

# KIC 003118883

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003118883-01	OBS	No	603.459346	135.638734	1024.9	7.687	19.7	8.4	0.83	5381	2.80	0.32
003118883-02	OBS	No	458.550863	153.883195	913.6	13.938	14.5	6.3	0.83	5381	2.47	0.46
003118883-03	OBS	No	557.173161	427.535440	967.2	11.644	13.4	6.8	0.83	5381	2.54	0.35
003118883-04	OBS	No	359.142867	185.656760	818.0	3.951	12.8	8.2	0.83	5381	2.38	0.64
003118883-06	OBS	No	446.771002	561.572670	982.8	11.451	9.7	7.8	0.83	5381	3.32	0.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003118883-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003118883-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003118883-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
003118883-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003118883-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

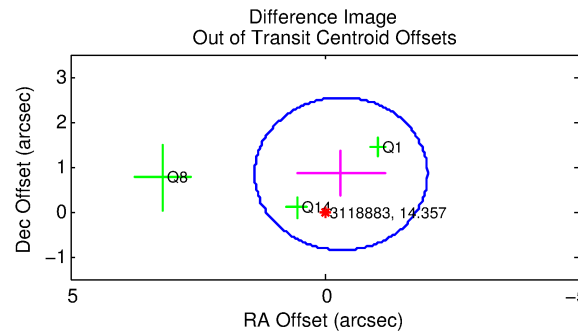
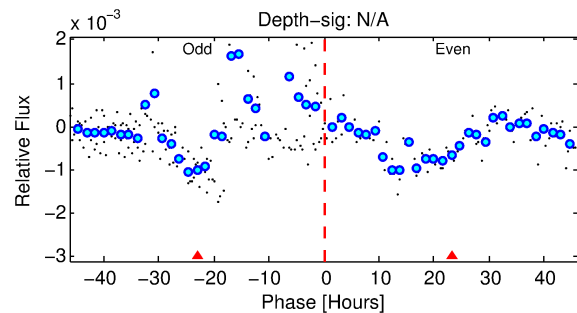
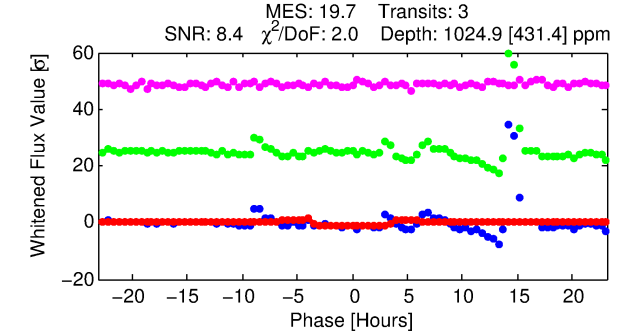
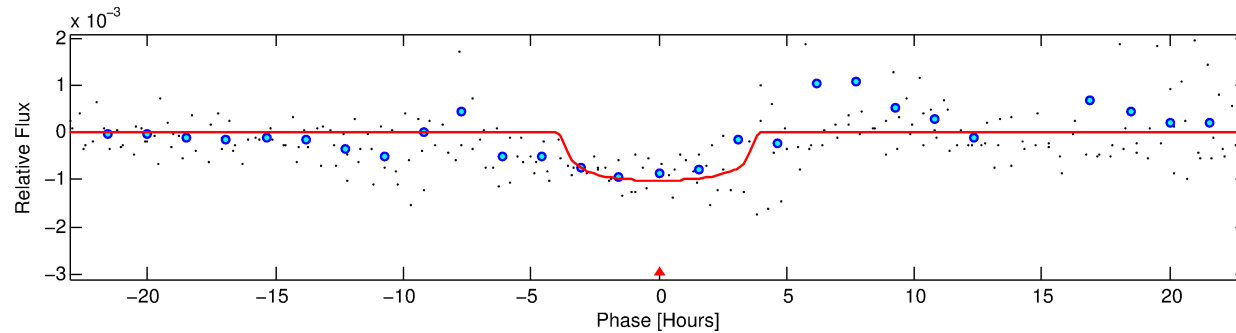
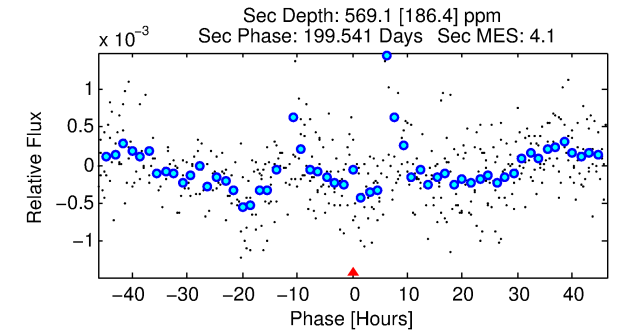
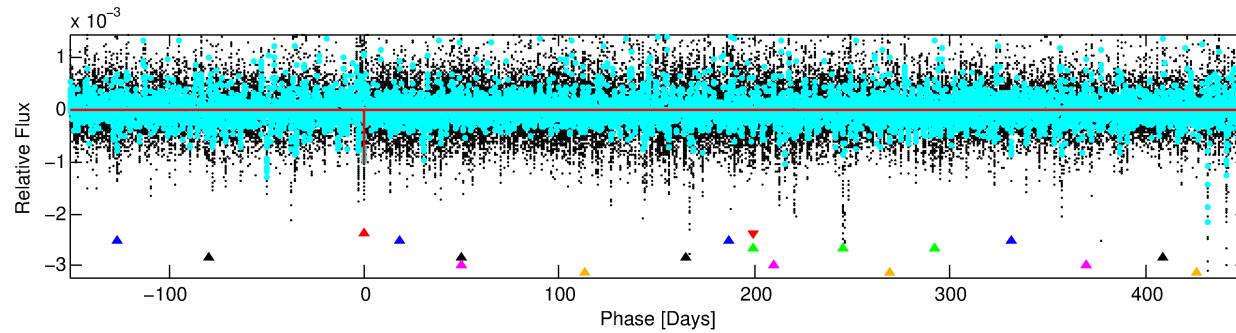
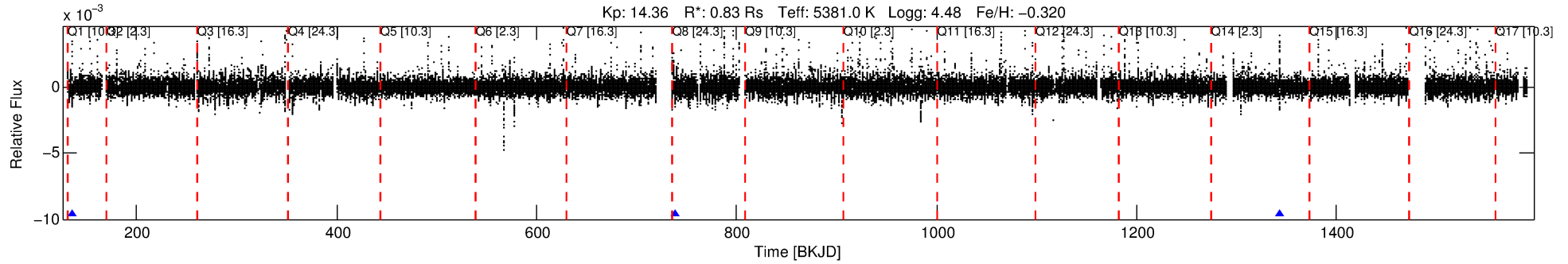
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003118883-01

No Significant Match Found

# DV One-Page Summary

KIC: 3118883 Candidate: 1 of 6 Period: 603.459 d



## DV Fit Results:

Period = 603.45935 [0.01932] d  
Epoch = 135.6387 [0.0245] BKJD  
Rp/R\* = 0.0310 [0.0280]  
a/R\* = 470.51 [1613.02]  
b = 0.67 [2.84]  
Seff = 0.32 [0.08]  
Teq = 192 [12] K  
Rp = 2.80 [2.57] Re  
a = 1.2700 [0.1757] AU  
Ag = 64553.94 [119500.80] [0.54σ]  
Teffp = 4721 [2175] K [2.08σ]

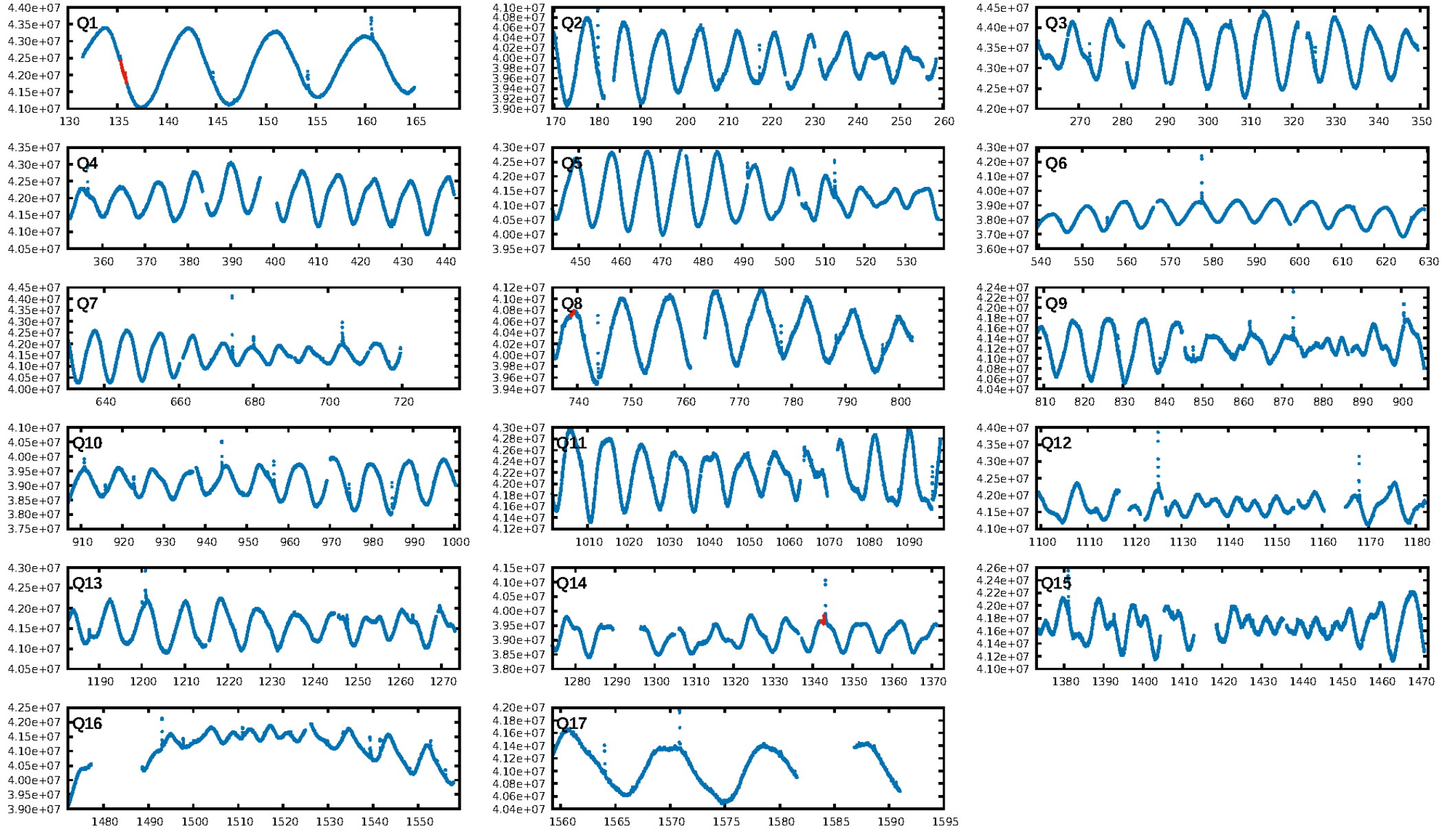
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [79.62σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.8%  
ModelChiSquareGof-sig: 81.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2/2]  
**GhostDiagnostic-chr: 0.3508**  
Centroid-sig: 7.5%  
Centroid-so: 0.379 arcsec [0.65σ]  
OotOffset-rm: 0.902 arcsec [1.59σ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-rm: 0.898 arcsec [1.52σ]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

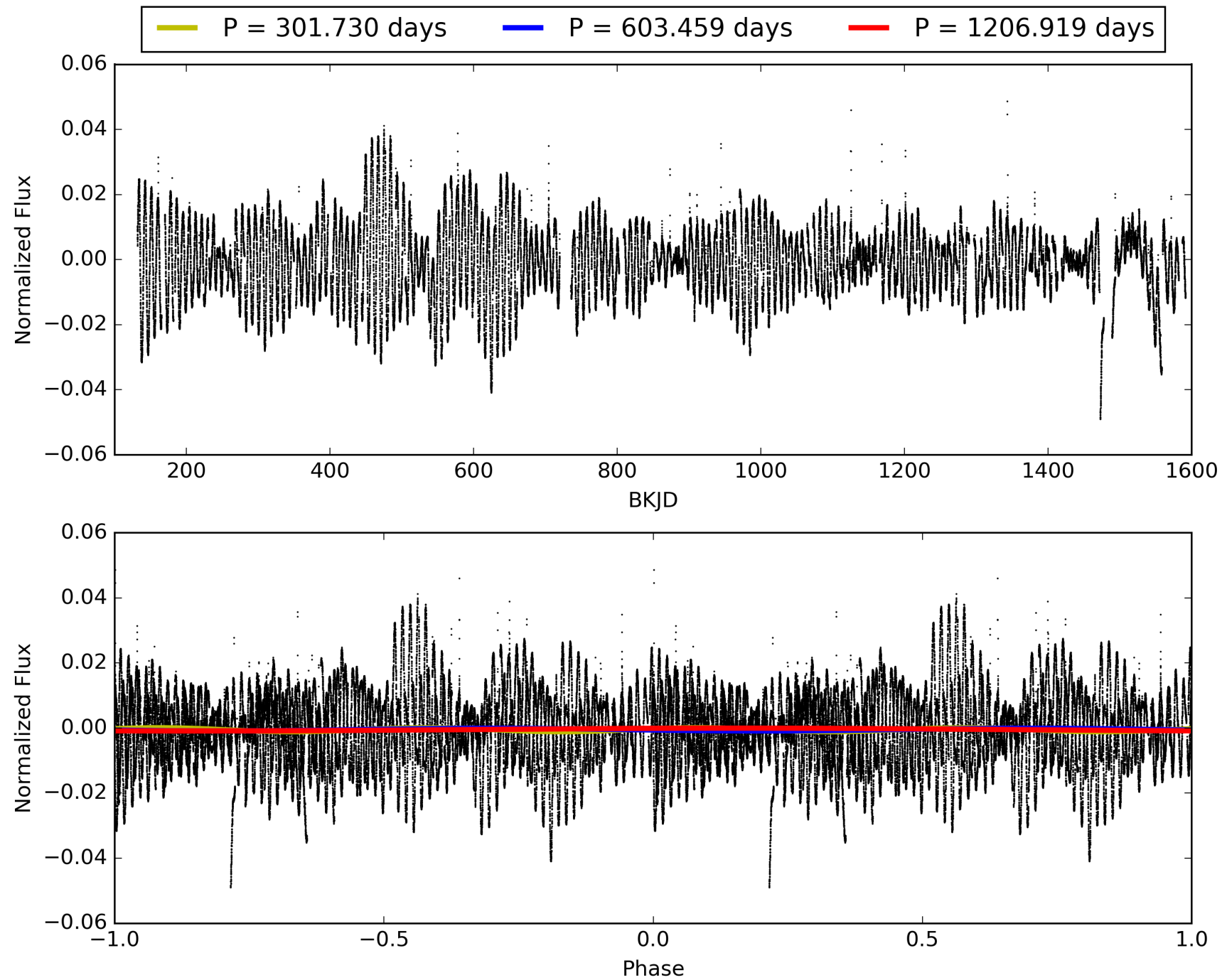
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:22:15 Z

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

# TCE 003118883-01, PDC Light Curves



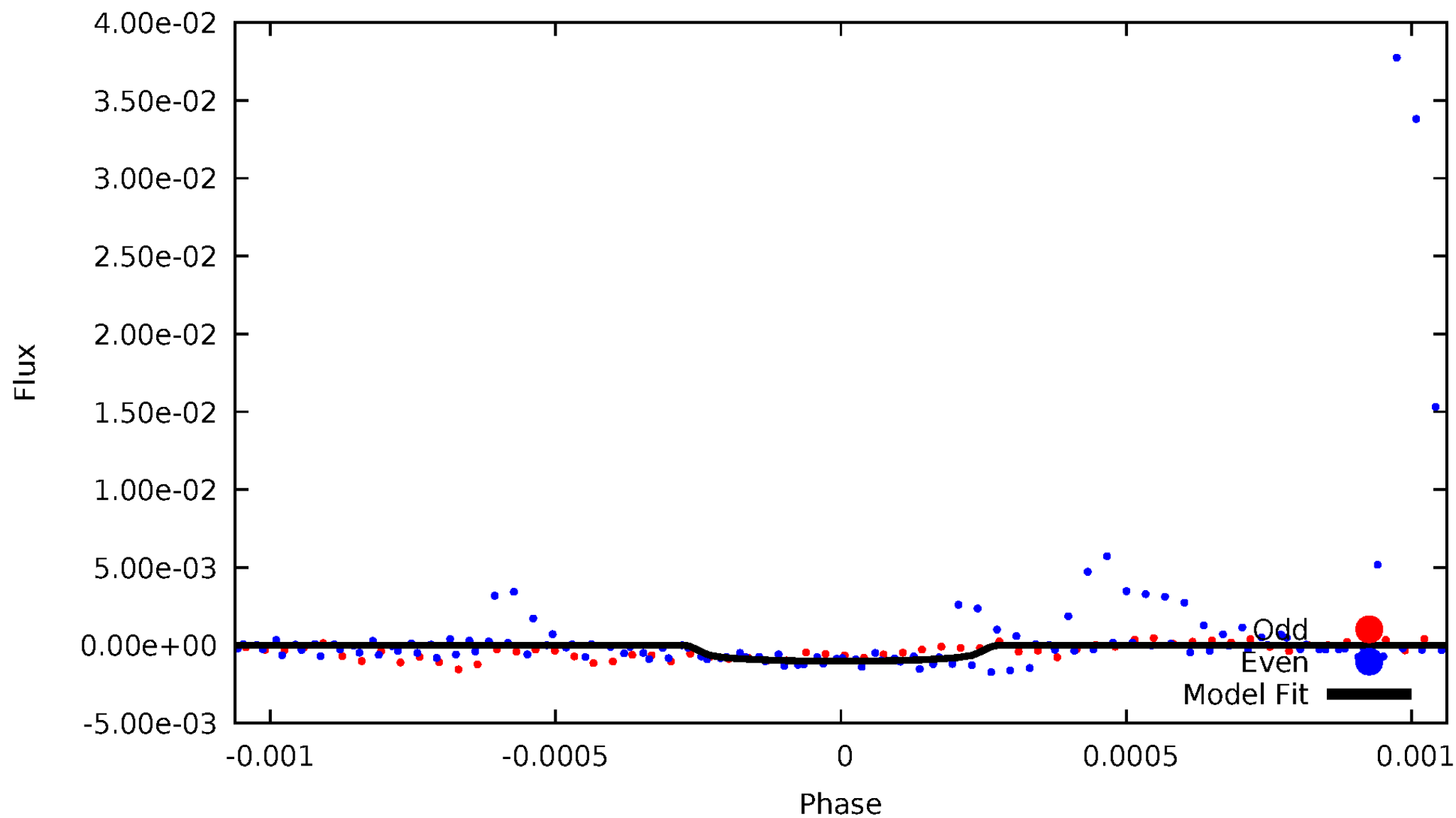
TCE 003118883-01





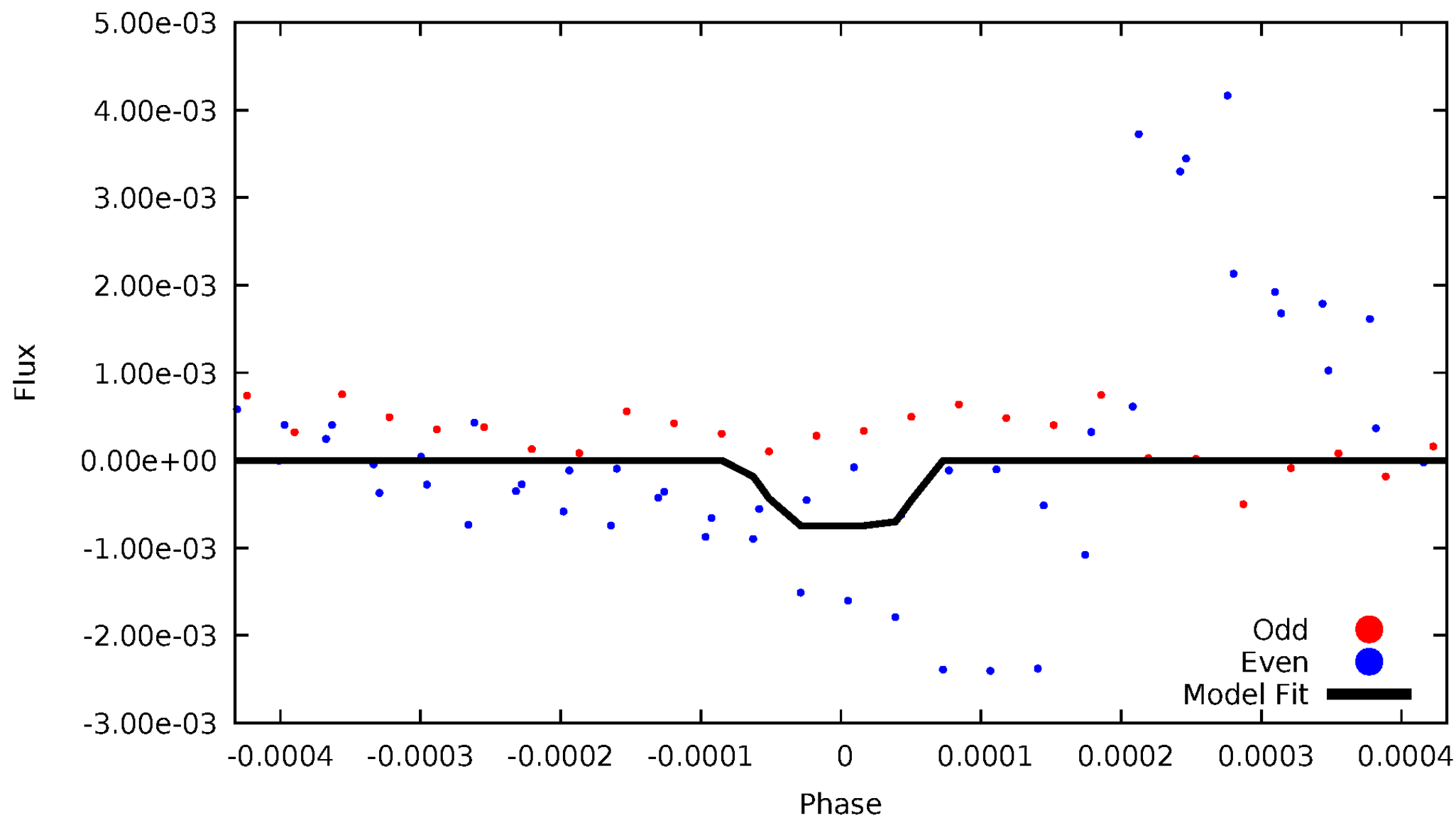
# DV Odd/Even

TCE 003118883-01



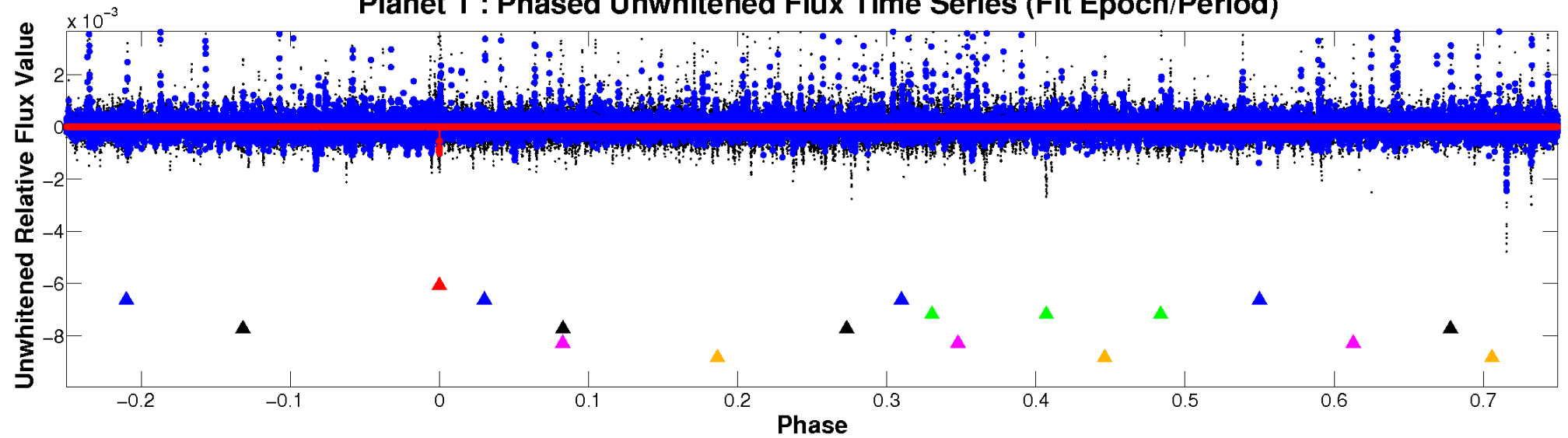
# ALT Odd/Even

TCE 003118883-01

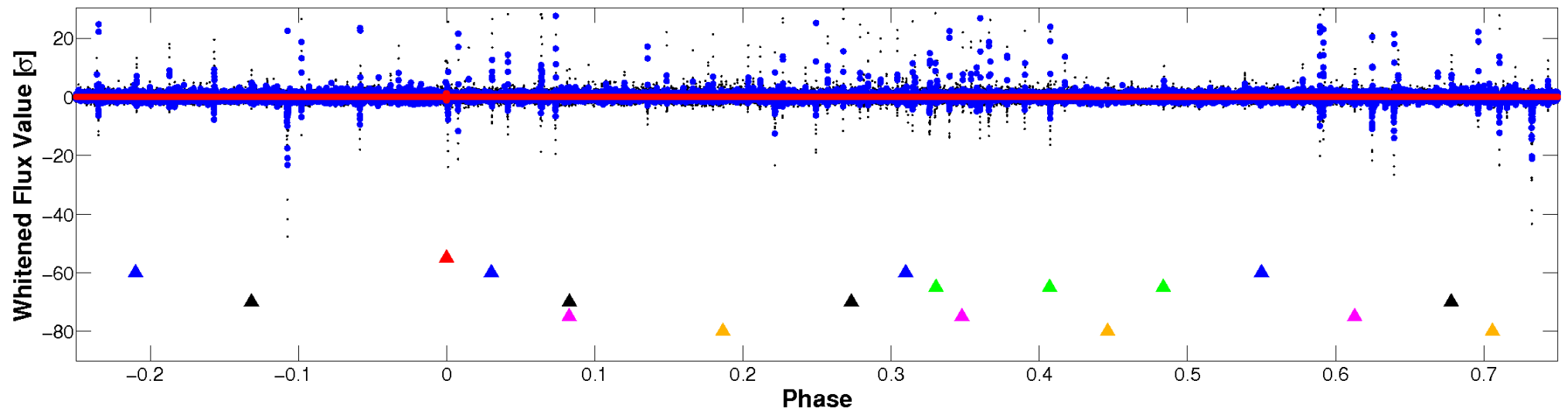


# Non-Whitened Vs. Whitened Light Curve

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

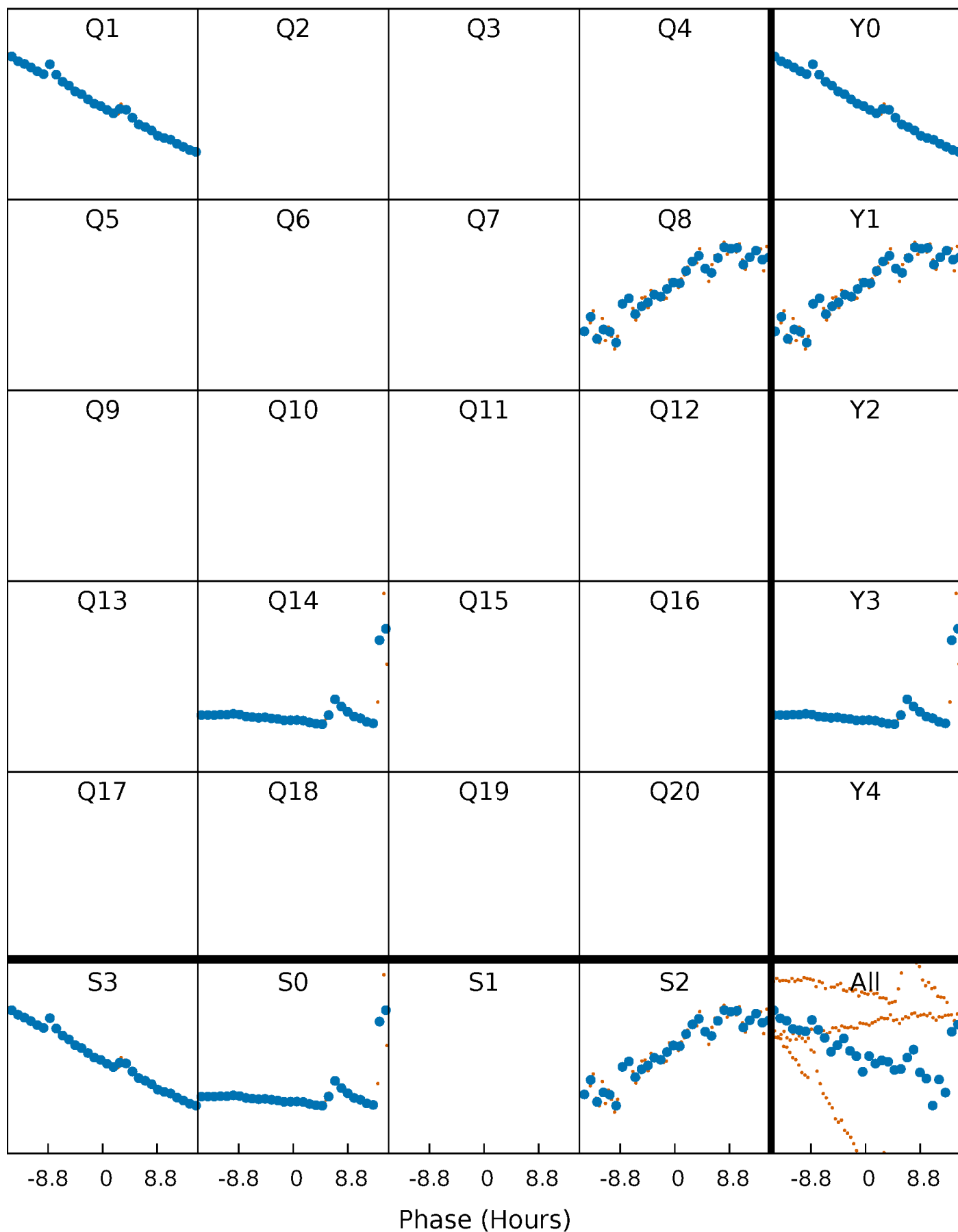


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



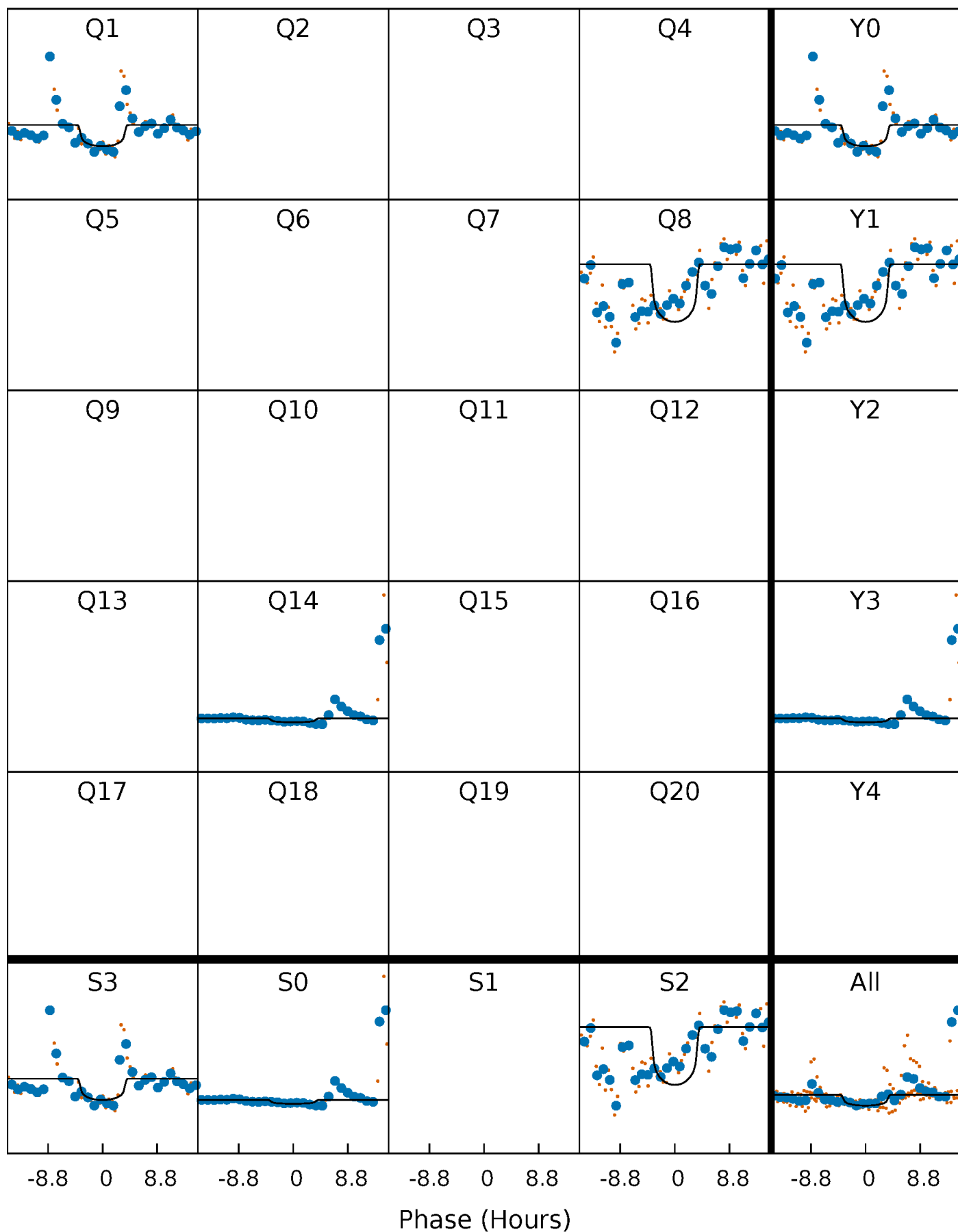
# PDC Quarter-Phased Transit Curves

TCE 003118883-01 P=603.459346 Days  $T_0=135.638734$  (BKJD)



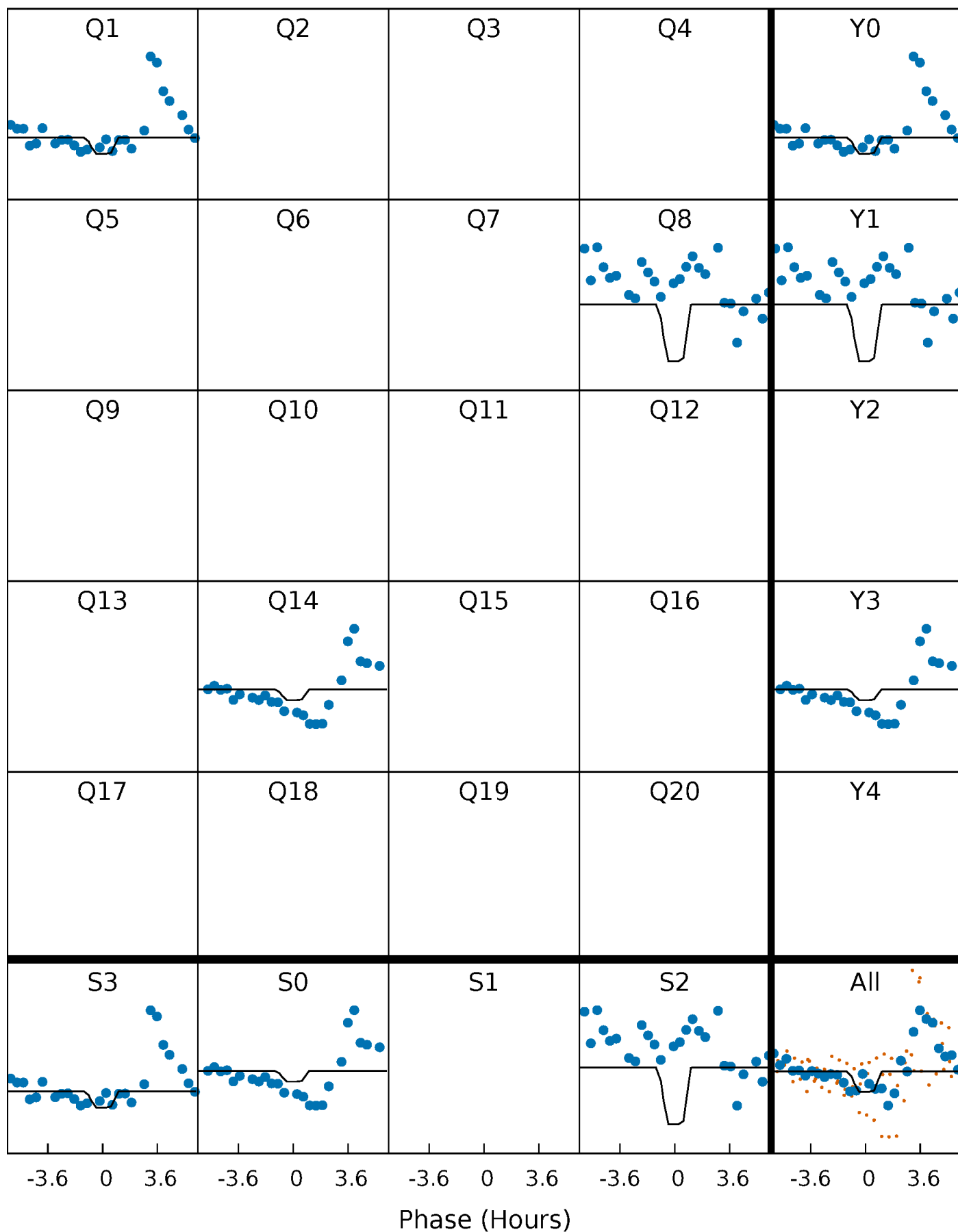
# DV Quarter-Phased Transit Curves

TCE 003118883-01 P=603.459346 Days  $T_0=135.638734$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003118883-01 P=603.518817 Days  $T_0=135.634712$  (BKJD)

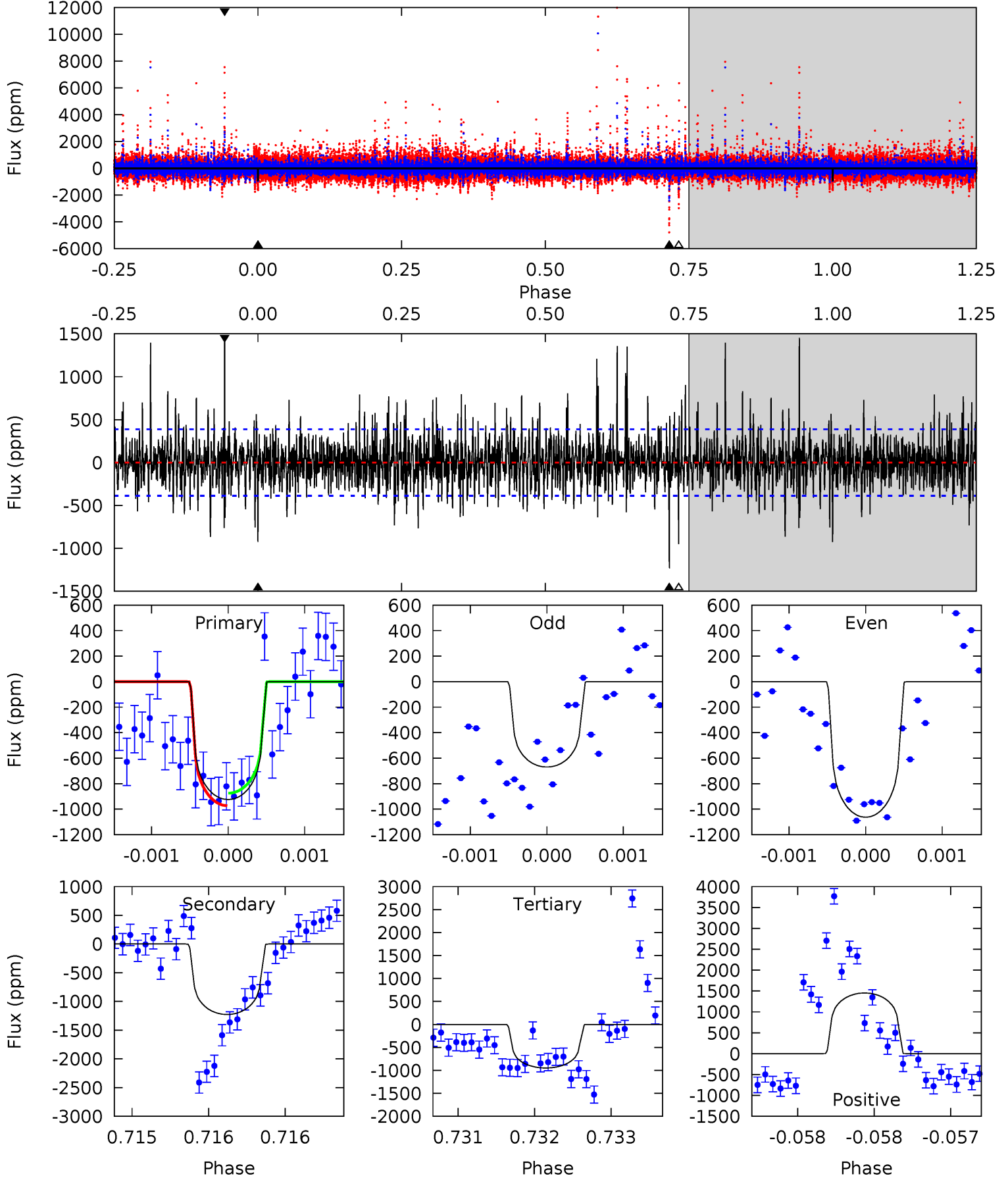




# DV Model-Shift Uniqueness Test

003118883-01, P = 603.459346 Days, E = 135.638734 Days

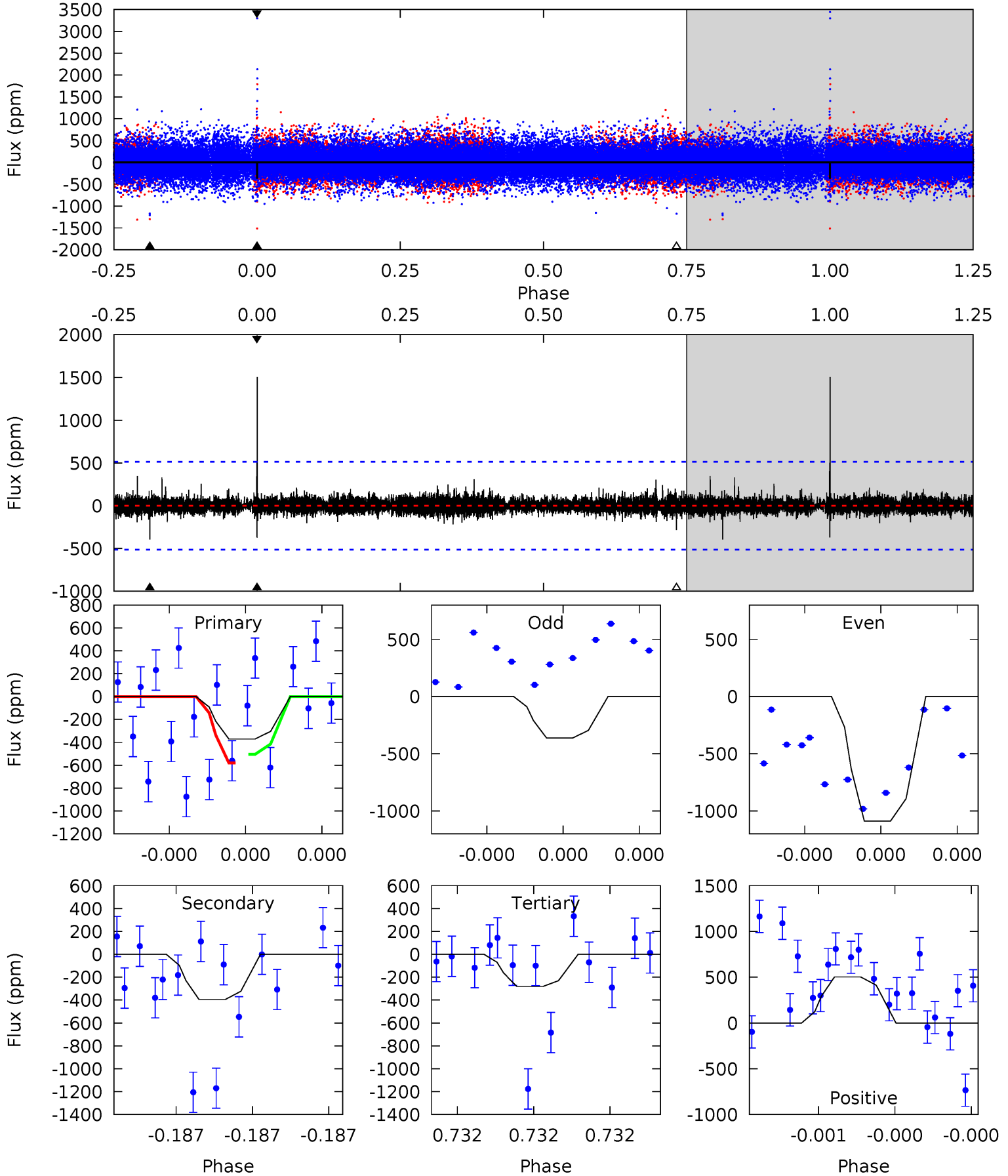
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	17.6	13.6	20.8	5.56	3.46	3.14	-0.35	-7.58	4.00	-3.23	1.40	1.01	0.54	0.71



# Alt Model-Shift Uniqueness Test

003118883-01, P = 603.518817 Days, E = 135.634712 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.20	4.47	3.18	5.68	5.80	3.82	0.55	1.01	-1.48	1.28	-1.21	4.64	1.35	0.79	0.45



### Stellar Parameters For KIC 003118883

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5381^{+160}_{-144}$	$4.478^{+0.120}_{-0.120}$	$-0.320^{+0.350}_{-0.300}$	$0.827^{+0.128}_{-0.116}$	$0.751^{+0.118}_{-0.050}$	$1.871^{+0.935}_{-0.625}$
	+3%/-3%	+3%/-3%	+109%/-94%	+15%/-14%	+16%/-7%	+50%/-33%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003118883-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1227 \pm 70$	$3.34^{+2.30}_{-1.90}$	$268^{+14}_{-12}$	$5262^{+2987}_{-999}$	$100493^{+460201}_{-65565}$
Alt.	$-395 \pm 88$	$3.08^{+2.33}_{-1.88}$	$269^{+13}_{-14}$	$4306^{+2267}_{-797}$	$35958^{+204751}_{-24754}$

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

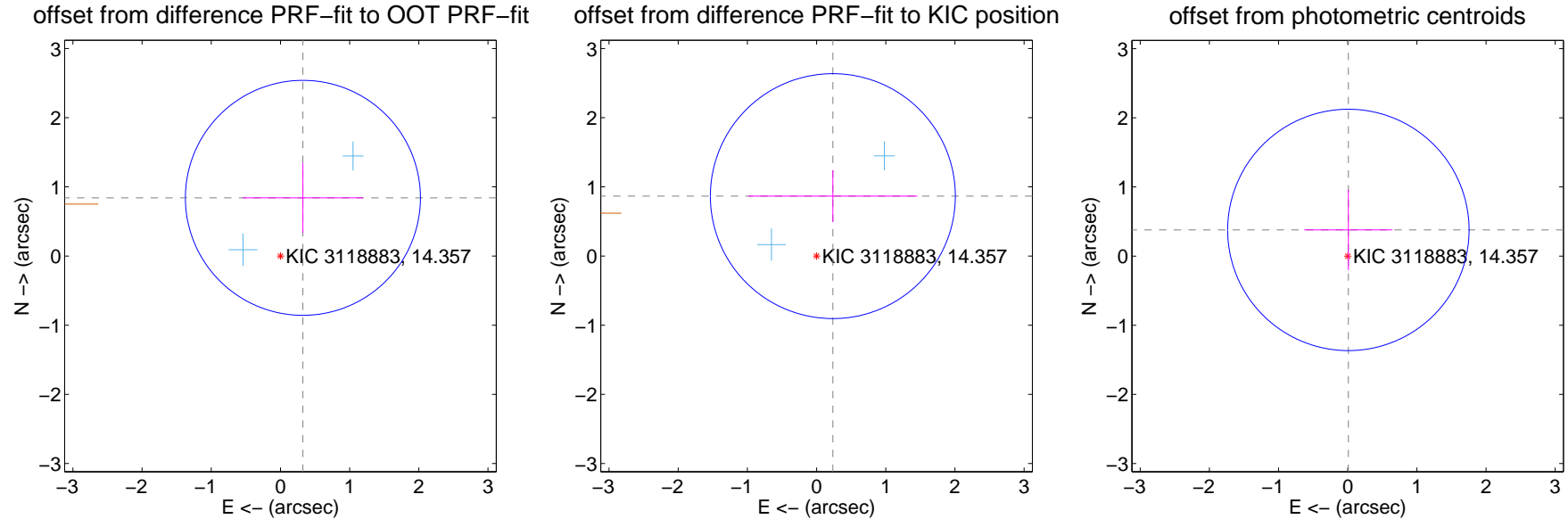
## DV Centroid Data

Supplemental centroid analysis for 003118883-01. Kepler magnitude: 14.36. Transit SNR 8.38

There are 2 quarters with good PRF difference image offsets

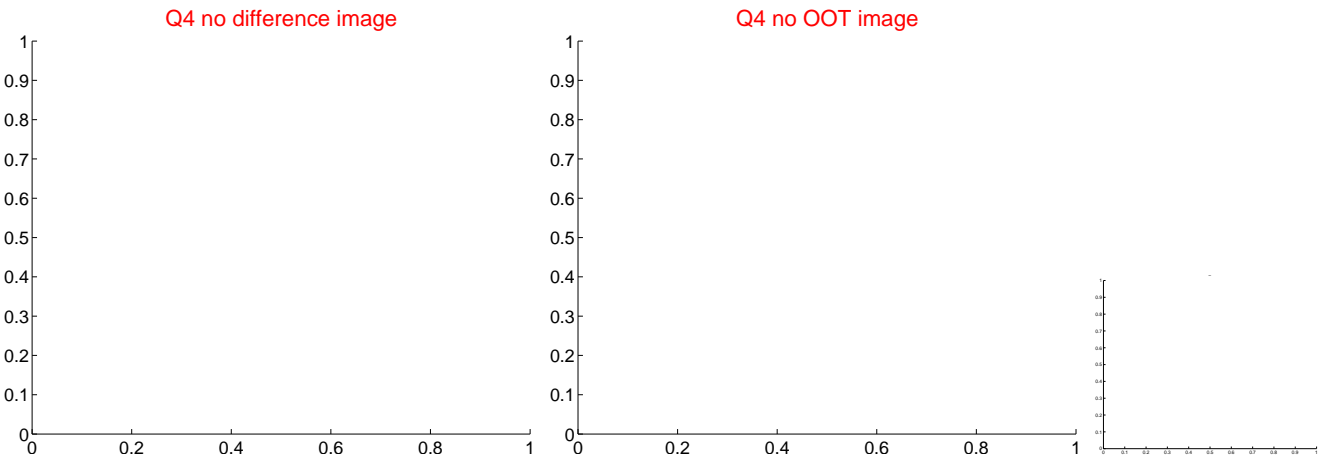
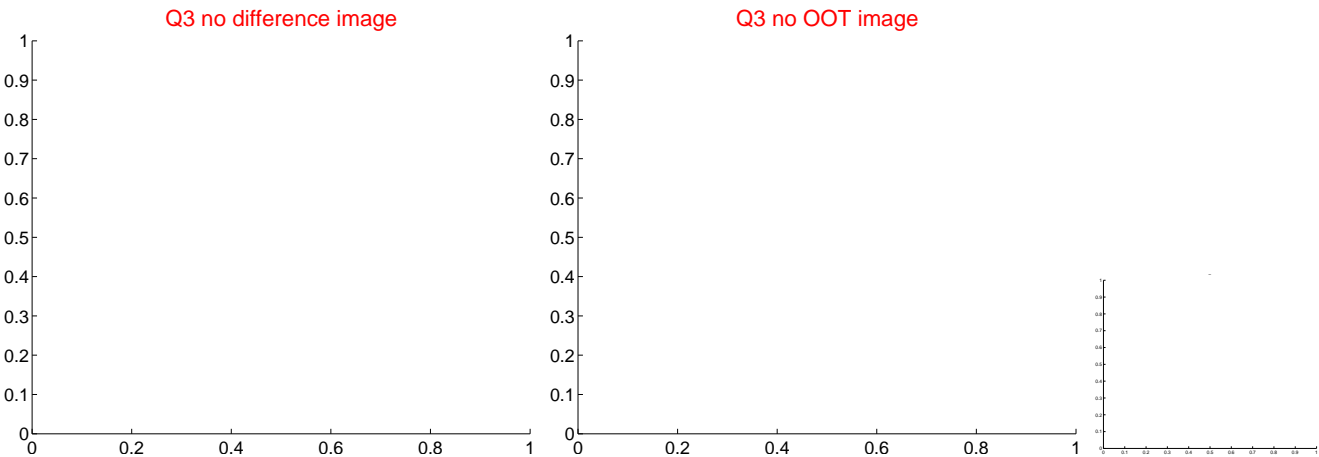
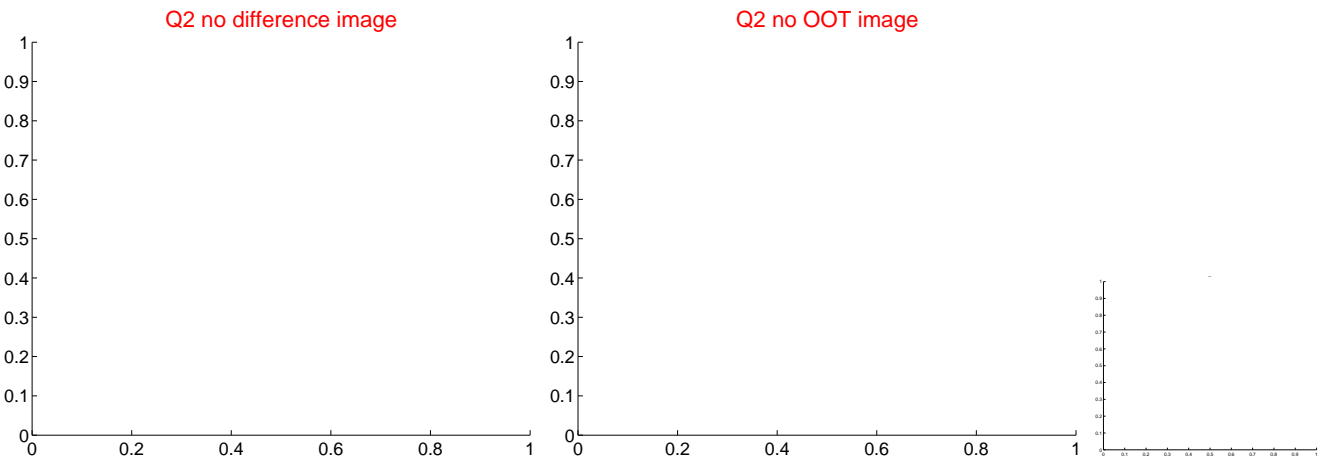
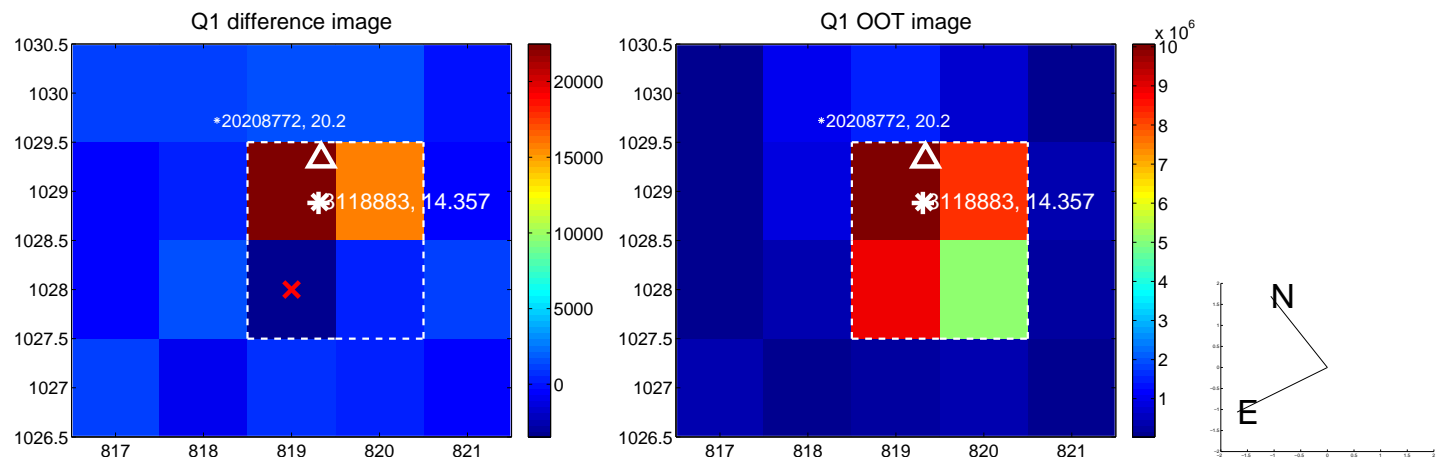
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.902 \pm 0.566$	1.59	$-0.325 \pm 0.871$	$0.841 \pm 0.505$
PRF-fit source offset from KIC position	$0.898 \pm 0.590$	1.52	$-0.235 \pm 1.221$	$0.866 \pm 0.376$
photometric centroid source offset	$0.38 \pm 0.58$	0.65	$-0.01 \pm 0.64$	$0.38 \pm 0.58$

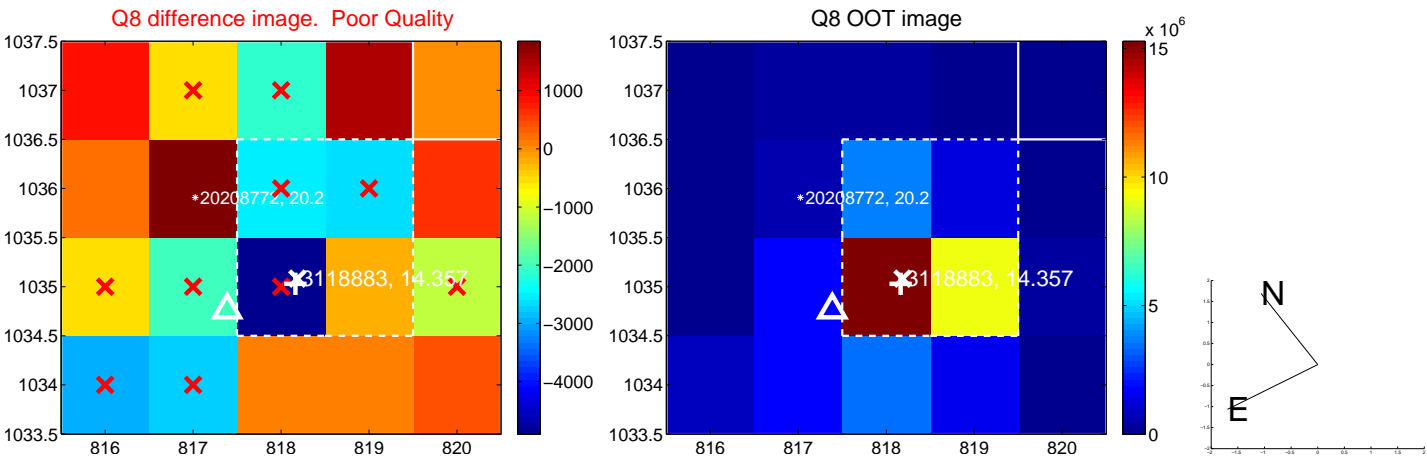


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



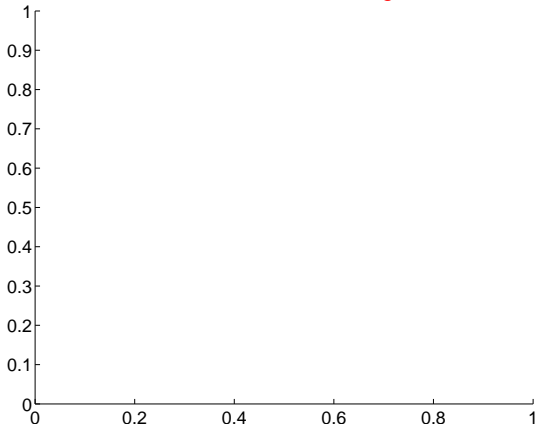


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

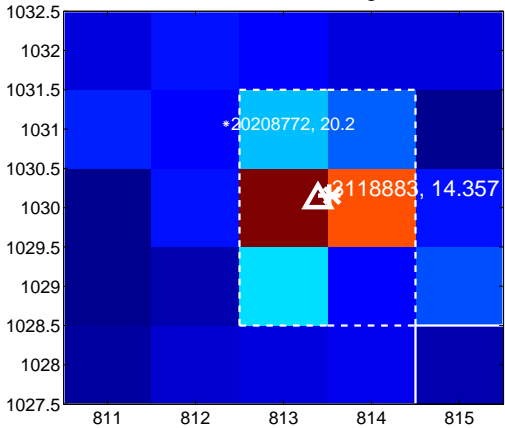
Q13 no difference image



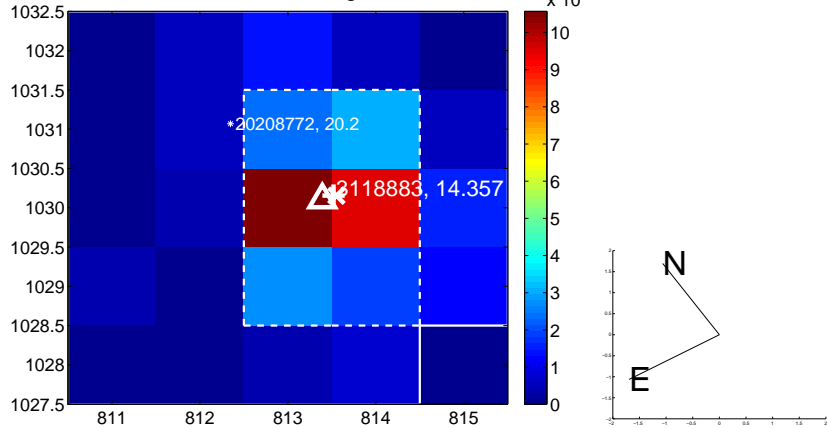
Q13 no OOT image



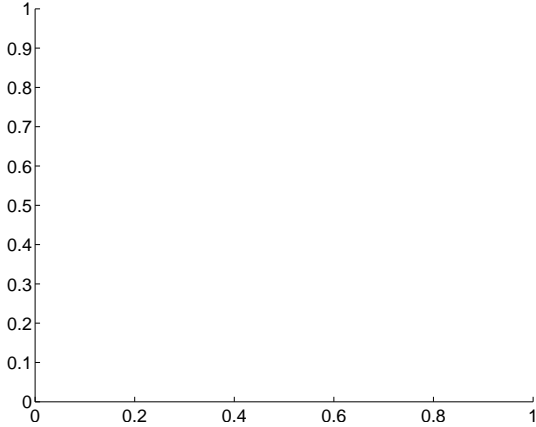
Q14 difference image



Q14 OOT image



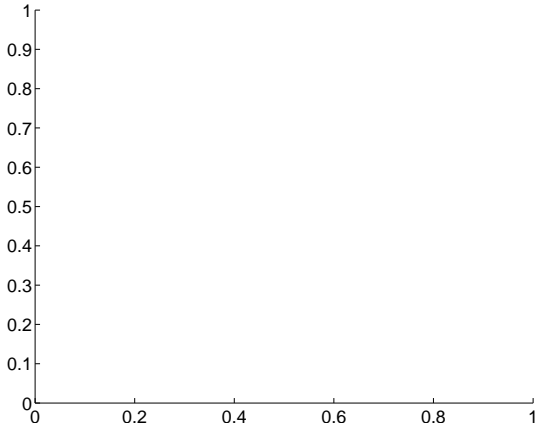
Q15 no difference image



Q15 no OOT image



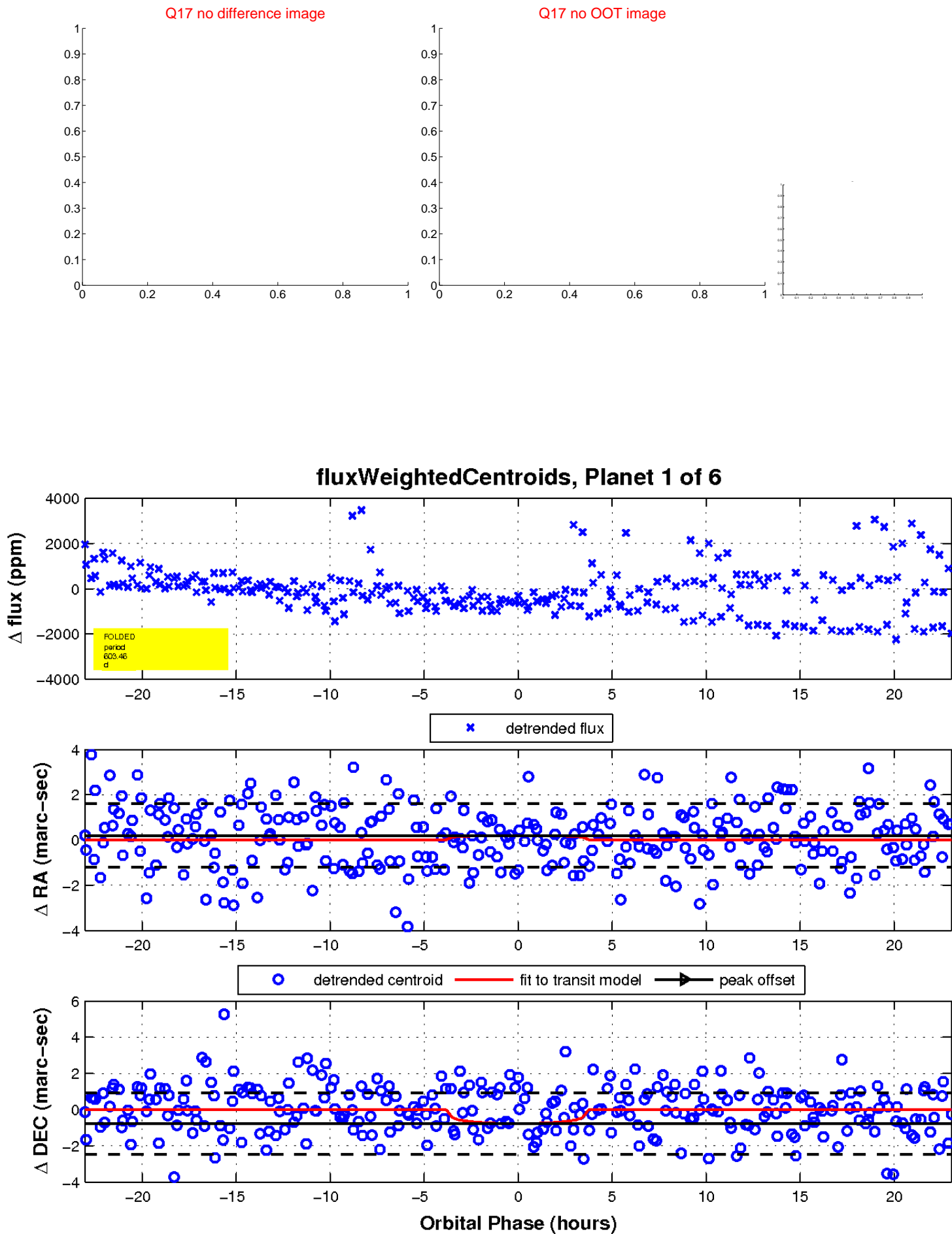
Q16 no difference image



Q16 no OOT image

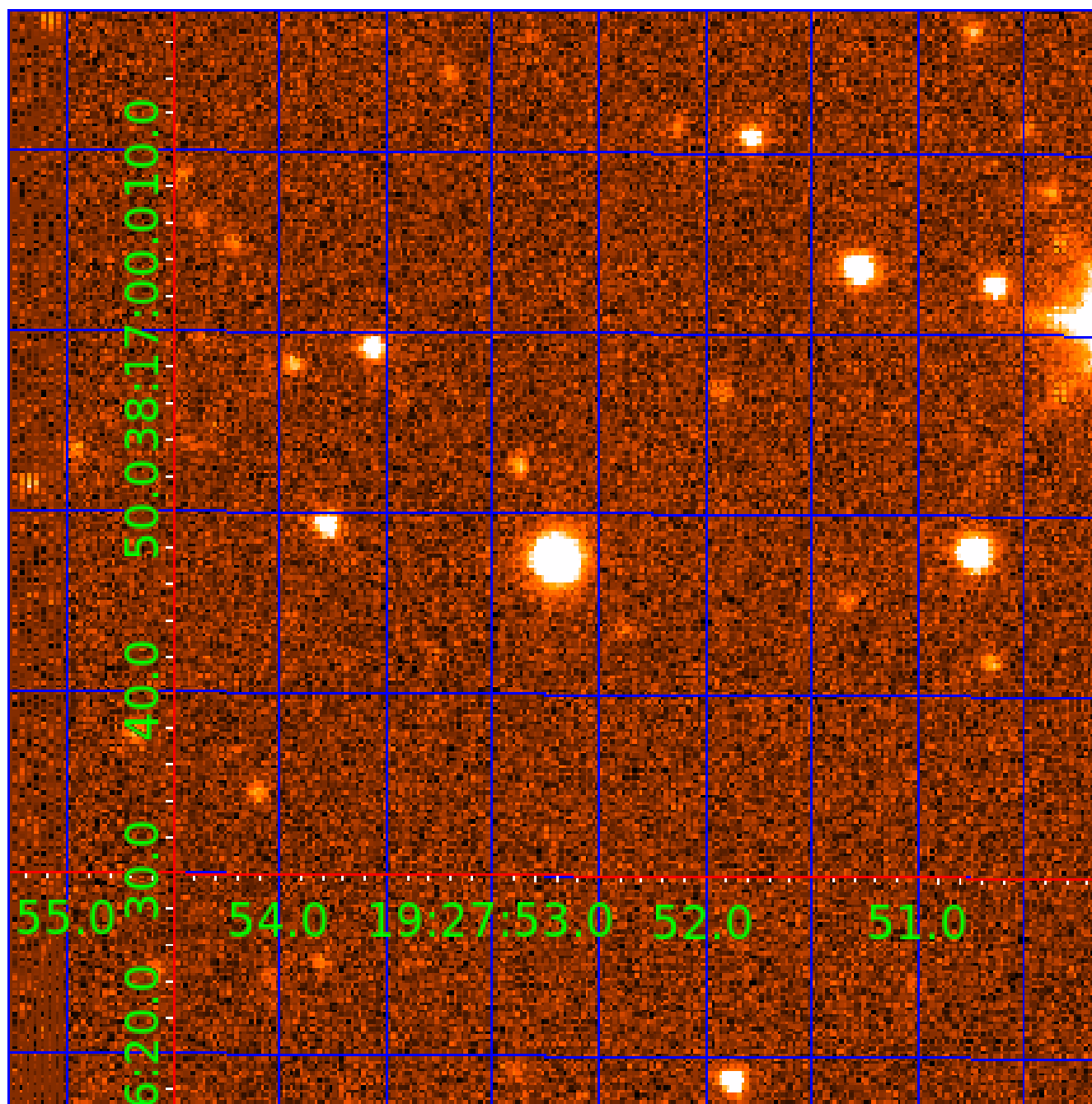


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003118883

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003118883-01	OBS	No	603.459346	135.638734	1024.9	7.687	19.7	8.4	0.83	5381	2.80	0.32
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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003118883-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003118883-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
003118883-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003118883-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

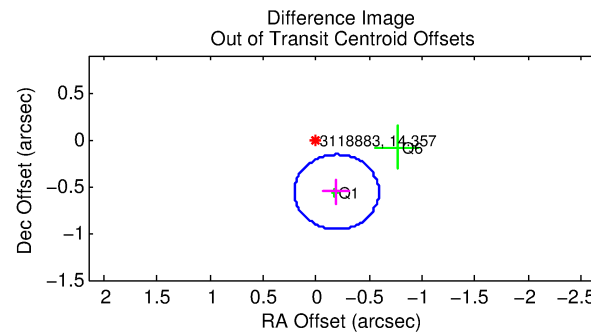
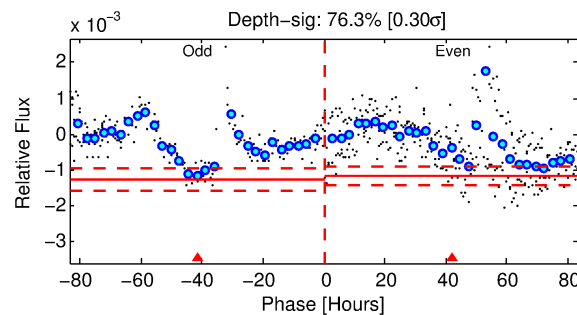
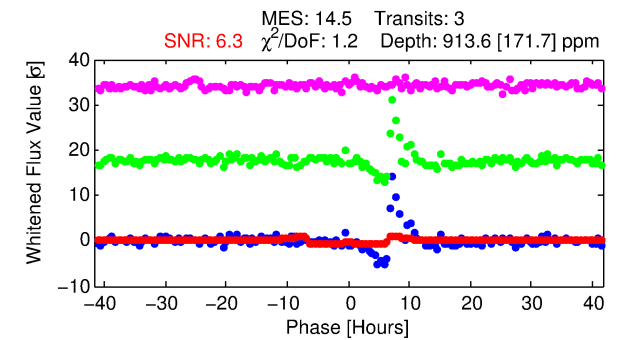
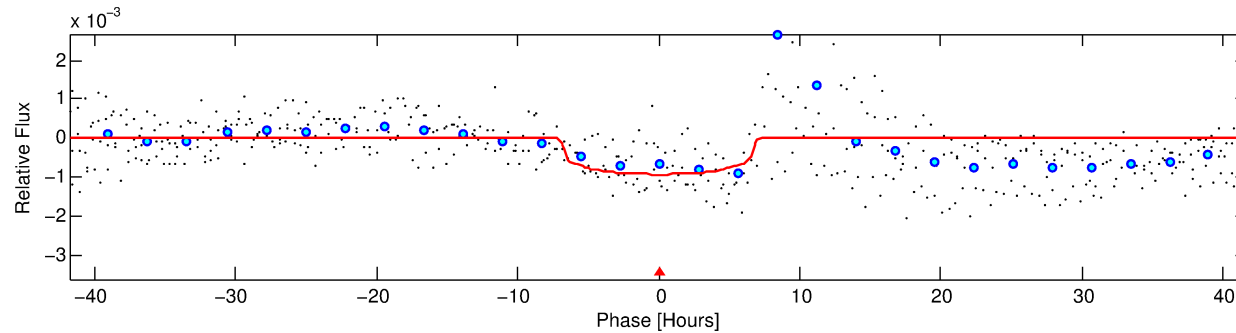
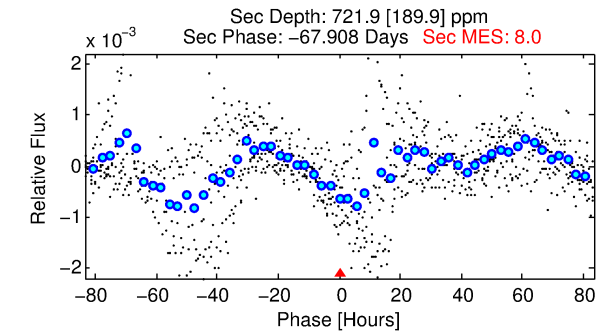
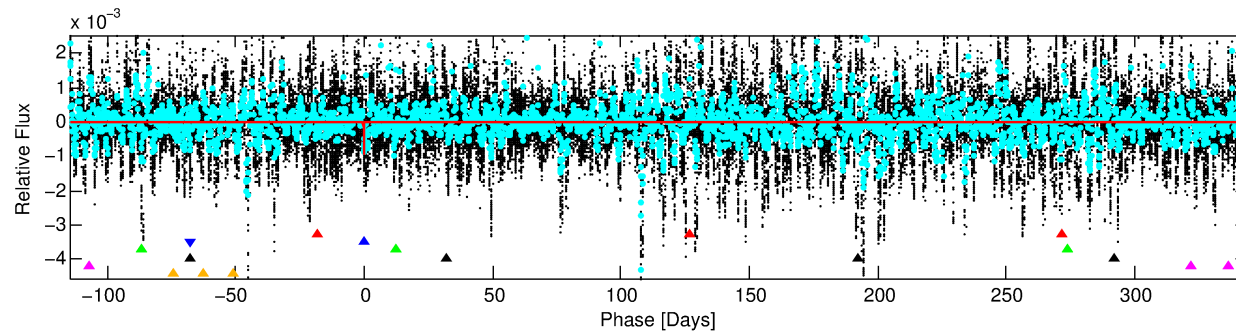
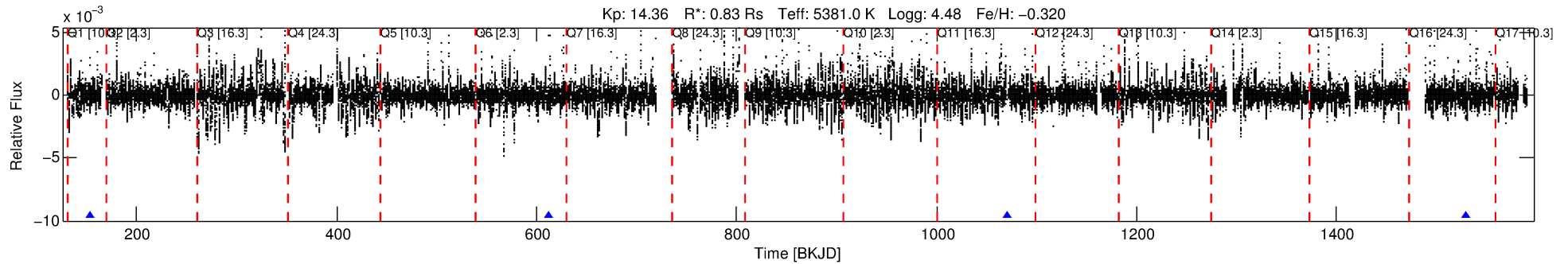
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003118883-02

No Significant Match Found

# DV One-Page Summary

KIC: 3118883 Candidate: 2 of 6 Period: 458.551 d



## DV Fit Results:

Period = 458.55086 [0.00630] d  
Epoch = 153.8832 [0.0113] BKJD  
Rp/R\* = 0.0274 [0.0186]  
a/R\* = 252.82 [683.96]  
b = 0.21 [12.48]  
Seff = 0.46 [0.11]  
Teq = 210 [13] K  
Rp = 2.47 [1.72] Re  
a = 1.0575 [0.1463] AU  
Ag = 72849.73 [102190.72] [0.71 $\sigma$ ]  
Teffp = 5332 [1855] K [2.76 $\sigma$ ]

## DV Diagnostic Results:

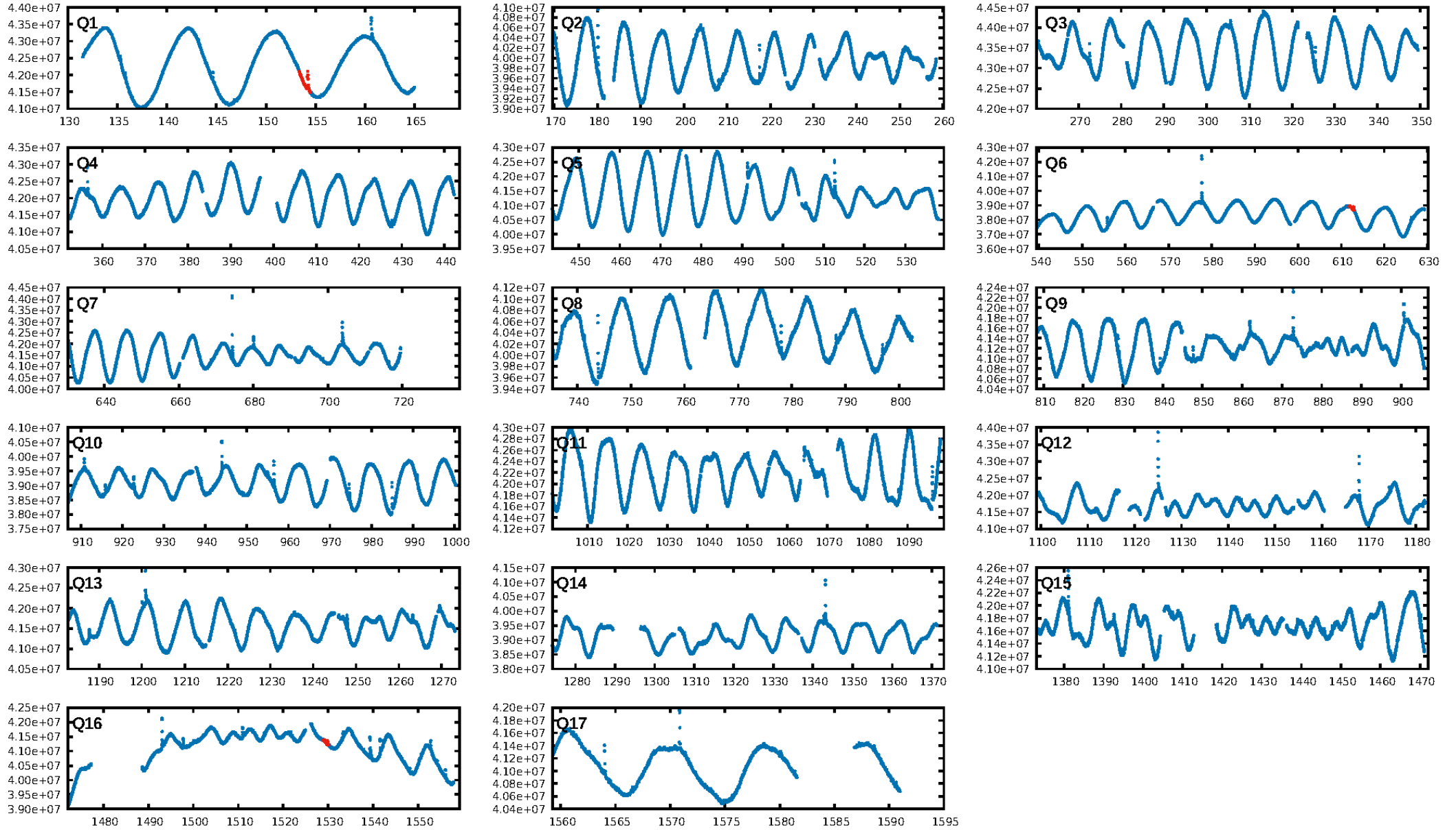
ShortPeriod-sig: 100.0% [15.67 $\sigma$ ]  
LongPeriod-sig: 100.0% [130.33 $\sigma$ ]  
ModelChiSquare2-sig: 39.9%  
ModelChiSquareGof-sig: 78.6%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 0.7037  
Centroid-sig: 48.3%  
Centroid-so: 0.708 arcsec [1.46 $\sigma$ ]  
OotOffset-rm: 0.592 arcsec [4.44 $\sigma$ ]  
KicOffset-rm: 0.573 arcsec [3.55 $\sigma$ ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:22:24 Z

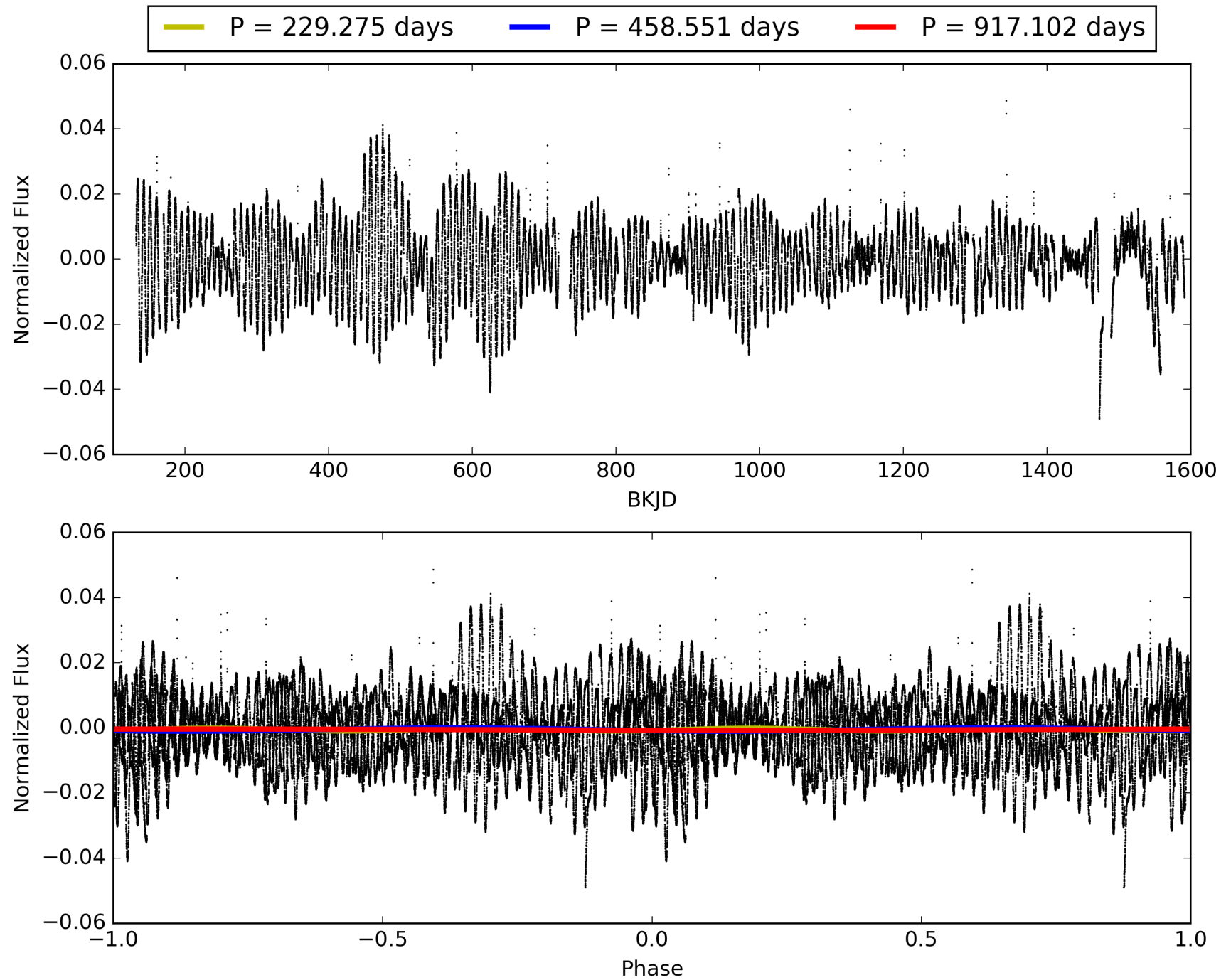
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 003118883-02, PDC Light Curves

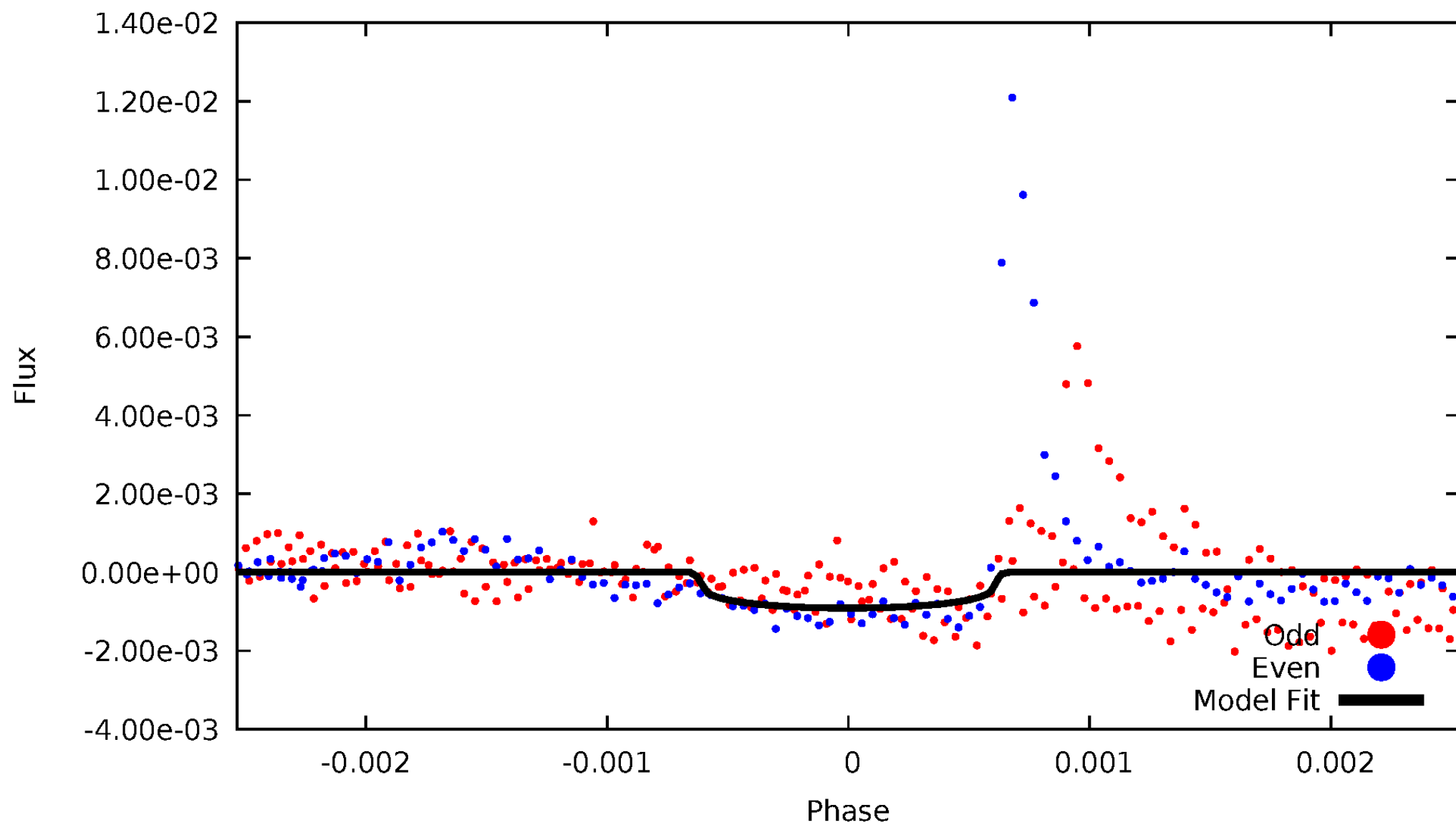


# TCE 003118883-02



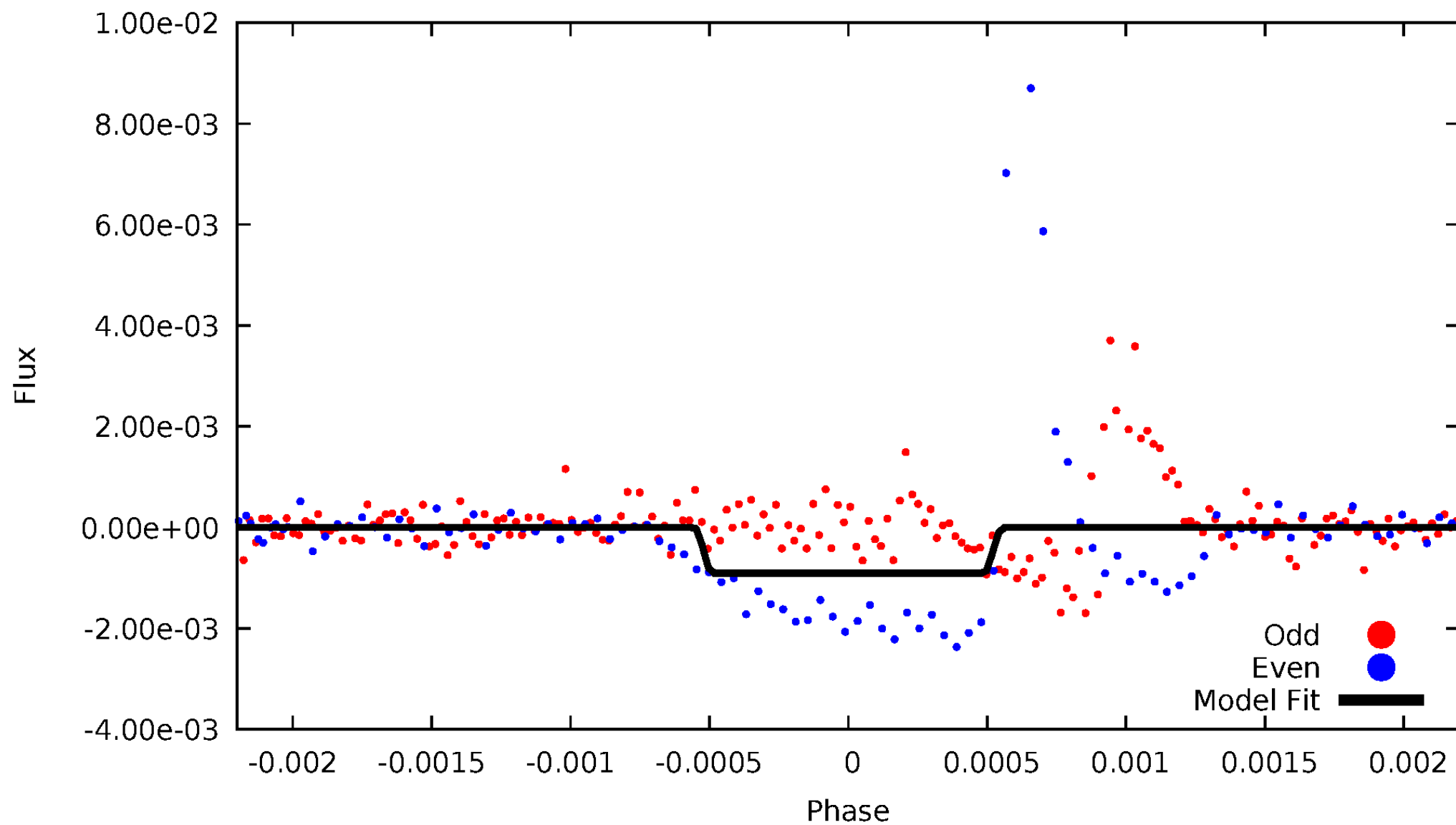
# DV Odd/Even

TCE 003118883-02



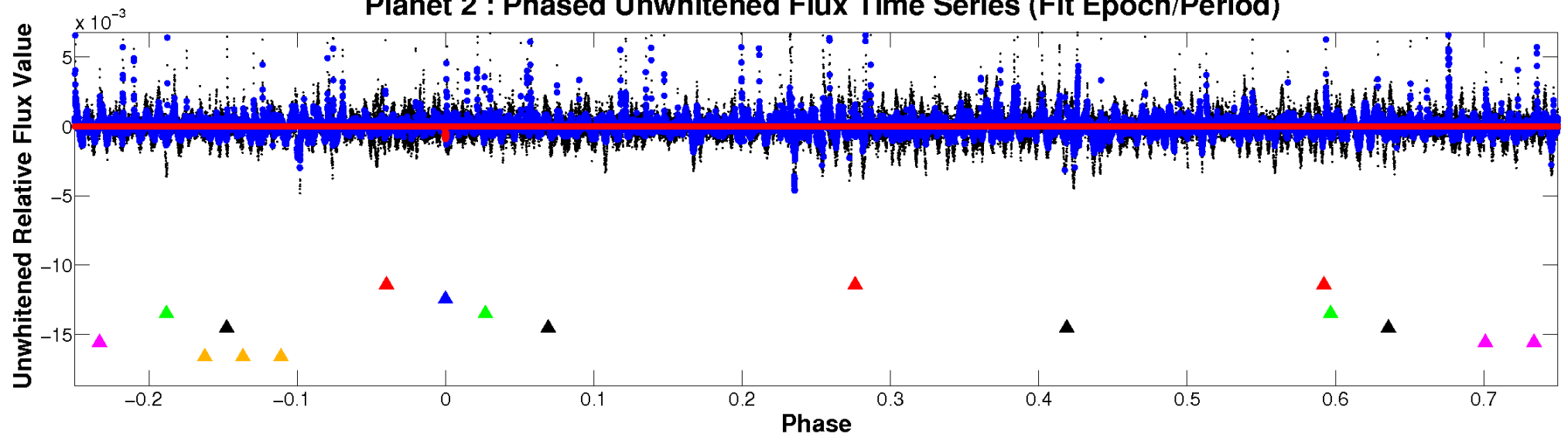
# ALT Odd/Even

TCE 003118883-02

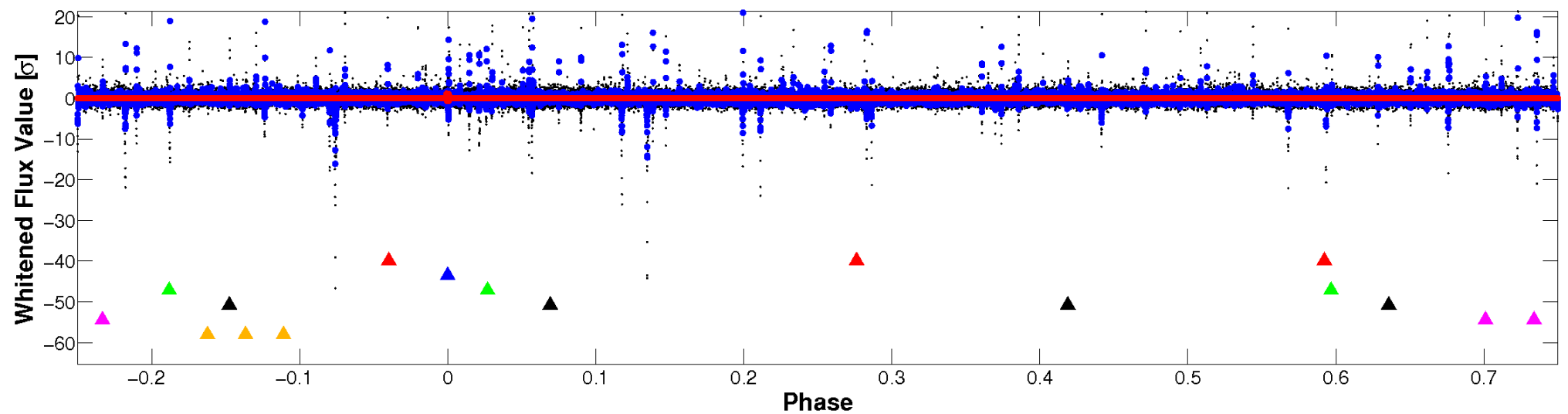


# Non-Whitened Vs. Whitened Light Curve

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

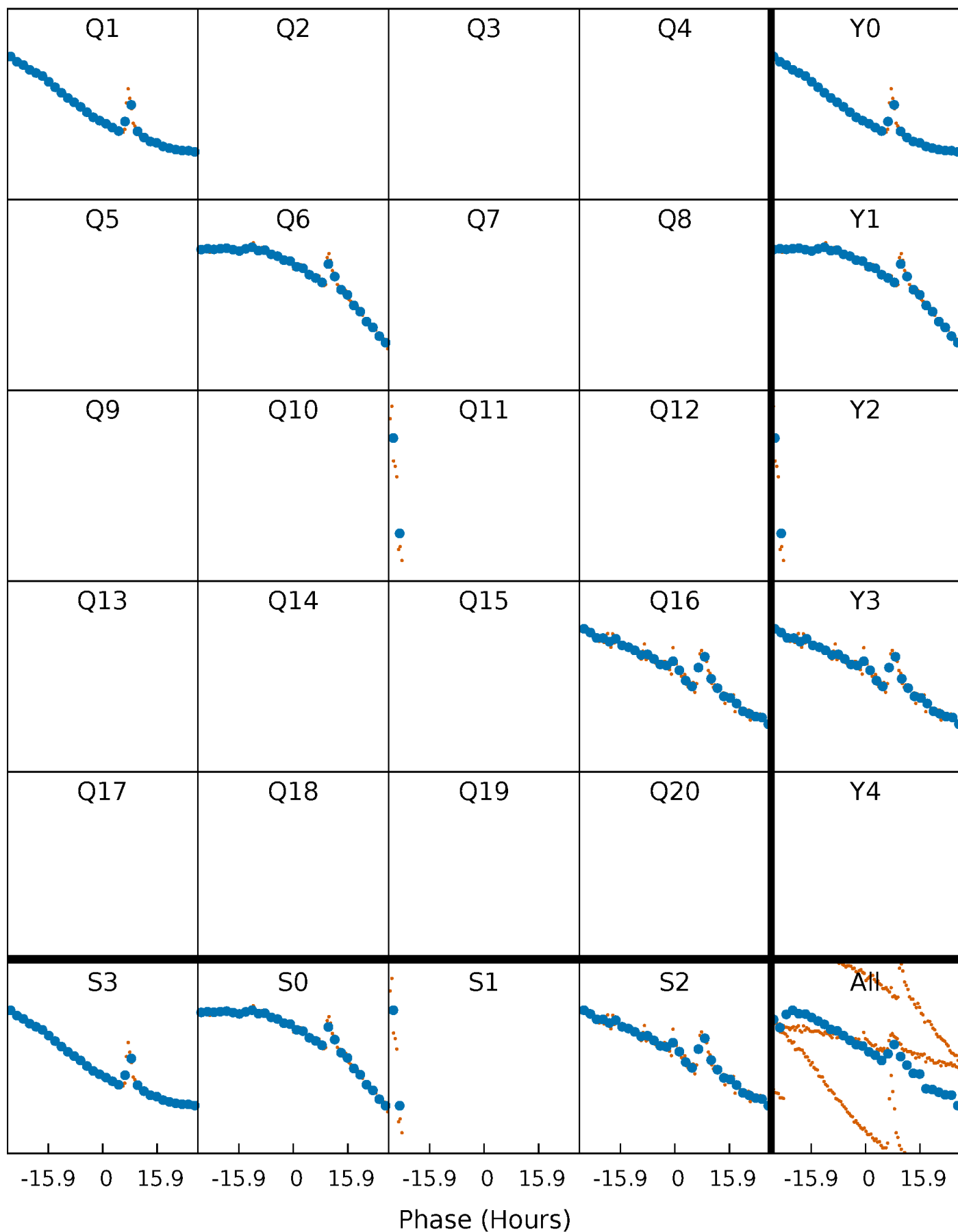


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



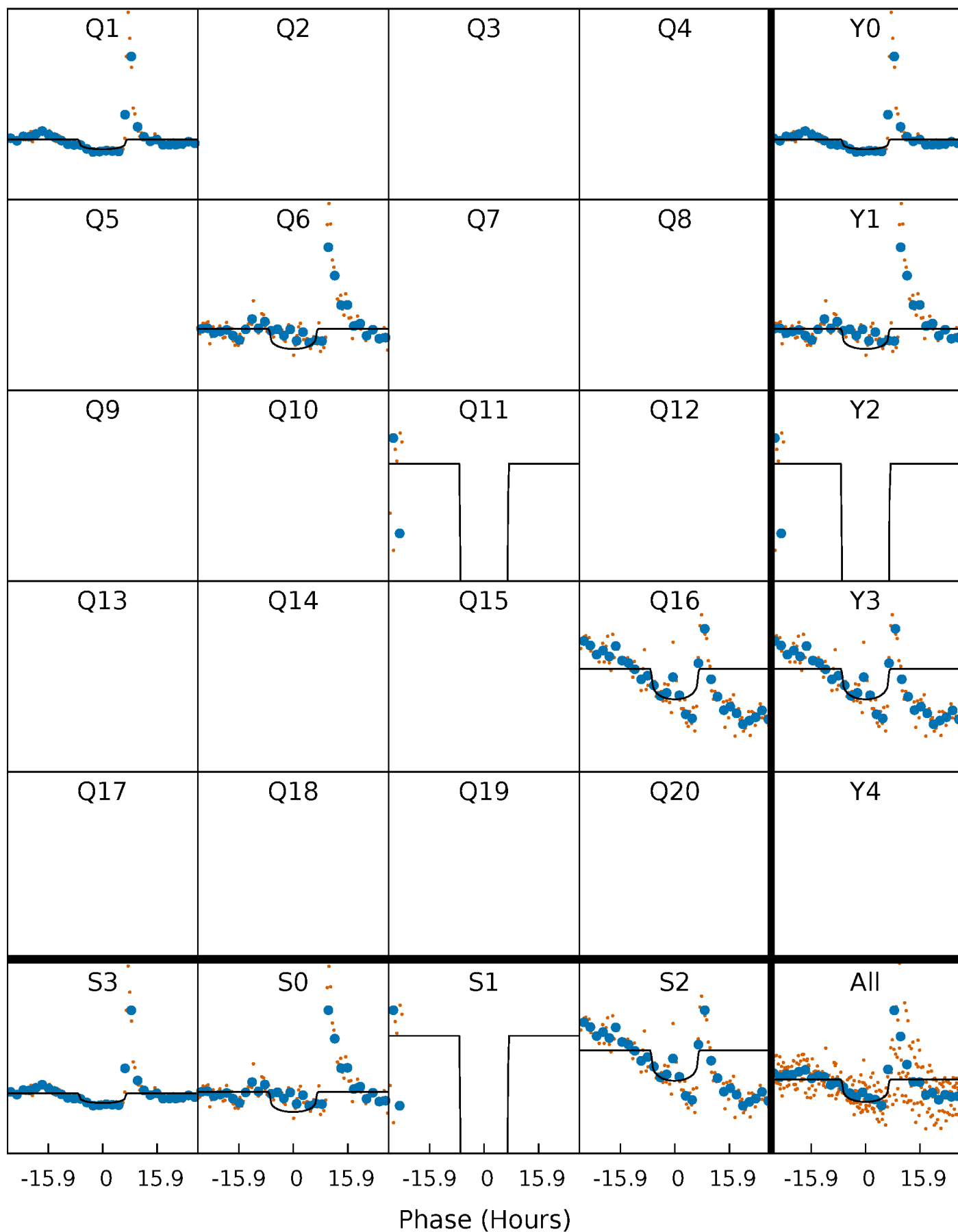
# PDC Quarter-Phased Transit Curves

TCE 003118883-02 P=458.550863 Days  $T_0=153.883195$  (BKJD)



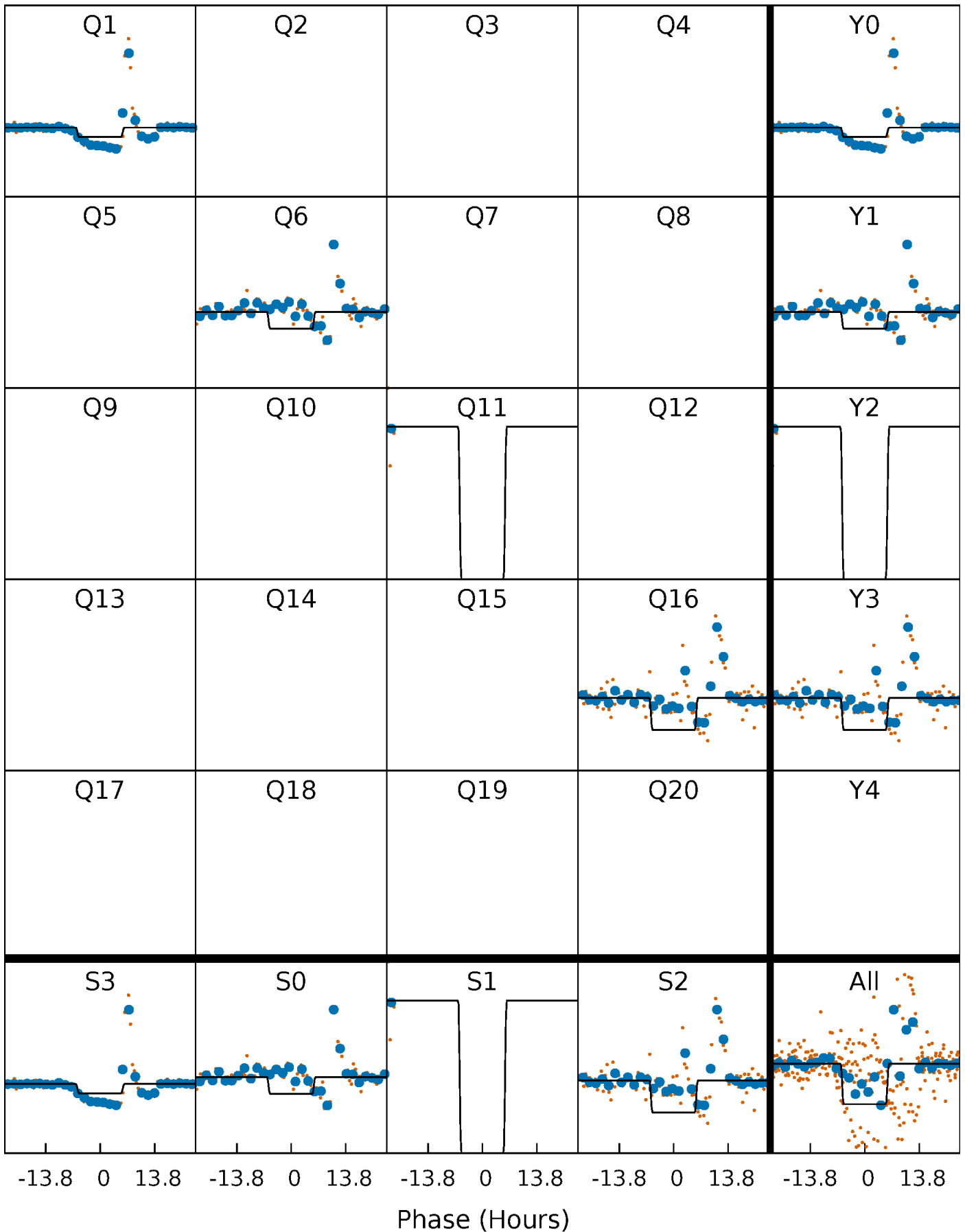
# DV Quarter-Phased Transit Curves

TCE 003118883-02 P=458.550863 Days  $T_0=153.883195$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003118883-02 P=458.501842 Days  $T_0=153.914122$  (BKJD)

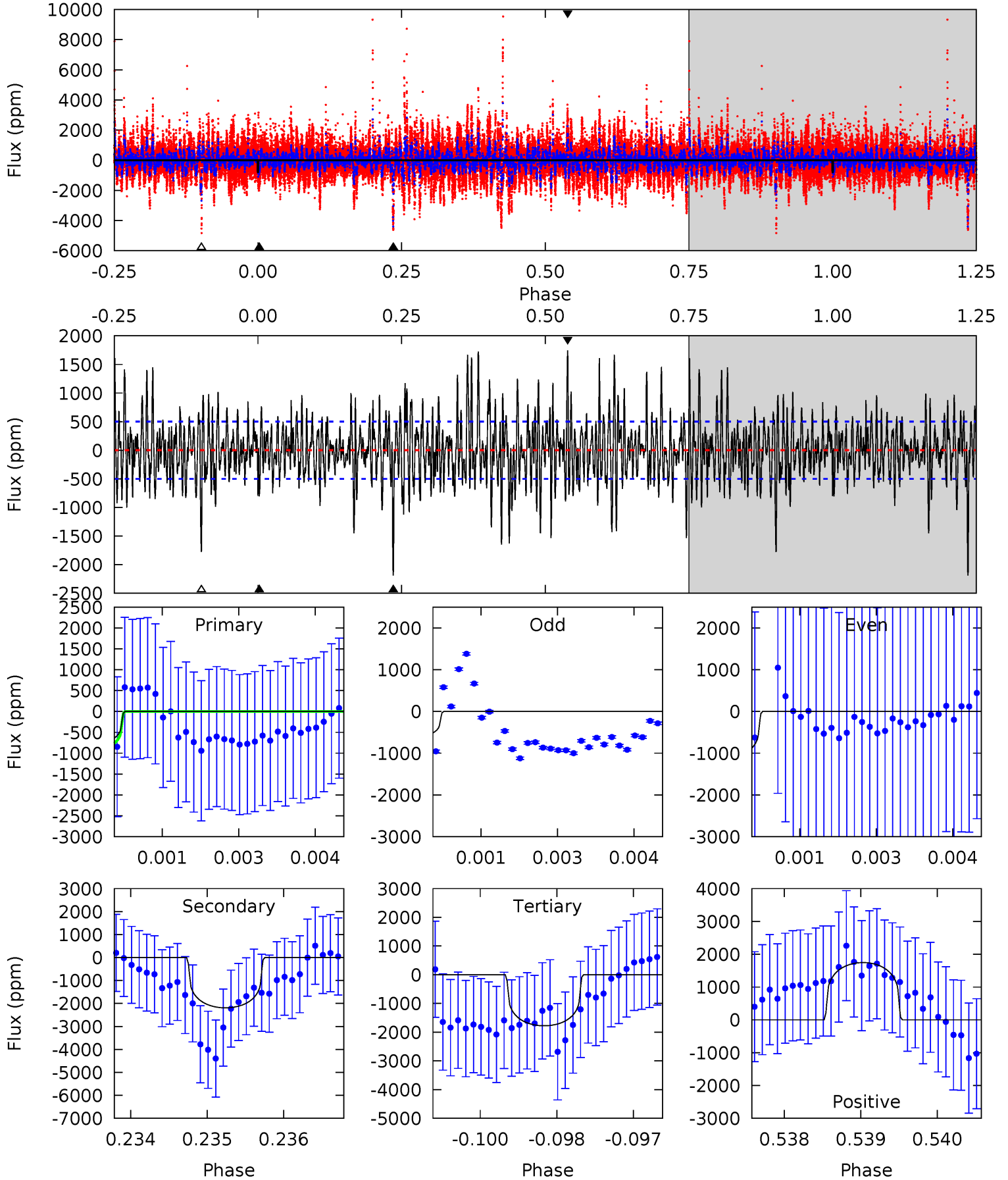




# DV Model-Shift Uniqueness Test

003118883-02, P = 458.550863 Days, E = 153.883195 Days

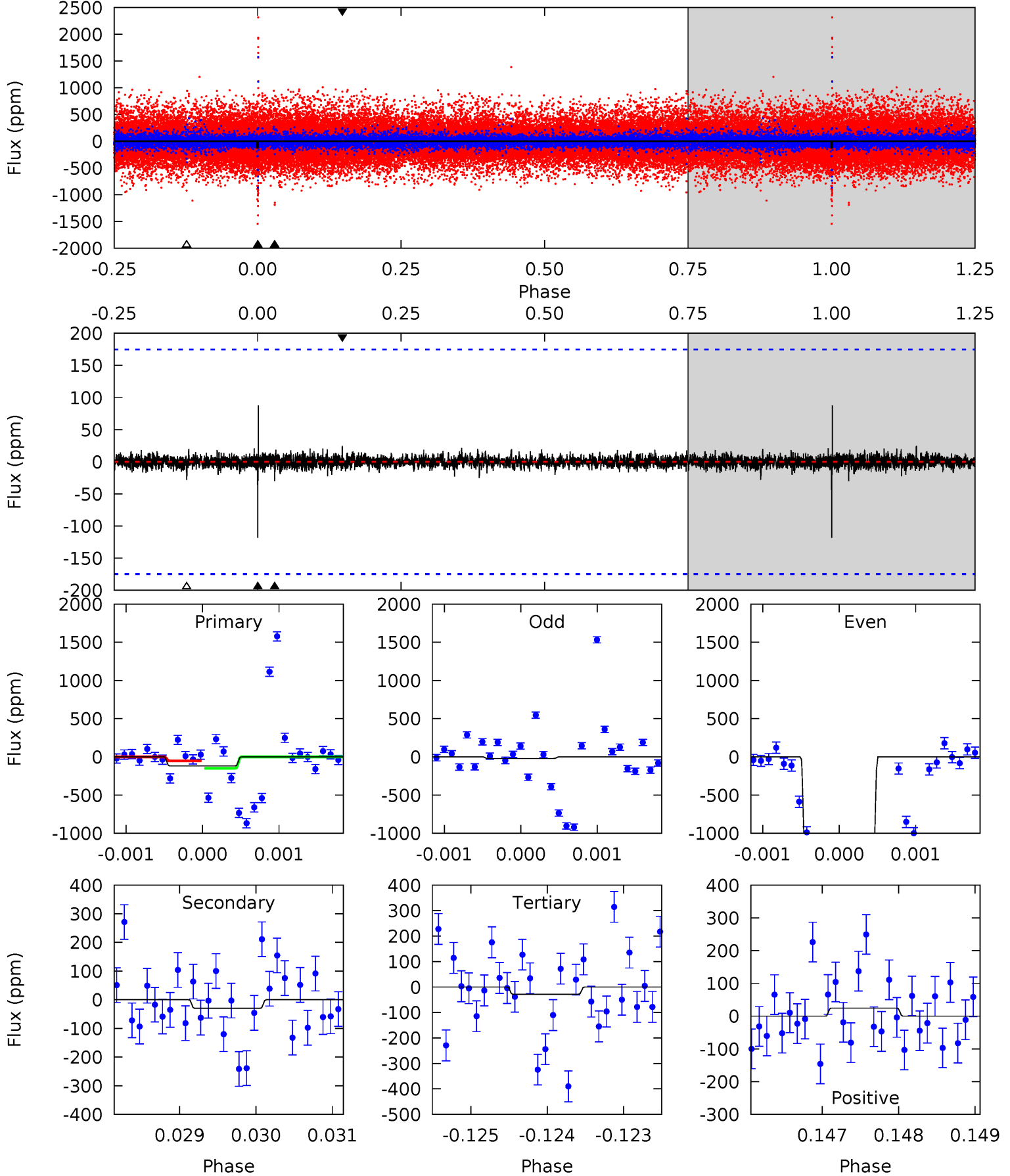
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.72	23.7	19.2	18.9	5.41	3.22	5.15	-10.5	-10.2	4.47	4.81	1.89	0.82	0.44	1.72



# Alt Model-Shift Uniqueness Test

003118883-02, P = 458.501842 Days, E = 153.914122 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
3.68	0.93	0.88	0.77	5.43	3.26	0.16	2.80	2.91	0.05	0.16	29.7	5.73	0.43	0



### Stellar Parameters For KIC 003118883

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5381^{+160}_{-144}$	$4.478^{+0.120}_{-0.120}$	$-0.320^{+0.350}_{-0.300}$	$0.827^{+0.128}_{-0.116}$	$0.751^{+0.118}_{-0.050}$	$1.871^{+0.935}_{-0.625}$
	+3%/-3%	+3%/-3%	+109%/-94%	+15%/-14%	+16%/-7%	+50%/-33%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003118883-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-2190 \pm 92$	$2.63^{+1.64}_{-1.39}$	$293^{+15}_{-13}$	$6788^{+4248}_{-1356}$	$197196^{+703230}_{-121448}$
Alt.	$-30 \pm 32$	$2.92^{+1.76}_{-1.55}$	$294^{+15}_{-15}$	$2820^{+843}_{-4926}$	$1679^{+8805}_{-1819}$

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

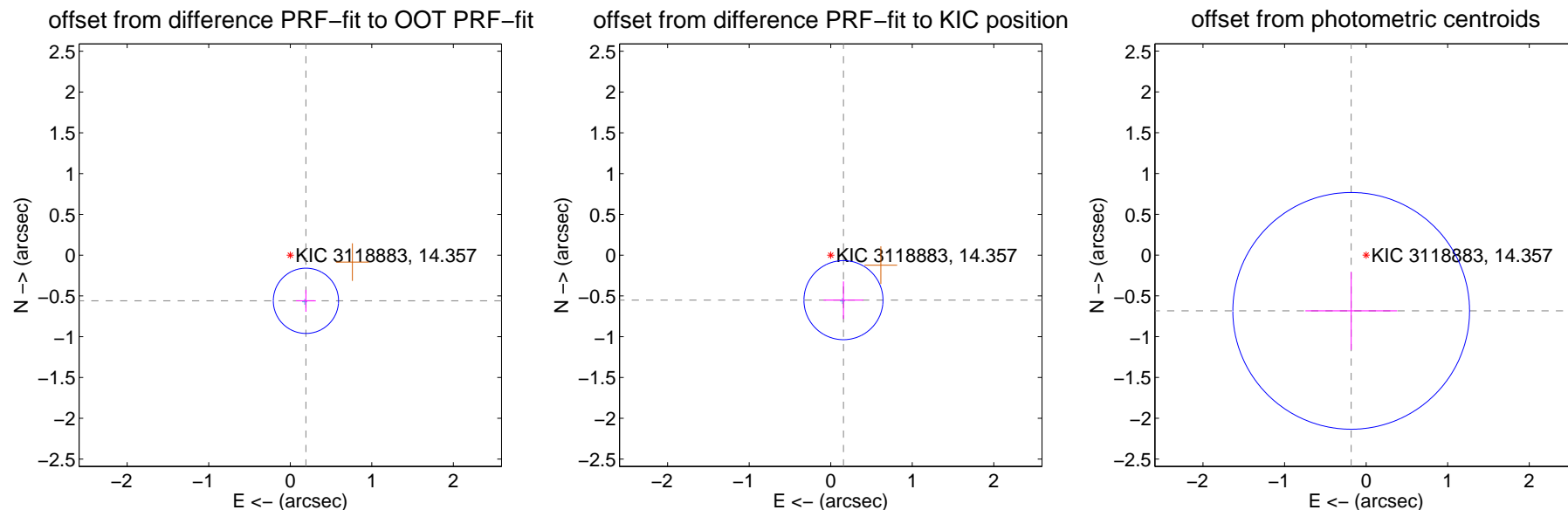
## DV Centroid Data

Supplemental centroid analysis for 003118883-02. Kepler magnitude: 14.36. Transit SNR 6.26

There are 1 quarters with good PRF difference image offsets

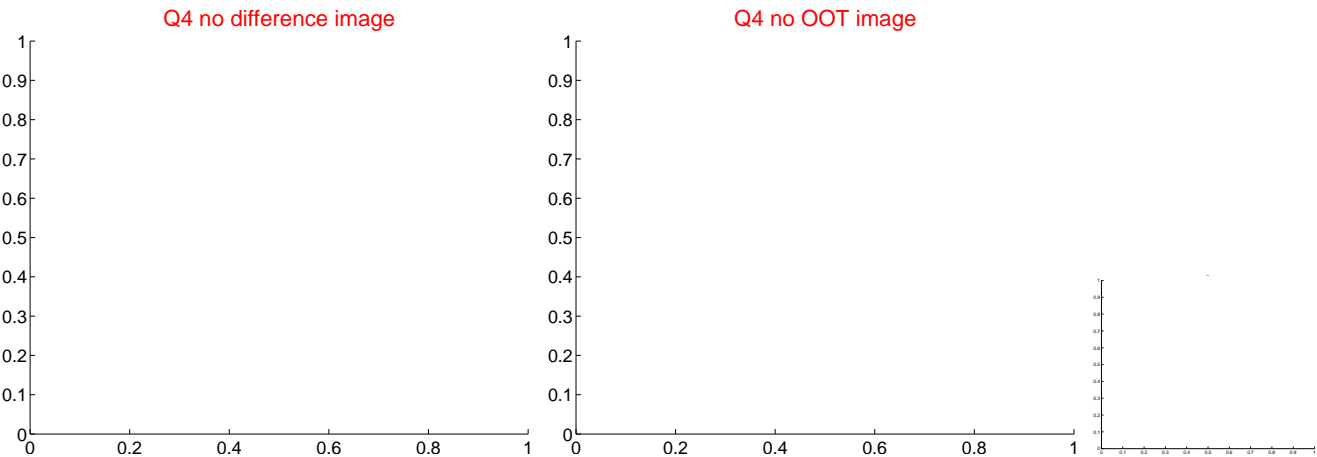
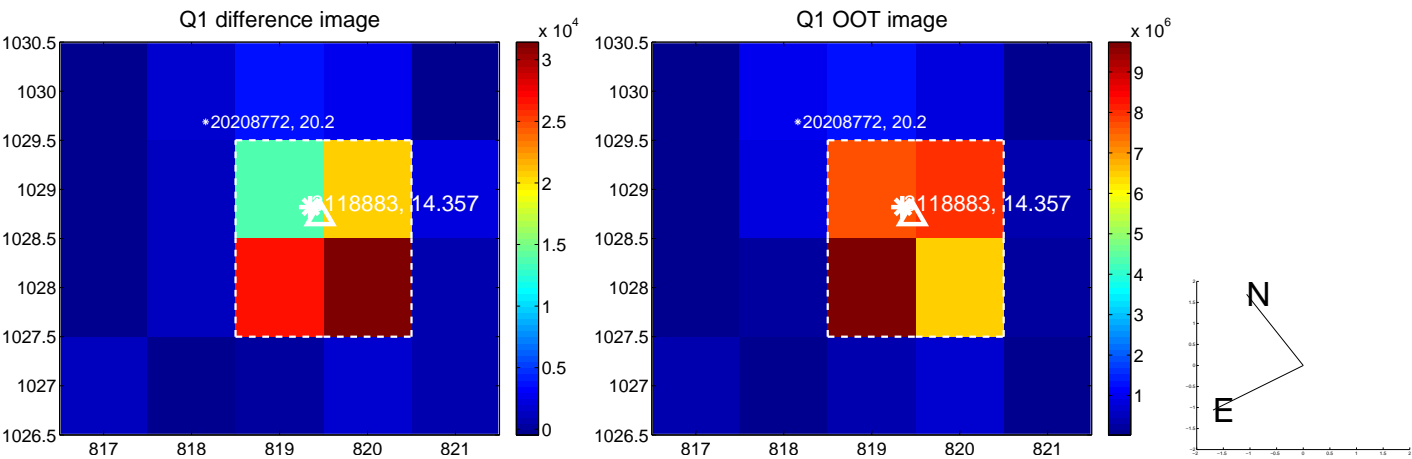
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.592 \pm 0.133$	4.44	$-0.192 \pm 0.122$	$-0.560 \pm 0.135$
PRF-fit source offset from KIC position	$0.573 \pm 0.162$	3.55	$-0.156 \pm 0.244$	$-0.552 \pm 0.230$
photometric centroid source offset	$0.71 \pm 0.48$	1.46	$0.18 \pm 0.56$	$-0.68 \pm 0.48$



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

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



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

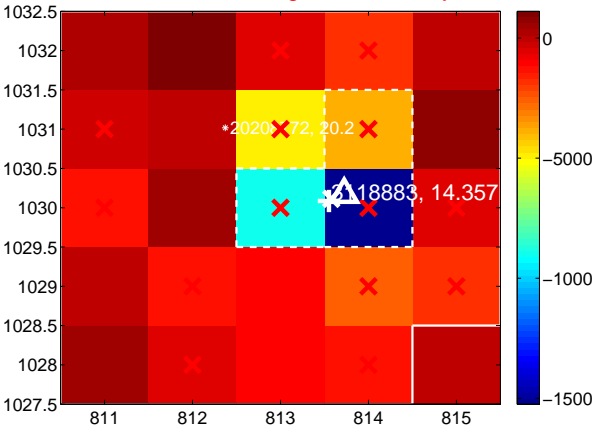
Q5 no difference image



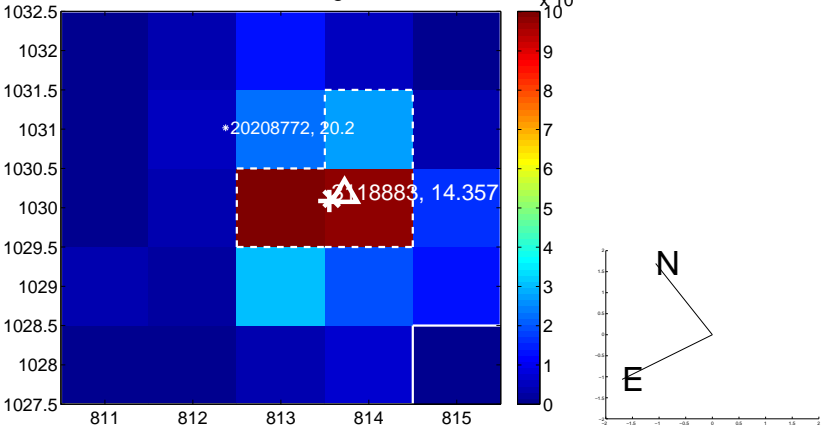
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



Q8 no difference image



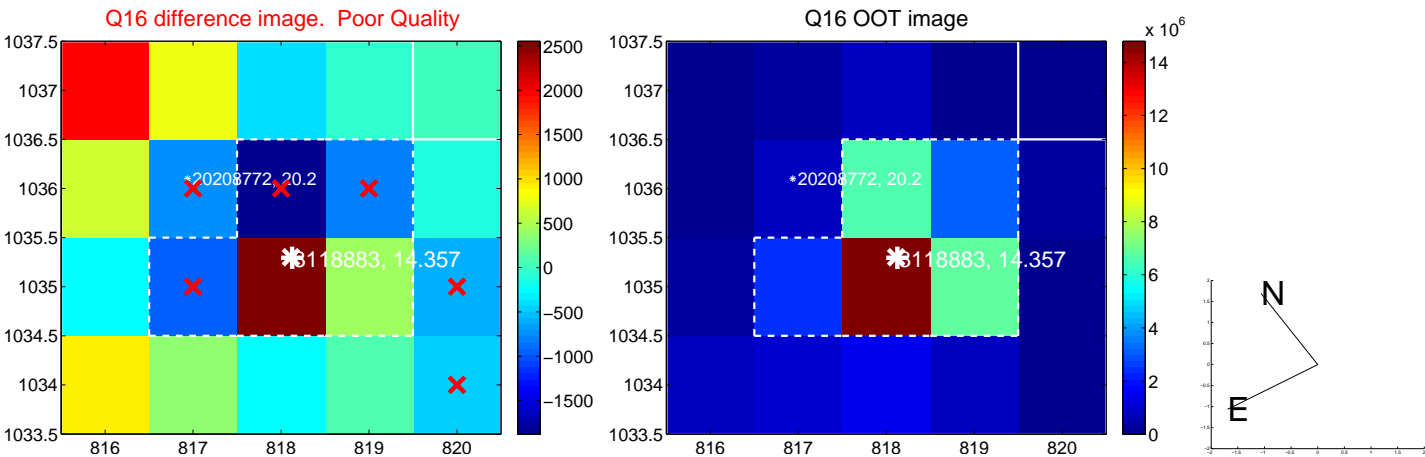
Q8 no OOT image



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

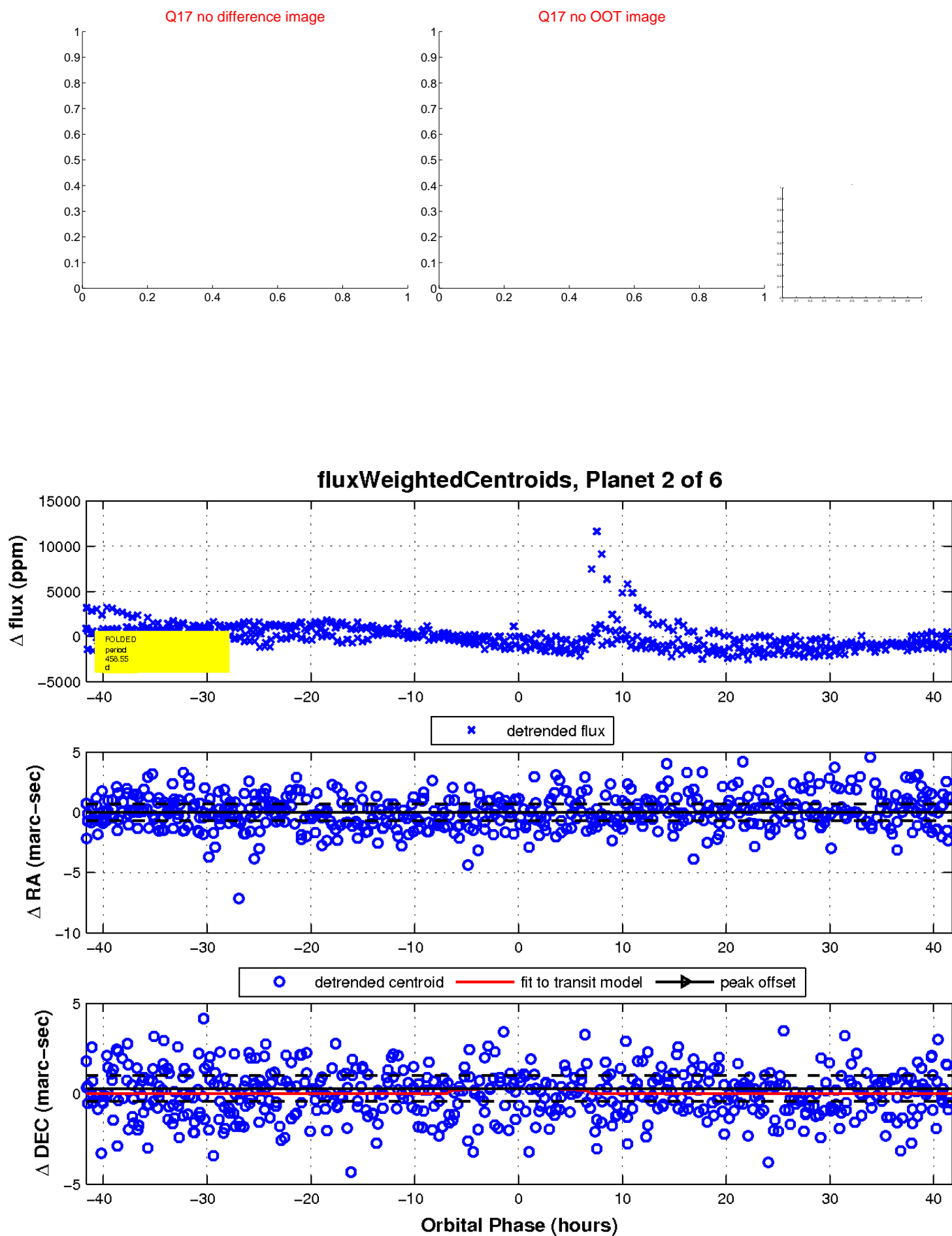


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



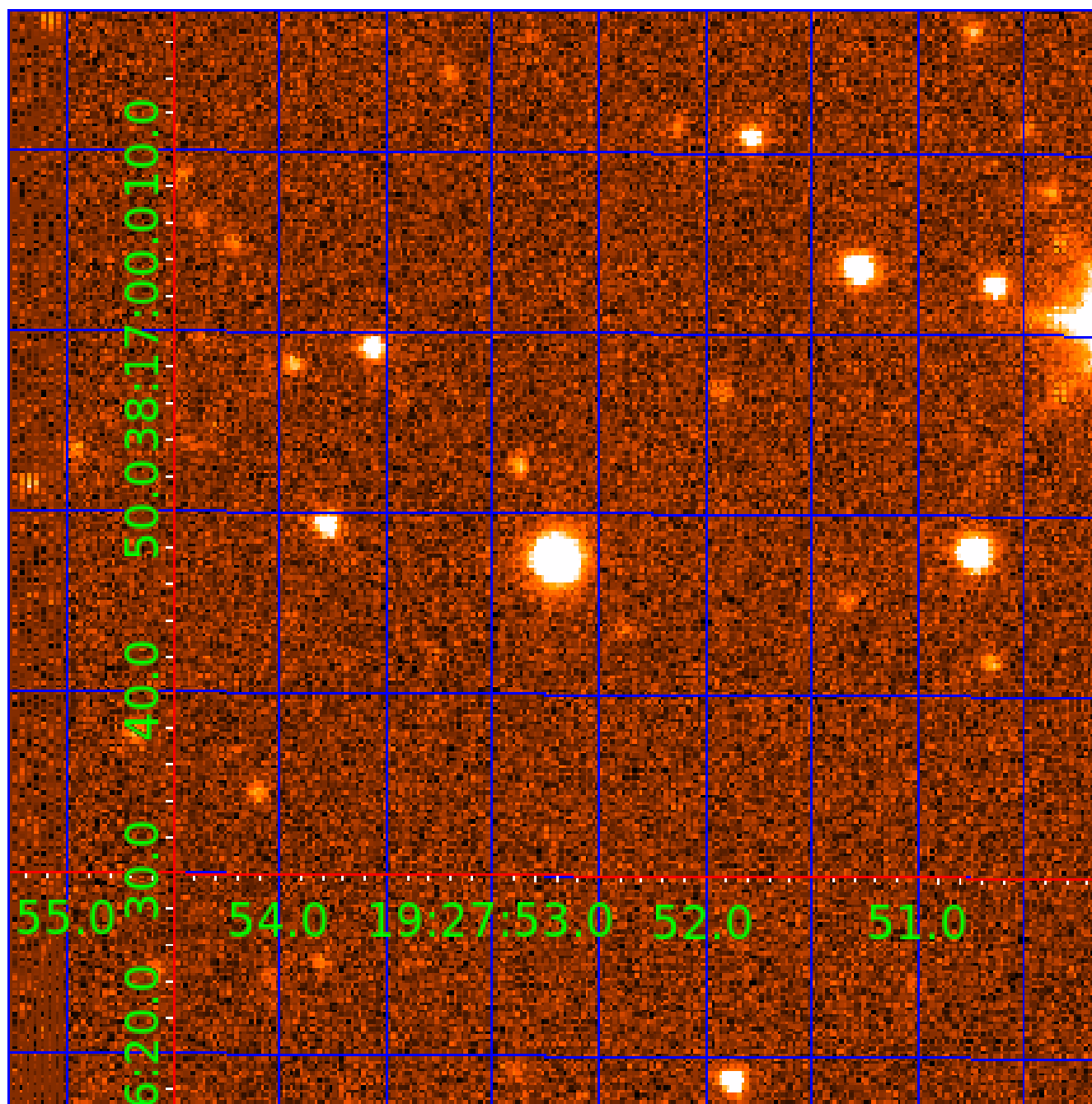


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003118883

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003118883-01	OBS	No	603.459346	135.638734	1024.9	7.687	19.7	8.4	0.83	5381	2.80	0.32
003118883-02	OBS	No	458.550863	153.883195	913.6	13.938	14.5	6.3	0.83	5381	2.47	0.46
003118883-03	OBS	No	557.173161	427.535440	967.2	11.644	13.4	6.8	0.83	5381	2.54	0.35
003118883-04	OBS	No	359.142867	185.656760	818.0	3.951	12.8	8.2	0.83	5381	2.38	0.64
003118883-06	OBS	No	446.771002	561.572670	982.8	11.451	9.7	7.8	0.83	5381	3.32	0.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003118883-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003118883-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003118883-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
003118883-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003118883-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

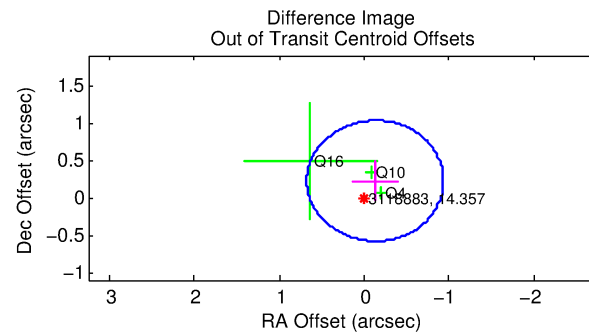
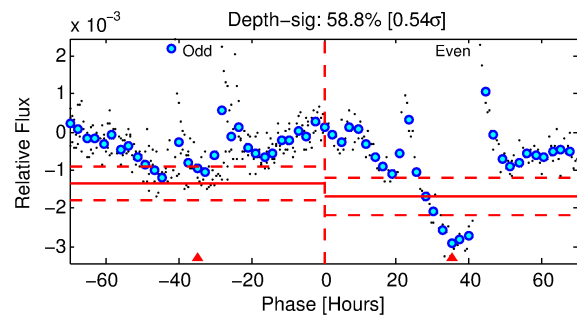
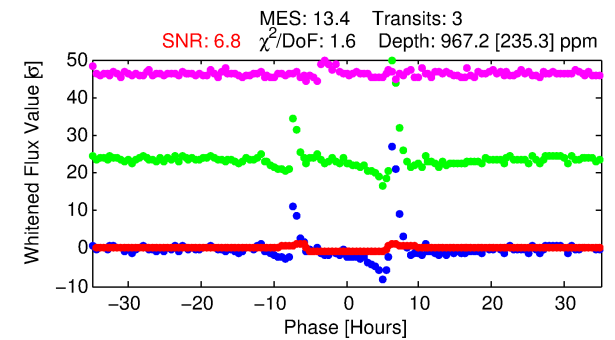
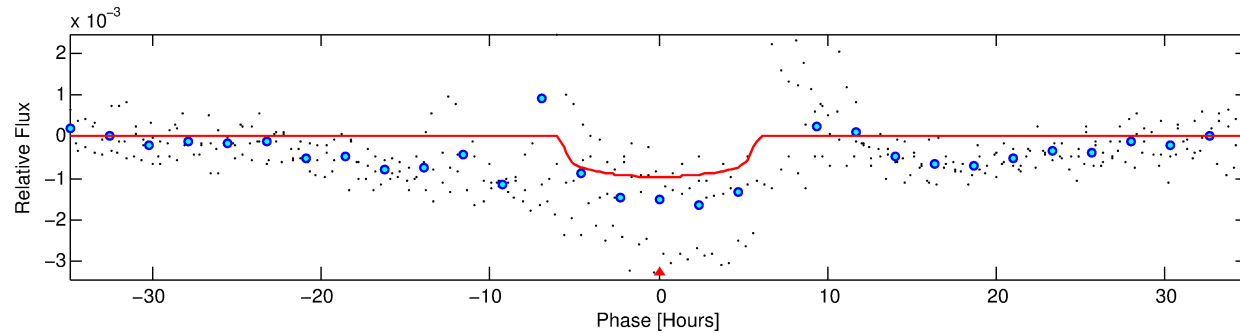
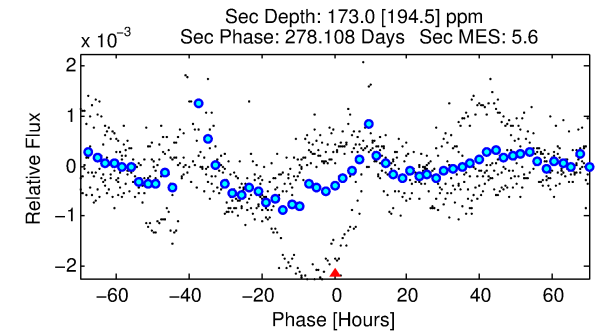
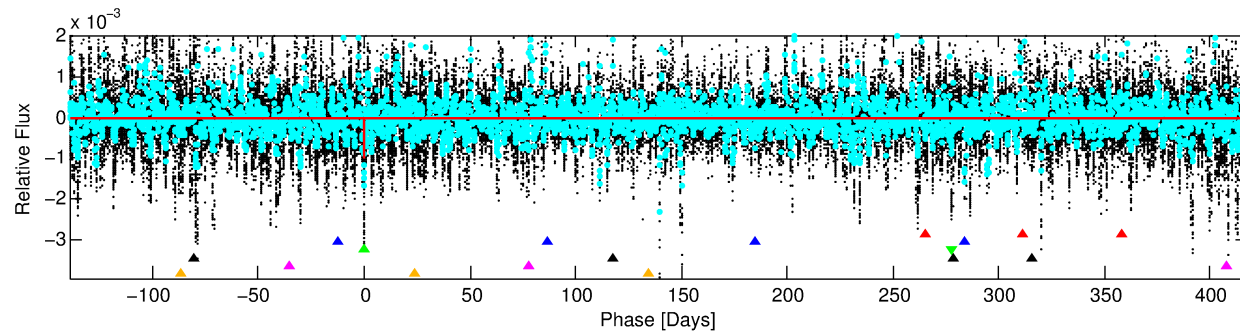
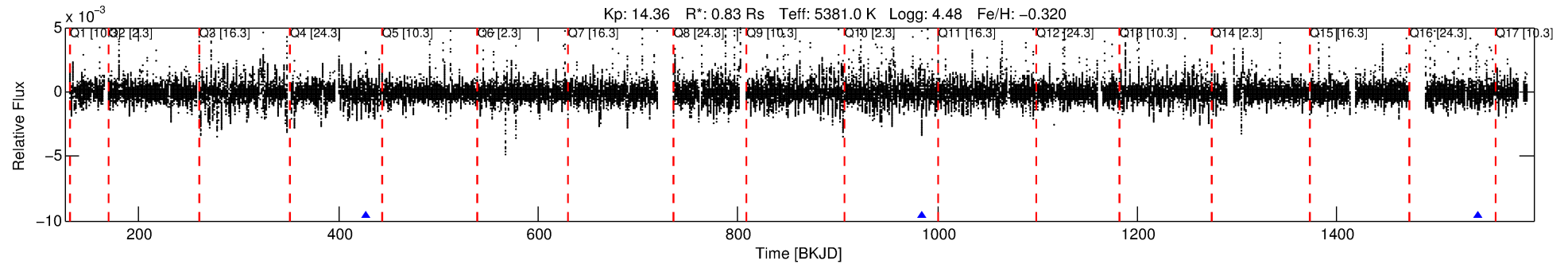
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003118883-03

No Significant Match Found

# DV One-Page Summary

KIC: 3118883 Candidate: 3 of 6 Period: 557.173 d



## DV Fit Results:

Period = 557.17316 [0.01231] d  
Epoch = 427.5354 [0.0157] BKJD  
Rp/R\* = 0.0282 [0.0576]  
a/R\* = 368.14 [3049.50]  
b = 0.21 [38.58]  
Seff = 0.35 [0.09]  
Teq = 197 [12] K  
Rp = 2.54 [5.22] Re  
a = 1.2042 [0.1666] AU  
Ag = 21389.07 [90949.68] [0.24 $\sigma$ ]  
Teffp = 3678 [3907] K [0.89 $\sigma$ ]

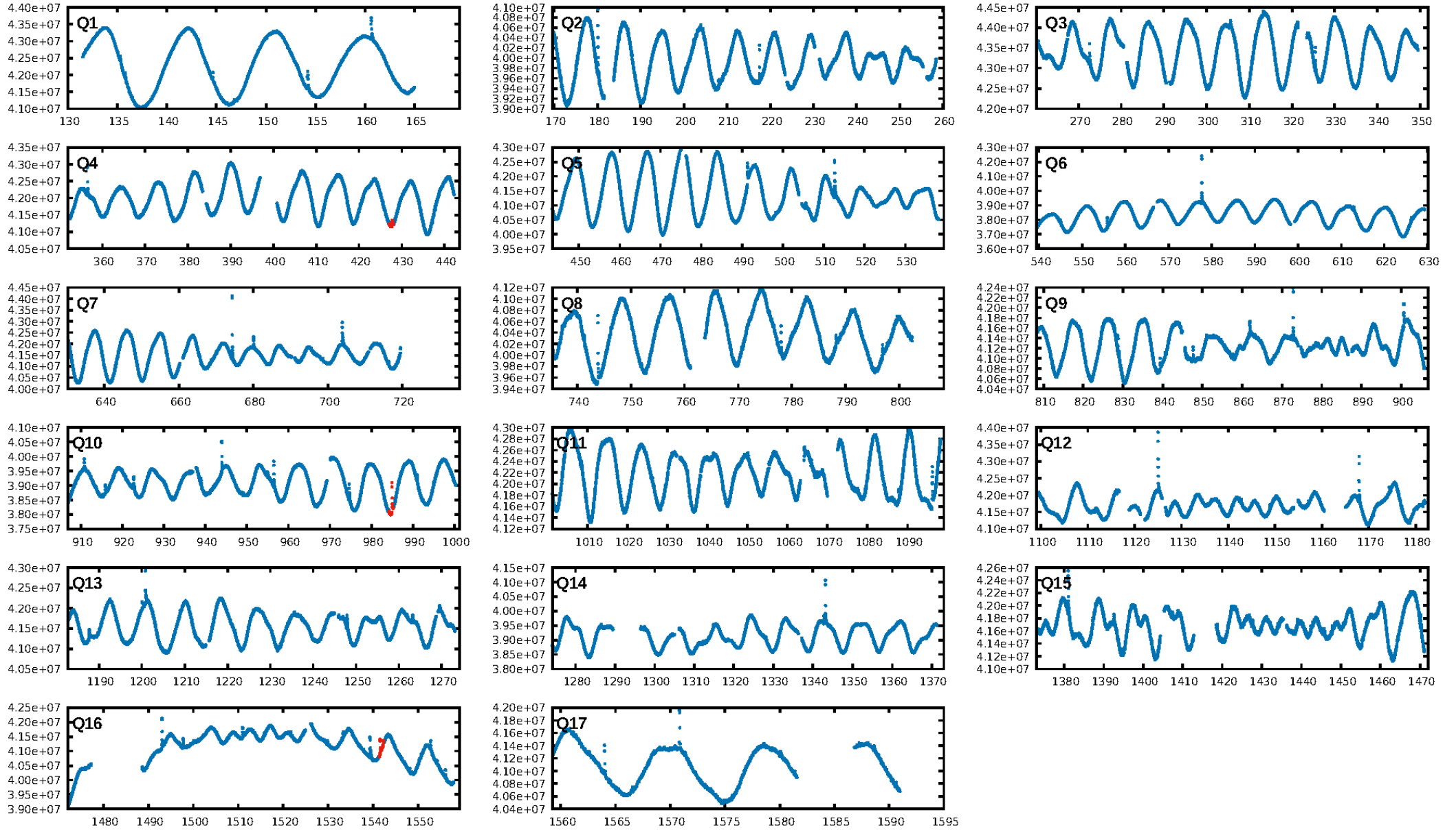
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [130.33 $\sigma$ ]  
LongPeriod-sig: 100.0% [79.62 $\sigma$ ]  
ModelChiSquare2-sig: 37.3%  
ModelChiSquareGof-sig: 68.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.363  
Centroid-sig: 3.1%  
Centroid-so: 1.333 arcsec [2.03 $\sigma$ ]  
OotOffset-rm: 0.261 arcsec [0.97 $\sigma$ ]  
KicOffset-rm: 0.239 arcsec [0.89 $\sigma$ ]  
OotOffset-st: 1/0/2/0 [3]  
KicOffset-st: 1/0/2/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

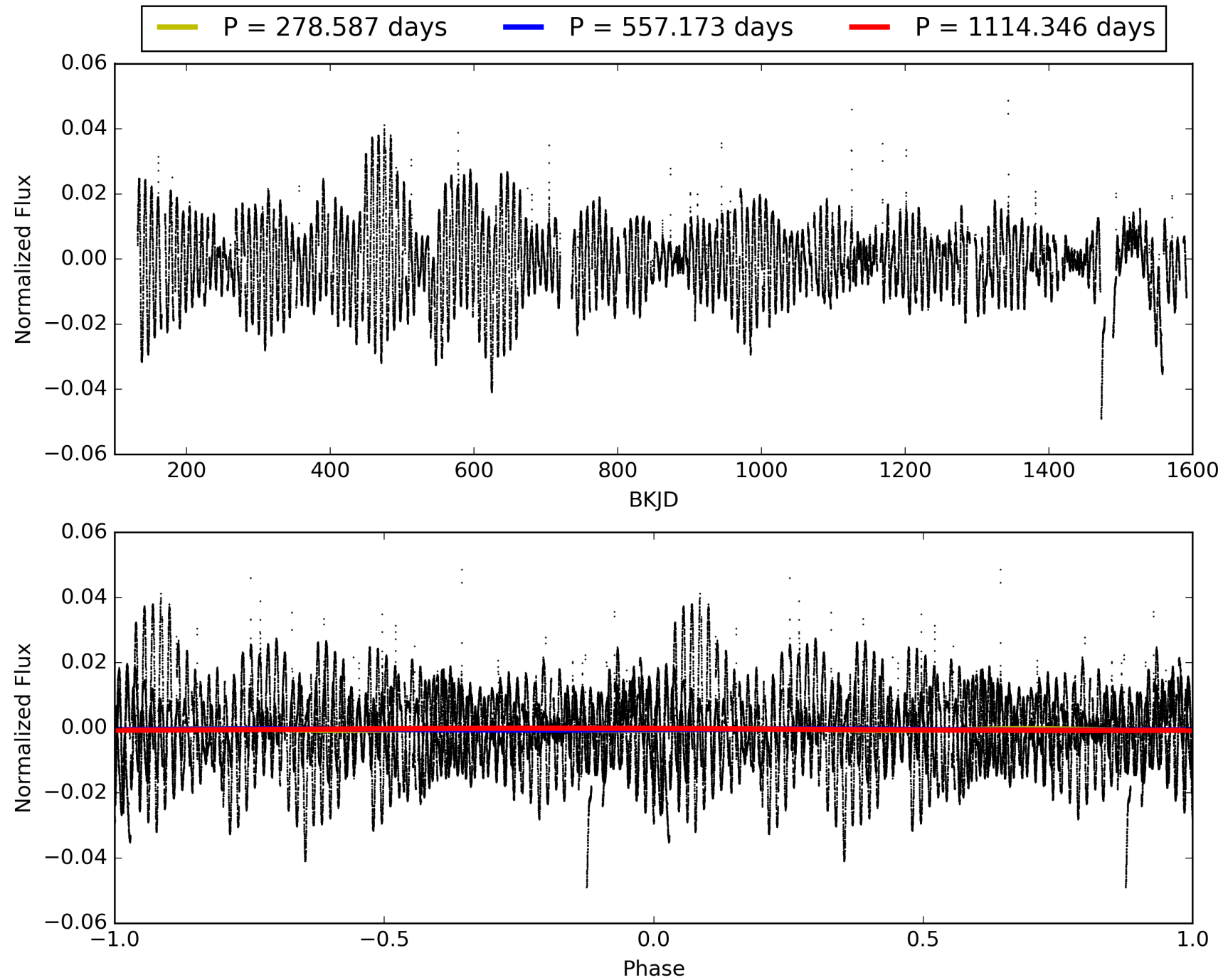
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:22:34 Z

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

# TCE 003118883-03, PDC Light Curves

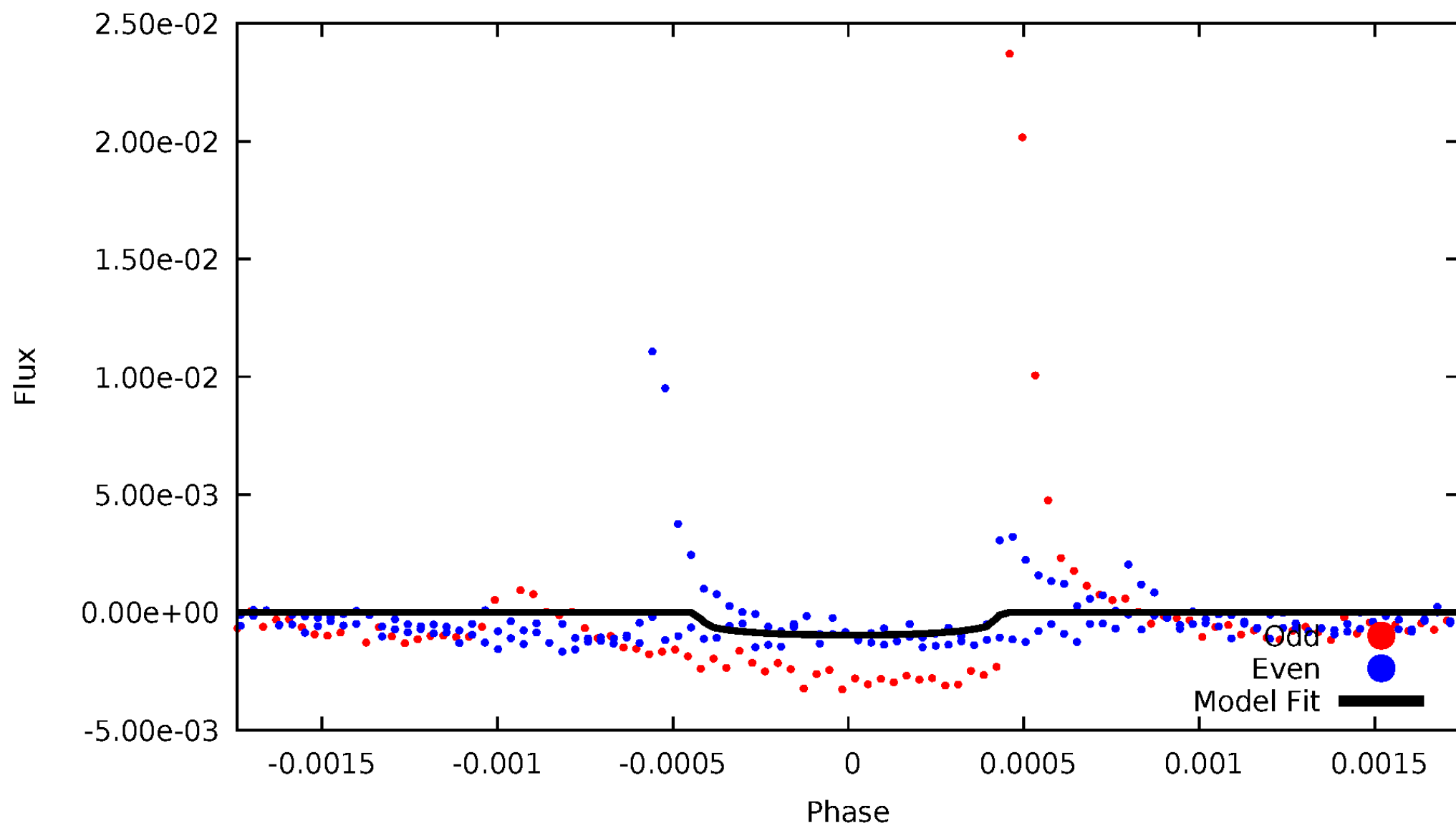


TCE 003118883-03



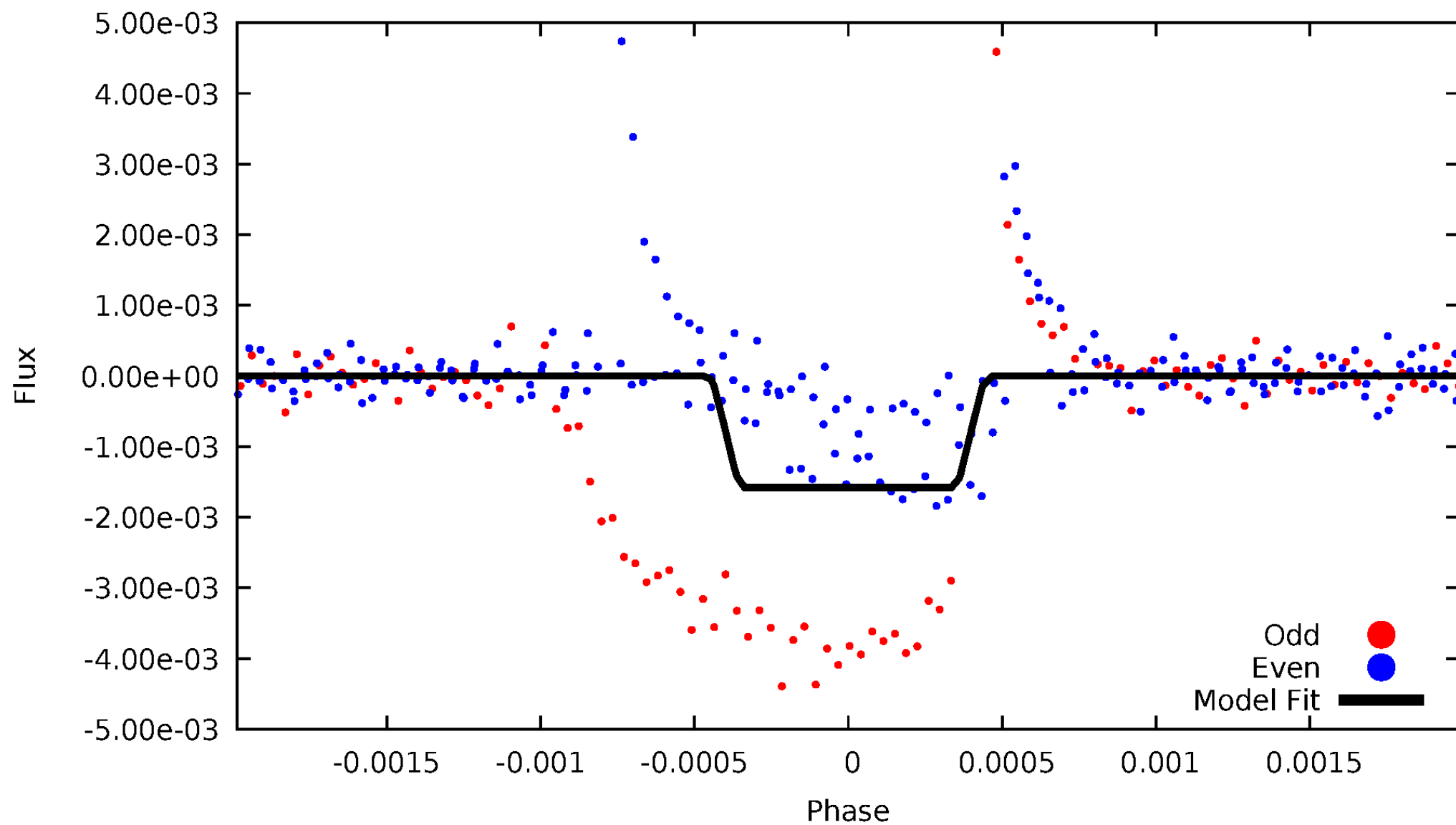
# DV Odd/Even

TCE 003118883-03



# ALT Odd/Even

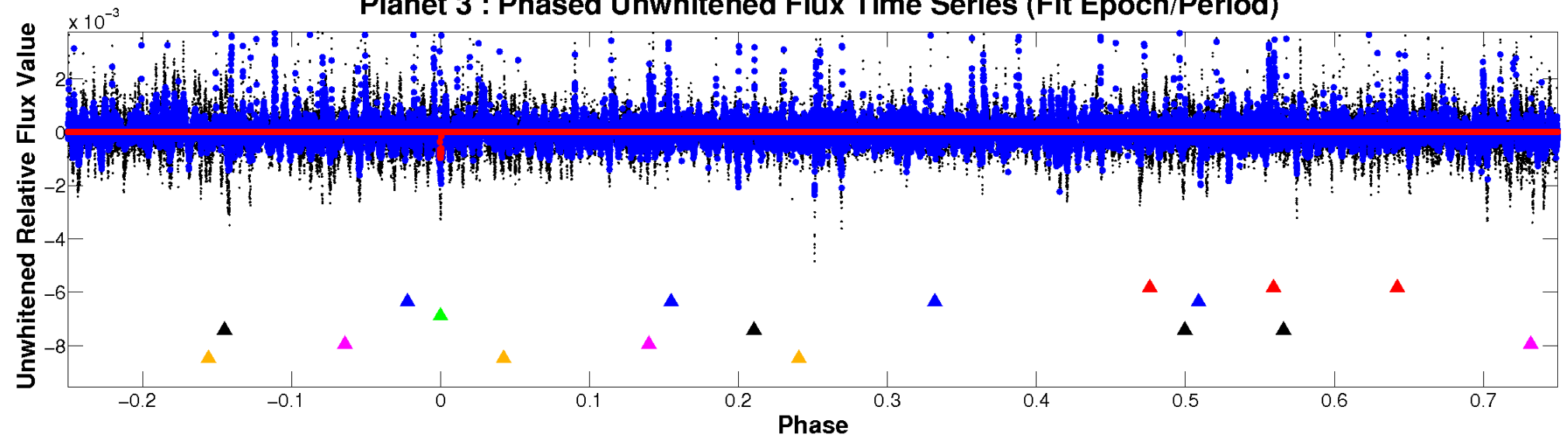
TCE 003118883-03



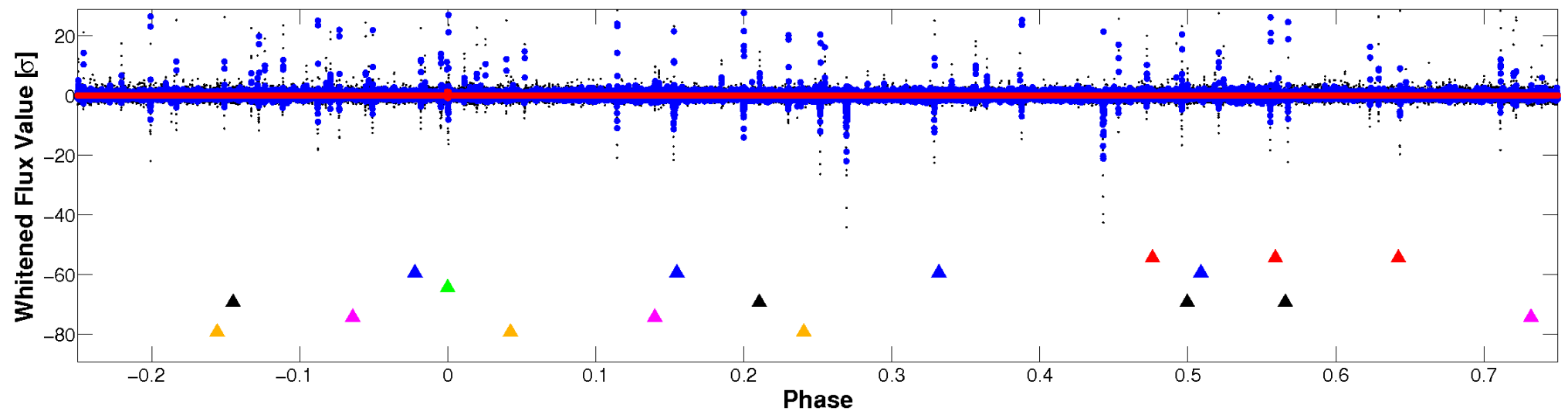


# Non-Whitened Vs. Whitened Light Curve

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

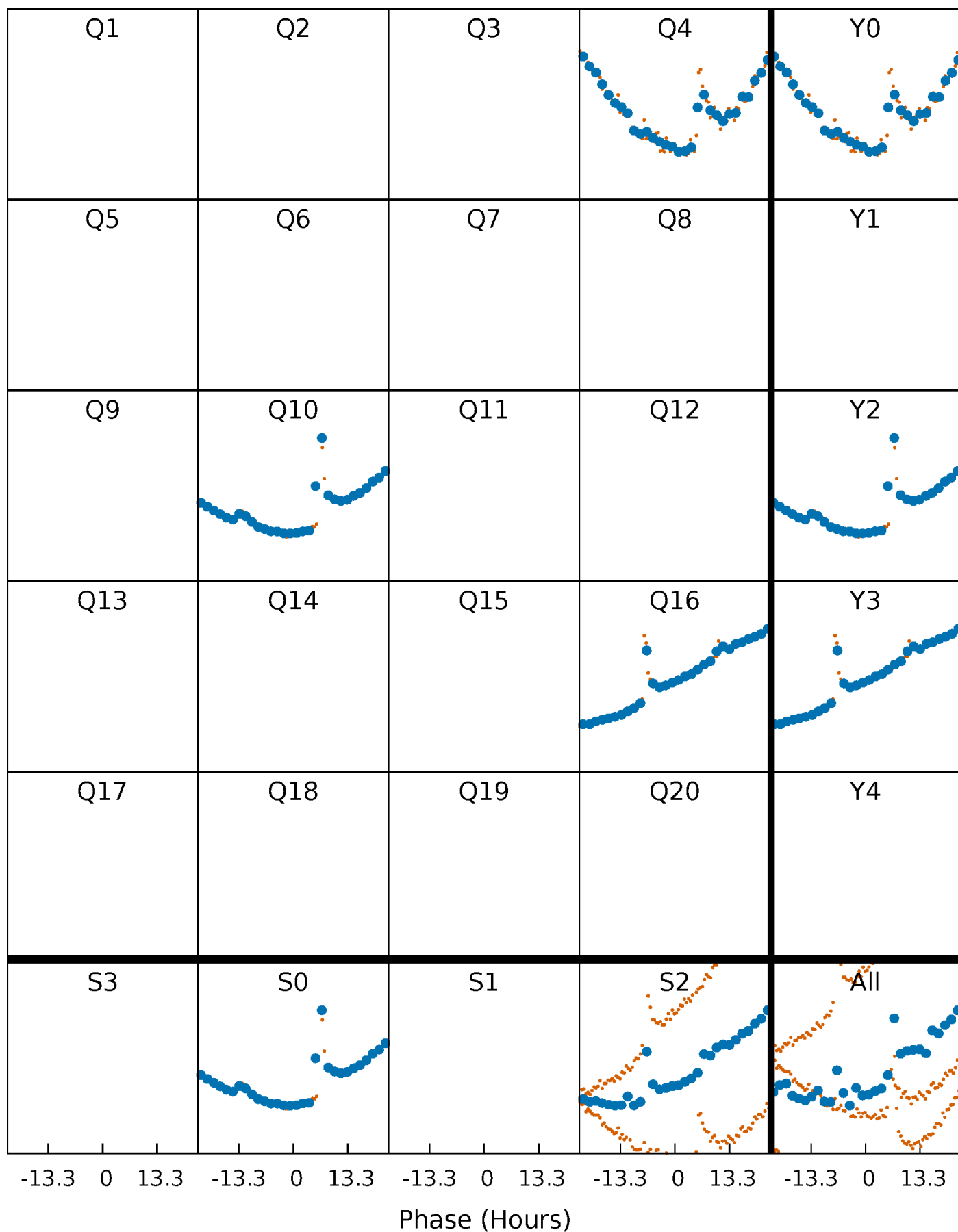


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



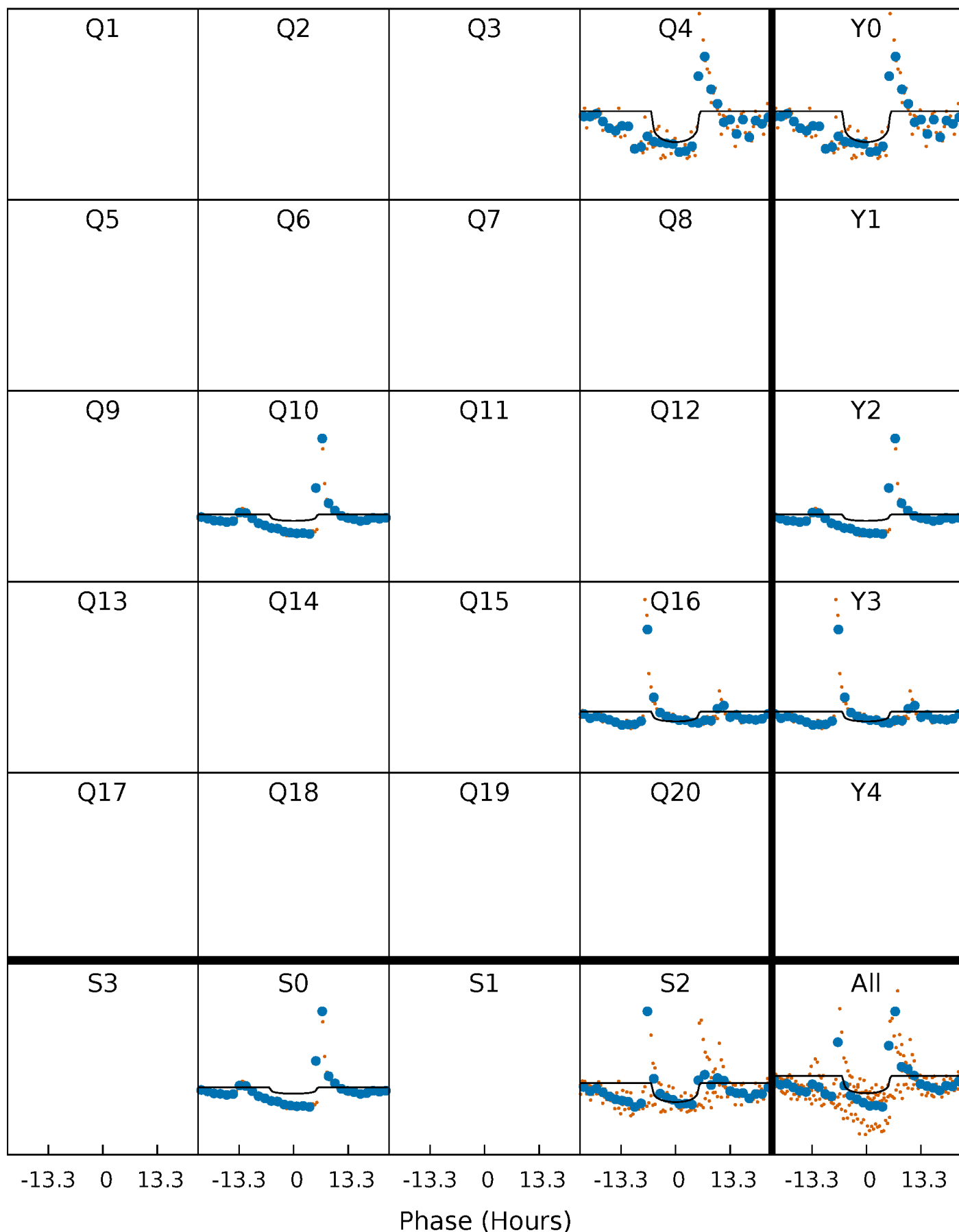
# PDC Quarter-Phased Transit Curves

TCE 003118883-03 P=557.173161 Days  $T_0=427.535440$  (BKJD)



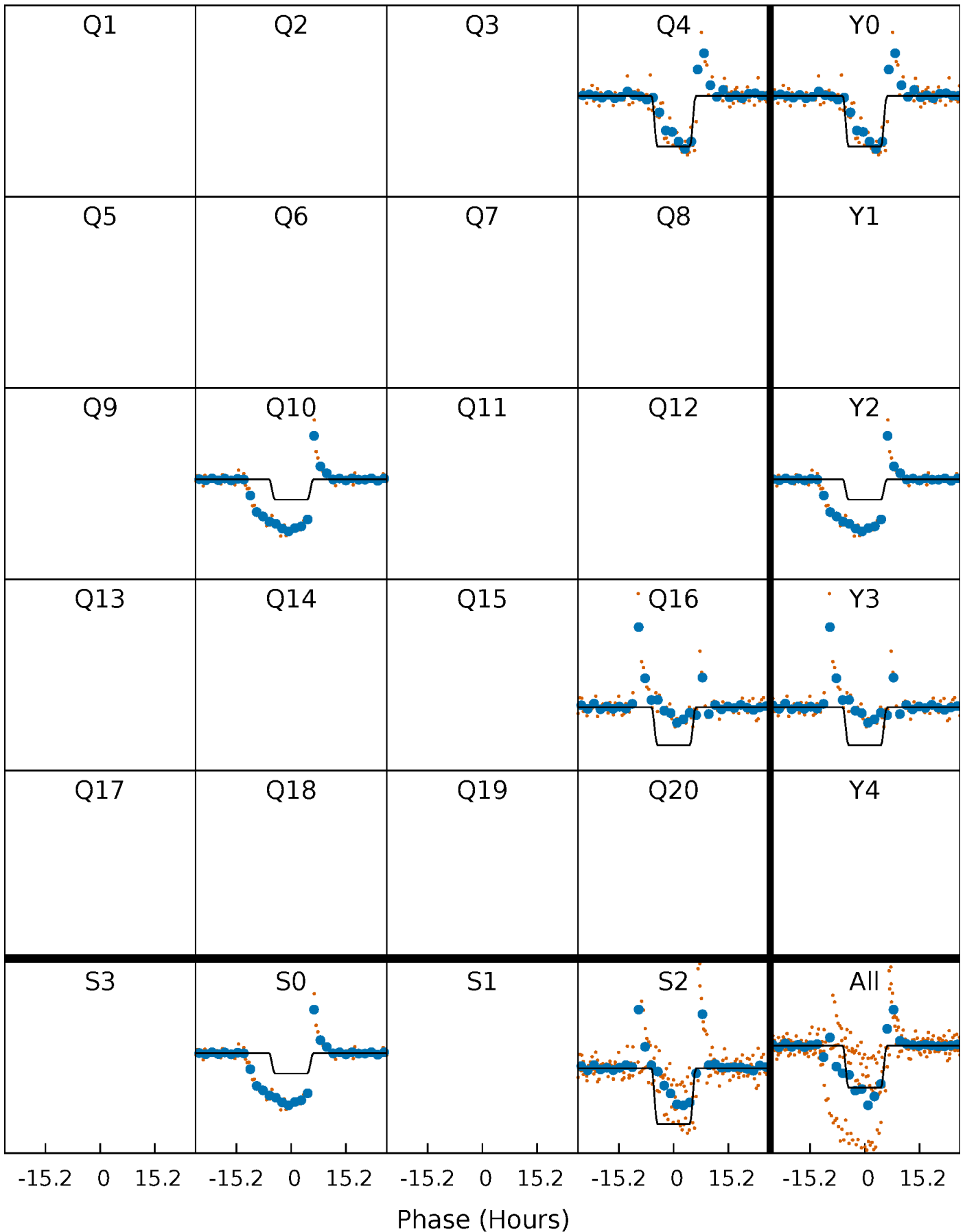
# DV Quarter-Phased Transit Curves

TCE 003118883-03 P=557.173161 Days  $T_0=427.535440$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

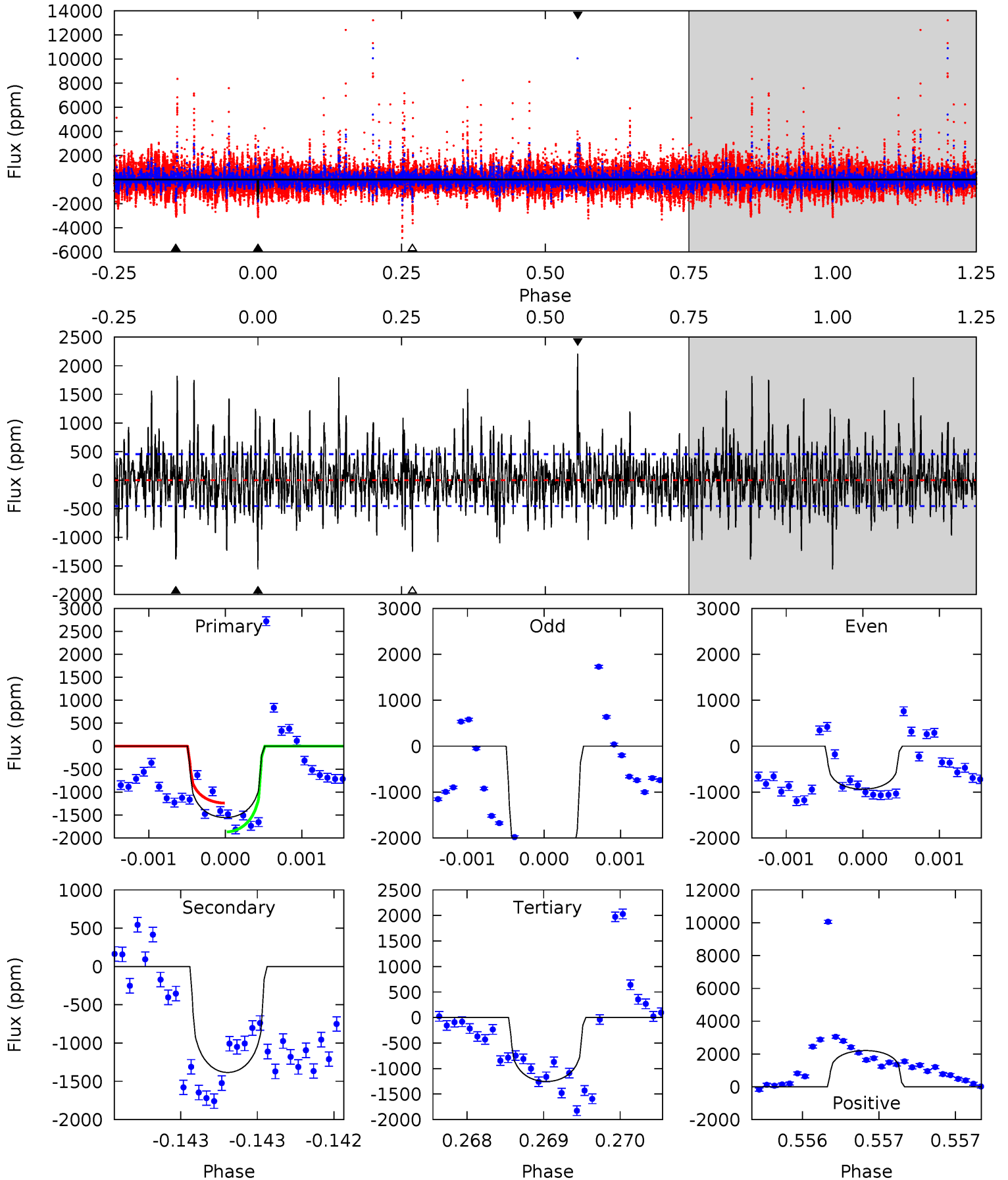
TCE 003118883-03 P=557.264048 Days  $T_0=427.493886$  (BKJD)



# DV Model-Shift Uniqueness Test

003118883-03, P = 557.173161 Days, E = 427.535440 Days

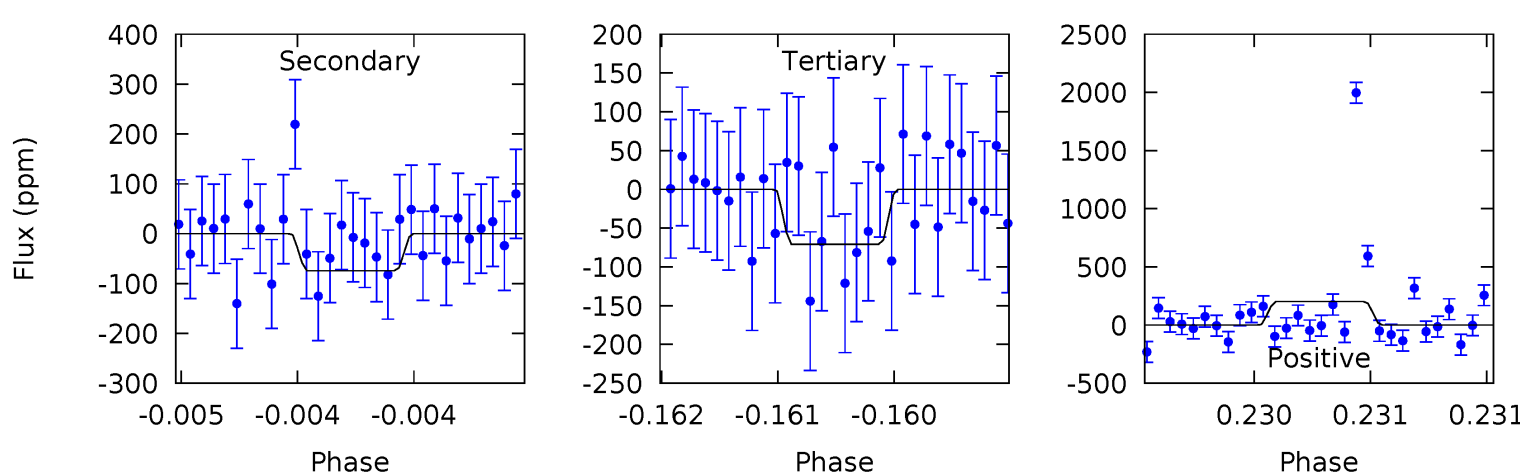
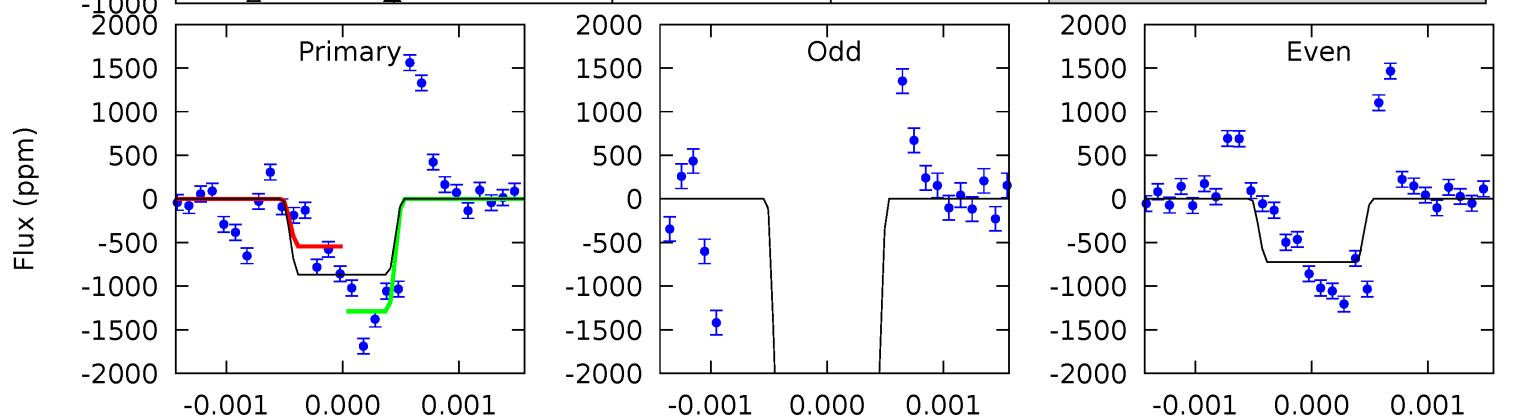
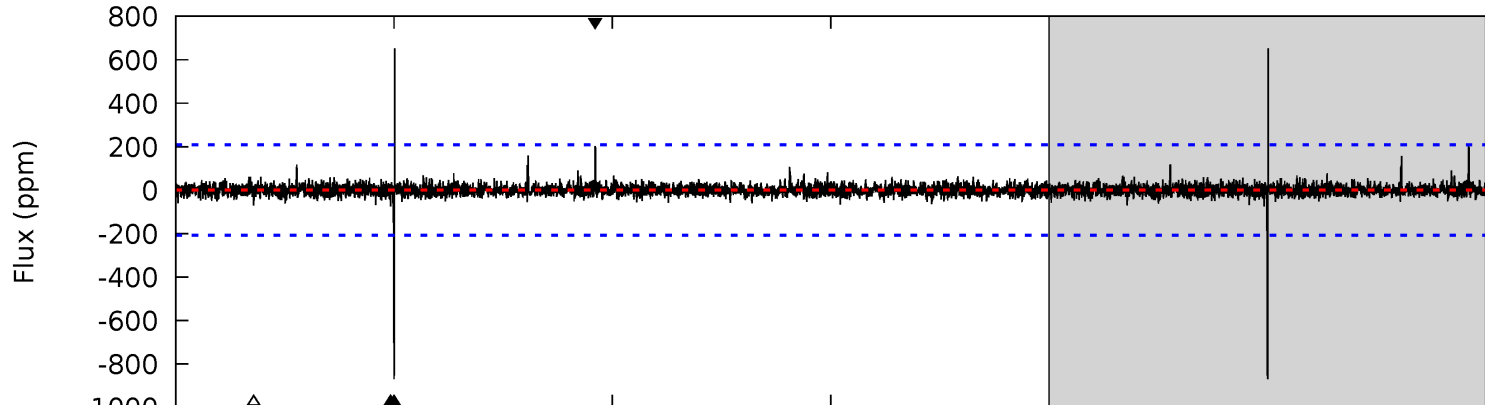
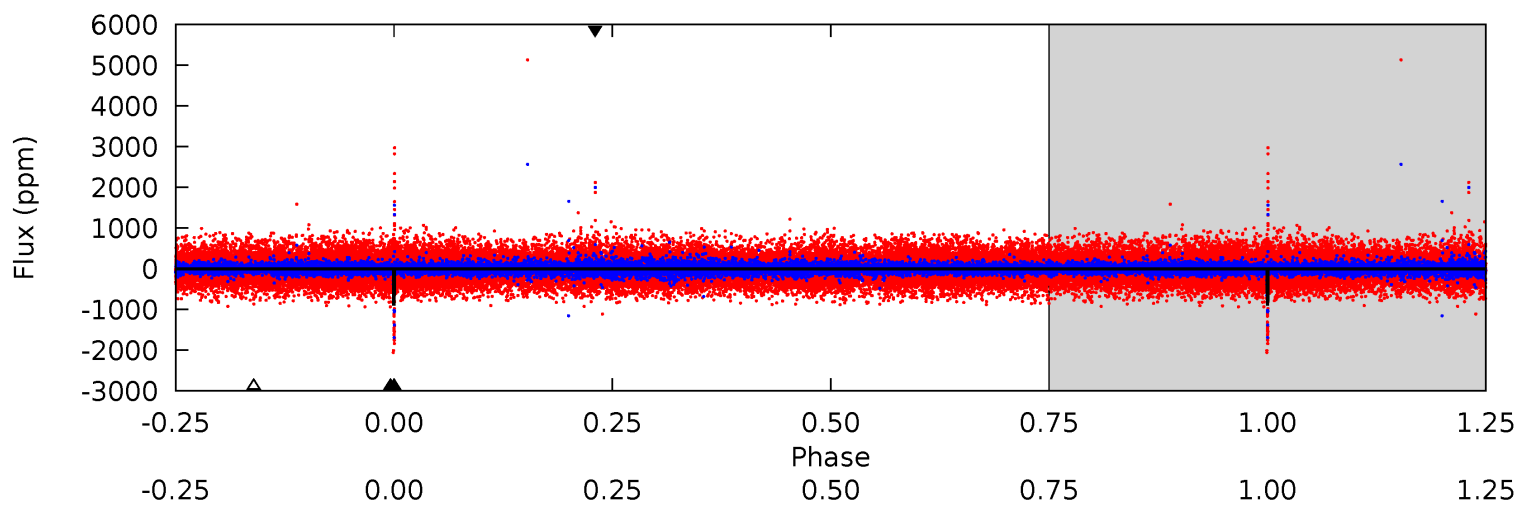
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	16.7	15.1	26.7	5.47	3.32	4.54	3.65	-7.89	1.58	-9.96	7.89	1.34	0.59	3.81



# Alt Model-Shift Uniqueness Test

003118883-03, P = 557.264048 Days, E = 427.493886 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
22.9	1.96	1.86	5.34	5.47	3.33	0.46	21.0	17.5	0.10	-3.38	46.6	1.44	0.43	9.55



### Stellar Parameters For KIC 003118883

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5381^{+160}_{-144}$	$4.478^{+0.120}_{-0.120}$	$-0.320^{+0.350}_{-0.300}$	$0.827^{+0.128}_{-0.116}$	$0.751^{+0.118}_{-0.050}$	$1.871^{+0.935}_{-0.625}$
	+3%/-3%	+3%/-3%	+109%/-94%	+15%/-14%	+16%/-7%	+50%/-33%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003118883-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1384 \pm 83$	$4.71^{+4.61}_{-3.10}$	$277^{+14}_{-15}$	$4689^{+3268}_{-1003}$	$50623^{+377453}_{-37573}$
Alt.	$-75 \pm 38$	$5.12^{+4.52}_{-3.41}$	$275^{+14}_{-13}$	$2795^{+1116}_{-509}$	$2283^{+16423}_{-1889}$

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

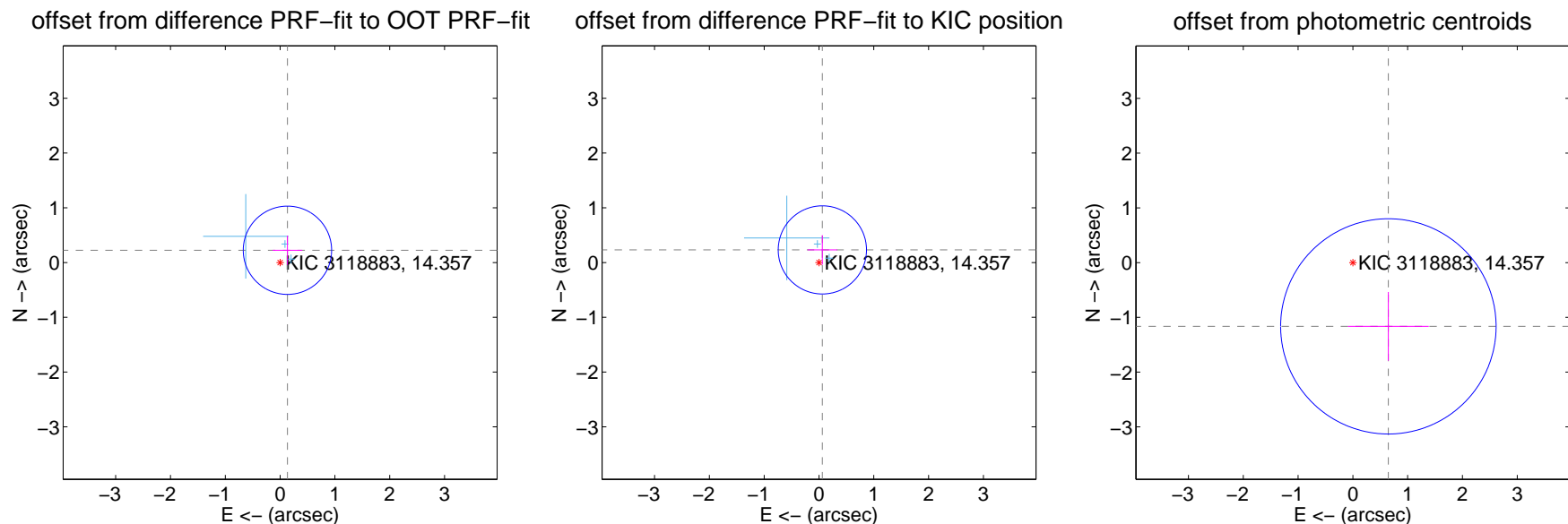
## DV Centroid Data

Supplemental centroid analysis for 003118883-03. Kepler magnitude: 14.36. Transit SNR 6.75

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

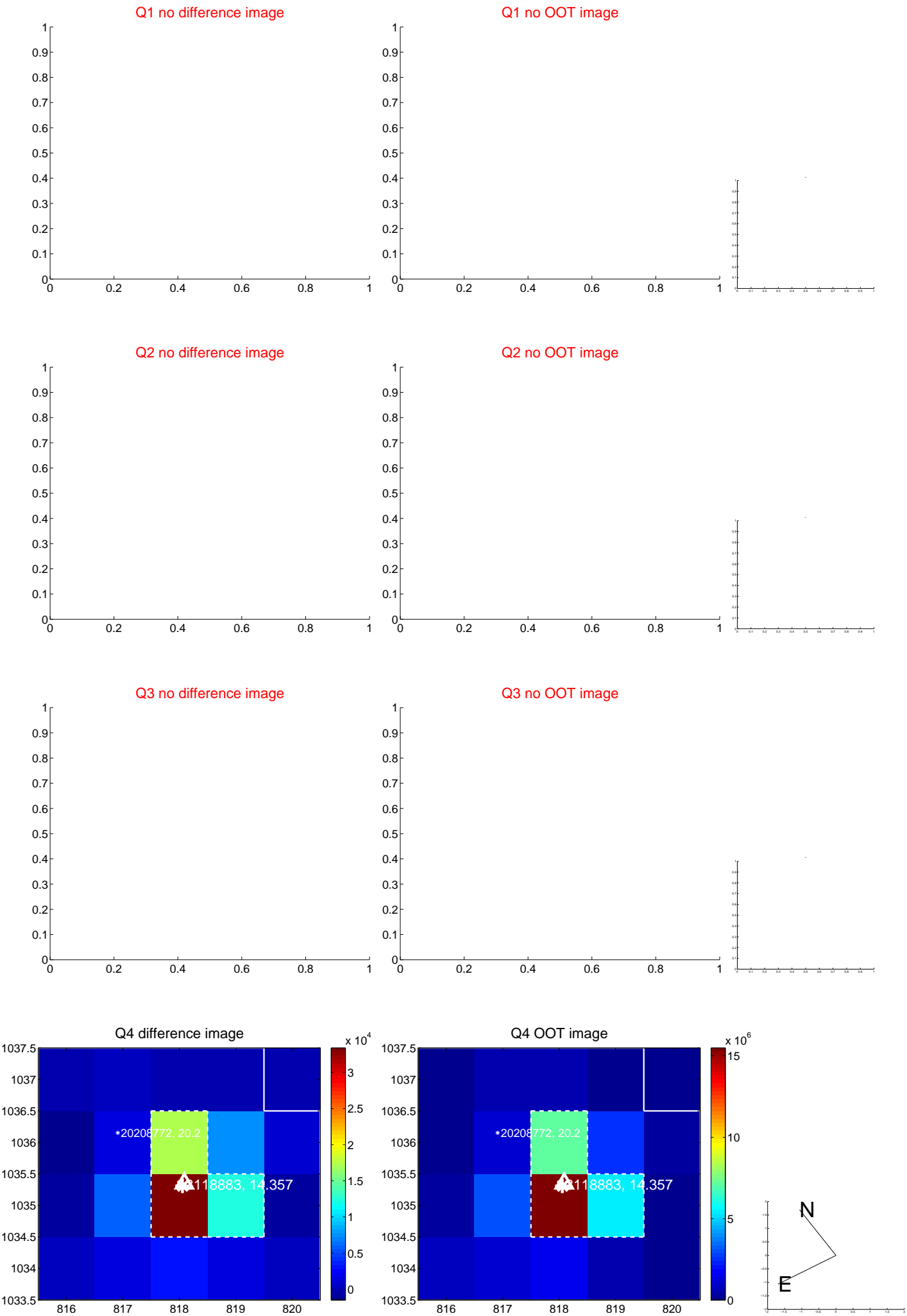
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.261 \pm 0.269$	0.97	$-0.134 \pm 0.270$	$0.224 \pm 0.268$
PRF-fit source offset from KIC position	$0.239 \pm 0.268$	0.89	$-0.062 \pm 0.270$	$0.231 \pm 0.268$
photometric centroid source offset	$1.33 \pm 0.66$	2.03	$-0.65 \pm 0.74$	$-1.16 \pm 0.63$



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.

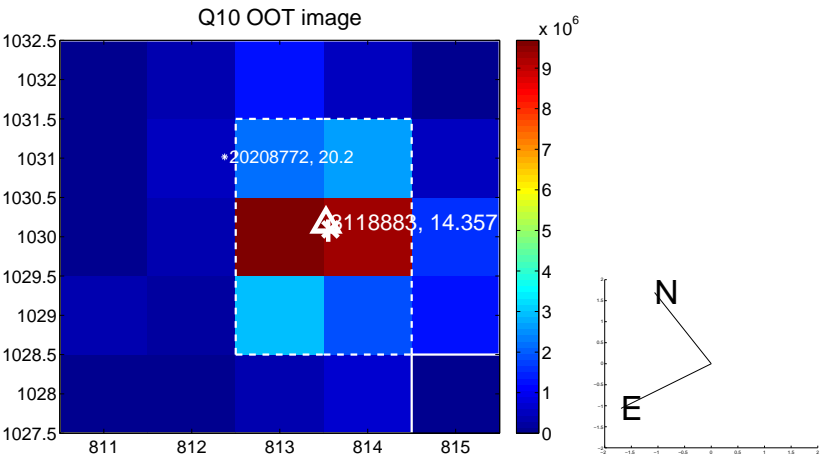
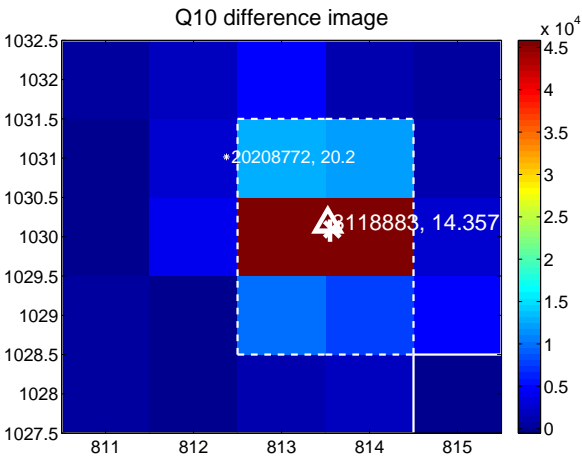


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

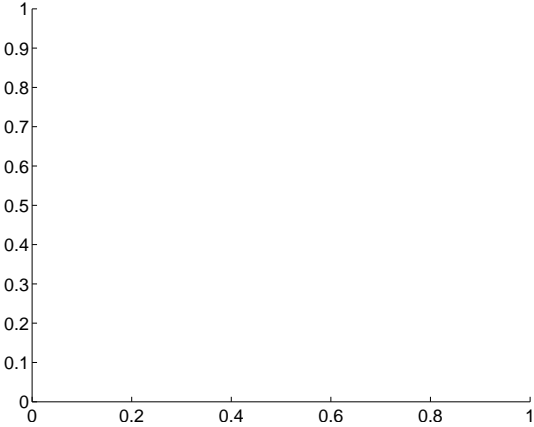
Q9 no difference image



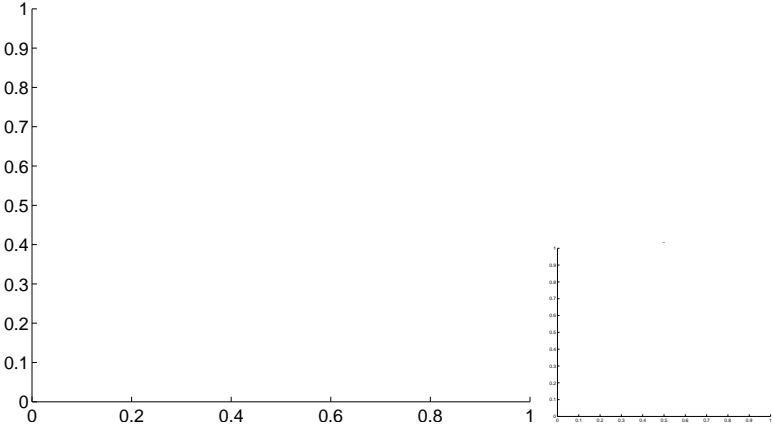
Q9 no OOT image



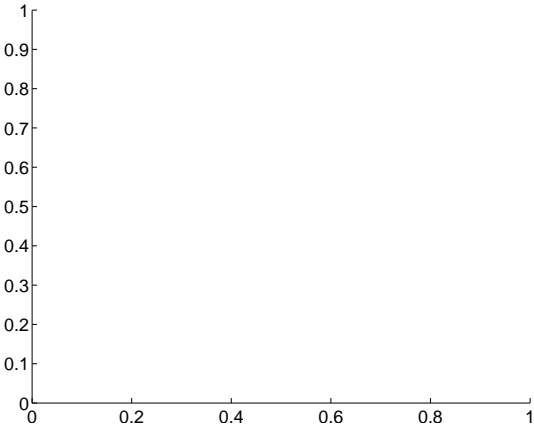
Q11 no difference image



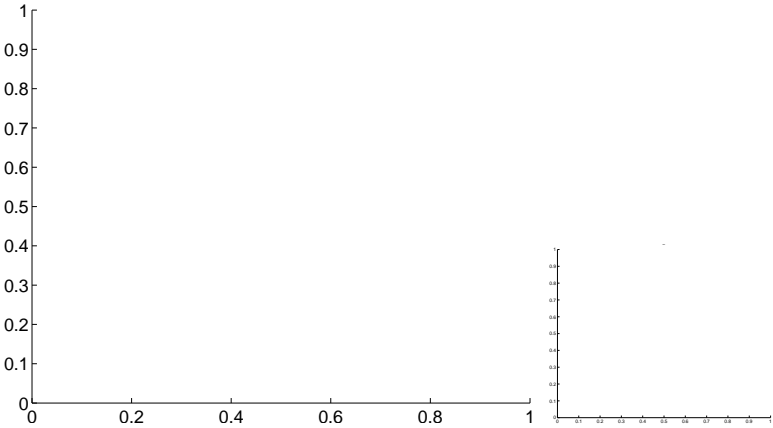
Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

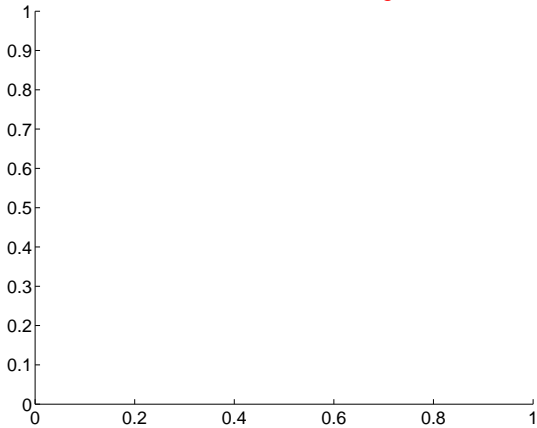
Q13 no difference image



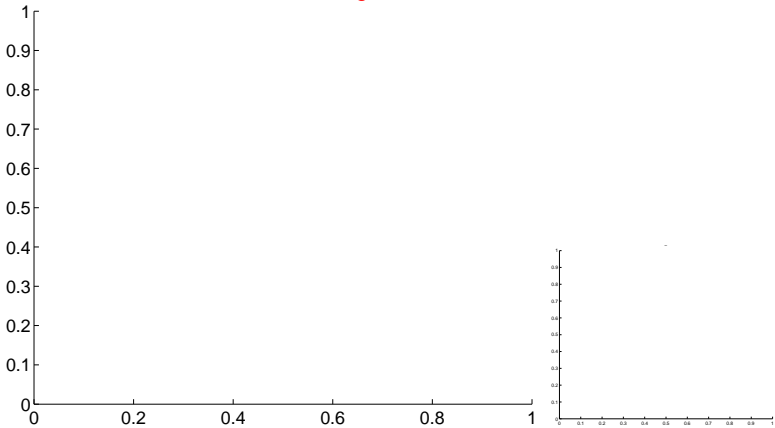
Q13 no OOT image



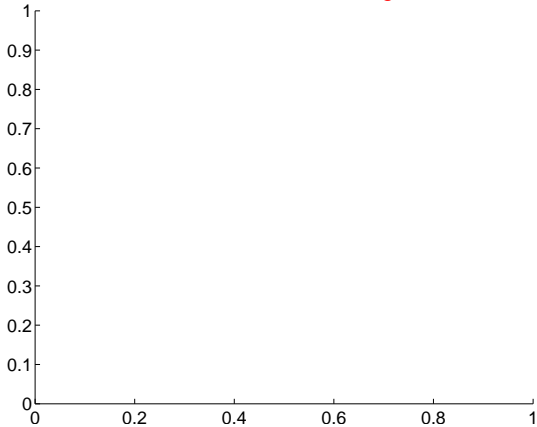
Q14 no difference image



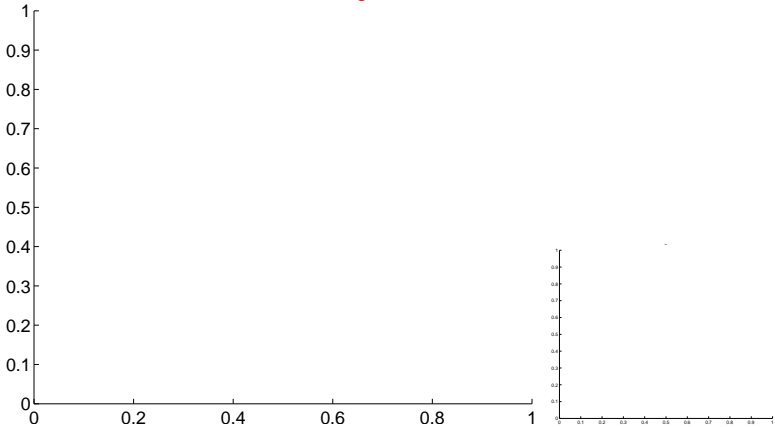
Q14 no OOT image



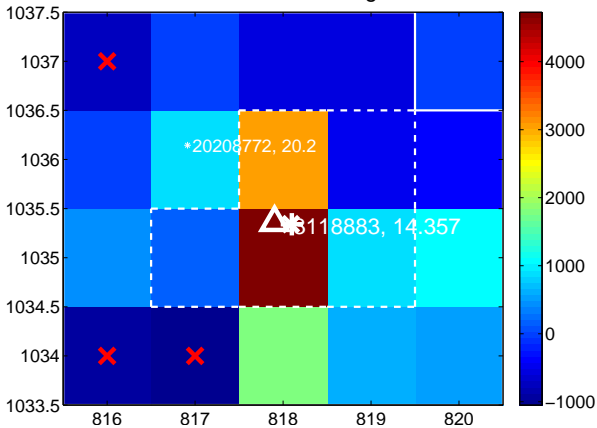
Q15 no difference image



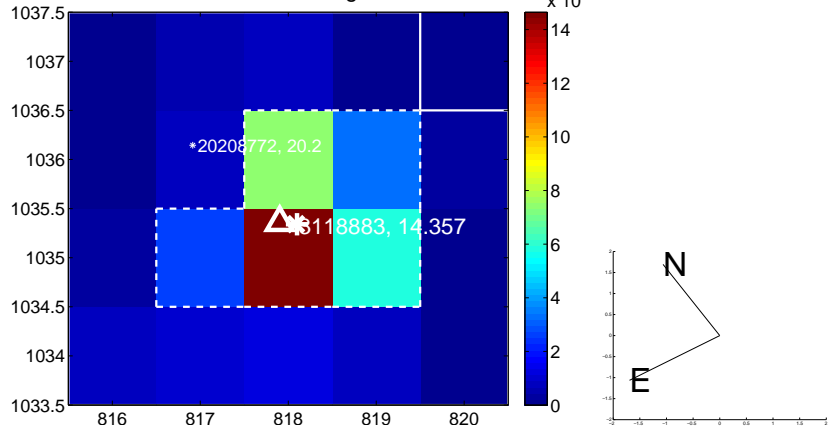
Q15 no OOT image



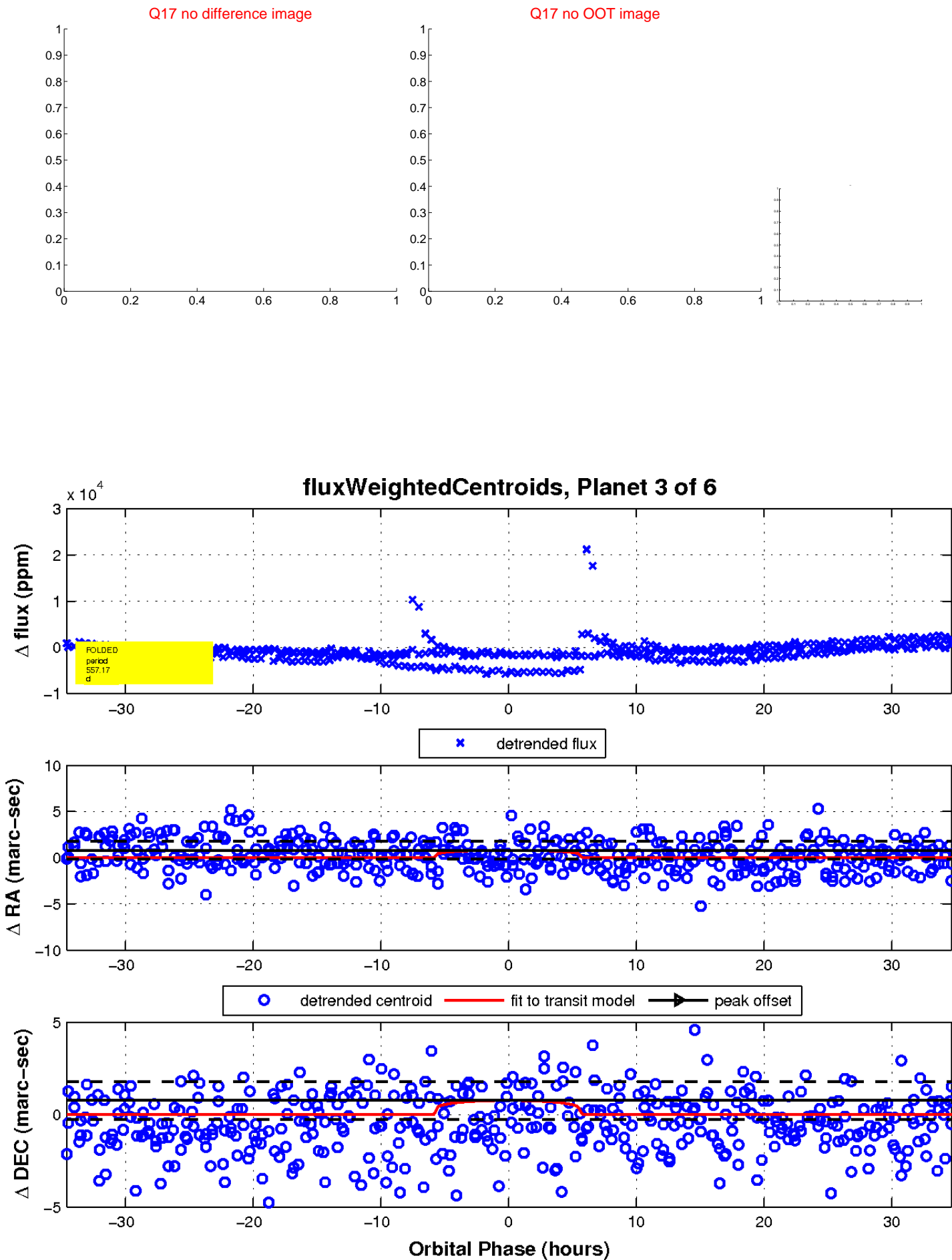
Q16 difference image



Q16 OOT image

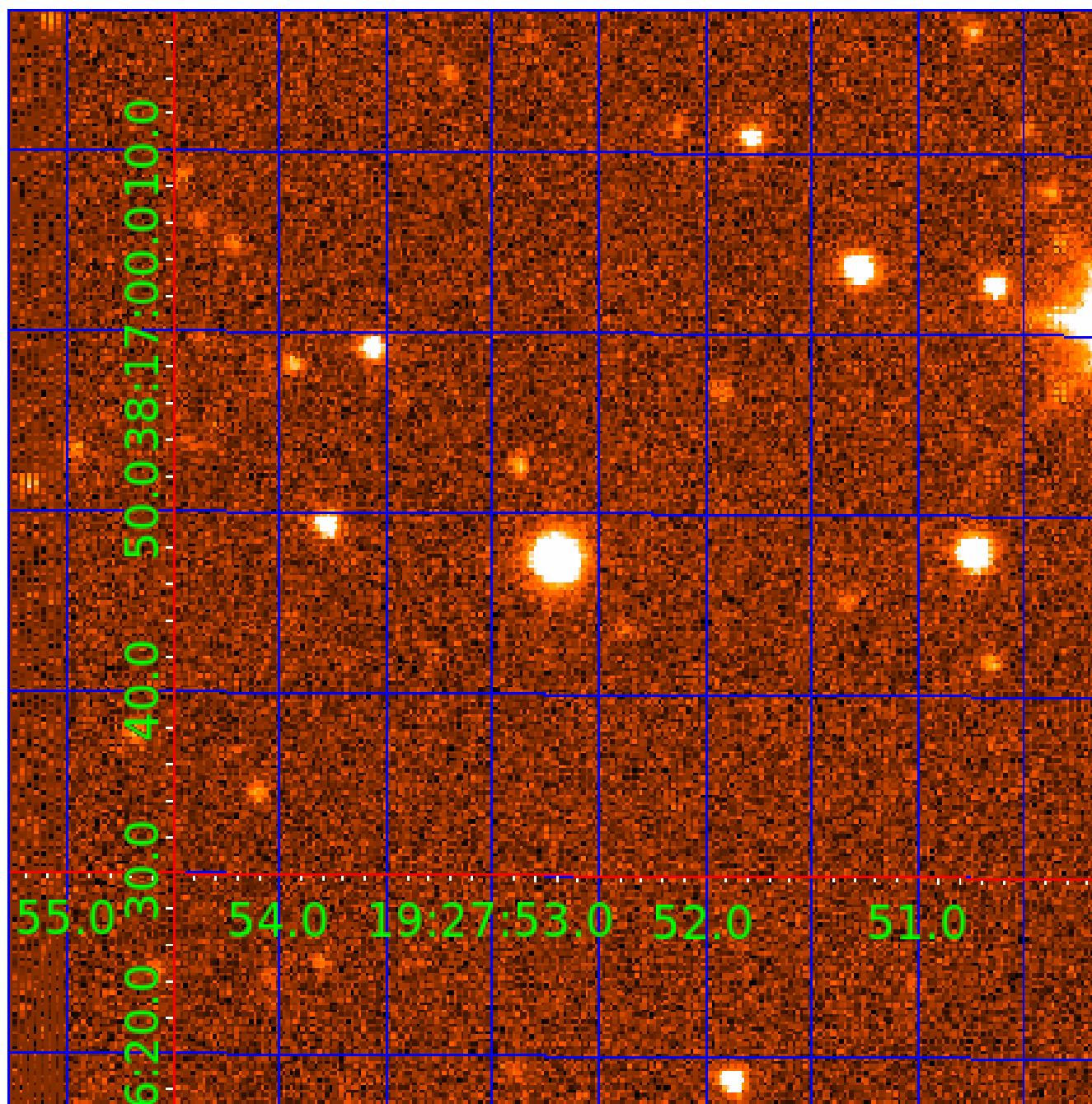


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003118883

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003118883-01	OBS	No	603.459346	135.638734	1024.9	7.687	19.7	8.4	0.83	5381	2.80	0.32
003118883-02	OBS	No	458.550863	153.883195	913.6	13.938	14.5	6.3	0.83	5381	2.47	0.46
003118883-03	OBS	No	557.173161	427.535440	967.2	11.644	13.4	6.8	0.83	5381	2.54	0.35
003118883-04	OBS	No	359.142867	185.656760	818.0	3.951	12.8	8.2	0.83	5381	2.38	0.64
003118883-06	OBS	No	446.771002	561.572670	982.8	11.451	9.7	7.8	0.83	5381	3.32	0.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003118883-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003118883-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003118883-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
003118883-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003118883-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

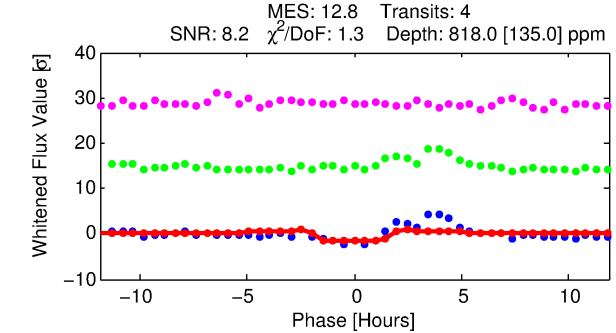
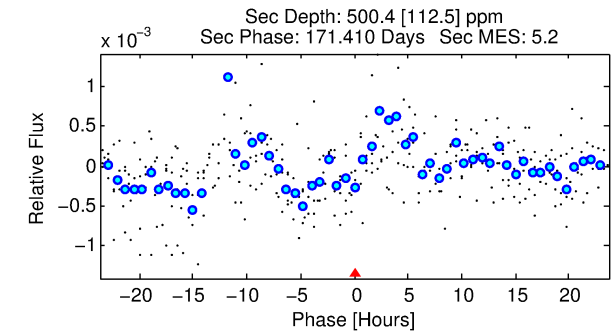
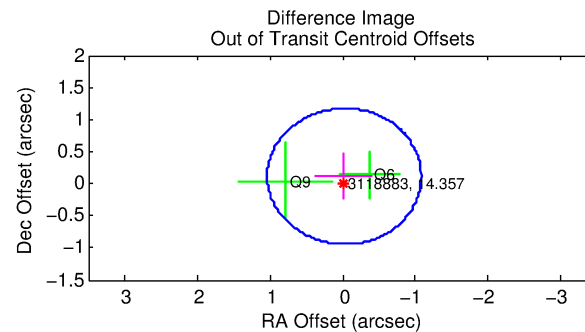
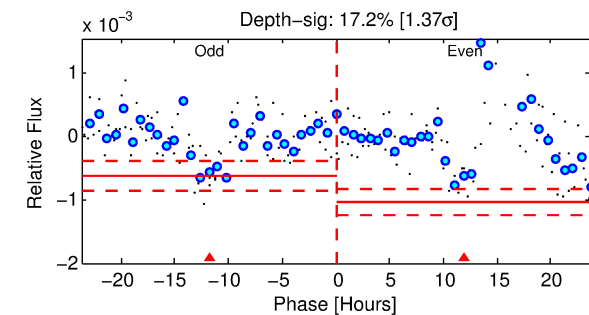
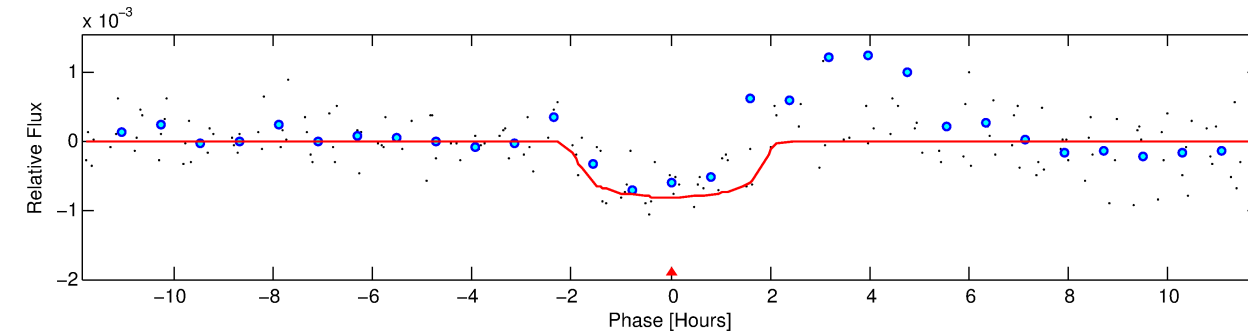
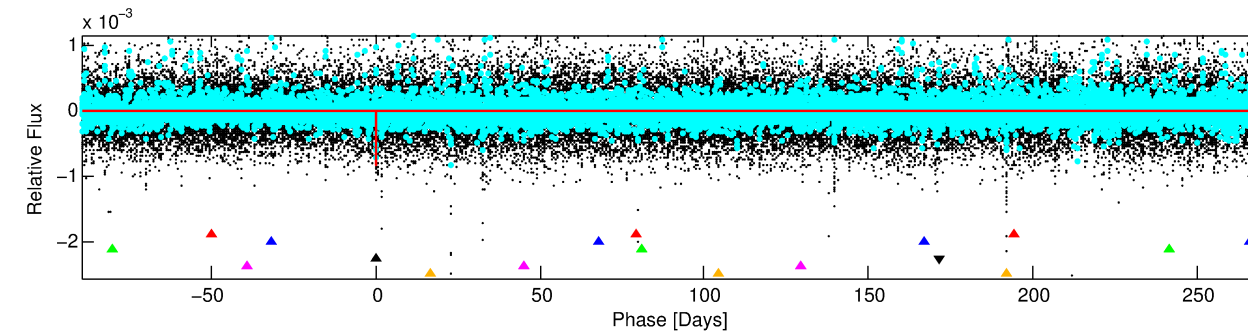
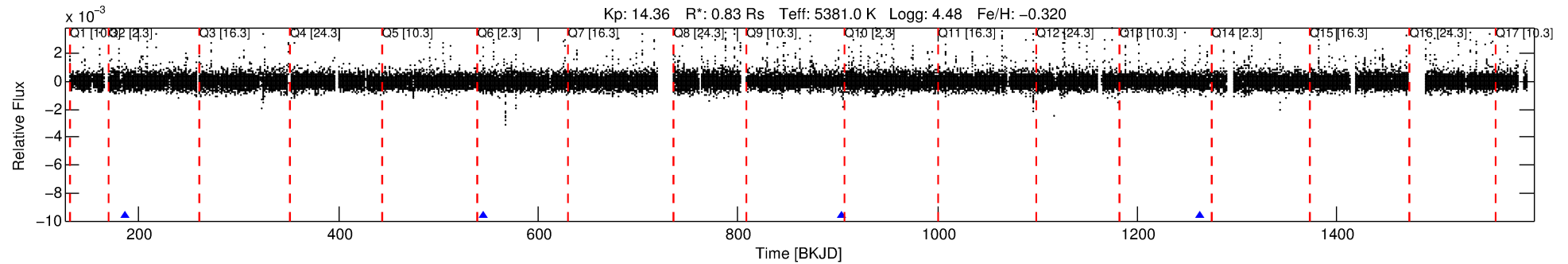
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003118883-04

No Significant Match Found

# DV One-Page Summary

KIC: 3118883 Candidate: 4 of 6 Period: 359.143 d



## DV Fit Results:

Period = 359.14287 [0.00487] d  
Epoch = 185.6568 [0.0103] BKJD  
Rp/R\* = 0.0264 [0.0966]  
a/R\* = 646.17 [9560.97]  
b = 0.43 [28.08]  
Seff = 0.64 [0.15]  
Teq = 228 [14] K  
Rp = 2.38 [8.73] Re  
a = 0.8986 [0.1243] AU  
Ag = 39085.28 [286097.25] [0.14 $\sigma$ ]  
Teffp = 4951 [9057] K [0.52 $\sigma$ ]

## DV Diagnostic Results:

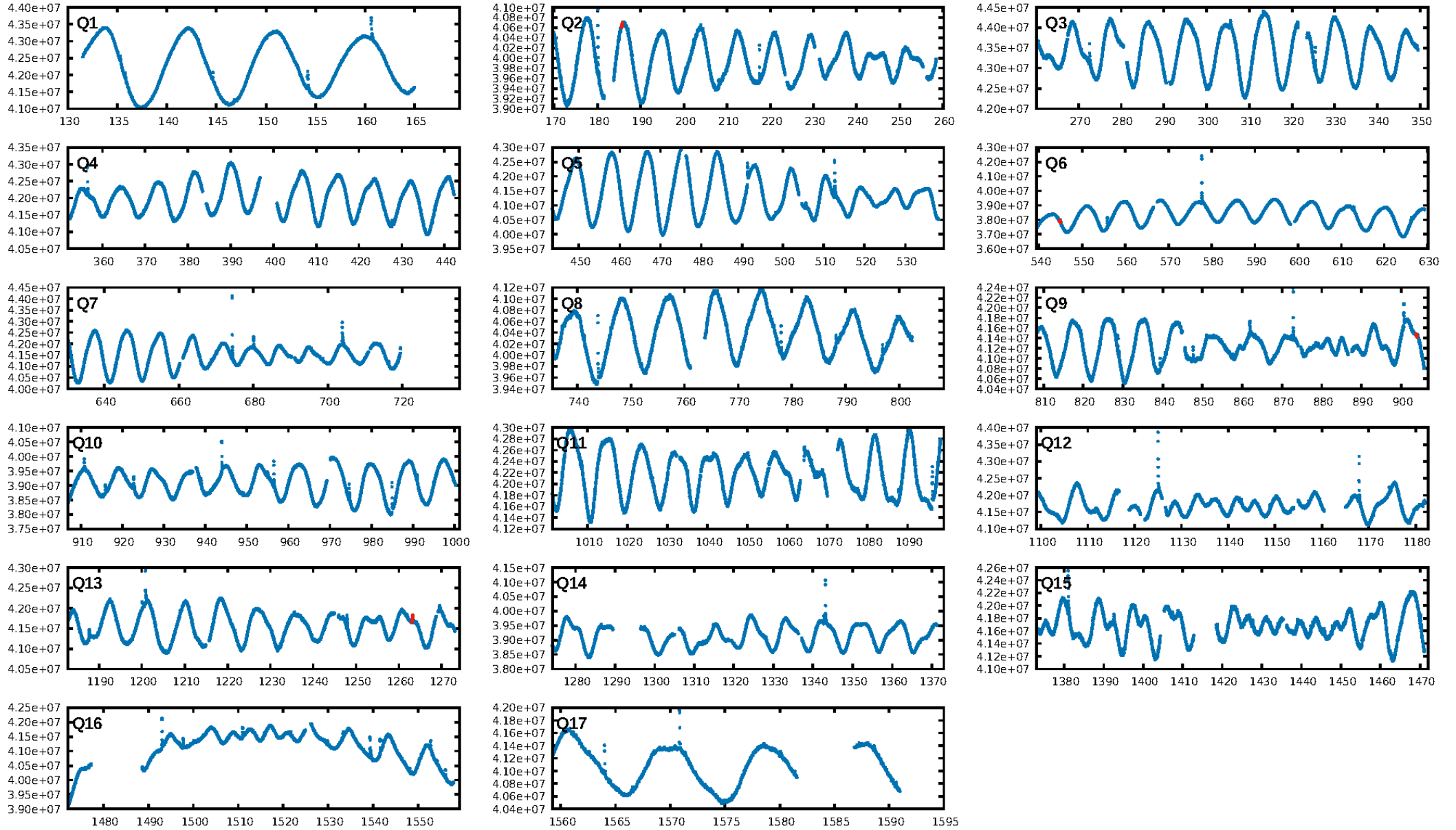
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [306.53 $\sigma$ ]  
ModelChiSquare2-sig: 2.0%  
ModelChiSquareGof-sig: 58.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.2826  
Centroid-sig: 0.1%  
Centroid-so: 1.407 arcsec [1.71 $\sigma$ ]  
OotOffset-rm: 0.116 arcsec [0.33 $\sigma$ ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 0.110 arcsec [0.31 $\sigma$ ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [4/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:22:49 Z

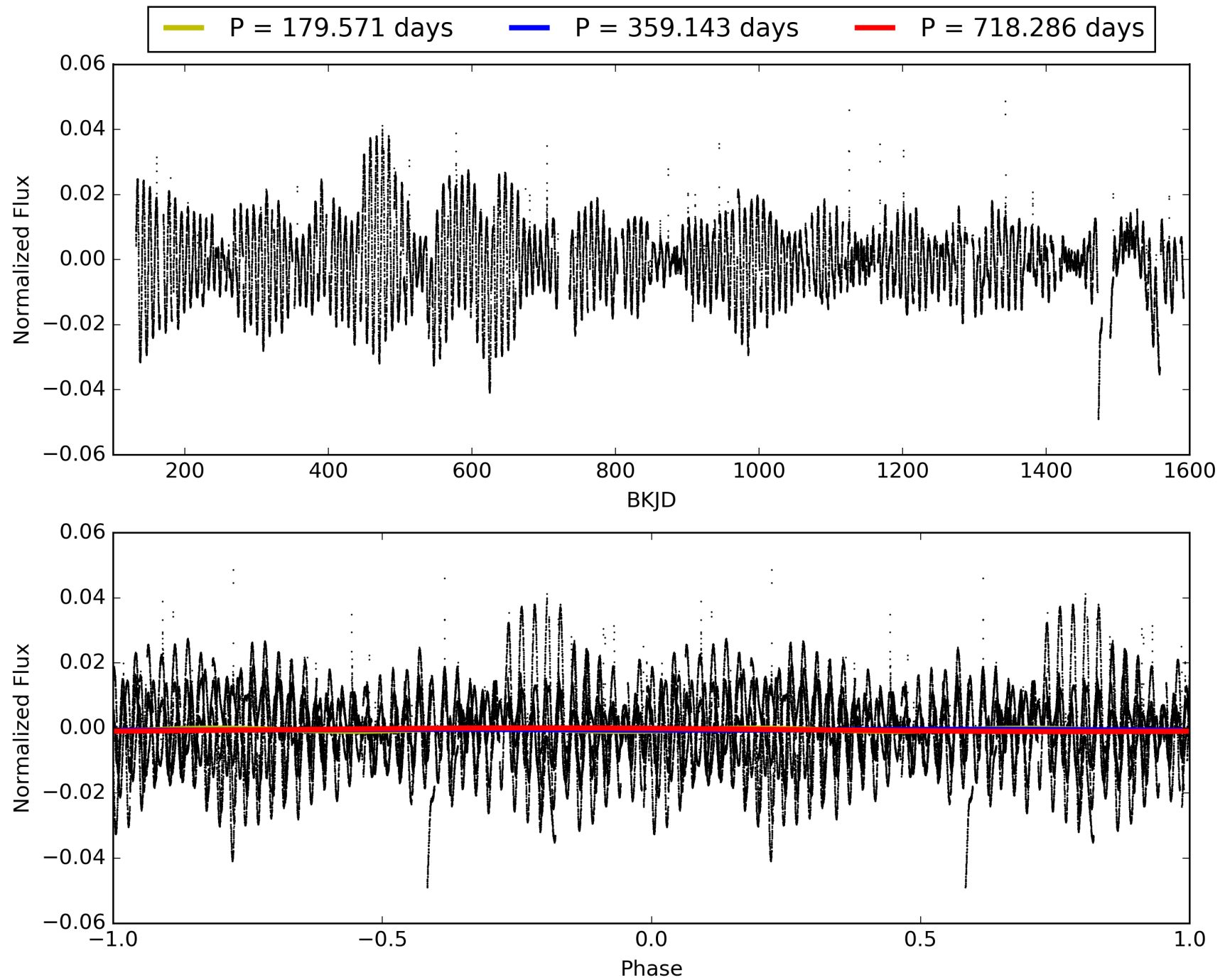
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 003118883-04, PDC Light Curves

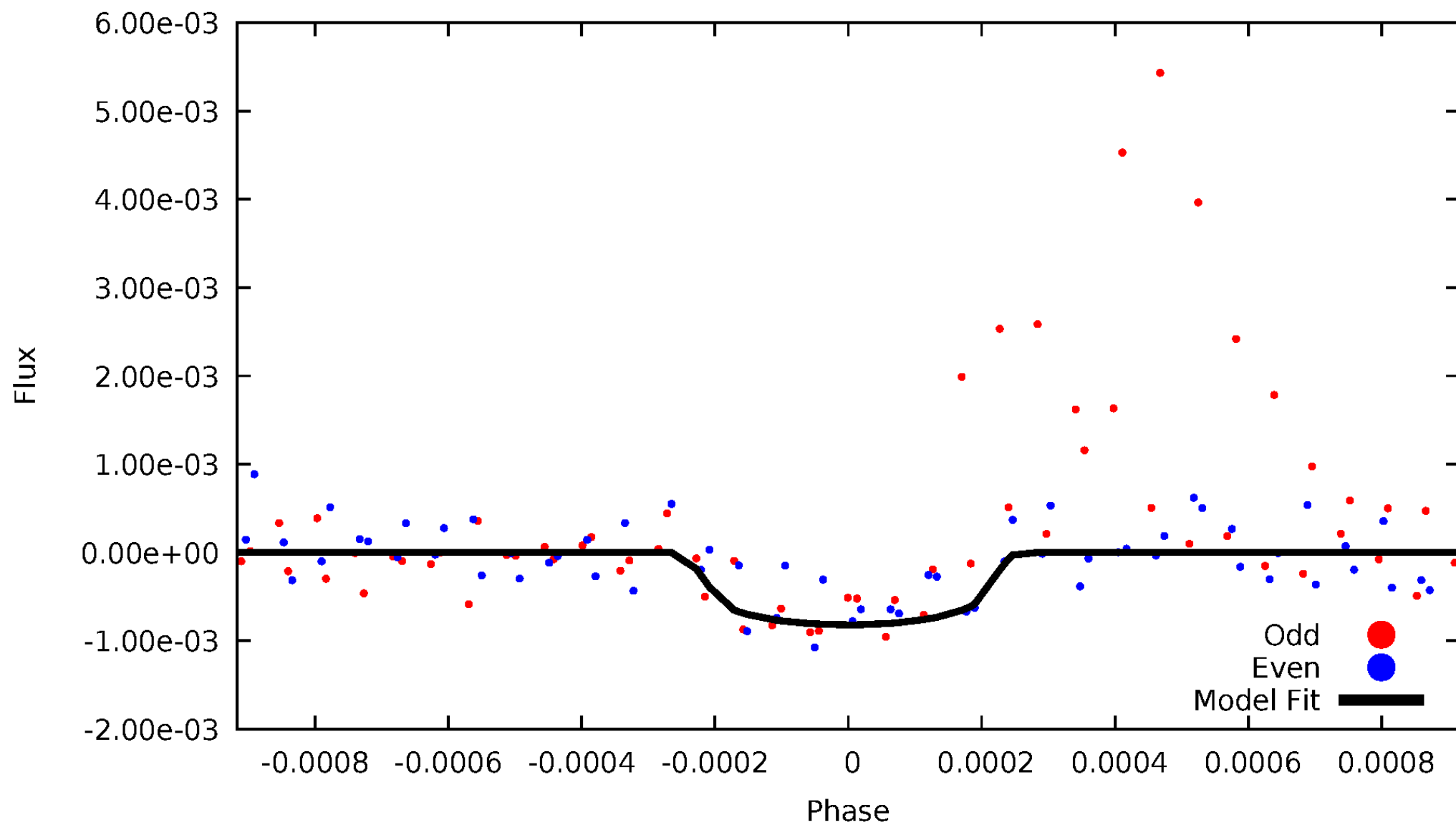


TCE 003118883-04



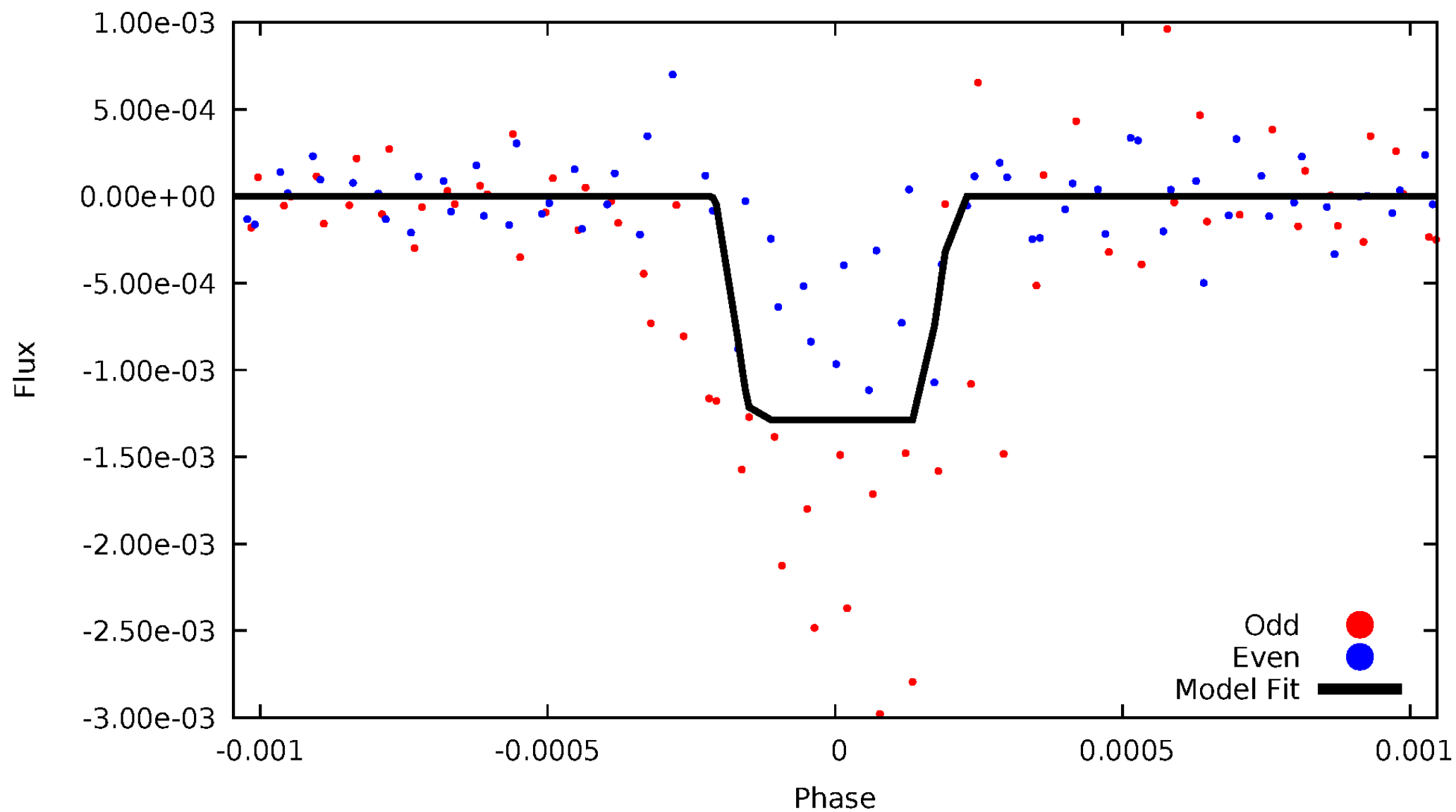
# DV Odd/Even

TCE 003118883-04



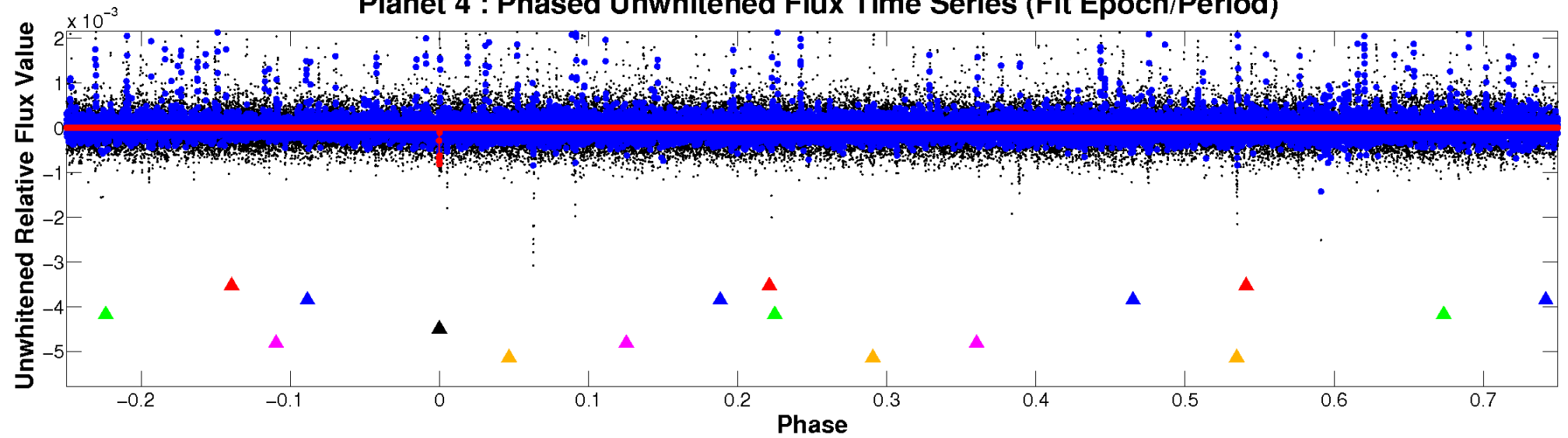
# ALT Odd/Even

TCE 003118883-04

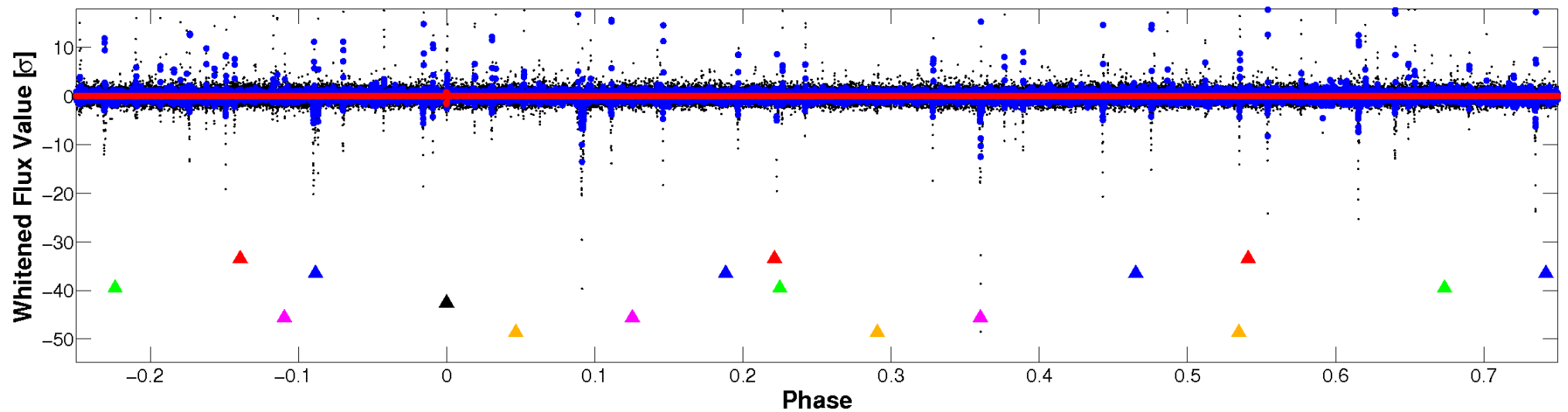


# Non-Whitened Vs. Whitened Light Curve

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

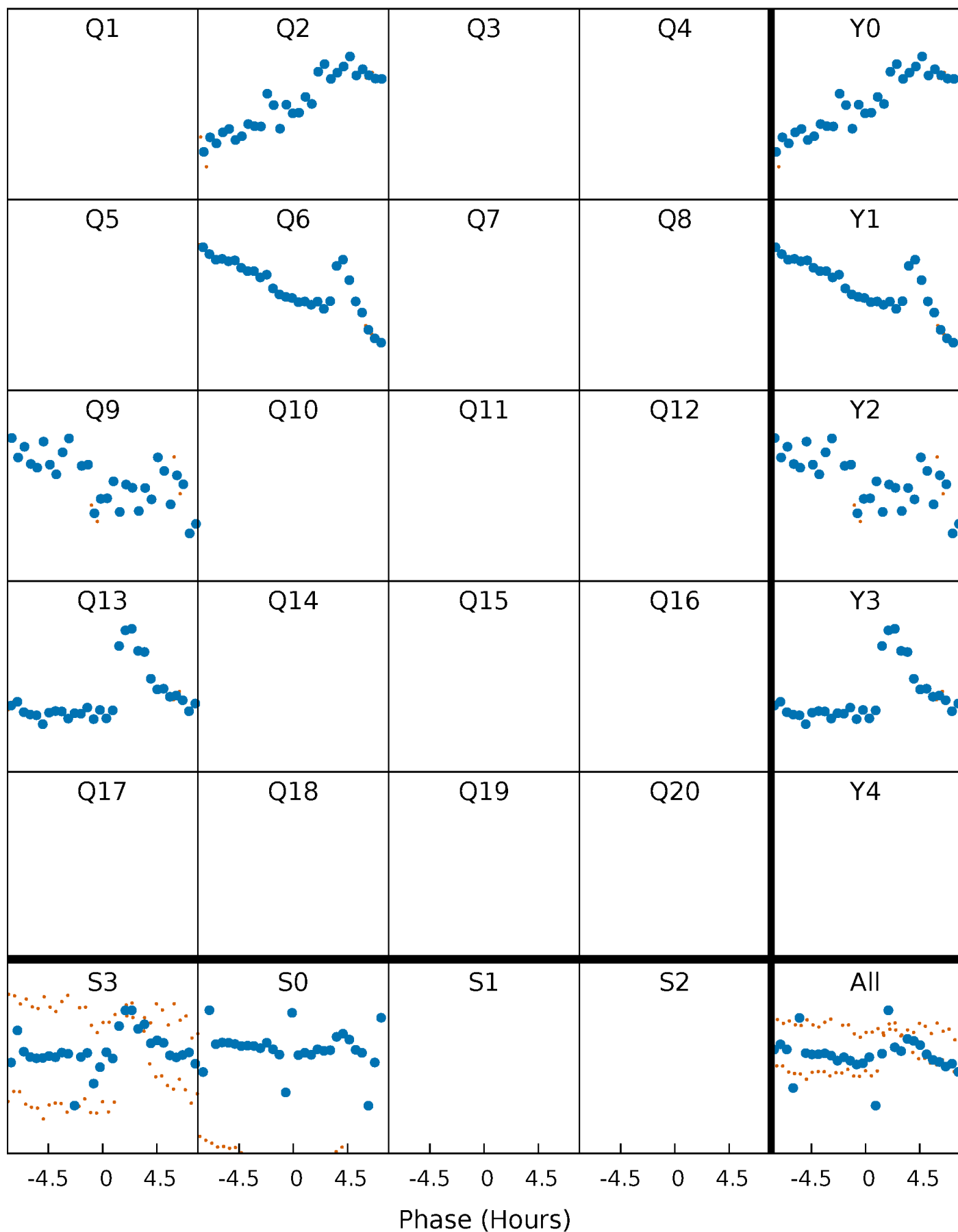


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



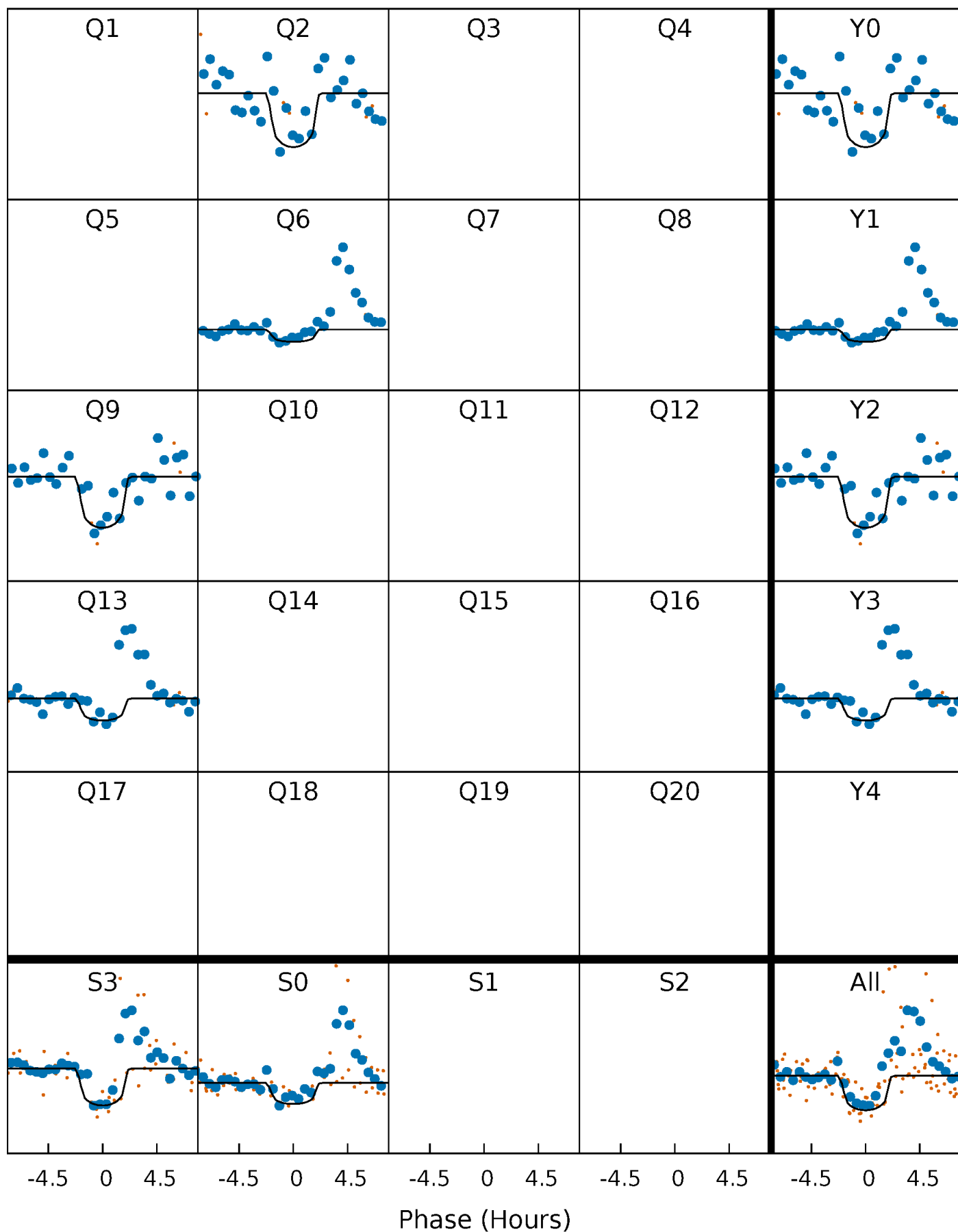
# PDC Quarter-Phased Transit Curves

TCE 003118883-04 P=359.142868 Days  $T_0=185.656760$  (BKJD)



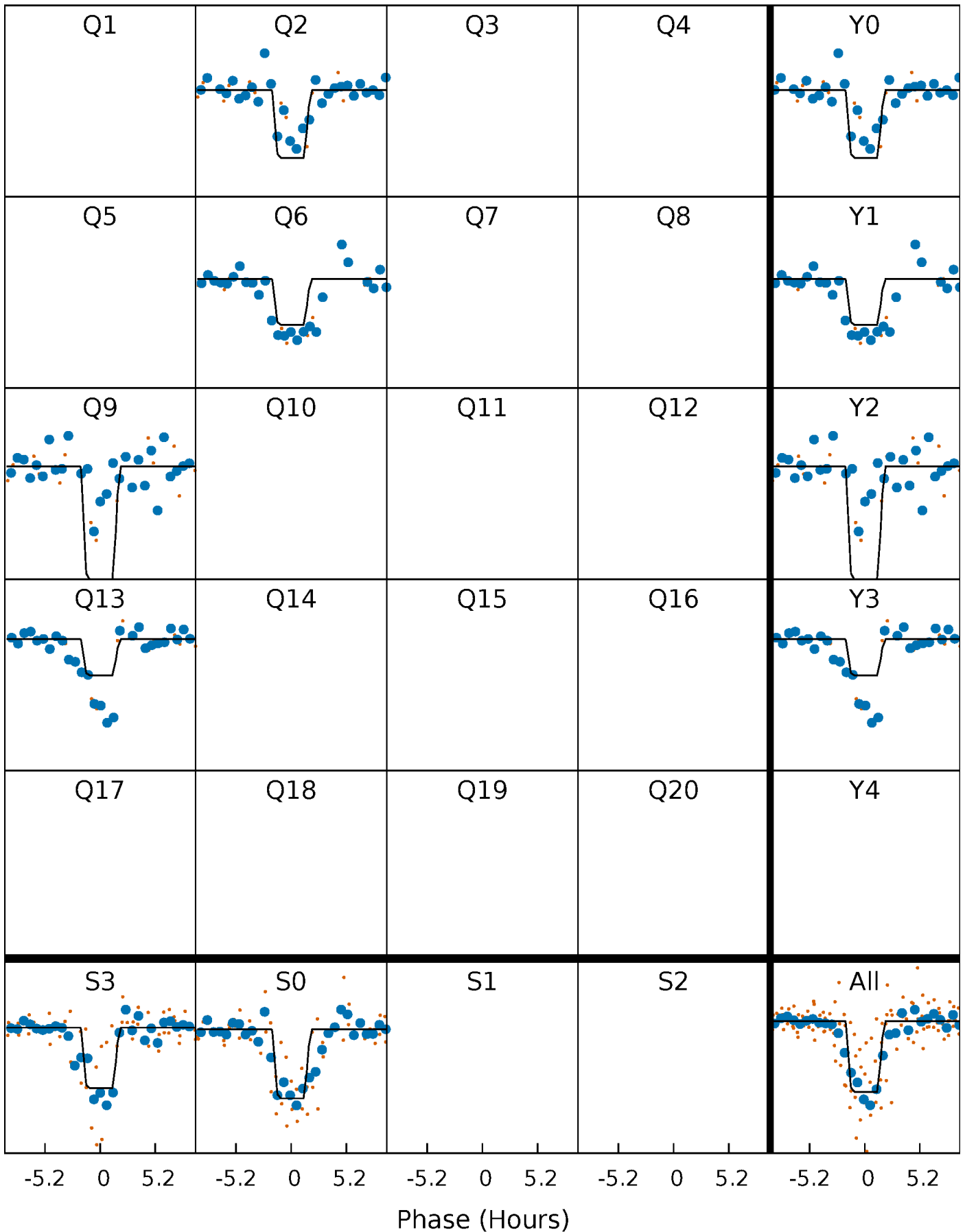
# DV Quarter-Phased Transit Curves

TCE 003118883-04 P=359.142868 Days  $T_0=185.656760$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003118883-04 P=359.138245 Days  $T_0=185.662957$  (BKJD)

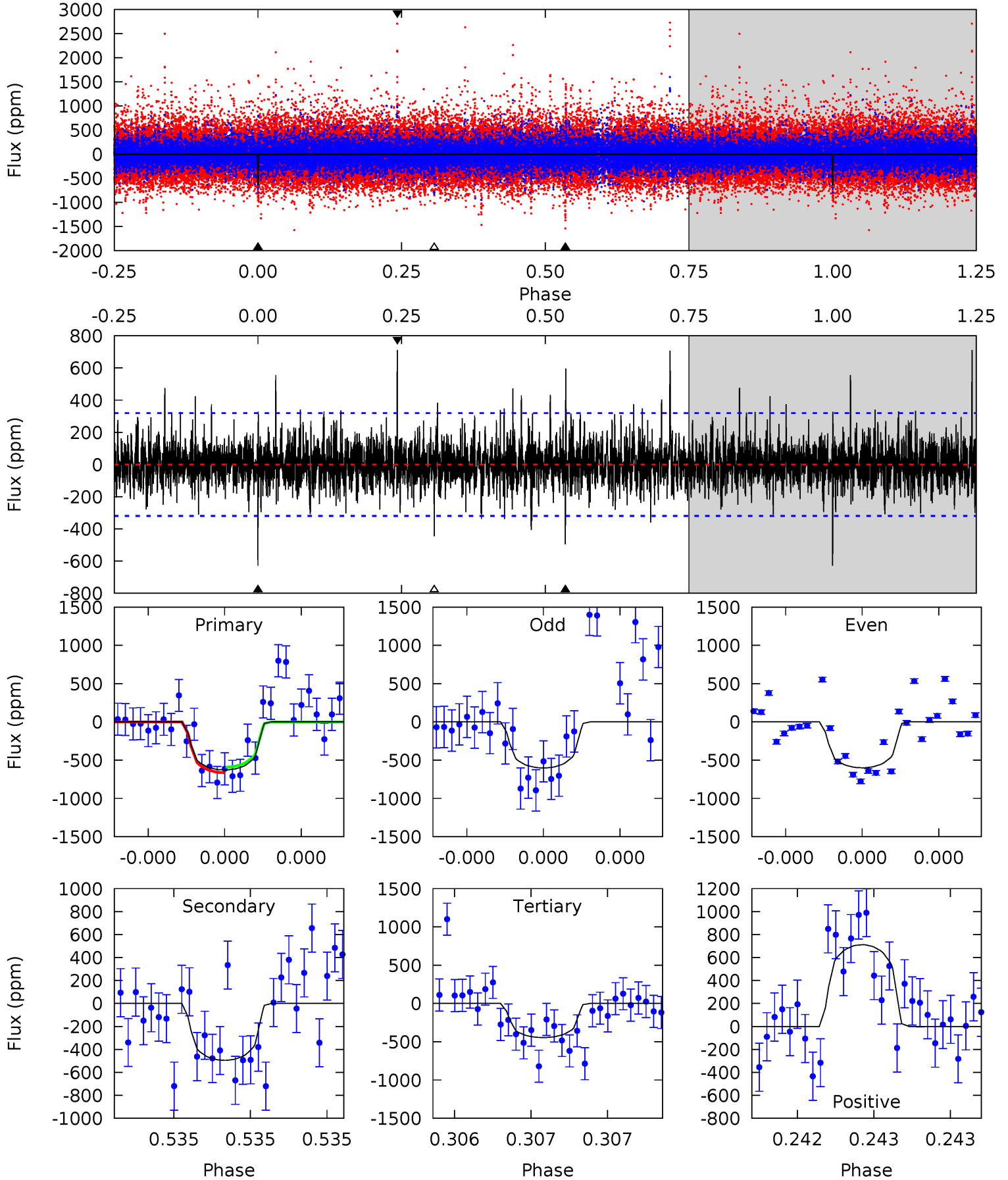




# DV Model-Shift Uniqueness Test

003118883-04, P = 359.142868 Days, E = 185.656760 Days

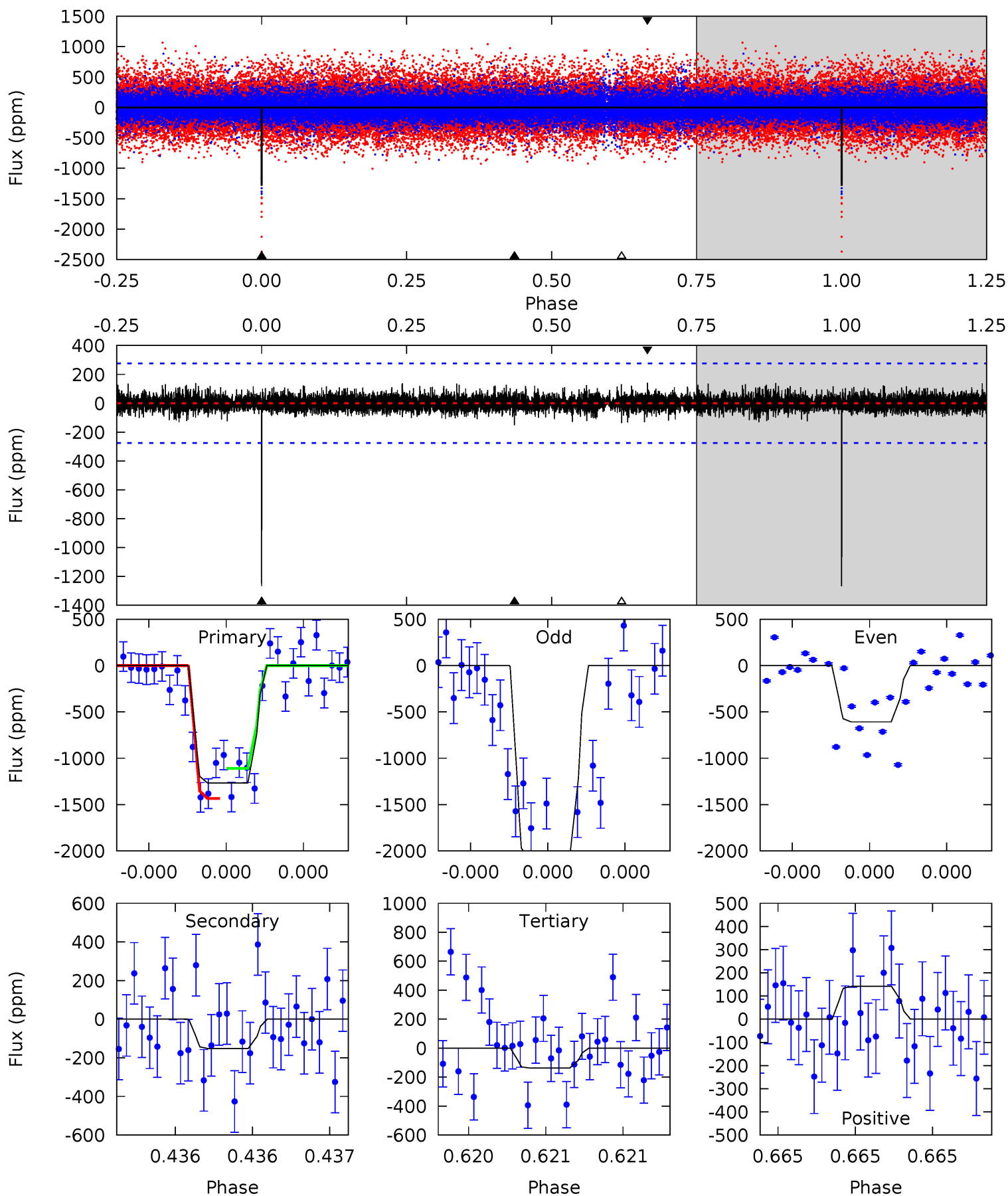
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	8.65	7.79	12.4	5.58	3.49	1.73	3.19	-1.46	0.87	-3.78	0.01	0.92	0.53	0.63



# Alt Model-Shift Uniqueness Test

003118883-04, P = 359.138245 Days, E = 185.662957 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
25.7	3.08	2.78	2.87	5.60	3.52	0.66	22.9	22.8	0.30	0.21	16.1	1.05	0.10	3.30



### Stellar Parameters For KIC 003118883

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5381^{+160}_{-144}$	$4.478^{+0.120}_{-0.120}$	$-0.320^{+0.350}_{-0.300}$	$0.827^{+0.128}_{-0.116}$	$0.751^{+0.118}_{-0.050}$	$1.871^{+0.935}_{-0.625}$
	+3%/-3%	+3%/-3%	+109%/-94%	+15%/-14%	+16%/-7%	+50%/-33%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003118883-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-495 \pm 57$	$6.88^{+7.24}_{-4.80}$	$319^{+14}_{-17}$	$3398^{+1884}_{-615}$	$4703^{+48317}_{-3581}$
Alt.	$-152 \pm 49$	$7.54^{+7.54}_{-5.05}$	$320^{+16}_{-17}$	$2785^{+1113}_{-449}$	$1137^{+9087}_{-874}$

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

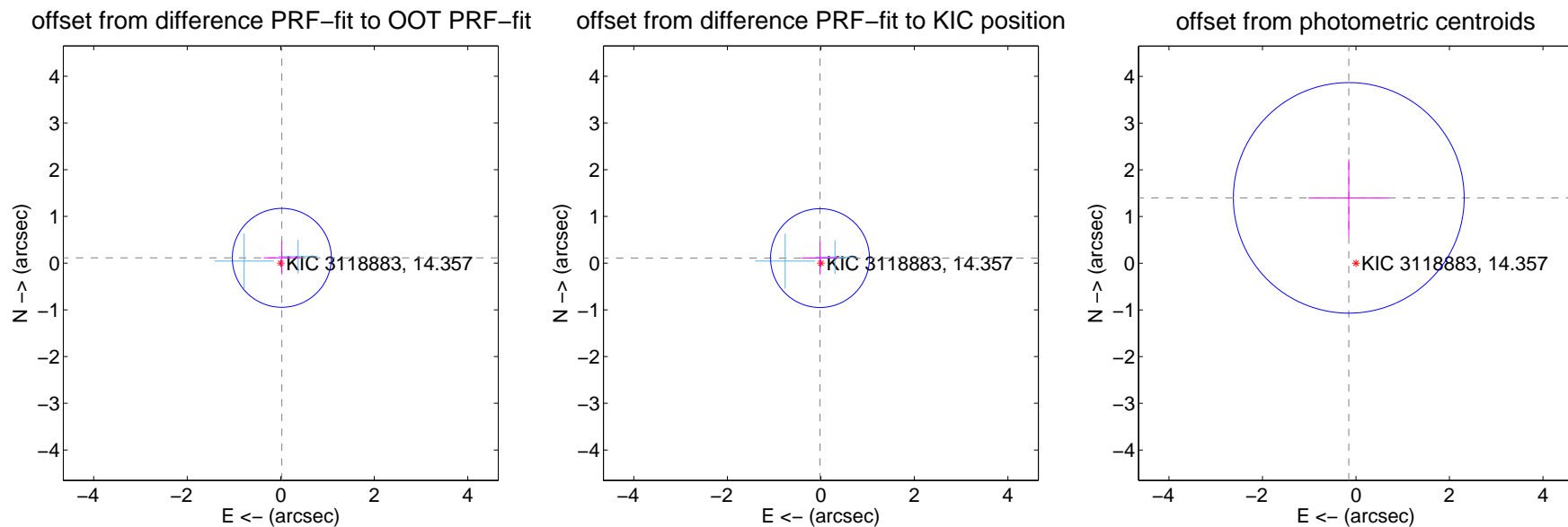
## DV Centroid Data

Supplemental centroid analysis for 003118883-04. Kepler magnitude: 14.36. Transit SNR 8.19

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.116 \pm 0.353$	0.33	$-0.023 \pm 0.387$	$0.114 \pm 0.352$
PRF-fit source offset from KIC position	$0.110 \pm 0.353$	0.31	$0.018 \pm 0.387$	$0.108 \pm 0.352$
photometric centroid source offset	$1.41 \pm 0.82$	1.71	$0.15 \pm 0.86$	$1.40 \pm 0.82$



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

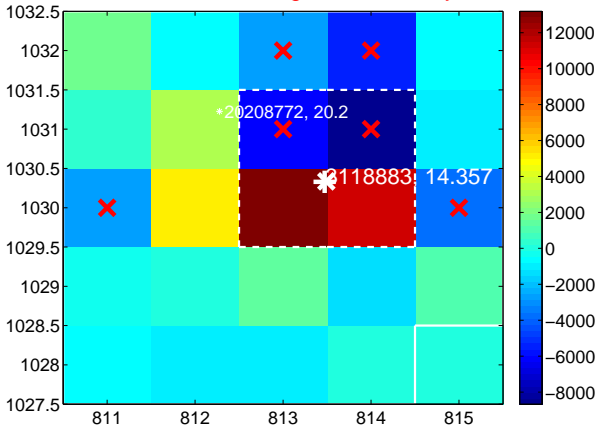
Q1 no difference image



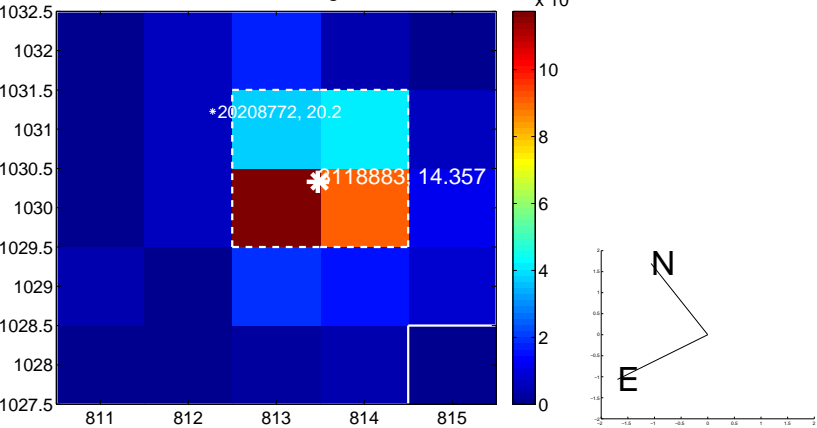
Q1 no OOT image



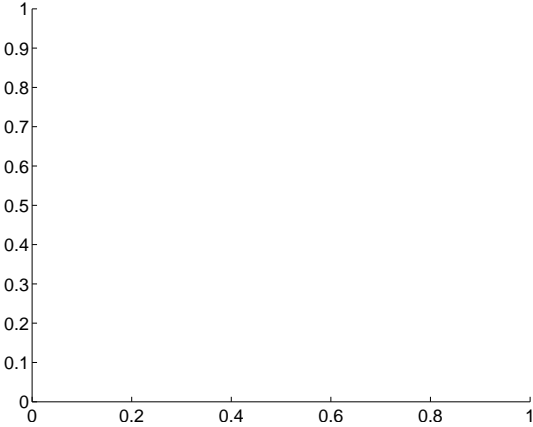
Q2 difference image. Poor Quality



Q2 OOT image



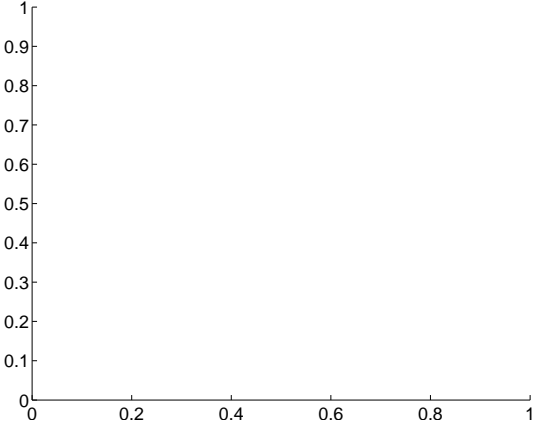
Q3 no difference image



Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

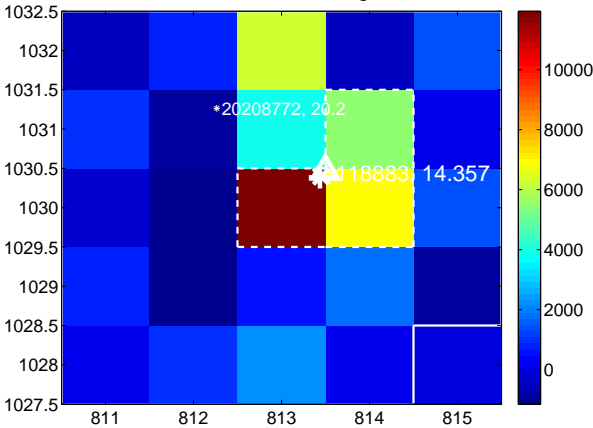
Q5 no difference image



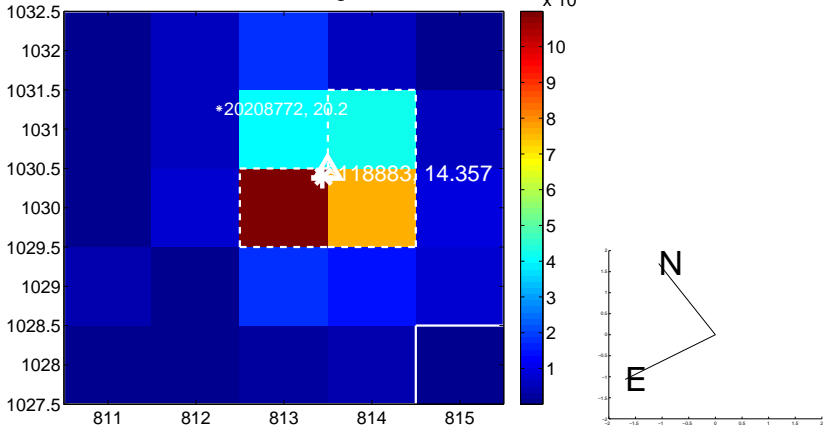
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



Q7 no OOT image



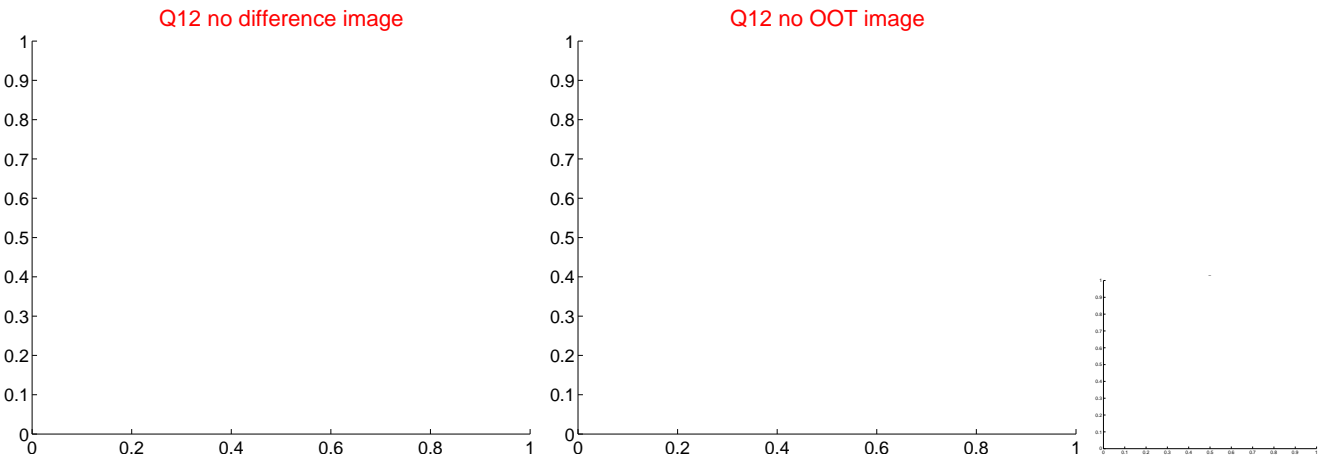
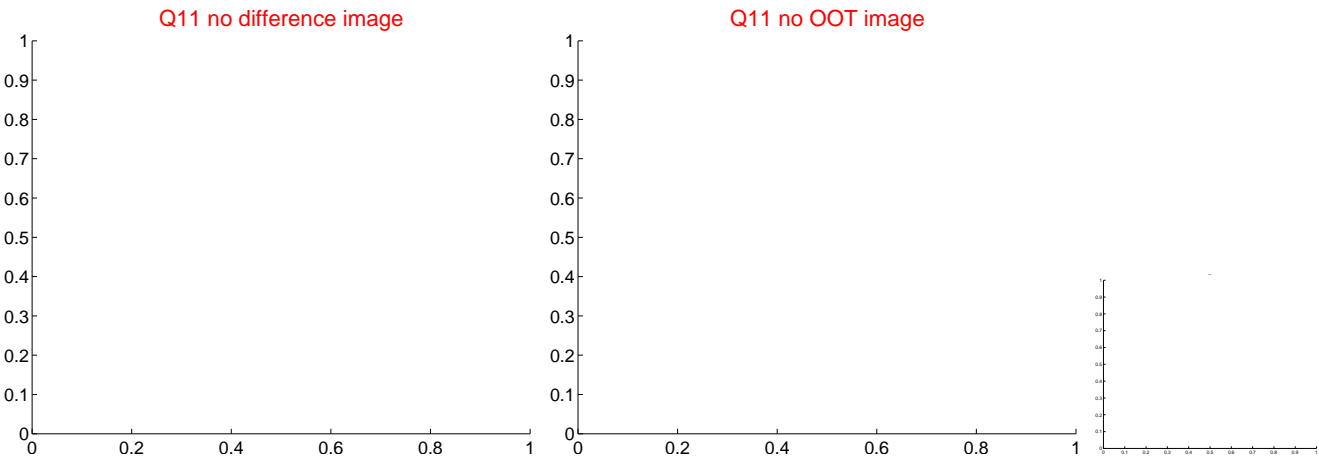
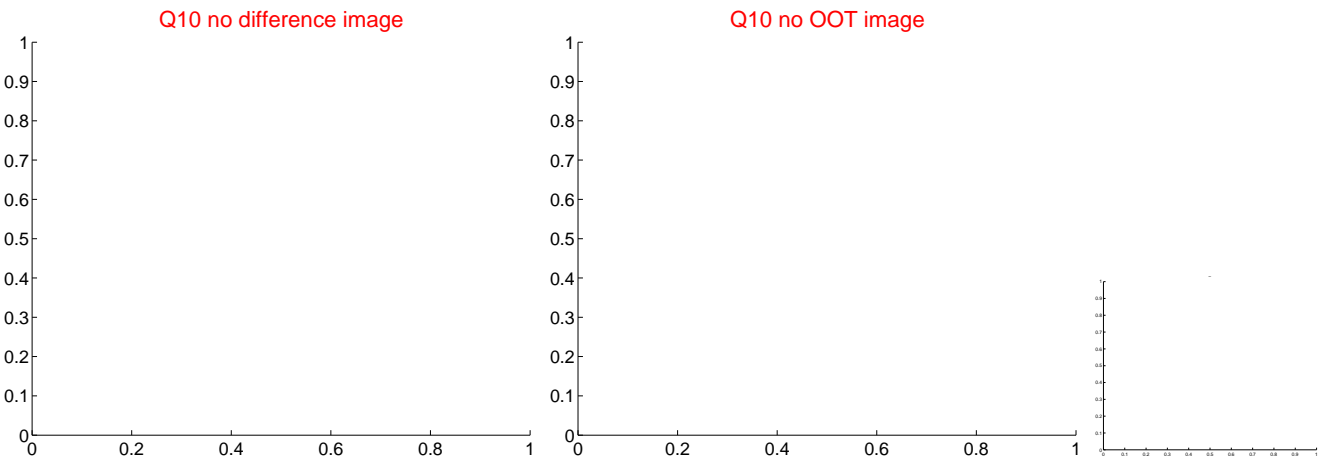
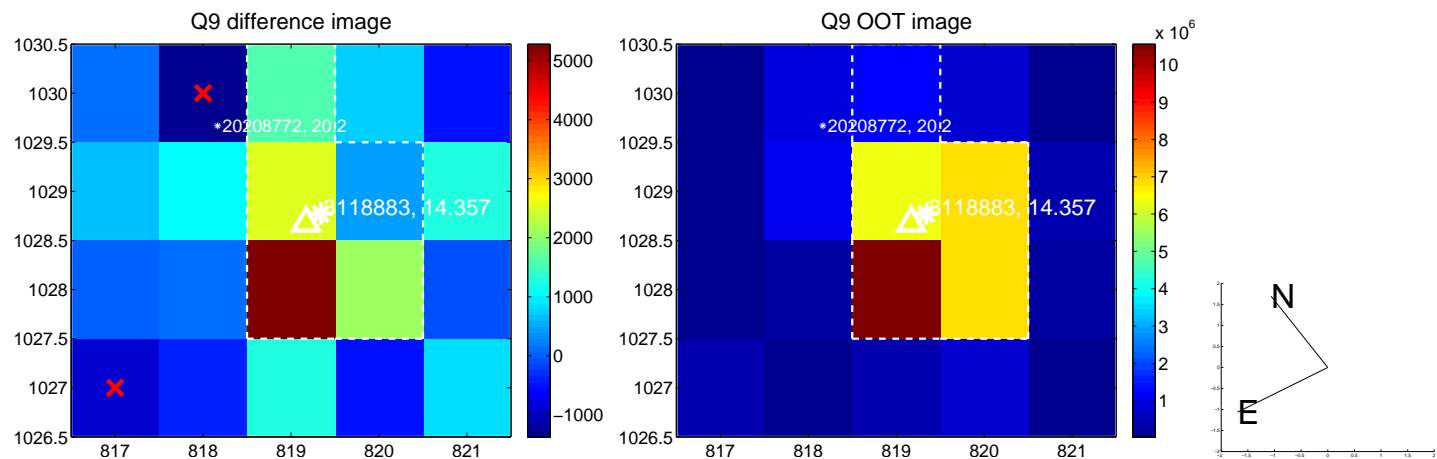
Q8 no difference image



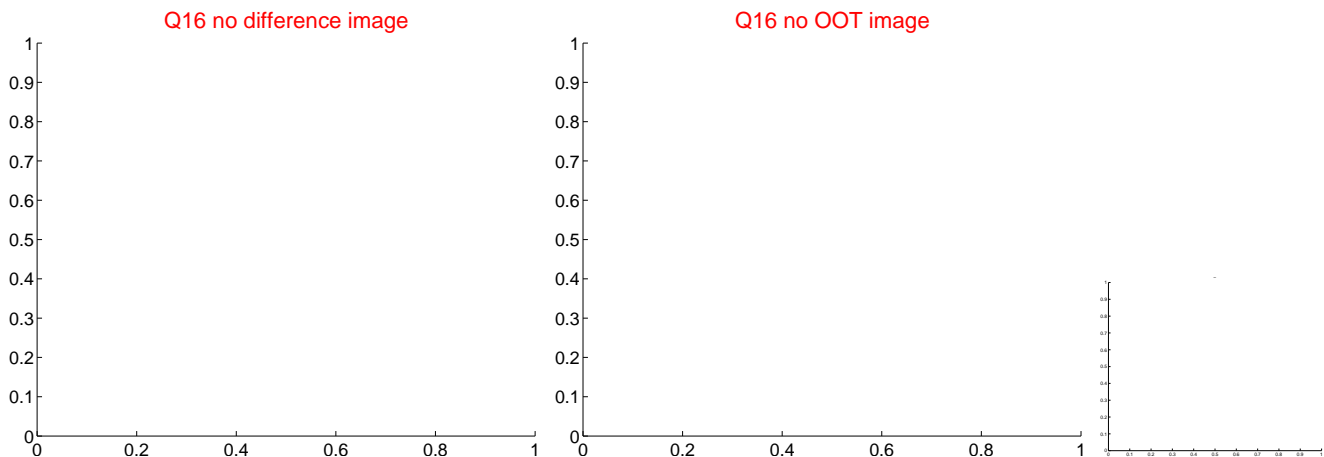
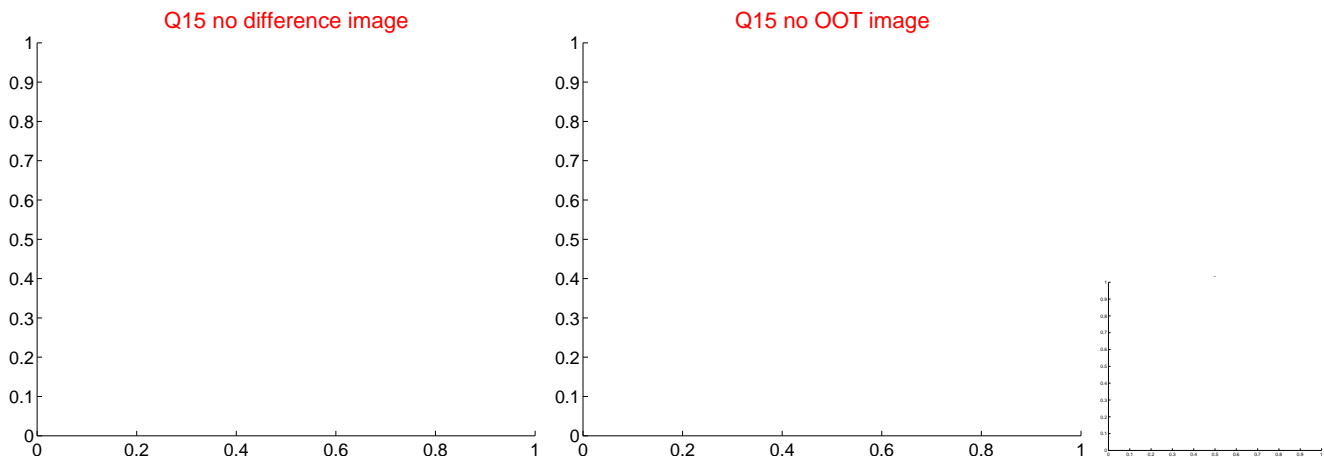
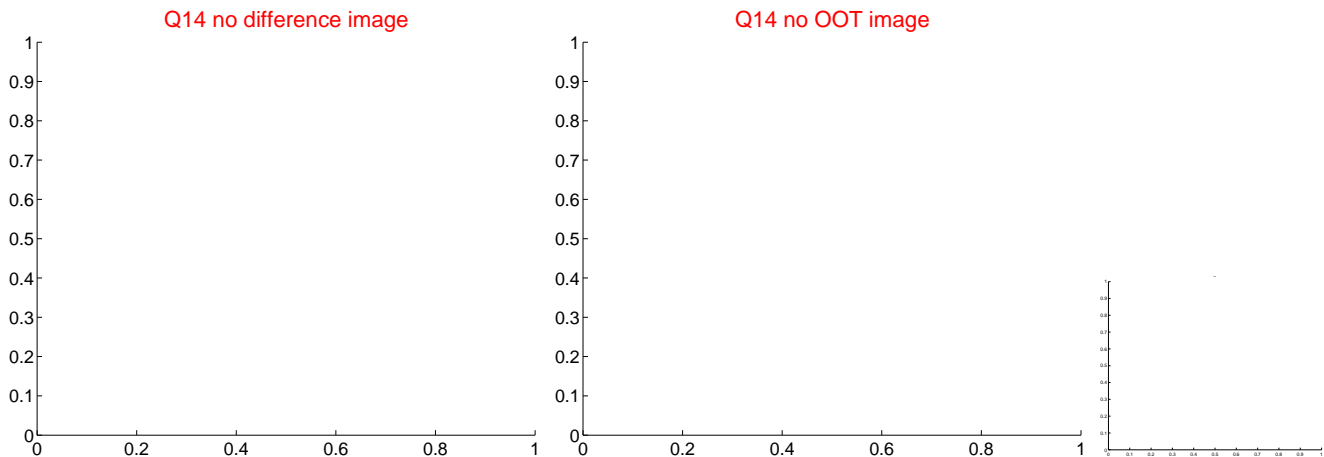
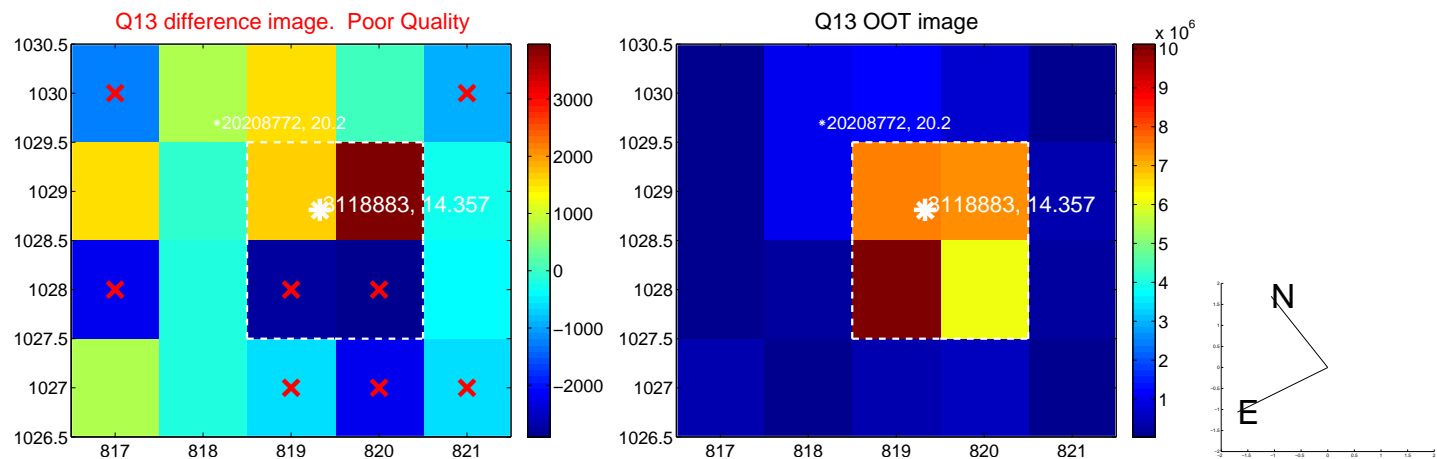
Q8 no OOT image



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

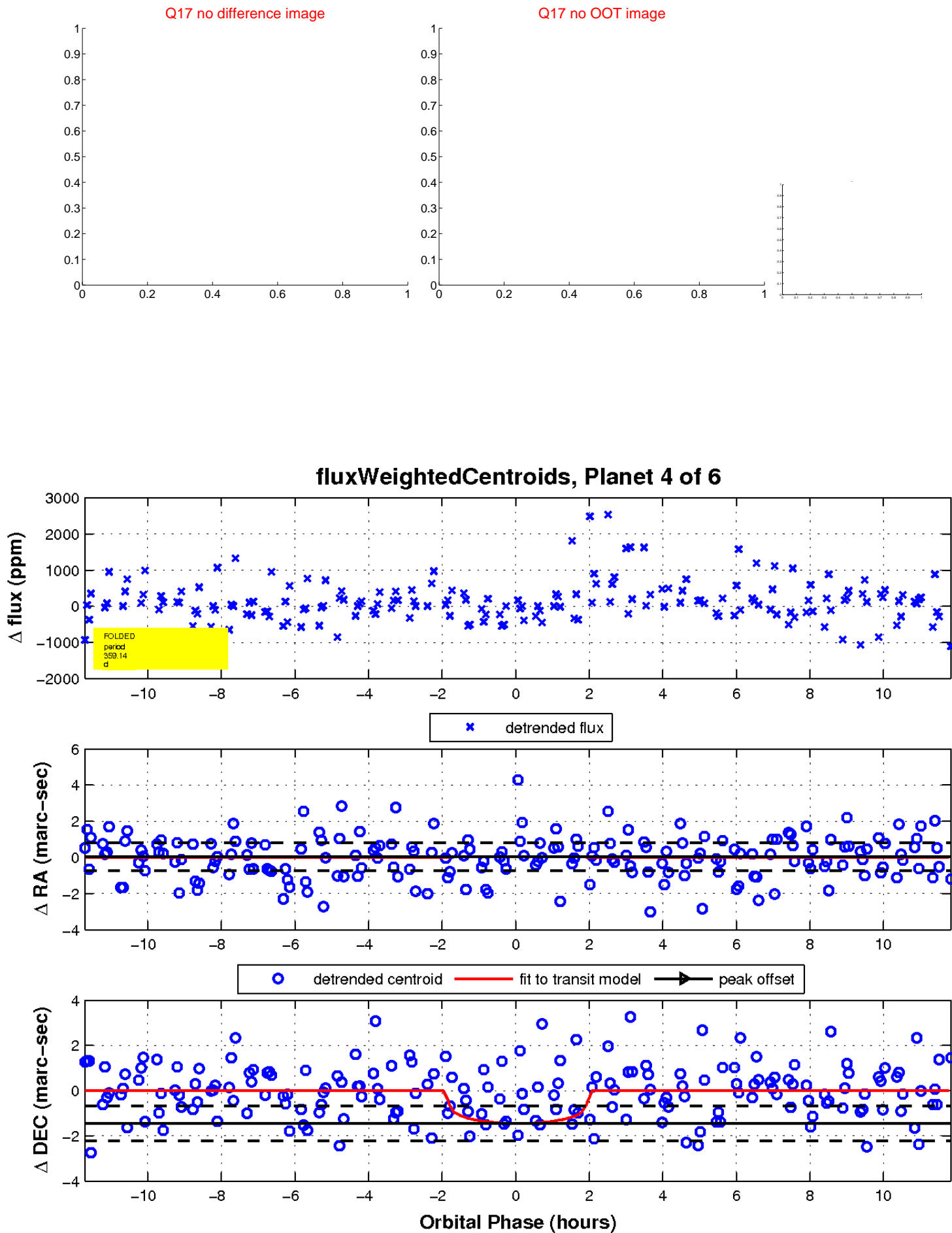


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



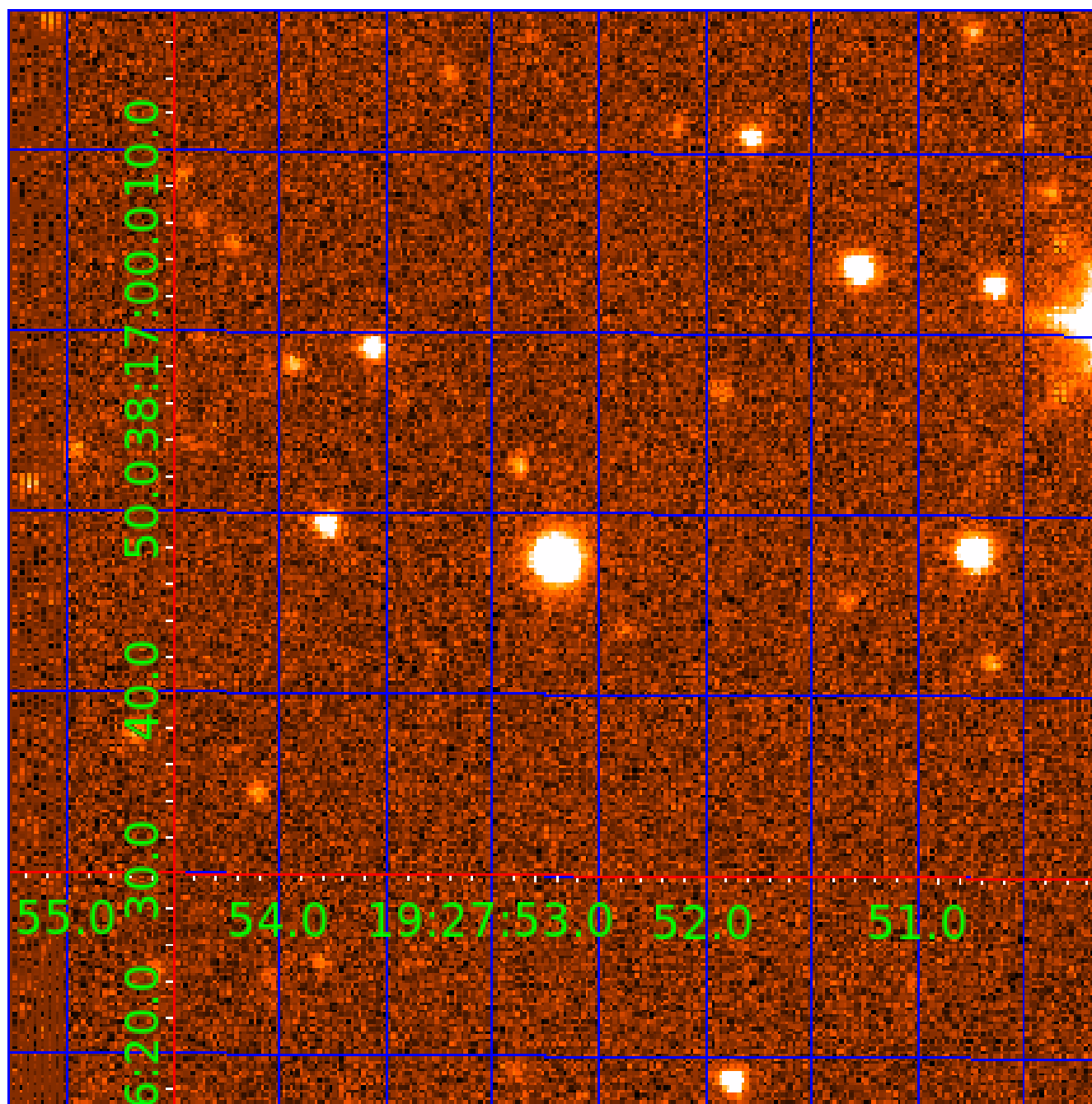


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003118883

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003118883-01	OBS	No	603.459346	135.638734	1024.9	7.687	19.7	8.4	0.83	5381	2.80	0.32
003118883-02	OBS	No	458.550863	153.883195	913.6	13.938	14.5	6.3	0.83	5381	2.47	0.46
003118883-03	OBS	No	557.173161	427.535440	967.2	11.644	13.4	6.8	0.83	5381	2.54	0.35
003118883-04	OBS	No	359.142867	185.656760	818.0	3.951	12.8	8.2	0.83	5381	2.38	0.64
003118883-06	OBS	No	446.771002	561.572670	982.8	11.451	9.7	7.8	0.83	5381	3.32	0.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003118883-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003118883-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003118883-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
003118883-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003118883-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

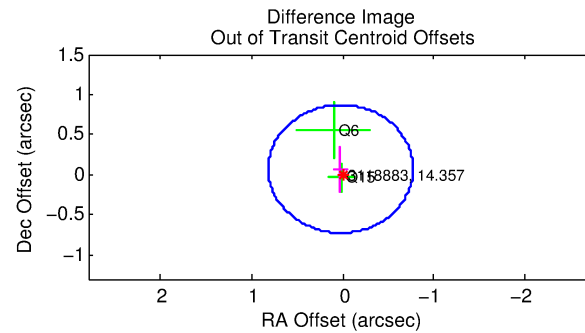
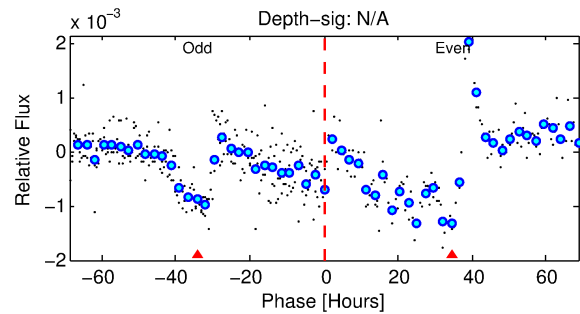
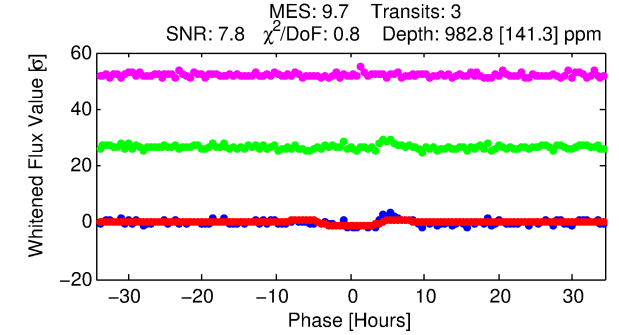
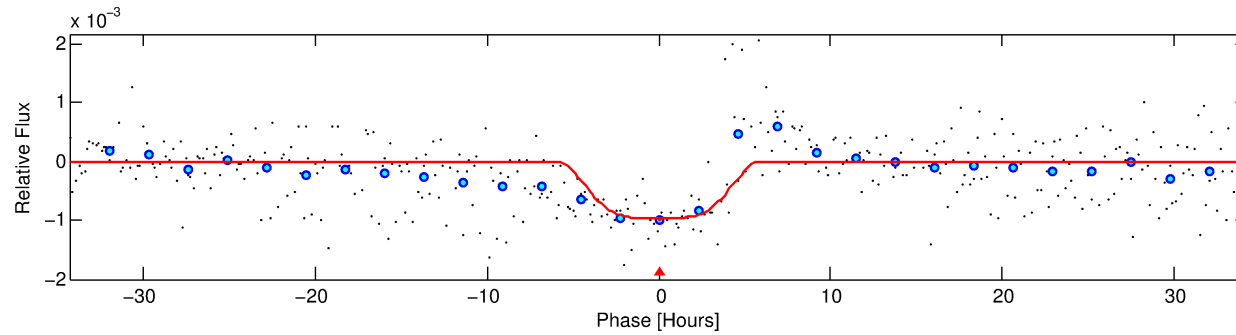
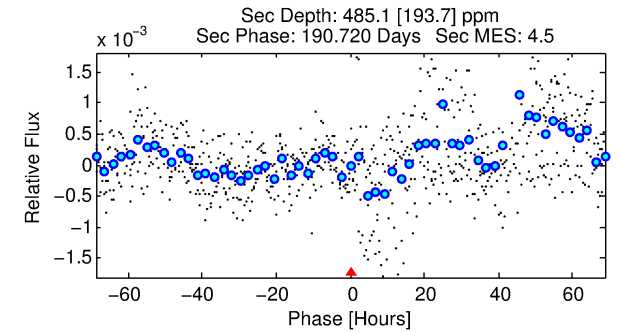
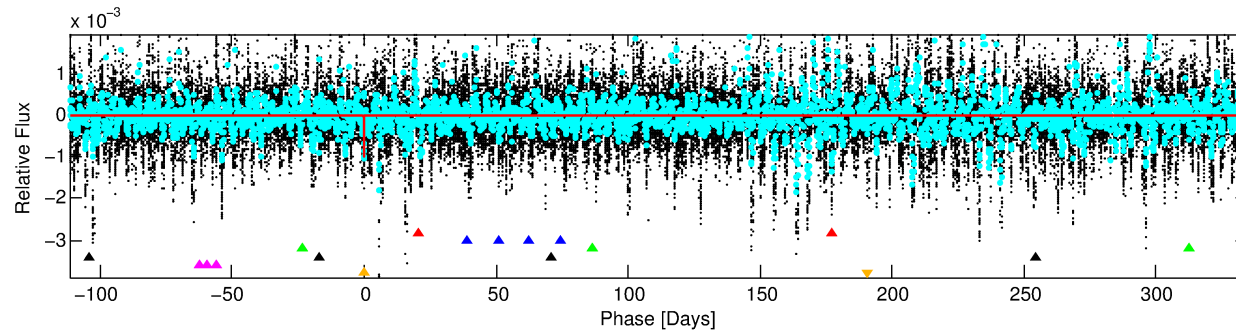
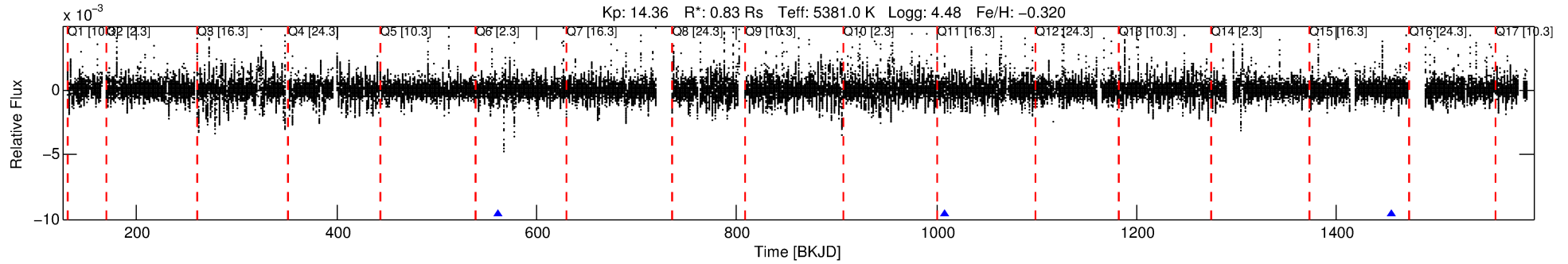
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003118883-06

No Significant Match Found

# DV One-Page Summary

KIC: 3118883 Candidate: 6 of 6 Period: 446.771 d



## DV Fit Results:

Period = 446.77100 [0.01251] d  
Epoch = 561.5727 [0.0177] BKJD  
Rp/R\* = 0.0368 [0.0033]  
a/R\* = 125.77 [20.63]  
b = 0.95 [0.02]  
Seff = 0.48 [0.12]  
Teq = 212 [13] K  
Rp = 3.32 [0.59] Re  
a = 1.0393 [0.1438] AU  
Ag = 26121.87 [12702.98] [2.06 $\sigma$ ]  
Teffp = 4162 [472] K [8.36 $\sigma$ ]

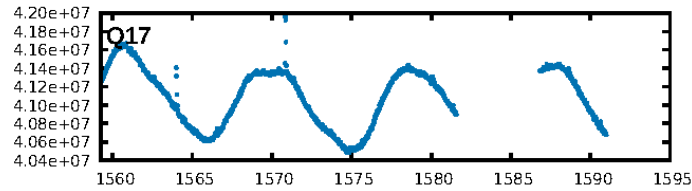
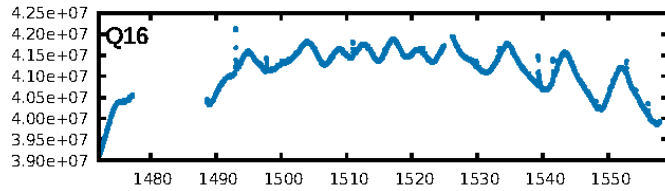
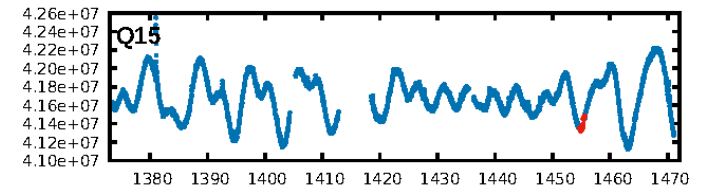
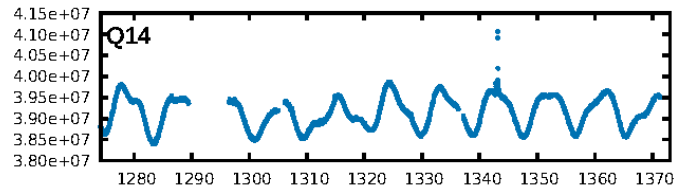
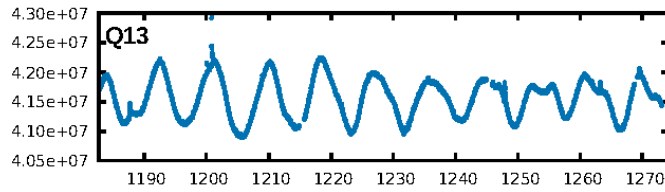
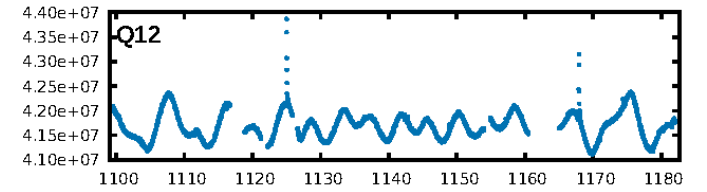
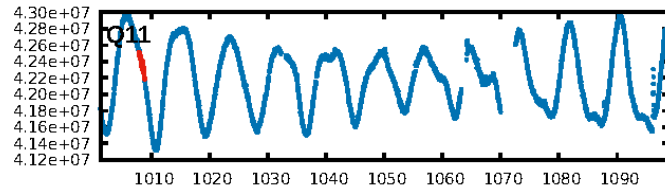
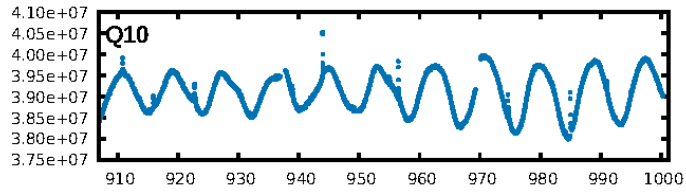
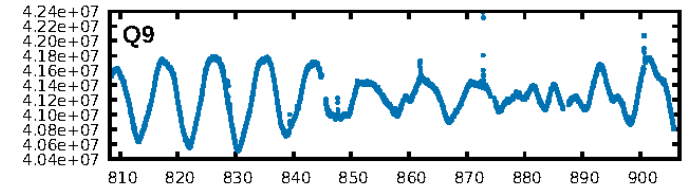
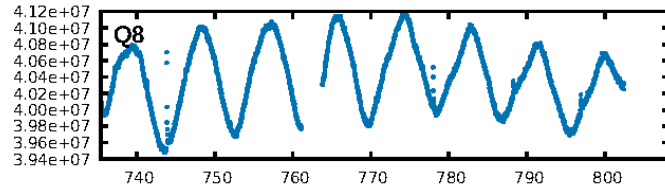
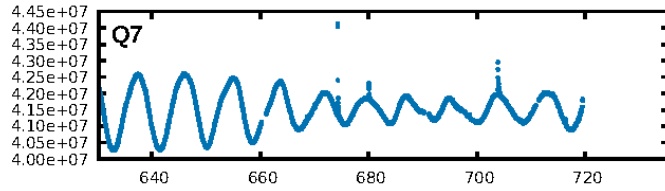
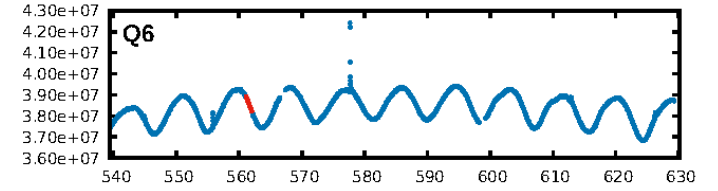
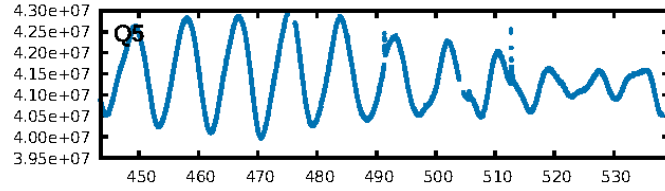
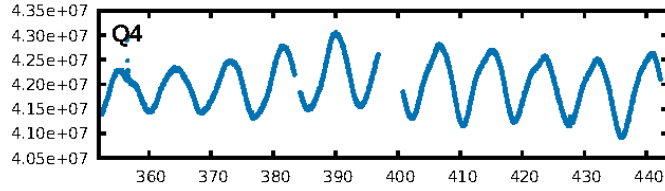
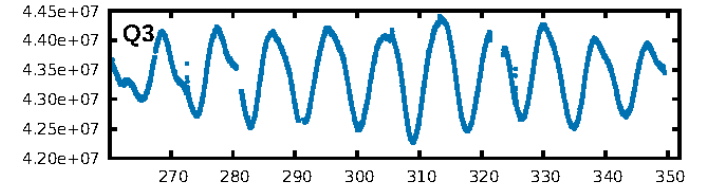
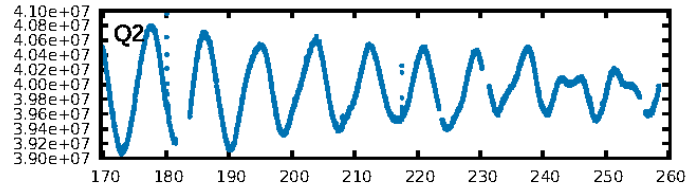
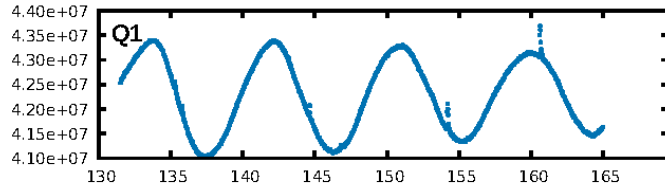
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.22 $\sigma$ ]  
LongPeriod-sig: 100.0% [15.67 $\sigma$ ]  
ModelChiSquare2-sig: 2.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.46  
Centroid-sig: 2.9%  
Centroid-so: 1.222 arcsec [1.57 $\sigma$ ]  
OotOffset-rm: 0.075 arcsec [0.28 $\sigma$ ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-rm: 0.166 arcsec [0.75 $\sigma$ ]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

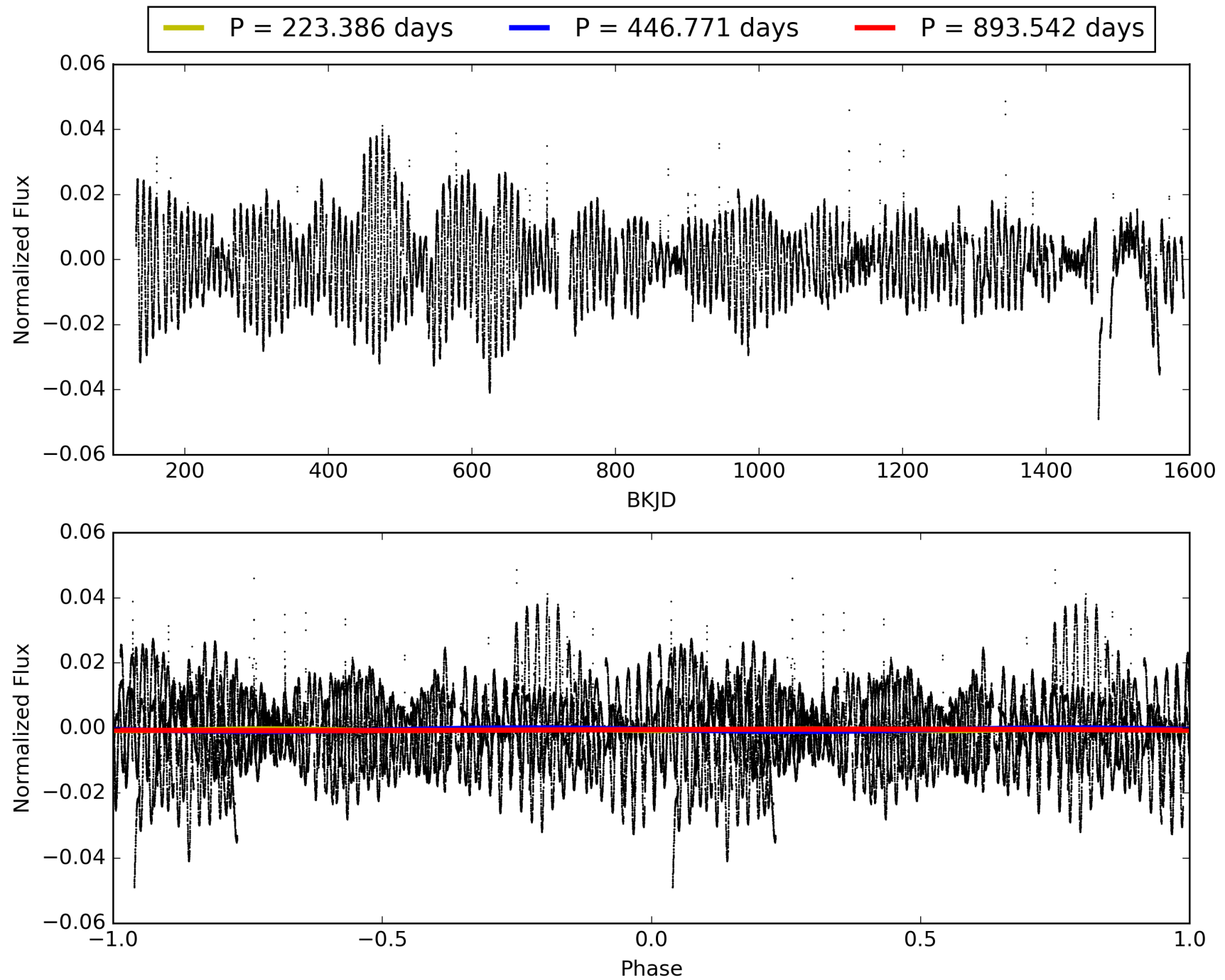
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:23:12 Z

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

# TCE 003118883-06, PDC Light Curves

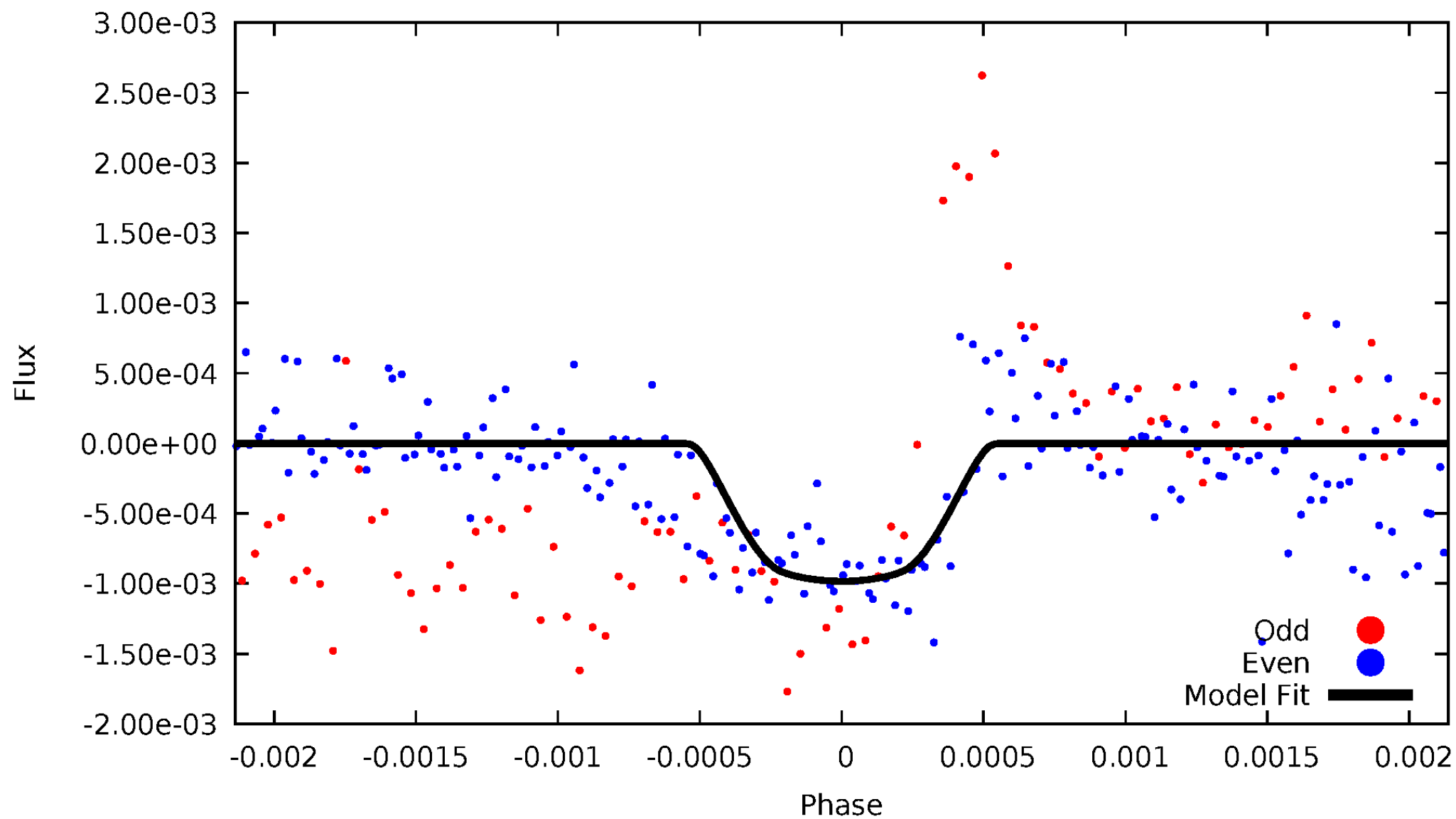


TCE 003118883-06



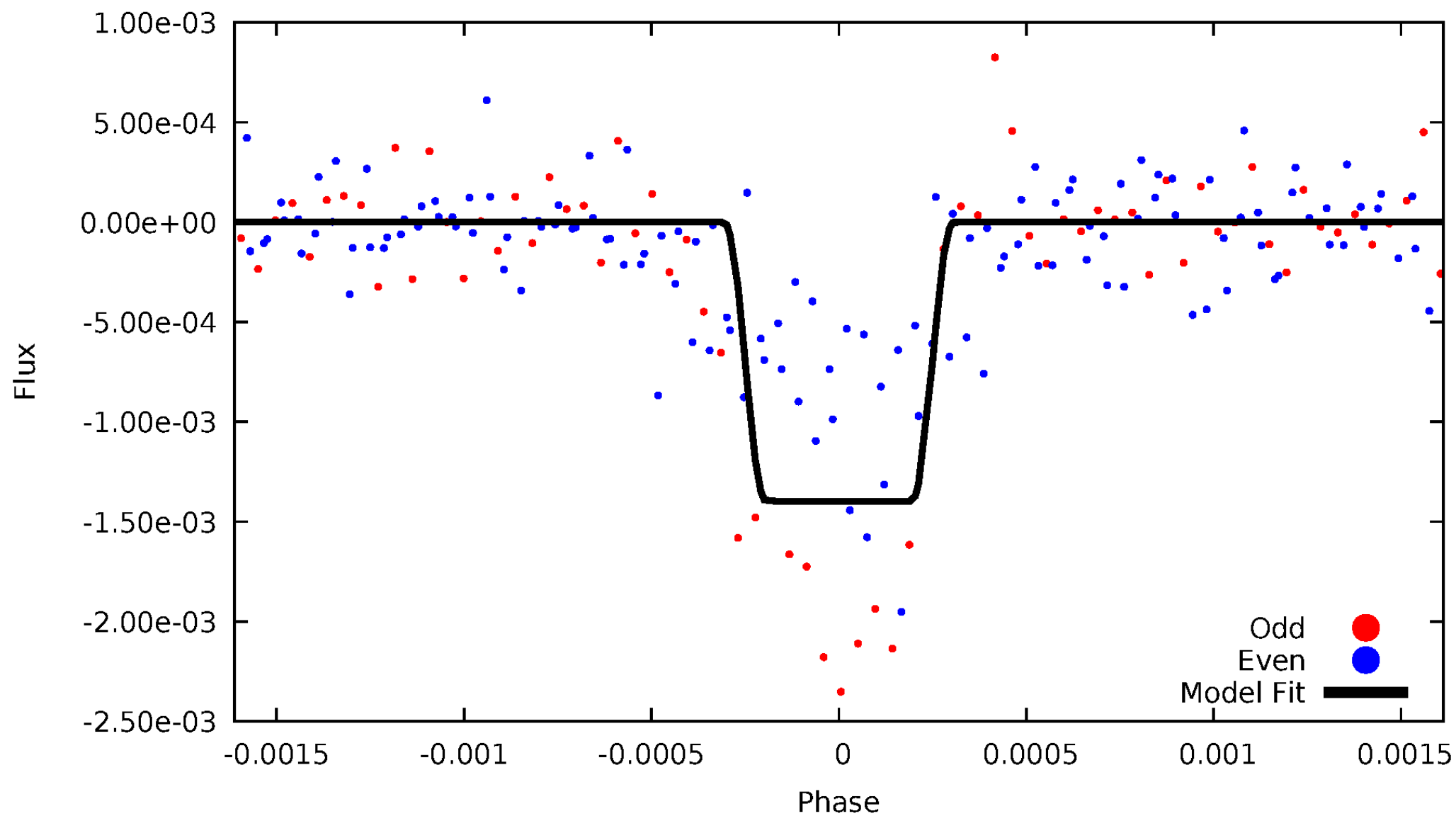
# DV Odd/Even

TCE 003118883-06



# ALT Odd/Even

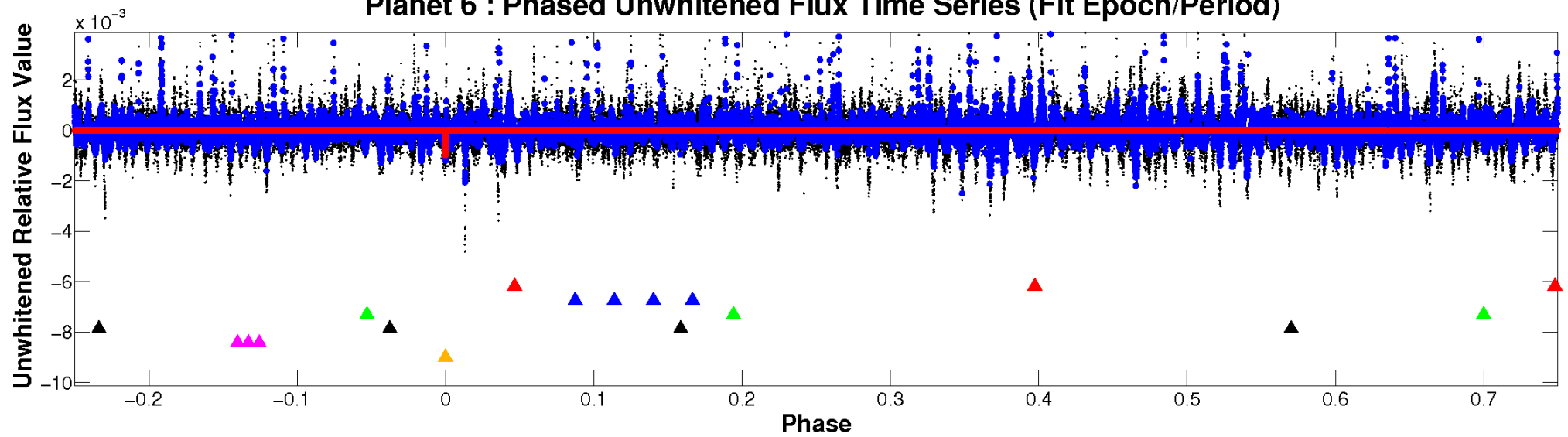
TCE 003118883-06



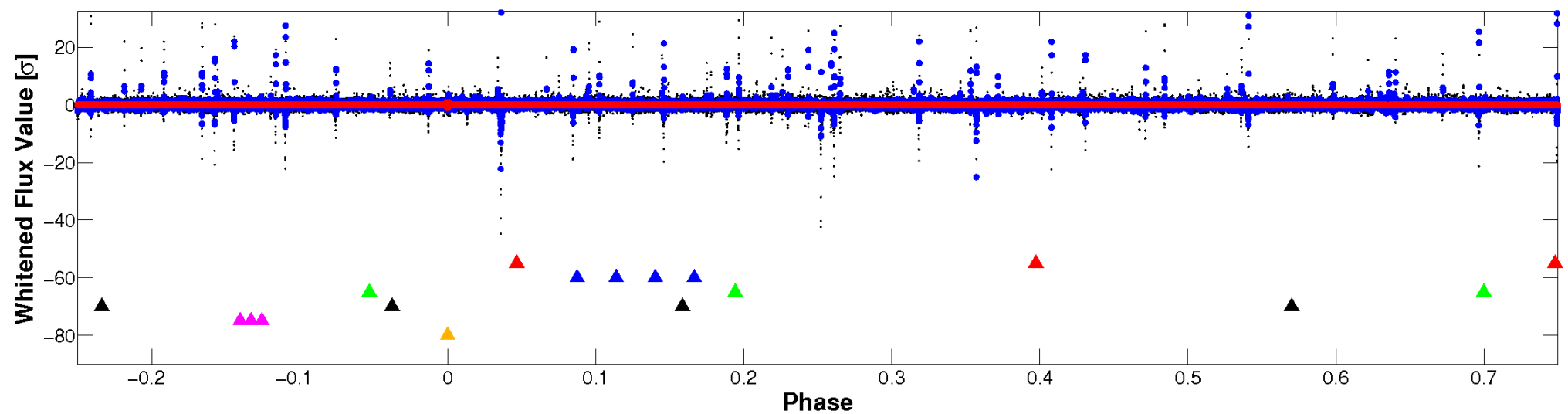


# Non-Whitened Vs. Whitened Light Curve

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

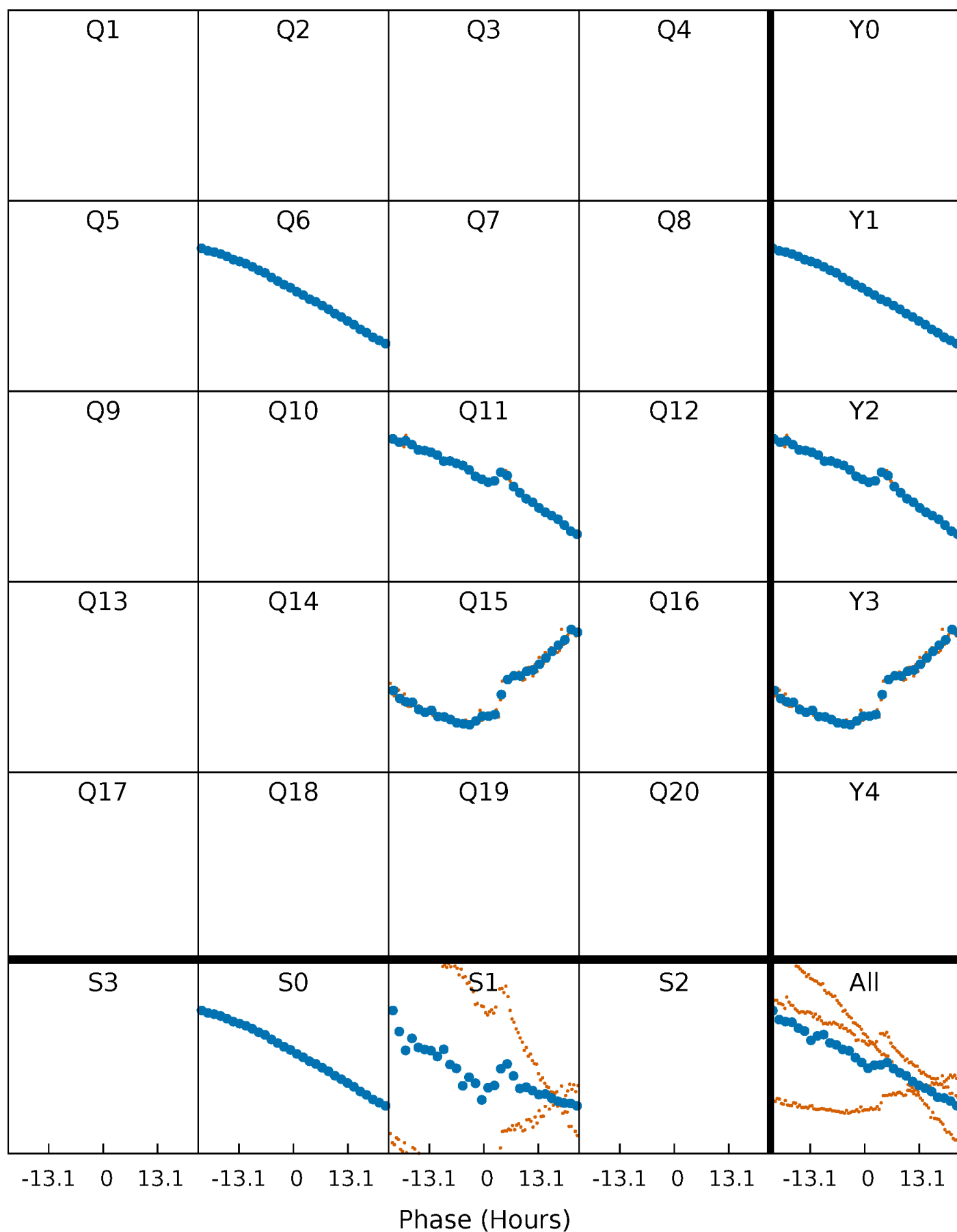


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



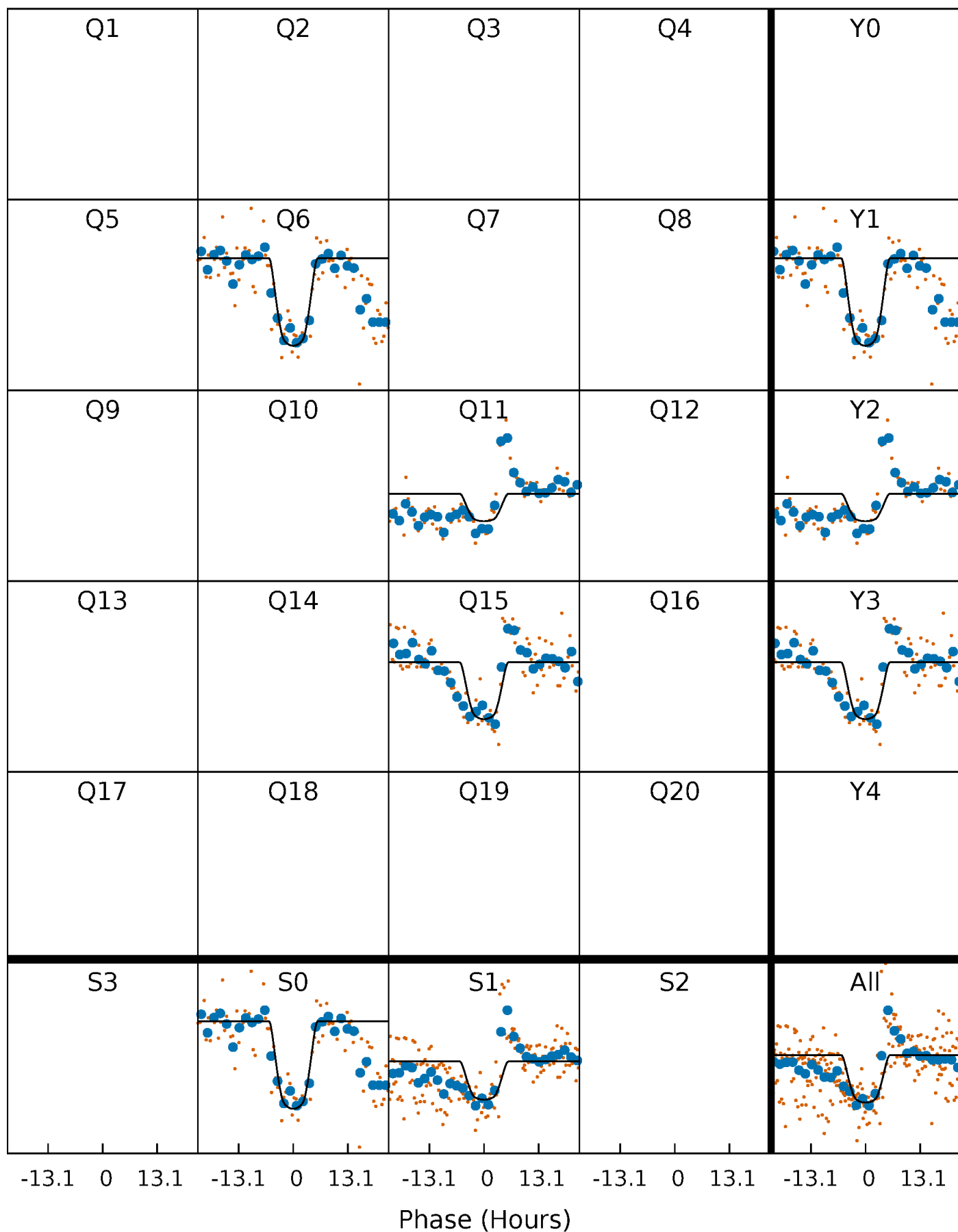
# PDC Quarter-Phased Transit Curves

TCE 003118883-06 P=446.771002 Days  $T_0=561.572670$  (BKJD)



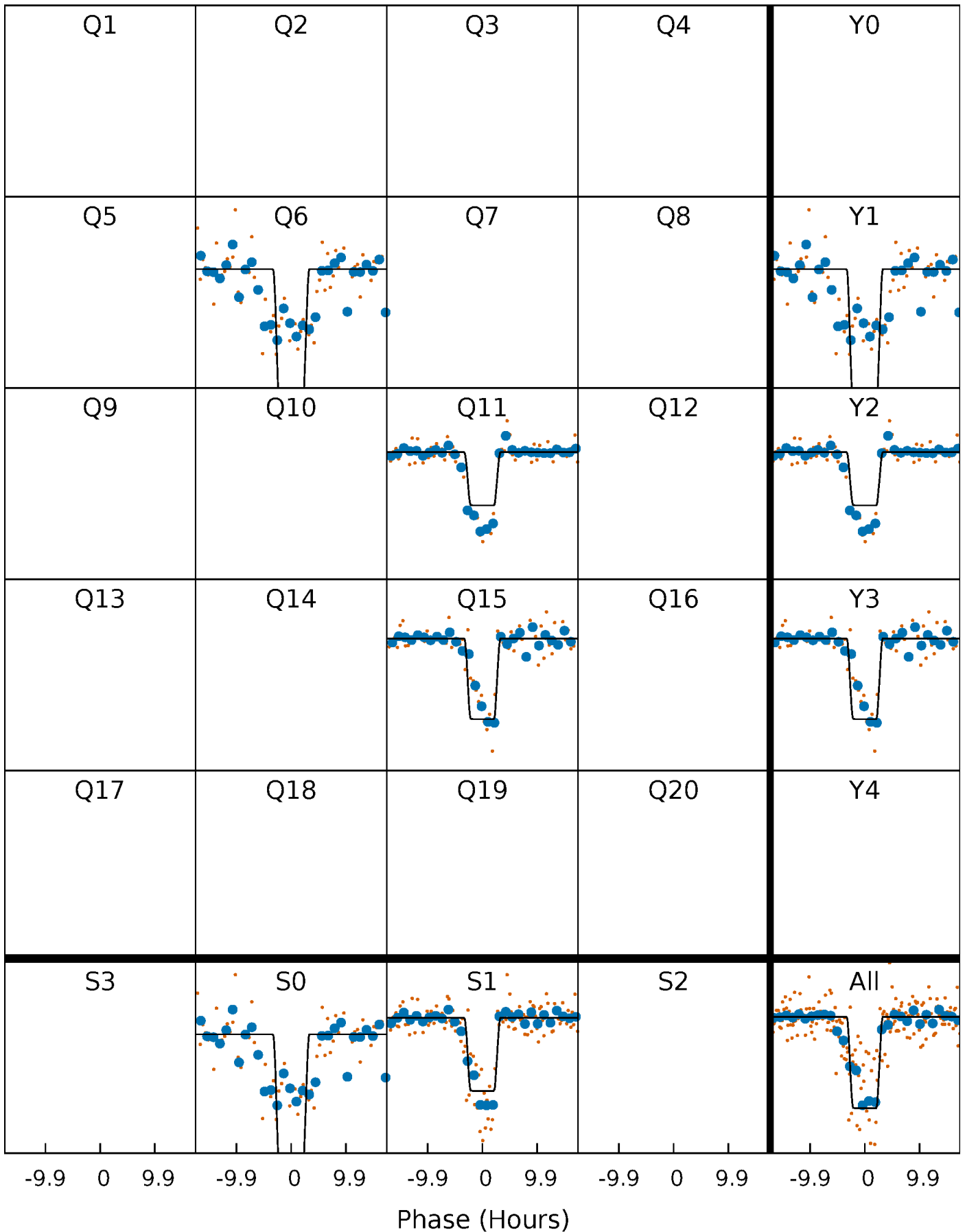
# DV Quarter-Phased Transit Curves

TCE 003118883-06 P=446.771002 Days  $T_0=561.572670$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

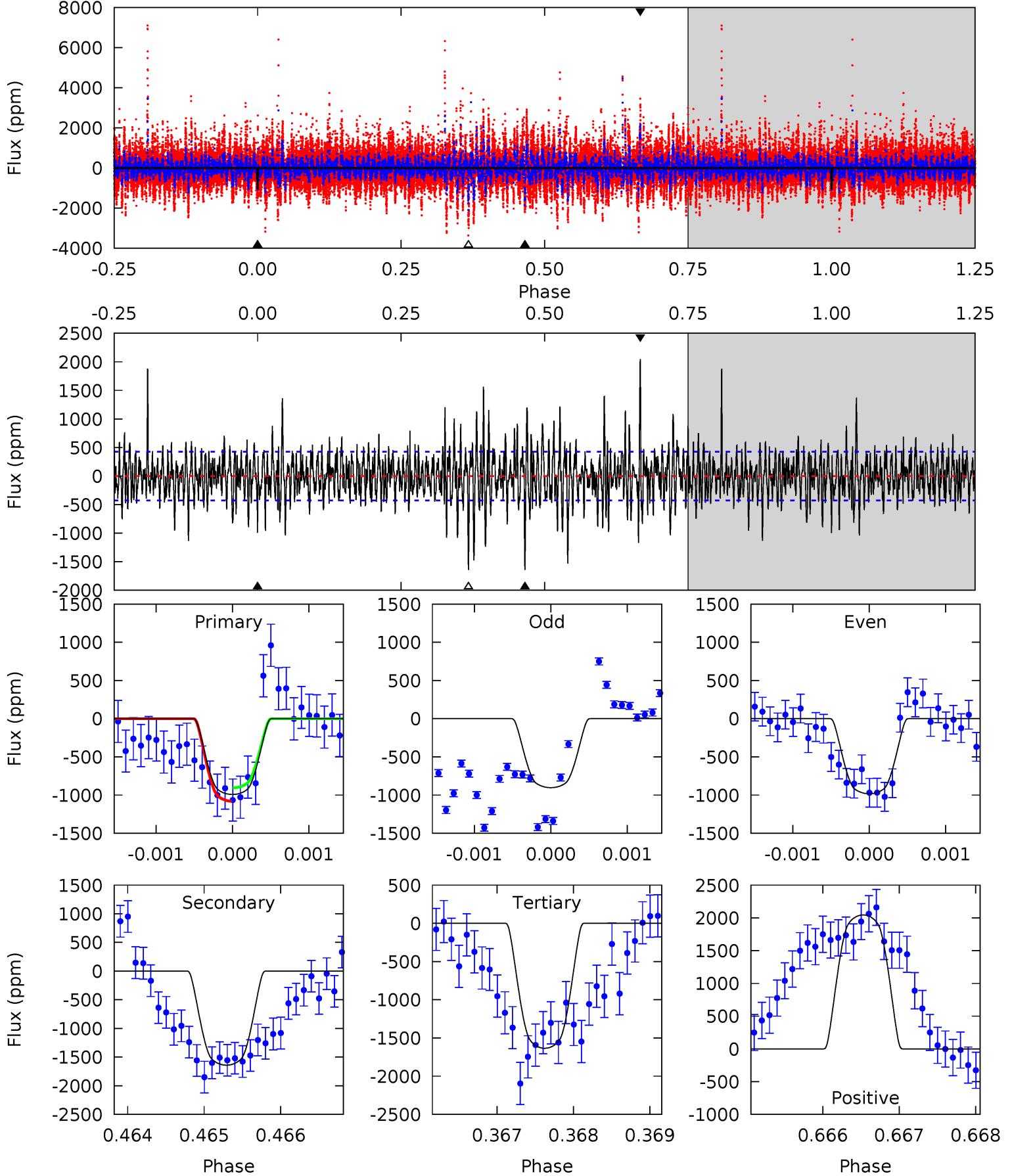
TCE 003118883-06 P=446.807034 Days  $T_0=561.571276$  (BKJD)



# DV Model-Shift Uniqueness Test

003118883-06, P = 446.771002 Days, E = 114.801668 Days

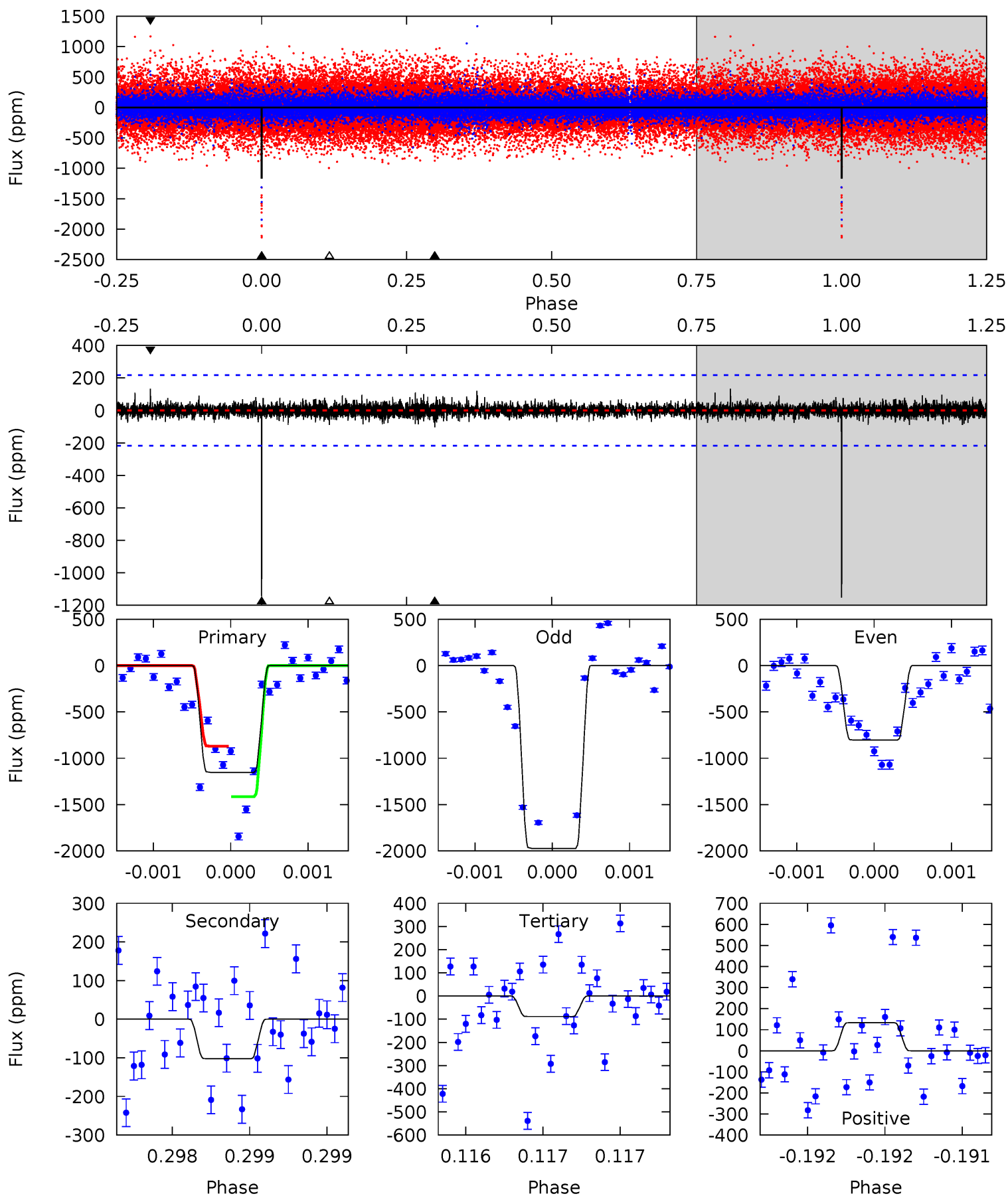
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	21.0	20.9	26.1	5.44	3.27	4.57	-8.21	-13.4	0.08	-5.15	0.36	0.98	0.55	1.13



# Alt Model-Shift Uniqueness Test

003118883-06, P = 446.807034 Days, E = 114.764242 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
29.4	2.61	2.26	3.40	5.53	3.42	0.53	27.1	26.0	0.35	-0.79	14.1	1.11	0.10	6.88



### Stellar Parameters For KIC 003118883

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5381^{+160}_{-144}$	$4.478^{+0.120}_{-0.120}$	$-0.320^{+0.350}_{-0.300}$	$0.827^{+0.128}_{-0.116}$	$0.751^{+0.118}_{-0.050}$	$1.871^{+0.935}_{-0.625}$
	+3%/-3%	+3%/-3%	+109%/-94%	+15%/-14%	+16%/-7%	+50%/-33%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003118883-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1641 \pm 78$	$3.35^{+0.41}_{-0.42}$	$295^{+15}_{-13}$	$5621^{+310}_{-283}$	$90298^{+25198}_{-20432}$
Alt.	$-102 \pm 39$	$3.40^{+0.46}_{-0.43}$	$296^{+15}_{-14}$	$3322^{+222}_{-234}$	$5321^{+2730}_{-2134}$

$T_{\text{max}}$  = 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

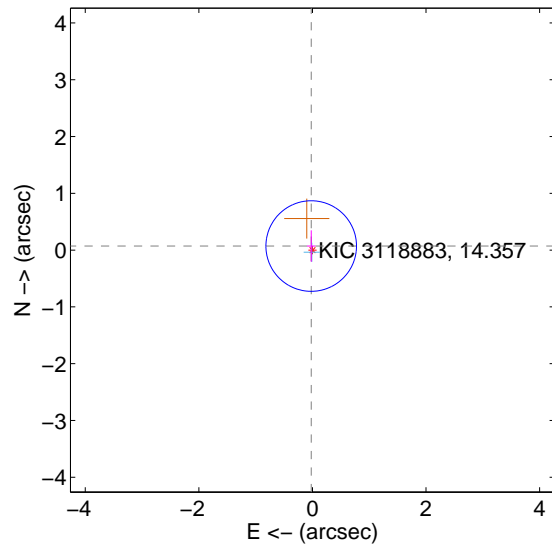
Supplemental centroid analysis for 003118883-06. Kepler magnitude: 14.36. Transit SNR 7.84

There are 1 quarters with good PRF difference image offsets

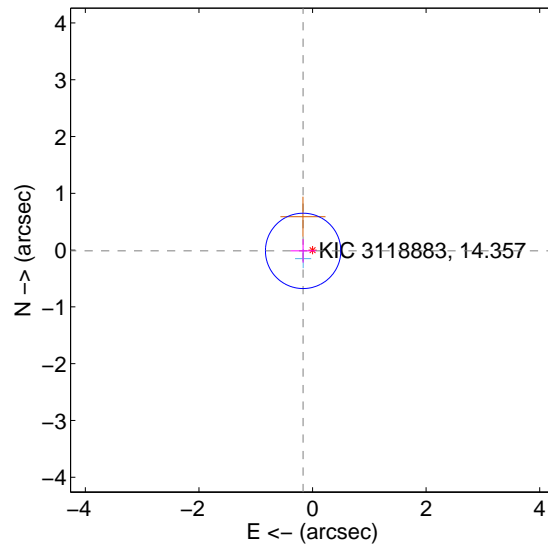
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.075 \pm 0.266$	0.28	$0.022 \pm 0.074$	$0.071 \pm 0.277$
PRF-fit source offset from KIC position	$0.166 \pm 0.221$	0.75	$0.166 \pm 0.221$	$-0.014 \pm 0.206$
photometric centroid source offset	$1.22 \pm 0.78$	1.57	$1.08 \pm 0.79$	$0.57 \pm 0.73$

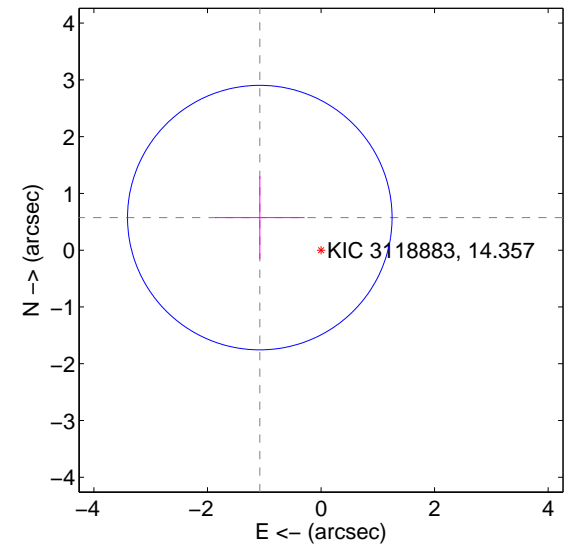
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



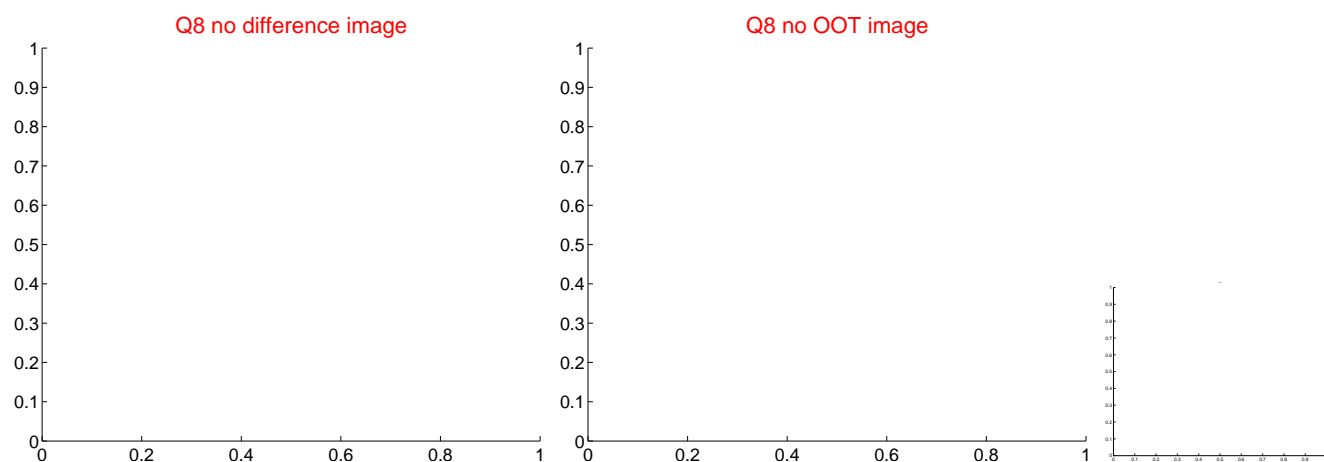
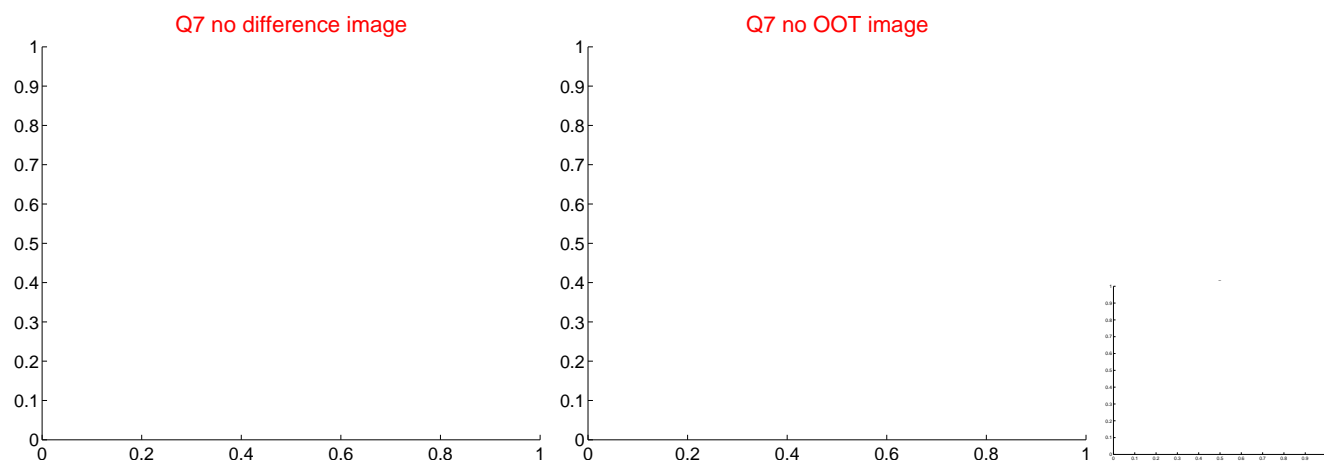
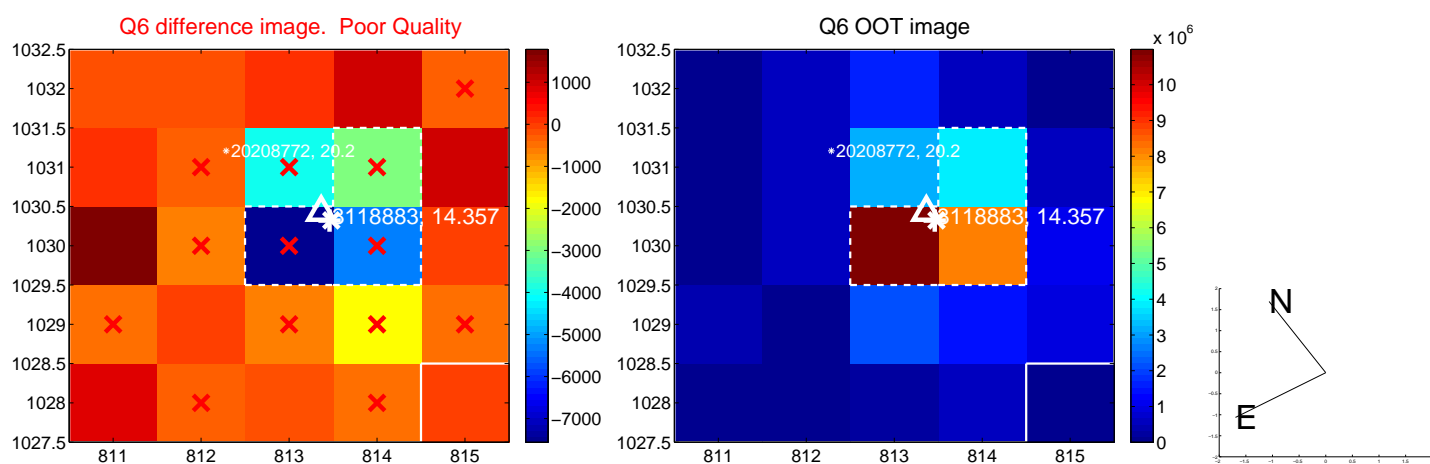
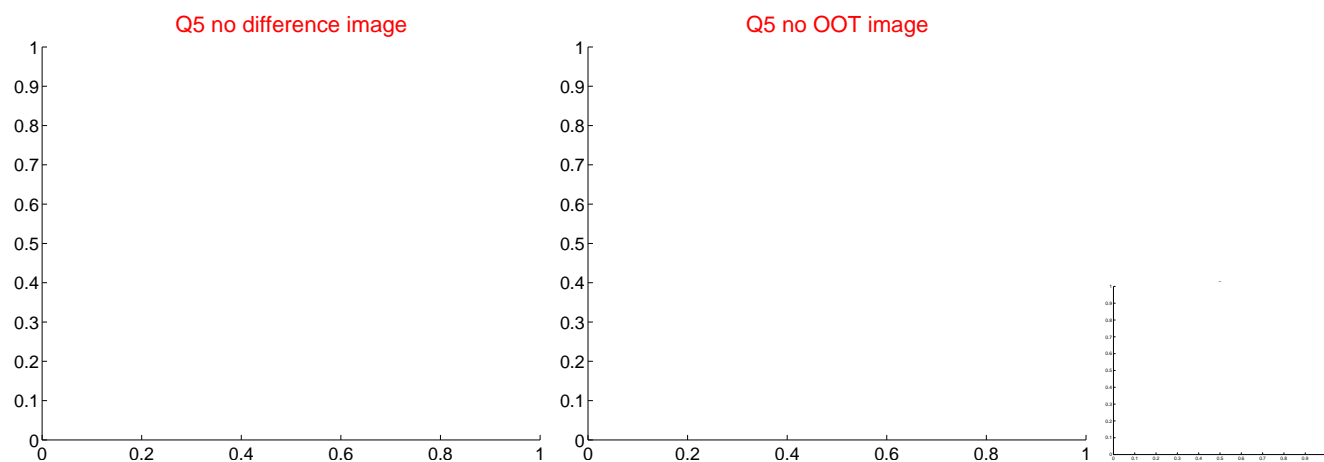
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



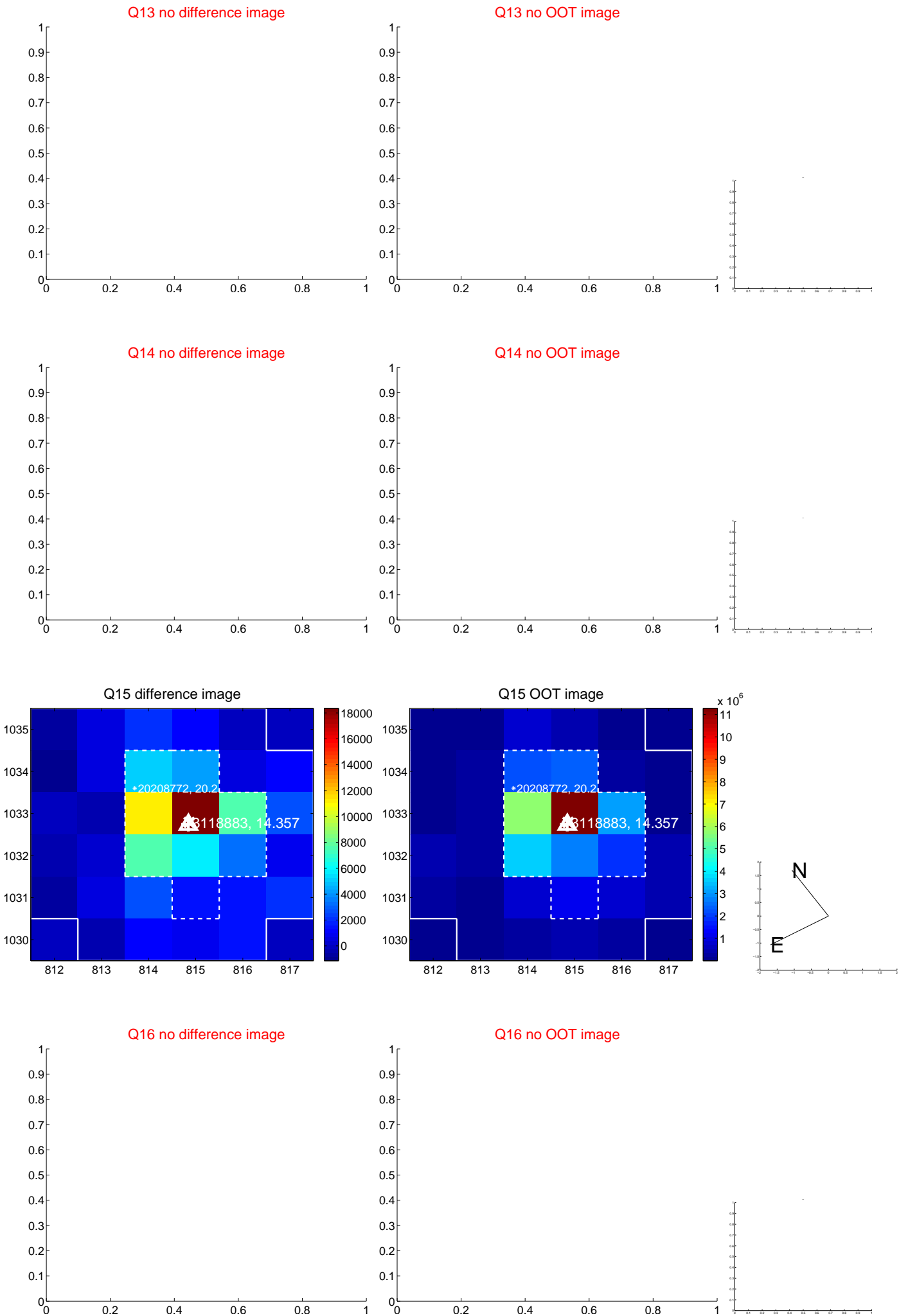
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



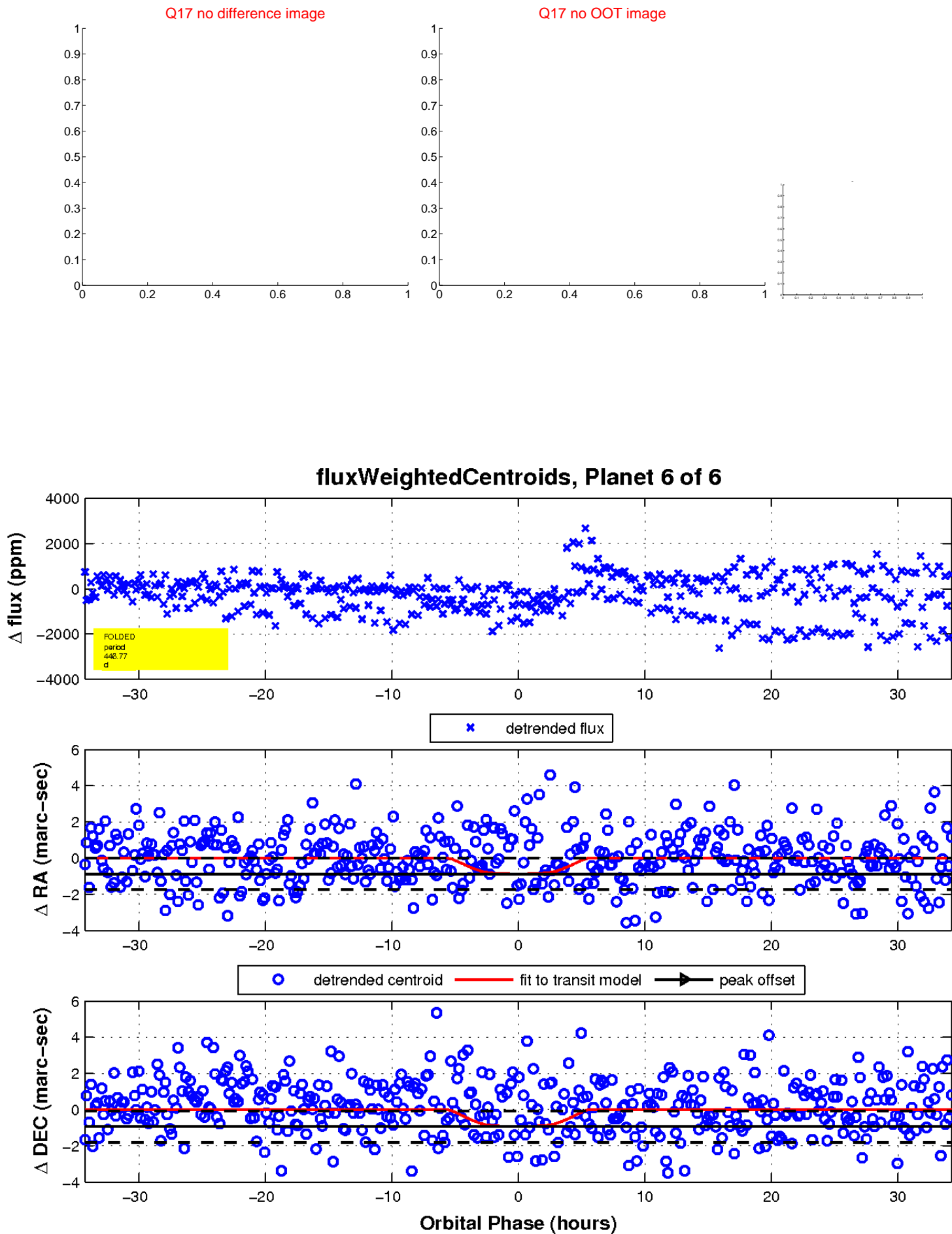
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

Declination

