

# KIC 011912947

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011912947-01	OBS	No	316.070589	166.060278	3655.7	11.148	13.1	7.2	0.32	3440	1.92	0.03
011912947-02	OBS	No	368.066672	341.007093	3637.4	4.100	14.1	8.3	0.32	3440	1.91	0.03
011912947-03	OBS	No	233.197427	139.174185	909.3	3.714	13.5	2.2	0.32	3440	1.00	0.05
011912947-04	OBS	No	448.383174	420.427132	2850.6	5.450	10.7	6.3	0.32	3440	1.78	0.02
011912947-05	OBS	No	387.444002	512.296509	3389.5	5.466	12.1	7.0	0.32	3440	1.85	0.03
011912947-06	OBS	No	522.608731	501.351619	2255.5	3.500	11.8	-1.0	0.32	3440	1.51	0.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011912947-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011912947-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
011912947-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—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.

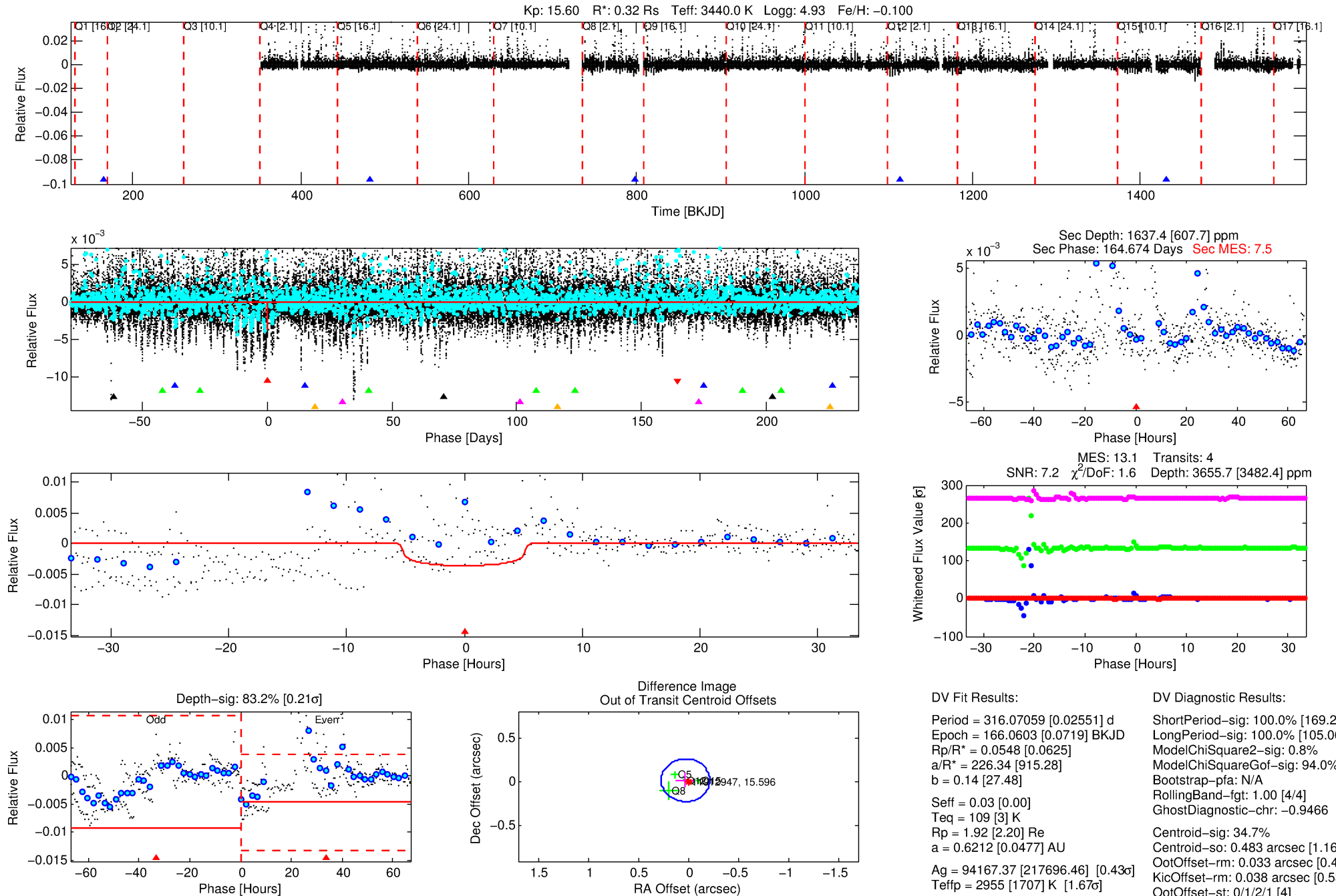
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011912947-01

No Significant Match Found

# DV One-Page Summary

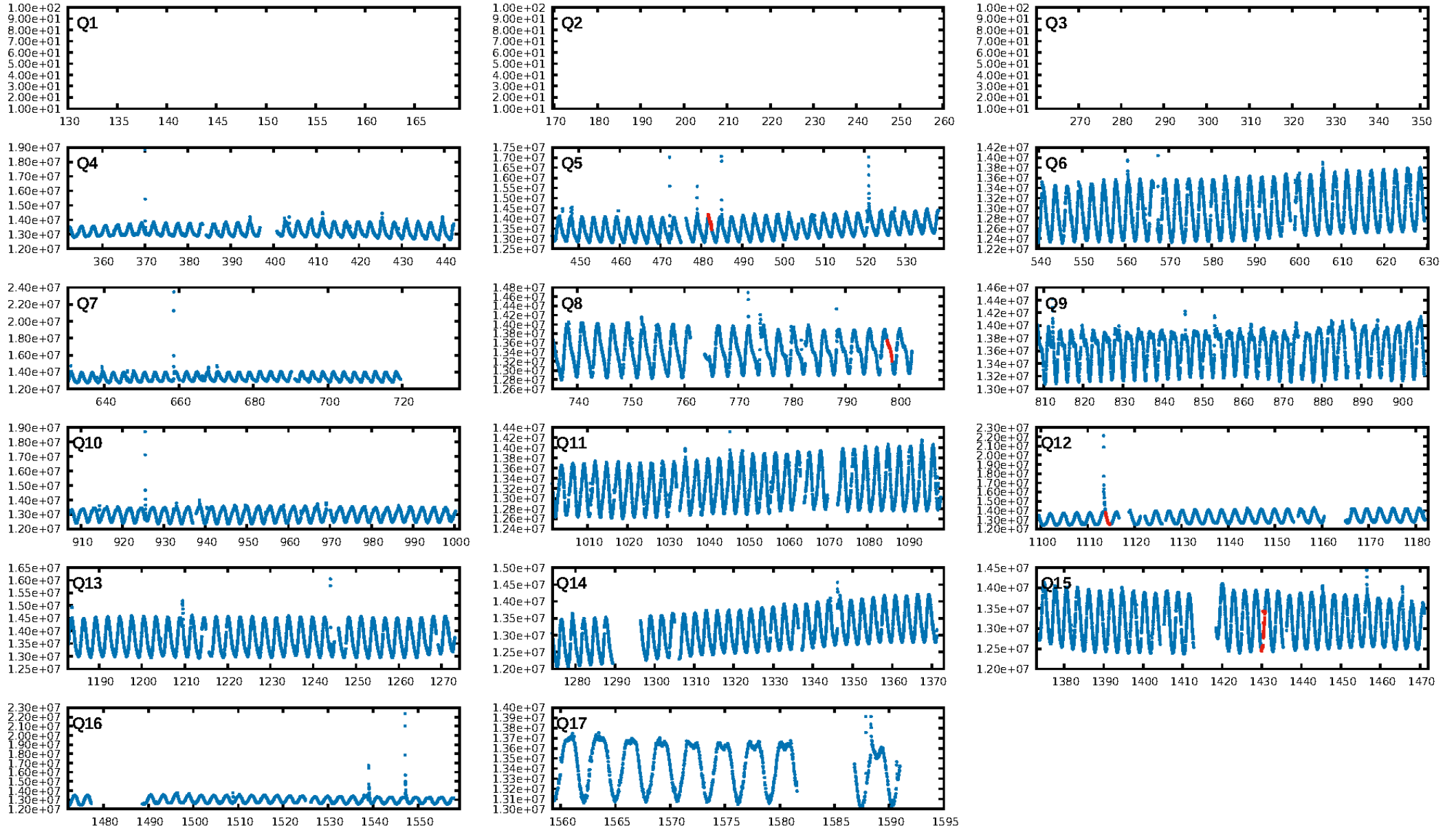
KIC: 11912947 Candidate: 1 of 6 Period: 316.071 d



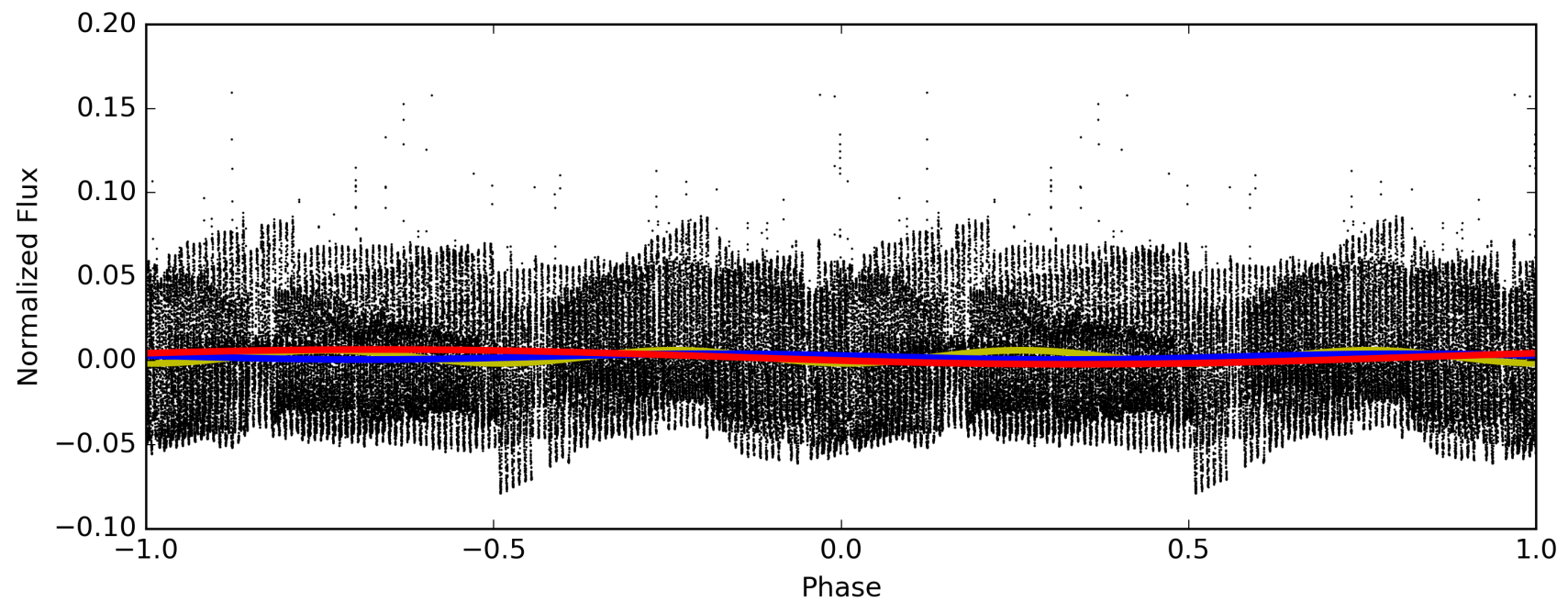
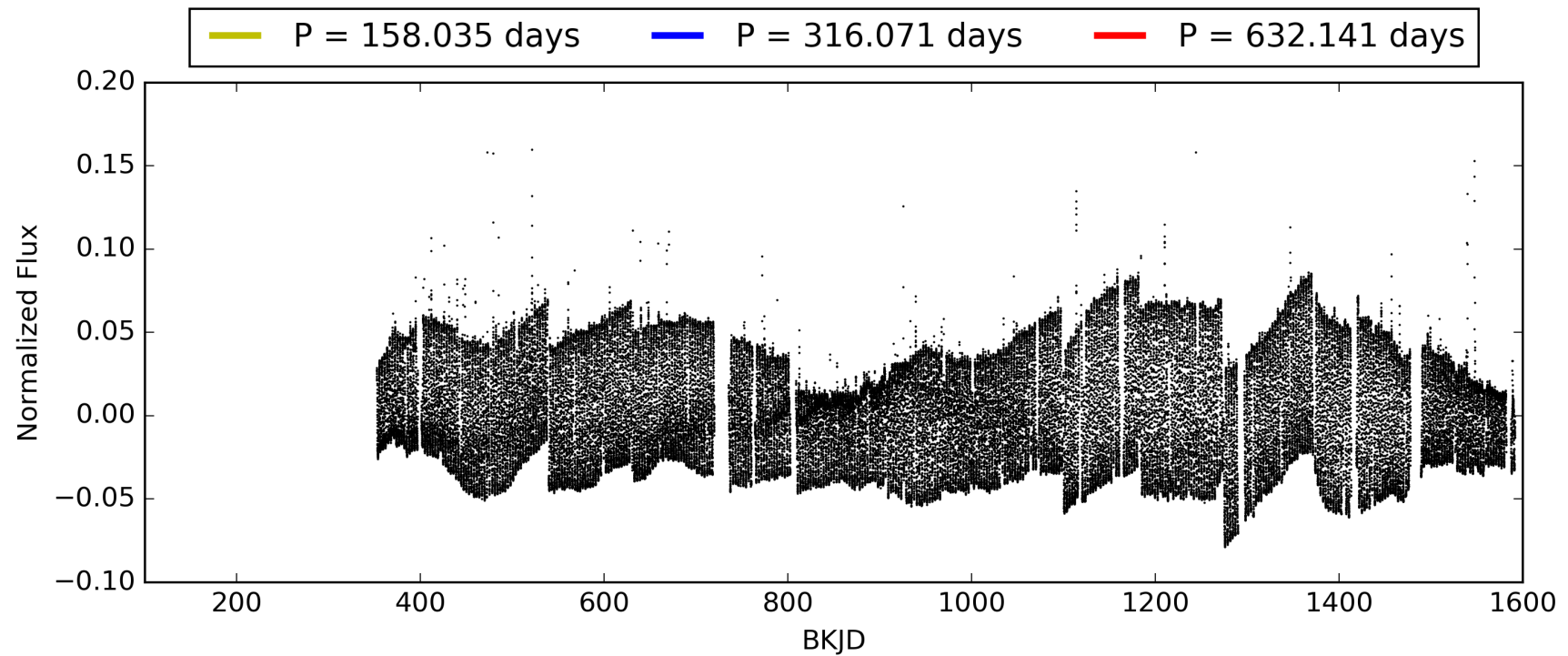
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011912947-01, PDC Light Curves



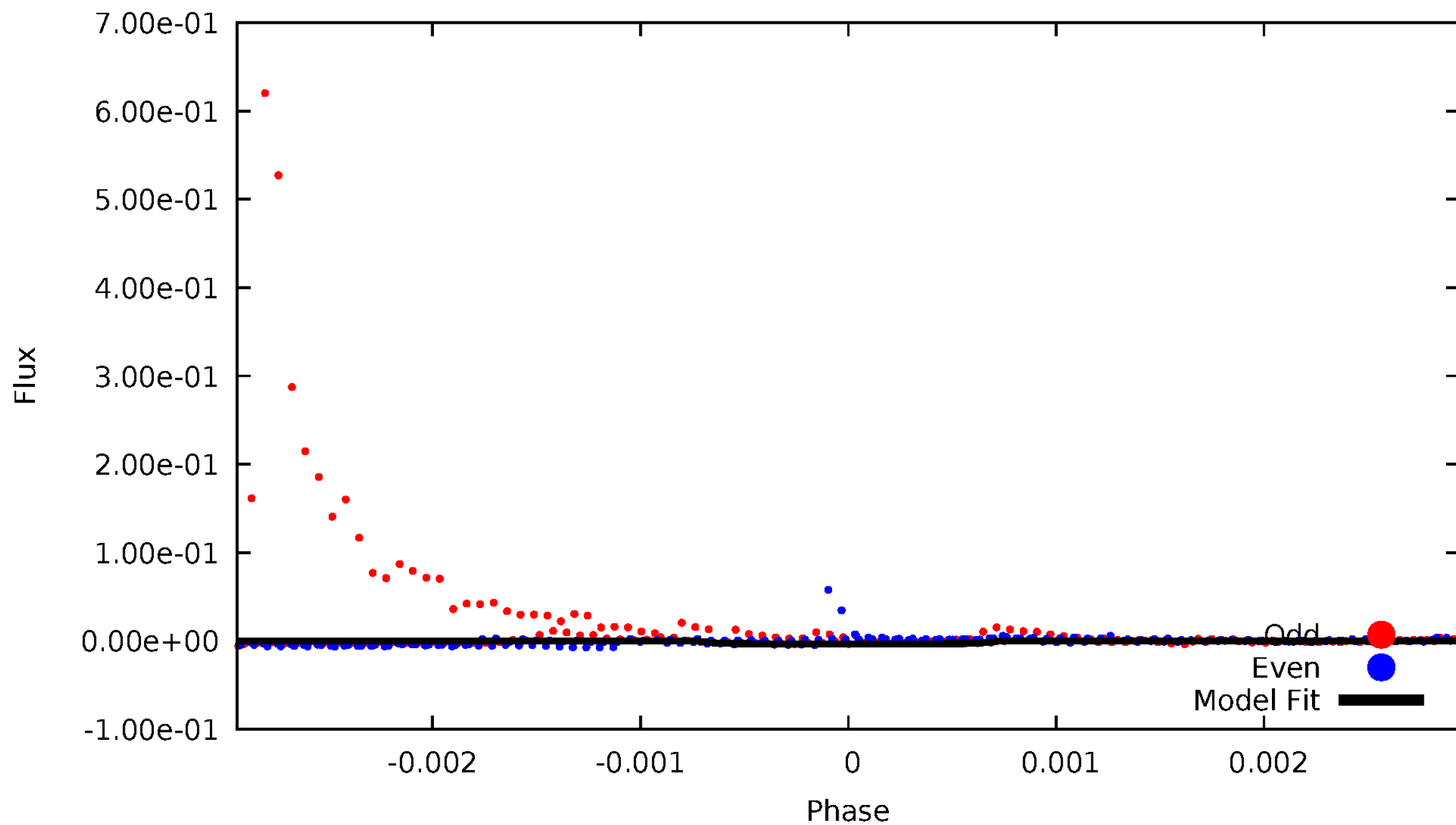
TCE 011912947-01





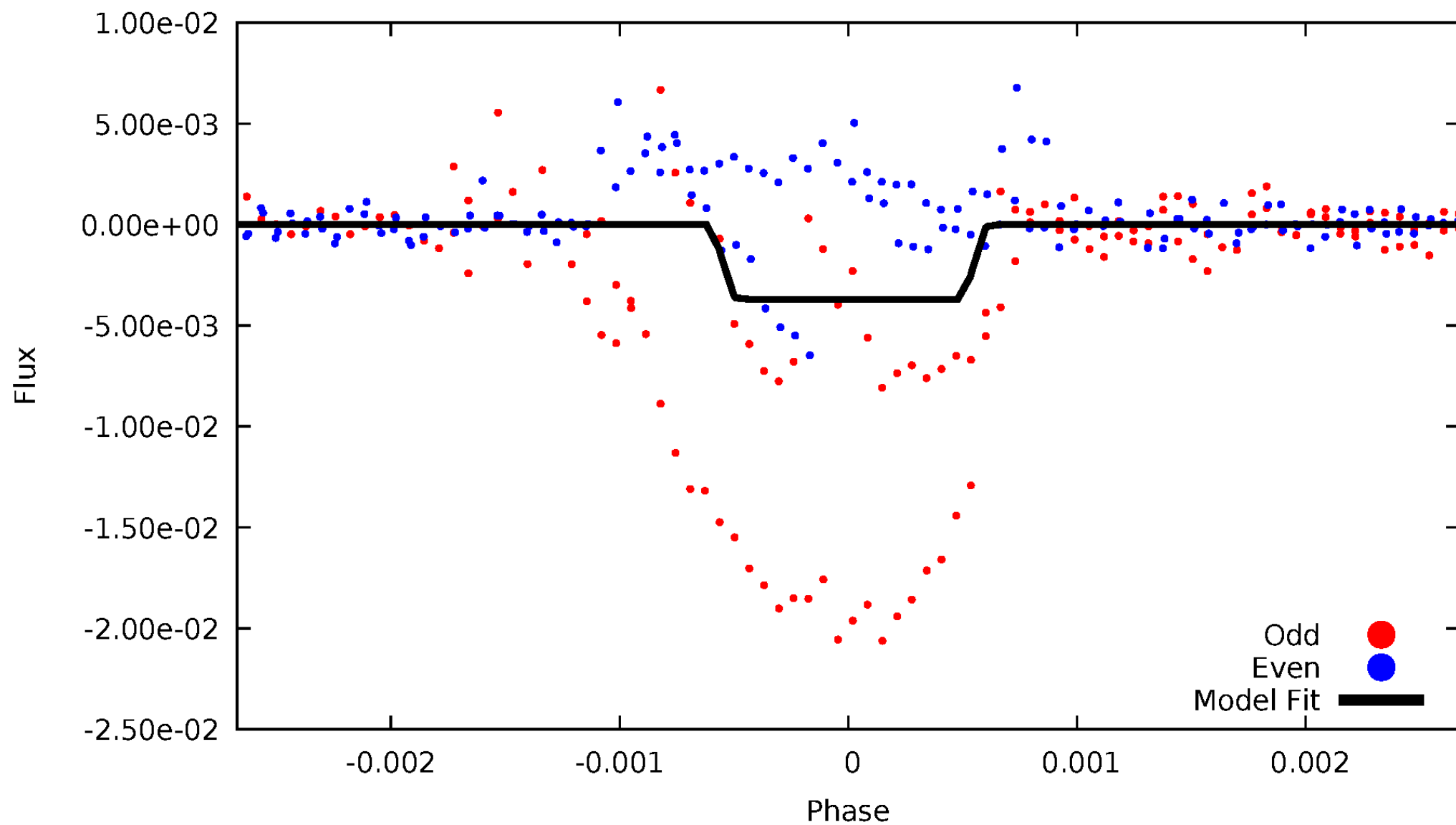
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TCE 011912947-01



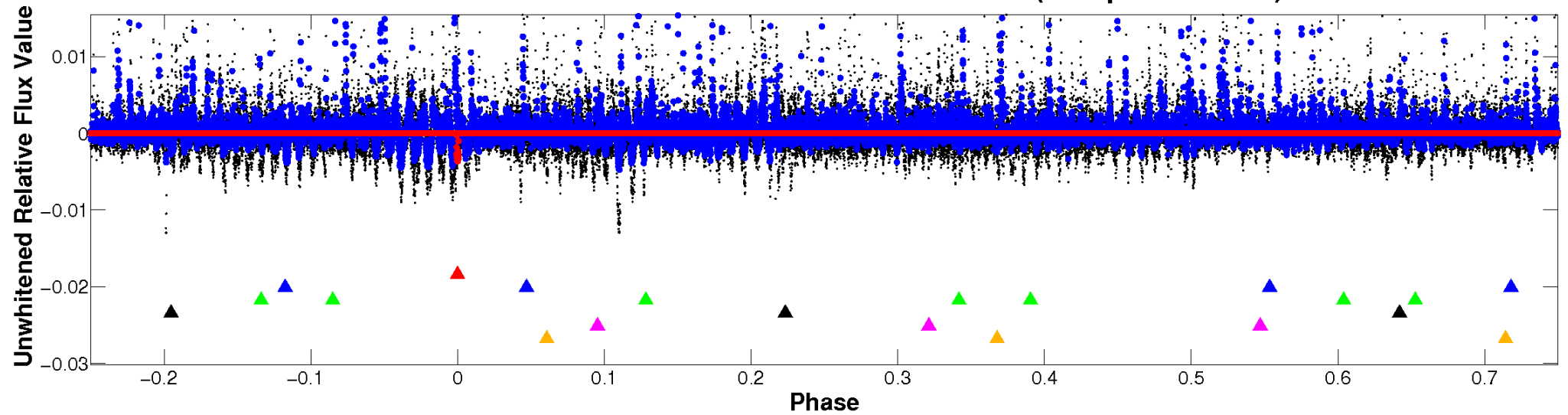
# ALT Odd/Even

TCE 011912947-01

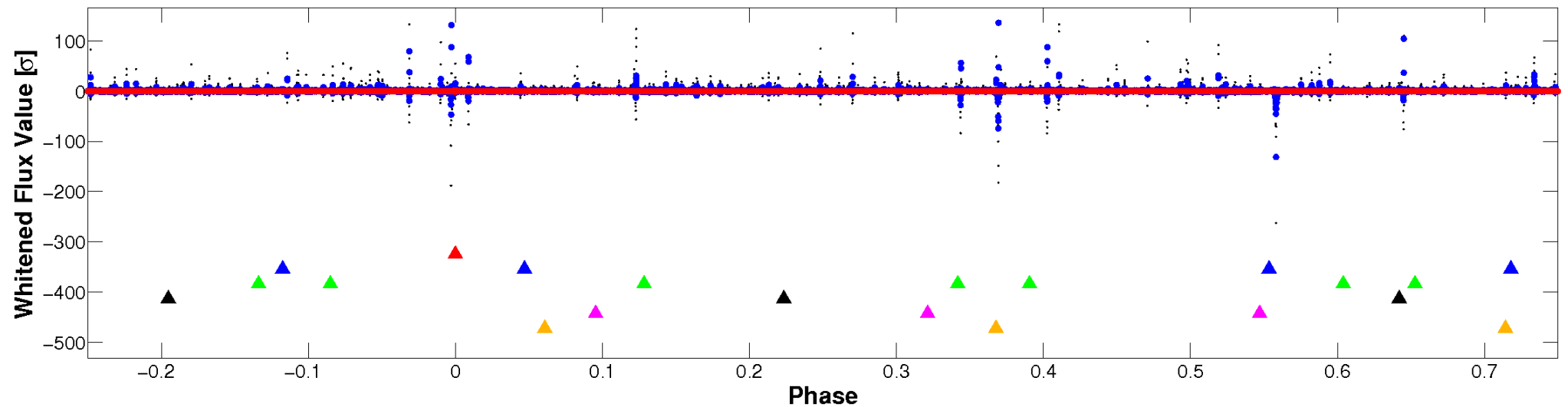


# Non-Whitened Vs. Whitened Light Curve

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

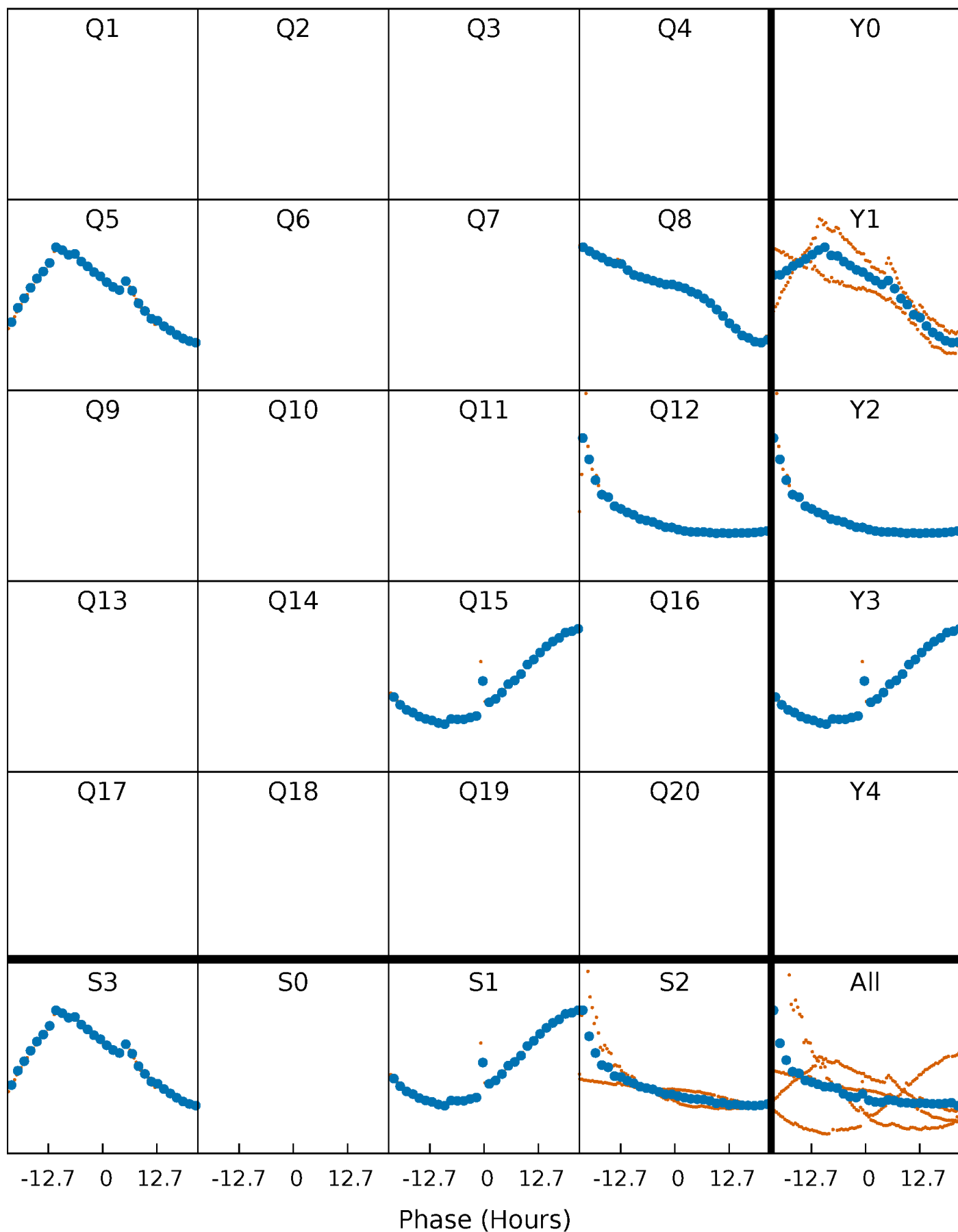


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



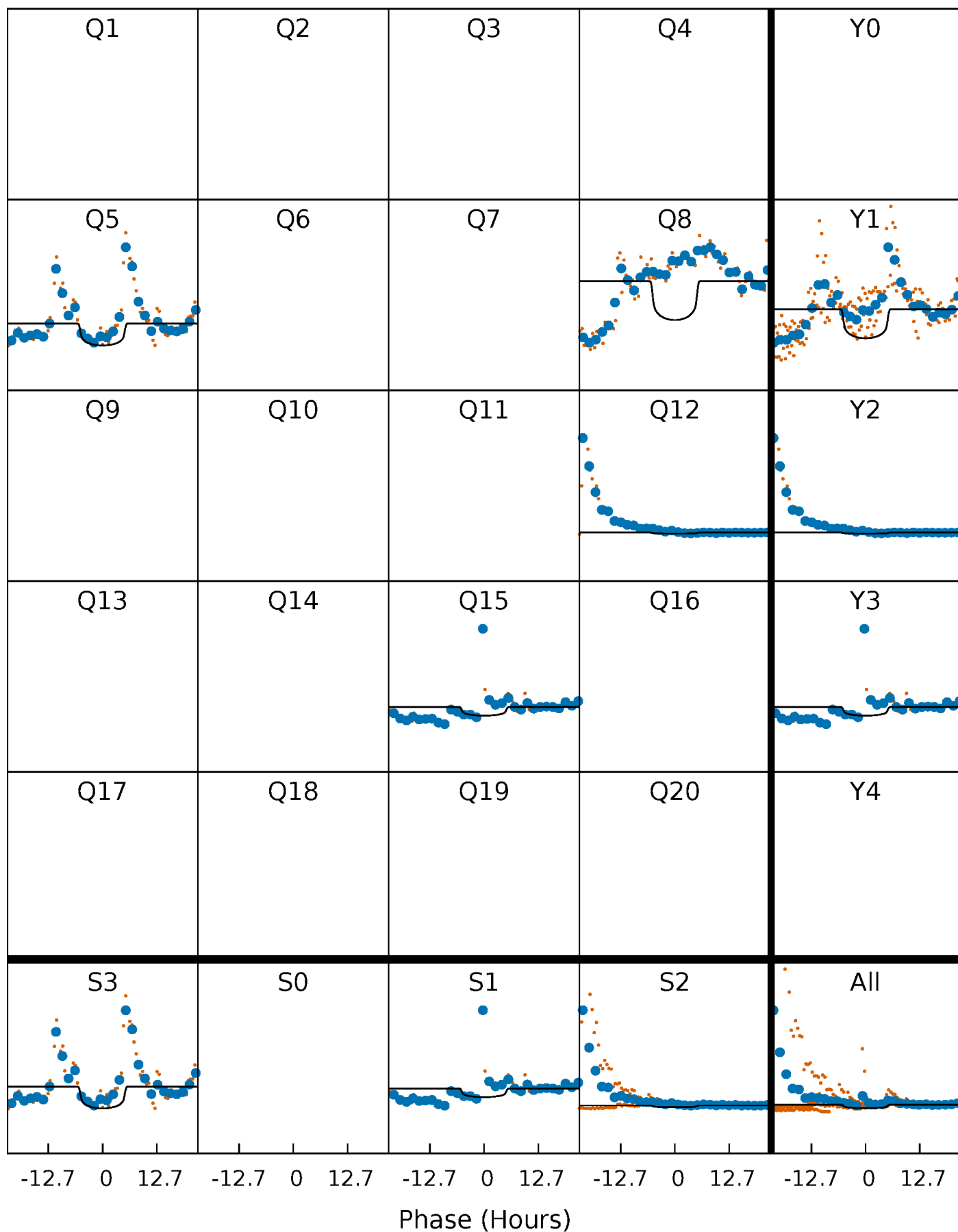
# PDC Quarter-Phased Transit Curves

TCE 011912947-01 P=316.070589 Days  $T_0=166.060278$  (BKJD)



# DV Quarter-Phased Transit Curves

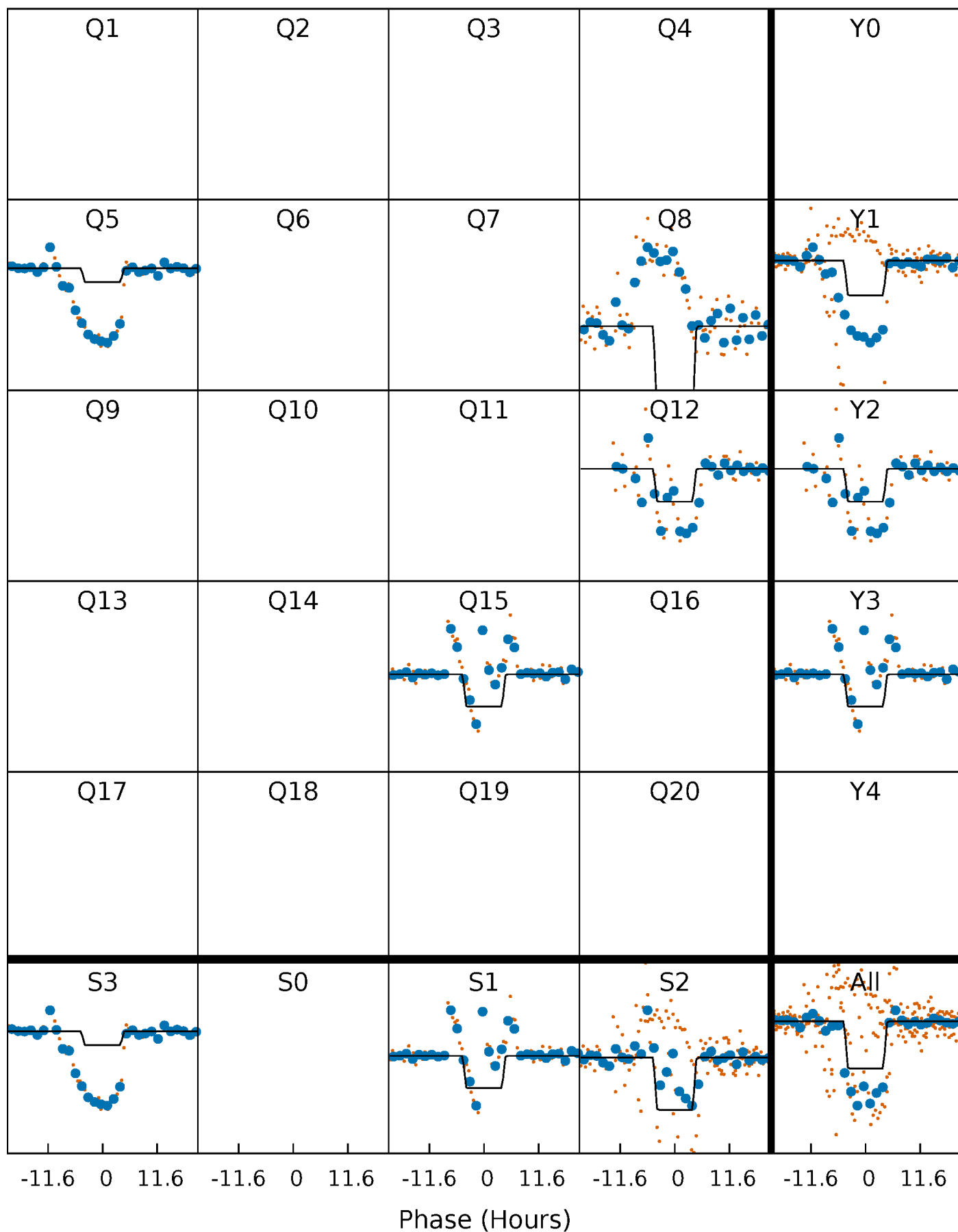
TCE 011912947-01     $P=316.070589$  Days     $T_0=166.060278$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

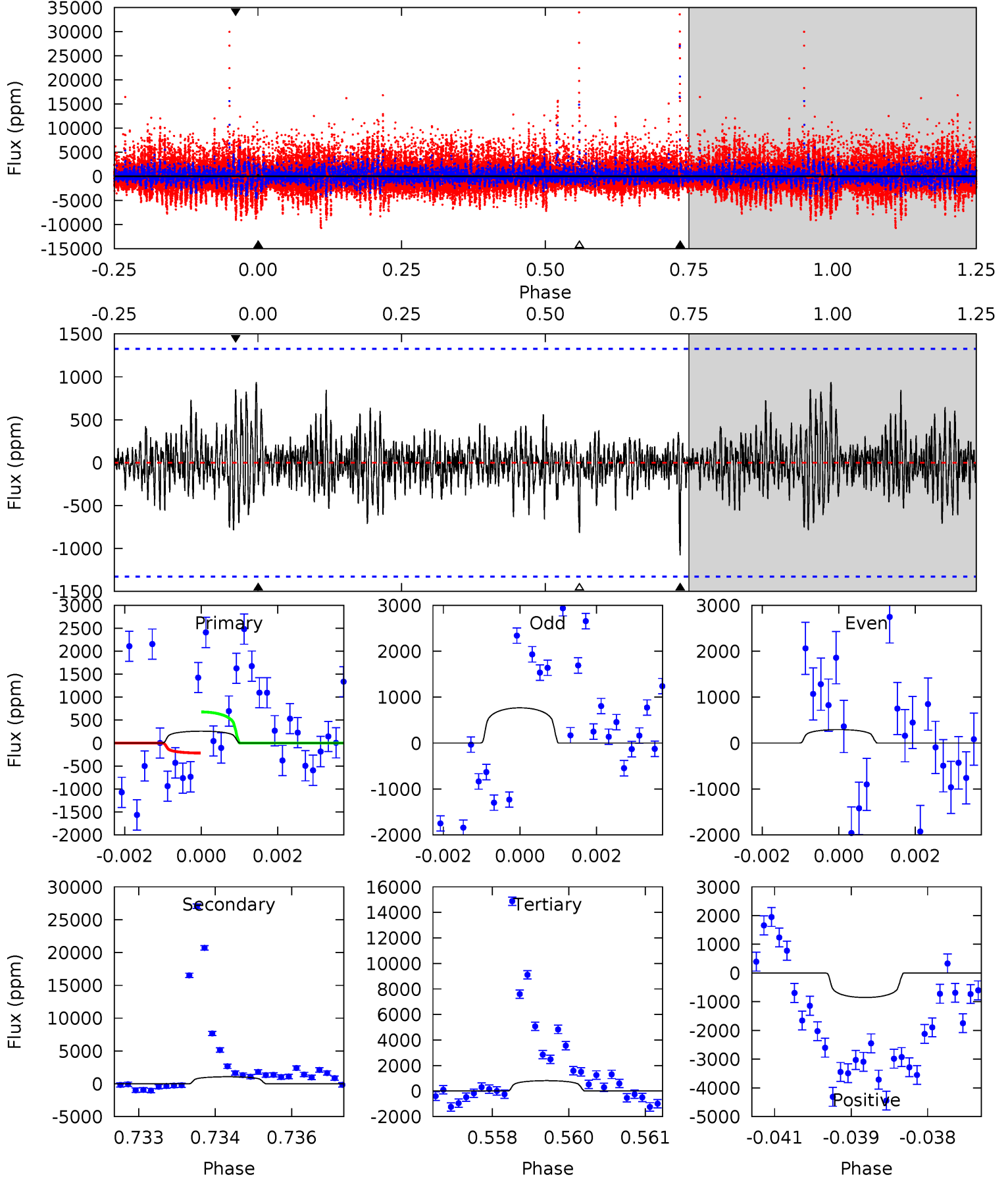
TCE 011912947-01 P=316.066306 Days  $T_0=166.079488$  (BKJD)



# DV Model-Shift Uniqueness Test

011912947-01, P = 316.070589 Days, E = 166.060278 Days

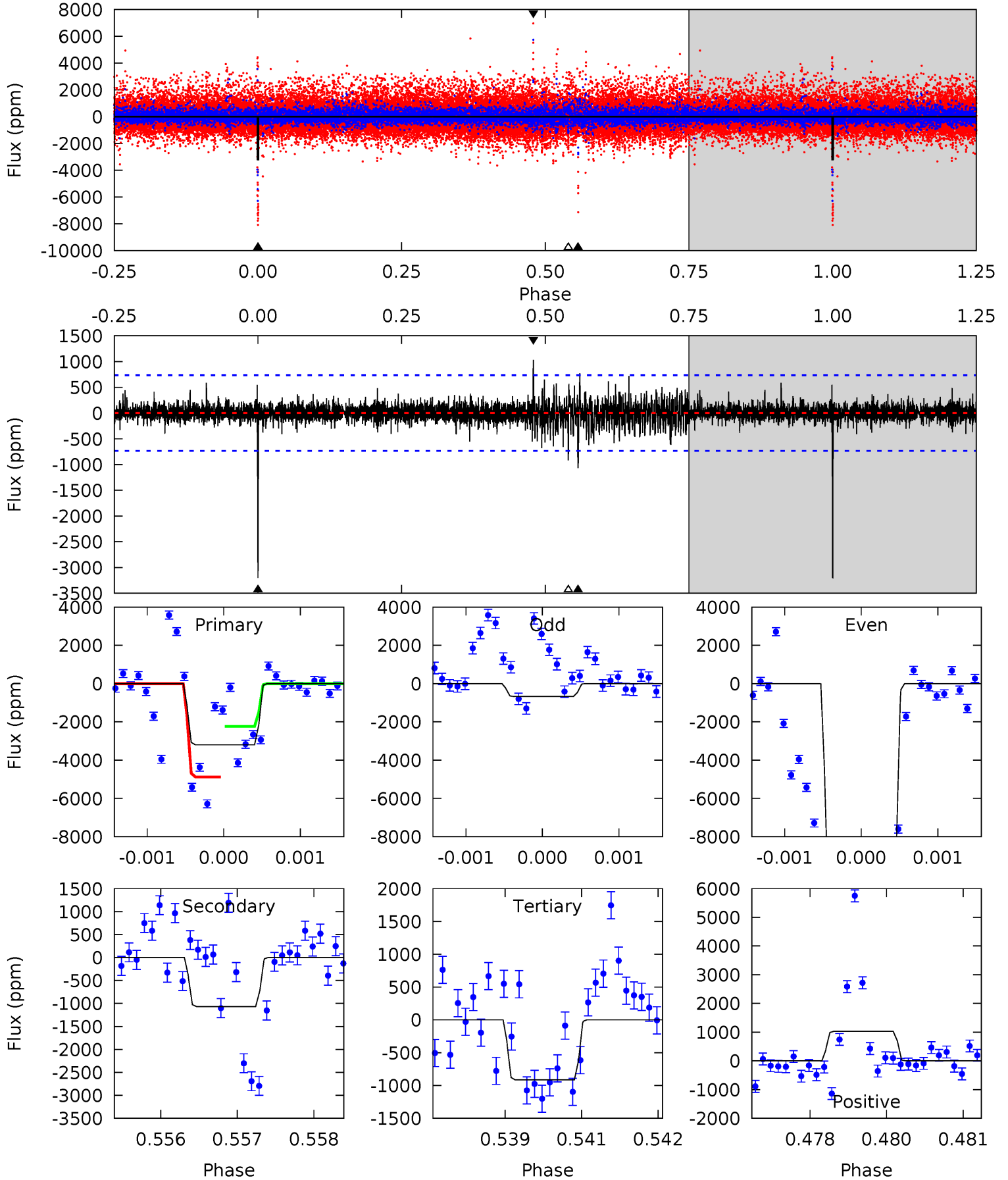
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.05	4.34	3.31	3.46	5.38	3.17	0.90	-2.26	-2.41	1.04	0.88	0.76	0.89	0.47	0.93



# Alt Model-Shift Uniqueness Test

011912947-01, P = 316.066306 Days, E = 166.079488 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
23.6	7.88	6.75	7.61	5.42	3.25	1.02	16.8	16.0	1.13	0.27	56.2	1.66	0.24	0



### Stellar Parameters For KIC 011912947

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3440^{+44}_{-41}$	$4.930^{+0.045}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.321^{+0.033}_{-0.033}$	$0.319^{+0.041}_{-0.037}$	$13.640^{+3.256}_{-1.964}$
	+1%/-1%	+1%/-1%	+100%/-100%	+10%/-10%	+13%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 011912947-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1071 \pm 247$	$2.34^{+1.99}_{-1.57}$	$152^{+3}_{-3}$	$2789^{+1136}_{-420}$	$41989^{+351803}_{-31060}$
Alt.	$-1069 \pm 136$	$2.60^{+1.97}_{-1.67}$	$152^{+3}_{-3}$	$2707^{+935}_{-341}$	$33093^{+227653}_{-22084}$

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

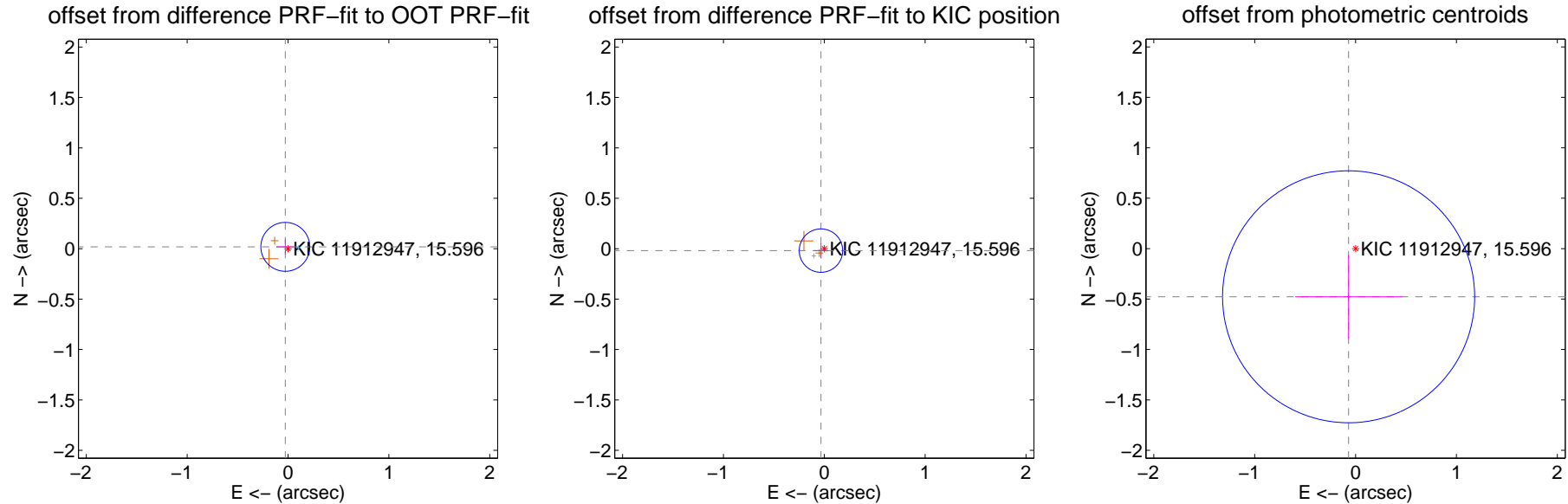
## DV Centroid Data

Supplemental centroid analysis for 011912947-01. Kepler magnitude: 15.60. Transit SNR 7.24

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.033 \pm 0.081$	0.40	$0.027 \pm 0.088$	$0.018 \pm 0.075$
PRF-fit source offset from KIC position	$0.038 \pm 0.072$	0.53	$0.033 \pm 0.072$	$-0.019 \pm 0.072$
photometric centroid source offset	$0.48 \pm 0.42$	1.16	$0.07 \pm 0.53$	$-0.48 \pm 0.41$



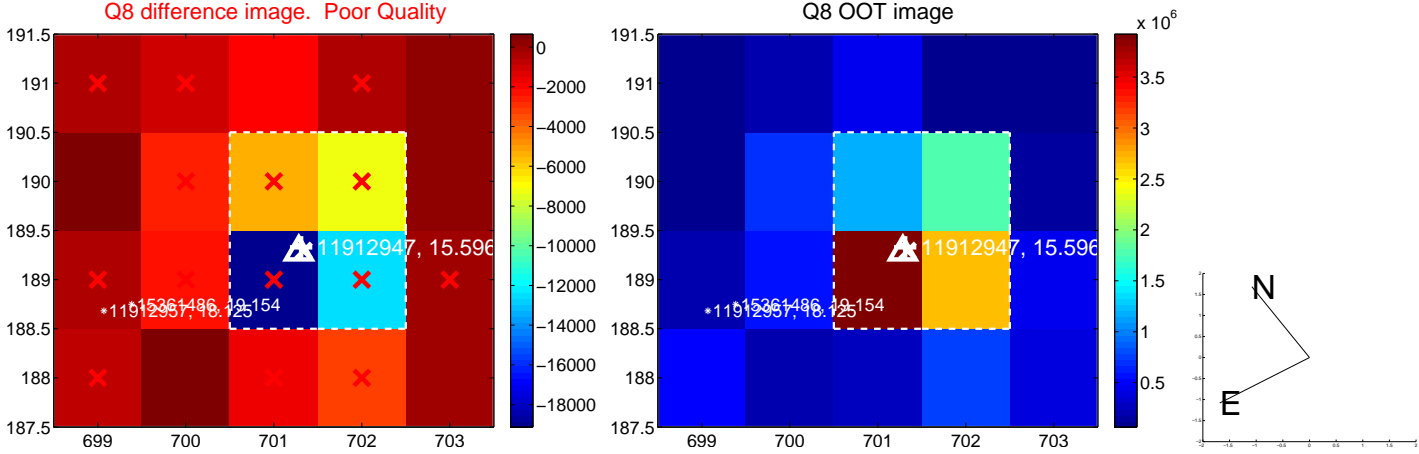
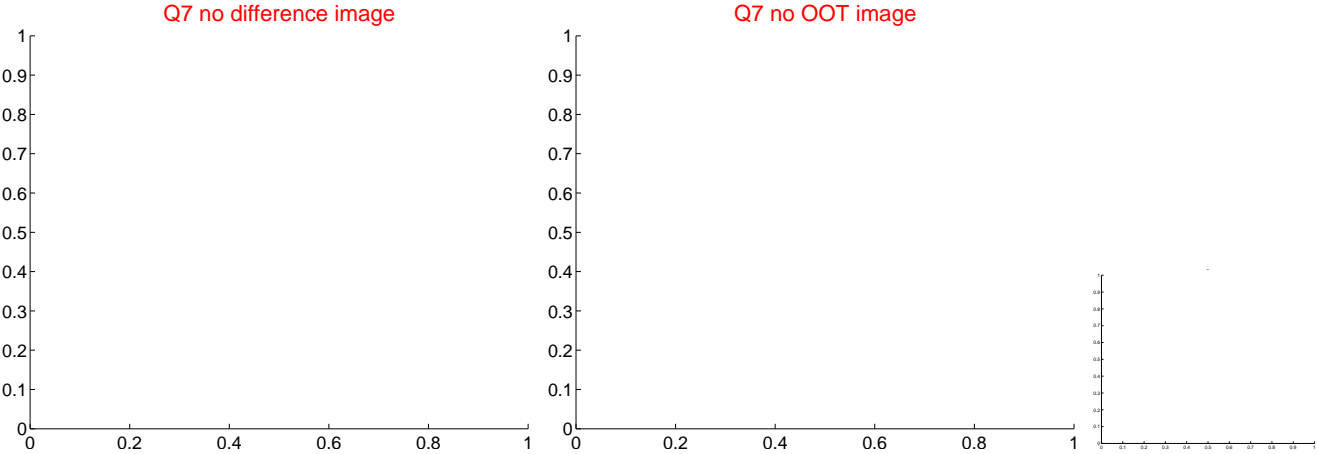
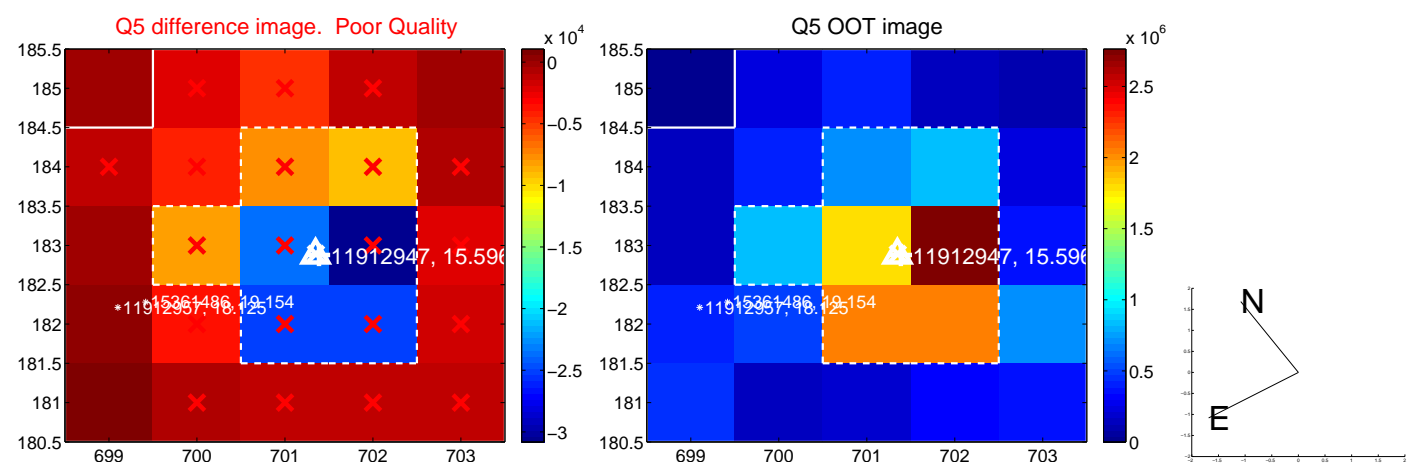
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



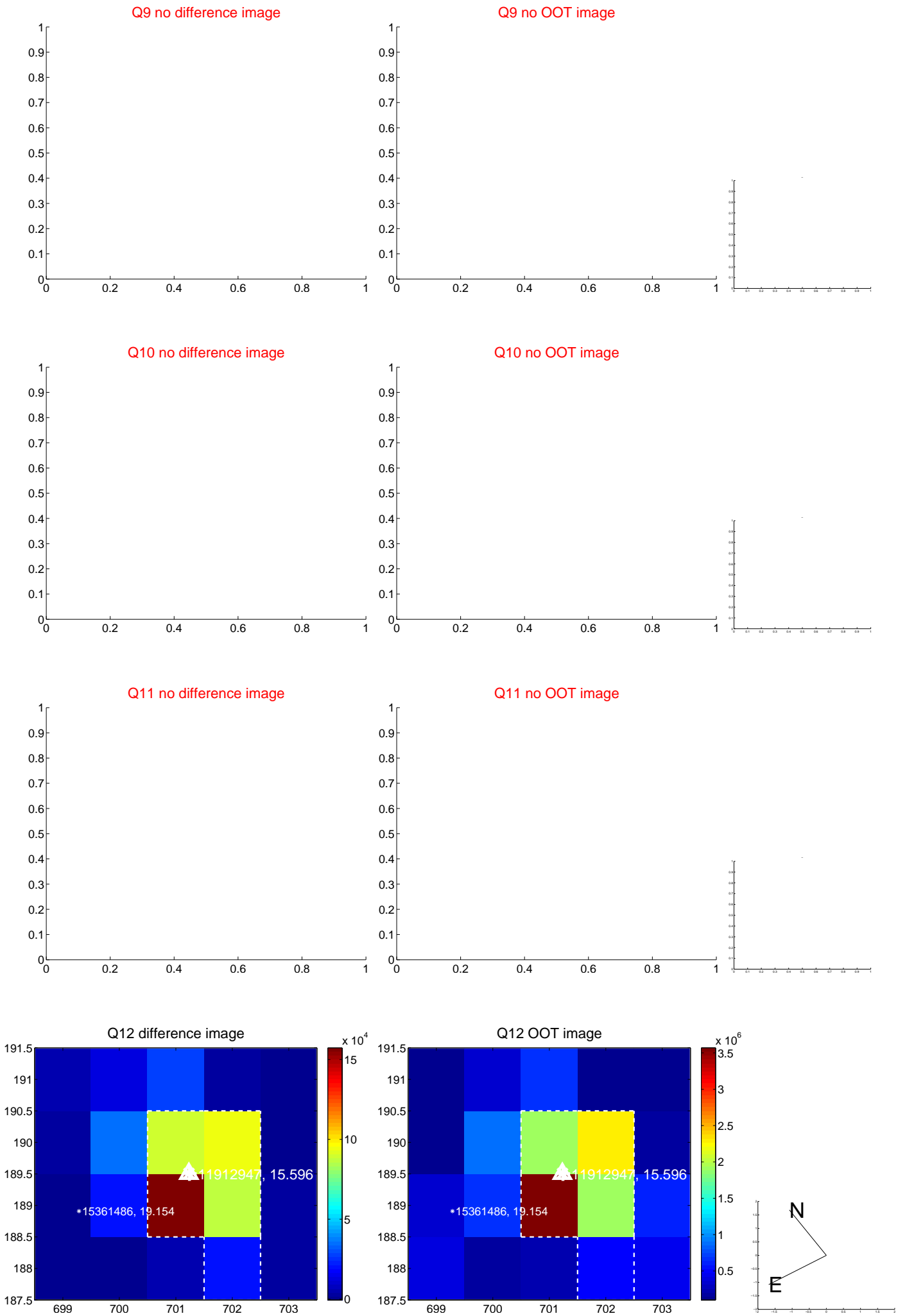
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



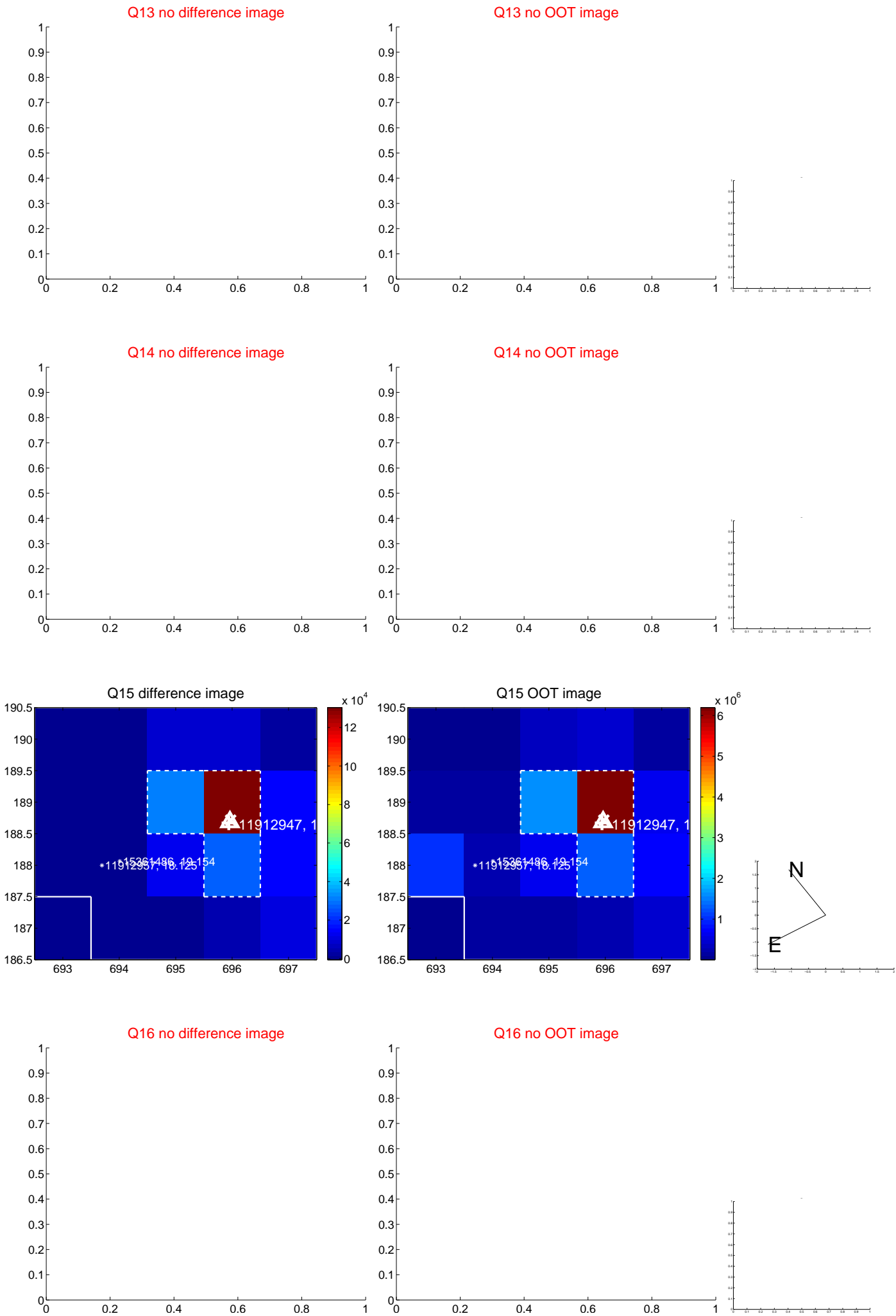
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



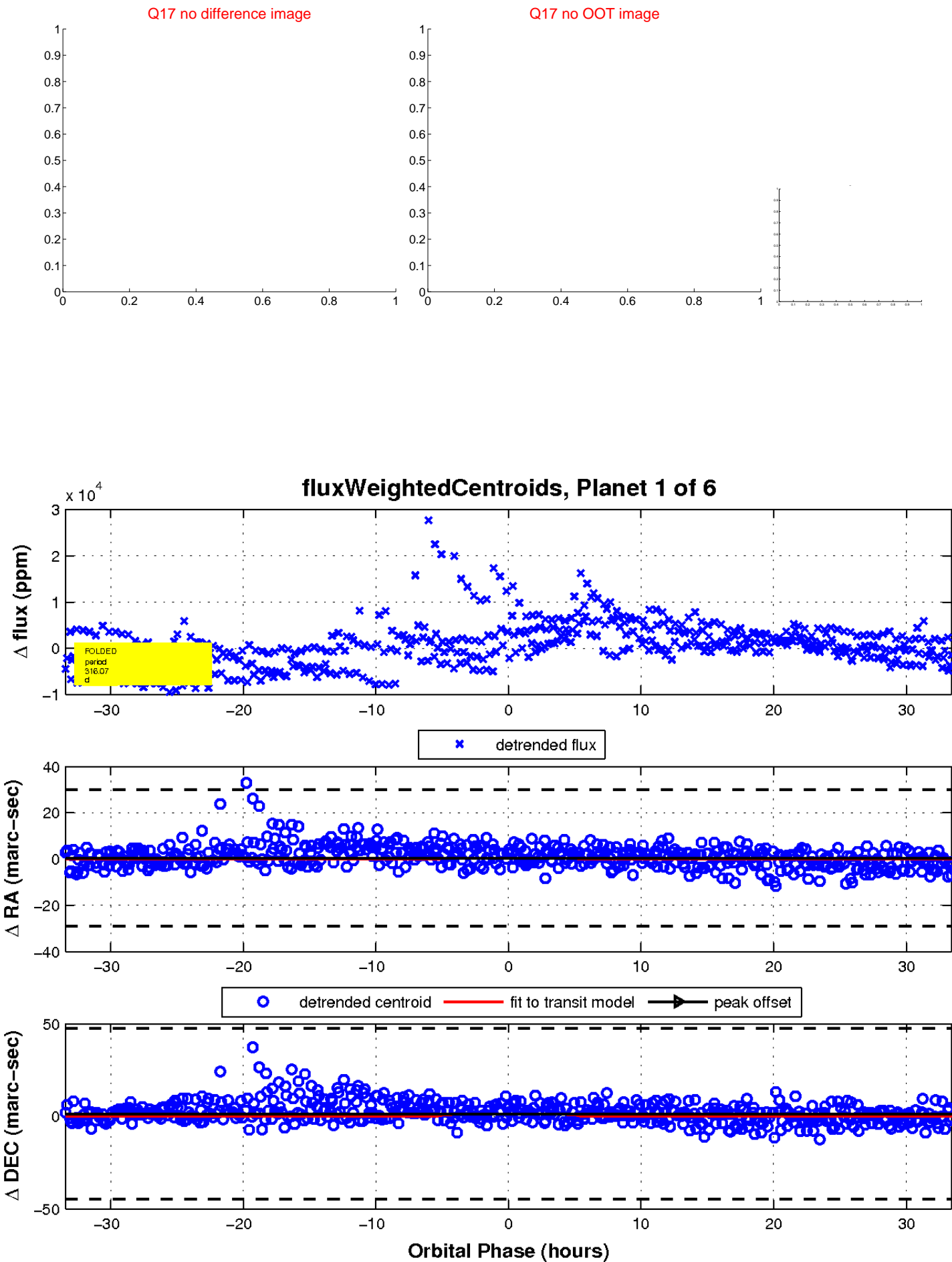
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

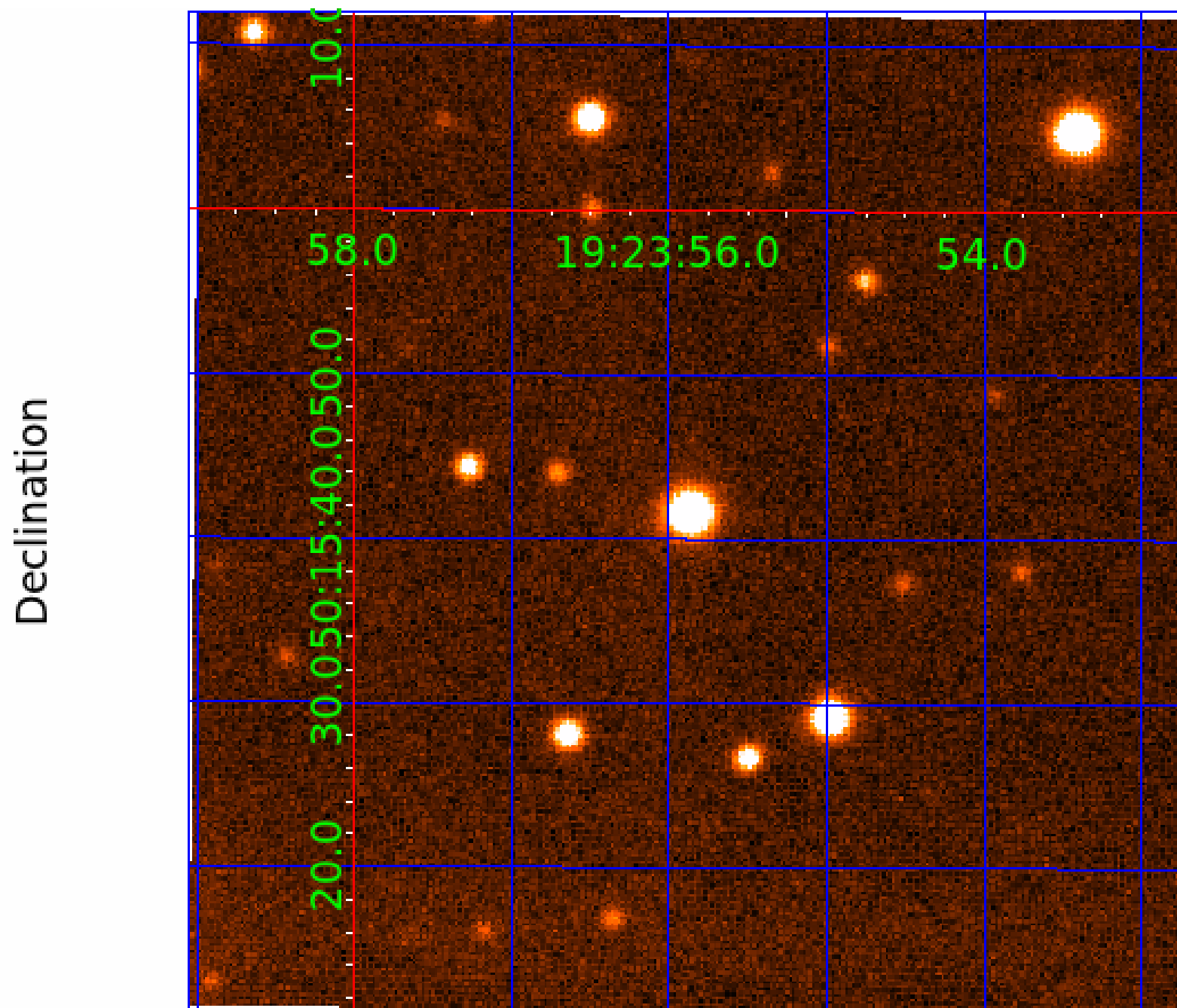


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image



# KIC 011912947

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011912947-01	OBS	No	316.070589	166.060278	3655.7	11.148	13.1	7.2	0.32	3440	1.92	0.03
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011912947-03	OBS	No	233.197427	139.174185	909.3	3.714	13.5	2.2	0.32	3440	1.00	0.05
011912947-04	OBS	No	448.383174	420.427132	2850.6	5.450	10.7	6.3	0.32	3440	1.78	0.02
011912947-05	OBS	No	387.444002	512.296509	3389.5	5.466	12.1	7.0	0.32	3440	1.85	0.03
011912947-06	OBS	No	522.608731	501.351619	2255.5	3.500	11.8	-1.0	0.32	3440	1.51	0.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011912947-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011912947-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
011912947-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—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.

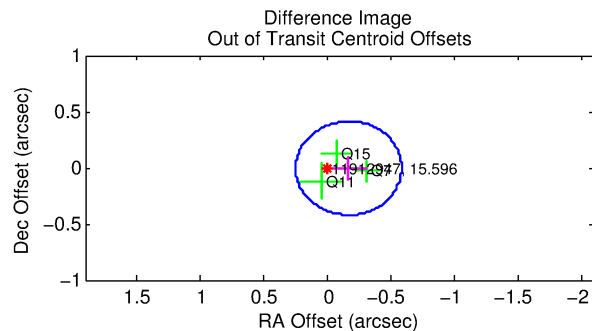
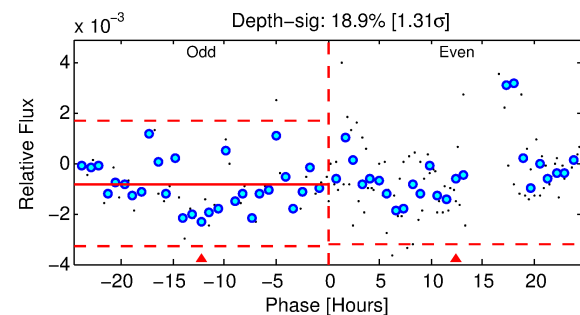
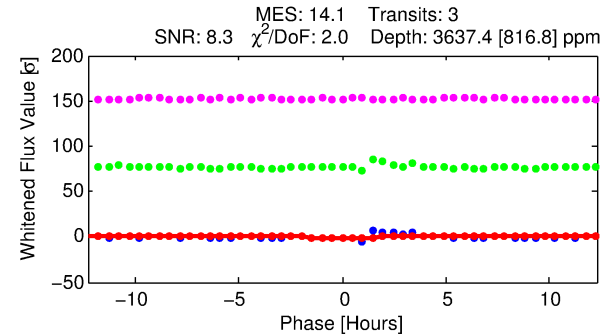
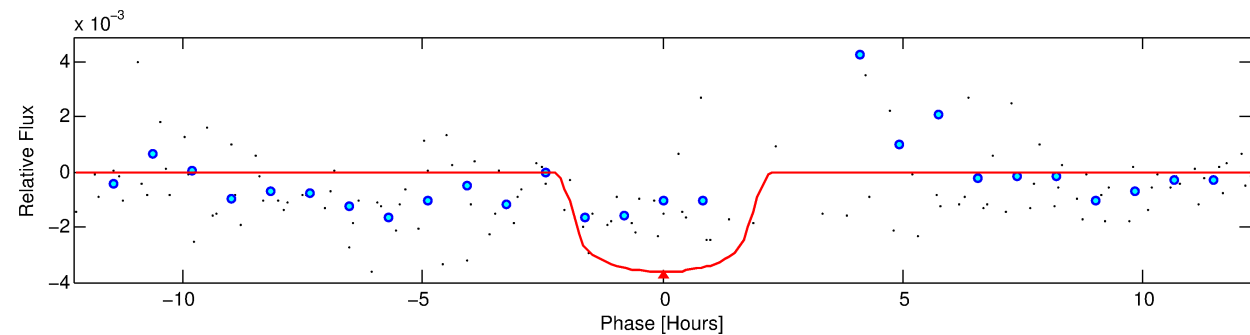
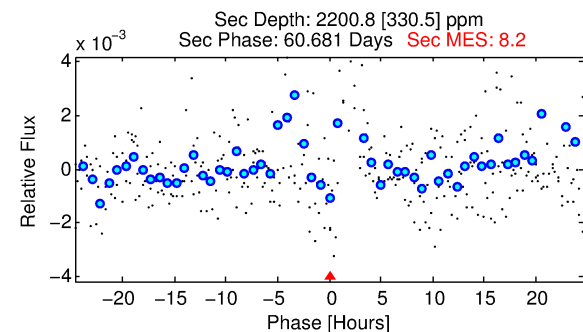
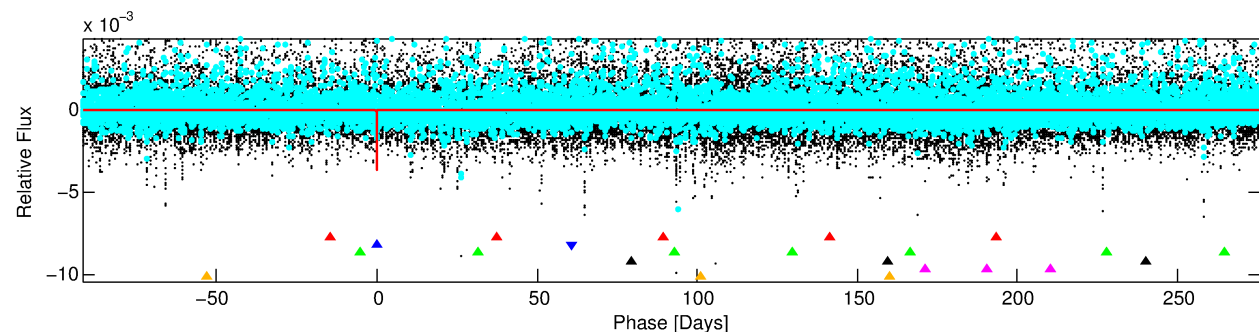
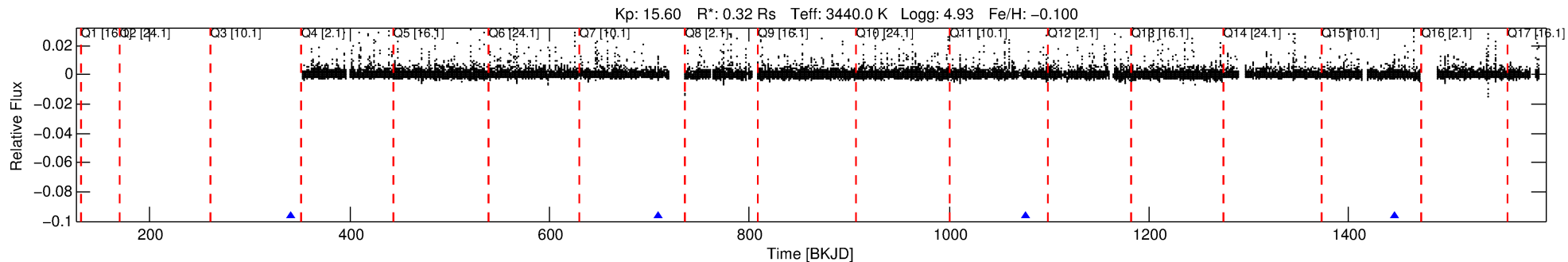
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011912947-02

No Significant Match Found

# DV One-Page Summary

KIC: 11912947 Candidate: 2 of 6 Period: 368.067 d



## DV Fit Results:

Period = 368.06667 [0.00581] d  
Epoch = 341.0071 [0.0142] BKJD  
Rp/R\* = 0.0546 [0.0685]  
a/R\* = 723.28 [3913.75]  
b = 0.00 [1576.85]  
Seff = 0.03 [0.00]  
Teq = 104 [3] K  
Rp = 1.91 [2.41] Re  
a = 0.6876 [0.0528] AU  
Ag = 156420.72 [393310.10] [0.40σ]  
Teffp = 3188 [2003] K [1.54σ]

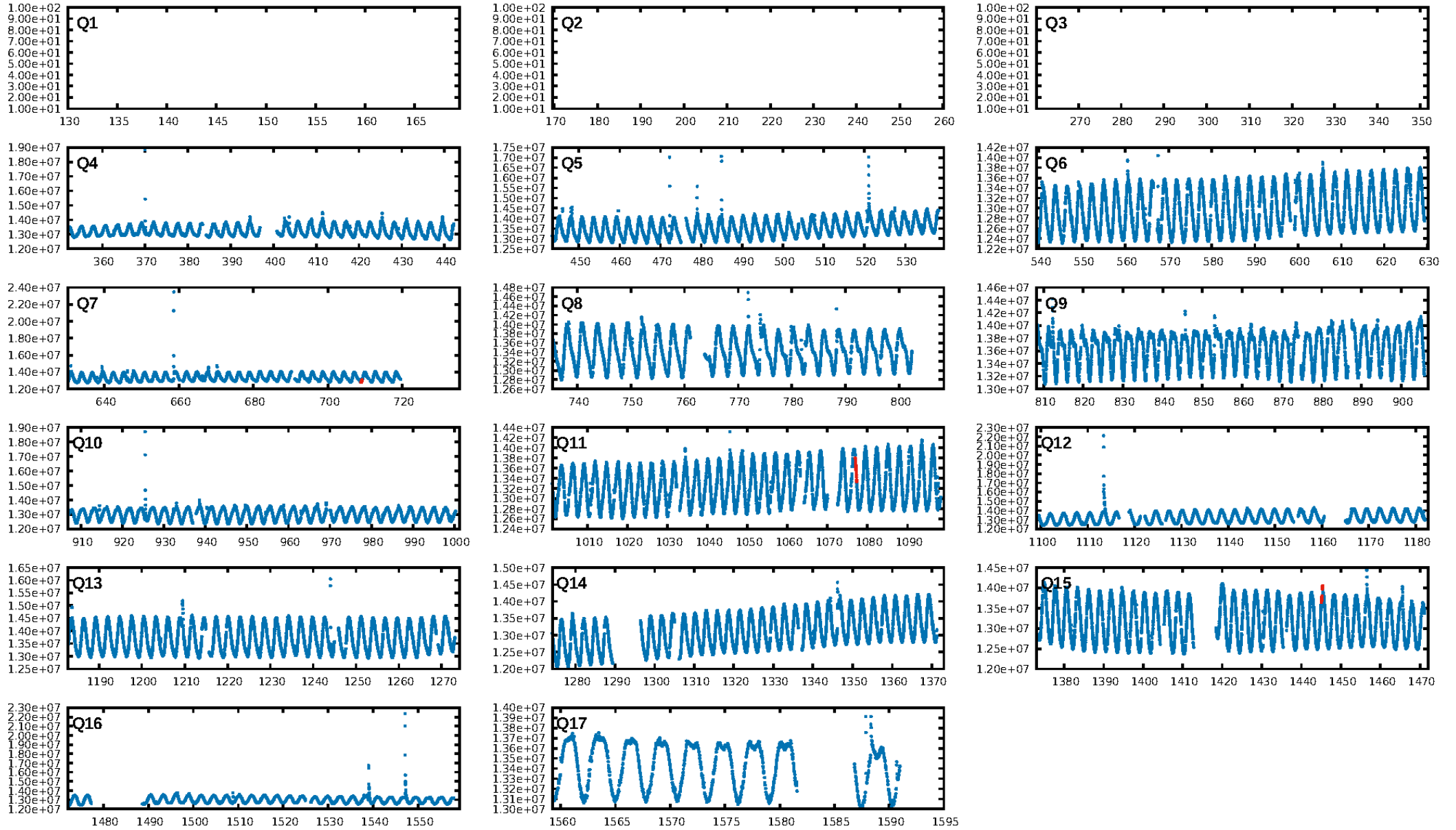
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [105.06σ]  
LongPeriod-sig: 100.0% [68.06σ]  
ModelChiSquare2-sig: 12.8%  
ModelChiSquareGof-sig: 99.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 1.952**  
Centroid-sig: 6.4%  
Centroid-so: 1.162 arcsec [1.81σ]  
OotOffset-rm: 0.171 arcsec [1.23σ]  
KicOffset-rm: 0.090 arcsec [0.87σ]  
OotOffset-st: 0/3/0/0 [3]  
KicOffset-st: 0/3/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

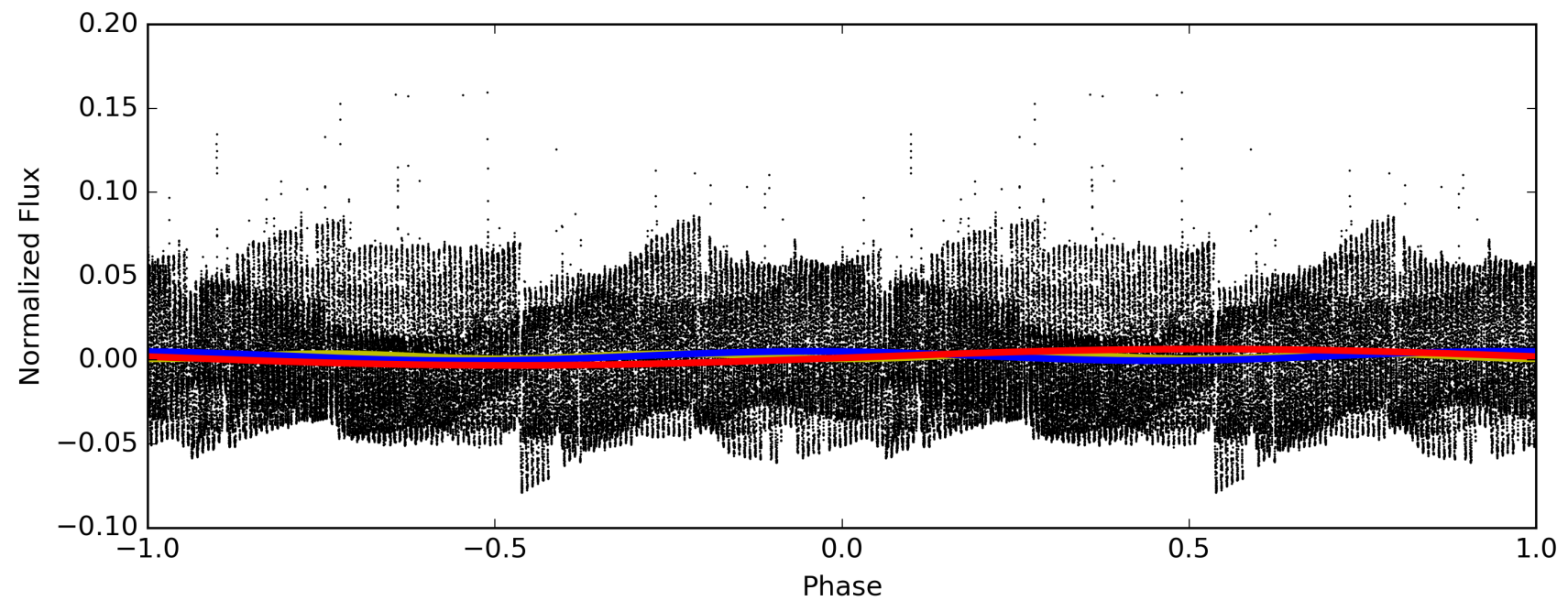
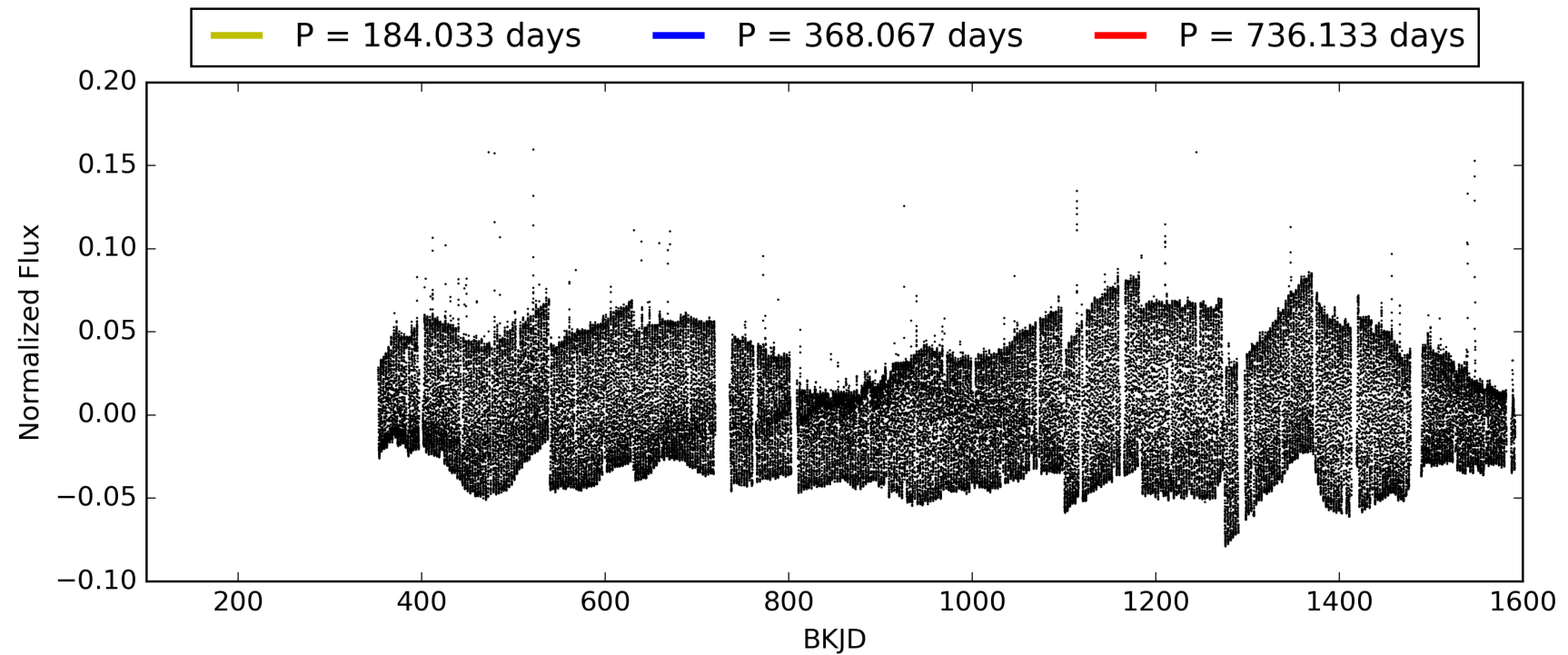
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:42:14 Z

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

# TCE 011912947-02, PDC Light Curves



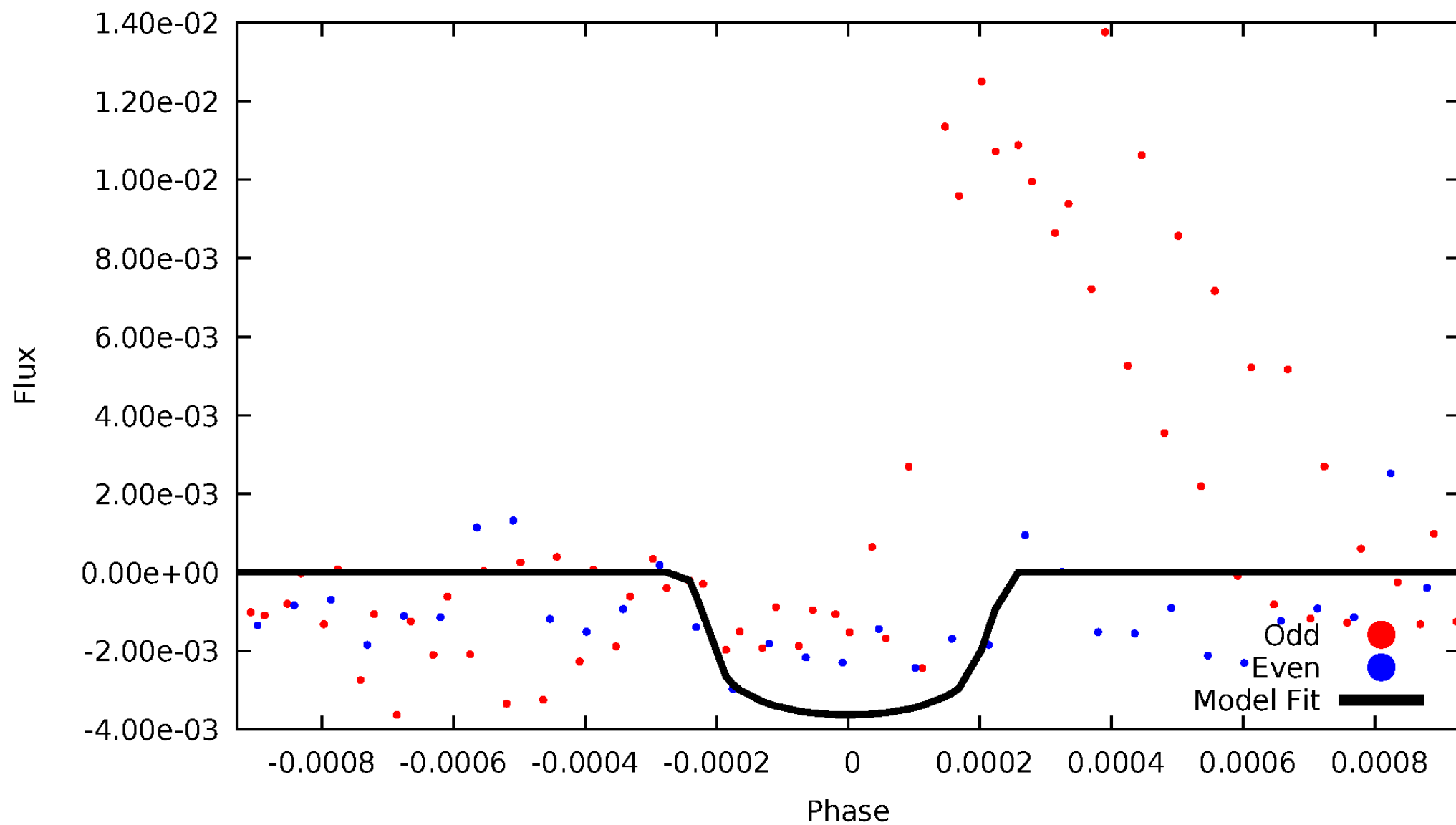
TCE 011912947-02





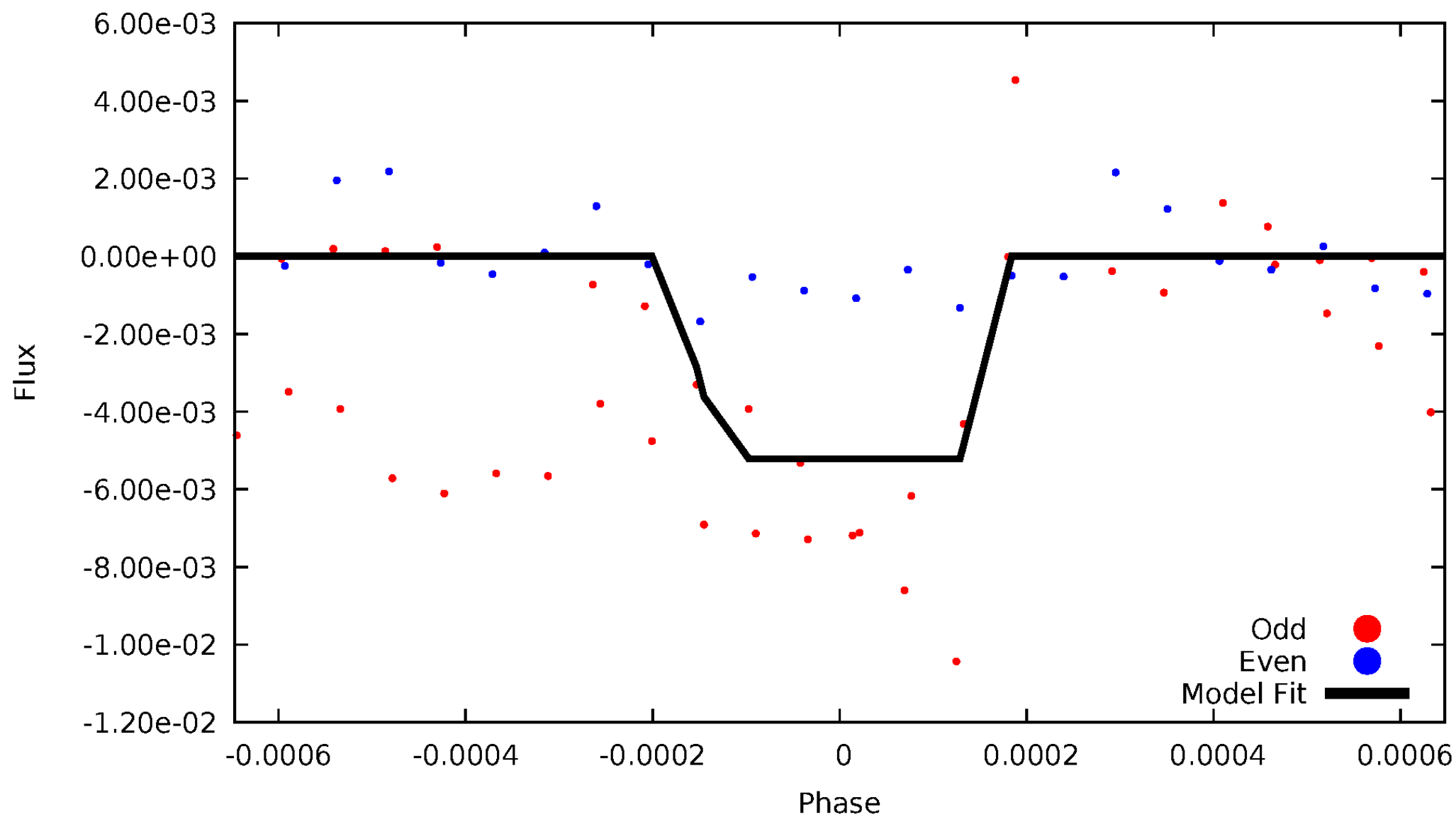
# DV Odd/Even

TCE 011912947-02



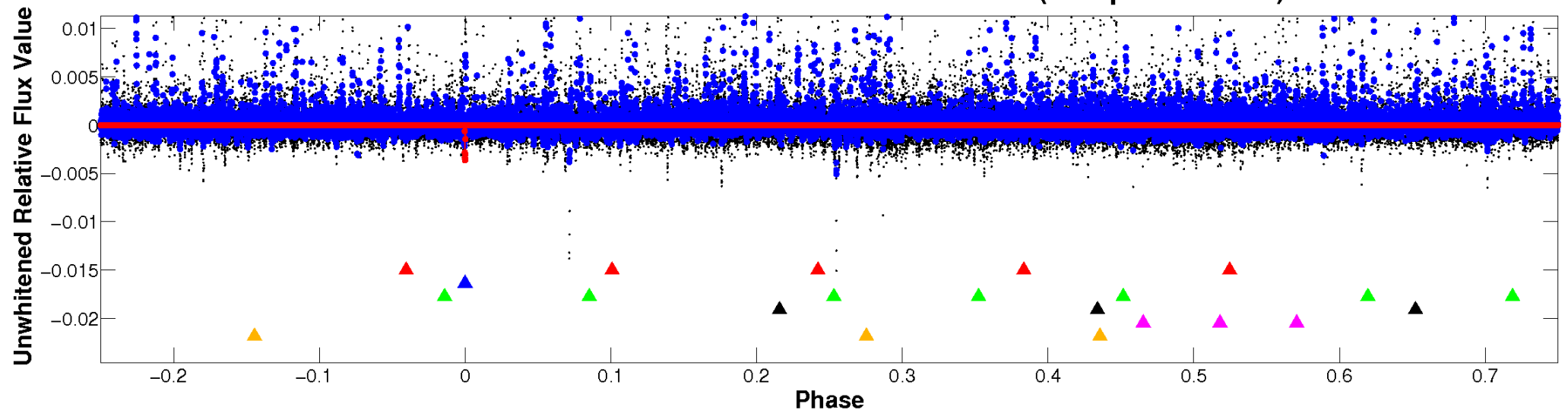
# ALT Odd/Even

TCE 011912947-02

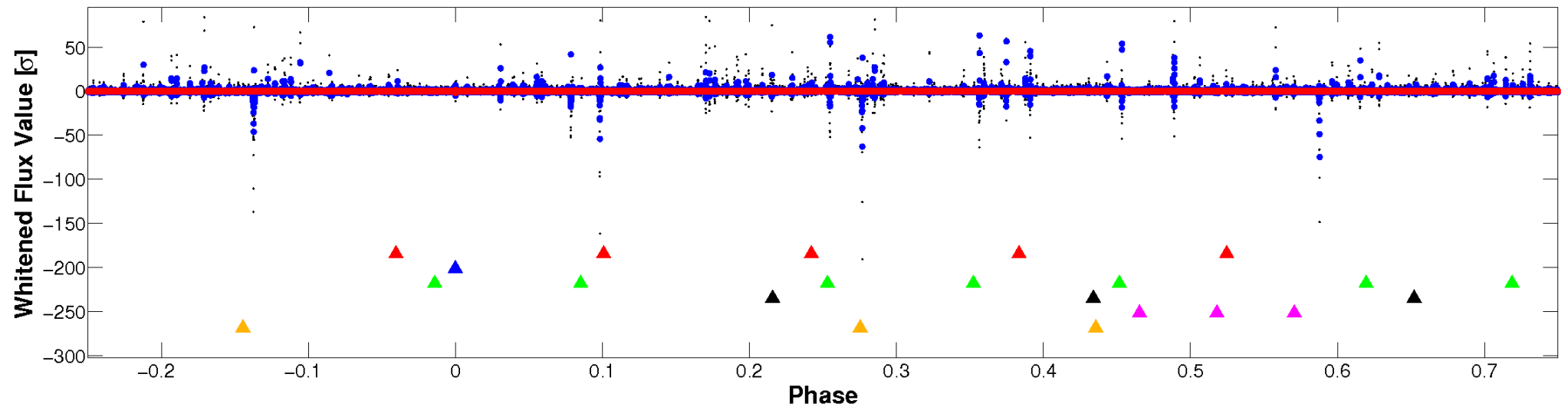


# Non-Whitened Vs. Whitened Light Curve

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

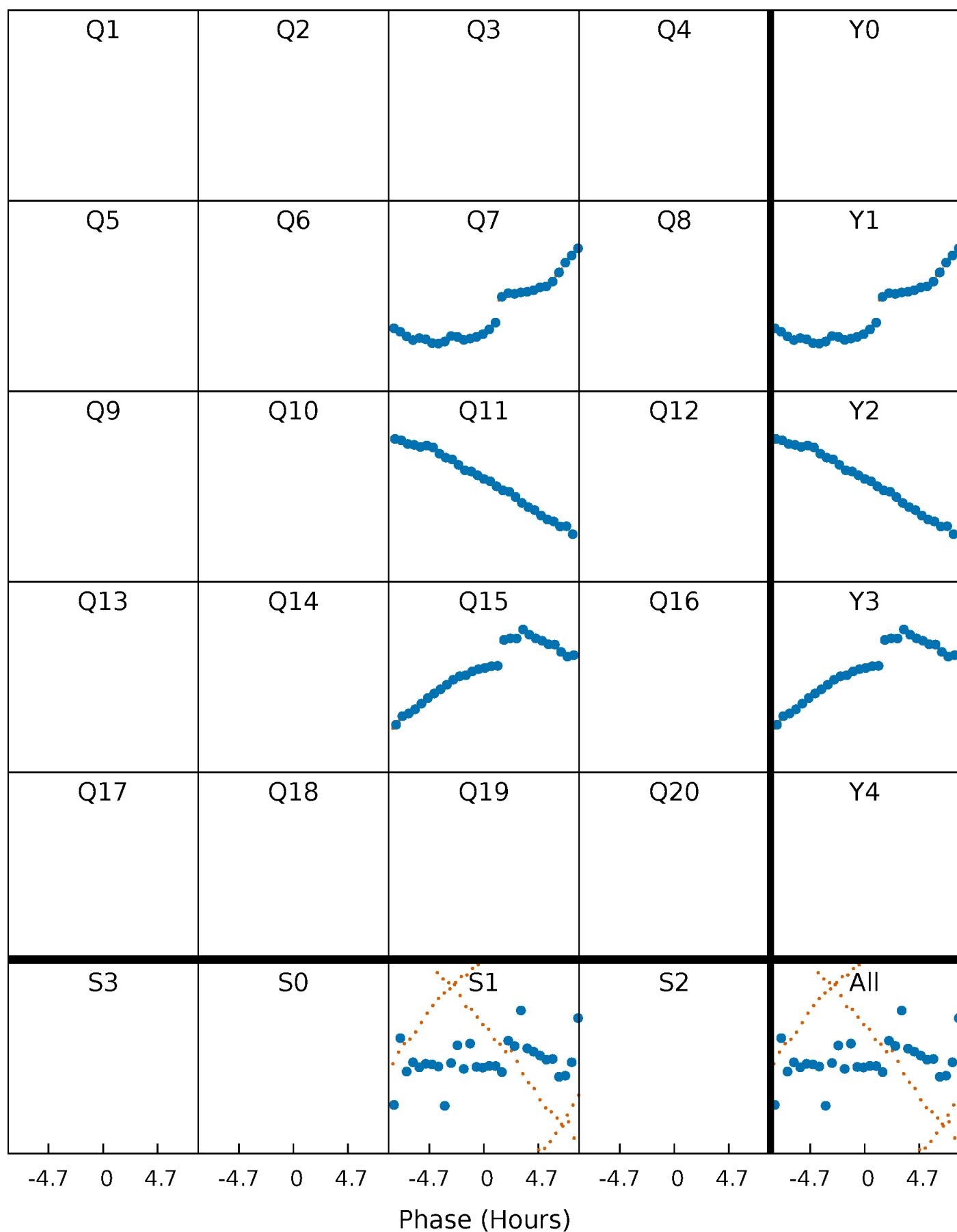


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



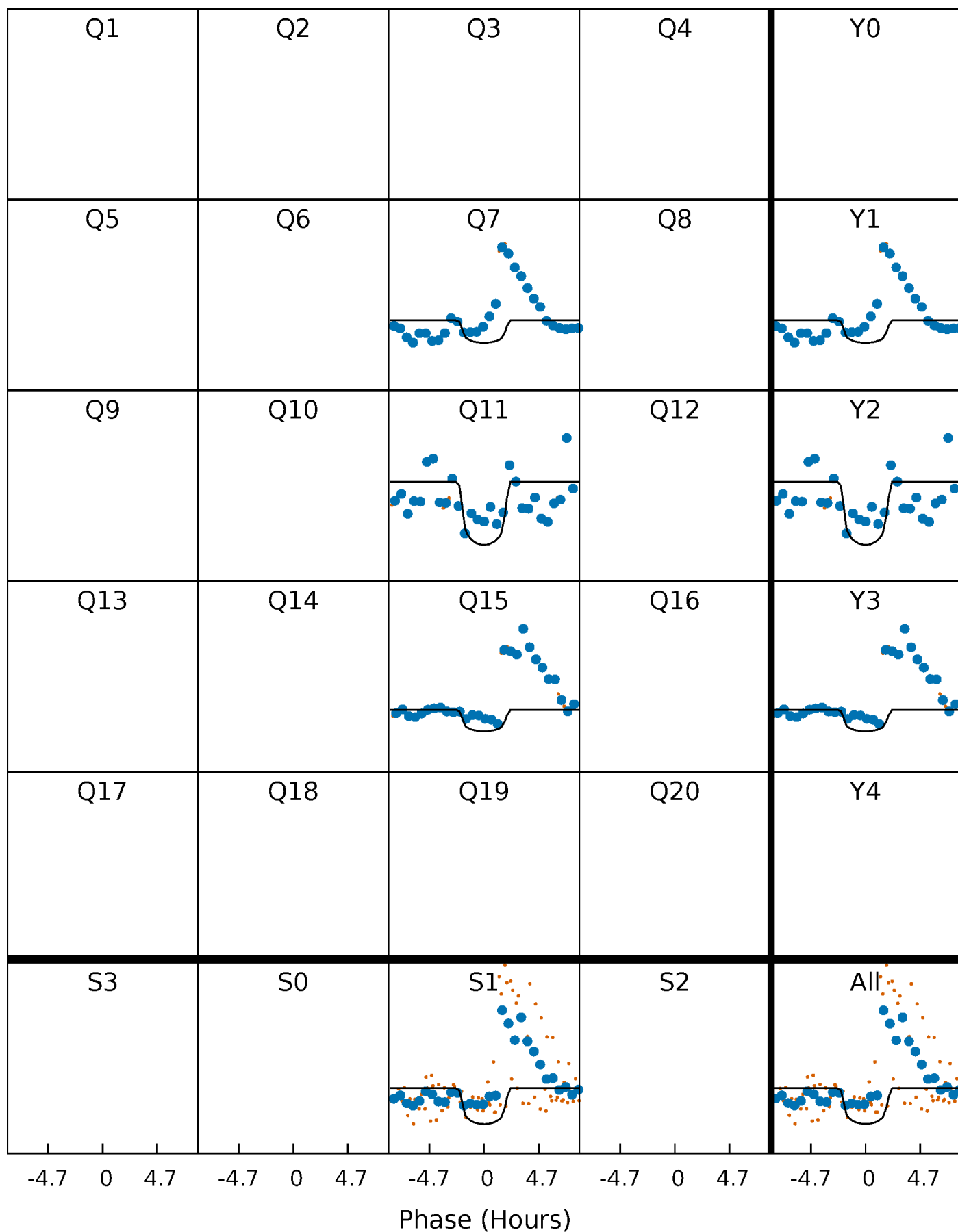
# PDC Quarter-Phased Transit Curves

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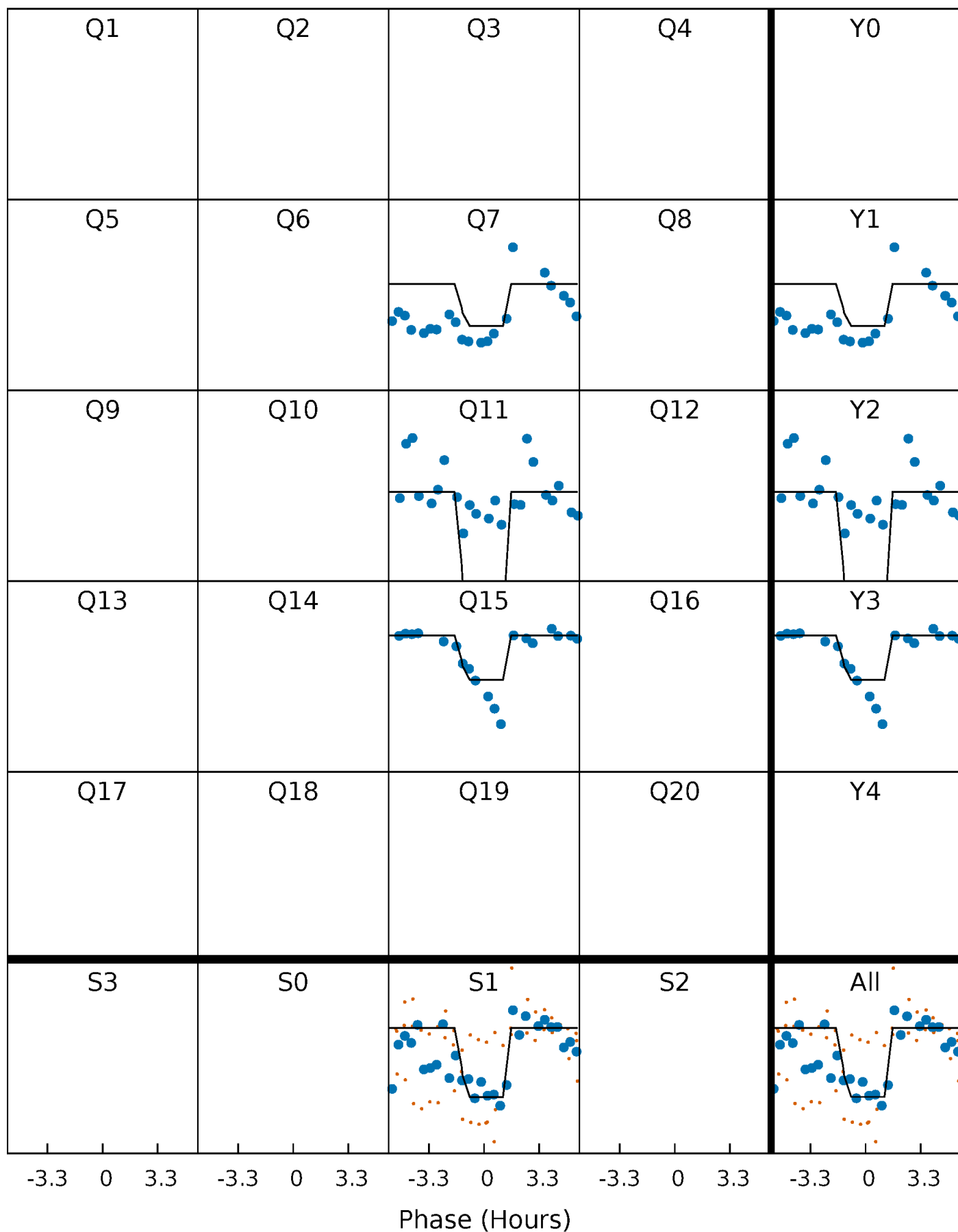
# DV Quarter-Phased Transit Curves

TCE 011912947-02 P=368.066672 Days  $T_0=341.007093$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

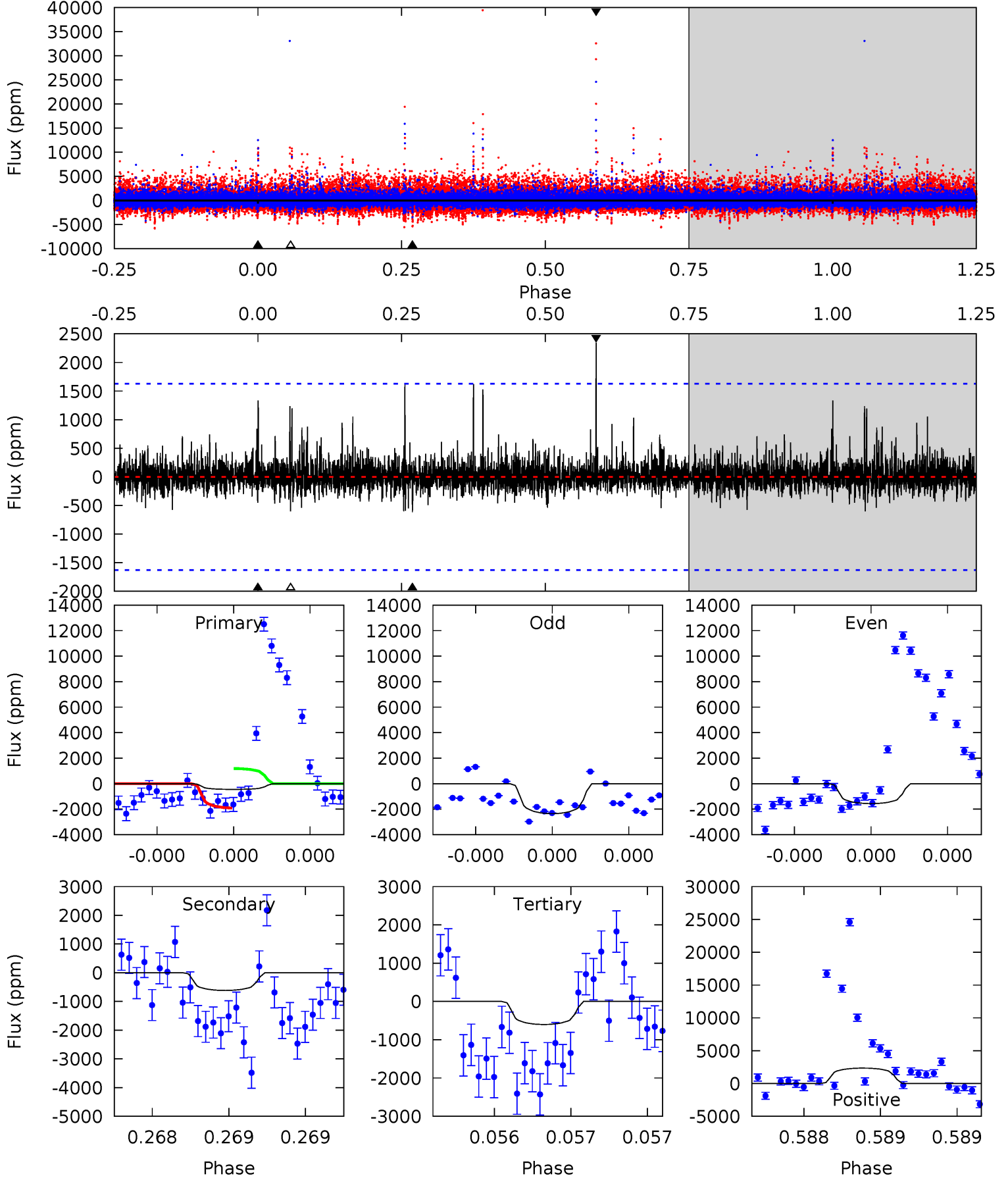
TCE 011912947-02     $P=368.071938$  Days     $T_0=340.986787$  (BKJD)



# DV Model-Shift Uniqueness Test

011912947-02, P = 368.066672 Days, E = 341.007093 Days

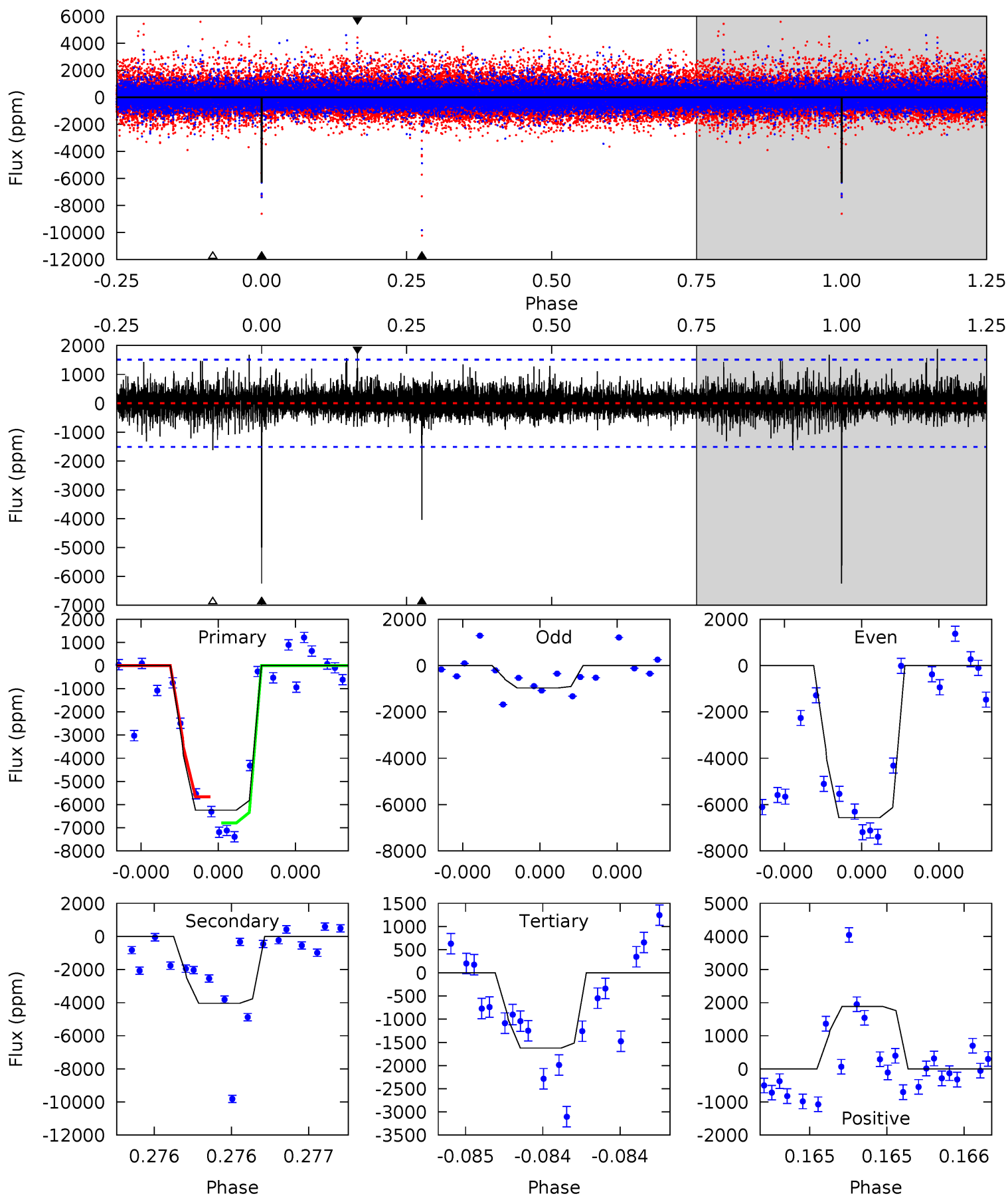
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.54	2.11	2.06	8.02	5.57	3.48	0.64	-0.52	-6.48	0.05	-5.92	0.63	0.18	0.79	1.26



# Alt Model-Shift Uniqueness Test

011912947-02, P = 368.071938 Days, E = 340.986787 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
23.3	15.1	6.06	7.03	5.65	3.59	1.04	17.2	16.3	9.02	8.05	11.5	0.72	0.23	2.10





### Stellar Parameters For KIC 011912947

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3440^{+44}_{-41}$	$4.930^{+0.045}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.321^{+0.033}_{-0.033}$	$0.319^{+0.041}_{-0.037}$	$13.640^{+3.256}_{-1.964}$
	+1%/-1%	+1%/-1%	+100%/-100%	+10%/-10%	+13%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 011912947-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-616 \pm 292$	$2.66^{+1.95}_{-1.78}$	$144^{+3}_{-3}$	$2526^{+862}_{-380}$	$22976^{+177823}_{-17252}$
Alt.	$-4041 \pm 268$	$2.90^{+2.18}_{-1.80}$	$145^{+3}_{-3}$	$3200^{+1249}_{-485}$	$128634^{+770517}_{-87782}$

$T_{\text{max}}$  = 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

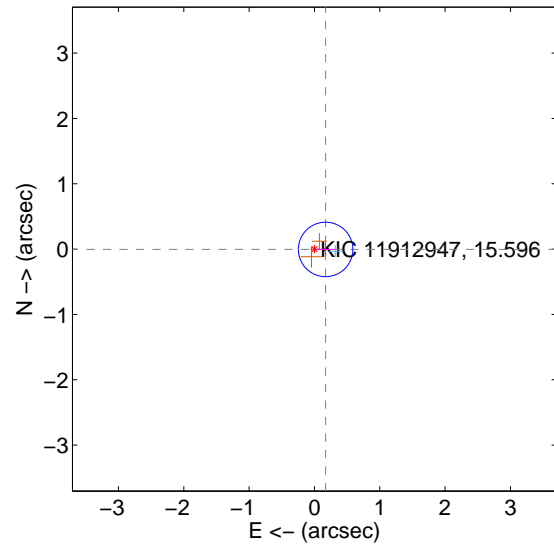
Supplemental centroid analysis for 011912947-02. Kepler magnitude: 15.60. Transit SNR 8.33

There are 1 quarters with good PRF difference image offsets

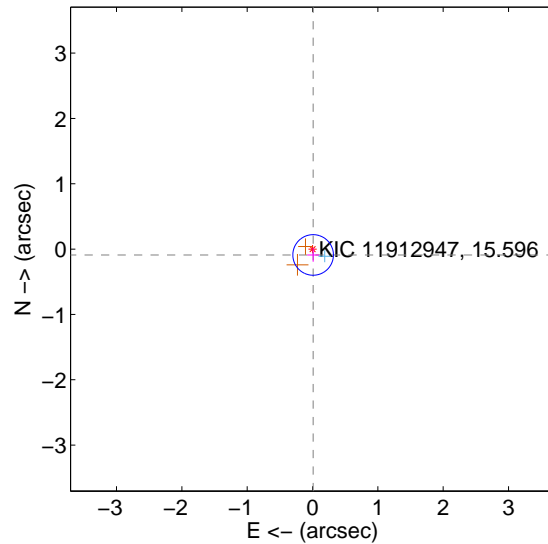
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.171 \pm 0.139$	1.23	$-0.171 \pm 0.139$	$-0.005 \pm 0.096$
PRF-fit source offset from KIC position	$0.090 \pm 0.104$	0.87	$-0.009 \pm 0.092$	$-0.090 \pm 0.105$
photometric centroid source offset	$1.16 \pm 0.64$	1.81	$-1.09 \pm 0.66$	$-0.40 \pm 0.47$

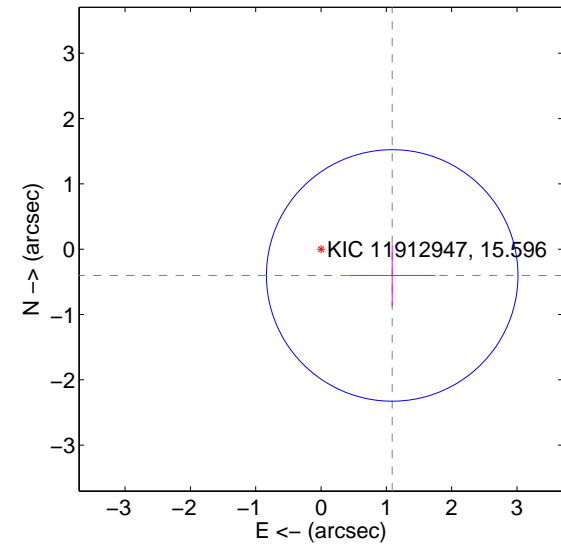
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

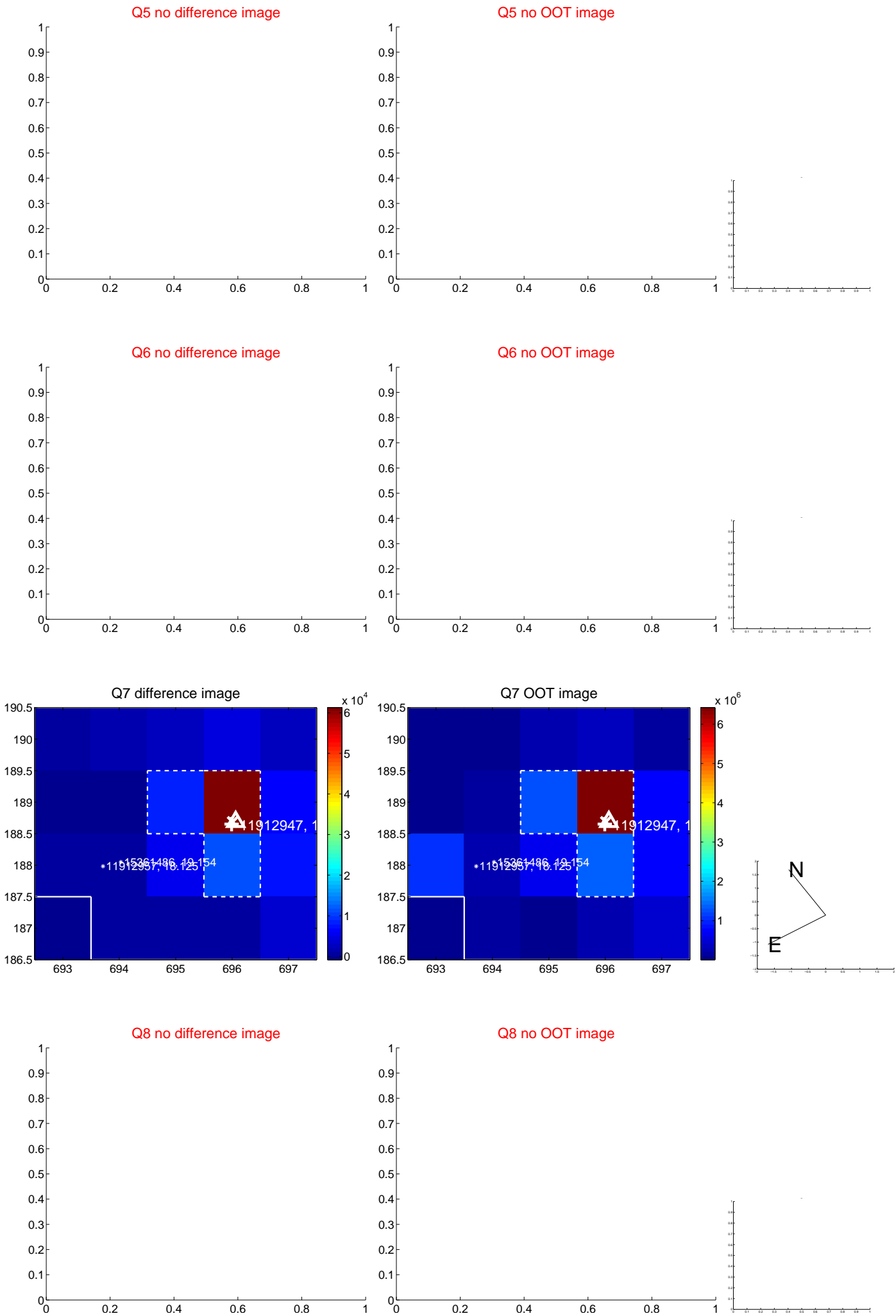


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

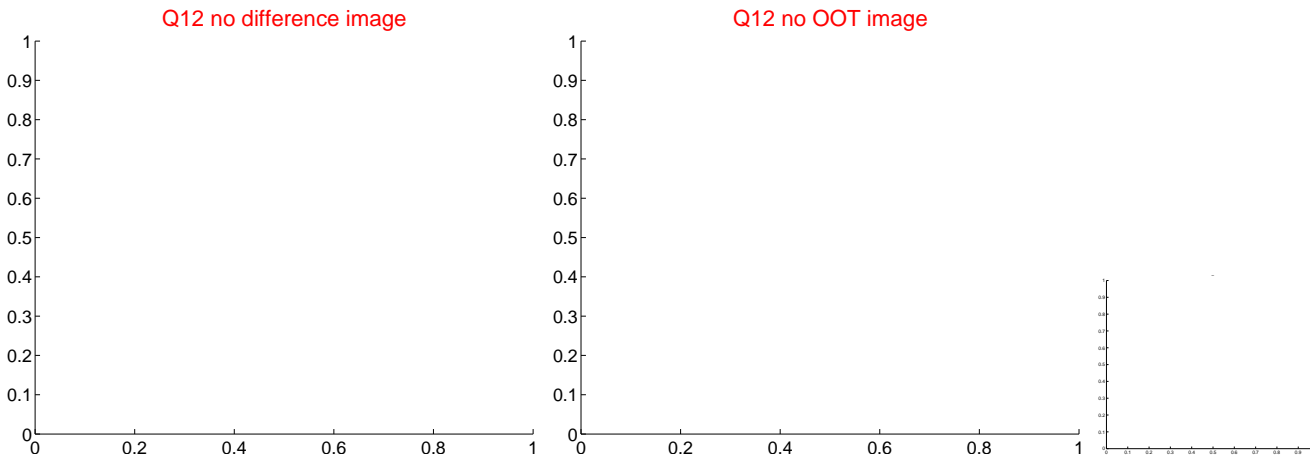
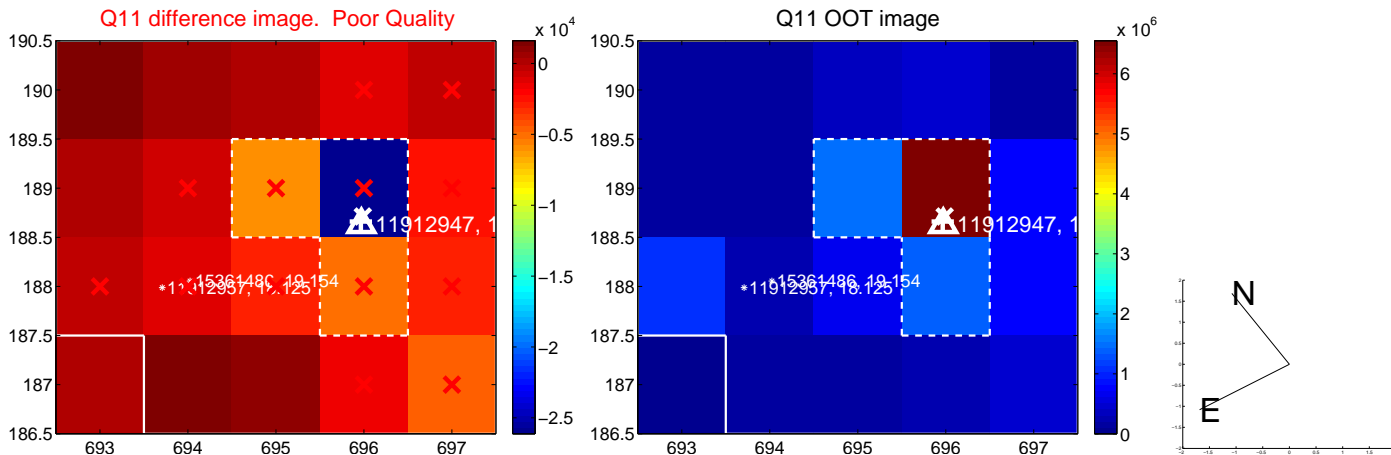
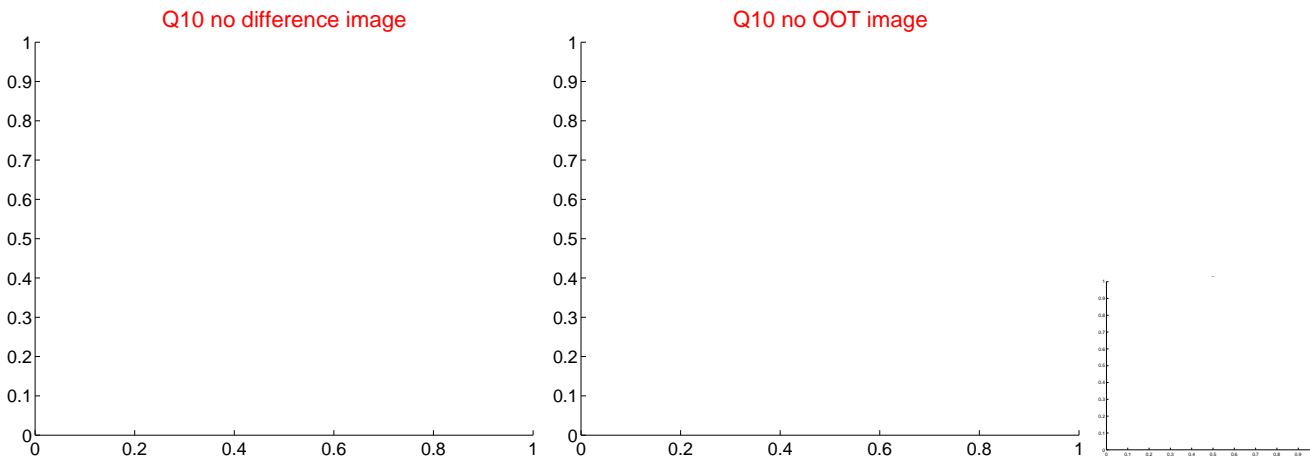
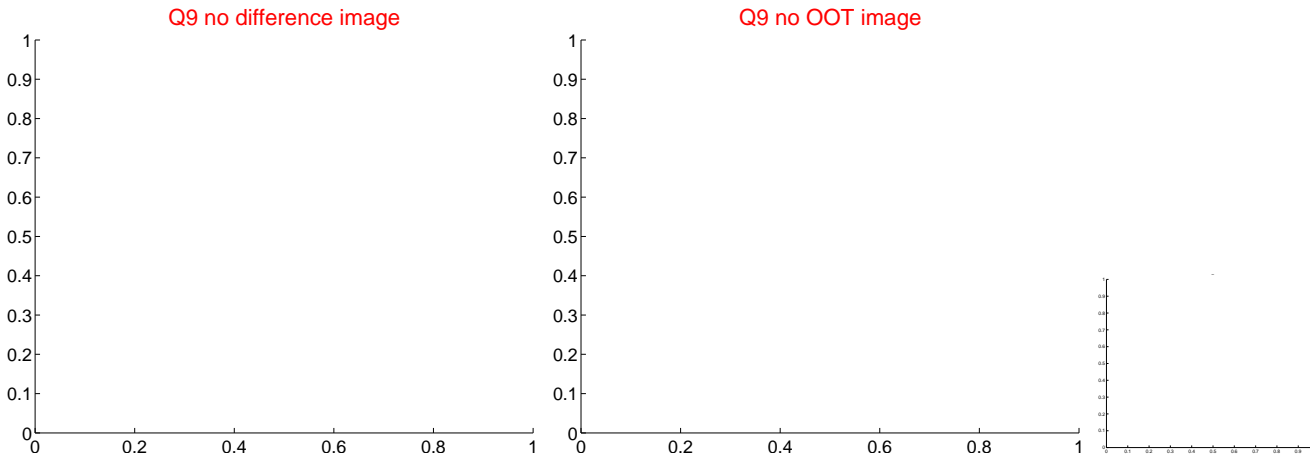
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



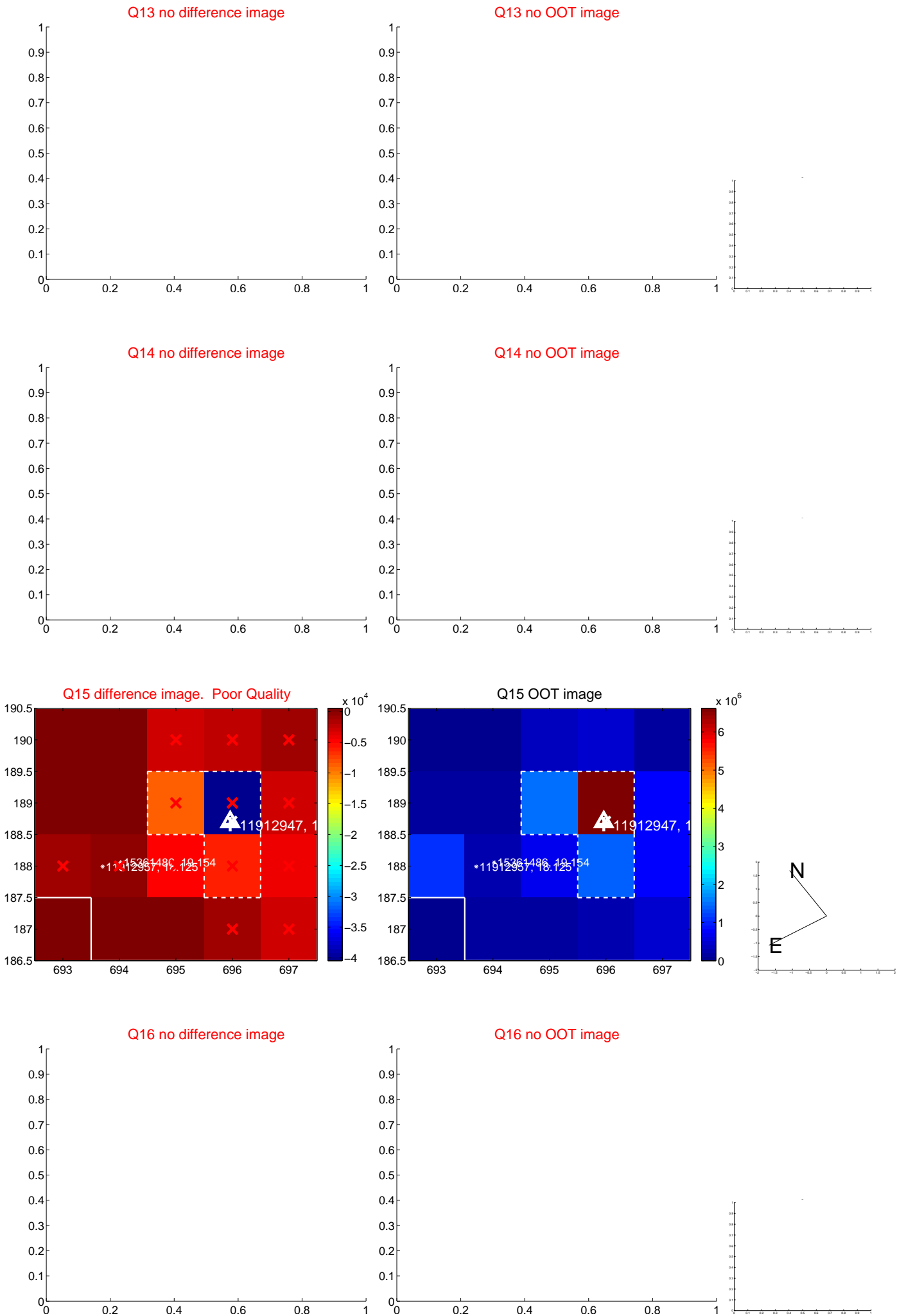
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



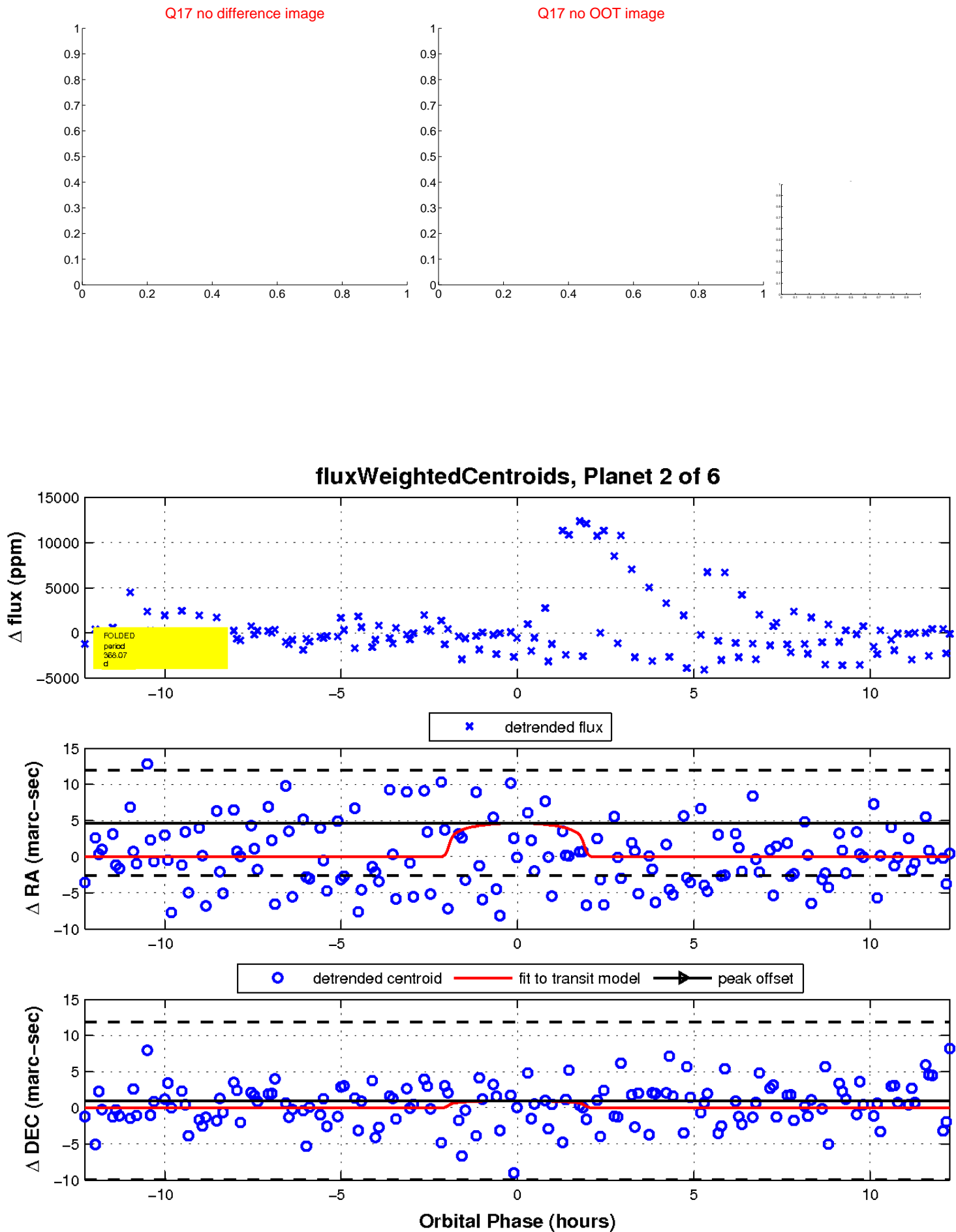
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



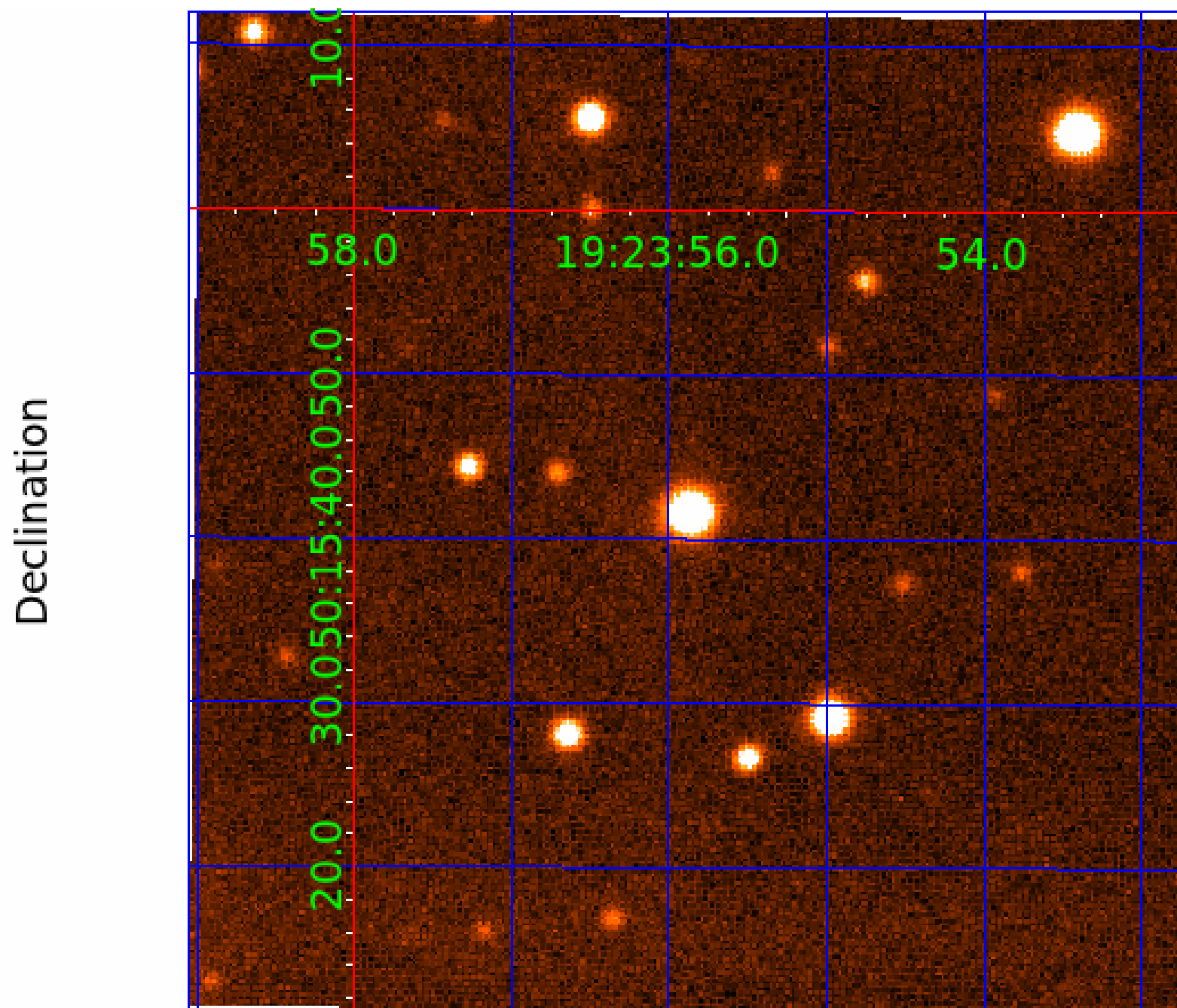
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



UKIRT Image





# KIC 011912947

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011912947-01	OBS	No	316.070589	166.060278	3655.7	11.148	13.1	7.2	0.32	3440	1.92	0.03
011912947-02	OBS	No	368.066672	341.007093	3637.4	4.100	14.1	8.3	0.32	3440	1.91	0.03
011912947-03	OBS	No	233.197427	139.174185	909.3	3.714	13.5	2.2	0.32	3440	1.00	0.05
011912947-04	OBS	No	448.383174	420.427132	2850.6	5.450	10.7	6.3	0.32	3440	1.78	0.02
011912947-05	OBS	No	387.444002	512.296509	3389.5	5.466	12.1	7.0	0.32	3440	1.85	0.03
011912947-06	OBS	No	522.608731	501.351619	2255.5	3.500	11.8	-1.0	0.32	3440	1.51	0.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011912947-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011912947-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
011912947-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—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.

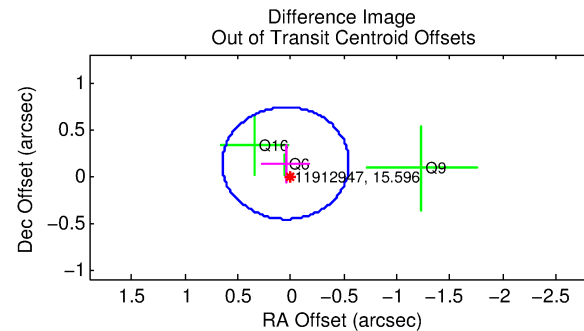
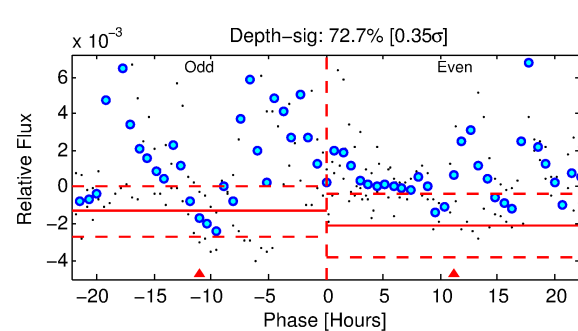
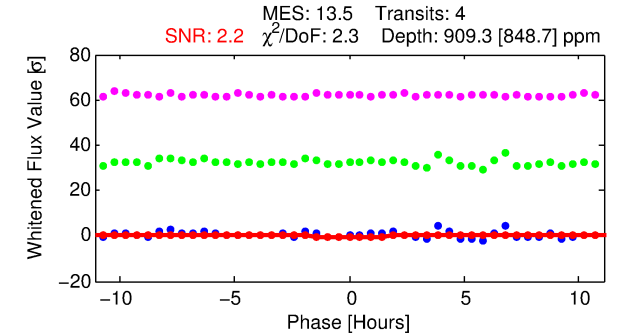
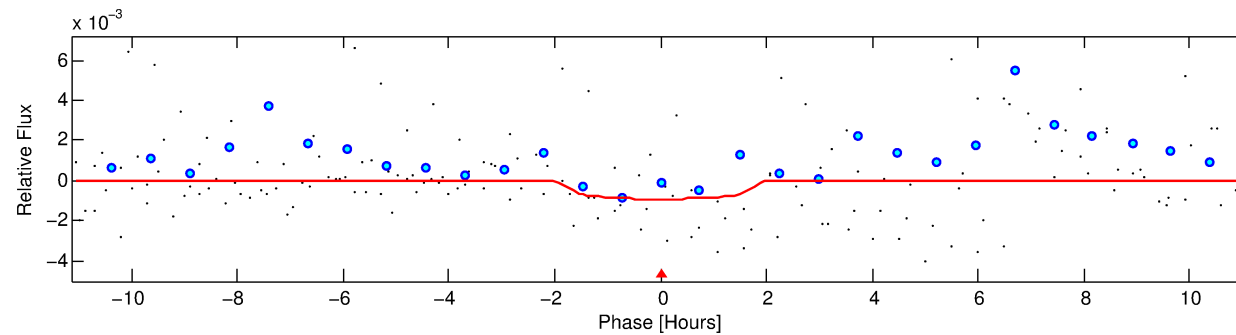
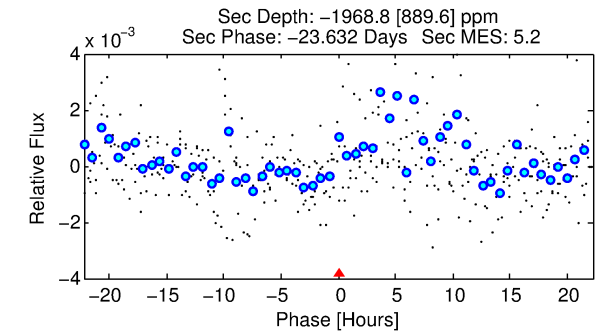
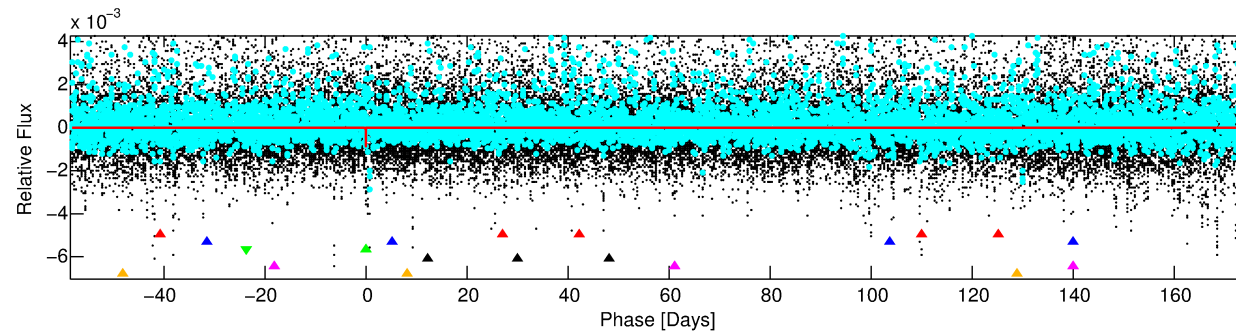
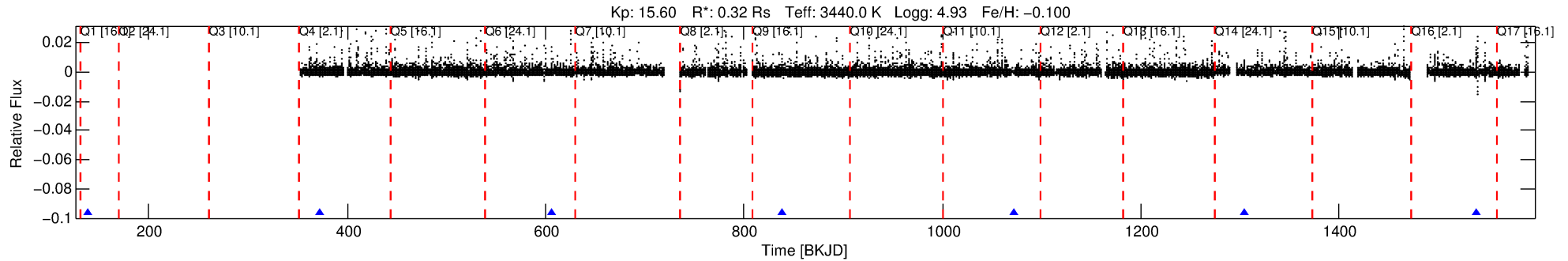
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011912947-03

No Significant Match Found

# DV One-Page Summary

KIC: 11912947 Candidate: 3 of 6 Period: 233.197 d



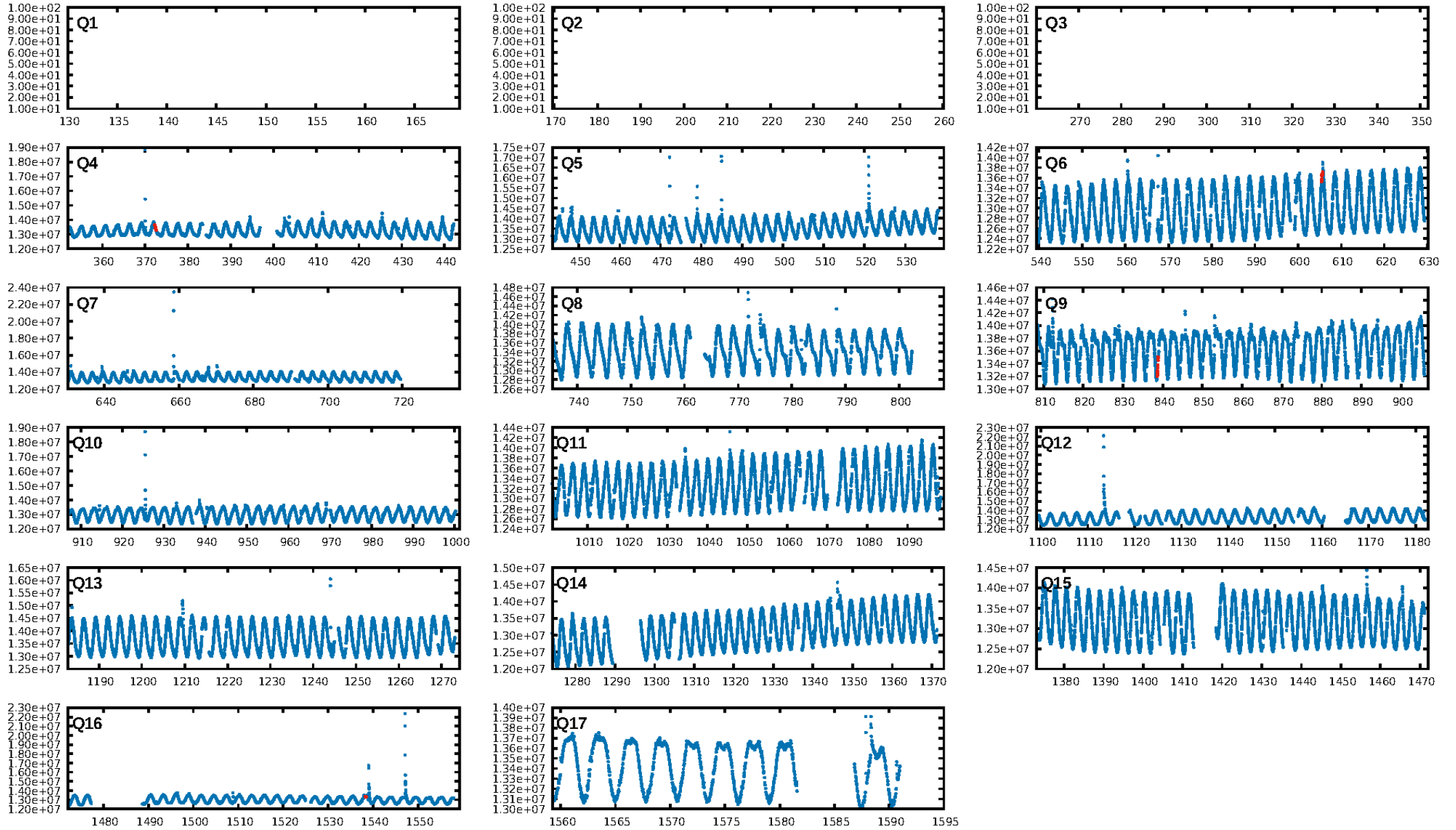
## DV Fit Results:

Period = 233.19743 [0.01286] d  
Epoch = 139.1742 [0.0389] BKJD  
Rp/R\* = 0.0286 [0.1711]  
a/R\* = 406.98 [10599.70]  
b = 0.58 [29.59]  
Seff = 0.05 [0.01]  
Teq = 121 [3] K  
Rp = 1.00 [6.00] Re  
a = 0.5072 [0.0389] AU  
Ag = N/A  
Teffp = N/A

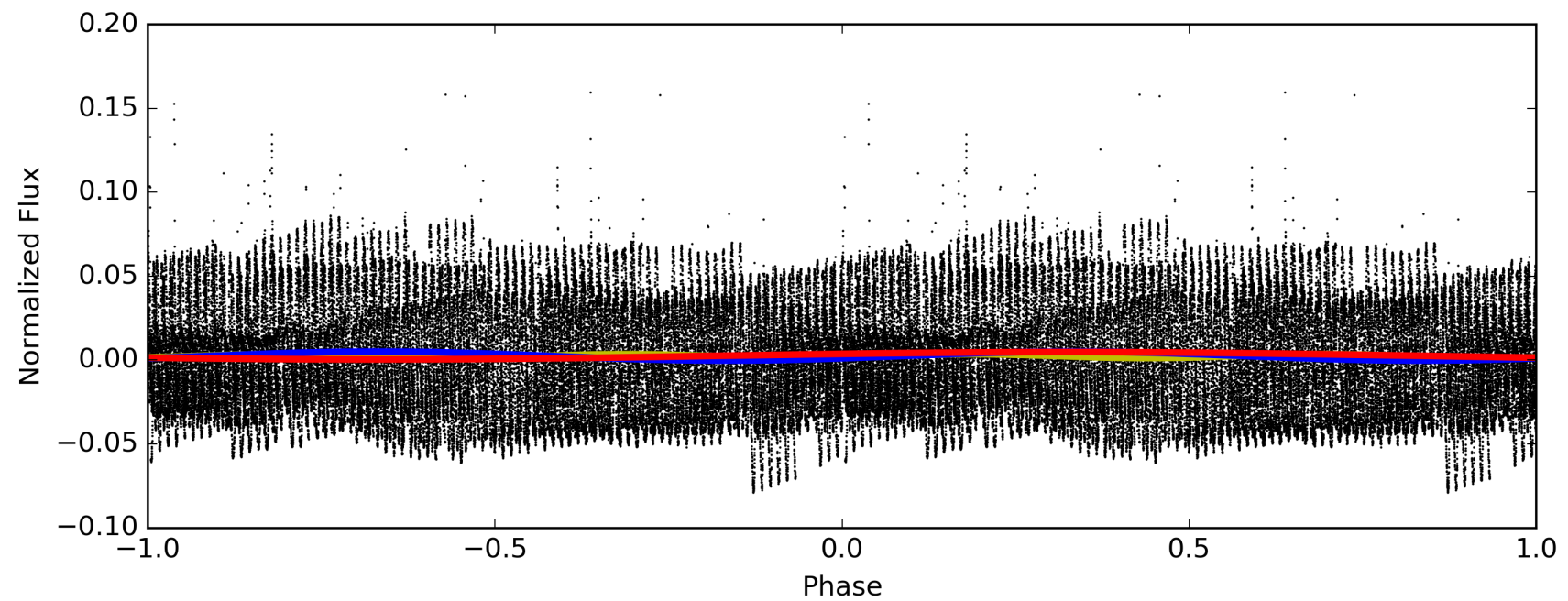
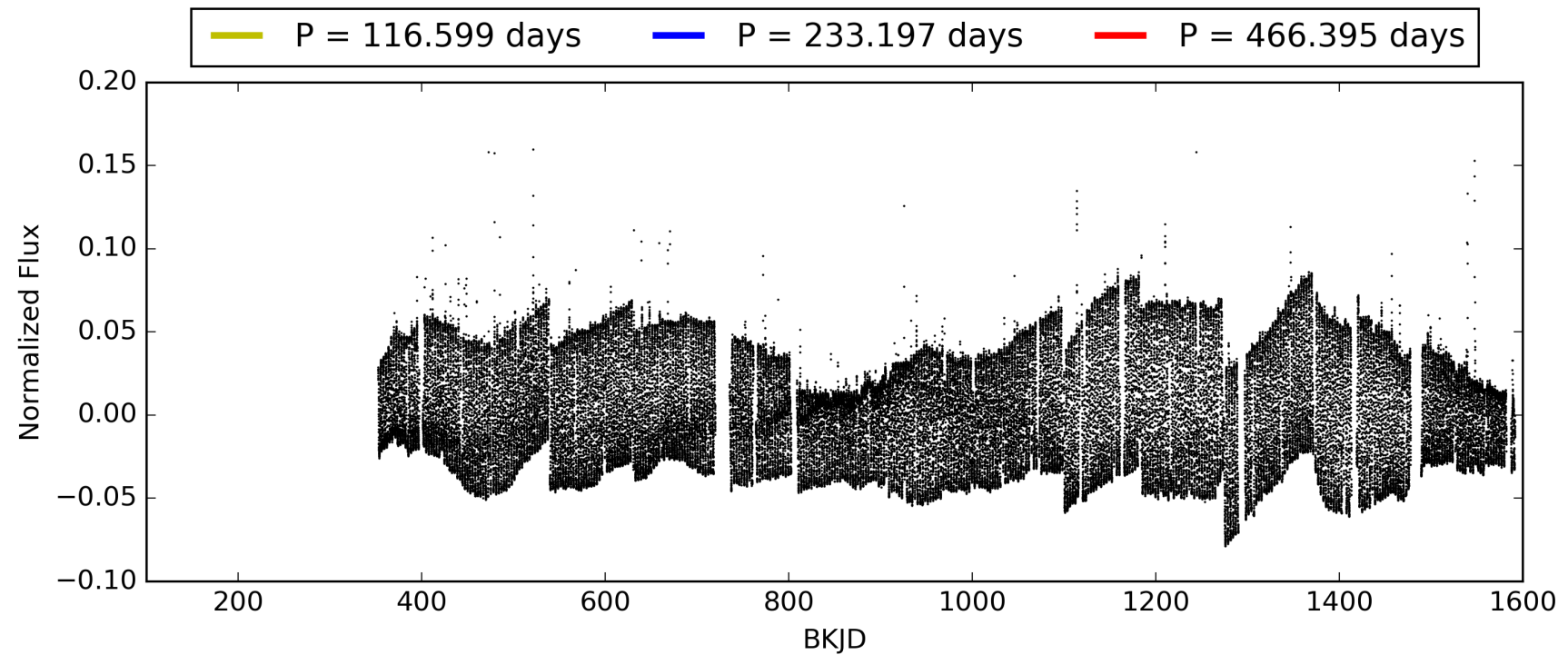
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [169.27σ]  
ModelChiSquare2-sig: 32.8%  
ModelChiSquareGof-sig: 58.8%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -3.799  
Centroid-sig: 92.7%  
Centroid-so: 0.699 arcsec [0.29σ]  
OotOffset-rm: 0.145 arcsec [0.73σ]  
KicOffset-rm: 0.263 arcsec [1.00σ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [4/4]

# TCE 011912947-03, PDC Light Curves

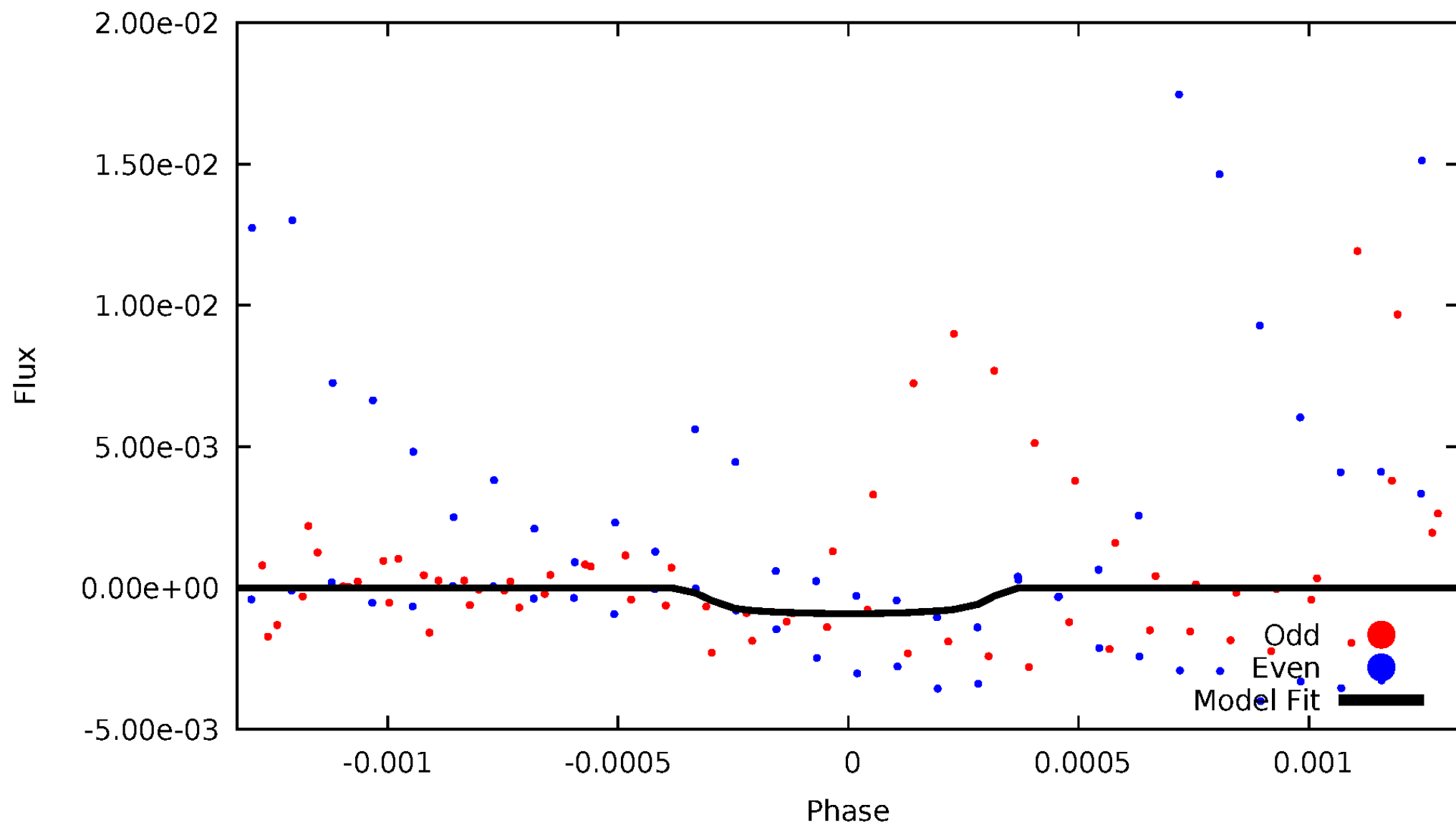


TCE 011912947-03



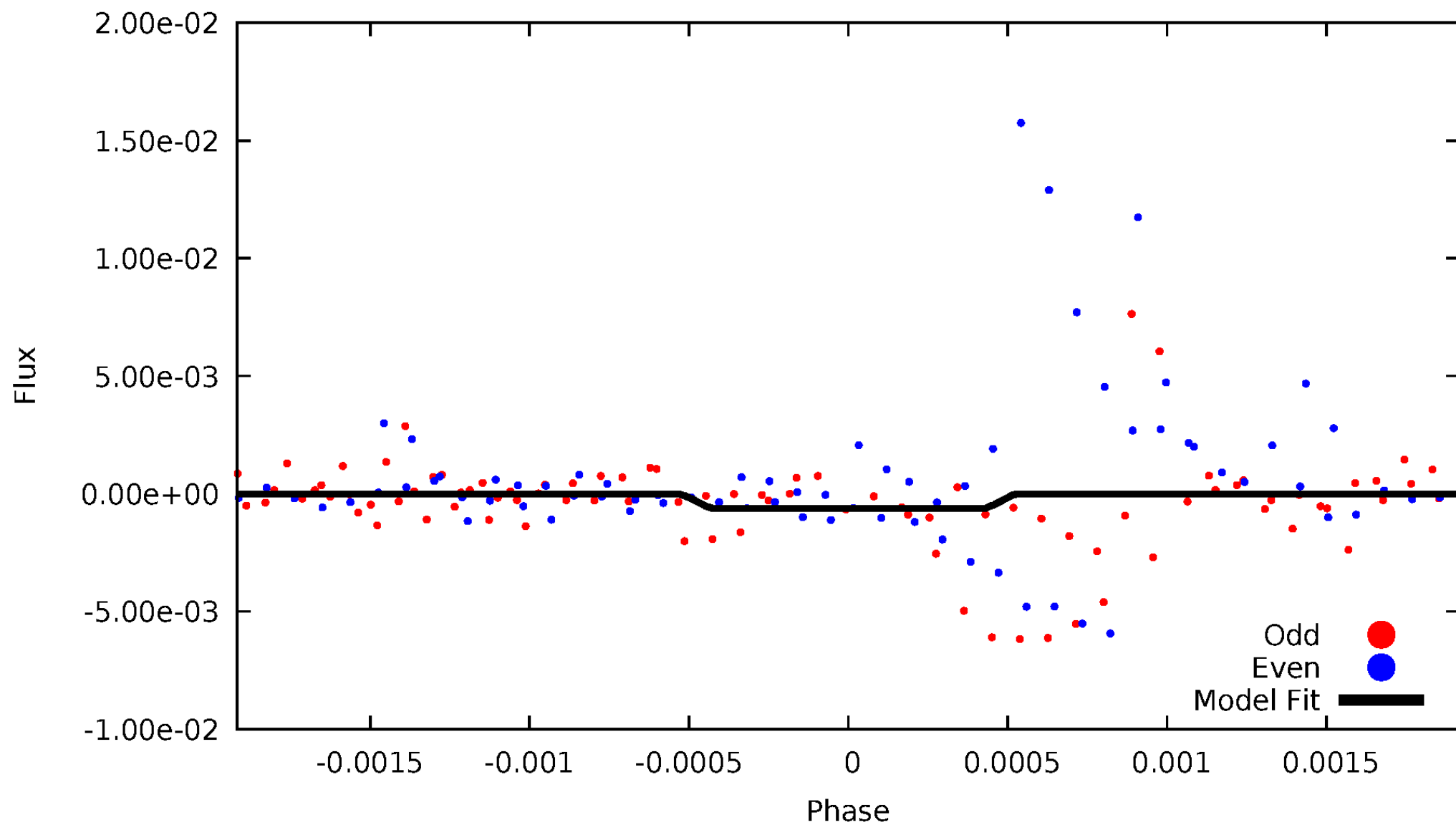
# DV Odd/Even

TCE 011912947-03



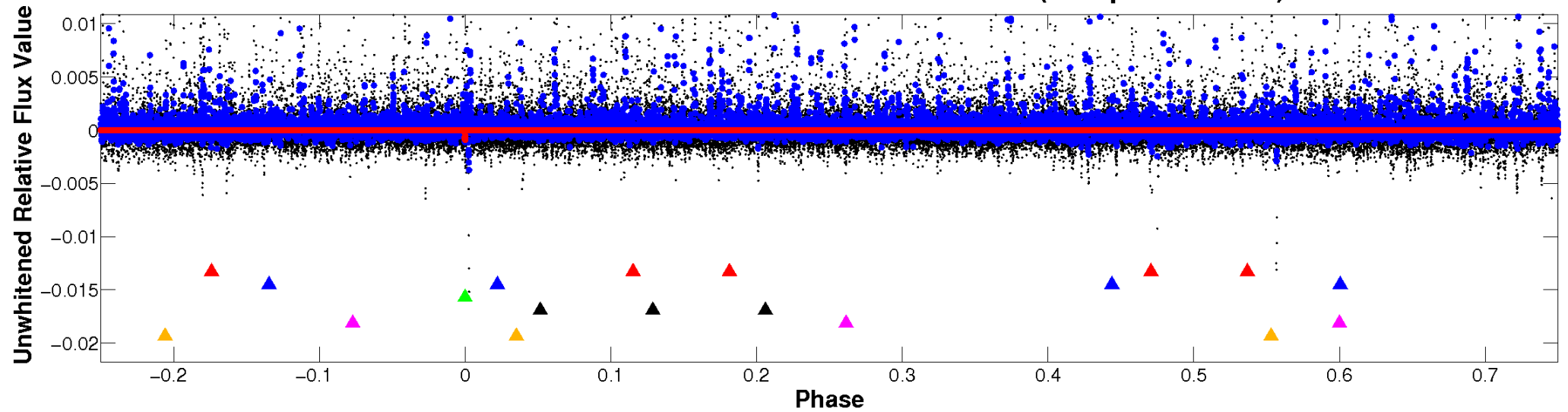
# ALT Odd/Even

TCE 011912947-03

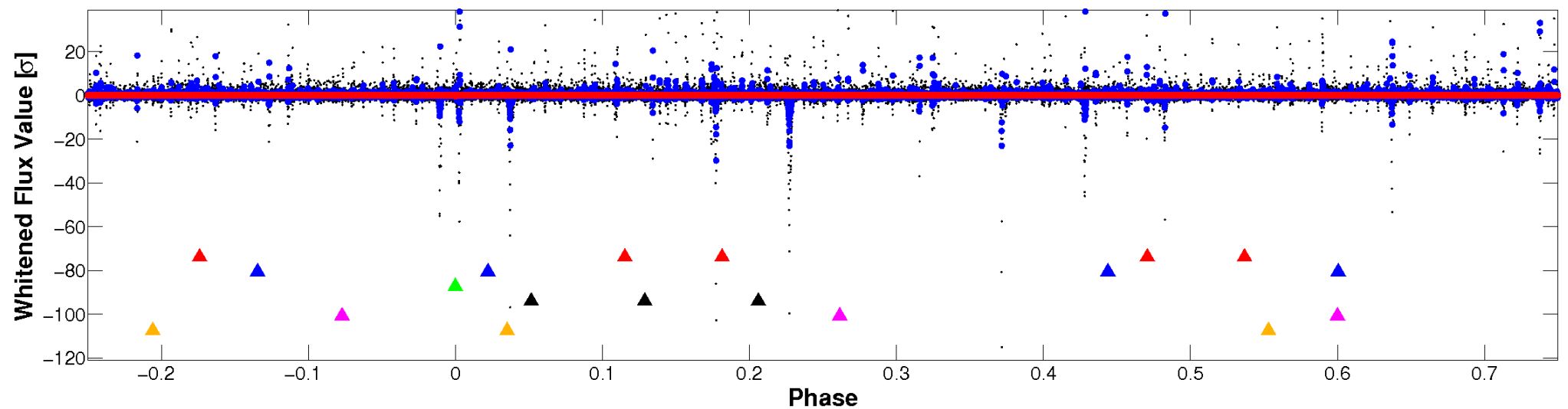


# Non-Whitened Vs. Whitened Light Curve

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

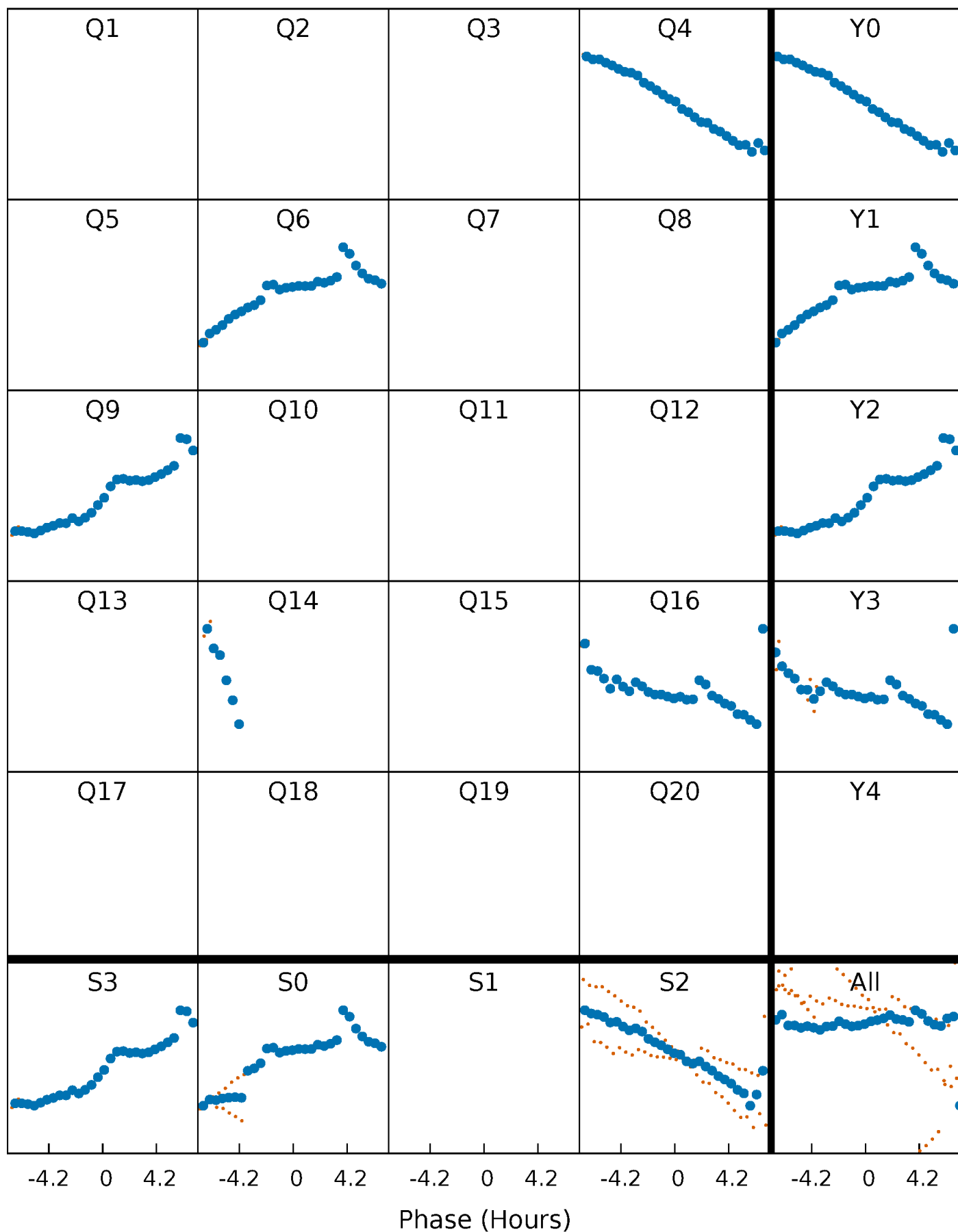


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

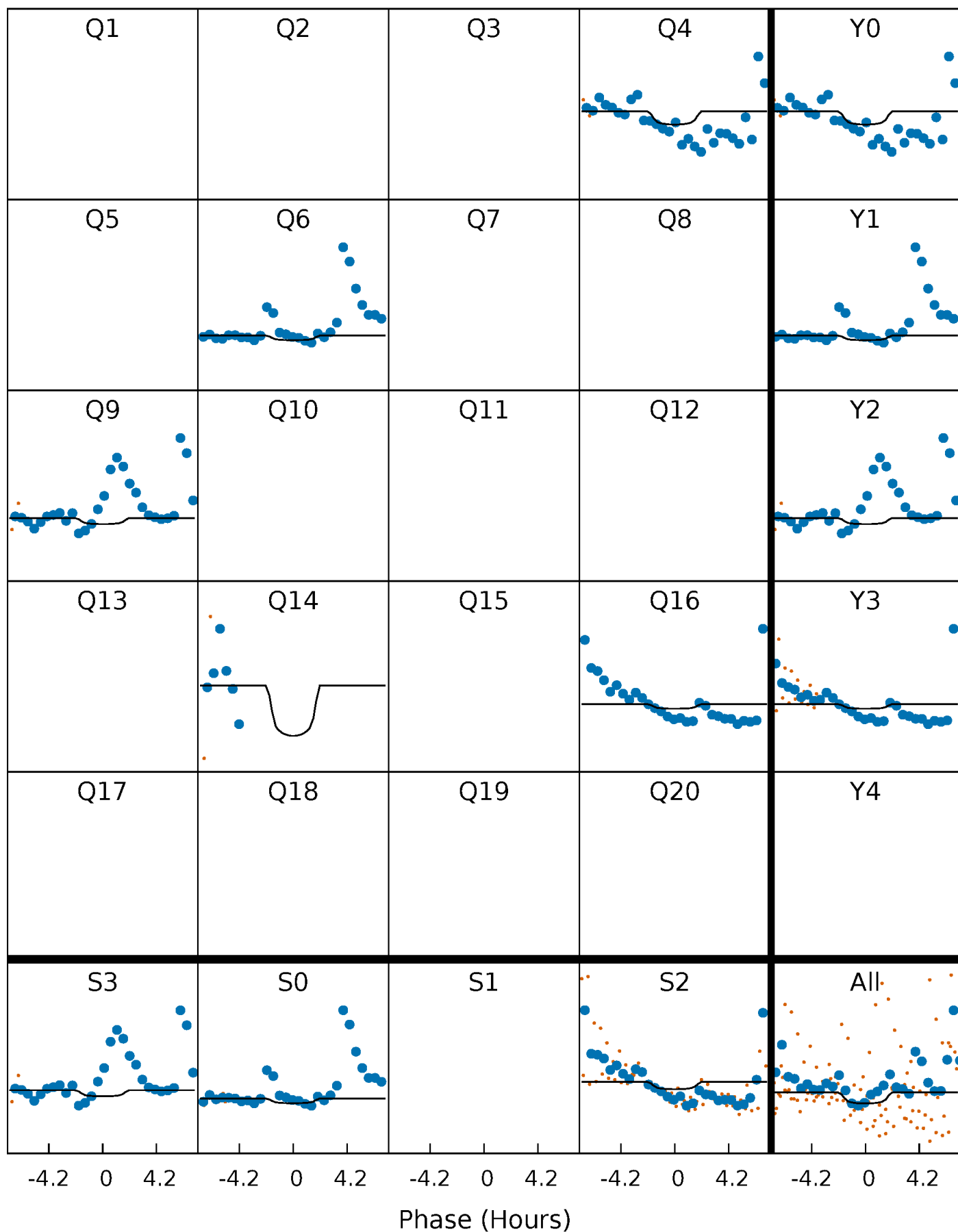
TCE 011912947-03     $P=233.197428$  Days     $T_0=139.174185$  (BKJD)





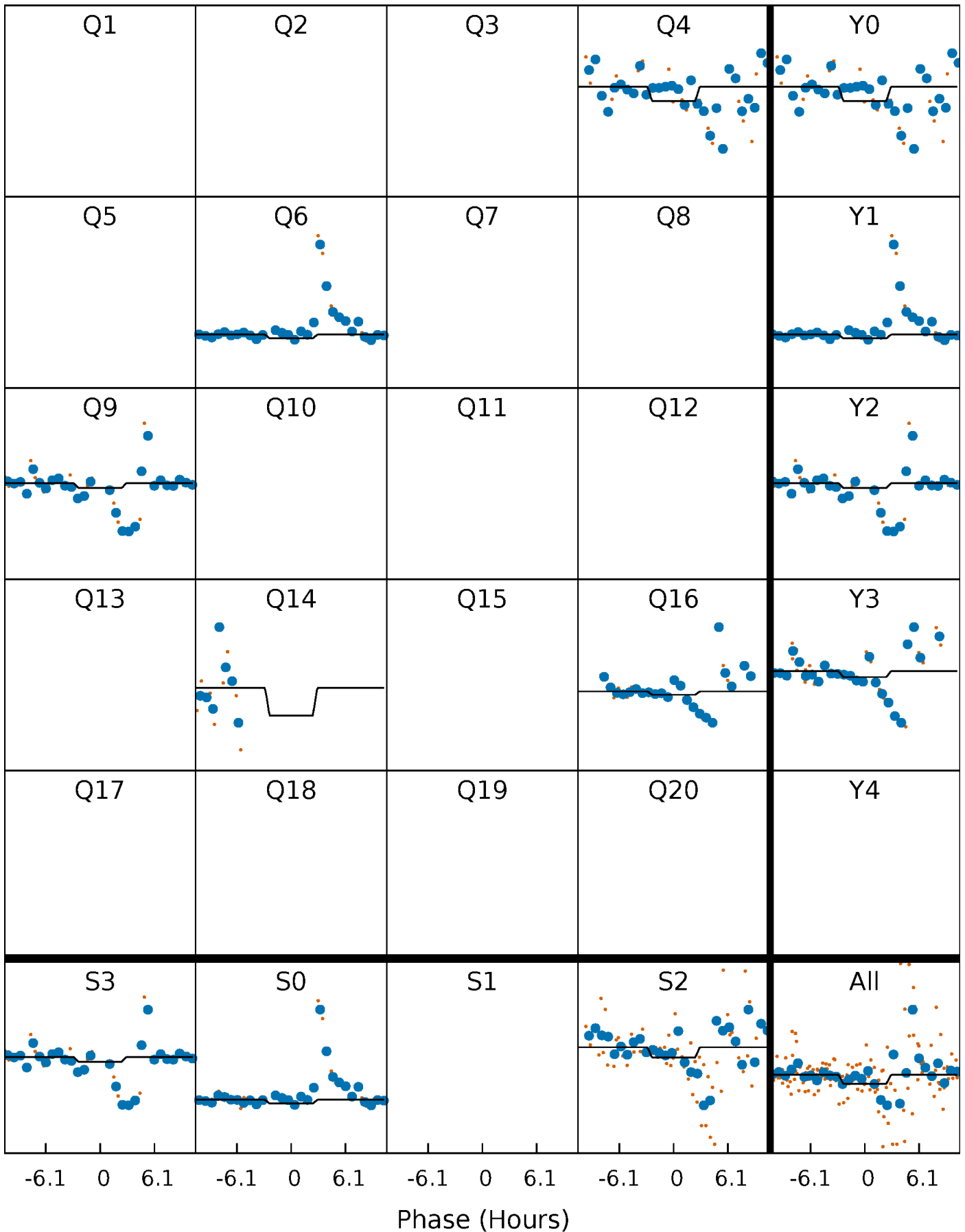
# DV Quarter-Phased Transit Curves

TCE 011912947-03     $P=233.197428$  Days     $T_0=139.174185$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

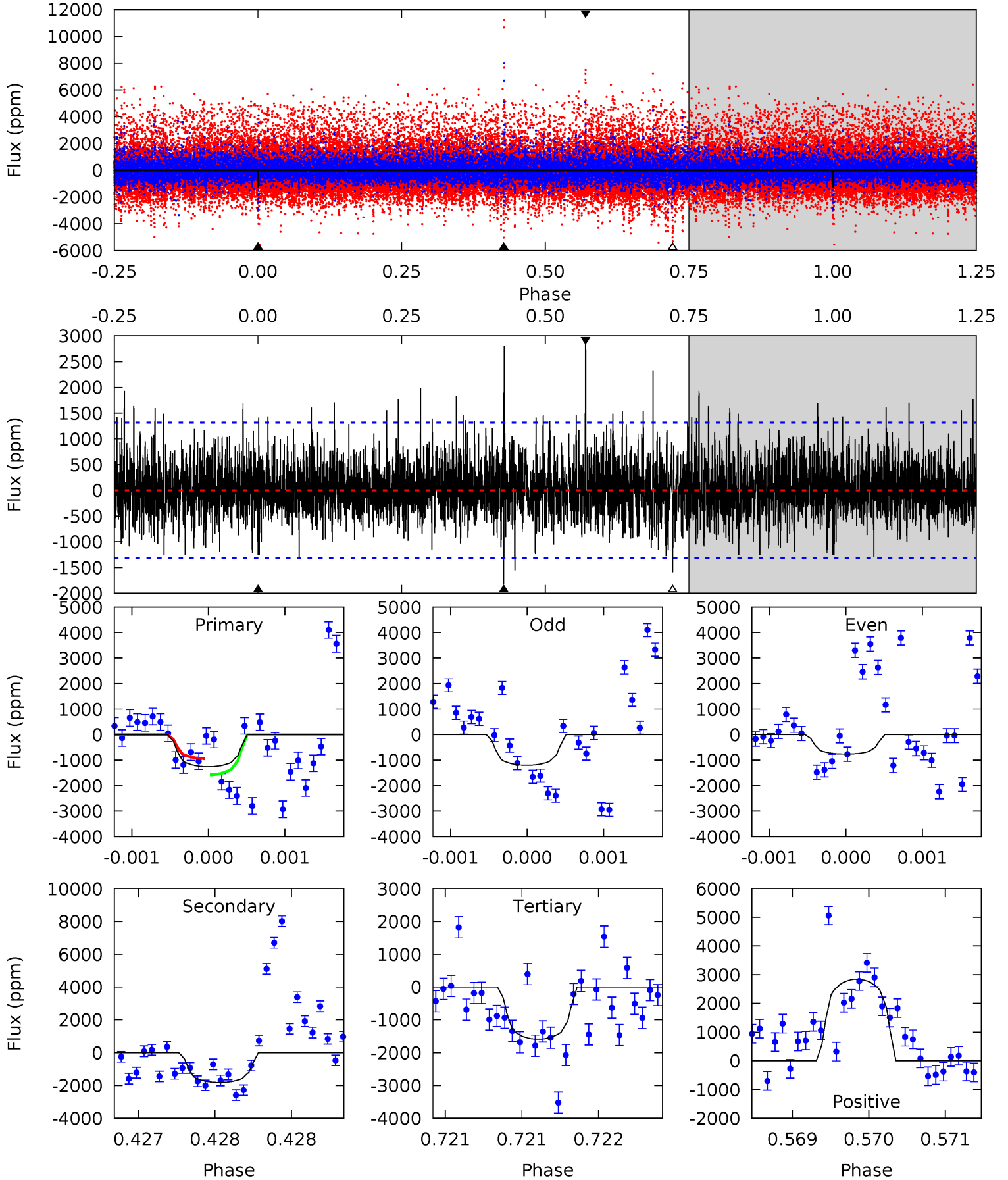
TCE 011912947-03 P=233.206727 Days  $T_0=139.196912$  (BKJD)



# DV Model-Shift Uniqueness Test

011912947-03, P = 233.197428 Days, E = 139.174185 Days

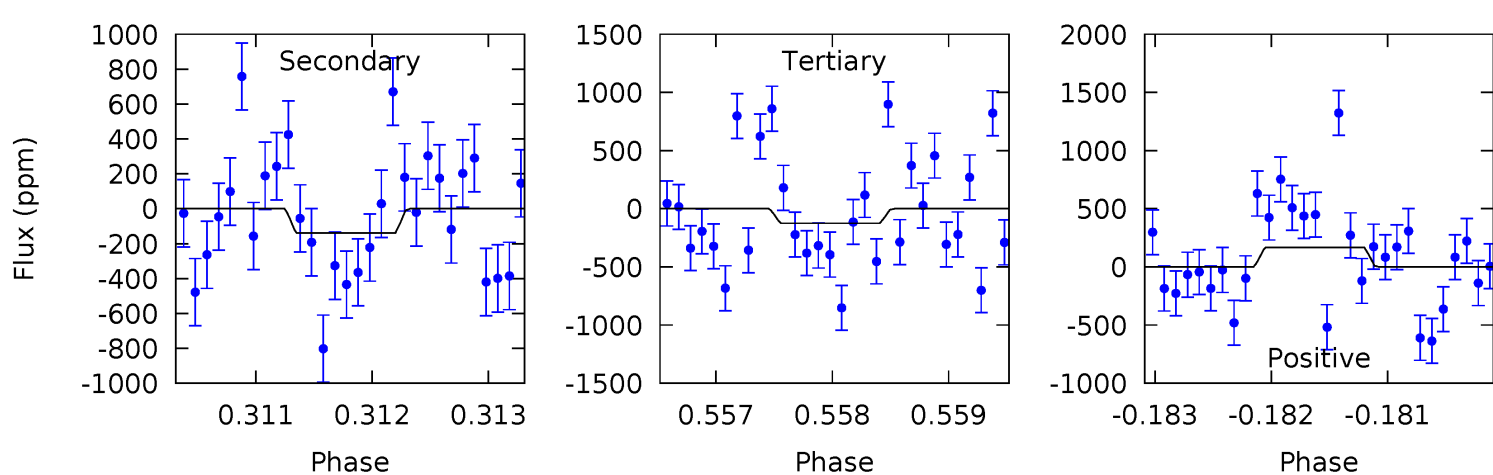
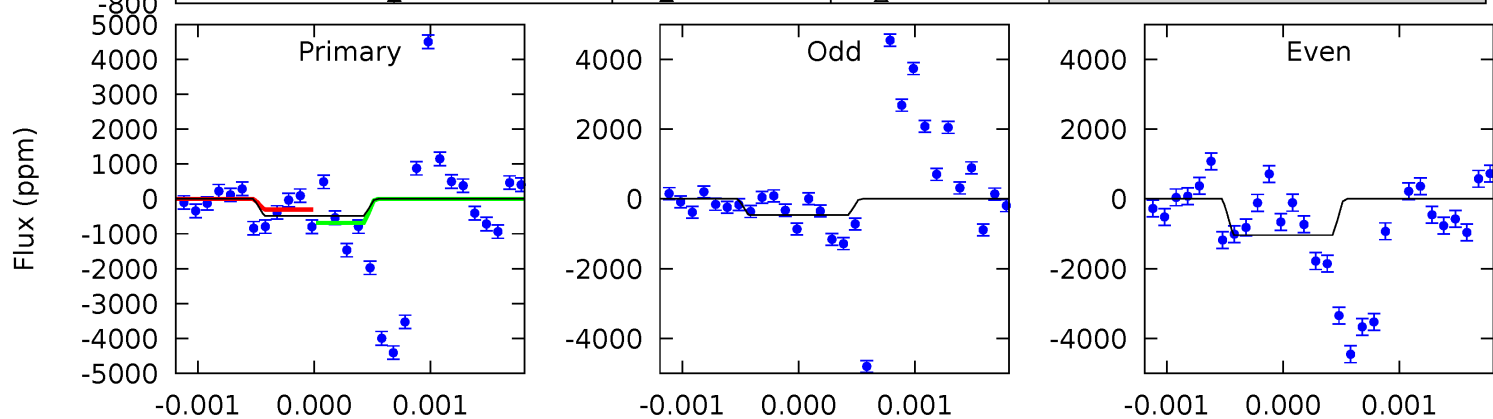
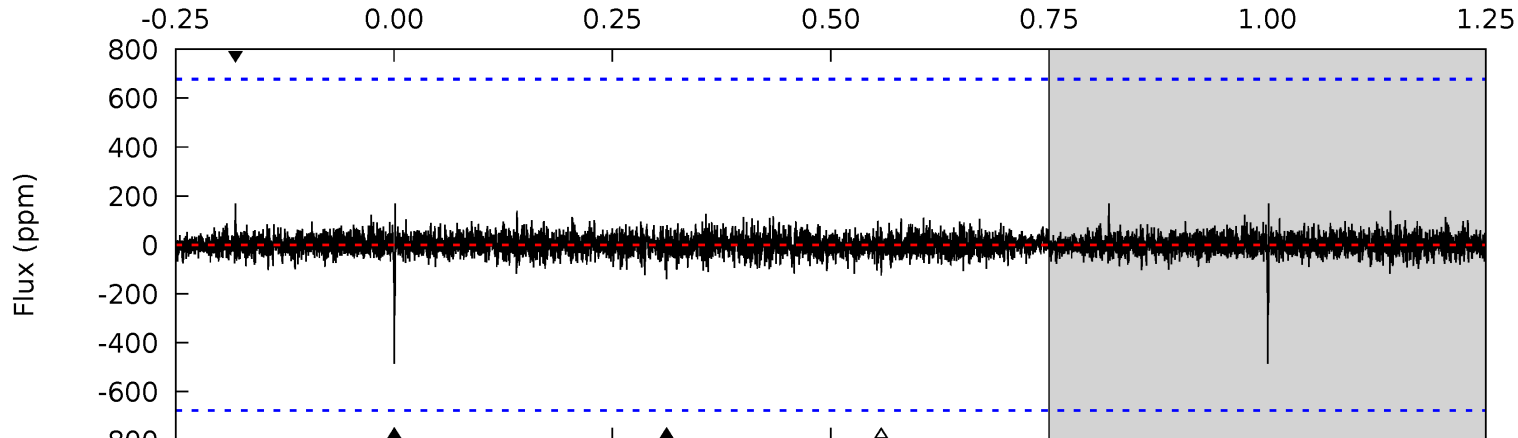
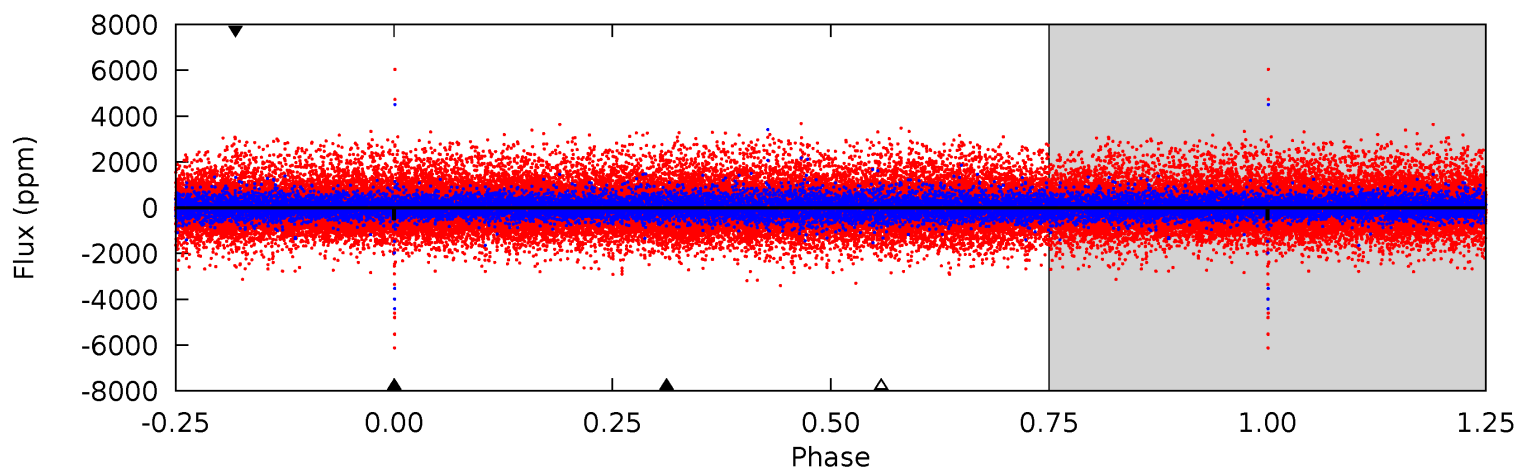
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.26	7.58	6.63	11.9	5.51	3.38	1.83	-1.37	-6.63	0.95	-4.31	0.82	0.31	0.61	1.33



# Alt Model-Shift Uniqueness Test

011912947-03, P = 233.206727 Days, E = 139.196912 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
3.92	1.13	1.01	1.36	5.45	3.29	0.25	2.90	2.56	0.12	-0.23	2.33	1.48	0.26	1.55



### Stellar Parameters For KIC 011912947

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$3440^{+44}_{-41}$	$4.930^{+0.045}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.321^{+0.033}_{-0.033}$	$0.319^{+0.041}_{-0.037}$	$13.640^{+3.256}_{-1.964}$
	+1%/-1%	+1%/-1%	+100%/-100%	+10%/-10%	+13%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 011912947-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1813 \pm 239$	$4.65^{+4.17}_{-3.34}$	$168^{+3}_{-4}$	$2517^{+1083}_{-359}$	$11919^{+138450}_{-8695}$
Alt.	$-140 \pm 124$	$4.32^{+4.32}_{-2.99}$	$168^{+3}_{-4}$	$1876^{+545}_{-434}$	$810^{+8117}_{-769}$

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

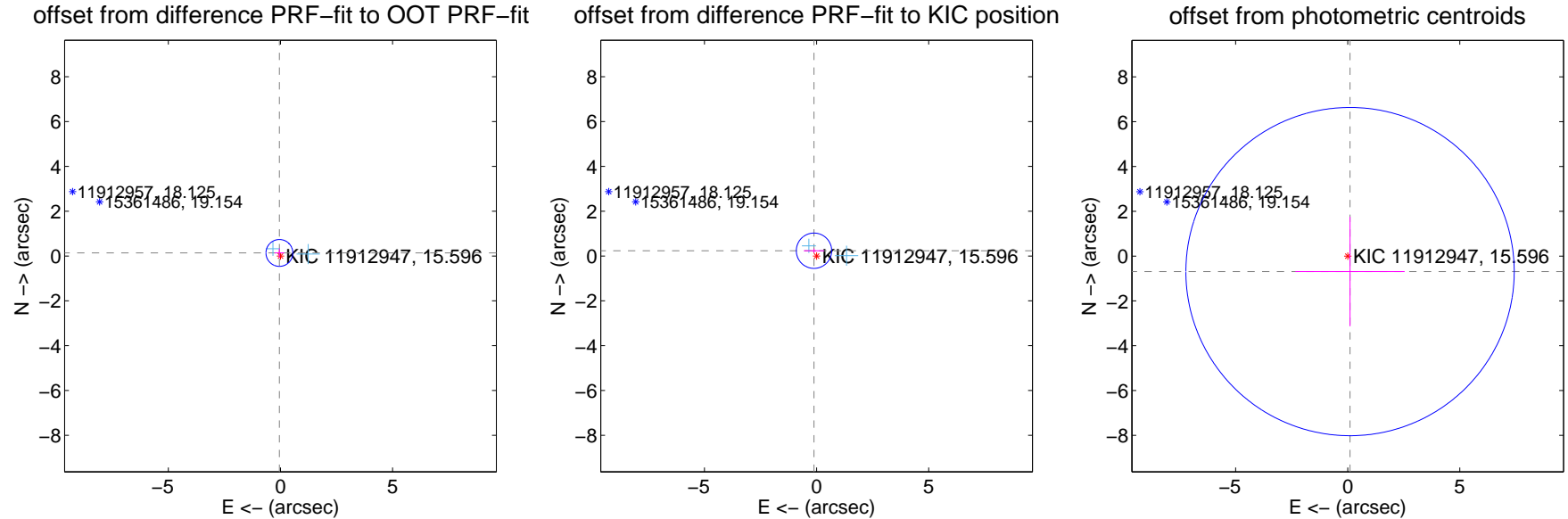
## DV Centroid Data

Supplemental centroid analysis for 011912947-03. Kepler magnitude: 15.60. Transit SNR 2.24

There are 2 quarters with good PRF difference image offsets

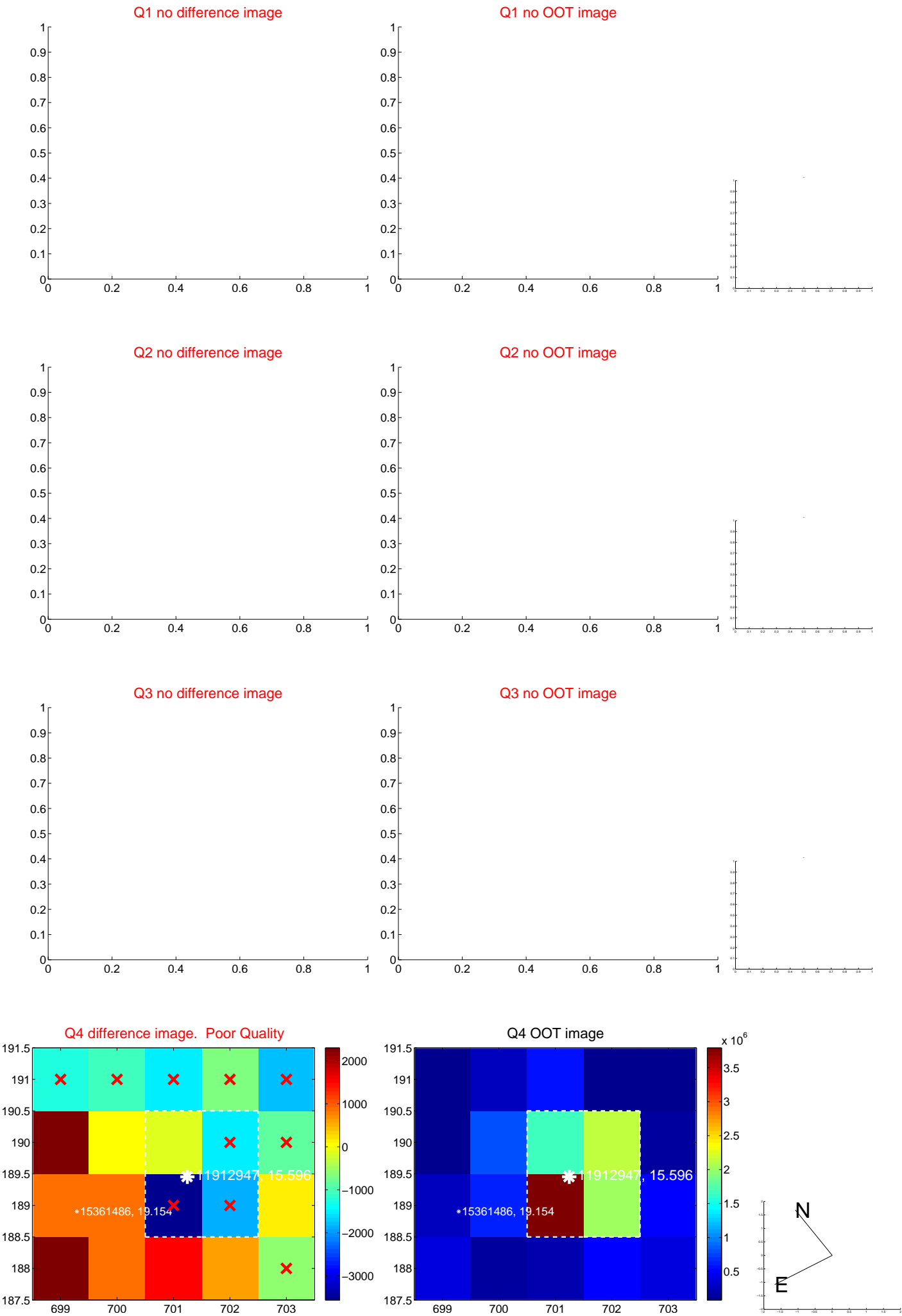
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.145 \pm 0.200$	0.73	$0.047 \pm 0.215$	$0.138 \pm 0.198$
PRF-fit source offset from KIC position	$0.263 \pm 0.263$	1.00	$0.115 \pm 0.451$	$0.236 \pm 0.098$
photometric centroid source offset	$0.70 \pm 2.44$	0.29	$-0.10 \pm 2.44$	$-0.69 \pm 2.44$

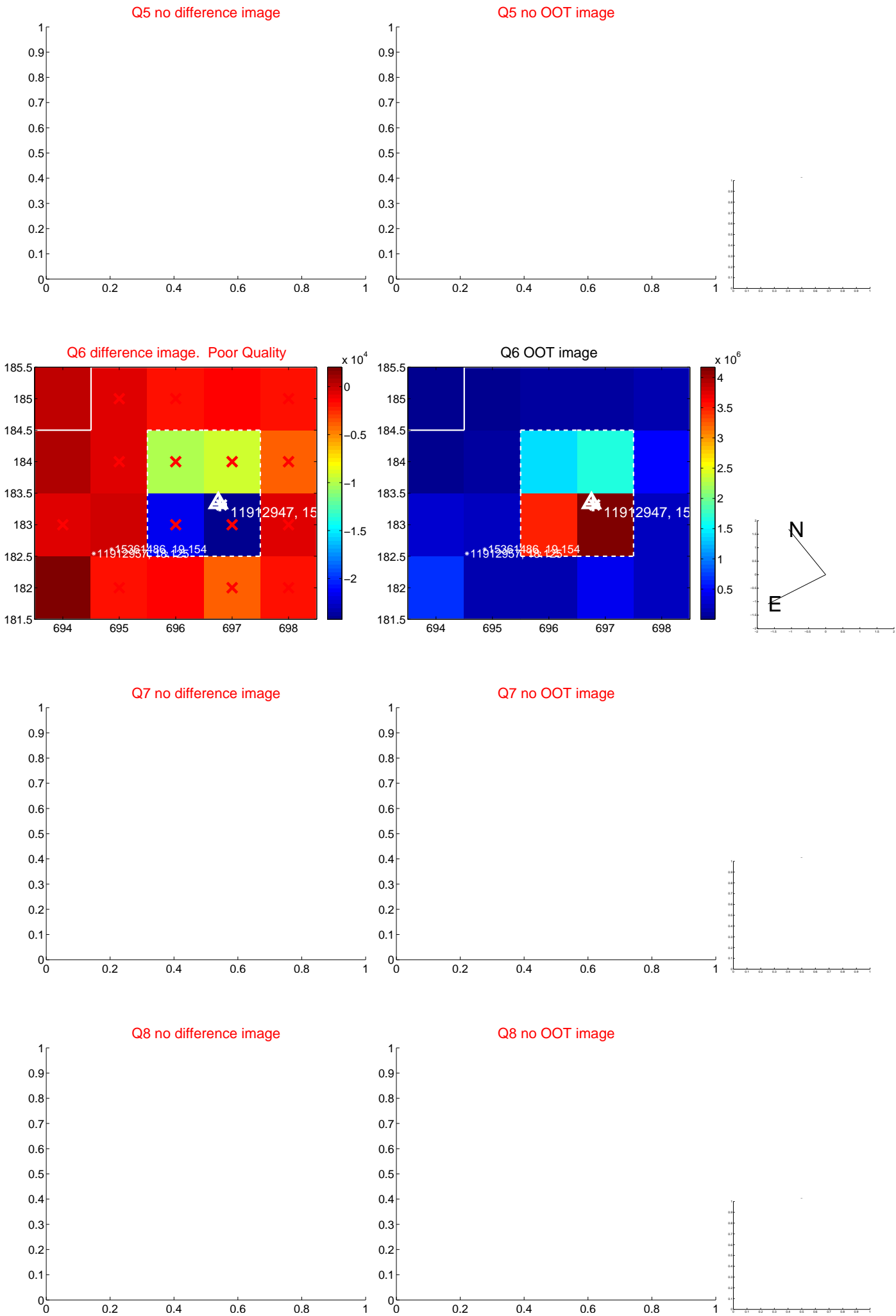


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

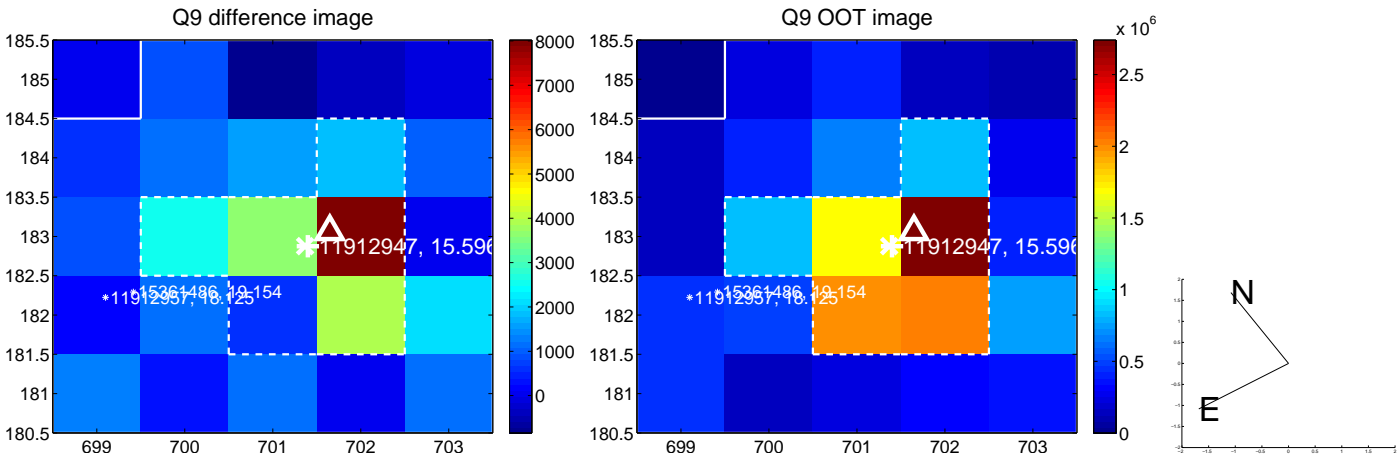


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

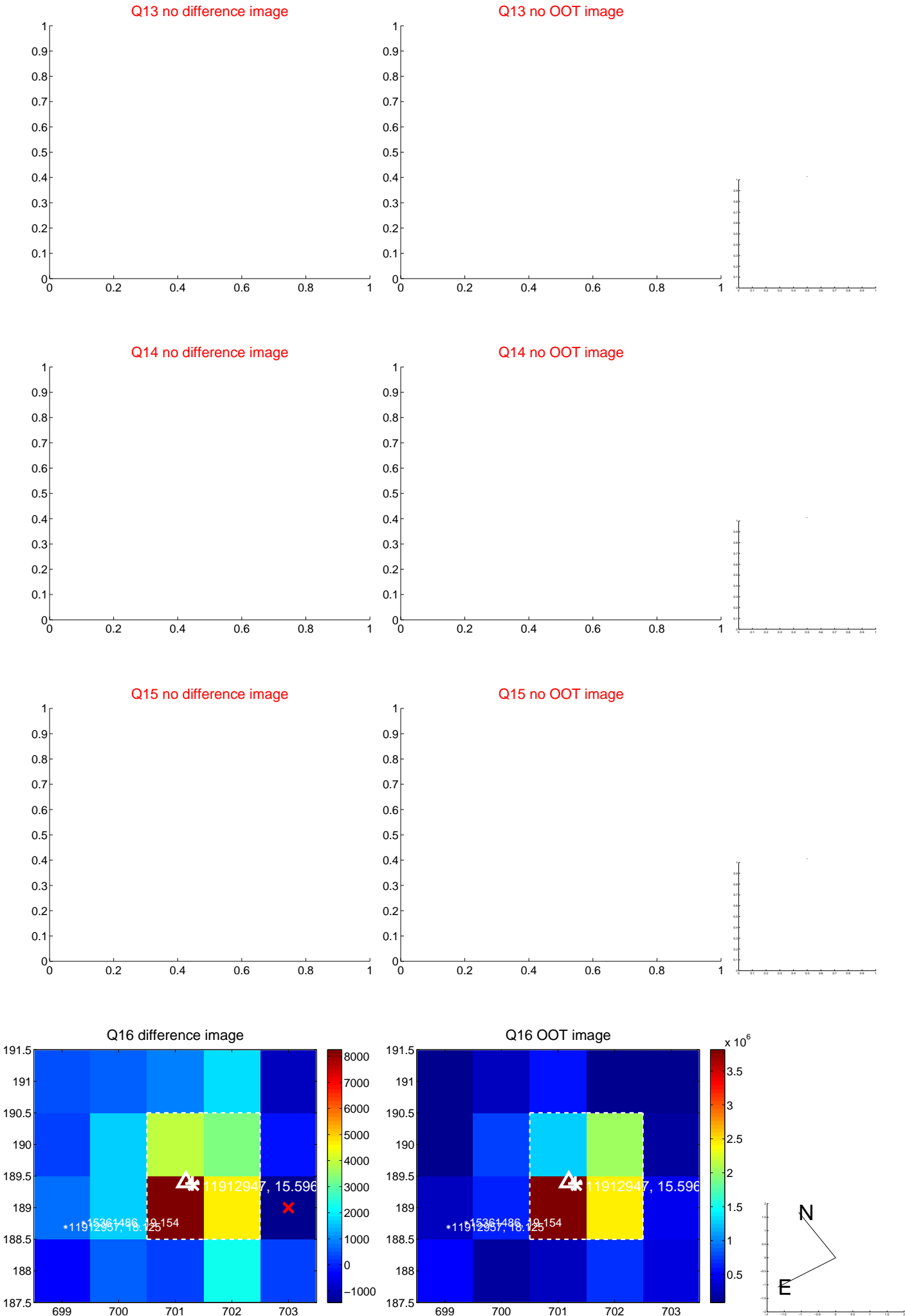




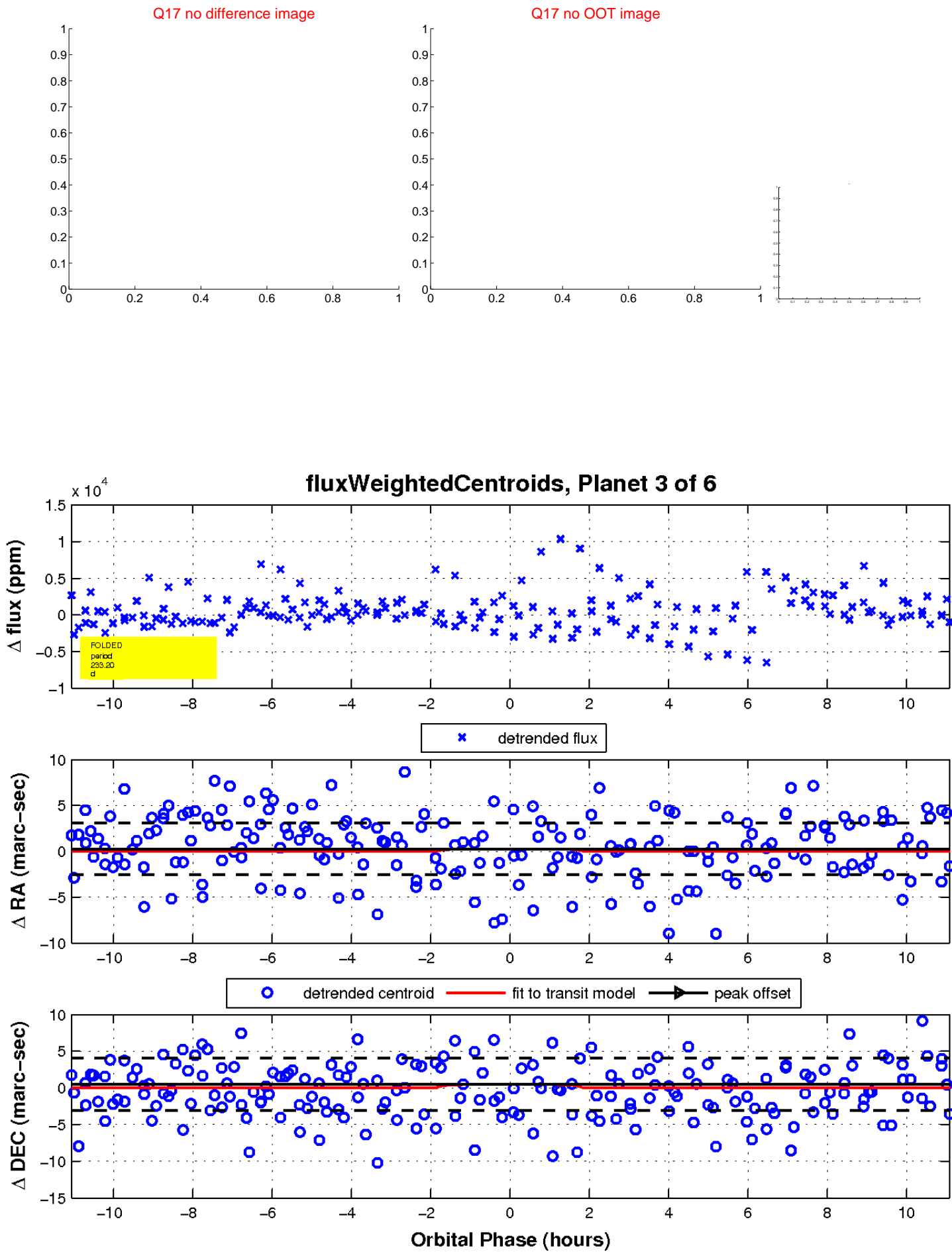
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



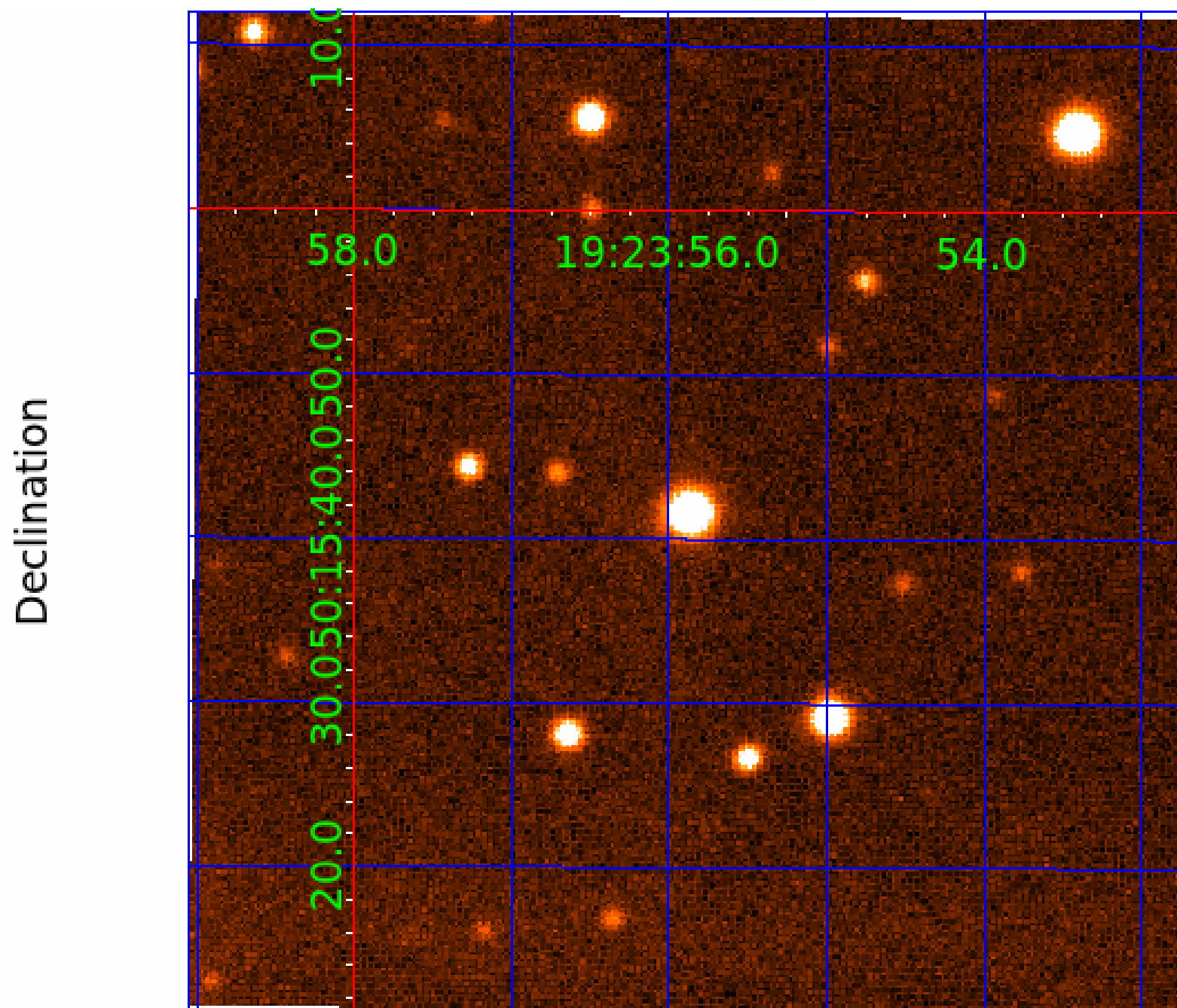
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 011912947

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011912947-01	OBS	No	316.070589	166.060278	3655.7	11.148	13.1	7.2	0.32	3440	1.92	0.03
011912947-02	OBS	No	368.066672	341.007093	3637.4	4.100	14.1	8.3	0.32	3440	1.91	0.03
011912947-03	OBS	No	233.197427	139.174185	909.3	3.714	13.5	2.2	0.32	3440	1.00	0.05
011912947-04	OBS	No	448.383174	420.427132	2850.6	5.450	10.7	6.3	0.32	3440	1.78	0.02
011912947-05	OBS	No	387.444002	512.296509	3389.5	5.466	12.1	7.0	0.32	3440	1.85	0.03
011912947-06	OBS	No	522.608731	501.351619	2255.5	3.500	11.8	-1.0	0.32	3440	1.51	0.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011912947-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011912947-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
011912947-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—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.

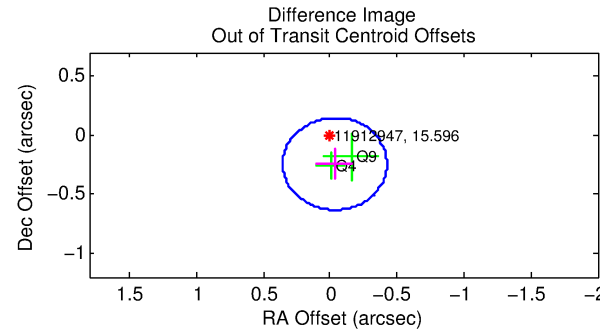
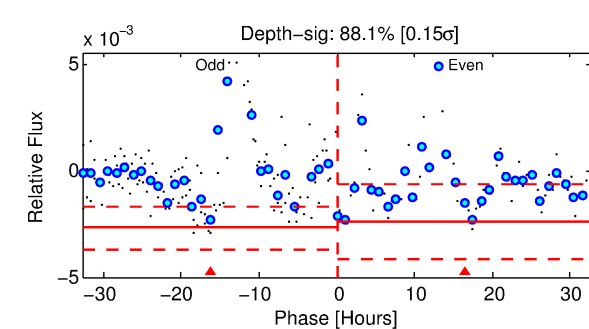
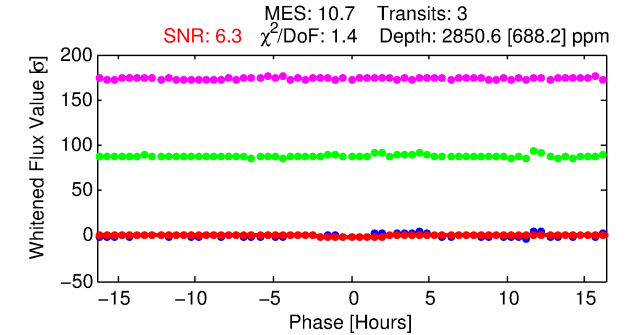
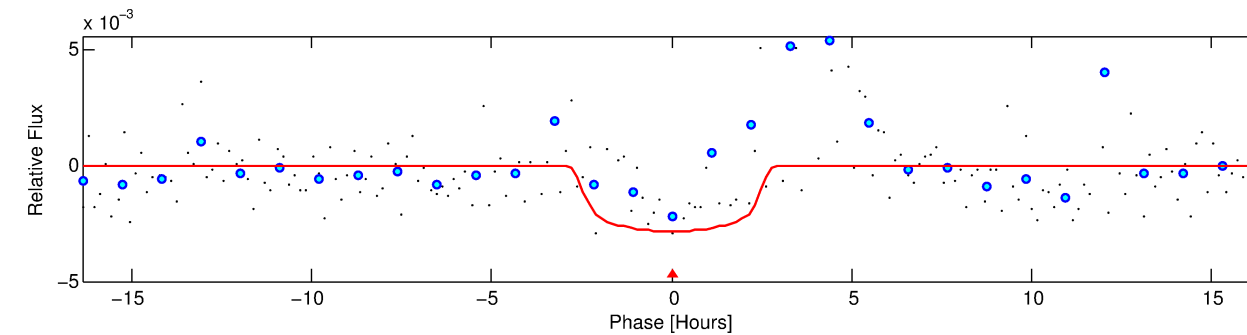
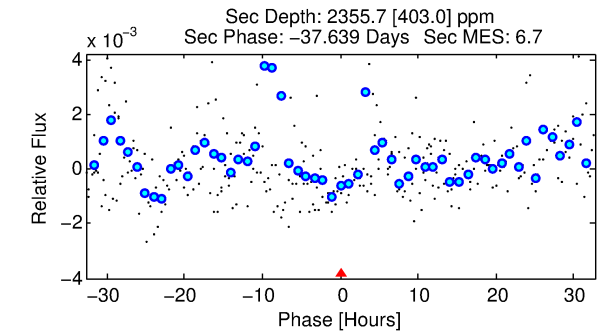
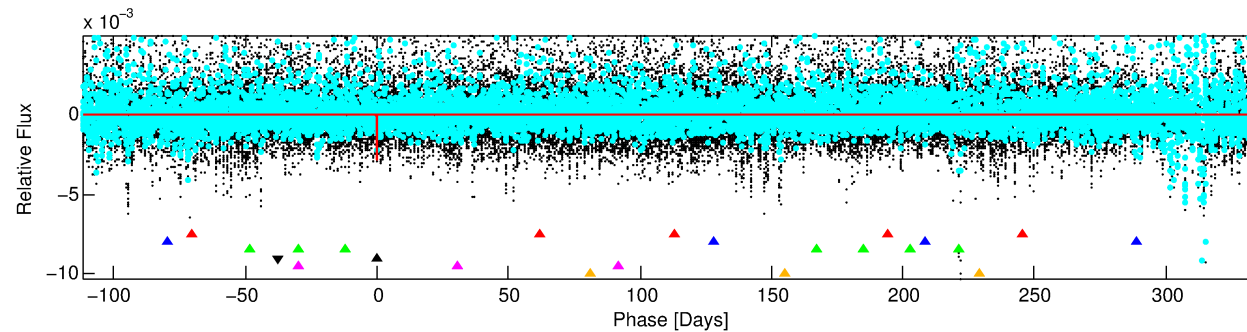
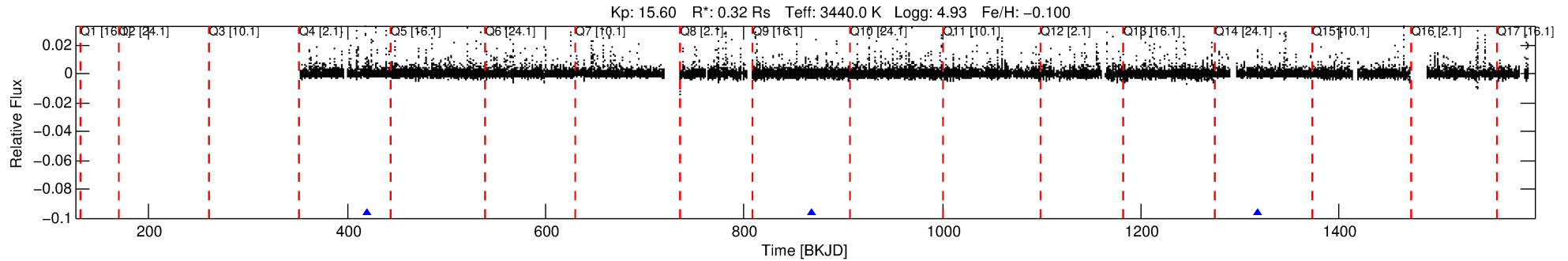
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011912947-04

No Significant Match Found

# DV One-Page Summary

KIC: 11912947 Candidate: 4 of 6 Period: 448.383 d



## DV Fit Results:

Period = 448.38317 [0.00782] d  
Epoch = 420.4271 [0.0115] BKJD  
Rp/R\* = 0.0509 [0.0231]  
a/R\* = 539.24 [953.74]  
b = 0.61 [1.85]  
Seff = 0.02 [0.00]  
Teq = 97 [3] K  
Rp = 1.78 [0.83] Re  
a = 0.7843 [0.0602] AU  
Ag = 250903.00 [233156.21] [1.08σ]  
Teffp = 3360 [777] K [4.20σ]

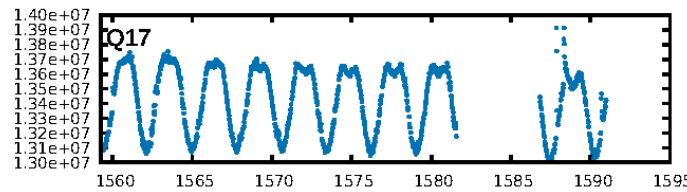
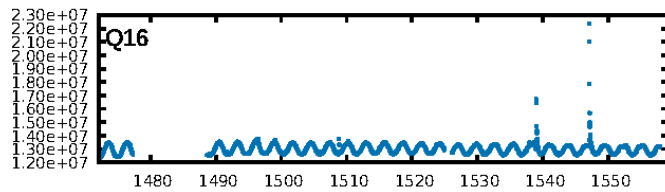
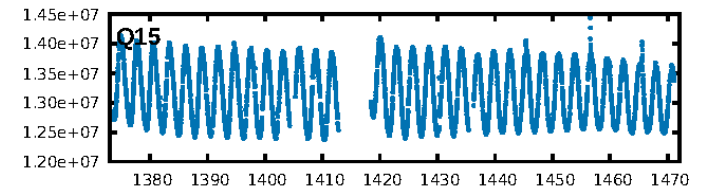
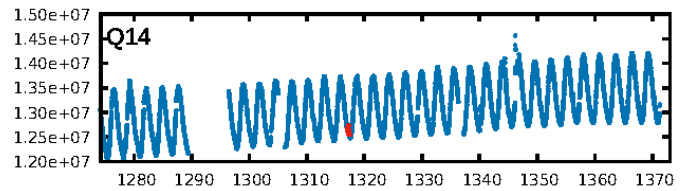
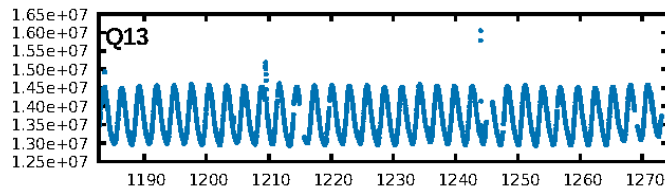
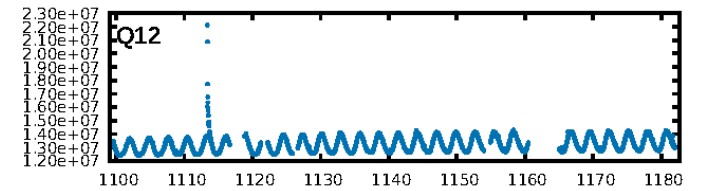
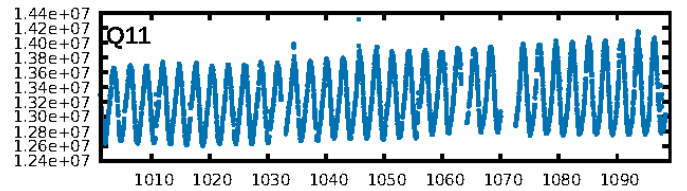
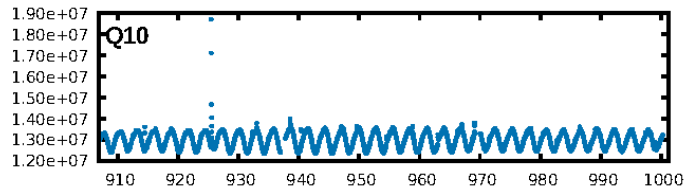
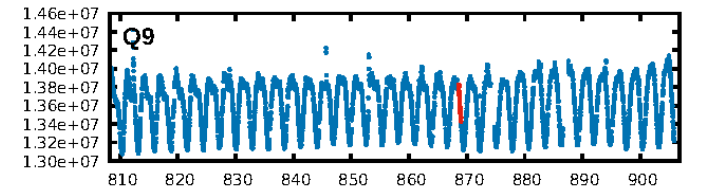
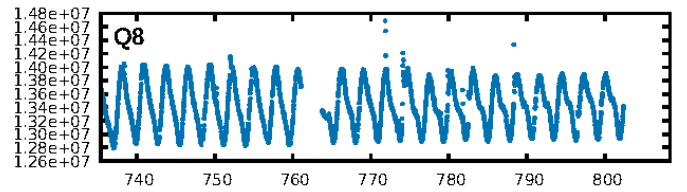
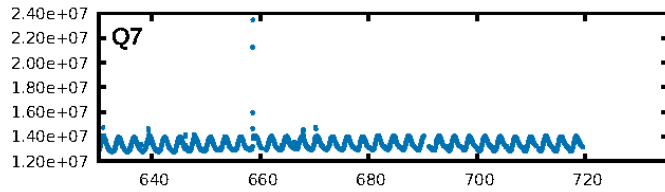
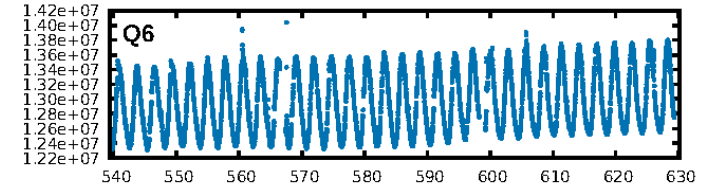
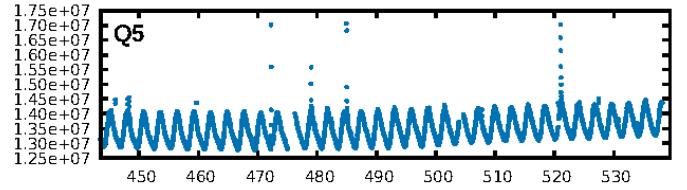
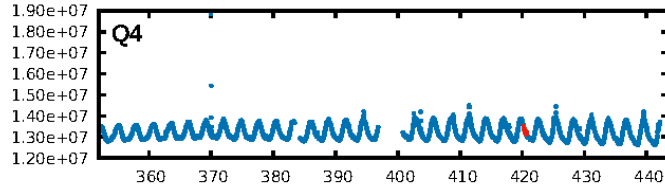
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [189.47σ]  
LongPeriod-sig: 100.0% [275.02σ]  
ModelChiSquare2-sig: 52.8%  
ModelChiSquareGof-sig: 92.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.0201  
Centroid-sig: 82.7%  
Centroid-so: 0.597 arcsec [0.75σ]  
OotOffset-rm: 0.246 arcsec [1.90σ]  
KicOffset-rm: 0.179 arcsec [1.38σ]  
OotOffset-st: 0/0/1/1 [2]  
KicOffset-st: 0/0/1/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

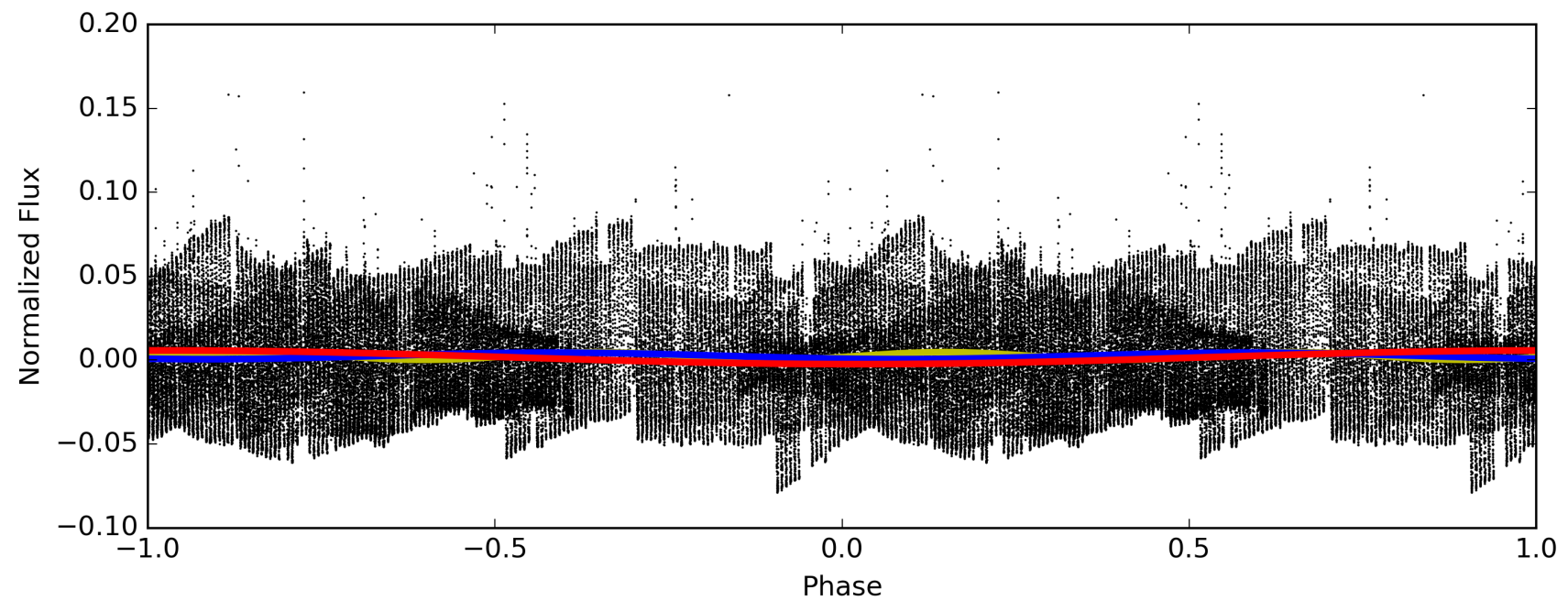
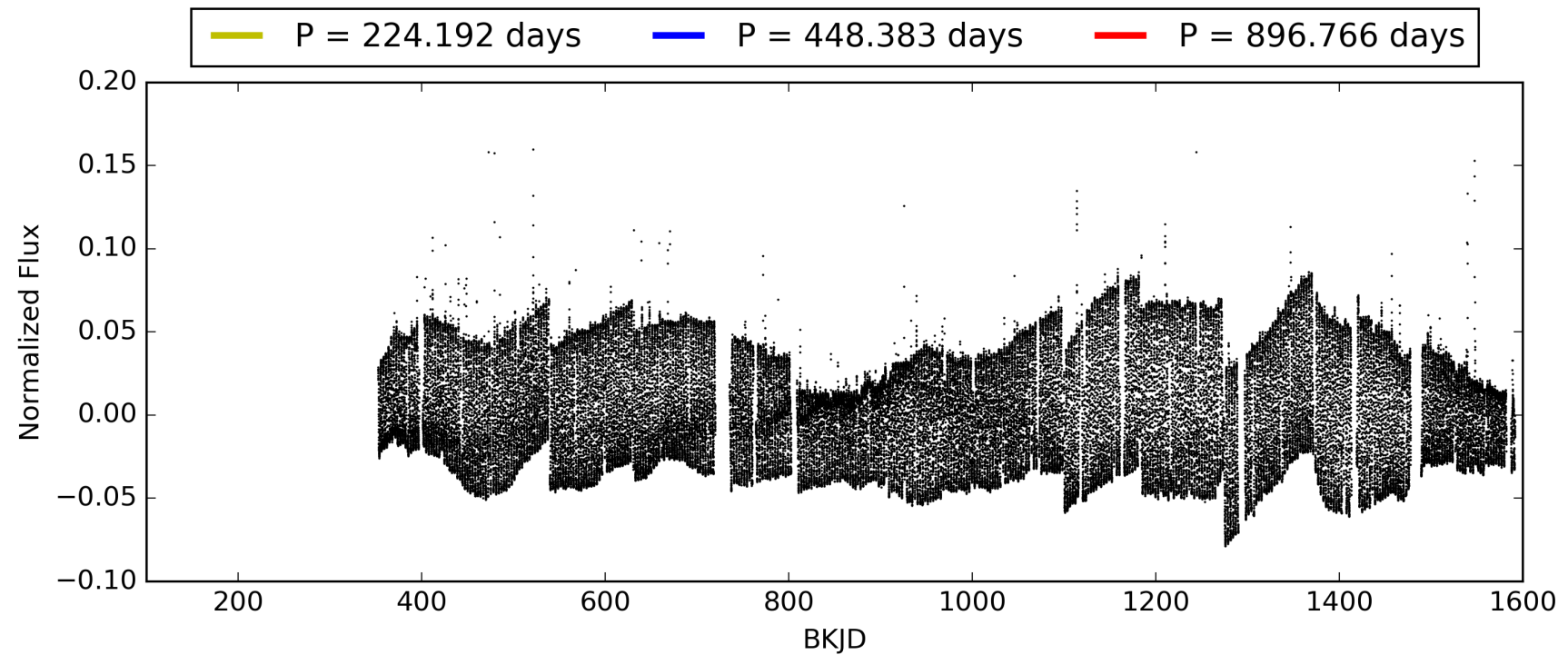
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011912947-04, PDC Light Curves



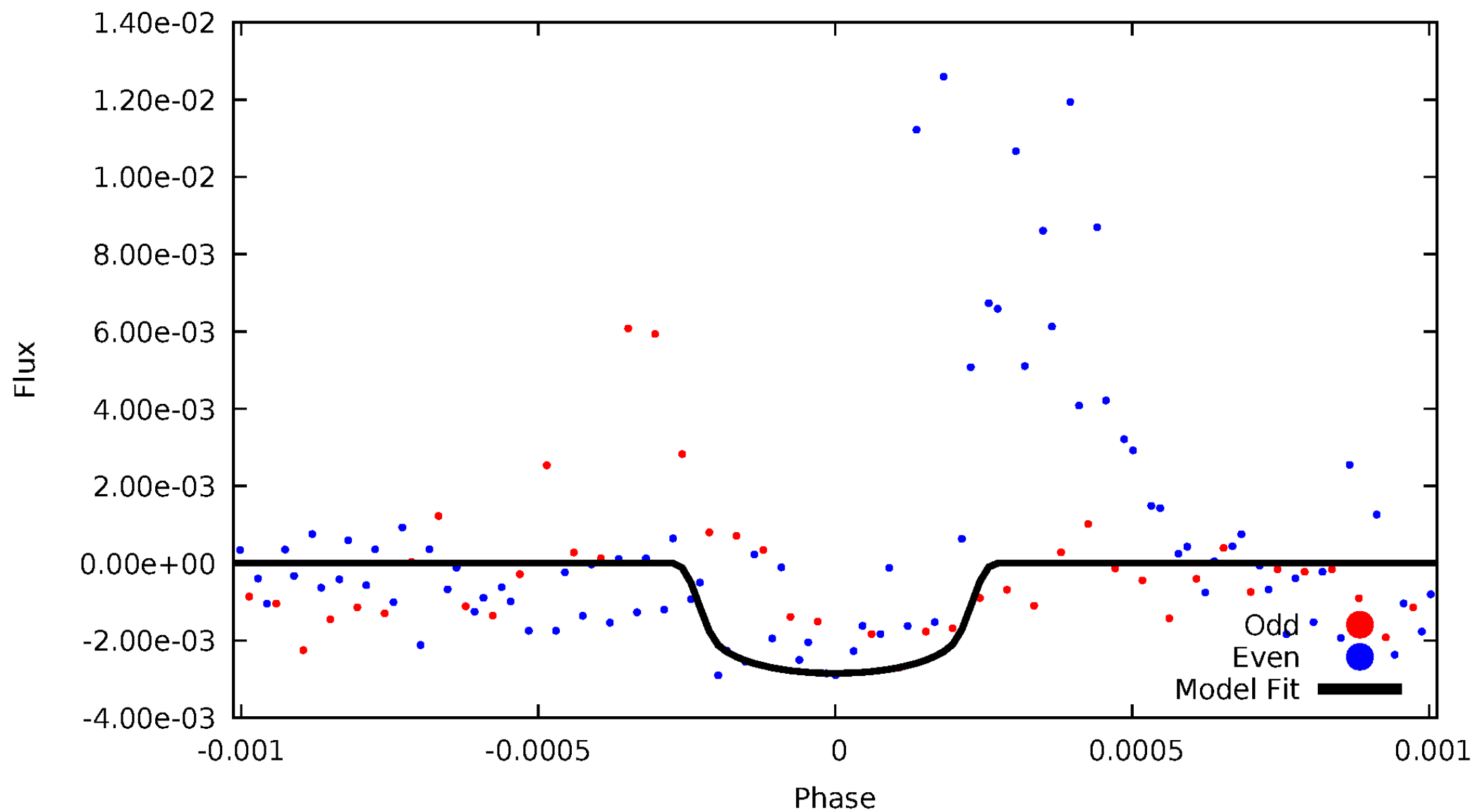
TCE 011912947-04





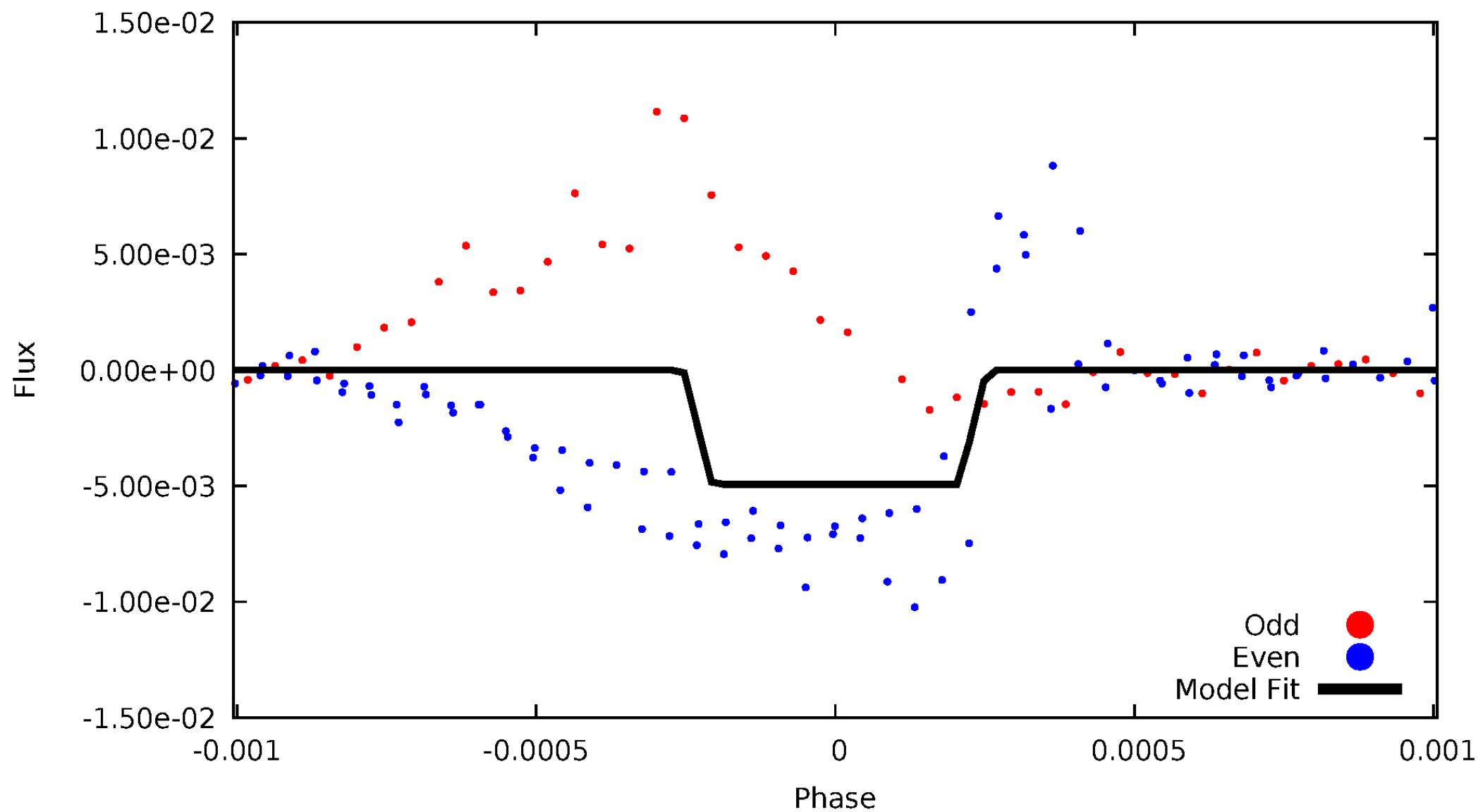
# DV Odd/Even

TCE 011912947-04



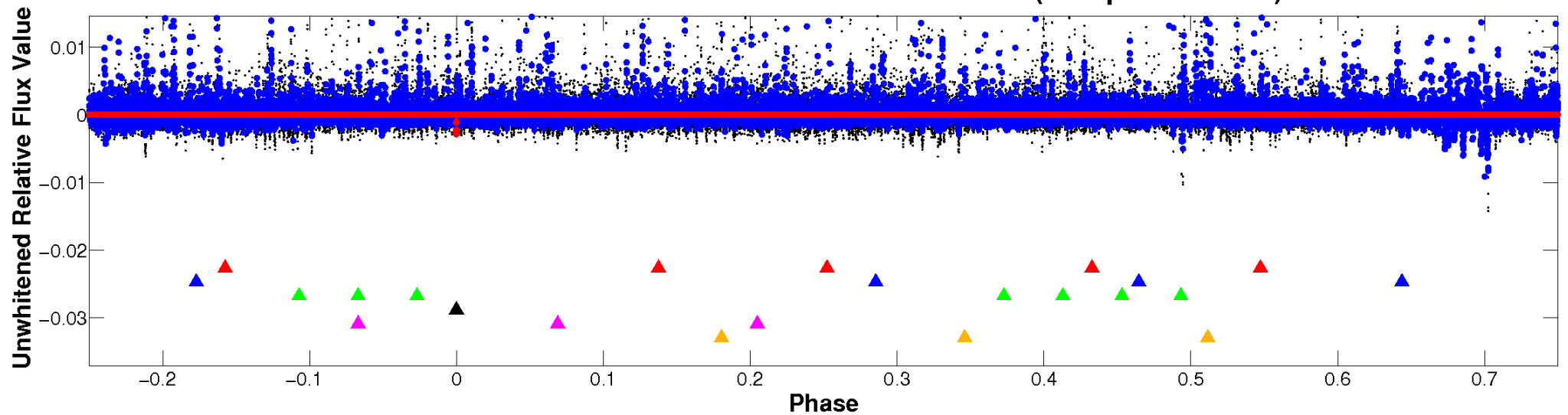
# ALT Odd/Even

TCE 011912947-04

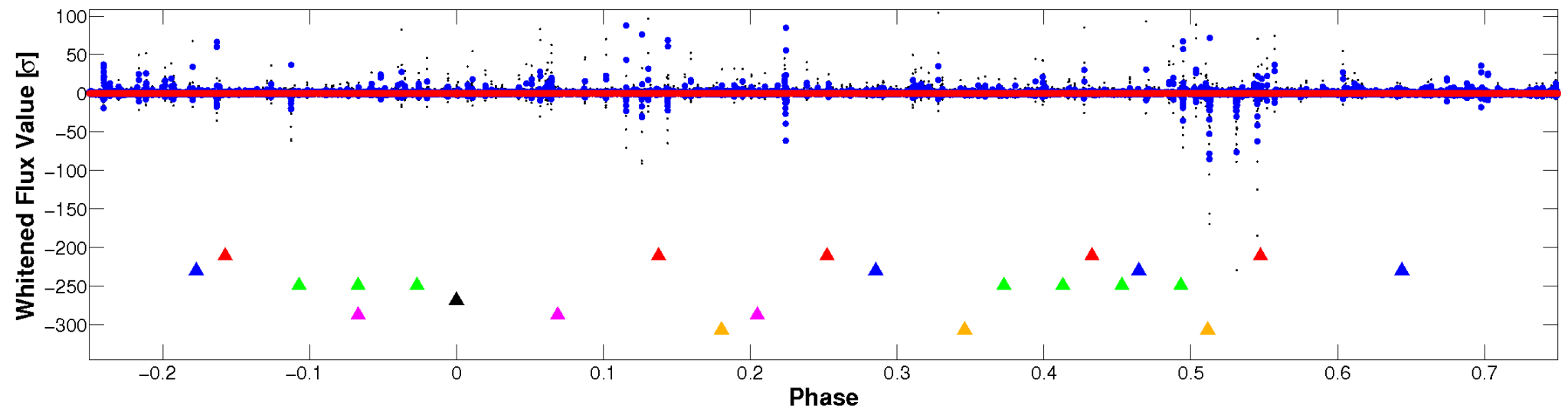


# Non-Whitened Vs. Whitened Light Curve

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

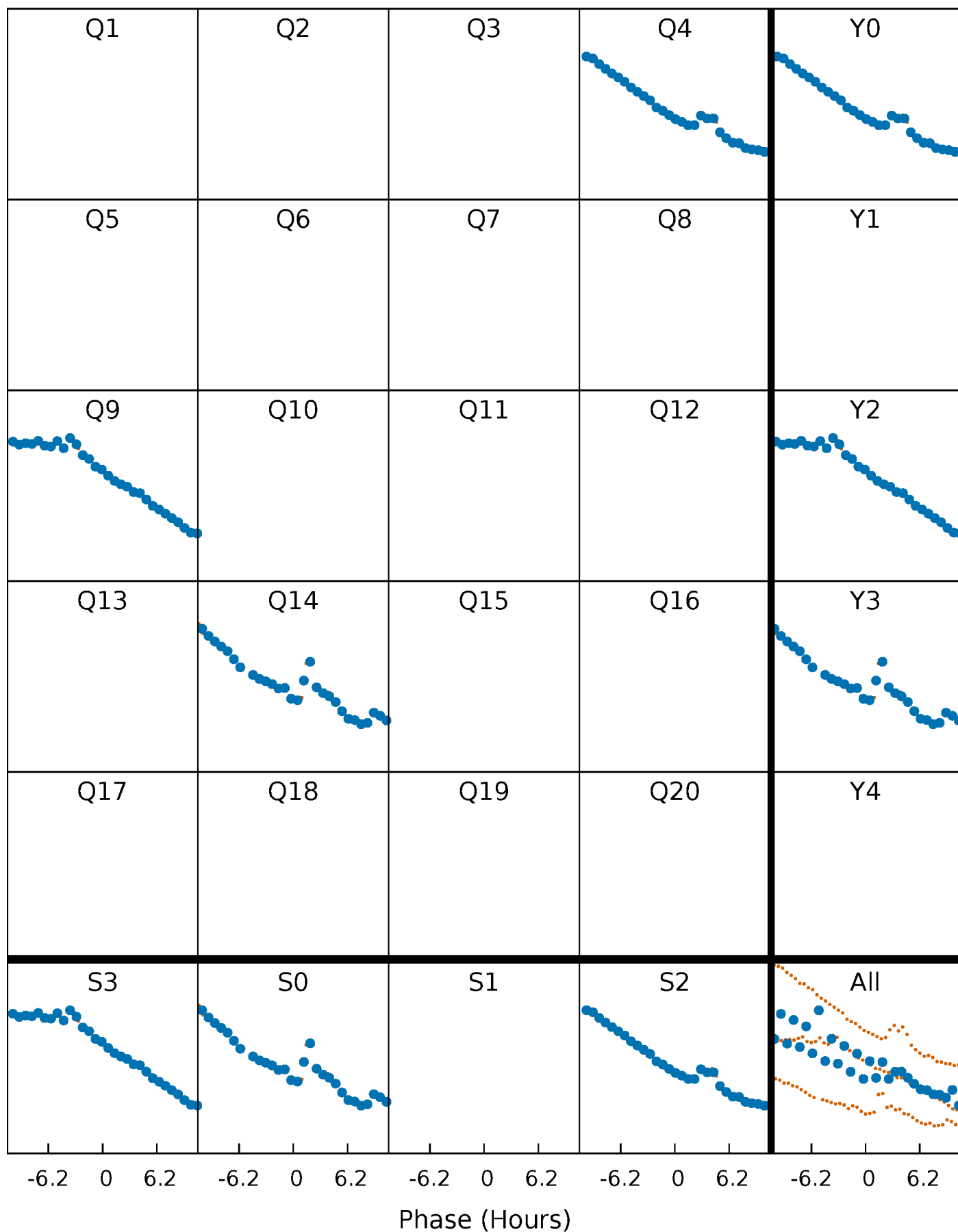


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



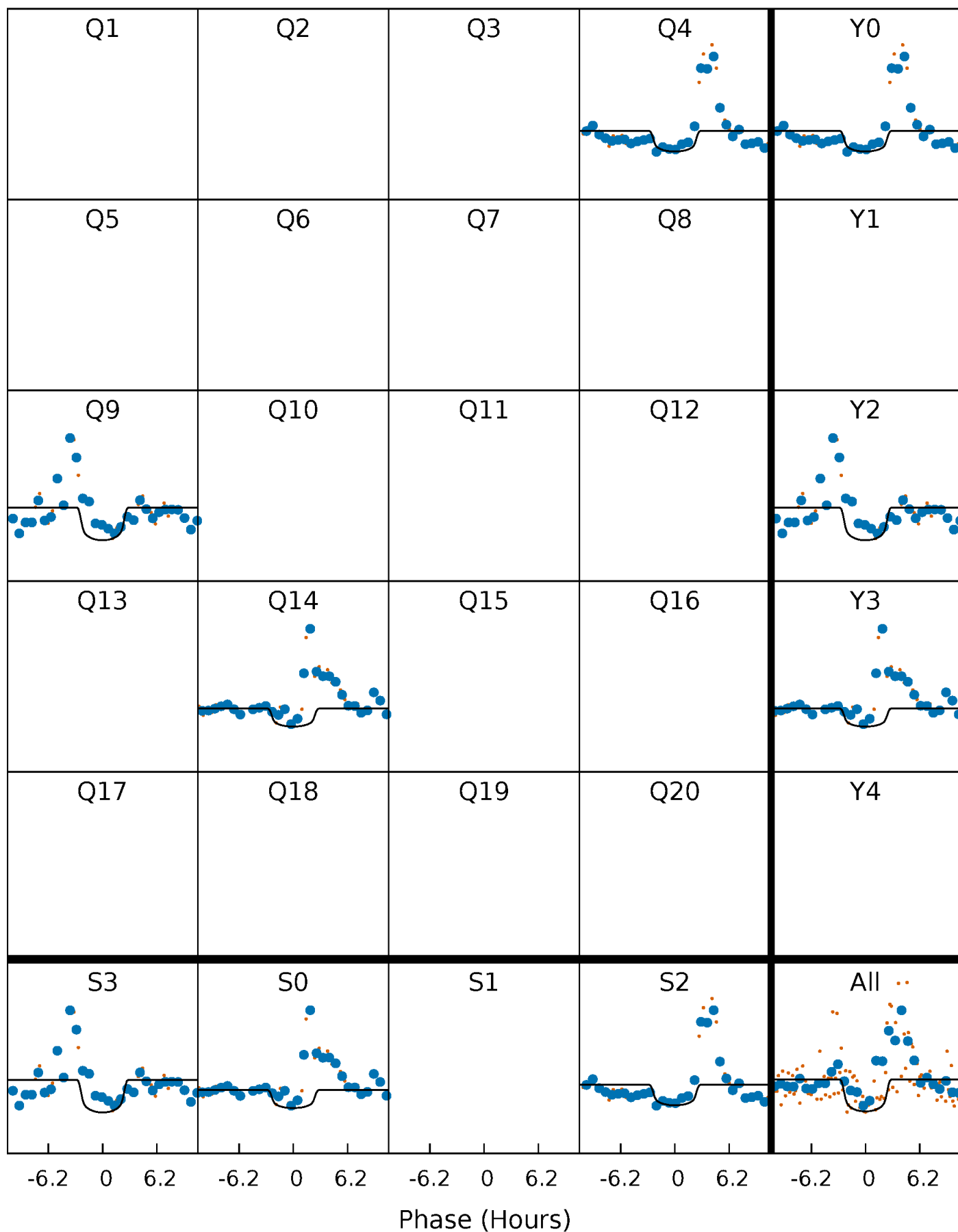
# PDC Quarter-Phased Transit Curves

TCE 011912947-04     $P=448.383174$  Days     $T_0=420.427132$  (BKJD)



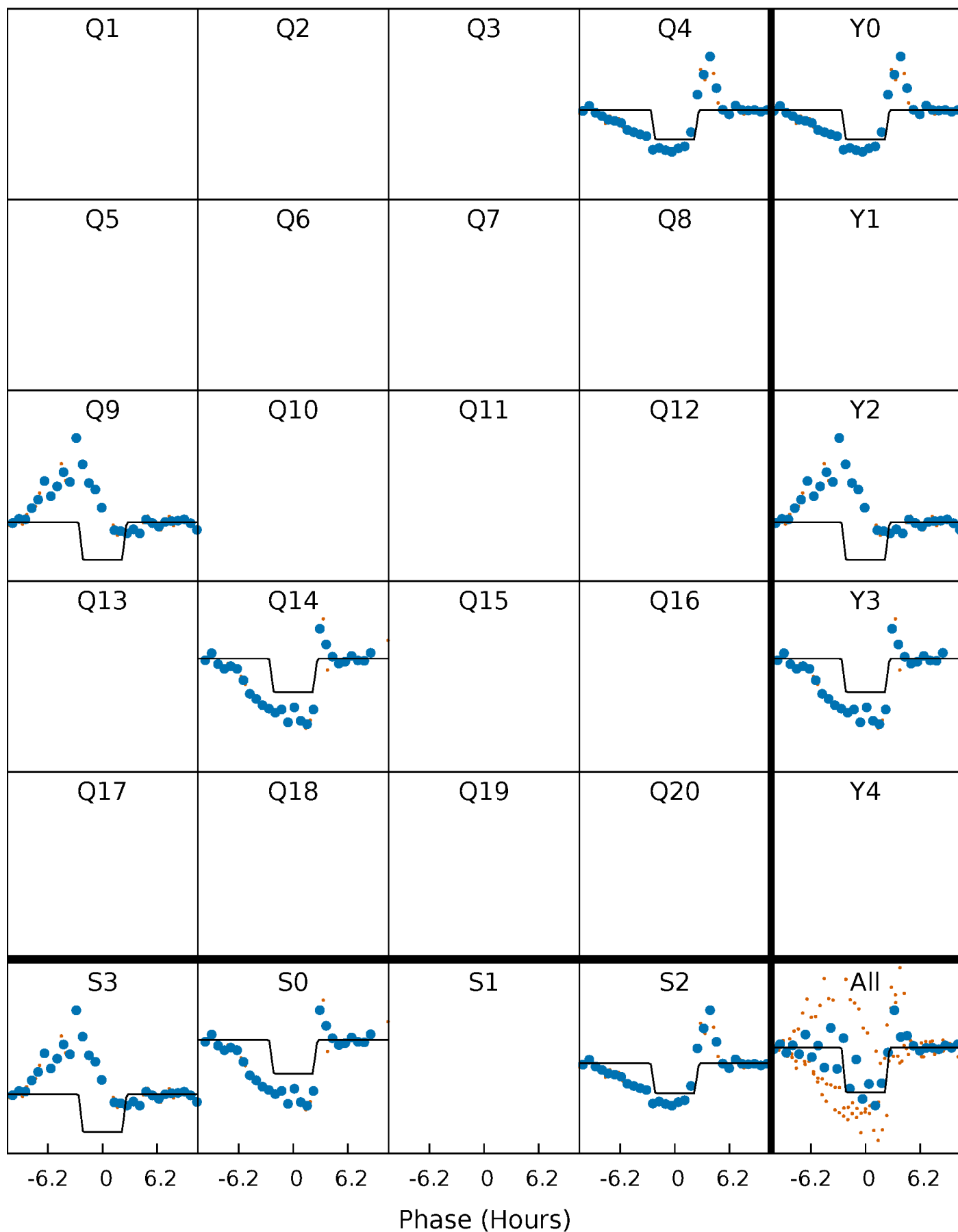
# DV Quarter-Phased Transit Curves

TCE 011912947-04     $P=448.383174$  Days     $T_0=420.427132$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

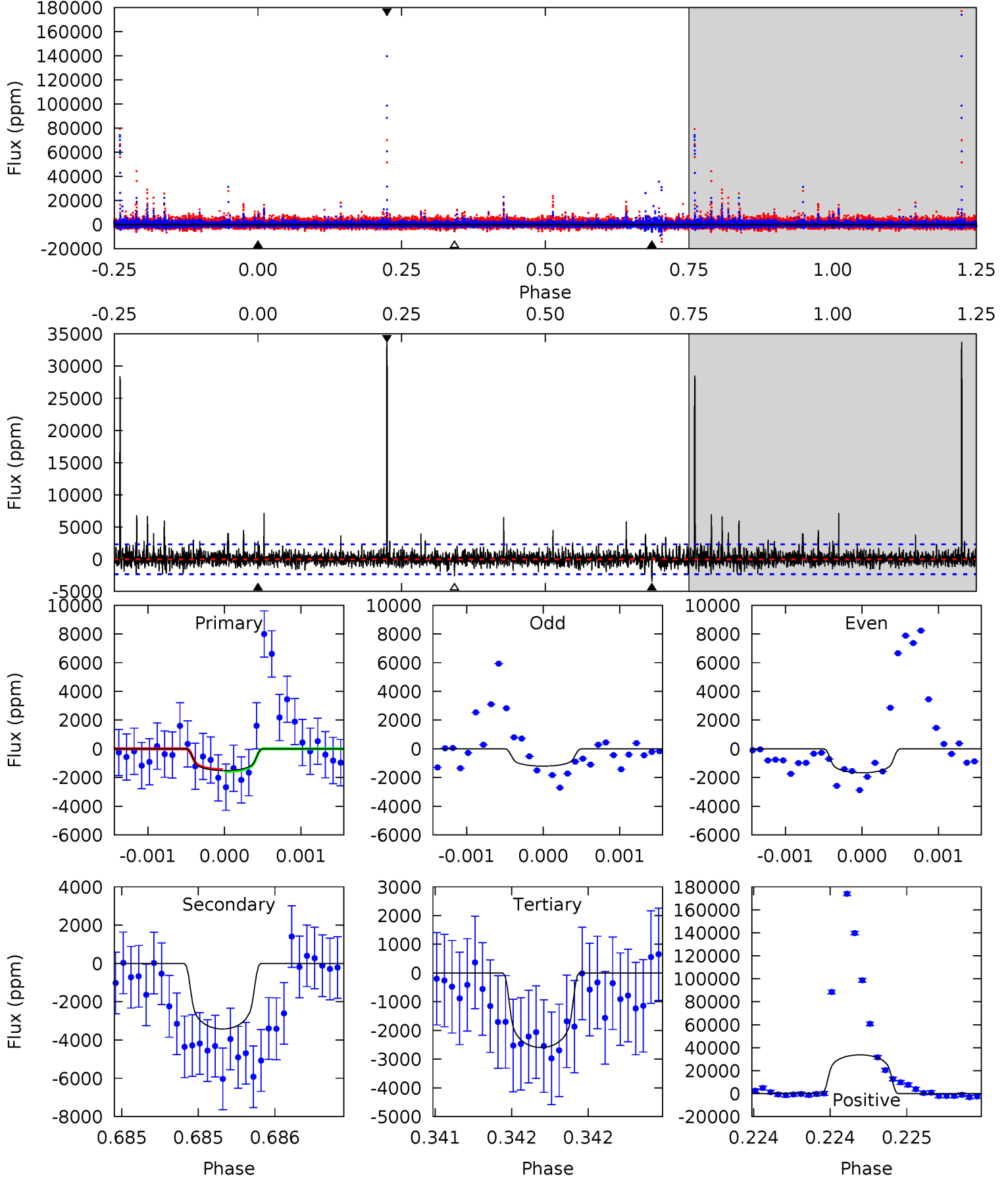
TCE 011912947-04 P=448.346362 Days  $T_0=420.441317$  (BKJD)



# DV Model-Shift Uniqueness Test

011912947-04, P = 448.383174 Days, E = 420.427132 Days

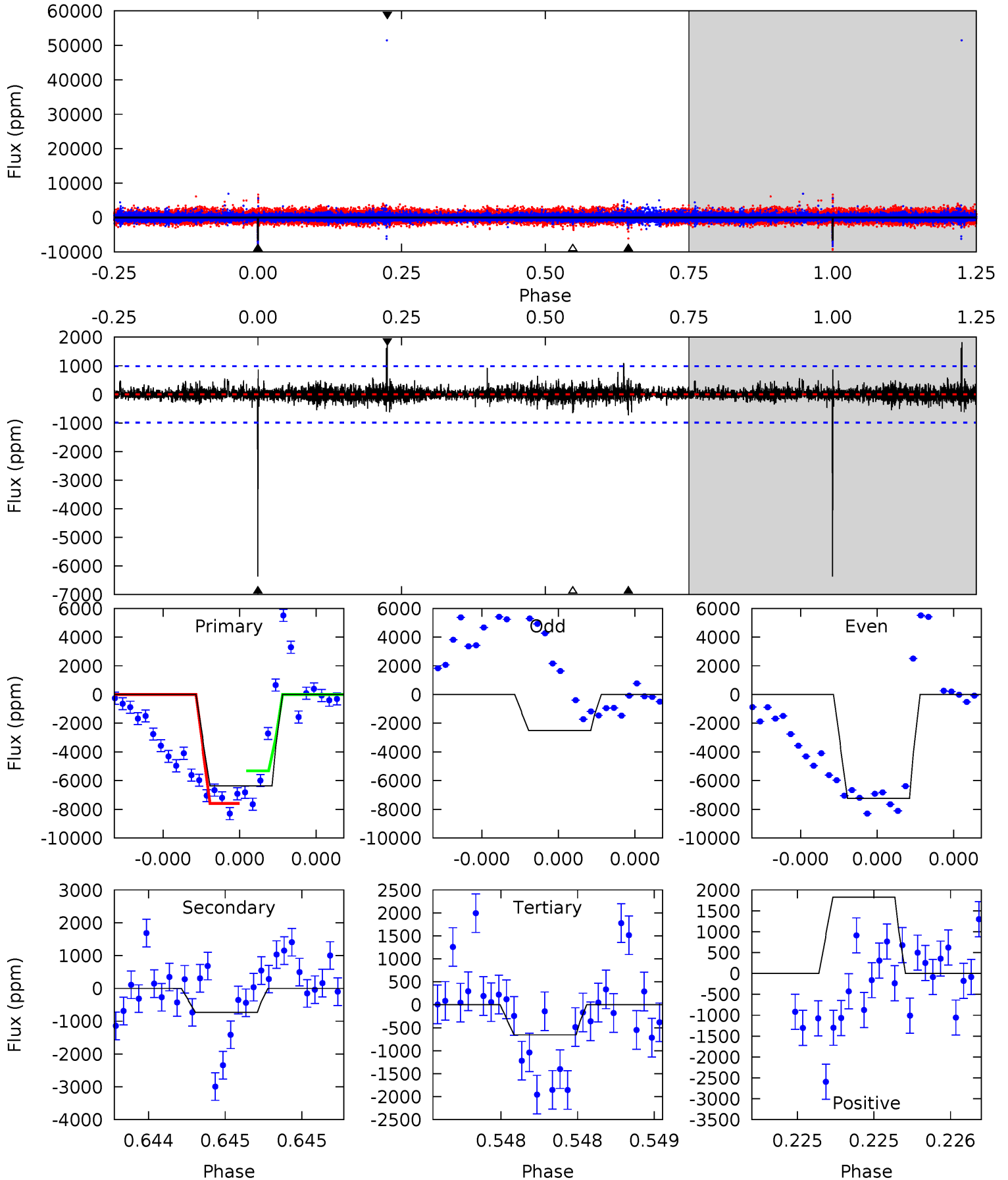
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.63	8.18	6.20	80.6	5.56	3.46	2.79	-2.57	-76.9	1.98	-72.4	0.29	0.48	0.91	0.17



# Alt Model-Shift Uniqueness Test

011912947-04, P = 448.346362 Days, E = 420.441317 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
36.1	4.13	3.71	10.3	5.58	3.49	0.73	32.3	25.7	0.42	-6.19	13.1	0.67	0.22	6.22





### Stellar Parameters For KIC 011912947

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3440^{+44}_{-41}$	$4.930^{+0.045}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.321^{+0.033}_{-0.033}$	$0.319^{+0.041}_{-0.037}$	$13.640^{+3.256}_{-1.964}$
	+1%/-1%	+1%/-1%	+100%/-100%	+10%/-10%	+13%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 011912947-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-3425 \pm 419$	$1.84^{+0.78}_{-0.81}$	$135^{+3}_{-3}$	$3558^{+800}_{-371}$	$343613^{+738968}_{-173737}$
Alt.	$-730 \pm 177$	$2.46^{+0.79}_{-0.83}$	$135^{+3}_{-3}$	$2623^{+294}_{-209}$	$40486^{+49268}_{-19269}$

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

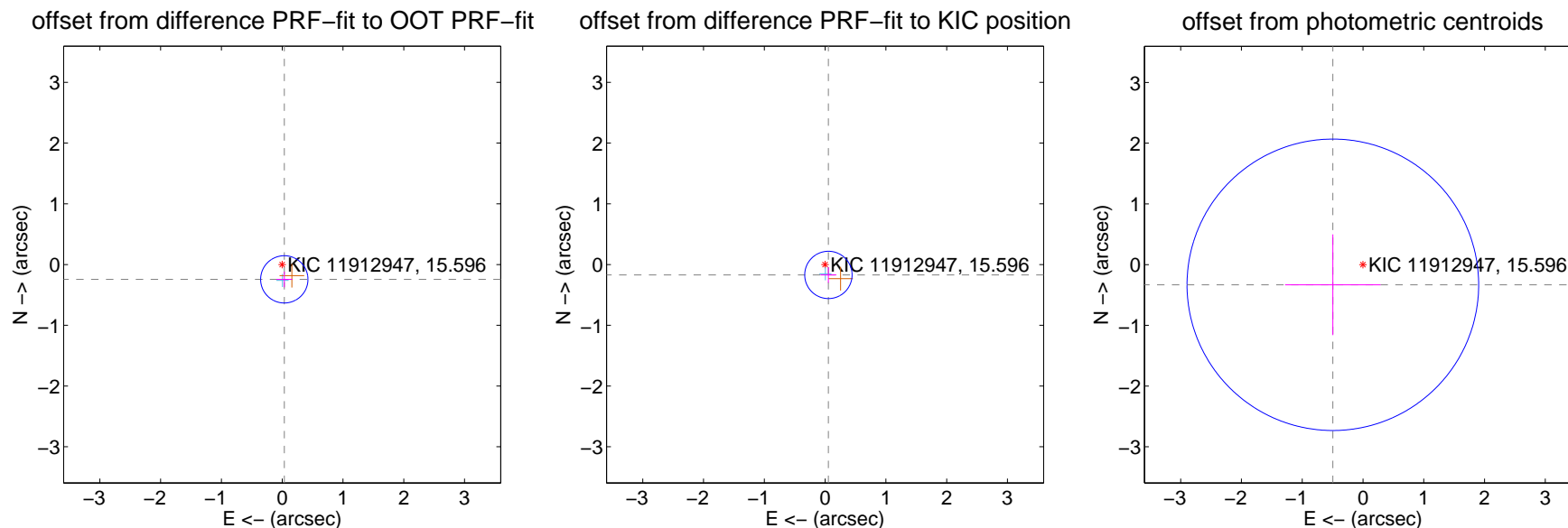
## DV Centroid Data

Supplemental centroid analysis for 011912947-04. Kepler magnitude: 15.60. Transit SNR 6.28

There are 1 quarters with good PRF difference image offsets

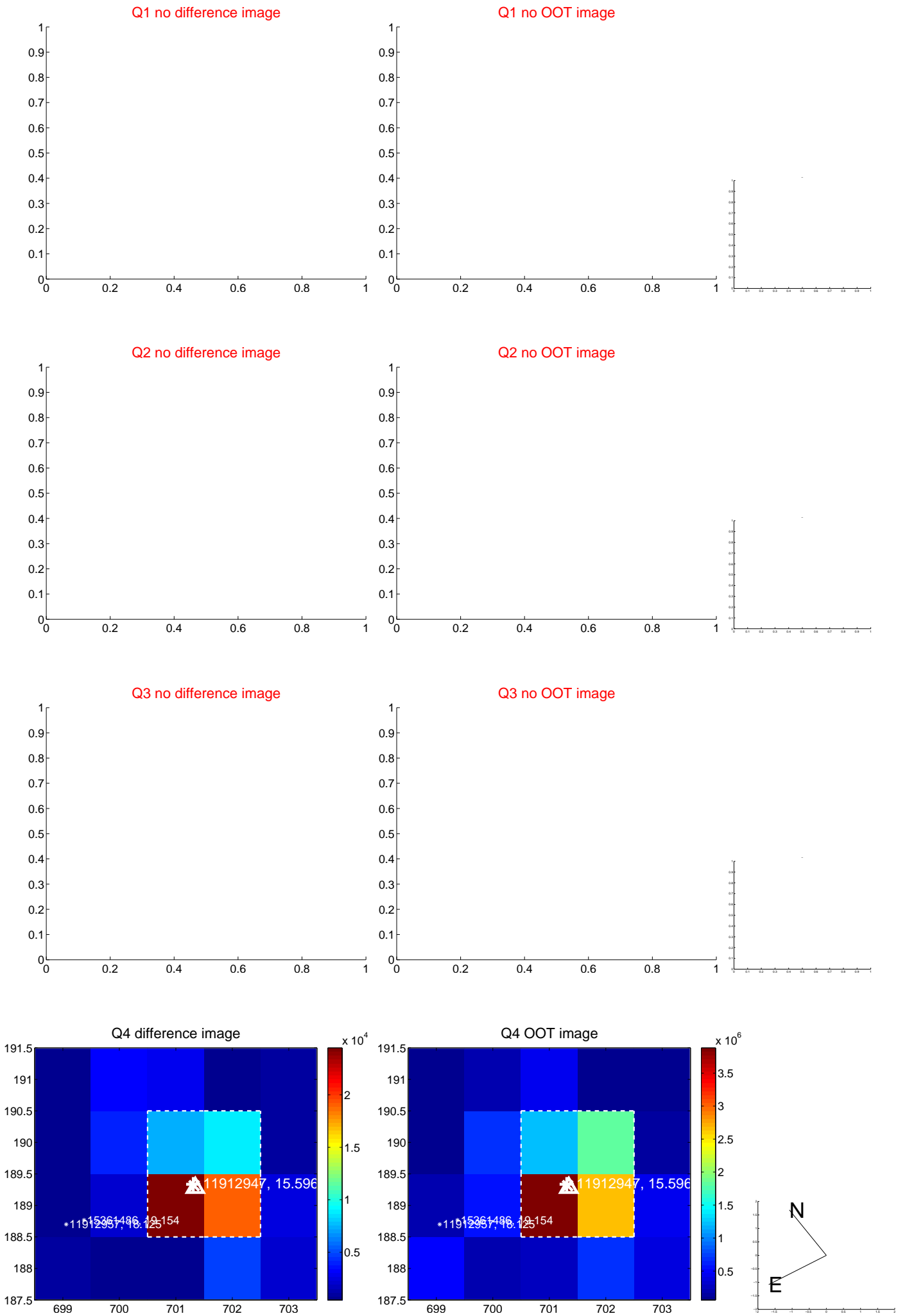
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.246 \pm 0.130$	1.90	$-0.034 \pm 0.131$	$-0.244 \pm 0.130$
PRF-fit source offset from KIC position	$0.179 \pm 0.130$	1.38	$-0.054 \pm 0.131$	$-0.171 \pm 0.130$
photometric centroid source offset	$0.60 \pm 0.80$	0.75	$0.50 \pm 0.79$	$-0.33 \pm 0.83$



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

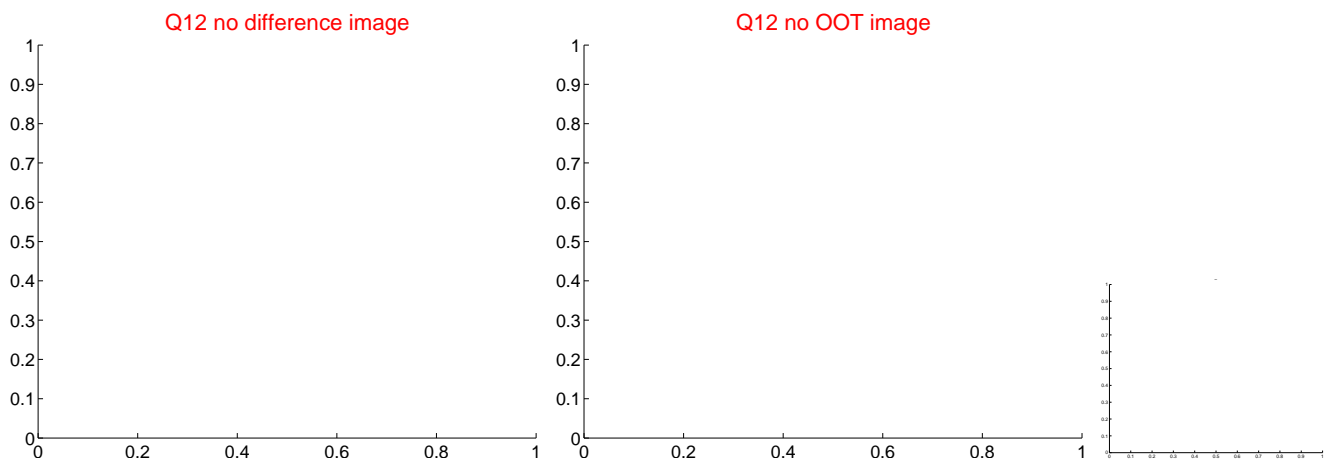
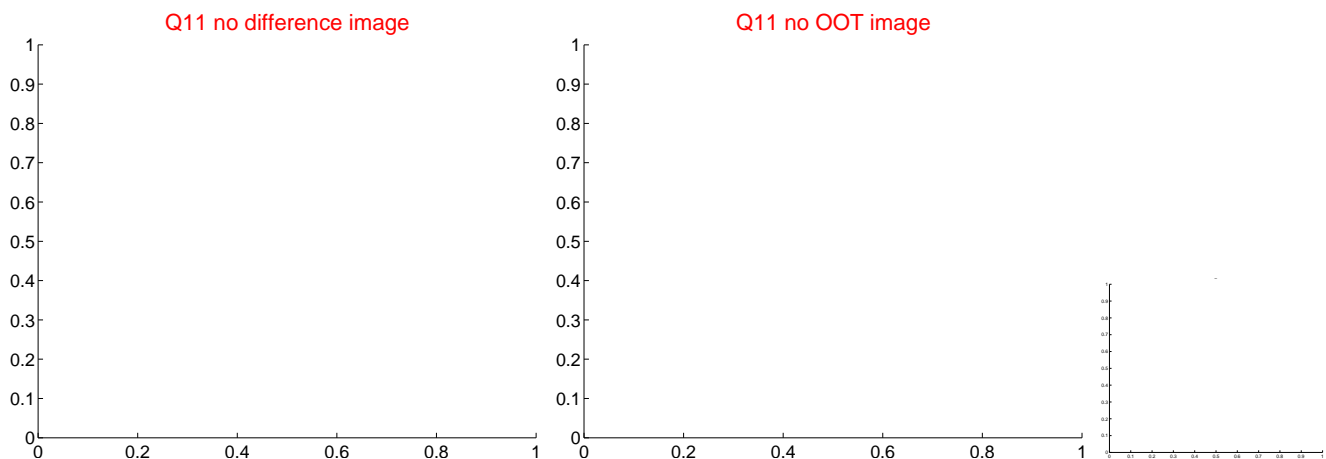
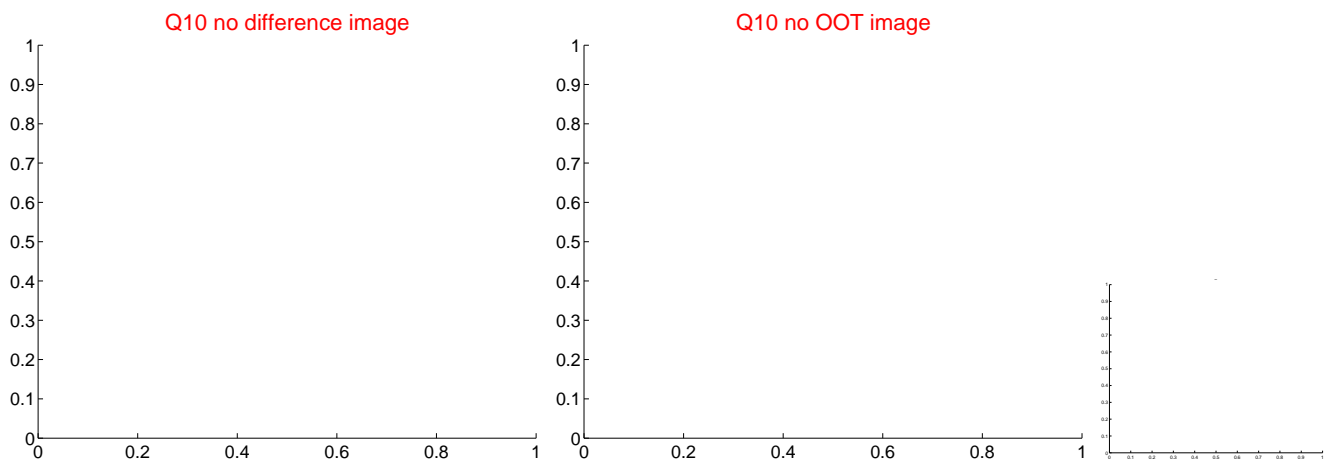
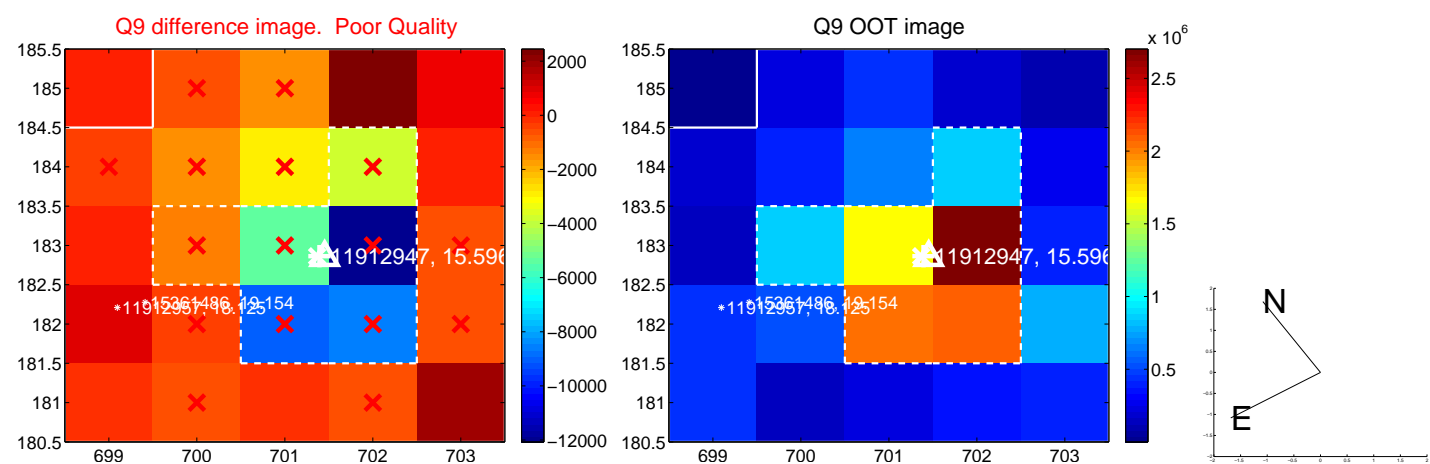
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



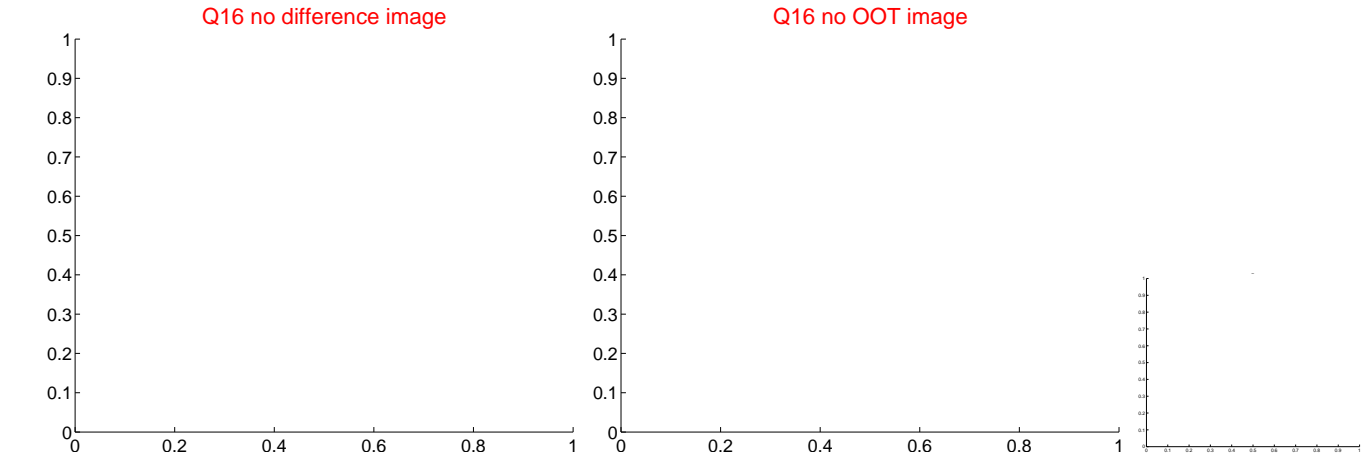
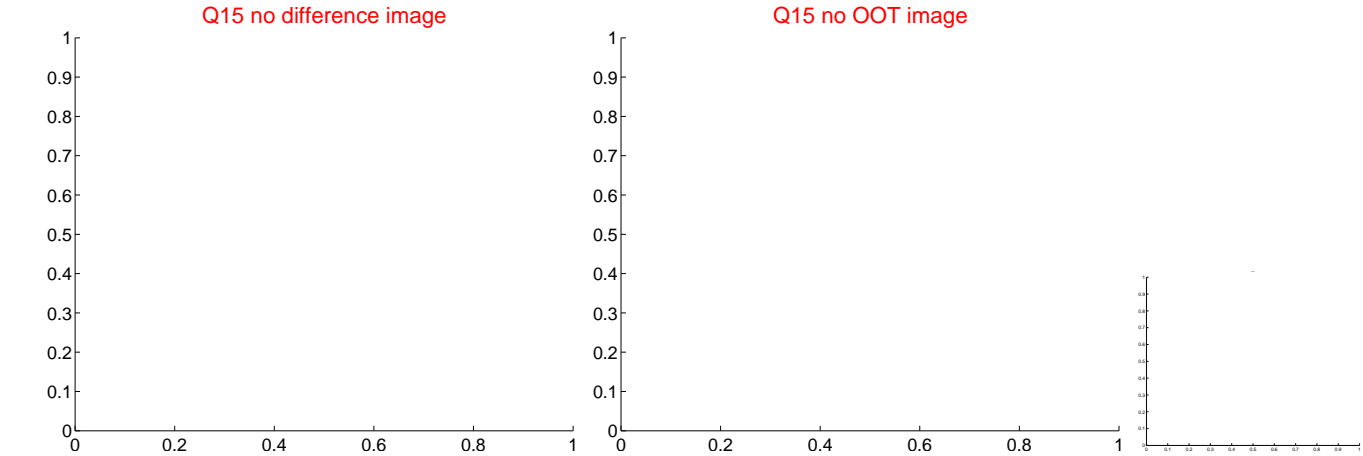
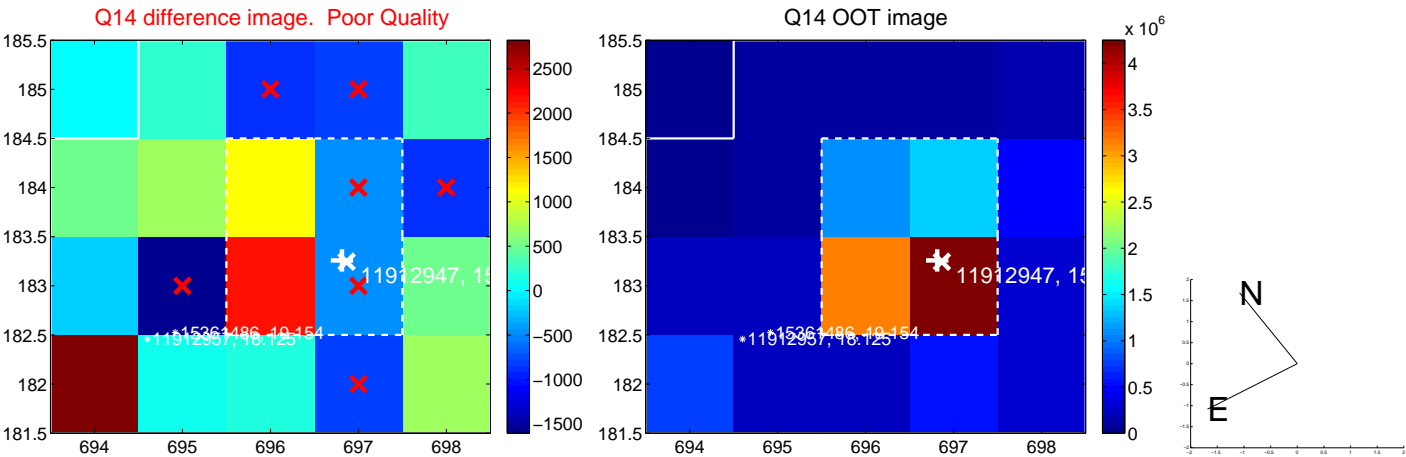
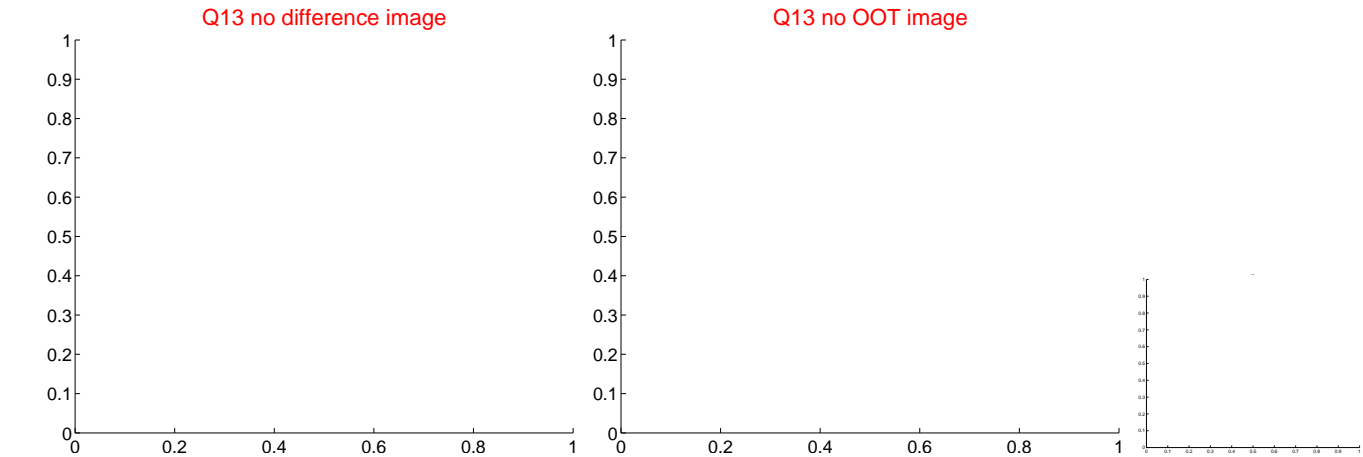
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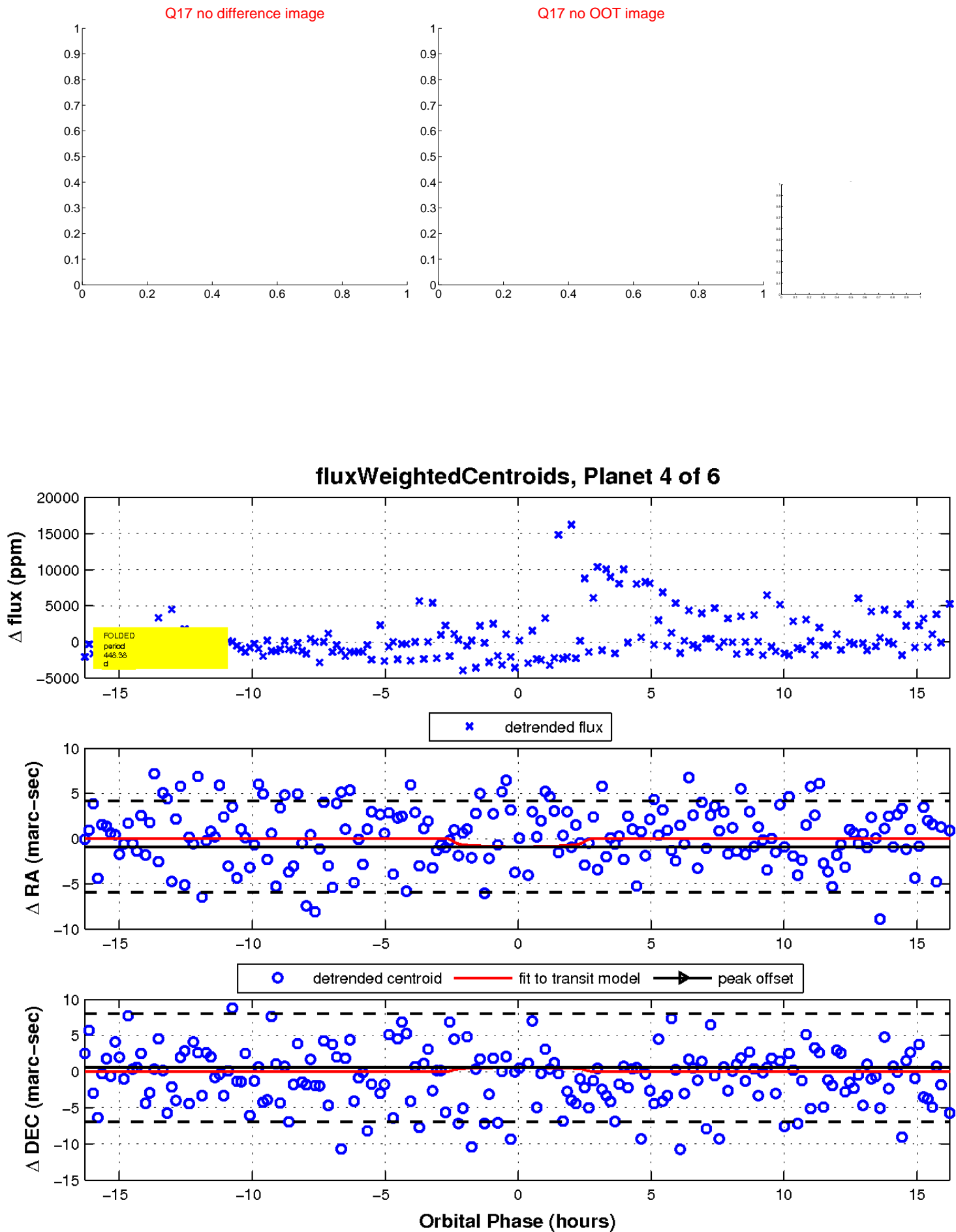
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



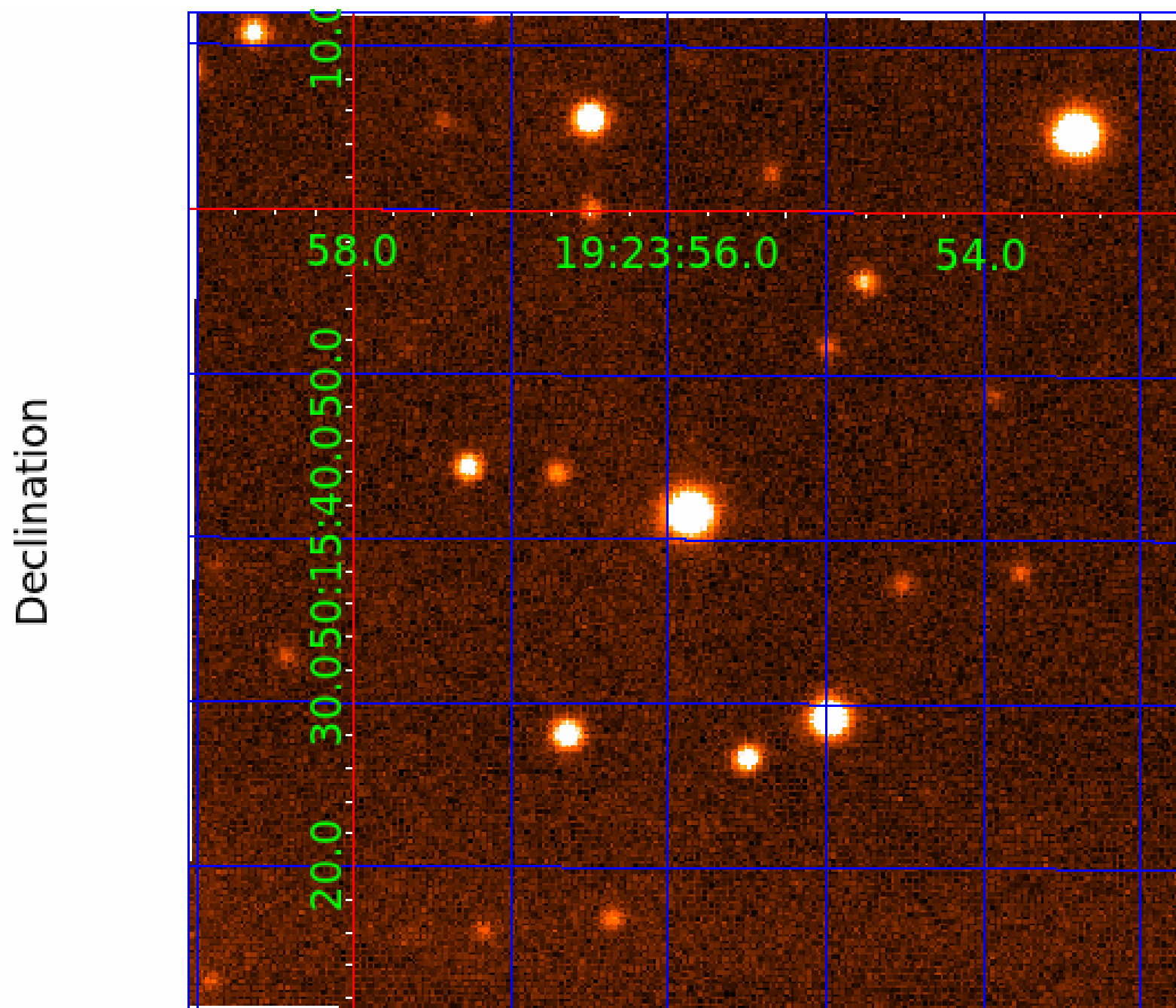
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image





# KIC 011912947

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

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011912947-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011912947-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
011912947-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

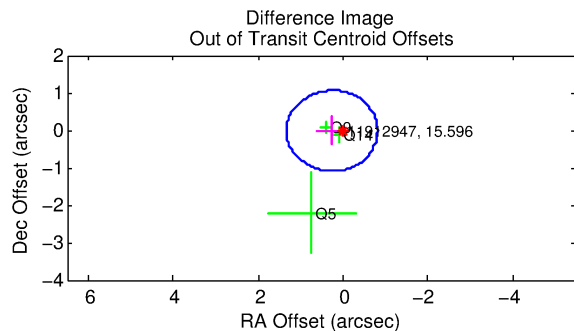
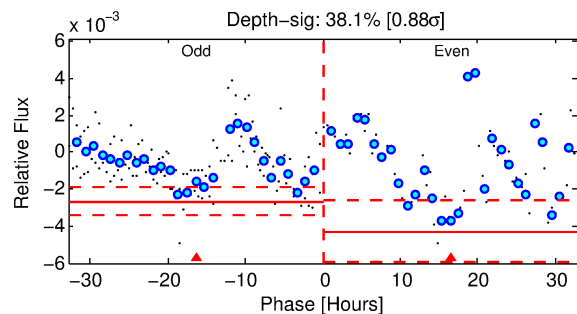
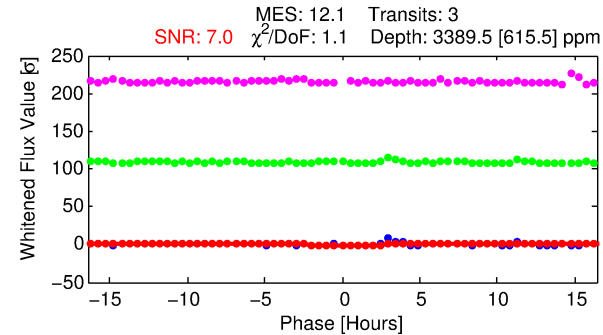
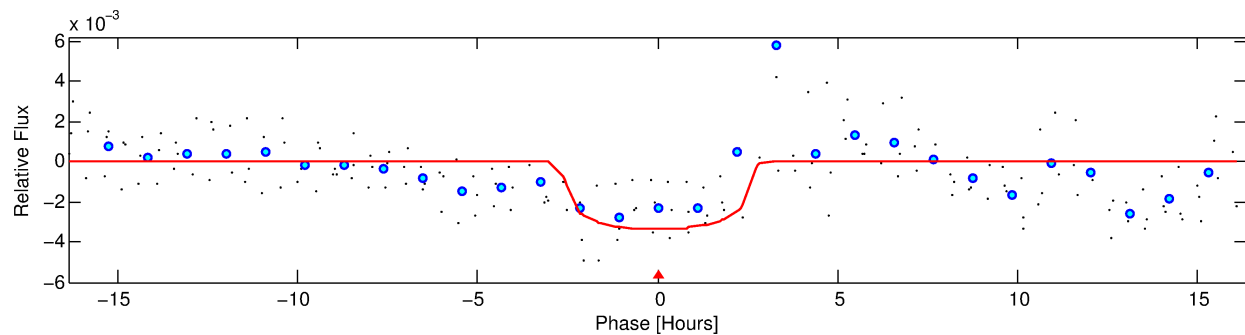
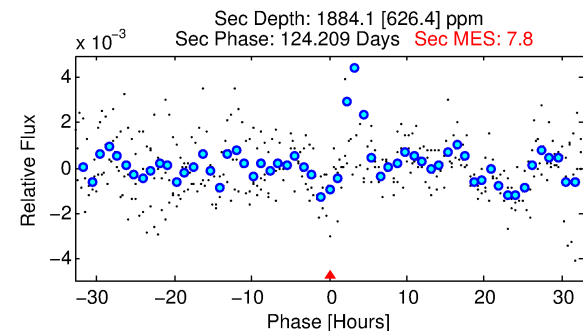
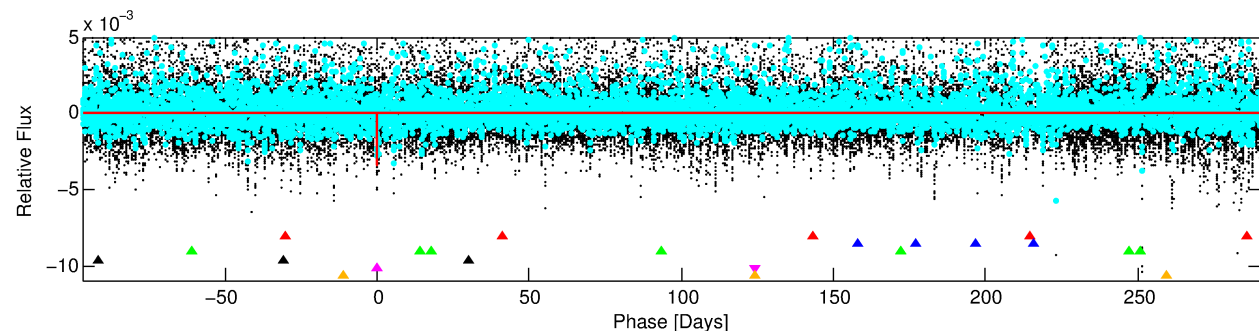
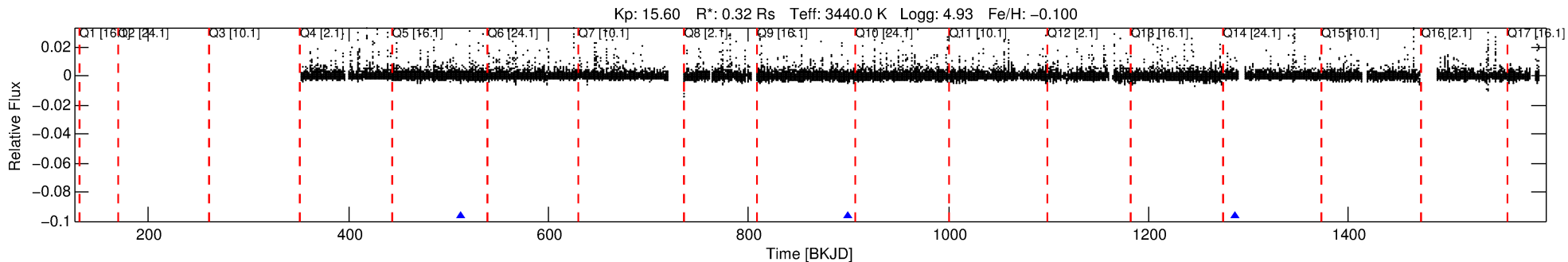
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011912947-05

No Significant Match Found

# DV One-Page Summary

KIC: 11912947 Candidate: 5 of 6 Period: 387.444 d



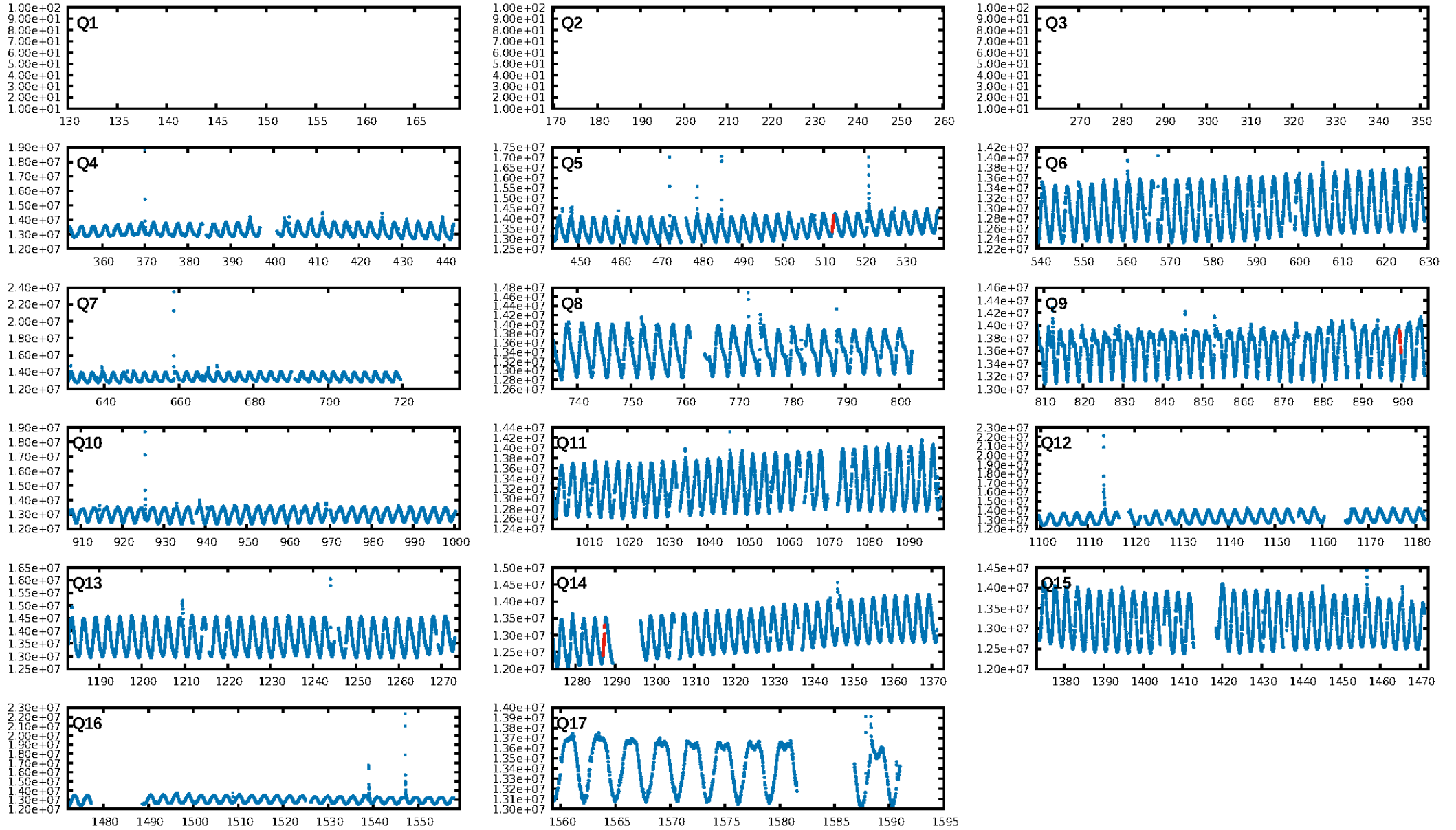
## DV Fit Results:

Period = 387.44400 [0.00528] d  
Epoch = 512.2965 [0.0082] BKJD  
Rp/R\* = 0.0527 [0.0294]  
a/R\* = 570.05 [1323.44]  
b = 0.01 [252.26]  
Seff = 0.03 [0.00]  
Teq = 102 [3] K  
Rp = 1.85 [1.05] Re  
a = 0.7115 [0.0546] AU  
Ag = 153909.66 [179798.21] [0.86σ]  
Teffp = 3122 [909] K [3.32σ]

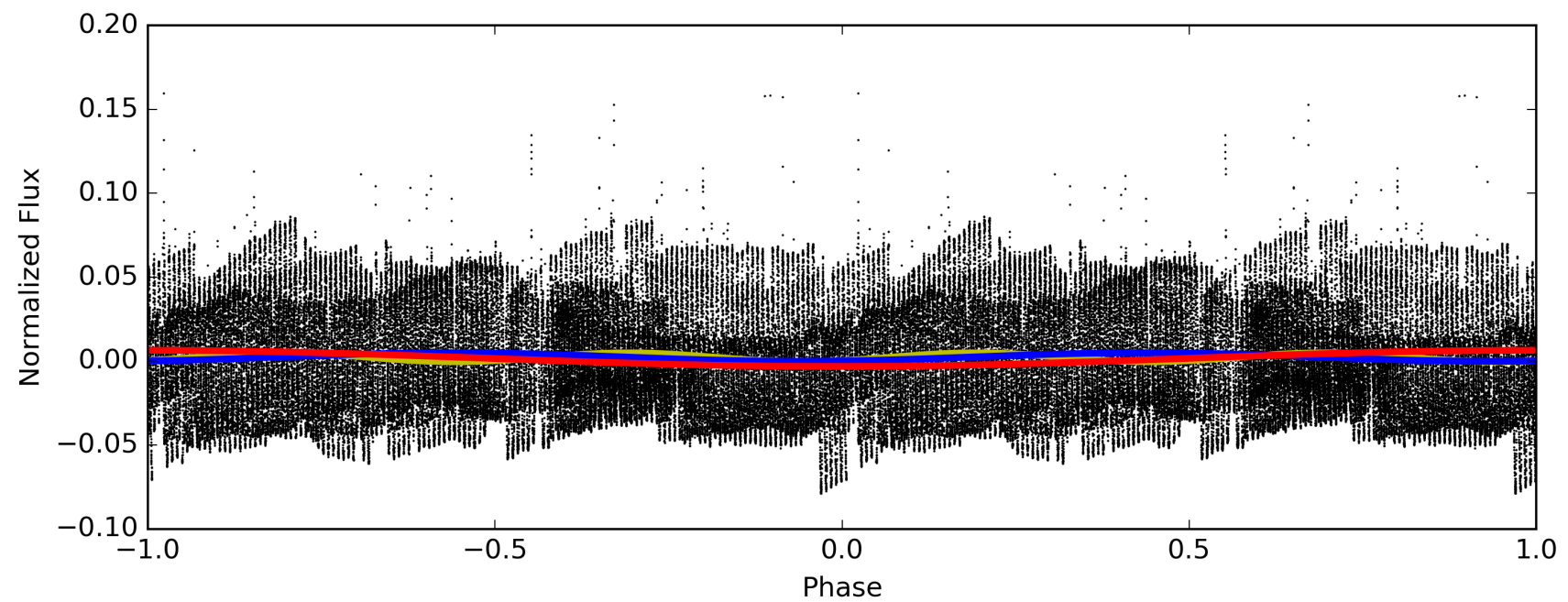
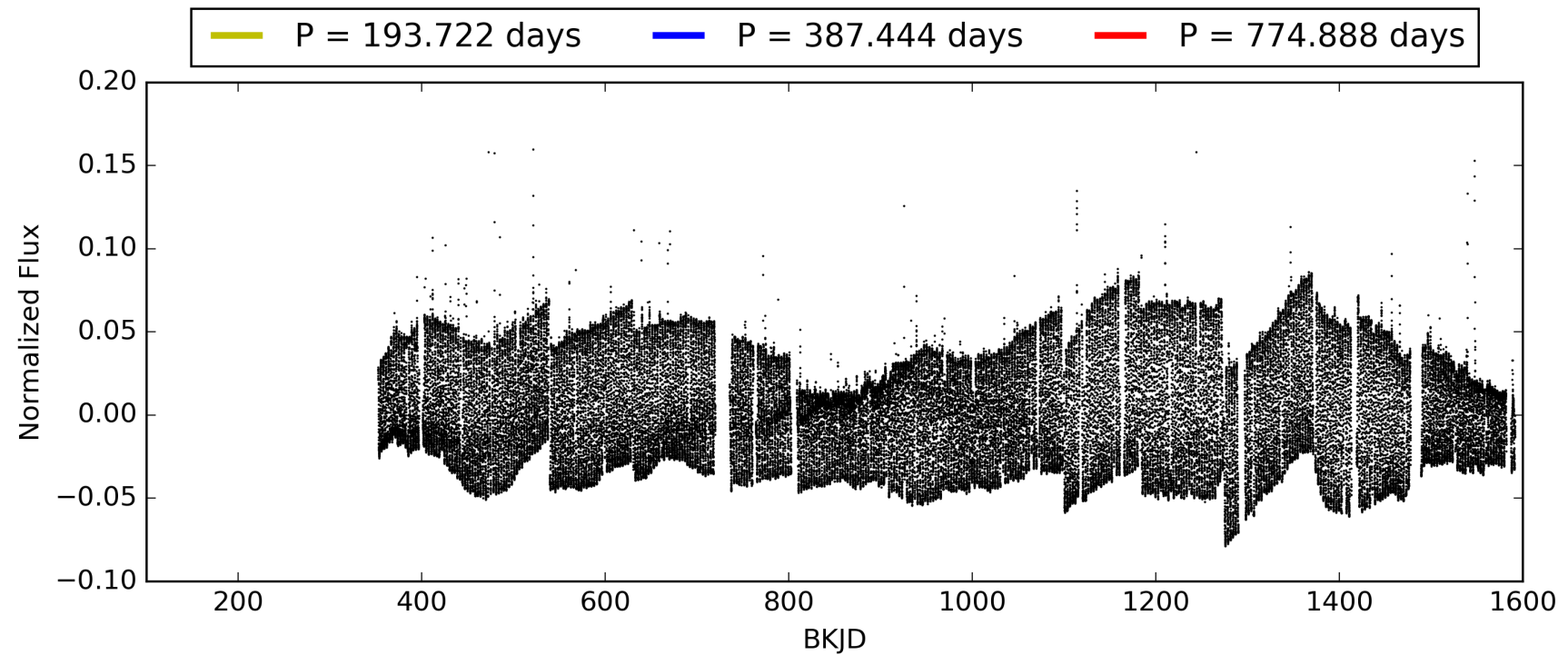
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [68.06σ]  
LongPeriod-sig: 100.0% [189.47σ]  
ModelChiSquare2-sig: 3.3%  
ModelChiSquareGof-sig: 90.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.44  
Centroid-sig: 46.8%  
Centroid-so: 0.305 arcsec [0.40σ]  
OotOffset-rm: 0.254 arcsec [0.71σ]  
OotOffset-st: 1/0/0/2 [3]  
KicOffset-rm: 0.302 arcsec [0.84σ]  
KicOffset-st: 1/0/0/2 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 011912947-05, PDC Light Curves

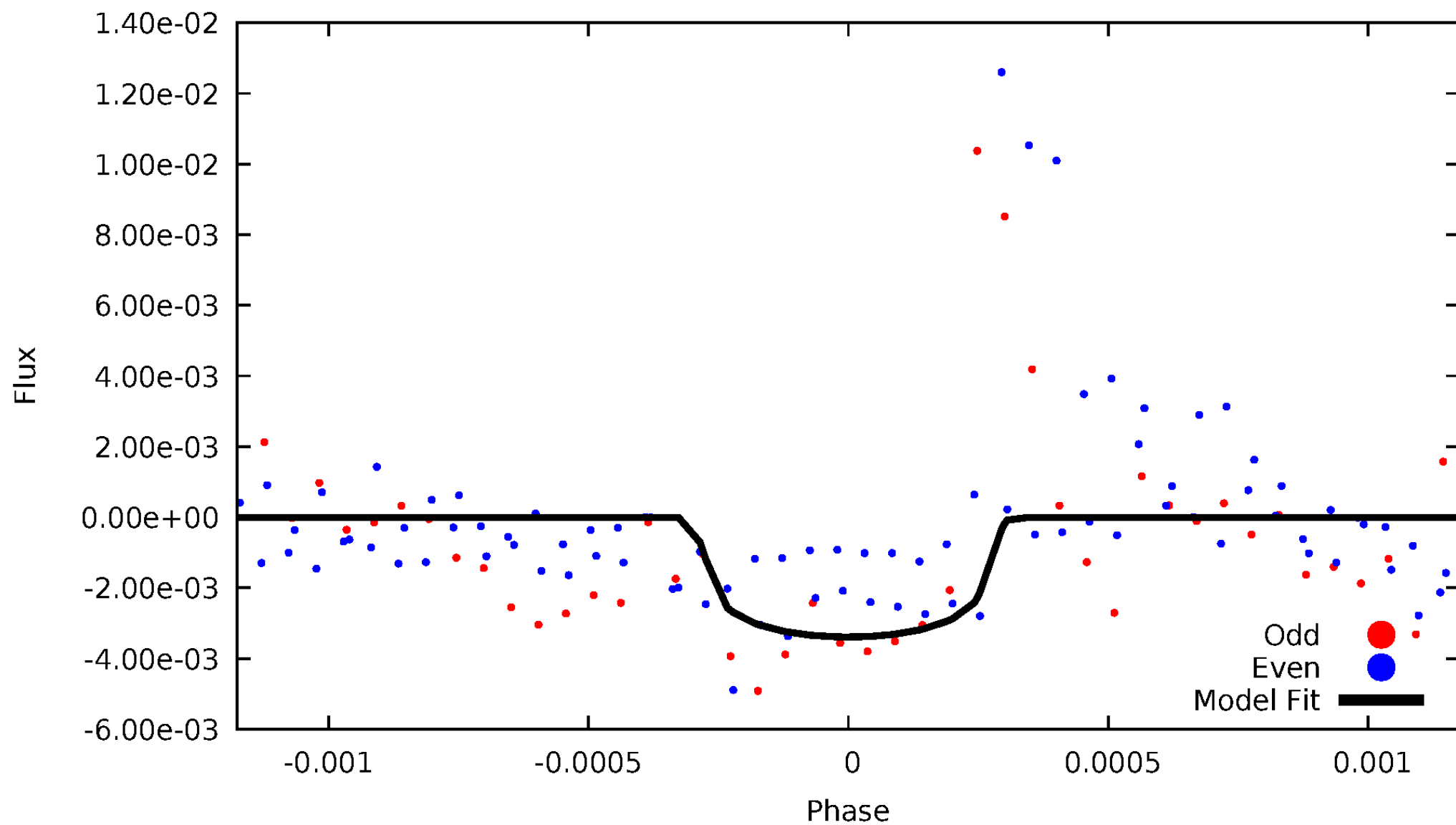


TCE 011912947-05



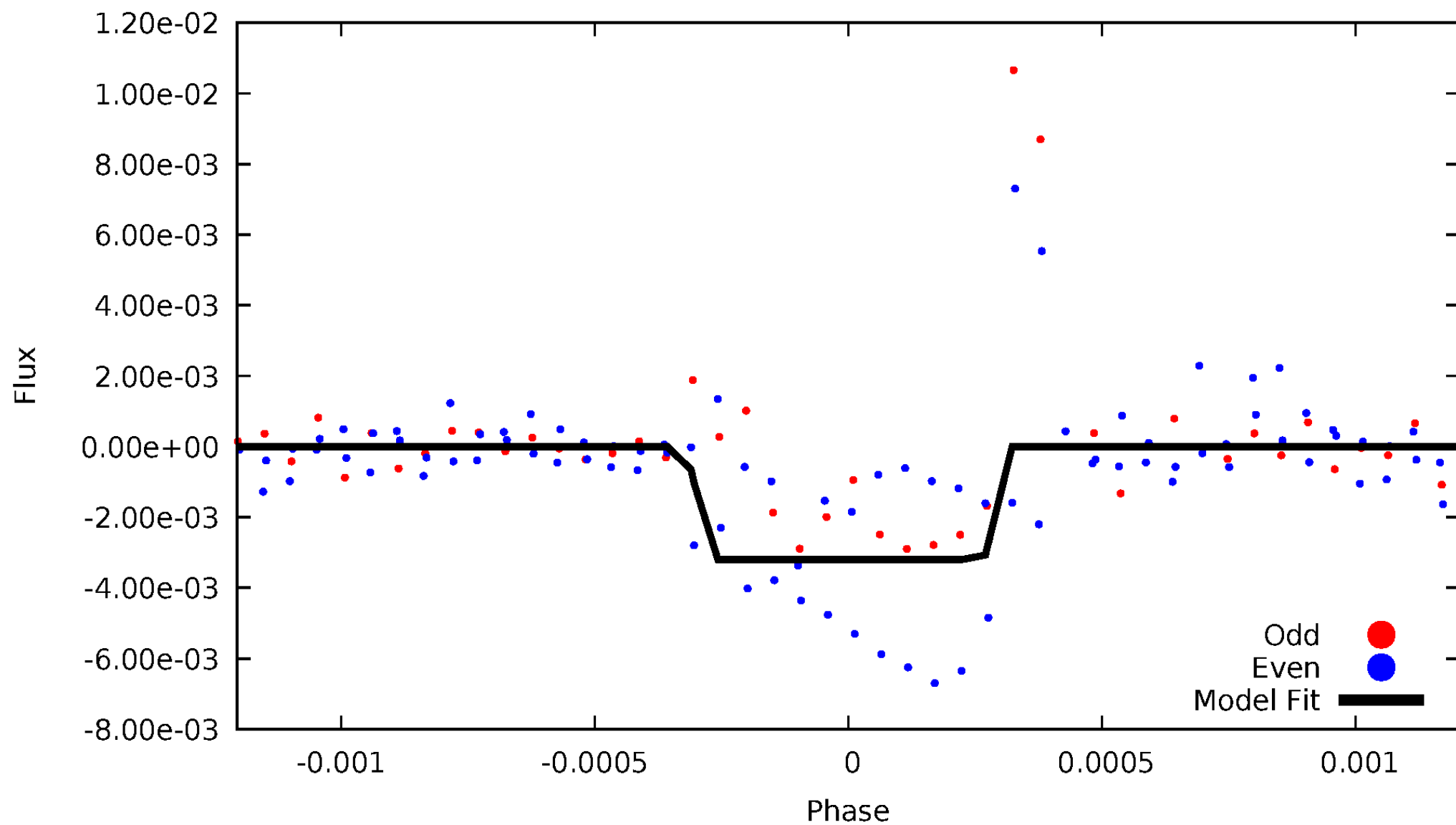
# DV Odd/Even

TCE 011912947-05



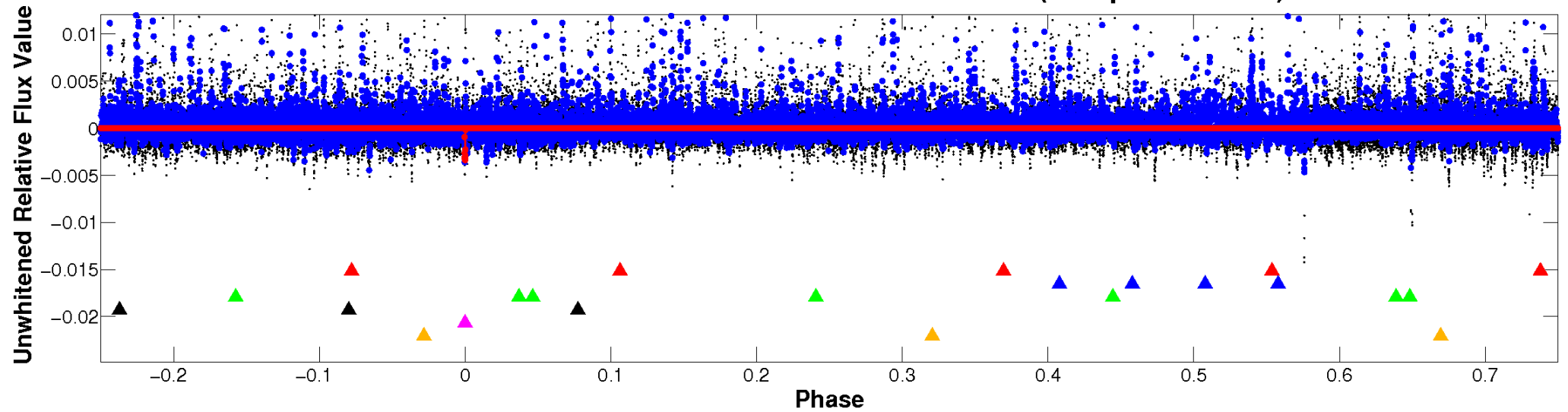
# ALT Odd/Even

TCE 011912947-05

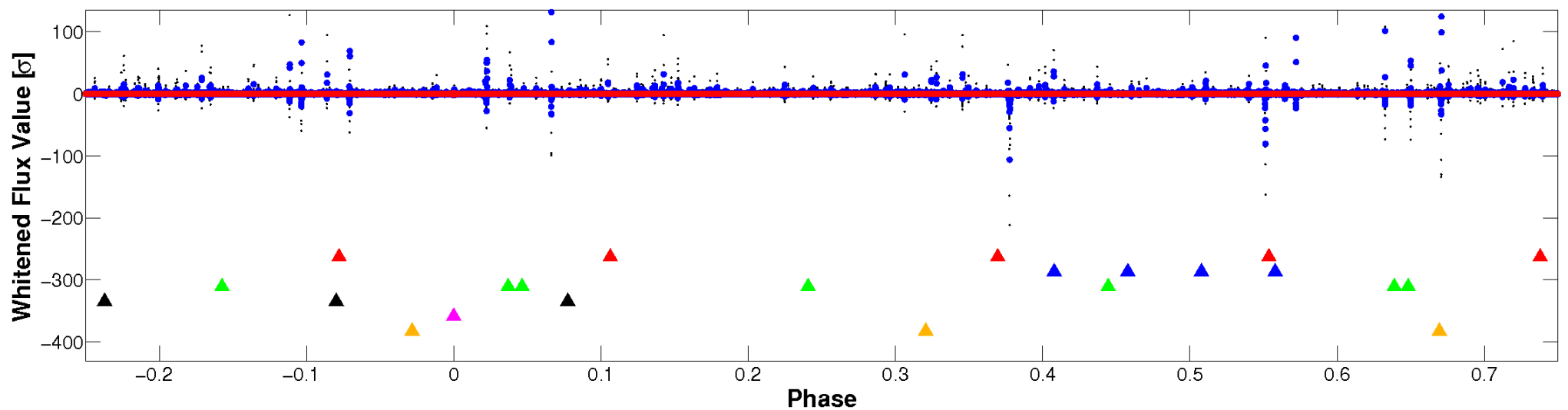


# Non-Whitened Vs. Whitened Light Curve

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

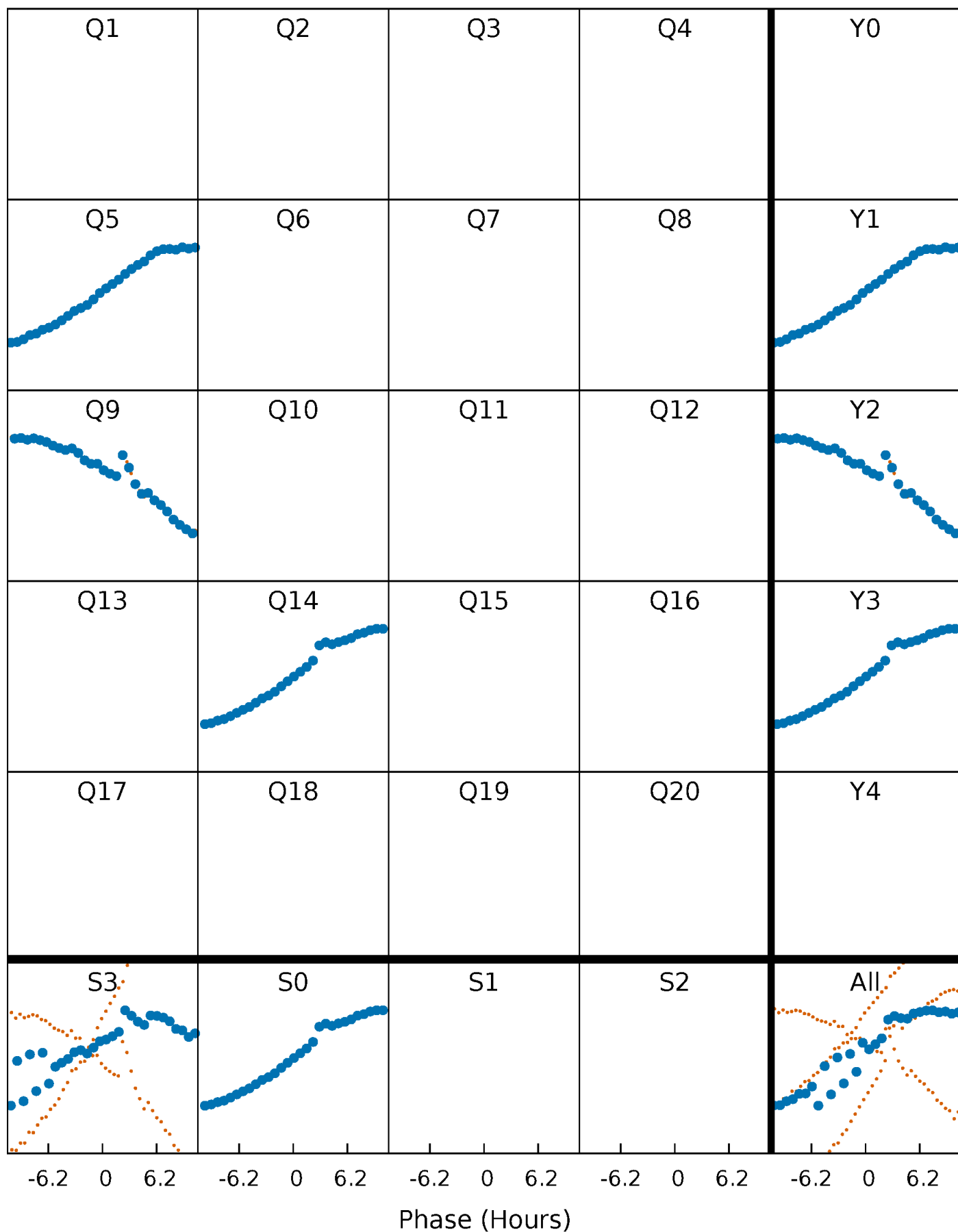


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

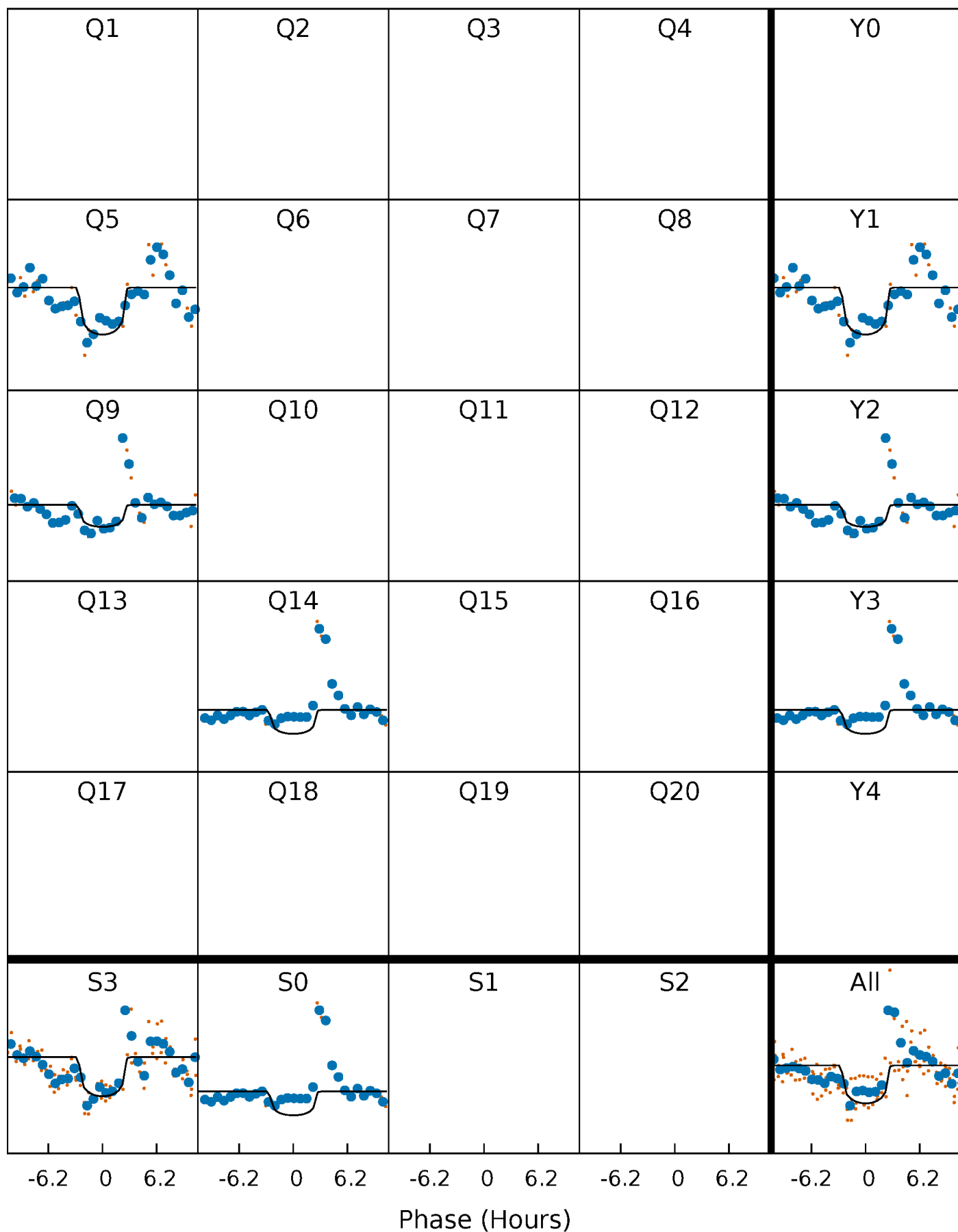
TCE 011912947-05     $P=387.444002$  Days     $T_0=512.296509$  (BKJD)





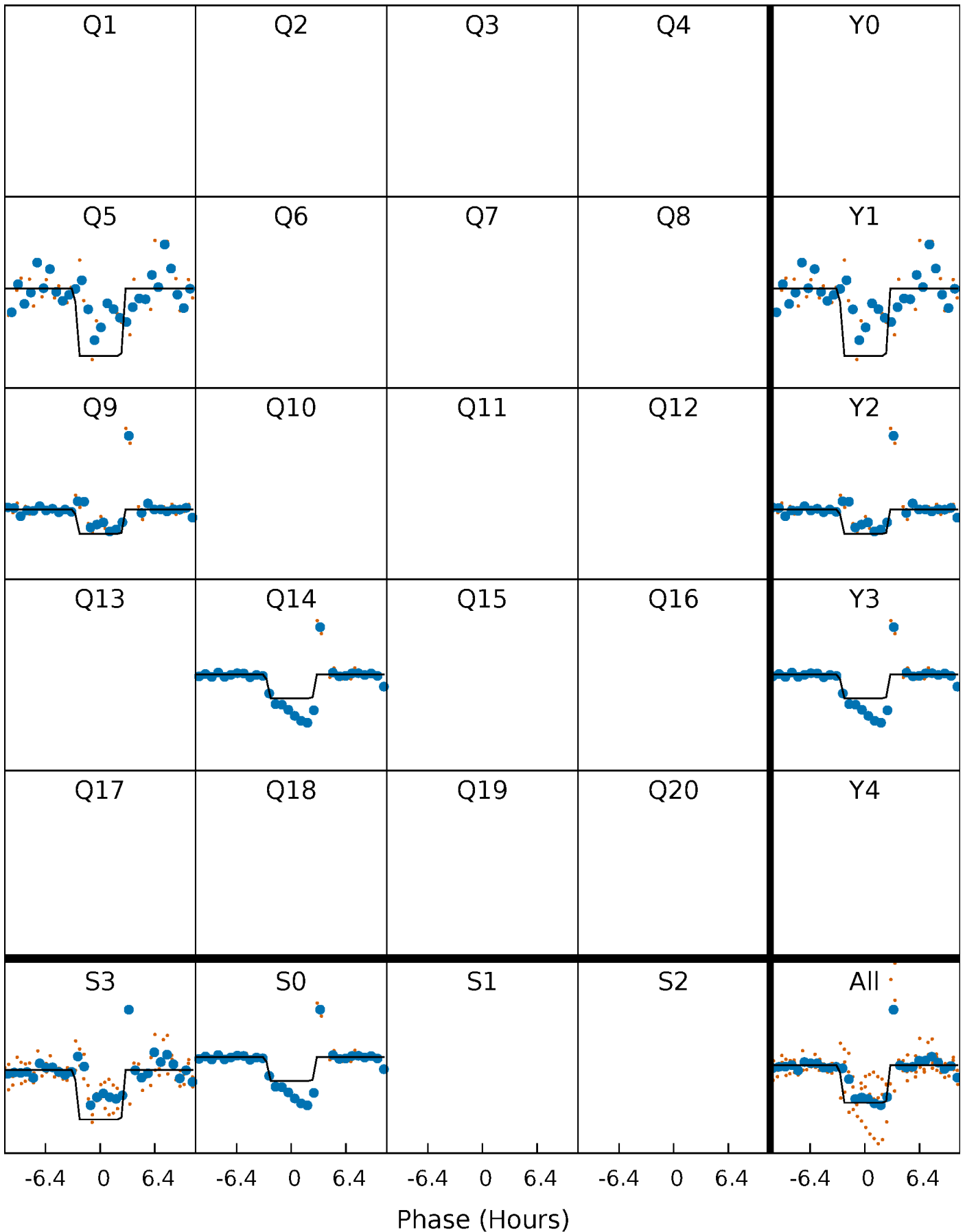
# DV Quarter-Phased Transit Curves

TCE 011912947-05     $P=387.444002$  Days     $T_0=512.296509$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

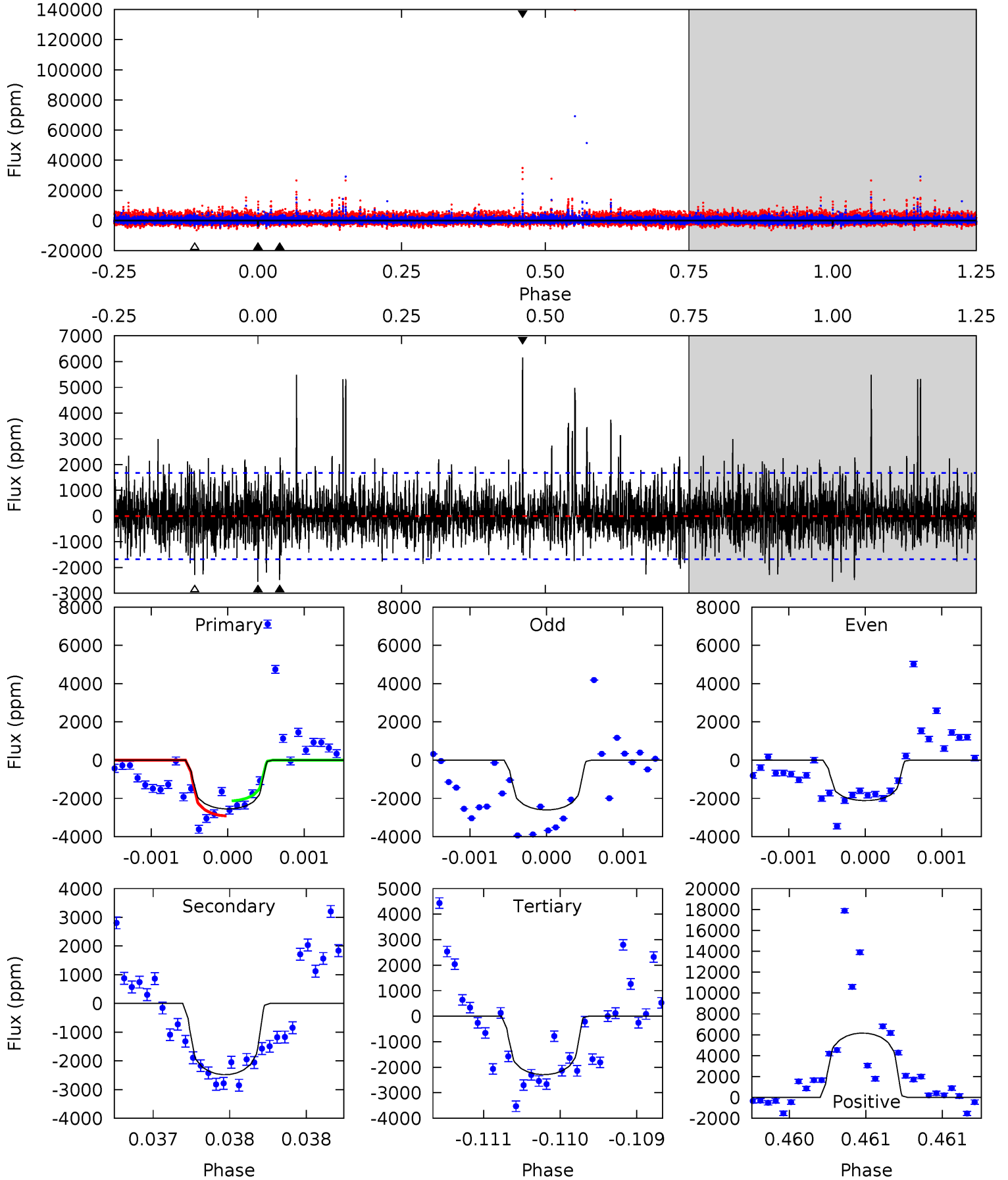
TCE 011912947-05     $P=387.461165$  Days     $T_0=512.249078$  (BKJD)



# DV Model-Shift Uniqueness Test

011912947-05, P = 387.444002 Days, E = 124.852507 Days

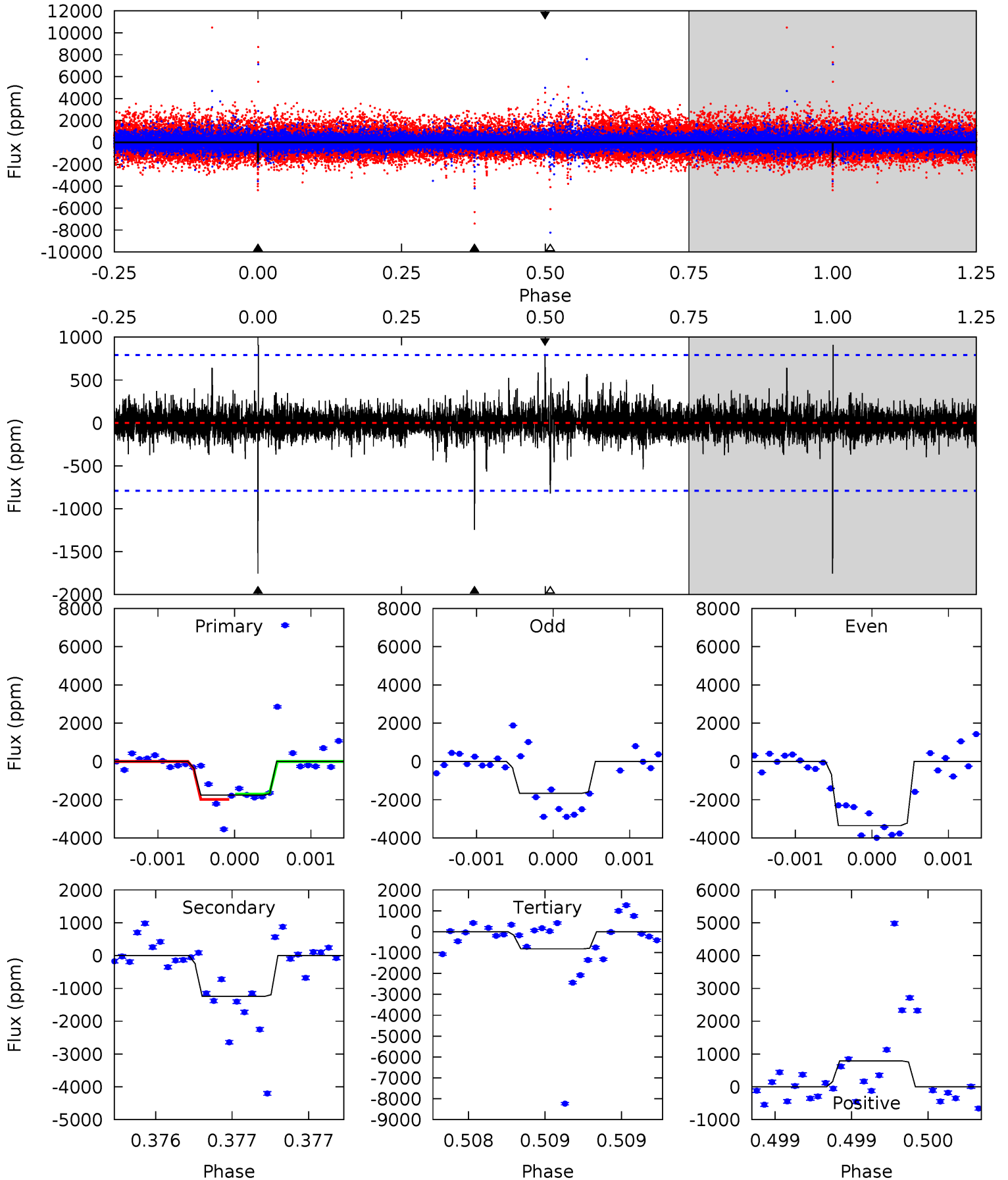
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.42	8.20	7.56	20.4	5.54	3.44	2.33	0.86	-11.9	0.63	-12.2	0.33	0.86	0.71	1.32



# Alt Model-Shift Uniqueness Test

011912947-05, P = 387.461165 Days, E = 124.787913 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
12.3	8.72	5.77	5.52	5.55	3.44	0.75	6.52	6.76	2.95	3.20	4.82	1.57	0.34	0.97



### Stellar Parameters For KIC 011912947

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3440^{+44}_{-41}$	$4.930^{+0.045}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.321^{+0.033}_{-0.033}$	$0.319^{+0.041}_{-0.037}$	$13.640^{+3.256}_{-1.964}$
	+1%/-1%	+1%/-1%	+100%/-100%	+10%/-10%	+13%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 011912947-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-2479 \pm 303$	$1.94^{+1.07}_{-1.00}$	$142^{+3}_{-3}$	$3344^{+953}_{-427}$	$185049^{+675433}_{-110646}$
Alt.	$-1244 \pm 143$	$1.97^{+1.08}_{-0.92}$	$142^{+3}_{-3}$	$2991^{+651}_{-323}$	$90366^{+240910}_{-51855}$

$T_{\text{max}}$  = 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

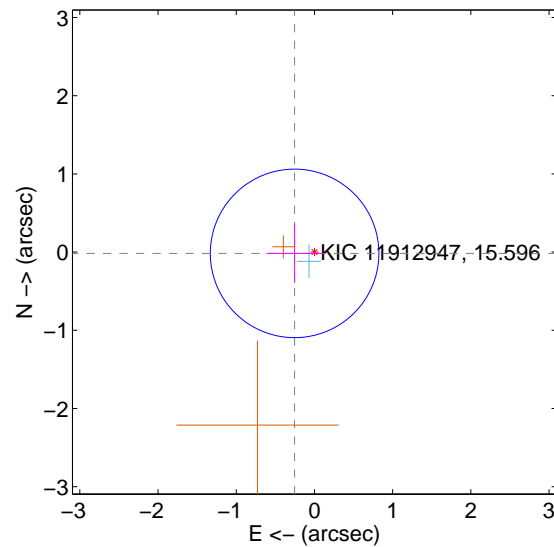
Supplemental centroid analysis for 011912947-05. Kepler magnitude: 15.60. Transit SNR 6.99

There are 1 quarters with good PRF difference image offsets

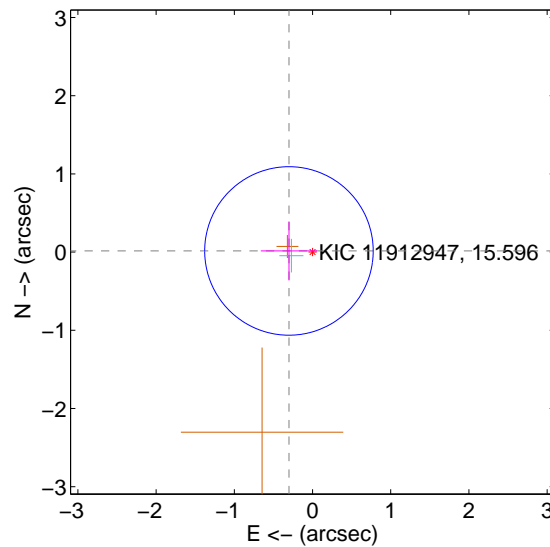
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.254 \pm 0.359$	0.71	$0.254 \pm 0.359$	$-0.017 \pm 0.377$
PRF-fit source offset from KIC position	$0.302 \pm 0.359$	0.84	$0.302 \pm 0.359$	$0.015 \pm 0.377$
photometric centroid source offset	$0.31 \pm 0.76$	0.40	$-0.01 \pm 0.67$	$0.30 \pm 0.76$

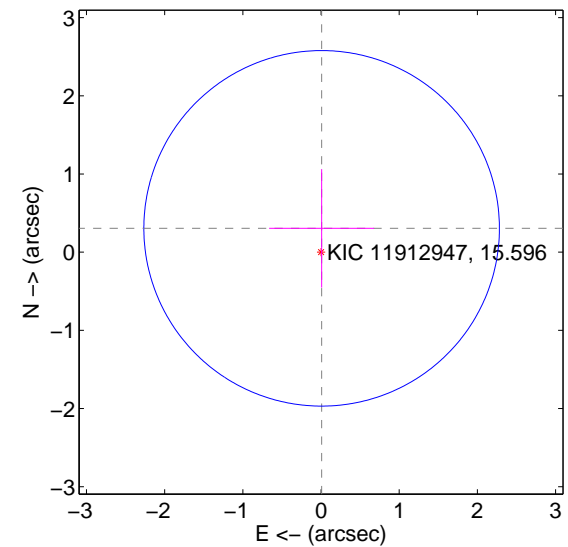
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

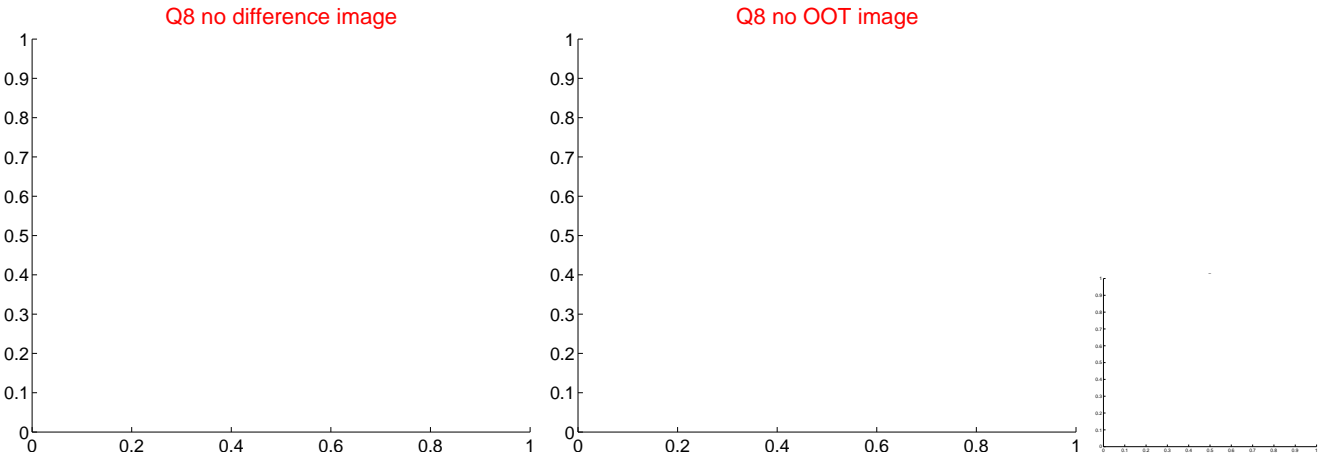
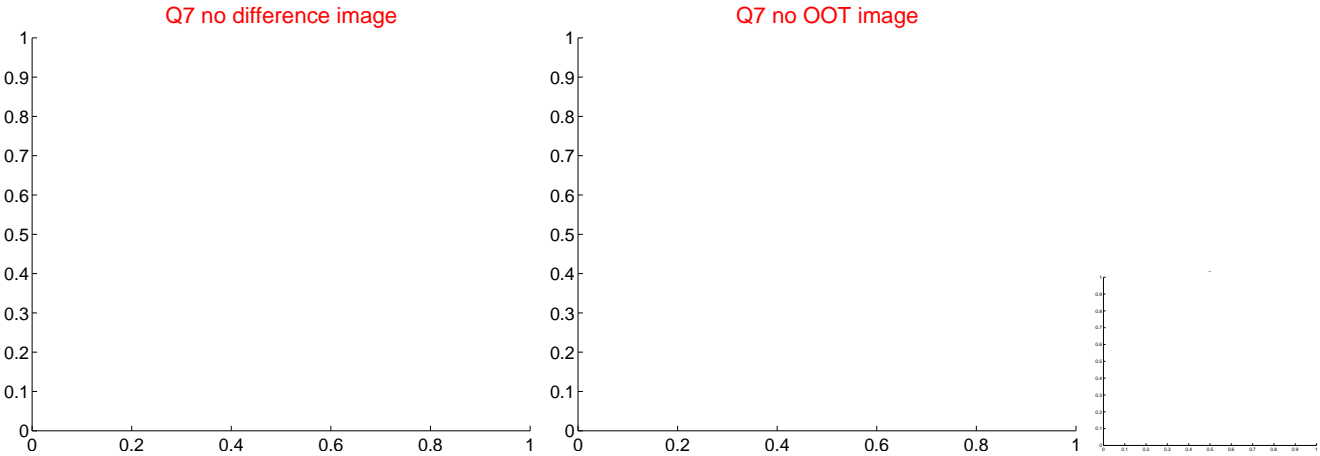
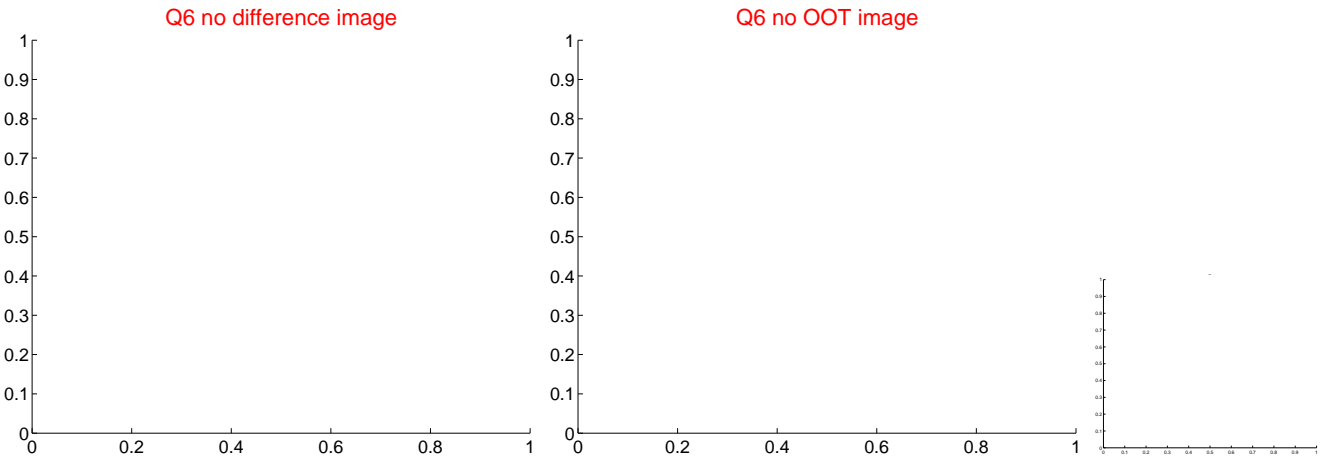
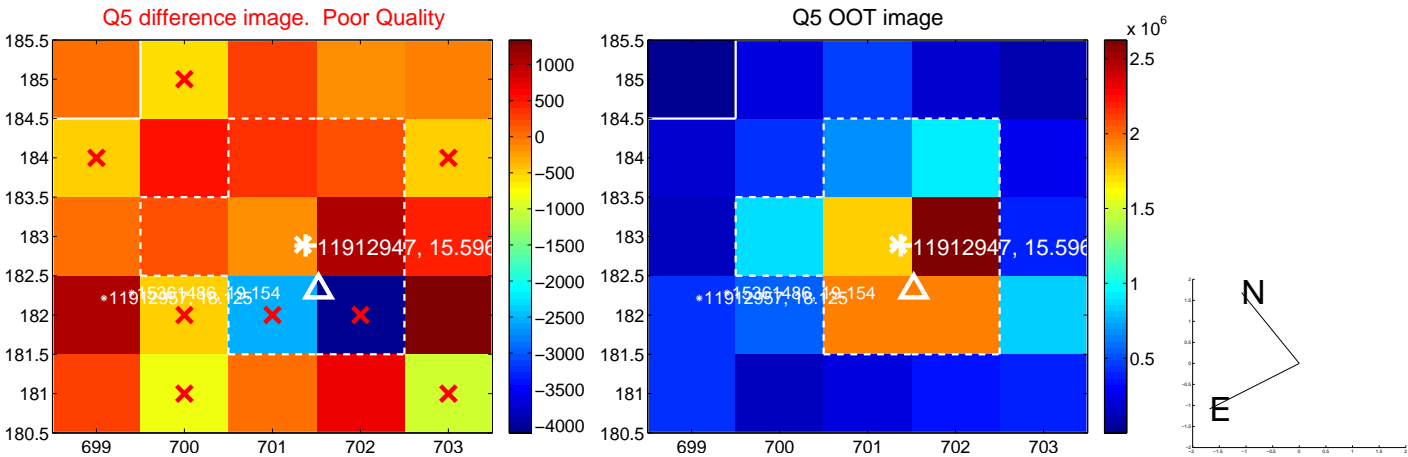


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

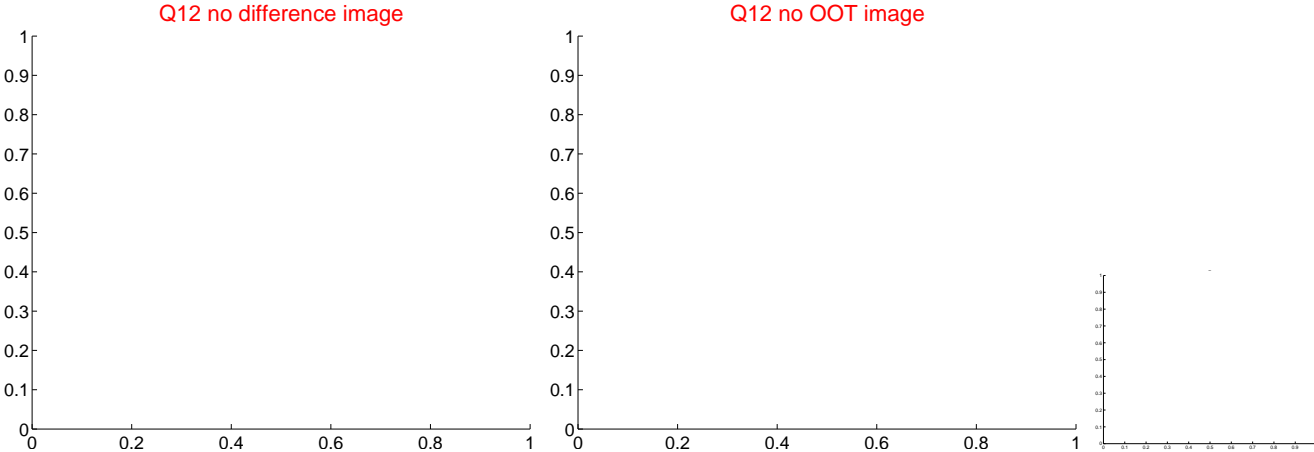
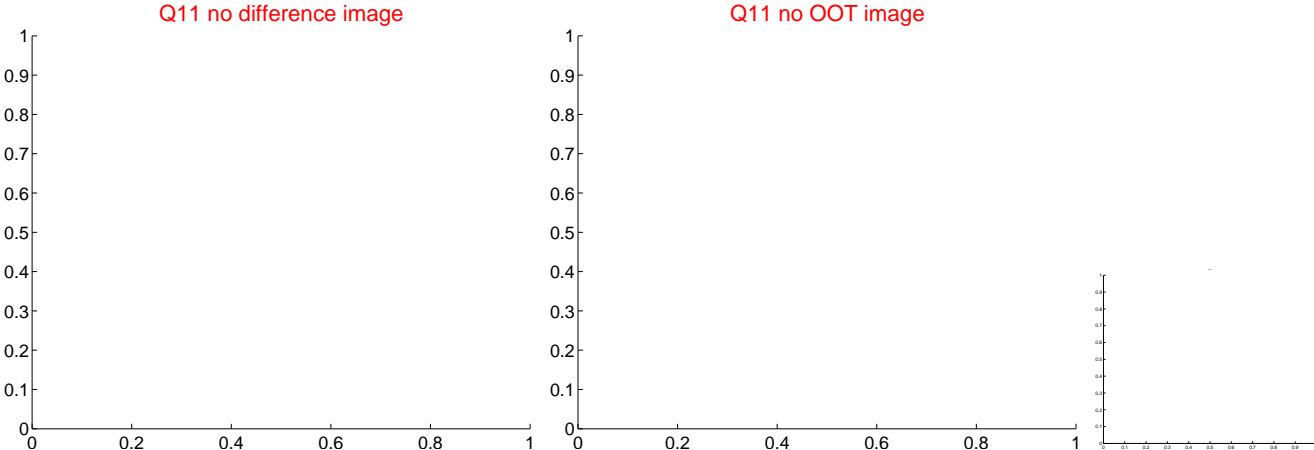
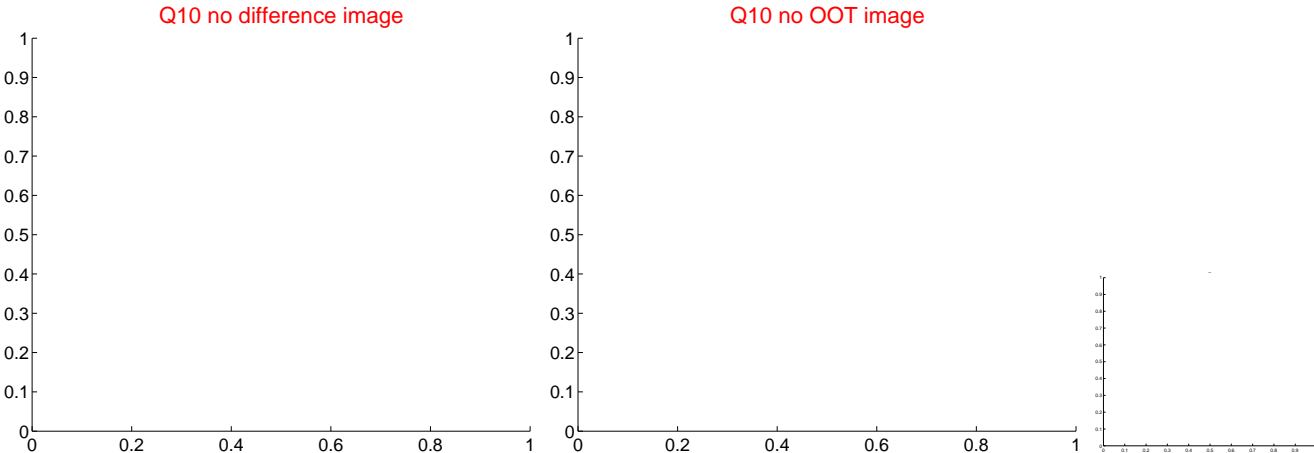
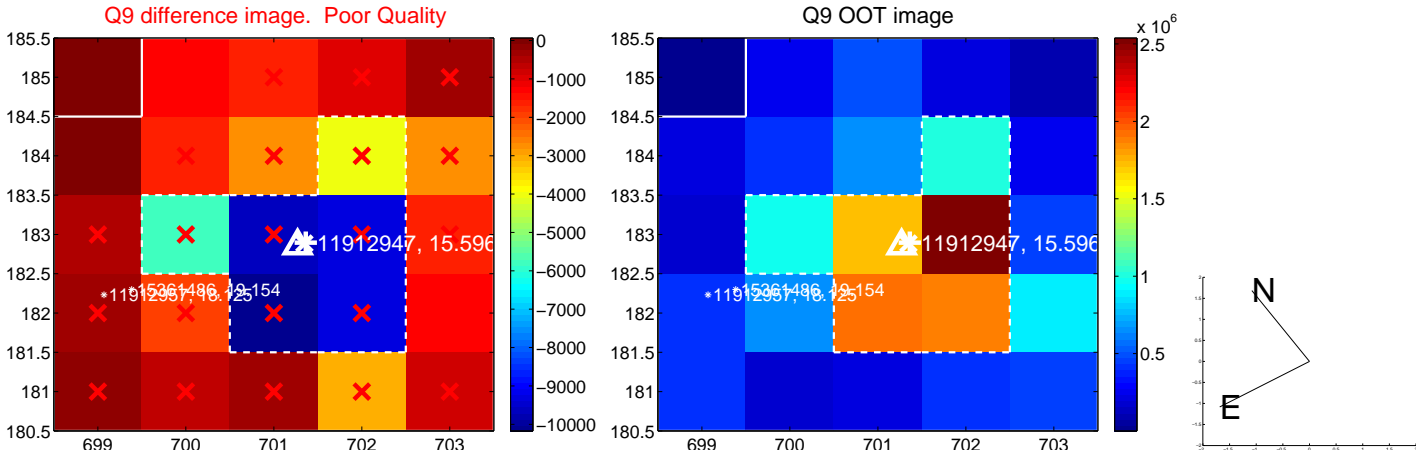


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

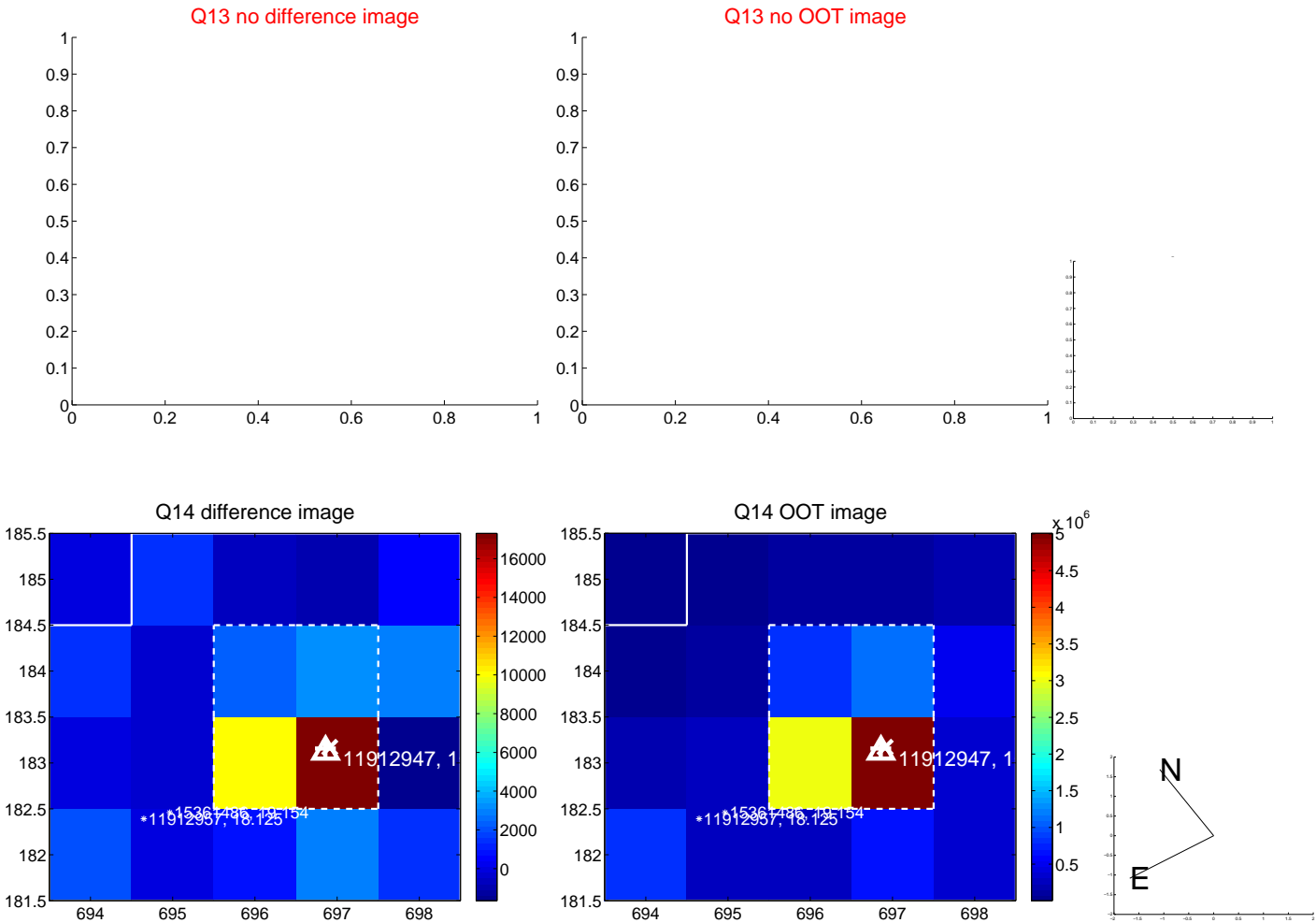




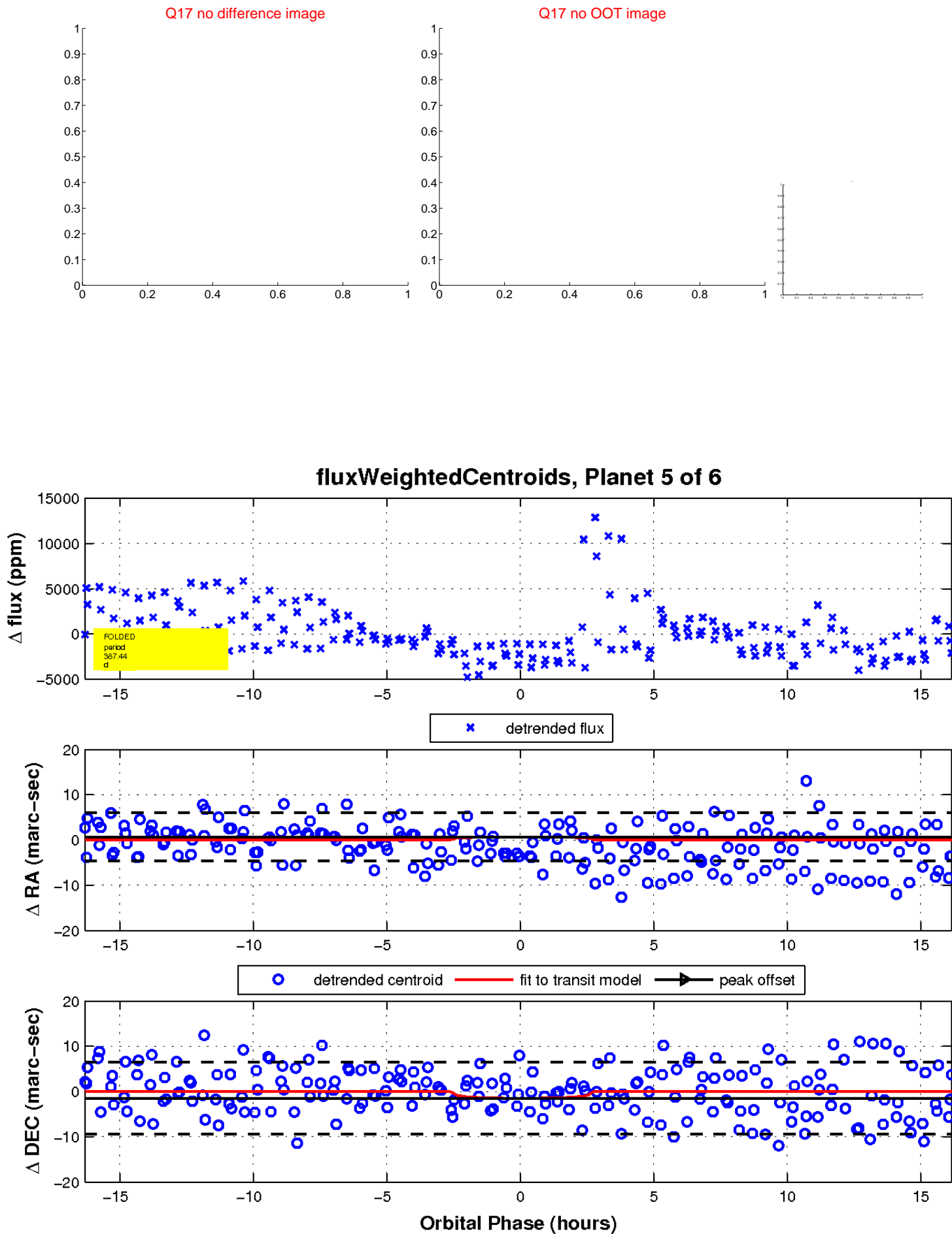
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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

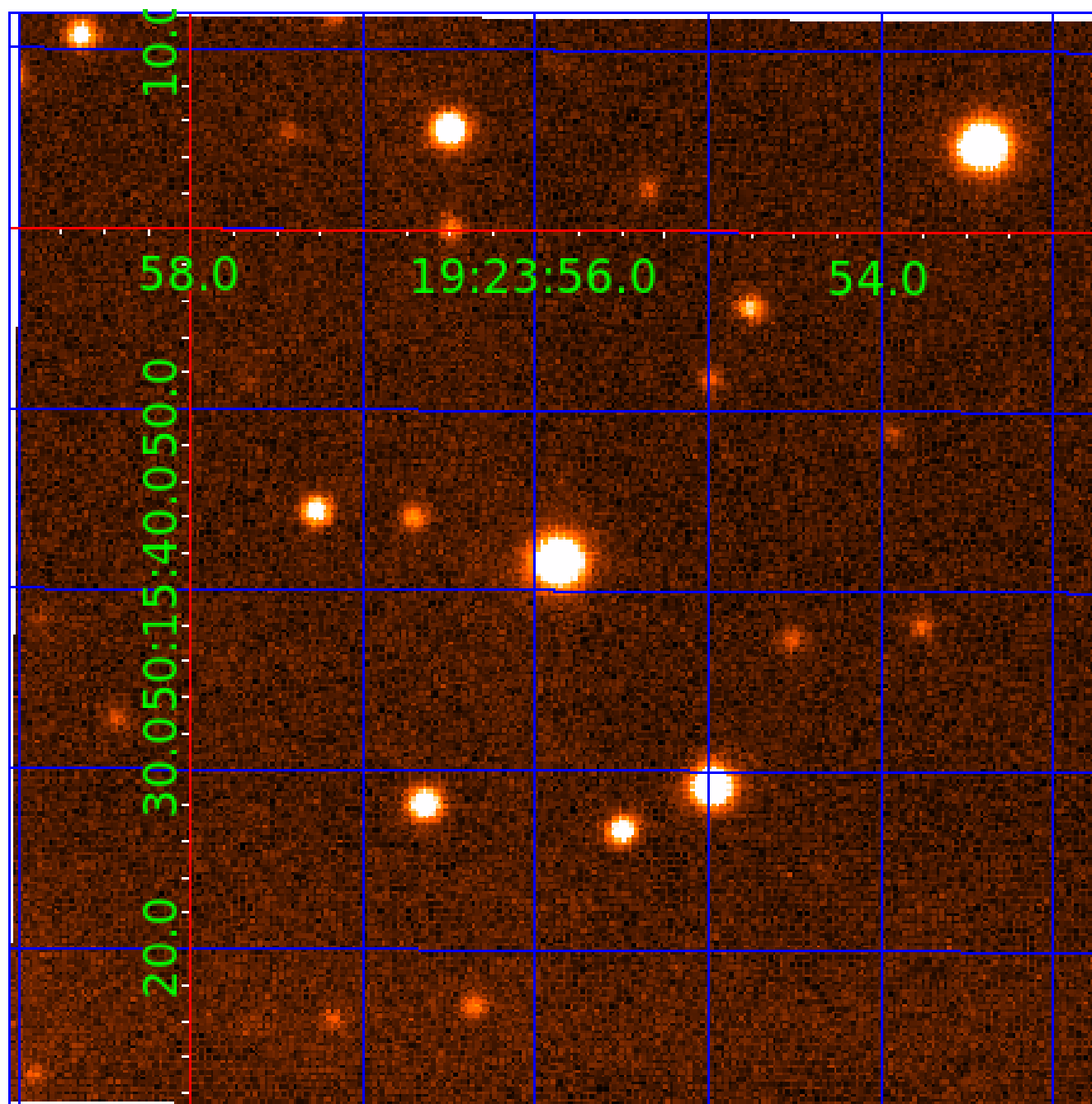


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 011912947

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011912947-01	OBS	No	316.070589	166.060278	3655.7	11.148	13.1	7.2	0.32	3440	1.92	0.03
011912947-02	OBS	No	368.066672	341.007093	3637.4	4.100	14.1	8.3	0.32	3440	1.91	0.03
011912947-03	OBS	No	233.197427	139.174185	909.3	3.714	13.5	2.2	0.32	3440	1.00	0.05
011912947-04	OBS	No	448.383174	420.427132	2850.6	5.450	10.7	6.3	0.32	3440	1.78	0.02
011912947-05	OBS	No	387.444002	512.296509	3389.5	5.466	12.1	7.0	0.32	3440	1.85	0.03
011912947-06	OBS	No	522.608731	501.351619	2255.5	3.500	11.8	-1.0	0.32	3440	1.51	0.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011912947-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011912947-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
011912947-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011912947-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—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.

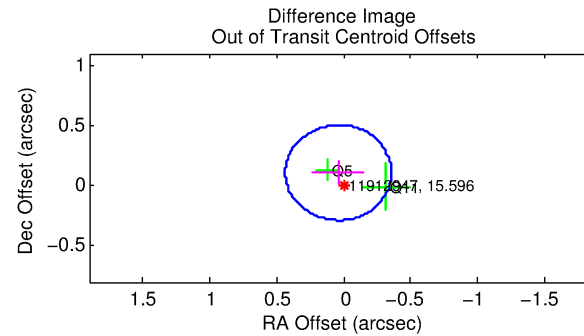
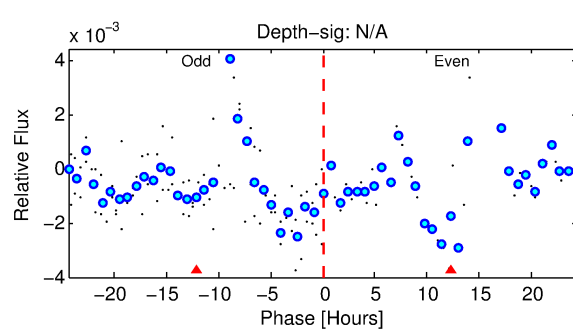
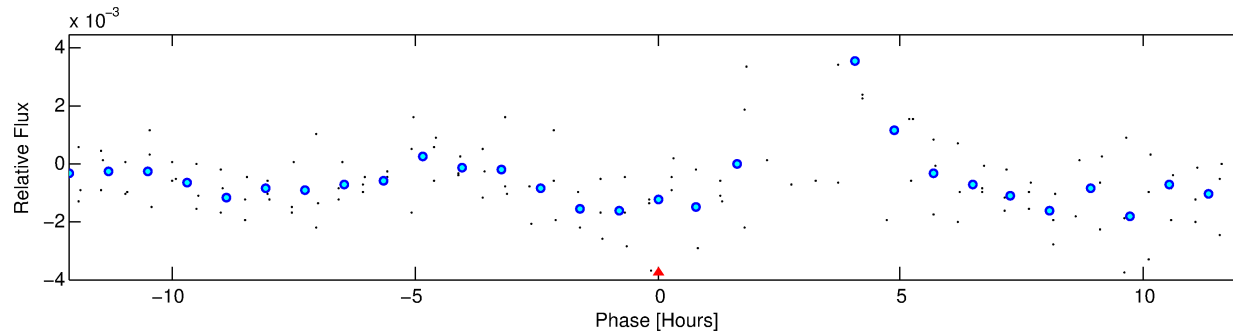
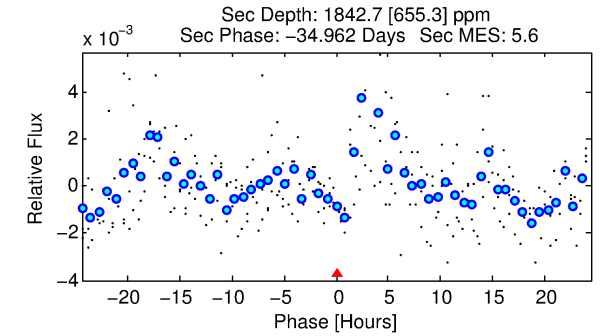
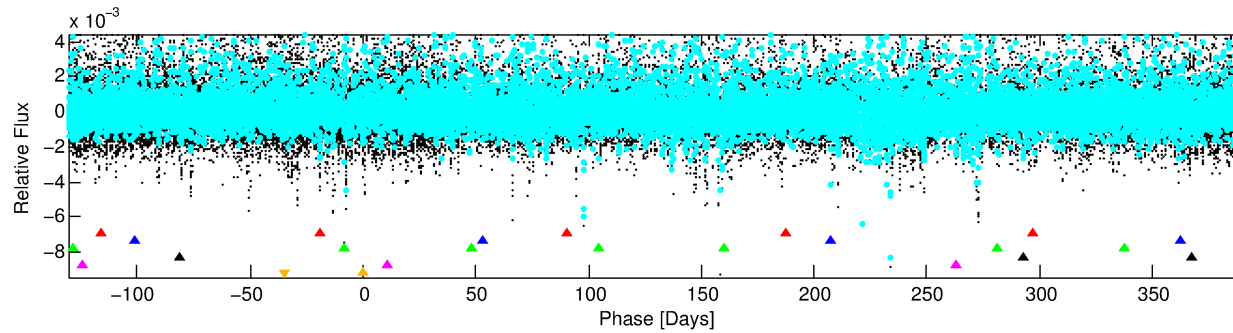
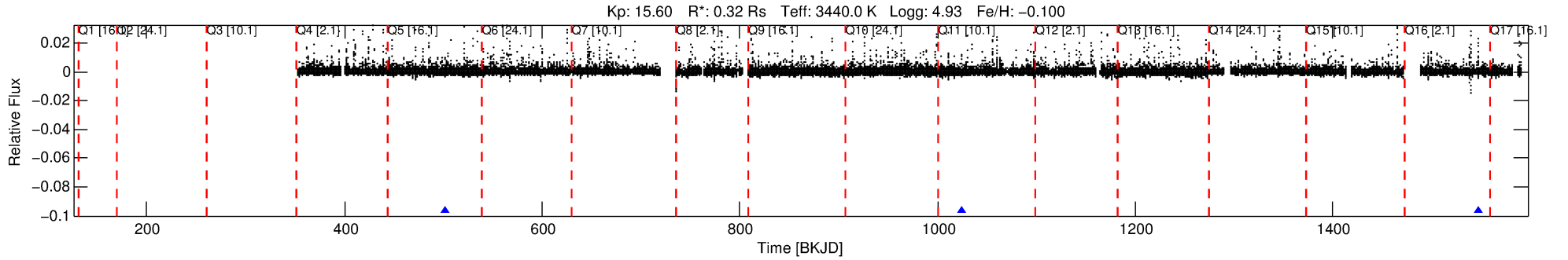
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011912947-06

No Significant Match Found

# DV One-Page Summary

KIC: 11912947 Candidate: 6 of 6 Period: 522.609 d



## TPS TCE Results:

Period = 522.60873 d  
Epoch = 501.3516 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

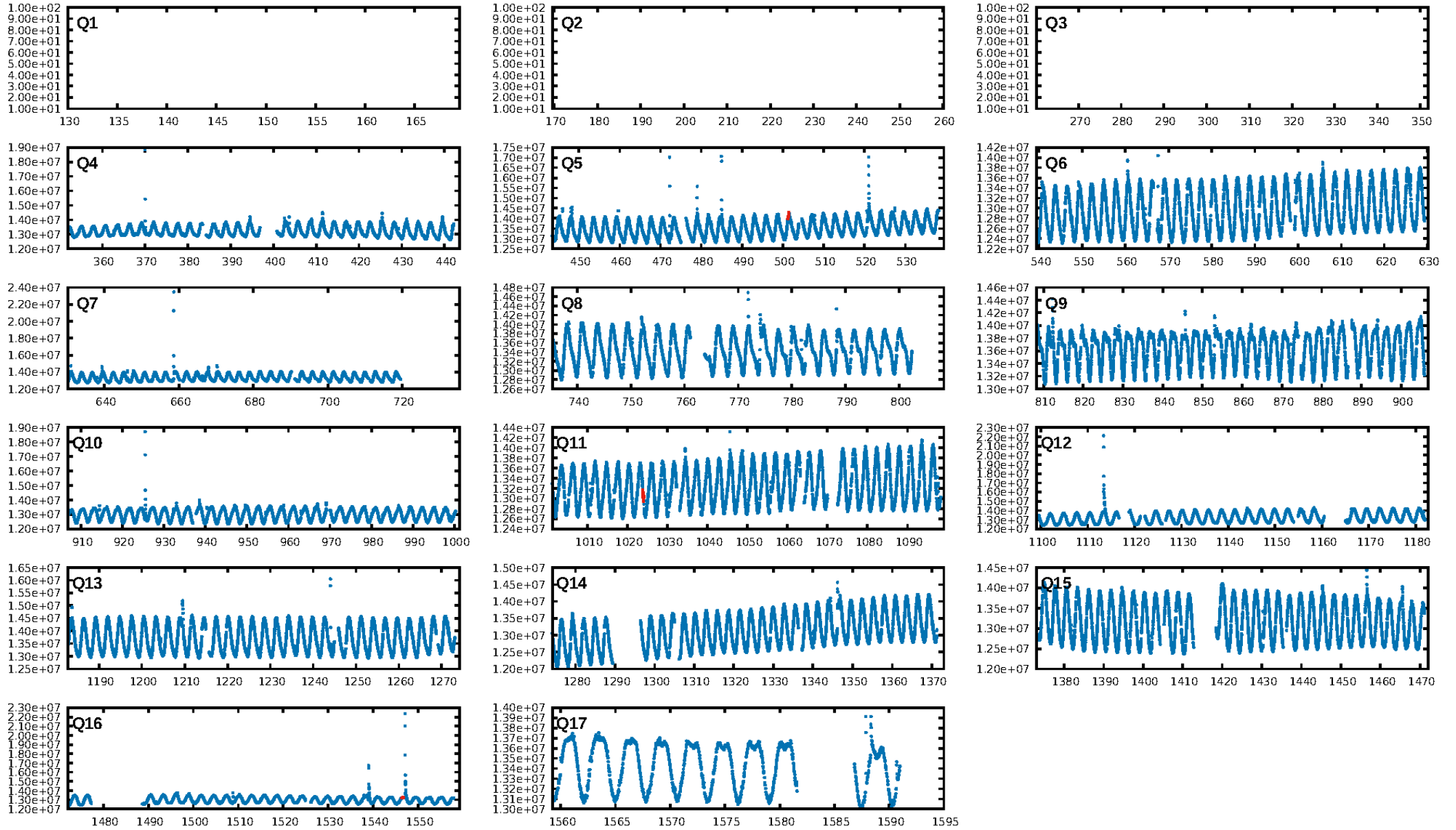
ShortPeriod-sig: 100.0% [275.02 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.3829

Centroid-sig: 26.5%  
Centroid-so: 1.260 arcsec [1.49 $\sigma$ ]  
OotOffset-rm: 0.116 arcsec [0.88 $\sigma$ ]  
KicOffset-rm: 0.030 arcsec [0.25 $\sigma$ ]  
OotOffset-st: 0/1/0/1 [2]  
KicOffset-st: 0/1/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

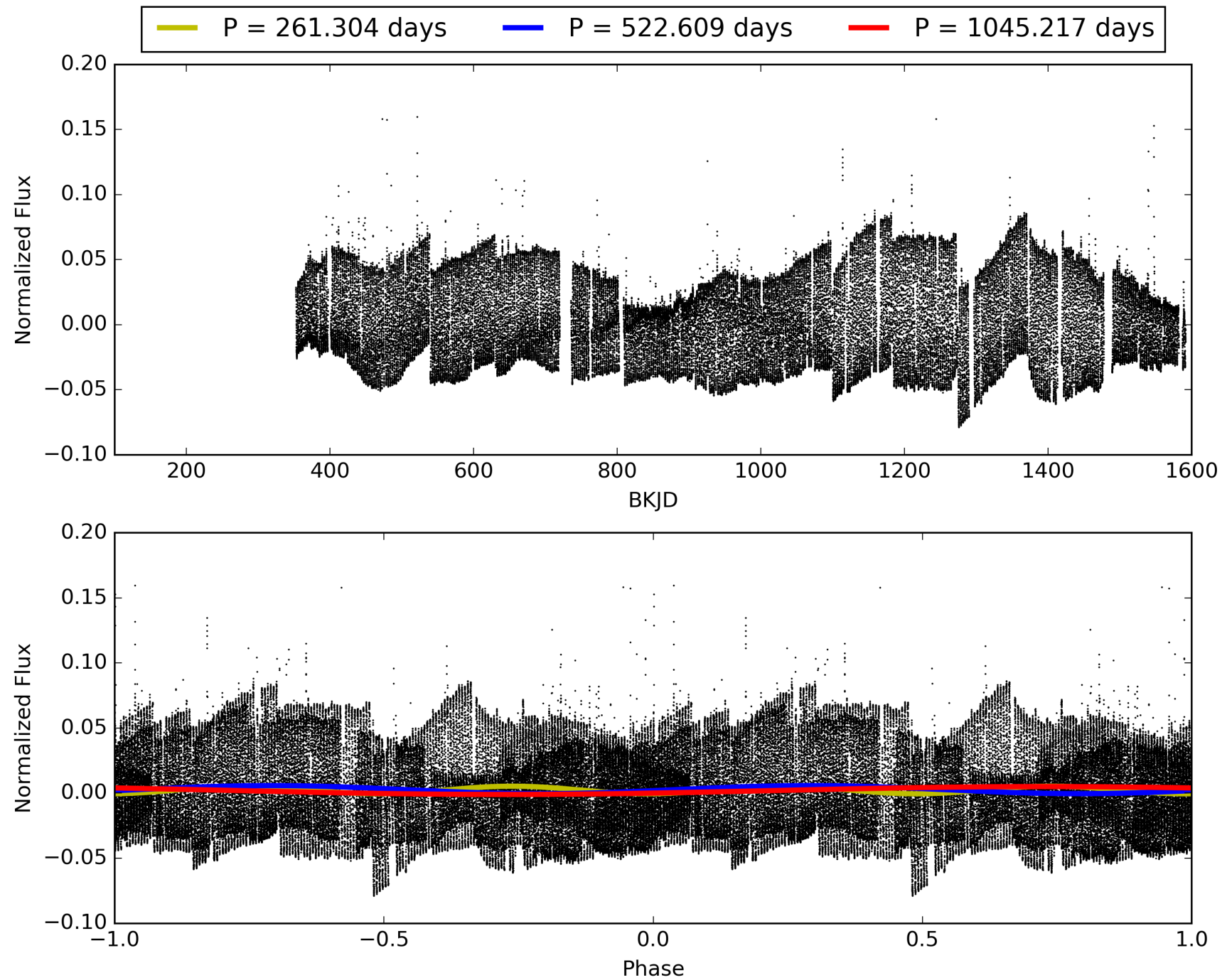
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:43:03 Z

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

# TCE 011912947-06, PDC Light Curves



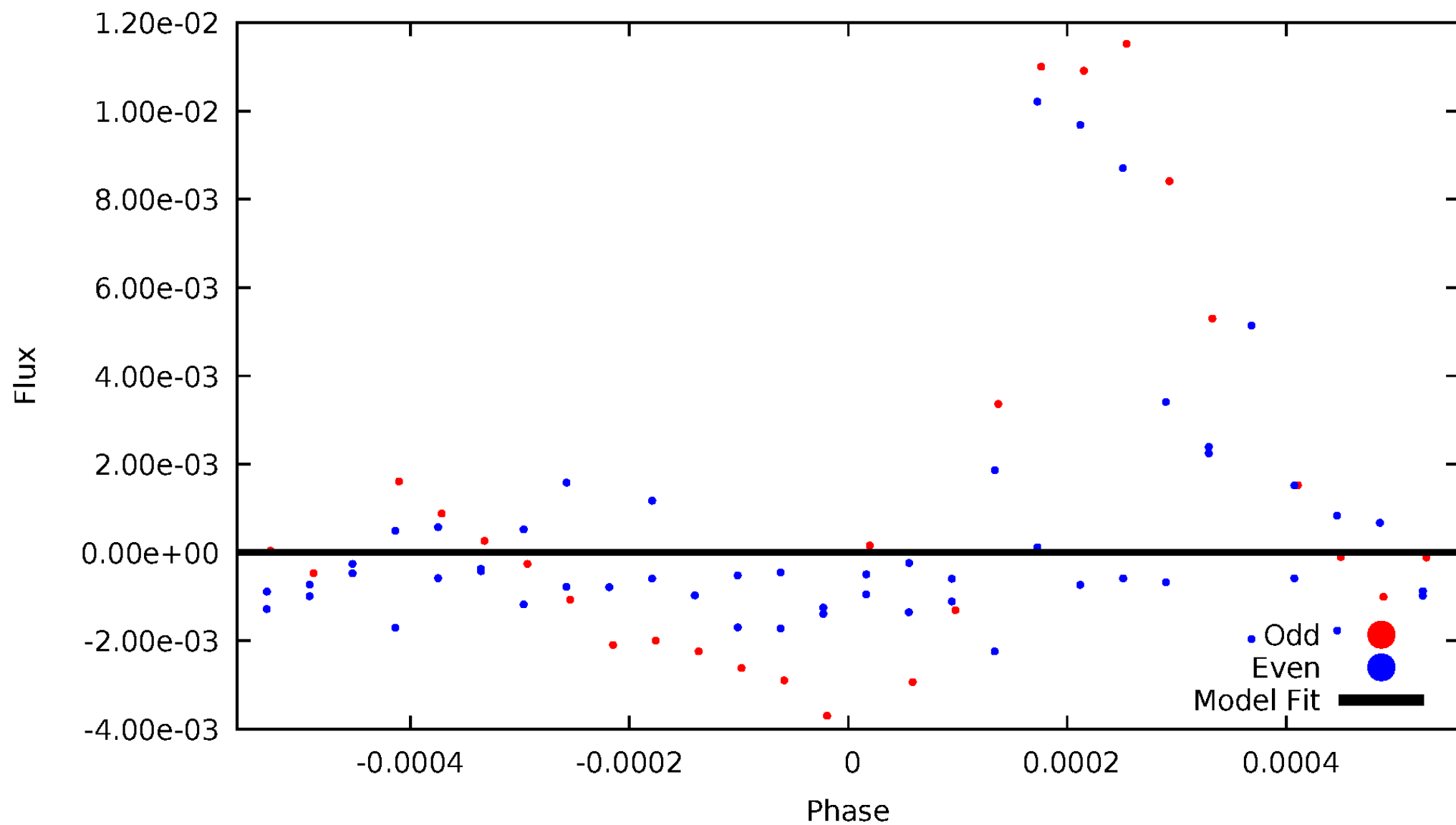
# TCE 011912947-06





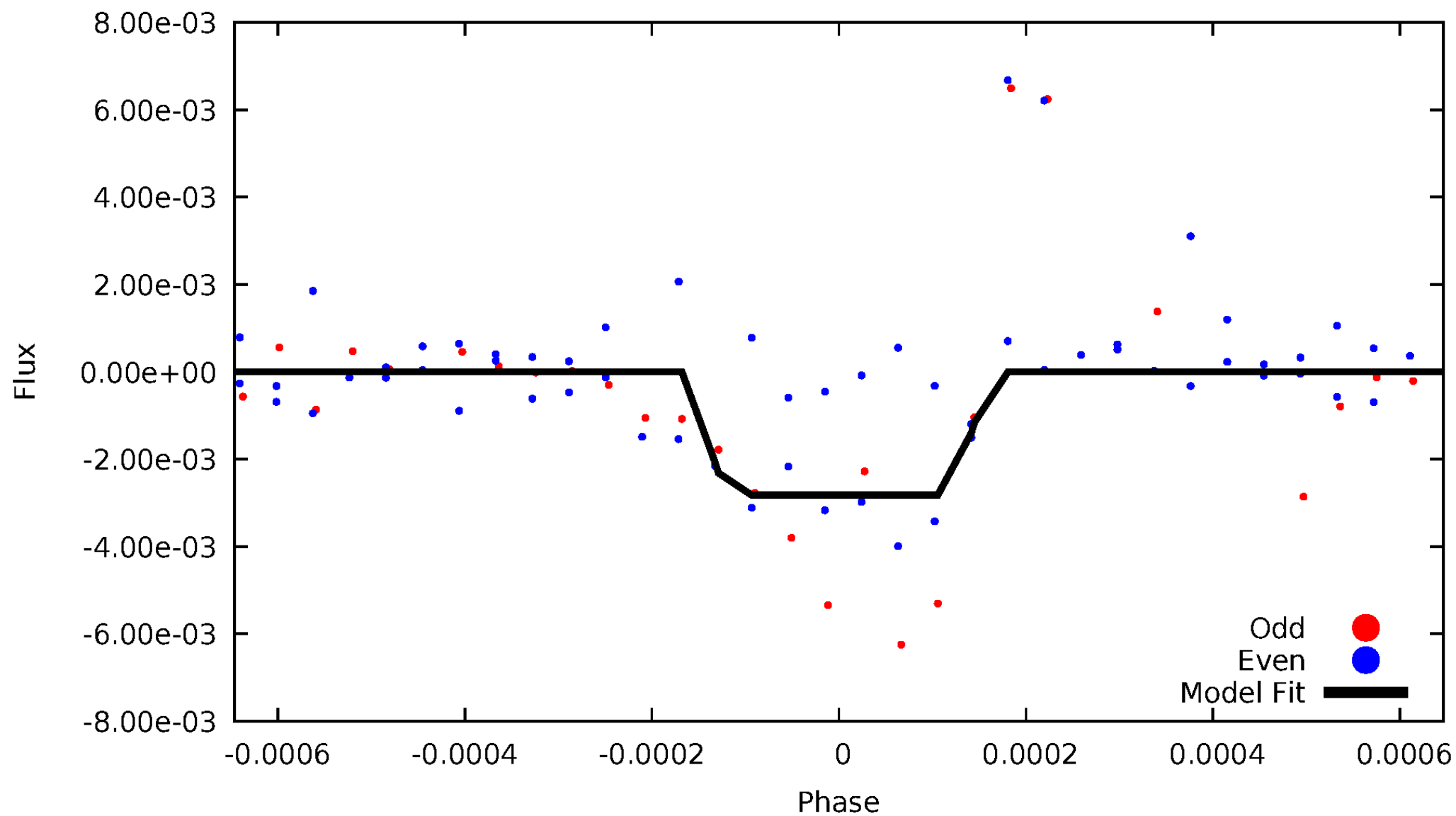
# DV Odd/Even

TCE 011912947-06



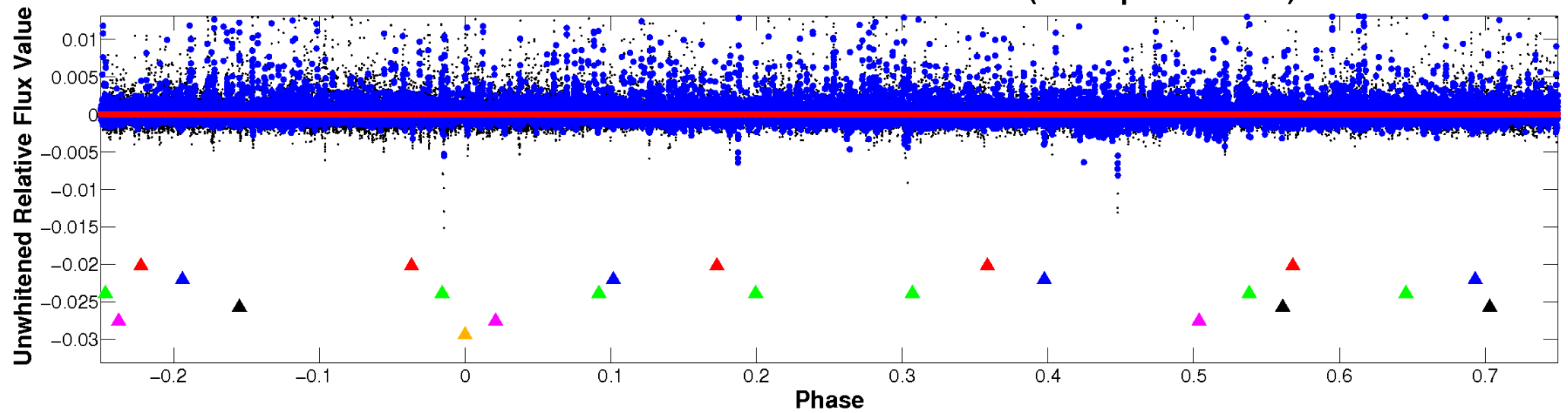
# ALT Odd/Even

TCE 011912947-06



# Non-Whitened Vs. Whitened Light Curve

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

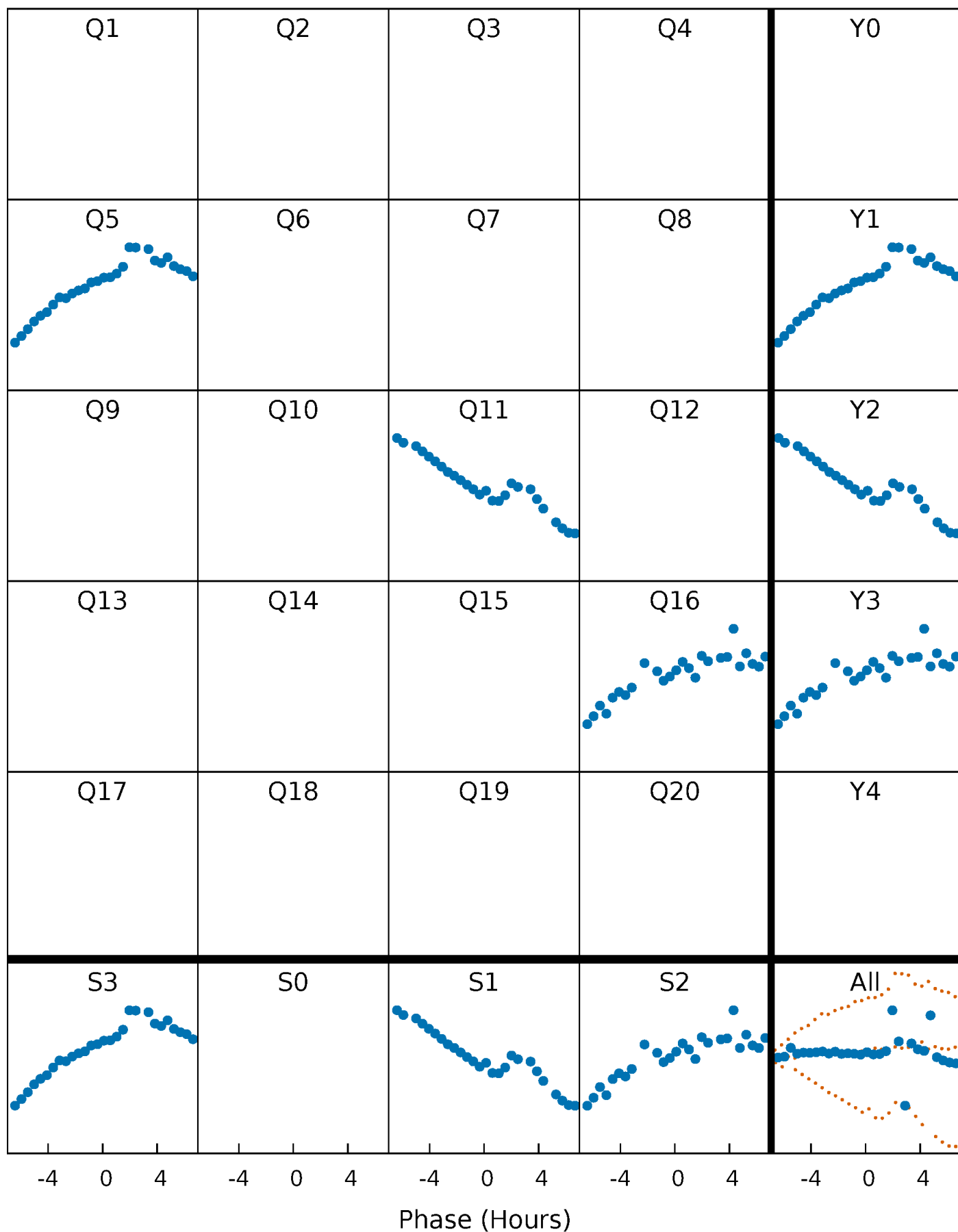


**Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



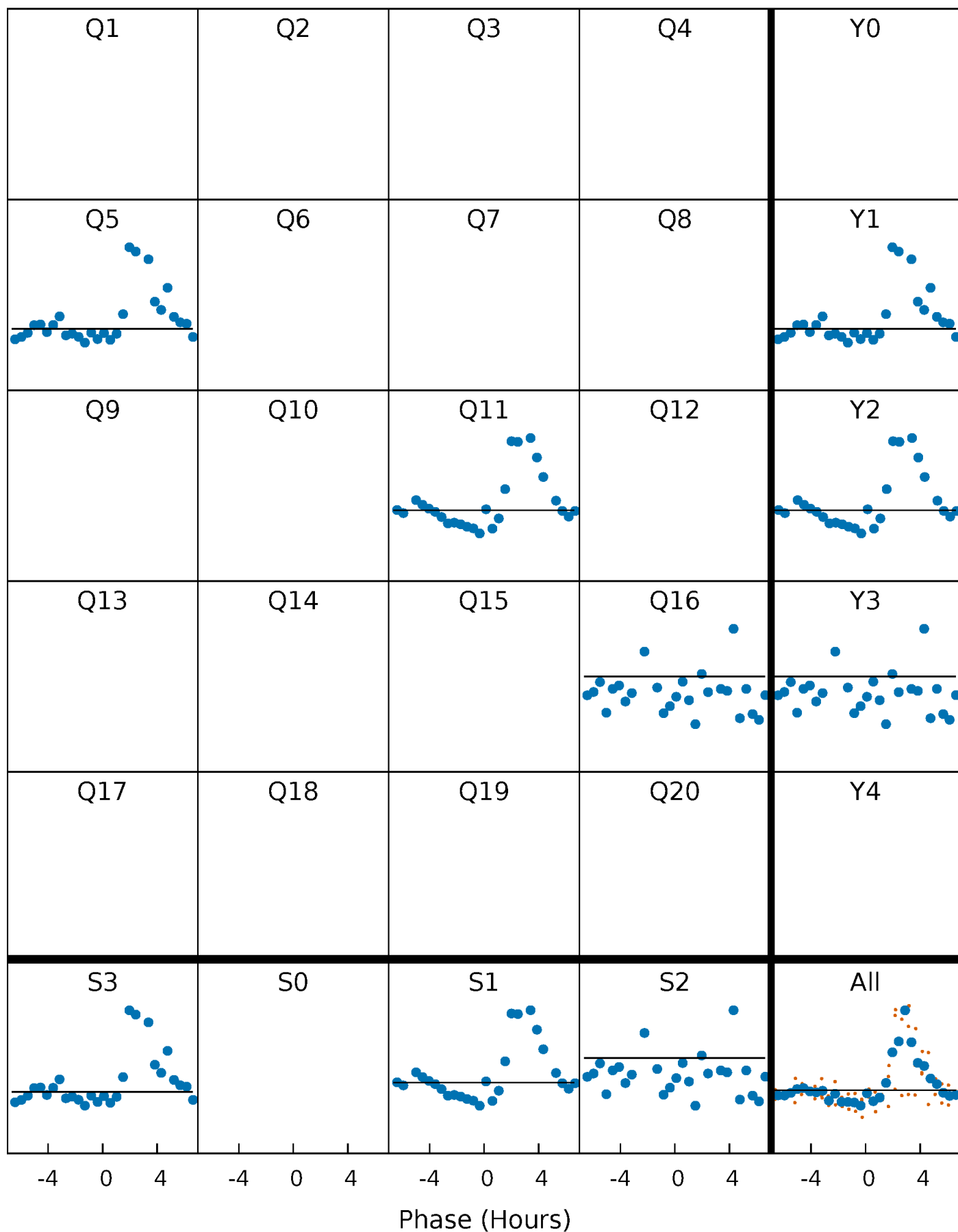
# PDC Quarter-Phased Transit Curves

TCE 011912947-06 P=522.608730 Days  $T_0=501.351619$  (BKJD)



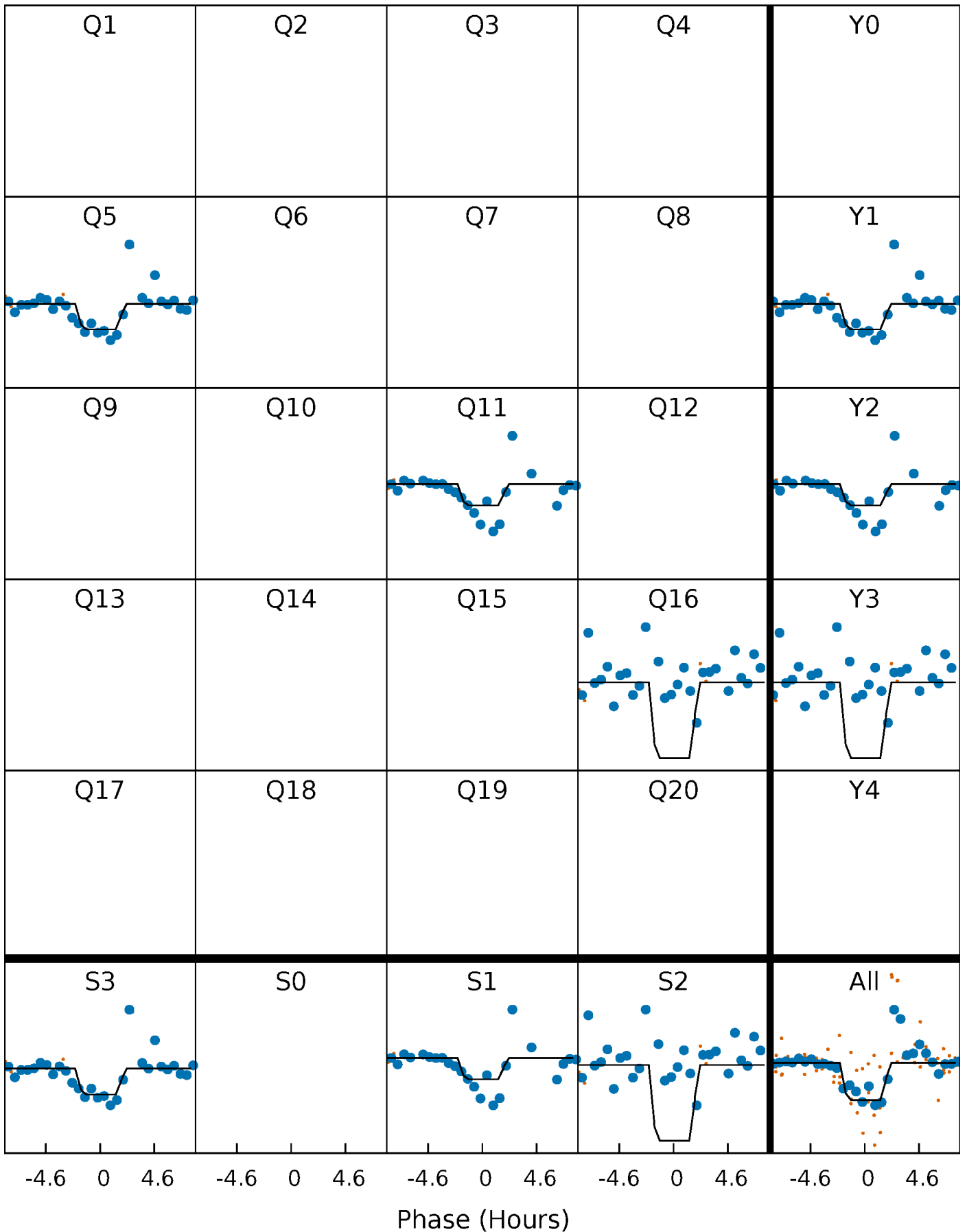
# DV Quarter-Phased Transit Curves

TCE 011912947-06     $P=522.608730$  Days     $T_0=501.351619$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

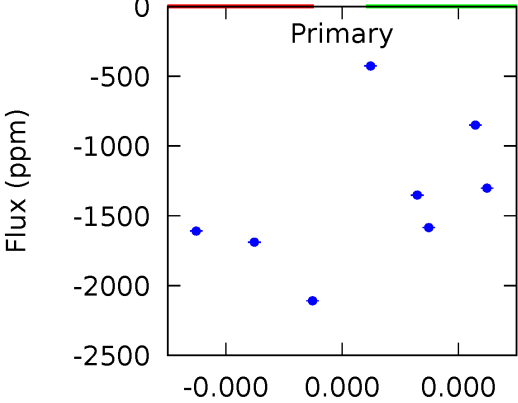
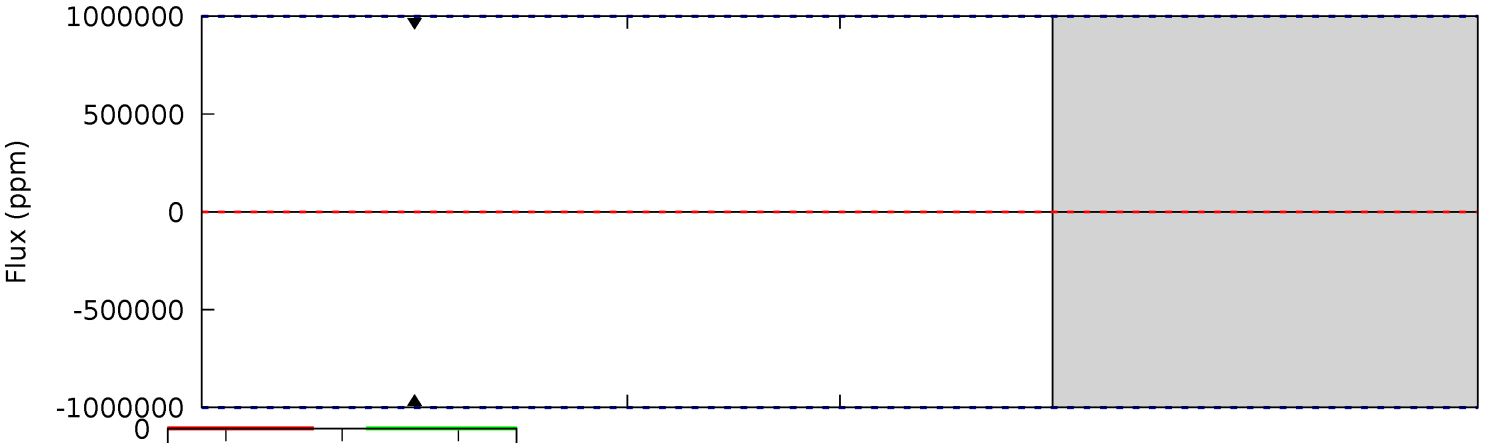
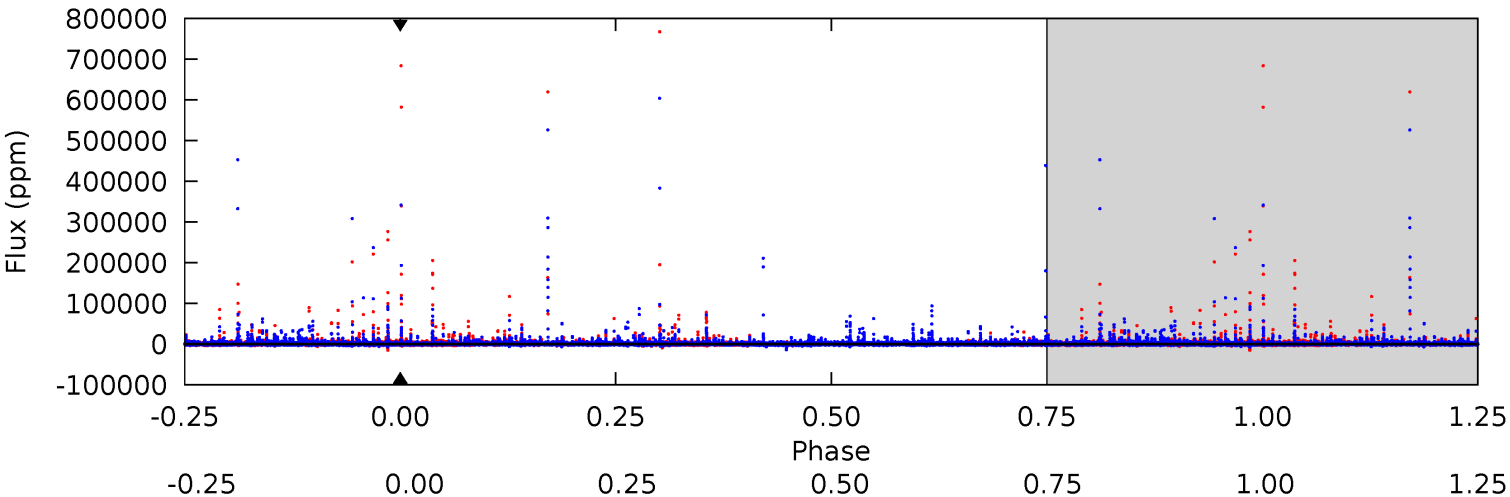
TCE 011912947-06     $P=522.608730$  Days     $T_0=501.347474$  (BKJD)



# DV Model-Shift Uniqueness Test

011912947-06, P = 522.608730 Days, E = 501.351619 Days

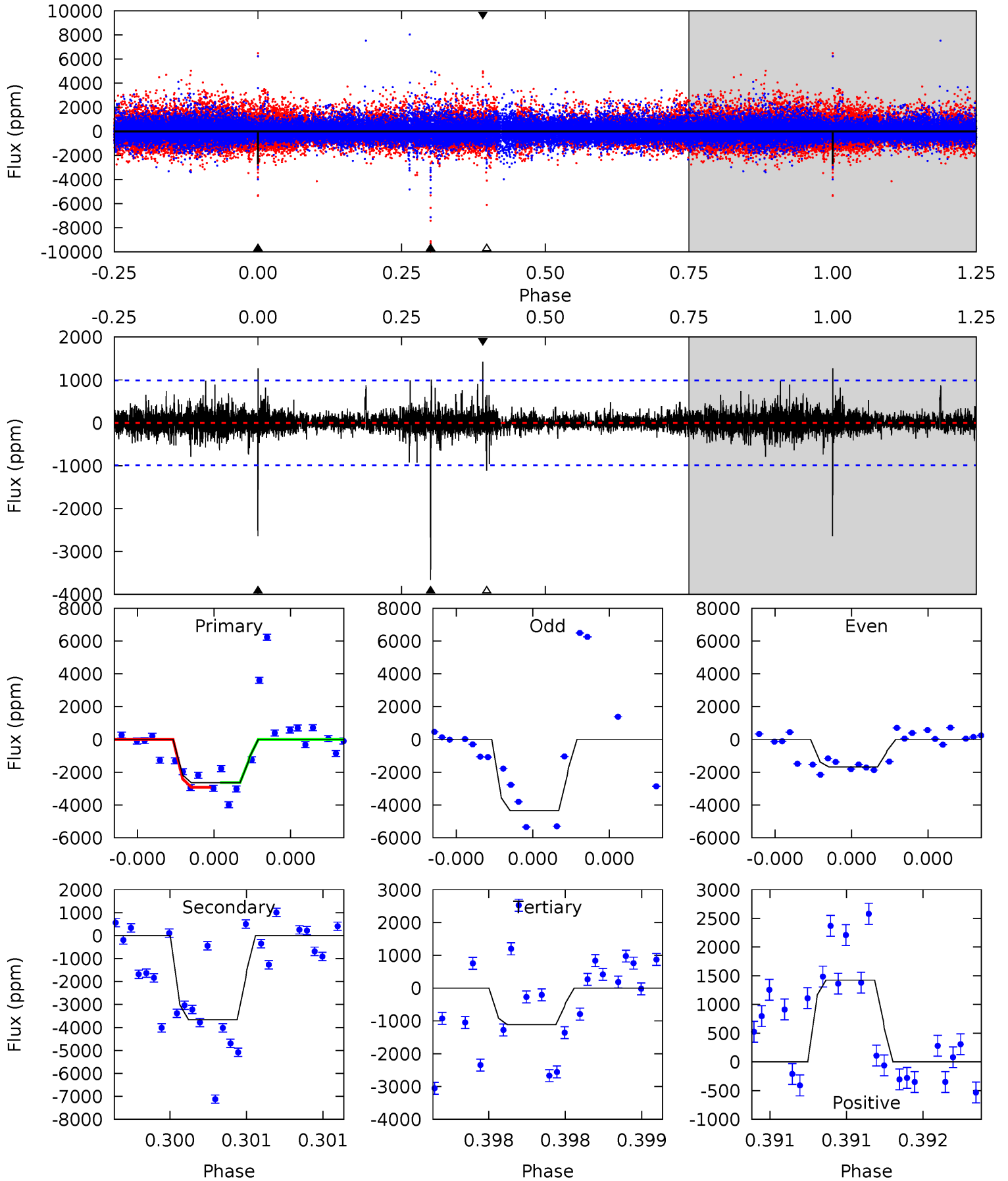
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

011912947-06, P = 522.608730 Days, E = 501.347474 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
15.1	21.0	6.39	8.15	5.65	3.60	0.83	8.73	6.97	14.6	12.8	5.45	0.78	0.28	0.82





### Stellar Parameters For KIC 011912947

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3440^{+44}_{-41}$	$4.930^{+0.045}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.321^{+0.033}_{-0.033}$	$0.319^{+0.041}_{-0.037}$	$13.640^{+3.256}_{-1.964}$
	+1%/-1%	+1%/-1%	+100%/-100%	+10%/-10%	+13%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 011912947-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$2.76^{+2.87}_{-1.87}$	$129^{+3}_{-3}$	$-2635^{+9113}_{-3980}$	$-50327.367^{+8220351.284}_{-8249234.108}$
Alt.	$-3662 \pm 175$	$3.18^{+2.88}_{-2.11}$	$129^{+3}_{-3}$	$3042^{+1369}_{-482}$	$151627^{+1252705}_{-110137}$

$T_{max}$  = 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

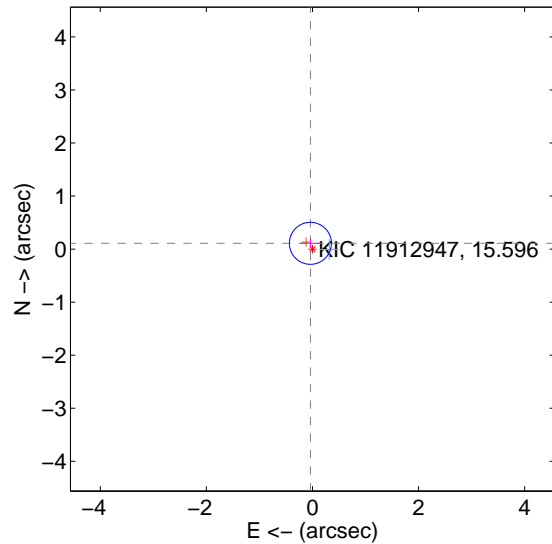
Supplemental centroid analysis for 011912947-06. Kepler magnitude: 15.60. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

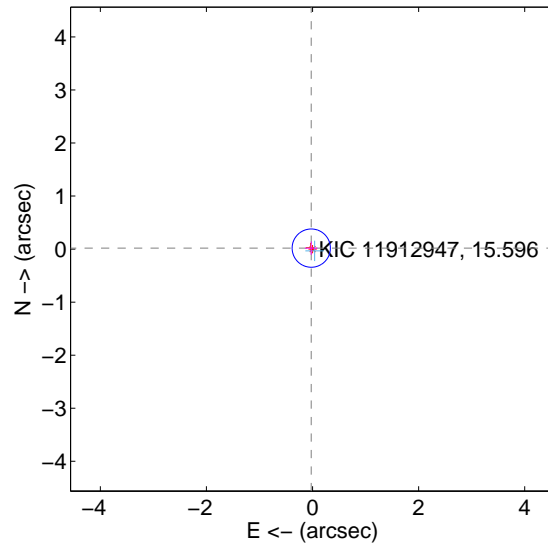
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.116 \pm 0.132$	0.88	$0.039 \pm 0.190$	$0.109 \pm 0.088$
PRF-fit source offset from KIC position	$0.030 \pm 0.120$	0.25	$0.024 \pm 0.117$	$0.018 \pm 0.125$
photometric centroid source offset	$1.26 \pm 0.85$	1.49	$1.09 \pm 0.87$	$-0.62 \pm 0.77$

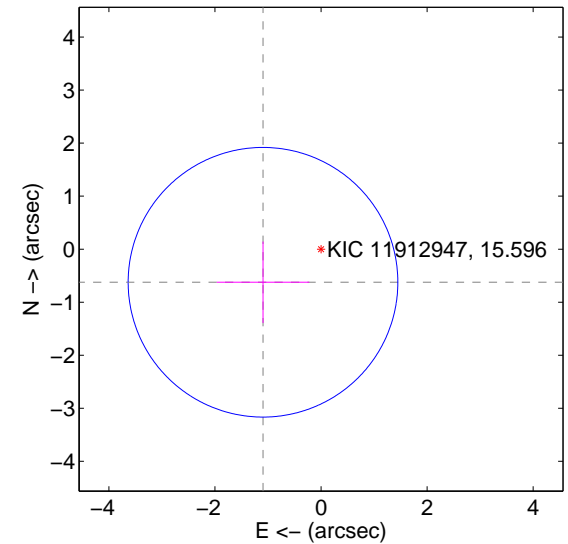
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

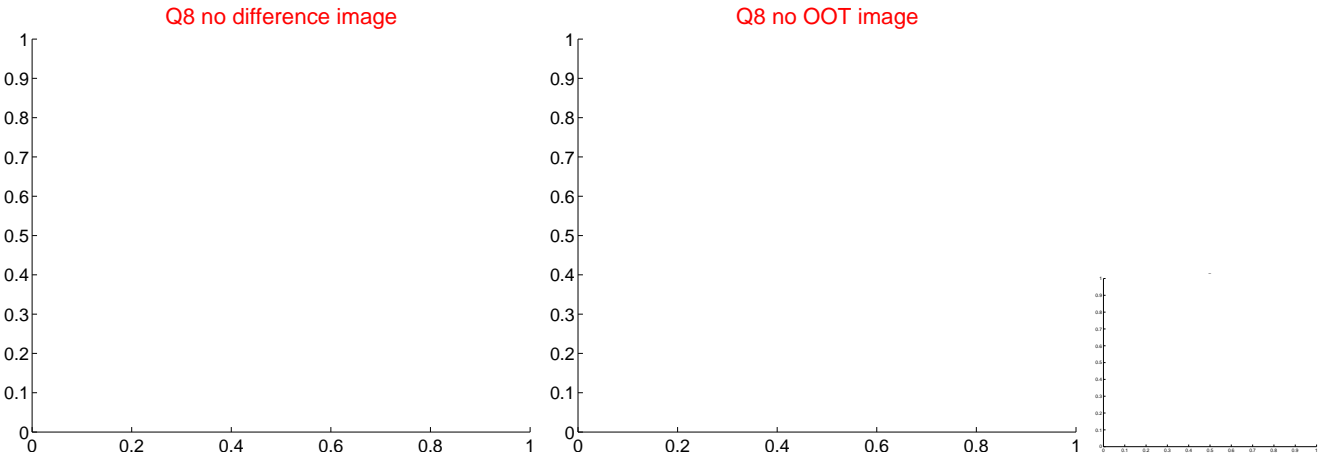
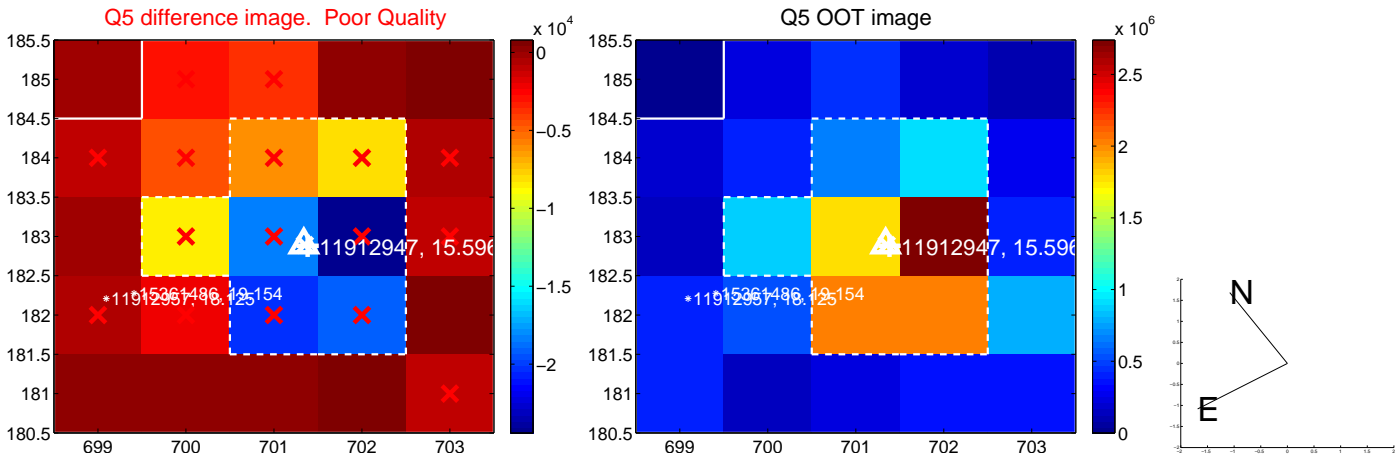


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

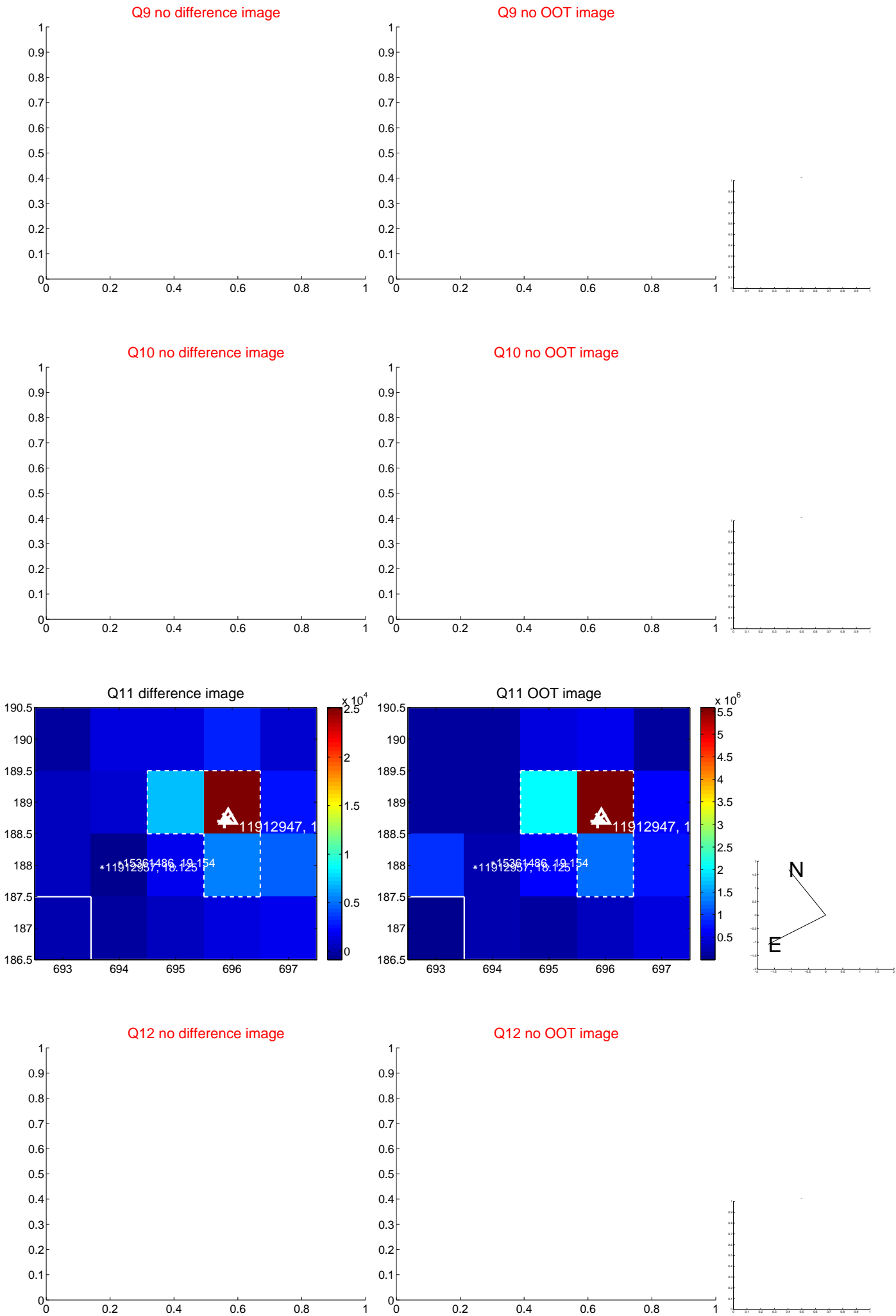
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



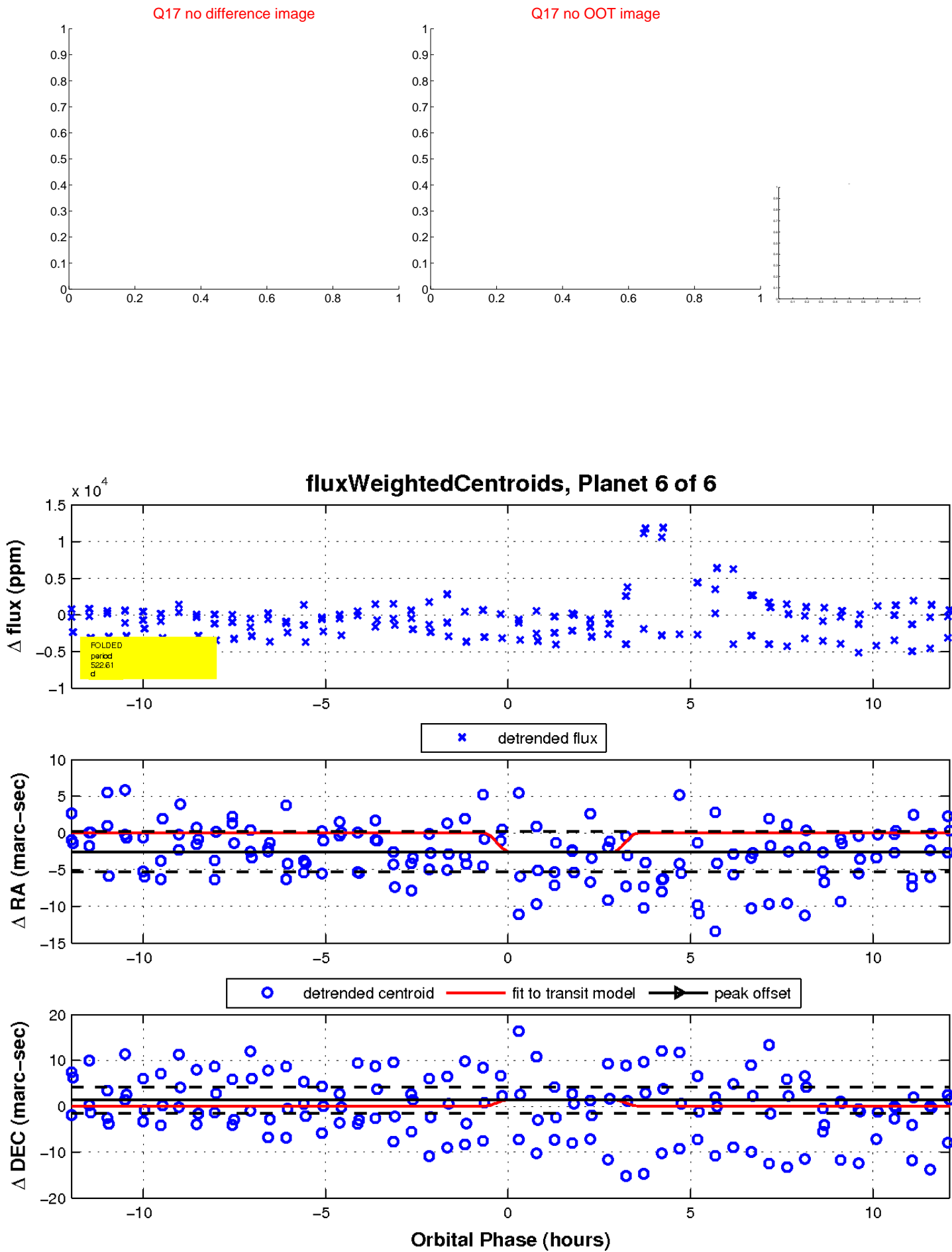
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

