

# KIC 008374077

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008374077-01	OBS	6179.01	16.295614	133.633306	349.8	5.161	11.0	12.0	1.01	6063	2.19	72.72
008374077-02	OBS	No	385.267386	184.634710	2225.1	10.063	8.6	8.6	1.01	6063	8.43	1.07
008374077-03	OBS	No	377.822972	217.889948	1441.2	12.961	7.4	6.8	1.01	6063	4.50	1.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008374077-01	OBS	PC	0.98	0	0	0	0	NO_COMMENT
008374077-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008374077-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

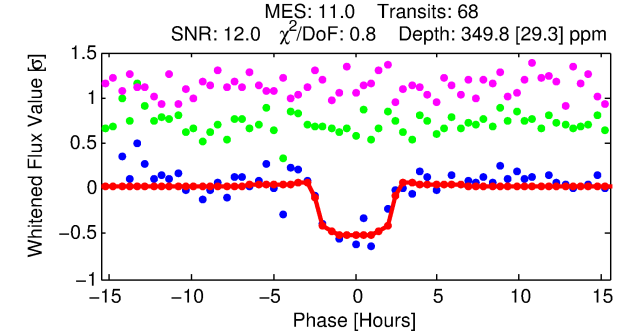
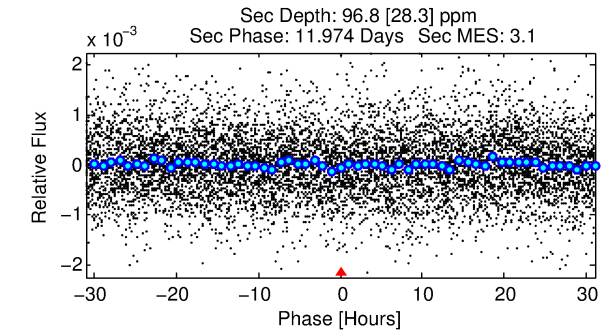
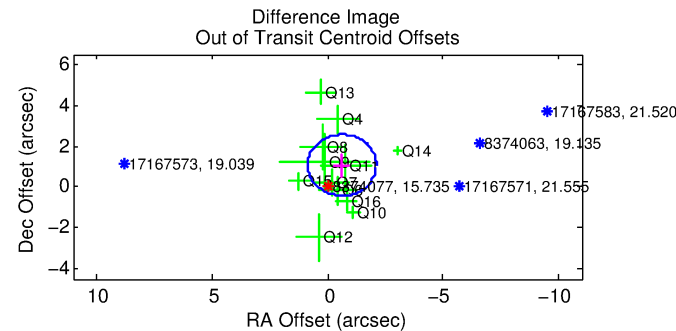
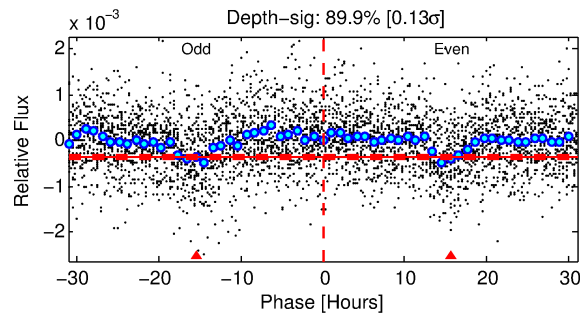
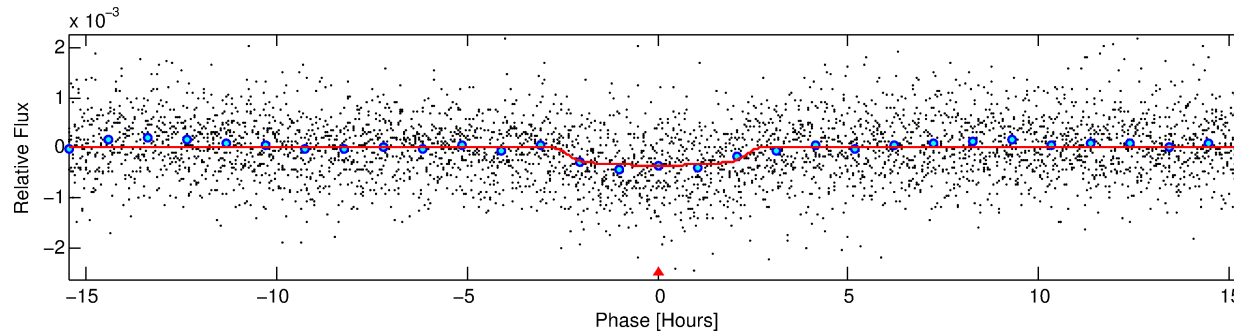
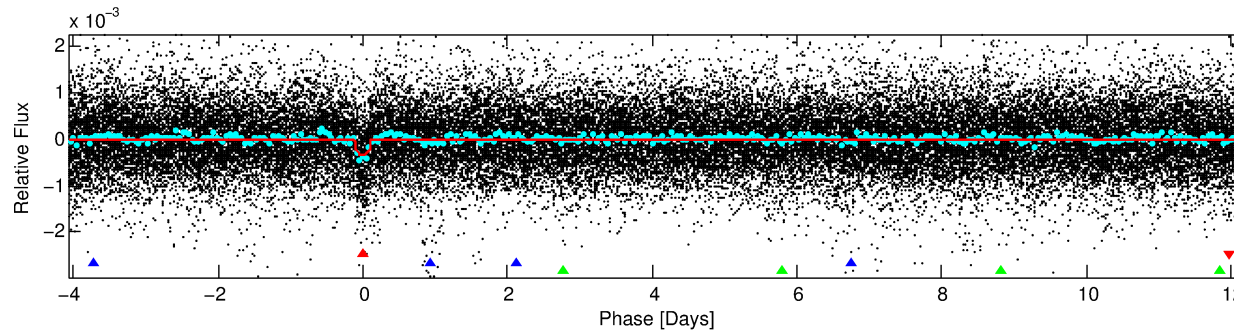
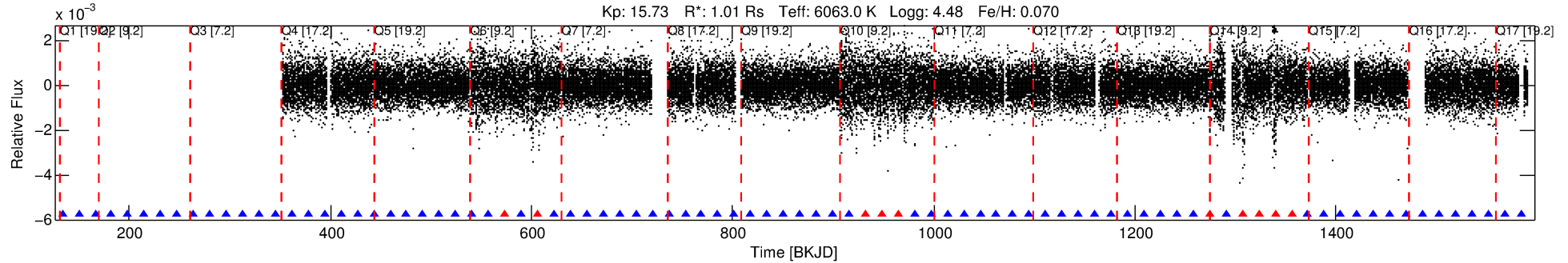
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008374077-01

No Significant Match Found

# DV One-Page Summary

KIC: 8374077 Candidate: 1 of 3 Period: 16.296 d  
KOI: K06179.01 Corr: 0.870



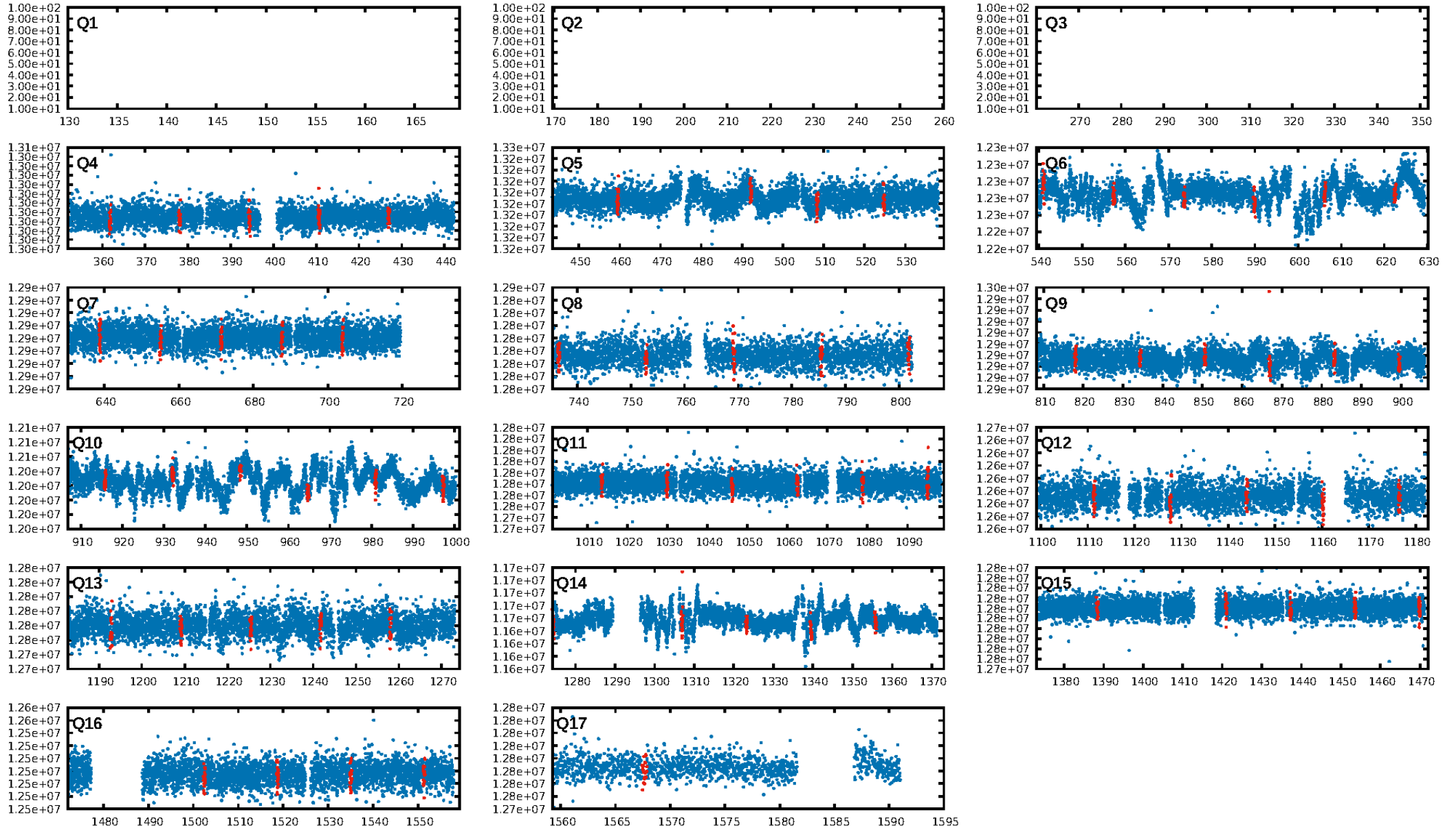
## DV Fit Results:

Period = 16.29561 [0.00021] d  
Epoch = 133.6333 [0.0112] BKJD  
Rp/R\* = 0.0199 [0.0048]  
a/R\* = 12.59 [14.77]  
b = 0.88 [0.31]  
Seff = 72.72 [30.62]  
Teq = 745 [78] K  
Rp = 2.19 [0.87] Re  
a = 0.1306 [0.0349] AU  
Ag = 188.78 [130.10] [1.44 $\sigma$ ]  
Teffp = 4267 [626] K [5.58 $\sigma$ ]

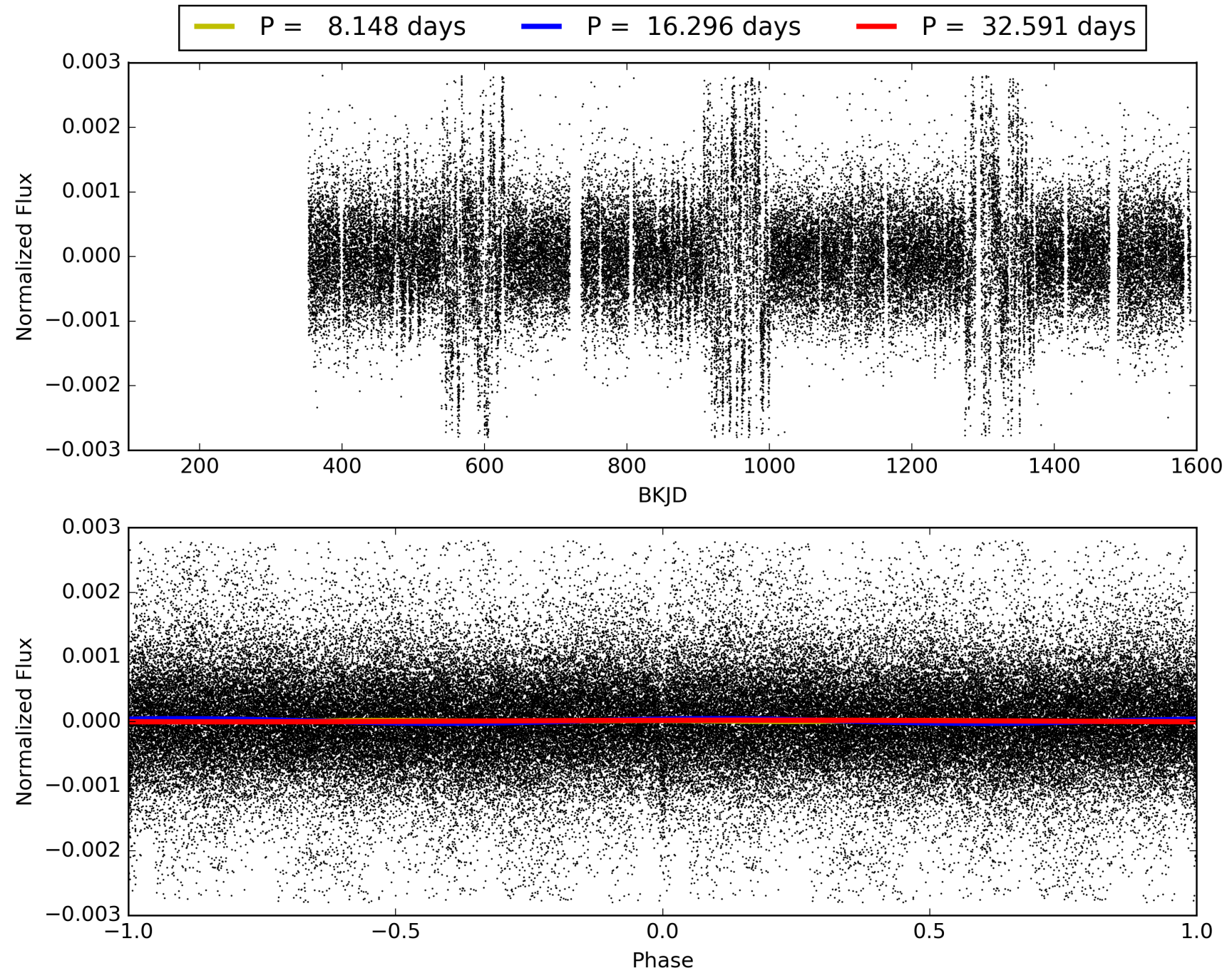
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [621.96 $\sigma$ ]  
ModelChiSquare2-sig: 99.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.03e-27  
RollingBand-fgt: 0.85 [57/67]  
GhostDiagnostic-chr: 3.114  
Centroid-sig: 72.1%  
Centroid-so: 0.575 arcsec [0.46 $\sigma$ ]  
OotOffset-rm: 1.239 arcsec [2.49 $\sigma$ ]  
KicOffset-rm: 1.173 arcsec [2.53 $\sigma$ ]  
OotOffset-st: 3/3/4/2 [12]  
KicOffset-st: 3/3/4/2 [12]  
DiffImageQuality-fgm: 0.67 [8/12]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 008374077-01, PDC Light Curves

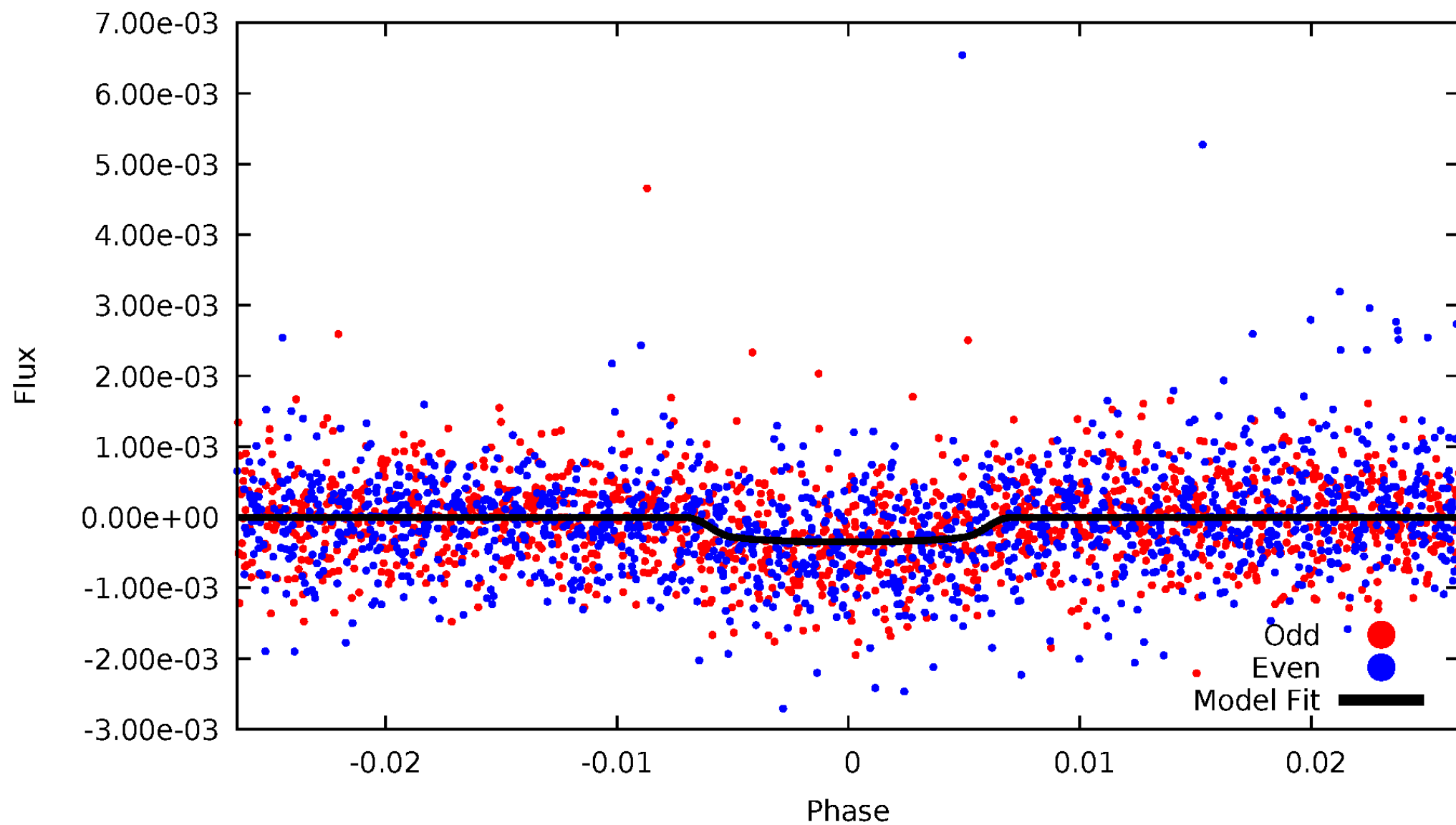


TCE 008374077-01



# DV Odd/Even

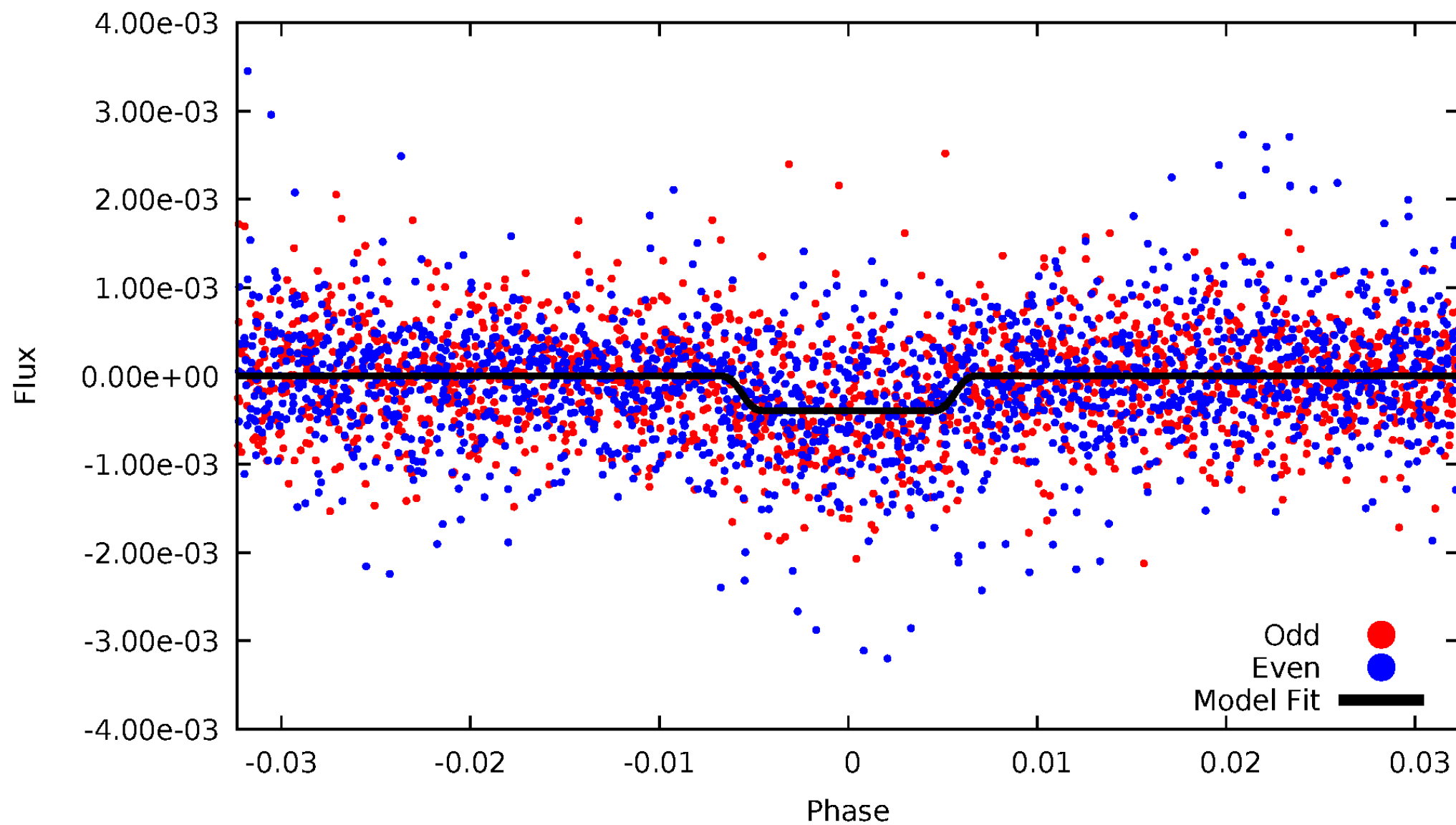
TCE 008374077-01





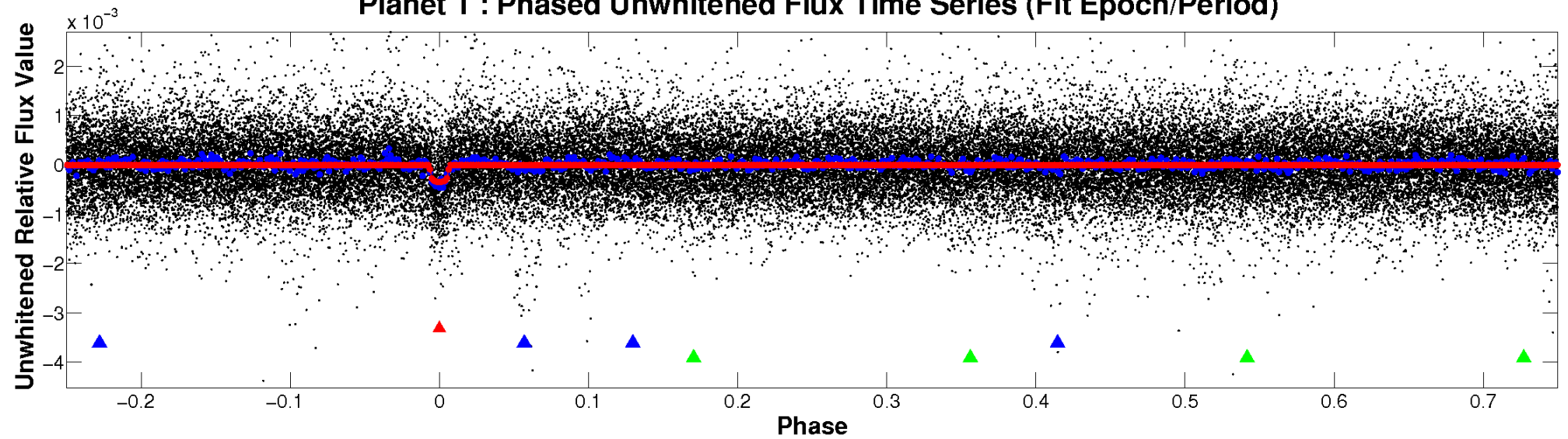
# ALT Odd/Even

TCE 008374077-01

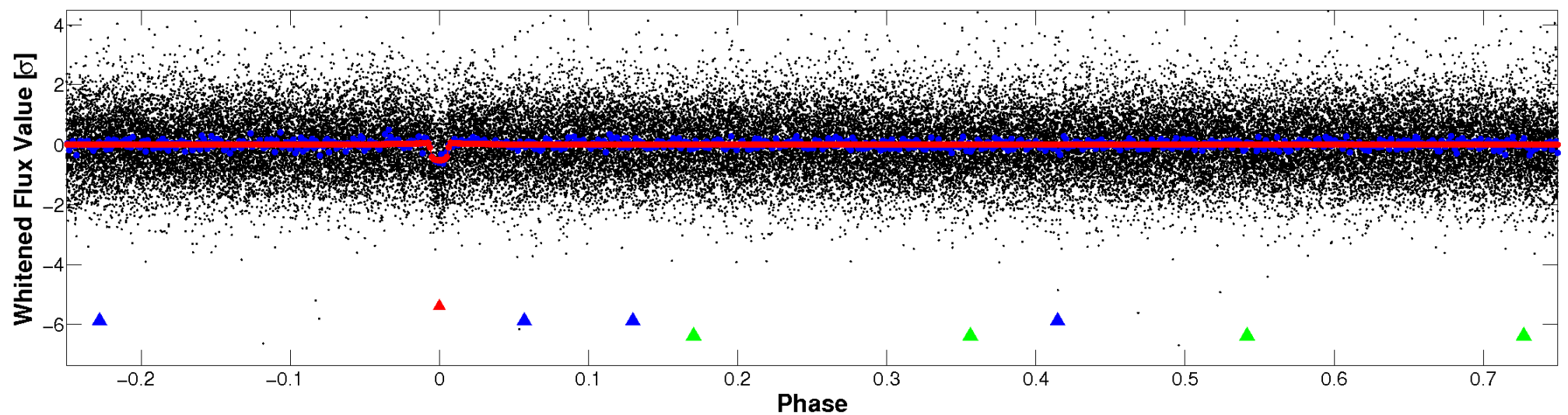


# Non-Whitened Vs. Whitened Light Curve

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

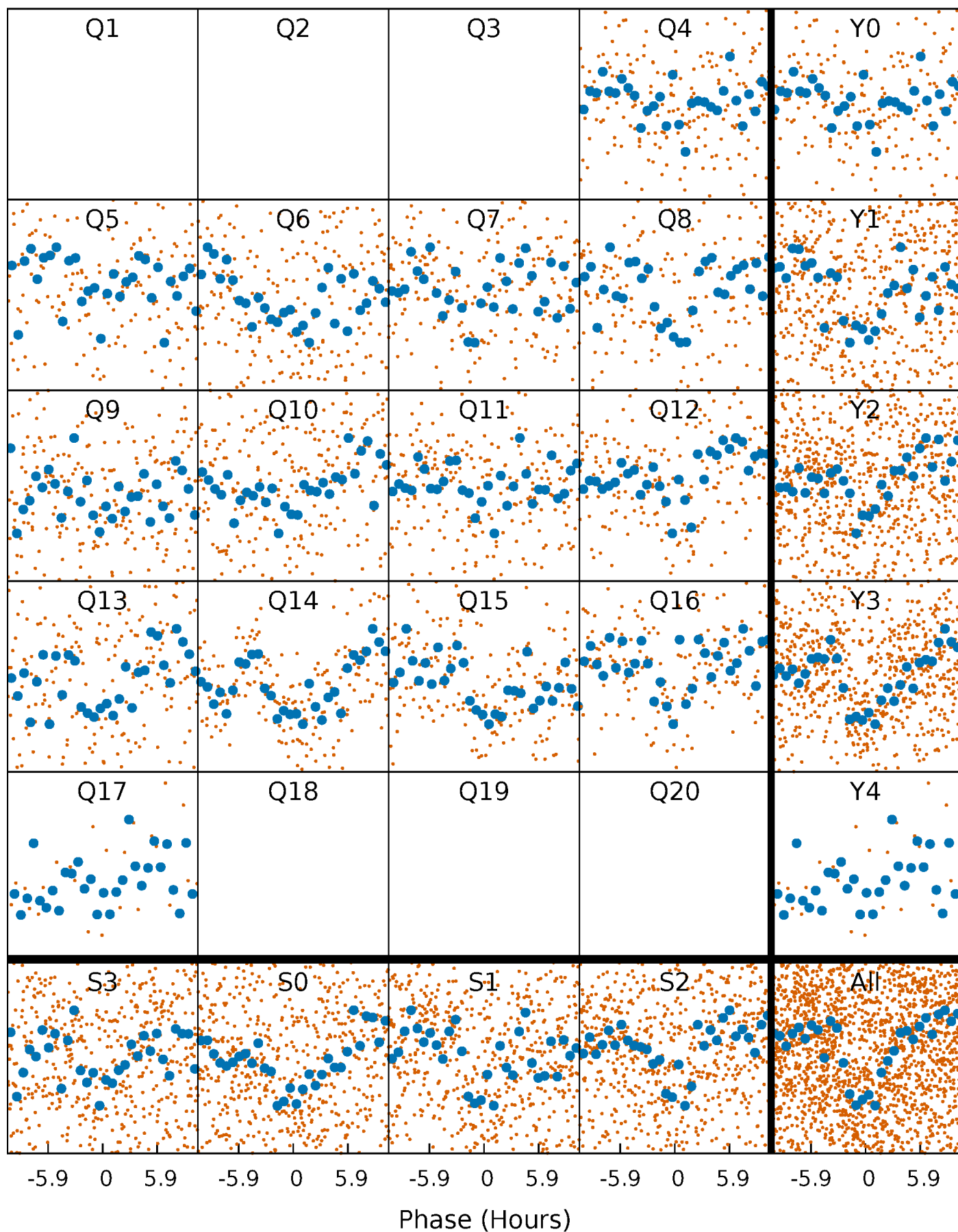


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

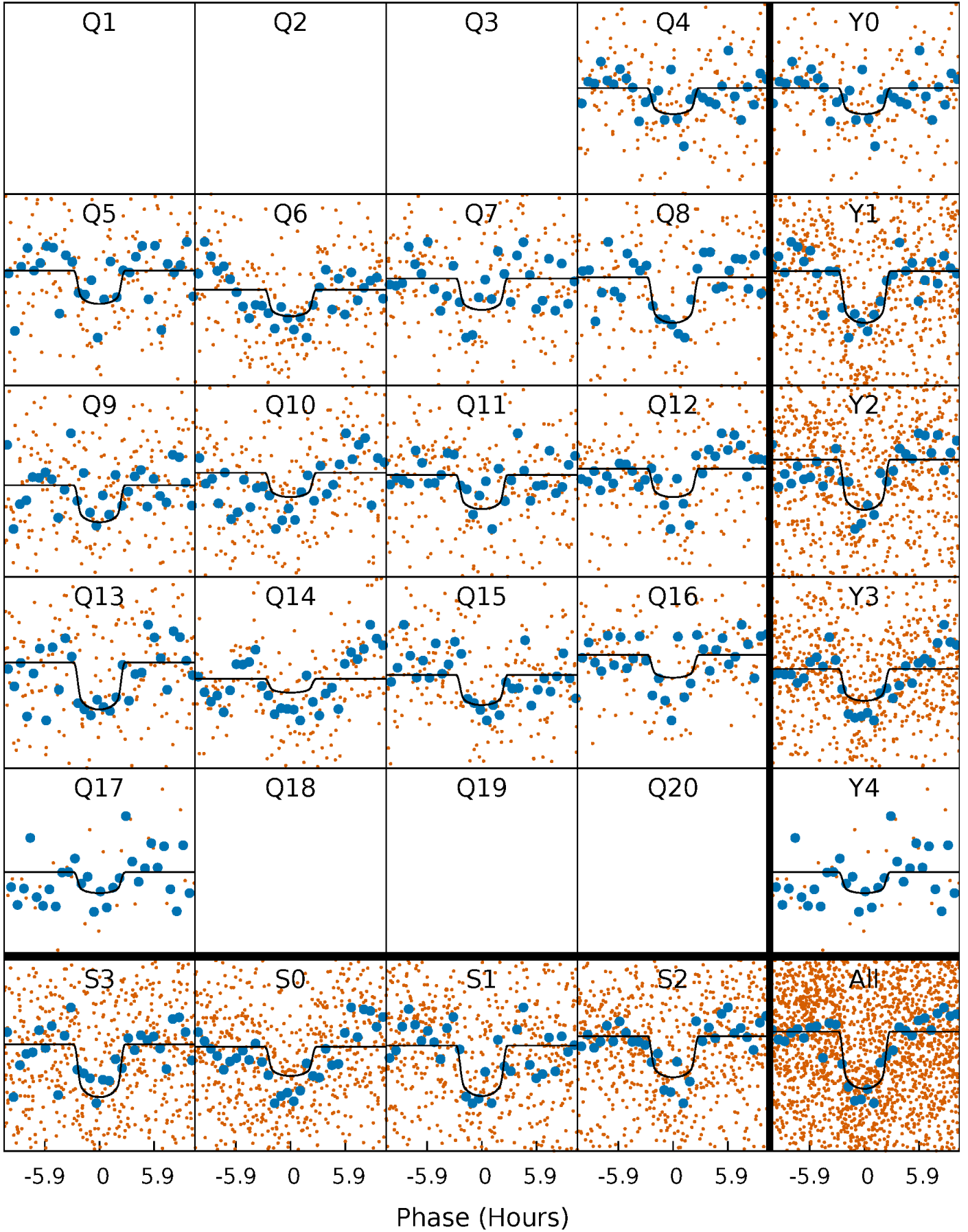
TCE 008374077-01 P= 16.295614 Days  $T_0=133.633306$  (BKJD)





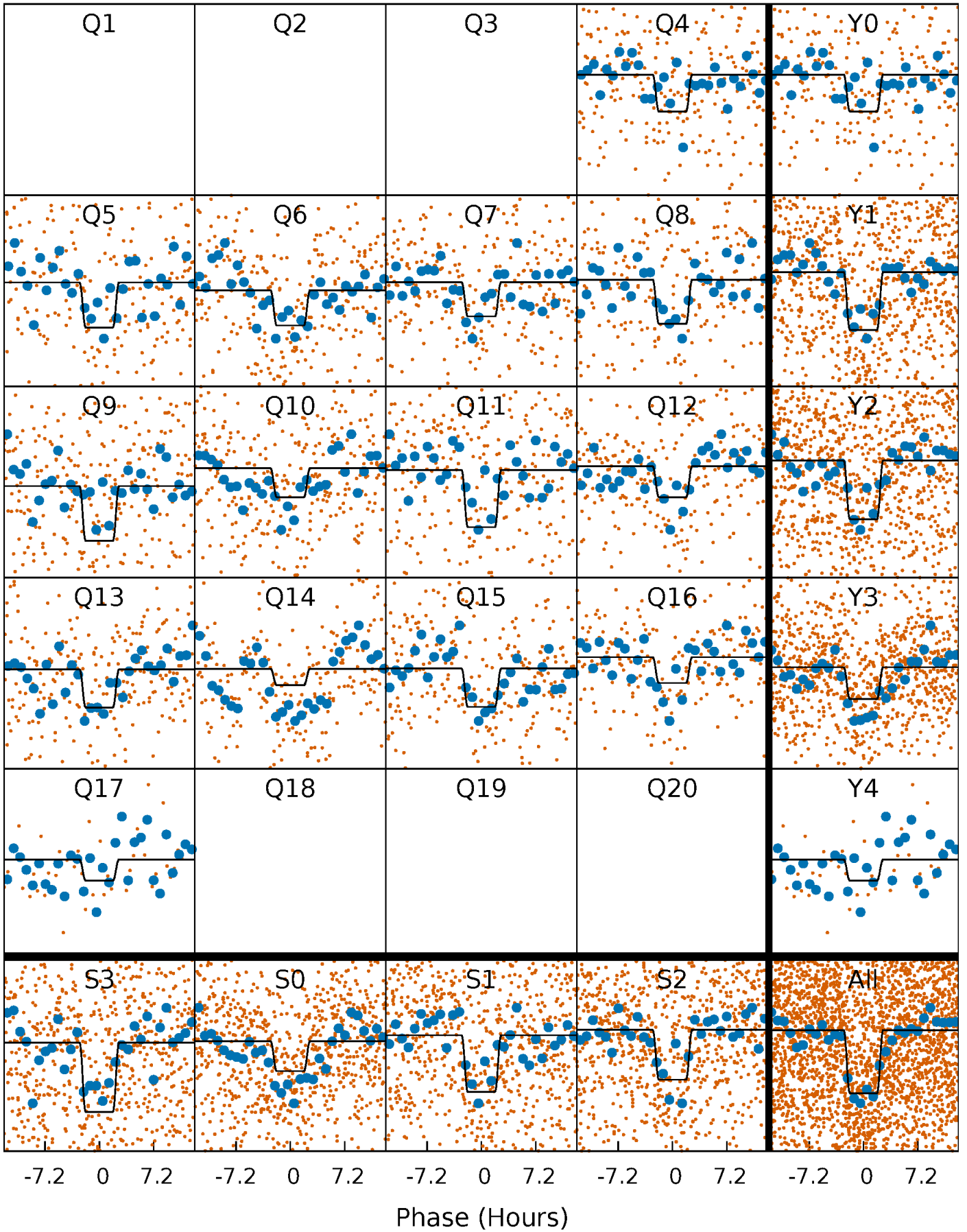
# DV Quarter-Phased Transit Curves

TCE 008374077-01 P= 16.295614 Days  $T_0=133.633306$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

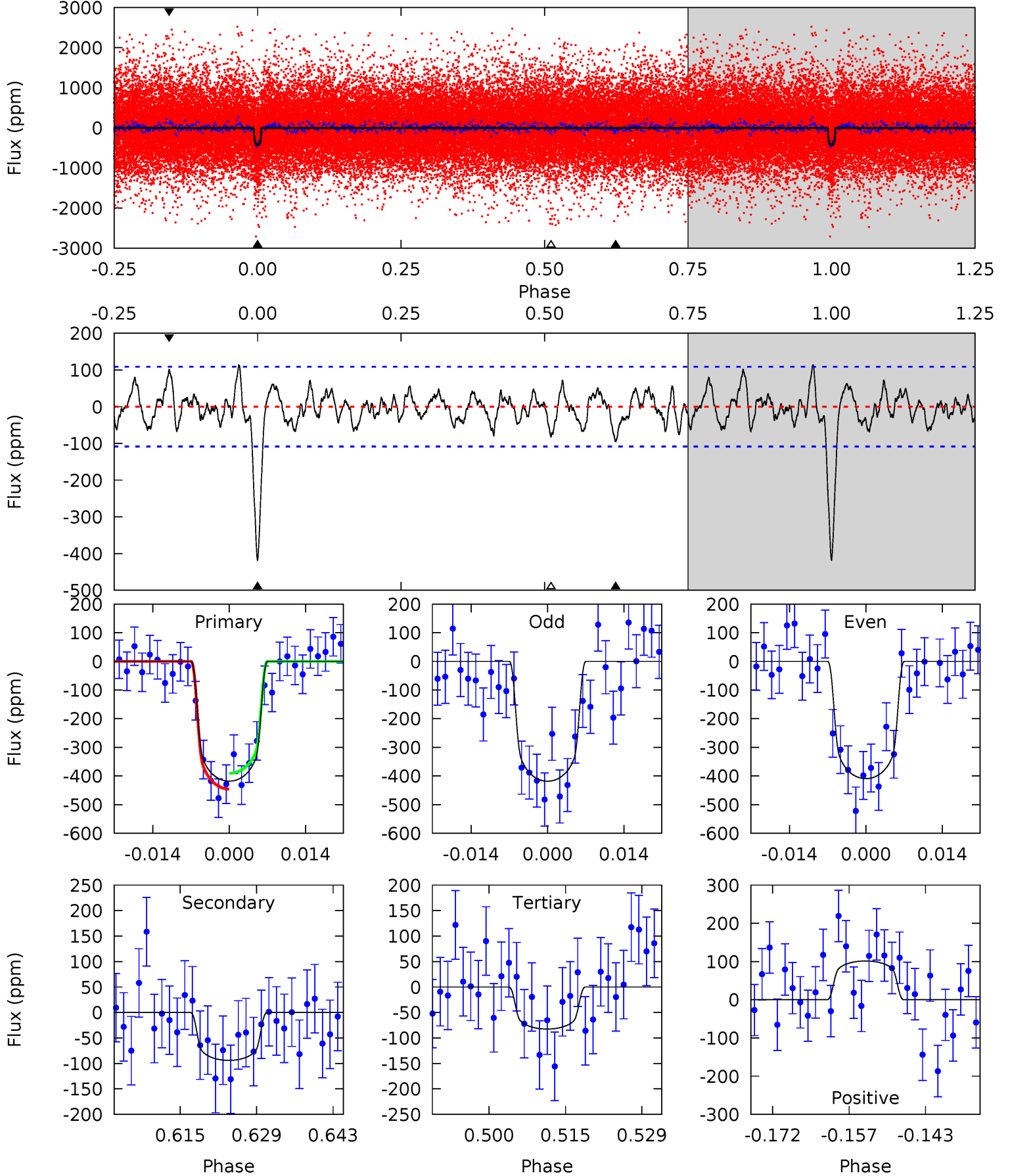
TCE 008374077-01 P= 16.296009 Days  $T_0=133.610547$  (BKJD)



# DV Model-Shift Uniqueness Test

008374077-01, P = 16.295614 Days, E = 133.633306 Days

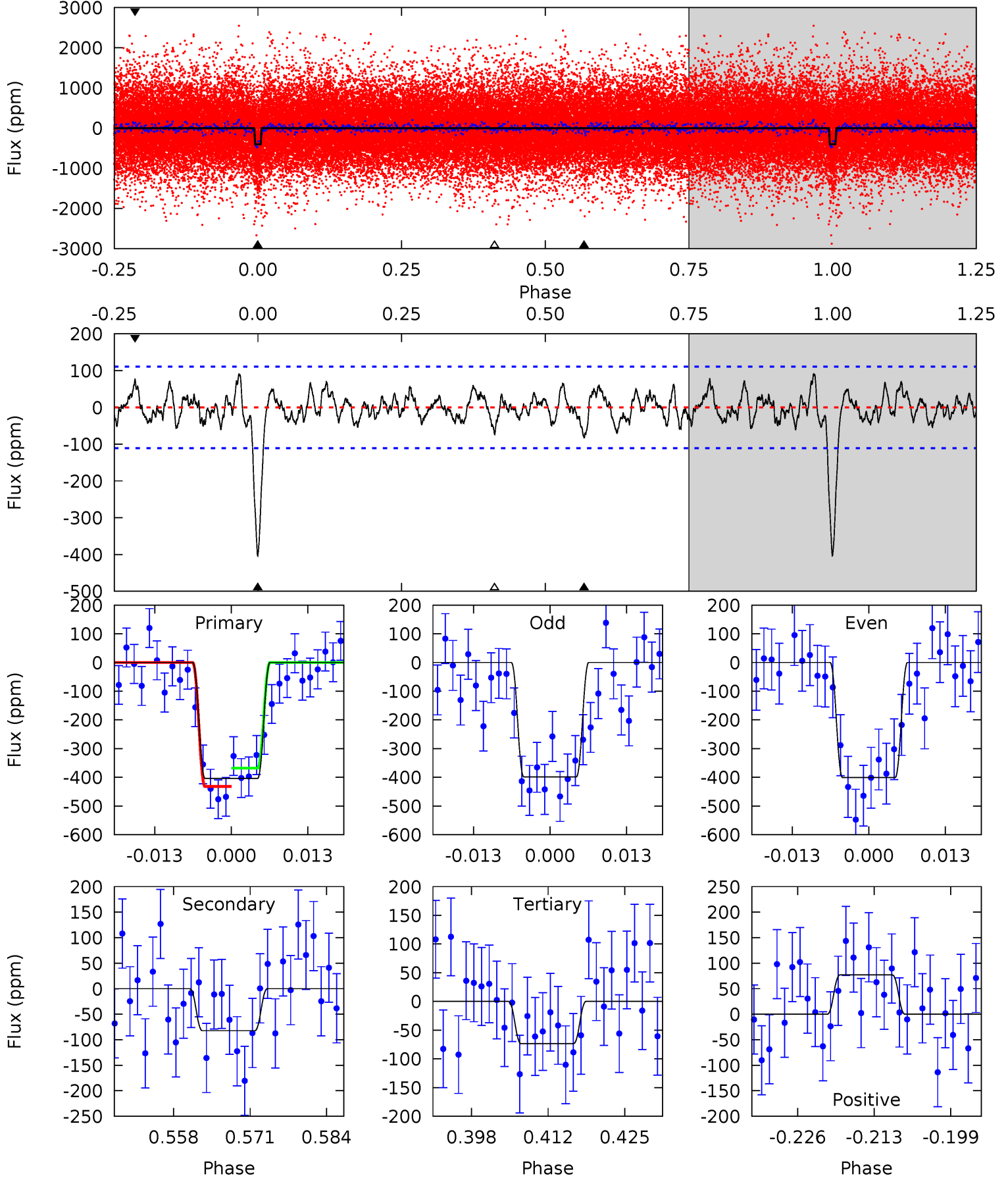
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	4.29	3.76	4.63	4.96	2.45	1.56	15.3	14.4	0.53	-0.34	0.21	1.11	0.21	1.26



# Alt Model-Shift Uniqueness Test

008374077-01, P = 16.296009 Days, E = 133.610547 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	3.69	3.30	3.45	4.97	2.48	1.33	14.8	14.7	0.39	0.24	0.06	1.16	0.18	1.43



### Stellar Parameters For KIC 008374077

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6063^{+190}_{-232}$	$4.476^{+0.054}_{-0.216}$	$0.070^{+0.250}_{-0.350}$	$1.012^{+0.318}_{-0.106}$	$1.117^{+0.140}_{-0.156}$	$1.519^{+0.339}_{-0.846}$
	+3%/-4%	+1%/-5%	+357%/-500%	+31%/-10%	+13%/-14%	+22%/-56%
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 008374077-01 / KOI 6179.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-94 \pm 22$	$2.34^{+0.62}_{-0.64}$	$1060^{+80}_{-58}$	$4407^{+606}_{-434}$	$154^{+156}_{-65}$
Alt.	$-82 \pm 22$	$2.31^{+0.68}_{-0.57}$	$1066^{+84}_{-55}$	$4311^{+543}_{-450}$	$138^{+124}_{-62}$

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



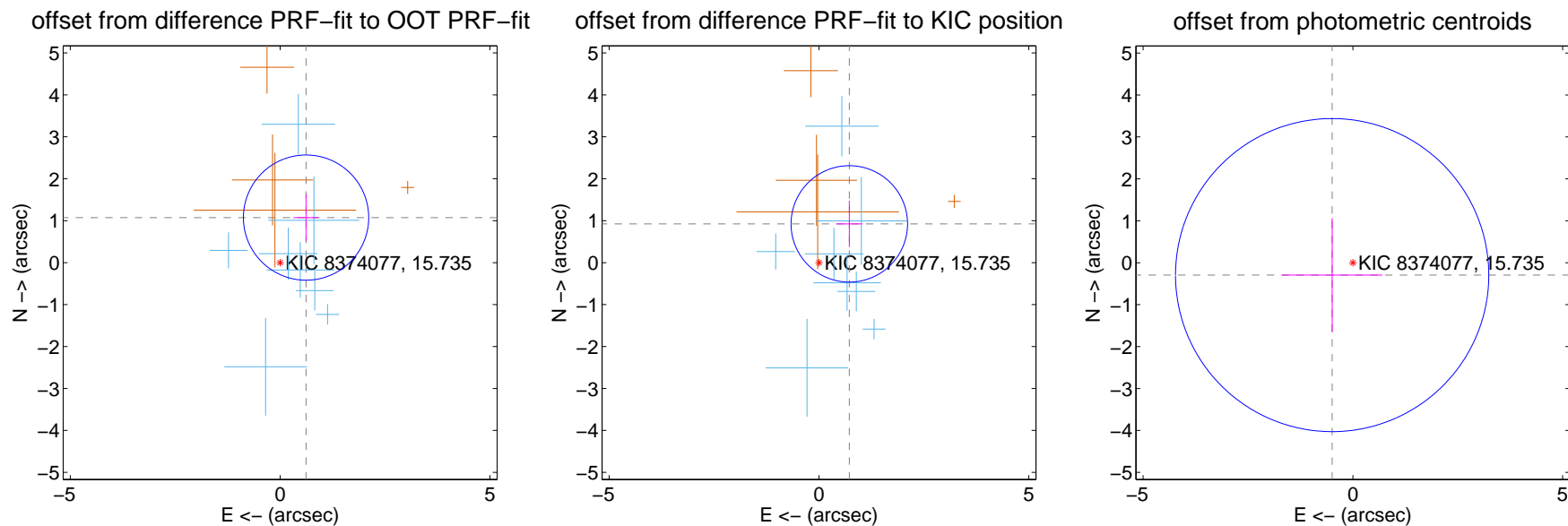
## DV Centroid Data

Supplemental centroid analysis for 008374077-01. Kepler magnitude: 15.73. Transit SNR 12.05

There are 8 quarters with good PRF difference image offsets

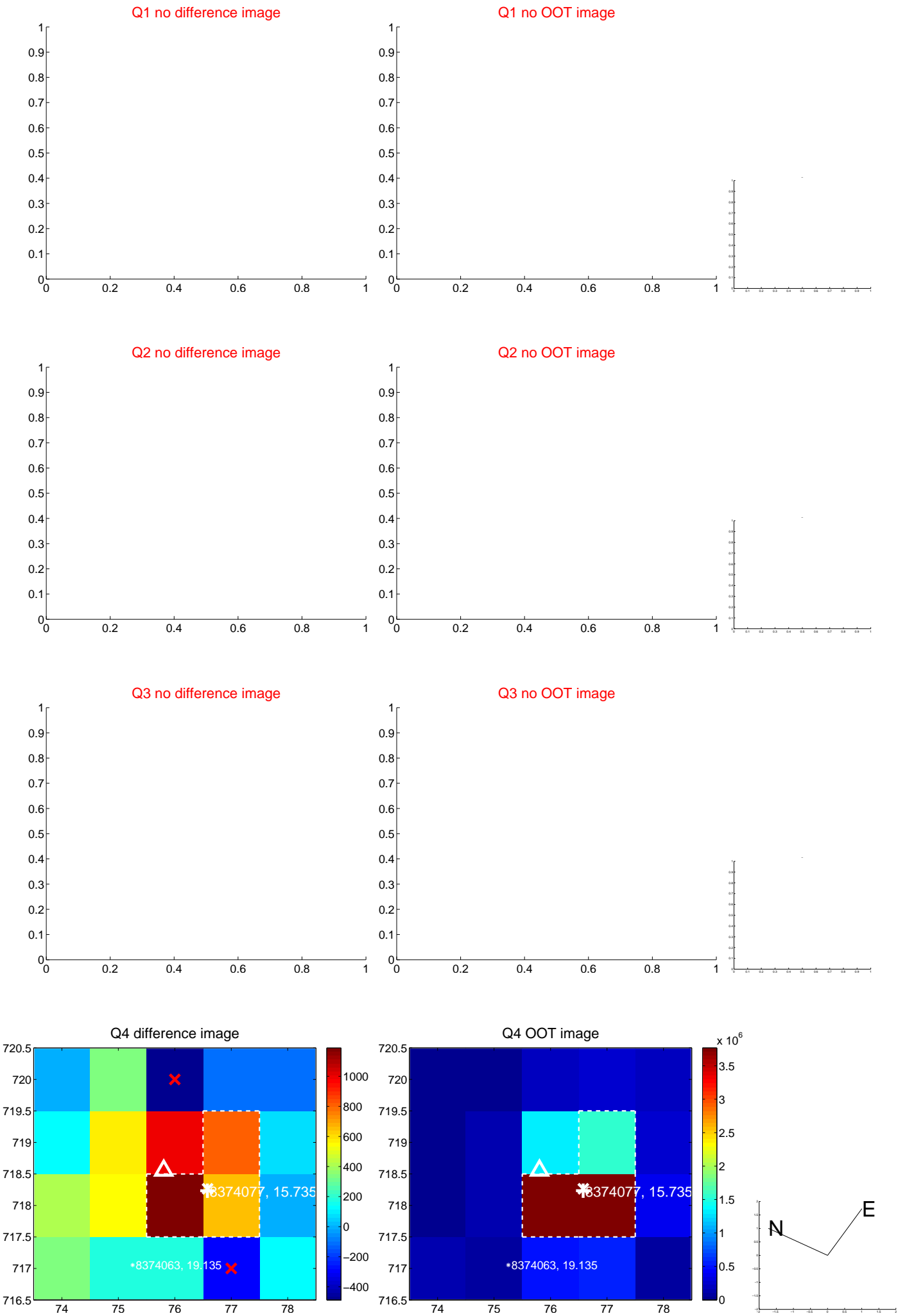
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.239 \pm 0.498$	2.49	$-0.618 \pm 0.299$	$1.074 \pm 0.554$
PRF-fit source offset from KIC position	$1.173 \pm 0.463$	2.53	$-0.722 \pm 0.312$	$0.924 \pm 0.553$
photometric centroid source offset	$0.58 \pm 1.24$	0.46	$0.49 \pm 1.20$	$-0.30 \pm 1.36$

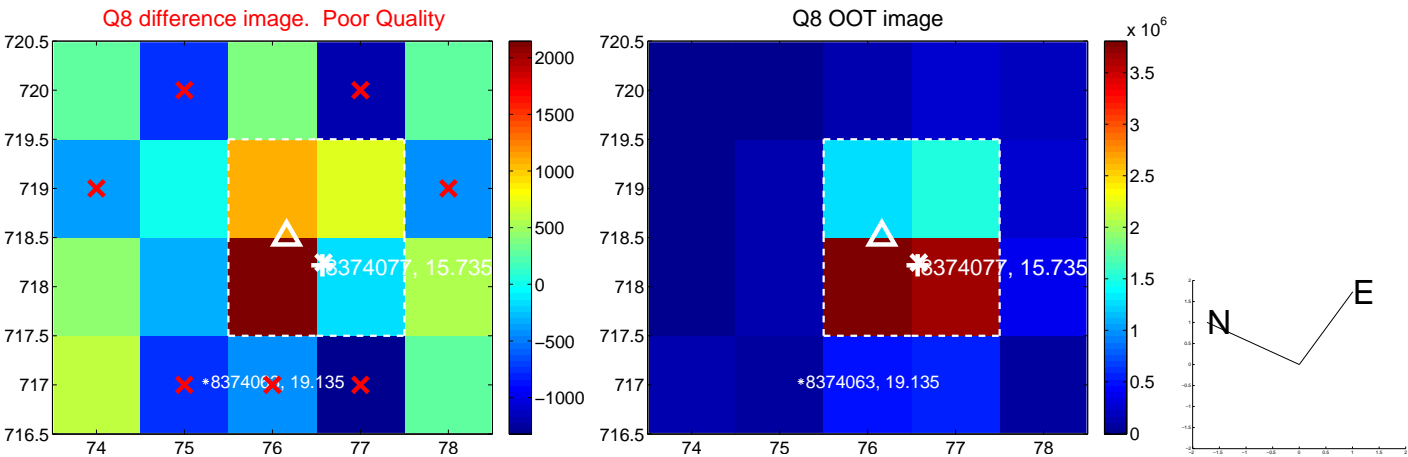
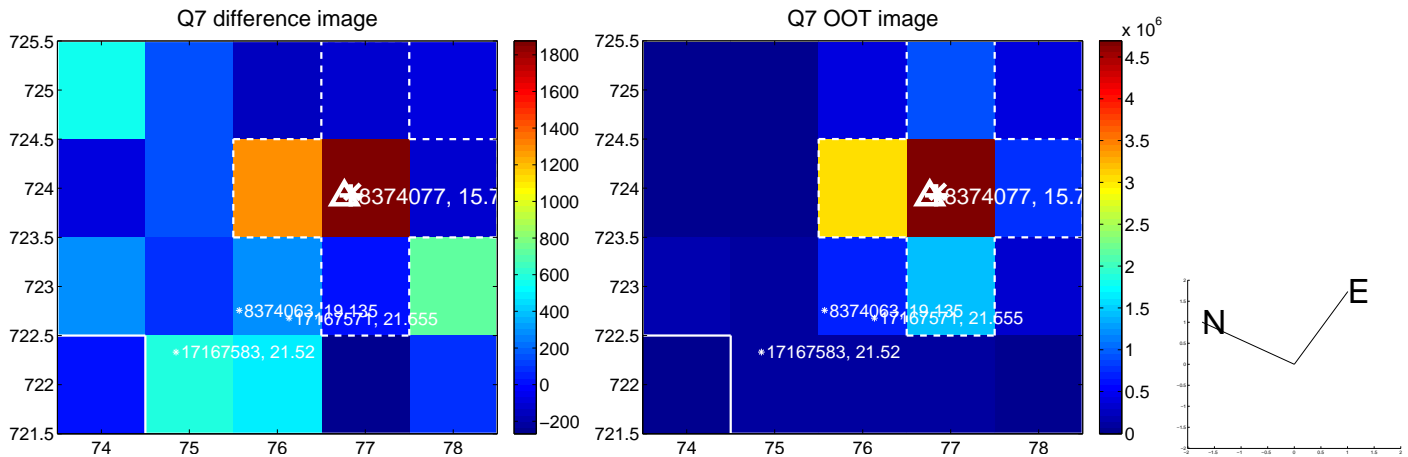
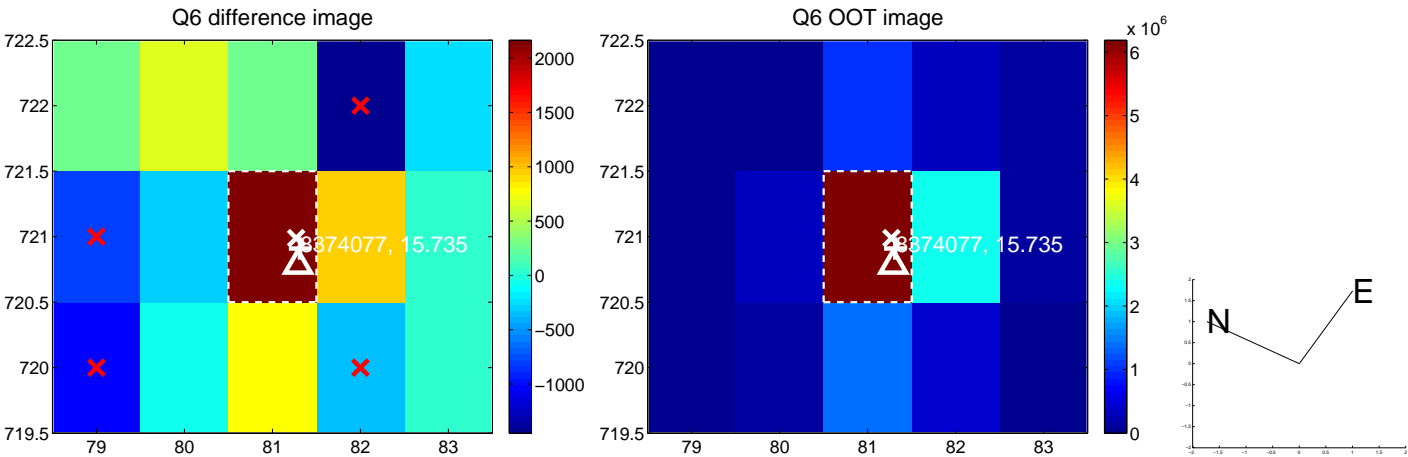
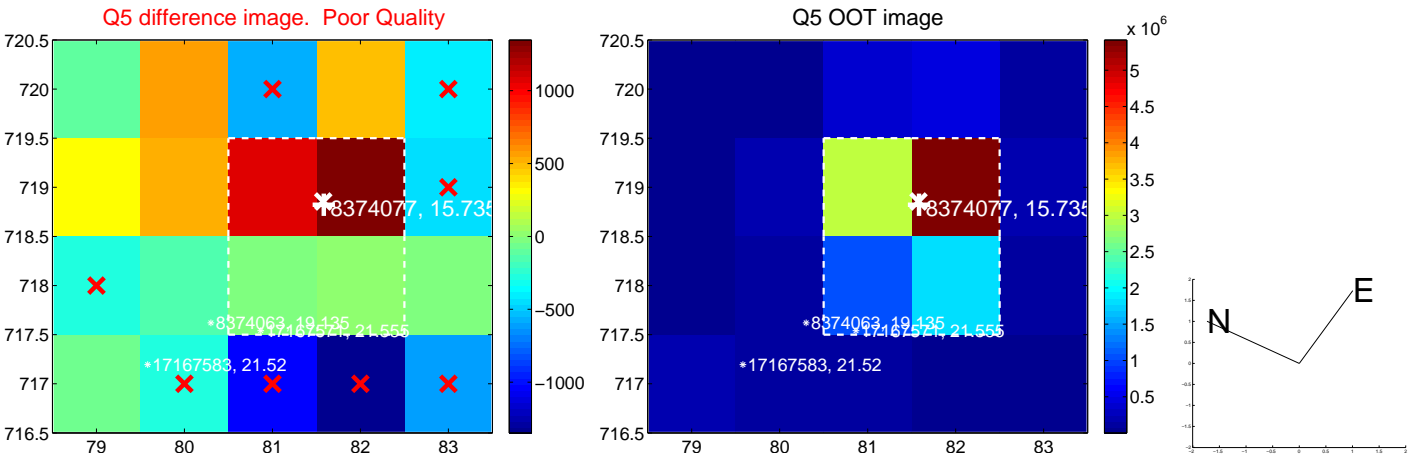


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

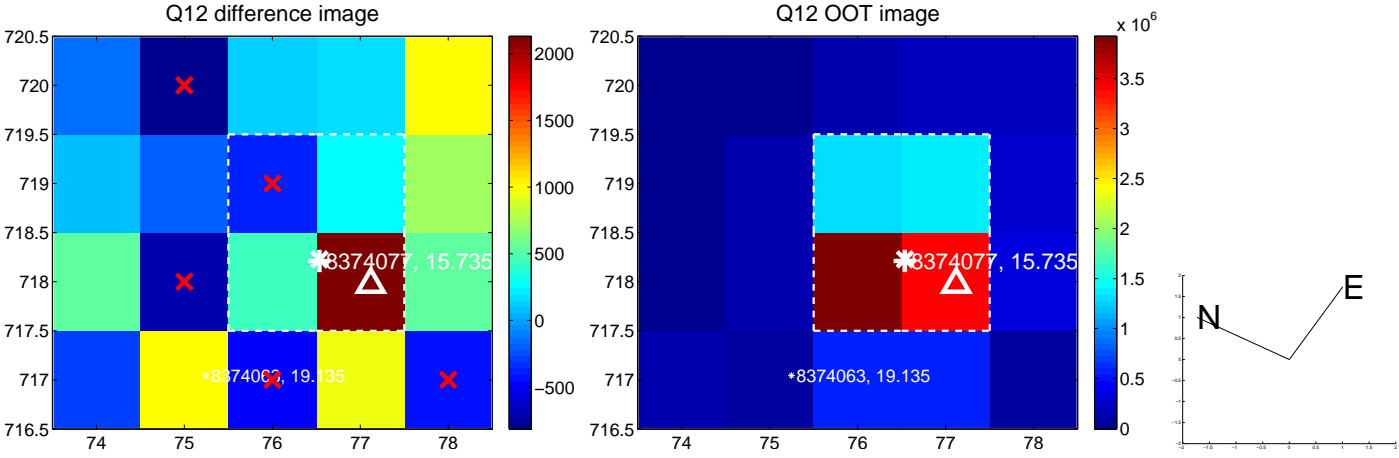
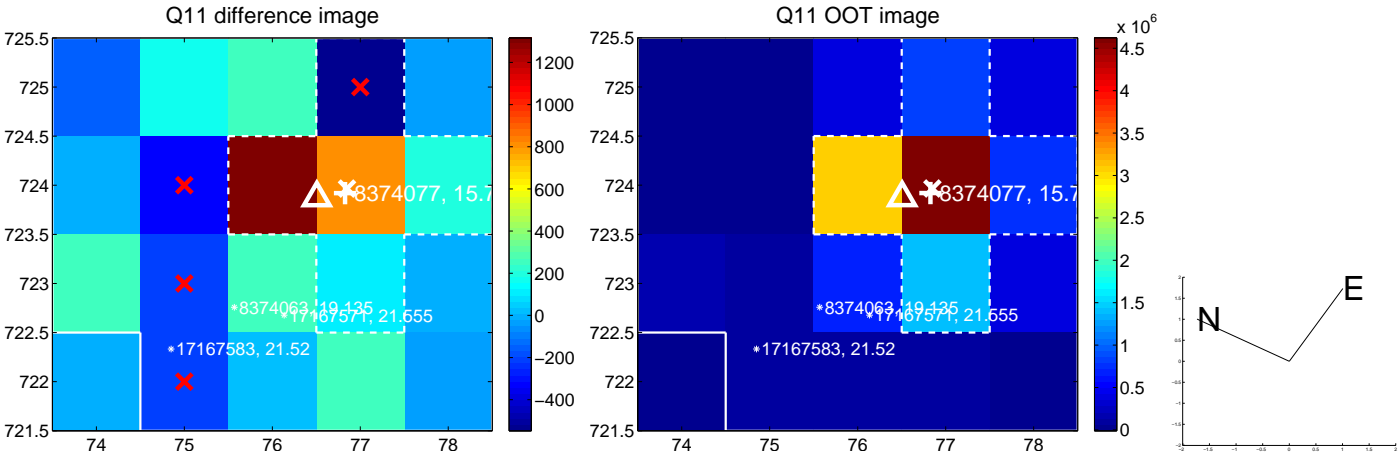
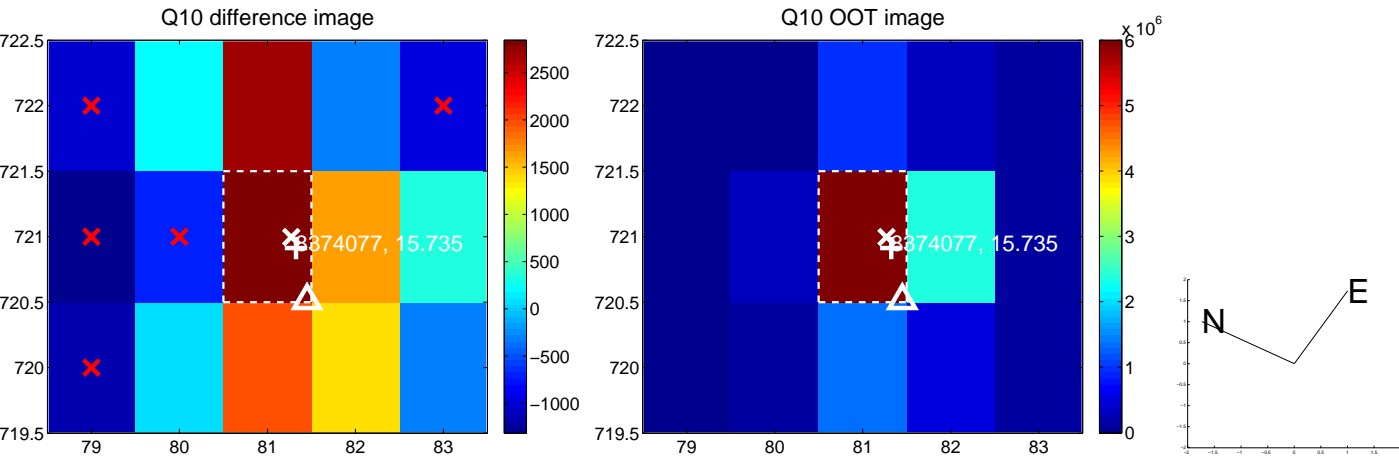
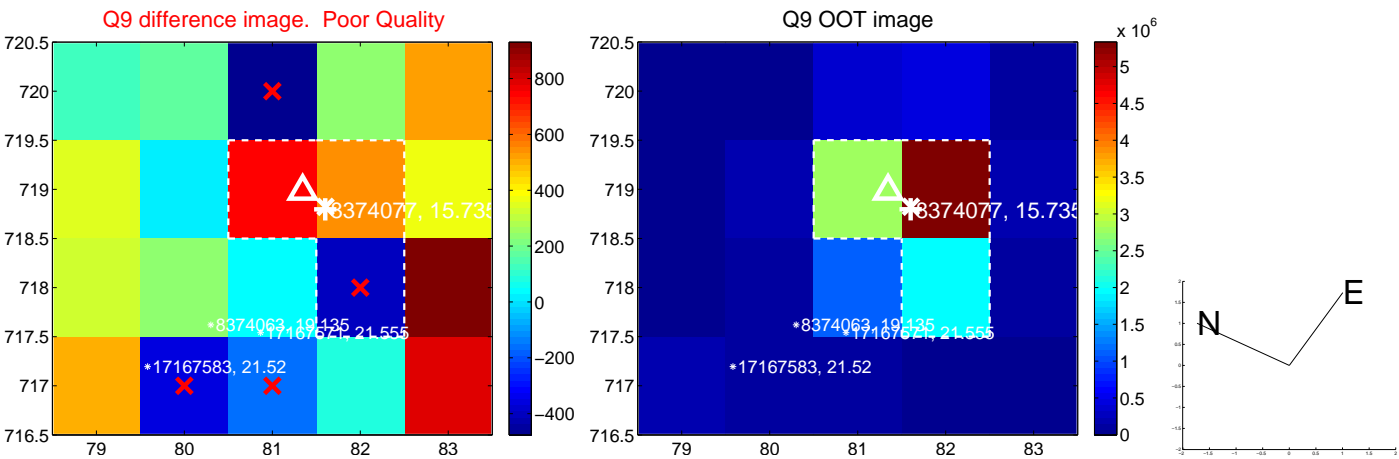
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



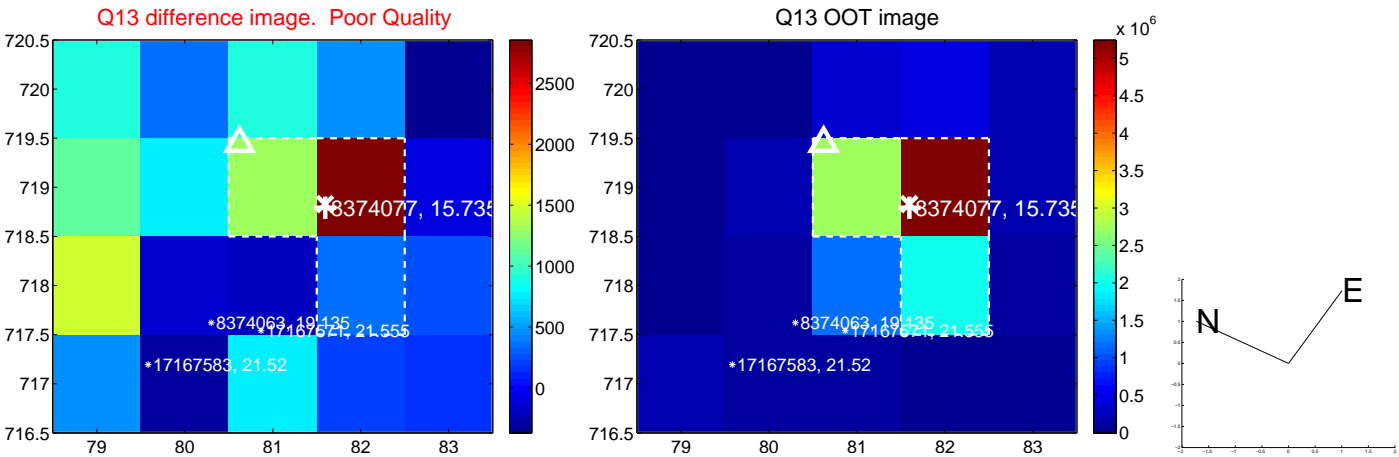
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

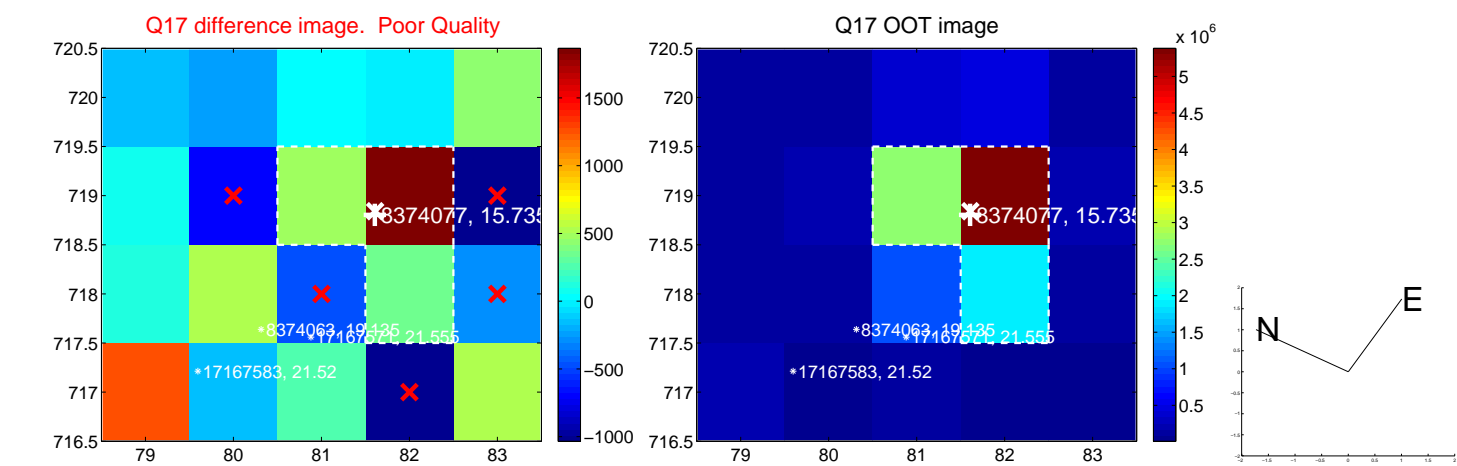


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

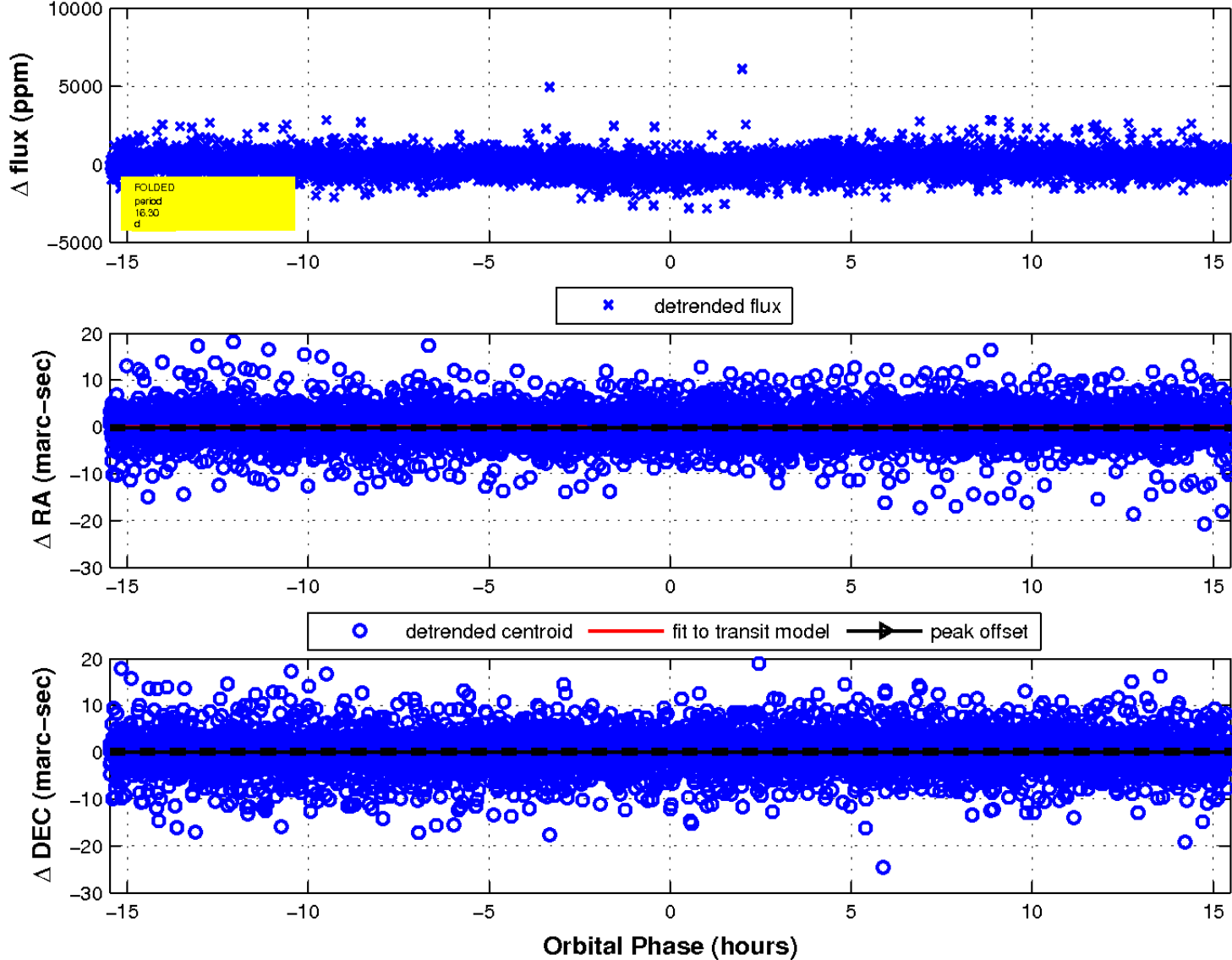




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

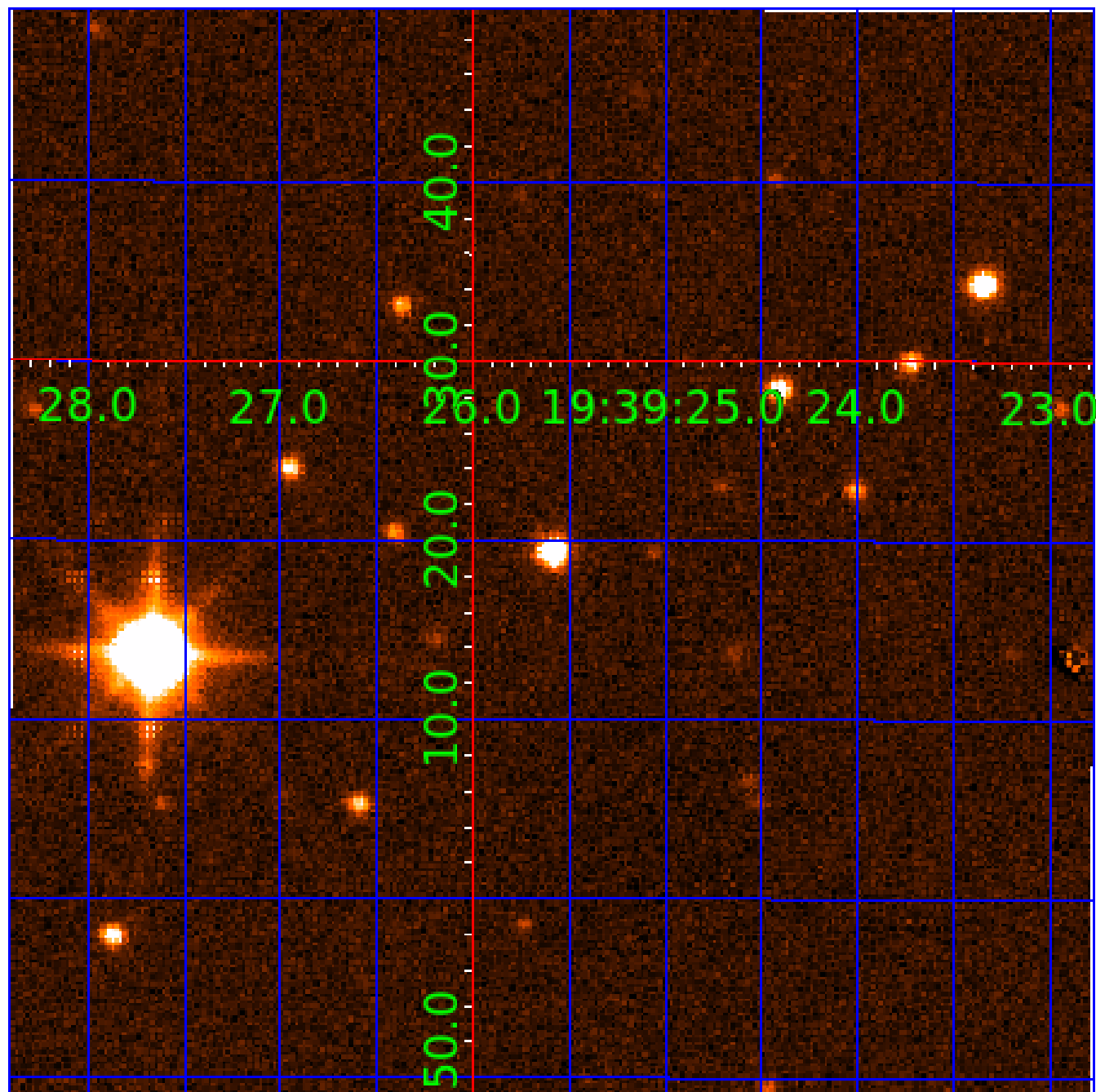


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



# KIC 008374077

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008374077-01	OBS	6179.01	16.295614	133.633306	349.8	5.161	11.0	12.0	1.01	6063	2.19	72.72
008374077-02	OBS	No	385.267386	184.634710	2225.1	10.063	8.6	8.6	1.01	6063	8.43	1.07
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008374077-01	OBS	PC	0.98	0	0	0	0	NO_COMMENT
008374077-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008374077-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

**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 008374077-02

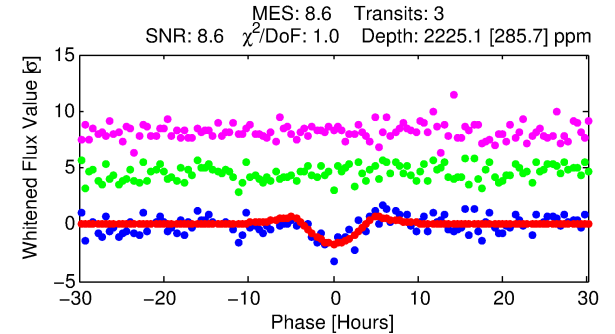
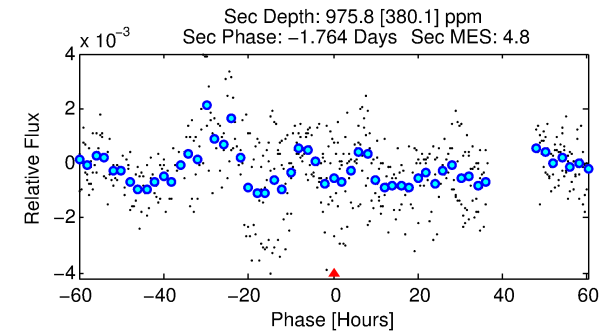
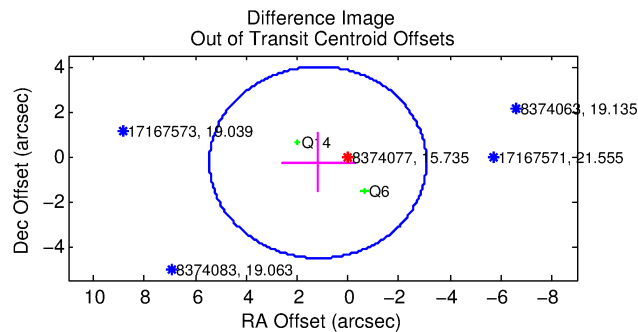
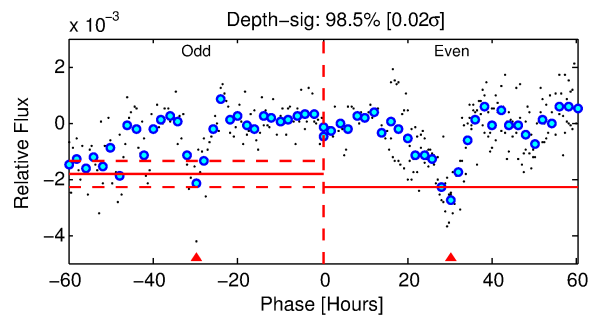
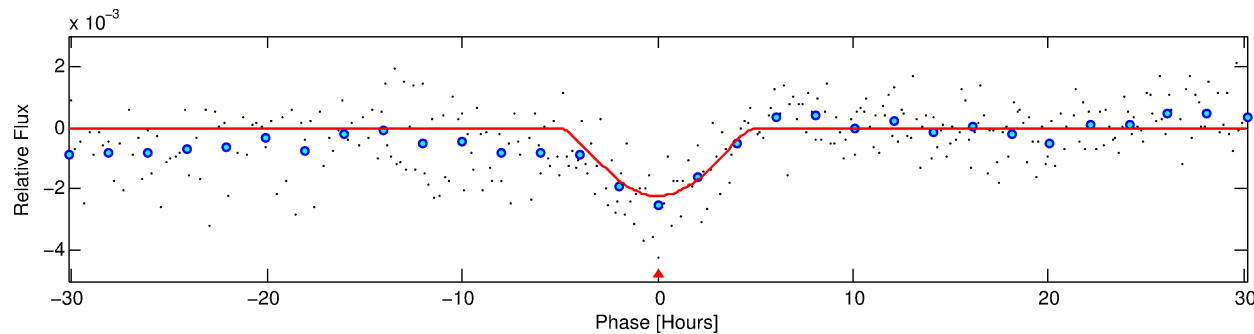
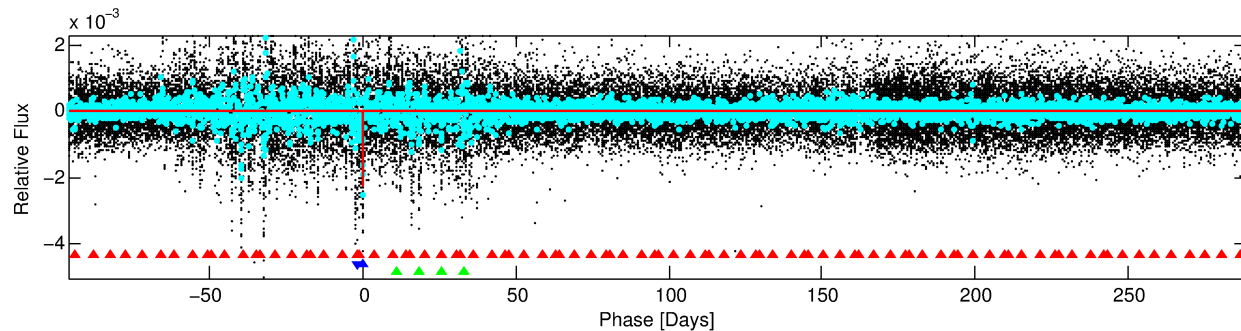
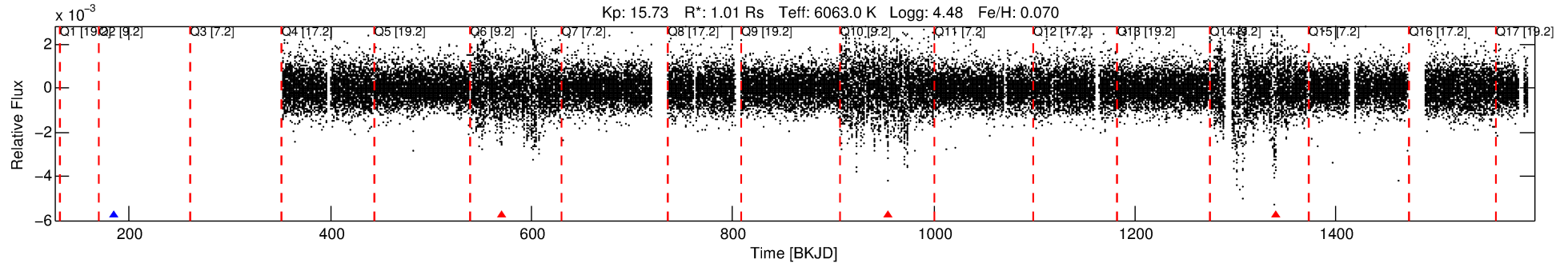
No Significant Match Found

# DV One-Page Summary

KIC: 8374077 Candidate: 2 of 3 Period: 385.267 d

KOI: K06179 Corr: No Ephemeris Match

Kp: 15.73 R\*: 1.01 Rs Teff: 6063.0 K Logg: 4.48 Fe/H: 0.070



## DV Fit Results:

Period = 385.26739 [0.01277] d  
Epoch = 184.6347 [0.0271] BKJD  
Rp/R\* = 0.0764 [0.1835]  
a/R\* = 121.72 [69.50]  
b = 0.99 [0.28]  
Seff = 1.07 [0.45]  
Teq = 259 [27] K  
Rp = 8.43 [20.44] Re  
a = 1.0756 [0.2874] AU  
Ag = 8730.24 [42236.57] [0.21σ]  
Teffp = 3877 [4677] K [0.77σ]

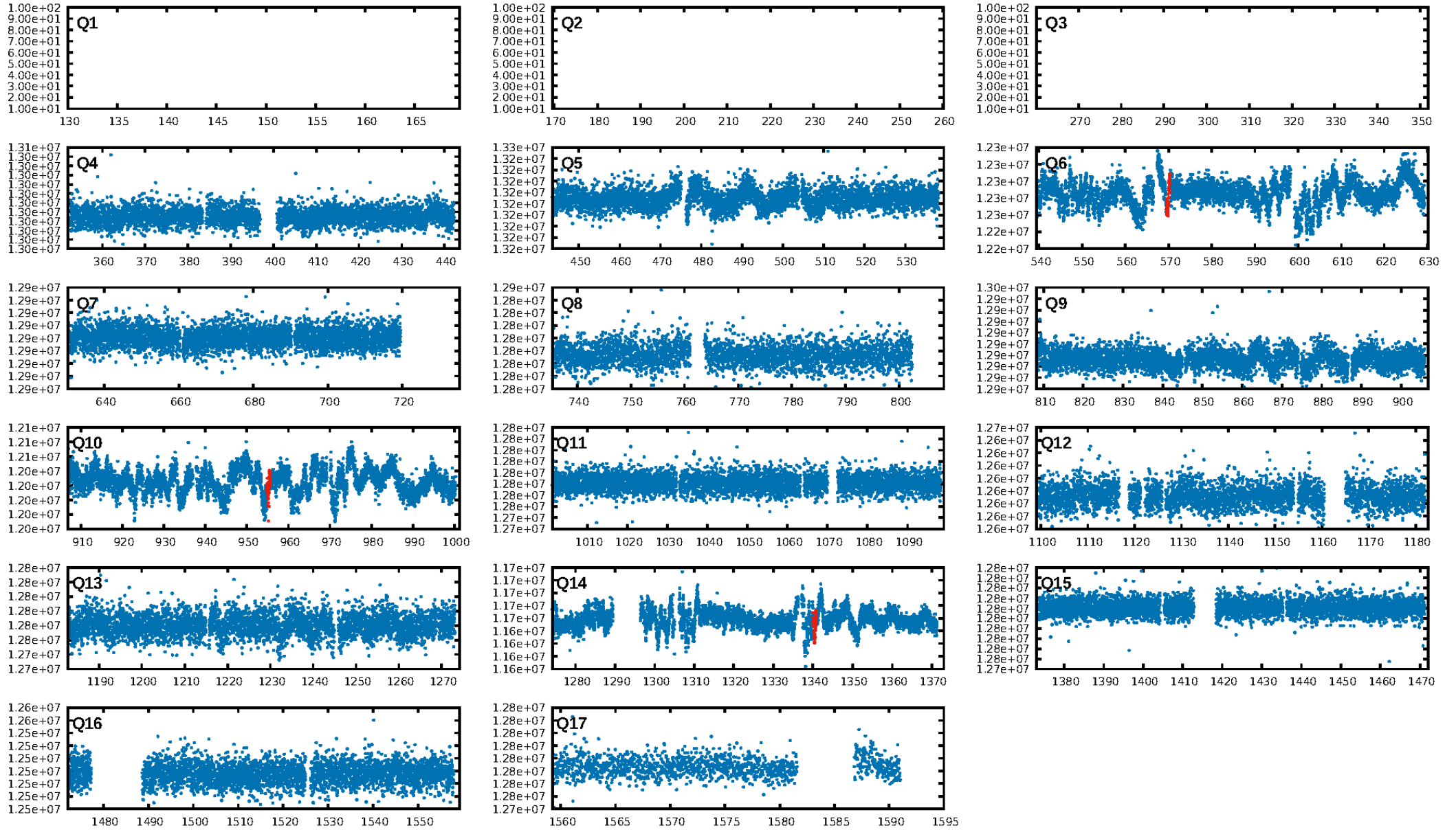
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.89σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 27.9%  
ModelChiSquareGof-sig: 99.6%  
**Bootstrap-pfa: 1.52e-10**  
**RollingBand-fgt: 0.00 [0/3]**  
**GhostDiagnostic-chr: 0.7938**  
Centroid-sig: 14.2%  
Centroid-so: 1.812 arcsec [1.24σ]  
OotOffset-rm: 1.207 arcsec [0.85σ]  
OotOffset-st: 2/0/0/0 [2]  
KicOffset-rm: 1.156 arcsec [0.82σ]  
KicOffset-st: 2/0/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:46:25 Z

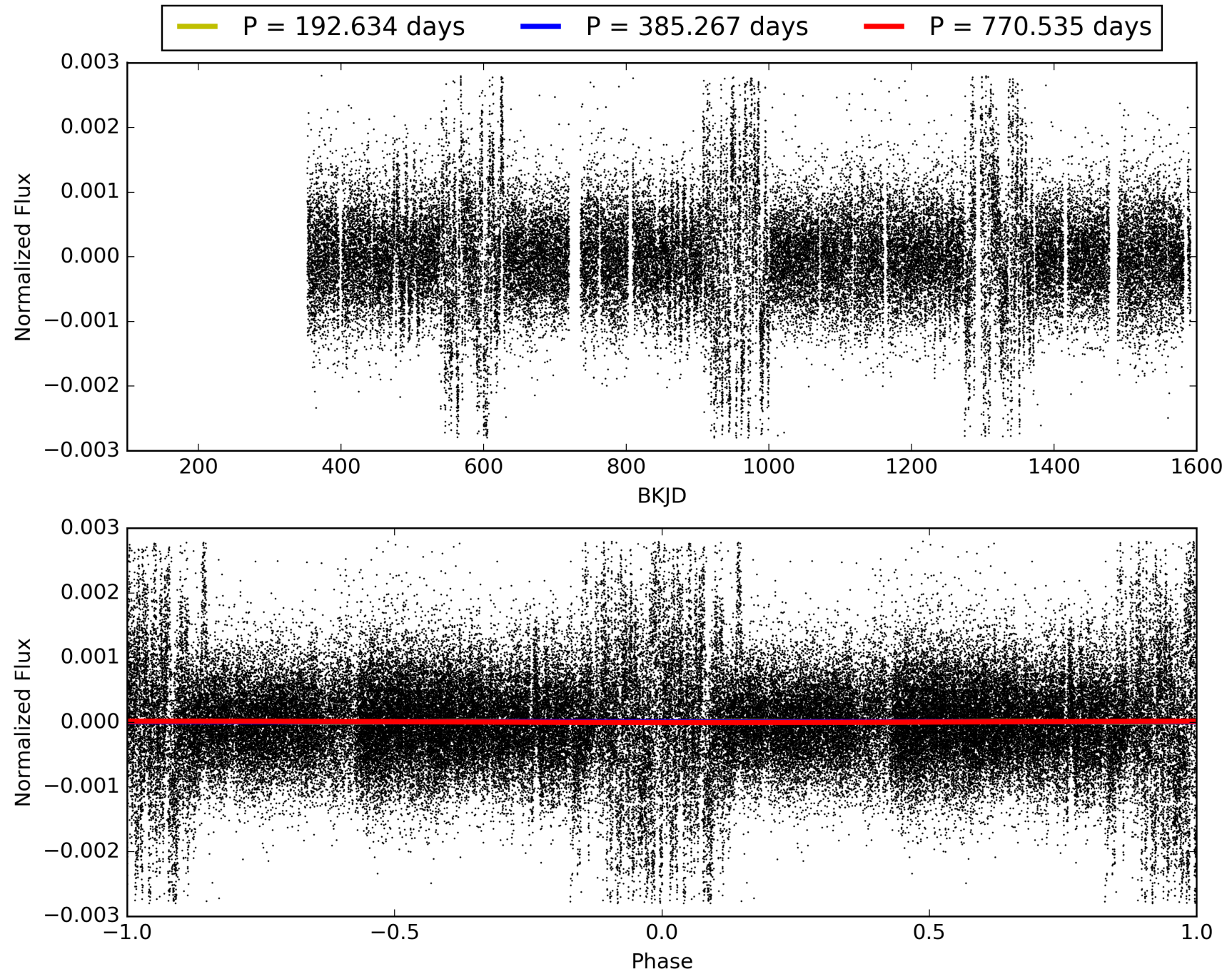
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008374077-02, PDC Light Curves



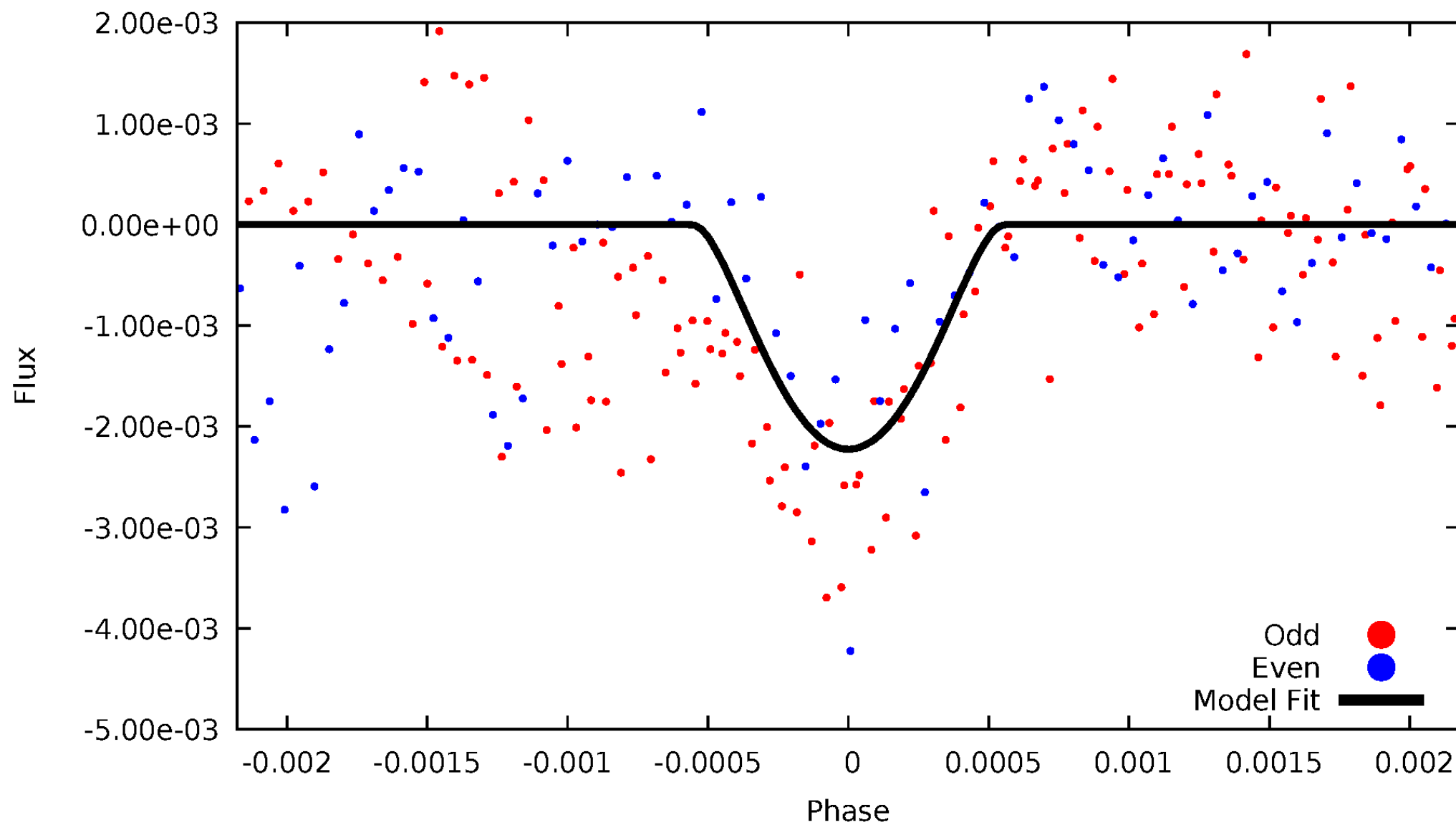


TCE 008374077-02



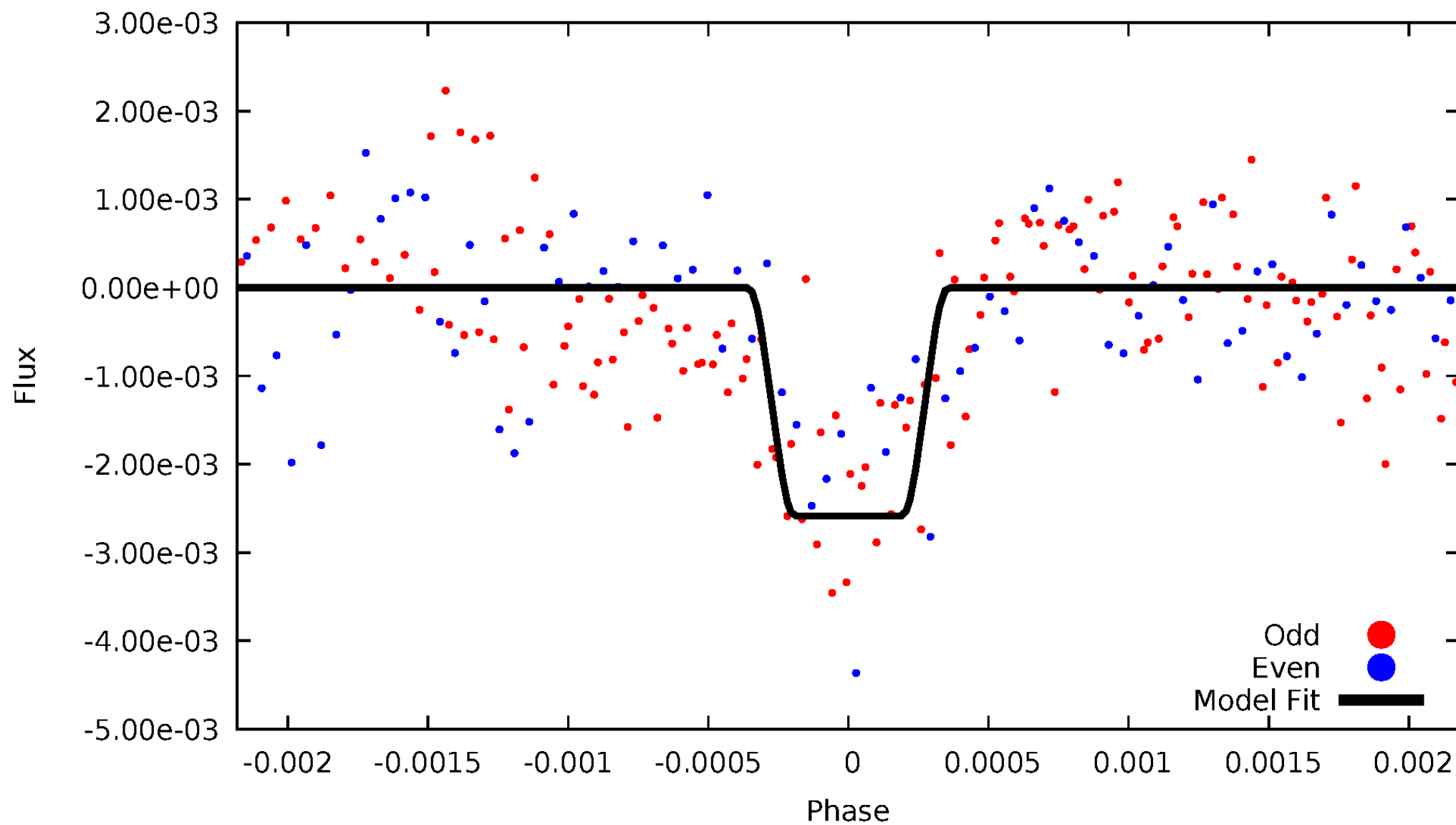
# DV Odd/Even

TCE 008374077-02



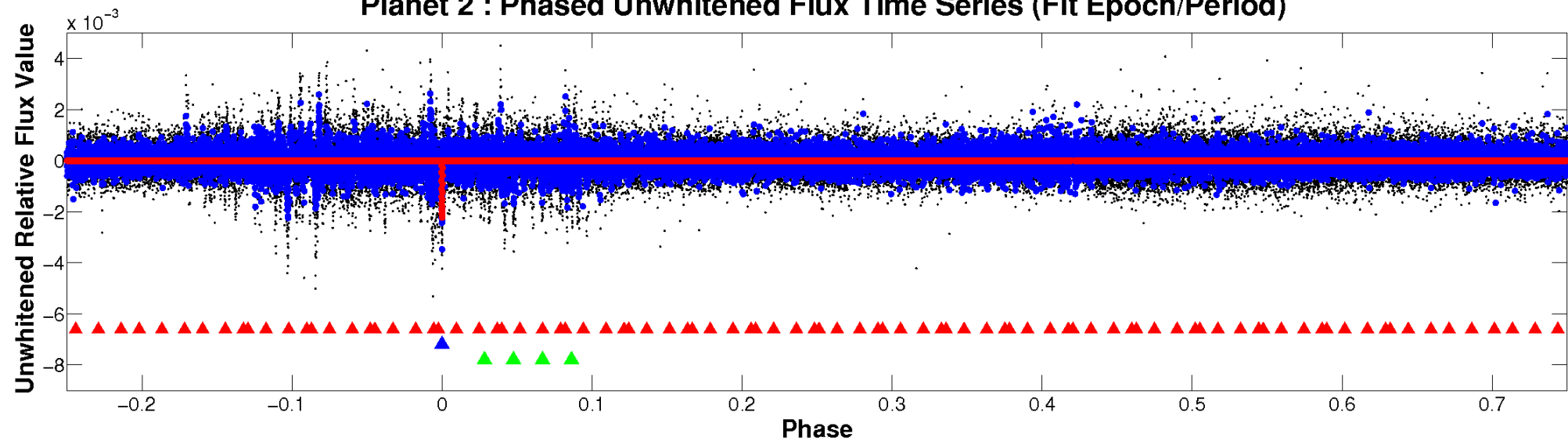
# ALT Odd/Even

TCE 008374077-02

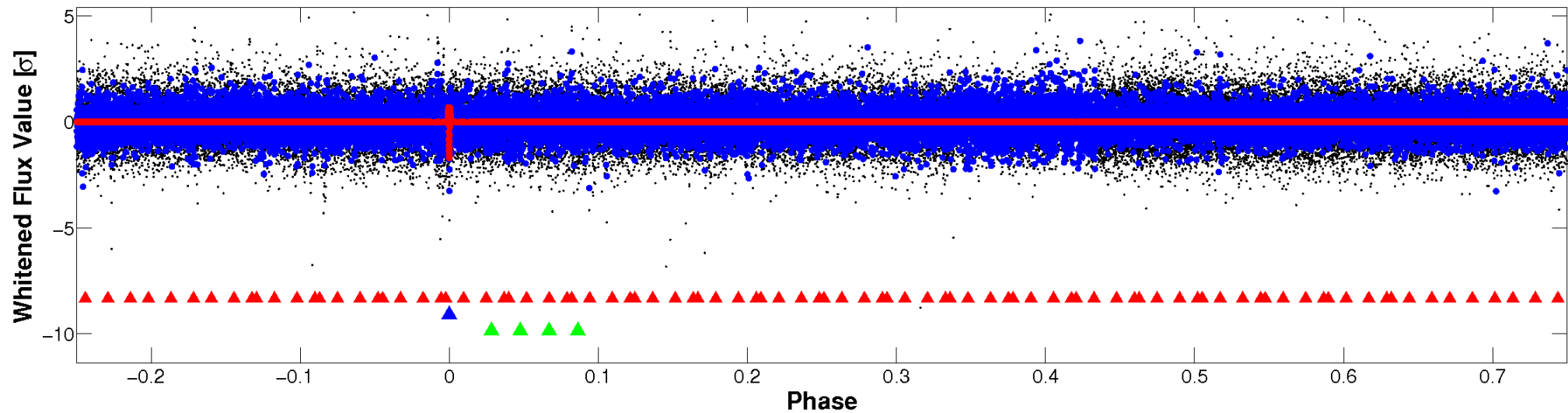


# Non-Whitened Vs. Whitened Light Curve

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

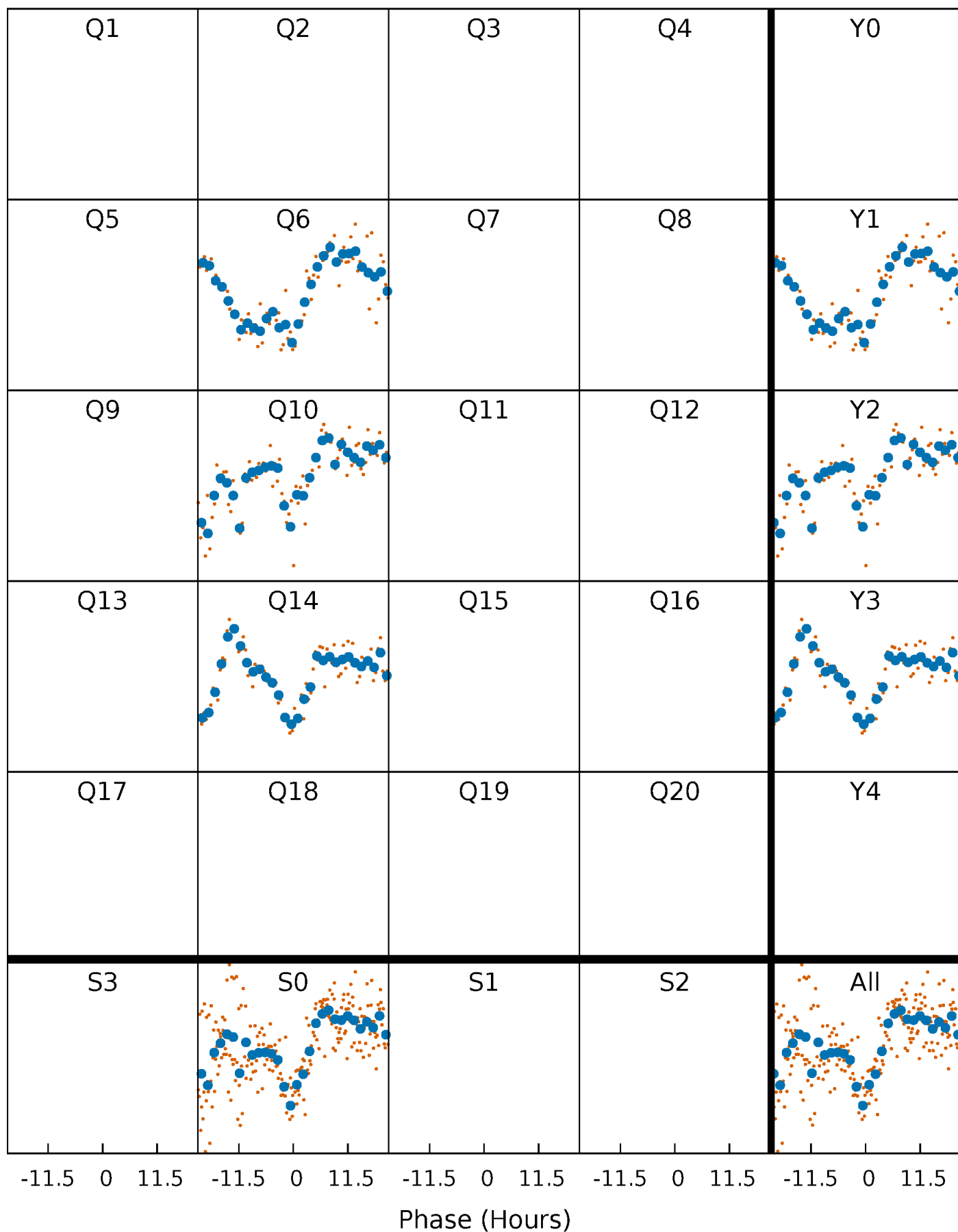


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



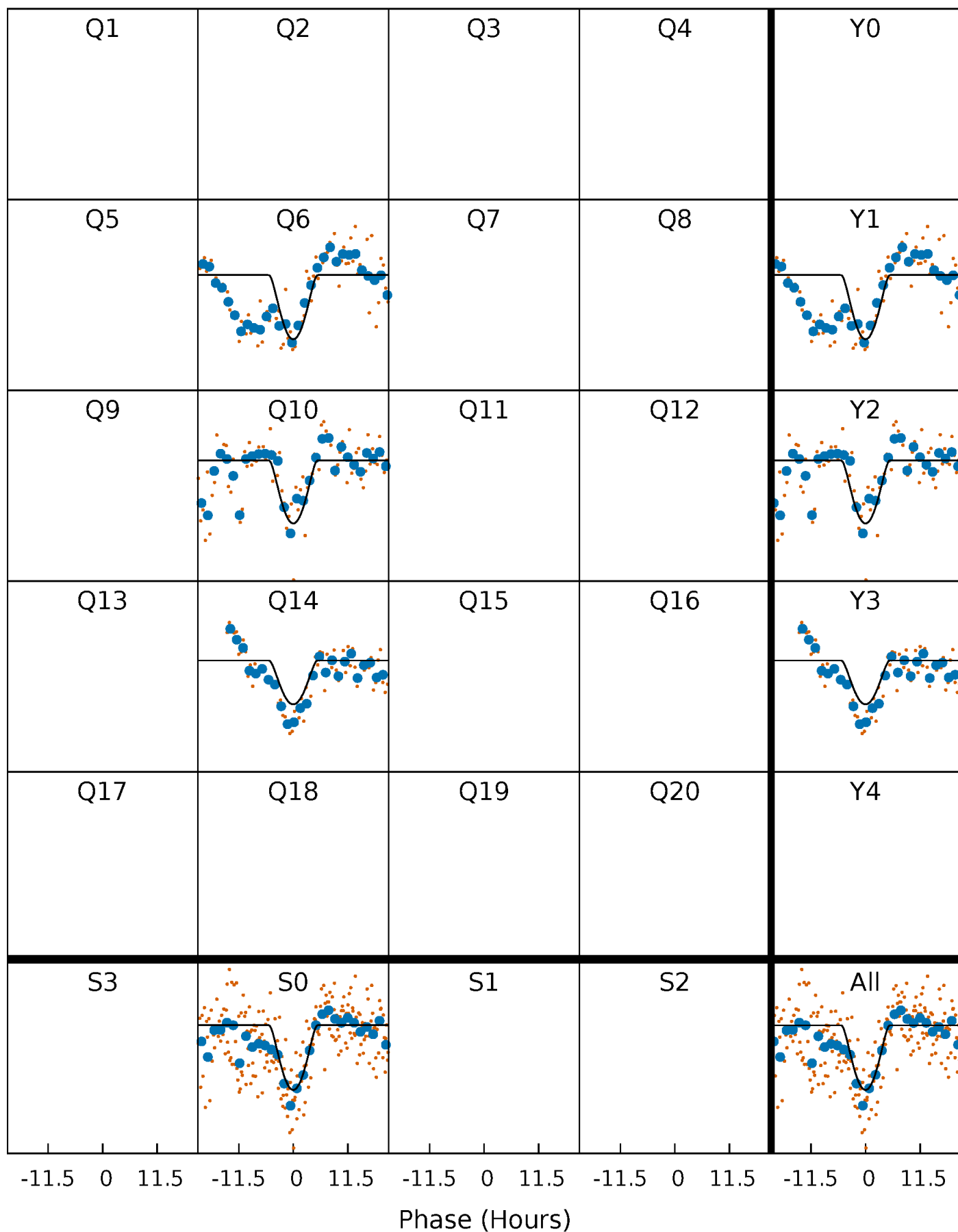
# PDC Quarter-Phased Transit Curves

TCE 008374077-02     $P=385.267386$  Days     $T_0=184.634710$  (BKJD)



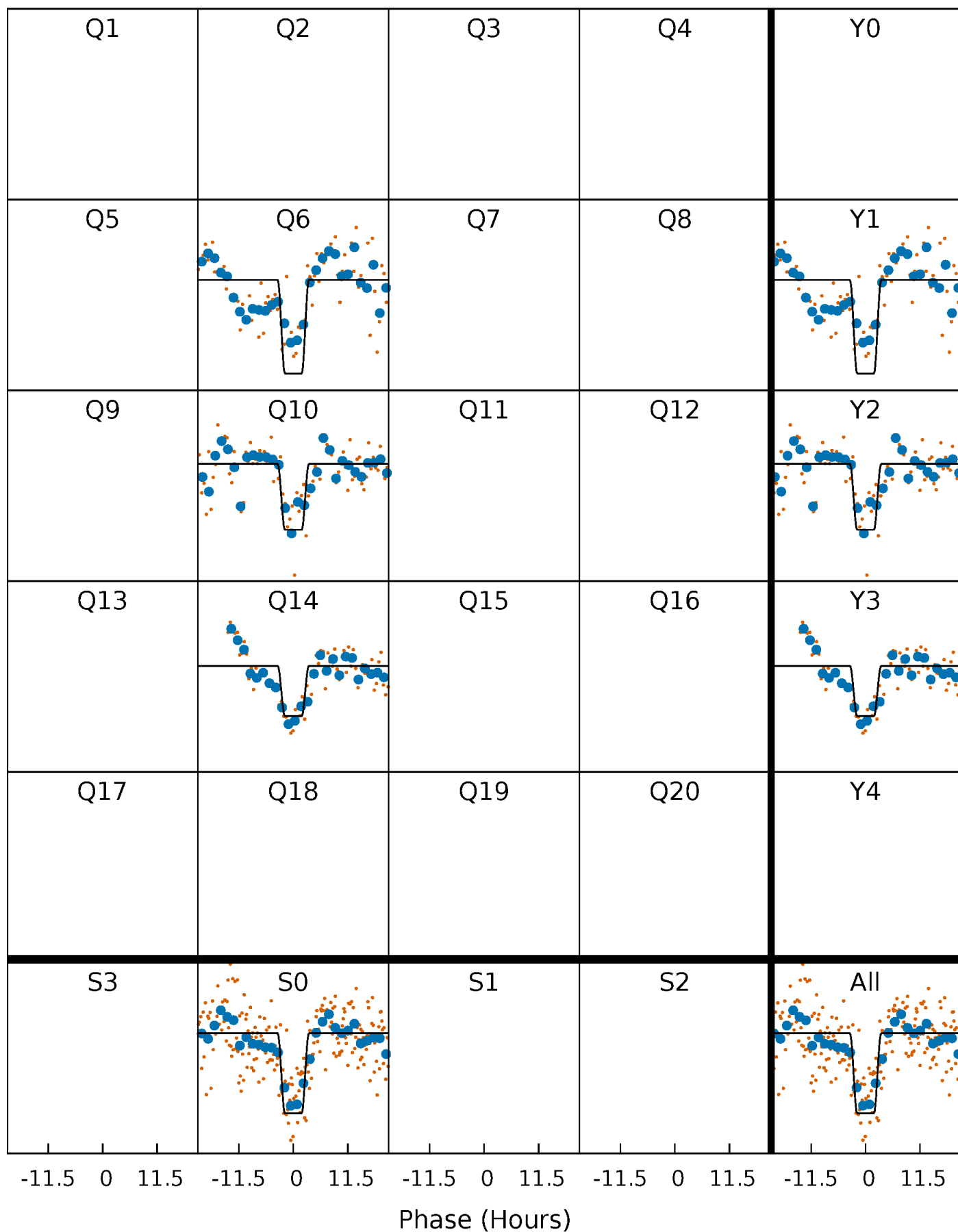
# DV Quarter-Phased Transit Curves

TCE 008374077-02     $P=385.267386$  Days     $T_0=184.634710$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008374077-02     $P=385.267963$  Days     $T_0=184.625648$  (BKJD)

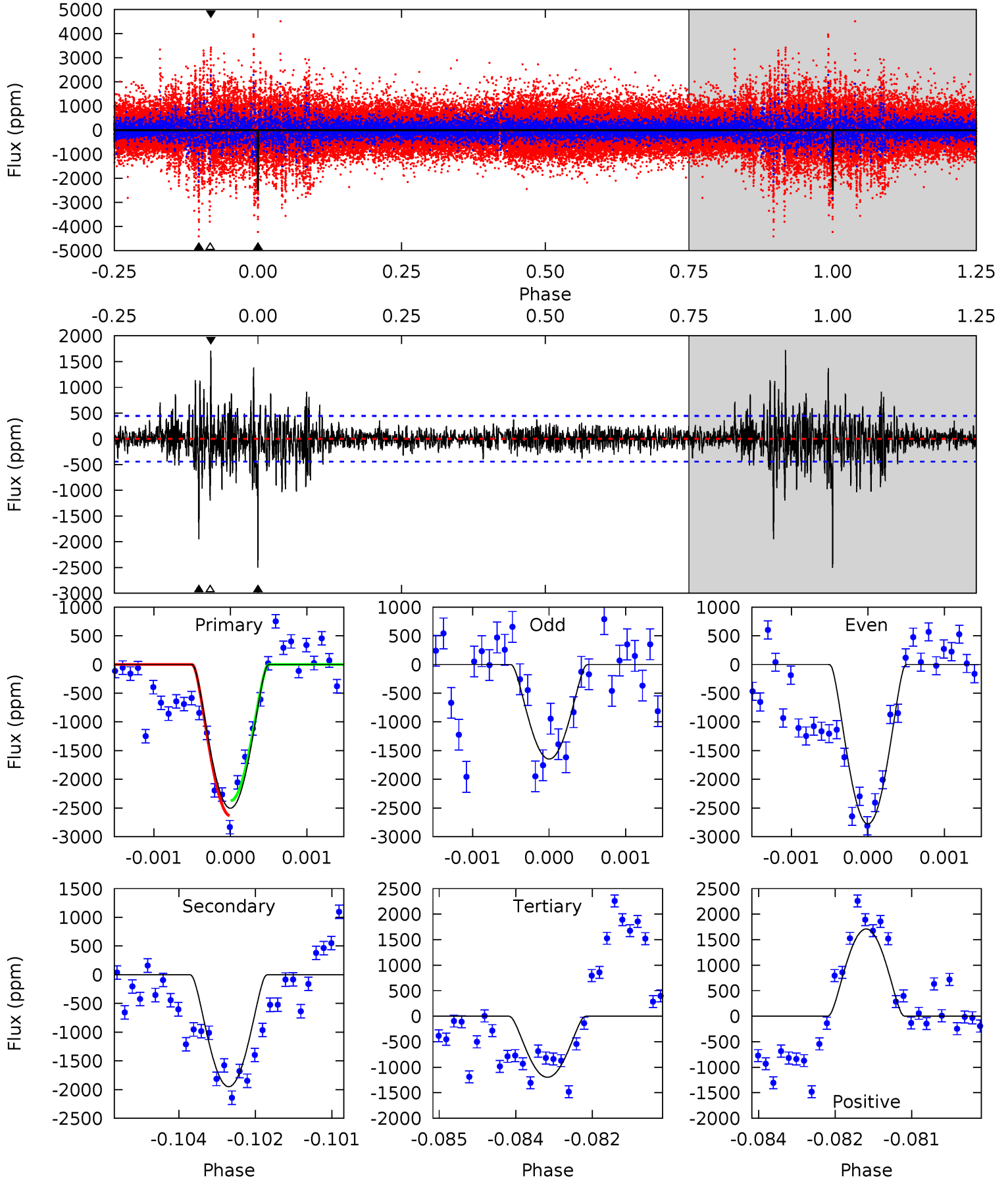




# DV Model-Shift Uniqueness Test

008374077-02, P = 385.267386 Days, E = 184.634710 Days

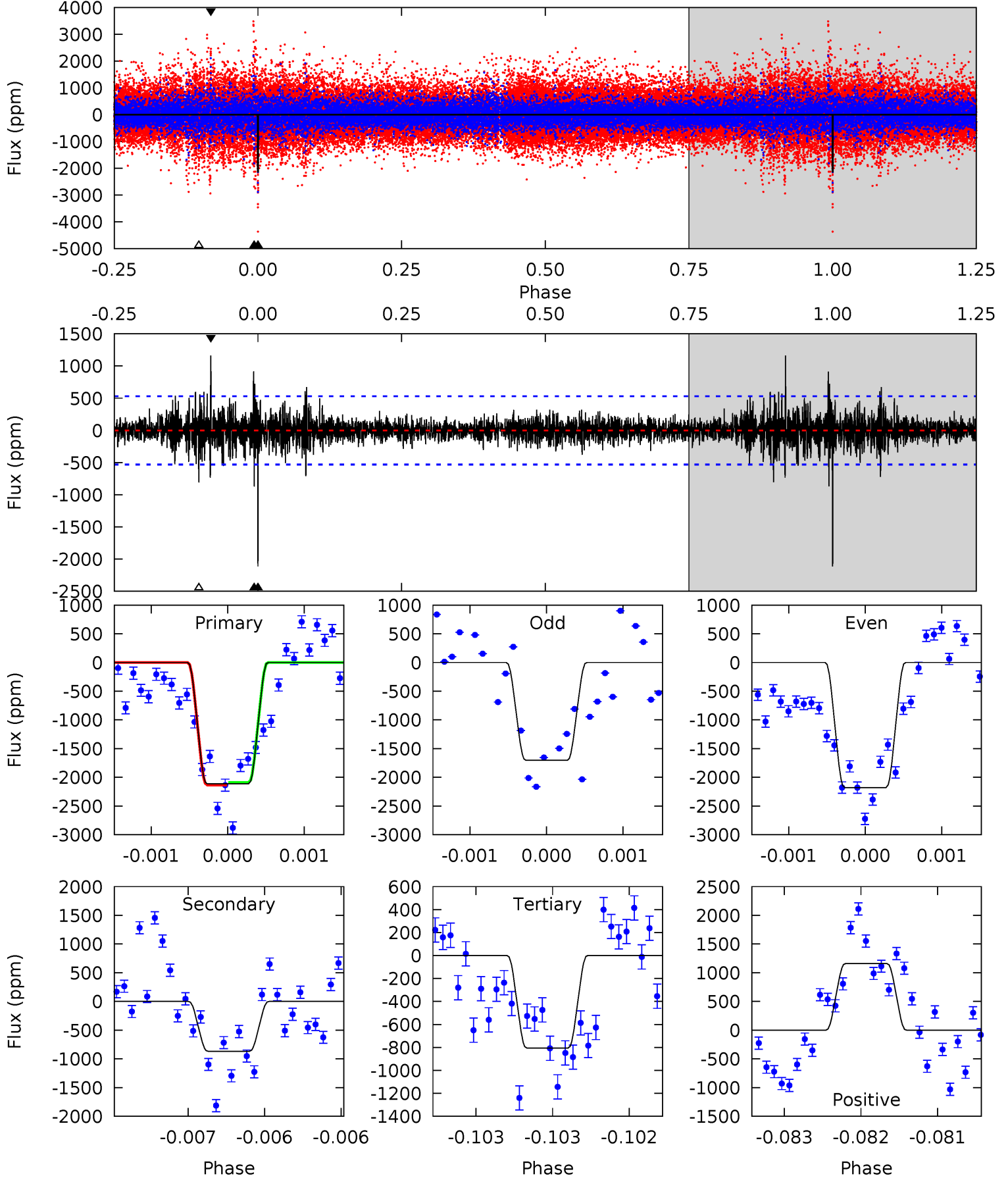
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.6	23.9	14.6	20.9	5.43	3.26	2.63	16.0	9.72	9.22	2.94	6.47	1.17	0.41	1.58



# Alt Model-Shift Uniqueness Test

008374077-02, P = 385.267963 Days, E = 184.625648 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	9.03	8.38	12.1	5.52	3.39	1.41	13.6	9.90	0.64	-3.05	2.22	1.07	0.35	0.22



### Stellar Parameters For KIC 008374077

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6063^{+190}_{-232}$	$4.476^{+0.054}_{-0.216}$	$0.070^{+0.250}_{-0.350}$	$1.012^{+0.318}_{-0.106}$	$1.117^{+0.140}_{-0.156}$	$1.519^{+0.339}_{-0.846}$
	+3%/-4%	+1%/-5%	+357%/-500%	+31%/-10%	+13%/-14%	+22%/-56%
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 008374077-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1950 \pm 82$	$17.62^{+18.01}_{-11.93}$	$370^{+29}_{-20}$	$3653^{+2212}_{-666}$	$3798^{+36256}_{-2814}$
Alt.	$-868 \pm 96$	$17.69^{+17.23}_{-11.69}$	$372^{+27}_{-19}$	$3263^{+1396}_{-591}$	$1783^{+11854}_{-1352}$

$T_{max}$  = 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

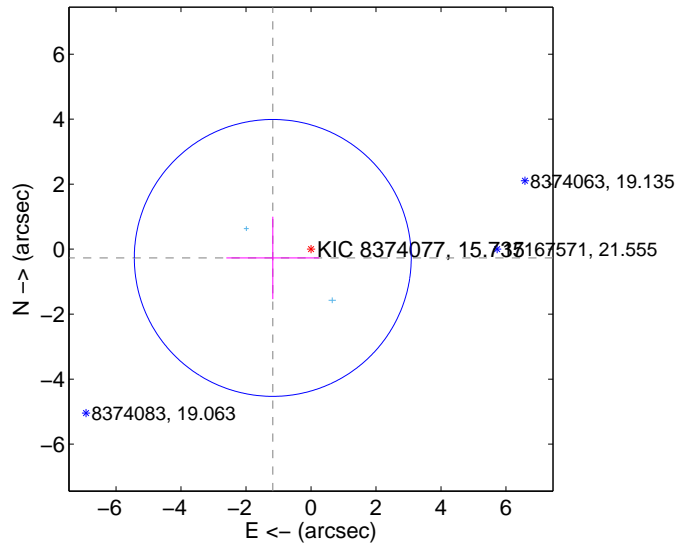
Supplemental centroid analysis for 008374077-02. Kepler magnitude: 15.73. Transit SNR 8.59

There are 2 quarters with good PRF difference image offsets

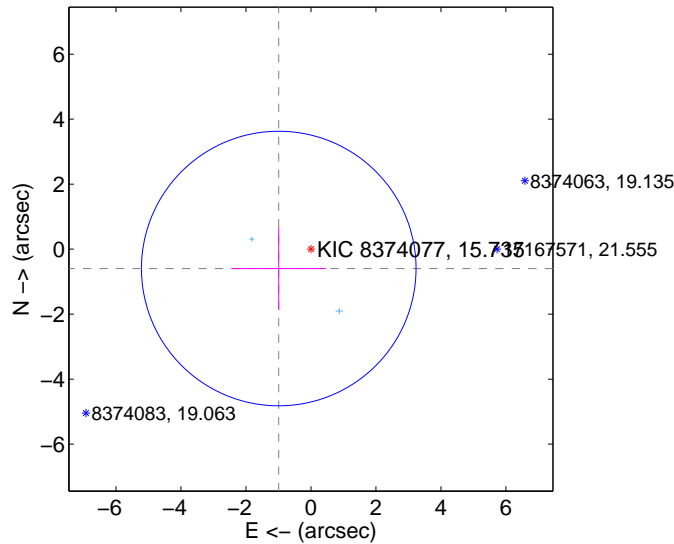
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.207 \pm 1.420$	0.85	$1.177 \pm 1.428$	$-0.269 \pm 1.270$
PRF-fit source offset from KIC position	$1.156 \pm 1.408$	0.82	$0.991 \pm 1.454$	$-0.596 \pm 1.274$
photometric centroid source offset	$1.81 \pm 1.46$	1.24	$1.49 \pm 1.50$	$-1.04 \pm 1.40$

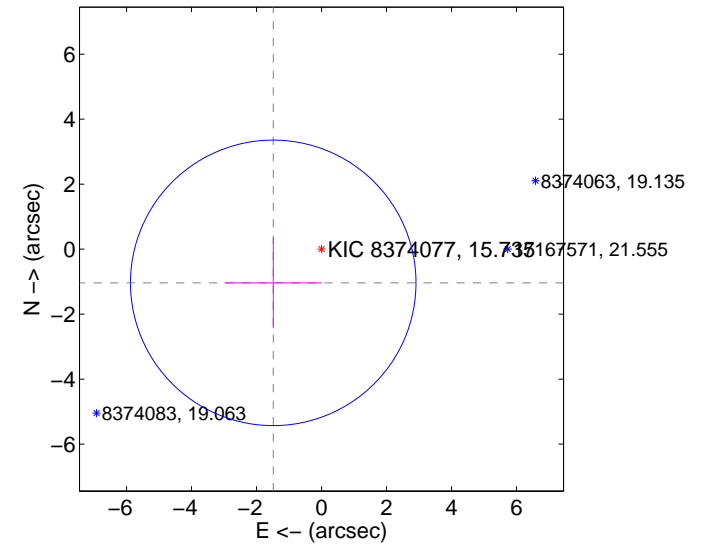
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

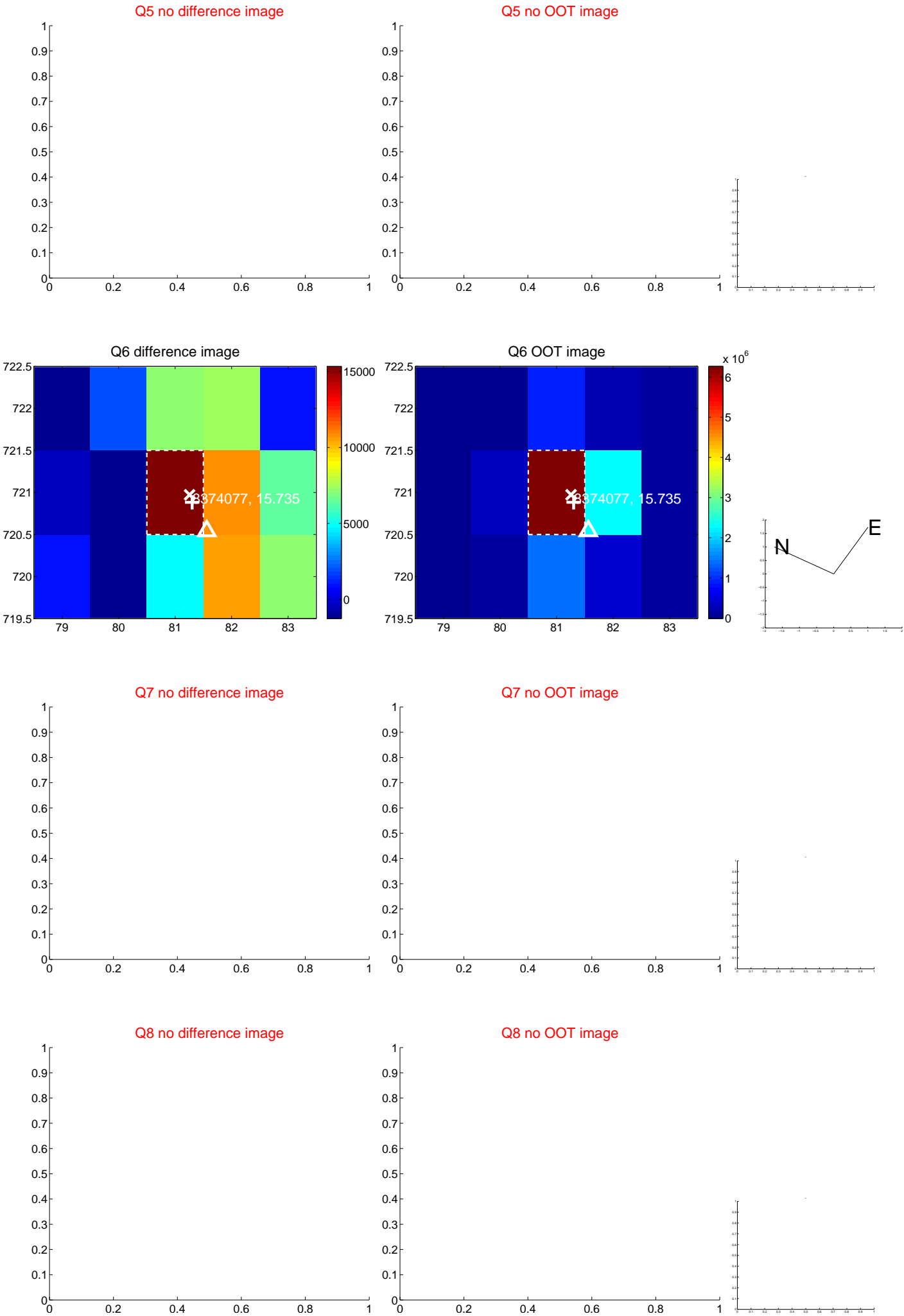


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

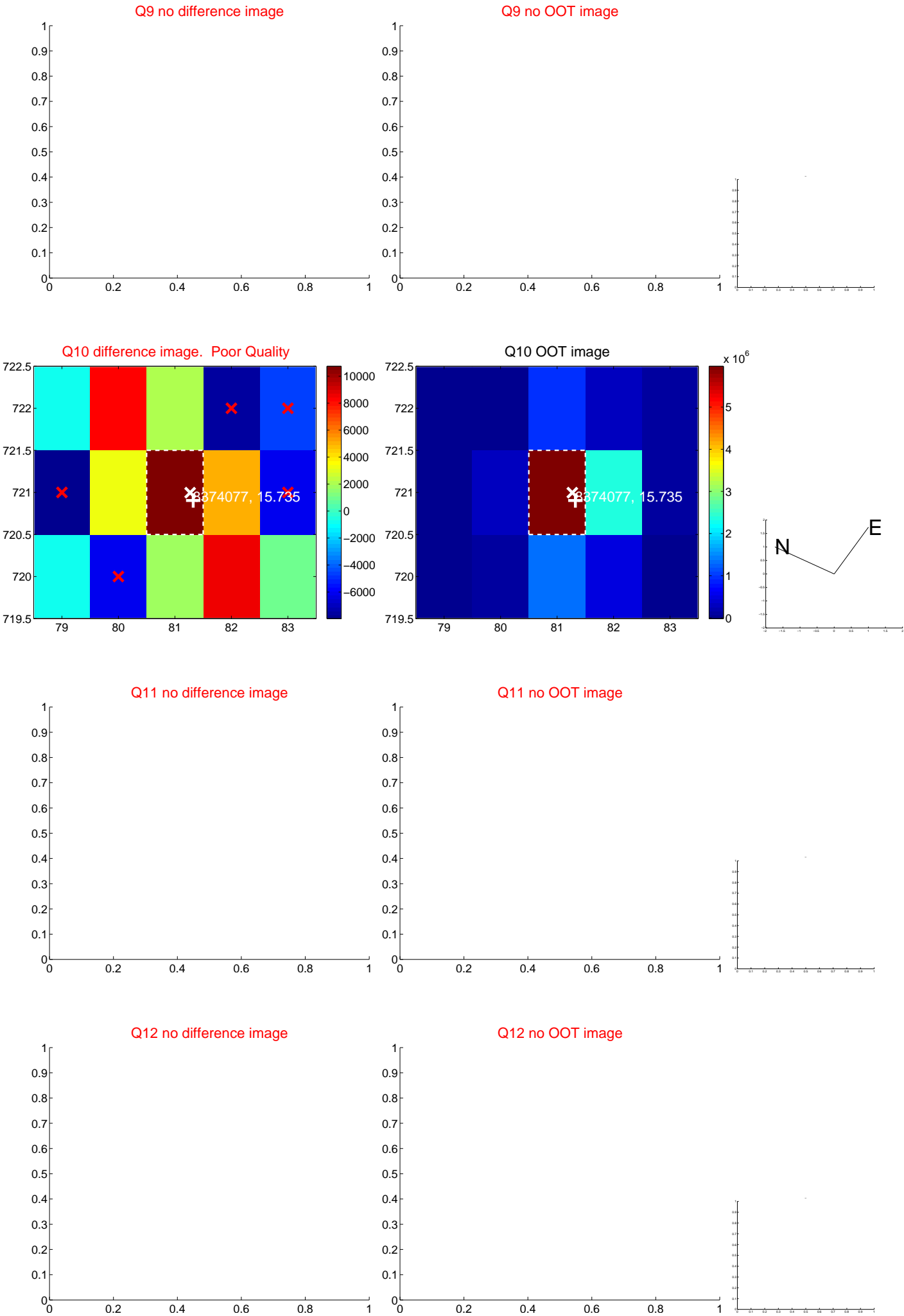
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

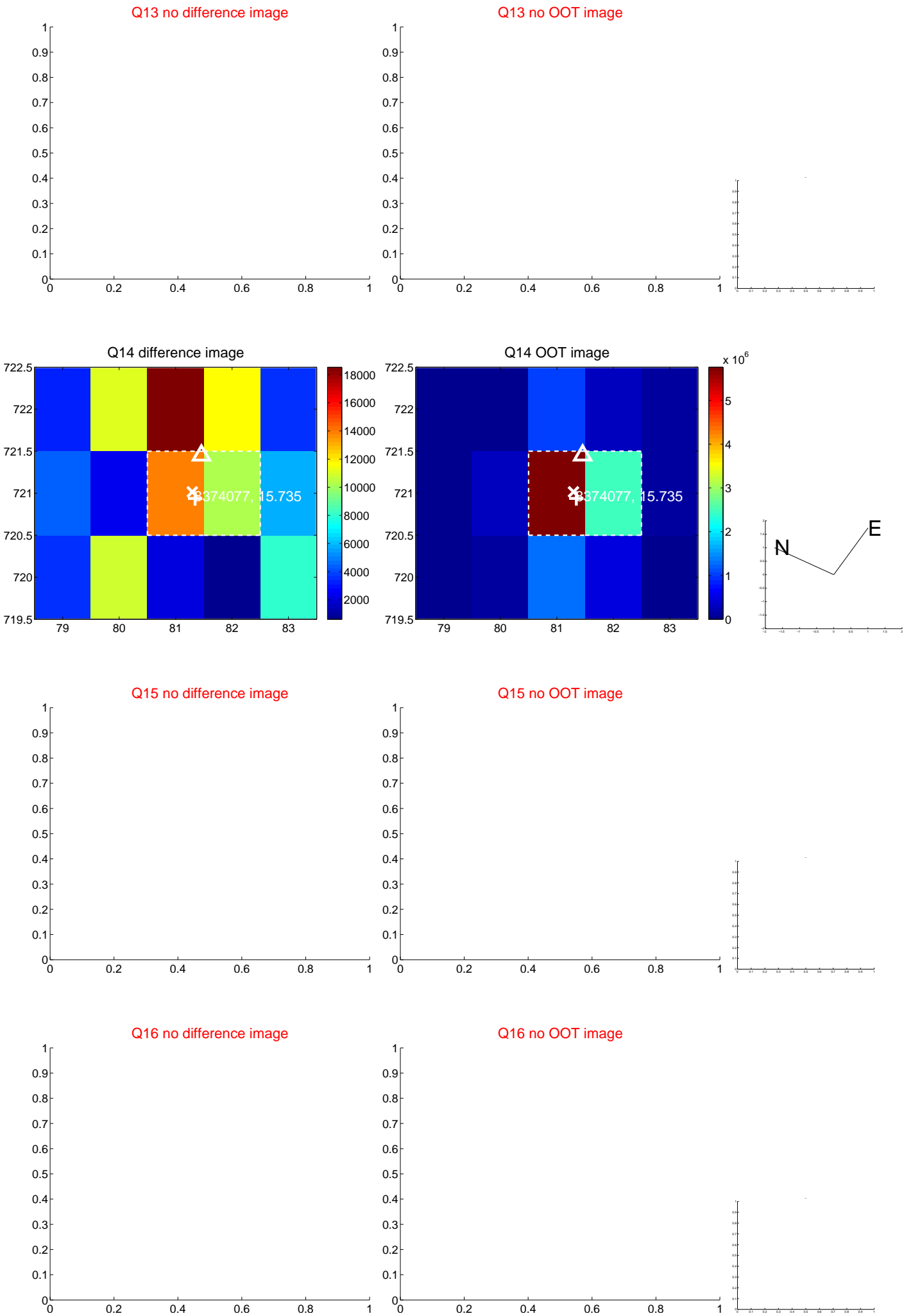


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

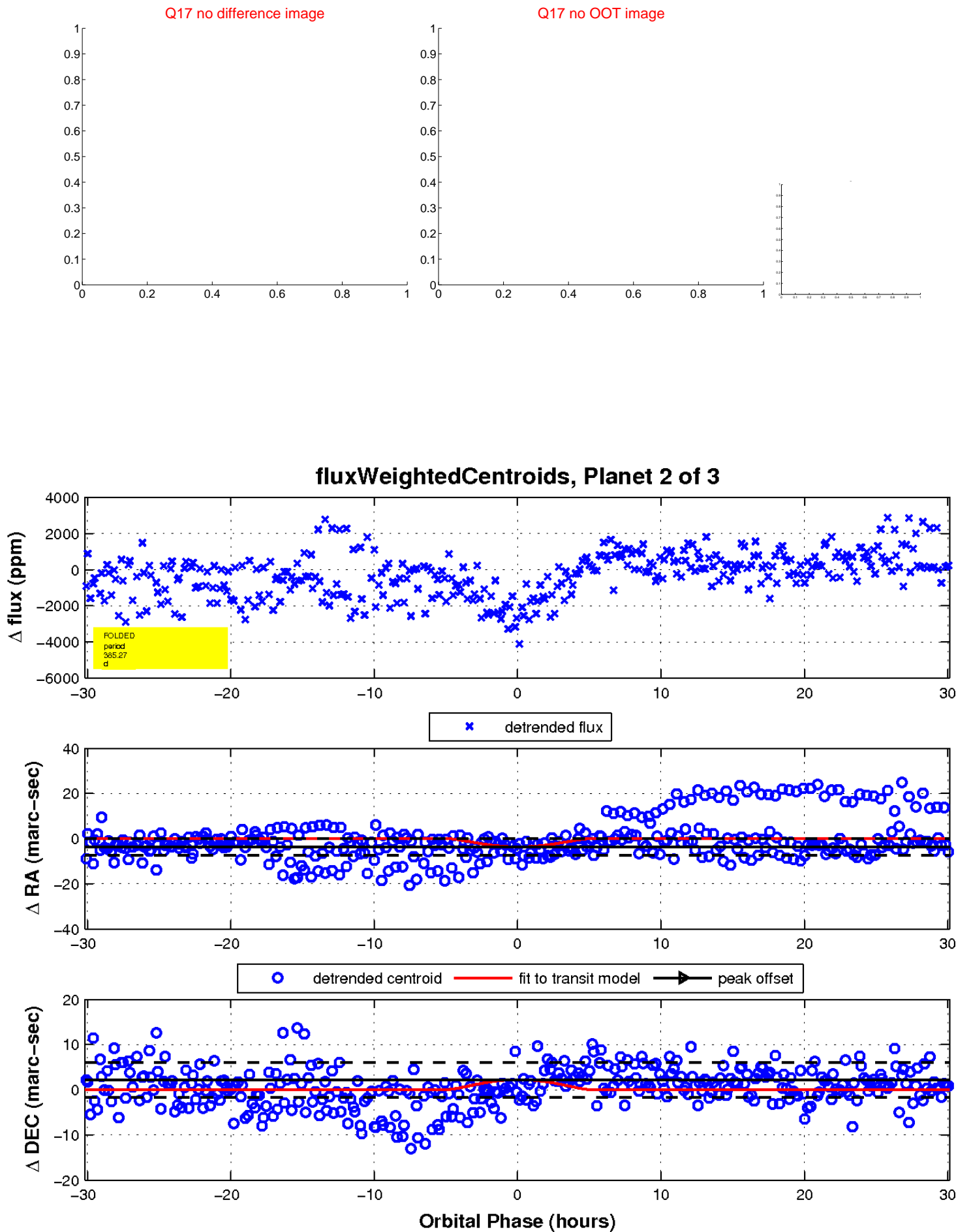




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

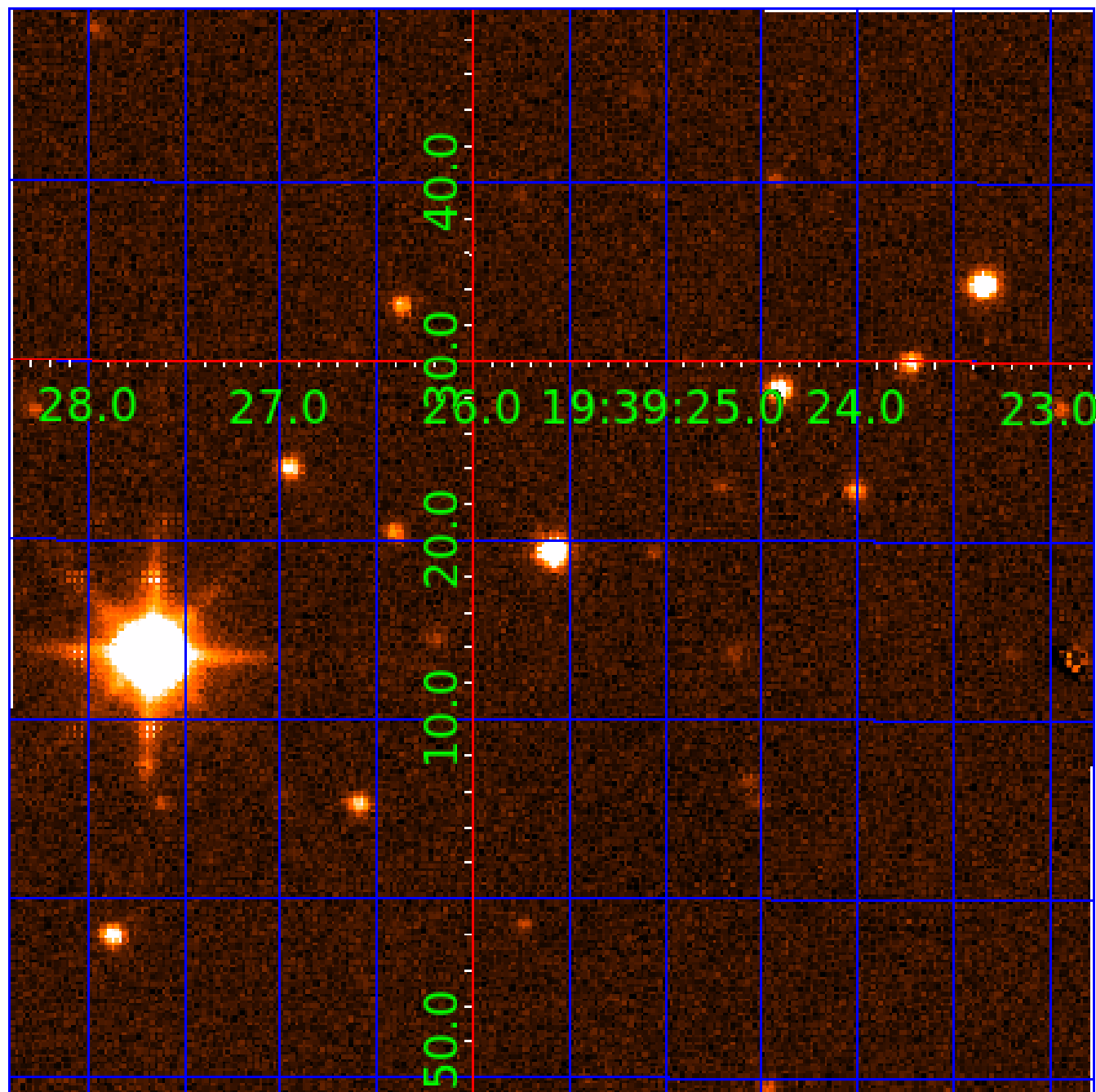


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008374077

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008374077-01	OBS	6179.01	16.295614	133.633306	349.8	5.161	11.0	12.0	1.01	6063	2.19	72.72
008374077-02	OBS	No	385.267386	184.634710	2225.1	10.063	8.6	8.6	1.01	6063	8.43	1.07
008374077-03	OBS	No	377.822972	217.889948	1441.2	12.961	7.4	6.8	1.01	6063	4.50	1.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008374077-01	OBS	PC	0.98	0	0	0	0	NO_COMMENT
008374077-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008374077-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

**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 008374077-03

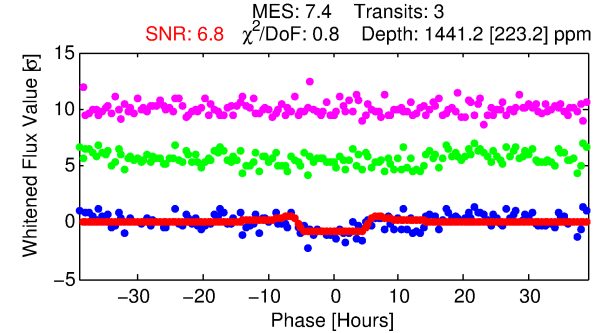
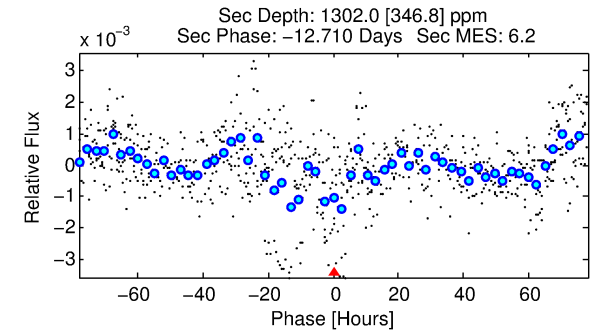
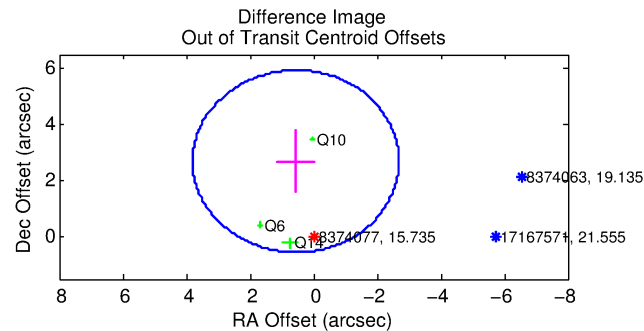
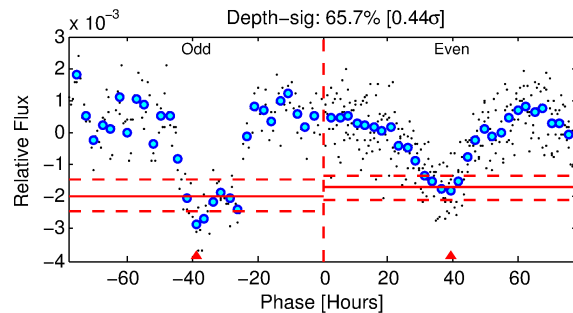
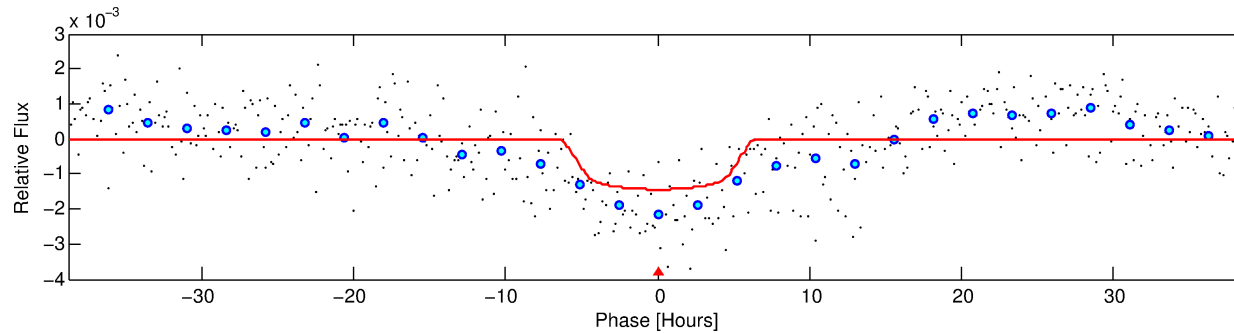
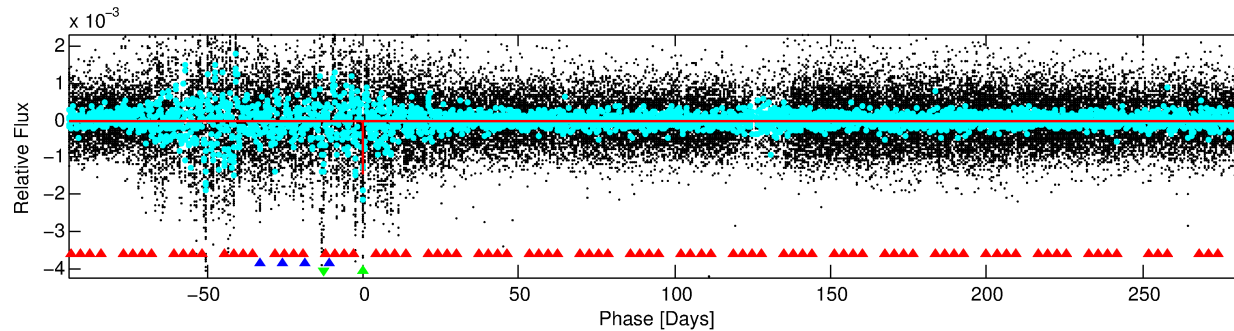
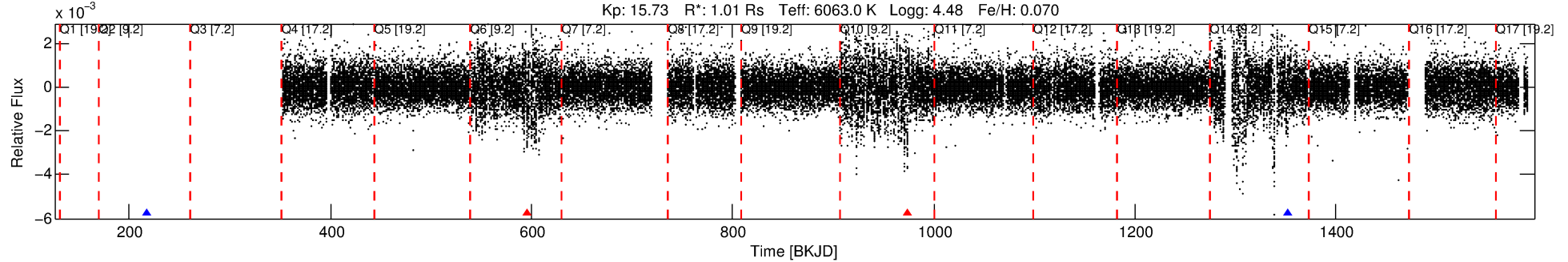
No Significant Match Found

# DV One-Page Summary

KIC: 8374077 Candidate: 3 of 3 Period: 377.823 d

KOI: K06179 Corr: No Ephemeris Match

Kp: 15.73 R\*: 1.01 Rs Teff: 6063.0 K Logg: 4.48 Fe/H: 0.070



## DV Fit Results:

Period = 377.82297 [0.01518] d  
Epoch = 217.8899 [0.0341] BKJD  
Rp/R\* = 0.0408 [0.0044]  
a/R\* = 120.29 [35.75]  
b = 0.89 [0.07]  
Seff = 1.10 [0.46]  
Teq = 261 [27] K  
Rp = 4.50 [1.49] Re  
a = 1.0617 [0.2836] AU  
Ag = 39863.99 [20749.35] [1.92σ]  
Teff = 5705 [535] K [10.17σ]

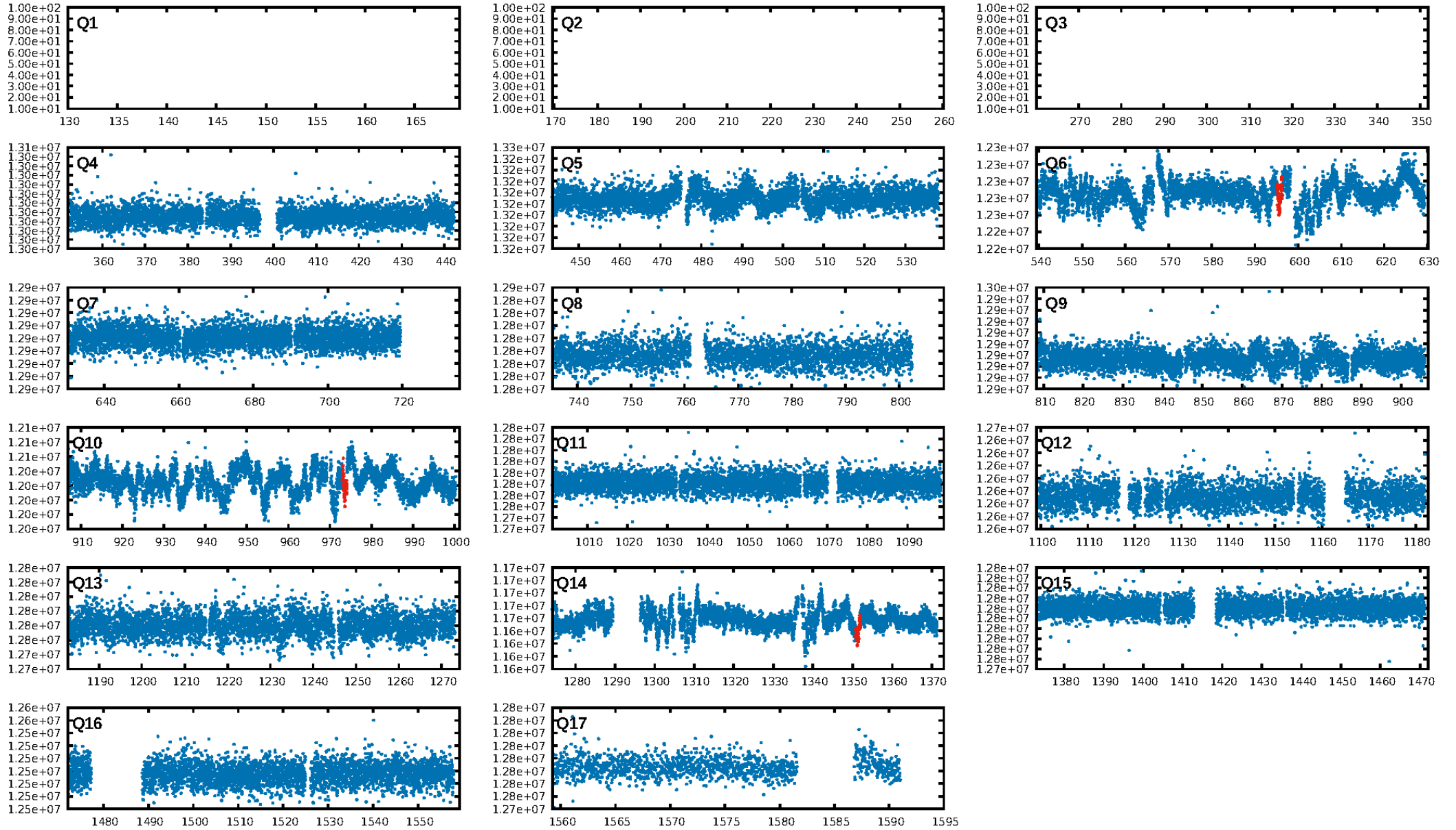
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [621.96σ]  
LongPeriod-sig: 100.0% [10.89σ]  
ModelChiSquare2-sig: 68.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.95e-09  
RollingBand-fgt: 0.33 [1/3]  
GhostDiagnostic-chr: 0.08844  
Centroid-sig: 25.2%  
Centroid-so: 2.325 arcsec [1.19σ]  
OotOffset-rm: 2.747 arcsec [2.54σ]  
OotOffset-st: 3/0/0/0 [3]  
KicOffset-rm: 2.386 arcsec [2.21σ]  
KicOffset-st: 3/0/0/0 [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: 29-Jan-2016 07:46:33 Z

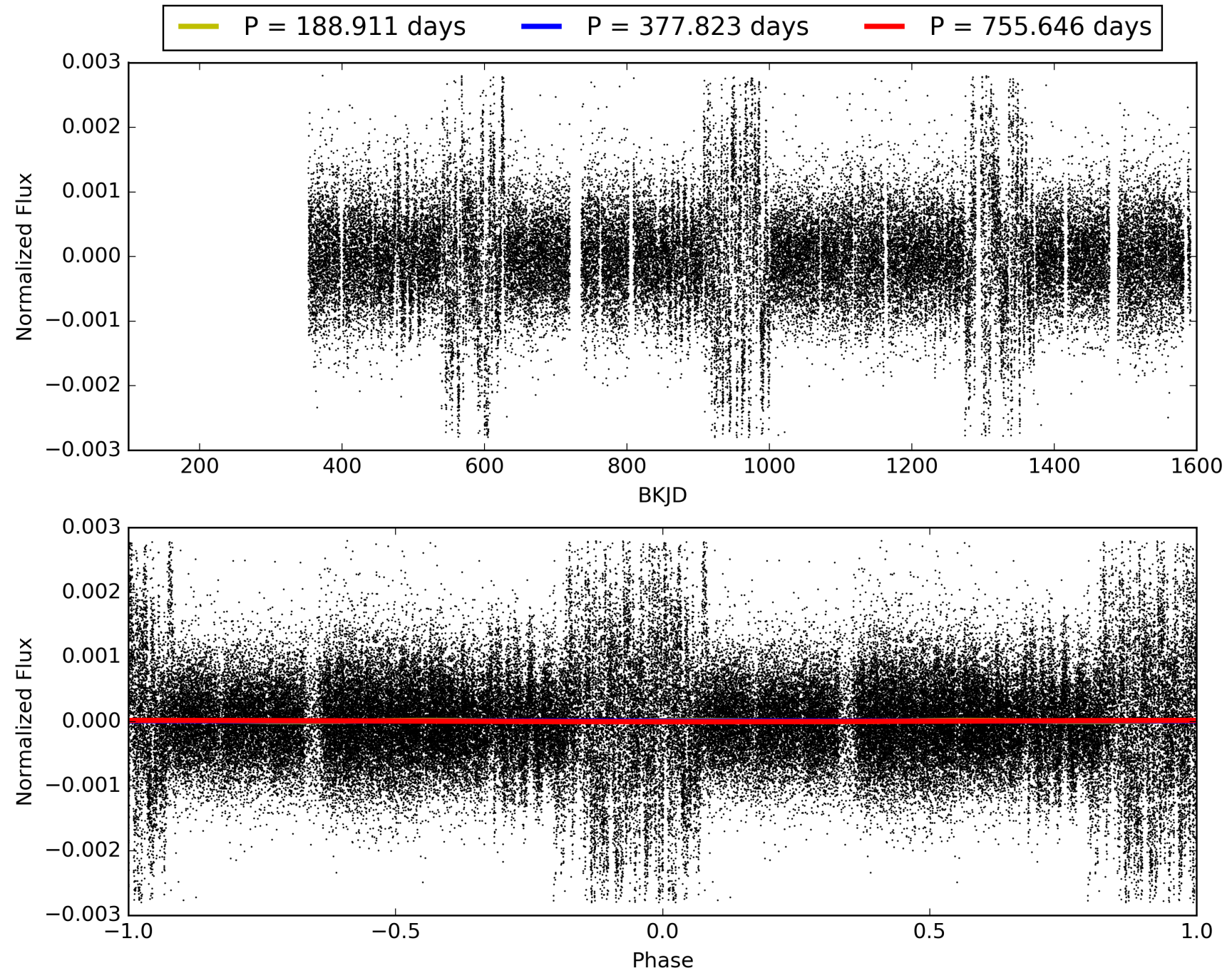
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008374077-03, PDC Light Curves





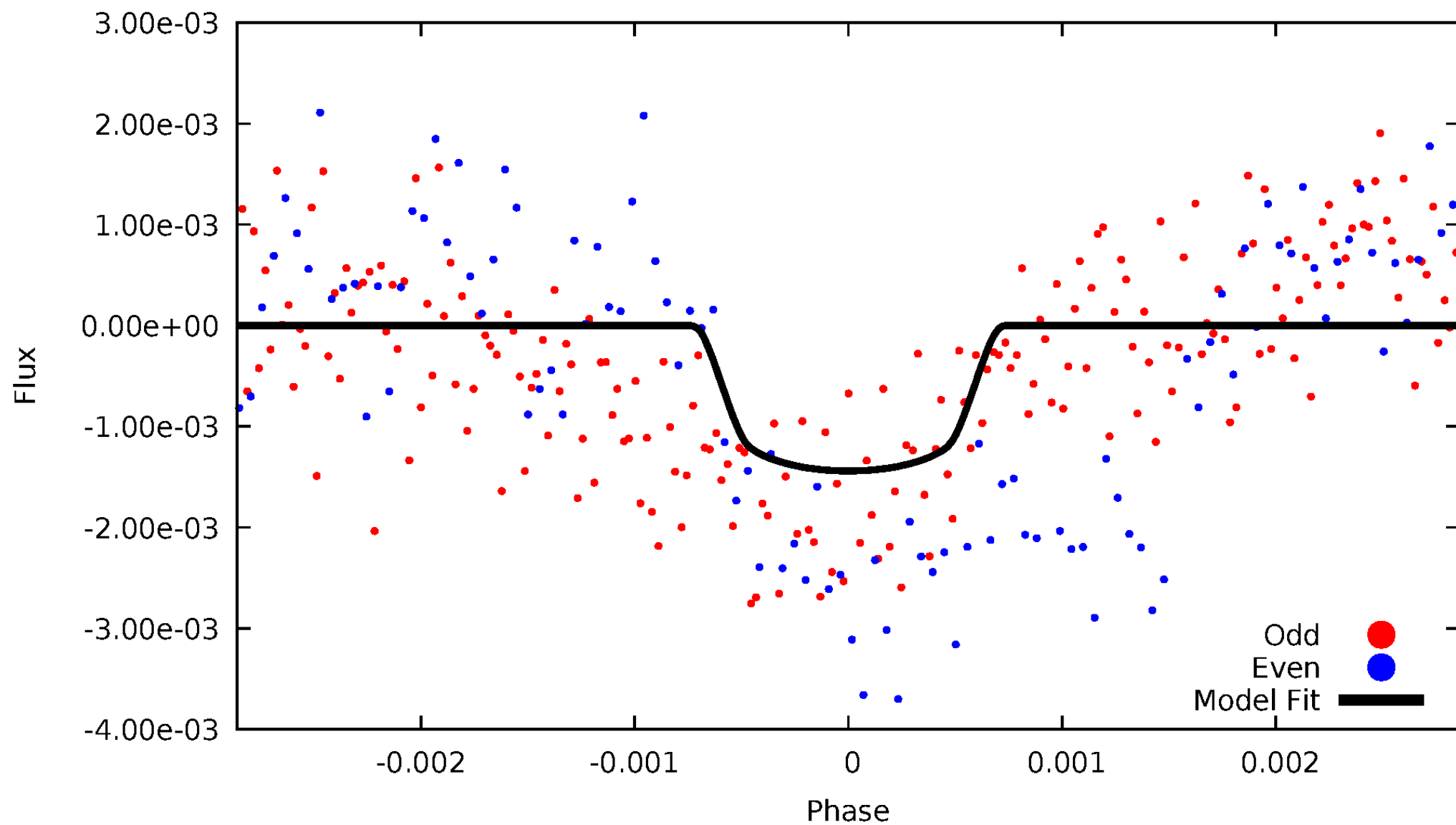
TCE 008374077-03





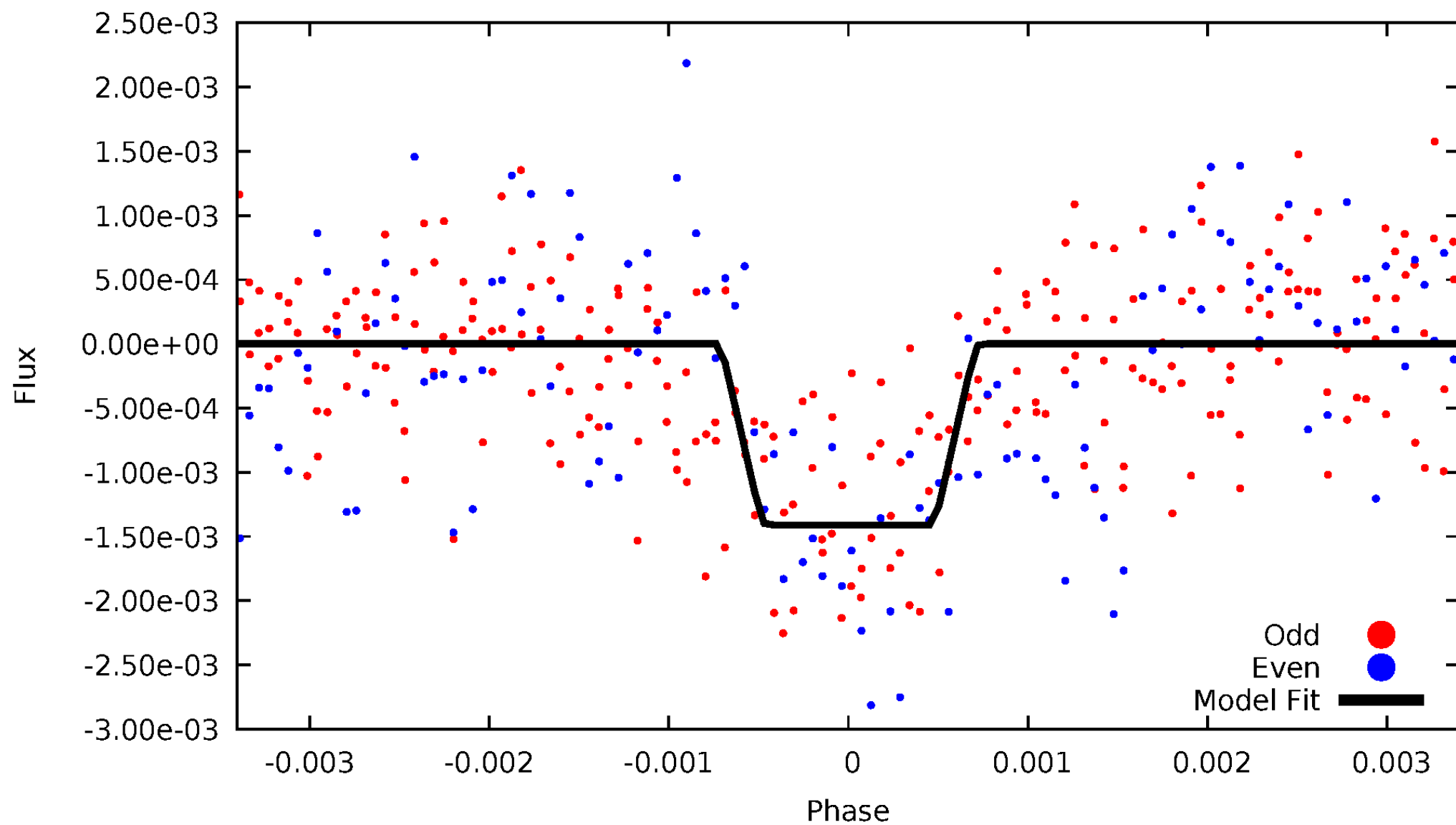
# DV Odd/Even

TCE 008374077-03



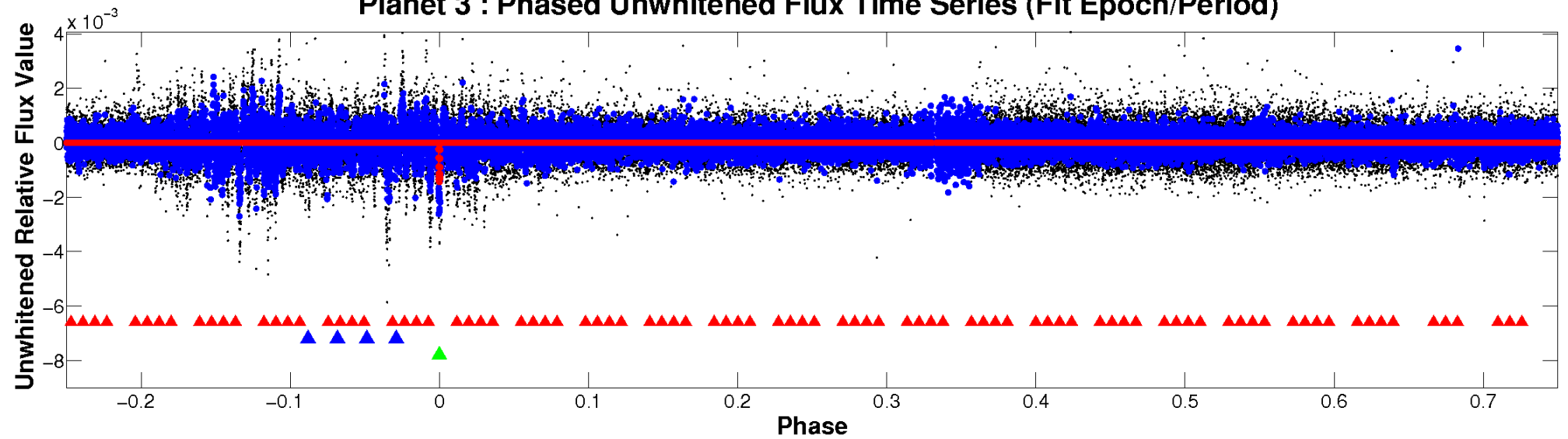
# ALT Odd/Even

TCE 008374077-03

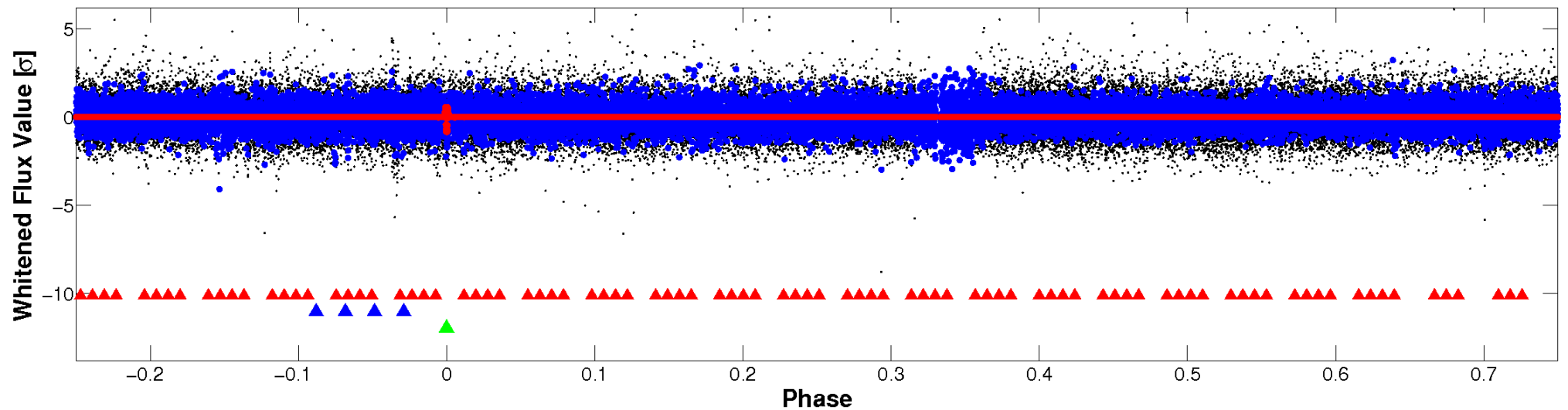


# Non-Whitened Vs. Whitened Light Curve

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

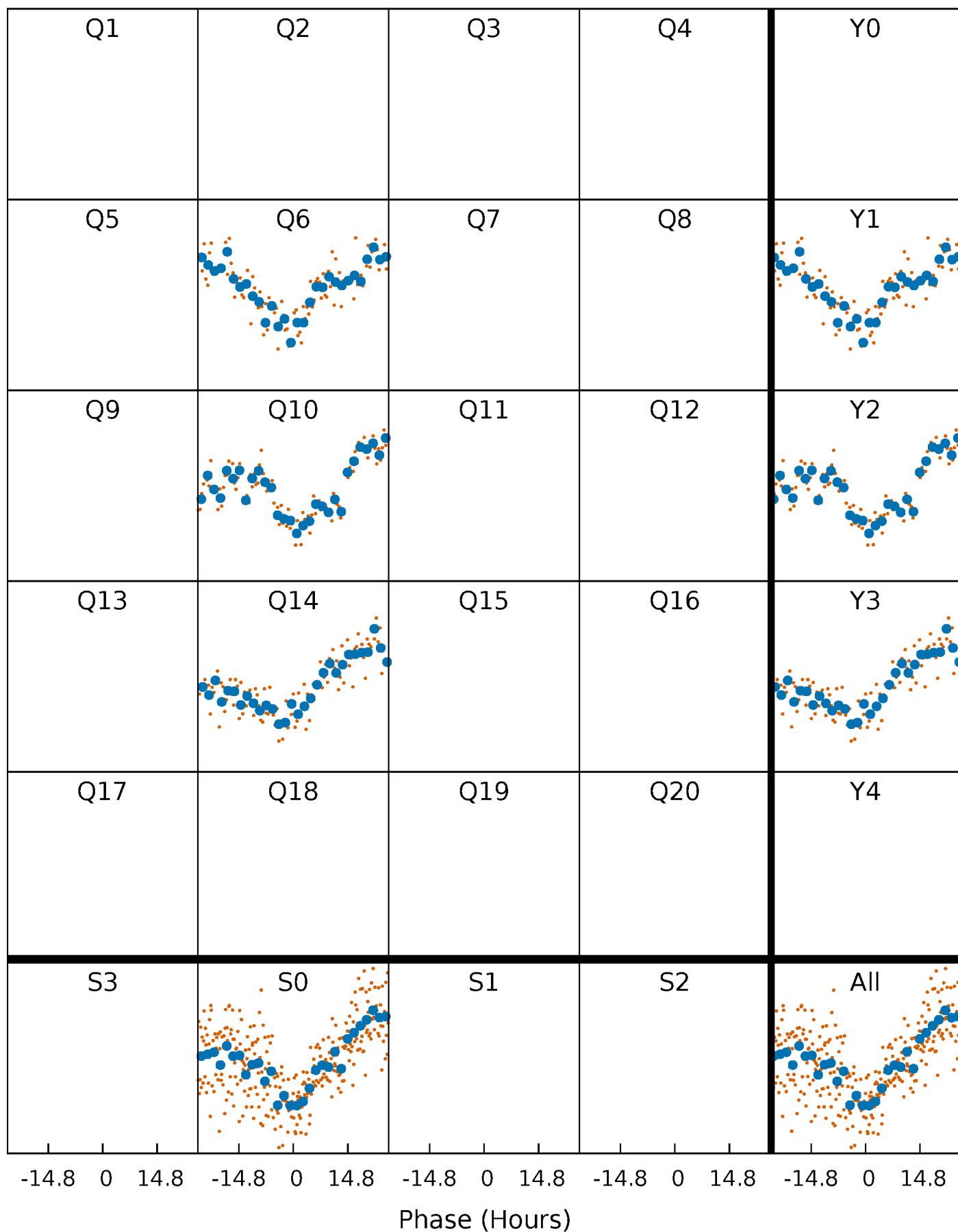


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



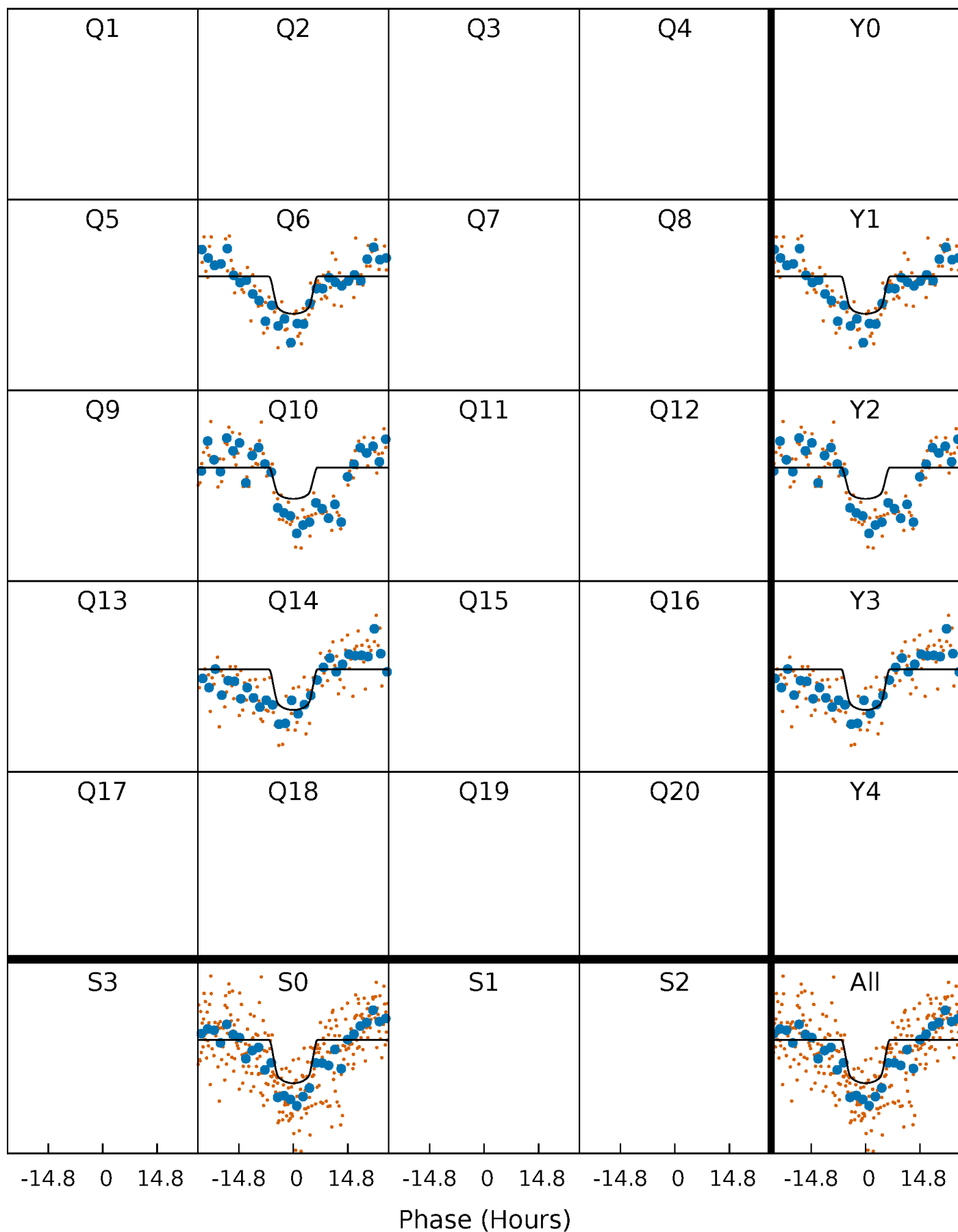
# PDC Quarter-Phased Transit Curves

TCE 008374077-03     $P=377.822972$  Days     $T_0=217.889948$  (BKJD)



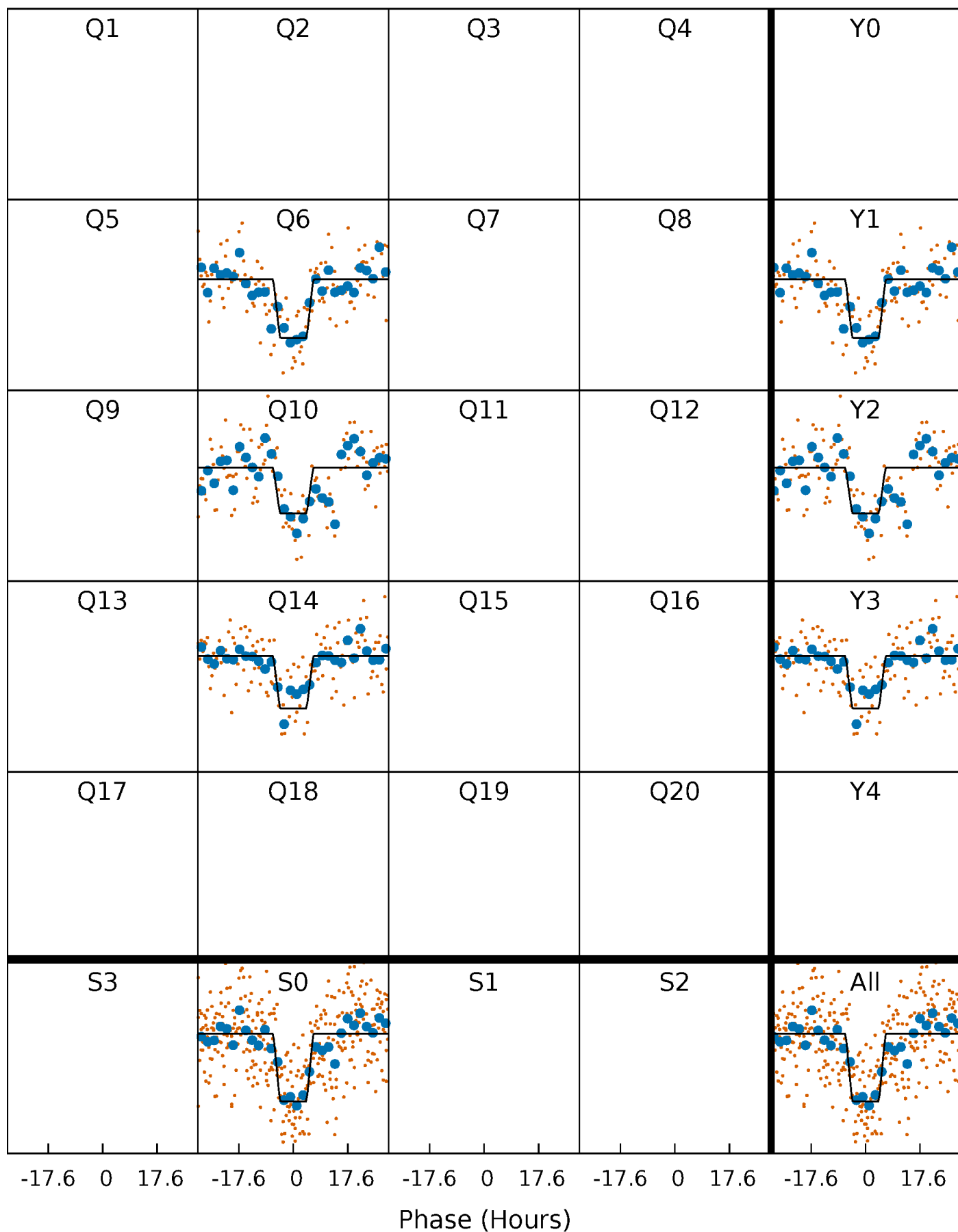
# DV Quarter-Phased Transit Curves

TCE 008374077-03 P=377.822972 Days  $T_0=217.889948$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

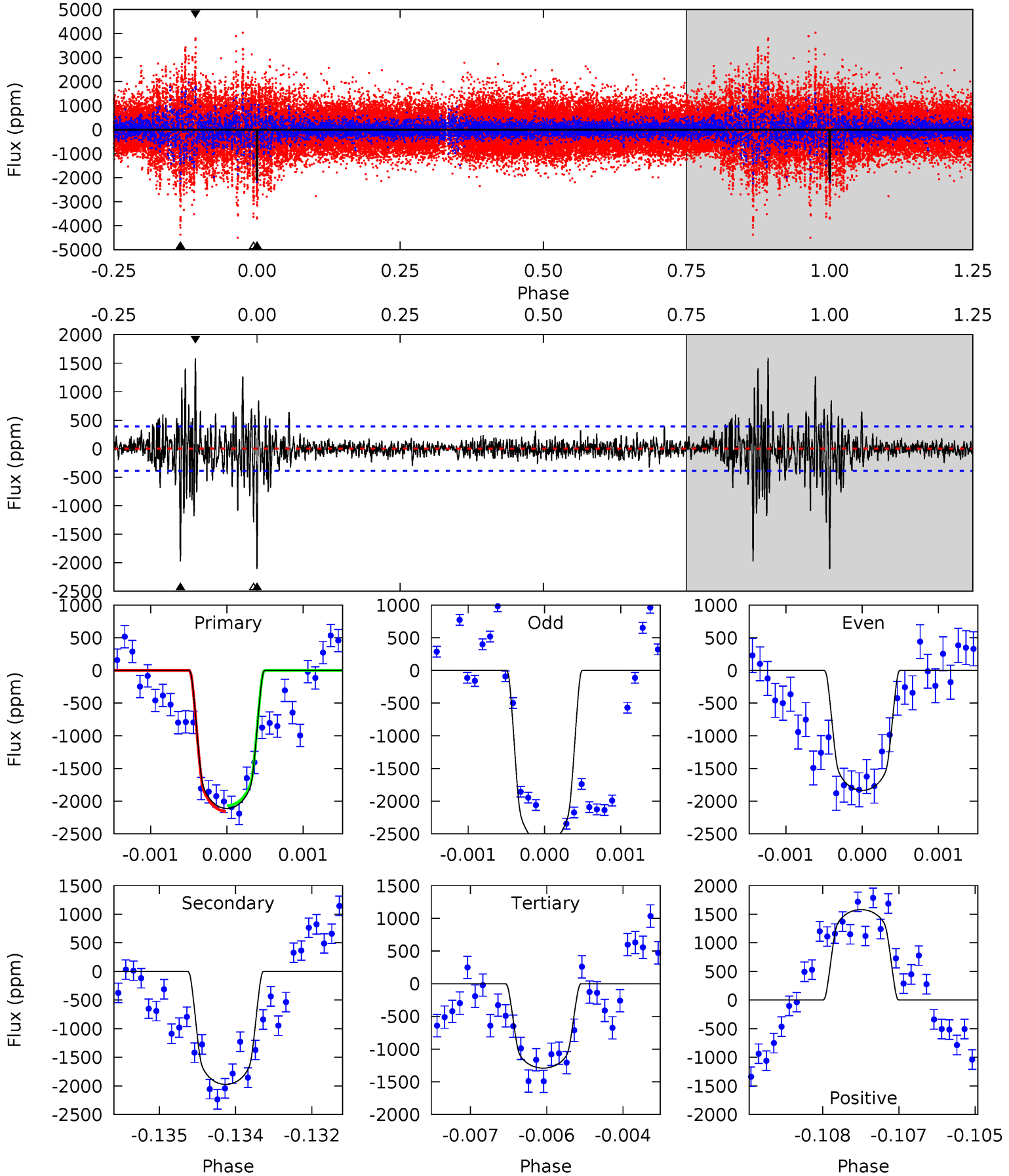
TCE 008374077-03     $P=377.836958$  Days     $T_0=217.840920$  (BKJD)



# DV Model-Shift Uniqueness Test

008374077-03, P = 377.822972 Days, E = 217.889948 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.1	27.2	17.8	21.8	5.38	3.18	2.77	11.3	7.32	9.42	5.44	5.31	1.06	0.43	0.60

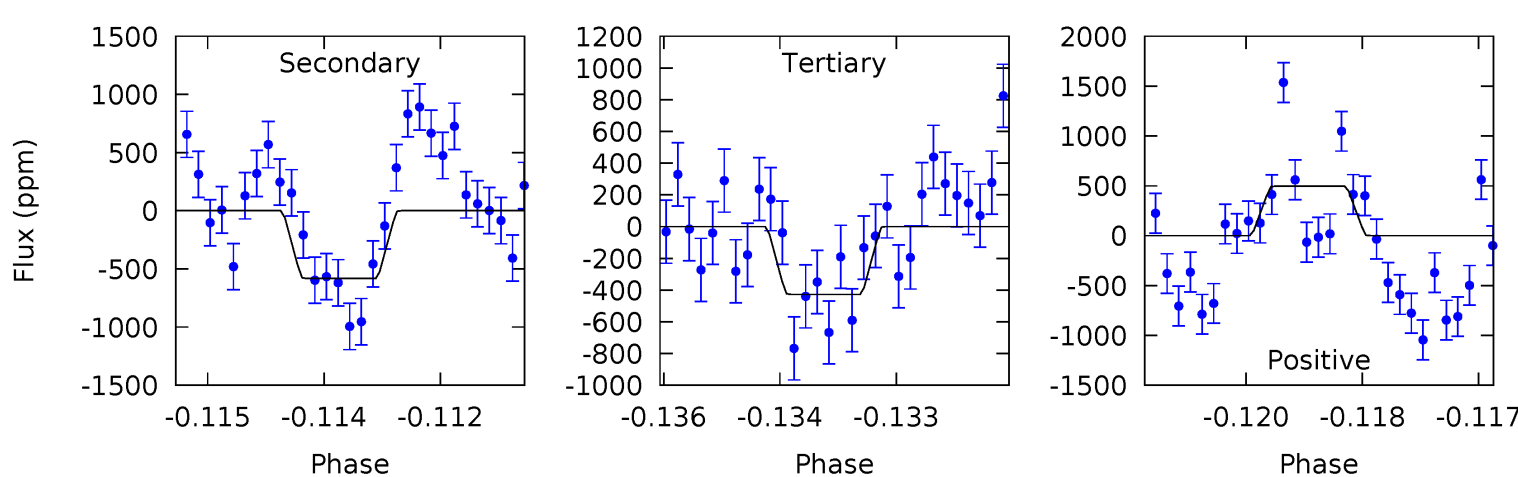
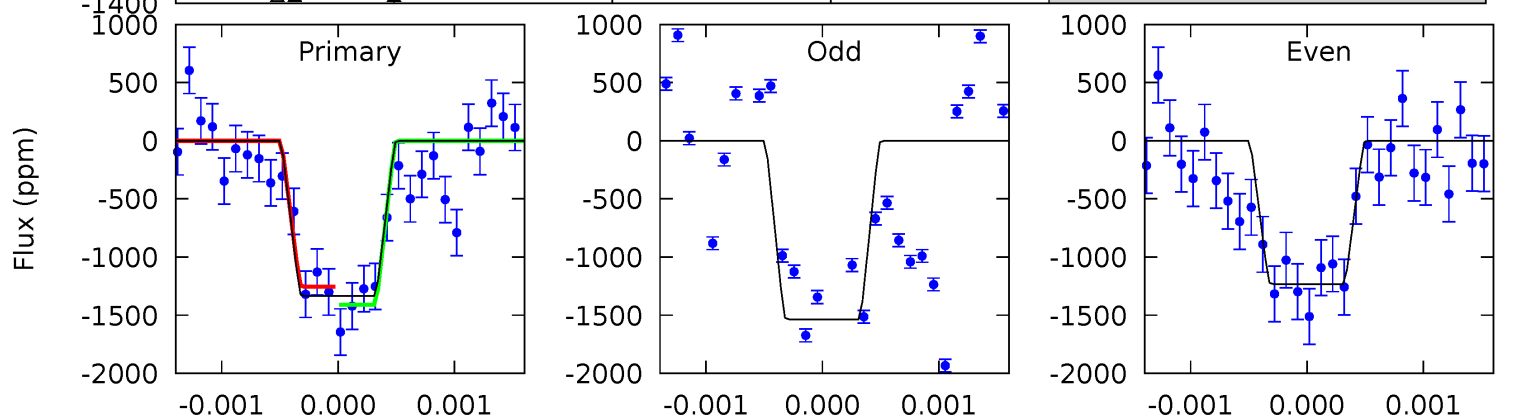
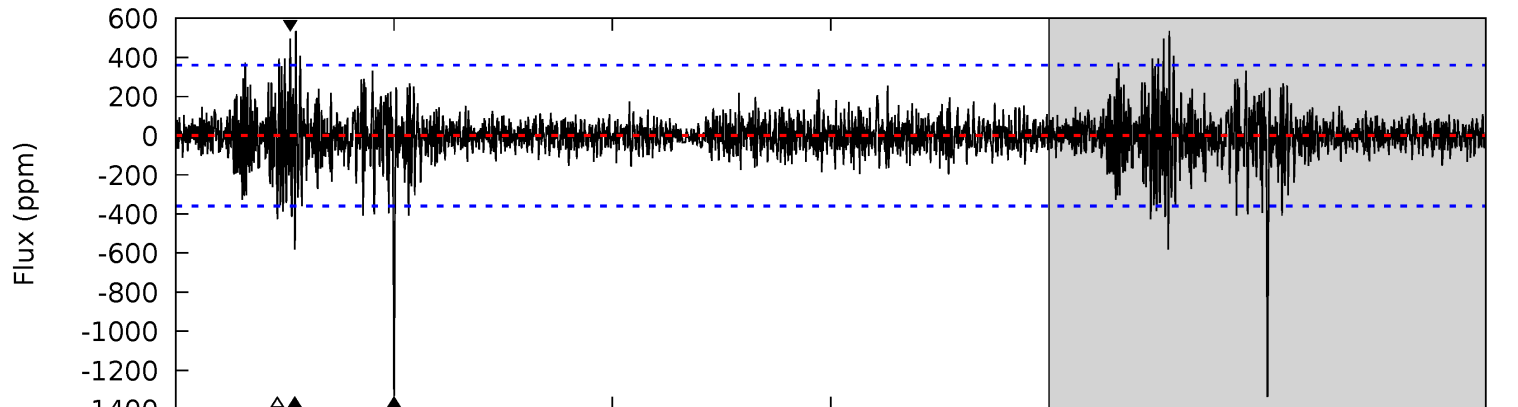
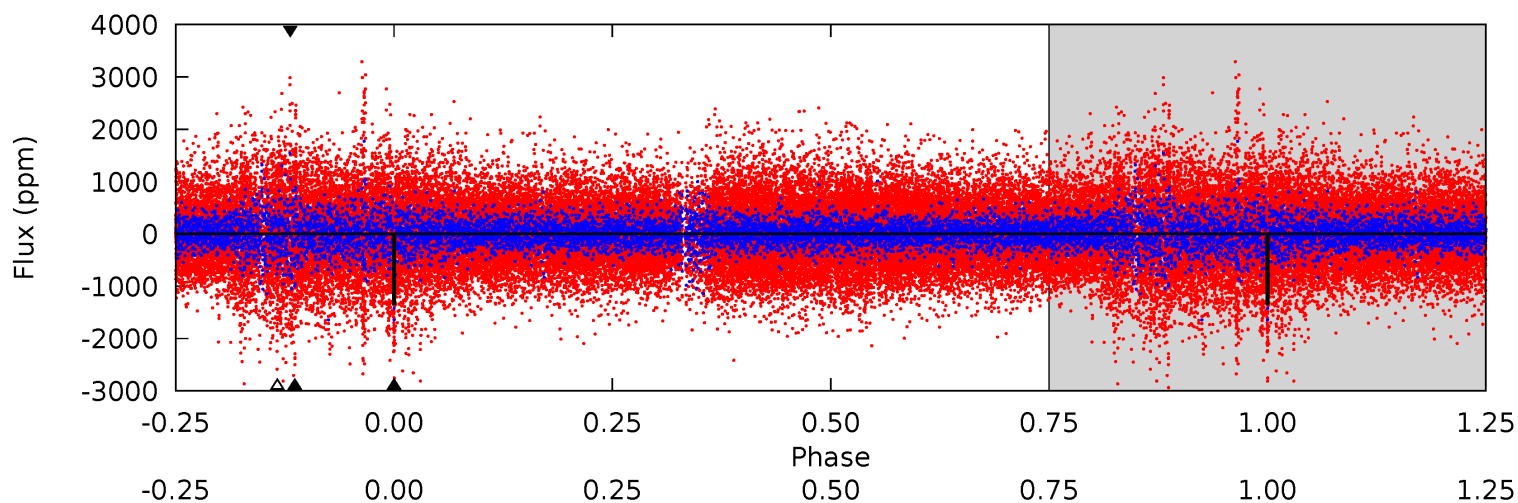




# Alt Model-Shift Uniqueness Test

008374077-03, P = 377.836958 Days, E = 217.840920 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
20.0	8.70	6.39	7.42	5.38	3.18	1.26	13.6	12.6	2.31	1.28	2.14	1.01	0.29	1.15



### Stellar Parameters For KIC 008374077

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6063^{+190}_{-232}$	$4.476^{+0.054}_{-0.216}$	$0.070^{+0.250}_{-0.350}$	$1.012^{+0.318}_{-0.106}$	$1.117^{+0.140}_{-0.156}$	$1.519^{+0.339}_{-0.846}$
	+3%/-4%	+1%/-5%	+357%/-500%	+31%/-10%	+13%/-14%	+22%/-56%
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 008374077-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1975 \pm 73$	$4.71^{+0.90}_{-0.65}$	$374^{+27}_{-20}$	$6329^{+474}_{-394}$	$54377^{+17360}_{-14040}$
Alt.	$-582 \pm 67$	$4.36^{+0.83}_{-0.67}$	$373^{+28}_{-21}$	$4931^{+325}_{-299}$	$18495^{+7306}_{-5473}$

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

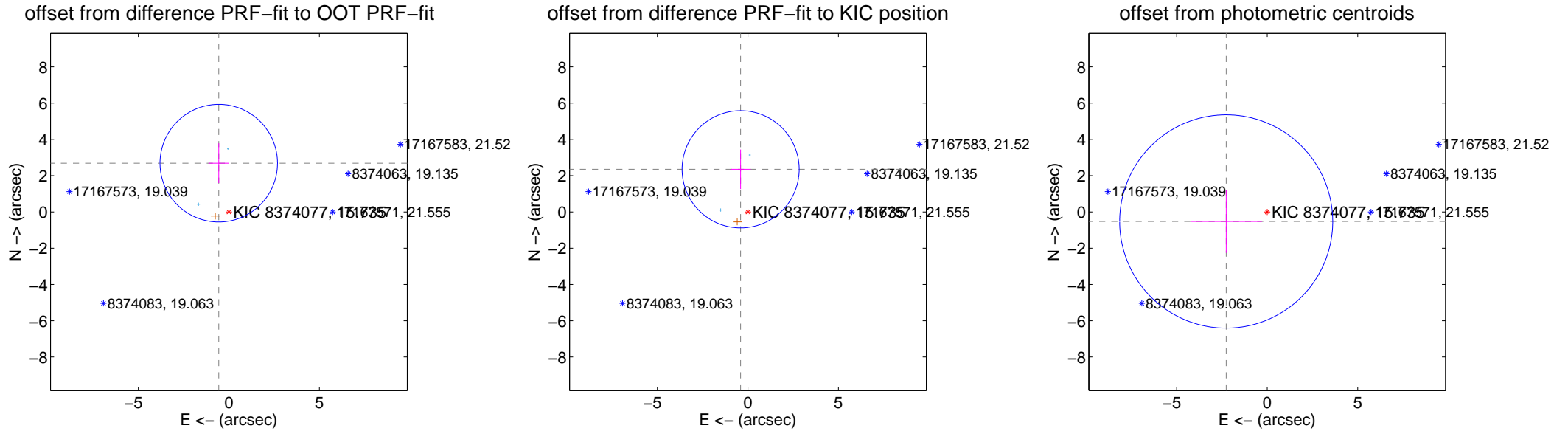
## DV Centroid Data

Supplemental centroid analysis for 008374077-03. Kepler magnitude: 15.73. Transit SNR 6.81

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.747 \pm 1.081$	2.54	$0.558 \pm 0.569$	$2.690 \pm 1.098$
PRF-fit source offset from KIC position	$2.386 \pm 1.078$	2.21	$0.401 \pm 0.560$	$2.352 \pm 1.089$
photometric centroid source offset	$2.33 \pm 1.96$	1.19	$2.26 \pm 1.97$	$-0.53 \pm 1.73$

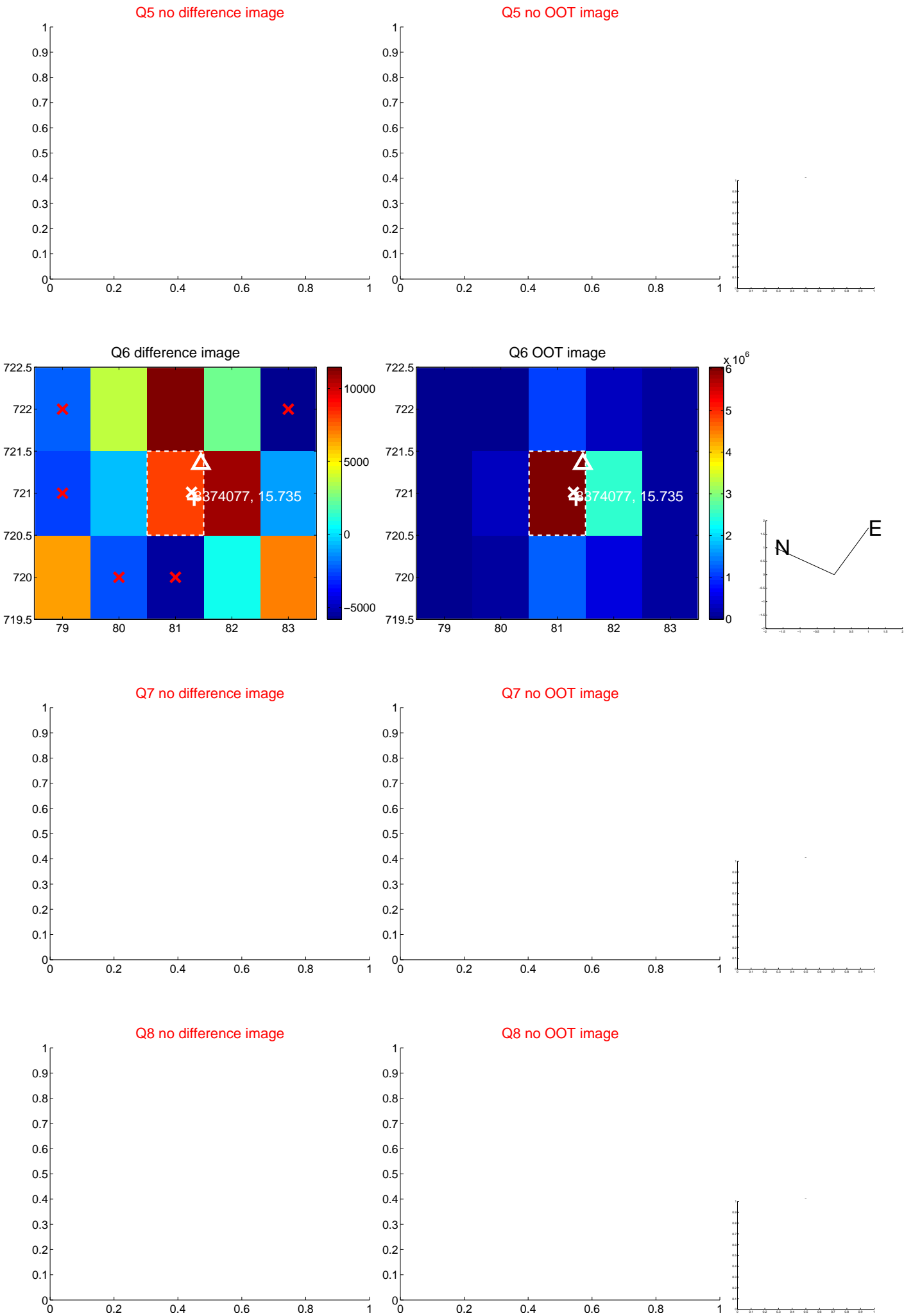


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

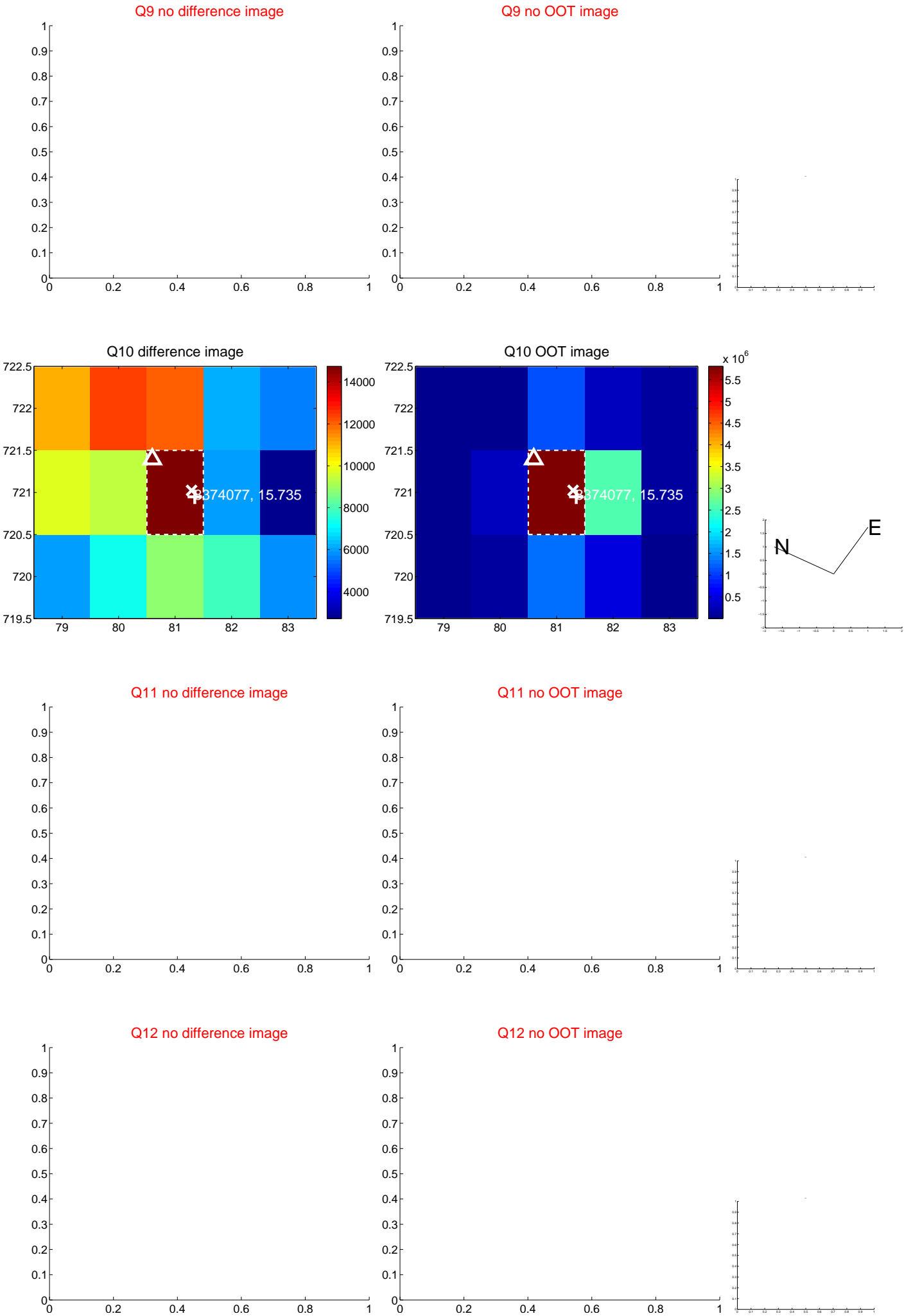
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



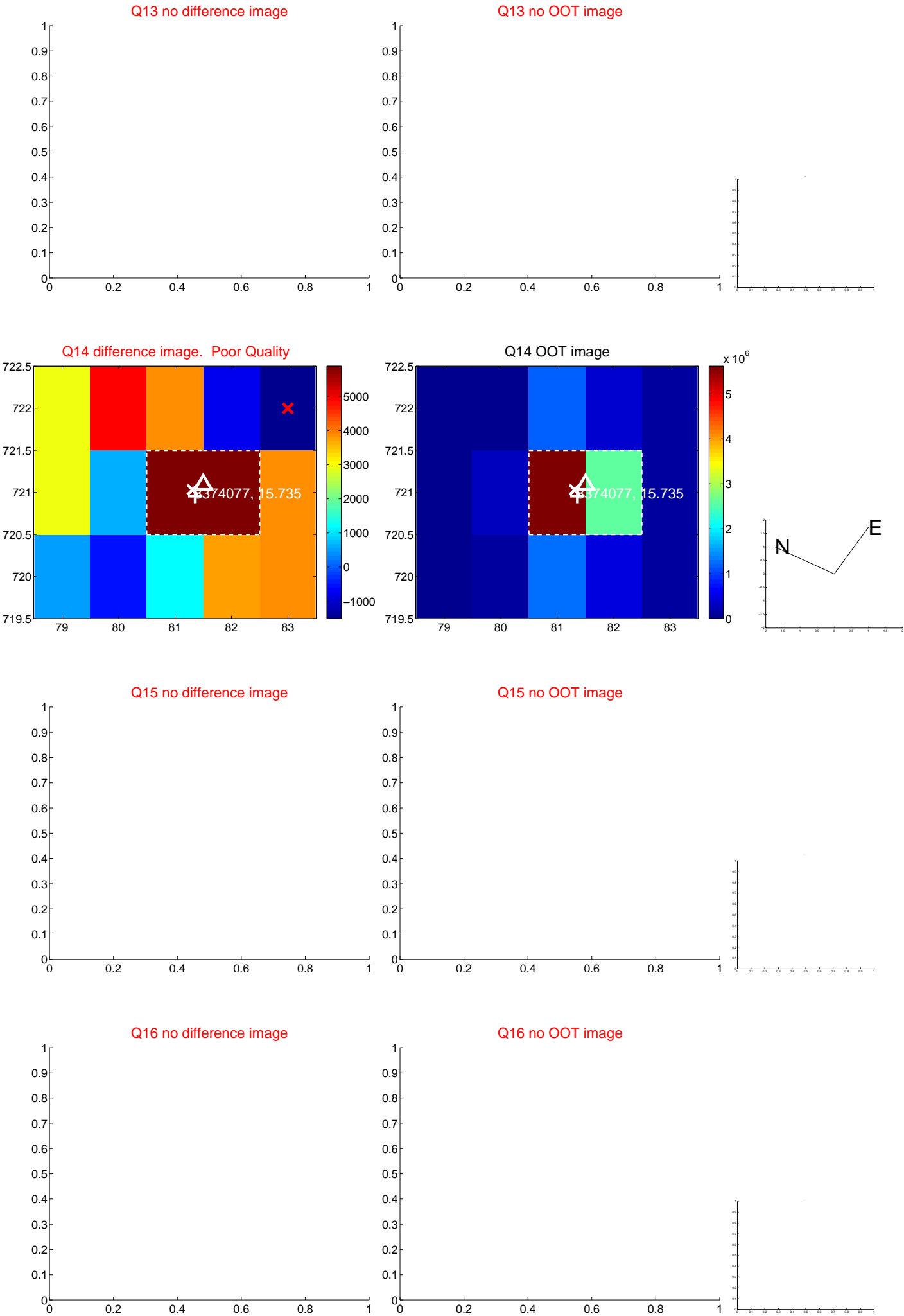
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



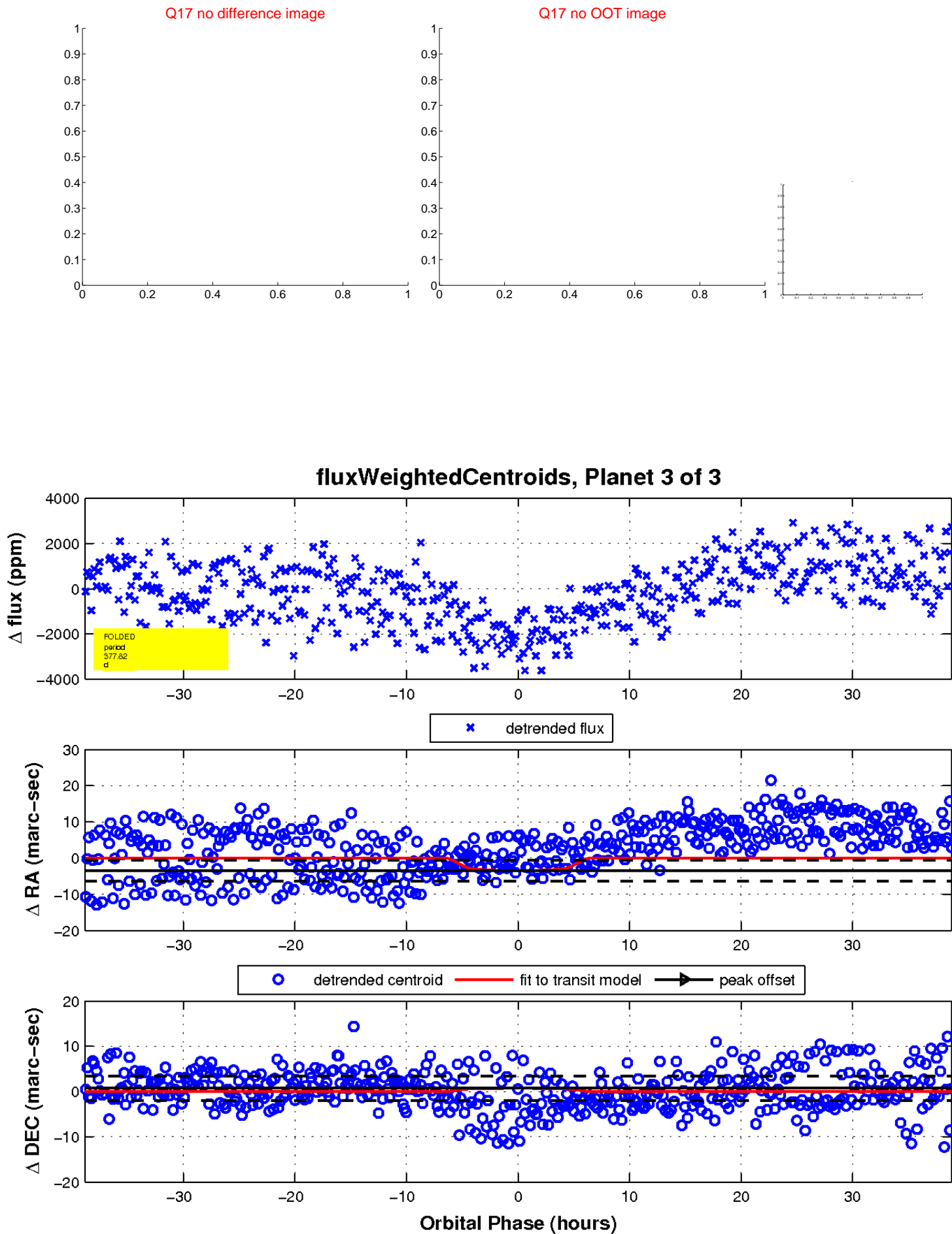
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

