

# KIC 007377946

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007377946-01	OBS	No	366.502859	162.034116	878.3	4.595	17.0	6.4	0.75	5127	2.21	0.42
007377946-02	OBS	No	530.909898	264.061831	1032.8	5.007	14.3	6.8	0.75	5127	2.35	0.26
007377946-03	OBS	No	249.736493	174.894537	484.8	3.000	11.5	-1.0	0.75	5127	1.61	0.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007377946-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007377946-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007377946-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

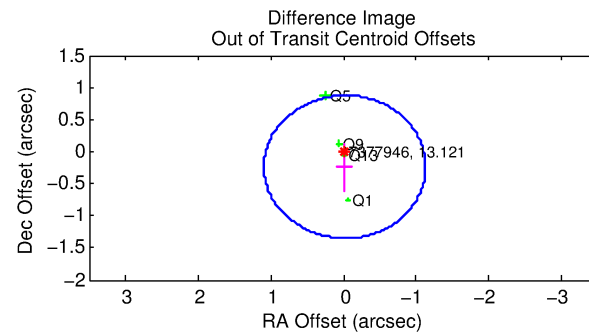
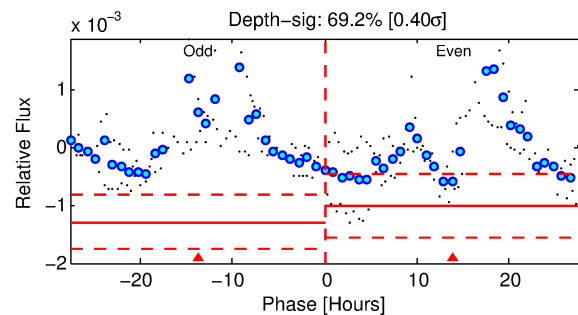
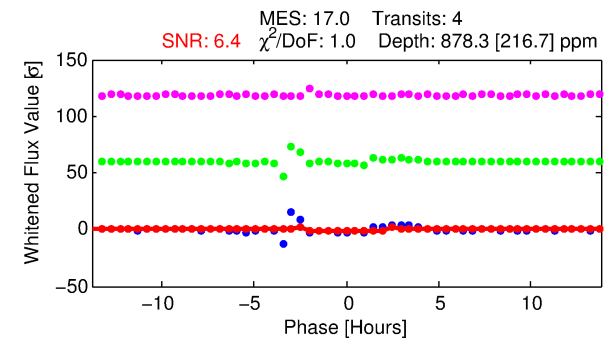
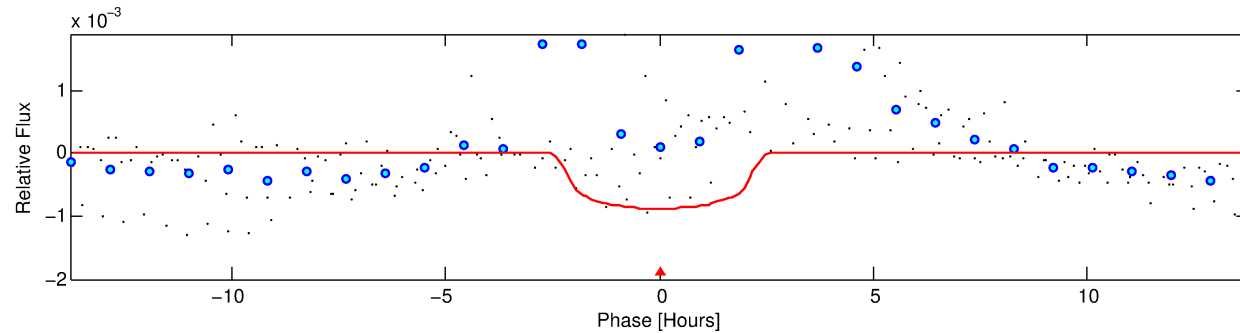
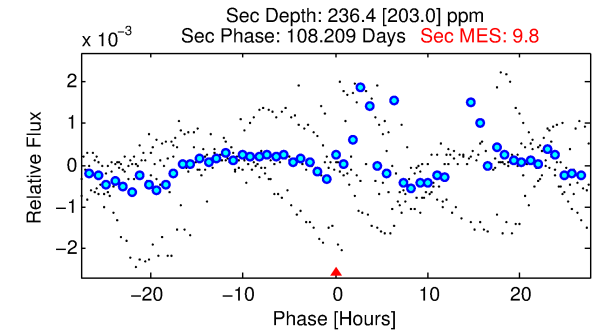
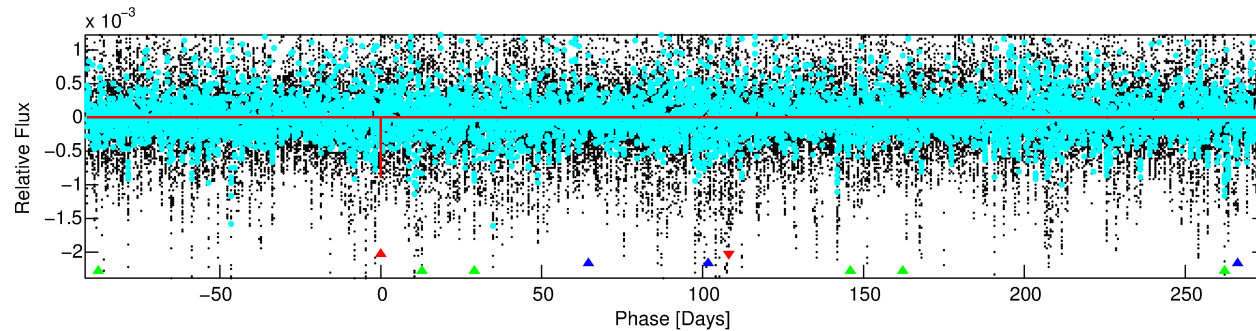
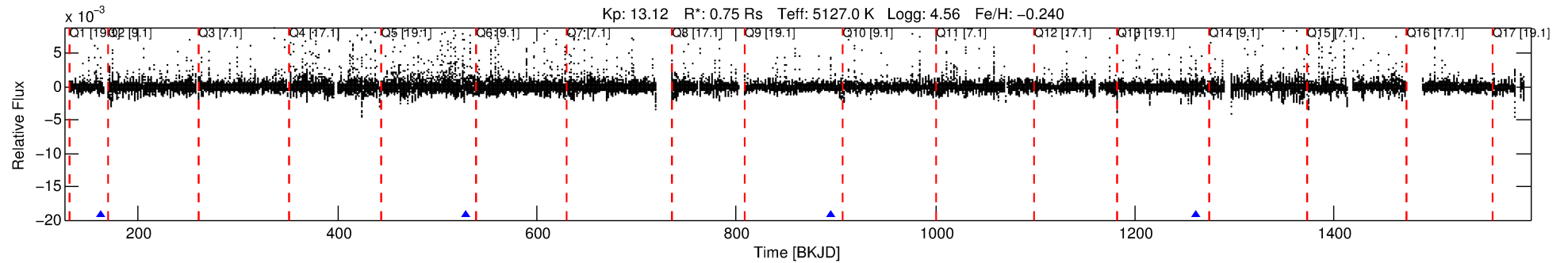
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007377946-01

No Significant Match Found

# DV One-Page Summary

KIC: 7377946 Candidate: 1 of 3 Period: 366.503 d



## DV Fit Results:

Period = 366.50286 [0.00349] d  
Epoch = 162.0341 [0.0060] BKJD  
Rp/R\* = 0.0270 [0.0466]  
a/R\* = 583.04 [3613.86]  
b = 0.37 [14.48]  
Seff = 0.42 [0.08]  
Teq = 205 [10] K  
Rp = 2.21 [3.82] Re  
a = 0.9080 [0.0854] AU  
Ag = 22042.65 [78508.04] [0.28σ]  
Teffp = 3870 [3446] K [1.06σ]

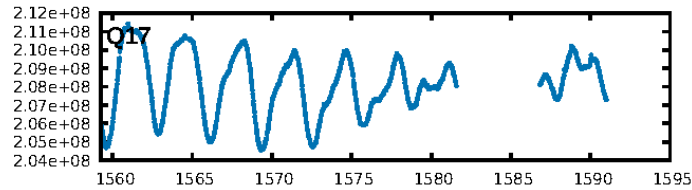
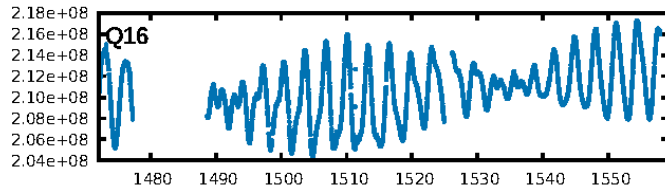
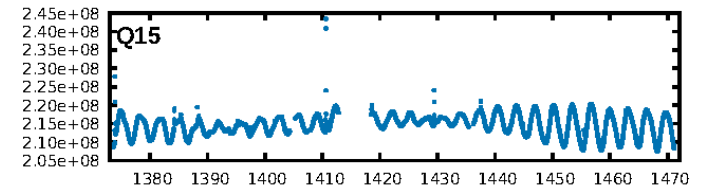
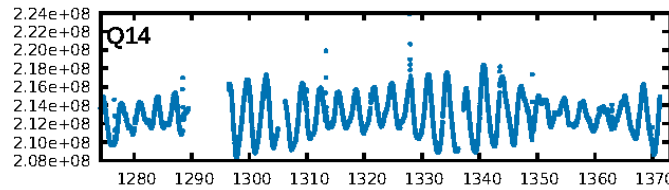
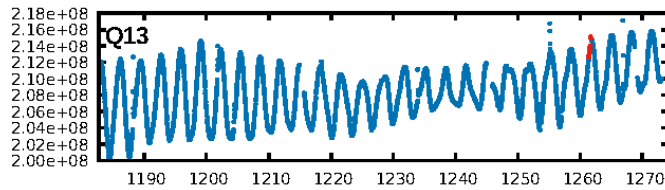
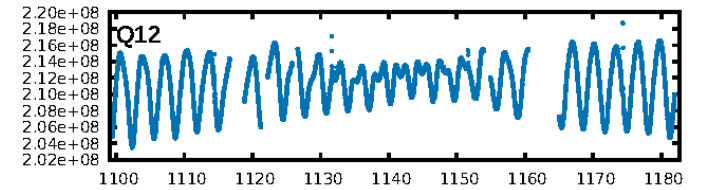
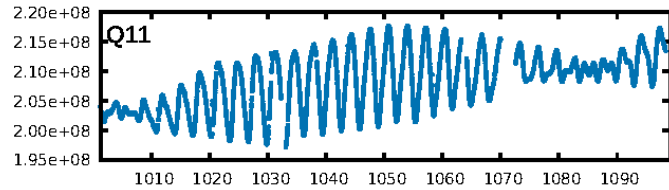
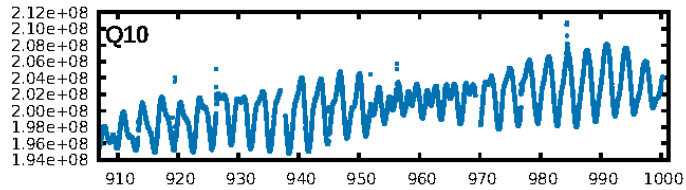
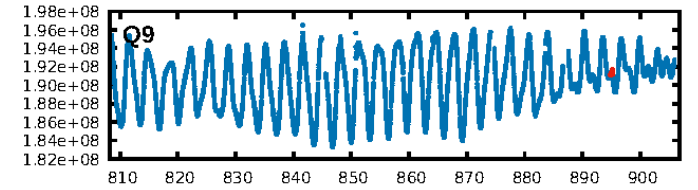
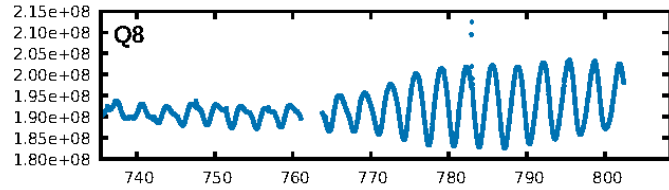
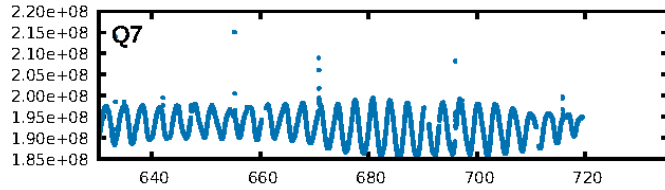
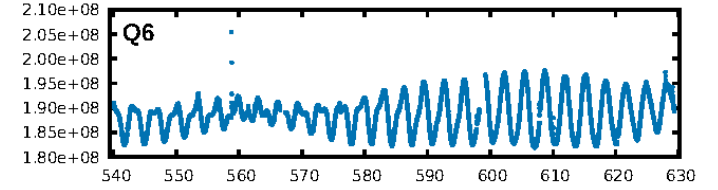
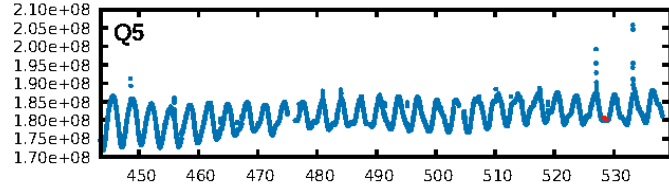
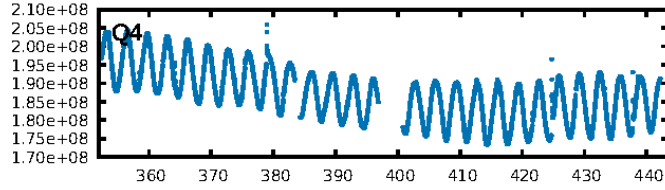
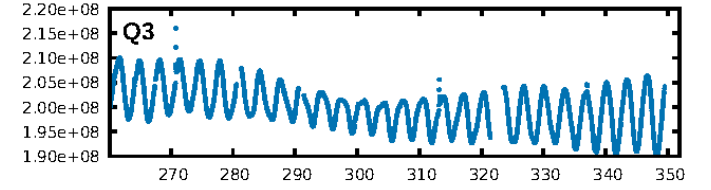
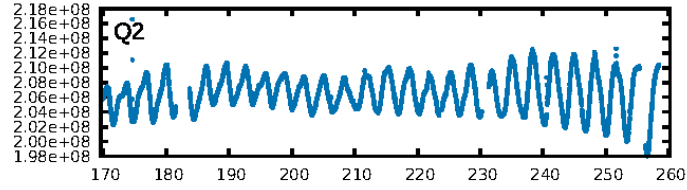
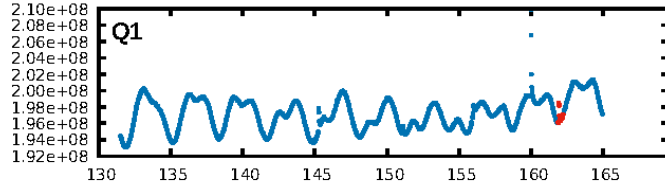
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [510.70σ]  
LongPeriod-sig: 100.0% [580.62σ]  
ModelChiSquare2-sig: 36.0%  
ModelChiSquareGof-sig: 97.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 5.73  
Centroid-sig: 2.3%  
Centroid-so: 0.382 arcsec [1.45σ]  
OotOffset-rm: 0.239 arcsec [0.64σ]  
KicOffset-rm: 0.172 arcsec [0.57σ]  
OotOffset-st: 0/0/0/4 [4]  
KicOffset-st: 0/0/0/4 [4]  
DiffImageQuality-fgm: 0.25 [1/4]  
DiffImageOverlap-fno: 1.00 [4/4]

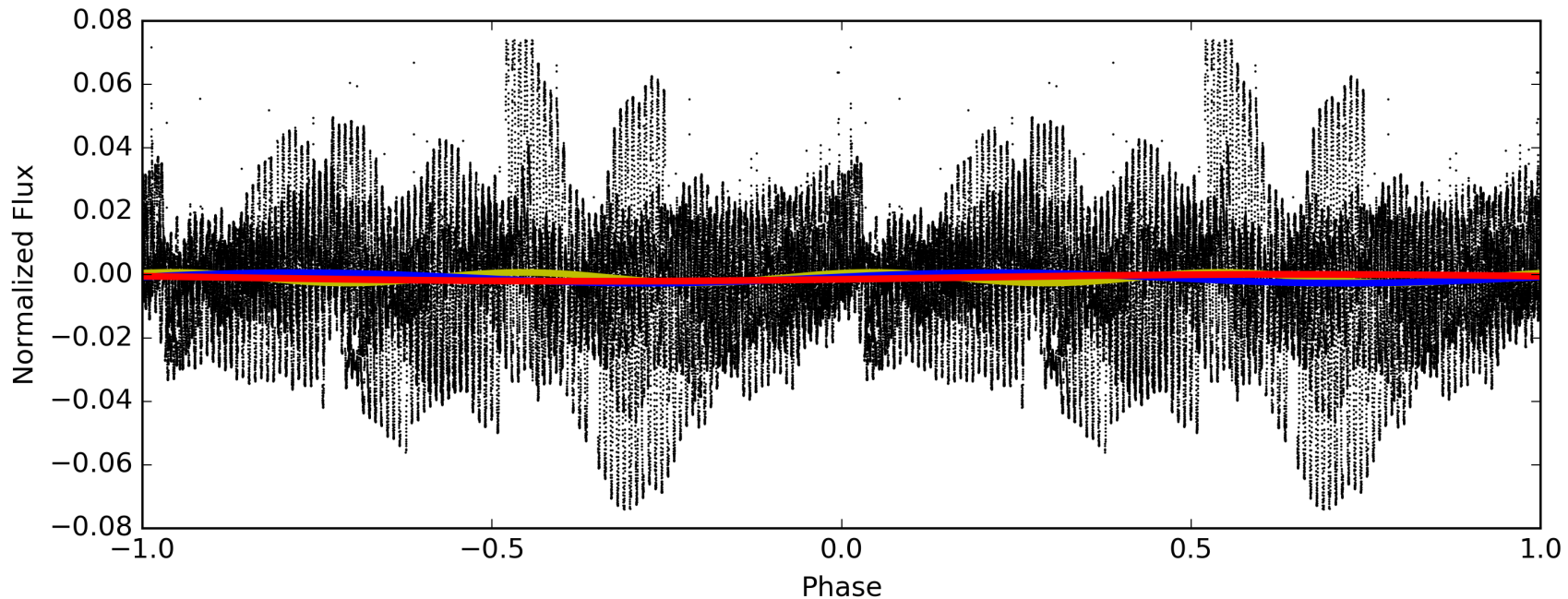
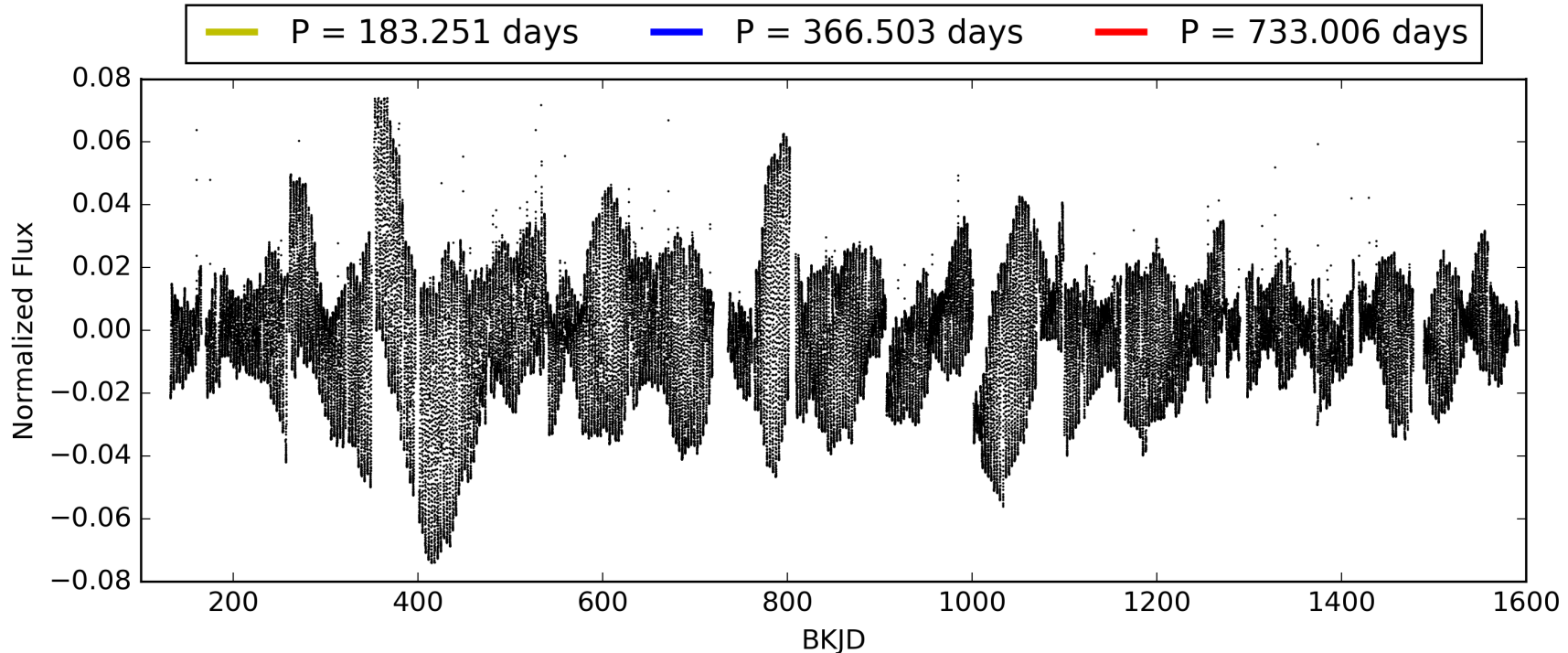
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:51:57 Z

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

# TCE 007377946-01, PDC Light Curves

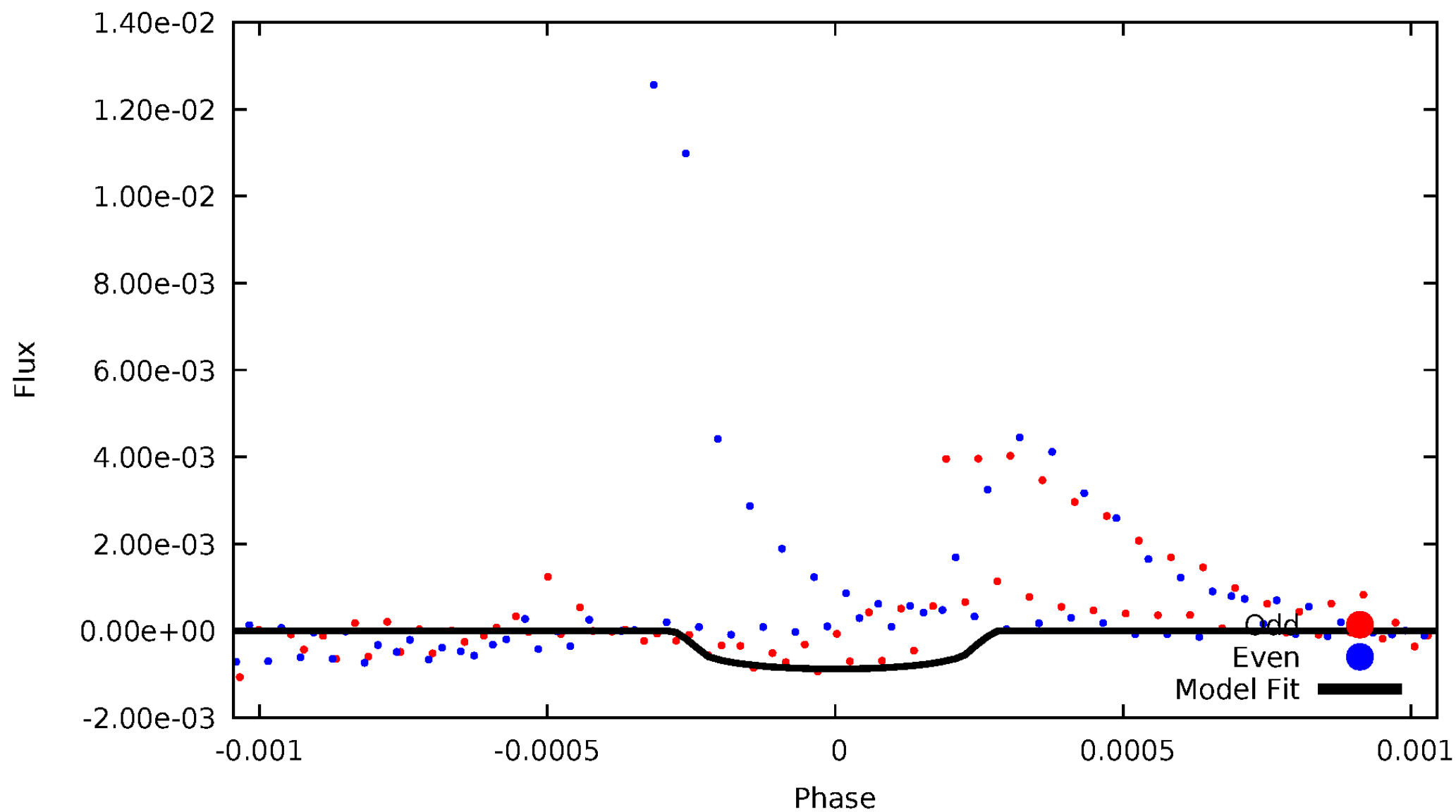


TCE 007377946-01



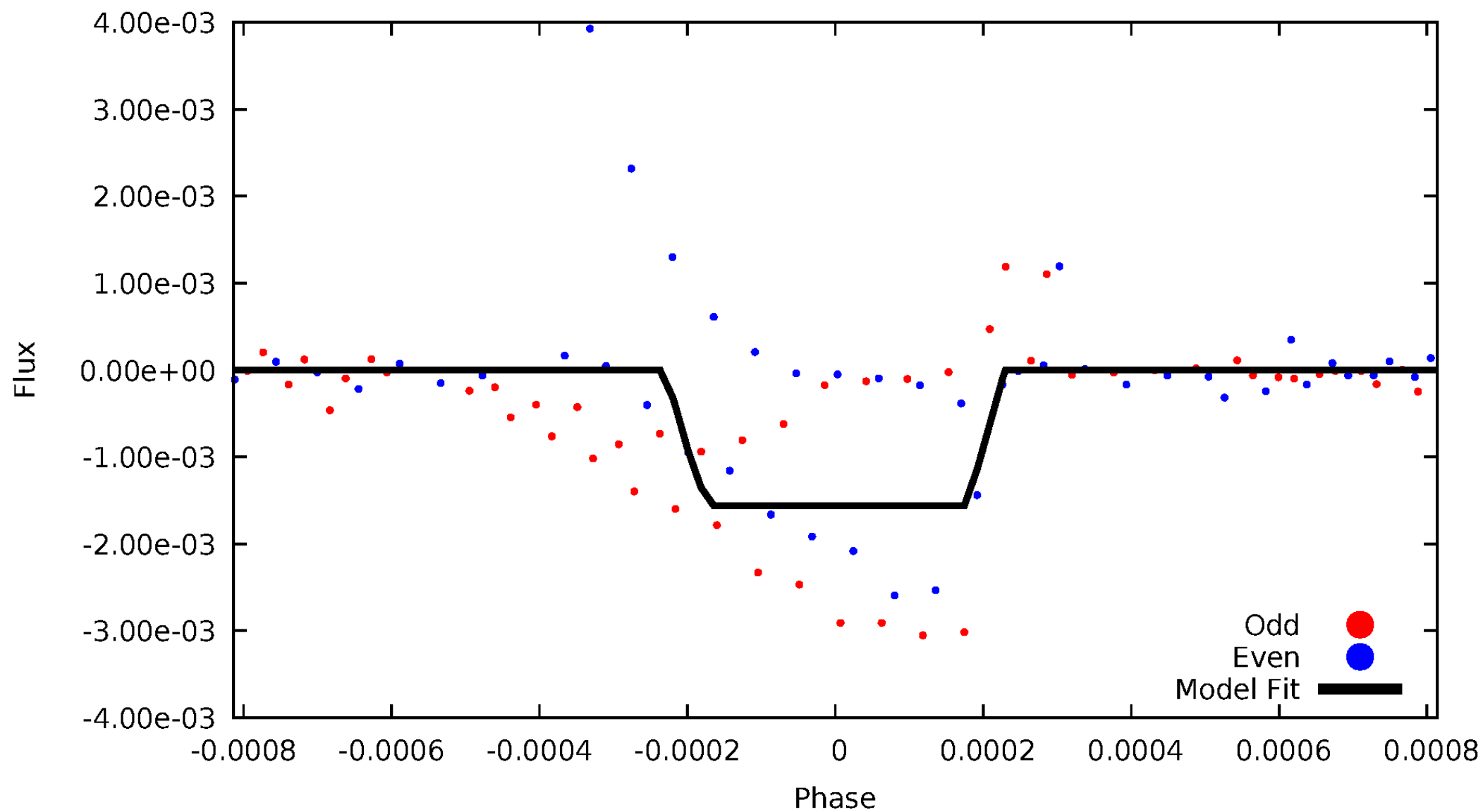
# DV Odd/Even

TCE 007377946-01



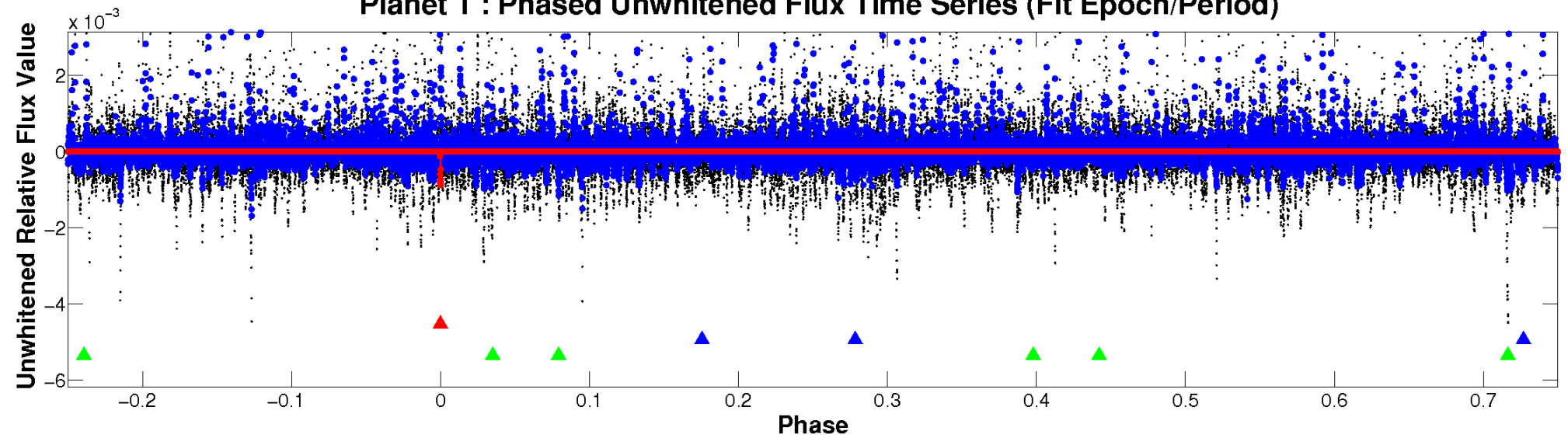
# ALT Odd/Even

TCE 007377946-01

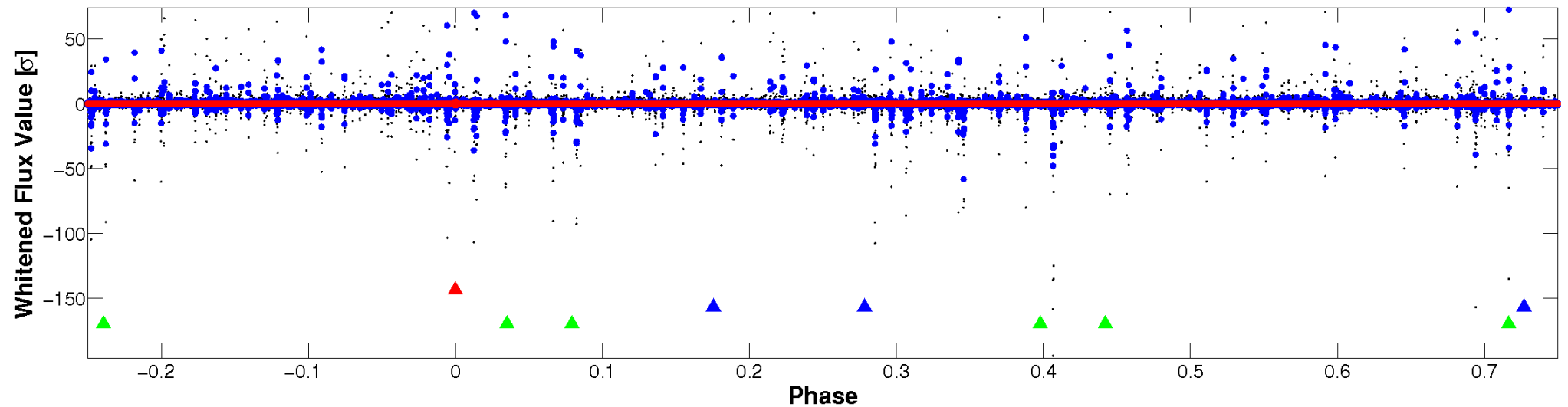


# Non-Whitened Vs. Whitened Light Curve

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

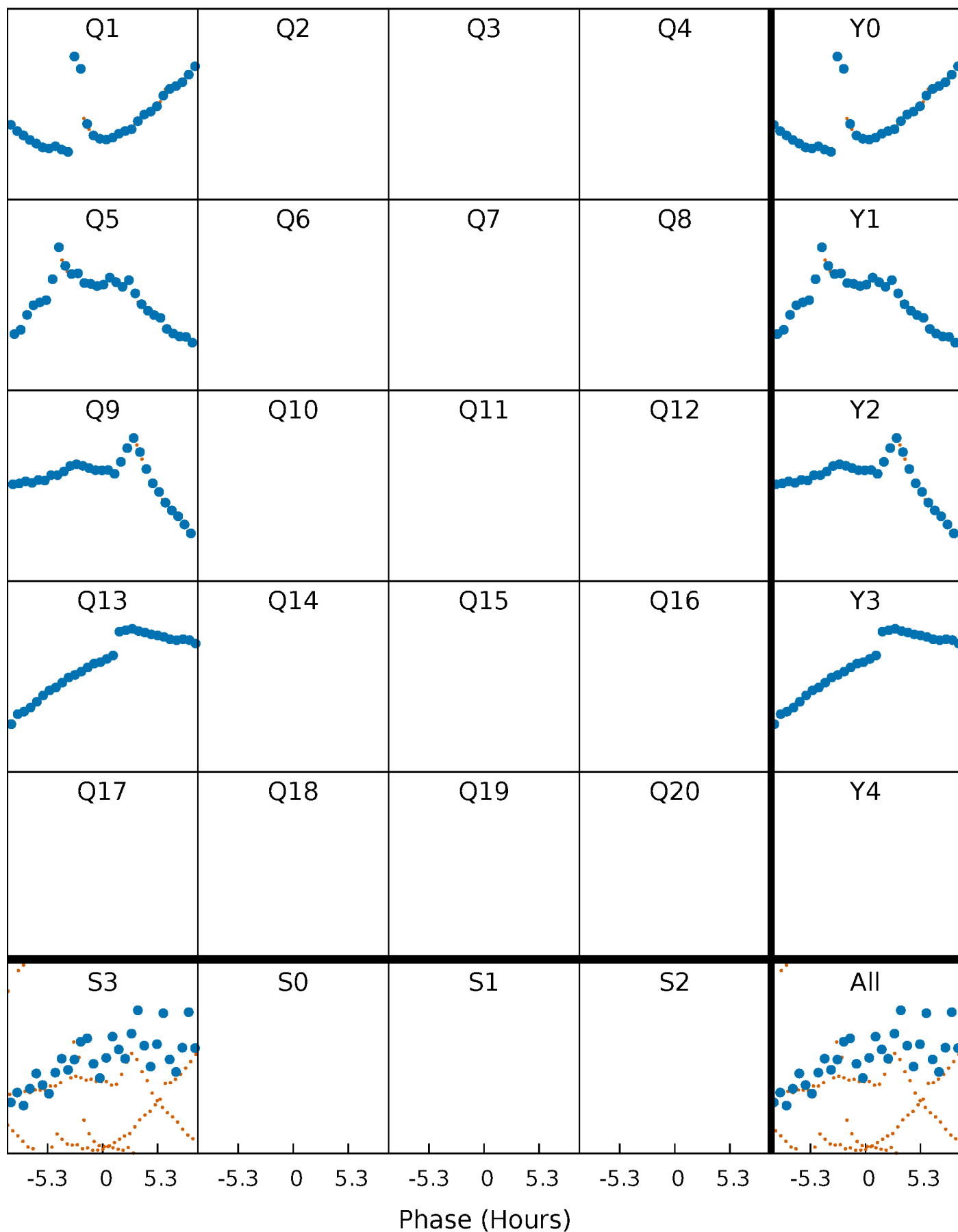


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

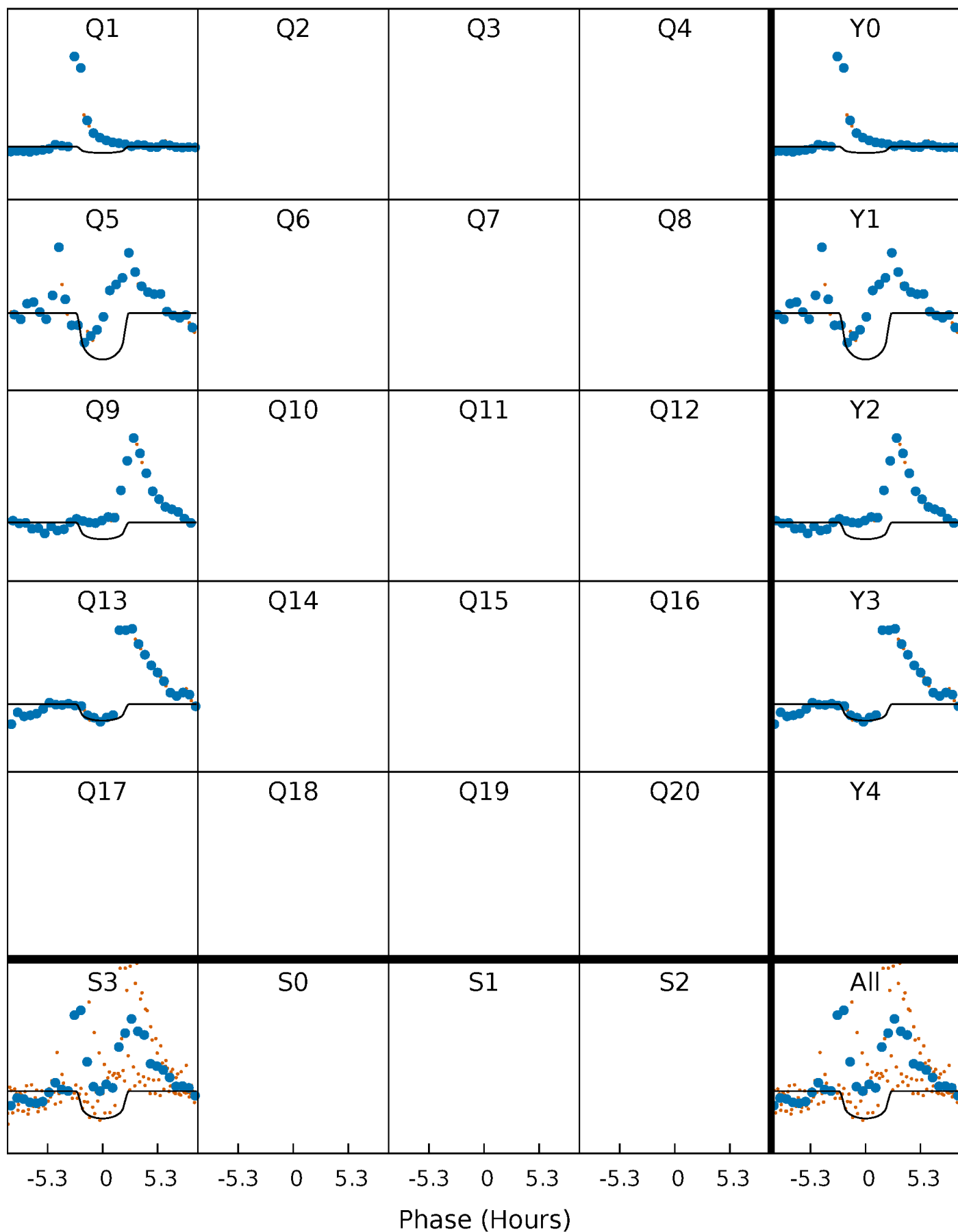
TCE 007377946-01 P=366.502859 Days  $T_0=162.034116$  (BKJD)





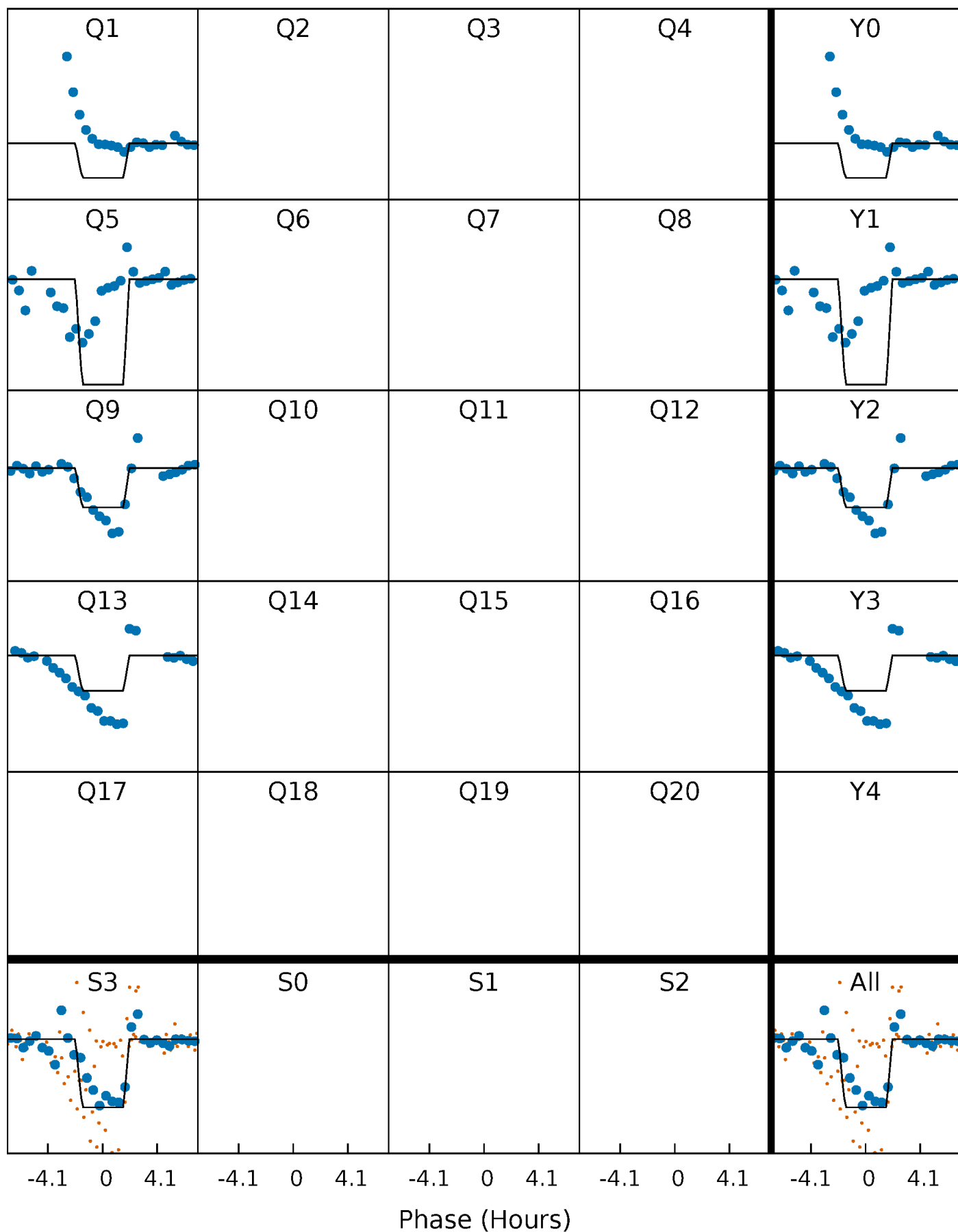
# DV Quarter-Phased Transit Curves

TCE 007377946-01 P=366.502859 Days  $T_0=162.034116$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

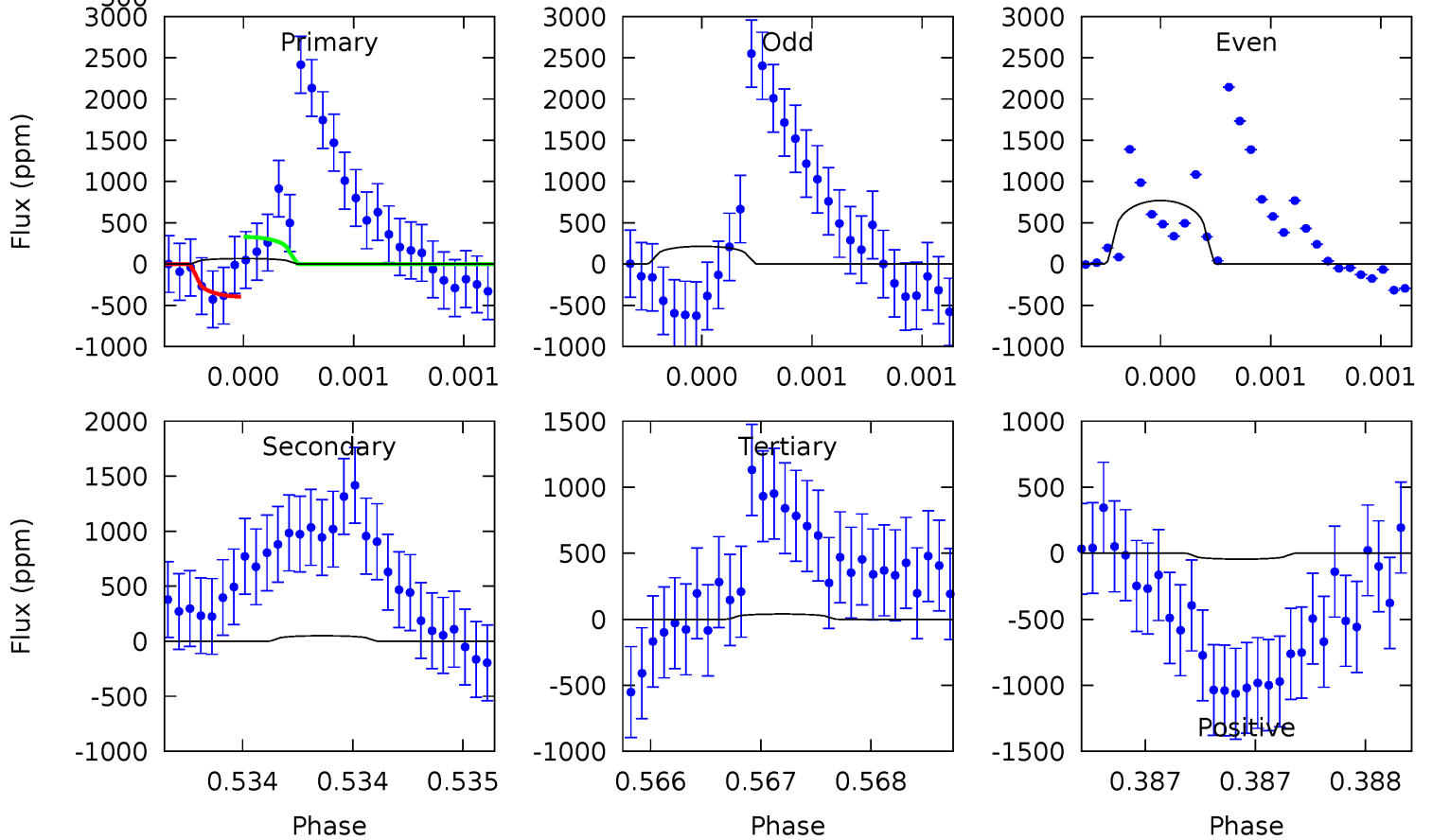
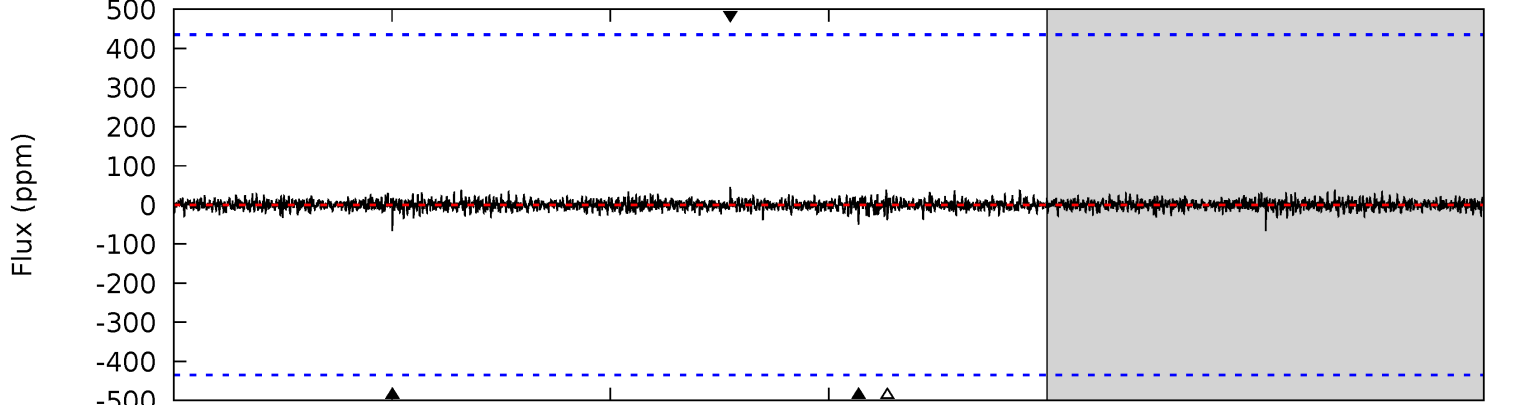
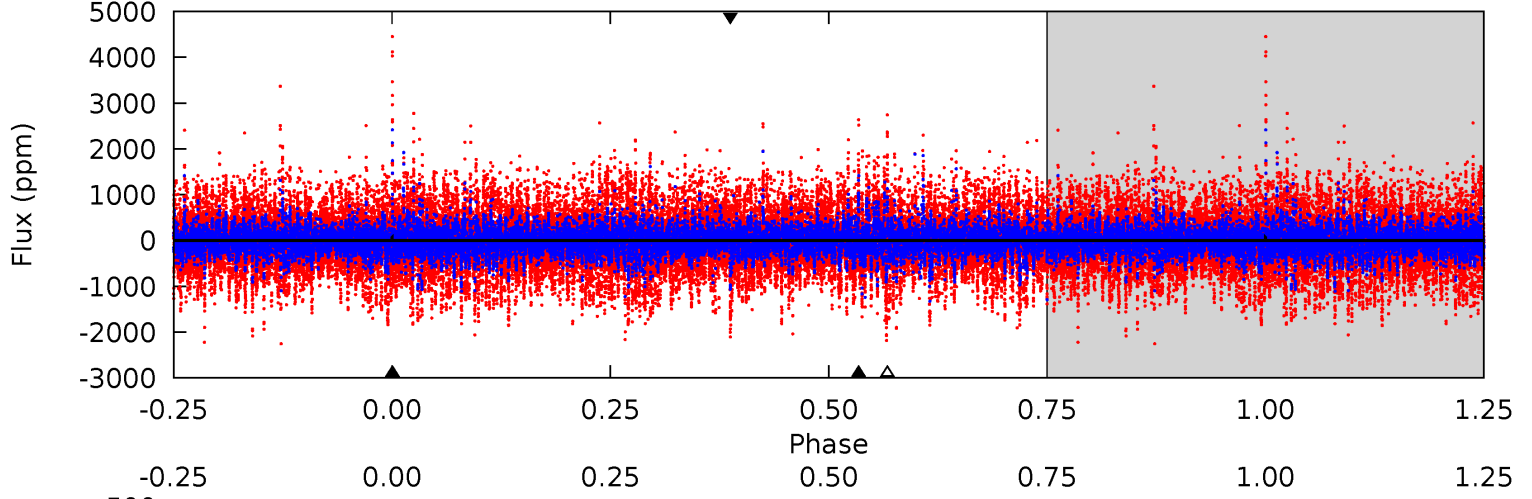
TCE 007377946-01 P=366.482710 Days  $T_0=162.080896$  (BKJD)



# DV Model-Shift Uniqueness Test

007377946-01, P = 366.502859 Days, E = 162.034116 Days

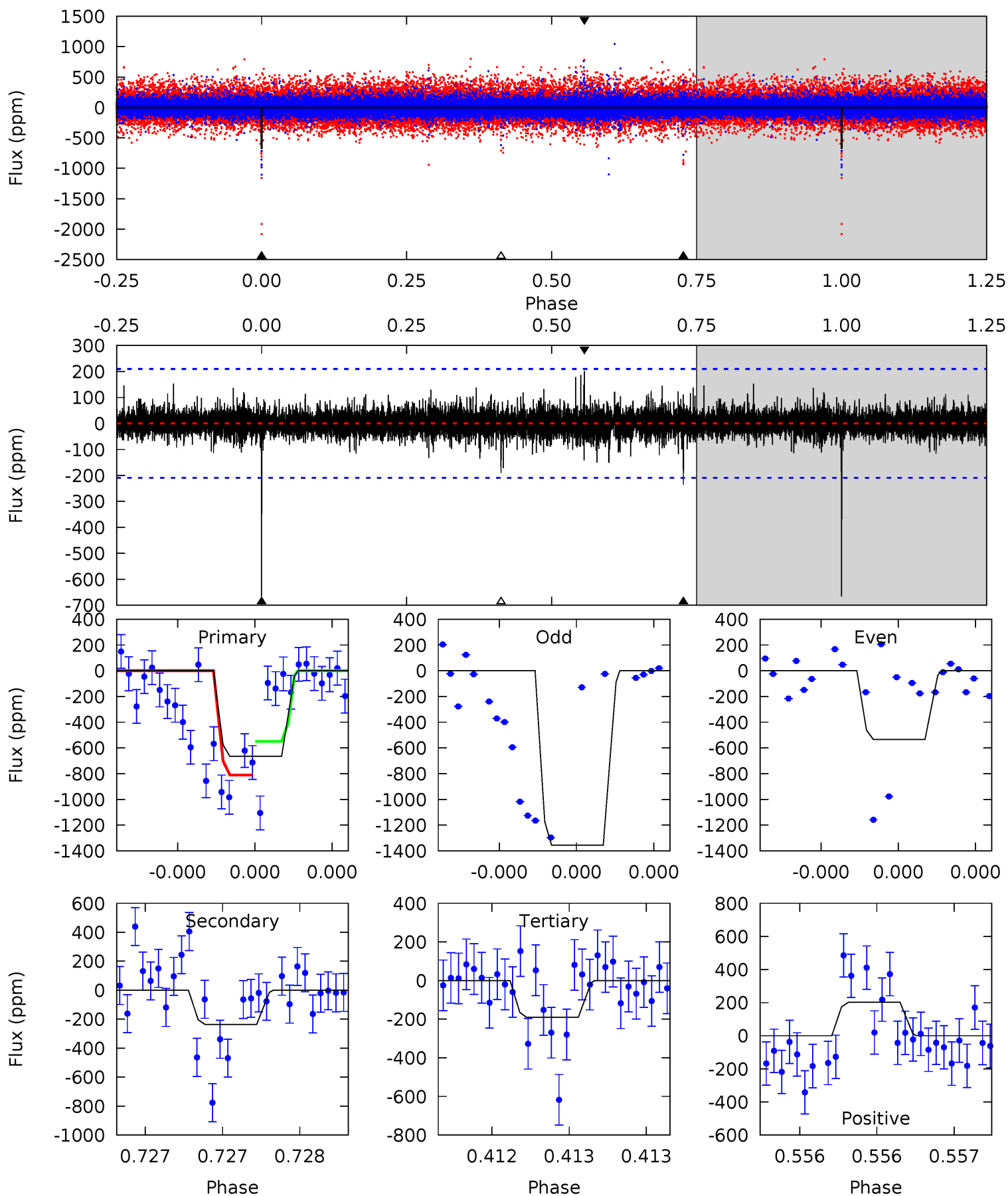
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.85	0.64	0.50	0.57	5.55	3.44	0.12	0.35	0.27	0.13	0.06	2.64	2.93	0.40	0.42



# Alt Model-Shift Uniqueness Test

007377946-01, P = 366.482710 Days, E = 162.080896 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
17.7	6.29	5.08	5.38	5.59	3.51	0.81	12.7	12.4	1.21	0.91	12.7	1.06	0.23	3.37



### Stellar Parameters For KIC 007377946

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5127^{+179}_{-179}$	$4.560^{+0.066}_{-0.060}$	$-0.240^{+0.300}_{-0.300}$	$0.749^{+0.089}_{-0.073}$	$0.743^{+0.098}_{-0.065}$	$2.495^{+0.726}_{-0.564}$
	+3%/-3%	+1%/-1%	+125%/-125%	+12%/-10%	+13%/-9%	+29%/-23%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007377946-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-50 \pm 78$	$3.77^{+3.24}_{-2.58}$	$288^{+11}_{-12}$	$2615^{+1069}_{-5125}$	$1094^{+10422}_{-1872}$
Alt.	$-236 \pm 37$	$4.16^{+3.26}_{-2.69}$	$287^{+13}_{-12}$	$3338^{+1425}_{-525}$	$6185^{+42161}_{-4306}$

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

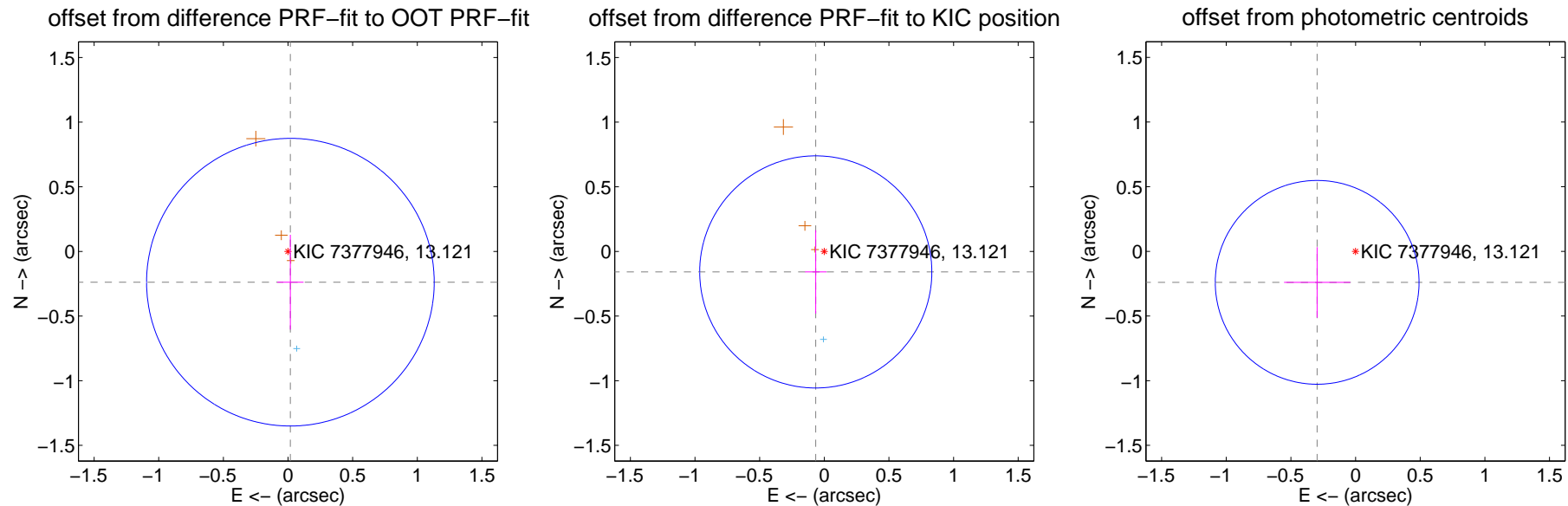
## DV Centroid Data

Supplemental centroid analysis for 007377946-01. Kepler magnitude: 13.12. Transit SNR 6.41

There are 1 quarters with good PRF difference image offsets

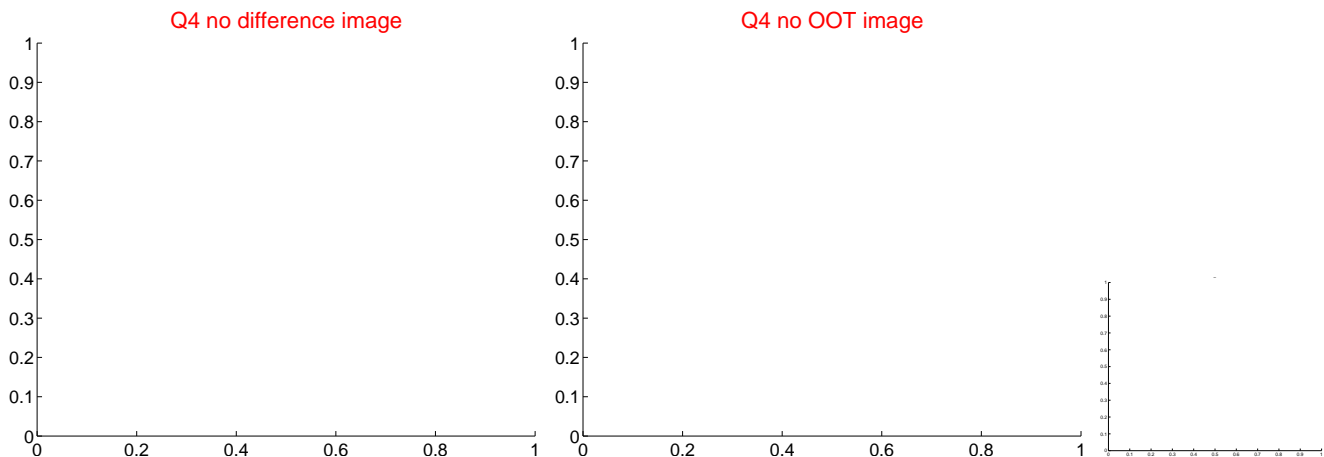
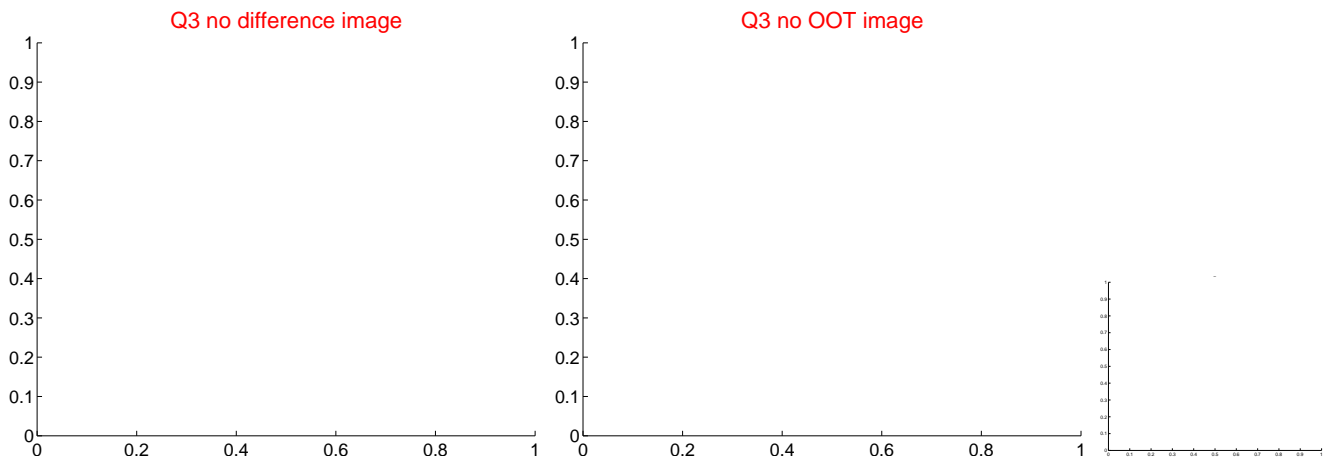
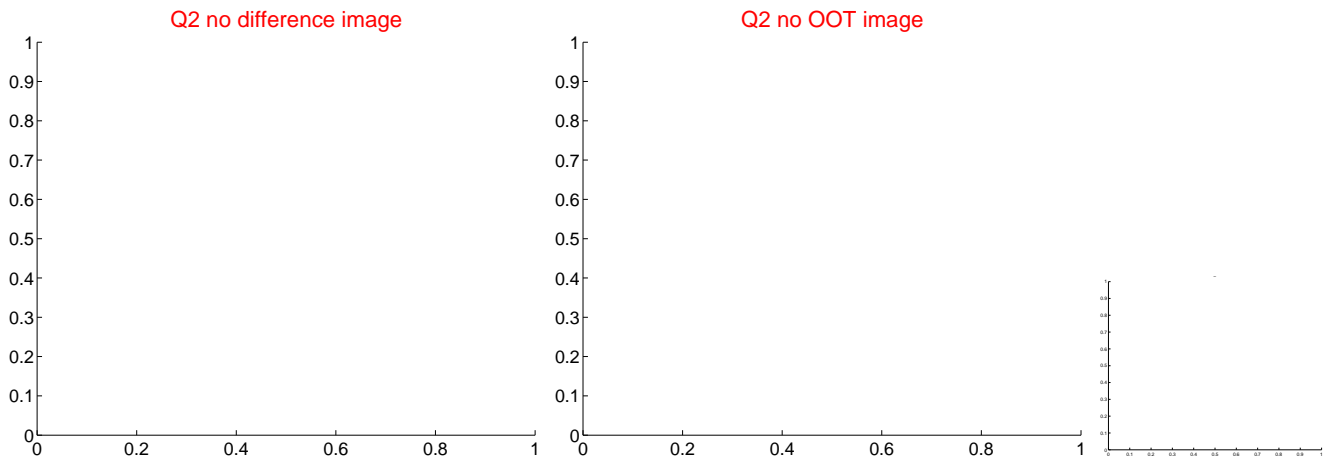
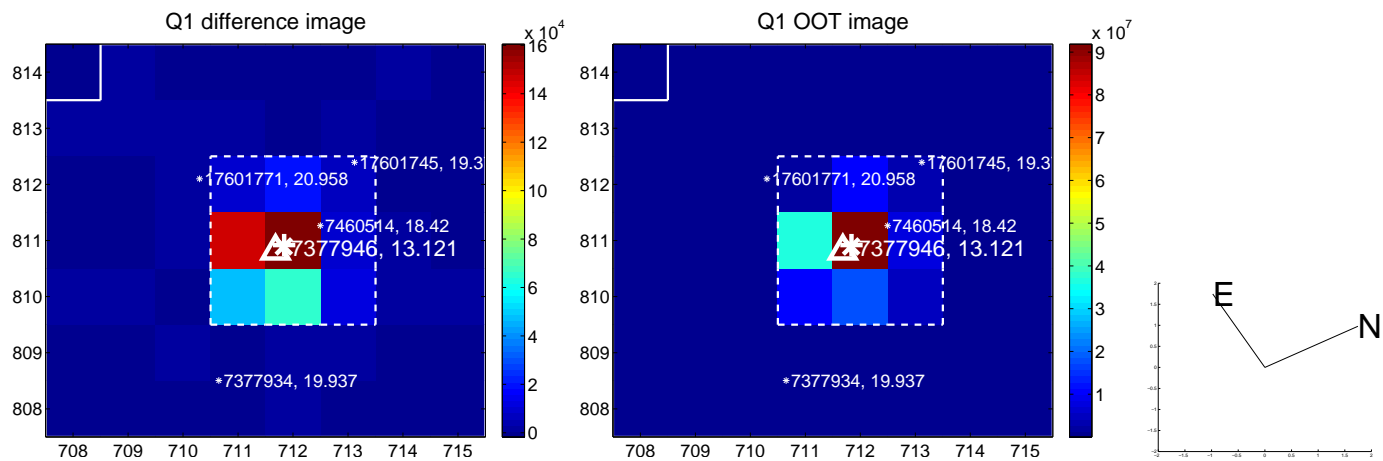
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.239 \pm 0.371$	0.64	$-0.018 \pm 0.102$	$-0.238 \pm 0.366$
PRF-fit source offset from KIC position	$0.172 \pm 0.299$	0.57	$0.066 \pm 0.083$	$-0.159 \pm 0.322$
photometric centroid source offset	$0.38 \pm 0.26$	1.45	$0.30 \pm 0.26$	$-0.24 \pm 0.27$

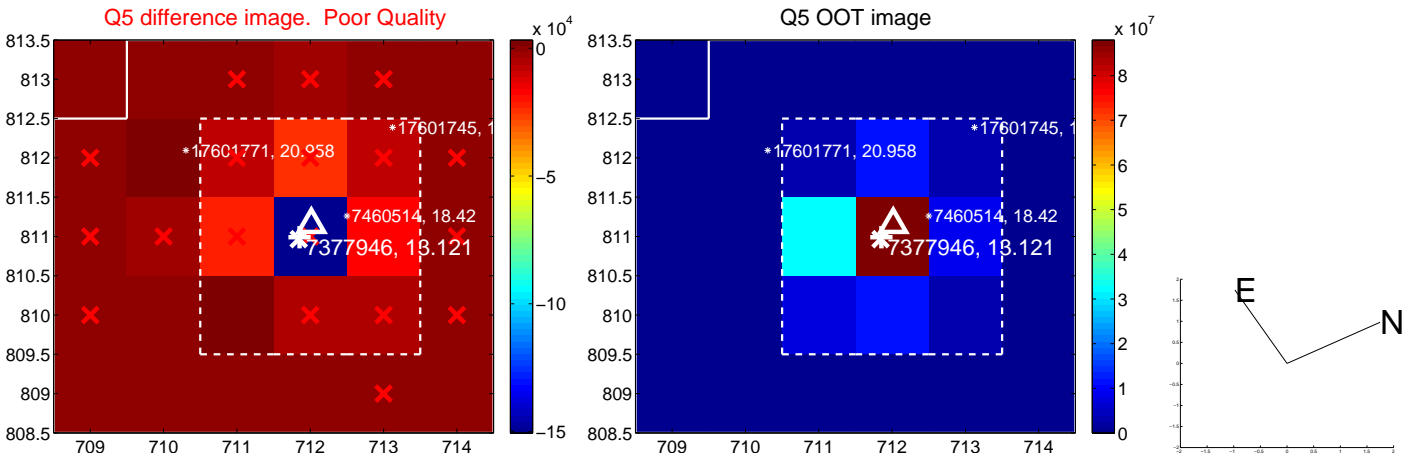


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

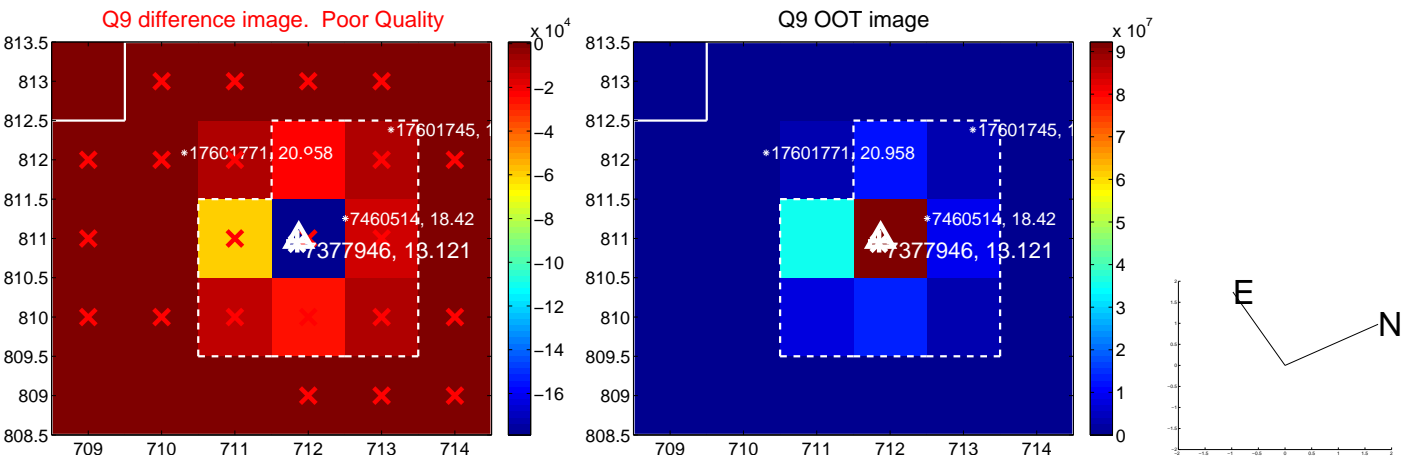


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

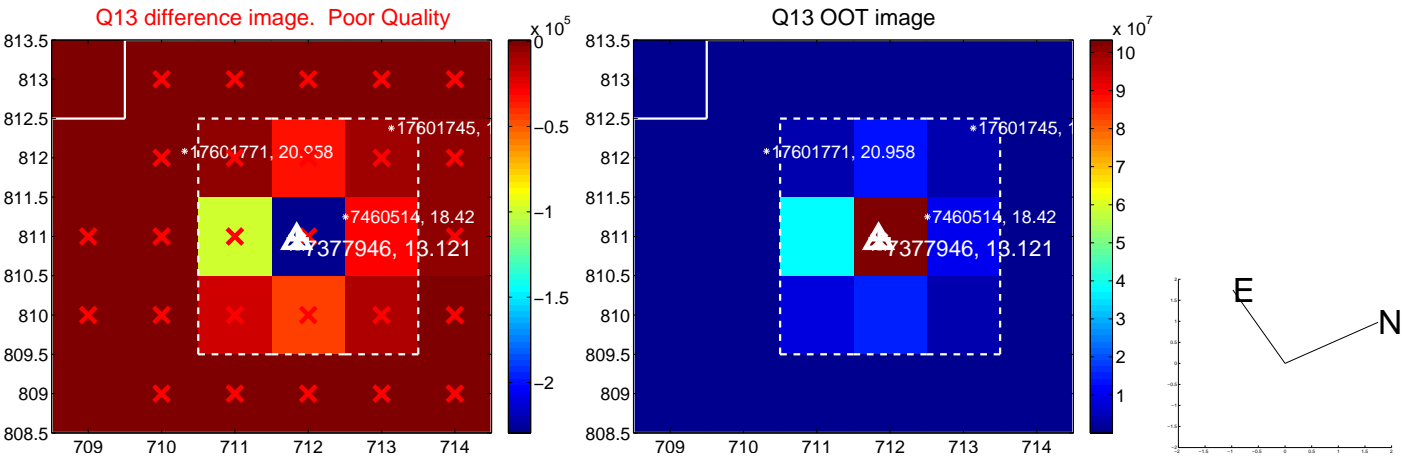




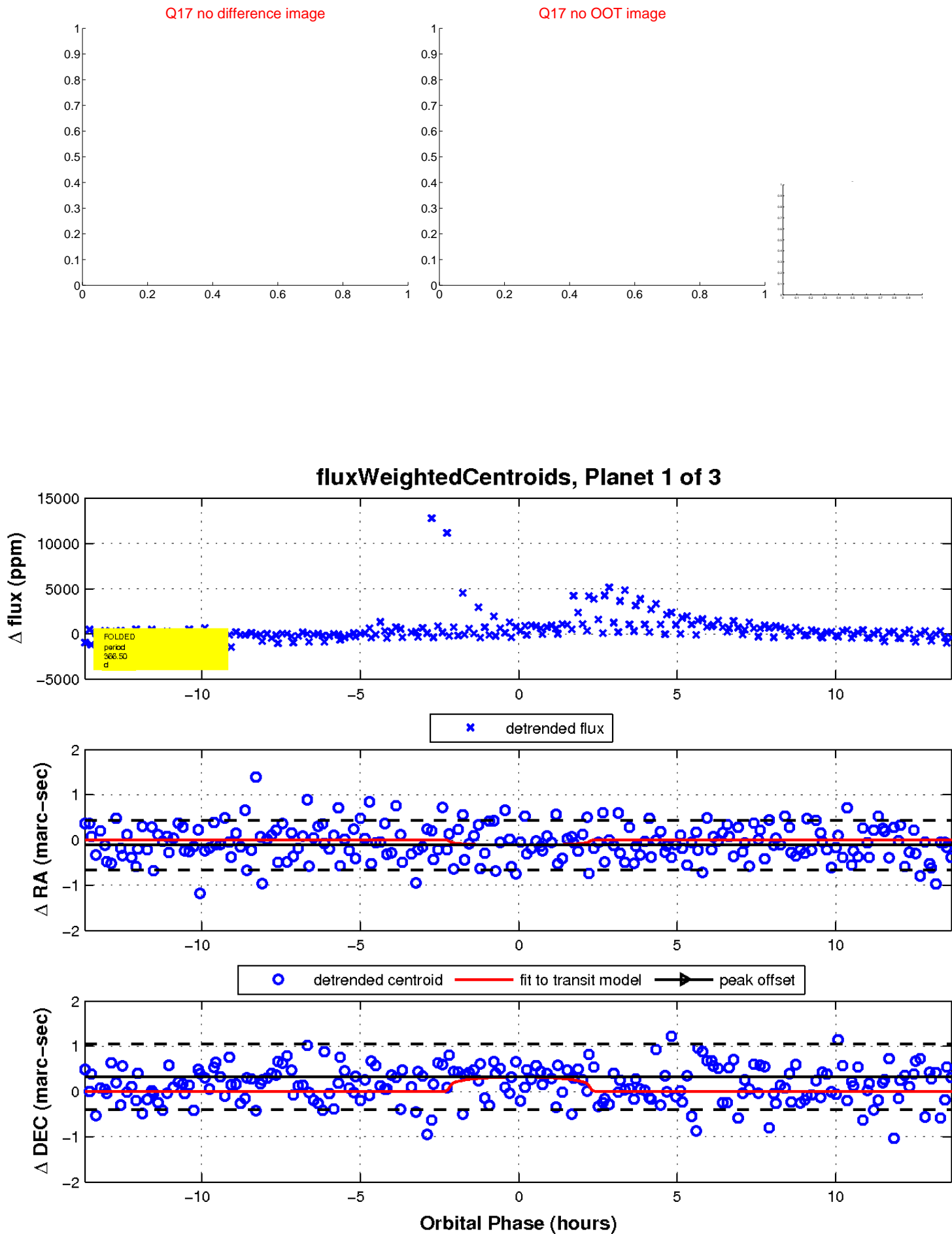
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

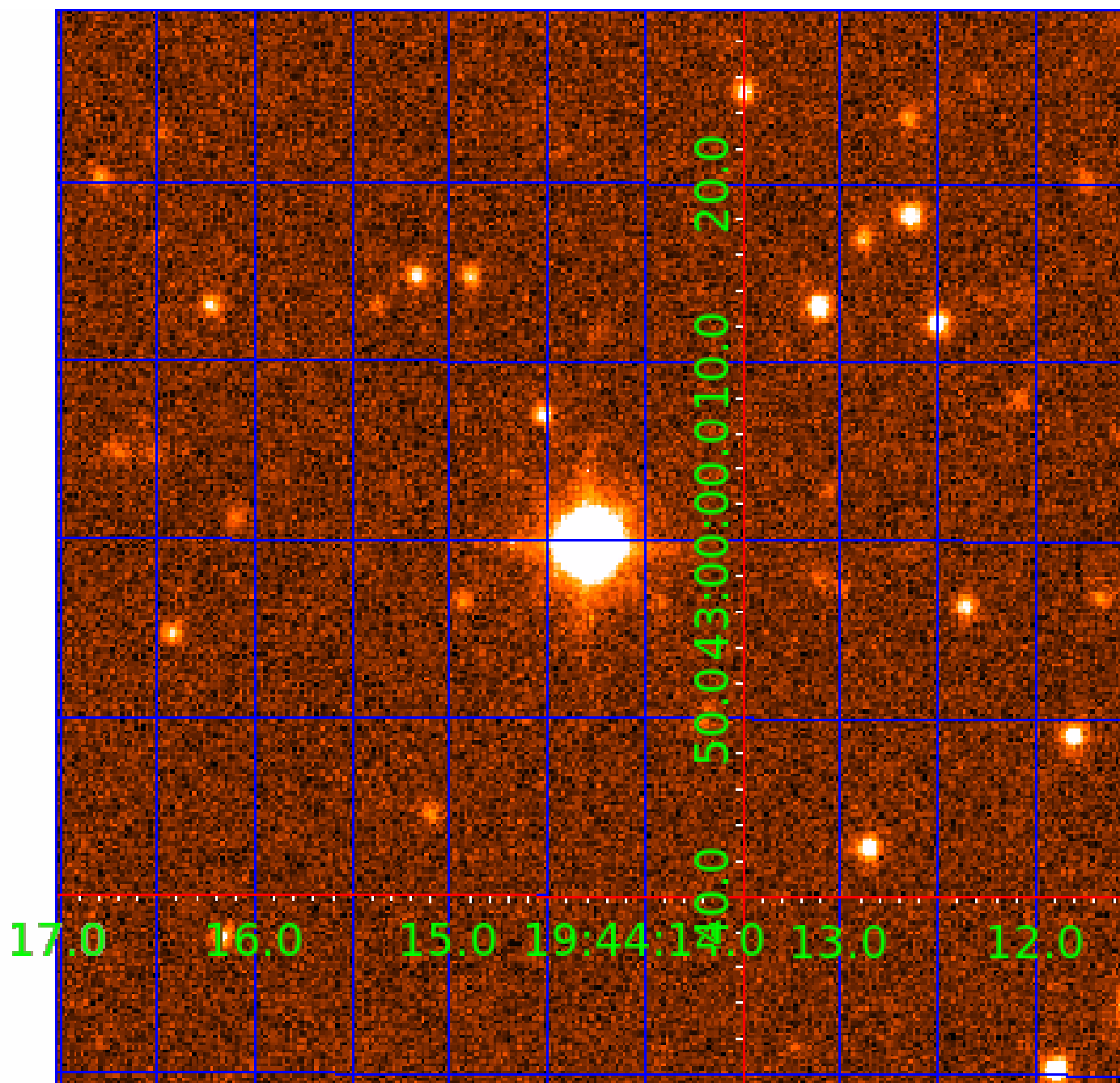


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007377946

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007377946-01	OBS	No	366.502859	162.034116	878.3	4.595	17.0	6.4	0.75	5127	2.21	0.42
007377946-02	OBS	No	530.909898	264.061831	1032.8	5.007	14.3	6.8	0.75	5127	2.35	0.26
007377946-03	OBS	No	249.736493	174.894537	484.8	3.000	11.5	-1.0	0.75	5127	1.61	0.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007377946-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007377946-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
007377946-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS

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

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

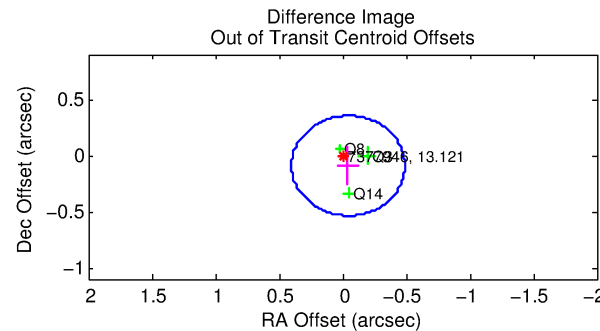
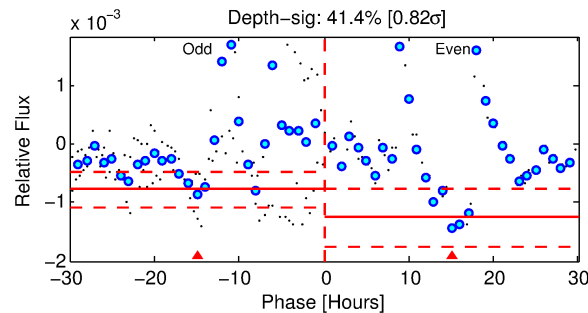
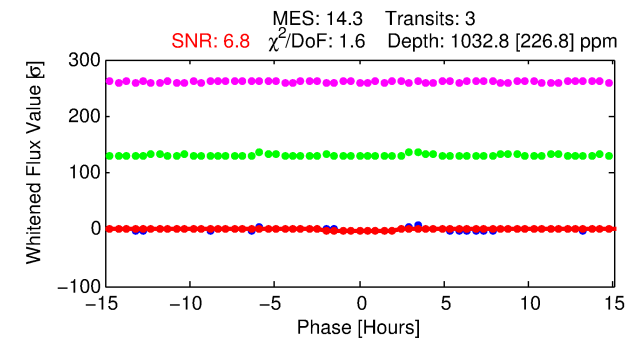
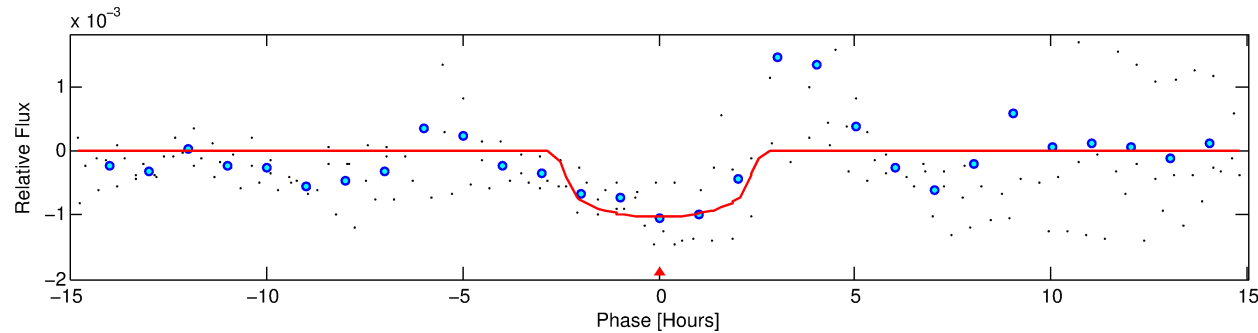
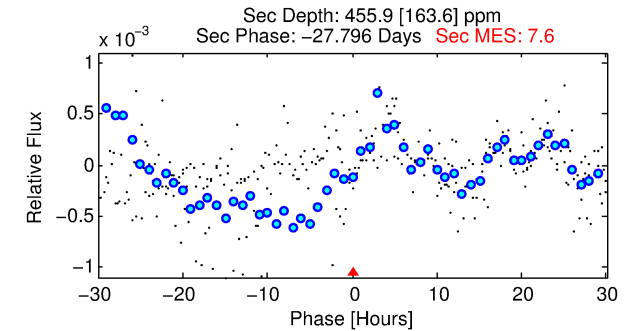
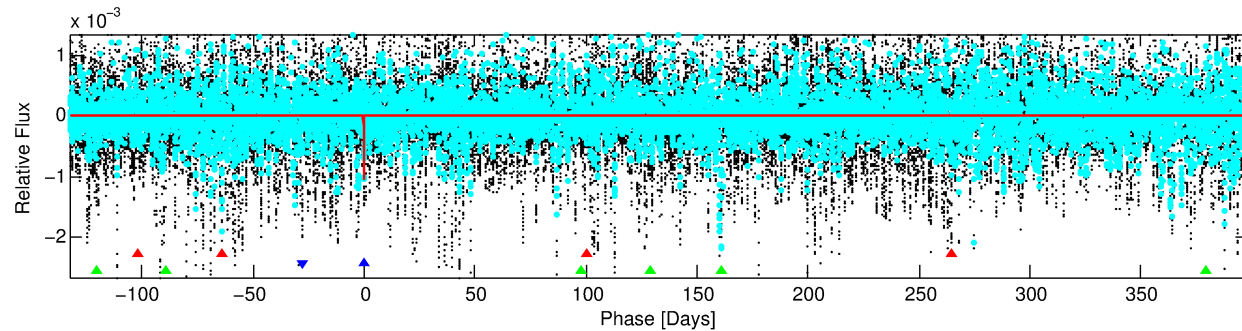
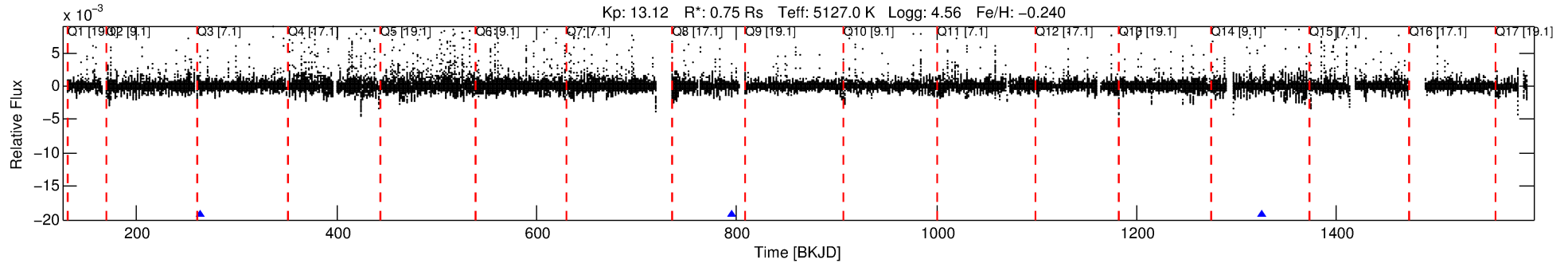
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007377946-02

No Significant Match Found

# DV One-Page Summary

KIC: 7377946 Candidate: 2 of 3 Period: 530.910 d



## DV Fit Results:

Period = 530.90990 [0.00570] d  
Epoch = 264.0618 [0.0071] BKJD  
Rp/R\* = 0.0287 [0.0737]  
a/R\* = 828.36 [7816.40]  
b = 0.11 [84.32]  
Seff = 0.26 [0.05]  
Teq = 182 [9] K  
Rp = 2.35 [6.03] Re  
a = 1.1624 [0.1093] AU  
Ag = 61472.14 [316114.21] [0.19σ]  
Teffp = 4420 [5683] K [0.75σ]

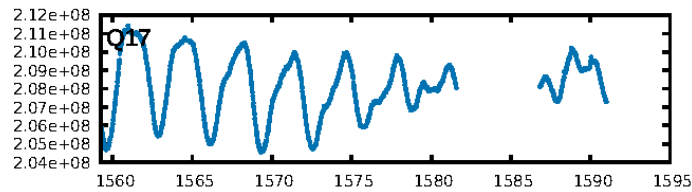
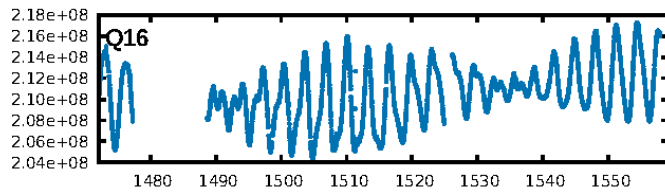
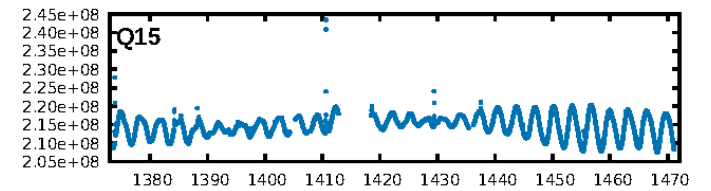
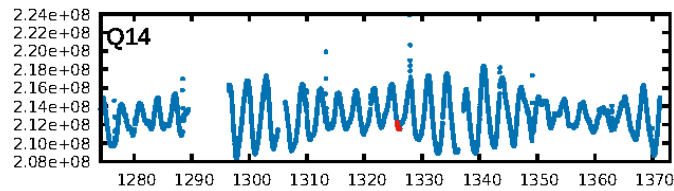
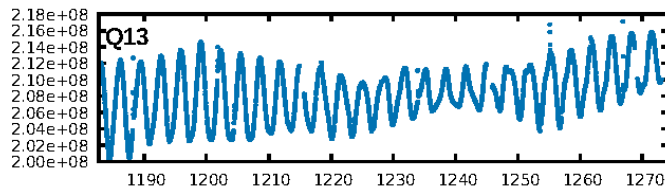
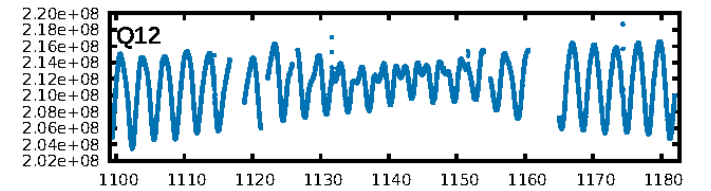
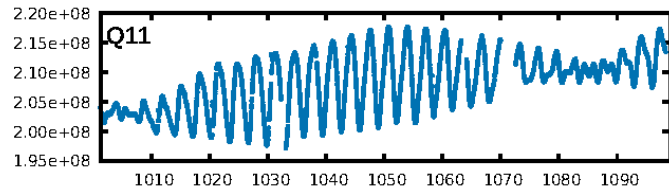
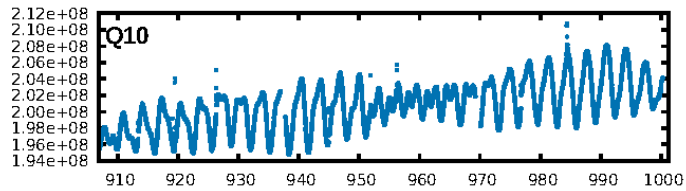
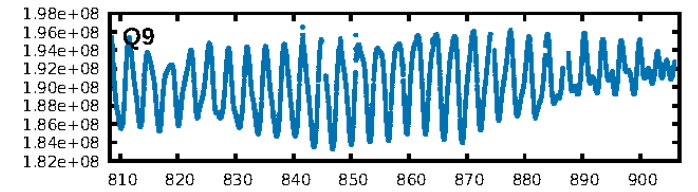
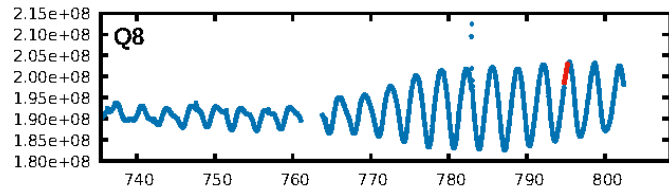
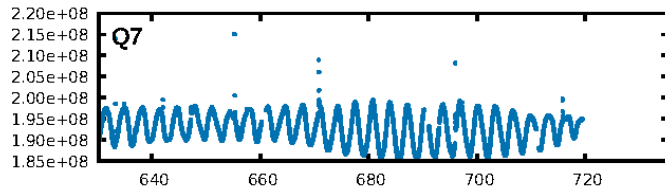
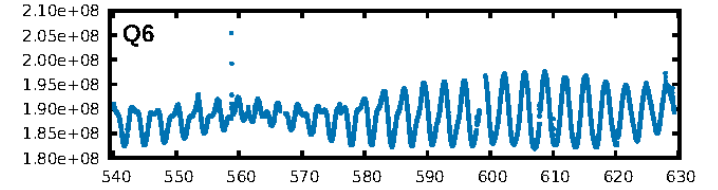
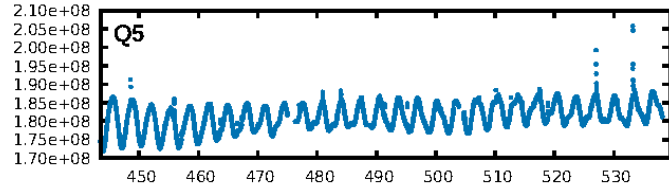
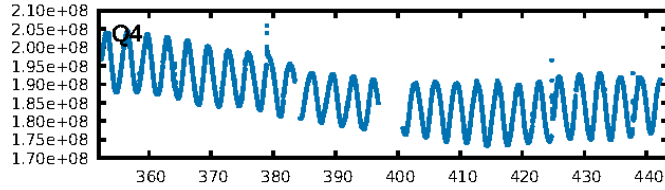
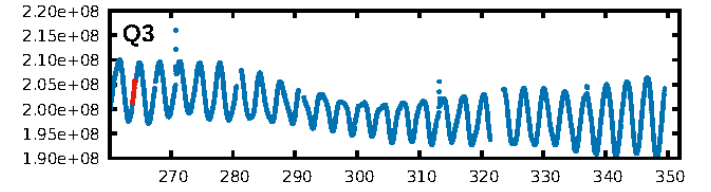
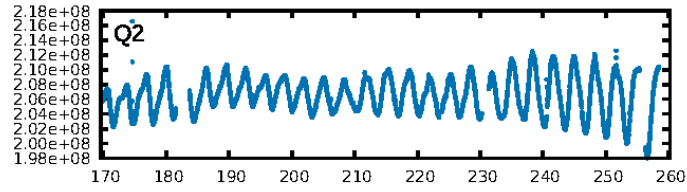
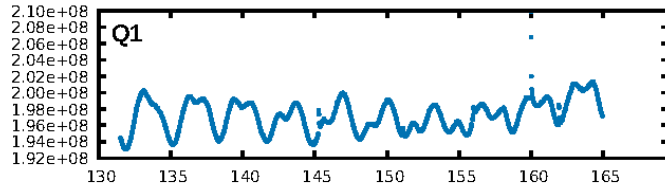
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [580.62σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.4%  
ModelChiSquareGof-sig: 32.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.3905**  
Centroid-sig: 6.7%  
Centroid-so: 0.391 arcsec [1.34σ]  
OotOffset-rm: 0.102 arcsec [0.69σ]  
OotOffset-st: 1/1/1/0 [3]  
KicOffset-rm: 0.126 arcsec [1.51σ]  
KicOffset-st: 1/1/1/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

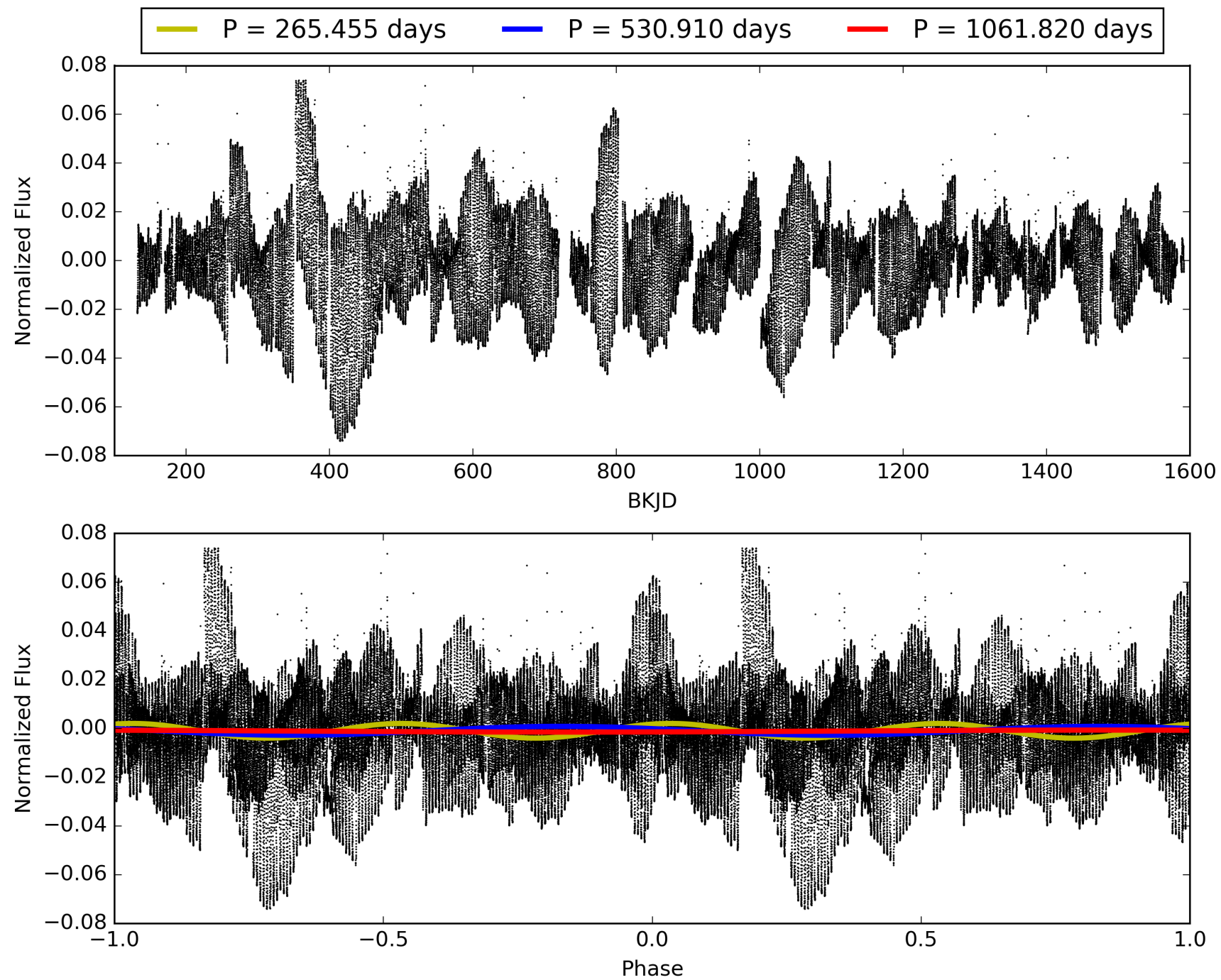
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:52:13 Z

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

# TCE 007377946-02, PDC Light Curves



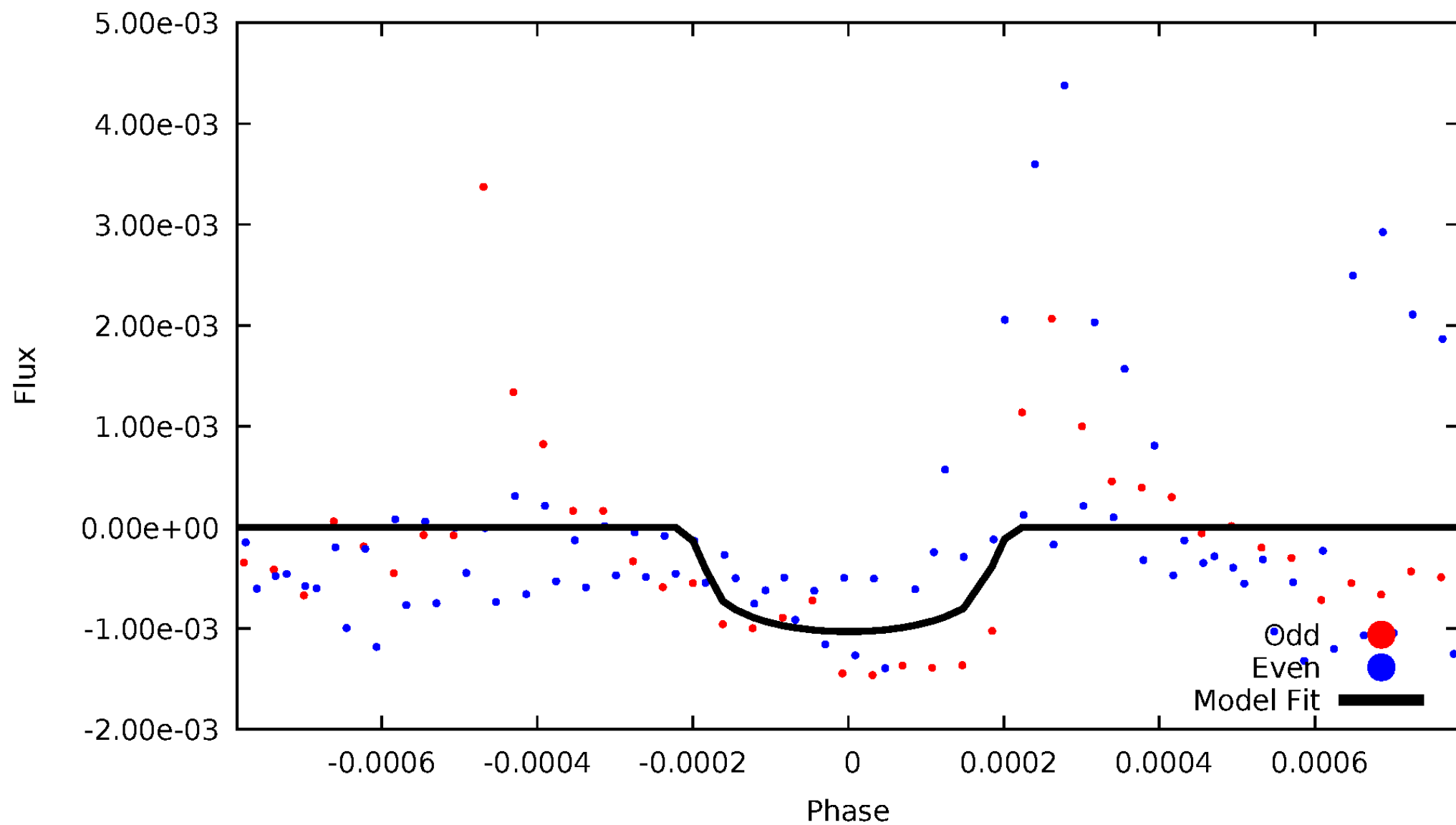
TCE 007377946-02





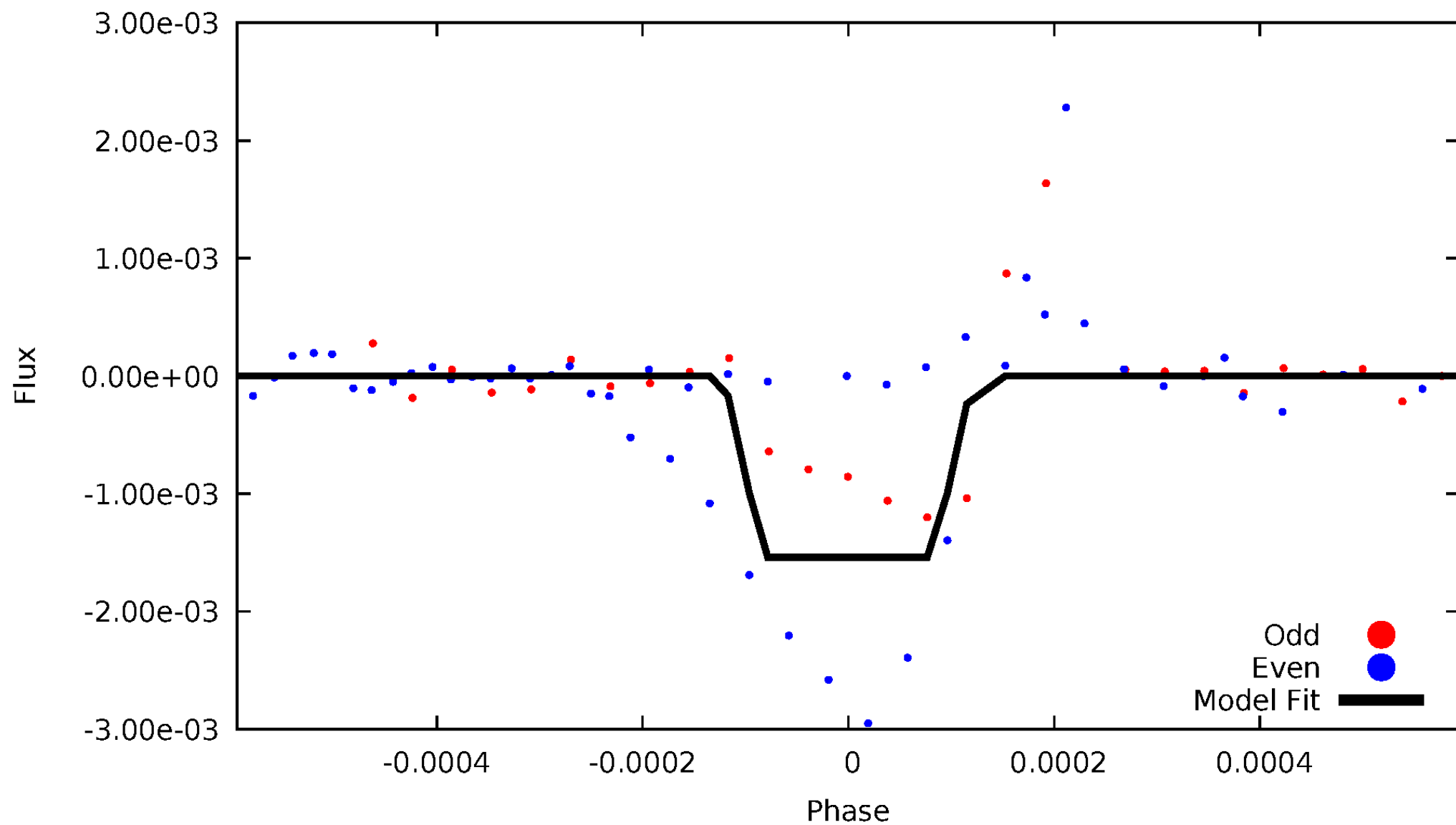
# DV Odd/Even

TCE 007377946-02



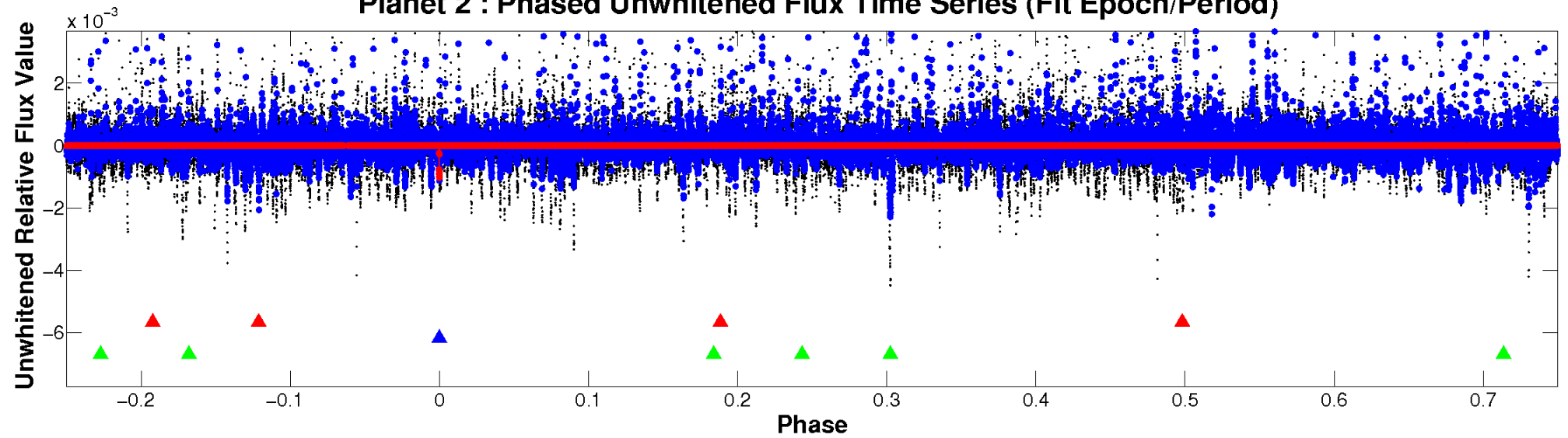
# ALT Odd/Even

TCE 007377946-02

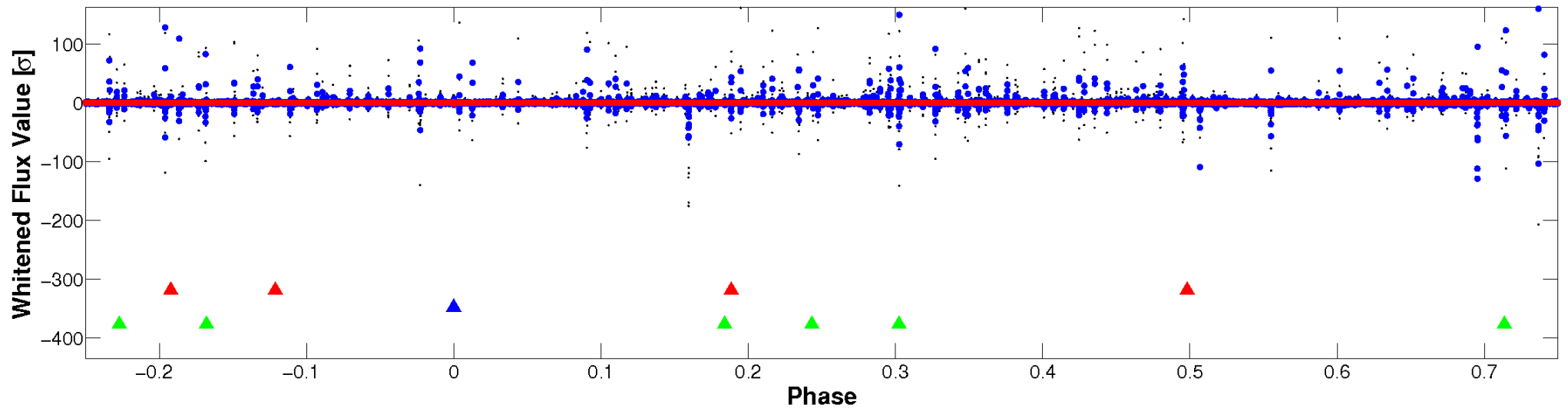


# Non-Whitened Vs. Whitened Light Curve

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

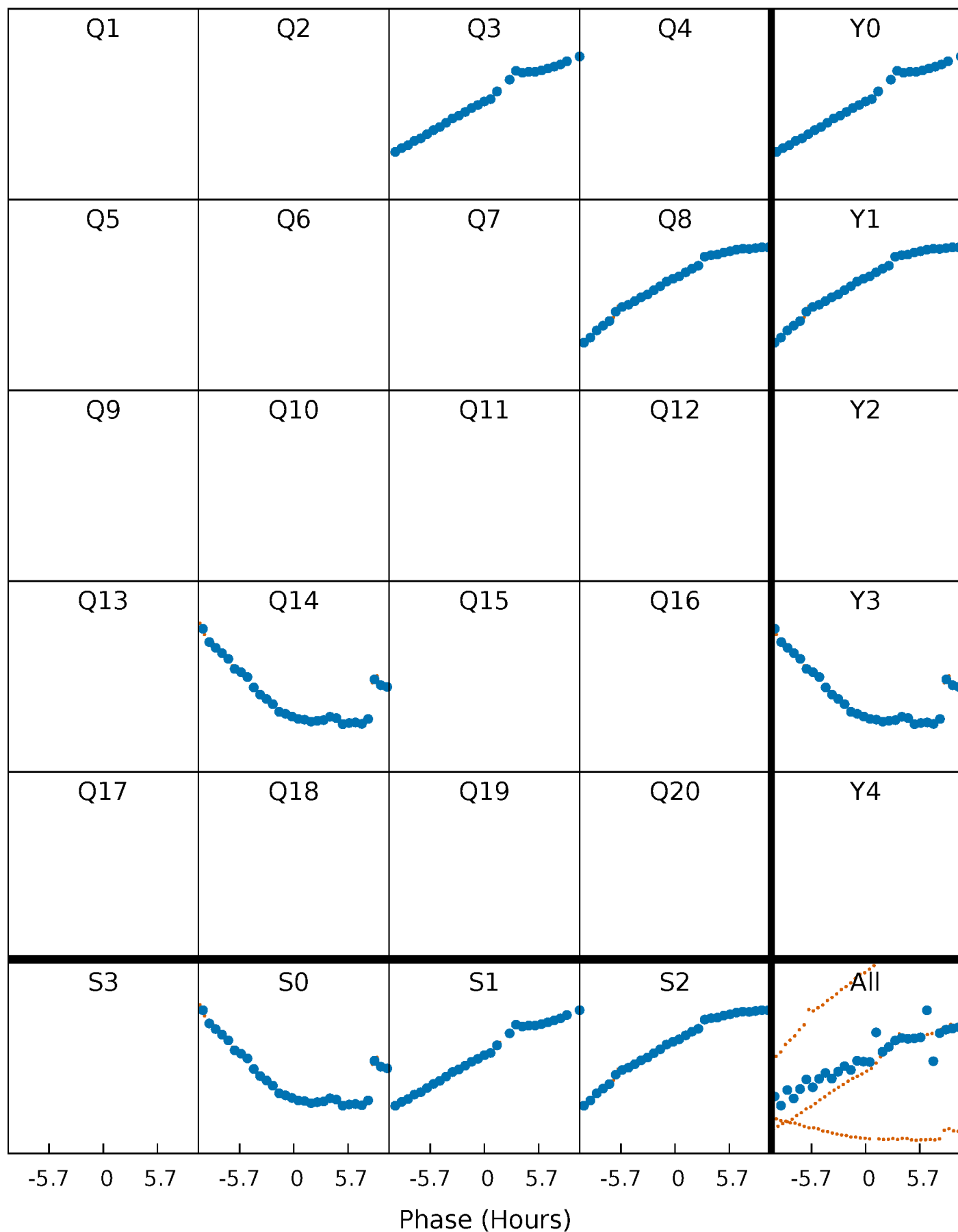


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



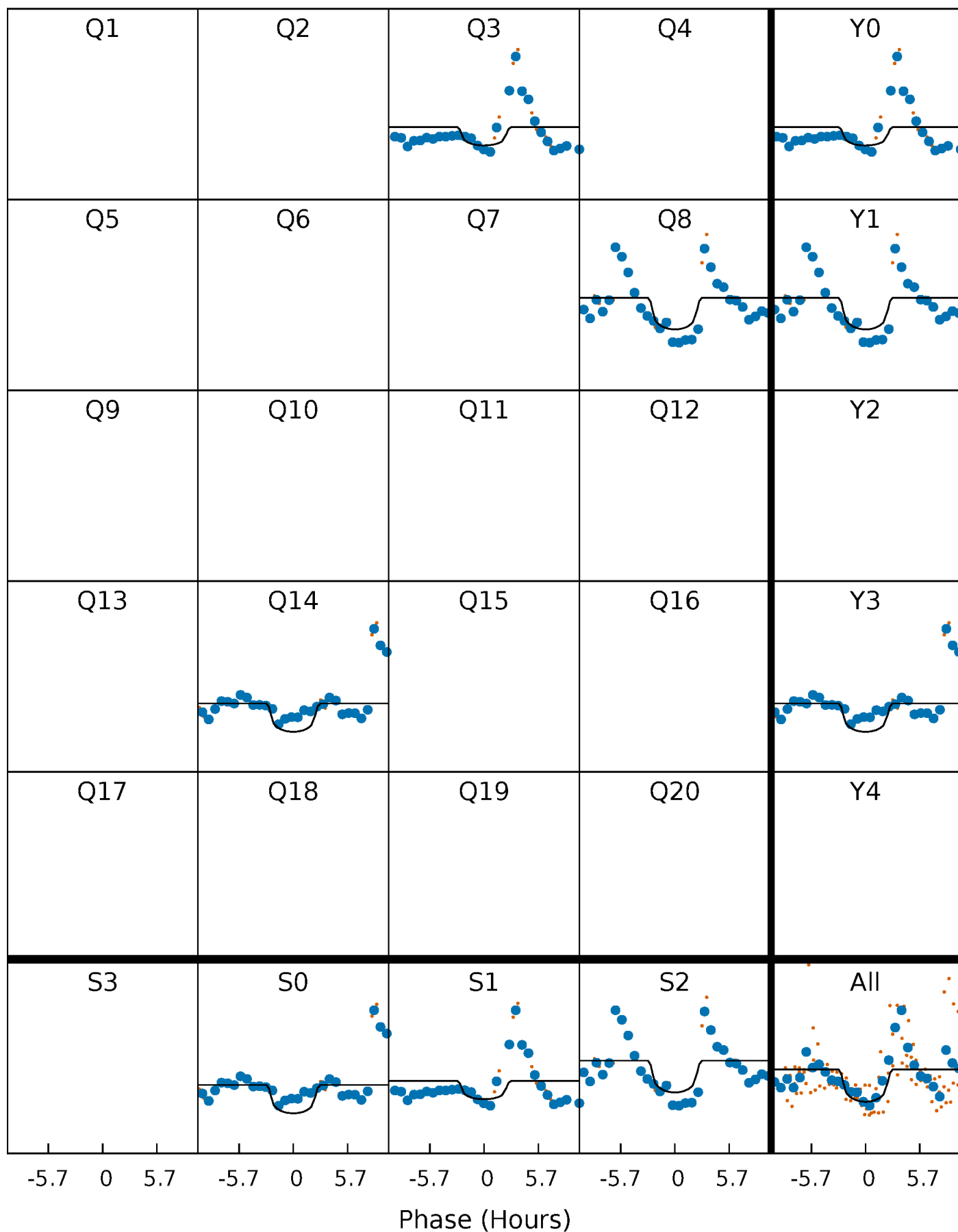
# PDC Quarter-Phased Transit Curves

TCE 007377946-02 P=530.909898 Days  $T_0=264.061831$  (BKJD)



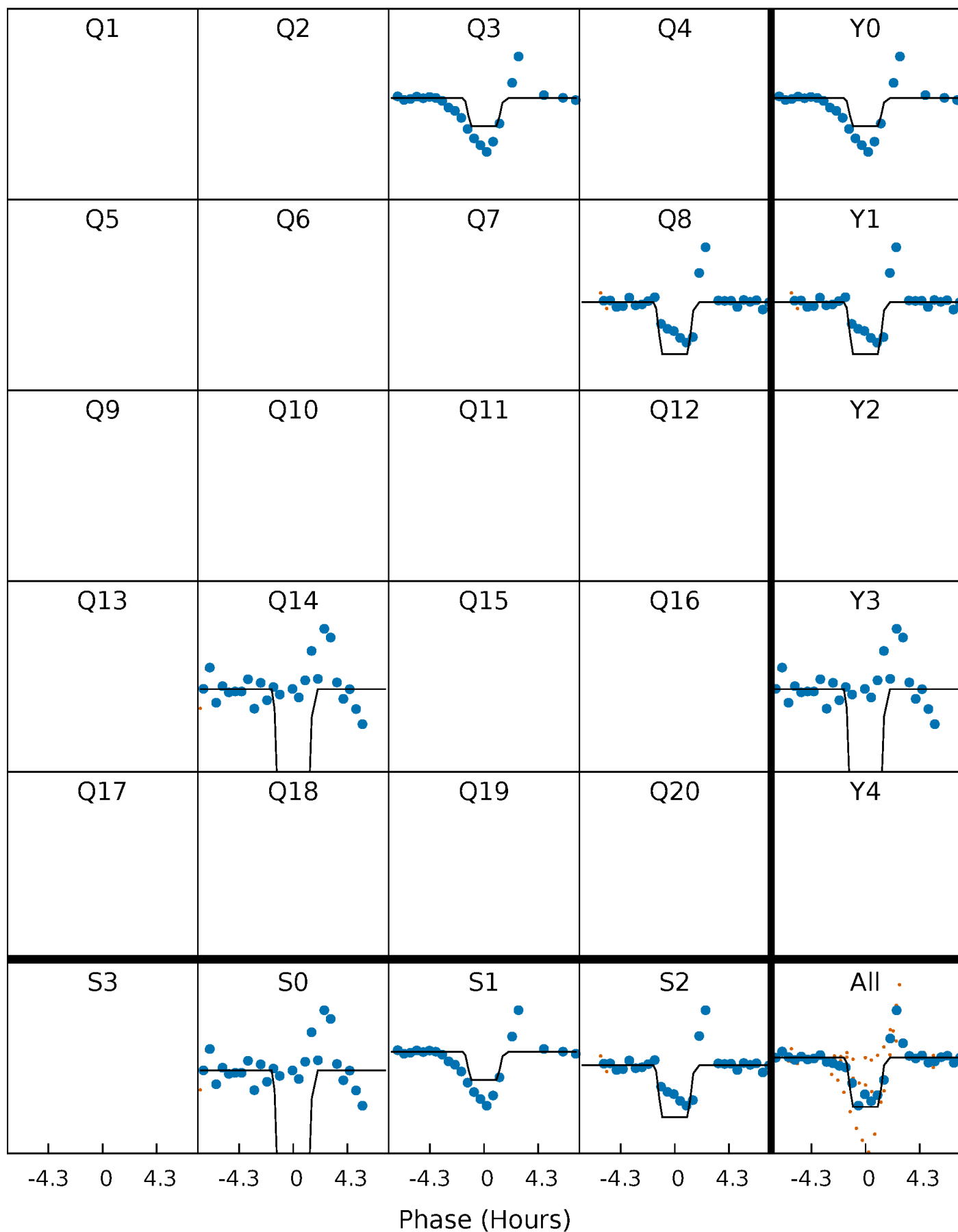
# DV Quarter-Phased Transit Curves

TCE 007377946-02 P=530.909898 Days  $T_0=264.061831$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

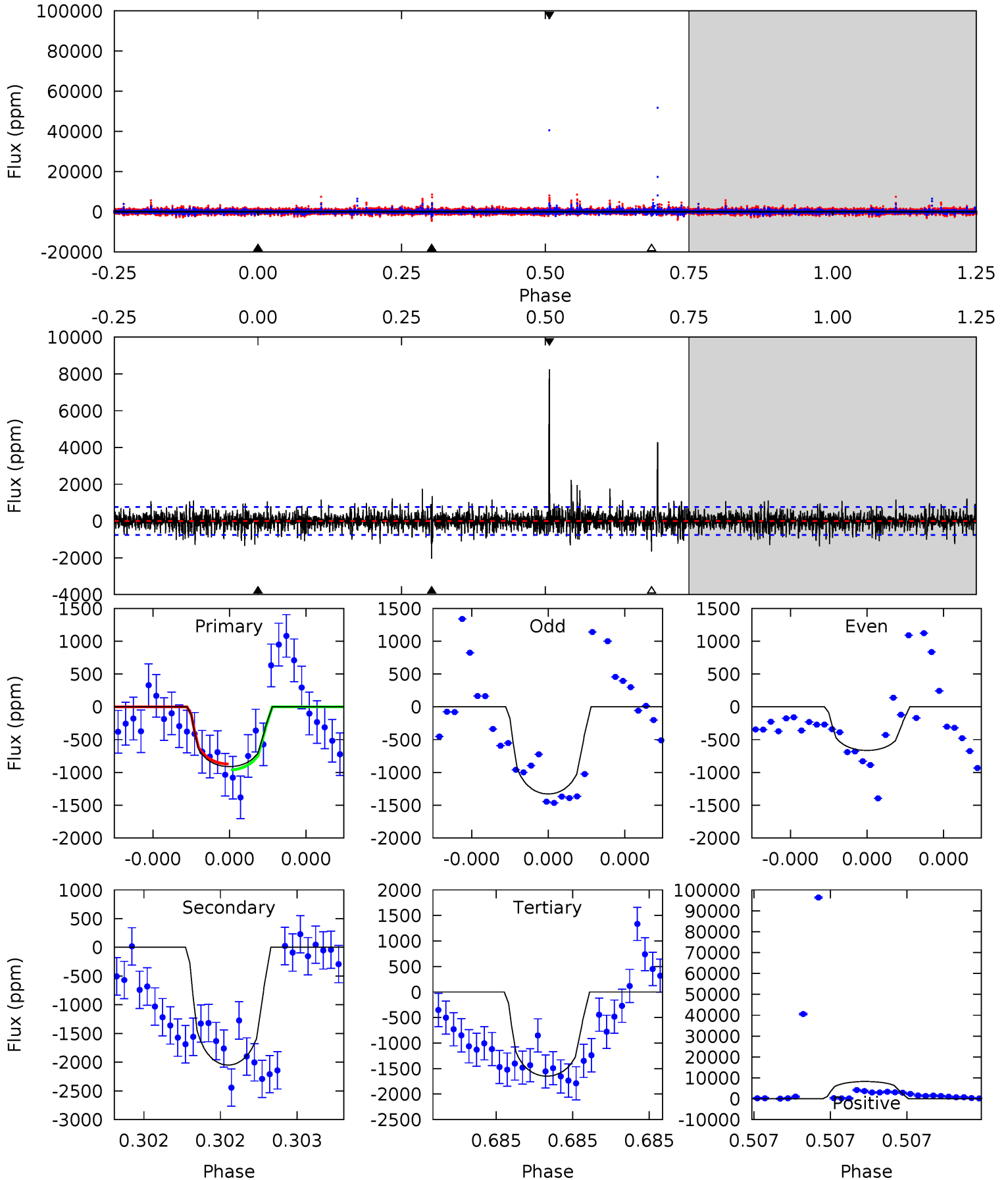
TCE 007377946-02 P=530.932001 Days  $T_0=264.076791$  (BKJD)



# DV Model-Shift Uniqueness Test

007377946-02, P = 530.909898 Days, E = 264.061831 Days

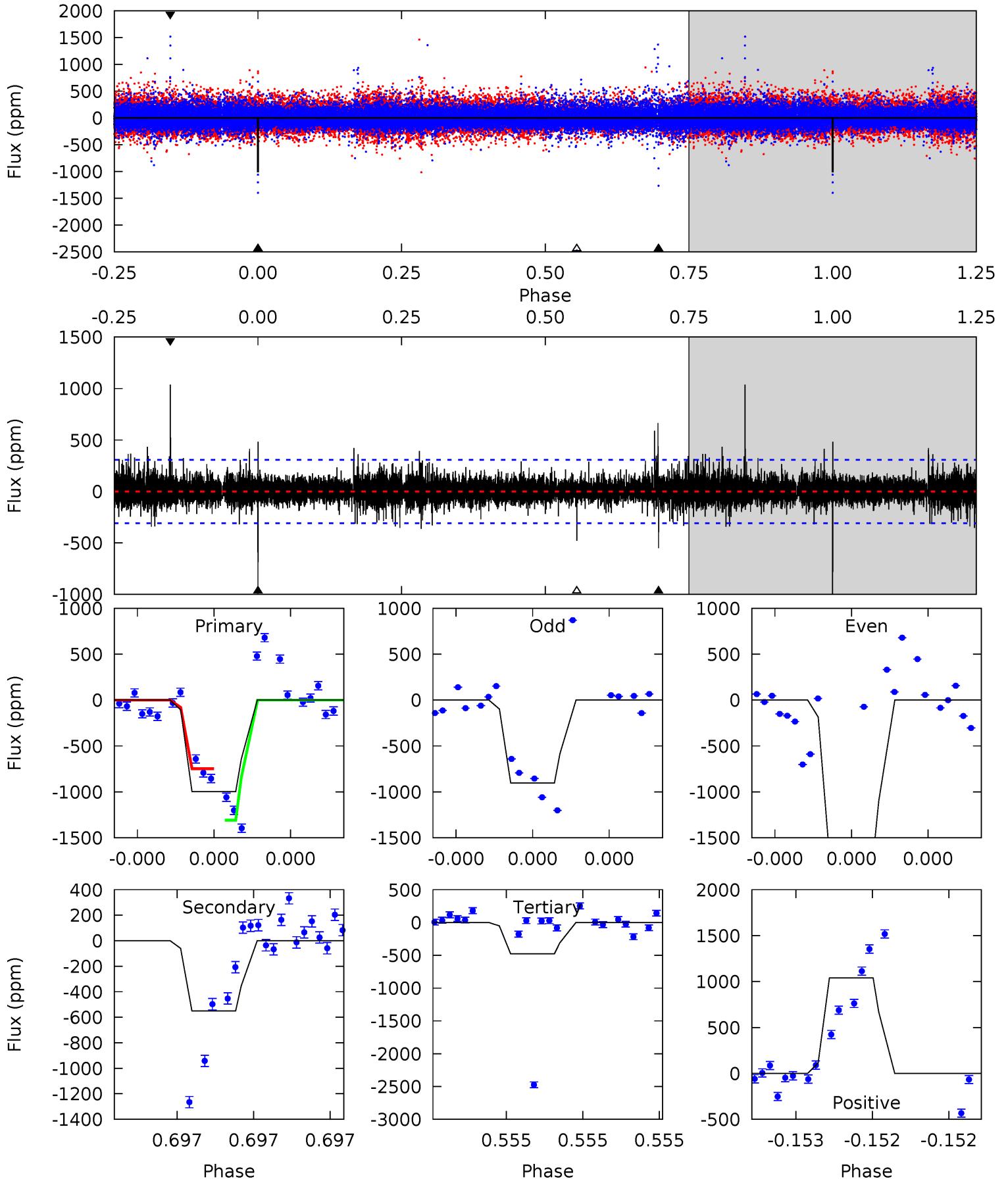
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.73	15.1	12.2	60.9	5.61	3.54	2.66	-5.44	-54.2	2.97	-45.8	1.14	1.10	0.80	0.32



# Alt Model-Shift Uniqueness Test

007377946-02, P = 530.932001 Days, E = 264.076791 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
18.4	10.1	8.80	19.2	5.68	3.64	1.20	9.58	-0.78	1.34	-9.02	7.01	1.23	0.51	5.18





### Stellar Parameters For KIC 007377946

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$5127^{+179}_{-179}$	$4.560^{+0.066}_{-0.060}$	$-0.240^{+0.300}_{-0.300}$	$0.749^{+0.089}_{-0.073}$	$0.743^{+0.098}_{-0.065}$	$2.495^{+0.726}_{-0.564}$
	+3%/-3%	+1%/-1%	+125%/-125%	+12%/-10%	+13%/-9%	+29%/-23%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007377946-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2051 \pm 135$	$4.81^{+4.76}_{-3.11}$	$253^{+12}_{-11}$	$4587^{+3045}_{-983}$	$65855^{+471863}_{-48763}$
Alt.	$-550 \pm 54$	$5.40^{+4.83}_{-3.68}$	$254^{+10}_{-11}$	$3502^{+1883}_{-602}$	$14461^{+122188}_{-10592}$

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

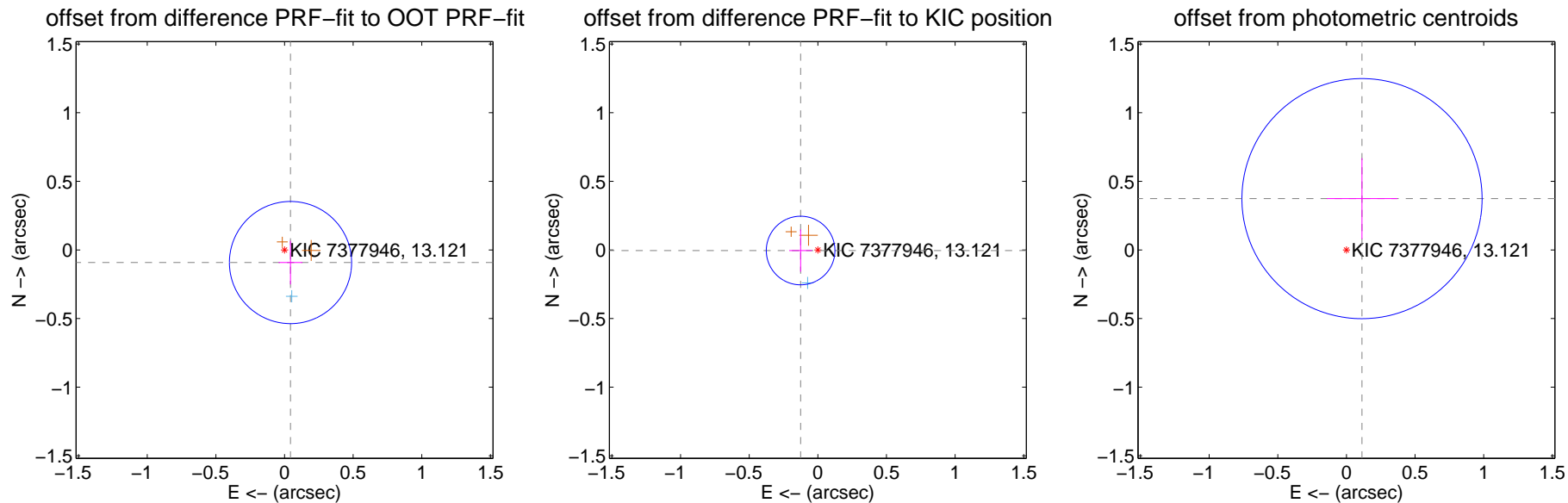
## DV Centroid Data

Supplemental centroid analysis for 007377946-02. Kepler magnitude: 13.12. Transit SNR 6.76

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.102 \pm 0.148$	0.69	$-0.044 \pm 0.087$	$-0.092 \pm 0.159$
PRF-fit source offset from KIC position	$0.126 \pm 0.083$	1.51	$0.126 \pm 0.083$	$-0.004 \pm 0.154$
photometric centroid source offset	$0.39 \pm 0.29$	1.34	$-0.11 \pm 0.26$	$0.37 \pm 0.29$



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

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

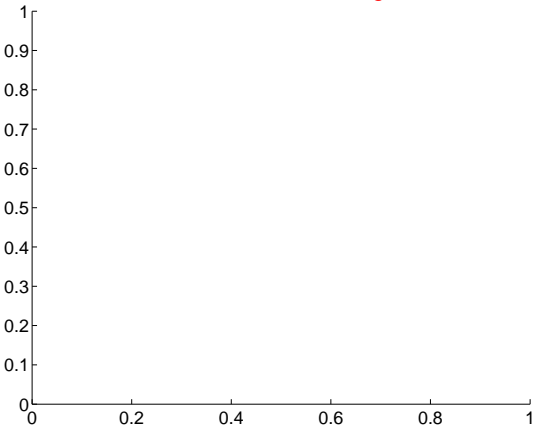
Q1 no difference image



Q1 no OOT image



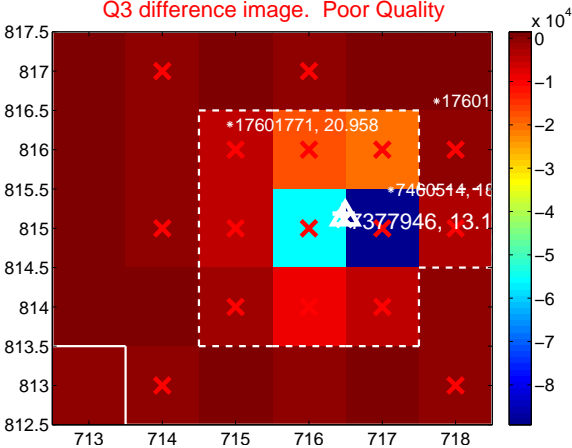
Q2 no difference image



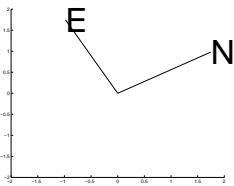
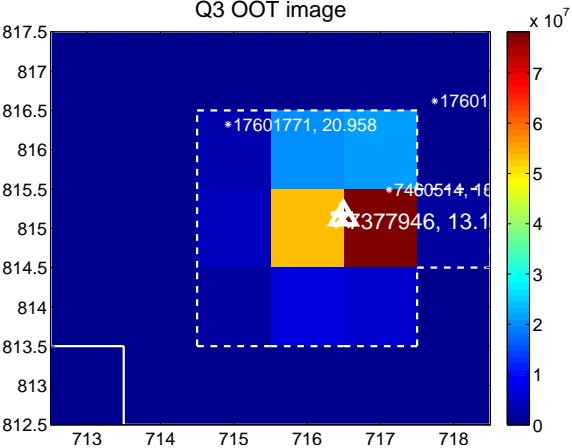
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



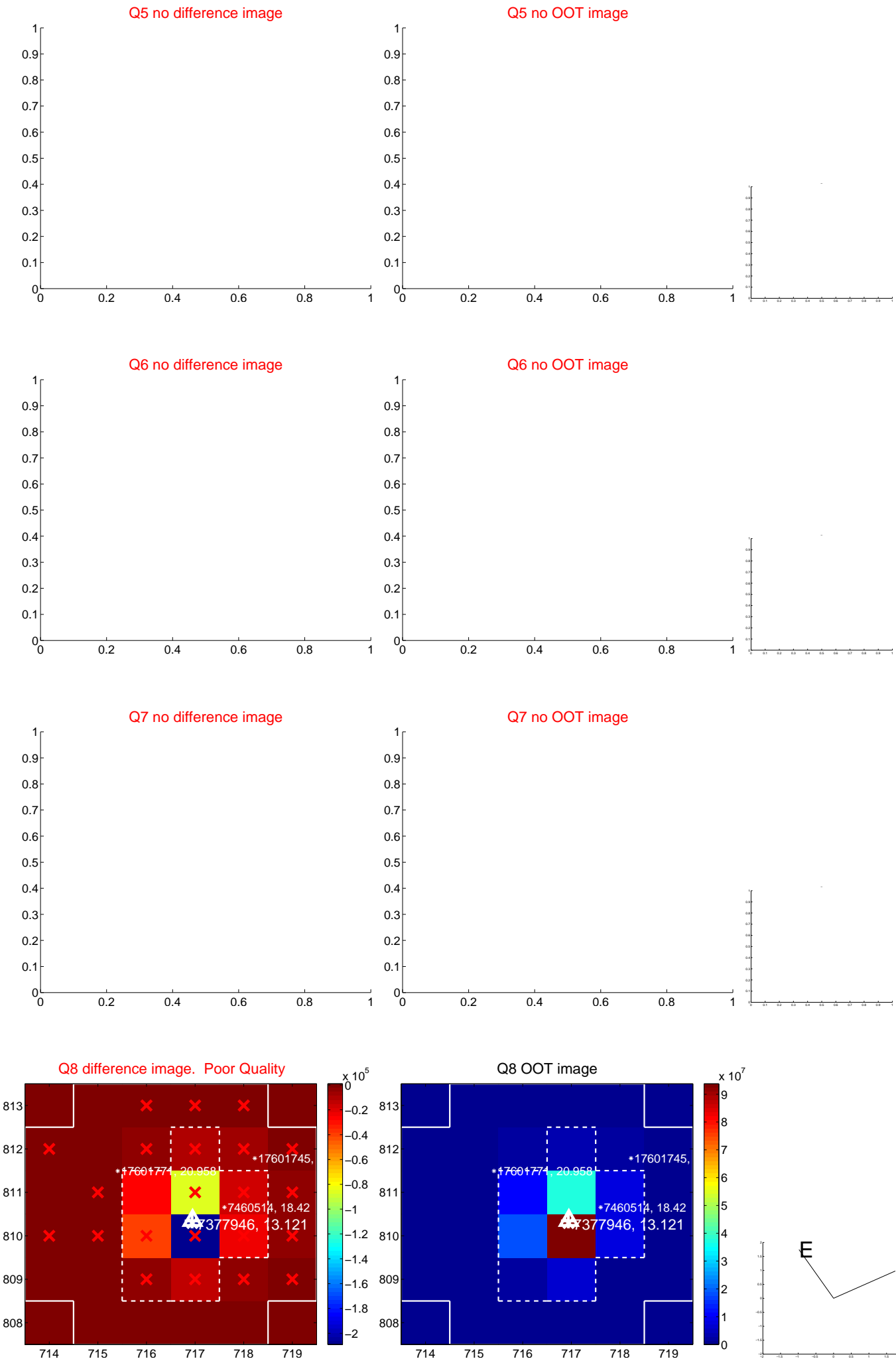
Q4 no difference image



Q4 no OOT image



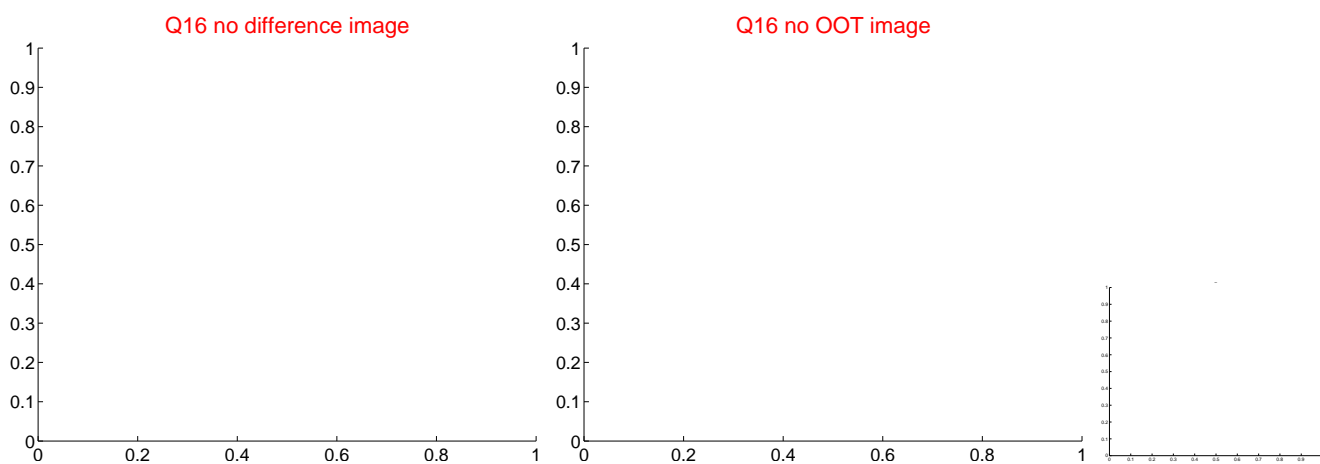
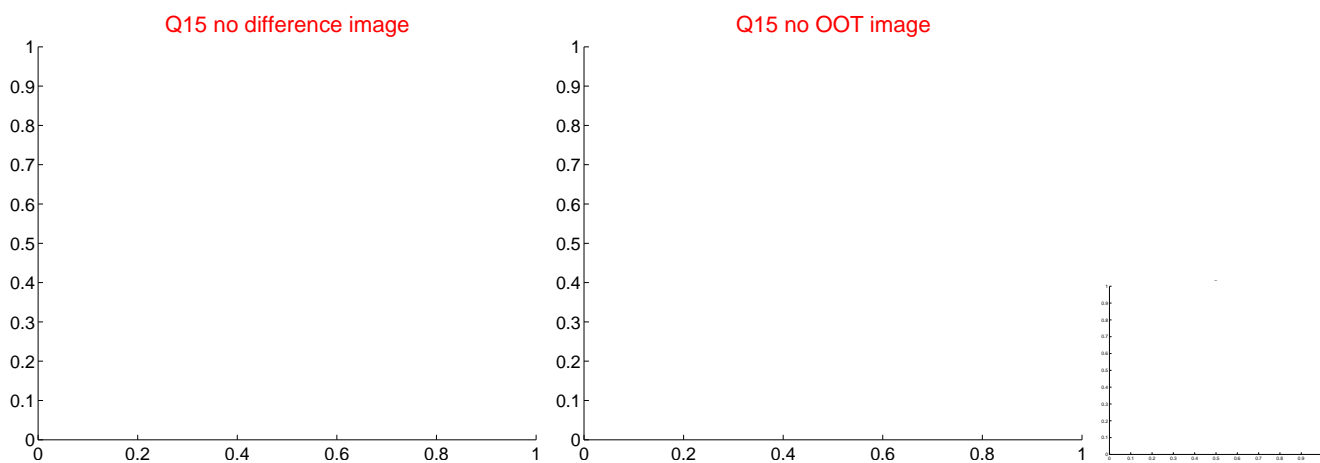
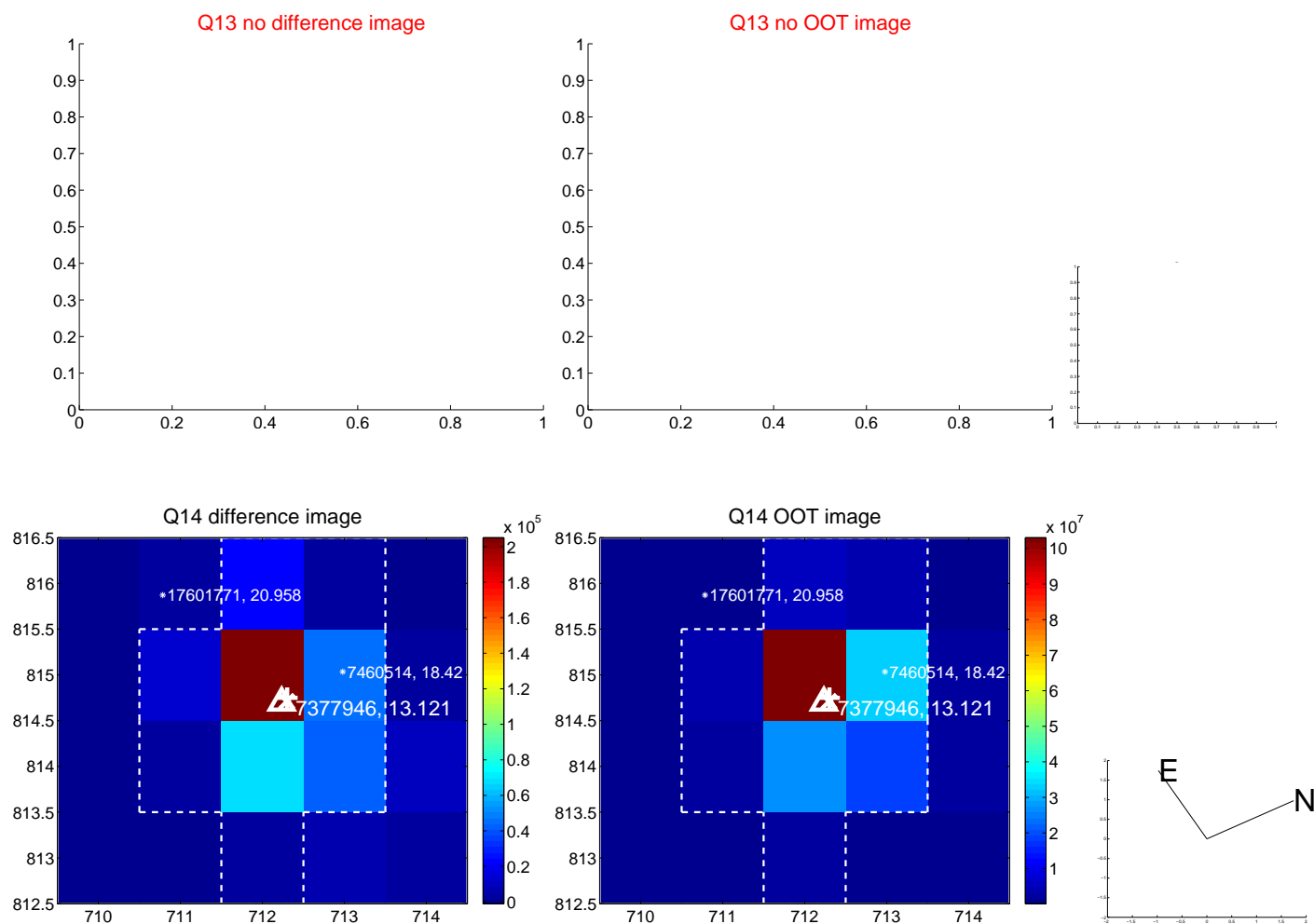
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



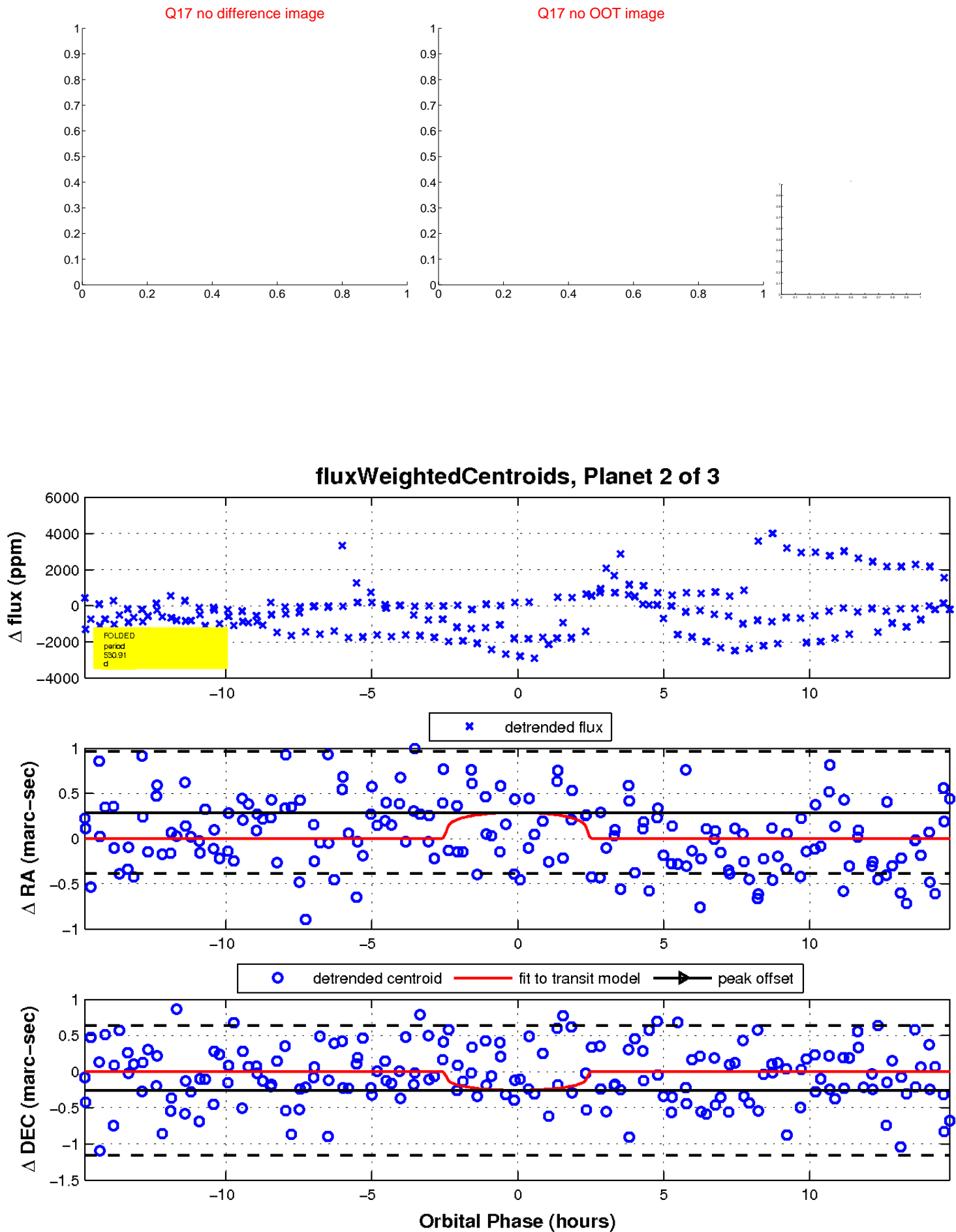
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

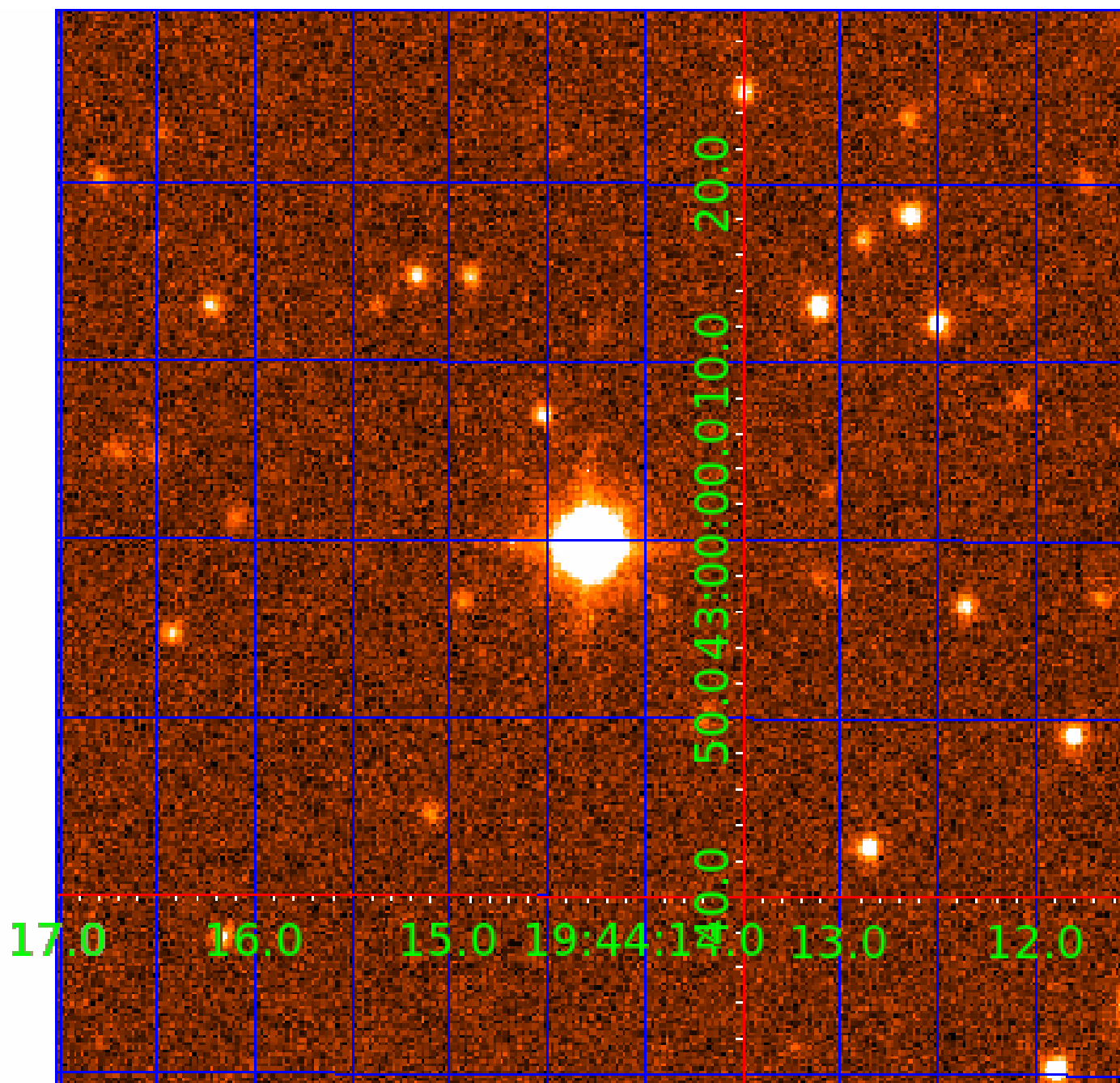


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007377946

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007377946-01	OBS	No	366.502859	162.034116	878.3	4.595	17.0	6.4	0.75	5127	2.21	0.42
007377946-02	OBS	No	530.909898	264.061831	1032.8	5.007	14.3	6.8	0.75	5127	2.35	0.26
007377946-03	OBS	No	249.736493	174.894537	484.8	3.000	11.5	-1.0	0.75	5127	1.61	0.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007377946-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007377946-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
007377946-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS

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

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

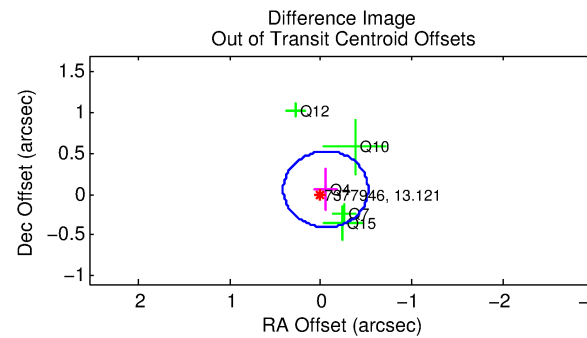
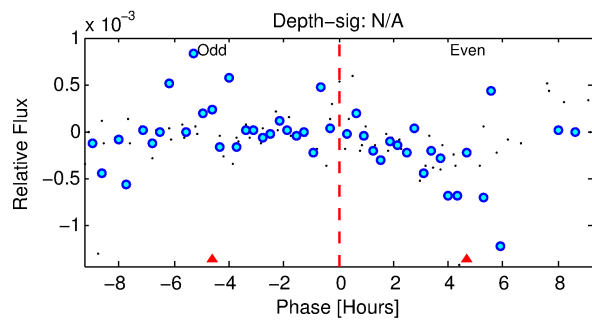
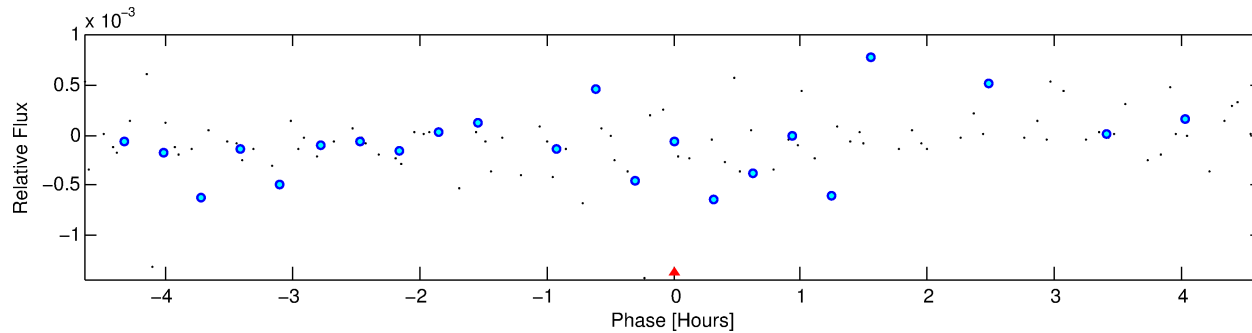
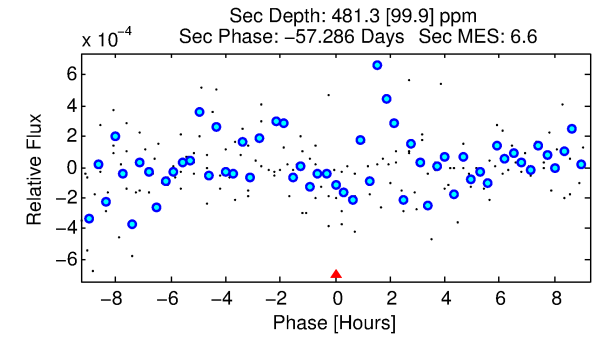
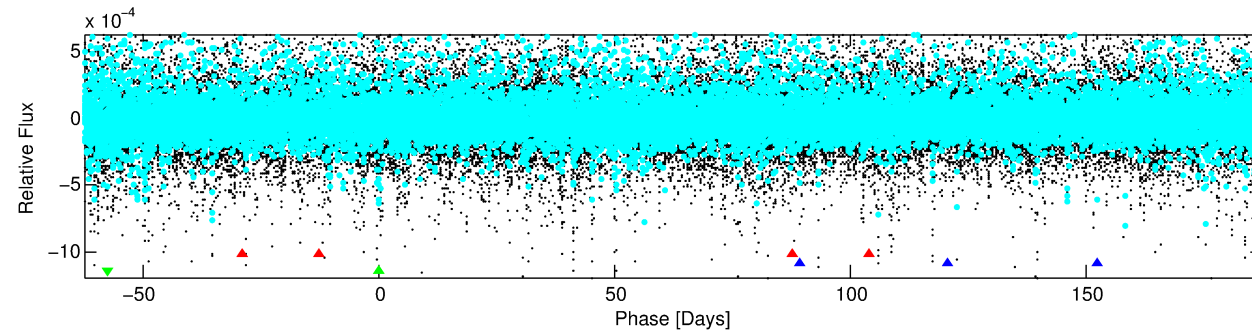
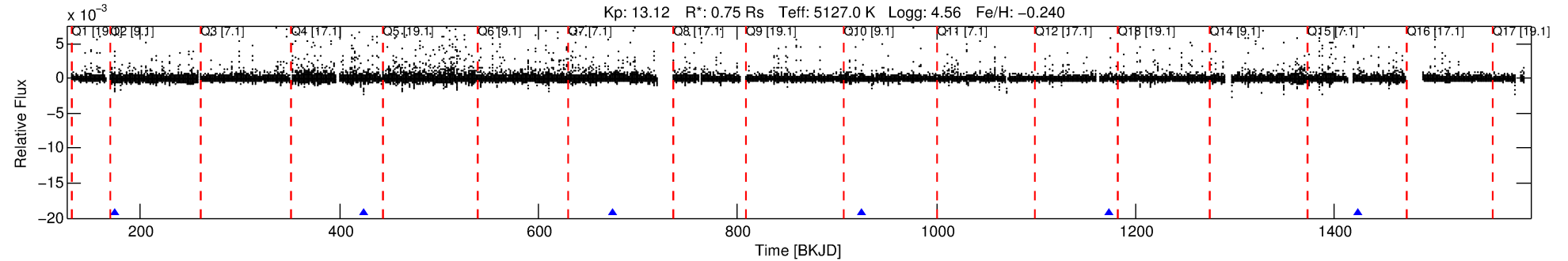
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007377946-03

No Significant Match Found

# DV One-Page Summary

KIC: 7377946 Candidate: 3 of 3 Period: 249.736 d



## TPS TCE Results:

Period = 249.73649 d  
Epoch = 174.8945 BKJD

DV fit results are unavailable

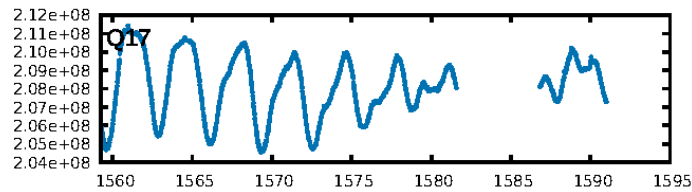
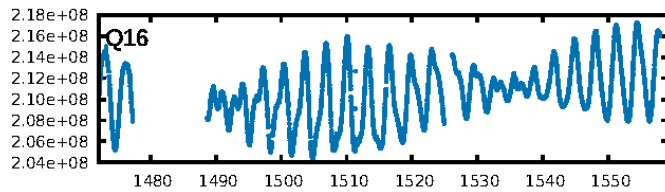
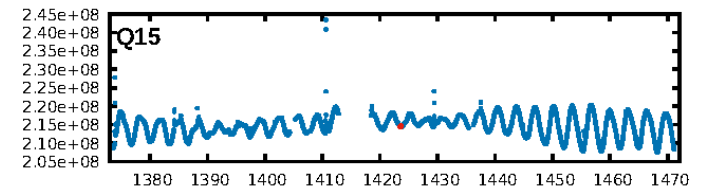
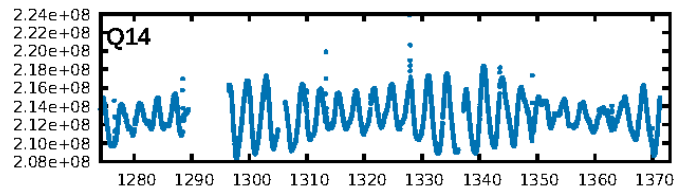
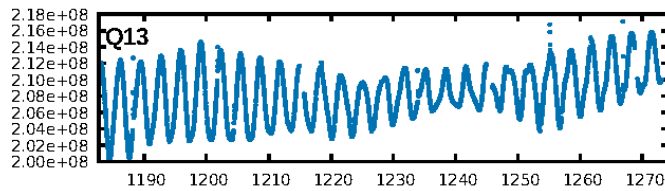
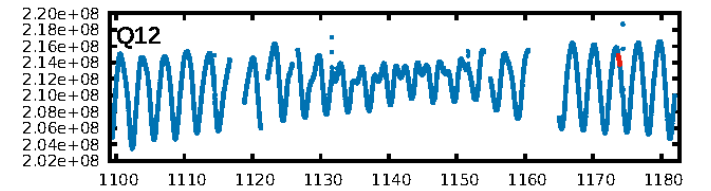
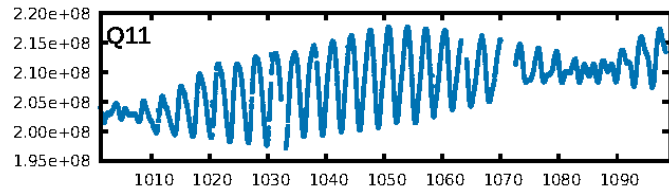
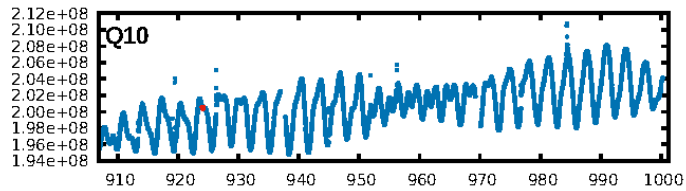
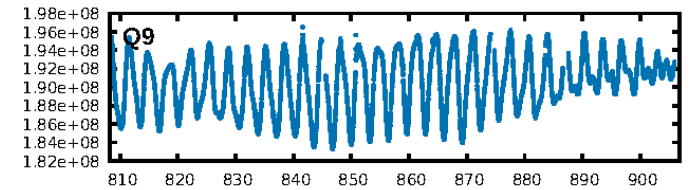
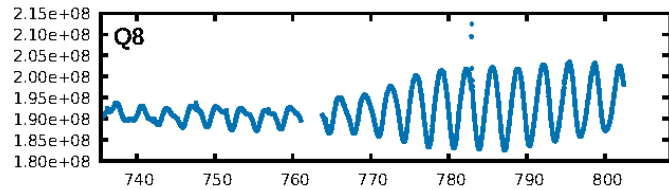
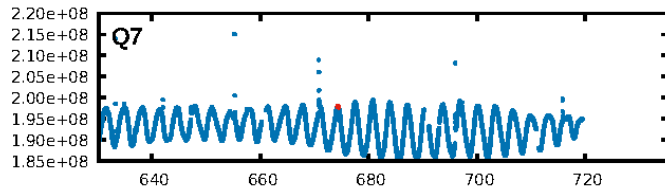
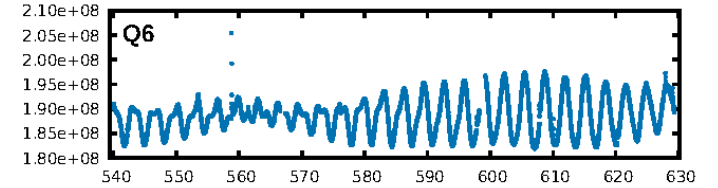
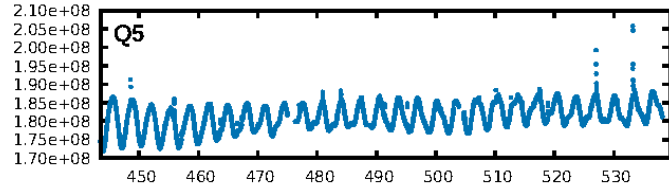
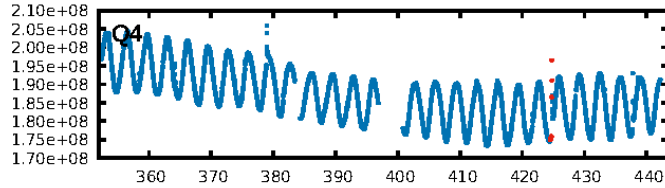
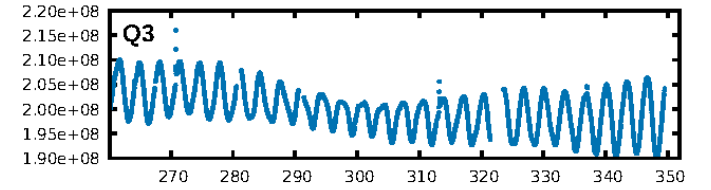
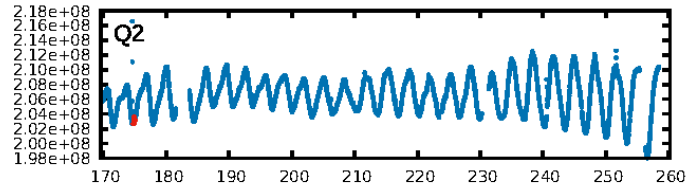
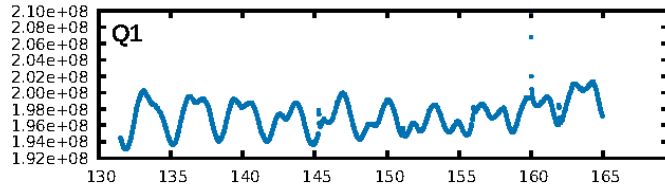
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [510.70 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: -1.809  
Centroid-sig: 31.3%  
Centroid-so: 0.723 arcsec [0.72 $\sigma$ ]  
OotOffset-rm: 0.082 arcsec [0.52 $\sigma$ ]  
KicOffset-rm: 0.144 arcsec [0.68 $\sigma$ ]  
OotOffset-st: 1/2/2/0 [5]  
KicOffset-st: 1/2/2/0 [5]  
DiffImageQuality-fgm: 0.60 [3/5]  
DiffImageOverlap-fno: 1.00 [6/6]

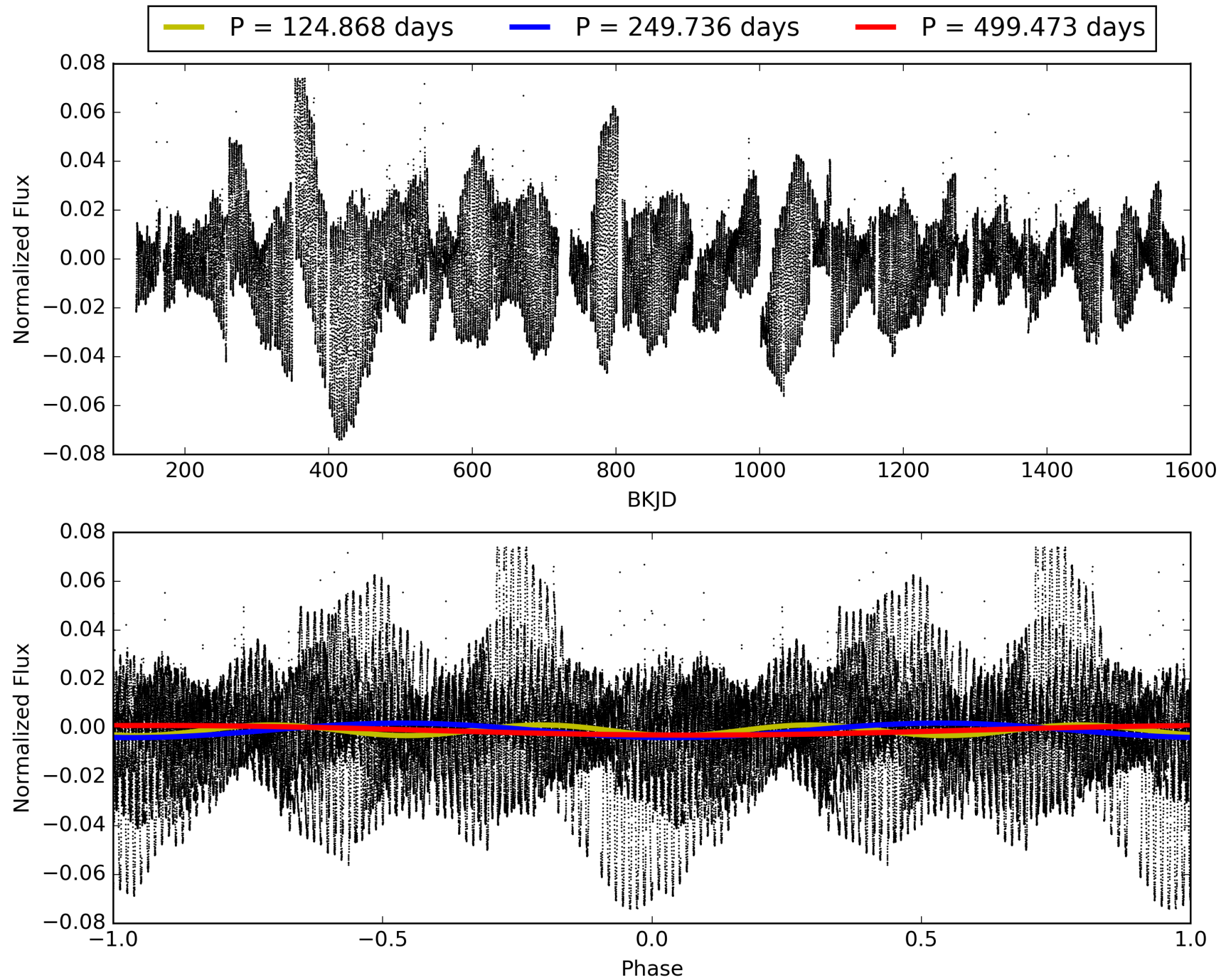
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:52:34 Z

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

# TCE 007377946-03, PDC Light Curves

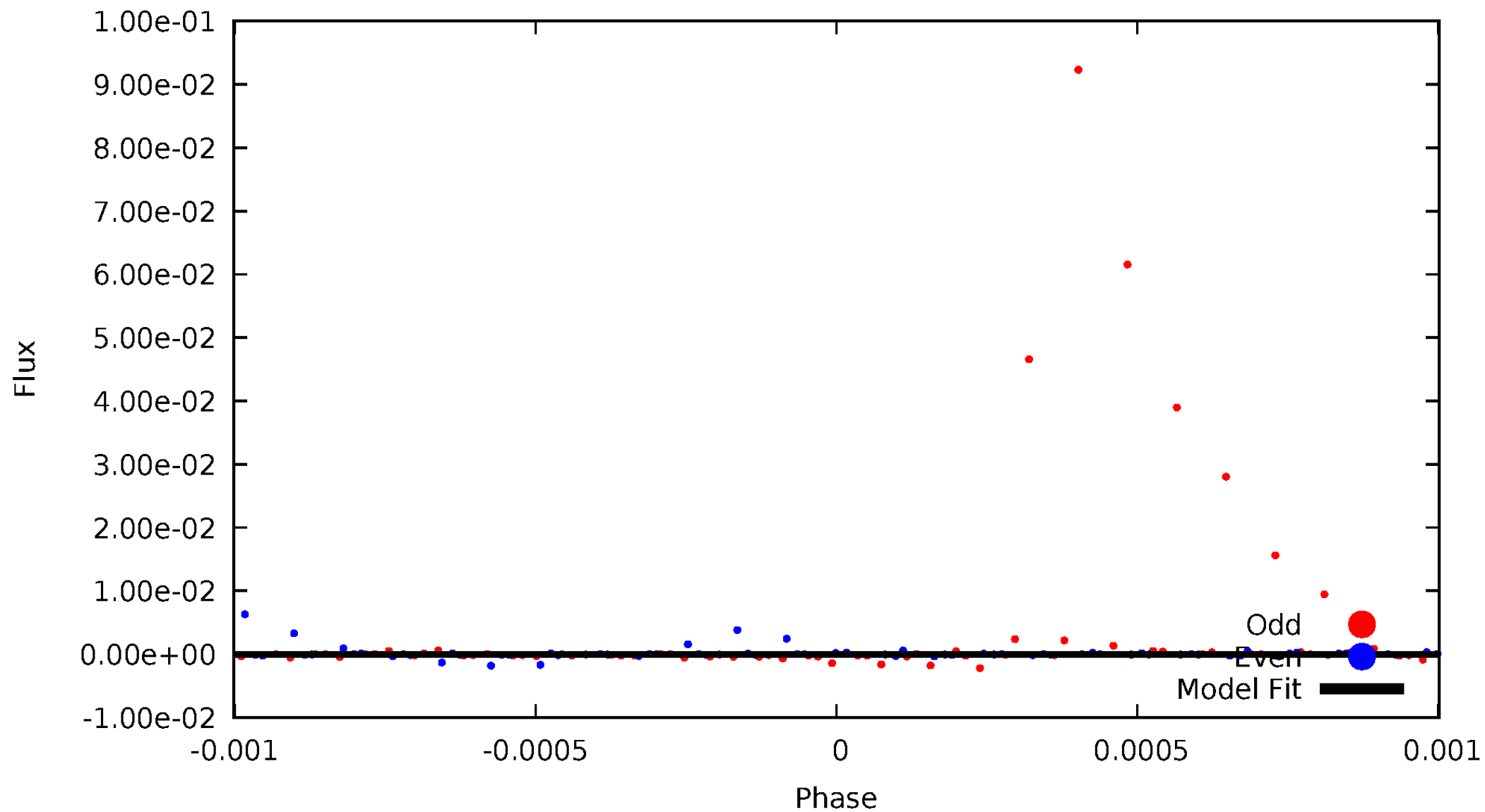


TCE 007377946-03



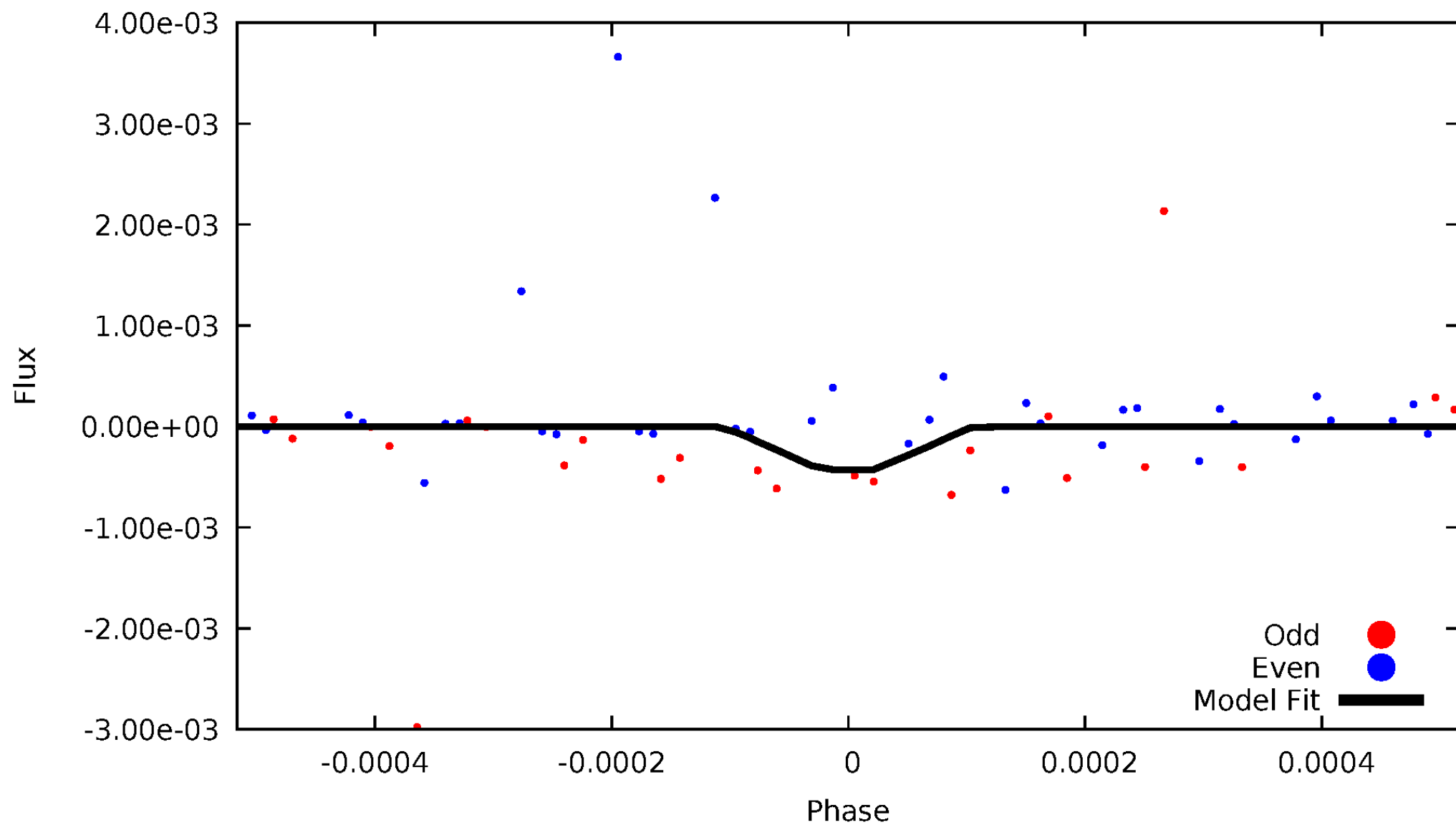
# DV Odd/Even

TCE 007377946-03

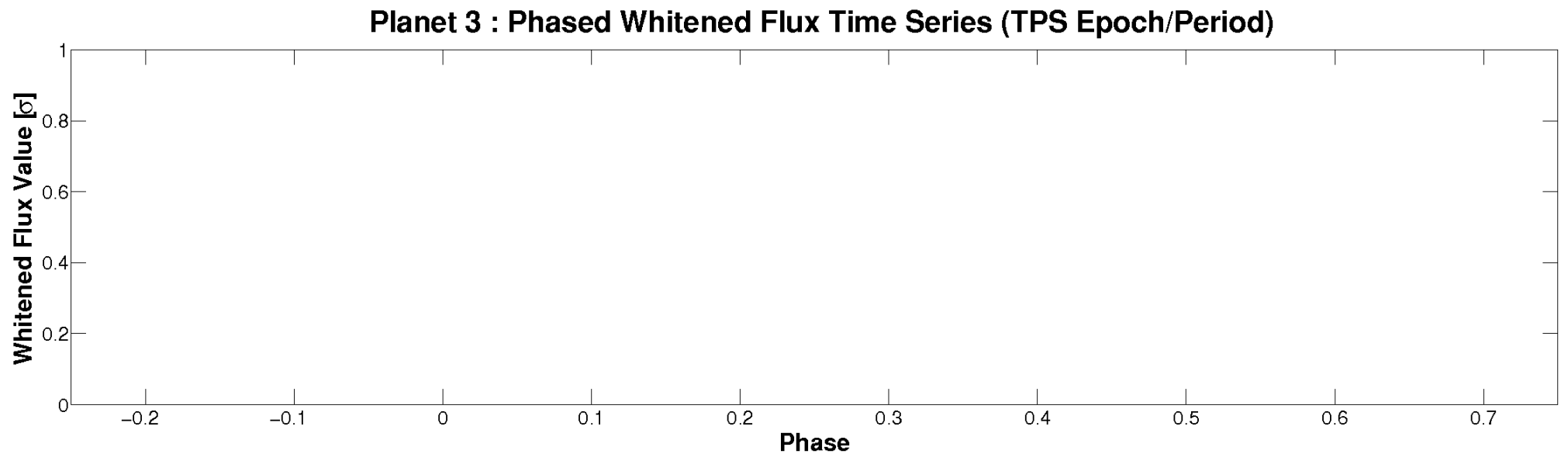
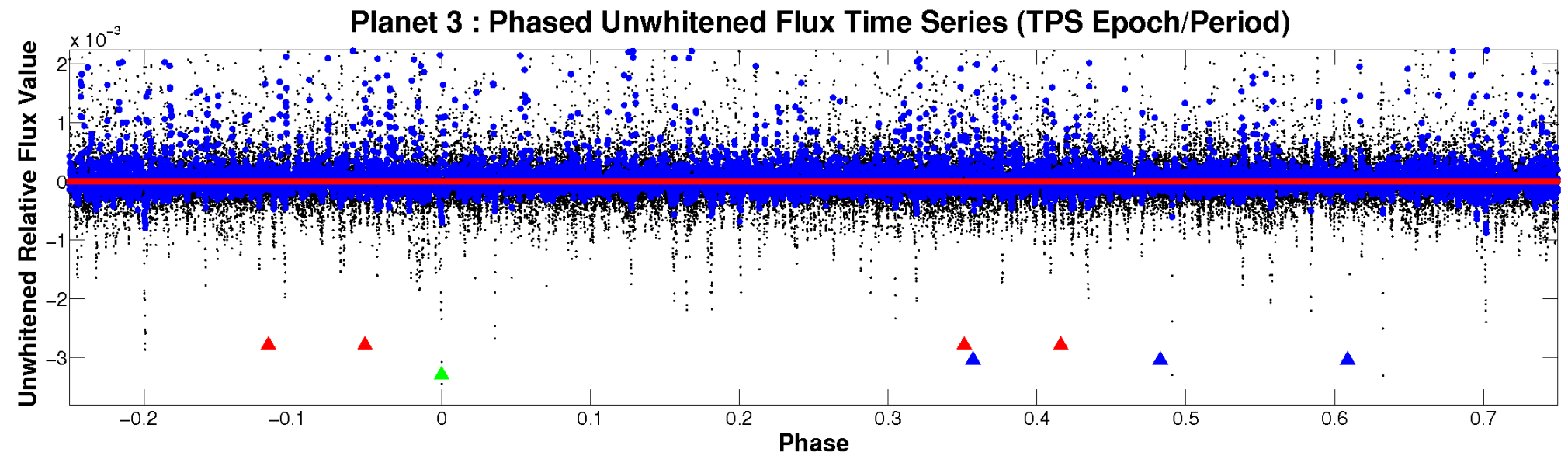


# ALT Odd/Even

TCE 007377946-03

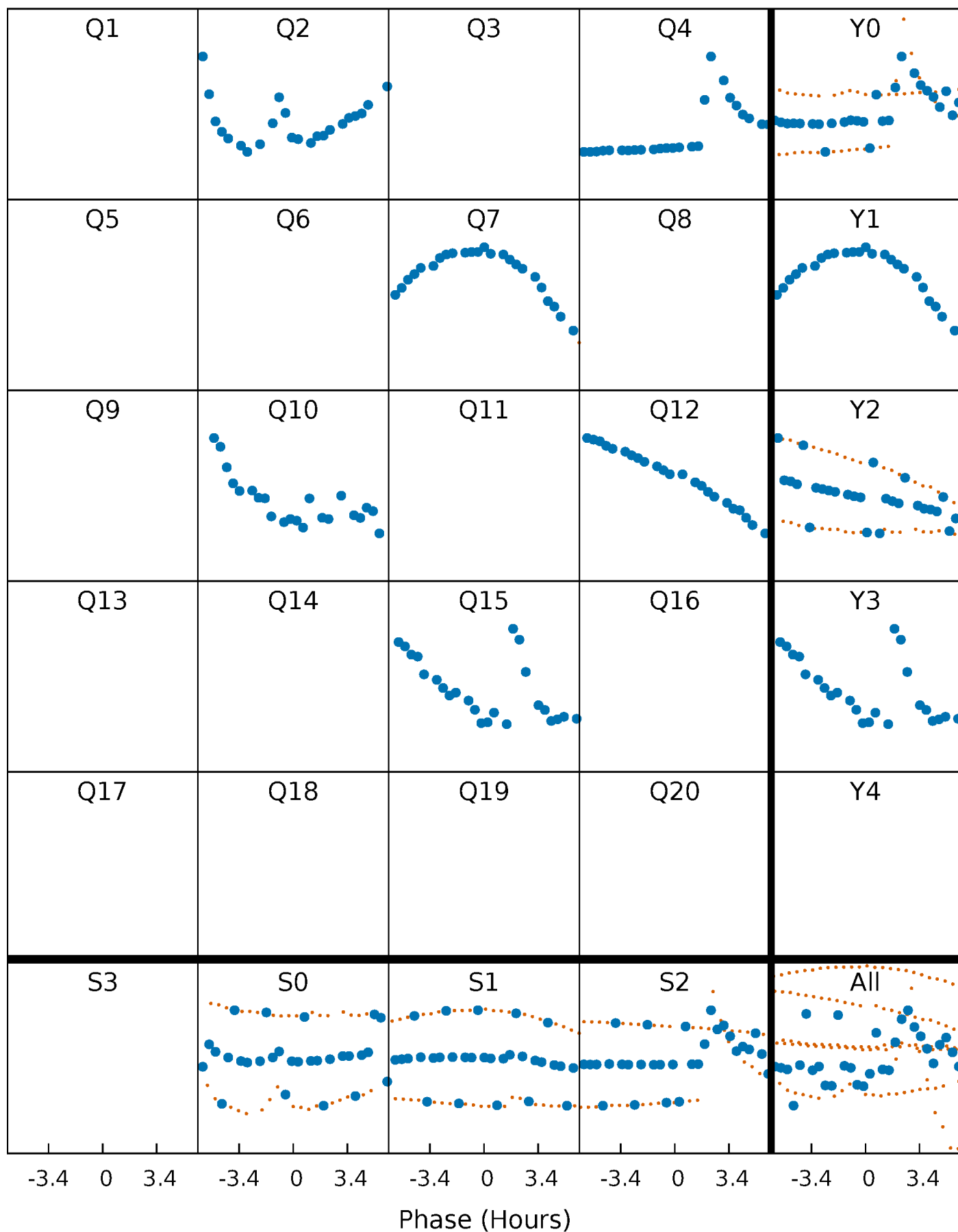


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

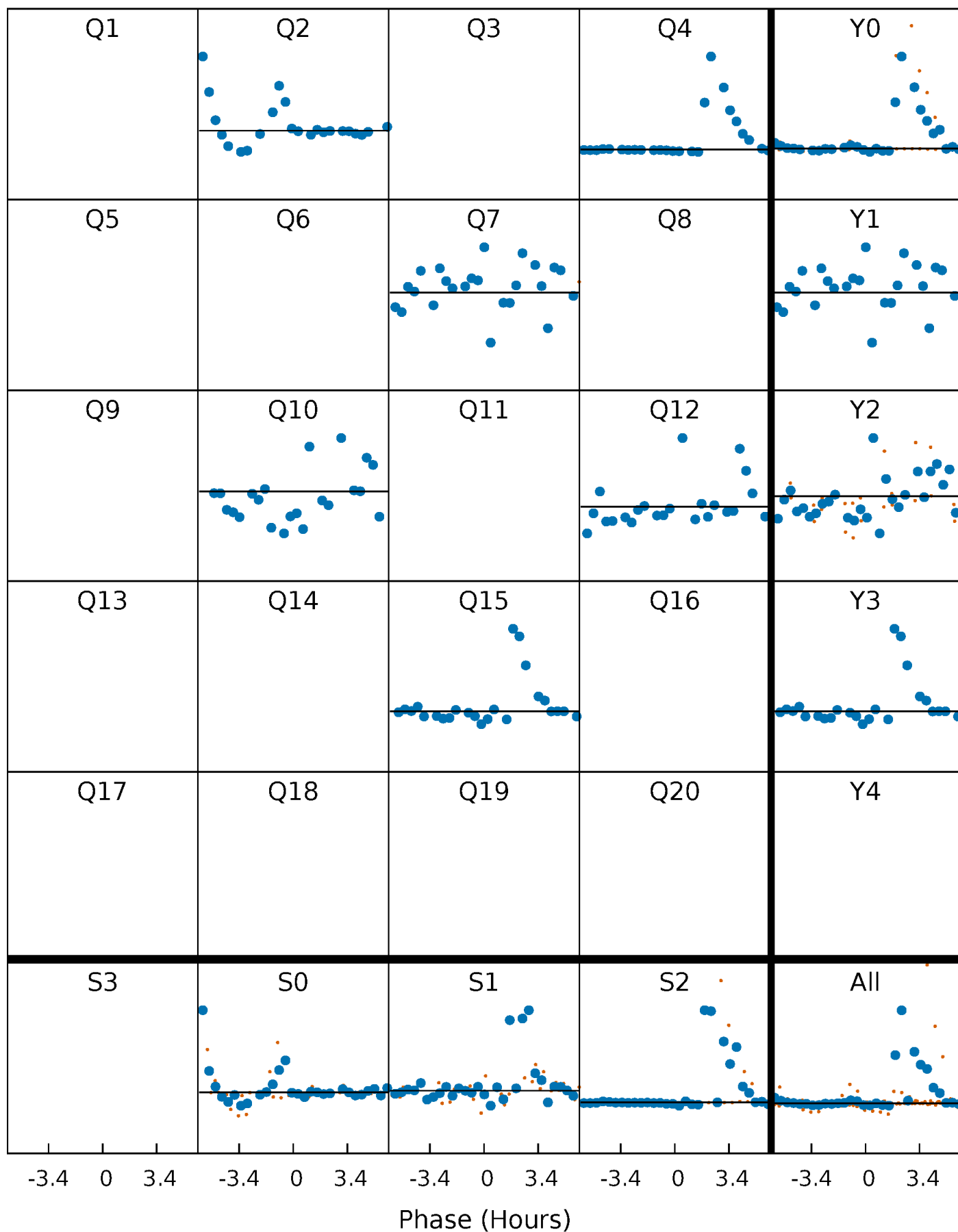
TCE 007377946-03 P=249.736493 Days  $T_0=174.894537$  (BKJD)





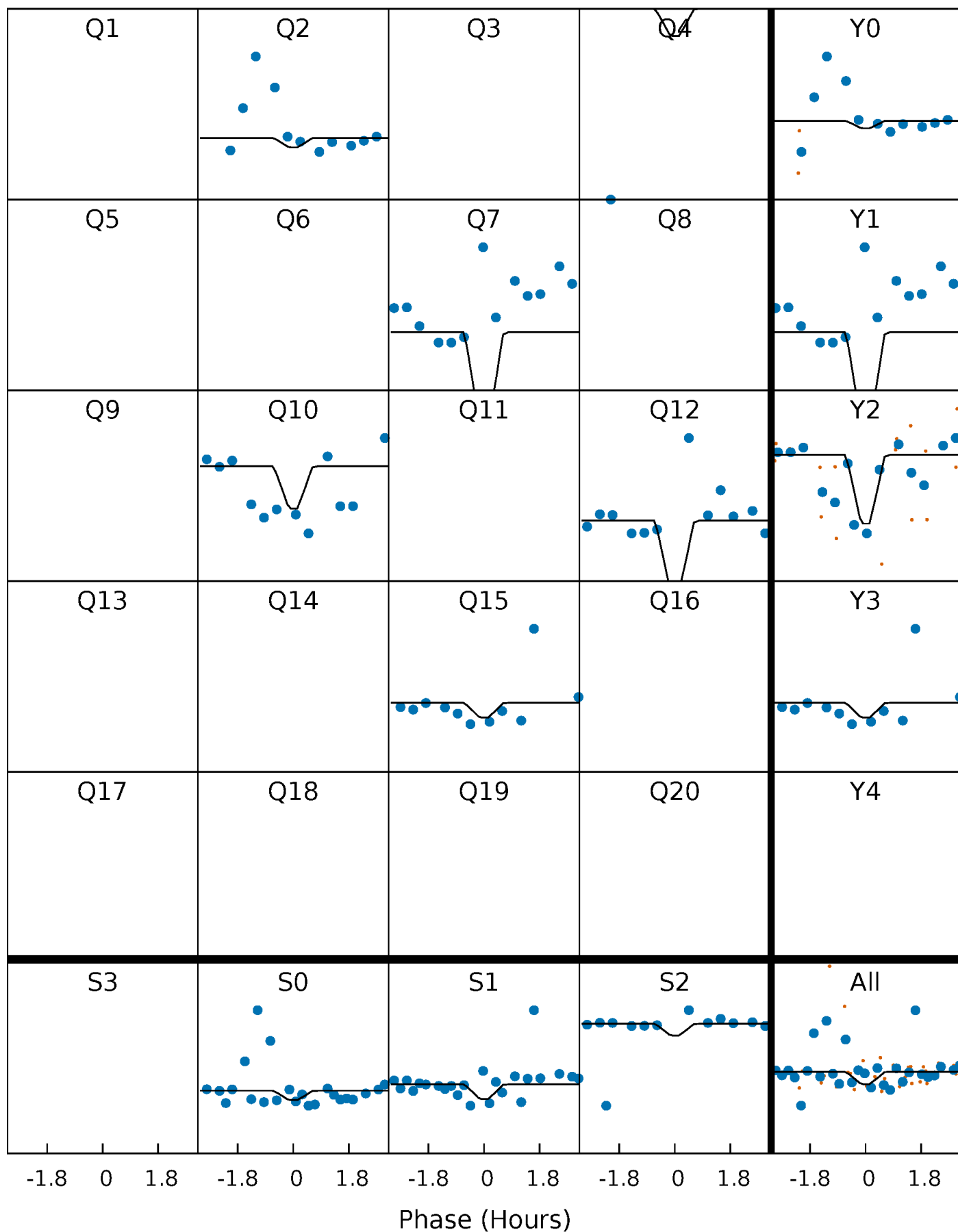
# DV Quarter-Phased Transit Curves

TCE 007377946-03     $P=249.736493$  Days     $T_0=174.894537$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

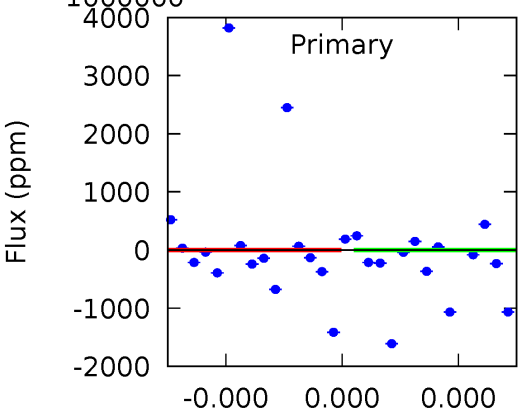
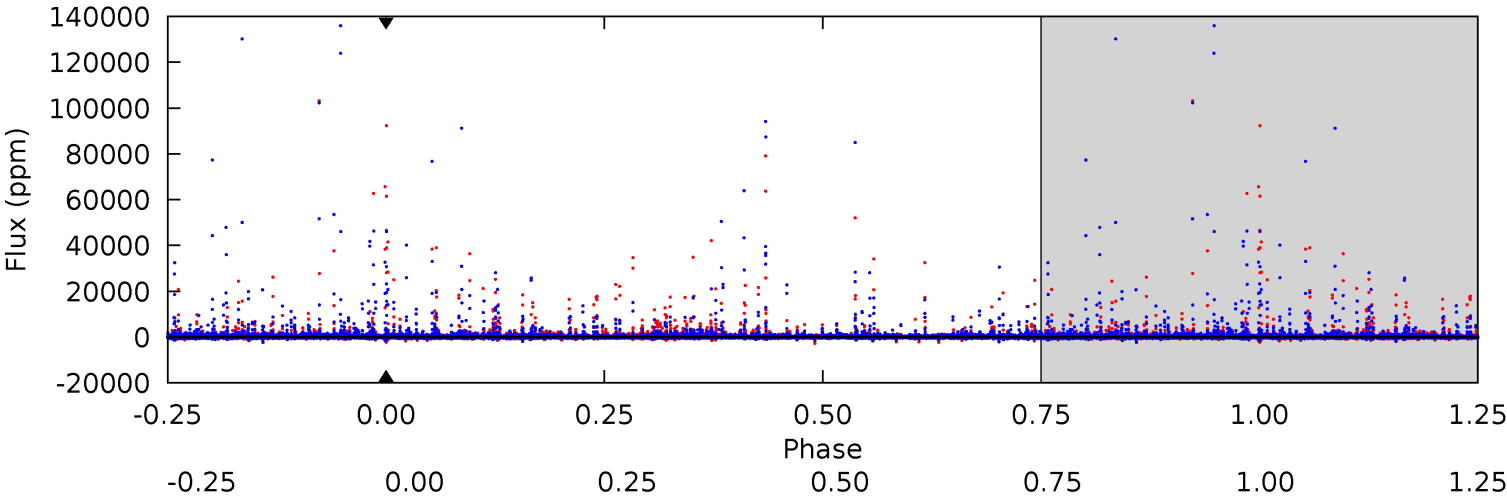
TCE 007377946-03 P=249.736493 Days  $T_0=174.902006$  (BKJD)



# DV Model-Shift Uniqueness Test

007377946-03, P = 249.736493 Days, E = 174.894537 Days

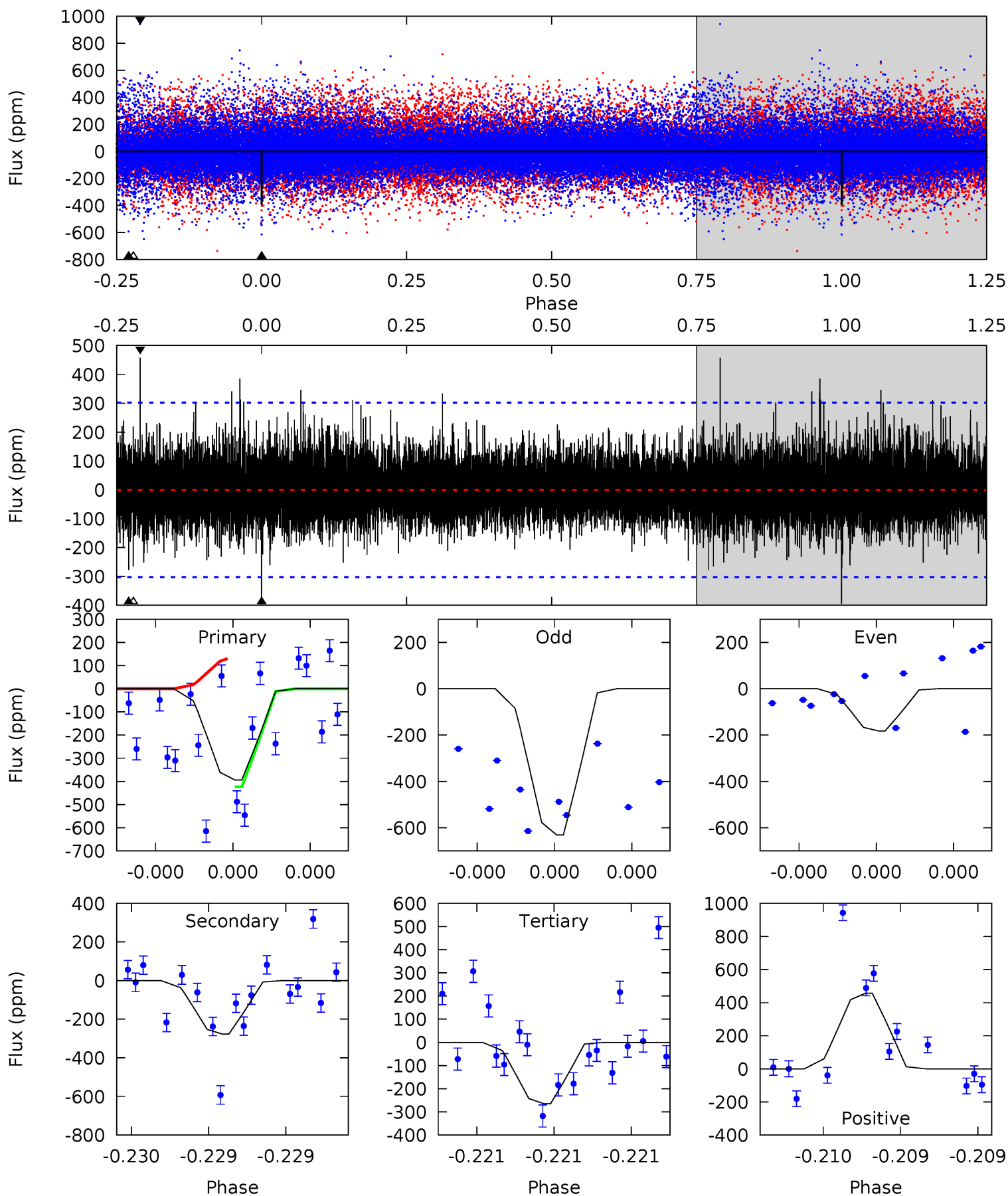
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007377946-03, P = 249.736493 Days, E = 174.902006 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
7.49	5.26	5.03	8.68	5.74	3.74	1.25	2.46	-1.19	0.22	-3.42	4.74	0.98	0.54	2.80



### Stellar Parameters For KIC 007377946

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5127^{+179}_{-179}$	$4.560^{+0.066}_{-0.060}$	$-0.240^{+0.300}_{-0.300}$	$0.749^{+0.089}_{-0.073}$	$0.743^{+0.098}_{-0.065}$	$2.495^{+0.726}_{-0.564}$
	+3%/-3%	+1%/-1%	+125%/-125%	+12%/-10%	+13%/-9%	+29%/-23%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007377946-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$6.30^{+6.43}_{-4.31}$	$327^{+13}_{-14}$	$-3284^{+18871}_{-11827}$	$-3475.846^{+1352408.521}_{-1068655.811}$
Alt.	$-277 \pm 53$	$6.23^{+6.14}_{-4.15}$	$325^{+15}_{-13}$	$3003^{+1391}_{-503}$	$1893^{+17584}_{-1417}$

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

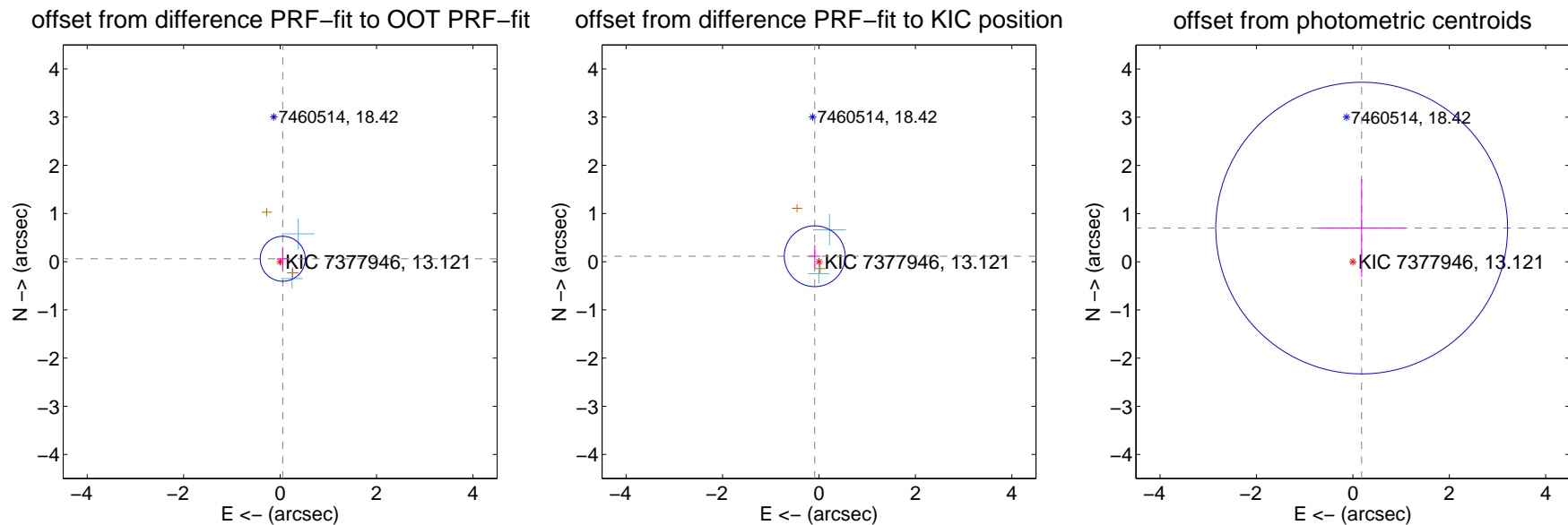
## DV Centroid Data

Supplemental centroid analysis for 007377946-03. Kepler magnitude: 13.12. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

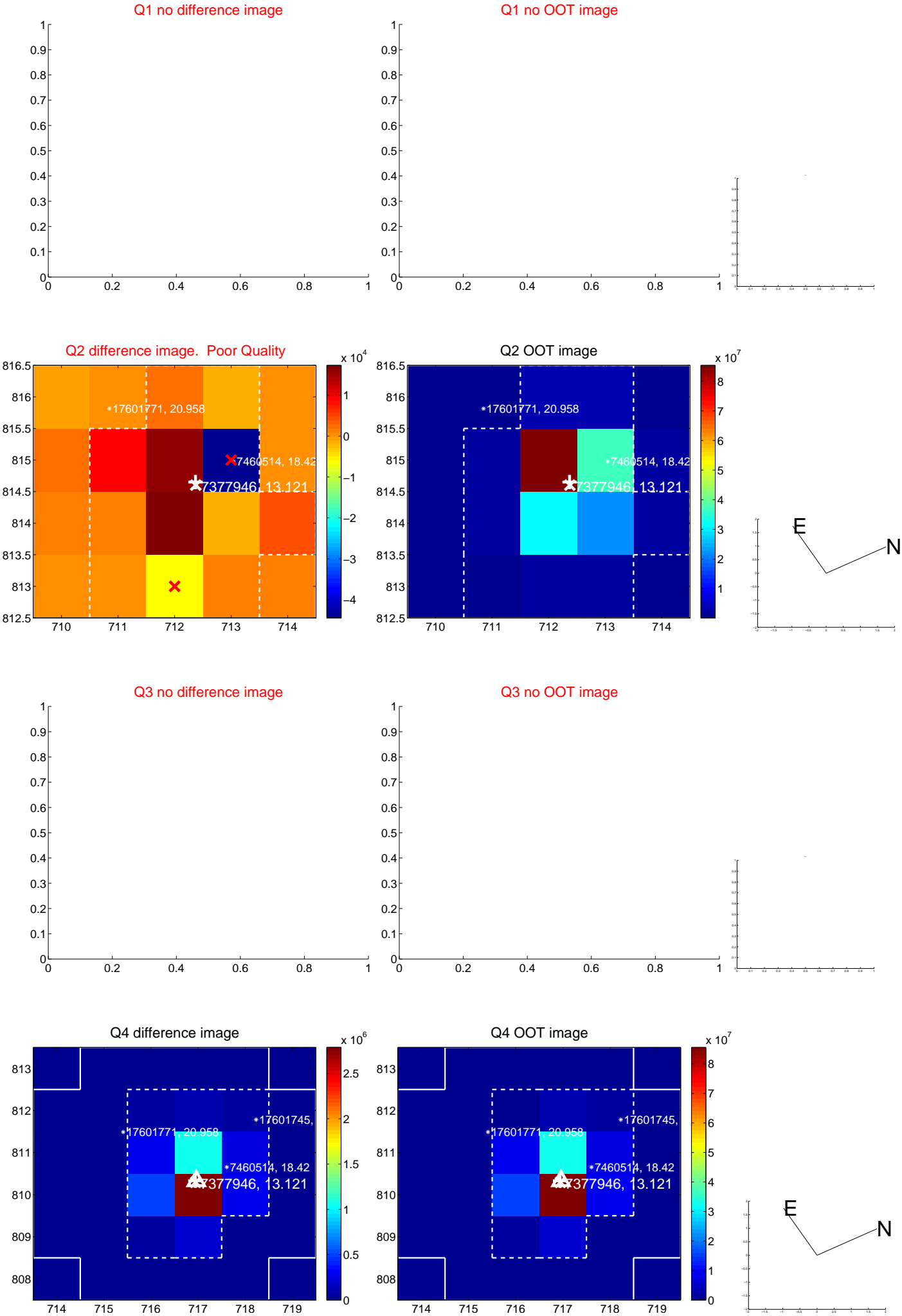
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.082 \pm 0.155$	0.52	$-0.055 \pm 0.120$	$0.060 \pm 0.248$
PRF-fit source offset from KIC position	$0.144 \pm 0.210$	0.68	$0.088 \pm 0.121$	$0.113 \pm 0.235$
photometric centroid source offset	$0.72 \pm 1.01$	0.72	$-0.18 \pm 0.91$	$0.70 \pm 1.01$



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.

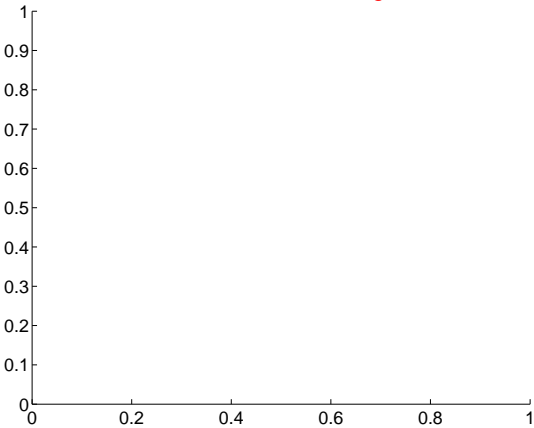
Q5 no difference image



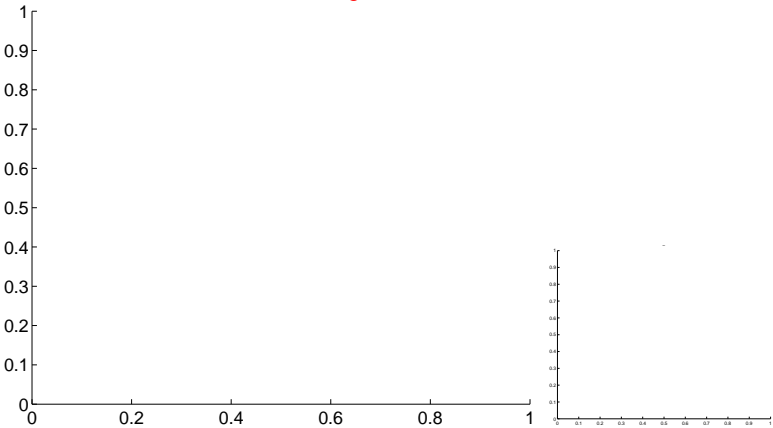
Q5 no OOT image



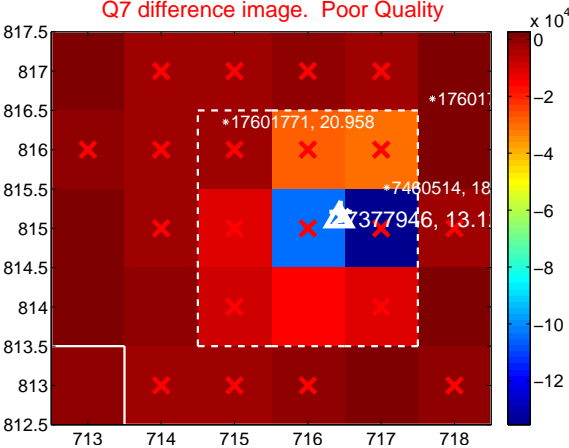
Q6 no difference image



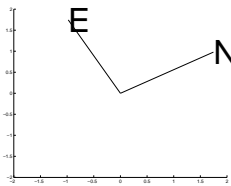
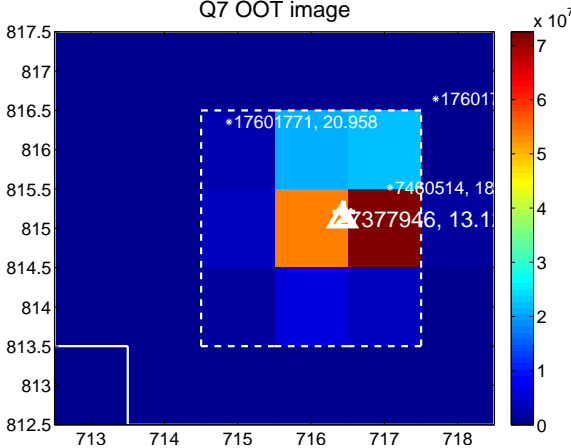
Q6 no OOT image



Q7 difference image. Poor Quality



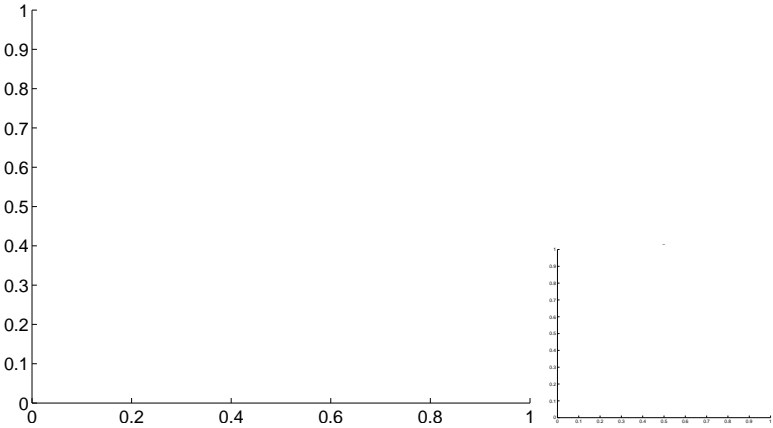
Q7 OOT image



Q8 no difference image

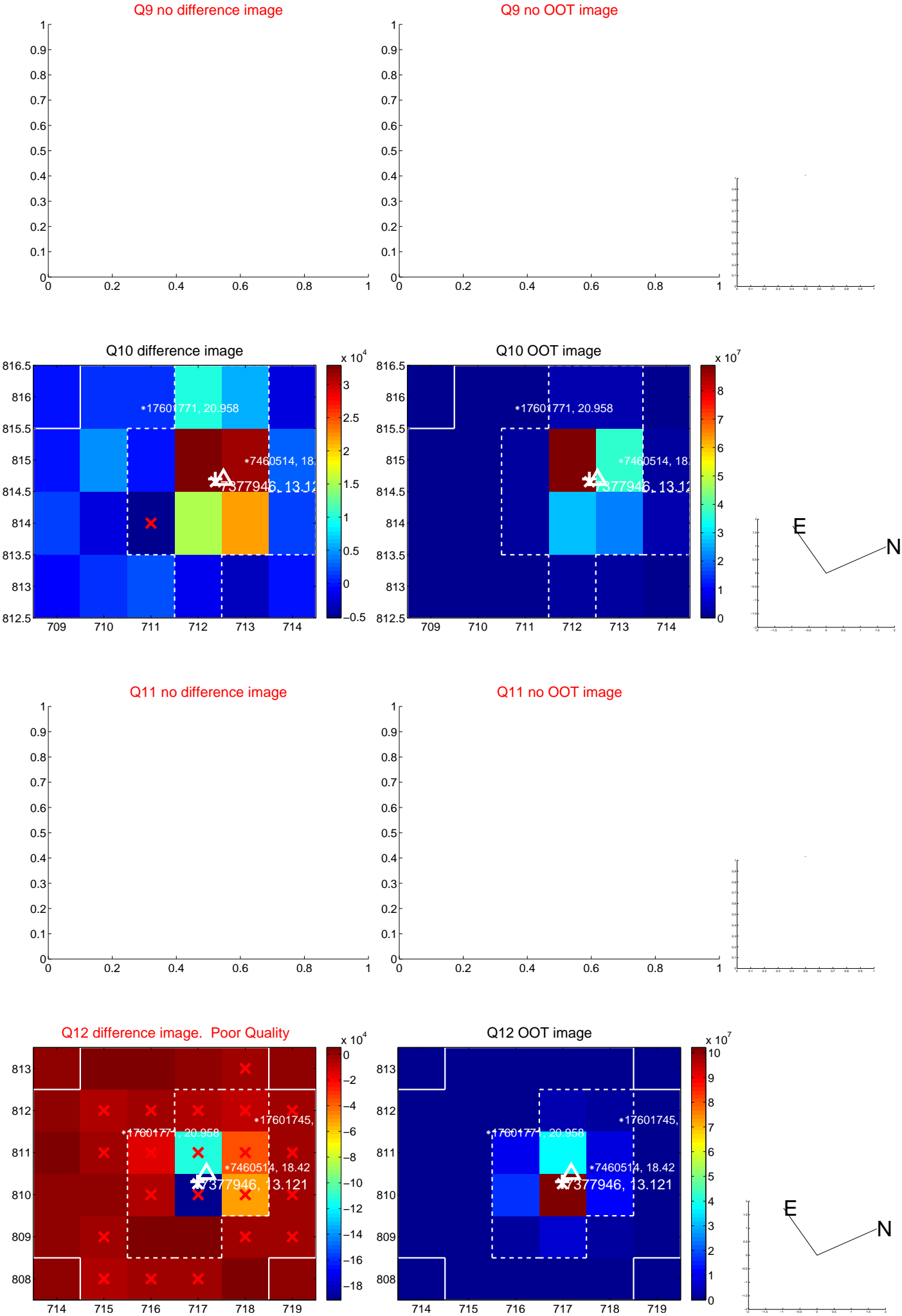


Q8 no OOT image





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



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

Q13 no difference image



Q13 no OOT image



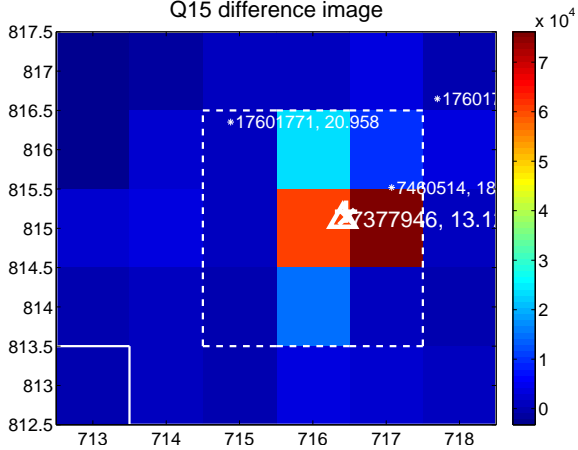
Q14 no difference image



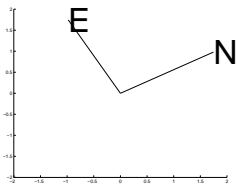
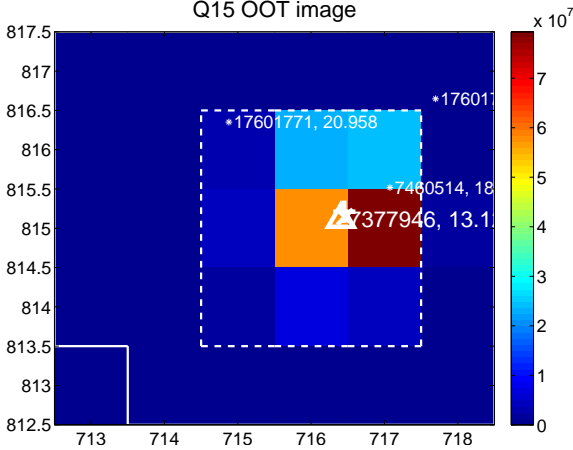
Q14 no OOT image



Q15 difference image



Q15 OOT image



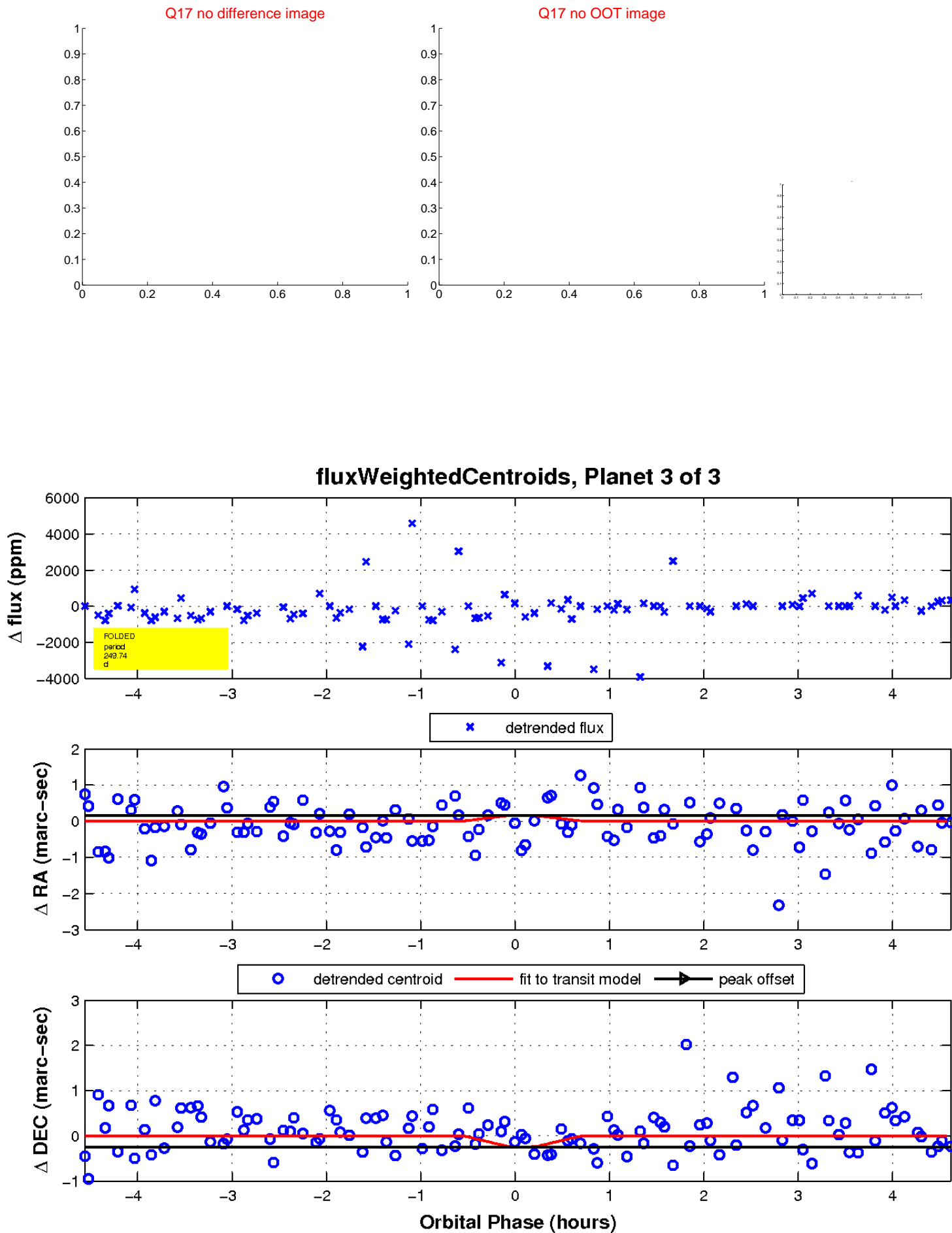
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

