

# KIC 011713701

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011713701-01	OBS	No	302.056541	316.593624	2499.9	11.890	17.3	5.3	0.57	4524	3.21	0.23
011713701-02	OBS	No	204.265303	179.561316	2127.1	1.878	11.5	6.9	0.57	4524	2.56	0.39
011713701-03	OBS	No	366.097968	423.272902	2468.9	5.521	11.5	7.2	0.57	4524	3.09	0.18
011713701-04	OBS	No	357.025338	330.319942	2234.5	5.321	12.9	5.6	0.57	4524	2.73	0.18

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011713701-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011713701-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS
011713701-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011713701-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—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.

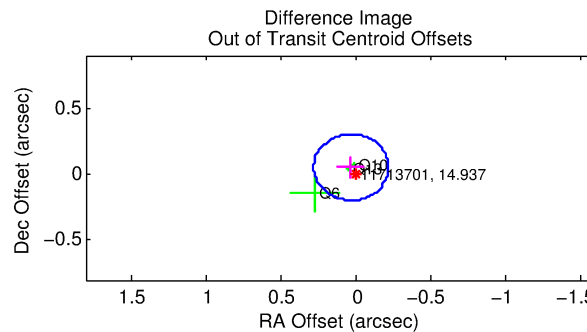
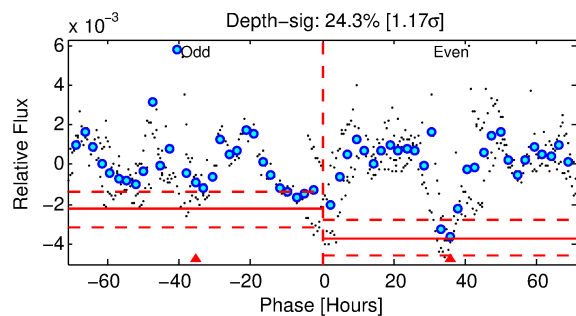
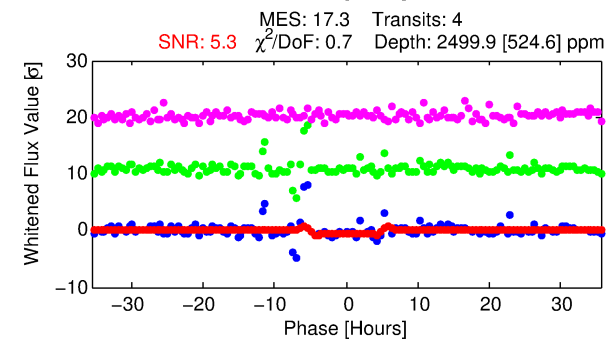
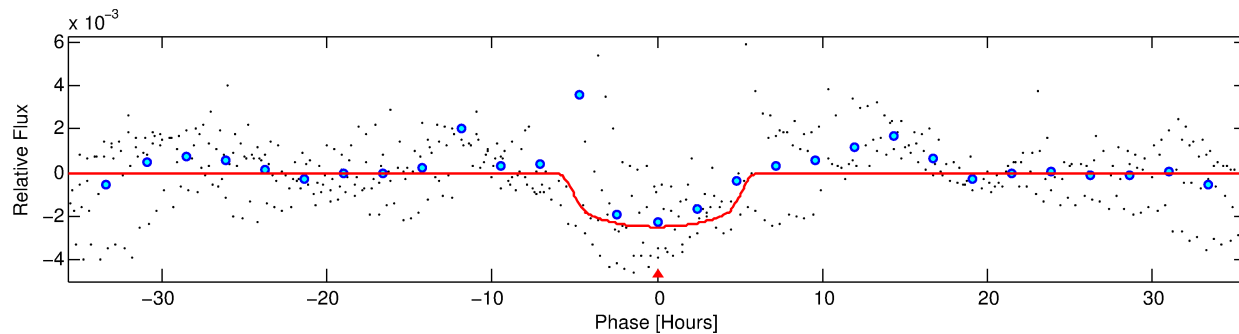
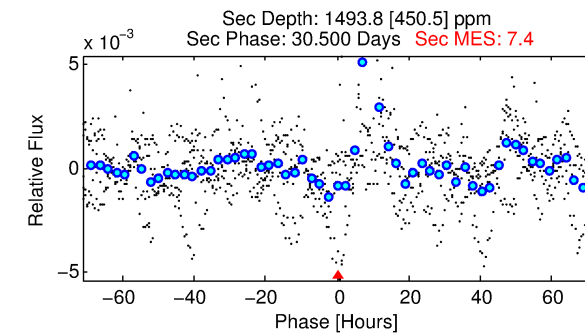
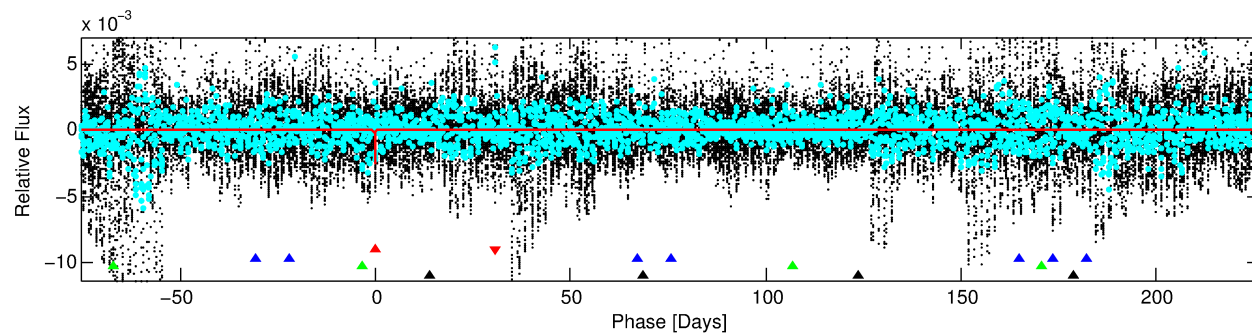
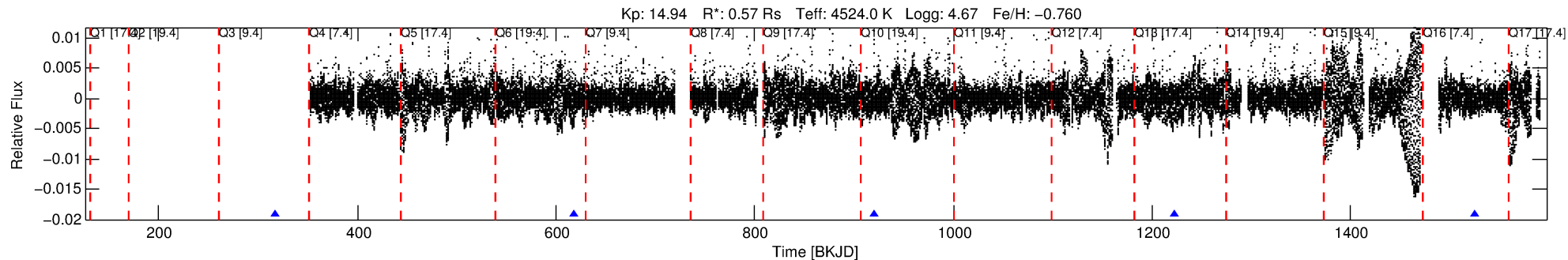
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011713701-01

No Significant Match Found

# DV One-Page Summary

KIC: 11713701 Candidate: 1 of 4 Period: 302.057 d



## DV Fit Results:

Period = 302.05654 [0.00718] d  
Epoch = 316.5936 [0.0189] BKJD  
Rp/R\* = 0.0516 [0.0066]  
a/R\* = 130.90 [25.58]  
b = 0.81 [0.09]  
Seff = 0.23 [0.04]  
Teq = 177 [8] K  
Rp = 3.21 [0.50] Re  
a = 0.7267 [0.0541] AU  
Ag = 42149.97 [17231.20] [2.45σ]  
Teff = 3916 [416] K [8.98σ]

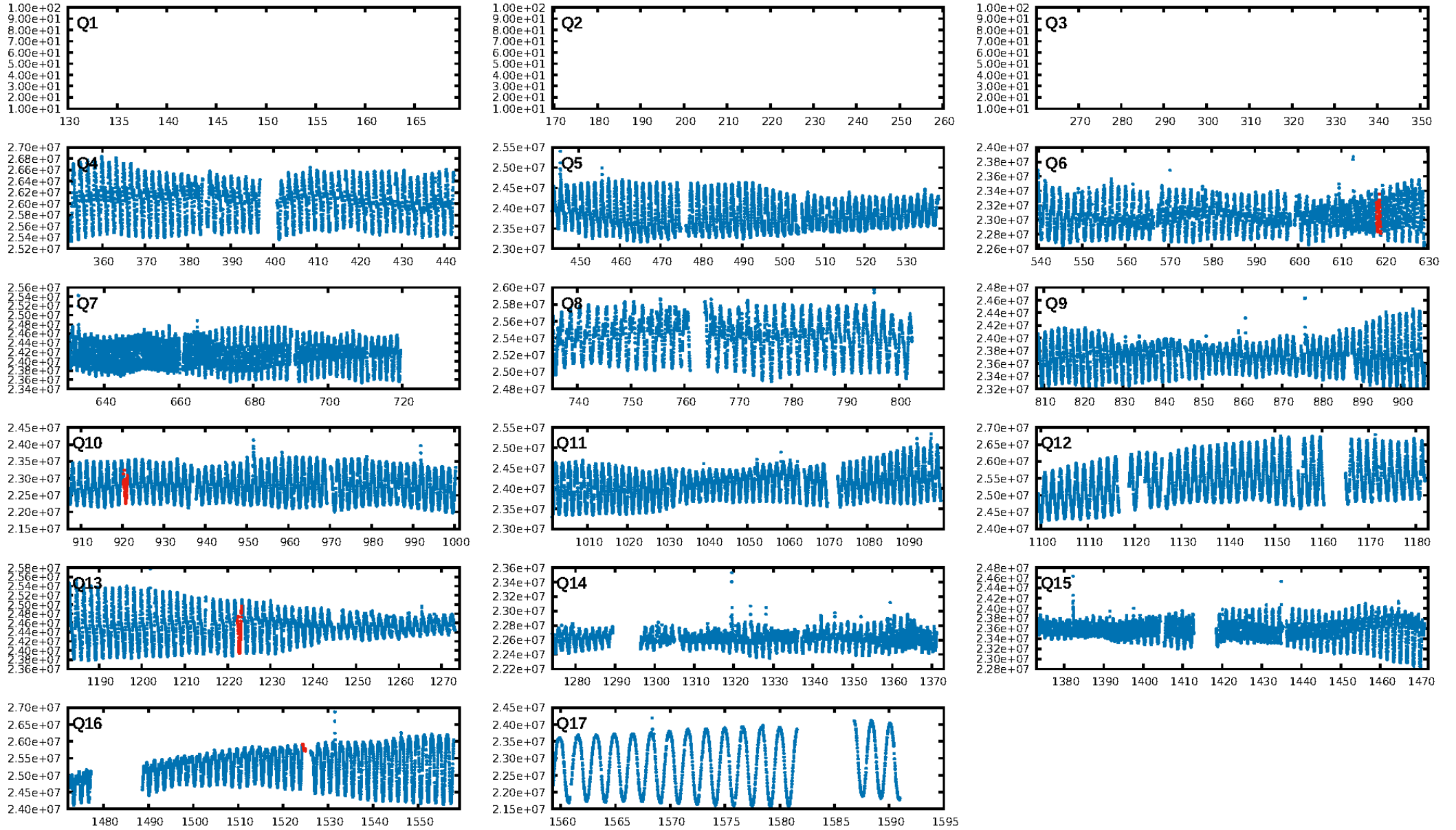
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [194.97σ]  
LongPeriod-sig: 100.0% [101.28σ]  
ModelChiSquare2-sig: 20.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 9.22e-17  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.6381  
Centroid-sig: 45.4%  
Centroid-so: 0.330 arcsec [0.79σ]  
OotOffset-rm: 0.059 arcsec [0.71σ]  
KicOffset-rm: 0.049 arcsec [0.42σ]  
OotOffset-st: 2/0/0/1 [3]  
KicOffset-st: 2/0/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

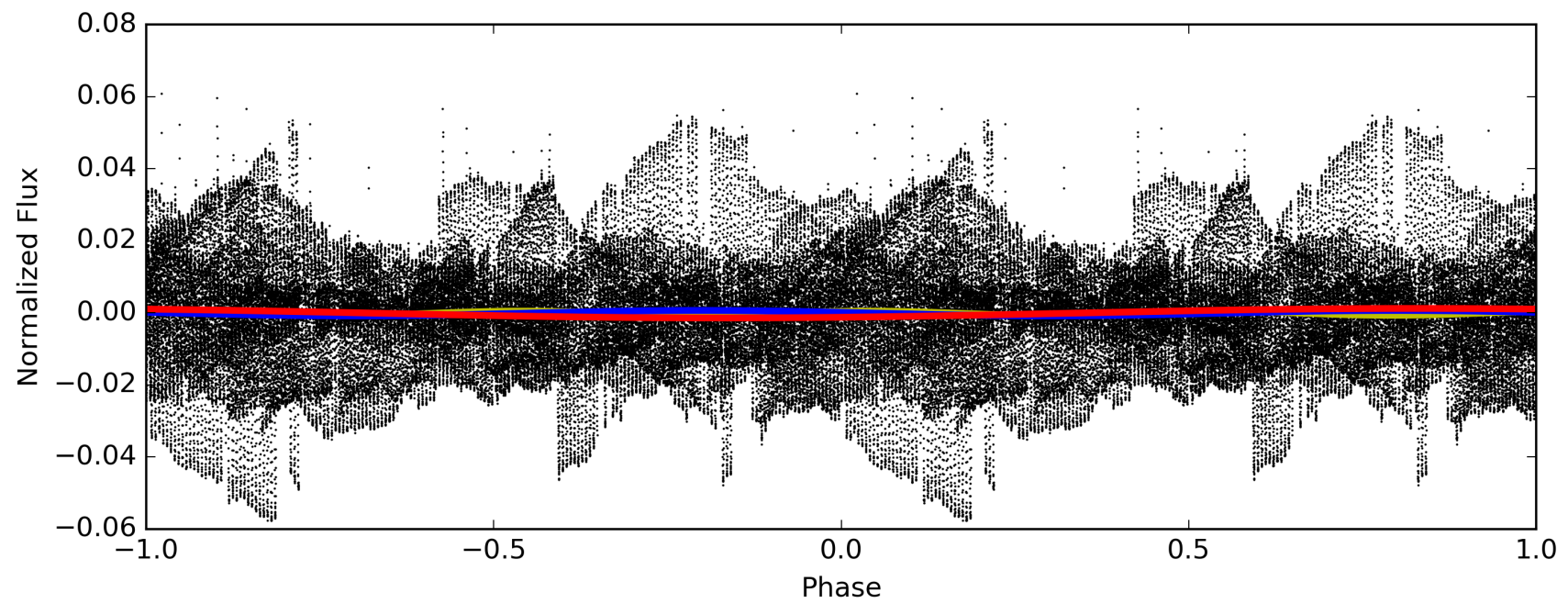
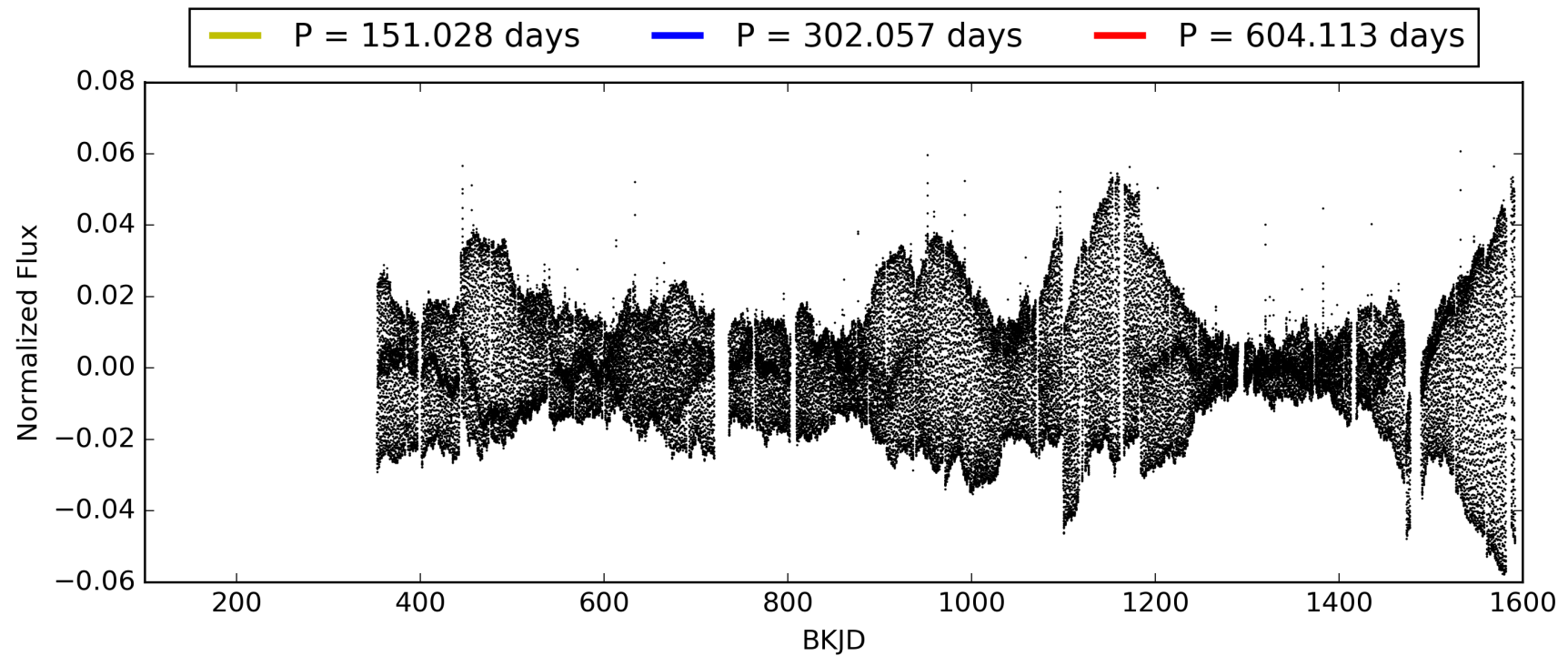
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:44:01 Z

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

# TCE 011713701-01, PDC Light Curves



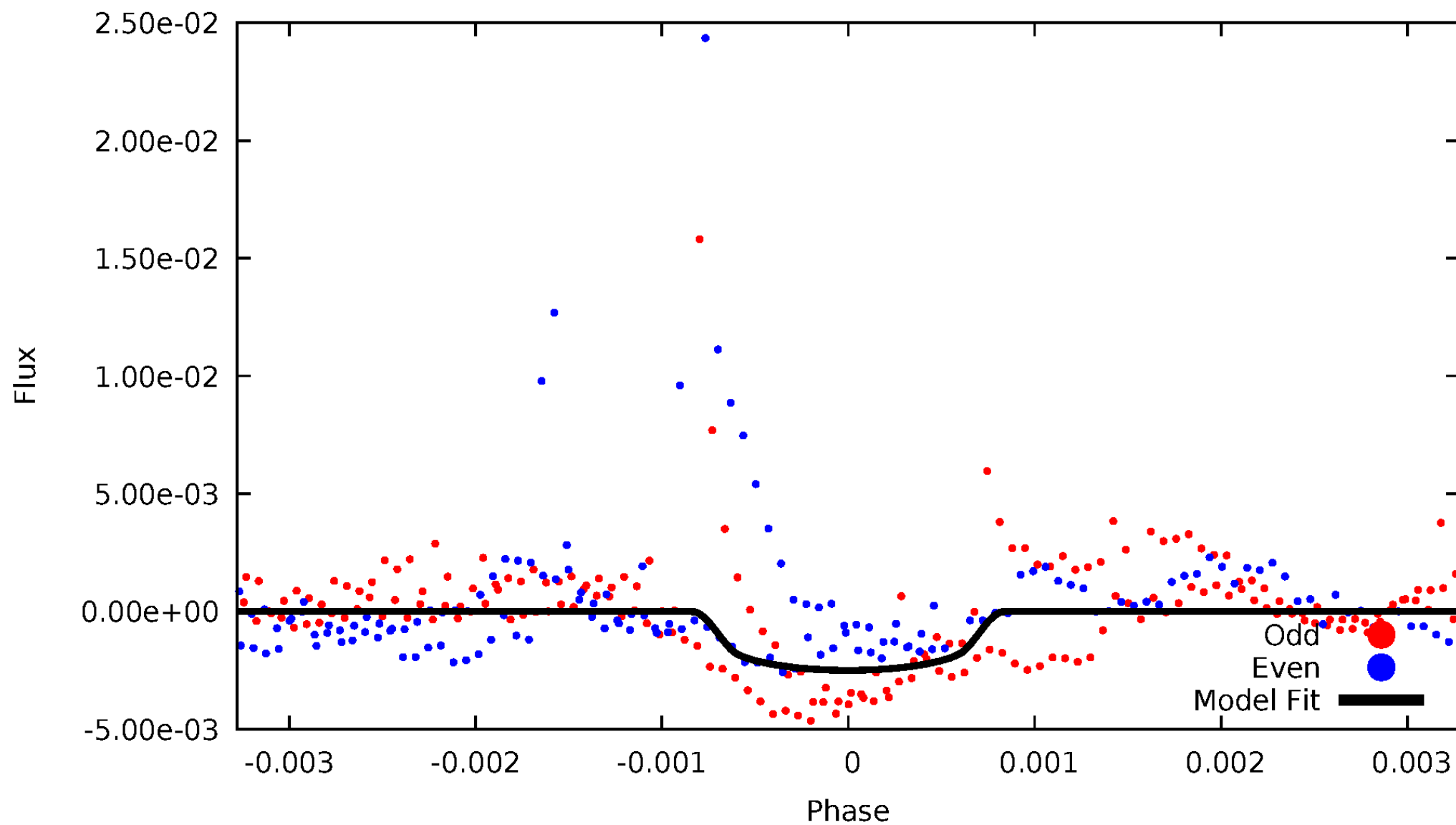
TCE 011713701-01





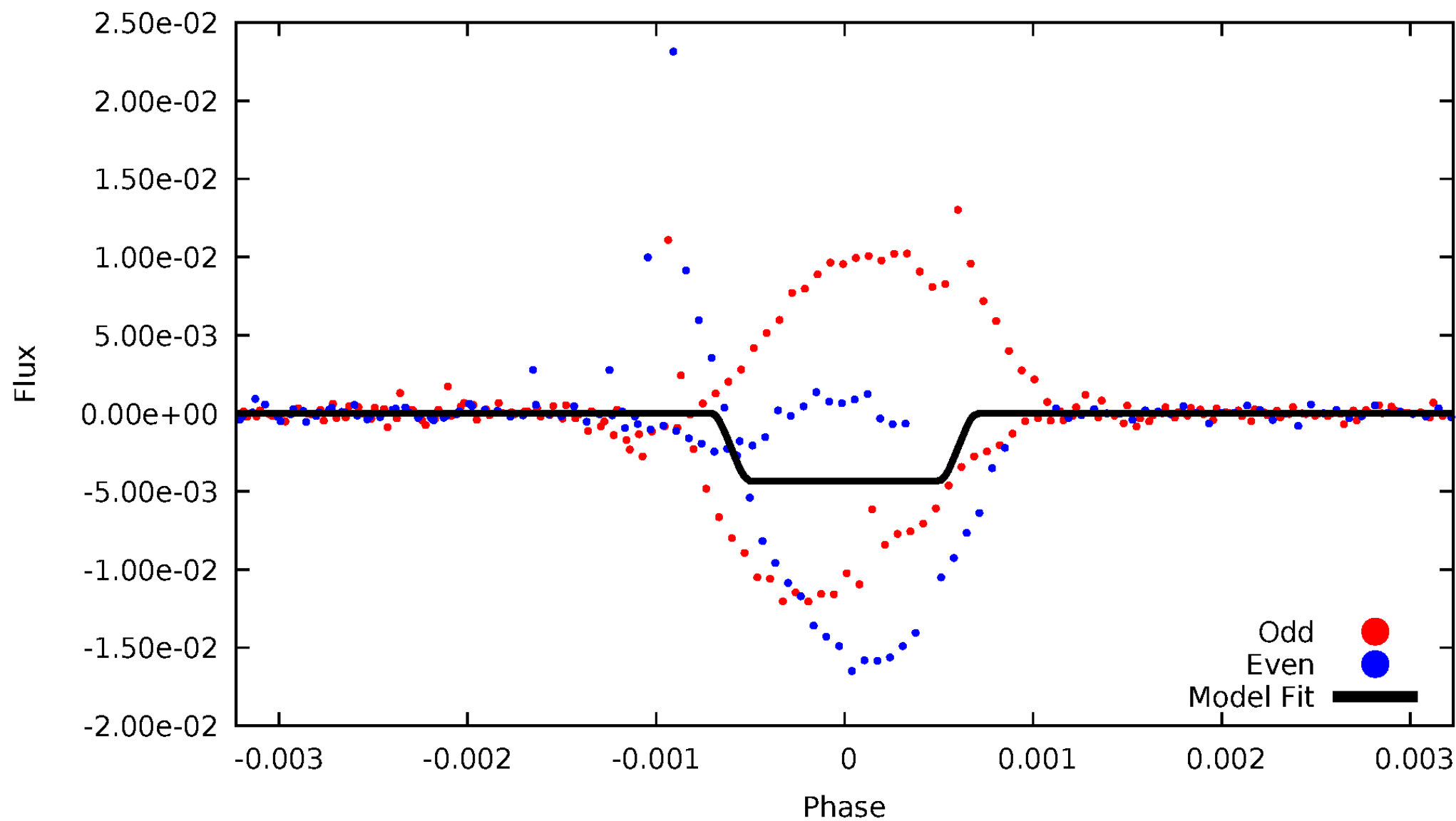
# DV Odd/Even

TCE 011713701-01



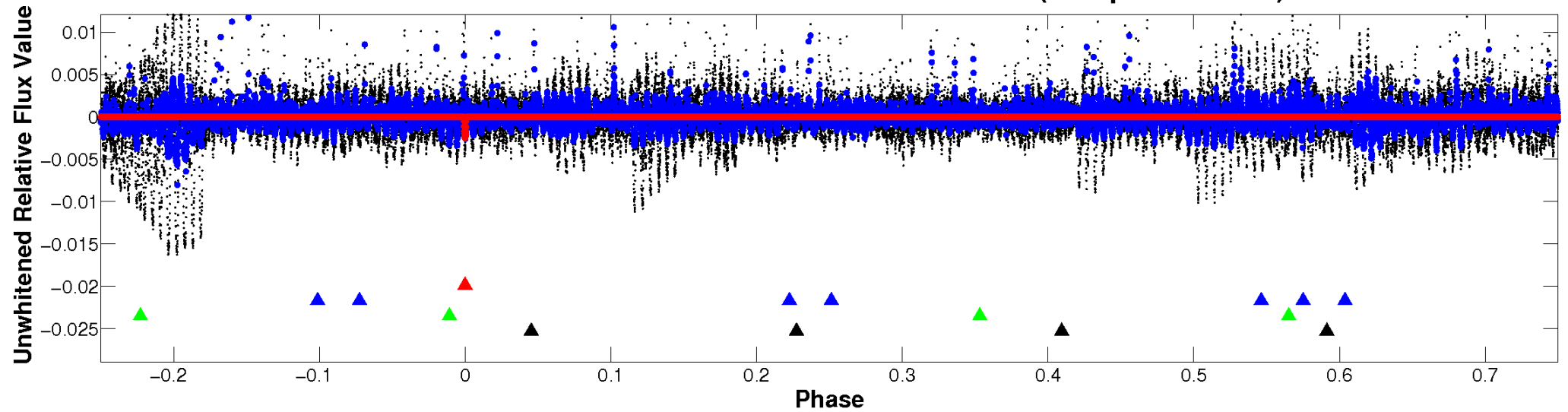
# ALT Odd/Even

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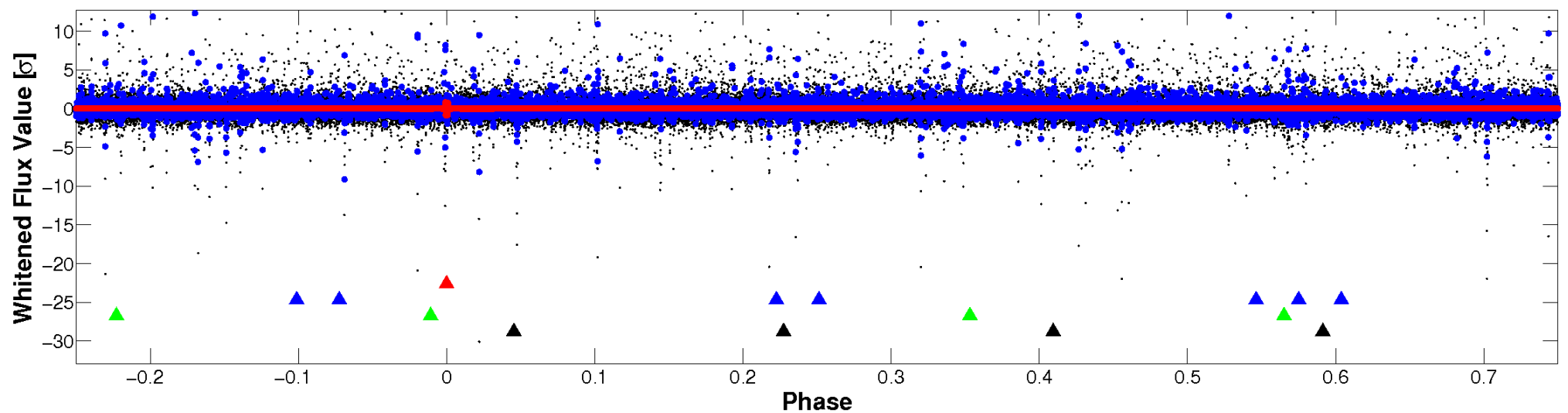


# Non-Whitened Vs. Whitened Light Curve

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

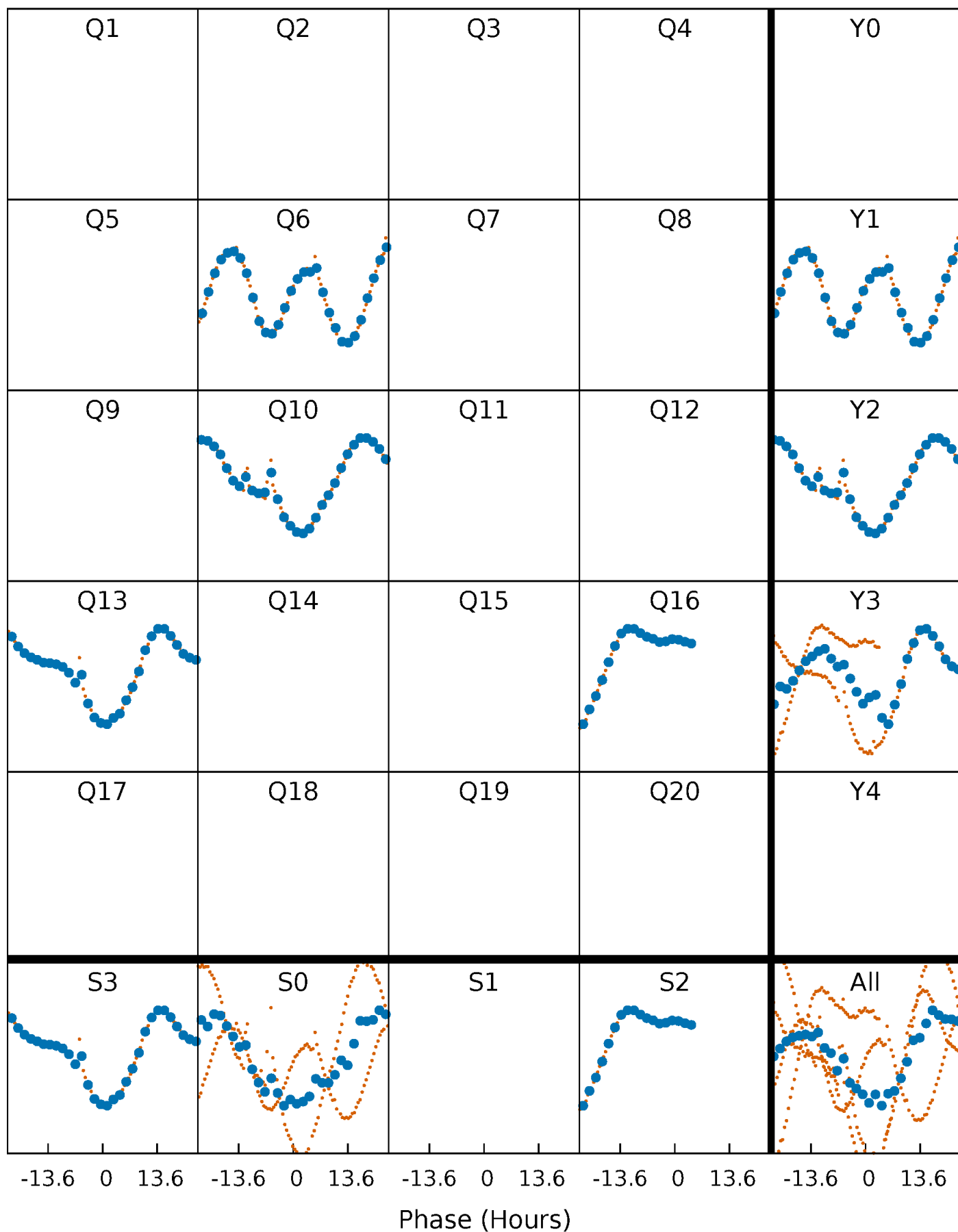


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



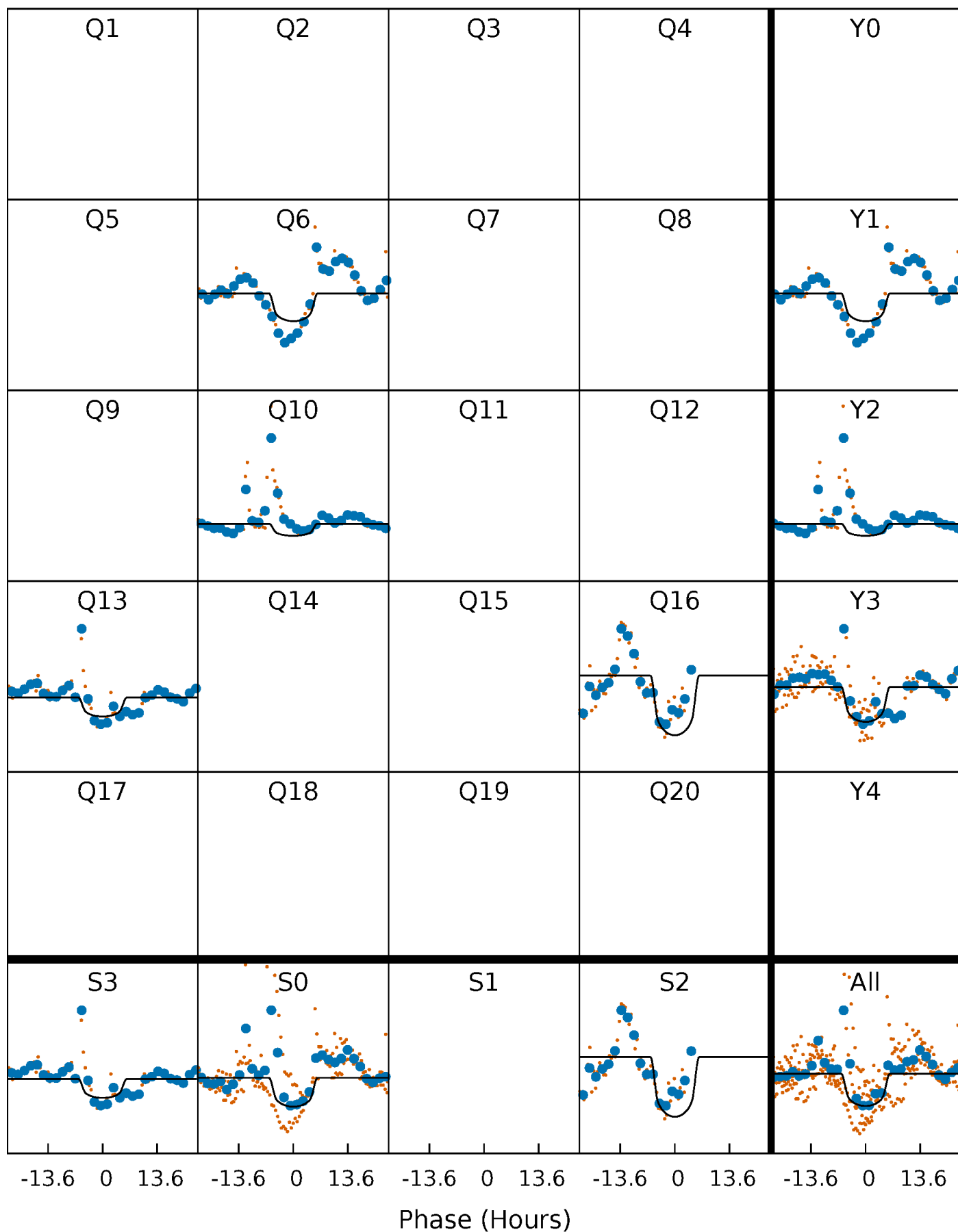
# PDC Quarter-Phased Transit Curves

TCE 011713701-01 P=302.056541 Days  $T_0=316.593624$  (BKJD)



# DV Quarter-Phased Transit Curves

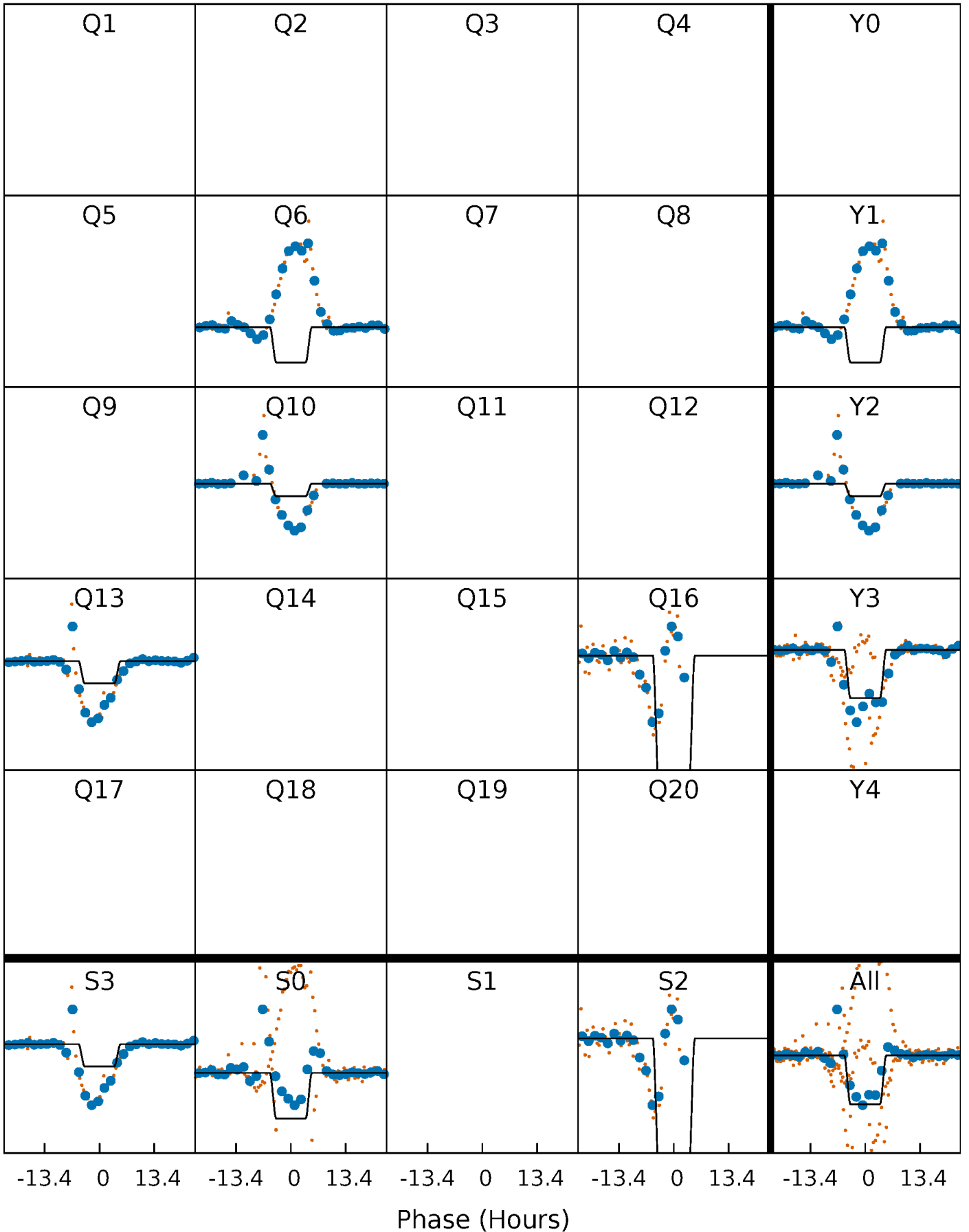
TCE 011713701-01 P=302.056541 Days  $T_0=316.593624$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

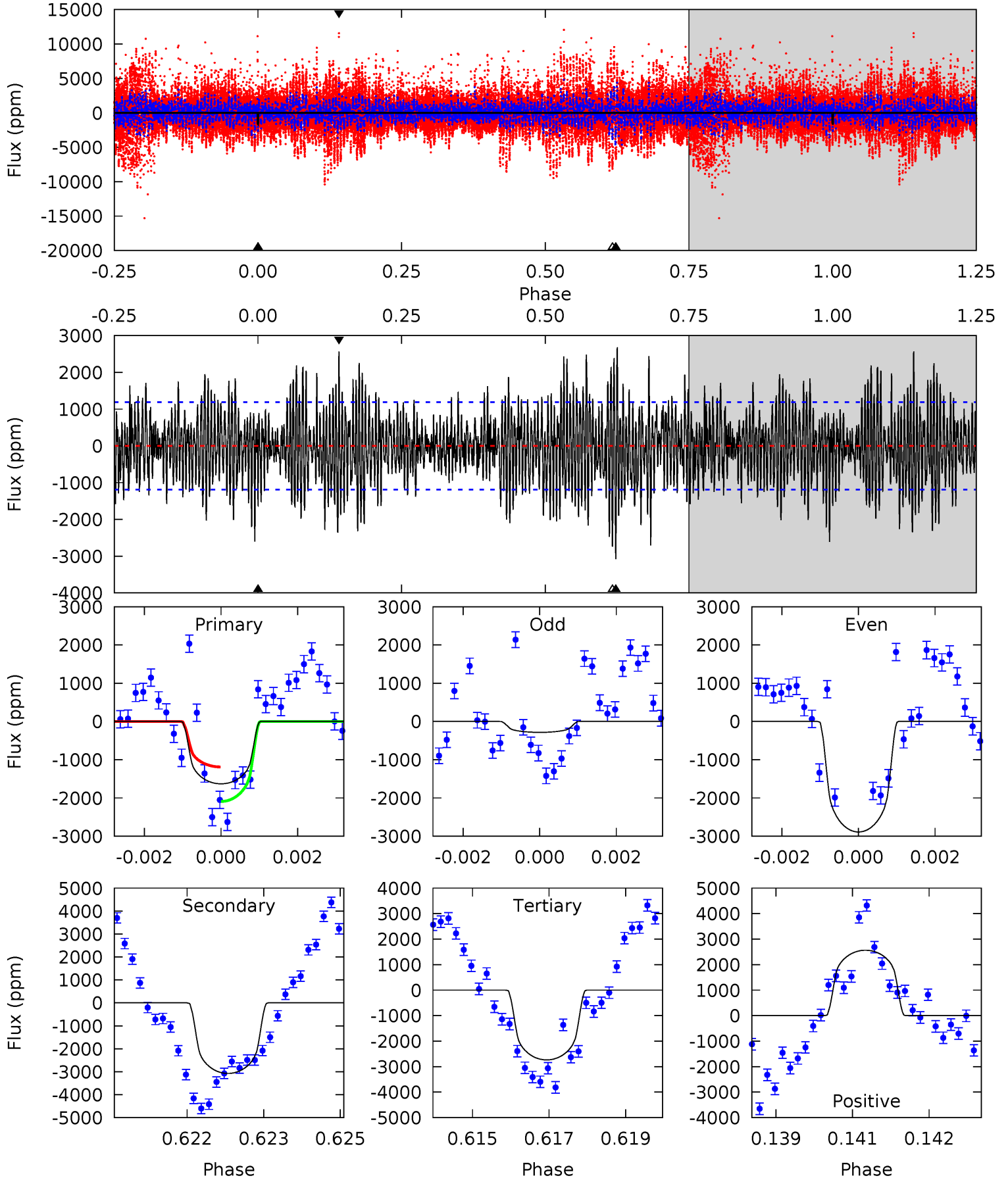
TCE 011713701-01 P=302.055695 Days  $T_0=316.638066$  (BKJD)



# DV Model-Shift Uniqueness Test

011713701-01, P = 302.056541 Days, E = 316.593624 Days

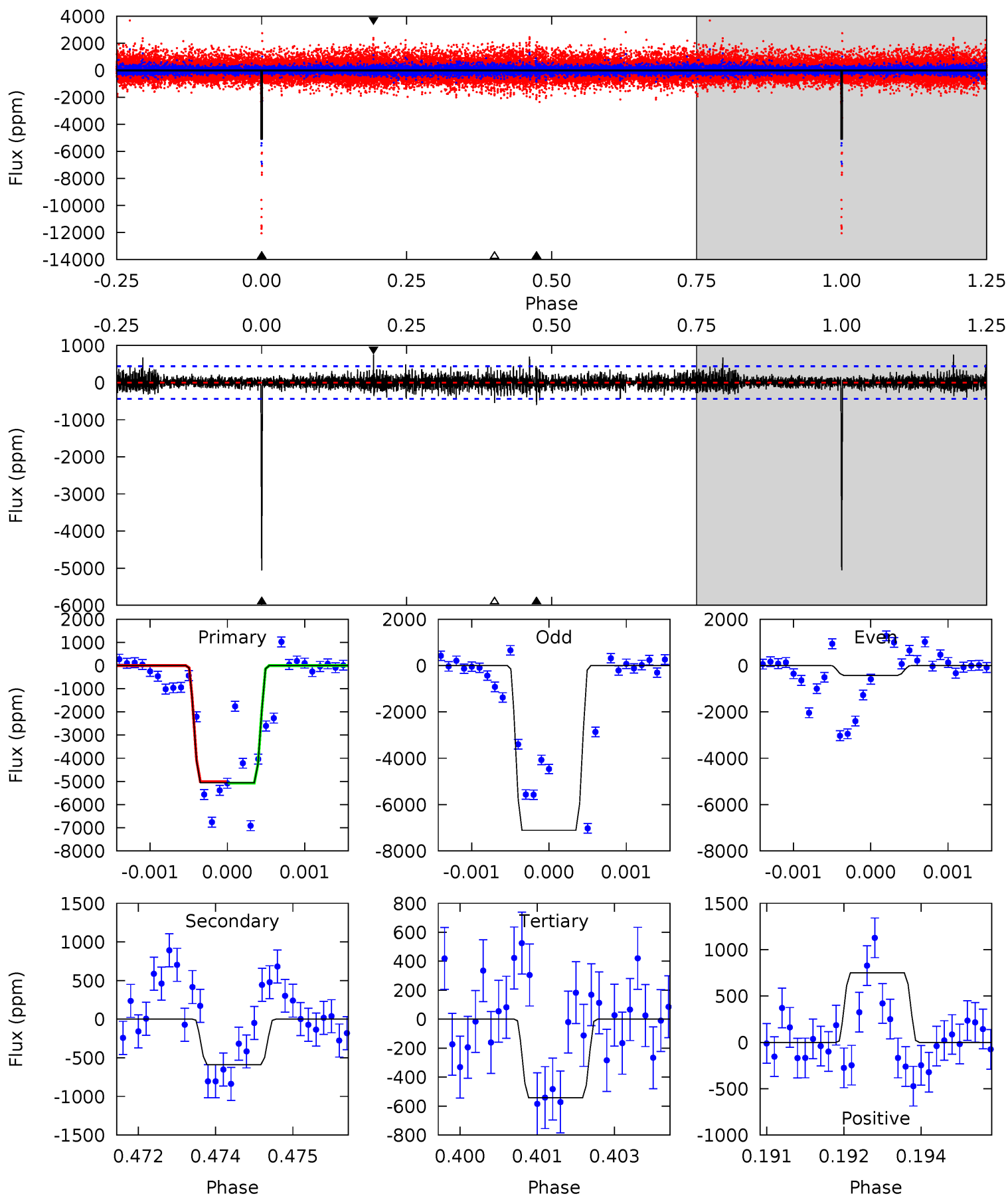
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.34	13.8	12.3	11.5	5.36	3.15	3.85	-4.98	-4.20	1.52	2.29	5.20	0.81	0.47	2.03



# Alt Model-Shift Uniqueness Test

011713701-01, P = 302.055695 Days, E = 316.638066 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
62.1	7.22	6.67	9.22	5.39	3.20	1.38	55.4	52.9	0.55	-2.00	52.8	0.71	0.13	0



### Stellar Parameters For KIC 011713701

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4524^{+143}_{-179}$	$4.675^{+0.058}_{-0.031}$	$-0.760^{+0.300}_{-0.300}$	$0.570^{+0.046}_{-0.051}$	$0.560^{+0.054}_{-0.036}$	$4.269^{+1.052}_{-0.515}$
	+3%/-4%	+1%/-1%	+39%/-39%	+8%/-9%	+10%/-6%	+25%/-12%
Source	KIC0	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 011713701-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-3073 \pm 222$	$3.20^{+0.42}_{-0.46}$	$245^{+9}_{-11}$	$4640^{+319}_{-271}$	$88515^{+29567}_{-20211}$
Alt.	$-588 \pm 81$	$4.07^{+0.45}_{-0.44}$	$245^{+10}_{-10}$	$3209^{+160}_{-141}$	$10342^{+2945}_{-2172}$

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

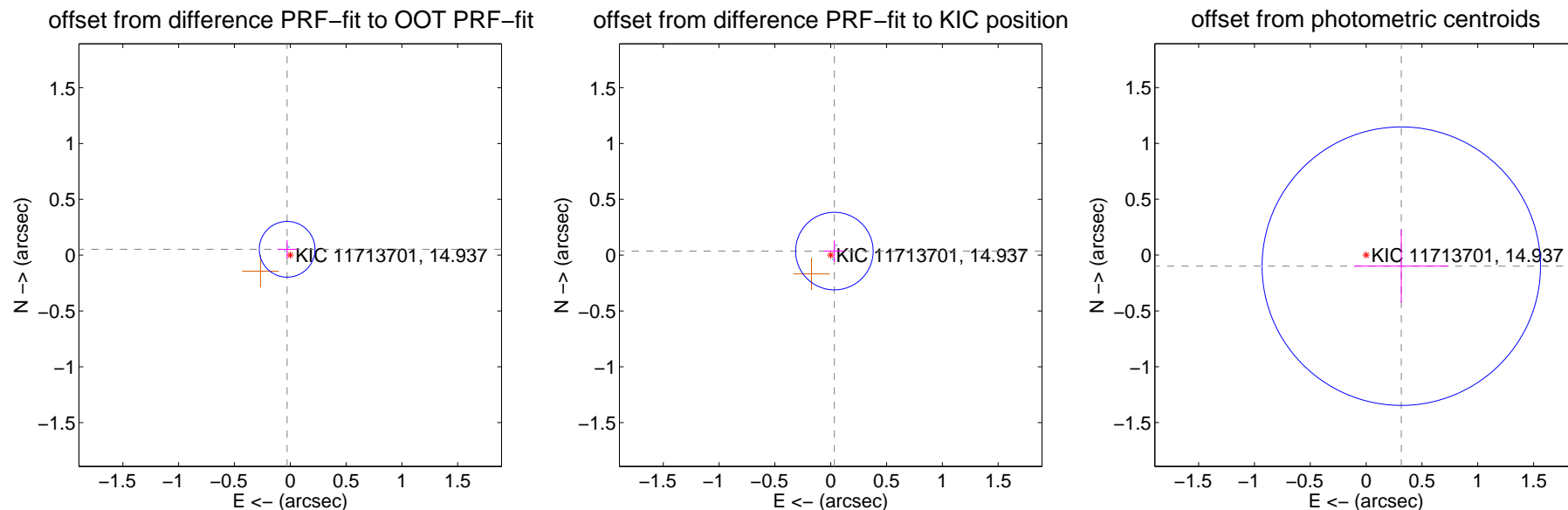
## DV Centroid Data

Supplemental centroid analysis for 011713701-01. Kepler magnitude: 14.94. Transit SNR 5.33

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.059 \pm 0.083$	0.71	$0.028 \pm 0.086$	$0.052 \pm 0.082$
PRF-fit source offset from KIC position	$0.049 \pm 0.116$	0.42	$-0.033 \pm 0.093$	$0.036 \pm 0.097$
photometric centroid source offset	$0.33 \pm 0.42$	0.79	$-0.31 \pm 0.42$	$-0.10 \pm 0.33$



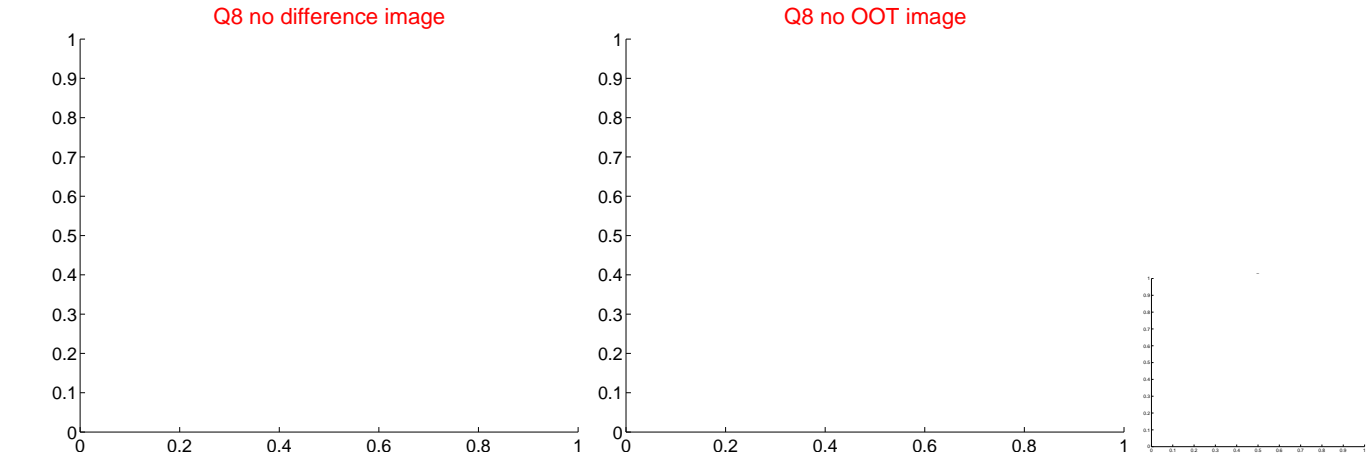
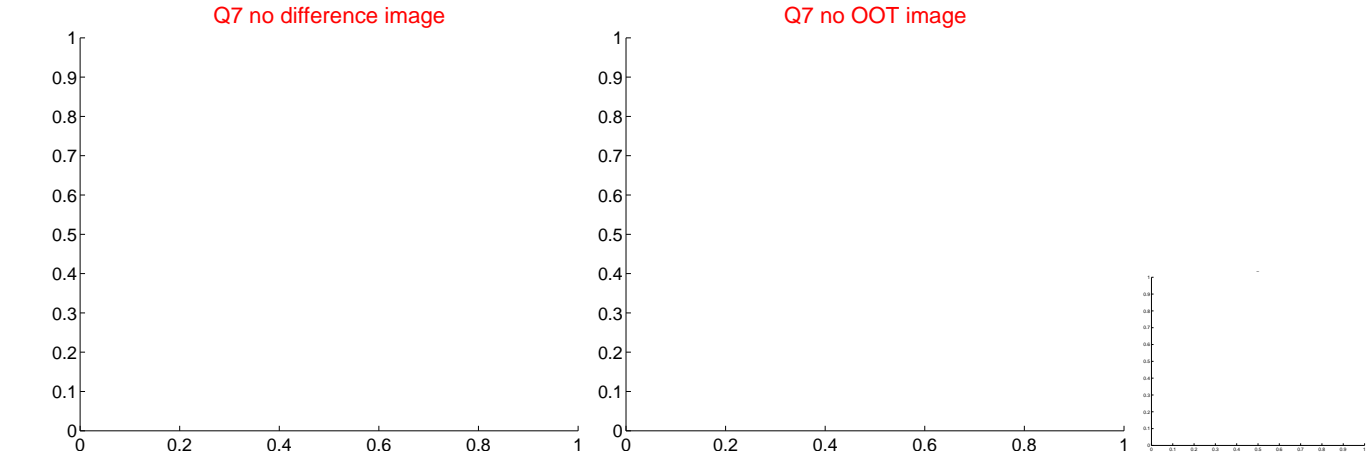
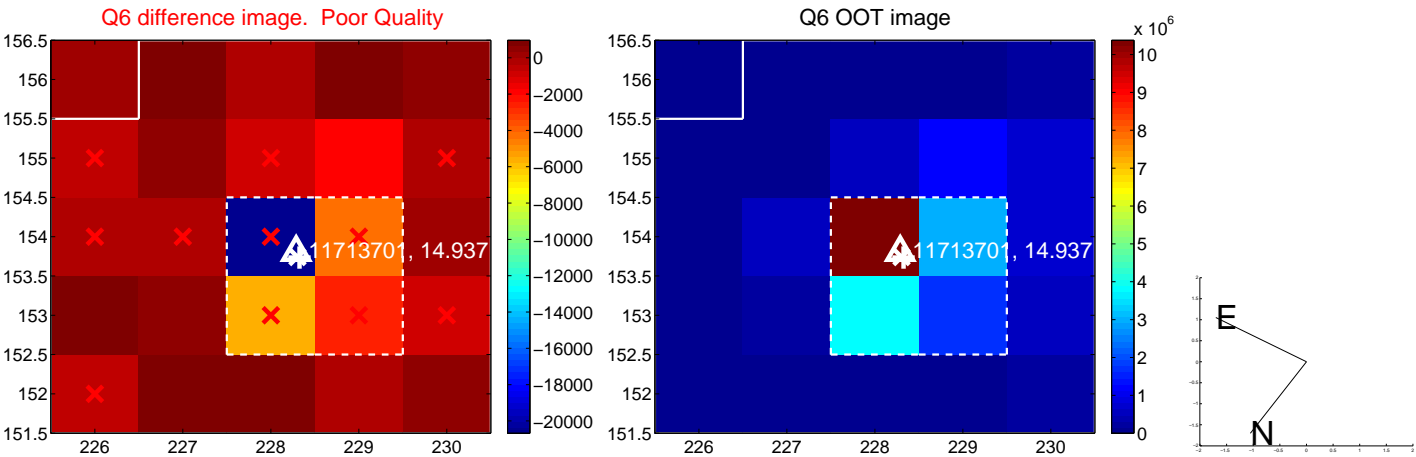
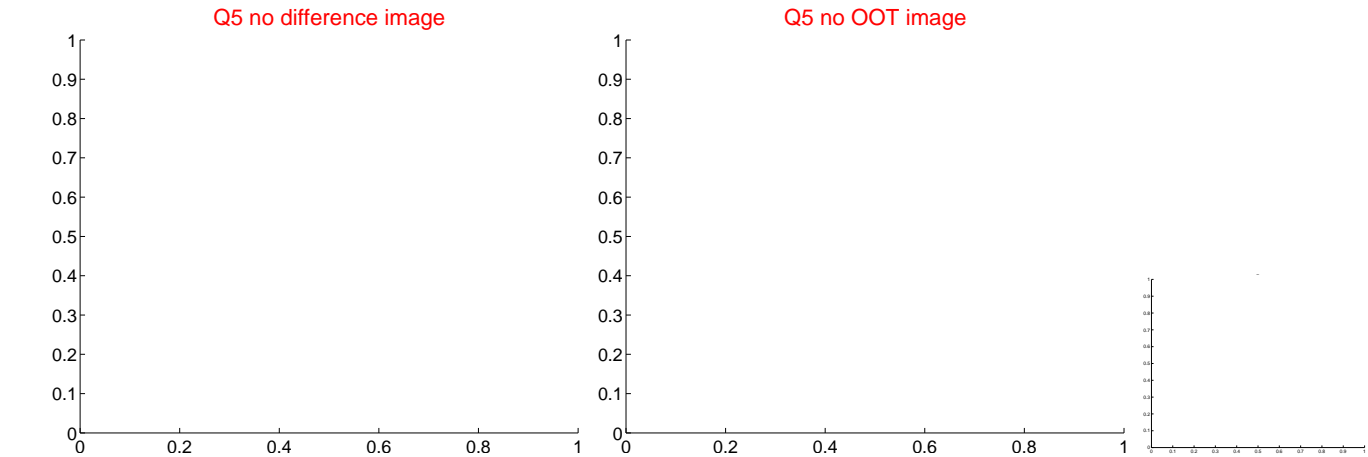
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

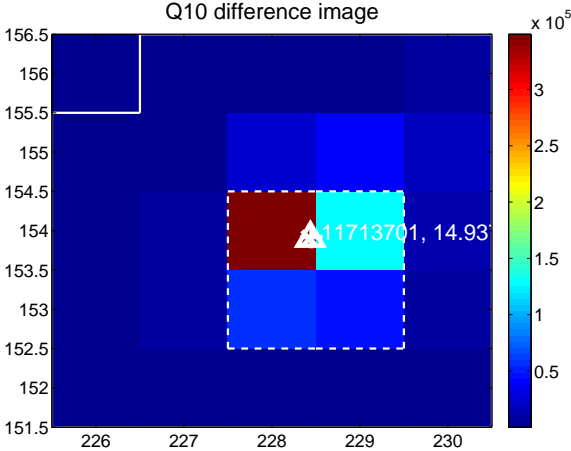
Q9 no difference image



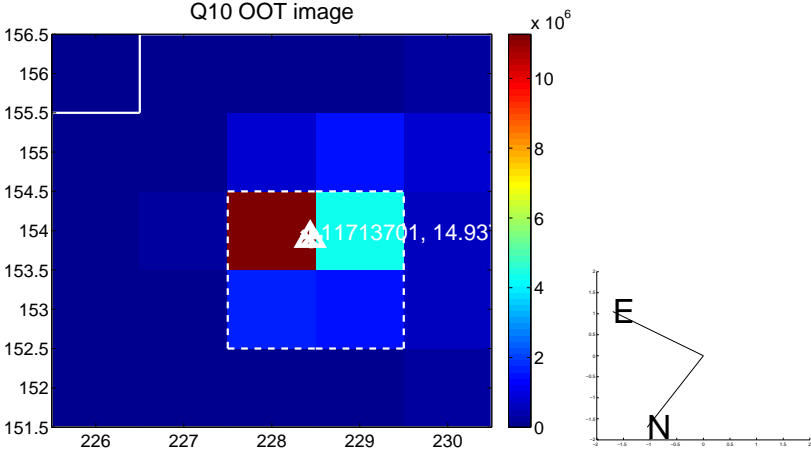
Q9 no OOT image



Q10 difference image



Q10 OOT image



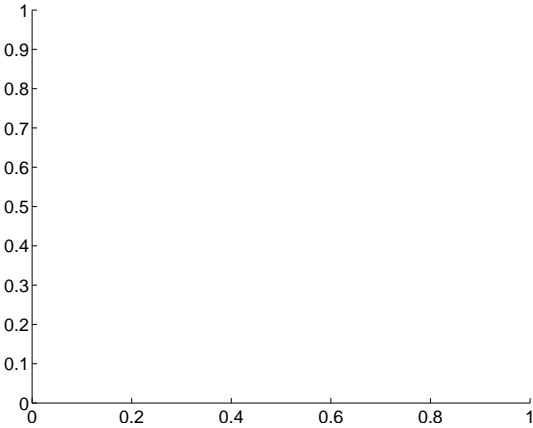
Q11 no difference image



Q11 no OOT image



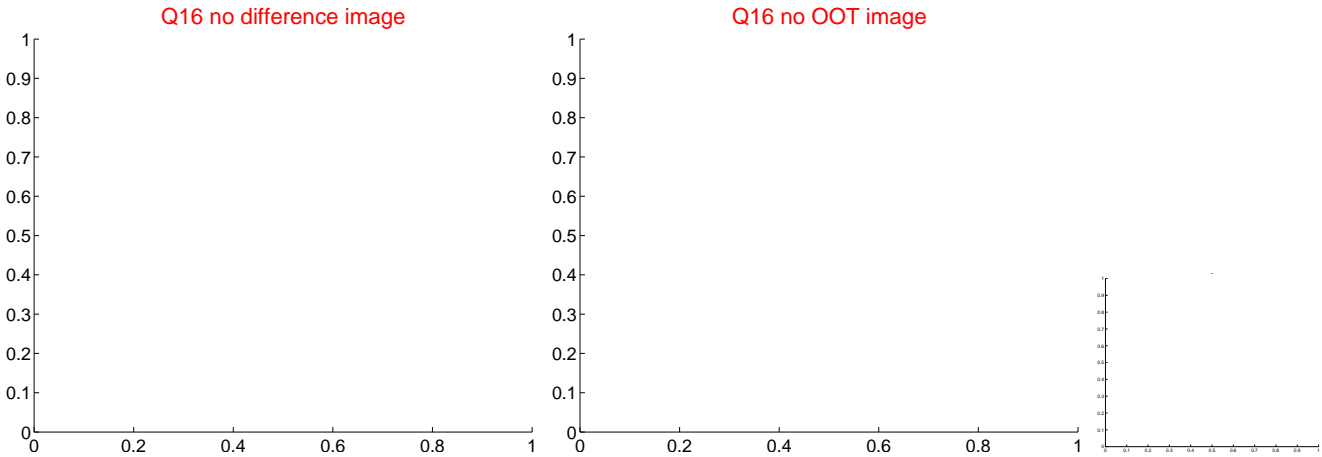
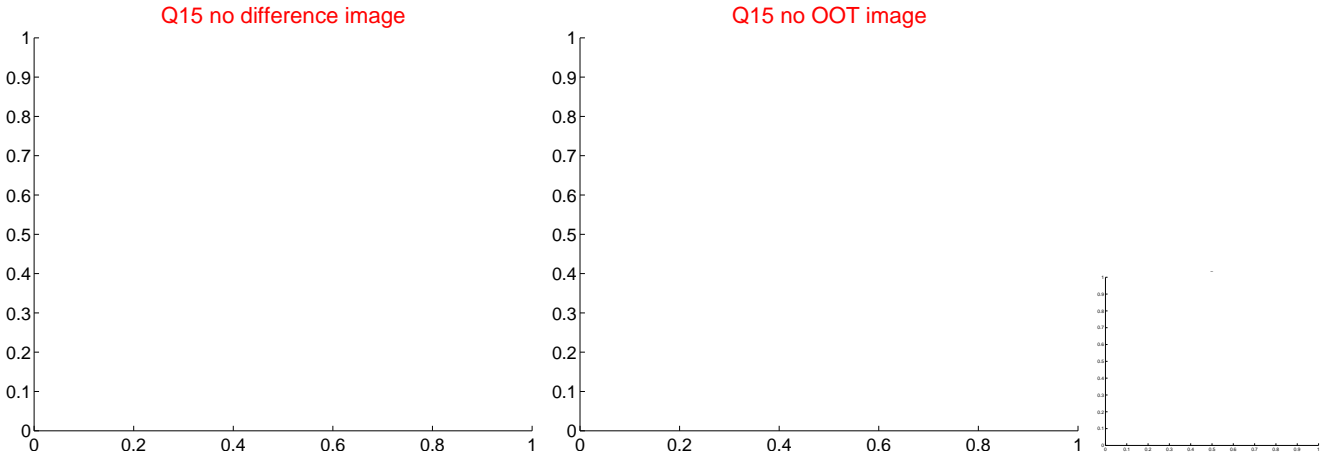
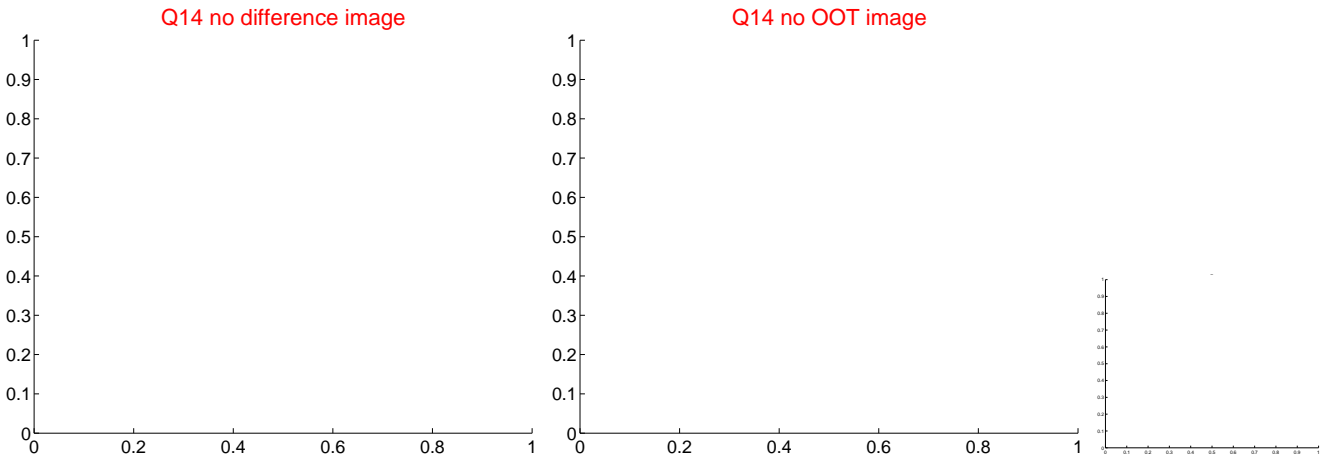
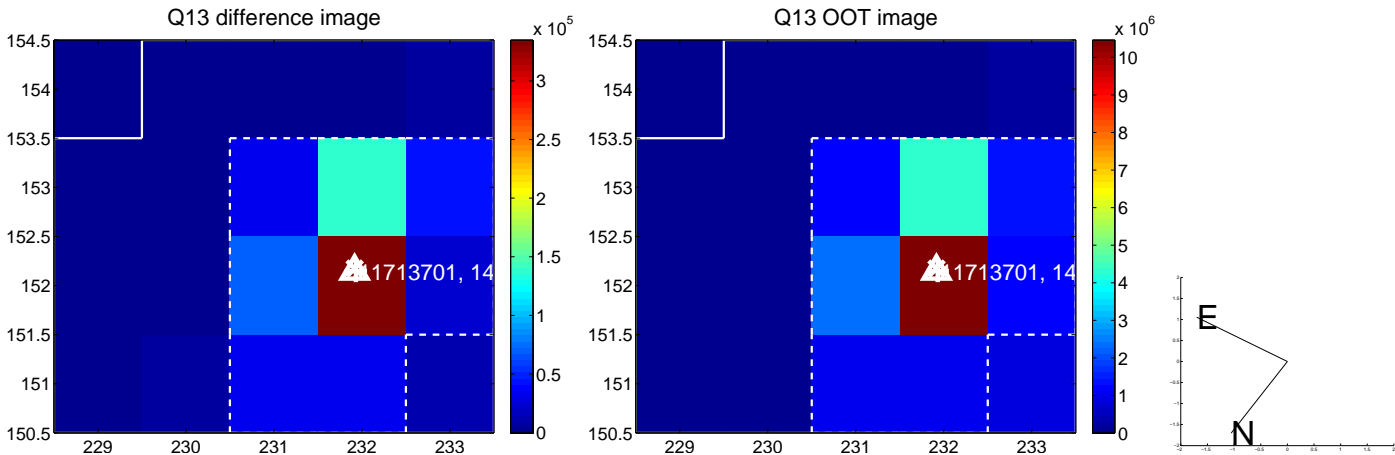
Q12 no difference image



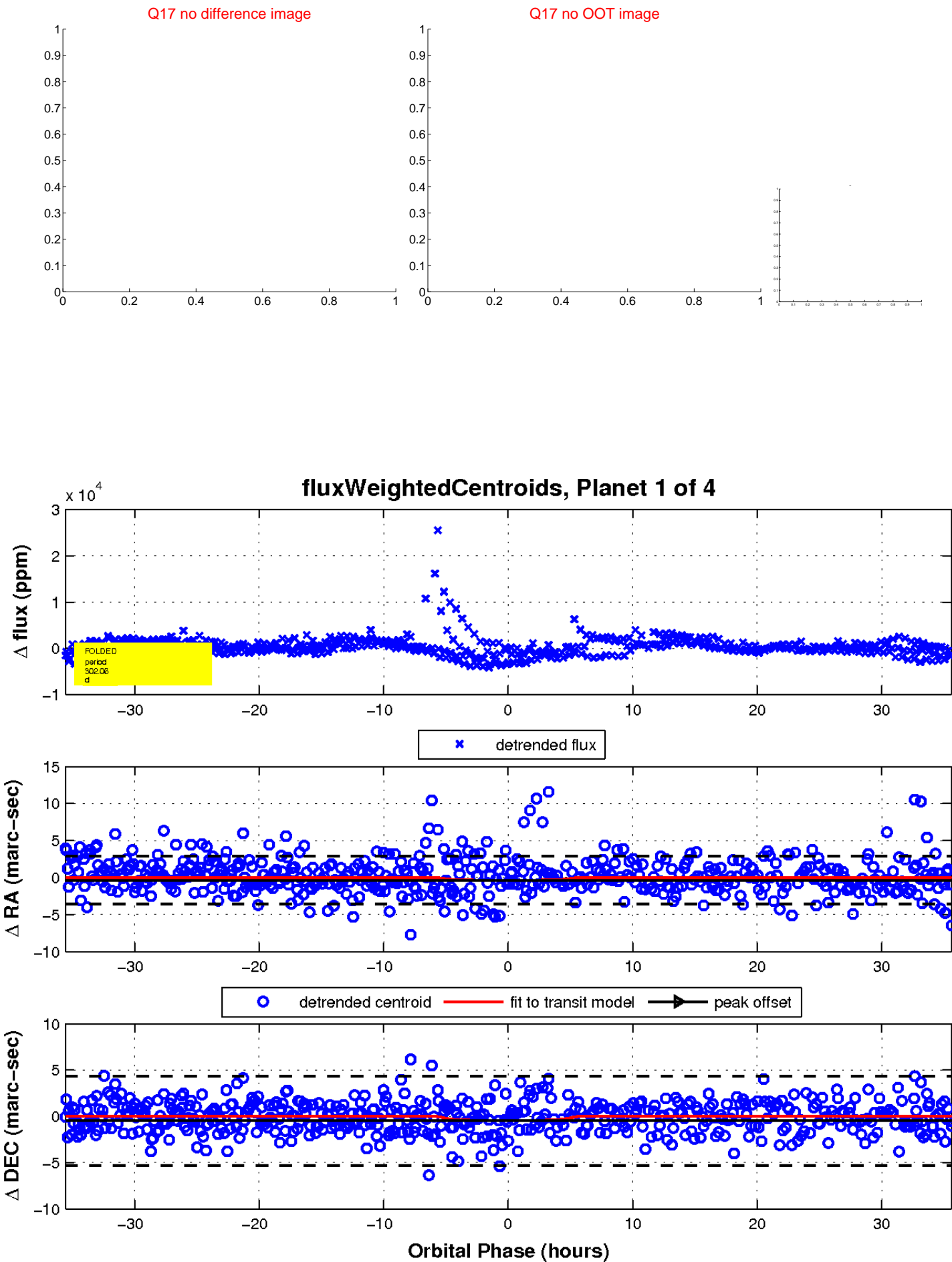
Q12 no OOT image



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



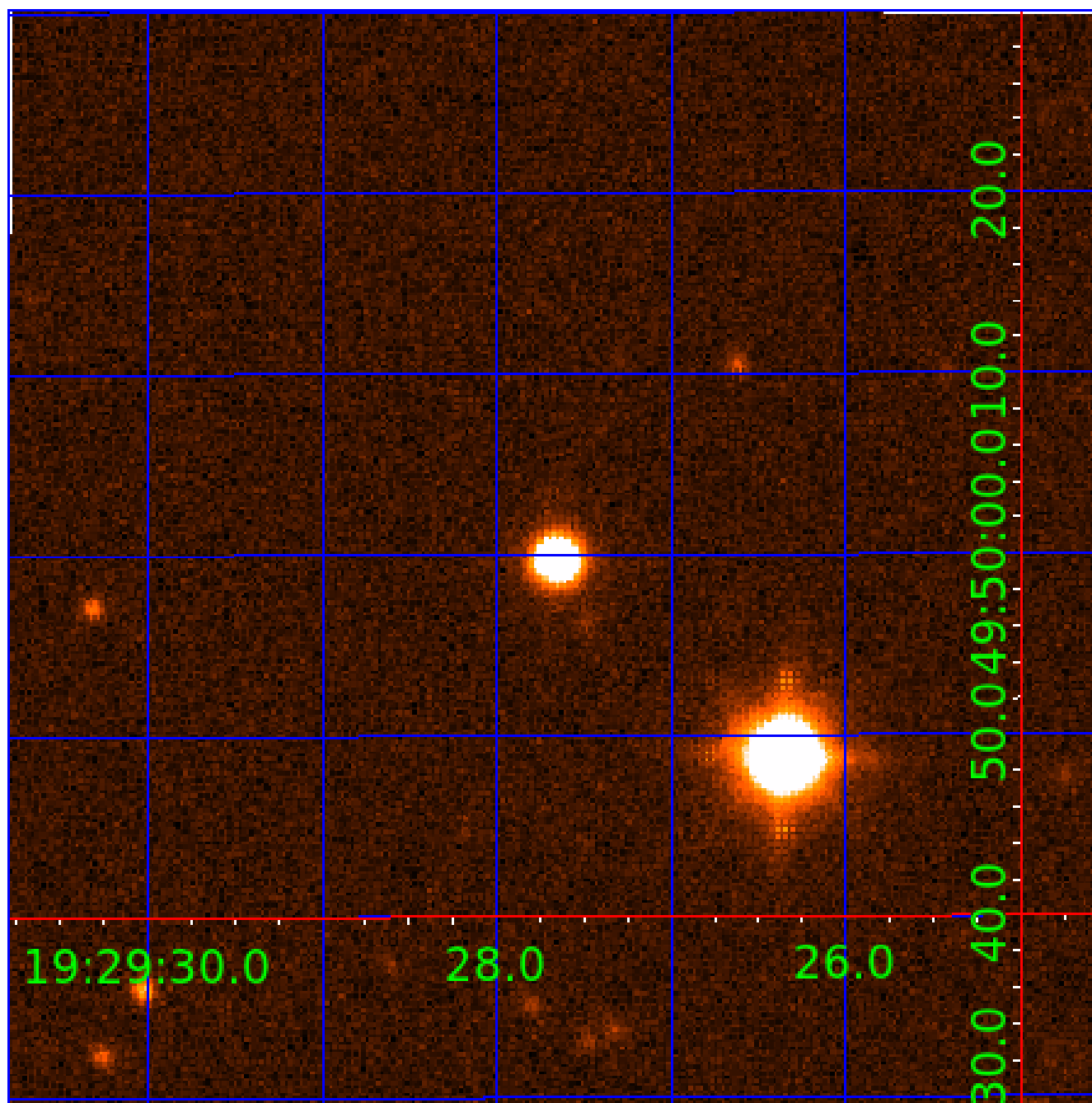
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 011713701

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011713701-01	OBS	No	302.056541	316.593624	2499.9	11.890	17.3	5.3	0.57	4524	3.21	0.23
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011713701-04	OBS	No	357.025338	330.319942	2234.5	5.321	12.9	5.6	0.57	4524	2.73	0.18

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011713701-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011713701-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS
011713701-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011713701-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—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.

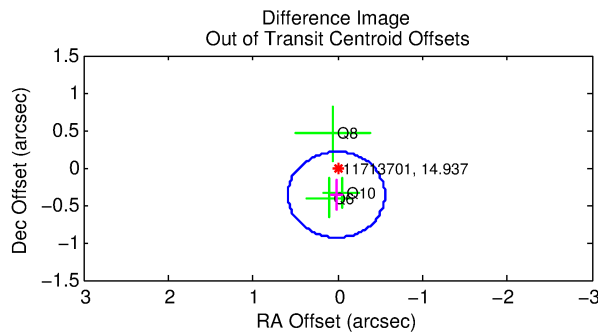
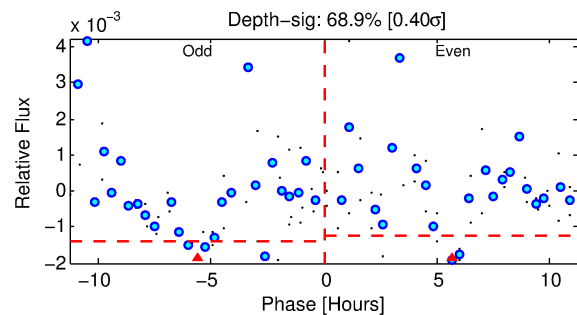
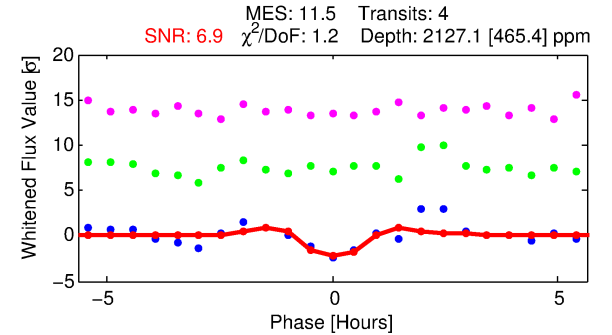
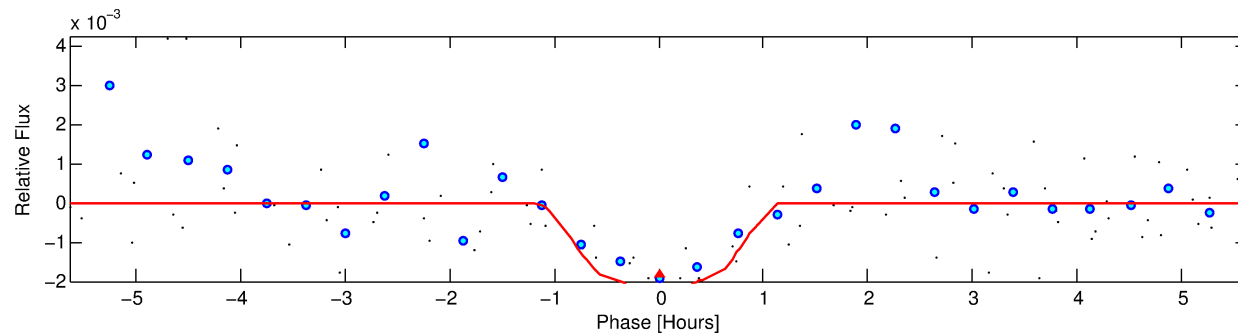
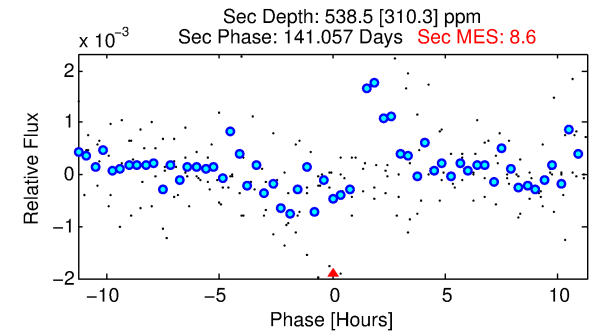
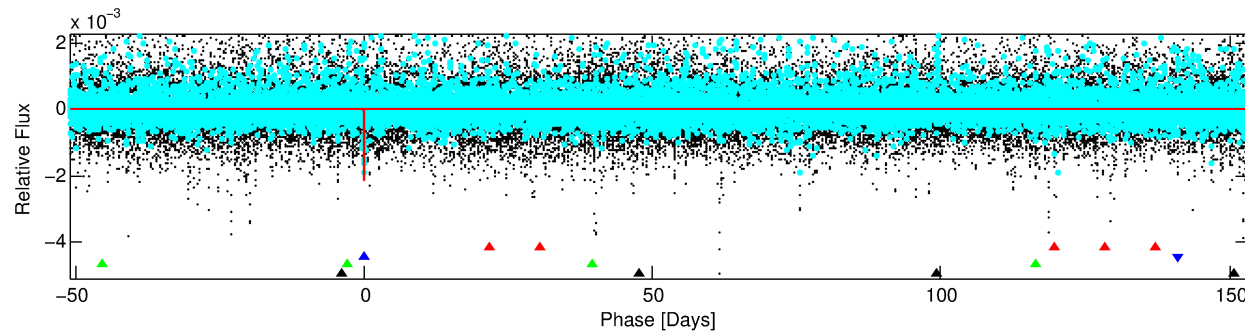
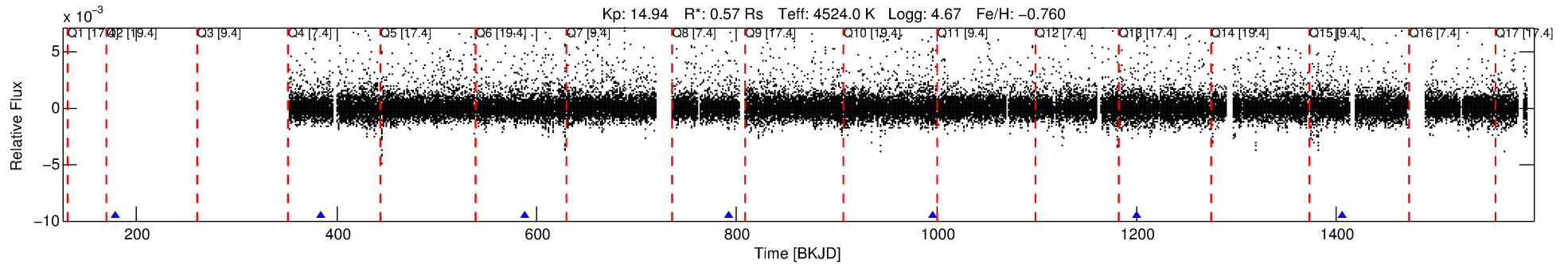
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011713701-02

No Significant Match Found

# DV One-Page Summary

KIC: 11713701 Candidate: 2 of 4 Period: 204.265 d



## DV Fit Results:

Period = 204.26530 [0.00228] d  
Epoch = 179.5613 [0.0094] BKJD  
Rp/R\* = 0.0412 [0.5158]  
a/R\* = 847.08 [34928.32]  
b = 0.21 [189.15]  
Seff = 0.39 [0.07]  
Teq = 201 [10] K  
Rp = 2.56 [32.08] Re  
a = 0.5599 [0.0417] AU  
Ag = 14113.22 [353157.76] [0.04σ]  
Teffp = 3394 [21230] K [0.15σ]

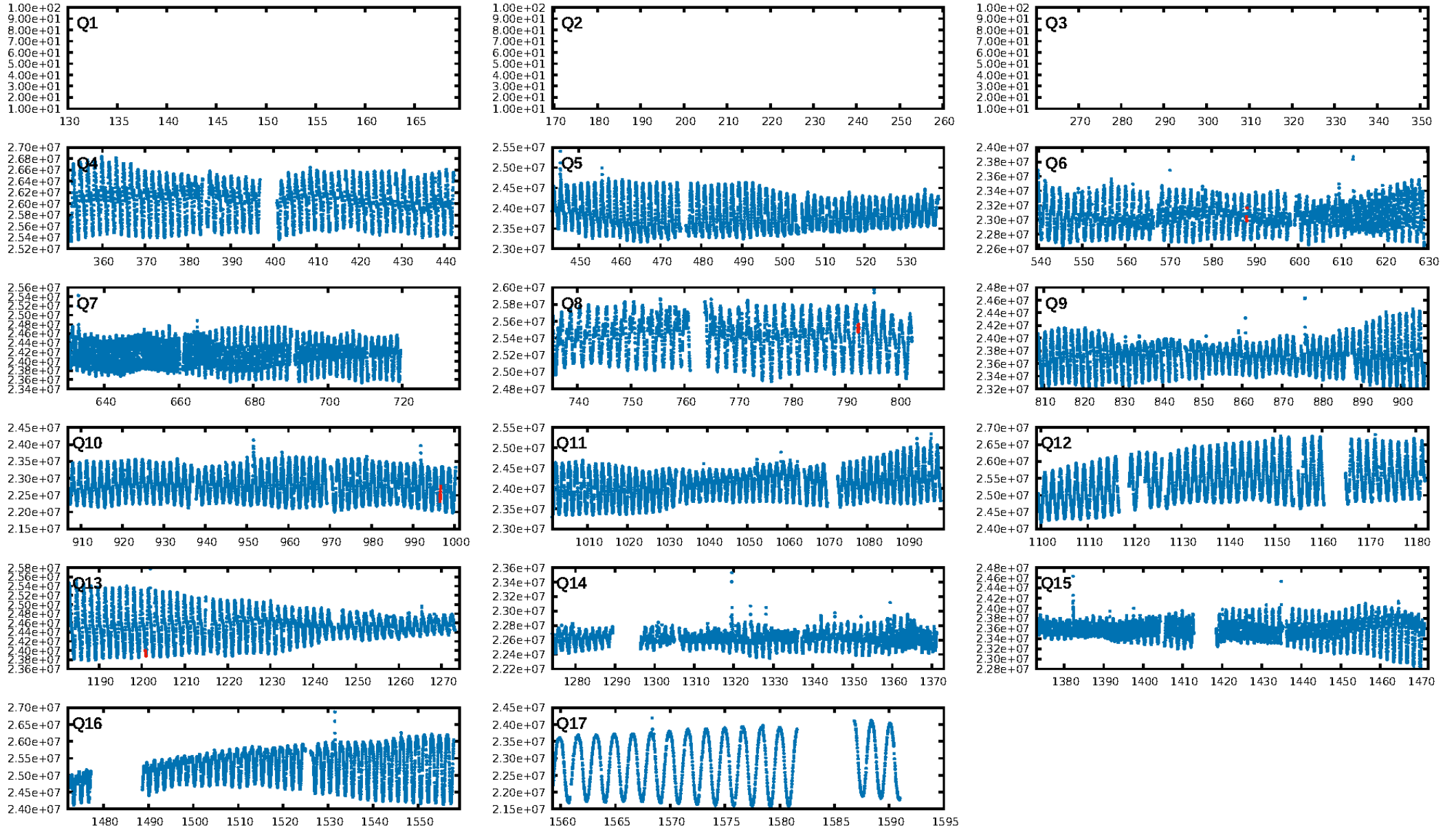
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [194.97σ]  
ModelChiSquare2-sig: 55.7%  
ModelChiSquareGof-sig: 90.4%  
**Bootstrap-pfa: 1.22e-09**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 3.313  
Centroid-sig: 34.5%  
Centroid-so: 0.174 arcsec [0.23σ]  
OotOffset-rm: 0.362 arcsec [1.90σ]  
OotOffset-st: 2/0/1/0 [3]  
KicOffset-rm: 0.281 arcsec [0.96σ]  
KicOffset-st: 2/0/1/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

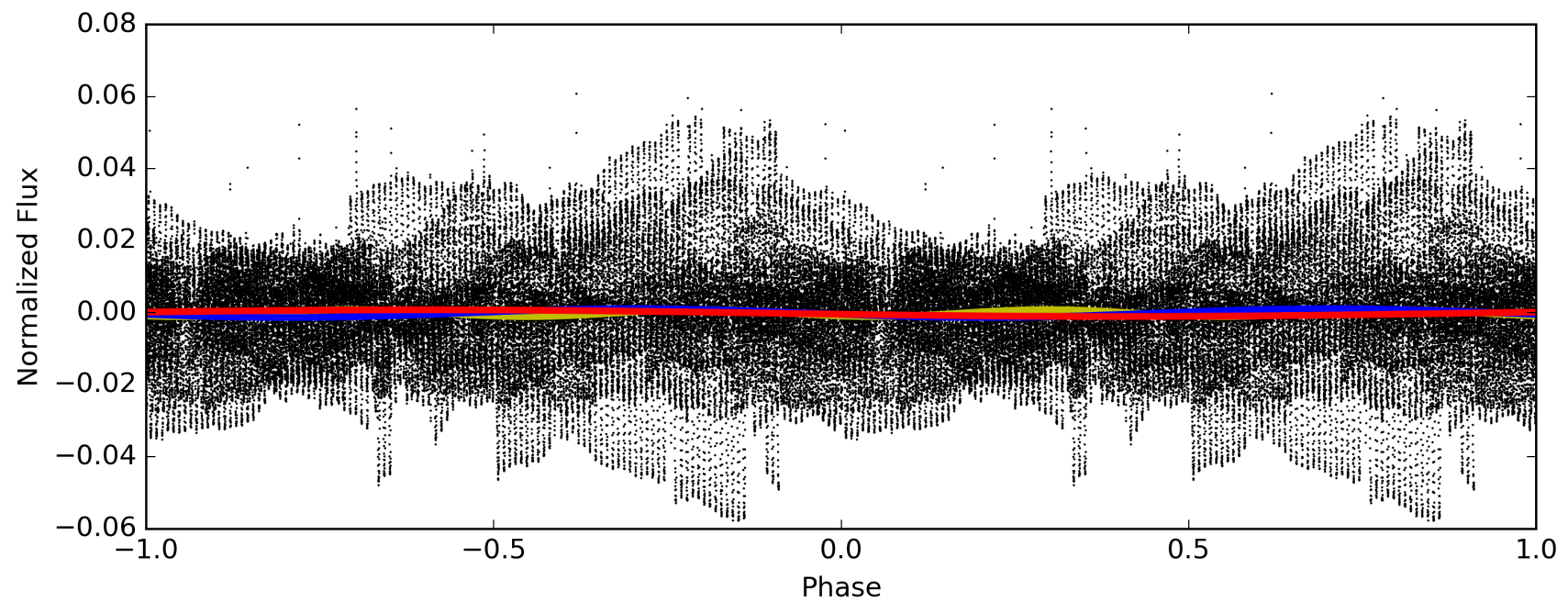
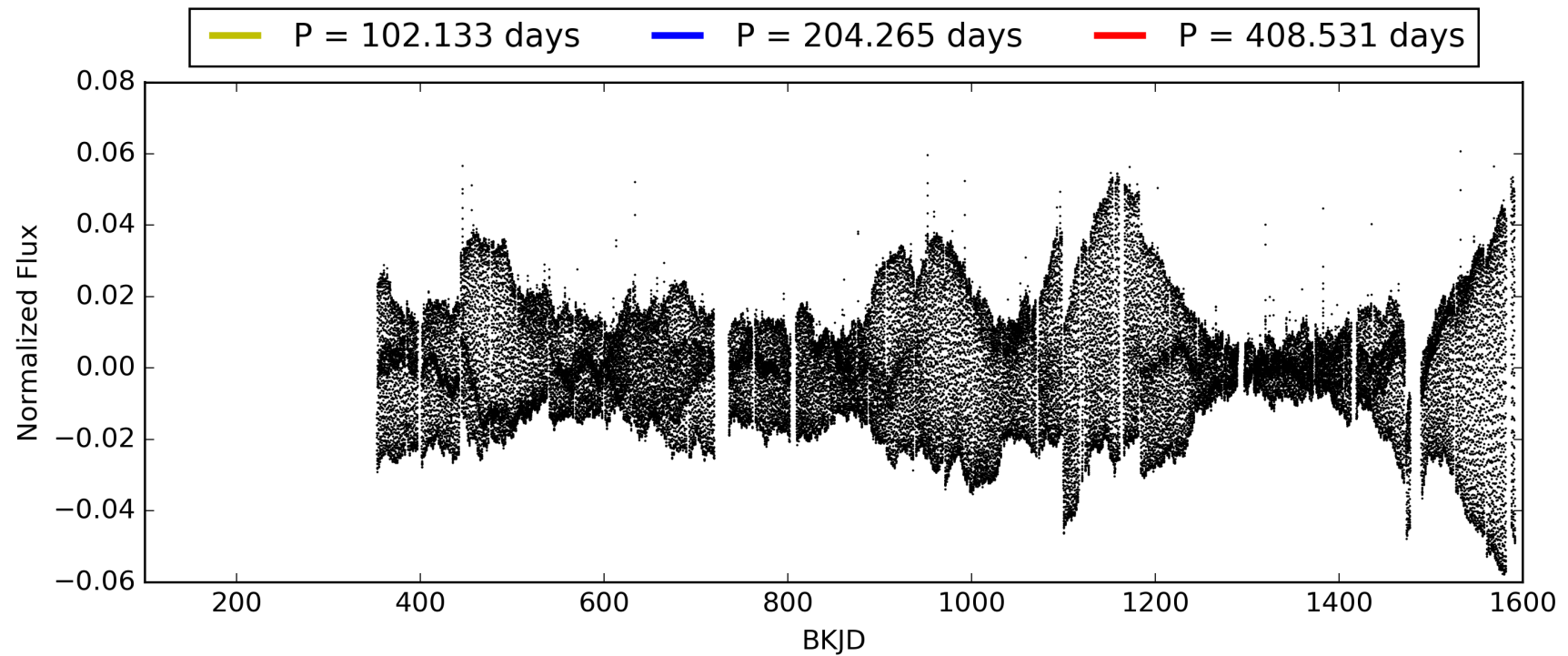
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011713701-02, PDC Light Curves



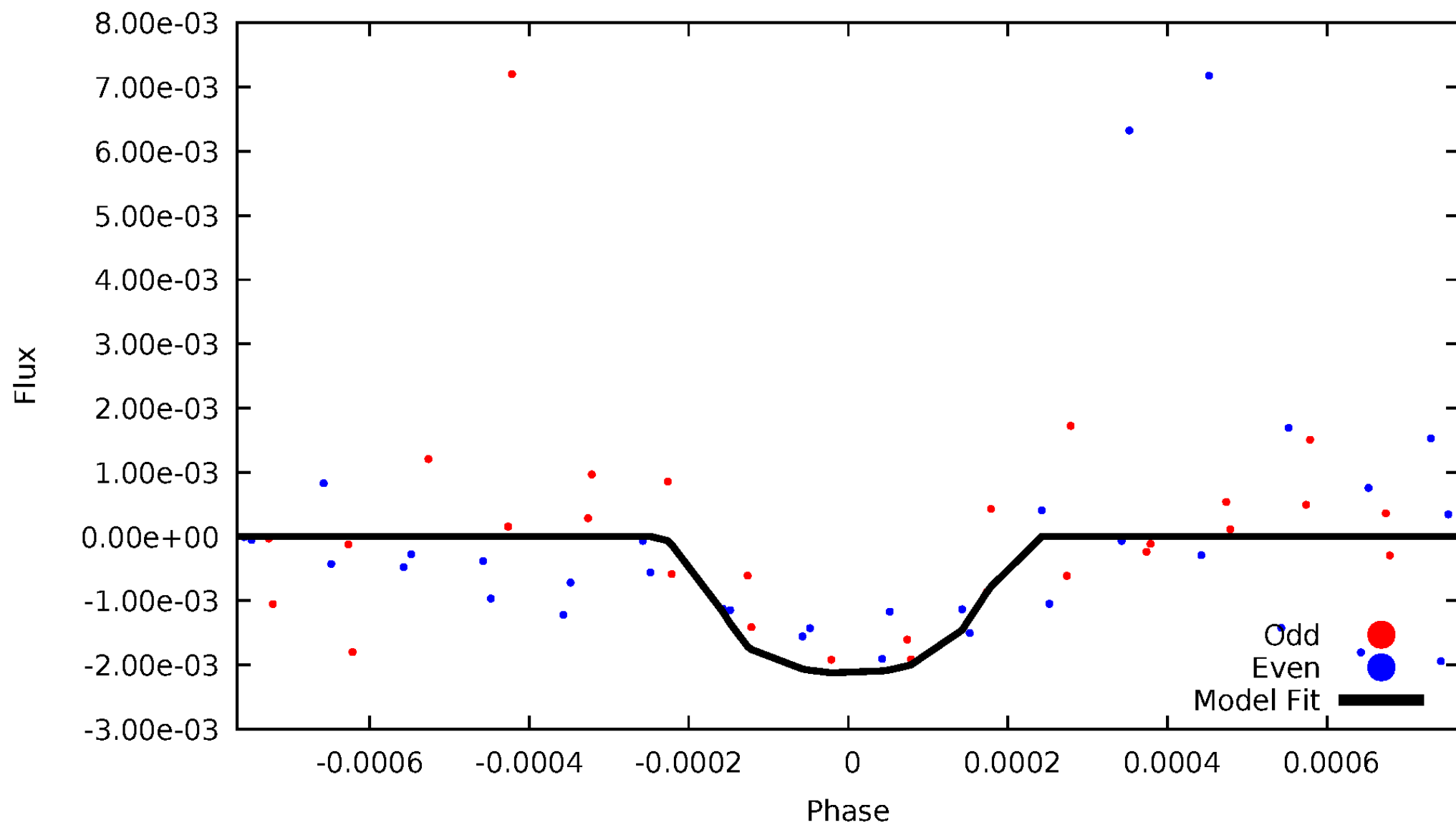
TCE 011713701-02





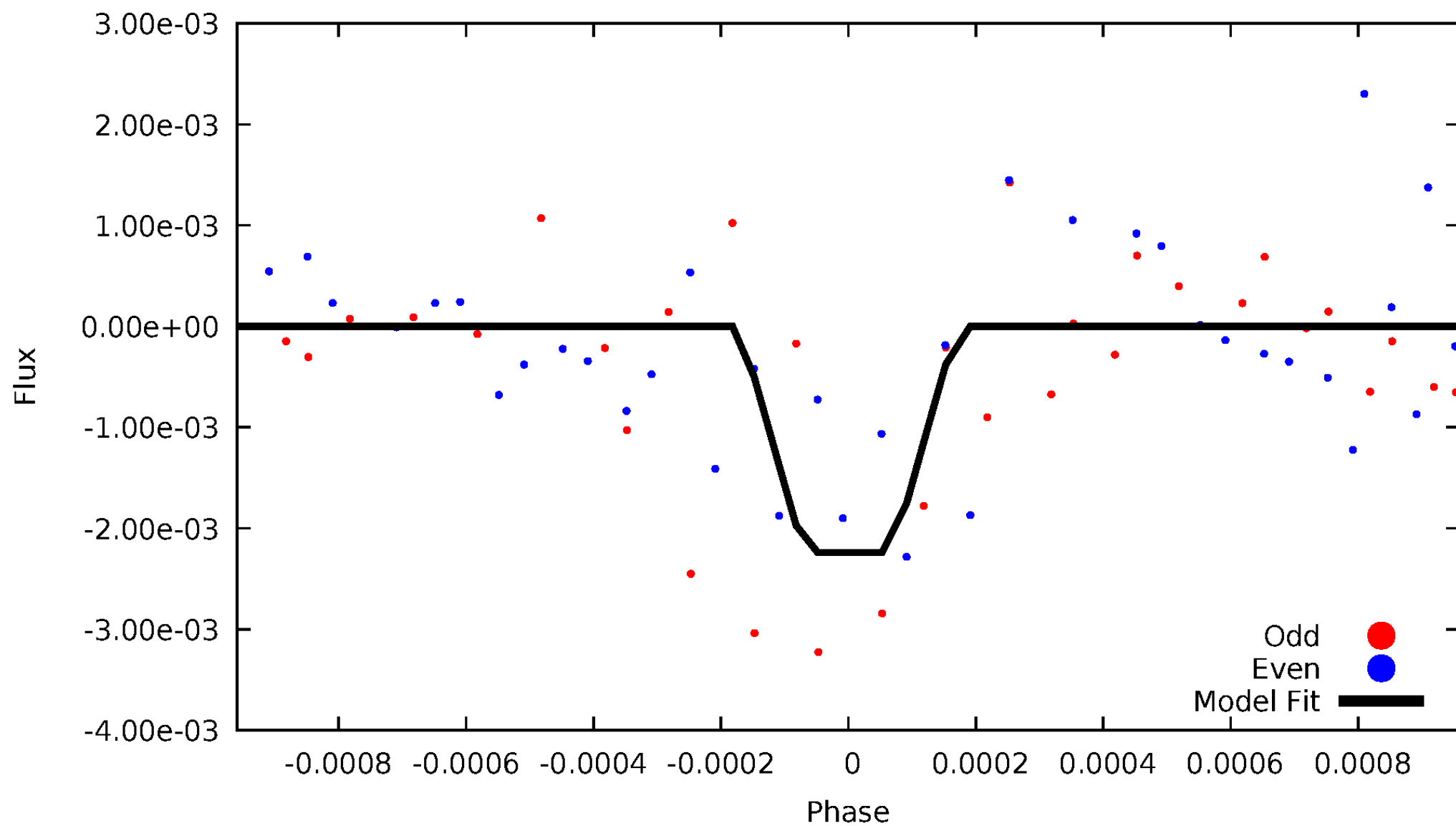
# DV Odd/Even

TCE 011713701-02



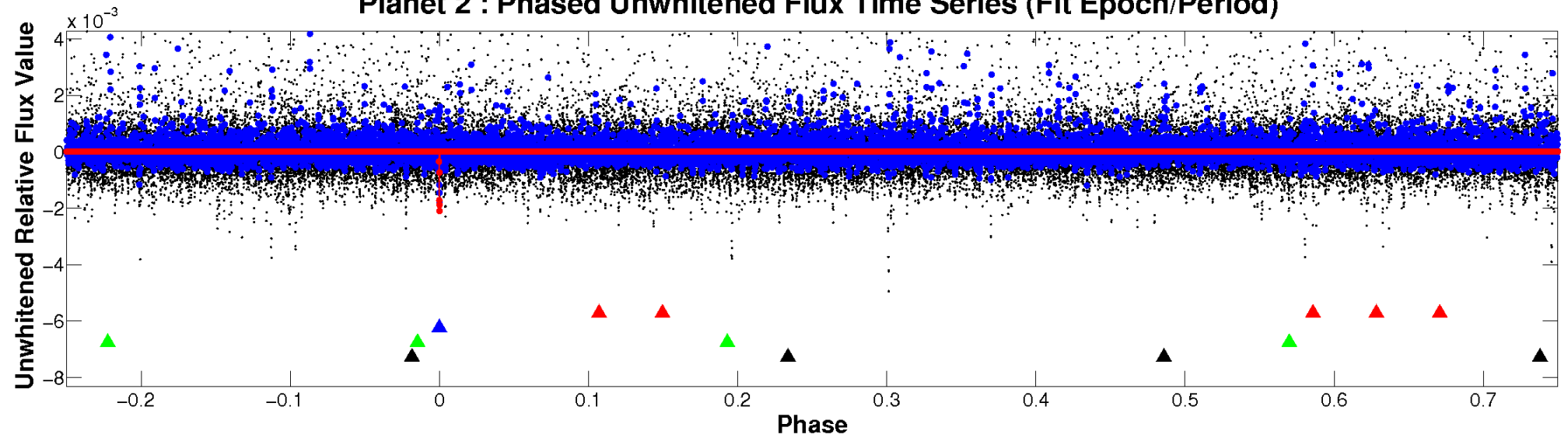
# ALT Odd/Even

TCE 011713701-02

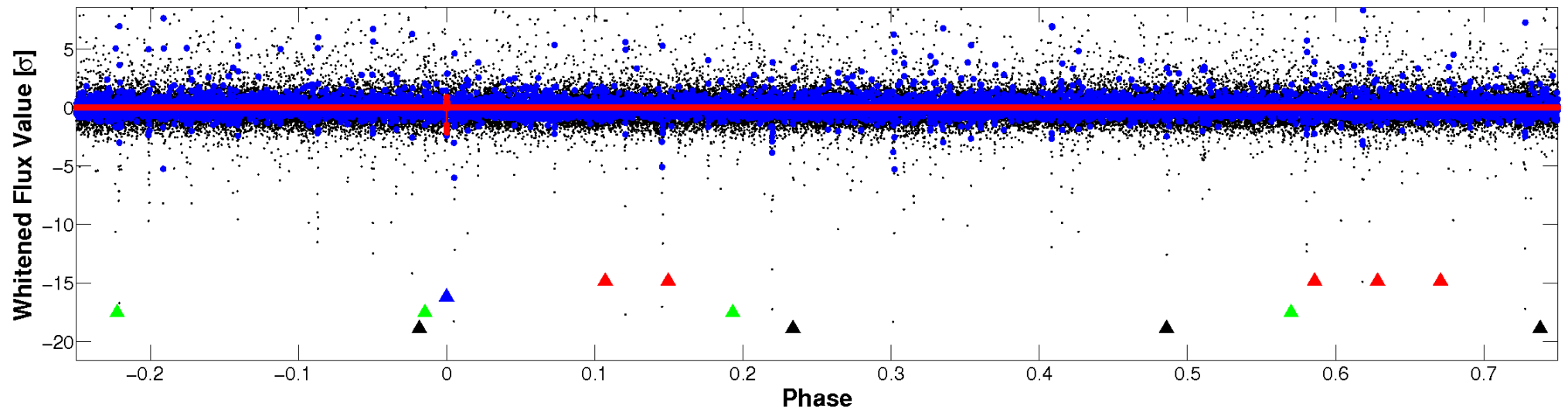


# Non-Whitened Vs. Whitened Light Curve

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

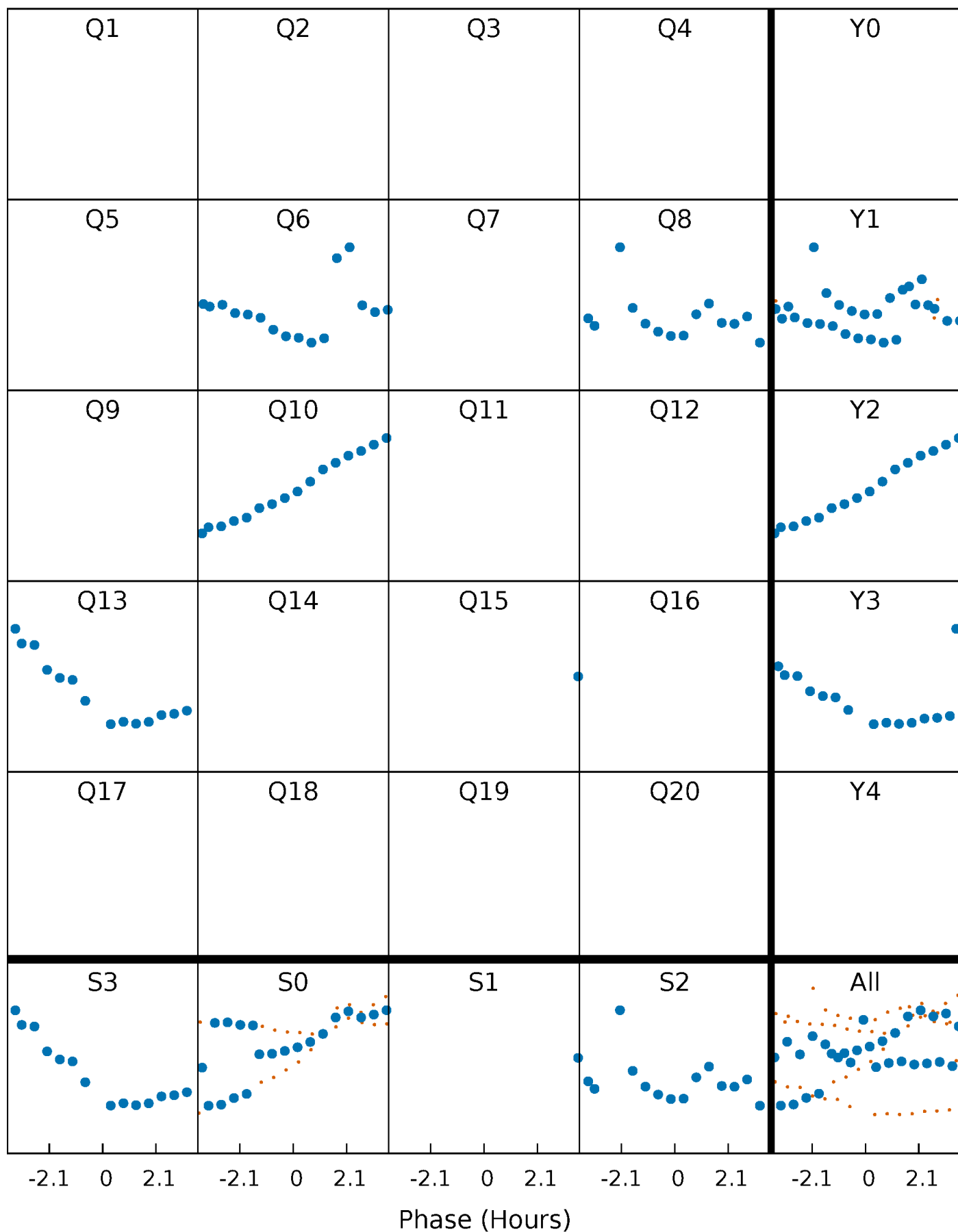


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



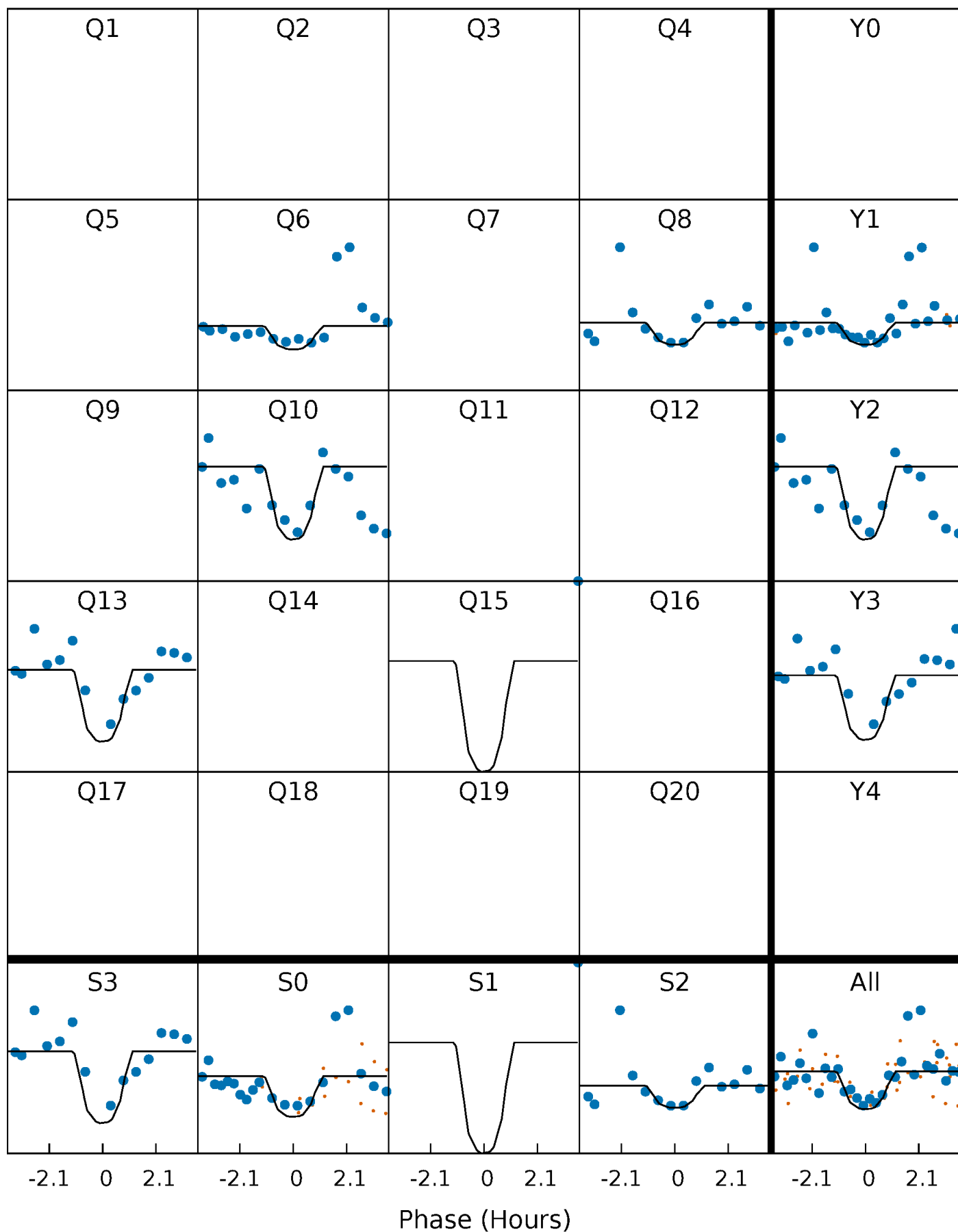
# PDC Quarter-Phased Transit Curves

TCE 011713701-02   P=204.265303 Days    $T_0=179.561316$  (BKJD)



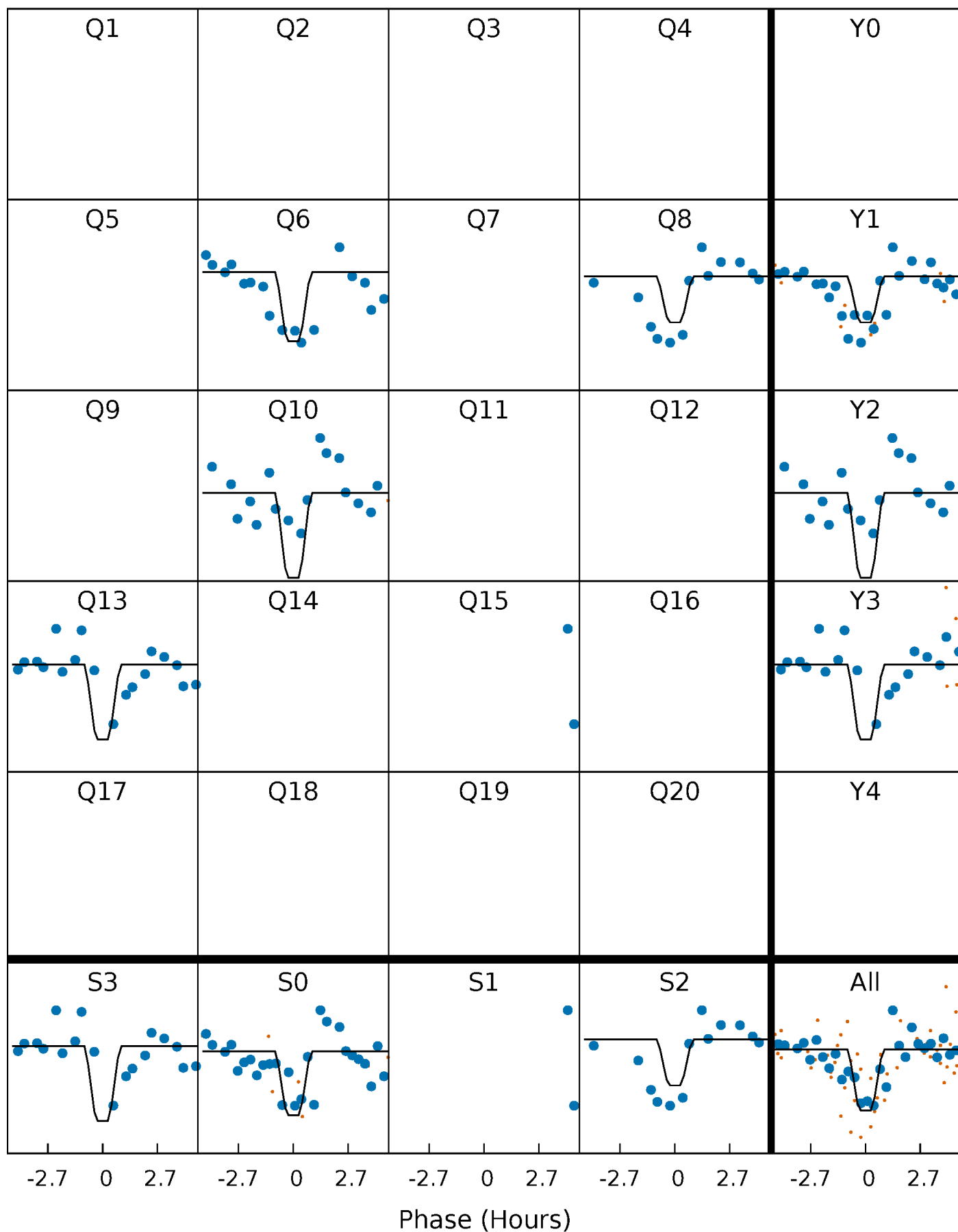
# DV Quarter-Phased Transit Curves

TCE 011713701-02     $P=204.265303$  Days     $T_0=179.561316$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

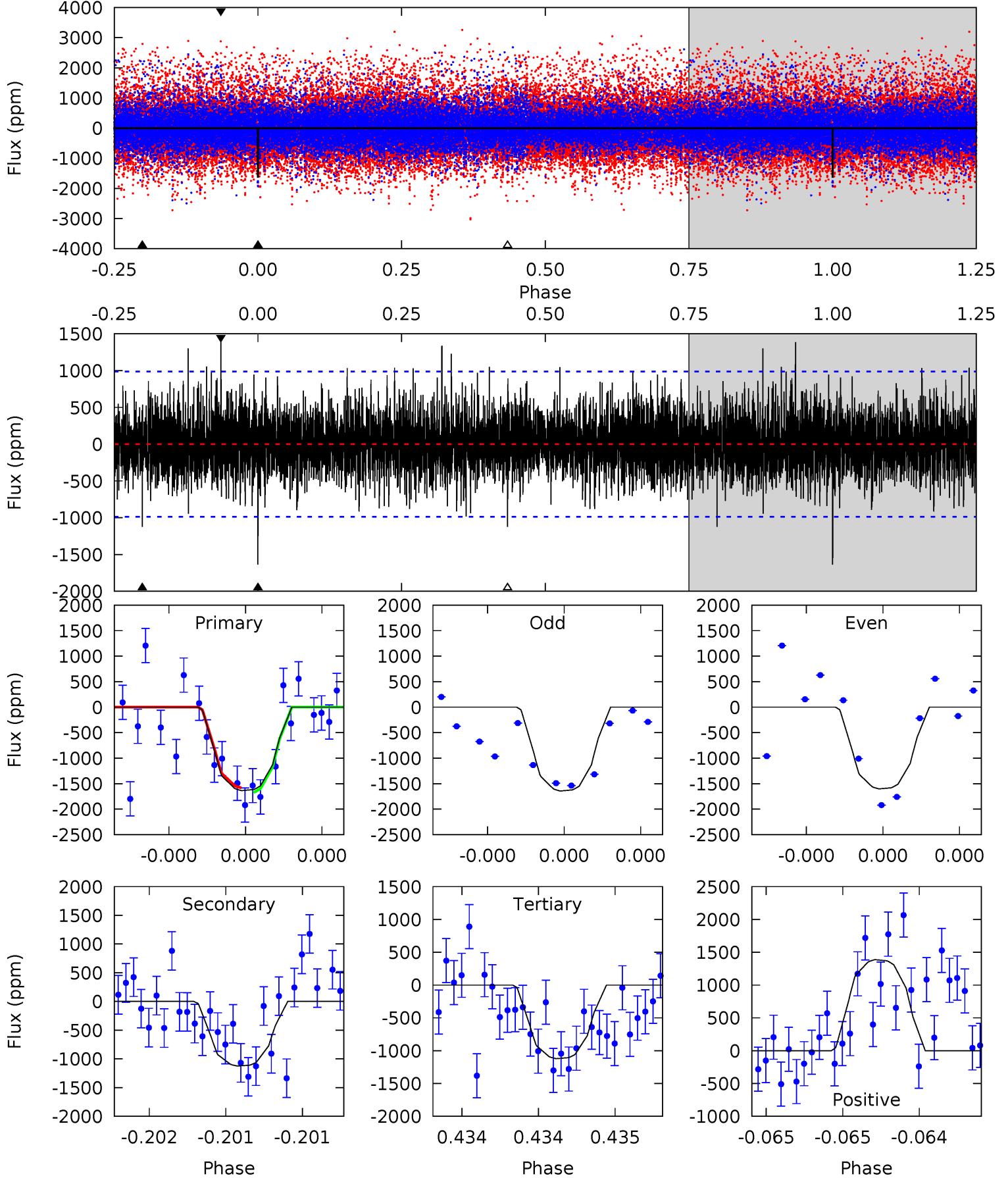
TCE 011713701-02 P=204.258138 Days  $T_0=179.588050$  (BKJD)



# DV Model-Shift Uniqueness Test

011713701-02, P = 204.265303 Days, E = 179.561316 Days

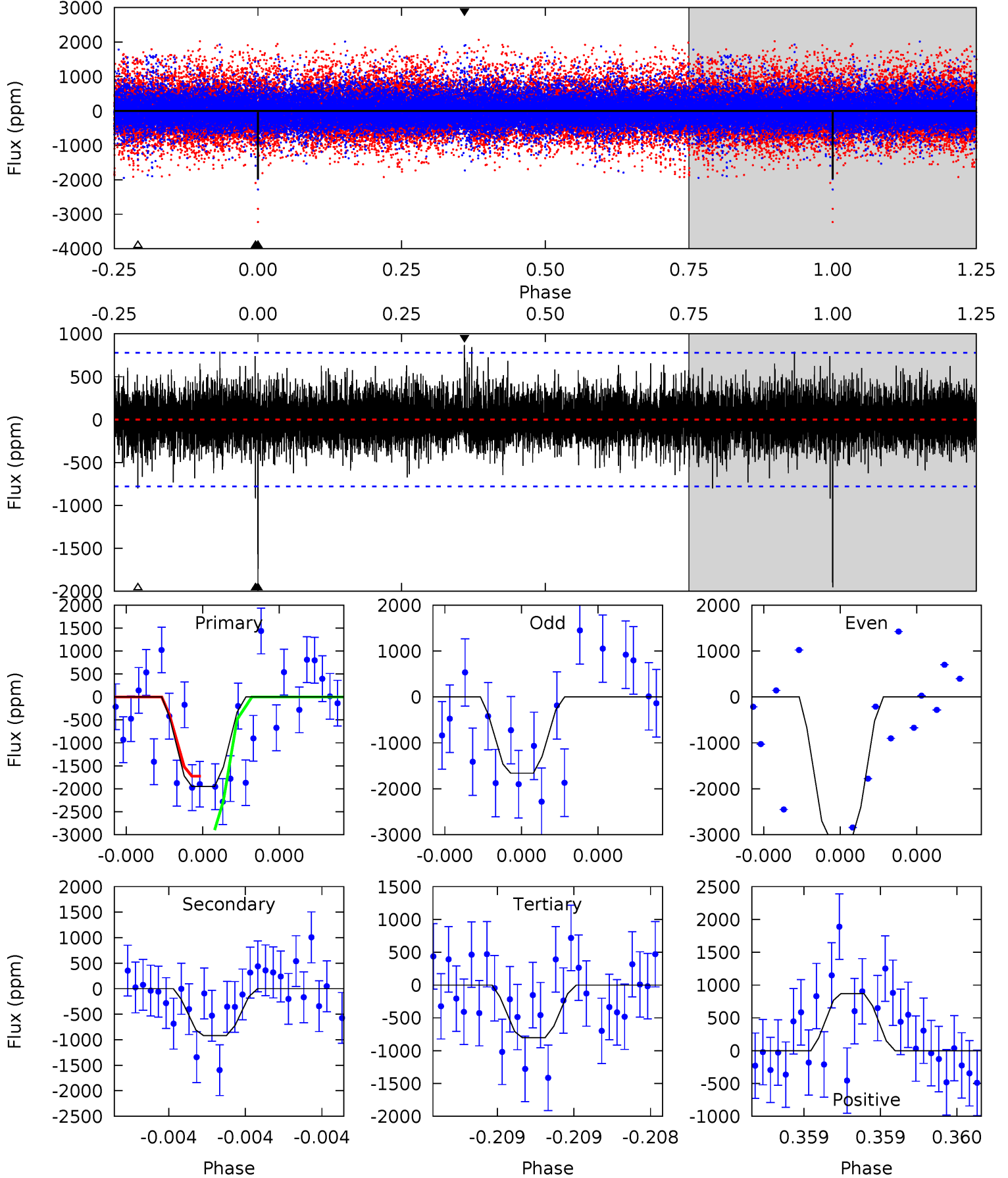
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.31	6.39	6.38	7.89	5.61	3.54	1.68	2.93	1.42	0.02	-1.49	0.11	0.97	0.46	0.26



# Alt Model-Shift Uniqueness Test

011713701-02, P = 204.258138 Days, E = 179.588050 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
14.1	6.67	5.81	6.31	5.64	3.58	1.31	8.33	7.83	0.85	0.35	4.72	1.11	0.31	4.09





### Stellar Parameters For KIC 011713701

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4524^{+143}_{-179}$	$4.675^{+0.058}_{-0.031}$	$-0.760^{+0.300}_{-0.300}$	$0.570^{+0.046}_{-0.051}$	$0.560^{+0.054}_{-0.036}$	$4.269^{+1.052}_{-0.515}$
	+3%/-4%	+1%/-1%	+39%/-39%	+8%/-9%	+10%/-6%	+25%/-12%
Source	KIC0	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 011713701-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1125 \pm 176$	$22.97^{+24.43}_{-15.65}$	$279^{+10}_{-13}$	$2248^{+713}_{-336}$	$375^{+3408}_{-288}$
Alt.	$-920 \pm 138$	$22.16^{+22.20}_{-15.18}$	$280^{+10}_{-12}$	$2209^{+778}_{-310}$	$325^{+3069}_{-242}$

$T_{\text{max}}$  = 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

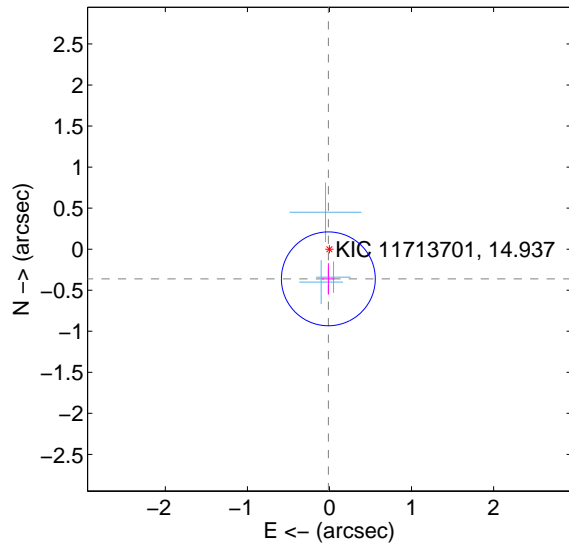
Supplemental centroid analysis for 011713701-02. Kepler magnitude: 14.94. Transit SNR 6.90

There are 3 quarters with good PRF difference image offsets

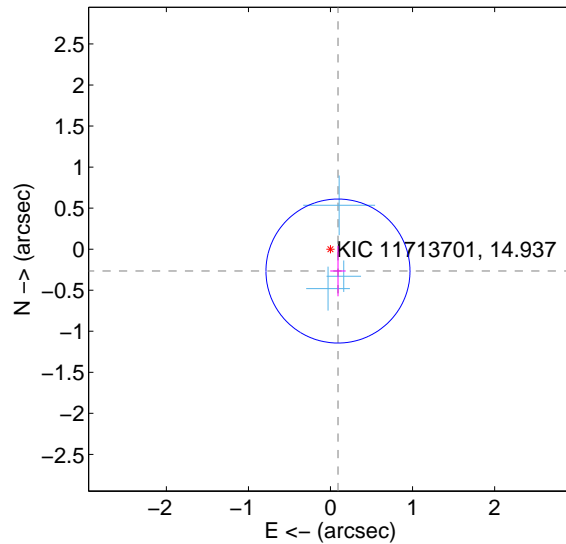
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.362 \pm 0.191$	1.90	$0.014 \pm 0.074$	$-0.361 \pm 0.191$
PRF-fit source offset from KIC position	$0.281 \pm 0.292$	0.96	$-0.091 \pm 0.094$	$-0.266 \pm 0.307$
photometric centroid source offset	$0.17 \pm 0.76$	0.23	$0.02 \pm 0.83$	$0.17 \pm 0.76$

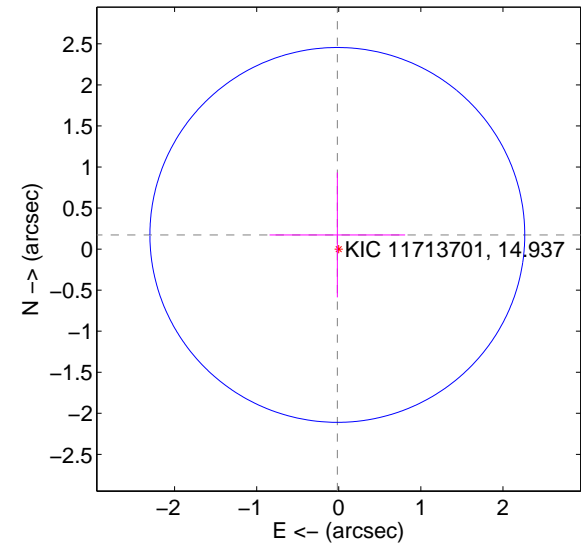
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

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



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

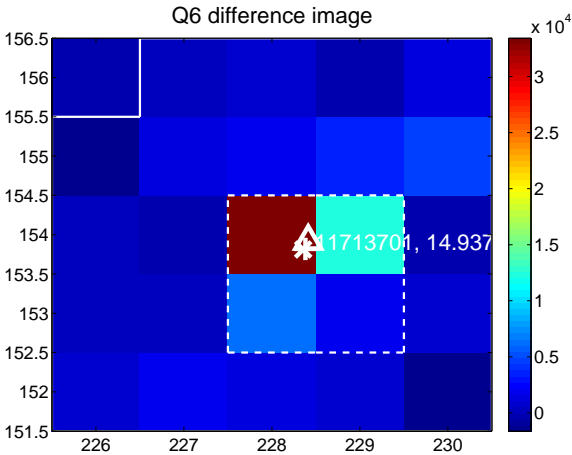
Q5 no difference image



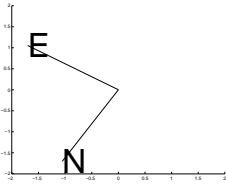
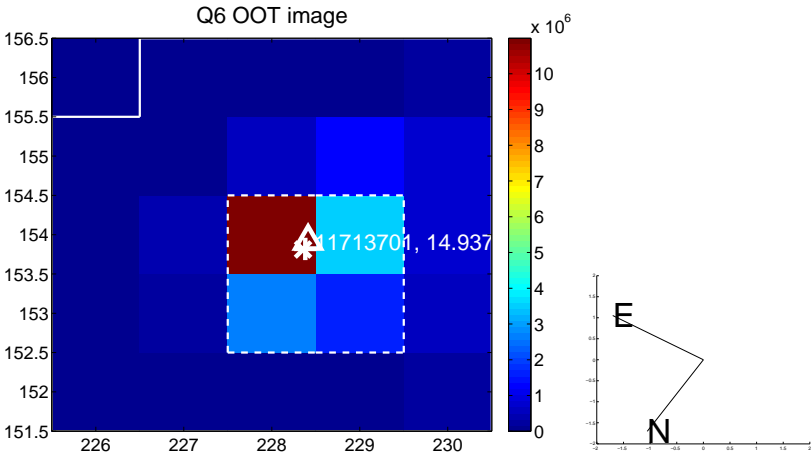
Q5 no OOT image



Q6 difference image



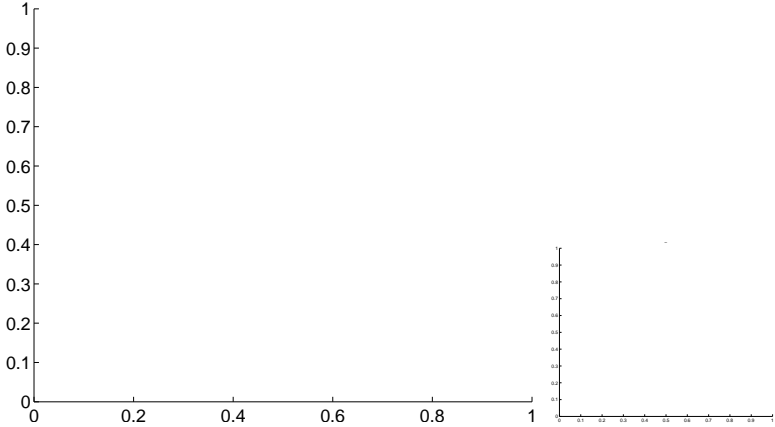
Q6 OOT image



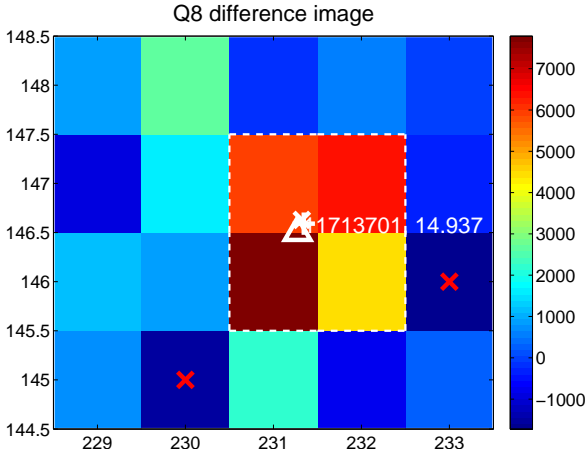
Q7 no difference image



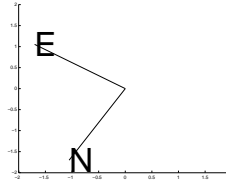
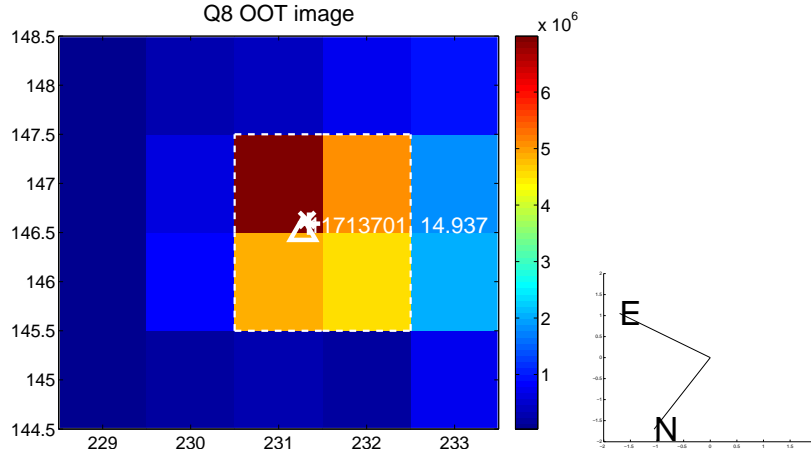
Q7 no OOT image



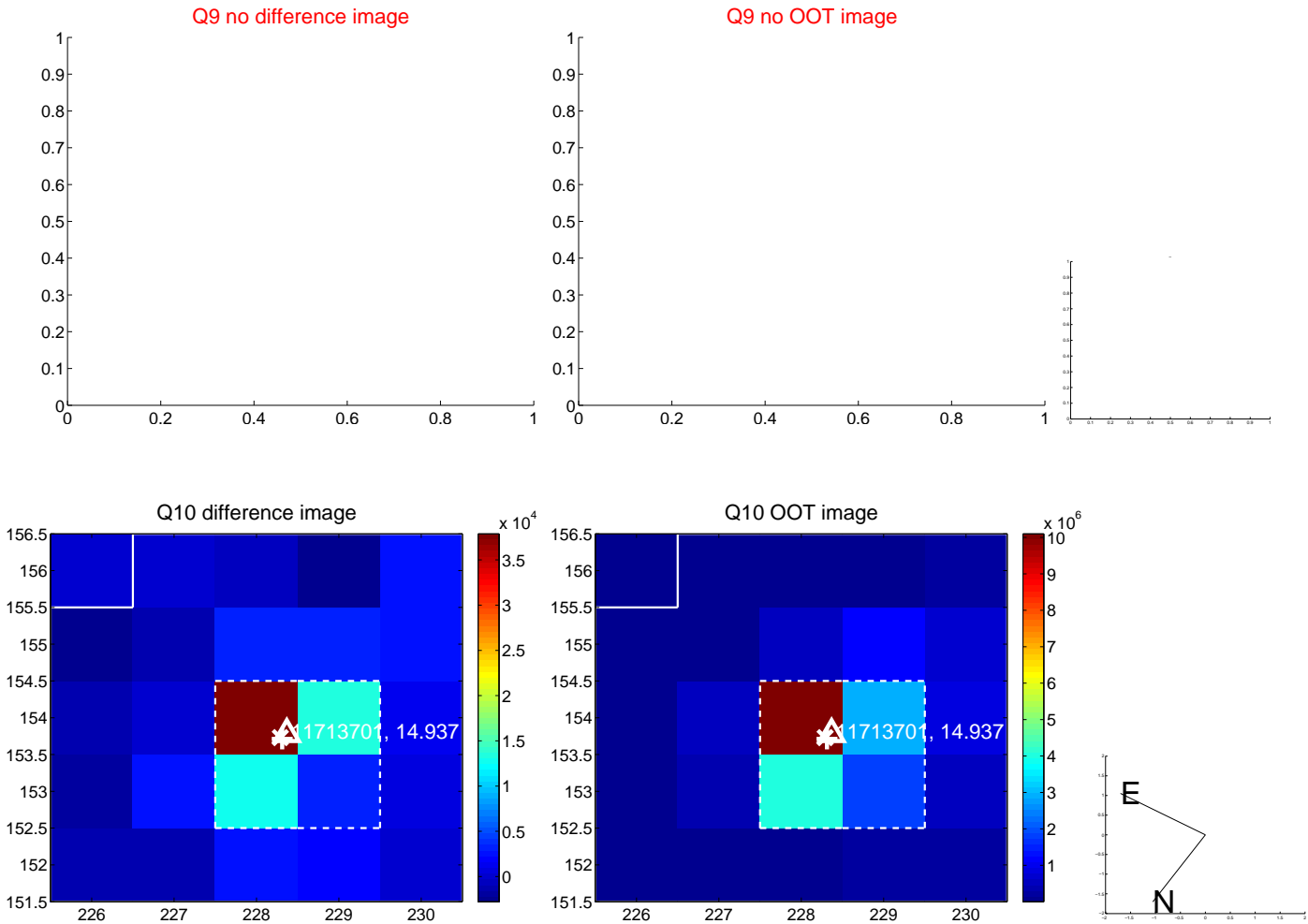
Q8 difference image



Q8 OOT image



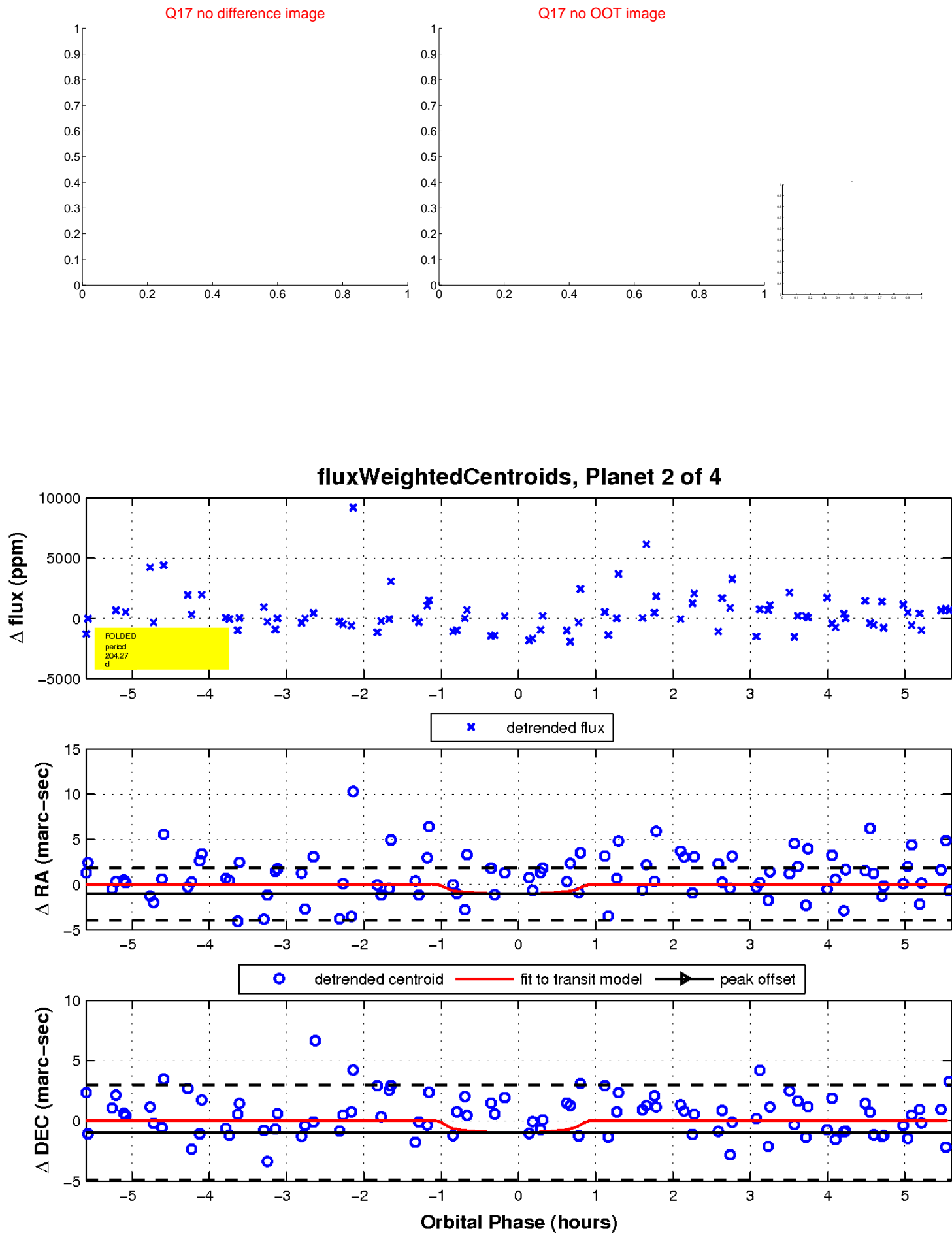
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

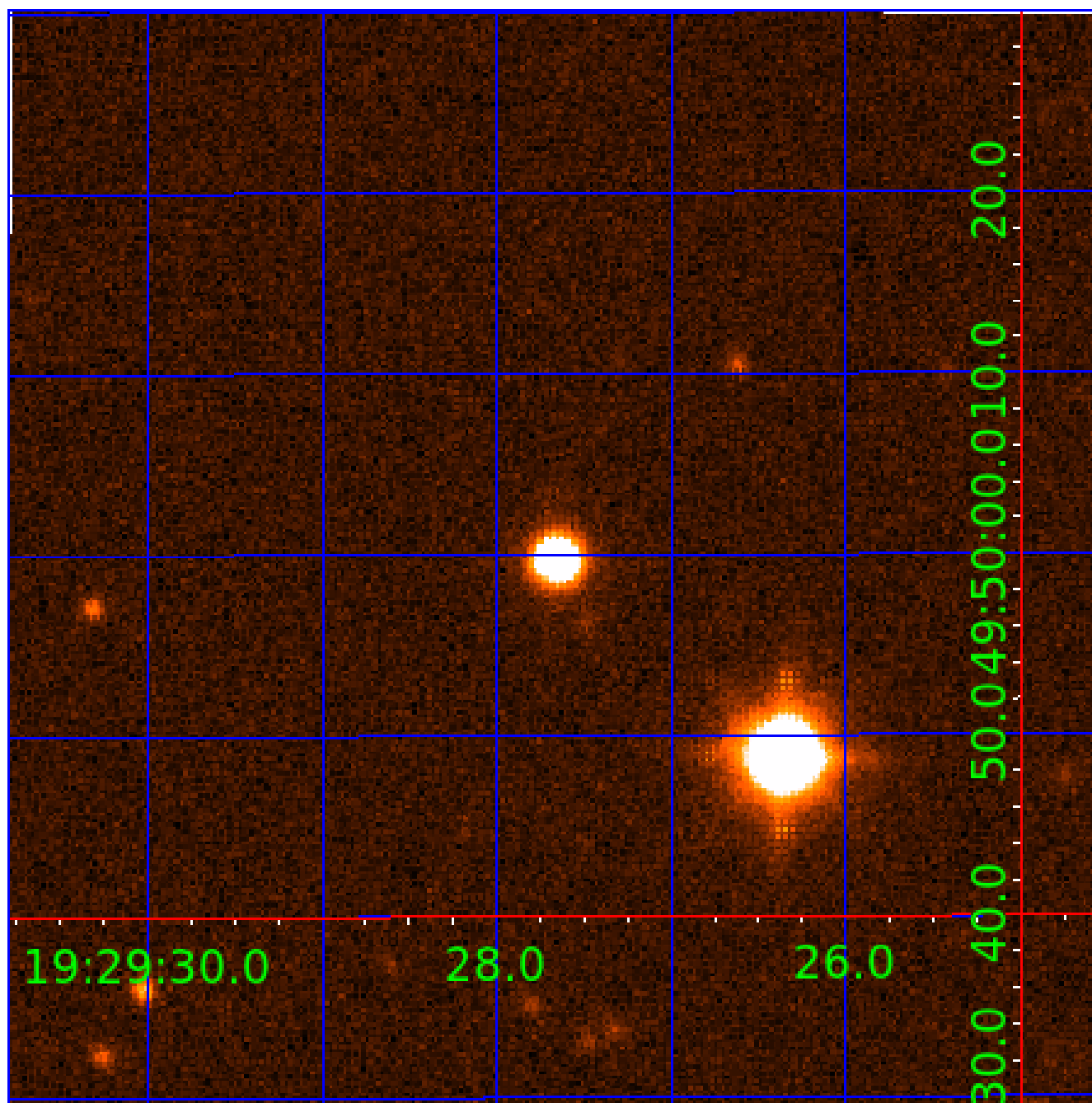


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 011713701

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011713701-01	OBS	No	302.056541	316.593624	2499.9	11.890	17.3	5.3	0.57	4524	3.21	0.23
011713701-02	OBS	No	204.265303	179.561316	2127.1	1.878	11.5	6.9	0.57	4524	2.56	0.39
011713701-03	OBS	No	366.097968	423.272902	2468.9	5.521	11.5	7.2	0.57	4524	3.09	0.18
011713701-04	OBS	No	357.025338	330.319942	2234.5	5.321	12.9	5.6	0.57	4524	2.73	0.18

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011713701-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011713701-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS
011713701-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011713701-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—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.

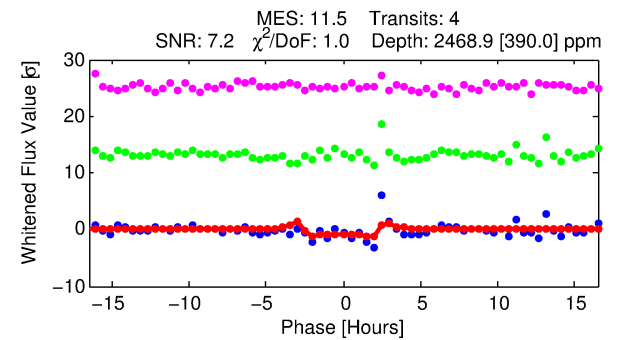
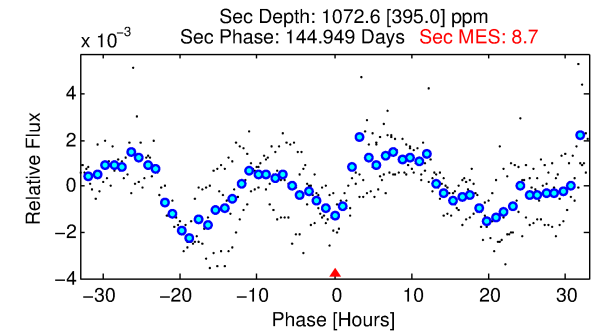
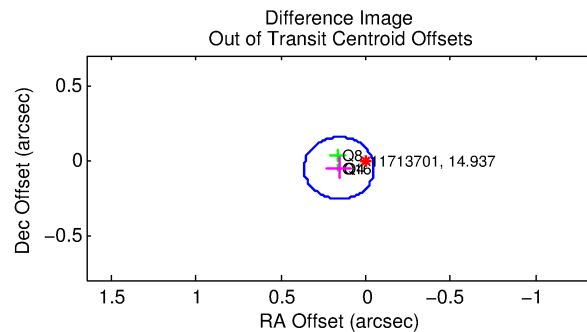
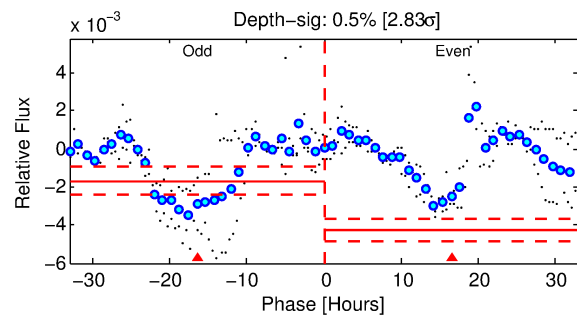
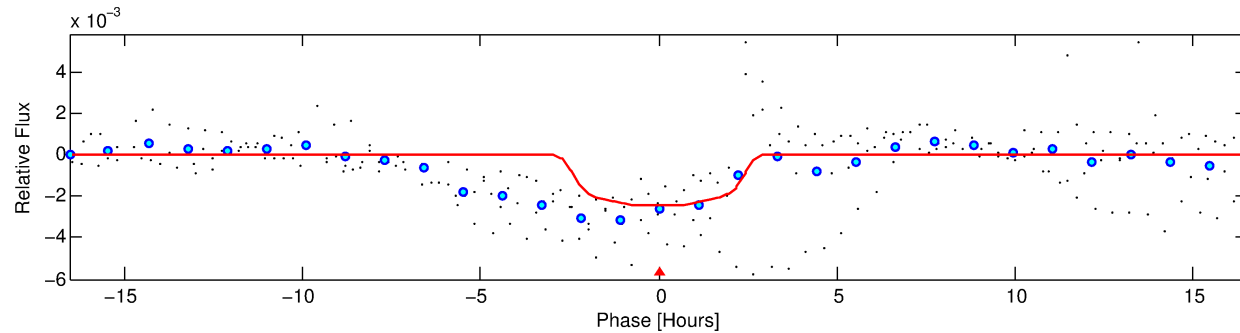
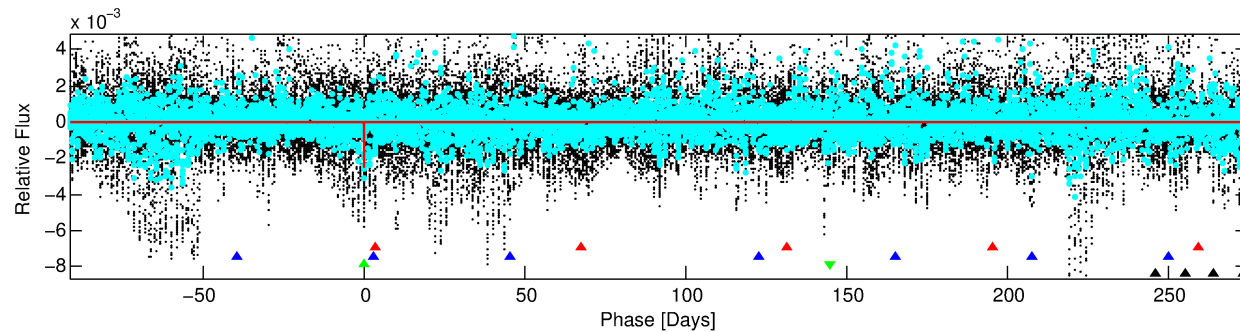
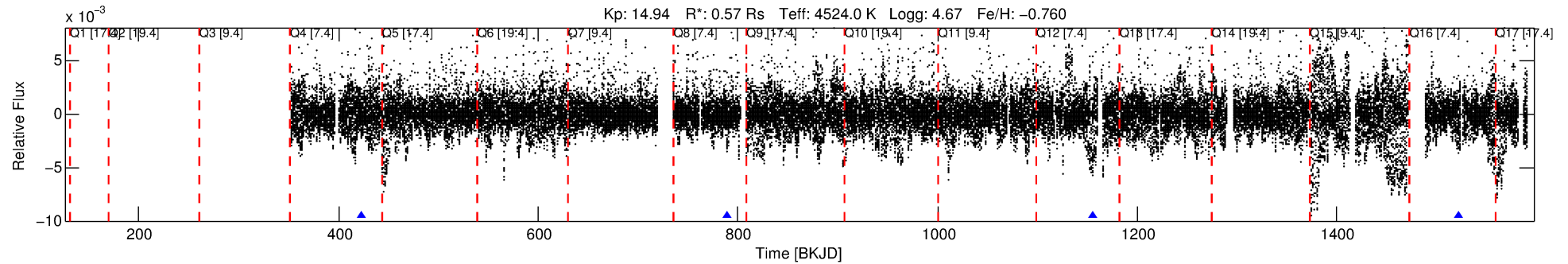
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011713701-03

No Significant Match Found

# DV One-Page Summary

KIC: 11713701 Candidate: 3 of 4 Period: 366.098 d



## DV Fit Results:

Period = 366.09797 [0.00246] d  
Epoch = 423.2729 [0.0054] BKJD  
Rp/R\* = 0.0497 [0.0092]  
a/R\* = 371.79 [188.58]  
b = 0.75 [0.30]  
Seff = 0.18 [0.03]  
Teff = 166 [8] K  
Rp = 3.09 [0.63] Re  
a = 0.8261 [0.0615] AU  
Ag = 42198.30 [22466.31] [1.88 $\sigma$ ]  
Teffp = 3674 [501] K [7.01 $\sigma$ ]

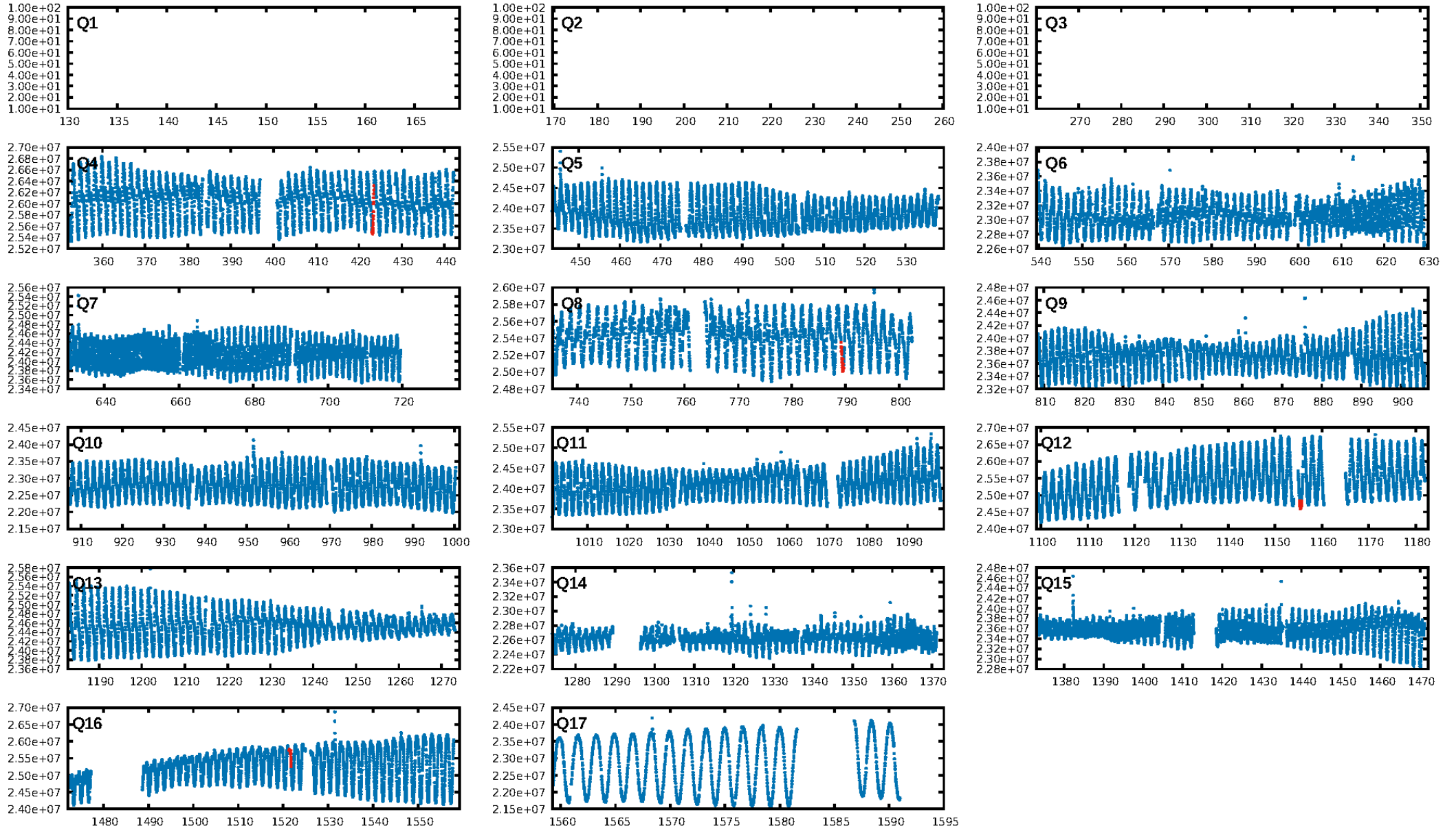
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [28.40 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 9.6%  
ModelChiSquareGof-sig: 77.7%  
Bootstrap-pfa: 1.64e-08  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.3776  
Centroid-sig: 9.0%  
Centroid-so: 0.283 arcsec [0.56 $\sigma$ ]  
OotOffset-rm: 0.168 arcsec [2.44 $\sigma$ ]  
OotOffset-st: 0/0/3/0 [3]  
KicOffset-rm: 0.034 arcsec [0.41 $\sigma$ ]  
KicOffset-st: 0/0/3/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

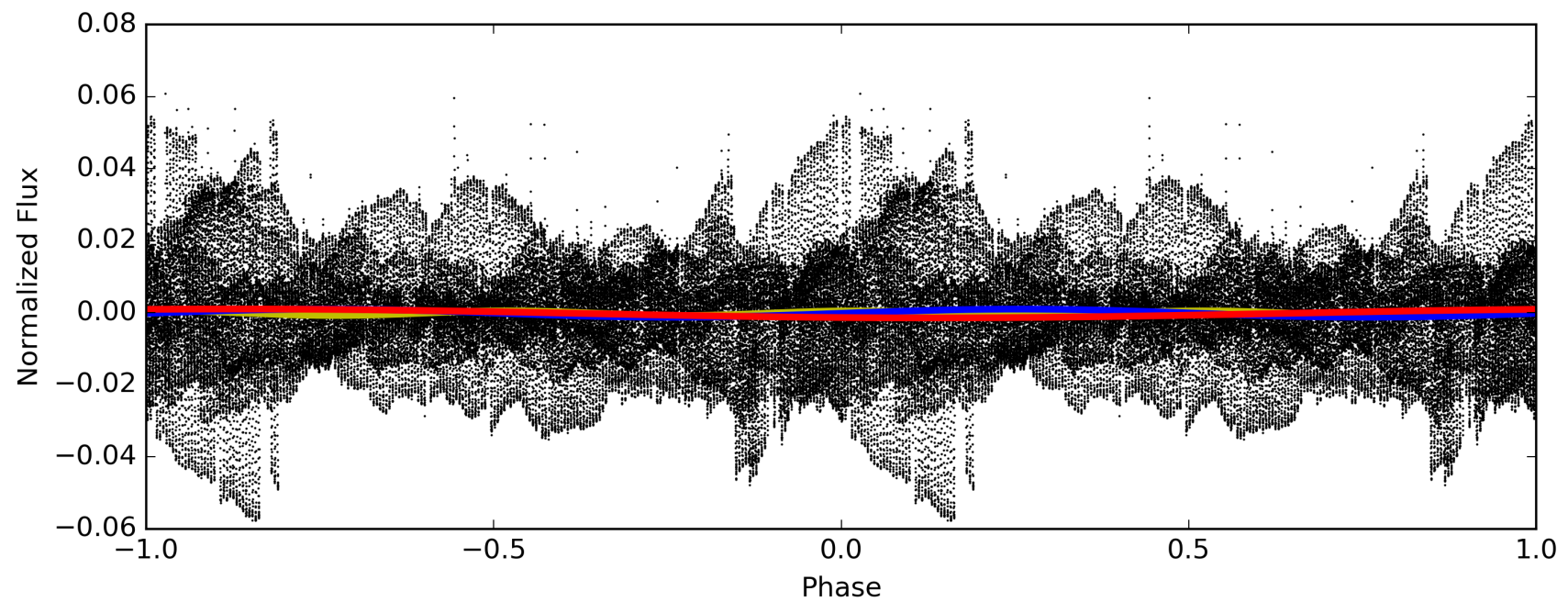
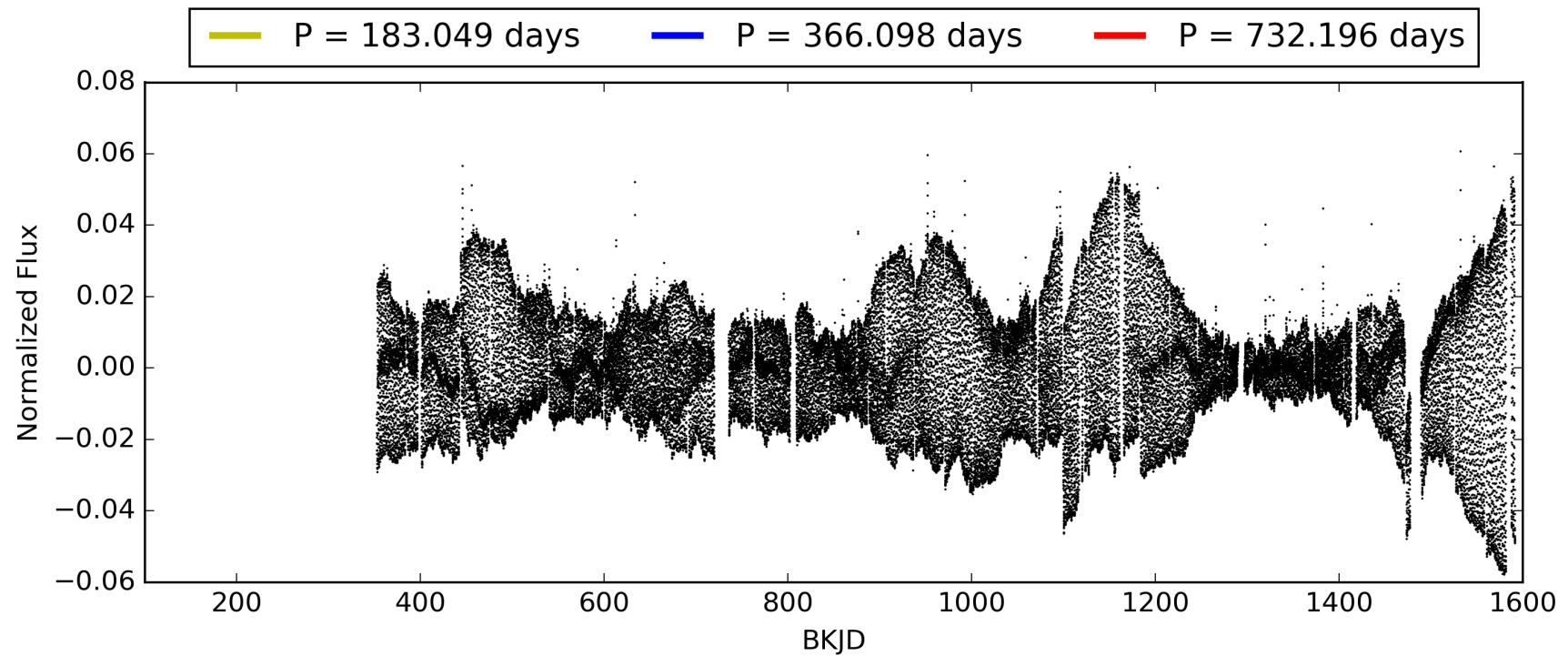
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:44:27 Z

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

# TCE 011713701-03, PDC Light Curves

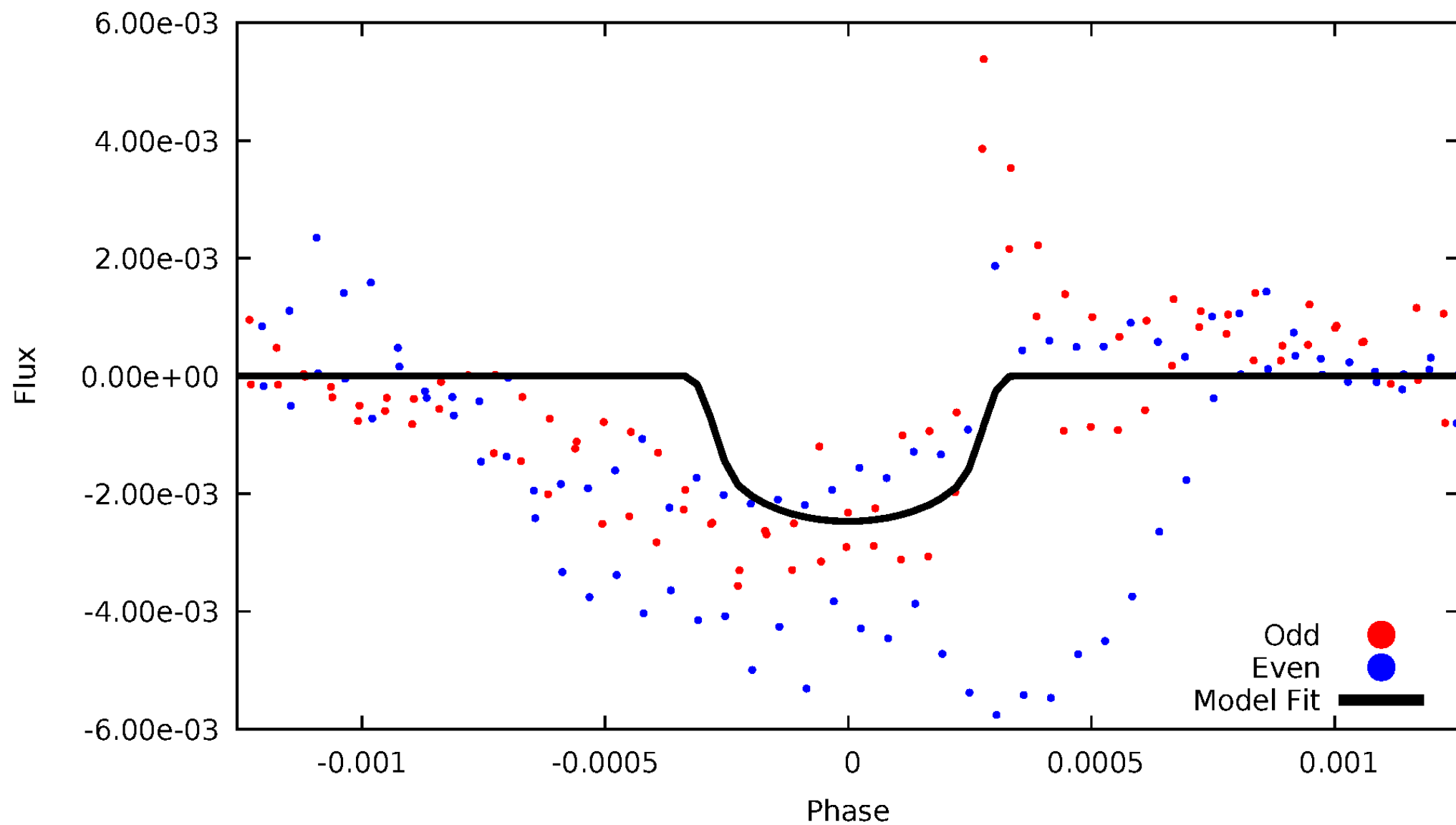


TCE 011713701-03



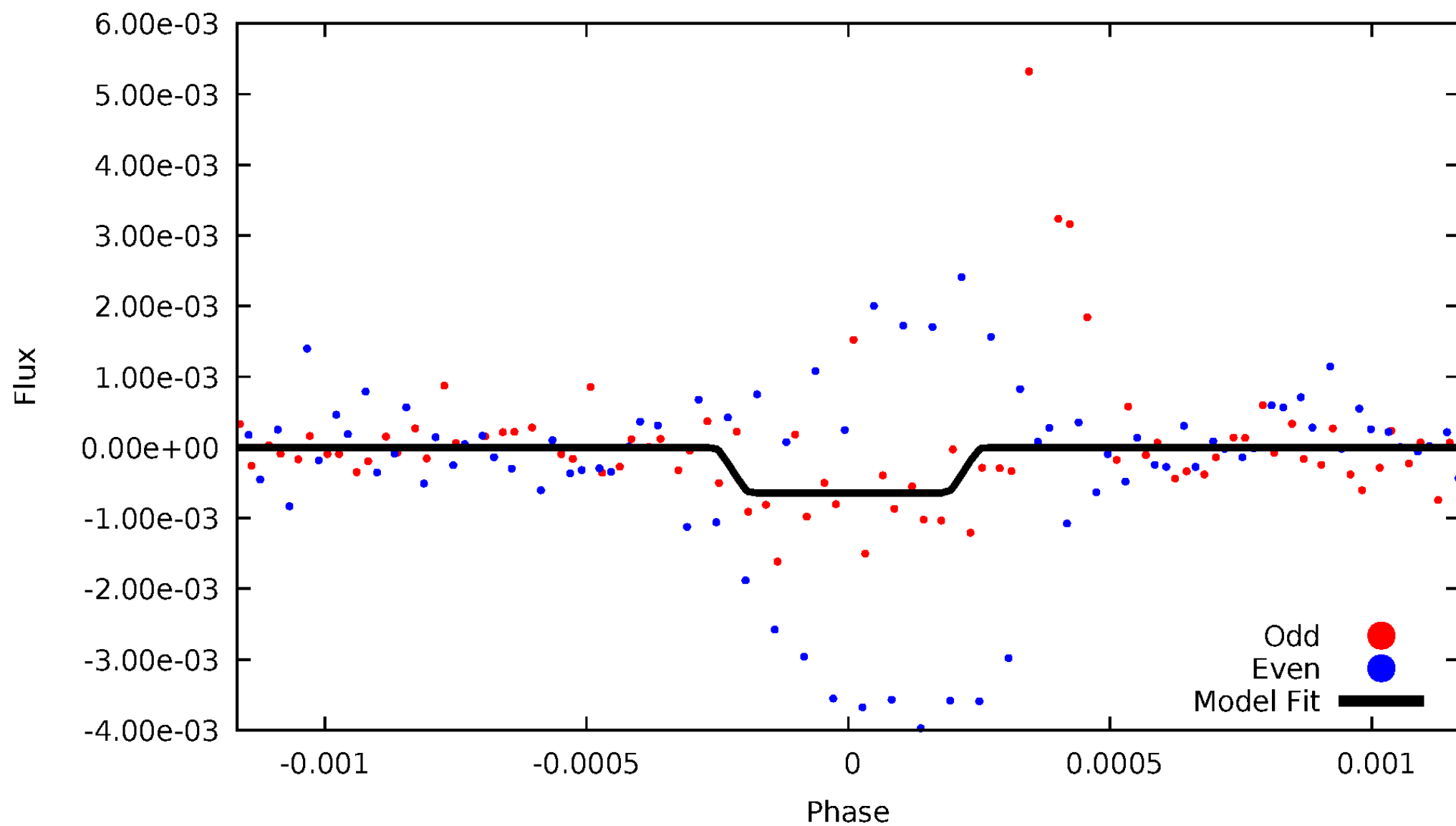
# DV Odd/Even

TCE 011713701-03

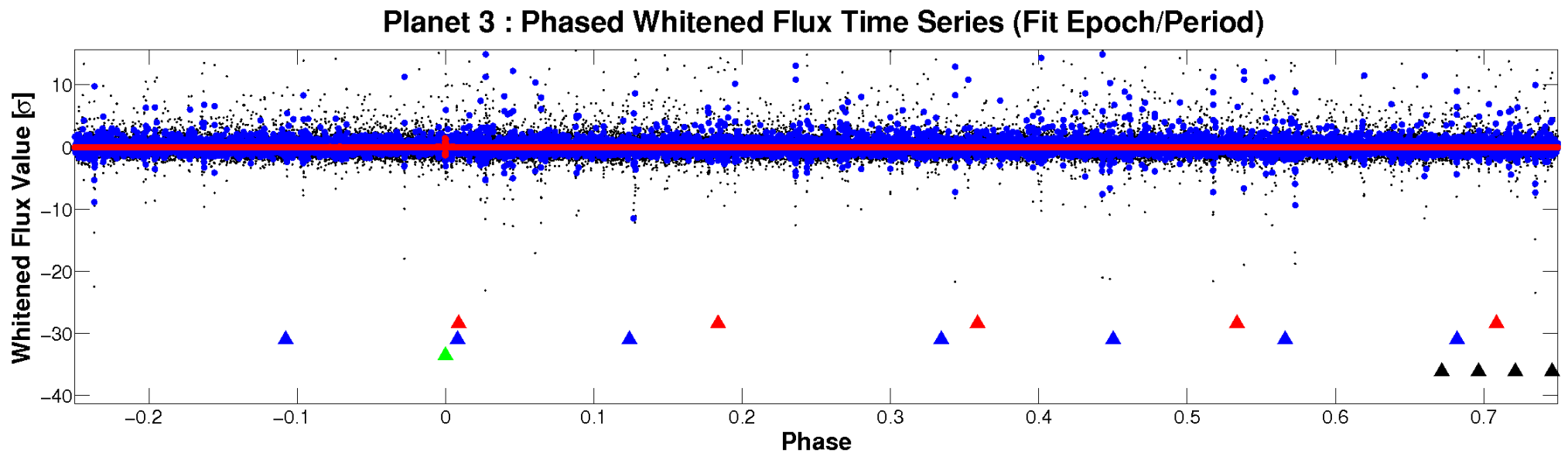
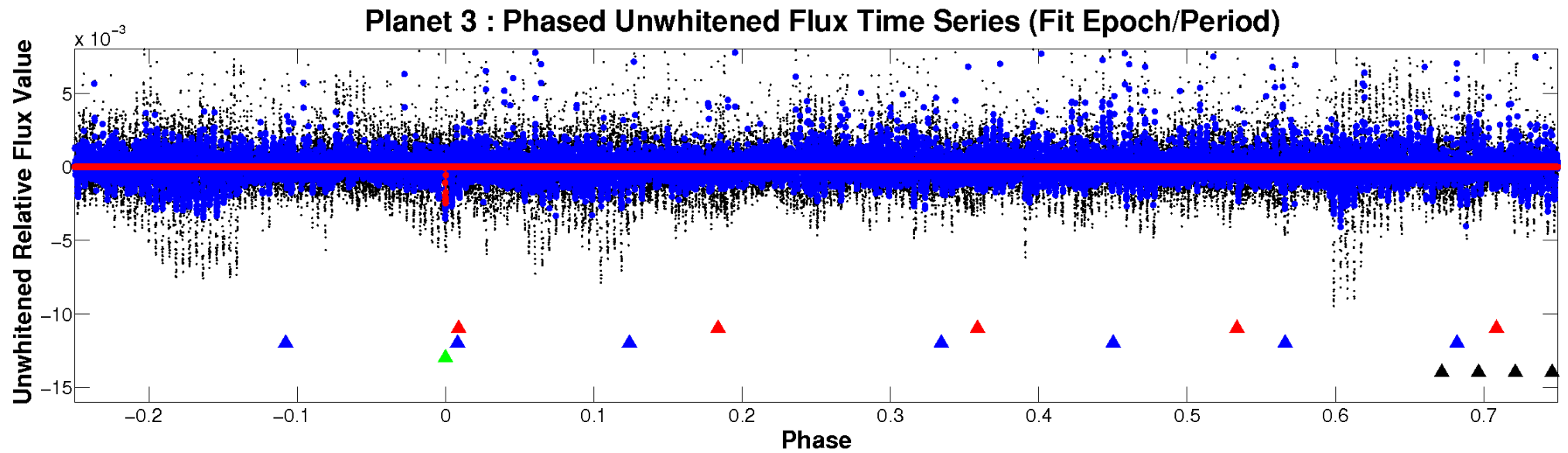


# ALT Odd/Even

TCE 011713701-03

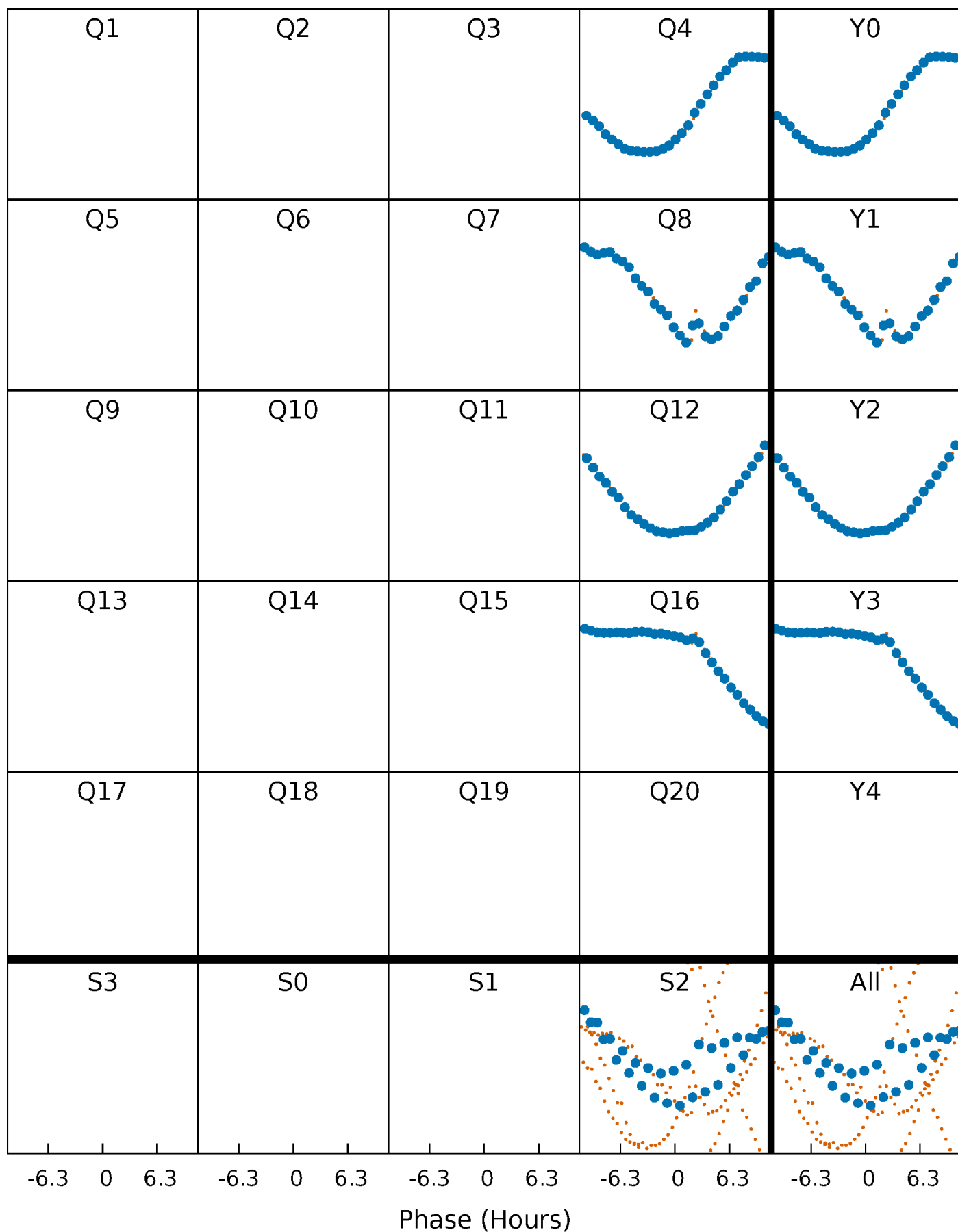


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

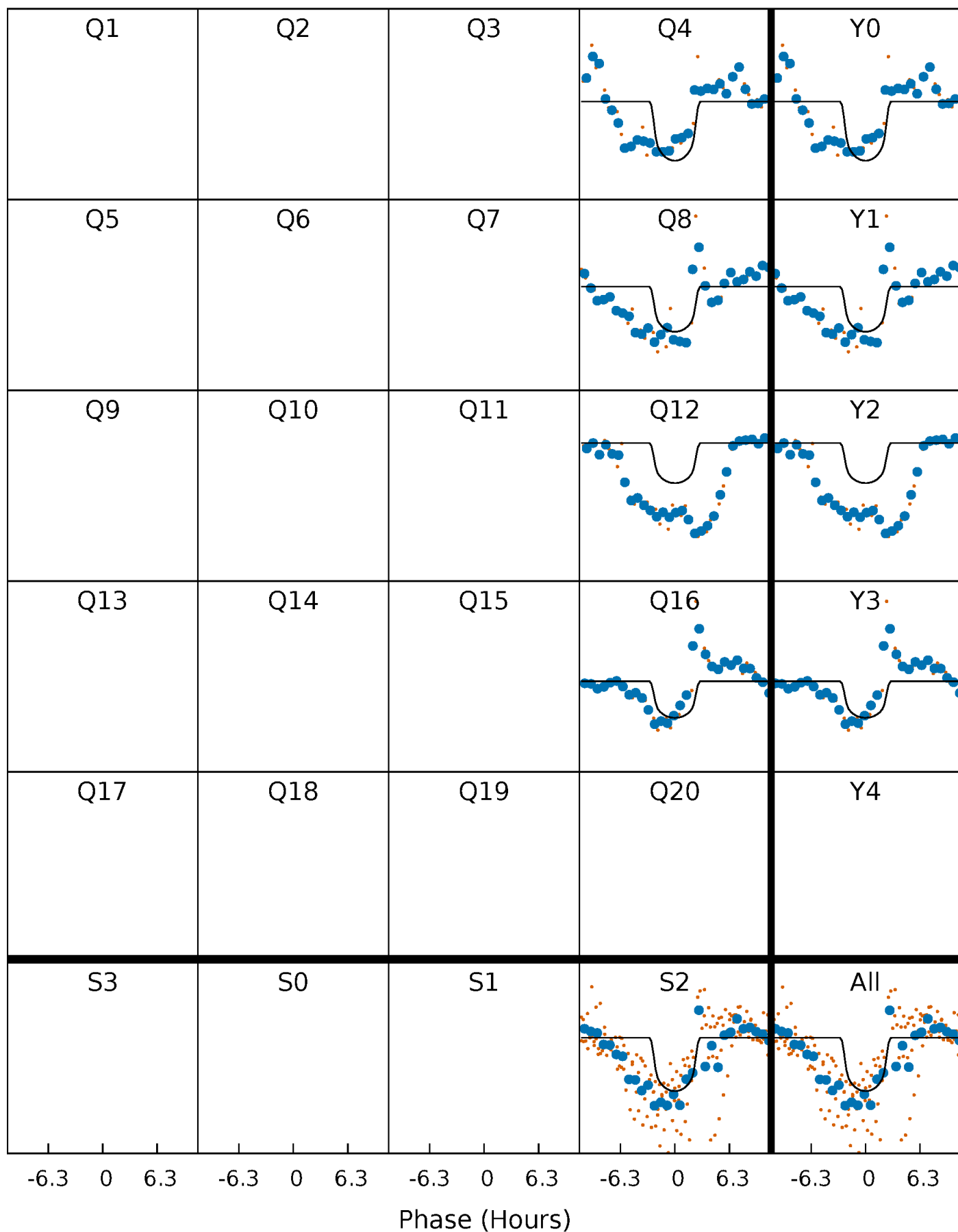
TCE 011713701-03     $P=366.097968$  Days     $T_0=423.272902$  (BKJD)





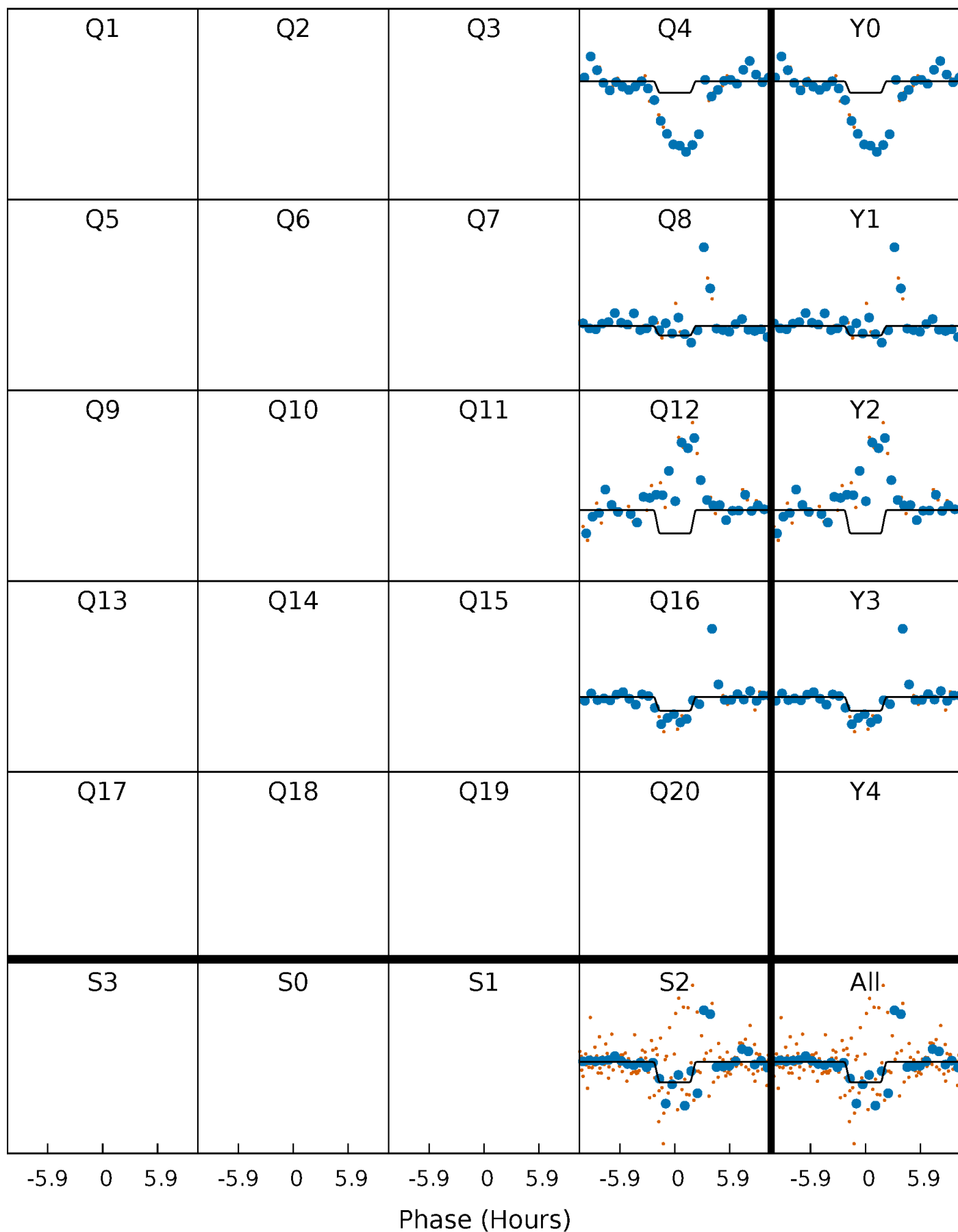
# DV Quarter-Phased Transit Curves

TCE 011713701-03     $P=366.097968$  Days     $T_0=423.272902$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

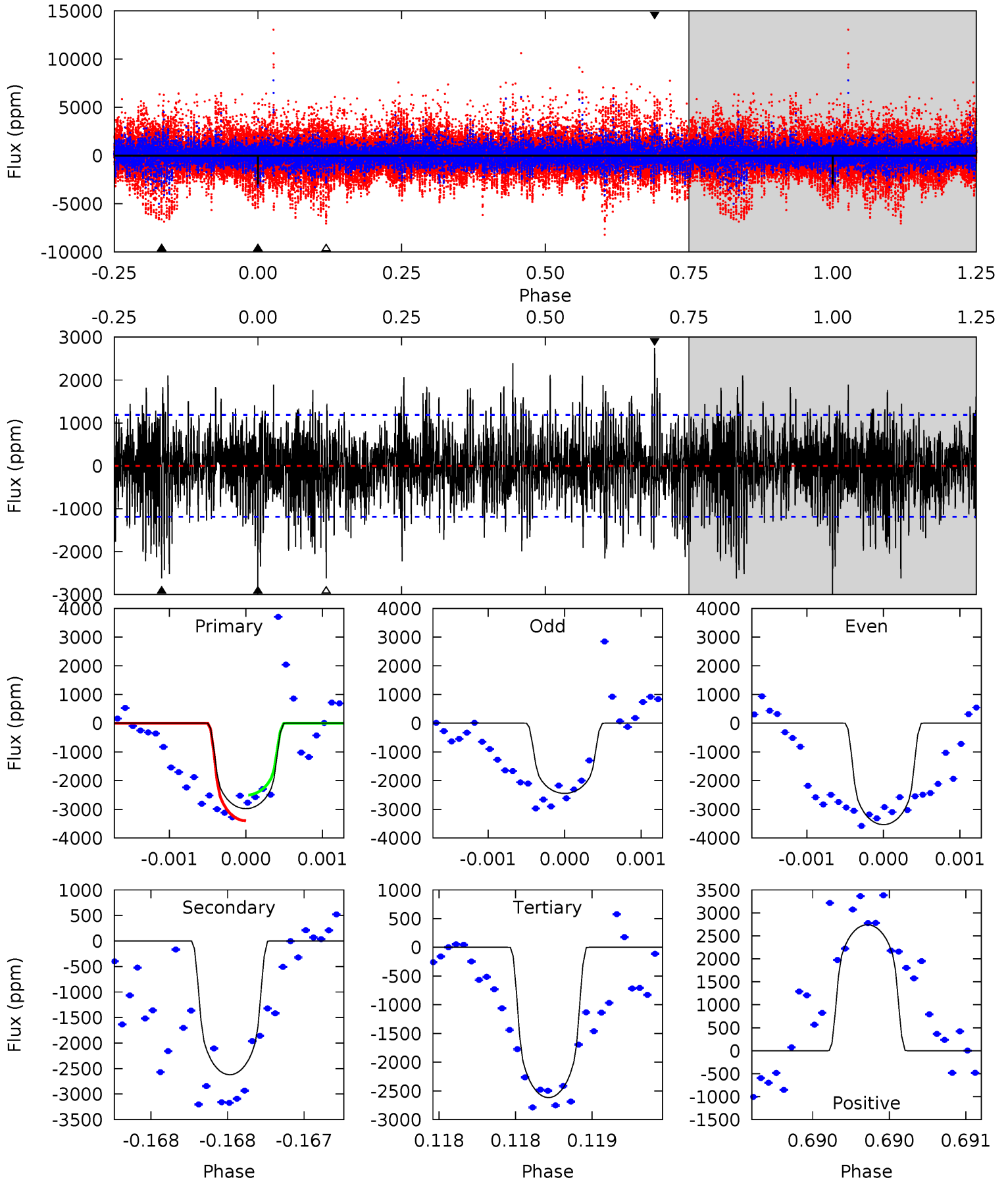
TCE 011713701-03     $P=366.094472$  Days     $T_0=423.250963$  (BKJD)



# DV Model-Shift Uniqueness Test

011713701-03, P = 366.097968 Days, E = 57.174934 Days

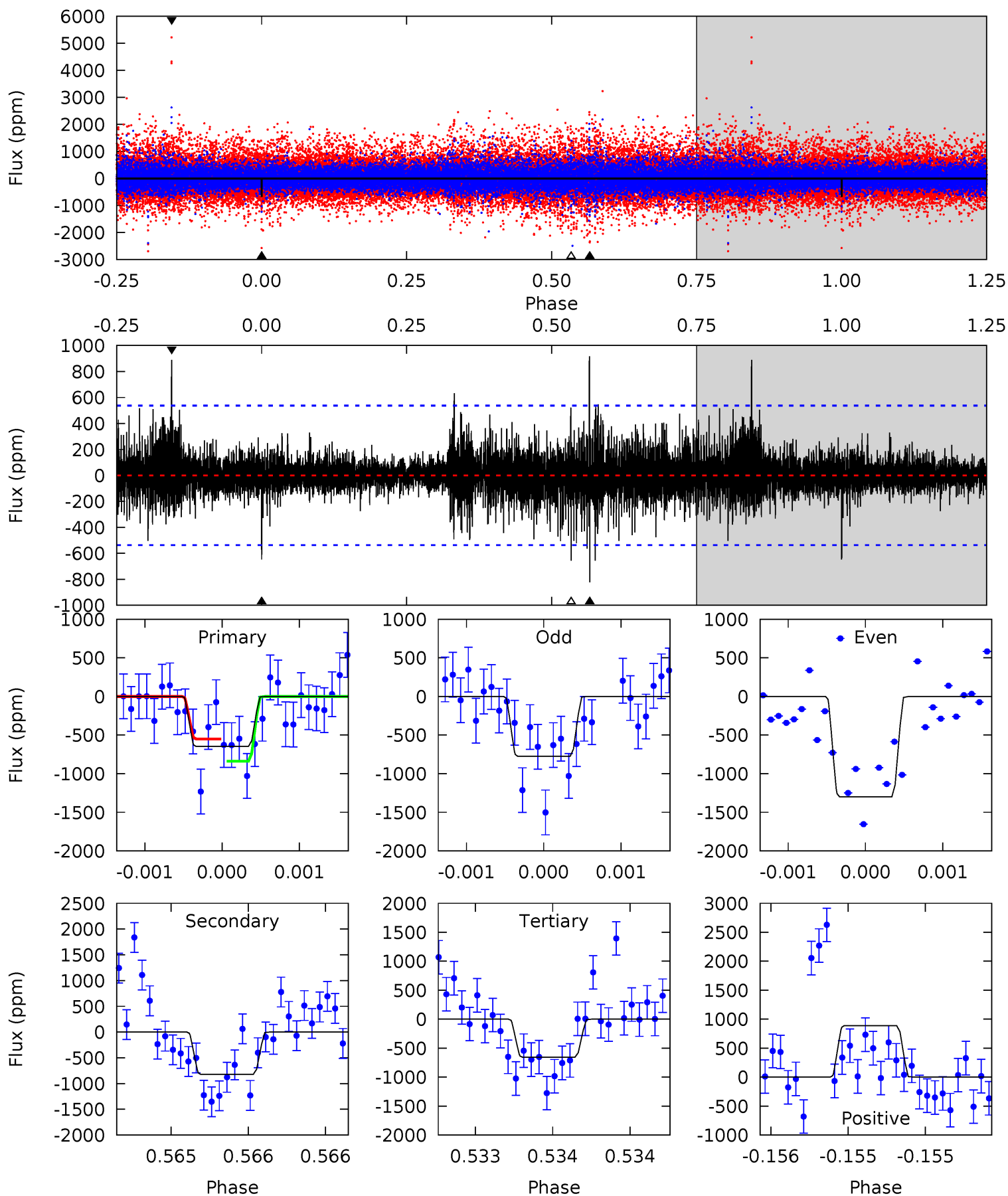
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	12.2	12.2	12.7	5.52	3.40	3.11	1.68	1.09	0.02	-0.56	2.32	1.22	0.48	2.09



# Alt Model-Shift Uniqueness Test

011713701-03, P = 366.094472 Days, E = 57.156491 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
6.71	8.52	6.81	9.22	5.57	3.47	1.31	-0.09	-2.50	1.71	-0.70	3.09	1.34	0.53	1.48



### Stellar Parameters For KIC 011713701

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4524^{+143}_{-179}$	$4.675^{+0.058}_{-0.031}$	$-0.760^{+0.300}_{-0.300}$	$0.570^{+0.046}_{-0.051}$	$0.560^{+0.054}_{-0.036}$	$4.269^{+1.052}_{-0.515}$
	+3%/-4%	+1%/-1%	+39%/-39%	+8%/-9%	+10%/-6%	+25%/-12%
Source	KIC0	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 011713701-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-2621 \pm 215$	$3.08^{+0.56}_{-0.54}$	$230^{+9}_{-10}$	$4565^{+416}_{-316}$	$103841^{+52012}_{-28496}$
Alt.	$-822 \pm 96$	$1.59^{+0.55}_{-0.57}$	$230^{+9}_{-9}$	$4716^{+1020}_{-546}$	$124835^{+171586}_{-57174}$

$T_{\text{max}}$  = 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

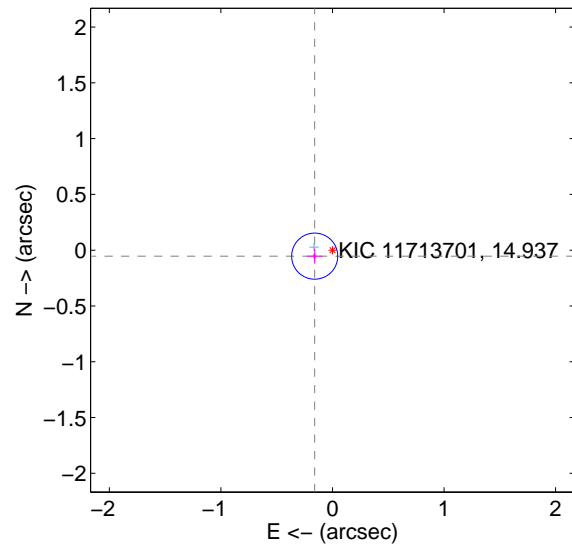
Supplemental centroid analysis for 011713701-03. Kepler magnitude: 14.94. Transit SNR 7.16

There are 2 quarters with good PRF difference image offsets

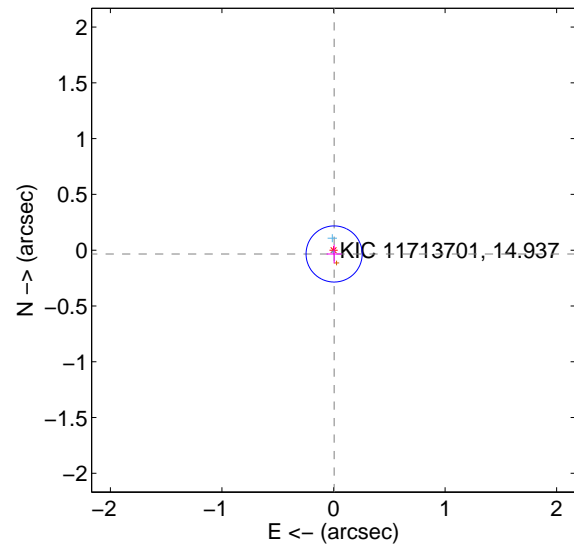
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.168 \pm 0.069$	2.44	$0.159 \pm 0.069$	$-0.053 \pm 0.068$
PRF-fit source offset from KIC position	$0.034 \pm 0.084$	0.41	$-0.006 \pm 0.068$	$-0.034 \pm 0.084$
photometric centroid source offset	$0.28 \pm 0.51$	0.56	$0.00 \pm 0.78$	$0.28 \pm 0.51$

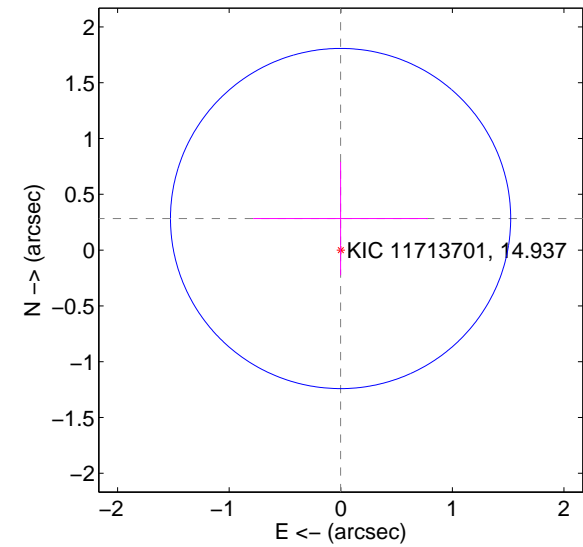
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

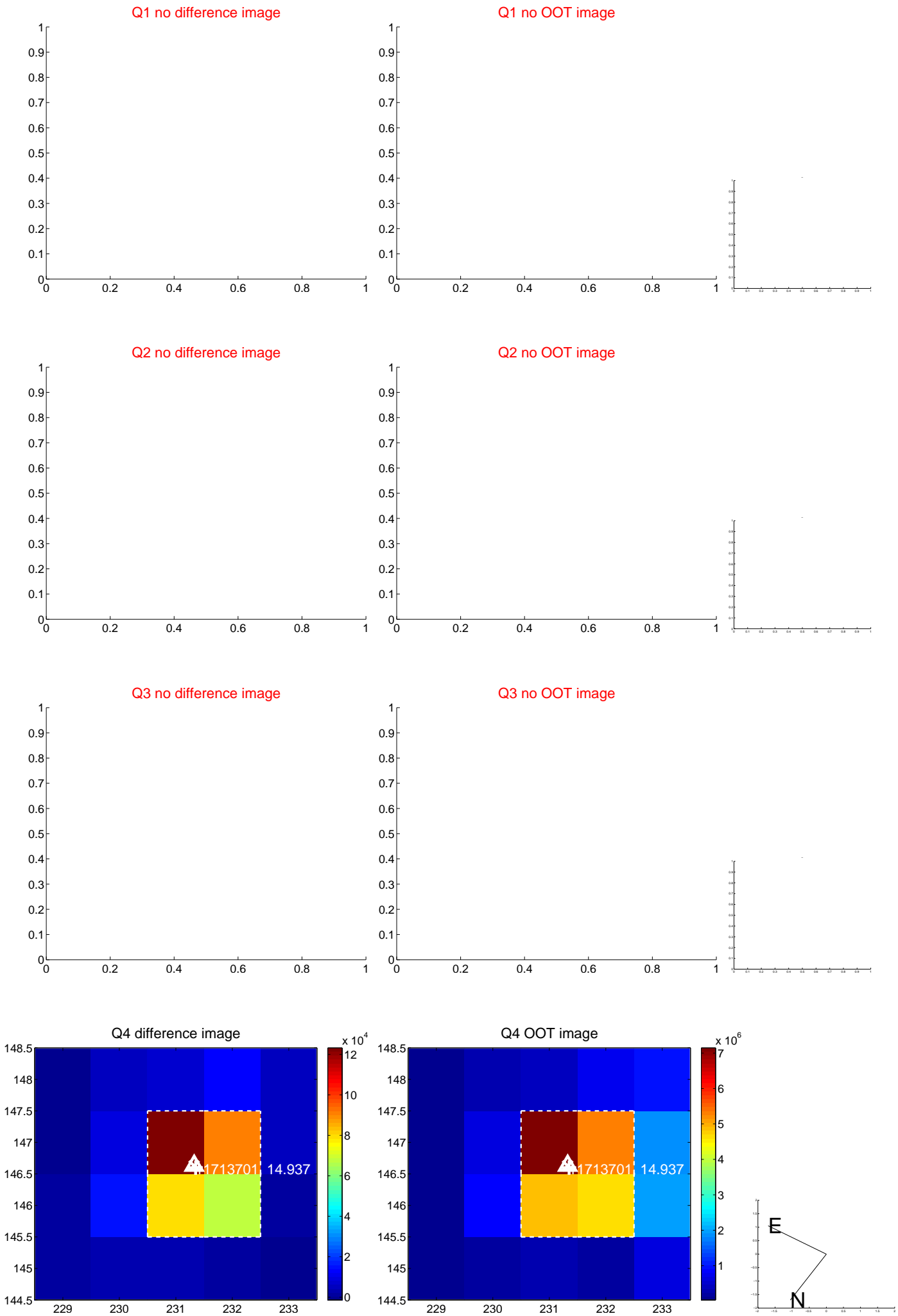


offset from photometric centroids

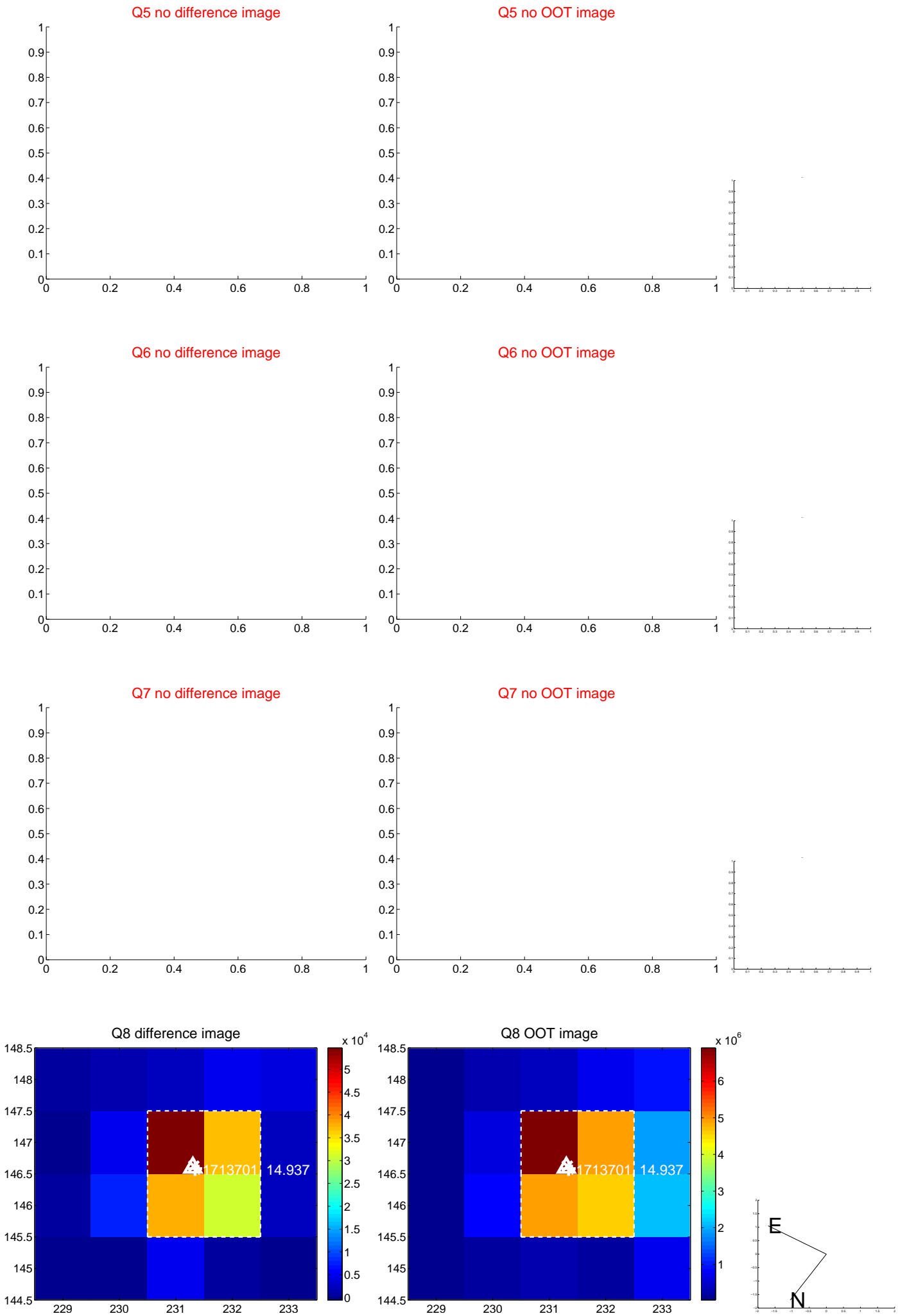


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

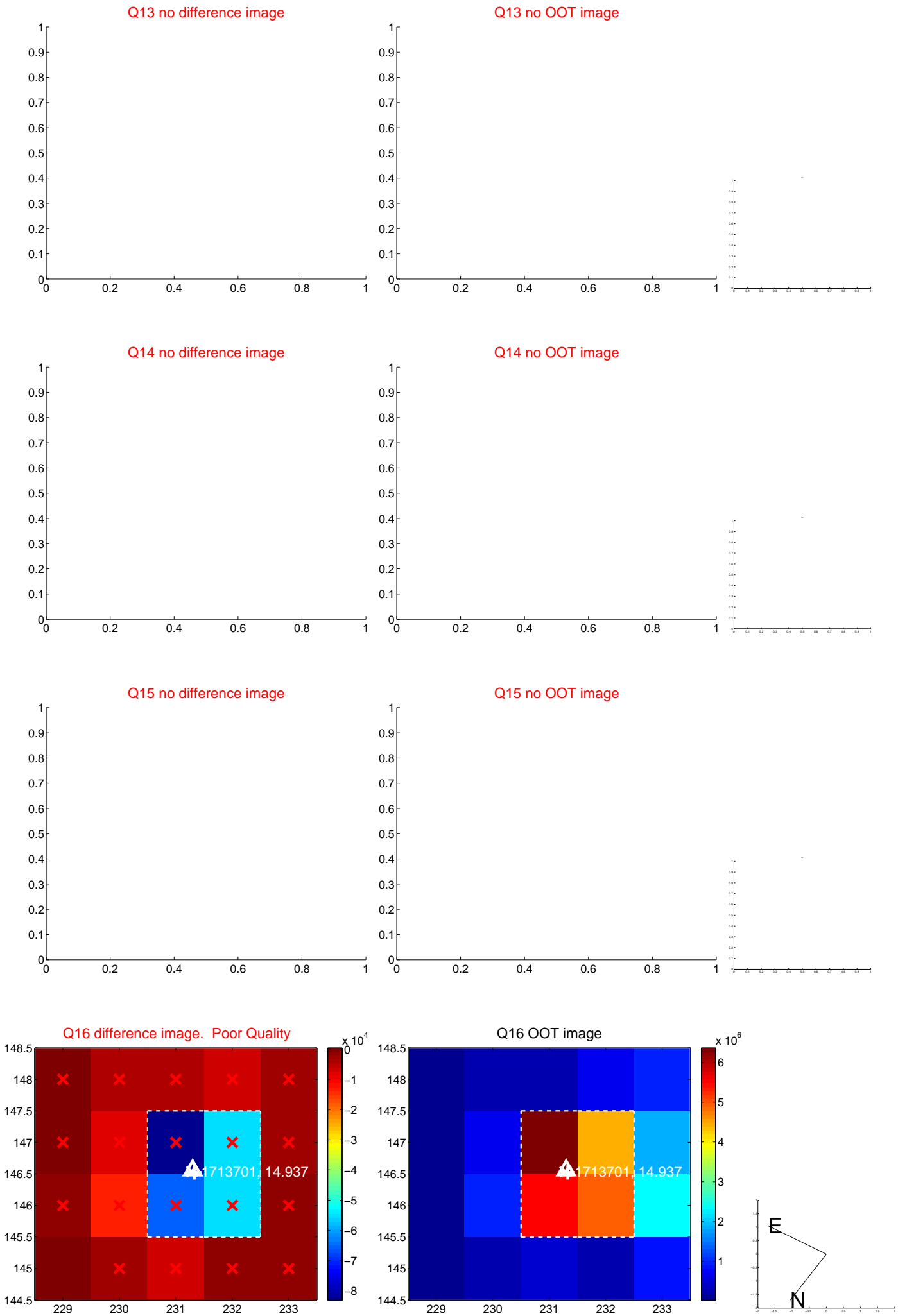




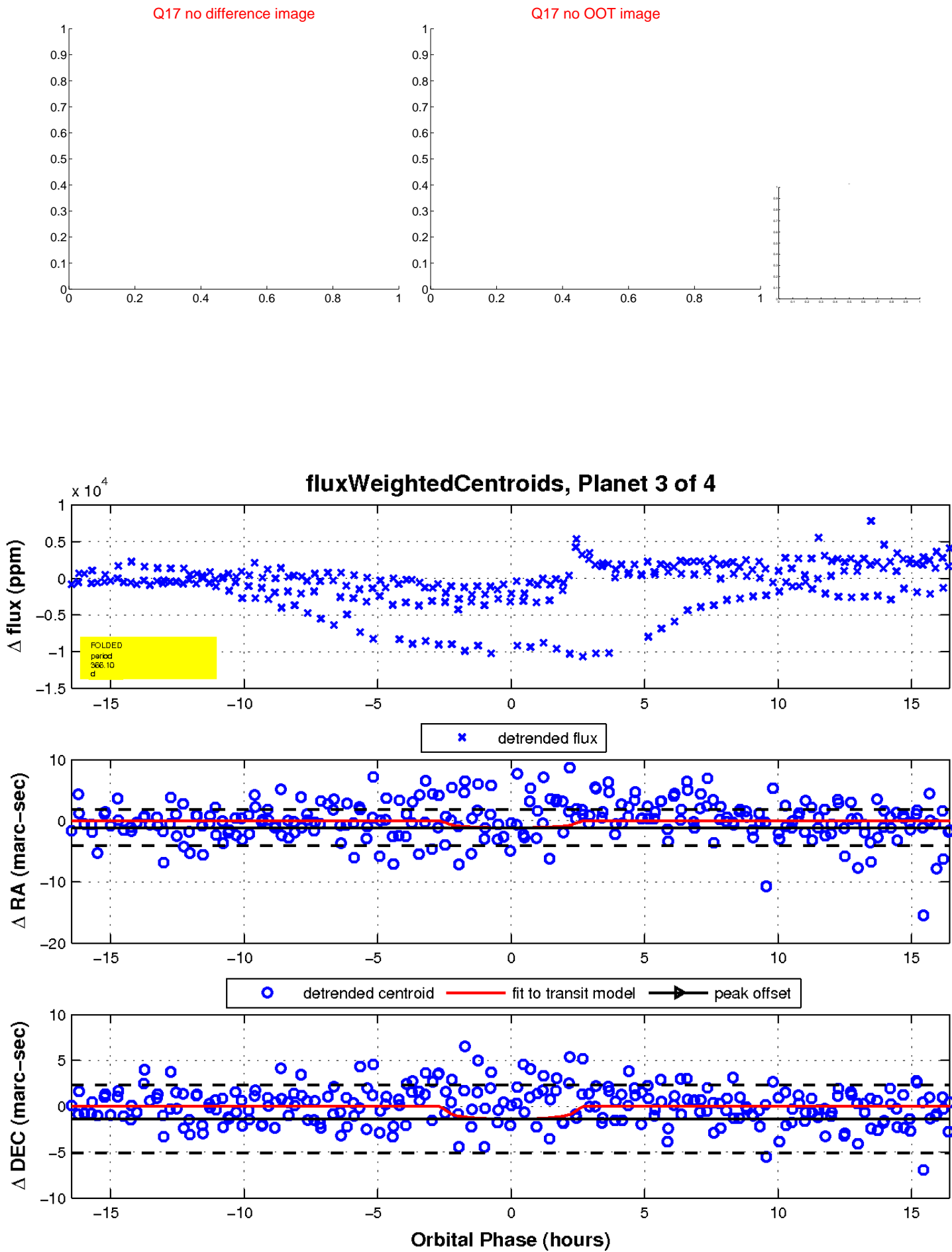
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

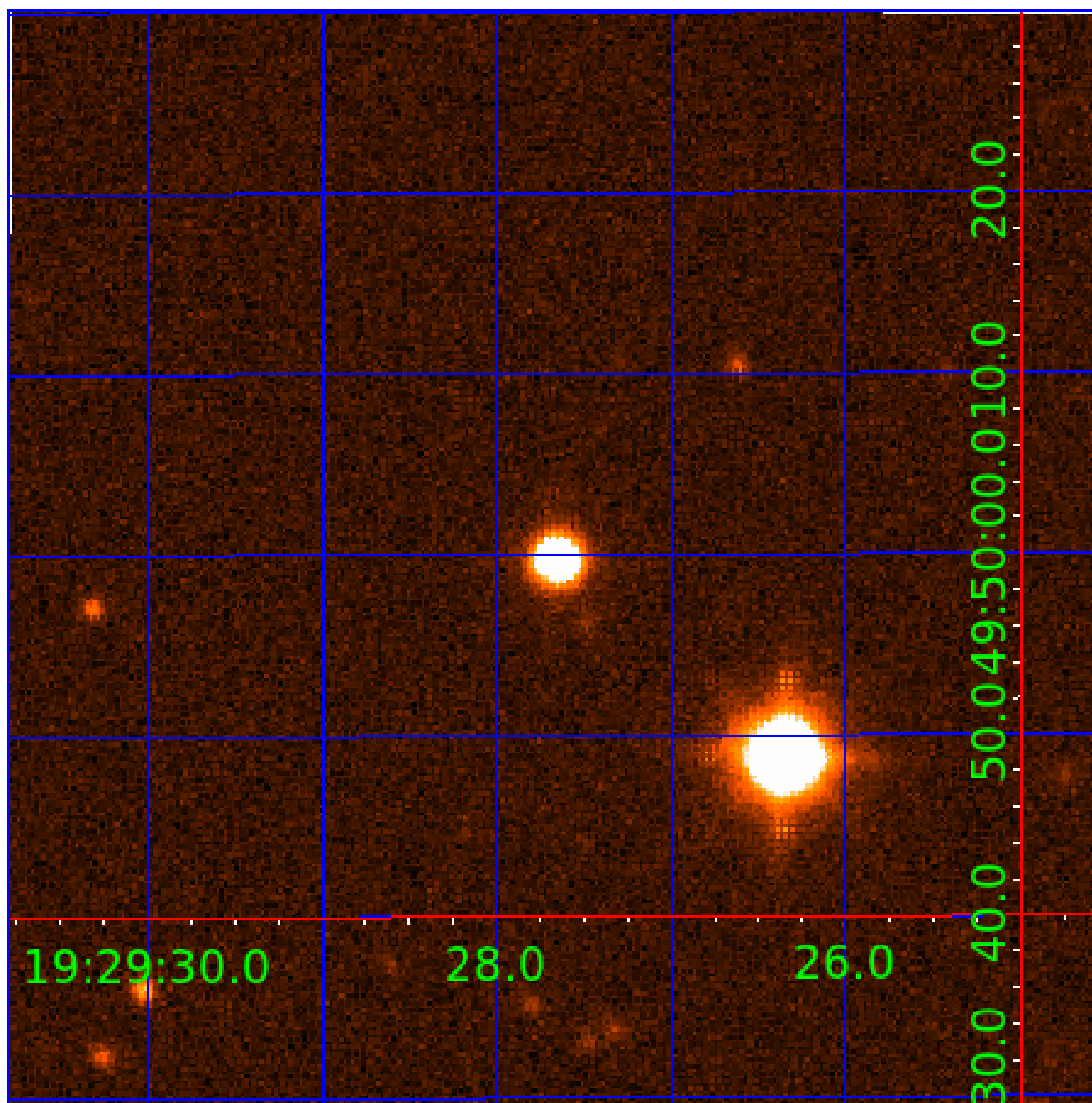


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 011713701

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011713701-01	OBS	No	302.056541	316.593624	2499.9	11.890	17.3	5.3	0.57	4524	3.21	0.23
011713701-02	OBS	No	204.265303	179.561316	2127.1	1.878	11.5	6.9	0.57	4524	2.56	0.39
011713701-03	OBS	No	366.097968	423.272902	2468.9	5.521	11.5	7.2	0.57	4524	3.09	0.18
011713701-04	OBS	No	357.025338	330.319942	2234.5	5.321	12.9	5.6	0.57	4524	2.73	0.18

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011713701-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011713701-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS
011713701-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011713701-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—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.

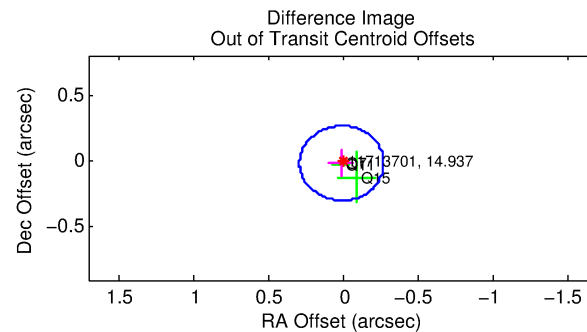
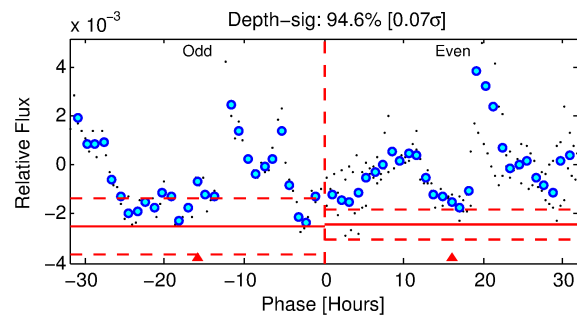
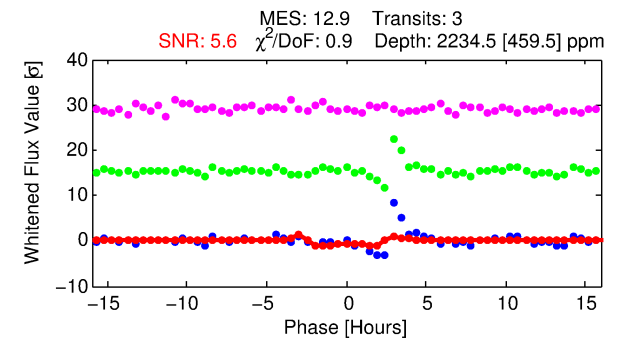
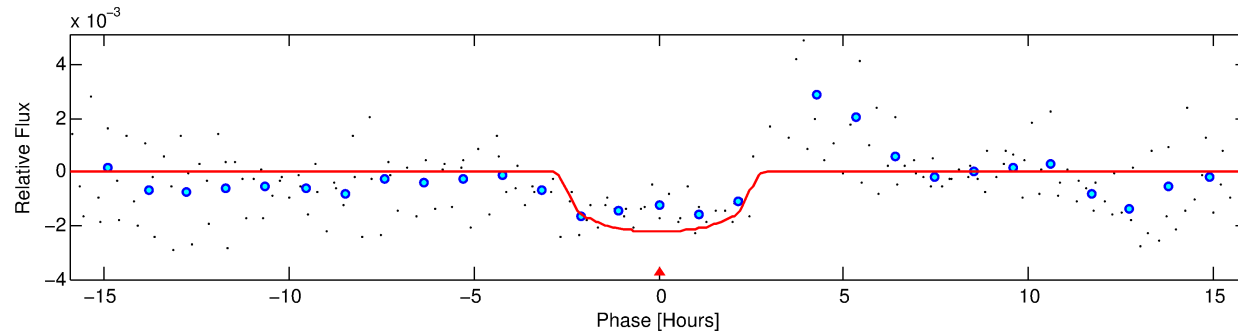
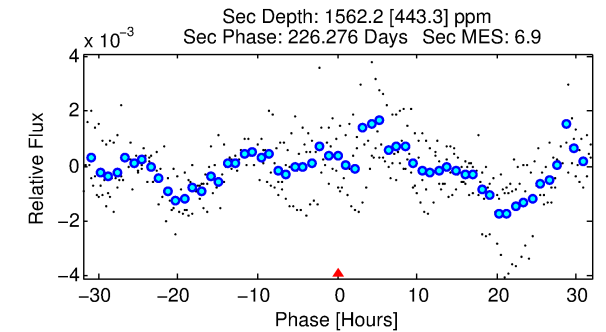
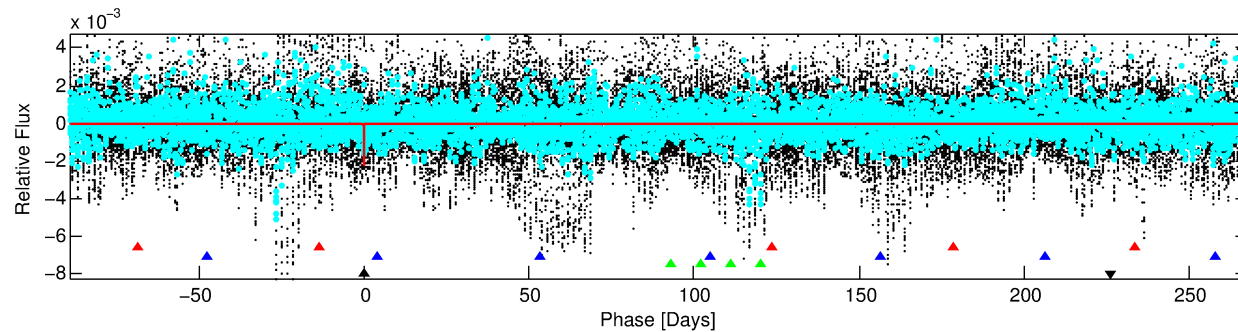
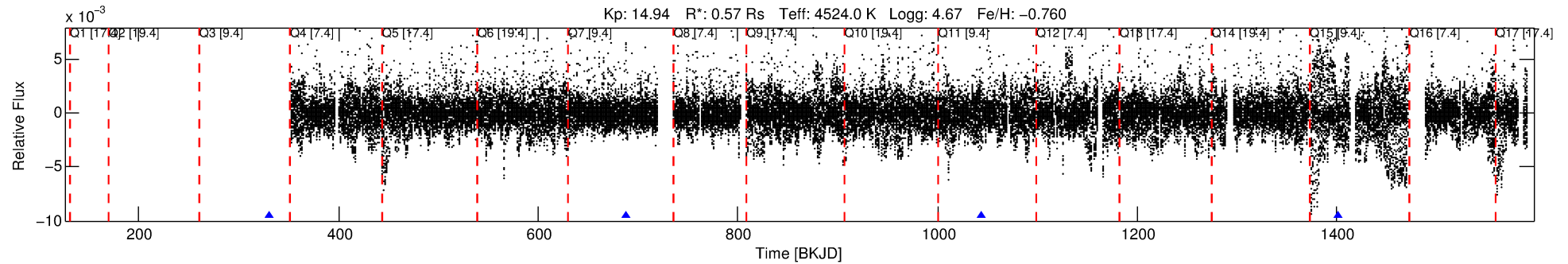
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011713701-04

No Significant Match Found

# DV One-Page Summary

KIC: 11713701 Candidate: 4 of 4 Period: 357.025 d



## DV Fit Results:

Period = 357.02534 [0.00447] d  
Epoch = 330.3199 [0.0115] BKJD  
Rp/R\* = 0.0440 [0.0373]  
a/R\* = 459.72 [1279.75]  
b = 0.53 [3.77]  
Seff = 0.18 [0.04]  
Teq = 167 [8] K  
Rp = 2.73 [2.33] Re  
a = 0.8124 [0.0605] AU  
Ag = 75883.48 [130851.01] [0.58 $\sigma$ ]  
Teffp = 4290 [1854] K [2.22 $\sigma$ ]

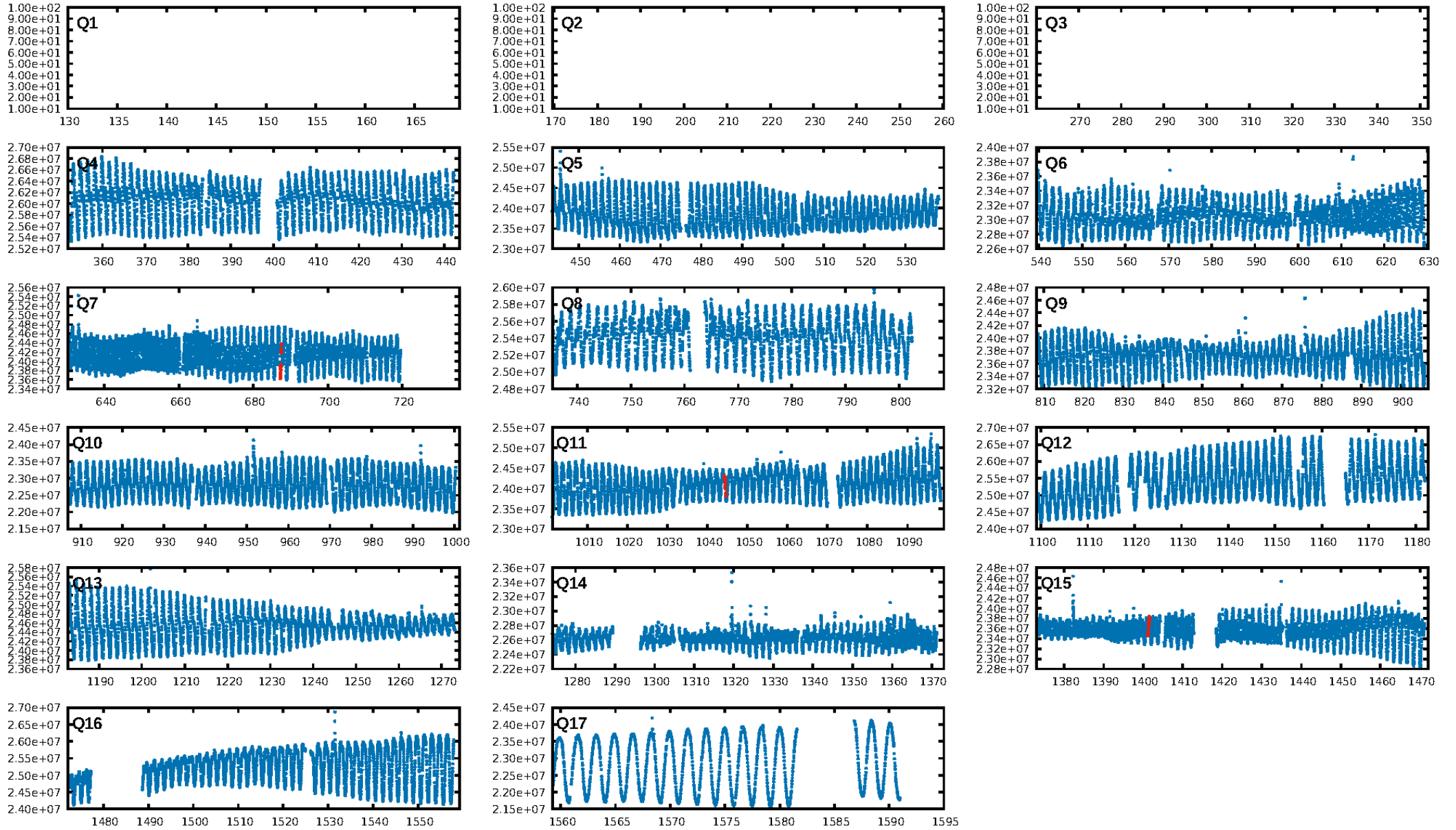
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [101.28 $\sigma$ ]  
LongPeriod-sig: 100.0% [28.40 $\sigma$ ]  
ModelChiSquare2-sig: 92.8%  
ModelChiSquareGof-sig: 97.5%  
**Bootstrap-pfa: 4.38e-10**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.5661**  
Centroid-sig: 63.4%  
Centroid-so: 0.270 arcsec [0.47 $\sigma$ ]  
OotOffset-rm: 0.018 arcsec [0.19 $\sigma$ ]  
OotOffset-st: 0/3/0/0 [3]  
KicOffset-rm: 0.050 arcsec [0.58 $\sigma$ ]  
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 04:44:38 Z

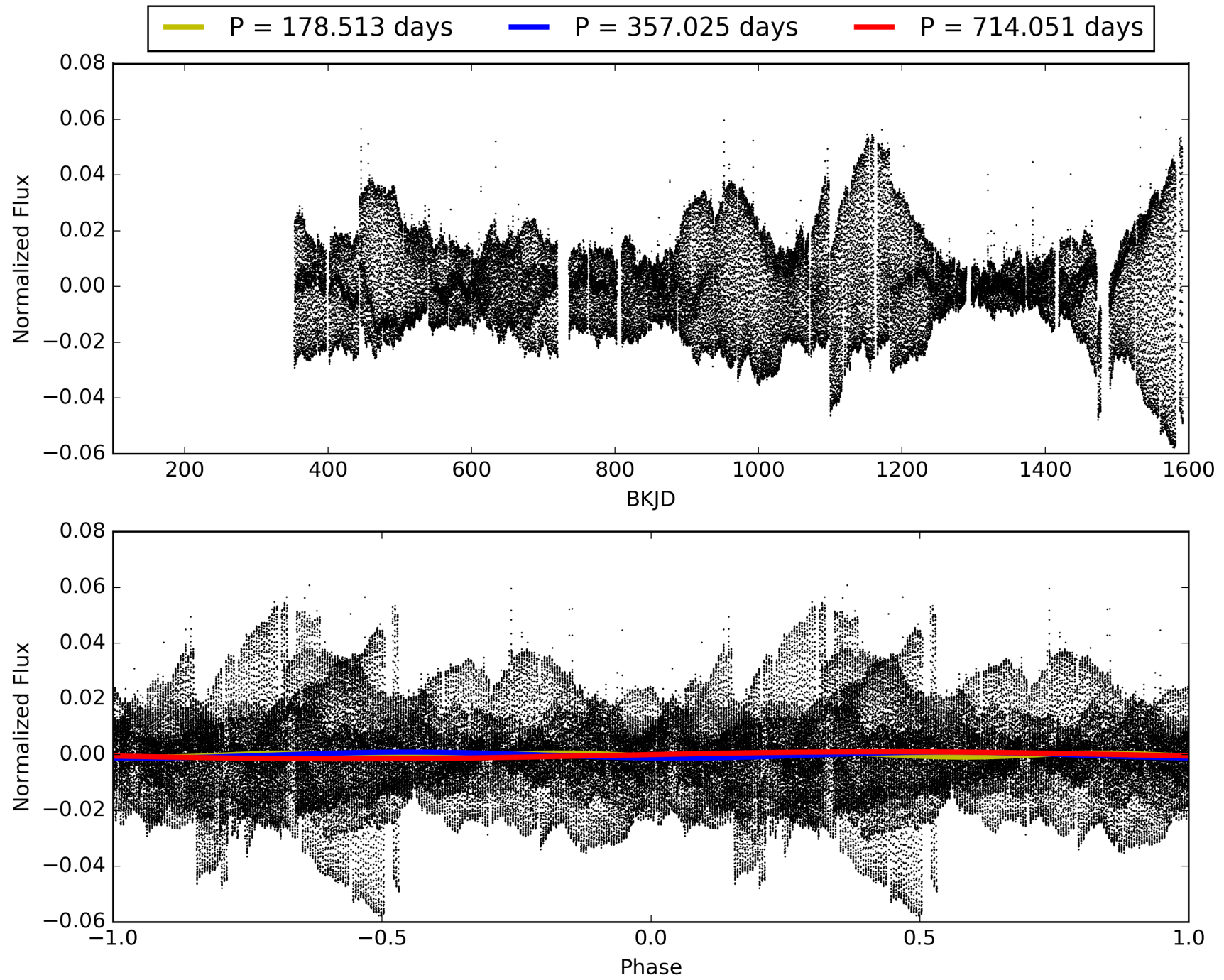
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011713701-04, PDC Light Curves





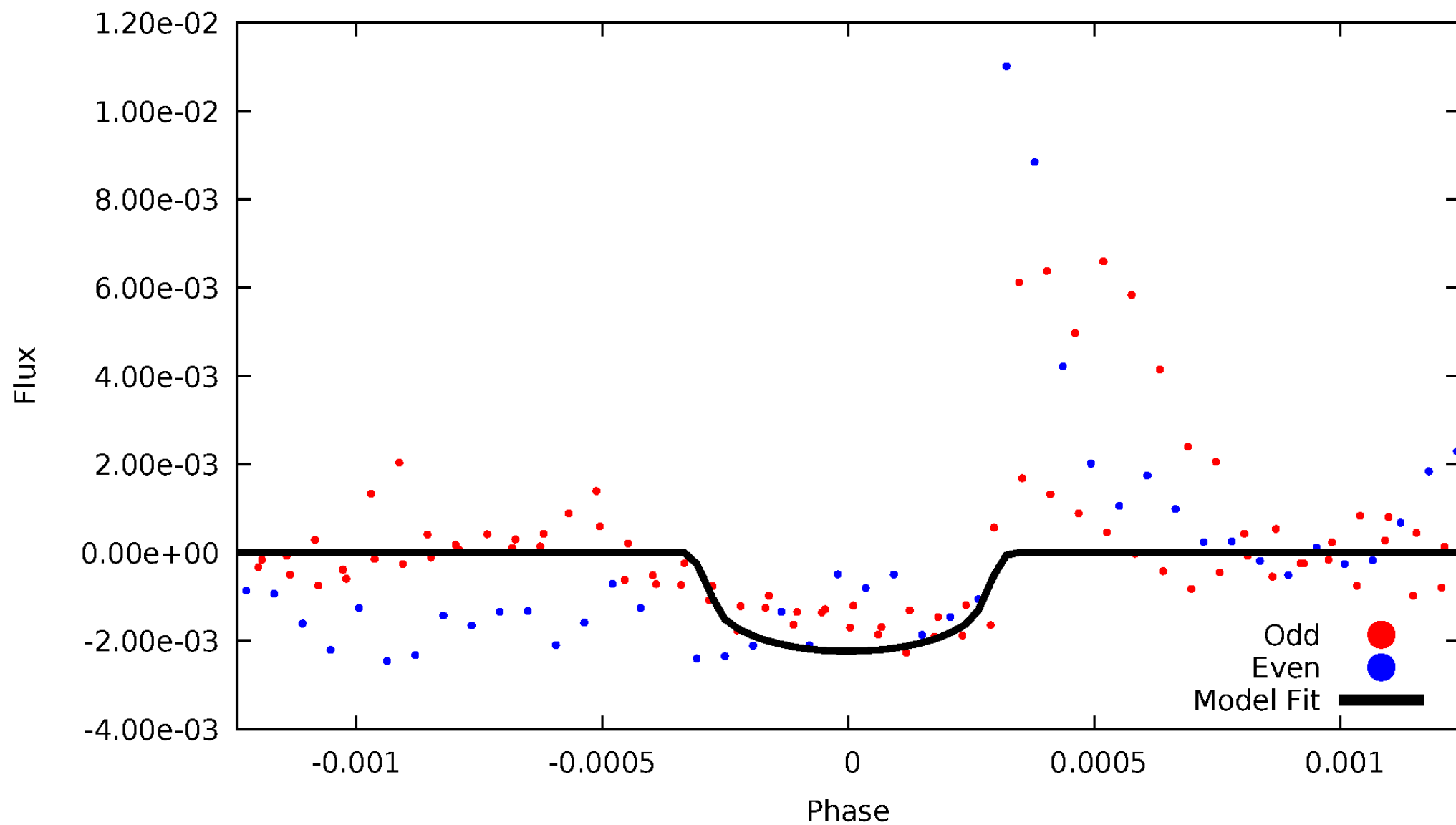
TCE 011713701-04





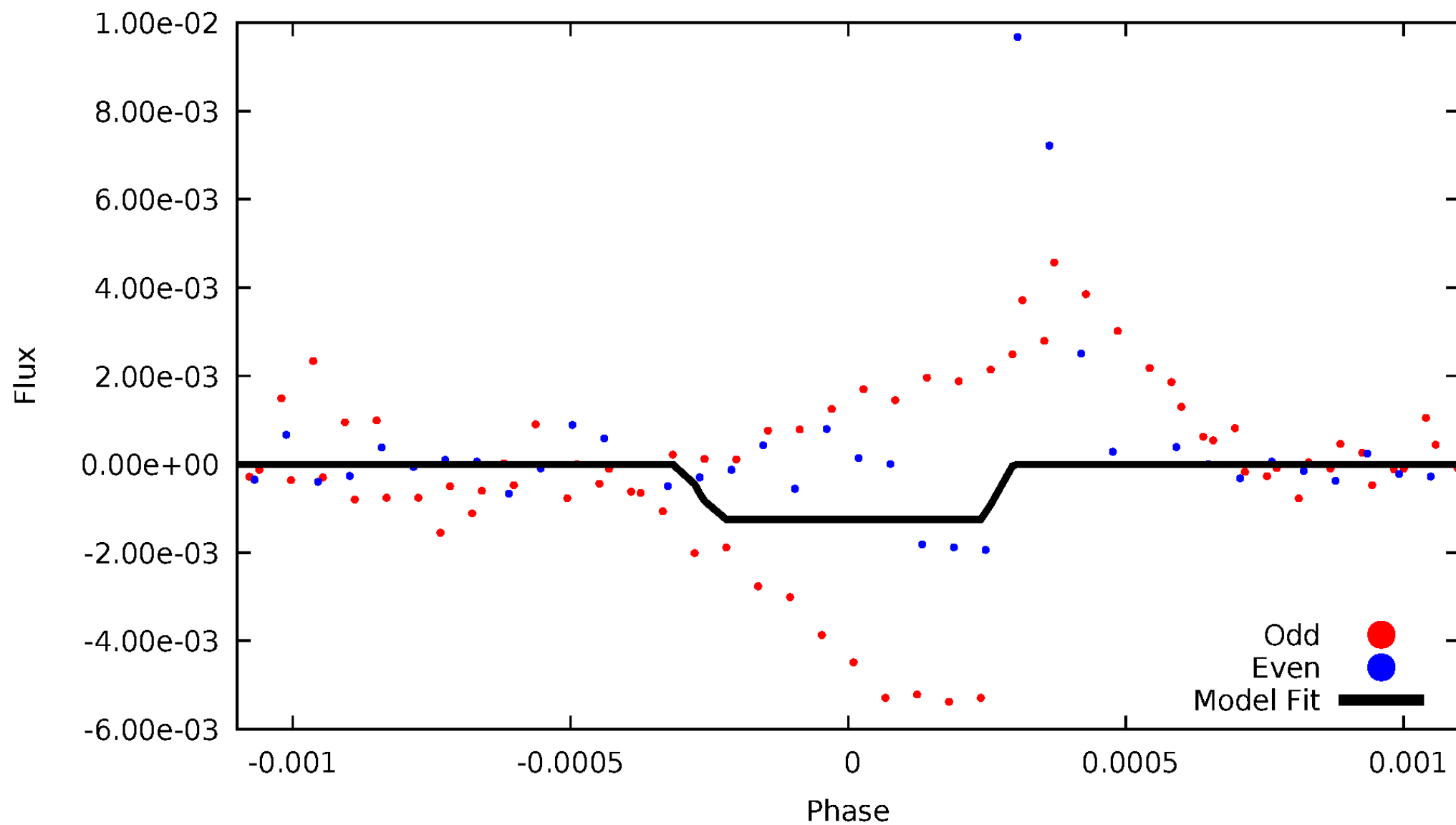
# DV Odd/Even

TCE 011713701-04



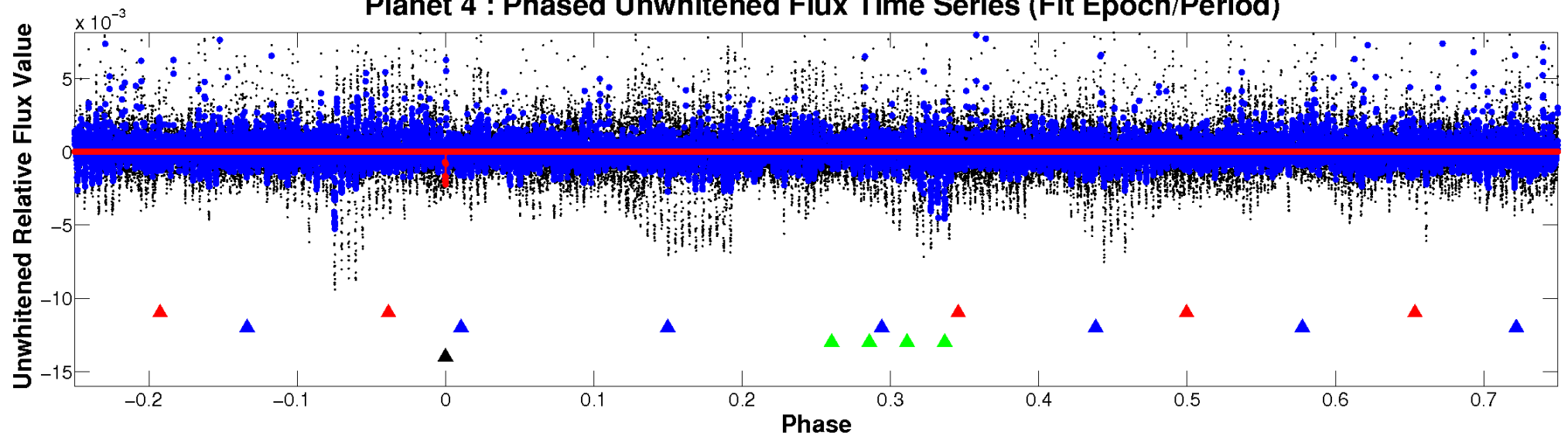
# ALT Odd/Even

TCE 011713701-04

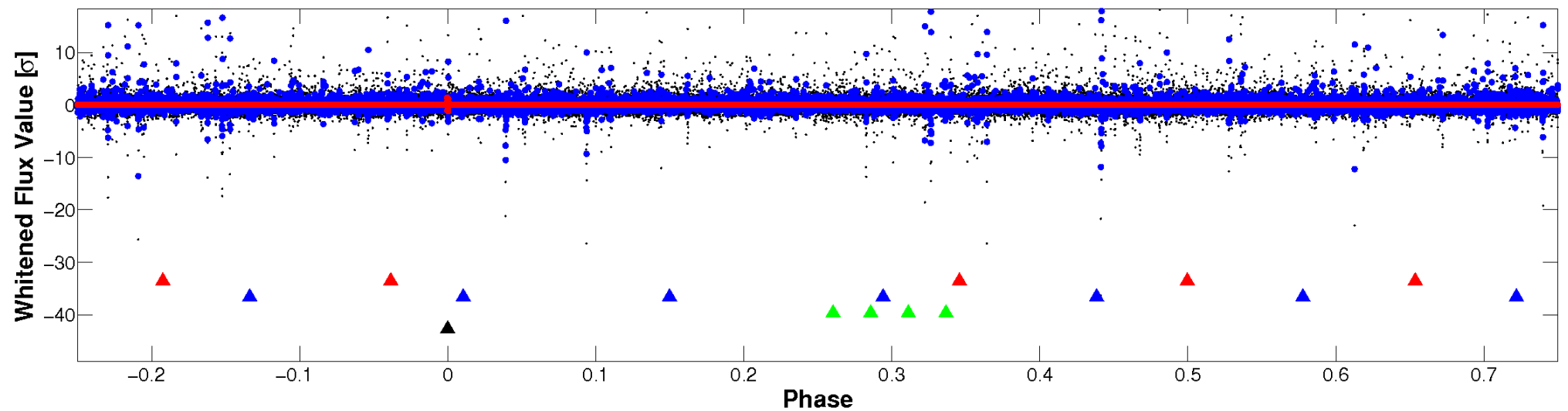


# Non-Whitened Vs. Whitened Light Curve

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

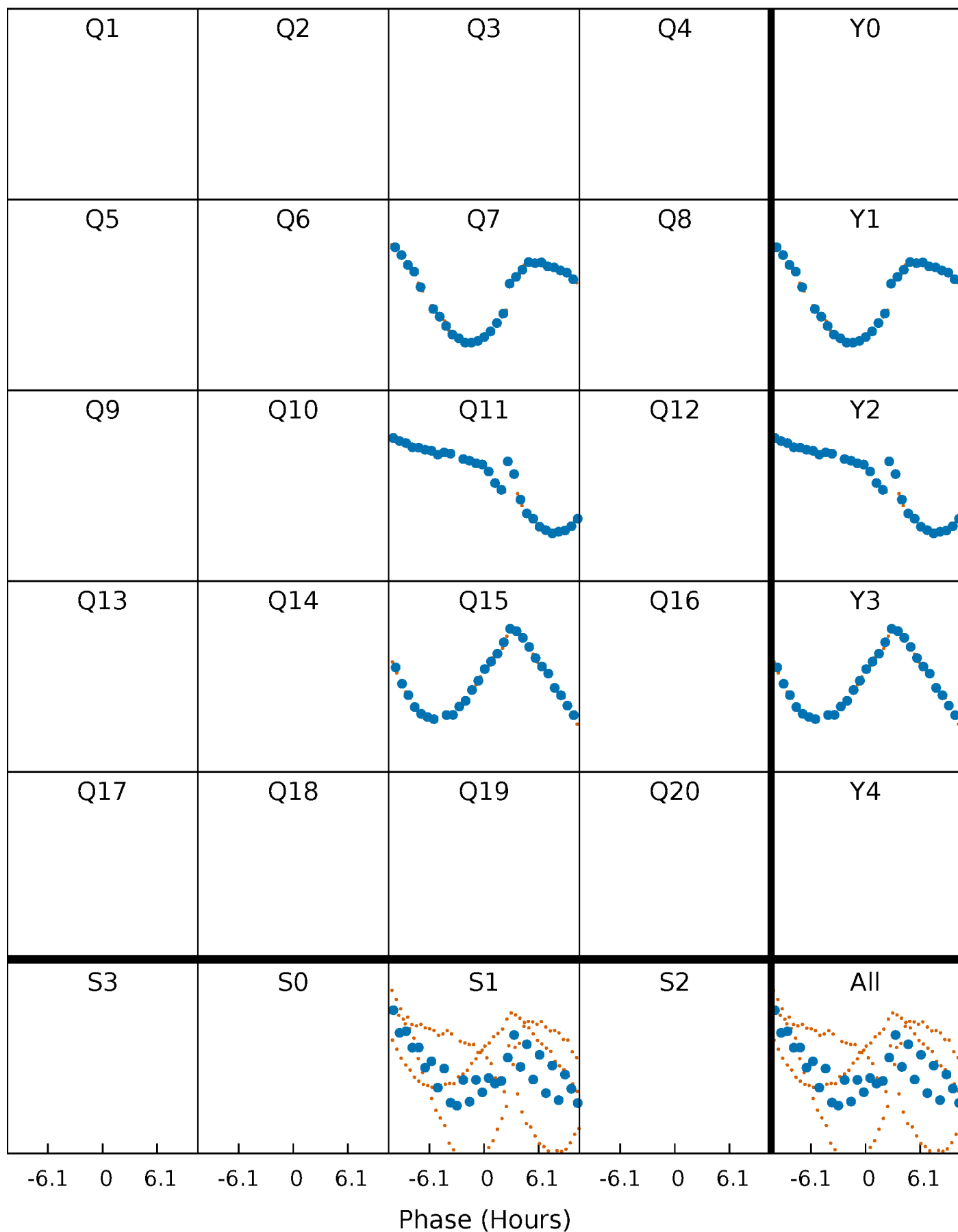


**Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



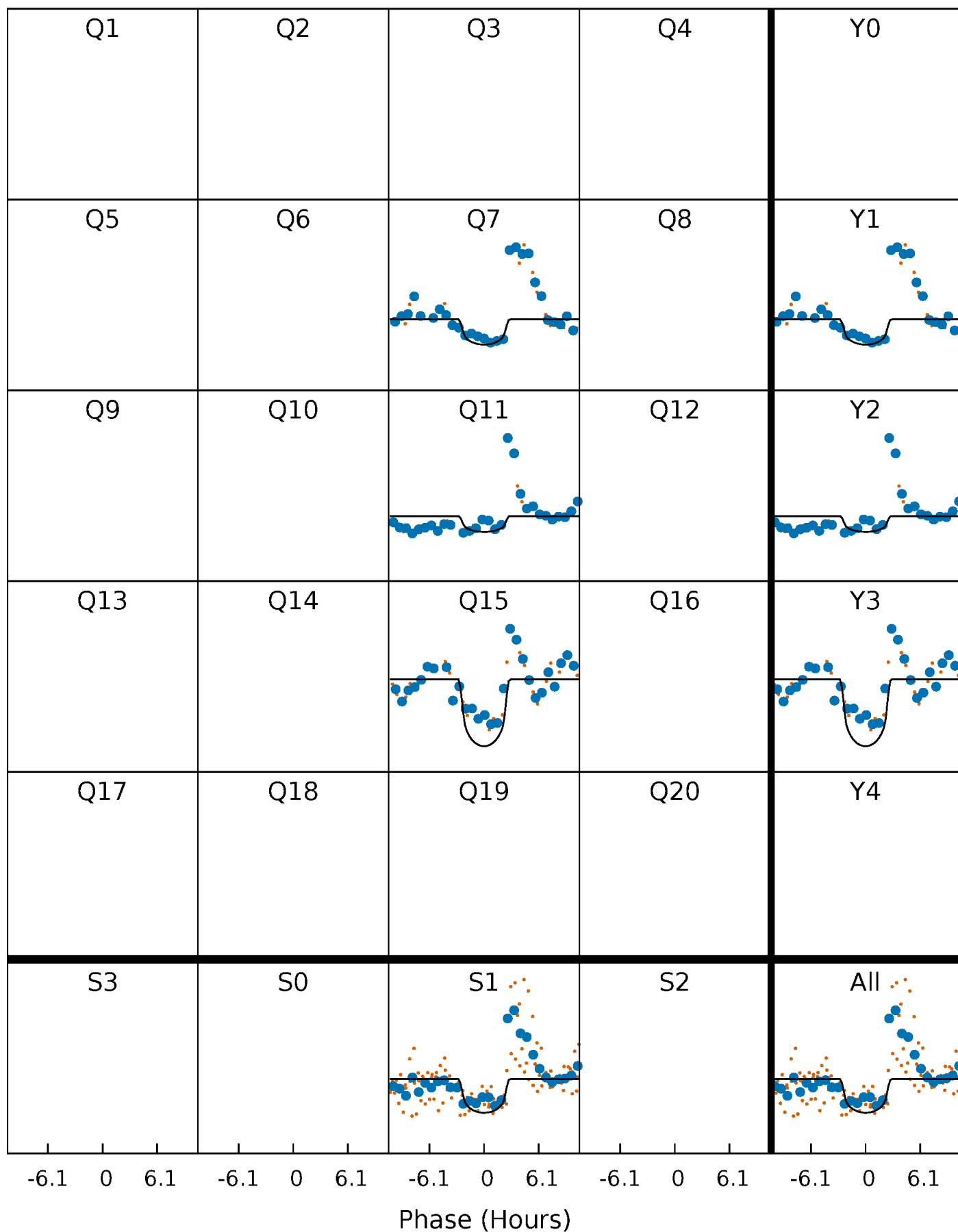
# PDC Quarter-Phased Transit Curves

TCE 011713701-04     $P=357.025338$  Days     $T_0=330.319942$  (BKJD)



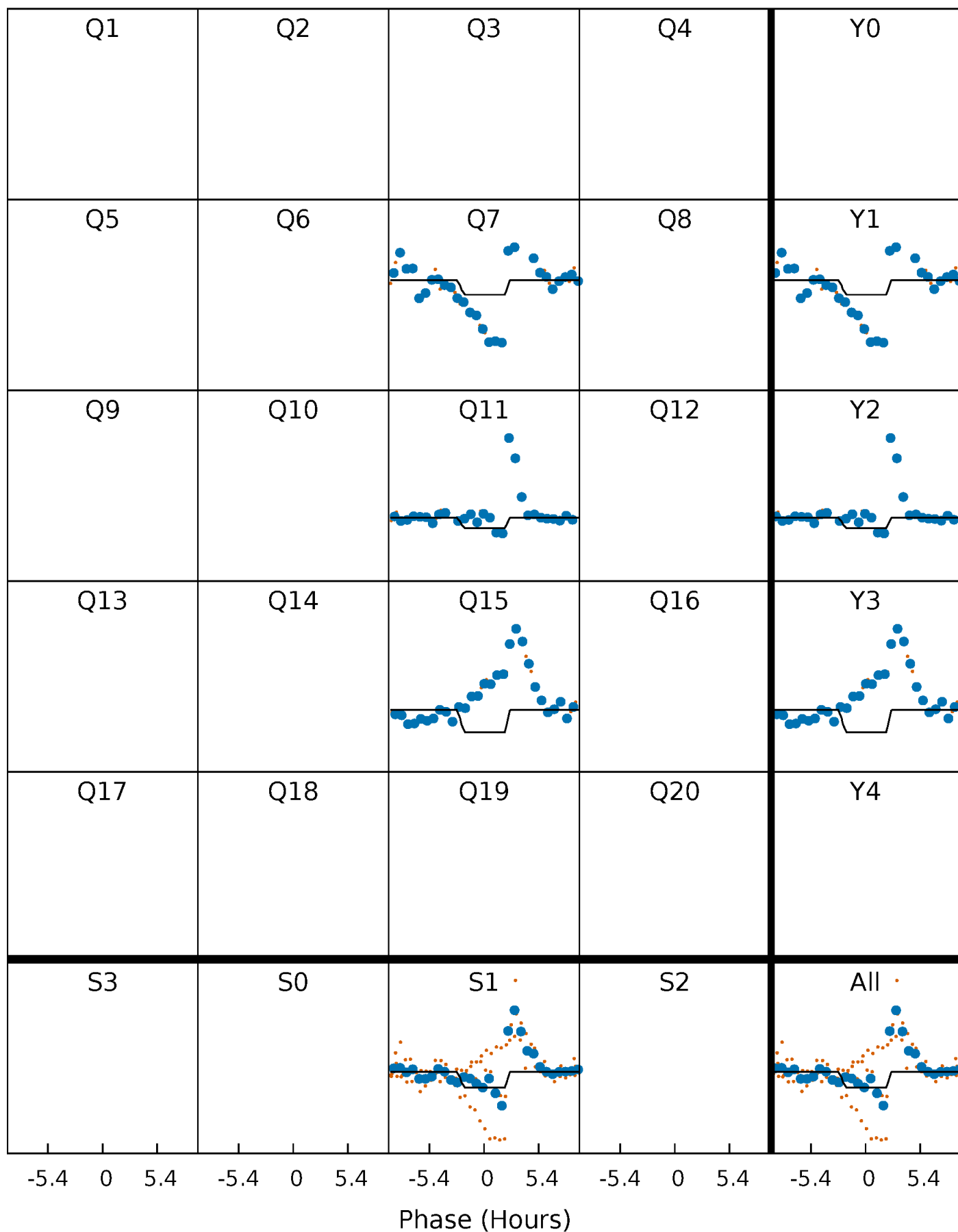
# DV Quarter-Phased Transit Curves

TCE 011713701-04     $P=357.025338$  Days     $T_0=330.319942$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

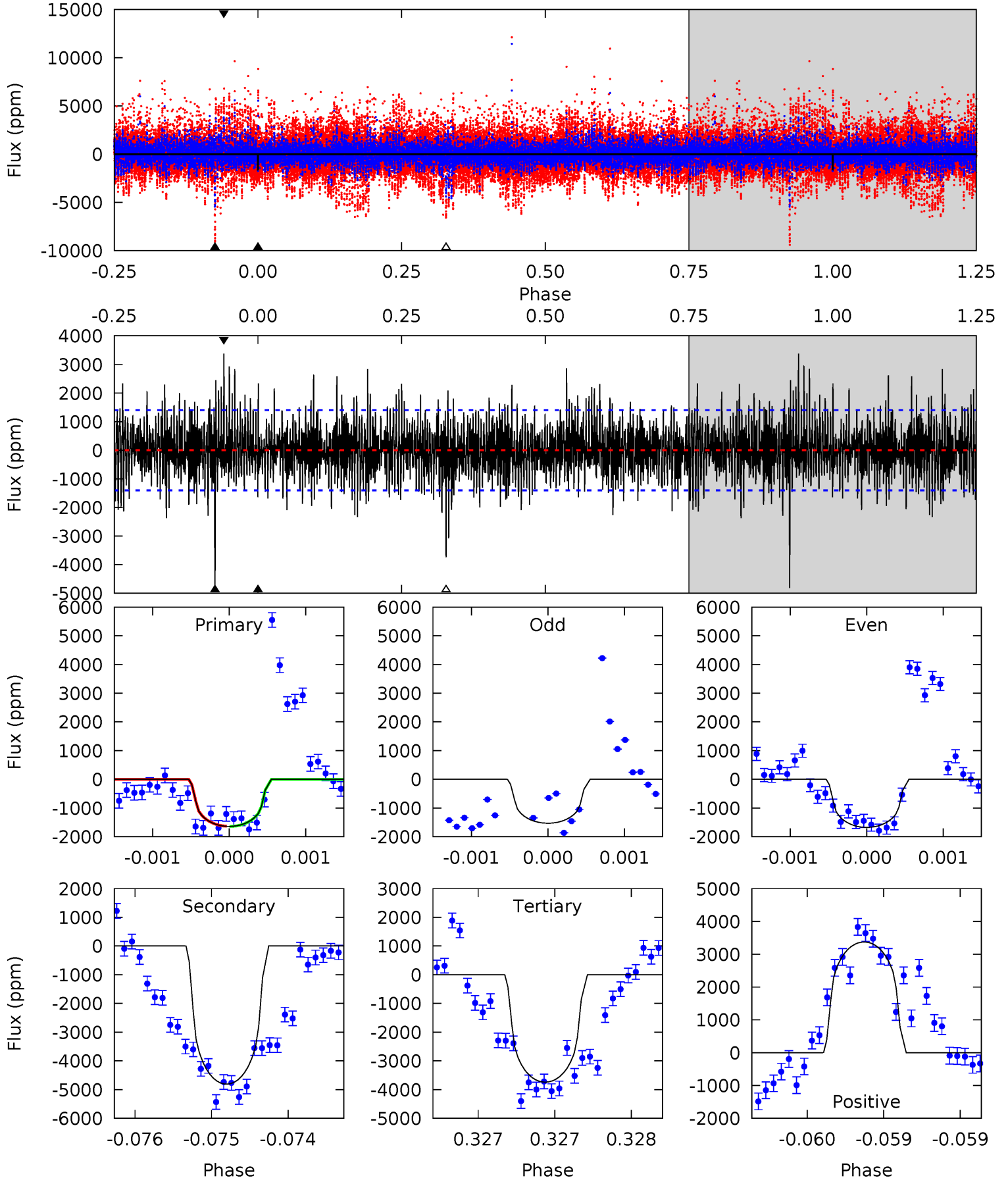
TCE 011713701-04 P=357.013185 Days  $T_0=330.350323$  (BKJD)



# DV Model-Shift Uniqueness Test

011713701-04, P = 357.025338 Days, E = 330.319942 Days

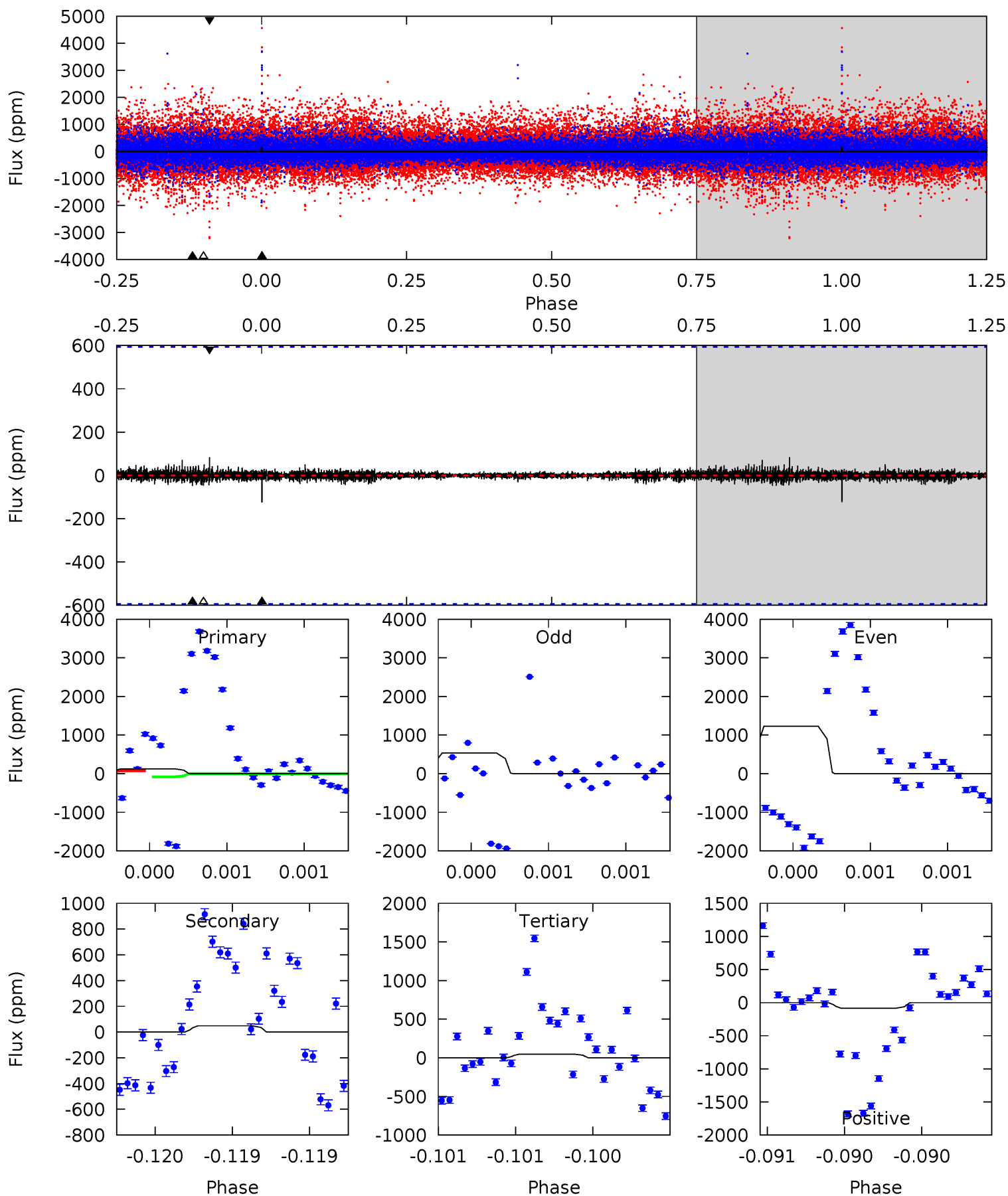
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.48	19.0	14.8	13.3	5.53	3.42	2.90	-8.28	-6.83	4.22	5.67	0.24	1.06	0.41	0.02



# Alt Model-Shift Uniqueness Test

011713701-04, P = 357.013185 Days, E = 330.350323 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
1.16	0.45	0.44	0.79	5.55	3.44	0.10	0.71	0.37	0.01	-0.34	3.88	2.11	0.41	0.01





### Stellar Parameters For KIC 011713701

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4524^{+143}_{-179}$	$4.675^{+0.058}_{-0.031}$	$-0.760^{+0.300}_{-0.300}$	$0.570^{+0.046}_{-0.051}$	$0.560^{+0.054}_{-0.036}$	$4.269^{+1.052}_{-0.515}$
	+3%/-4%	+1%/-1%	+39%/-39%	+8%/-9%	+10%/-6%	+25%/-12%
Source	KIC0	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 011713701-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-4810 \pm 253$	$3.15^{+1.93}_{-2.02}$	$232^{+9}_{-9}$	$5154^{+3586}_{-955}$	$181054^{+1143352}_{-113485}$
Alt.	$-48 \pm 107$	$2.49^{+2.11}_{-1.48}$	$232^{+9}_{-10}$	$2385^{+887}_{-5161}$	$1286^{+12927}_{-5830}$

$T_{\text{max}}$  = 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

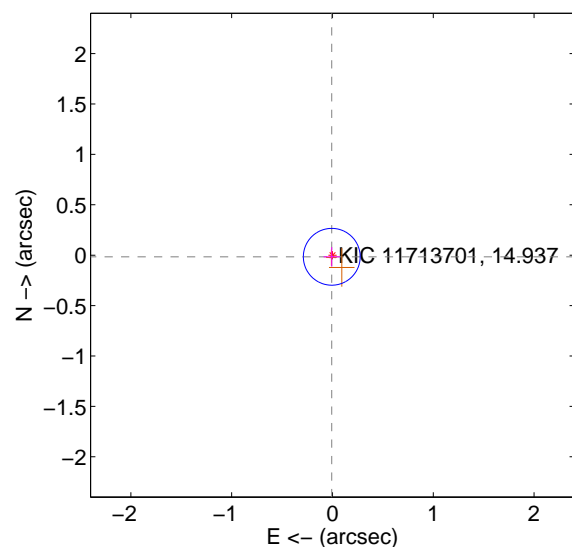
Supplemental centroid analysis for 011713701-04. Kepler magnitude: 14.94. Transit SNR 5.59

There are 1 quarters with good PRF difference image offsets

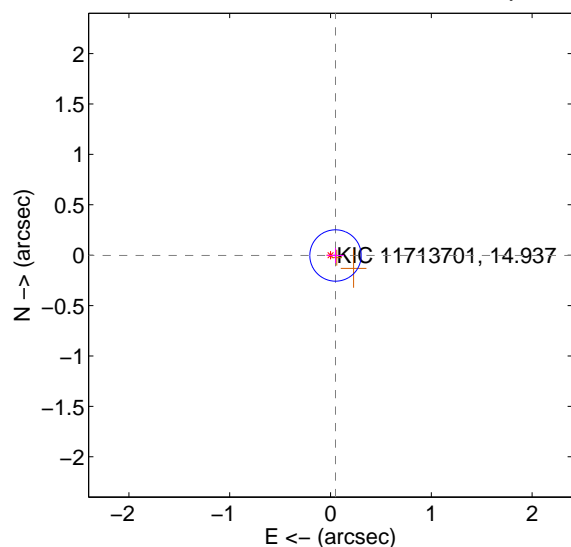
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.018 \pm 0.094$	0.19	$0.007 \pm 0.081$	$-0.016 \pm 0.096$
PRF-fit source offset from KIC position	$0.050 \pm 0.085$	0.58	$-0.050 \pm 0.084$	$-0.003 \pm 0.075$
photometric centroid source offset	$0.27 \pm 0.58$	0.47	$-0.01 \pm 0.58$	$-0.27 \pm 0.58$

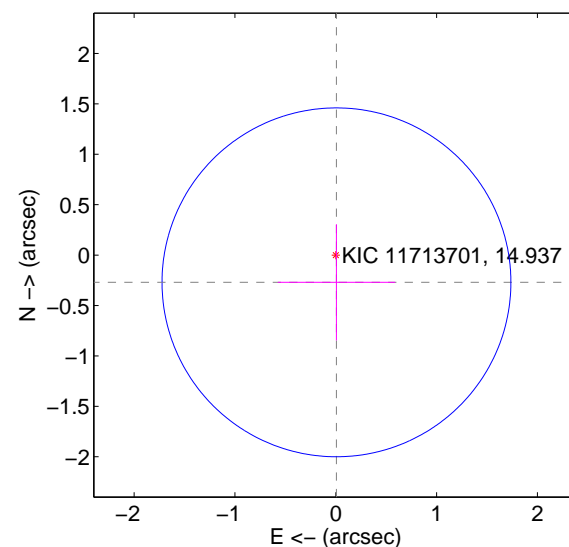
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

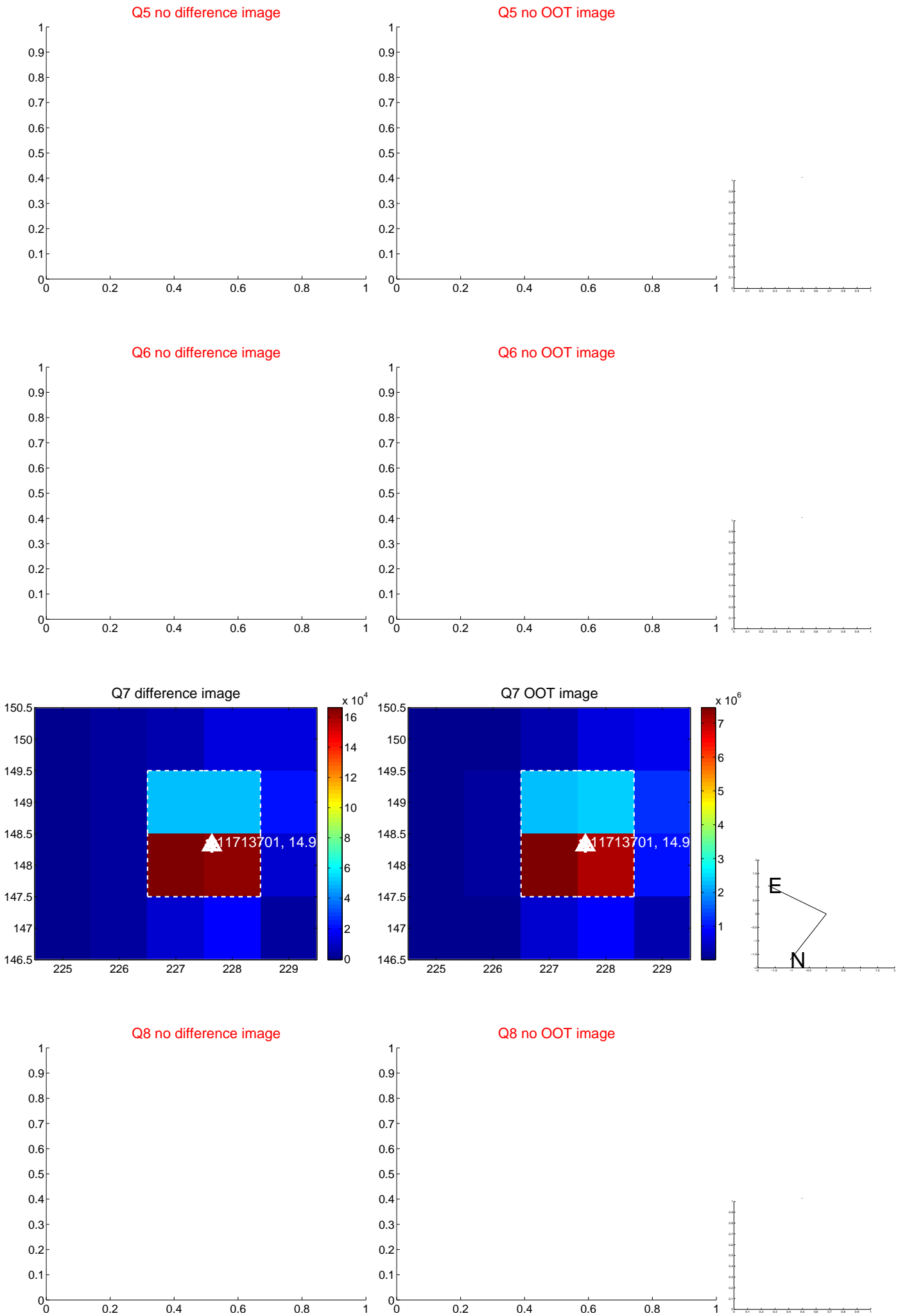


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

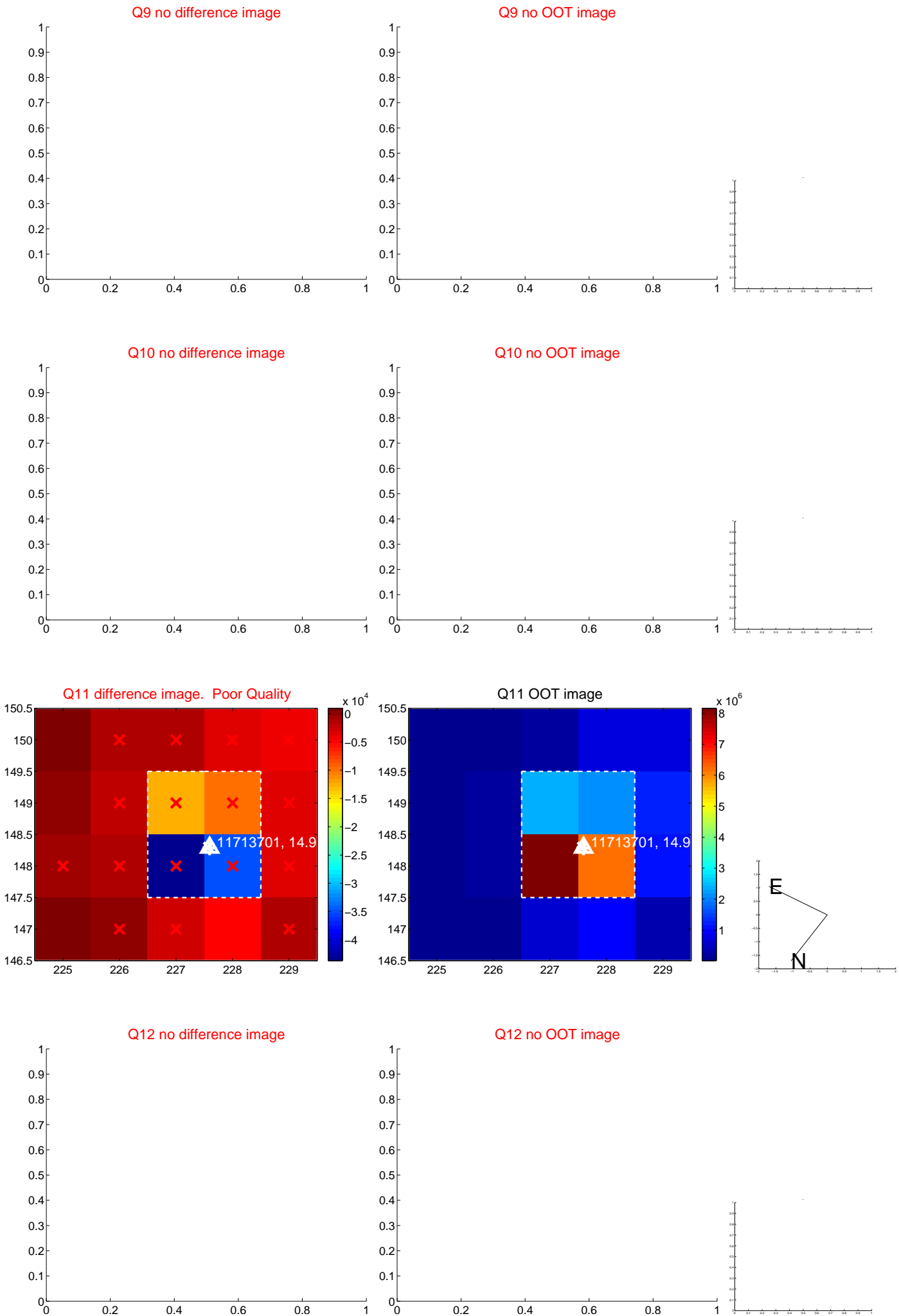
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



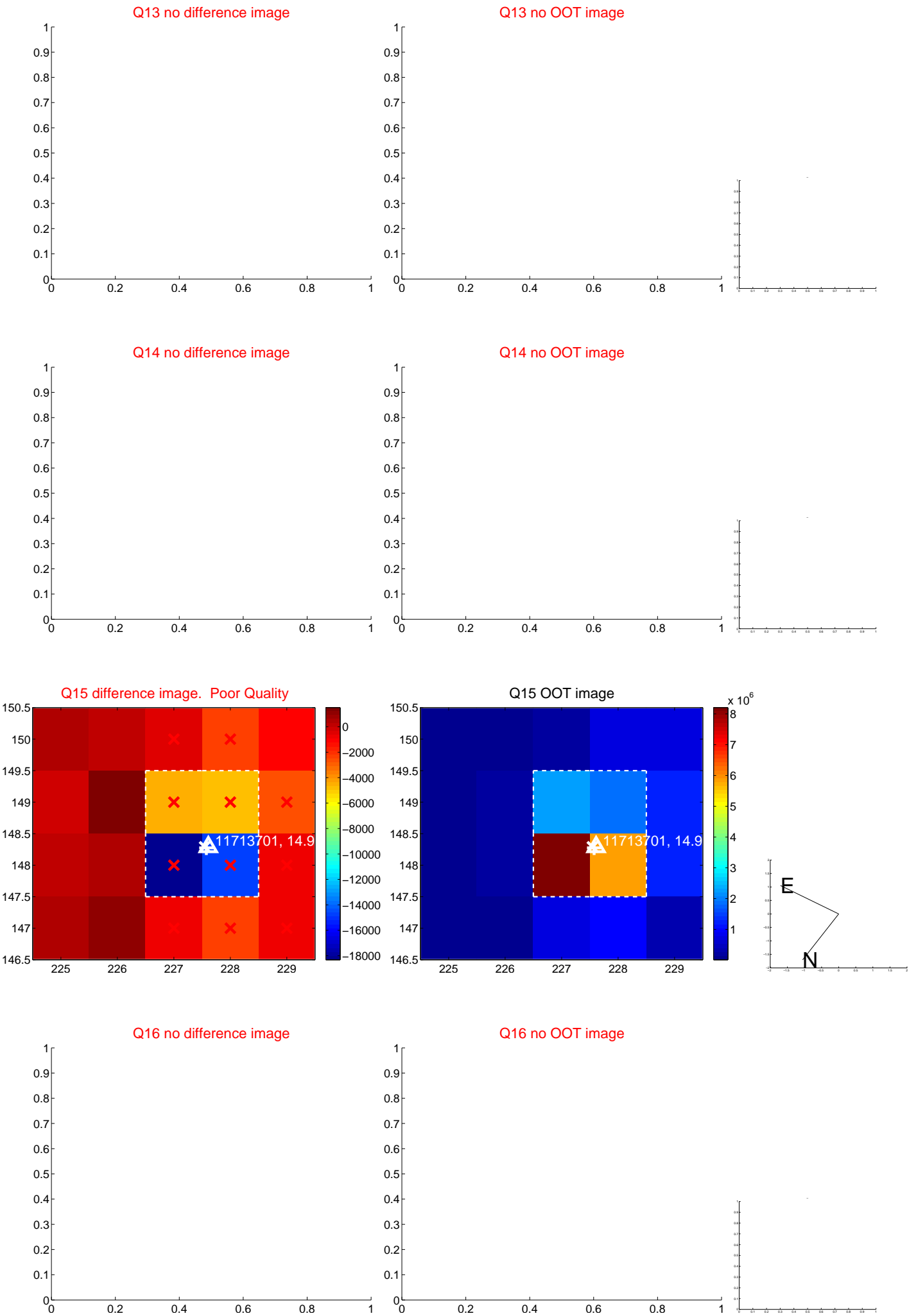
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



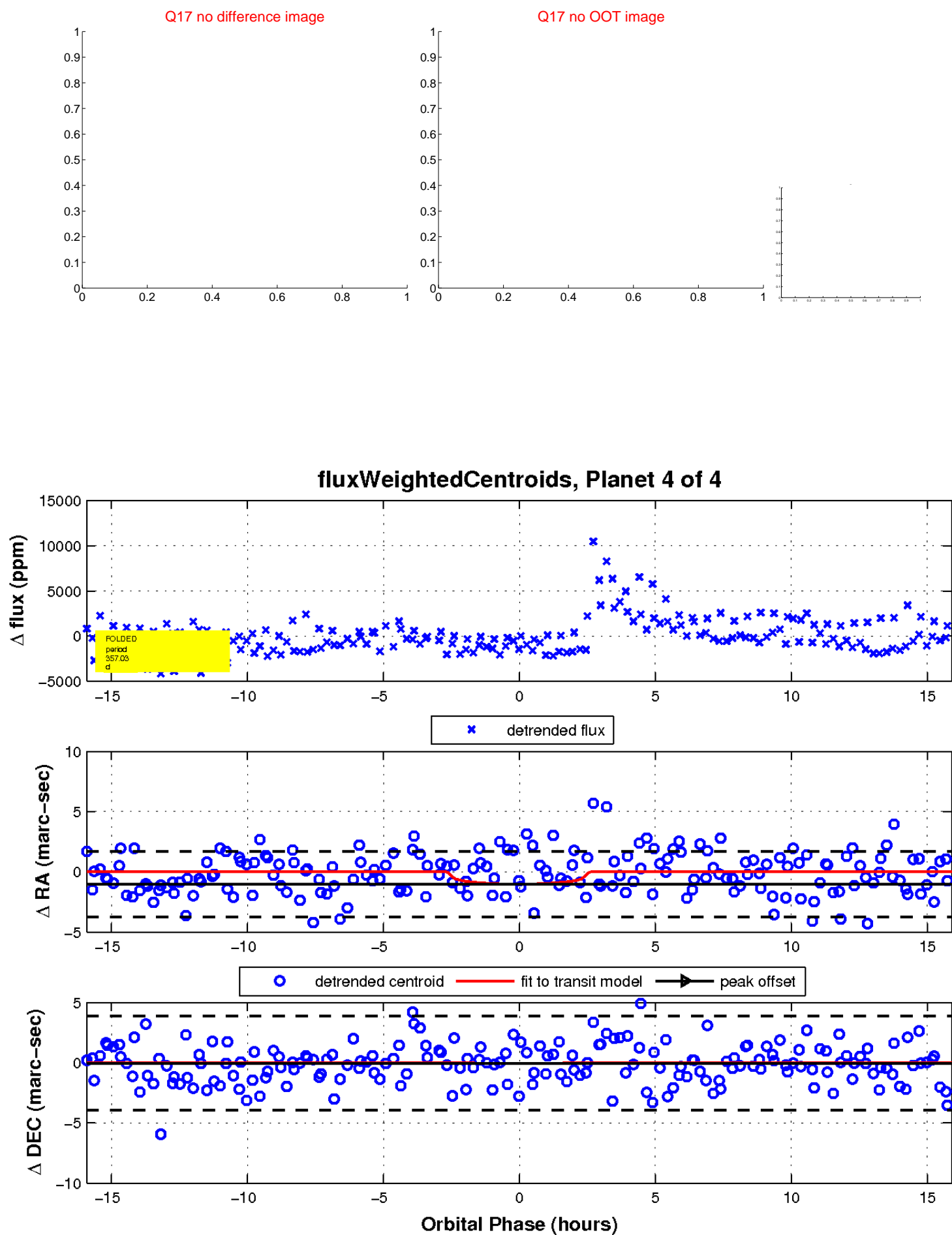
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

