

# KIC 005822633

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005822633-01	OBS	No	365.159437	372.138334	2623.8	3.000	27.0	-1.0	1.90	6418	9.77	4.61
005822633-02	OBS	No	334.218239	310.522602	1640.0	3.500	21.6	-1.0	1.90	6418	7.72	5.18
005822633-03	OBS	No	558.049958	197.624435	4.5	1.776	19.5	0.0	1.90	6418	0.43	2.62
005822633-04	OBS	No	385.240718	317.905928	1076.3	4.500	17.0	-1.0	1.90	6418	6.25	4.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005822633-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
005822633-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
005822633-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT
005822633-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

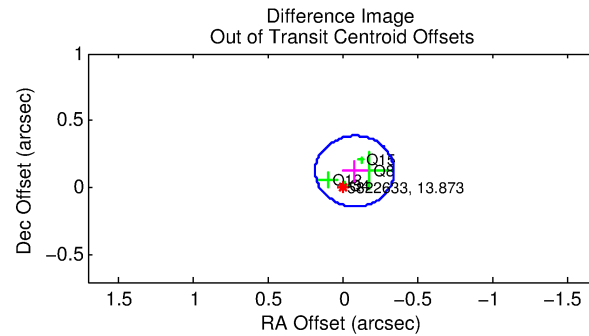
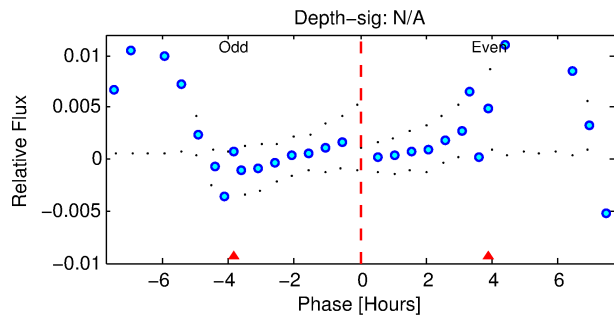
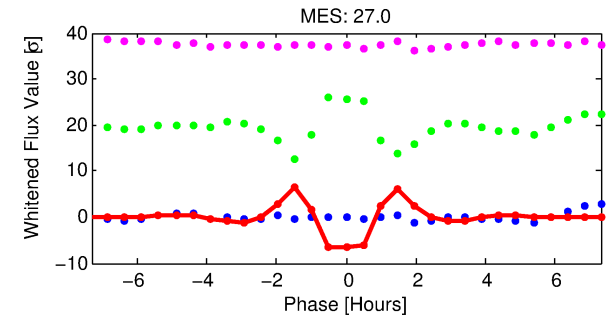
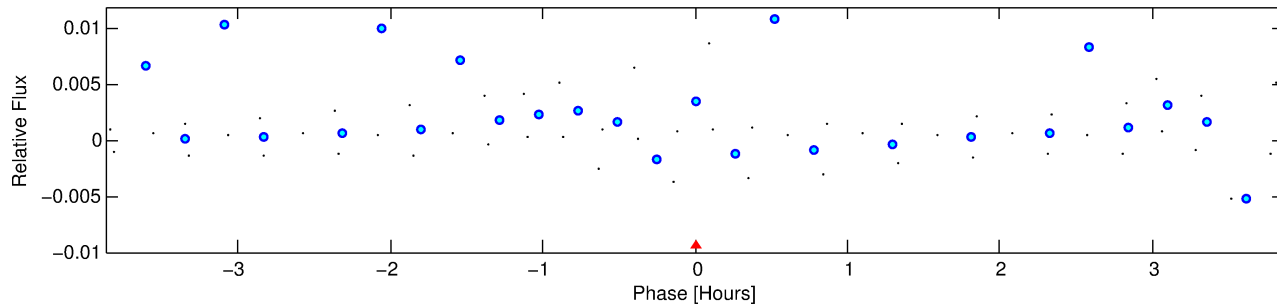
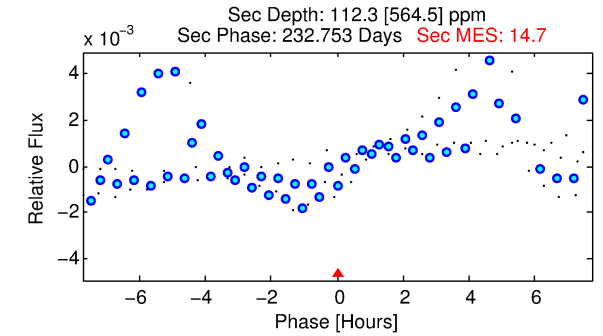
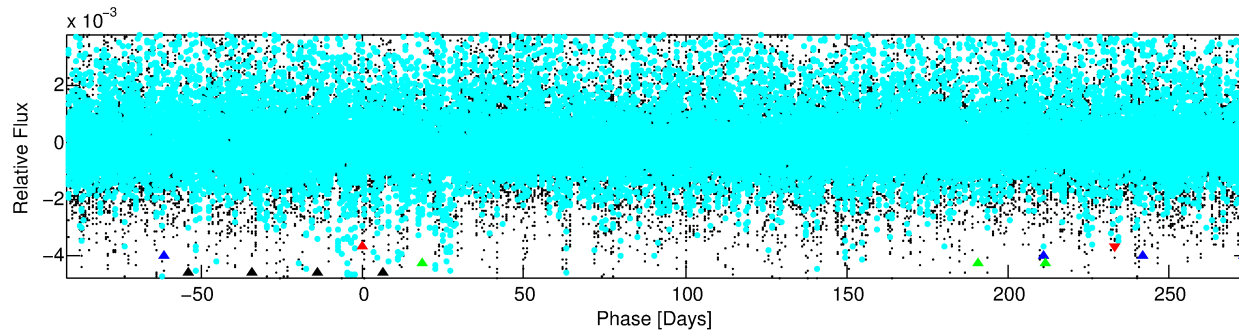
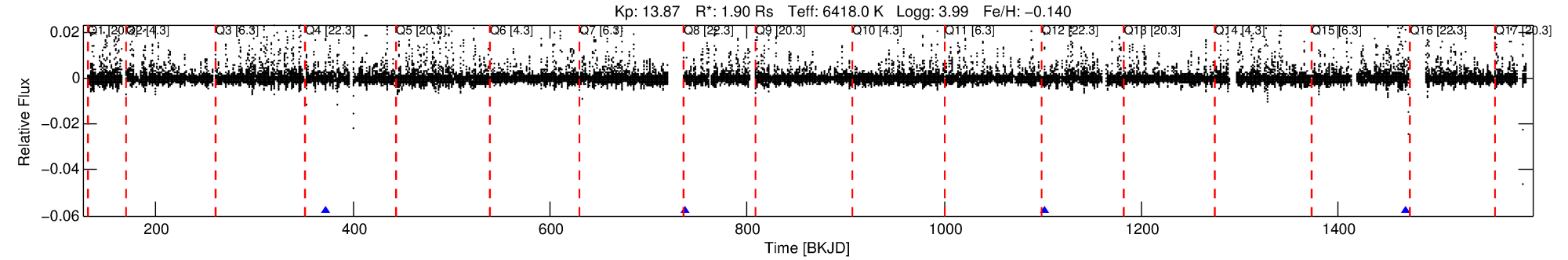
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## Ephemeris Match Information For 005822633-01

No Significant Match Found

# DV One-Page Summary

KIC: 5822633 Candidate: 1 of 4 Period: 365.159 d



## TPS TCE Results:

Period = 365.15944 d  
Epoch = 372.1383 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

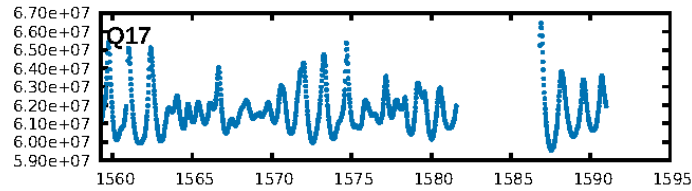
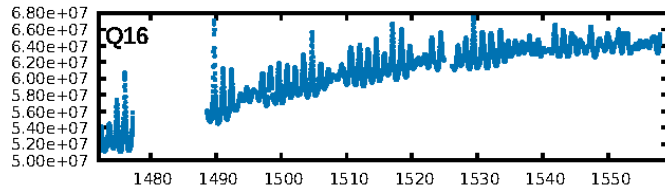
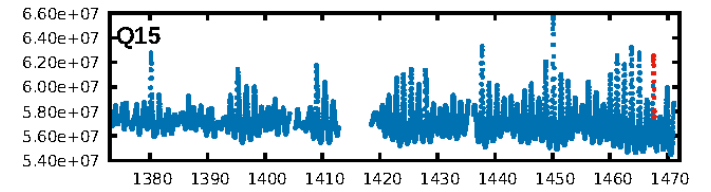
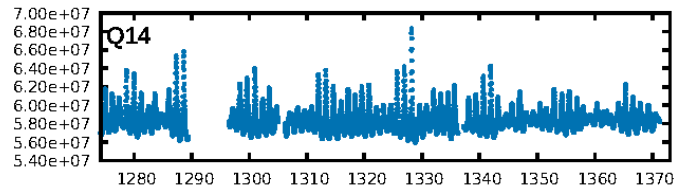
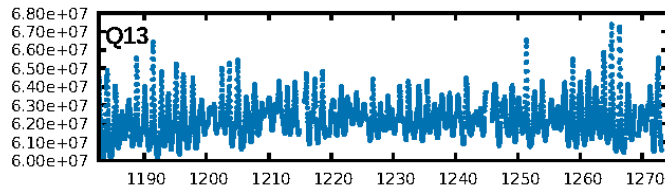
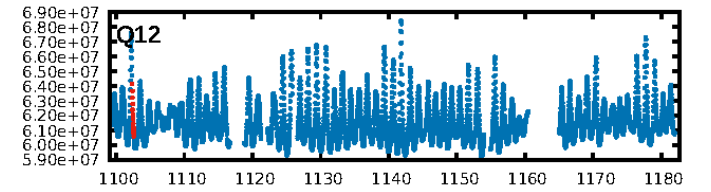
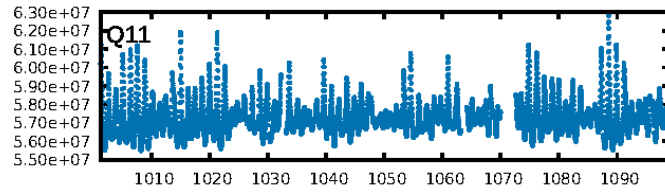
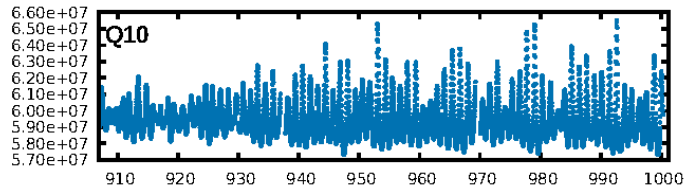
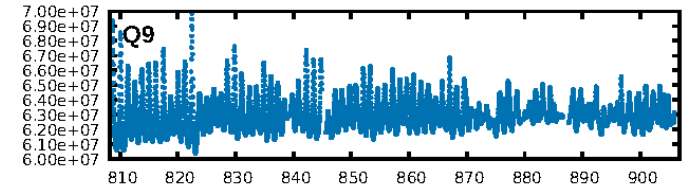
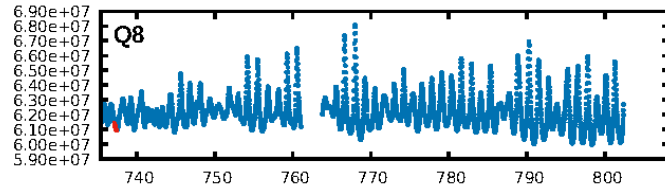
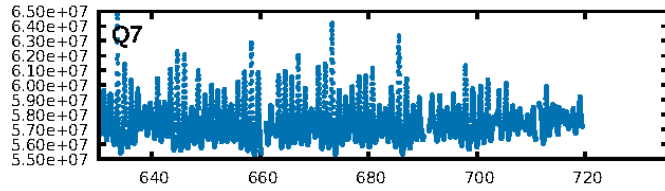
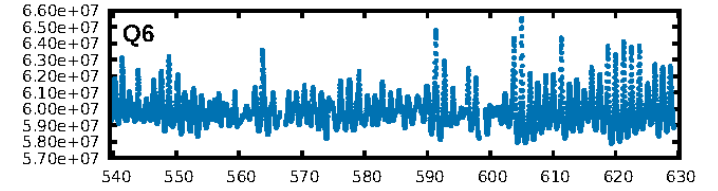
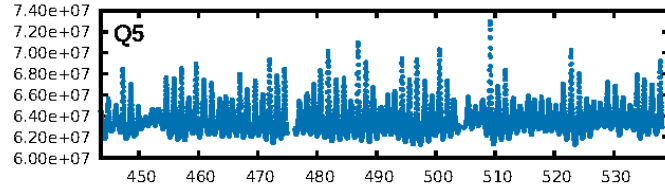
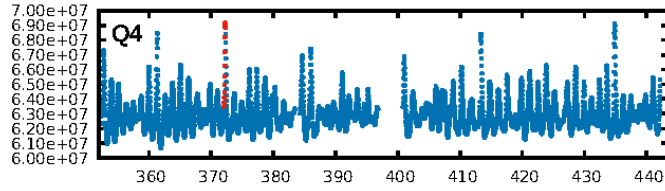
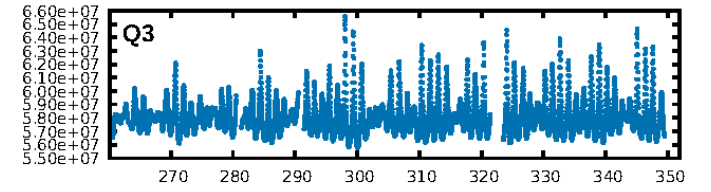
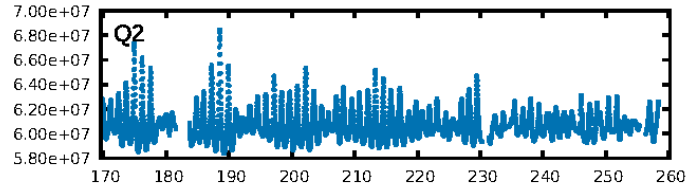
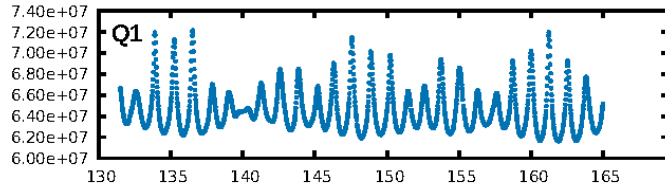
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LongPeriod-sig: 100.0% [89.11 $\sigma$ ]  
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ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.5271

Centroid-sig: 59.9%  
Centroid-so: 16.788 arcsec [0.47 $\sigma$ ]  
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KicOffset-rm: 0.115 arcsec [1.45 $\sigma$ ]  
OotOffset-st: 0/1/3/0 [4]  
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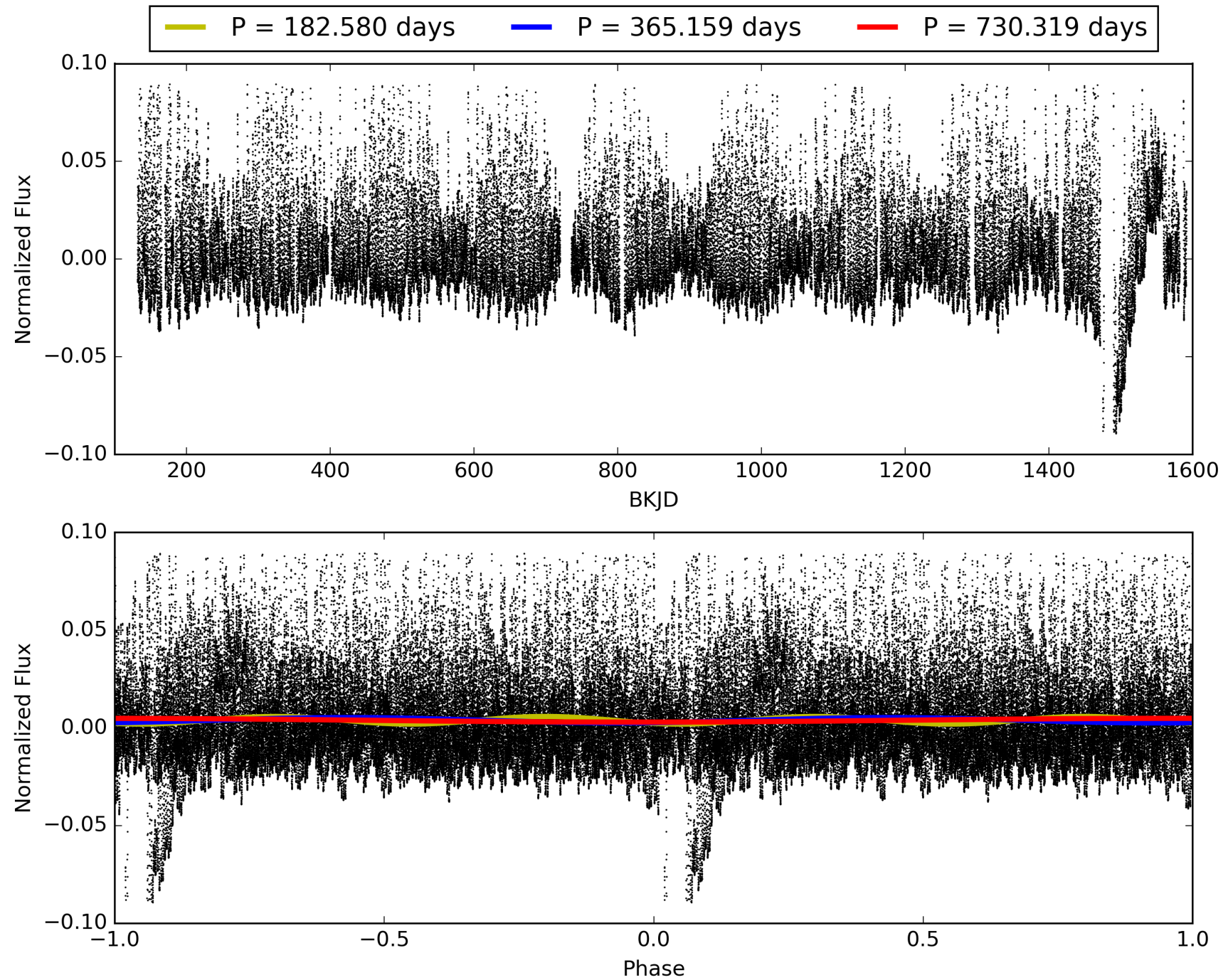
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005822633-01, PDC Light Curves

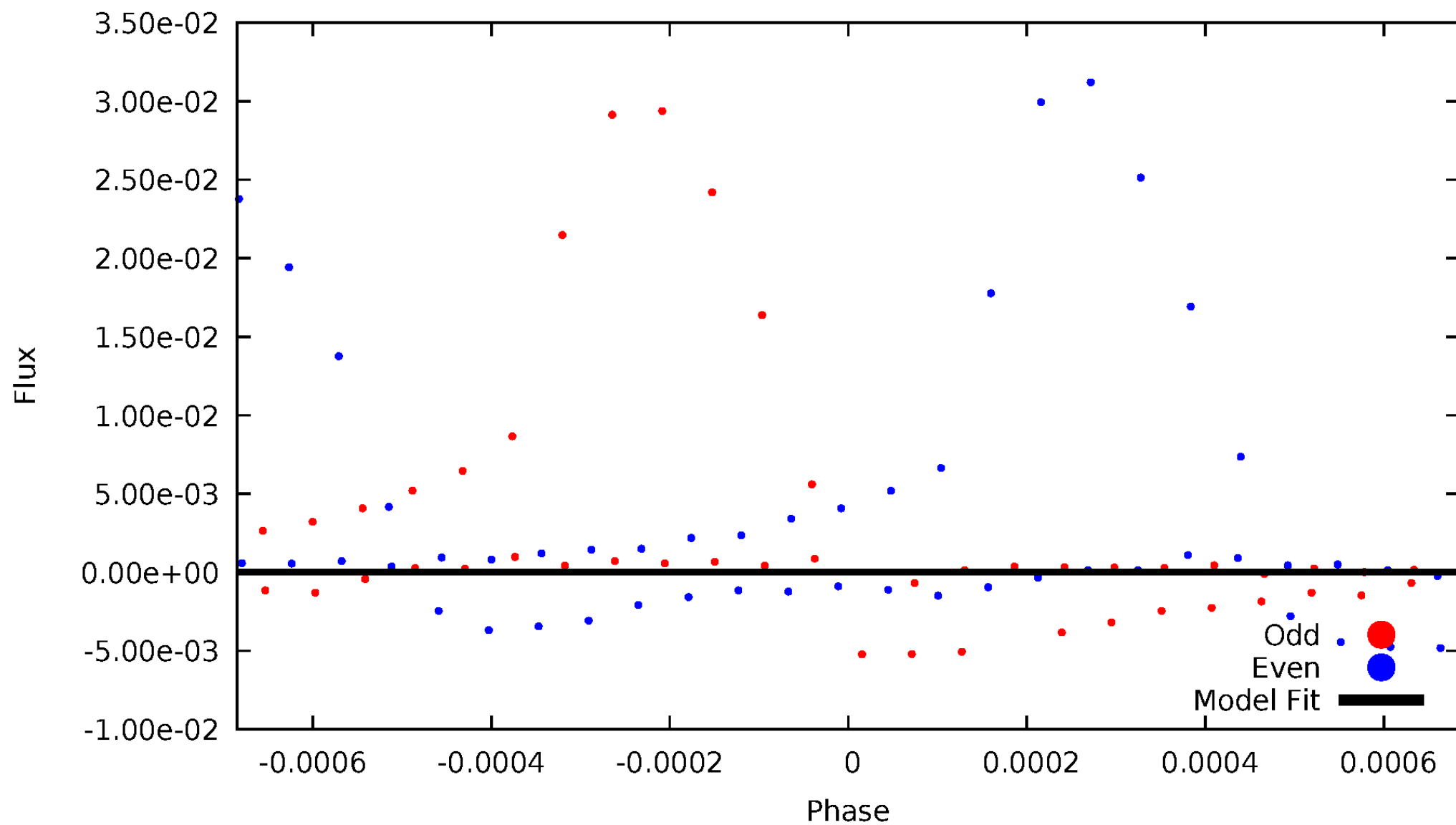


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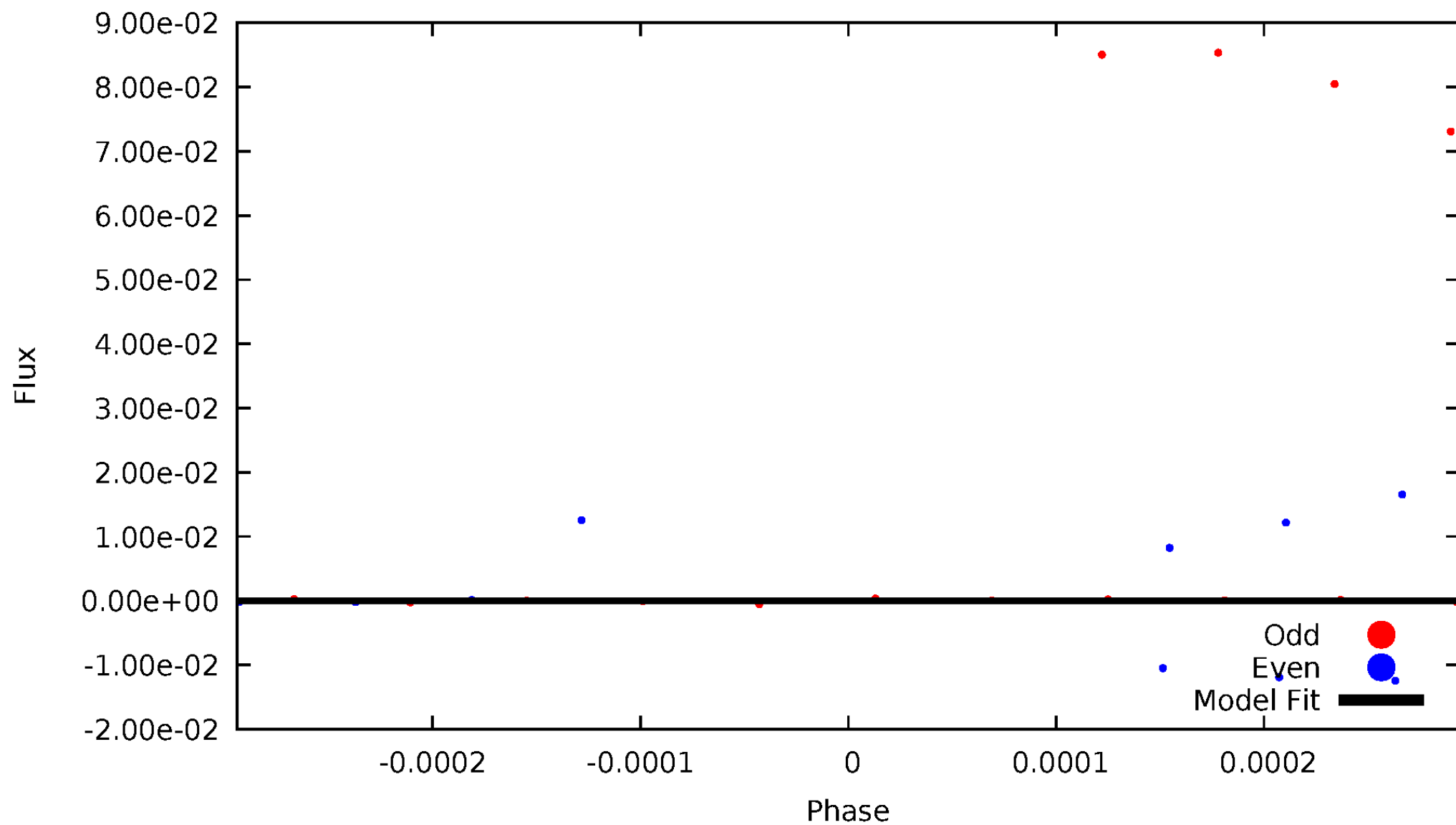
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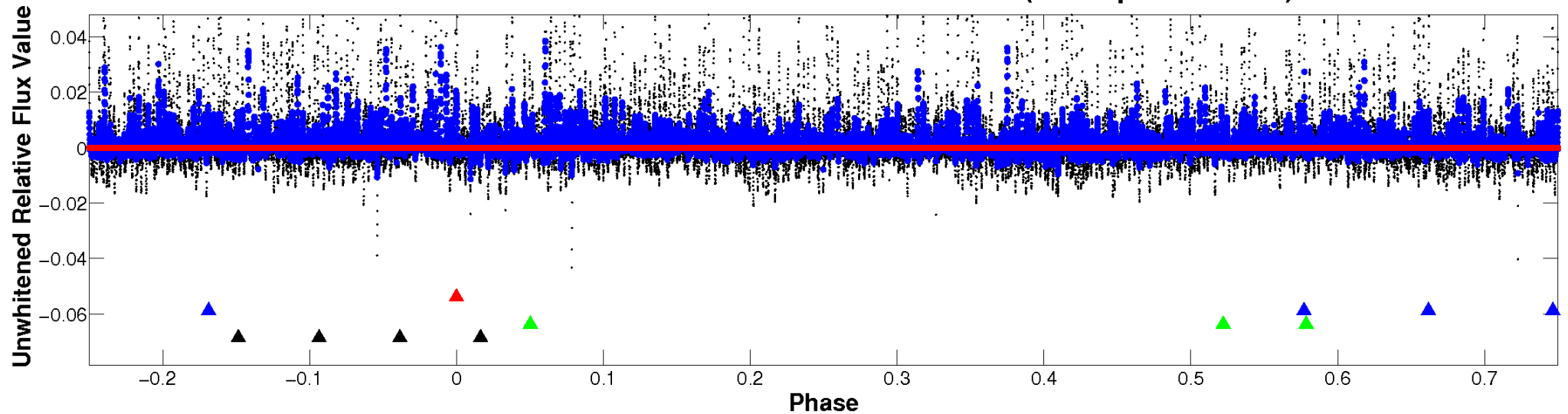
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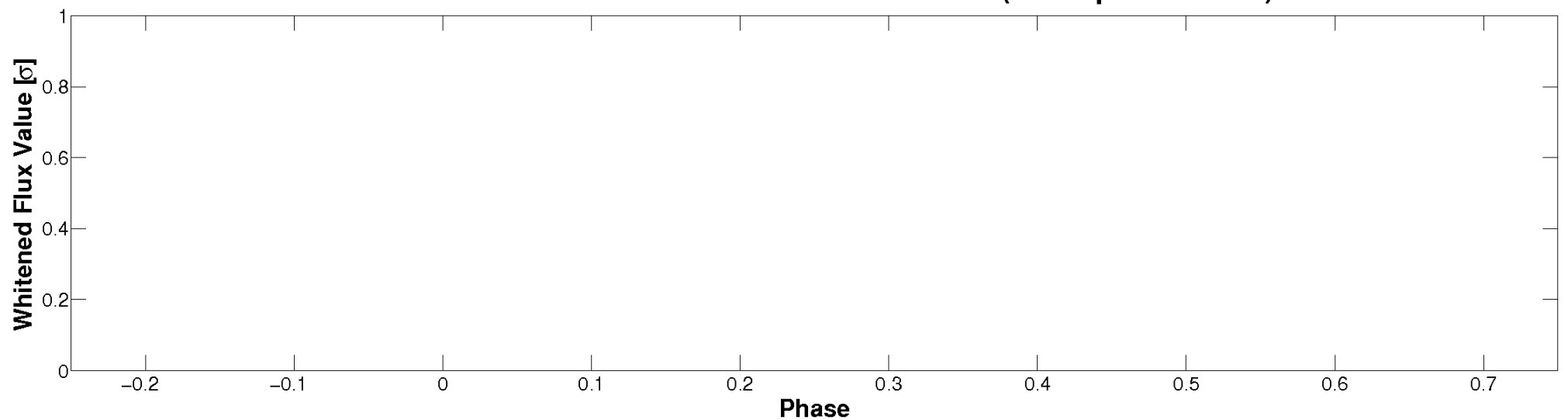


# Non-Whitened Vs. Whitened Light Curve

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

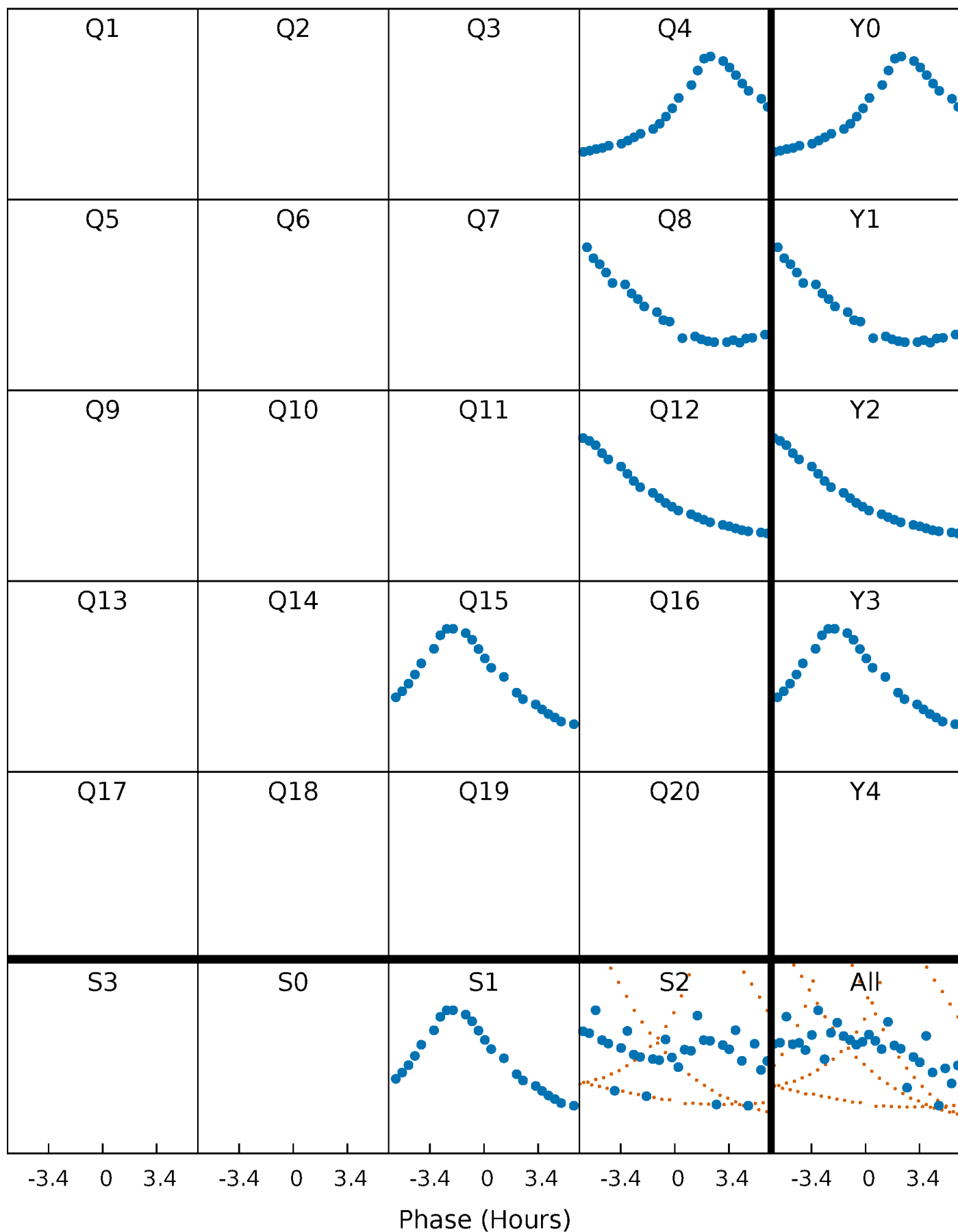


**Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

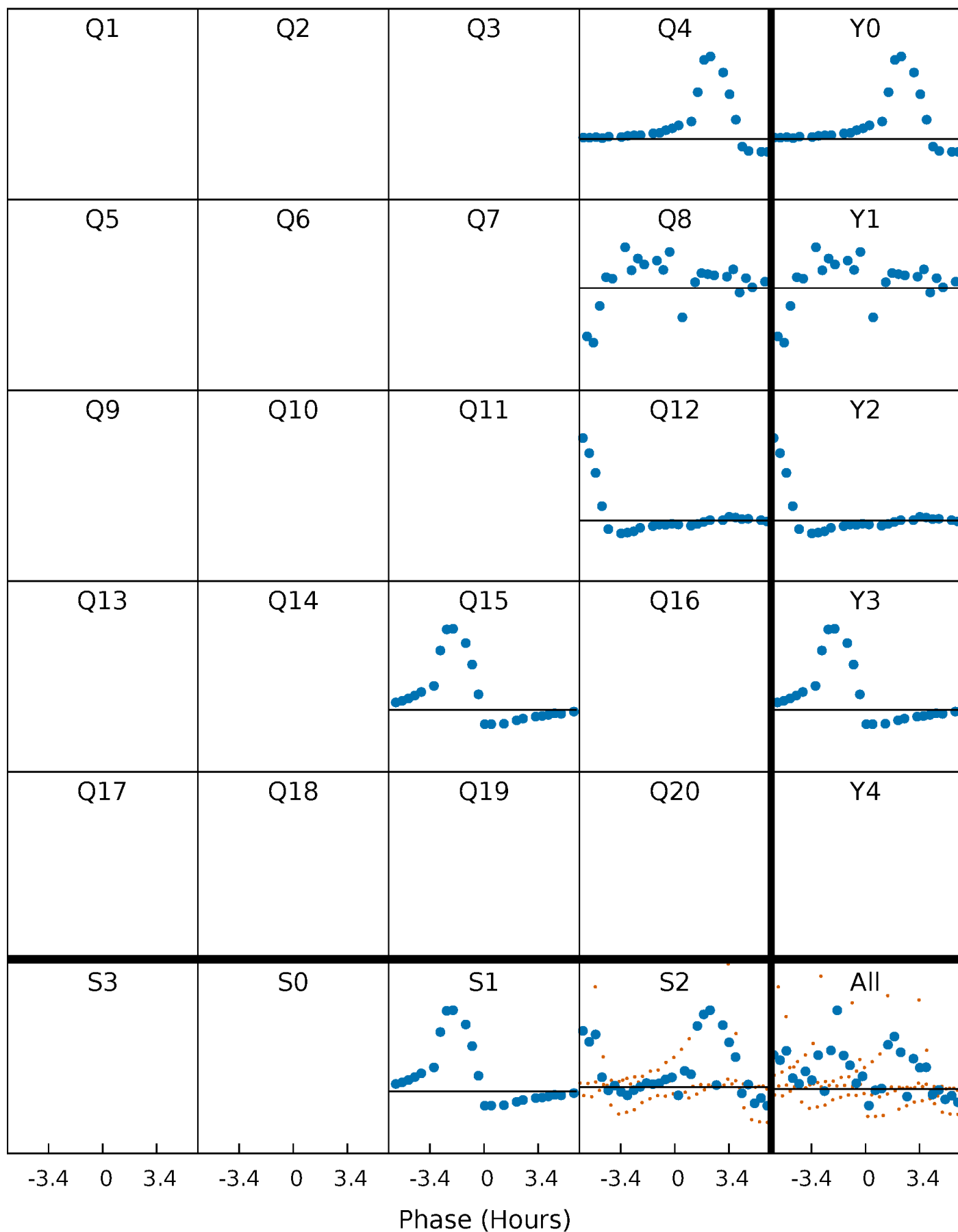
TCE 005822633-01 P=365.159437 Days  $T_0=372.138334$  (BKJD)





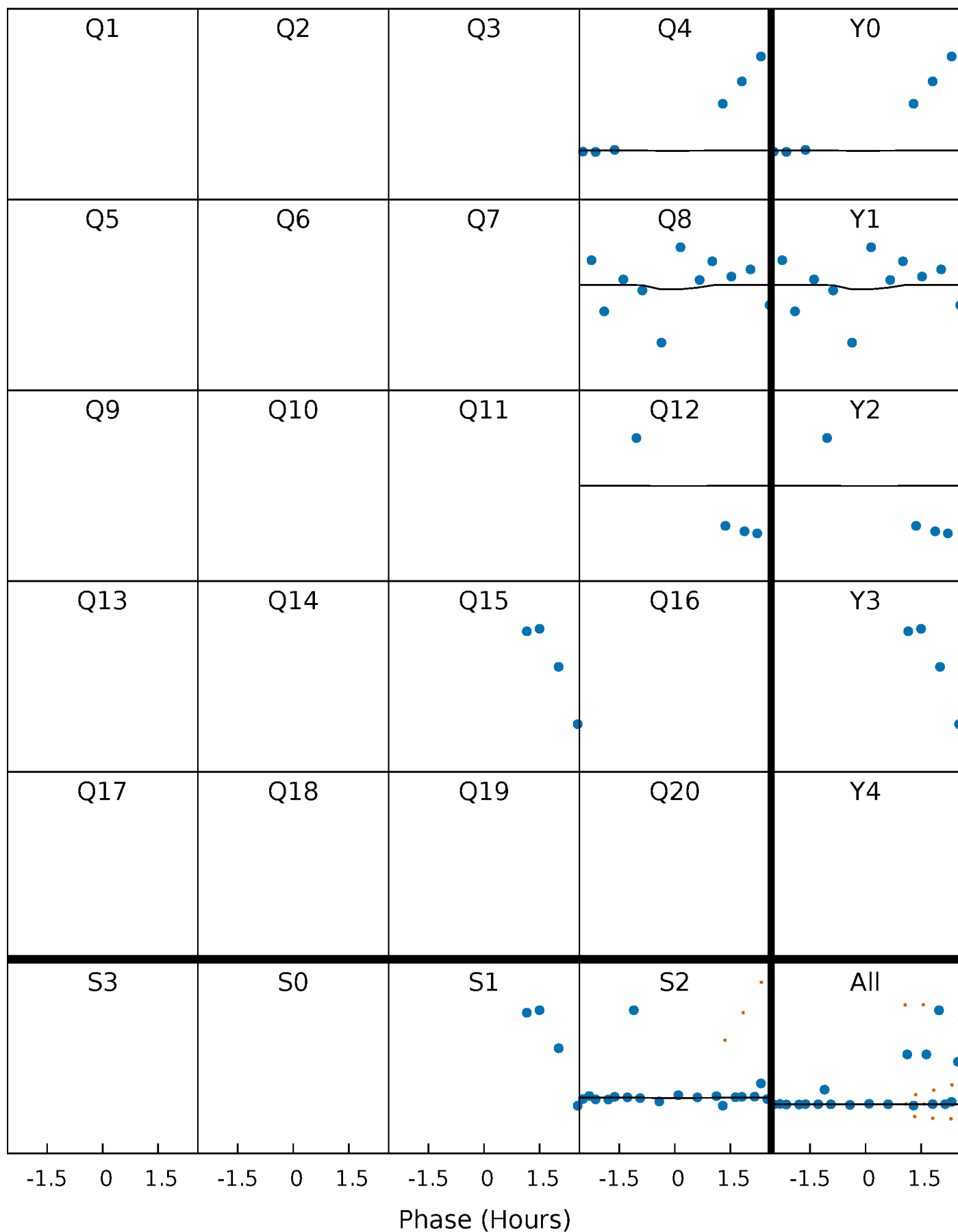
# DV Quarter-Phased Transit Curves

TCE 005822633-01 P=365.159437 Days  $T_0=372.138334$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

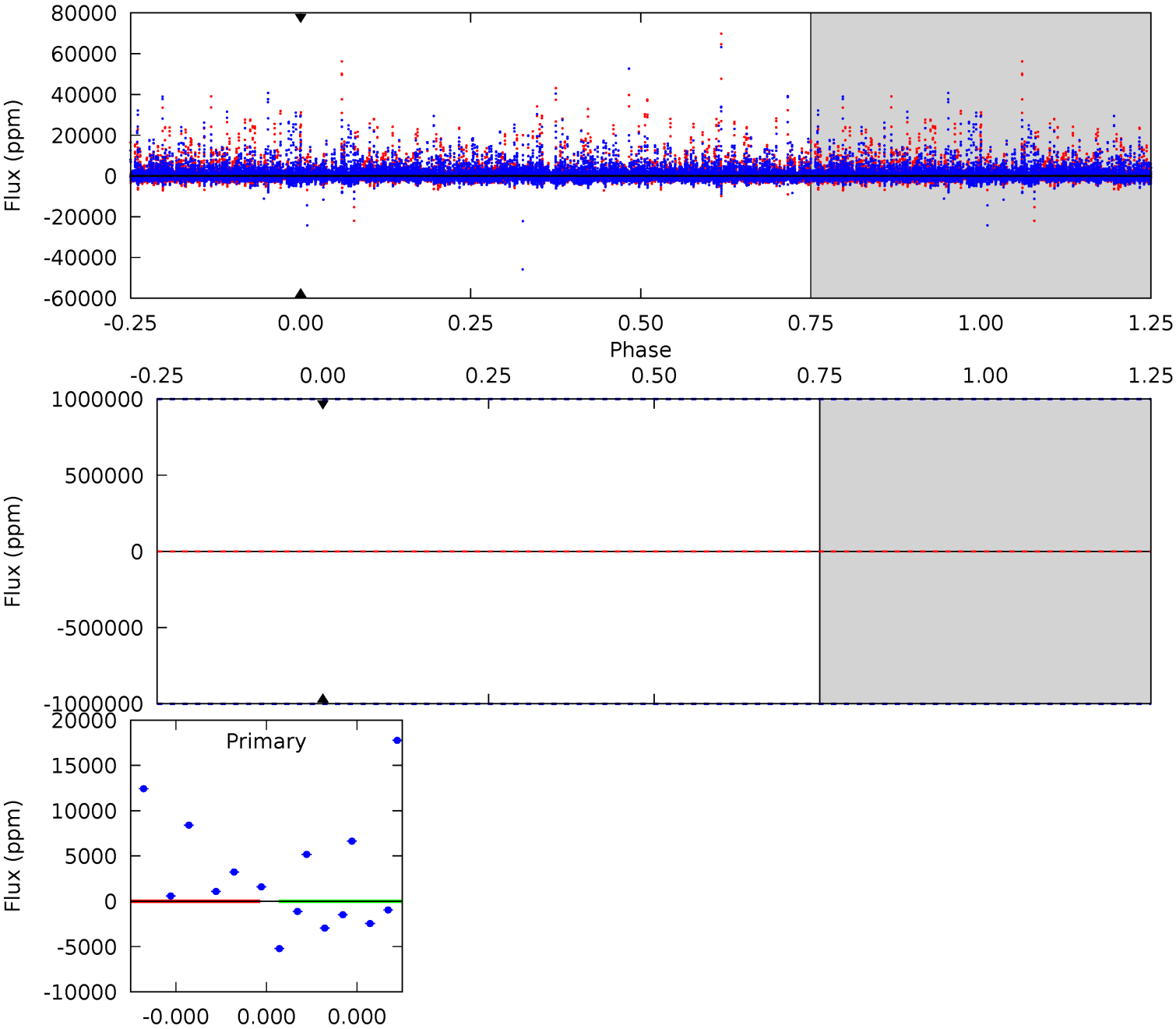
TCE 005822633-01 P=365.159437 Days  $T_0=371.997204$  (BKJD)



# DV Model-Shift Uniqueness Test

005822633-01, P = 365.159437 Days, E = 6.978897 Days

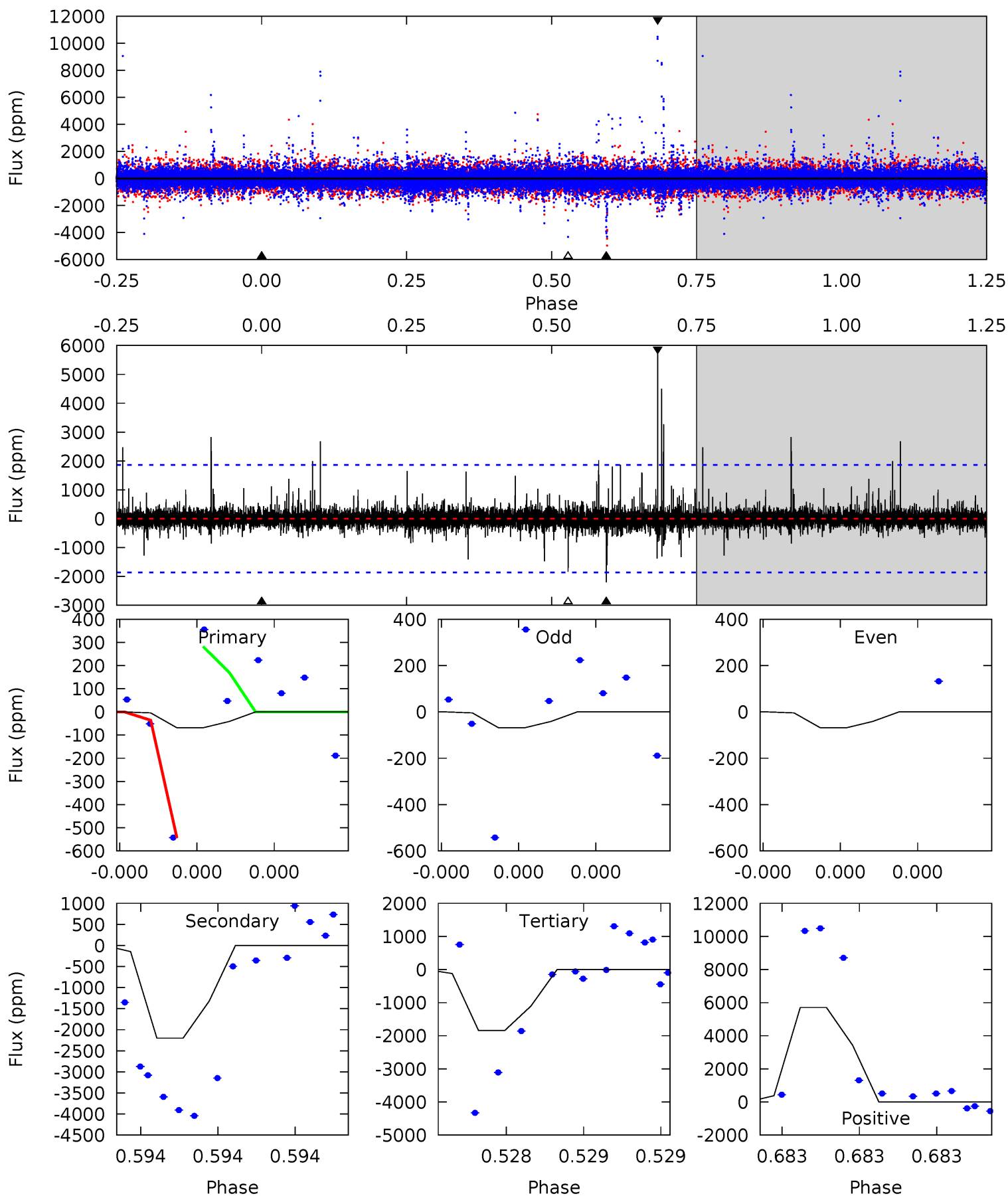
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

005822633-01, P = 365.159437 Days, E = 6.837767 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
0.21	6.80	5.70	17.7	5.76	3.77	0.54	-5.49	-17.4	1.10	-10.9	0	1.00	0.72	0.00



### Stellar Parameters For KIC 005822633

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6418^{+181}_{-227}$	$3.994^{+0.319}_{-0.147}$	$-0.140^{+0.250}_{-0.300}$	$1.897^{+0.543}_{-0.664}$	$1.296^{+0.182}_{-0.251}$	$0.267^{+0.677}_{-0.124}$
	+3%/-4%	+8%/-4%	+179%/-214%	+29%/-35%	+14%/-19%	+253%/-46%
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 005822633-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$17.65^{+18.22}_{-12.78}$	$515^{+38}_{-56}$	$4797^{+18447}_{-22992}$	$3751^{+437328}_{-307748}$
Alt.	$-2199 \pm 323$	$13.65^{+15.95}_{-10.02}$	$511^{+43}_{-49}$	$5283^{+6000}_{-1384}$	$7529^{+94908}_{-5925}$

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

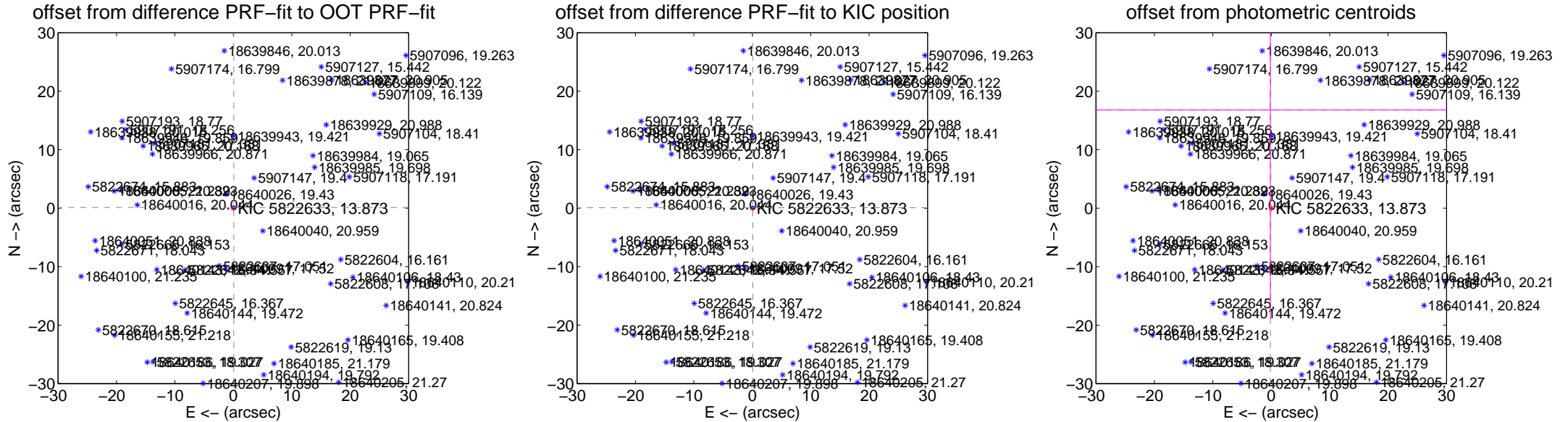
# DV Centroid Data

Supplemental centroid analysis for 005822633-01. Kepler magnitude: 13.87. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

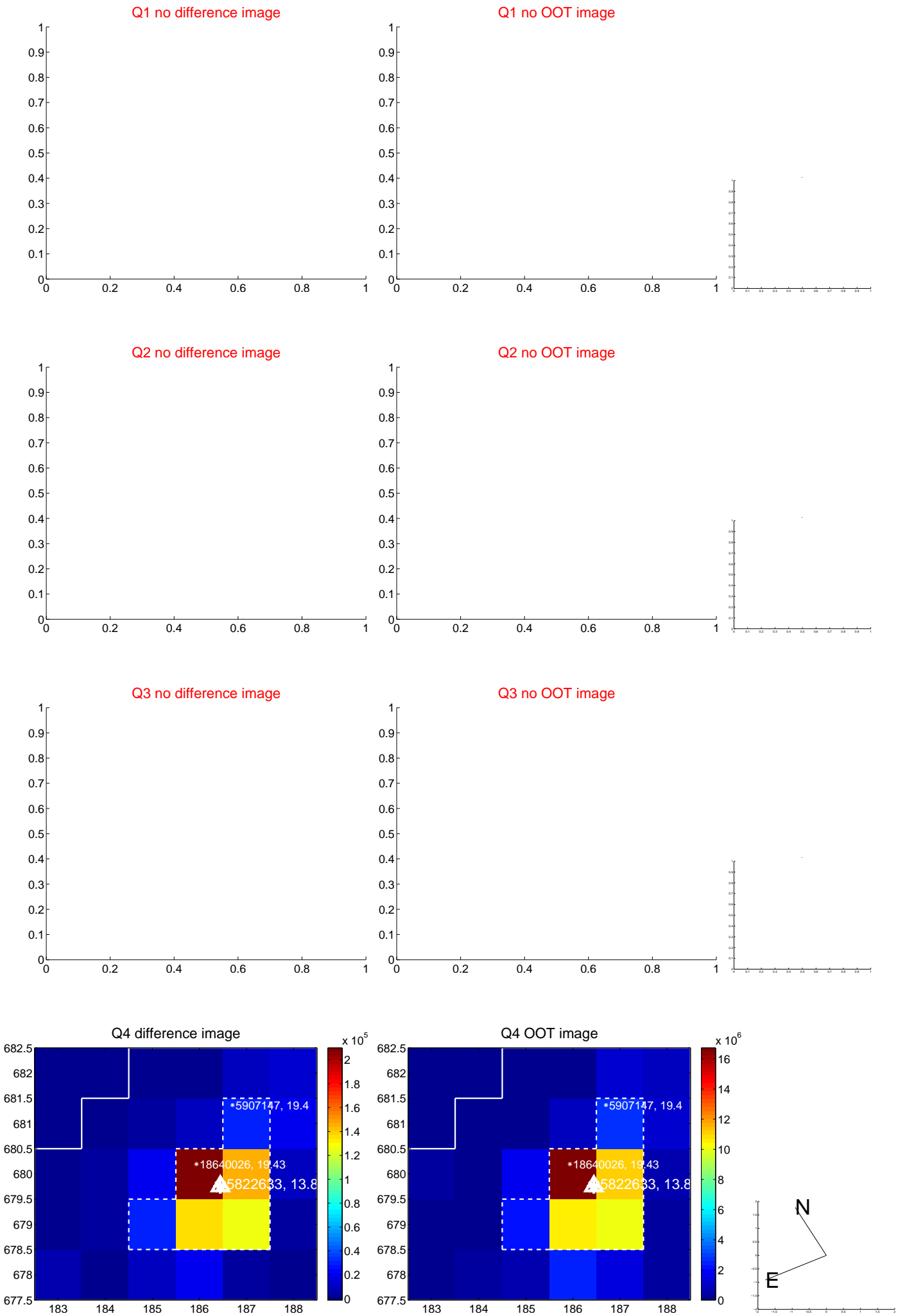
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.150 \pm 0.088$	1.70	$-0.083 \pm 0.083$	$0.125 \pm 0.079$
PRF-fit source offset from KIC position	$0.115 \pm 0.079$	1.45	$-0.085 \pm 0.083$	$0.077 \pm 0.070$
photometric centroid source offset	$16.79 \pm 35.72$	0.47	$0.14 \pm 34.60$	$16.79 \pm 35.72$

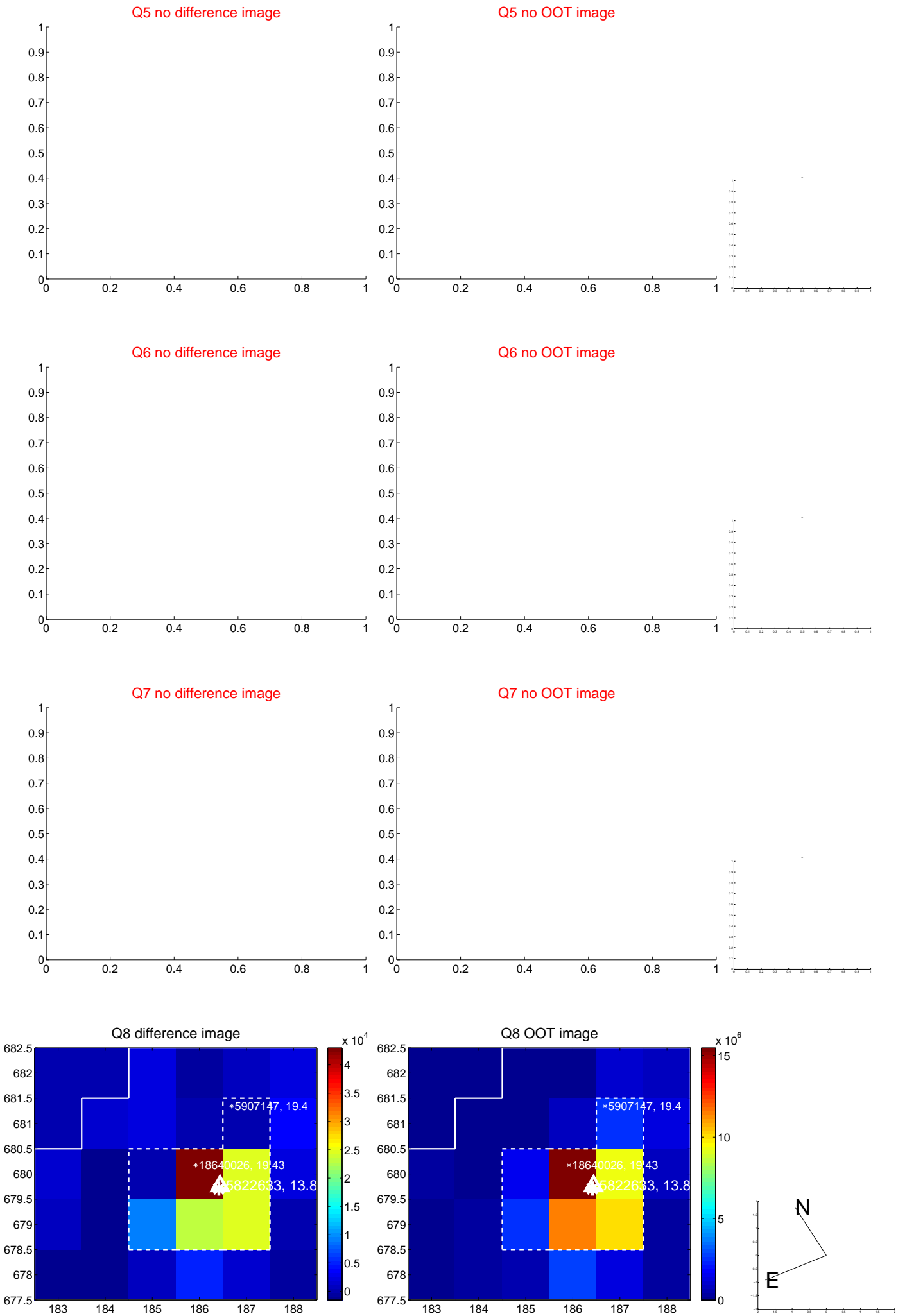


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

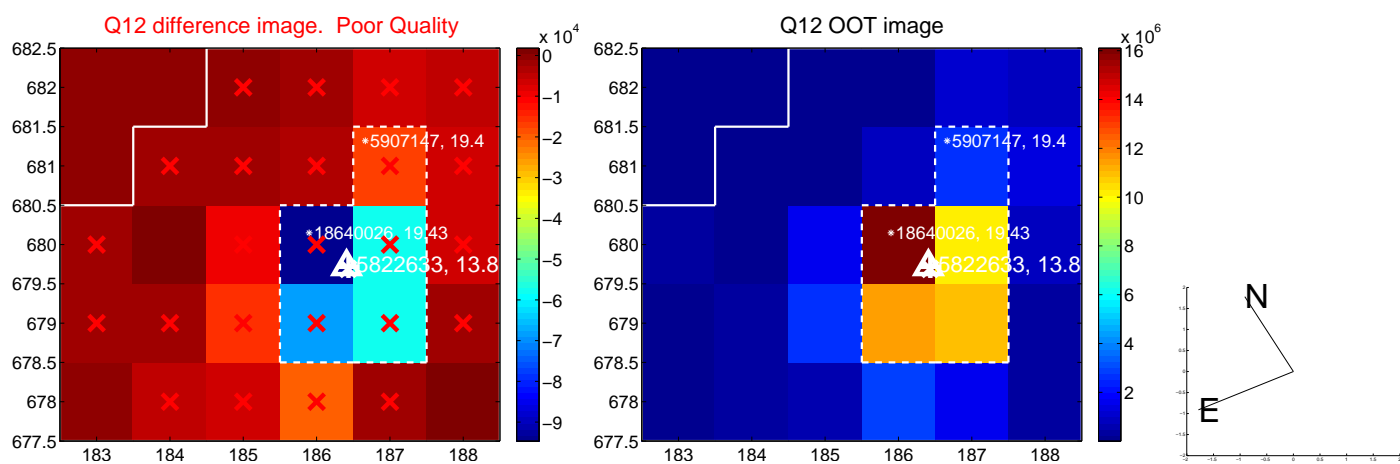
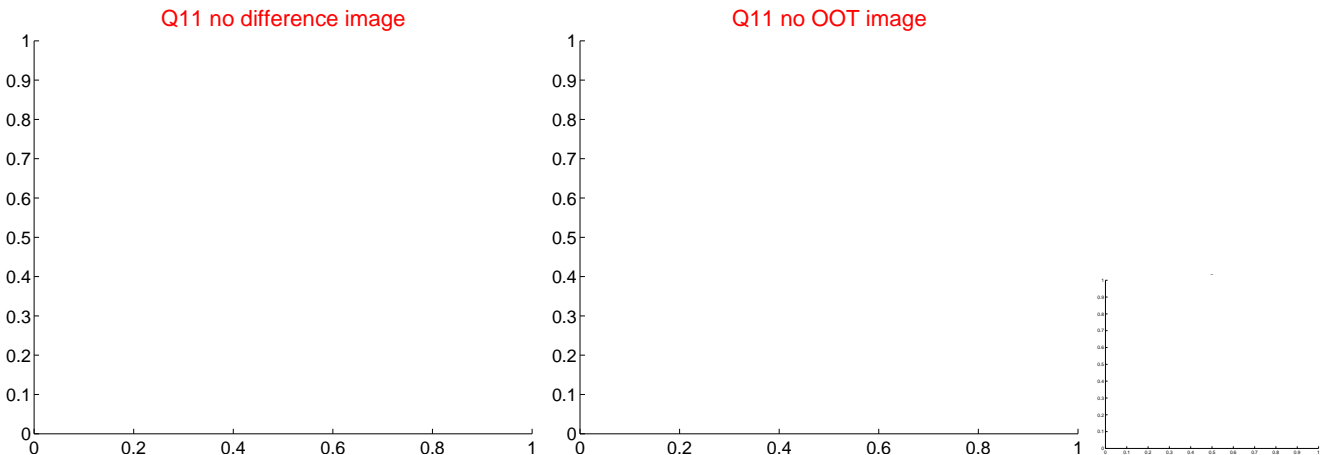
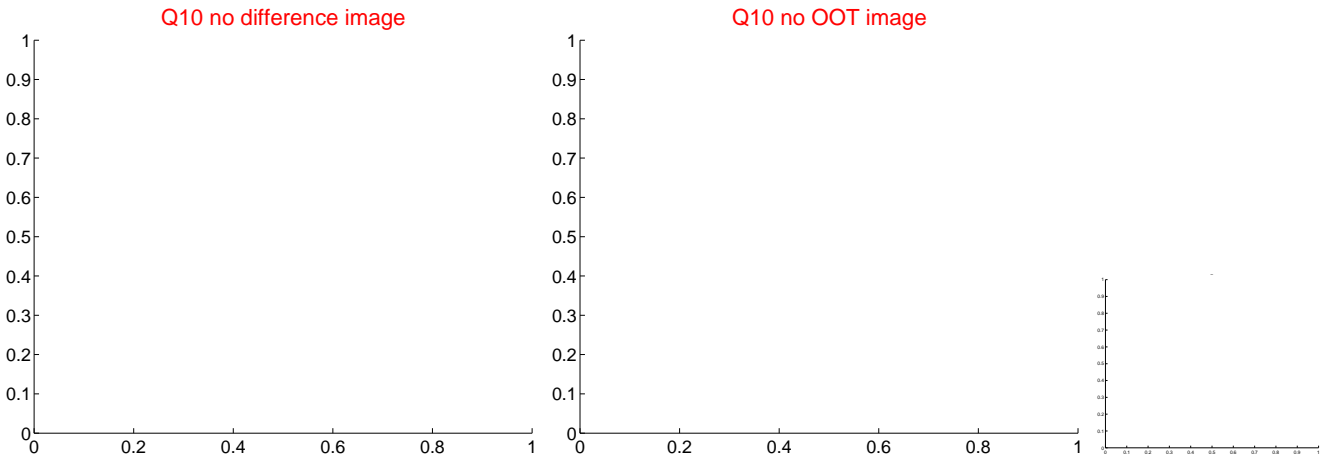
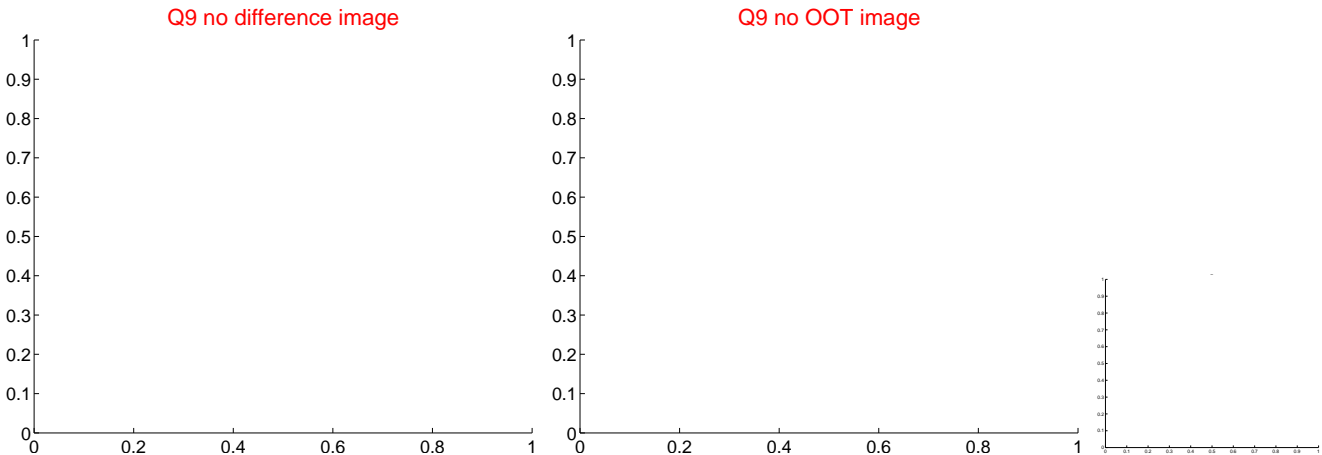


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

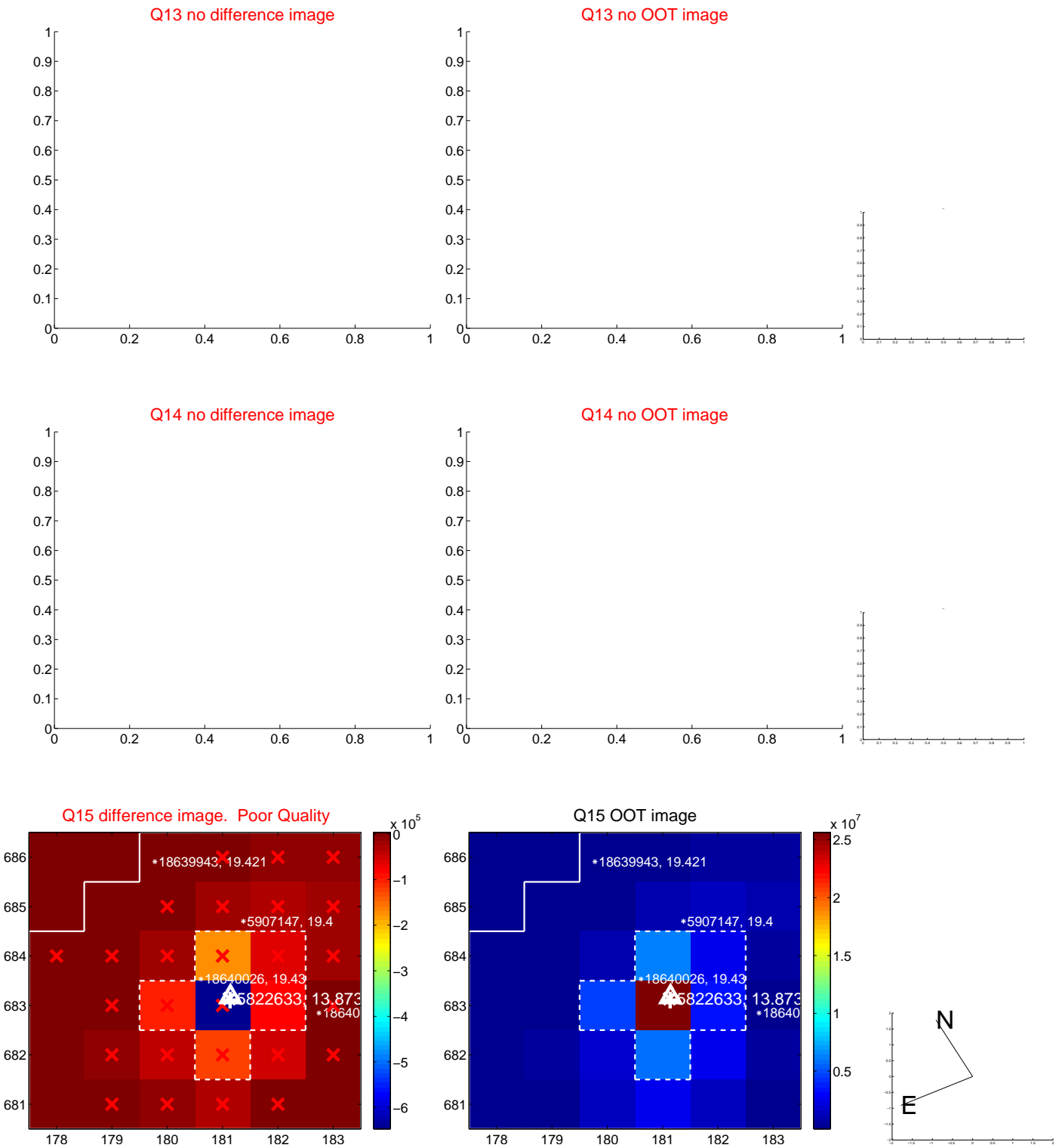




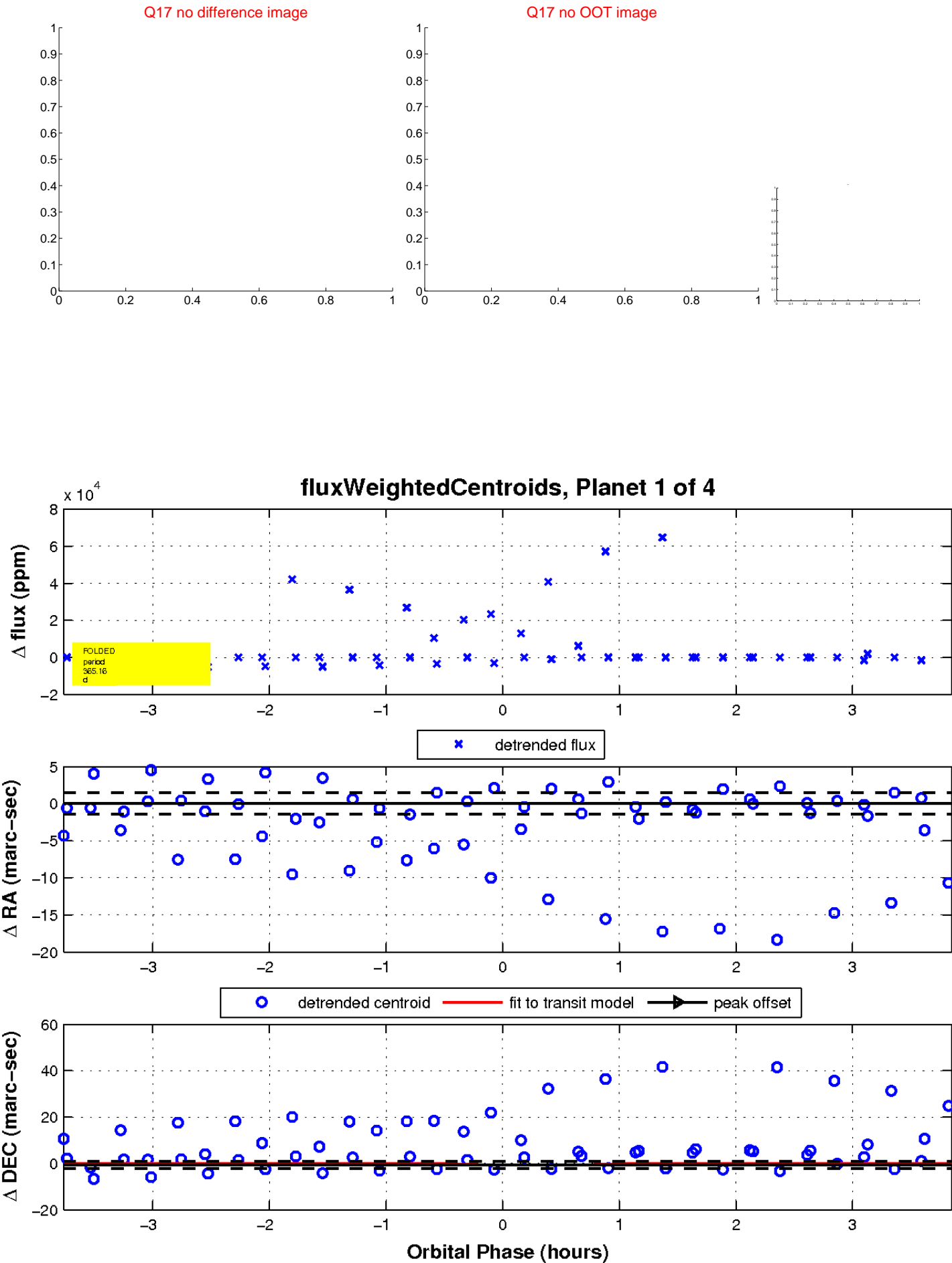
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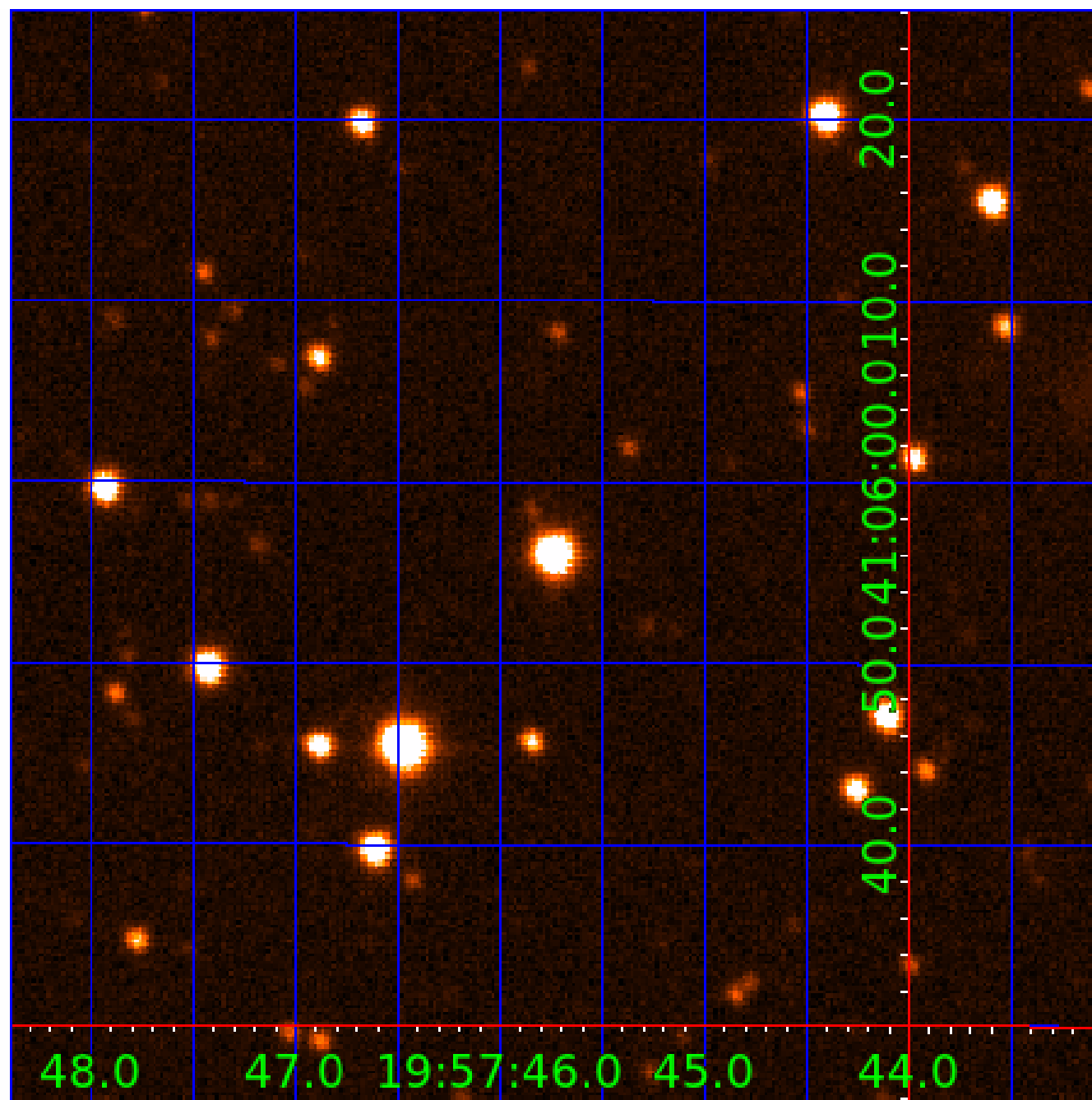


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 005822633

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005822633-01	OBS	No	365.159437	372.138334	2623.8	3.000	27.0	-1.0	1.90	6418	9.77	4.61
005822633-02	OBS	No	334.218239	310.522602	1640.0	3.500	21.6	-1.0	1.90	6418	7.72	5.18
005822633-03	OBS	No	558.049958	197.624435	4.5	1.776	19.5	0.0	1.90	6418	0.43	2.62
005822633-04	OBS	No	385.240718	317.905928	1076.3	4.500	17.0	-1.0	1.90	6418	6.25	4.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005822633-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
005822633-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
005822633-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT
005822633-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

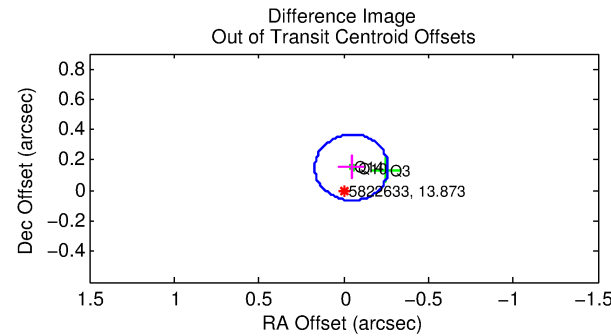
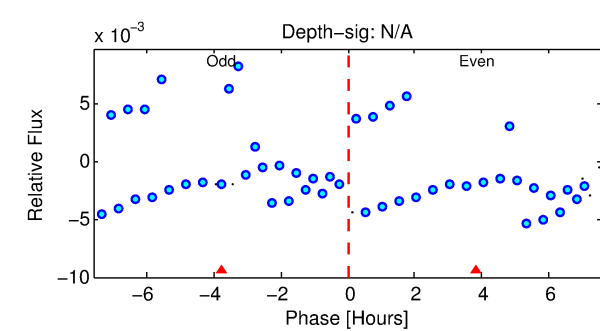
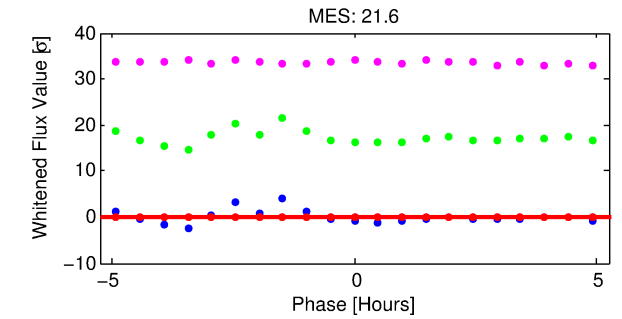
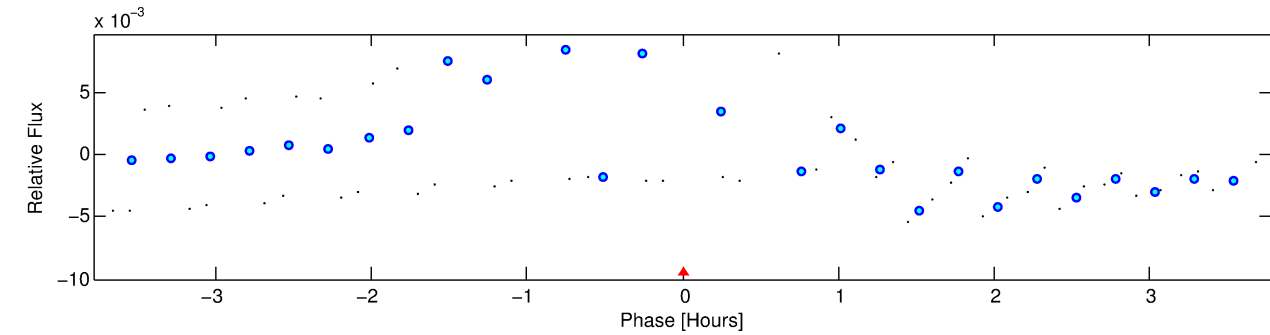
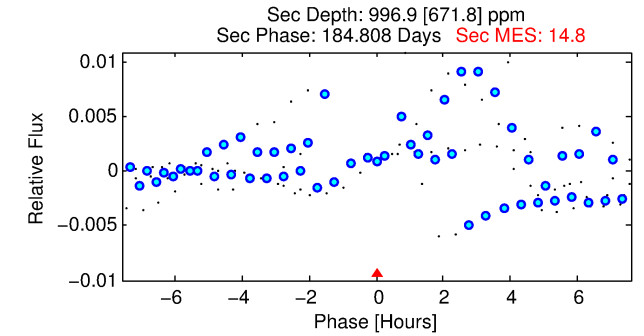
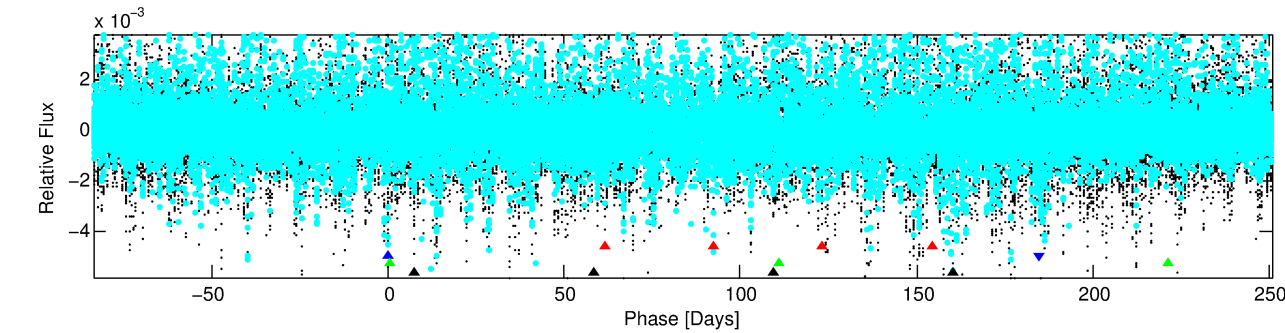
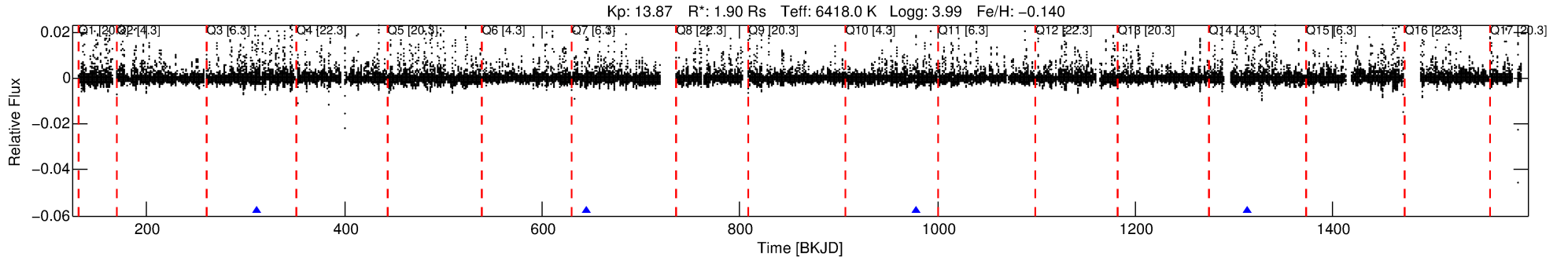
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## Ephemeris Match Information For 005822633-02

No Significant Match Found

# DV One-Page Summary

KIC: 5822633 Candidate: 2 of 4 Period: 334.218 d



## TPS TCE Results:

Period = 334.21824 d  
Epoch = 310.5226 BKJD

DV fit results are unavailable

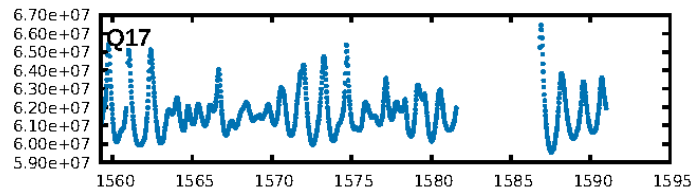
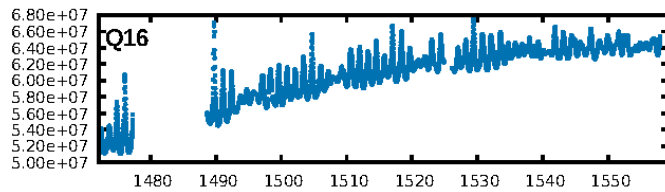
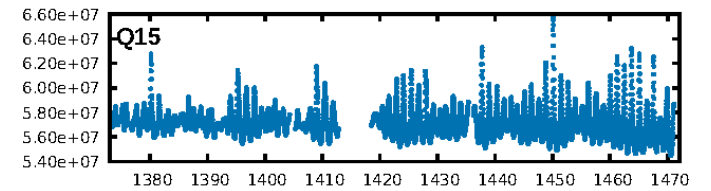
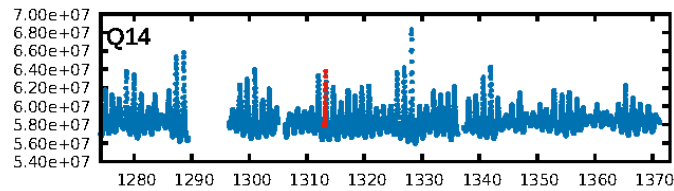
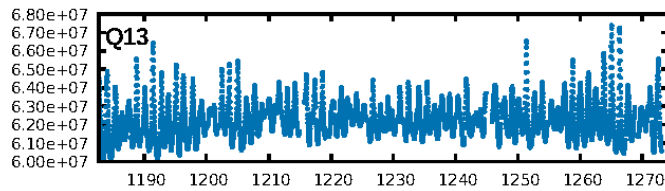
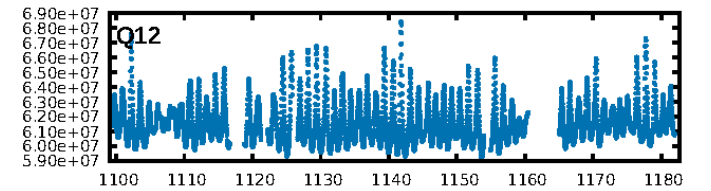
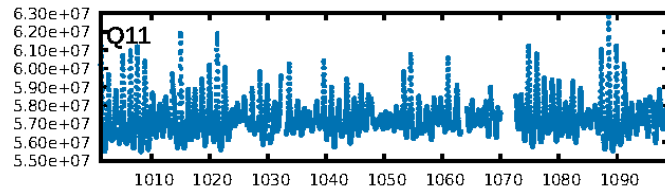
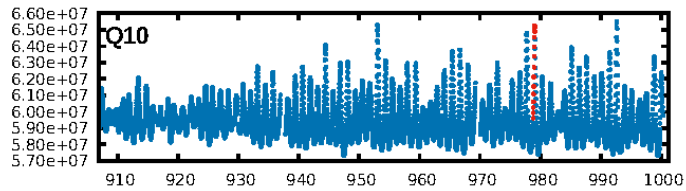
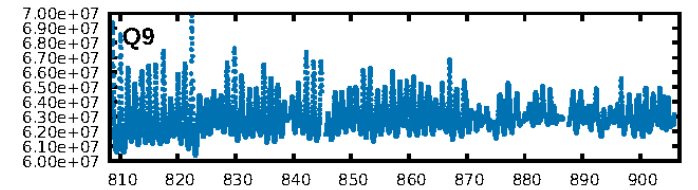
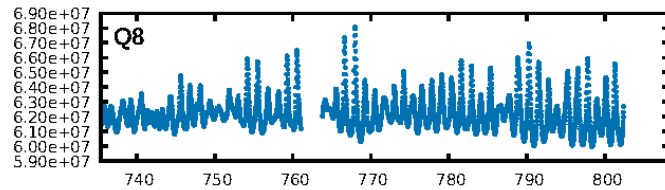
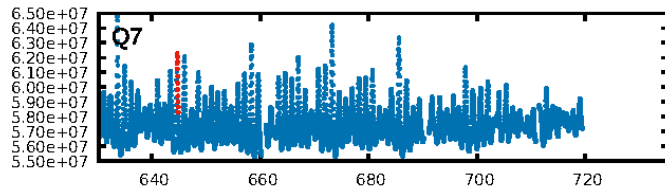
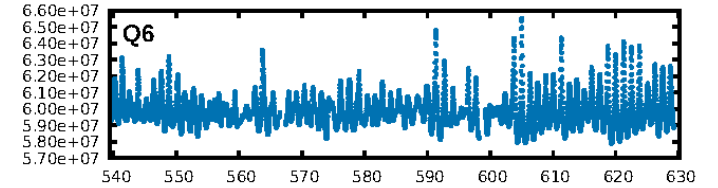
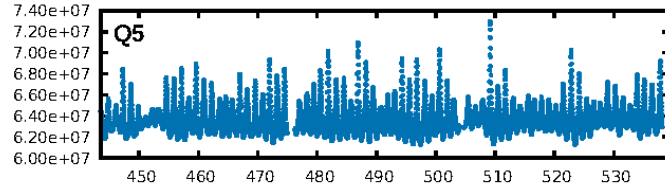
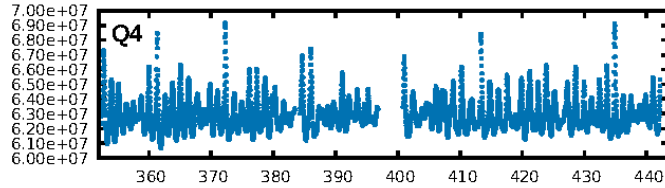
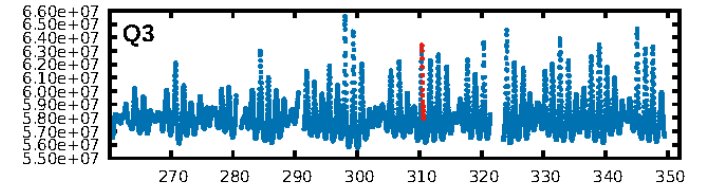
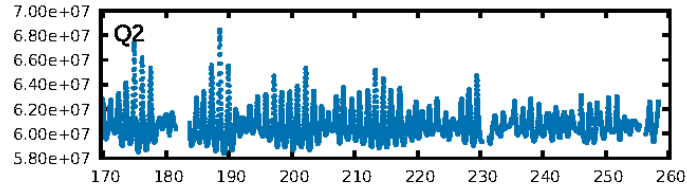
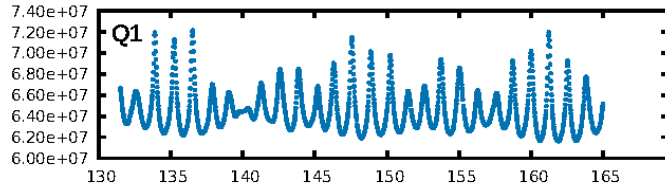
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [161.09σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -1.258  
Centroid-sig: 11.0%  
Centroid-so: 3.047 arcsec [1.51σ]  
OotOffset-rm: 0.159 arcsec [2.20σ]  
KicOffset-rm: 0.126 arcsec [1.66σ]  
OotOffset-st: 2/1/0/0 [3]  
KicOffset-st: 2/1/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

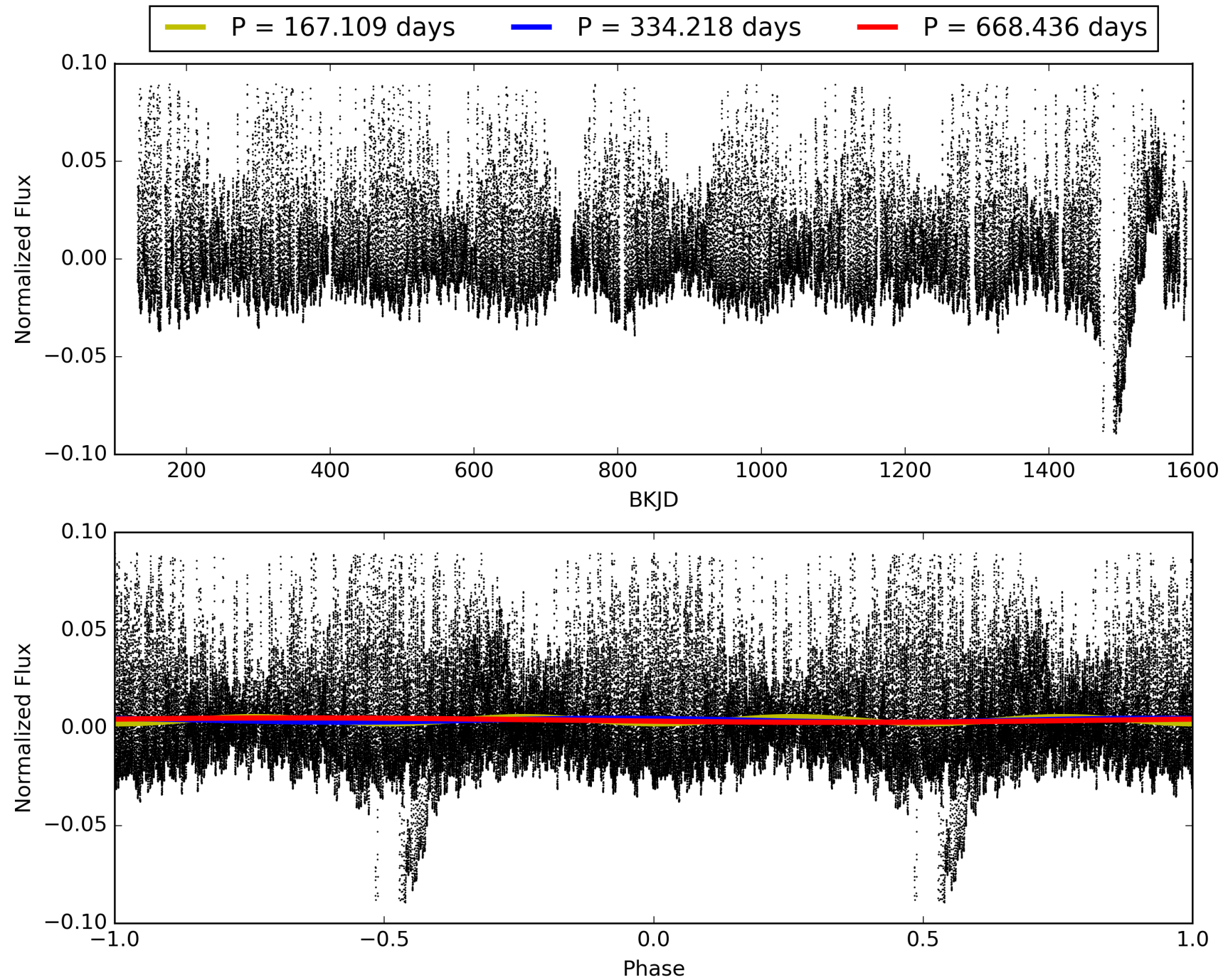
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:19:45 Z

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

# TCE 005822633-02, PDC Light Curves



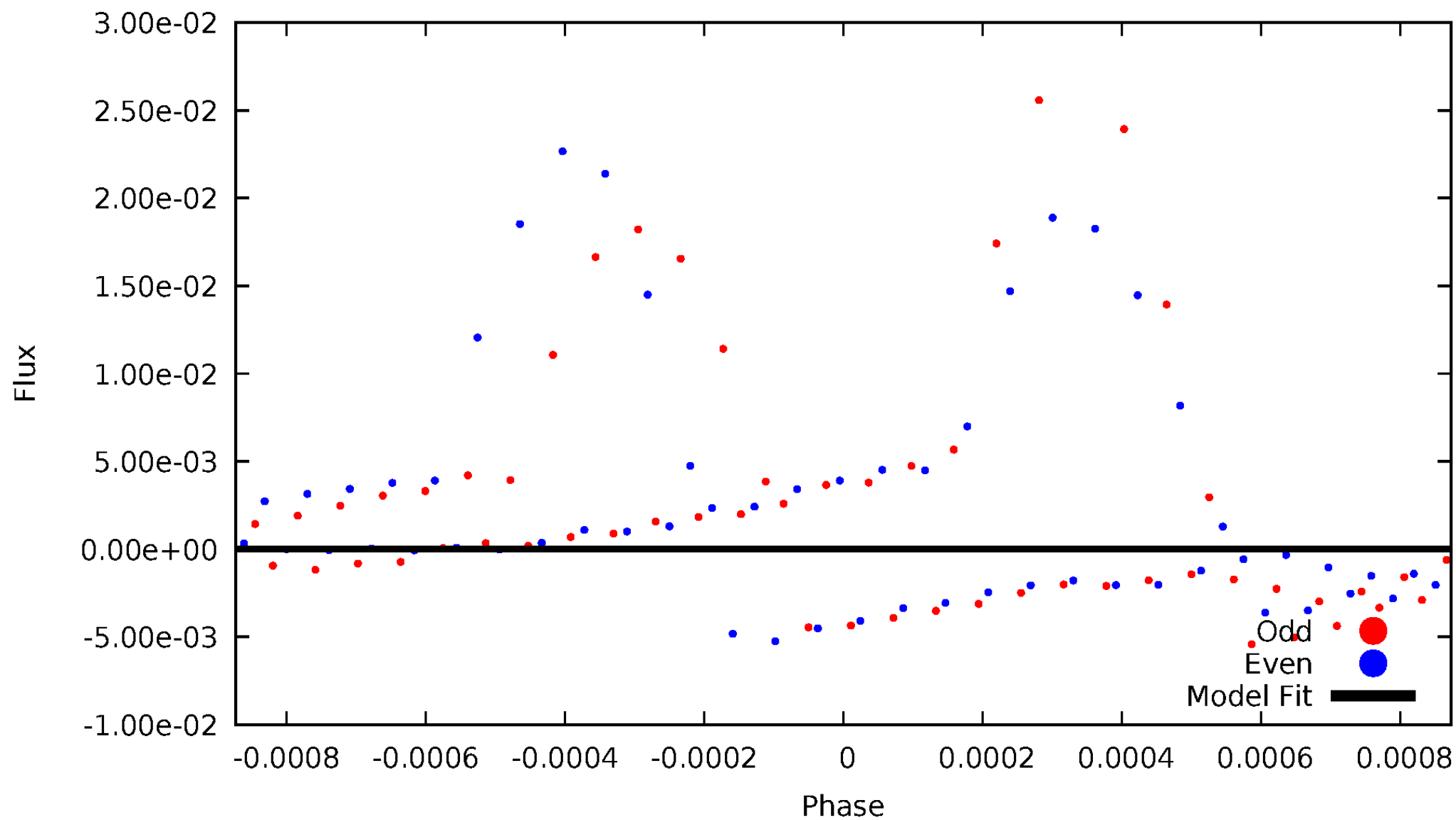
TCE 005822633-02





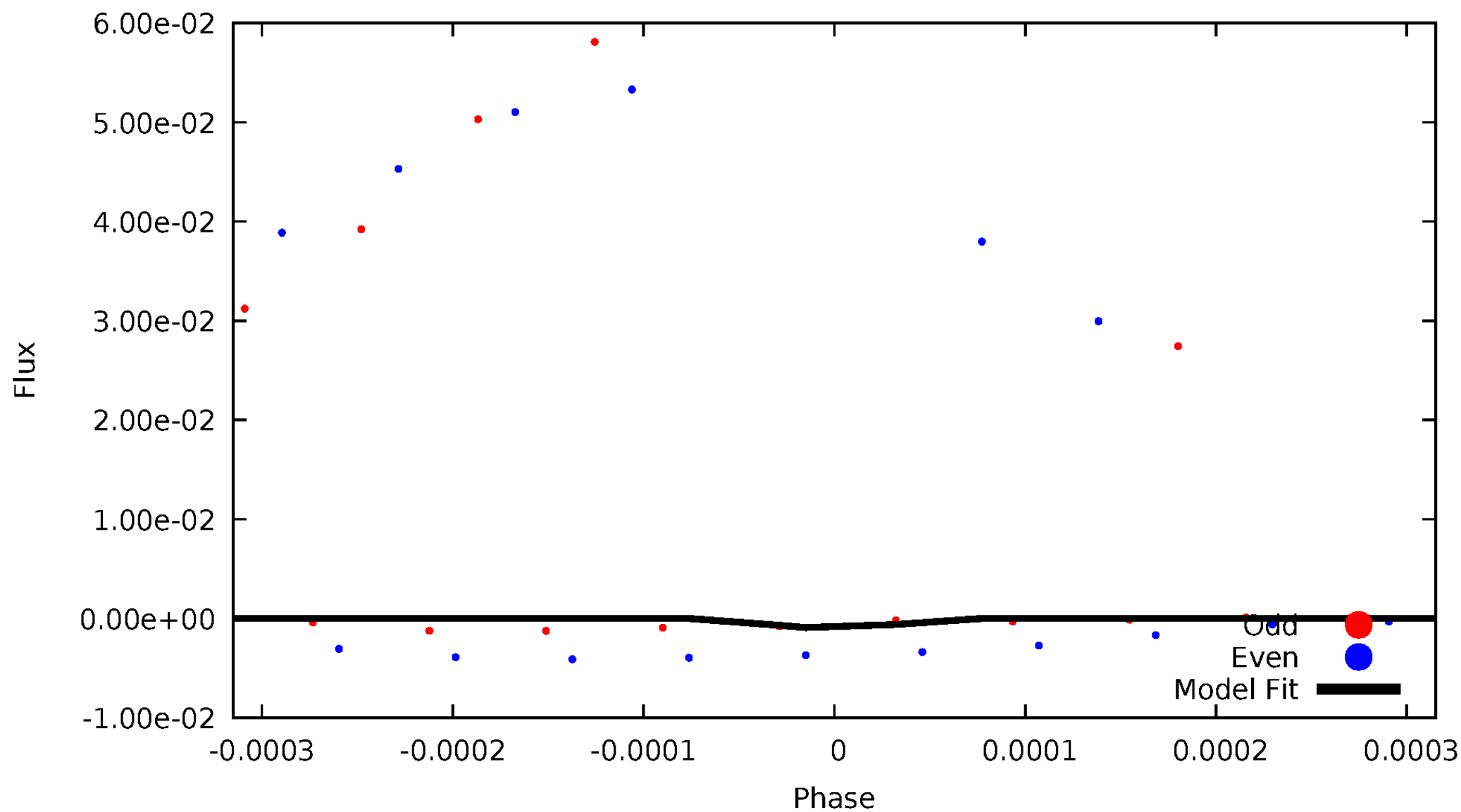
# DV Odd/Even

TCE 005822633-02



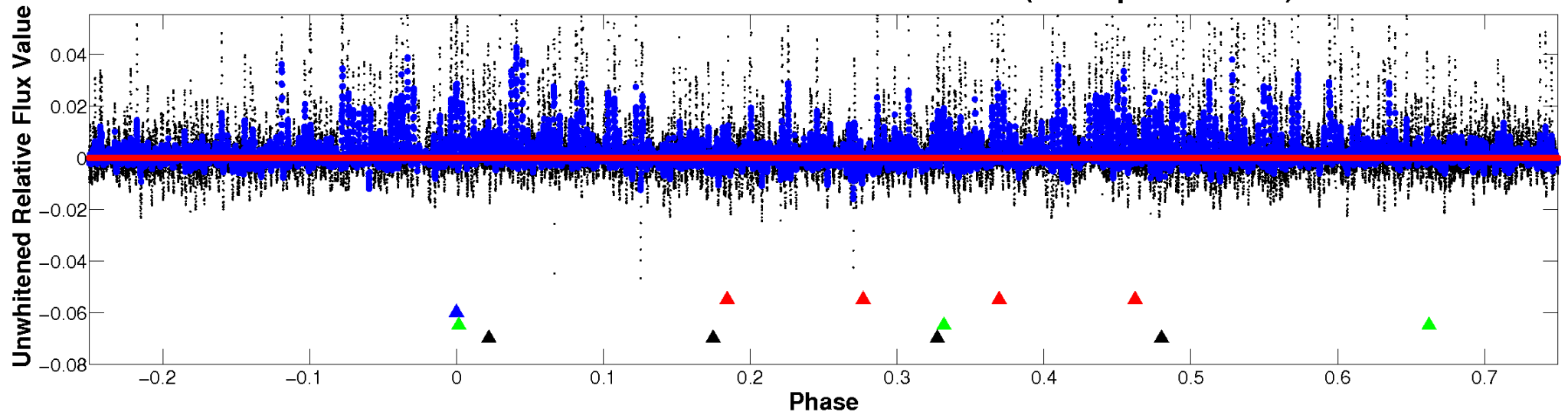
# ALT Odd/Even

TCE 005822633-02



# Non-Whitened Vs. Whitened Light Curve

**Planet 2 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

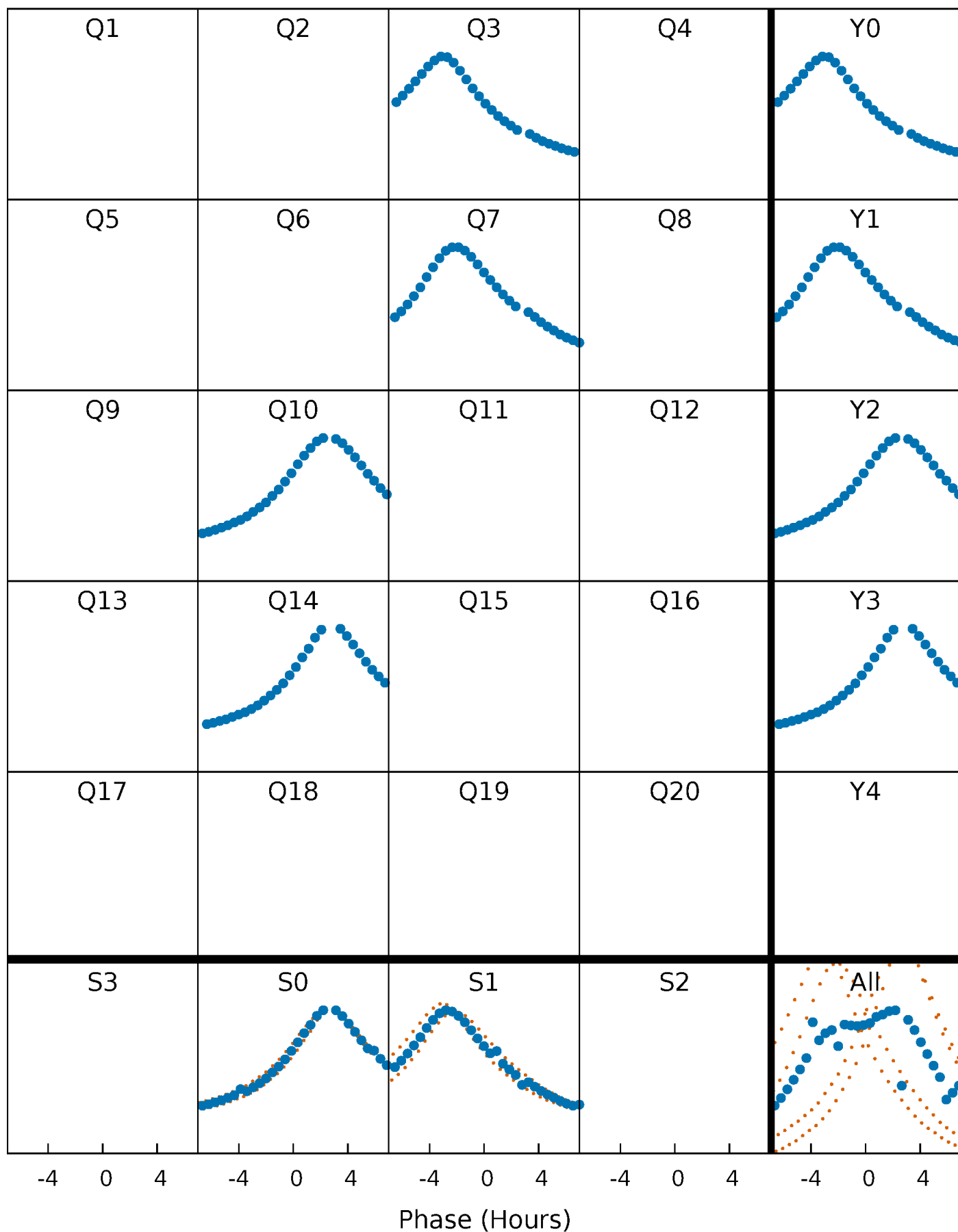


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



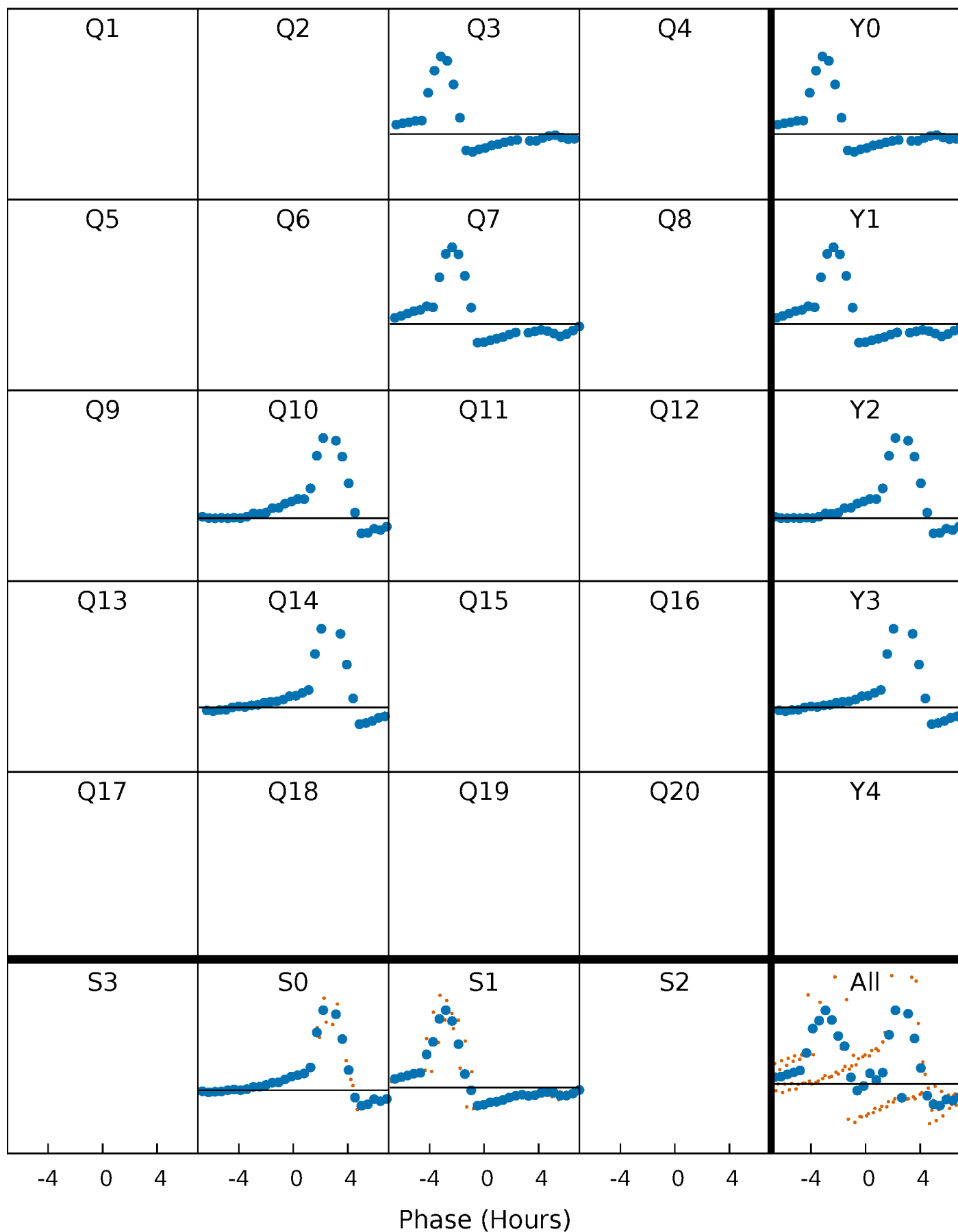
# PDC Quarter-Phased Transit Curves

TCE 005822633-02 P=334.218239 Days  $T_0=310.522602$  (BKJD)



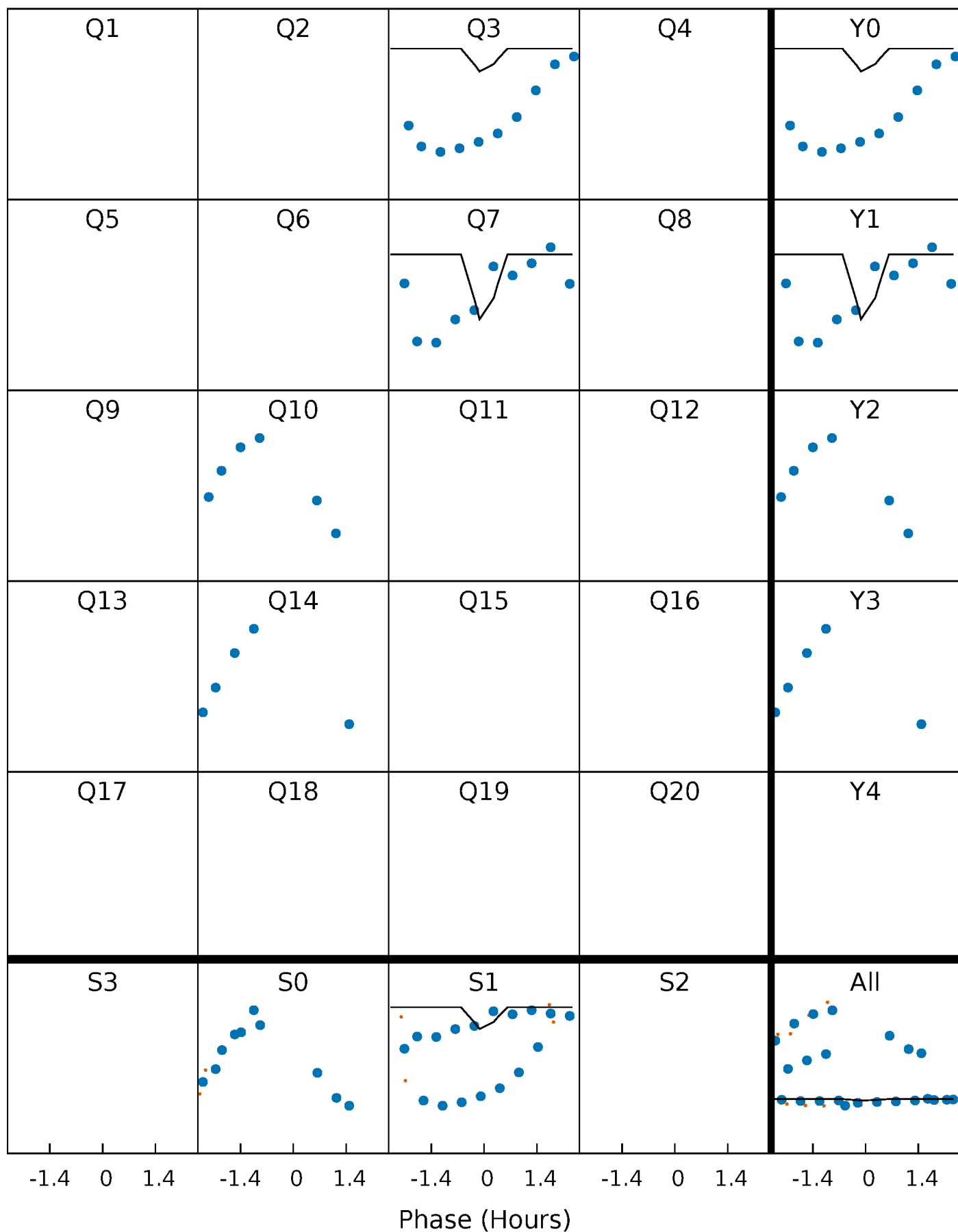
# DV Quarter-Phased Transit Curves

TCE 005822633-02 P=334.218239 Days  $T_0=310.522602$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

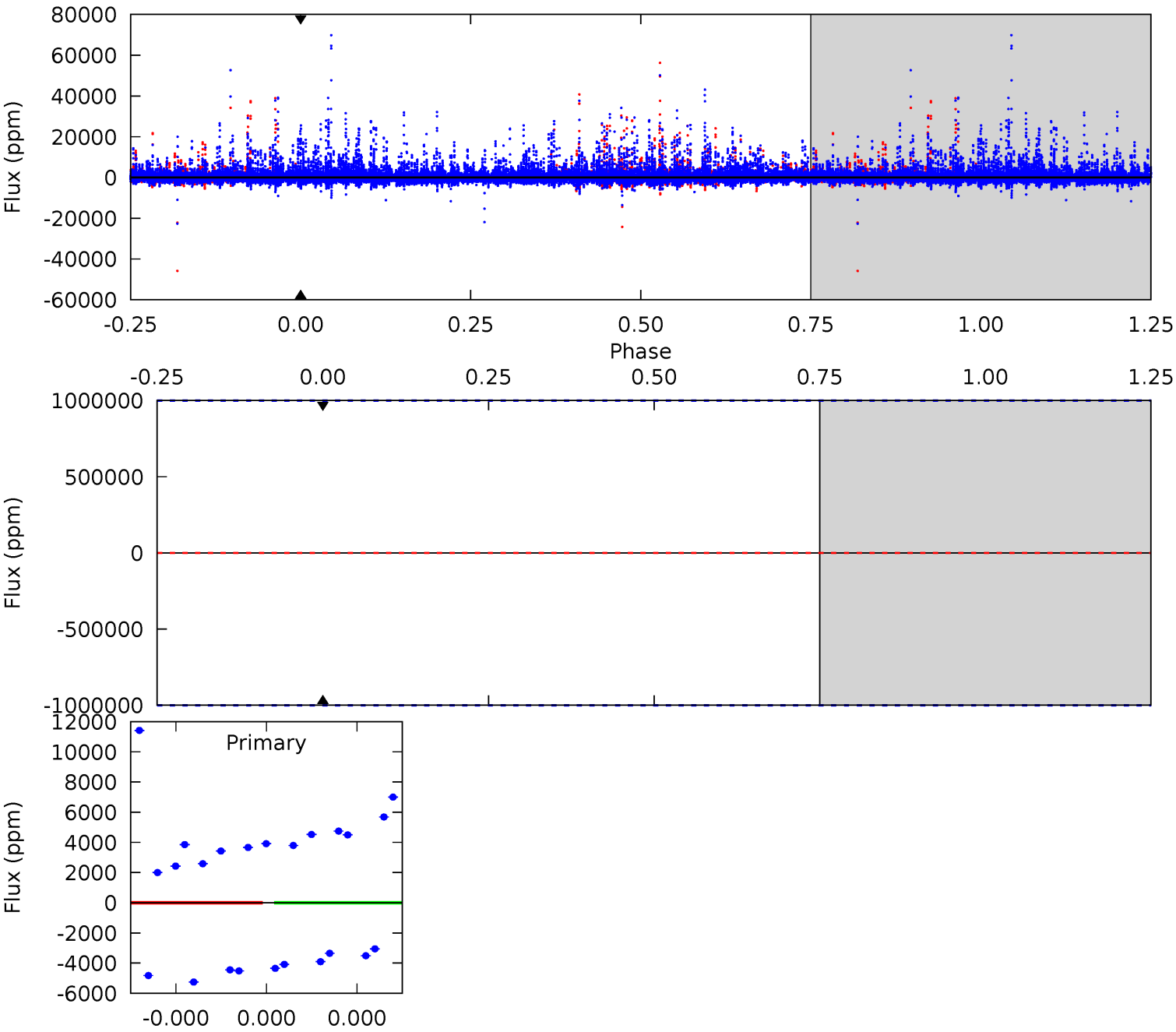
TCE 005822633-02 P=334.218239 Days  $T_0=310.658476$  (BKJD)



# DV Model-Shift Uniqueness Test

005822633-02, P = 334.218239 Days, E = 310.522602 Days

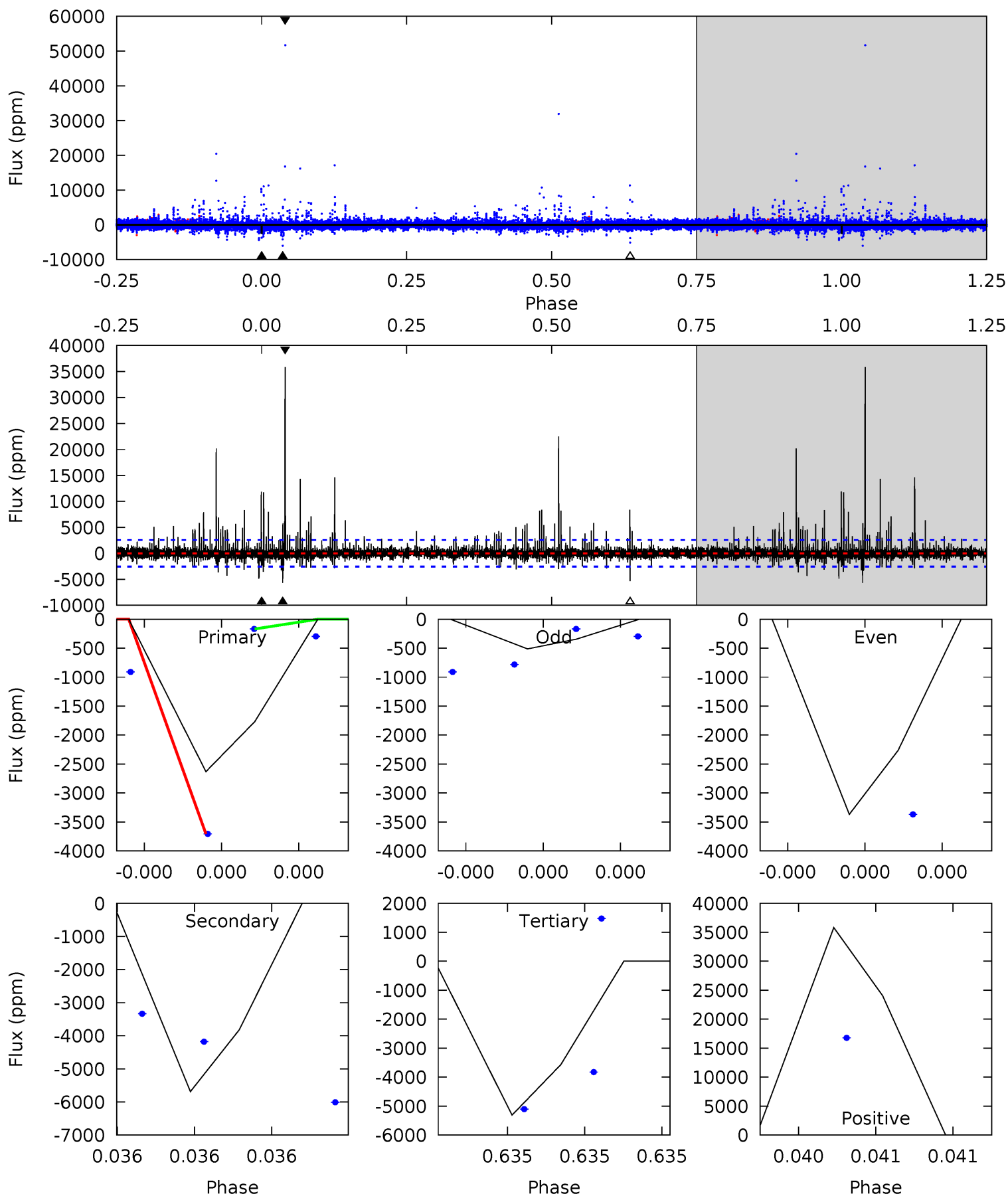
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

005822633-02, P = 334.218239 Days, E = 310.658476 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.07	13.1	12.2	82.6	5.90	3.96	1.32	-6.18	-76.5	0.87	-69.5	1.92	1.00	0.86	4.13





### Stellar Parameters For KIC 005822633

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6418^{+181}_{-227}$	$3.994^{+0.319}_{-0.147}$	$-0.140^{+0.250}_{-0.300}$	$1.897^{+0.543}_{-0.664}$	$1.296^{+0.182}_{-0.251}$	$0.267^{+0.677}_{-0.124}$
	+3%/-4%	+8%/-4%	+179%/-214%	+29%/-35%	+14%/-19%	+253%/-46%
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 005822633-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$16.15^{+16.24}_{-11.45}$	$527^{+41}_{-53}$	$4598^{+25218}_{-24566}$	$3006^{+619303}_{-303610}$
Alt.	$-5688 \pm 433$	$15.24^{+16.61}_{-10.06}$	$528^{+41}_{-53}$	$6306^{+6807}_{-1766}$	$14274^{+113819}_{-10996}$

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

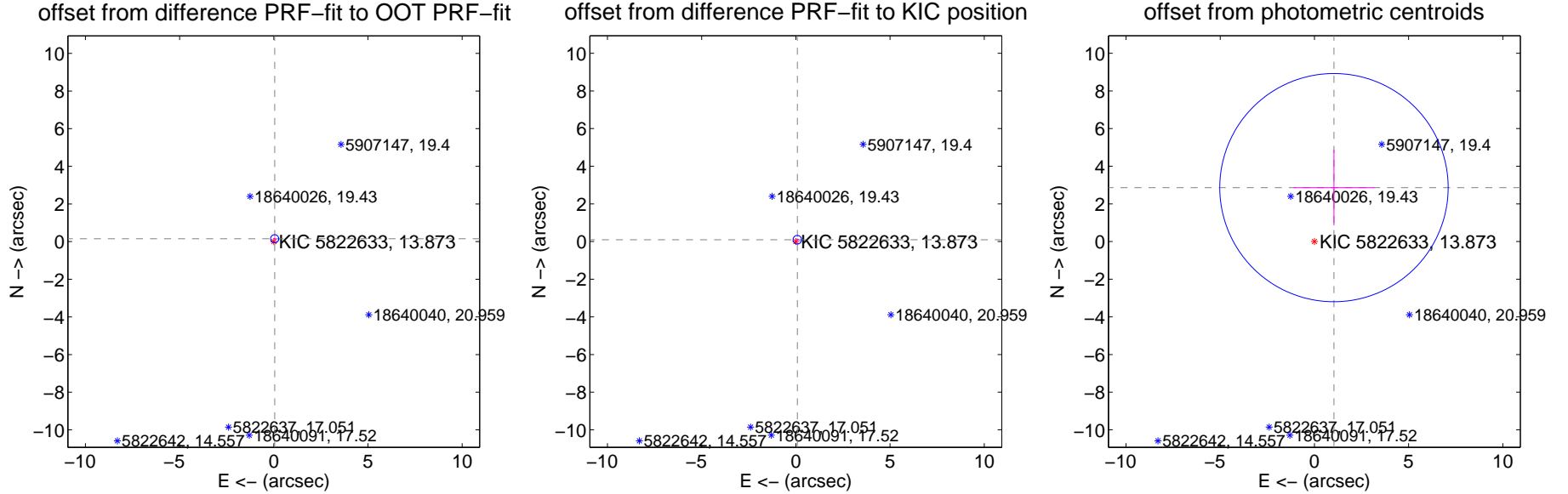
## DV Centroid Data

Supplemental centroid analysis for 005822633-02. Kepler magnitude: 13.87. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

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

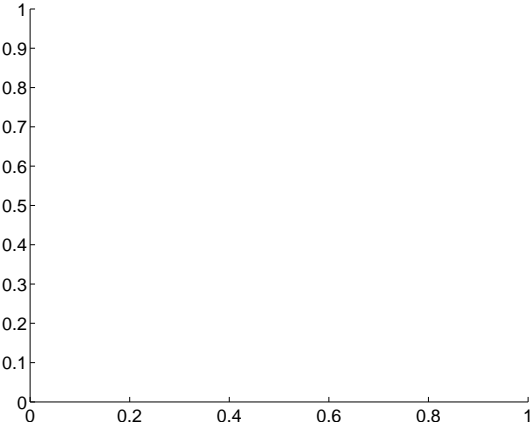
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.159 \pm 0.072$	2.20	$-0.047 \pm 0.072$	$0.152 \pm 0.072$
PRF-fit source offset from KIC position	$0.126 \pm 0.076$	1.66	$-0.079 \pm 0.085$	$0.098 \pm 0.070$
photometric centroid source offset	$3.05 \pm 2.02$	1.51	$-1.04 \pm 2.14$	$2.86 \pm 2.00$



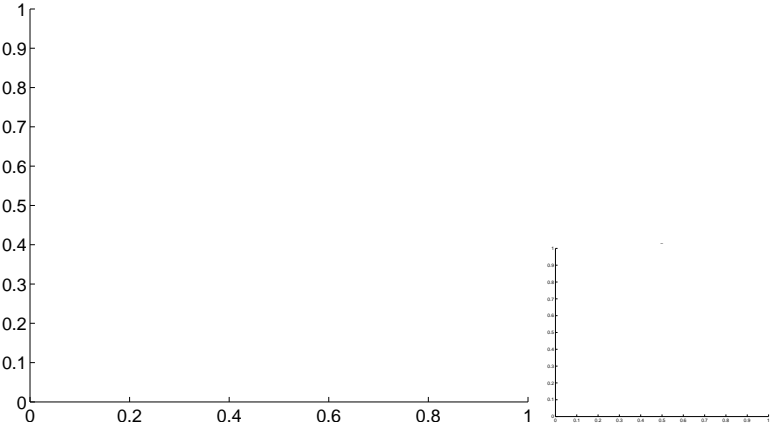
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

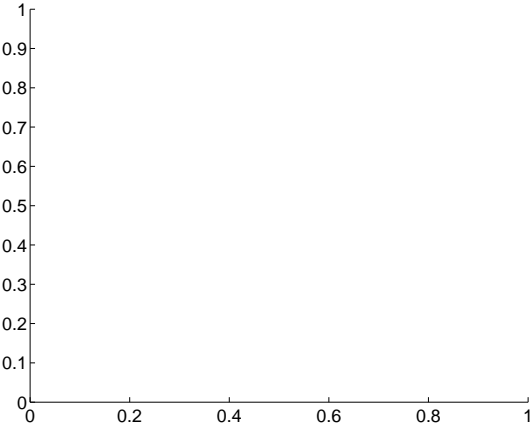
Q1 no difference image



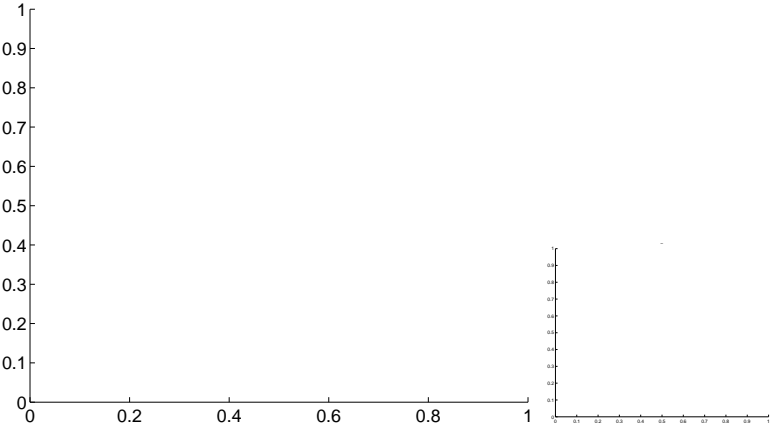
Q1 no OOT image



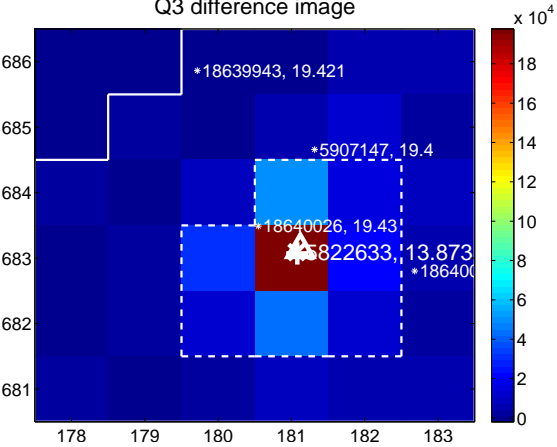
Q2 no difference image



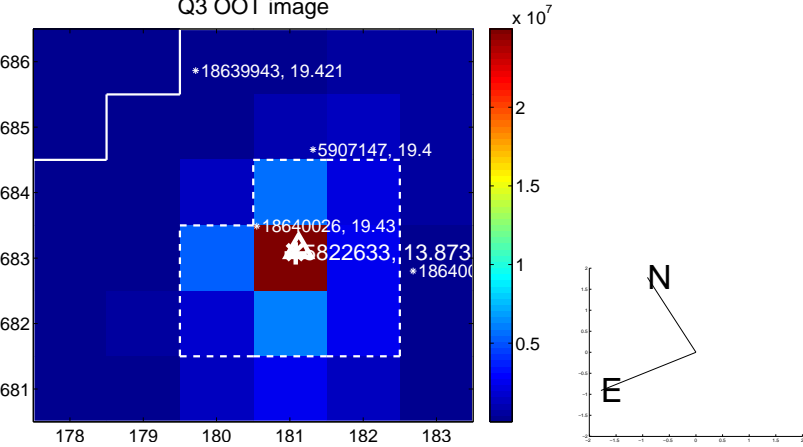
Q2 no OOT image



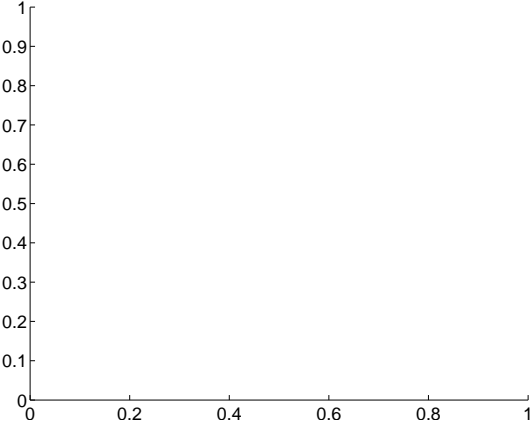
Q3 difference image



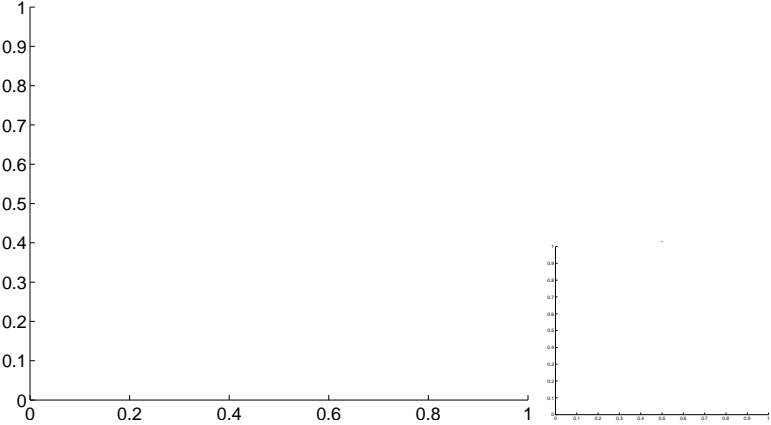
Q3 OOT image



Q4 no difference image



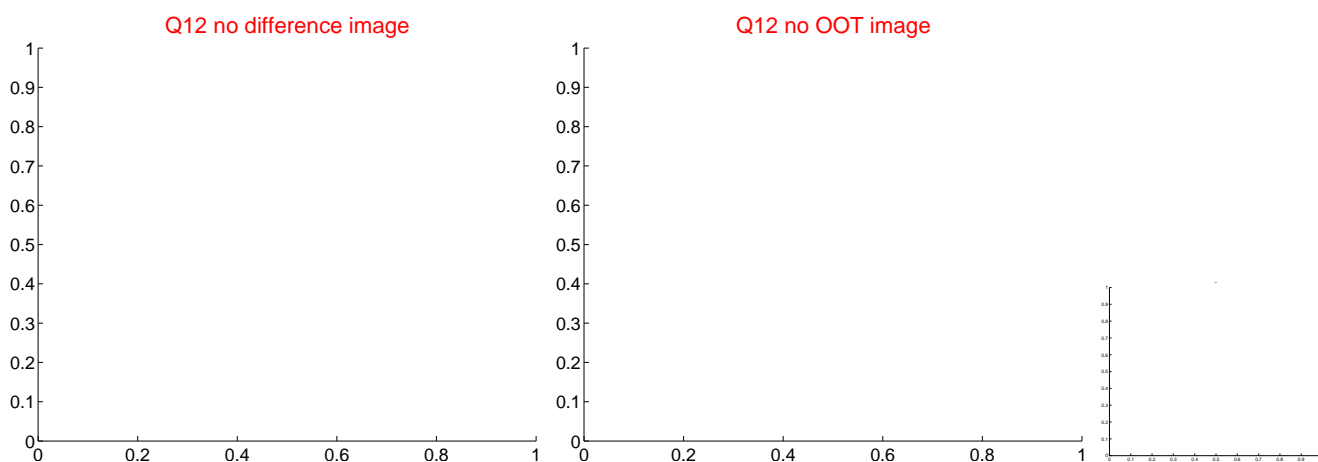
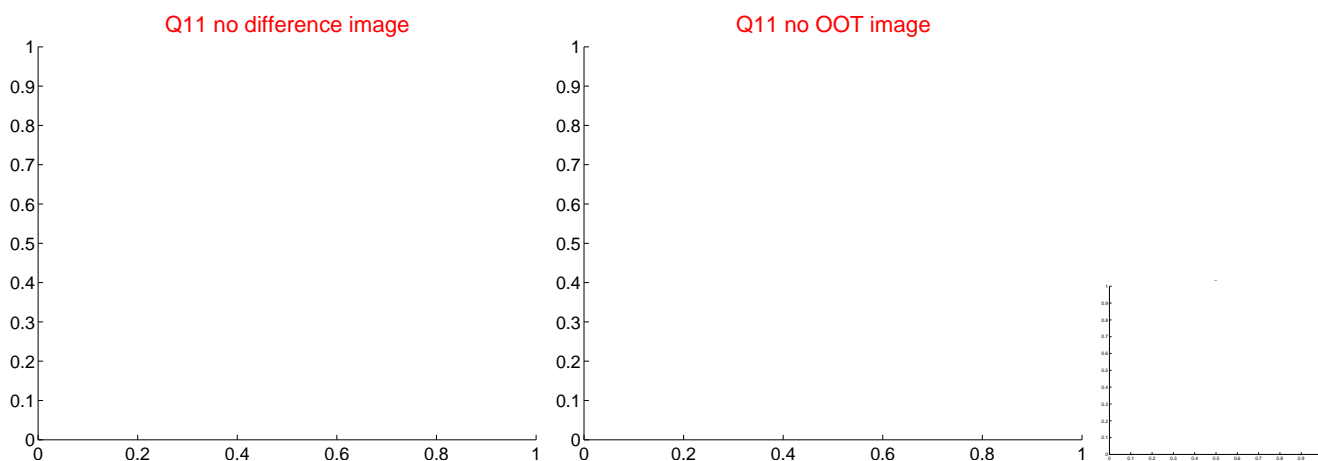
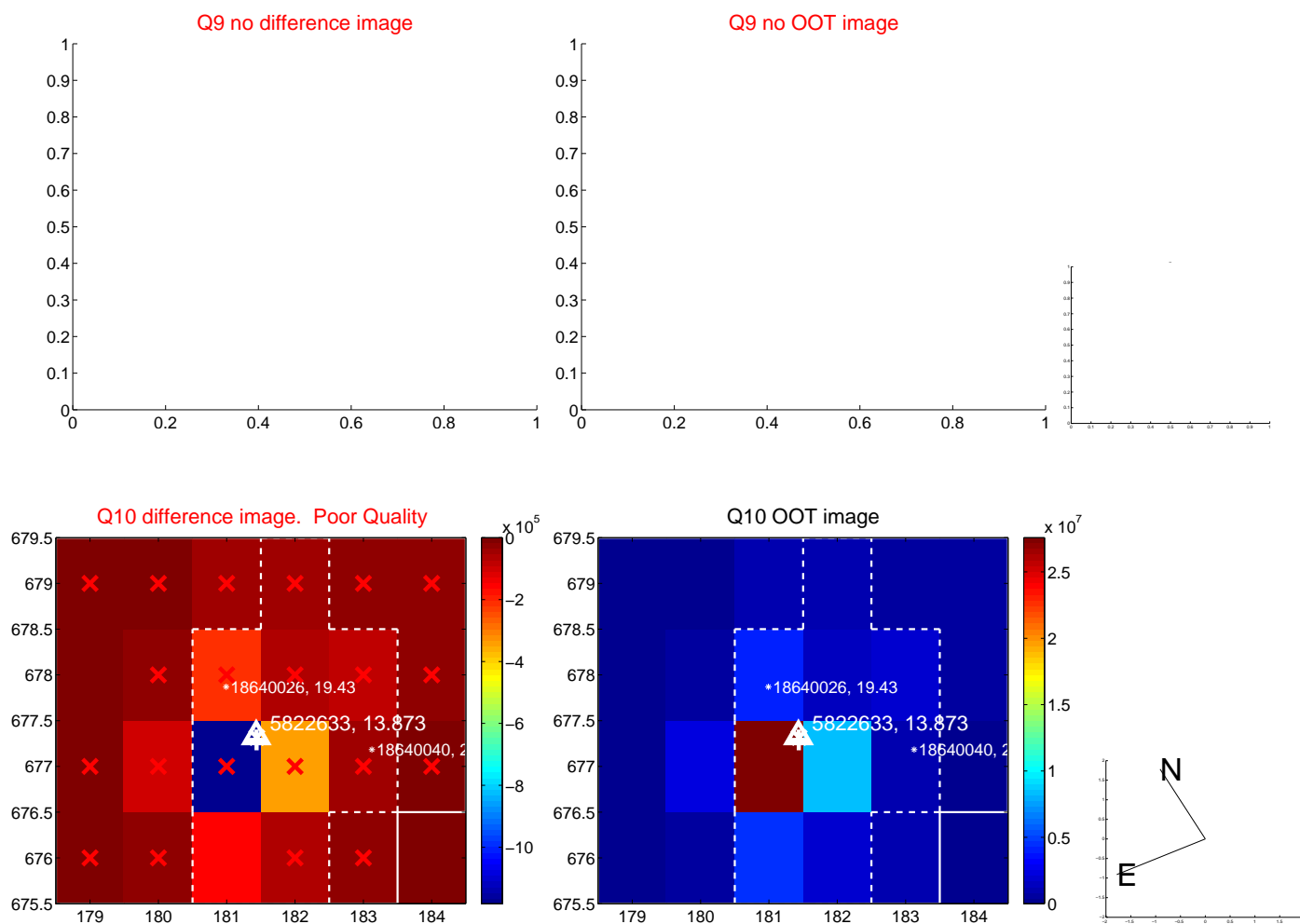
Q4 no OOT image



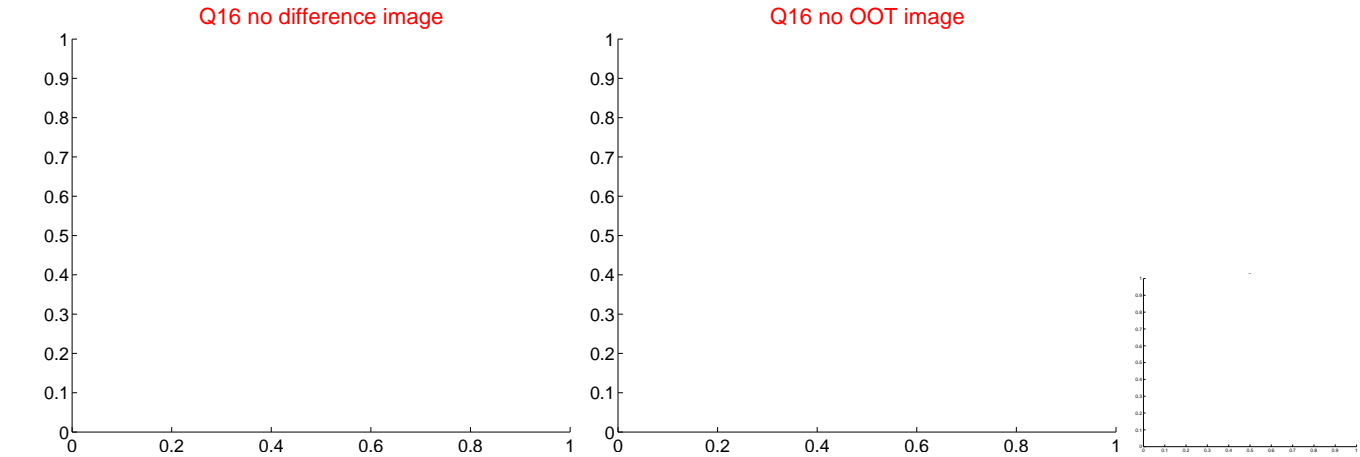
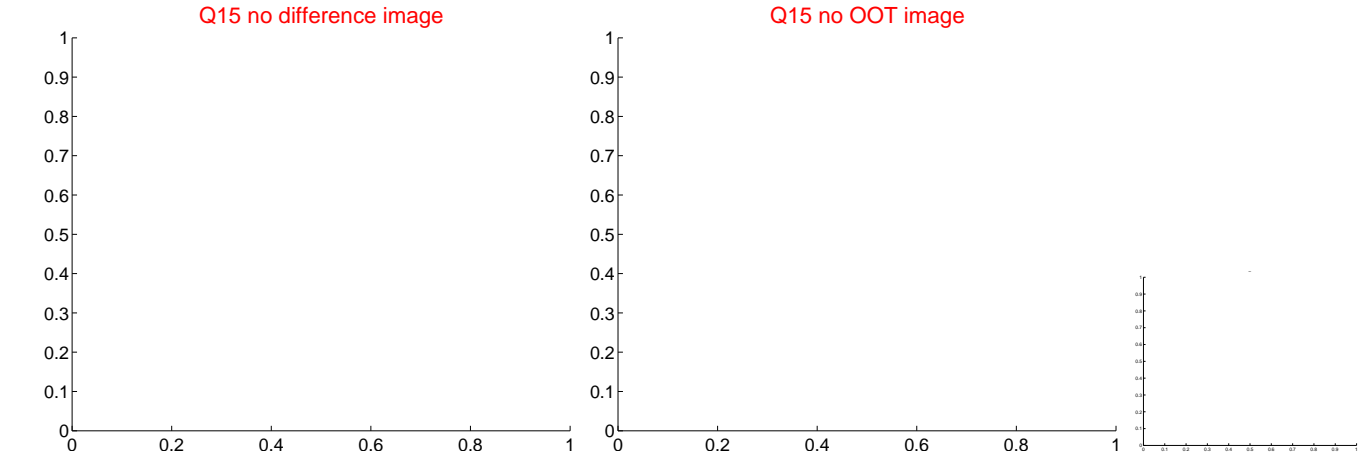
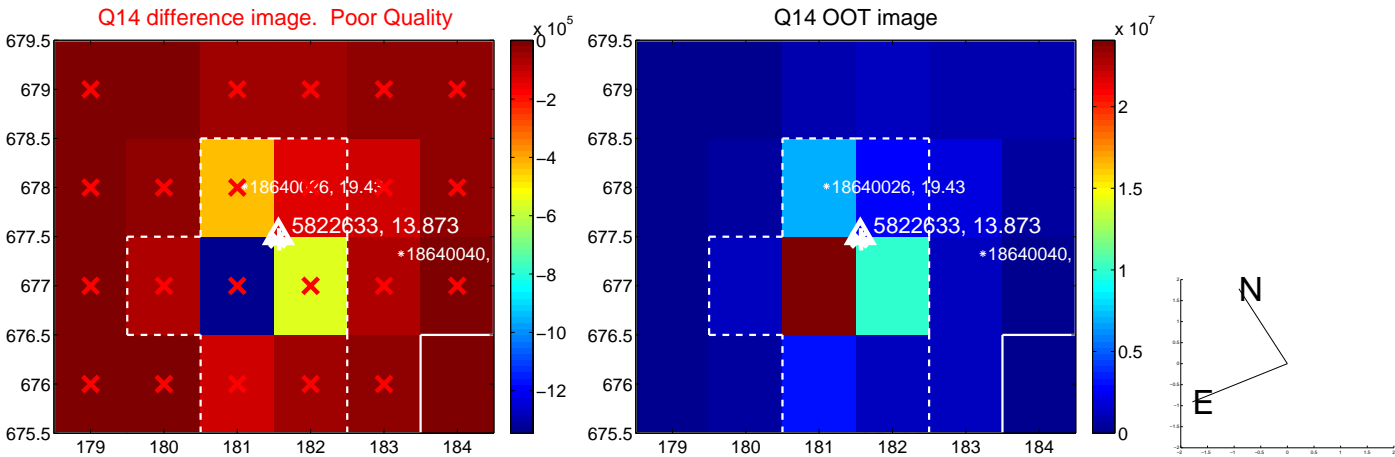
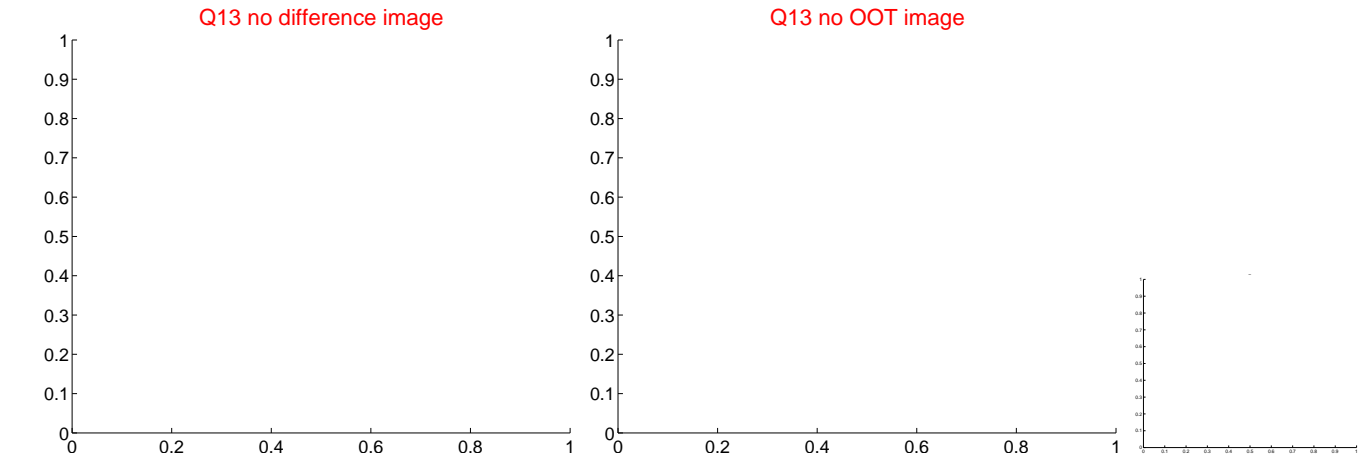
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



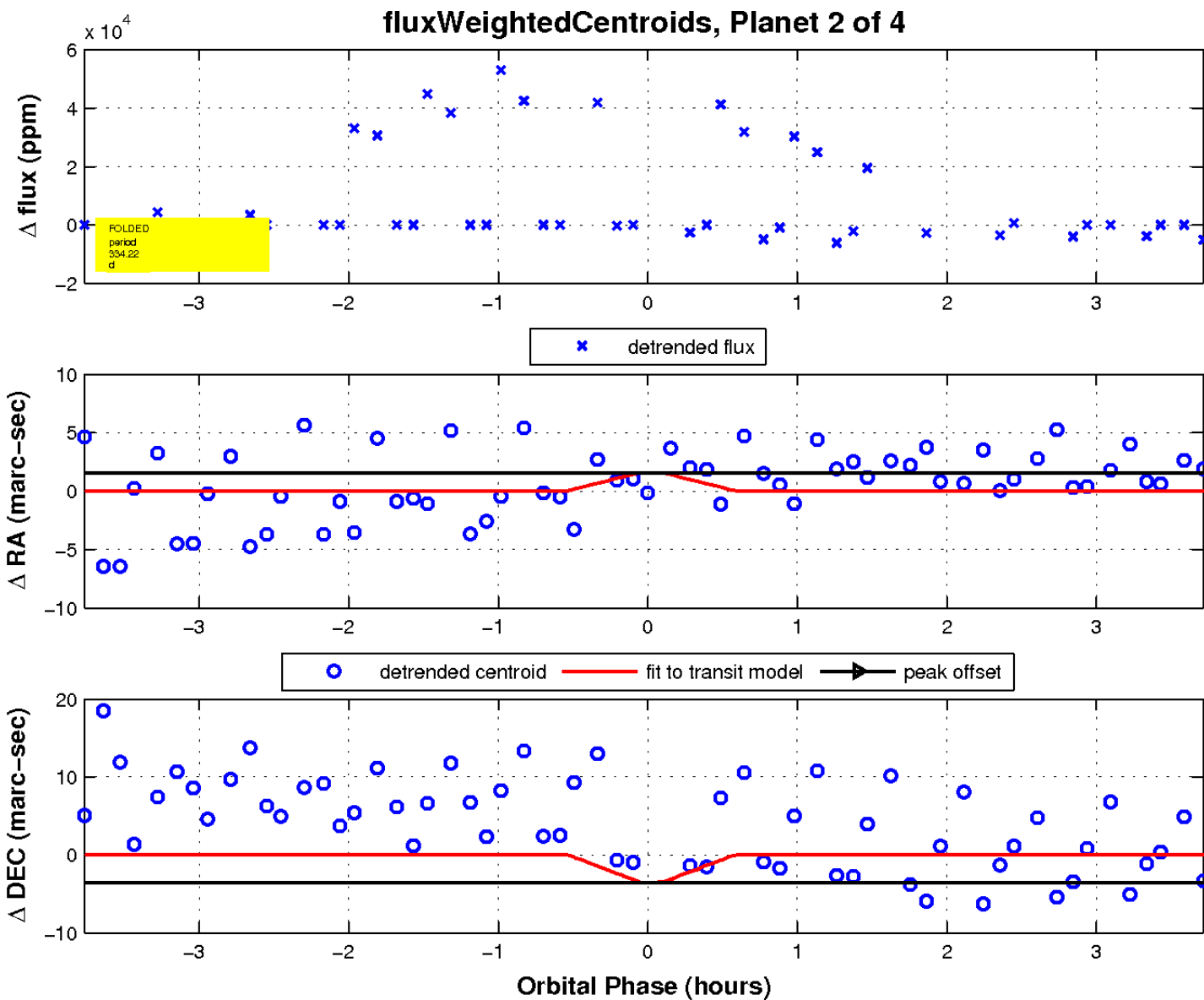
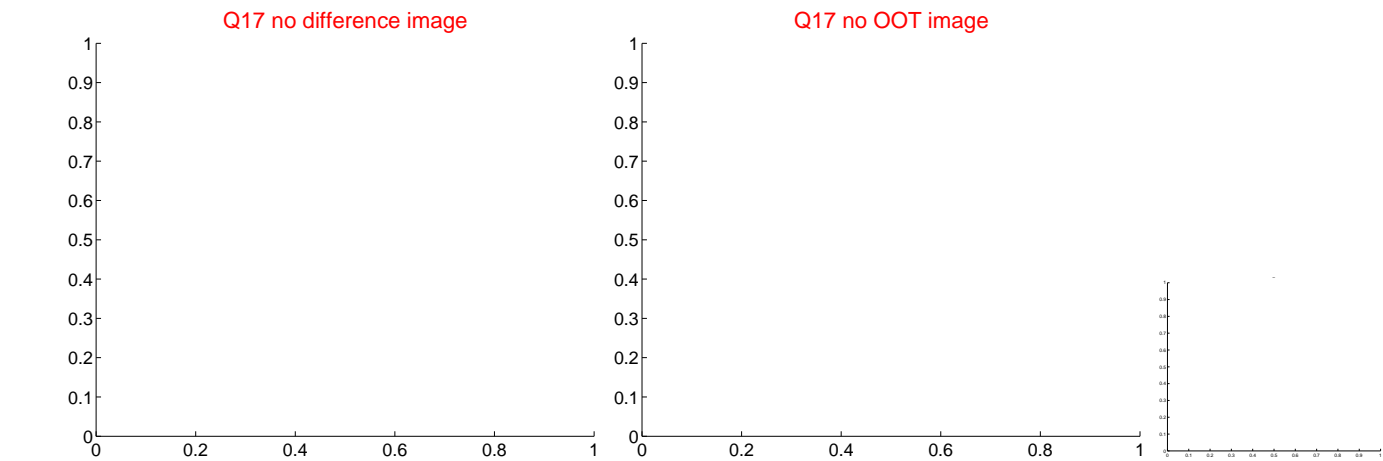
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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

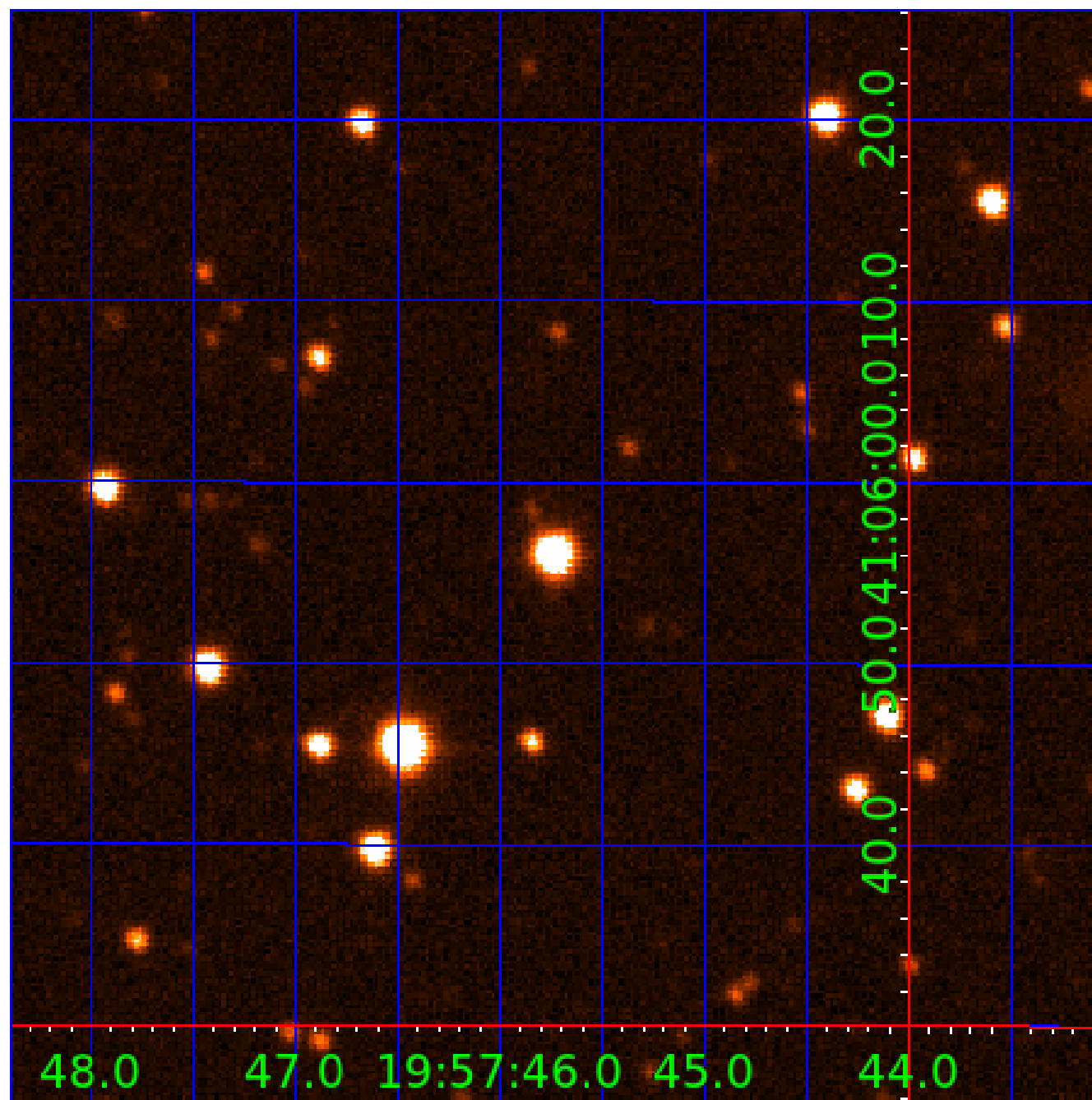


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005822633

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005822633-01	OBS	No	365.159437	372.138334	2623.8	3.000	27.0	-1.0	1.90	6418	9.77	4.61
005822633-02	OBS	No	334.218239	310.522602	1640.0	3.500	21.6	-1.0	1.90	6418	7.72	5.18
005822633-03	OBS	No	558.049958	197.624435	4.5	1.776	19.5	0.0	1.90	6418	0.43	2.62
005822633-04	OBS	No	385.240718	317.905928	1076.3	4.500	17.0	-1.0	1.90	6418	6.25	4.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005822633-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
005822633-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
005822633-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT
005822633-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

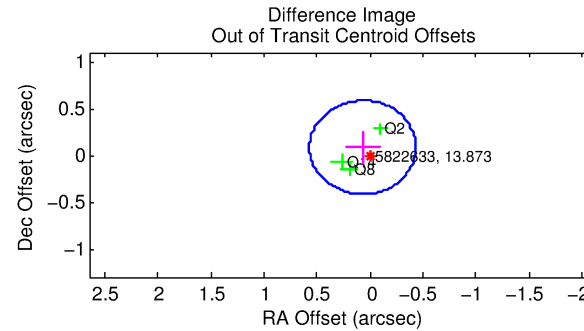
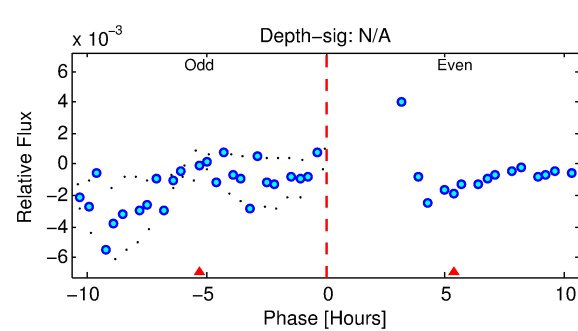
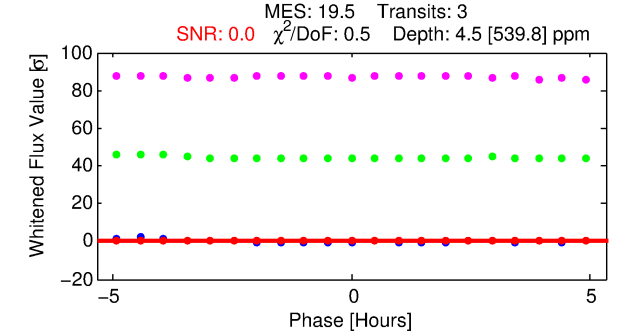
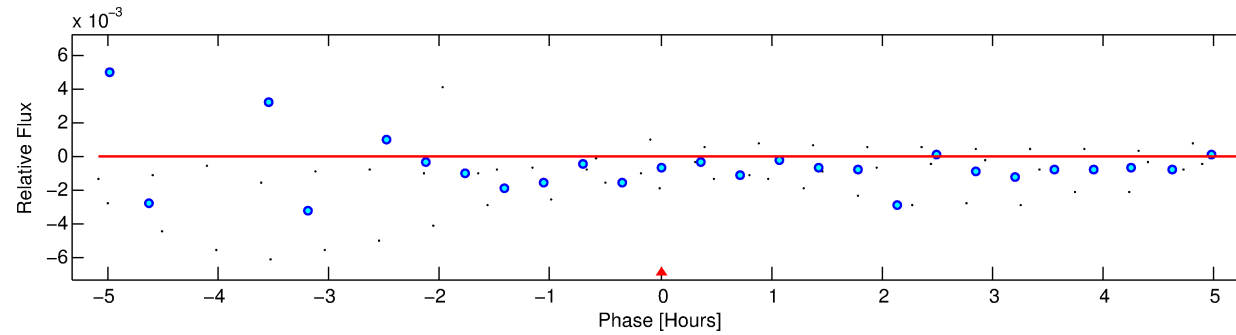
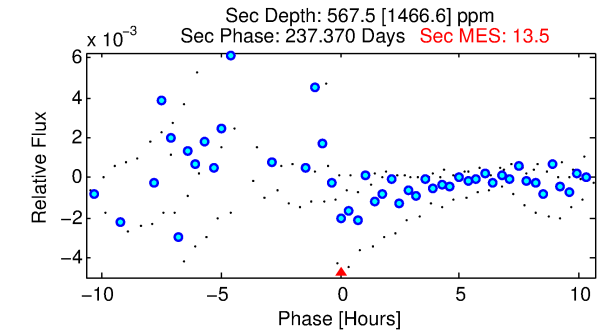
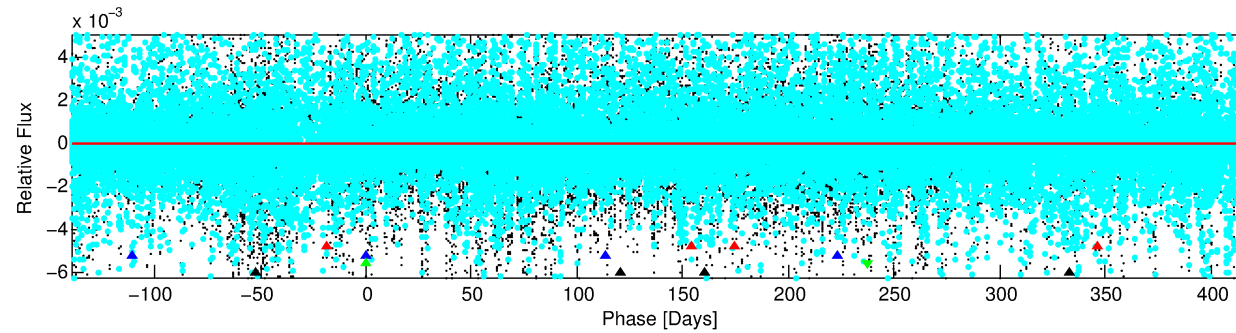
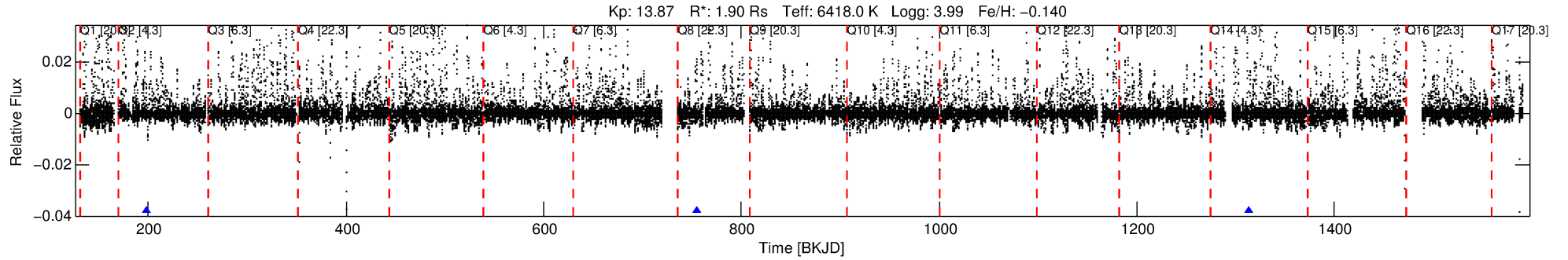
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005822633-03

No Significant Match Found

# DV One-Page Summary

KIC: 5822633 Candidate: 3 of 4 Period: 558.050 d



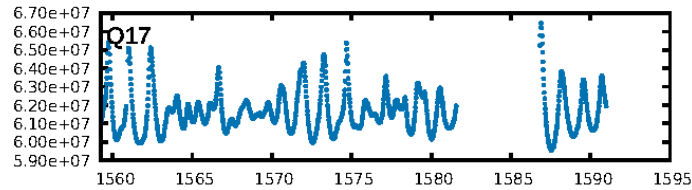
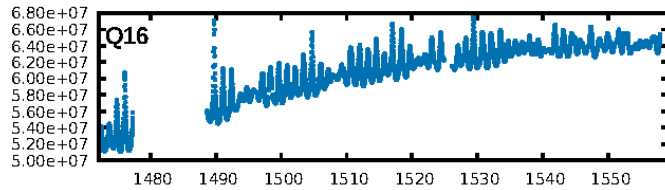
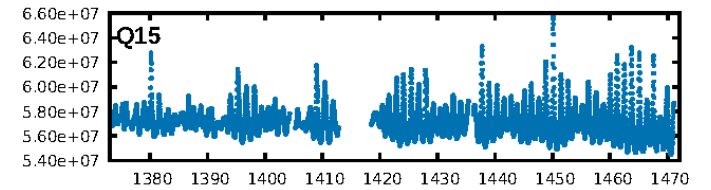
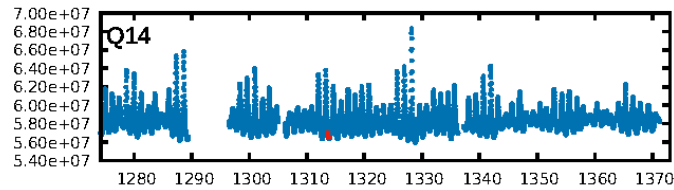
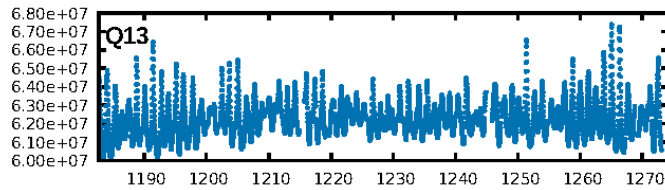
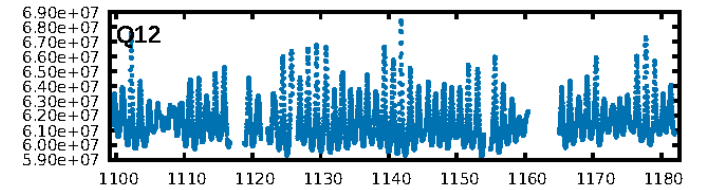
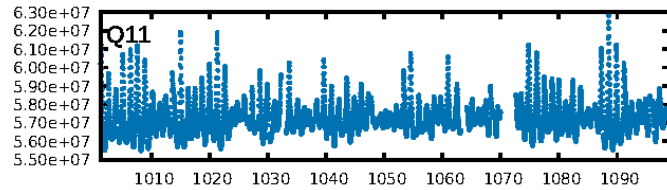
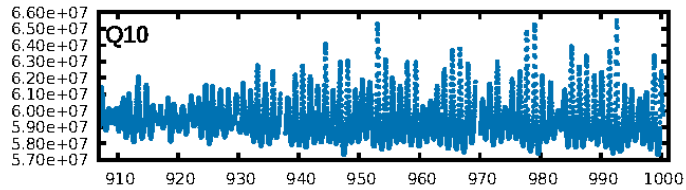
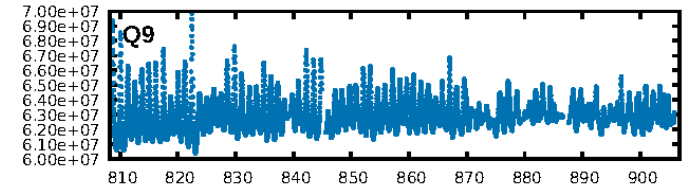
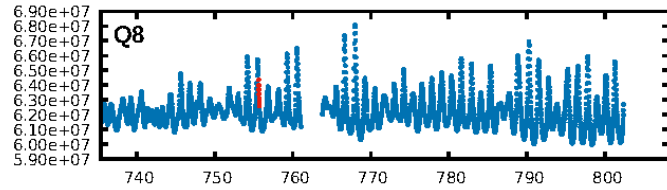
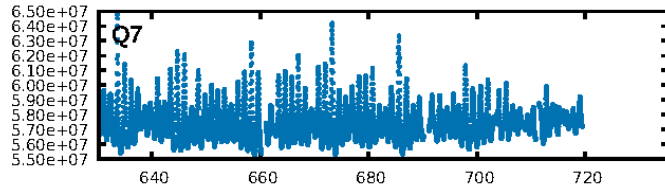
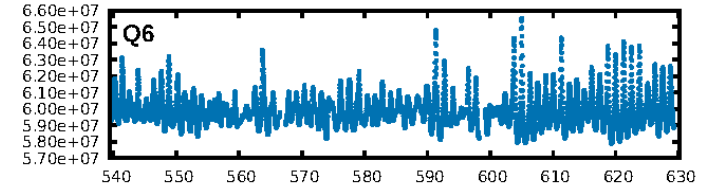
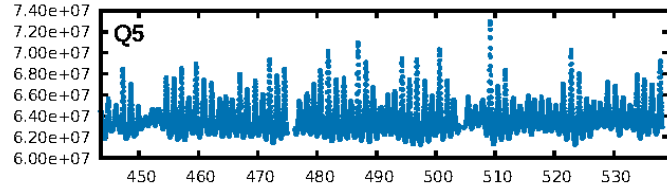
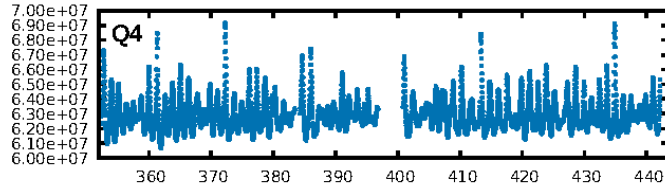
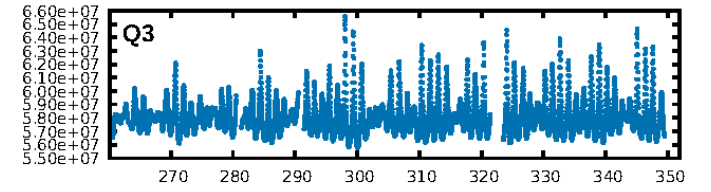
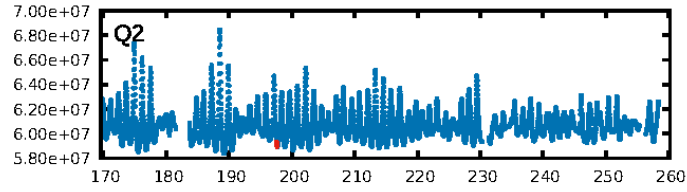
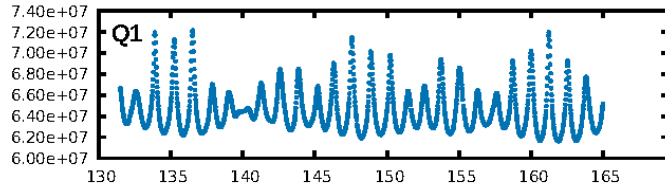
## DV Fit Results:

Period = 558.04996 [5.94008] d  
Epoch = 197.6244 [3.0821] BKJD  
Rp/R\* = 0.0021 [0.1242]  
a/R\* = 1715.57 [269361.74]  
b = 0.70 [53.13]  
Seff = 2.62 [1.47]  
Teq = 324 [45] K  
Rp = 0.43 [25.71] Re  
a = 1.4461 [0.4892] AU  
Ag = 3529968.88 [422121048.30] [0.016]  
Teffp = 21733 [649715] K [0.03]

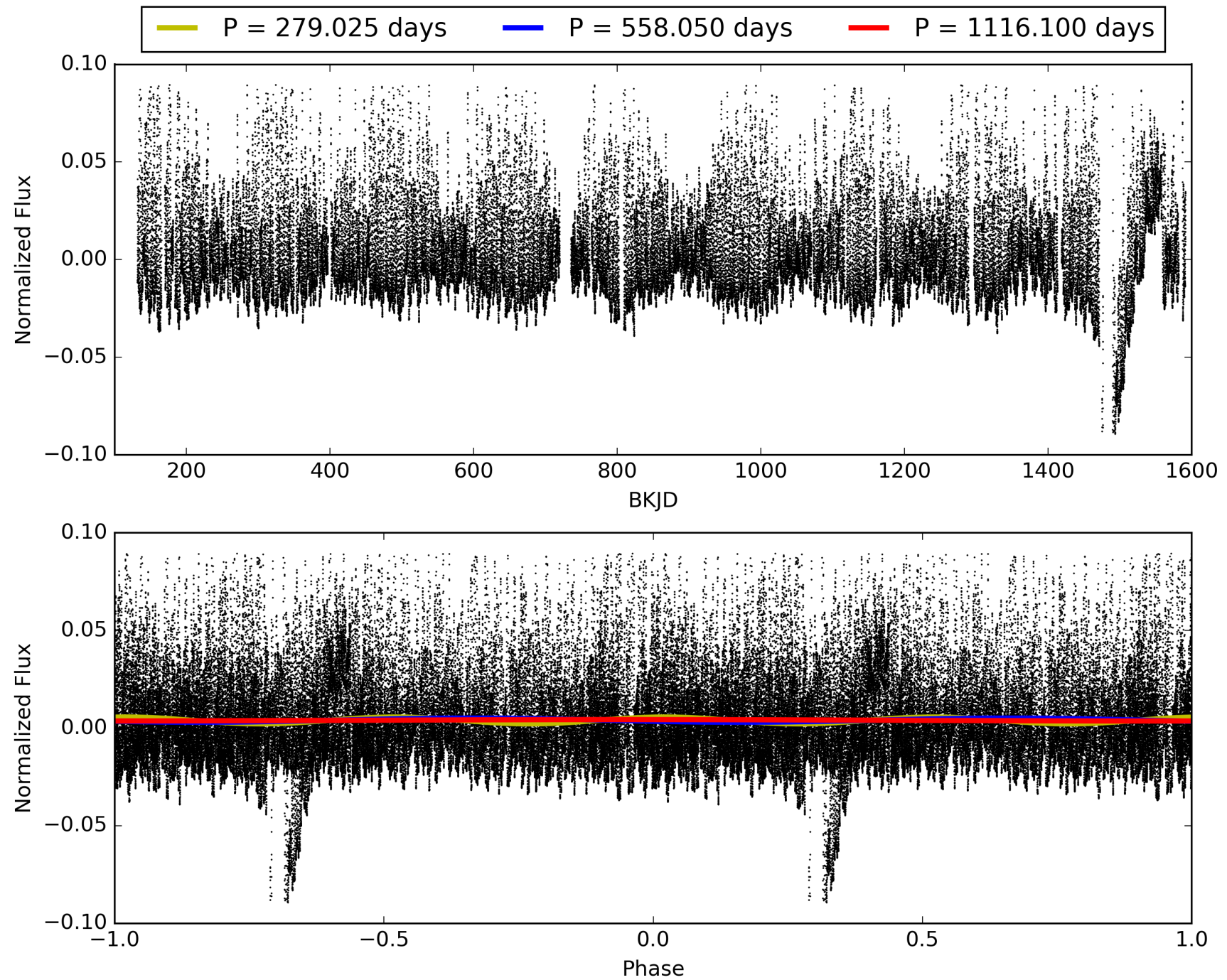
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [857.33]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 97.7%  
ModelChiSquareGof-sig: 98.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.109 arcsec [0.65]  
KicOffset-rm: 0.053 arcsec [0.34]  
OotOffset-st: 2/0/1/0 [3]  
KicOffset-st: 2/0/1/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 005822633-03, PDC Light Curves

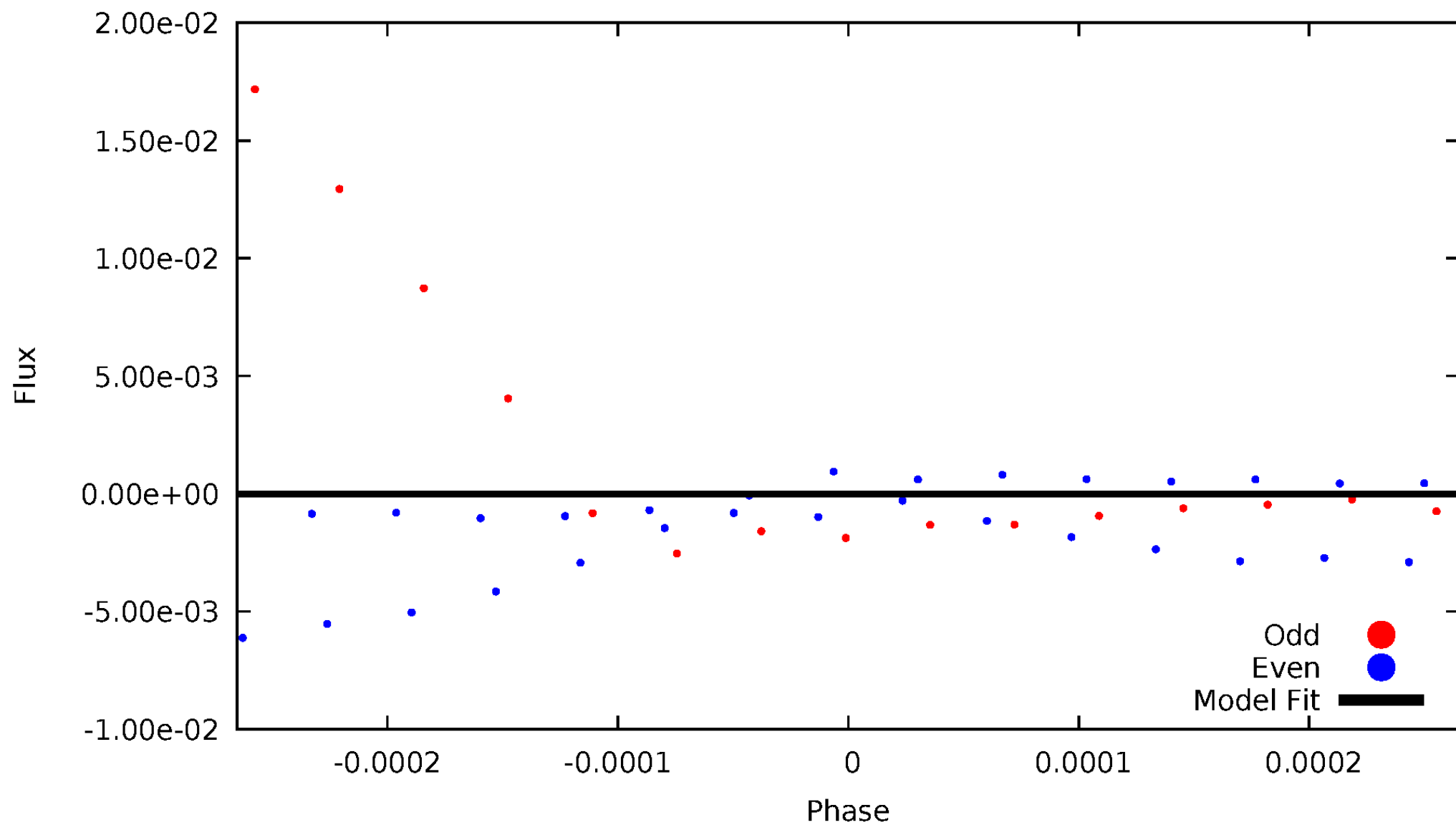


TCE 005822633-03



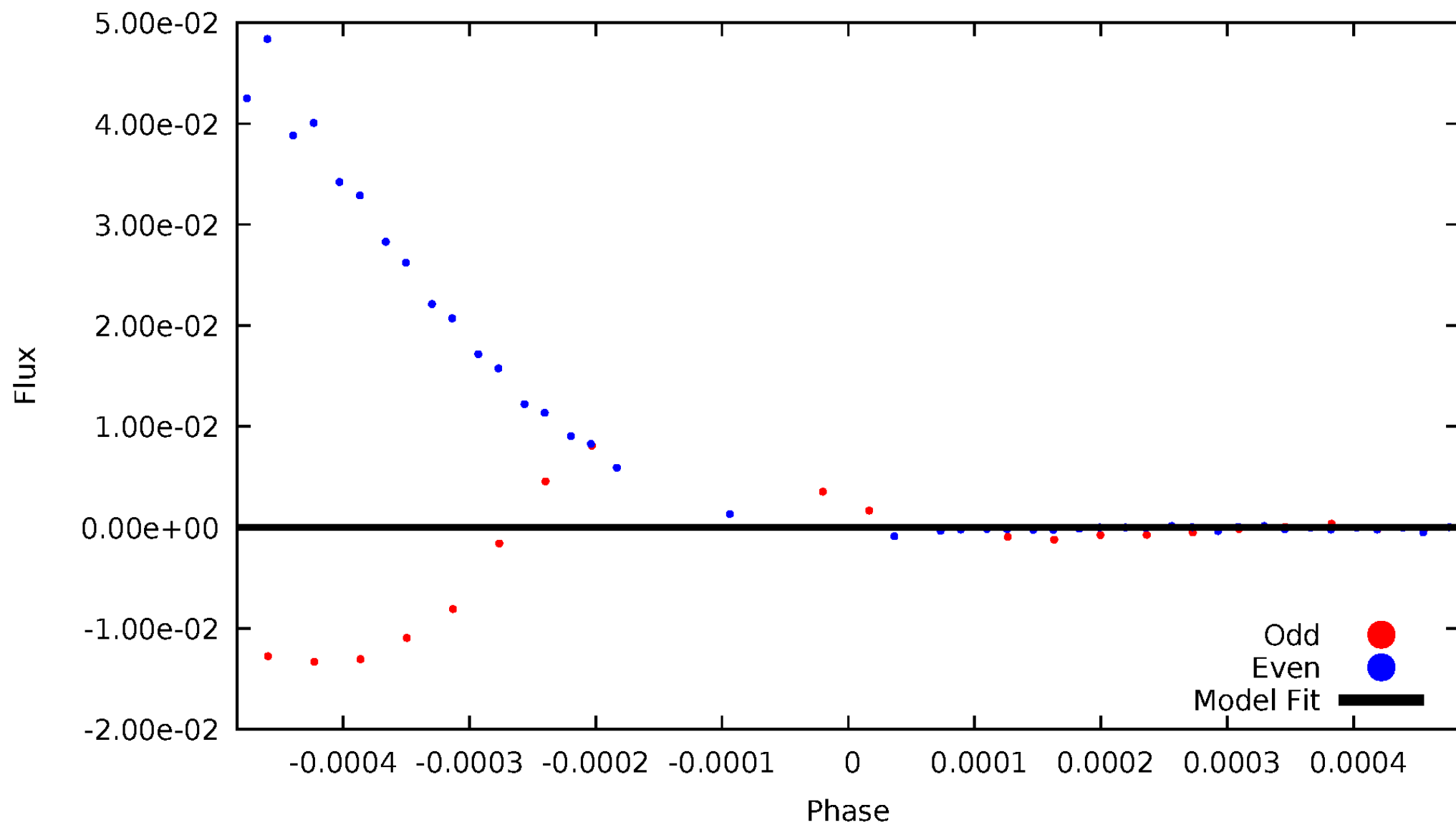
DV Odd/Even

TCE 005822633-03



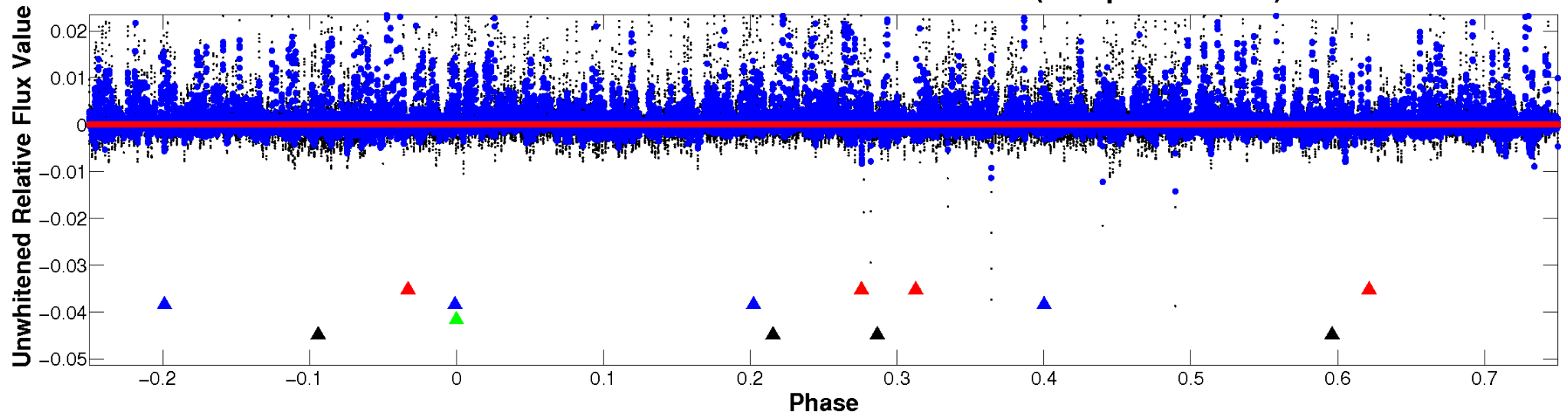
# ALT Odd/Even

TCE 005822633-03

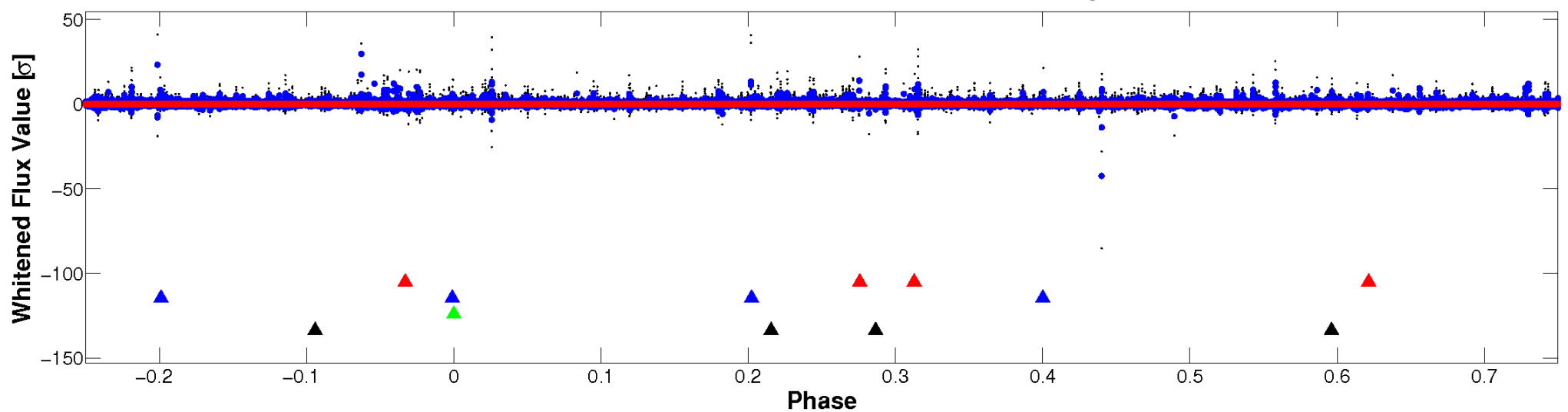


# Non-Whitened Vs. Whitened Light Curve

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

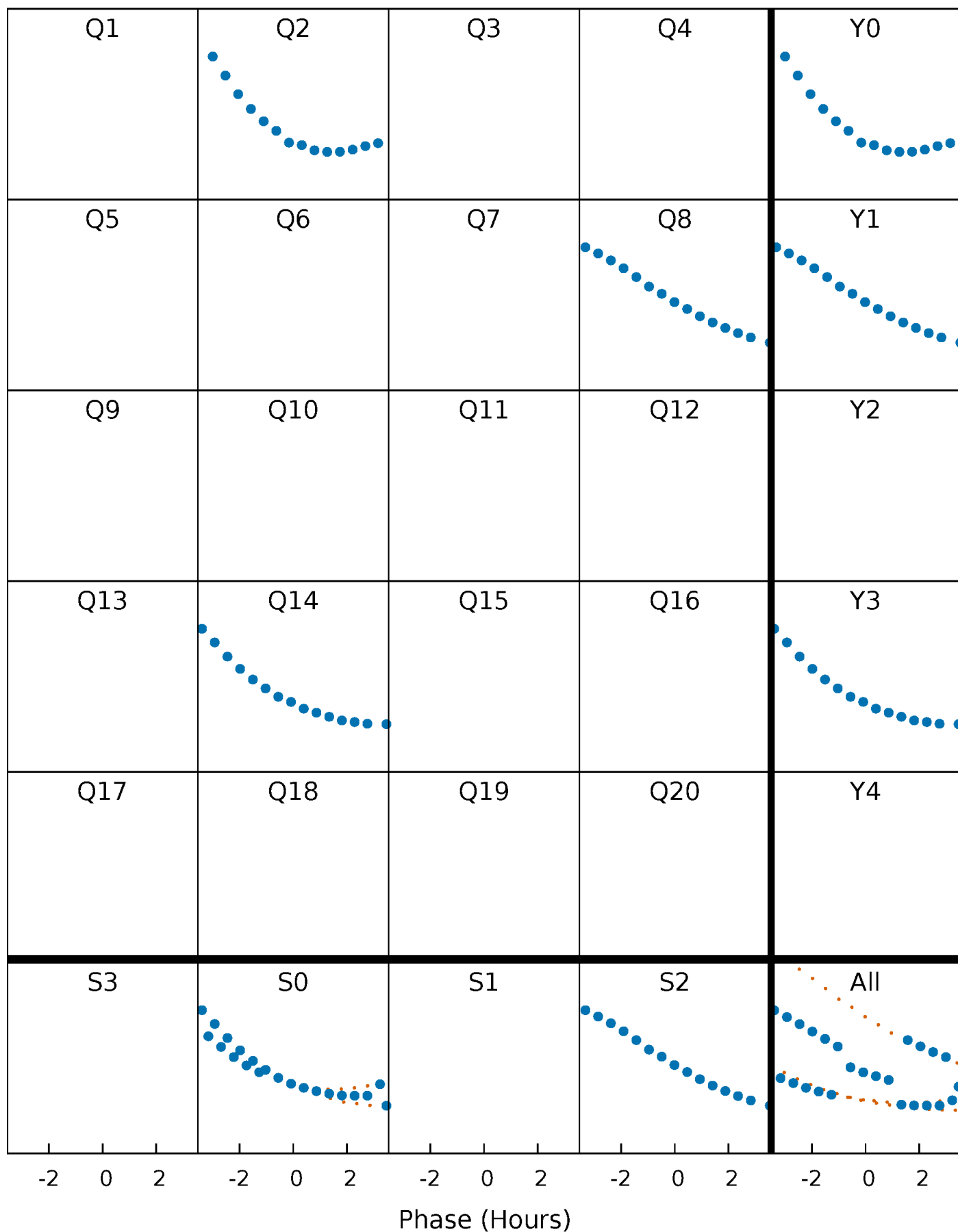


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

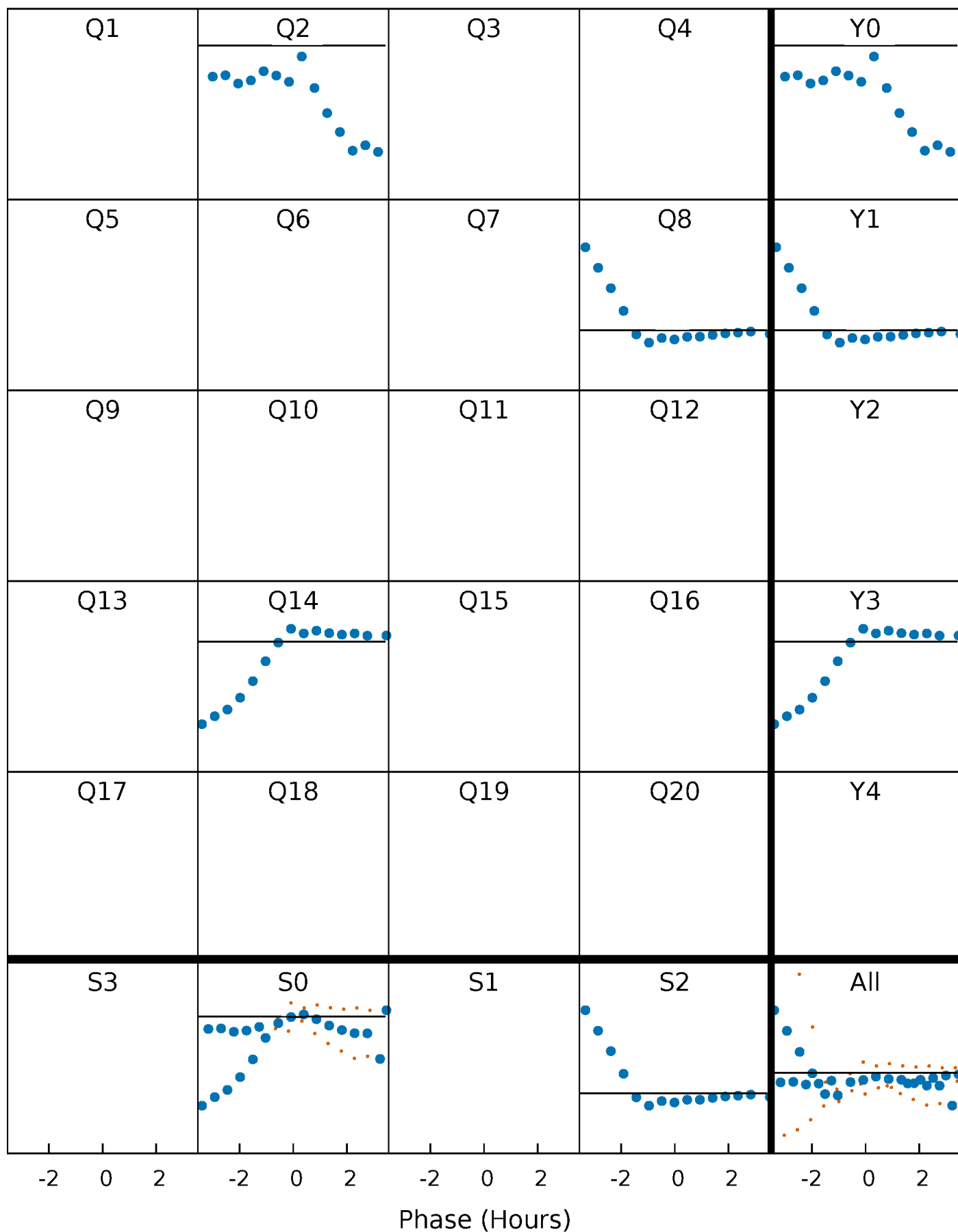
TCE 005822633-03 P=558.049958 Days  $T_0=197.624435$  (BKJD)





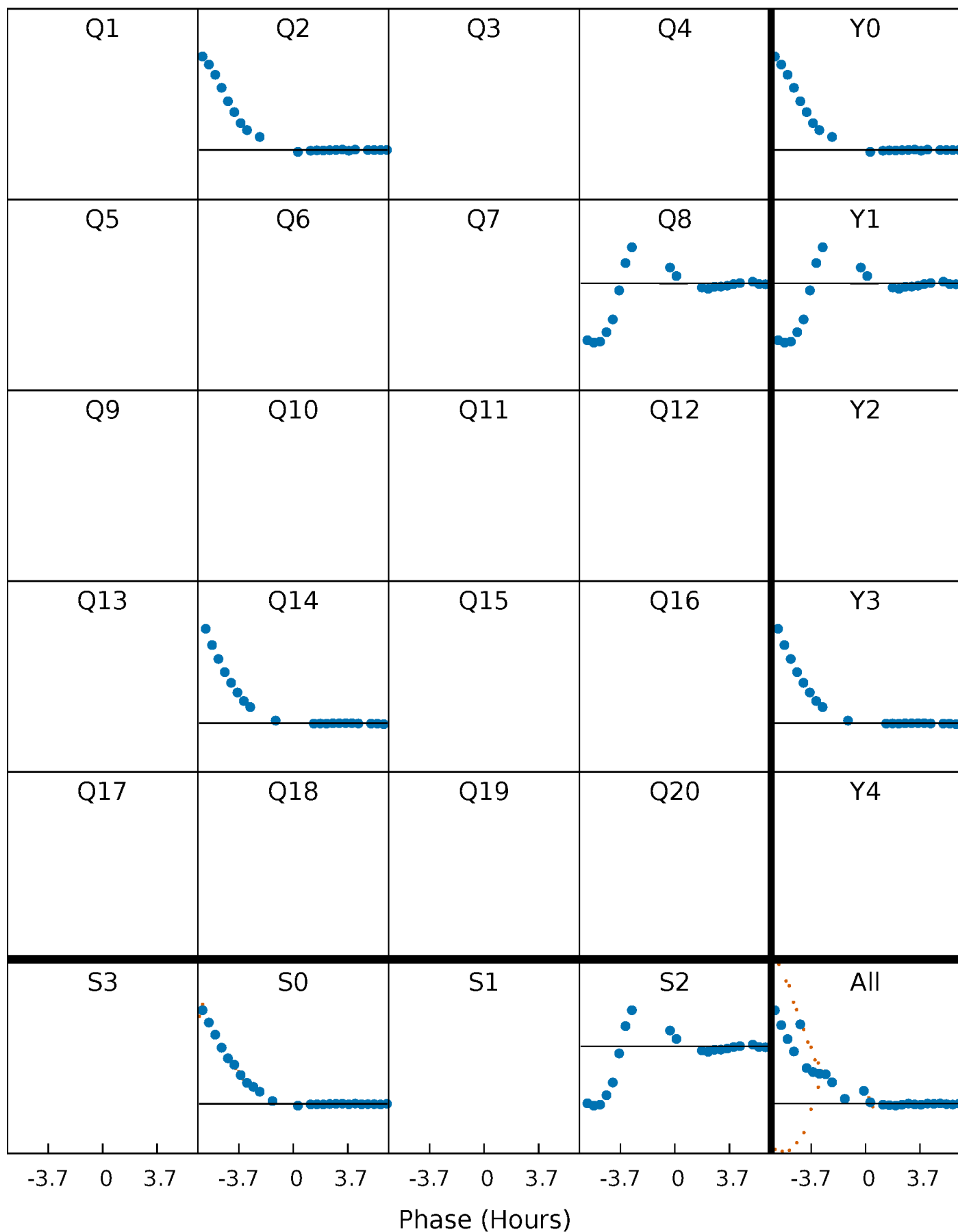
# DV Quarter-Phased Transit Curves

TCE 005822633-03 P=558.049958 Days  $T_0=197.624435$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

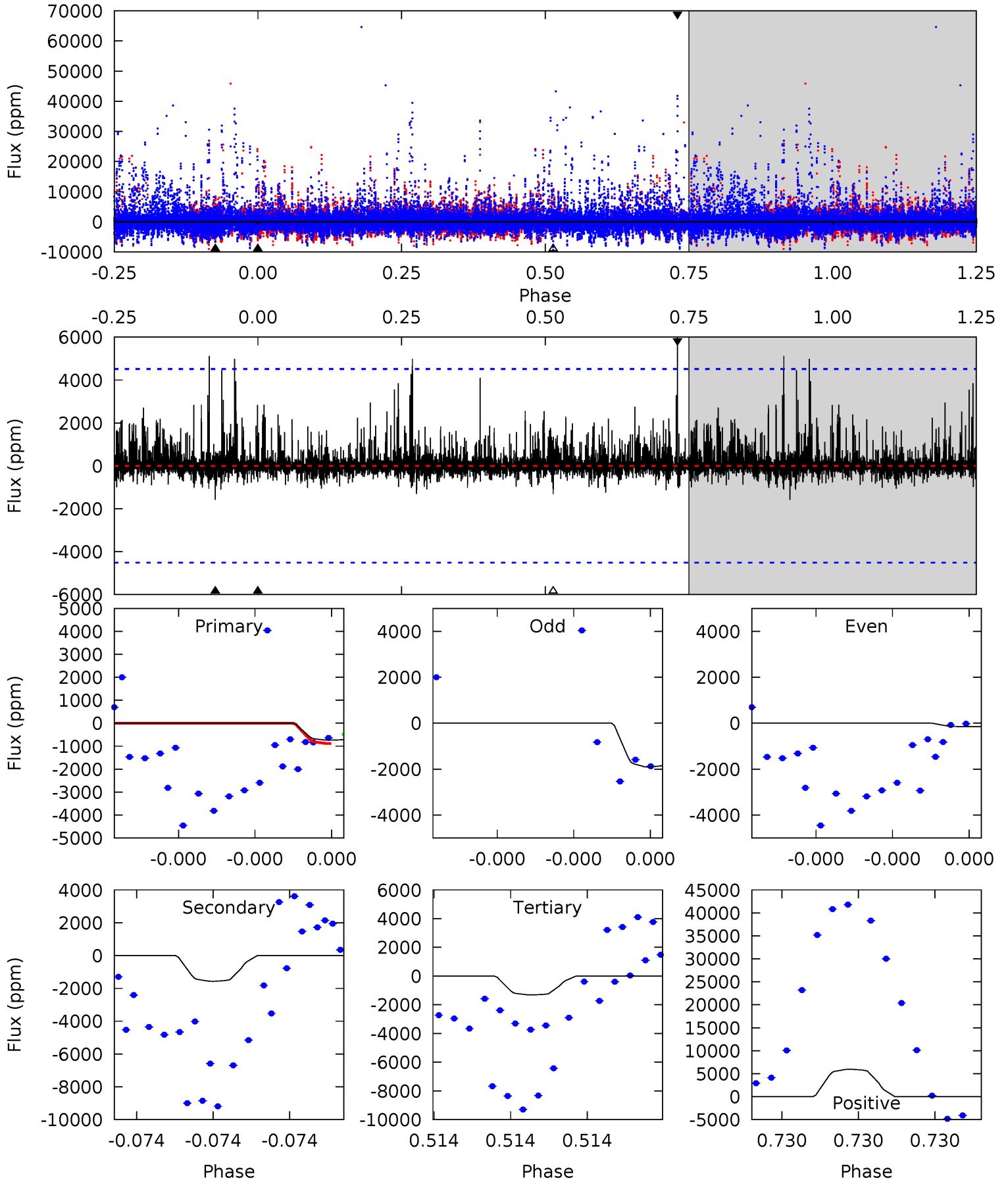
TCE 005822633-03 P=558.129069 Days  $T_0=197.453748$  (BKJD)



# DV Model-Shift Uniqueness Test

005822633-03, P = 558.049958 Days, E = 197.624435 Days

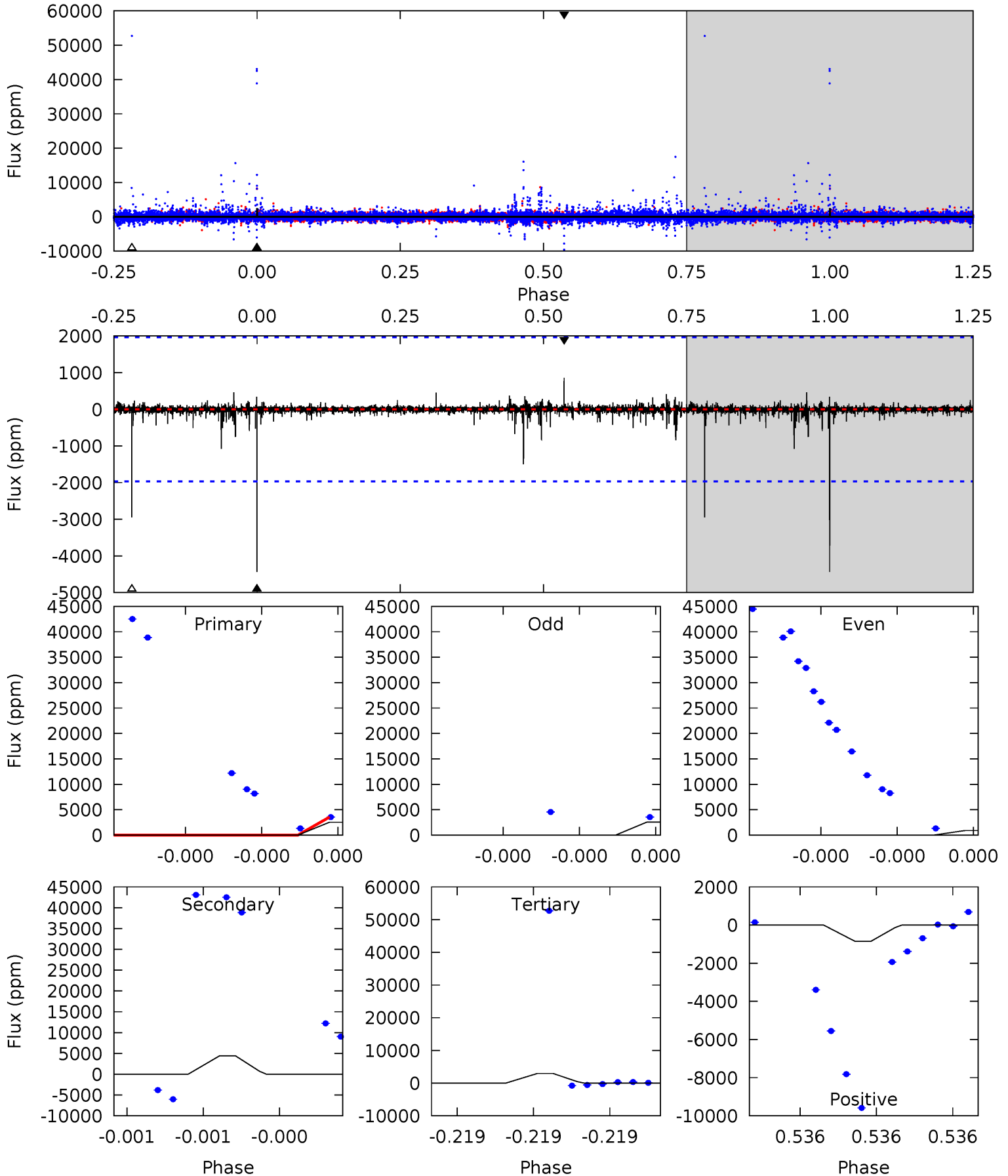
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.95	2.01	1.68	7.61	5.76	3.76	0.52	-0.73	-6.67	0.33	-5.61	0.73	0.83	0.79	0.25



# Alt Model-Shift Uniqueness Test

005822633-03, P = 558.129069 Days, E = 197.453748 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
7.42	13.0	8.62	2.50	5.75	3.75	0.13	-1.20	4.92	4.34	10.5	1.52	1.00	0.16	3.12



### Stellar Parameters For KIC 005822633

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6418^{+181}_{-227}$	$3.994^{+0.319}_{-0.147}$	$-0.140^{+0.250}_{-0.300}$	$1.897^{+0.543}_{-0.664}$	$1.296^{+0.182}_{-0.251}$	$0.267^{+0.677}_{-0.124}$
	+3%/-4%	+8%/-4%	+179%/-214%	+29%/-35%	+14%/-19%	+253%/-46%
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 005822633-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1572 \pm 784$	$16.06^{+16.77}_{-11.48}$	$447^{+34}_{-38}$	$4483^{+3828}_{-1090}$	$5772^{+65208}_{-4679}$
Alt.	$-4430 \pm 342$	$16.10^{+19.83}_{-11.64}$	$444^{+34}_{-42}$	$5834^{+6957}_{-1643}$	$20206^{+247045}_{-16134}$

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

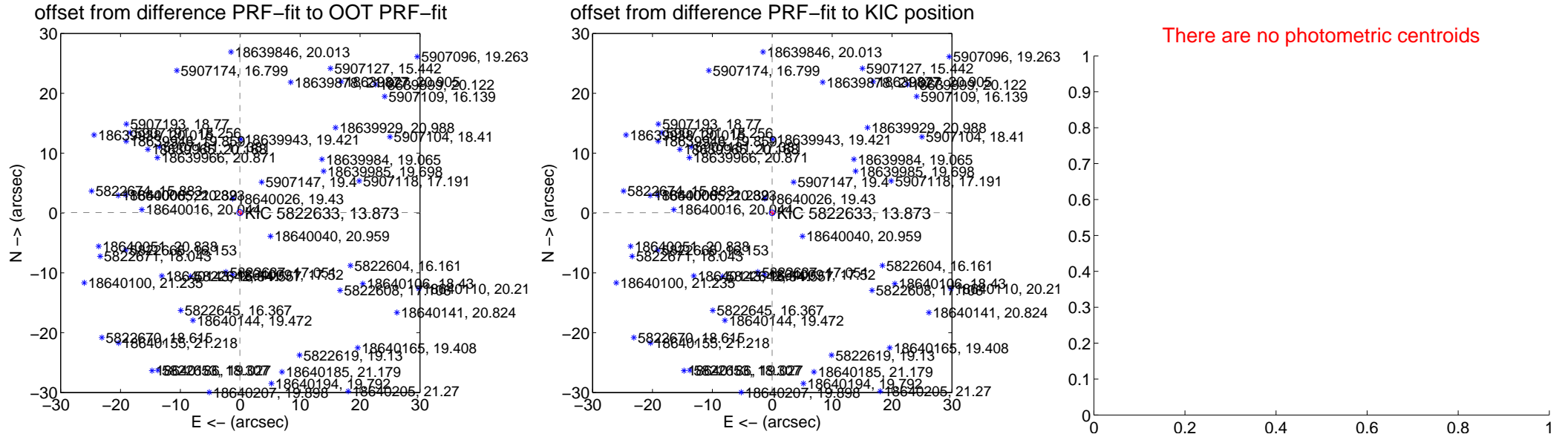
## DV Centroid Data

Supplemental centroid analysis for 005822633-03. Kepler magnitude: 13.87. Transit SNR 0.01

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.109 \pm 0.167$	0.65	$0.070 \pm 0.157$	$0.084 \pm 0.174$
PRF-fit source offset from KIC position	$0.053 \pm 0.158$	0.34	$0.027 \pm 0.156$	$0.046 \pm 0.159$
photometric centroid source offset	—	—	—	—



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

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

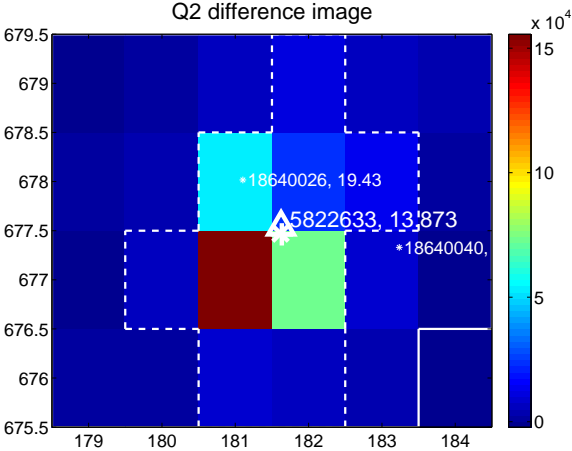
Q1 no difference image



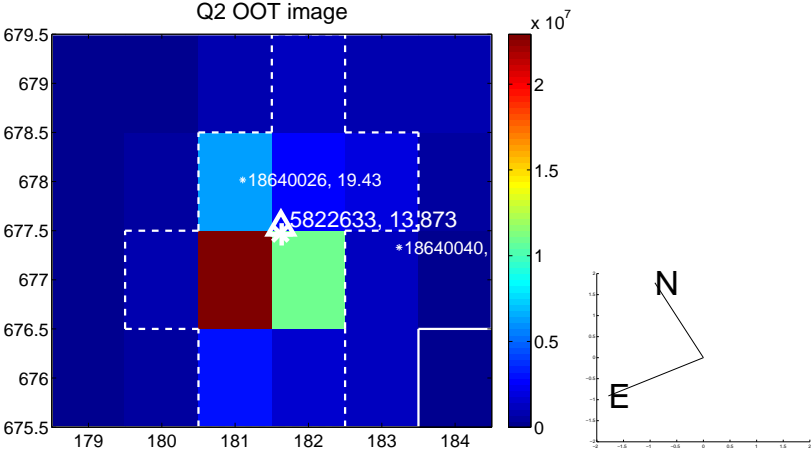
Q1 no OOT image



Q2 difference image



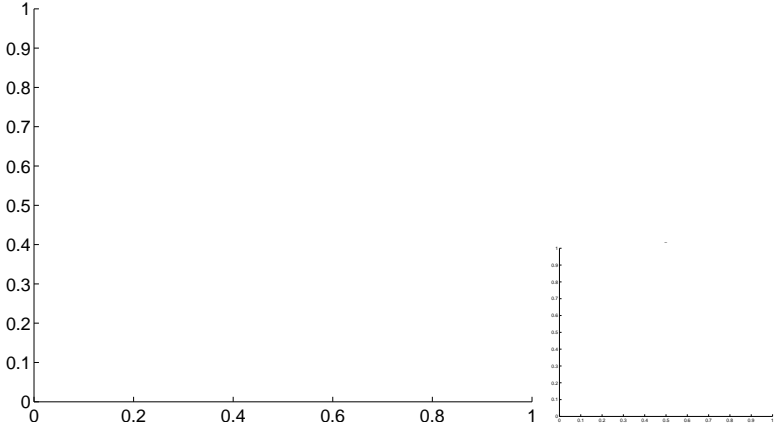
Q2 OOT image



Q3 no difference image



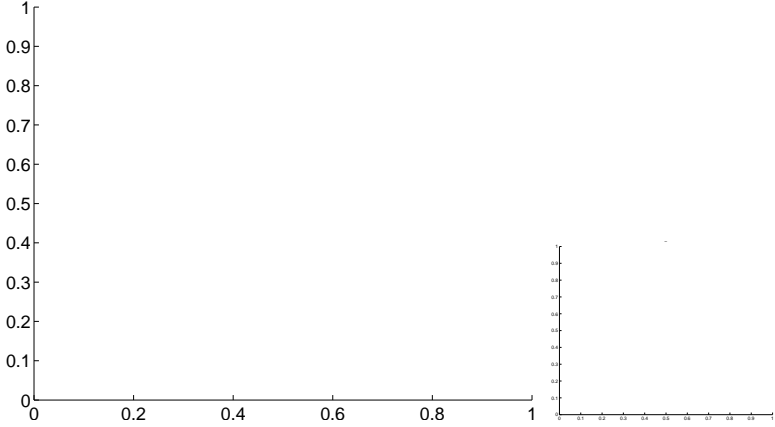
Q3 no OOT image



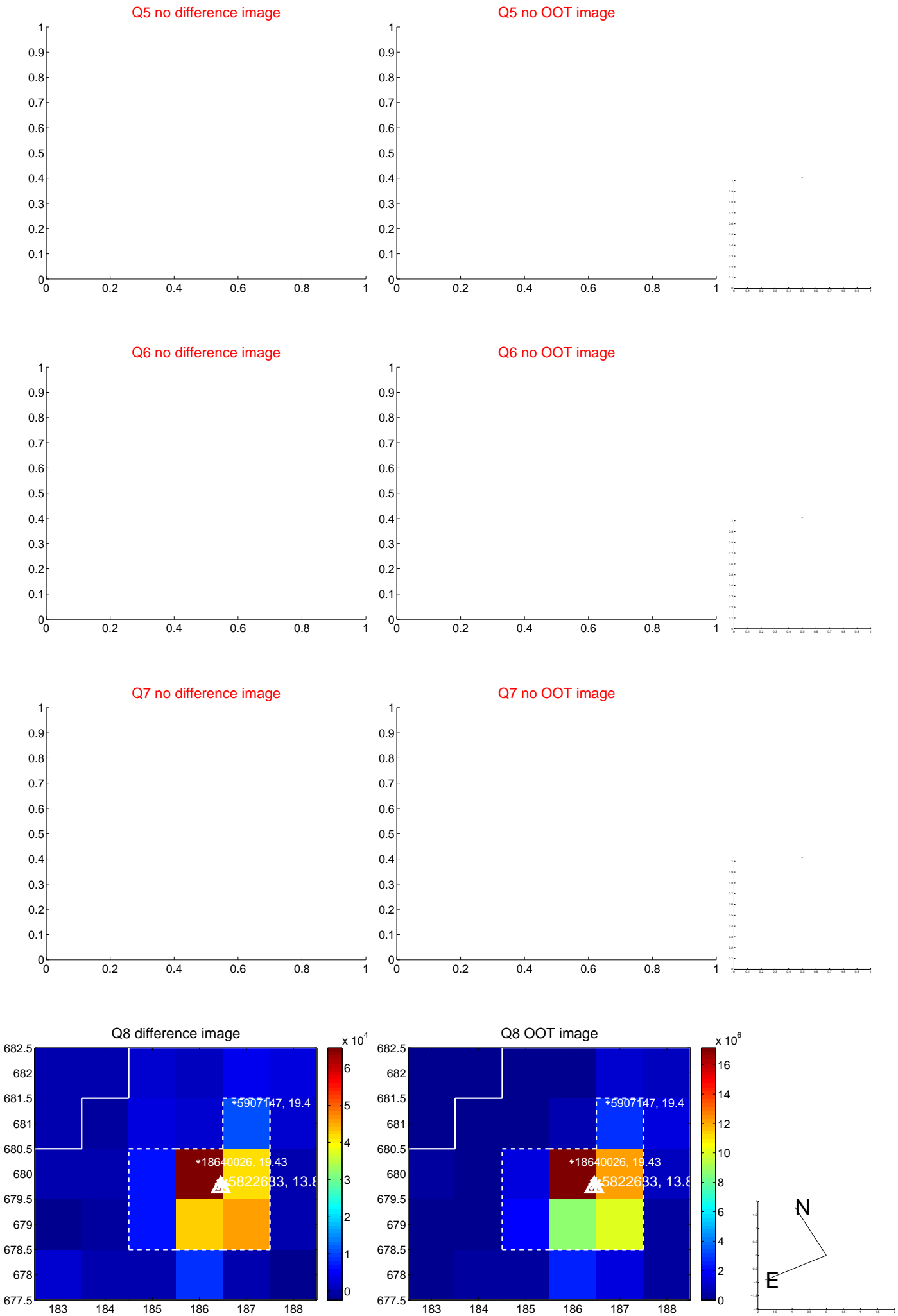
Q4 no difference image



Q4 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.

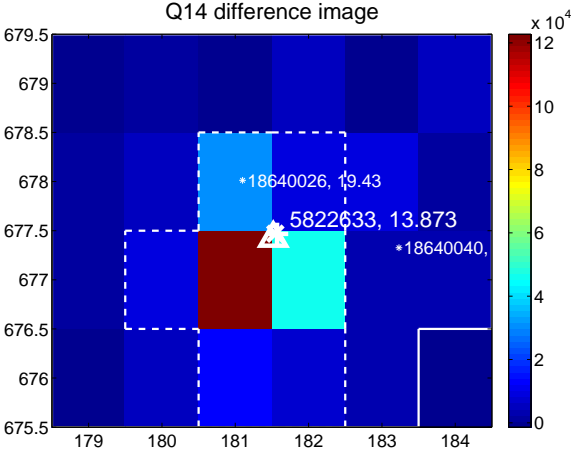
Q13 no difference image



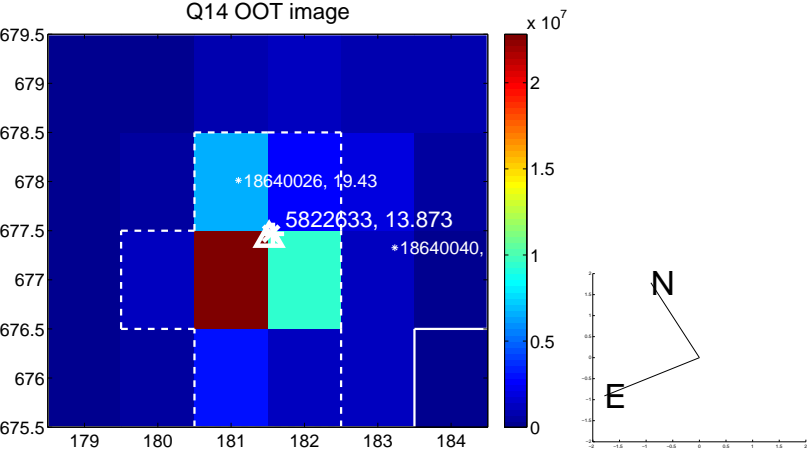
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



Q16 no difference image



Q16 no OOT image



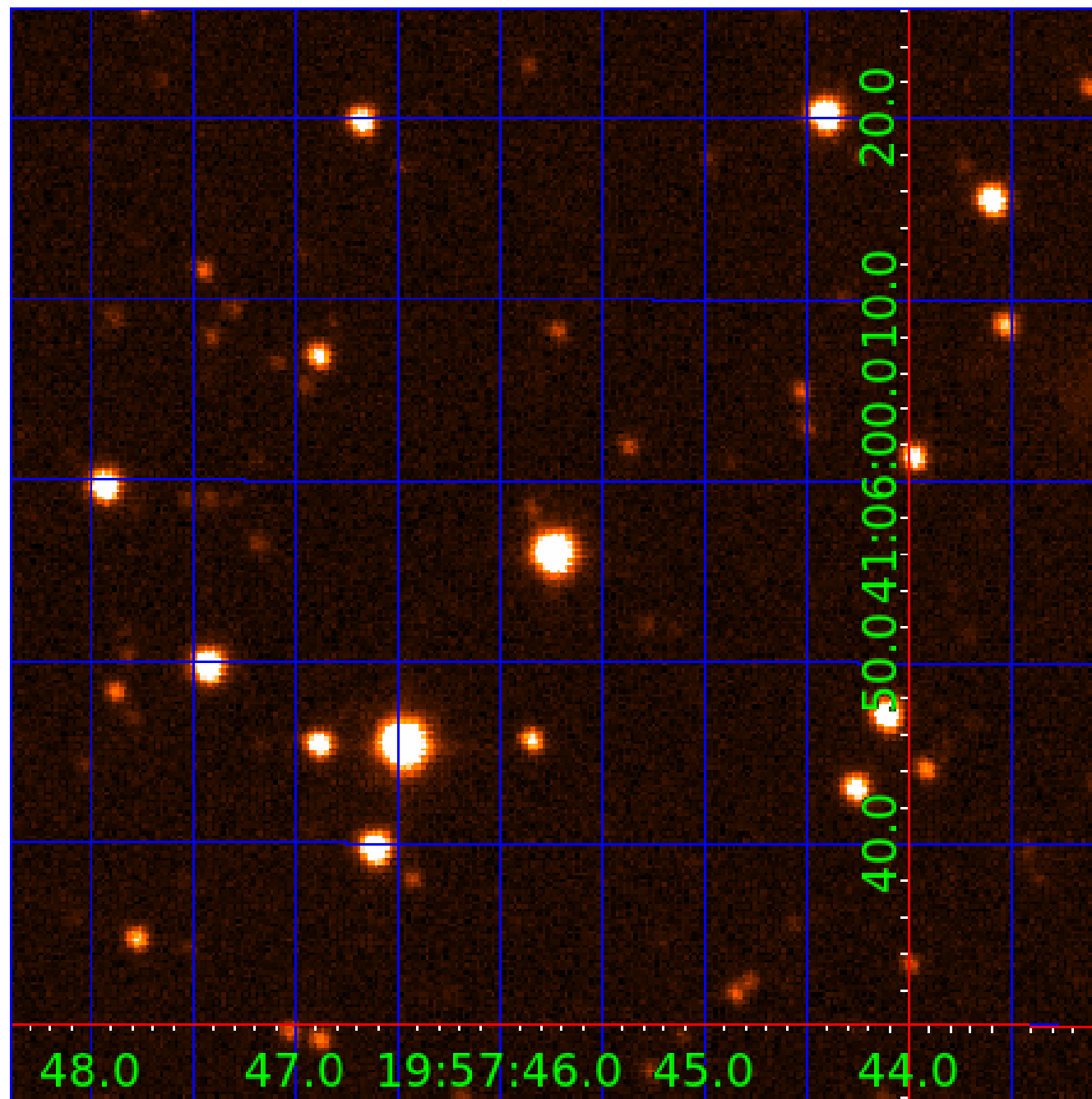
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

# UKIRT Image

Declination



# KIC 005822633

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005822633-01	OBS	No	365.159437	372.138334	2623.8	3.000	27.0	-1.0	1.90	6418	9.77	4.61
005822633-02	OBS	No	334.218239	310.522602	1640.0	3.500	21.6	-1.0	1.90	6418	7.72	5.18
005822633-03	OBS	No	558.049958	197.624435	4.5	1.776	19.5	0.0	1.90	6418	0.43	2.62
005822633-04	OBS	No	385.240718	317.905928	1076.3	4.500	17.0	-1.0	1.90	6418	6.25	4.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005822633-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
005822633-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
005822633-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT
005822633-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

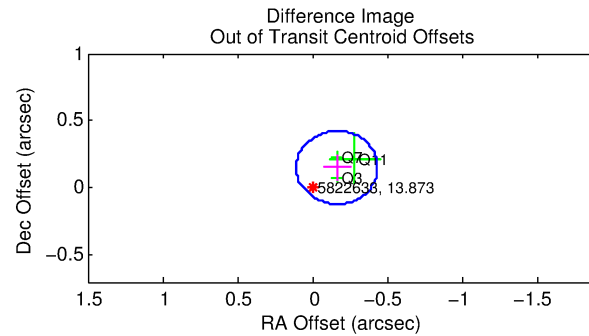
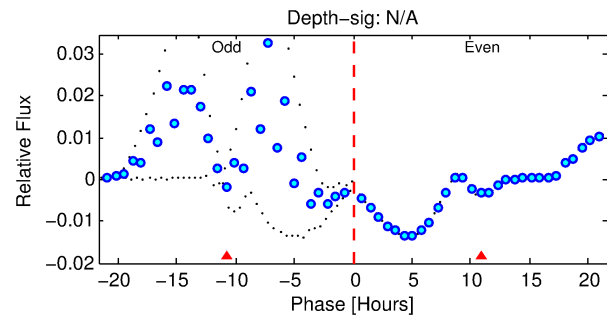
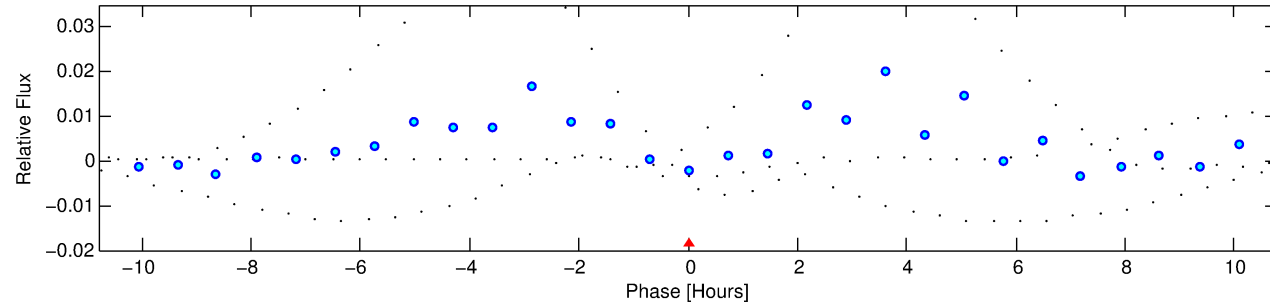
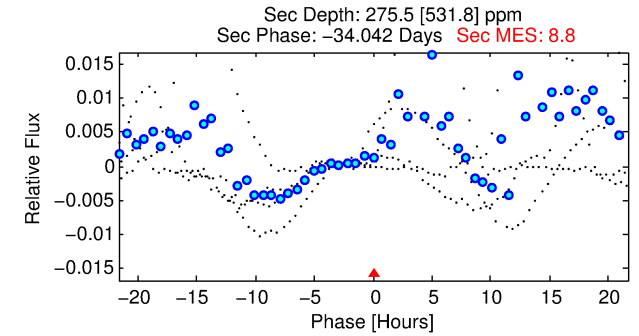
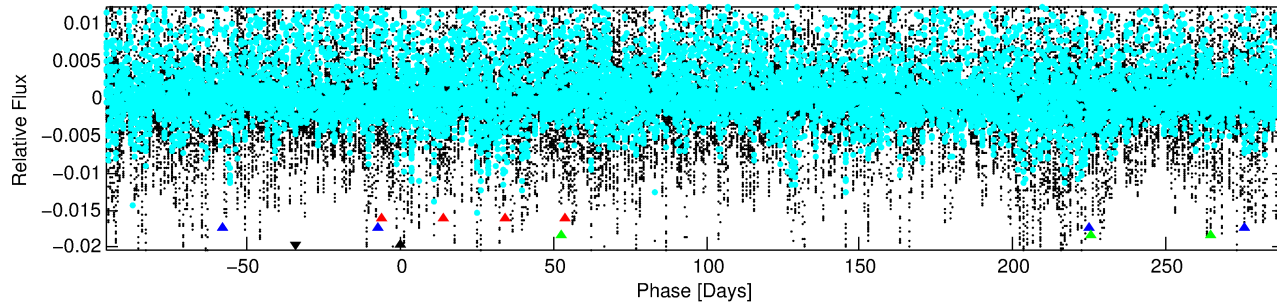
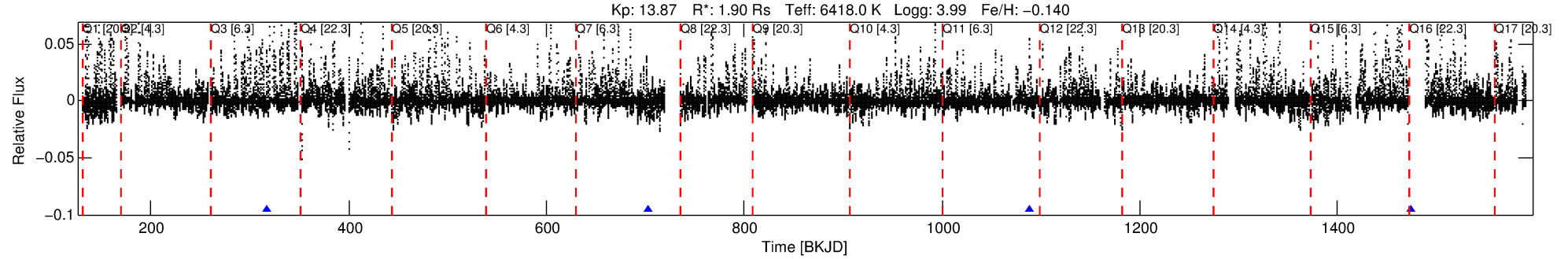
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005822633-04

No Significant Match Found

# DV One-Page Summary

KIC: 5822633 Candidate: 4 of 4 Period: 385.241 d



## TPS TCE Results:

Period = 385.24072 d  
Epoch = 317.9059 BKJD

DV fit results are unavailable

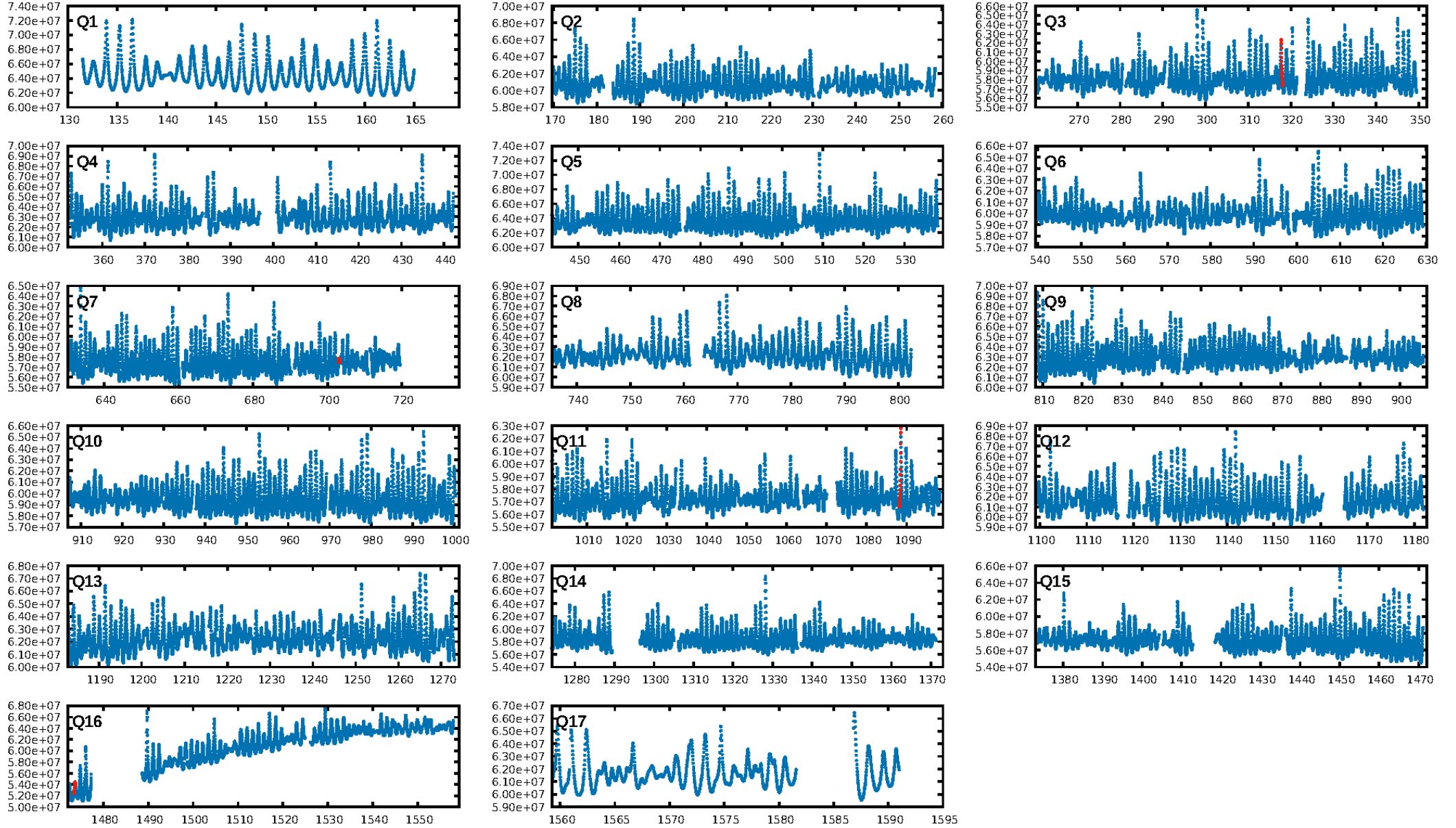
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [89.11 $\sigma$ ]  
LongPeriod-sig: 100.0% [857.33 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.6468  
Centroid-sig: 0.5%  
Centroid-so: 0.416 arcsec [1.11 $\sigma$ ]  
OotOffset-rm: 0.224 arcsec [2.47 $\sigma$ ]  
KicOffset-rm: 0.208 arcsec [2.33 $\sigma$ ]  
OotOffset-st: 0/3/0/0 [3]  
KicOffset-st: 0/3/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

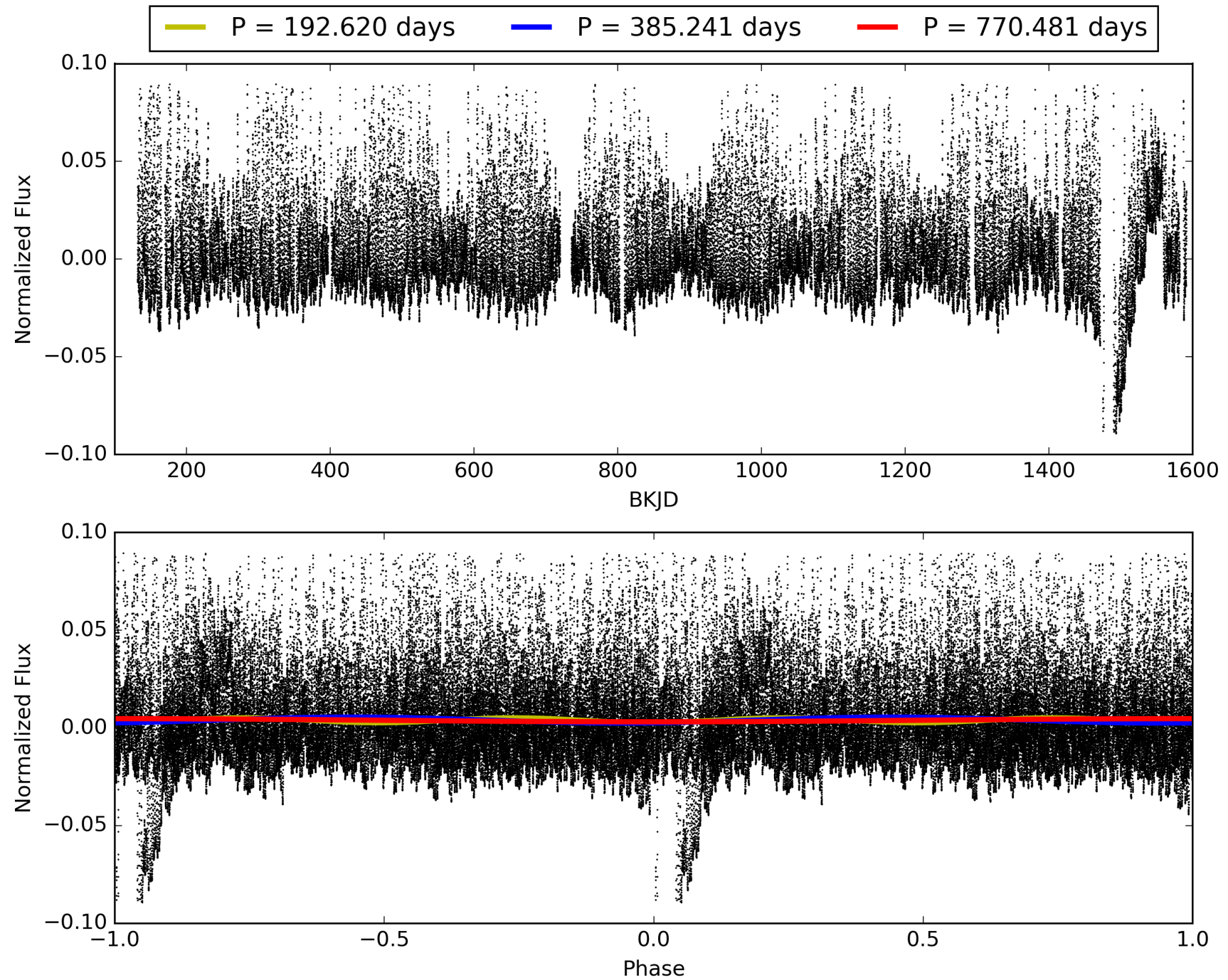
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:20:39 Z

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

# TCE 005822633-04, PDC Light Curves



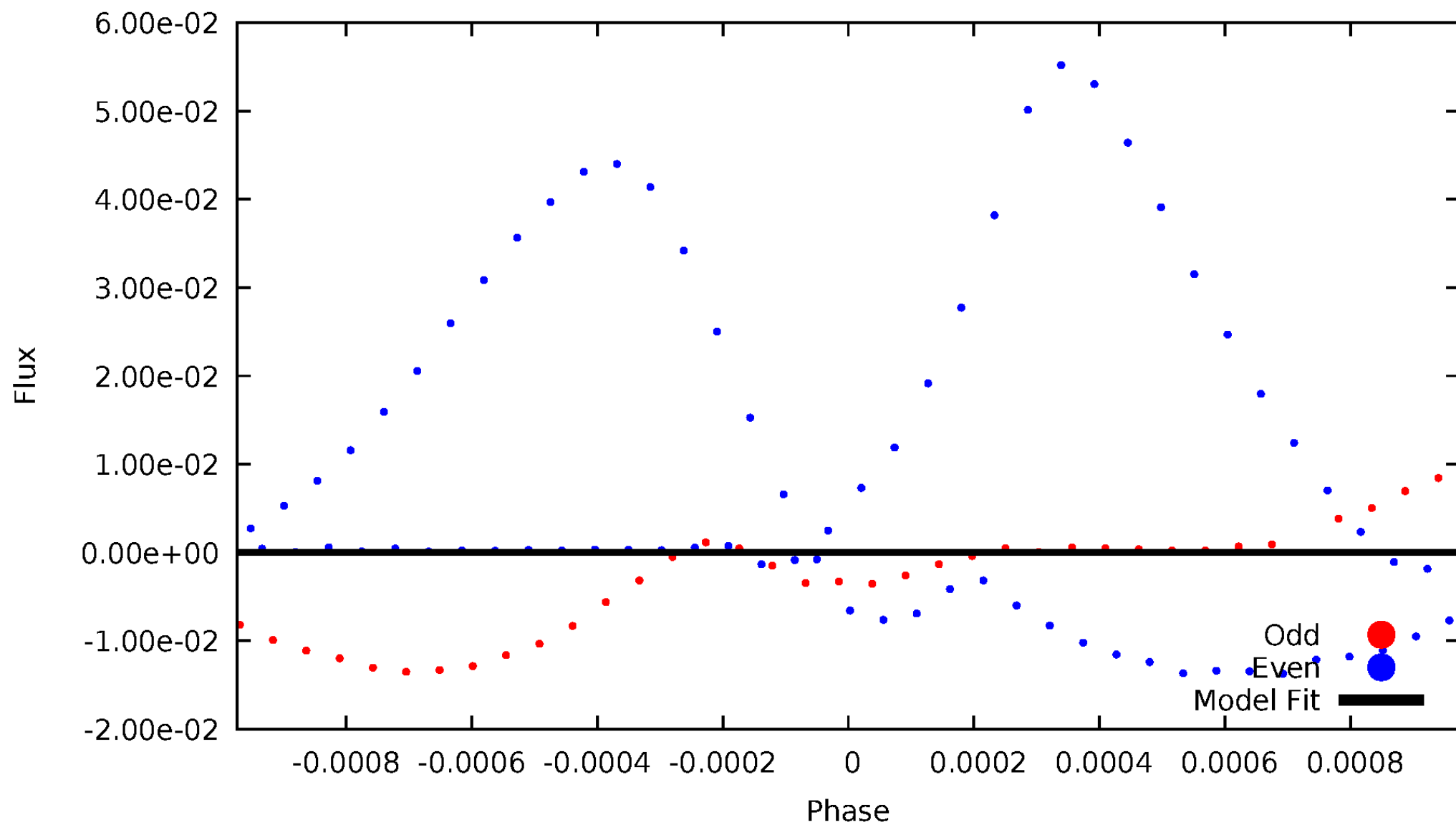
TCE 005822633-04





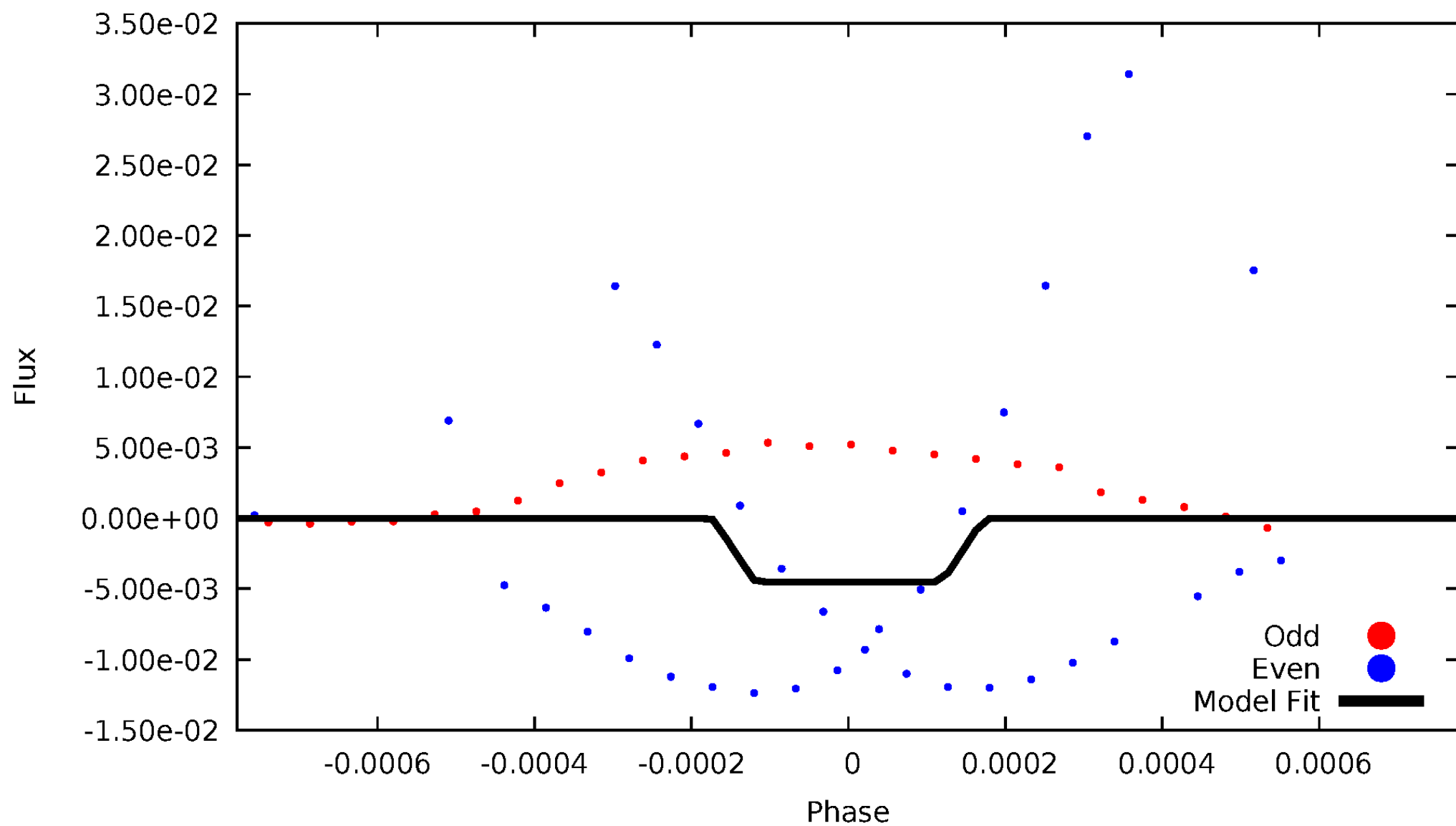
# DV Odd/Even

TCE 005822633-04



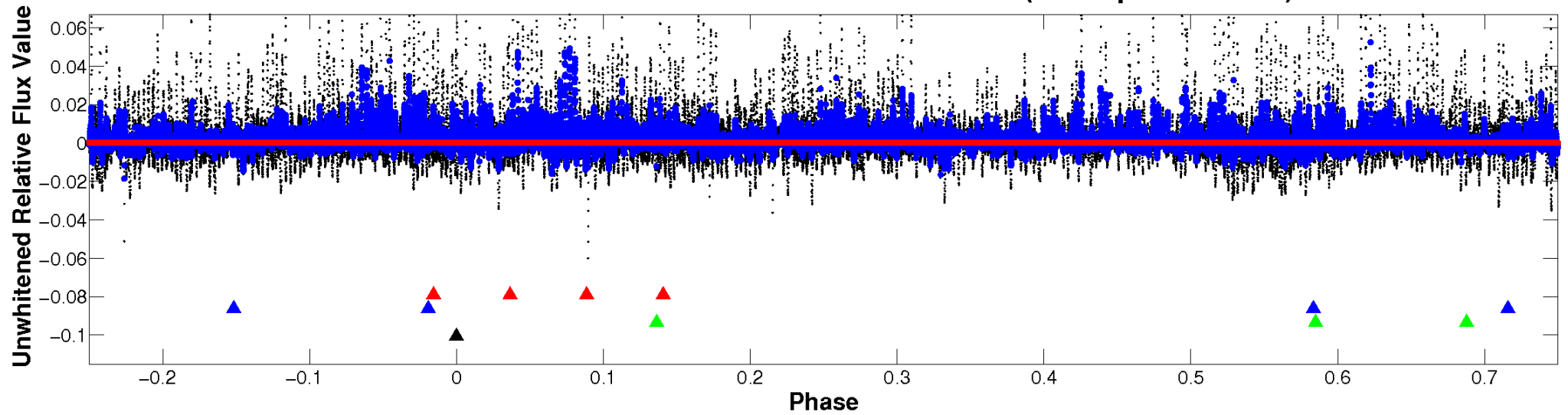
# ALT Odd/Even

TCE 005822633-04



# Non-Whitened Vs. Whitened Light Curve

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

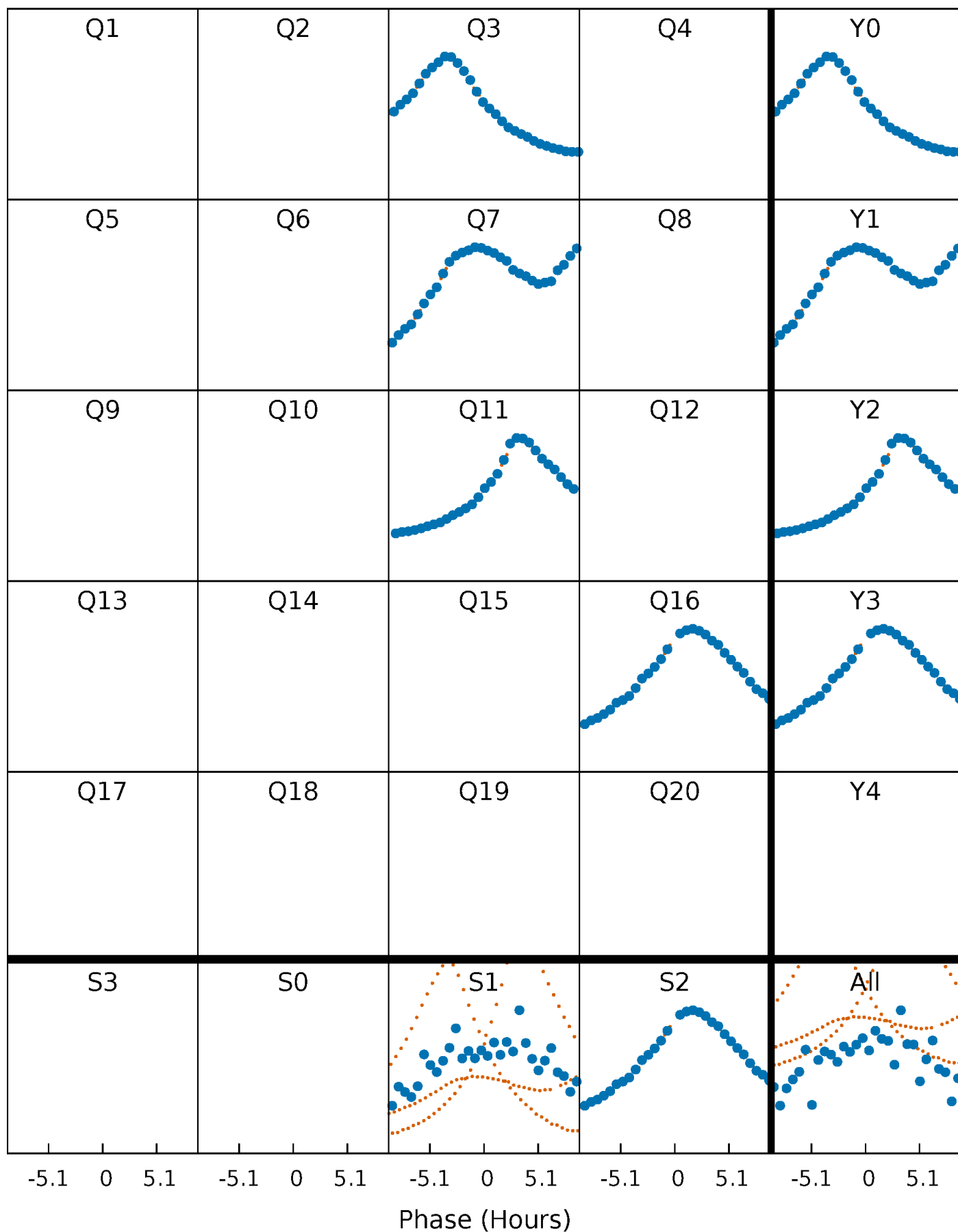


**Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



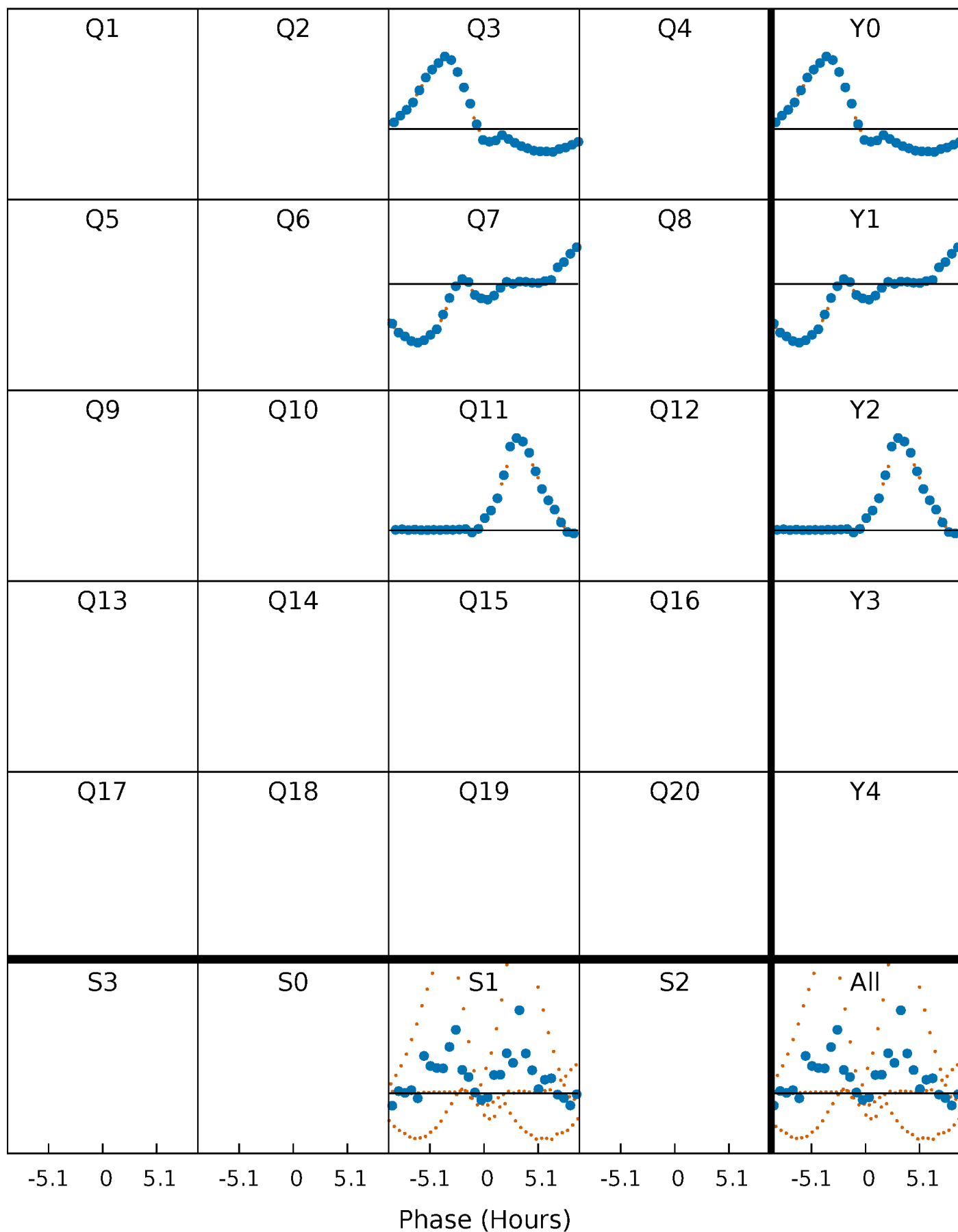
# PDC Quarter-Phased Transit Curves

TCE 005822633-04   P=385.240718 Days    $T_0=317.905928$  (BKJD)



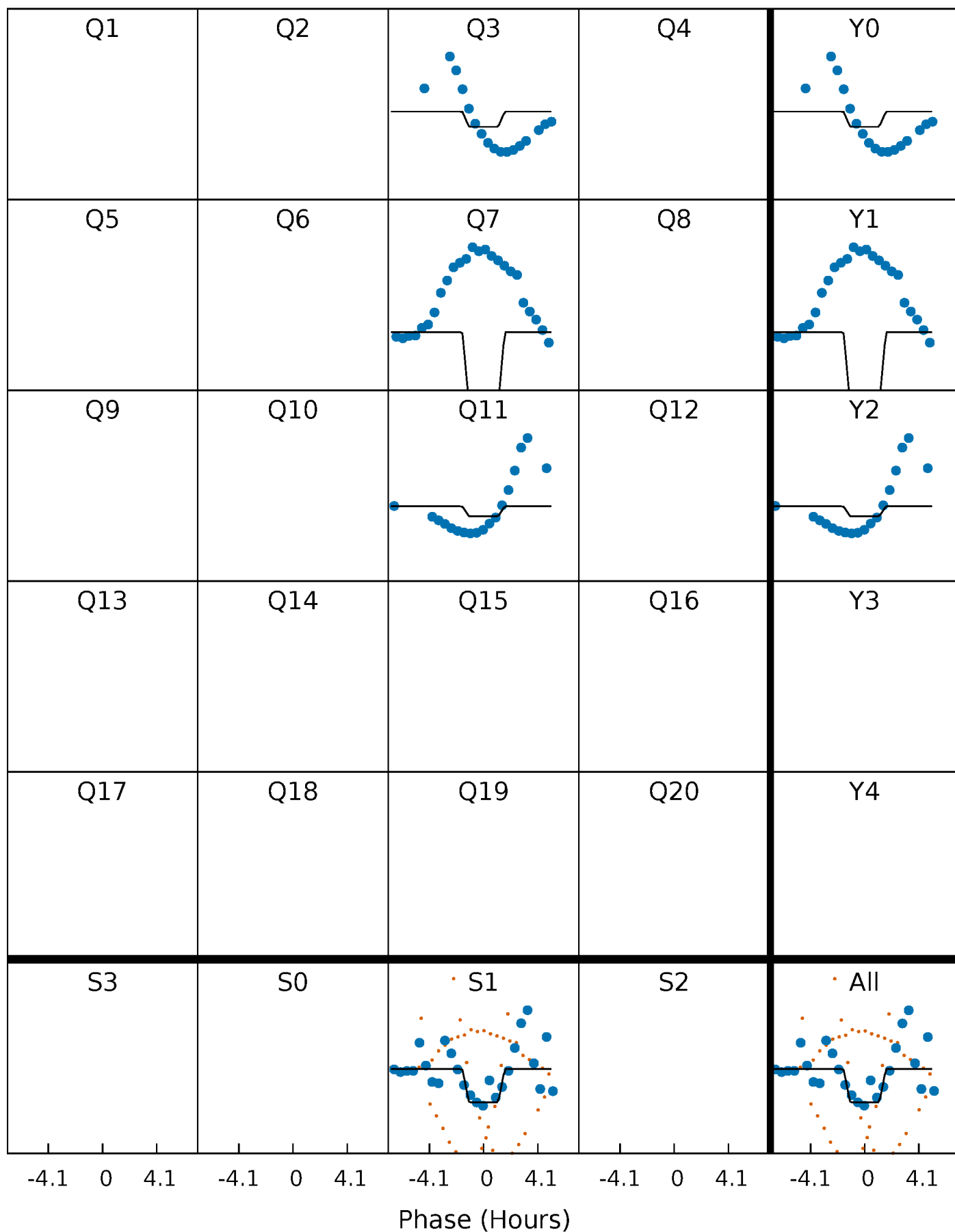
# DV Quarter-Phased Transit Curves

TCE 005822633-04     $P=385.240718$  Days     $T_0=317.905928$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

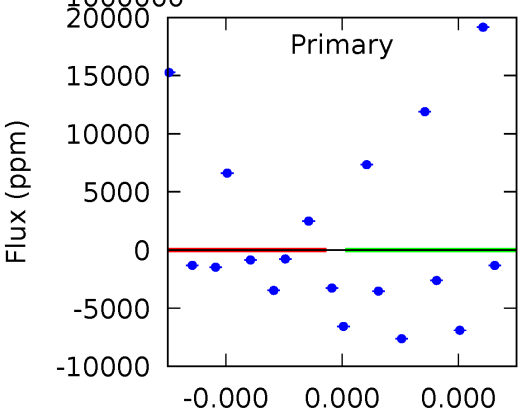
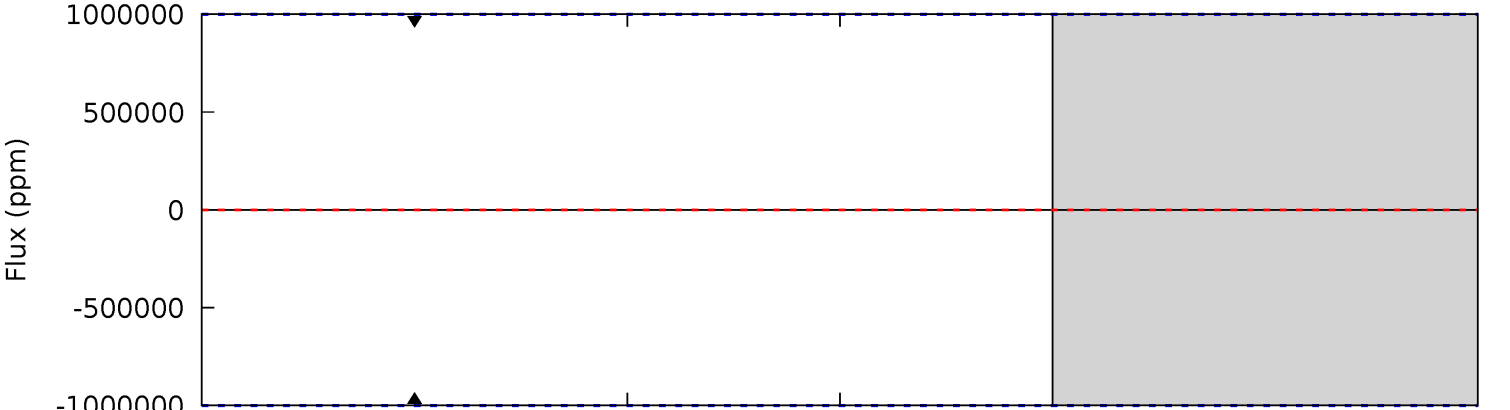
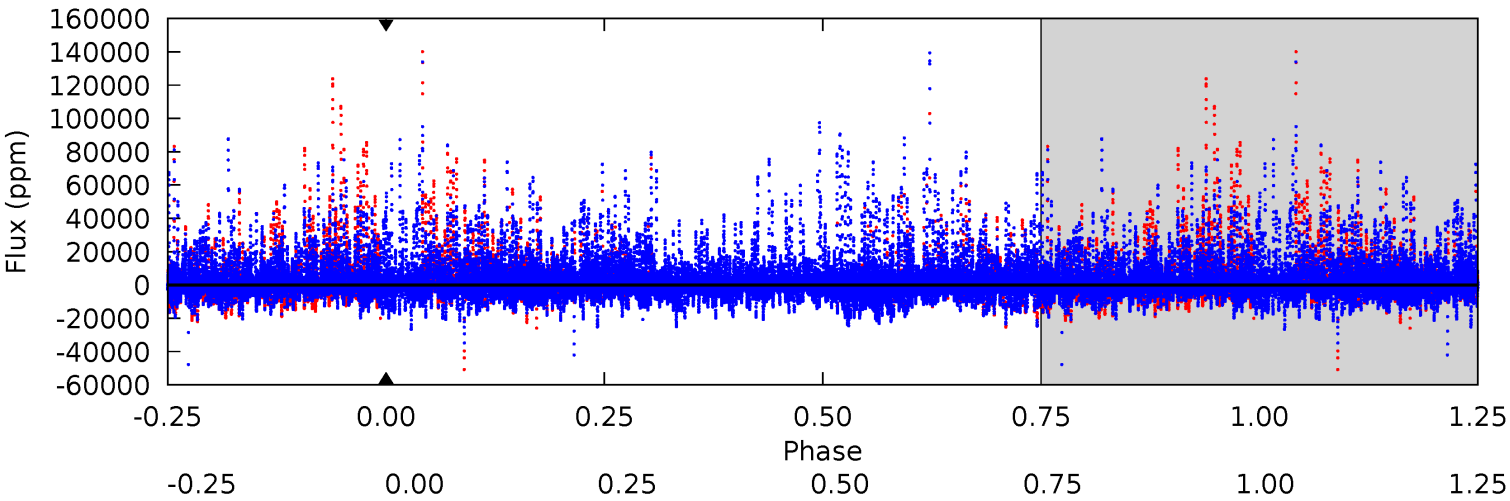
TCE 005822633-04 P=385.240718 Days  $T_0=317.898881$  (BKJD)



# DV Model-Shift Uniqueness Test

005822633-04, P = 385.240718 Days, E = 317.905928 Days

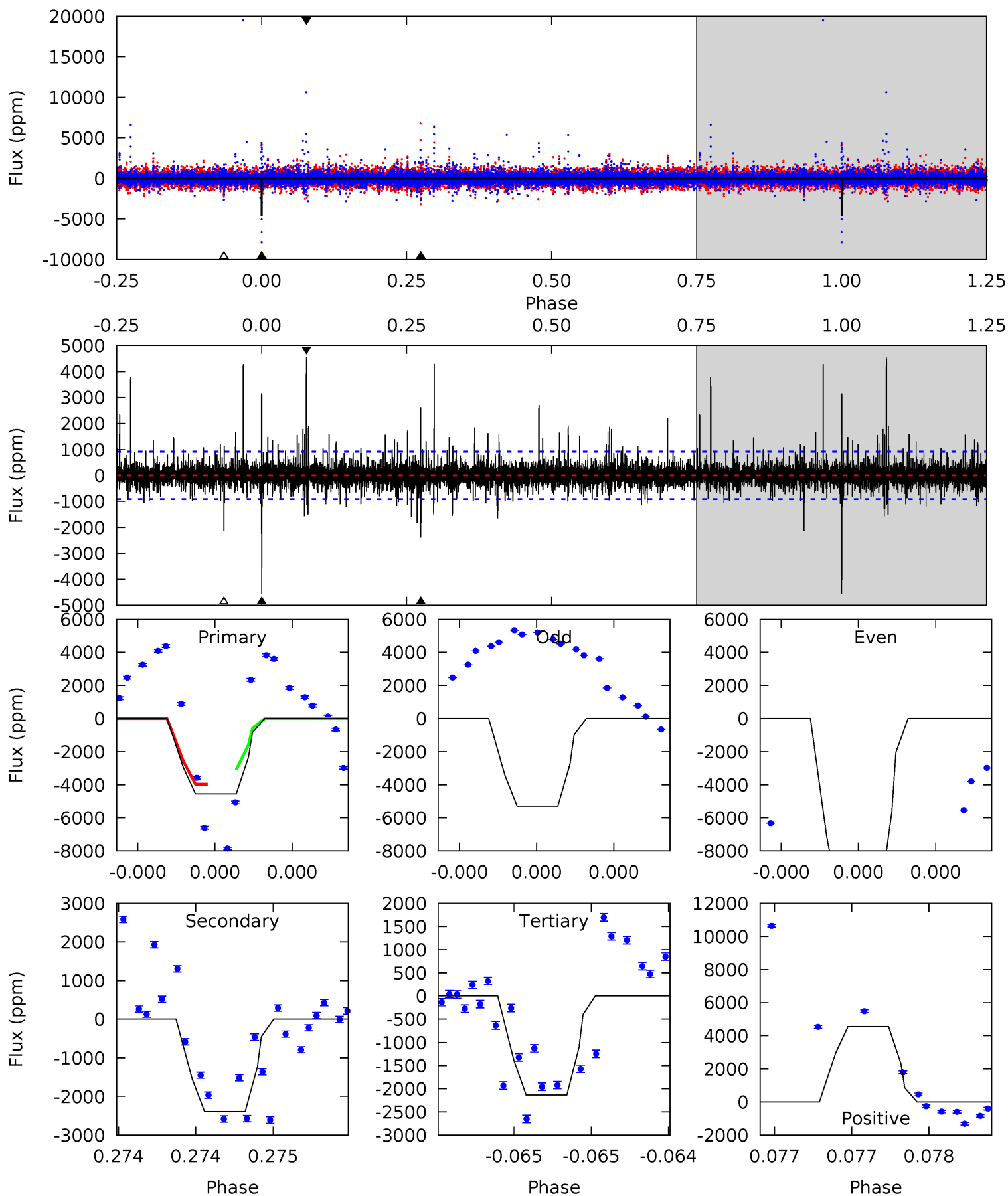
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

005822633-04, P = 385.240718 Days, E = 317.898881 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
28.0	14.7	13.2	28.0	5.64	3.59	1.59	14.9	0.02	1.54	-13.3	10.1	0.50	0.50	0





### Stellar Parameters For KIC 005822633

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6418^{+181}_{-227}$	$3.994^{+0.319}_{-0.147}$	$-0.140^{+0.250}_{-0.300}$	$1.897^{+0.543}_{-0.664}$	$1.296^{+0.182}_{-0.251}$	$0.267^{+0.677}_{-0.124}$
	+3%/-4%	+8%/-4%	+179%/-214%	+29%/-35%	+14%/-19%	+253%/-46%
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 005822633-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$15.26^{+17.44}_{-10.39}$	$504^{+37}_{-46}$	$4939^{+21996}_{-25566}$	$6388^{+520462}_{-372070}$
Alt.	$-2389 \pm 162$	$18.98^{+19.30}_{-12.49}$	$504^{+38}_{-49}$	$4697^{+3255}_{-1037}$	$4560^{+34823}_{-3410}$

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

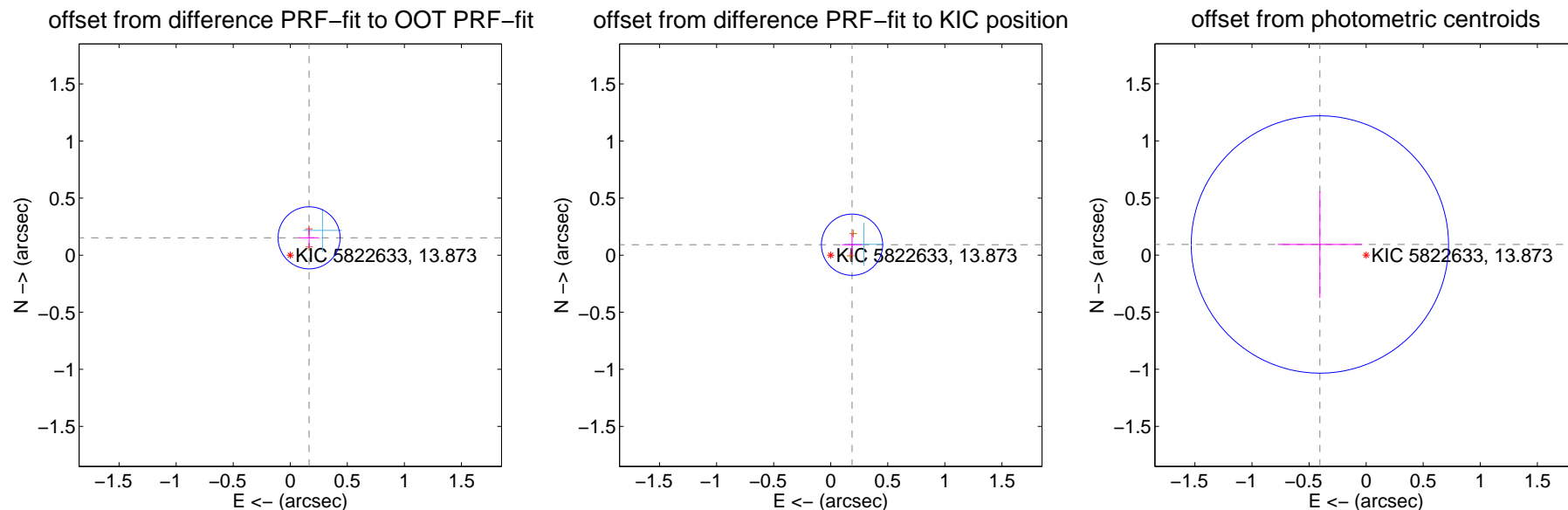
## DV Centroid Data

Supplemental centroid analysis for 005822633-04. Kepler magnitude: 13.87. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

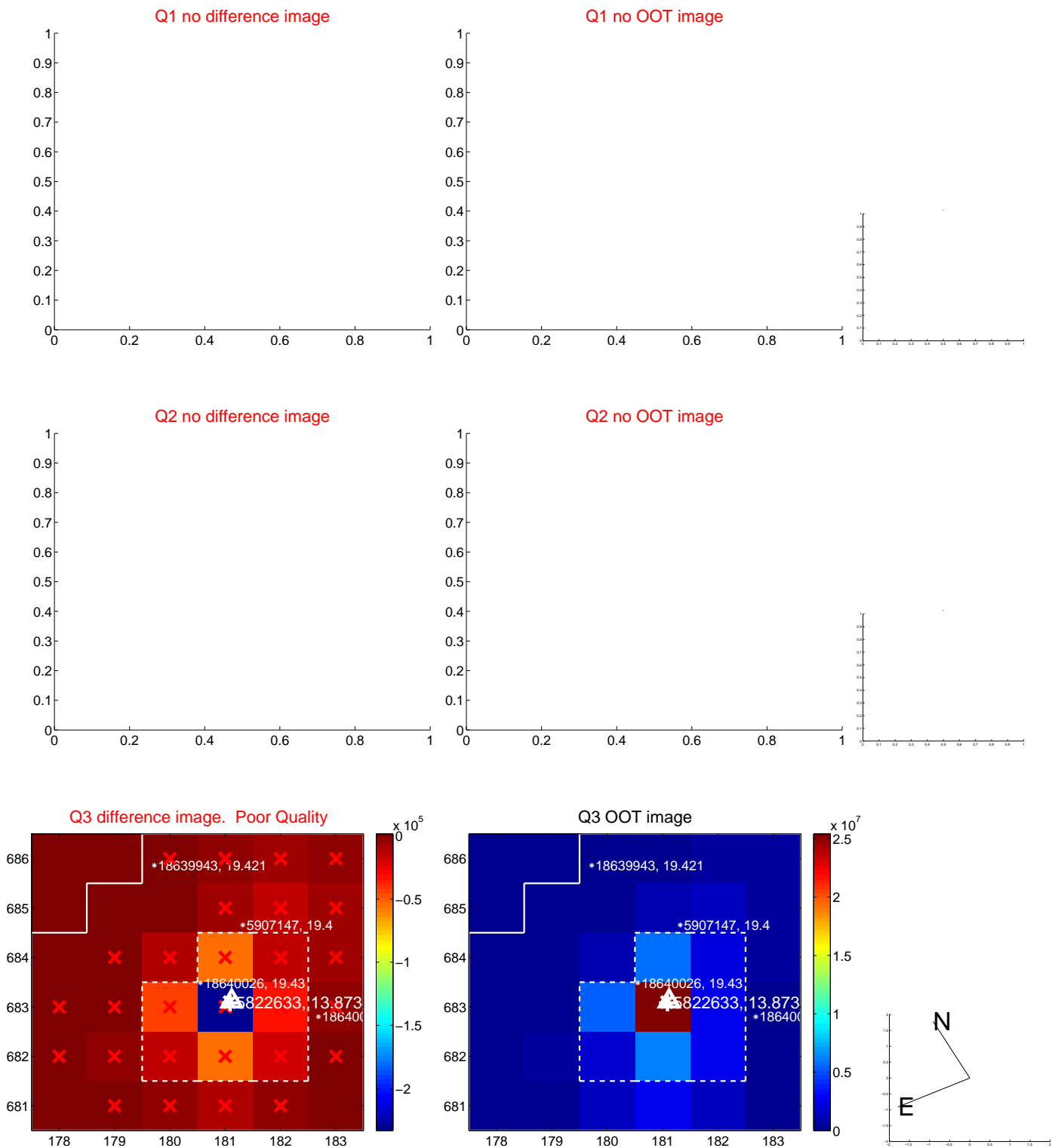
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.224 \pm 0.091$	2.47	$-0.165 \pm 0.089$	$0.152 \pm 0.093$
PRF-fit source offset from KIC position	$0.208 \pm 0.089$	2.33	$-0.187 \pm 0.089$	$0.091 \pm 0.093$
photometric centroid source offset	$0.42 \pm 0.38$	1.11	$0.41 \pm 0.37$	$0.09 \pm 0.47$

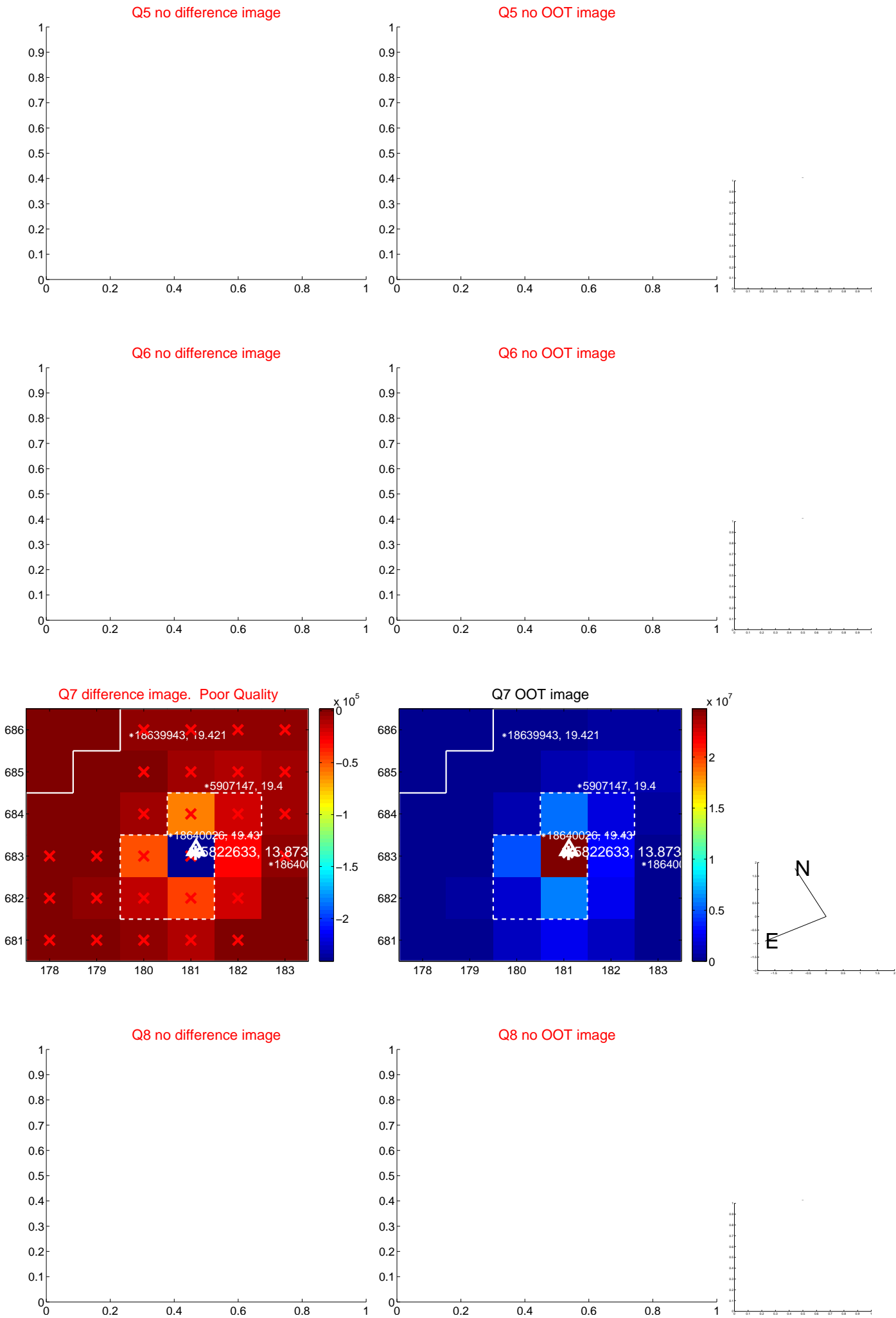


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

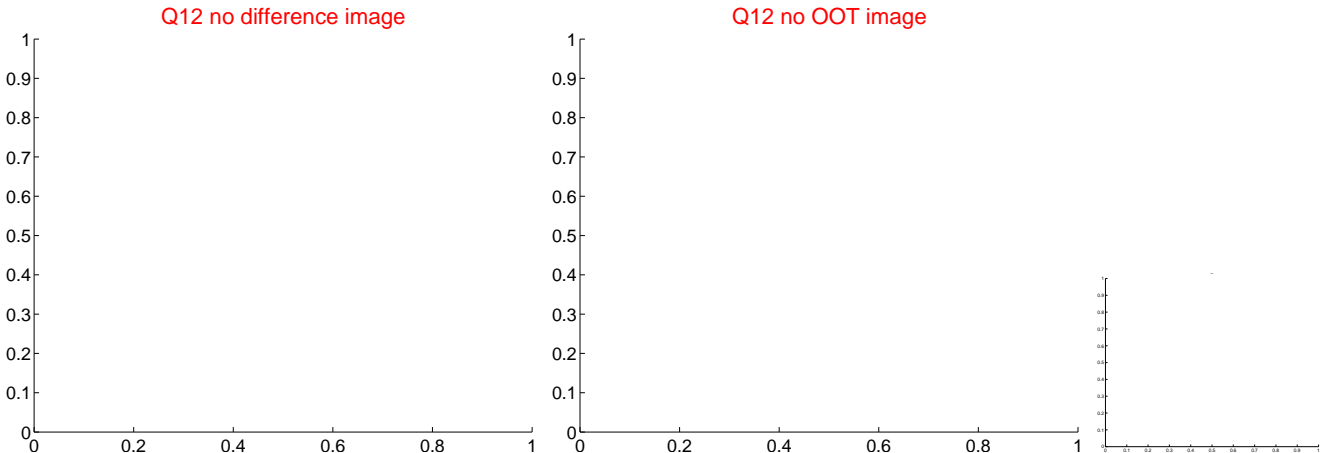
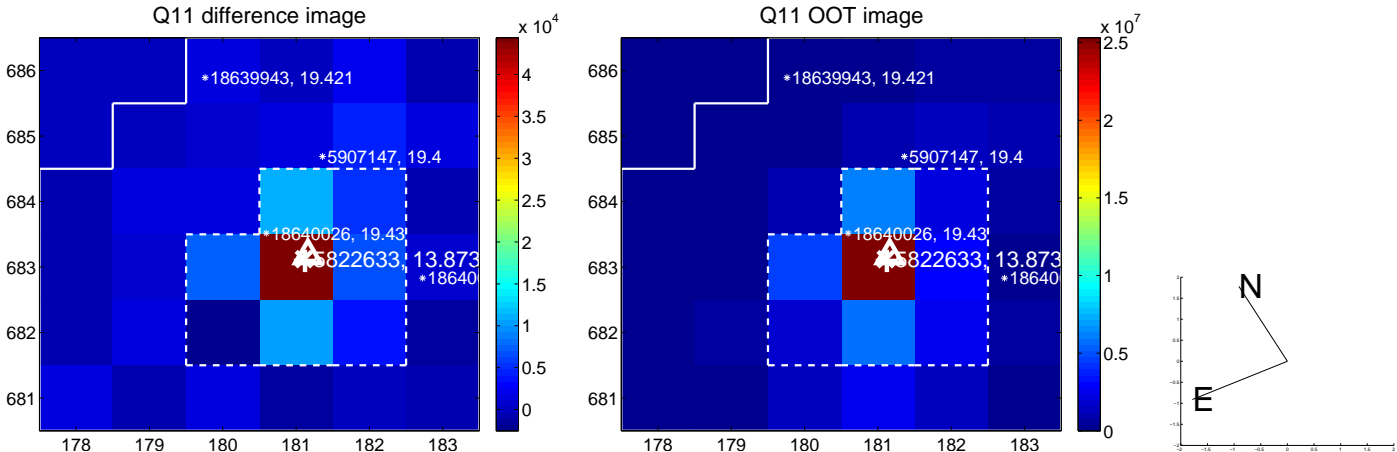
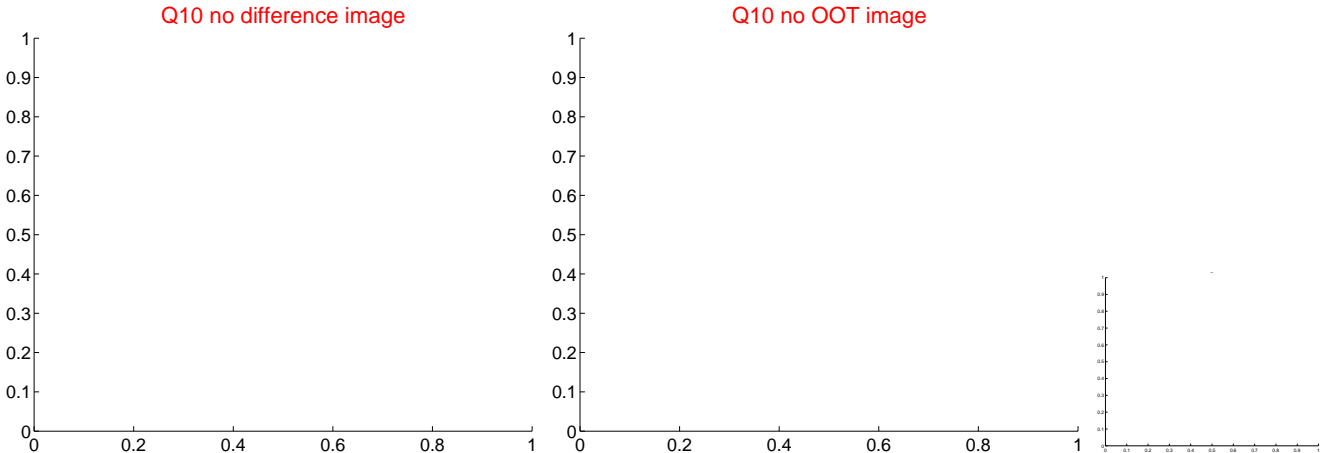
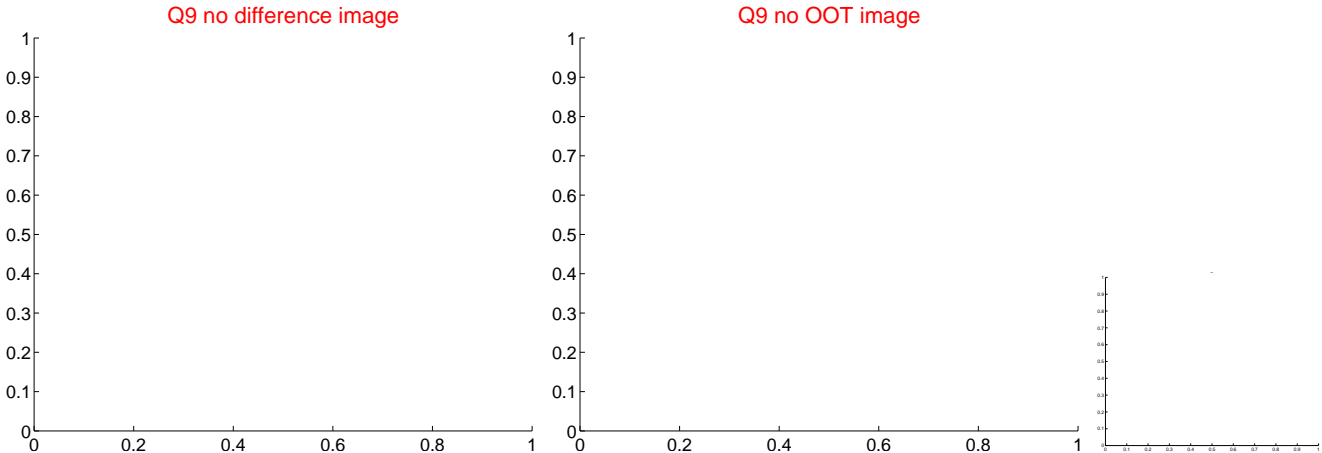
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



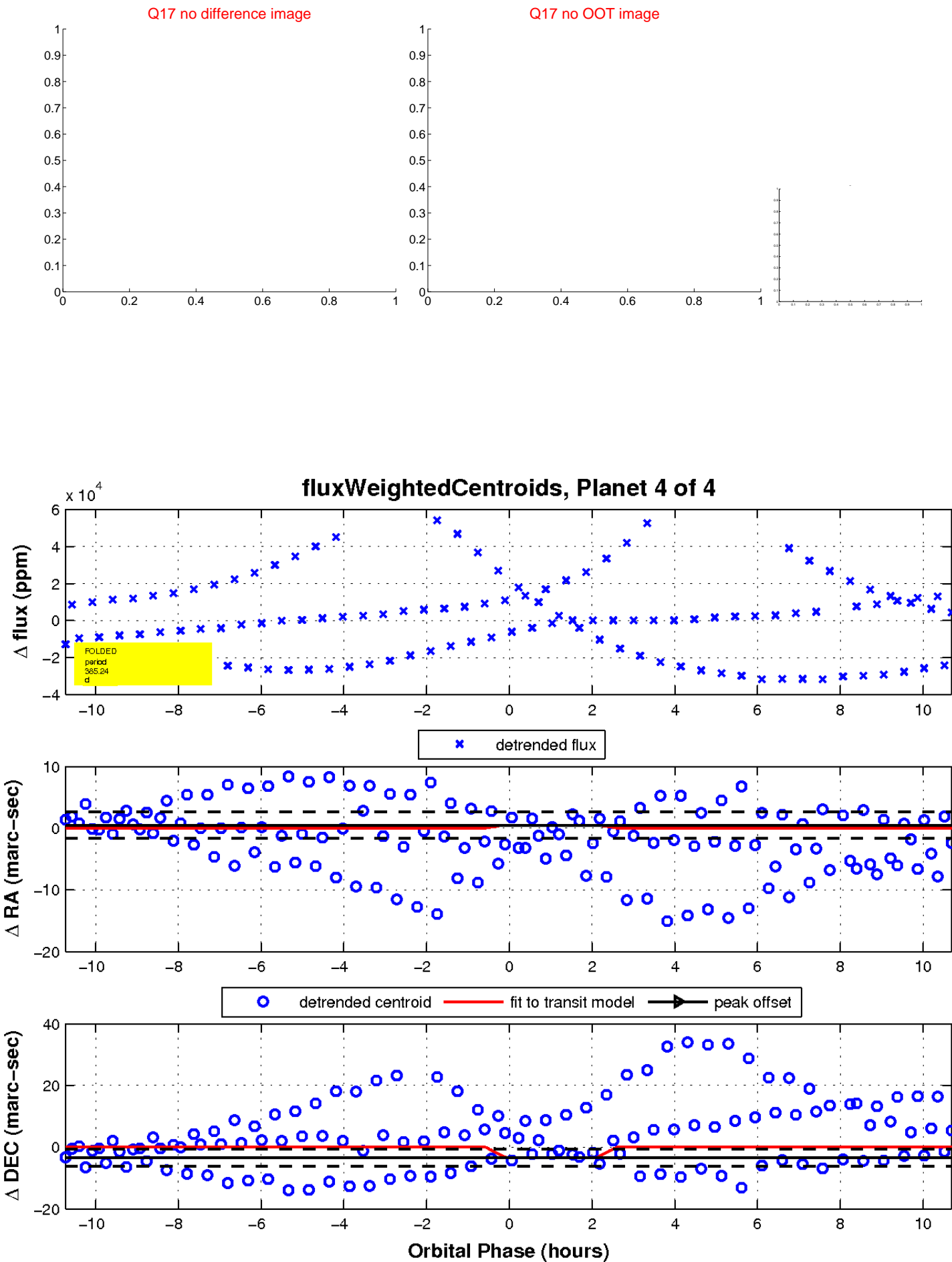
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

