

# KIC 004067925

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004067925-01	OBS	3066.01	24.220272	146.430522	731.9	3.871	12.2	12.6	0.76	5165	2.50	15.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004067925-01	OBS	PC	0.89	0	0	0	0	NO_COMMENT

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

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

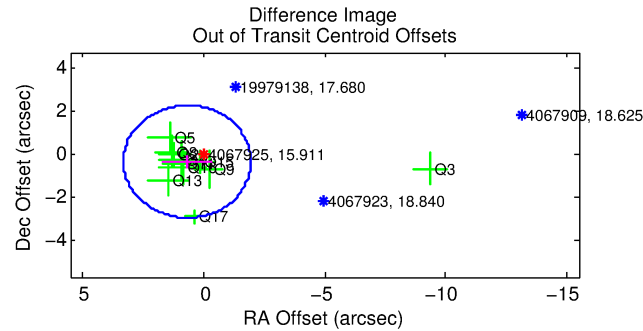
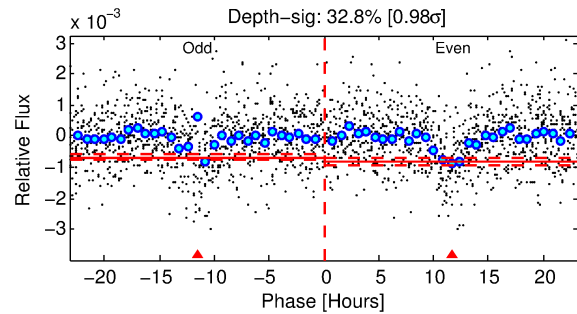
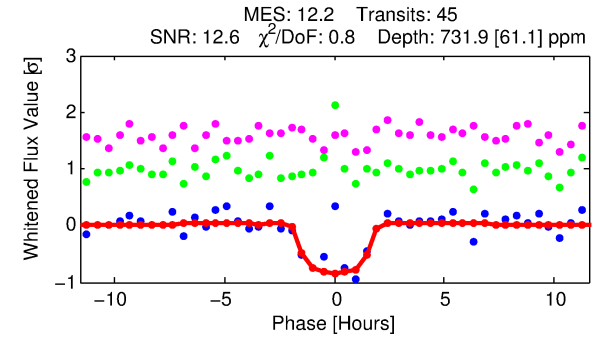
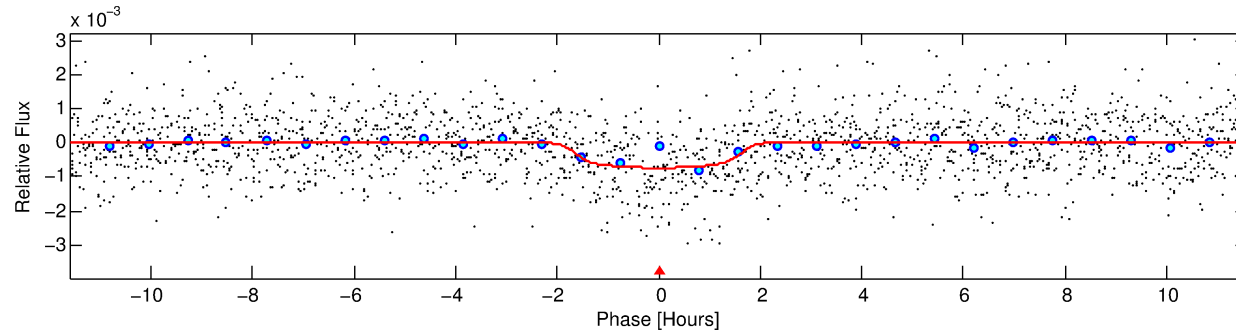
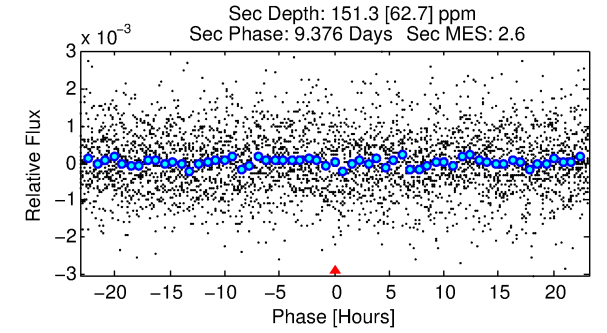
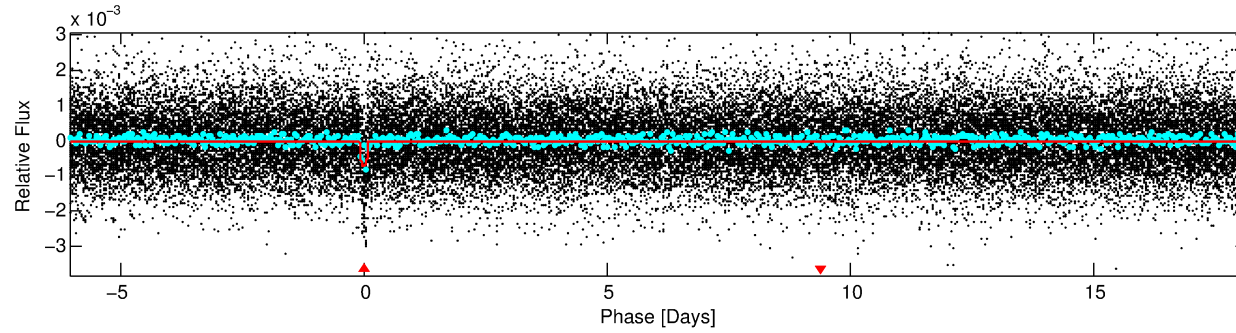
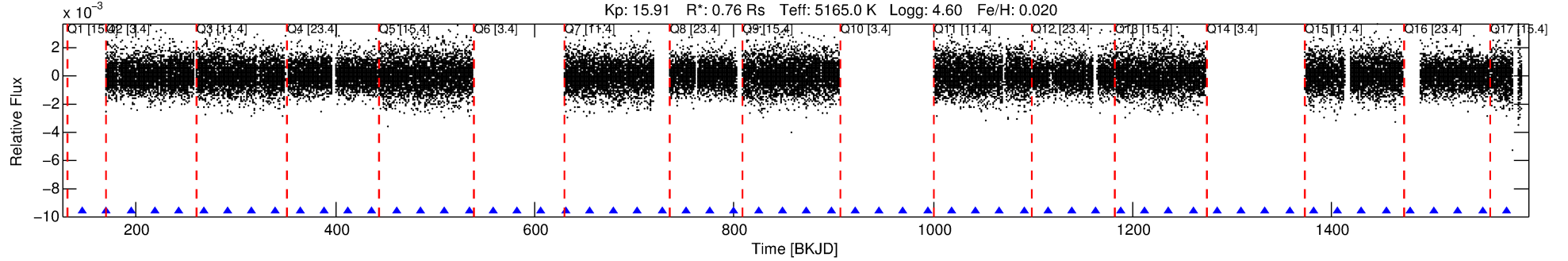
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004067925-01

No Significant Match Found

# DV One-Page Summary

KIC: 4067925 Candidate: 1 of 1 Period: 24.220 d  
KOI: K03066.01 Corr: 0.912



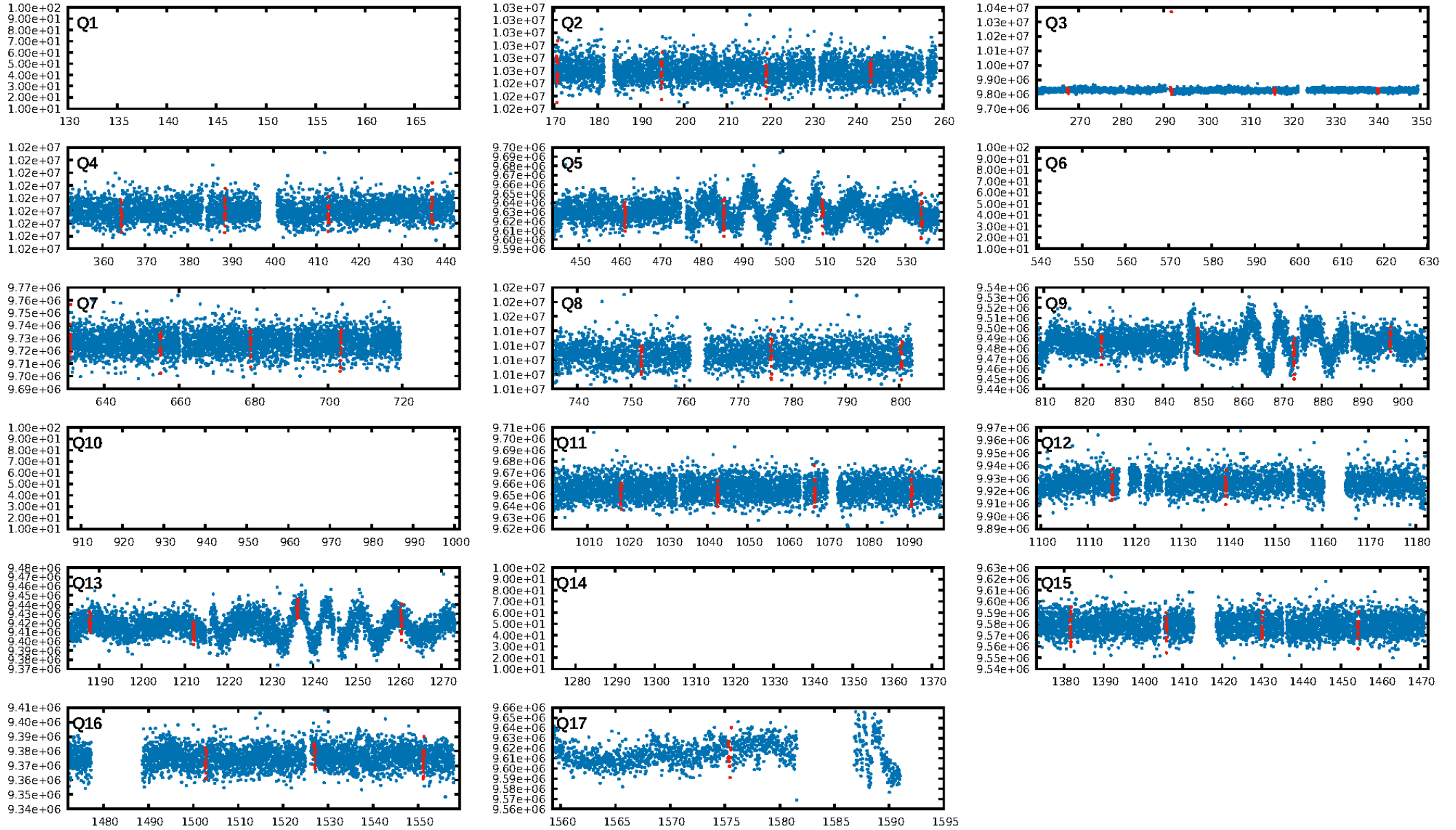
## DV Fit Results:

Period = 24.22027 [0.00020] d  
Epoch = 146.4305 [0.0066] BKJD  
Rp/R\* = 0.0301 [0.0057]  
a/R\* = 23.87 [17.27]  
b = 0.90 [0.16]  
Seff = 15.46 [3.47]  
Teff = 506 [28] K  
Rp = 2.50 [0.62] Re  
a = 0.1546 [0.0198] AU  
Ag = 318.01 [188.25] [1.68σ]  
Teffp = 3301 [477] K [5.84σ]

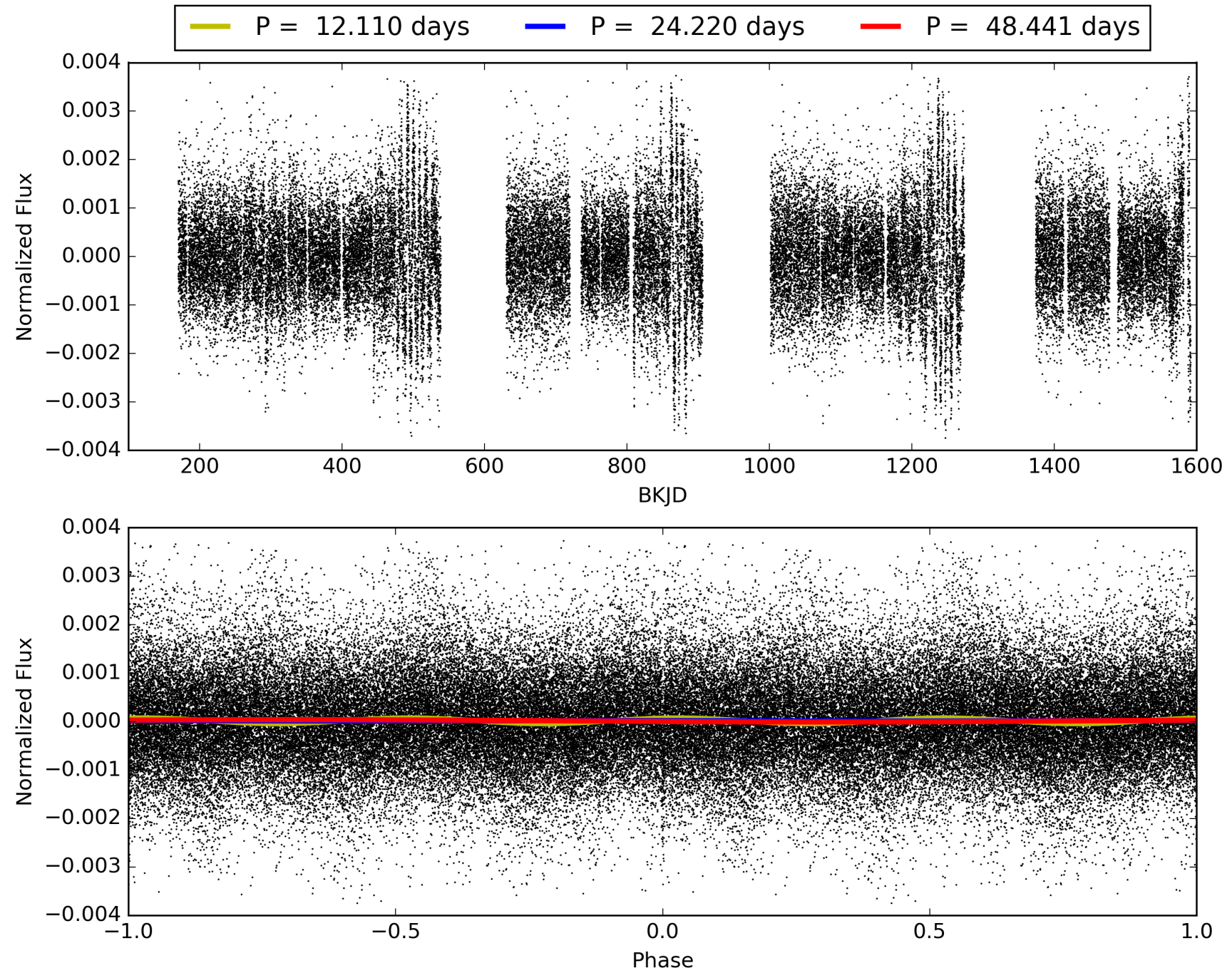
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.82e-34  
RollingBand-fgt: 1.00 [44/44]  
GhostDiagnostic-chr: 3.83  
Centroid-sig: 78.9%  
Centroid-so: 0.652 arcsec [0.48σ]  
OotOffset-rm: 0.763 arcsec [0.87σ]  
KicOffset-rm: 0.658 arcsec [0.67σ]  
OotOffset-st: 1/3/3/4 [11]  
KicOffset-st: 1/3/3/4 [11]  
DiffImageQuality-fgm: 0.64 [7/11]  
DiffImageOverlap-fno: 1.00 [13/13]

# TCE 004067925-01, PDC Light Curves

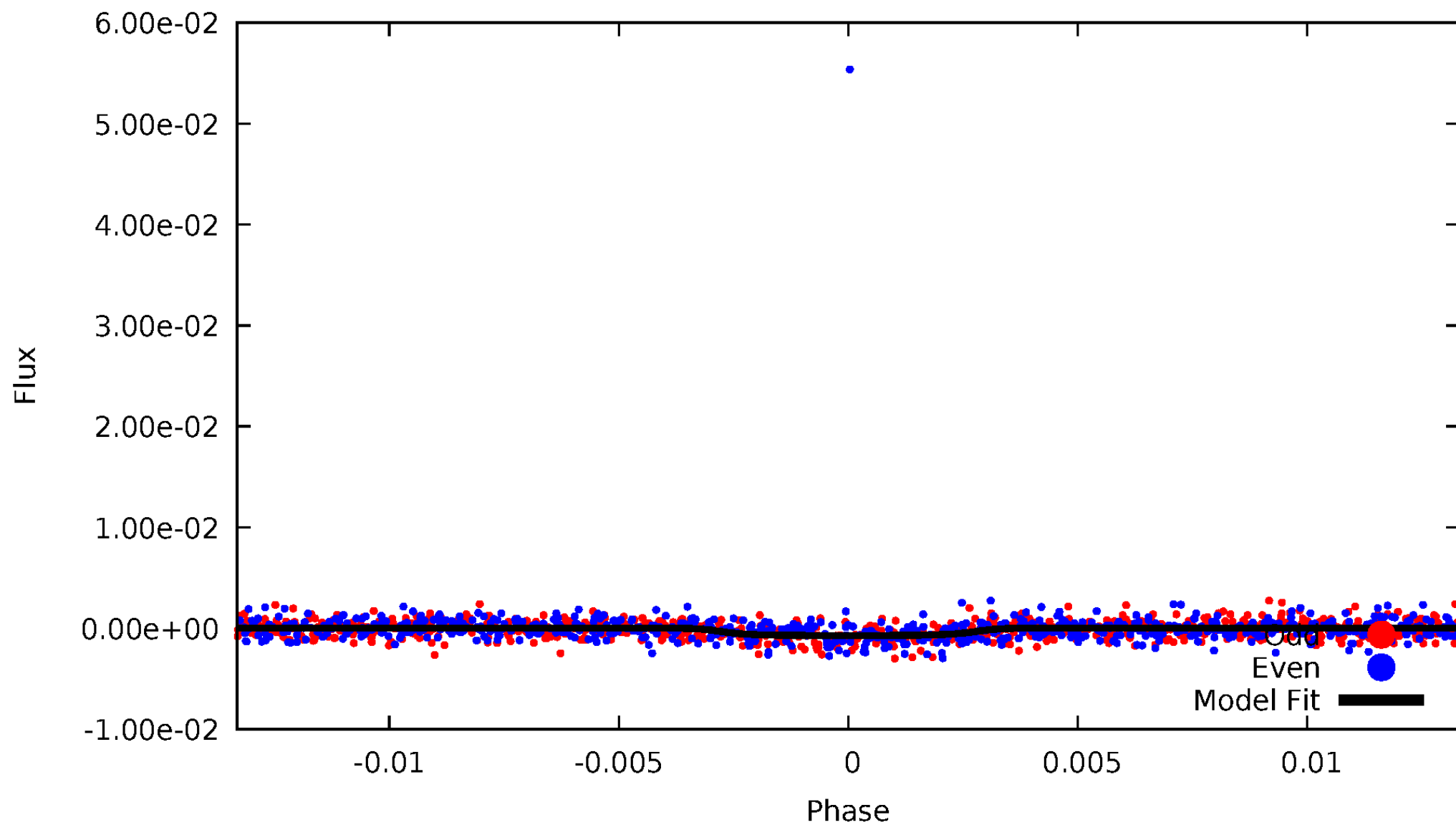


TCE 004067925-01



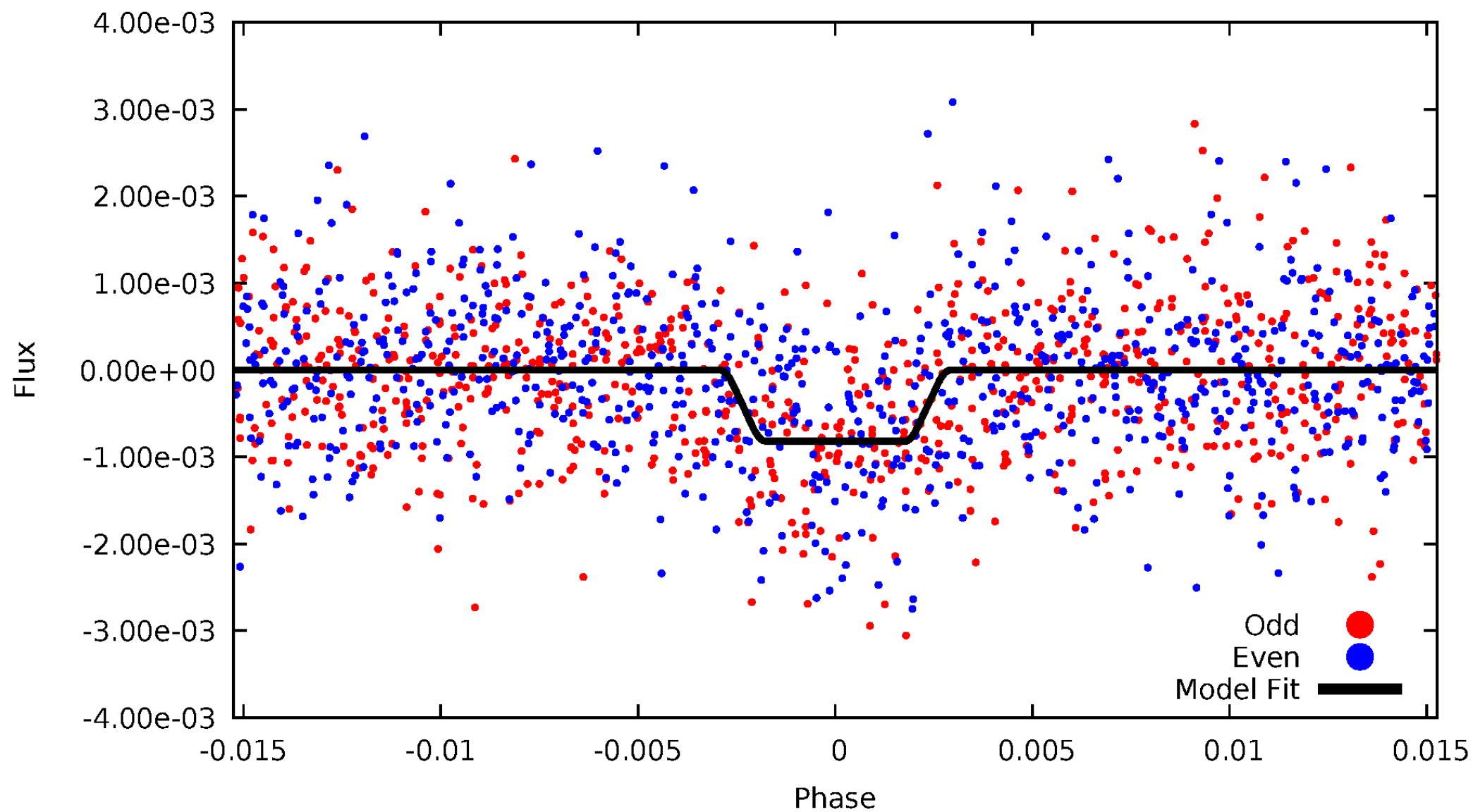
# DV Odd/Even

TCE 004067925-01



# ALT Odd/Even

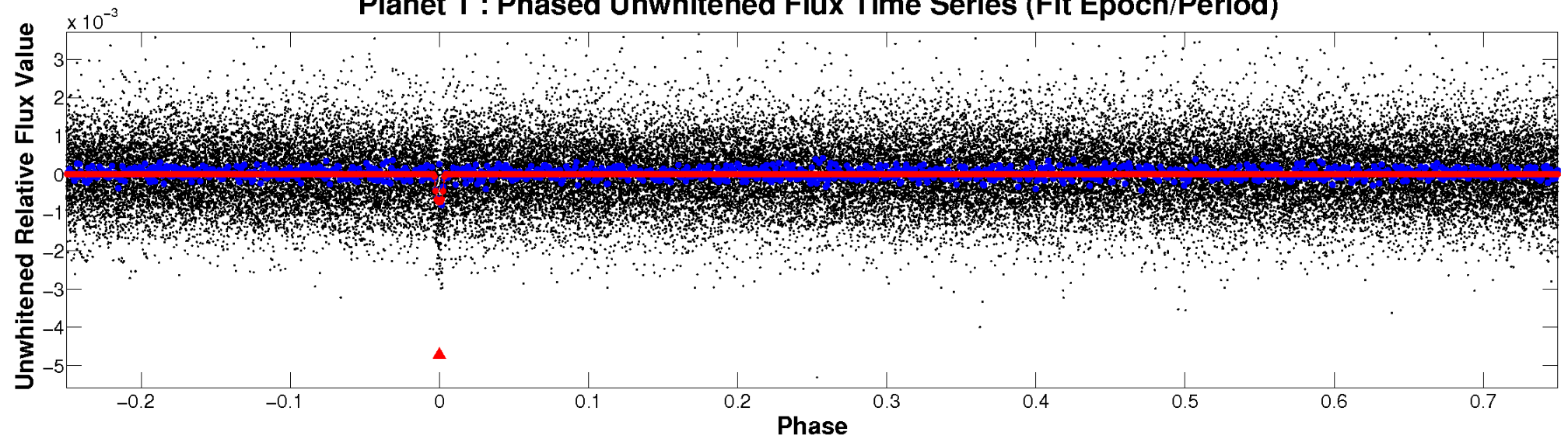
TCE 004067925-01



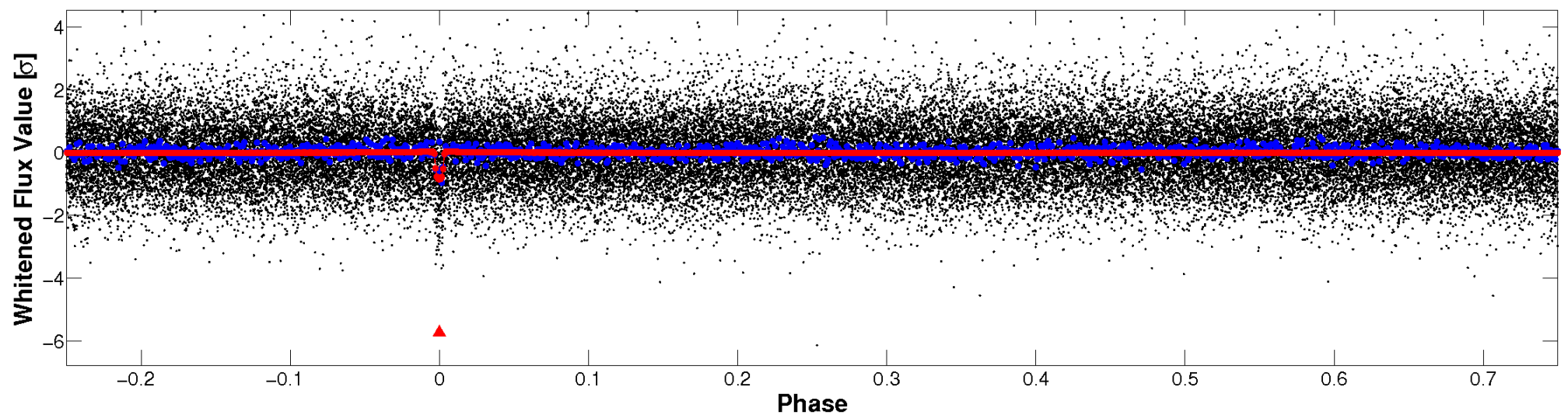


# Non-Whitened Vs. Whitened Light Curve

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

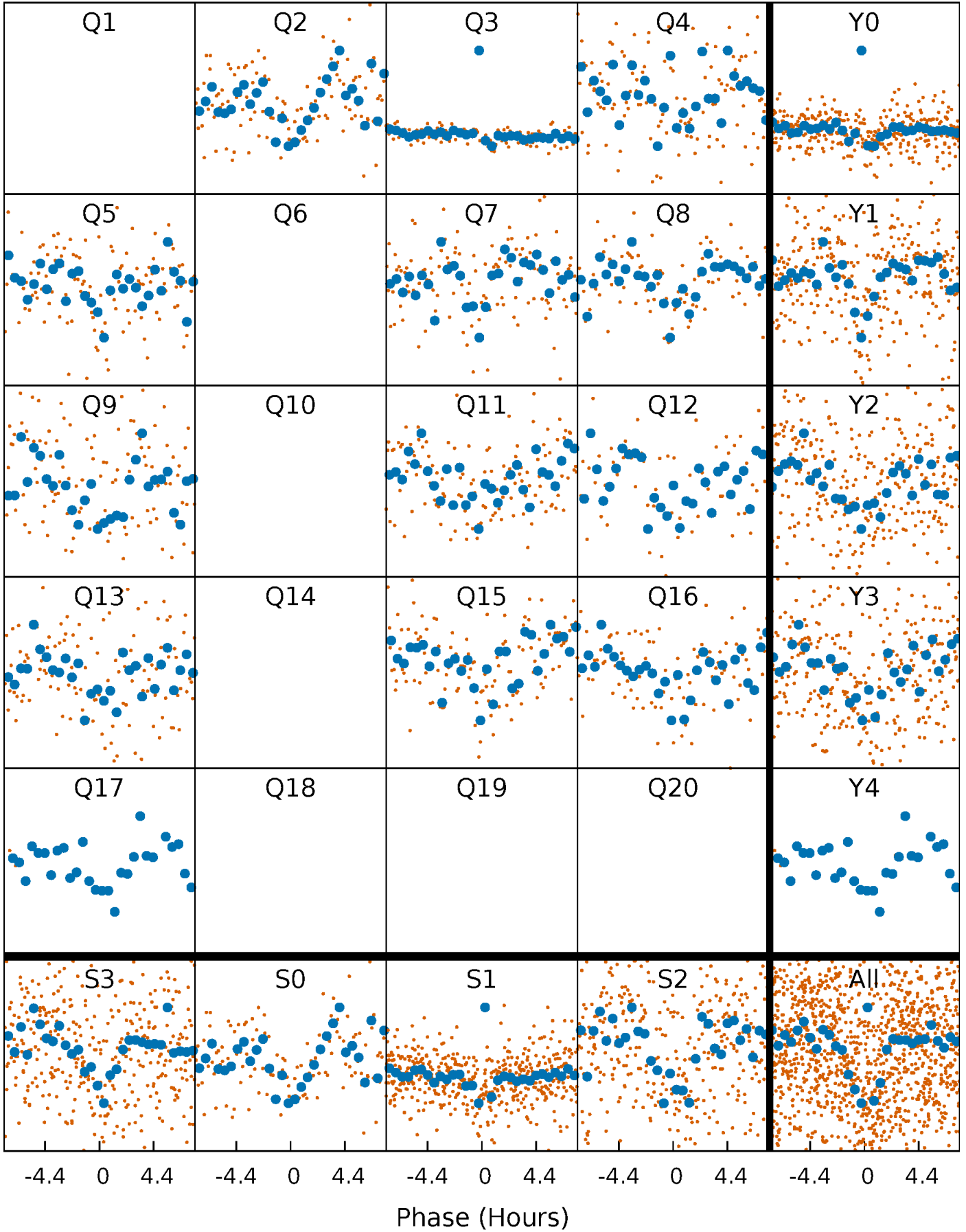


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

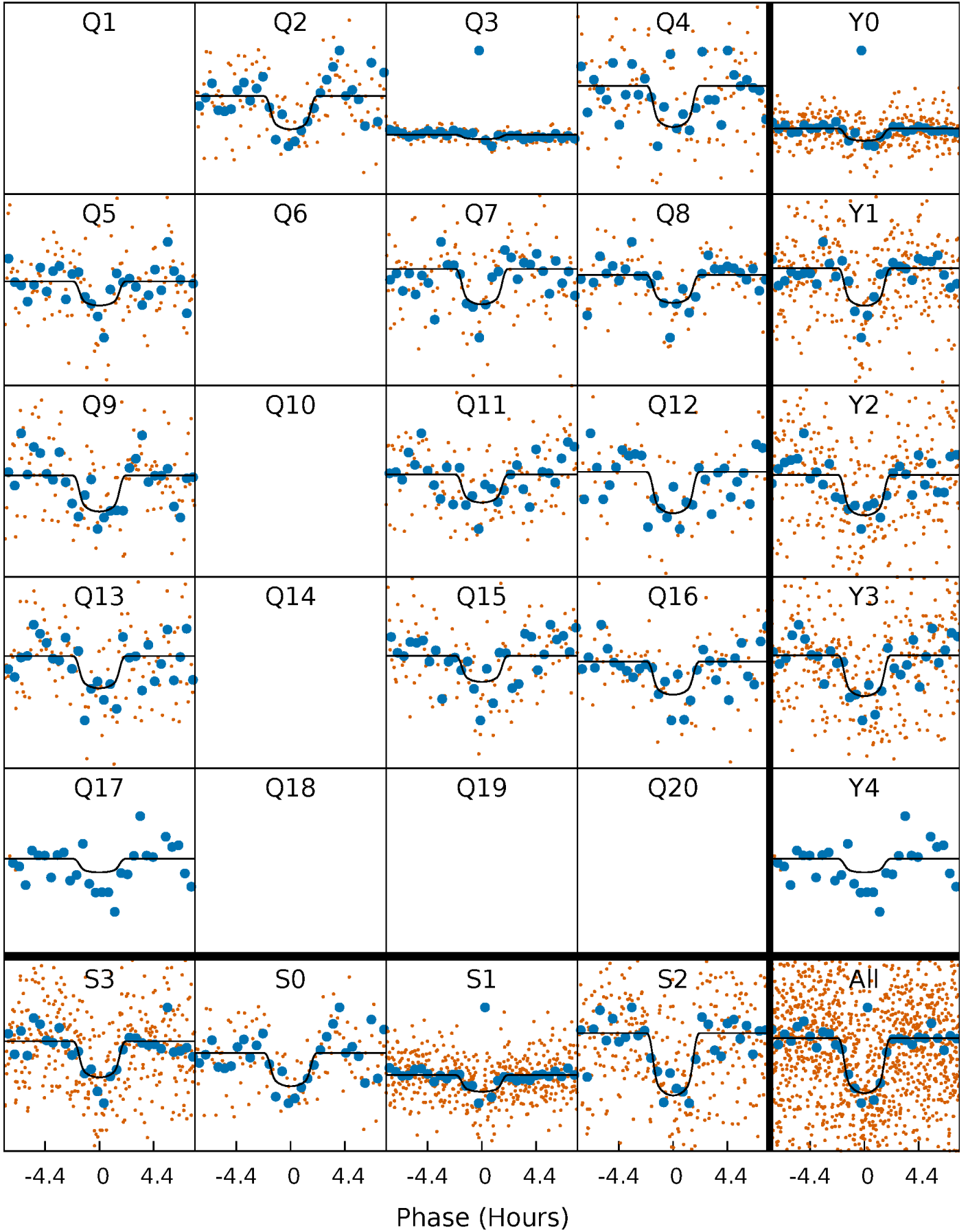
TCE 004067925-01   P= 24.220272 Days    $T_0=146.430522$  (BKJD)





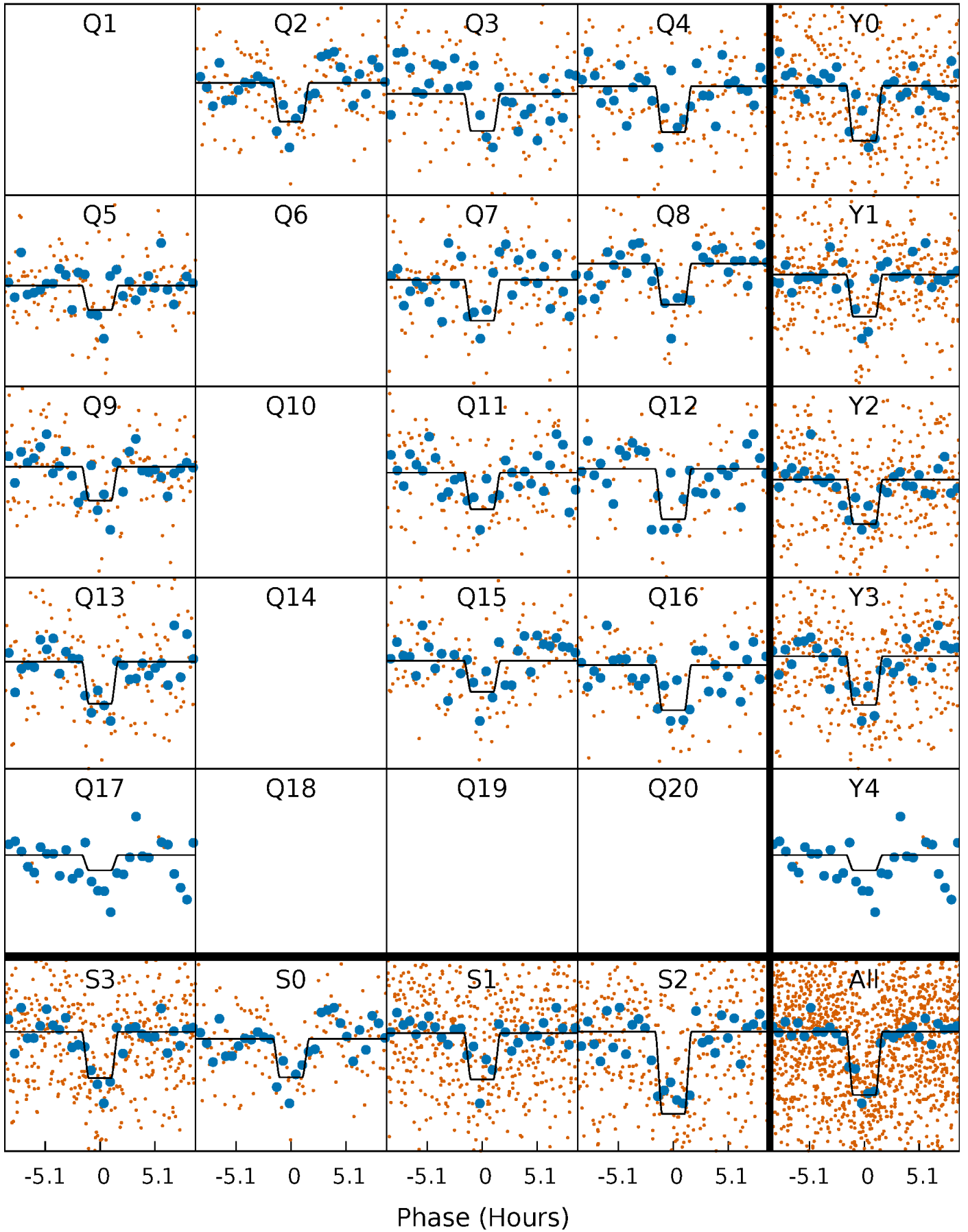
# DV Quarter-Phased Transit Curves

TCE 004067925-01   P= 24.220272 Days    $T_0=146.430522$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

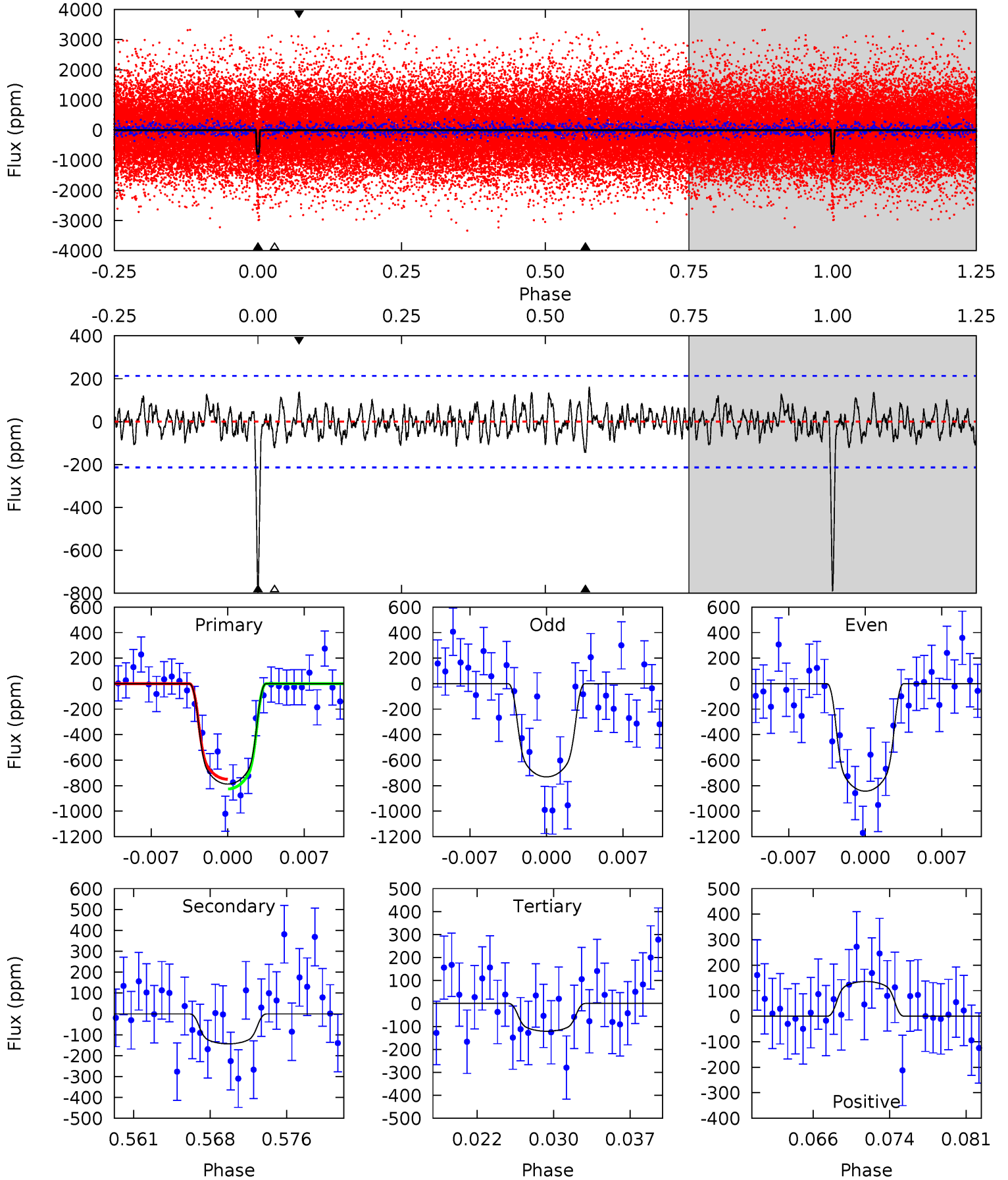
TCE 004067925-01 P= 24.220222 Days  $T_0=146.434450$  (BKJD)



# DV Model-Shift Uniqueness Test

004067925-01,  $P = 24.220272$  Days,  $E = 146.430522$  Days

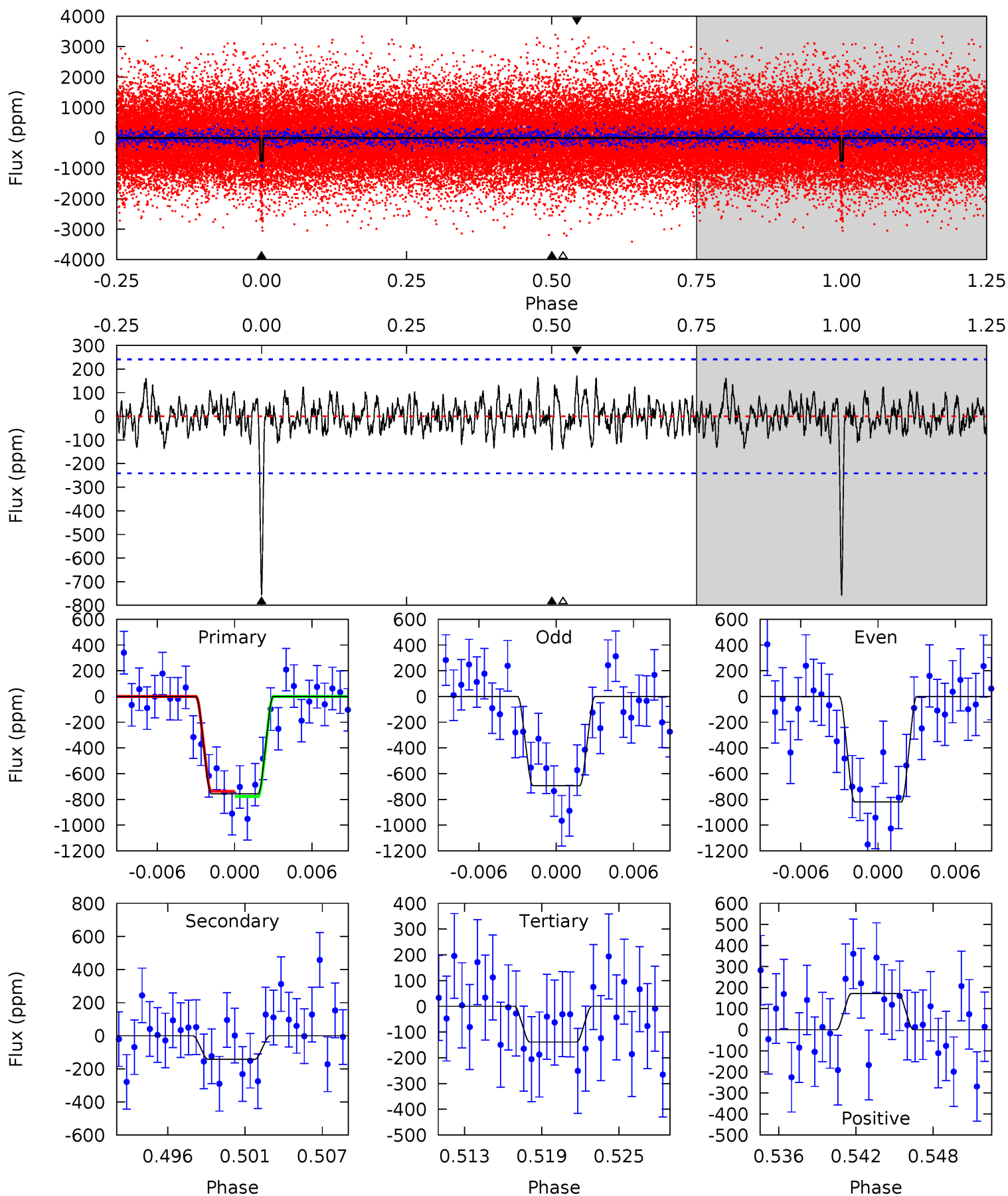
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	3.42	2.89	3.25	5.08	2.68	1.14	15.9	15.5	0.53	0.17	1.34	0.74	0.17	0.91



# Alt Model-Shift Uniqueness Test

004067925-01, P = 24.220222 Days, E = 146.434450 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
16.1	3.02	2.95	3.65	5.13	2.76	1.11	13.1	12.4	0.08	-0.63	1.33	1.11	0.19	0.44



### Stellar Parameters For KIC 004067925

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5165^{+170}_{-154}$	$4.599^{+0.026}_{-0.097}$	$0.020^{+0.250}_{-0.300}$	$0.761^{+0.119}_{-0.055}$	$0.859^{+0.064}_{-0.085}$	$2.747^{+0.373}_{-0.874}$
	+3%/-3%	+1%/-2%	+1250%/-1500%	+16%/-7%	+7%/-10%	+14%/-32%
Source	PHO1	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 004067925-01 / KOI 3066.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-143 \pm 42$	$2.57^{+0.53}_{-0.49}$	$719^{+28}_{-27}$	$3648^{+333}_{-270}$	$281^{+203}_{-106}$
Alt.	$-142 \pm 47$	$2.44^{+0.53}_{-0.51}$	$721^{+29}_{-30}$	$3724^{+342}_{-349}$	$305^{+216}_{-130}$

$T_{max}$  = 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

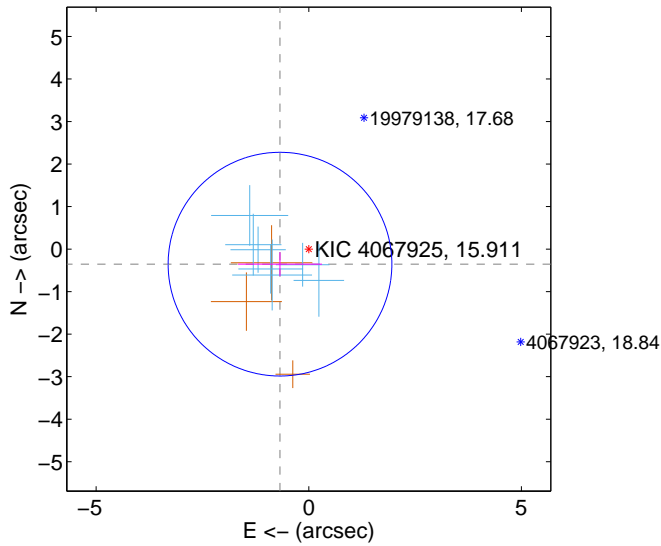
Supplemental centroid analysis for 004067925-01. Kepler magnitude: 15.91. Transit SNR 12.62

There are 7 quarters with good PRF difference image offsets

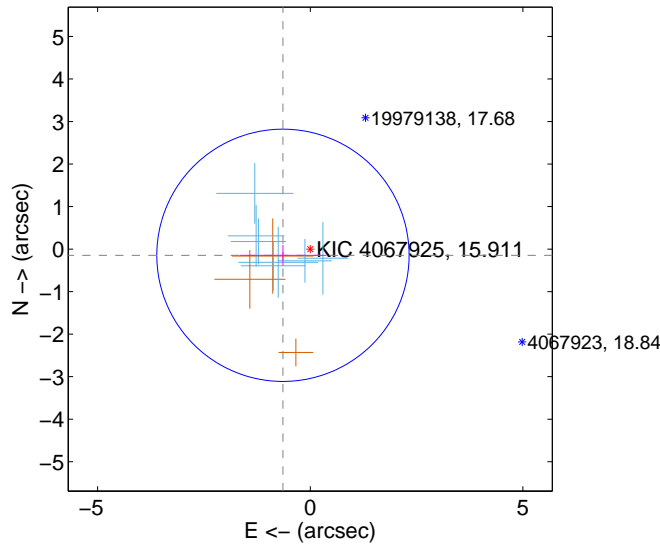
The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.763 \pm 0.877$	0.87	$0.676 \pm 0.986$	$-0.354 \pm 0.280$
PRF-fit source offset from KIC position	$0.658 \pm 0.989$	0.67	$0.642 \pm 1.024$	$-0.146 \pm 0.243$
photometric centroid source offset	$0.65 \pm 1.36$	0.48	$-0.61 \pm 1.39$	$-0.24 \pm 1.18$

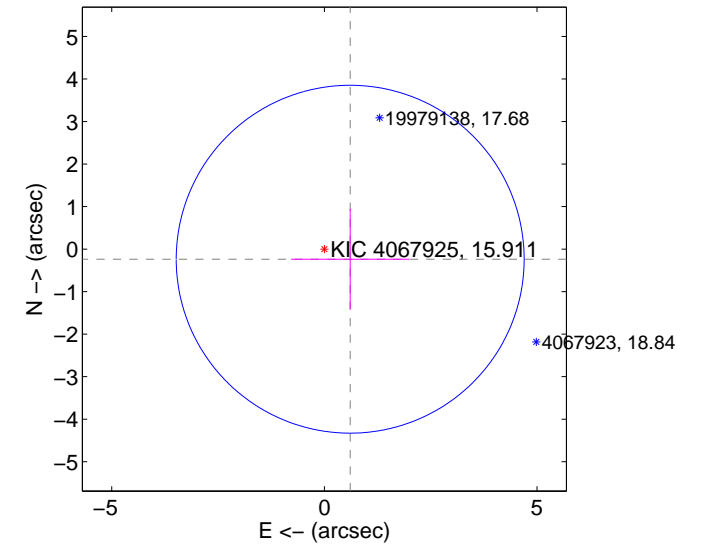
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



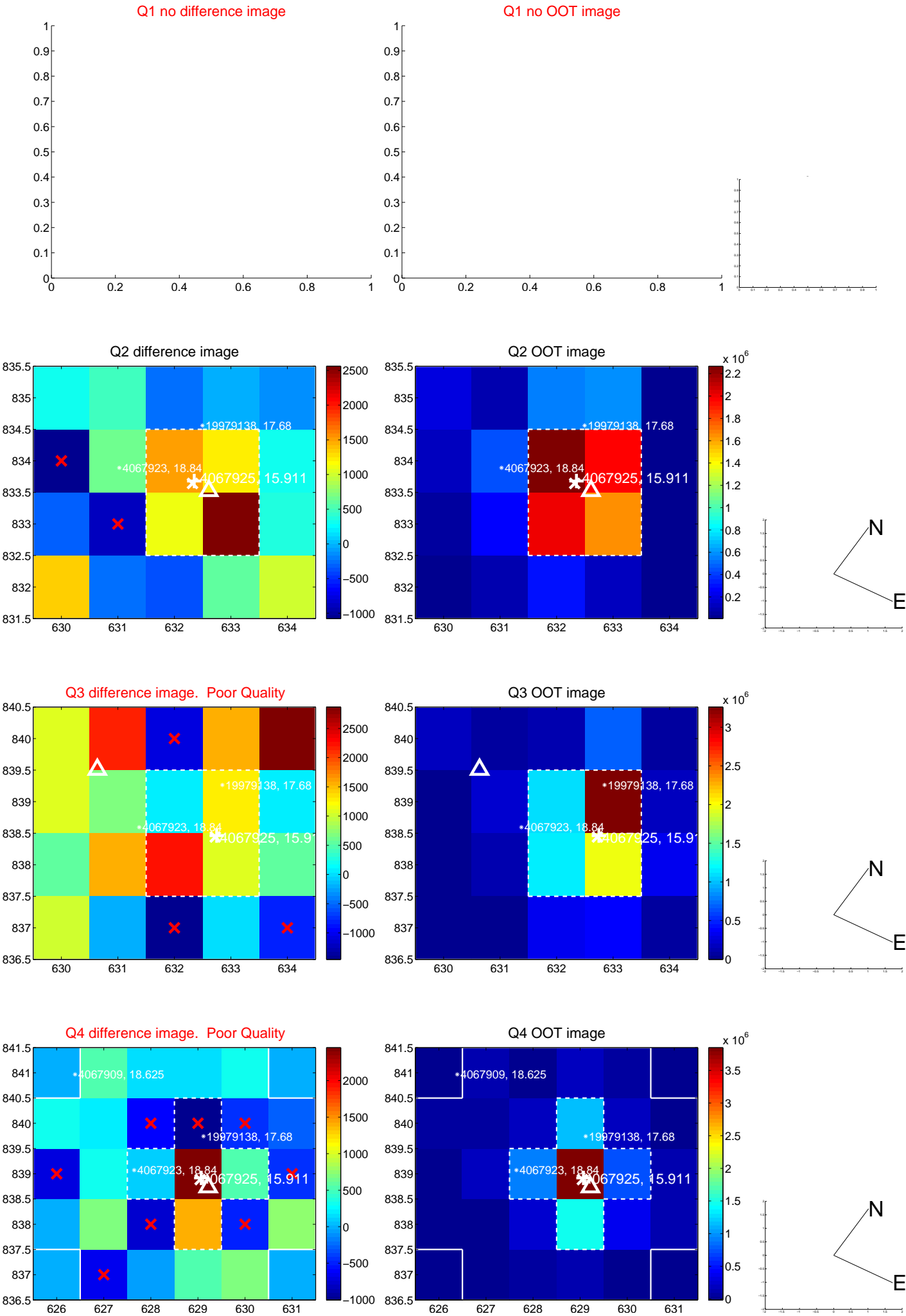
offset from photometric centroids



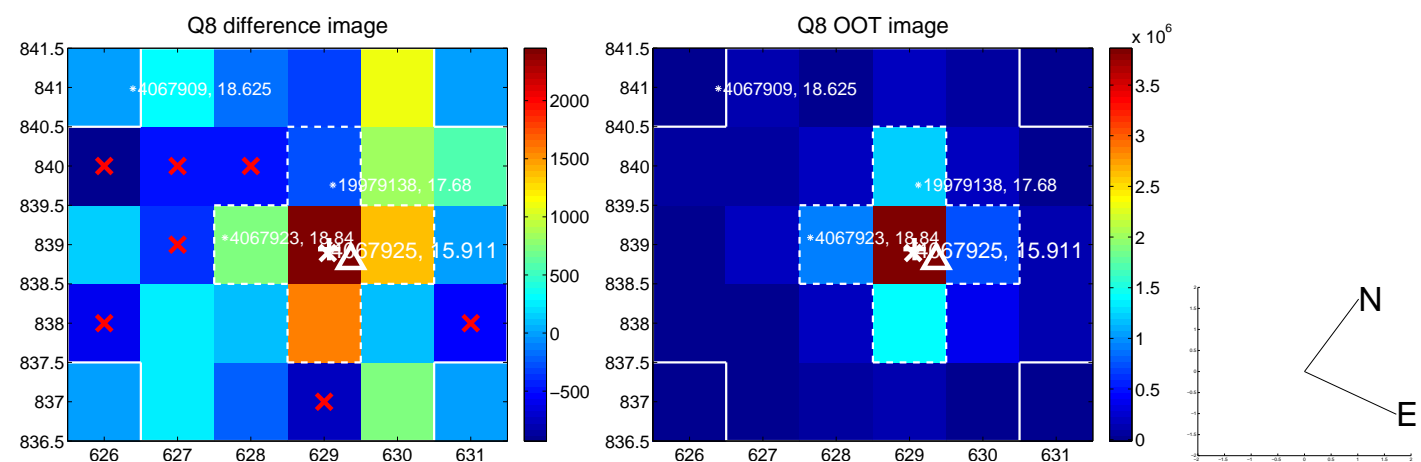
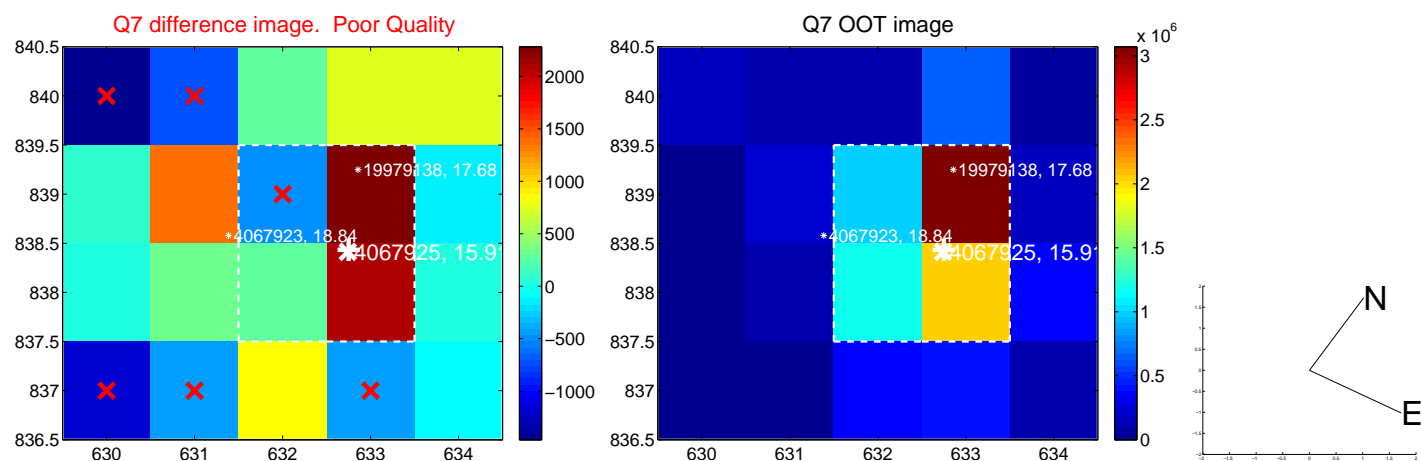
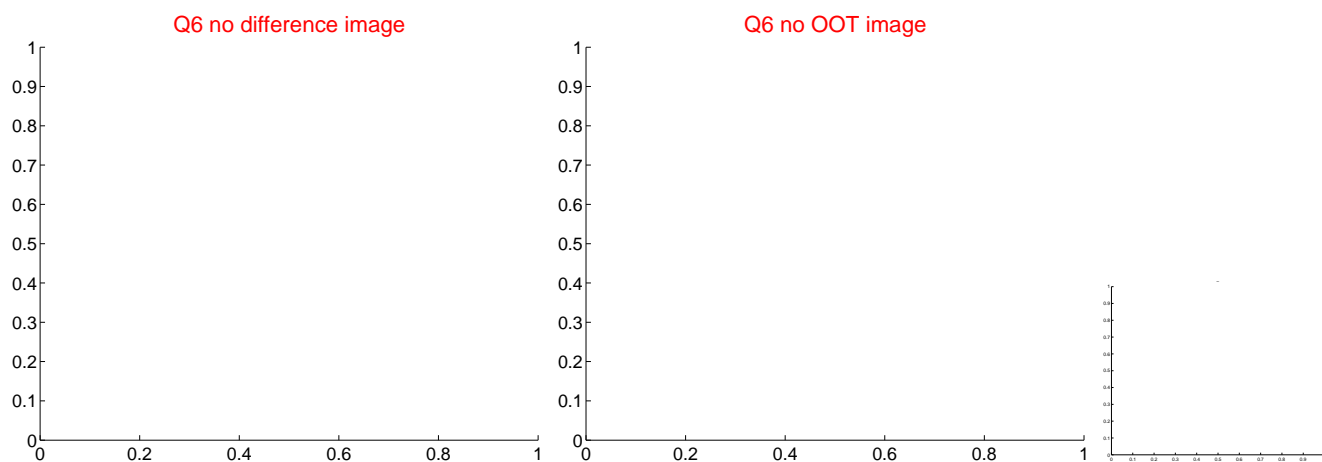
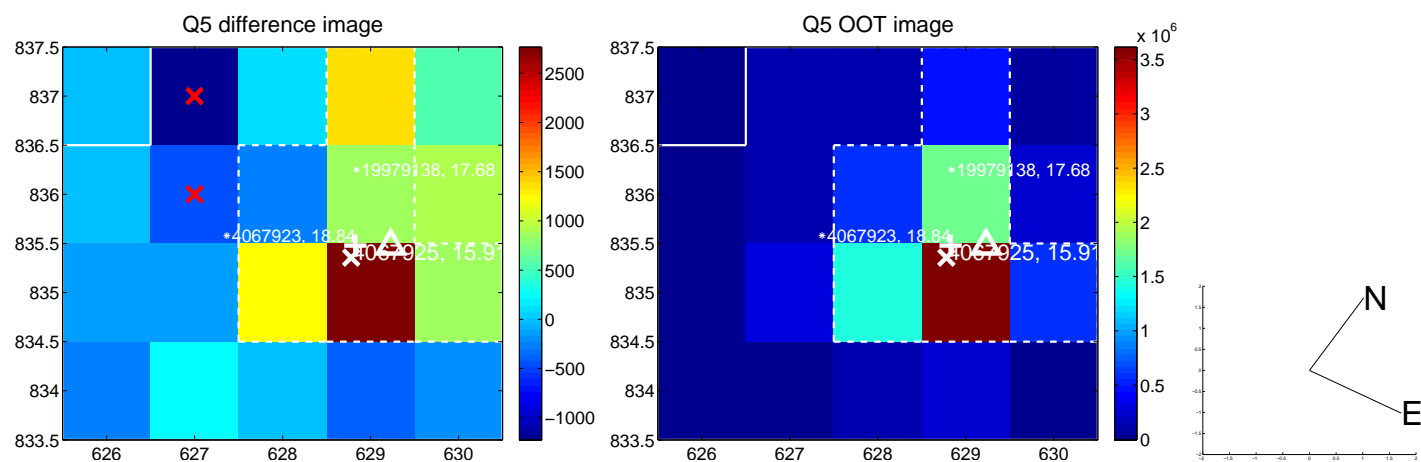
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



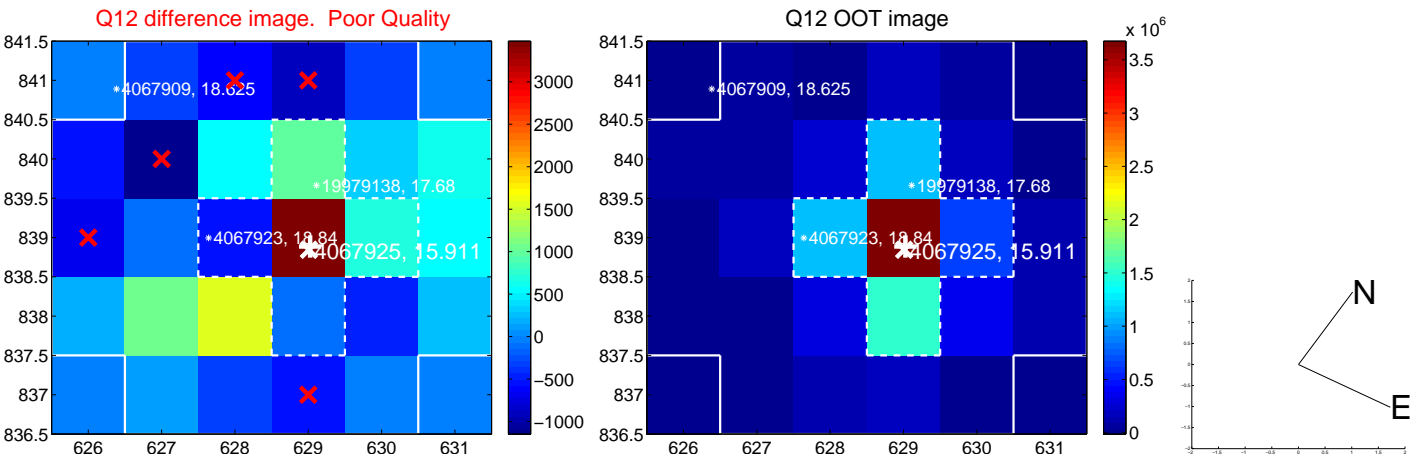
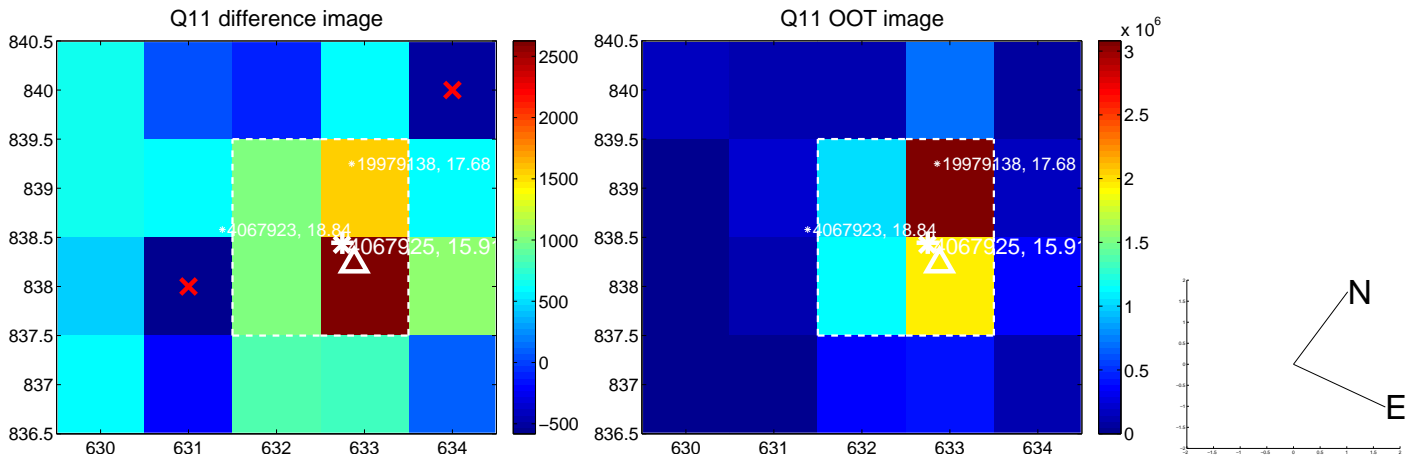
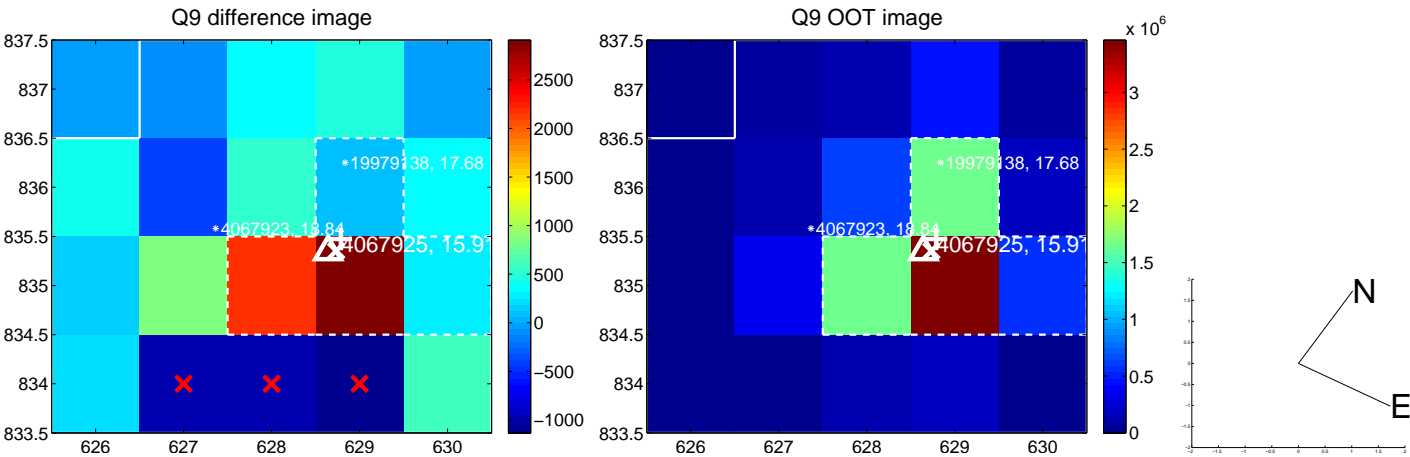
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



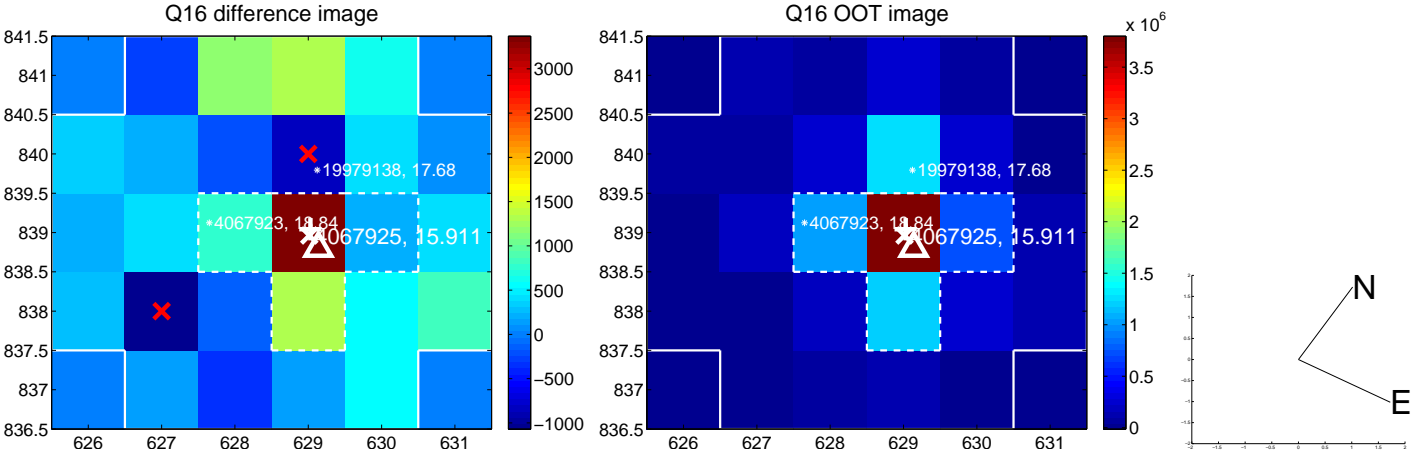
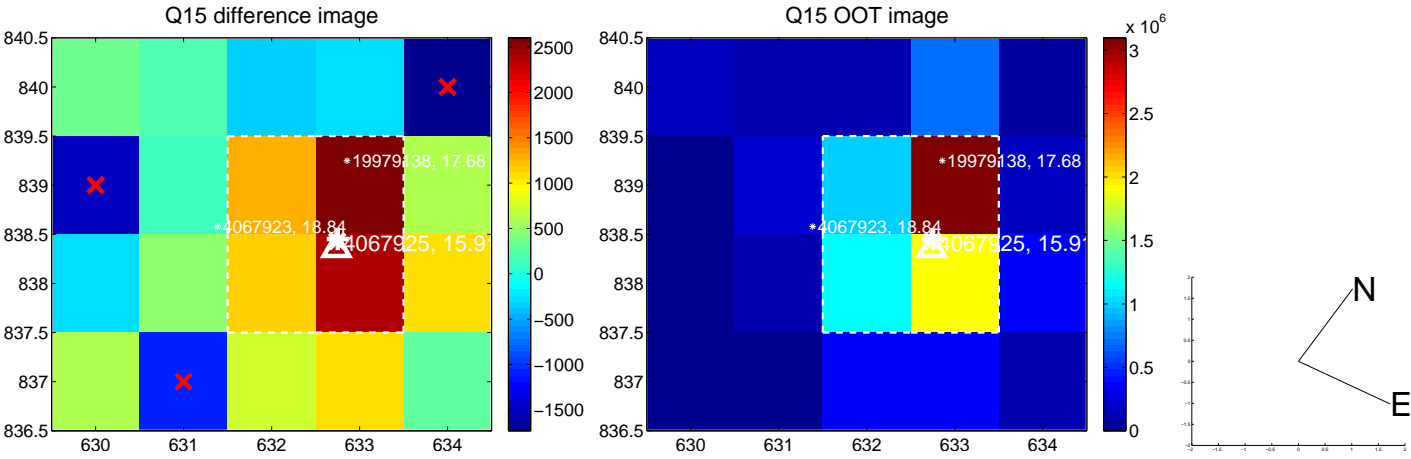
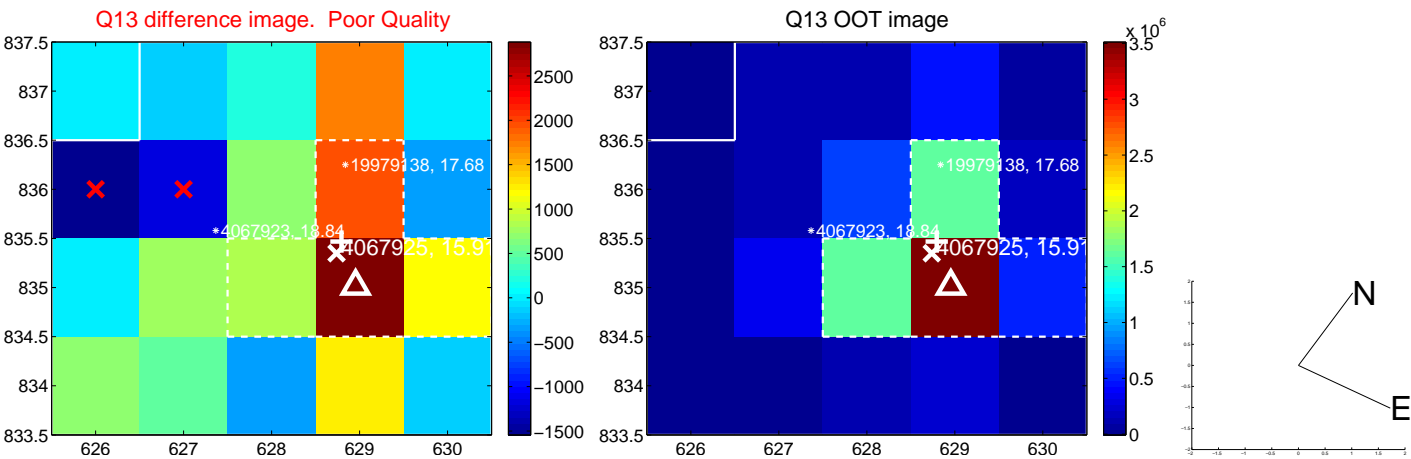
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



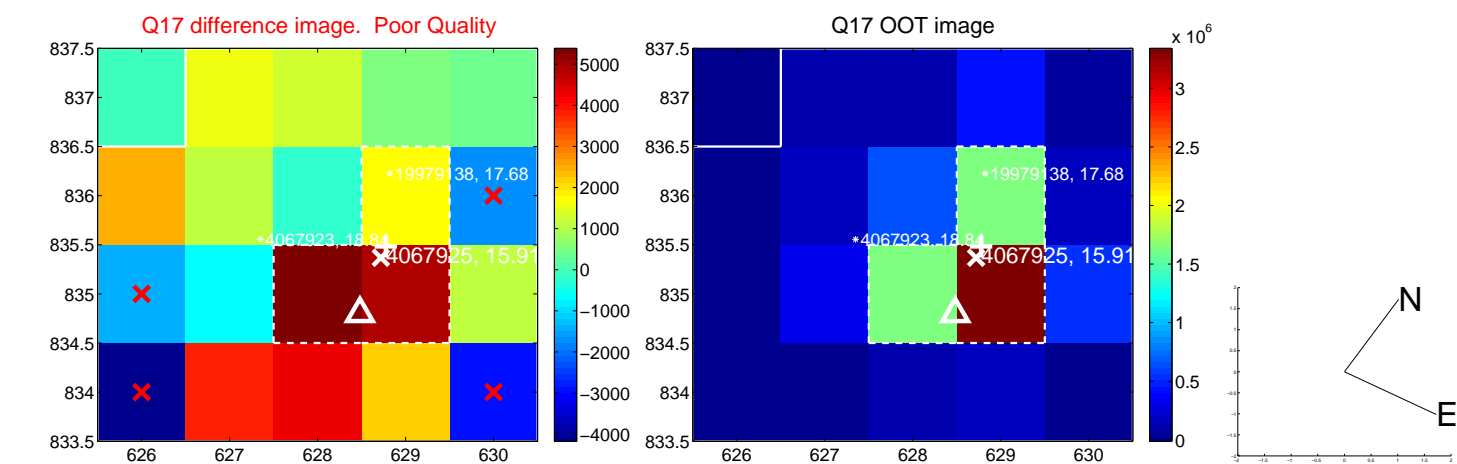
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



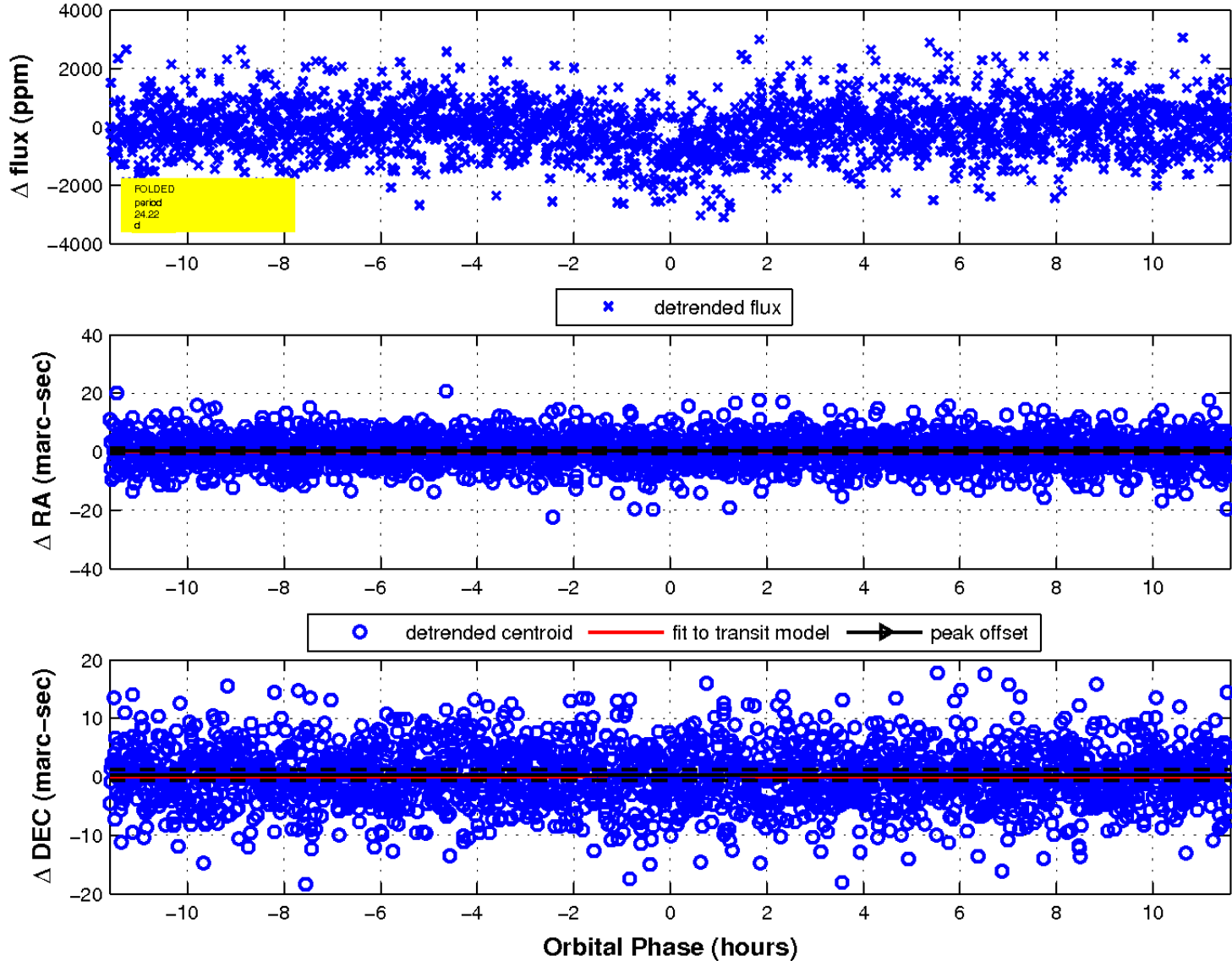
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

