

# KIC 005730445

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005730445-01	OBS	2189.01	33.358588	137.571054	1837.1	2.425	27.1	29.6	0.80	5009	5.25	10.49

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005730445-01	OBS	PC	0.97	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.

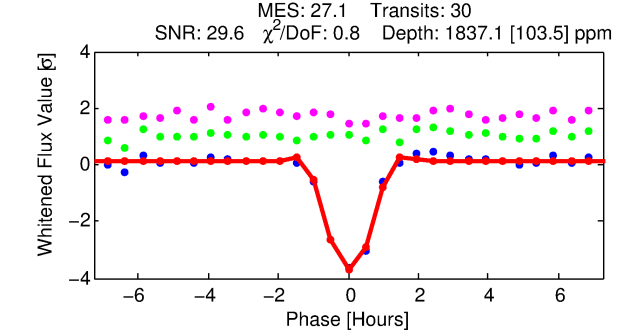
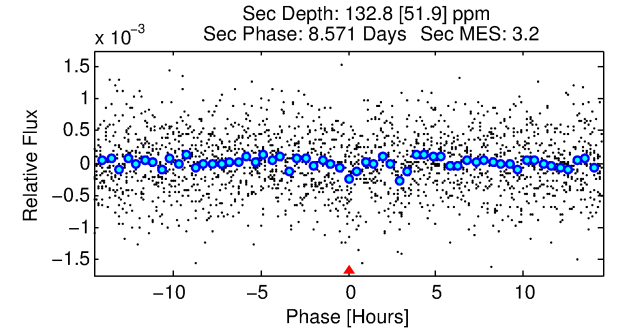
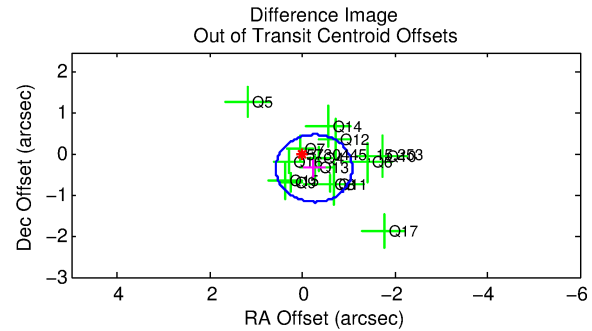
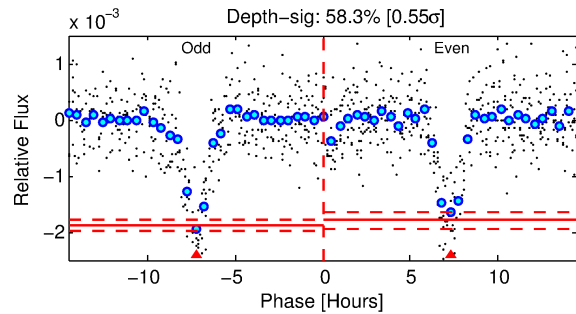
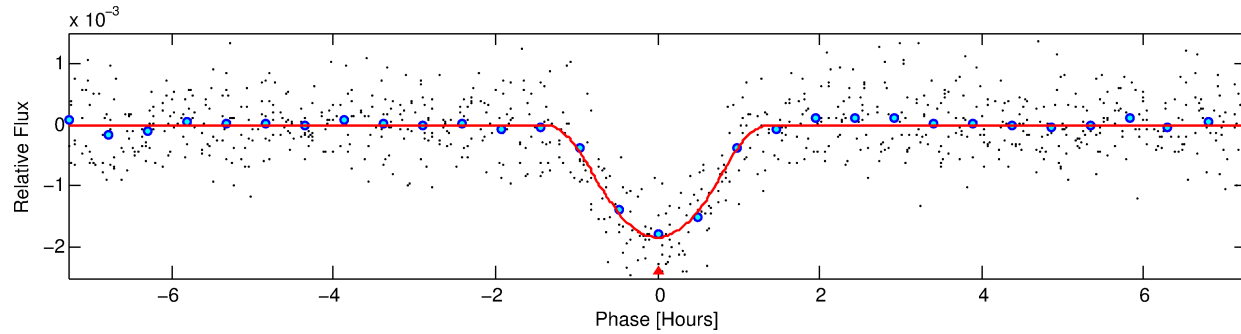
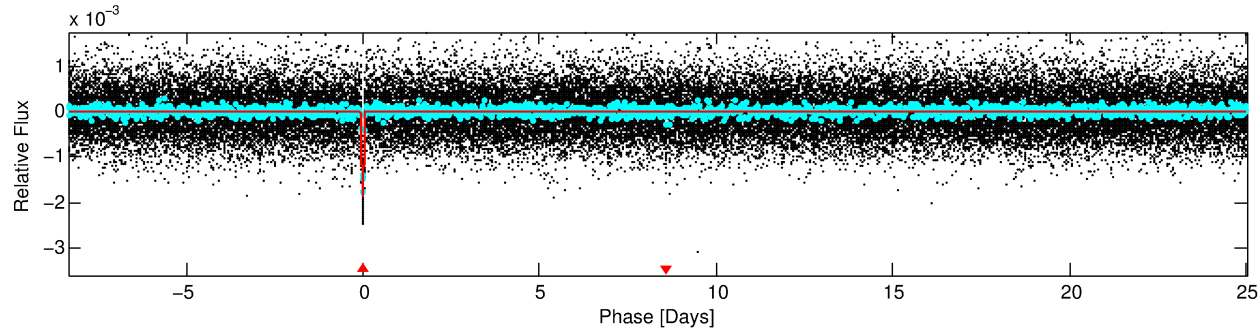
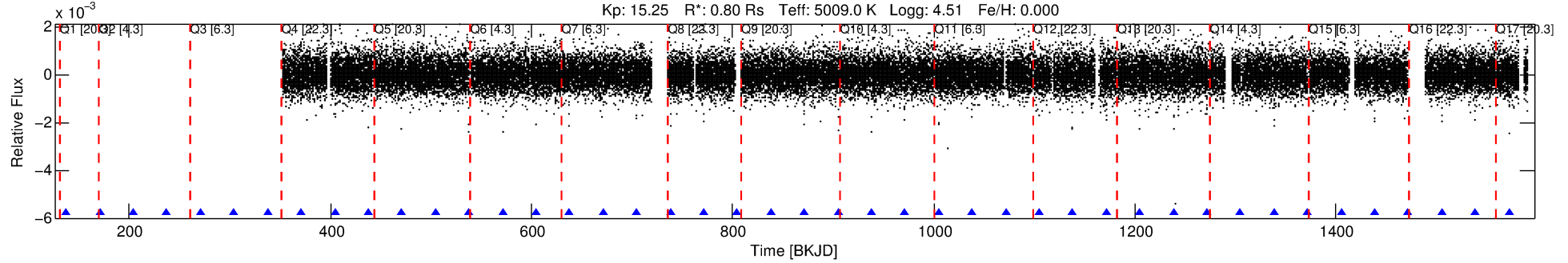
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005730445-01

No Significant Match Found

# DV One-Page Summary

KIC: 5730445 Candidate: 1 of 1 Period: 33.359 d  
KOI: K02189.01 Corr: 0.882



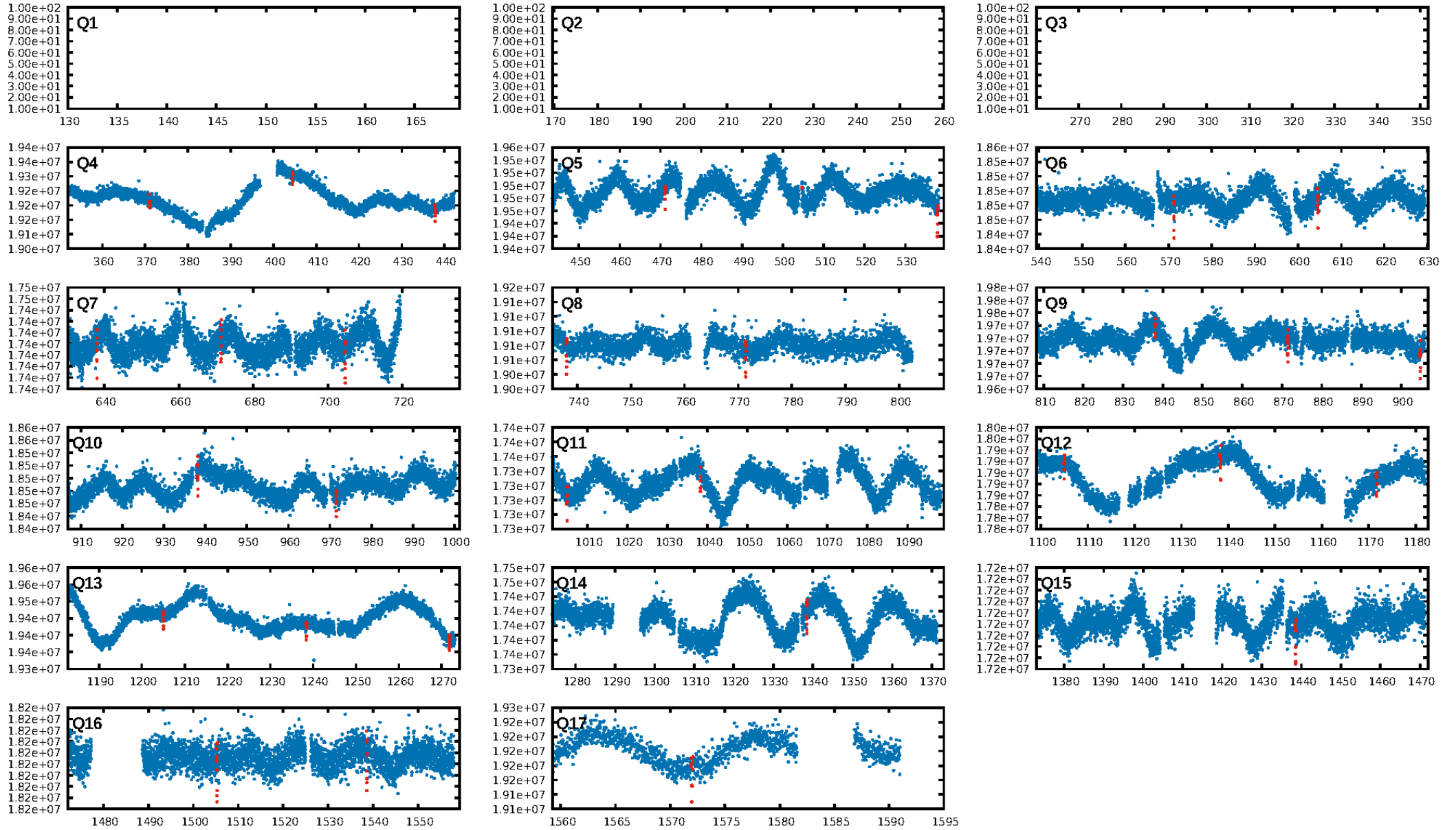
## DV Fit Results:

Period = 33.35859 [0.00009] d  
Epoch = 137.5711 [0.0024] BKJD  
Rp/R\* = 0.0602 [0.0337]  
a/R\* = 45.13 [10.00]  
b = 0.97 [0.07]  
Seff = 10.49 [2.10]  
Teq = 459 [23] K  
Rp = 5.25 [3.00] Re  
a = 0.1853 [0.0175] AU  
Ag = 90.99 [108.80] [0.83 $\sigma$ ]  
Teffp = 2191 [655] K [2.64 $\sigma$ ]

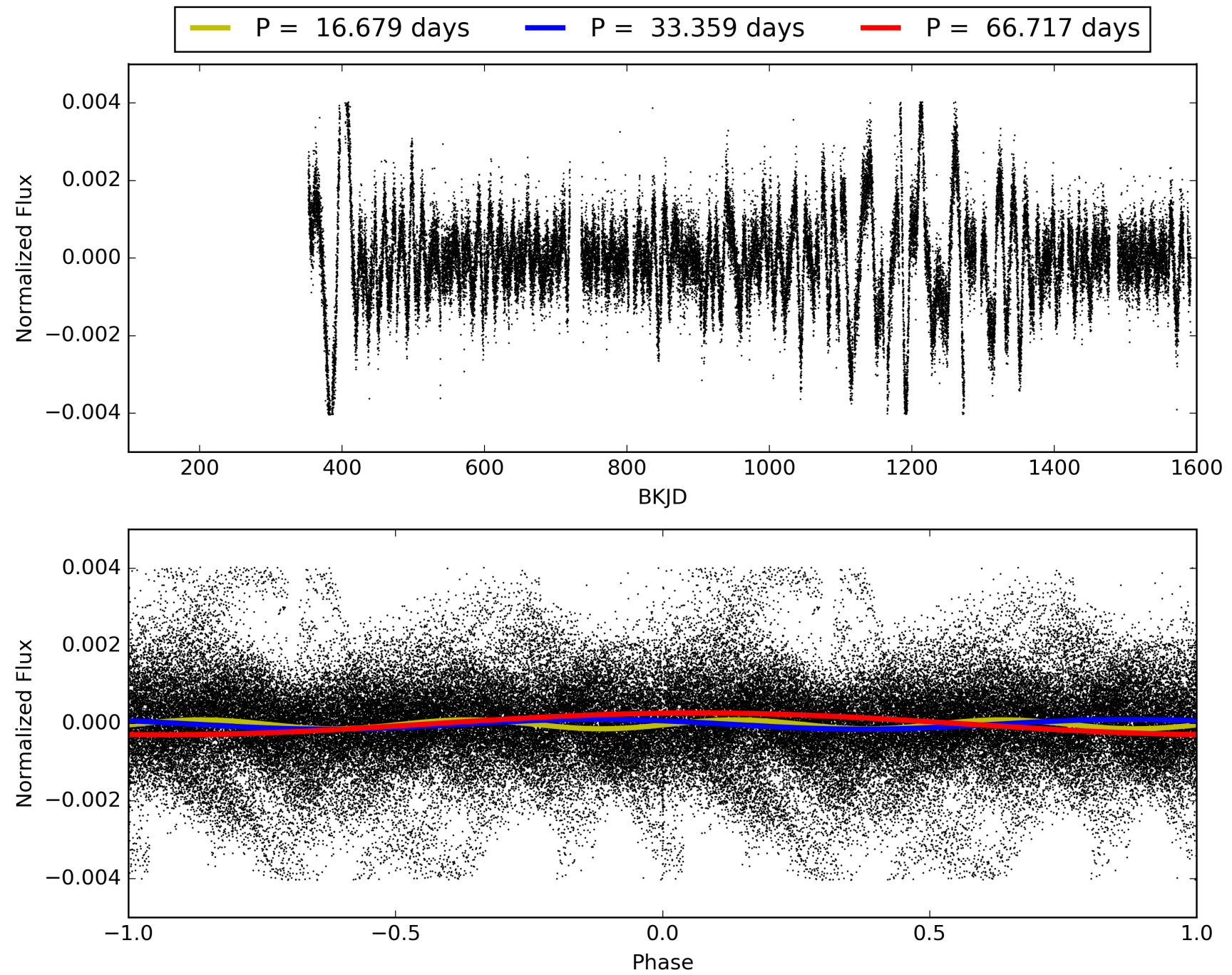
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 84.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.29e-158  
RollingBand-fgt: 1.00 [29/29]  
GhostDiagnostic-chr: 5.383  
Centroid-sig: 40.7%  
Centroid-so: 1.114 arcsec [3.33 $\sigma$ ]  
OotOffset-rm: 0.423 arcsec [1.53 $\sigma$ ]  
KicOffset-rm: 0.268 arcsec [1.37 $\sigma$ ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 005730445-01, PDC Light Curves

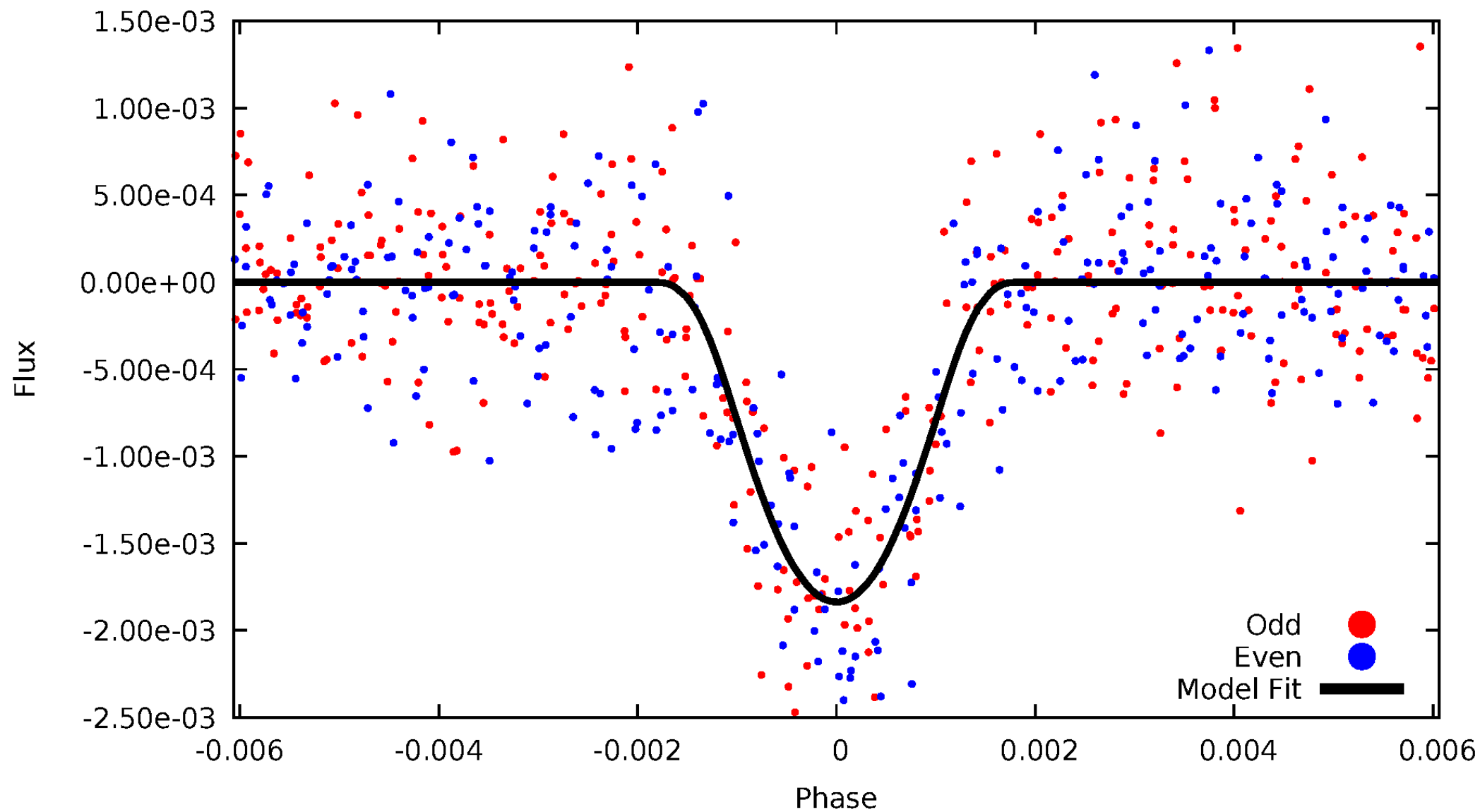


TCE 005730445-01



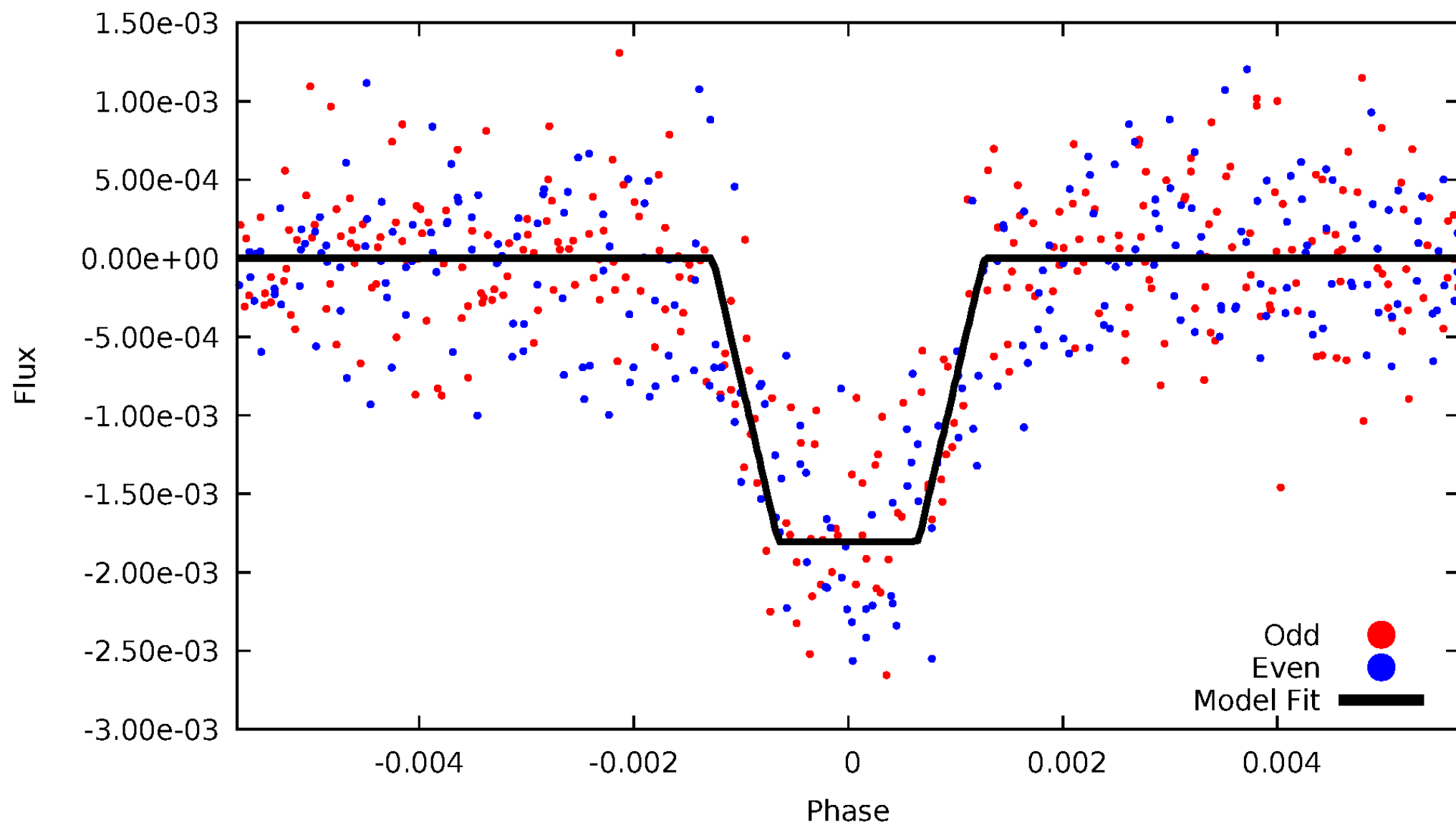
# DV Odd/Even

TCE 005730445-01



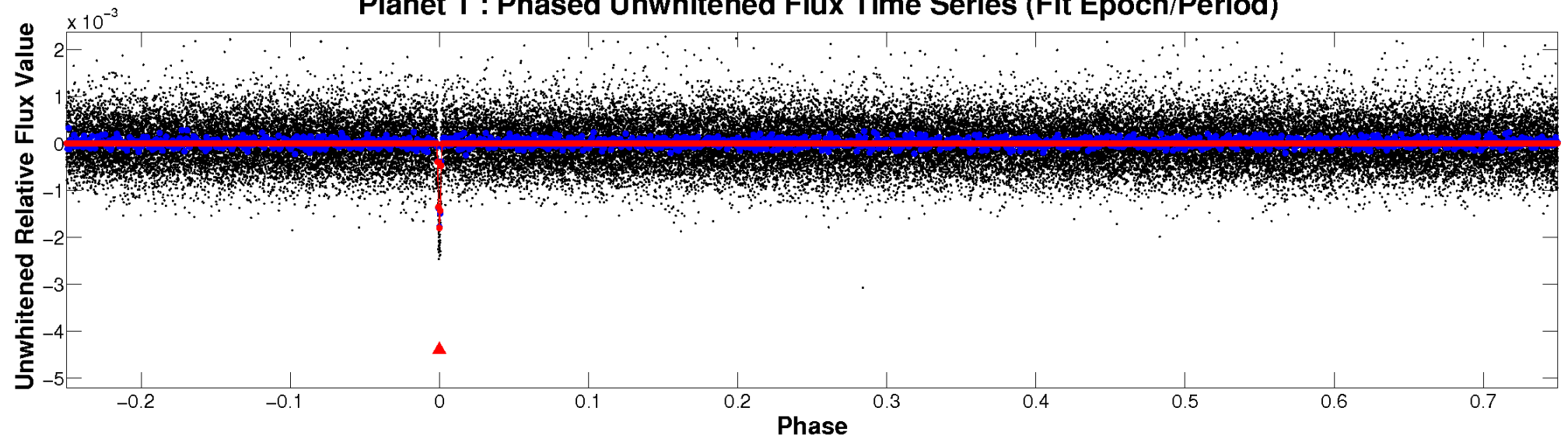
# ALT Odd/Even

TCE 005730445-01

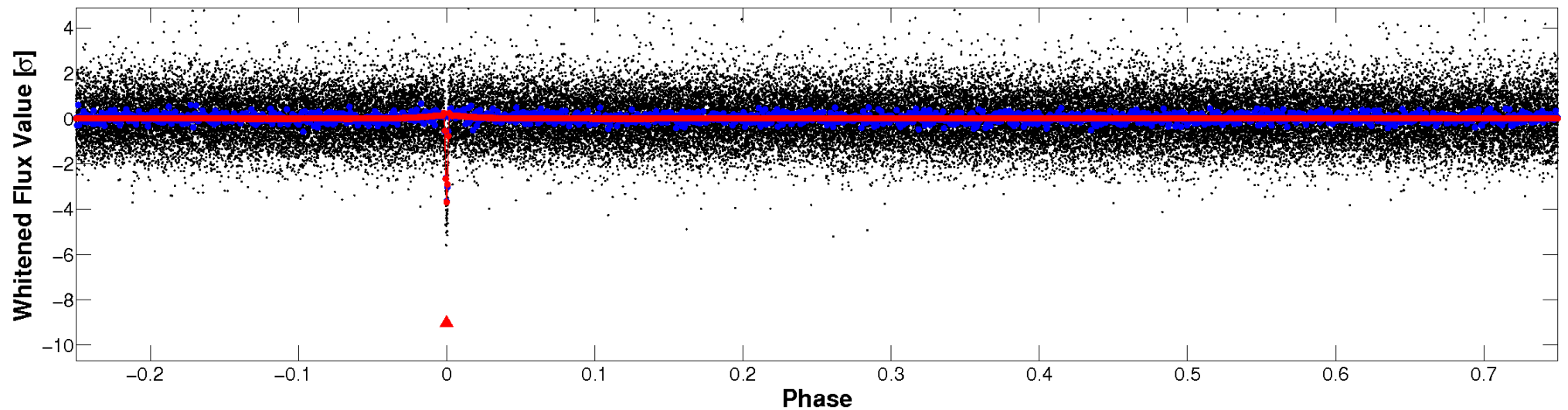


# Non-Whitened Vs. Whitened Light Curve

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



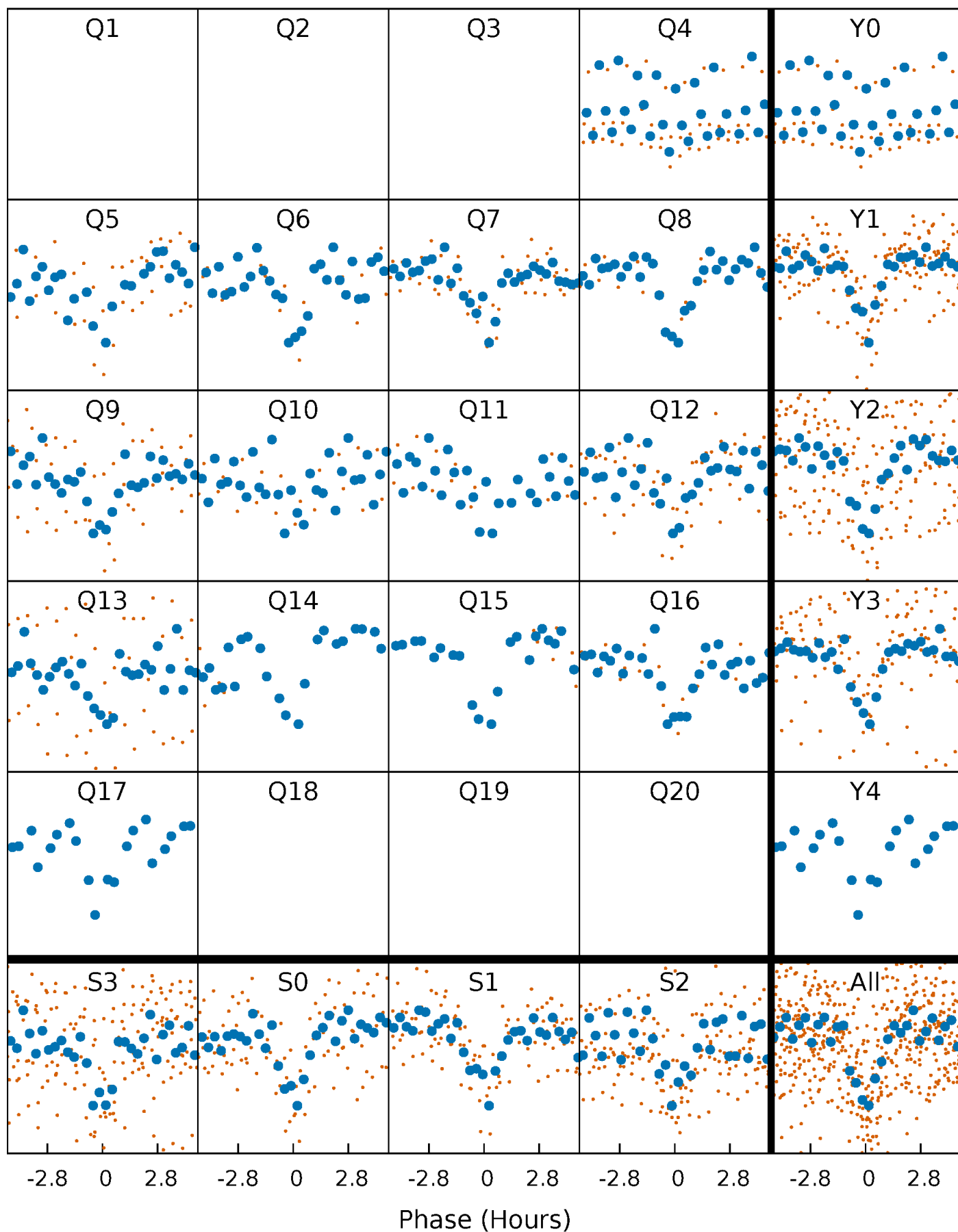
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

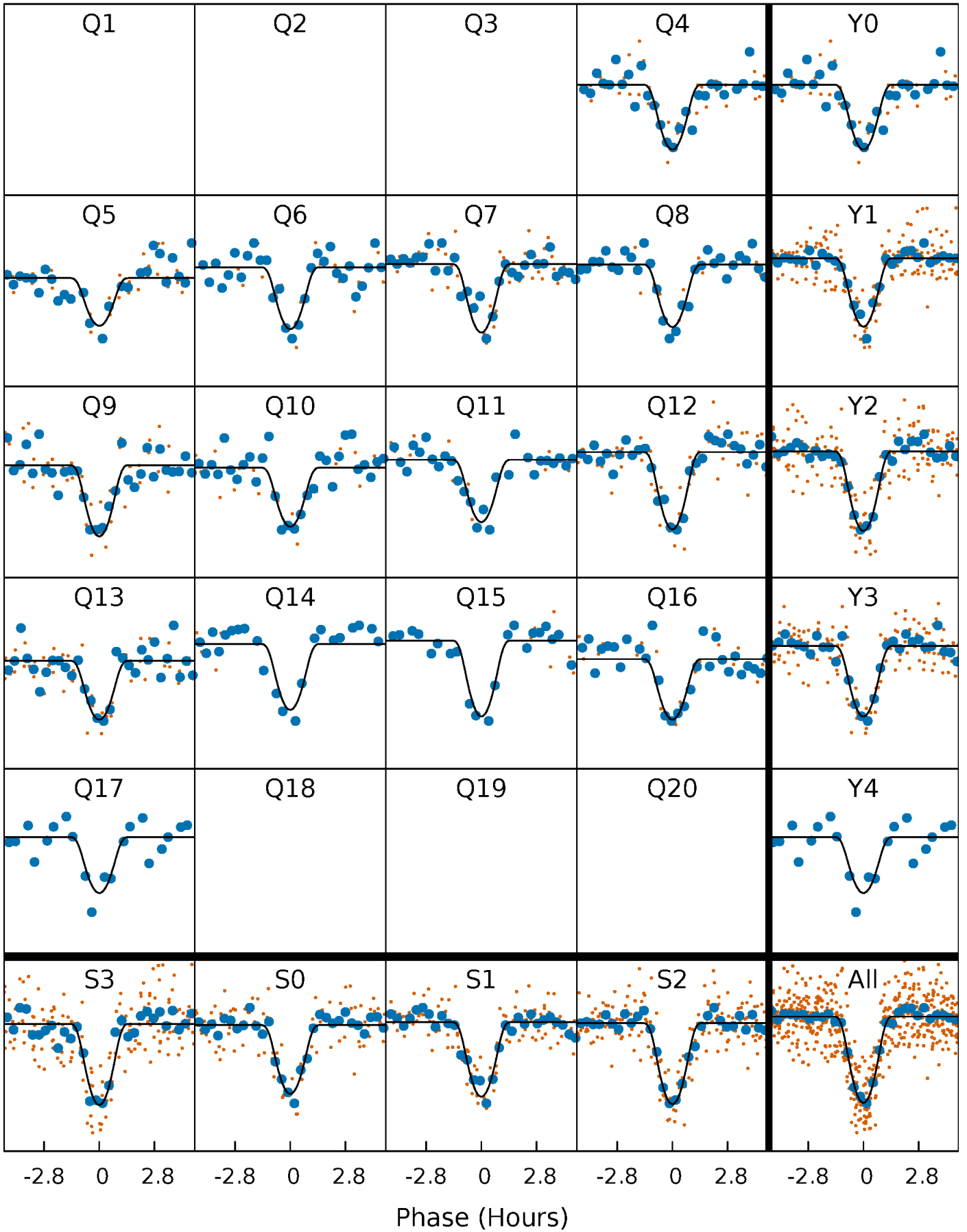
TCE 005730445-01 P= 33.358588 Days  $T_0=137.571054$  (BKJD)





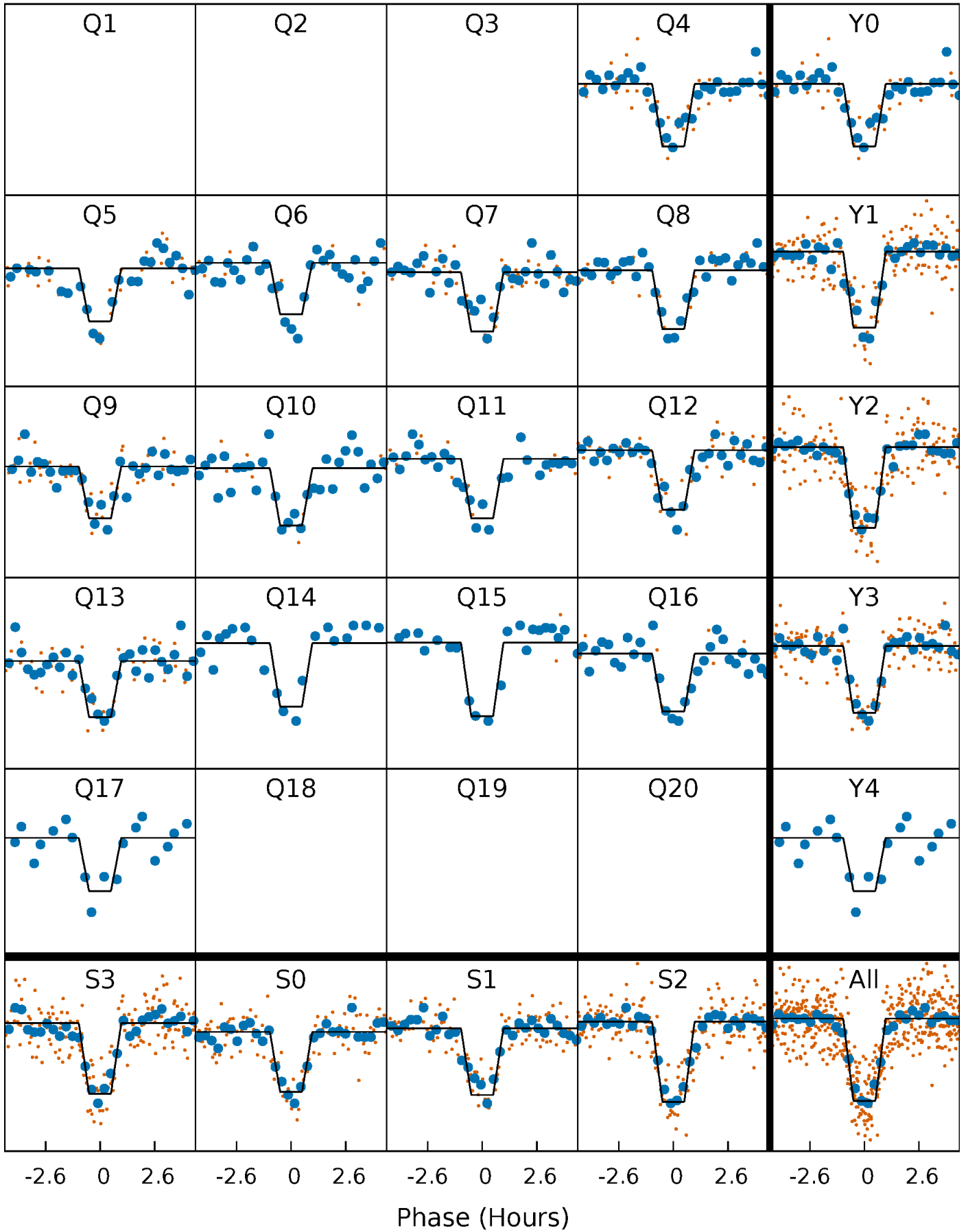
# DV Quarter-Phased Transit Curves

TCE 005730445-01   P= 33.358588 Days    $T_0=137.571054$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

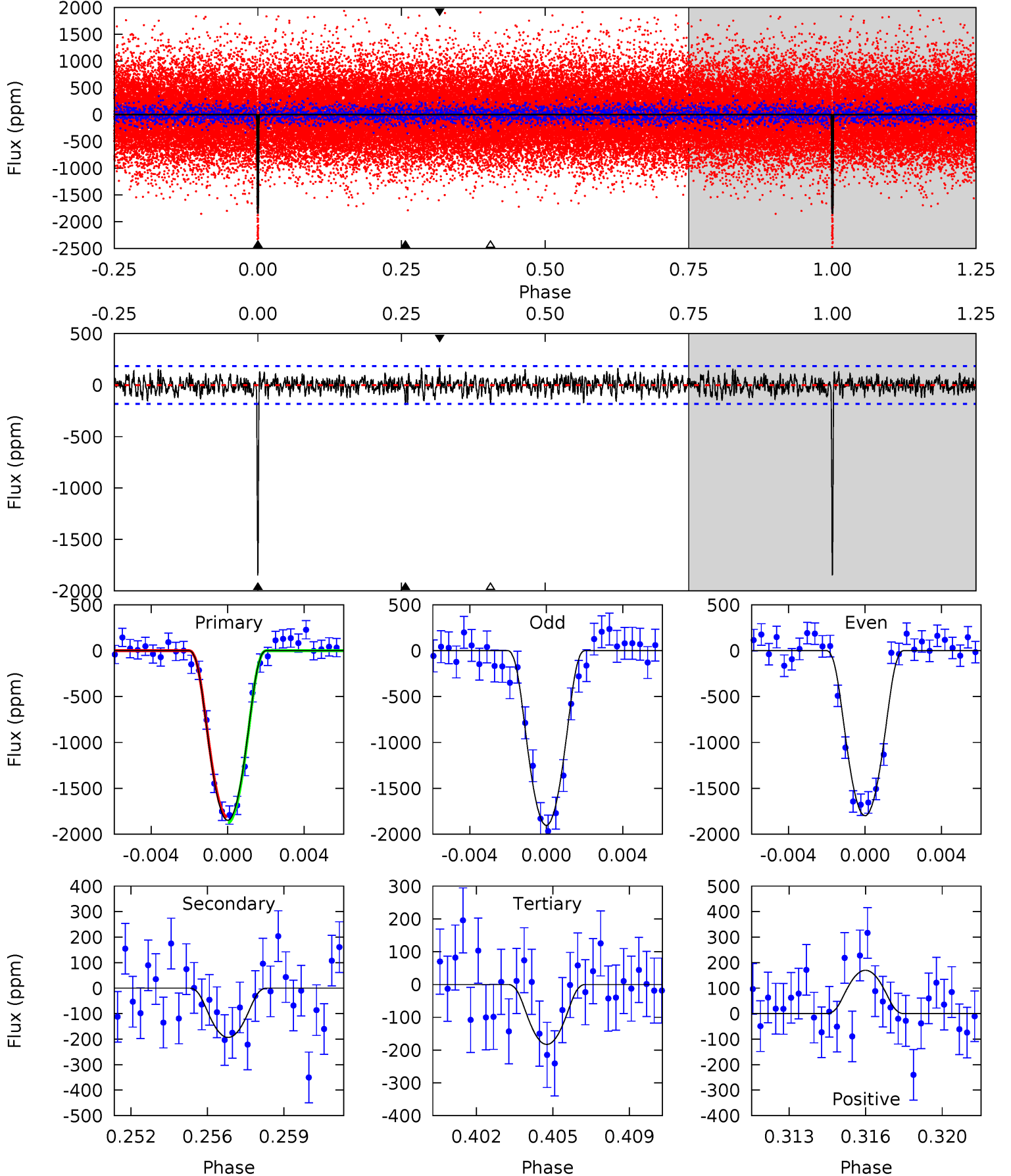
TCE 005730445-01 P= 33.358491 Days  $T_0=137.573334$  (BKJD)



# DV Model-Shift Uniqueness Test

005730445-01,  $P = 33.358588$  Days,  $E = 137.571054$  Days

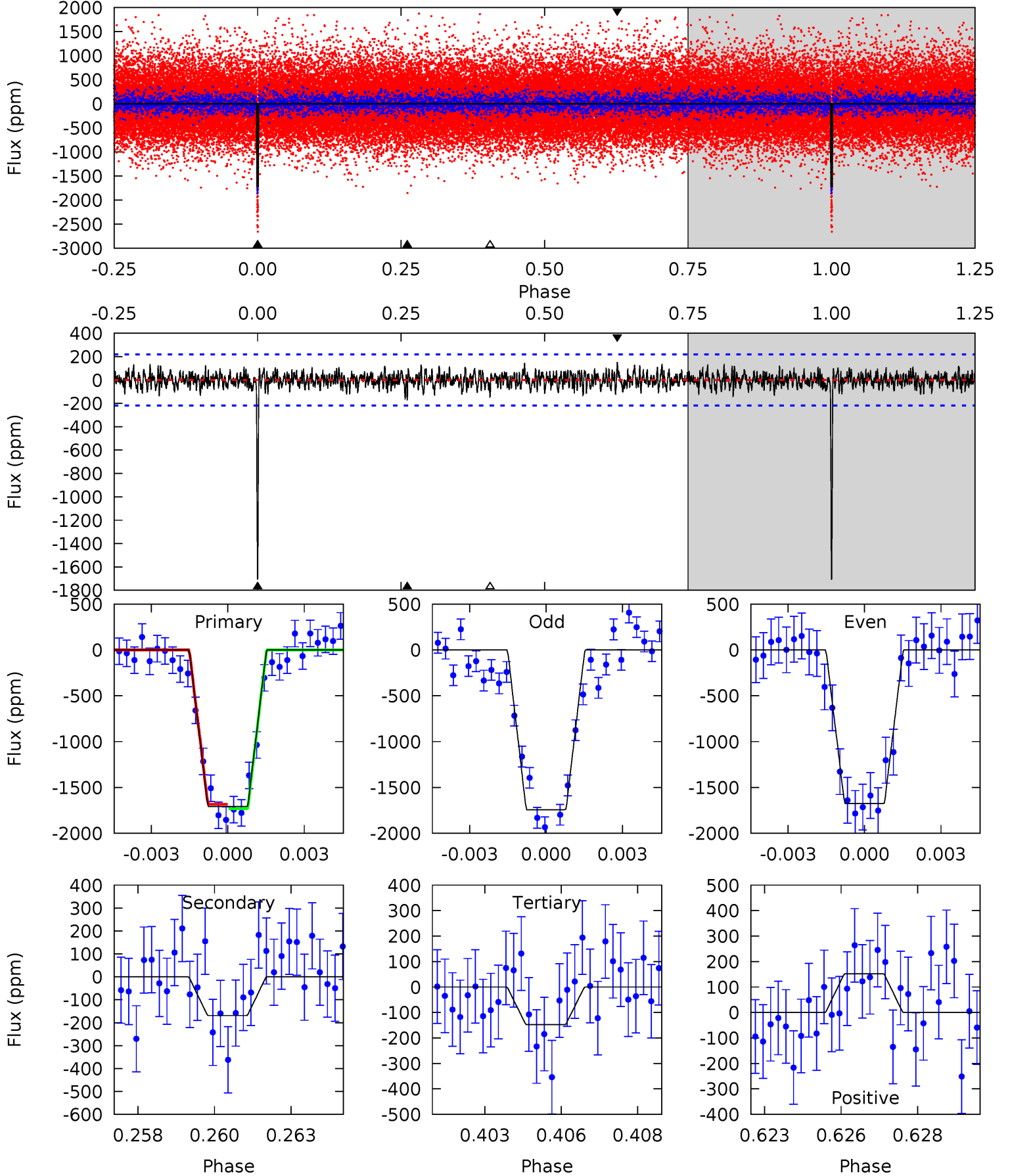
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.6	5.51	5.20	4.84	5.22	2.92	1.55	47.4	47.8	0.30	0.67	1.49	0.98	0.08	0.86



# Alt Model-Shift Uniqueness Test

005730445-01,  $P = 33.358491$  Days,  $E = 137.573334$  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
41.4	4.08	3.58	3.68	5.29	3.02	1.15	37.8	37.7	0.51	0.41	0.79	0.99	0.08	0.58



### Stellar Parameters For KIC 005730445

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5009^{+176}_{-176}$	$4.515^{+0.080}_{-0.080}$	$0.000^{+0.300}_{-0.250}$	$0.799^{+0.086}_{-0.086}$	$0.763^{+0.095}_{-0.063}$	$2.106^{+0.703}_{-0.527}$
	+4%/-4%	+2%/-2%	+inf%/-inf%	+11%/-11%	+12%/-8%	+33%/-25%
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 005730445-01 / KOI 2189.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-193 \pm 35$	$5.36^{+3.29}_{-2.95}$	$641^{+29}_{-30}$	$3016^{+839}_{-365}$	$127^{+516}_{-78}$
Alt.	$-169 \pm 41$	$4.12^{+2.92}_{-2.34}$	$642^{+30}_{-32}$	$3162^{+1039}_{-426}$	$185^{+853}_{-123}$

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

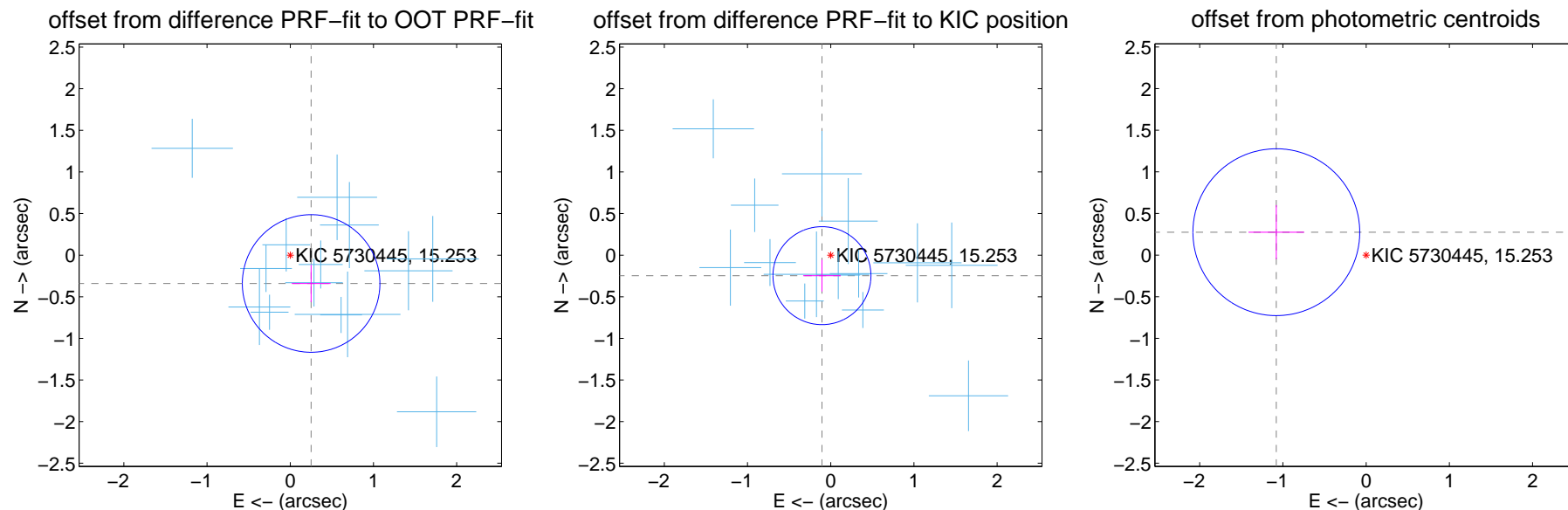
## DV Centroid Data

Supplemental centroid analysis for 005730445-01. Kepler magnitude: 15.25. Transit SNR 29.63

There are 14 quarters with good PRF difference image offsets

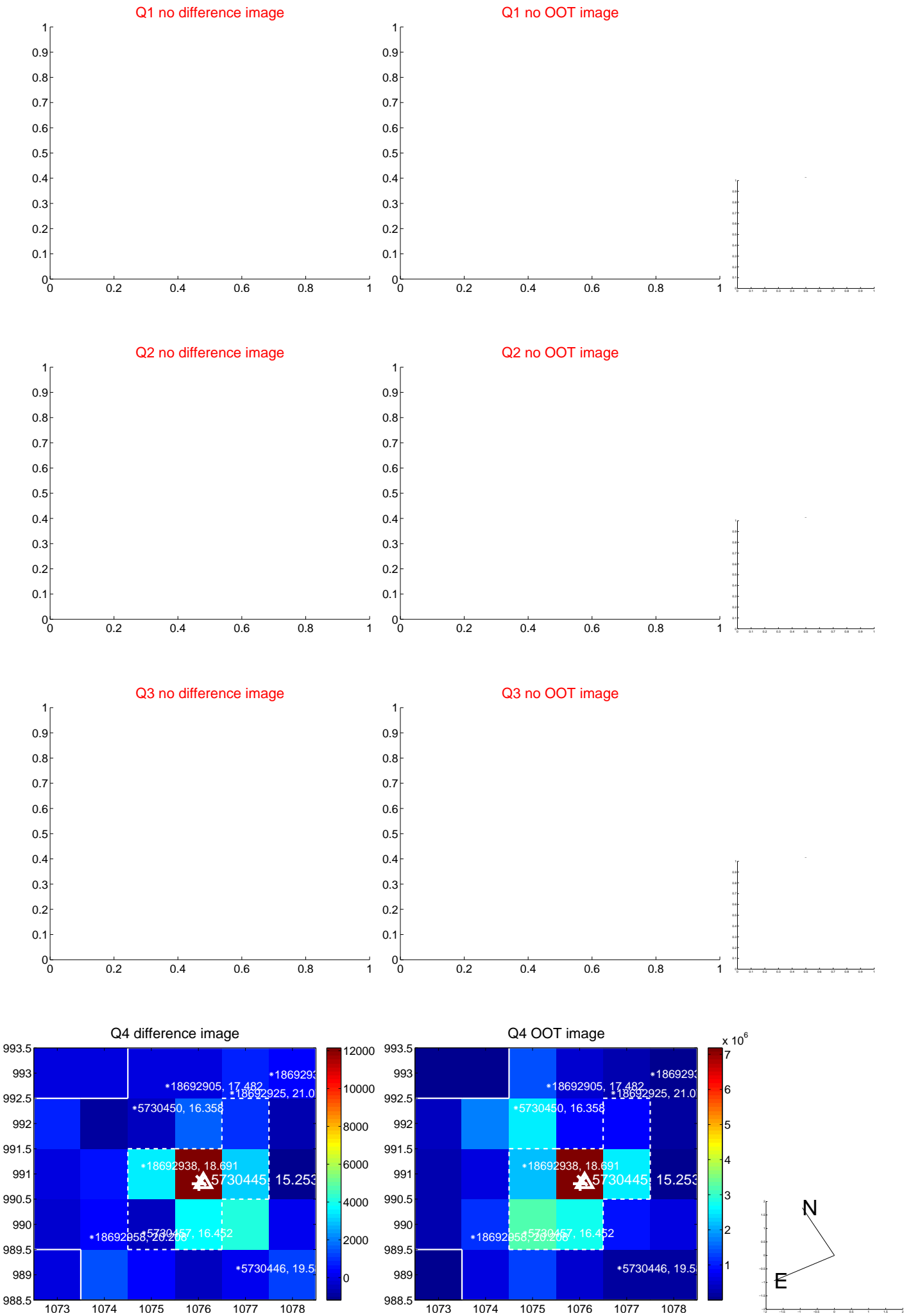
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.423 \pm 0.276$	1.53	$-0.251 \pm 0.234$	$-0.340 \pm 0.223$
PRF-fit source offset from KIC position	$0.268 \pm 0.196$	1.37	$0.105 \pm 0.225$	$-0.246 \pm 0.190$
photometric centroid source offset	$1.11 \pm 0.33$	<b>3.33</b>	$1.08 \pm 0.33$	$0.28 \pm 0.33$



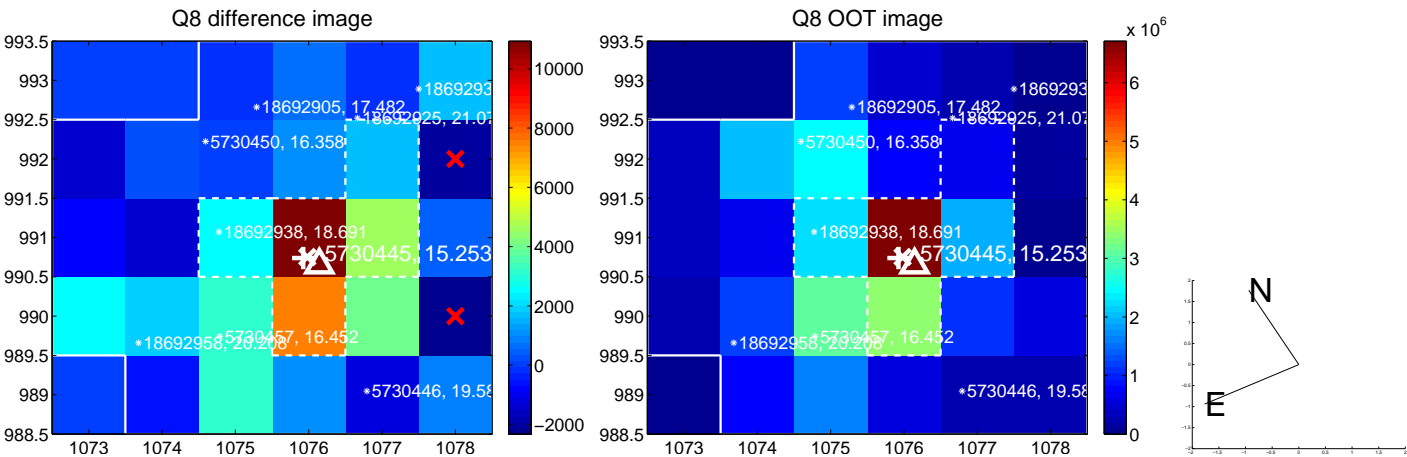
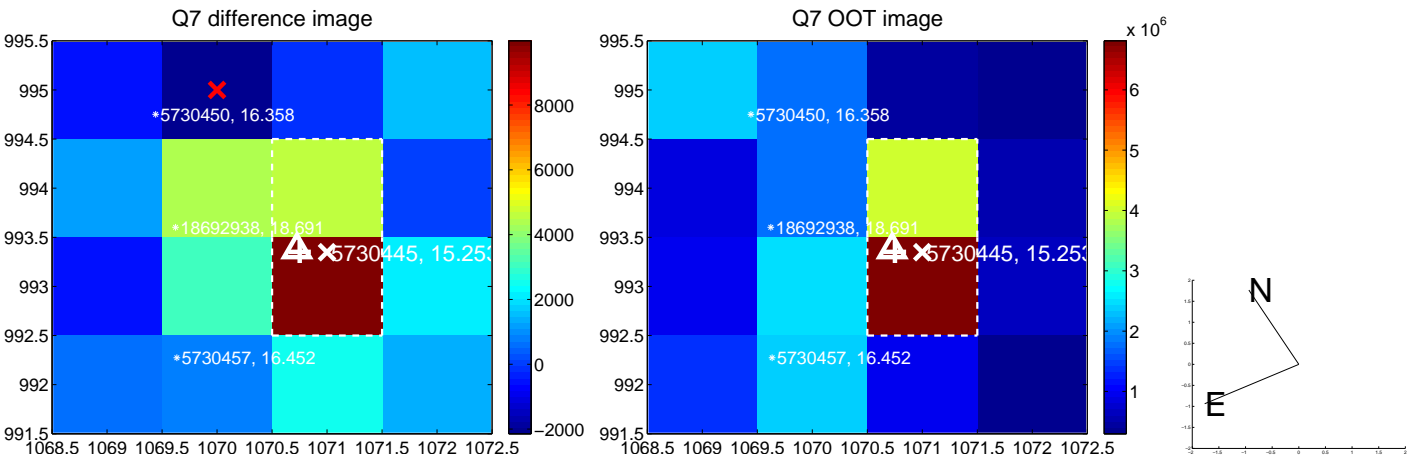
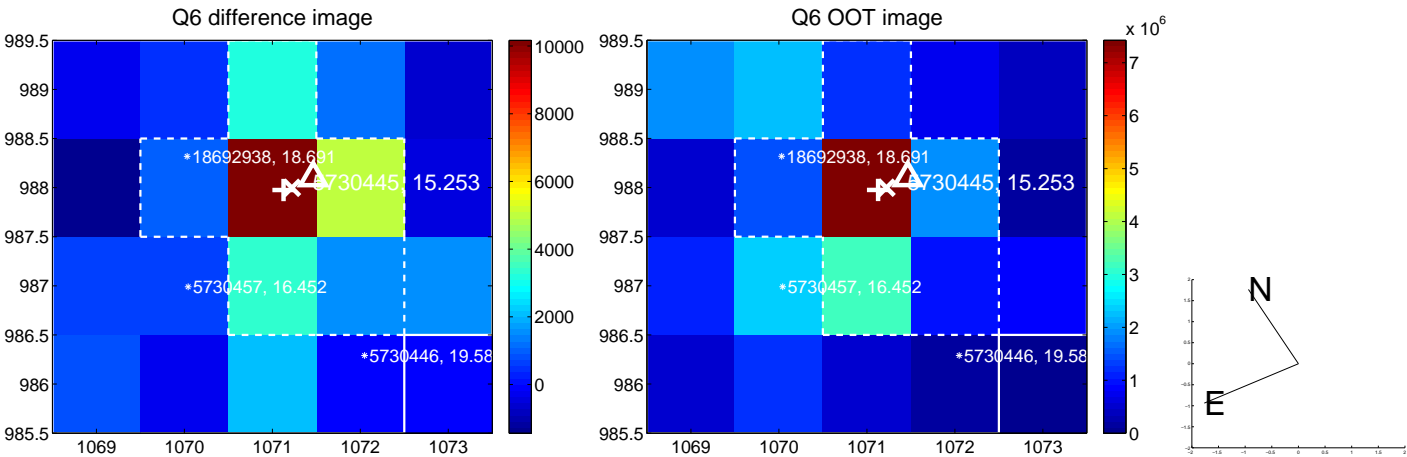
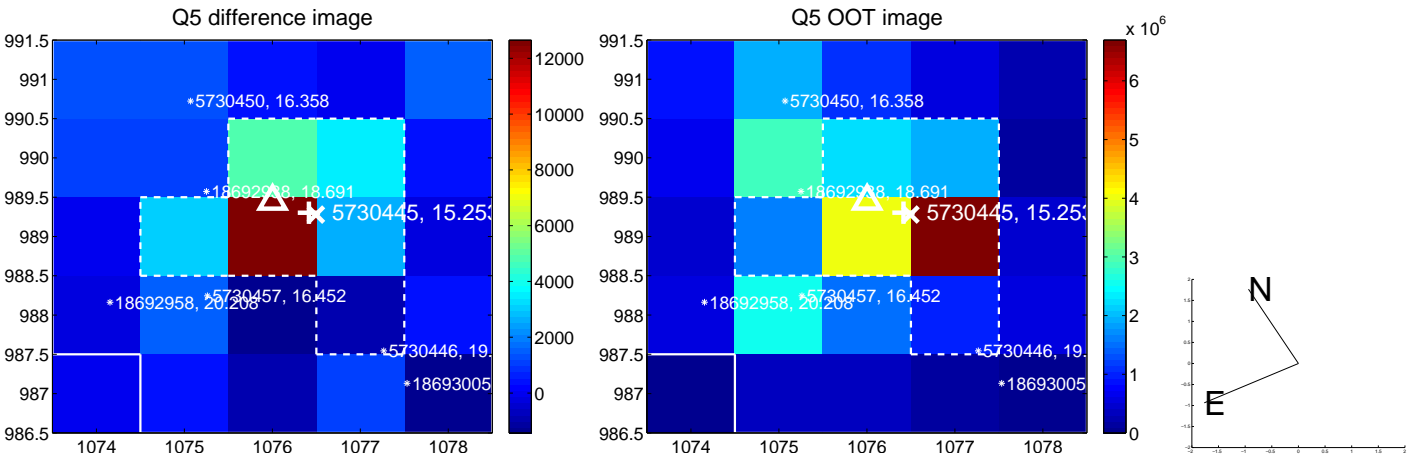
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

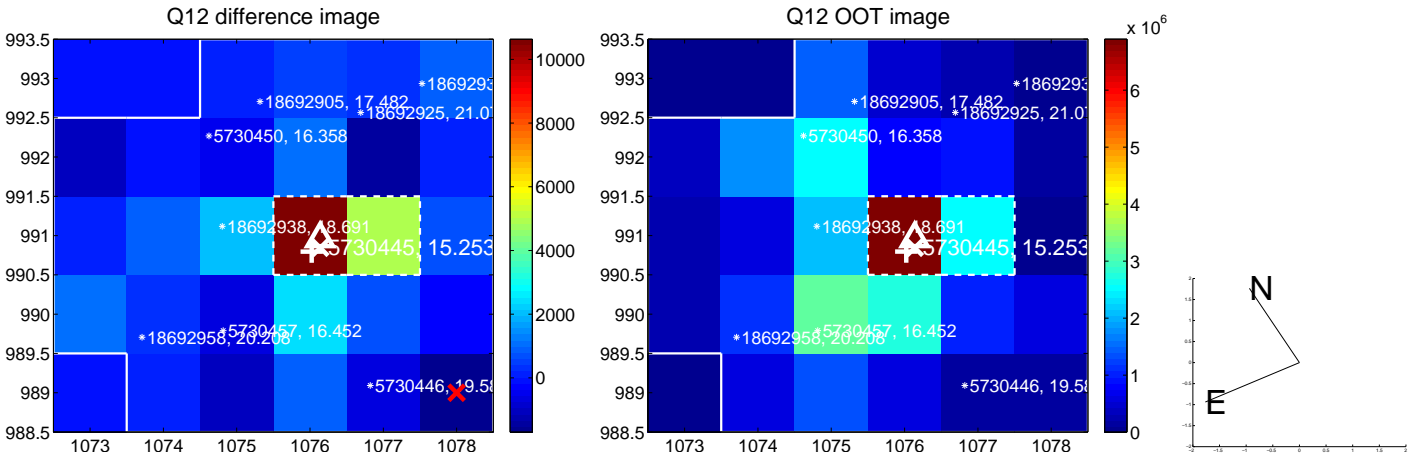
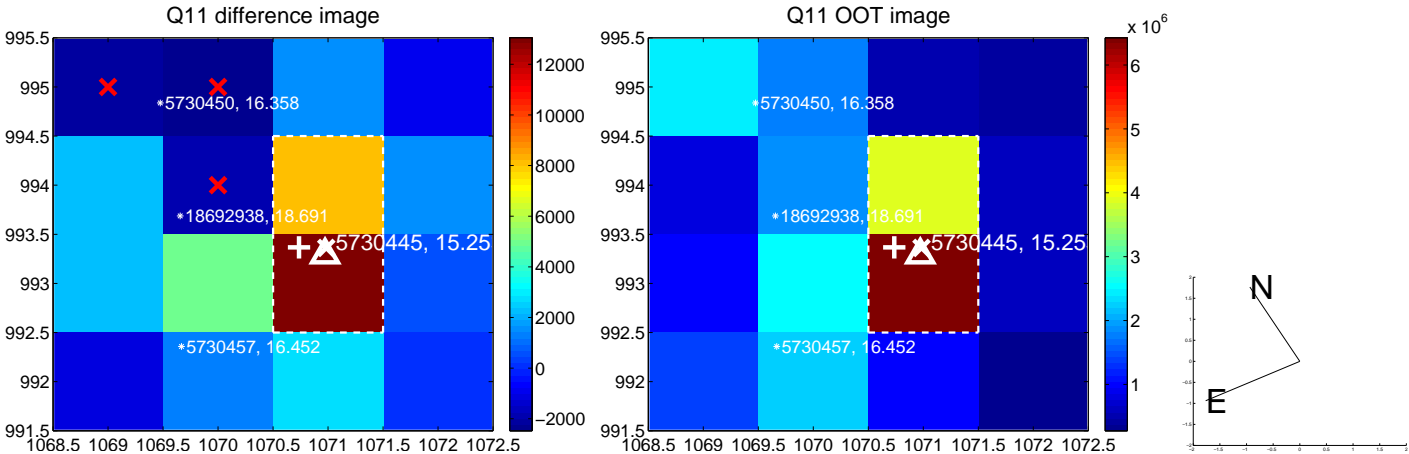
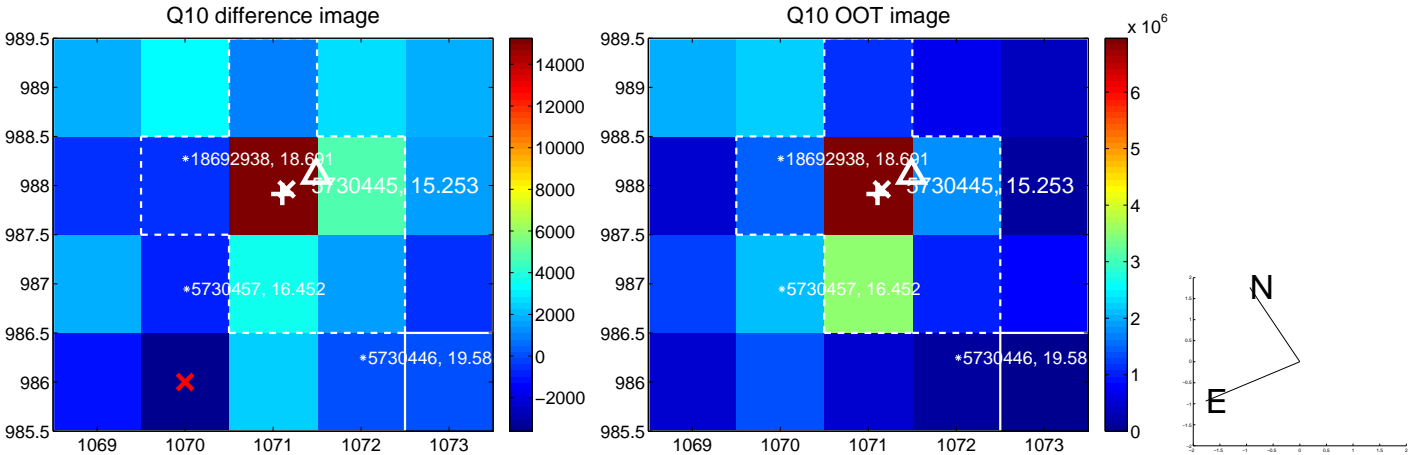
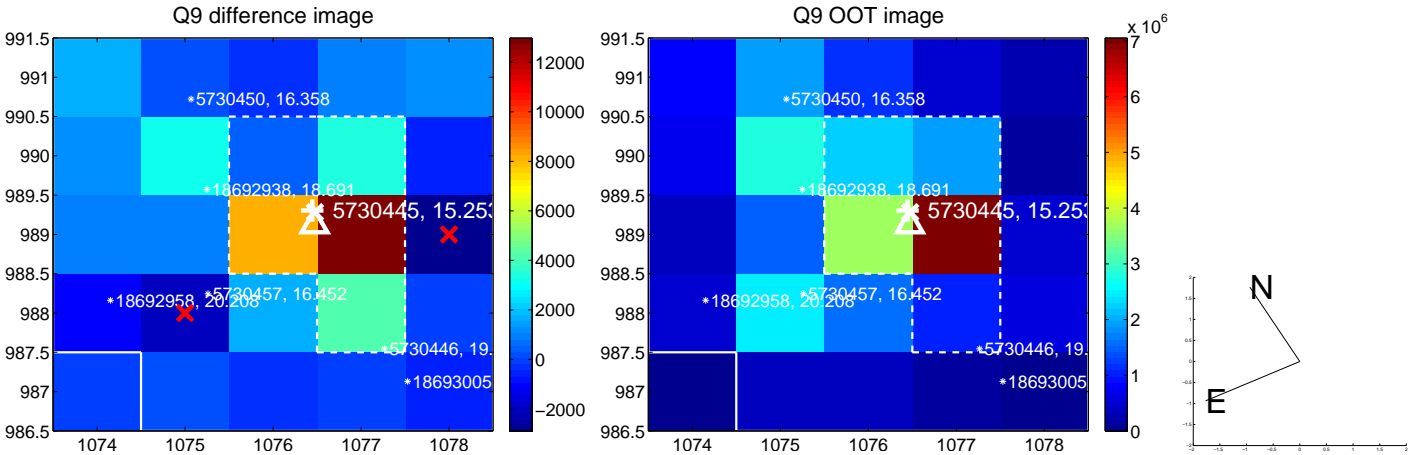




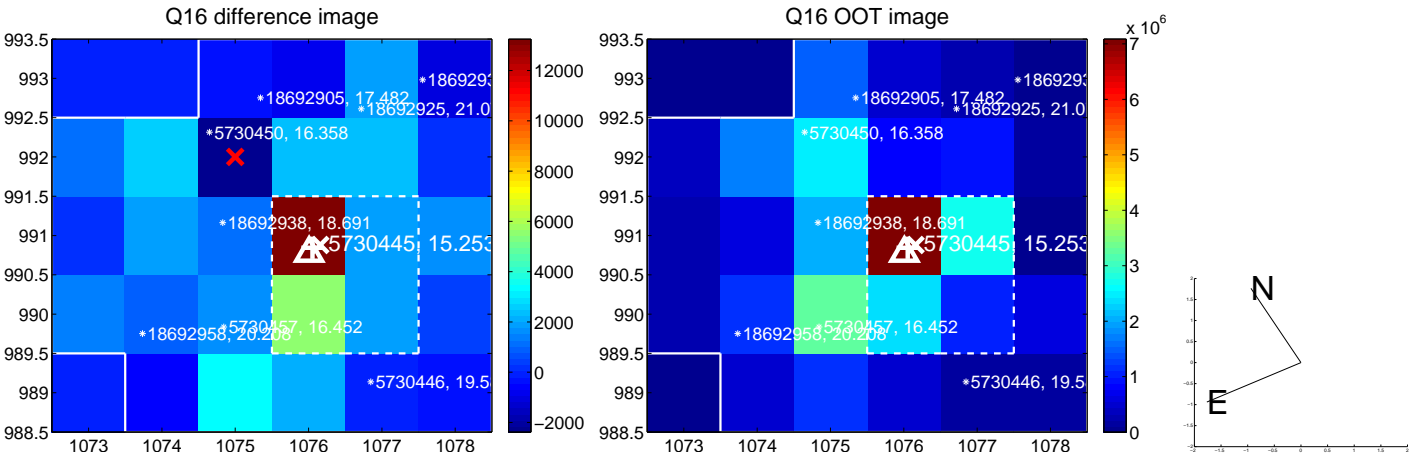
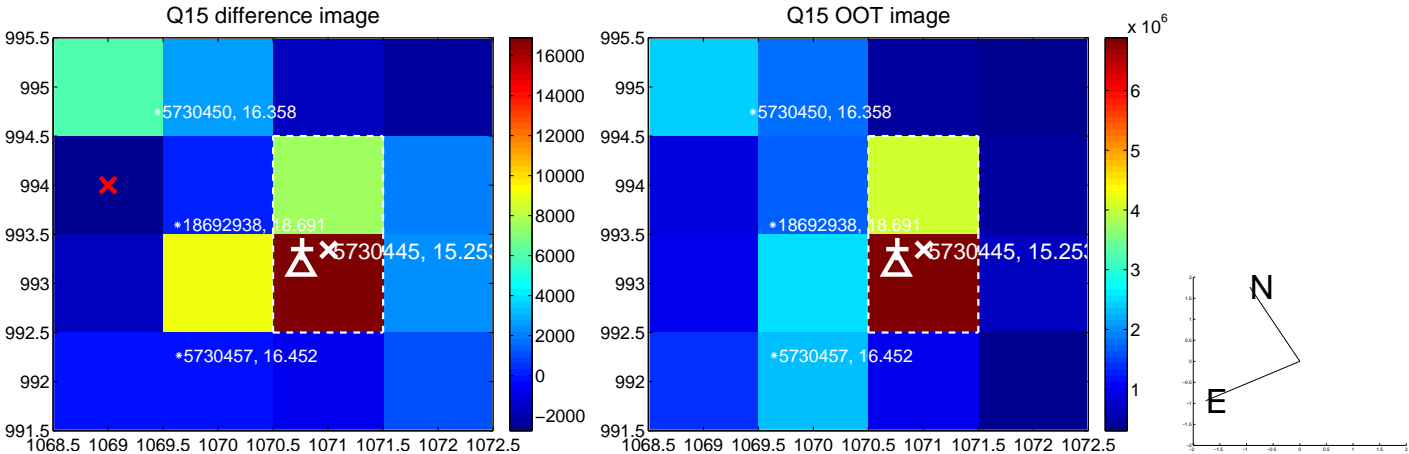
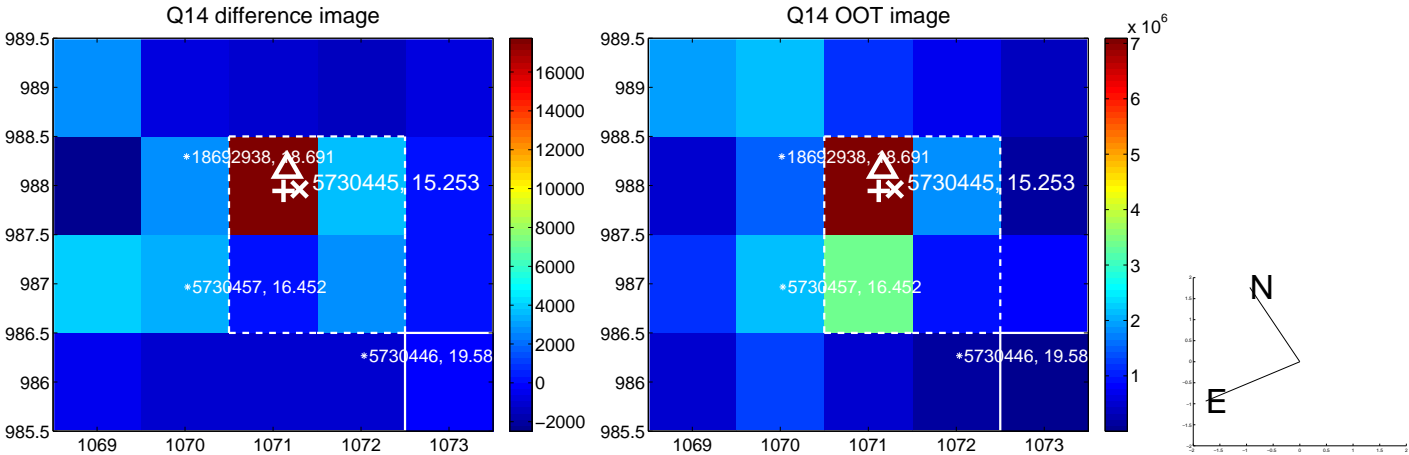
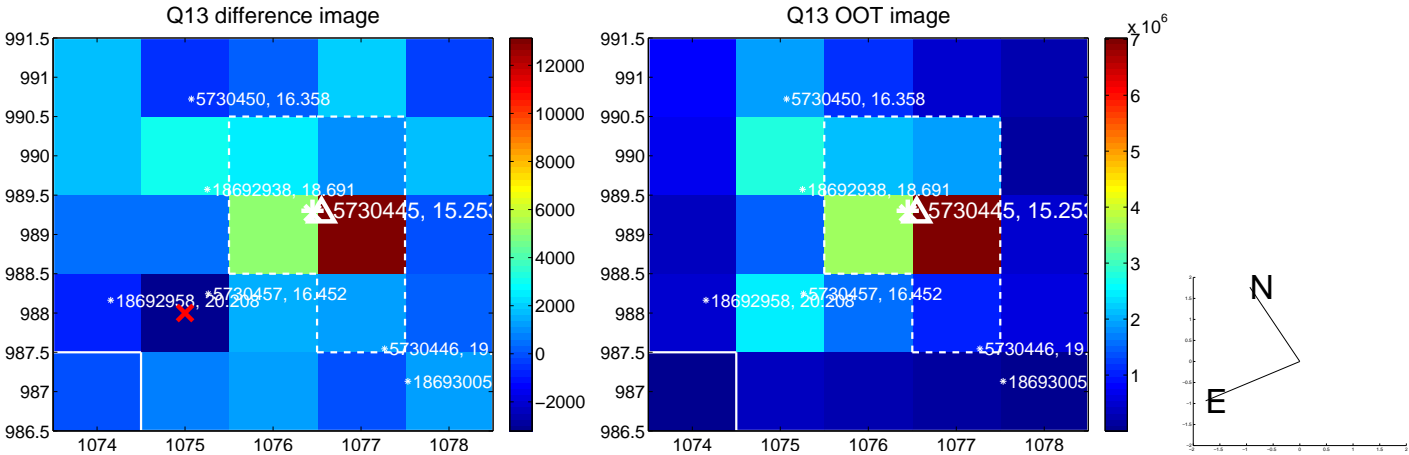
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



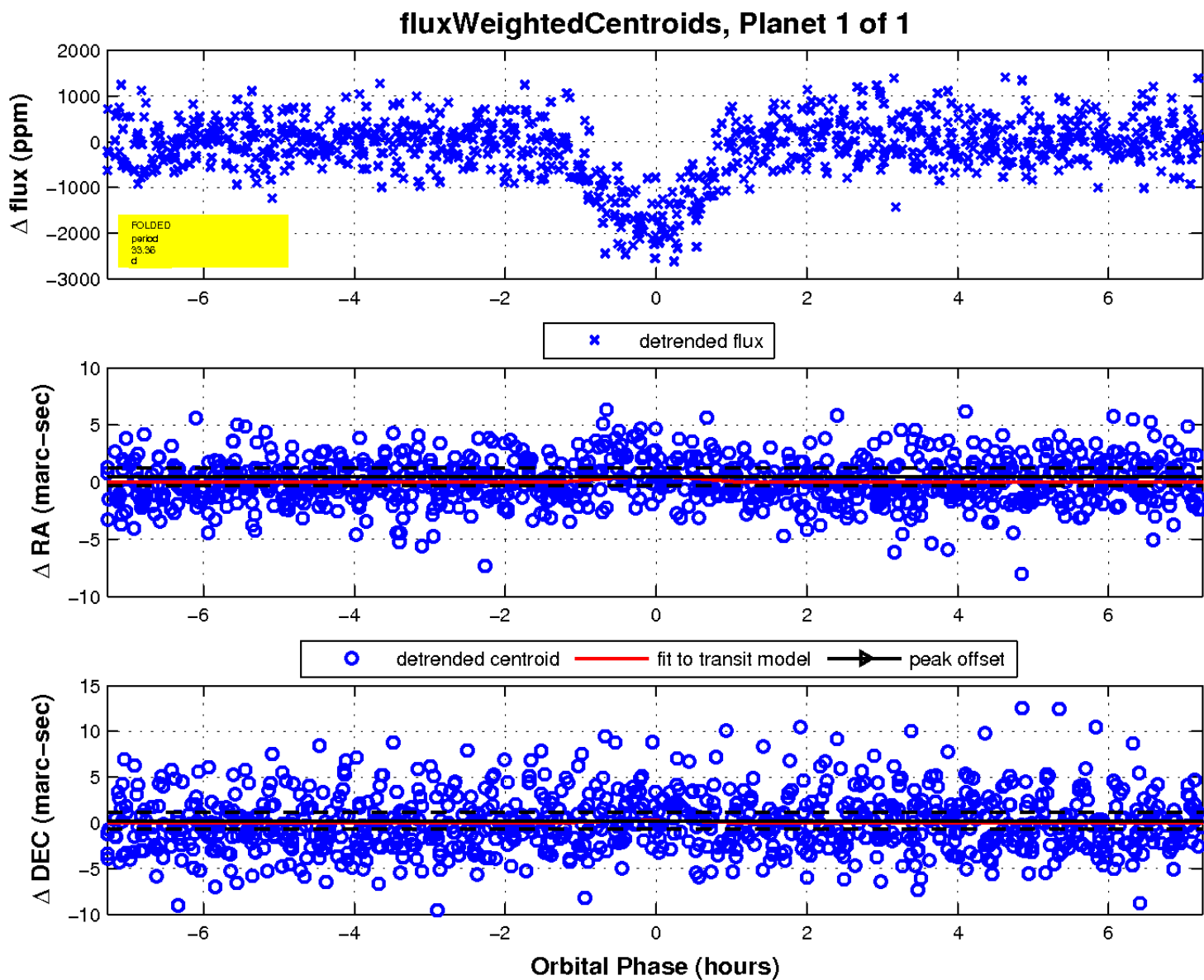
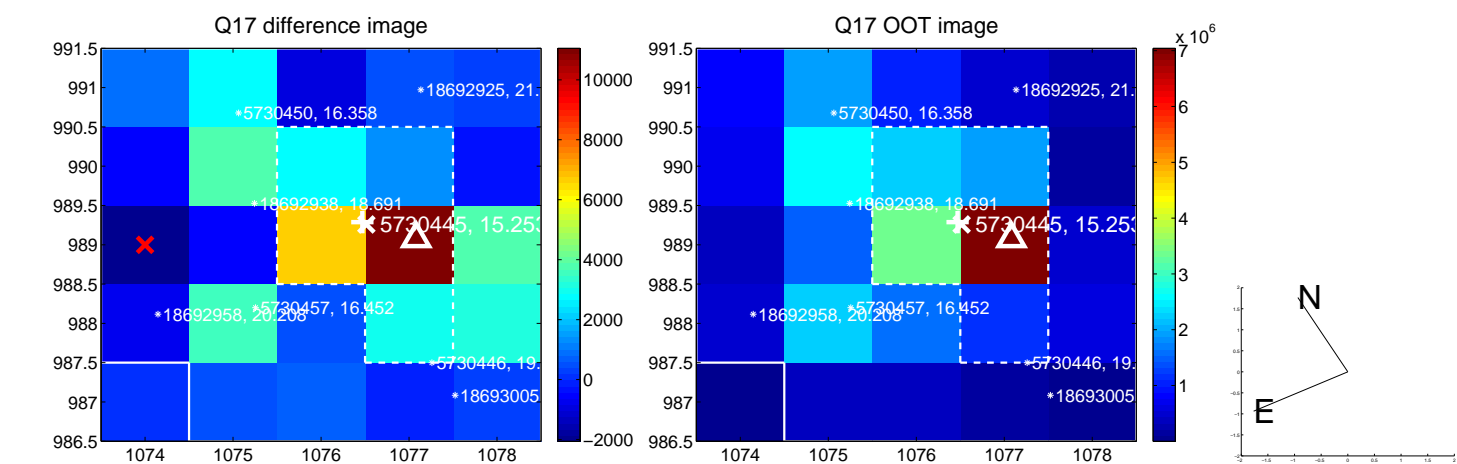
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

