

# KIC 010279745

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010279745-01	OBS	No	0.603901	131.844771	47.7	1.330	11.8	12.9	2.54	7872	2.04	72232.22
010279745-02	OBS	No	0.603905	131.980857	40.3	0.928	8.4	8.4	2.54	7872	1.88	72231.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010279745-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010279745-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

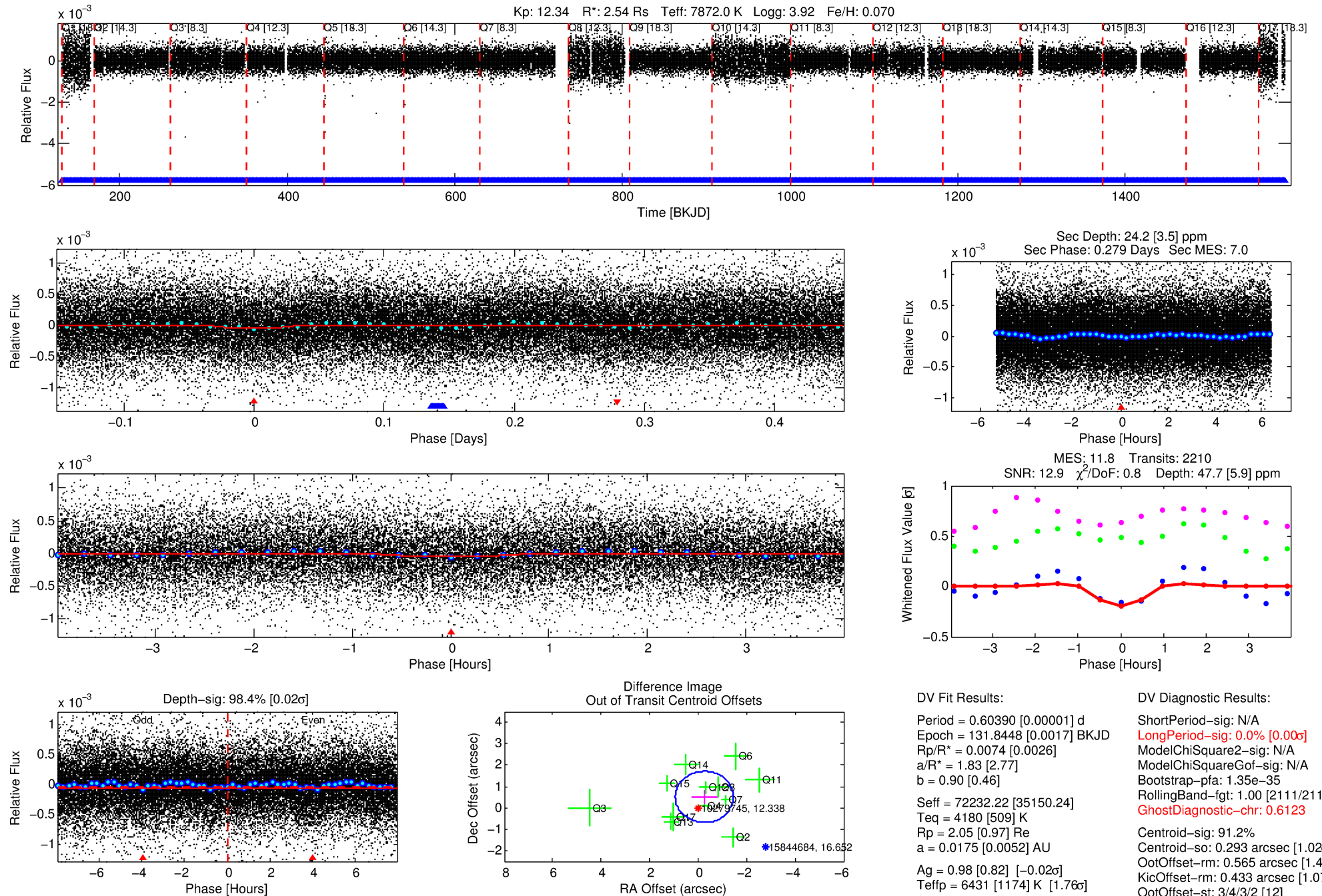
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010279745-01

No Significant Match Found

# DV One-Page Summary

KIC: 10279745 Candidate: 1 of 2 Period: 0.604 d



## DV Fit Results:

Period = 0.60390 [0.00001] d  
Epoch = 131.8448 [0.0017] BKJD  
Rp/R\* = 0.0074 [0.0026]  
a/R\* = 1.83 [2.77]  
b = 0.90 [0.46]  
Seff = 72232.22 [35150.24]  
Teq = 4180 [509] K  
Rp = 2.05 [0.97] Re  
a = 0.0175 [0.0052] AU  
Ag = 0.98 [0.82] [-0.02 $\sigma$ ]  
Teffp = 6431 [1174] K [1.76 $\sigma$ ]

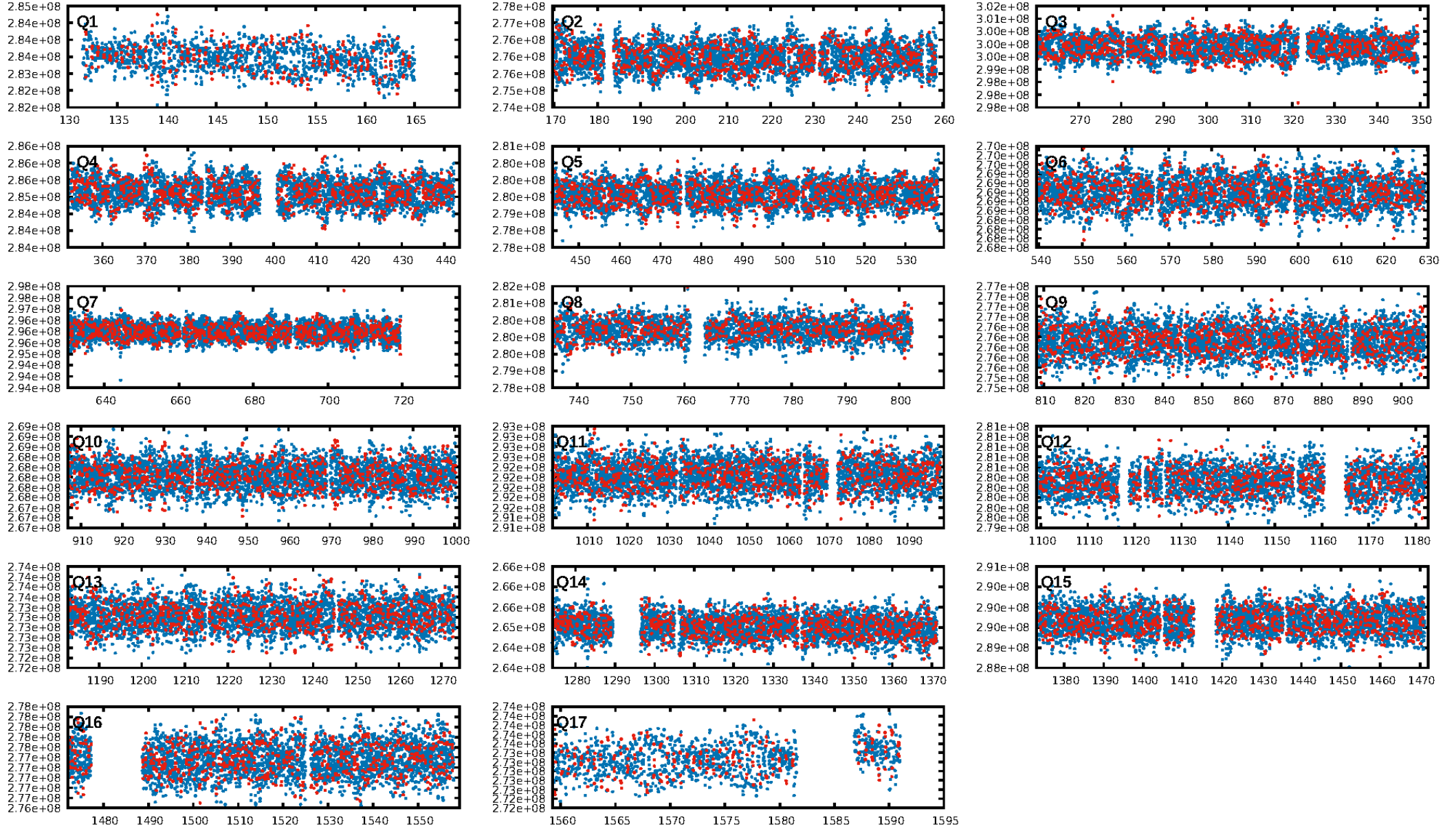
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.35e-35  
RollingBand-fgt: 1.00 [2111/2111]  
GhostDiagnostic-chr: 0.6123  
Centroid-sig: 91.2%  
Centroid-so: 0.293 arcsec [1.02 $\sigma$ ]  
OotOffset-rm: 0.565 arcsec [1.42 $\sigma$ ]  
KicOffset-rm: 0.433 arcsec [1.07 $\sigma$ ]  
OotOffset-st: 3/4/3/2 [12]  
KicOffset-st: 3/4/3/2 [12]  
DiffImageQuality-fgm: 0.50 [6/12]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:10:25 Z

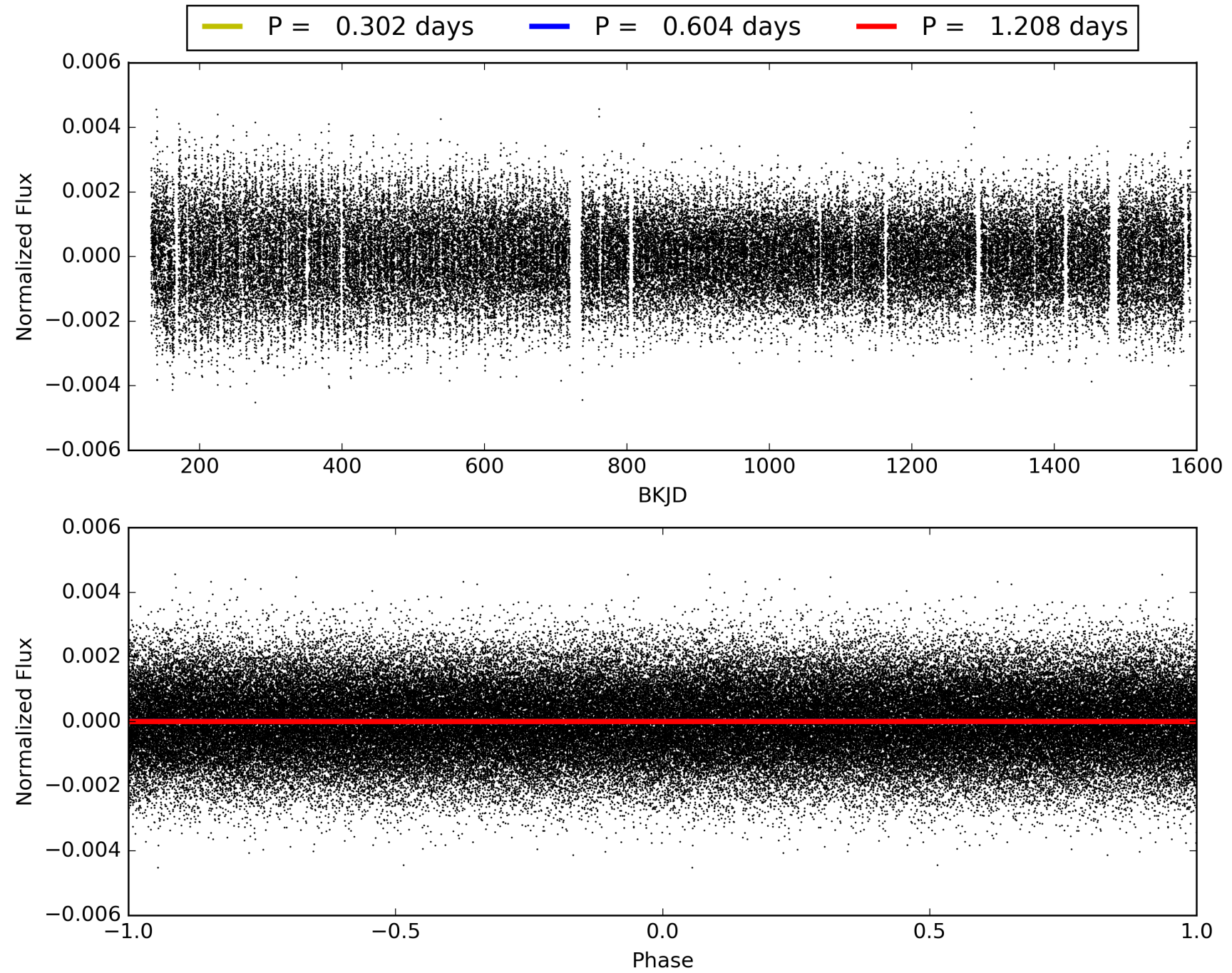
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010279745-01, PDC Light Curves



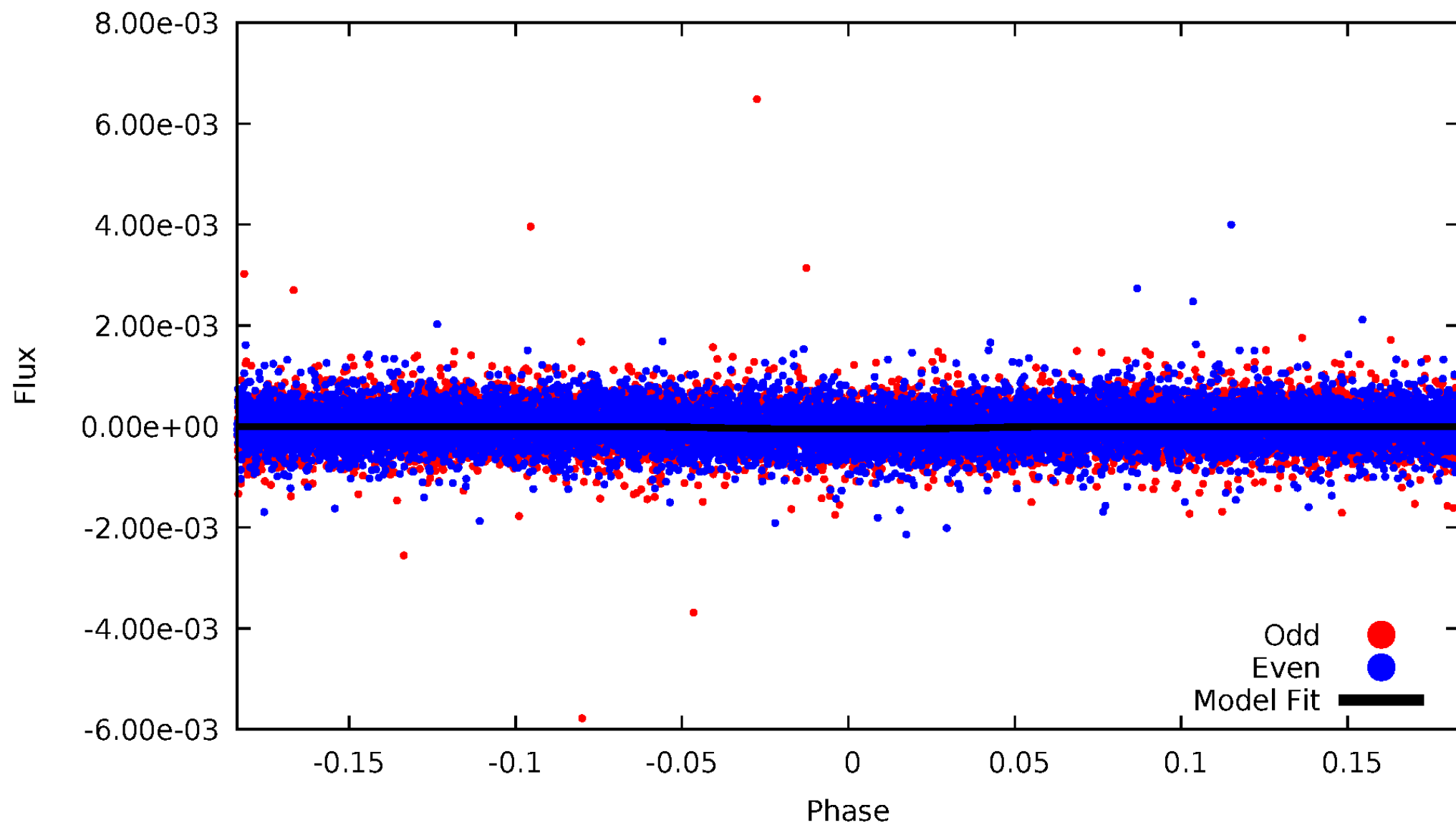


TCE 010279745-01



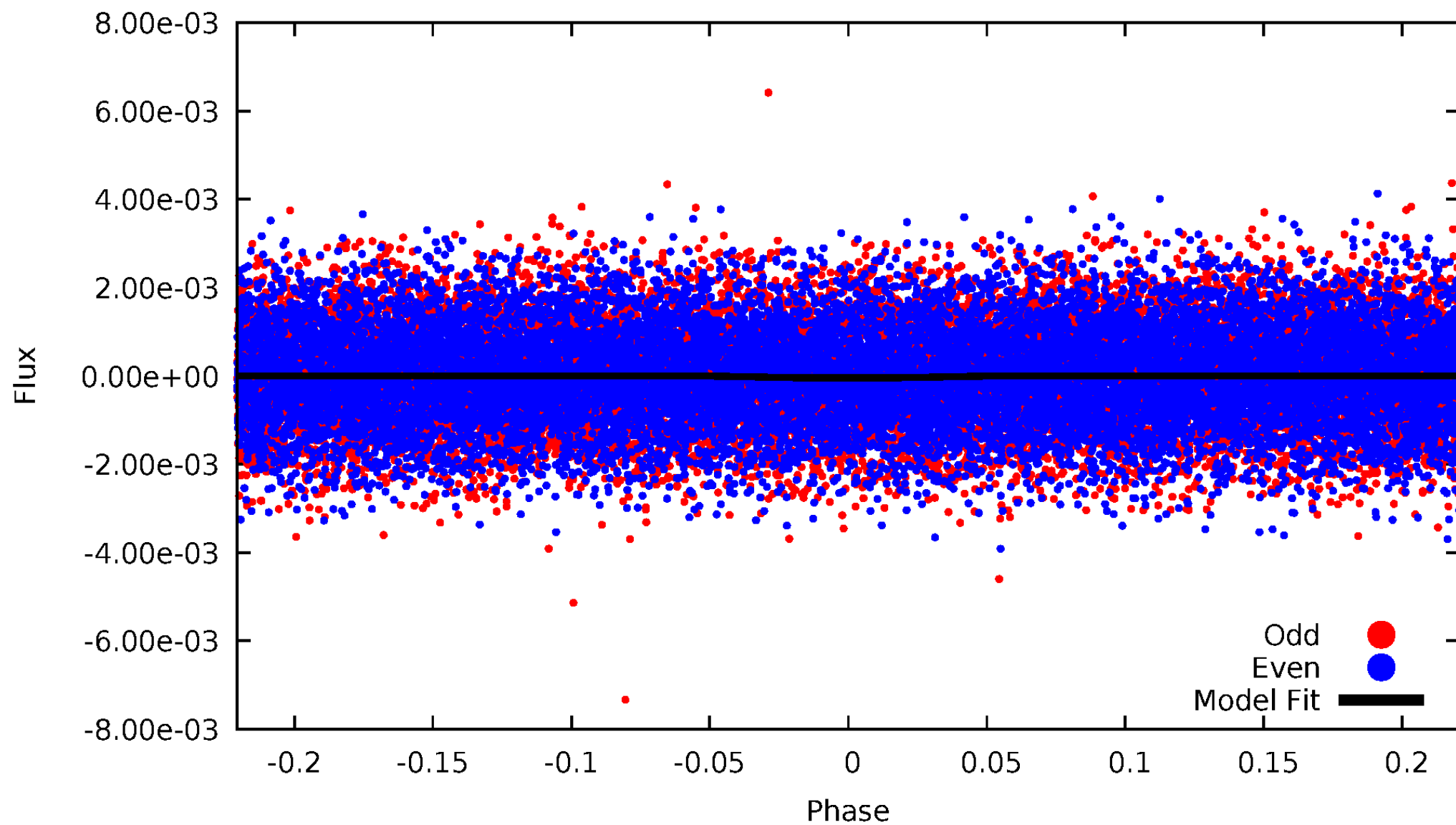
# DV Odd/Even

TCE 010279745-01



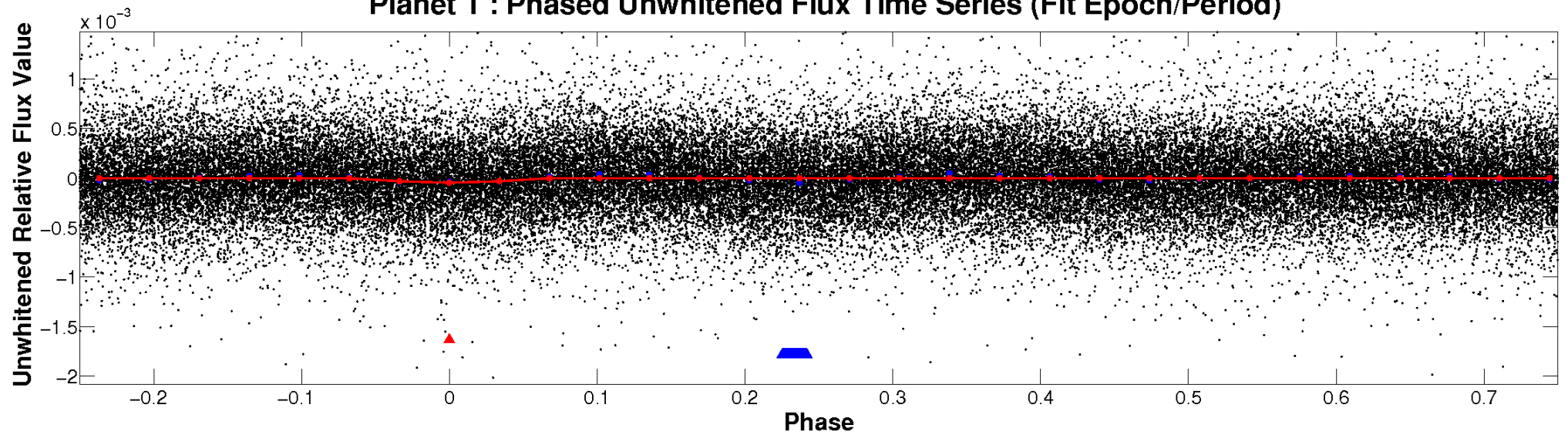
# ALT Odd/Even

TCE 010279745-01

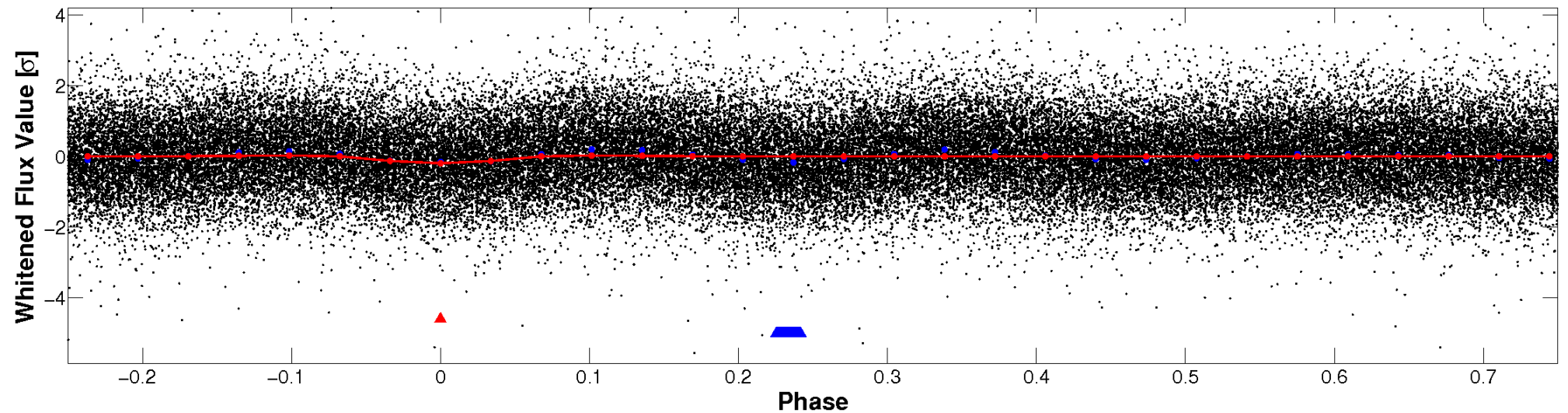


# Non-Whitened Vs. Whitened Light Curve

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



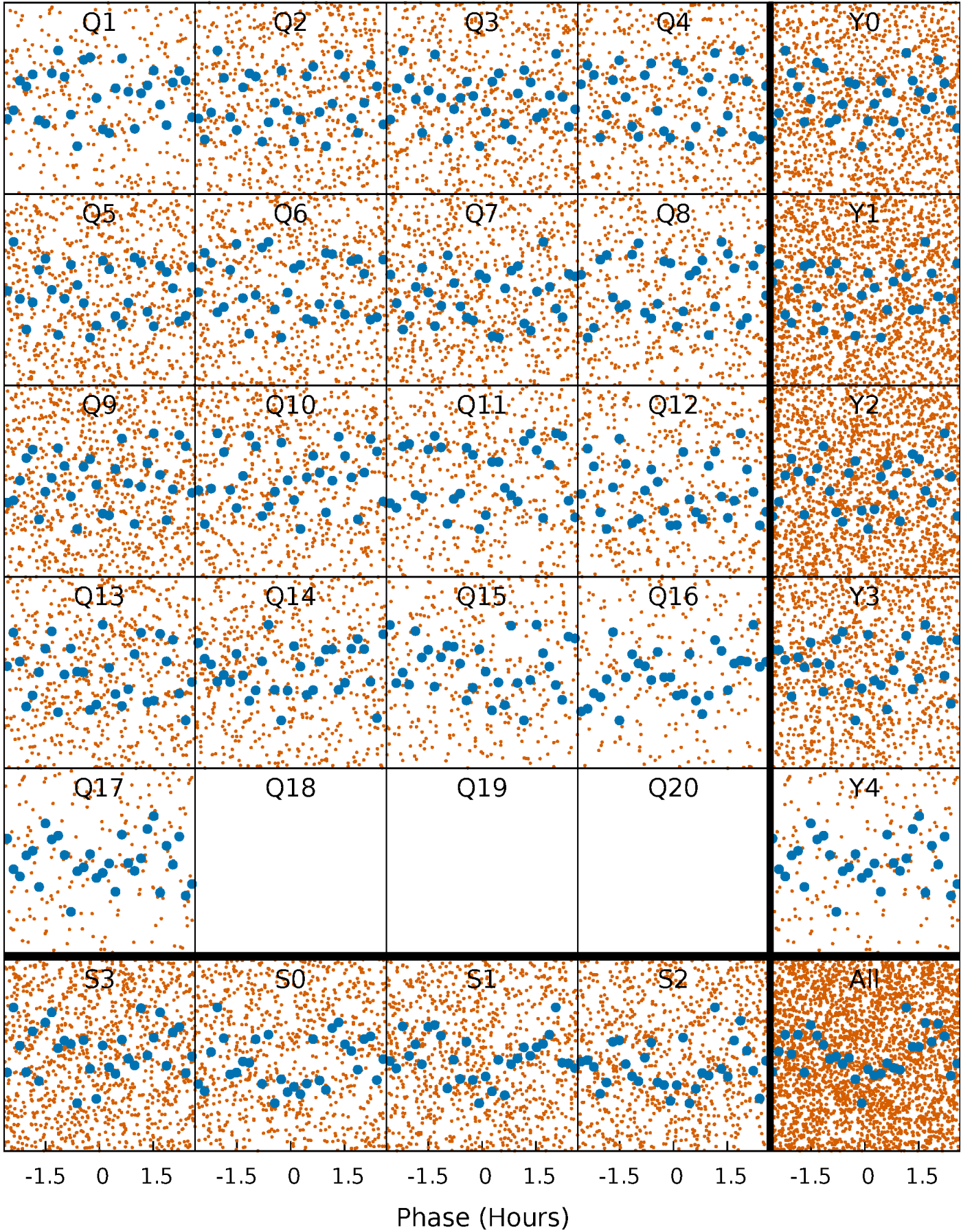
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

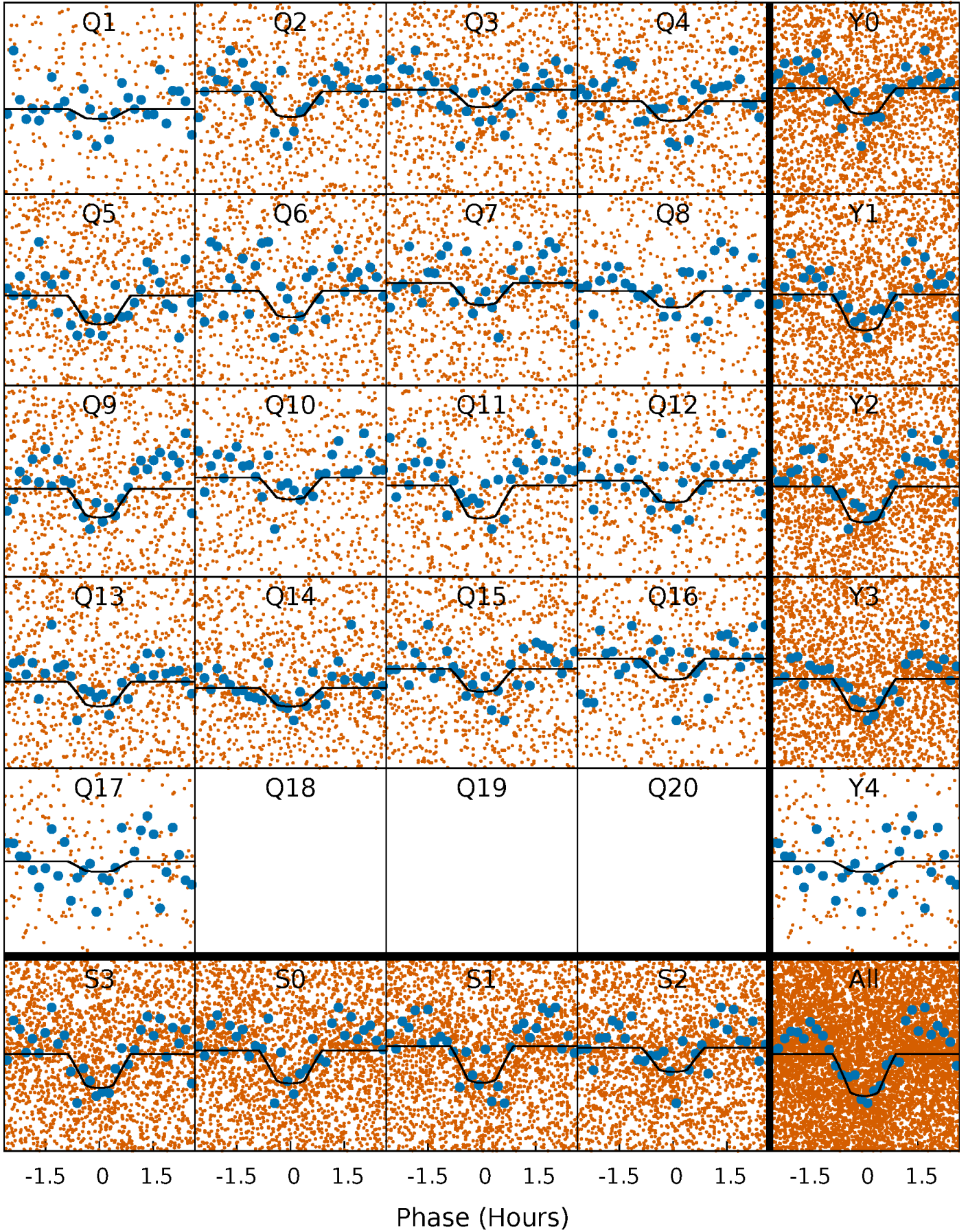
TCE 010279745-01   P= 0.603901 Days    $T_0=131.844771$  (BKJD)





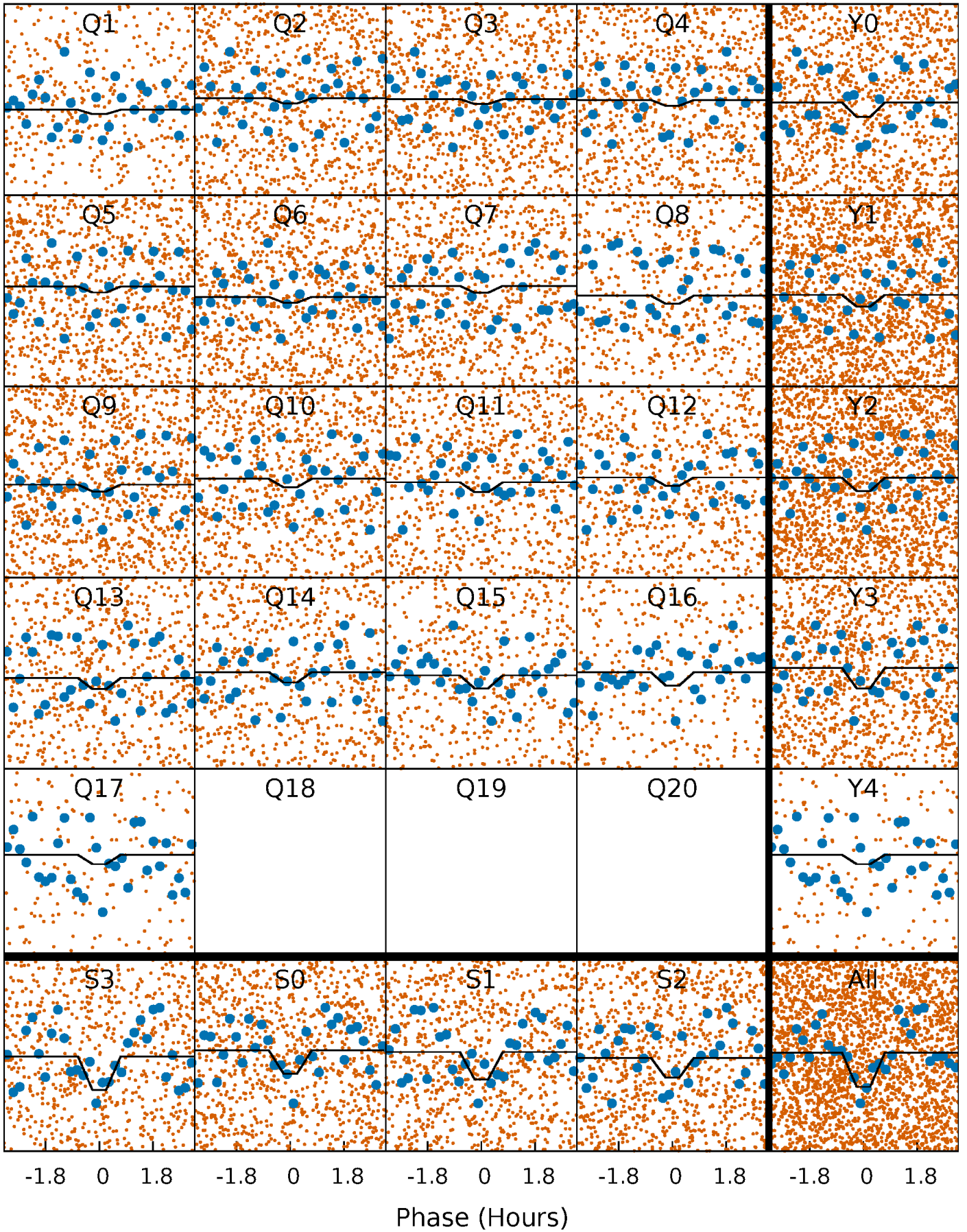
# DV Quarter-Phased Transit Curves

TCE 010279745-01   P= 0.603901 Days    $T_0=131.844771$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

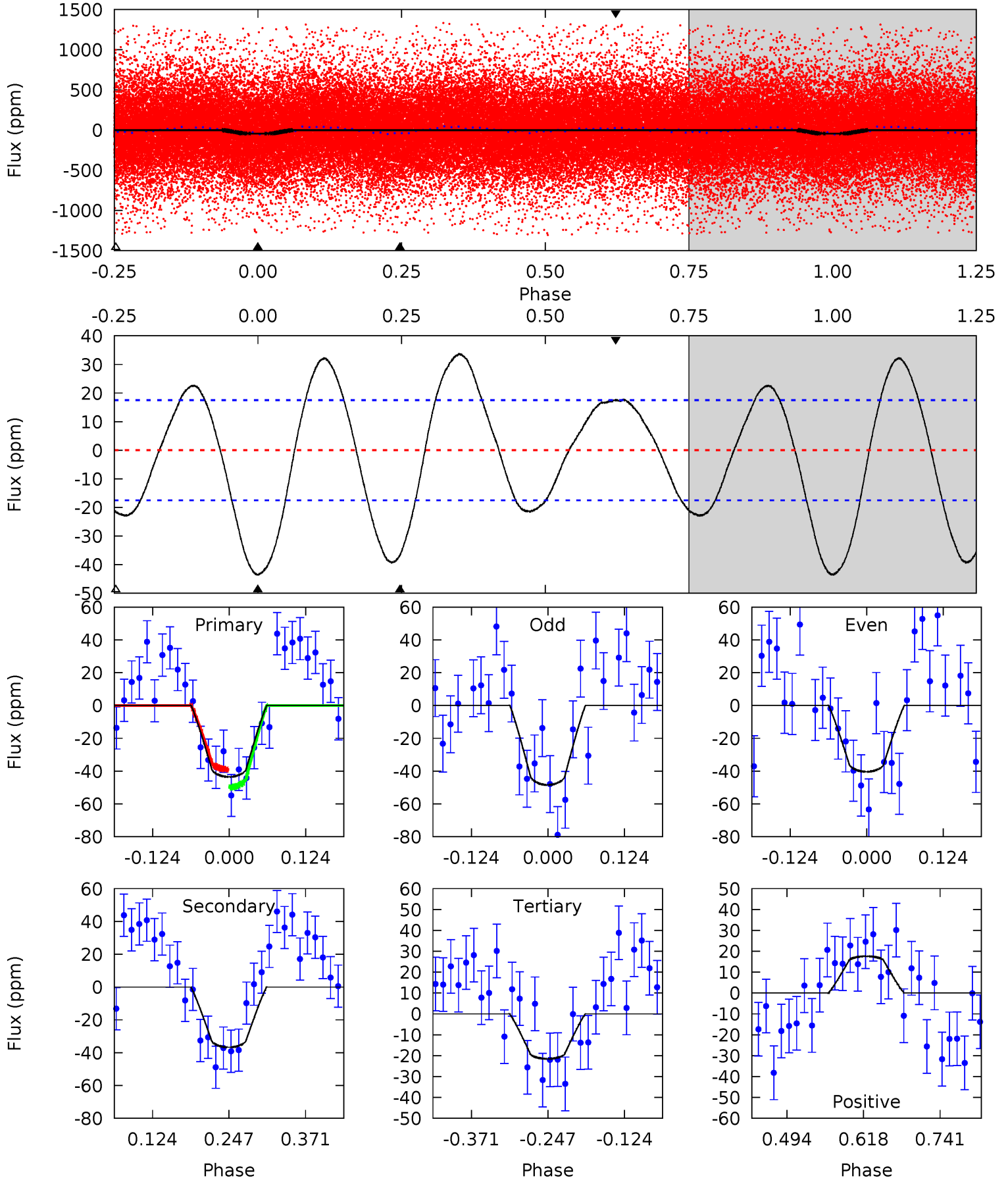
TCE 010279745-01 P= 0.603901 Days  $T_0=131.844931$  (BKJD)



# DV Model-Shift Uniqueness Test

010279745-01, P = 0.603901 Days, E = 131.240870 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
11.2	9.47	5.55	4.54	4.52	1.54	3.82	5.68	6.69	3.92	4.93	1.05	0.93	0.44	1.42

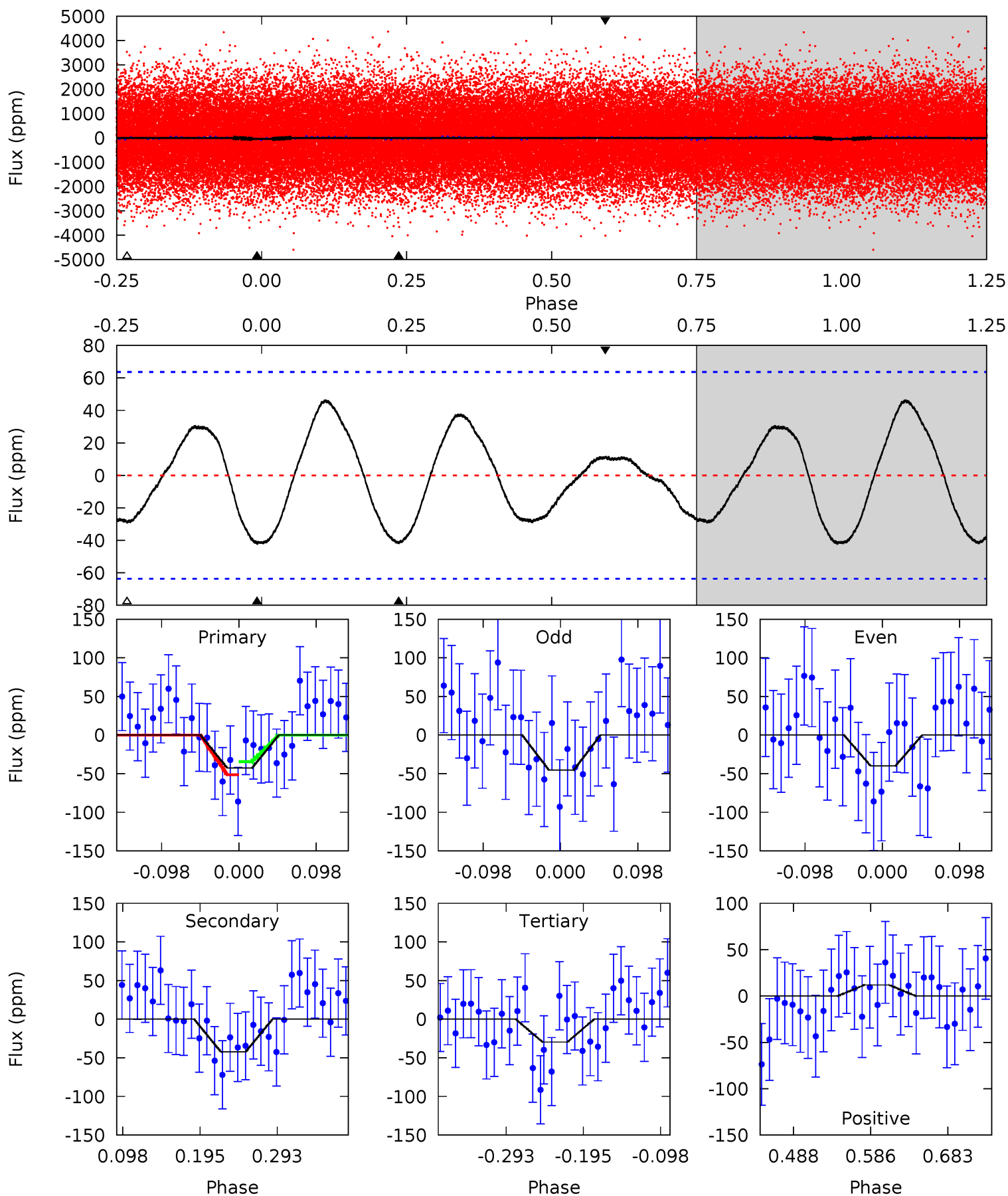




# Alt Model-Shift Uniqueness Test

010279745-01, P = 0.603901 Days, E = 131.241030 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
3.06	3.03	2.12	0.85	4.57	1.66	1.54	0.93	2.21	0.91	2.18	0.20	0.84	0.52	0.62





### Stellar Parameters For KIC 010279745

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7872^{+216}_{-351}$	$3.923^{+0.259}_{-0.130}$	$0.070^{+0.150}_{-0.400}$	$2.542^{+0.445}_{-0.826}$	$1.973^{+0.241}_{-0.413}$	$0.169^{+0.285}_{-0.066}$
	+3%/-4%	+7%/-3%	+214%/-571%	+18%/-32%	+12%/-21%	+169%/-39%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 010279745-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-37 \pm 4$	$1.97^{+0.80}_{-0.75}$	$5778^{+375}_{-471}$	$6524^{+2241}_{-1257}$	$1.578^{+2.258}_{-0.780}$
Alt.	$-42 \pm 14$	$1.77^{+0.77}_{-0.71}$	$5752^{+362}_{-503}$	$7212^{+3422}_{-1470}$	$2.146^{+4.402}_{-1.123}$

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

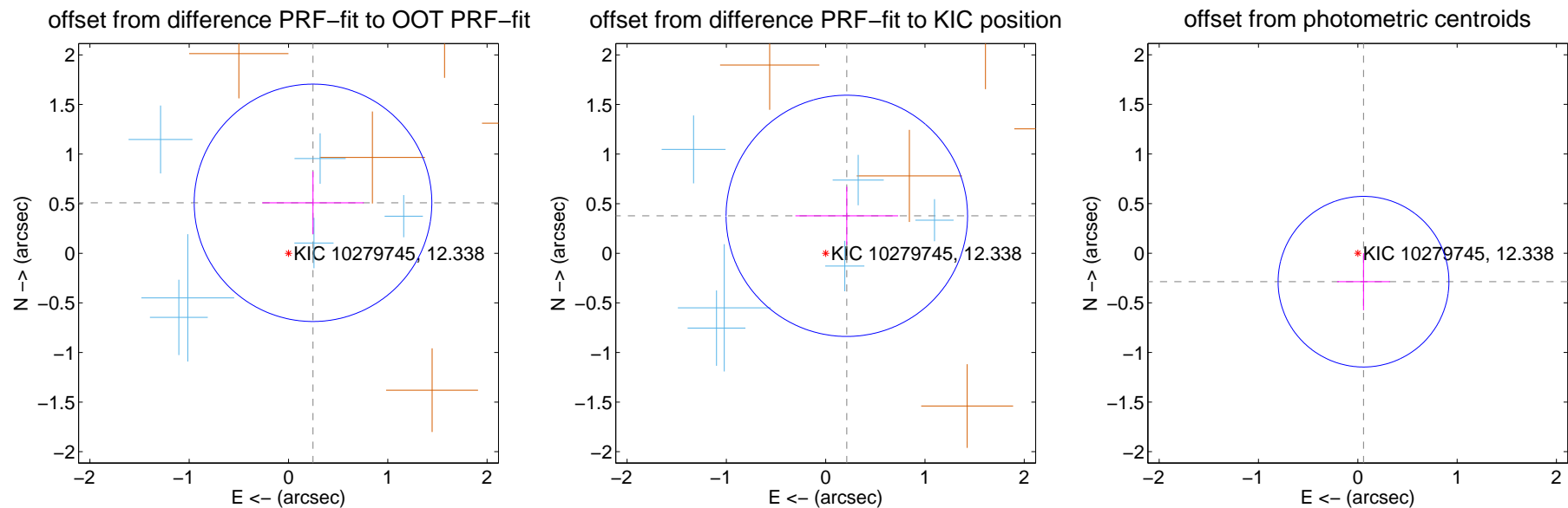
## DV Centroid Data

Supplemental centroid analysis for 010279745-01. Kepler magnitude: 12.34. Transit SNR 12.86

There are 6 quarters with good PRF difference image offsets

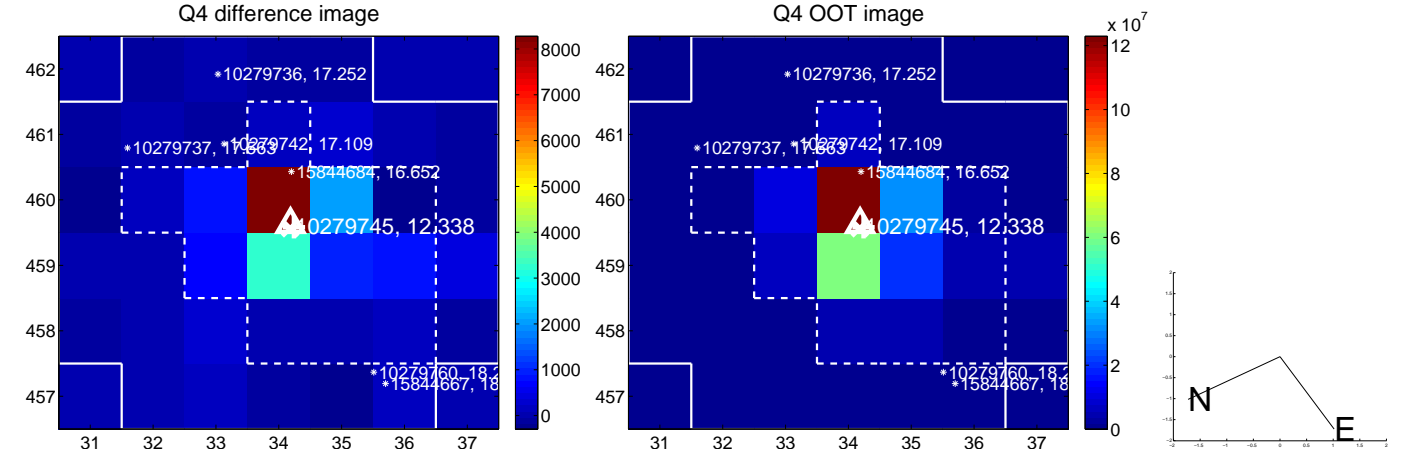
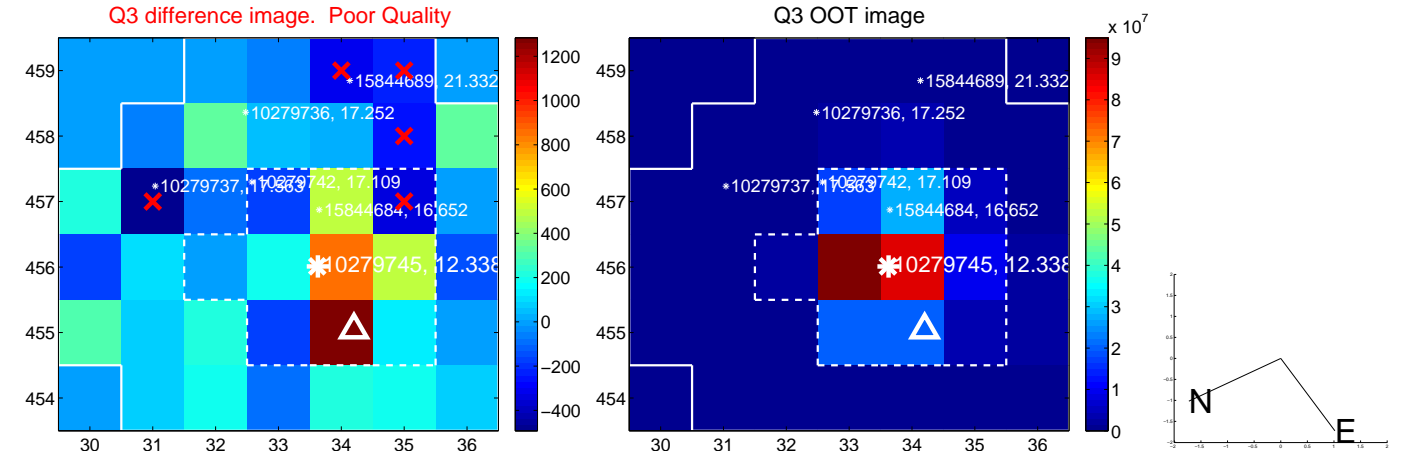
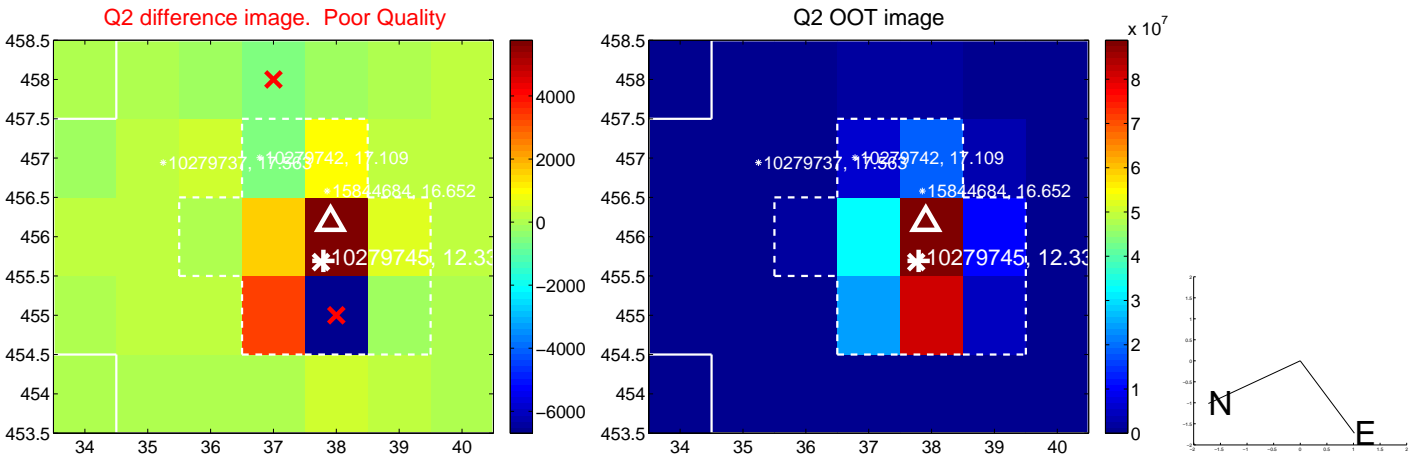
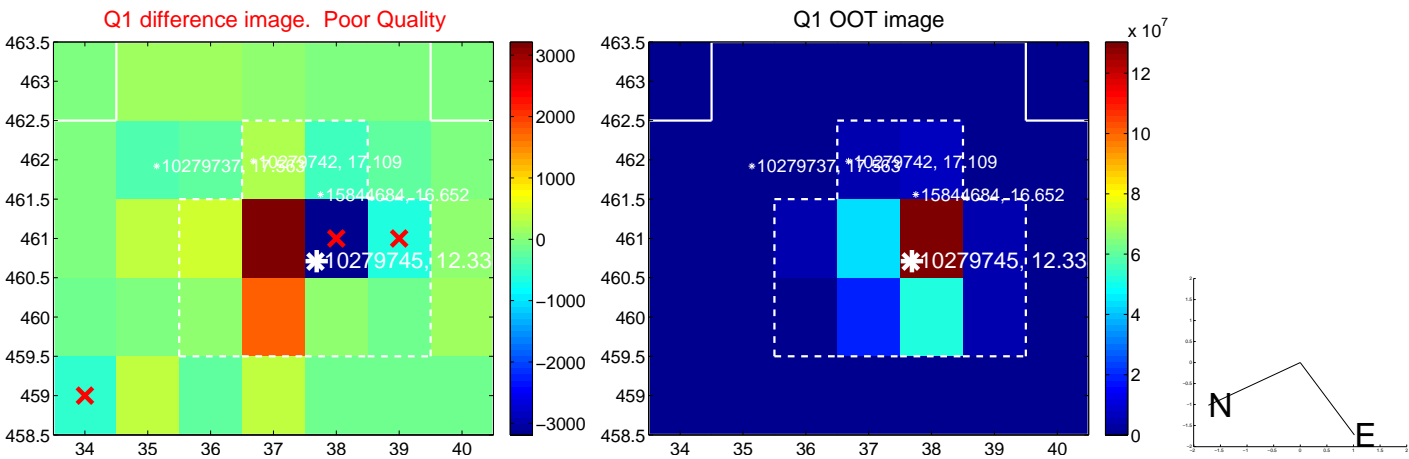
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.565 \pm 0.399$	1.42	$-0.247 \pm 0.512$	$0.509 \pm 0.315$
PRF-fit source offset from KIC position	$0.433 \pm 0.405$	1.07	$-0.213 \pm 0.517$	$0.377 \pm 0.294$
photometric centroid source offset	$0.29 \pm 0.29$	1.02	$-0.06 \pm 0.27$	$-0.29 \pm 0.29$

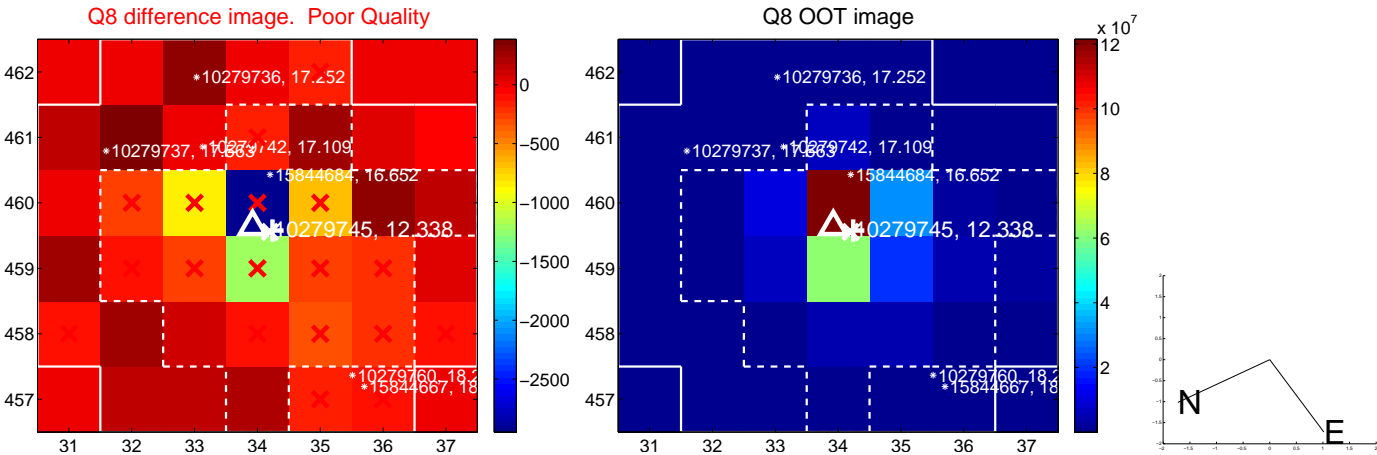
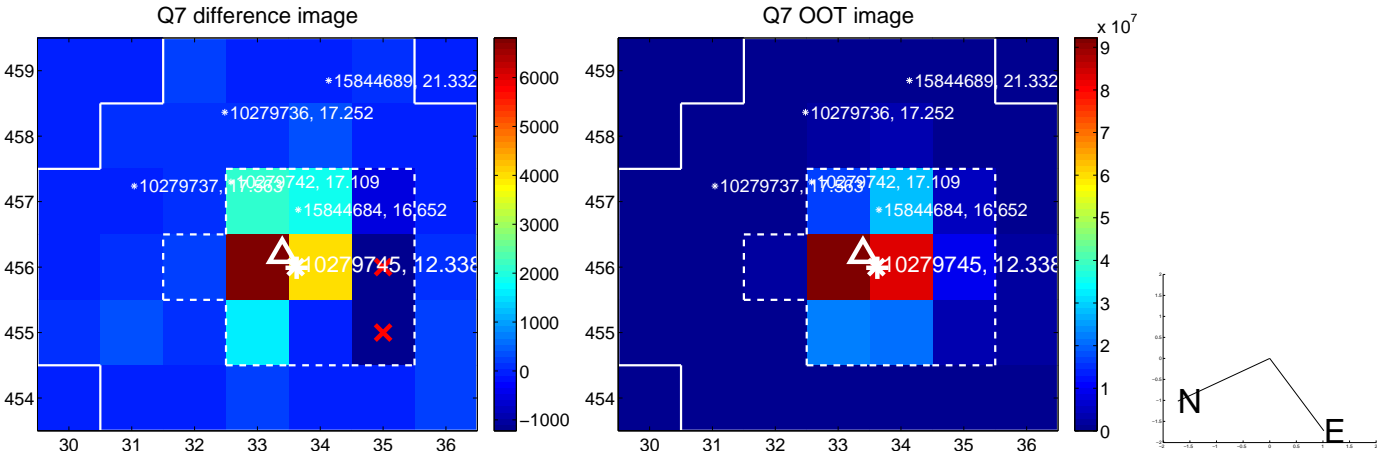
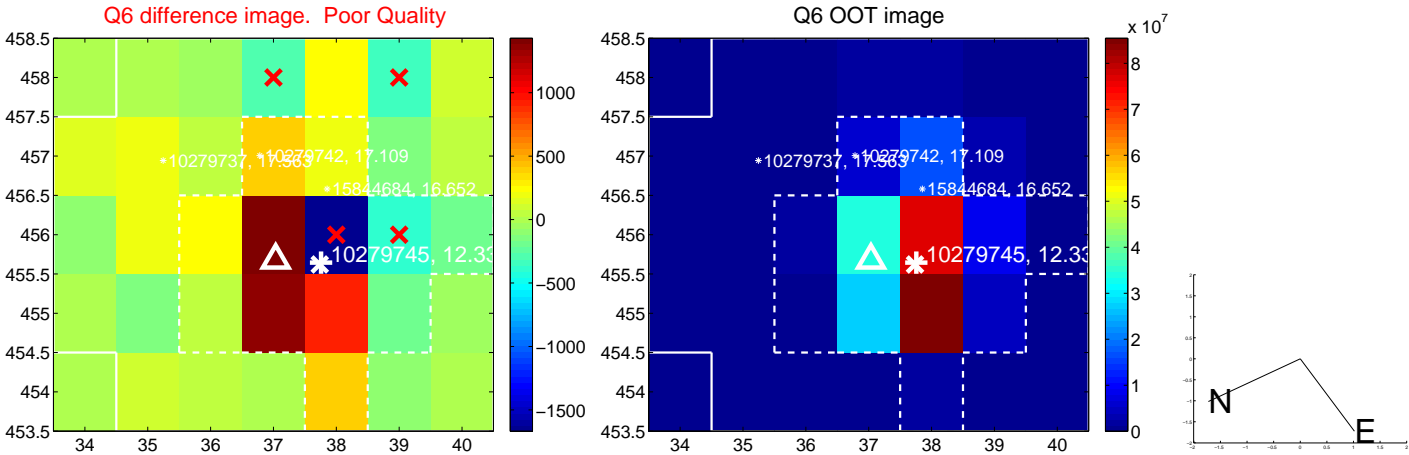
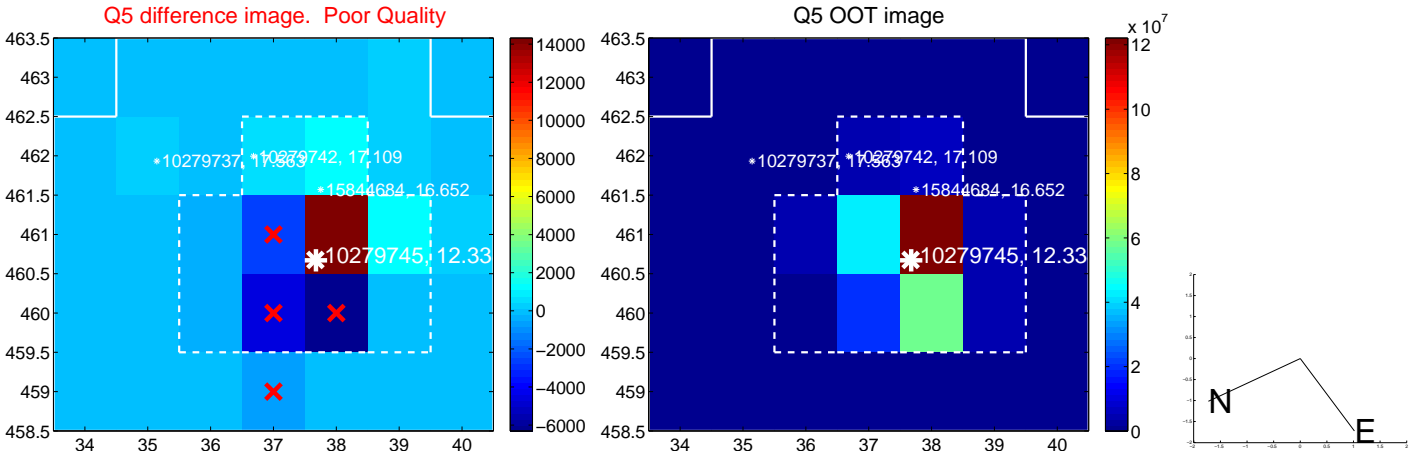


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

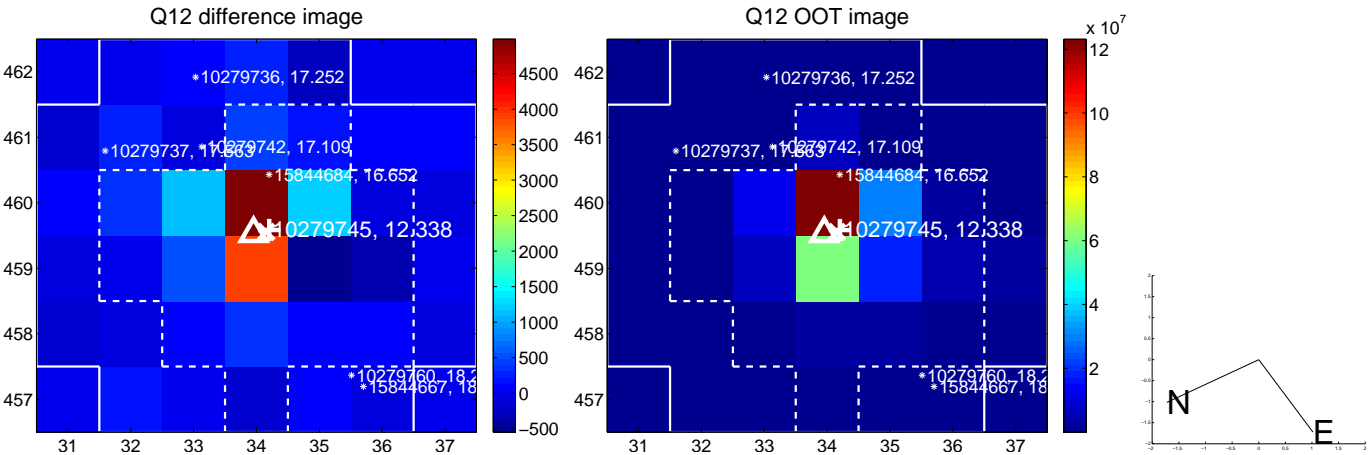
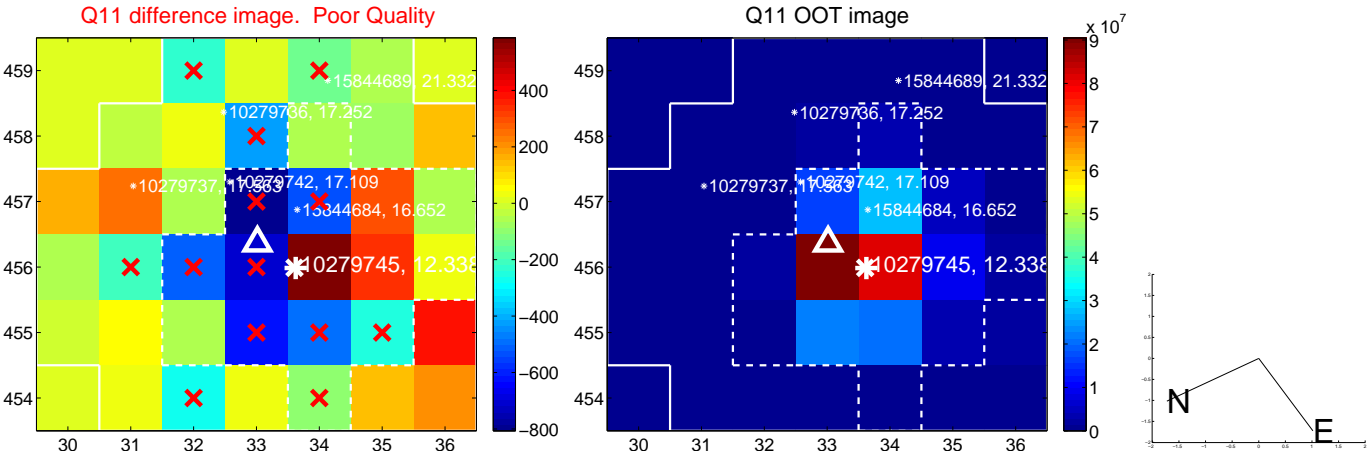
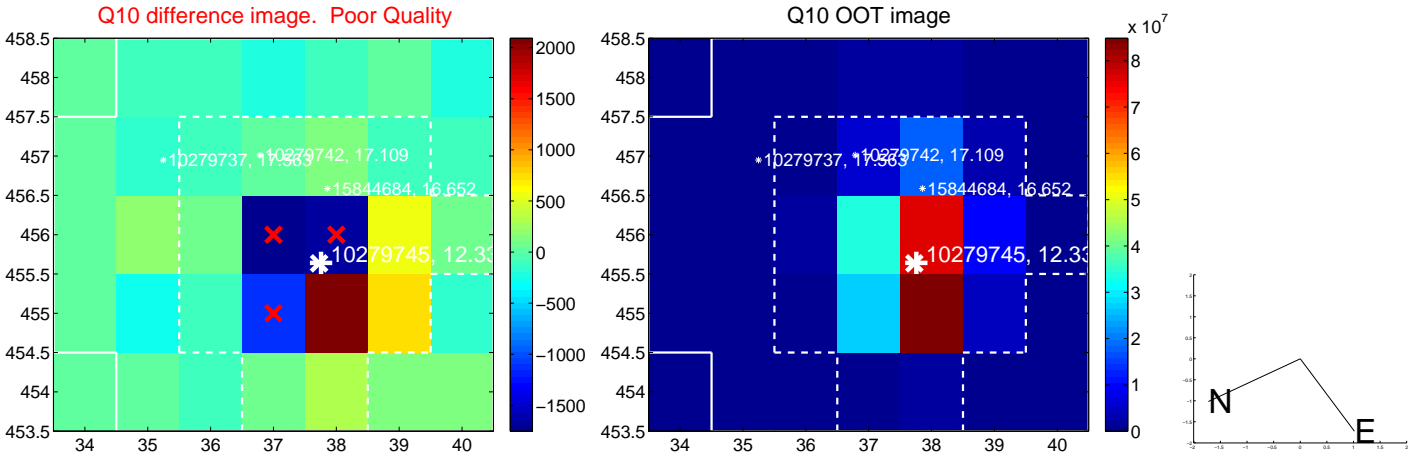
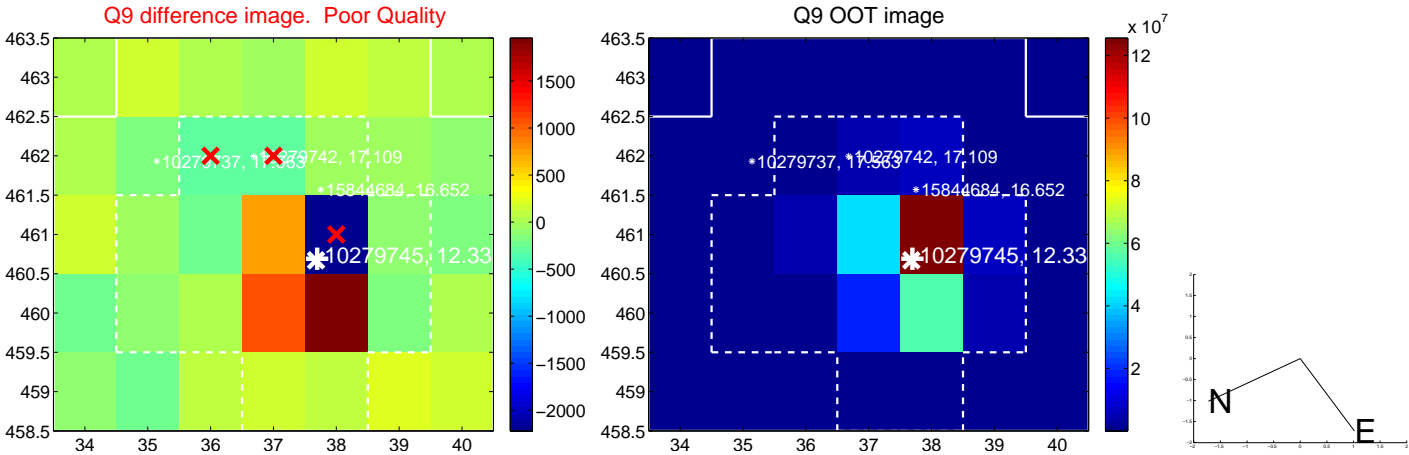


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

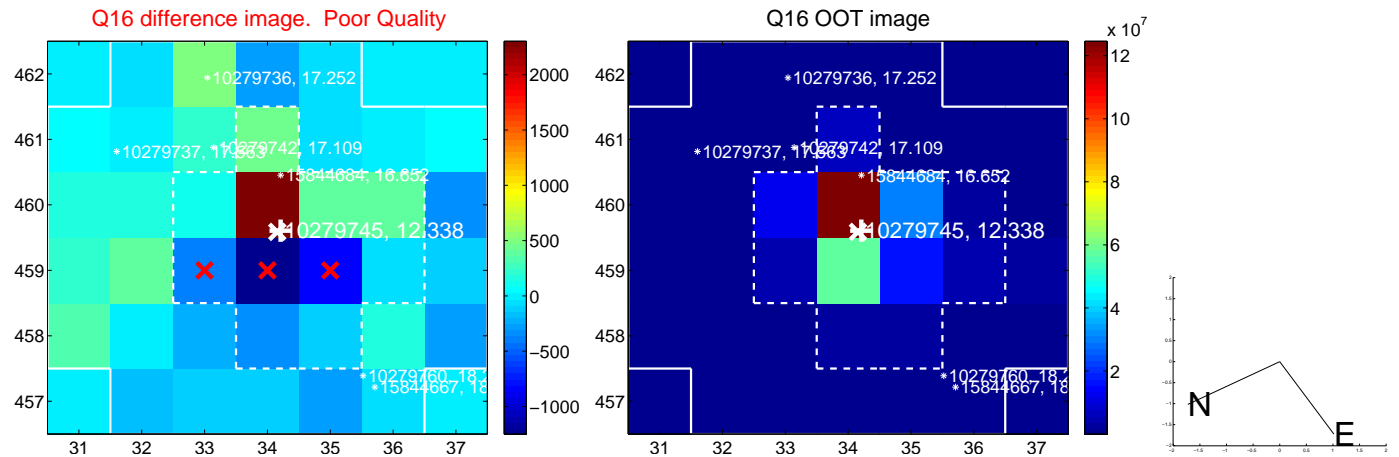
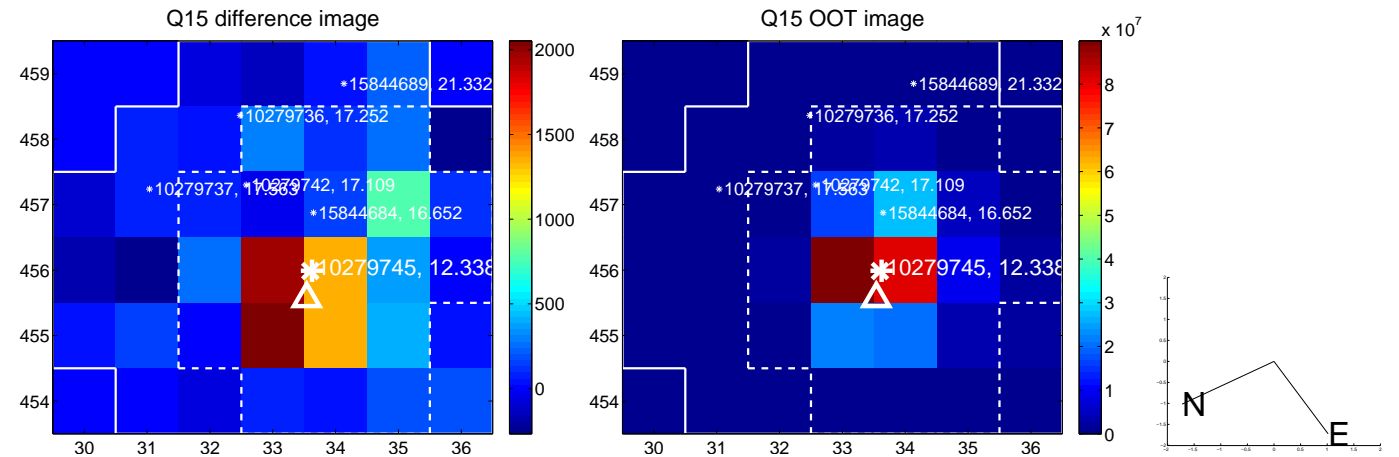
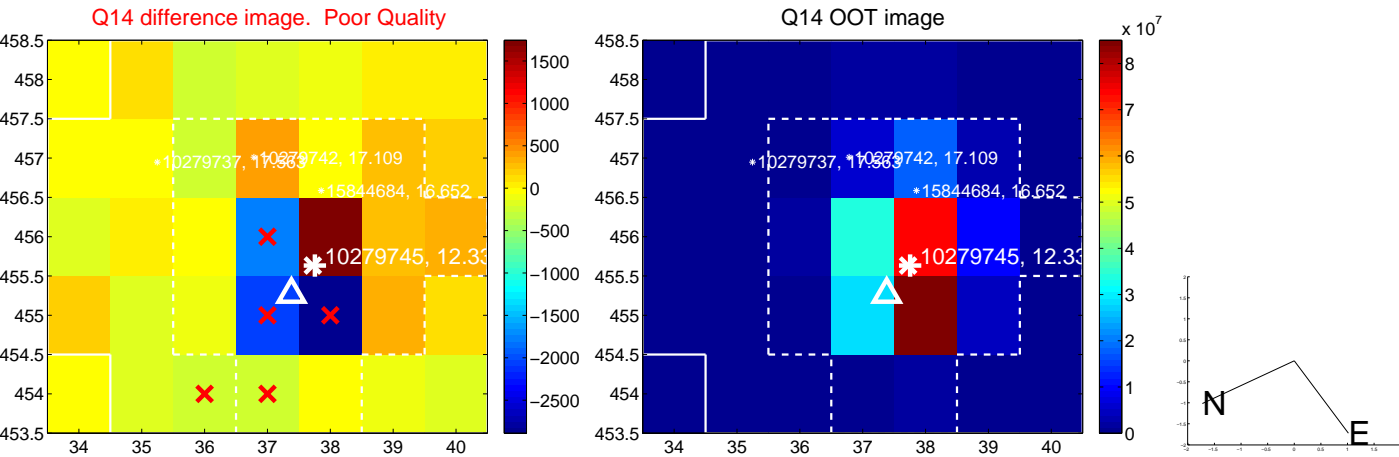
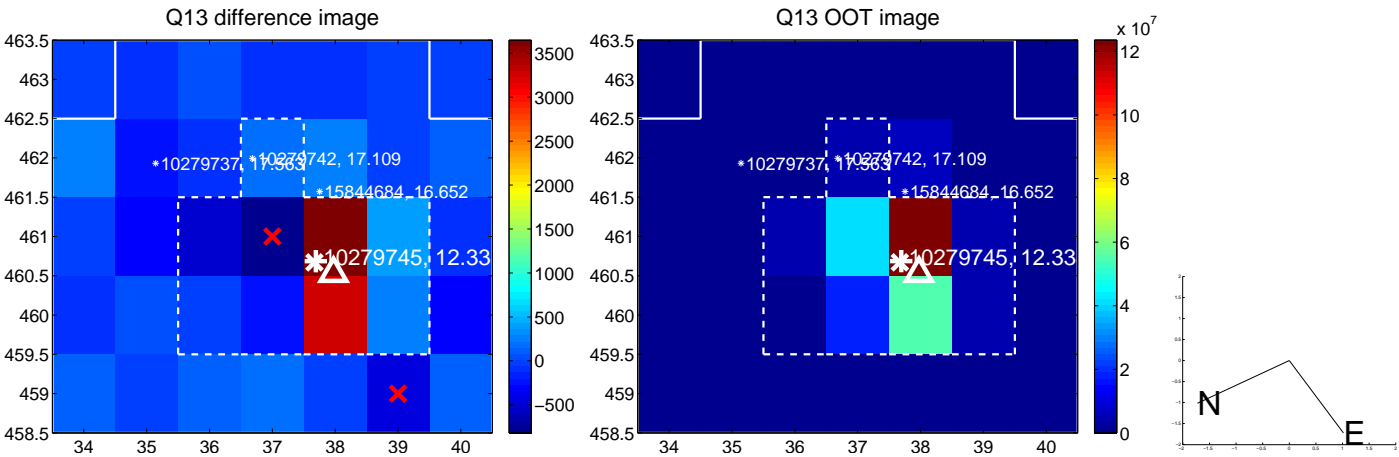




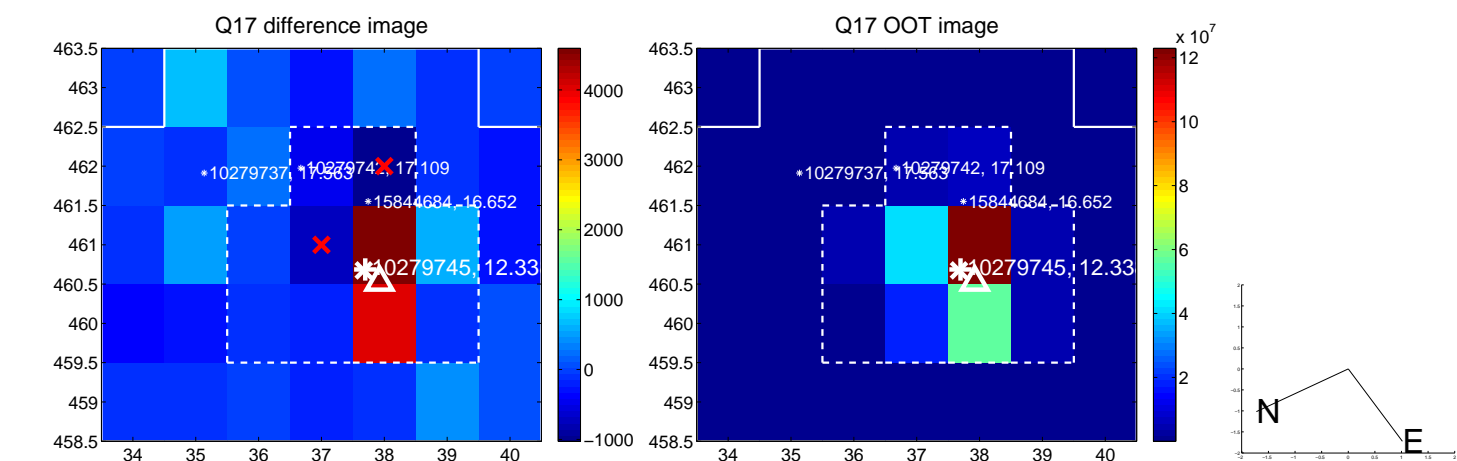
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



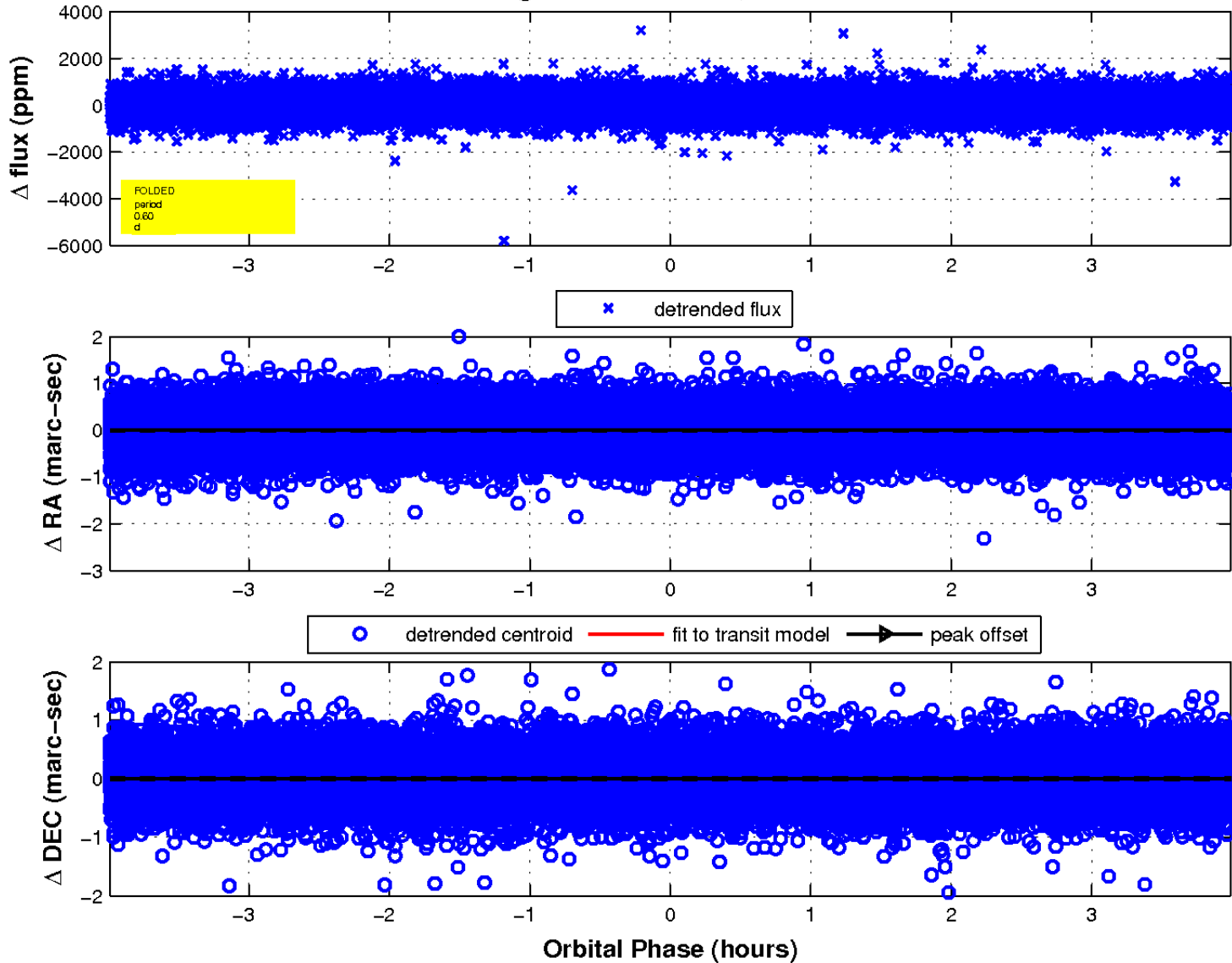
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

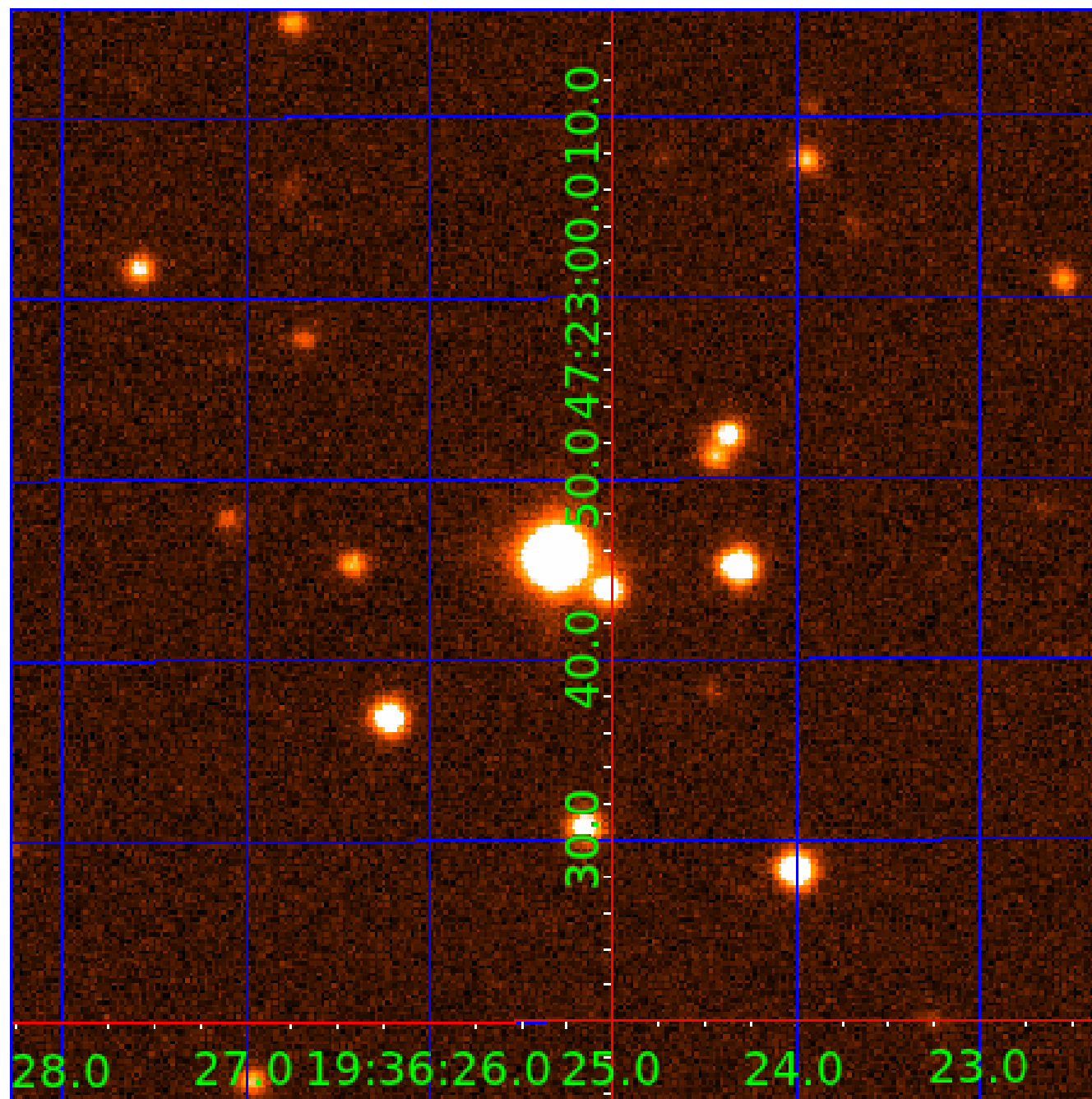


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination





# KIC 010279745

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010279745-01	OBS	No	0.603901	131.844771	47.7	1.330	11.8	12.9	2.54	7872	2.04	72232.22
010279745-02	OBS	No	0.603905	131.980857	40.3	0.928	8.4	8.4	2.54	7872	1.88	72231.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010279745-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010279745-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

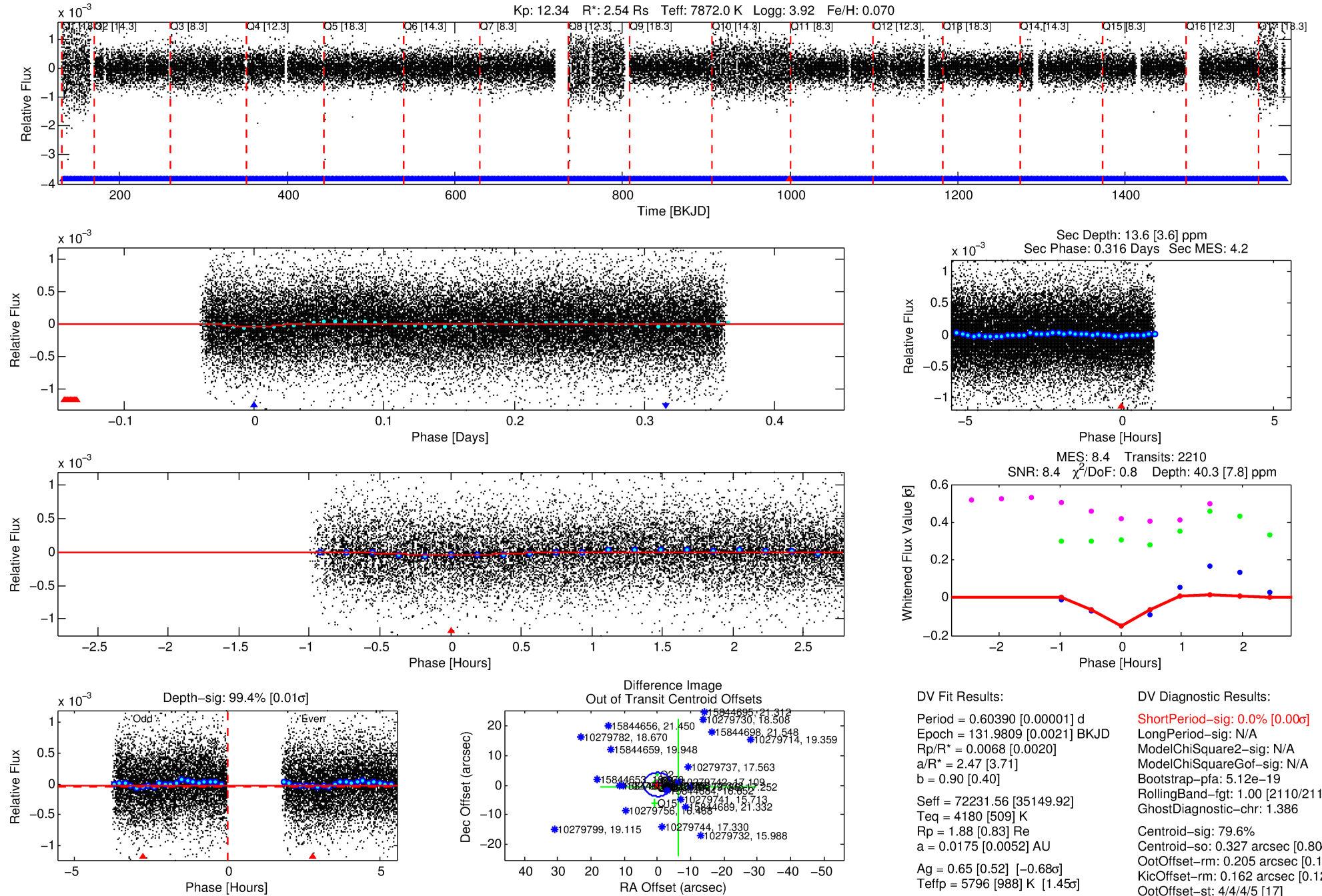
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010279745-02

No Significant Match Found

# DV One-Page Summary

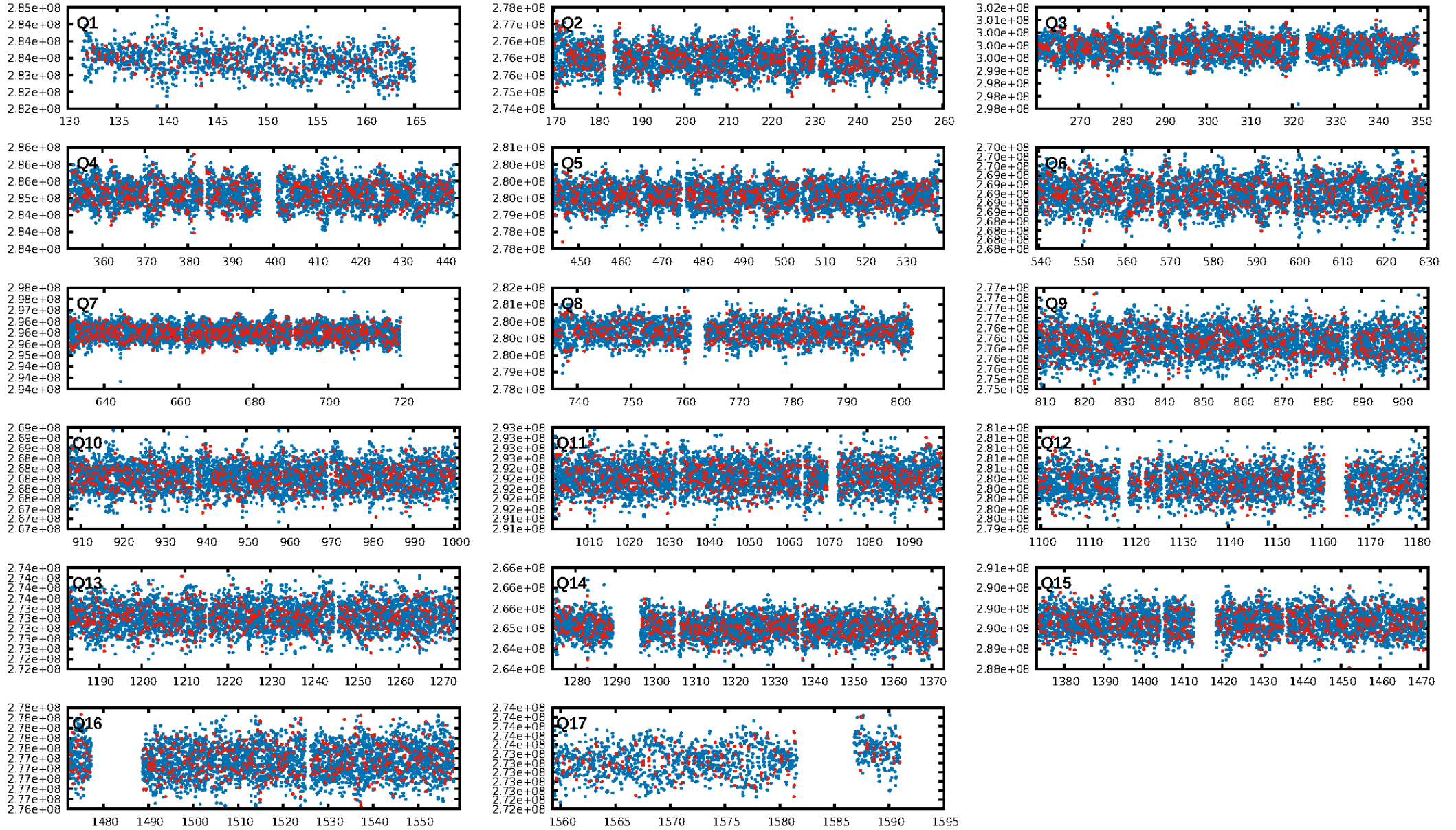
KIC: 10279745 Candidate: 2 of 2 Period: 0.604 d



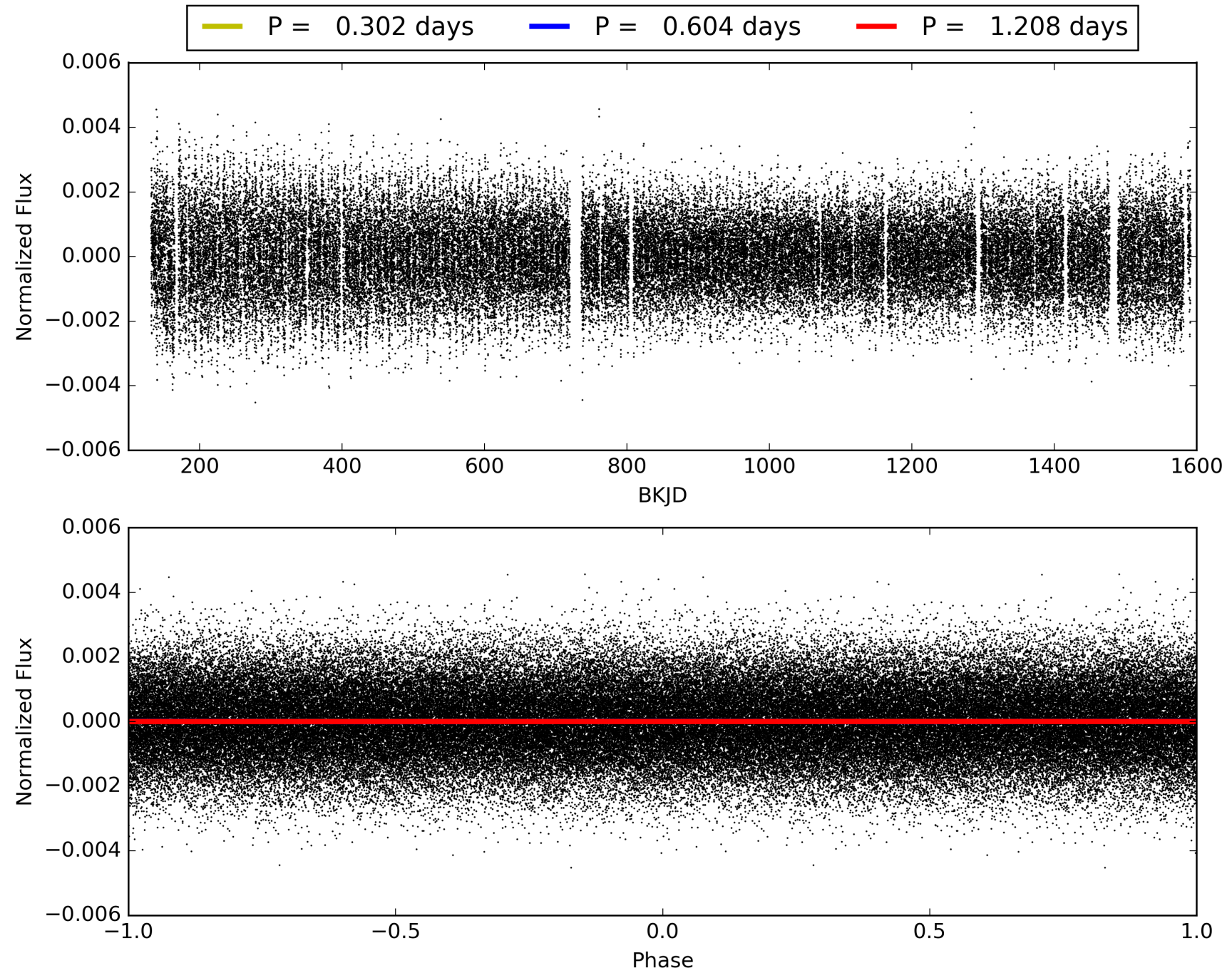
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:10:36 Z

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

# TCE 010279745-02, PDC Light Curves



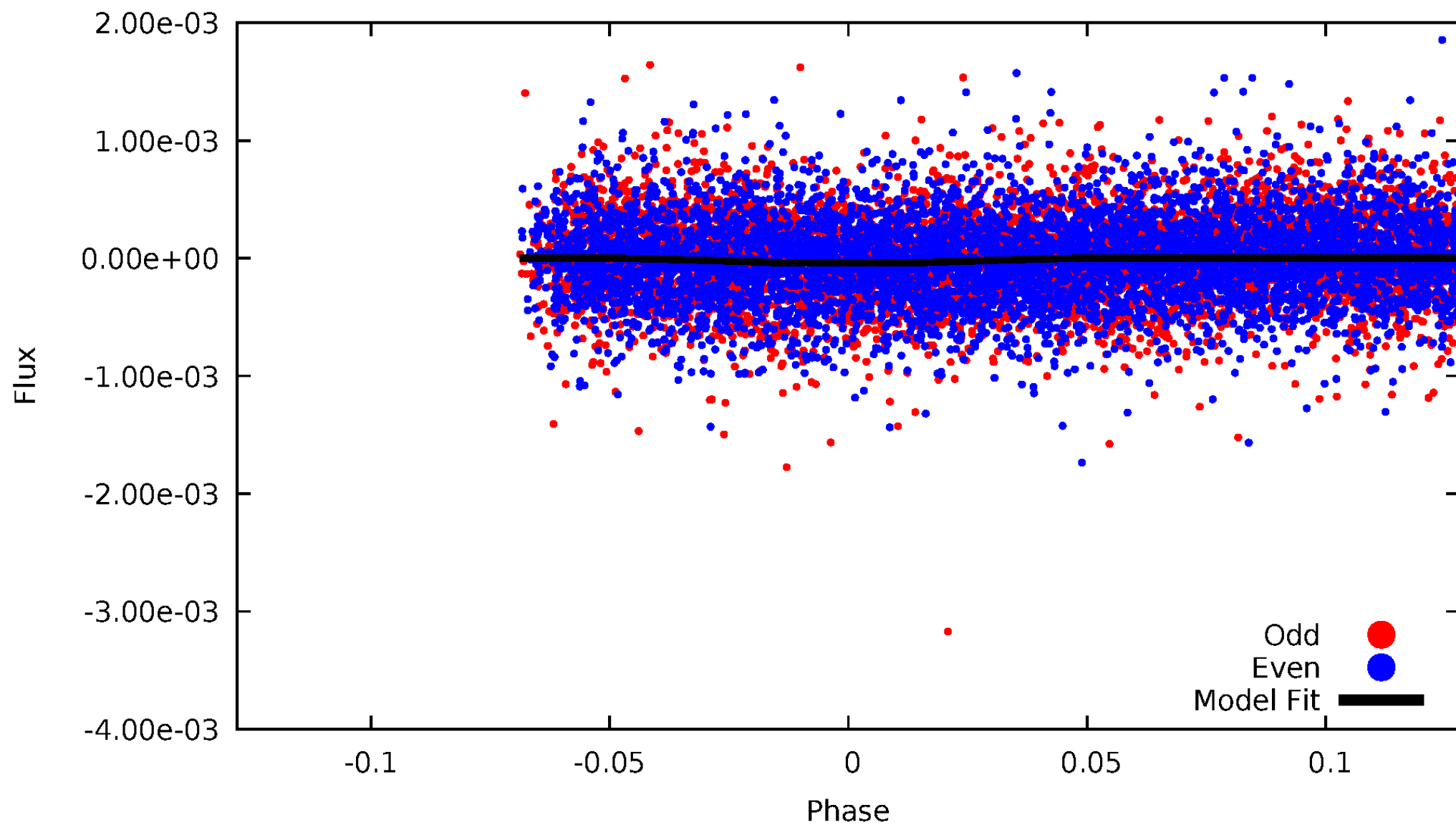
TCE 010279745-02





# DV Odd/Even

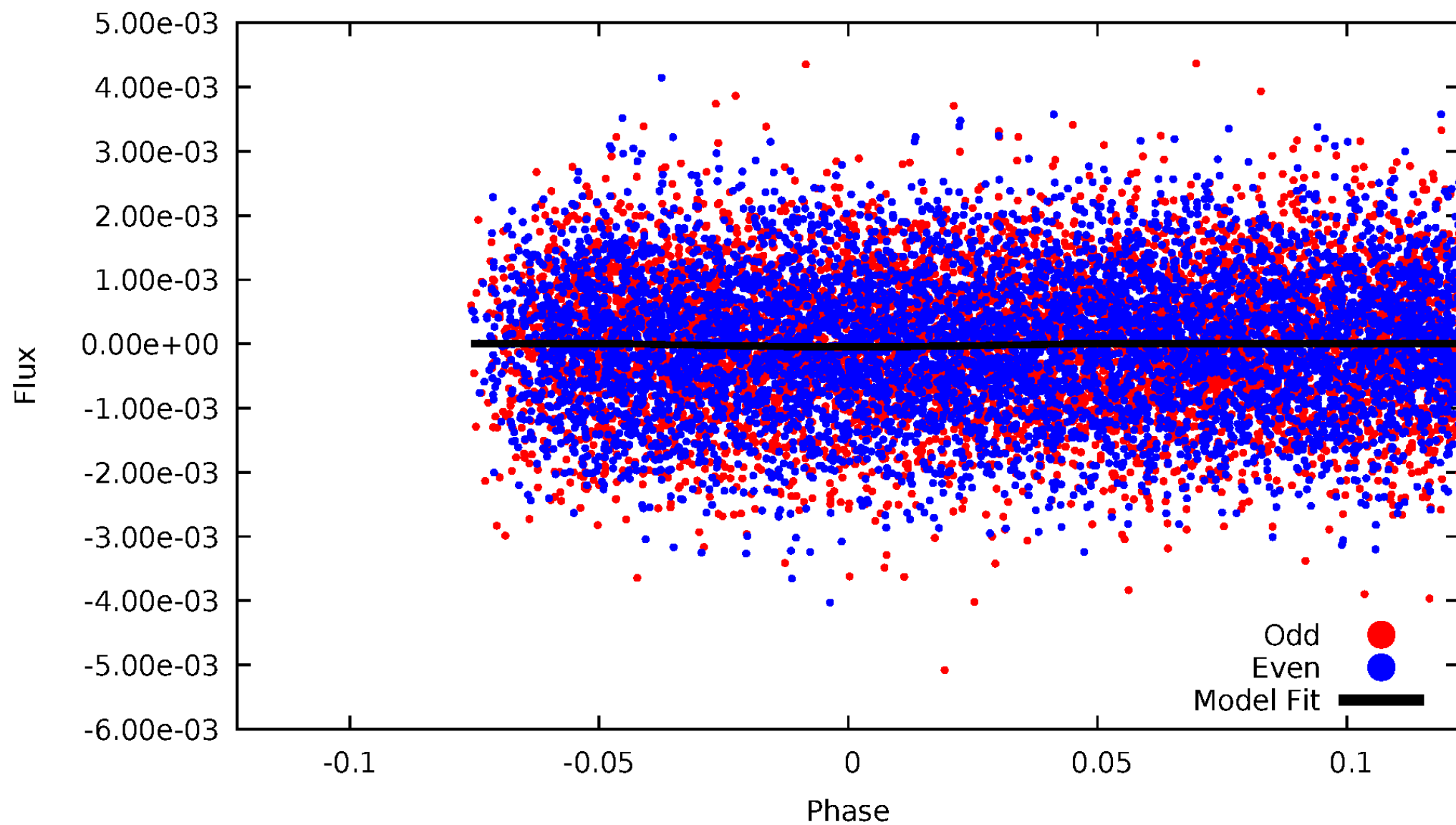
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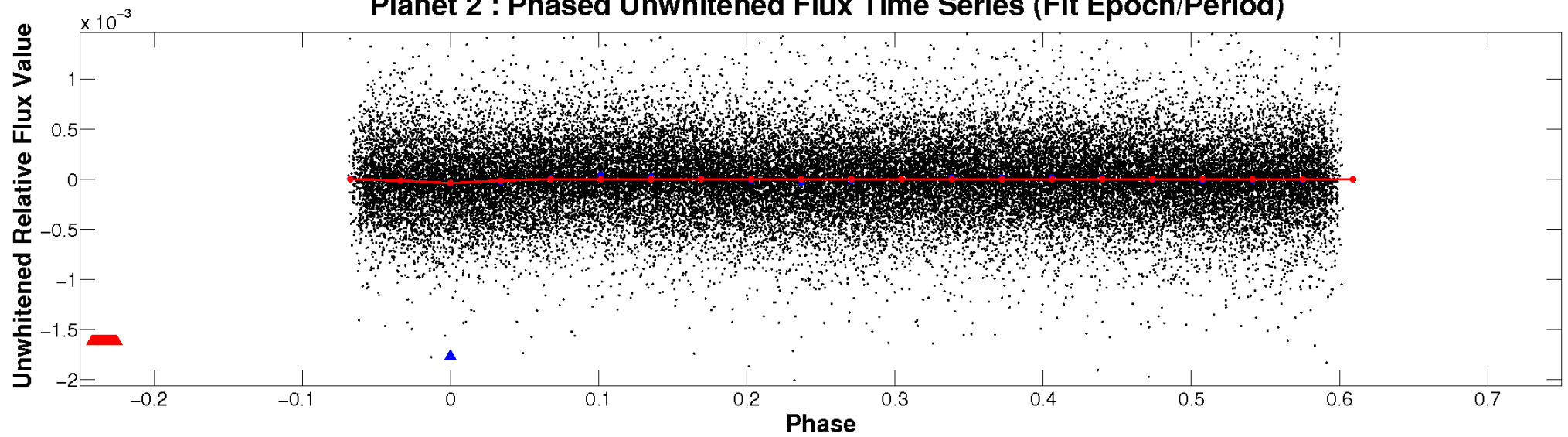
# ALT Odd/Even

TCE 010279745-02

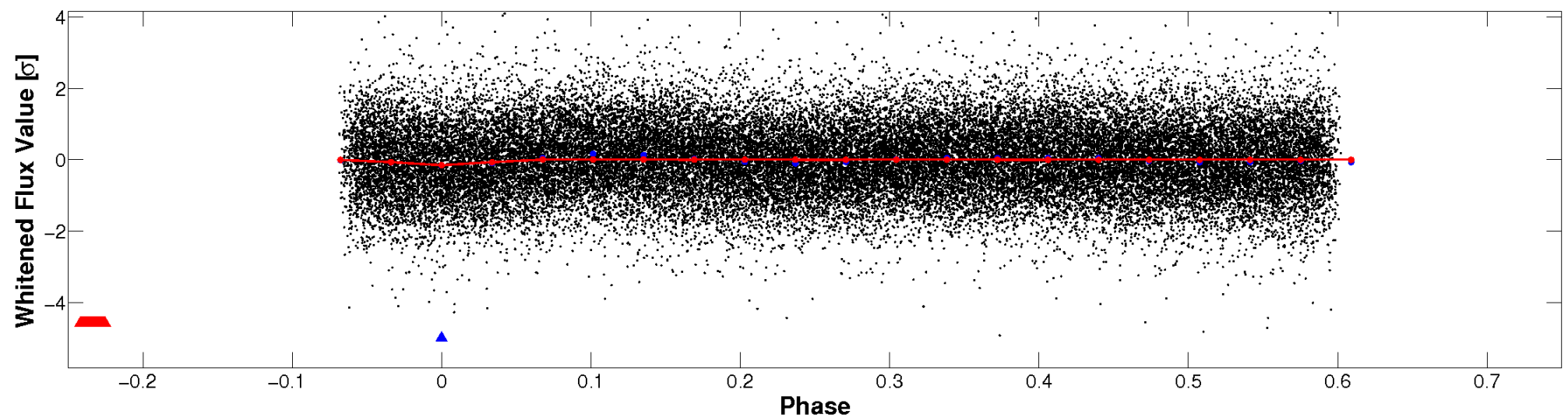


# Non-Whitened Vs. Whitened Light Curve

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

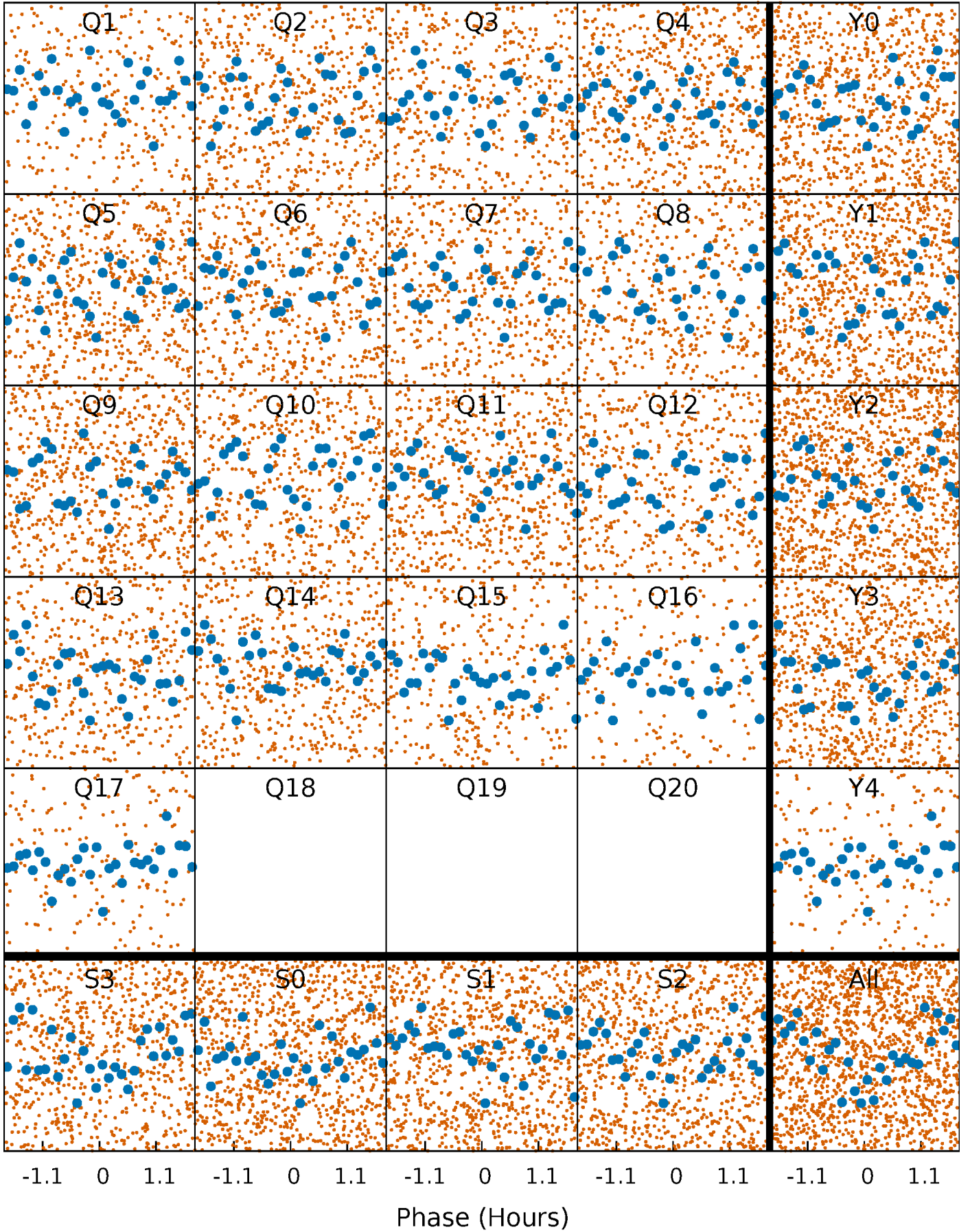


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



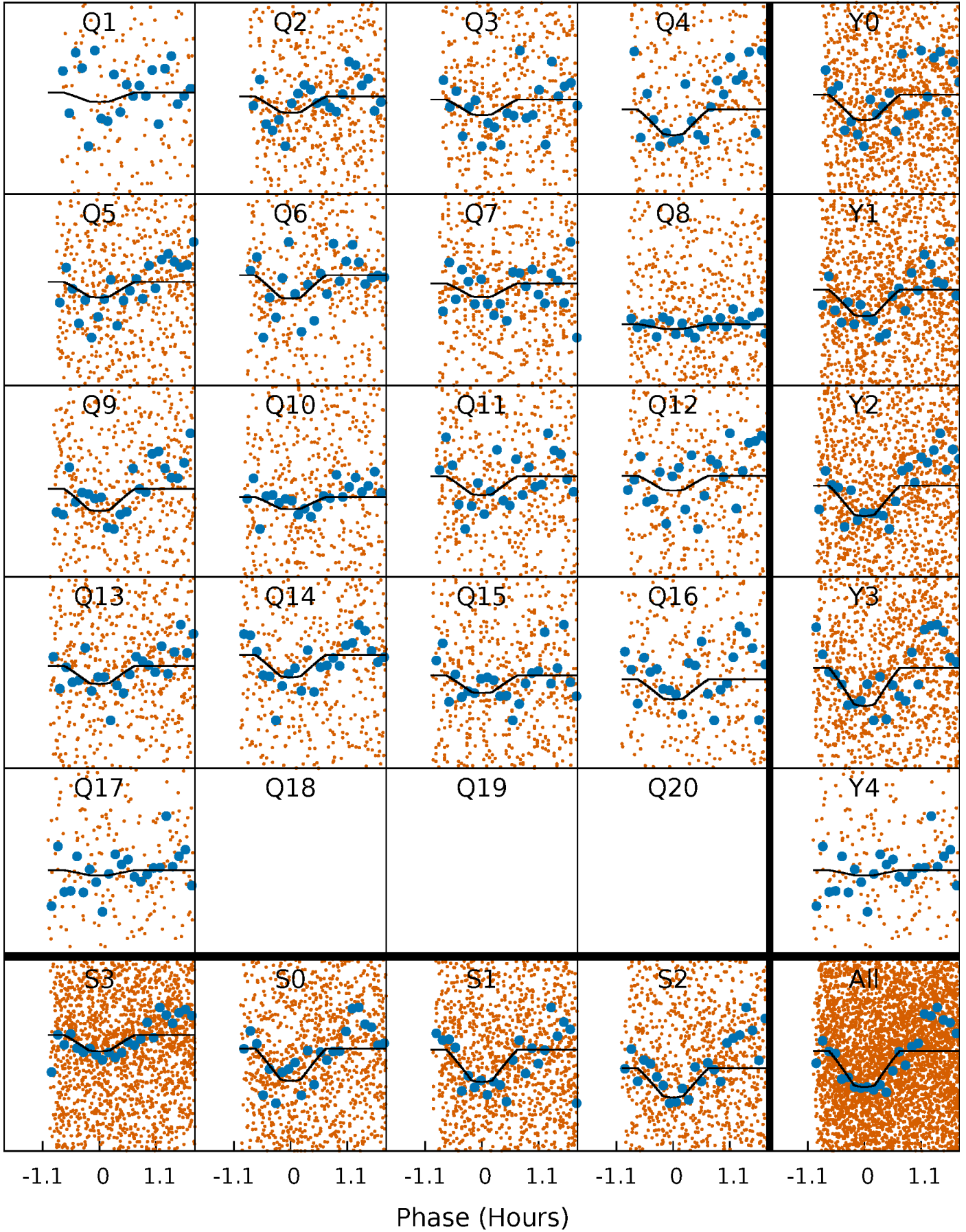
# PDC Quarter-Phased Transit Curves

TCE 010279745-02   P= 0.603905 Days    $T_0=131.980857$  (BKJD)



# DV Quarter-Phased Transit Curves

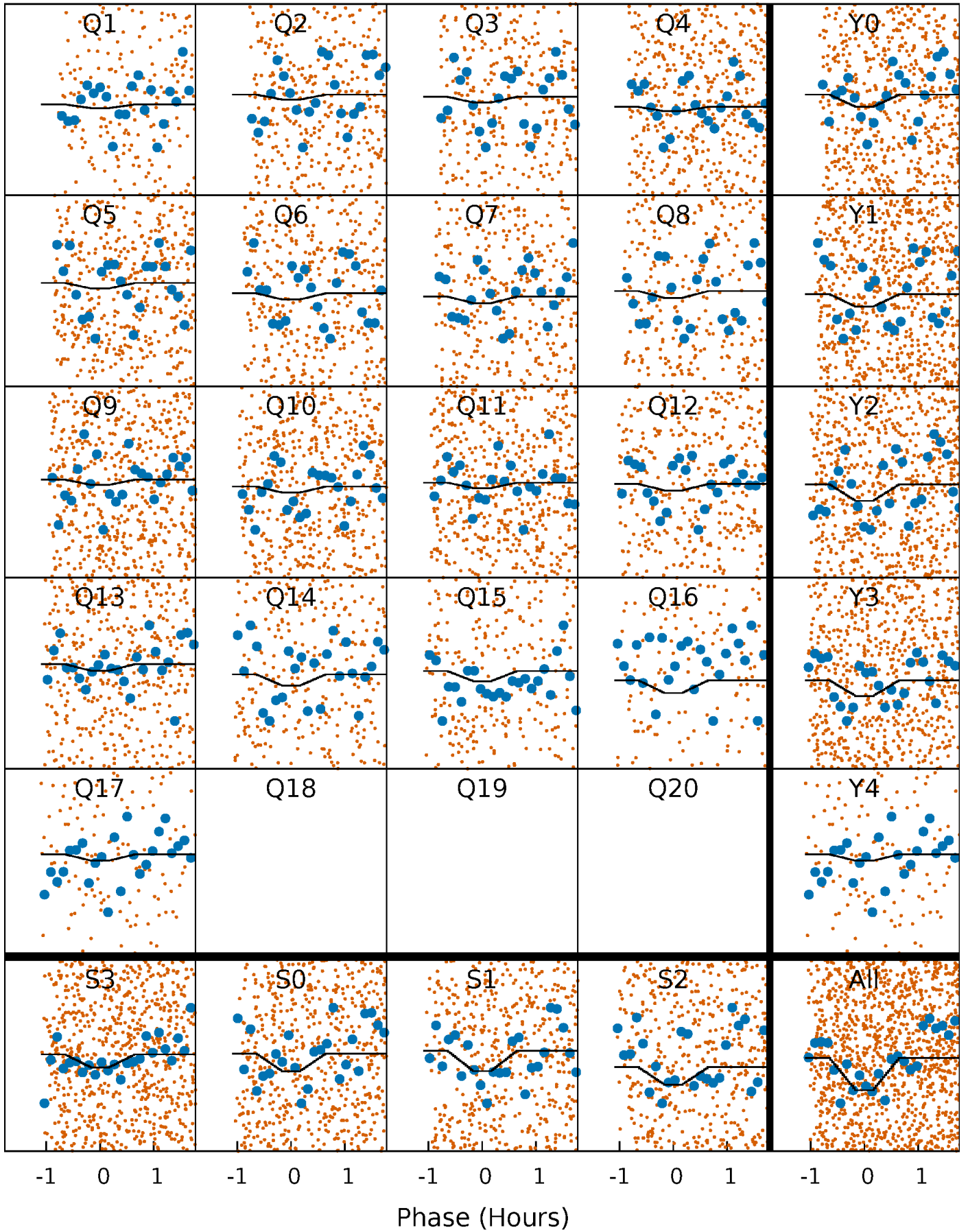
TCE 010279745-02     $P = 0.603905$  Days     $T_0 = 131.980857$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 010279745-02   P= 0.603907 Days    $T_0=131.980862$  (BKJD)

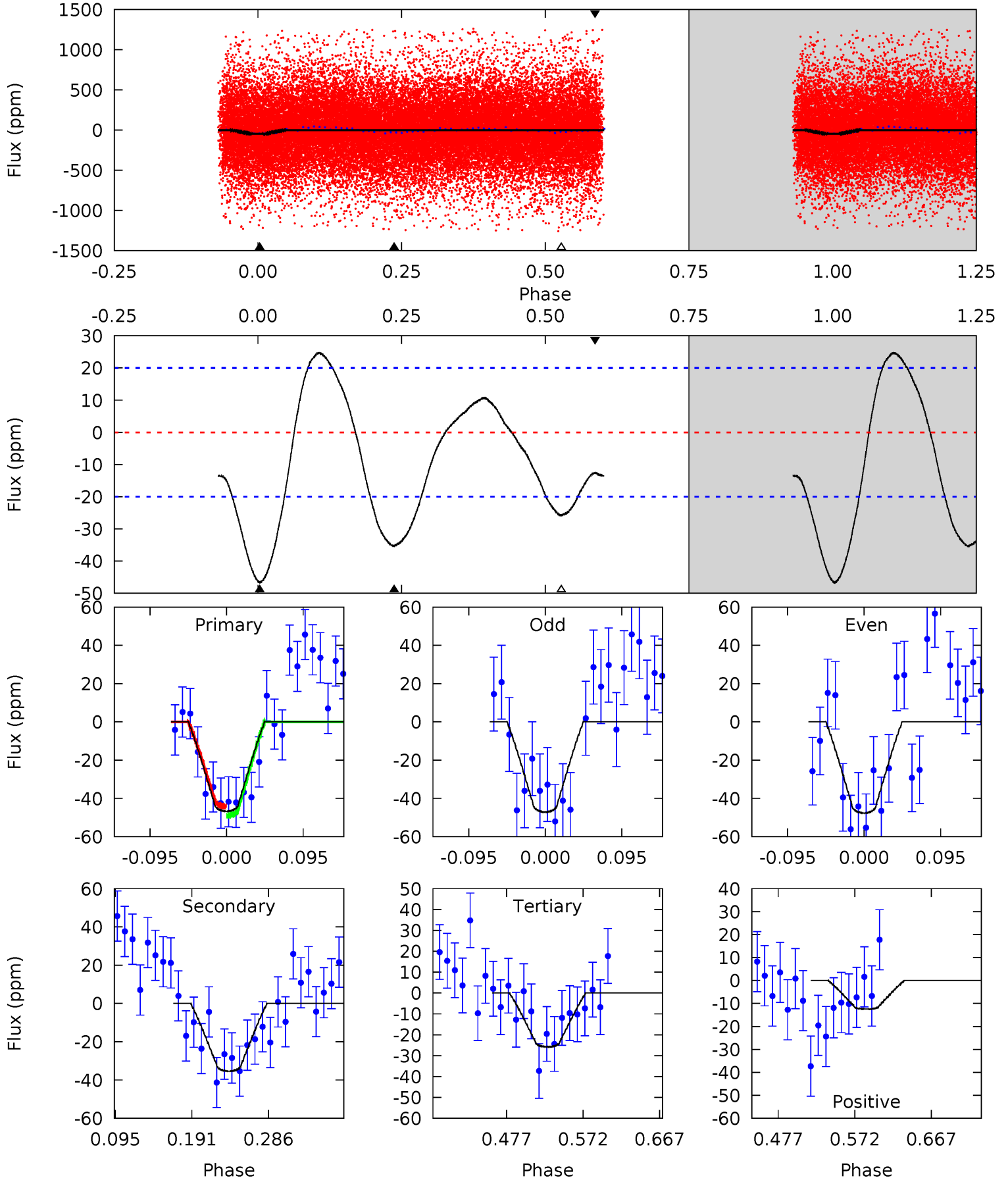




# DV Model-Shift Uniqueness Test

010279745-02, P = 0.603905 Days, E = 131.376952 Days

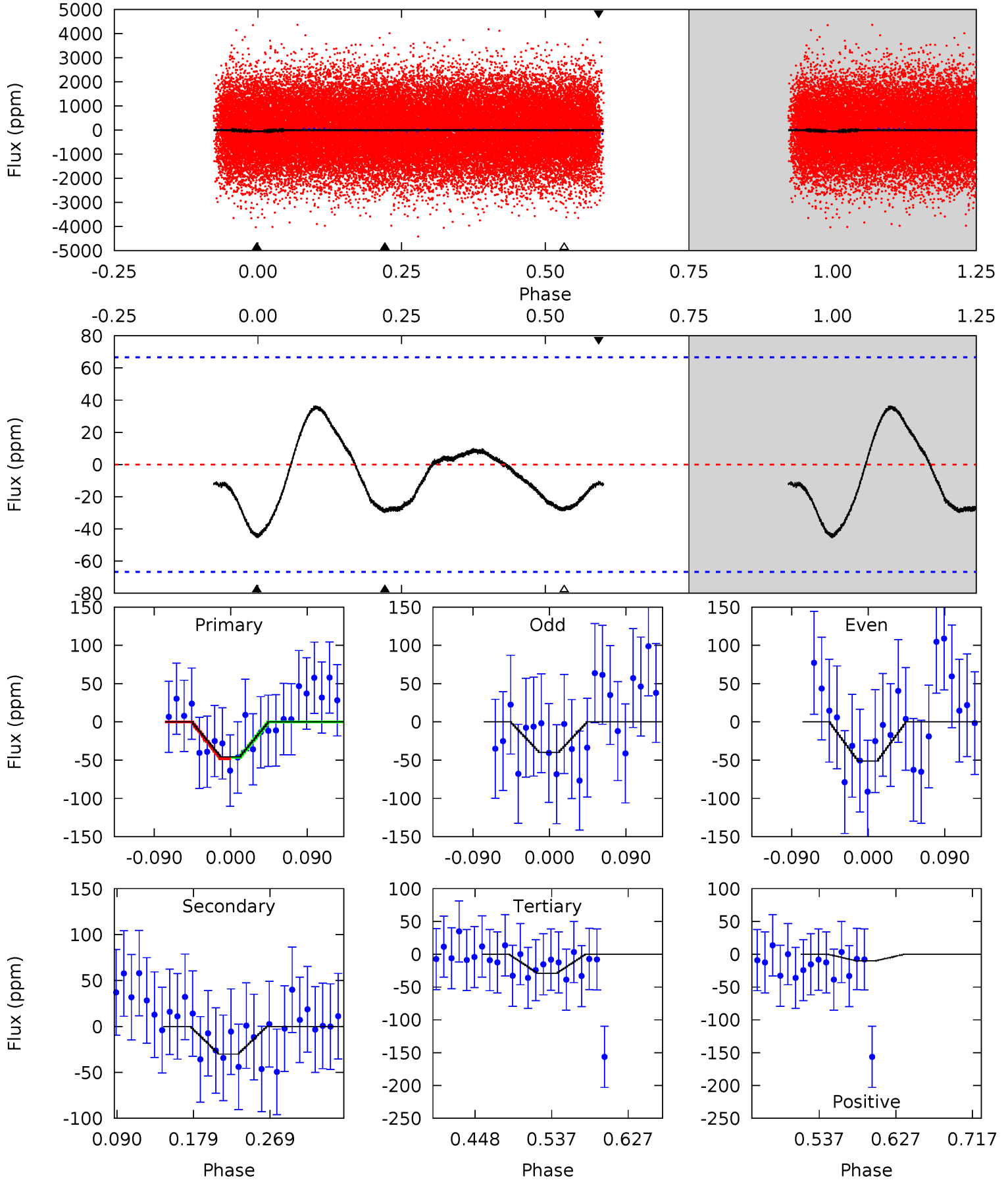
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	8.09	5.90	-2.85	4.57	1.67	3.49	4.79	13.5	2.19	10.9	0.06	0.98	0.35	0.54



# Alt Model-Shift Uniqueness Test

010279745-02, P = 0.603907 Days, E = 131.376955 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
3.14	2.07	2.00	-0.69	4.59	1.70	1.23	1.14	3.83	0.07	2.77	0.39	0.80	0.45	0.06



### Stellar Parameters For KIC 010279745

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7872^{+216}_{-351}$	$3.923^{+0.259}_{-0.130}$	$0.070^{+0.150}_{-0.400}$	$2.542^{+0.445}_{-0.826}$	$1.973^{+0.241}_{-0.413}$	$0.169^{+0.285}_{-0.066}$
	+3%/-4%	+7%/-3%	+214%/-571%	+18%/-32%	+12%/-21%	+169%/-39%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 010279745-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-35 \pm 4$	$1.81^{+0.69}_{-0.60}$	$5747^{+374}_{-462}$	$6813^{+2053}_{-1165}$	$1.813^{+2.176}_{-0.881}$
Alt.	$-30 \pm 15$	$1.79^{+0.68}_{-0.60}$	$5790^{+354}_{-499}$	$6520^{+2203}_{-1716}$	$1.484^{+2.395}_{-0.872}$

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

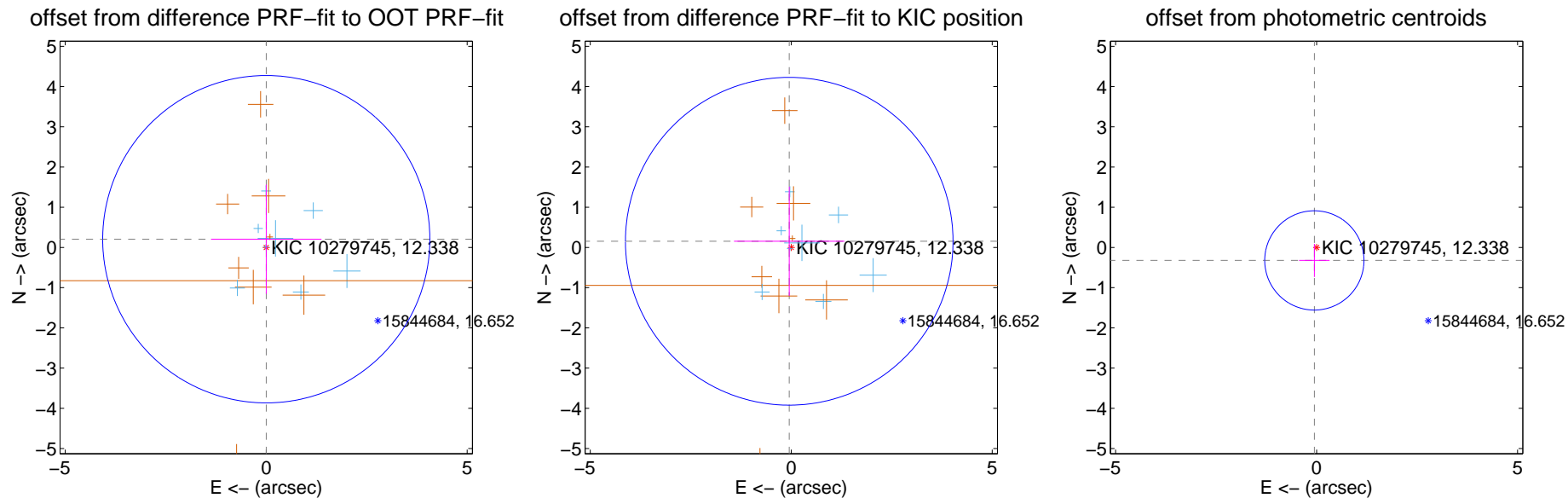
## DV Centroid Data

Supplemental centroid analysis for 010279745-02. Kepler magnitude: 12.34. Transit SNR 8.39

There are 8 quarters with good PRF difference image offsets

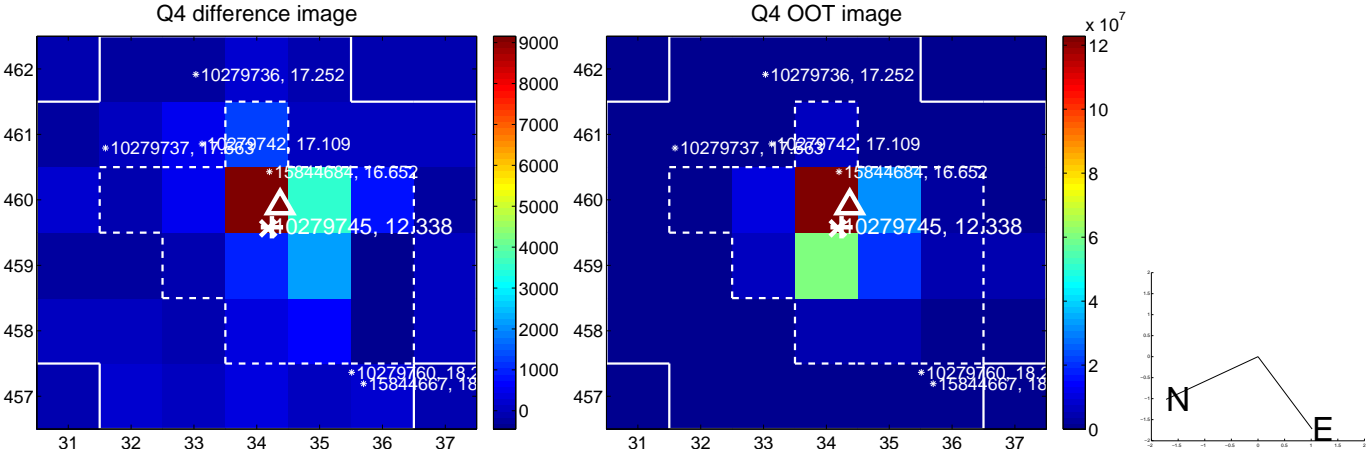
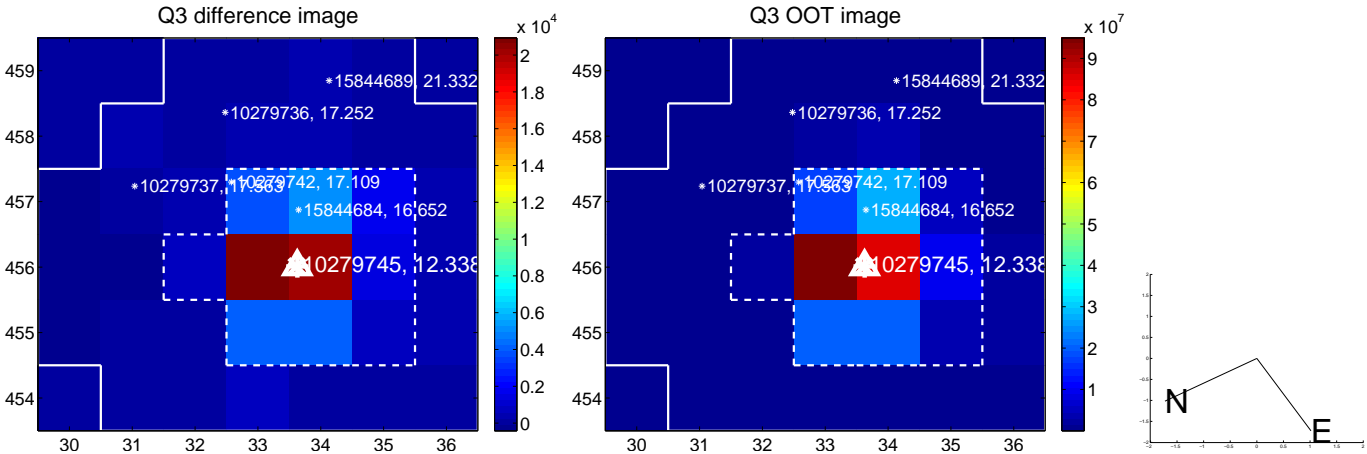
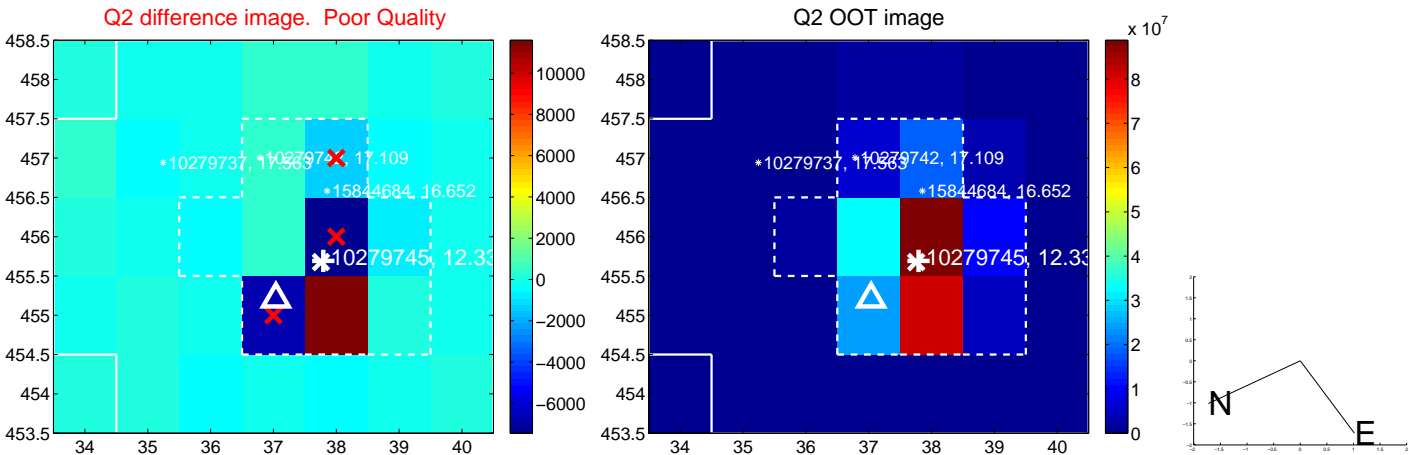
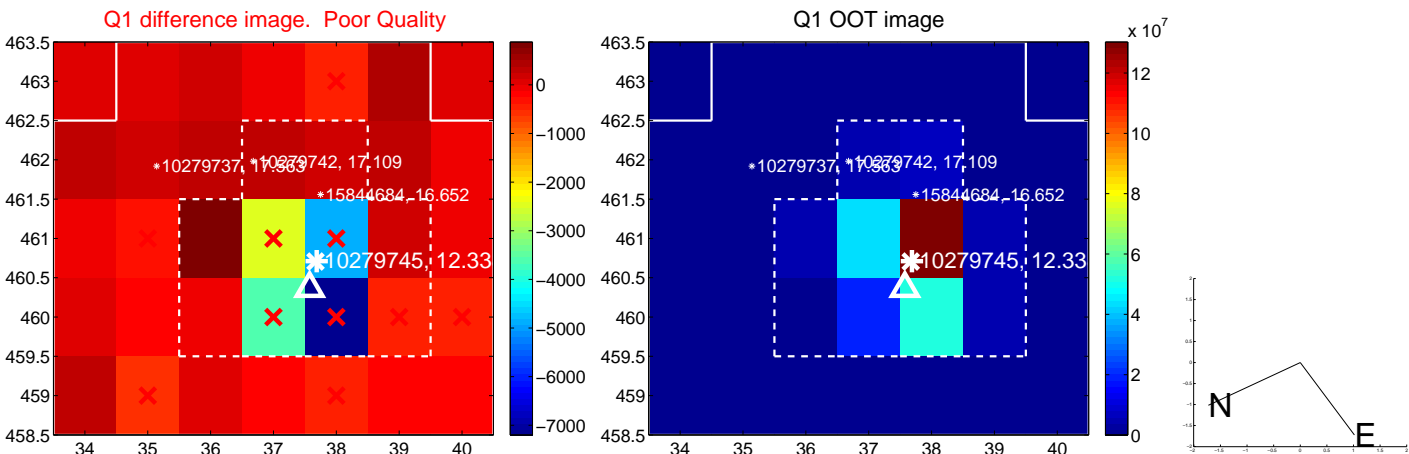
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.205 \pm 1.357$	0.15	$-0.002 \pm 1.375$	$0.205 \pm 1.357$
PRF-fit source offset from KIC position	$0.162 \pm 1.359$	0.12	$0.050 \pm 1.375$	$0.154 \pm 1.357$
photometric centroid source offset	$0.33 \pm 0.41$	0.80	$0.06 \pm 0.38$	$-0.32 \pm 0.41$



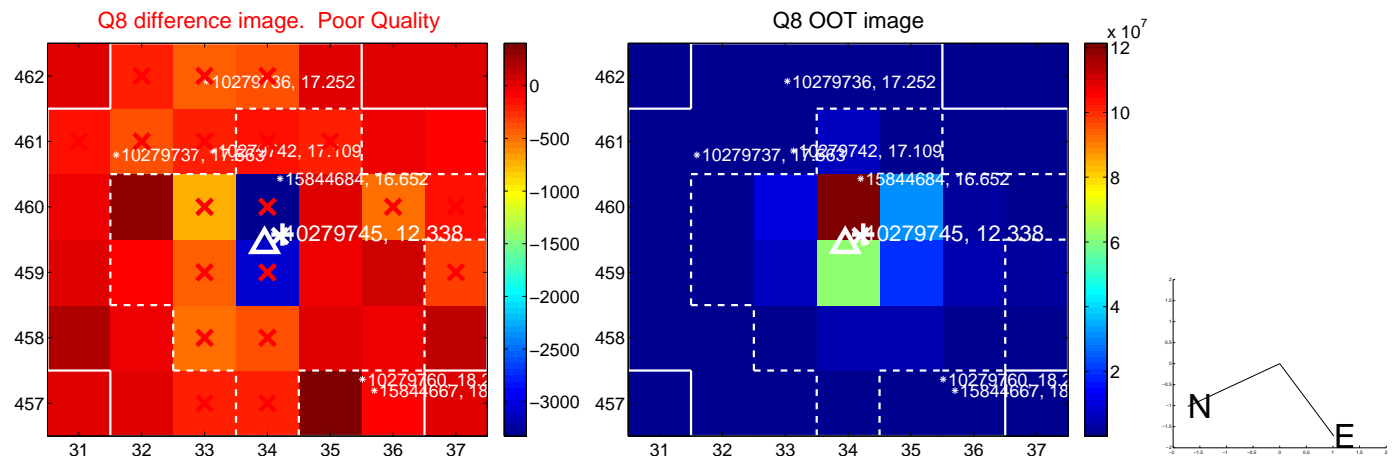
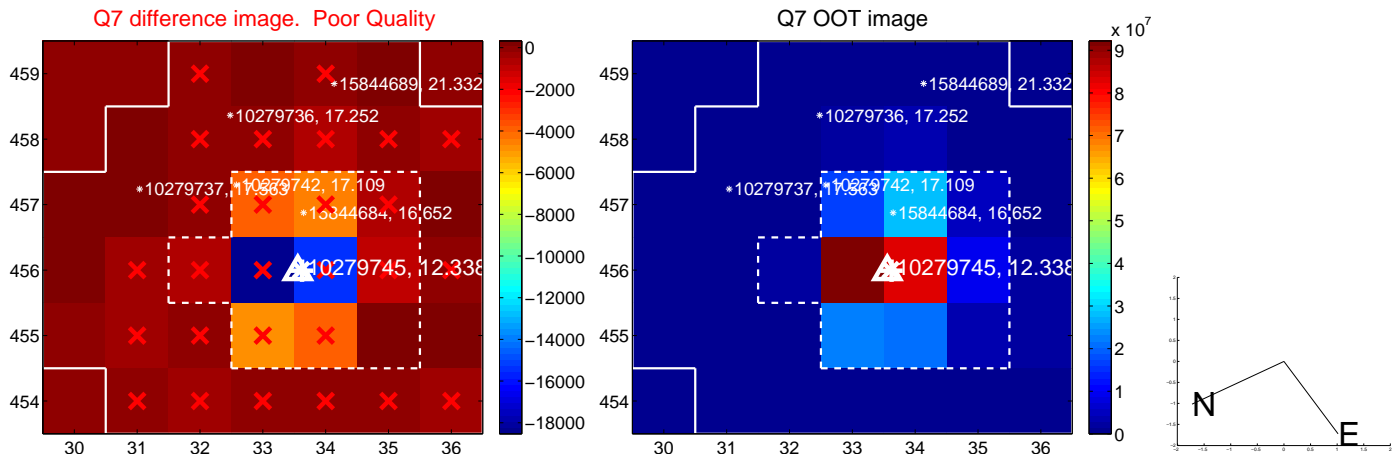
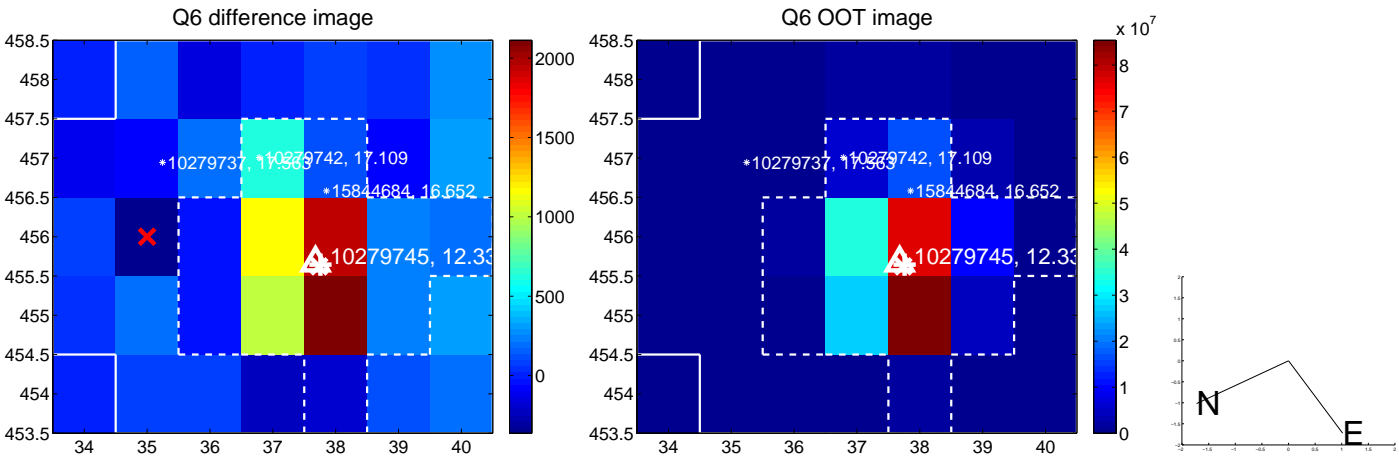
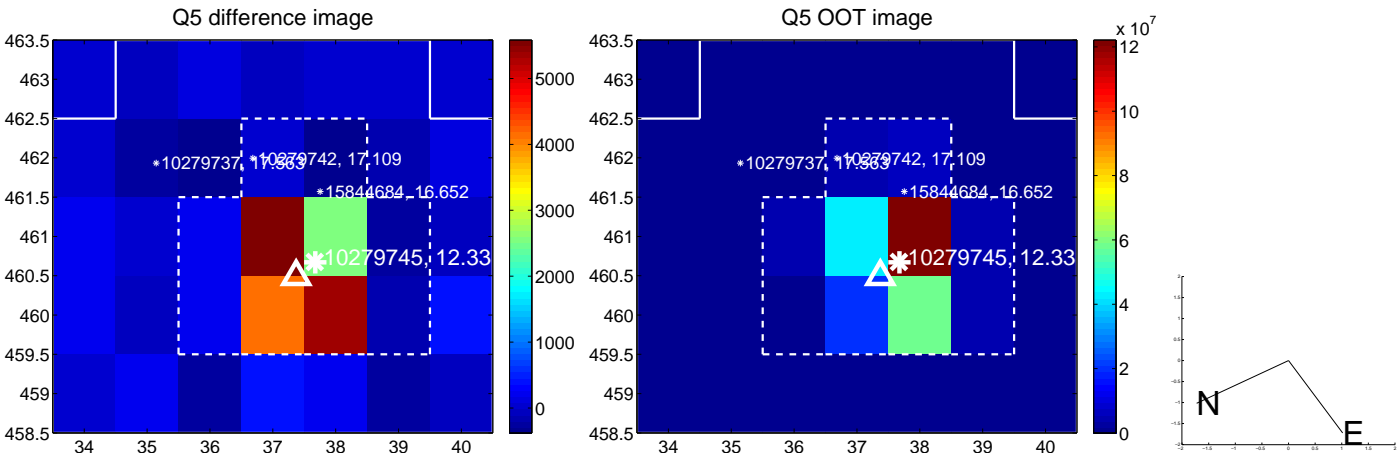
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

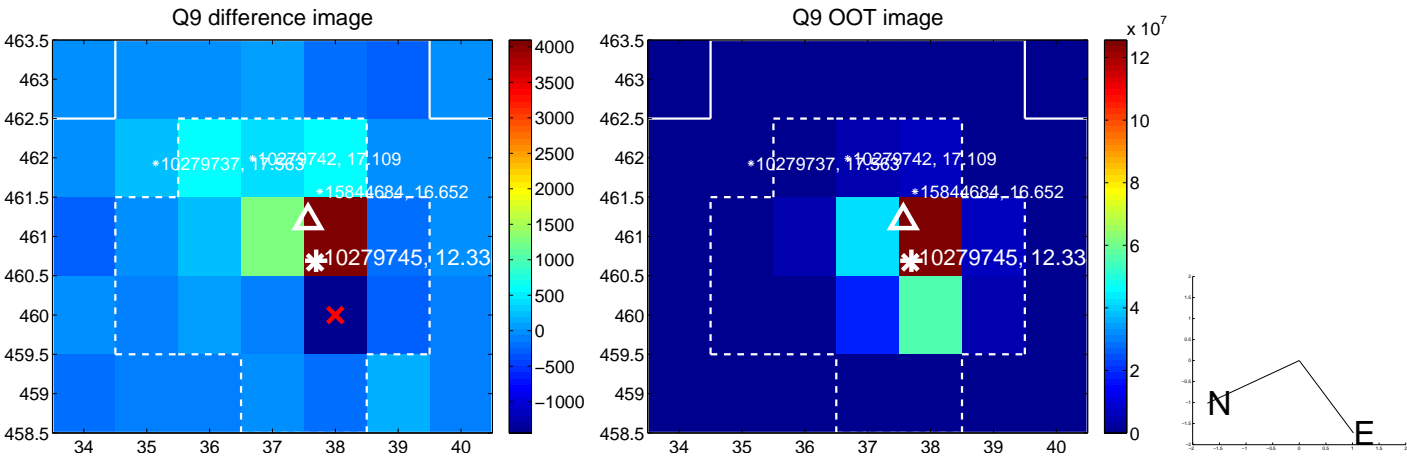




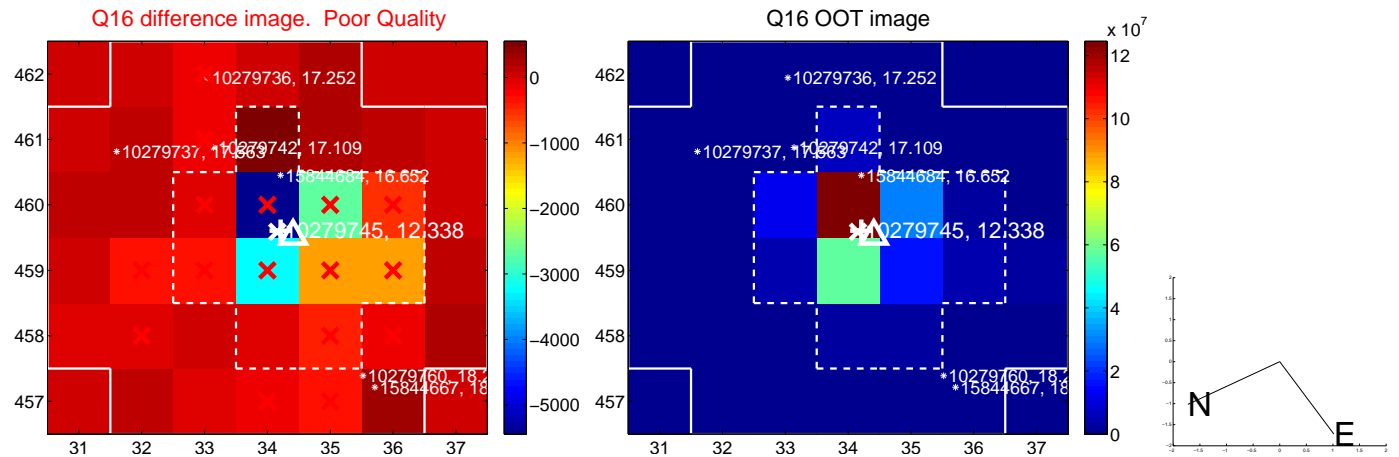
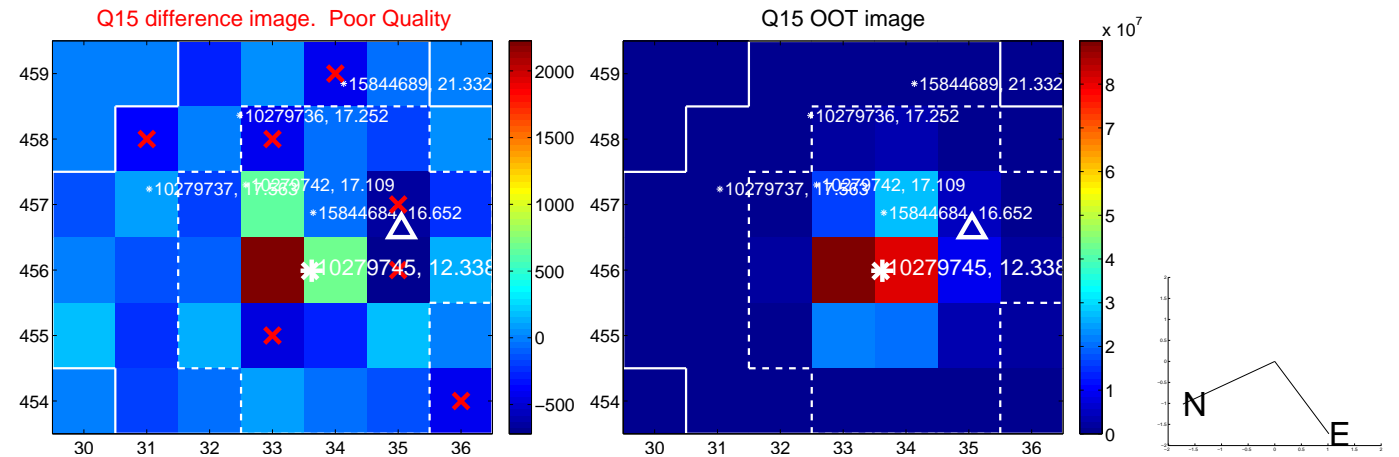
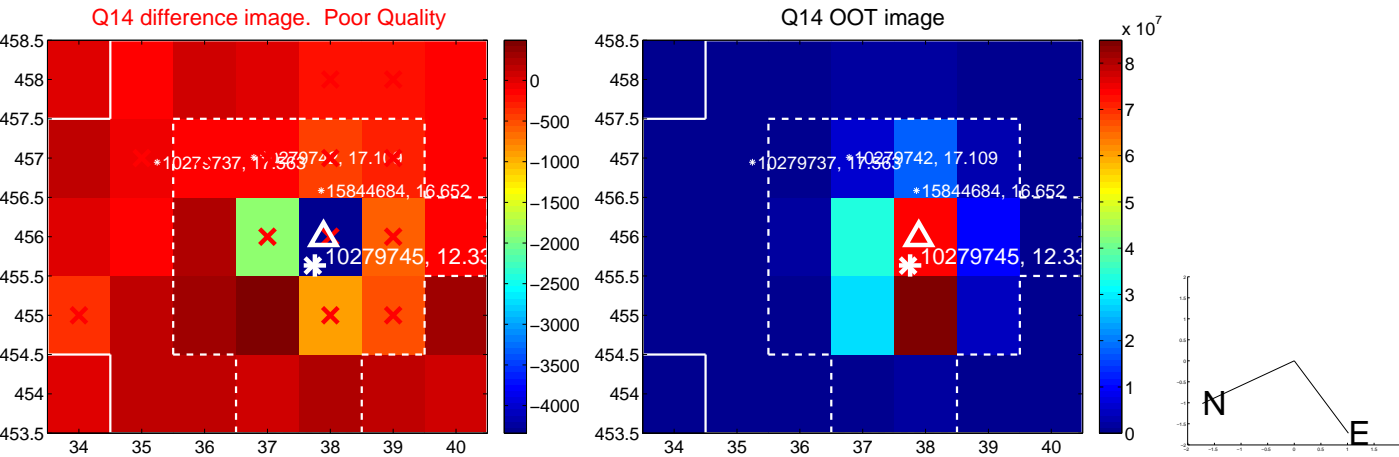
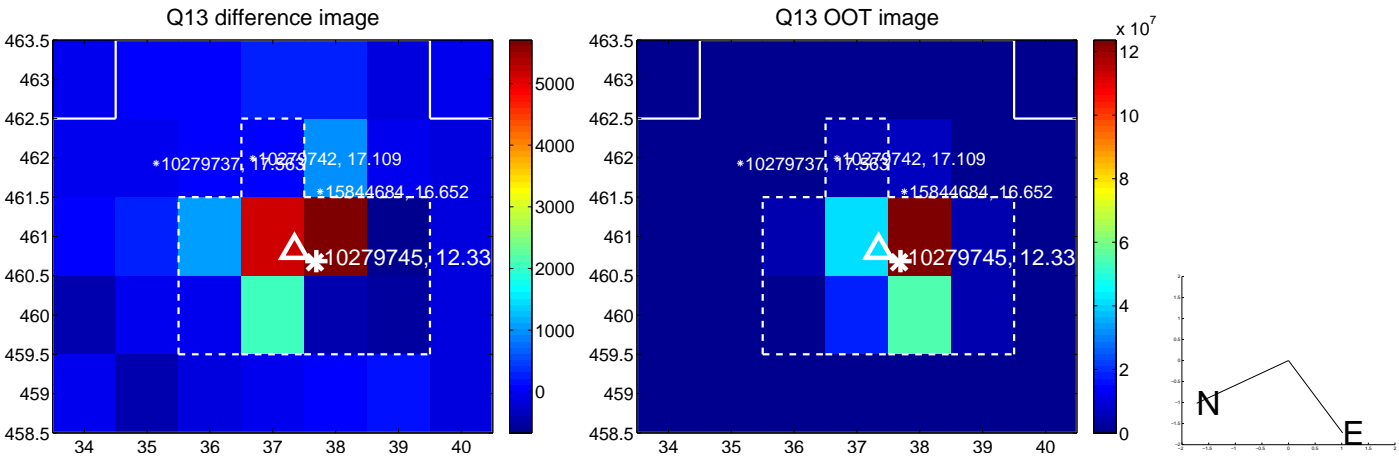
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



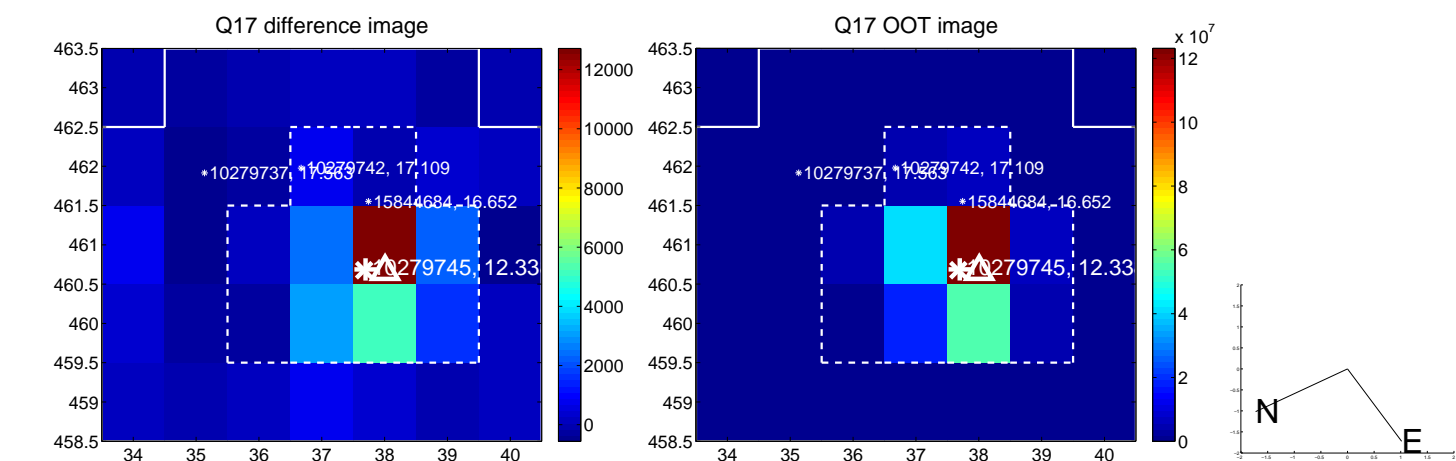
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



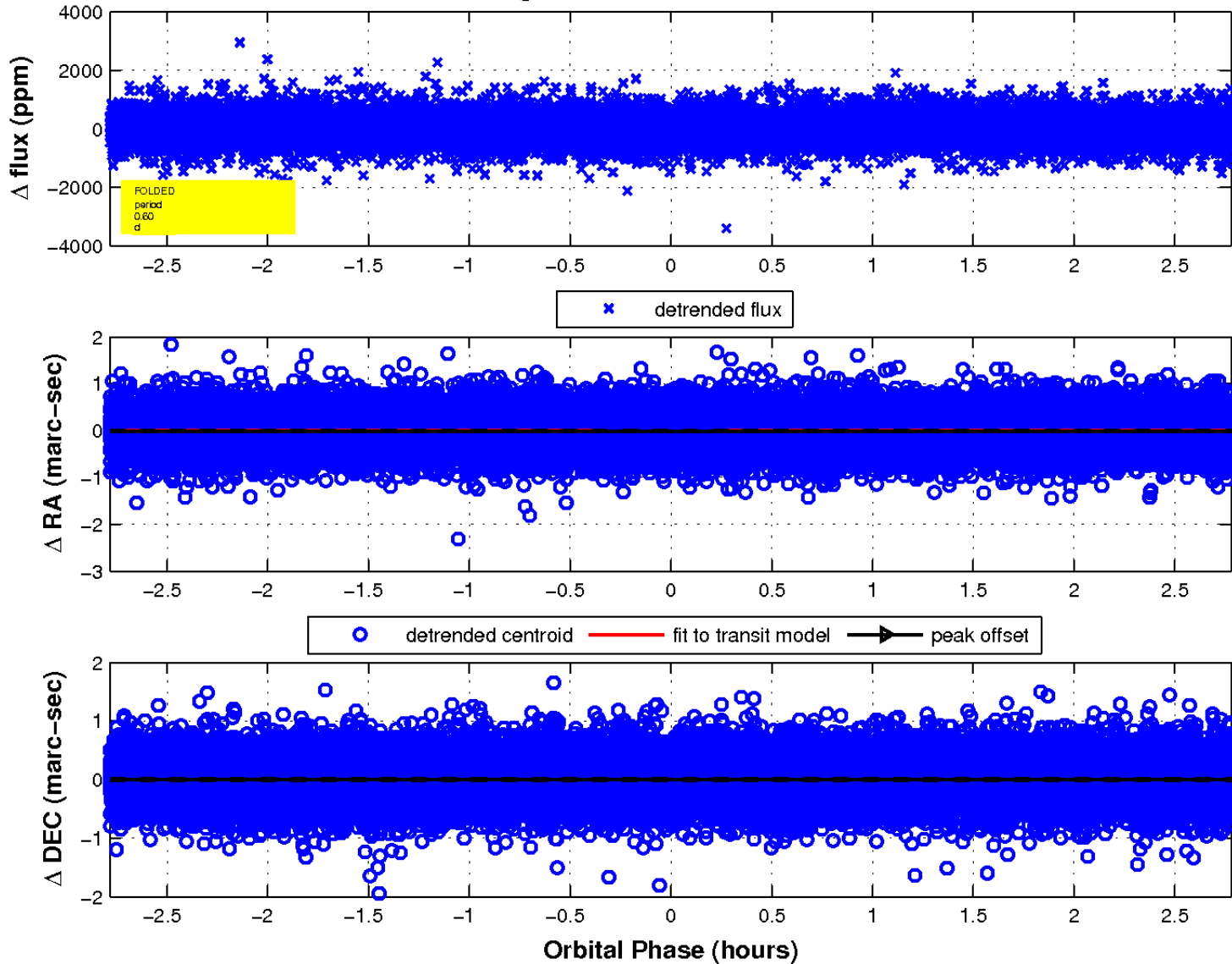
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

