

# KIC 006100062

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006100062-01	OBS	No	3.507583	132.299041	6.7	0.662	8.7	1.0	2.77	6924	0.90	5621.09
006100062-02	OBS	No	3.503189	131.647218	68.4	7.500	8.7	-1.0	2.77	6924	2.32	5630.49

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006100062-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV
006100062-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_NOFITS

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

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

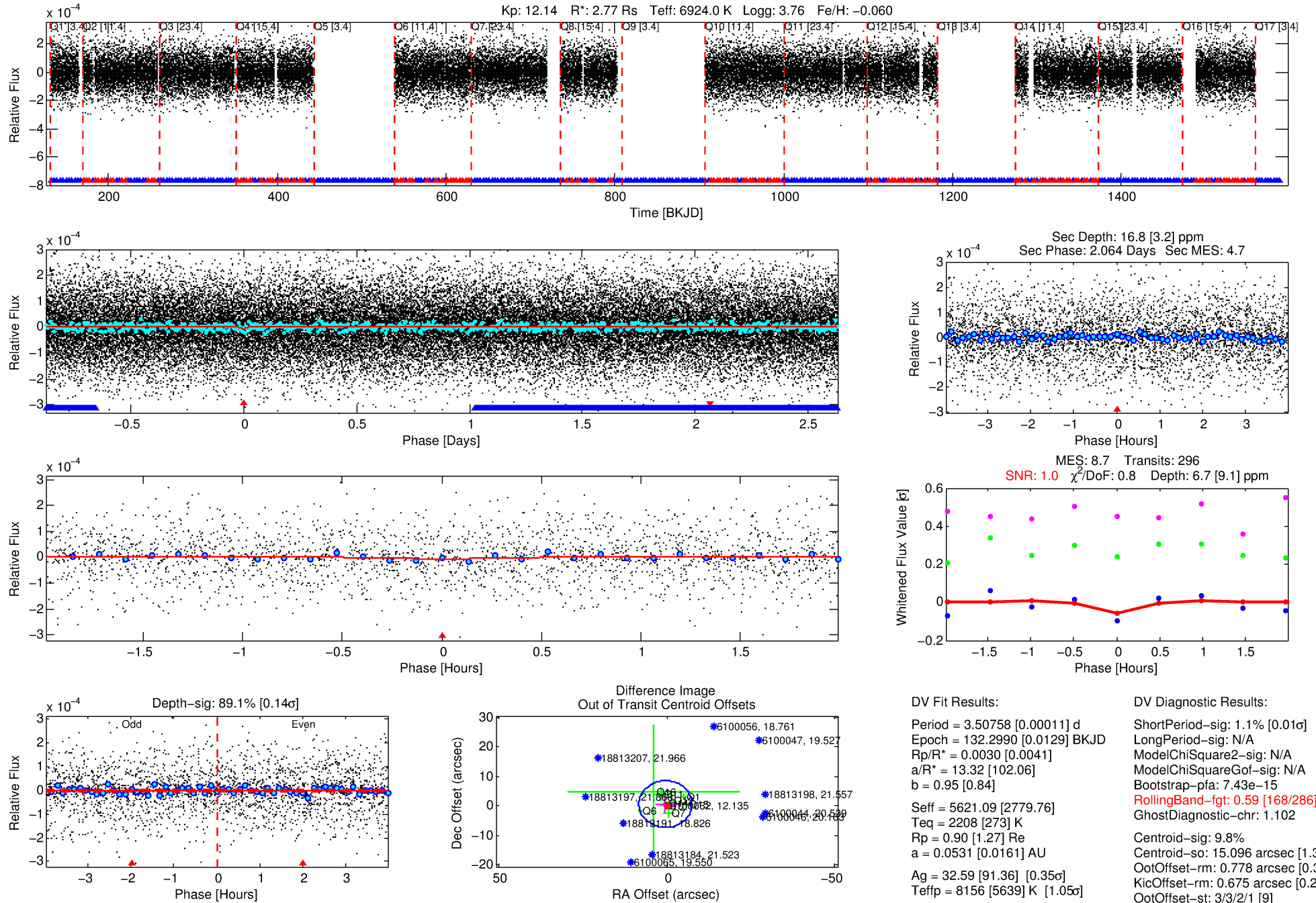
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006100062-01

No Significant Match Found

# DV One-Page Summary

KIC: 6100062 Candidate: 1 of 2 Period: 3.508 d



## DV Fit Results:

Period = 3.50758 [0.00011] d  
 Epoch = 132.2990 [0.0129] BKJD  
 Rp/R\* = 0.0030 [0.0041]  
 a/R\* = 13.32 [102.06]  
 b = 0.95 [0.84]  
 Seff = 5621.09 [2779.76]  
 Teq = 2208 [273] K  
 Rp = 0.90 [1.27] Re  
 a = 0.0531 [0.0161] AU  
 Ag = 32.59 [91.36] [0.35σ]  
 Teffp = 8156 [5639] K [1.05σ]

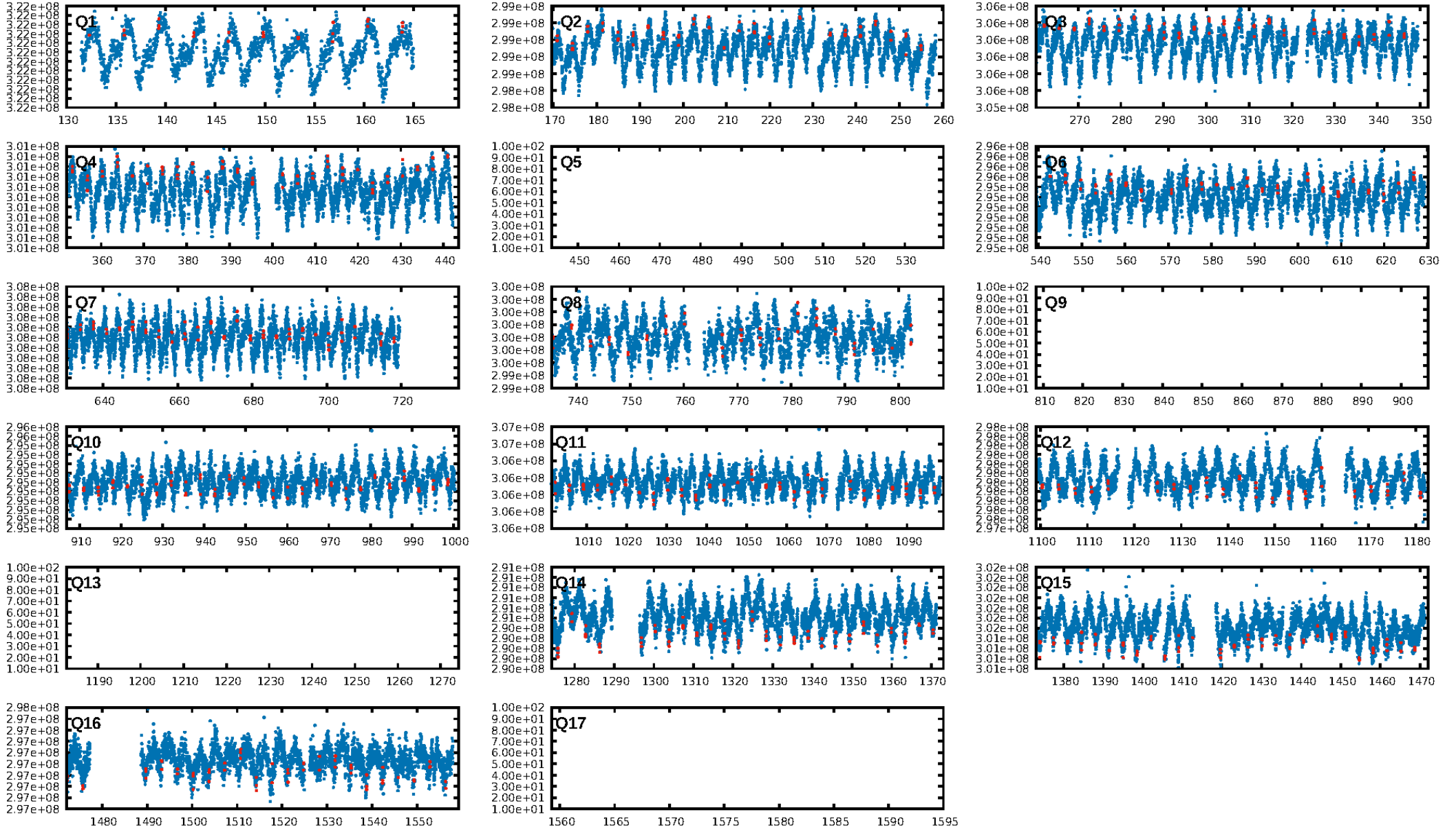
## DV Diagnostic Results:

ShortPeriod-sig: 1.1% [0.01σ]  
 LongPeriod-sig: N/A  
 ModelChiSquare2-sig: N/A  
 ModelChiSquareGof-sig: N/A  
 Bootstrap-pfa: 7.43e-15  
 RollingBand-fgt: 0.59 [168/286]  
 GhostDiagnostic-chr: 1.102  
 Centroid-sig: 9.8%  
 Centroid-so: 15.096 arcsec [1.32σ]  
 OutOffset-rm: 0.778 arcsec [0.30σ]  
 OutOffset-st: 3/3/2/1 [9]  
 KicOffset-rm: 0.675 arcsec [0.27σ]  
 KicOffset-st: 3/3/2/1 [9]  
 DiffImageQuality-fgm: 0.33 [3/9]  
 DiffImageOverlap-fno: 1.00 [13/13]

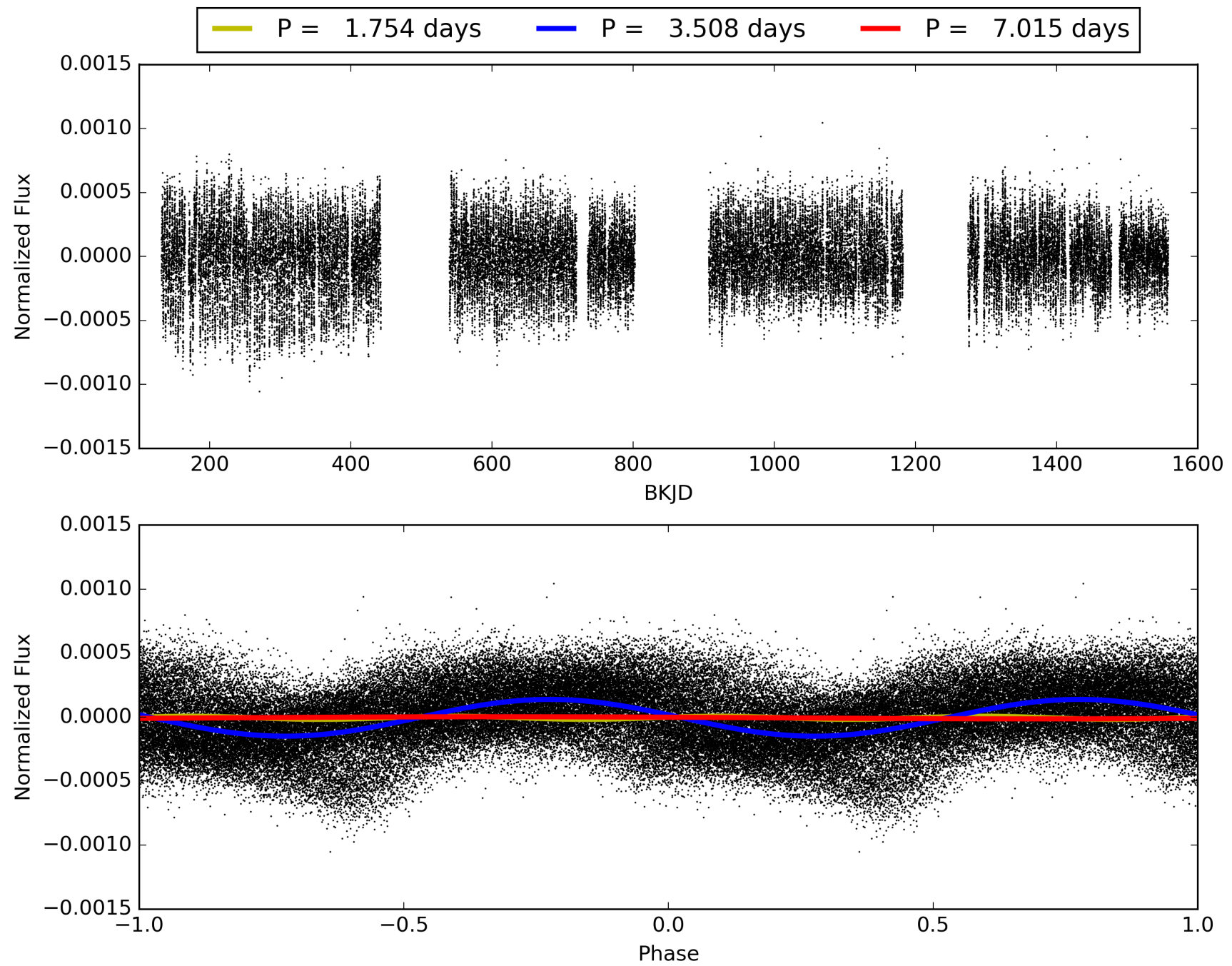
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:51:41 Z

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

# TCE 006100062-01, PDC Light Curves

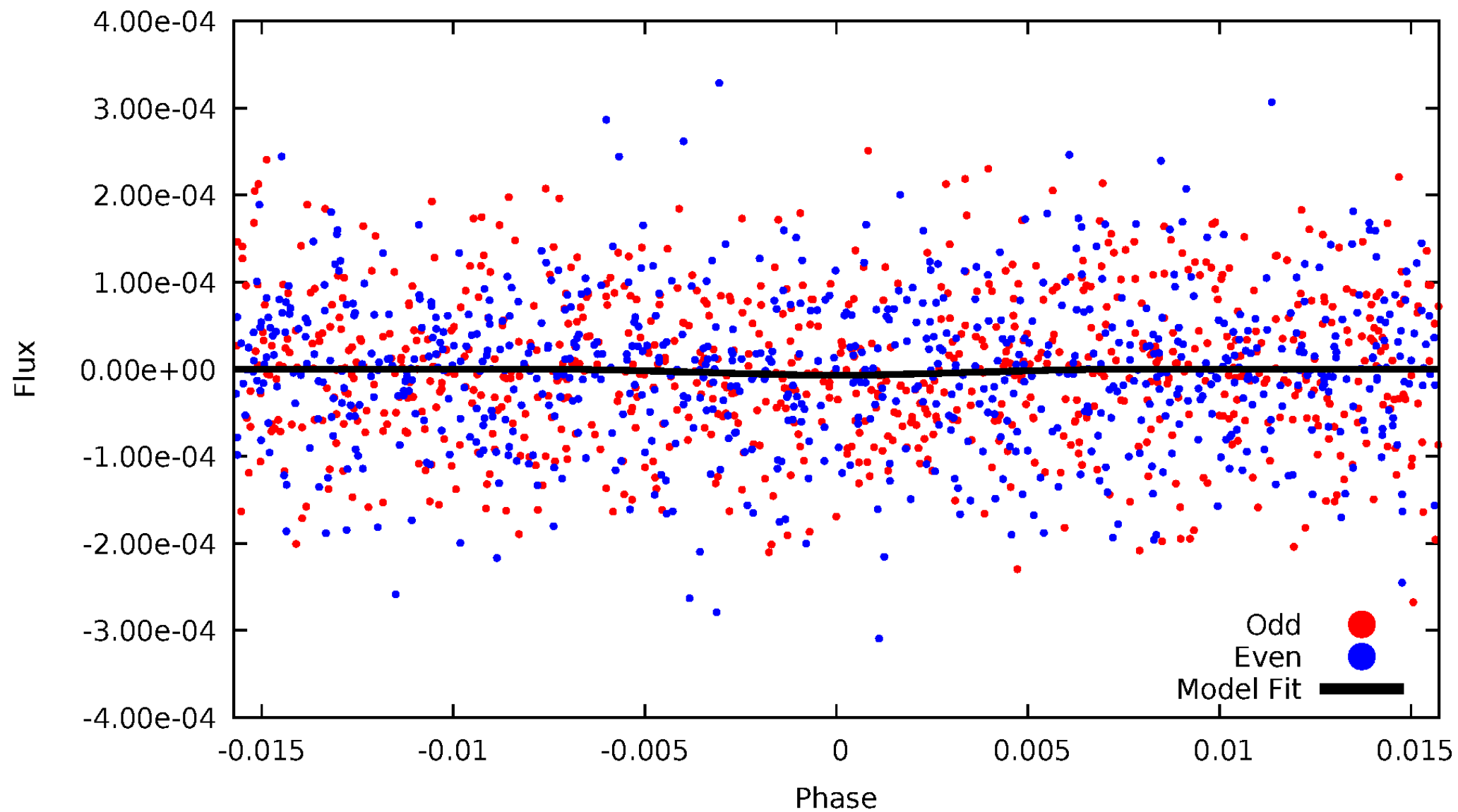


# TCE 006100062-01



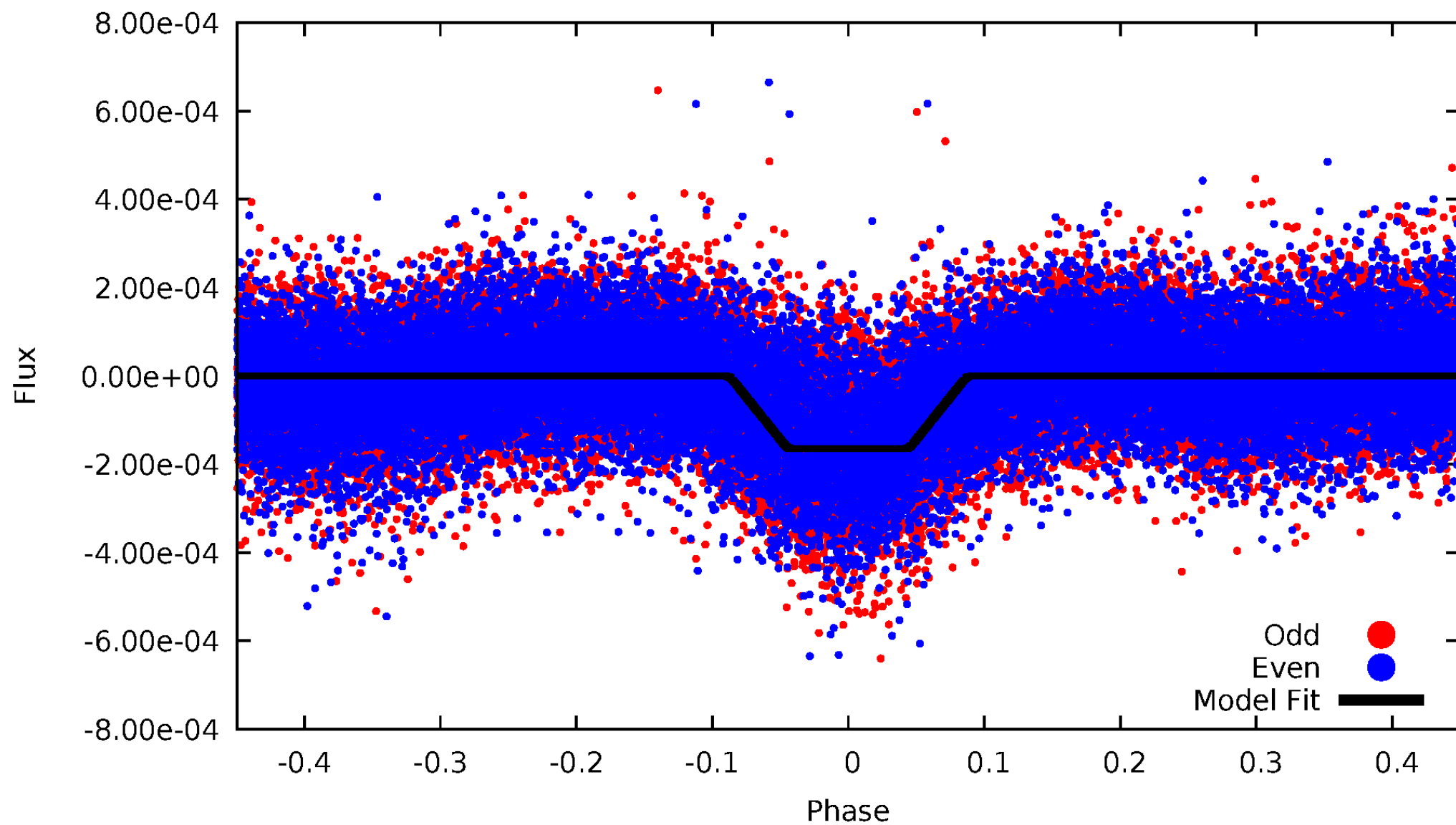
# DV Odd/Even

TCE 006100062-01



# ALT Odd/Even

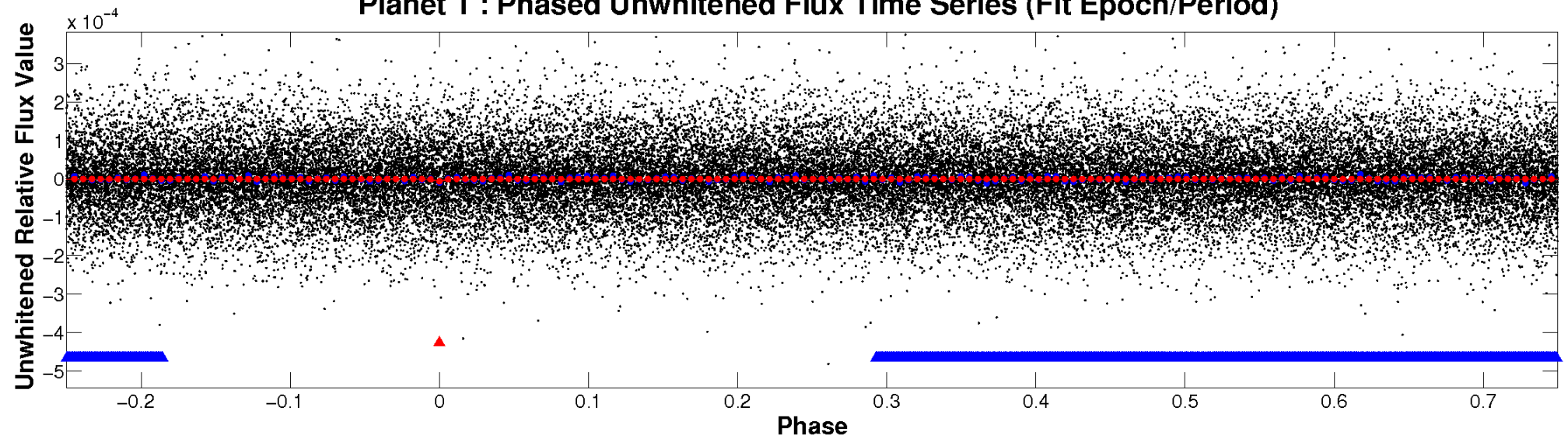
TCE 006100062-01



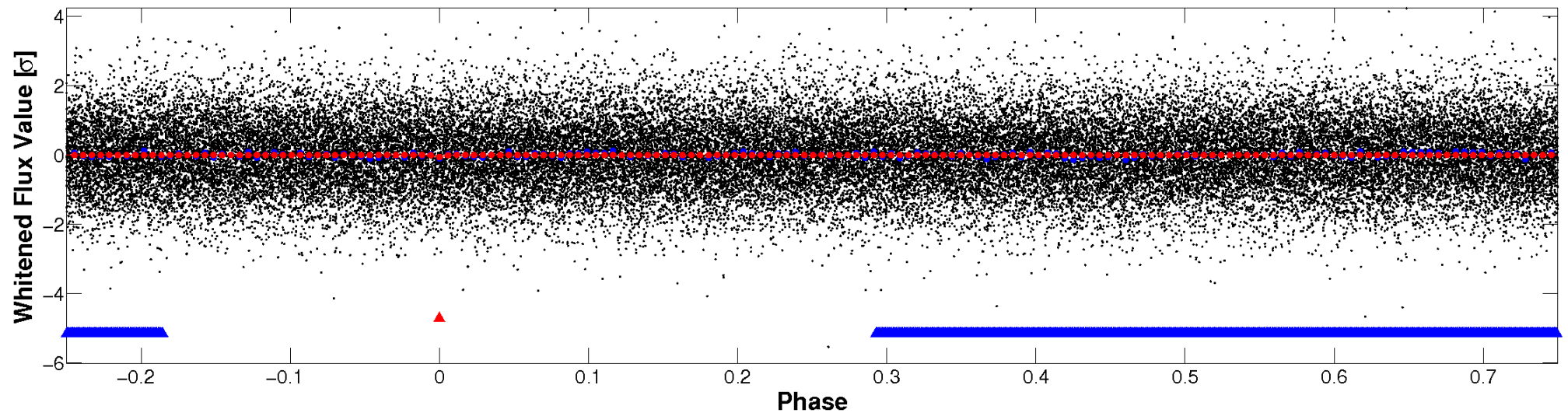


# Non-Whitened Vs. Whitened Light Curve

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

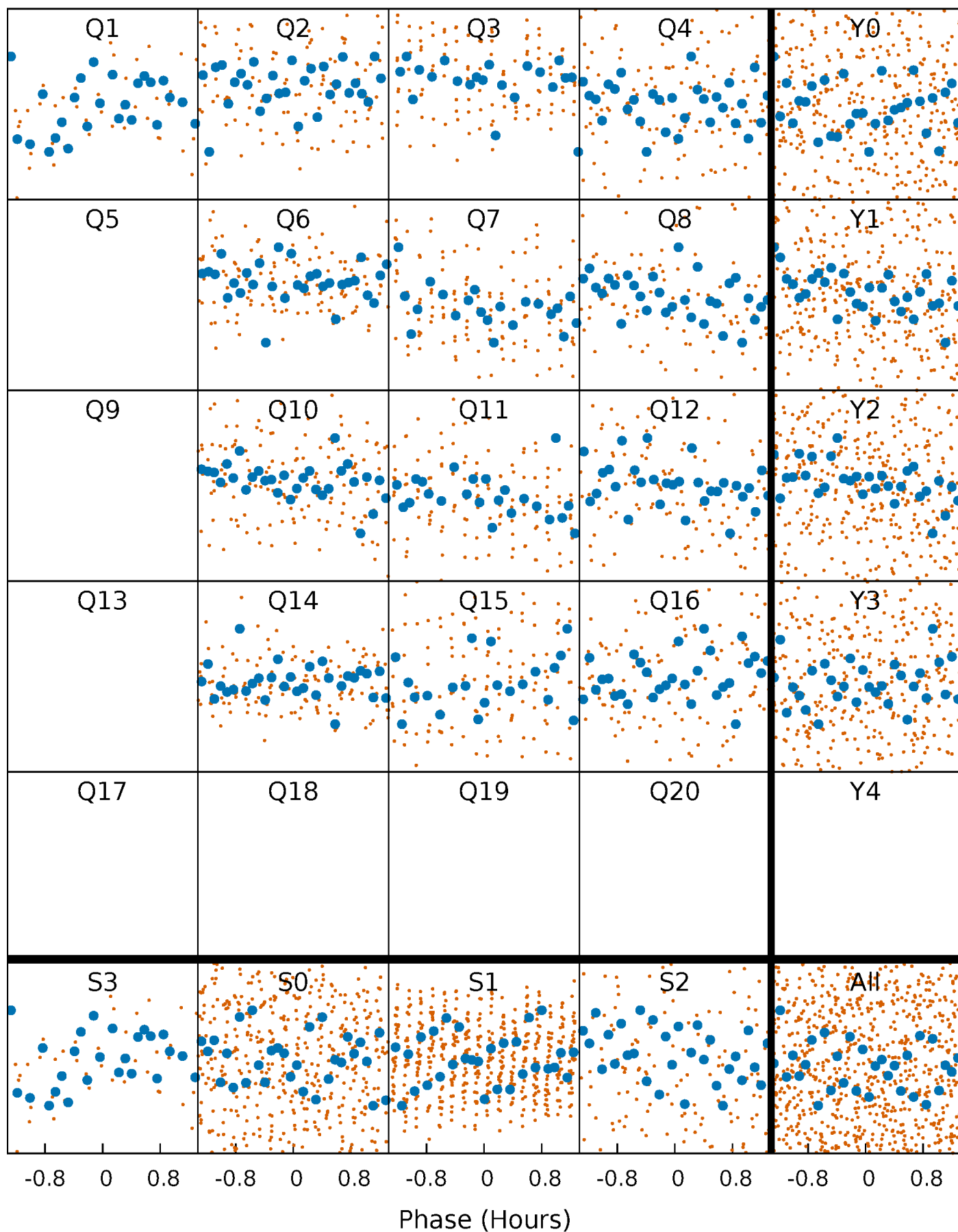


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

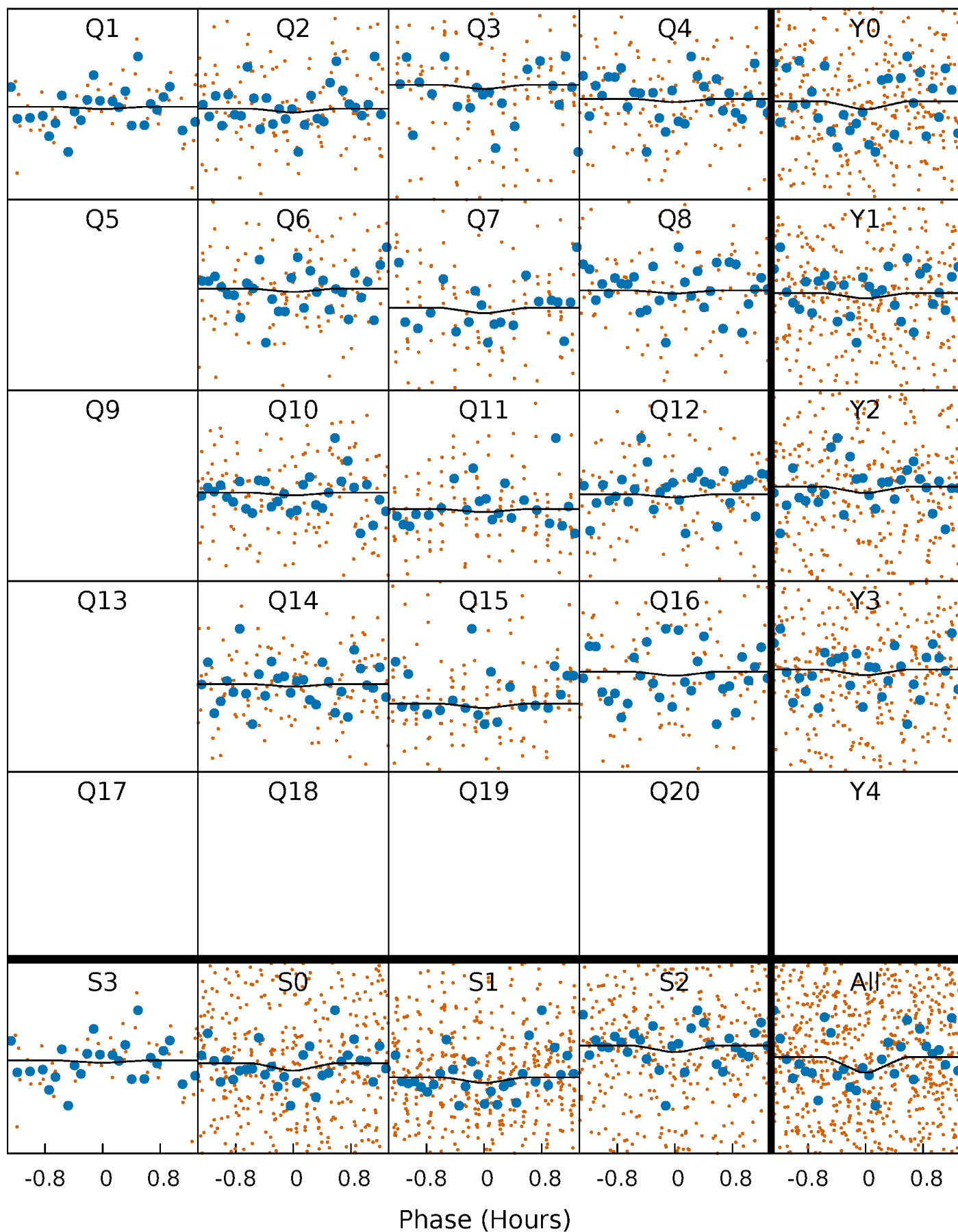
TCE 006100062-01 P= 3.507583 Days  $T_0=132.299041$  (BKJD)





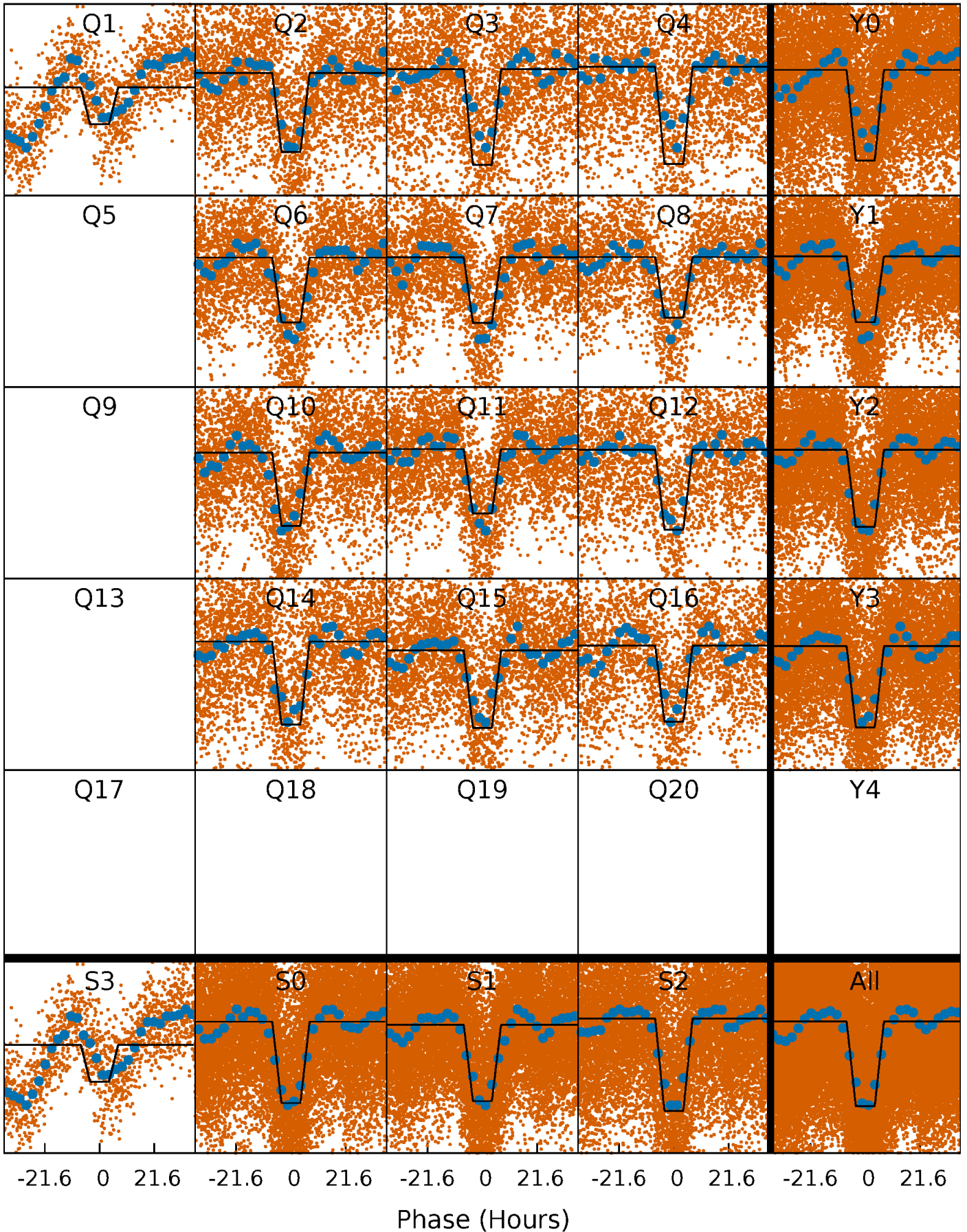
# DV Quarter-Phased Transit Curves

TCE 006100062-01 P= 3.507583 Days  $T_0=132.299041$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

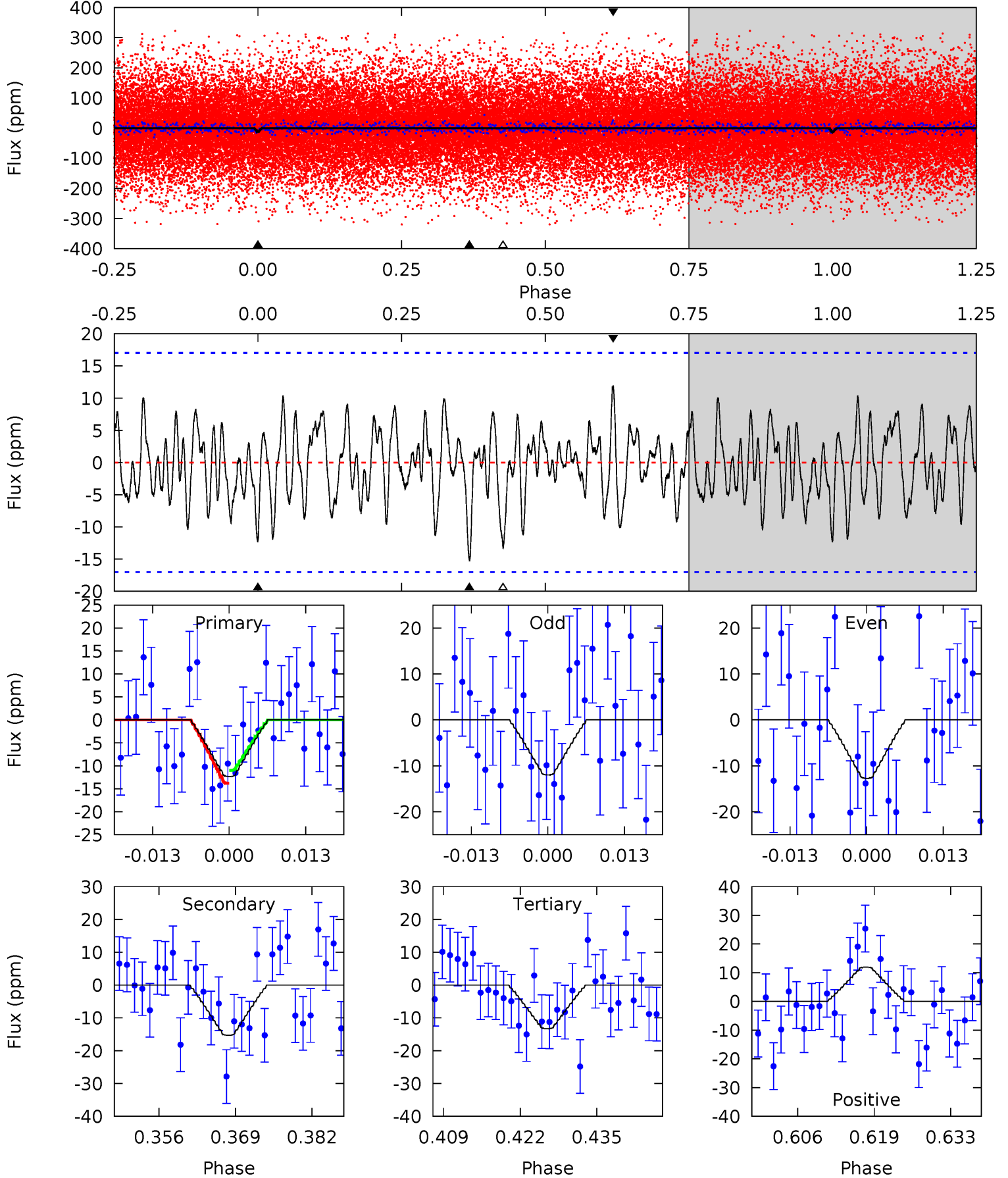
TCE 006100062-01 P= 3.503303 Days  $T_0=131.606386$  (BKJD)



# DV Model-Shift Uniqueness Test

006100062-01, P = 3.507583 Days, E = 128.791458 Days

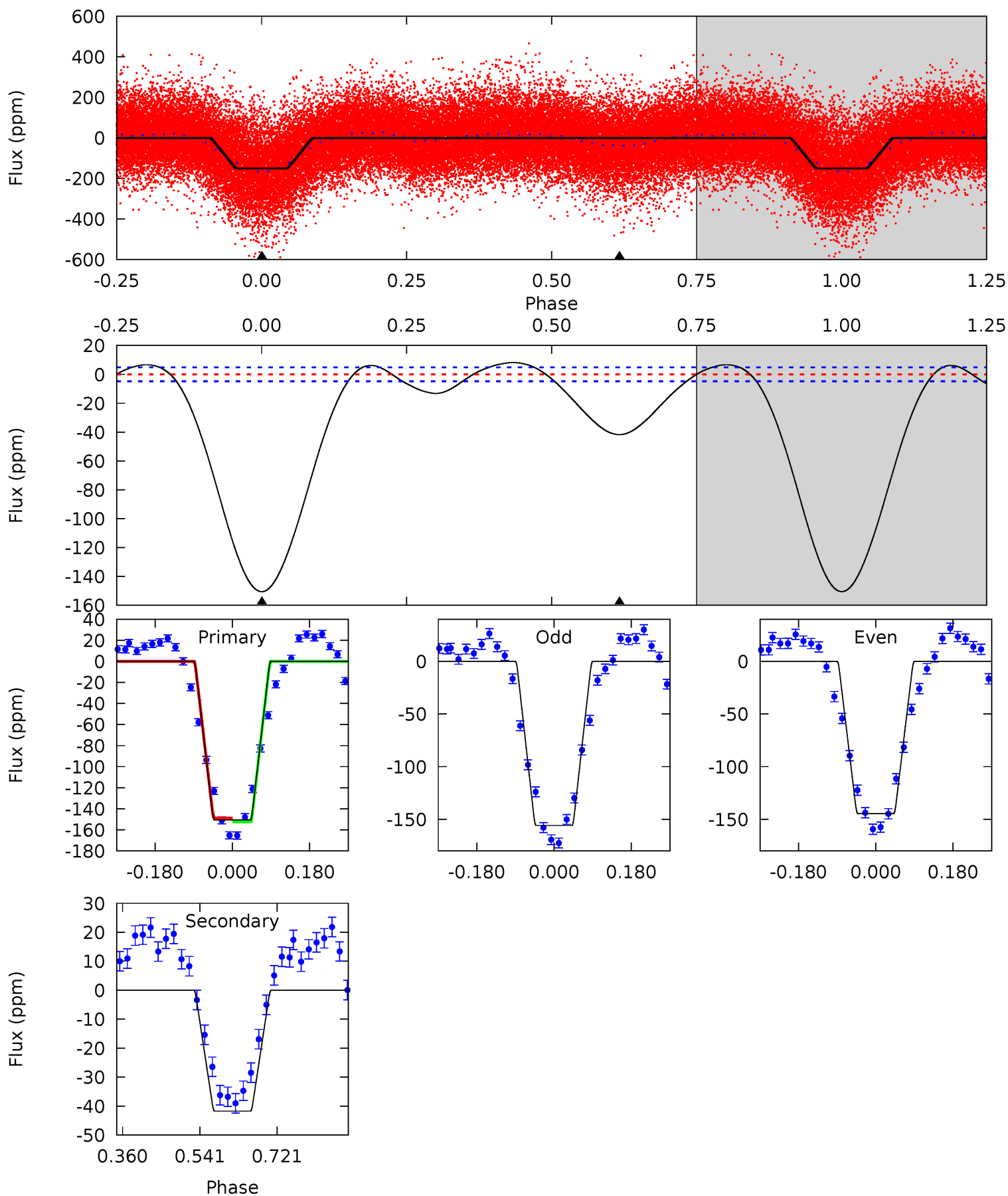
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.61	4.48	3.90	3.50	4.97	2.48	1.38	-0.29	0.11	0.59	0.98	0.11	0.80	0.44	0.41



# Alt Model-Shift Uniqueness Test

006100062-01, P = 3.503303 Days, E = 128.103083 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
137.0	38.0	0	0	4.44	1.34	6.74	137.0	137.0	38.0	38.0	5.10	1.02	0.05	1.67



### Stellar Parameters For KIC 006100062

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6924^{+163}_{-225}$	$3.762^{+0.277}_{-0.092}$	$-0.060^{+0.250}_{-0.300}$	$2.775^{+0.485}_{-0.901}$	$1.623^{+0.219}_{-0.267}$	$0.107^{+0.206}_{-0.032}$
	+2%/-3%	+7%/-2%	+417%/-500%	+17%/-32%	+13%/-16%	+193%/-30%
Source	PHO1	FLK73	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 006100062-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-15 \pm 3$	$1.26^{+1.10}_{-0.84}$	$3036^{+163}_{-241}$	$6533^{+6971}_{-1746}$	$15^{+111}_{-11}$
Alt.	$-42 \pm 1$	$3.66^{+1.37}_{-1.23}$	$3035^{+173}_{-254}$	$4911^{+959}_{-585}$	$4.838^{+6.144}_{-2.245}$

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



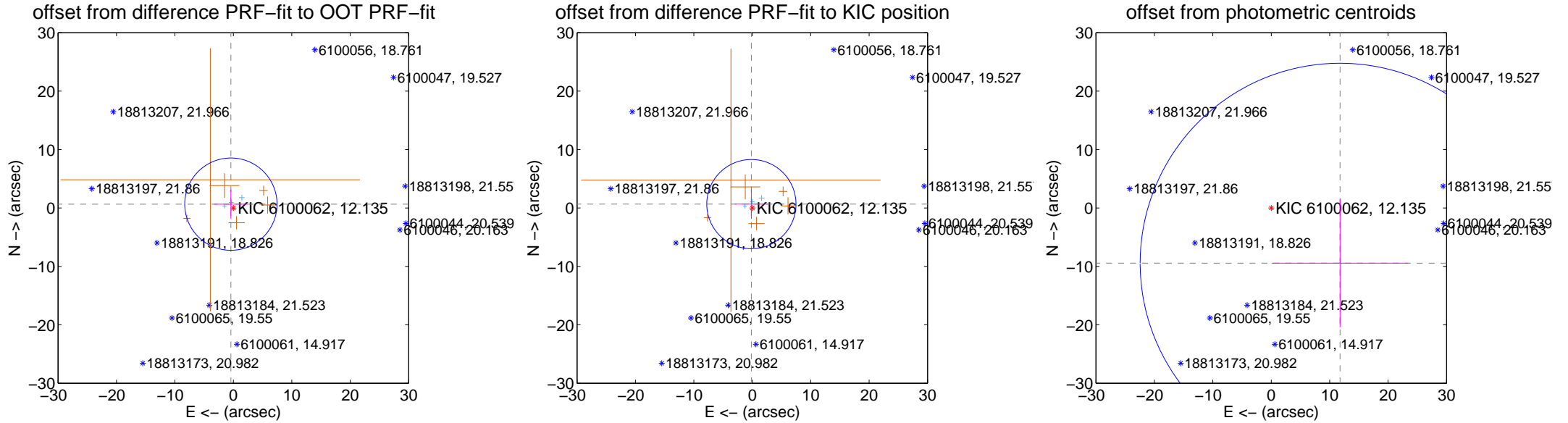
## DV Centroid Data

Supplemental centroid analysis for 006100062-01. Kepler magnitude: 12.13. Transit SNR 1.02

There are 3 quarters with good PRF difference image offsets

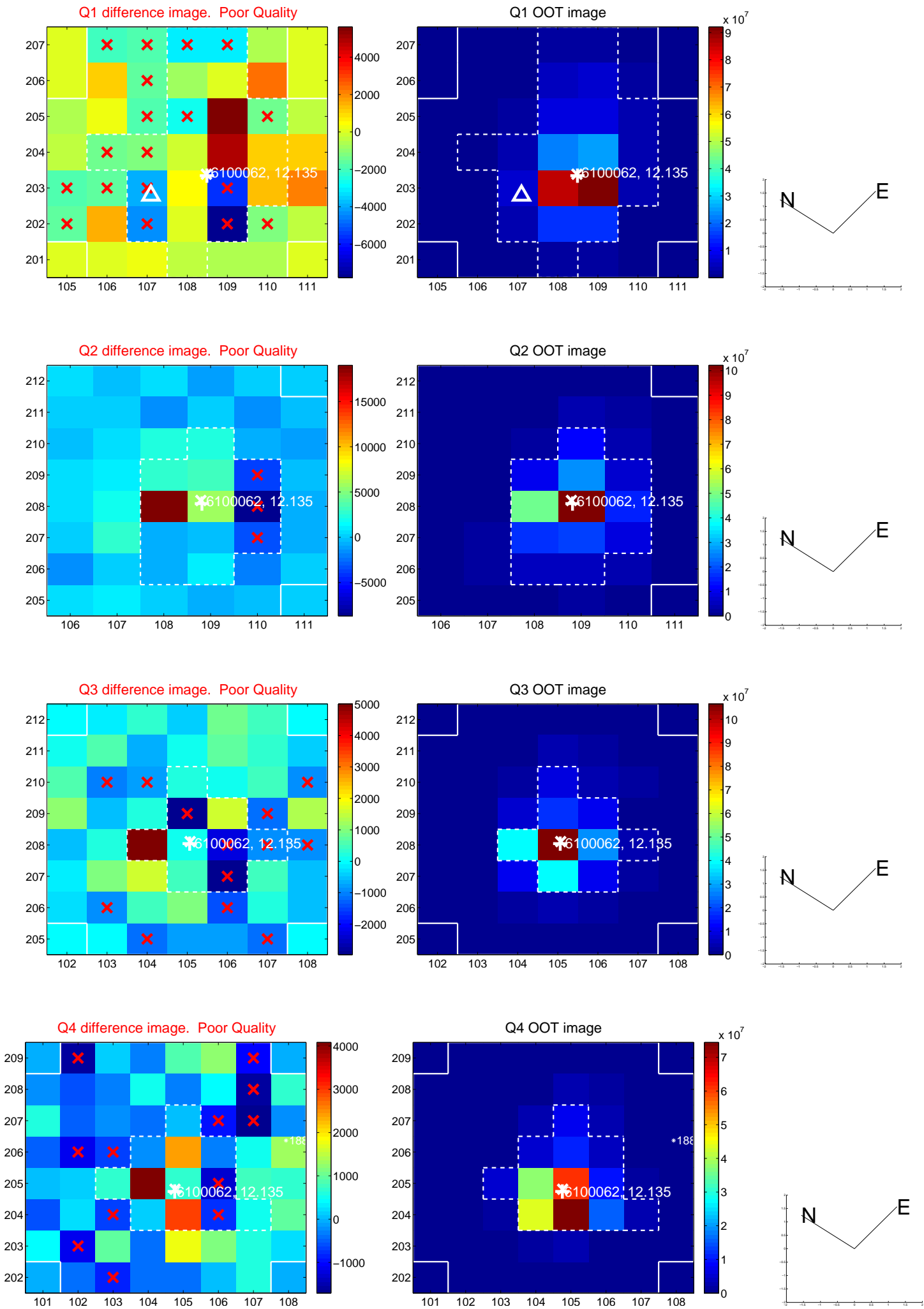
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.778 \pm 2.633$	0.30	$0.423 \pm 2.872$	$0.653 \pm 2.525$
PRF-fit source offset from KIC position	$0.675 \pm 2.545$	0.27	$0.156 \pm 2.872$	$0.657 \pm 2.525$
photometric centroid source offset	$15.10 \pm 11.40$	1.32	$-11.78 \pm 11.68$	$-9.45 \pm 10.96$



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

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



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

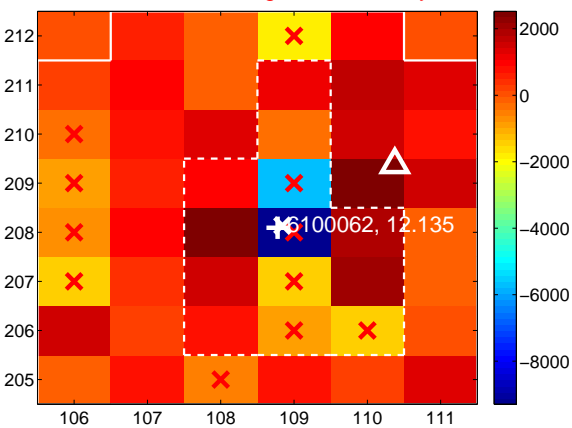
Q5 no difference image



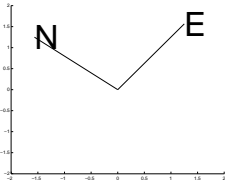
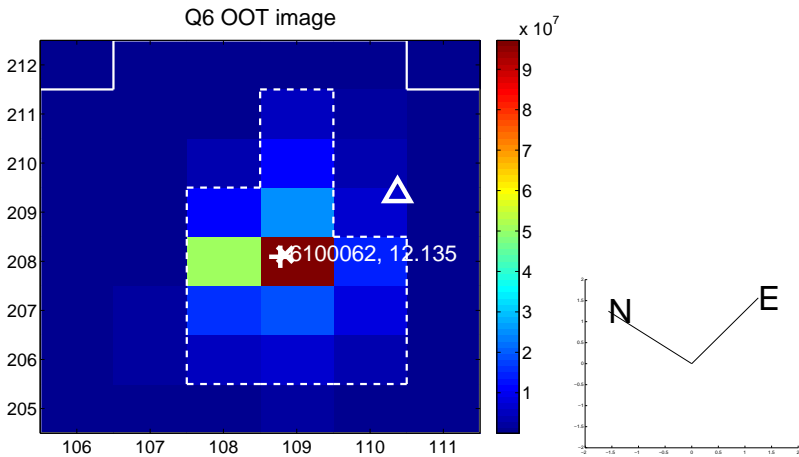
Q5 no OOT image



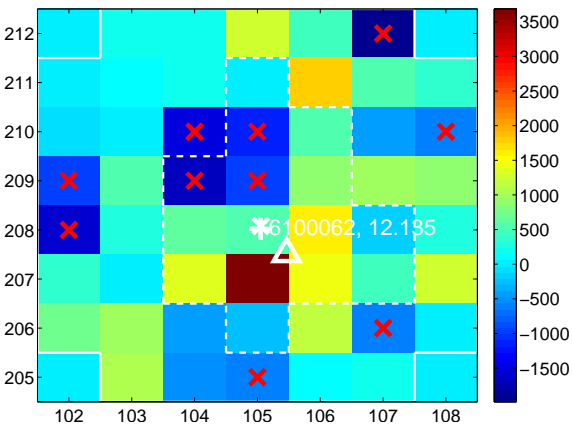
Q6 difference image. Poor Quality



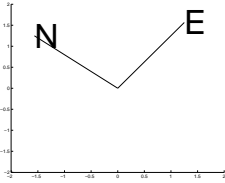
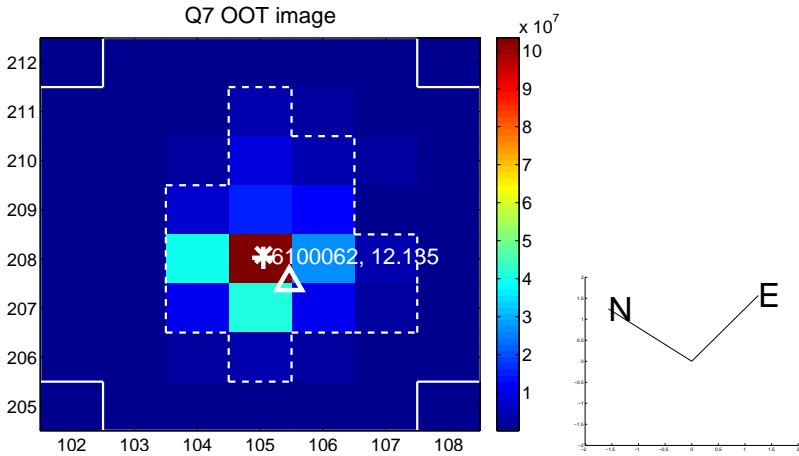
Q6 OOT image



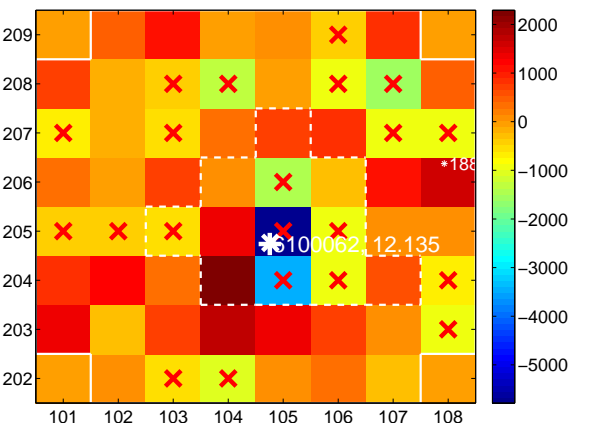
Q7 difference image. Poor Quality



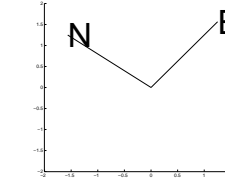
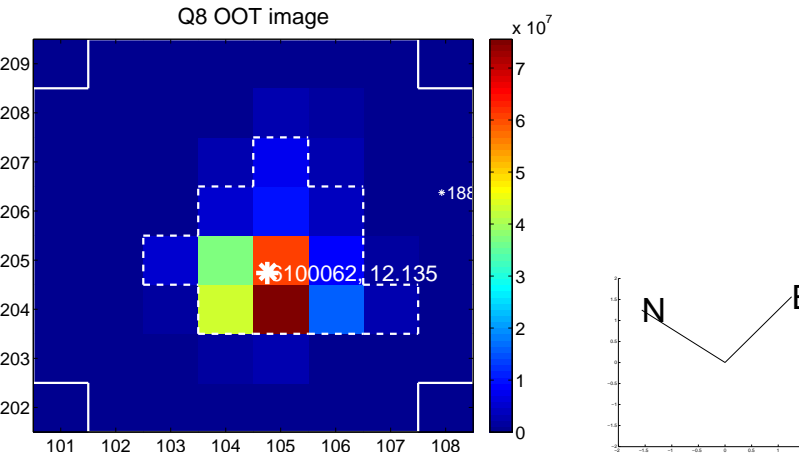
Q7 OOT image



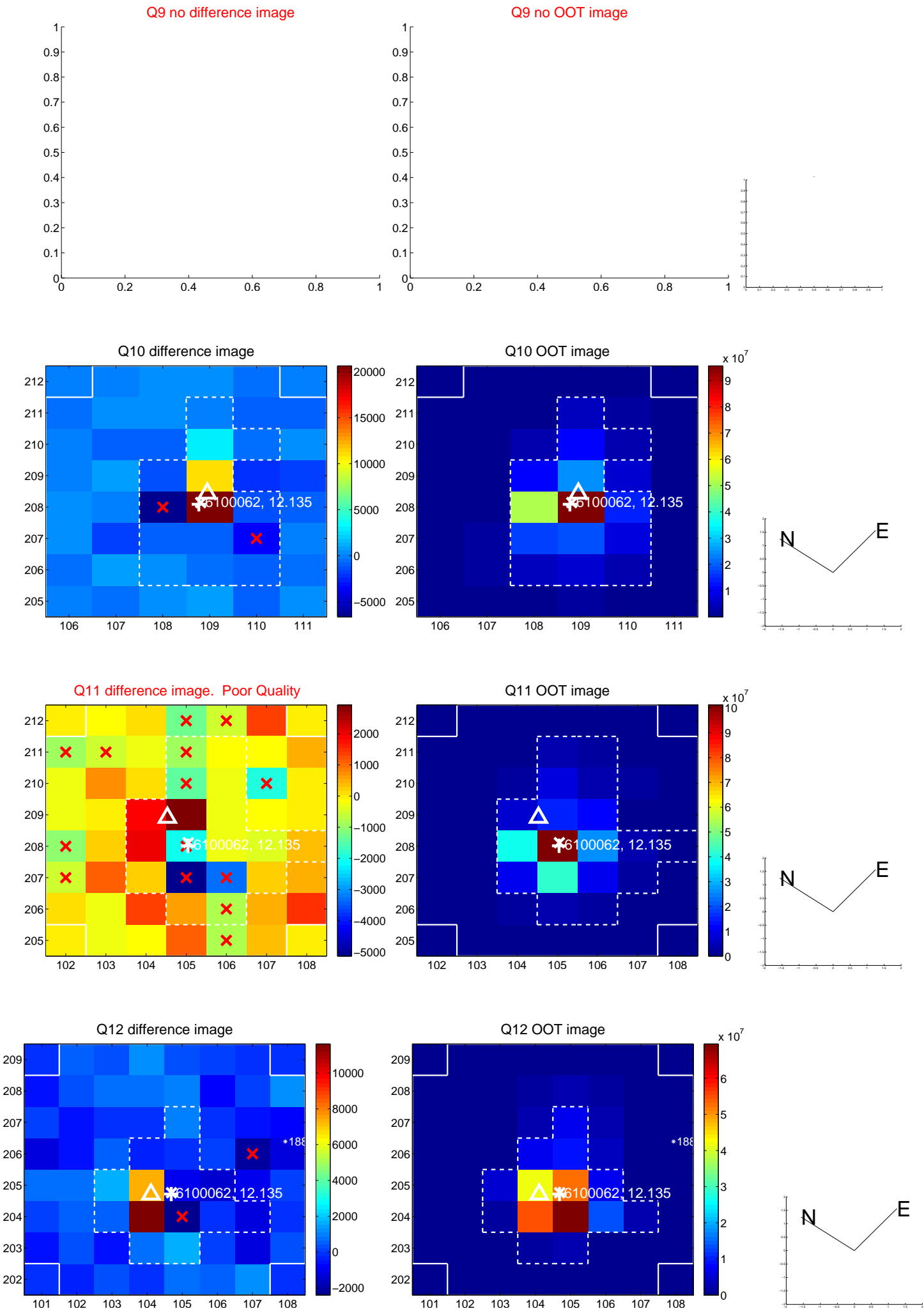
Q8 difference image. Poor Quality



Q8 OOT image

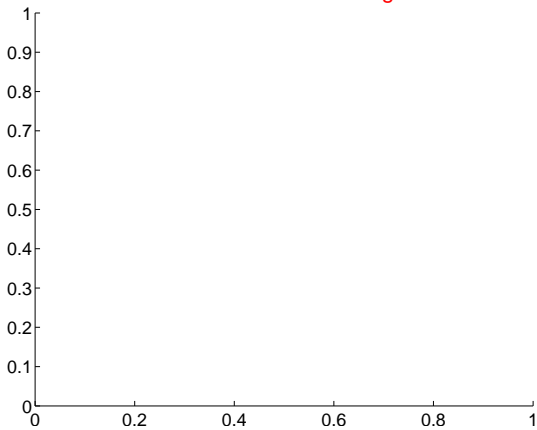


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

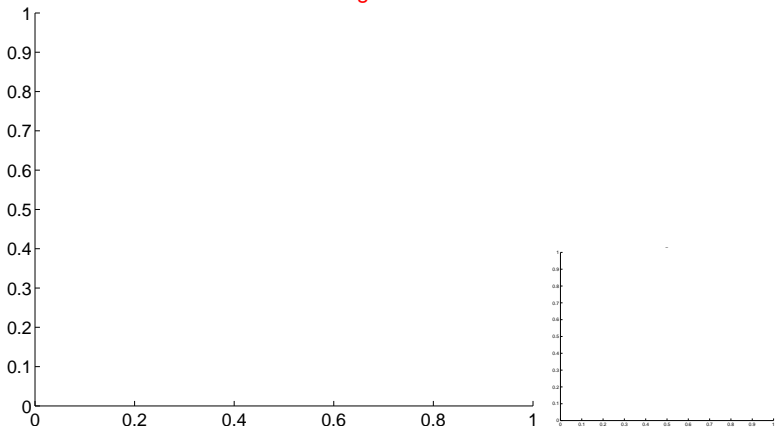


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

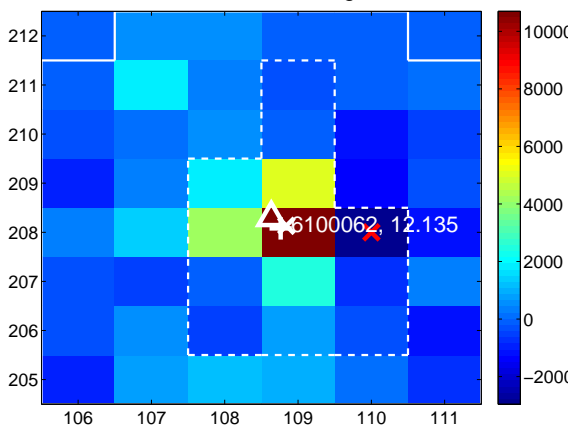
Q13 no difference image



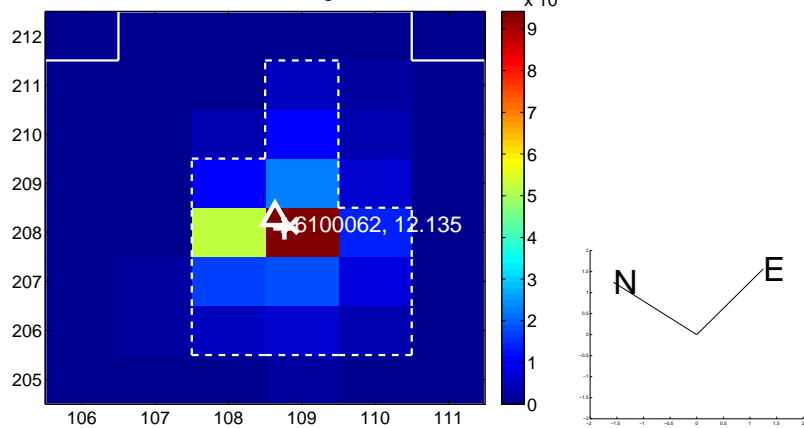
Q13 no OOT image



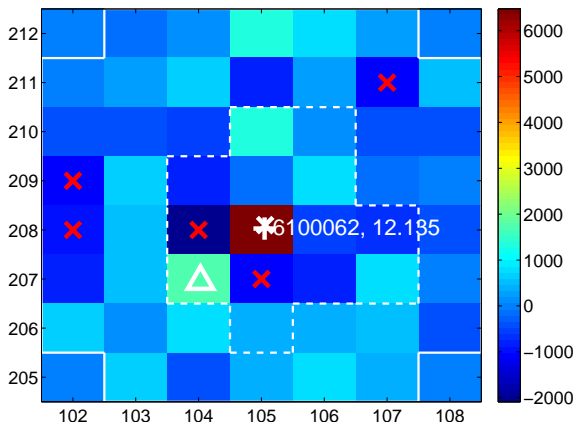
Q14 difference image



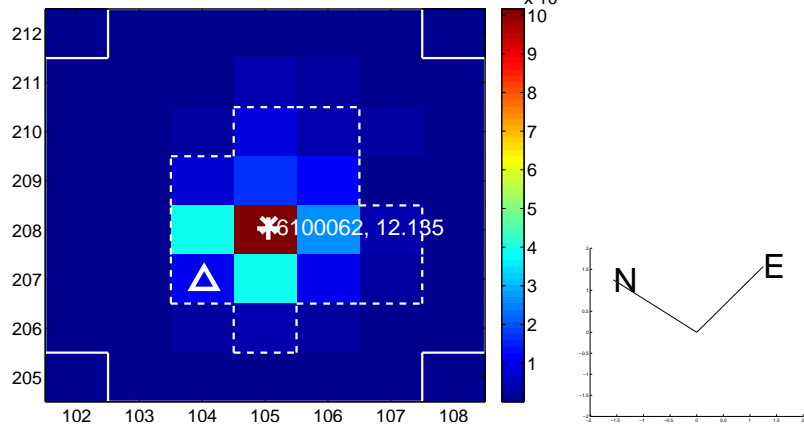
Q14 OOT image



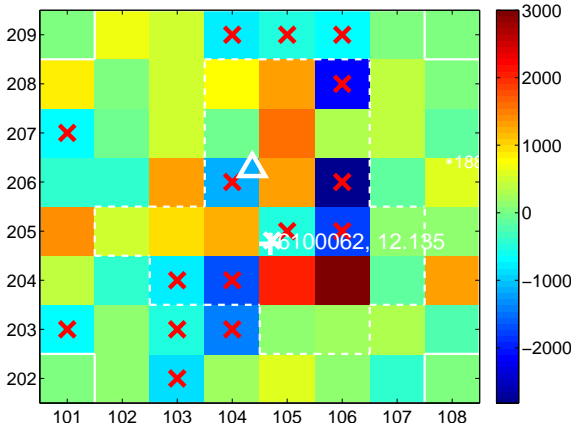
Q15 difference image. Poor Quality



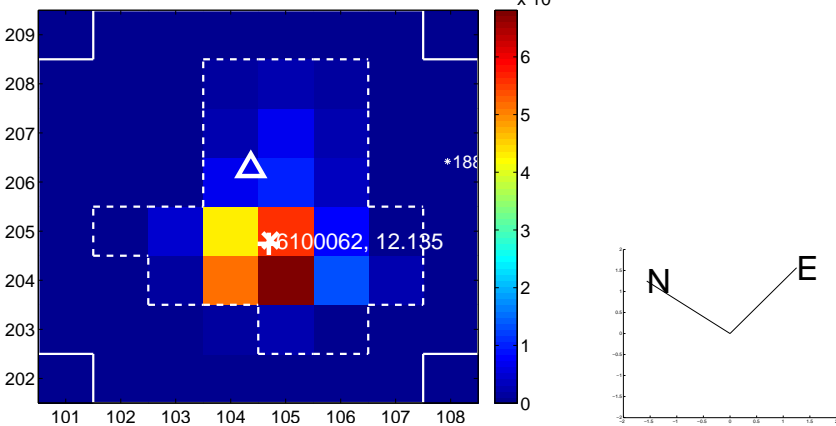
Q15 OOT image



Q16 difference image. Poor Quality

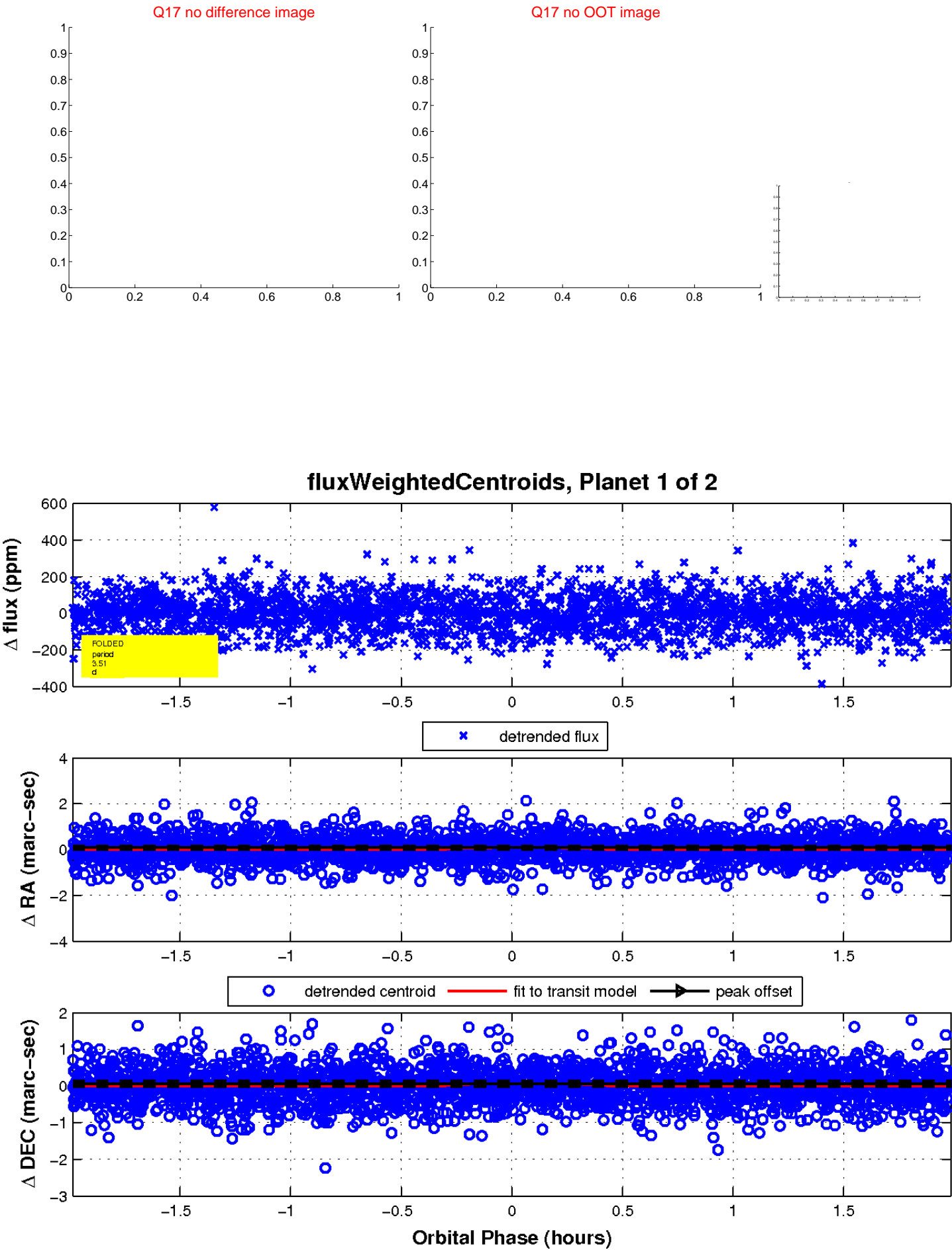


Q16 OOT image

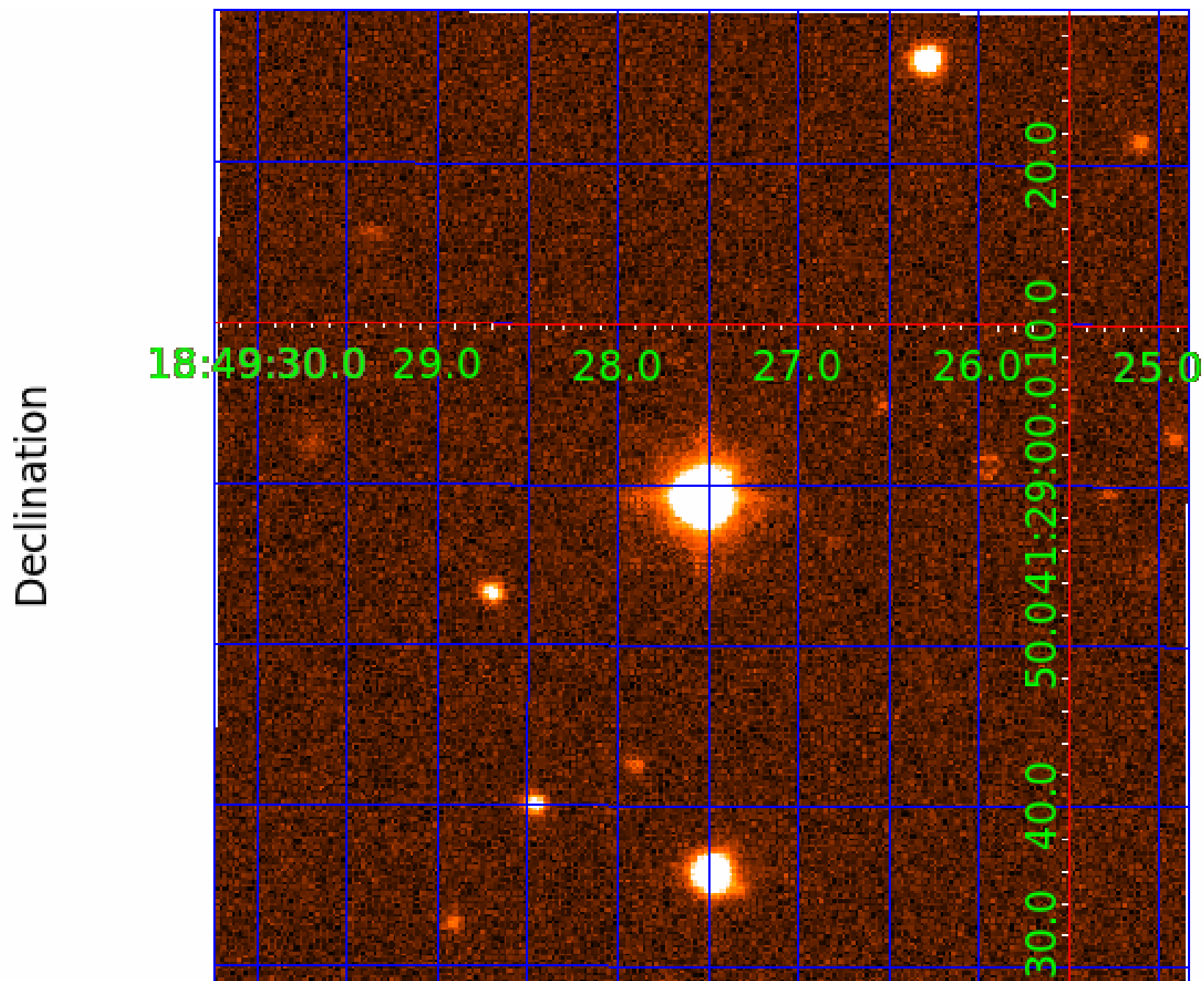




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 006100062

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006100062-01	OBS	No	3.507583	132.299041	6.7	0.662	8.7	1.0	2.77	6924	0.90	5621.09
006100062-02	OBS	No	3.503189	131.647218	68.4	7.500	8.7	-1.0	2.77	6924	2.32	5630.49

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006100062-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV
006100062-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_NOFITS

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

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

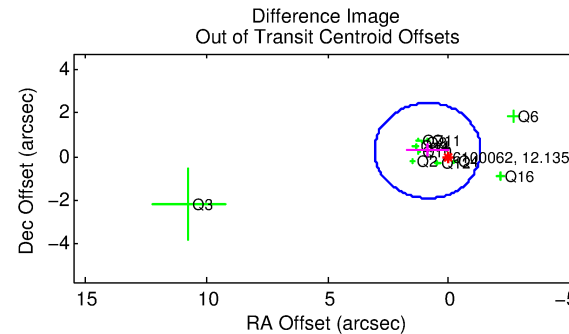
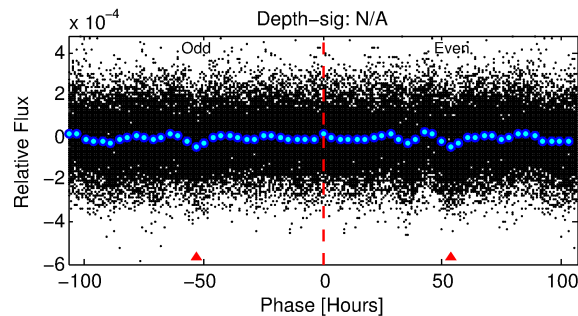
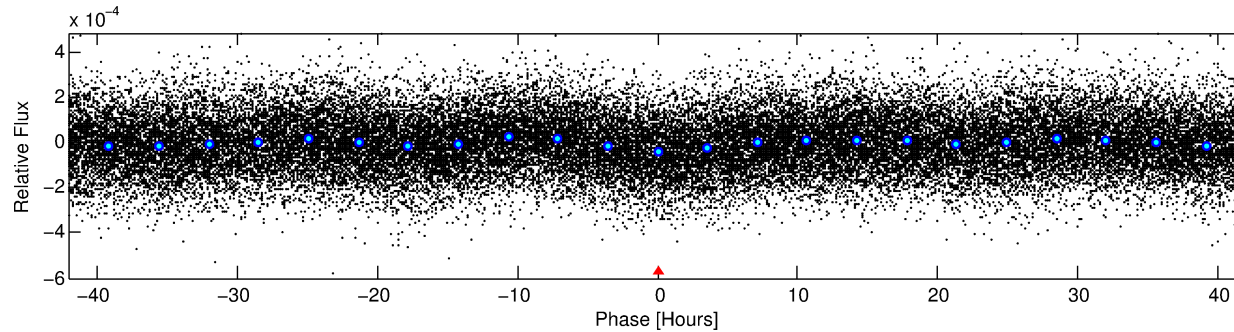
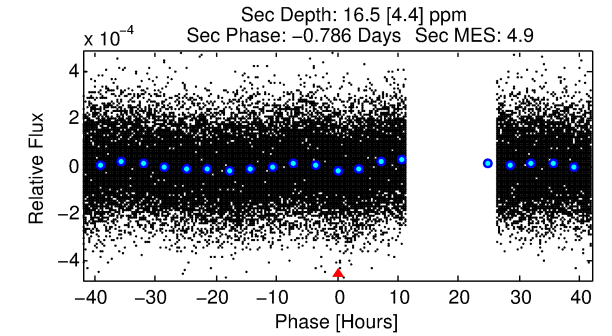
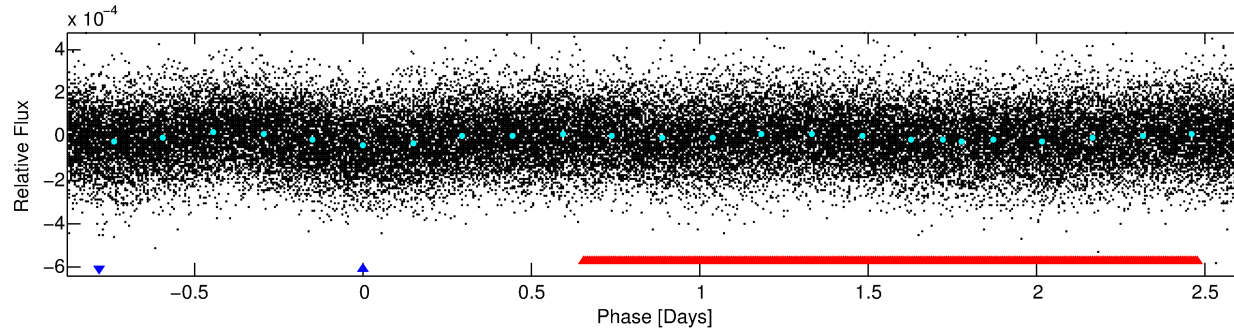
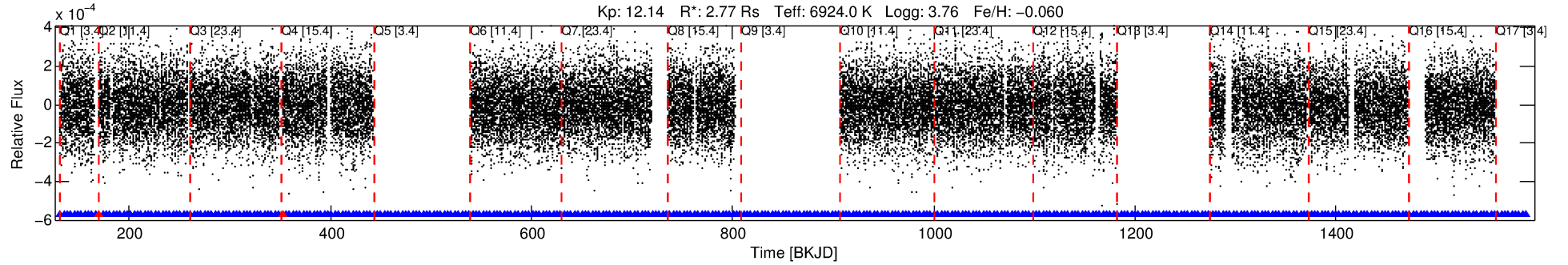
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006100062-02

No Significant Match Found

# DV One-Page Summary

KIC: 6100062 Candidate: 2 of 2 Period: 3.503 d



## TPS TCE Results:

Period = 3.50319 d  
Epoch = 131.6472 BKJD

DV fit results are unavailable

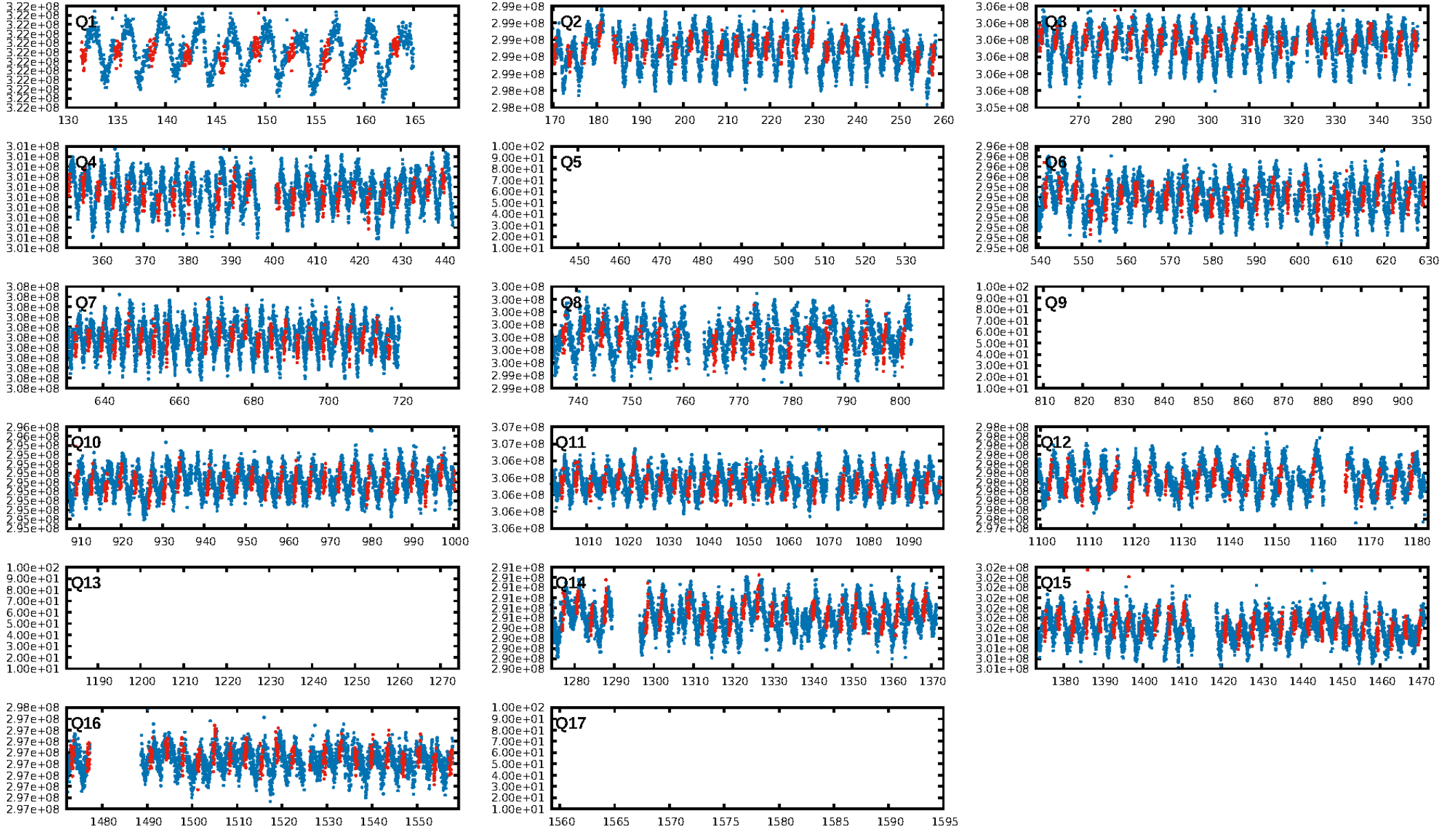
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 1.1% [0.01σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.64e-15  
RollingBand-fgt: 0.99 [288/290]  
GhostDiagnostic-chr: 1.061  
Centroid-sig: 0.2%  
Centroid-so: 0.379 arcsec [2.53σ]  
OotOffset-rm: 0.921 arcsec [1.26σ]  
KicOffset-rm: 0.688 arcsec [0.80σ]  
OotOffset-st: 4/3/4/0 [11]  
KicOffset-st: 4/3/4/0 [11]  
DiffImageQuality-fgm: 0.82 [9/11]  
DiffImageOverlap-fno: 0.62 [8/13]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:51:49 Z

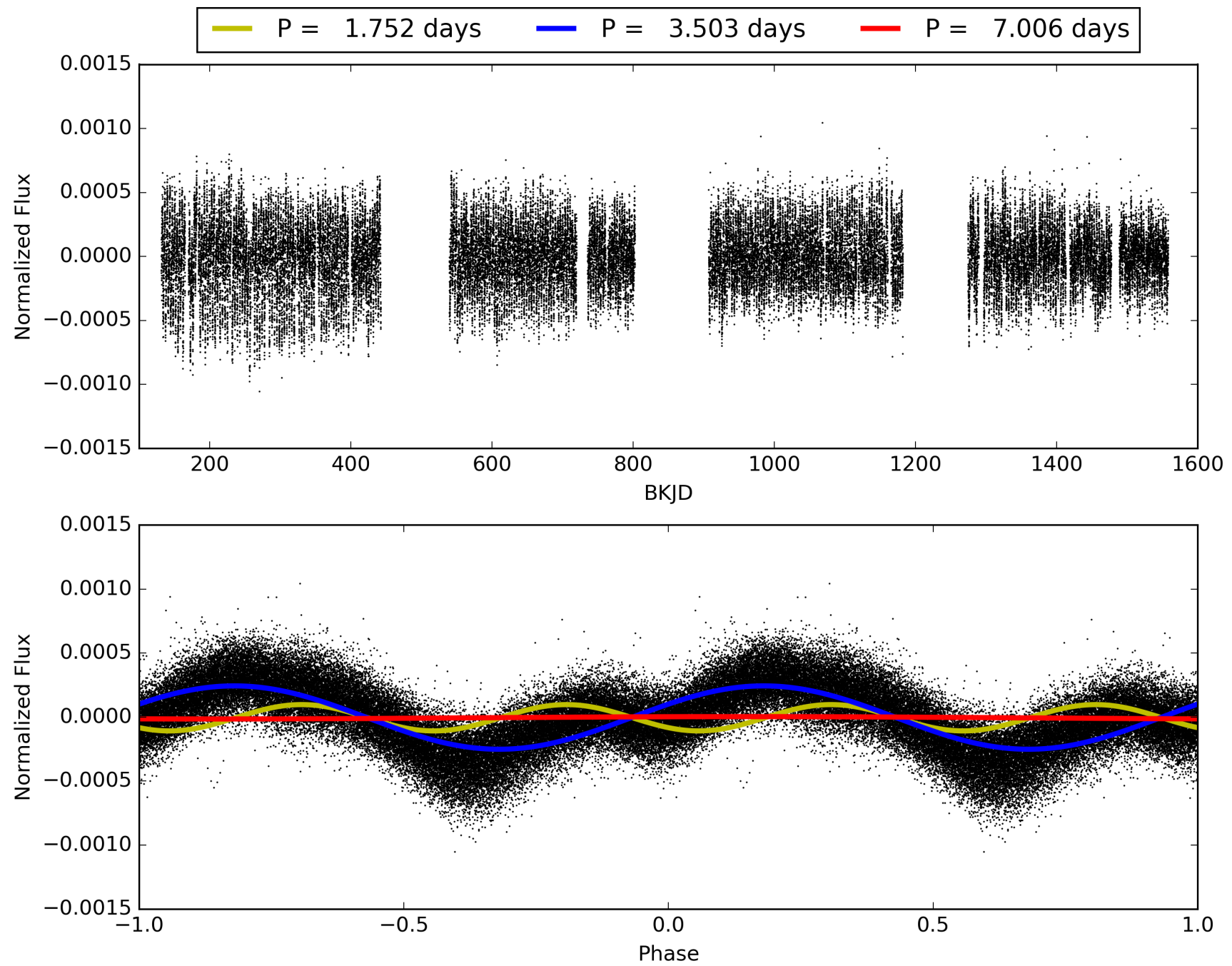
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006100062-02, PDC Light Curves



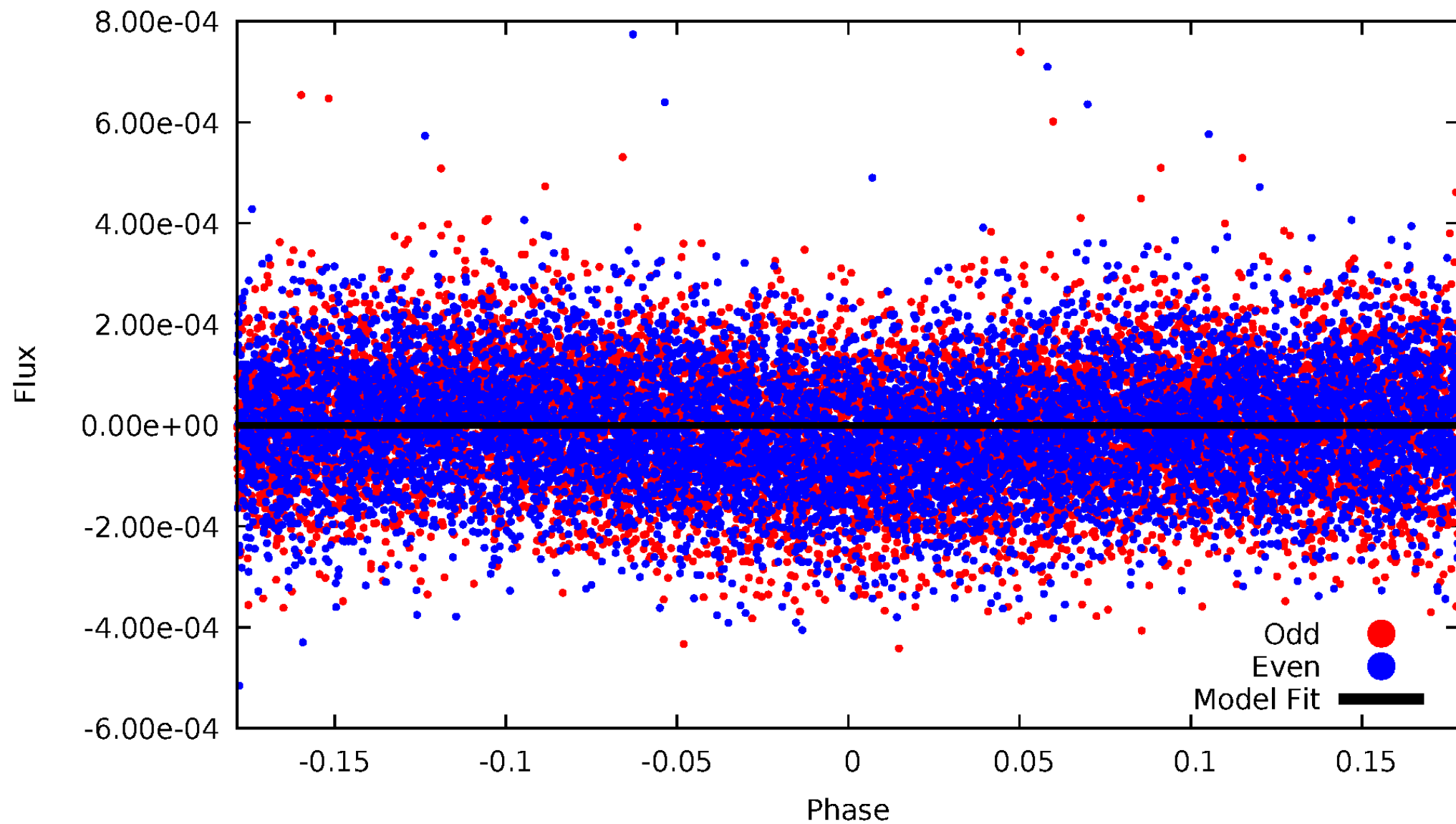


TCE 006100062-02



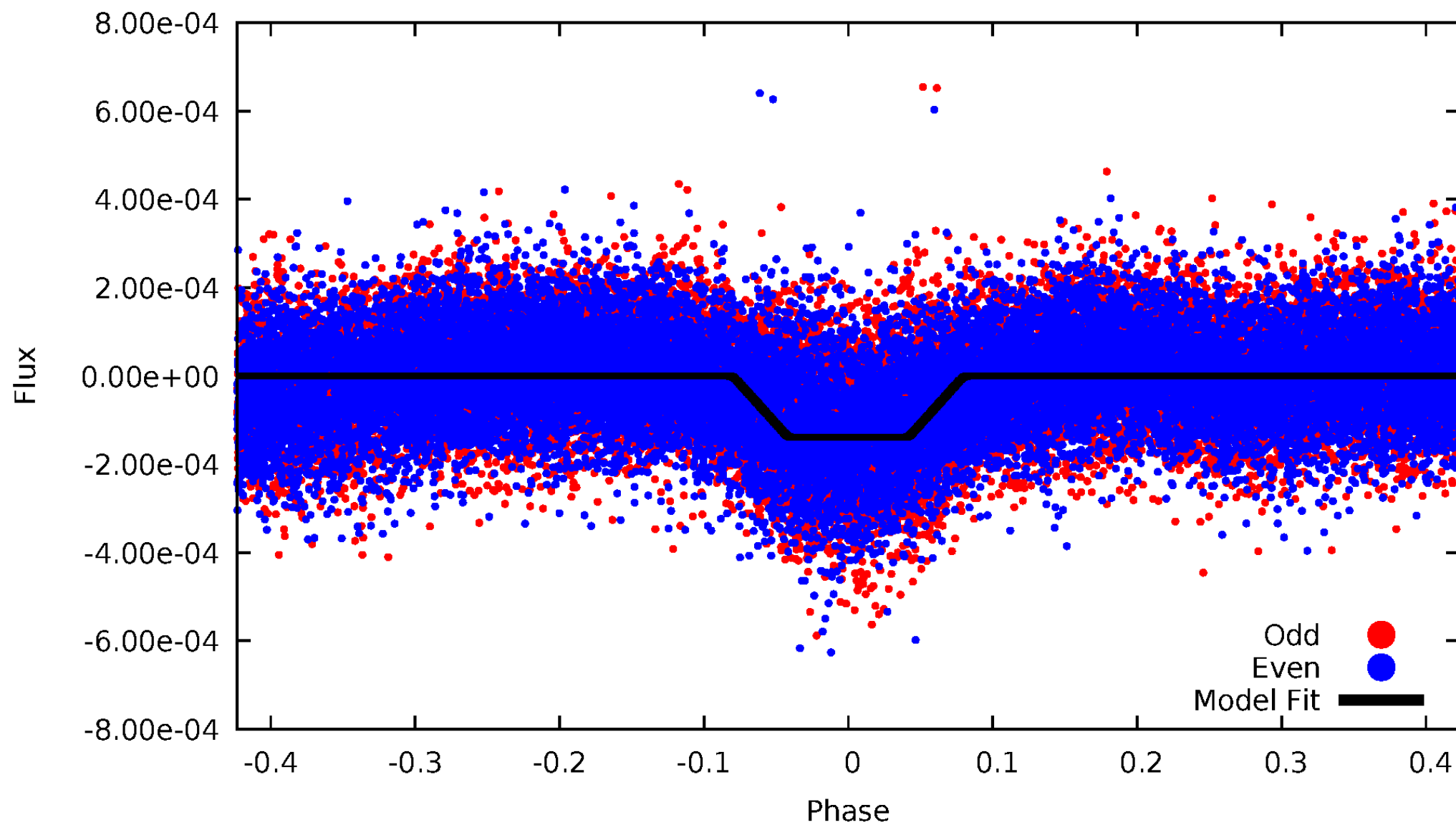
# DV Odd/Even

TCE 006100062-02



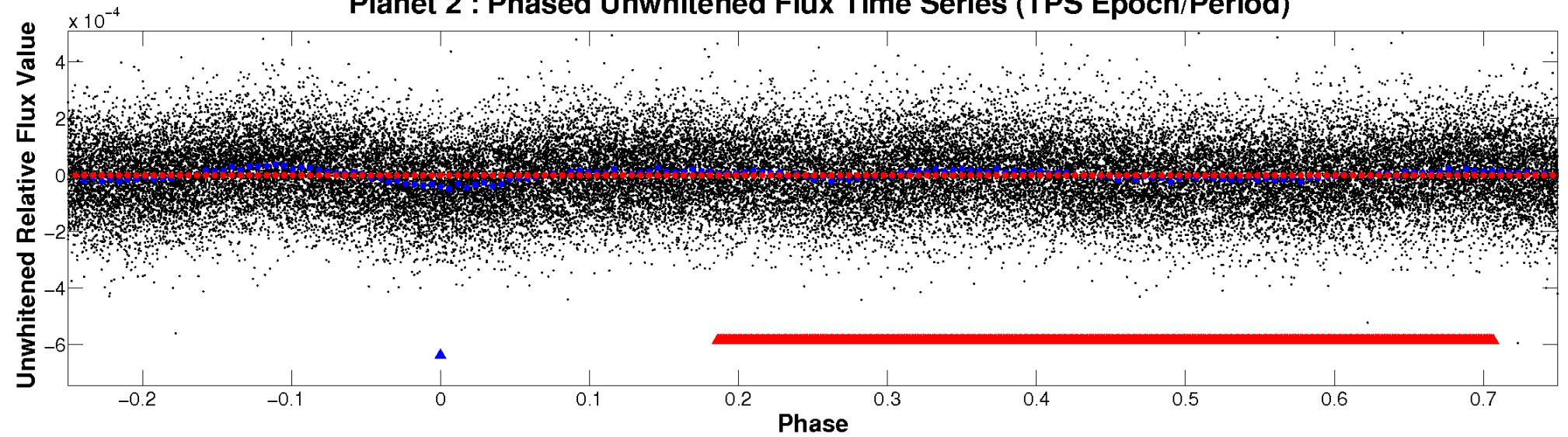
# ALT Odd/Even

TCE 006100062-02

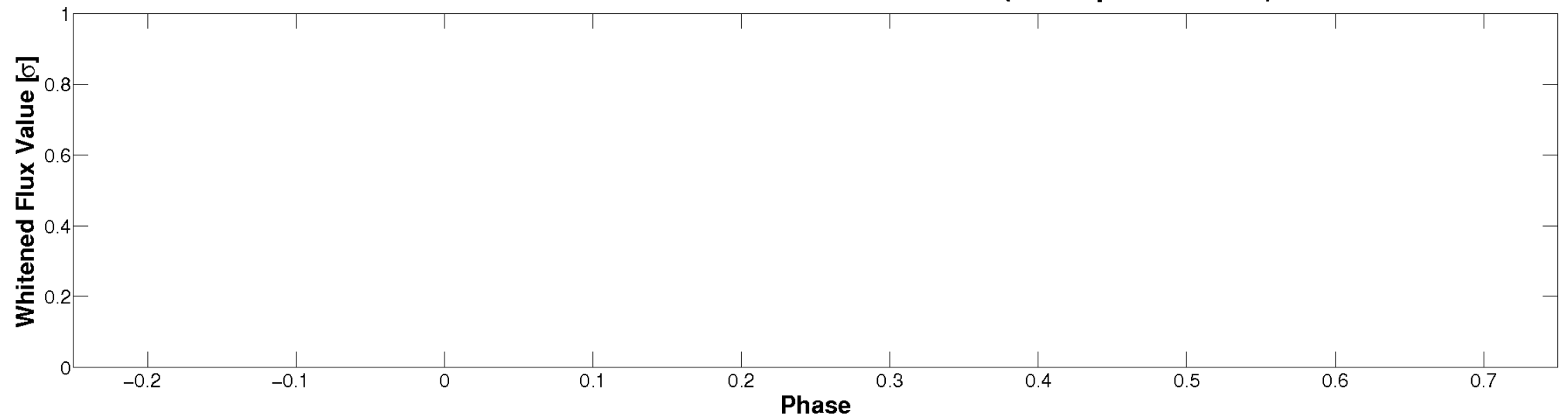


# Non-Whitened Vs. Whitened Light Curve

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

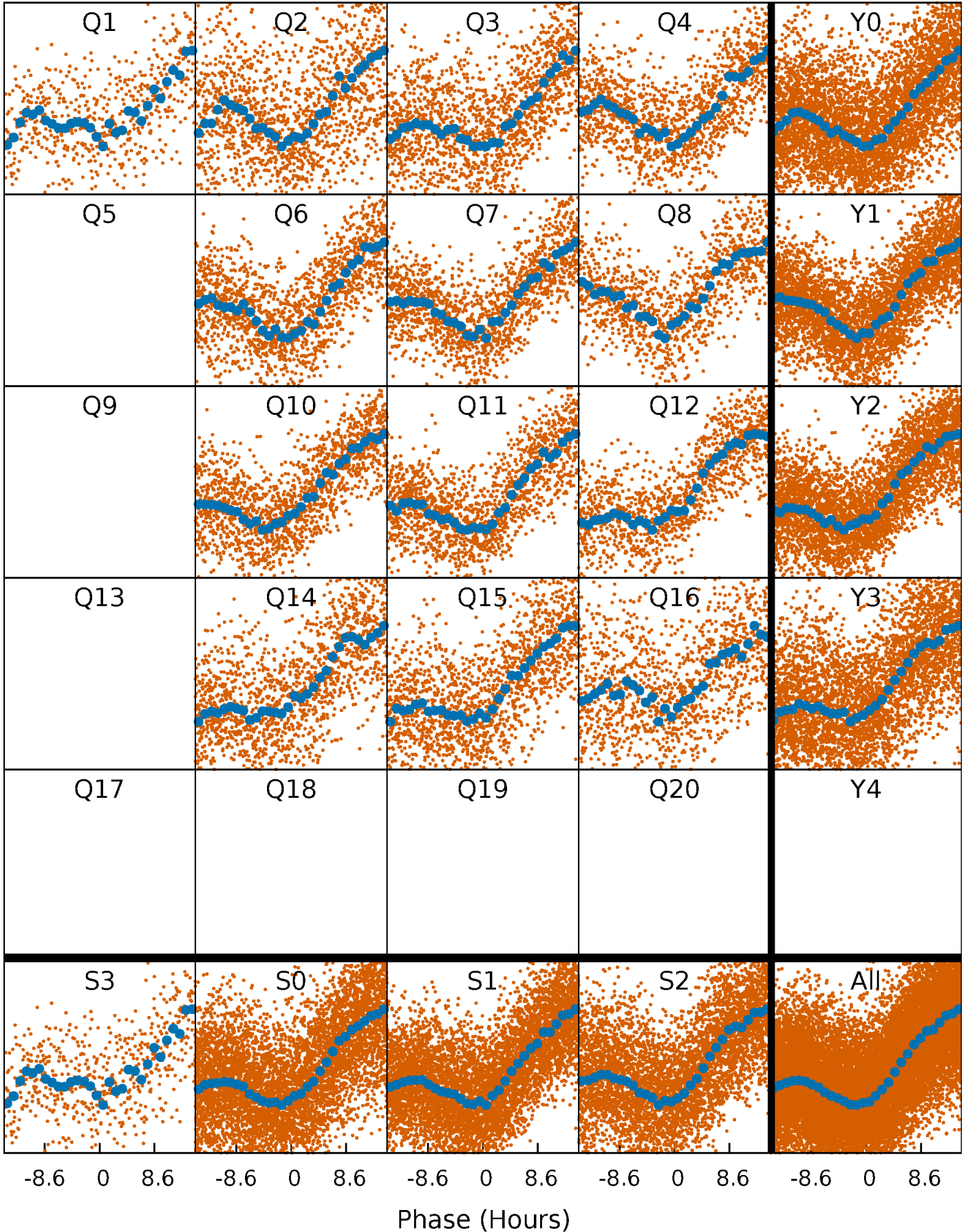


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

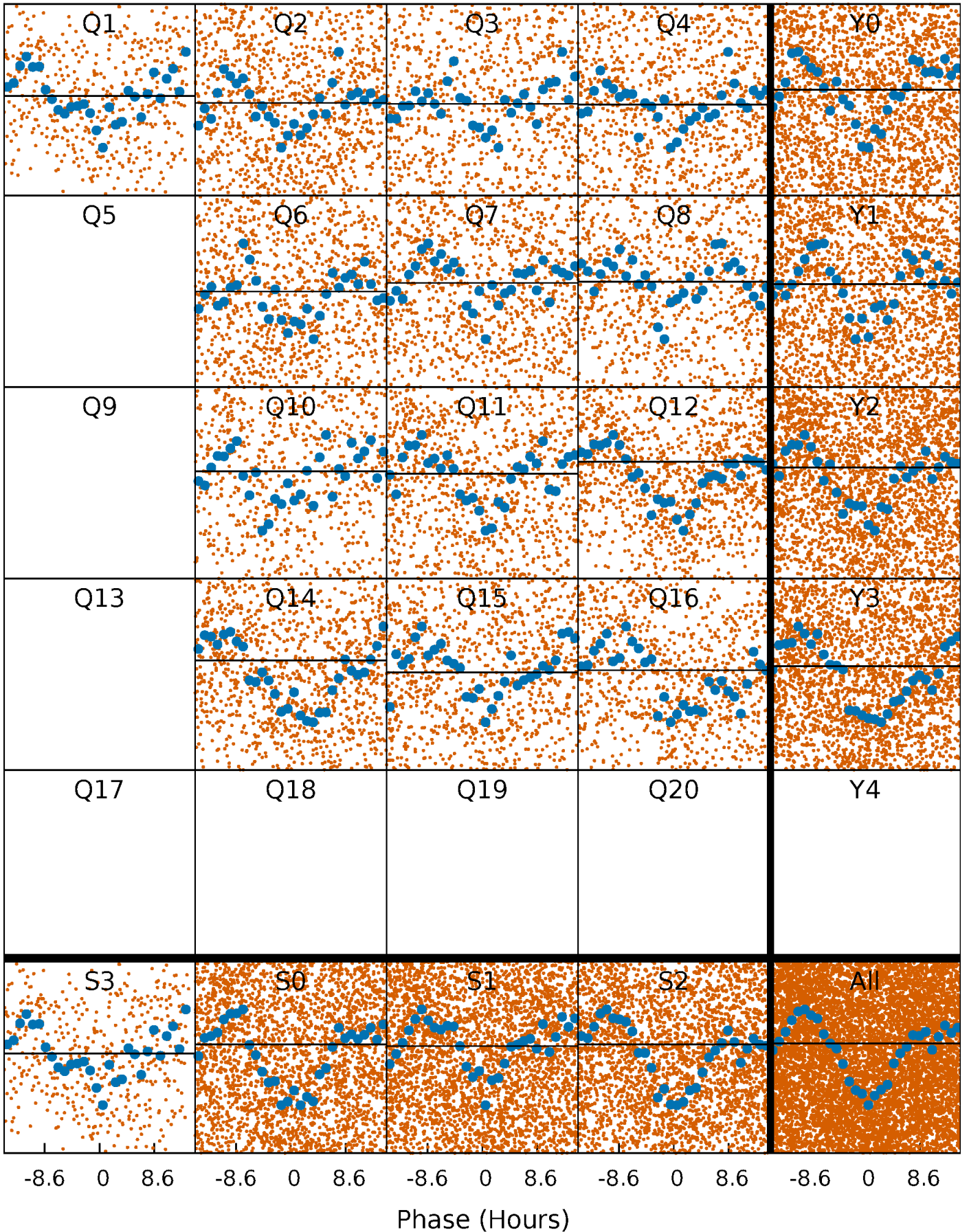
TCE 006100062-02 P= 3.503189 Days  $T_0=131.647218$  (BKJD)





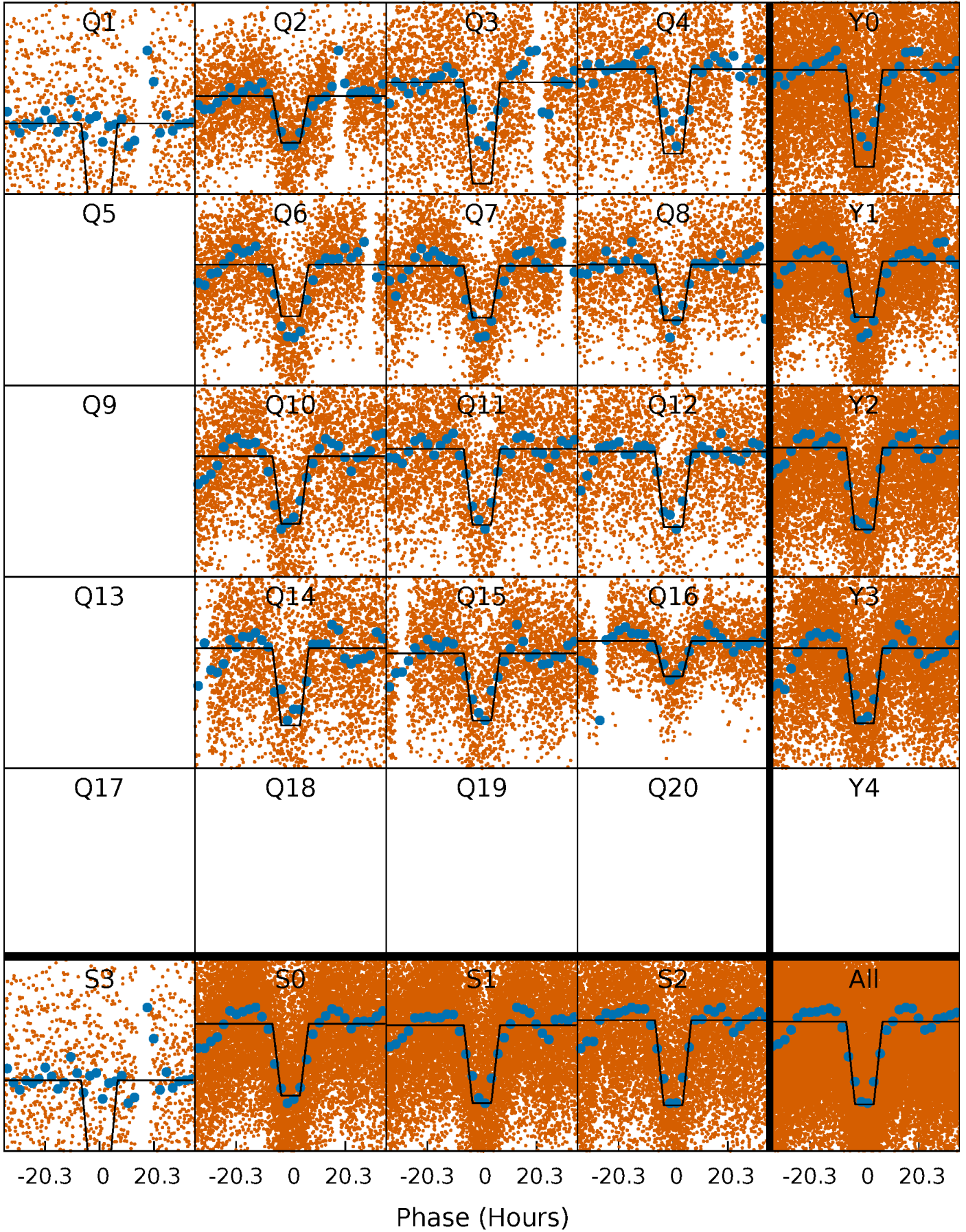
# DV Quarter-Phased Transit Curves

TCE 006100062-02 P= 3.503189 Days  $T_0=131.647218$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

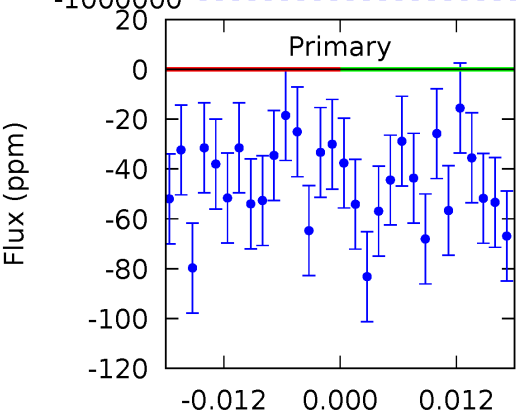
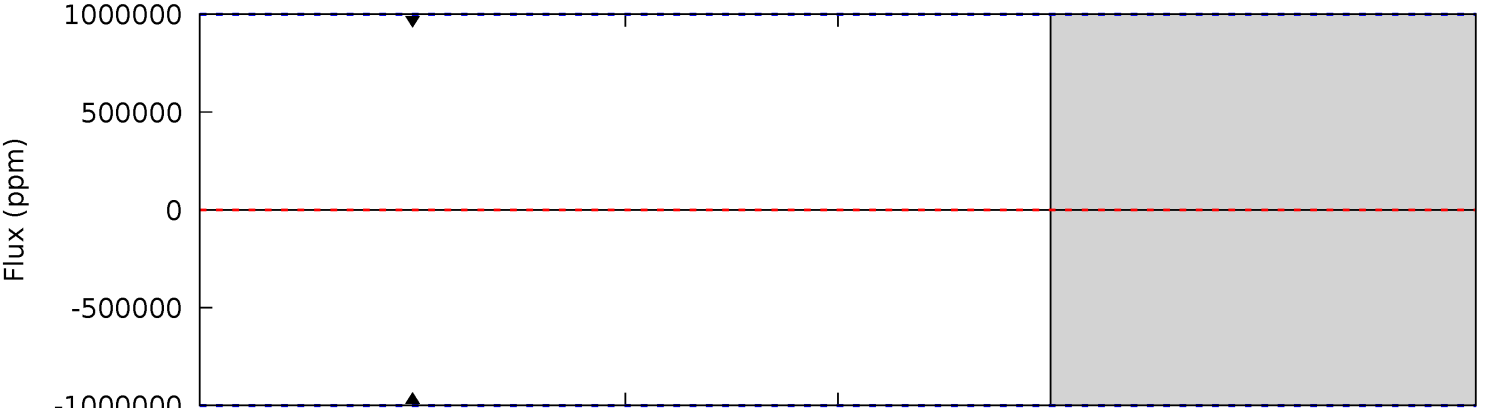
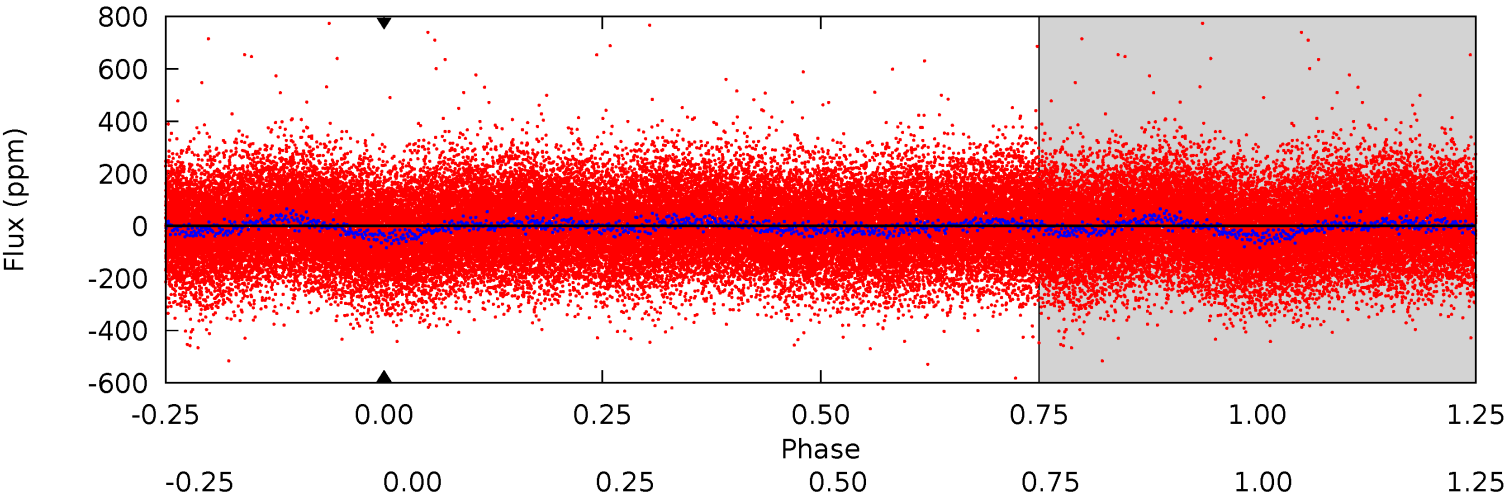
TCE 006100062-02 P= 3.503189 Days  $T_0=131.641913$  (BKJD)



DV Model-Shift Uniqueness Test

006100062-02, P = 3.503189 Days, E = 128.144029 Days

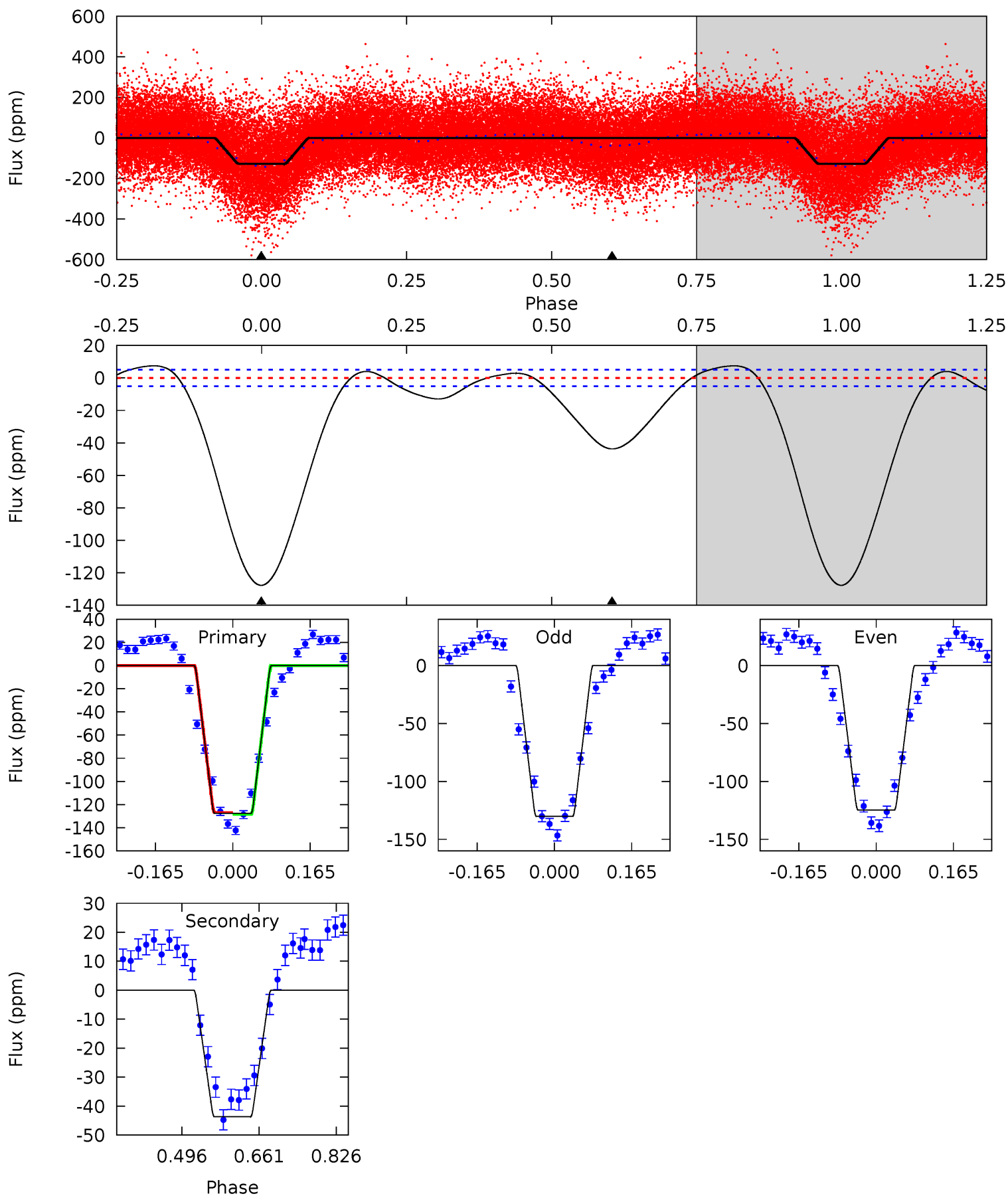
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

006100062-02, P = 3.503189 Days, E = 128.138724 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
112.3	38.4	0	0	4.46	1.39	5.98	112.3	112.3	38.4	38.4	2.42	0.96	0.06	0.68





### Stellar Parameters For KIC 006100062

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6924^{+163}_{-225}$	$3.762^{+0.277}_{-0.092}$	$-0.060^{+0.250}_{-0.300}$	$2.775^{+0.485}_{-0.901}$	$1.623^{+0.219}_{-0.267}$	$0.107^{+0.206}_{-0.032}$
	+2%/-3%	+7%/-2%	+417%/-500%	+17%/-32%	+13%/-16%	+193%/-30%
Source	PHO1	FLK73	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 006100062-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$20.00^{+22.28}_{-14.22}$	$3027^{+186}_{-264}$	$5231^{+35117}_{-37093}$	$8.198^{+873.901}_{-566.270}$
Alt.	$-44 \pm 1$	$20.41^{+21.72}_{-14.80}$	$3018^{+178}_{-265}$	$-2711^{+6816}_{-358}$	$0.162^{+2.122}_{-0.123}$

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

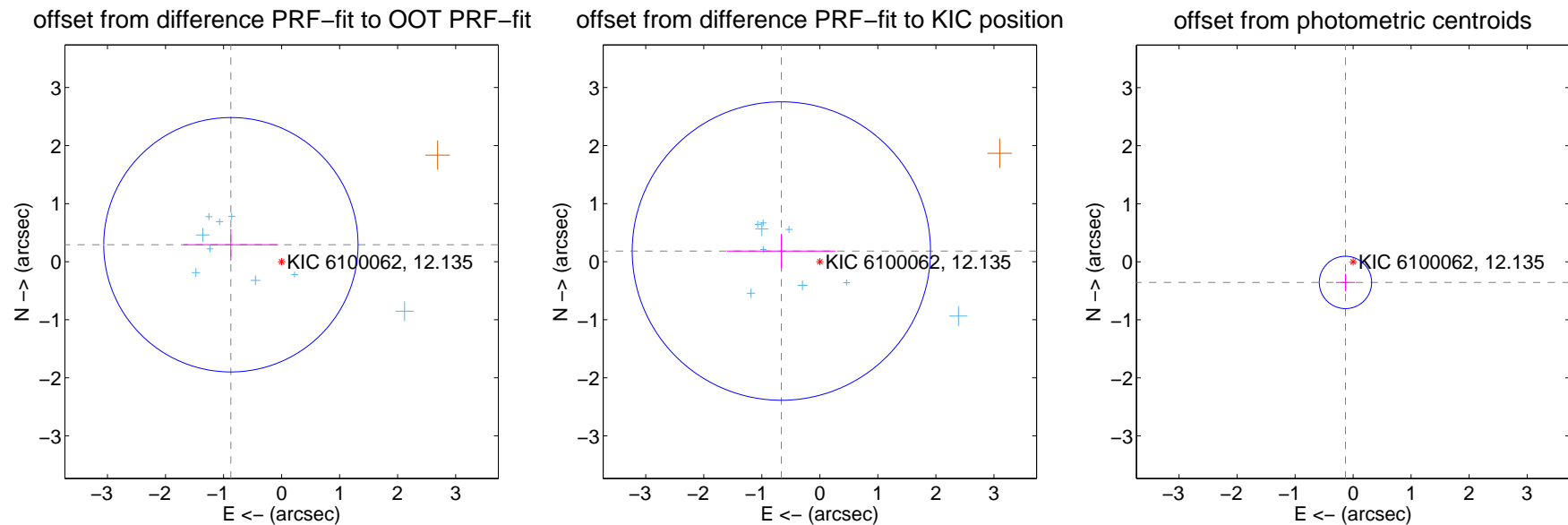
## DV Centroid Data

Supplemental centroid analysis for 006100062-02. Kepler magnitude: 12.13. Transit SNR -1.00

There are 9 quarters with good PRF difference image offsets

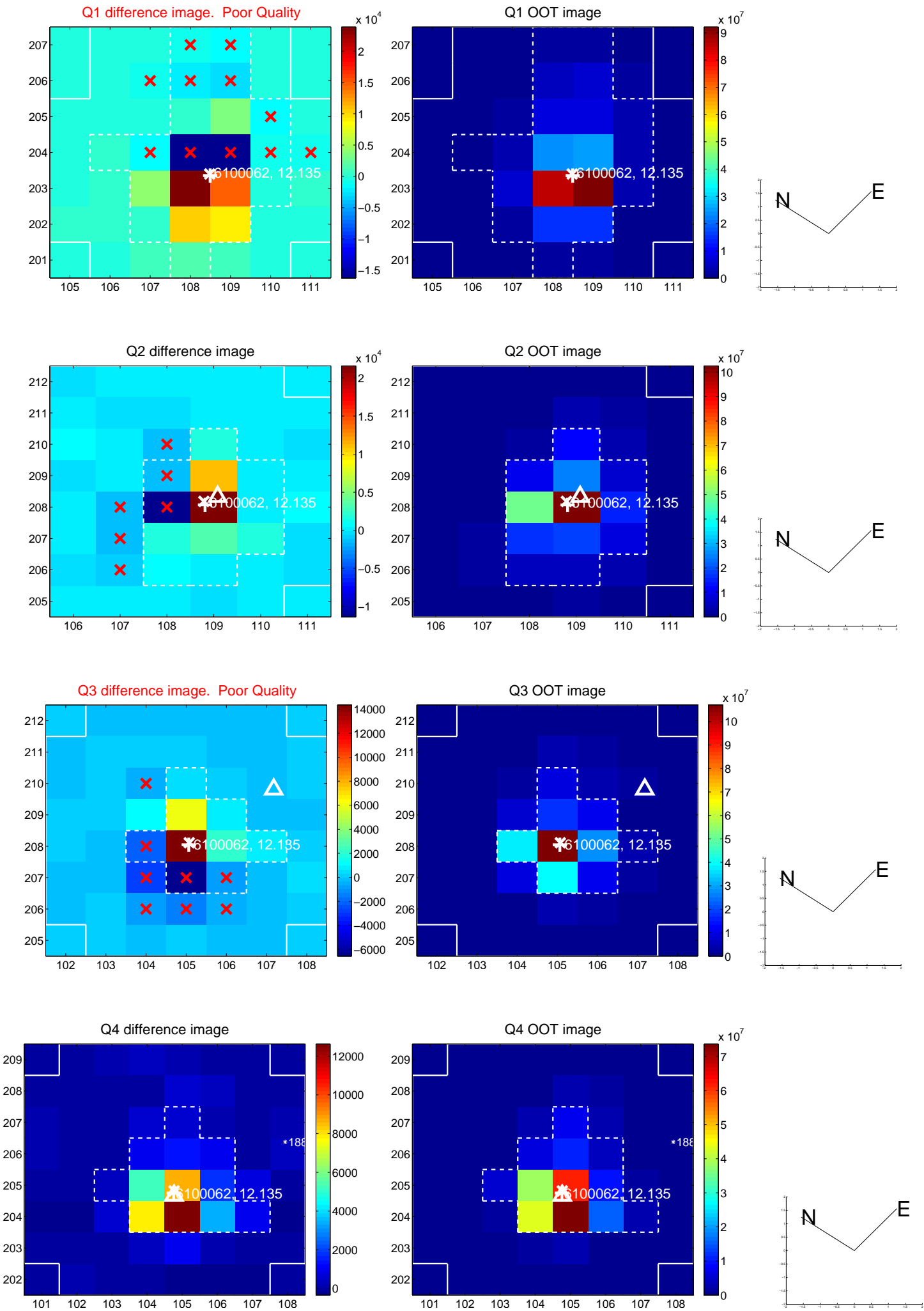
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.921 \pm 0.730$	1.26	$0.873 \pm 0.817$	$0.292 \pm 0.273$
PRF-fit source offset from KIC position	$0.688 \pm 0.856$	0.80	$0.663 \pm 0.937$	$0.183 \pm 0.294$
photometric centroid source offset	$0.38 \pm 0.15$	2.53	$0.13 \pm 0.16$	$-0.36 \pm 0.15$



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

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





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

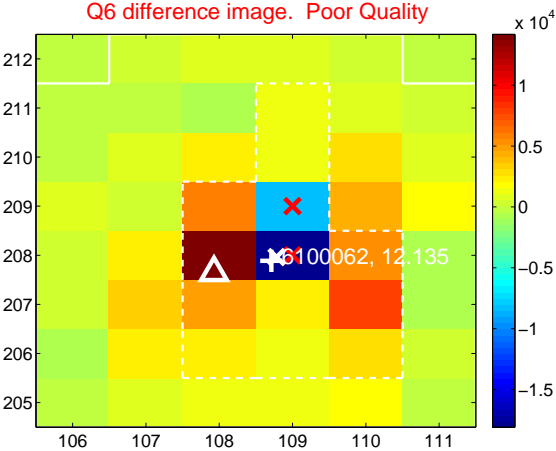
Q5 no difference image



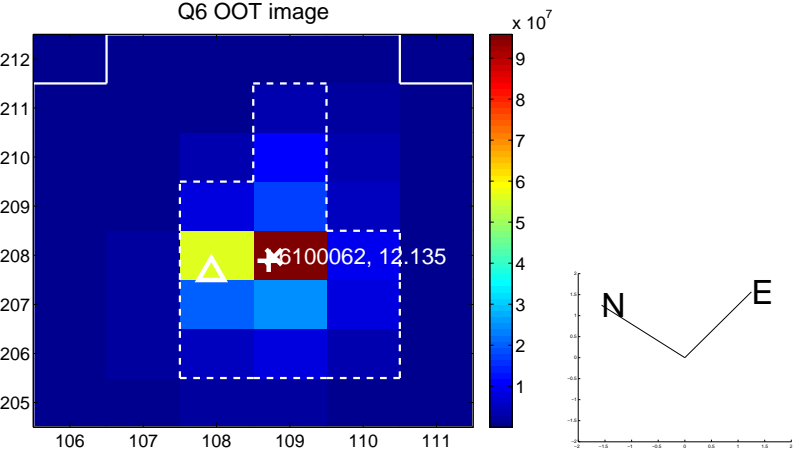
Q5 no OOT image



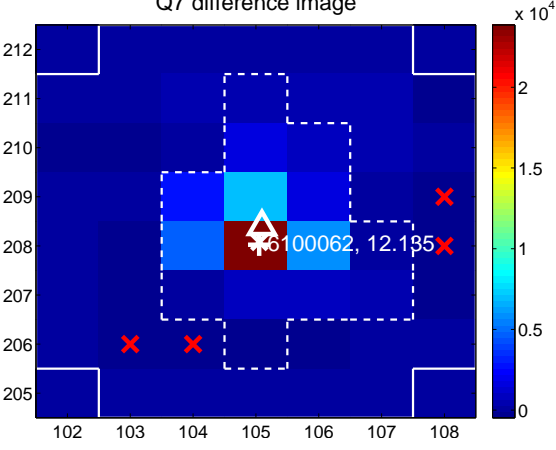
Q6 difference image. Poor Quality



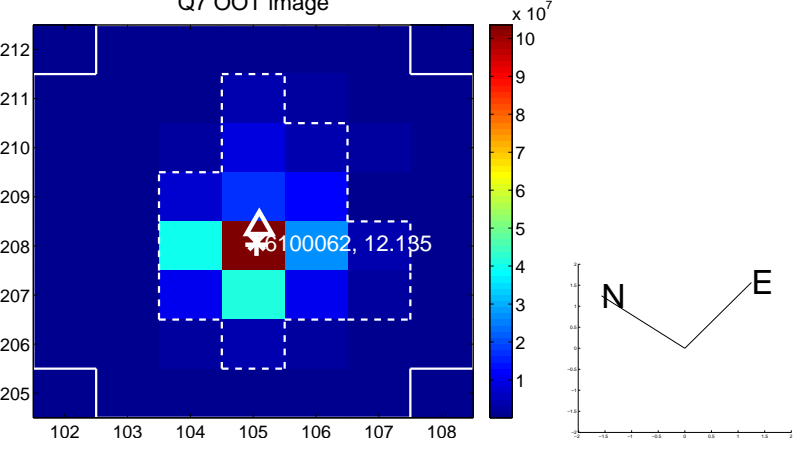
Q6 OOT image



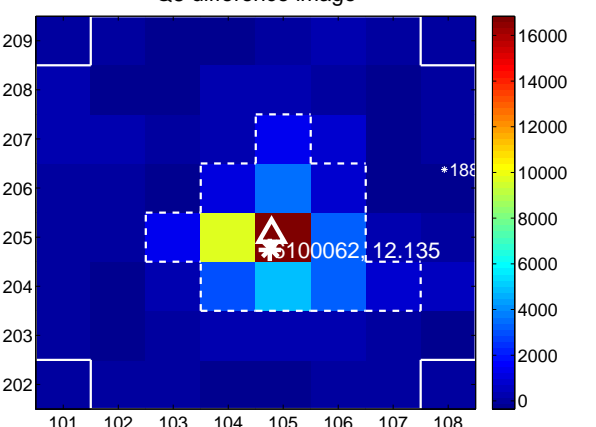
Q7 difference image



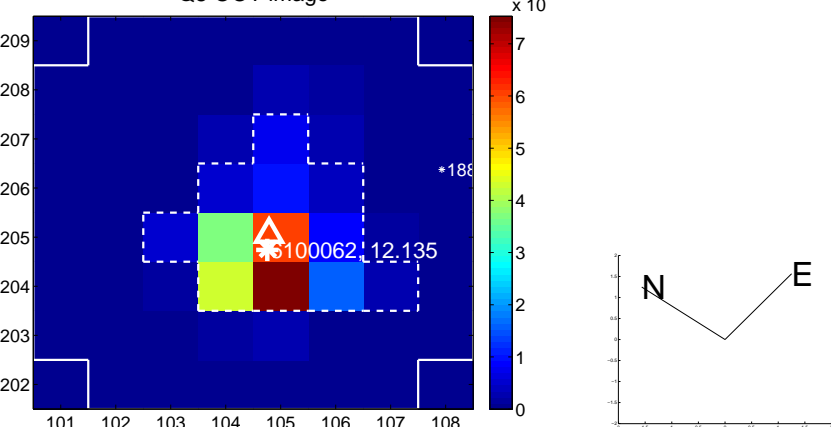
Q7 OOT image



Q8 difference image



Q8 OOT image



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

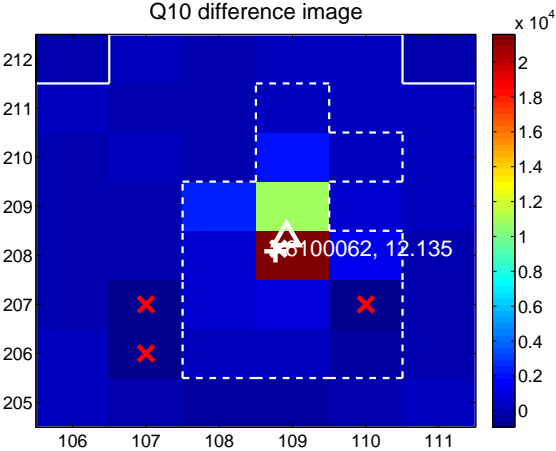
Q9 no difference image



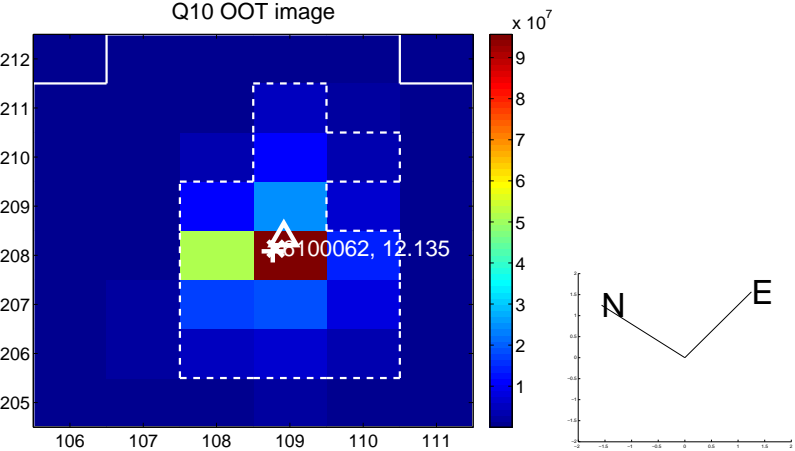
Q9 no OOT image



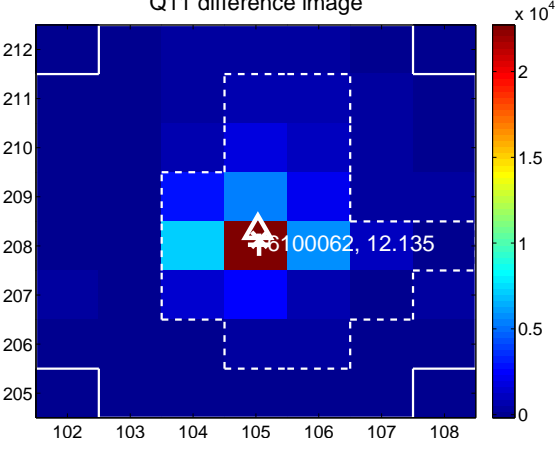
Q10 difference image



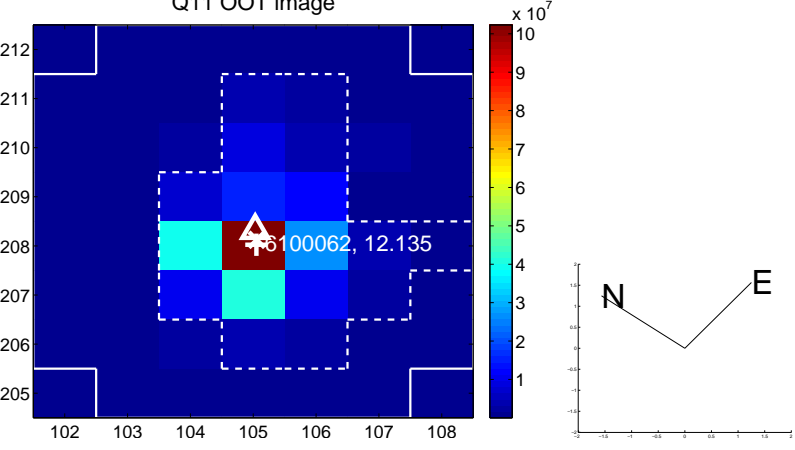
Q10 OOT image



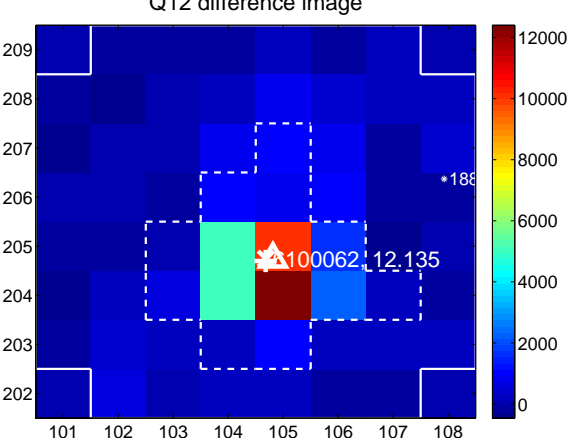
Q11 difference image



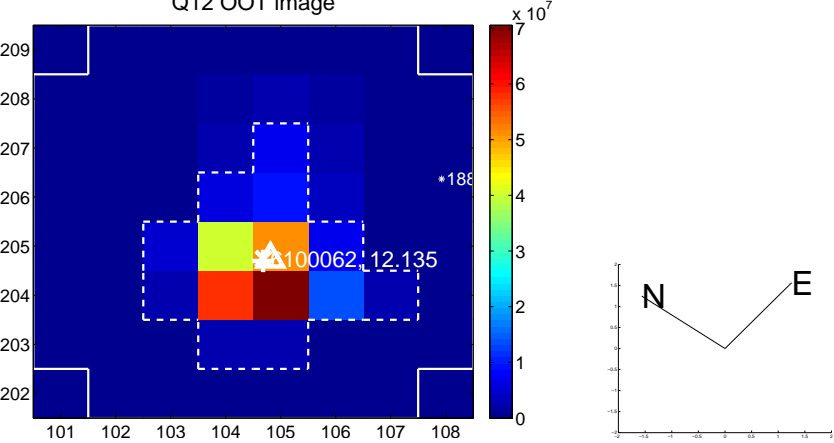
Q11 OOT image



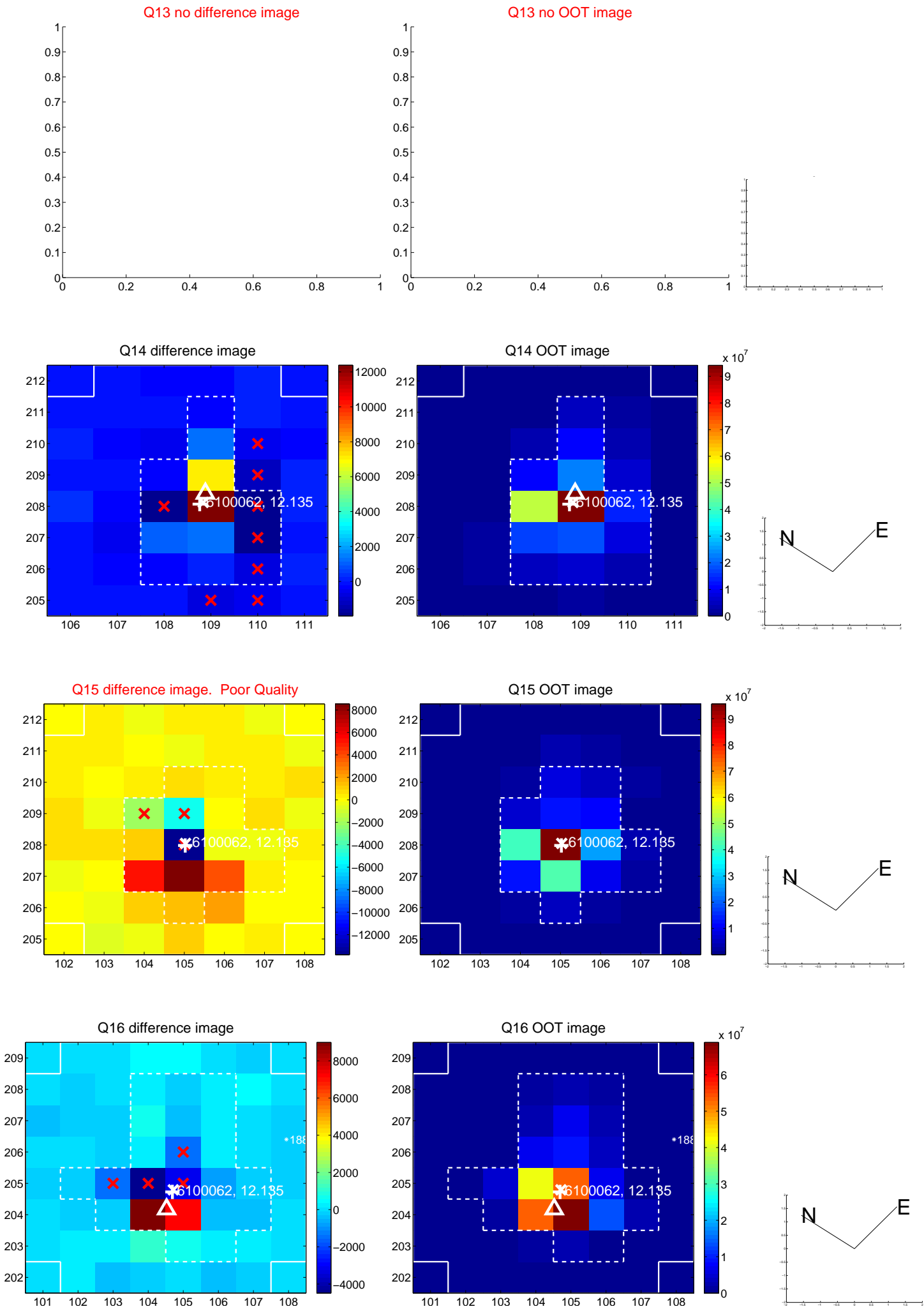
Q12 difference image



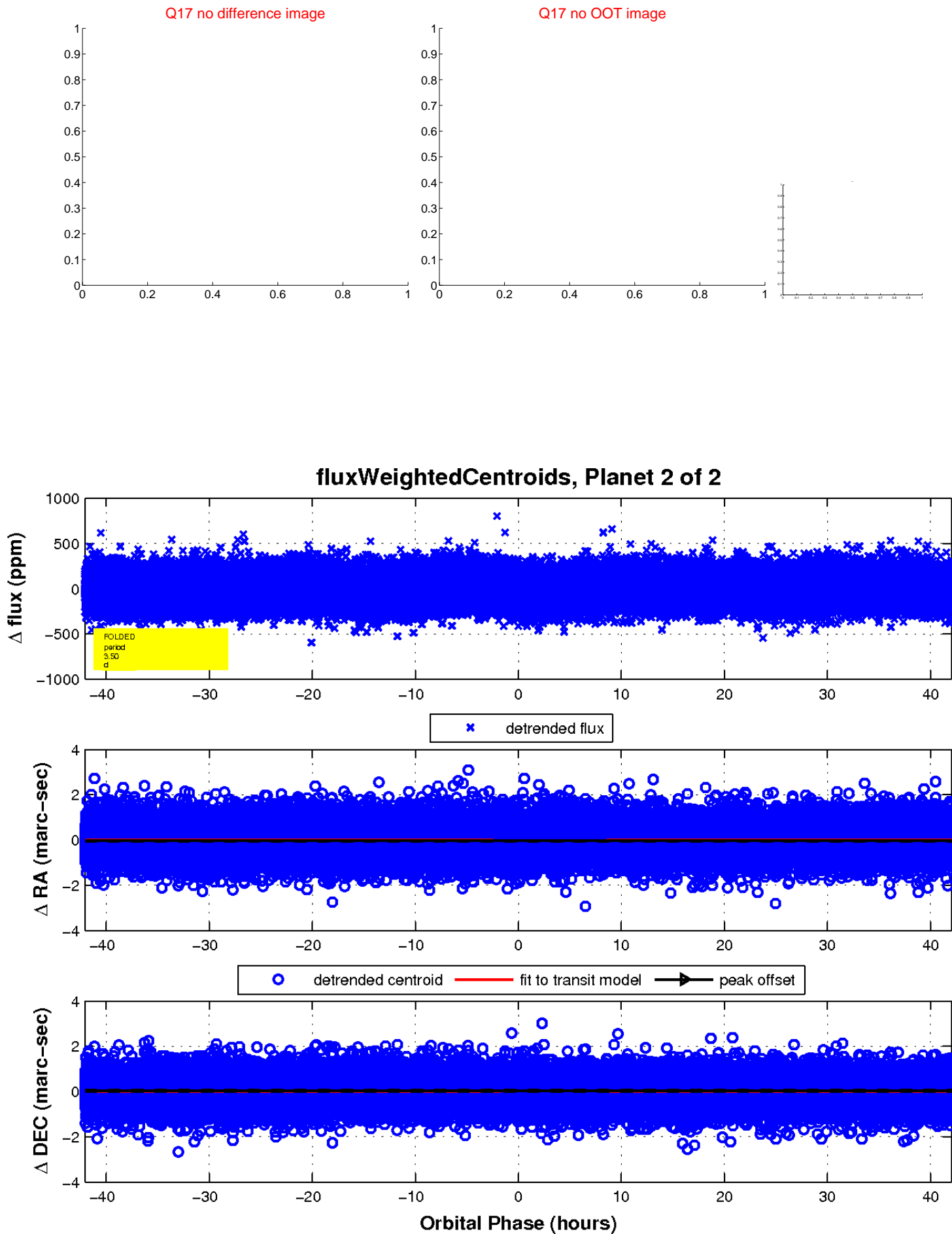
Q12 OOT image



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



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



UKIRT Image

