

# KIC 011455181

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011455181-01	OBS	3131.01	10.929482	141.503569	195.6	5.978	12.3	13.3	0.86	5792	1.40	83.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011455181-01	OBS	PC	1.00	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.

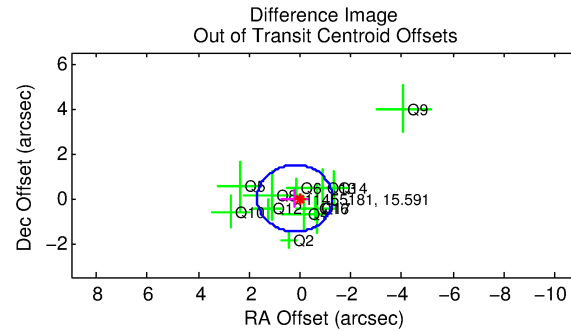
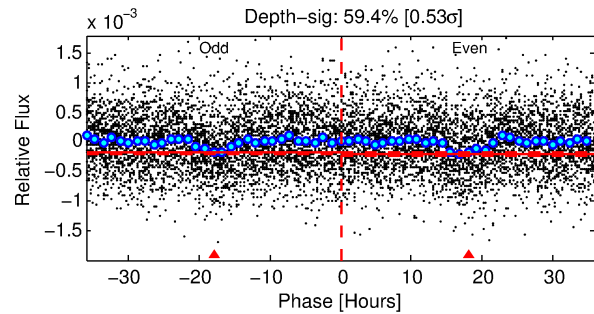
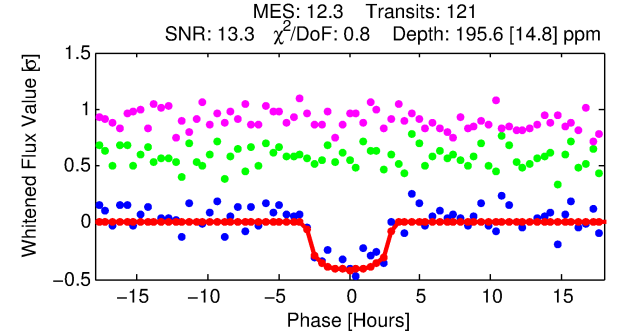
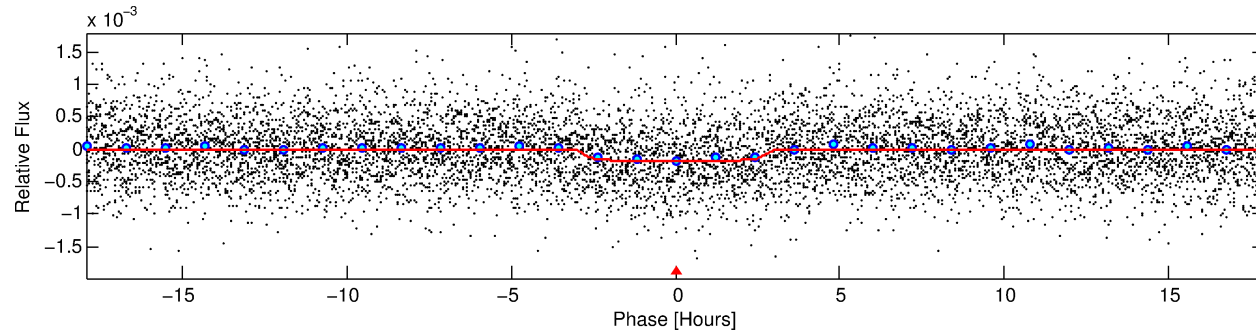
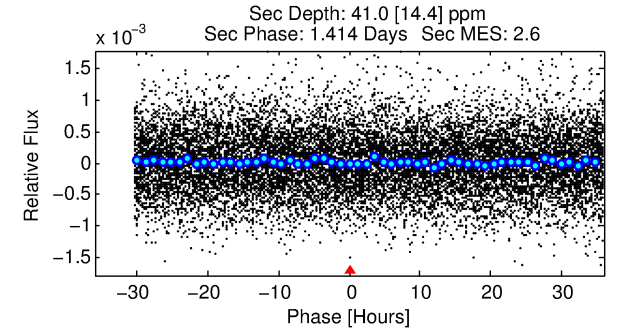
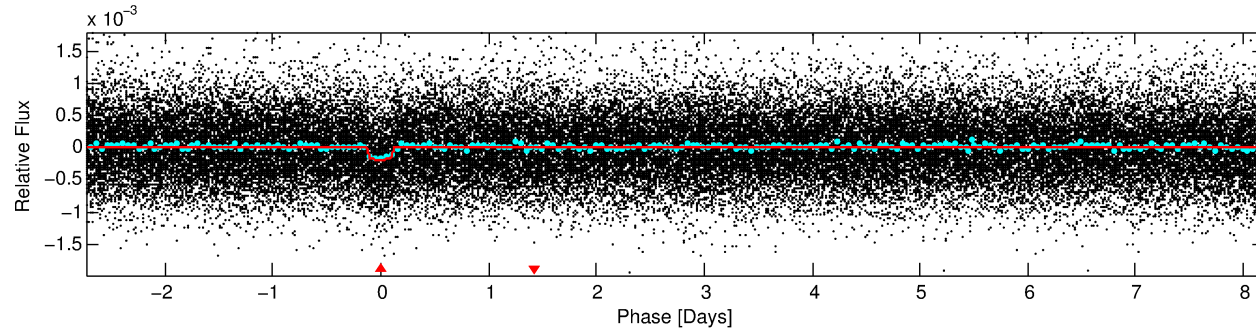
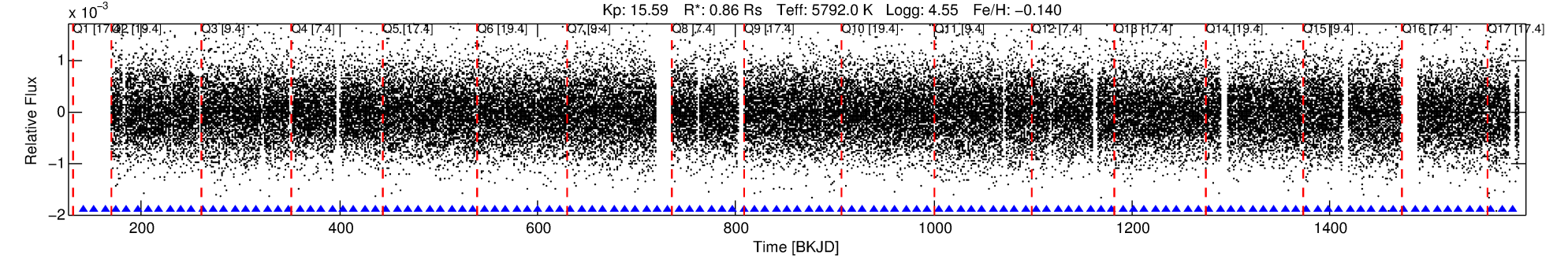
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011455181-01

No Significant Match Found

# DV One-Page Summary

KIC: 11455181 Candidate: 1 of 1 Period: 10.929 d  
KOI: K03131.01 Corr: 0.981



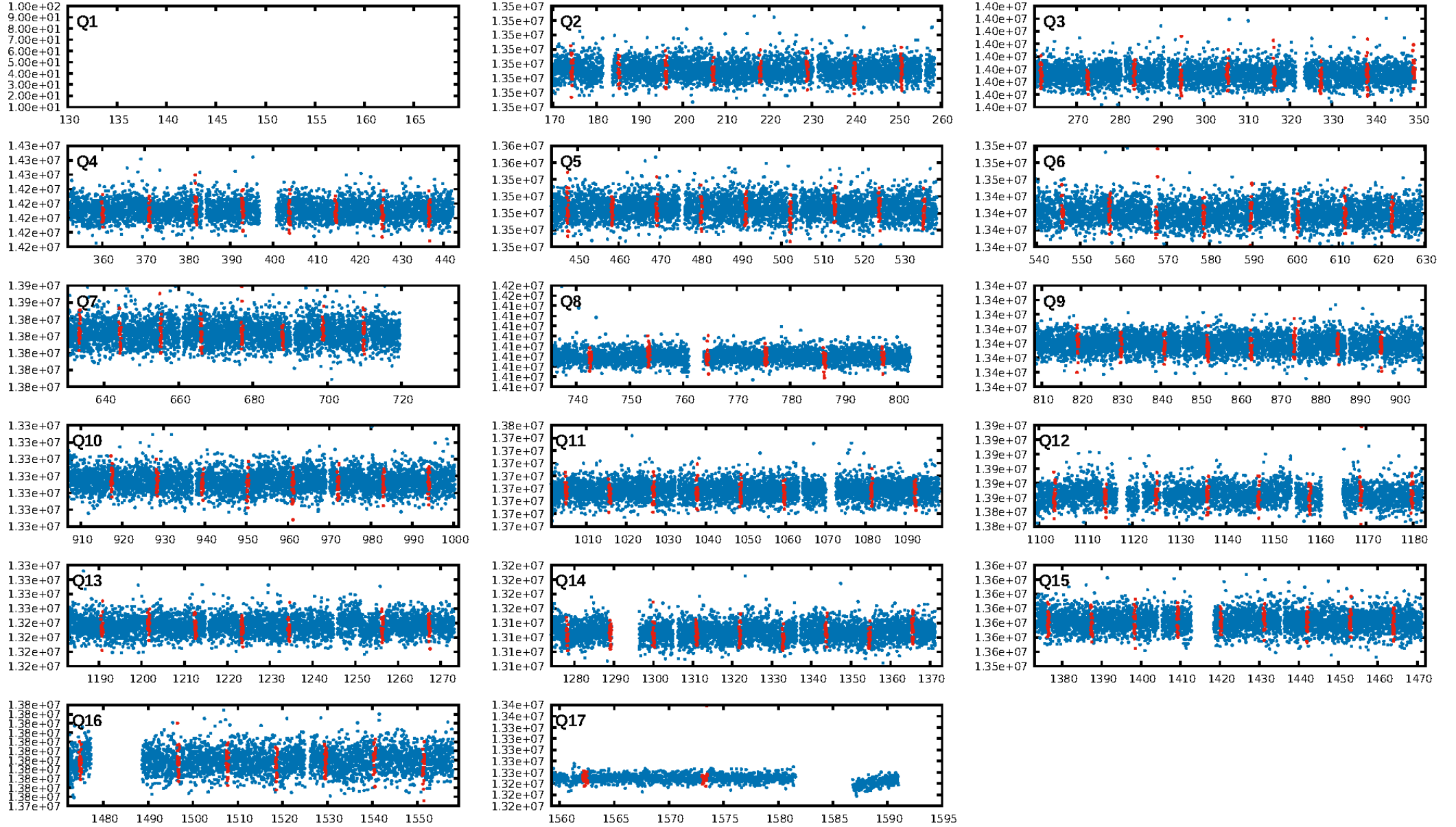
## DV Fit Results:

Period = 10.92948 [0.00012] d  
Epoch = 141.5036 [0.0089] BKJD  
Rp/R\* = 0.0148 [0.0047]  
a/R\* = 7.33 [10.90]  
b = 0.87 [0.43]  
Seff = 83.26 [32.44]  
Teff = 770 [75] K  
Rp = 1.40 [0.61] Re  
a = 0.0951 [0.0241] AU  
Ag = 104.33 [85.01] [1.22σ]  
Teffp = 3806 [699] K [4.32σ]

## DV Diagnostic Results:

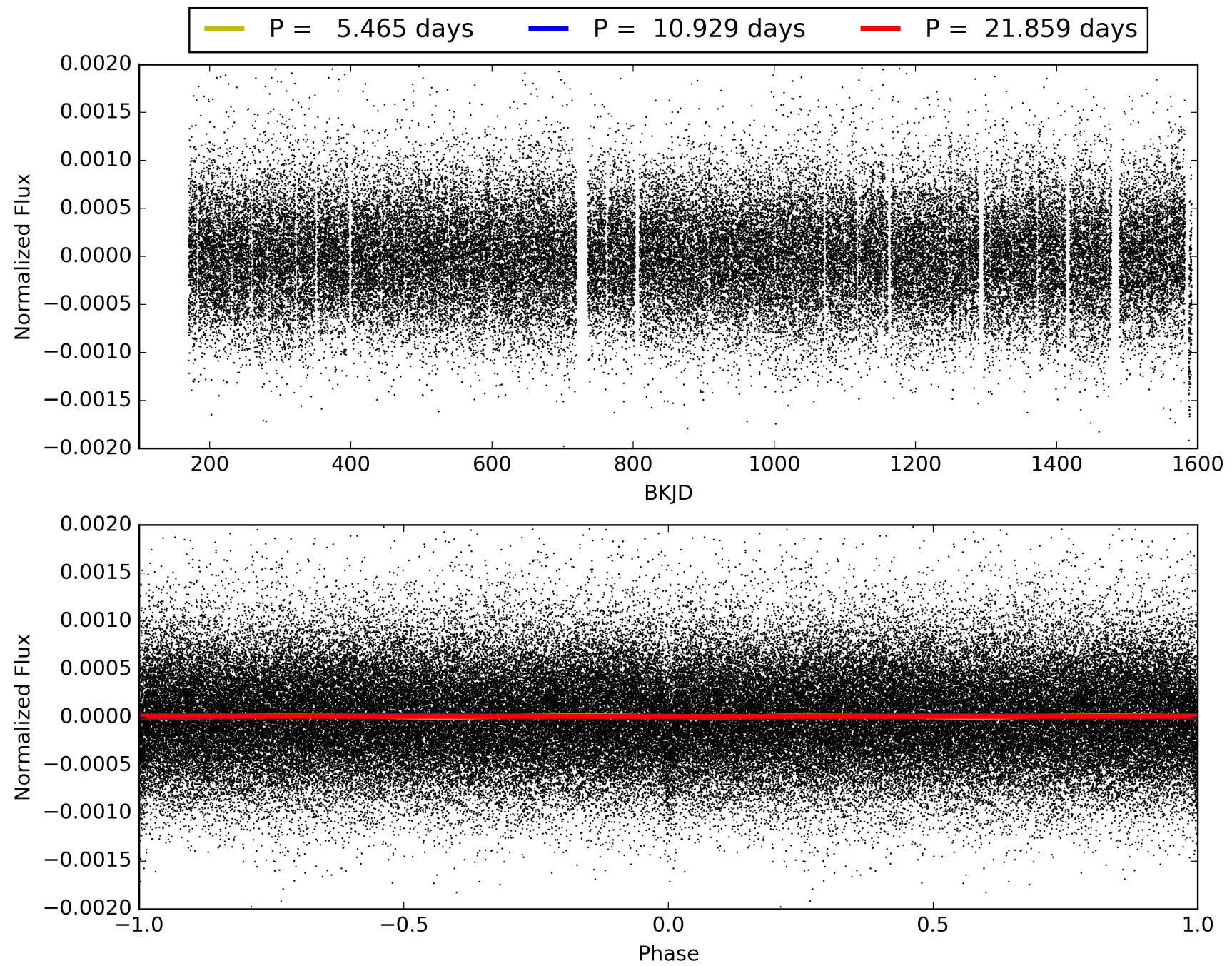
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 7.60e-35  
RollingBand-fgt: 1.00 [119/119]  
GhostDiagnostic-chr: -73  
Centroid-sig: 57.5%  
Centroid-so: 0.736 arcsec [0.66σ]  
OotOffset-rm: 0.203 arcsec [0.41σ]  
KicOffset-rm: 0.163 arcsec [0.43σ]  
OotOffset-st: 4/0/4/4 [12]  
KicOffset-st: 4/0/4/4 [12]  
DiffImageQuality-fgm: 0.67 [8/12]  
DiffImageOverlap-fno: 1.00 [16/16]

# TCE 011455181-01, PDC Light Curves



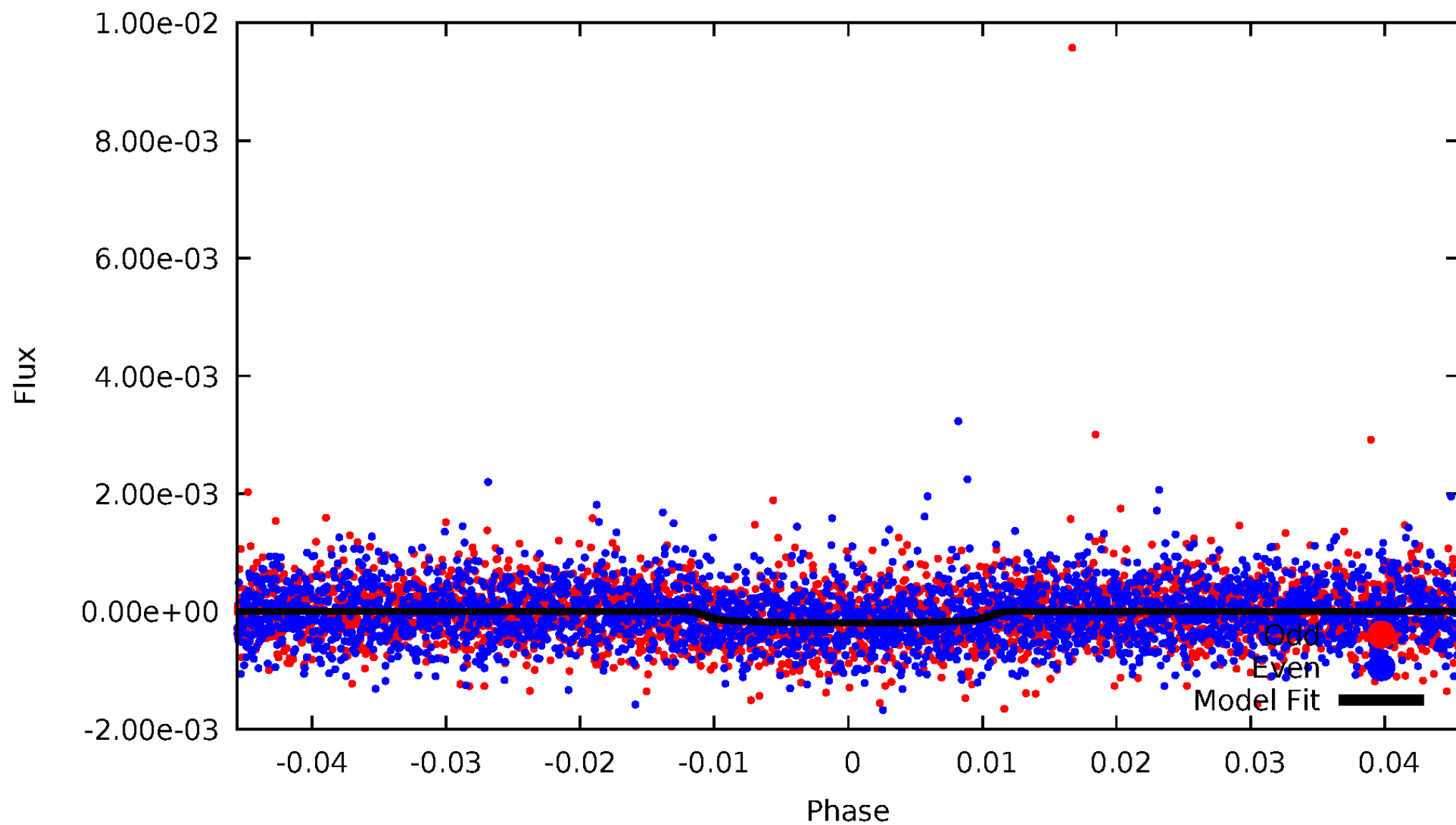


TCE 011455181-01



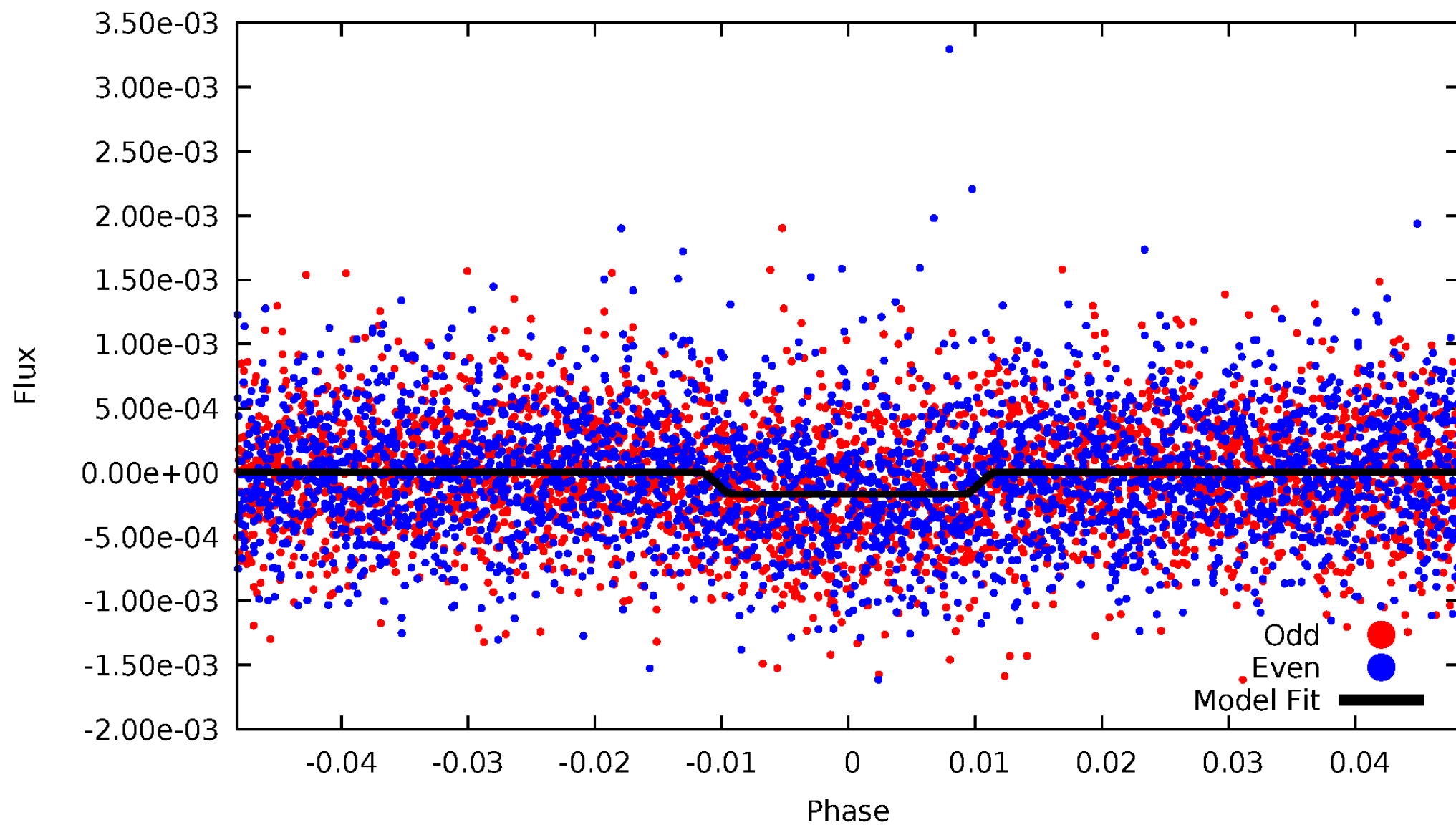
# DV Odd/Even

TCE 011455181-01



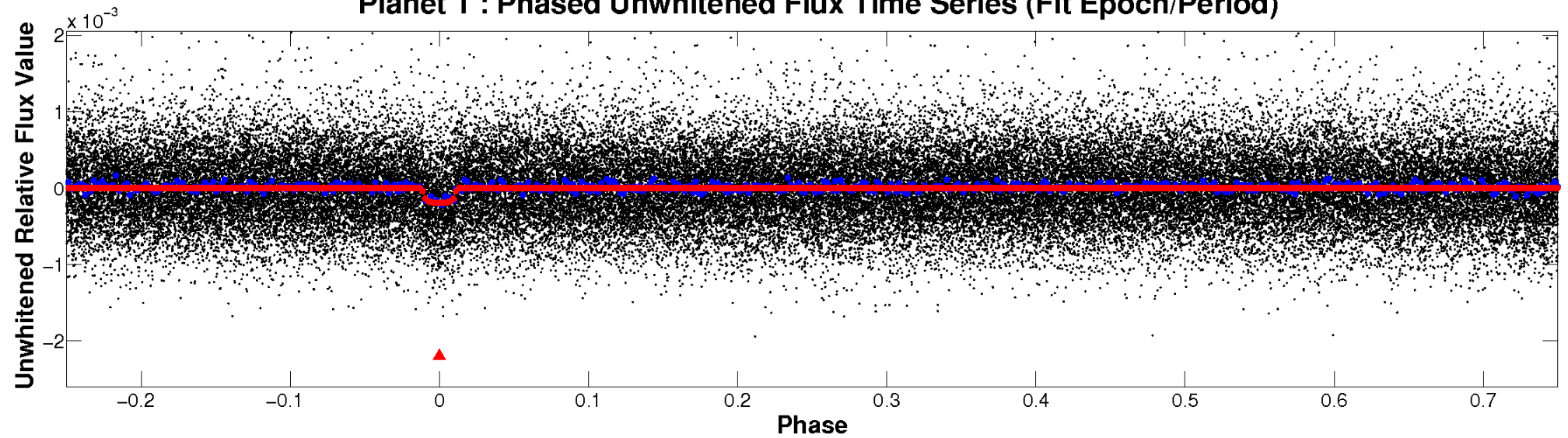
# ALT Odd/Even

TCE 011455181-01

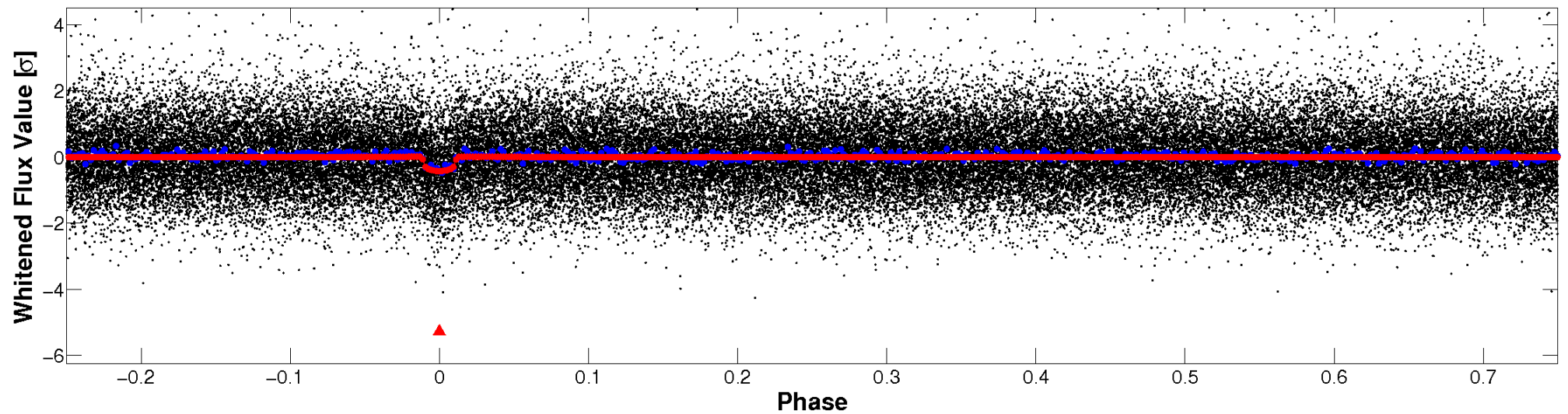


# Non-Whitened Vs. Whitened Light Curve

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



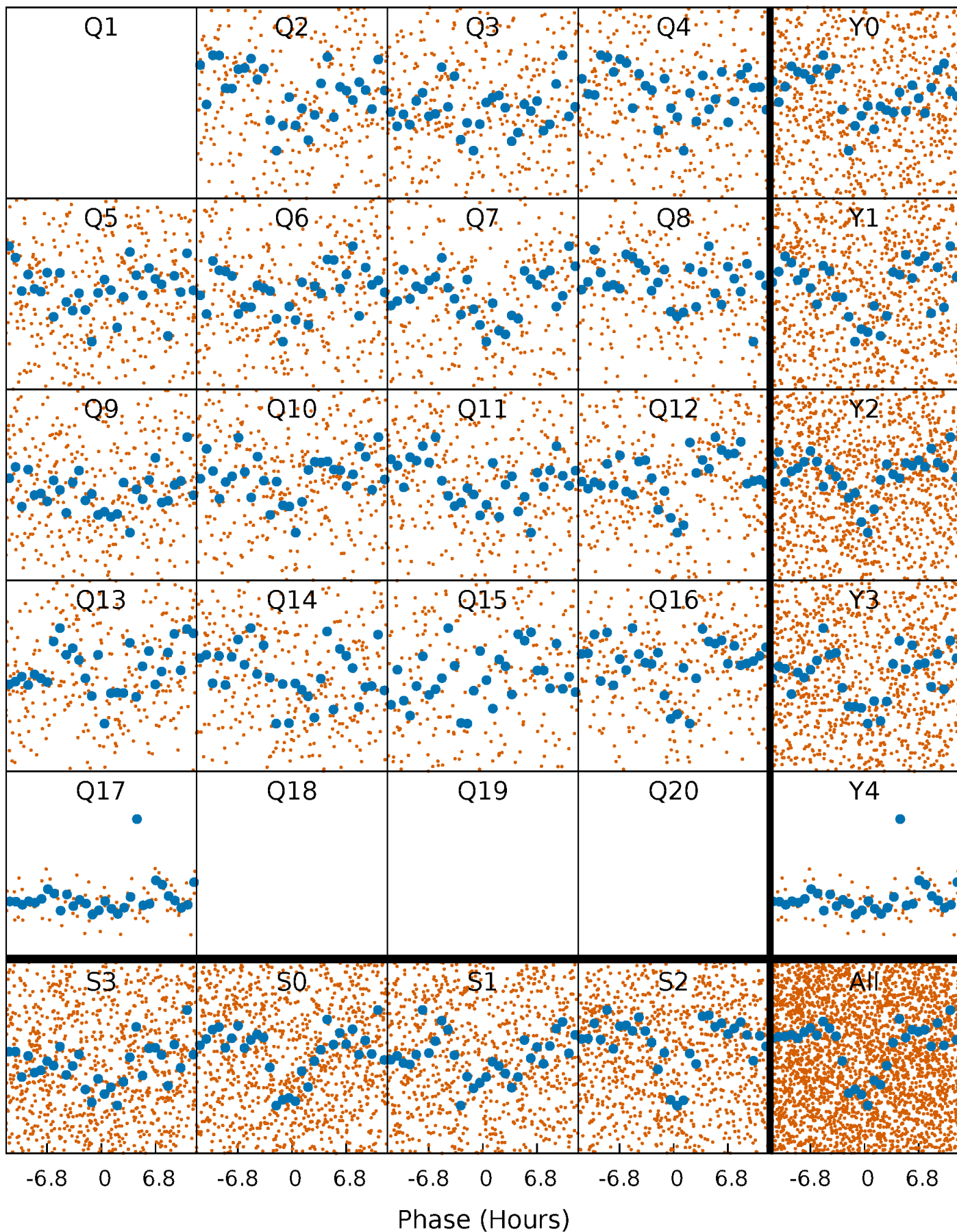
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

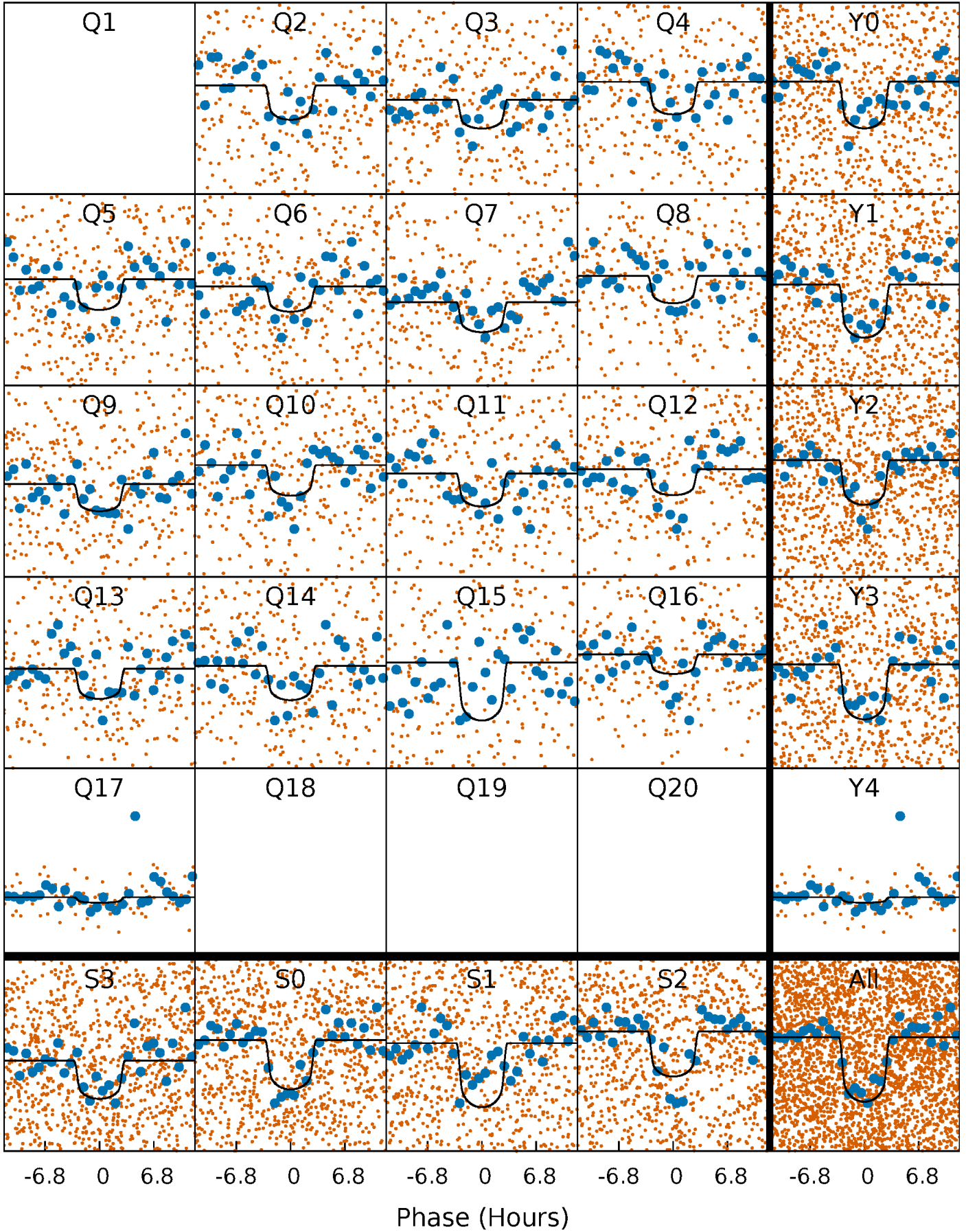
TCE 011455181-01 P= 10.929482 Days  $T_0=141.503569$  (BKJD)





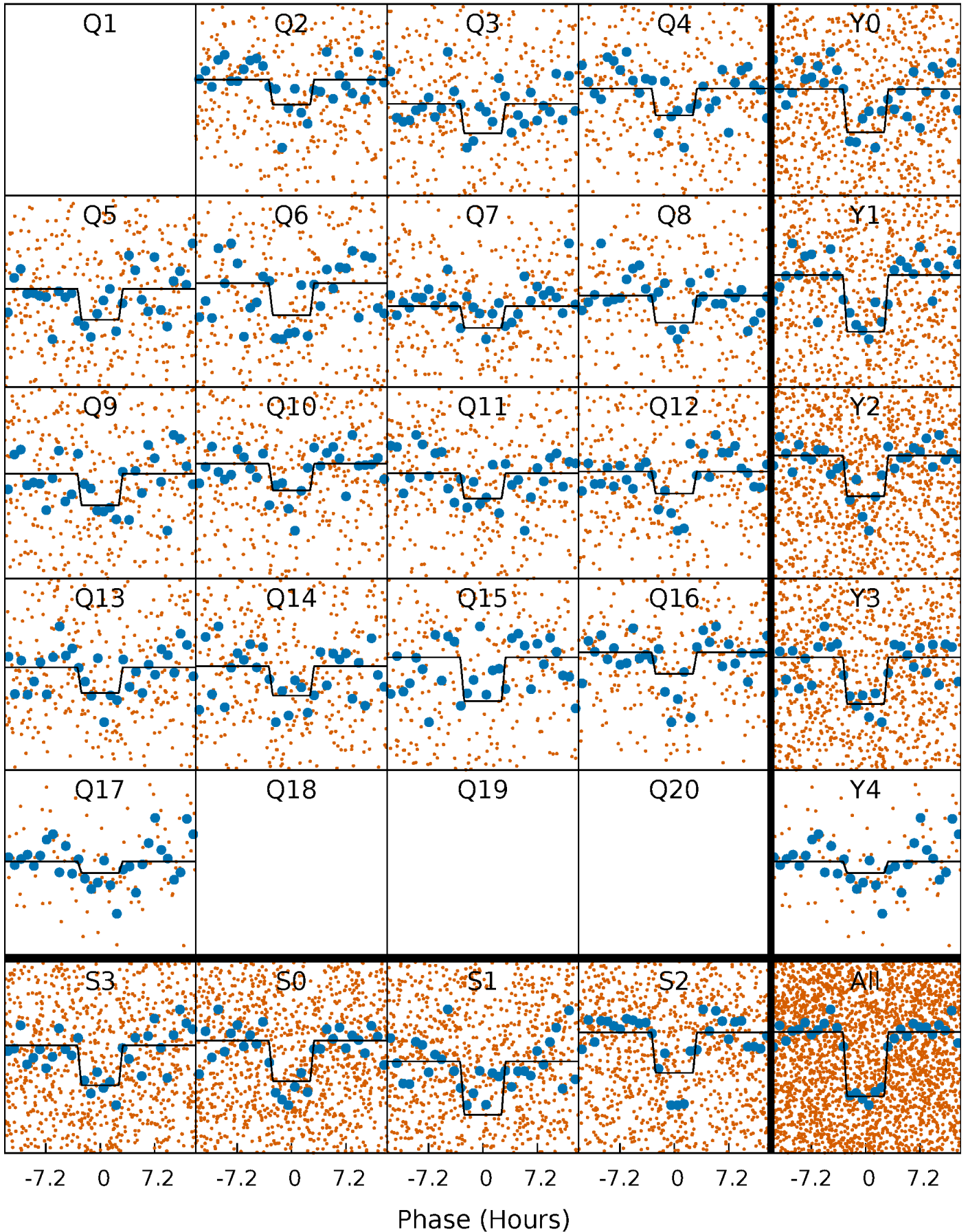
# DV Quarter-Phased Transit Curves

TCE 011455181-01 P= 10.929482 Days  $T_0=141.503569$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

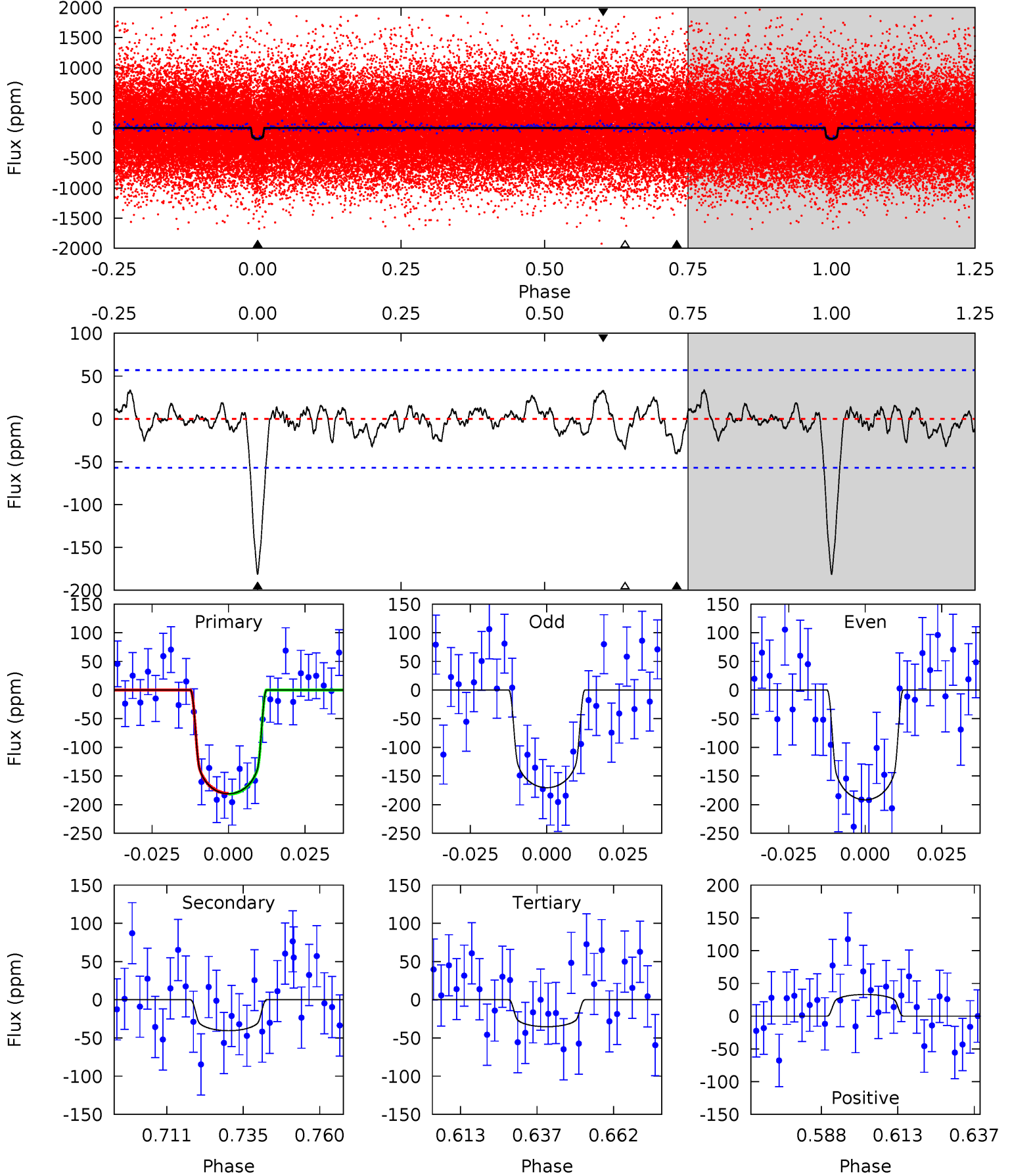
TCE 011455181-01 P= 10.929635 Days  $T_0=141.491655$  (BKJD)



# DV Model-Shift Uniqueness Test

011455181-01,  $P = 10.929482$  Days,  $E = 141.503569$  Days

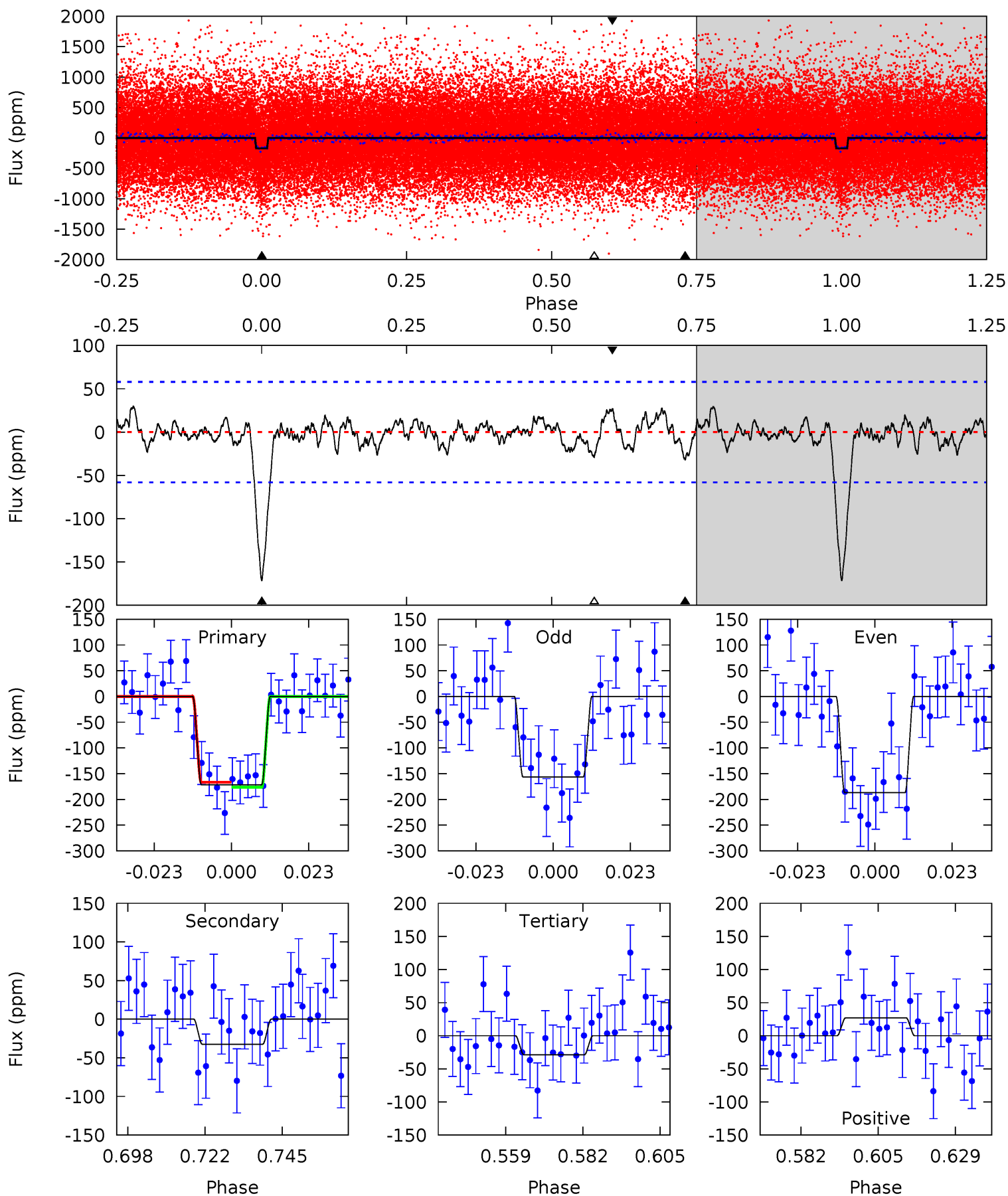
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	3.45	3.01	2.82	4.85	2.25	1.05	12.4	12.6	0.44	0.63	0.90	1.04	0.16	0.05



# Alt Model-Shift Uniqueness Test

011455181-01,  $P = 10.929635$  Days,  $E = 141.491655$  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
14.4	2.72	2.41	2.27	4.86	2.27	0.94	12.0	12.1	0.31	0.45	1.28	1.01	0.15	0.40





### Stellar Parameters For KIC 011455181

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5792^{+155}_{-172}$	$4.547^{+0.036}_{-0.204}$	$-0.140^{+0.300}_{-0.300}$	$0.864^{+0.258}_{-0.081}$	$0.959^{+0.111}_{-0.111}$	$2.094^{+0.415}_{-1.082}$
	+3%/-3%	+1%/-4%	+214%/-214%	+30%/-9%	+12%/-12%	+20%/-52%
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 011455181-01 / KOI 3131.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-40 \pm 12$	$1.49^{+0.52}_{-0.50}$	$1104^{+72}_{-49}$	$4068^{+703}_{-433}$	$87^{+123}_{-42}$
Alt.	$-32 \pm 12$	$1.30^{+0.50}_{-0.46}$	$1100^{+69}_{-51}$	$4057^{+853}_{-483}$	$89^{+153}_{-47}$

$T_{\text{max}}$  = 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

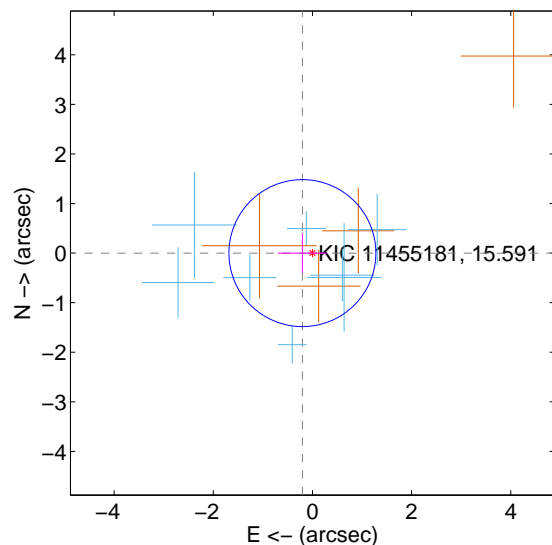
Supplemental centroid analysis for 011455181-01. Kepler magnitude: 15.59. Transit SNR 13.27

There are 8 quarters with good PRF difference image offsets

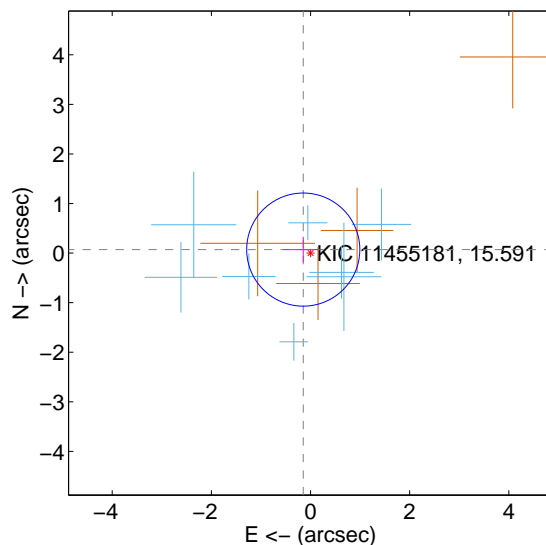
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.203 \pm 0.494$	0.41	$0.203 \pm 0.494$	$-0.000 \pm 0.402$
PRF-fit source offset from KIC position	$0.163 \pm 0.380$	0.43	$0.147 \pm 0.403$	$0.071 \pm 0.258$
photometric centroid source offset	$0.74 \pm 1.11$	0.66	$0.13 \pm 1.18$	$-0.72 \pm 1.11$

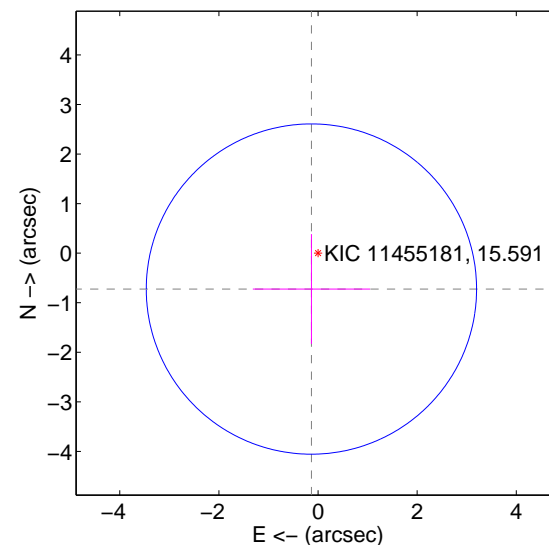
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

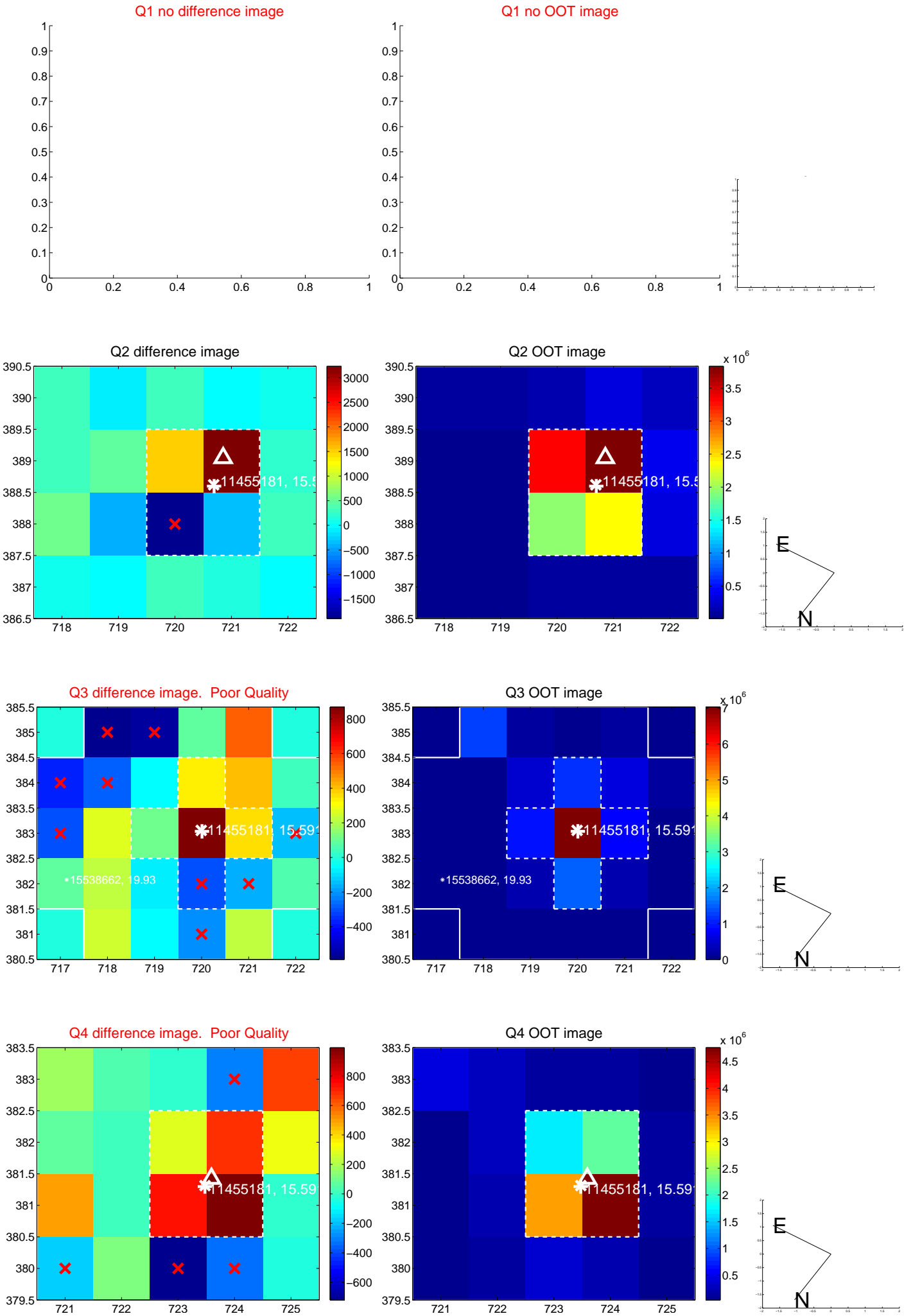


offset from photometric centroids

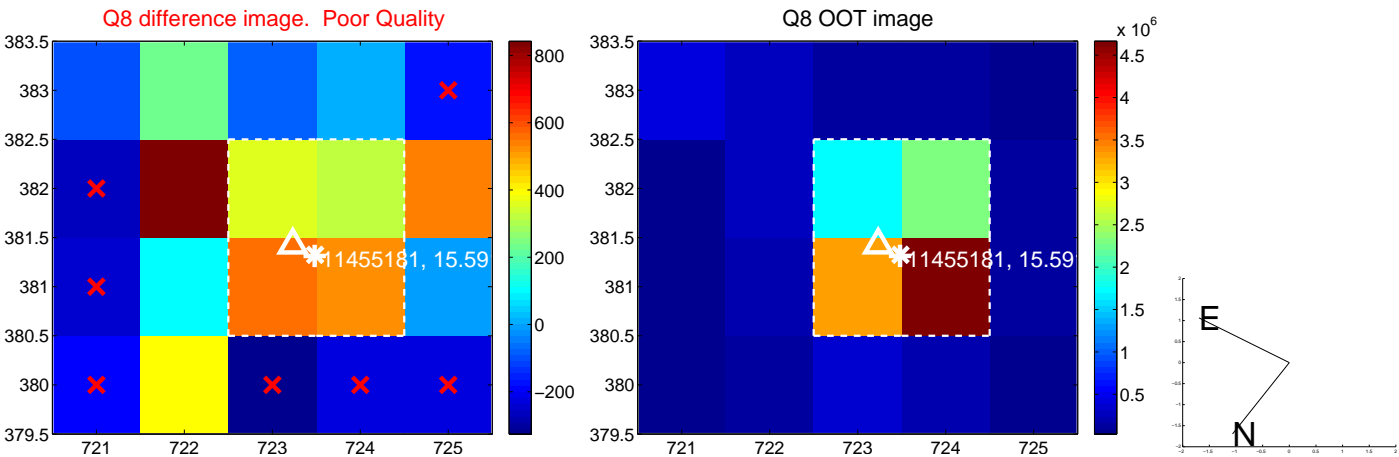
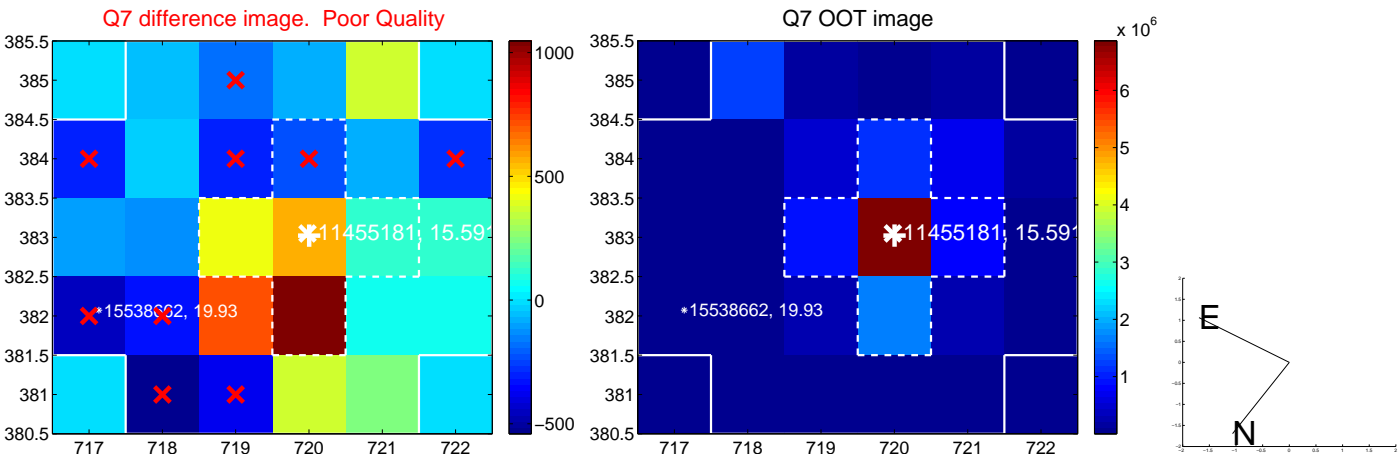
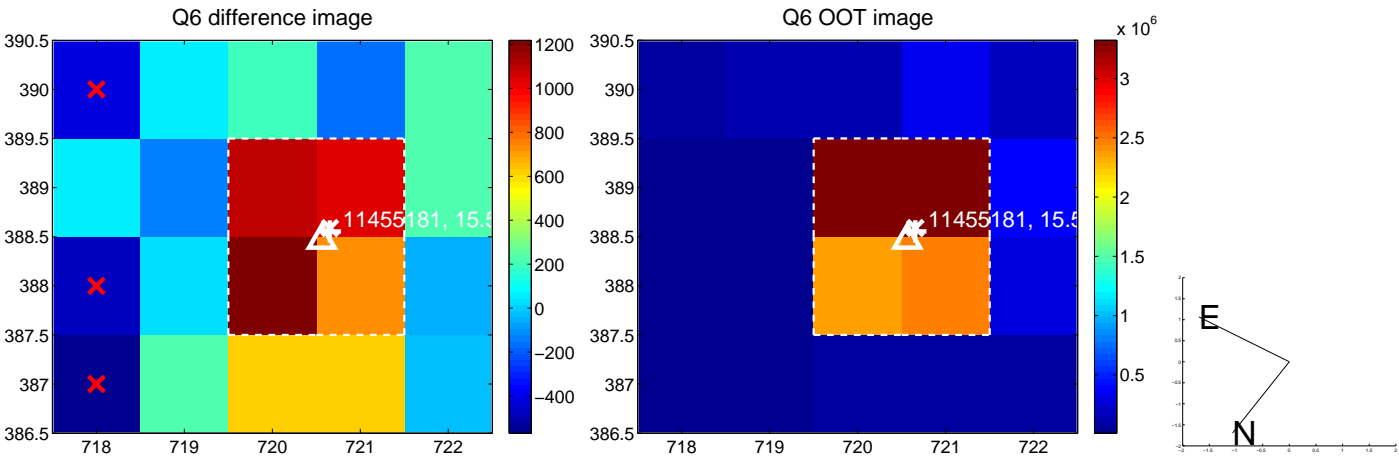
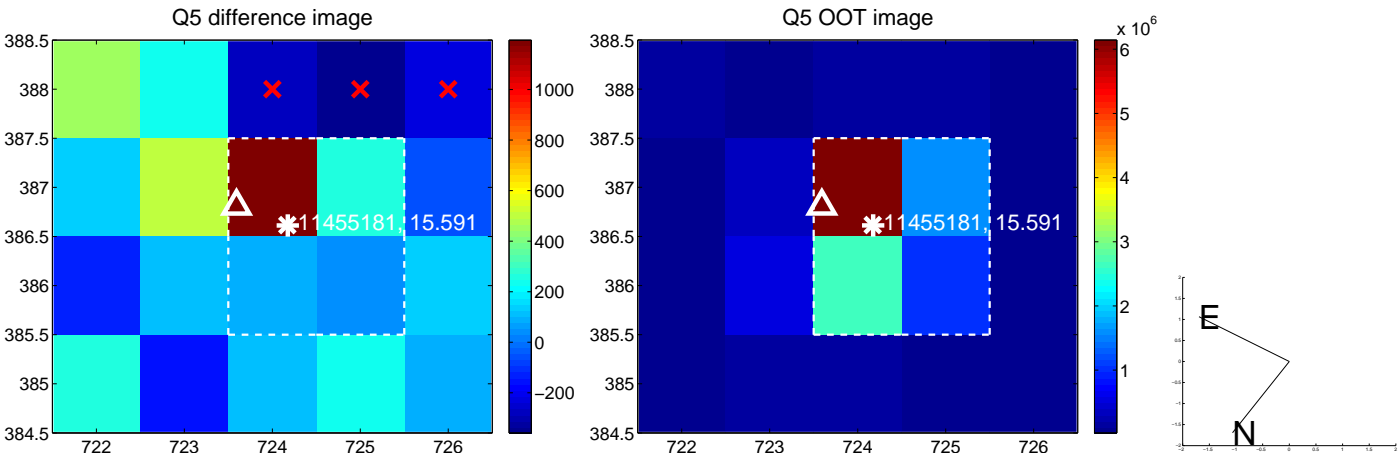


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

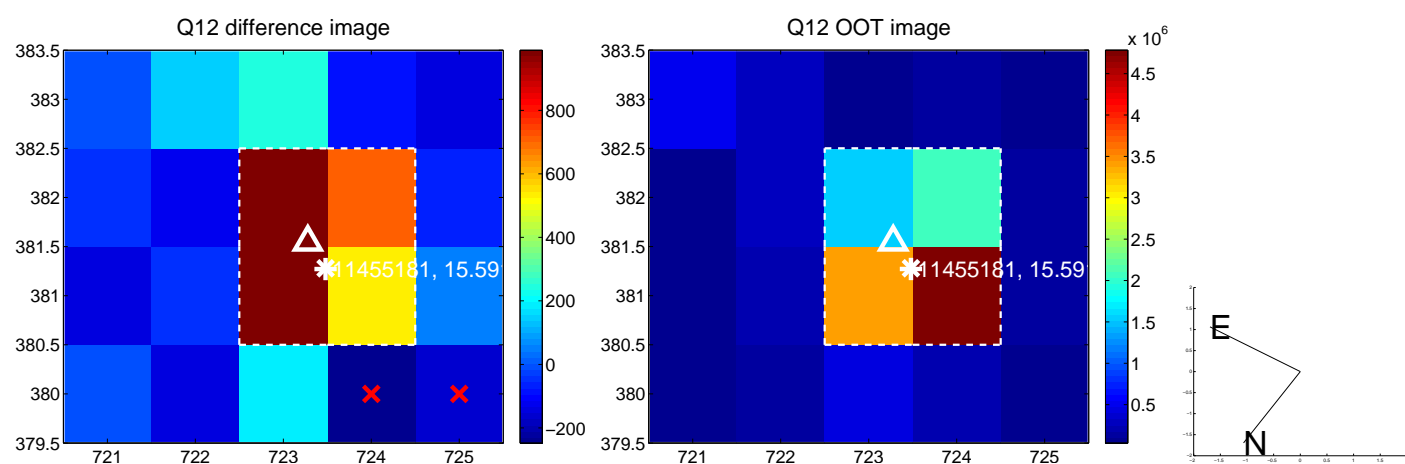
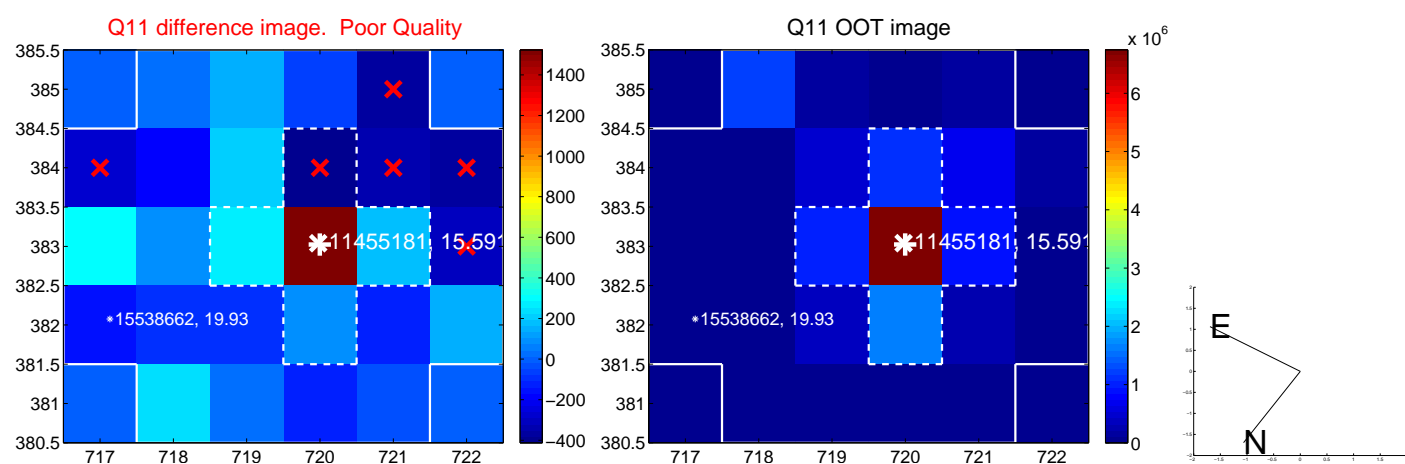
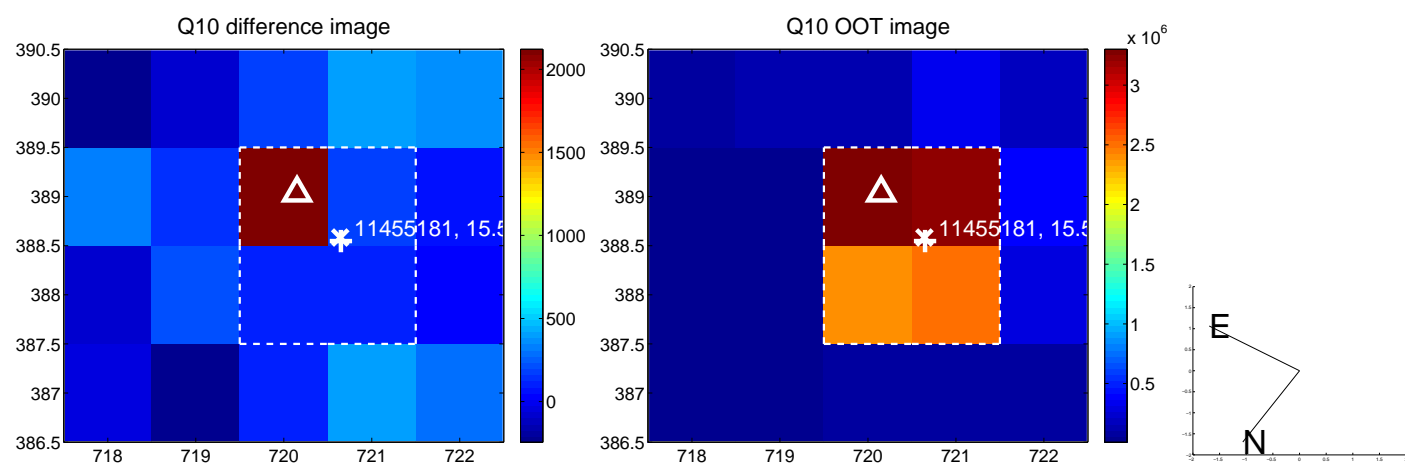
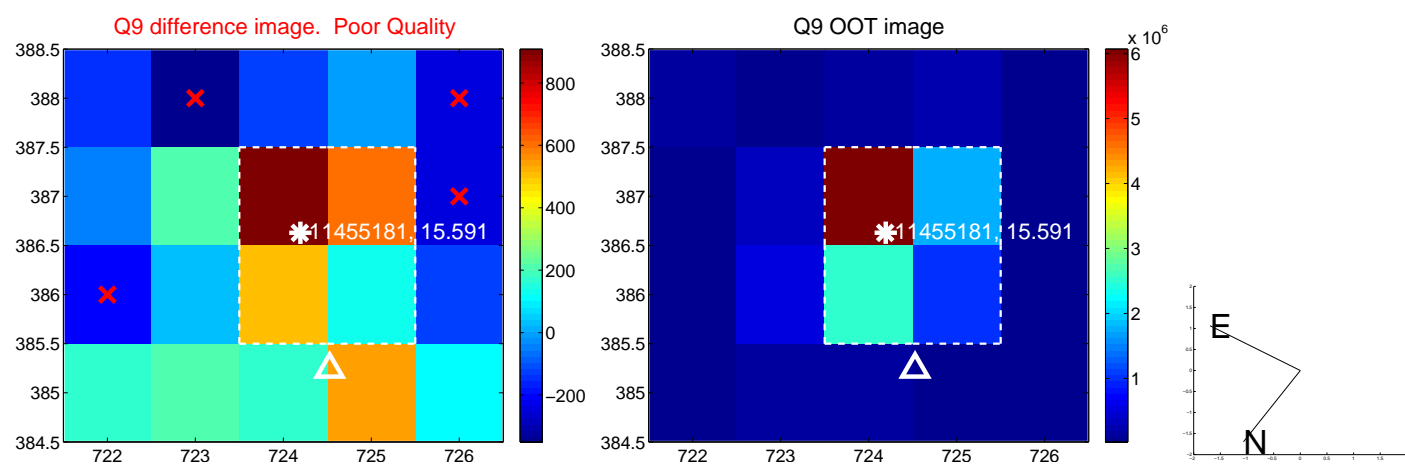


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

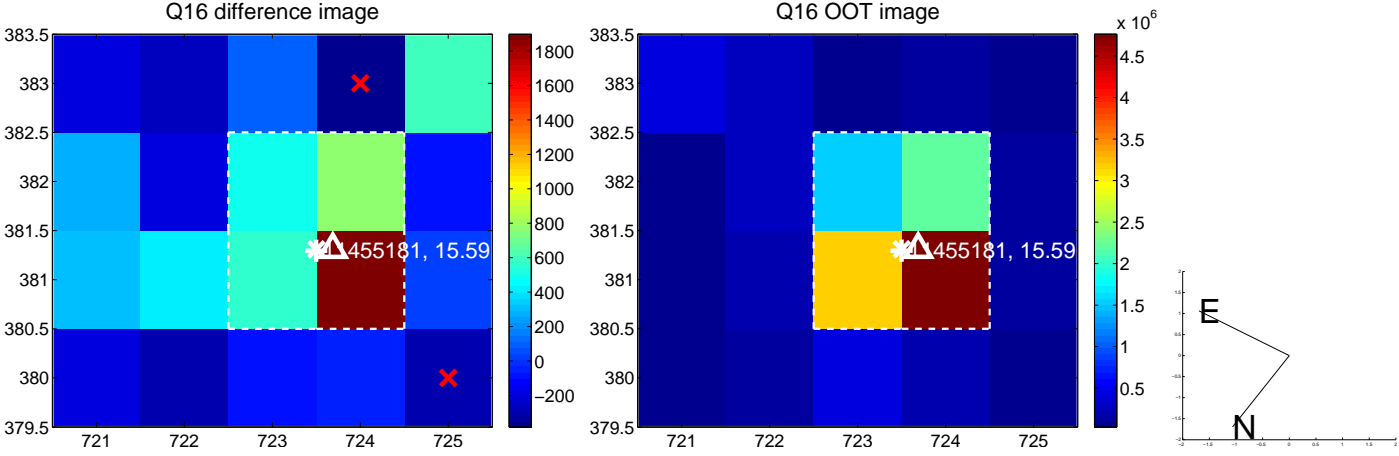
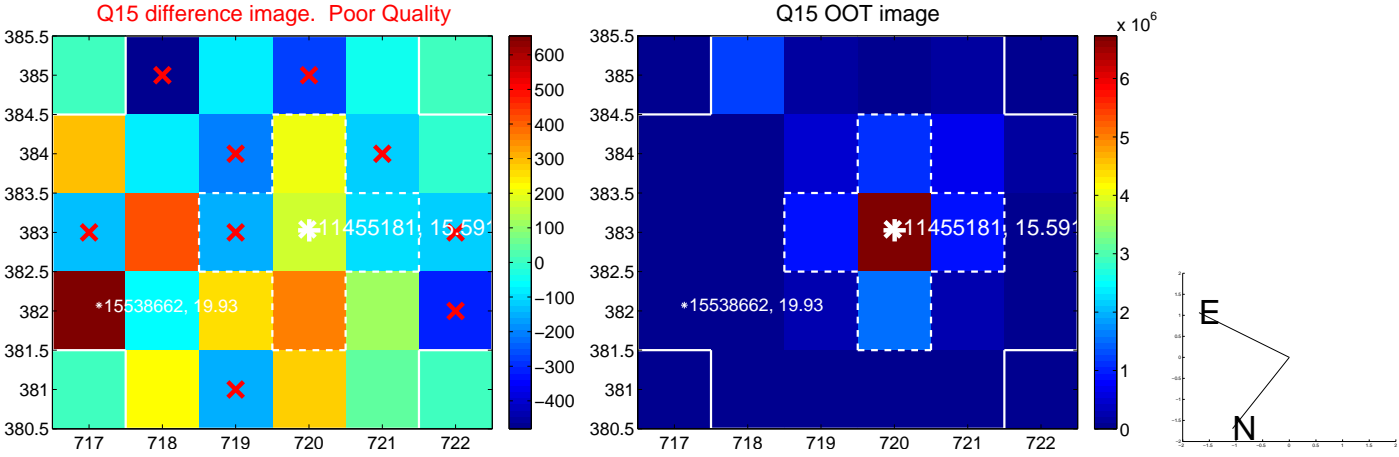
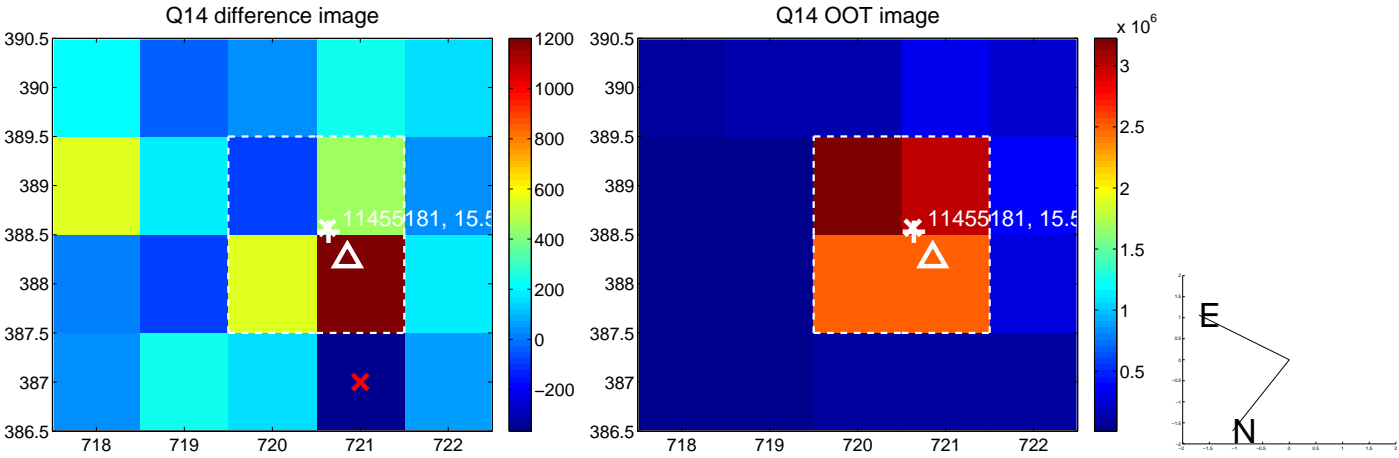
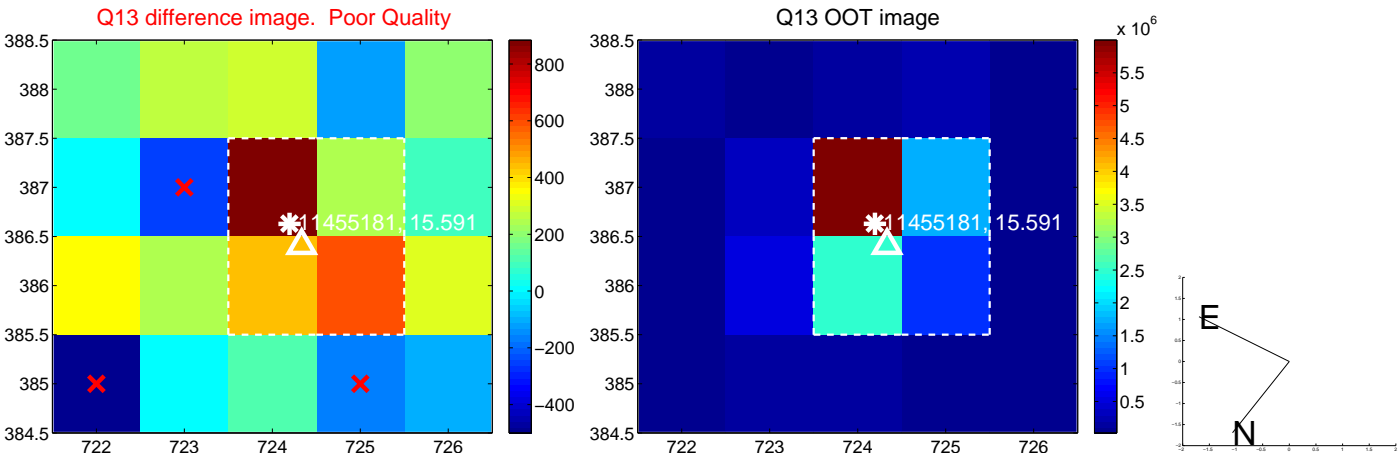




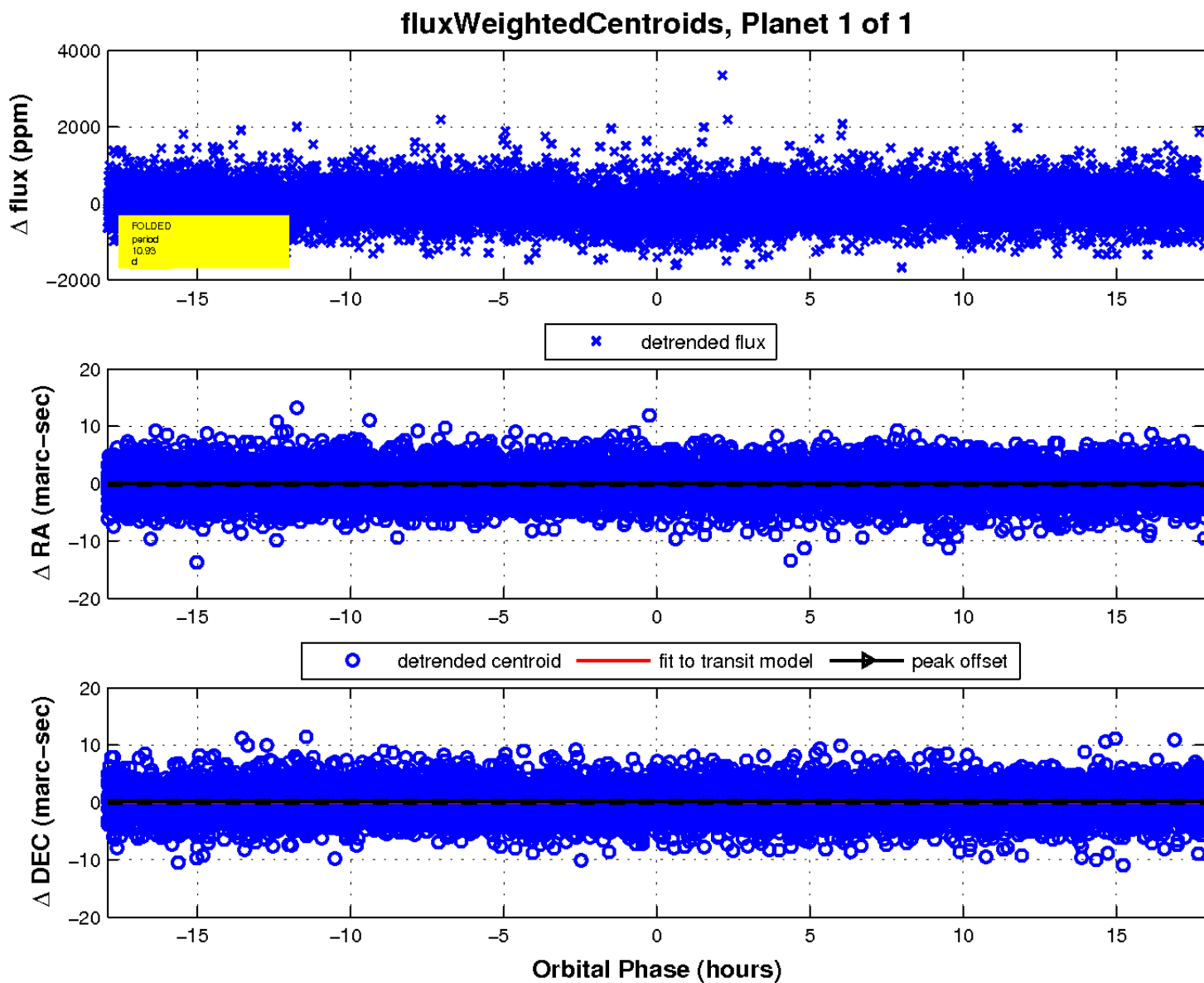
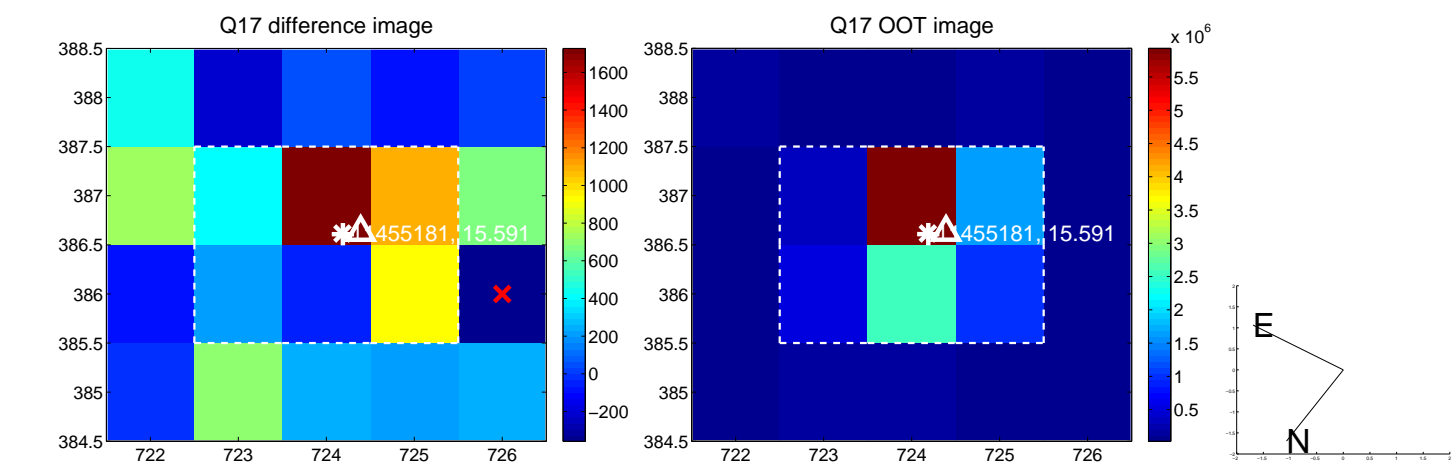
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

