

# KIC 005443320

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005443320-01	OBS	5169.01	21.368452	143.721181	556.7	0.987	8.5	10.4	0.79	5204	2.29	21.89

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005443320-01	OBS	PC	0.99	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.

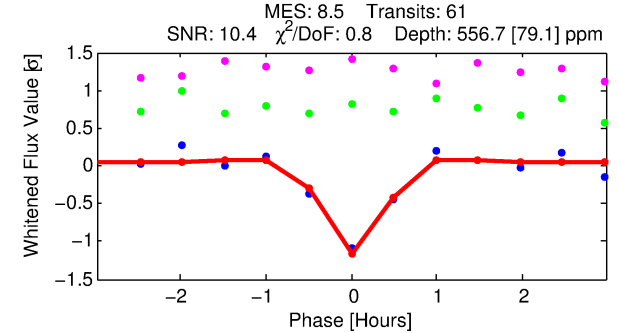
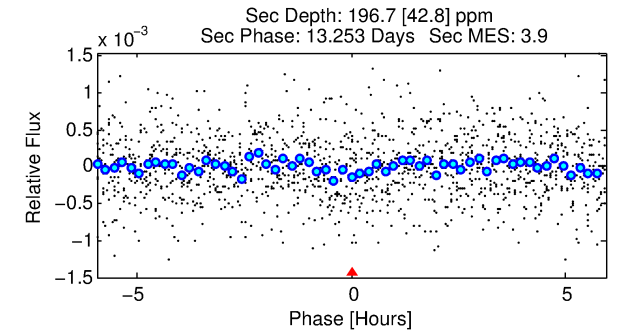
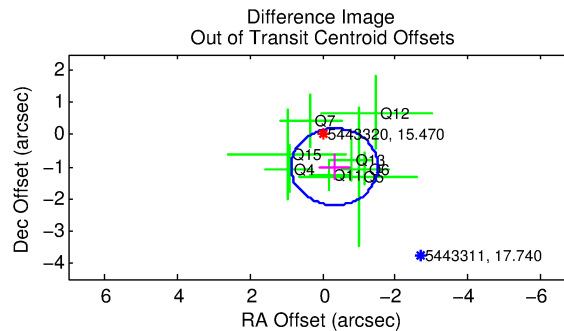
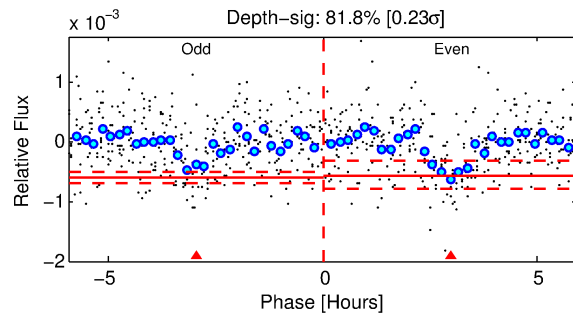
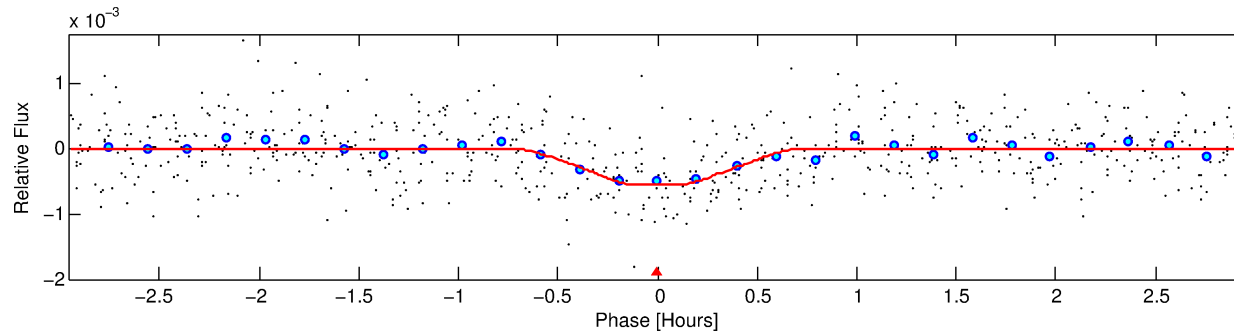
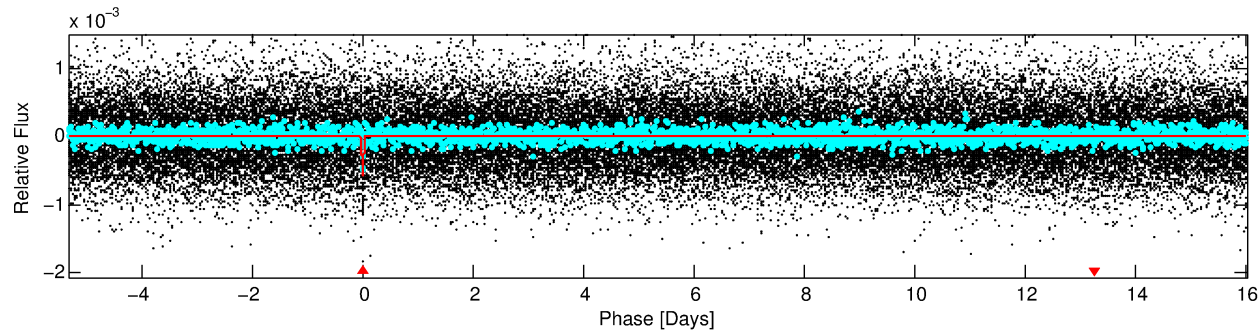
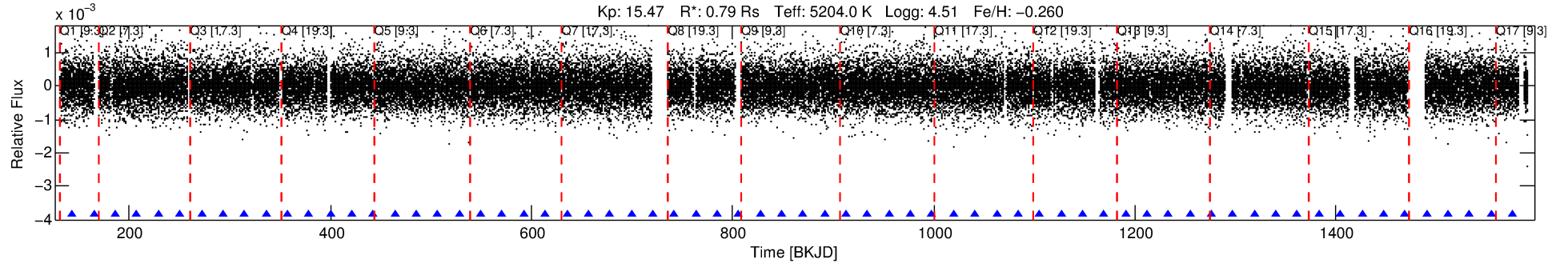
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005443320-01

No Significant Match Found

# DV One-Page Summary

KIC: 5443320 Candidate: 1 of 1 Period: 21.368 d  
KOI: K05169.01 Corr: 0.937



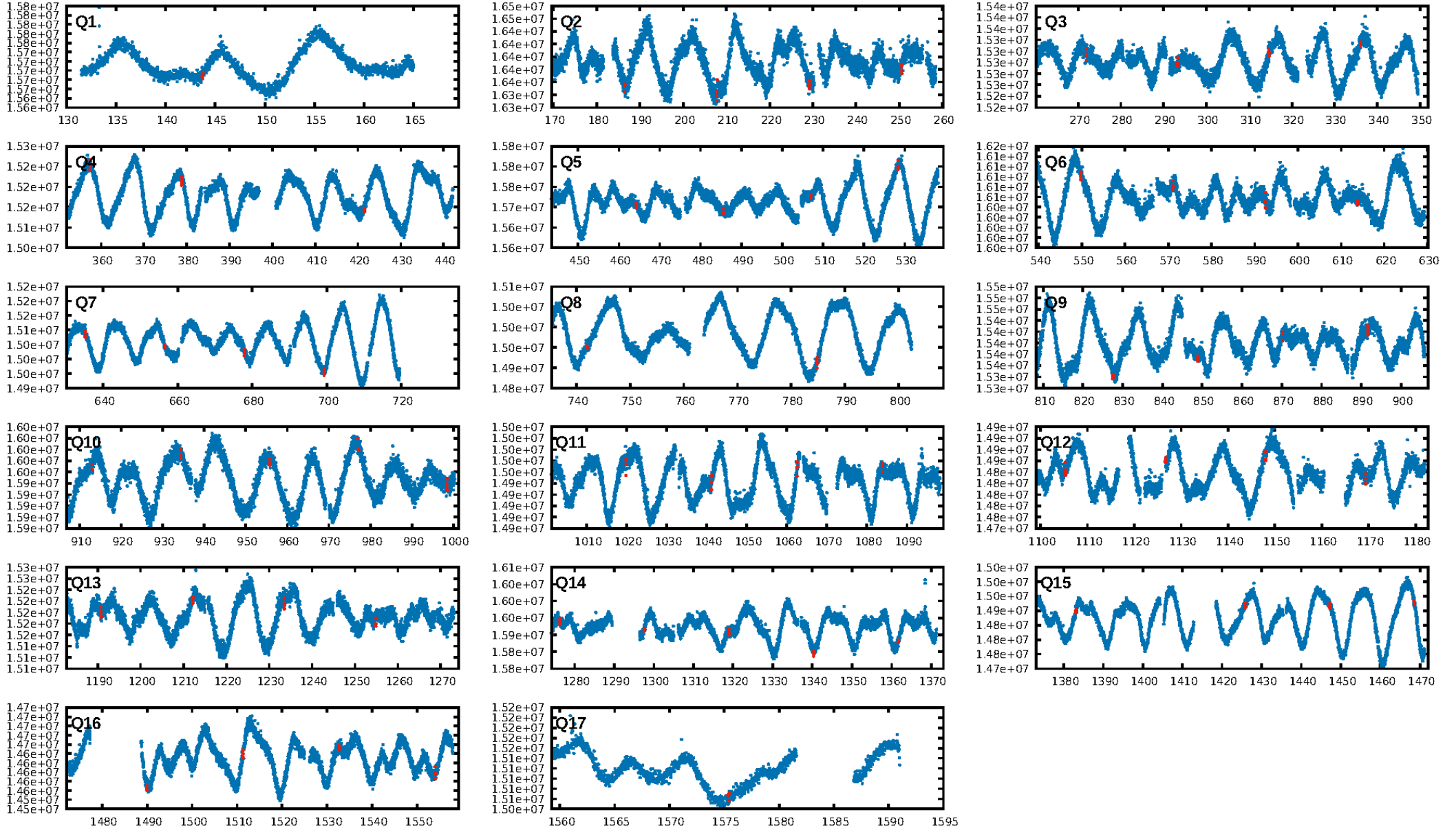
## DV Fit Results:

Period = 21.36845 [0.00008] d  
Epoch = 143.7212 [0.0031] BKJD  
Rp/R\* = 0.0267 [0.0176]  
a/R\* = 78.74 [210.66]  
b = 0.91 [0.53]  
Seff = 21.89 [4.65]  
Teq = 552 [29] K  
Rp = 2.29 [1.54] Re  
a = 0.1362 [0.0155] AU  
Ag = 382.04 [515.70] [0.74 $\sigma$ ]  
Teffp = 3770 [1266] K [2.54 $\sigma$ ]

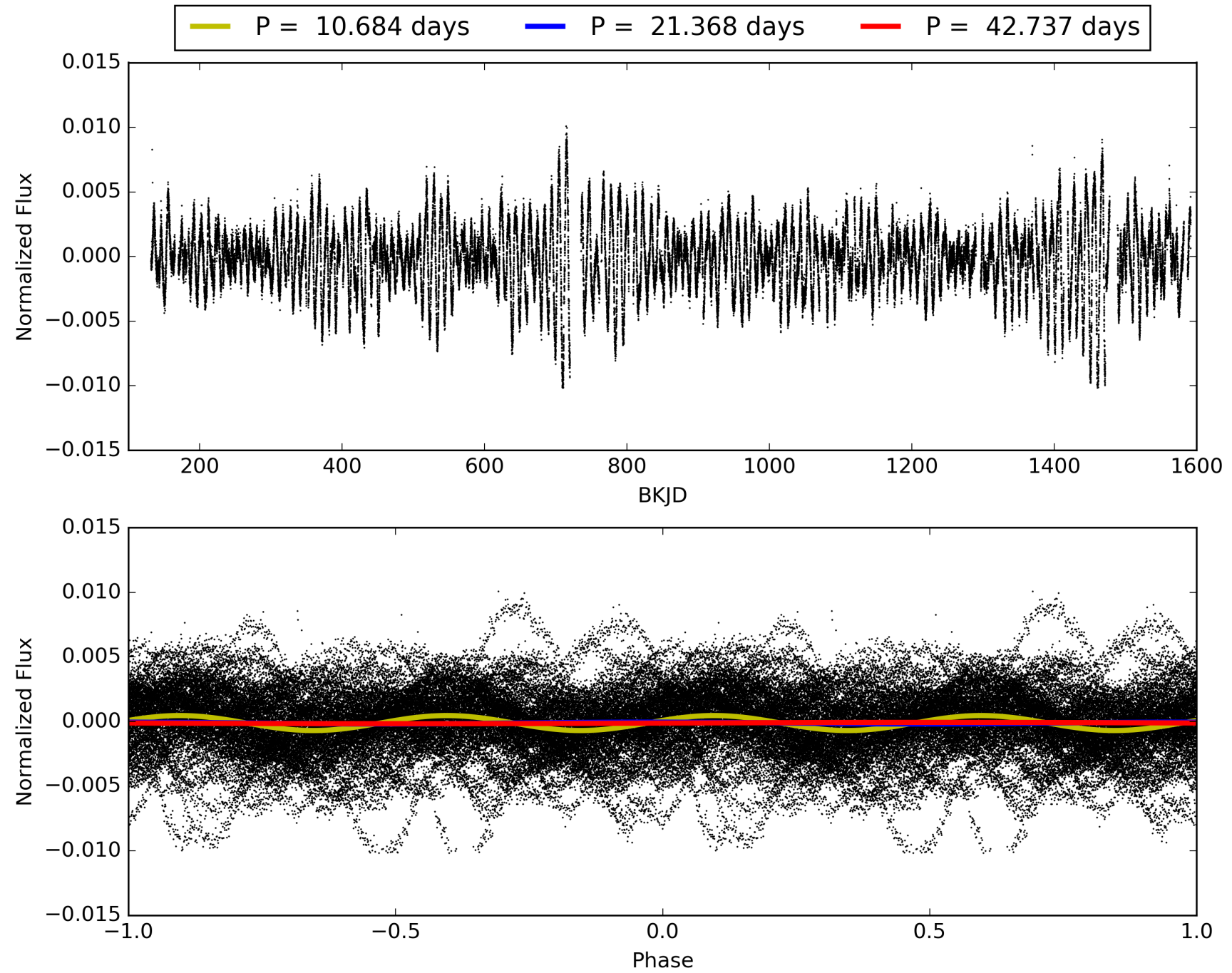
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 96.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.46e-17  
RollingBand-fgt: 1.00 [59/59]  
GhostDiagnostic-chr: -15.78  
Centroid-sig: 0.2%  
Centroid-so: 2.313 arcsec [2.12 $\sigma$ ]  
OotOffset-rm: 1.057 arcsec [2.65 $\sigma$ ]  
KicOffset-rm: 0.989 arcsec [2.48 $\sigma$ ]  
OotOffset-st: 1/3/2/2 [8]  
KicOffset-st: 1/3/2/2 [8]  
DiffImageQuality-fgm: 0.75 [6/8]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 005443320-01, PDC Light Curves

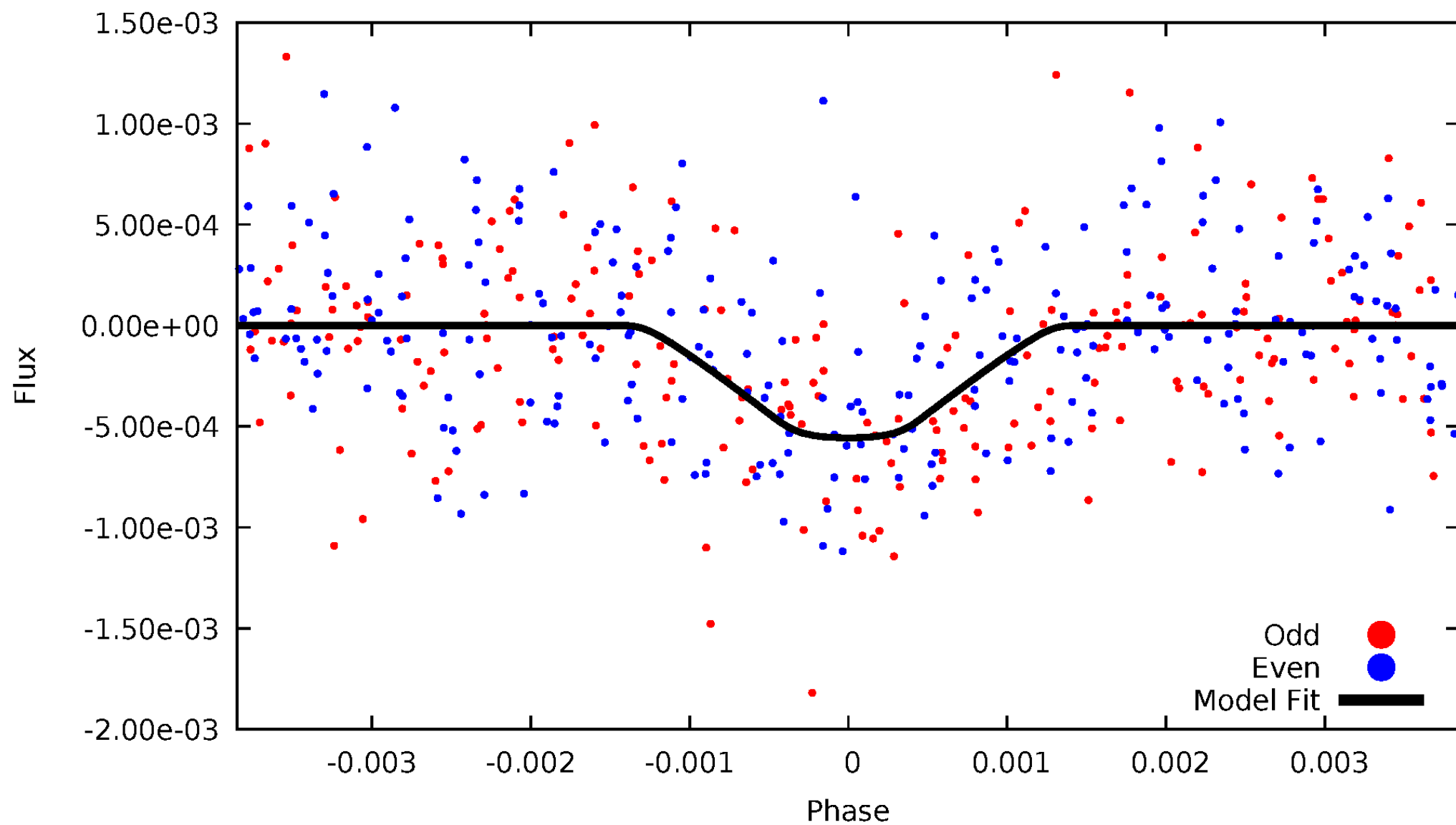


TCE 005443320-01



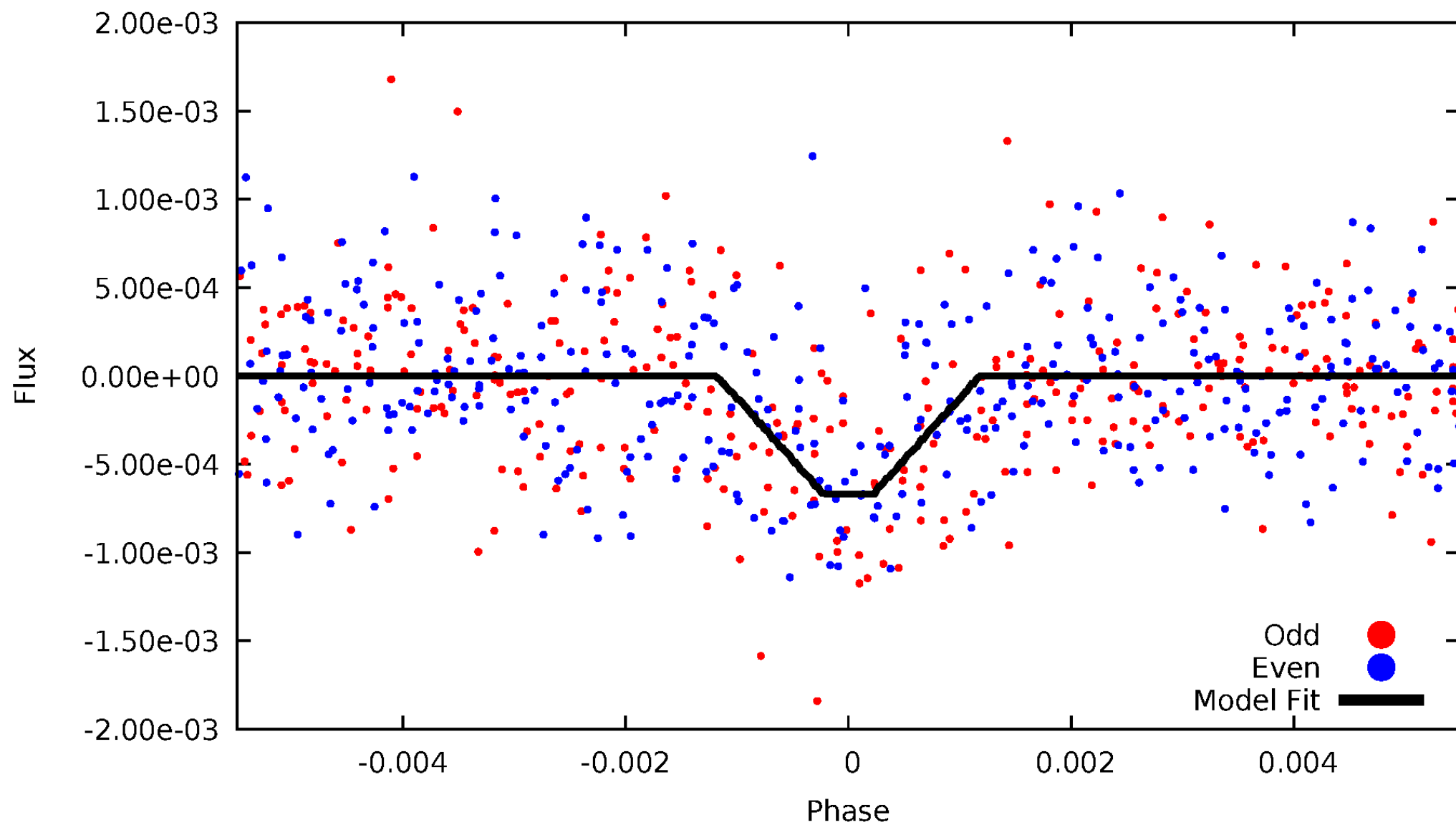
# DV Odd/Even

TCE 005443320-01



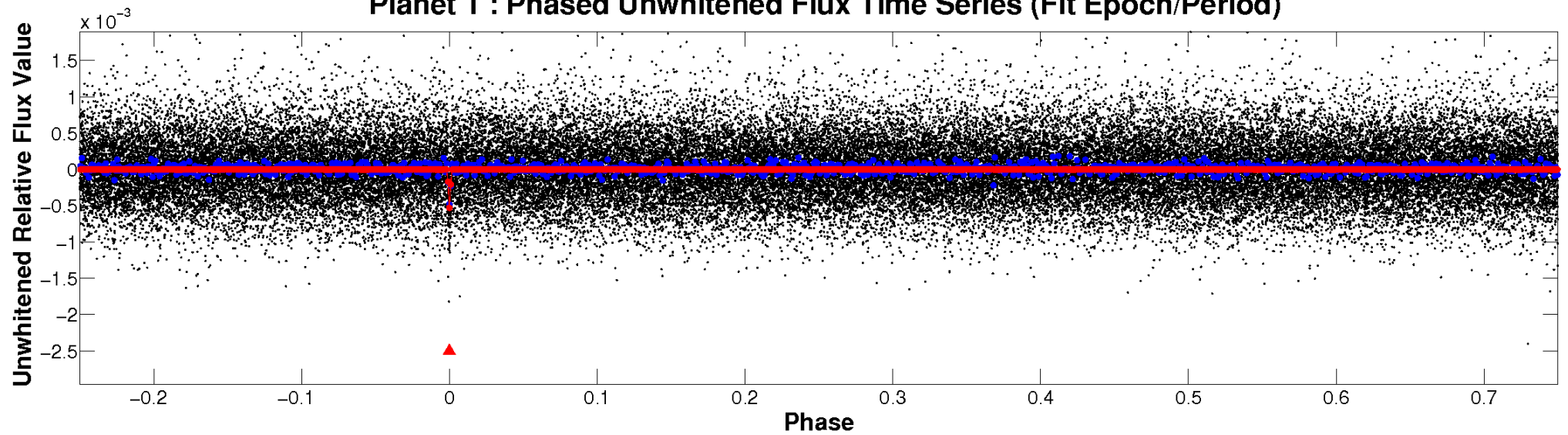
# ALT Odd/Even

TCE 005443320-01

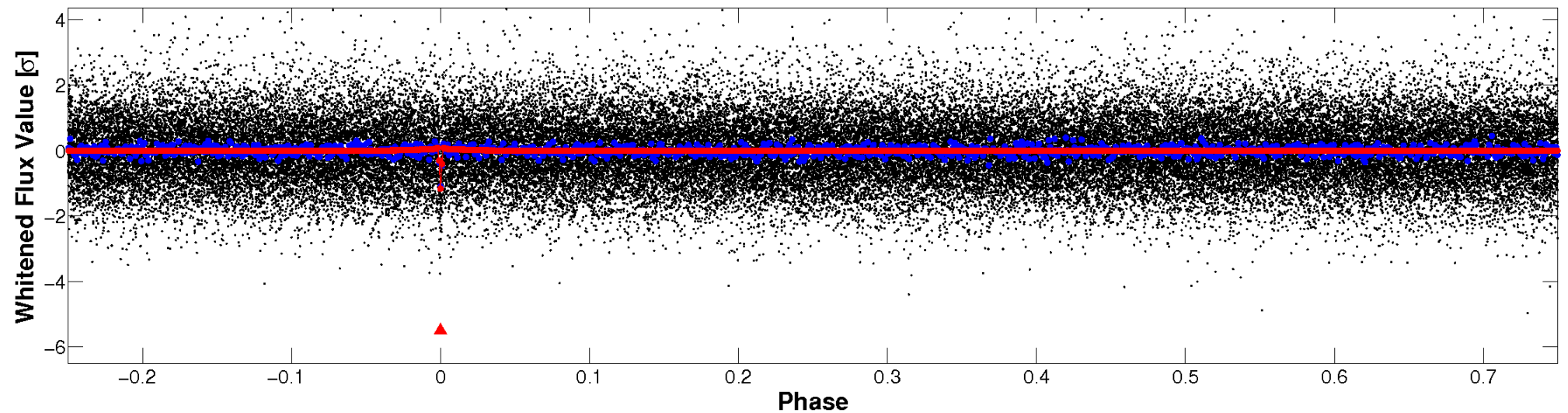


# Non-Whitened Vs. Whitened Light Curve

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



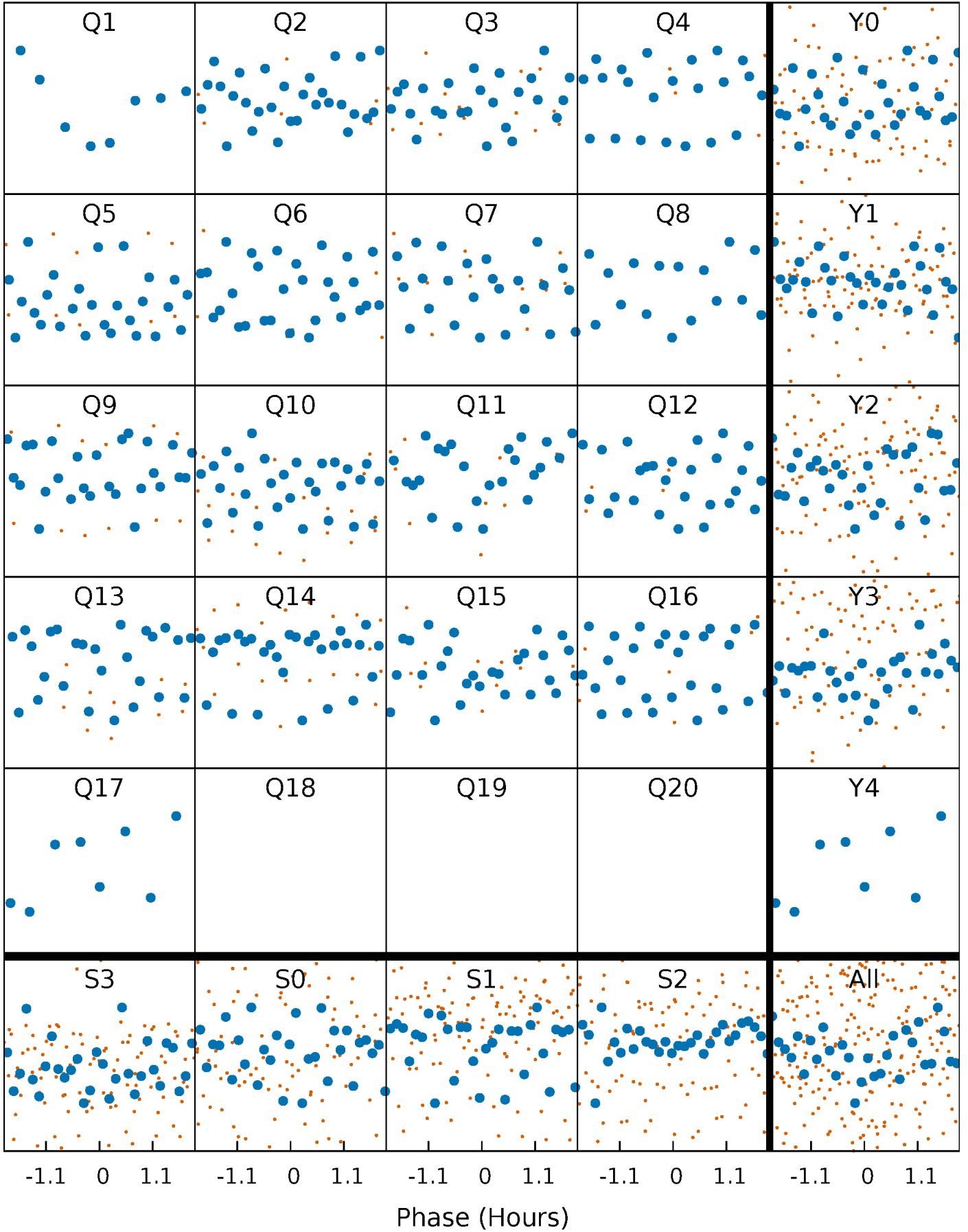
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

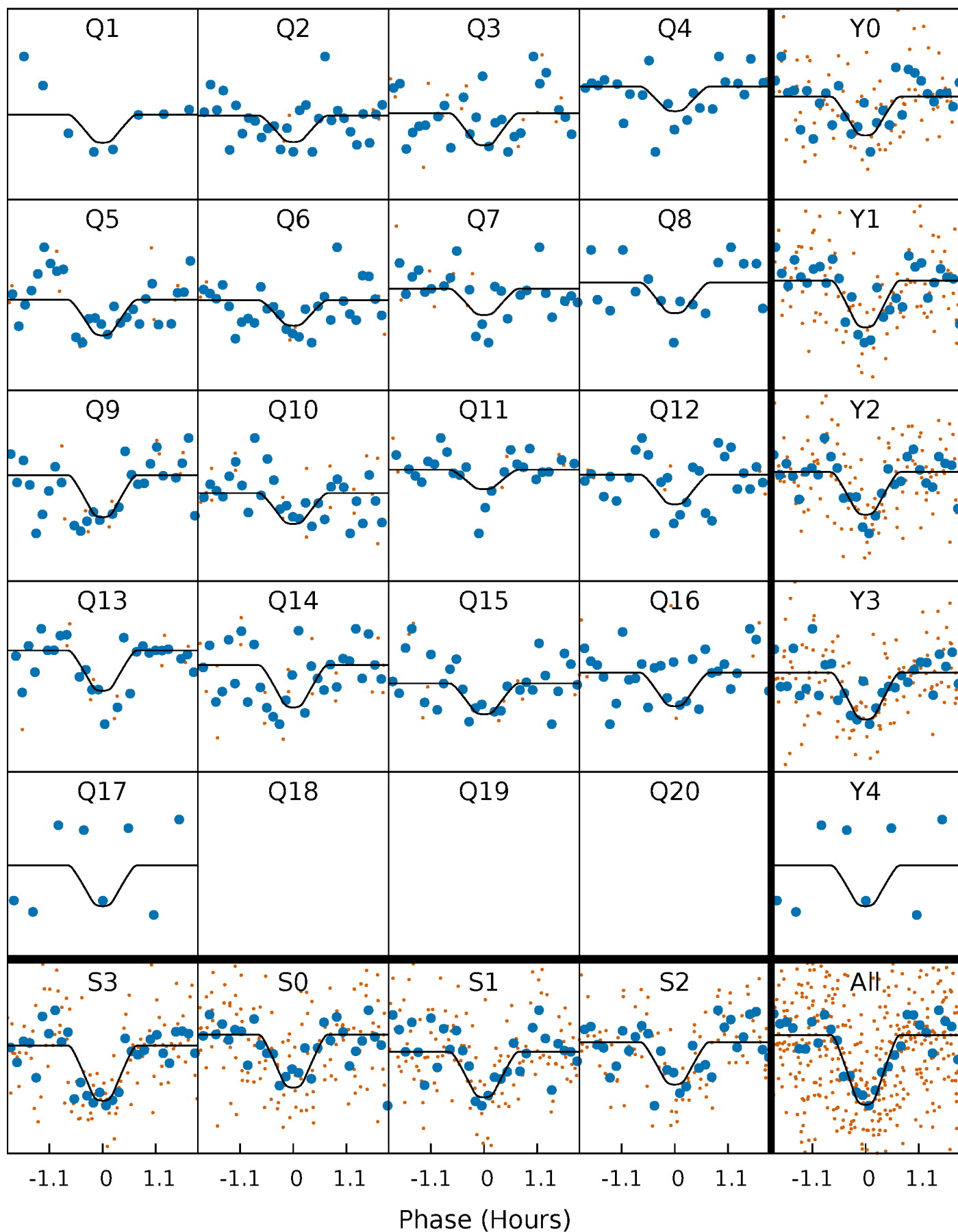
TCE 005443320-01 P= 21.368452 Days  $T_0=143.721181$  (BKJD)





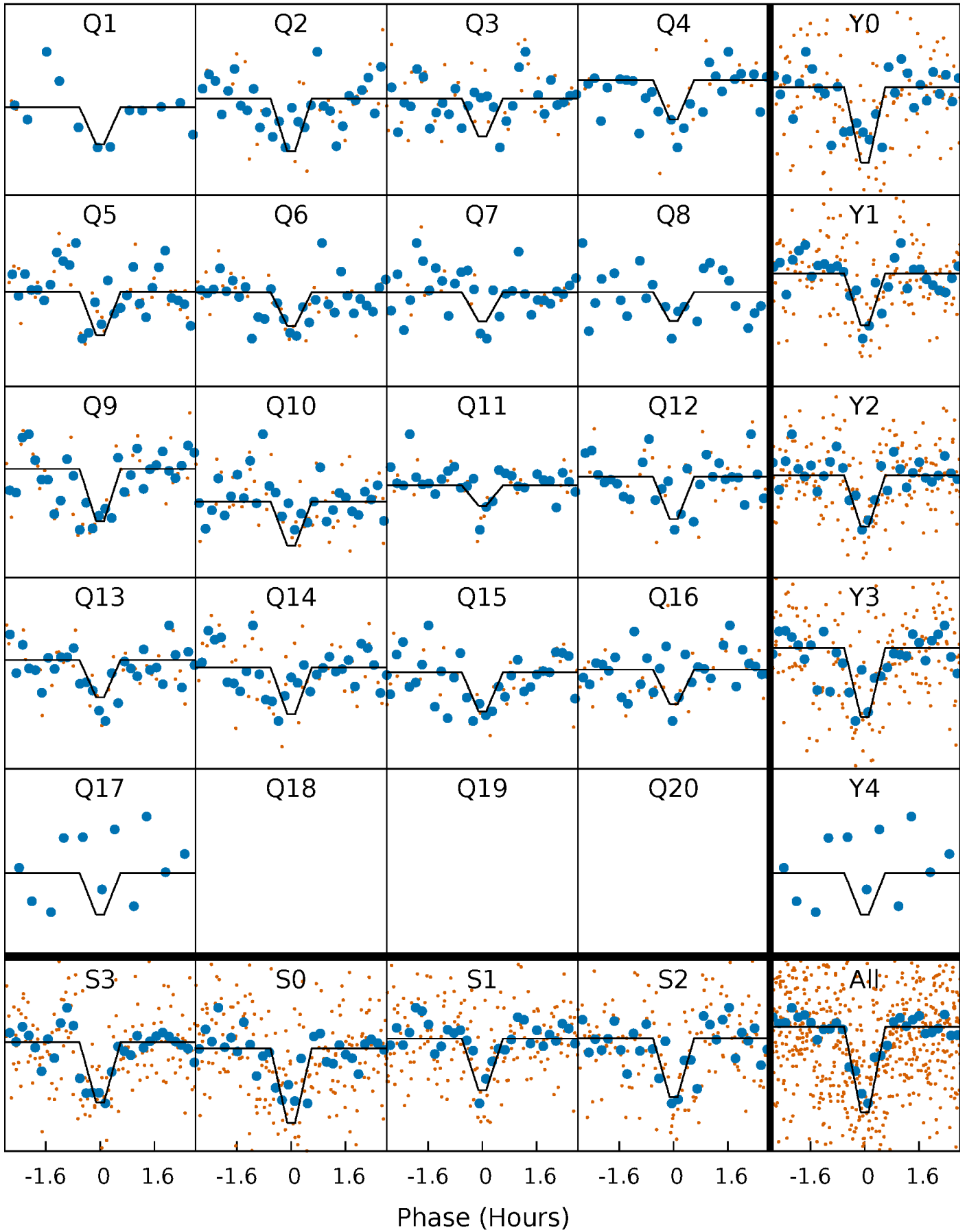
# DV Quarter-Phased Transit Curves

TCE 005443320-01 P= 21.368452 Days  $T_0=143.721181$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

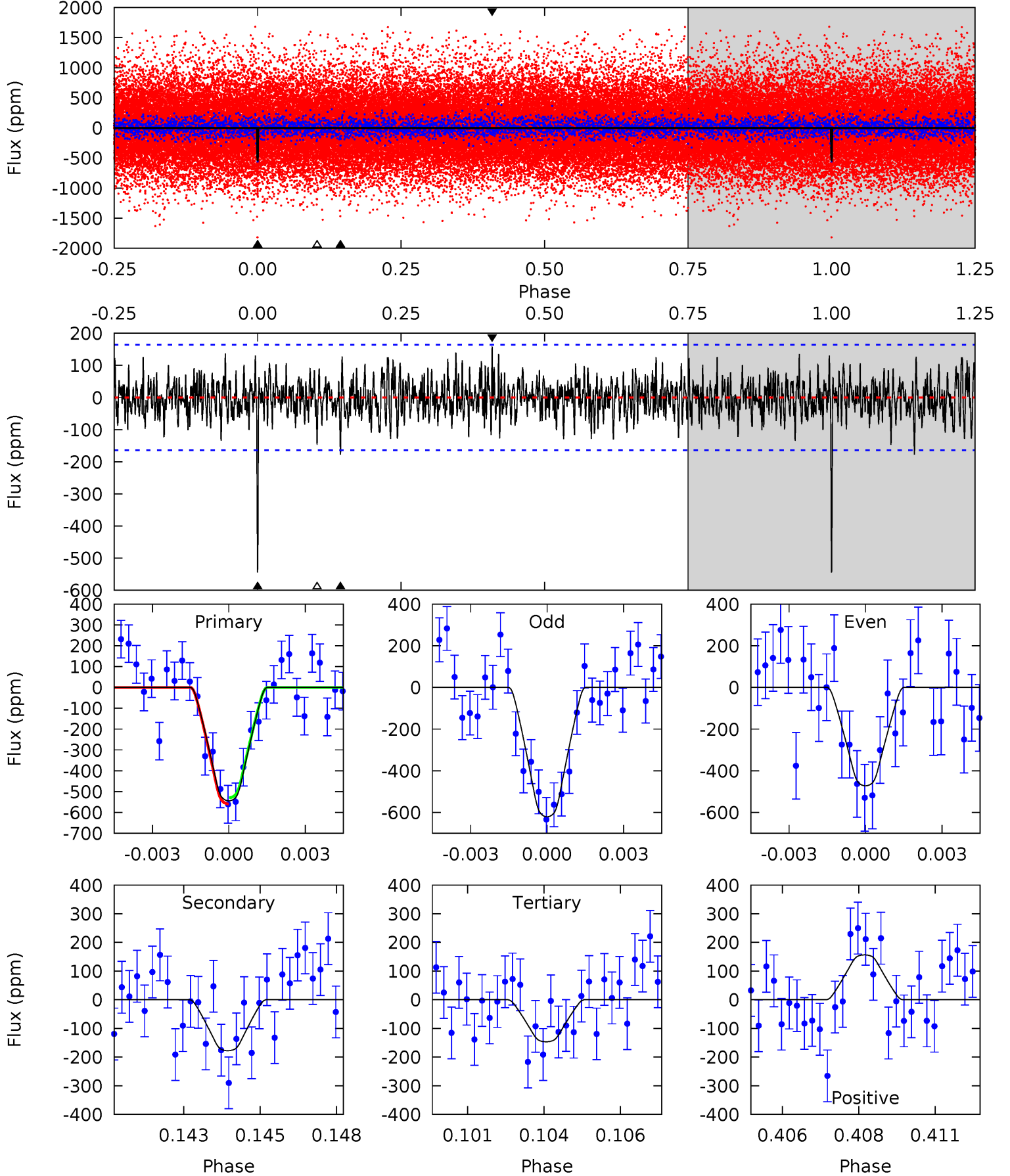
TCE 005443320-01 P= 21.368547 Days  $T_0=143.718362$  (BKJD)



# DV Model-Shift Uniqueness Test

005443320-01, P = 21.368452 Days, E = 122.352729 Days

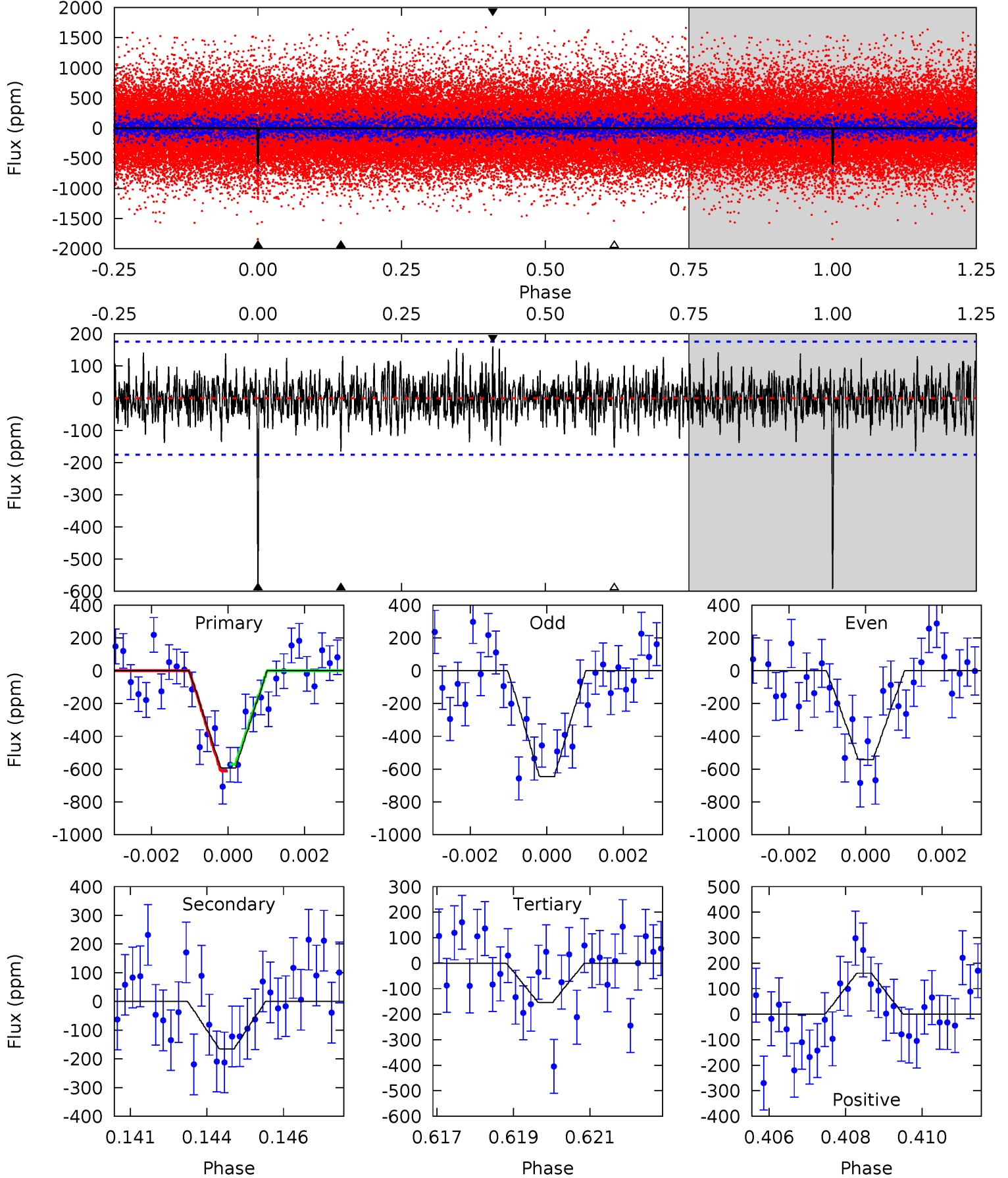
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	5.71	4.71	5.03	5.27	2.99	1.49	12.8	12.5	1.00	0.68	2.40	0.93	0.22	0.48



# Alt Model-Shift Uniqueness Test

005443320-01, P = 21.368547 Days, E = 122.349815 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
17.9	4.99	4.65	4.85	5.30	3.05	1.39	13.2	13.0	0.35	0.14	1.56	0.91	0.21	0.62



### Stellar Parameters For KIC 005443320

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5204^{+153}_{-153}$	$4.515^{+0.102}_{-0.077}$	$-0.260^{+0.300}_{-0.300}$	$0.786^{+0.088}_{-0.097}$	$0.736^{+0.106}_{-0.049}$	$2.139^{+0.873}_{-0.522}$
	+3%/-3%	+2%/-2%	+115%/-115%	+11%/-12%	+14%/-7%	+41%/-24%
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 005443320-01 / KOI 5169.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-178 \pm 31$	$2.31^{+1.61}_{-1.39}$	$769^{+33}_{-35}$	$3938^{+1946}_{-616}$	$338^{+1979}_{-217}$
Alt.	$-165 \pm 33$	$2.23^{+1.52}_{-1.27}$	$767^{+35}_{-33}$	$3942^{+1577}_{-625}$	$341^{+1457}_{-222}$

$T_{max}$  = 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

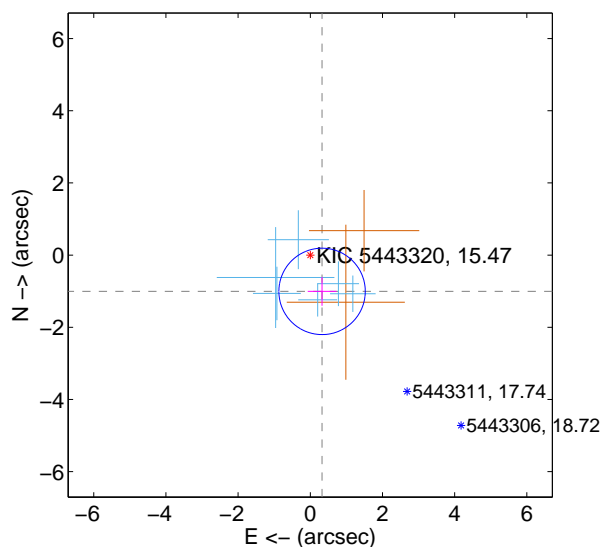
Supplemental centroid analysis for 005443320-01. Kepler magnitude: 15.47. Transit SNR 10.41

There are 6 quarters with good PRF difference image offsets

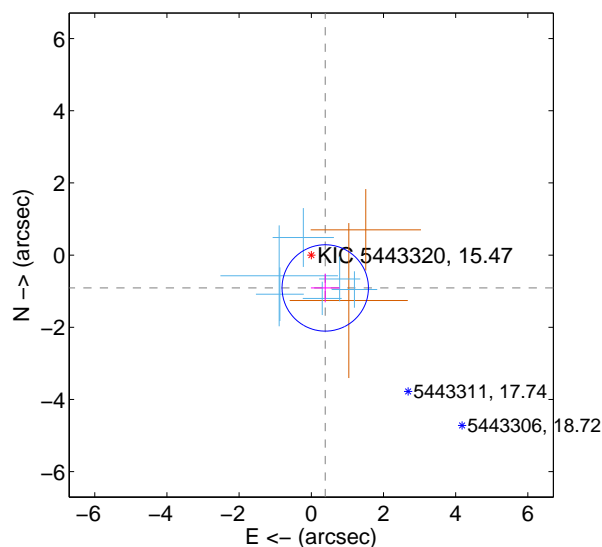
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.057 \pm 0.399$	2.65	$-0.326 \pm 0.398$	$-1.005 \pm 0.399$
PRF-fit source offset from KIC position	$0.989 \pm 0.399$	2.48	$-0.386 \pm 0.398$	$-0.910 \pm 0.399$
photometric centroid source offset	$2.31 \pm 1.09$	2.12	$-1.20 \pm 1.12$	$-1.98 \pm 1.08$

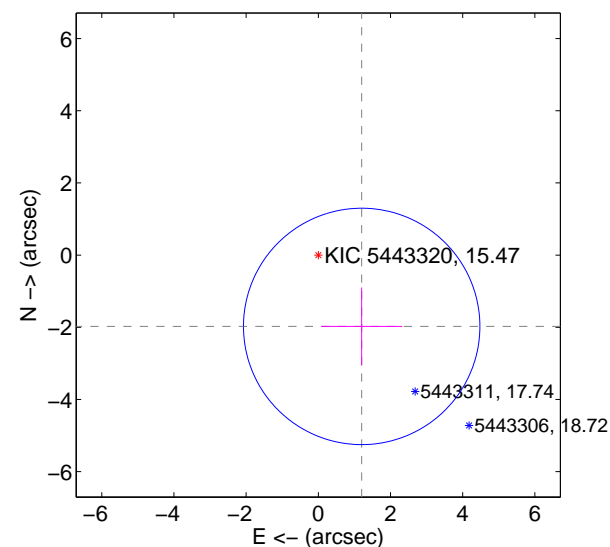
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

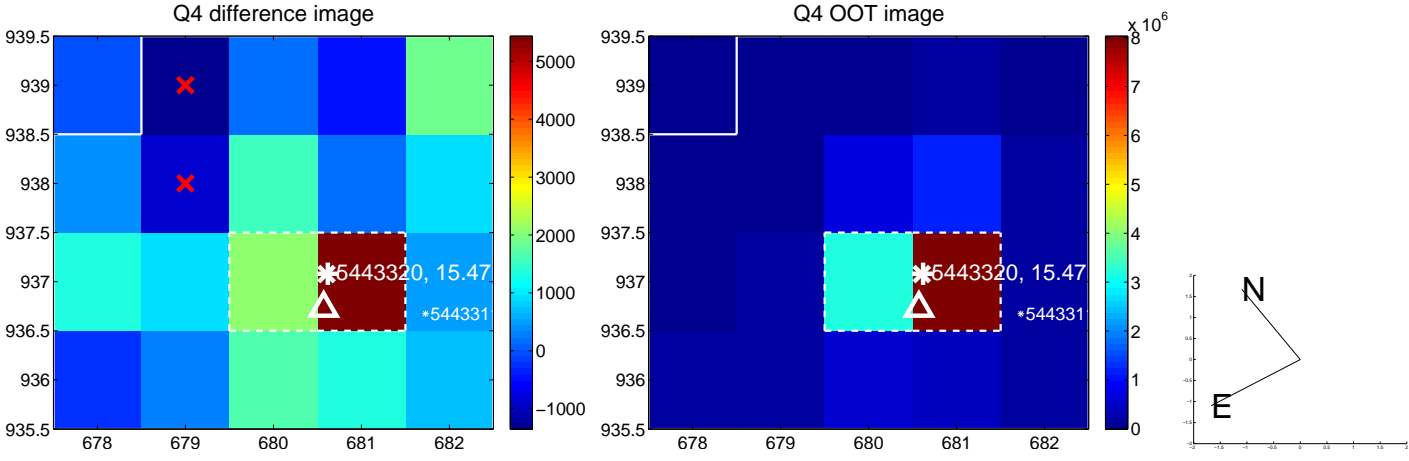
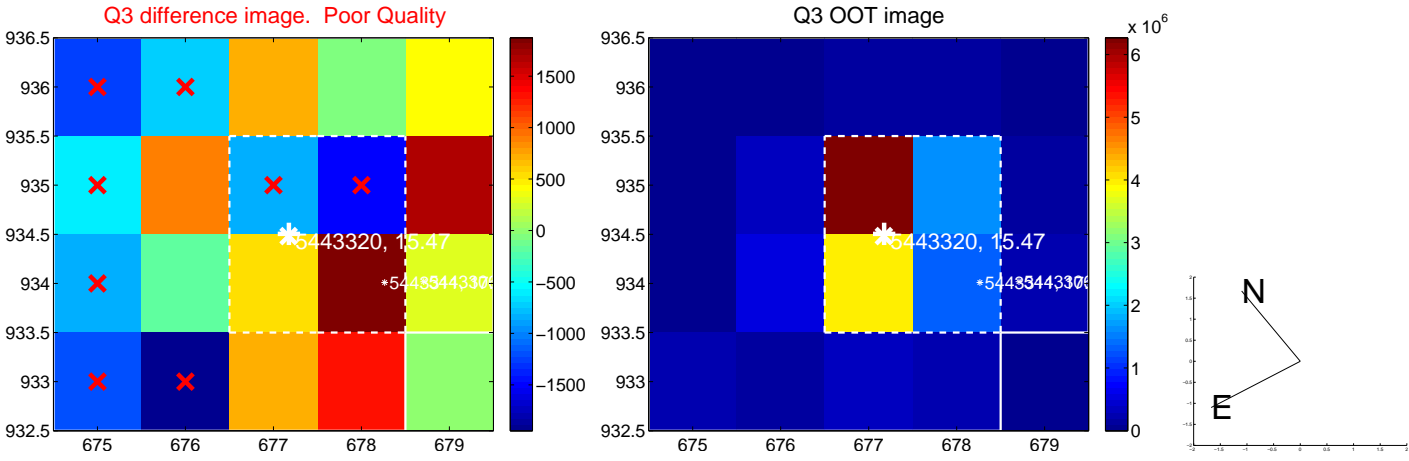
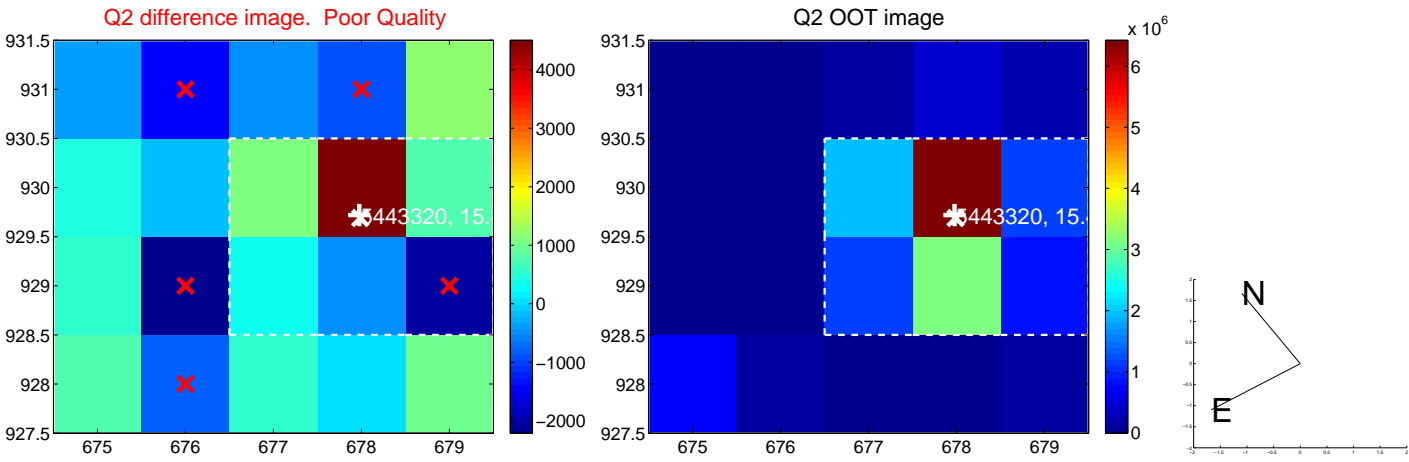
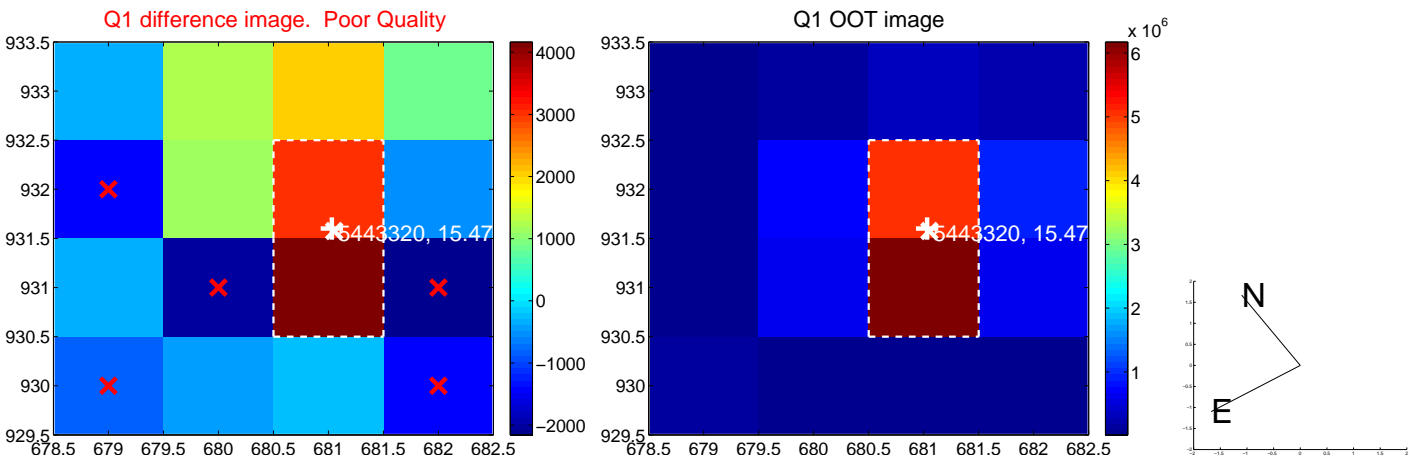


offset from photometric centroids



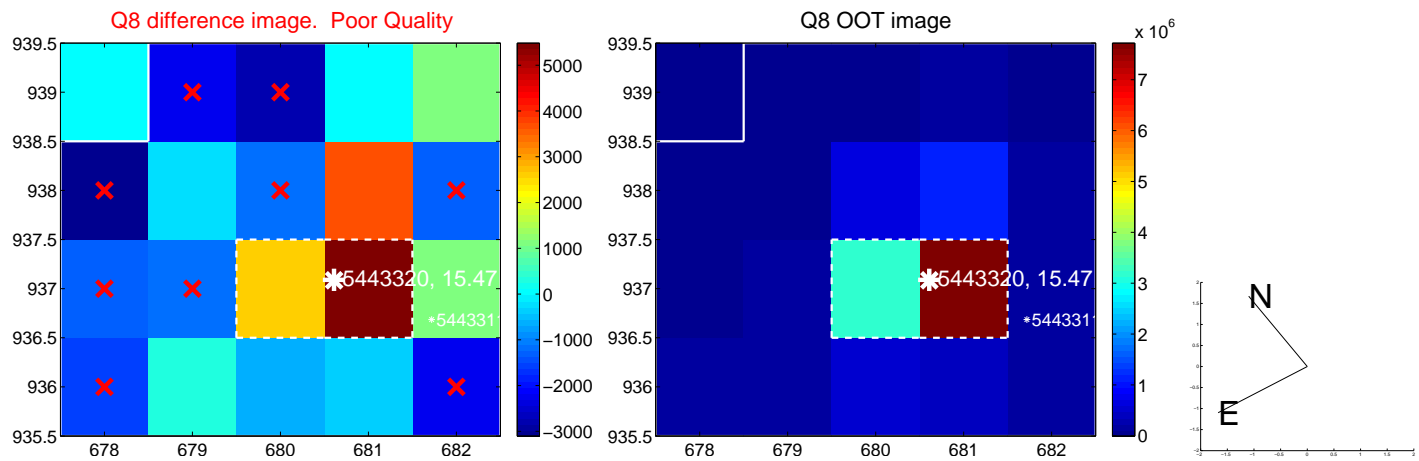
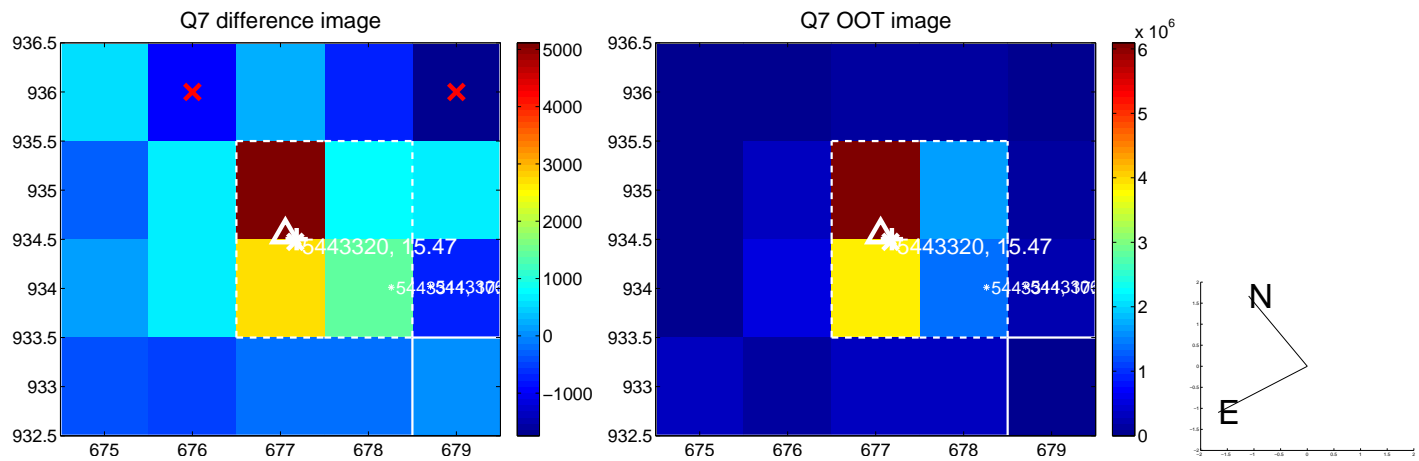
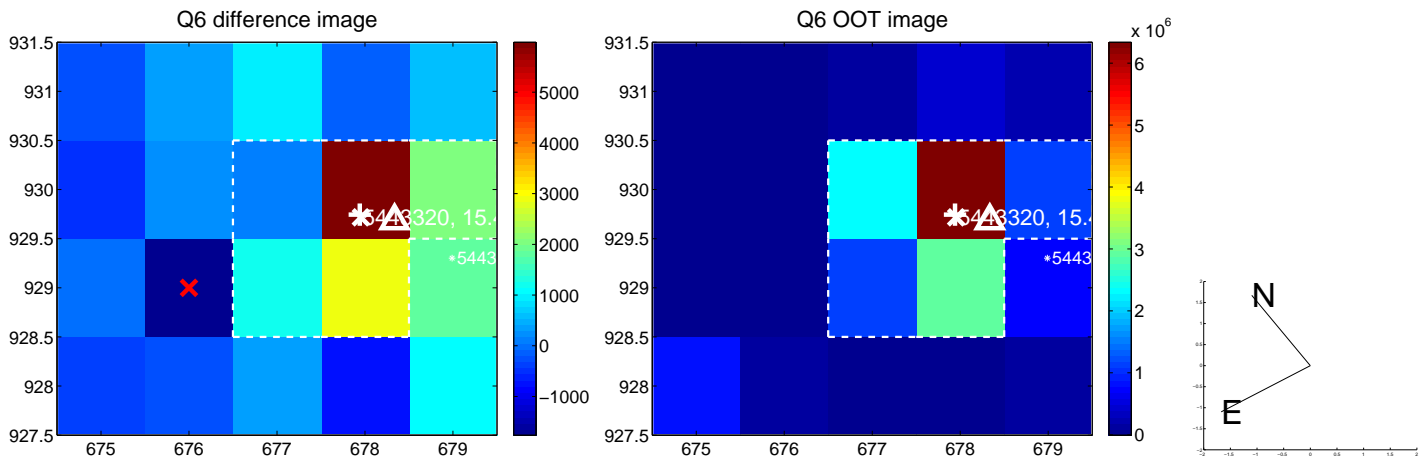
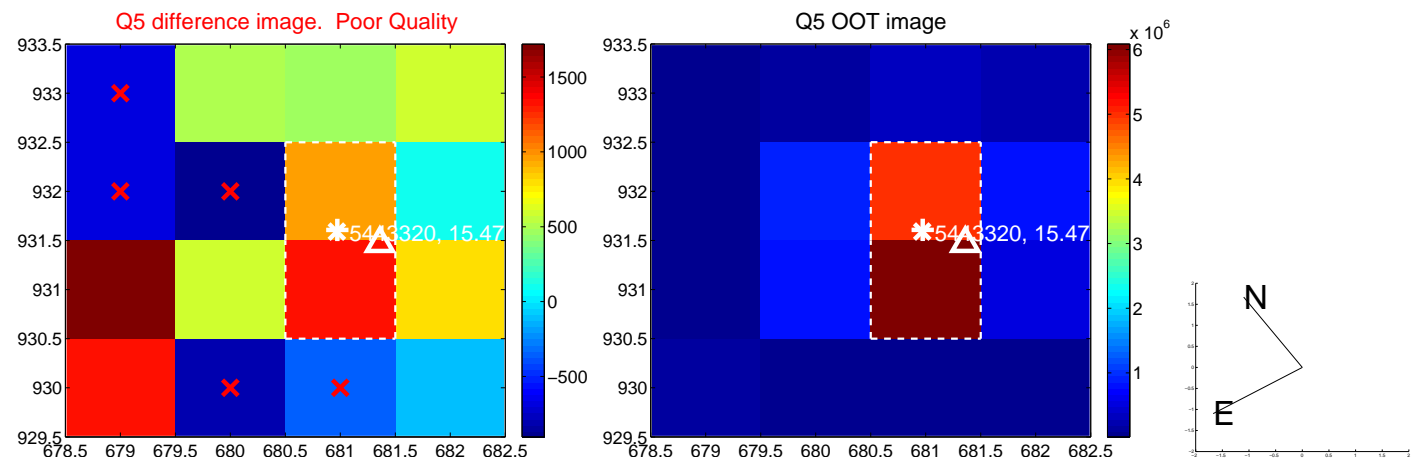
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

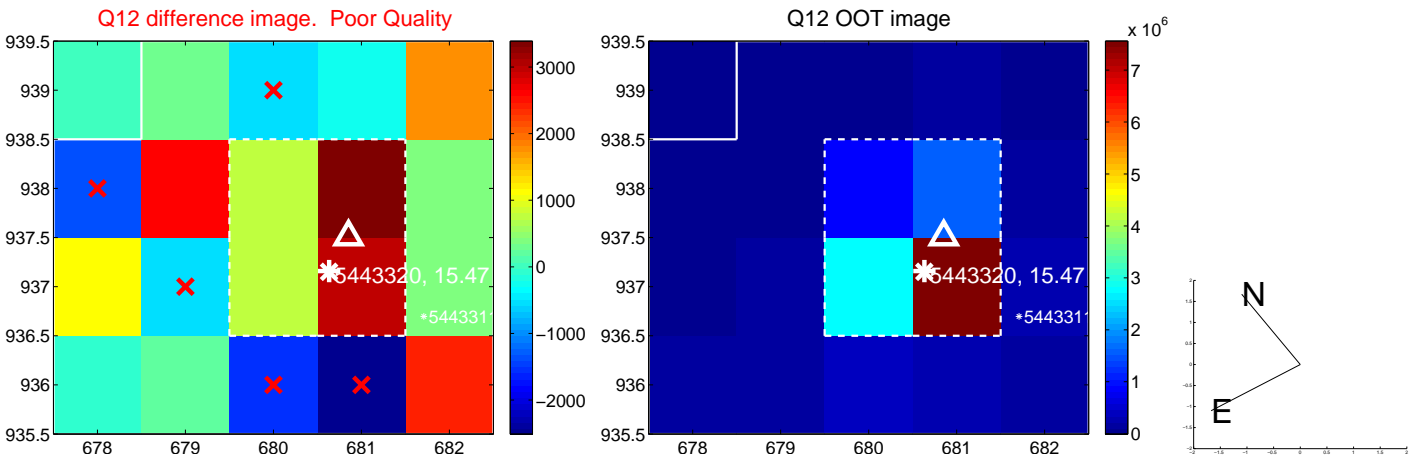
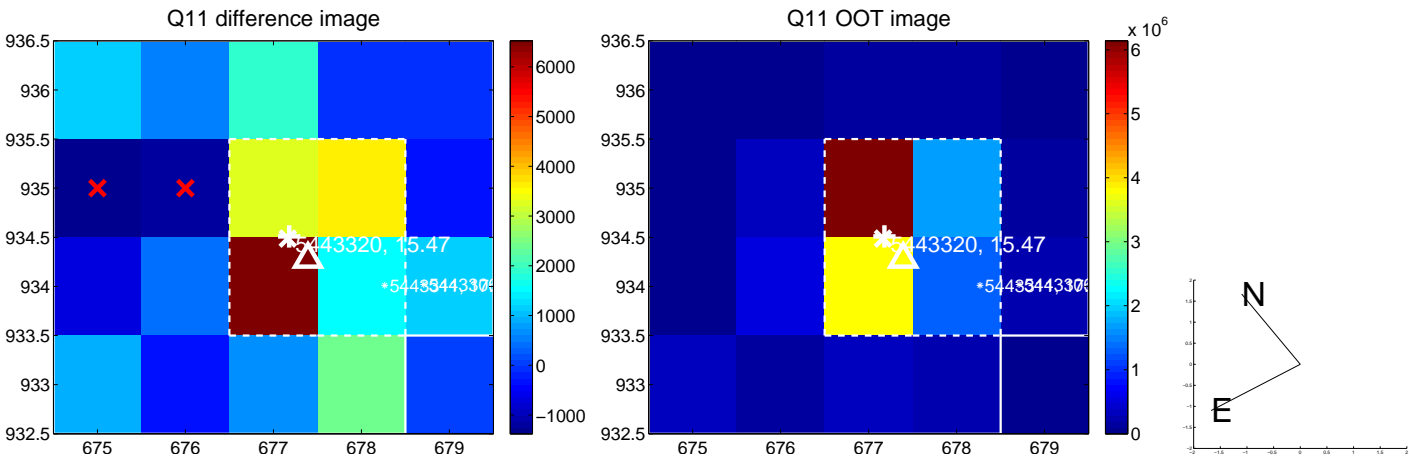
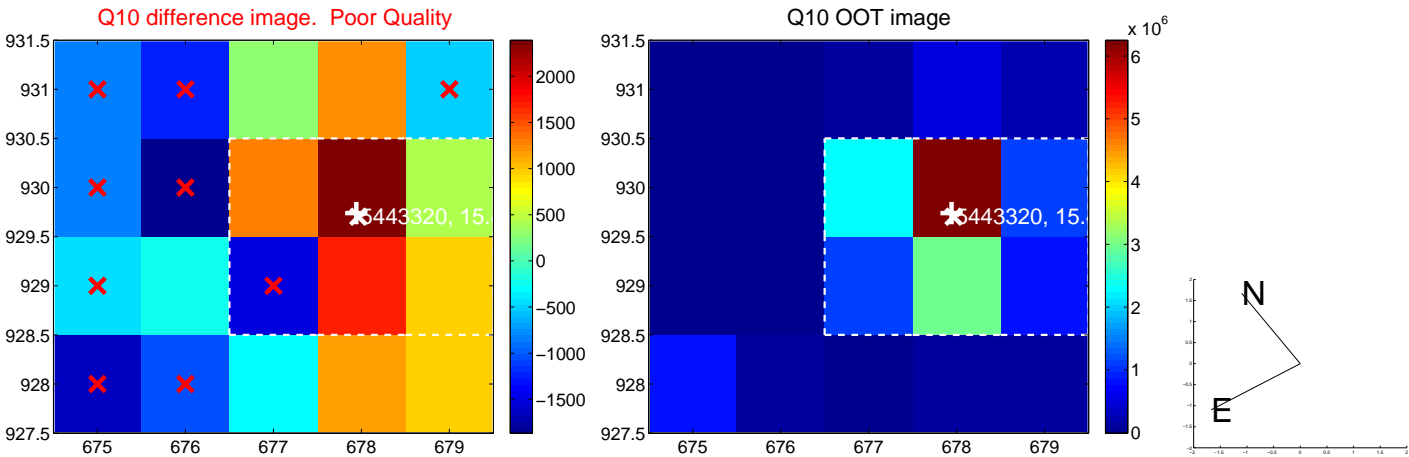
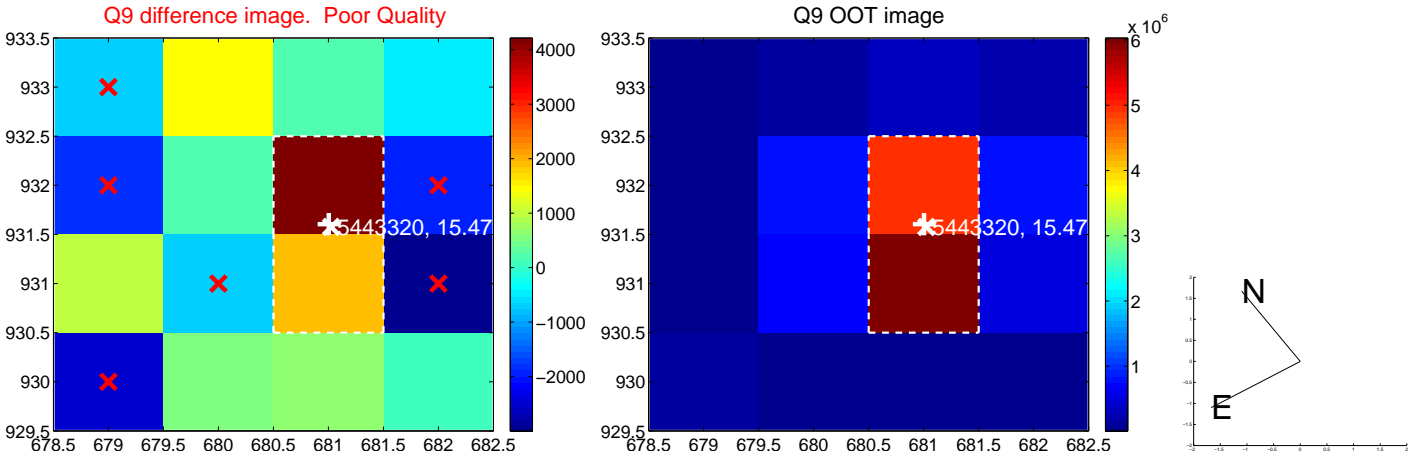




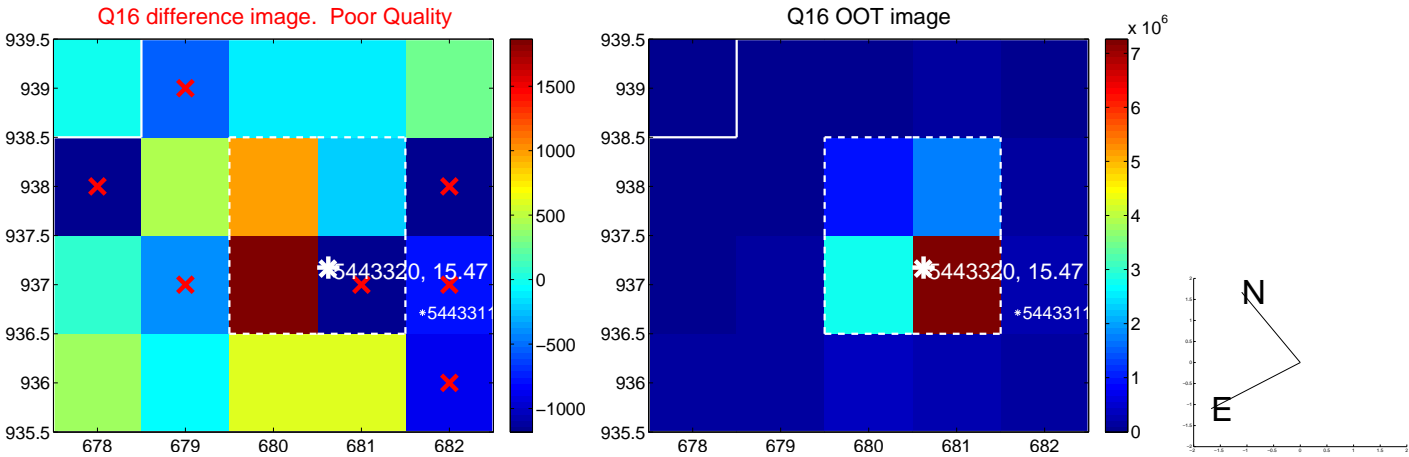
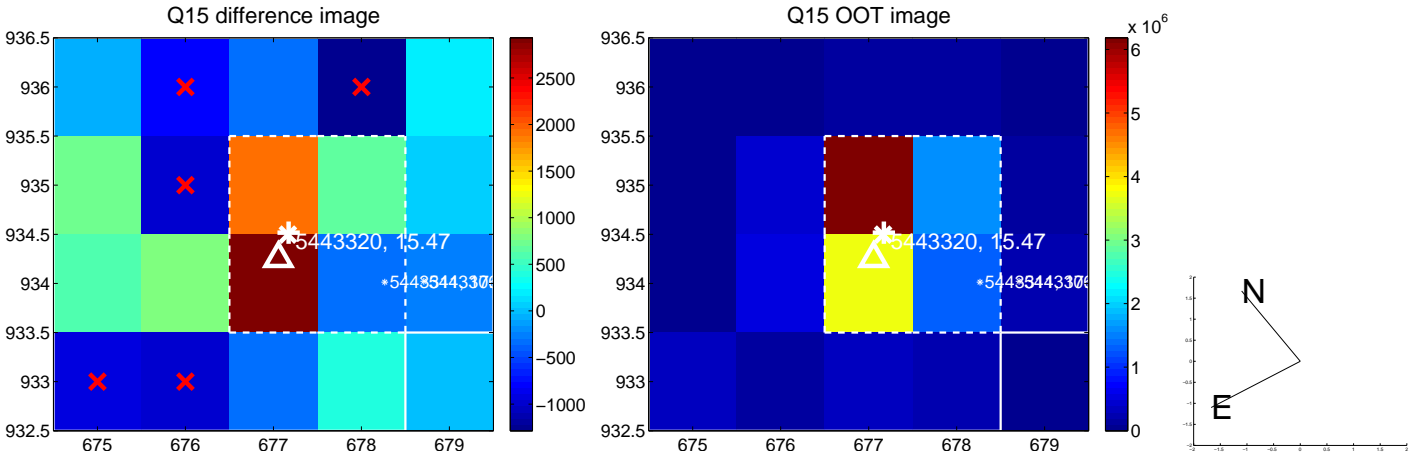
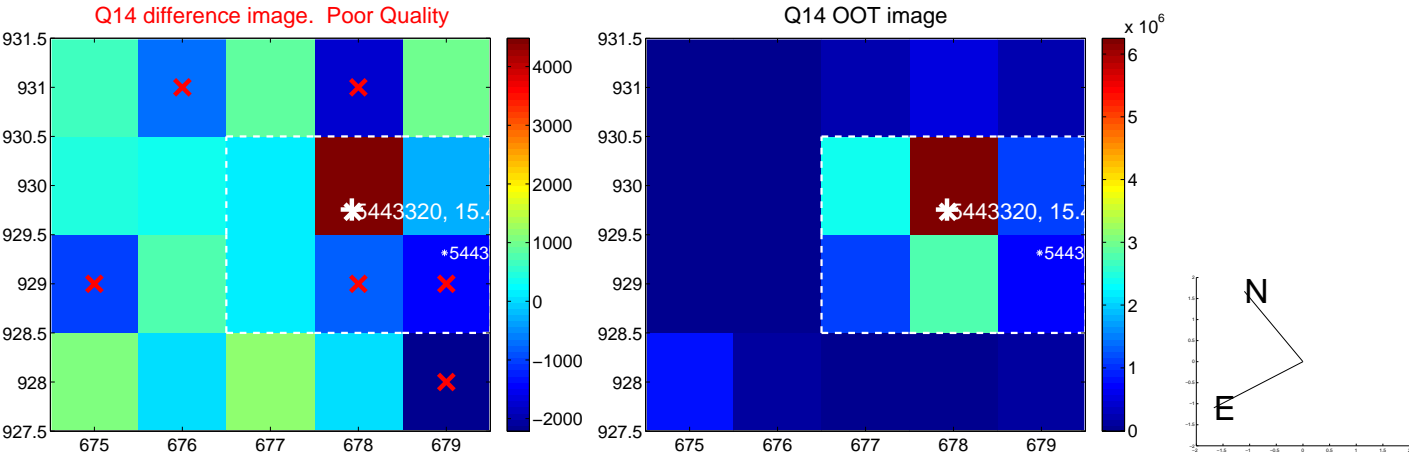
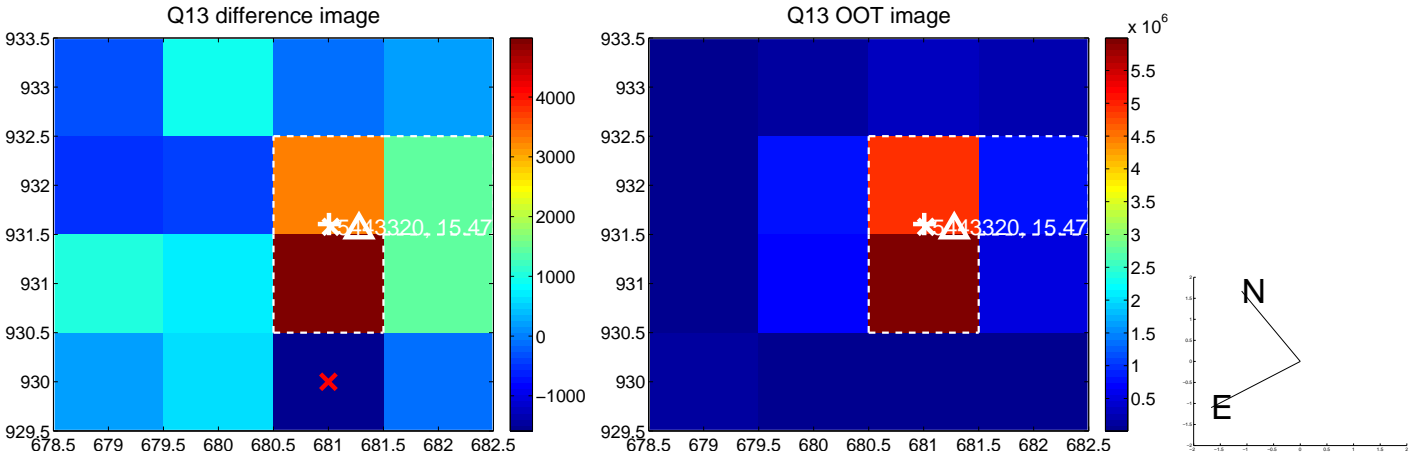
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



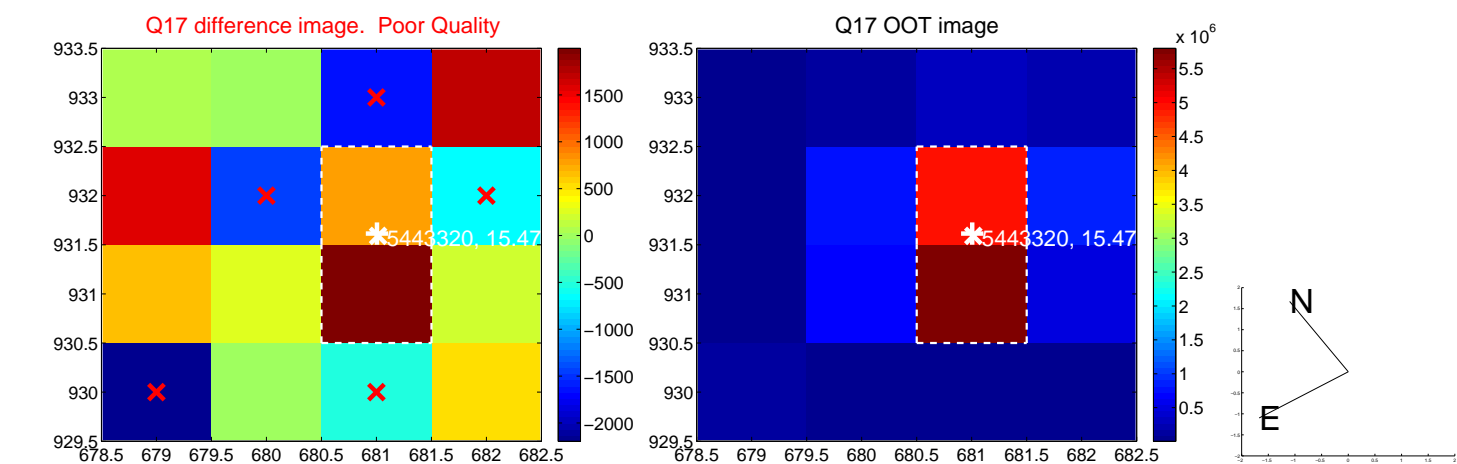
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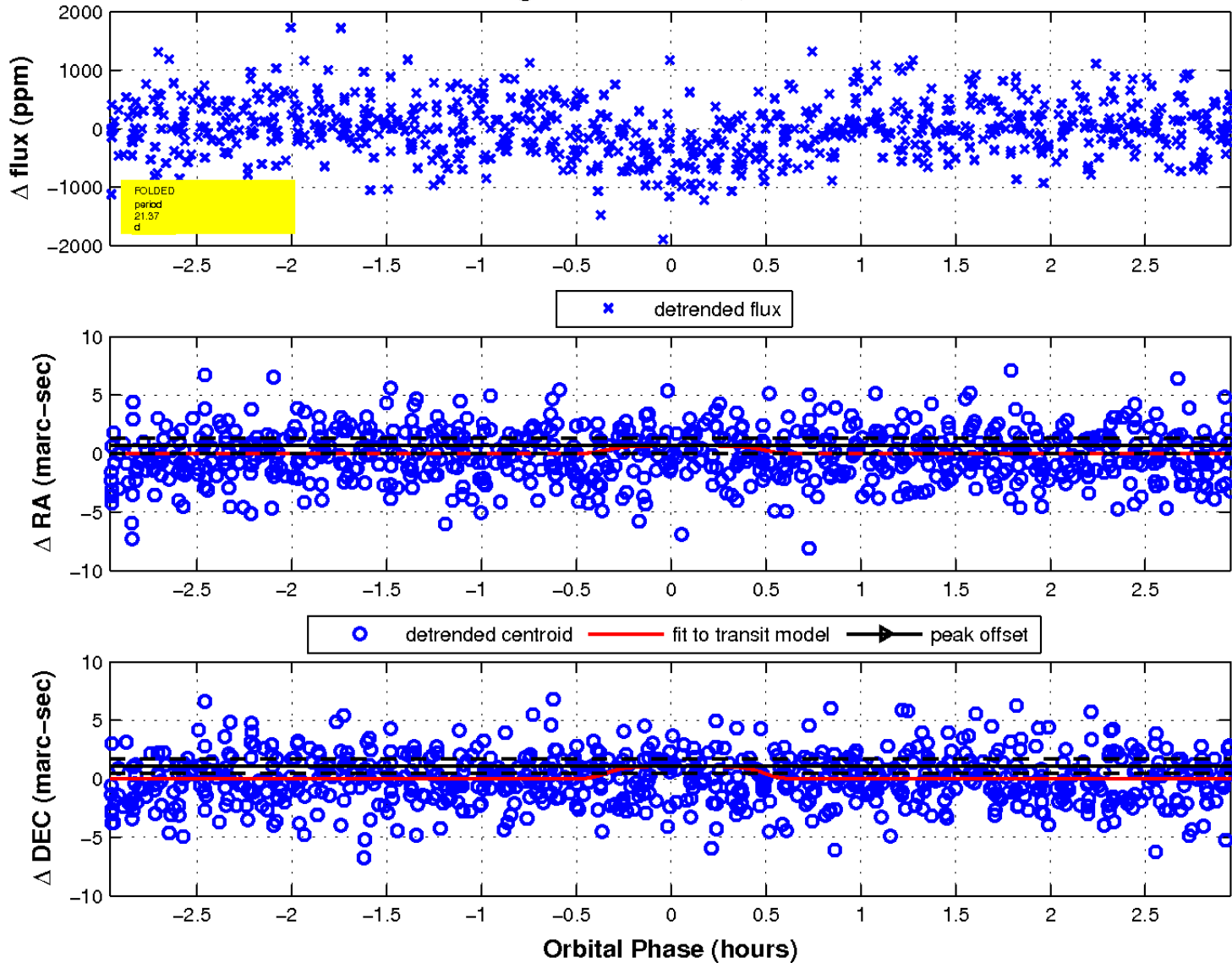
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

