

# KIC 004056579

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004056579-01	OBS	8091.01	239.179376	188.470300	624.5	2.688	8.2	6.2	6.88	4915	17.81	27.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004056579-01	OBS	FP	0.20	1	0	0	0	INCONSISTENT_TRANS

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

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

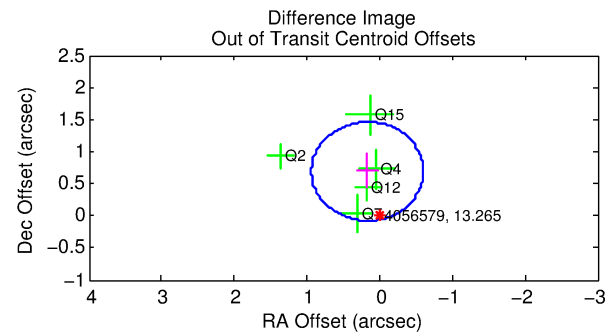
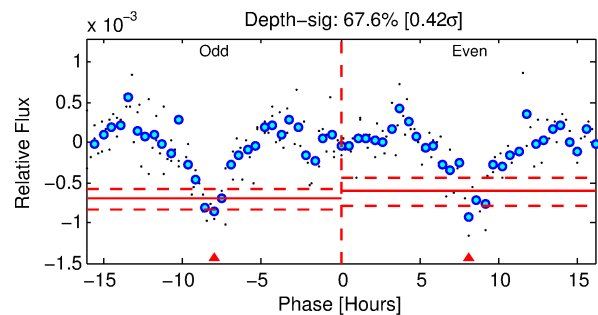
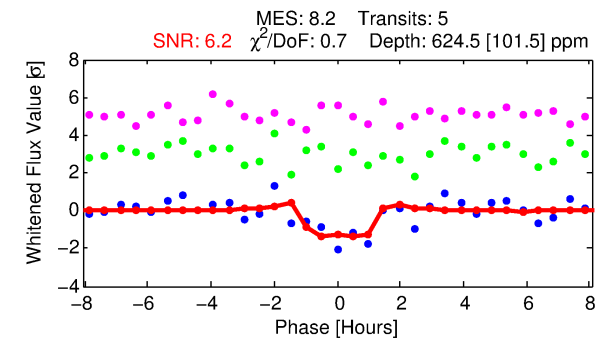
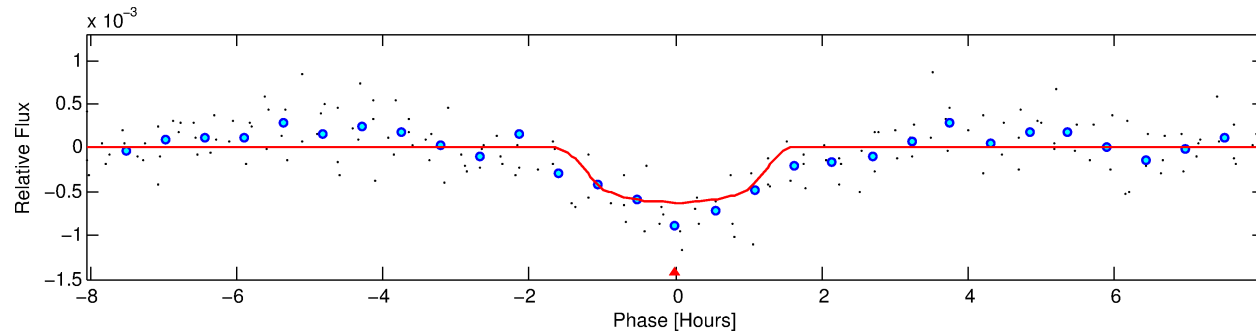
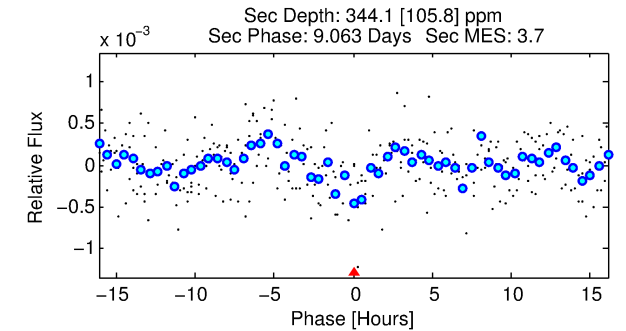
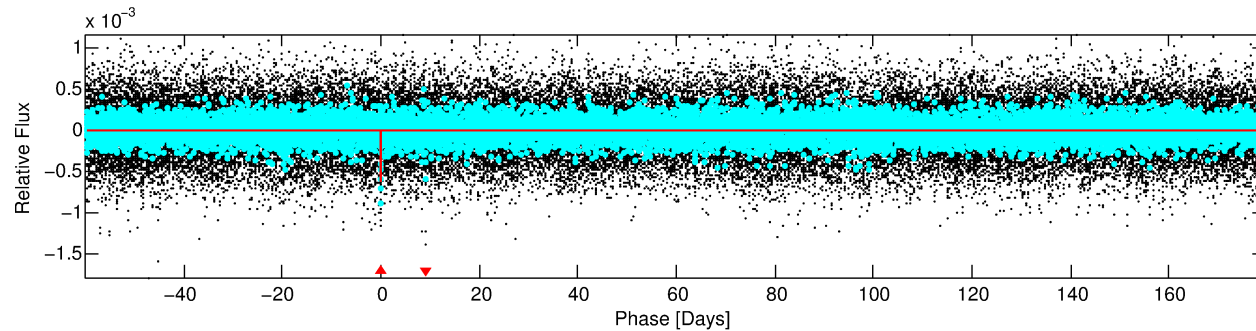
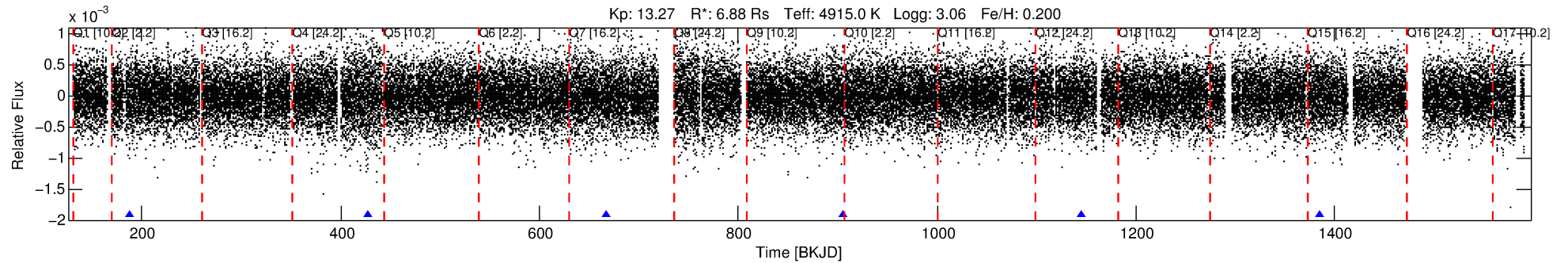
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004056579-01

No Significant Match Found

# DV One-Page Summary

KIC: 4056579 Candidate: 1 of 1 Period: 239.179 d



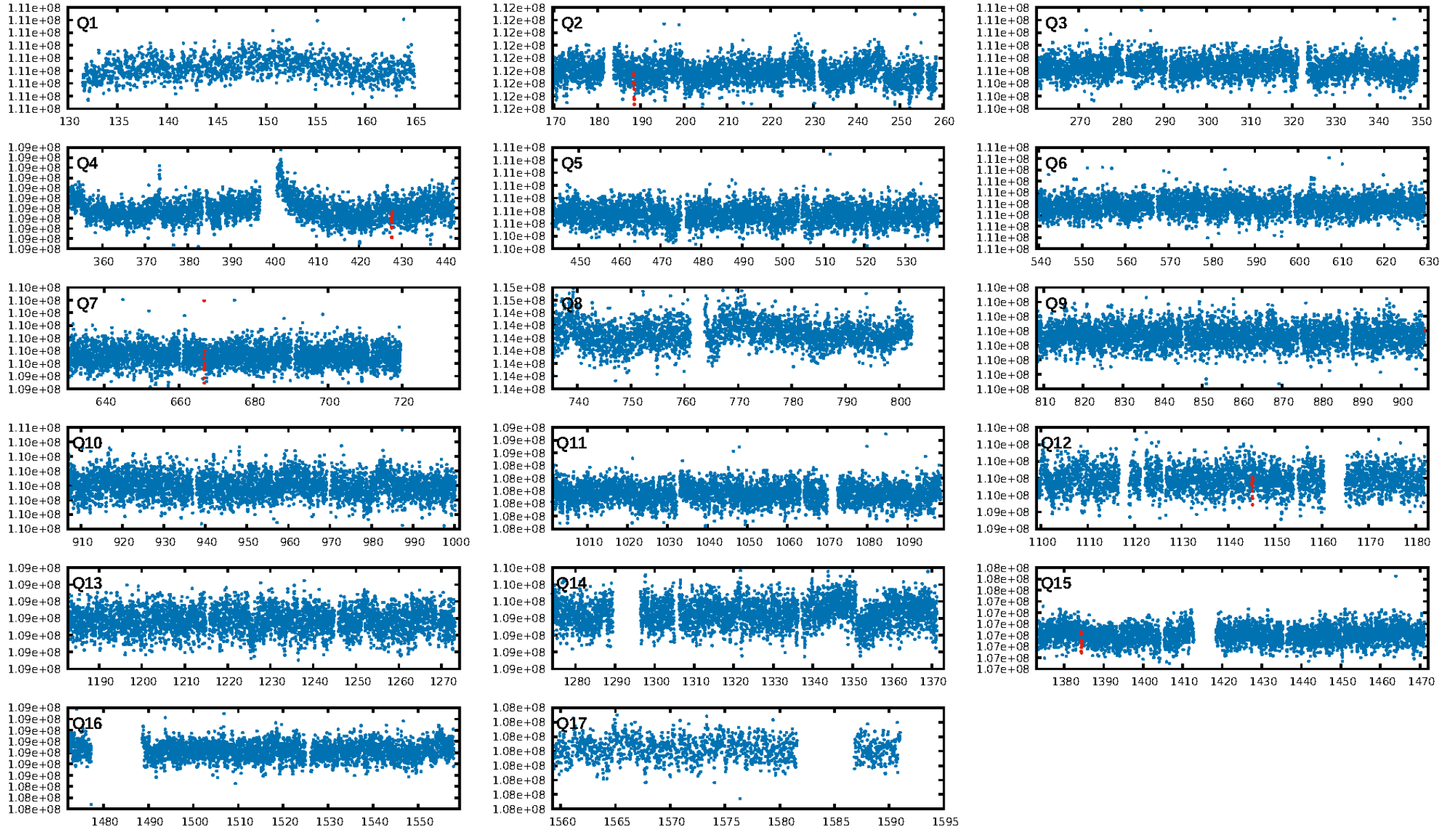
## DV Fit Results:

Period = 239.17938 [0.00181] d  
Epoch = 188.4703 [0.0062] BKJD  
Rp/R\* = 0.0237 [0.0424]  
a/R\* = 557.22 [3292.84]  
b = 0.61 [6.15]  
Seff = 27.43 [6.14]  
Teq = 584 [33] K  
Rp = 17.81 [32.18] Re  
a = 0.9494 [0.1702] AU  
Ag = 538.14 [1933.41] [0.28 $\sigma$ ]  
Teff = 4346 [3901] K [0.96 $\sigma$ ]

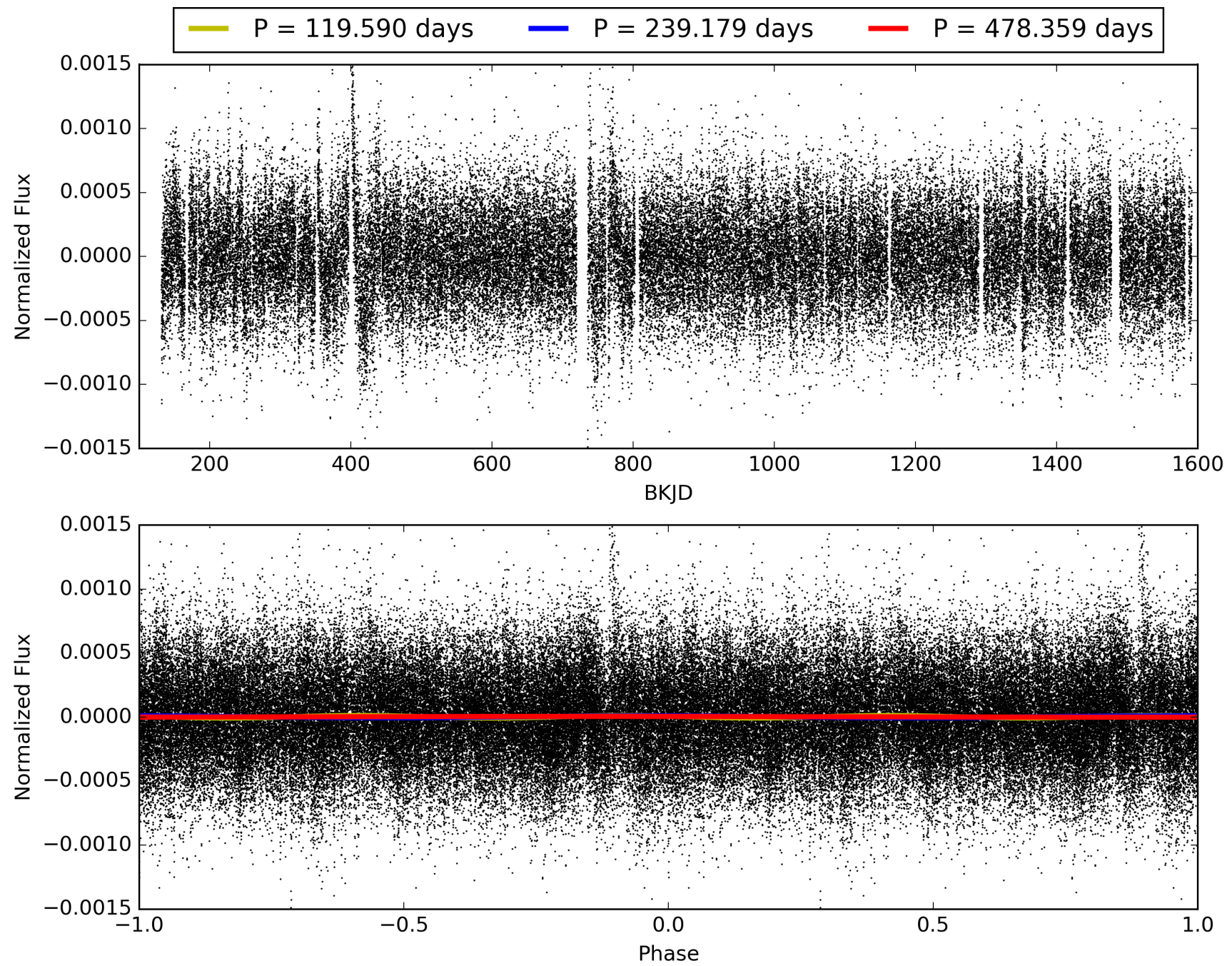
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 80.5%  
ModelChiSquareGof-sig: 99.0%  
Bootstrap-pfa: 2.83e-13  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 2.864  
Centroid-sig: 1.3%  
Centroid-so: 1.044 arcsec [1.50 $\sigma$ ]  
OotOffset-rm: 0.713 arcsec [2.78 $\sigma$ ]  
KicOffset-rm: 0.701 arcsec [2.48 $\sigma$ ]  
OotOffset-st: 1/2/2/0 [5]  
KicOffset-st: 1/2/2/0 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 1.00 [5/5]

# TCE 004056579-01, PDC Light Curves

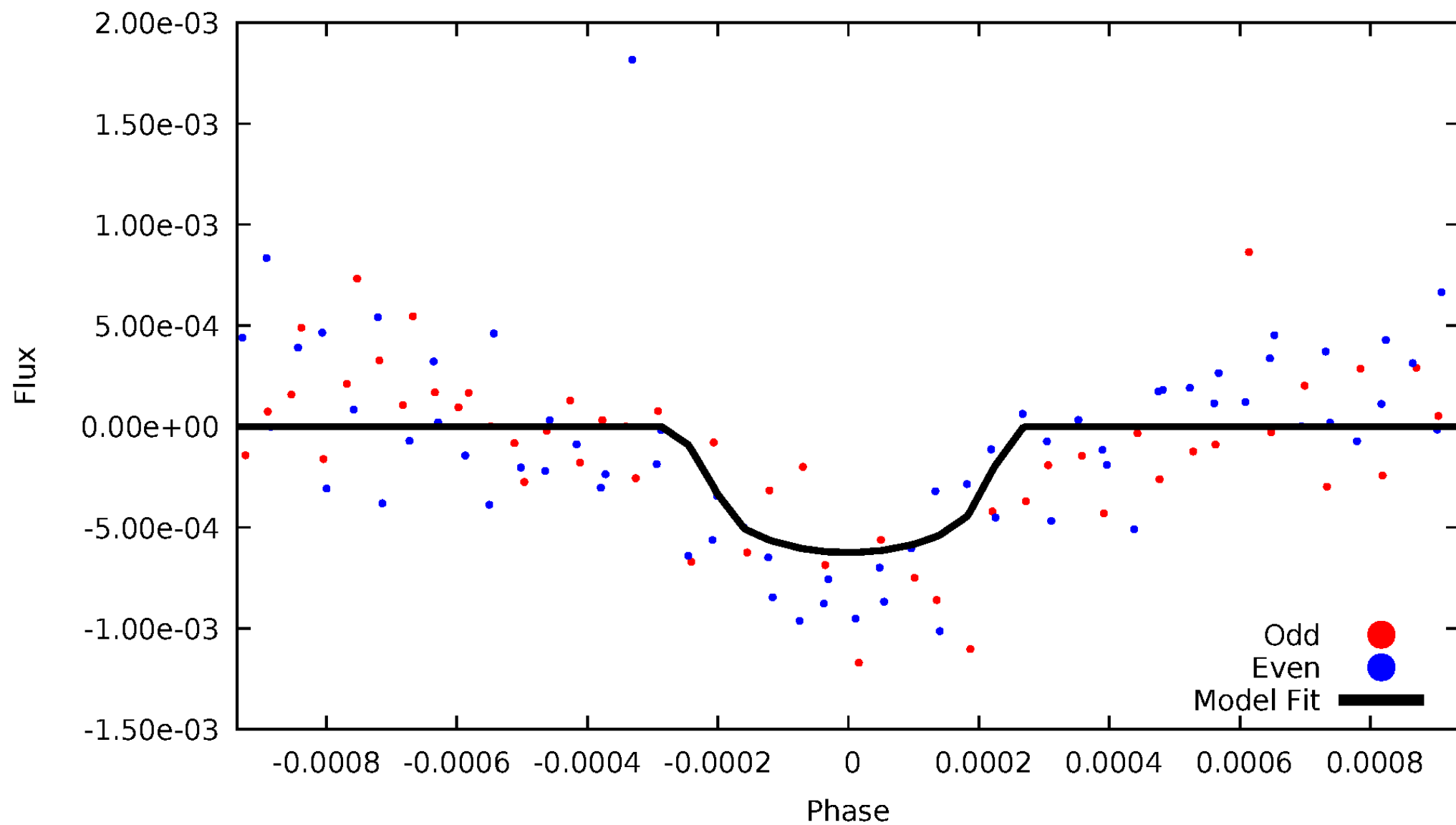


TCE 004056579-01



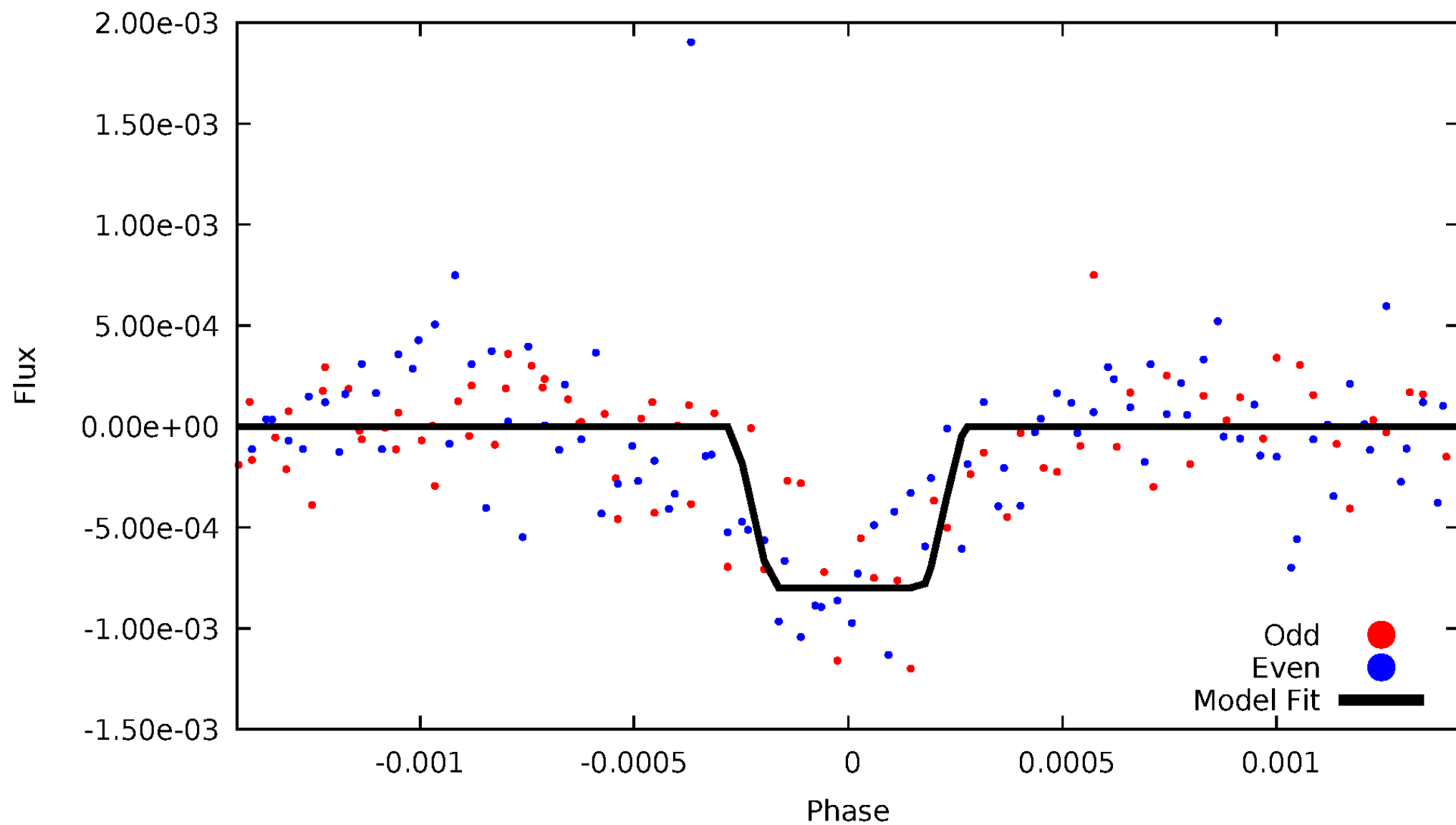
# DV Odd/Even

TCE 004056579-01



# ALT Odd/Even

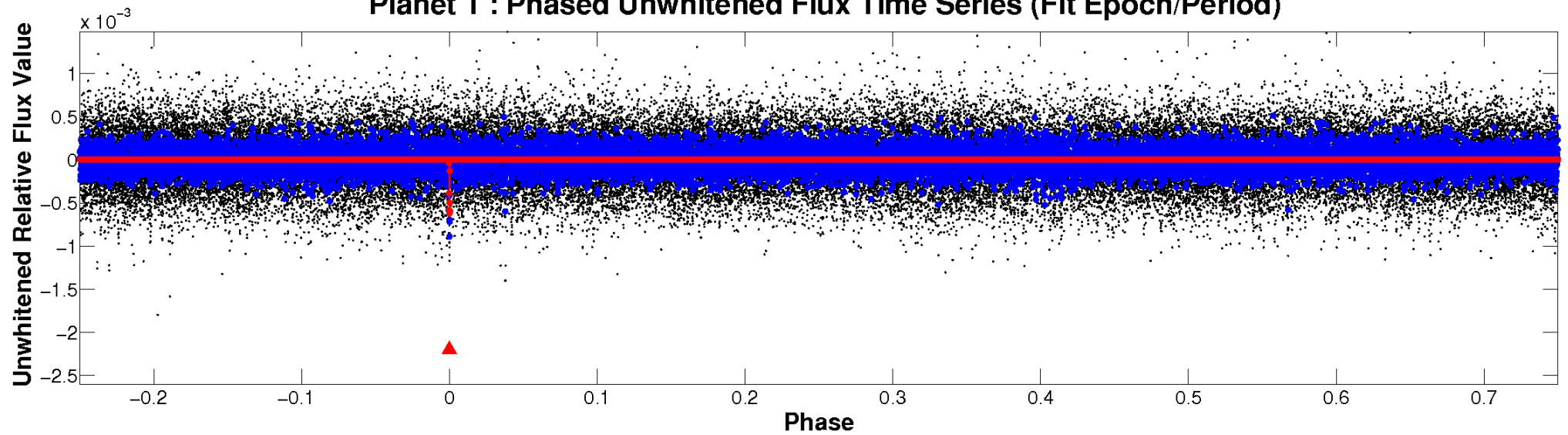
TCE 004056579-01



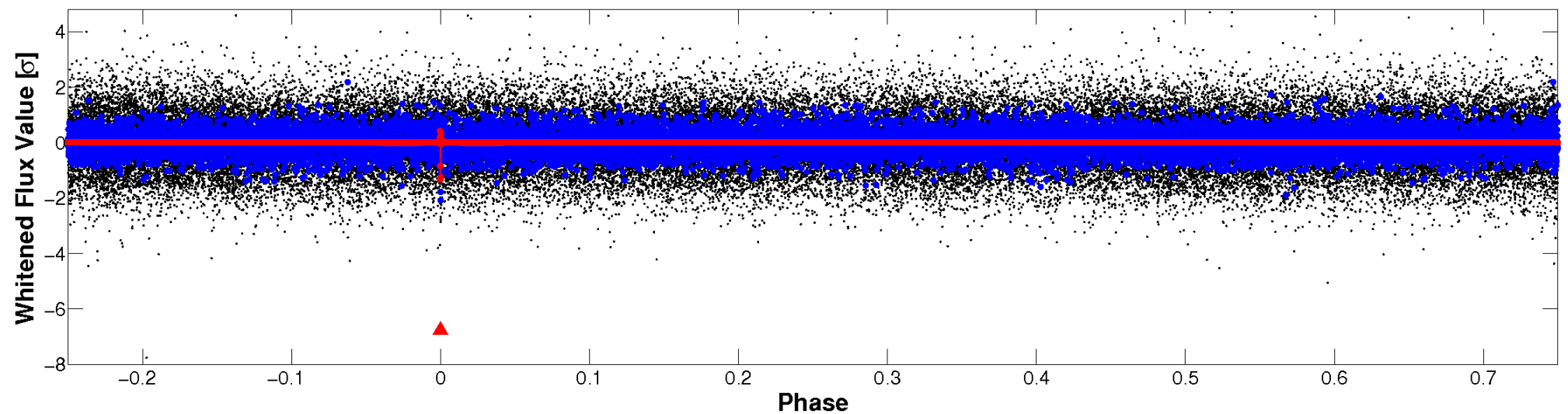


# Non-Whitened Vs. Whitened Light Curve

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

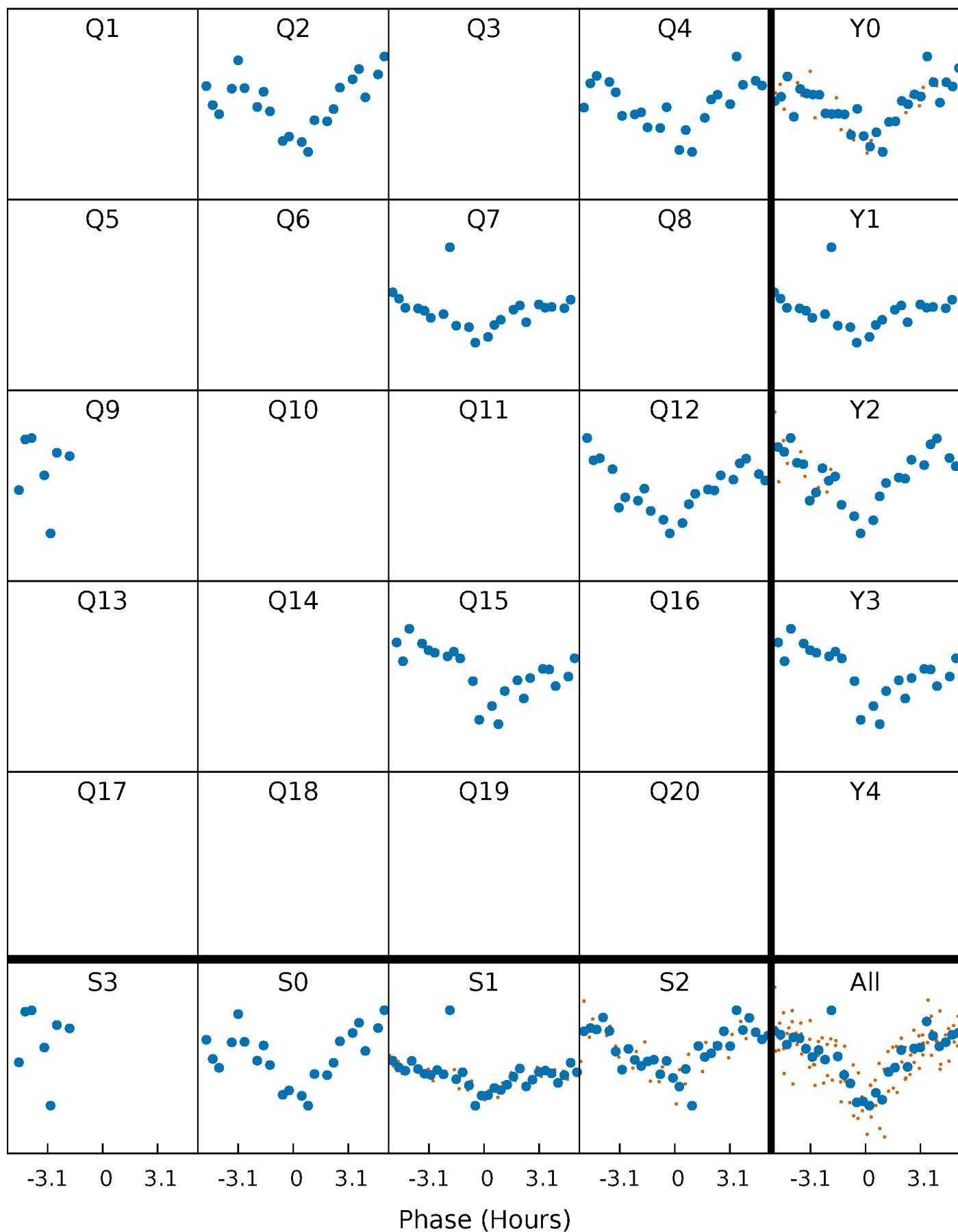


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

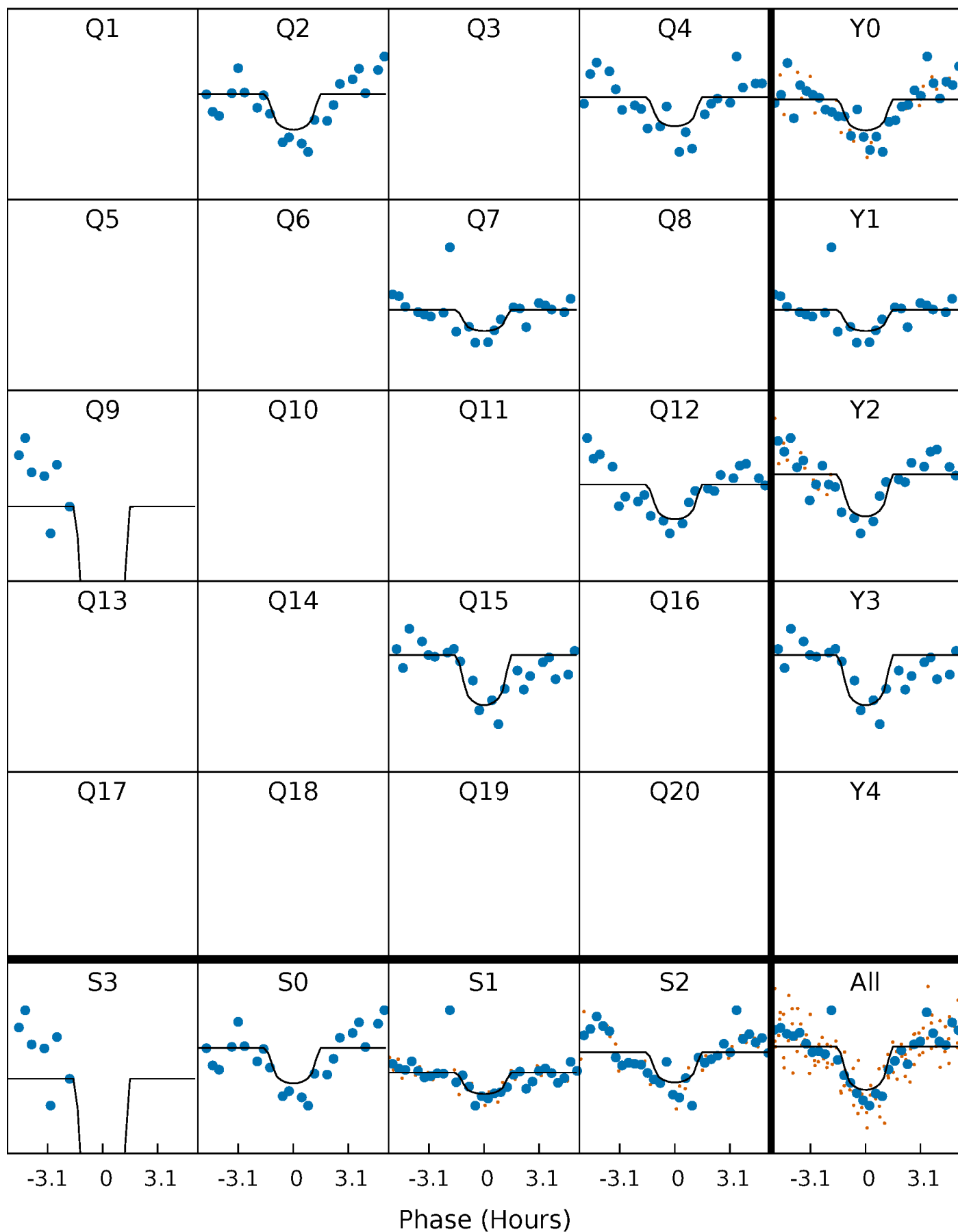
TCE 004056579-01 P=239.179376 Days  $T_0=188.470300$  (BKJD)





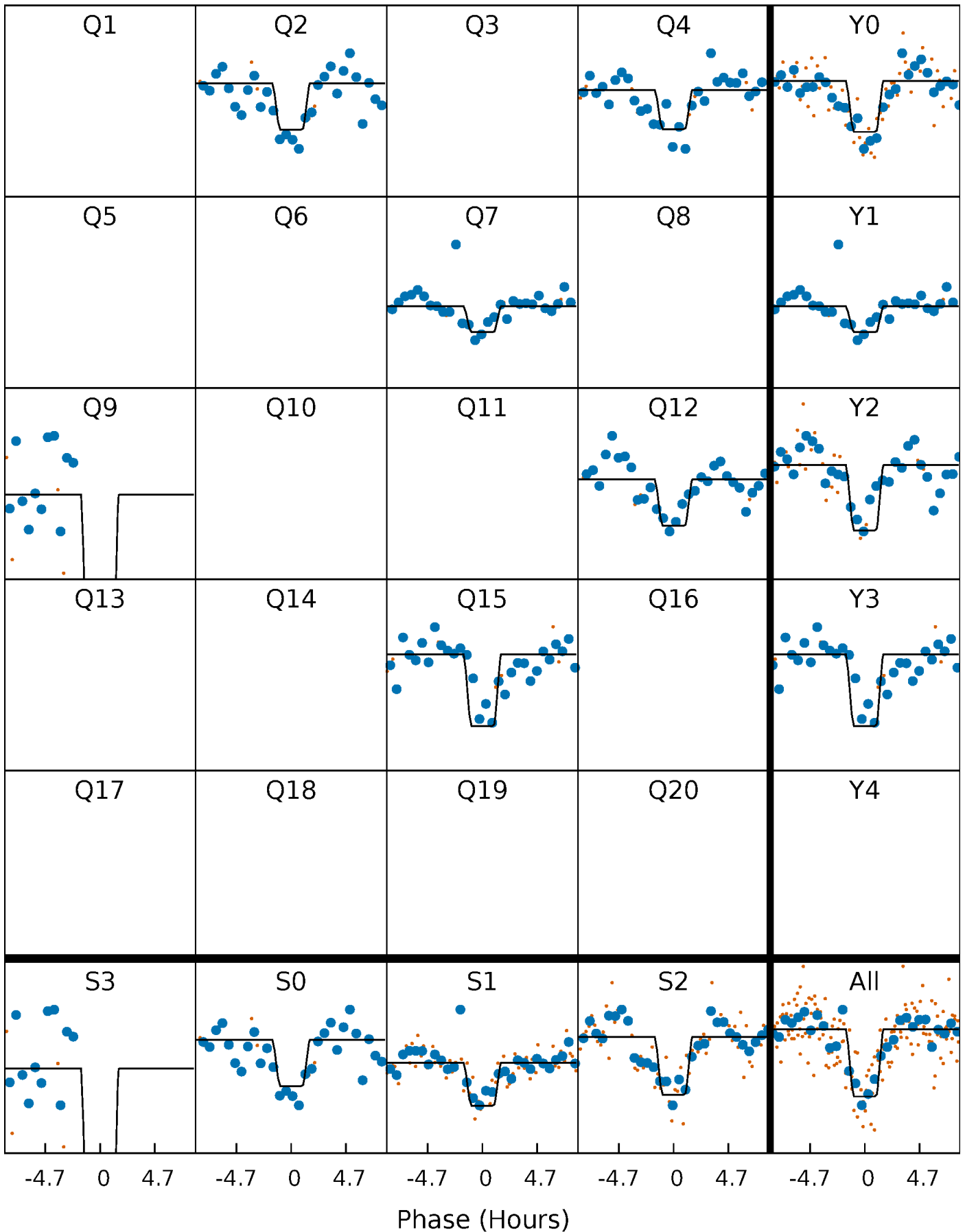
# DV Quarter-Phased Transit Curves

TCE 004056579-01 P=239.179376 Days  $T_0=188.470300$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

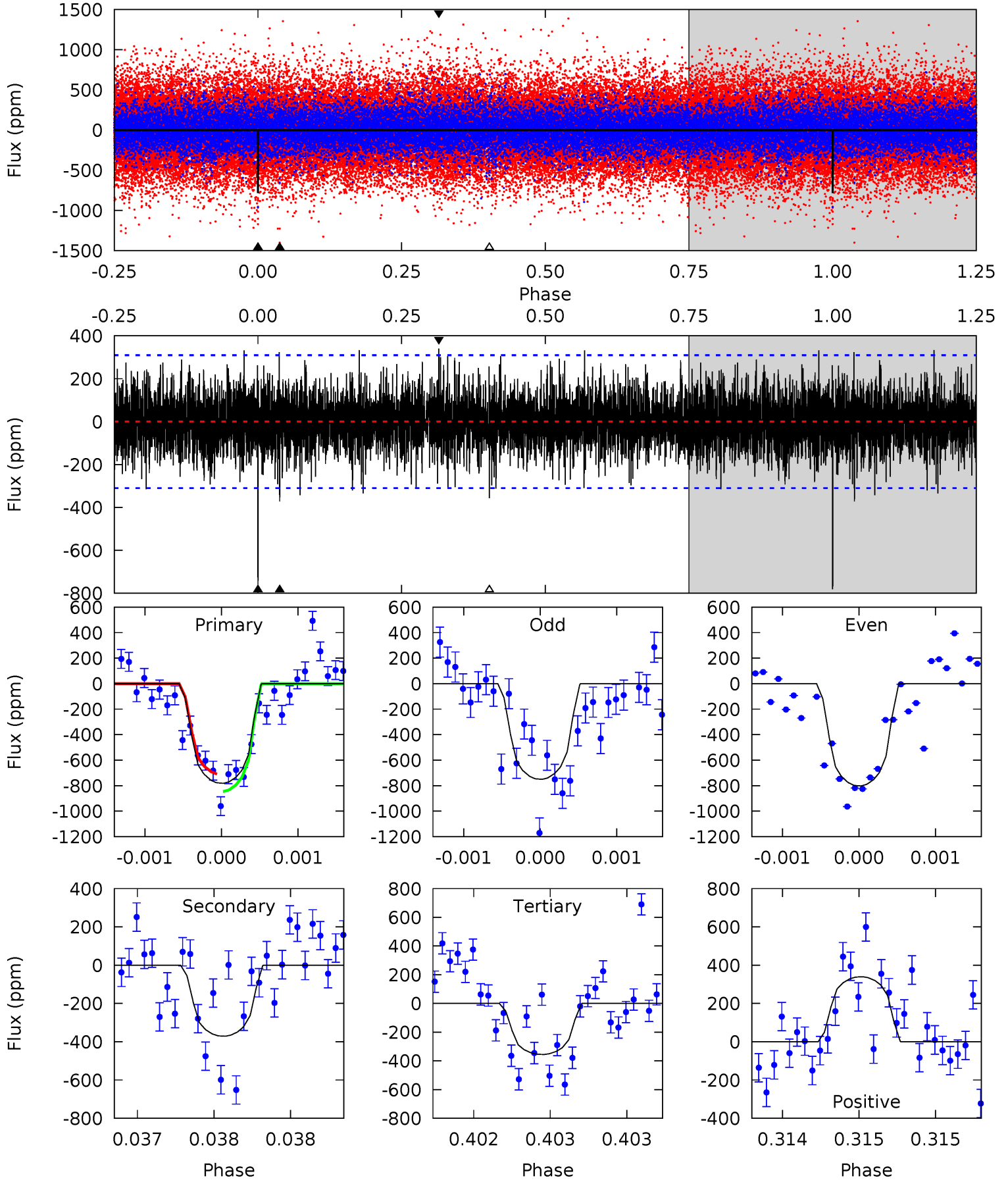
TCE 004056579-01 P=239.178157 Days  $T_0=188.481408$  (BKJD)



# DV Model-Shift Uniqueness Test

004056579-01, P = 239.179376 Days, E = 188.470300 Days

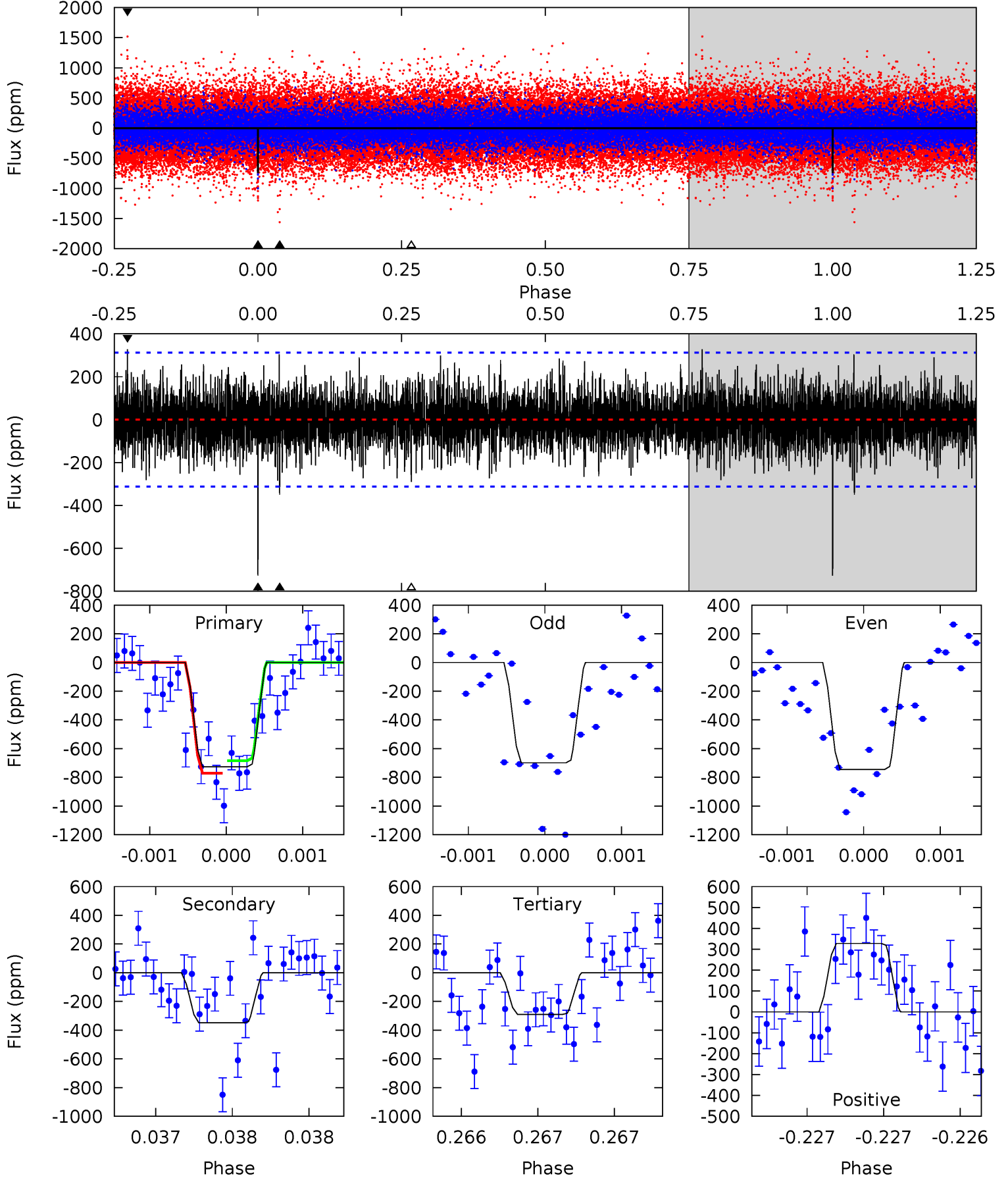
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	6.67	6.39	6.10	5.57	3.47	1.77	7.66	7.94	0.28	0.57	0.46	0.99	0.30	1.23



# Alt Model-Shift Uniqueness Test

004056579-01, P = 239.178157 Days, E = 188.481408 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
12.9	6.22	5.17	5.85	5.56	3.47	1.54	7.77	7.10	1.05	0.38	0.40	1.11	0.31	0.78



### Stellar Parameters For KIC 004056579

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4915^{+72}_{-157}$	$3.063^{+0.030}_{-0.030}$	$0.200^{+0.150}_{-0.350}$	$6.877^{+0.324}_{-1.834}$	$1.996^{+0.157}_{-0.892}$	$0.009^{+0.003}_{-0.001}$
	+1%/-3%	+1%/-1%	+75%/-175%	+5%/-27%	+8%/-45%	+39%/-7%
Source	PHO1	AST9	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 004056579-01 / KOI 8091.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-371 \pm 56$	$30.18^{+27.23}_{-20.98}$	$815^{+18}_{-29}$	$3743^{+2102}_{-706}$	$205^{+1746}_{-149}$
Alt.	$-349 \pm 56$	$31.60^{+28.99}_{-21.23}$	$815^{+18}_{-28}$	$3609^{+1959}_{-616}$	$175^{+1408}_{-126}$

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

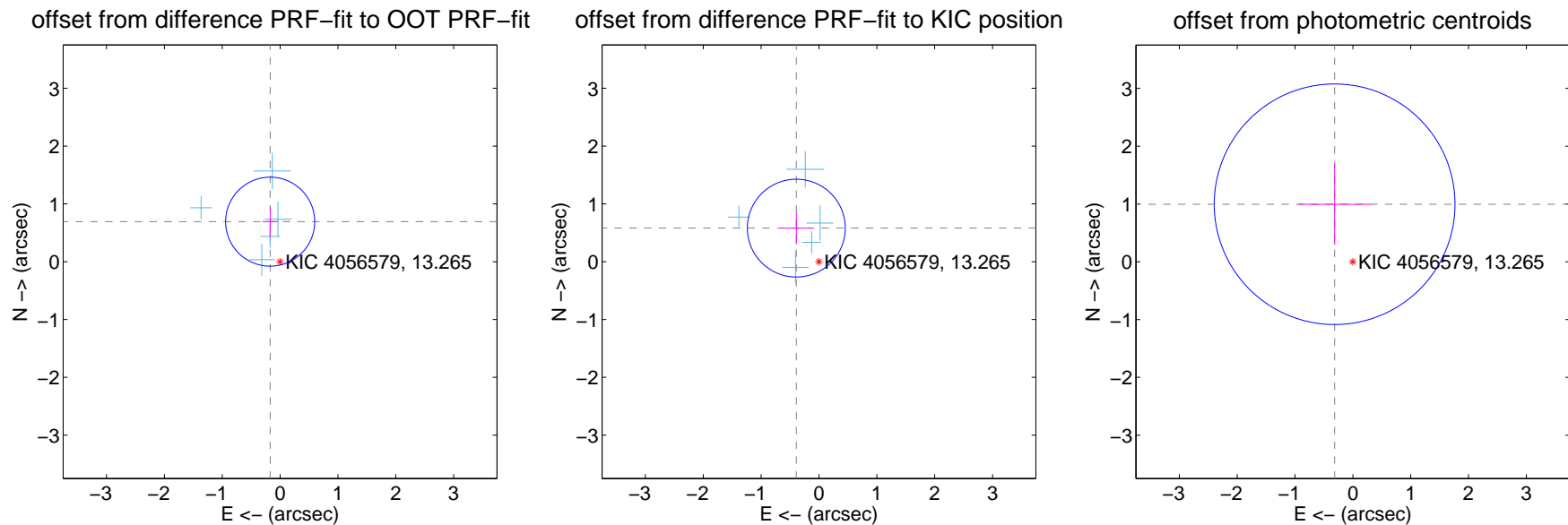
## DV Centroid Data

Supplemental centroid analysis for 004056579-01. Kepler magnitude: 13.27. Transit SNR 6.21

There are 5 quarters with good PRF difference image offsets

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

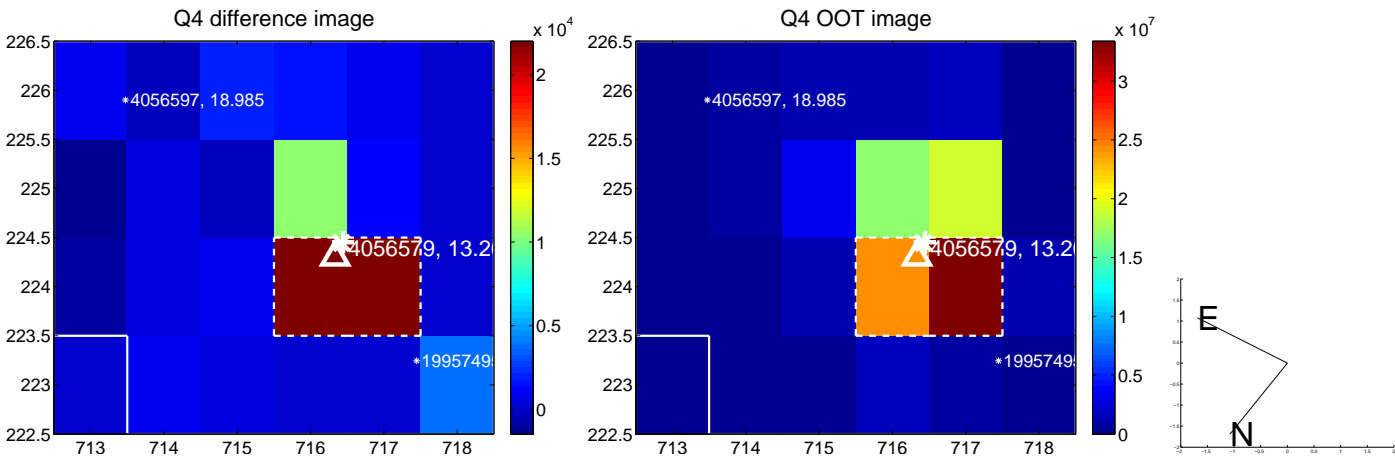
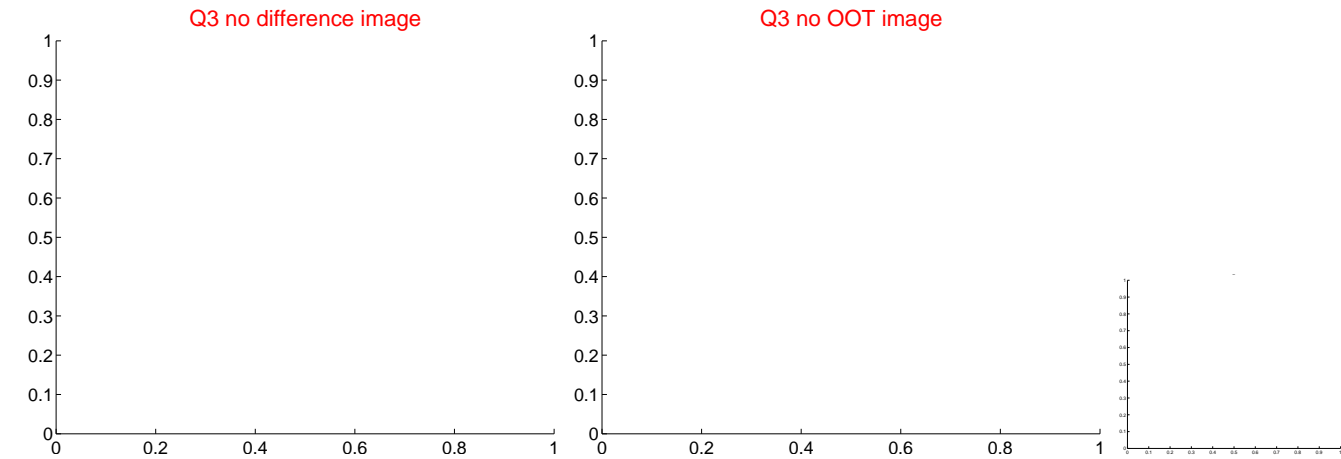
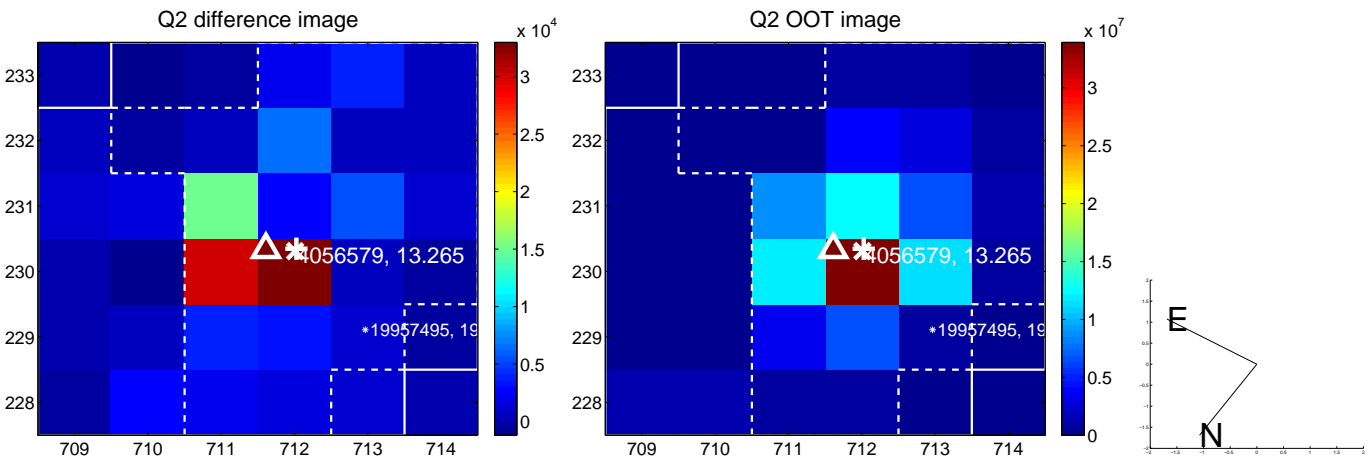
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.713 \pm 0.257$	2.78	$0.172 \pm 0.136$	$0.692 \pm 0.262$
PRF-fit source offset from KIC position	$0.701 \pm 0.282$	2.48	$0.392 \pm 0.283$	$0.581 \pm 0.282$
photometric centroid source offset	$1.04 \pm 0.69$	1.50	$0.32 \pm 0.63$	$1.00 \pm 0.70$



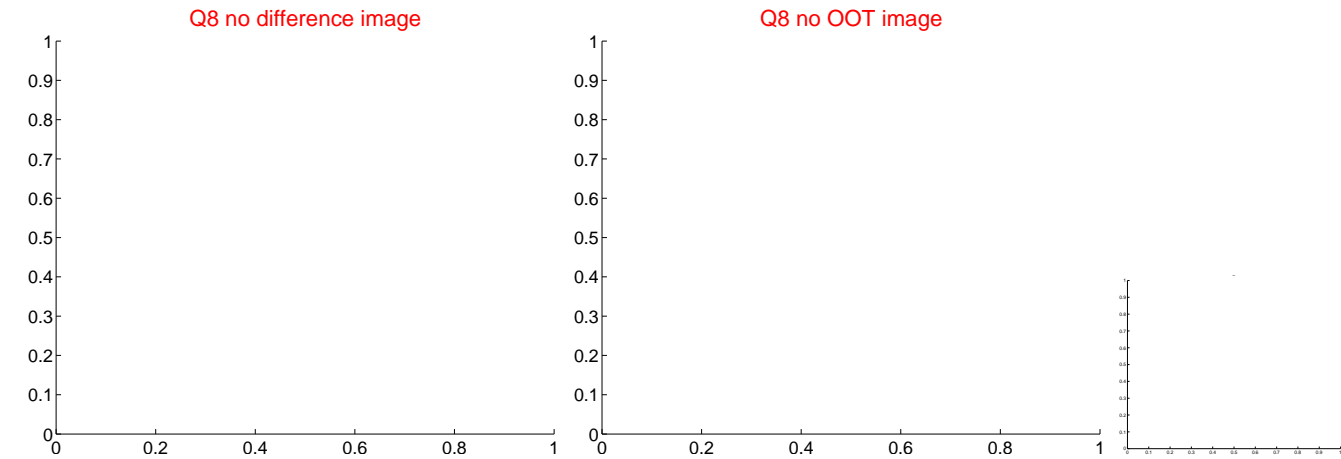
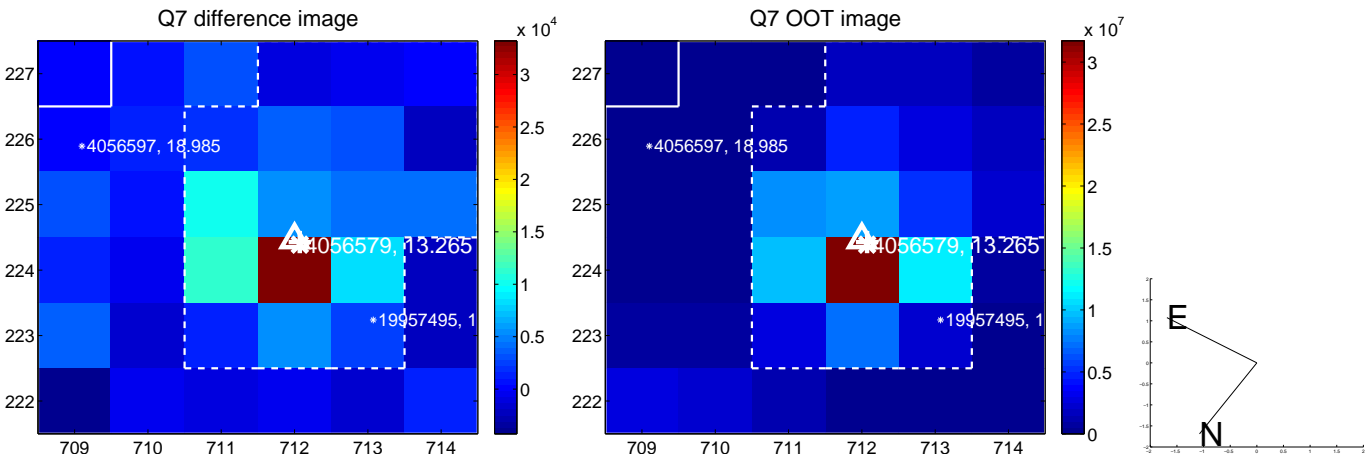
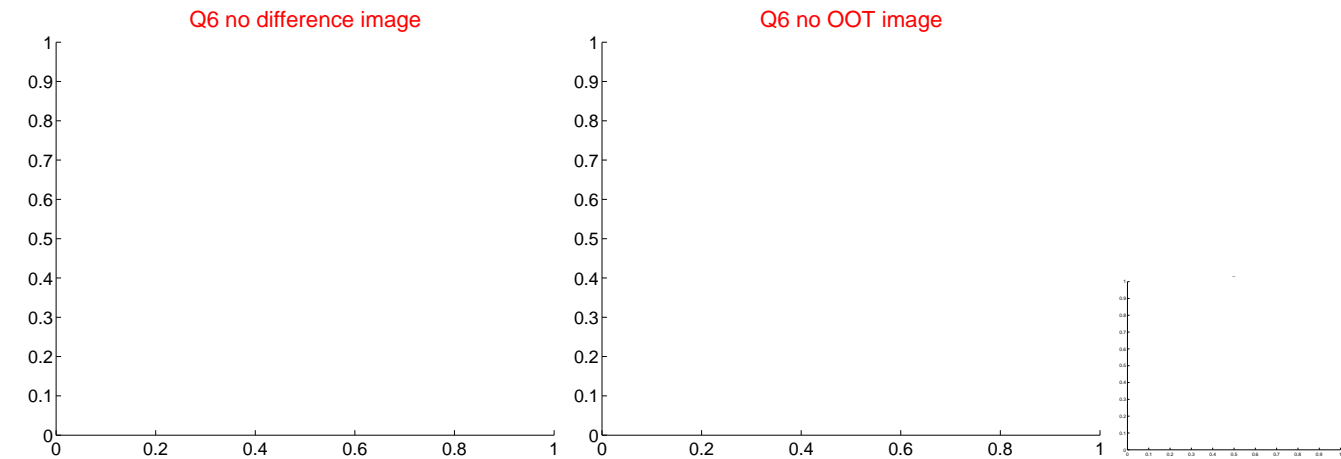
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



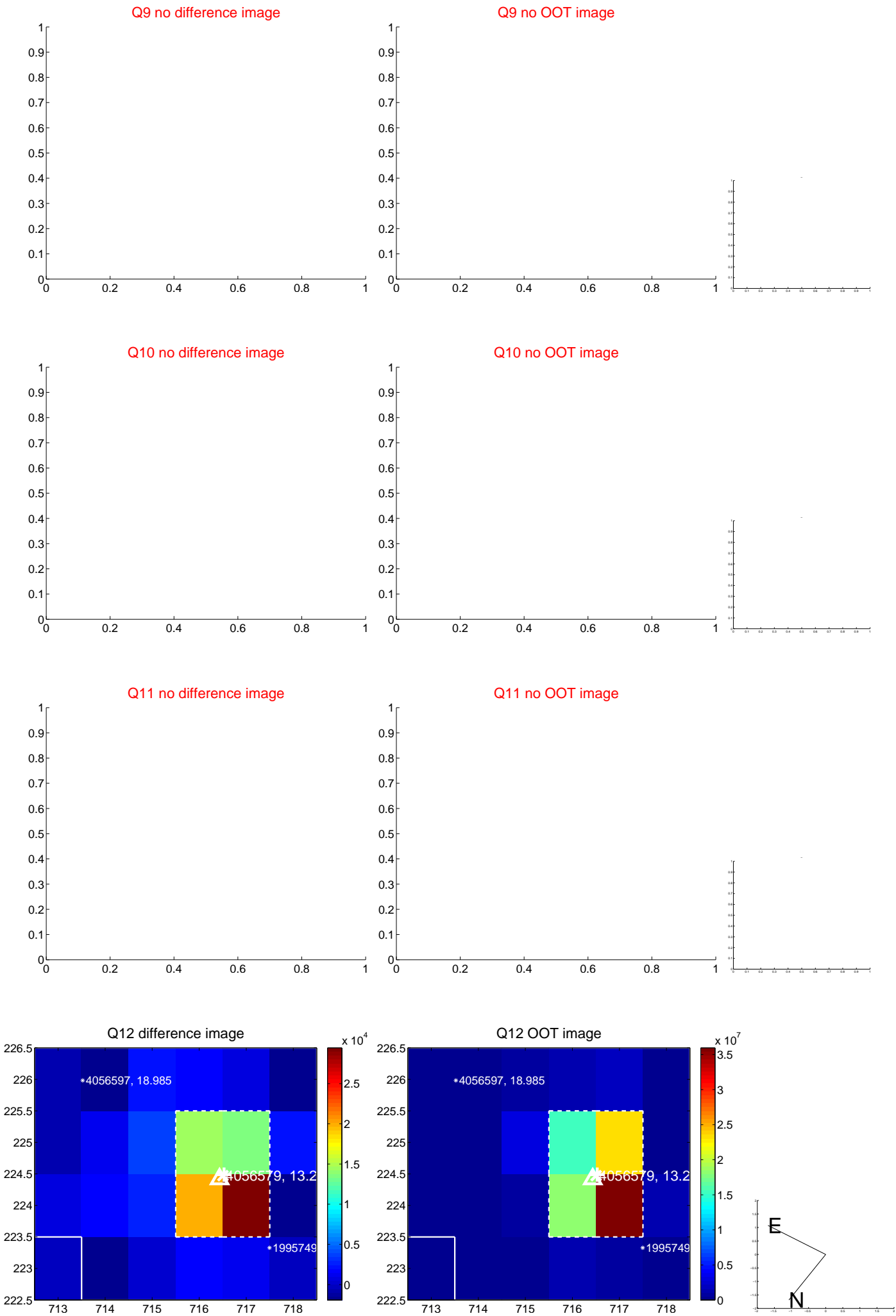
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



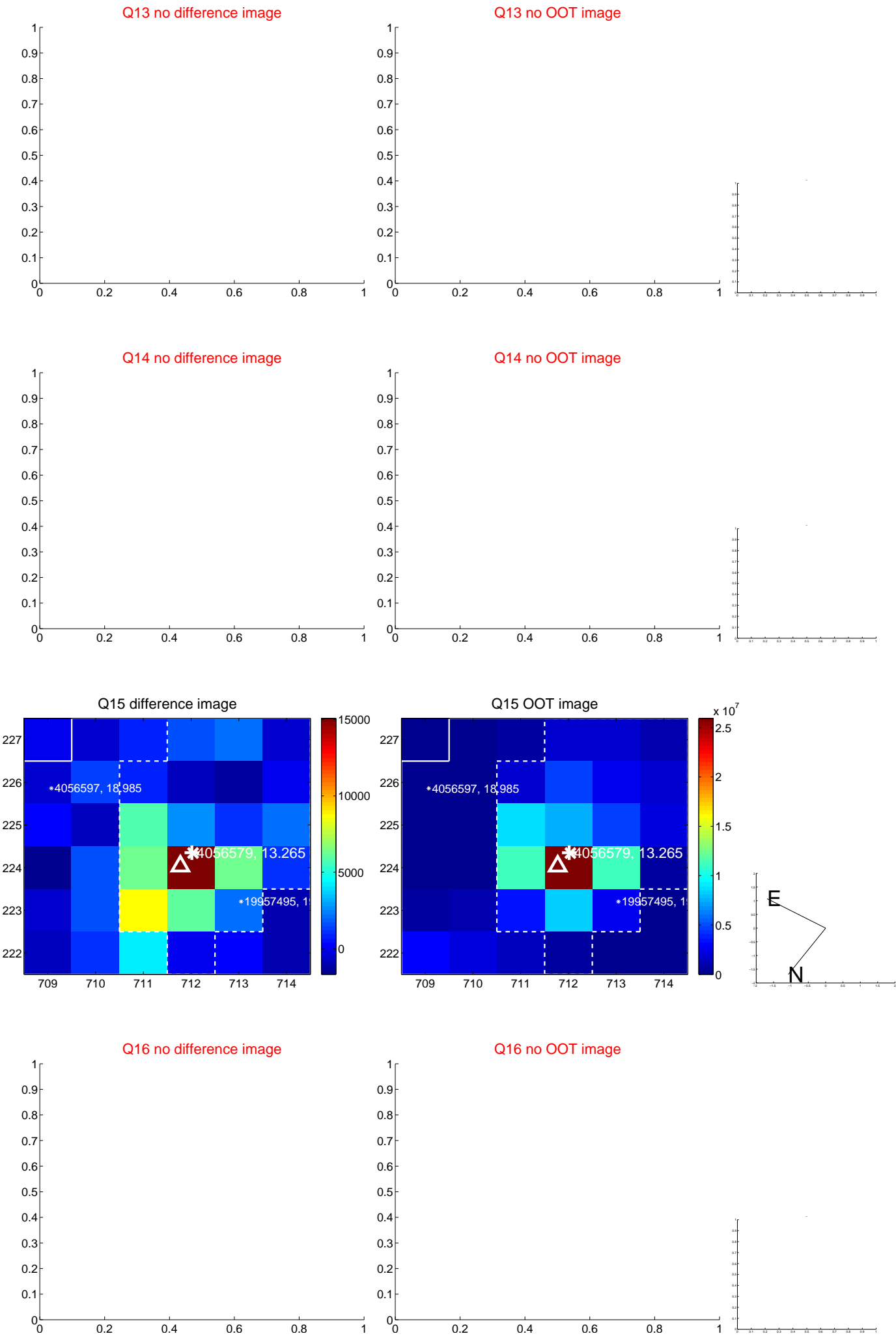
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



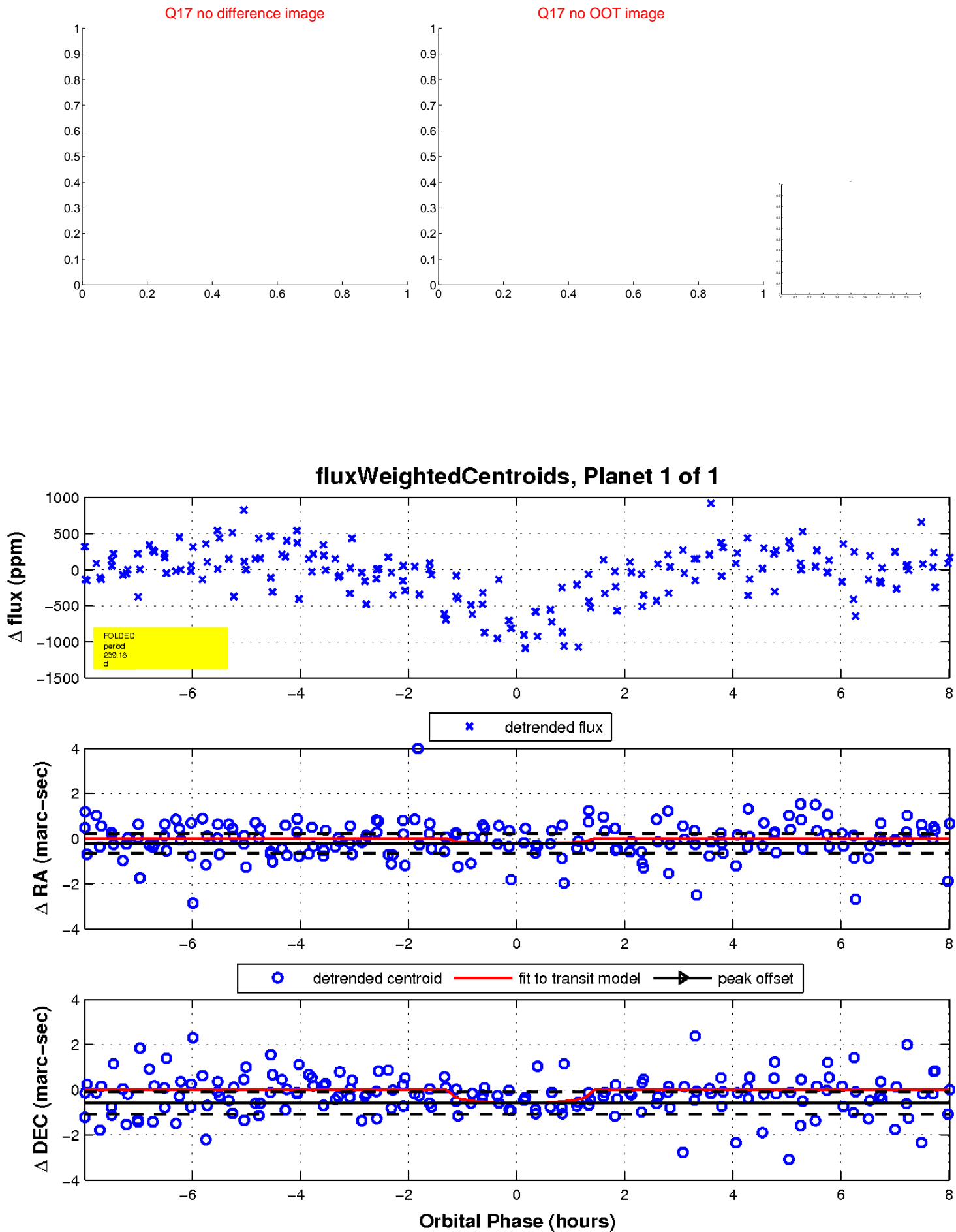
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

