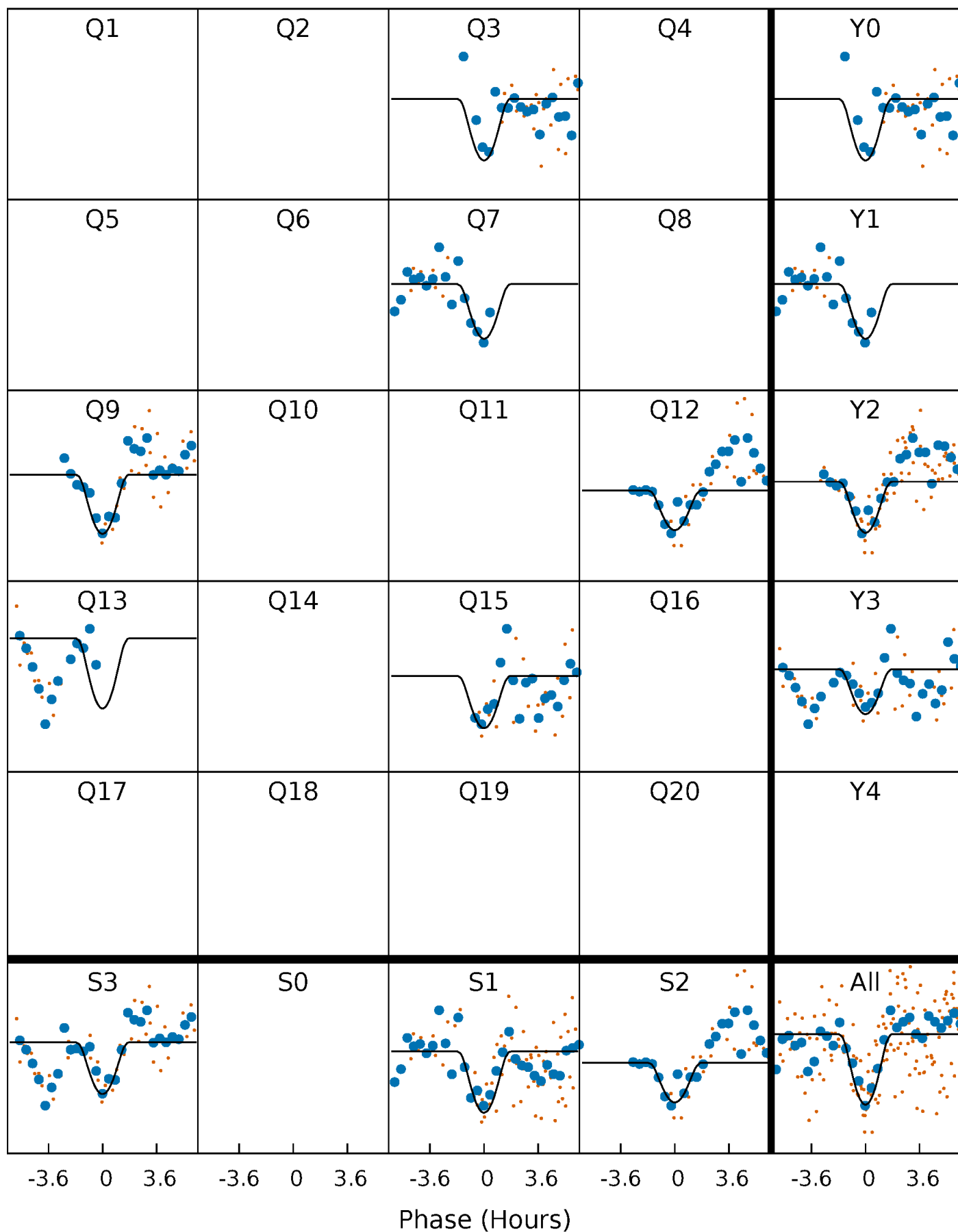
# PDC Quarter-Phased Transit Curves

TCE 003558803-07   P= 23.122790 Days    $T_0=154.403549$  (BKJD)



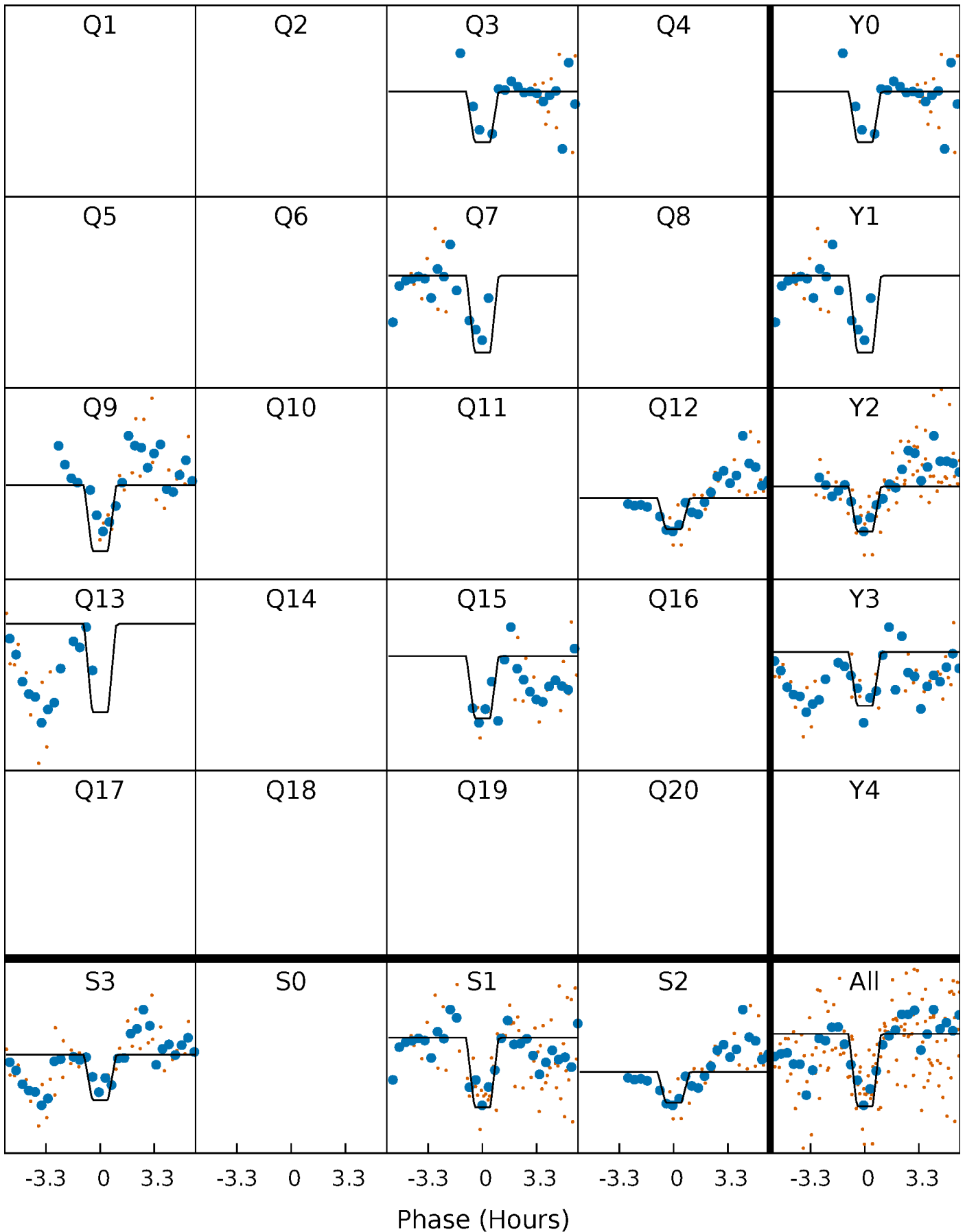
# DV Quarter-Phased Transit Curves

TCE 003558803-07     $P = 23.122790$  Days     $T_0 = 154.403549$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

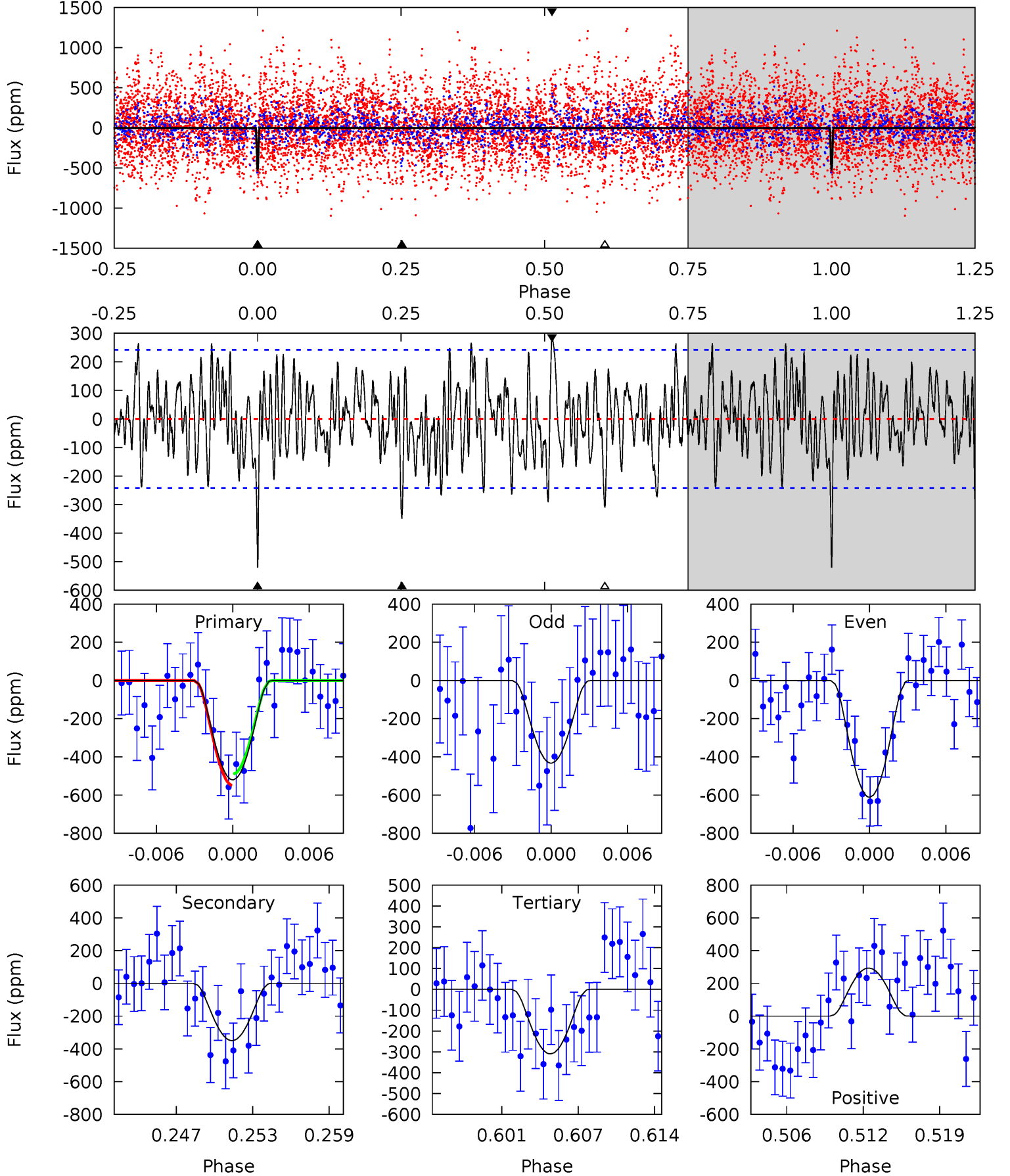
TCE 003558803-07     $P = 23.122813$  Days     $T_0 = 154.401404$  (BKJD)



# DV Model-Shift Uniqueness Test

003558803-07, P = 23.122790 Days, E = 131.280759 Days

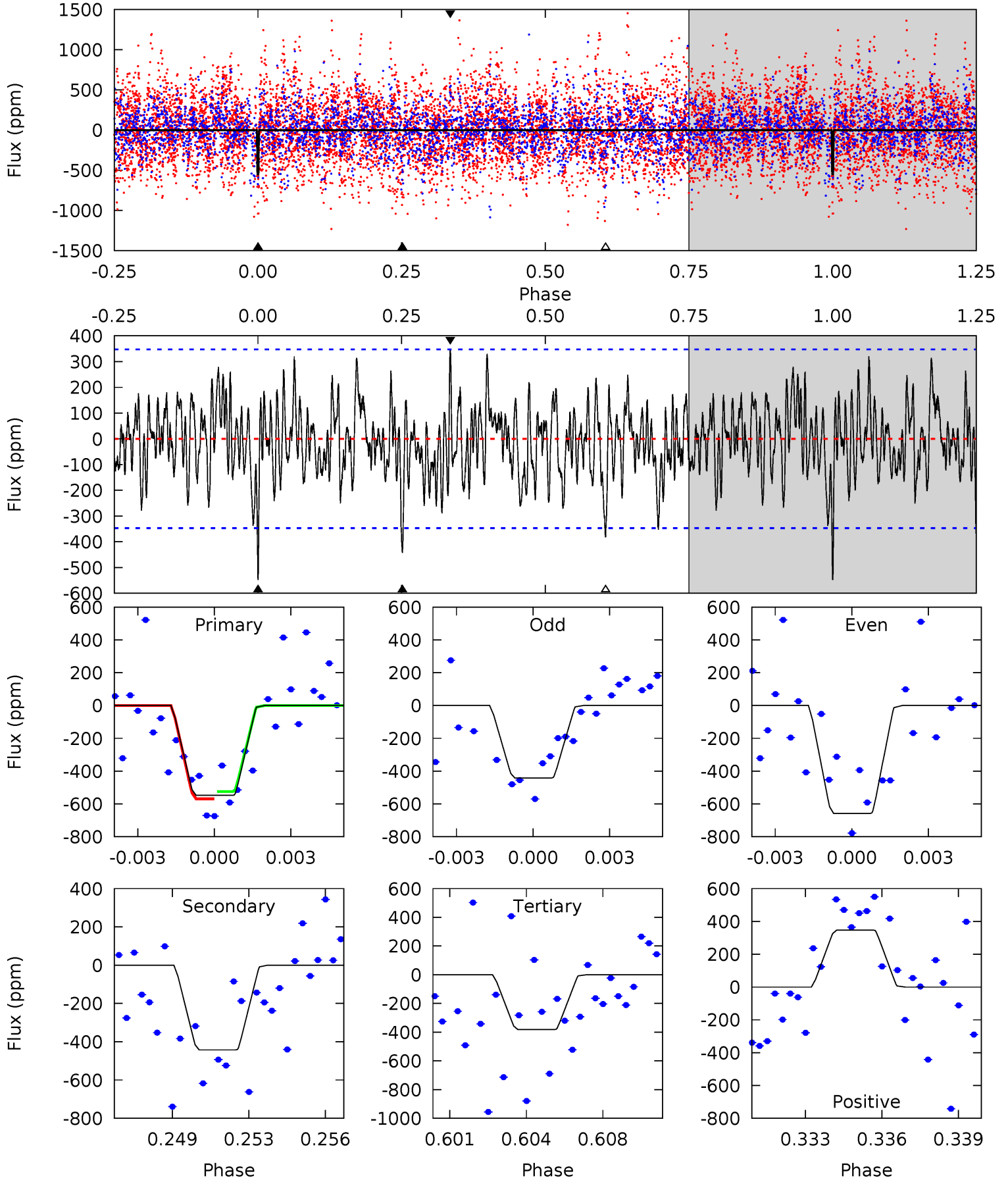
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	7.39	6.54	6.20	5.11	2.73	2.26	4.45	4.79	0.84	1.18	1.89	0.94	0.36	0.62



# Alt Model-Shift Uniqueness Test

003558803-07, P = 23.122813 Days, E = 131.278591 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
8.27	6.68	5.76	5.24	5.24	2.95	1.77	2.51	3.03	0.92	1.44	1.63	1.16	0.39	0.34



### Stellar Parameters For KIC 003558803

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4850^{+95}_{-143}$	$2.865^{+0.225}_{-0.164}$	$0.100^{+0.200}_{-0.300}$	$8.586^{+2.199}_{-3.024}$	$1.969^{+0.734}_{-0.897}$	$0.004^{+0.008}_{-0.002}$
	+2%/-3%	+8%/-6%	+200%/-300%	+26%/-35%	+37%/-46%	+175%/-41%
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 003558803-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-350 \pm 47$	$95.12^{+101.39}_{-66.62}$	$1947^{+149}_{-150}$	$2606^{+1323}_{-4743}$	$0.847^{+8.546}_{-0.648}$
Alt.	$-443 \pm 66$	$84.33^{+101.41}_{-59.72}$	$1947^{+127}_{-152}$	$2830^{+1468}_{-4521}$	$1.282^{+13.393}_{-0.992}$

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



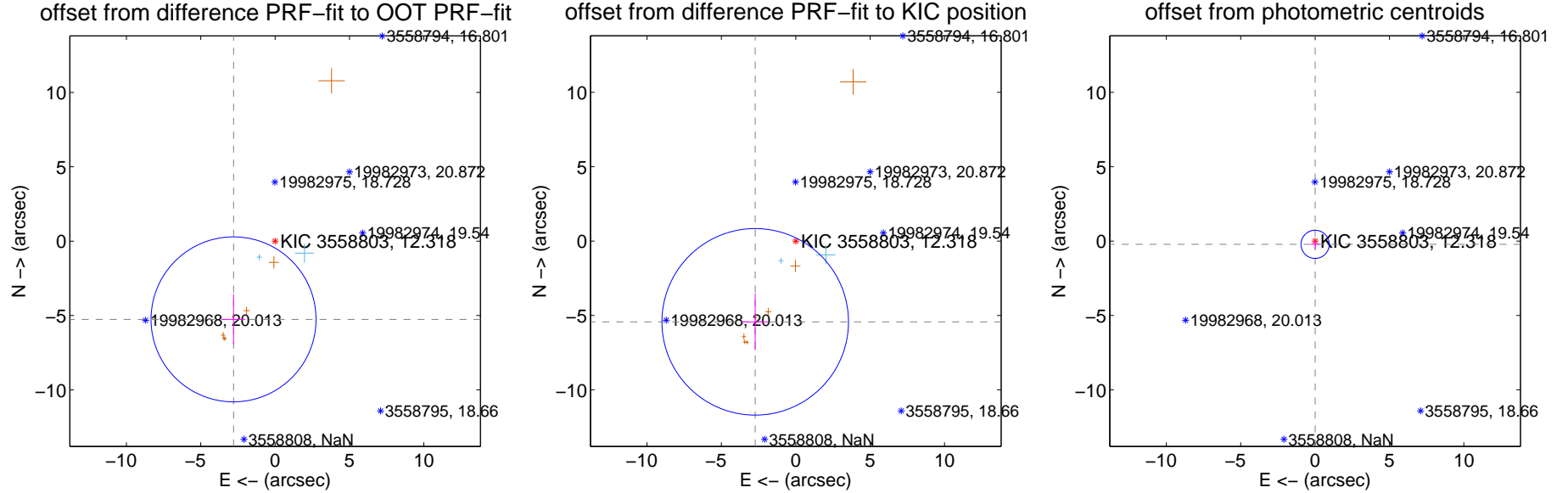
## DV Centroid Data

Supplemental centroid analysis for 003558803-07. Kepler magnitude: 12.32. Transit SNR 12.98

There are 2 quarters with good PRF difference image offsets

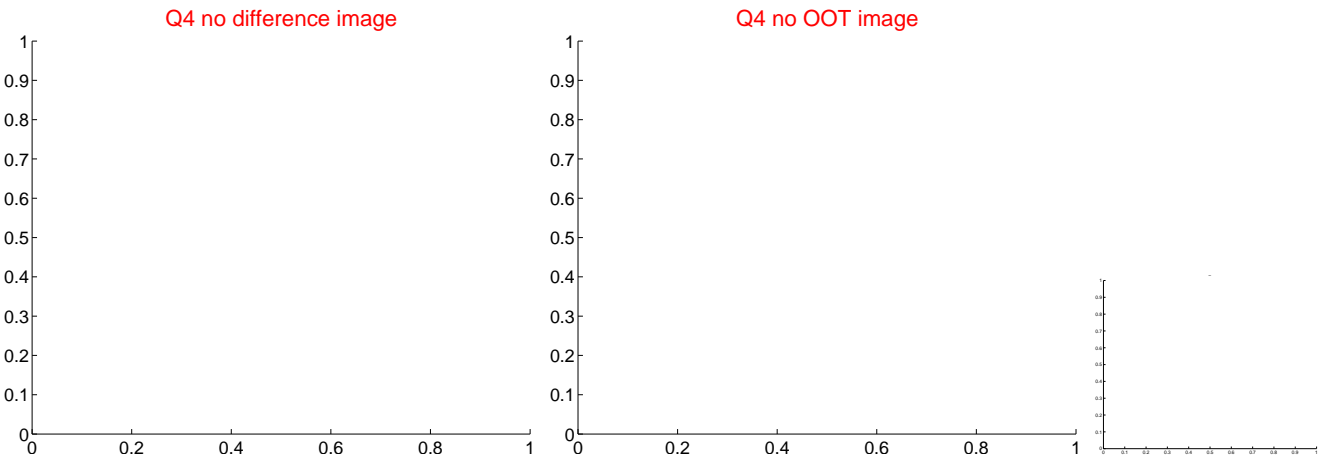
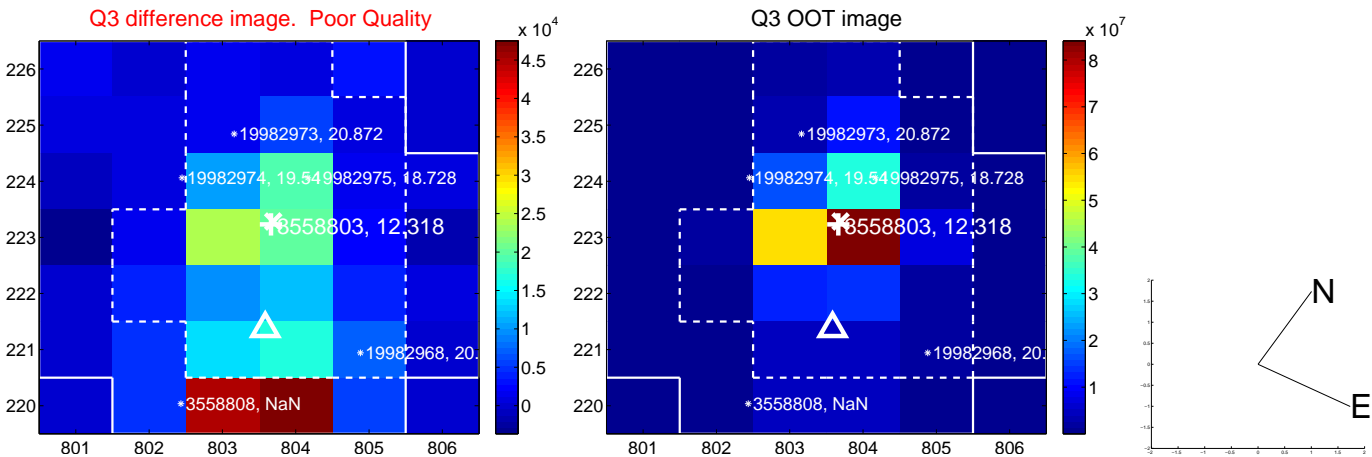
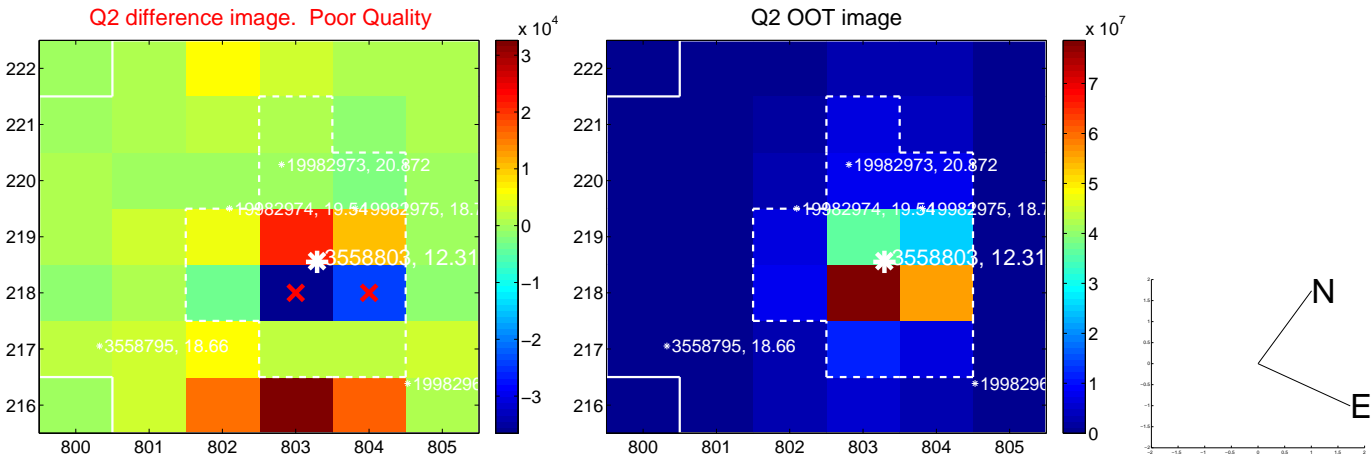
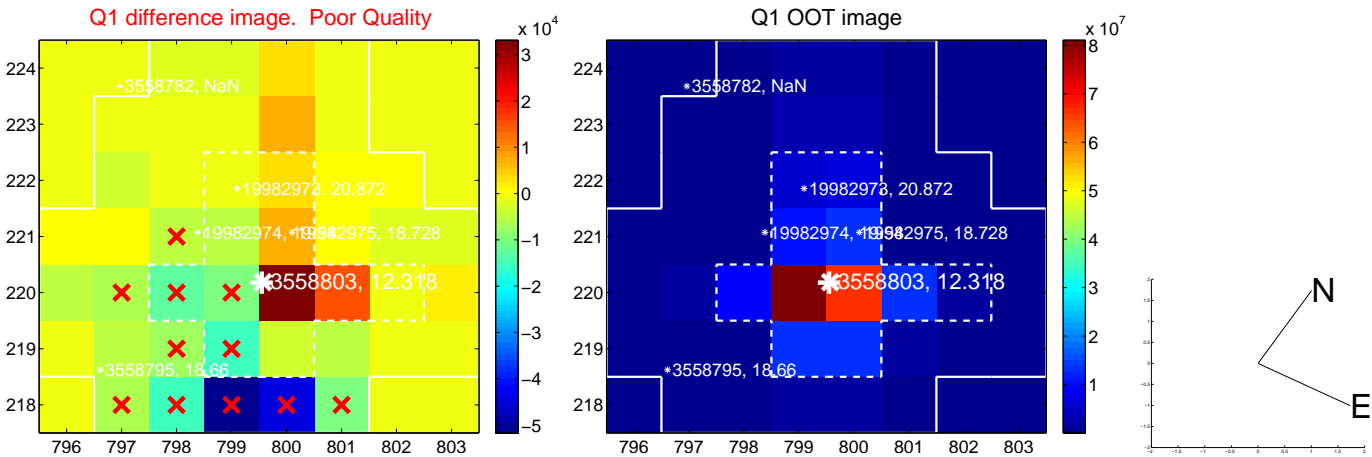
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.958 \pm 1.849$	$3.22$	$2.797 \pm 0.796$	$-5.260 \pm 1.695$
PRF-fit source offset from KIC position	$6.077 \pm 2.090$	$2.91$	$2.727 \pm 0.907$	$-5.431 \pm 1.916$
photometric centroid source offset	$0.22 \pm 0.32$	$0.70$	$-0.00 \pm 0.30$	$-0.22 \pm 0.32$

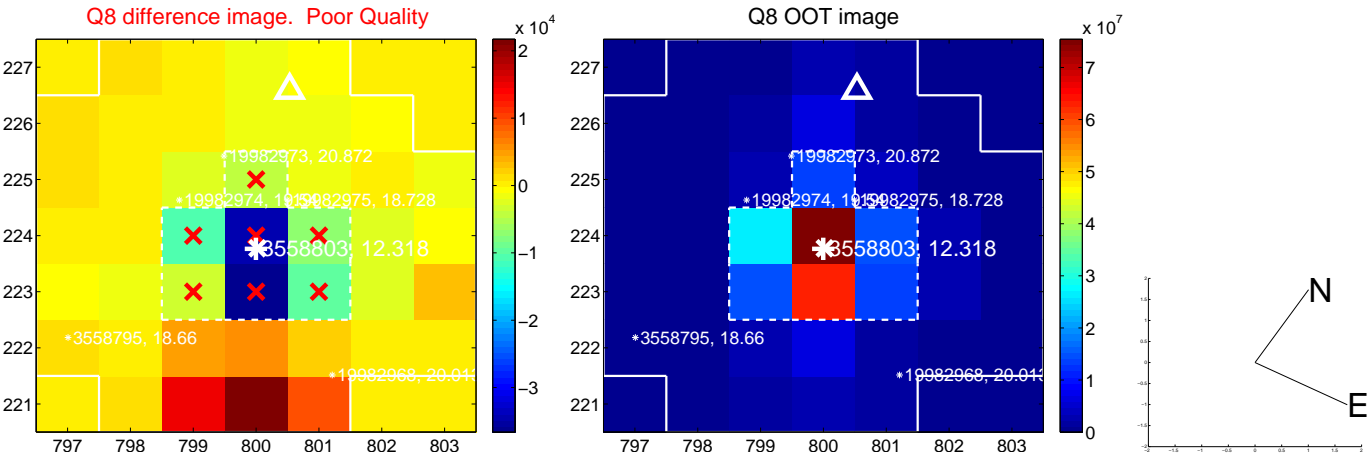
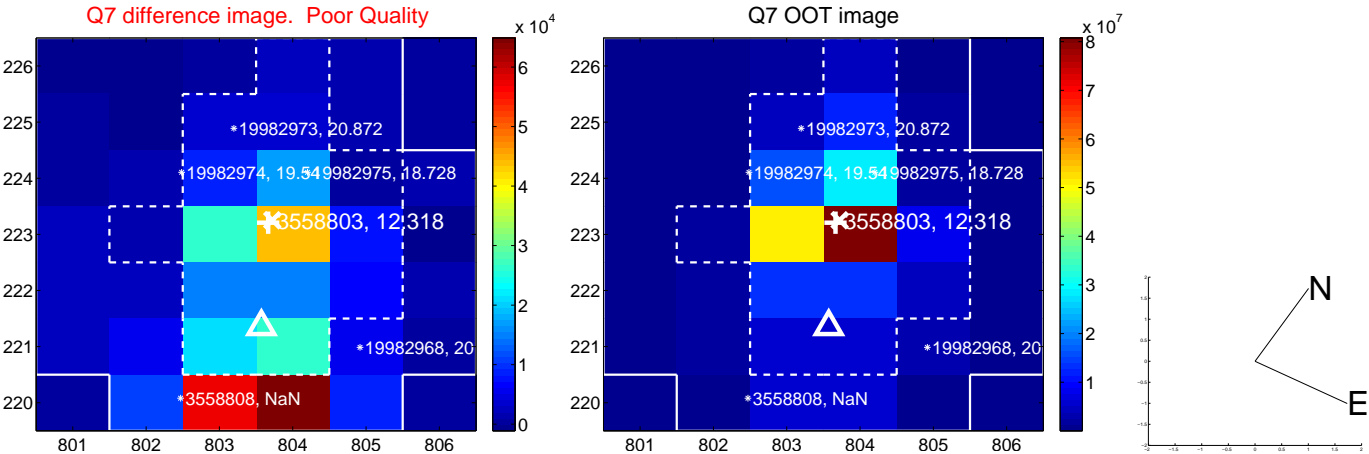
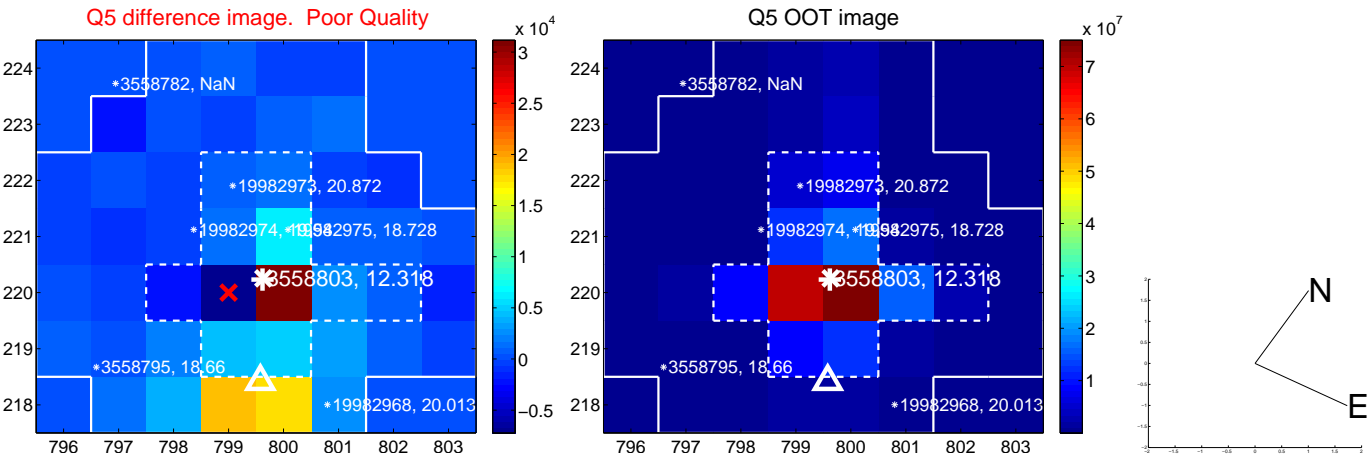


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

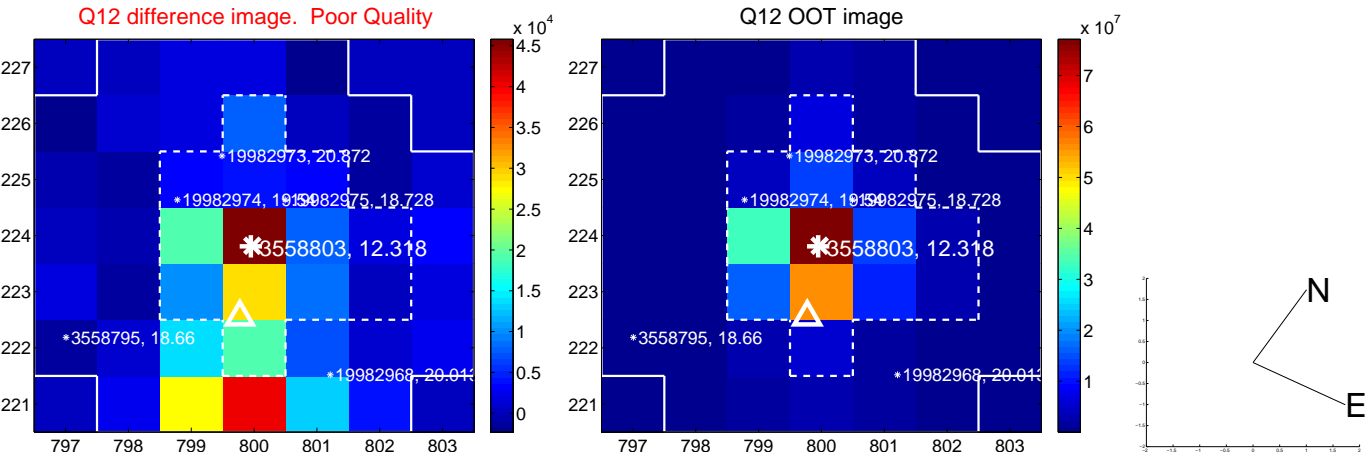
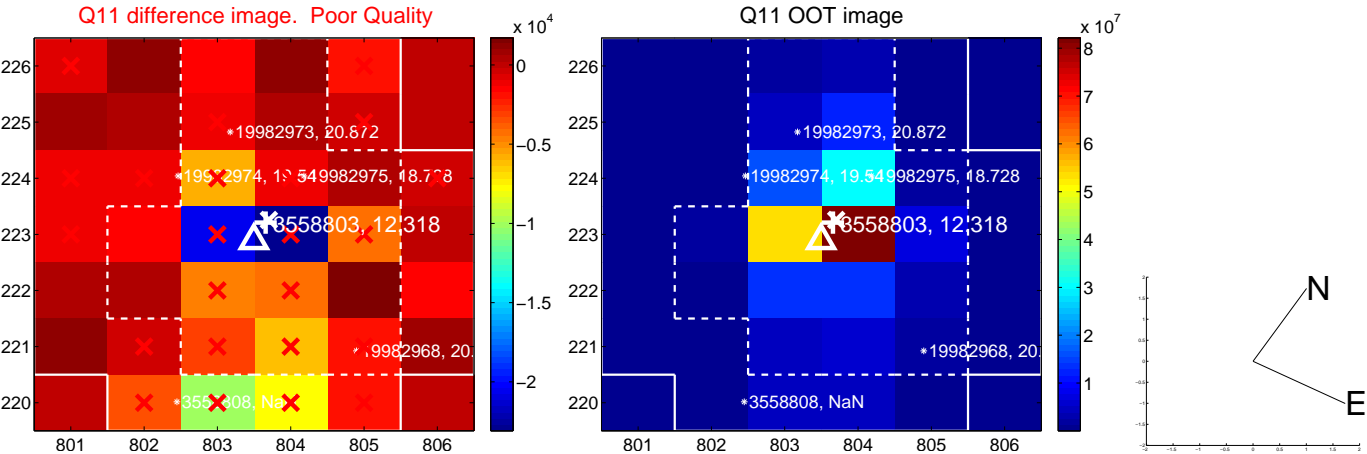
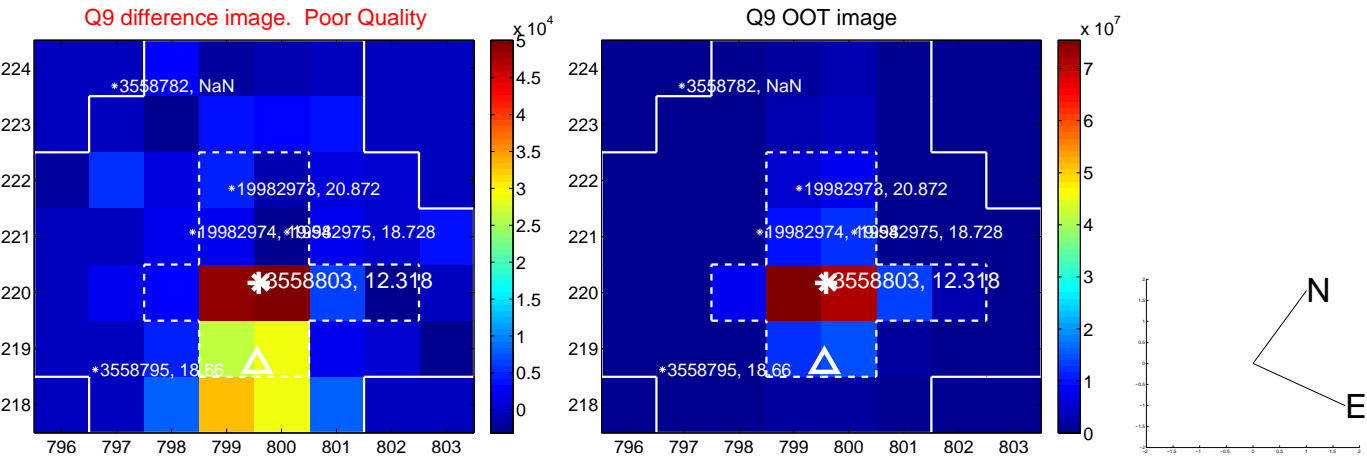
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



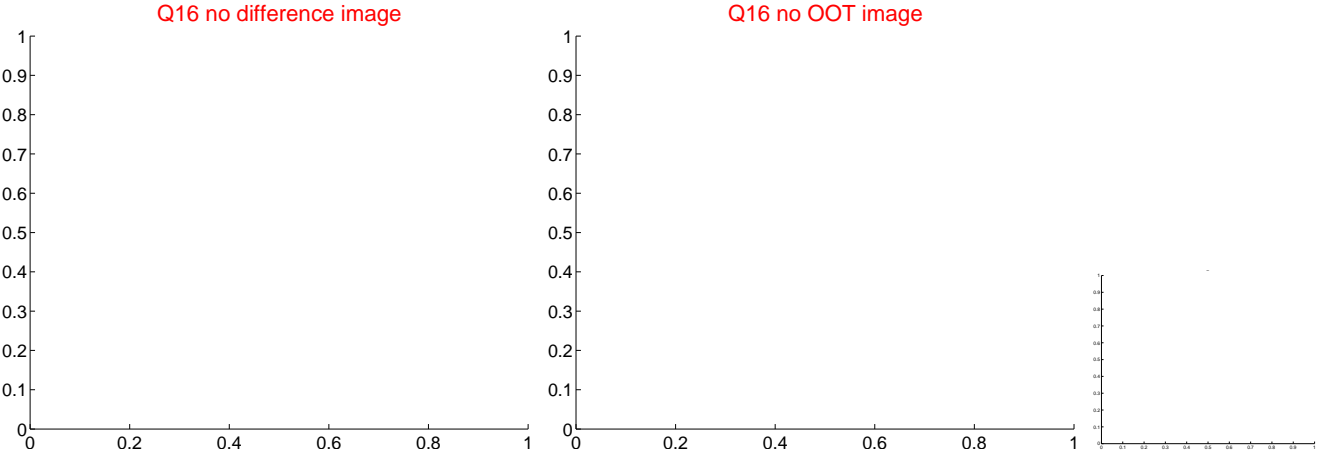
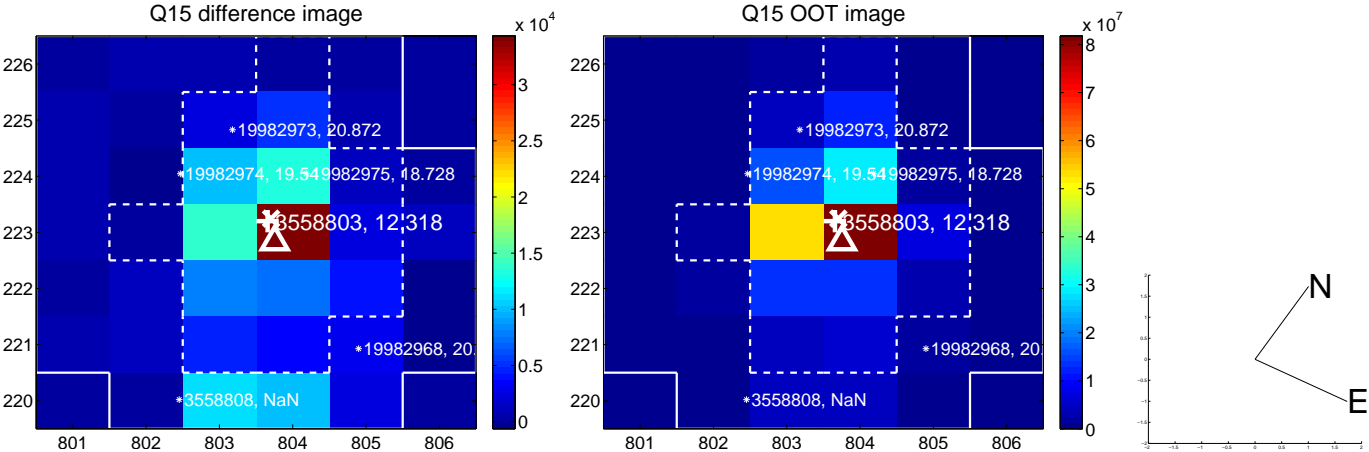
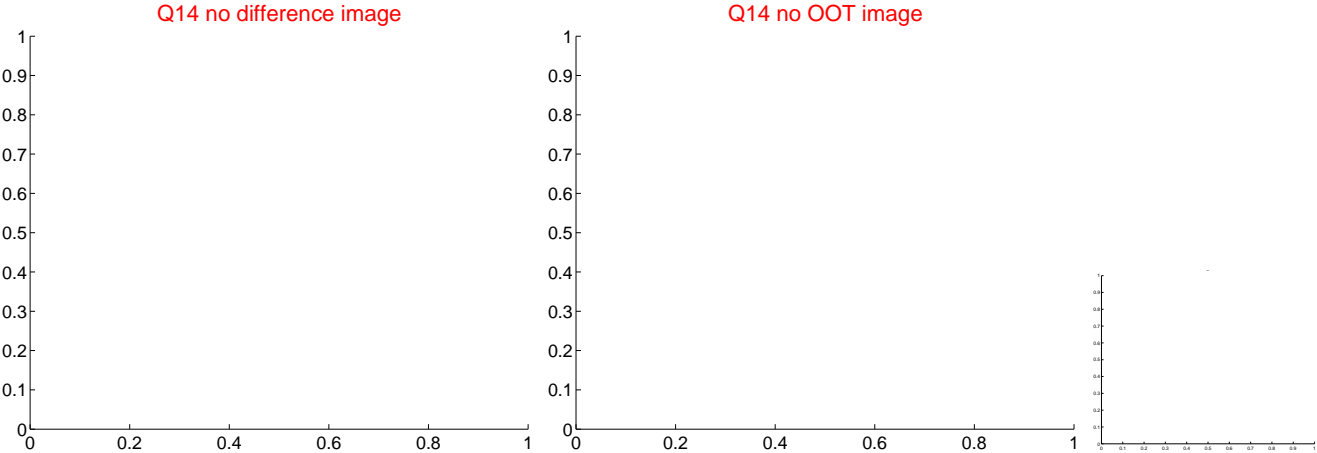
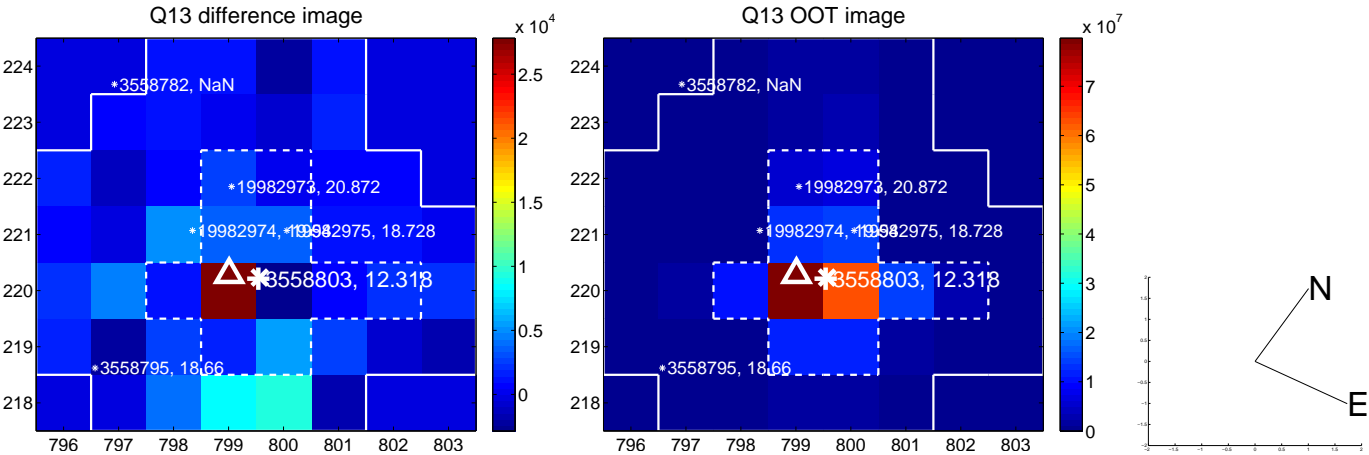
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



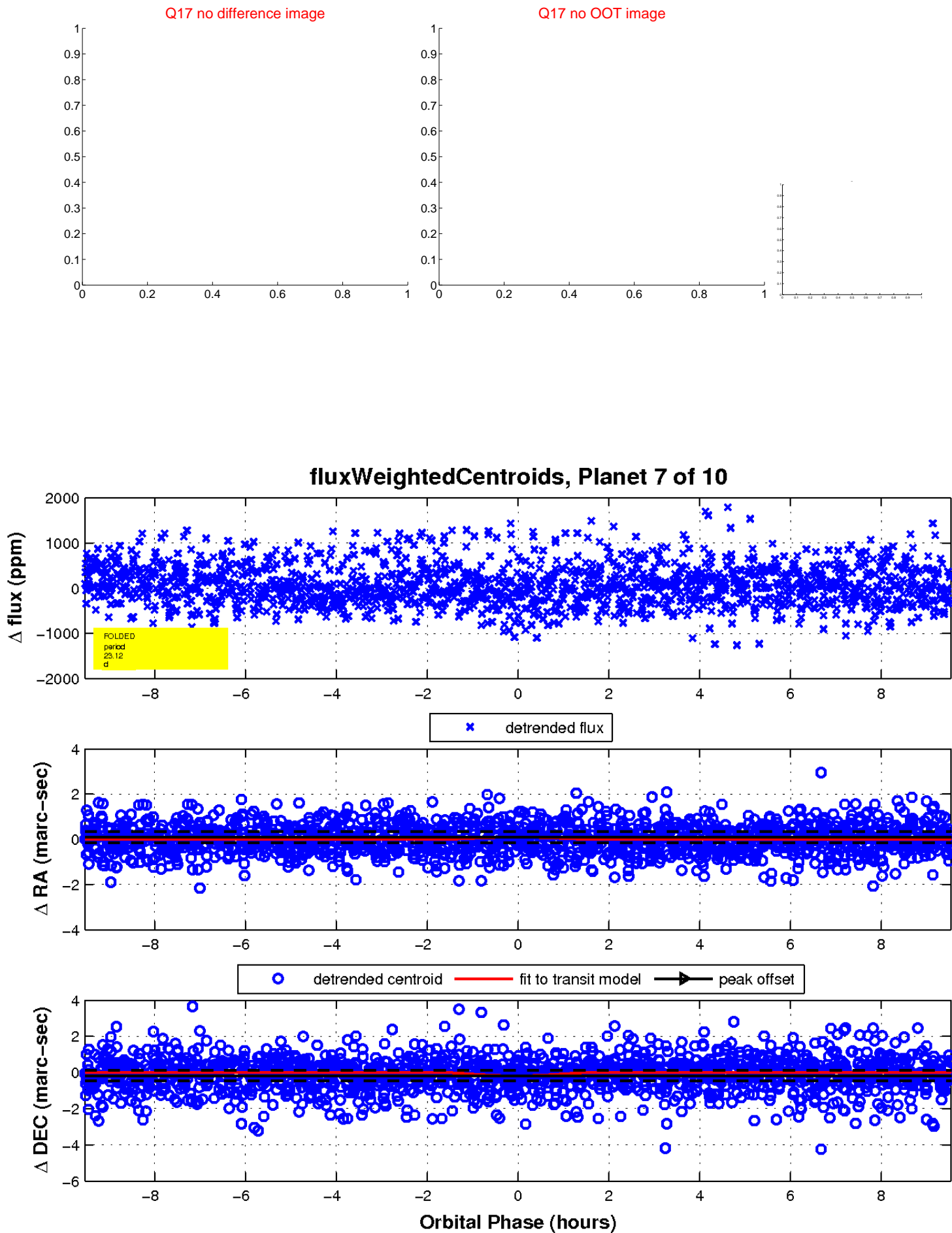
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



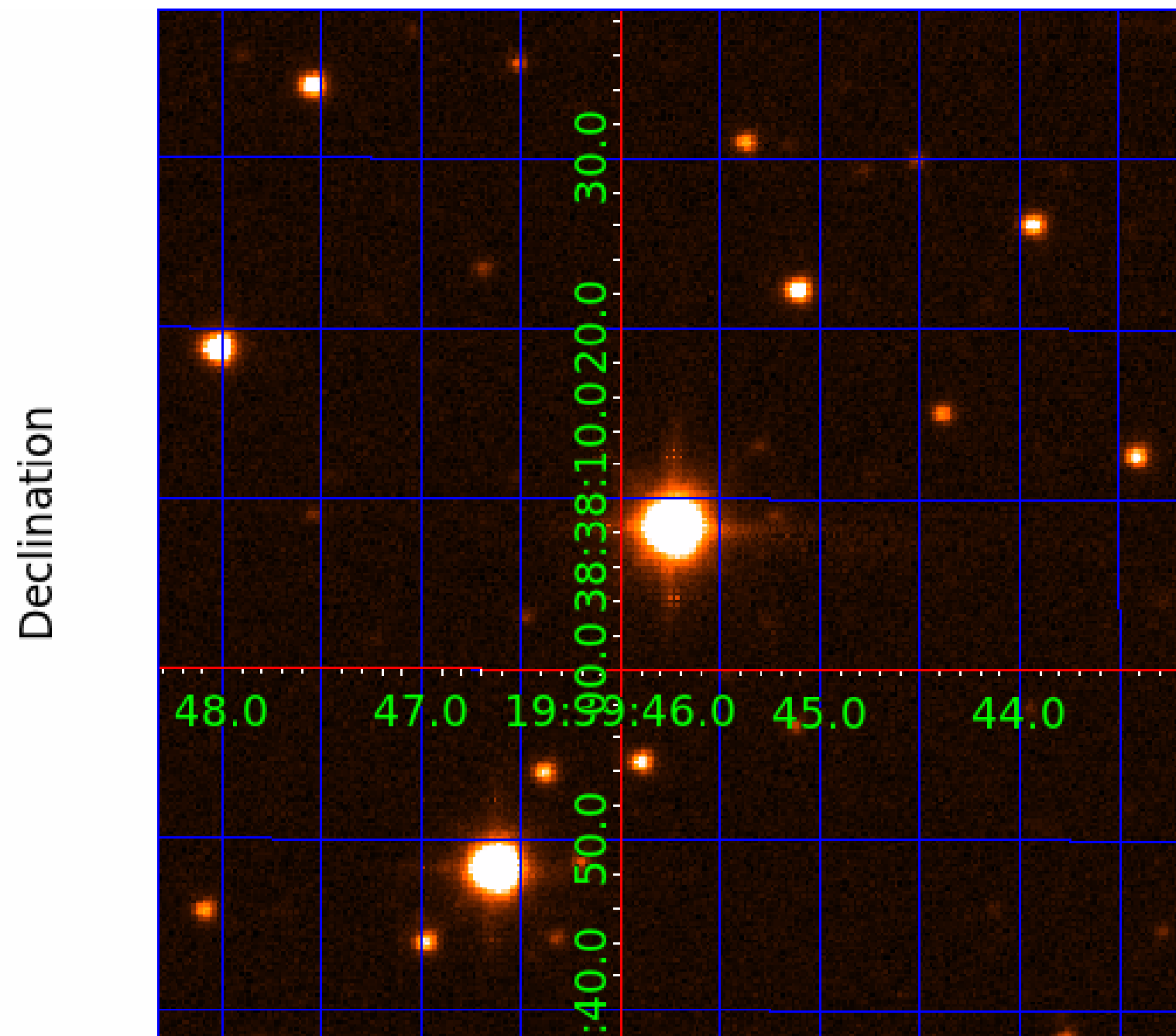
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



## KIC 003558803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003558803-01	OBS	6345.01	1.353452	131.671808	43.8	8.659	19.0	5.6	8.59	4850	5.50	0.00
003558803-02	OBS	No	26.890557	158.331830	651.3	2.791	14.3	13.0	8.59	4850	25.05	753.22
003558803-03	OBS	No	16.819263	147.638424	502.2	2.454	13.6	12.1	8.59	4850	22.79	1408.14
003558803-04	OBS	No	52.653629	145.420099	841.2	2.829	13.8	13.6	8.59	4850	30.52	307.48
003558803-05	OBS	No	109.340809	139.449797	1048.1	9.446	13.0	14.0	8.59	4850	34.72	116.06
003558803-06	OBS	No	41.807115	153.651917	851.4	5.370	13.0	12.7	8.59	4850	34.21	418.20
003558803-07	OBS	No	23.122790	154.403549	632.1	3.179	13.2	13.0	8.59	4850	42.09	921.16
003558803-08	OBS	No	8.633592	136.565481	442.3	3.706	13.1	13.5	8.59	4850	38.35	3426.10
003558803-09	OBS	No	97.651648	216.153876	1031.9	4.221	12.2	12.0	8.59	4850	27.88	134.94
003558803-10	OBS	No	15.234080	146.589122	378.5	1.500	12.3	-1.0	8.59	4850	16.19	1606.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558803-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003558803-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN—HALO_GHOST
003558803-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003558803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN
003558803-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
003558803-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003558803-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-10	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

**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 003558803-08

No Significant Match Found

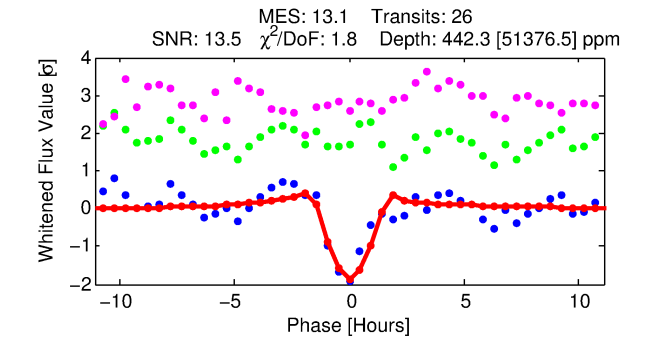
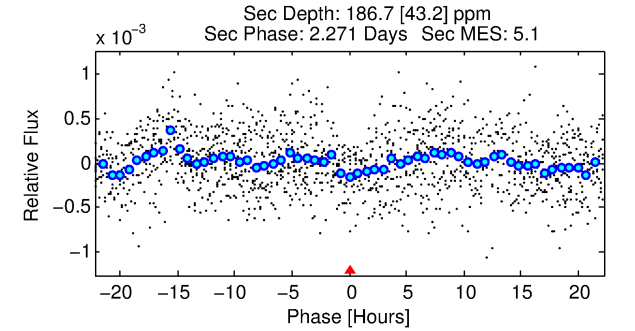
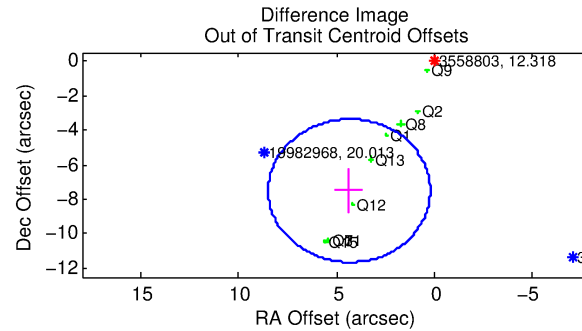
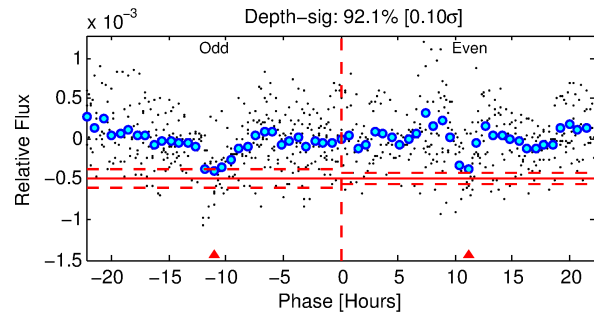
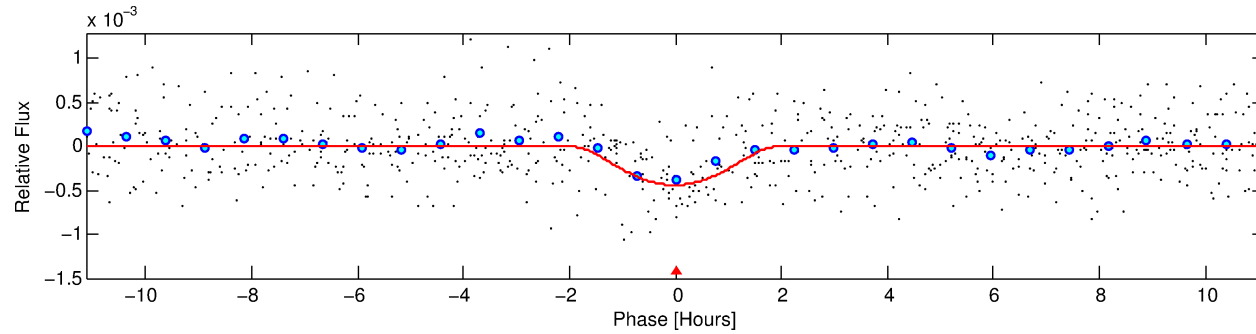
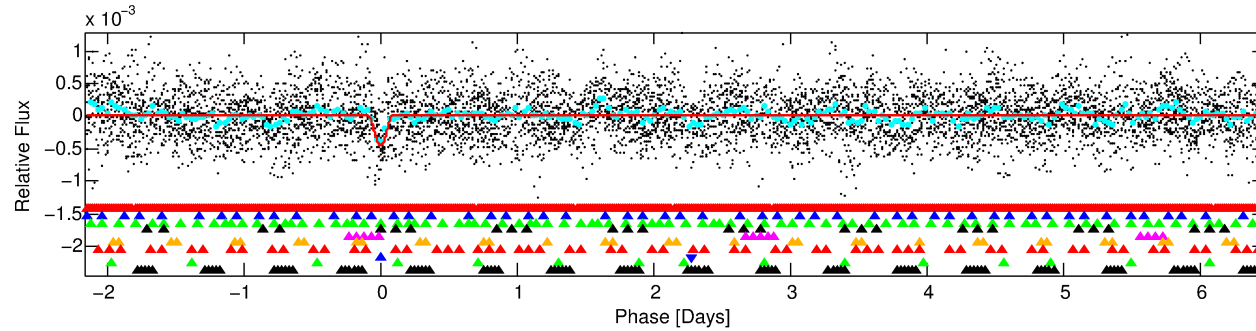
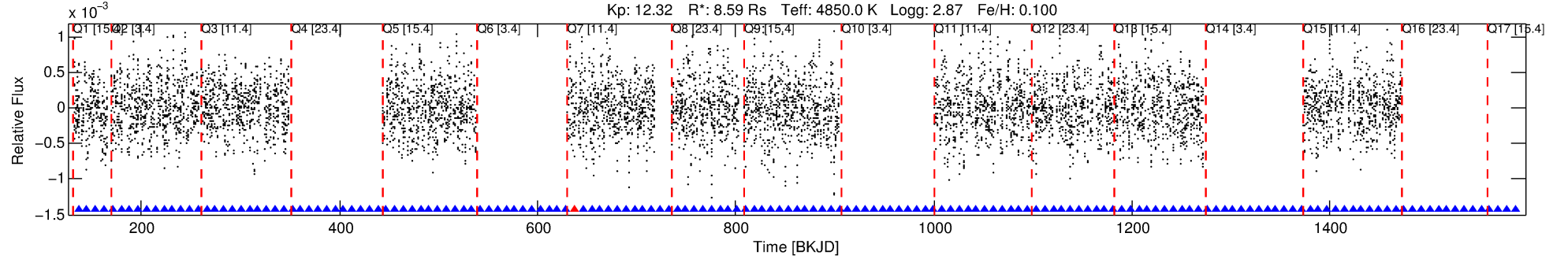


# DV One-Page Summary

KIC: 3558803 Candidate: 8 of 10 Period: 8.634 d

KOI: K06345 Corr: No Ephemeris Match

Kp: 12.32 R\*: 8.59 Rs Teff: 4850.0 K Logg: 2.87 Fe/H: 0.100



## DV Fit Results:

Period = 8.63359 [0.00009] d  
Epoch = 136.5655 [0.0077] BKJD  
Rp/R\* = 0.0409 [0.1224]  
a/R\* = 5.24 [3.66]  
b = 1.00 [3.30]  
Seff = 3426.10 [1486.84]  
Teff = 1951 [212] K  
Rp = 38.35 [115.49] Re  
a = 0.1033 [0.0301] AU  
Ag = 0.74 [4.47] [-0.06σ]  
Teffp = 2802 [4194] K [0.20σ]

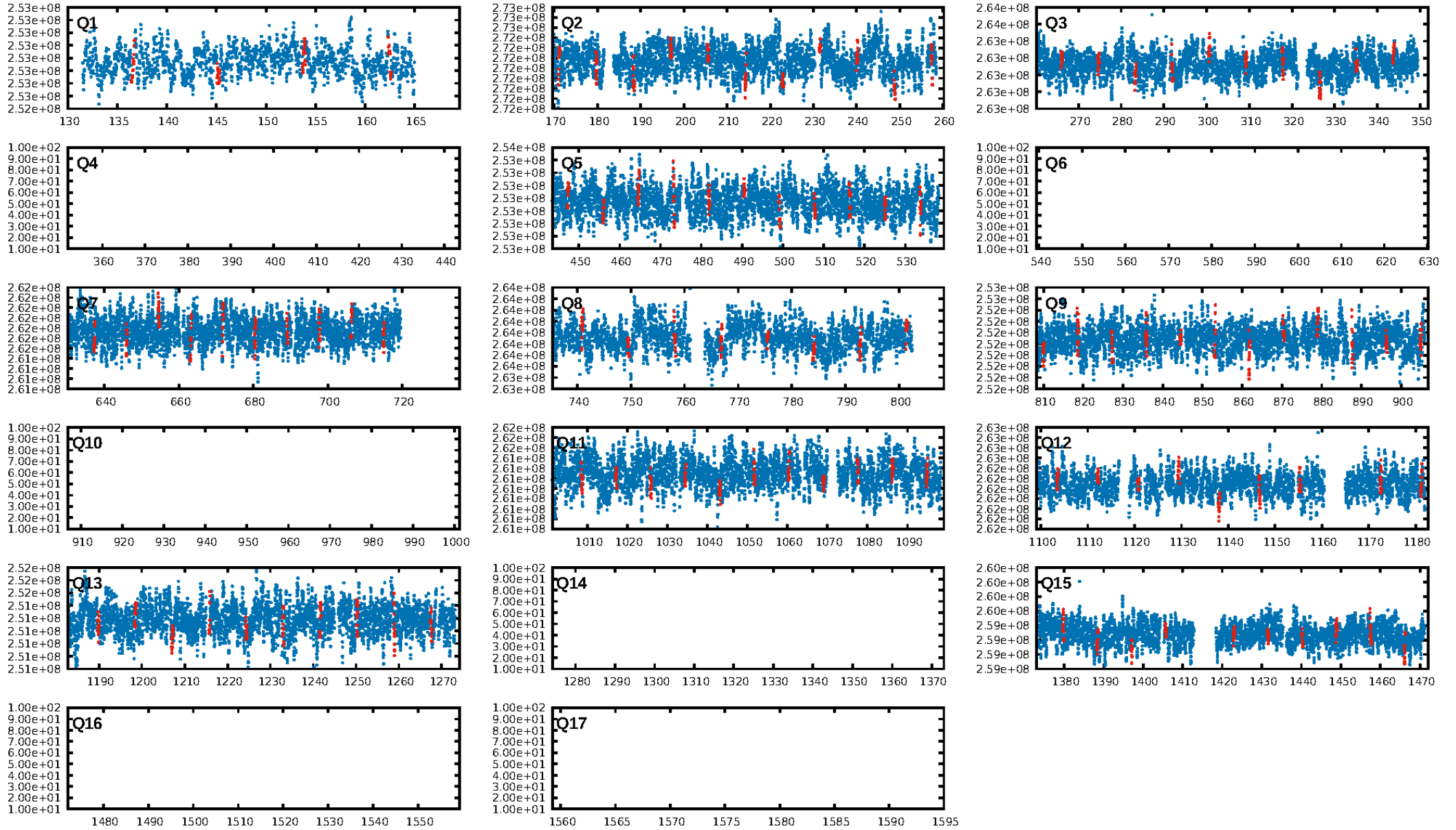
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.55σ]  
LongPeriod-sig: 100.0% [39.62σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 97.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.96 [24/25]  
GhostDiagnostic-chr: -7.922  
Centroid-sig: 54.9%  
Centroid-so: 0.558 arcsec [2.13σ]  
OotOffset-rm: 8.677 arcsec [6.29σ]  
KicOffset-rm: 8.799 arcsec [6.17σ]  
OotOffset-st: 1/4/2/3 [10]  
KicOffset-st: 1/4/2/3 [10]  
DiffImageQuality-fgm: 0.70 [7/10]  
DiffImageOverlap-fno: 0.91 [10/11]

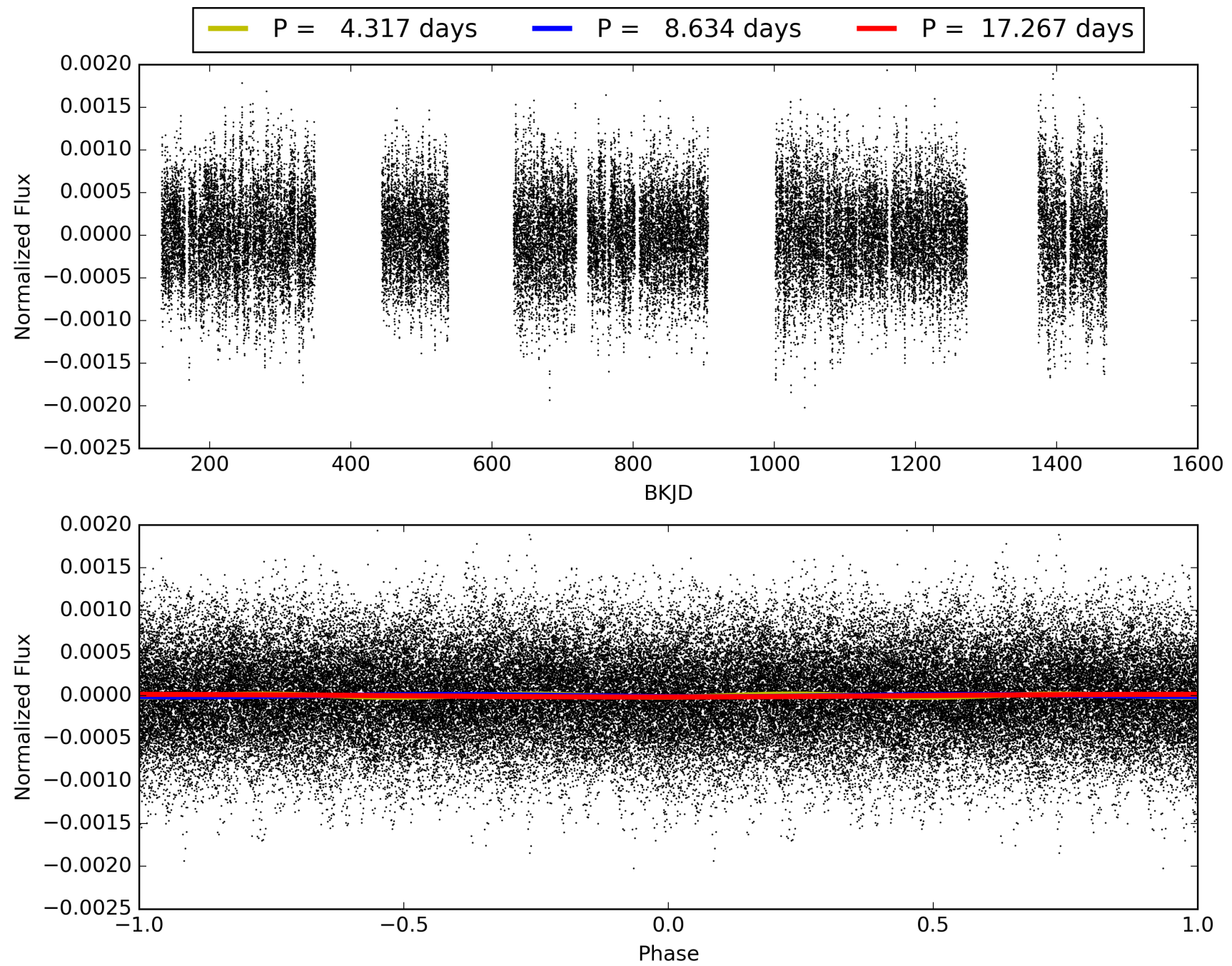
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:09:58 Z

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

# TCE 003558803-08, PDC Light Curves

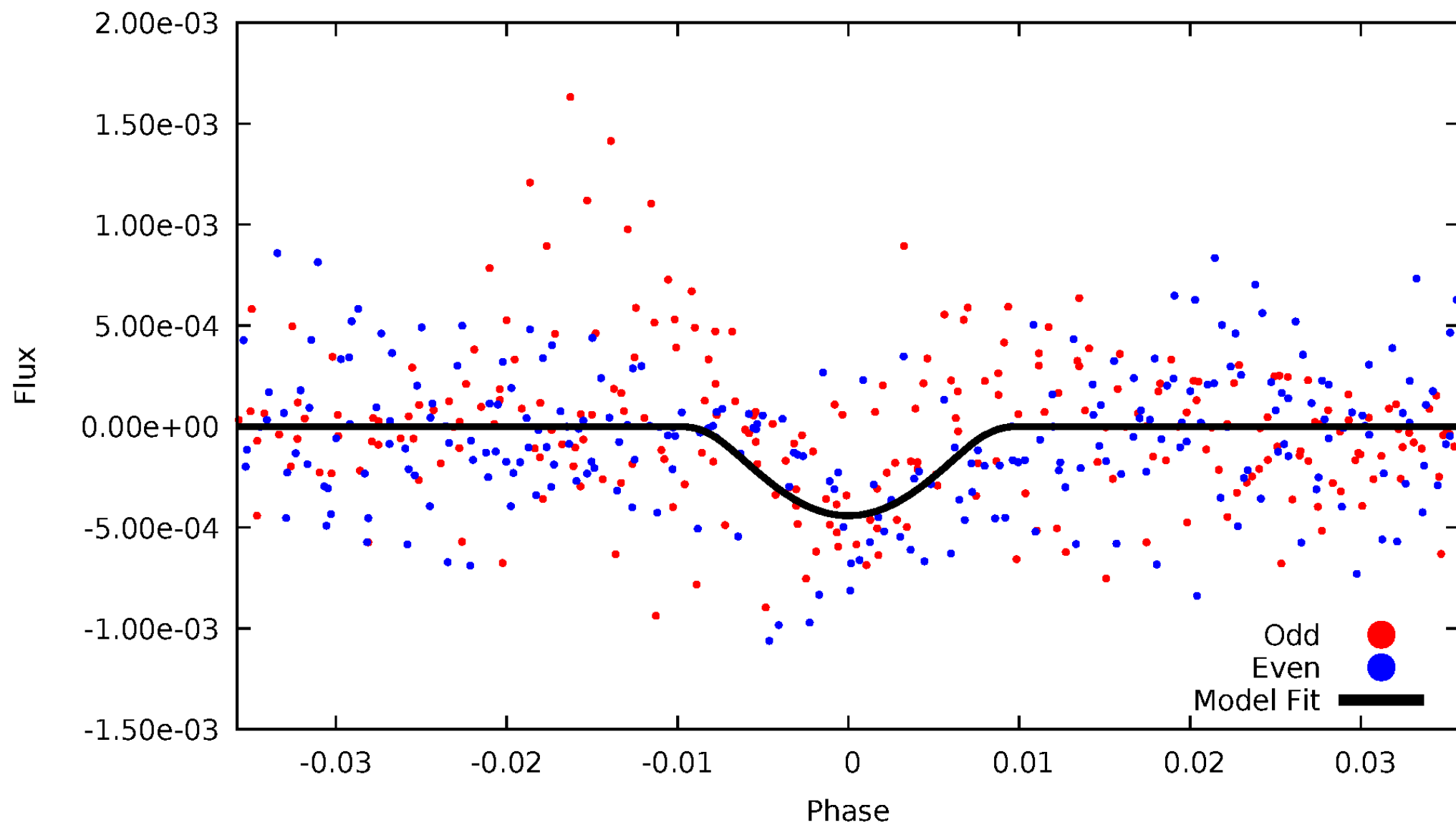


TCE 003558803-08



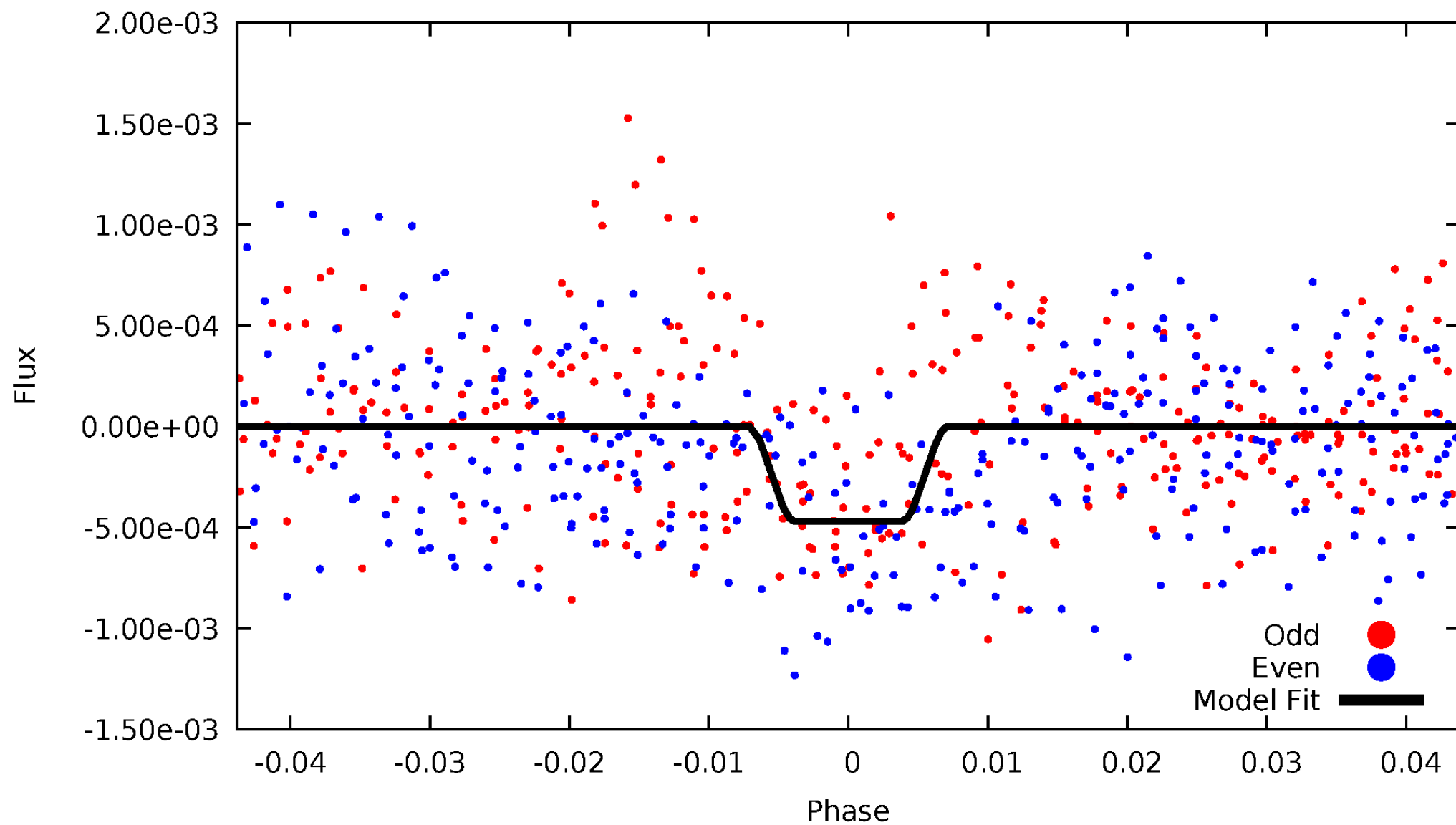
# DV Odd/Even

TCE 003558803-08



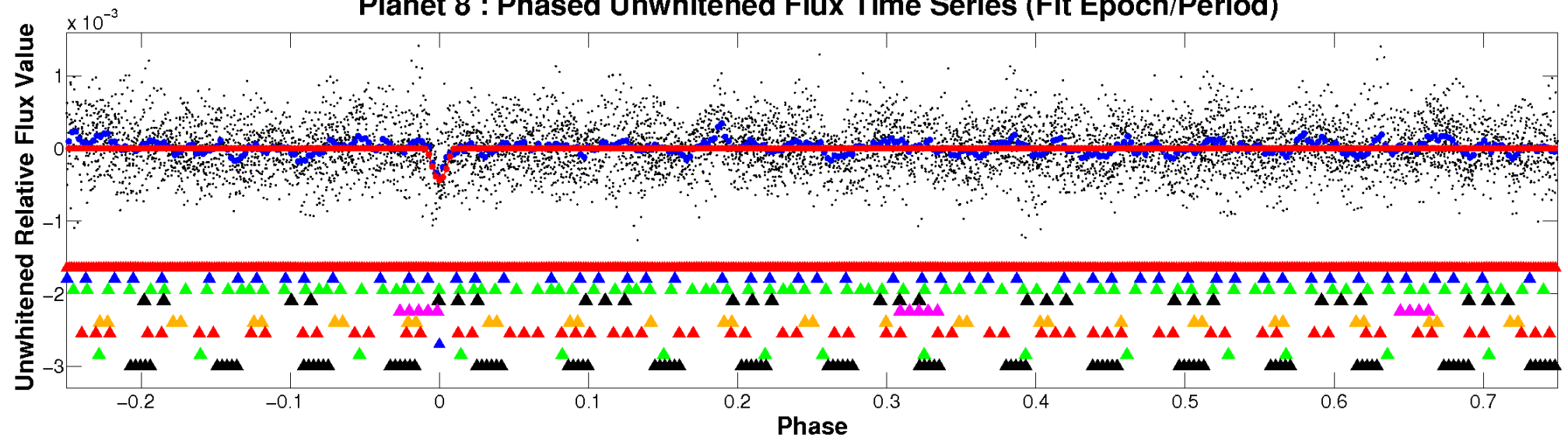
# ALT Odd/Even

TCE 003558803-08

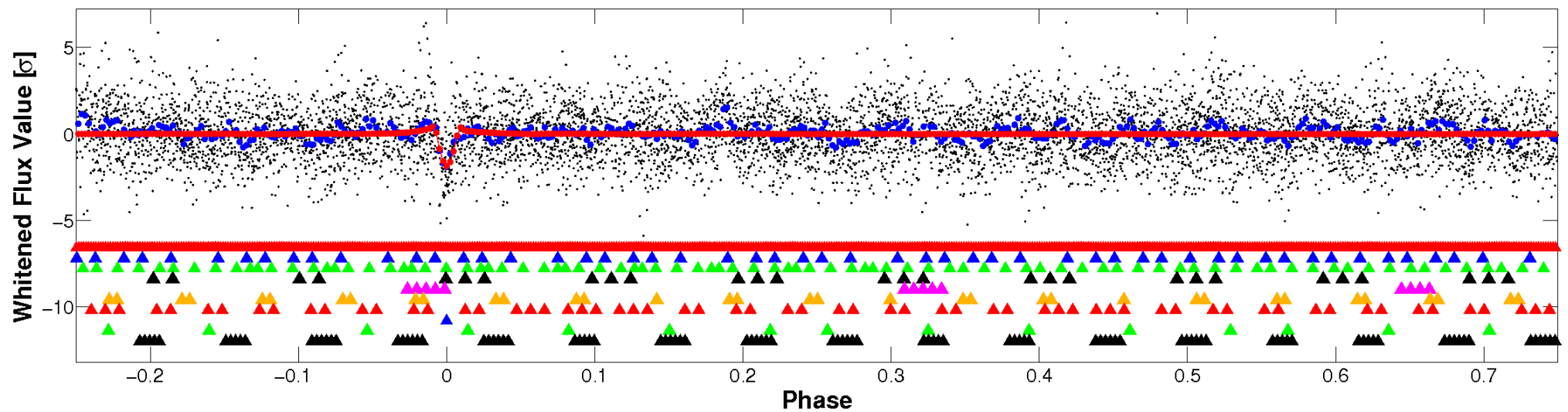


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



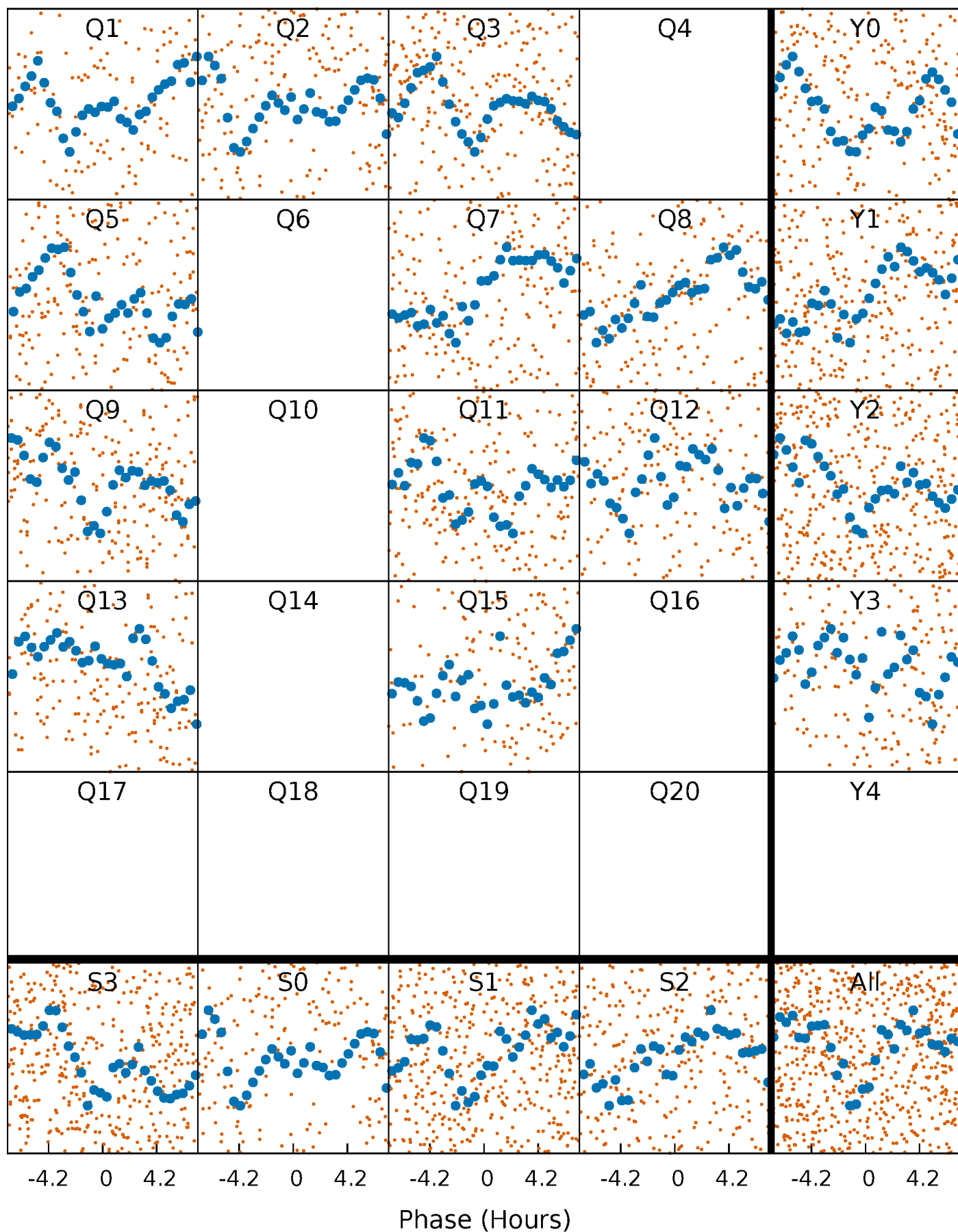
## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)





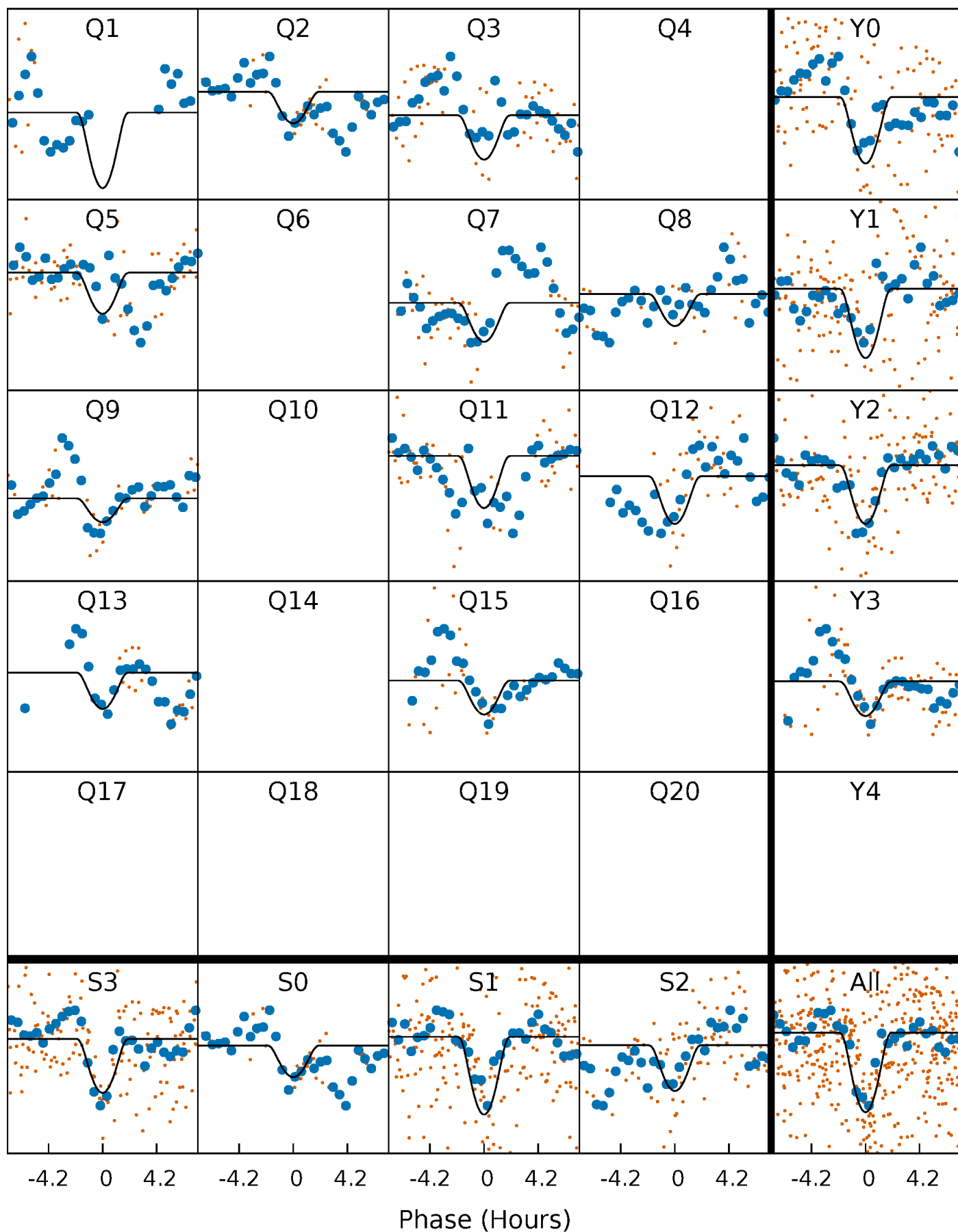
# PDC Quarter-Phased Transit Curves

TCE 003558803-08 P= 8.633592 Days  $T_0=136.565481$  (BKJD)



# DV Quarter-Phased Transit Curves

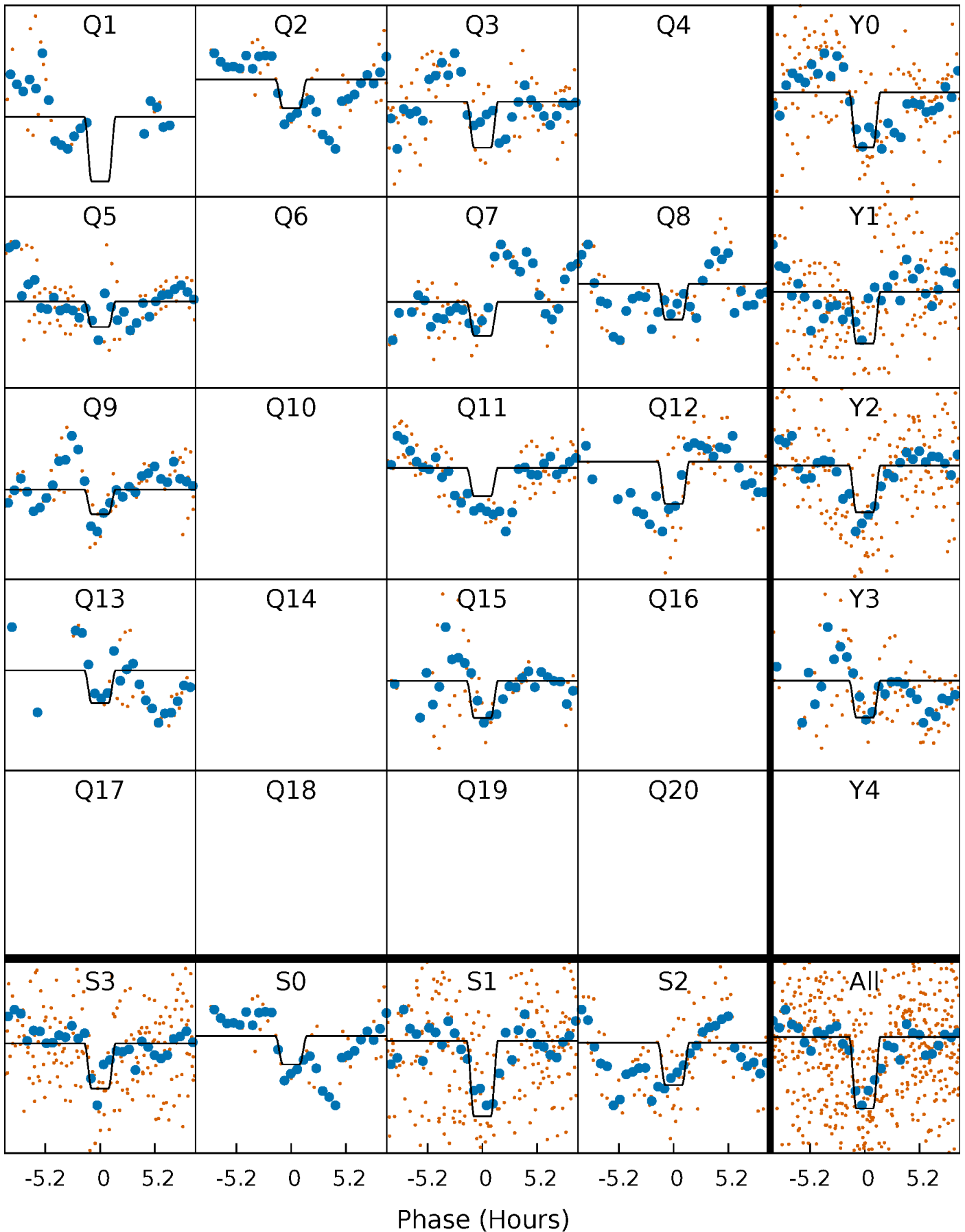
TCE 003558803-08   P= 8.633592 Days    $T_0=136.565481$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

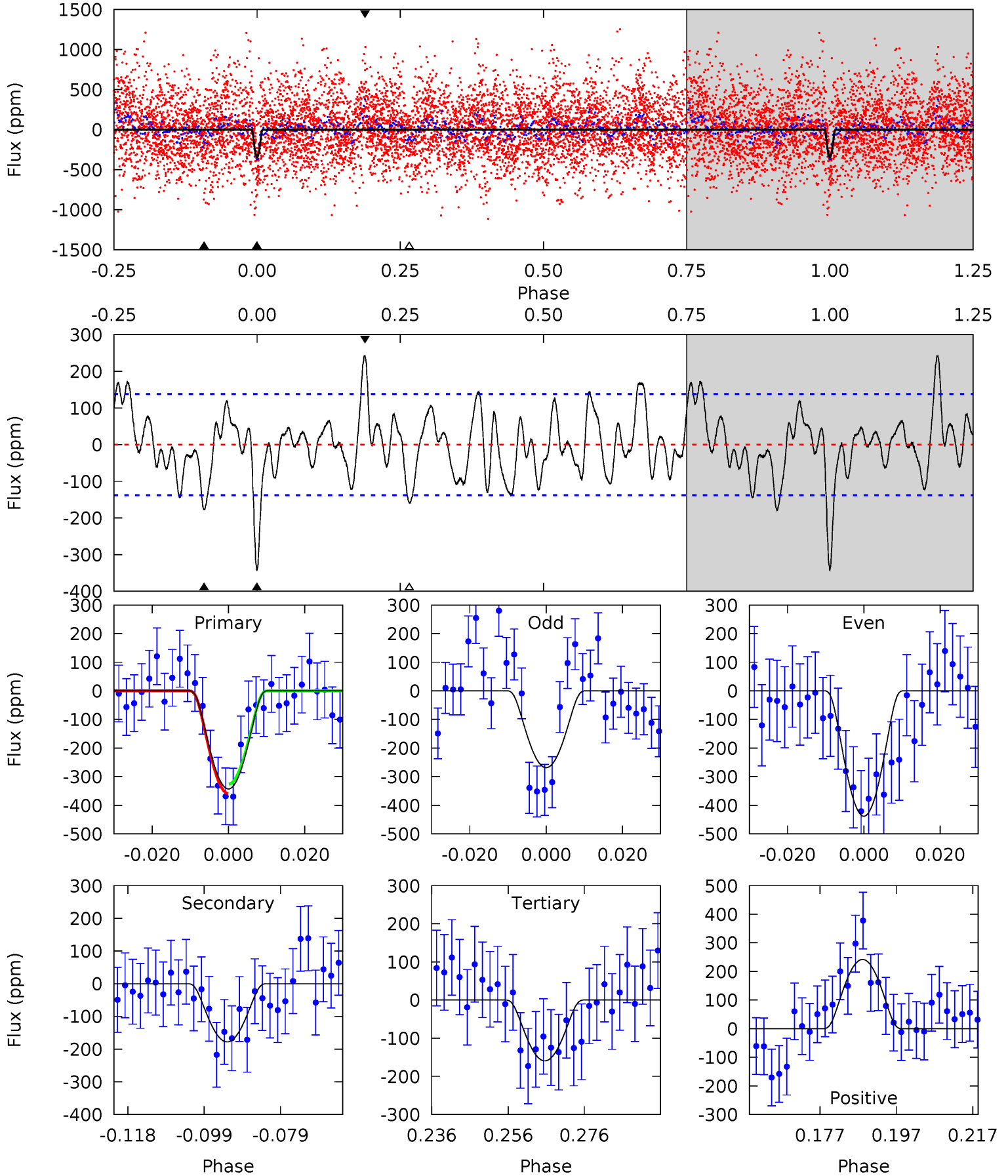
TCE 003558803-08 P= 8.633540 Days  $T_0=136.569498$  (BKJD)



# DV Model-Shift Uniqueness Test

003558803-08, P = 8.633592 Days, E = 127.931889 Days

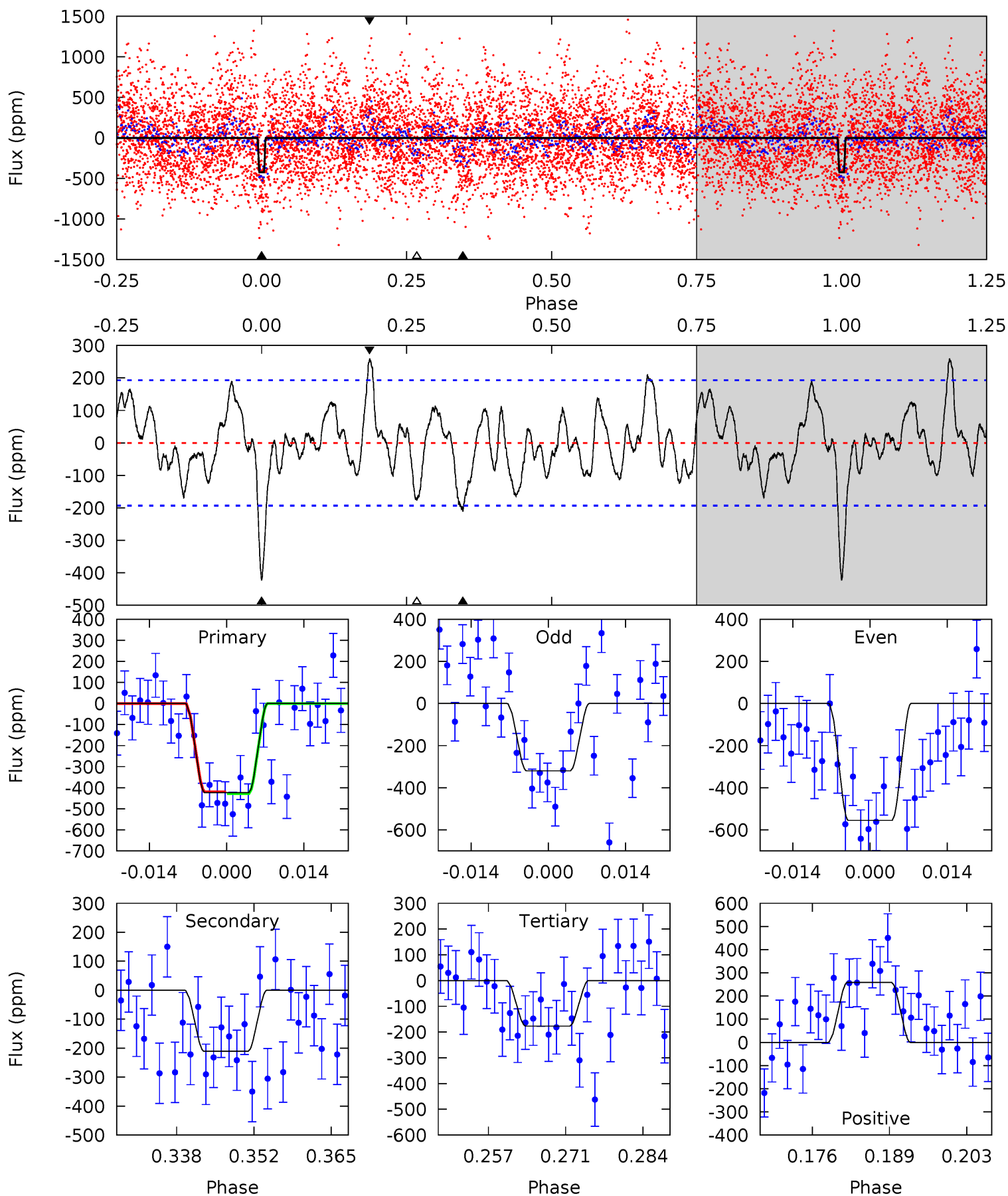
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	6.31	5.65	8.57	4.89	2.33	2.66	6.50	3.58	0.66	-2.26	2.99	0.83	0.41	0.59



# Alt Model-Shift Uniqueness Test

003558803-08, P = 8.633540 Days, E = 127.935958 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	5.42	4.55	6.67	4.97	2.47	2.09	6.34	4.22	0.87	-1.24	2.99	0.65	0.38	0.10



### Stellar Parameters For KIC 003558803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4850^{+95}_{-143}$	$2.865^{+0.225}_{-0.164}$	$0.100^{+0.200}_{-0.300}$	$8.586^{+2.199}_{-3.024}$	$1.969^{+0.734}_{-0.897}$	$0.004^{+0.008}_{-0.002}$
	+2%/-3%	+8%/-6%	+200%/-300%	+26%/-35%	+37%/-46%	+175%/-41%
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 003558803-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-178 \pm 28$	$90.60^{+92.71}_{-62.12}$	$2706^{+209}_{-208}$	$-2615^{+6041}_{-262}$	$0.129^{+1.259}_{-0.097}$
Alt.	$-211 \pm 39$	$86.79^{+93.15}_{-59.49}$	$2717^{+192}_{-210}$	$-2545^{+6100}_{-326}$	$0.168^{+1.439}_{-0.128}$

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

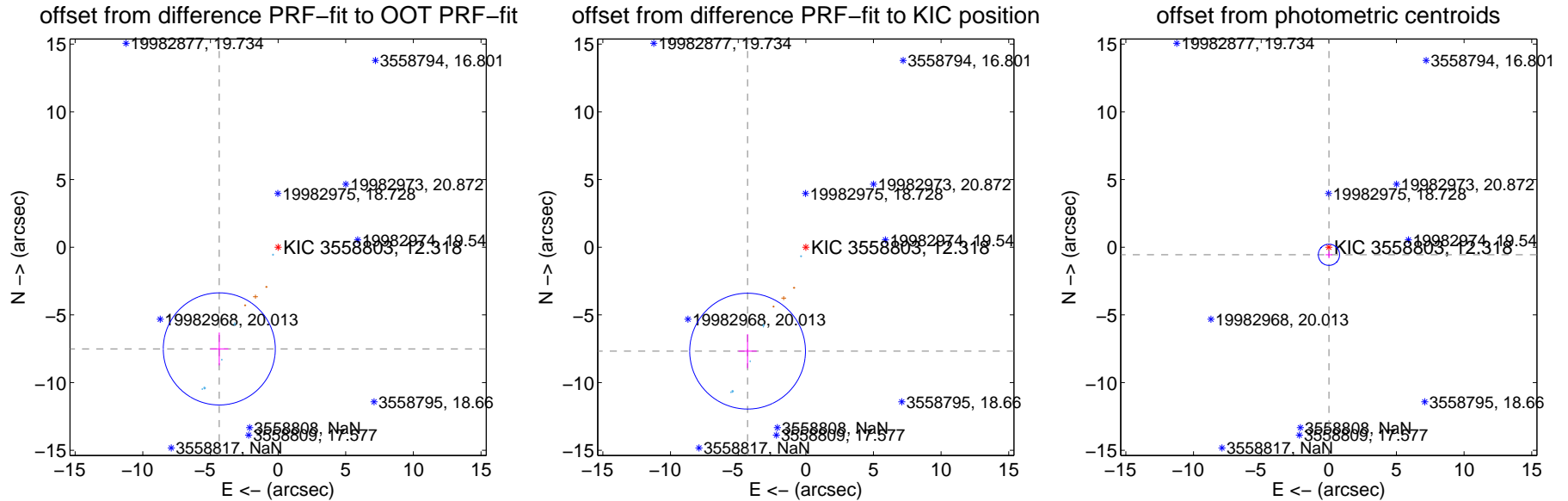
## DV Centroid Data

Supplemental centroid analysis for 003558803-08. Kepler magnitude: 12.32. Transit SNR 13.51

There are 7 quarters with good PRF difference image offsets

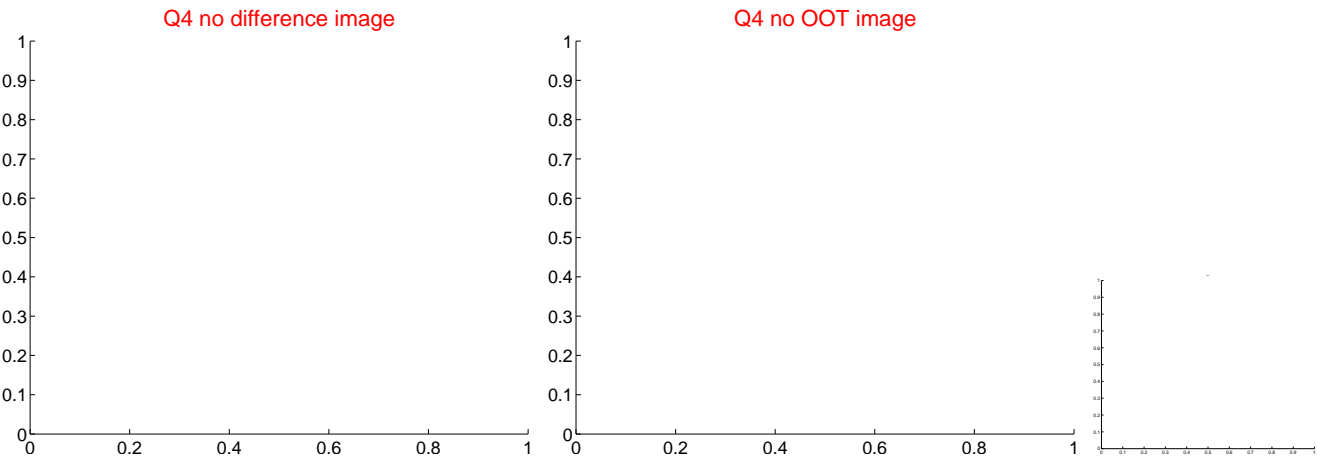
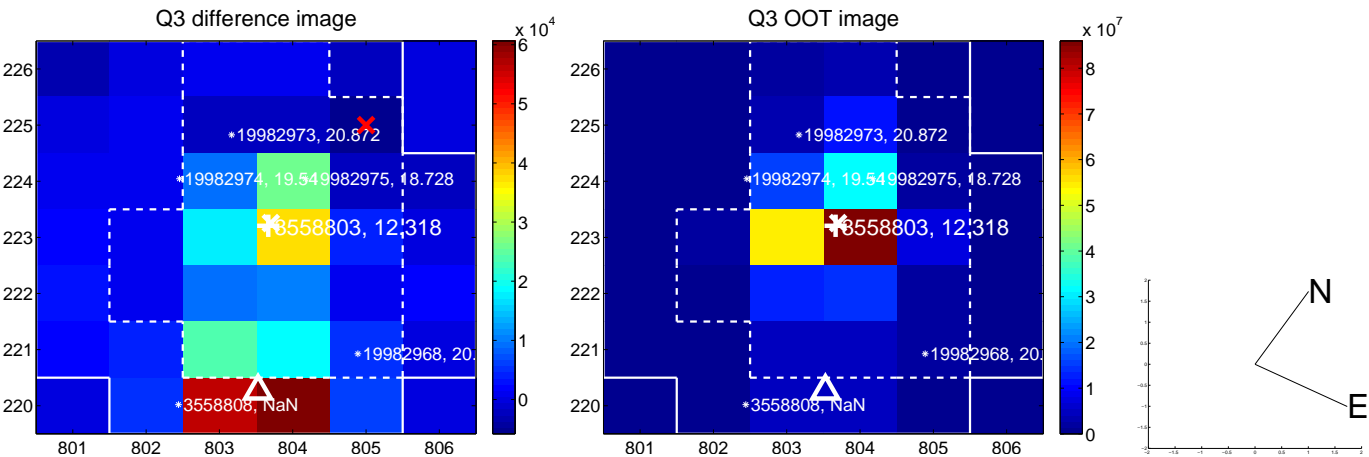
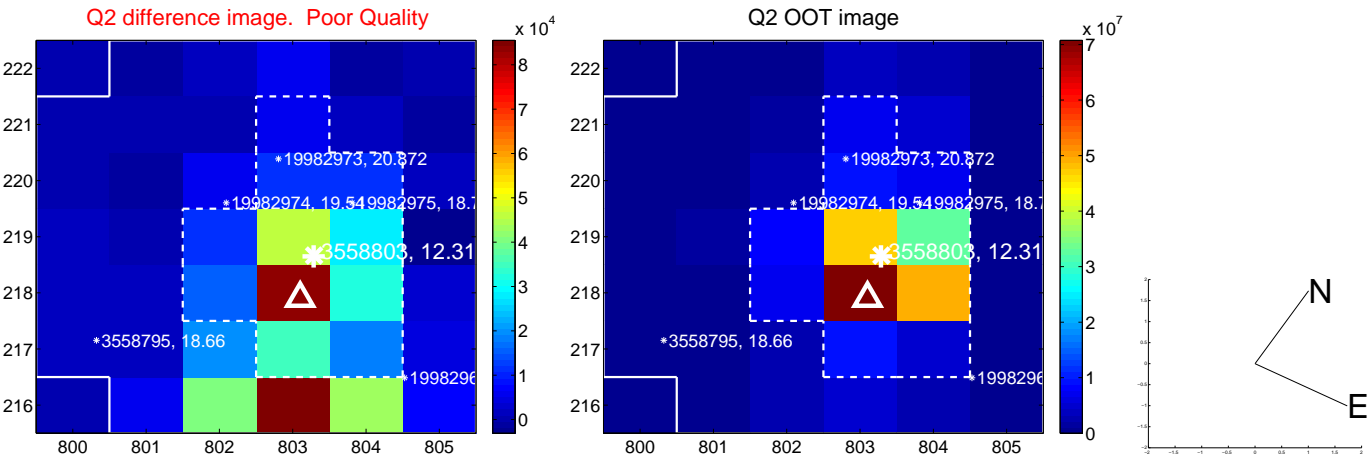
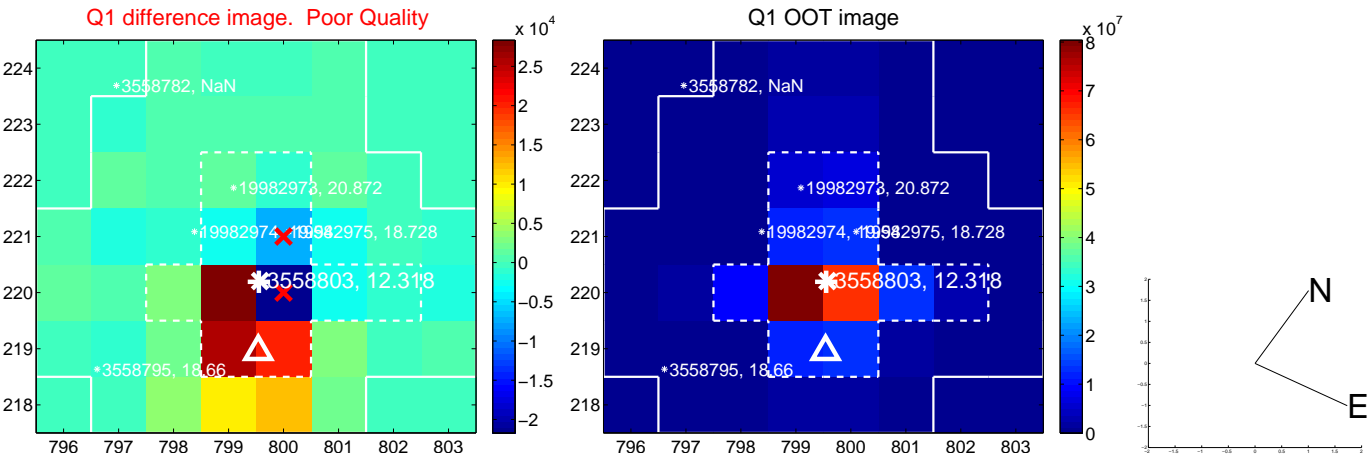
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$8.677 \pm 1.380$	<b>6.29</b>	$4.346 \pm 0.668$	$-7.510 \pm 1.212$
PRF-fit source offset from KIC position	$8.799 \pm 1.426$	<b>6.17</b>	$4.303 \pm 0.677$	$-7.676 \pm 1.258$
photometric centroid source offset	$0.56 \pm 0.26$	2.13	$-0.01 \pm 0.25$	$-0.56 \pm 0.26$

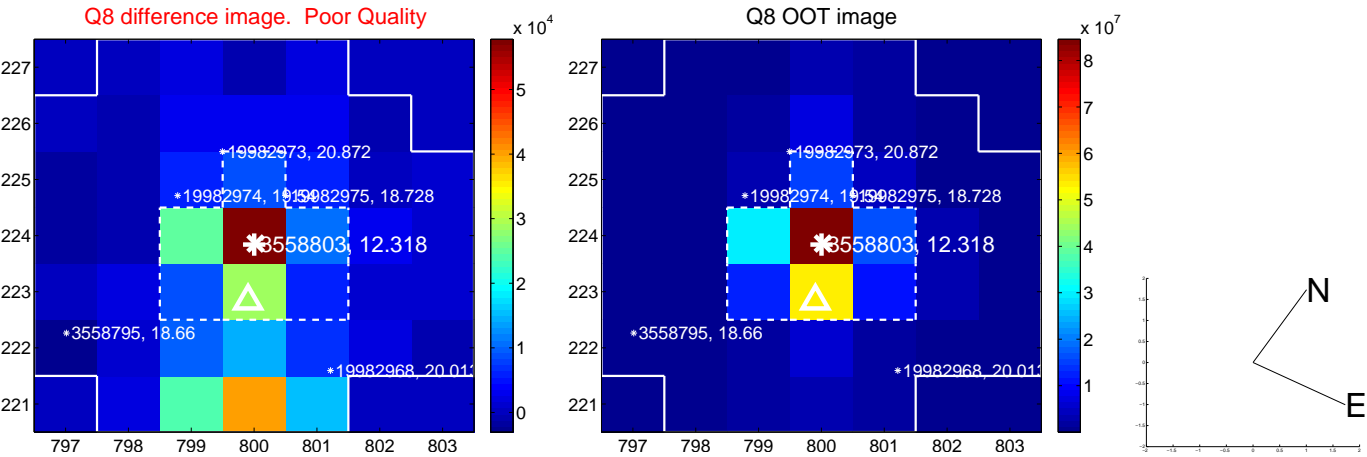
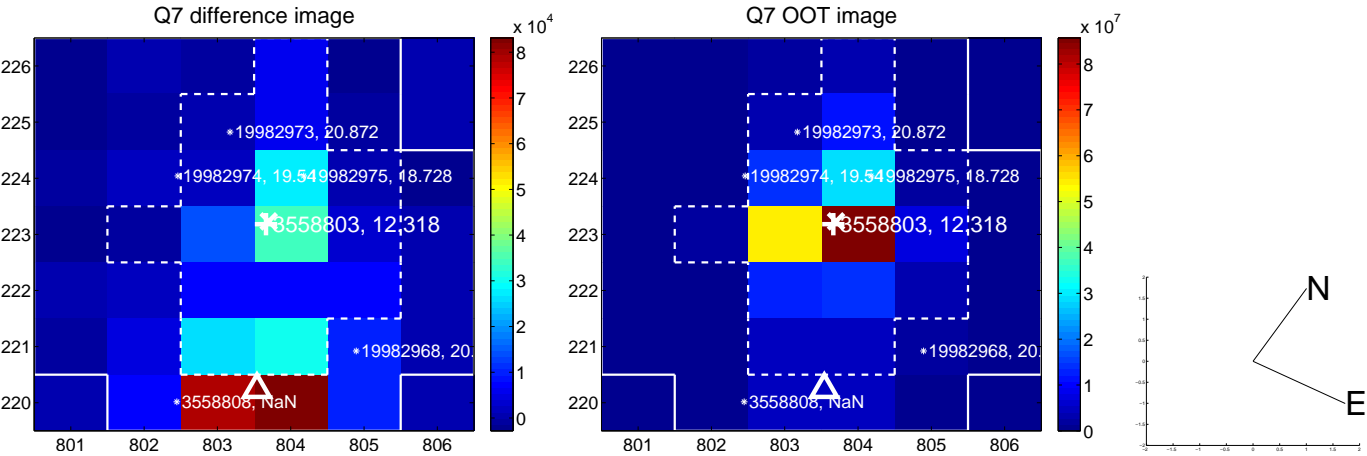
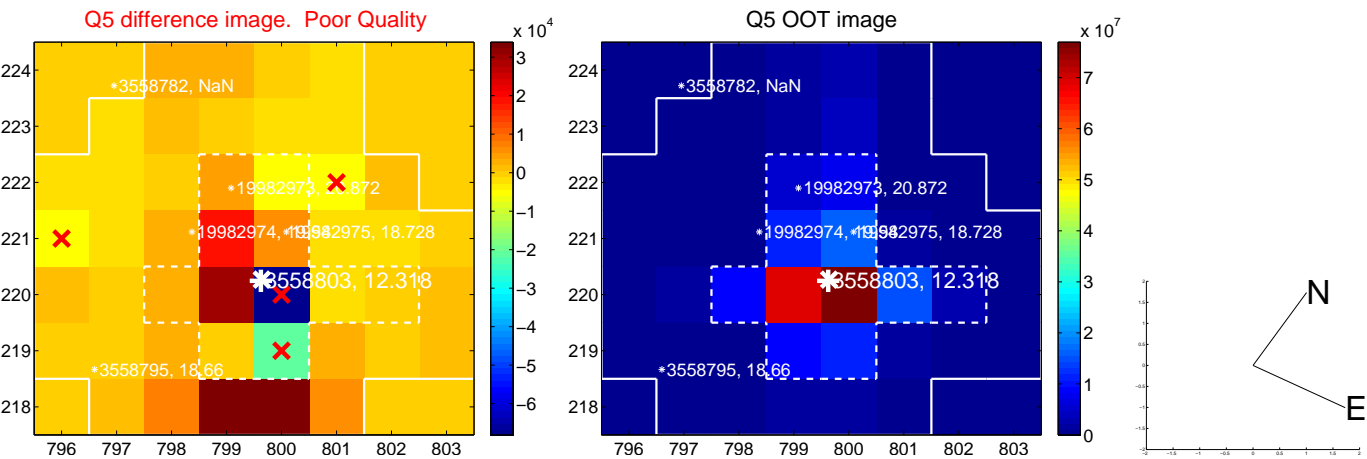


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

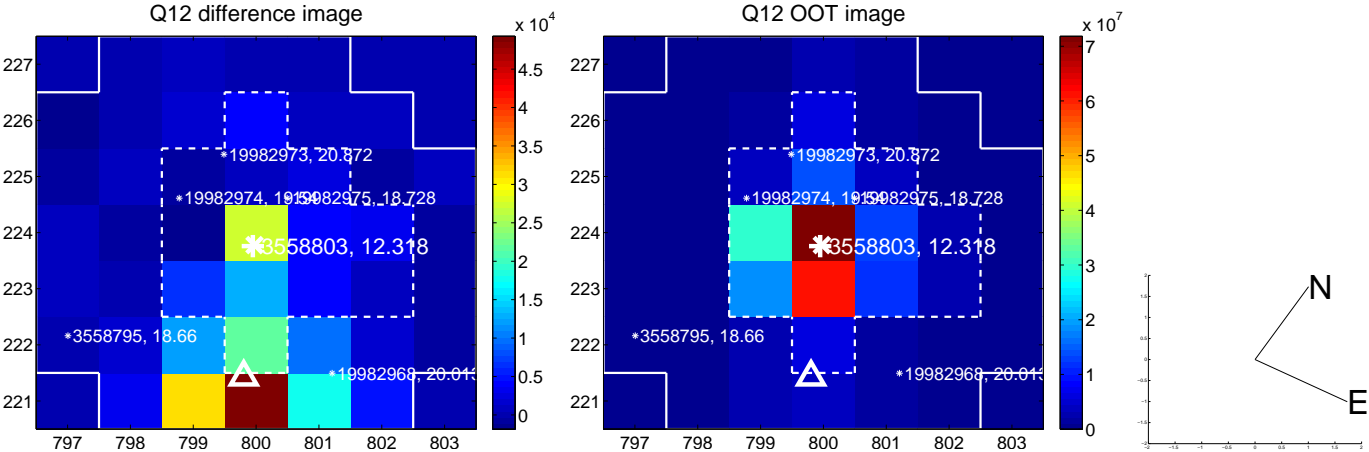
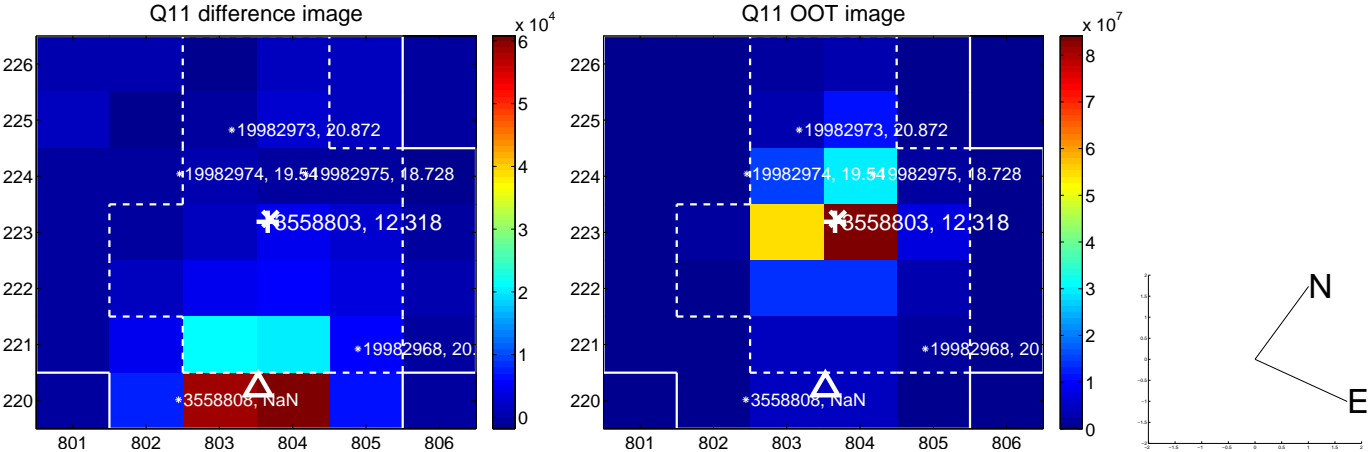
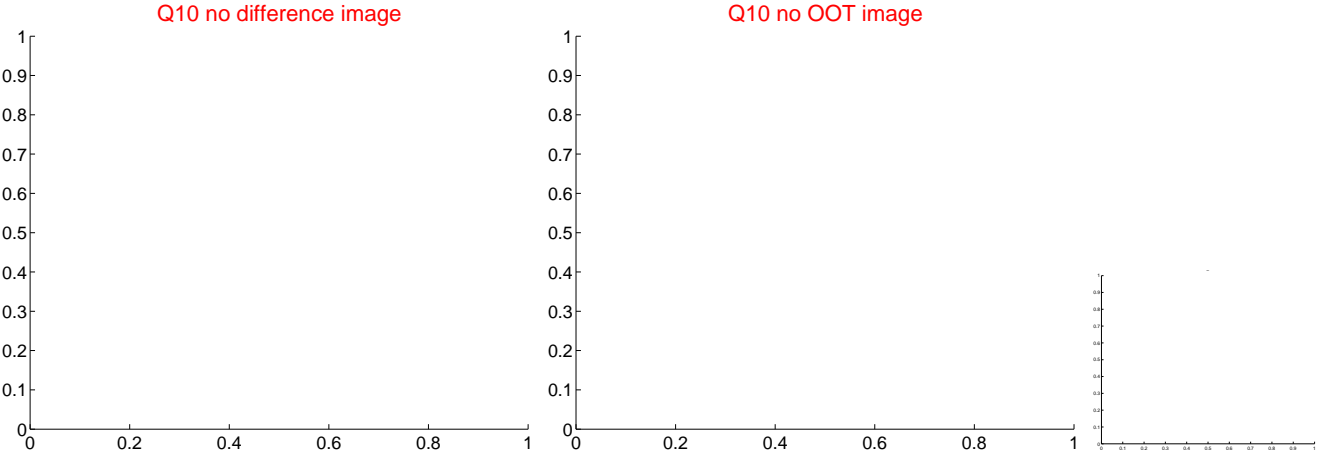
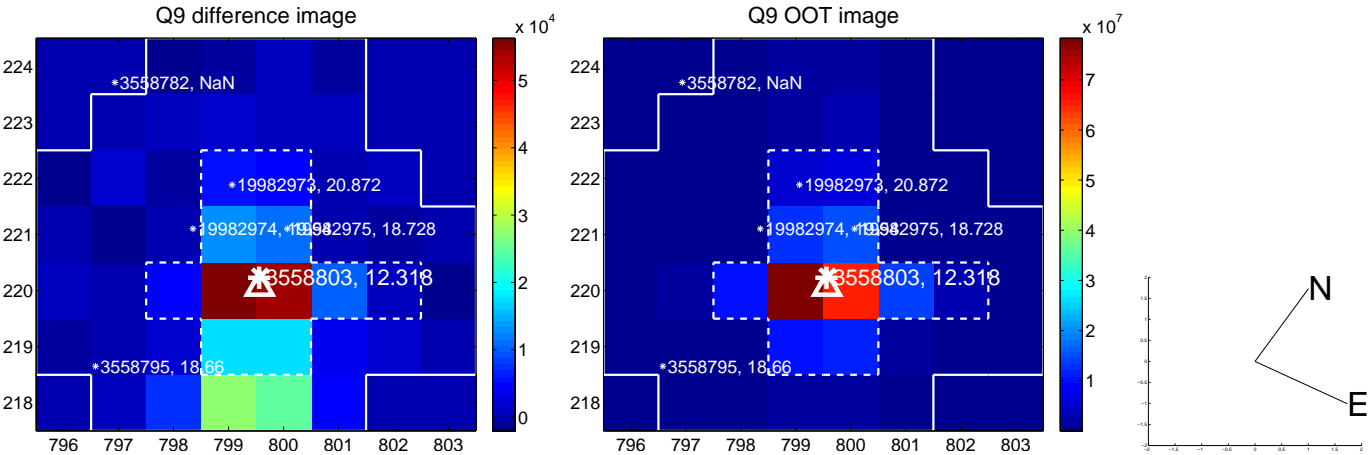
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

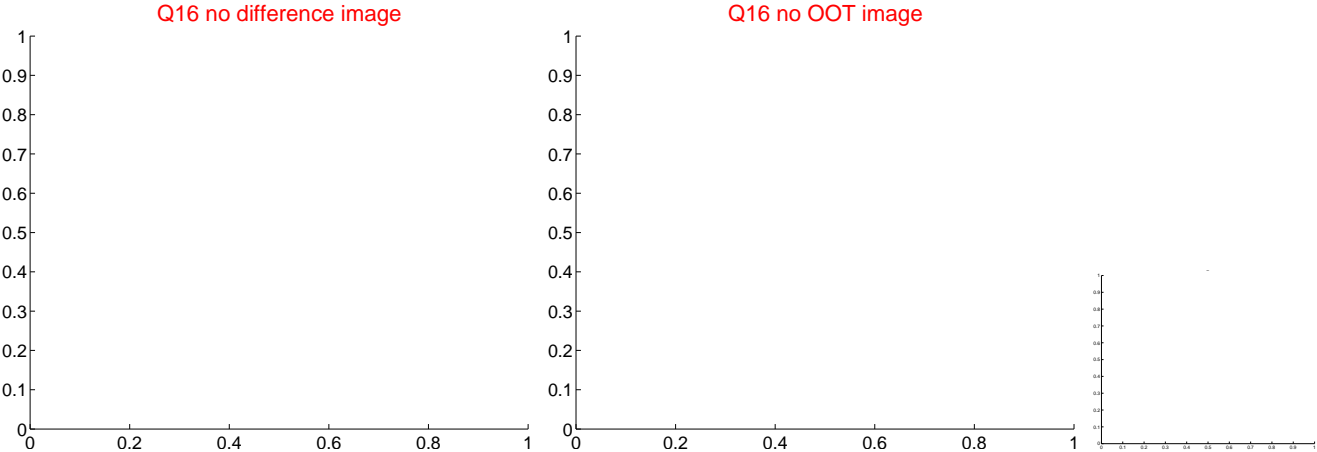
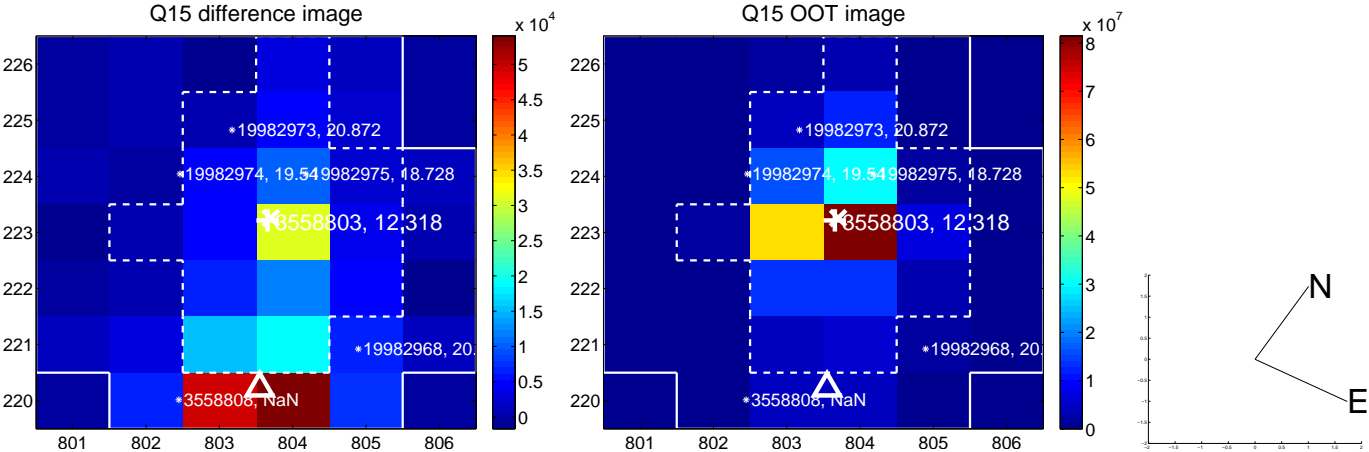
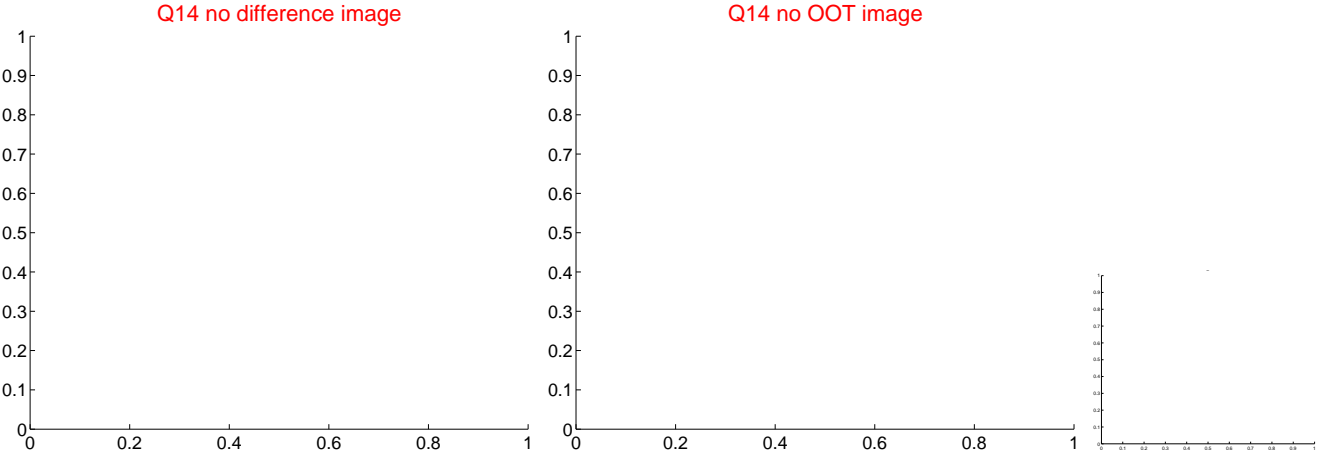
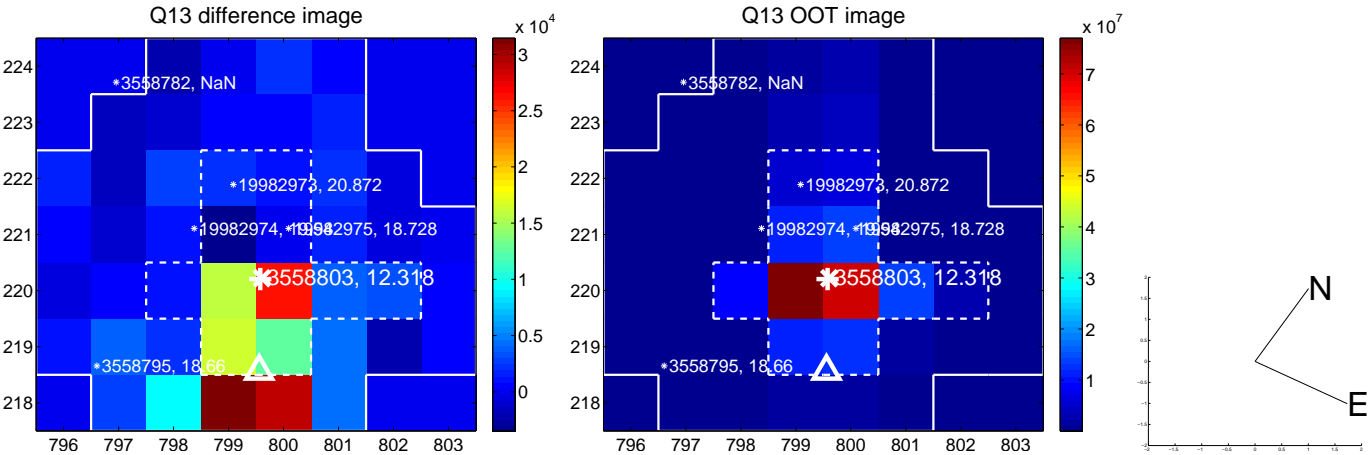


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

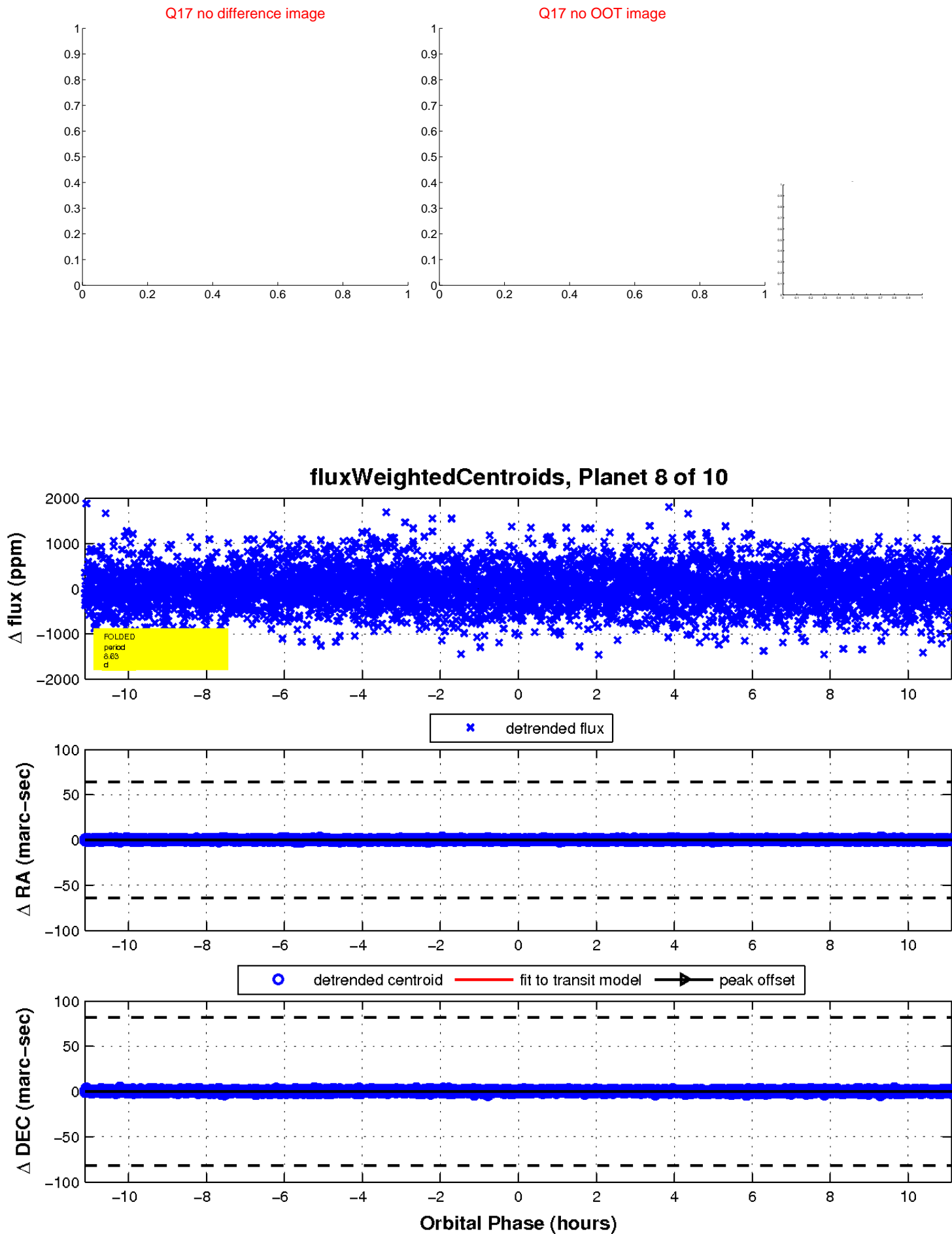




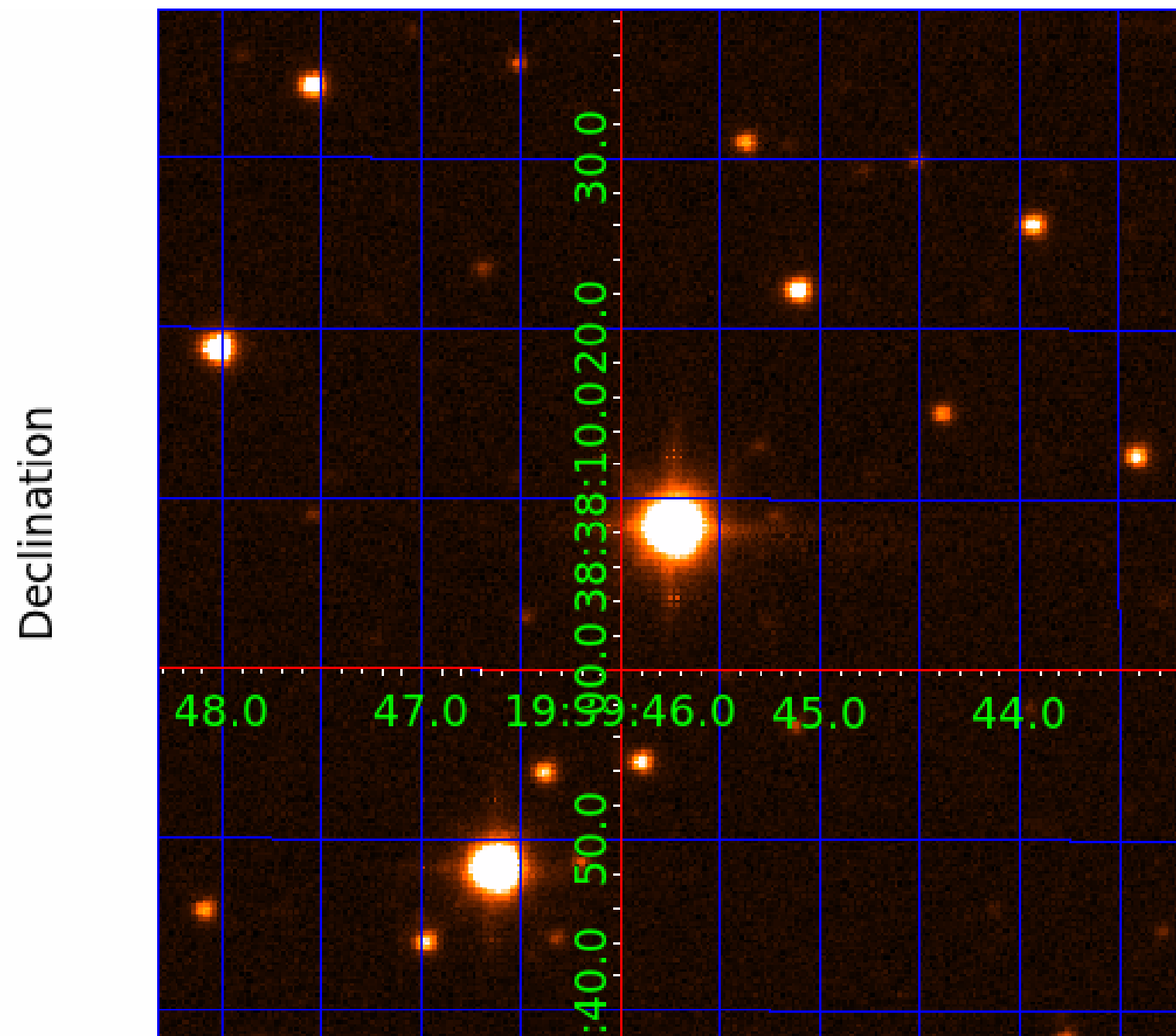
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



## KIC 003558803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003558803-01	OBS	6345.01	1.353452	131.671808	43.8	8.659	19.0	5.6	8.59	4850	5.50	0.00
003558803-02	OBS	No	26.890557	158.331830	651.3	2.791	14.3	13.0	8.59	4850	25.05	753.22
003558803-03	OBS	No	16.819263	147.638424	502.2	2.454	13.6	12.1	8.59	4850	22.79	1408.14
003558803-04	OBS	No	52.653629	145.420099	841.2	2.829	13.8	13.6	8.59	4850	30.52	307.48
003558803-05	OBS	No	109.340809	139.449797	1048.1	9.446	13.0	14.0	8.59	4850	34.72	116.06
003558803-06	OBS	No	41.807115	153.651917	851.4	5.370	13.0	12.7	8.59	4850	34.21	418.20
003558803-07	OBS	No	23.122790	154.403549	632.1	3.179	13.2	13.0	8.59	4850	42.09	921.16
003558803-08	OBS	No	8.633592	136.565481	442.3	3.706	13.1	13.5	8.59	4850	38.35	3426.10
003558803-09	OBS	No	97.651648	216.153876	1031.9	4.221	12.2	12.0	8.59	4850	27.88	134.94
003558803-10	OBS	No	15.234080	146.589122	378.5	1.500	12.3	-1.0	8.59	4850	16.19	1606.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558803-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003558803-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN—HALO_GHOST
003558803-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003558803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN
003558803-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
003558803-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003558803-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-10	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

**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 003558803-09

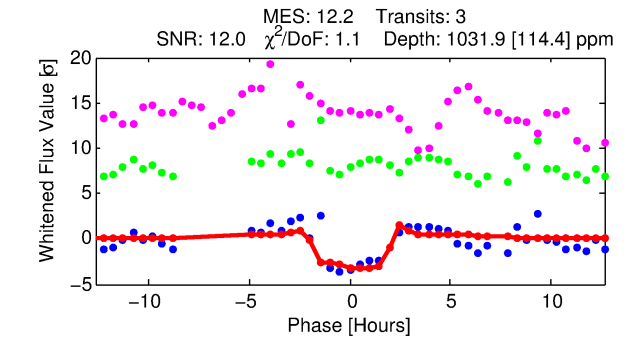
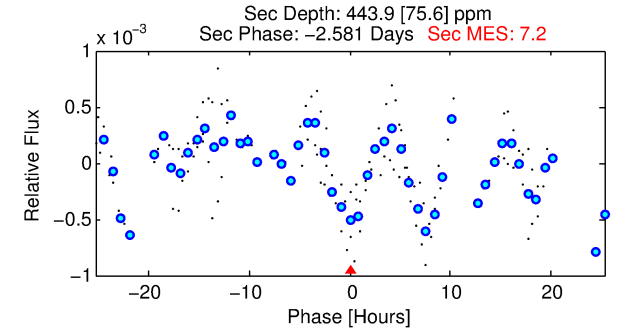
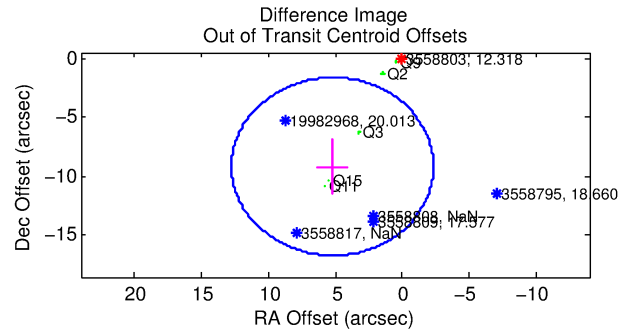
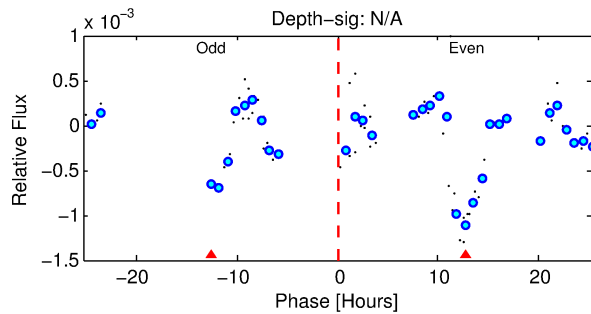
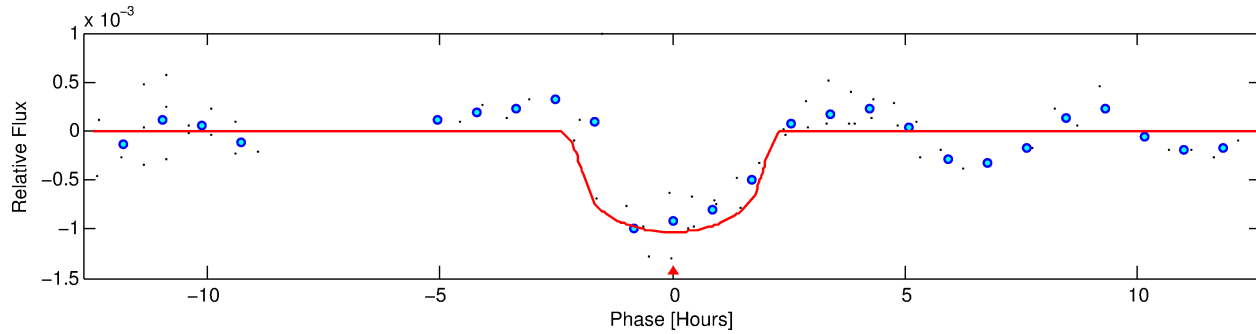
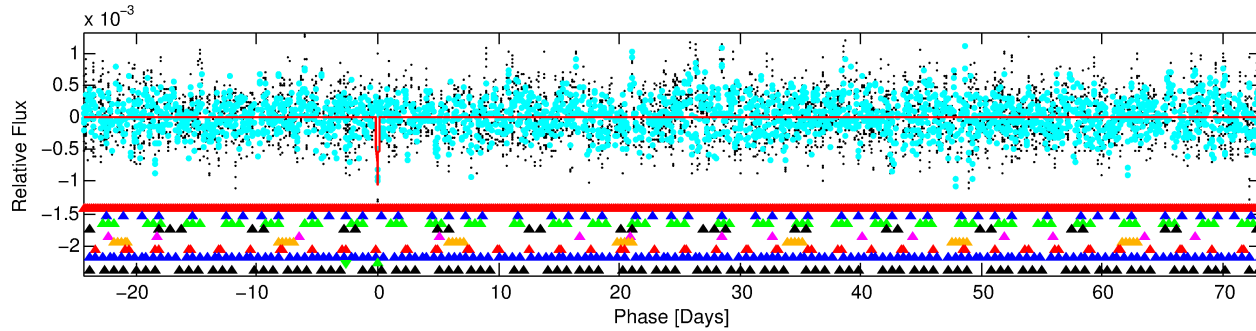
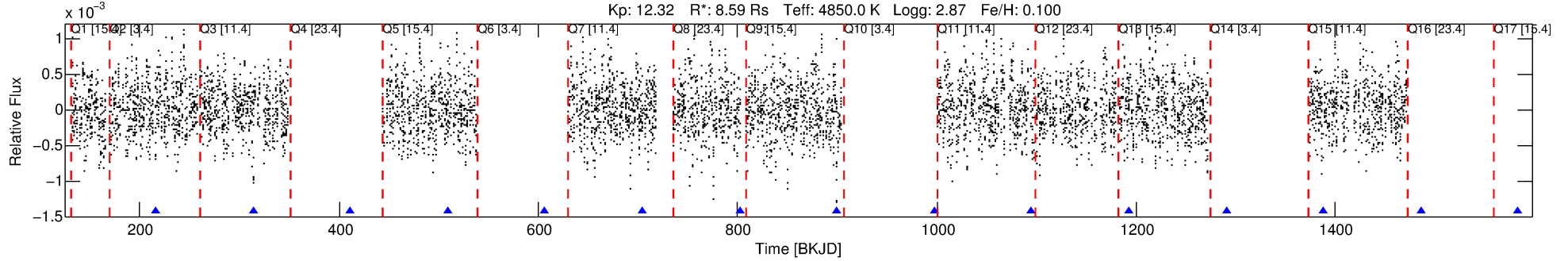
No Significant Match Found

# DV One-Page Summary

KIC: 3558803 Candidate: 9 of 10 Period: 97.652 d

KOI: K06345 Corr: No Ephemeris Match

Kp: 12.32 R\*: 8.59 Rs Teff: 4850.0 K Logg: 2.87 Fe/H: 0.100



## DV Fit Results:

Period = 97.65165 [0.00115] d  
Epoch = 216.1539 [0.0058] BKJD  
Rp/R\* = 0.0298 [0.0370]  
a/R\* = 156.94 [635.65]  
b = 0.52 [5.77]  
Seff = 134.94 [58.56]  
Teq = 869 [94] K  
Rp = 27.88 [36.06] Re  
a = 0.5204 [0.1517] AU  
Ag = 85.09 [215.23] [0.39σ]  
Teffp = 4081 [2548] K [1.26σ]

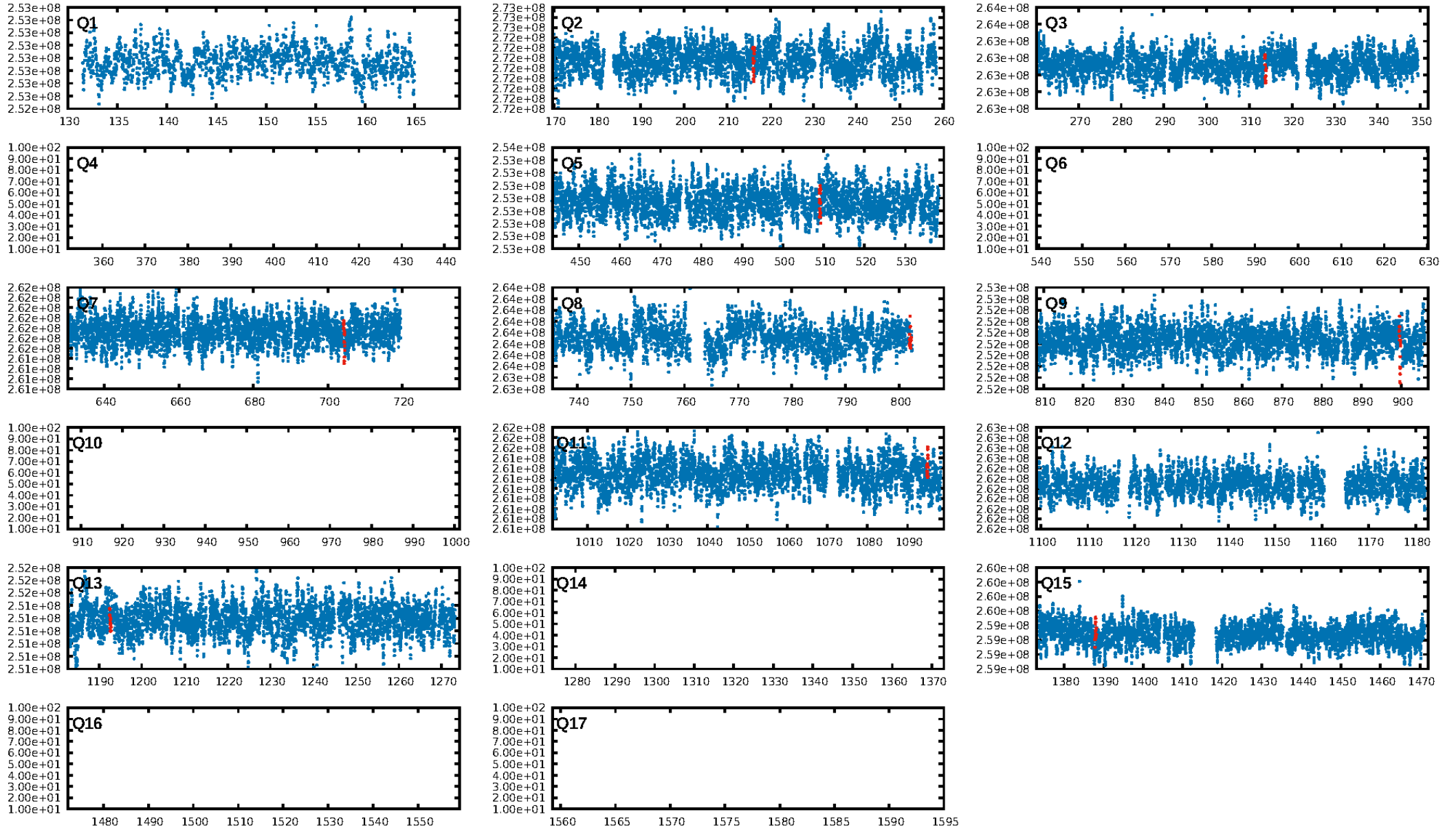
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [212.54σ]  
LongPeriod-sig: 100.0% [27.12σ]  
ModelChiSquare2-sig: 10.7%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -11.82  
Centroid-sig: 25.9%  
Centroid-so: 0.425 arcsec [1.51σ]  
OotOffset-rm: 10.532 arcsec [4.19σ]  
KicOffset-rm: 10.728 arcsec [5.70σ]  
OotOffset-st: 1/3/0/1 [5]  
KicOffset-st: 1/3/0/1 [5]  
DiffImageQuality-fgm: 0.20 [1/5]  
DiffImageOverlap-fno: 0.14 [1/7]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:10:02 Z

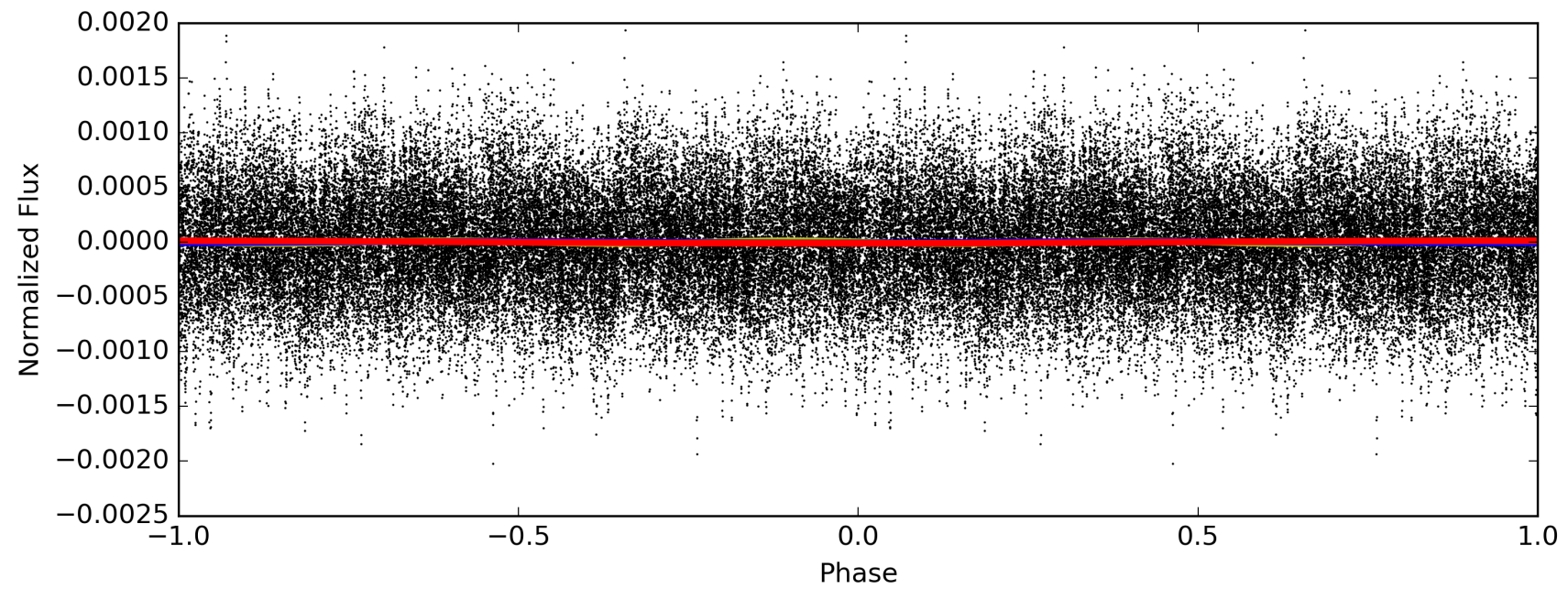
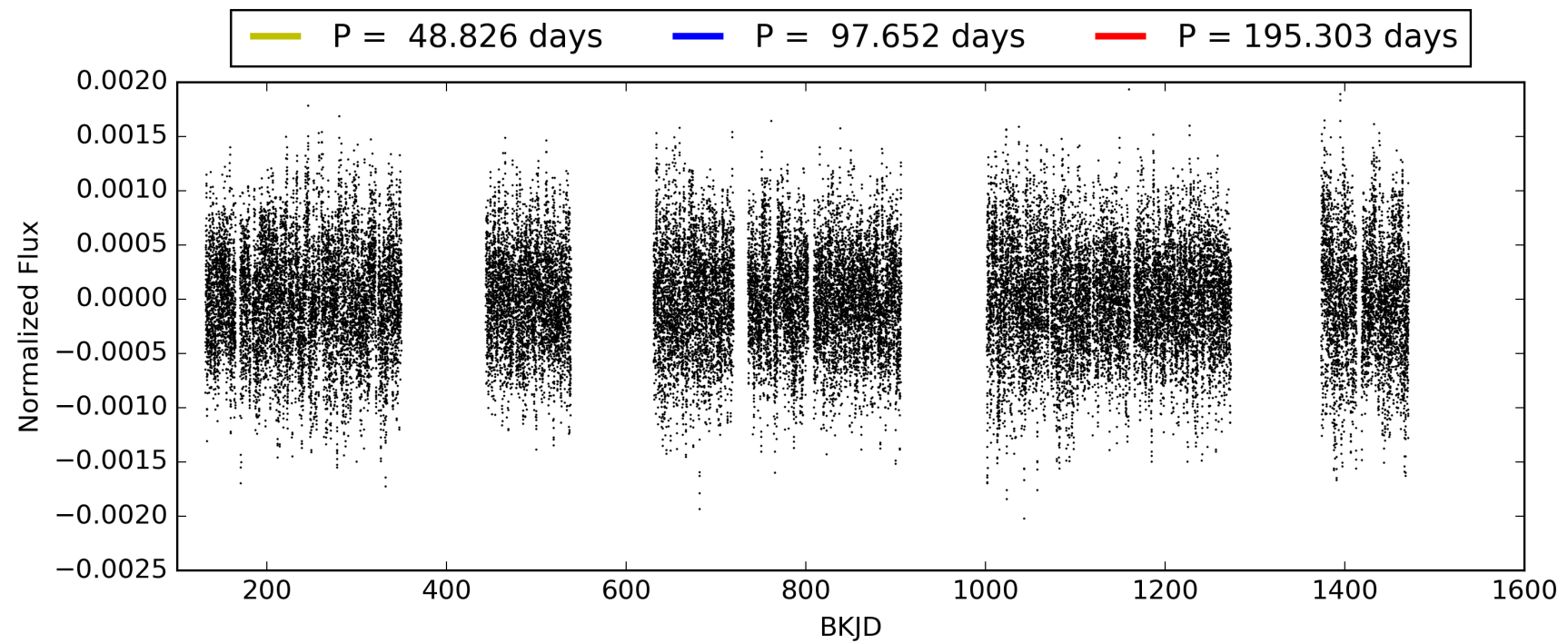
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003558803-09, PDC Light Curves



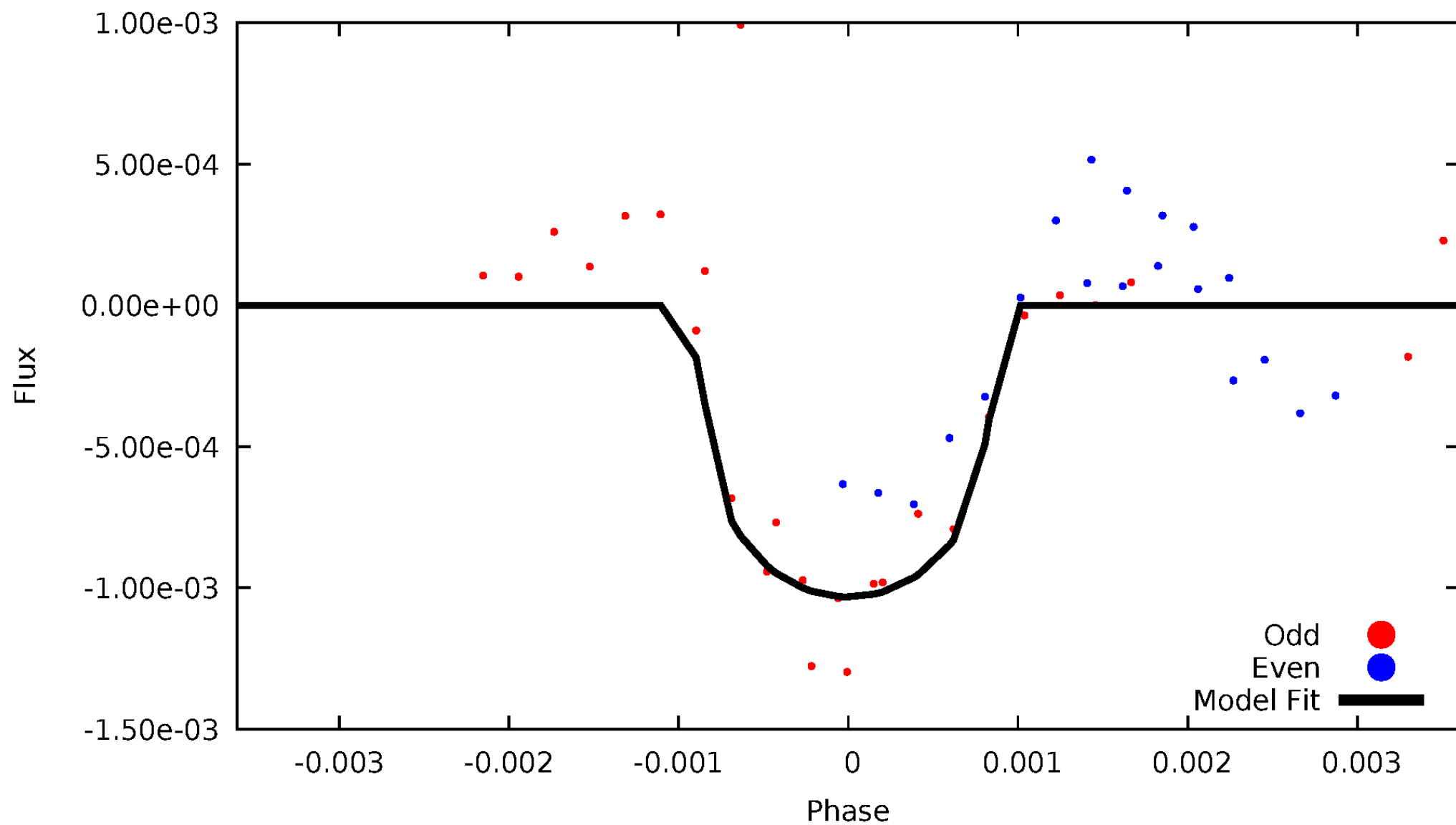


TCE 003558803-09



# DV Odd/Even

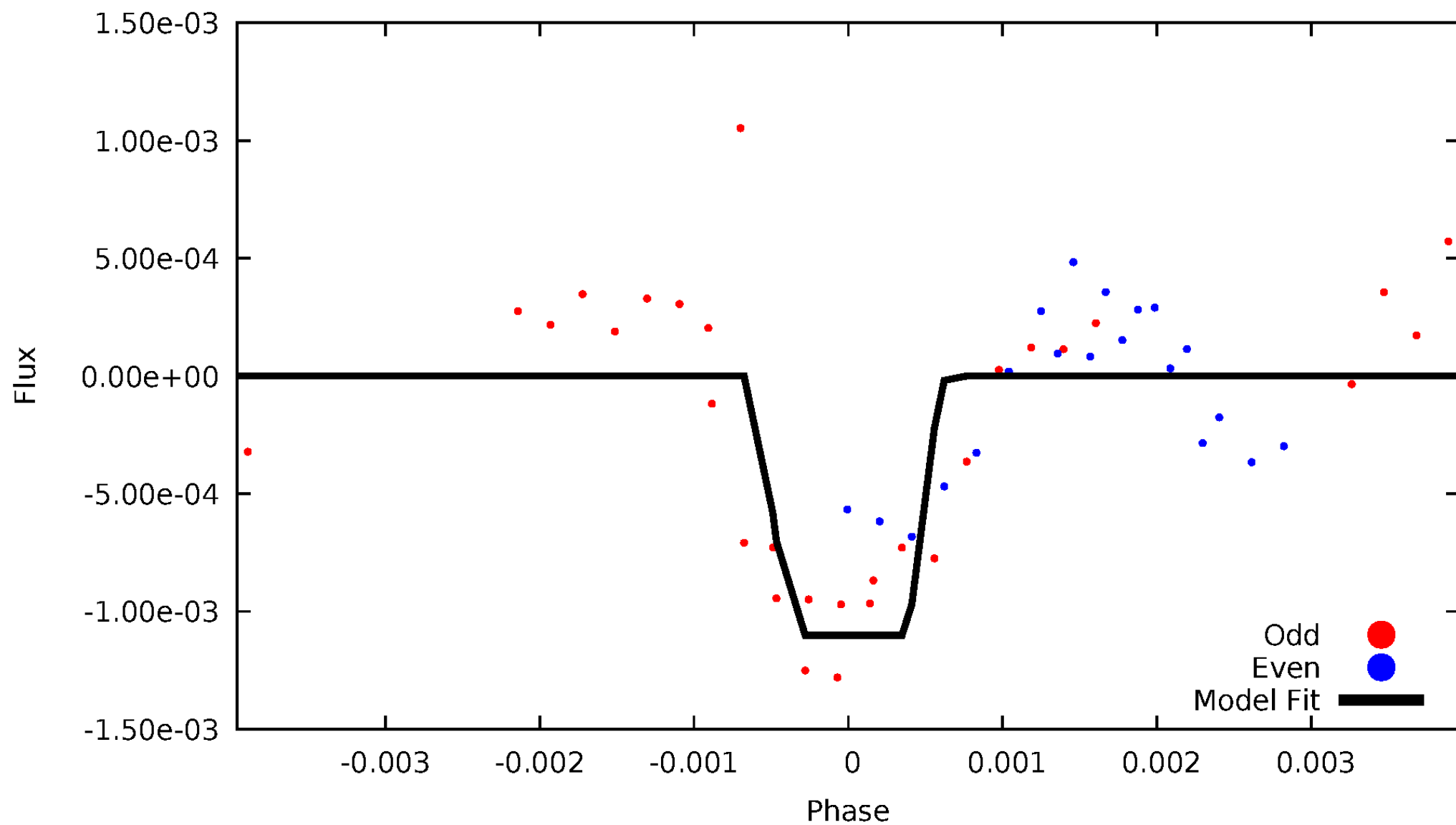
TCE 003558803-09





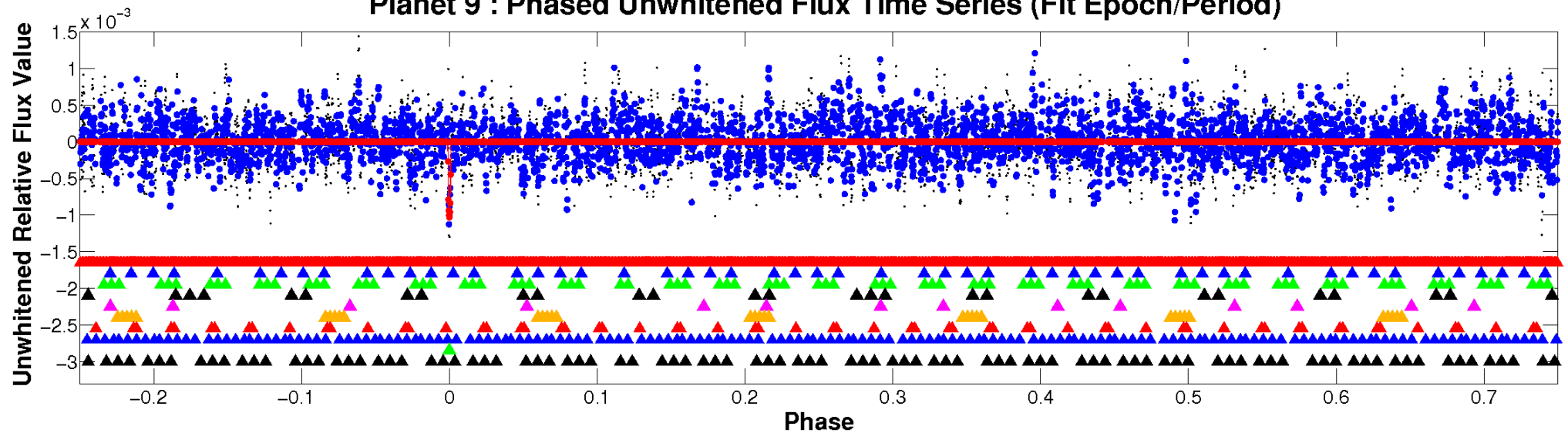
# ALT Odd/Even

TCE 003558803-09

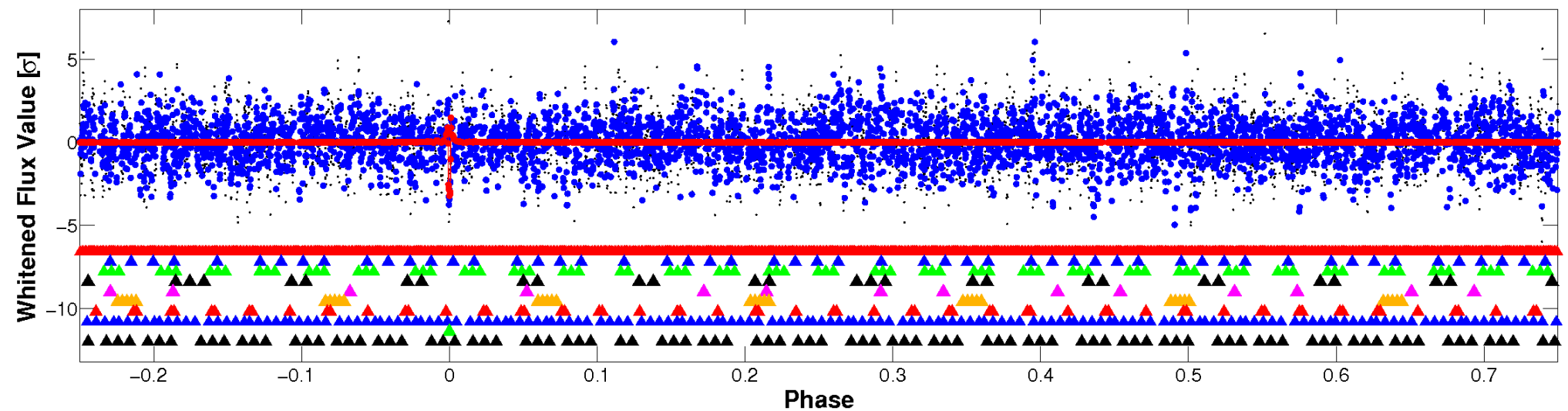


# Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

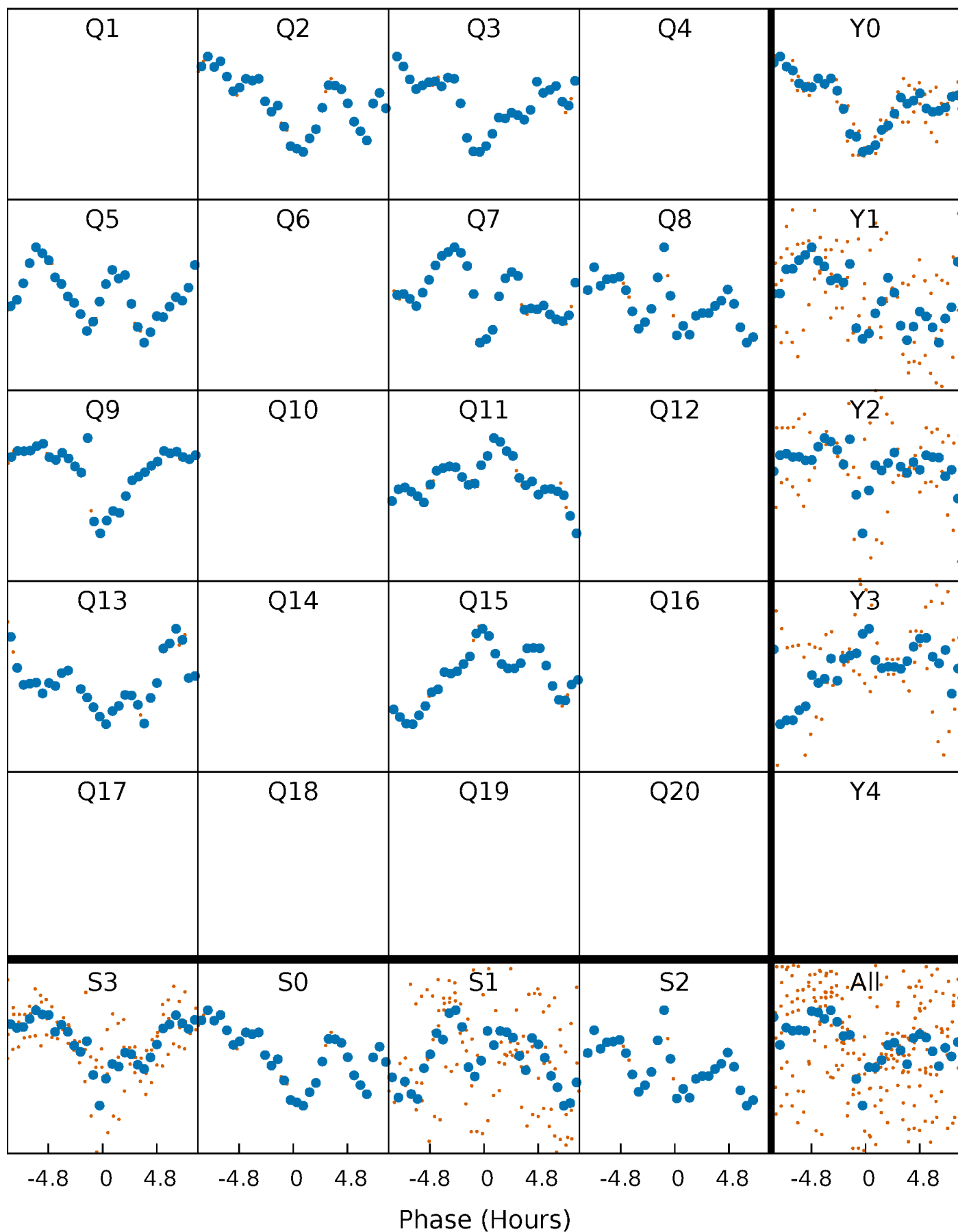


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



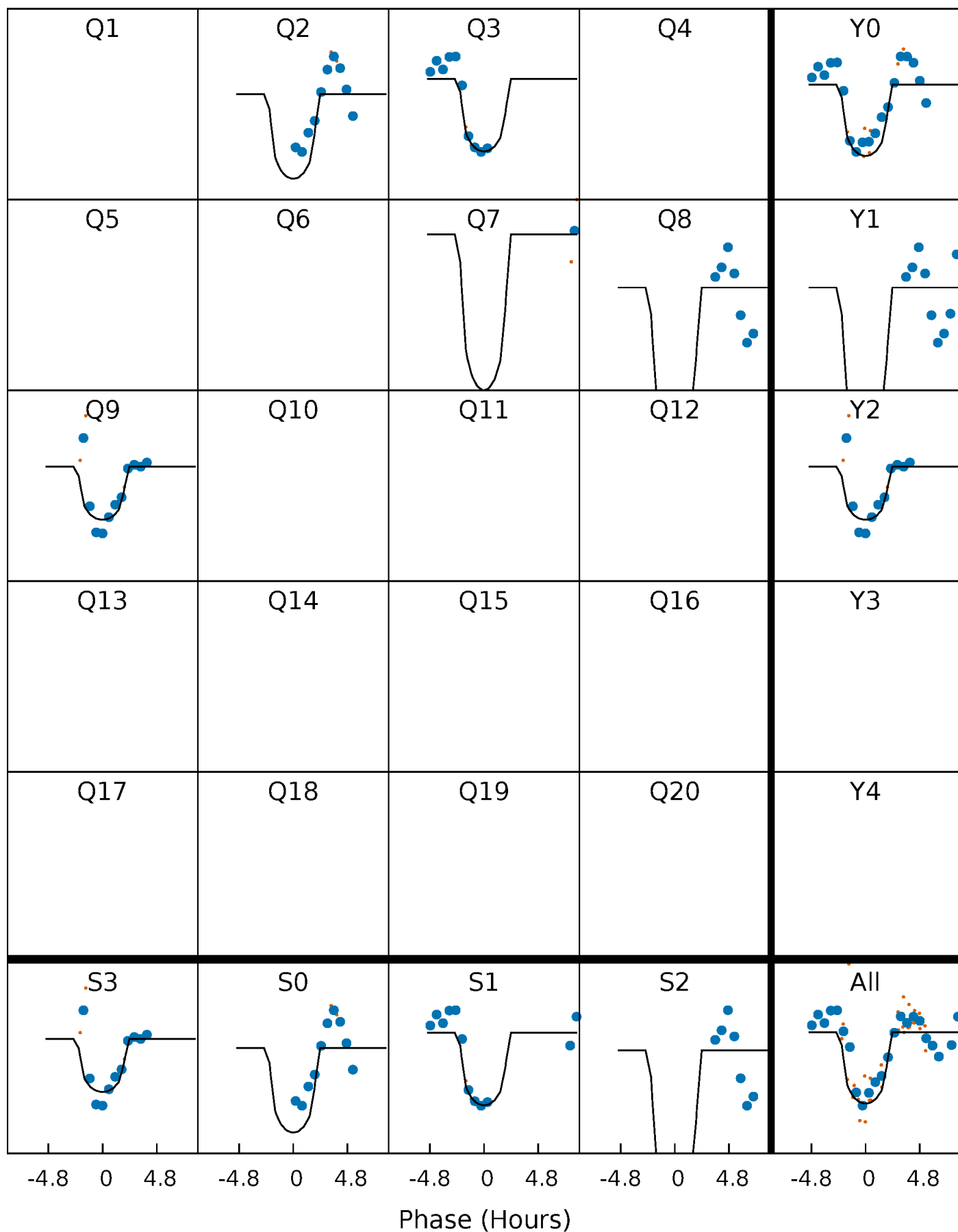
# PDC Quarter-Phased Transit Curves

TCE 003558803-09   P= 97.651648 Days    $T_0=216.153876$  (BKJD)



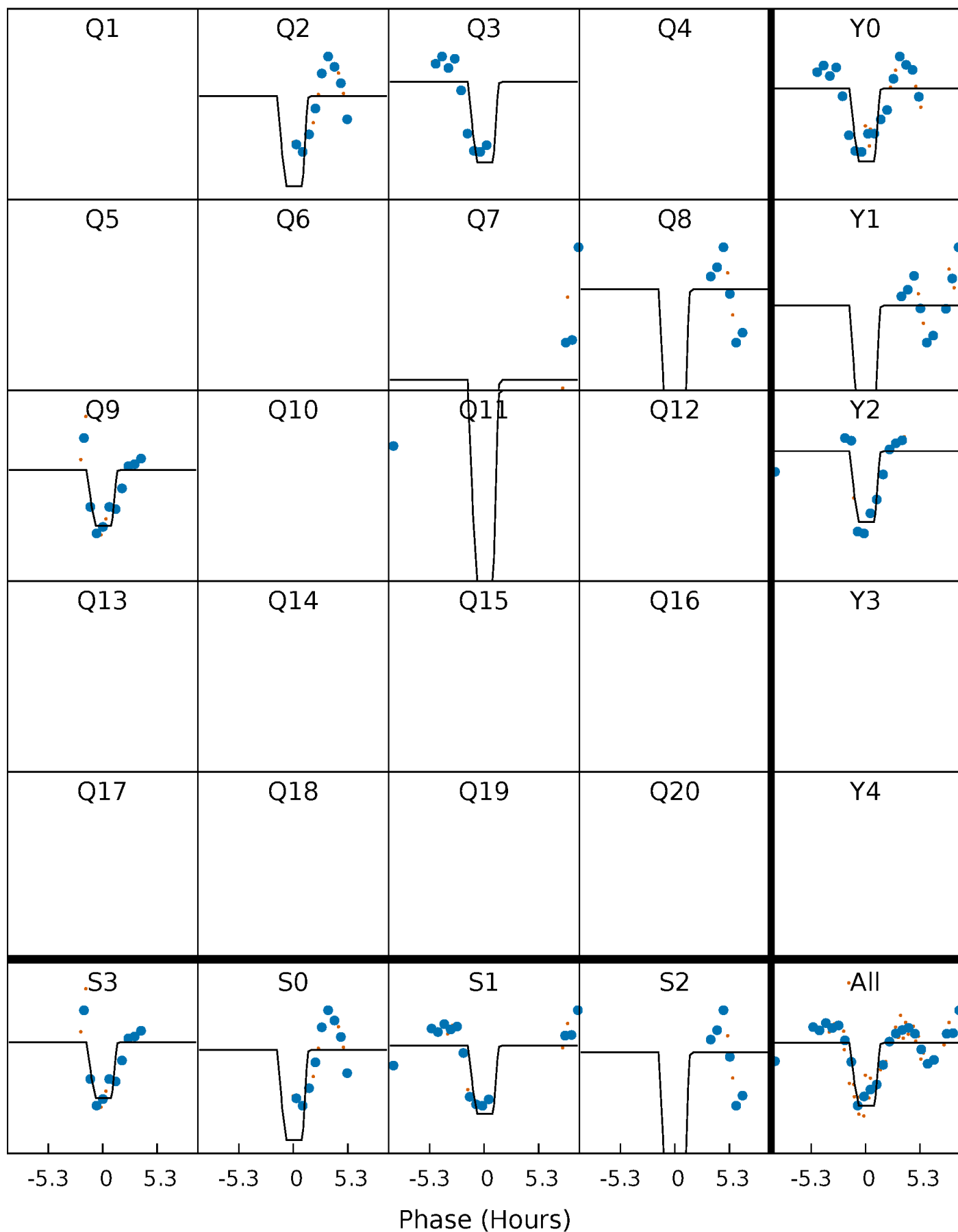
# DV Quarter-Phased Transit Curves

TCE 003558803-09 P= 97.651648 Days  $T_0=216.153876$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

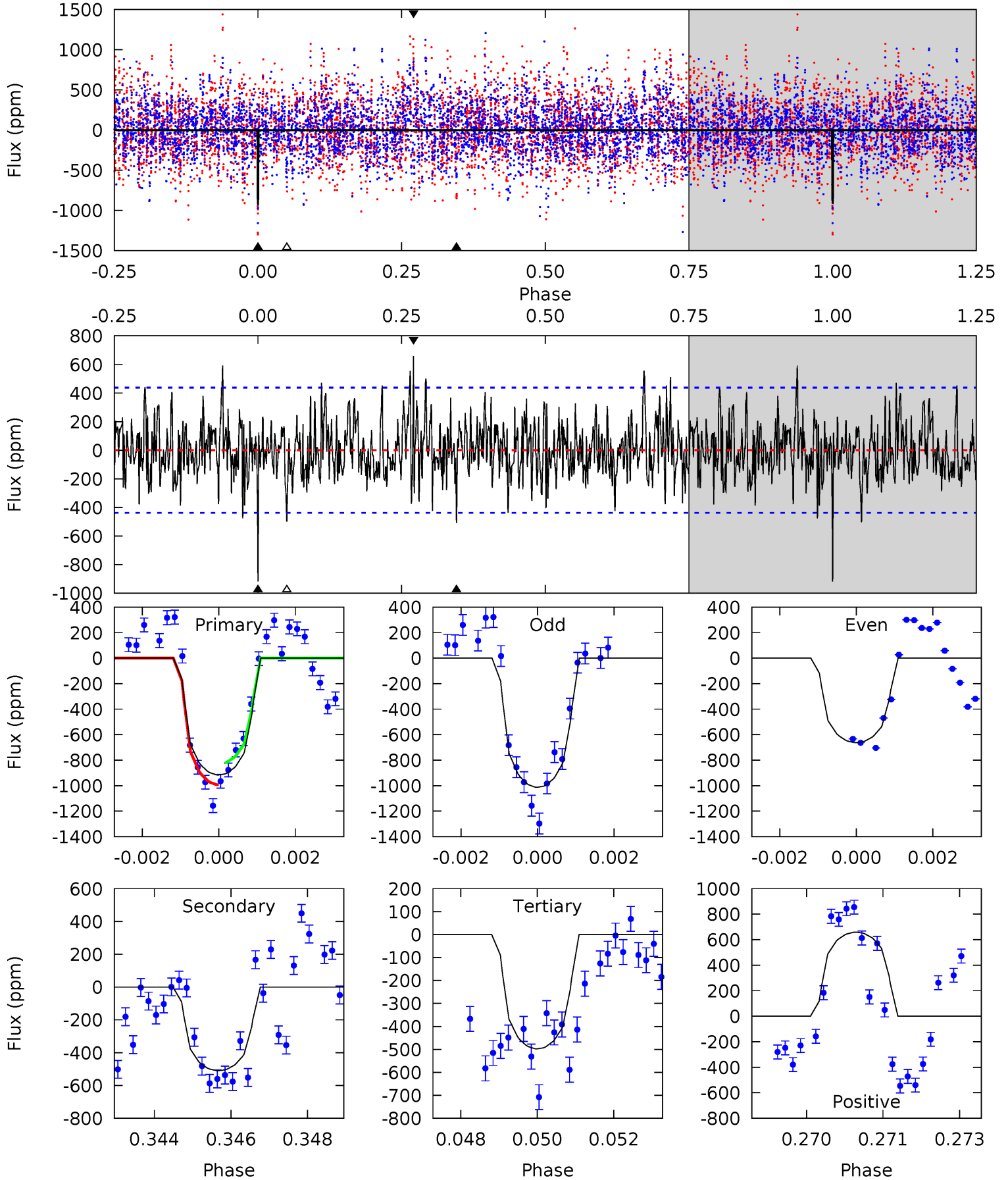
TCE 003558803-09     $P = 97.652878$  Days     $T_0 = 216.151434$  (BKJD)



# DV Model-Shift Uniqueness Test

003558803-09, P = 97.651648 Days, E = 118.502228 Days

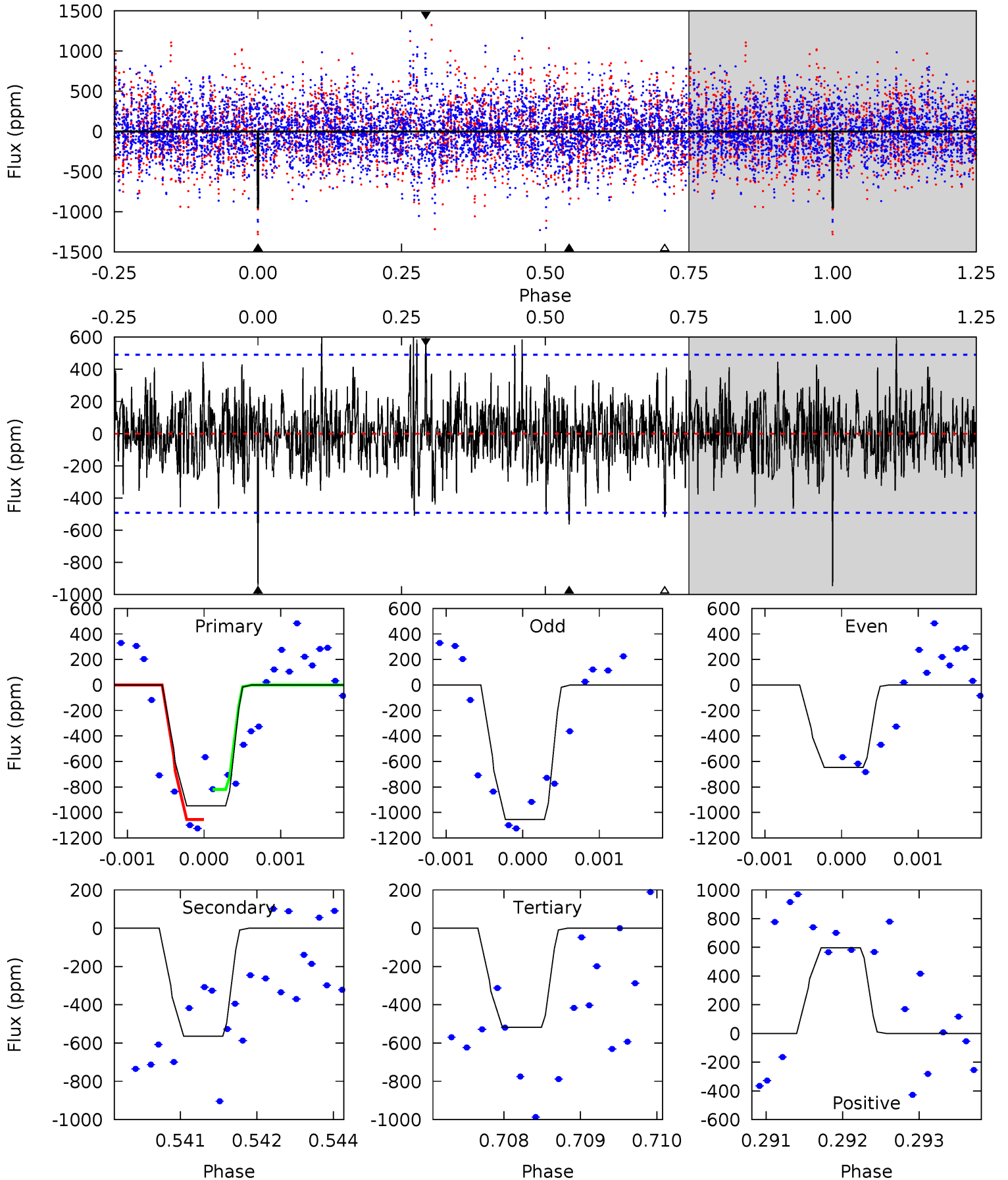
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	6.22	6.07	8.04	5.34	3.11	2.00	5.11	3.15	0.15	-1.82	1.91	1.04	0.42	1.05



# Alt Model-Shift Uniqueness Test

003558803-09, P = 97.652878 Days, E = 118.498556 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	6.22	5.70	6.58	5.41	3.23	1.70	4.74	3.86	0.52	-0.36	2.10	0.92	0.39	1.29



### Stellar Parameters For KIC 003558803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4850^{+95}_{-143}$	$2.865^{+0.225}_{-0.164}$	$0.100^{+0.200}_{-0.300}$	$8.586^{+2.199}_{-3.024}$	$1.969^{+0.734}_{-0.897}$	$0.004^{+0.008}_{-0.002}$
	+2%/-3%	+8%/-6%	+200%/-300%	+26%/-35%	+37%/-46%	+175%/-41%
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 003558803-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-510 \pm 82$	$35.50^{+31.21}_{-23.34}$	$1206^{+82}_{-92}$	$3925^{+1901}_{-743}$	$62^{+397}_{-45}$
Alt.	$-564 \pm 91$	$38.89^{+33.46}_{-24.20}$	$1210^{+94}_{-95}$	$3884^{+1849}_{-689}$	$56^{+316}_{-40}$

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



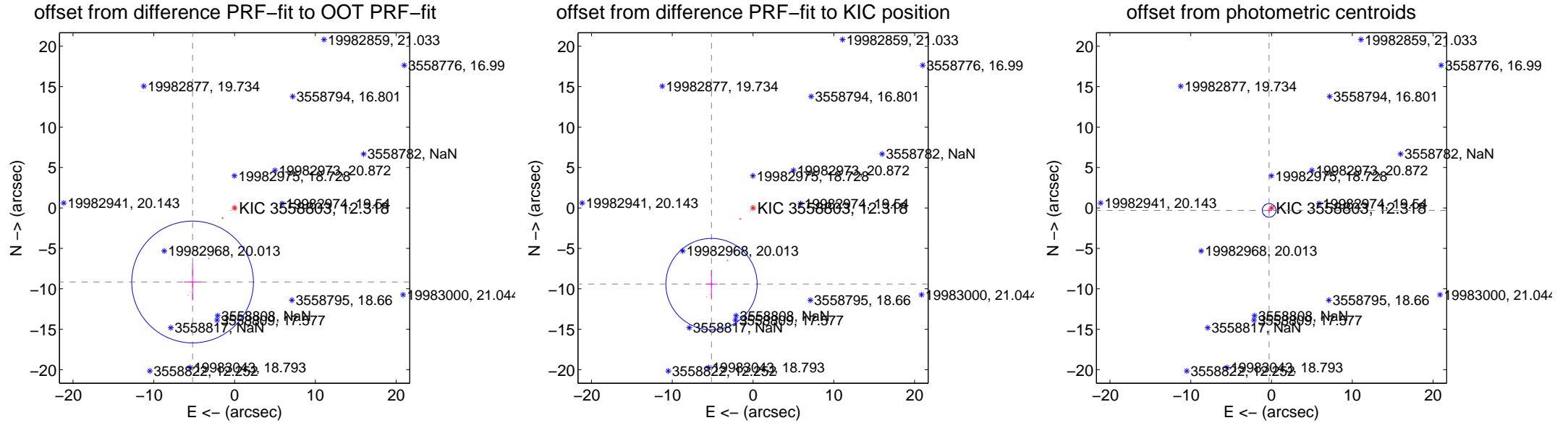
## DV Centroid Data

Supplemental centroid analysis for 003558803-09. Kepler magnitude: 12.32. Transit SNR 12.04

There are 1 quarters with good PRF difference image offsets

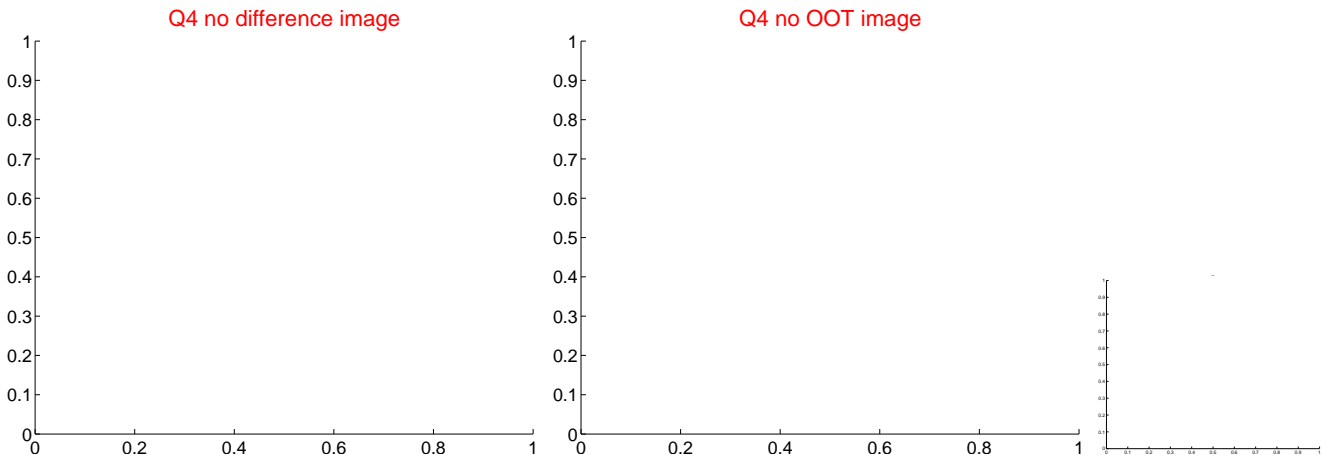
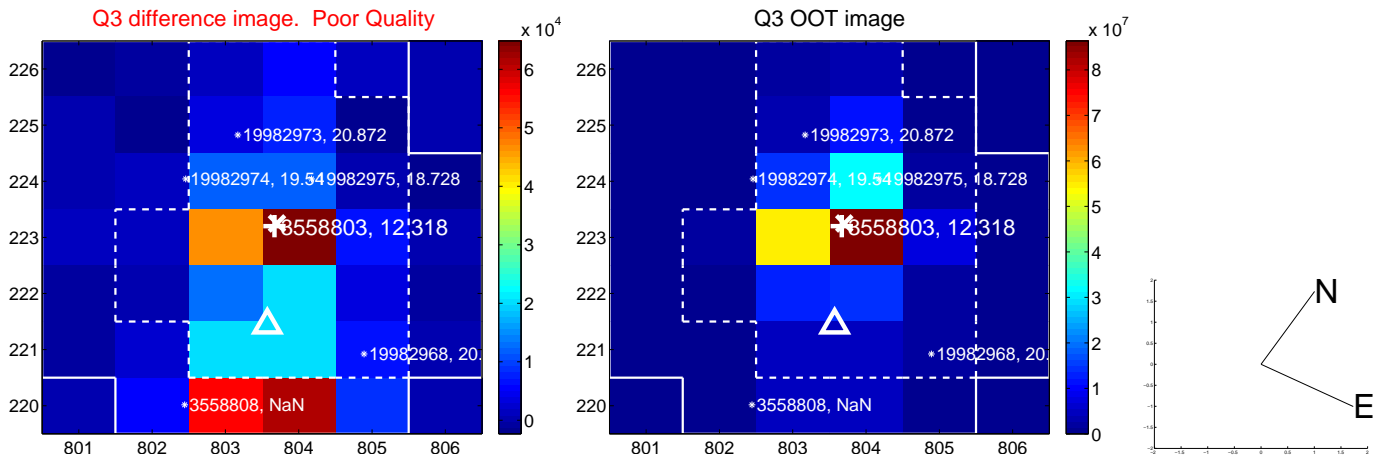
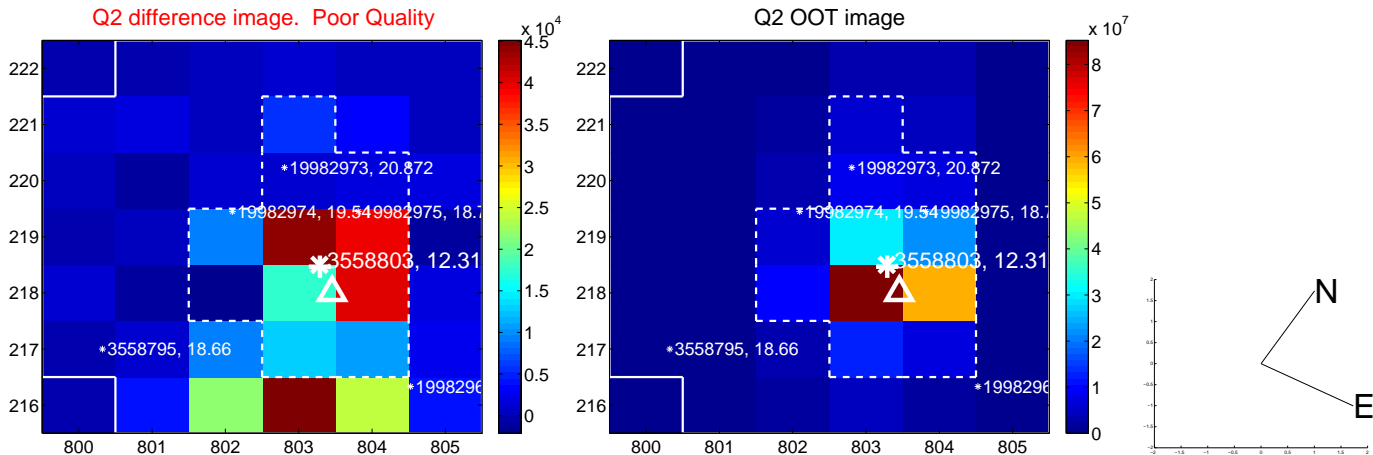
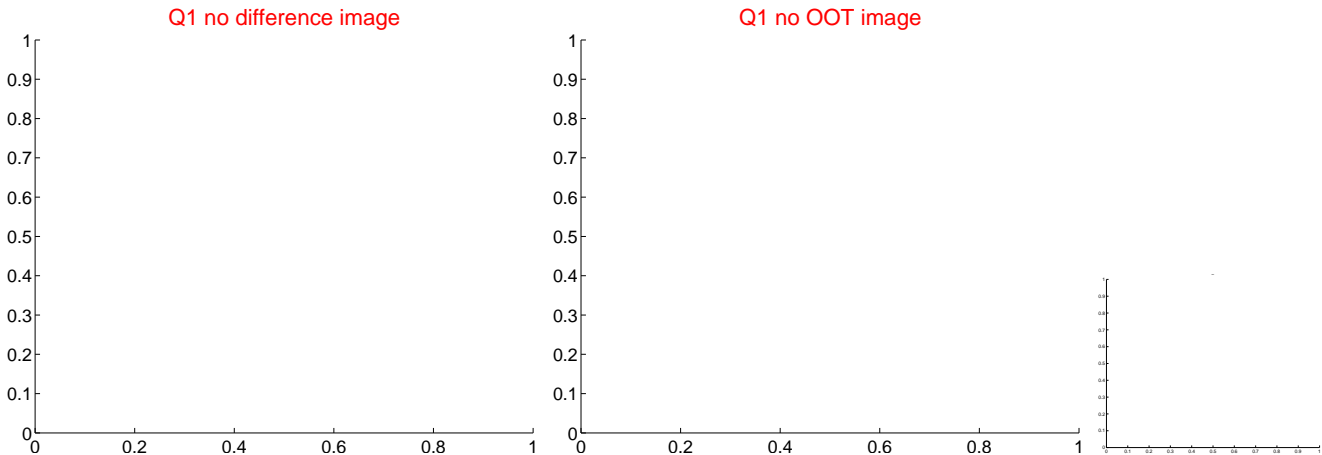
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	10.532 $\pm$ 2.511	4.19	5.200 $\pm$ 1.085	-9.159 $\pm$ 2.274
PRF-fit source offset from KIC position	10.728 $\pm$ 1.883	5.70	5.142 $\pm$ 0.768	-9.415 $\pm$ 1.733
photometric centroid source offset	0.42 $\pm$ 0.28	1.51	0.30 $\pm$ 0.27	-0.30 $\pm$ 0.29

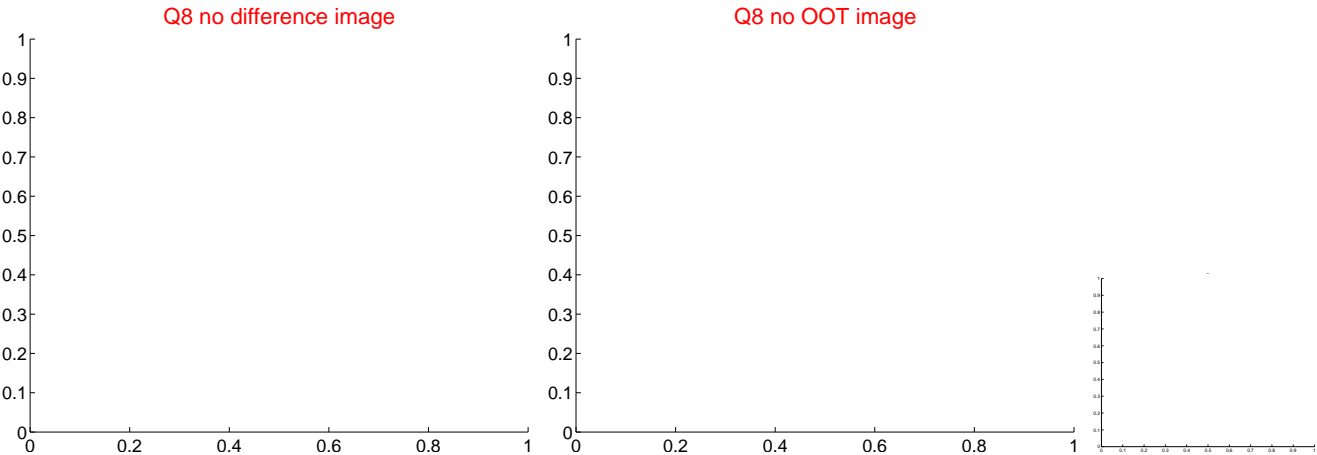
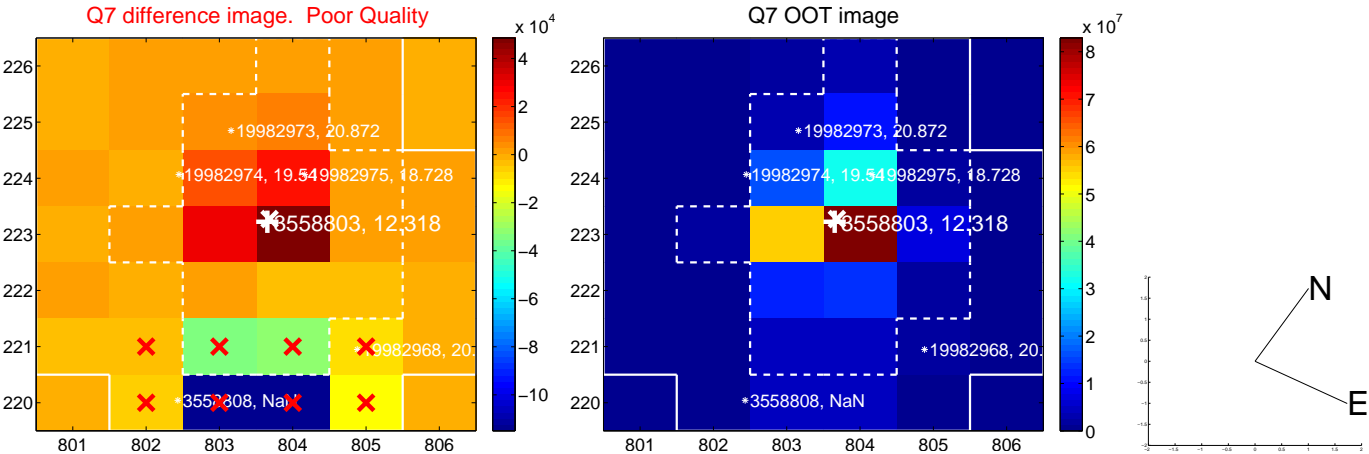
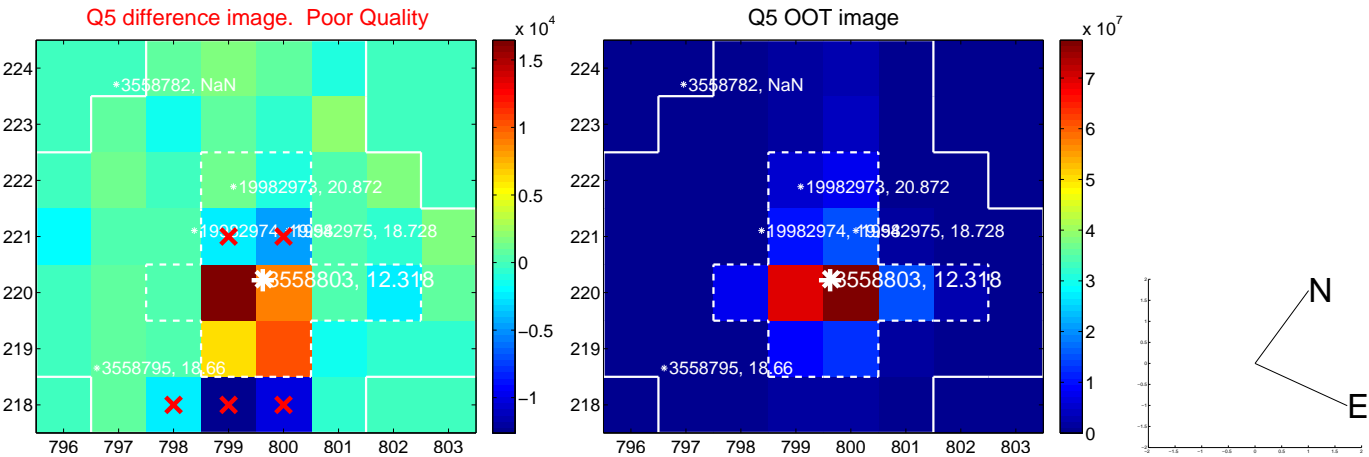


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

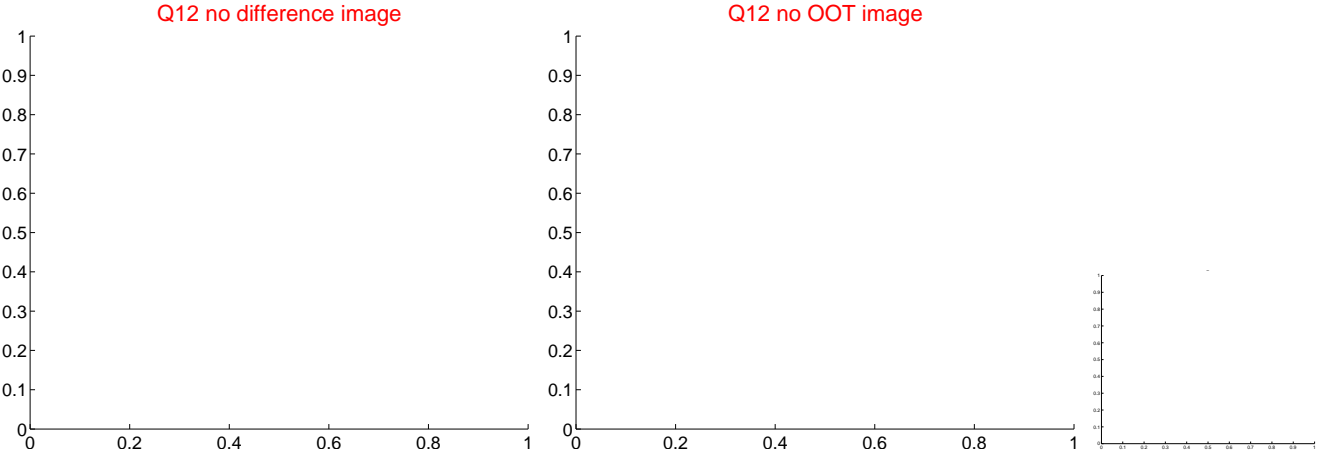
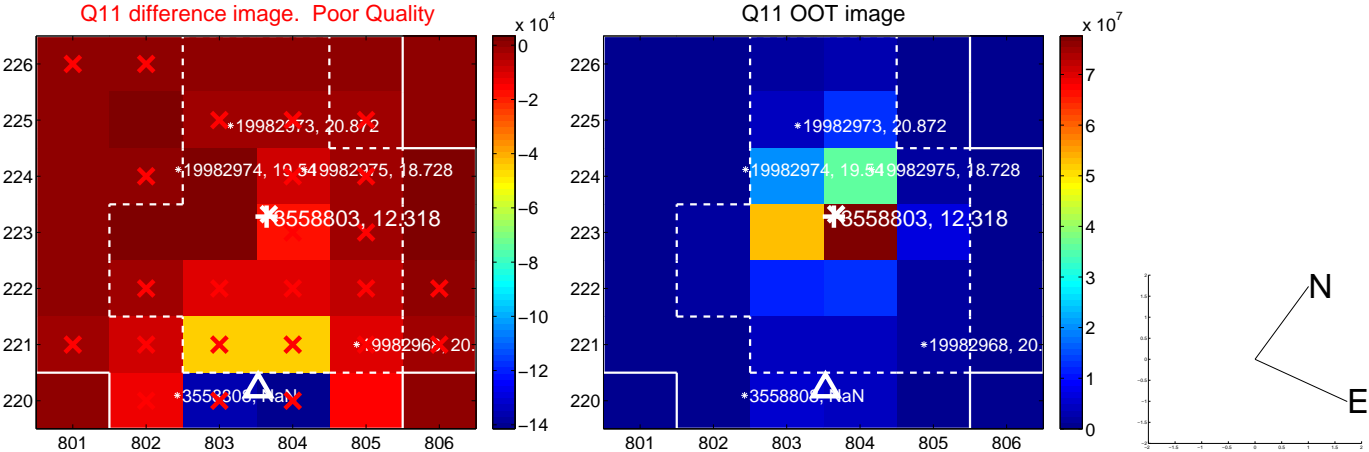
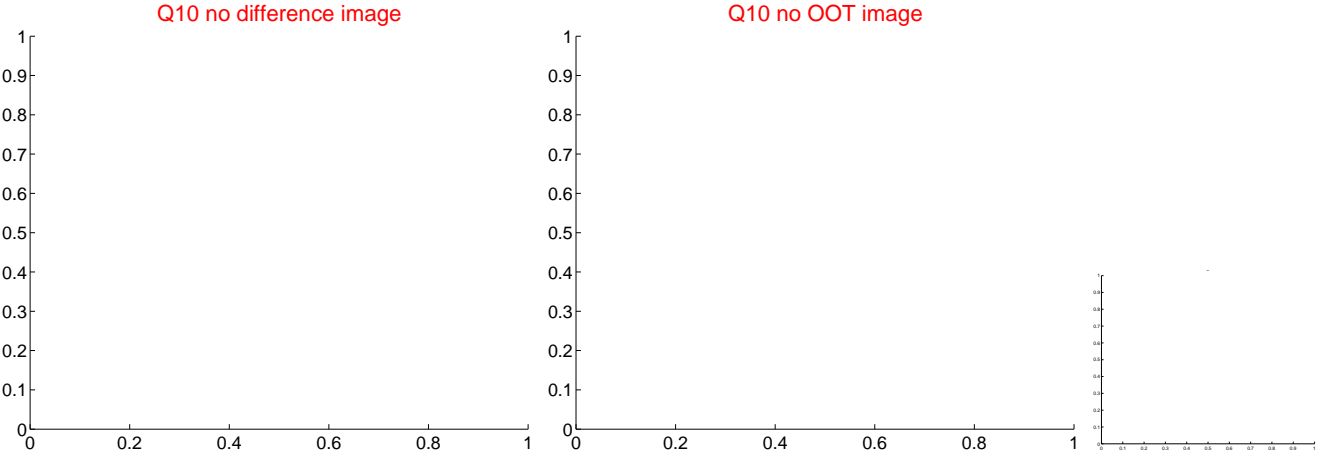
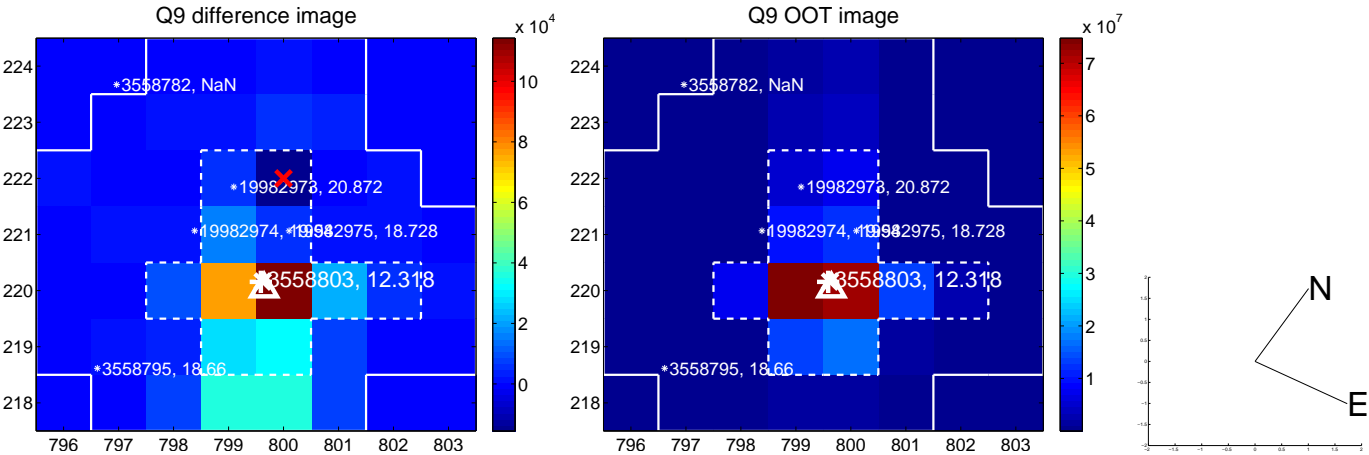
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



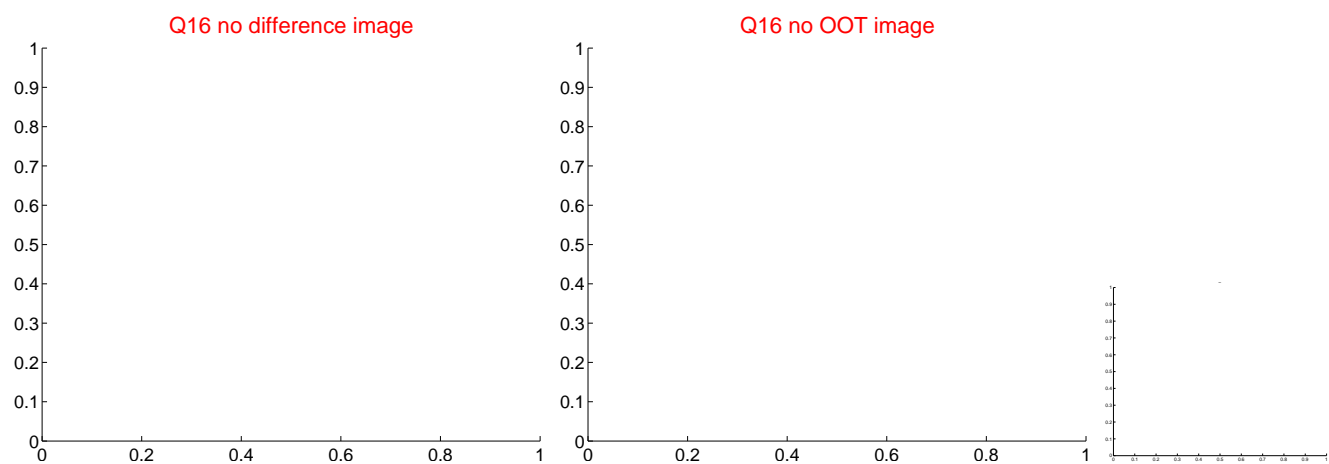
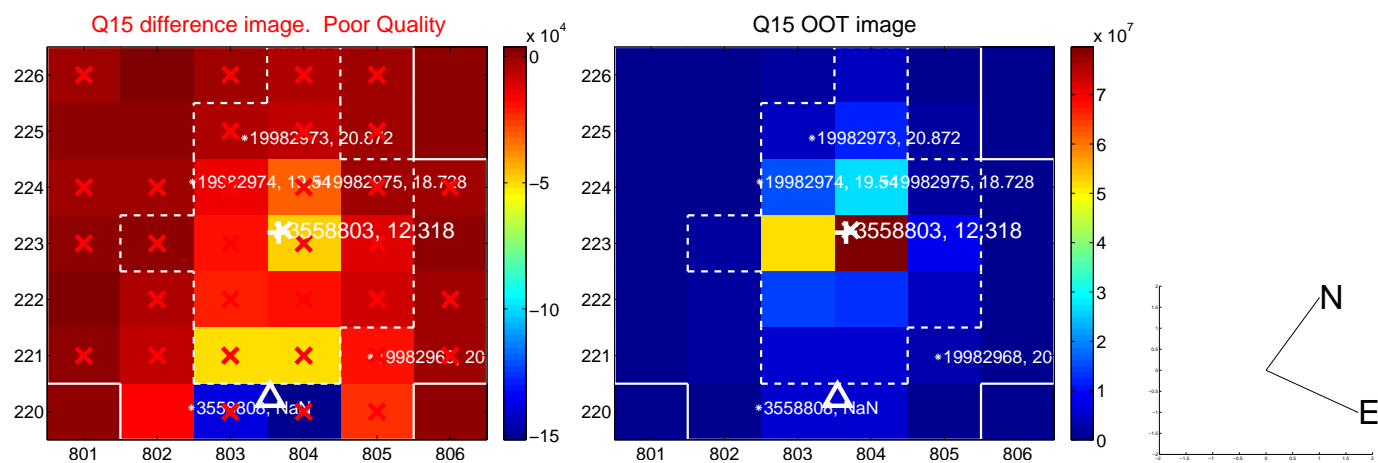
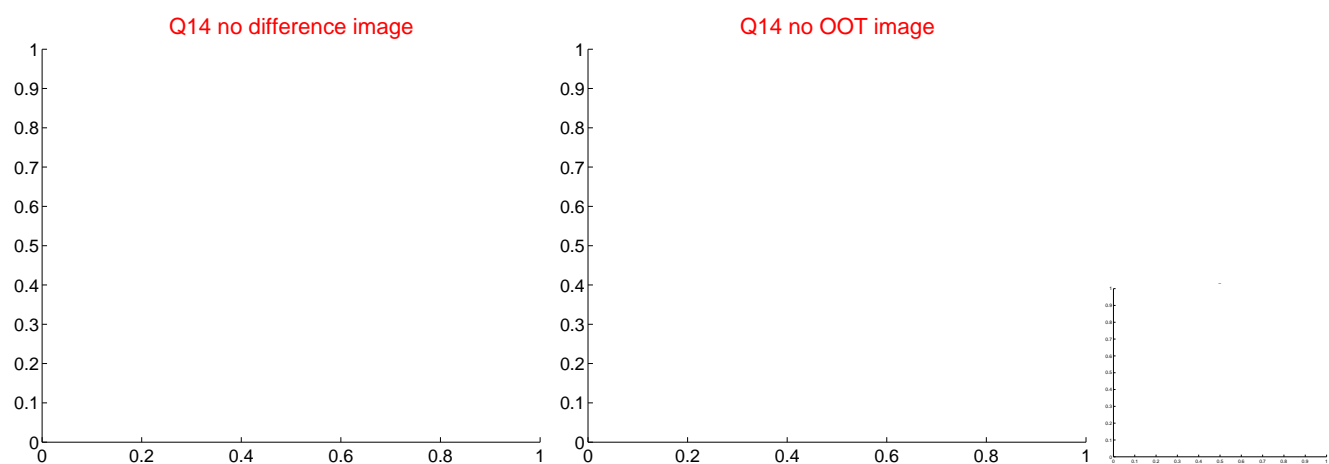
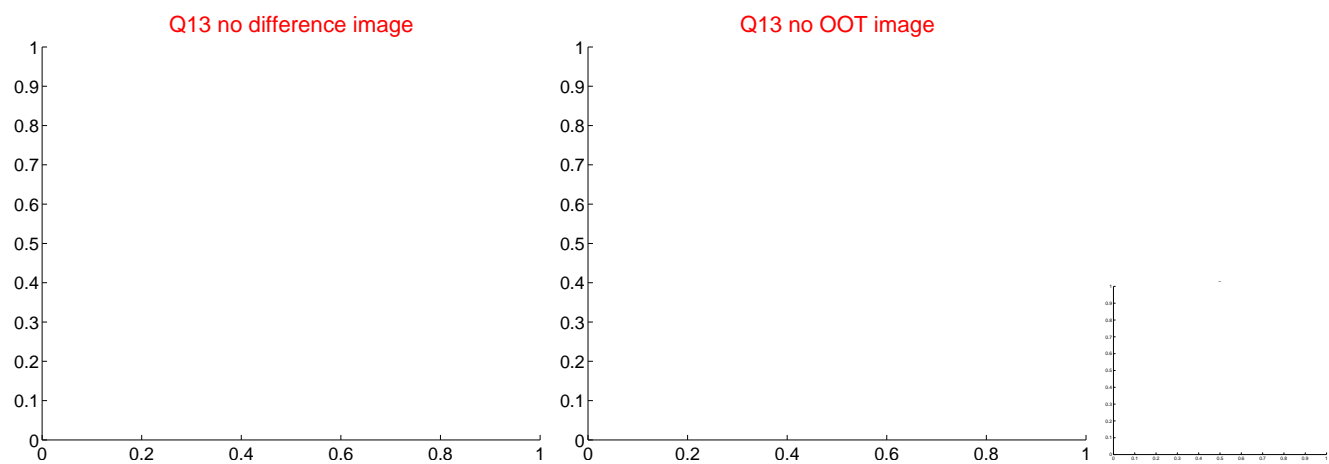
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



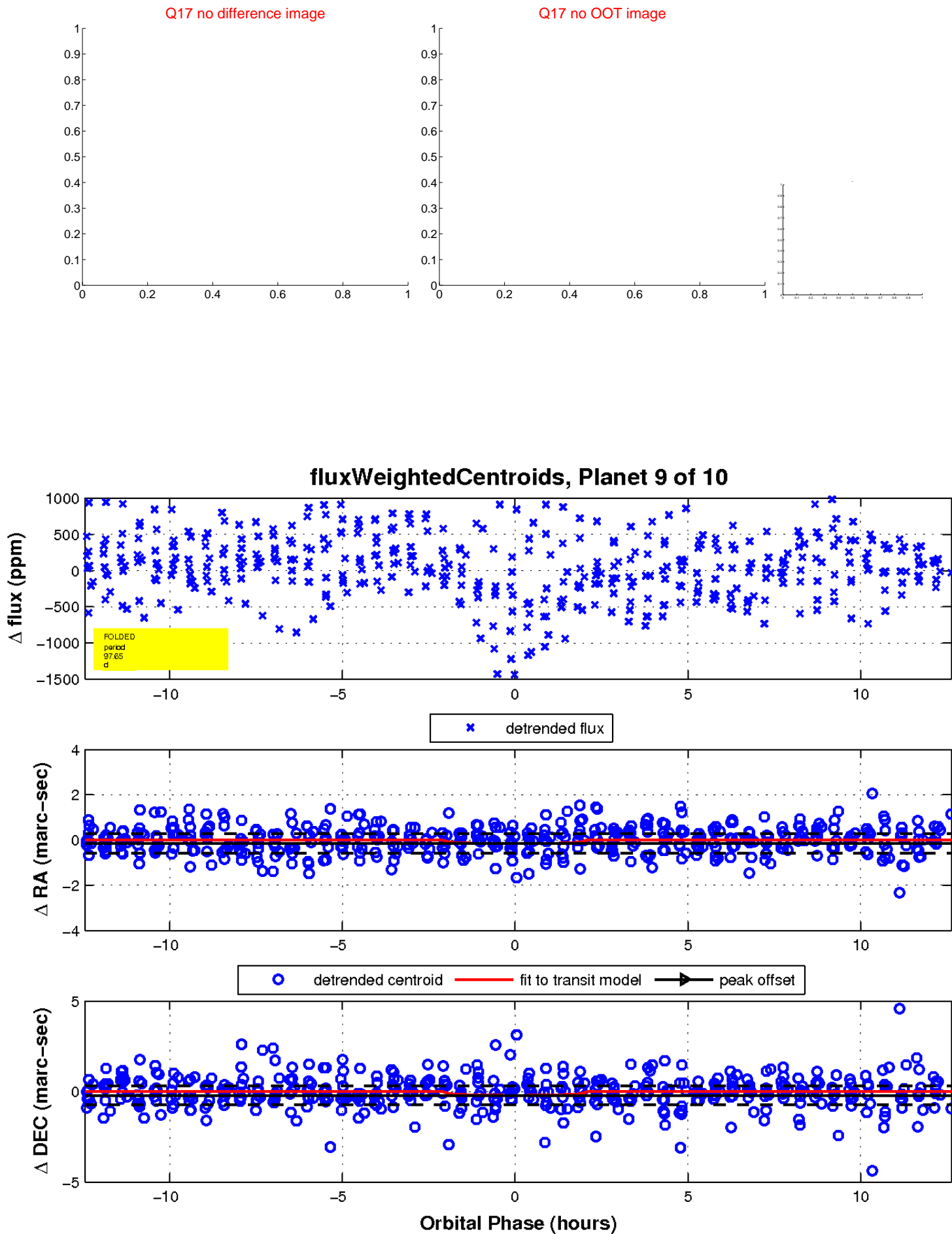
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



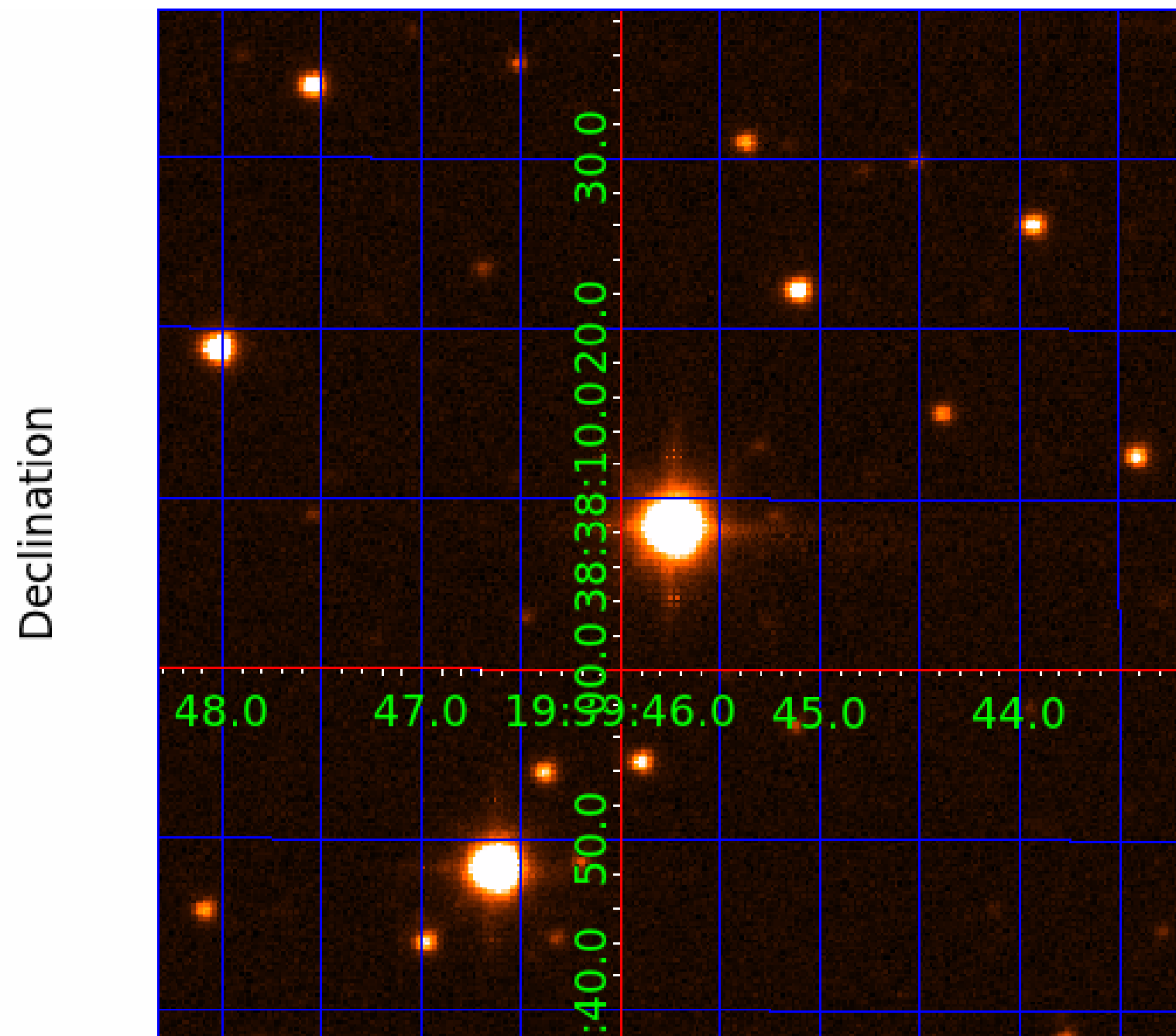
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



## KIC 003558803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003558803-01	OBS	6345.01	1.353452	131.671808	43.8	8.659	19.0	5.6	8.59	4850	5.50	0.00
003558803-02	OBS	No	26.890557	158.331830	651.3	2.791	14.3	13.0	8.59	4850	25.05	753.22
003558803-03	OBS	No	16.819263	147.638424	502.2	2.454	13.6	12.1	8.59	4850	22.79	1408.14
003558803-04	OBS	No	52.653629	145.420099	841.2	2.829	13.8	13.6	8.59	4850	30.52	307.48
003558803-05	OBS	No	109.340809	139.449797	1048.1	9.446	13.0	14.0	8.59	4850	34.72	116.06
003558803-06	OBS	No	41.807115	153.651917	851.4	5.370	13.0	12.7	8.59	4850	34.21	418.20
003558803-07	OBS	No	23.122790	154.403549	632.1	3.179	13.2	13.0	8.59	4850	42.09	921.16
003558803-08	OBS	No	8.633592	136.565481	442.3	3.706	13.1	13.5	8.59	4850	38.35	3426.10
003558803-09	OBS	No	97.651648	216.153876	1031.9	4.221	12.2	12.0	8.59	4850	27.88	134.94
003558803-10	OBS	No	15.234080	146.589122	378.5	1.500	12.3	-1.0	8.59	4850	16.19	1606.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558803-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003558803-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN—HALO_GHOST
003558803-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
003558803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNCERTAIN
003558803-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
003558803-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003558803-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003558803-10	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

**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.

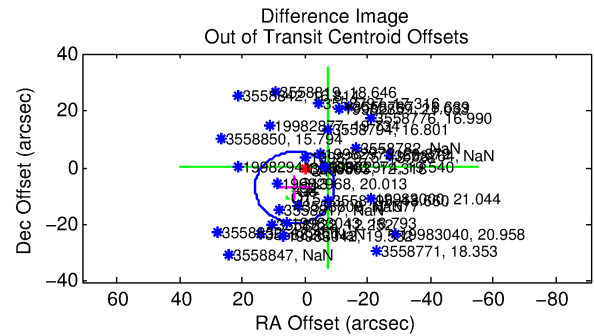
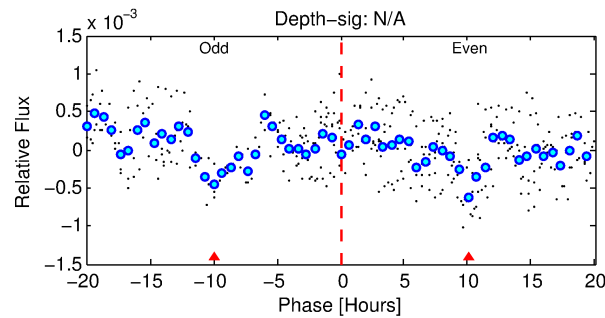
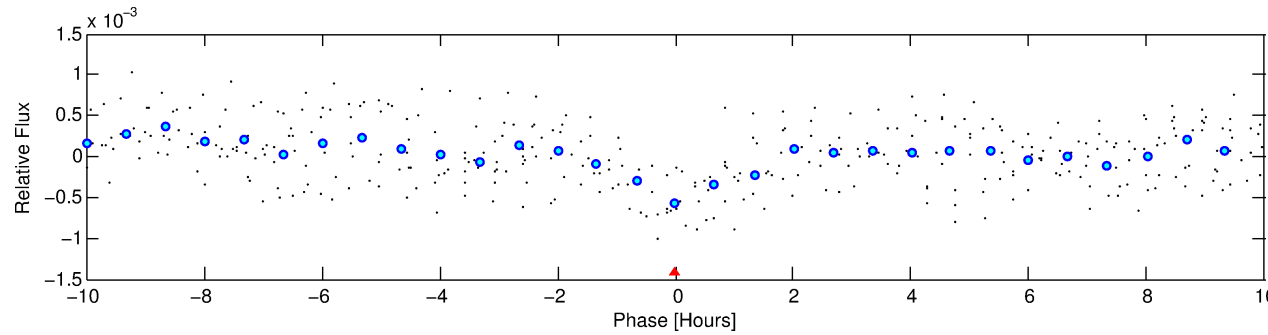
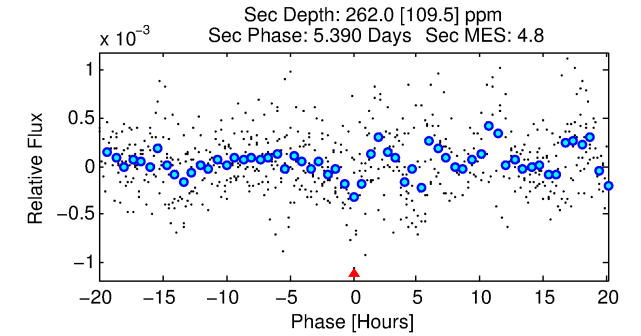
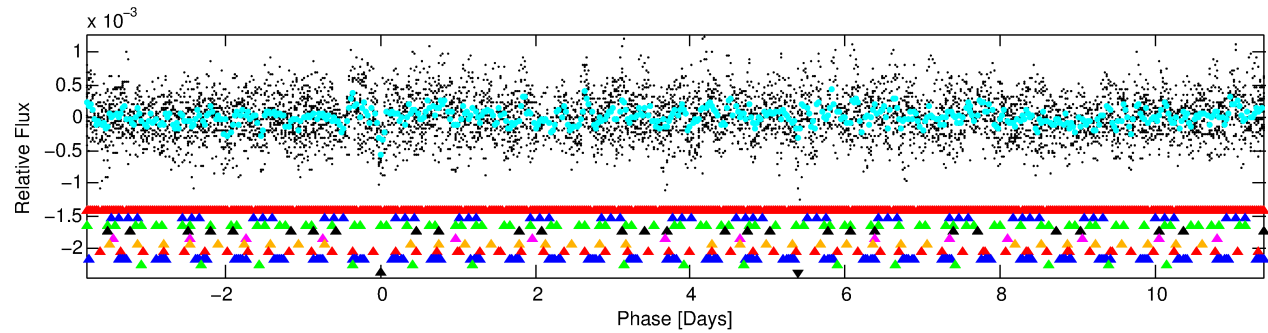
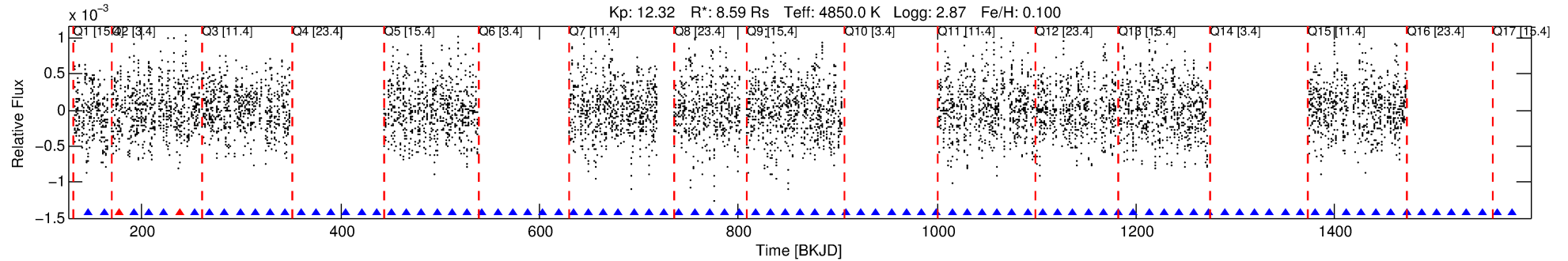
Ephemeris Match Information For 003558803-10

No Significant Match Found



# DV One-Page Summary

KIC: 3558803 Candidate: 10 of 10 Period: 15.234 d  
KOI: K06345 Corr: No Ephemeris Match



TPS TCE Results:

Period = 15.23408 d  
Epoch = 146.5891 BKJD

DV fit results are unavailable

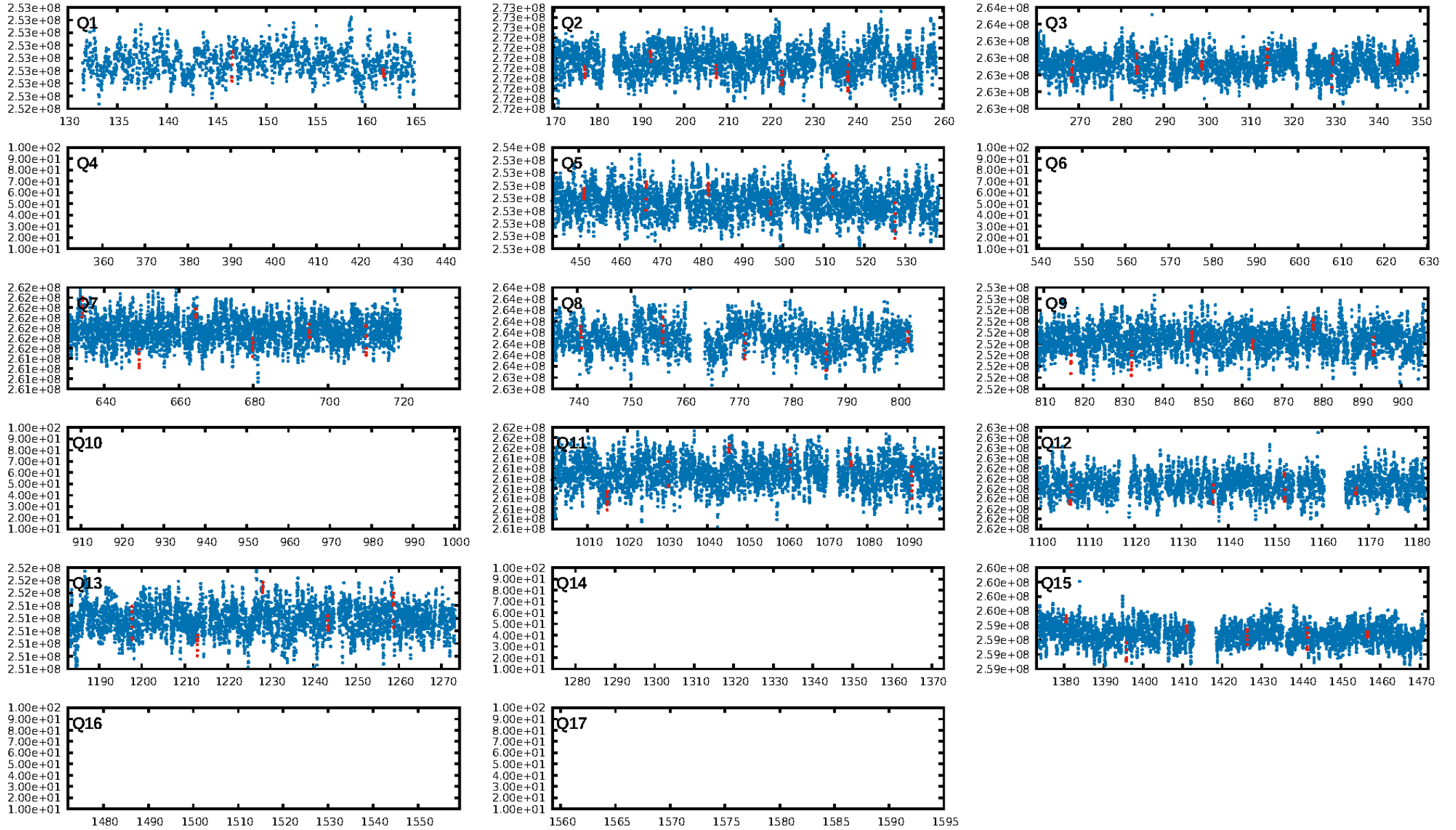
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [39.62σ]  
LongPeriod-sig: 100.0% [13.23σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.86 [12/14]  
GhostDiagnostic-chr: 0.2501  
Centroid-sig: 25.7%  
Centroid-so: 0.719 arcsec [3.27σ]  
OotOffset-rm: 7.669 arcsec [1.82σ]  
KicOffset-rm: 7.655 arcsec [1.81σ]  
OotOffset-st: 1/4/1/3 [9]  
KicOffset-st: 1/4/1/3 [9]  
DiffImageQuality-fgm: 0.78 [7/9]  
DiffImageOverlap-fno: 0.64 [7/11]

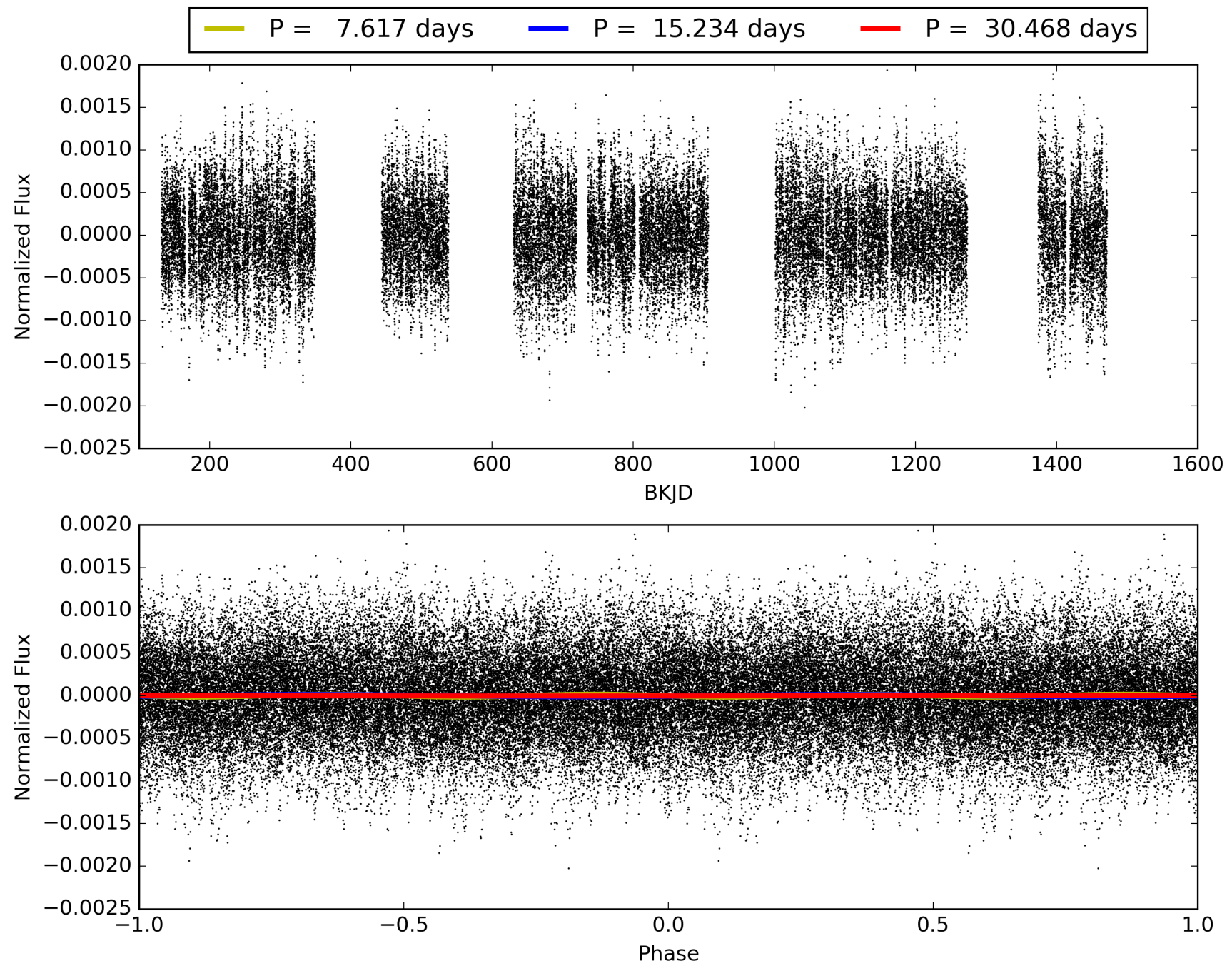
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:10:05 Z

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

# TCE 003558803-10, PDC Light Curves

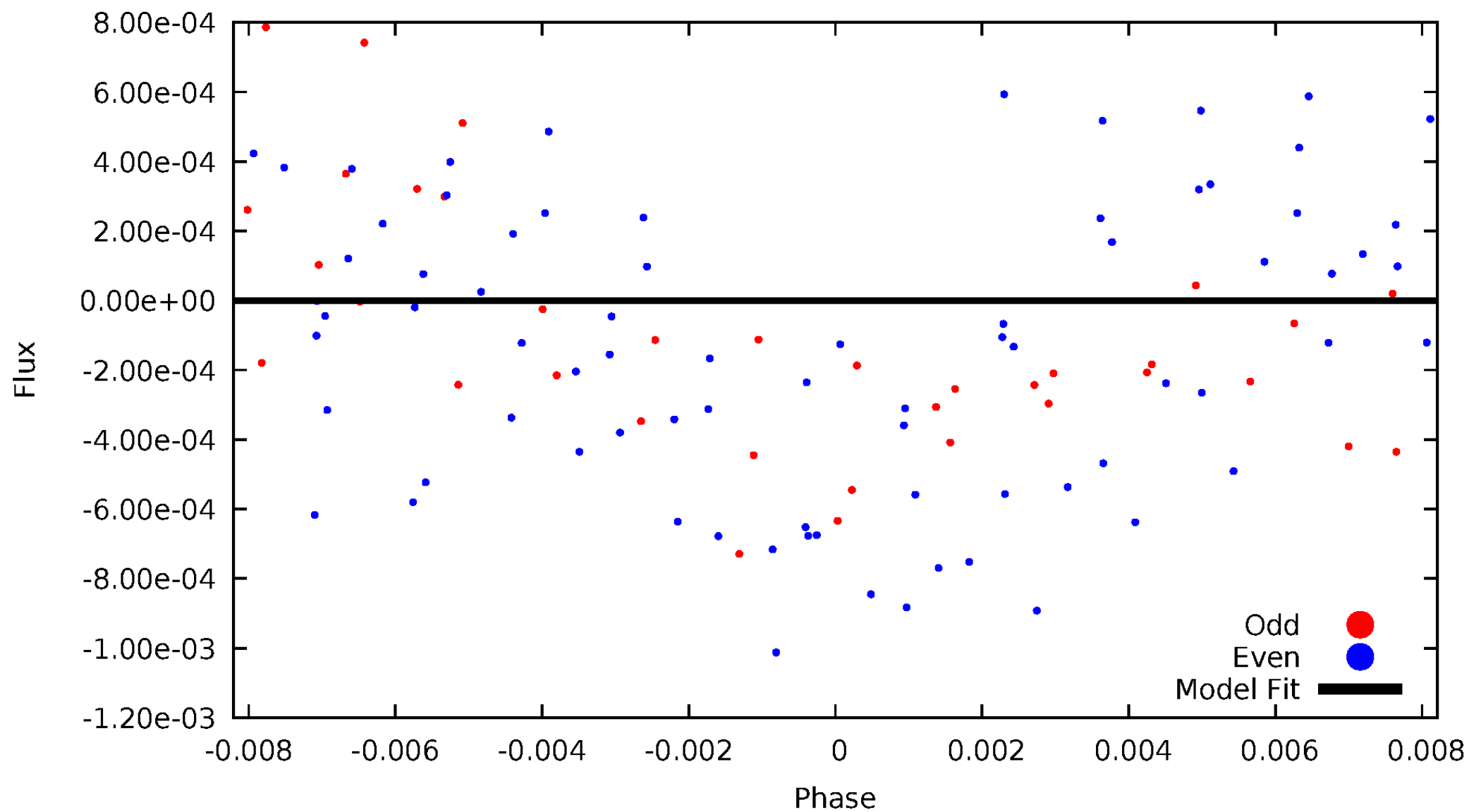


TCE 003558803-10



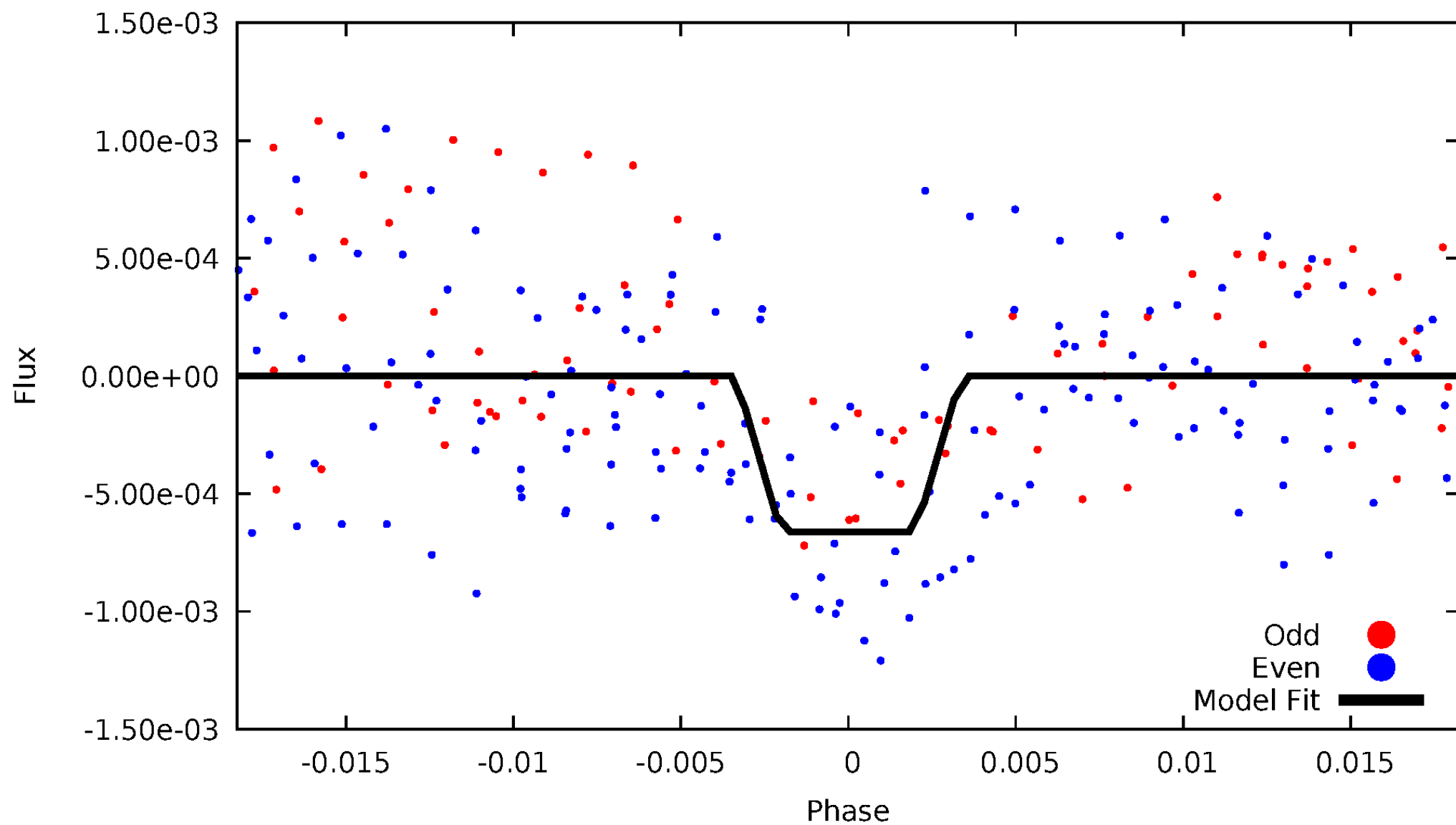
# DV Odd/Even

TCE 003558803-10



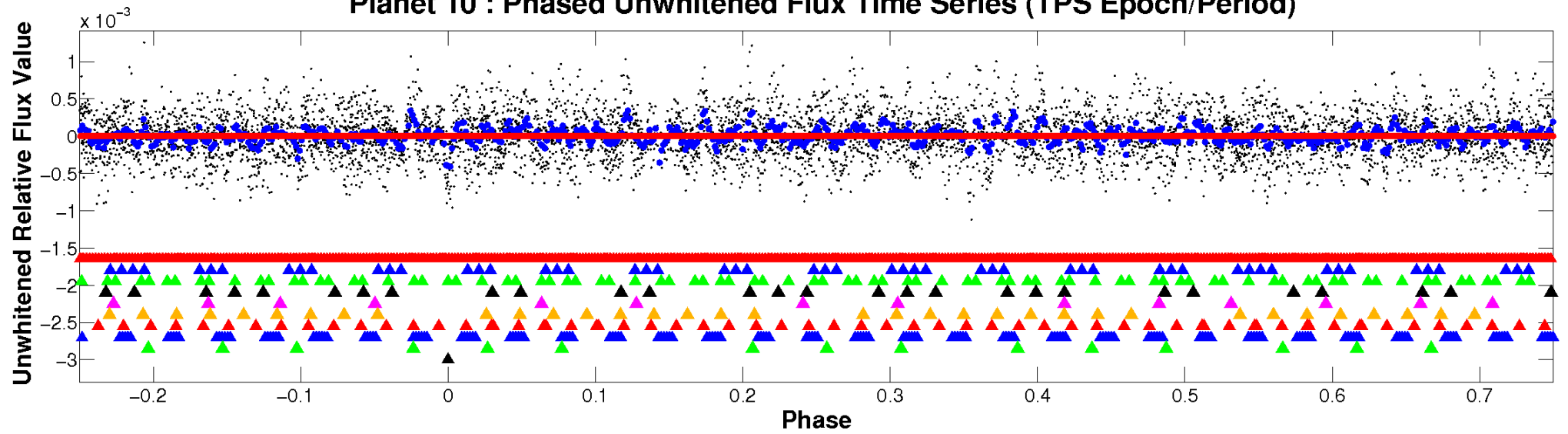
# ALT Odd/Even

TCE 003558803-10

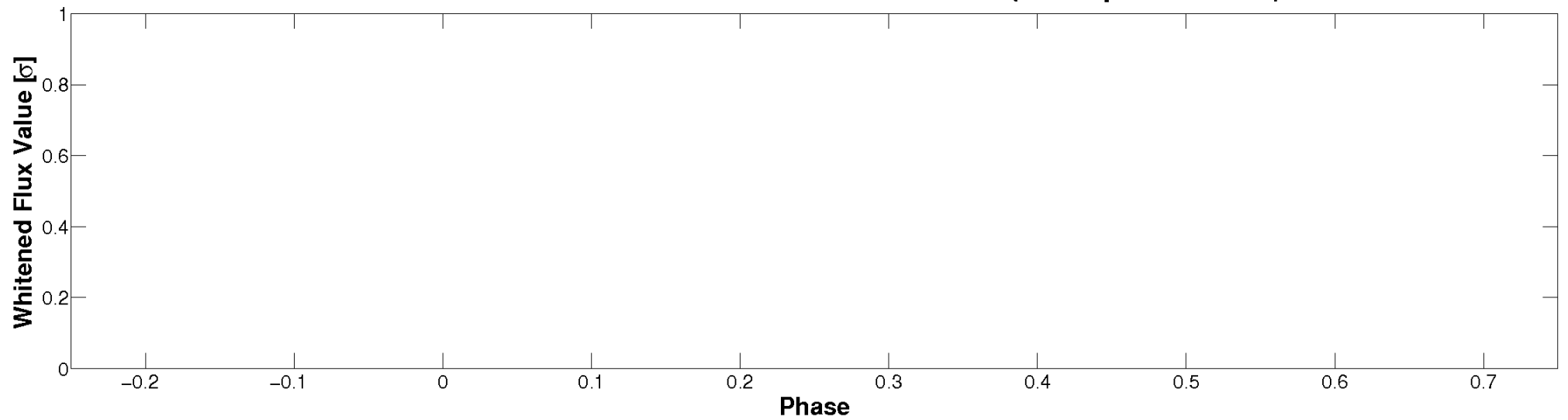


# Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

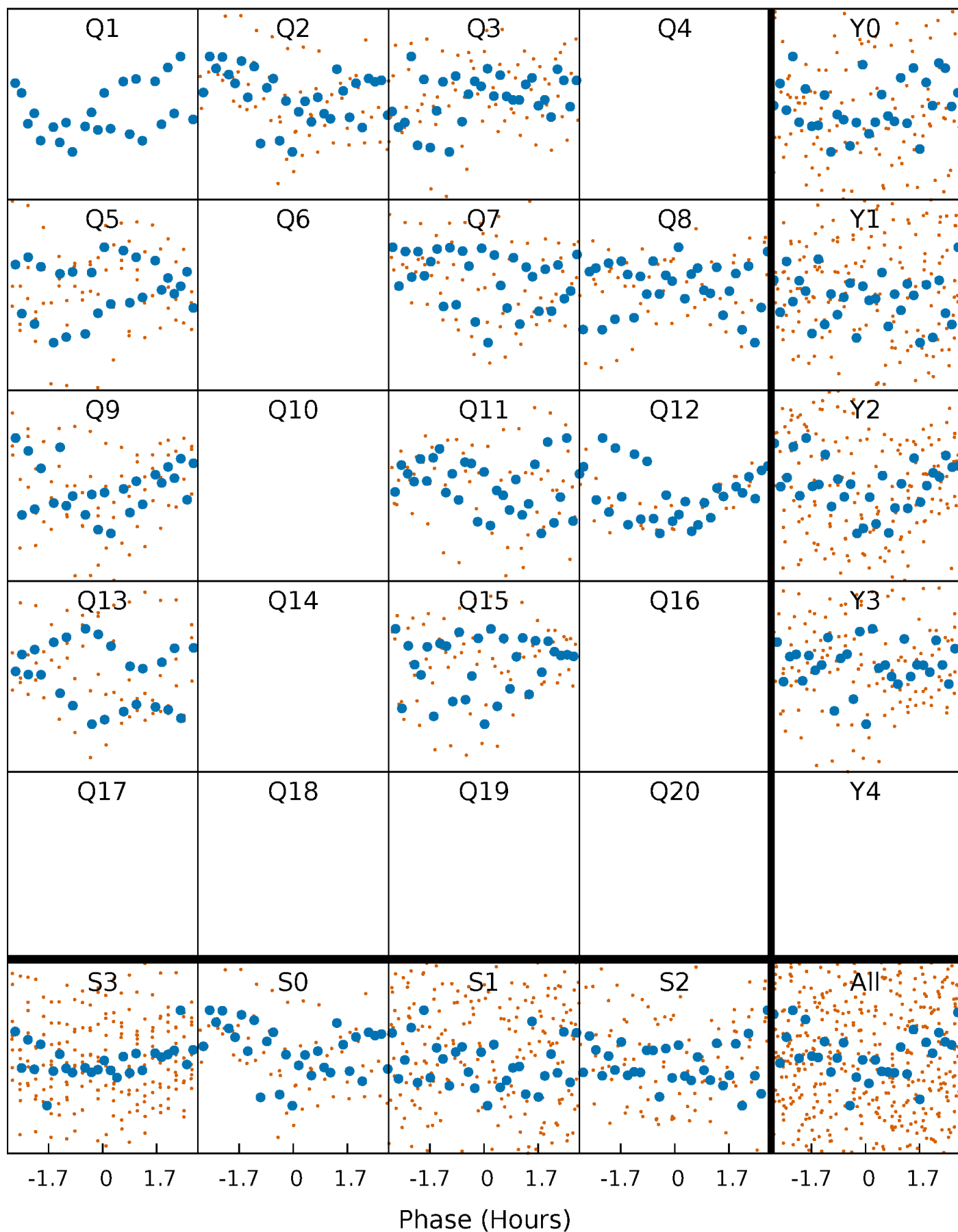


Planet 10 : Phased Whitened Flux Time Series (TPS Epoch/Period)



# PDC Quarter-Phased Transit Curves

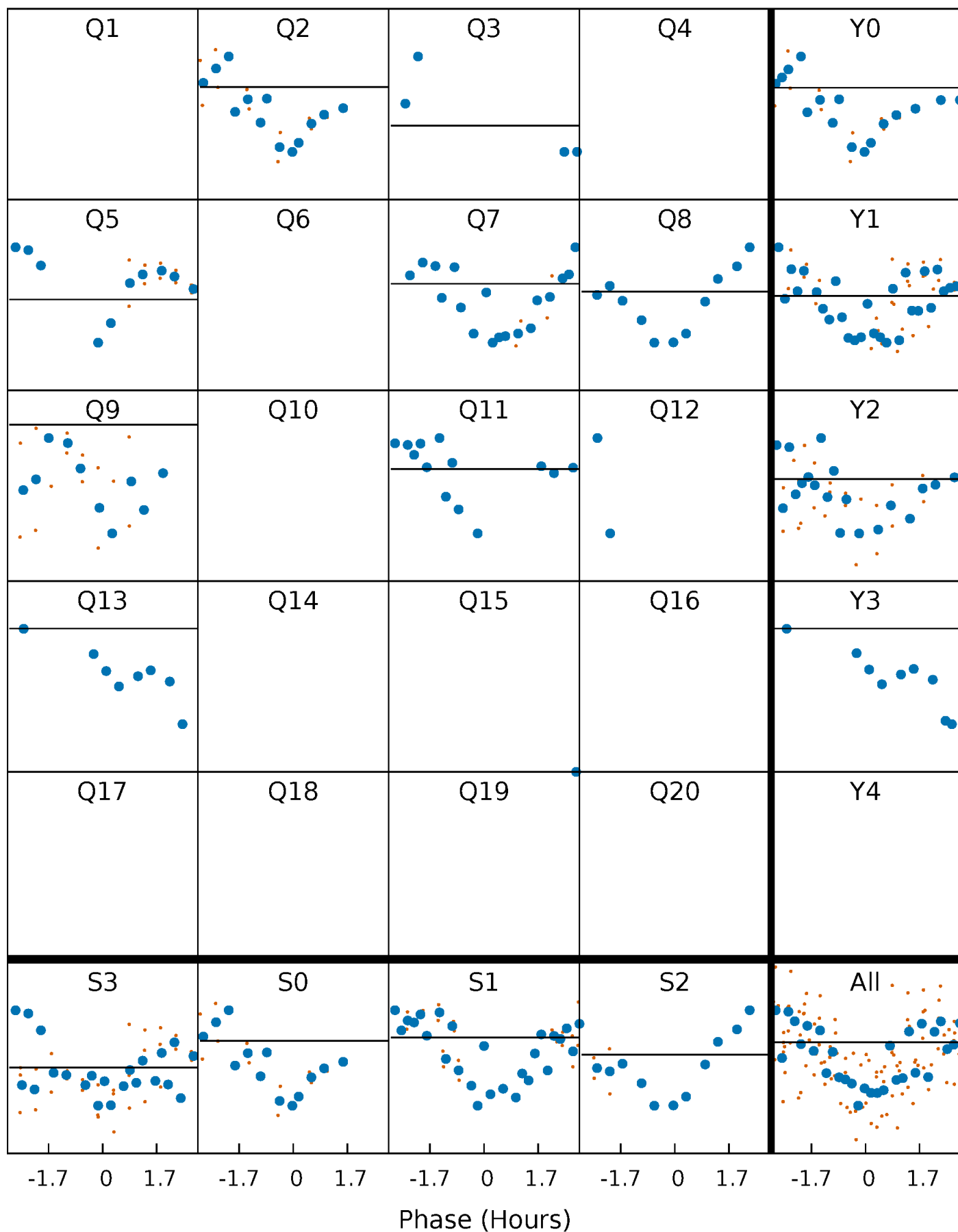
TCE 003558803-10 P= 15.234080 Days  $T_0=146.589122$  (BKJD)





# DV Quarter-Phased Transit Curves

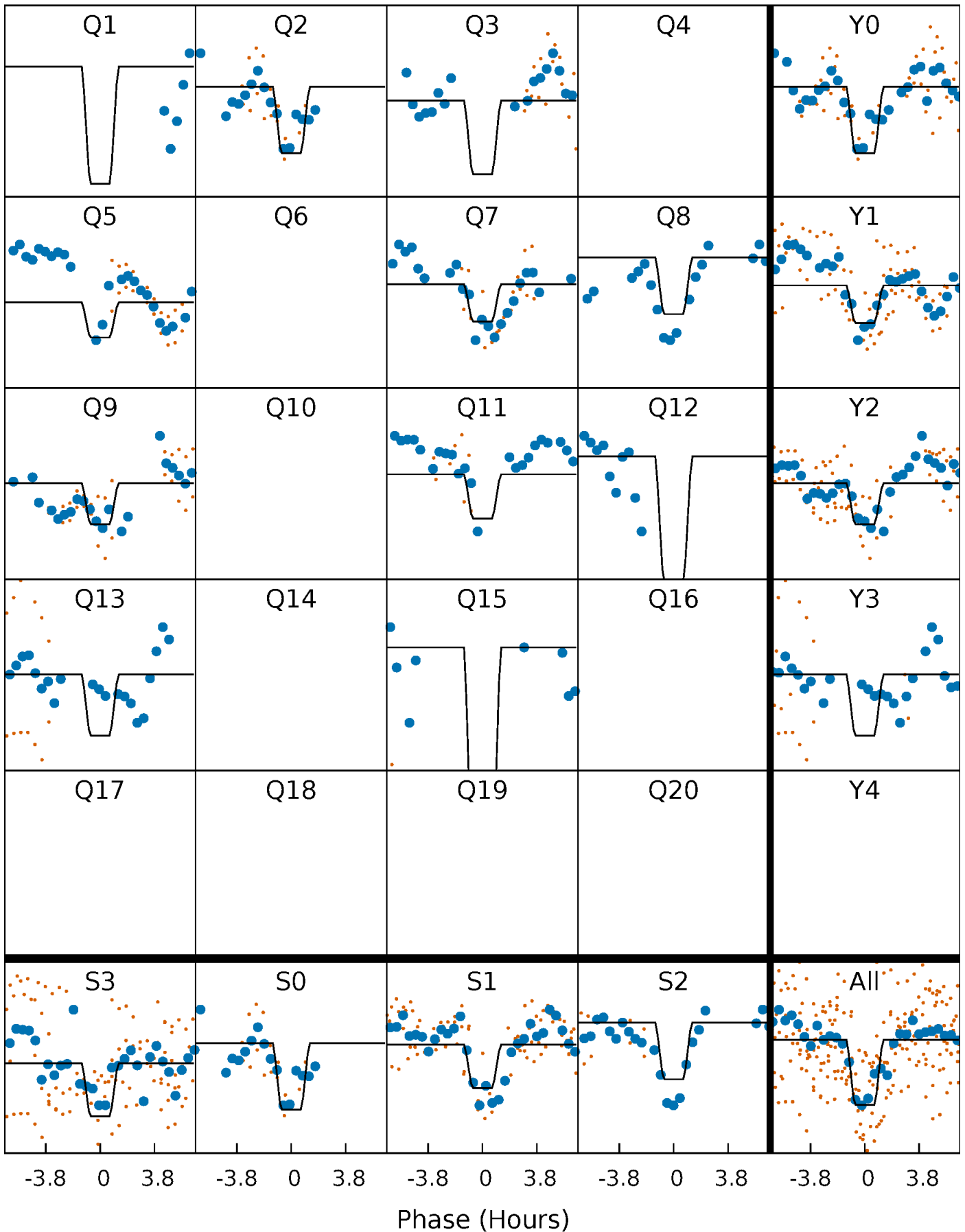
TCE 003558803-10 P= 15.234080 Days  $T_0=146.589122$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

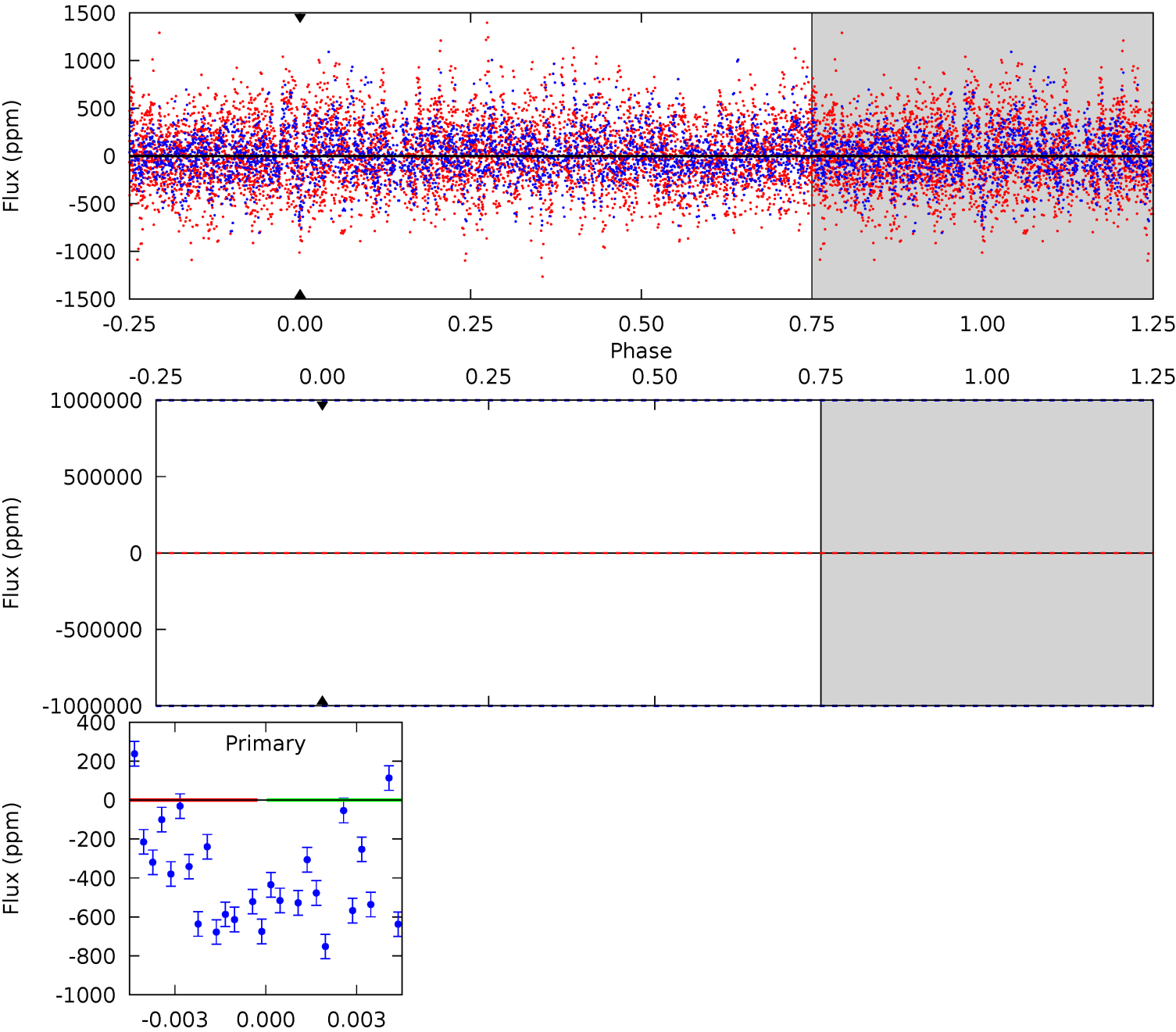
TCE 003558803-10 P= 15.234080 Days  $T_0=146.589219$  (BKJD)



DV Model-Shift Uniqueness Test

003558803-10, P = 15.234080 Days, E = 131.355042 Days

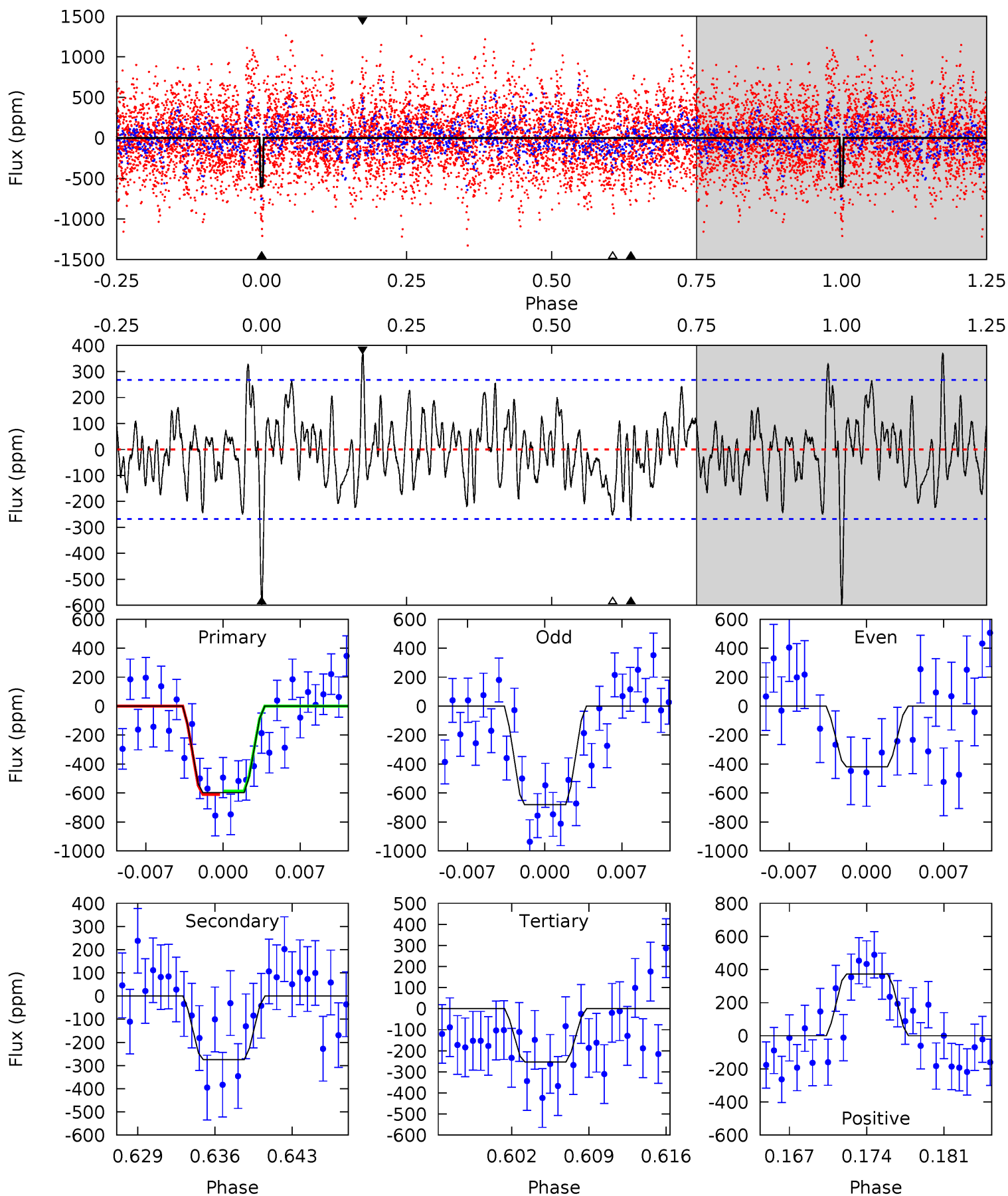
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

003558803-10,  $P = 15.234080$  Days,  $E = 131.355139$  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
11.4	5.24	4.82	7.11	5.10	2.71	2.00	6.59	4.30	0.42	-1.87	2.34	1.15	0.38	0.22



### Stellar Parameters For KIC 003558803

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4850^{+95}_{-143}$	$2.865^{+0.225}_{-0.164}$	$0.100^{+0.200}_{-0.300}$	$8.586^{+2.199}_{-3.024}$	$1.969^{+0.734}_{-0.897}$	$0.004^{+0.008}_{-0.002}$
	+2%/-3%	+8%/-6%	+200%/-300%	+26%/-35%	+37%/-46%	+175%/-41%
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 003558803-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$65.85^{+80.49}_{-45.94}$	$2250^{+170}_{-191}$	$4351^{+10730}_{-17045}$	$8.567^{+647.483}_{-383.282}$
Alt.	$-275 \pm 52$	$67.71^{+79.83}_{-46.81}$	$2230^{+171}_{-163}$	$2721^{+1459}_{-5091}$	$0.727^{+6.963}_{-0.566}$

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

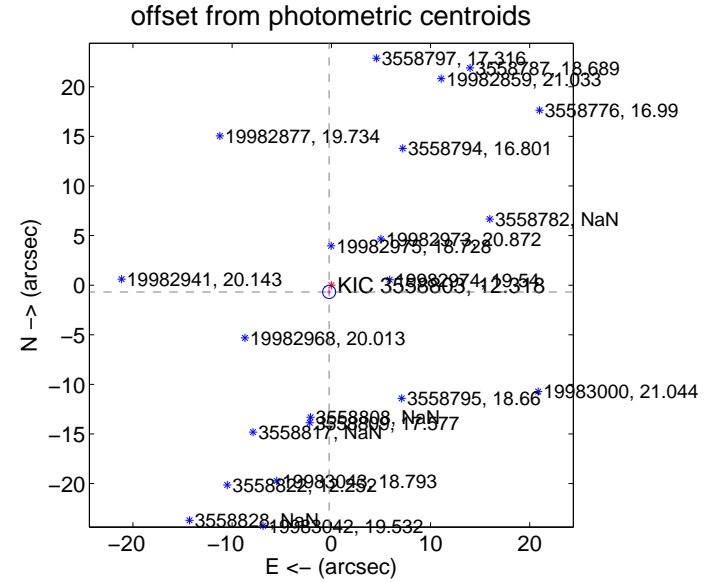
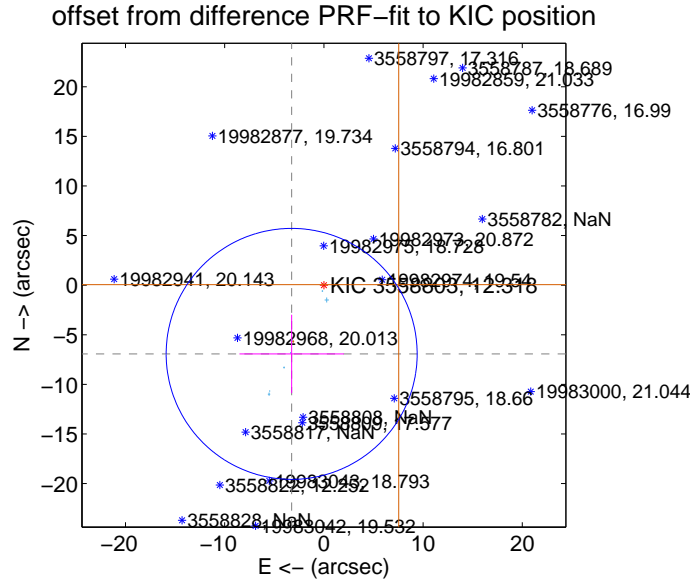
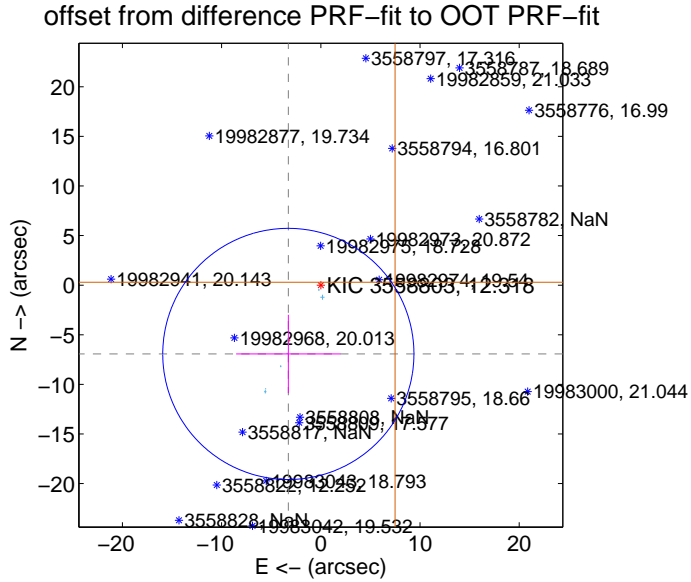
## DV Centroid Data

Supplemental centroid analysis for 003558803-10. Kepler magnitude: 12.32. Transit SNR -1.00

There are 7 quarters with good PRF difference image offsets

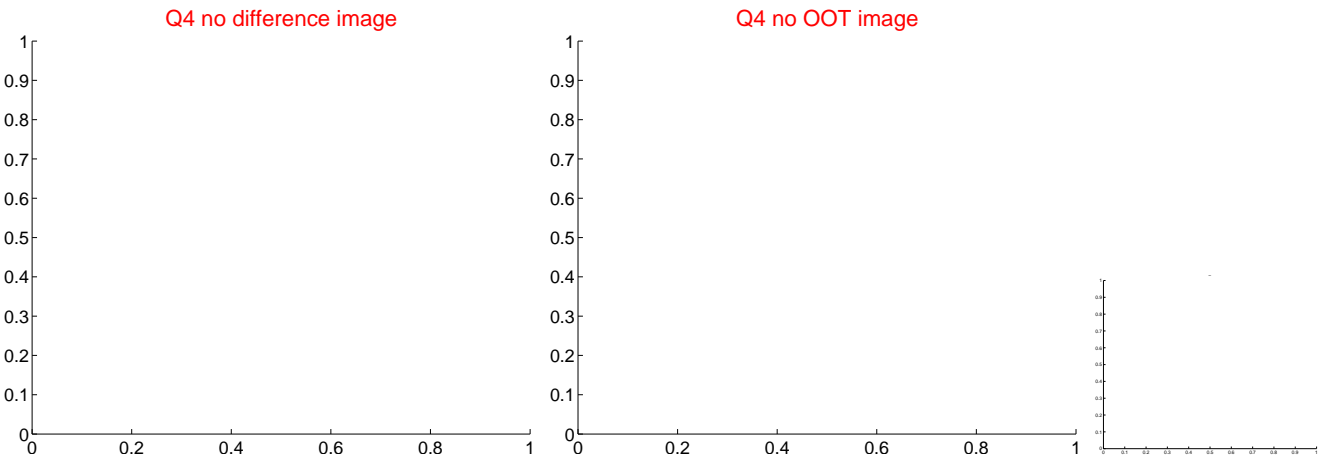
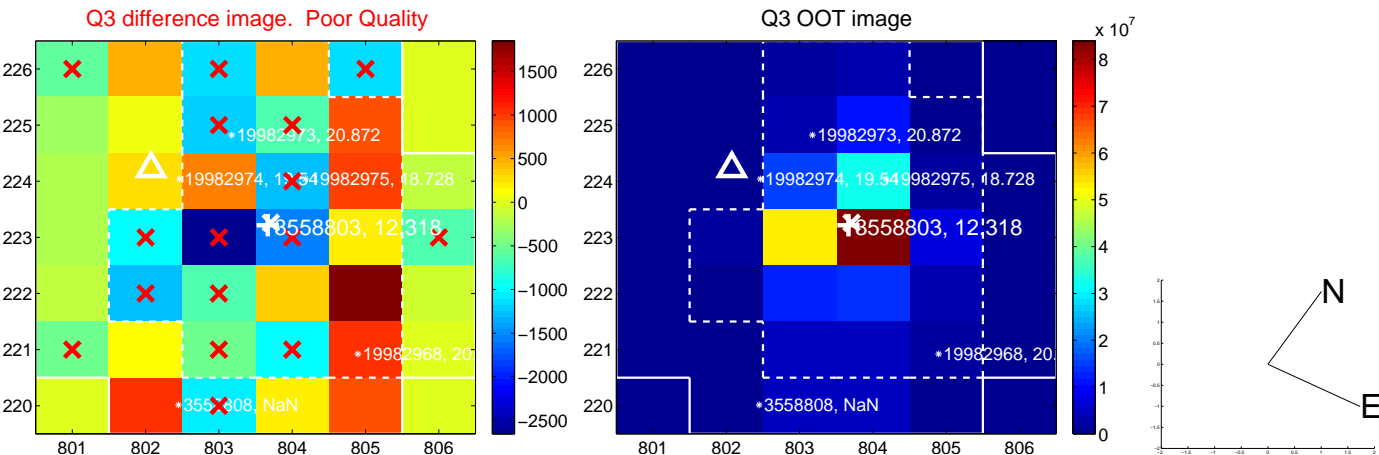
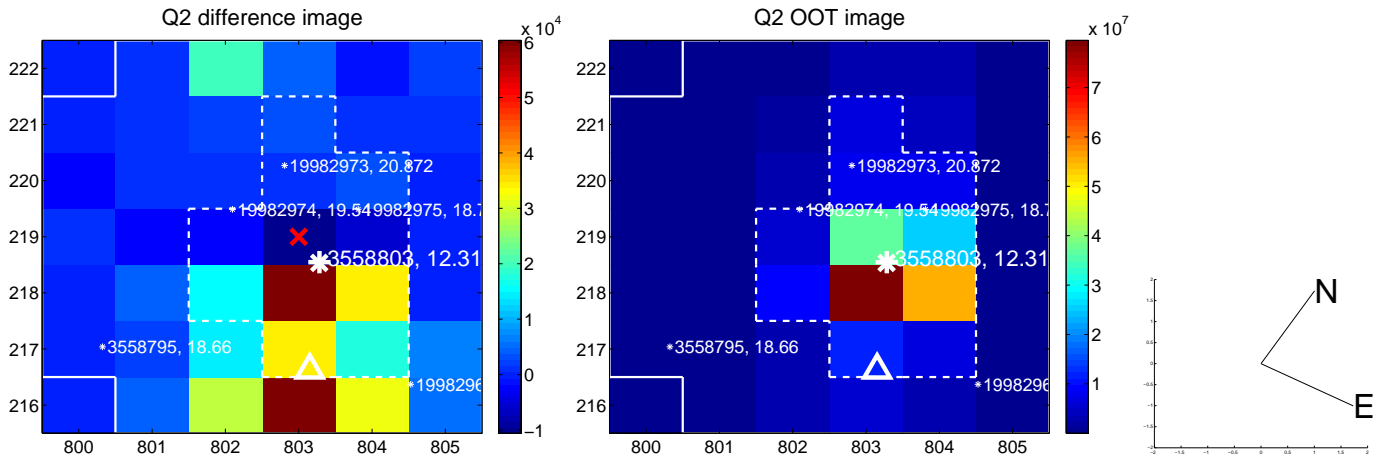
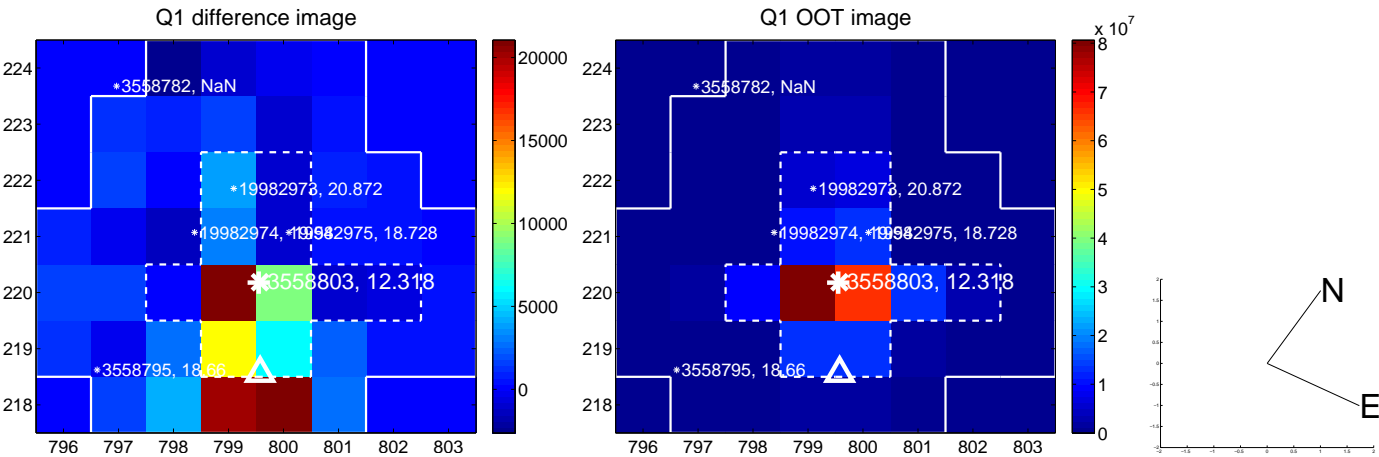
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$7.669 \pm 4.221$	1.82	$3.274 \pm 5.262$	$-6.934 \pm 3.952$
PRF-fit source offset from KIC position	$7.655 \pm 4.218$	1.81	$3.250 \pm 5.262$	$-6.931 \pm 3.952$
photometric centroid source offset	$0.72 \pm 0.22$	3.27	$0.22 \pm 0.21$	$-0.68 \pm 0.22$

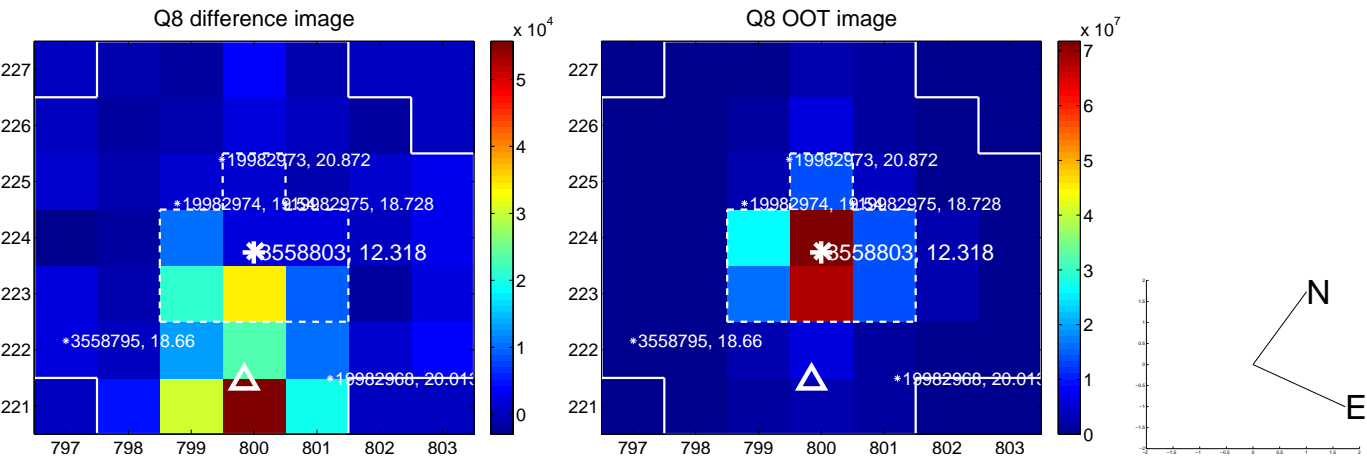
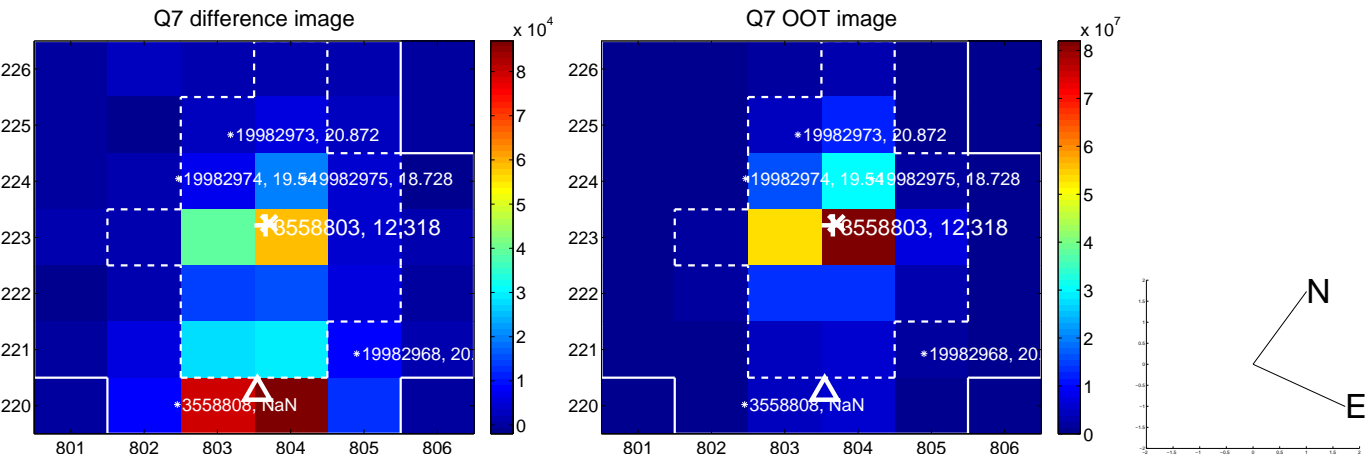
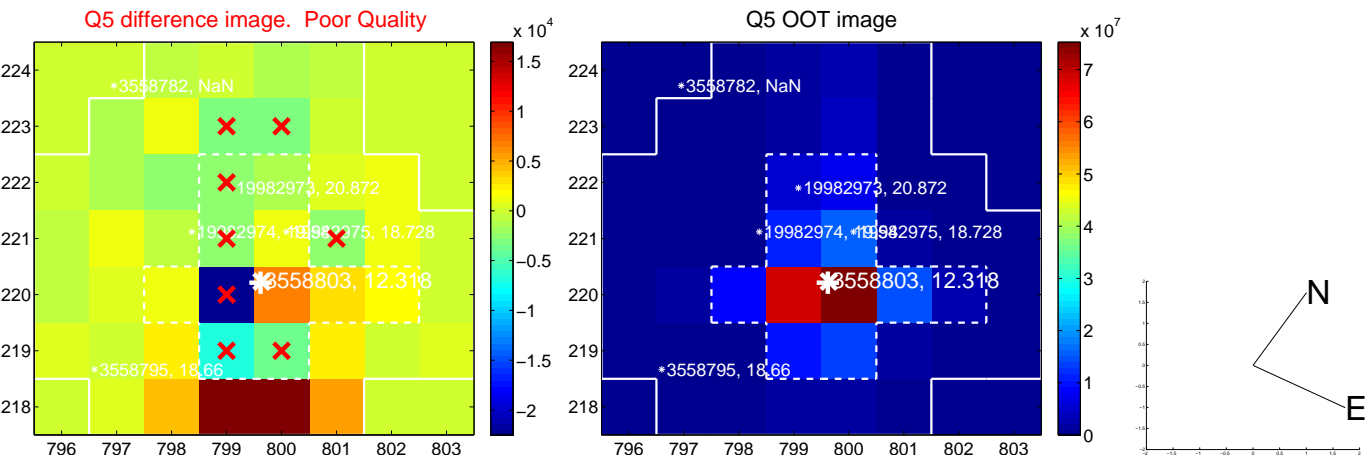


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

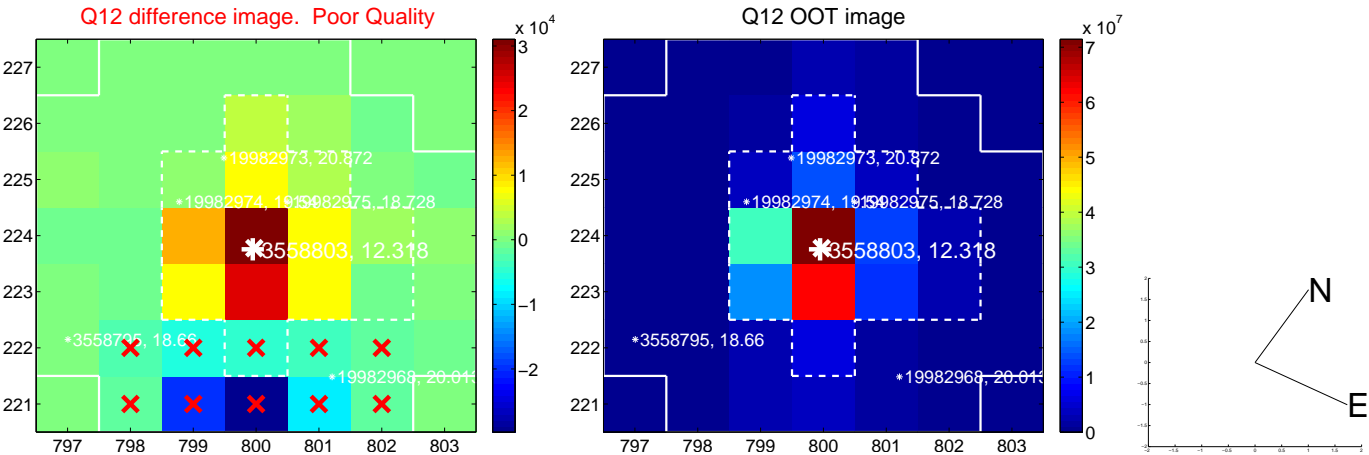
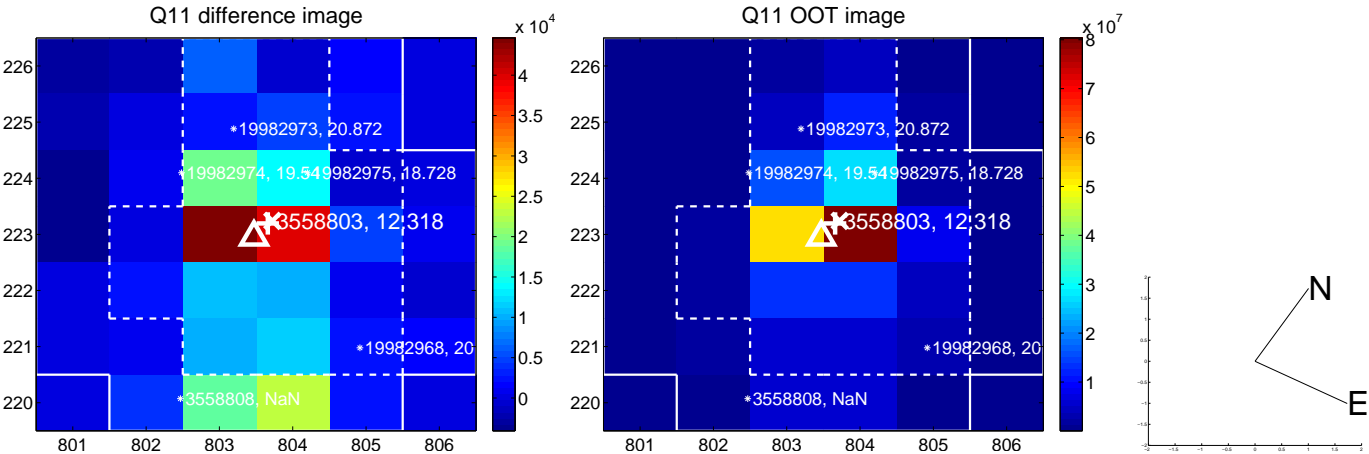
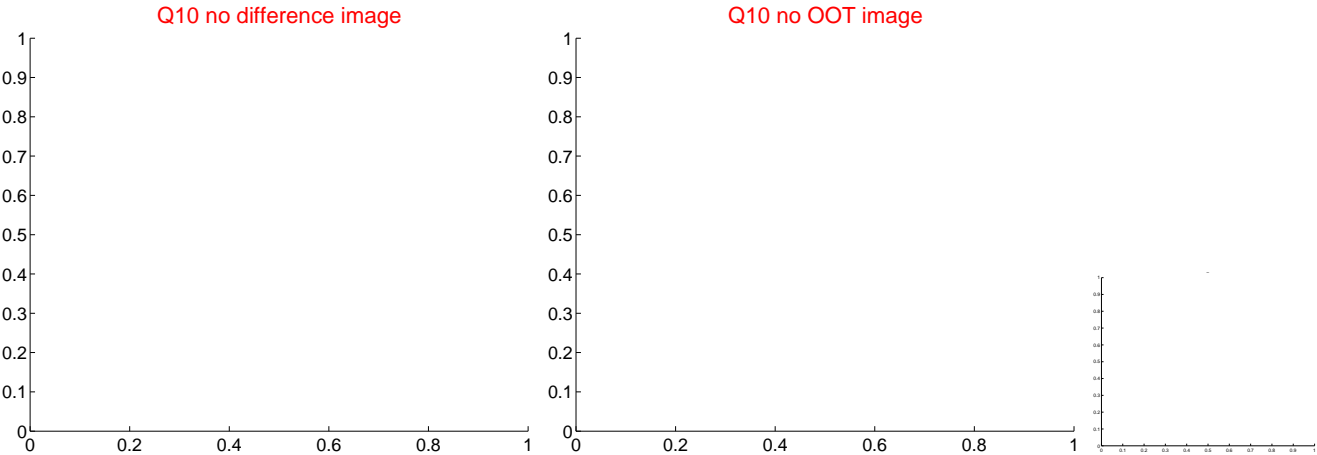
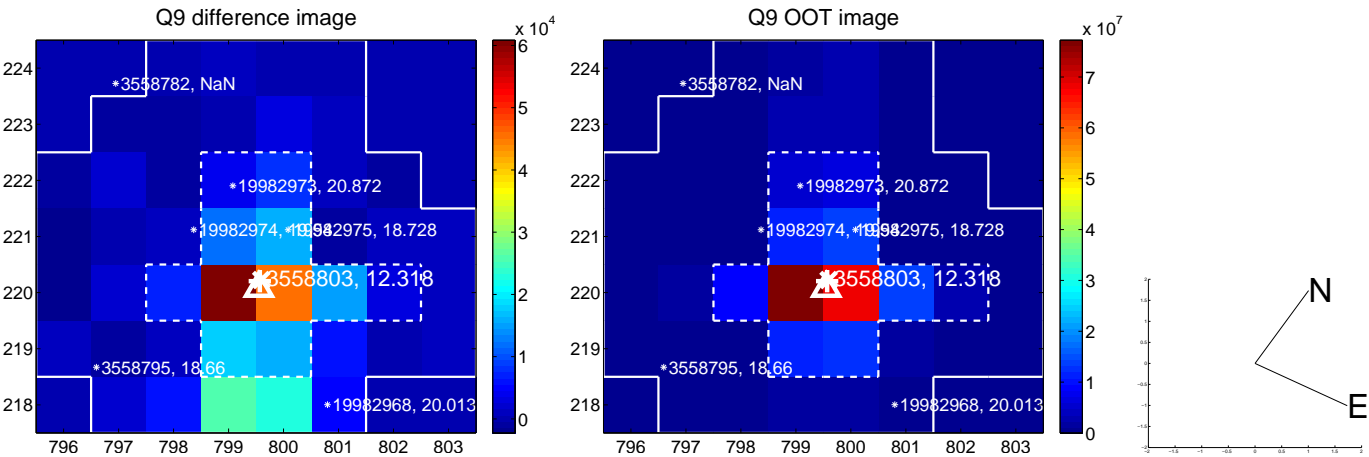
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

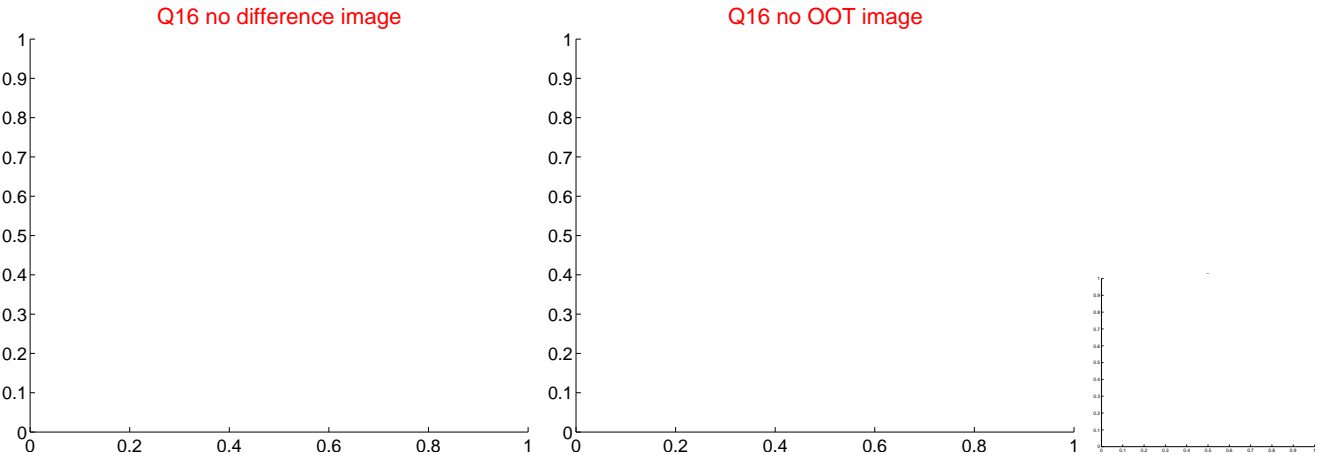
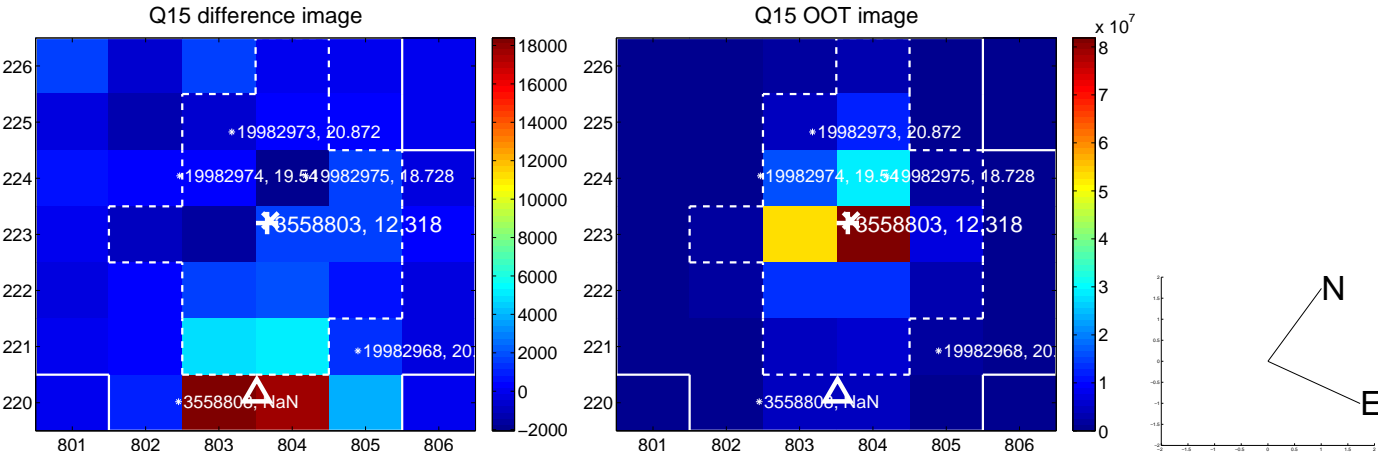
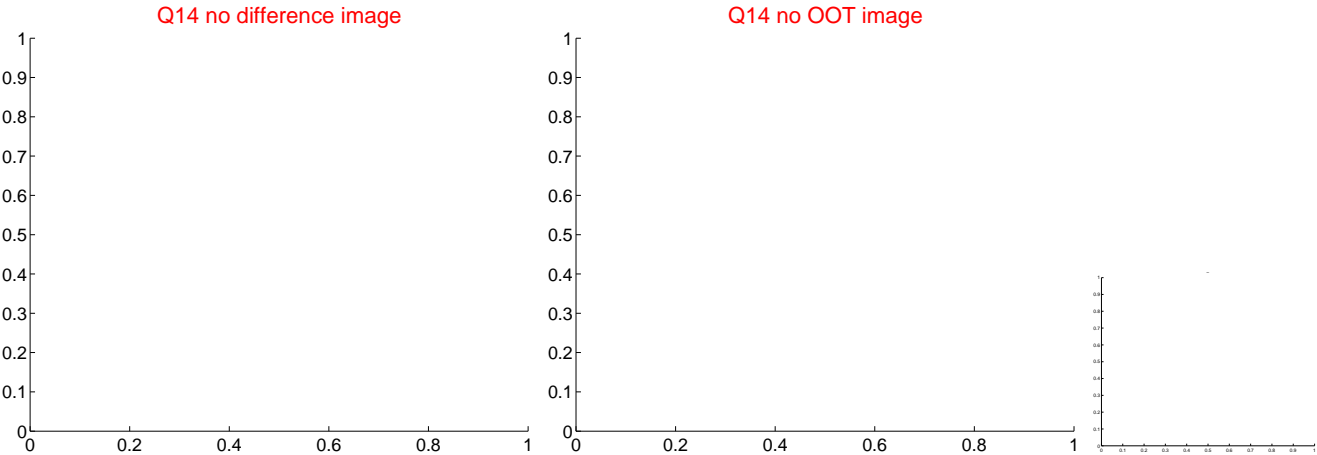
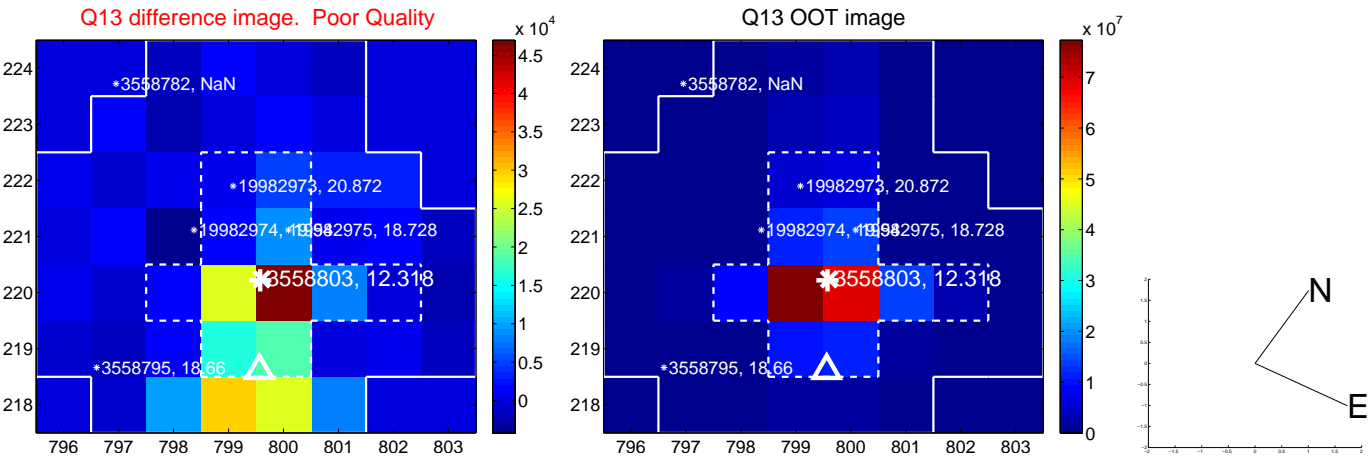


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

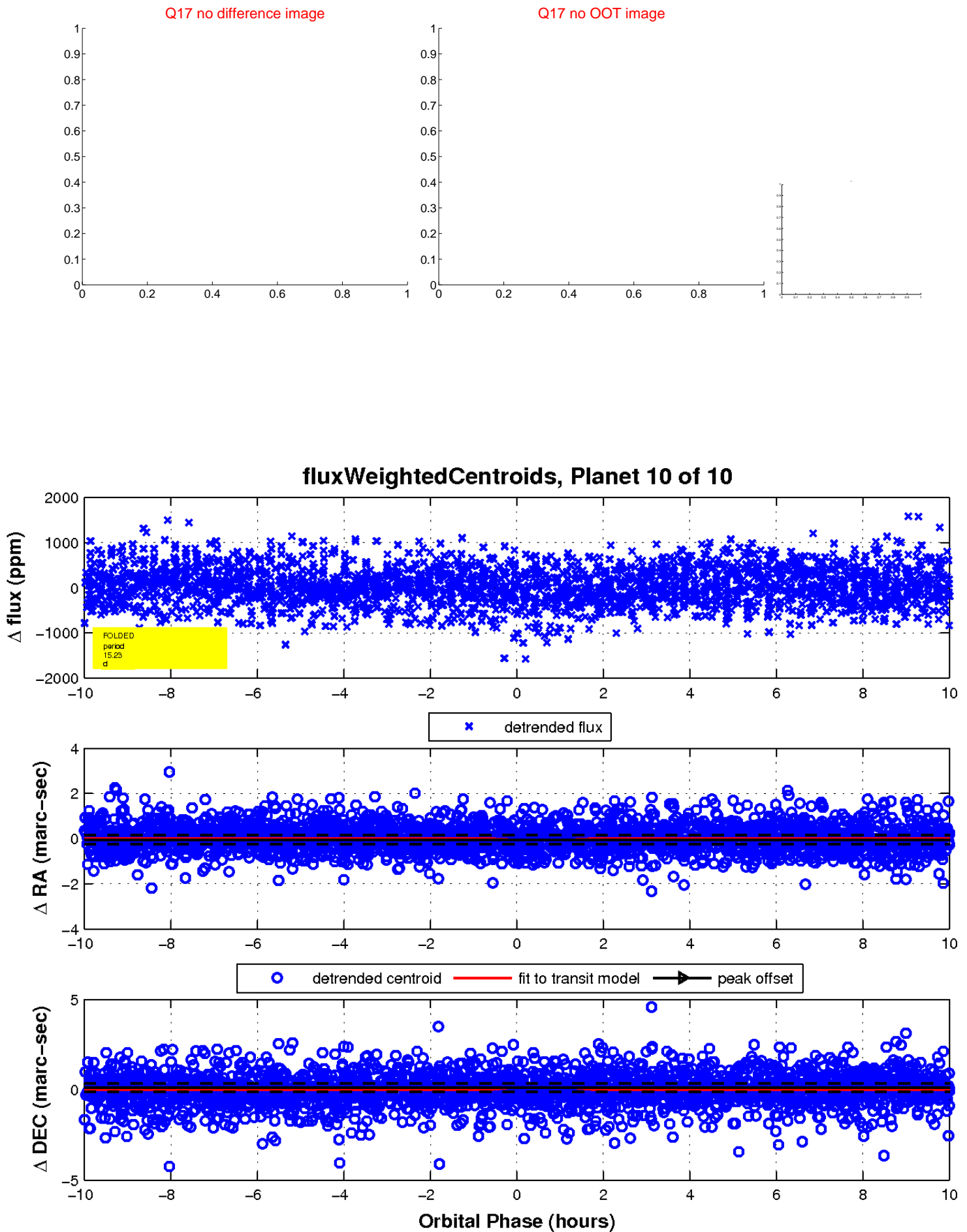




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

