

# KIC 008807085

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008807085-02	OBS	No	236.640882	252.347132	2255.8	7.692	13.7	6.4	0.40	3563	1.87	0.07
008807085-03	OBS	No	585.835696	370.580063	3769.9	5.050	14.5	8.4	0.40	3563	2.98	0.02
008807085-04	OBS	No	381.746353	422.233335	3070.3	3.647	13.8	7.5	0.40	3563	2.34	0.04
008807085-05	OBS	No	350.708177	288.617775	3913.2	23.323	11.5	7.4	0.40	3563	3.07	0.04
008807085-06	OBS	No	628.360433	237.237129	2418.3	4.535	10.8	6.7	0.40	3563	1.93	0.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008807085-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008807085-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008807085-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008807085-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008807085-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

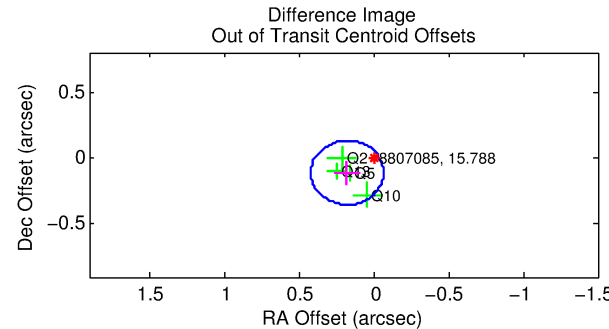
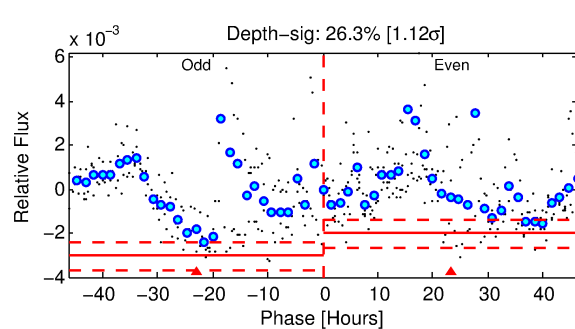
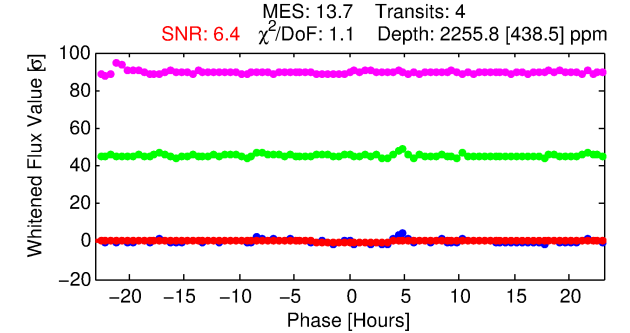
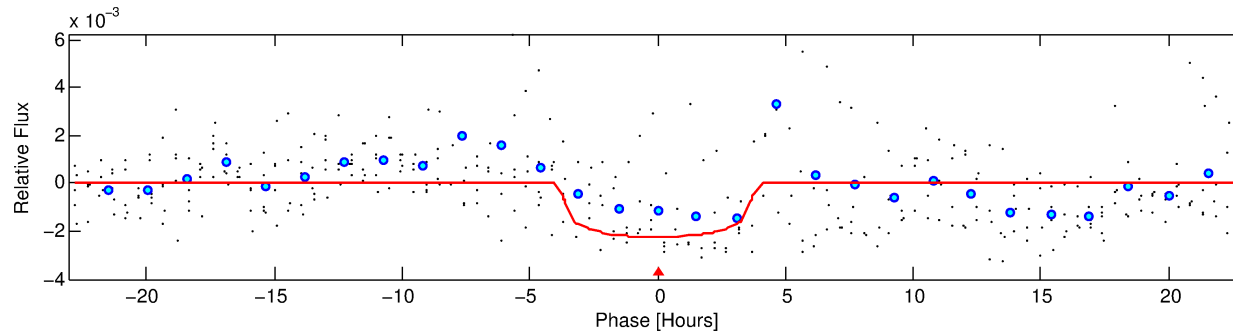
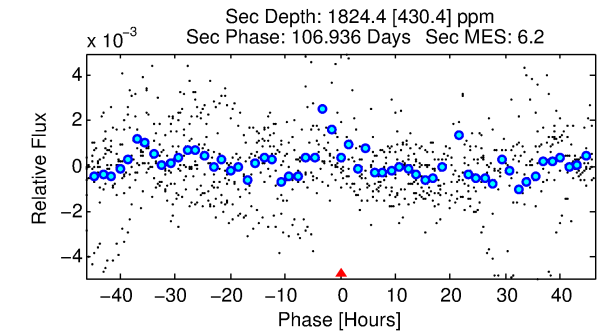
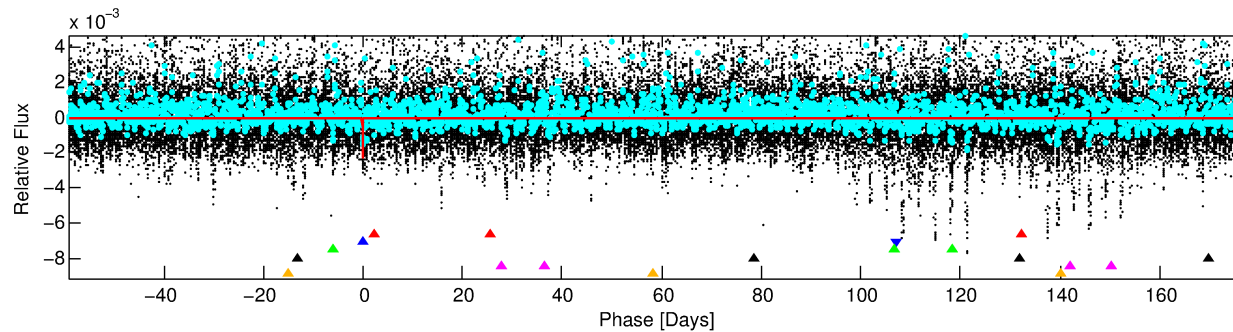
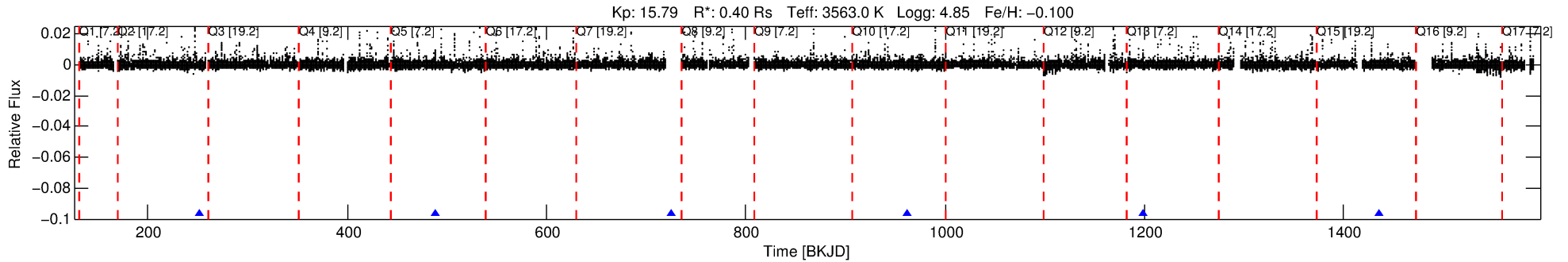
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008807085-02

No Significant Match Found

# DV One-Page Summary

KIC: 8807085 Candidate: 2 of 6 Period: 236.641 d



## DV Fit Results:

Period = 236.64088 [0.00324] d  
Epoch = 252.3471 [0.0091] BKJD  
Rp/R\* = 0.0430 [0.1466]  
a/R\* = 245.11 [3643.97]  
b = 0.01 [1837.83]  
Seff = 0.07 [0.01]  
Teq = 133 [6] K  
Rp = 1.87 [6.37] Re  
a = 0.5572 [0.0644] AU  
Ag = 89450.68 [610748.91] [0.15σ]  
Teffp = 3552 [6063] K [0.56σ]

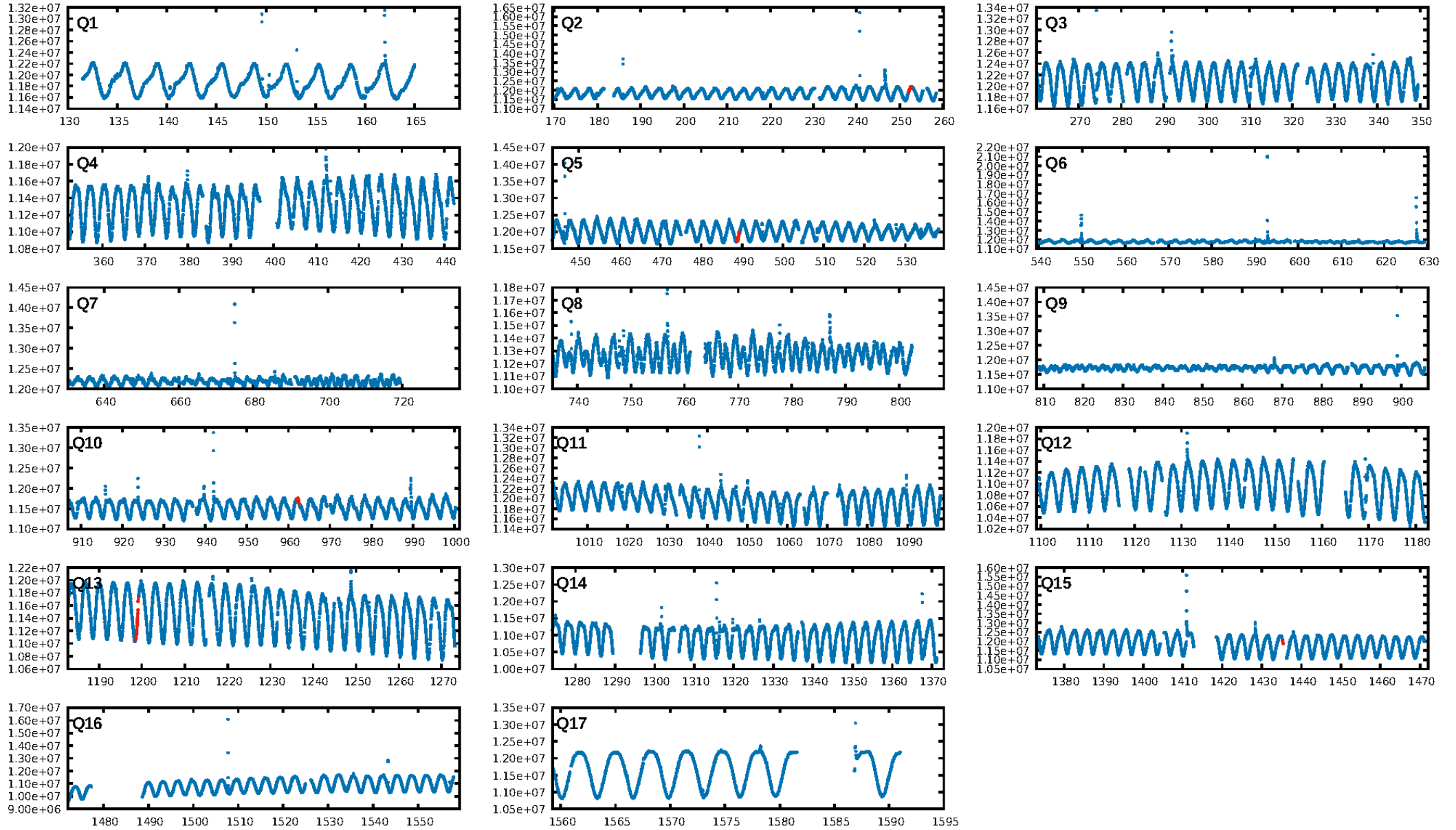
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [111.47σ]  
ModelChiSquare2-sig: 0.7%  
ModelChiSquareGof-sig: 97.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.001274  
Centroid-sig: 55.6%  
Centroid-so: 0.913 arcsec [0.54σ]  
OotOffset-rm: 0.208 arcsec [2.57σ]  
KicOffset-rm: 0.043 arcsec [0.41σ]  
OotOffset-st: 2/0/0/2 [4]  
KicOffset-st: 2/0/0/2 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 1.00 [4/4]

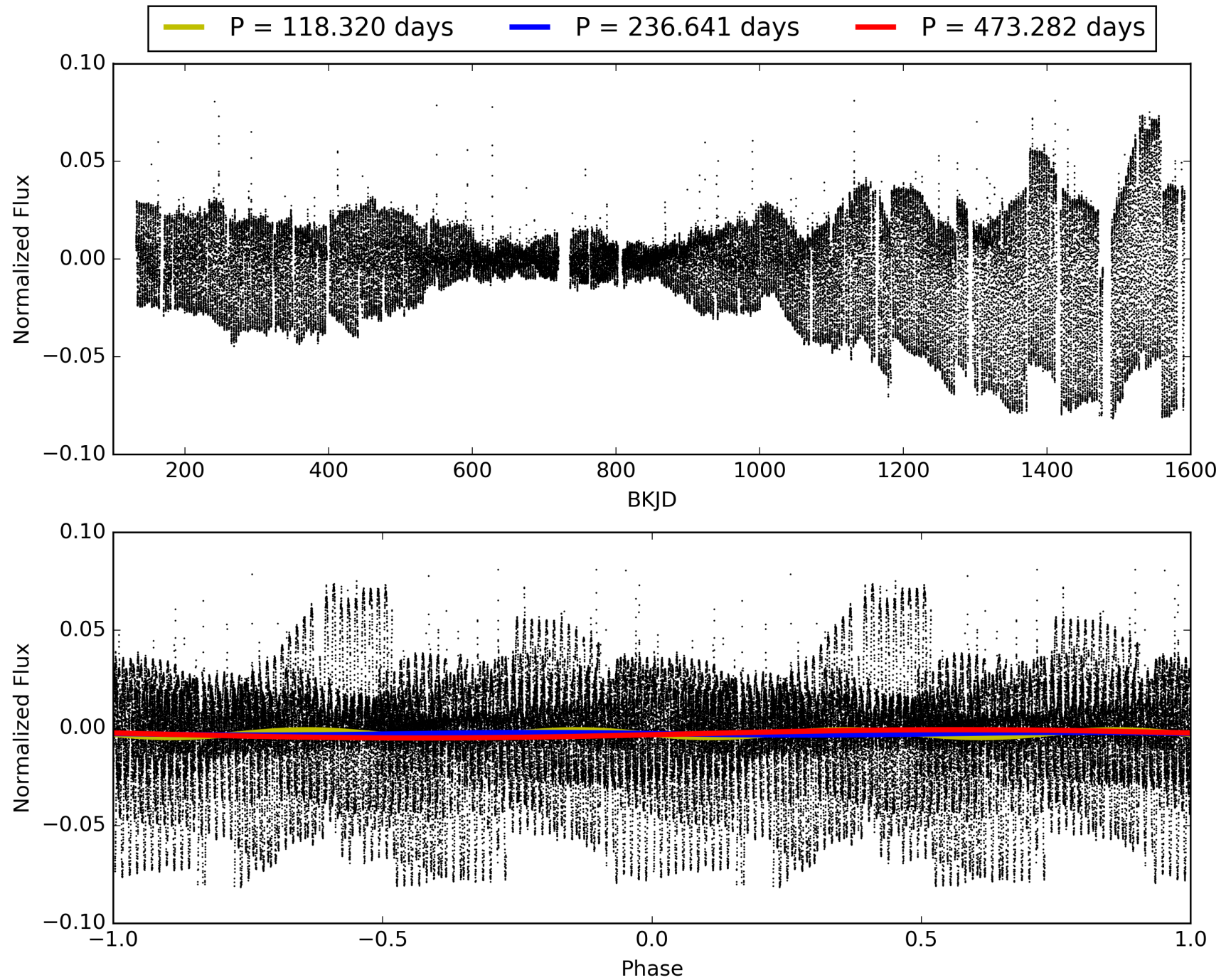
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:08:32 Z

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

# TCE 008807085-02, PDC Light Curves



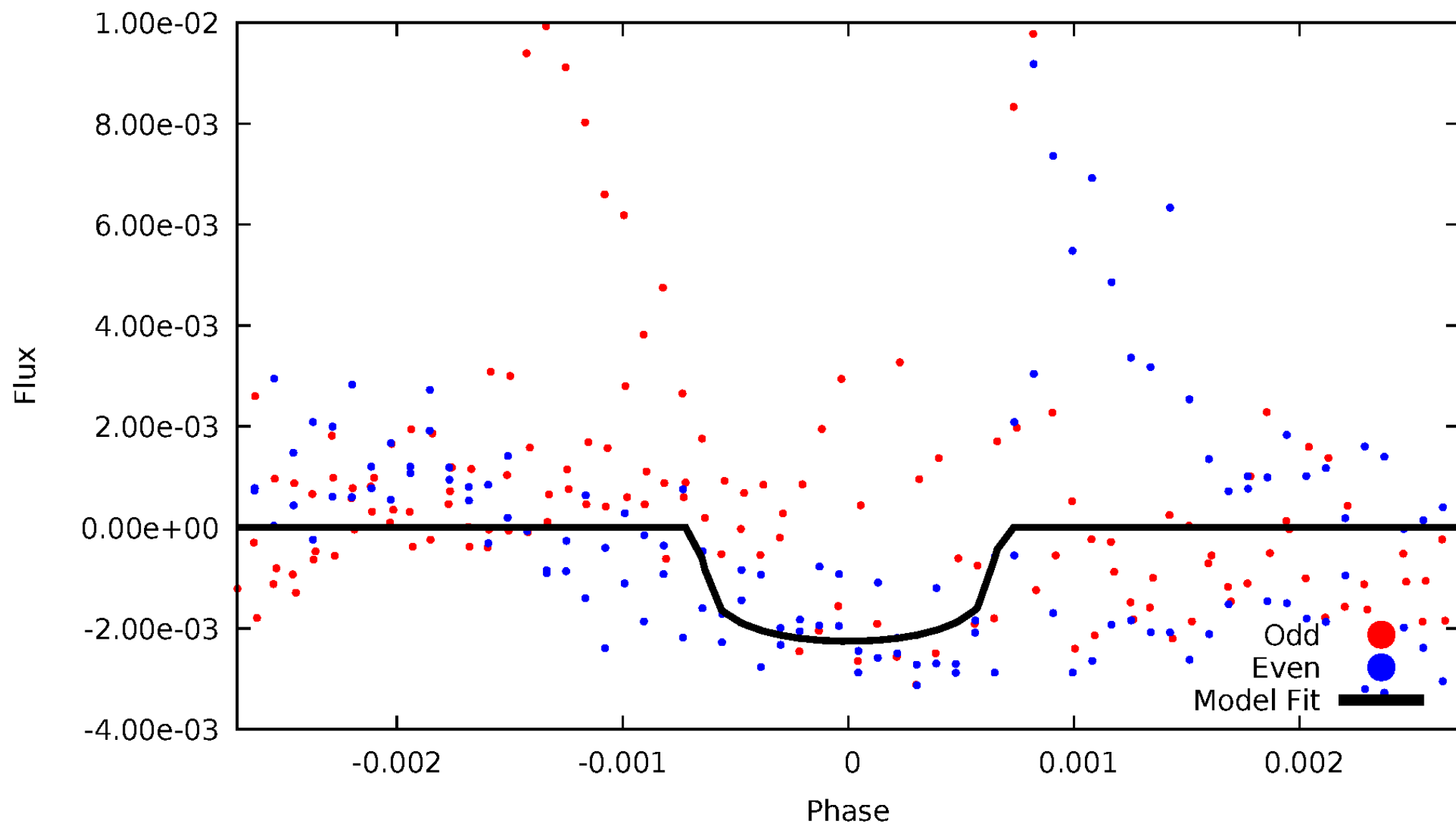
TCE 008807085-02





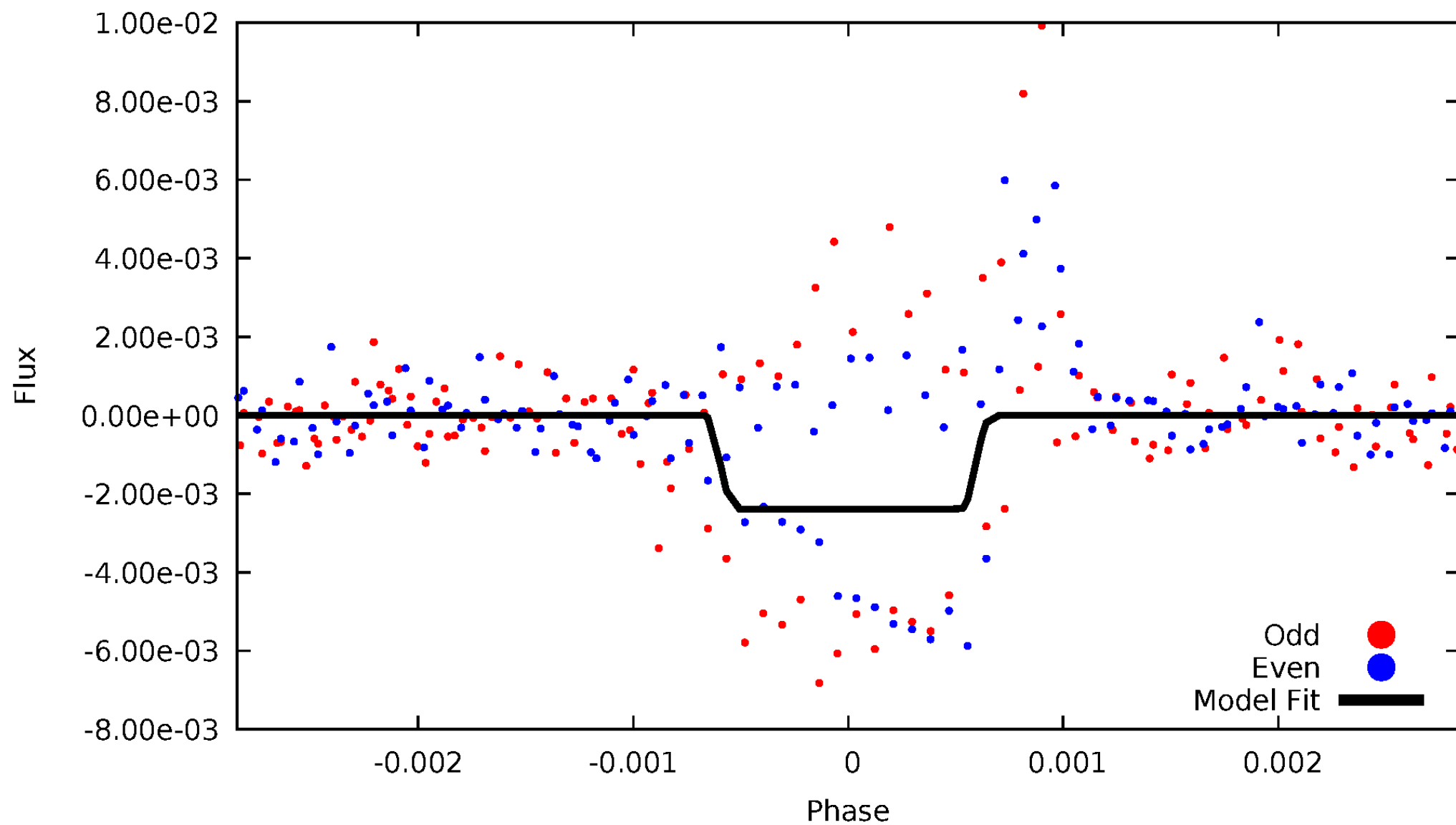
# DV Odd/Even

TCE 008807085-02



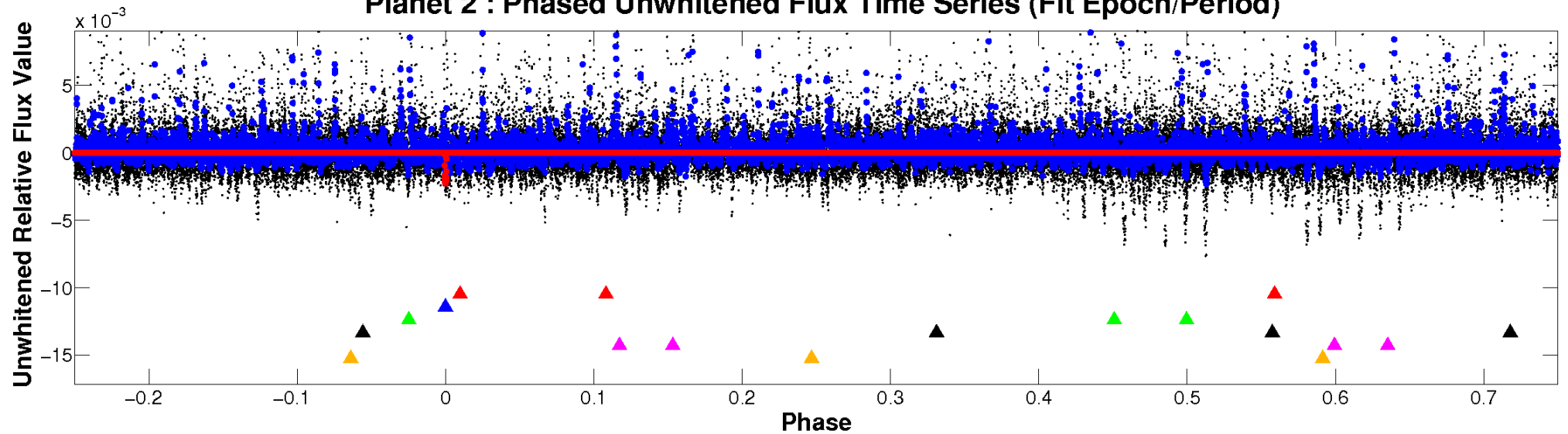
# ALT Odd/Even

TCE 008807085-02

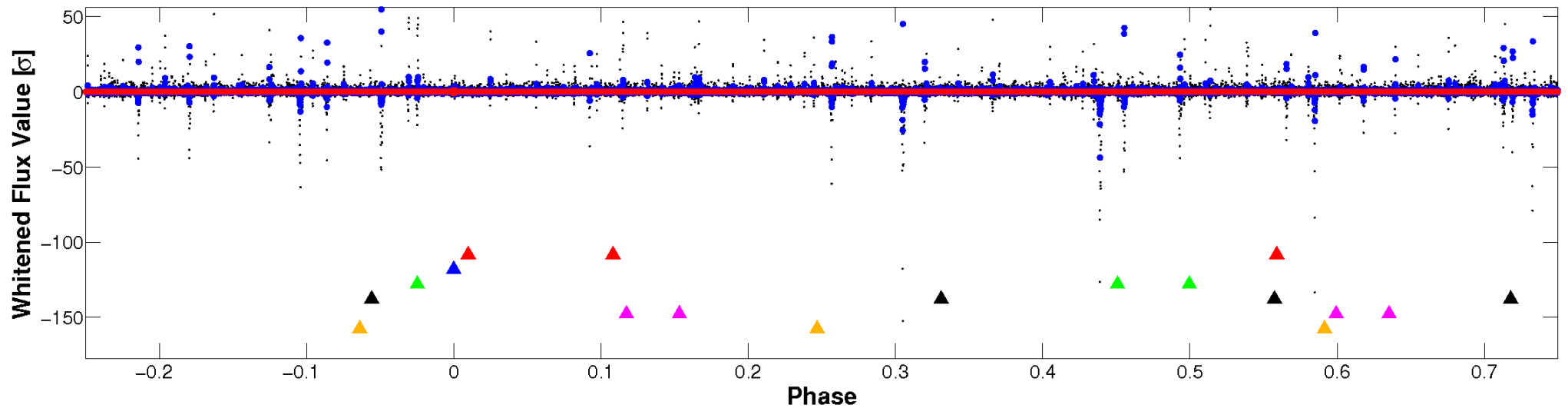


# Non-Whitened Vs. Whitened Light Curve

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

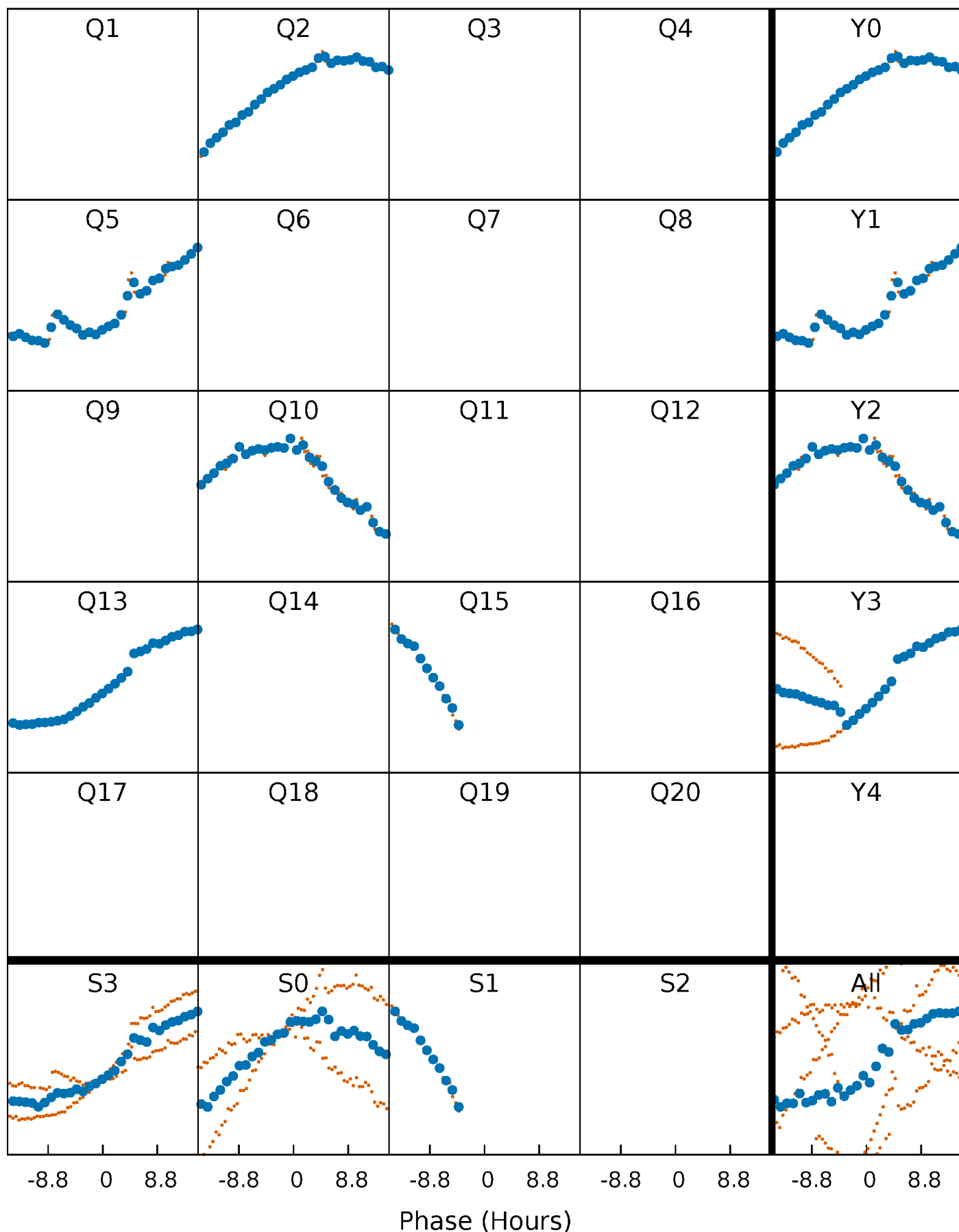


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



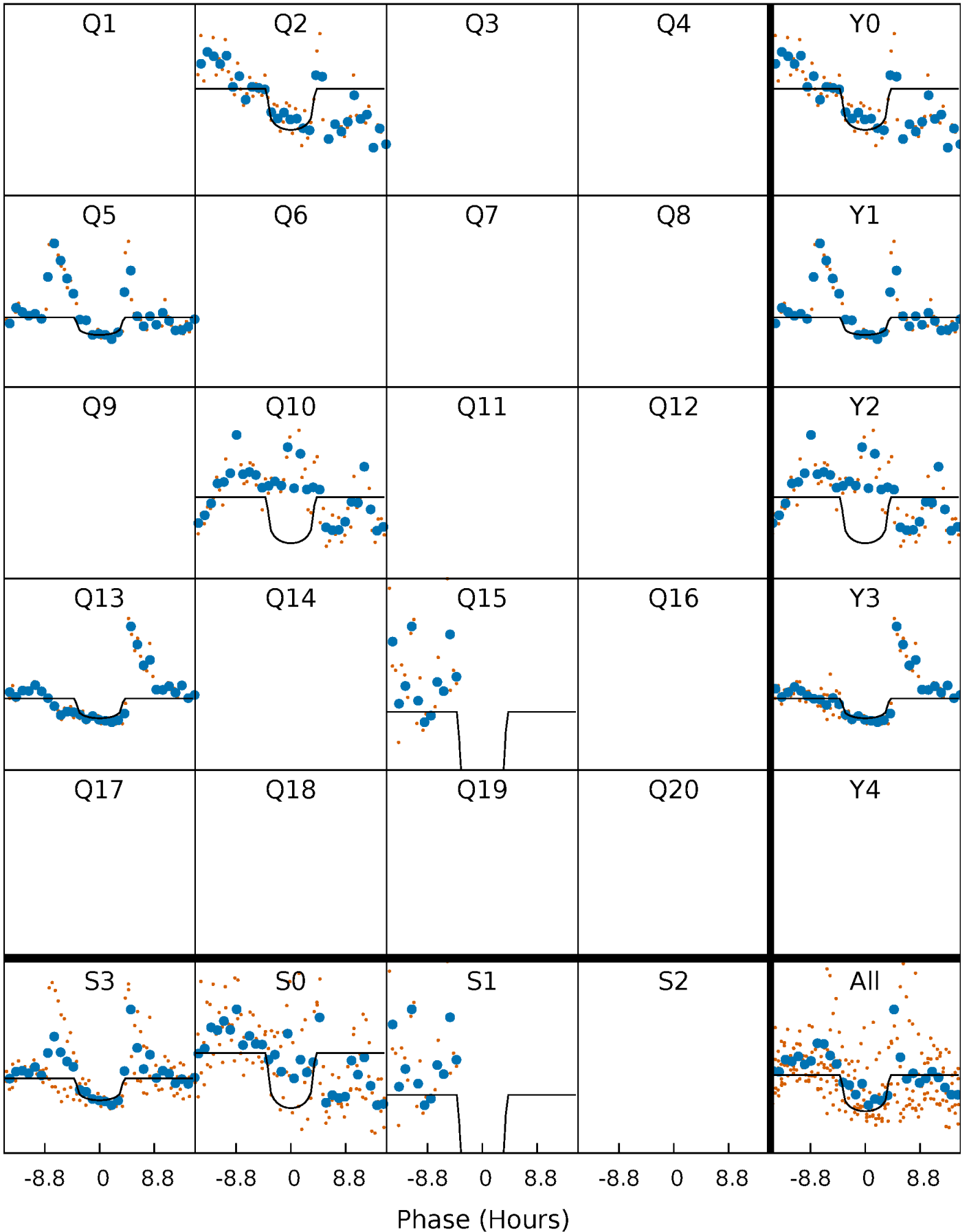
# PDC Quarter-Phased Transit Curves

TCE 008807085-02 P=236.640882 Days  $T_0=252.347132$  (BKJD)



# DV Quarter-Phased Transit Curves

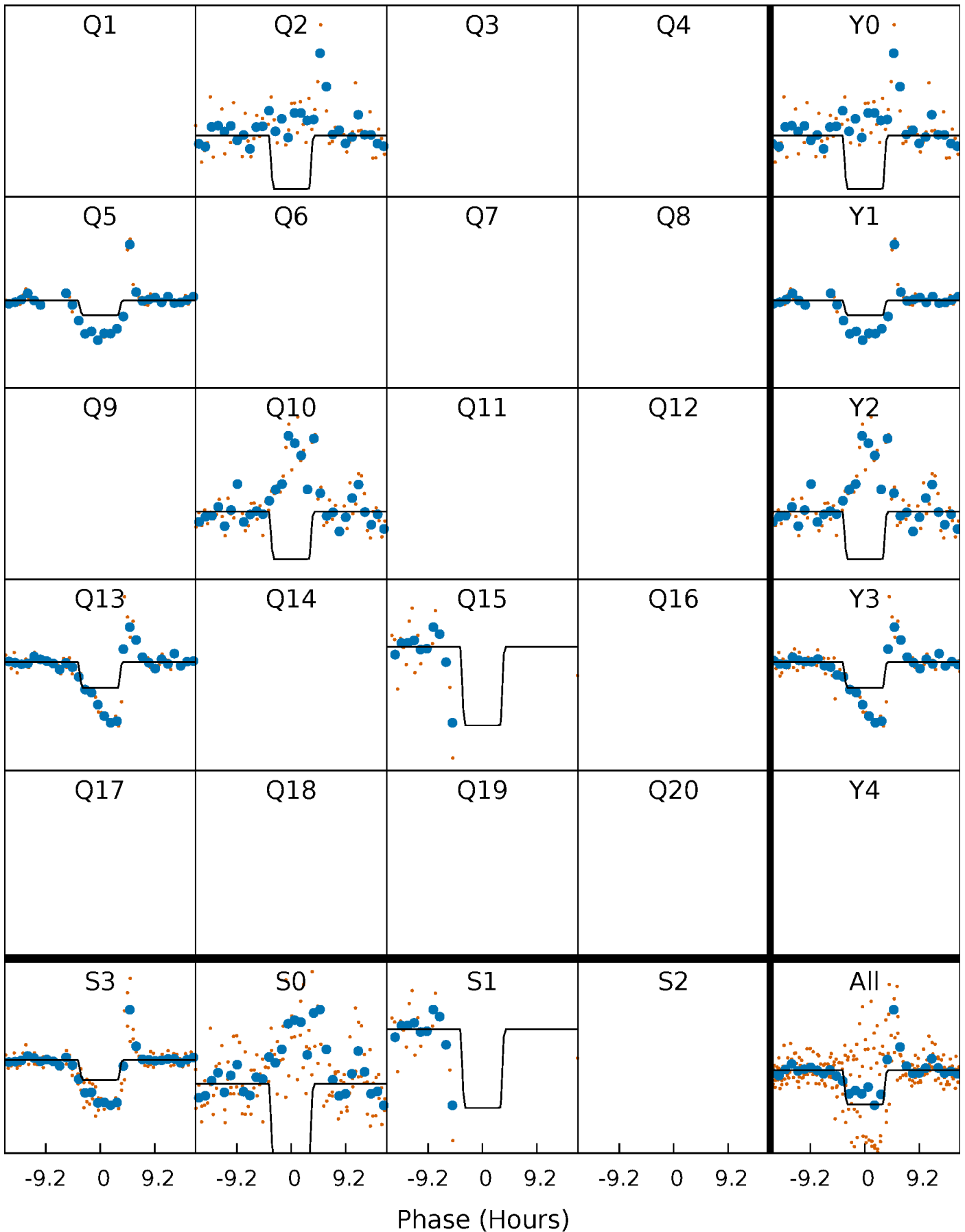
TCE 008807085-02 P=236.640882 Days  $T_0=252.347132$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

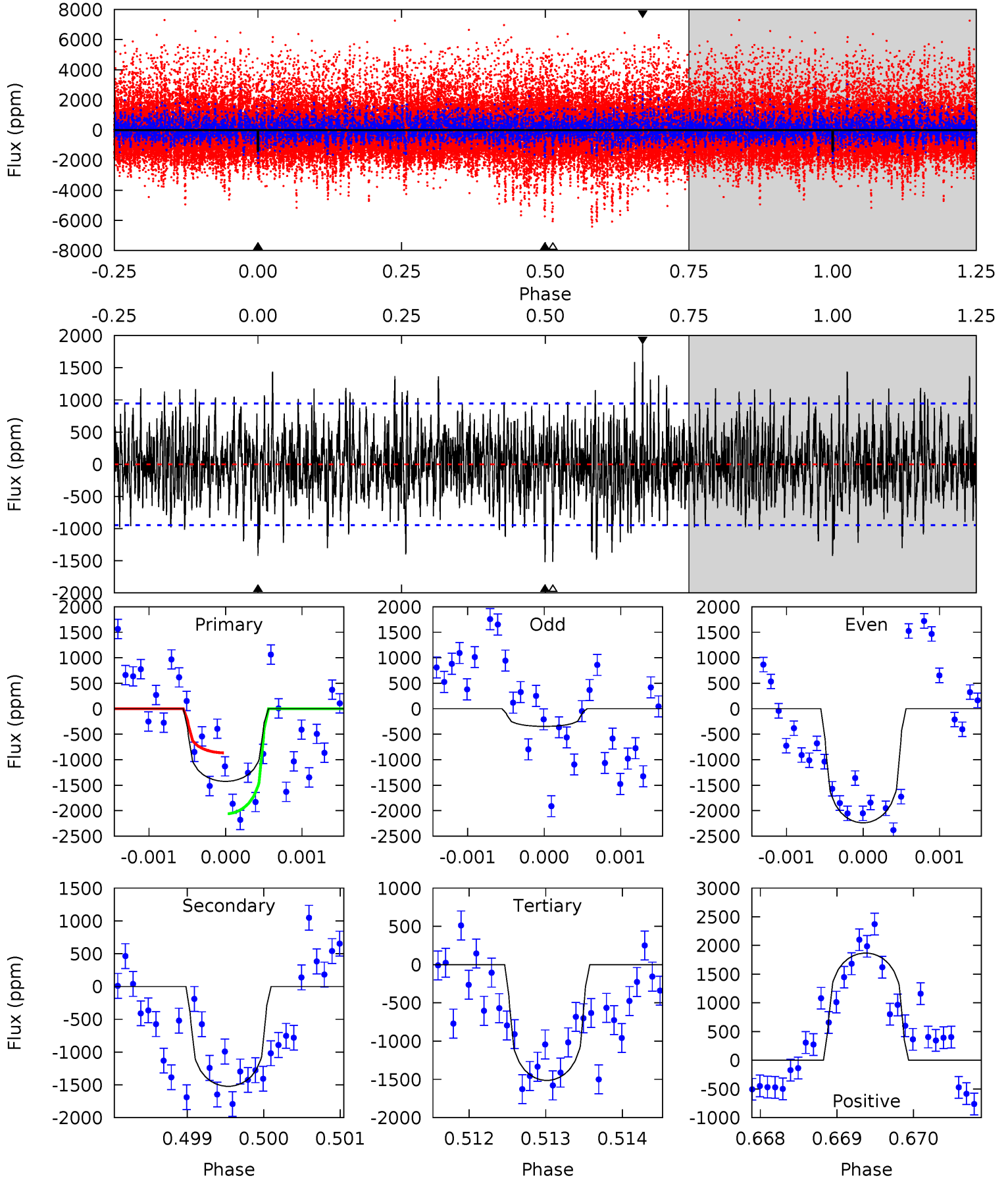
TCE 008807085-02     $P=236.654681$  Days     $T_0=252.314046$  (BKJD)



# DV Model-Shift Uniqueness Test

008807085-02, P = 236.640882 Days, E = 15.706250 Days

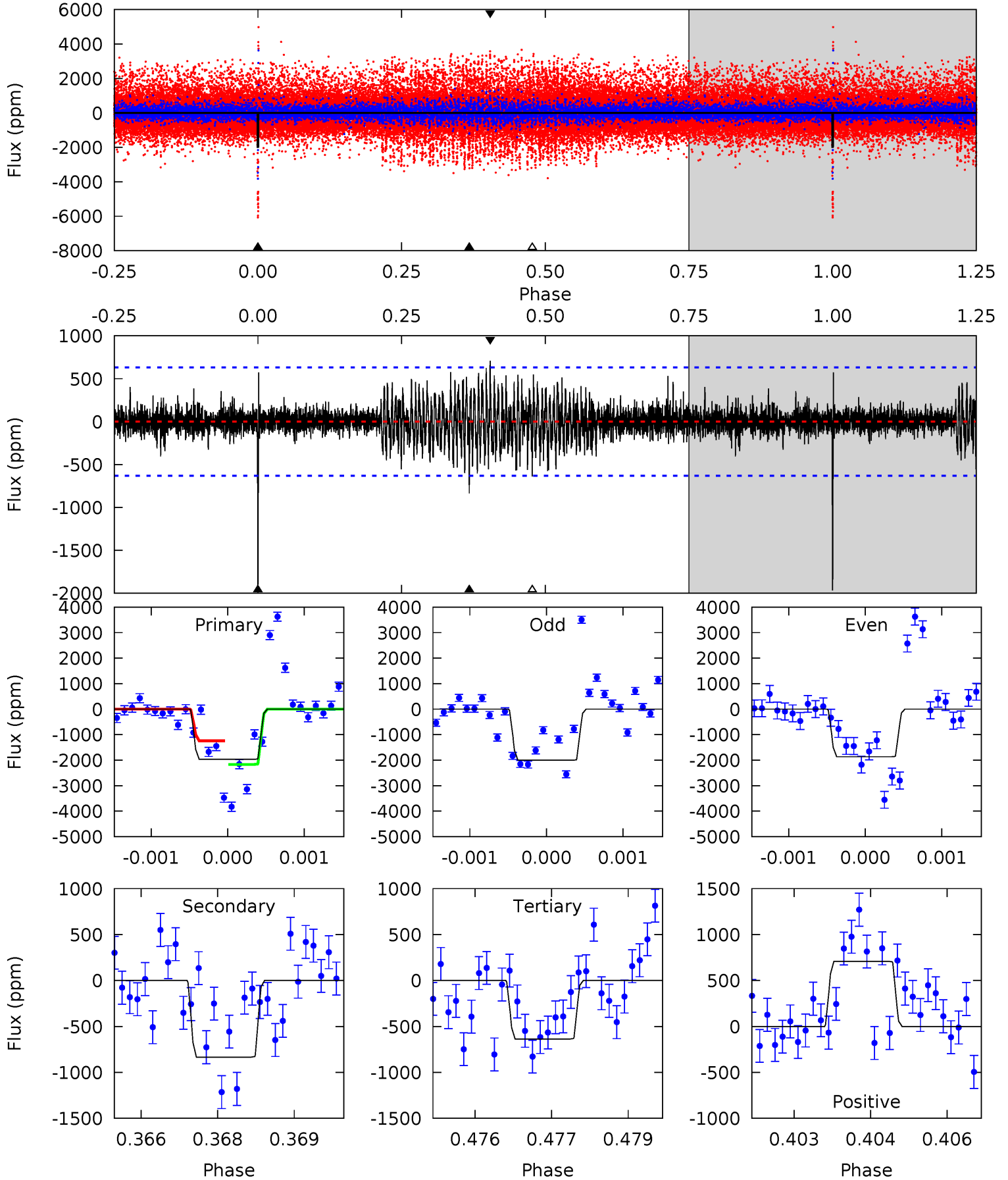
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.14	8.70	8.65	10.7	5.40	3.21	2.47	-0.50	-2.53	0.05	-1.97	5.08	0.69	0.55	3.44



# Alt Model-Shift Uniqueness Test

008807085-02, P = 236.654681 Days, E = 15.659365 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
16.8	7.13	5.45	6.05	5.40	3.20	1.32	11.4	10.8	1.69	1.08	0.60	0.94	0.26	3.94



### Stellar Parameters For KIC 008807085

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3563^{+89}_{-98}$	$4.853^{+0.066}_{-0.049}$	$-0.100^{+0.100}_{-0.100}$	$0.398^{+0.050}_{-0.062}$	$0.414^{+0.048}_{-0.072}$	$9.224^{+3.437}_{-1.949}$
	+2%/-3%	+1%/-1%	+100%/-100%	+13%/-16%	+12%/-17%	+37%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008807085-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	-1521±175	$5.11^{+5.31}_{-3.46}$	$185^{+7}_{-7}$	$2590^{+984}_{-385}$	$10268^{+84572}_{-7875}$
Alt.	-834±117	$5.09^{+4.97}_{-3.51}$	$185^{+7}_{-7}$	$2409^{+902}_{-334}$	$5512^{+53539}_{-4114}$

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

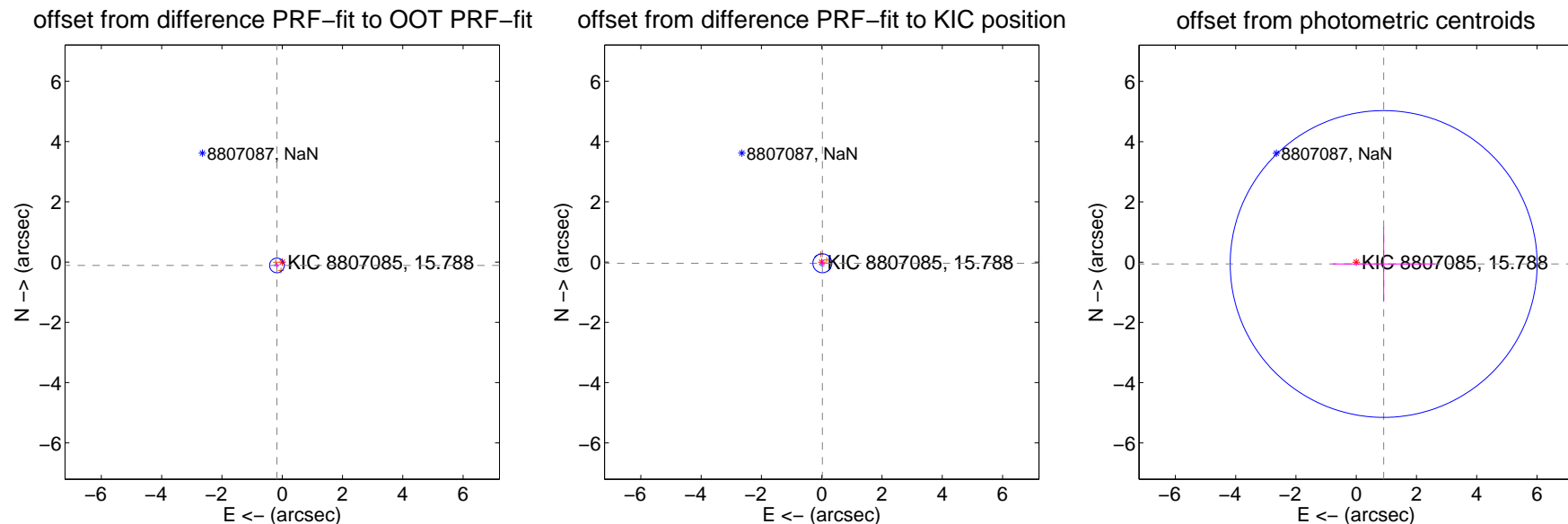
## DV Centroid Data

Supplemental centroid analysis for 008807085-02. Kepler magnitude: 15.79. Transit SNR 6.41

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

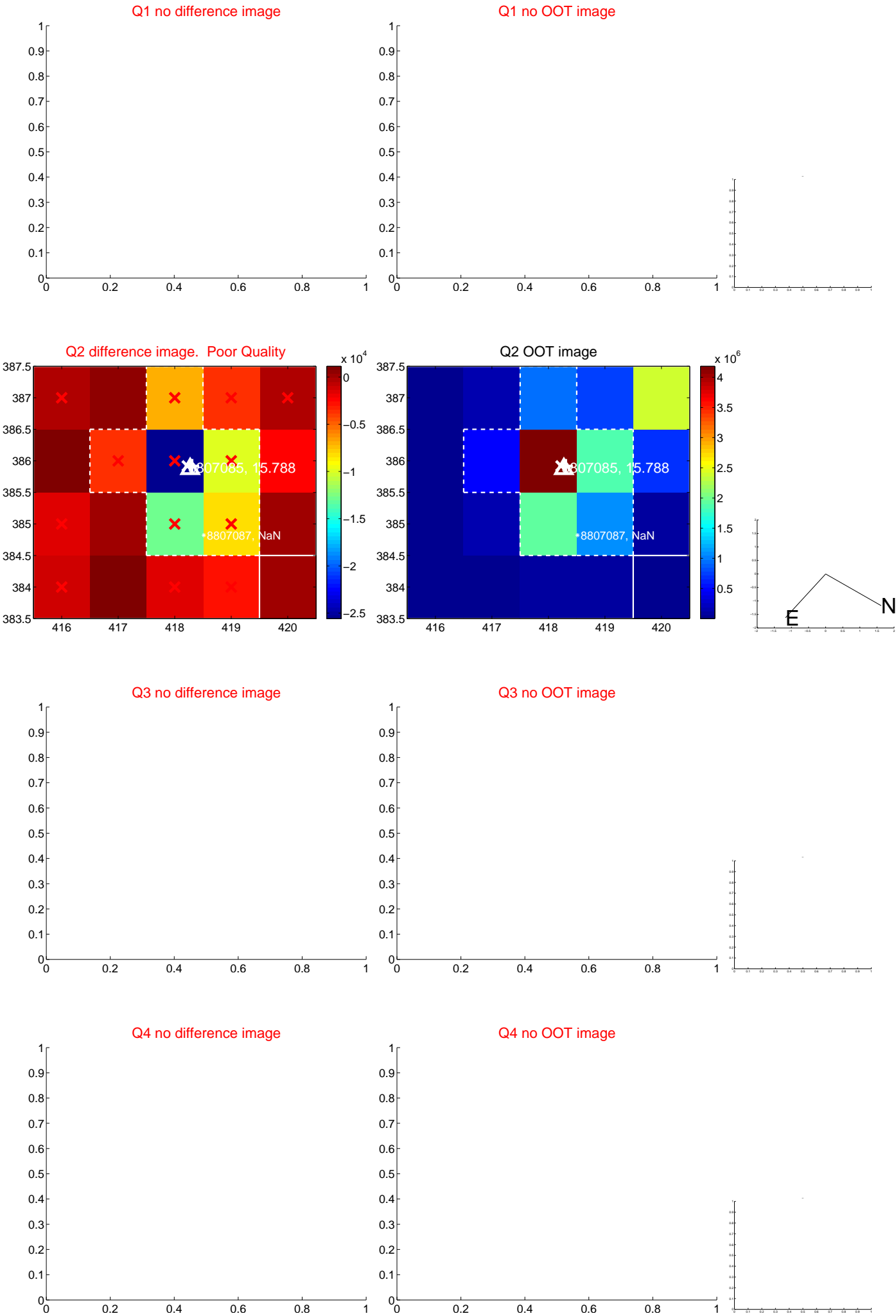
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.208 \pm 0.081$	2.57	$0.176 \pm 0.080$	$-0.111 \pm 0.084$
PRF-fit source offset from KIC position	$0.043 \pm 0.105$	0.41	$-0.021 \pm 0.080$	$-0.038 \pm 0.111$
photometric centroid source offset	$0.91 \pm 1.70$	0.54	$-0.91 \pm 1.70$	$-0.06 \pm 1.23$



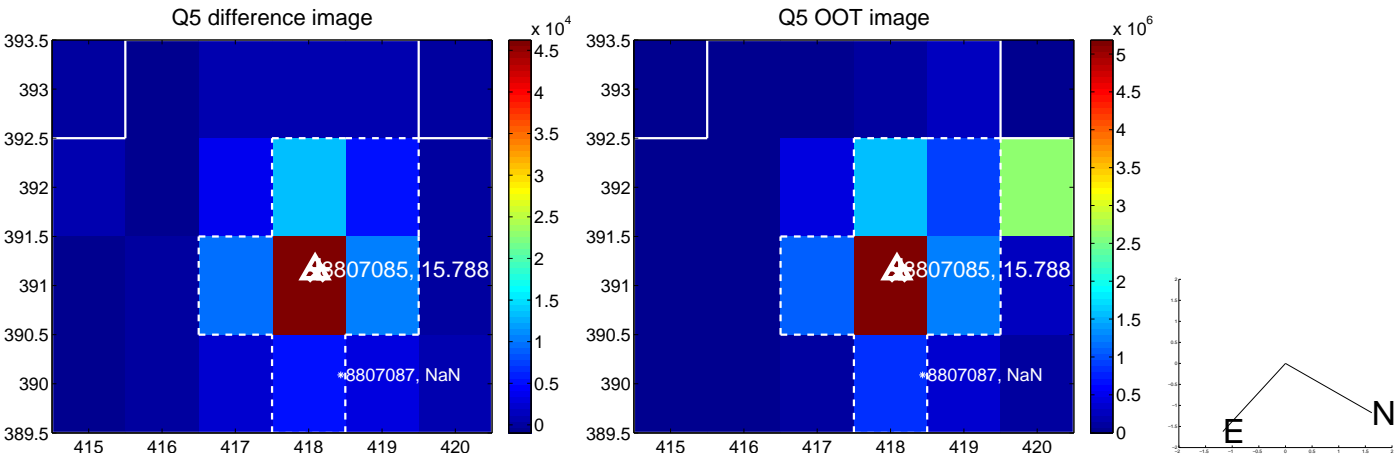
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



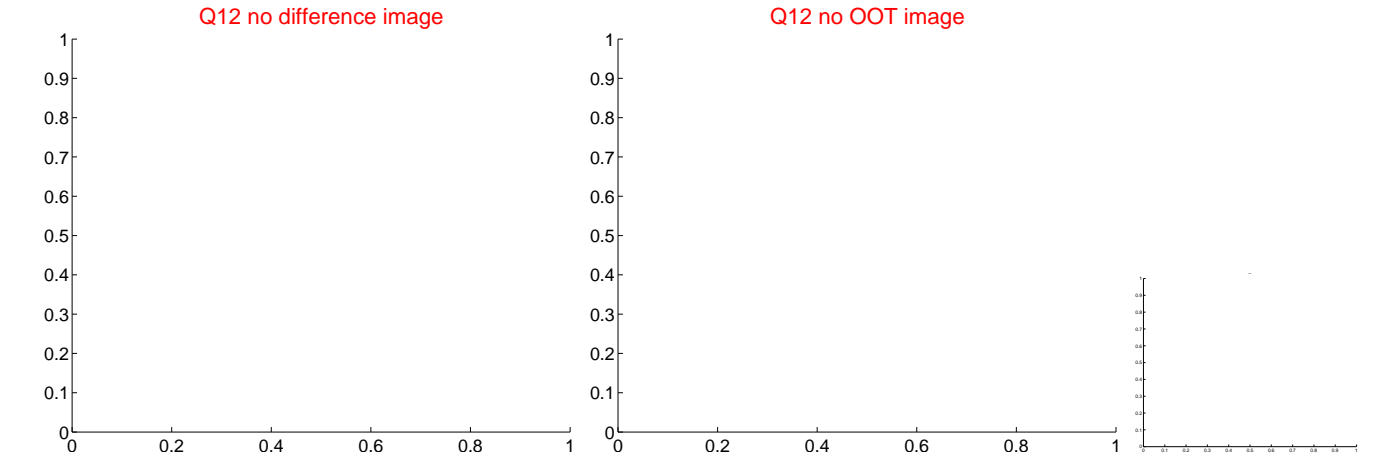
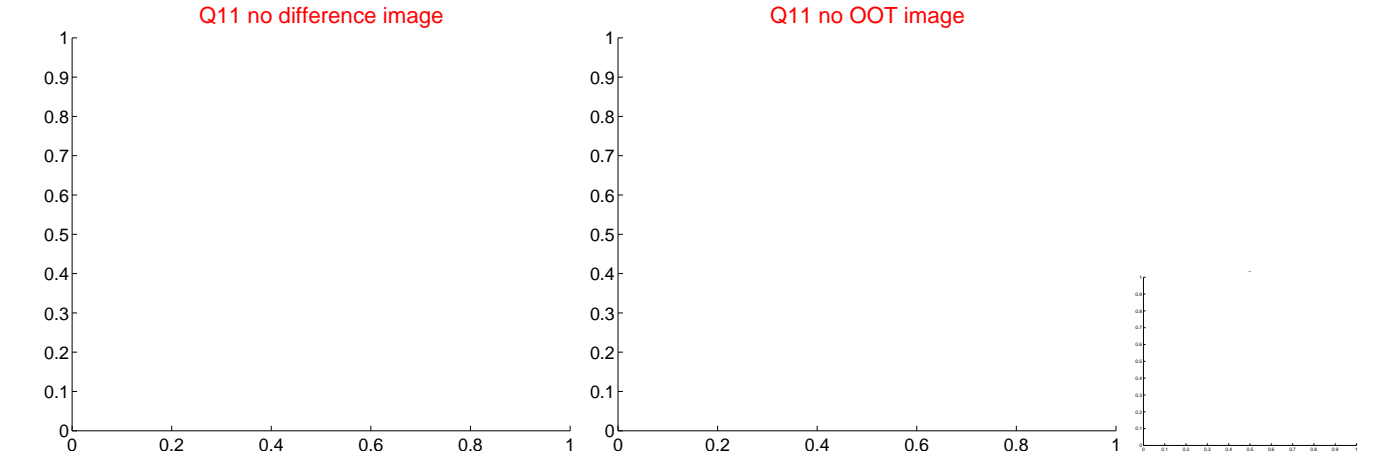
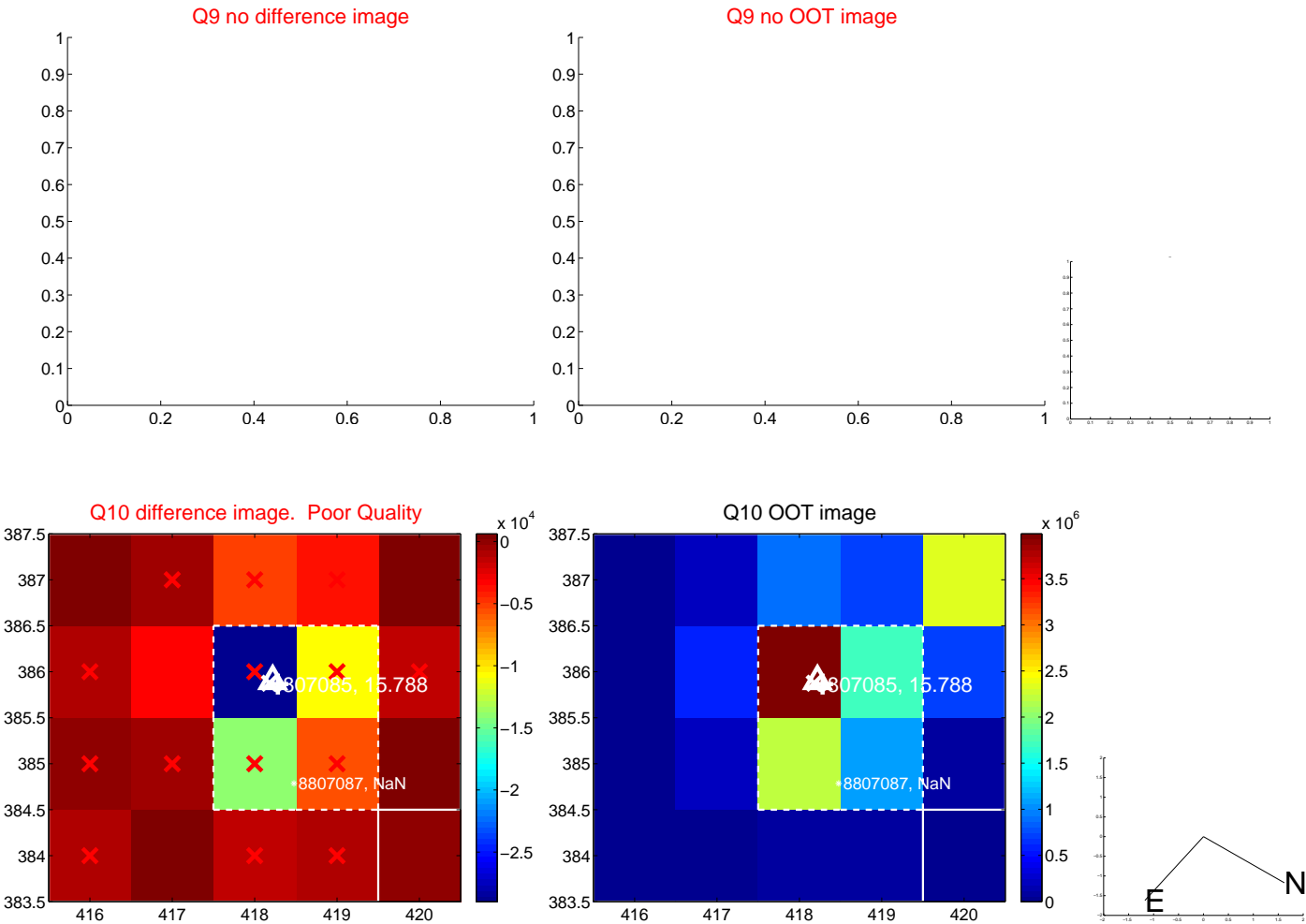
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



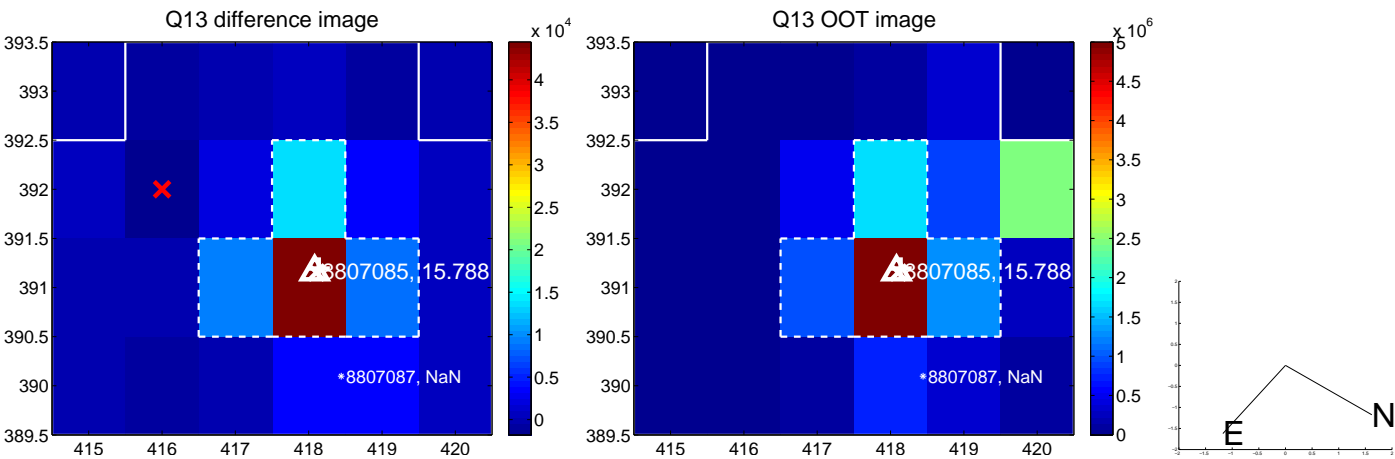
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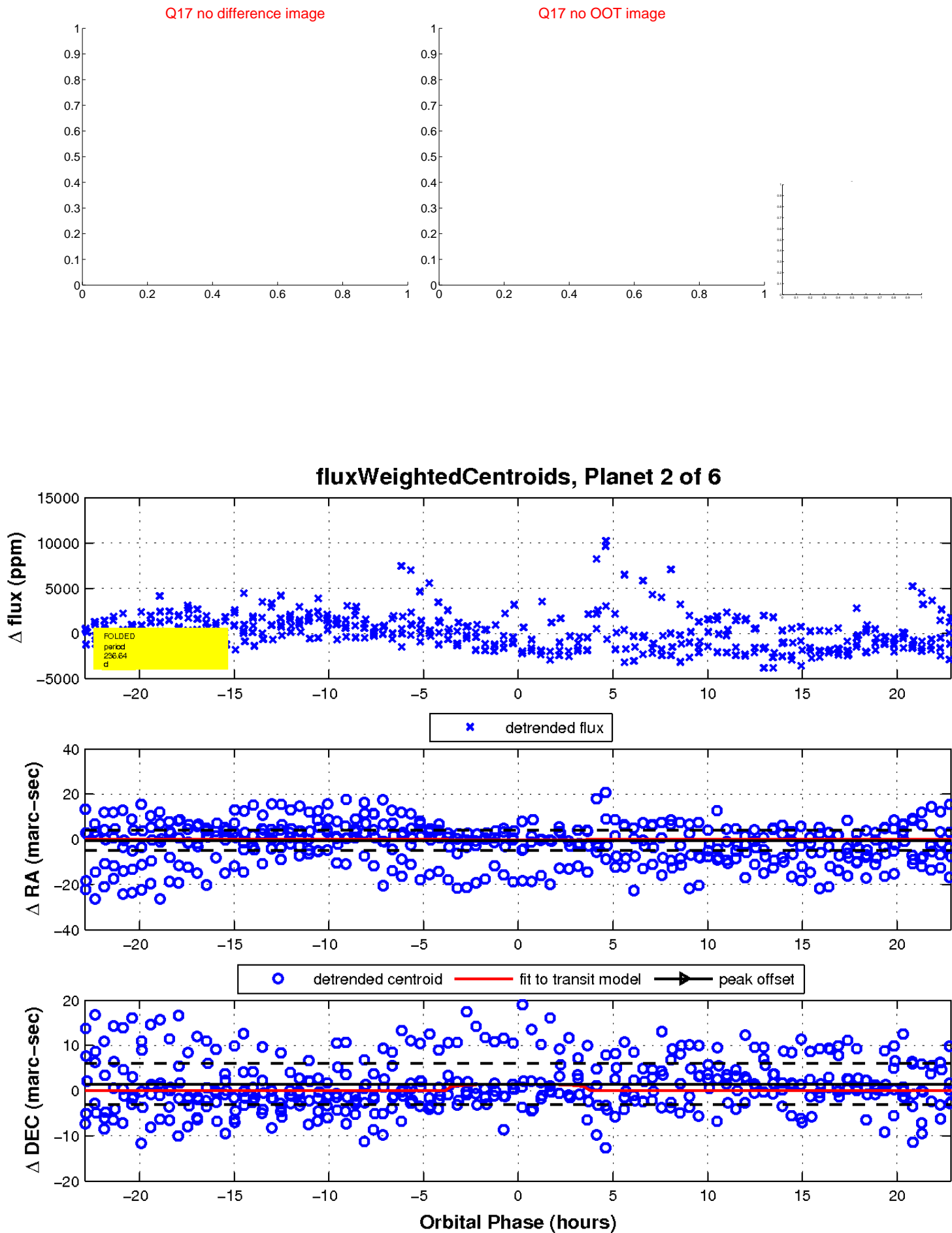
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white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



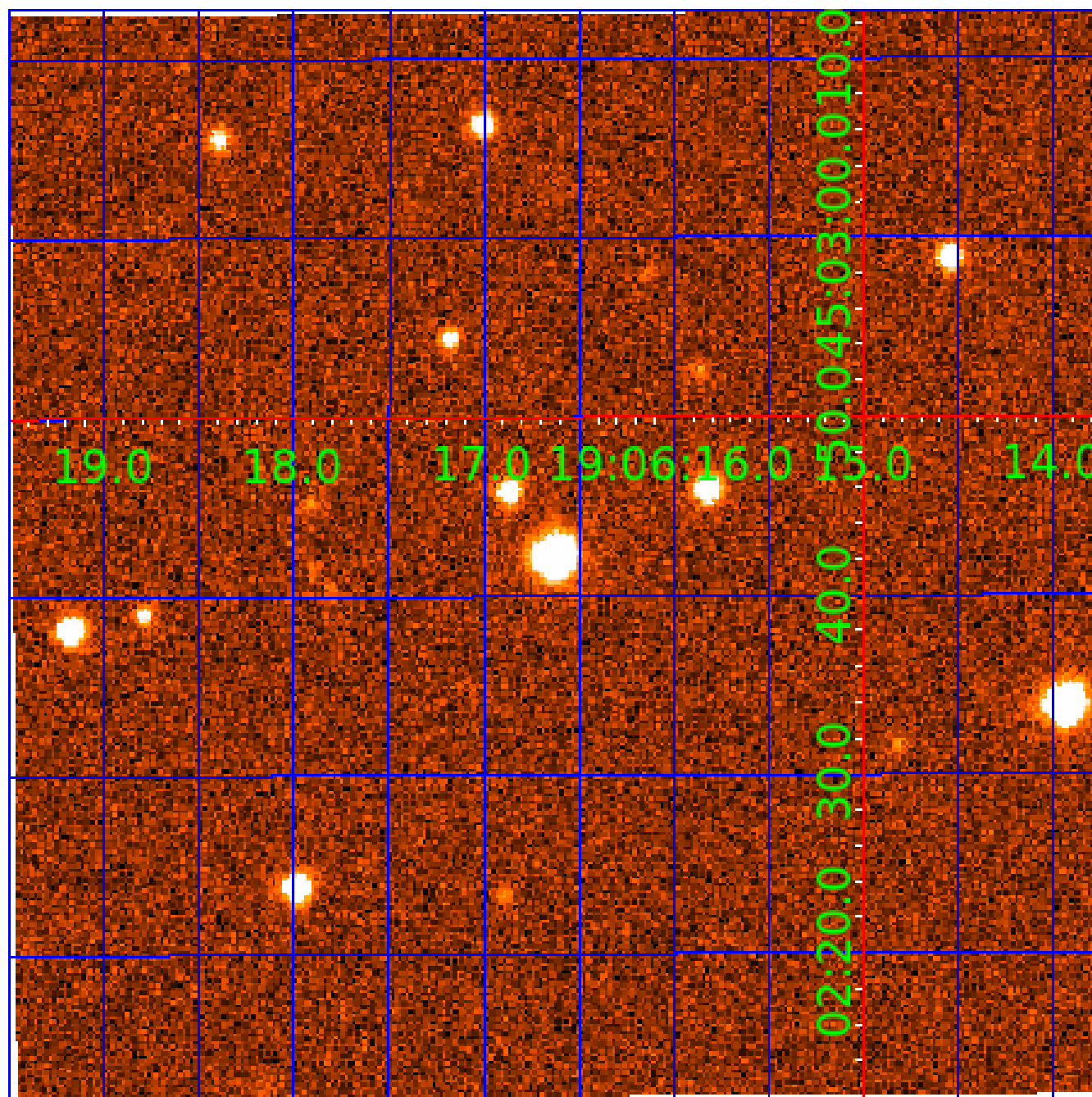
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UKIRT Image

Declination



# KIC 008807085

## Q1-17 DR25 TCE Parameters

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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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008807085-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008807085-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008807085-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008807085-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

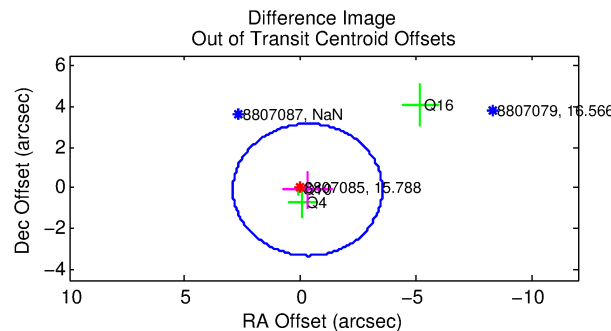
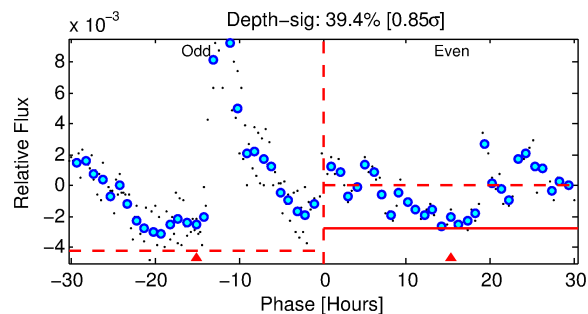
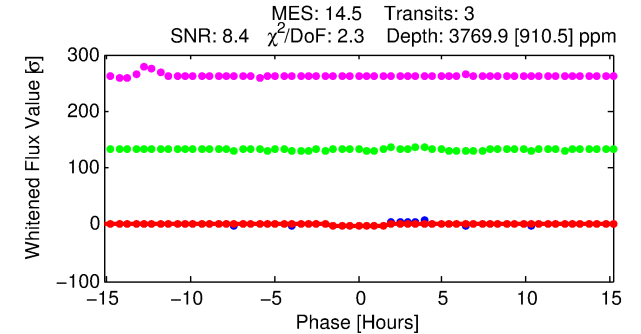
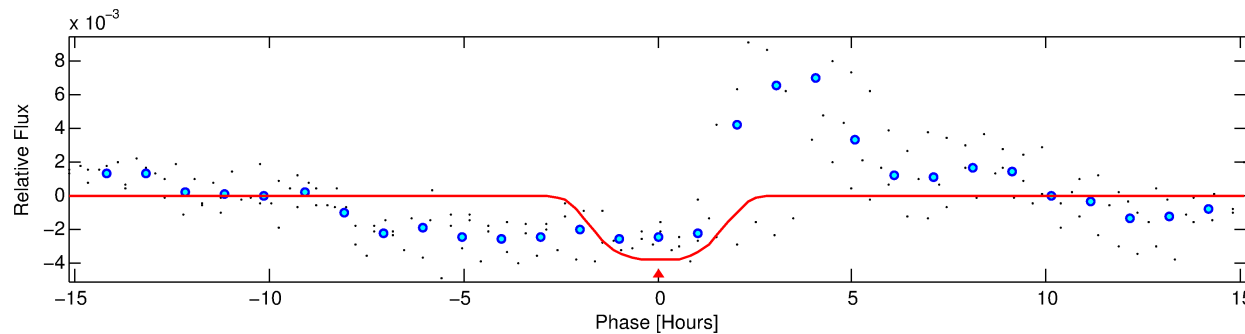
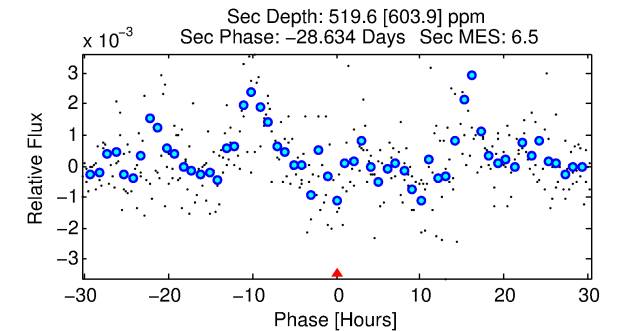
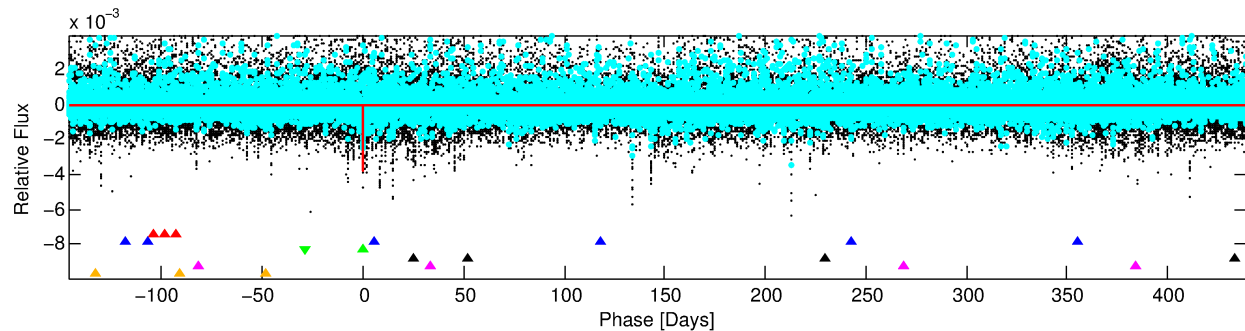
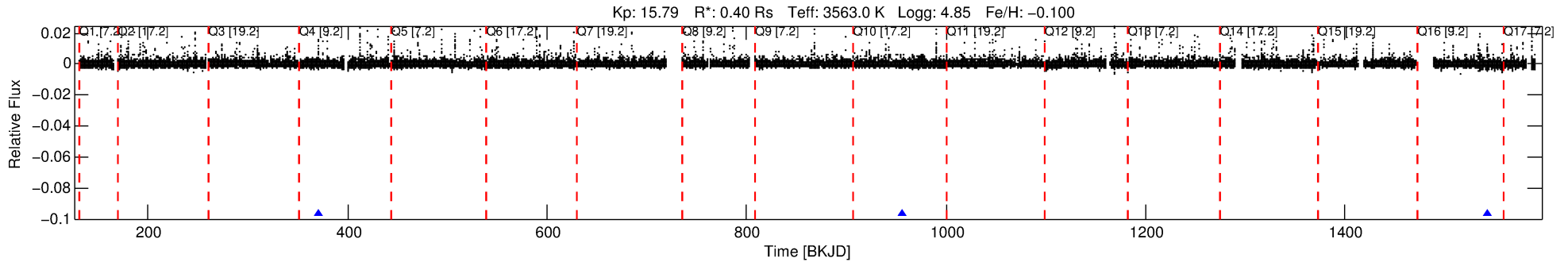
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008807085-03

No Significant Match Found

# DV One-Page Summary

KIC: 8807085 Candidate: 3 of 6 Period: 585.836 d



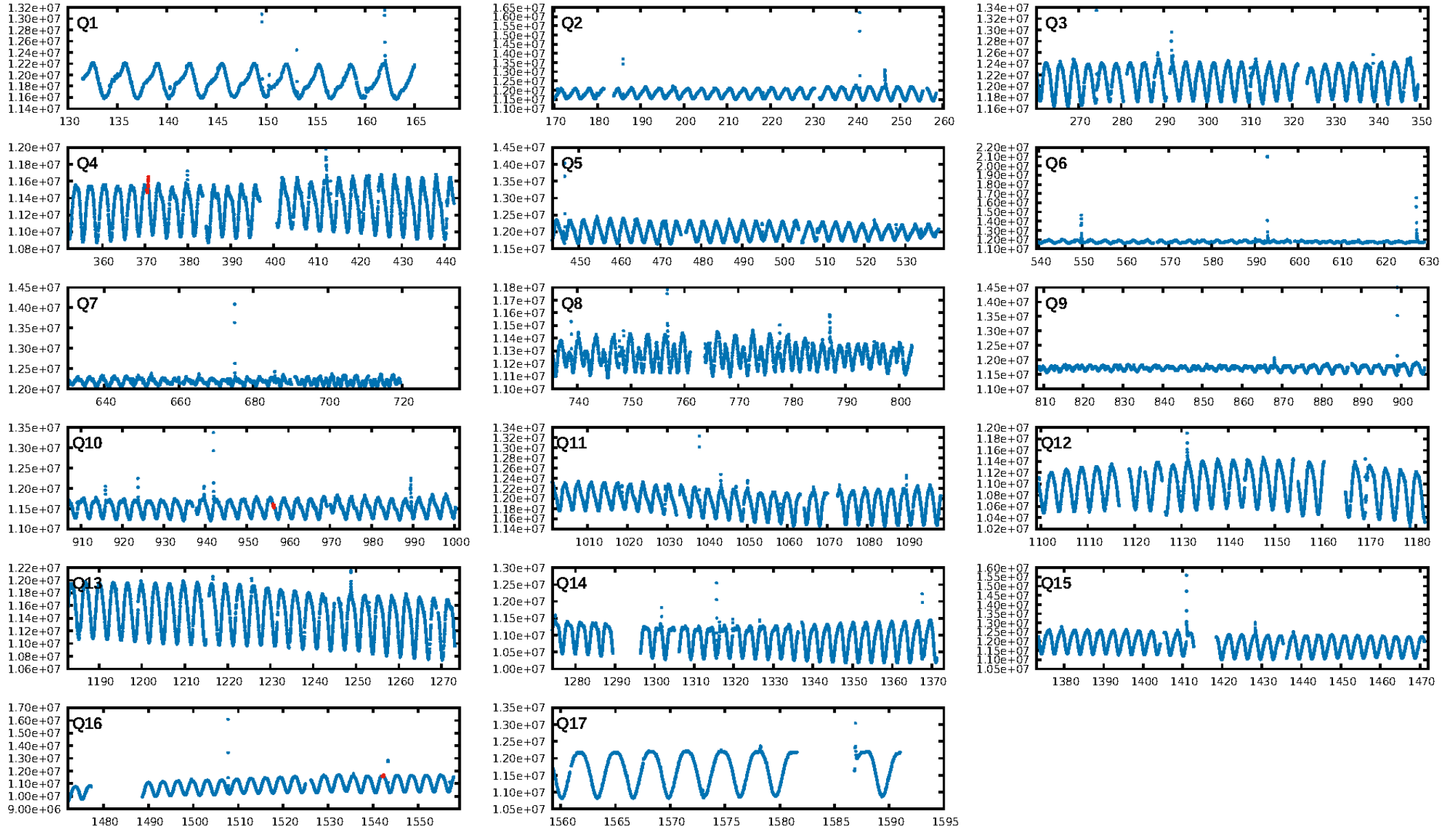
## DV Fit Results:

Period = 585.83570 [0.01109] d  
Epoch = 370.5801 [0.0154] BKJD  
Rp/R\* = 0.0686 [0.0119]  
a/R\* = 491.17 [146.16]  
b = 0.91 [0.06]  
Seff = 0.02 [0.00]  
Teq = 98 [4] K  
Rp = 2.98 [0.69] Re  
a = 1.0197 [0.1178] AU  
Ag = 33511.83 [40921.77] [0.82 $\sigma$ ]  
Teffp = 2054 [625] K [3.13 $\sigma$ ]

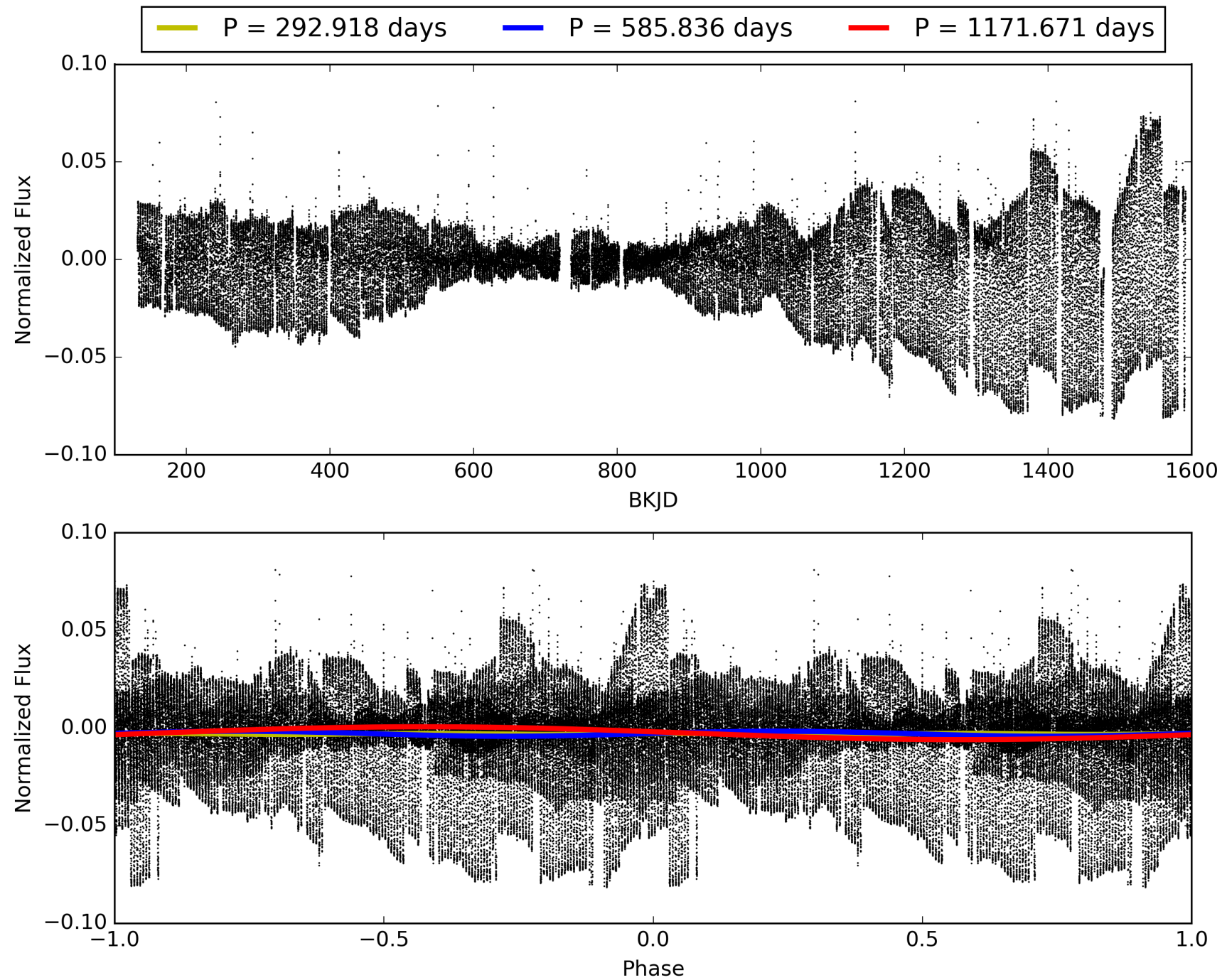
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [20.13 $\sigma$ ]  
LongPeriod-sig: 100.0% [150.37 $\sigma$ ]  
**ModelChiSquare2-sig: 0.2%**  
ModelChiSquareGof-sig: 5.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -2.403  
Centroid-sig: 46.6%  
Centroid-so: 0.703 arcsec [1.07 $\sigma$ ]  
OotOffset-rm: 0.322 arcsec [0.30 $\sigma$ ]  
KicOffset-rm: 0.601 arcsec [0.46 $\sigma$ ]  
OotOffset-st: 1/0/2/0 [3]  
KicOffset-st: 1/0/2/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 008807085-03, PDC Light Curves



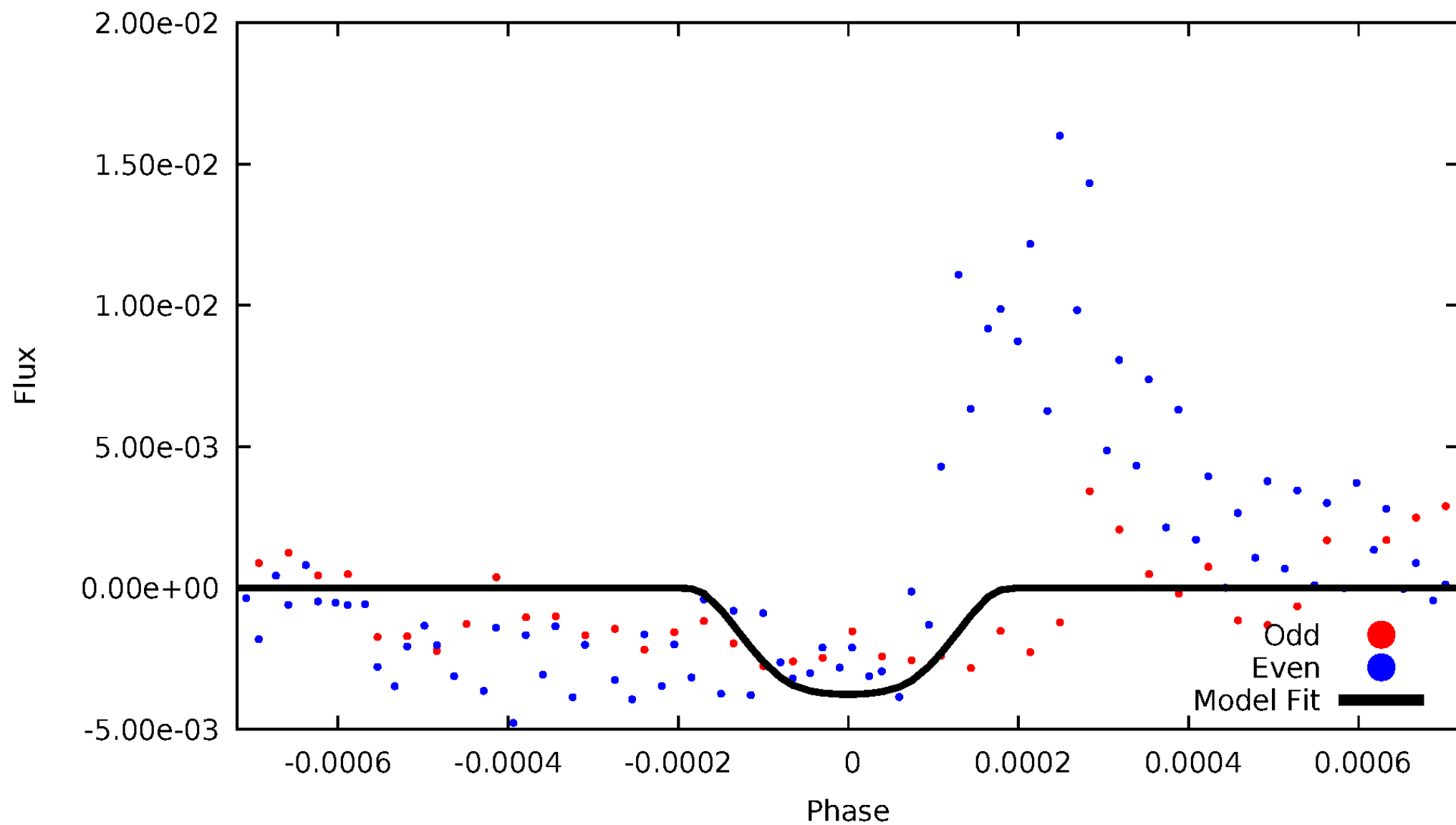
TCE 008807085-03





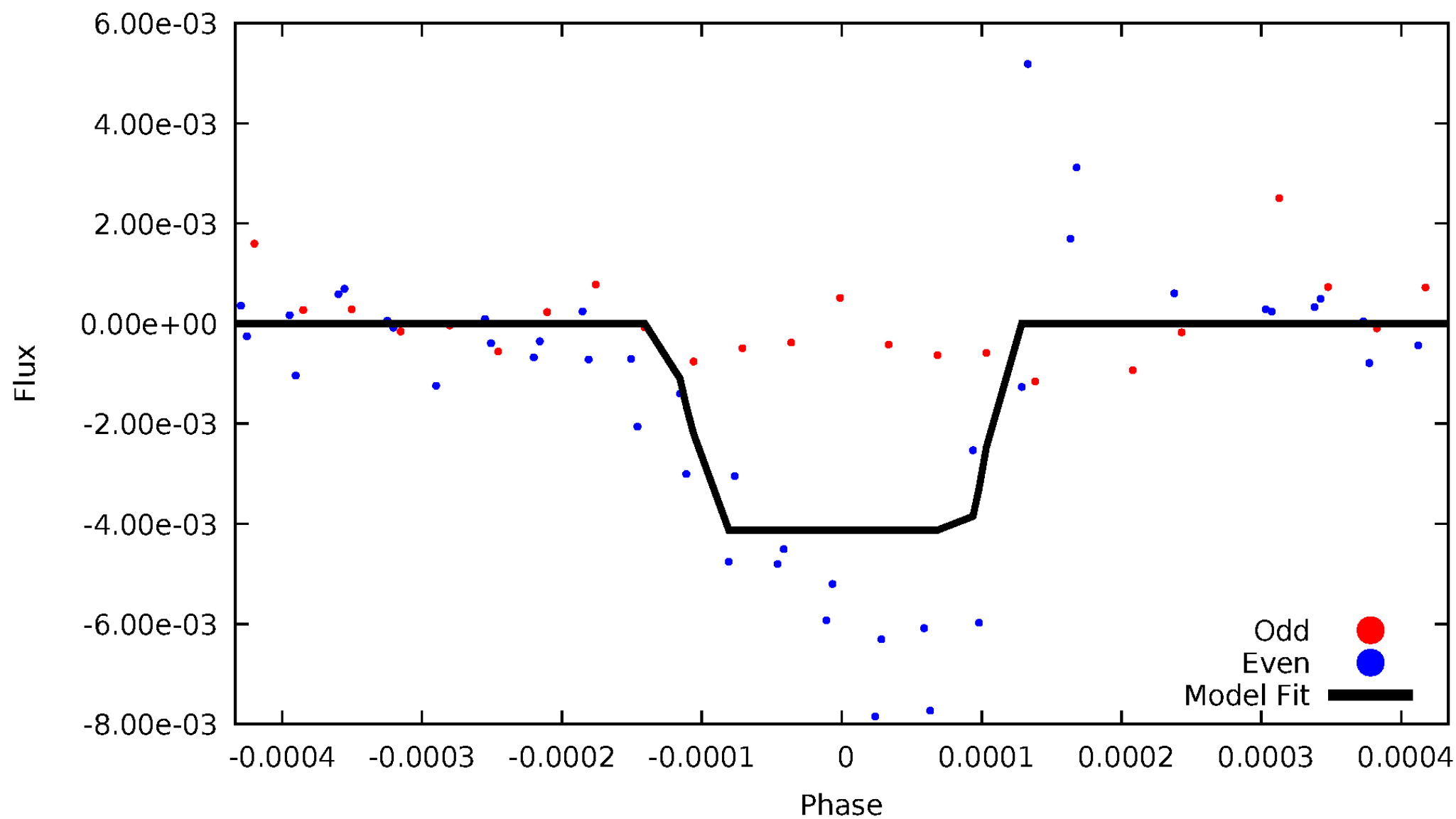
# DV Odd/Even

TCE 008807085-03



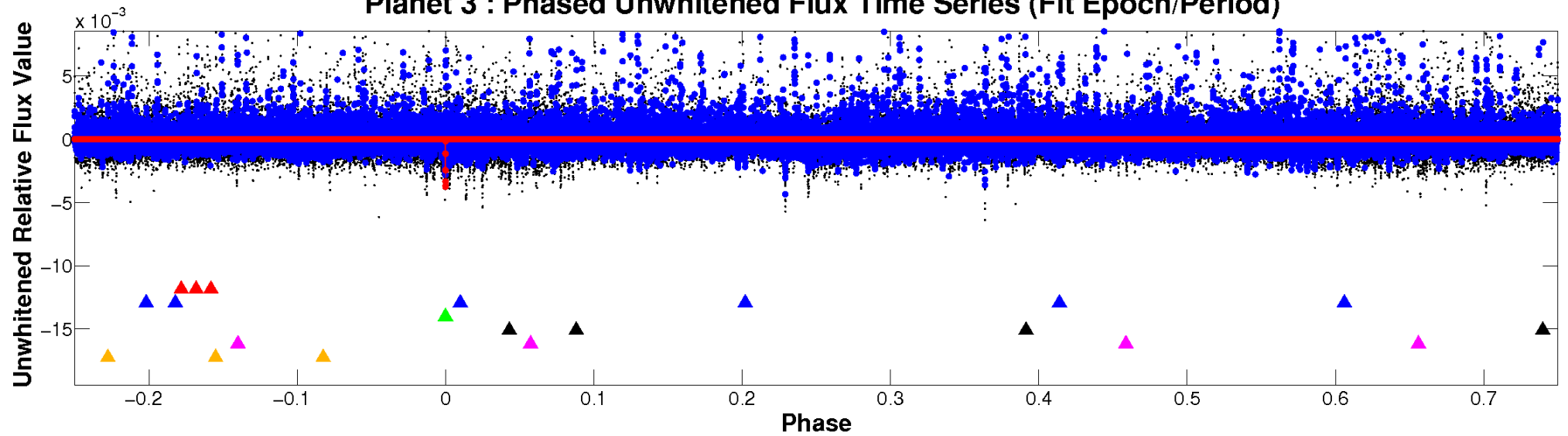
# ALT Odd/Even

TCE 008807085-03

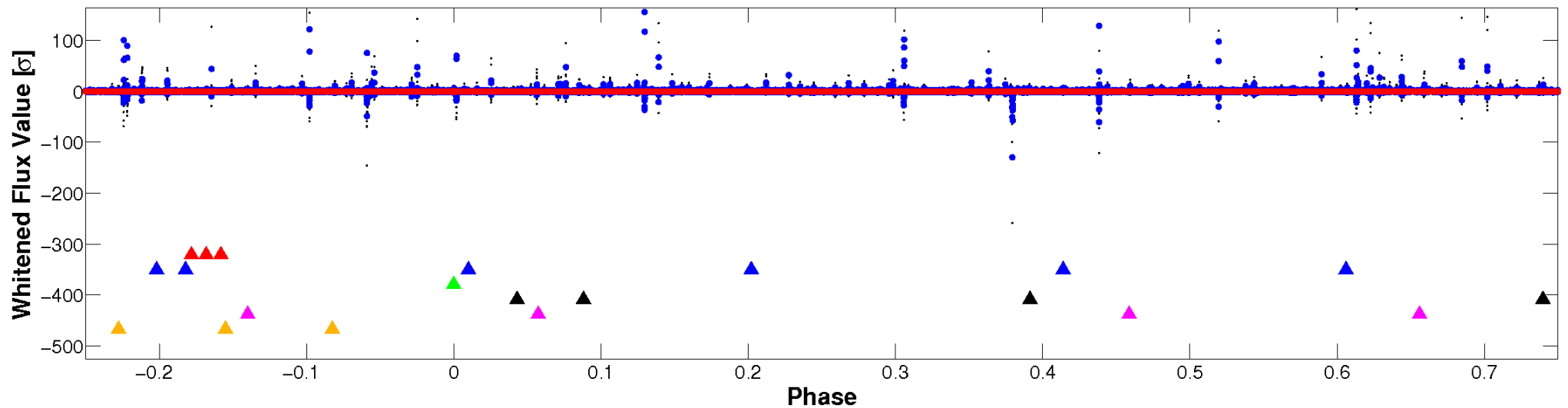


# Non-Whitened Vs. Whitened Light Curve

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

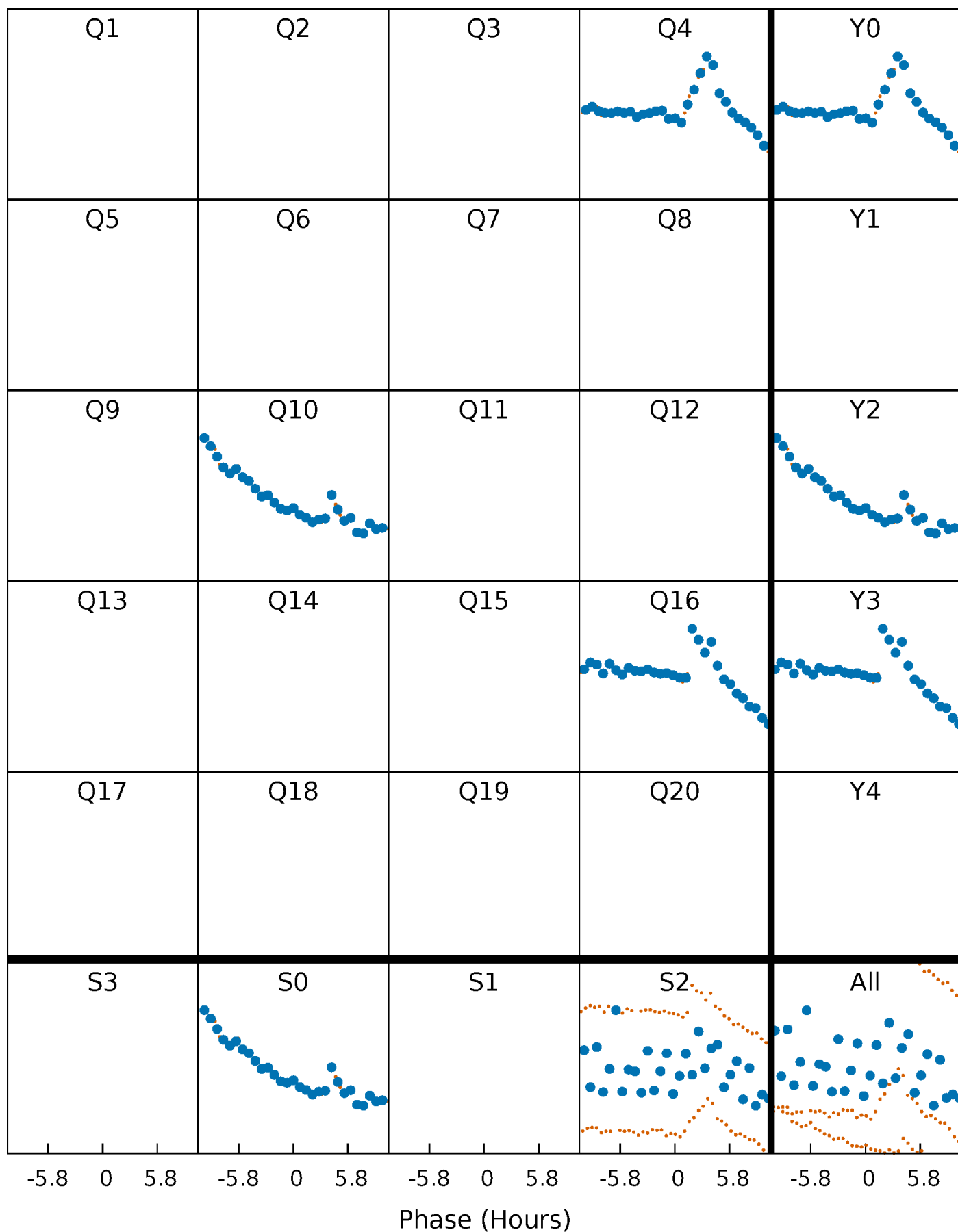


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



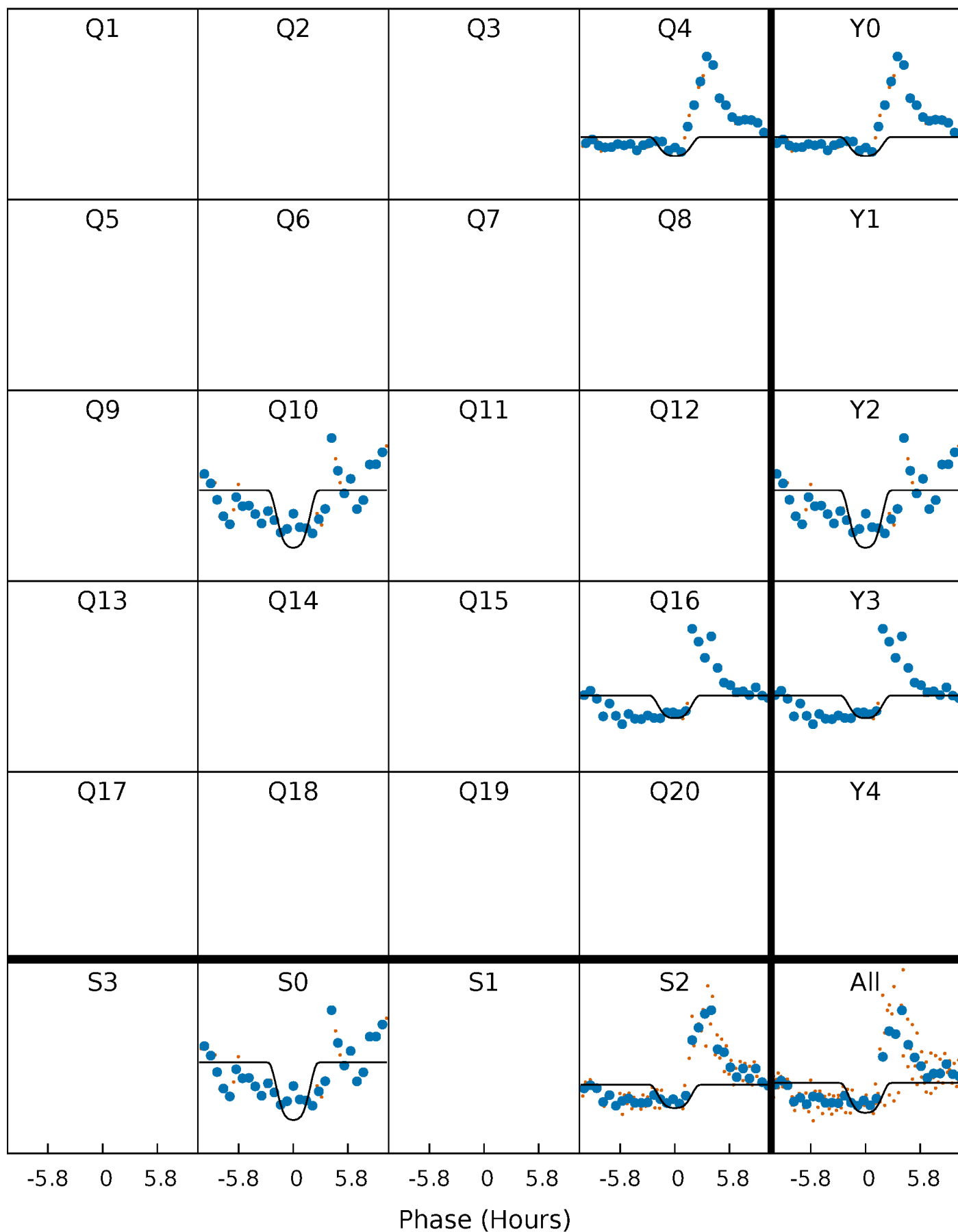
# PDC Quarter-Phased Transit Curves

TCE 008807085-03     $P=585.835696$  Days     $T_0=370.580063$  (BKJD)



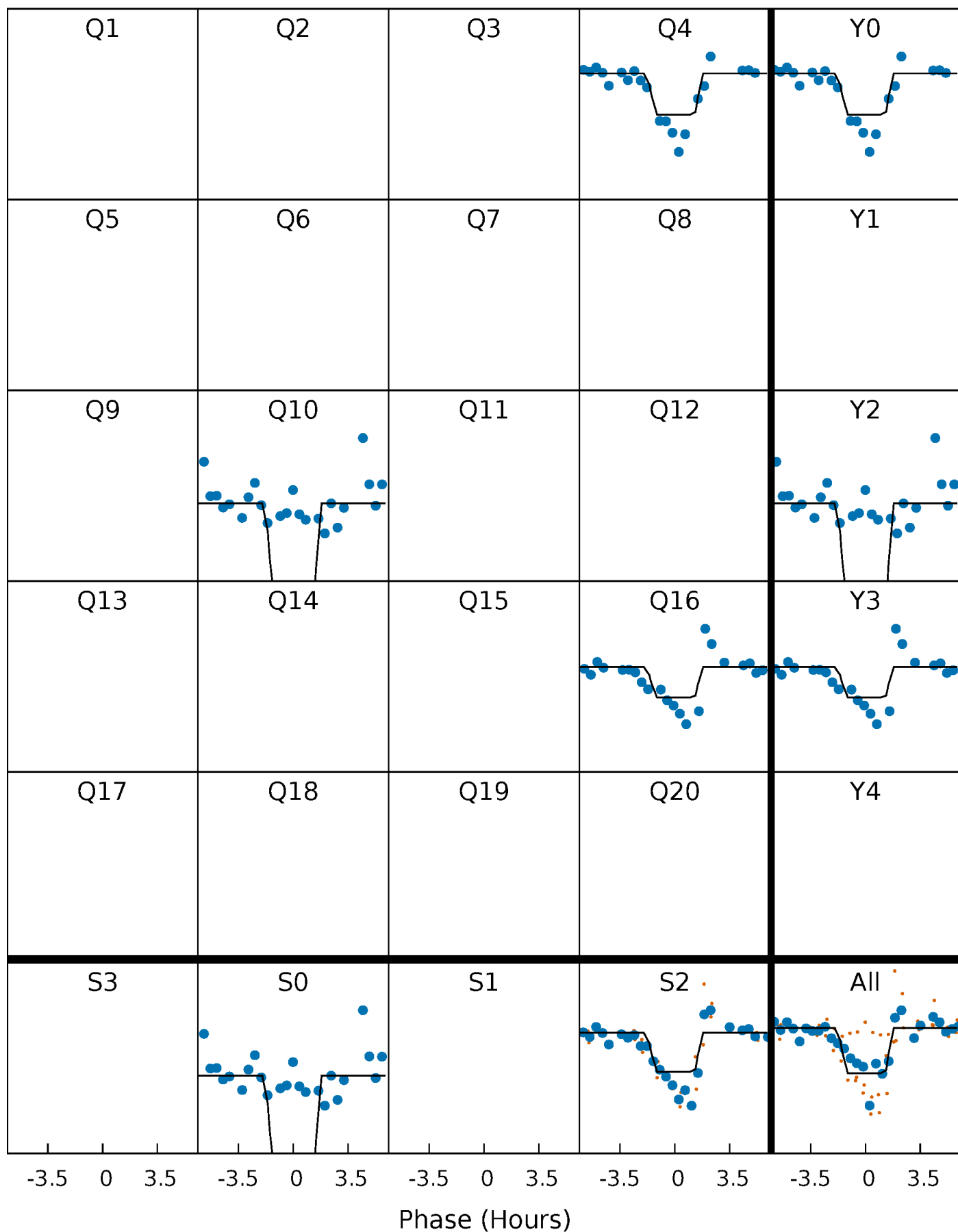
# DV Quarter-Phased Transit Curves

TCE 008807085-03     $P=585.835696$  Days     $T_0=370.580063$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

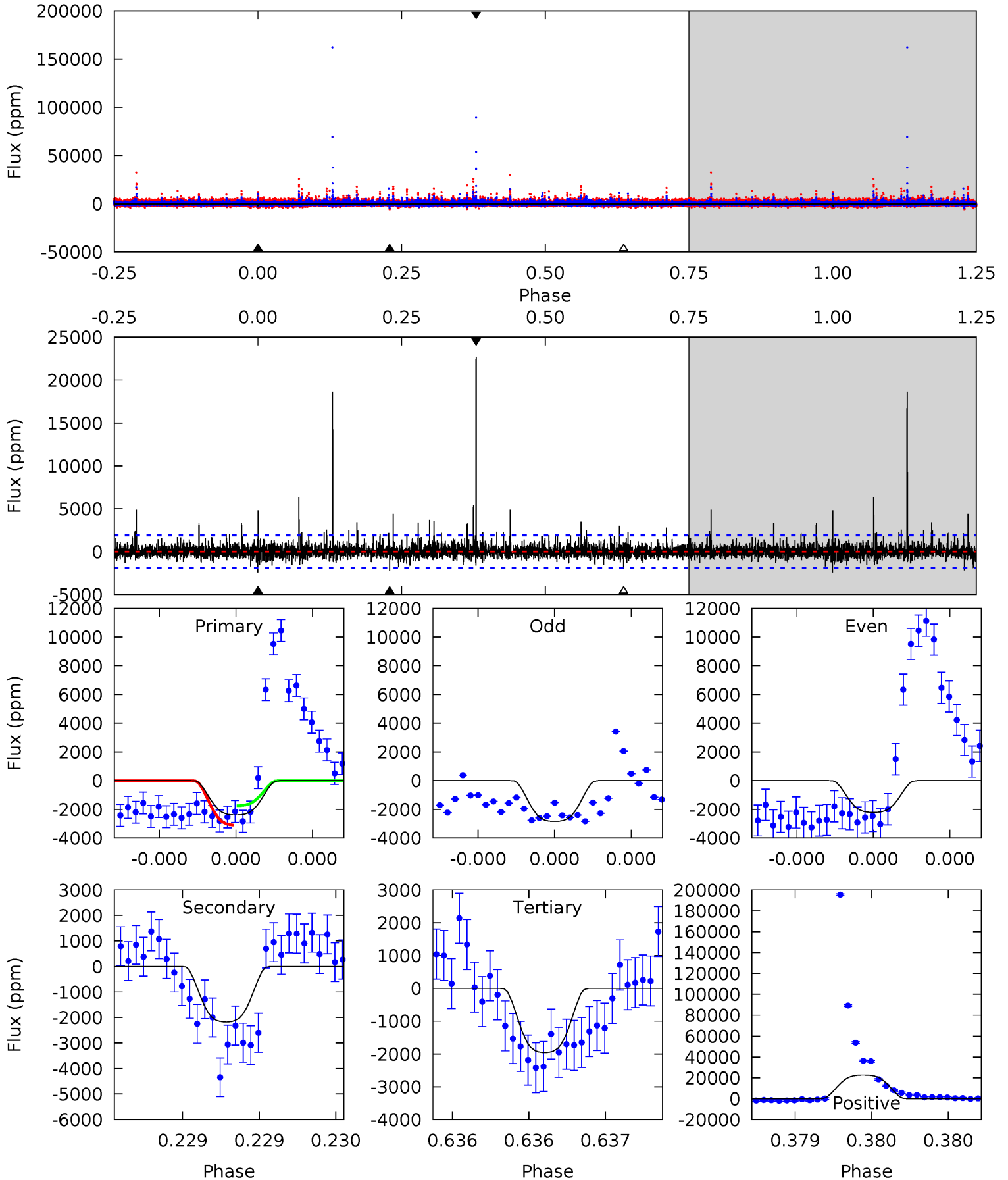
TCE 008807085-03 P=585.830165 Days  $T_0=370.589058$  (BKJD)



# DV Model-Shift Uniqueness Test

008807085-03, P = 585.835696 Days, E = 370.580063 Days

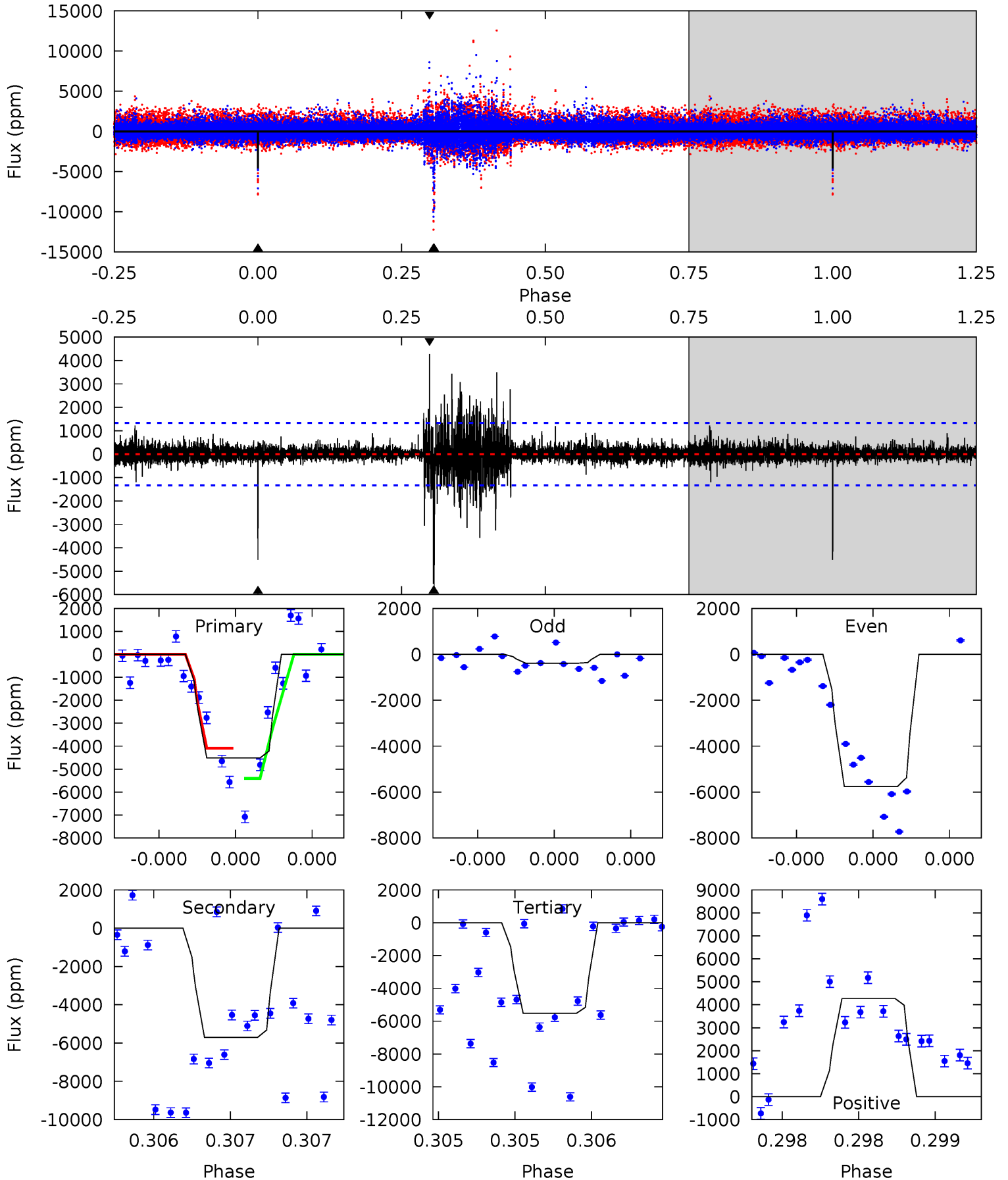
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.11	6.46	5.82	67.4	5.64	3.58	2.18	1.29	-60.3	0.64	-60.9	0.43	0.90	0.90	1.96



# Alt Model-Shift Uniqueness Test

008807085-03, P = 585.830165 Days, E = 370.589058 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
19.3	24.4	23.6	18.3	5.72	3.70	1.74	-4.33	1.05	0.76	6.13	11.3	0.71	0.43	0





### Stellar Parameters For KIC 008807085

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3563^{+89}_{-98}$	$4.853^{+0.066}_{-0.049}$	$-0.100^{+0.100}_{-0.100}$	$0.398^{+0.050}_{-0.062}$	$0.414^{+0.048}_{-0.072}$	$9.224^{+3.437}_{-1.949}$
	+2%/-3%	+1%/-1%	+100%/-100%	+13%/-16%	+12%/-17%	+37%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008807085-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-2176 \pm 337$	$3.00^{+0.53}_{-0.57}$	$137^{+5}_{-5}$	$3165^{+206}_{-179}$	$138988^{+74915}_{-42629}$
Alt.	$-5702 \pm 234$	$2.77^{+0.54}_{-0.53}$	$137^{+5}_{-5}$	$3761^{+303}_{-215}$	$429845^{+227635}_{-125949}$

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

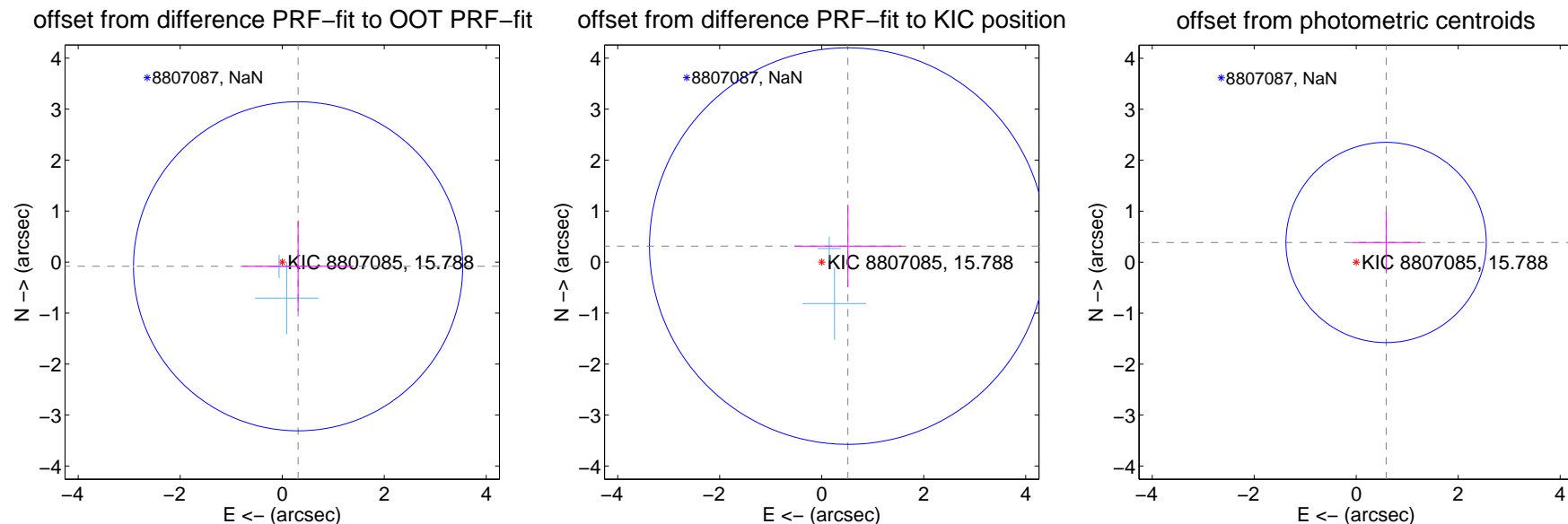
## DV Centroid Data

Supplemental centroid analysis for 008807085-03. Kepler magnitude: 15.79. Transit SNR 8.43

There are 2 quarters with good PRF difference image offsets

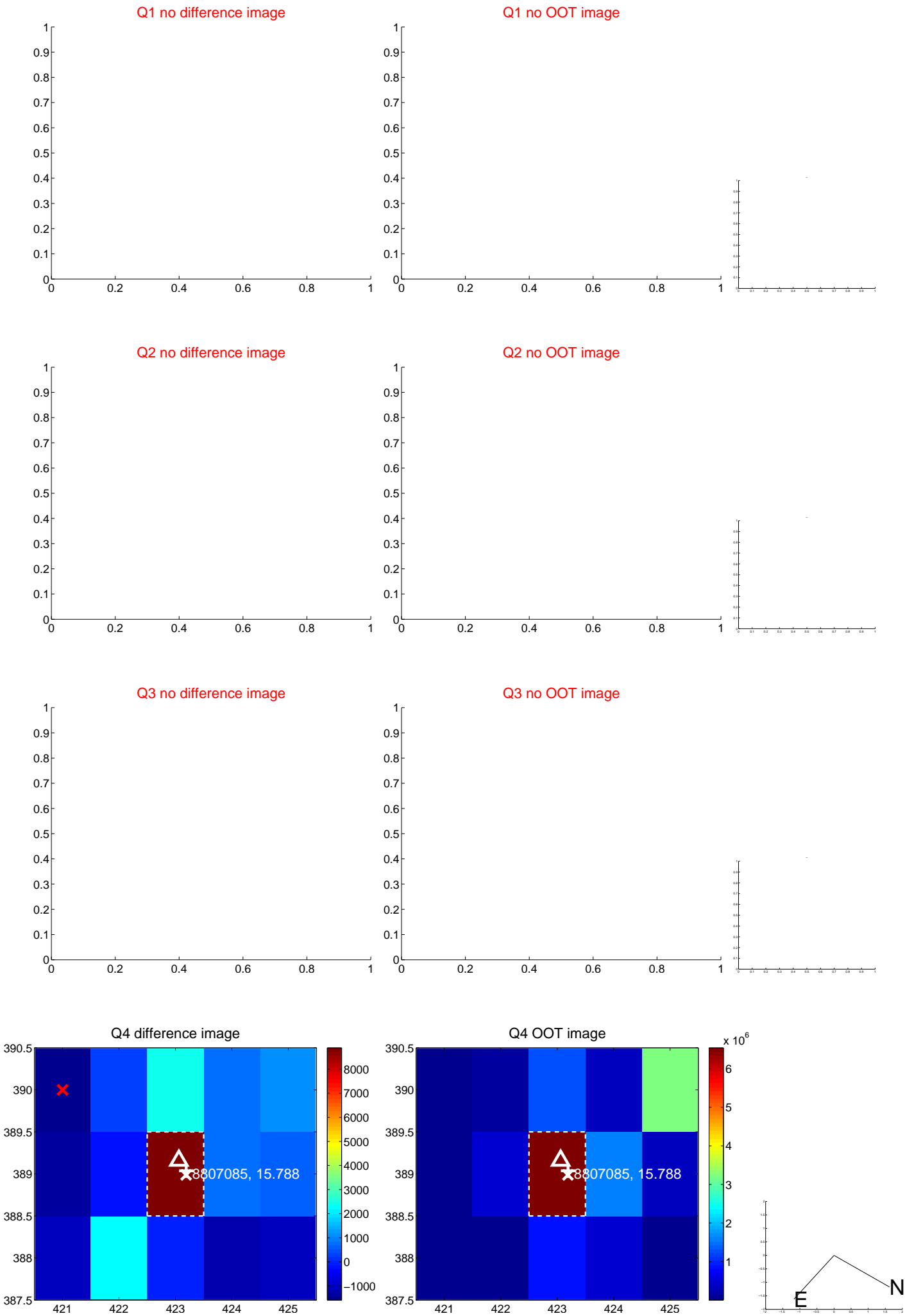
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.322 \pm 1.076$	0.30	$-0.311 \pm 1.088$	$-0.083 \pm 0.881$
PRF-fit source offset from KIC position	$0.601 \pm 1.296$	0.46	$-0.512 \pm 1.050$	$0.314 \pm 0.810$
photometric centroid source offset	$0.70 \pm 0.66$	1.07	$-0.59 \pm 0.67$	$0.39 \pm 0.61$



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.

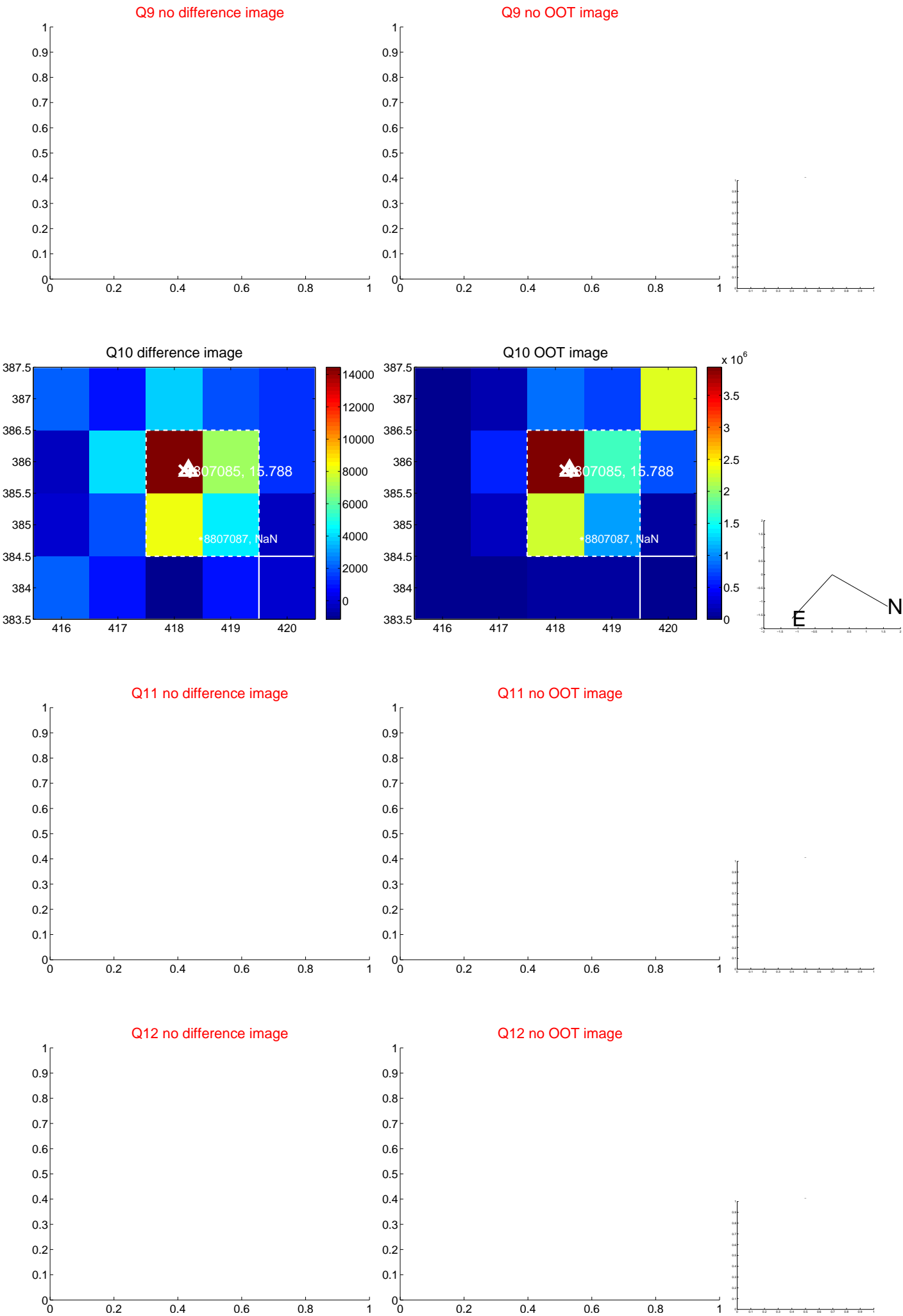
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



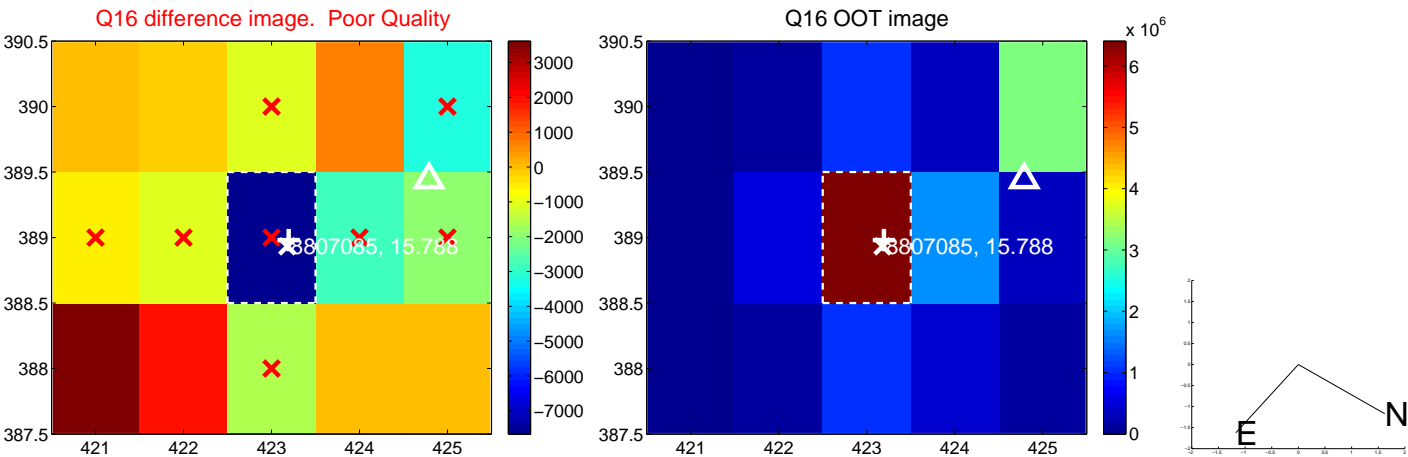
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



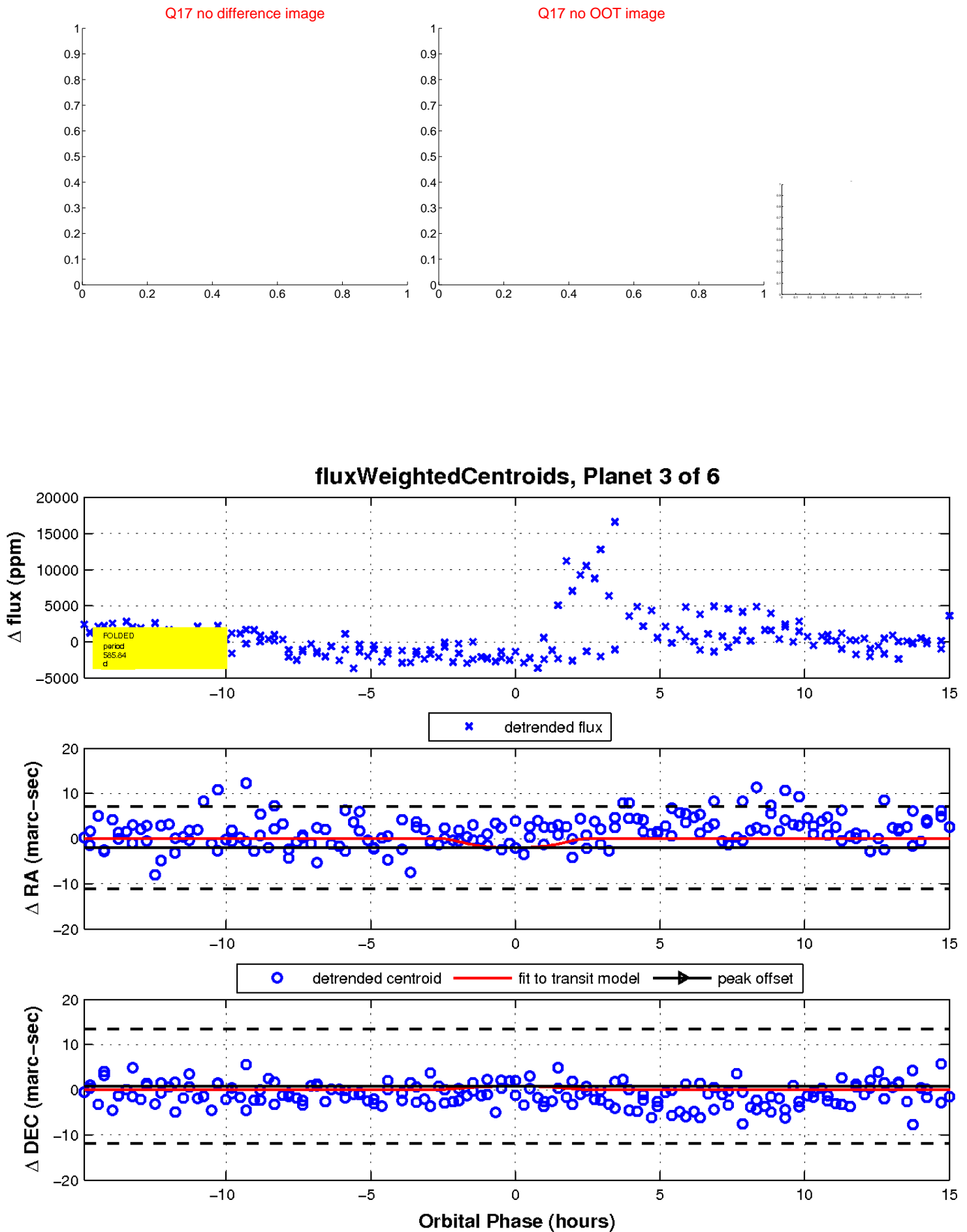
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

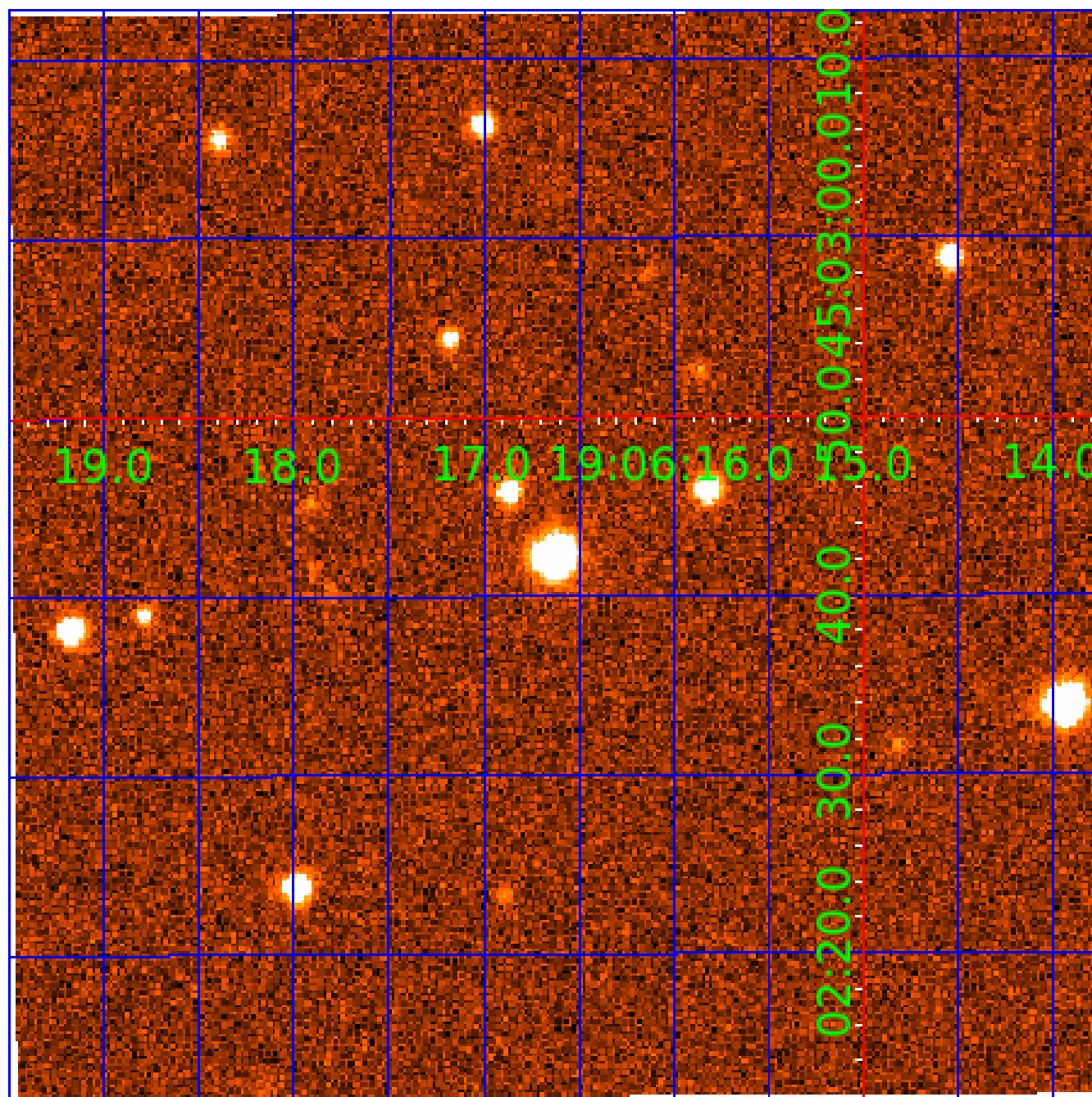


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008807085

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008807085-02	OBS	No	236.640882	252.347132	2255.8	7.692	13.7	6.4	0.40	3563	1.87	0.07
008807085-03	OBS	No	585.835696	370.580063	3769.9	5.050	14.5	8.4	0.40	3563	2.98	0.02
008807085-04	OBS	No	381.746353	422.233335	3070.3	3.647	13.8	7.5	0.40	3563	2.34	0.04
008807085-05	OBS	No	350.708177	288.617775	3913.2	23.323	11.5	7.4	0.40	3563	3.07	0.04
008807085-06	OBS	No	628.360433	237.237129	2418.3	4.535	10.8	6.7	0.40	3563	1.93	0.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008807085-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008807085-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008807085-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008807085-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008807085-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

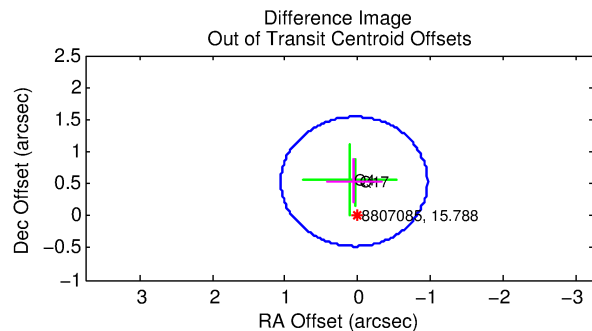
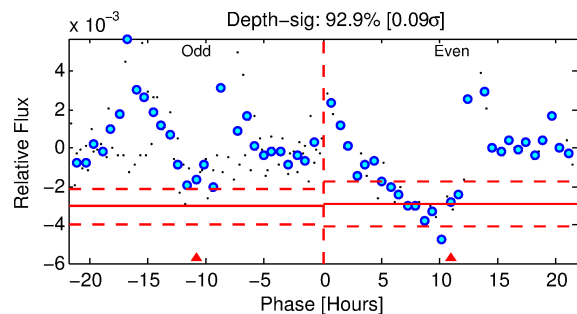
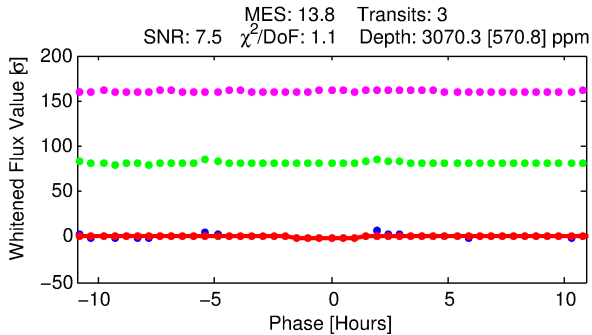
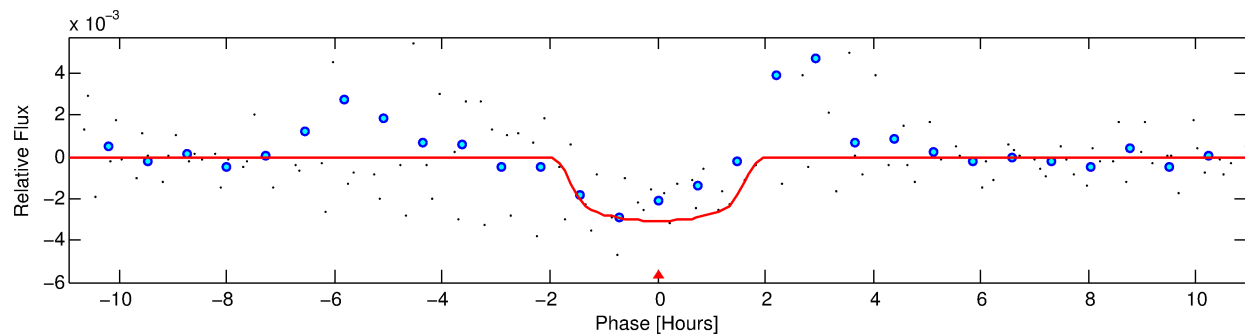
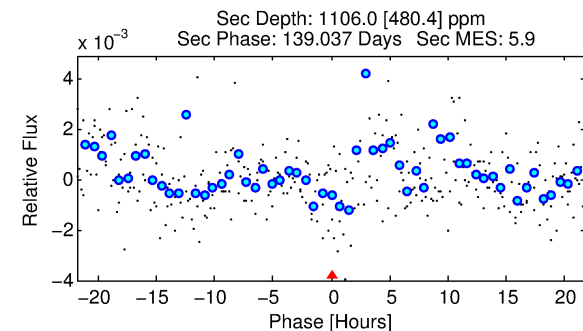
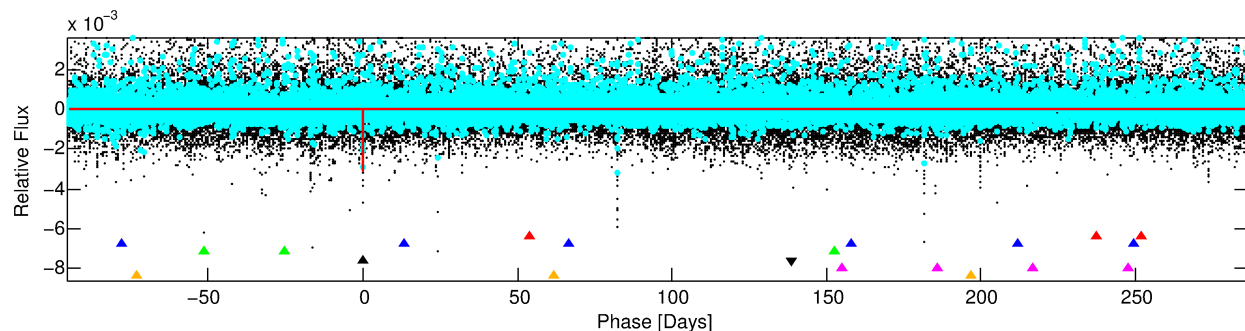
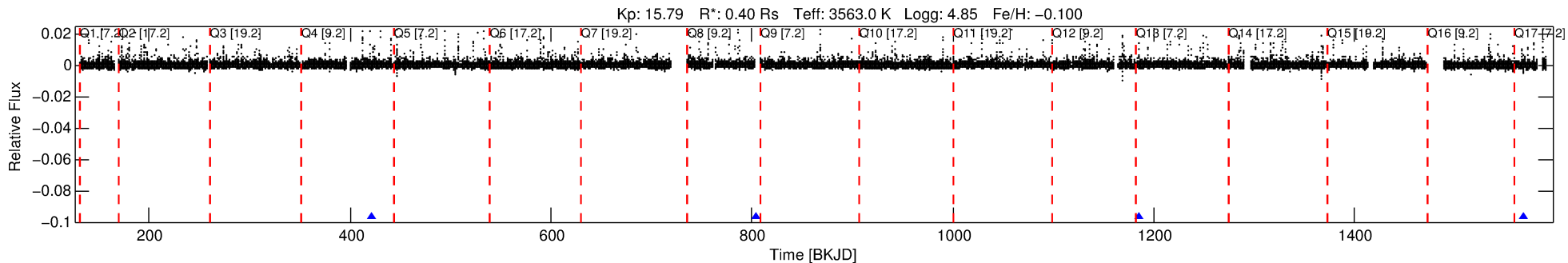
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008807085-04

No Significant Match Found

# DV One-Page Summary

KIC: 8807085 Candidate: 4 of 6 Period: 381.746 d



## DV Fit Results:

Period = 381.74635 [0.00393] d  
Epoch = 422.2333 [0.0085] BKJD  
Rp/R\* = 0.0538 [0.0307]  
a/R\* = 644.96 [1504.22]  
b = 0.68 [1.88]  
Seff = 0.04 [0.01]  
Teq = 113 [5] K  
Rp = 2.34 [1.38] Re  
a = 0.7664 [0.0886] AU  
Ag = 65489.45 [80476.52] [0.81σ]  
Teffp = 2802 [858] K [3.13σ]

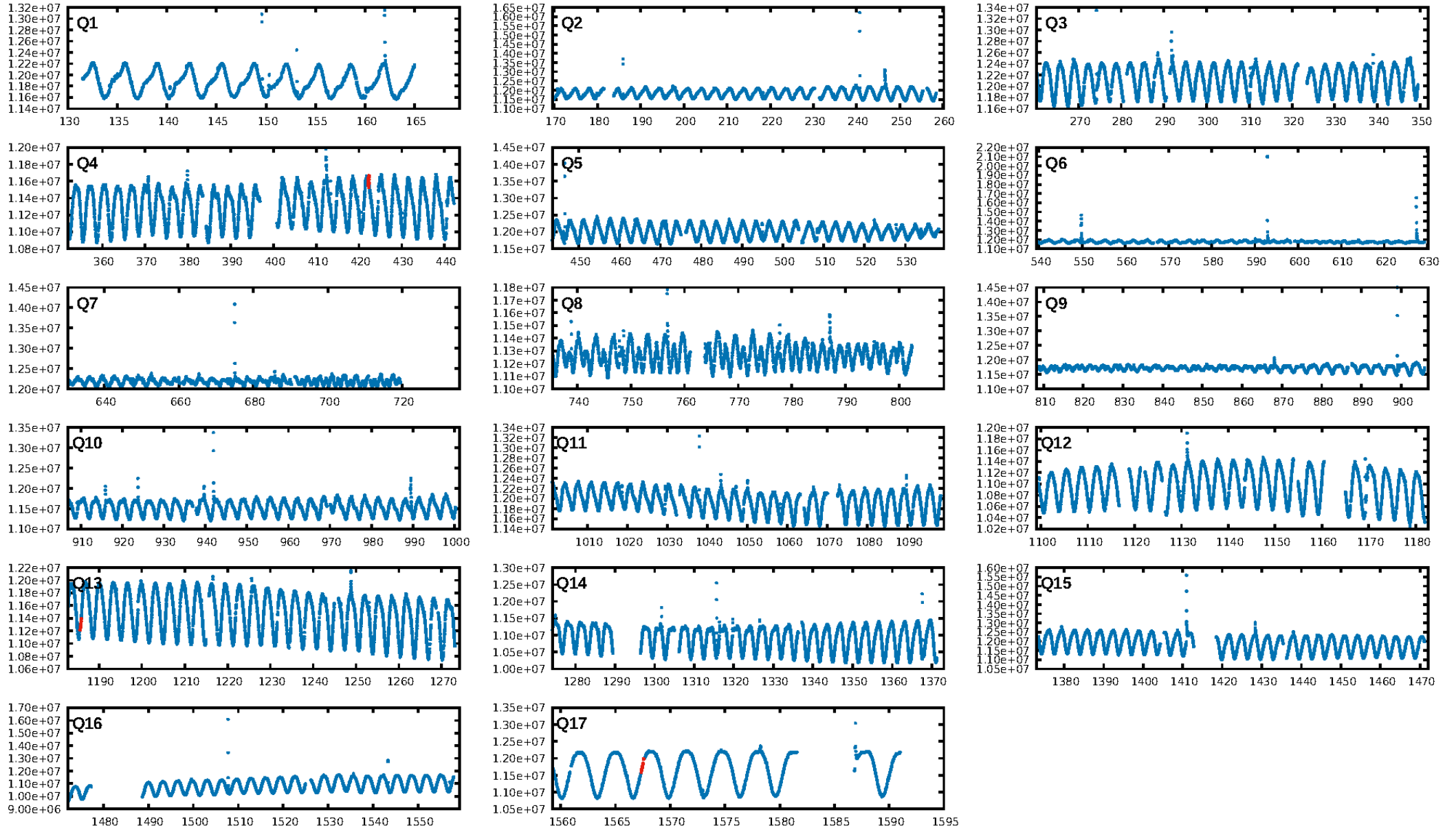
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [31.56σ]  
LongPeriod-sig: 100.0% [784.43σ]  
ModelChiSquare2-sig: 3.5%  
ModelChiSquareGof-sig: 93.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -9.408  
Centroid-sig: 49.3%  
Centroid-so: 1.382 arcsec [1.44σ]  
OotOffset-rm: 0.535 arcsec [1.59σ]  
KicOffset-rm: 0.523 arcsec [1.54σ]  
OotOffset-st: 0/0/1/1 [2]  
KicOffset-st: 0/0/1/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

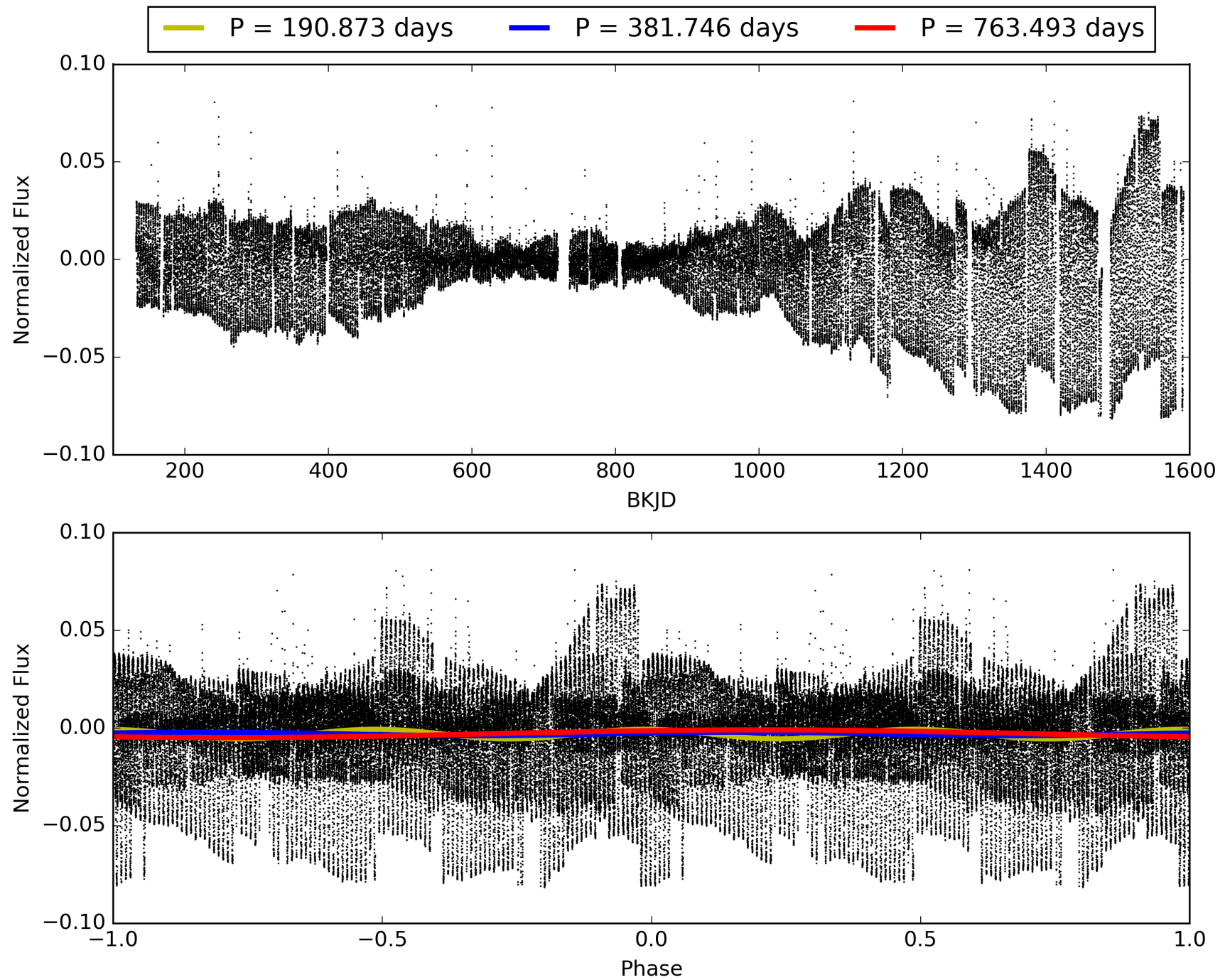
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:09:04 Z

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

# TCE 008807085-04, PDC Light Curves

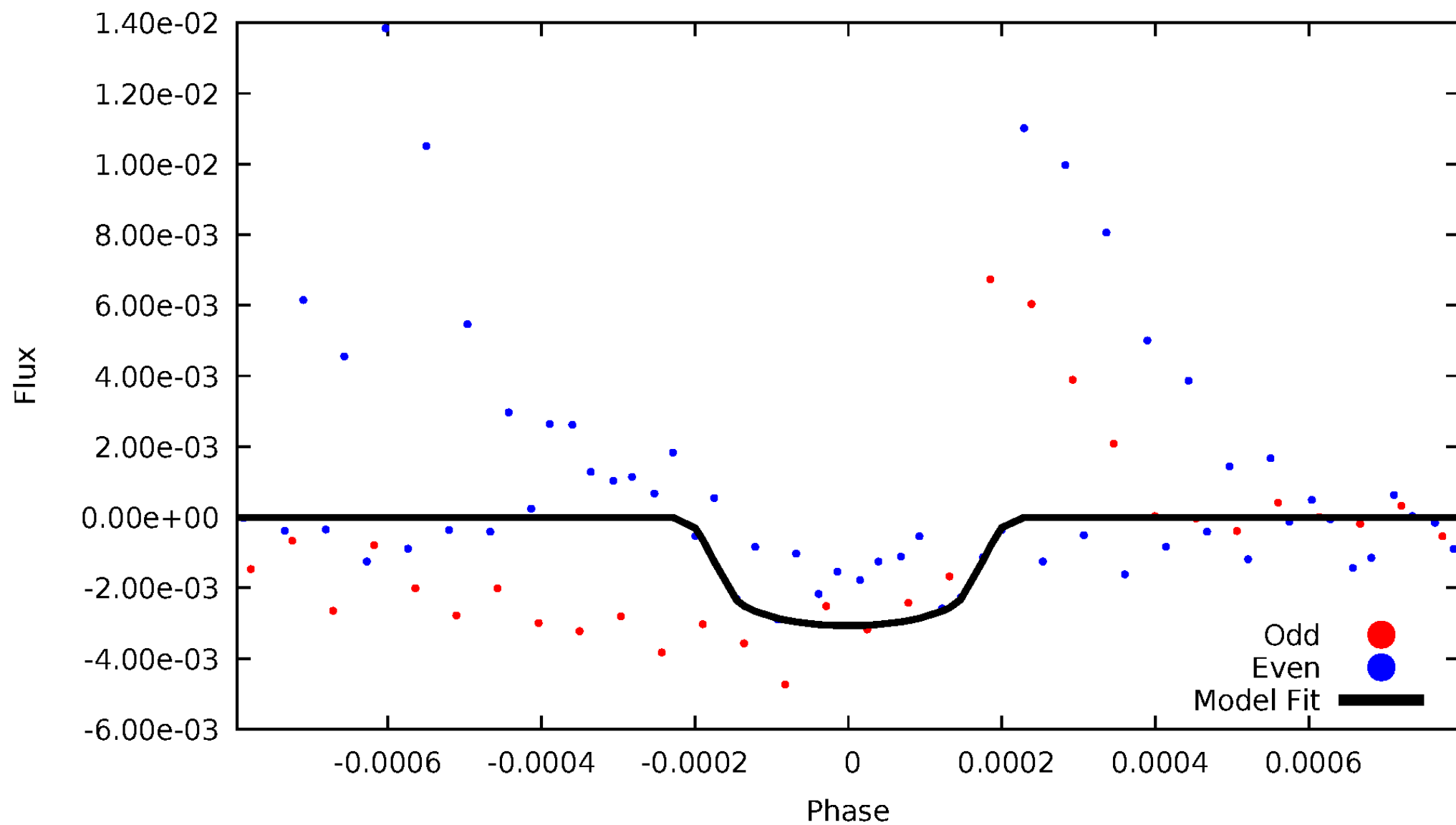


TCE 008807085-04



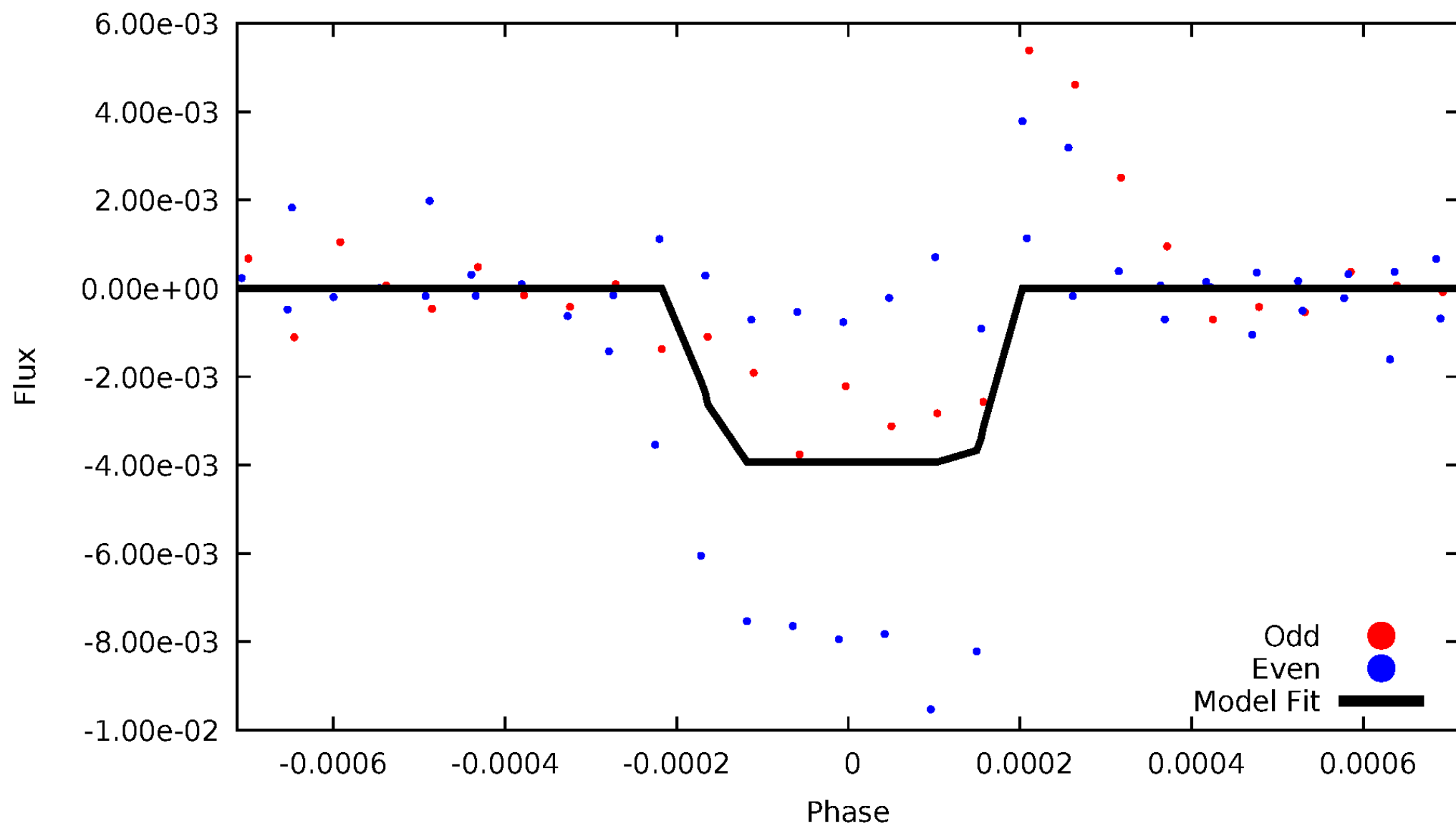
# DV Odd/Even

TCE 008807085-04



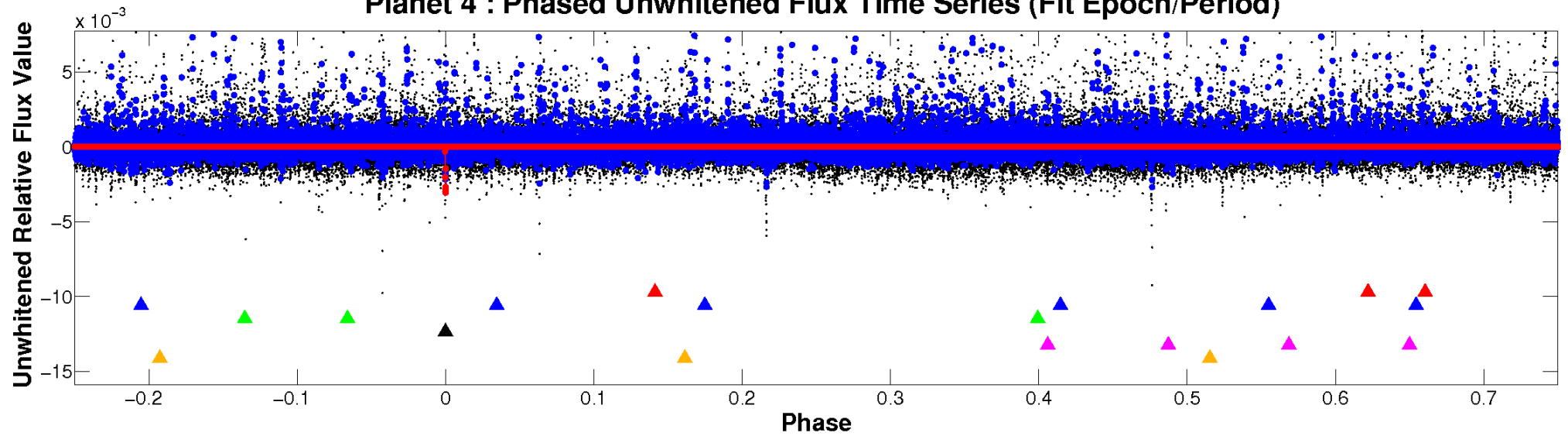
# ALT Odd/Even

TCE 008807085-04

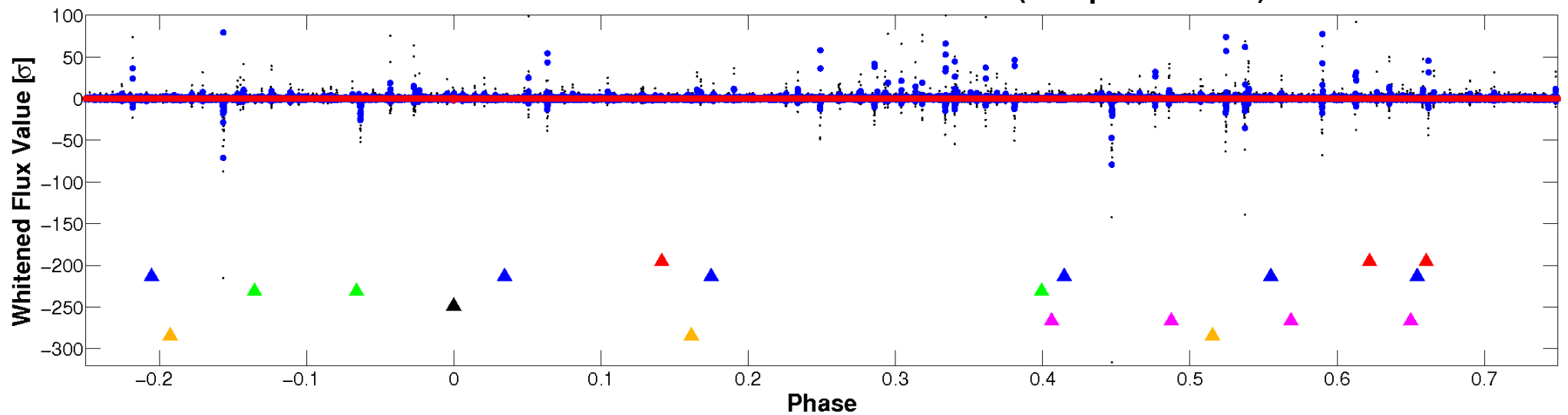


# Non-Whitened Vs. Whitened Light Curve

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

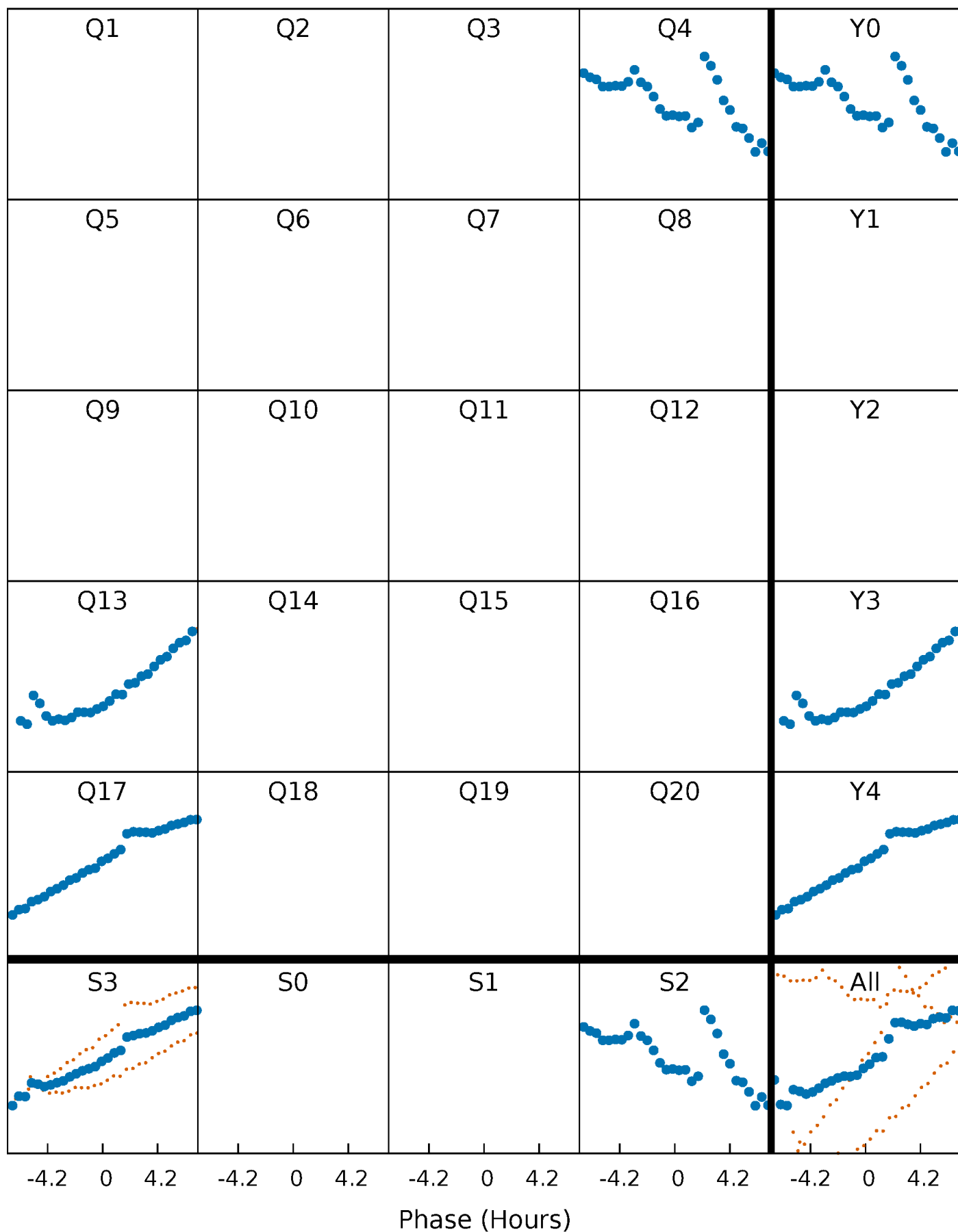


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

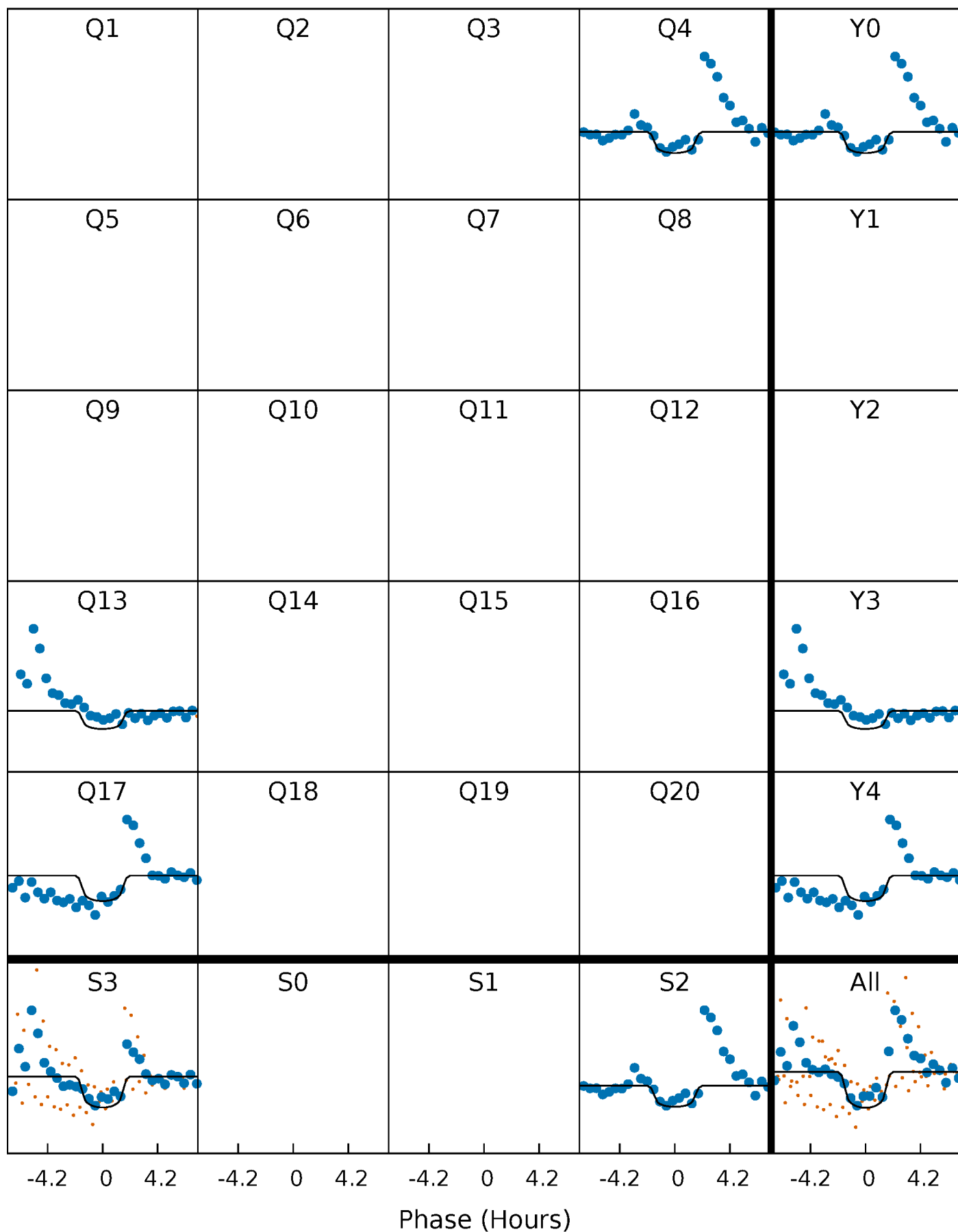
TCE 008807085-04     $P=381.746353$  Days     $T_0=422.233335$  (BKJD)





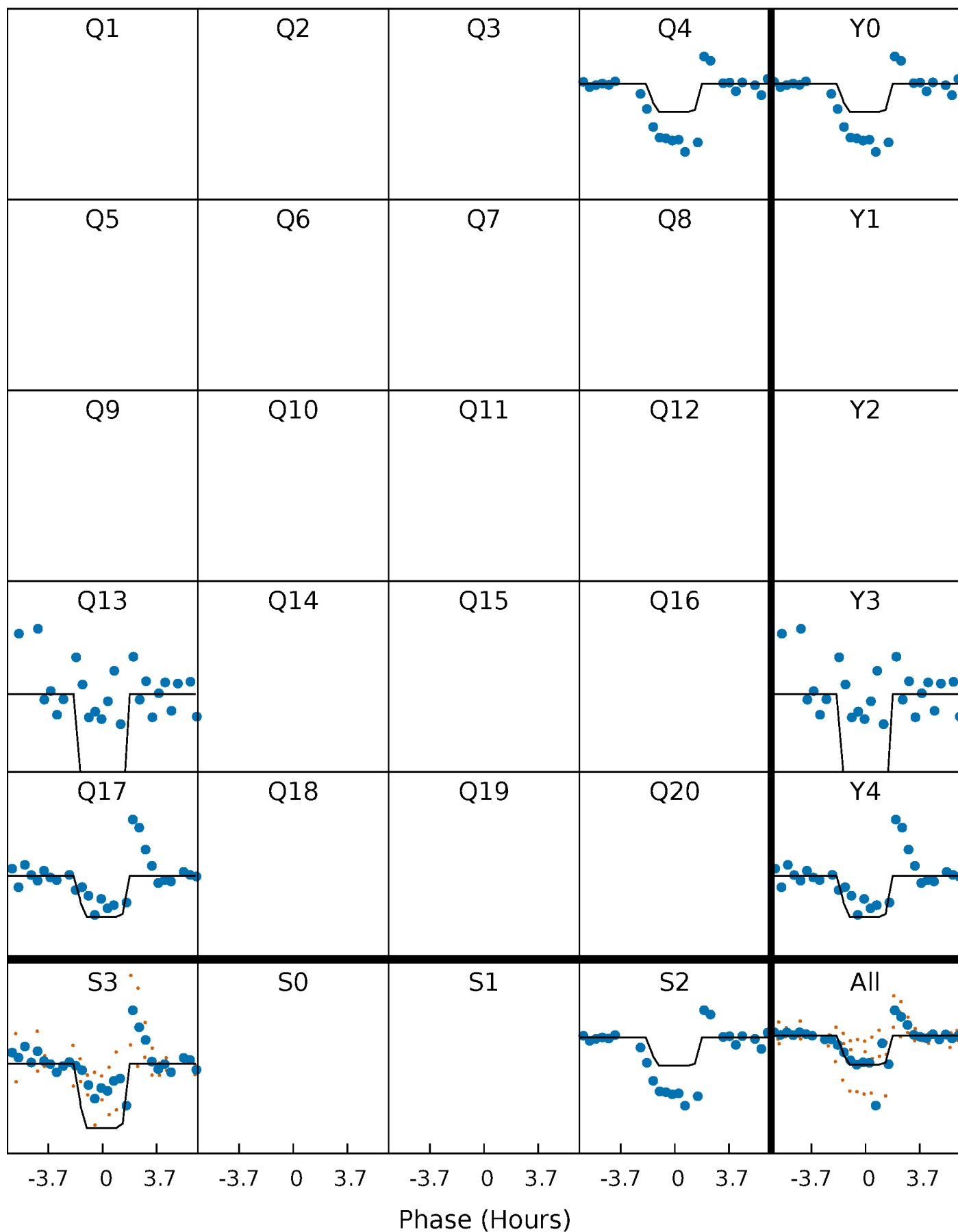
# DV Quarter-Phased Transit Curves

TCE 008807085-04     $P=381.746353$  Days     $T_0=422.233335$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

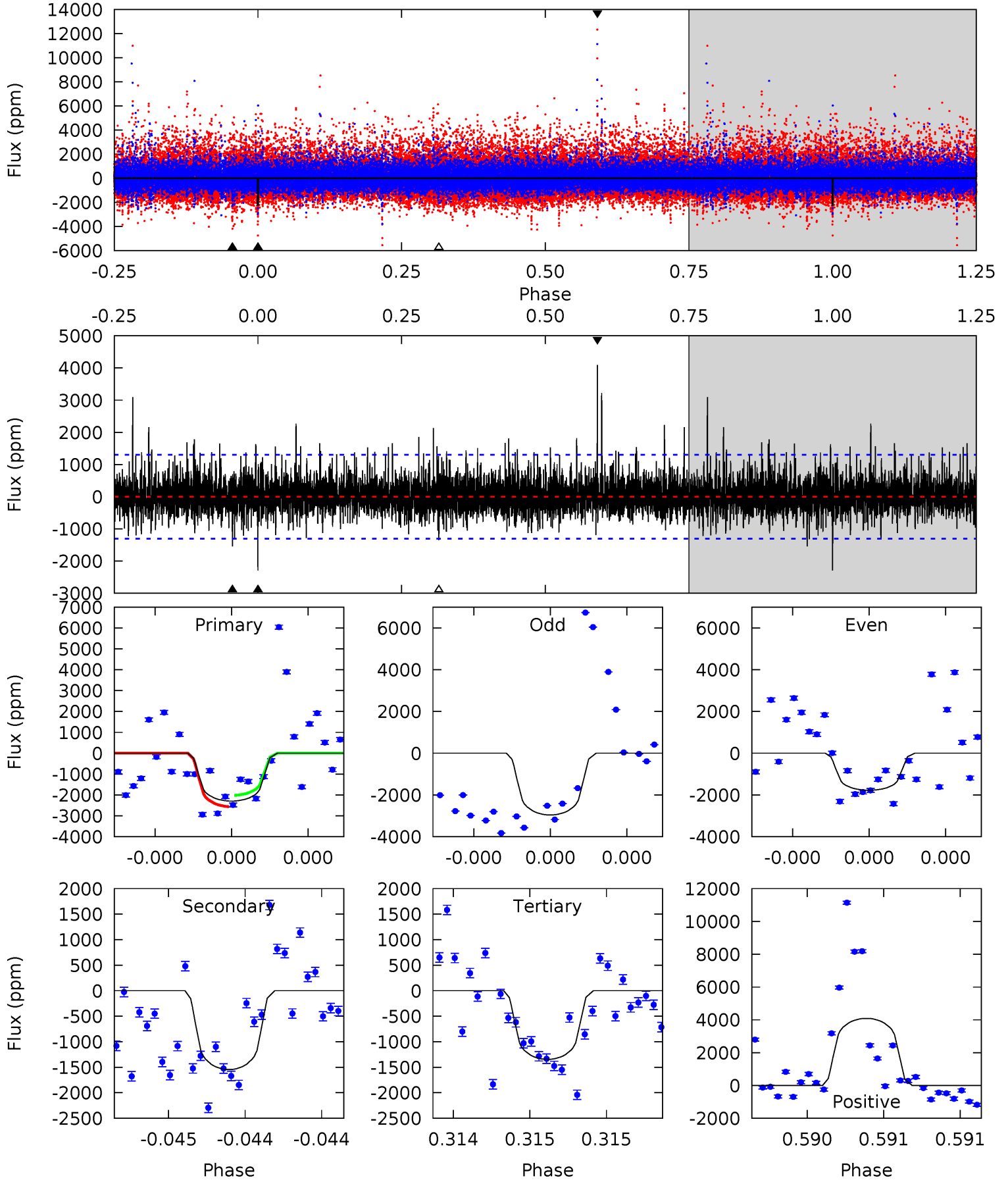
TCE 008807085-04 P=381.739768 Days  $T_0=422.243313$  (BKJD)



# DV Model-Shift Uniqueness Test

008807085-04, P = 381.746353 Days, E = 40.486982 Days

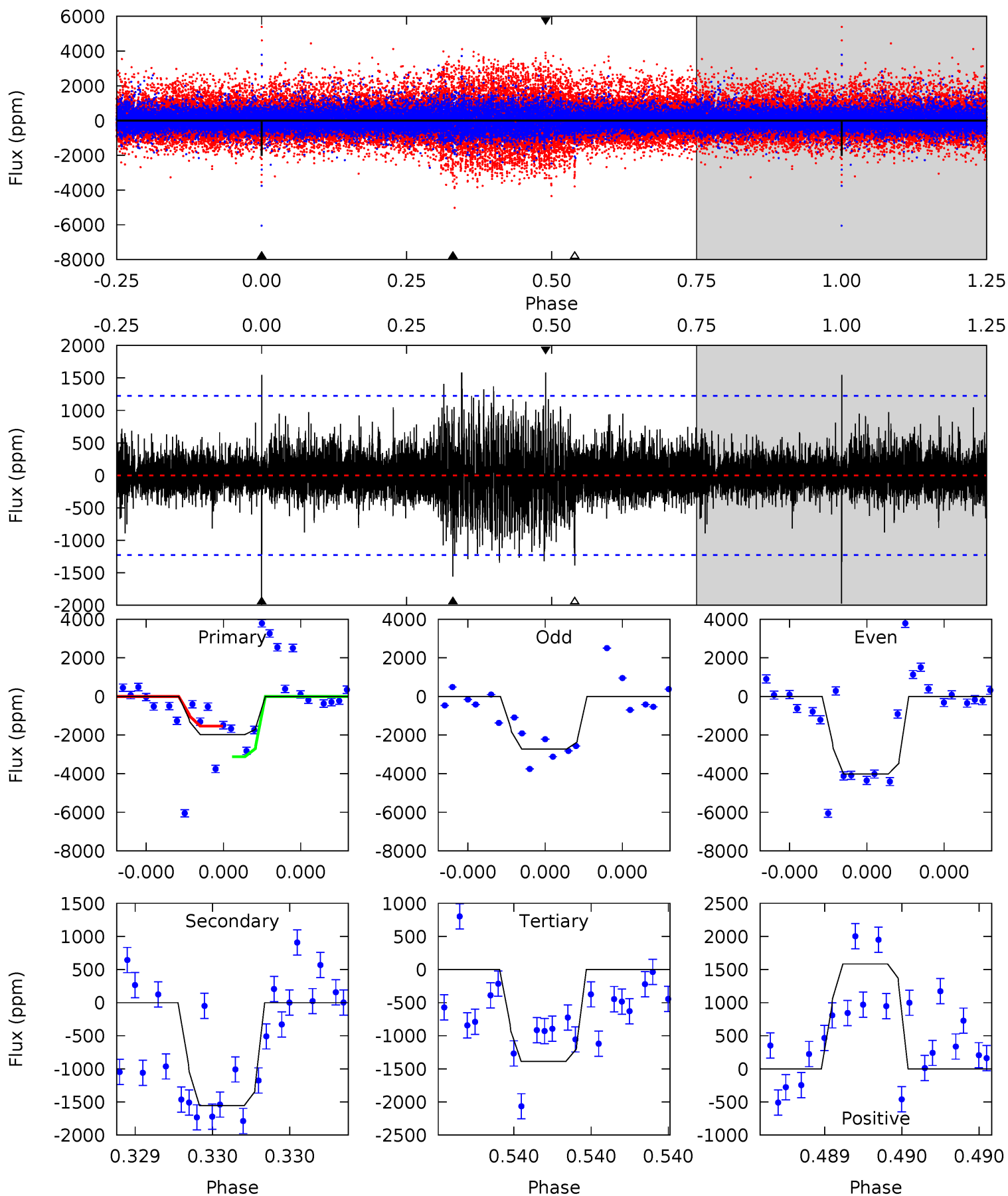
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.85	6.64	5.78	17.6	5.61	3.54	1.84	4.07	-7.72	0.86	-10.9	2.05	0.94	0.64	1.18



# Alt Model-Shift Uniqueness Test

008807085-04, P = 381.739768 Days, E = 40.503545 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.06	7.14	6.37	7.27	5.62	3.56	1.30	2.69	1.79	0.77	-0.13	3.22	1.39	0.45	3.65



### Stellar Parameters For KIC 008807085

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3563^{+89}_{-98}$	$4.853^{+0.066}_{-0.049}$	$-0.100^{+0.100}_{-0.100}$	$0.398^{+0.050}_{-0.062}$	$0.414^{+0.048}_{-0.072}$	$9.224^{+3.437}_{-1.949}$
	+2%/-3%	+1%/-1%	+100%/-100%	+13%/-16%	+12%/-17%	+37%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008807085-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1544 \pm 233$	$2.43^{+1.34}_{-1.25}$	$158^{+5}_{-6}$	$3180^{+864}_{-358}$	$85013^{+284376}_{-48955}$
Alt.	$-1555 \pm 218$	$2.79^{+1.38}_{-1.25}$	$158^{+6}_{-6}$	$3077^{+591}_{-335}$	$66513^{+147002}_{-37293}$

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

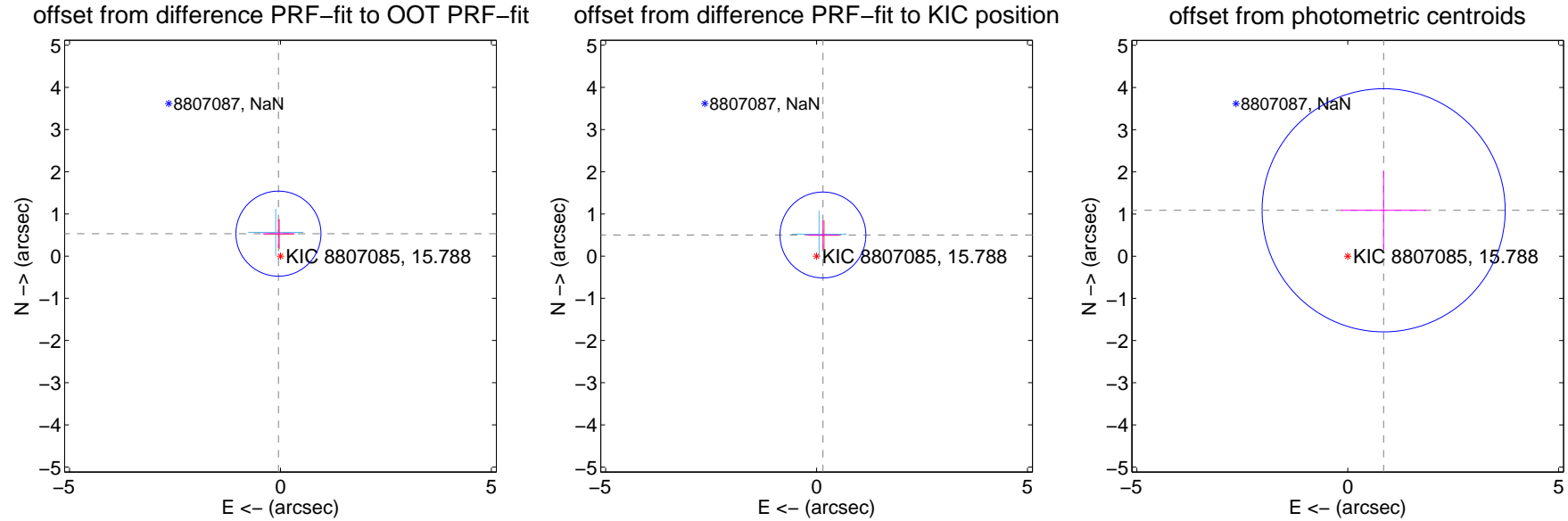
## DV Centroid Data

Supplemental centroid analysis for 008807085-04. Kepler magnitude: 15.79. Transit SNR 7.49

There are 1 quarters with good PRF difference image offsets

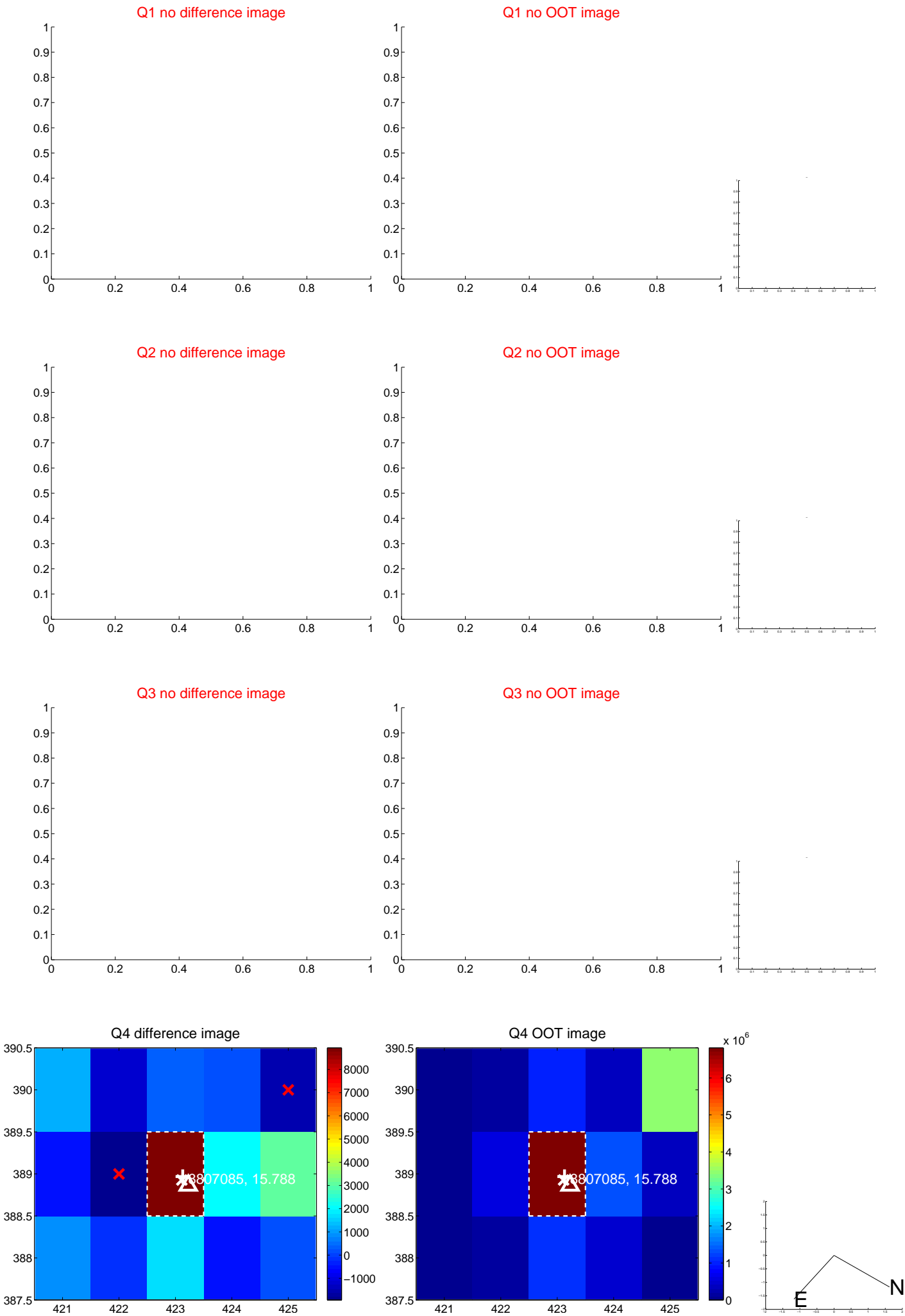
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.535 \pm 0.336$	1.59	$0.048 \pm 0.378$	$0.533 \pm 0.336$
PRF-fit source offset from KIC position	$0.523 \pm 0.339$	1.54	$-0.150 \pm 0.378$	$0.501 \pm 0.336$
photometric centroid source offset	$1.38 \pm 0.96$	1.44	$-0.85 \pm 1.00$	$1.09 \pm 0.93$



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.





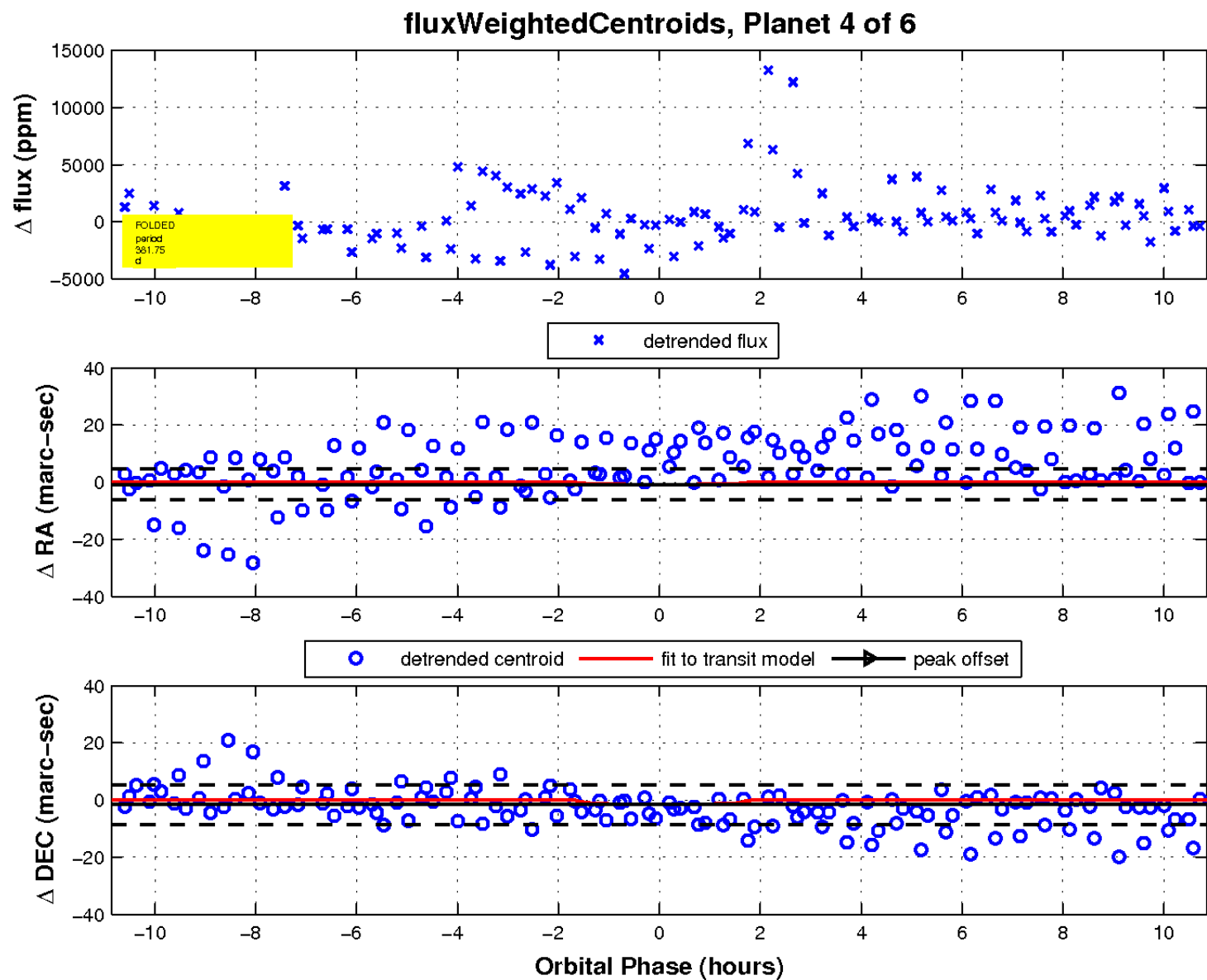
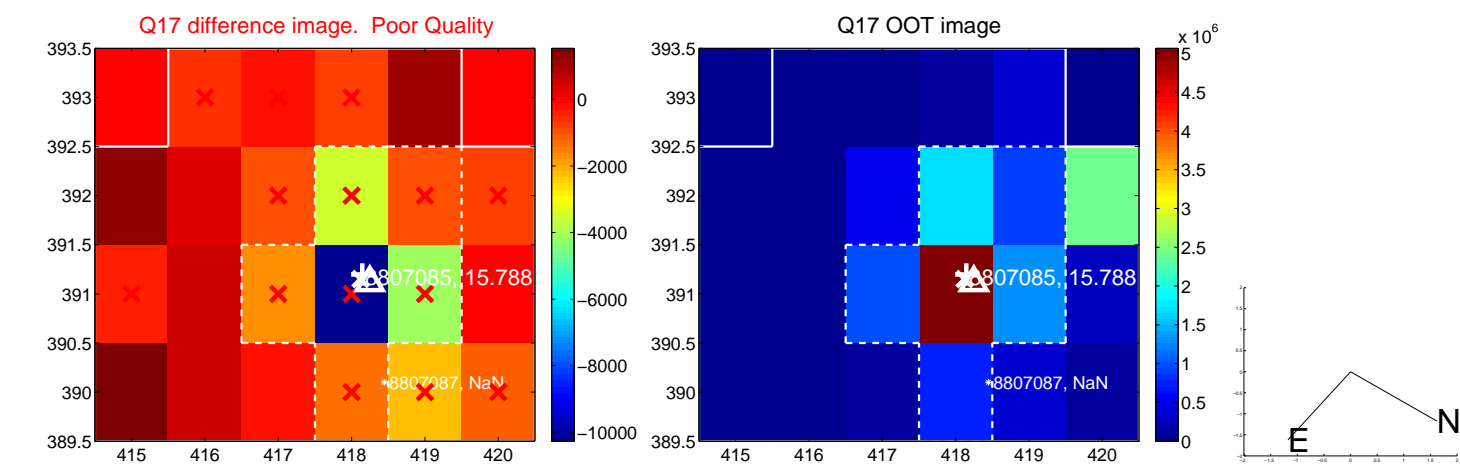
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

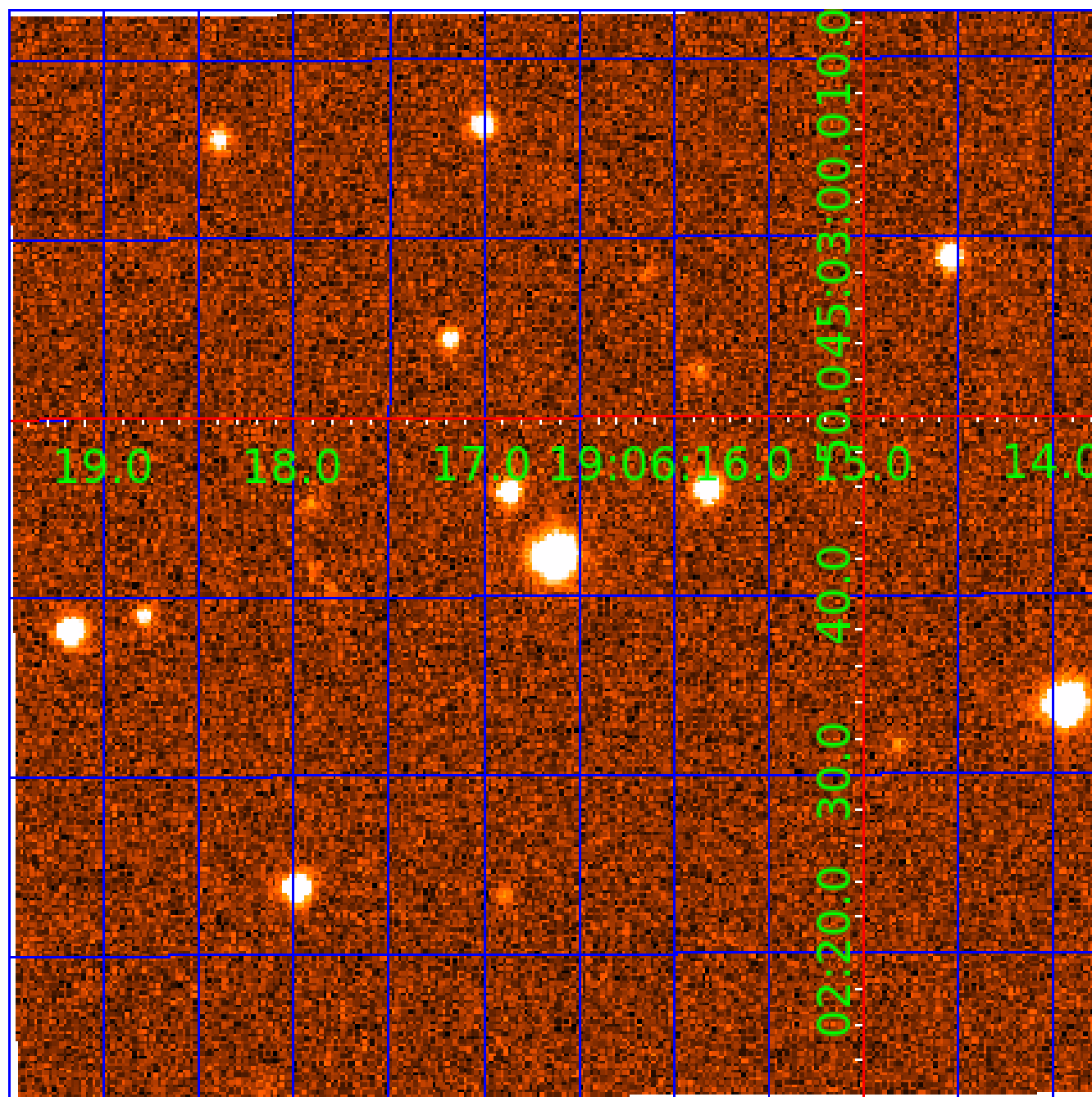


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008807085

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008807085-02	OBS	No	236.640882	252.347132	2255.8	7.692	13.7	6.4	0.40	3563	1.87	0.07
008807085-03	OBS	No	585.835696	370.580063	3769.9	5.050	14.5	8.4	0.40	3563	2.98	0.02
008807085-04	OBS	No	381.746353	422.233335	3070.3	3.647	13.8	7.5	0.40	3563	2.34	0.04
008807085-05	OBS	No	350.708177	288.617775	3913.2	23.323	11.5	7.4	0.40	3563	3.07	0.04
008807085-06	OBS	No	628.360433	237.237129	2418.3	4.535	10.8	6.7	0.40	3563	1.93	0.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008807085-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008807085-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008807085-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008807085-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008807085-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

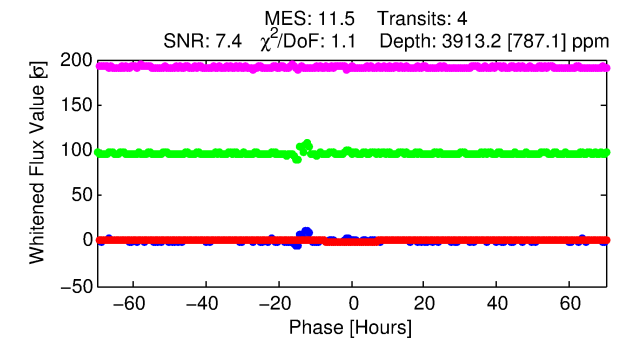
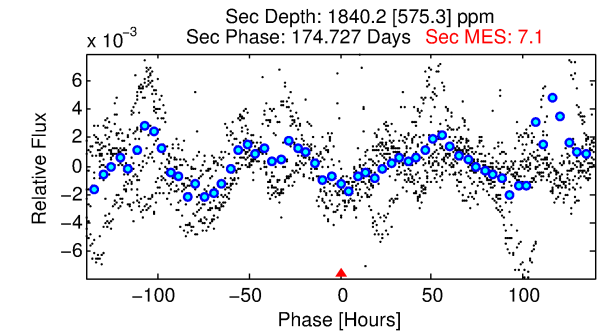
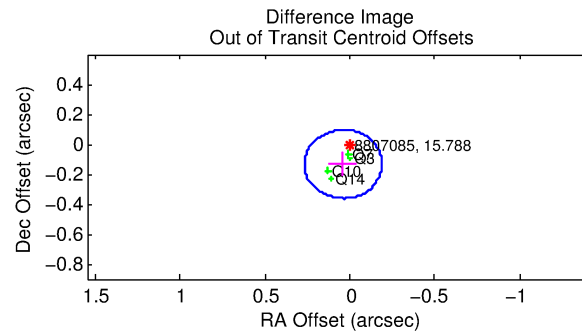
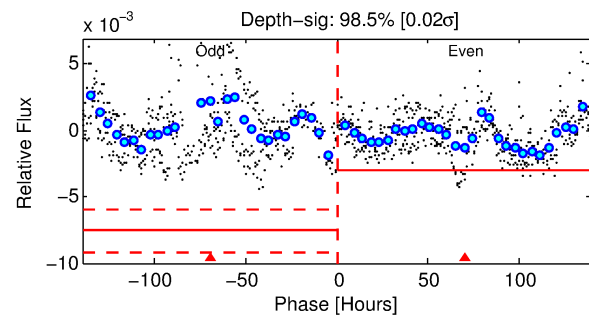
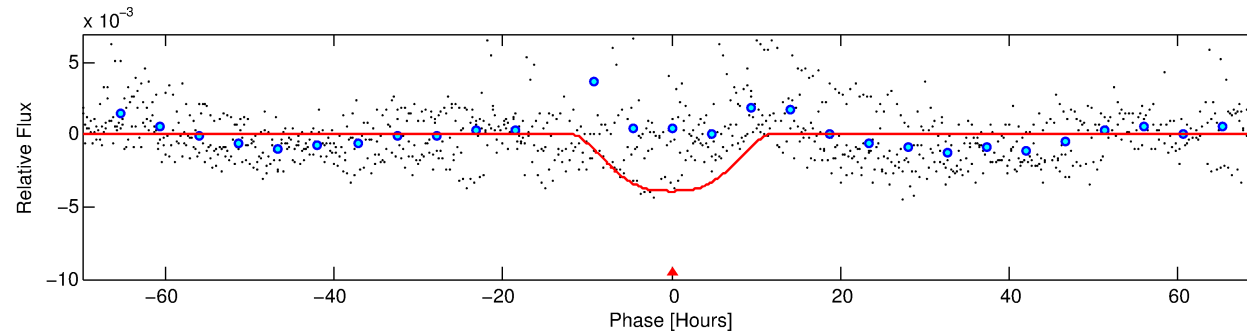
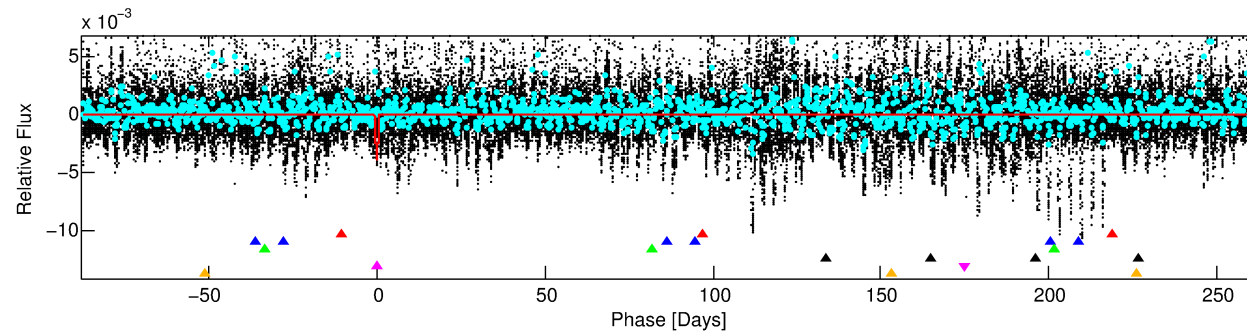
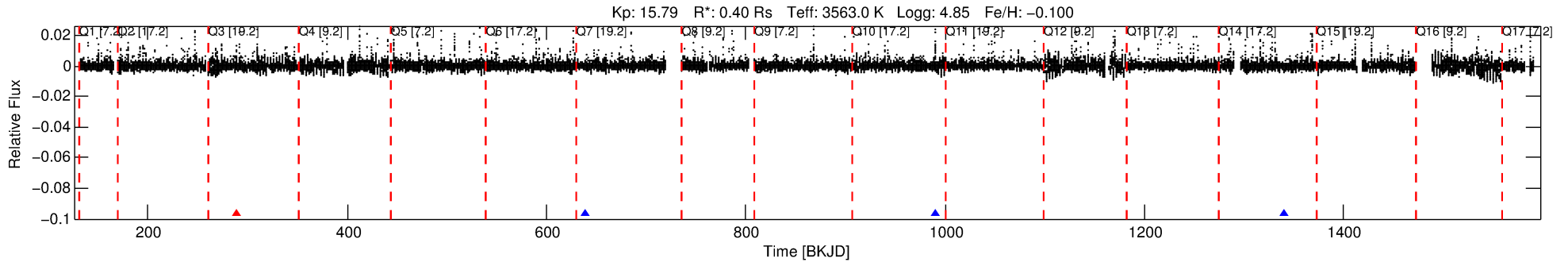
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008807085-05

No Significant Match Found

# DV One-Page Summary

KIC: 8807085 Candidate: 5 of 6 Period: 350.708 d



## DV Fit Results:

Period = 350.70818 [0.02501] d  
Epoch = 288.6178 [0.0447] BKJD  
Rp/R\* = 0.0707 [0.0085]  
a/R\* = 62.67 [7.37]  
b = 0.92 [0.03]  
Seff = 0.04 [0.01]  
Teq = 117 [5] K  
Rp = 3.07 [0.60] Re  
a = 0.7243 [0.0837] AU  
Ag = 56362.12 [23648.11] [2.38σ]  
Teffp = 2776 [284] K [9.37σ]

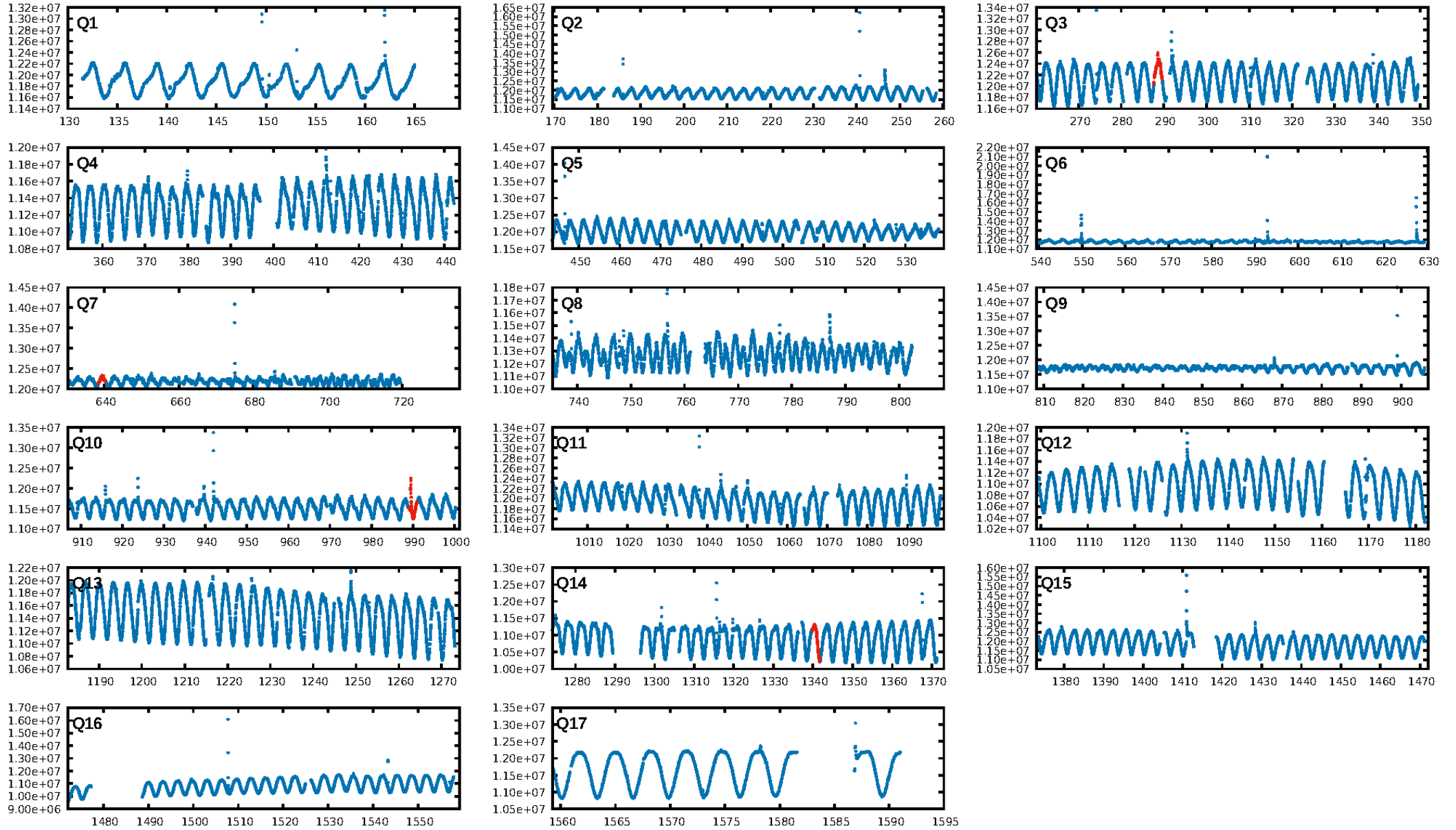
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [111.47σ]  
LongPeriod-sig: 100.0% [31.56σ]  
ModelChiSquare2-sig: 0.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.75 [3/4]  
GhostDiagnostic-chr: 0.9986  
Centroid-sig: 15.3%  
Centroid-so: 1.522 arcsec [1.40σ]  
OotOffset-rm: 0.140 arcsec [1.83σ]  
OotOffset-st: 2/2/0/0 [4]  
KicOffset-rm: 0.103 arcsec [1.43σ]  
KicOffset-st: 2/2/0/0 [4]  
DiffImageQuality-fgm: 0.25 [1/4]  
DiffImageOverlap-fno: 1.00 [4/4]

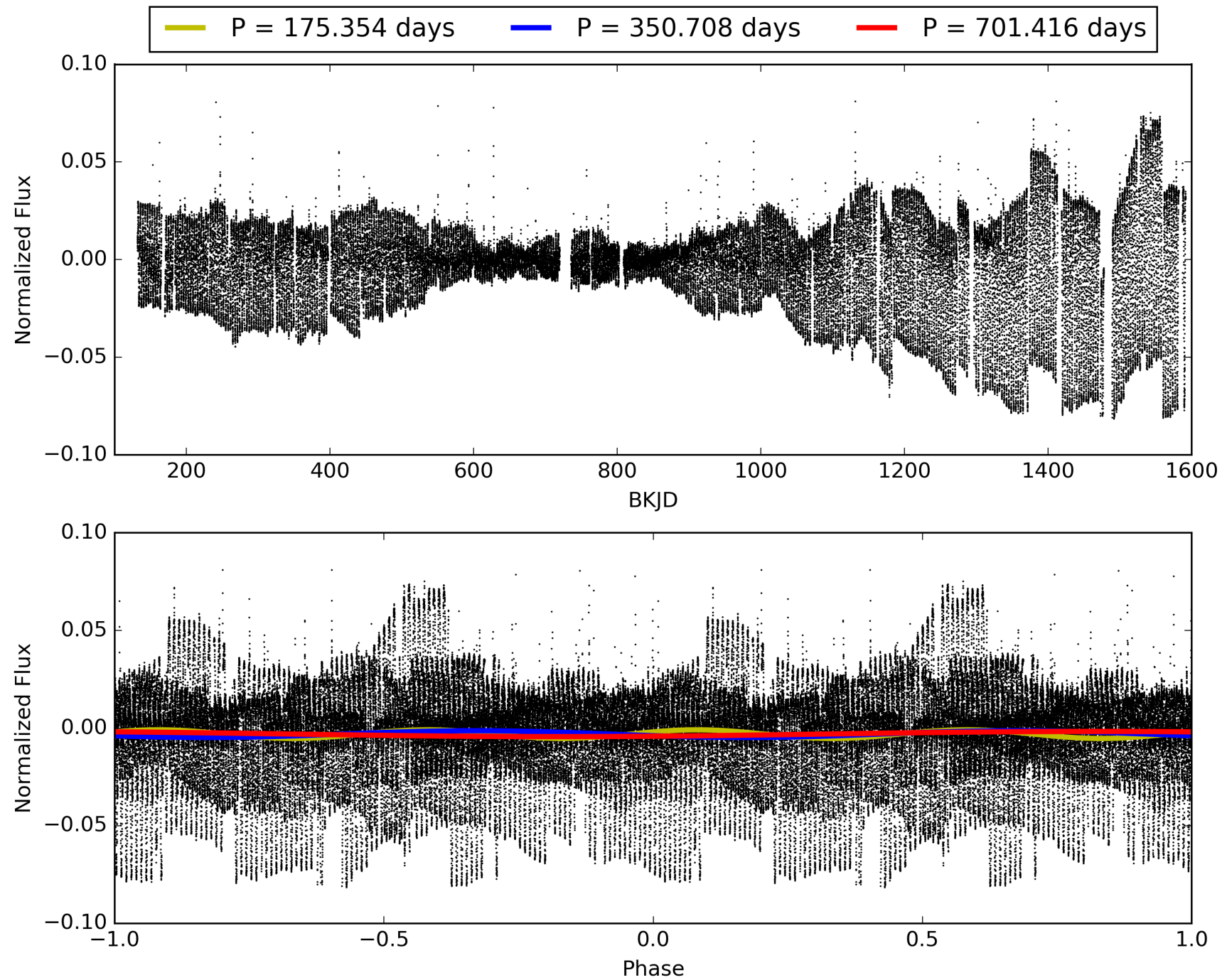
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:09:12 Z

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

# TCE 008807085-05, PDC Light Curves



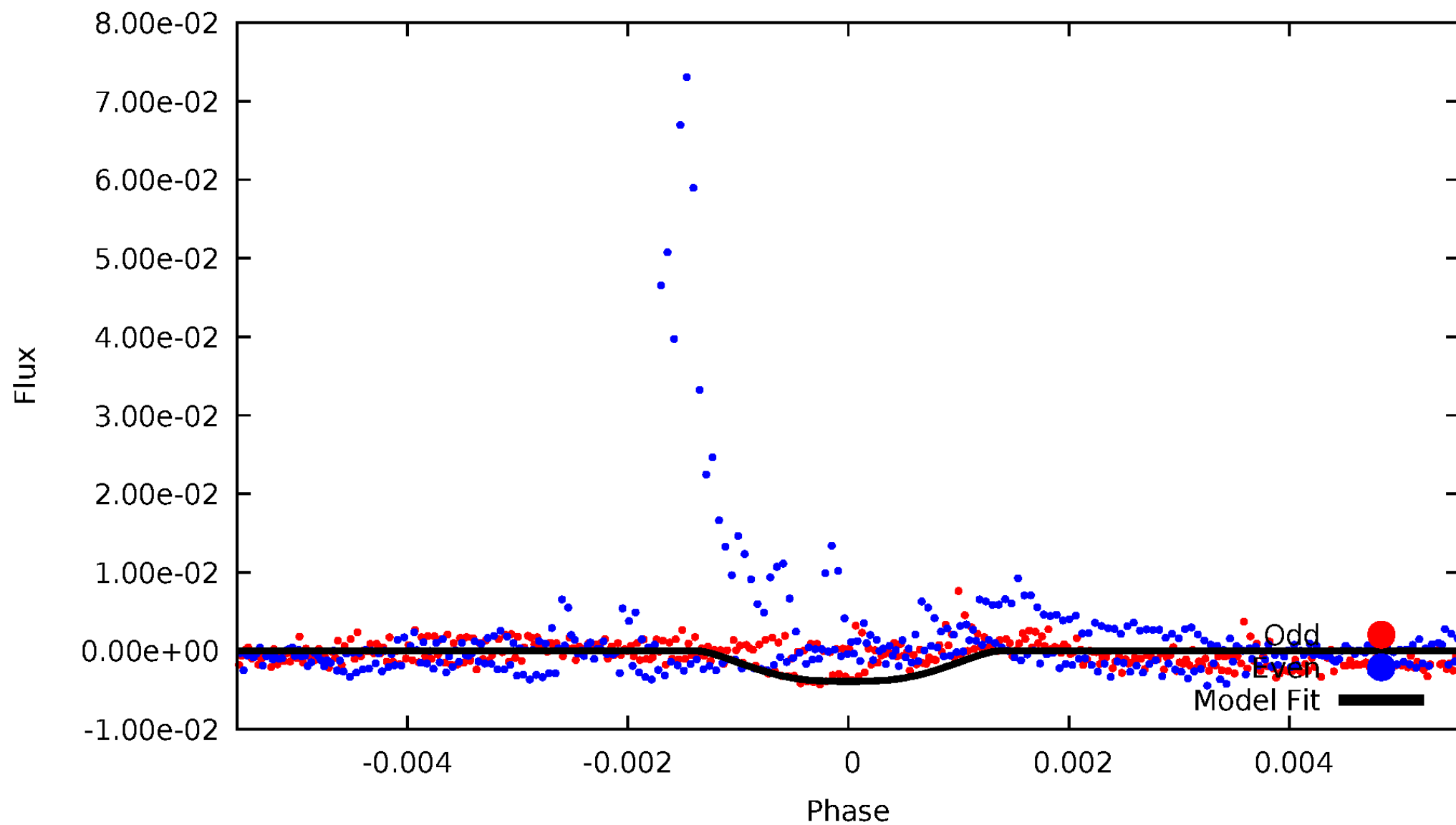
TCE 008807085-05





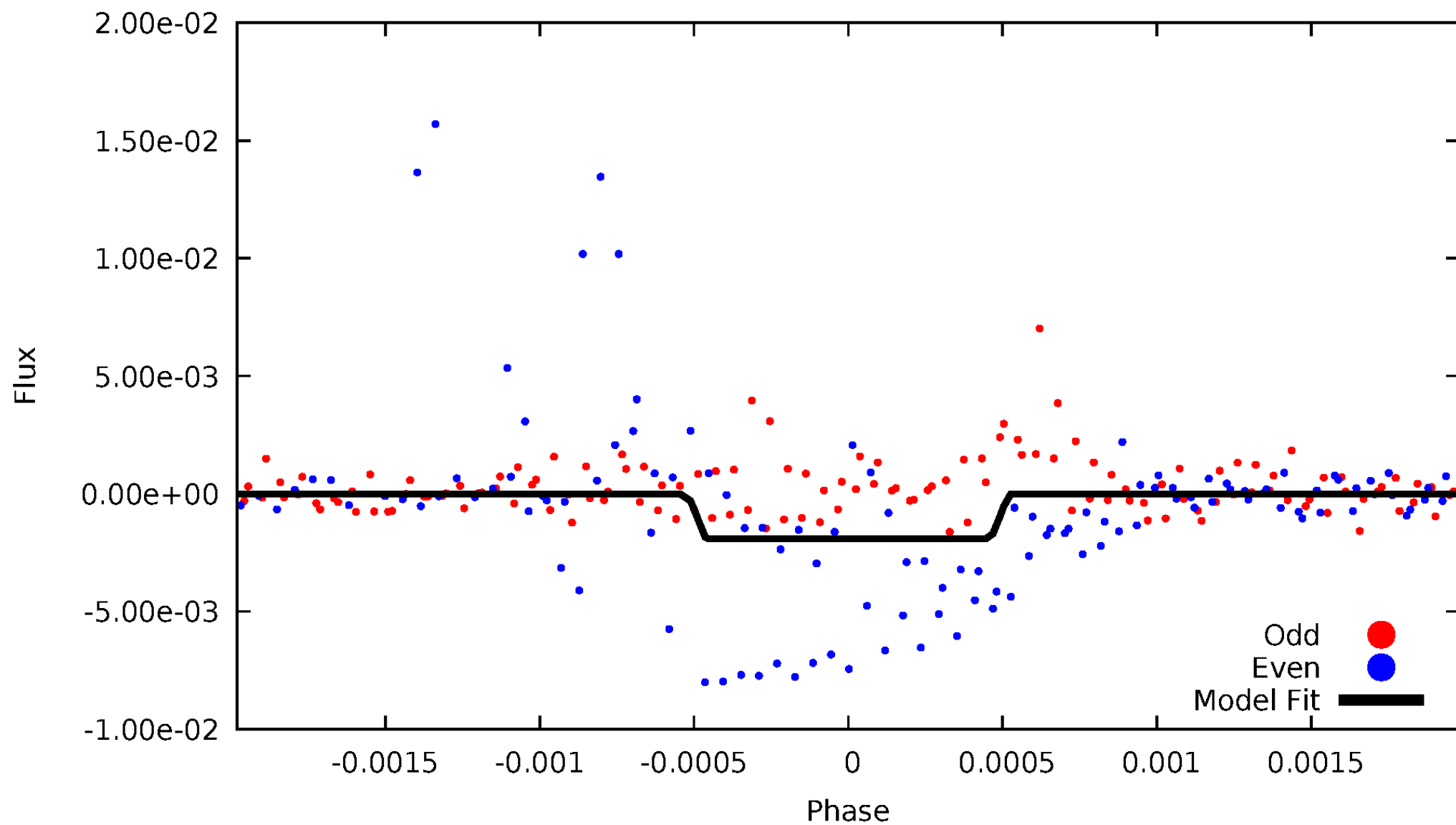
# DV Odd/Even

TCE 008807085-05



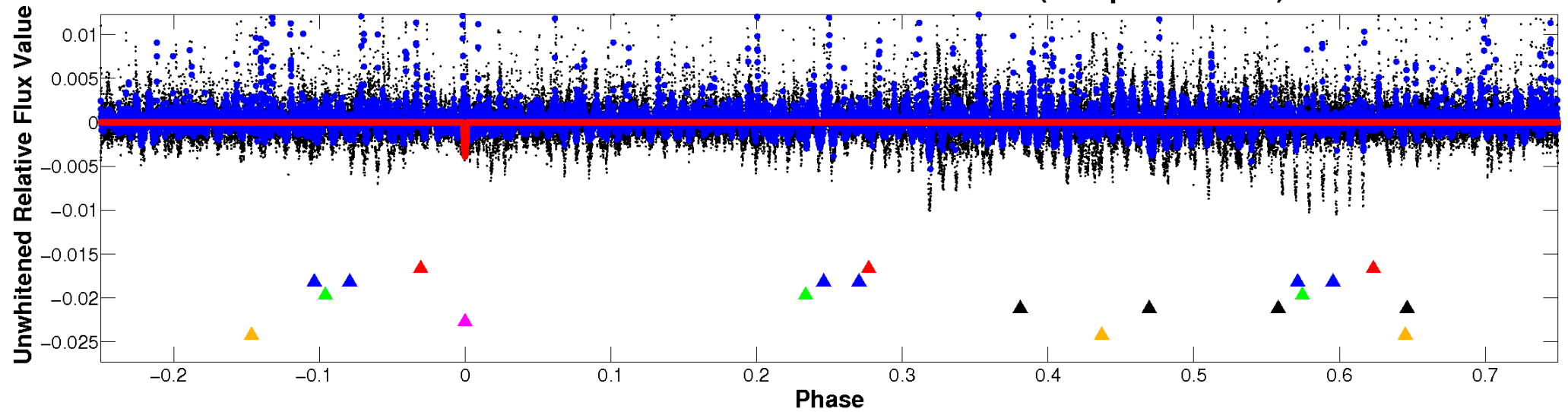
# ALT Odd/Even

TCE 008807085-05

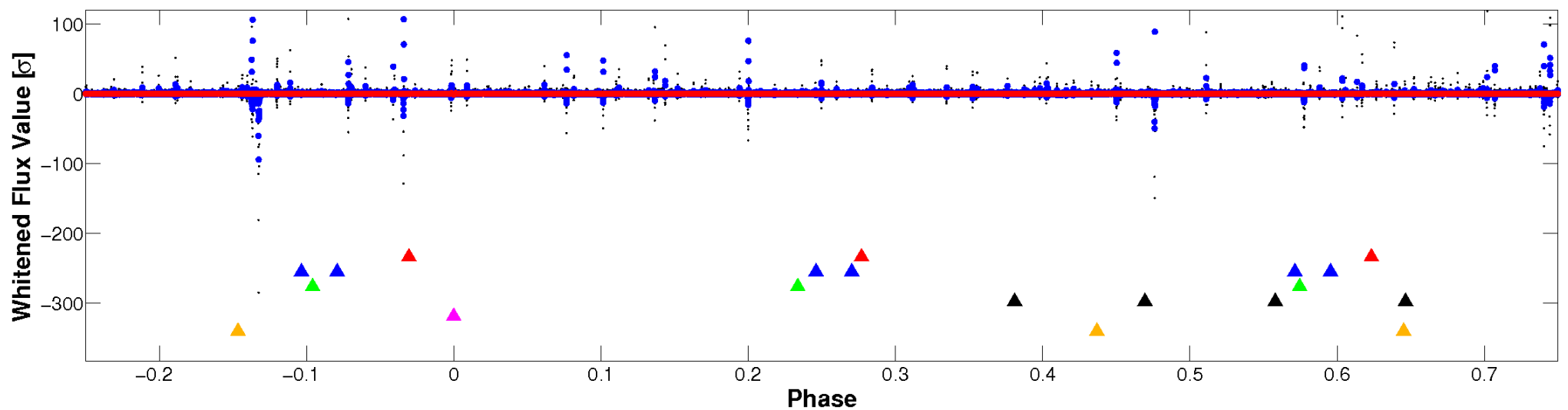


# Non-Whitened Vs. Whitened Light Curve

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

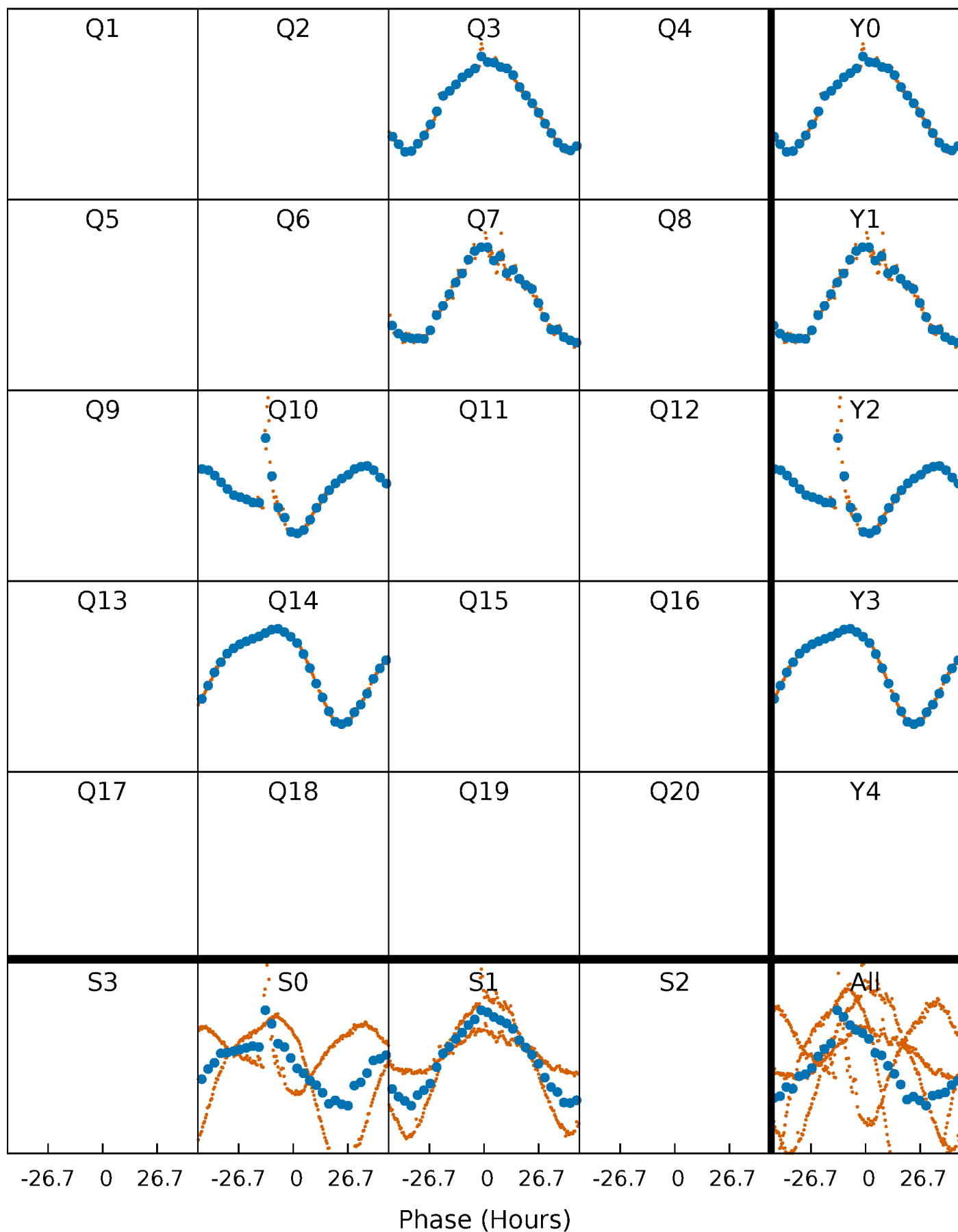


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



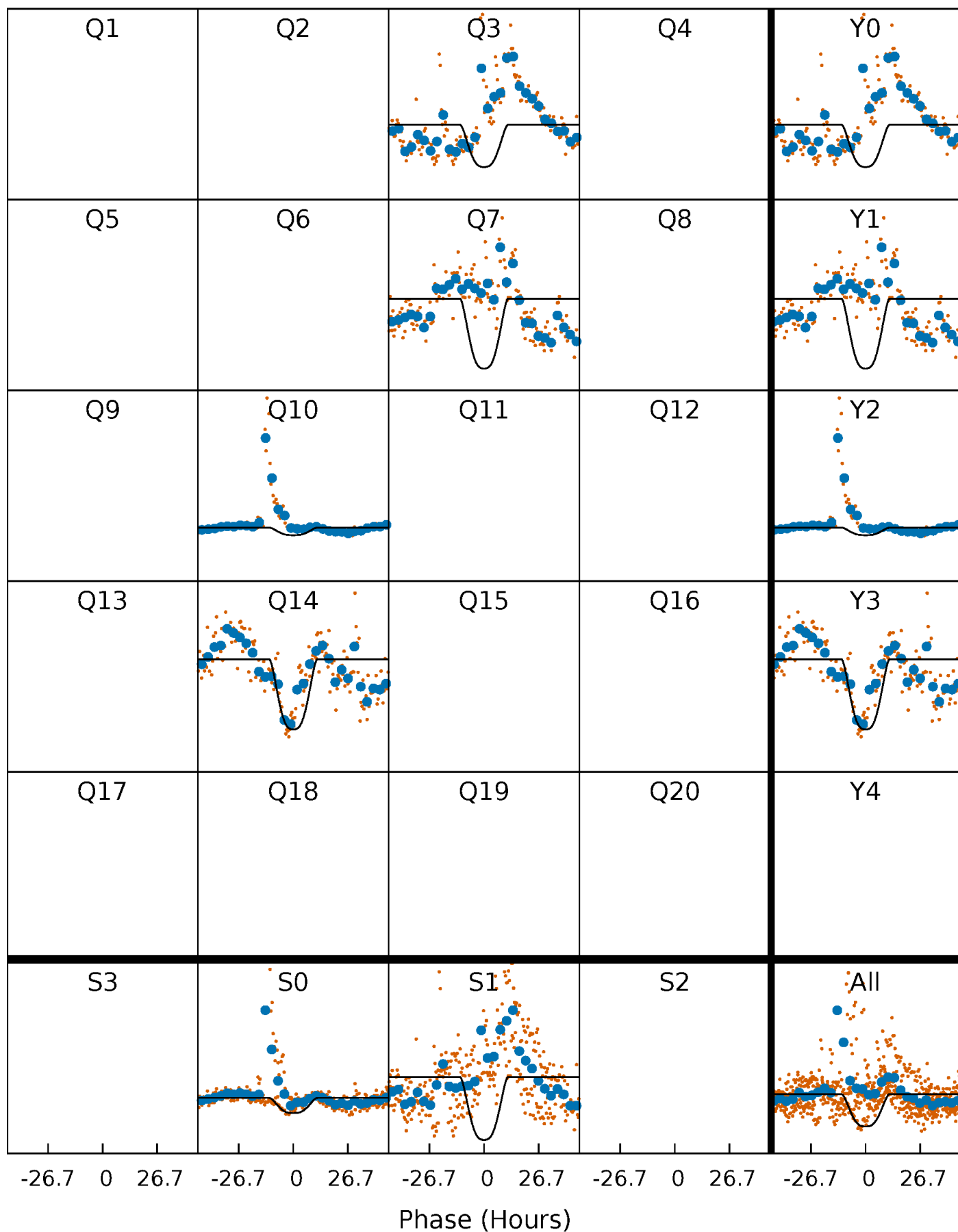
# PDC Quarter-Phased Transit Curves

TCE 008807085-05     $P=350.708177$  Days     $T_0=288.617775$  (BKJD)



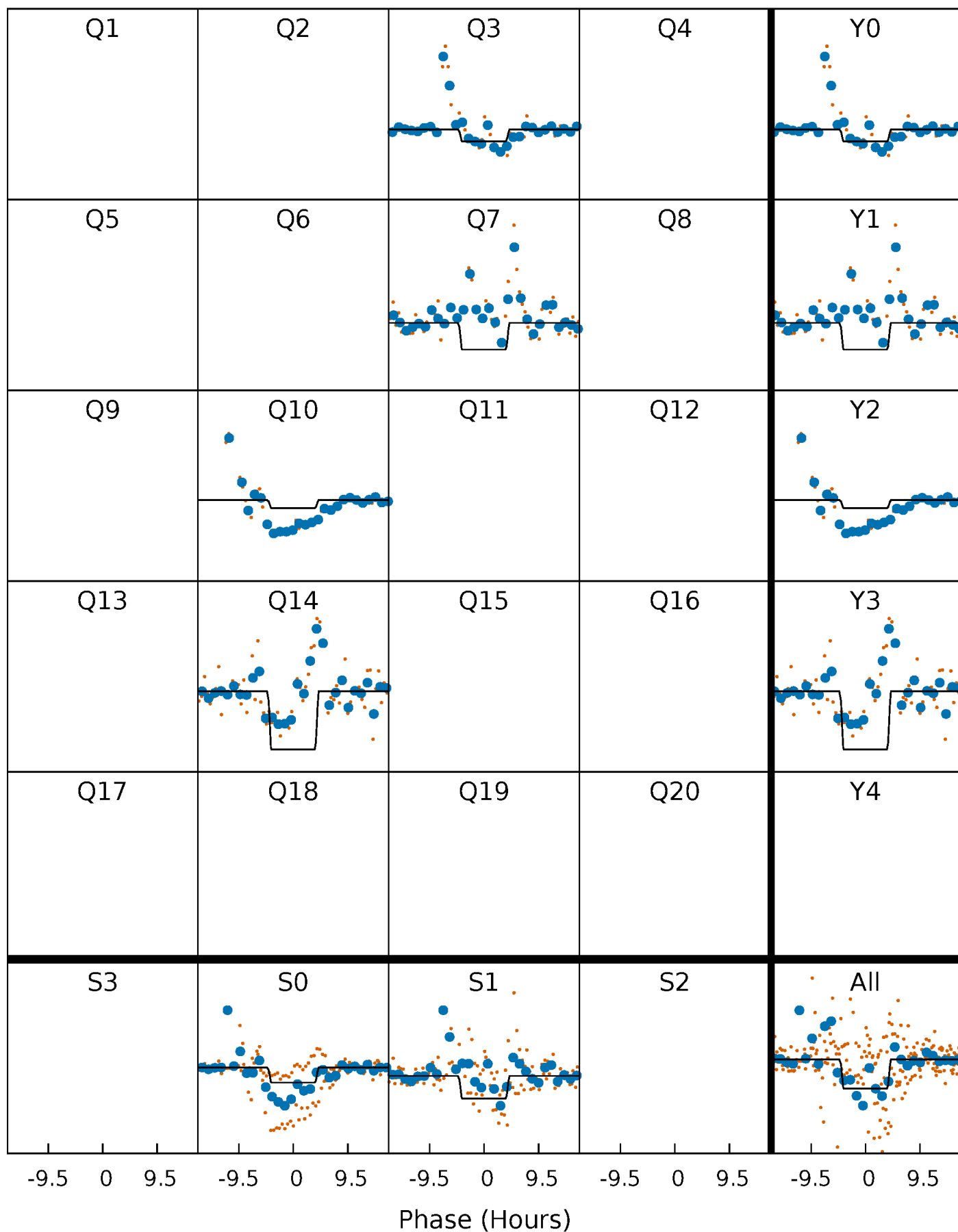
# DV Quarter-Phased Transit Curves

TCE 008807085-05     $P=350.708177$  Days     $T_0=288.617775$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

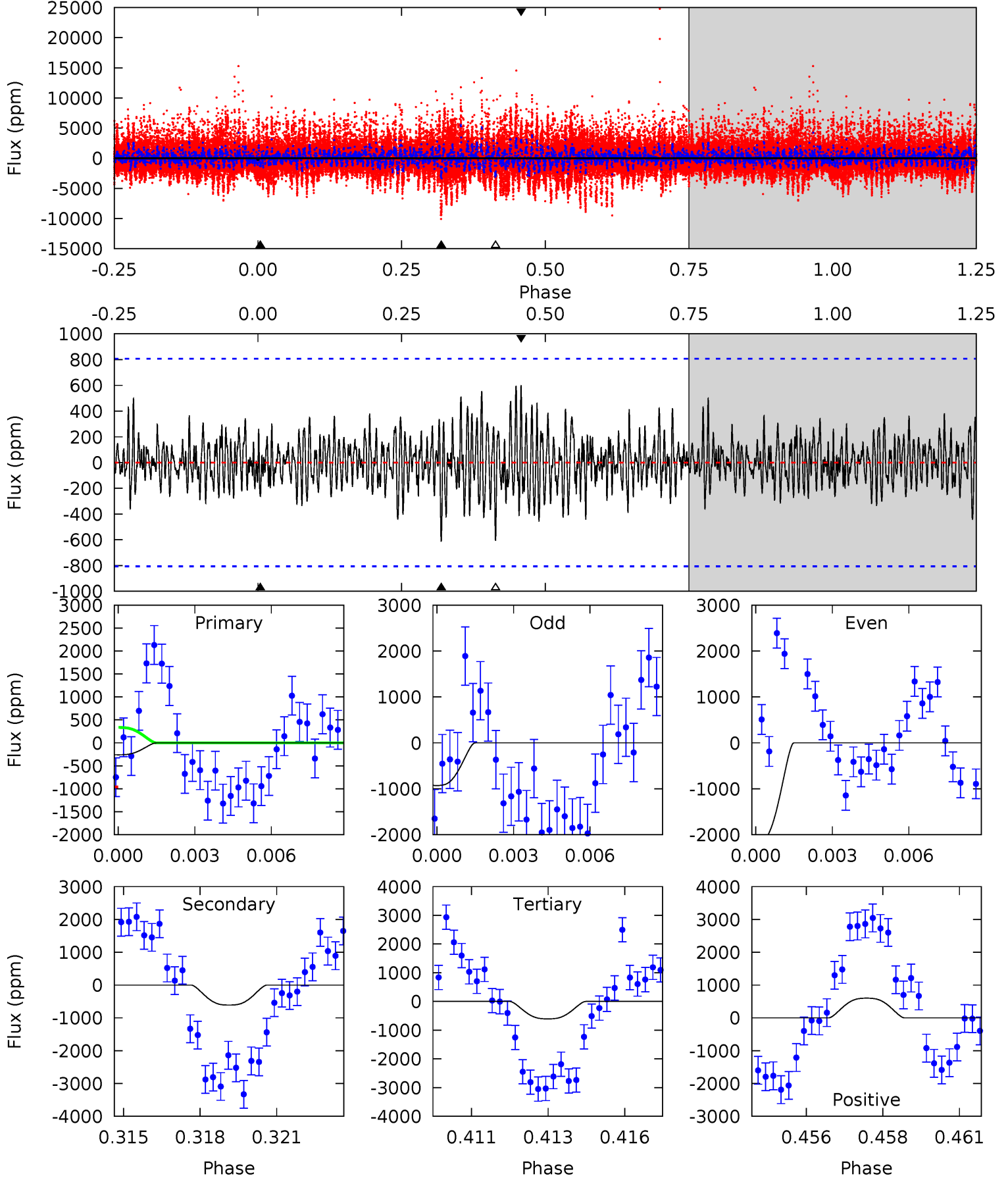
TCE 008807085-05     $P=350.612645$  Days     $T_0=288.846077$  (BKJD)



# DV Model-Shift Uniqueness Test

008807085-05,  $P = 350.708177$  Days,  $E = 288.617775$  Days

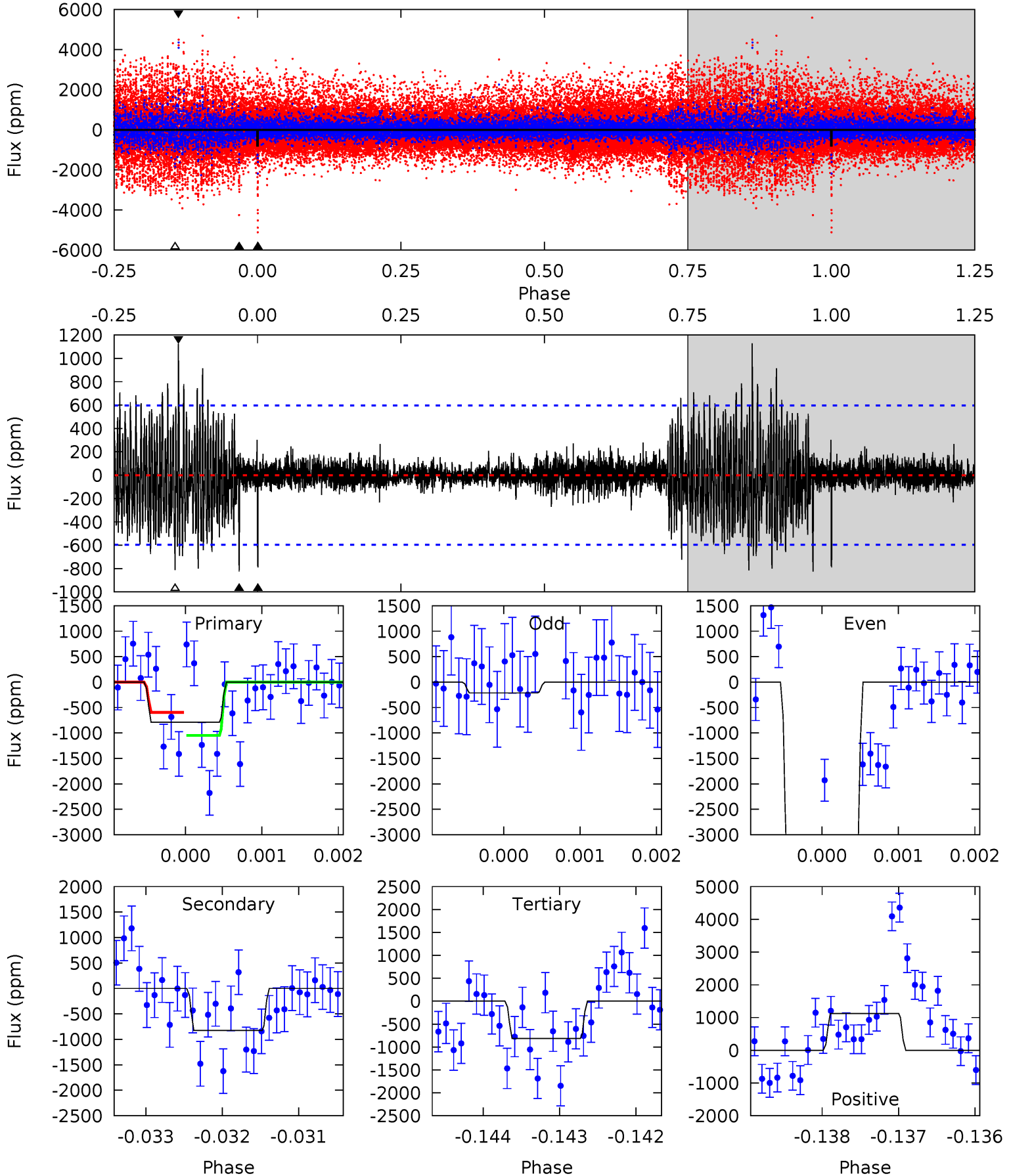
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.70	3.99	3.96	3.92	5.26	2.99	1.10	-2.27	-2.22	0.03	0.07	2.00	0.47	0.50	2.06



# Alt Model-Shift Uniqueness Test

008807085-05, P = 350.612645 Days, E = 288.846077 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
7.22	7.53	7.43	10.3	5.45	3.29	1.53	-0.21	-3.05	0.10	-2.74	17.3	2.08	0.58	2.01





### Stellar Parameters For KIC 008807085

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3563^{+89}_{-98}$	$4.853^{+0.066}_{-0.049}$	$-0.100^{+0.100}_{-0.100}$	$0.398^{+0.050}_{-0.062}$	$0.414^{+0.048}_{-0.072}$	$9.224^{+3.437}_{-1.949}$
	+2%/-3%	+1%/-1%	+100%/-100%	+13%/-16%	+12%/-17%	+37%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008807085-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-611 \pm 153$	$3.07^{+0.43}_{-0.42}$	$162^{+6}_{-6}$	$2633^{+140}_{-120}$	$18624^{+8211}_{-5528}$
Alt.	$-825 \pm 109$	$1.90^{+0.40}_{-0.39}$	$162^{+6}_{-6}$	$3121^{+224}_{-178}$	$66084^{+37079}_{-22134}$

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

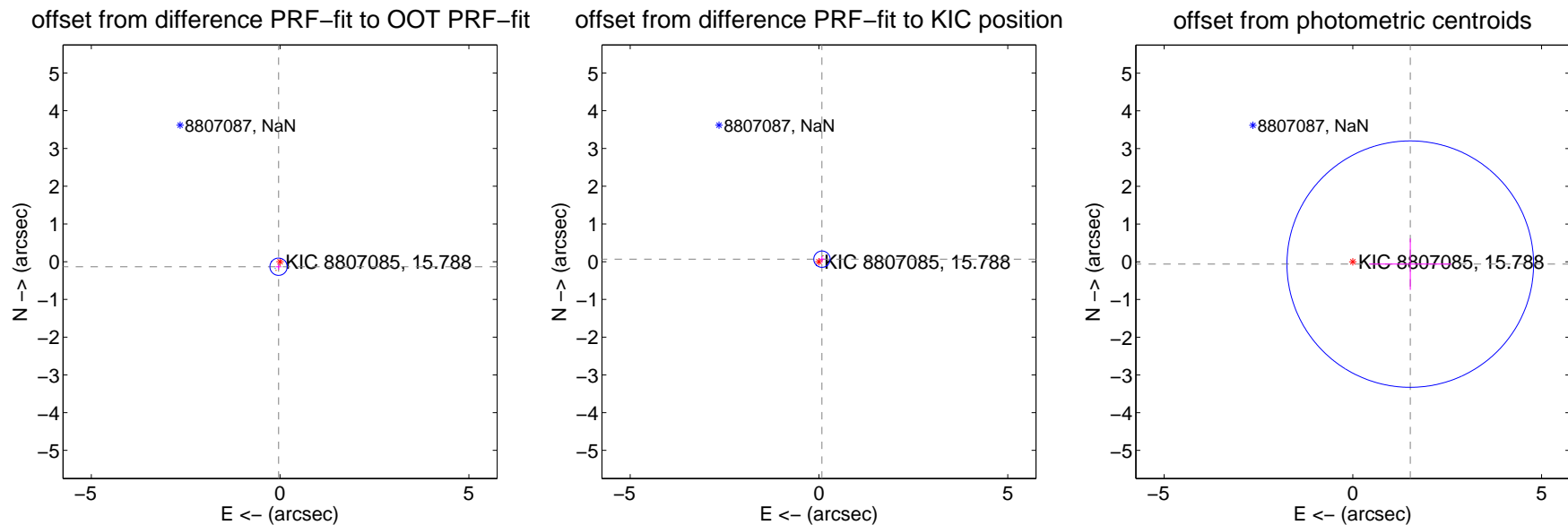
## DV Centroid Data

Supplemental centroid analysis for 008807085-05. Kepler magnitude: 15.79. Transit SNR 7.35

There are 1 quarters with good PRF difference image offsets

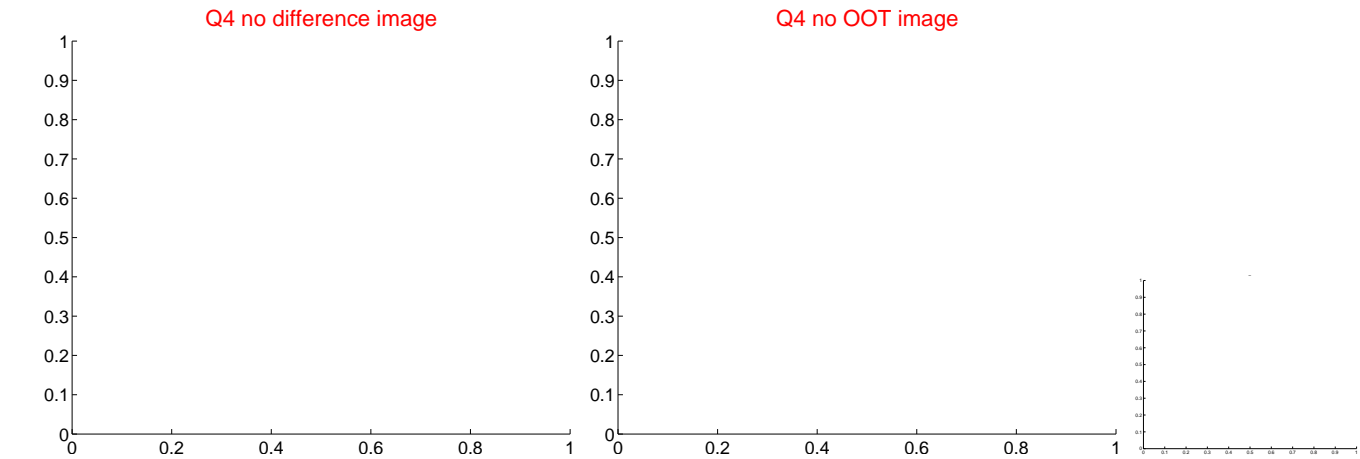
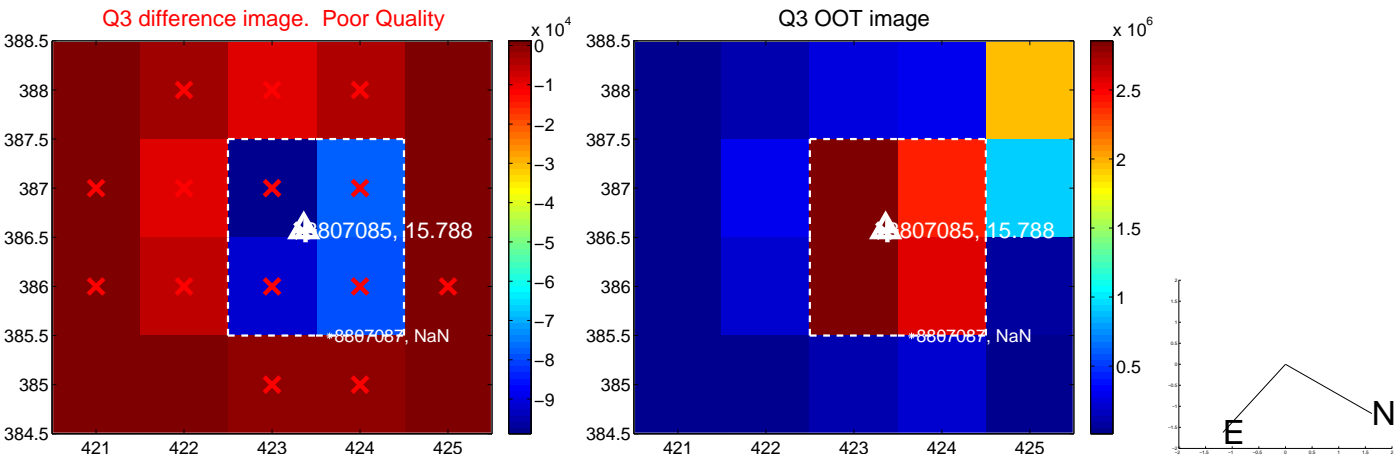
The direct PRF centroid is offset from the target star catalog position by about 0.44 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.140 \pm 0.076$	1.83	$0.041 \pm 0.076$	$-0.133 \pm 0.076$
PRF-fit source offset from KIC position	$0.103 \pm 0.072$	1.43	$-0.079 \pm 0.068$	$0.067 \pm 0.078$
photometric centroid source offset	$1.52 \pm 1.09$	1.40	$-1.52 \pm 1.09$	$-0.06 \pm 0.68$

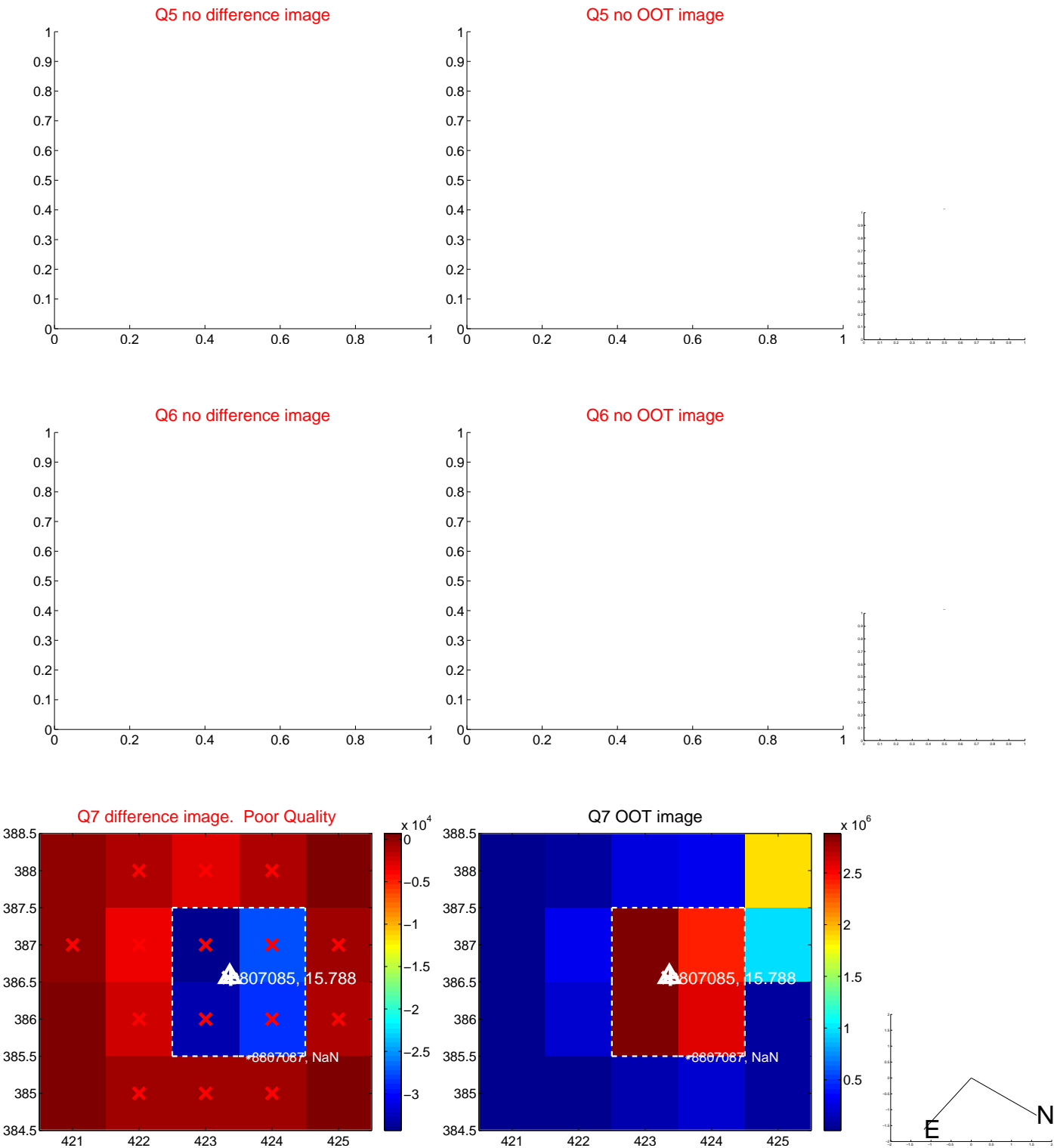


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

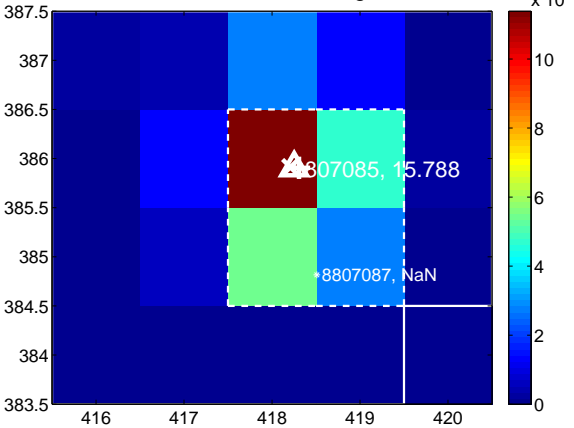
Q9 no difference image



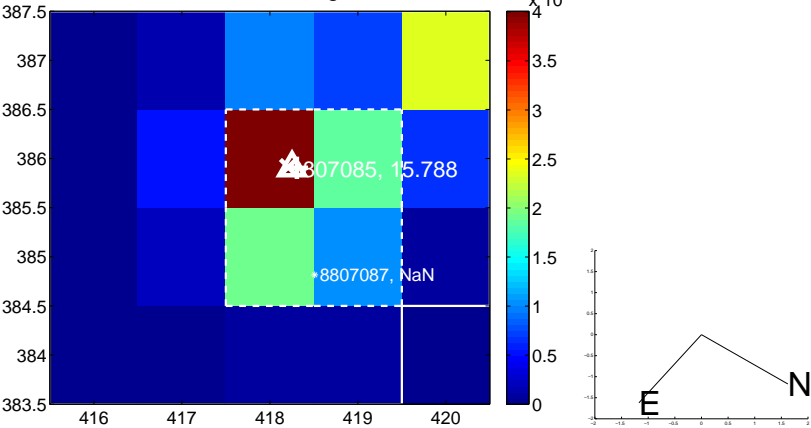
Q9 no OOT image



Q10 difference image



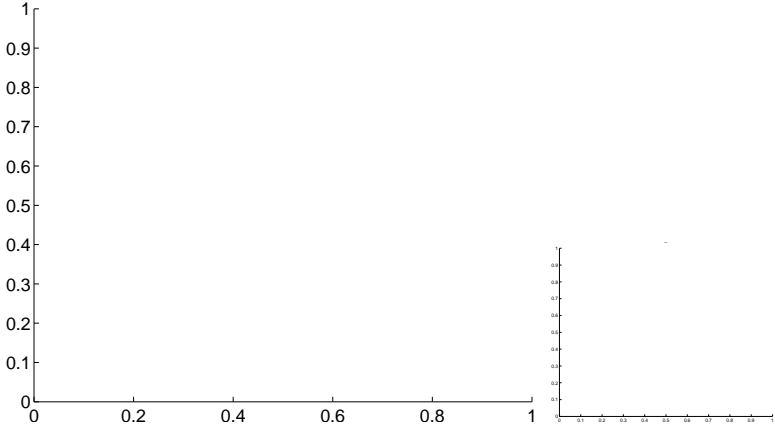
Q10 OOT image



Q11 no difference image



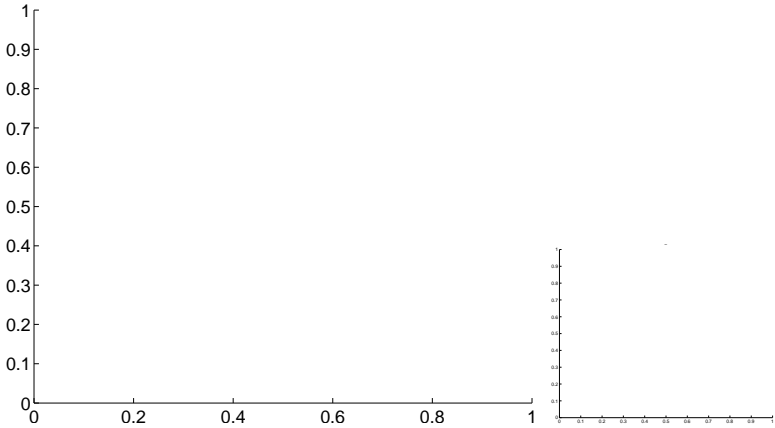
Q11 no OOT image



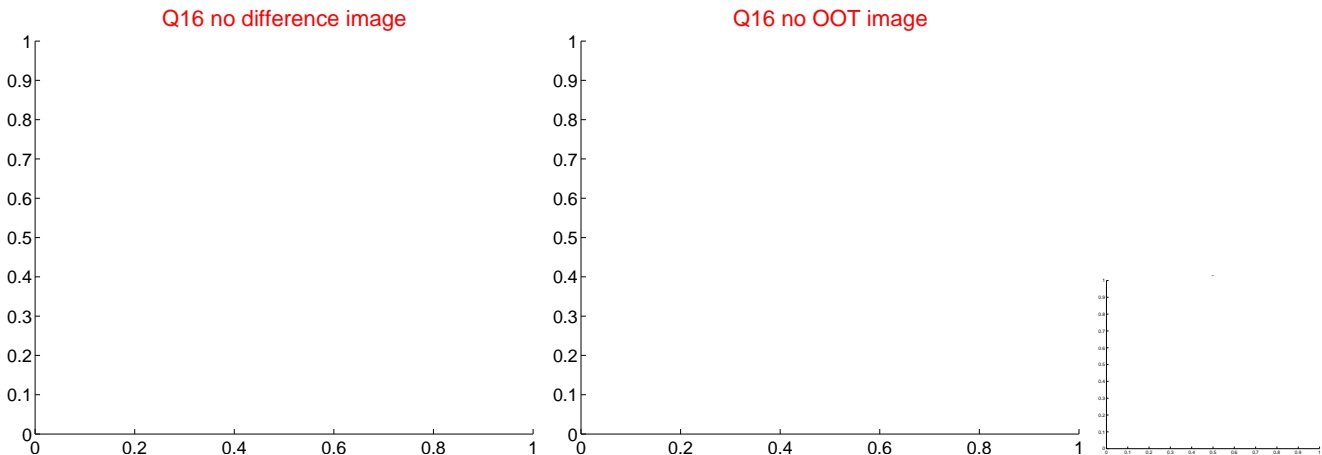
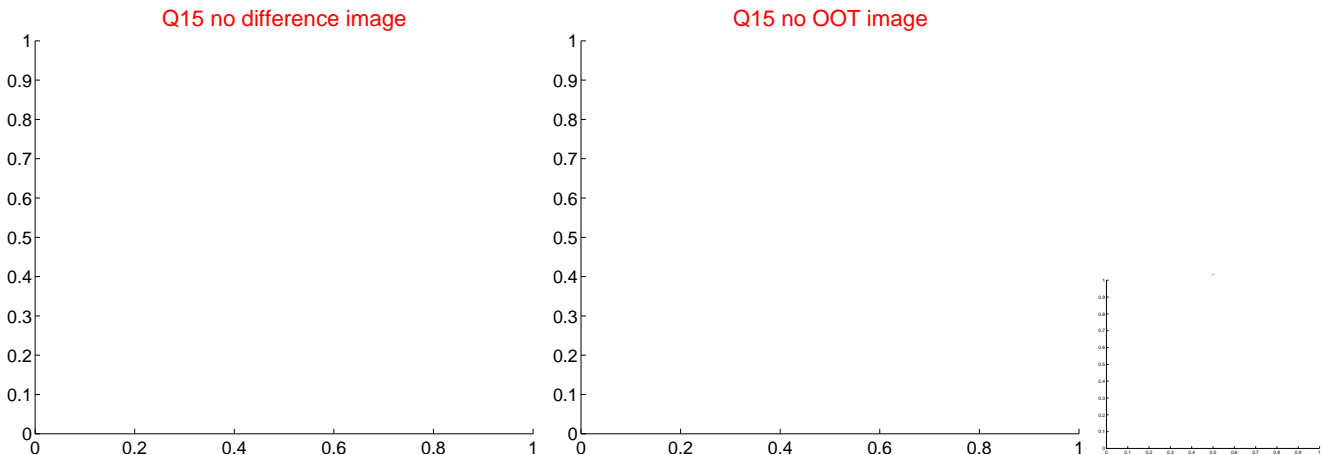
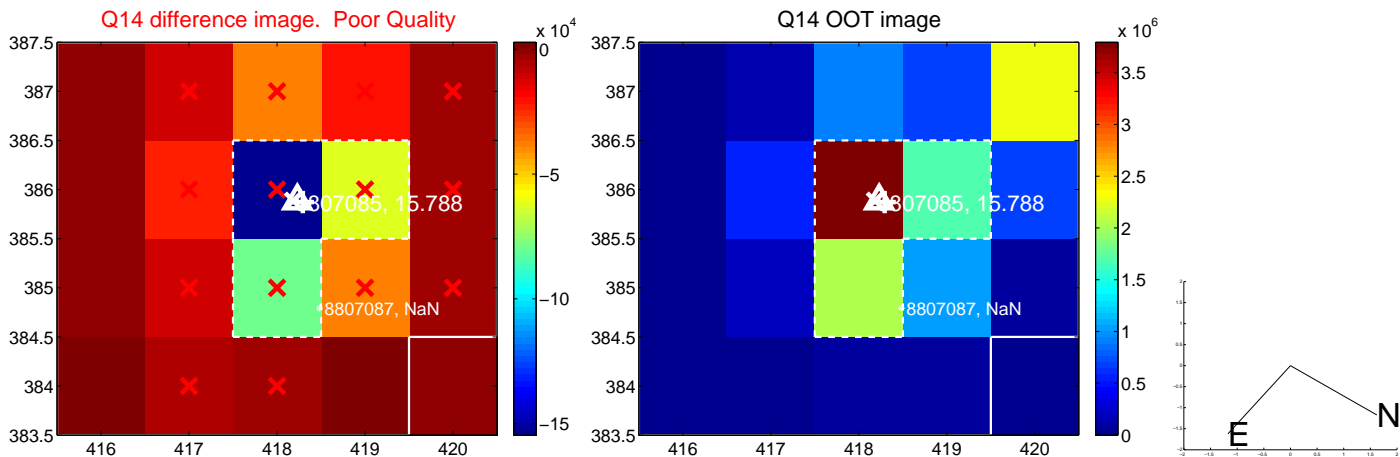
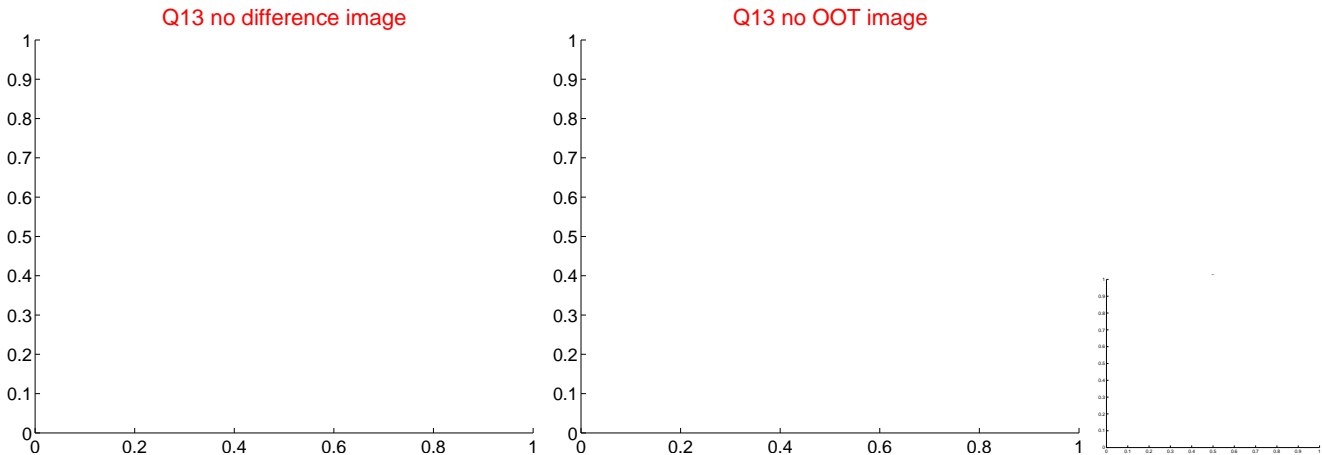
Q12 no difference image



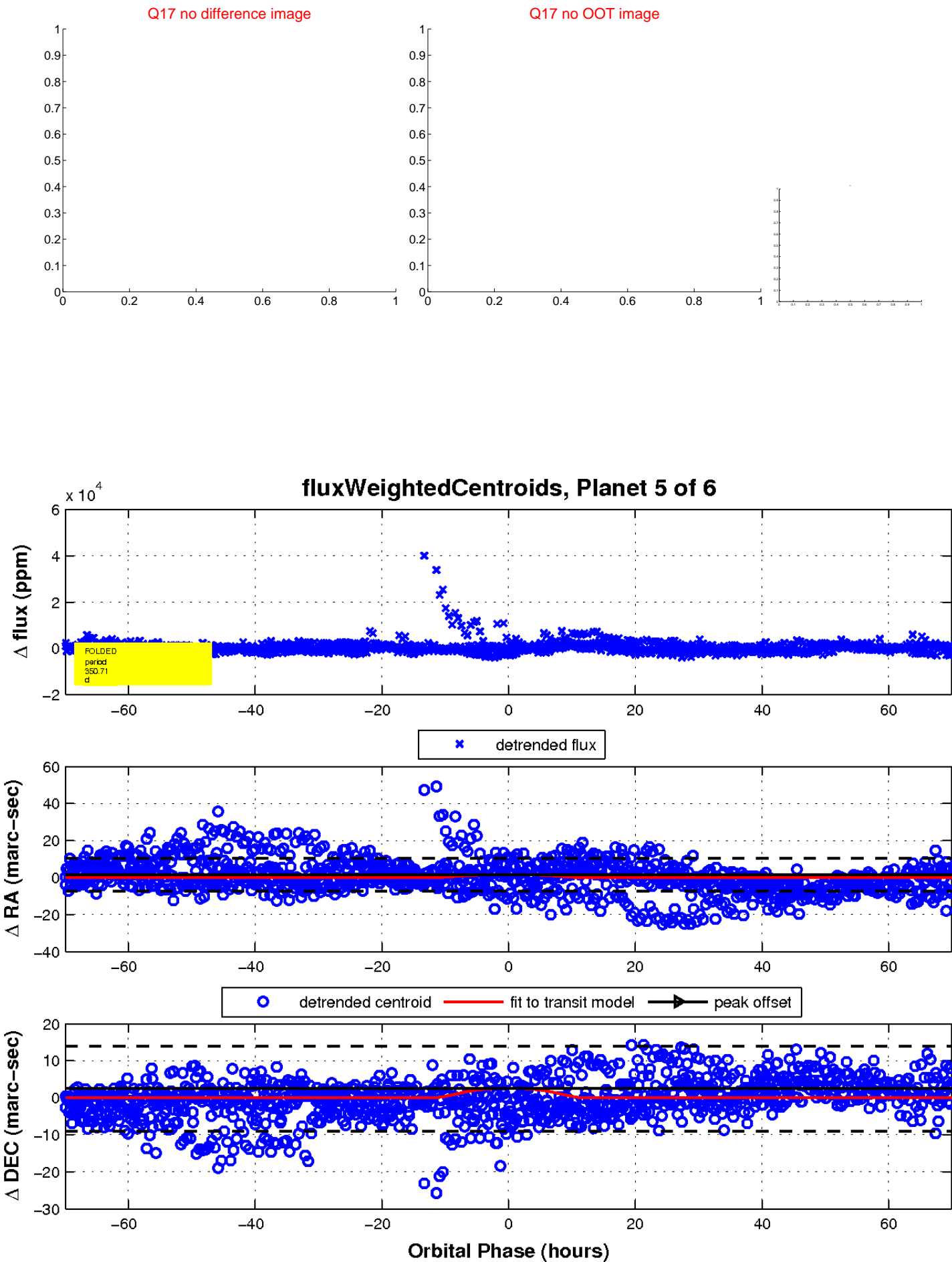
Q12 no OOT image



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

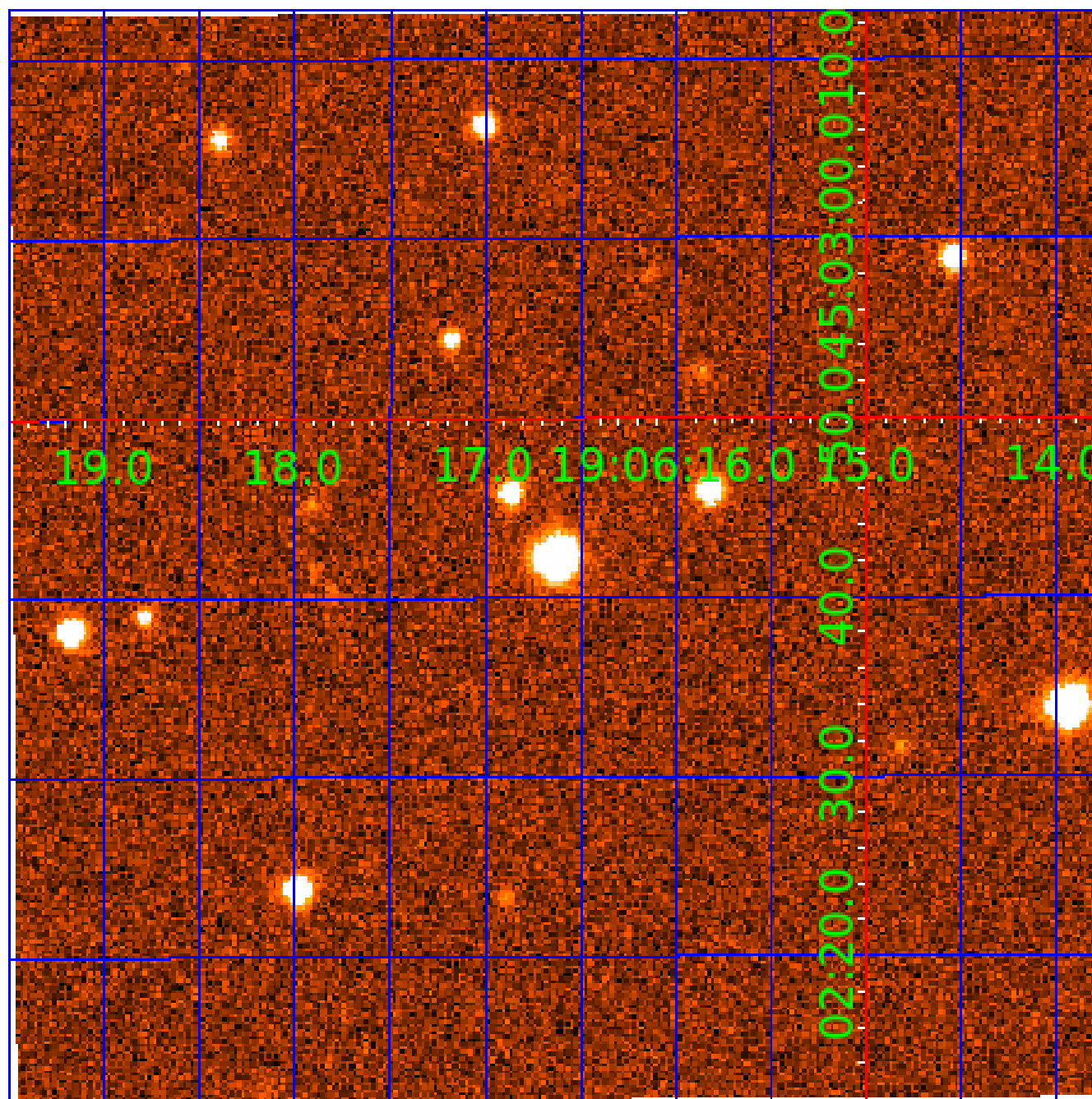


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008807085

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008807085-02	OBS	No	236.640882	252.347132	2255.8	7.692	13.7	6.4	0.40	3563	1.87	0.07
008807085-03	OBS	No	585.835696	370.580063	3769.9	5.050	14.5	8.4	0.40	3563	2.98	0.02
008807085-04	OBS	No	381.746353	422.233335	3070.3	3.647	13.8	7.5	0.40	3563	2.34	0.04
008807085-05	OBS	No	350.708177	288.617775	3913.2	23.323	11.5	7.4	0.40	3563	3.07	0.04
008807085-06	OBS	No	628.360433	237.237129	2418.3	4.535	10.8	6.7	0.40	3563	1.93	0.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008807085-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008807085-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008807085-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008807085-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008807085-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

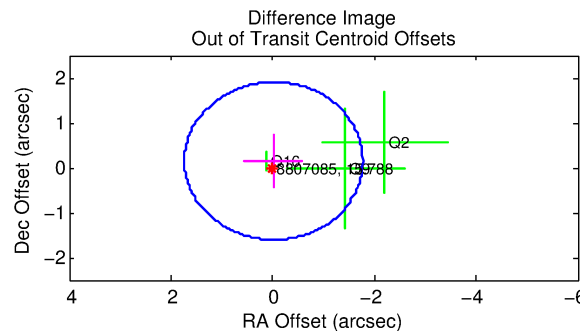
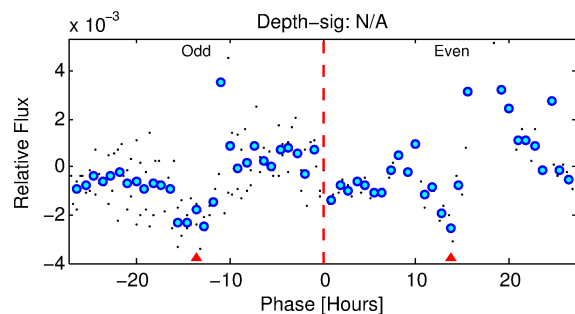
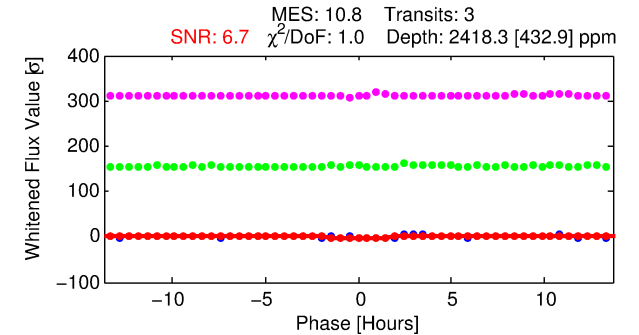
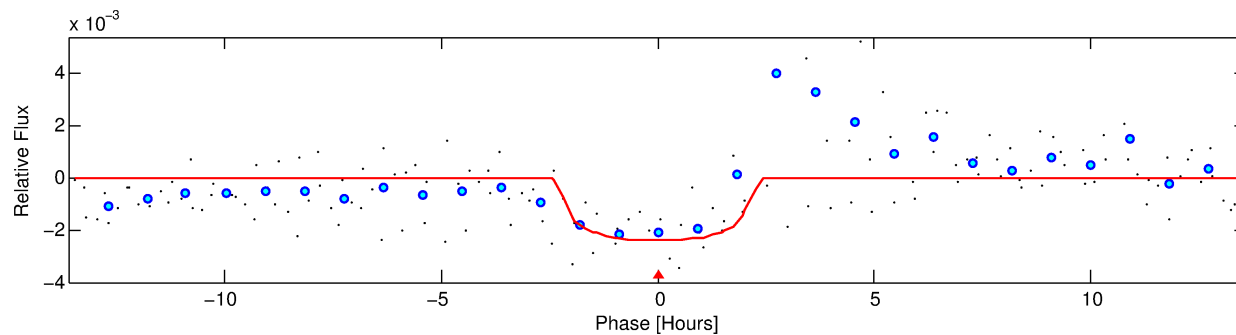
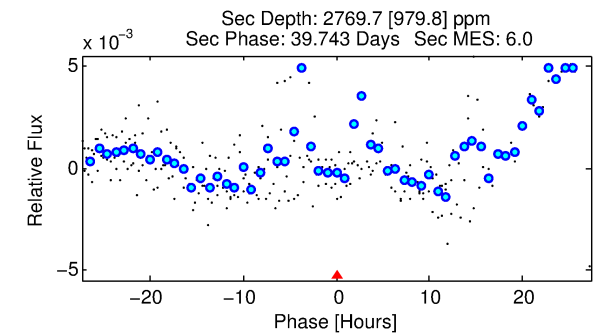
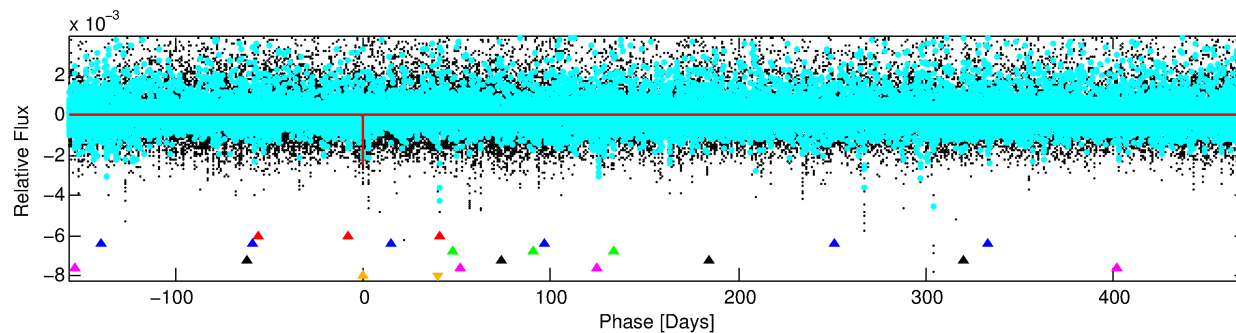
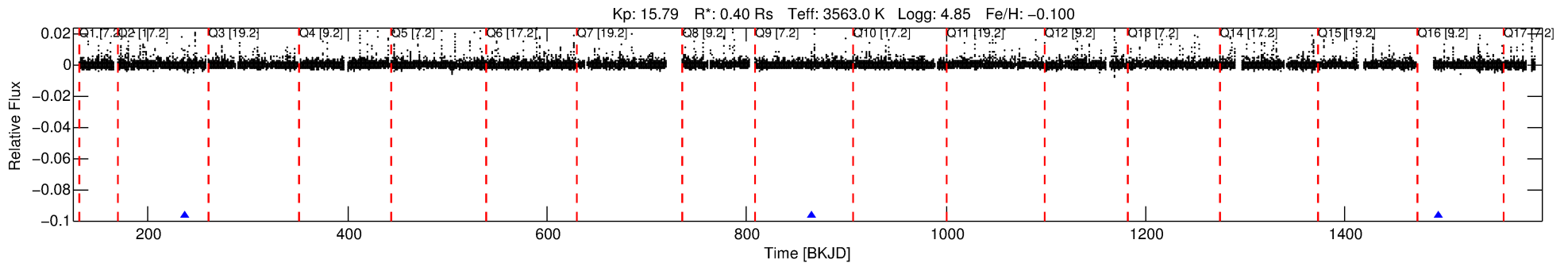
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008807085-06

No Significant Match Found

# DV One-Page Summary

KIC: 8807085 Candidate: 6 of 6 Period: 628.360 d



## DV Fit Results:

Period = 628.36043 [0.00658] d  
Epoch = 237.2371 [0.0084] BKJD  
Rp/R\* = 0.0445 [0.0472]  
a/R\* = 1104.95 [5042.45]  
b = 0.04 [115.41]  
Seff = 0.02 [0.00]  
Teq = 96 [4] K  
Rp = 1.93 [2.07] Re  
a = 1.0685 [0.1235] AU  
Ag = 465566.15 [1003750.51] [0.46] $\sigma$   
Teffp = 3874 [2086] K [1.81] $\sigma$

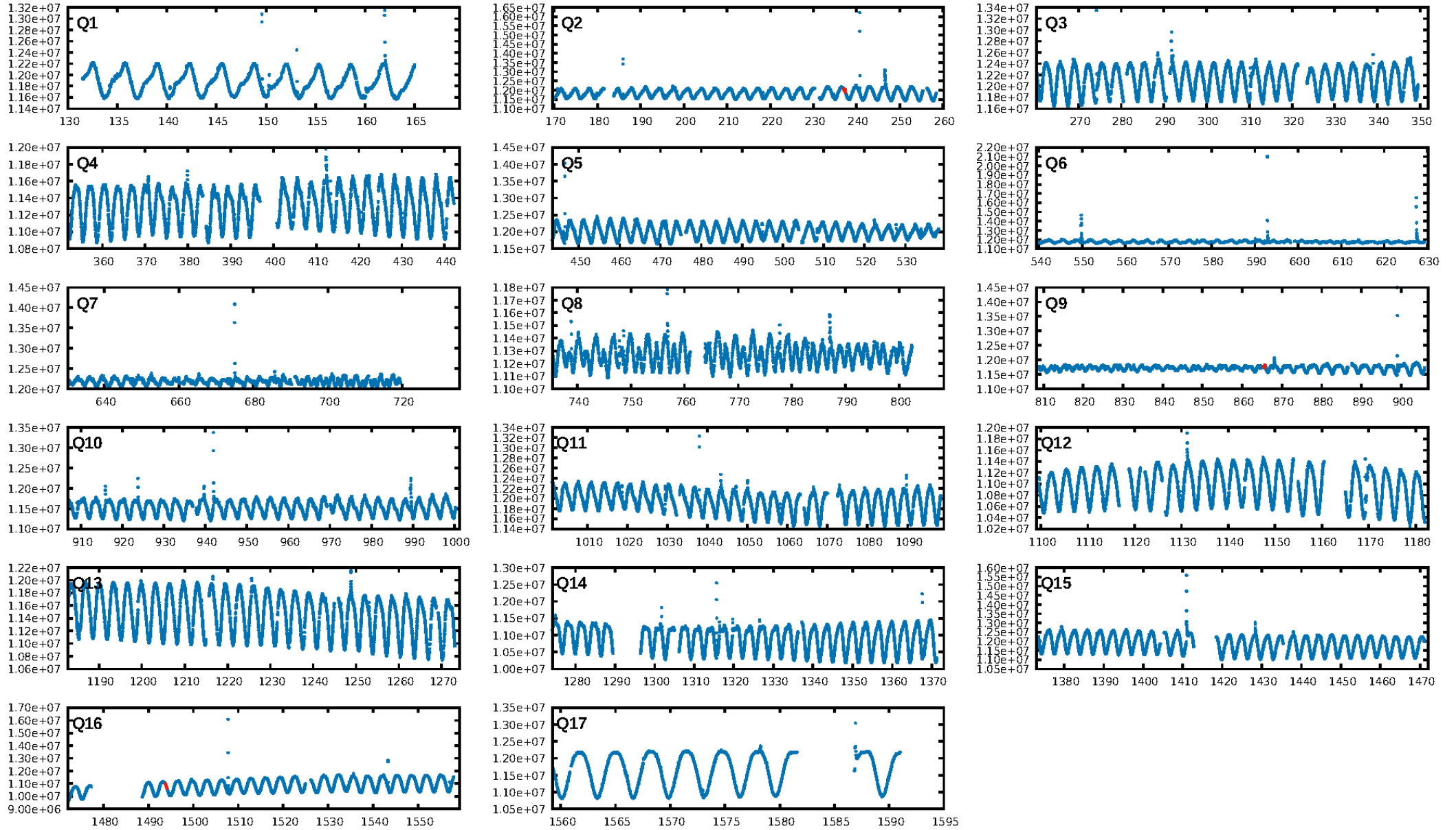
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [150.37] $\sigma$   
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 18.5%  
ModelChiSquareGof-sig: 90.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.15  
Centroid-sig: 28.5%  
Centroid-so: 0.988 arcsec [0.88] $\sigma$   
OotOffset-rm: 0.151 arcsec [0.26] $\sigma$   
KicOffset-rm: 0.219 arcsec [0.36] $\sigma$   
OotOffset-st: 1/0/1/1 [3]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 0.00 [0/3]  
DiffImageOverlap-fno: 1.00 [3/3]

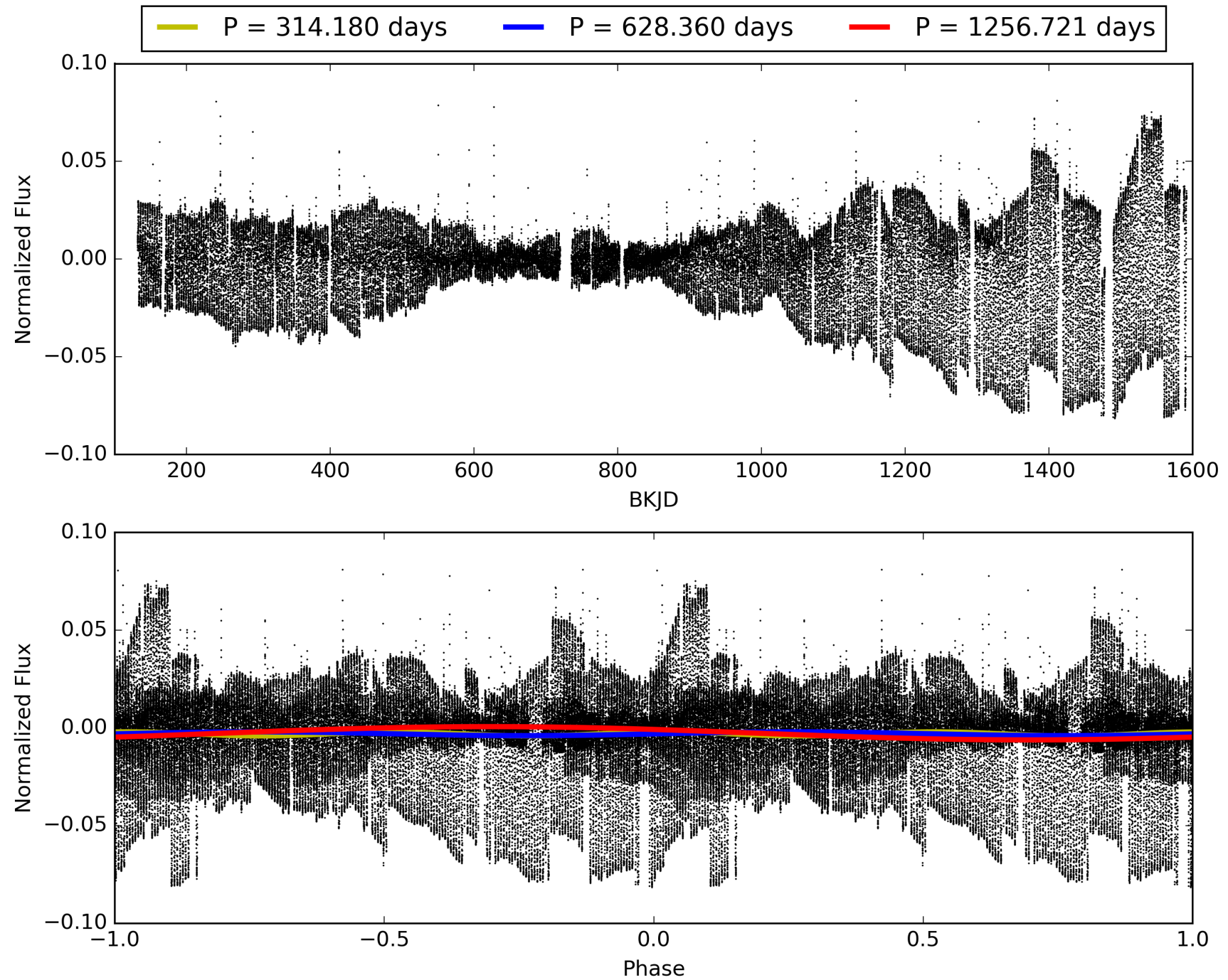
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:09:31 Z

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

# TCE 008807085-06, PDC Light Curves

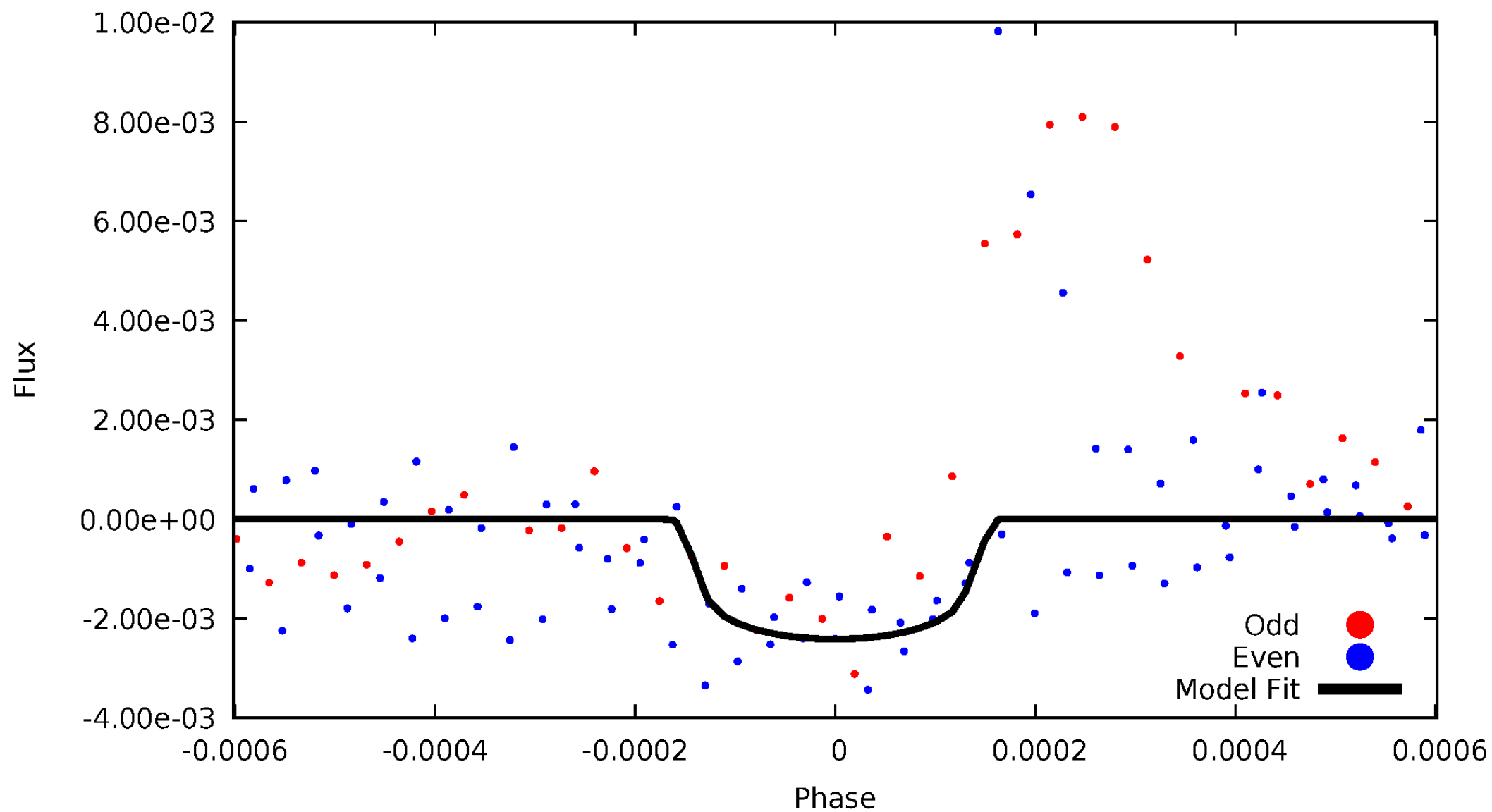


TCE 008807085-06



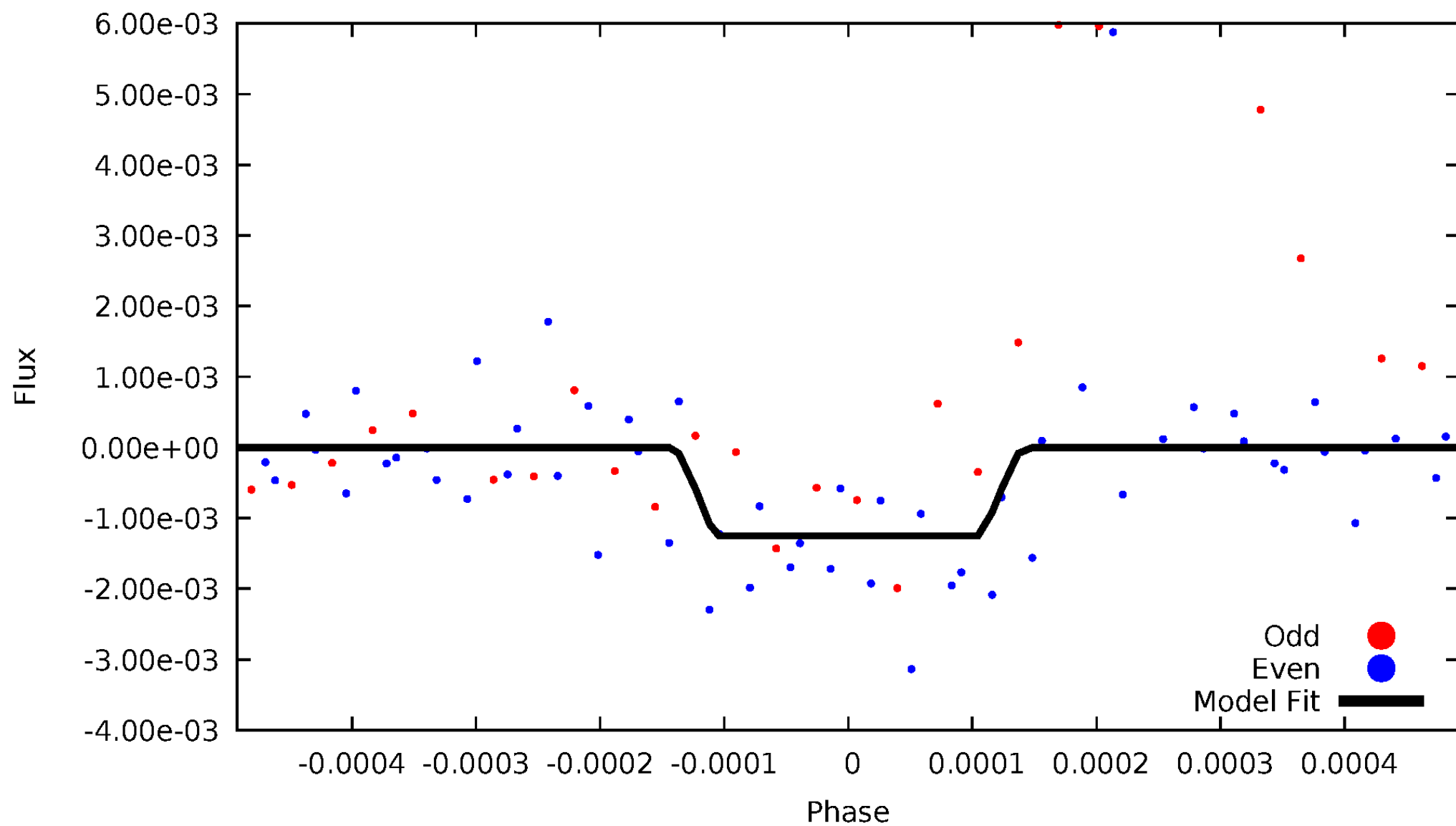
# DV Odd/Even

TCE 008807085-06



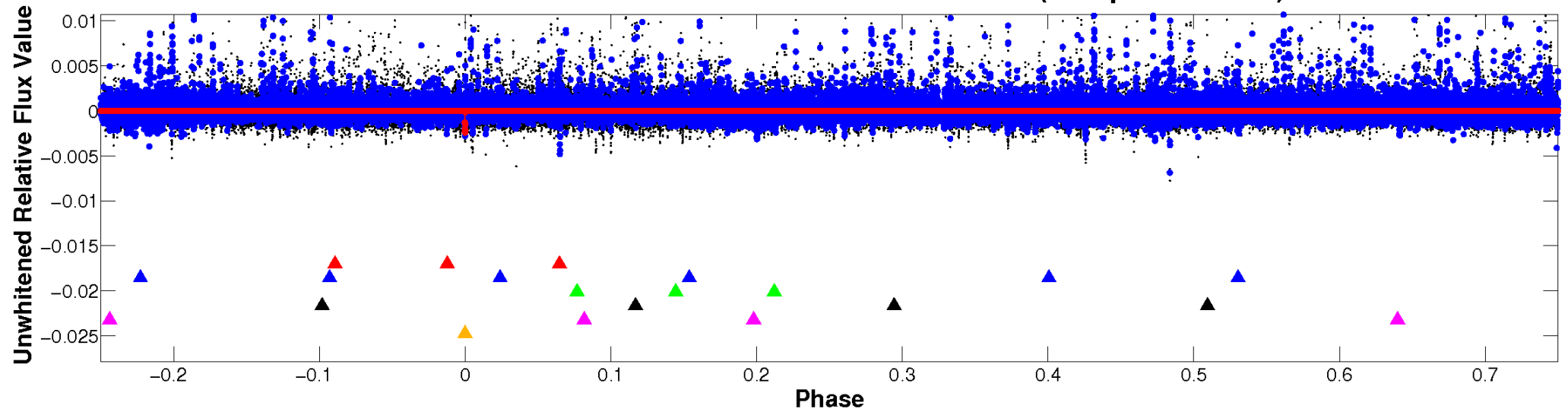
# ALT Odd/Even

TCE 008807085-06

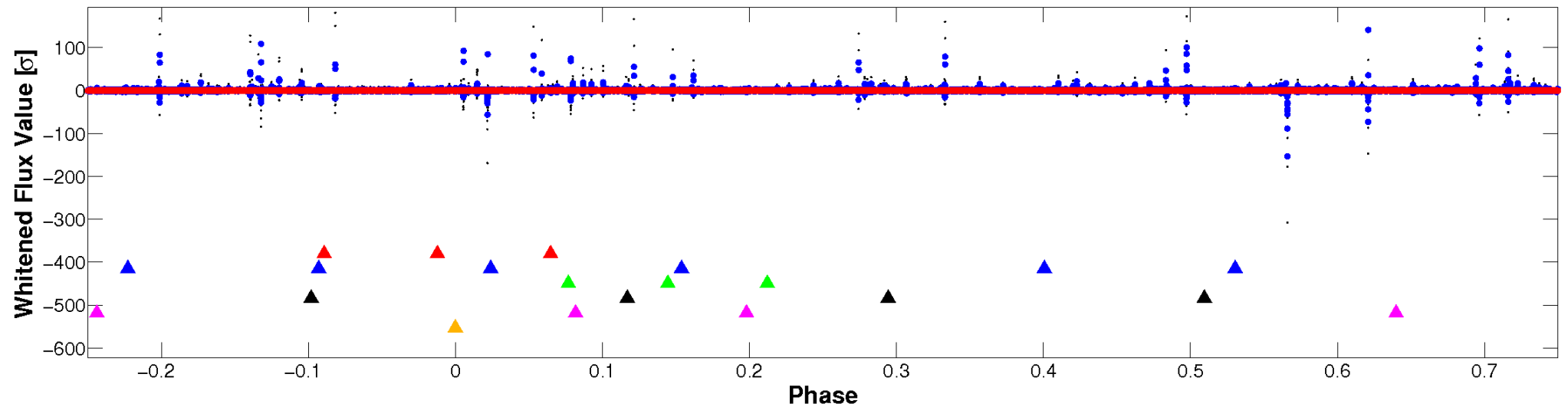


# Non-Whitened Vs. Whitened Light Curve

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

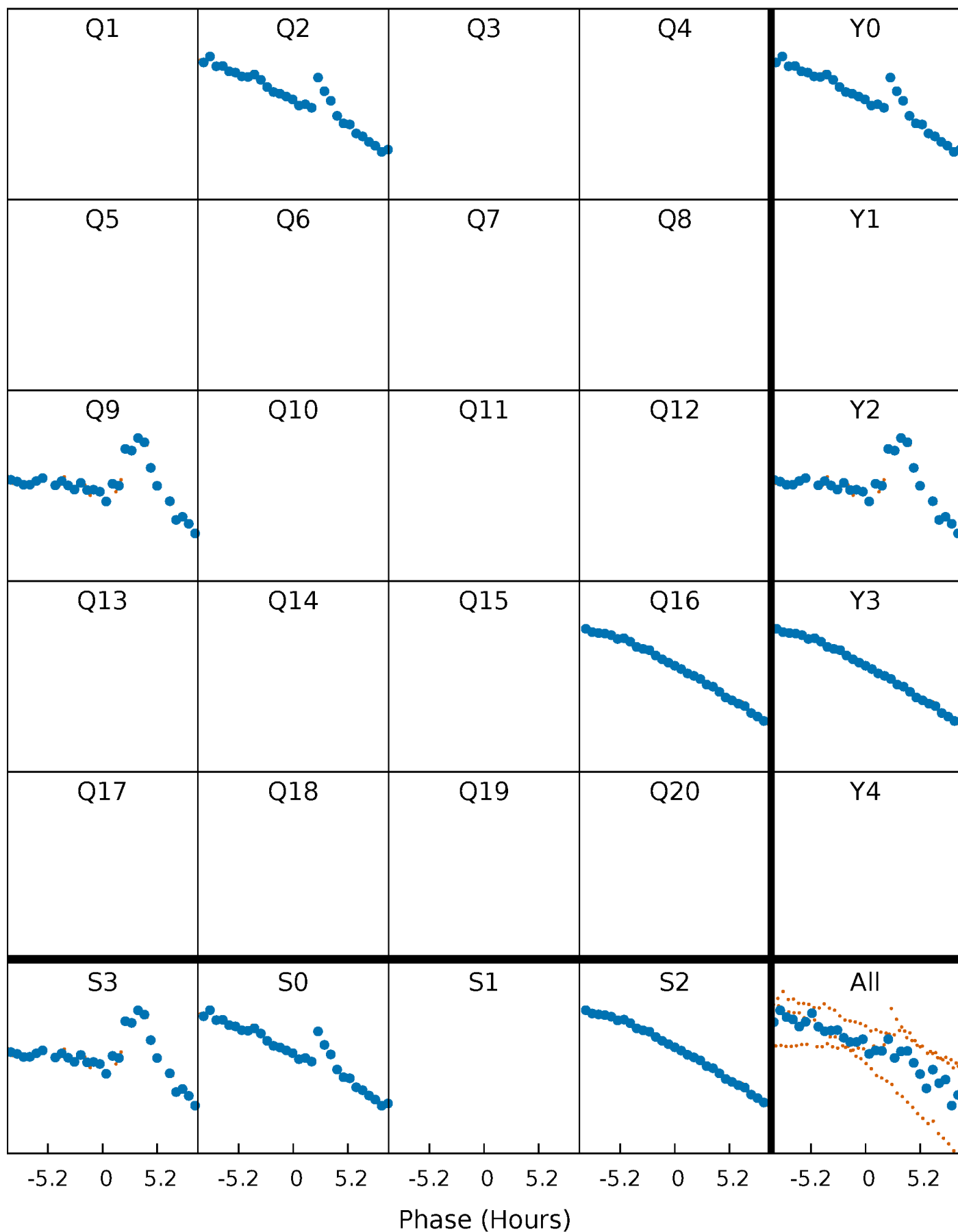


**Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

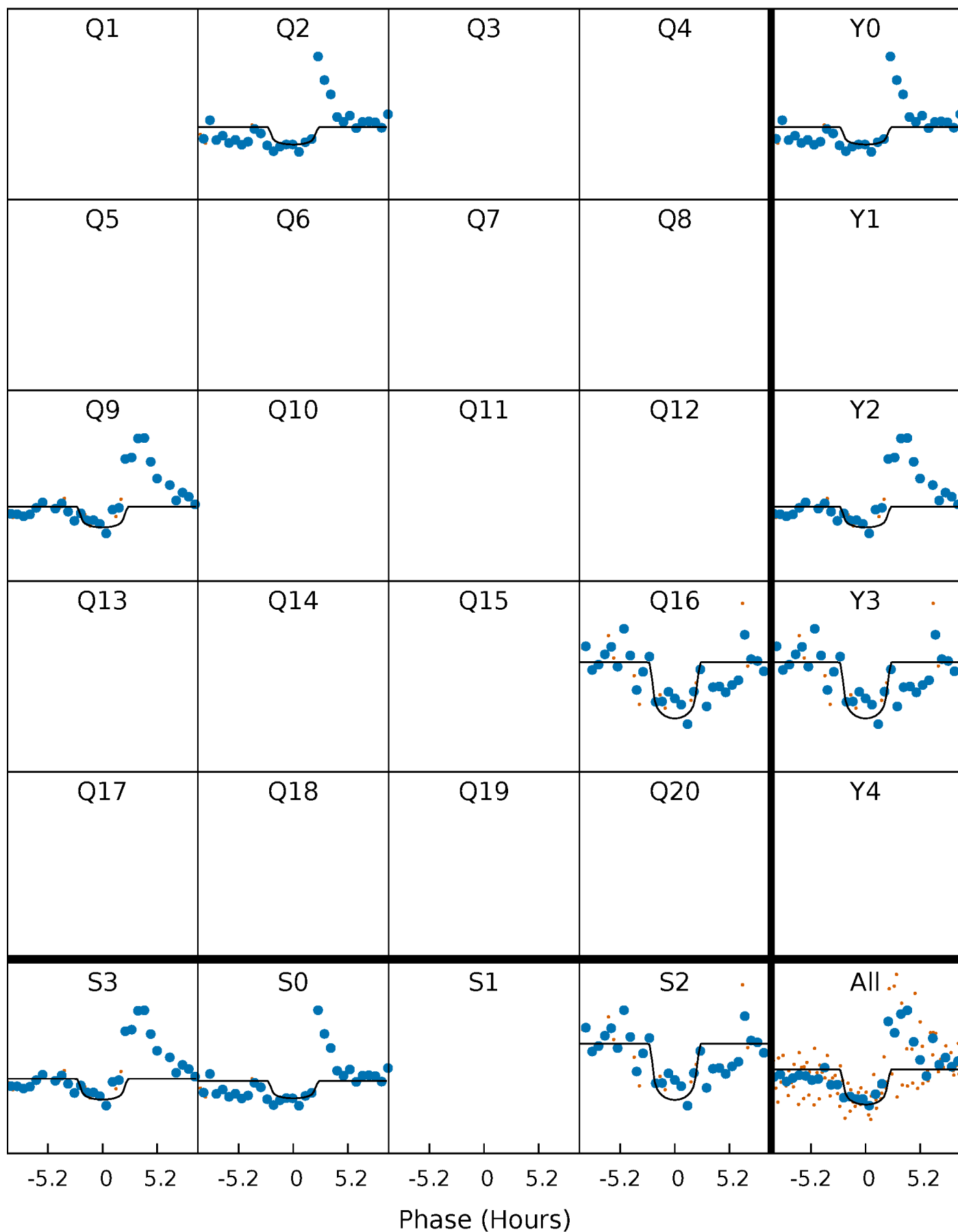
TCE 008807085-06     $P=628.360433$  Days     $T_0=237.237129$  (BKJD)





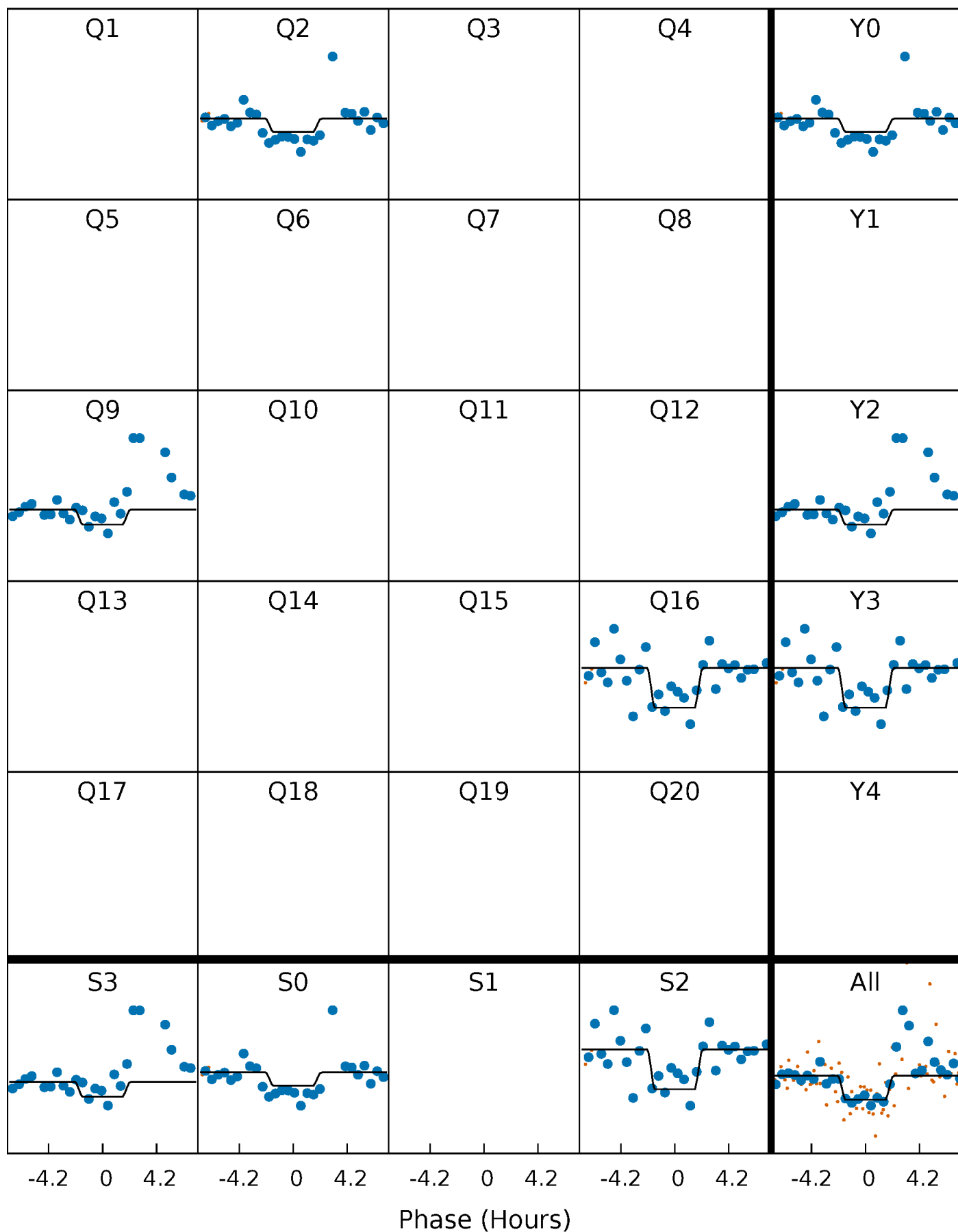
# DV Quarter-Phased Transit Curves

TCE 008807085-06     $P=628.360433$  Days     $T_0=237.237129$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

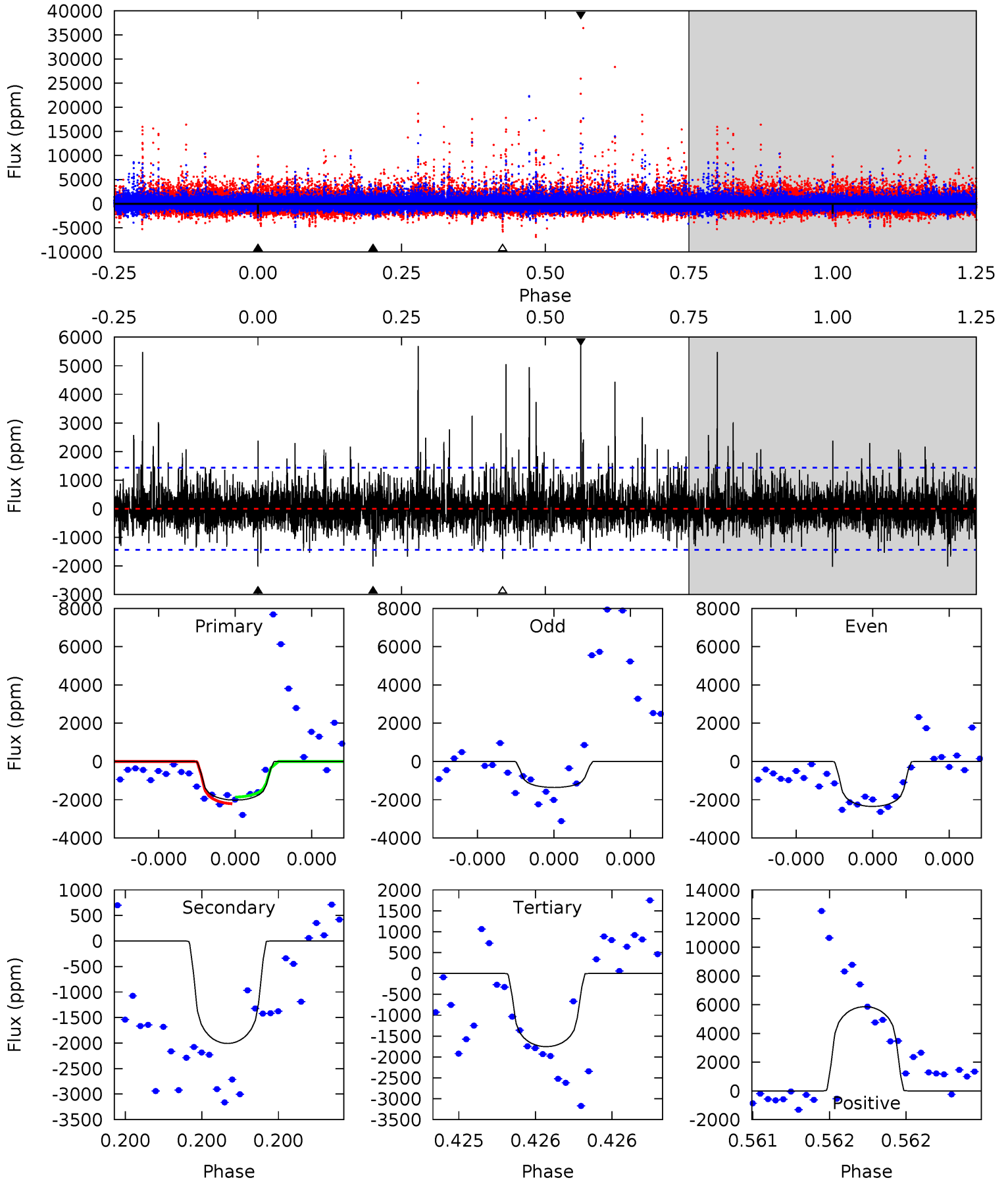
TCE 008807085-06 P=628.359215 Days  $T_0=237.225781$  (BKJD)



# DV Model-Shift Uniqueness Test

008807085-06, P = 628.360433 Days, E = 237.237129 Days

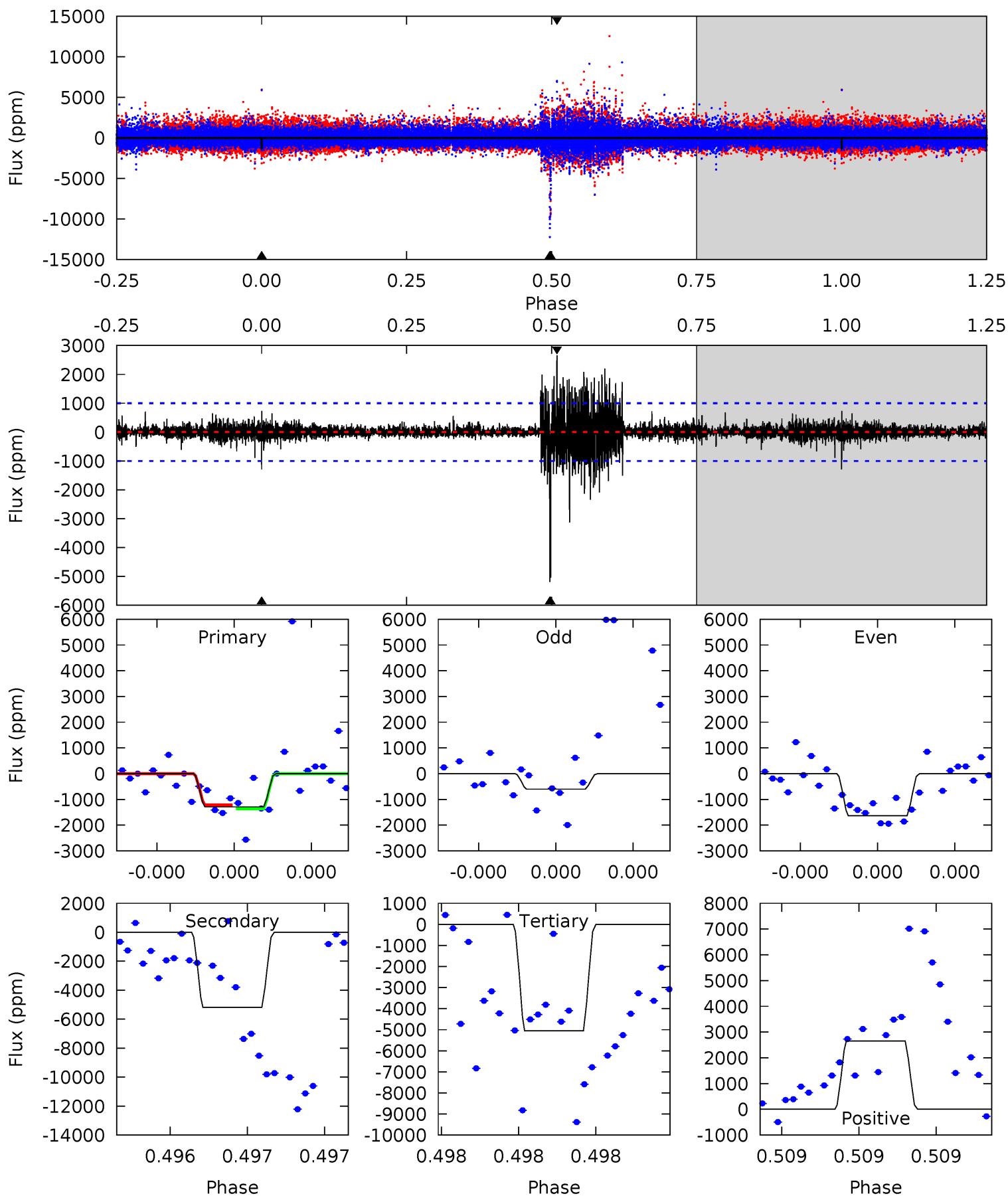
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.96	7.90	6.90	23.1	5.65	3.60	2.17	1.06	-15.1	1.00	-15.2	0.73	1.06	0.74	0.70



# Alt Model-Shift Uniqueness Test

008807085-06, P = 628.359215 Days, E = 237.225781 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
7.29	29.3	28.5	15.0	5.68	3.64	1.99	-21.3	-7.70	0.80	14.4	2.15	1.20	0.34	0.43



### Stellar Parameters For KIC 008807085

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3563^{+89}_{-98}$	$4.853^{+0.066}_{-0.049}$	$-0.100^{+0.100}_{-0.100}$	$0.398^{+0.050}_{-0.062}$	$0.414^{+0.048}_{-0.072}$	$9.224^{+3.437}_{-1.949}$
	+2%/-3%	+1%/-1%	+100%/-100%	+13%/-16%	+12%/-17%	+37%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008807085-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-2008 \pm 254$	$2.29^{+1.88}_{-1.42}$	$133^{+5}_{-5}$	$3369^{+1325}_{-539}$	$239211^{+1434955}_{-168405}$
Alt.	$-5187 \pm 177$	$1.98^{+1.87}_{-1.25}$	$134^{+5}_{-5}$	$4131^{+2333}_{-790}$	$817873^{+5407485}_{-594346}$

$T_{\text{max}}$  = 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

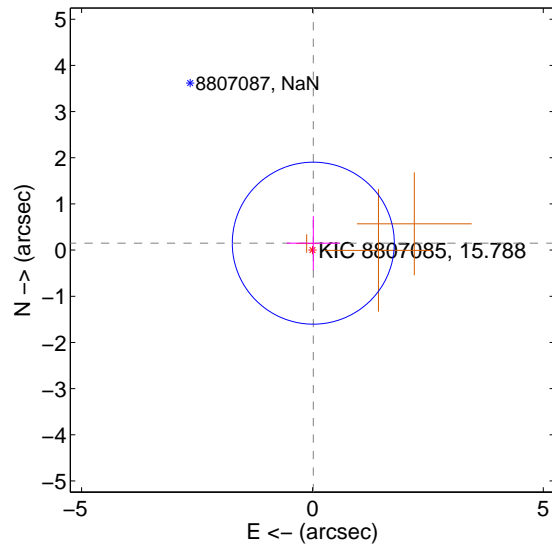
Supplemental centroid analysis for 008807085-06. Kepler magnitude: 15.79. Transit SNR 6.68

There are 0 quarters with good PRF difference image offsets

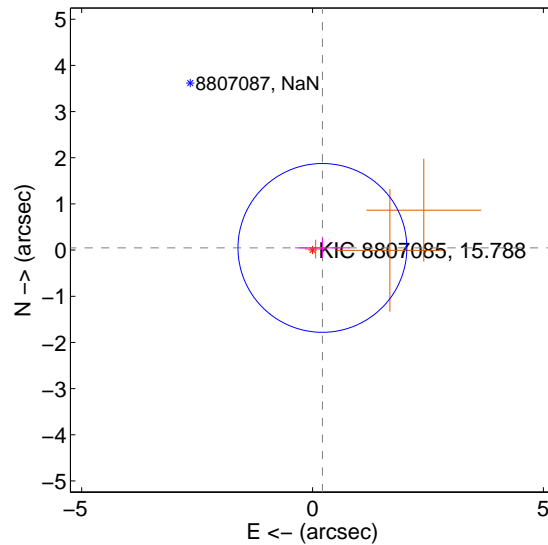
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.151 \pm 0.585$	0.26	$-0.018 \pm 0.574$	$0.150 \pm 0.585$
PRF-fit source offset from KIC position	$0.219 \pm 0.609$	0.36	$-0.214 \pm 0.590$	$0.047 \pm 0.211$
photometric centroid source offset	$0.99 \pm 1.13$	0.88	$-0.97 \pm 1.13$	$-0.20 \pm 1.02$

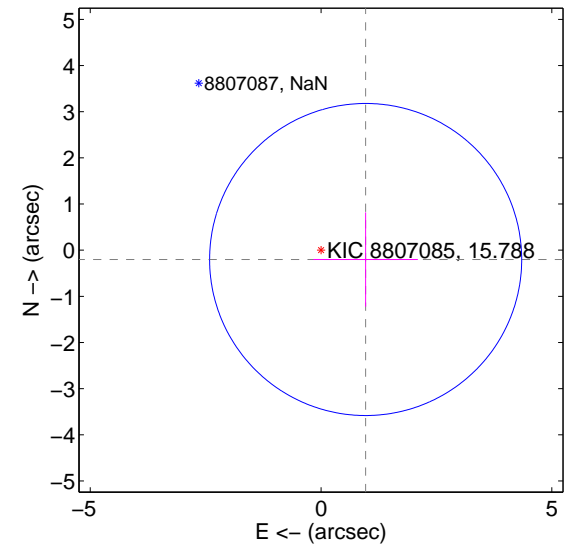
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

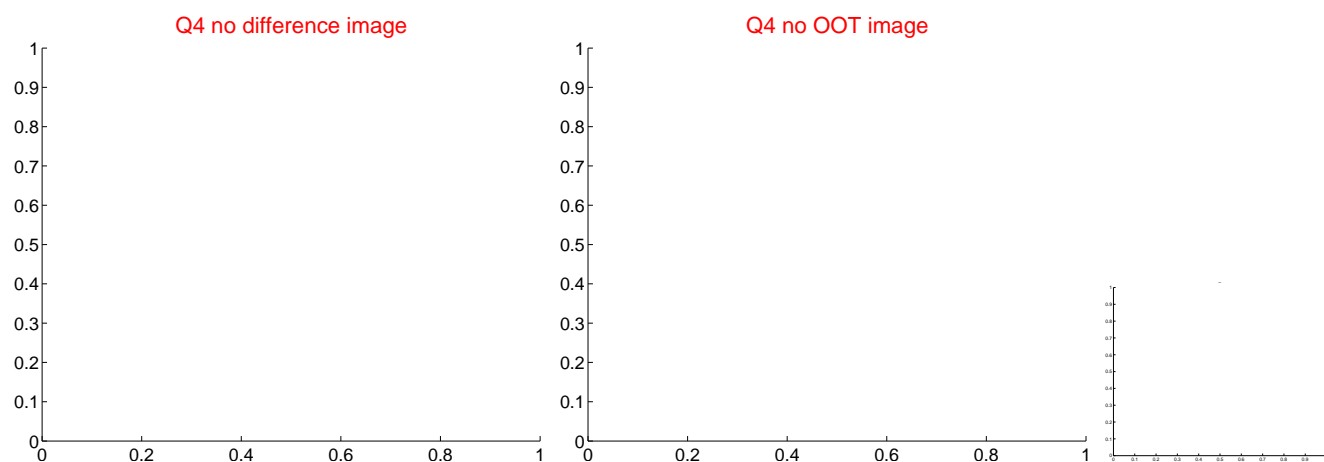
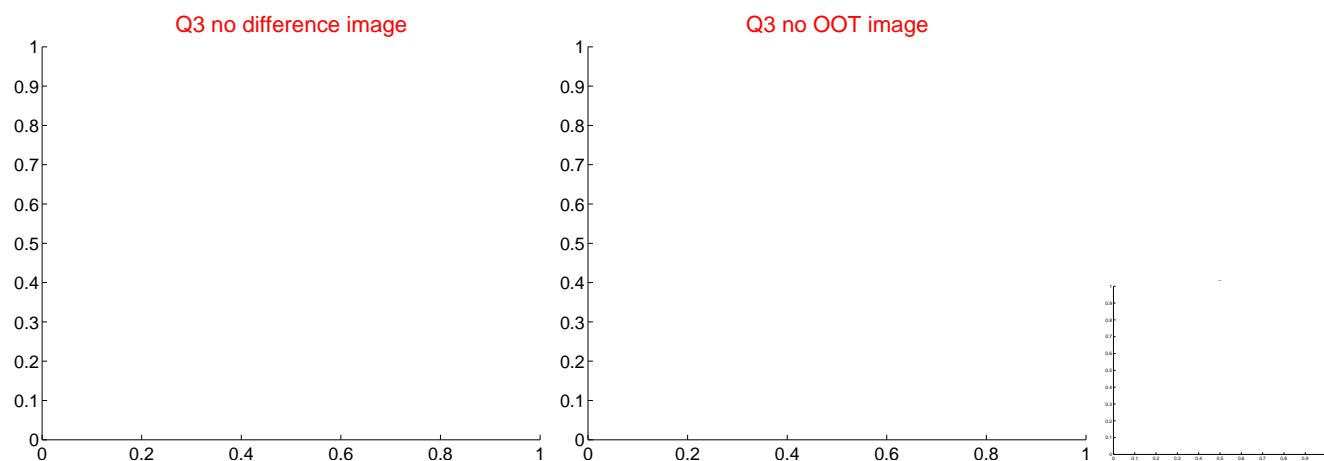
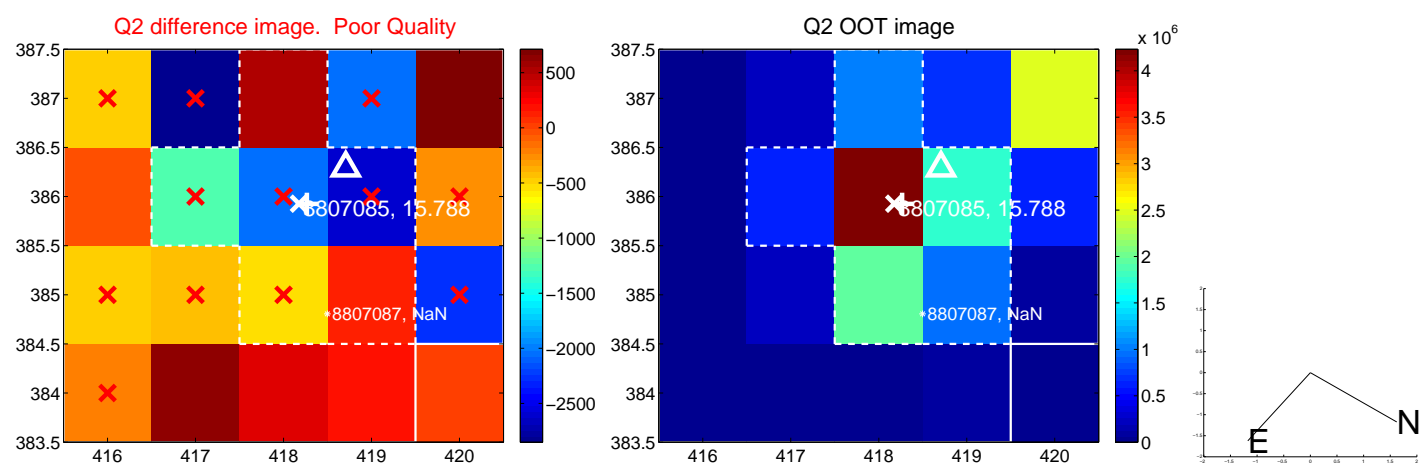
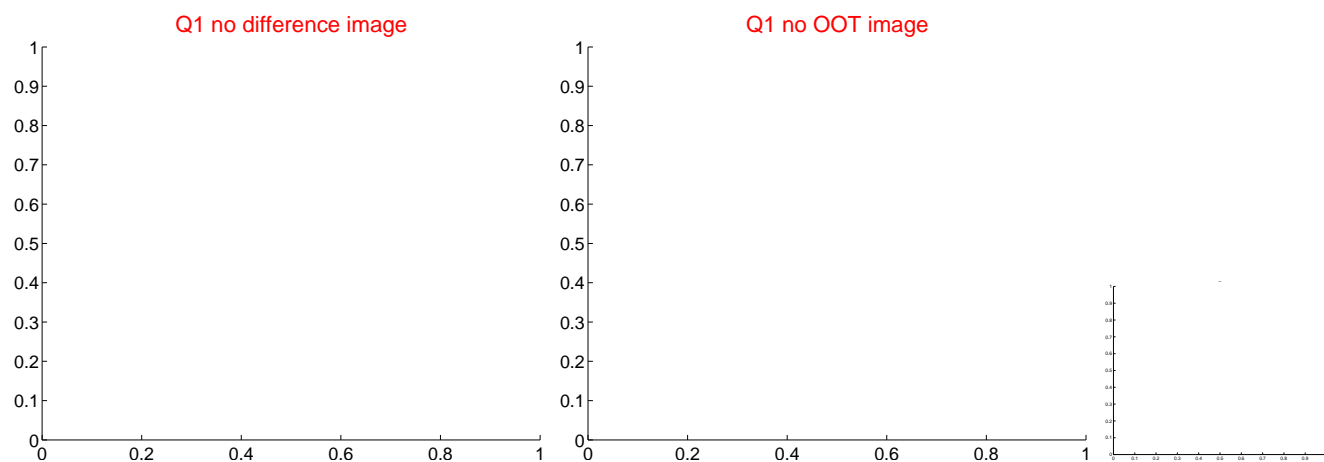


offset from photometric centroids



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

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

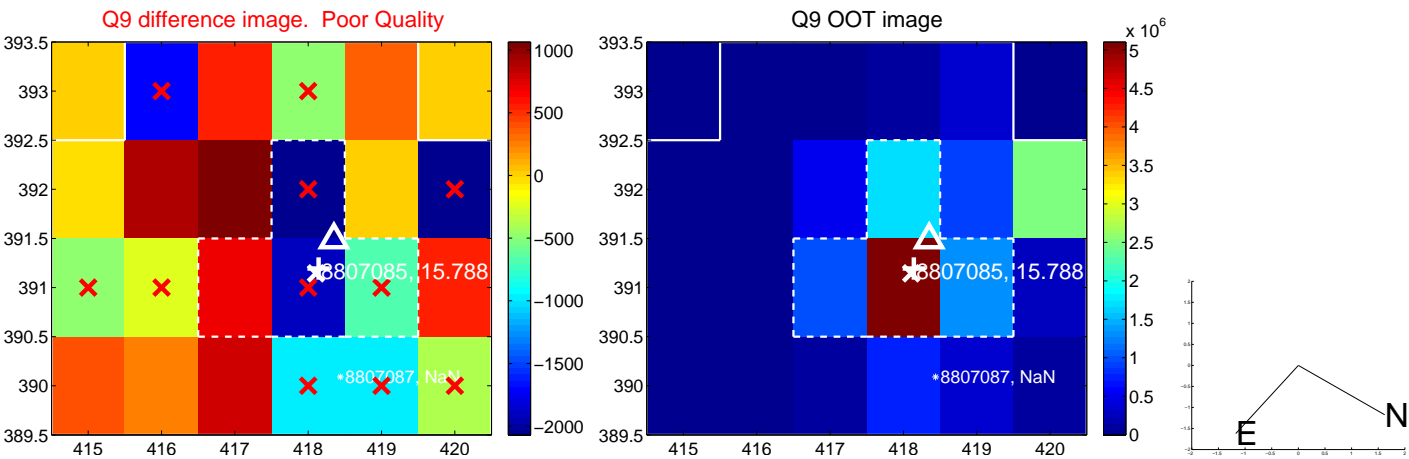


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

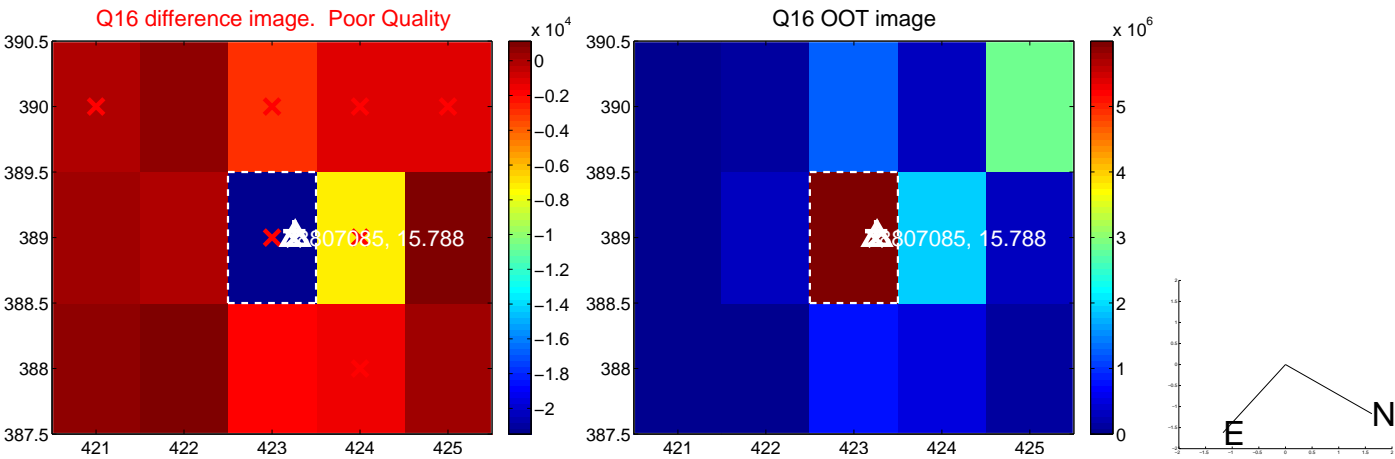
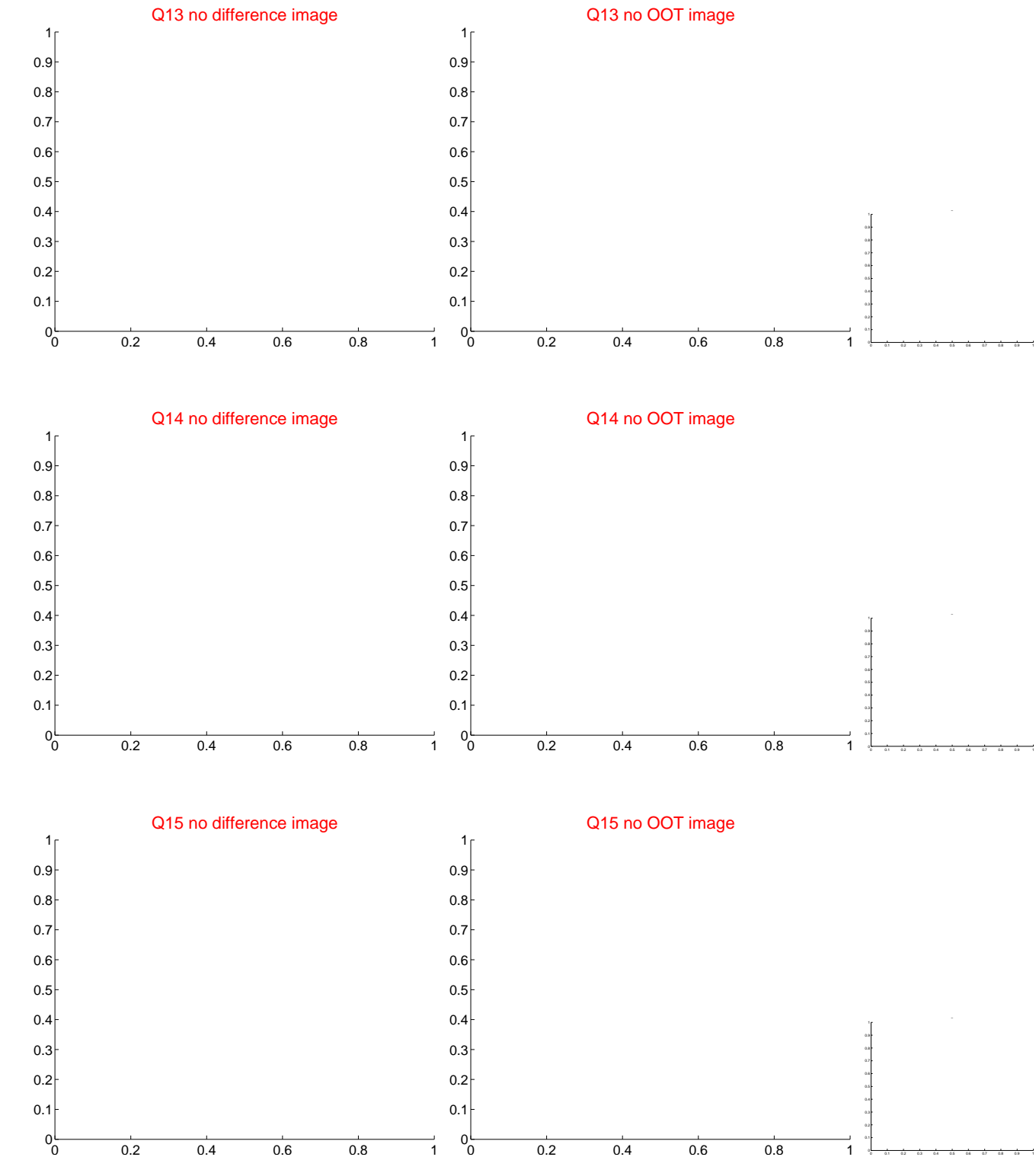




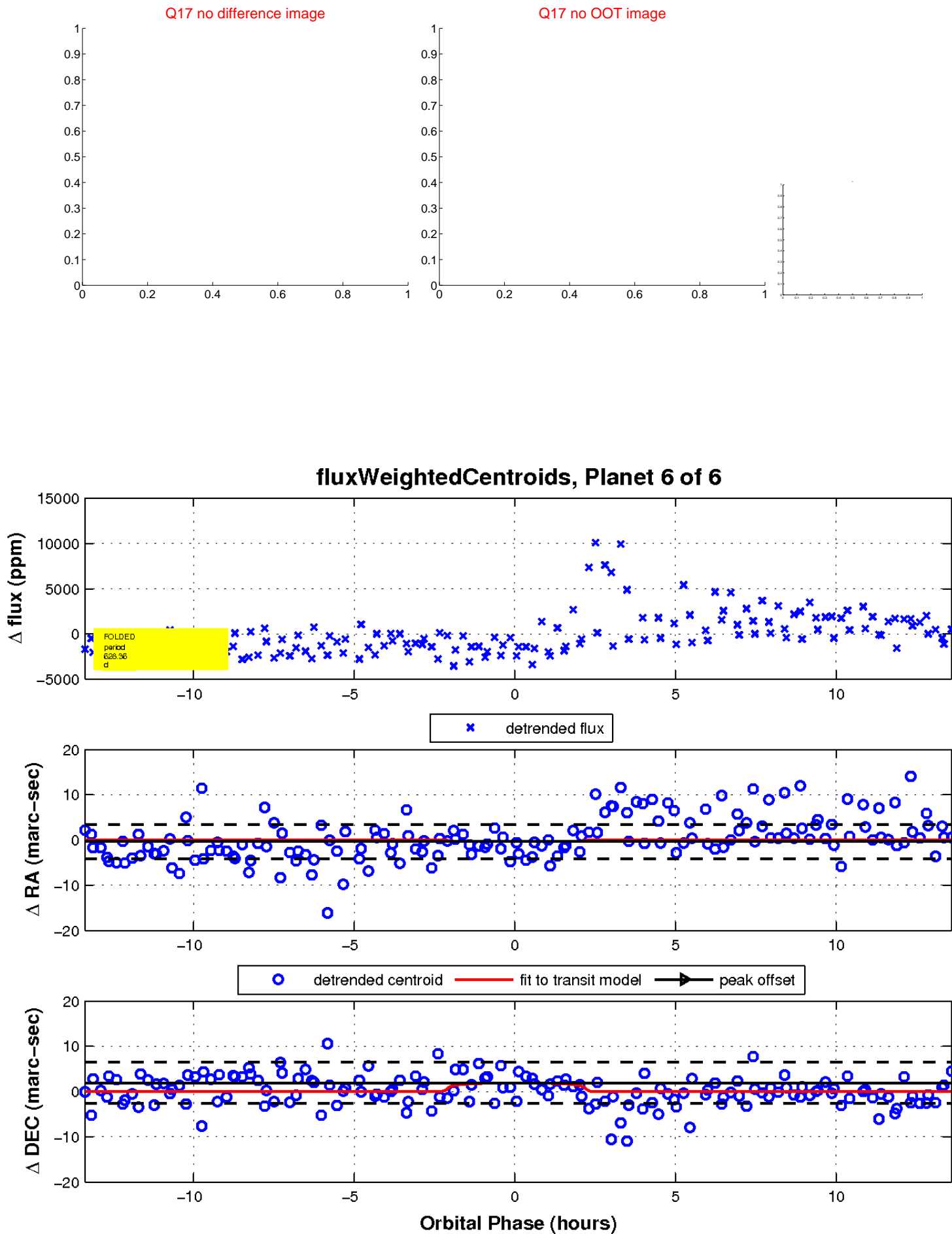
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



white ×: 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

