

# KIC 005106313

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005106313-01	OBS	2878.01	3.895256	131.856904	181.4	1.741	14.0	15.6	0.84	5018	1.35	197.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005106313-01	OBS	PC	0.99	0	0	0	0	CENT_KIC_POS

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

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

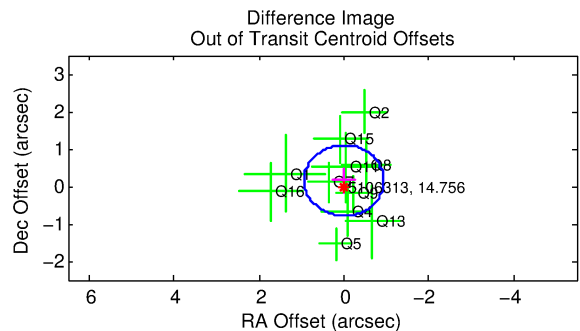
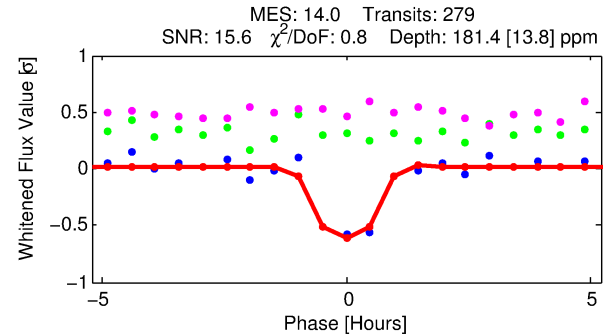
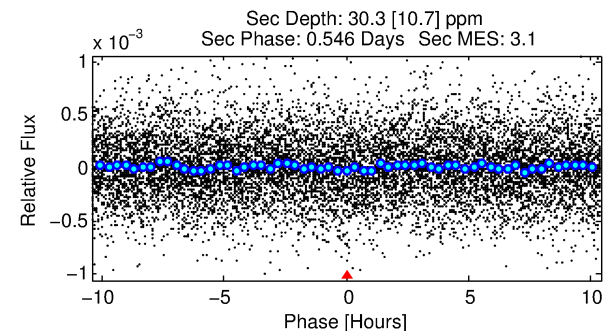
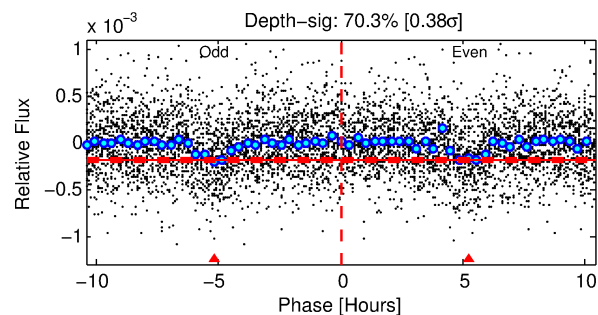
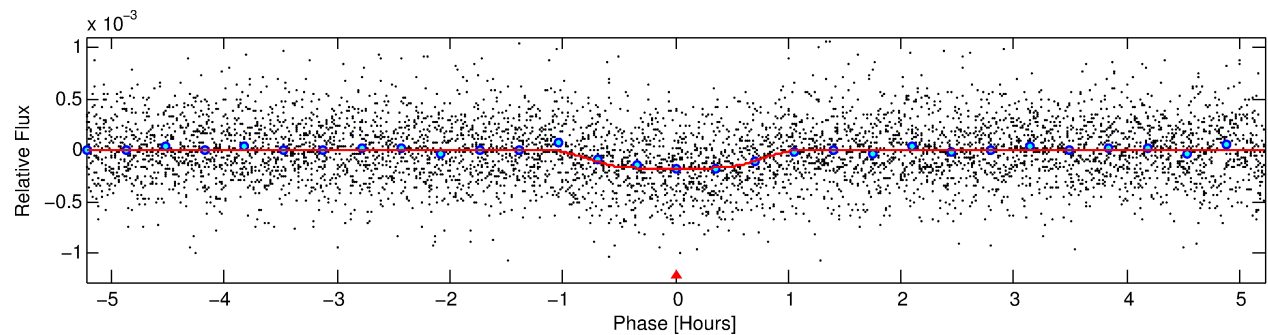
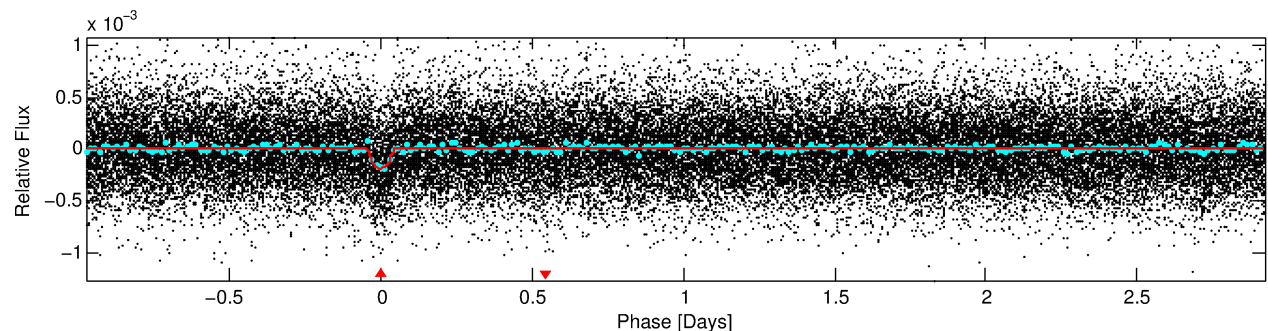
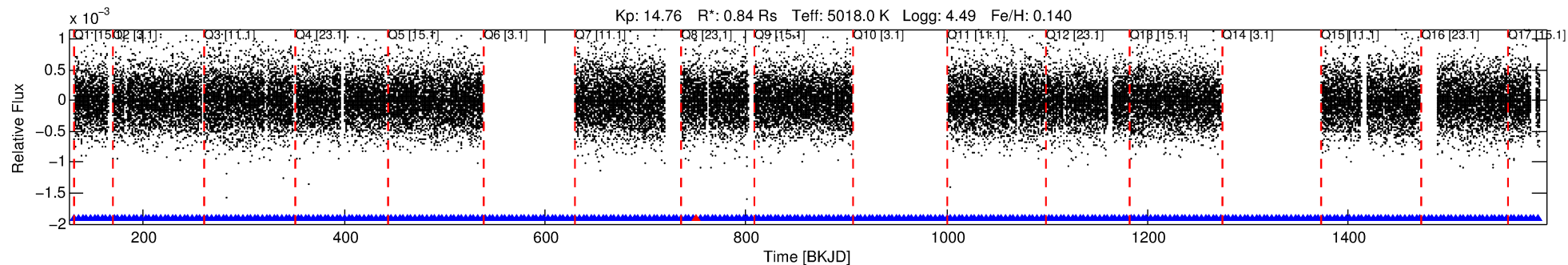
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005106313-01

No Significant Match Found

# DV One-Page Summary

KIC: 5106313 Candidate: 1 of 1 Period: 3.895 d  
KOI: K02878.01 Corr: 0.970



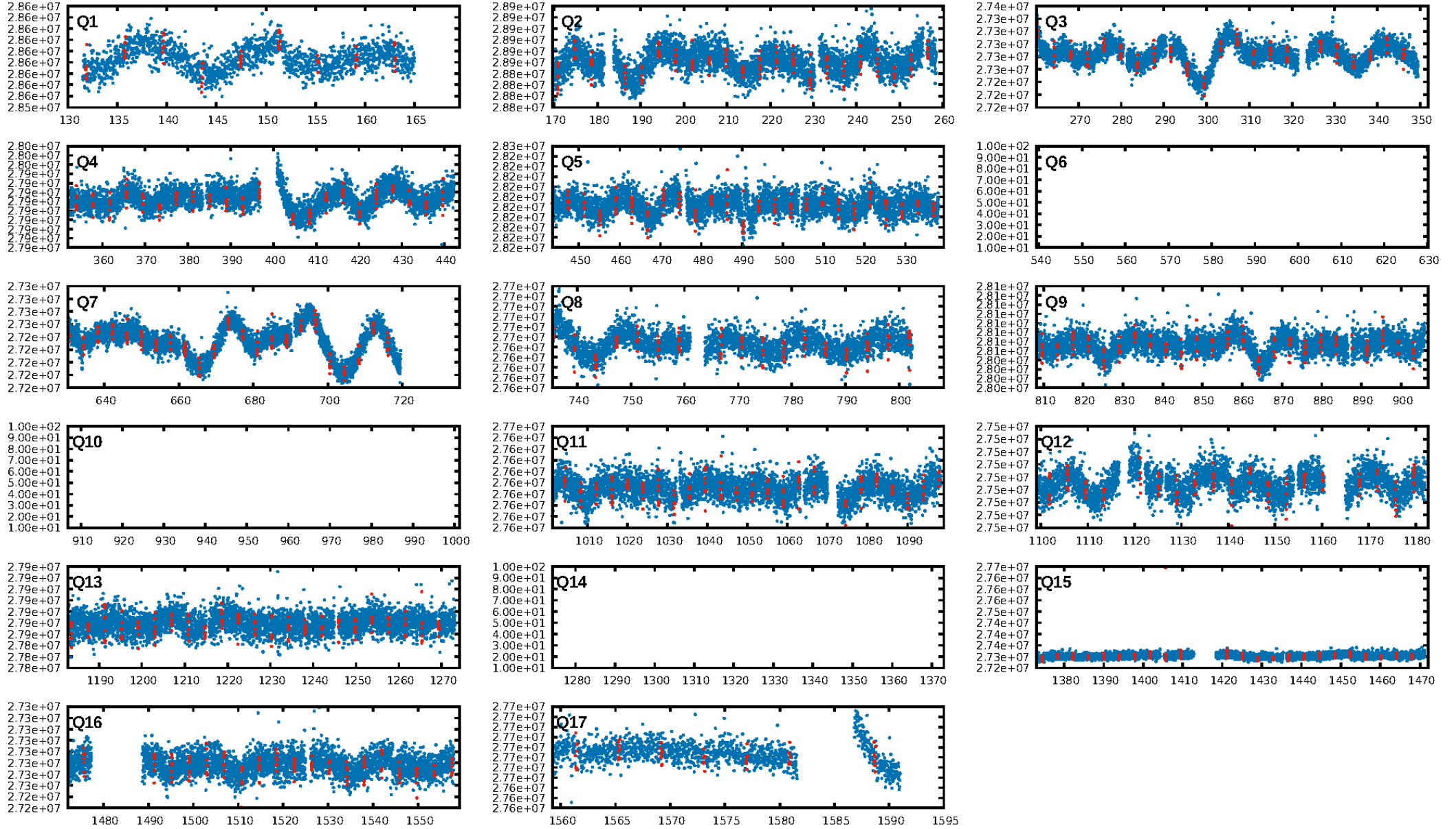
## DV Fit Results:

Period = 3.89526 [0.00001] d  
Epoch = 131.8569 [0.0022] BKJD  
Rp/R\* = 0.0148 [0.0113]  
a/R\* = 8.69 [25.30]  
b = 0.88 [0.78]  
Seff = 197.91 [28.53]  
Teff = 956 [34] K  
Rp = 1.35 [1.04] Re  
a = 0.0449 [0.0035] AU  
Ag = 18.45 [29.08] [0.60 $\sigma$ ]  
Teffp = 3065 [1204] K [1.75 $\sigma$ ]

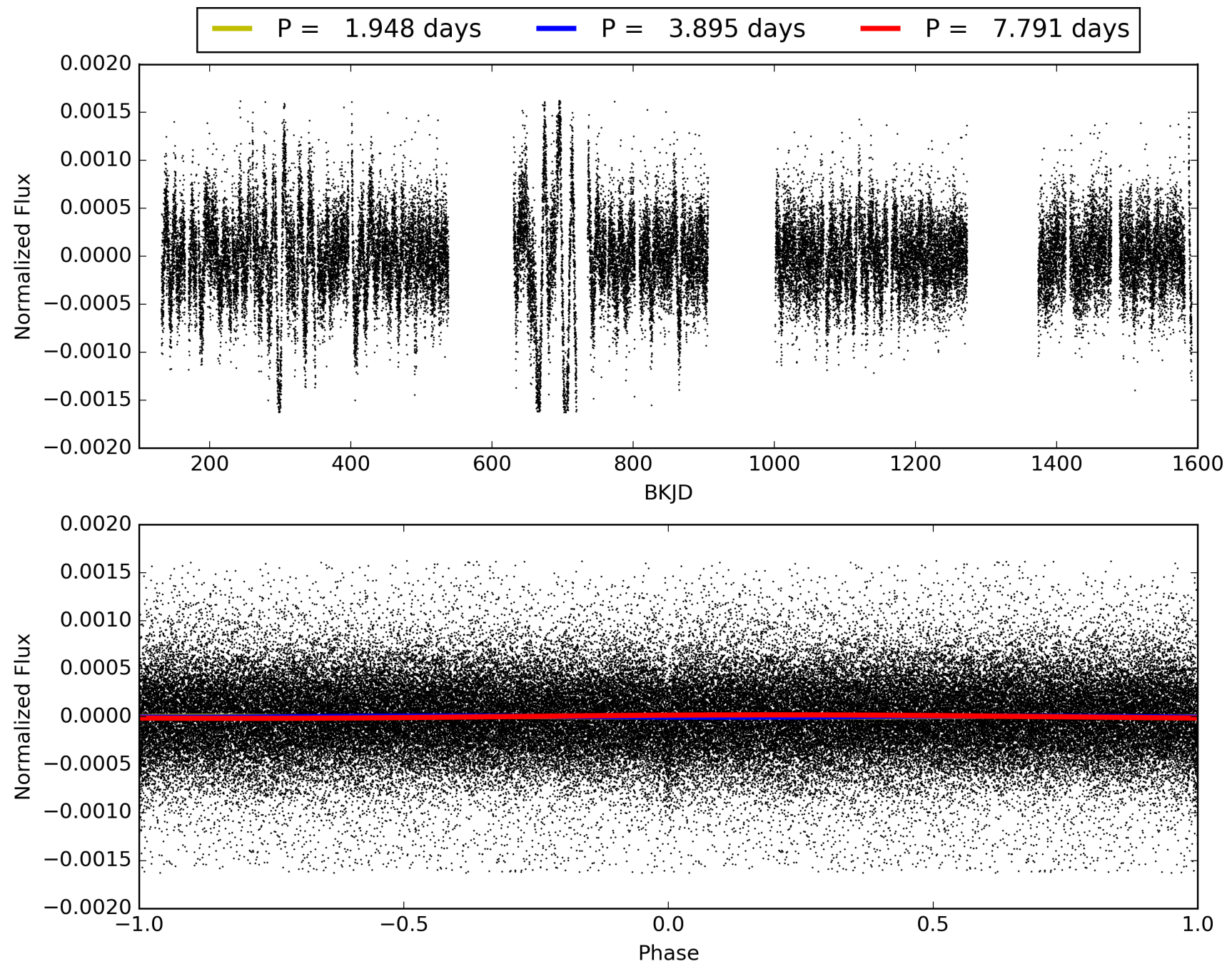
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.53e-44  
RollingBand-fgt: 1.00 [262/263]  
GhostDiagnostic-chr: 2.455  
Centroid-sig: 74.0%  
Centroid-so: 0.870 arcsec [0.94 $\sigma$ ]  
OotOffset-rm: 0.154 arcsec [0.49 $\sigma$ ]  
KicOffset-rm: 0.505 arcsec [1.63 $\sigma$ ]  
OotOffset-st: 1/3/3/4 [11]  
KicOffset-st: 1/3/3/4 [11]  
DiffImageQuality-fgm: 1.00 [11/11]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 005106313-01, PDC Light Curves

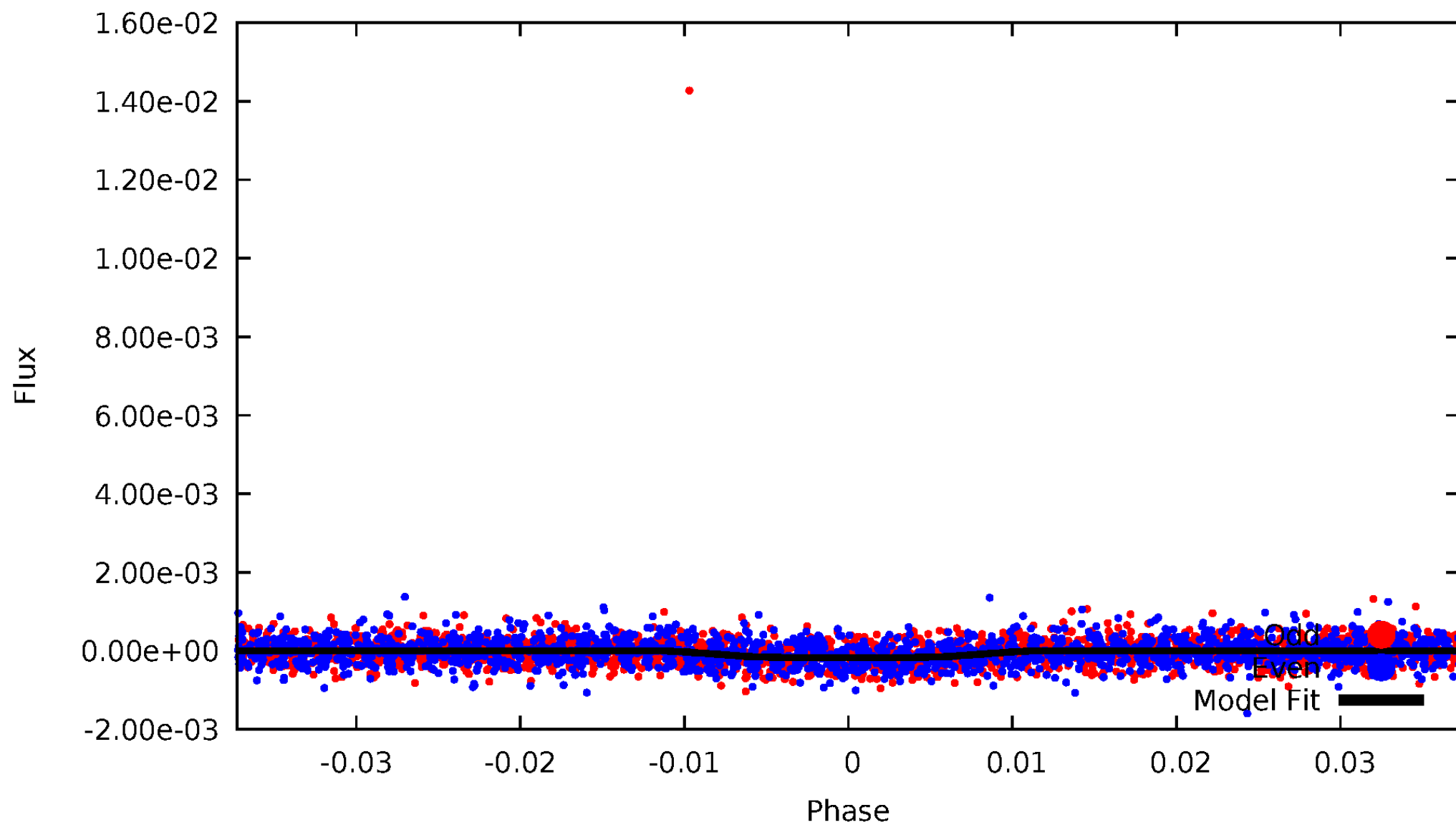


# TCE 005106313-01



# DV Odd/Even

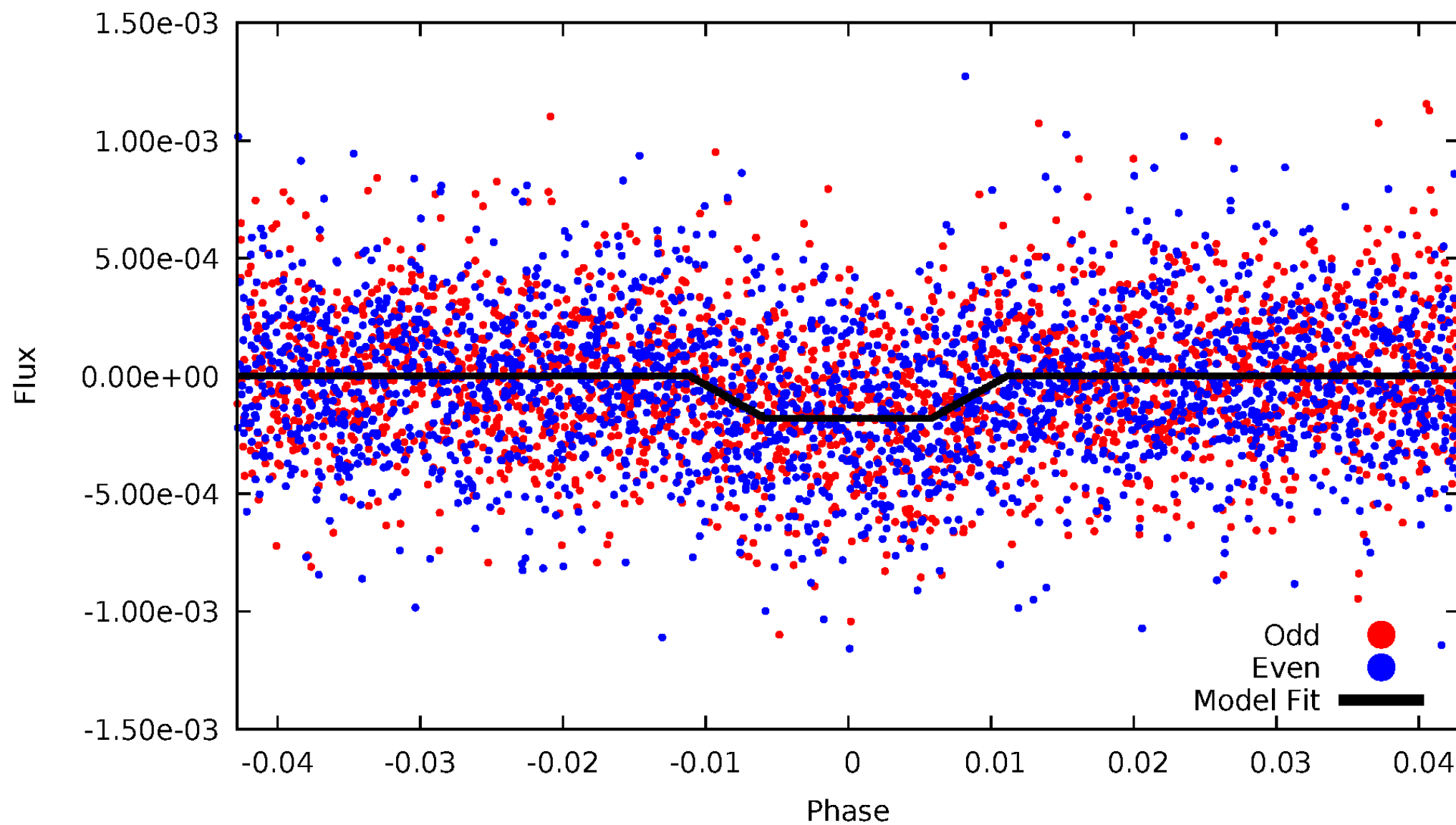
TCE 005106313-01



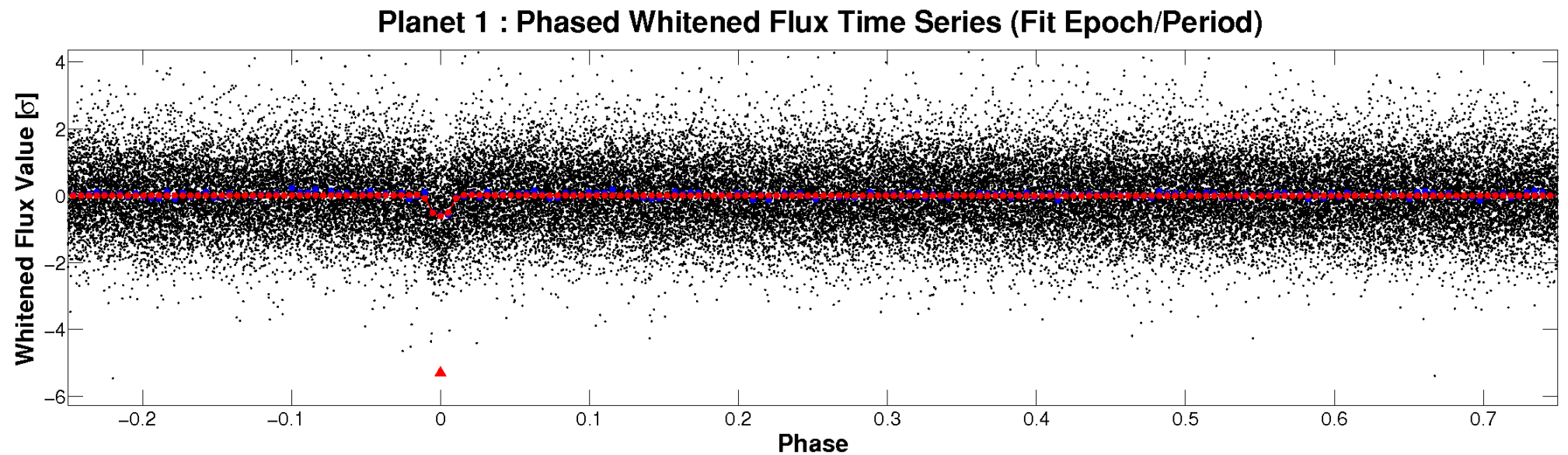
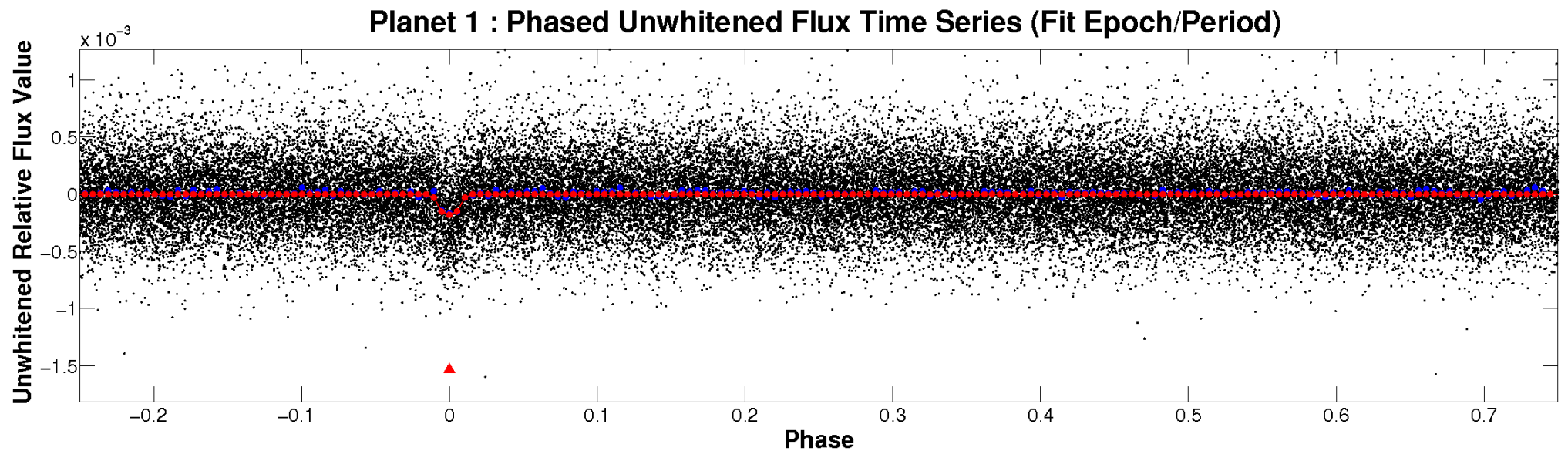


# ALT Odd/Even

TCE 005106313-01

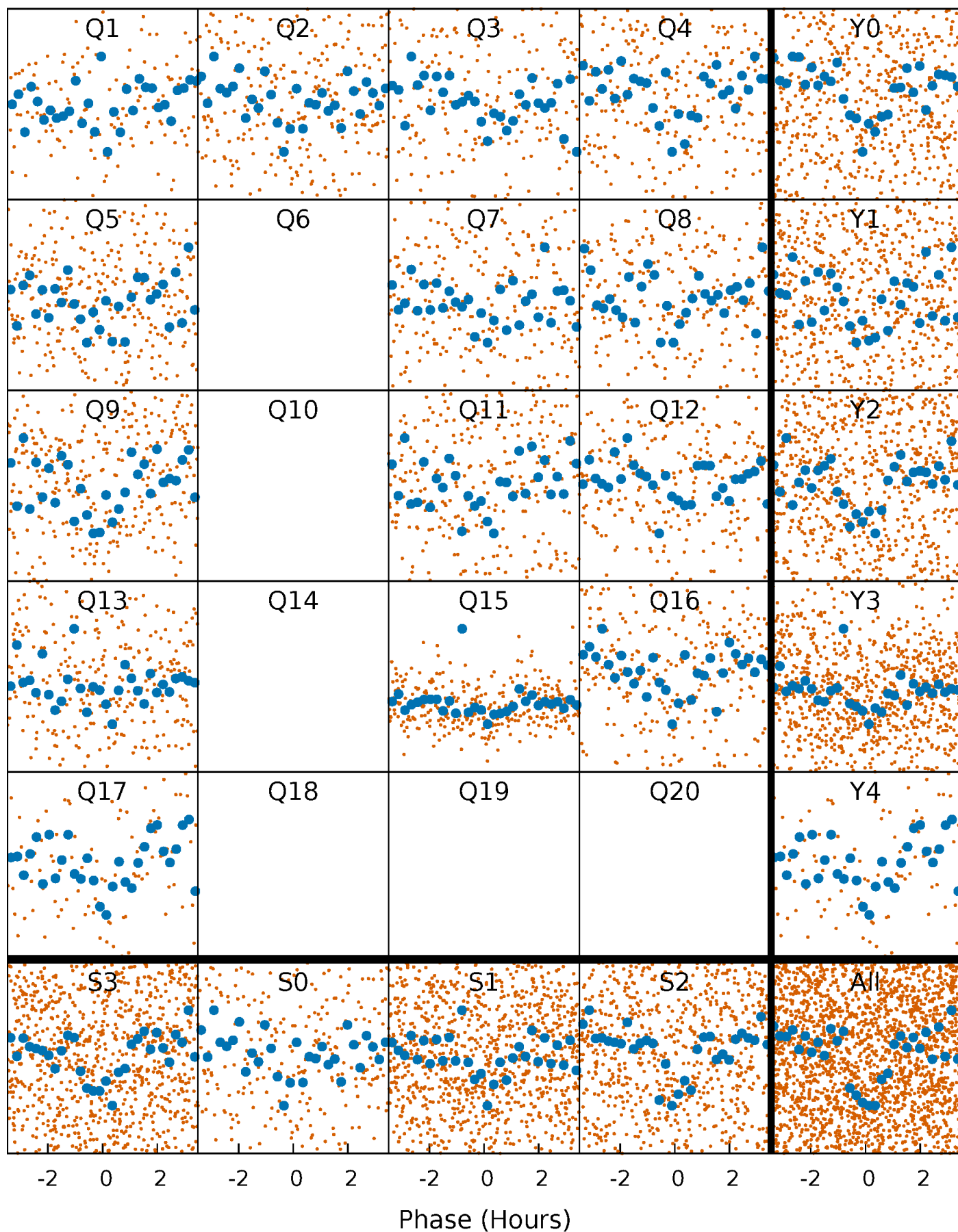


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

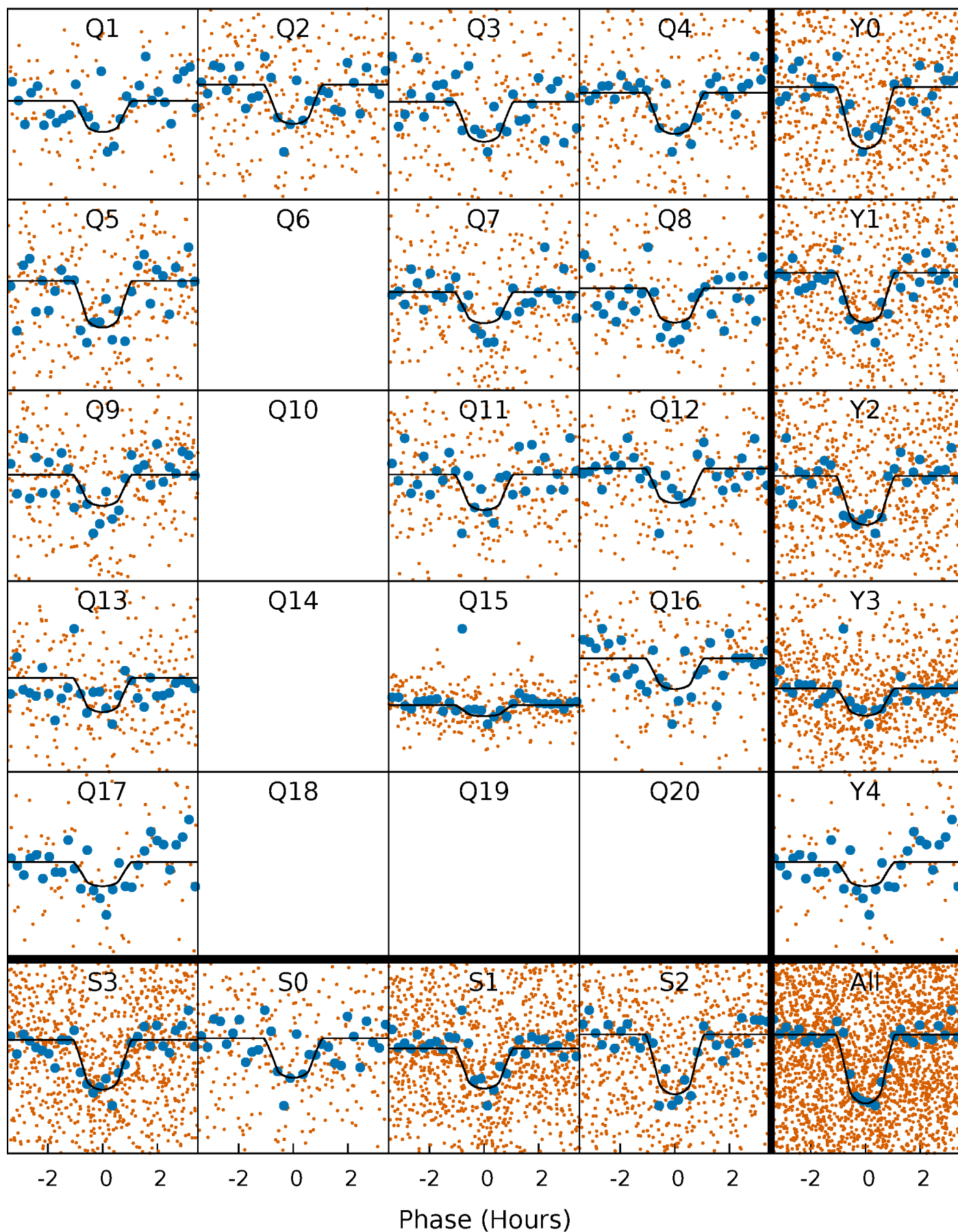
TCE 005106313-01 P= 3.895256 Days  $T_0=131.856904$  (BKJD)





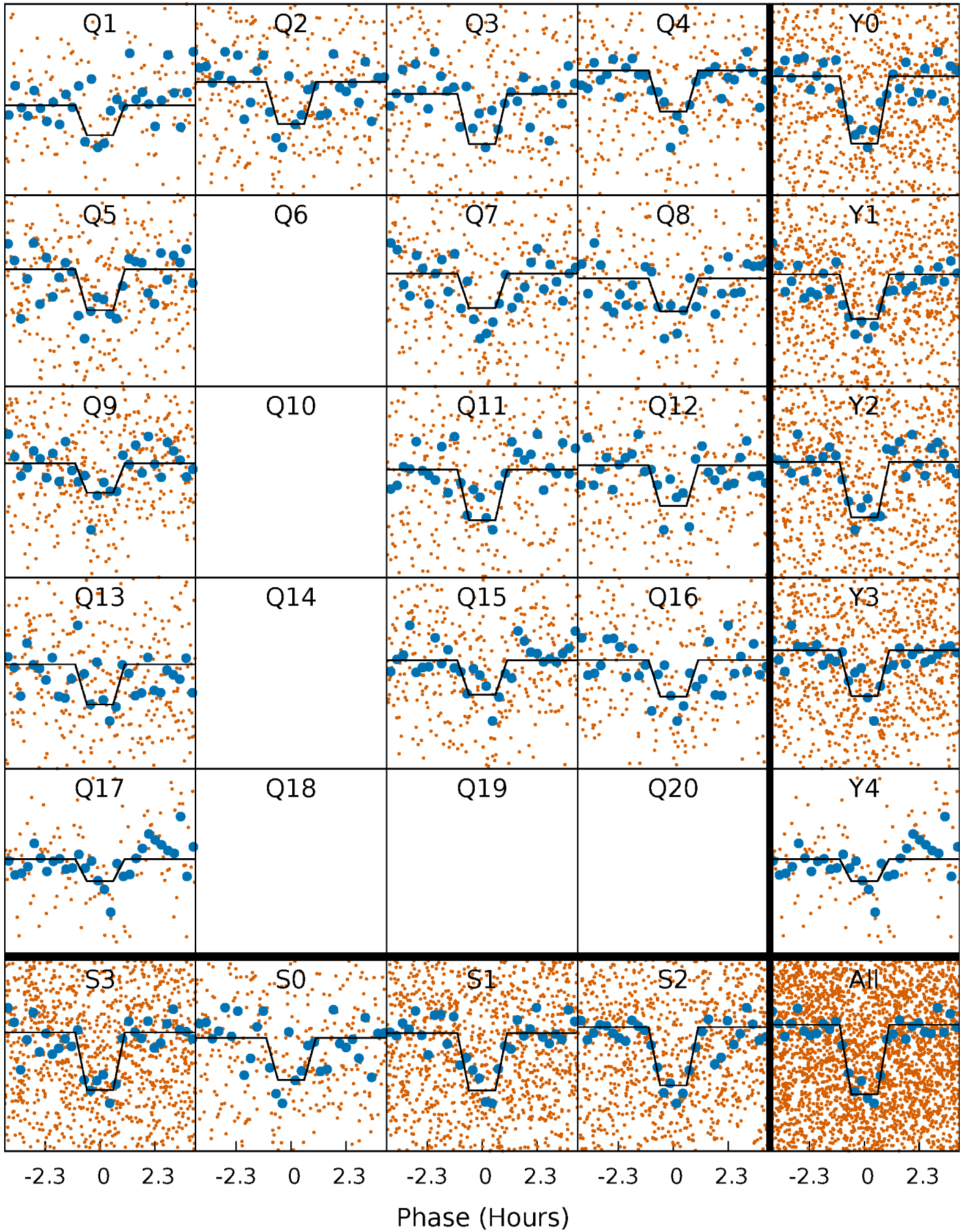
# DV Quarter-Phased Transit Curves

TCE 005106313-01 P= 3.895256 Days  $T_0=131.856904$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

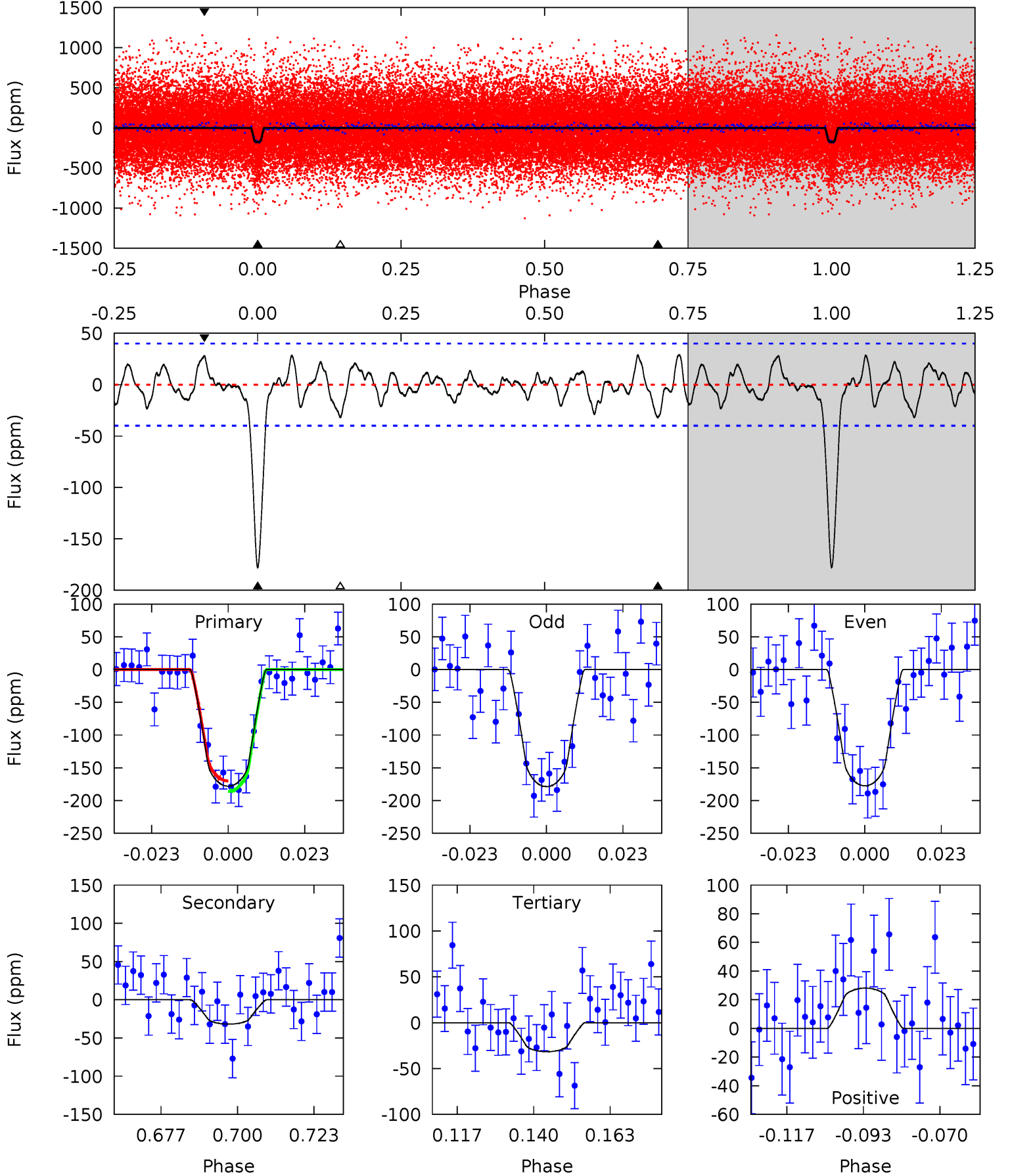
TCE 005106313-01 P= 3.895195 Days  $T_0=131.867204$  (BKJD)



# DV Model-Shift Uniqueness Test

005106313-01, P = 3.895256 Days, E = 127.961648 Days

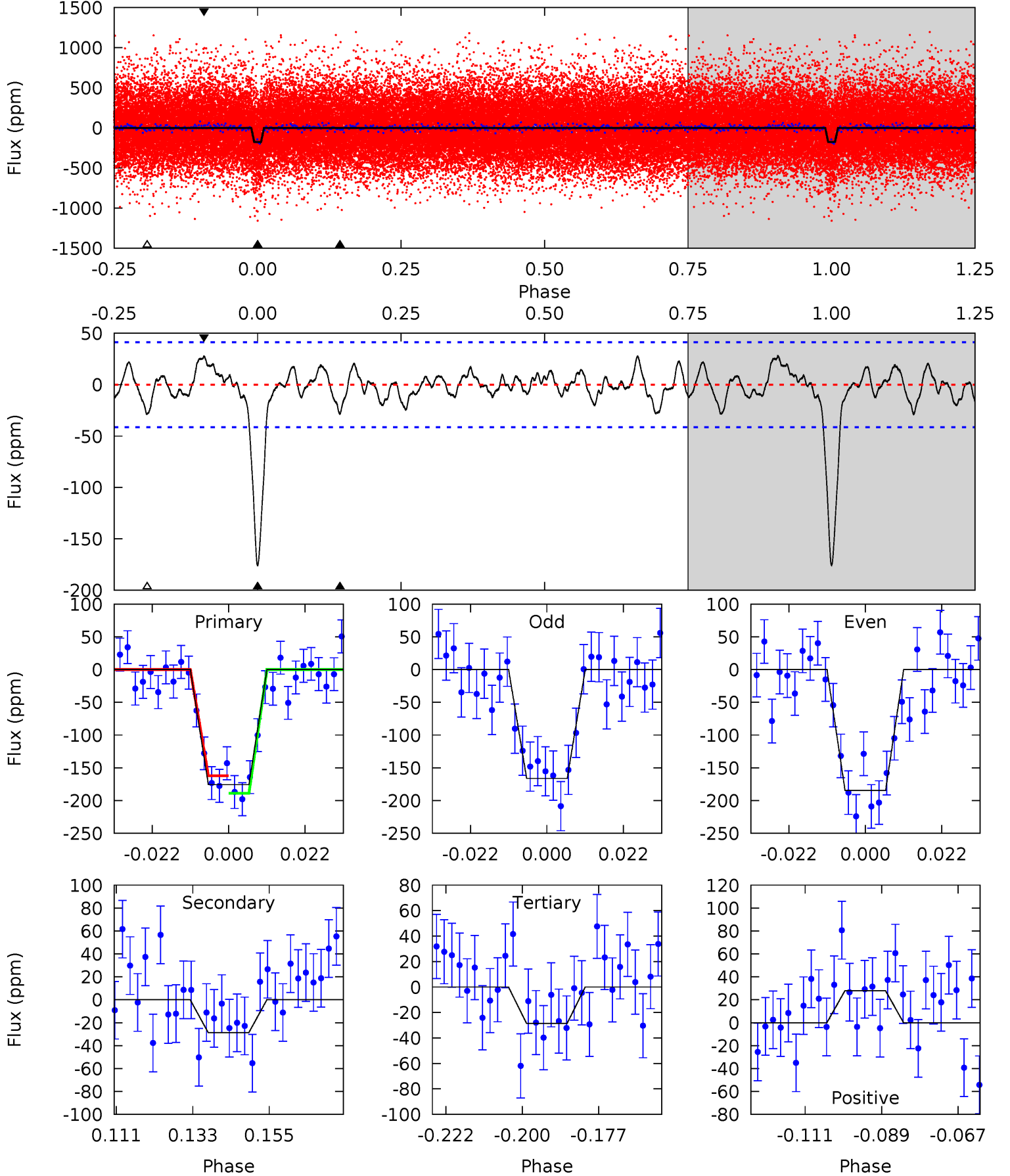
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.7	3.88	3.86	3.42	4.86	2.27	1.41	17.8	18.3	0.02	0.46	0.08	1.01	0.14	0.97



# Alt Model-Shift Uniqueness Test

005106313-01, P = 3.895195 Days, E = 127.972009 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
20.7	3.39	3.37	3.29	4.87	2.29	1.28	17.3	17.4	0.02	0.10	1.10	0.92	0.14	1.58



### Stellar Parameters For KIC 005106313

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5018^{+83}_{-75}$	$4.492^{+0.077}_{-0.028}$	$0.140^{+0.150}_{-0.150}$	$0.838^{+0.033}_{-0.062}$	$0.795^{+0.060}_{-0.026}$	$1.899^{+0.564}_{-0.188}$
	+2%/-1%	+2%/-1%	+107%/-107%	+4%/-7%	+8%/-3%	+30%/-10%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 005106313-01 / KOI 2878.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-32 \pm 8$	$1.48^{+0.95}_{-0.88}$	$1329^{+29}_{-34}$	$3391^{+1318}_{-514}$	$16^{+83}_{-11}$
Alt.	$-29 \pm 8$	$1.32^{+1.00}_{-0.81}$	$1327^{+31}_{-33}$	$3452^{+1395}_{-530}$	$18^{+100}_{-12}$

$T_{max}$  = 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

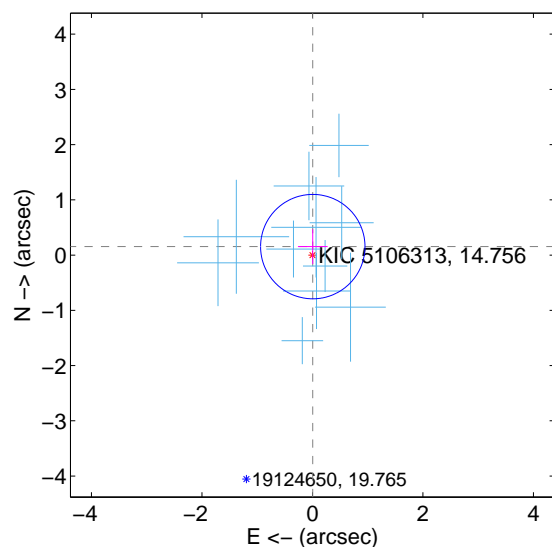
Supplemental centroid analysis for 005106313-01. Kepler magnitude: 14.76. Transit SNR 15.56

There are 11 quarters with good PRF difference image offsets

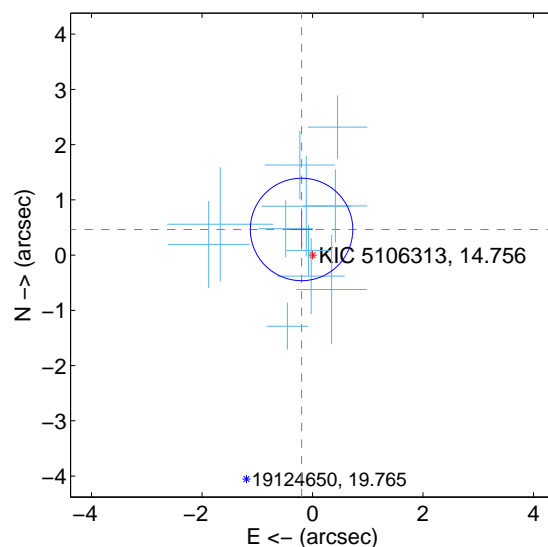
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.154 \pm 0.315$	0.49	$-0.006 \pm 0.269$	$0.154 \pm 0.314$
PRF-fit source offset from KIC position	$0.505 \pm 0.309$	1.63	$0.199 \pm 0.202$	$0.464 \pm 0.325$
photometric centroid source offset	$0.87 \pm 0.93$	0.94	$0.54 \pm 1.03$	$0.68 \pm 0.86$

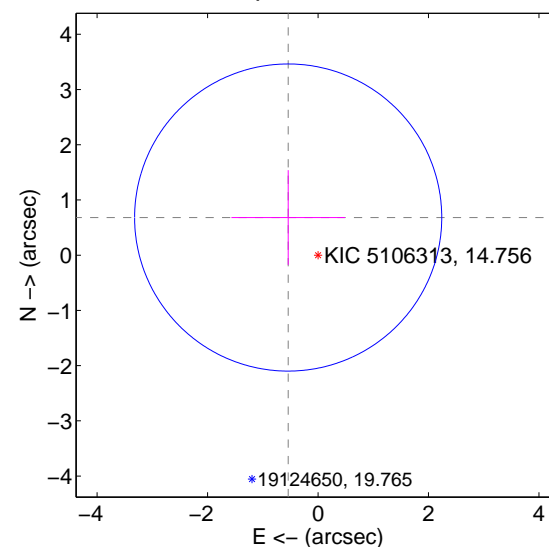
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

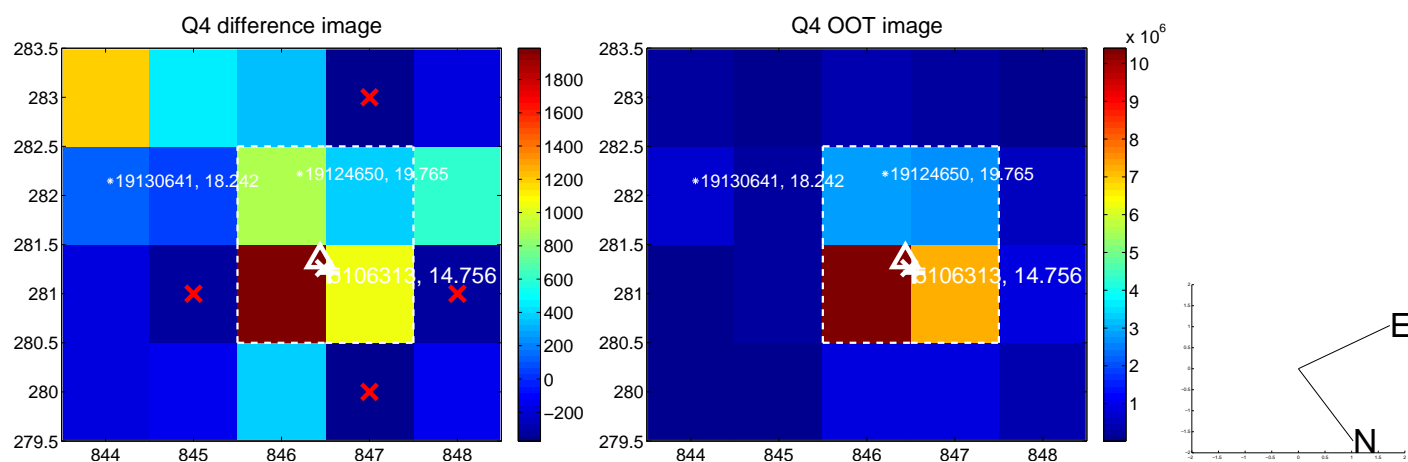
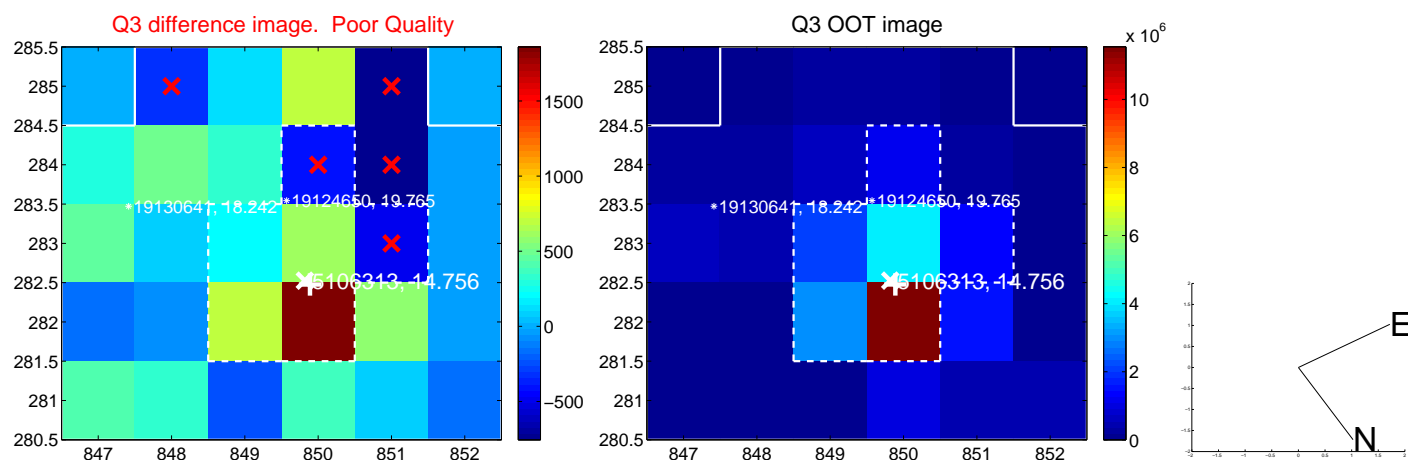
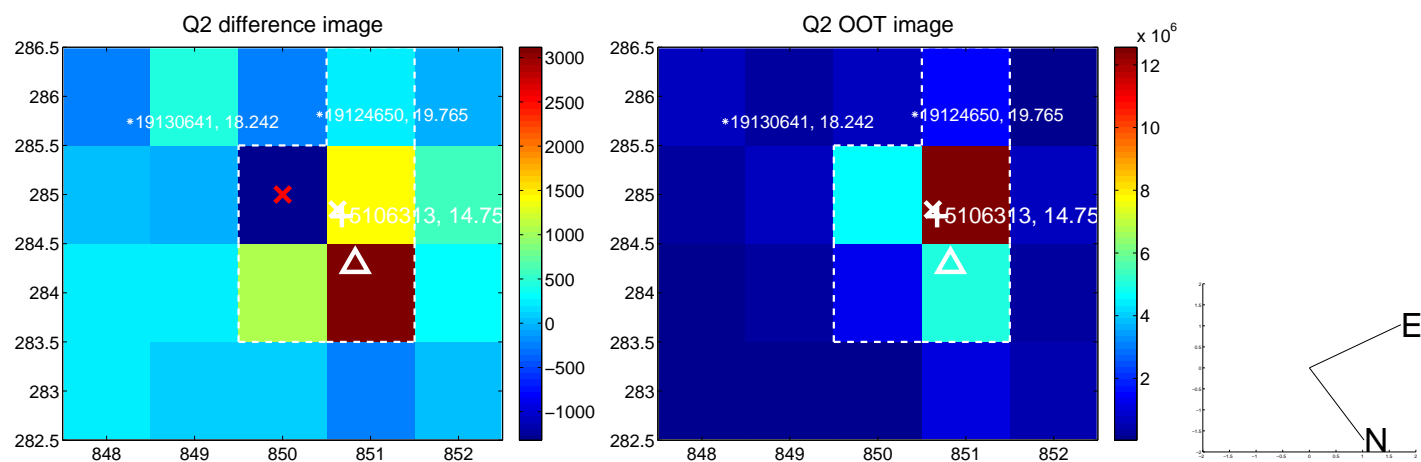
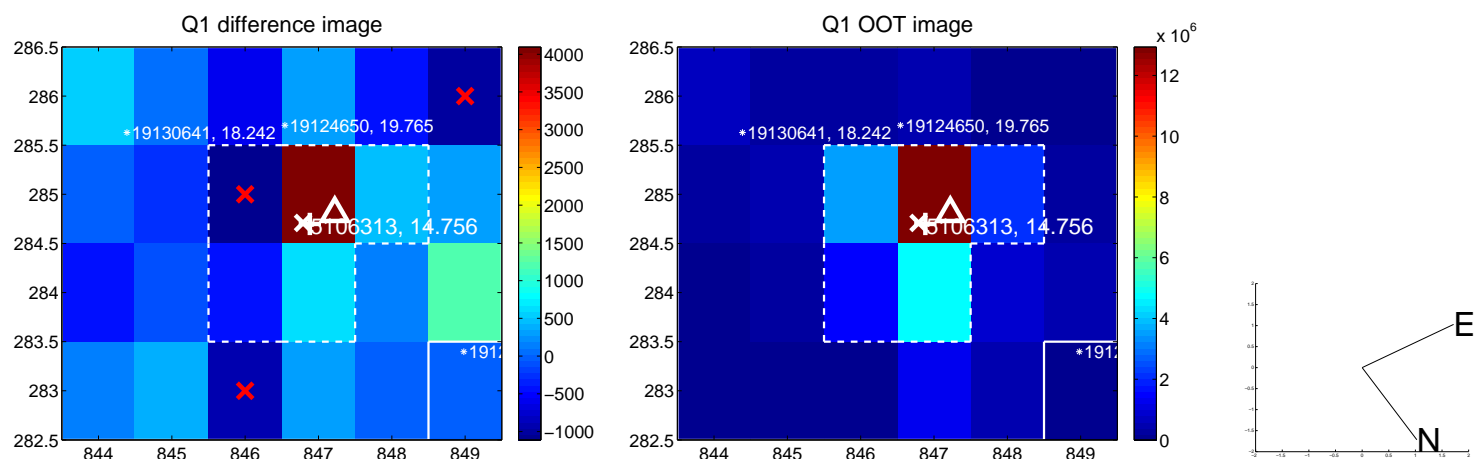


offset from photometric centroids

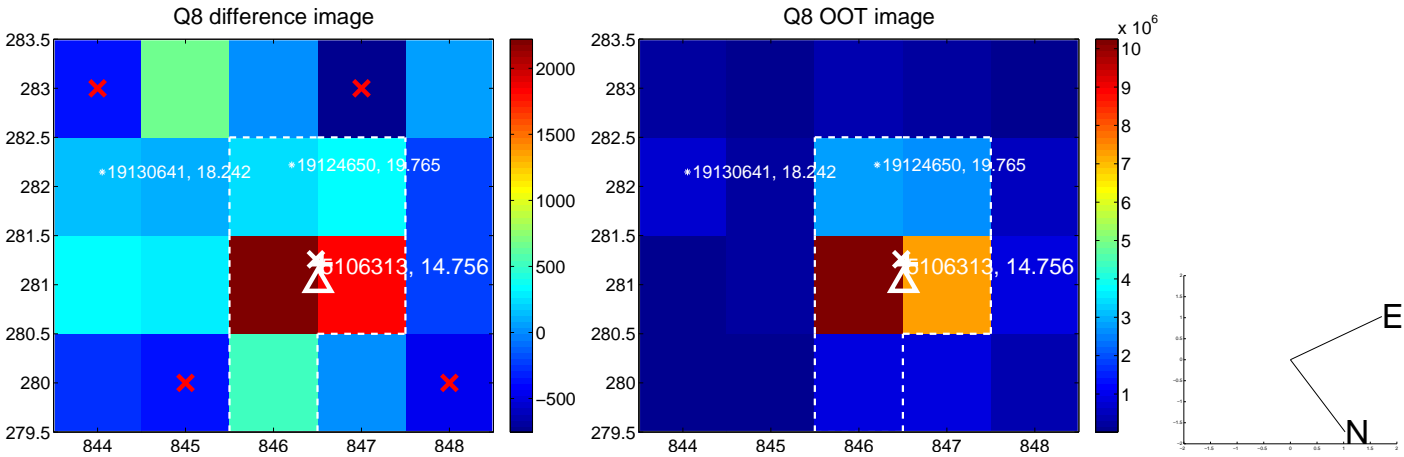
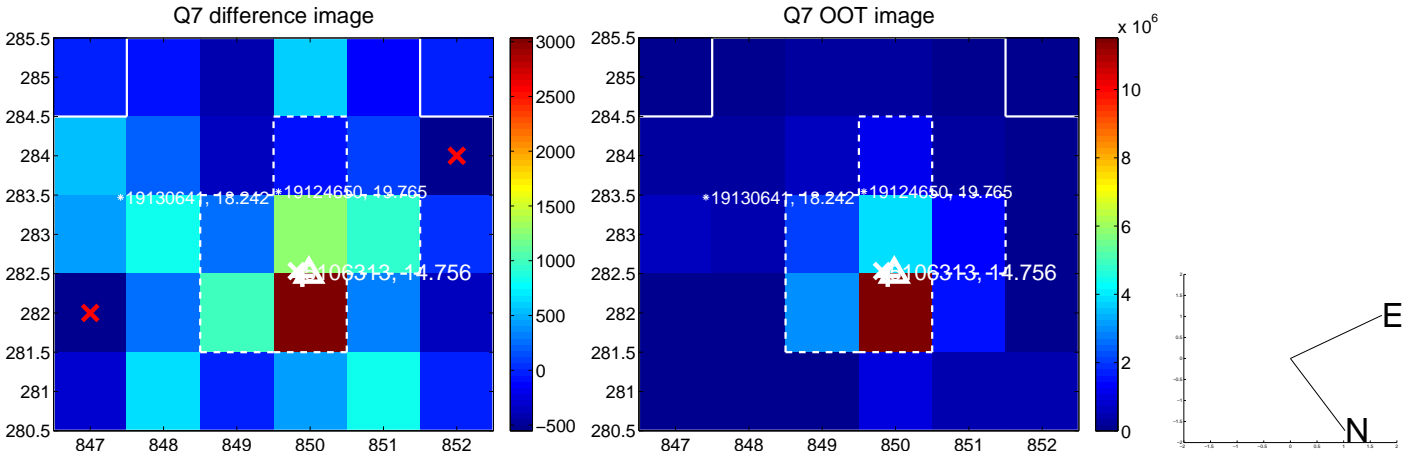
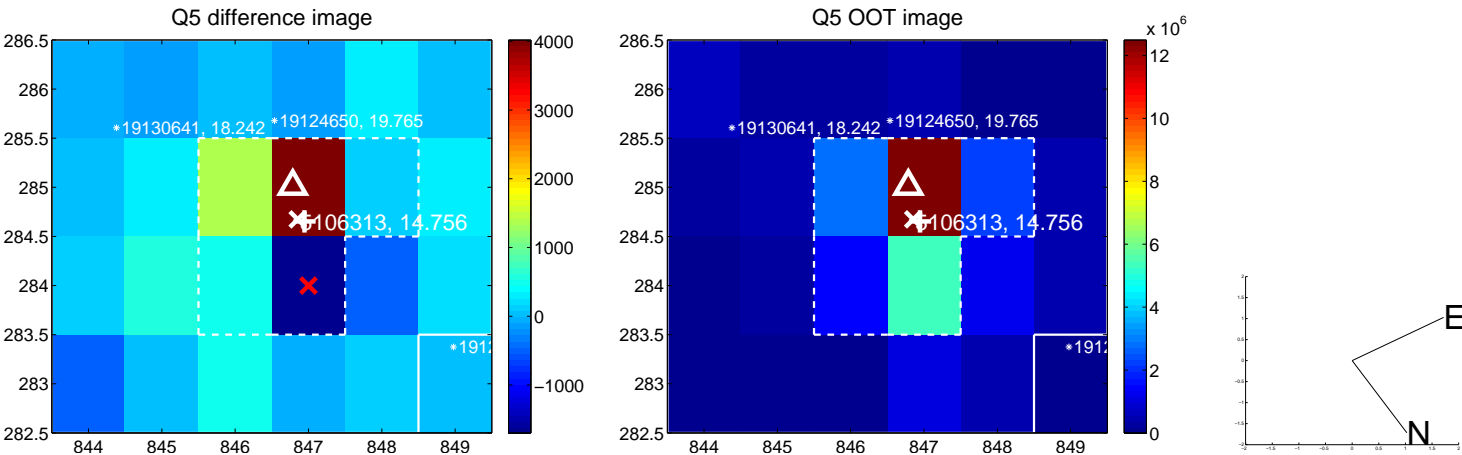


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

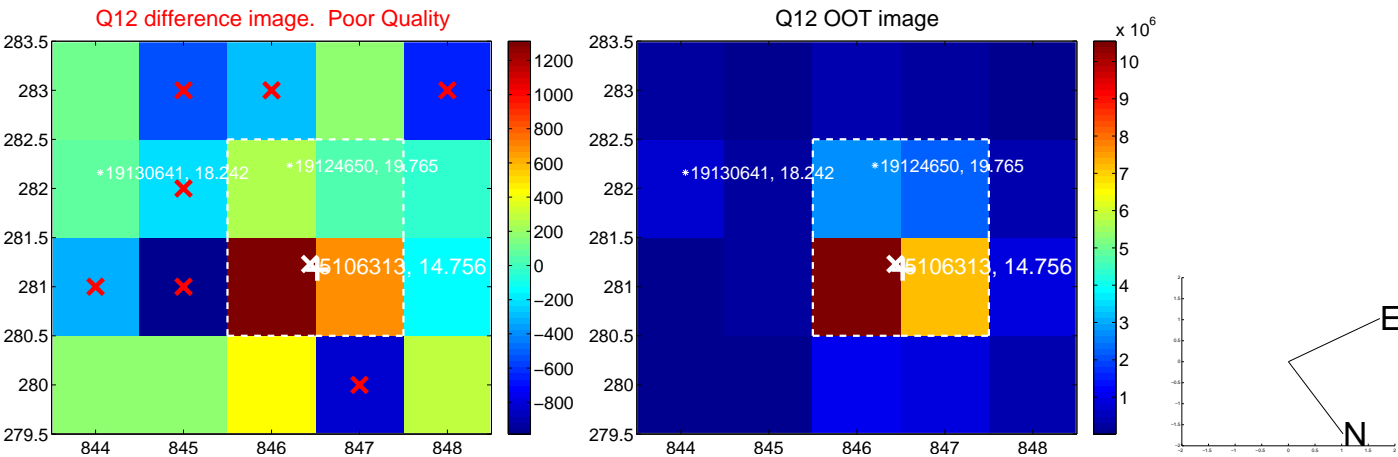
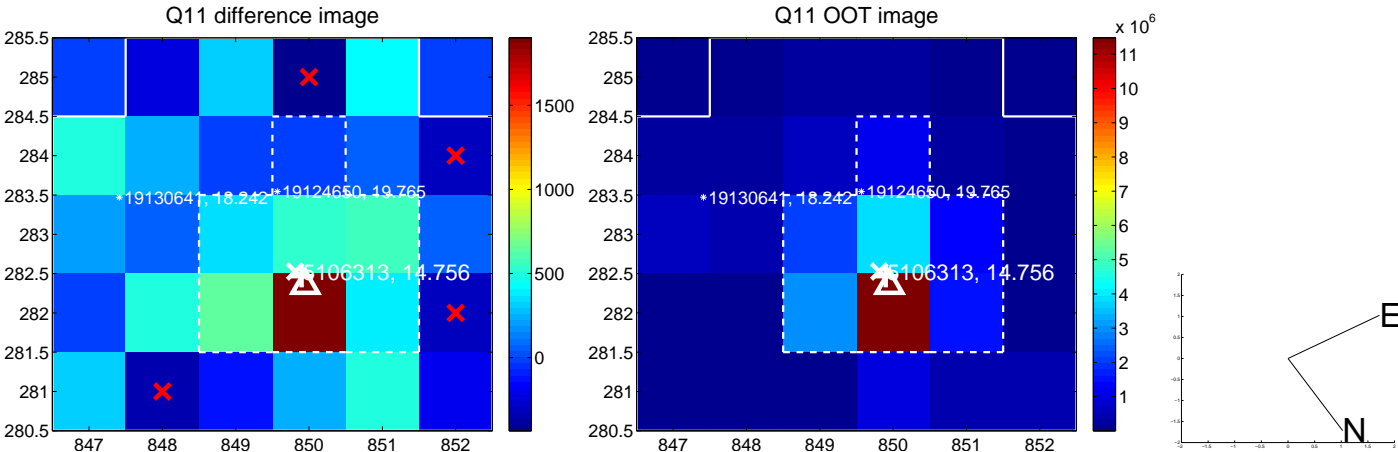
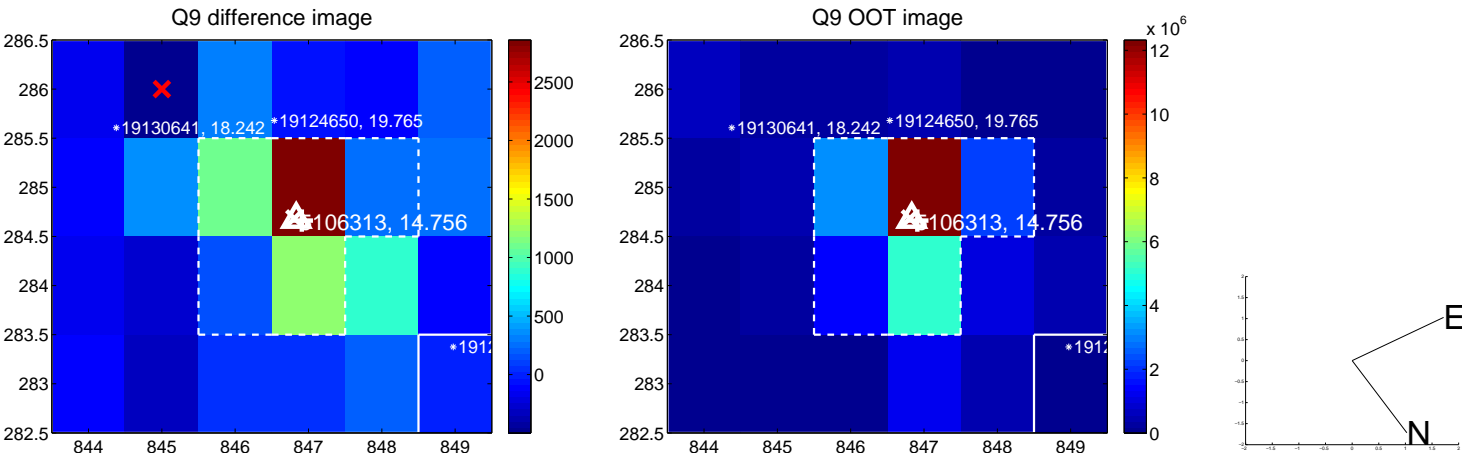
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



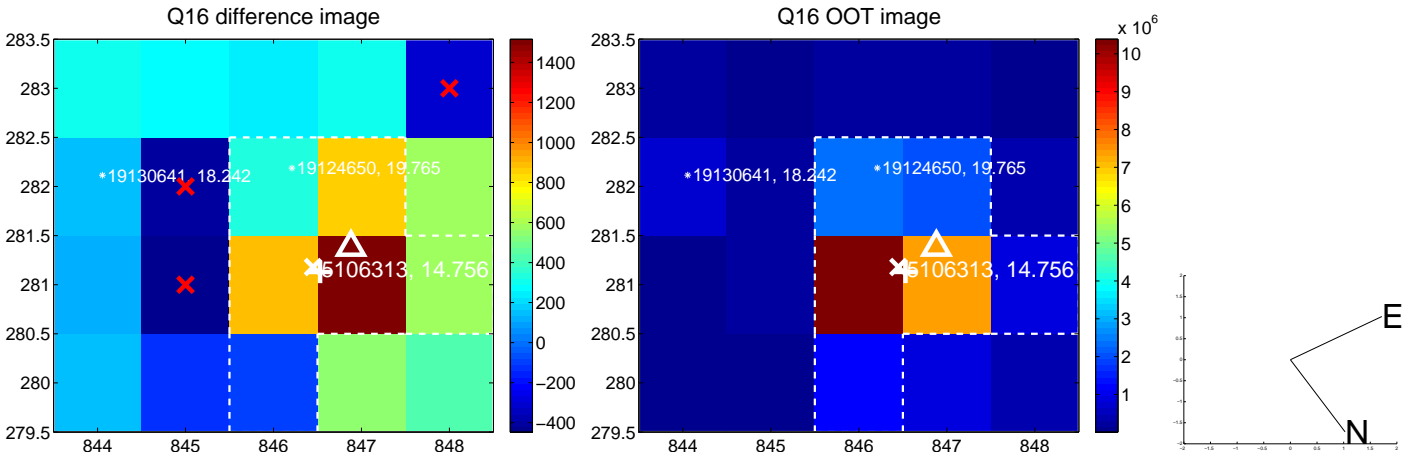
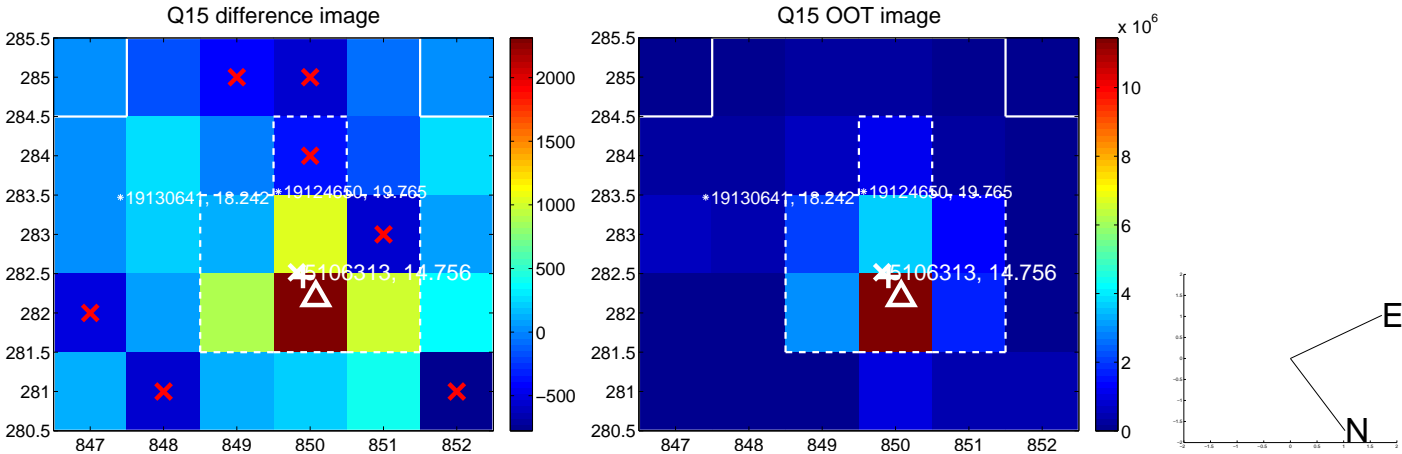
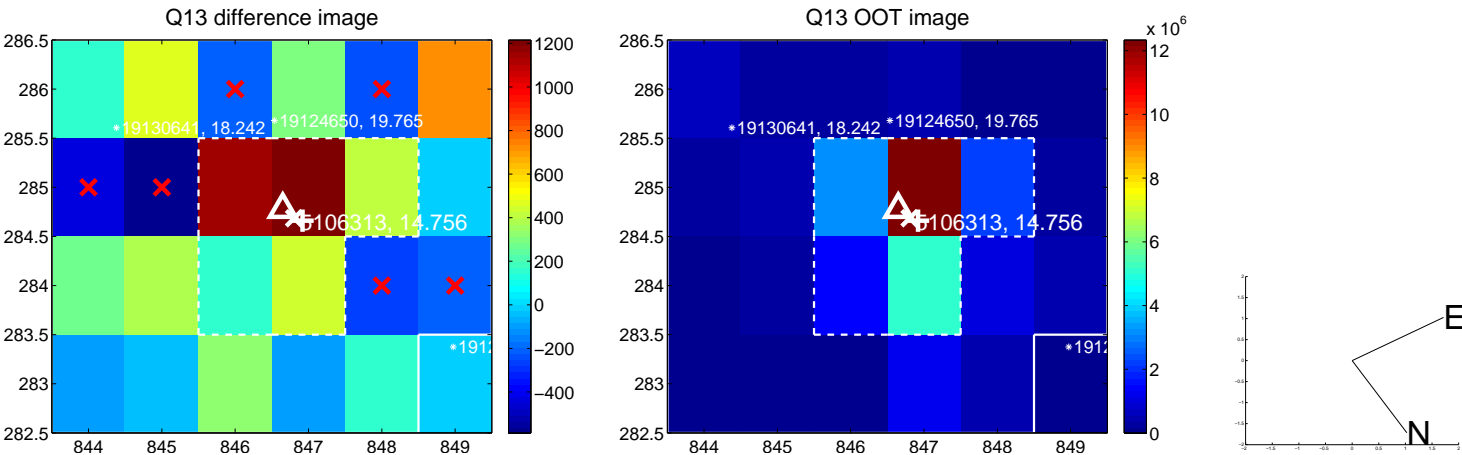
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.







# UKIRT Image

Declination

