

# KIC 010153011

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010153011-01	OBS	1773.01	83.097077	162.935827	15696.5	9.178	251.9	261.4	0.64	5286	11.66	2.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010153011-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

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

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

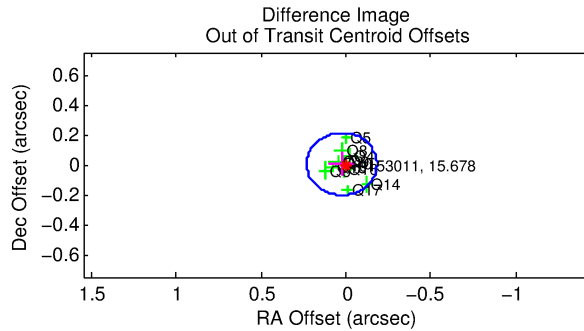
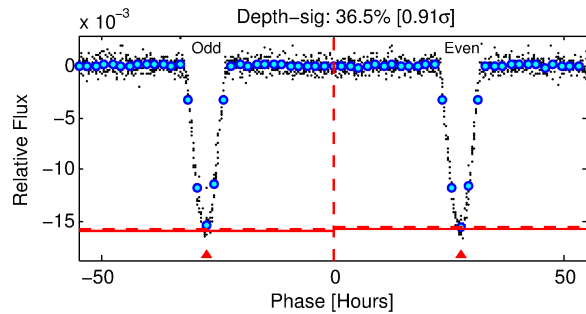
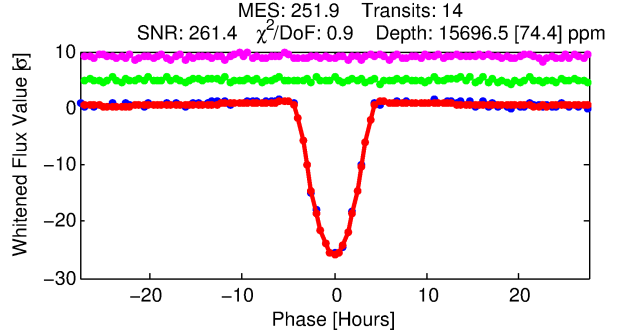
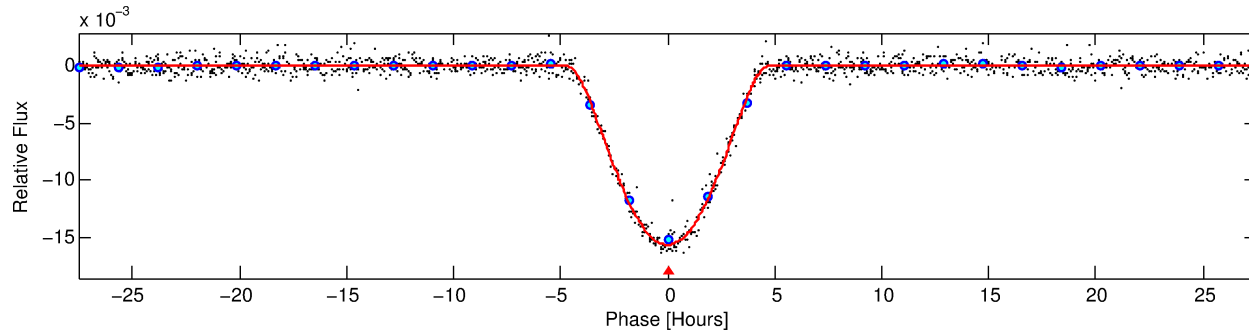
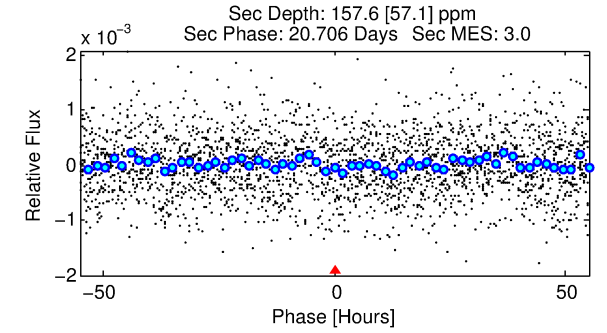
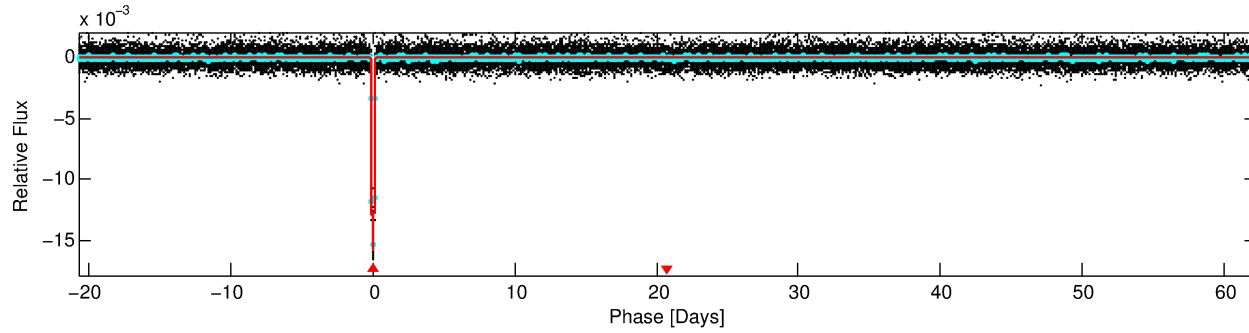
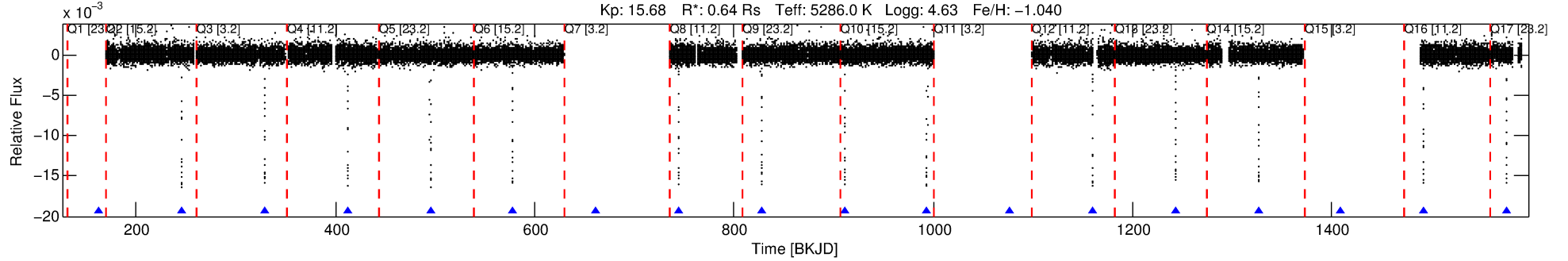
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010153011-01

No Significant Match Found

# DV One-Page Summary

KIC: 10153011 Candidate: 1 of 1 Period: 83.097 d  
KOI: K01773.01 Corr: 1.000



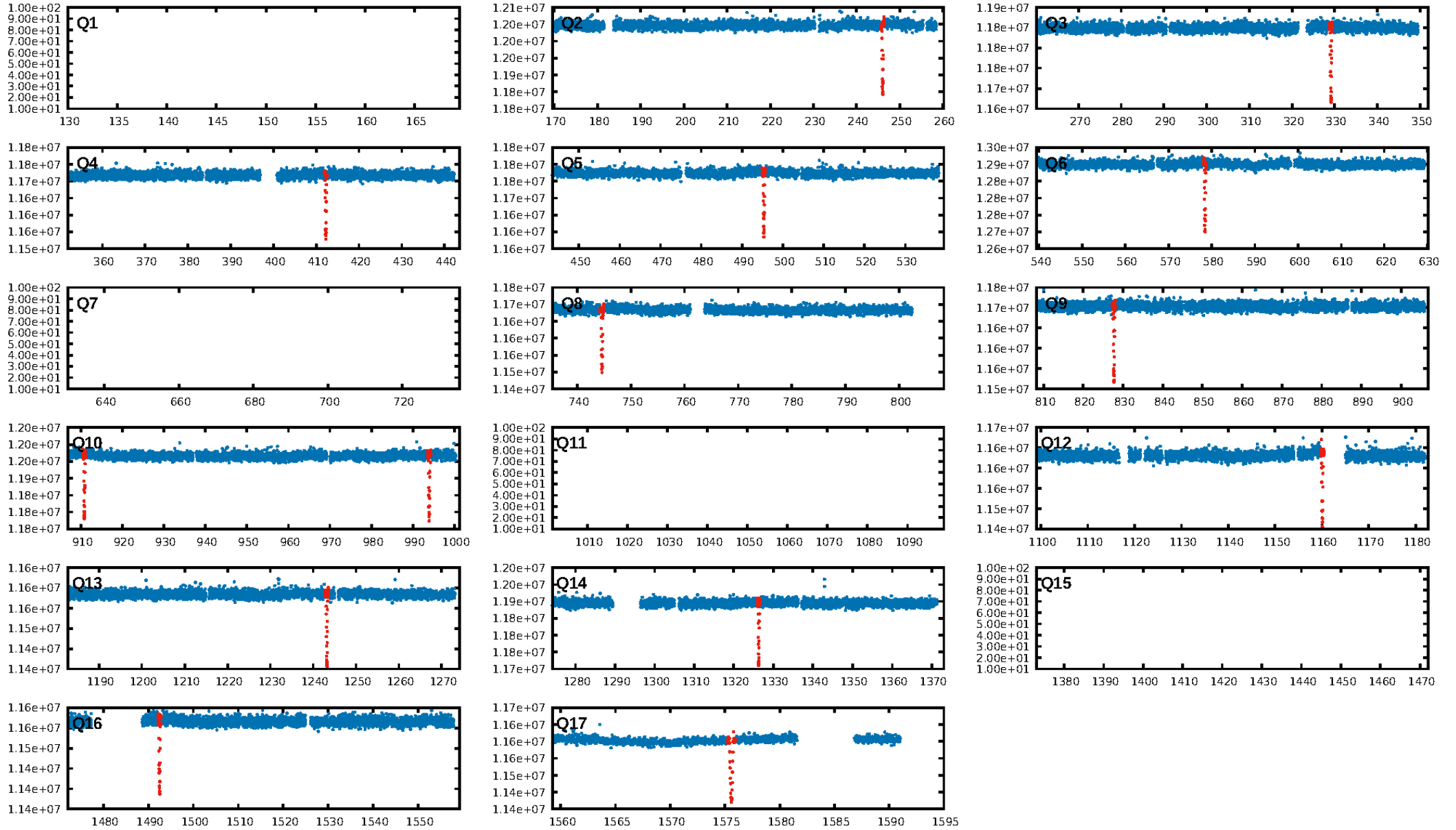
## DV Fit Results:

Period = 83.09708 [0.00009] d  
Epoch = 162.9358 [0.0008] BKJD  
Rp/R\* = 0.1680 [0.0157]  
a/R\* = 47.49 [0.94]  
b = 0.95 [0.03]  
Seff = 2.79 [0.50]  
Teq = 329 [15] K  
Rp = 11.66 [1.47] Re  
a = 0.3187 [0.0249] AU  
Ag = 64.75 [27.51] [2.32 $\sigma$ ]  
Teffp = 1445 [155] K [7.18 $\sigma$ ]

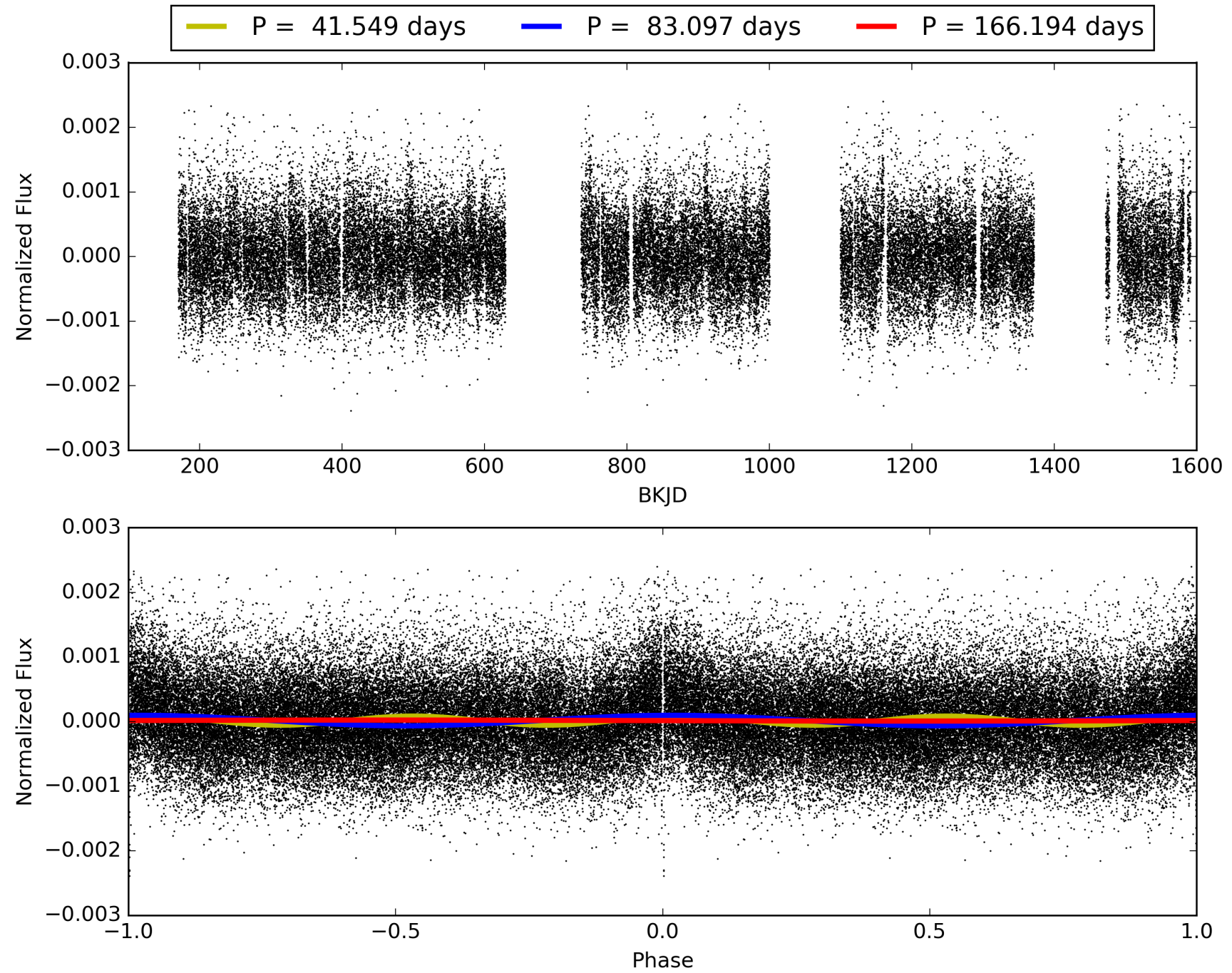
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 25.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [13/13]  
GhostDiagnostic-chr: 6.619  
Centroid-sig: 10.2%  
Centroid-so: 0.330 arcsec [6.59 $\sigma$ ]  
OotOffset-rm: 0.026 arcsec [0.37 $\sigma$ ]  
KicOffset-rm: 0.088 arcsec [1.03 $\sigma$ ]  
OotOffset-st: 3/1/3/4 [11]  
KicOffset-st: 3/1/3/4 [11]  
DiffImageQuality-fgm: 1.00 [11/11]  
DiffImageOverlap-fno: 1.00 [11/11]

# TCE 010153011-01, PDC Light Curves

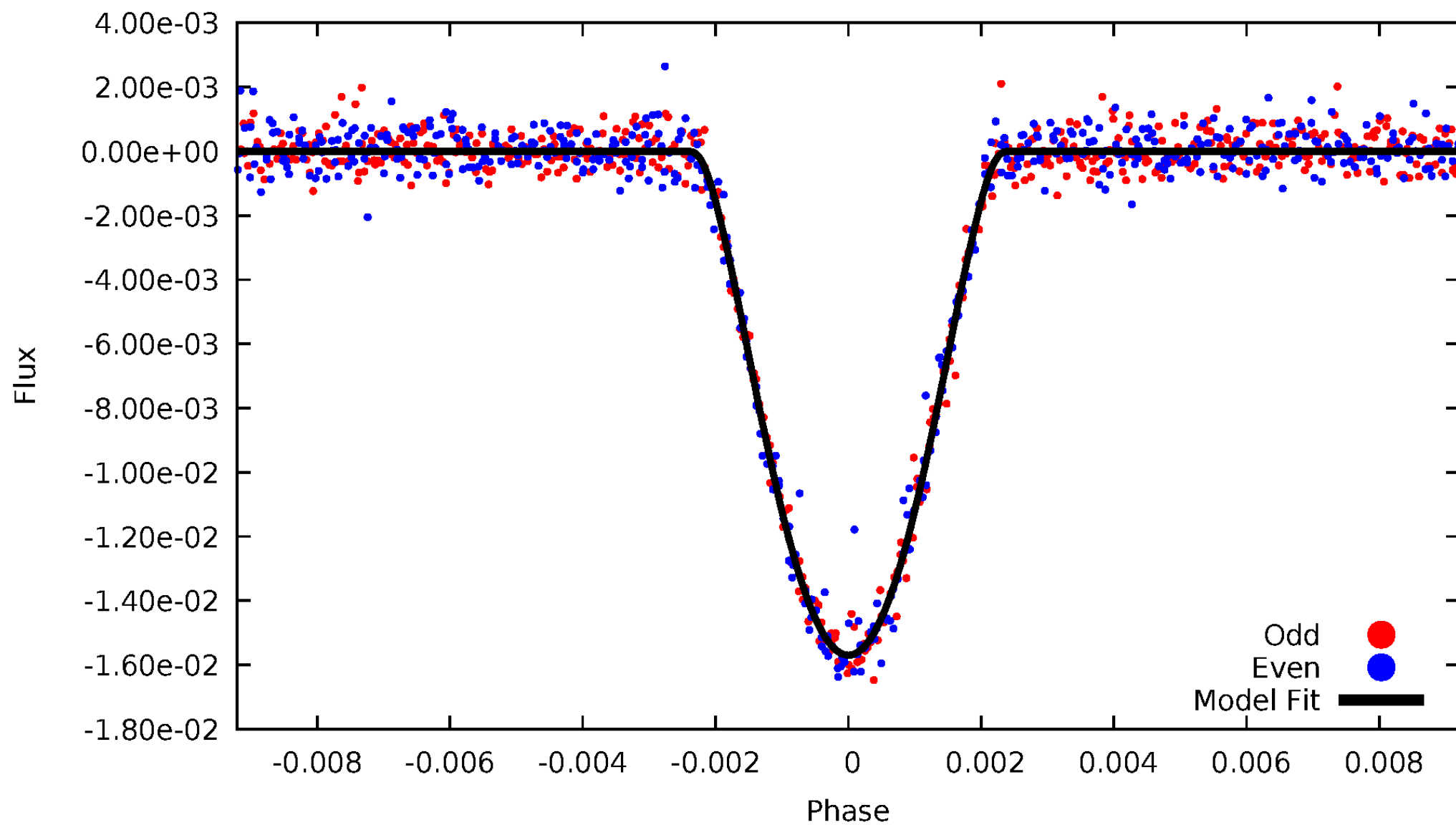


# TCE 010153011-01



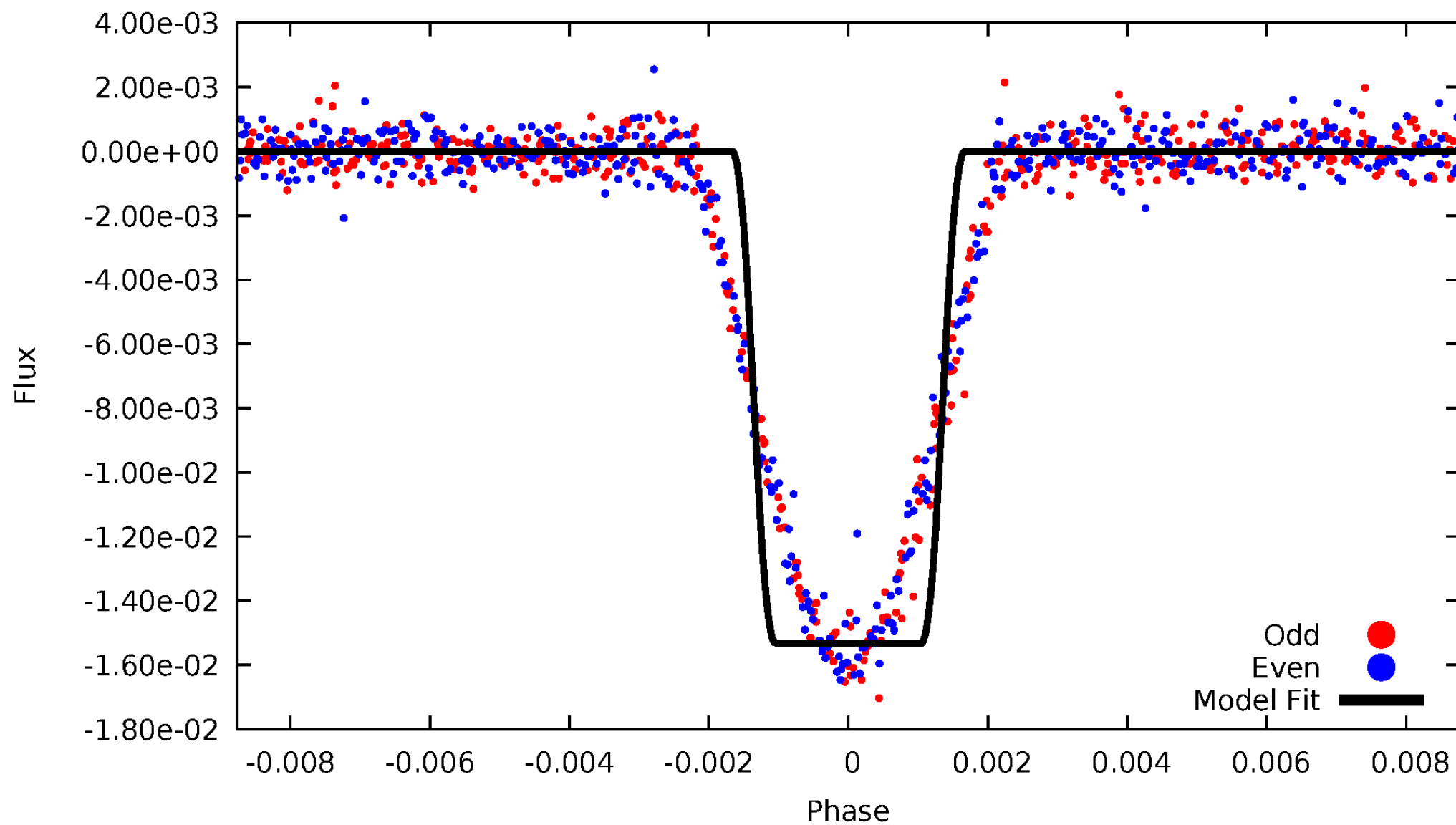
# DV Odd/Even

TCE 010153011-01



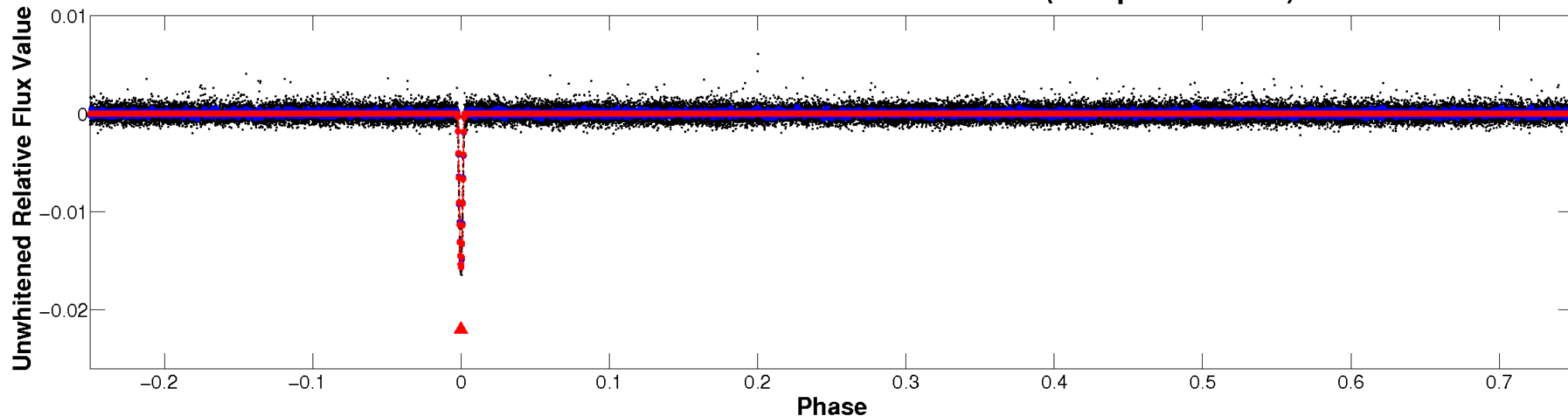
# ALT Odd/Even

TCE 010153011-01

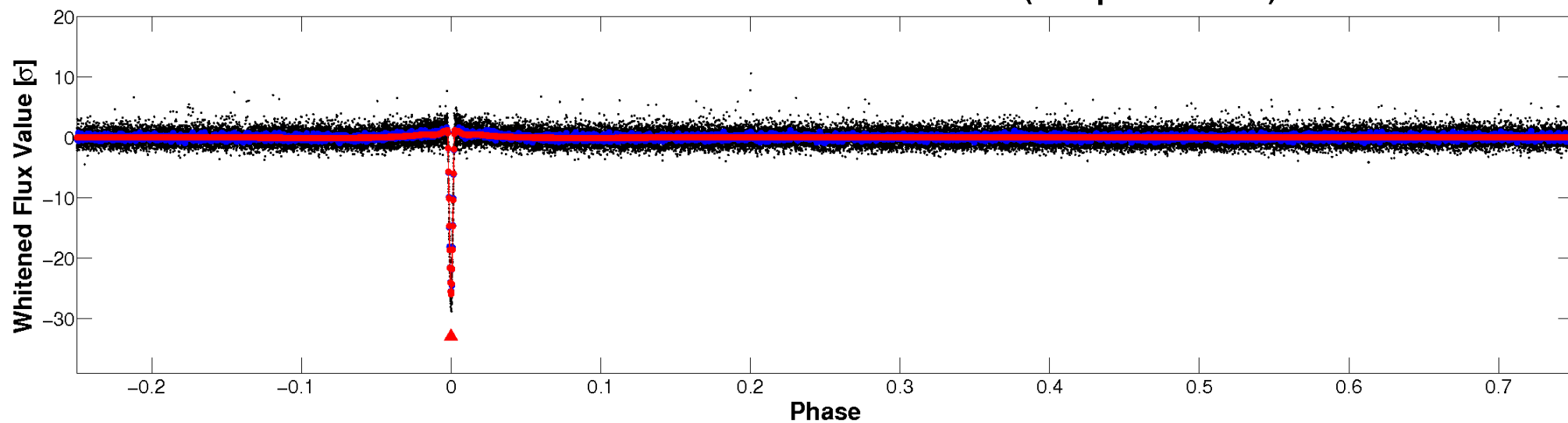


# Non-Whitened Vs. Whitened Light Curve

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

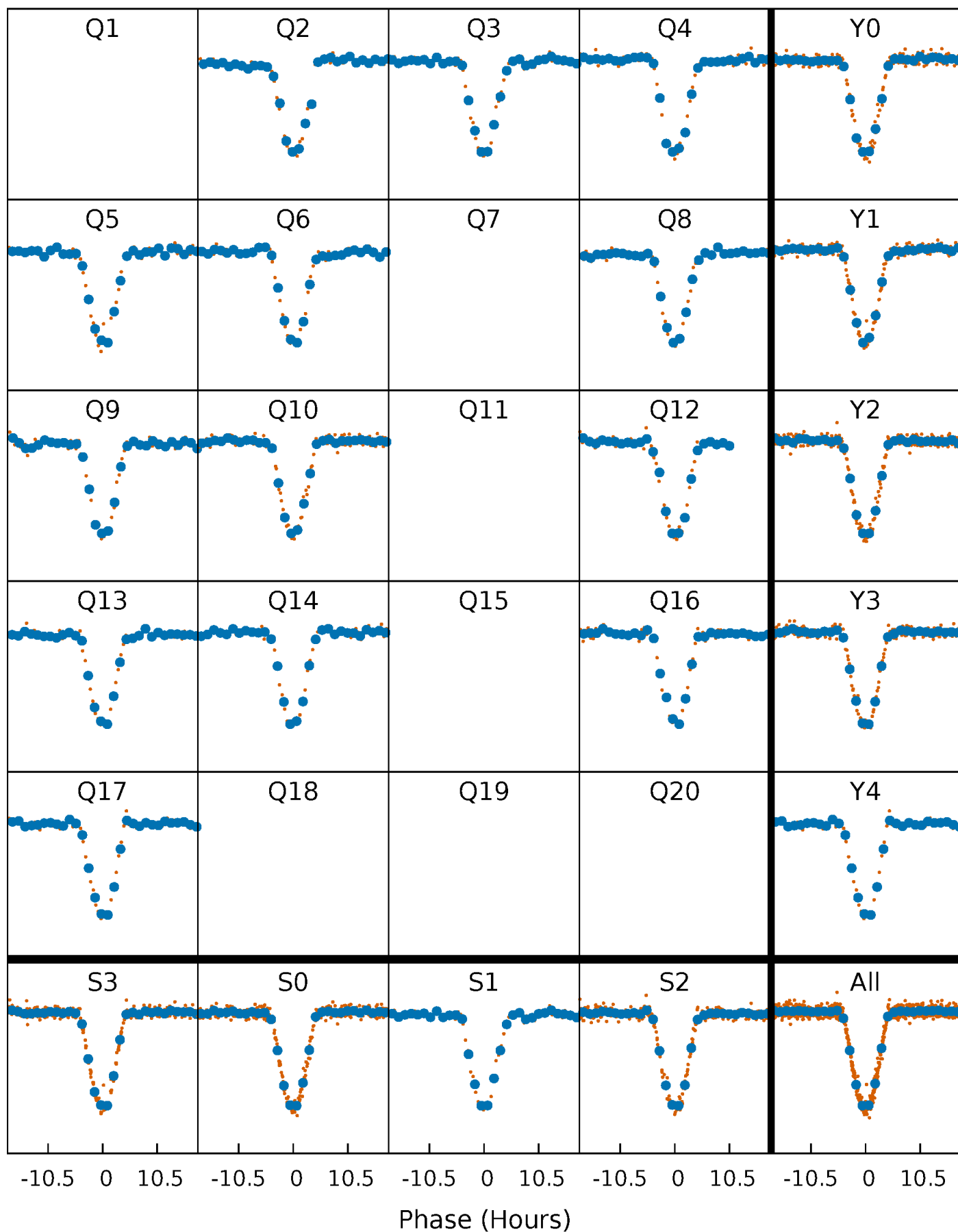


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

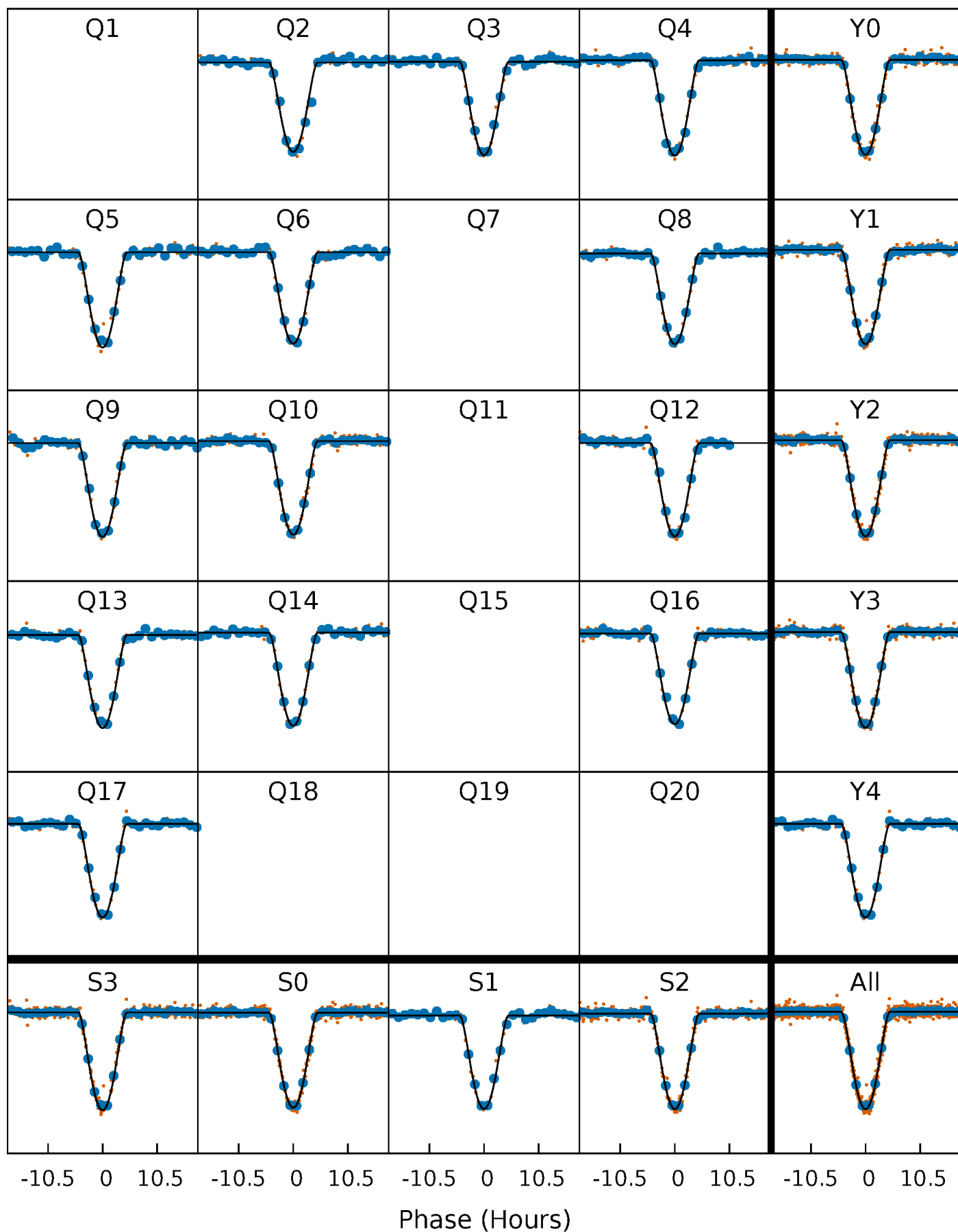
TCE 010153011-01 P= 83.097077 Days  $T_0=162.935827$  (BKJD)





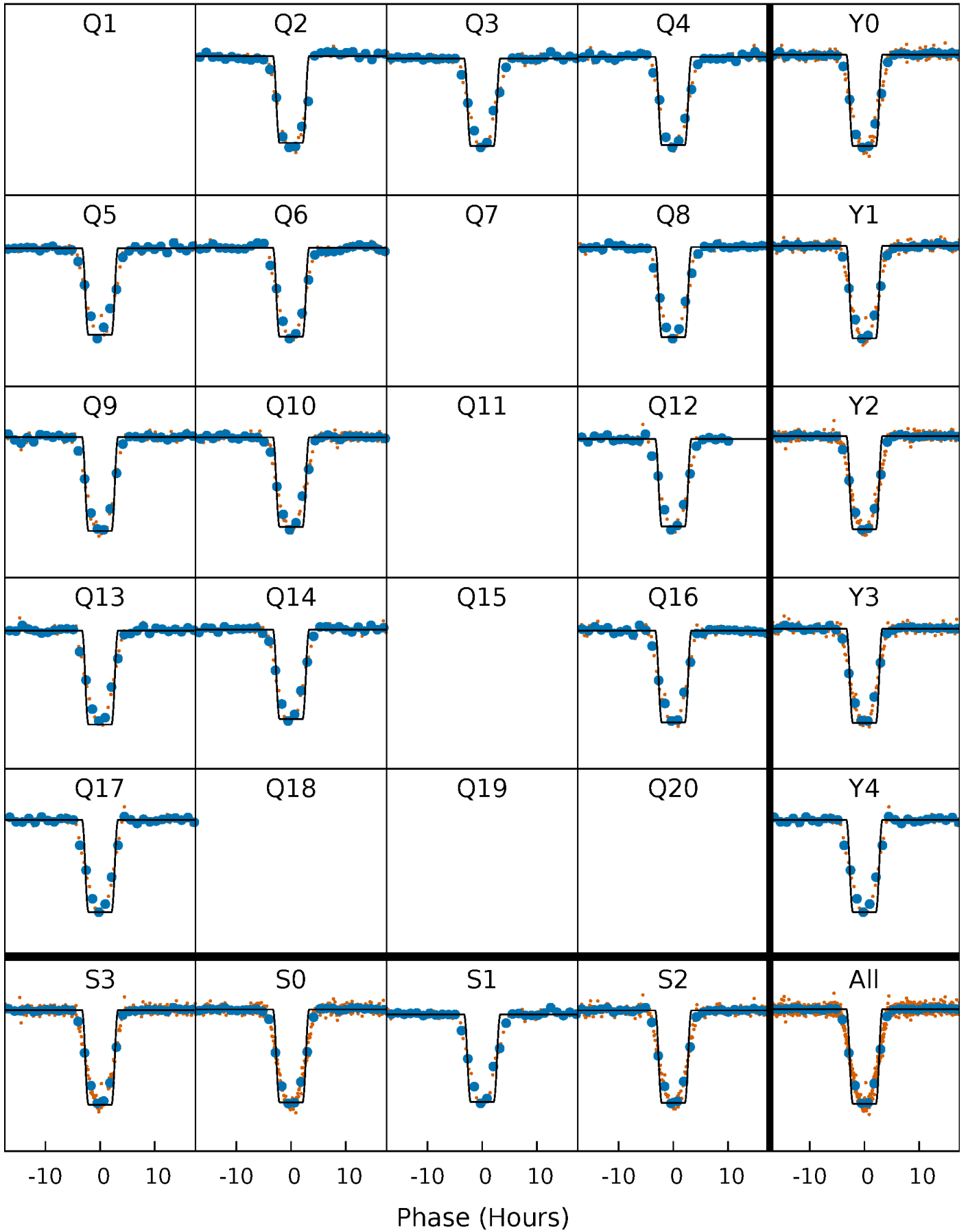
# DV Quarter-Phased Transit Curves

TCE 010153011-01   P= 83.097077 Days    $T_0=162.935827$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

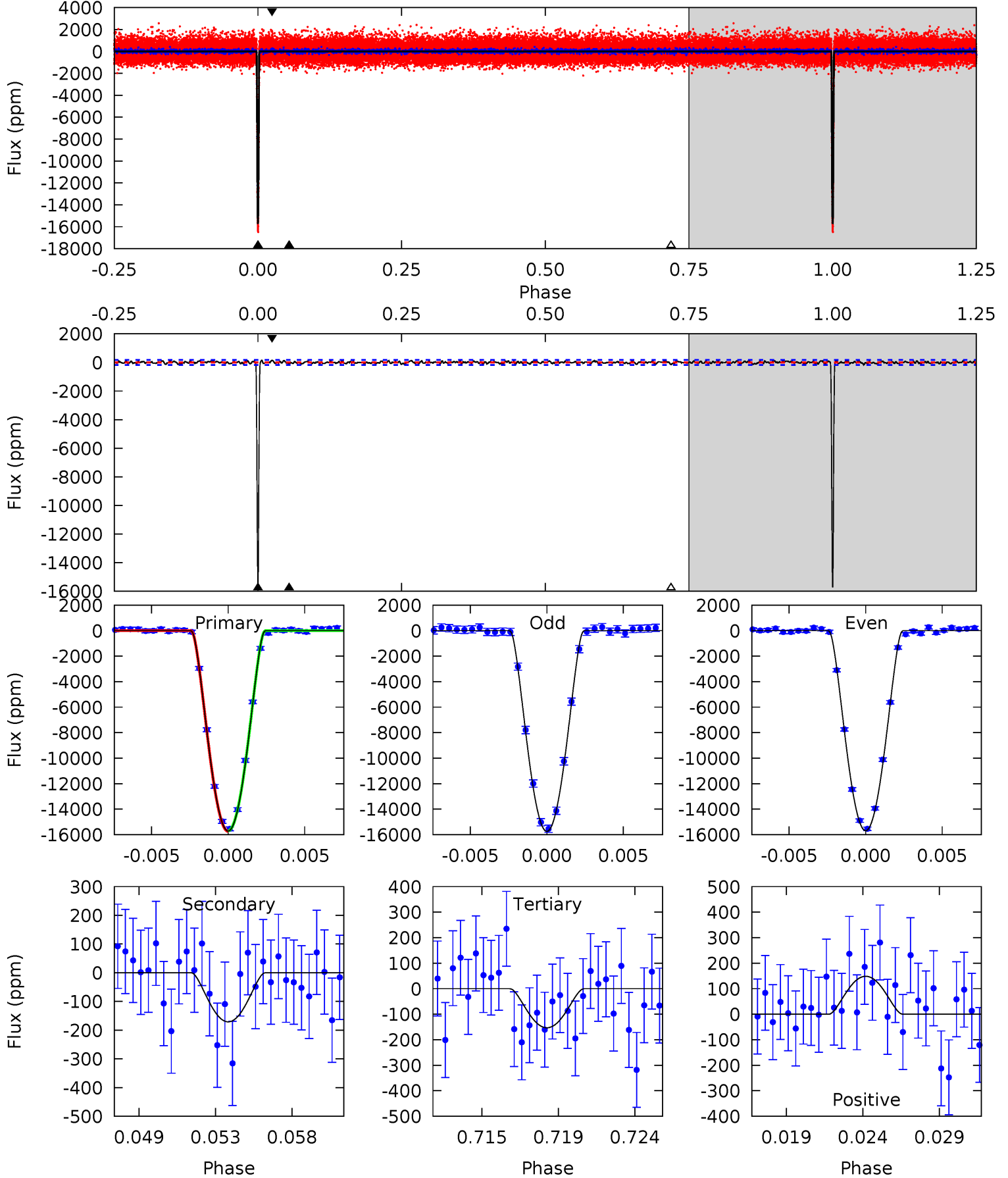
TCE 010153011-01   P= 83.097678 Days    $T_0=162.930513$  (BKJD)



# DV Model-Shift Uniqueness Test

010153011-01, P = 83.097077 Days, E = 162.935827 Days

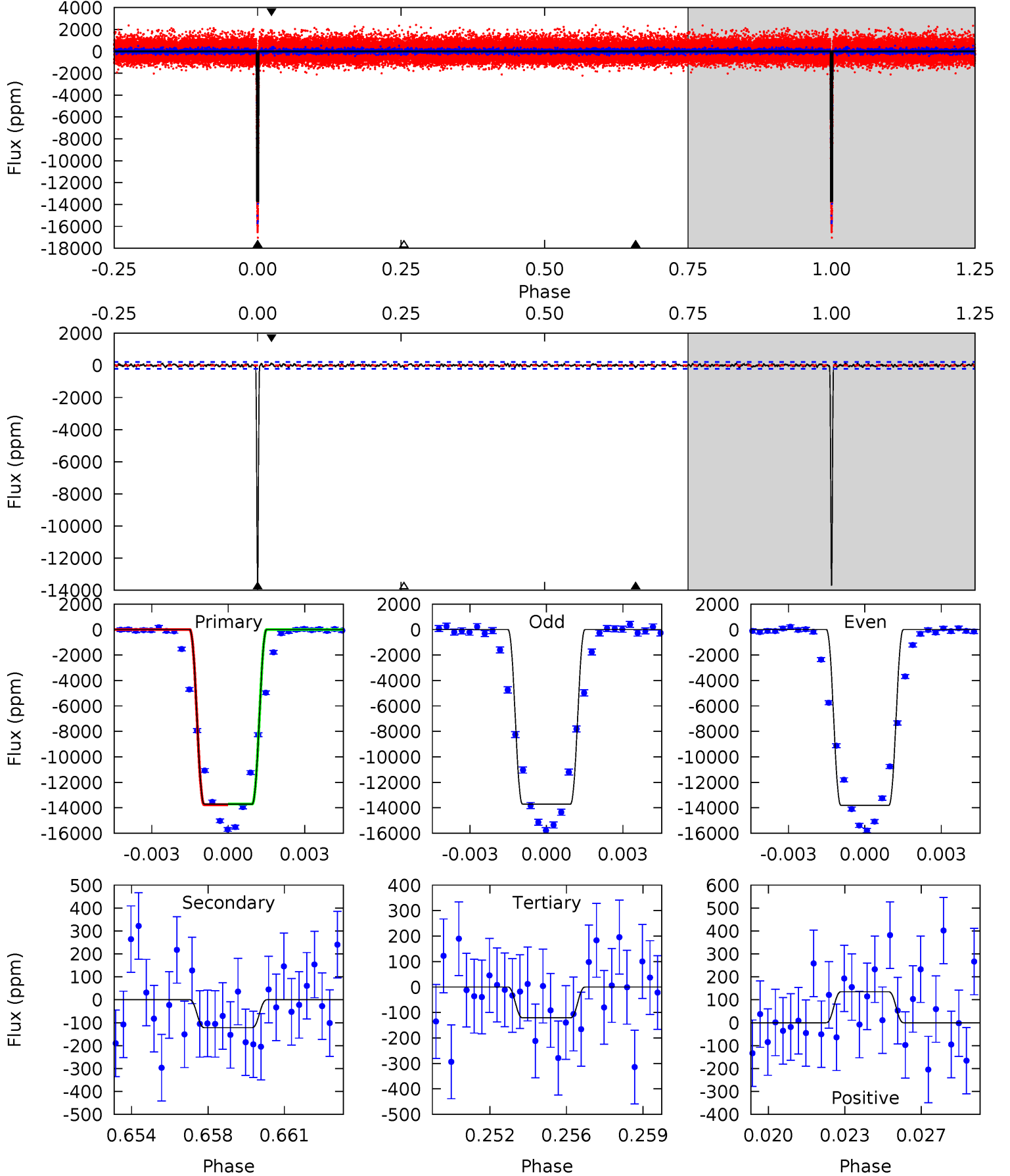
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
465.0	5.06	4.53	4.40	5.16	2.82	1.56	460.5	460.6	0.53	0.66	0.82	1.00	0.01	0.74



# Alt Model-Shift Uniqueness Test

010153011-01,  $P = 83.097678$  Days,  $E = 162.930513$  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
336.6	3.00	2.97	3.32	5.23	2.94	1.05	333.6	333.3	0.02	-0.32	1.22	1.01	0.01	0.82



### Stellar Parameters For KIC 010153011

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5286^{+174}_{-158}$	$4.627^{+0.070}_{-0.045}$	$-1.040^{+0.300}_{-0.300}$	$0.636^{+0.054}_{-0.049}$	$0.626^{+0.059}_{-0.023}$	$3.421^{+0.884}_{-0.588}$
	+3%/-3%	+2%/-1%	+29%/-29%	+8%/-8%	+9%/-4%	+26%/-17%
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 010153011-01 / KOI 1773.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-171 \pm 34$	$11.66^{+1.12}_{-1.18}$	$458^{+17}_{-17}$	$2362^{+81}_{-89}$	$72^{+21}_{-19}$
Alt.	$-122 \pm 41$	$8.52^{+1.16}_{-1.11}$	$458^{+19}_{-17}$	$2432^{+143}_{-132}$	$93^{+46}_{-34}$

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

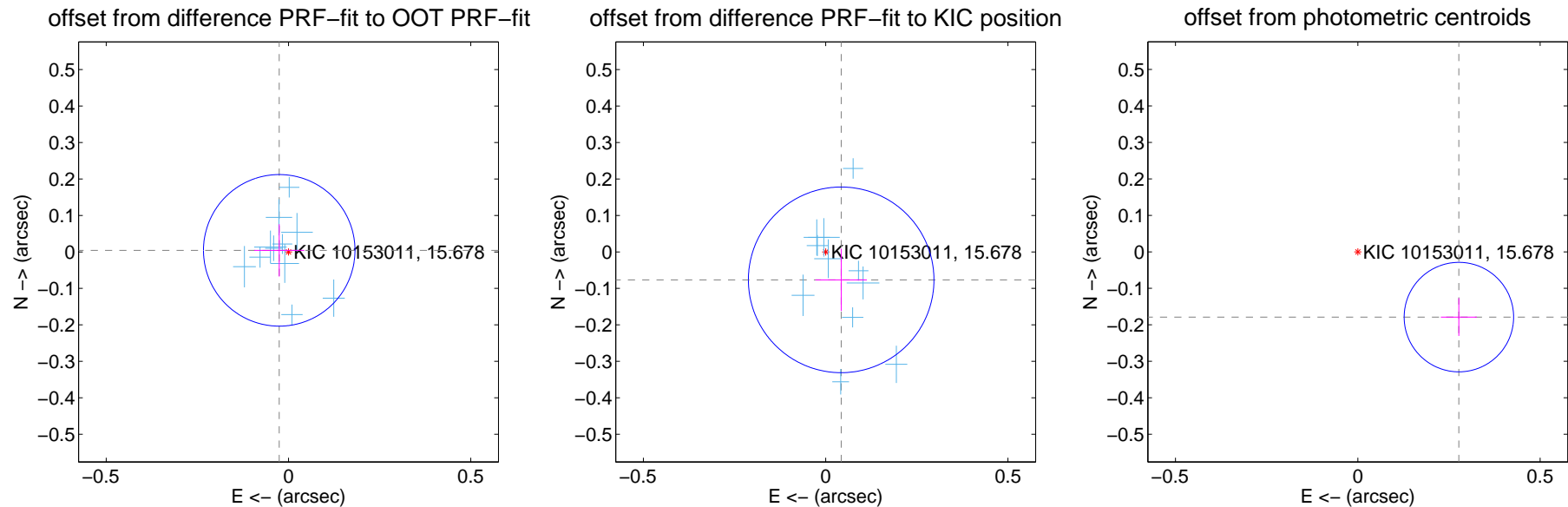
## DV Centroid Data

Supplemental centroid analysis for 010153011-01. Kepler magnitude: 15.68. Transit SNR 261.41

There are 11 quarters with good PRF difference image offsets

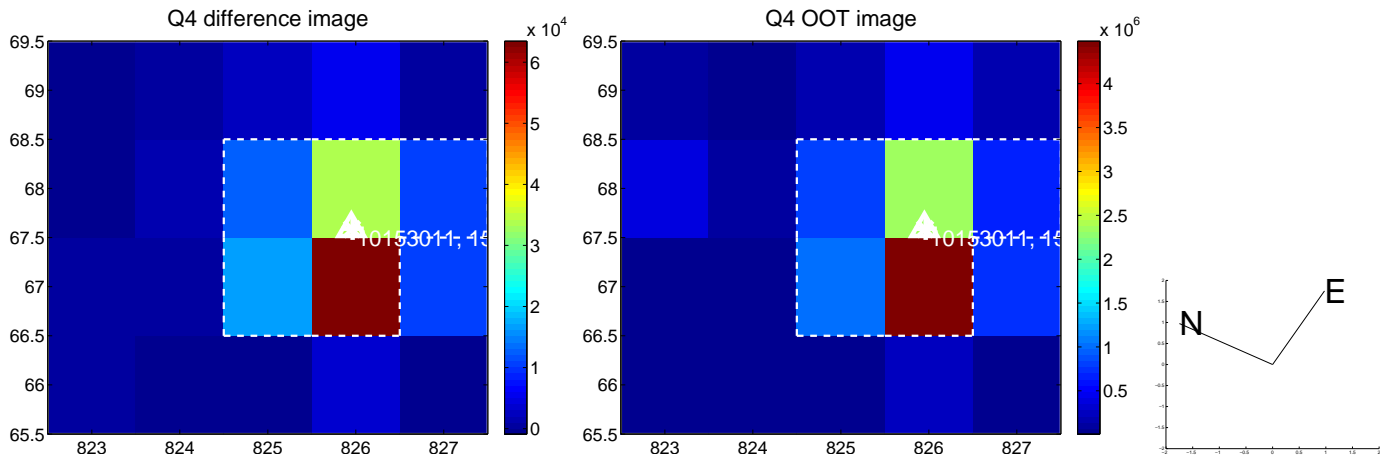
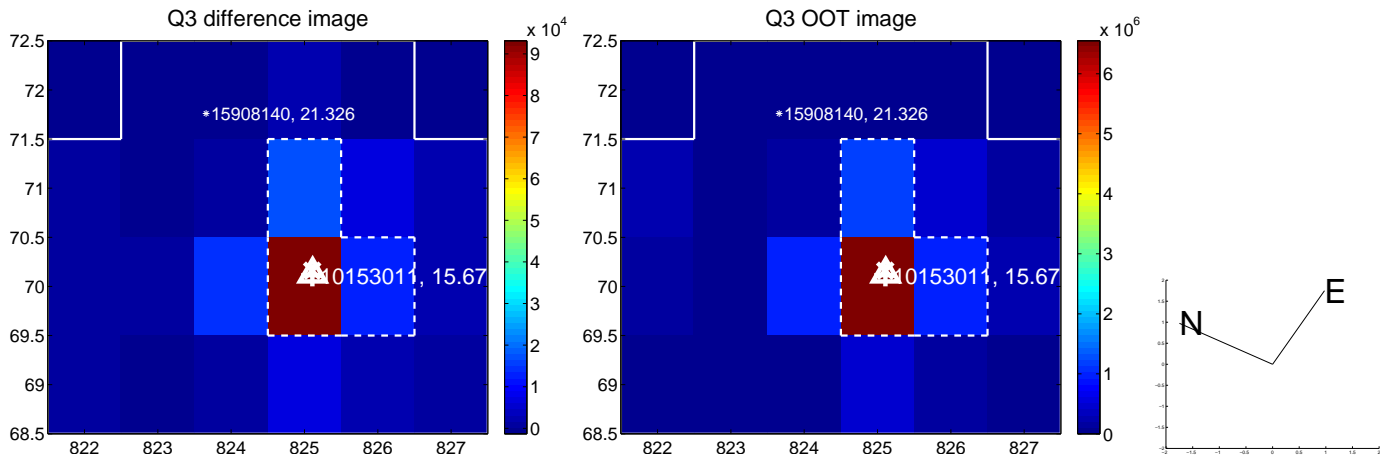
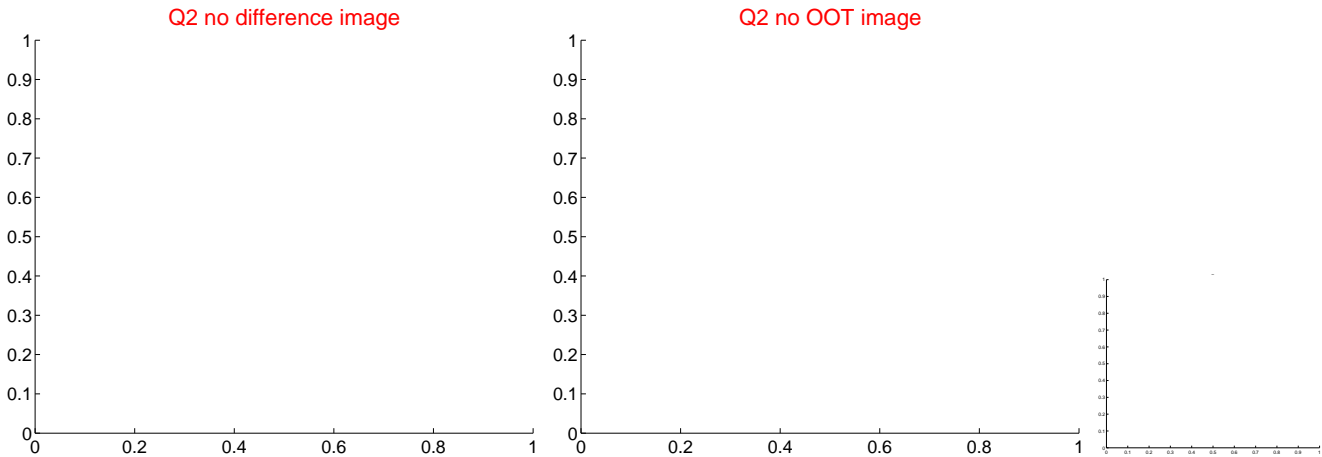
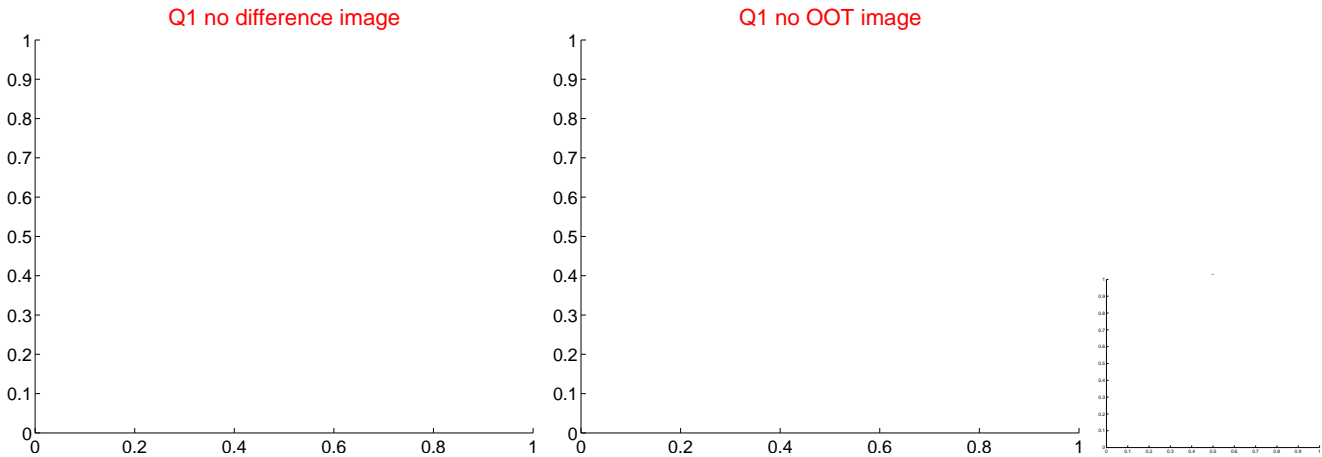
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.026 \pm 0.069$	0.37	$0.025 \pm 0.069$	$0.004 \pm 0.072$
PRF-fit source offset from KIC position	$0.088 \pm 0.085$	1.03	$-0.043 \pm 0.070$	$-0.077 \pm 0.085$
photometric centroid source offset	$0.33 \pm 0.05$	6.59	$-0.28 \pm 0.05$	$-0.18 \pm 0.05$

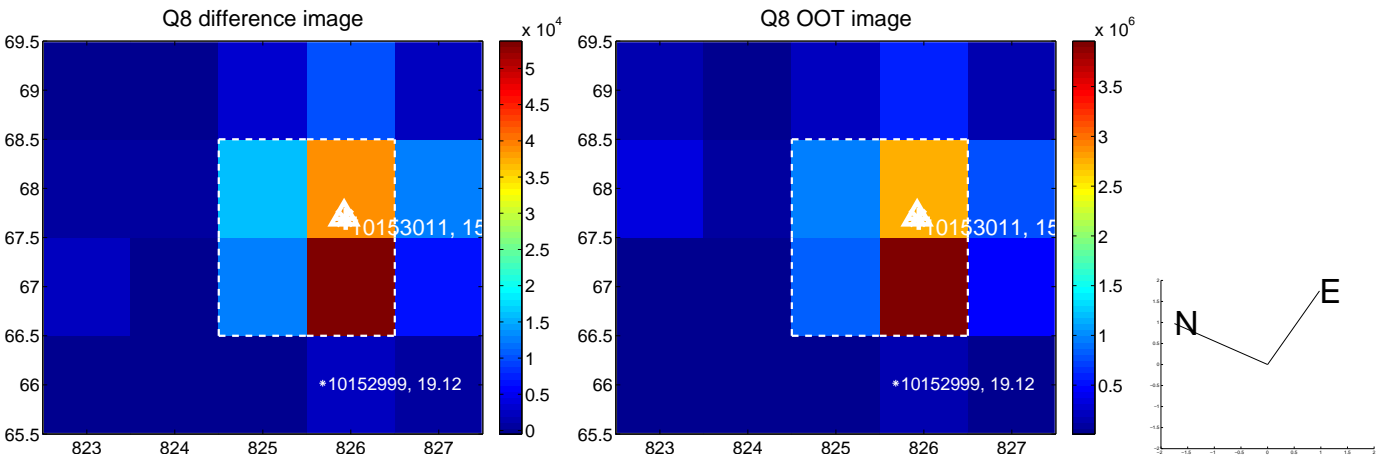
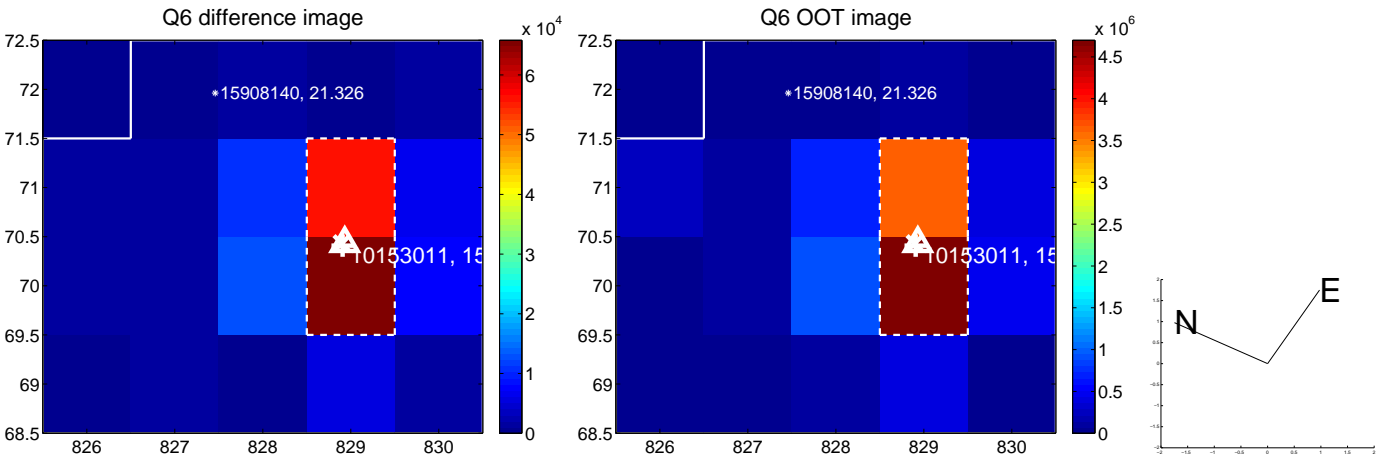
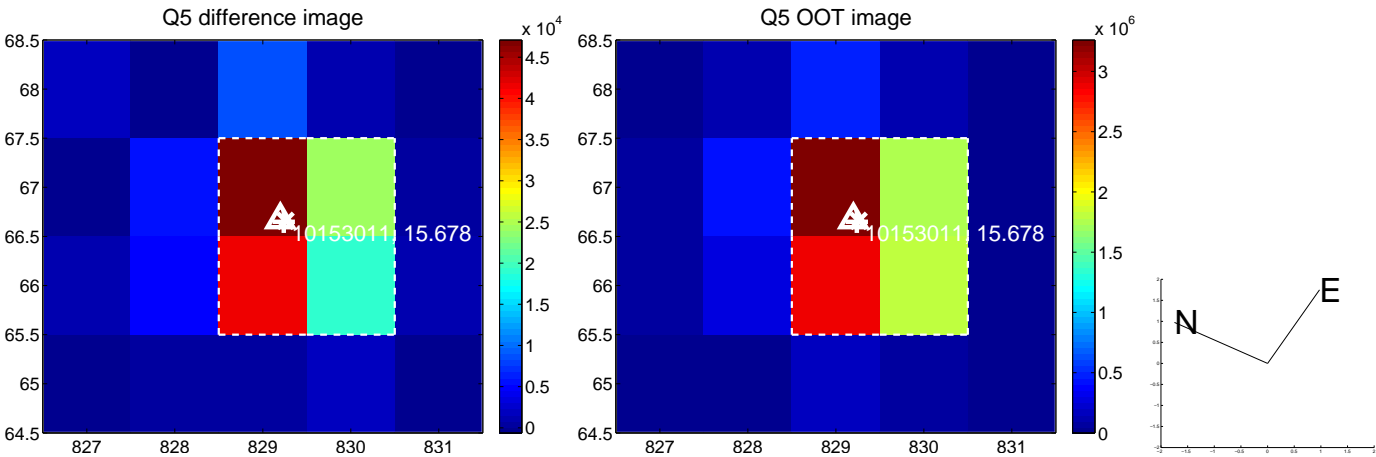


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

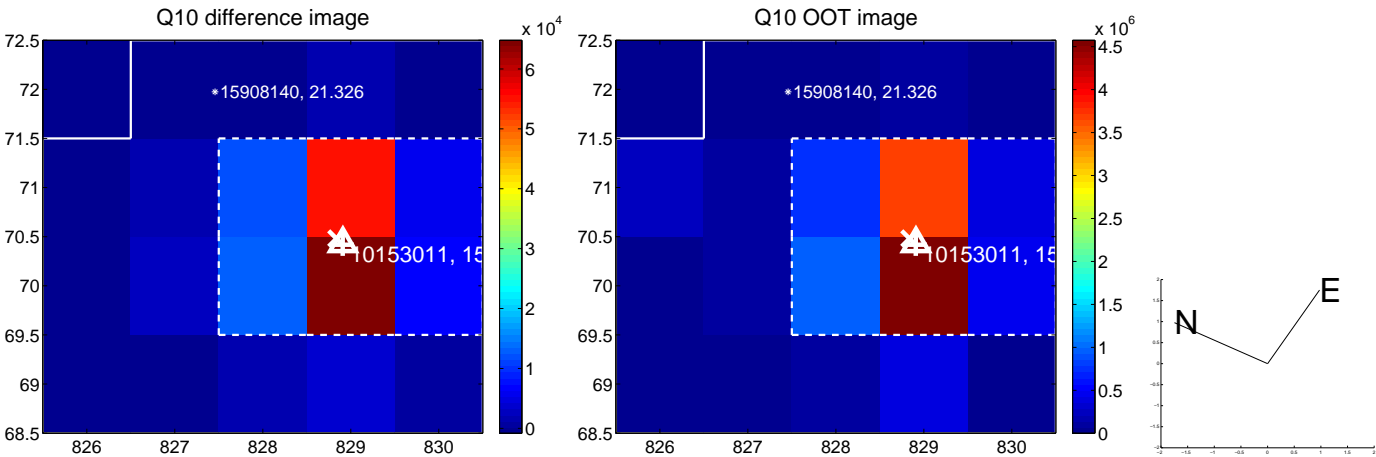
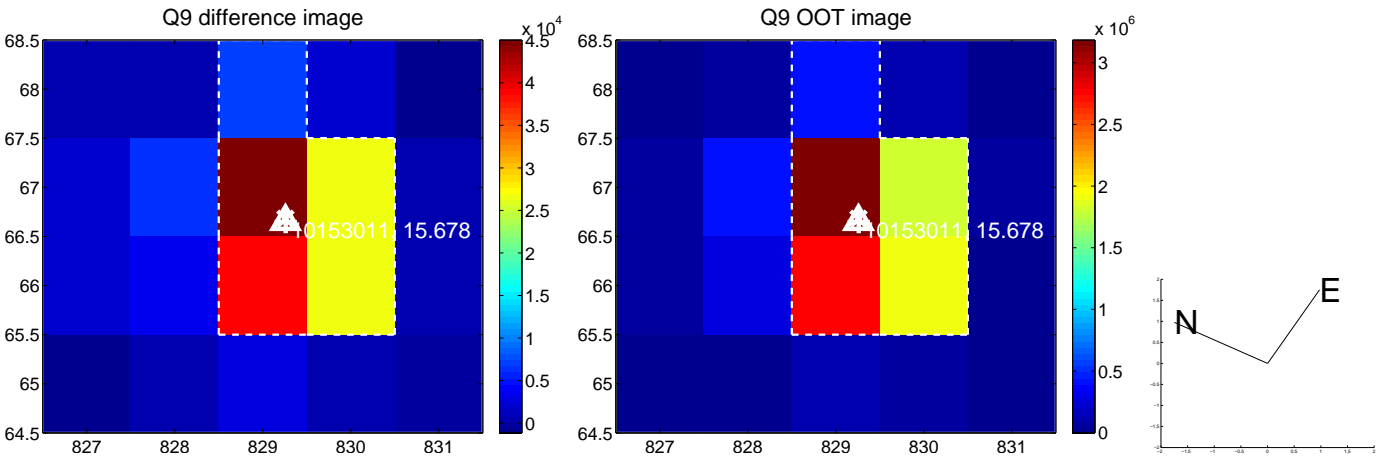


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

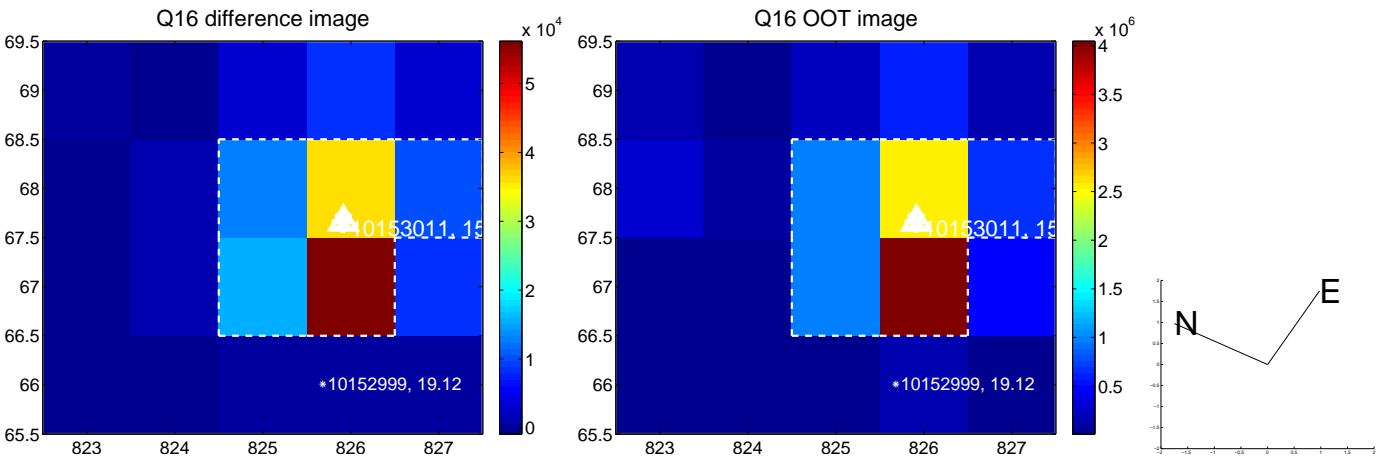
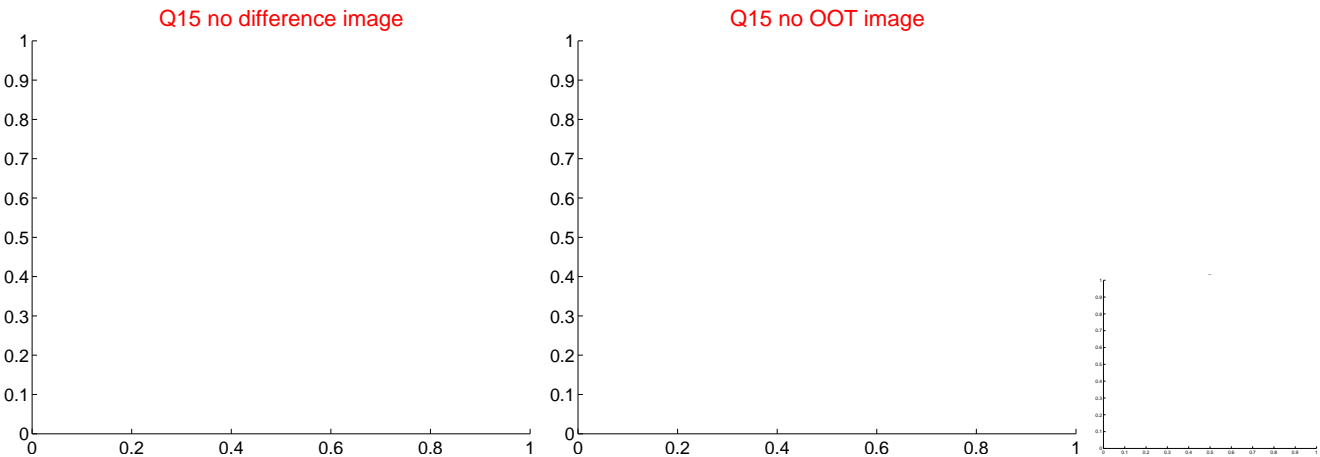
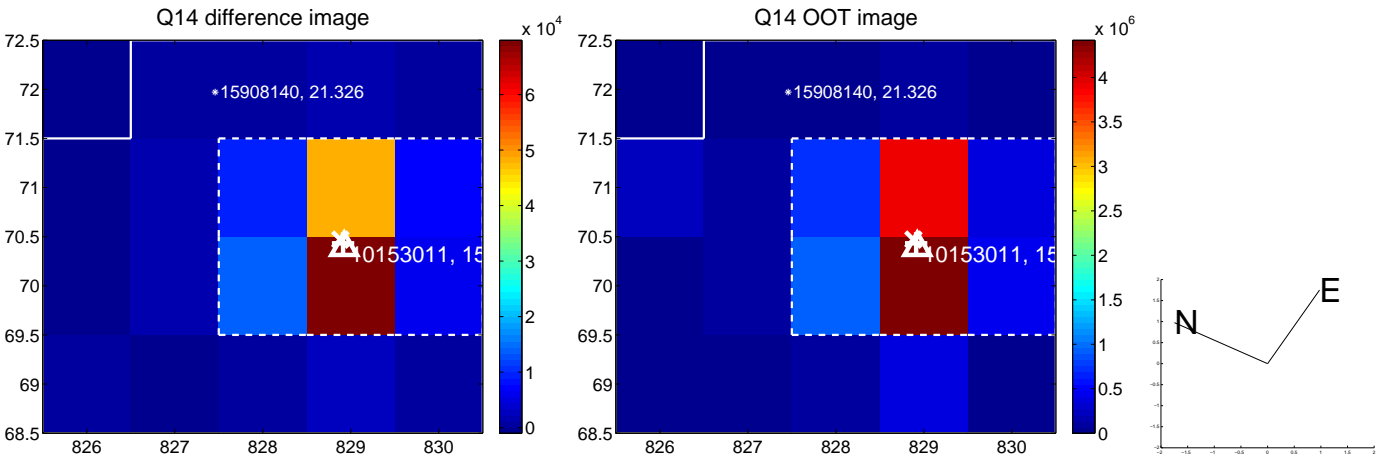
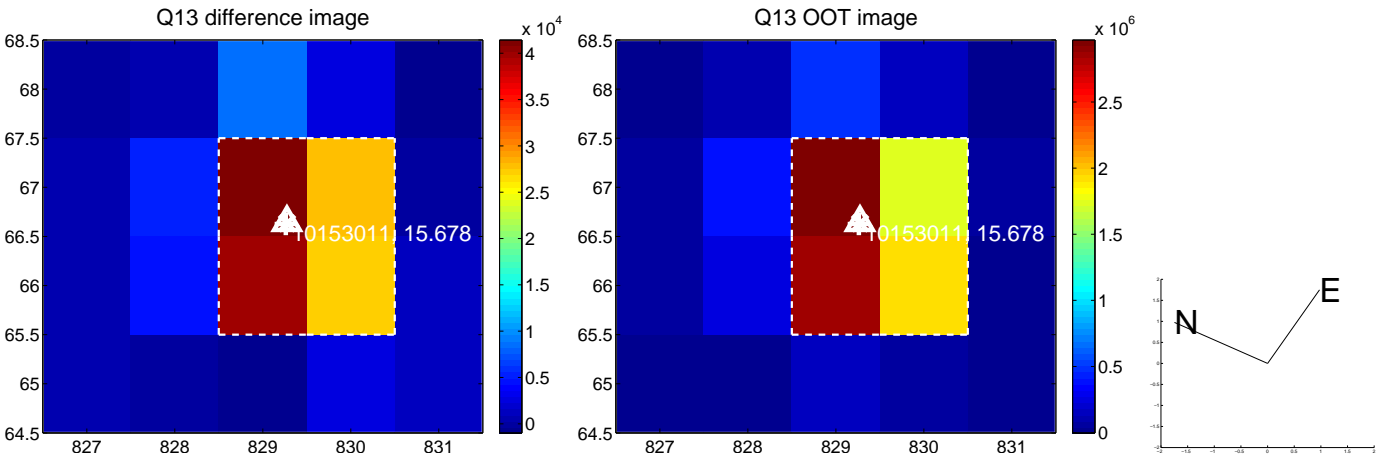




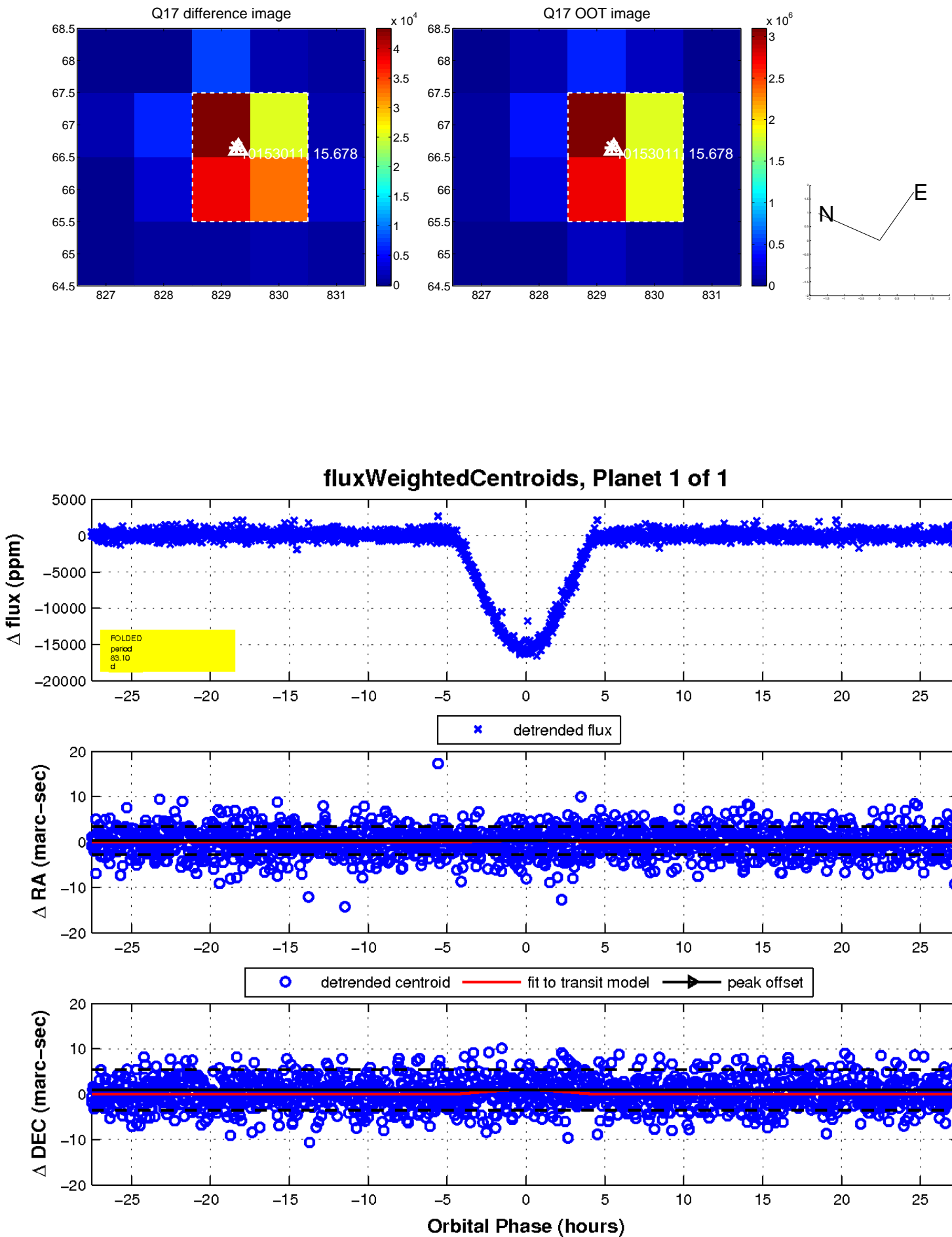
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

