

# KIC 006946831

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006946831-01	OBS	No	0.827255	132.121818	12.1	7.319	7.9	2.3	1.85	7261	0.69	21533.84

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006946831-01	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

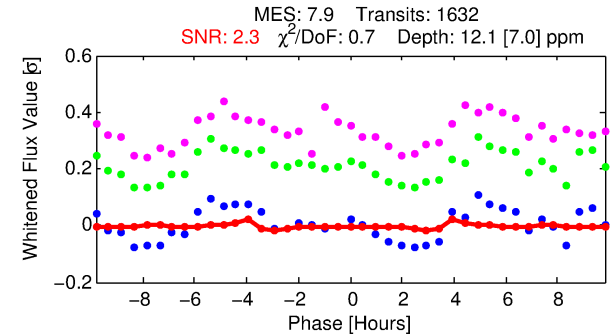
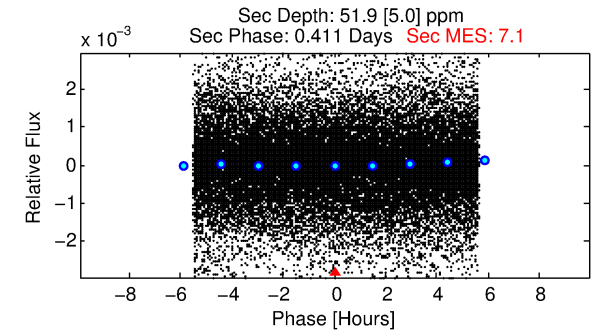
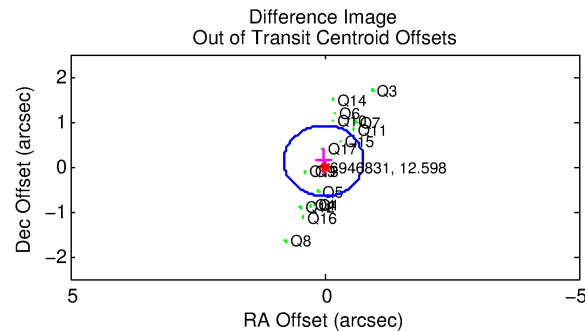
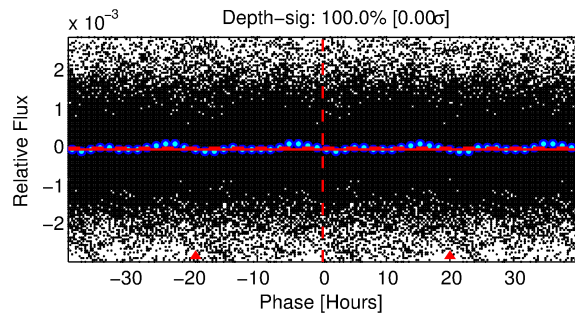
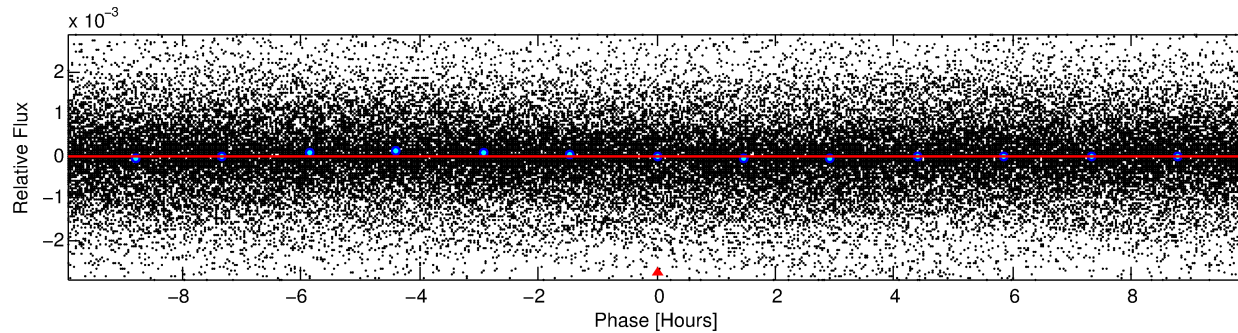
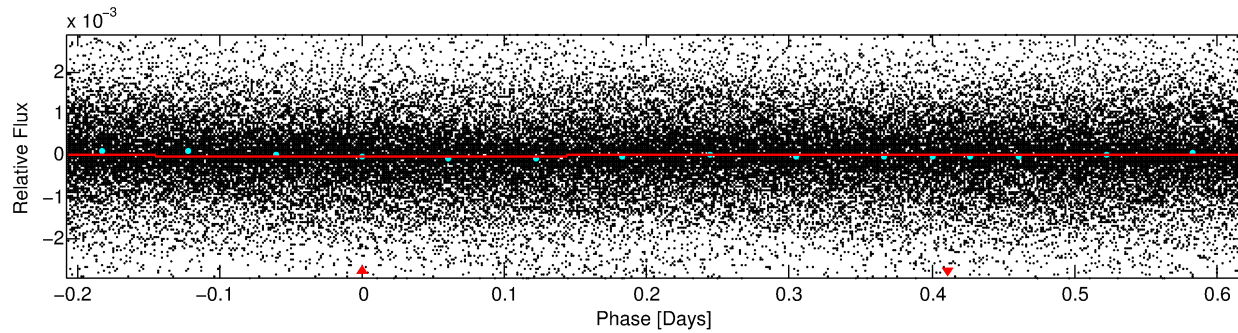
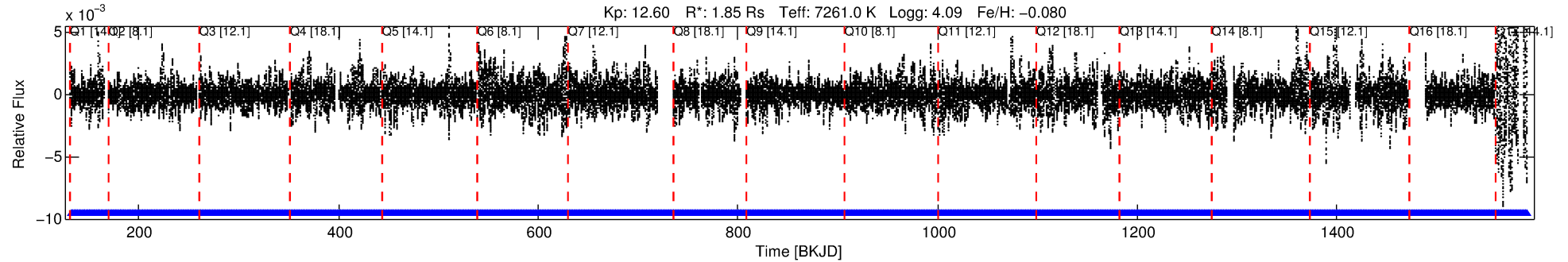
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006946831-01

No Significant Match Found

# DV One-Page Summary

KIC: 6946831 Candidate: 1 of 1 Period: 0.827 d



## DV Fit Results:

Period = 0.82726 [0.00004] d  
Epoch = 132.1218 [0.0057] BKJD  
Rp/R\* = 0.0034 [0.0034]  
a/R\* = 1.05 [0.66]  
b = 0.70 [4.80]  
Seff = 21533.84 [8338.15]  
Teq = 3089 [299] K  
Rp = 0.69 [0.72] Re  
a = 0.0199 [0.0048] AU  
Ag = 23.83 [48.81] [0.47 $\sigma$ ]  
Teffp = 10552 [5346] K [1.39 $\sigma$ ]

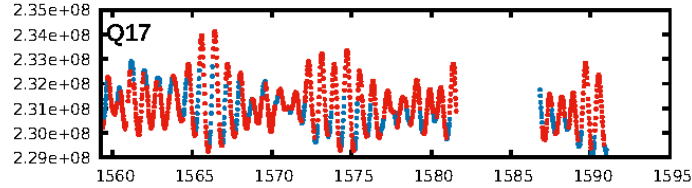
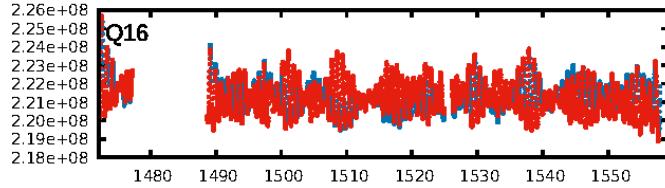
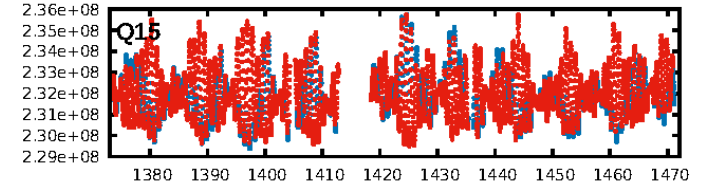
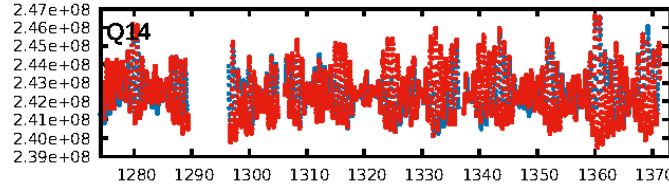
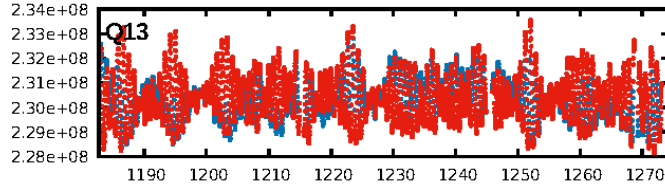
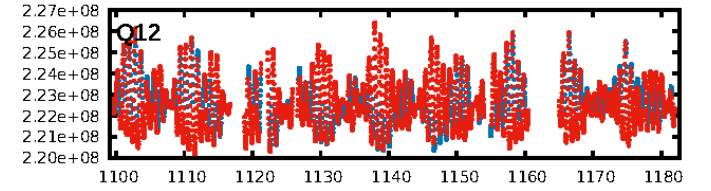
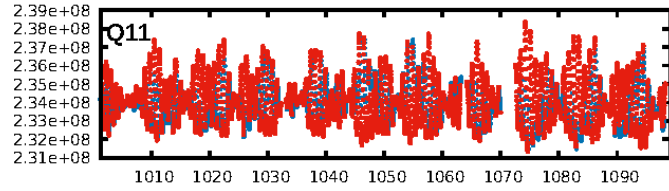
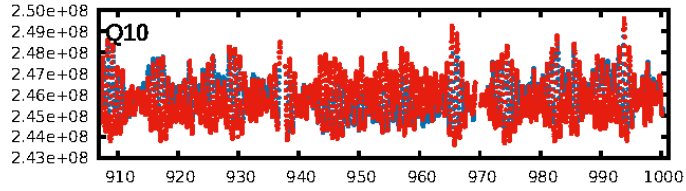
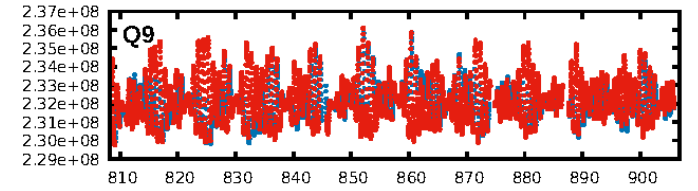
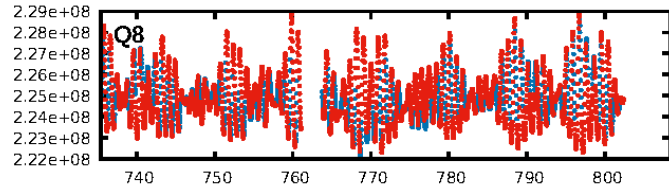
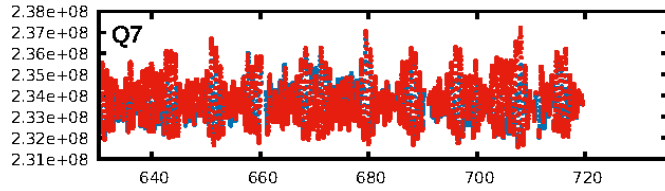
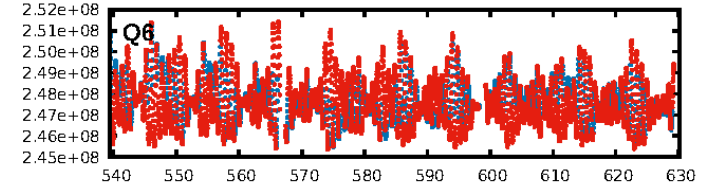
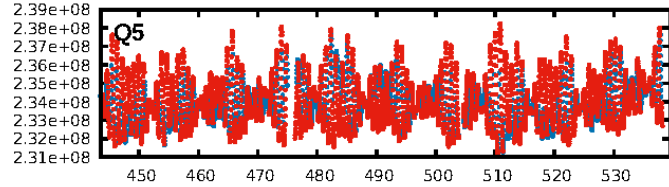
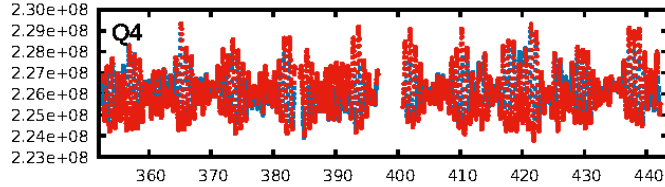
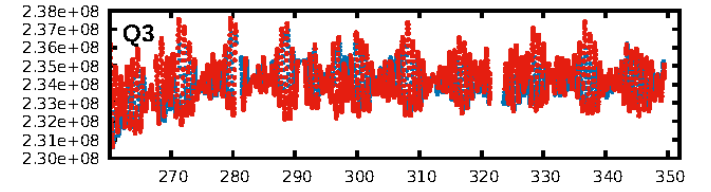
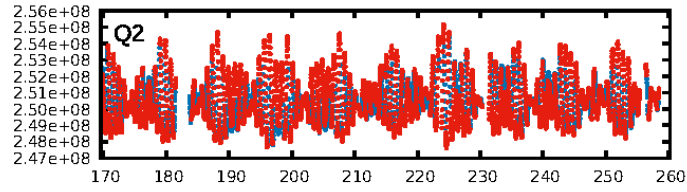
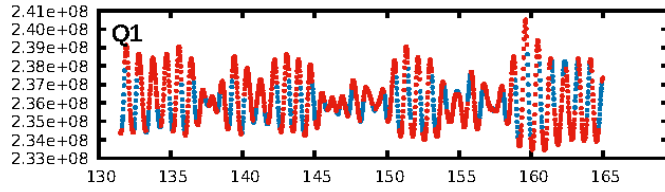
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1559/1559]  
GhostDiagnostic-chr: 1.718  
Centroid-sig: 35.9%  
Centroid-so: 0.866 arcsec [0.85 $\sigma$ ]  
OotOffset-rm: 0.132 arcsec [0.51 $\sigma$ ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-rm: 0.132 arcsec [0.65 $\sigma$ ]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.44 [7/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:06:15 Z

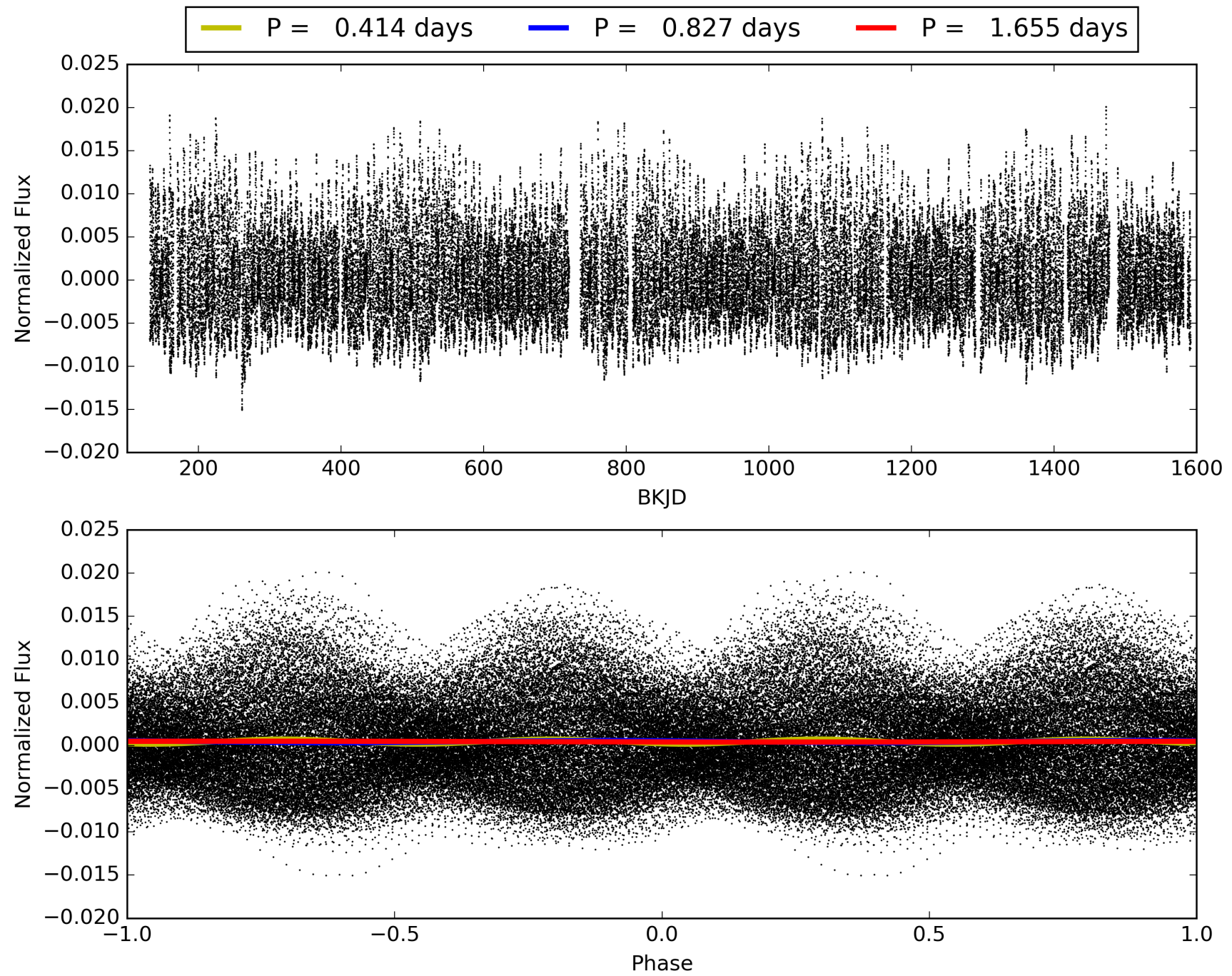
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006946831-01, PDC Light Curves



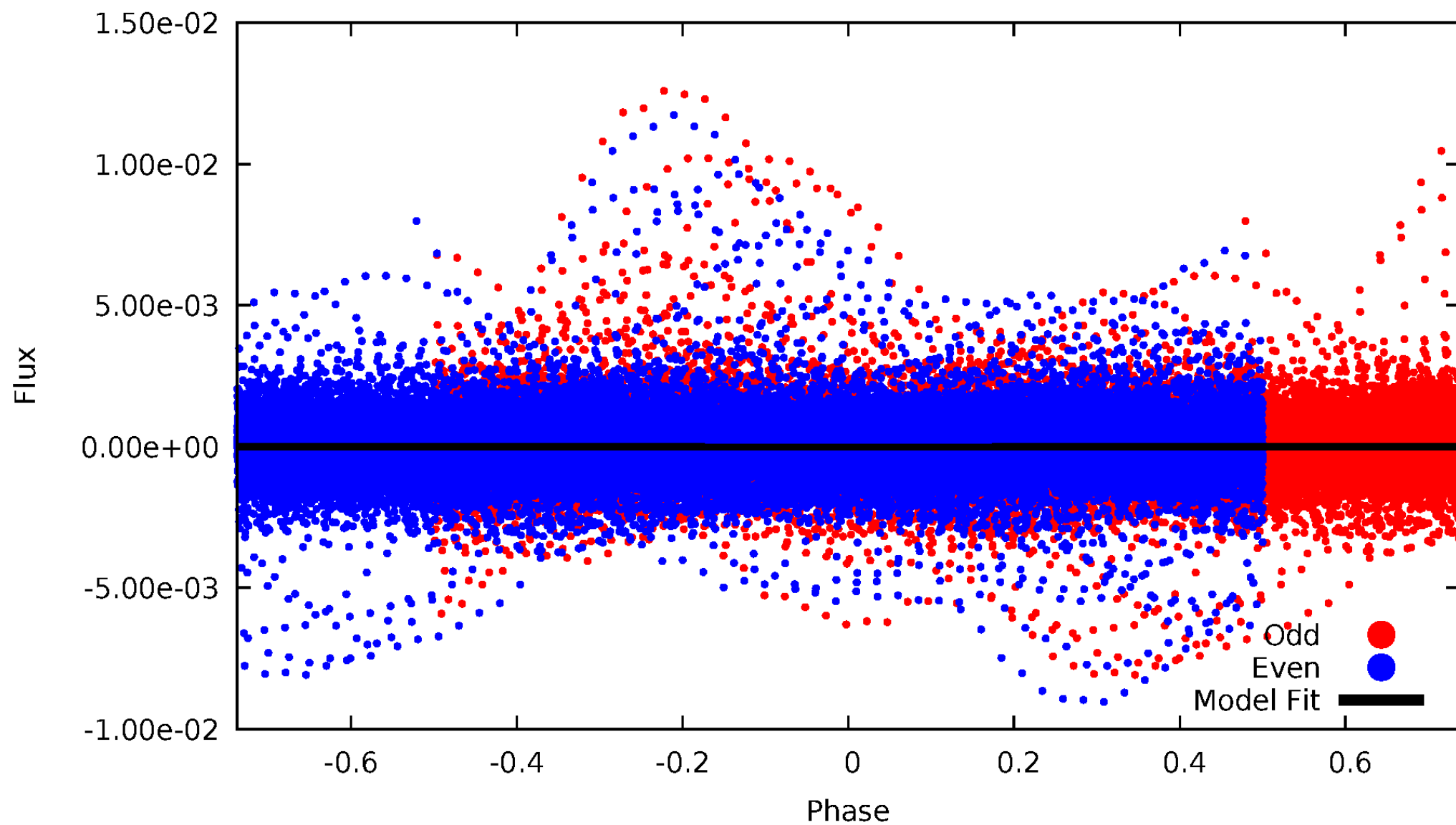


TCE 006946831-01



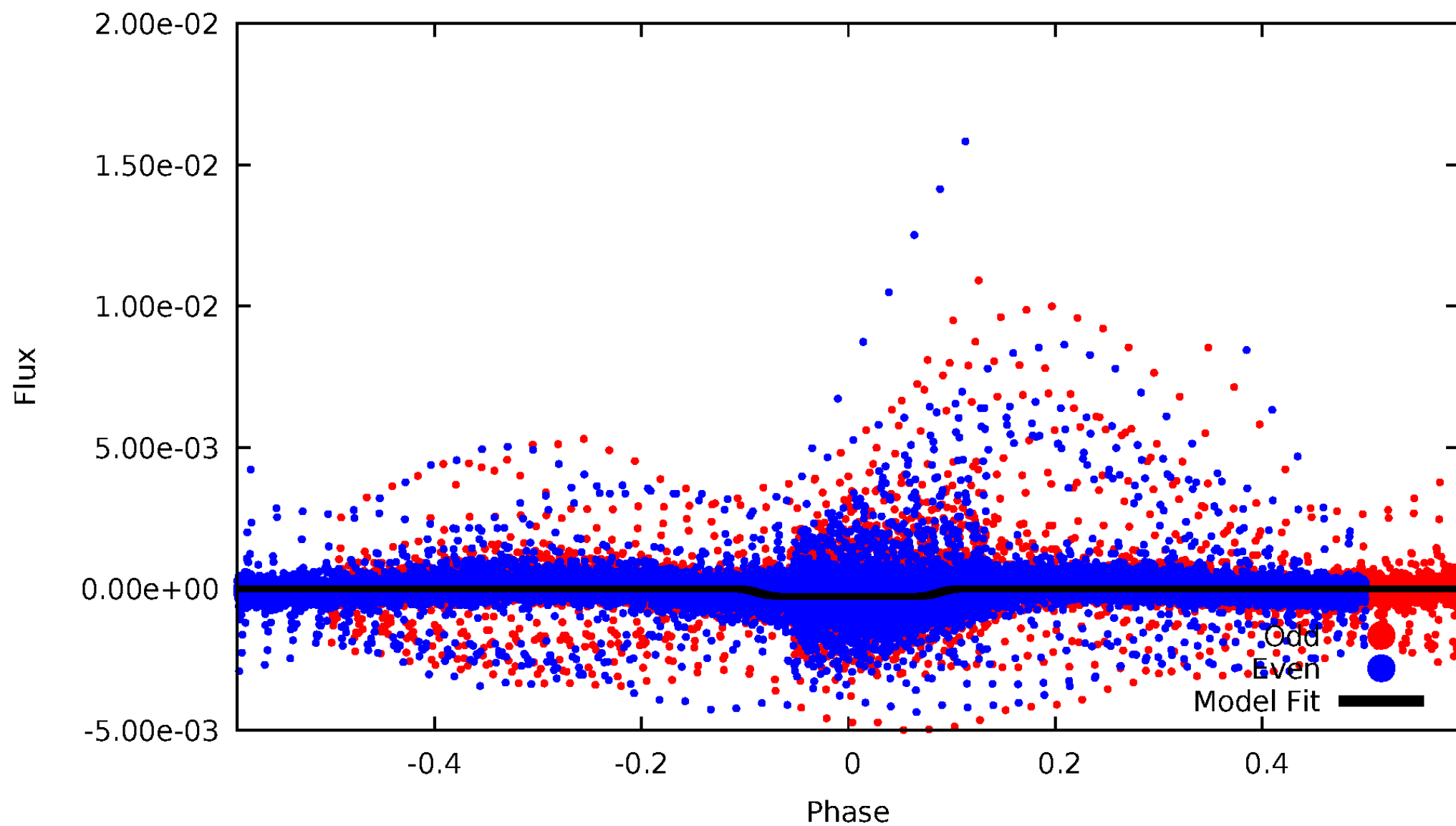
# DV Odd/Even

TCE 006946831-01



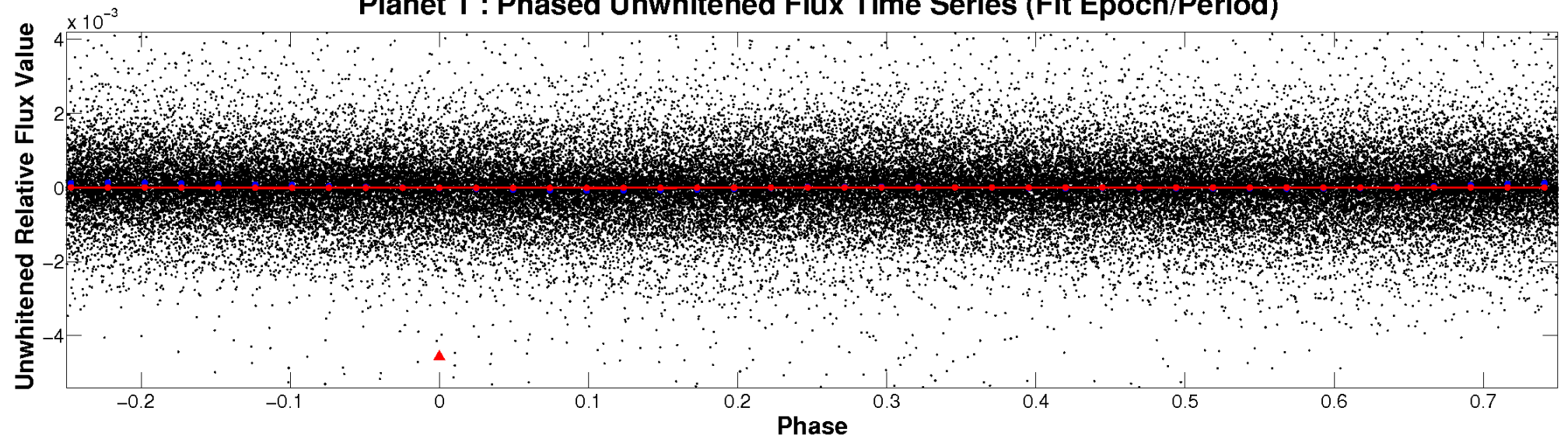
# ALT Odd/Even

TCE 006946831-01

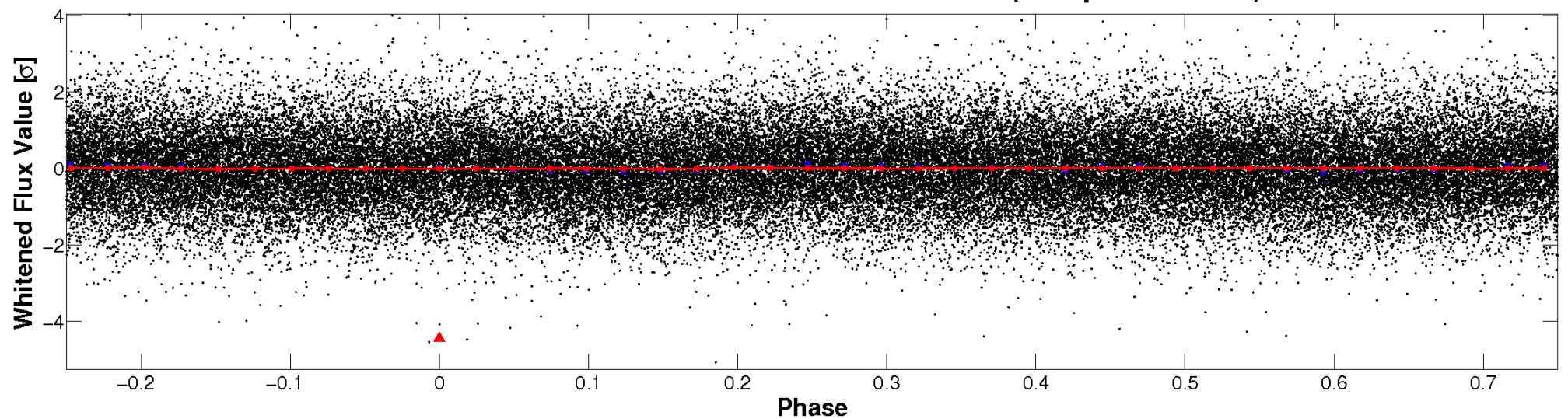


# Non-Whitened Vs. Whitened Light Curve

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



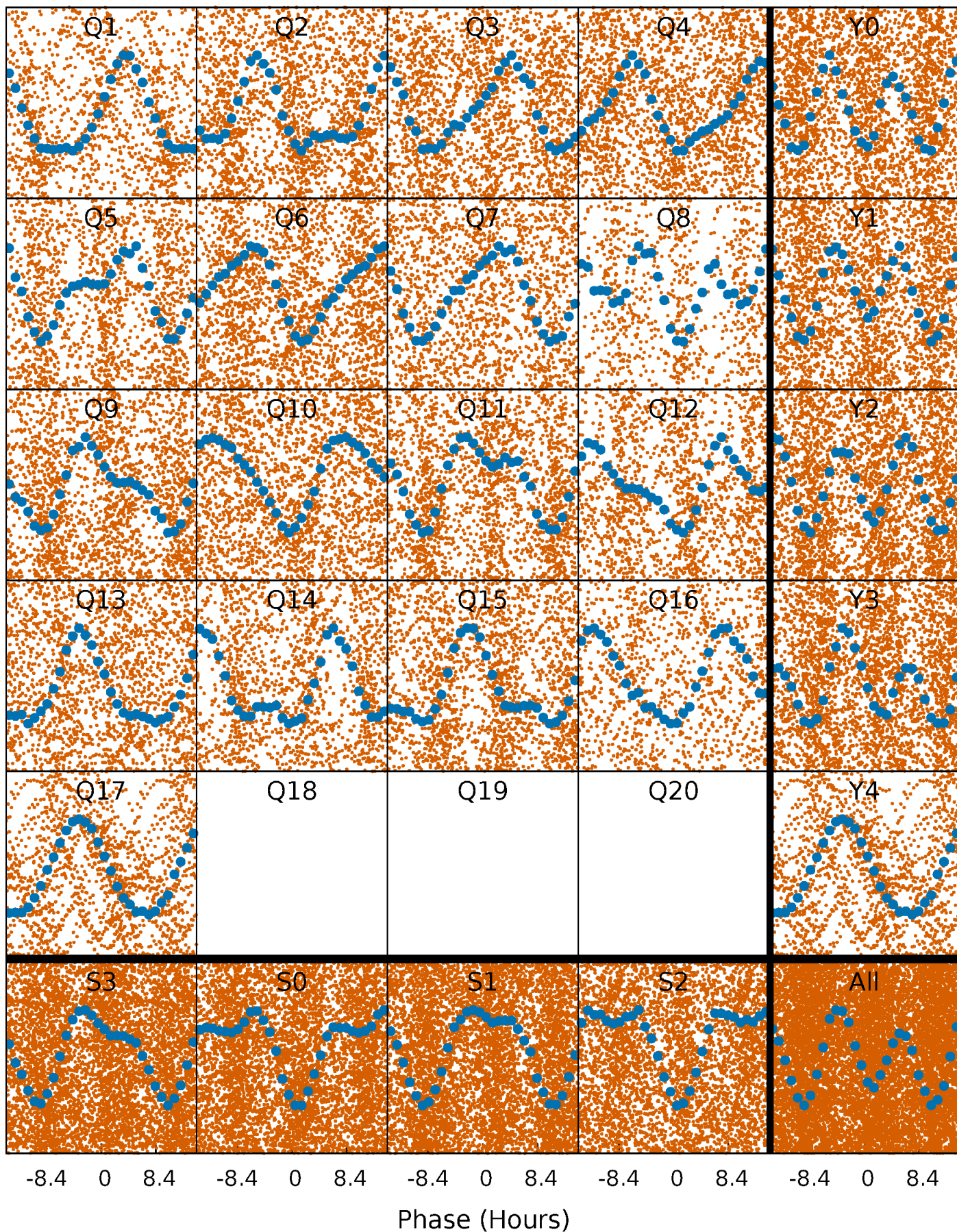
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

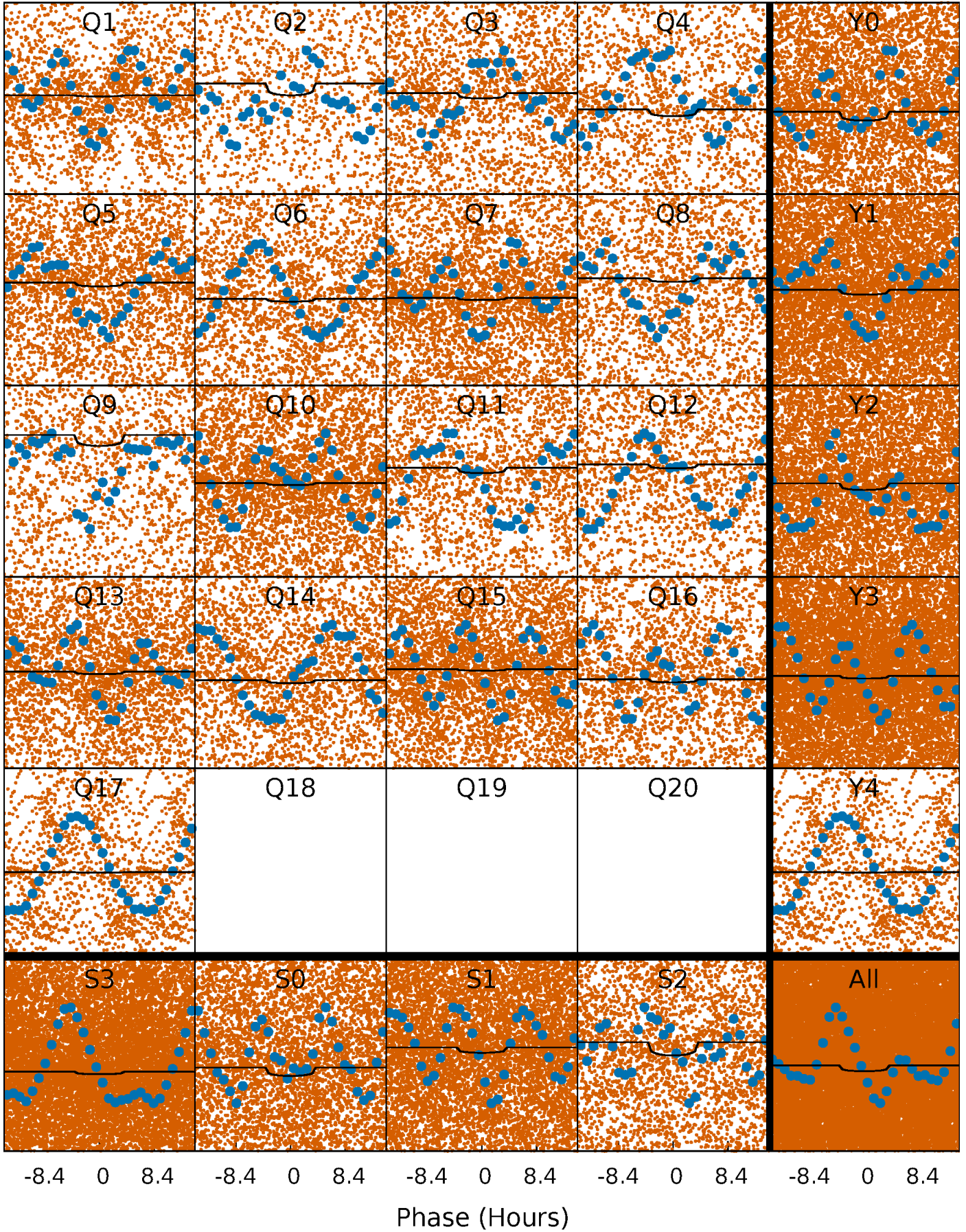
TCE 006946831-01 P= 0.827255 Days  $T_0=132.121818$  (BKJD)





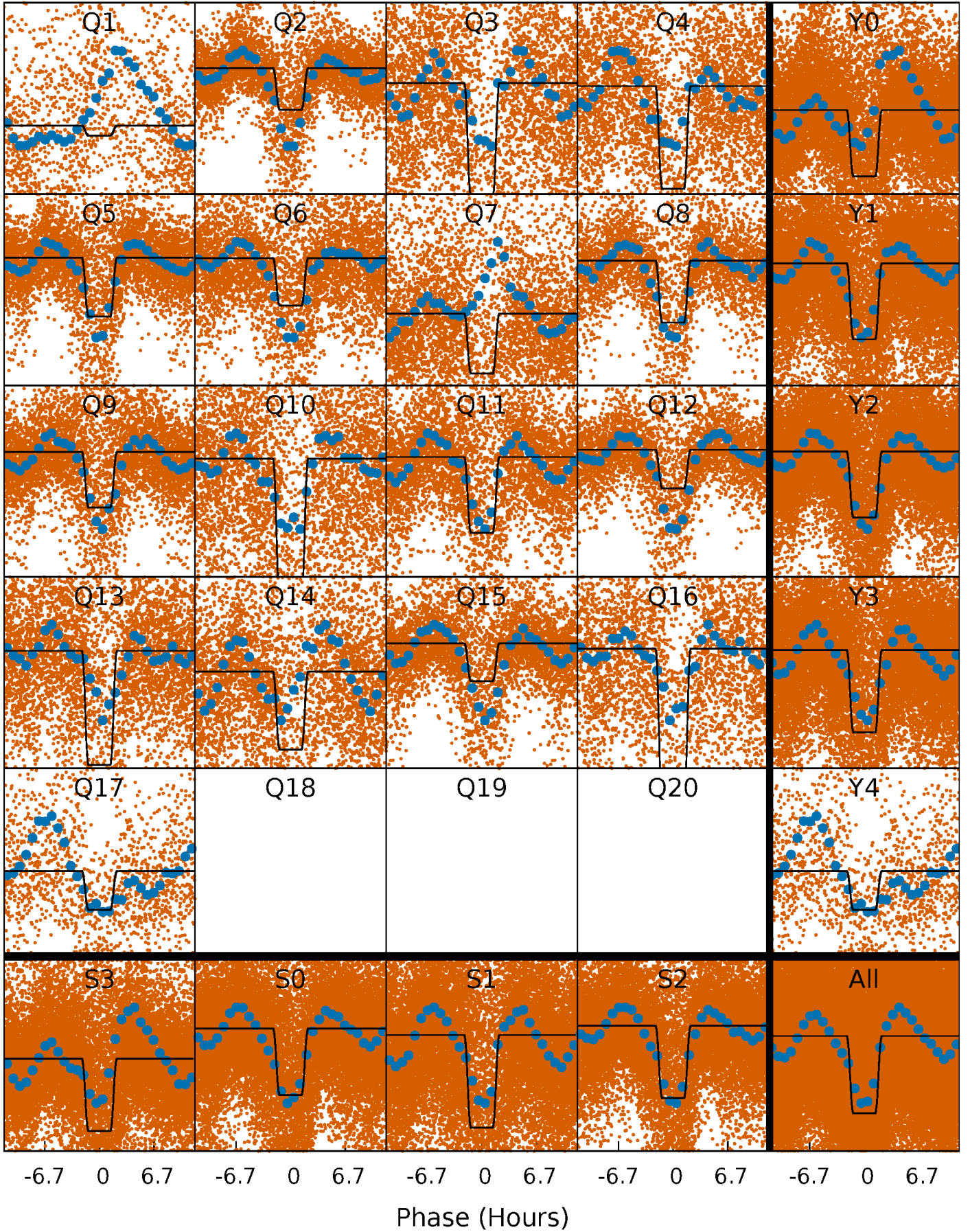
# DV Quarter-Phased Transit Curves

TCE 006946831-01 P= 0.827255 Days  $T_0=132.121818$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006946831-01 P= 0.827319 Days  $T_0=132.132710$  (BKJD)

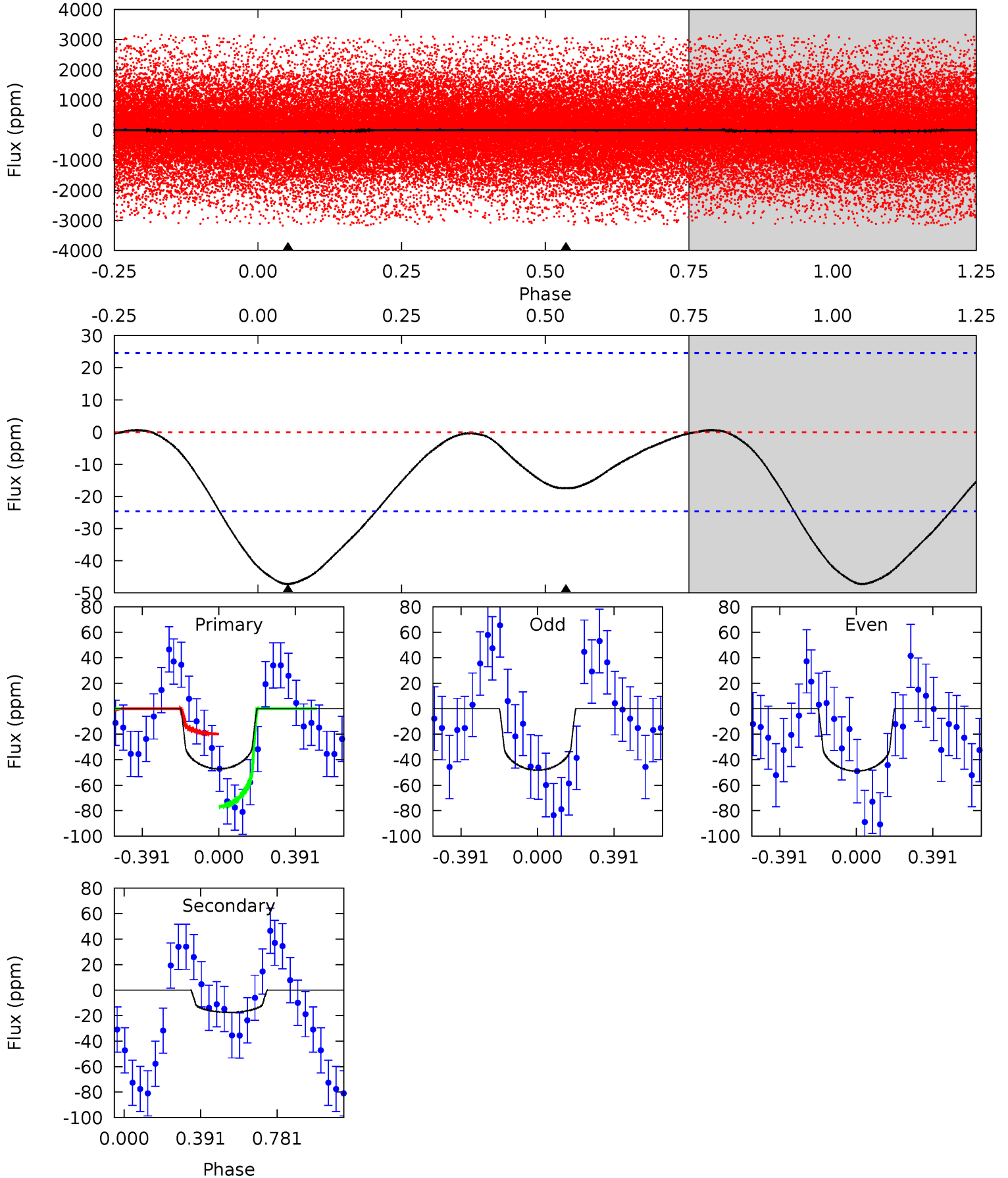




# DV Model-Shift Uniqueness Test

006946831-01, P = 0.827255 Days, E = 131.294563 Days

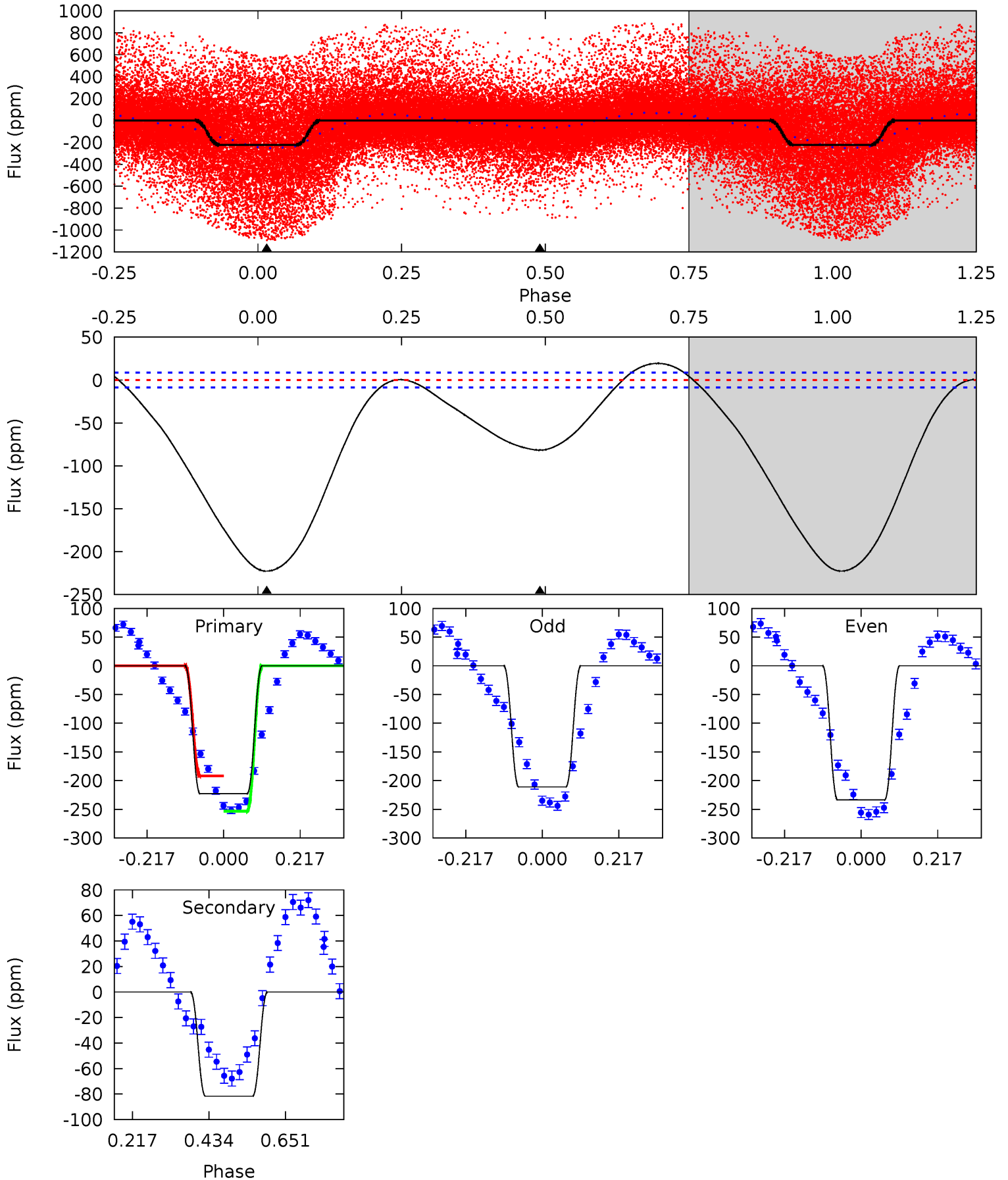
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.19	3.03	0	0	4.27	0.86	0.63	8.19	8.19	3.03	3.03	0.07	0.69	0.01	5.00



# Alt Model-Shift Uniqueness Test

006946831-01, P = 0.827319 Days, E = 131.305391 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
113.7	41.7	0	0	4.40	1.23	6.06	113.7	113.7	41.7	41.7	5.74	0.90	0.08	15.8





### Stellar Parameters For KIC 006946831

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7261^{+201}_{-316}$	$4.090^{+0.153}_{-0.187}$	$-0.080^{+0.250}_{-0.350}$	$1.852^{+0.536}_{-0.439}$	$1.537^{+0.212}_{-0.259}$	$0.341^{+0.299}_{-0.157}$
	+3%/-4%	+4%/-5%	+312%/-438%	+29%/-24%	+14%/-17%	+88%/-46%
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 006946831-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-17 \pm 6$	$0.82^{+0.69}_{-0.49}$	$4319^{+347}_{-286}$	$7123^{+7331}_{-2009}$	$5.377^{+31.072}_{-3.882}$
Alt.	$-82 \pm 2$	$3.30^{+0.95}_{-0.77}$	$4342^{+327}_{-307}$	$5110^{+736}_{-547}$	$1.610^{+1.089}_{-0.638}$

$T_{\text{max}}$  = 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

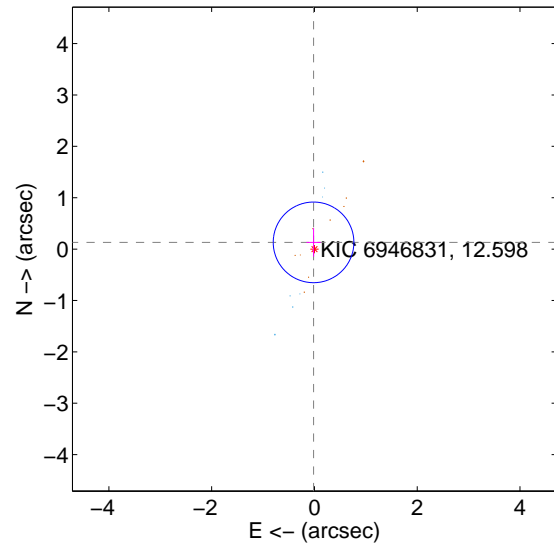
Supplemental centroid analysis for 006946831-01. Kepler magnitude: 12.60. Transit SNR 2.25

There are 7 quarters with good PRF difference image offsets

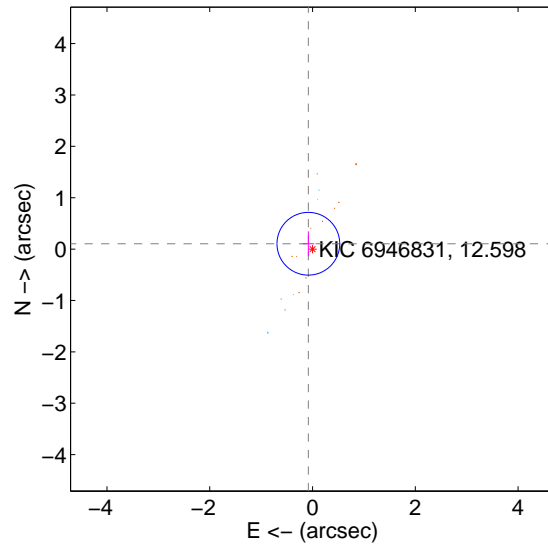
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.132 \pm 0.262$	0.51	$0.017 \pm 0.139$	$0.131 \pm 0.278$
PRF-fit source offset from KIC position	$0.132 \pm 0.203$	0.65	$0.081 \pm 0.113$	$0.104 \pm 0.242$
photometric centroid source offset	$0.87 \pm 1.02$	0.85	$-0.82 \pm 1.04$	$0.27 \pm 0.80$

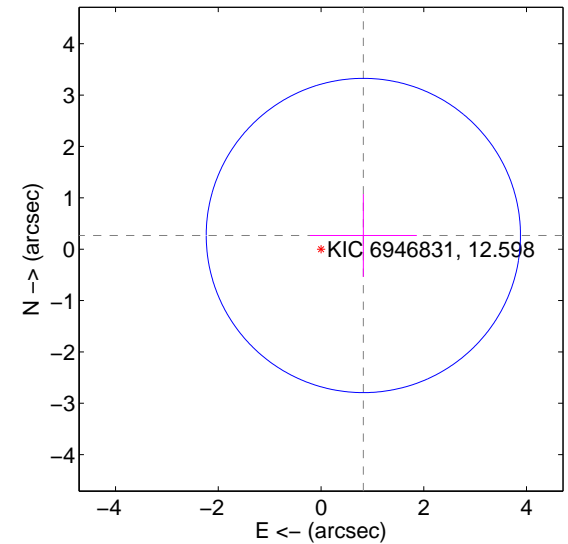
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

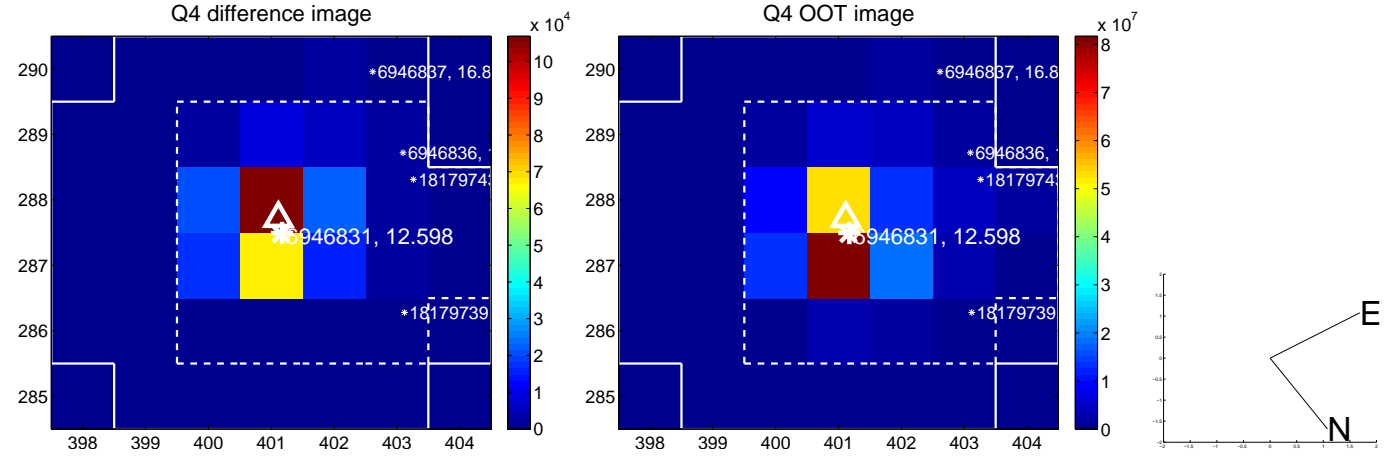
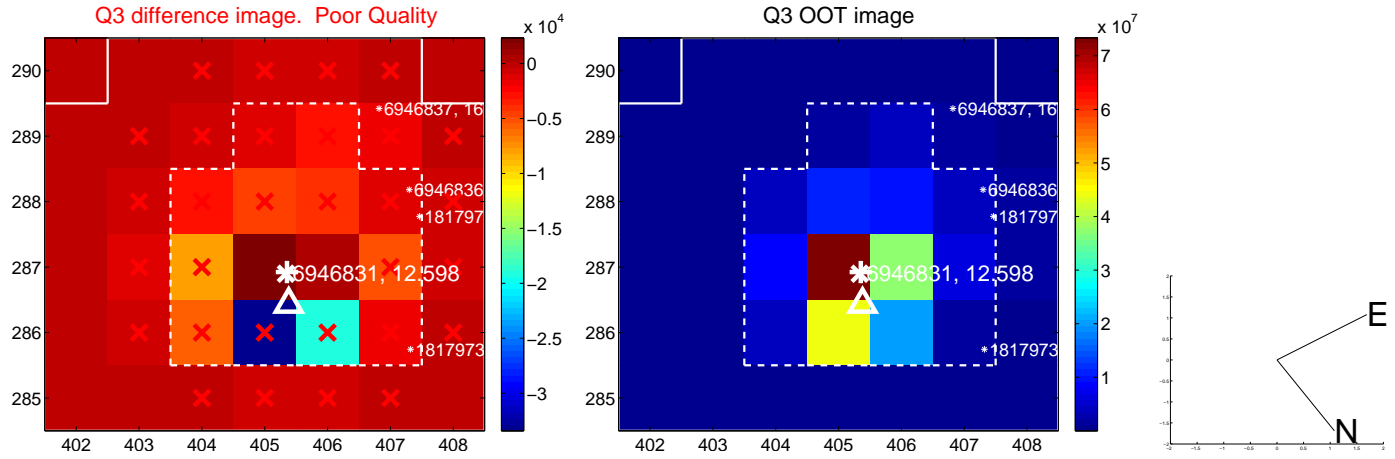
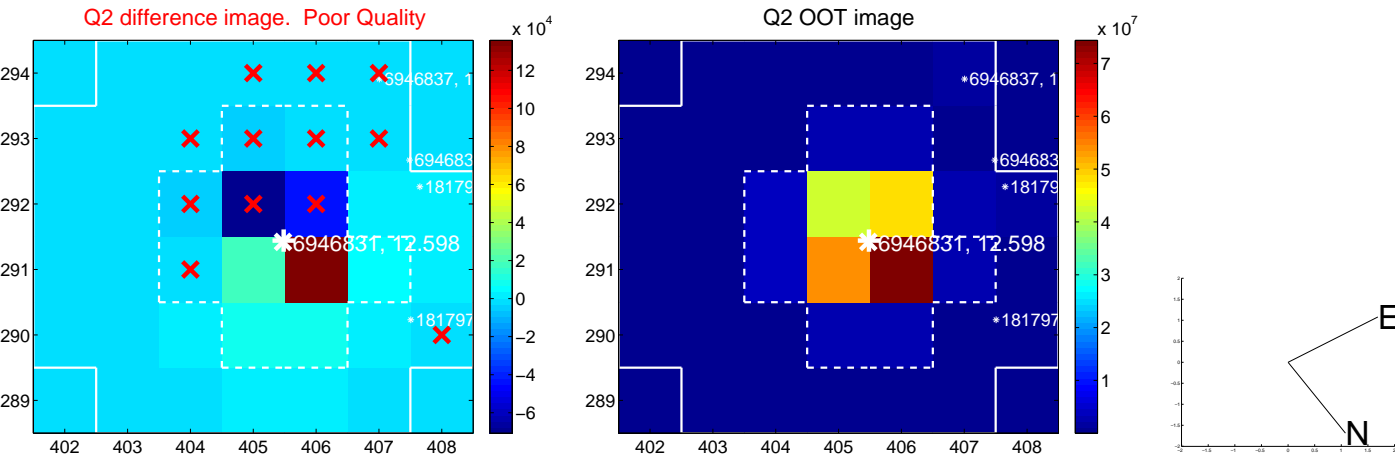
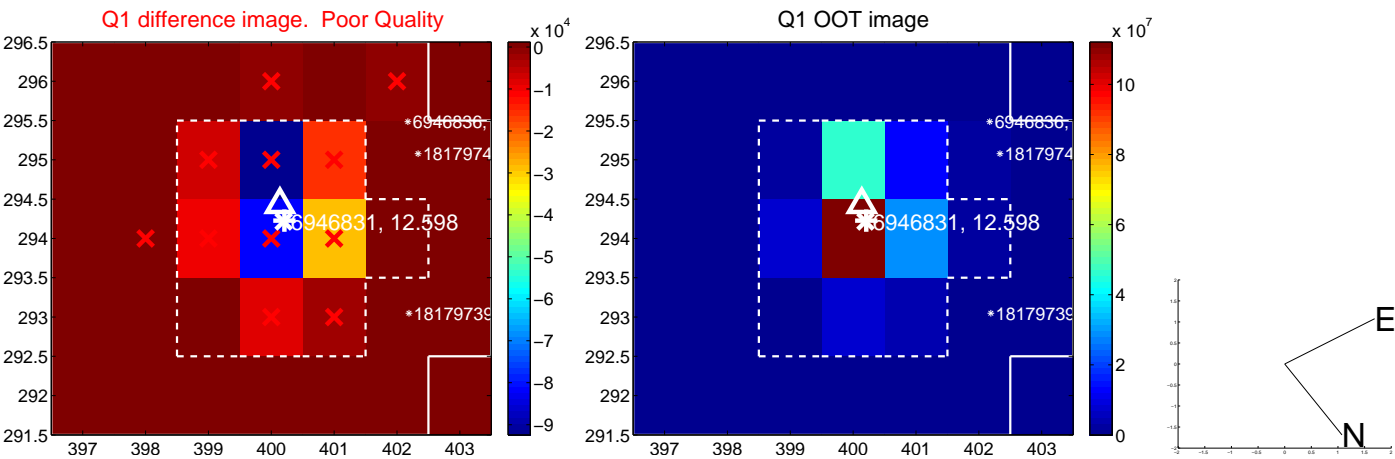


offset from photometric centroids

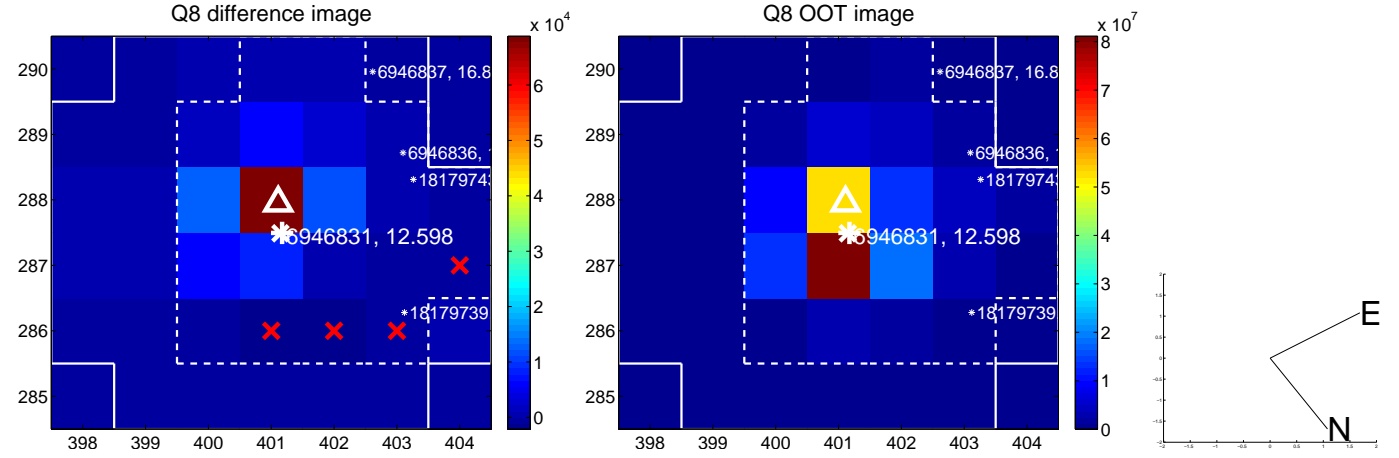
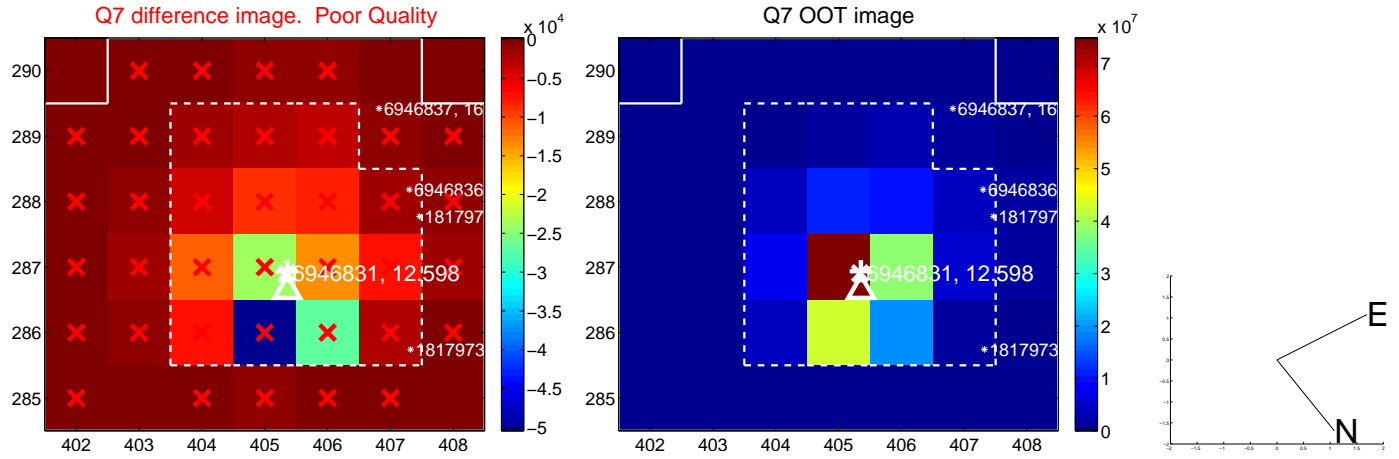
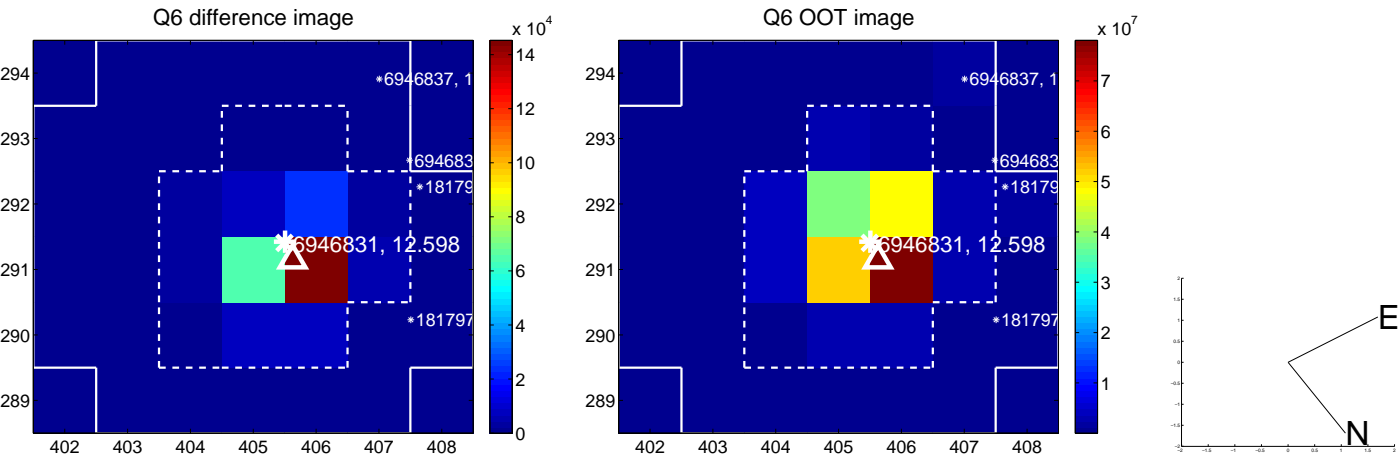
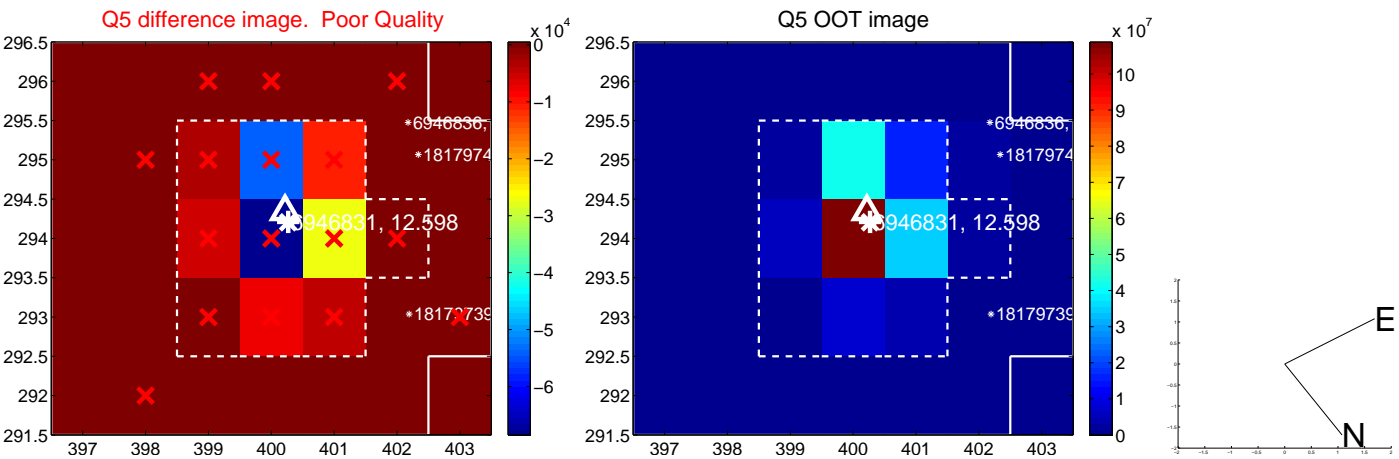


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

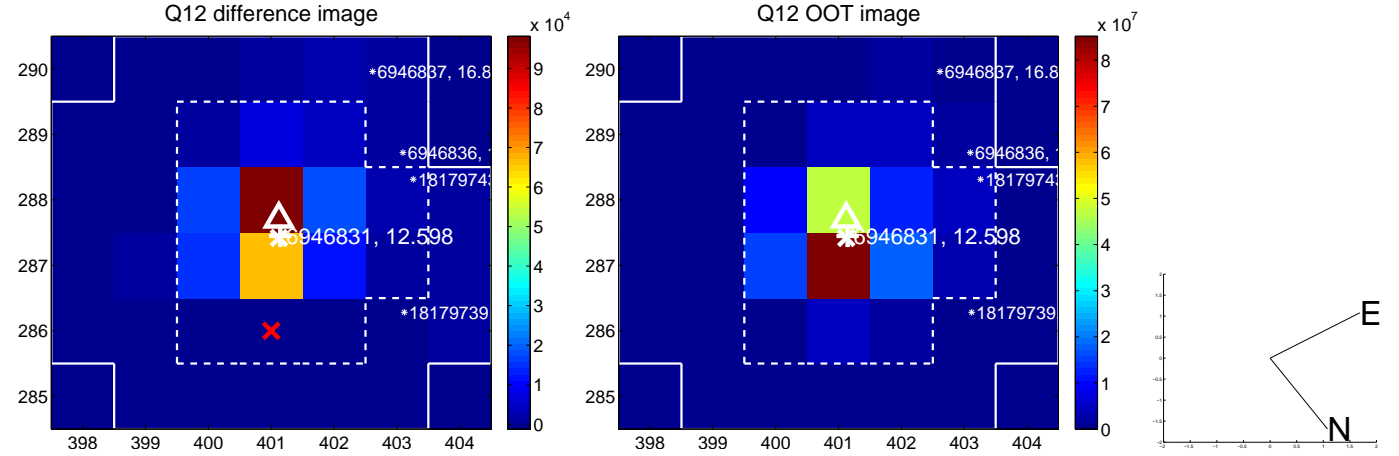
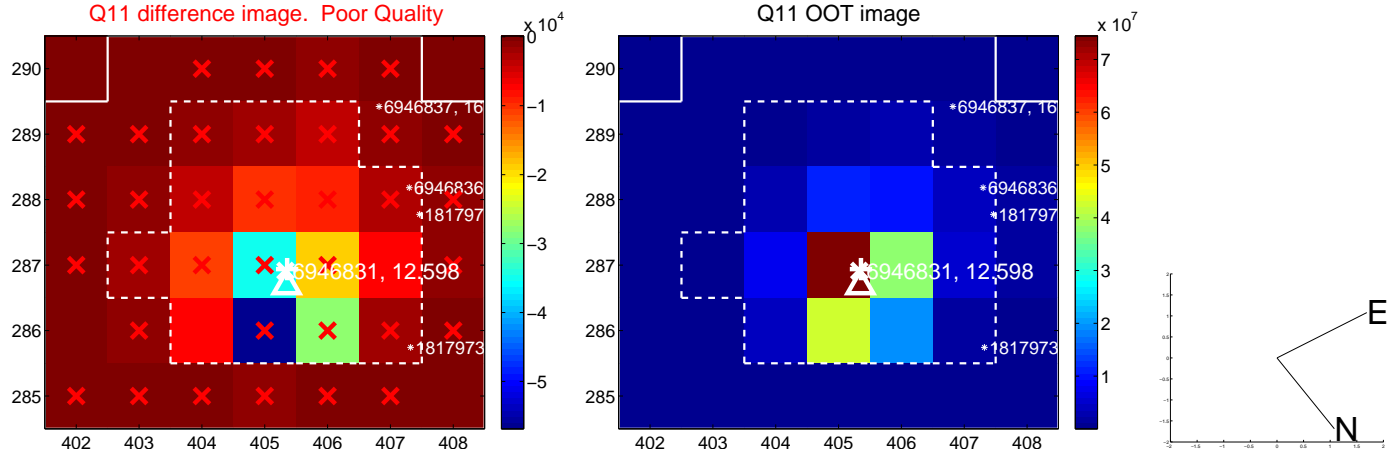
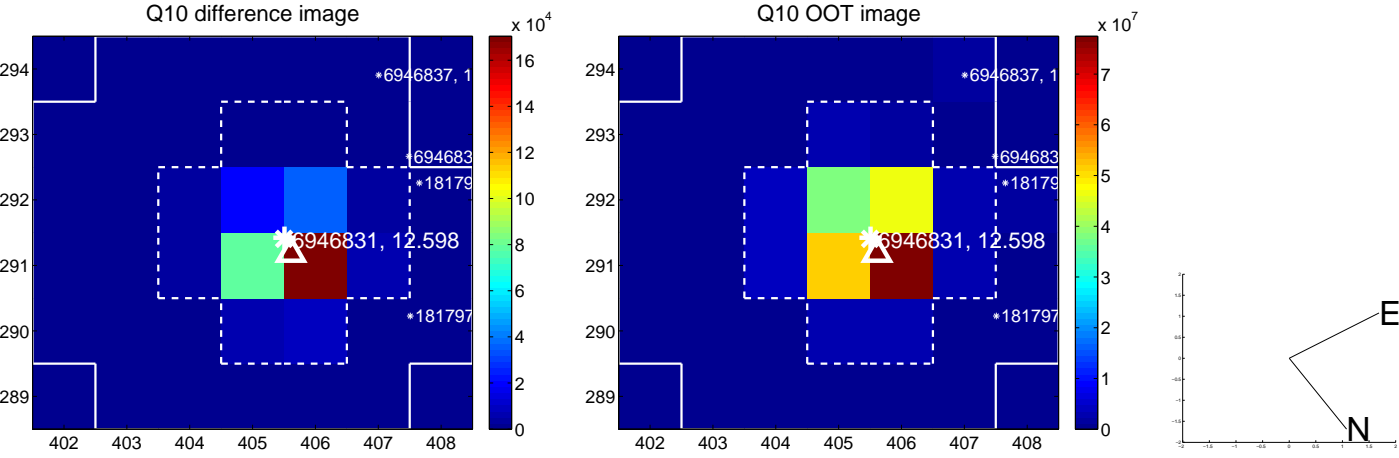
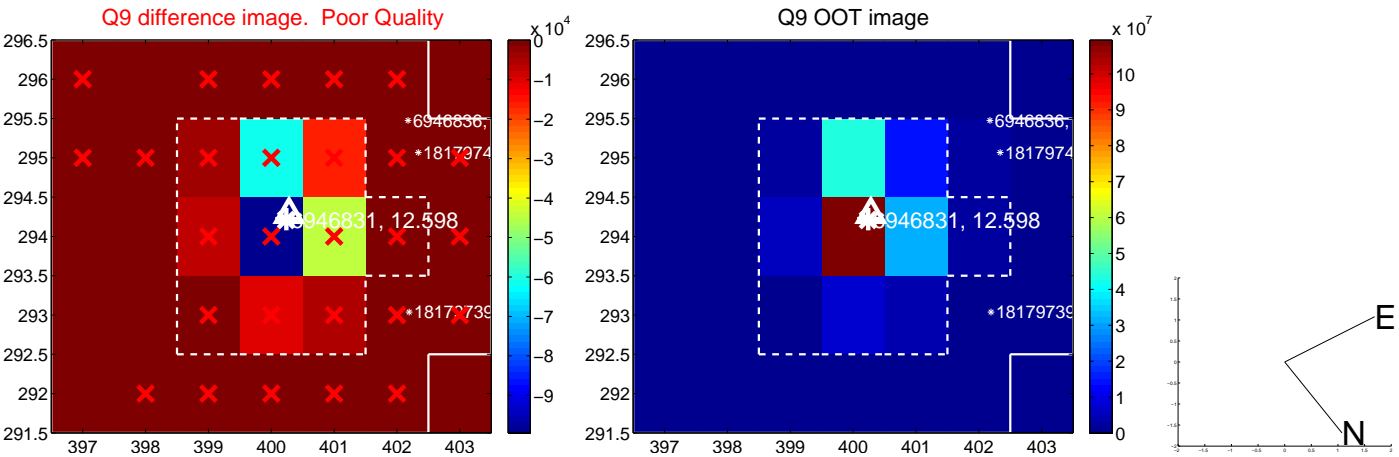


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

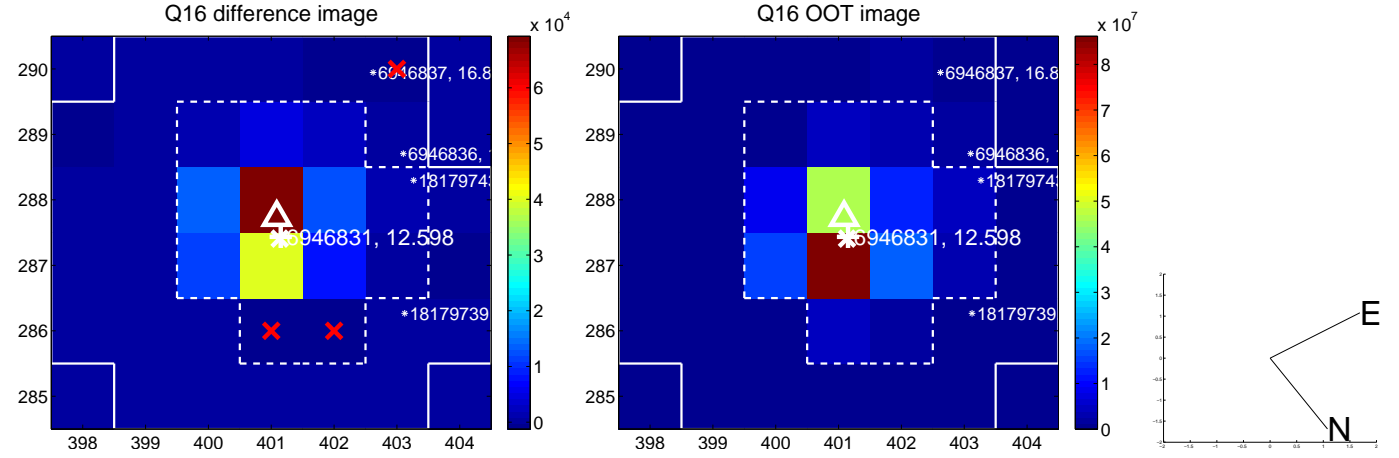
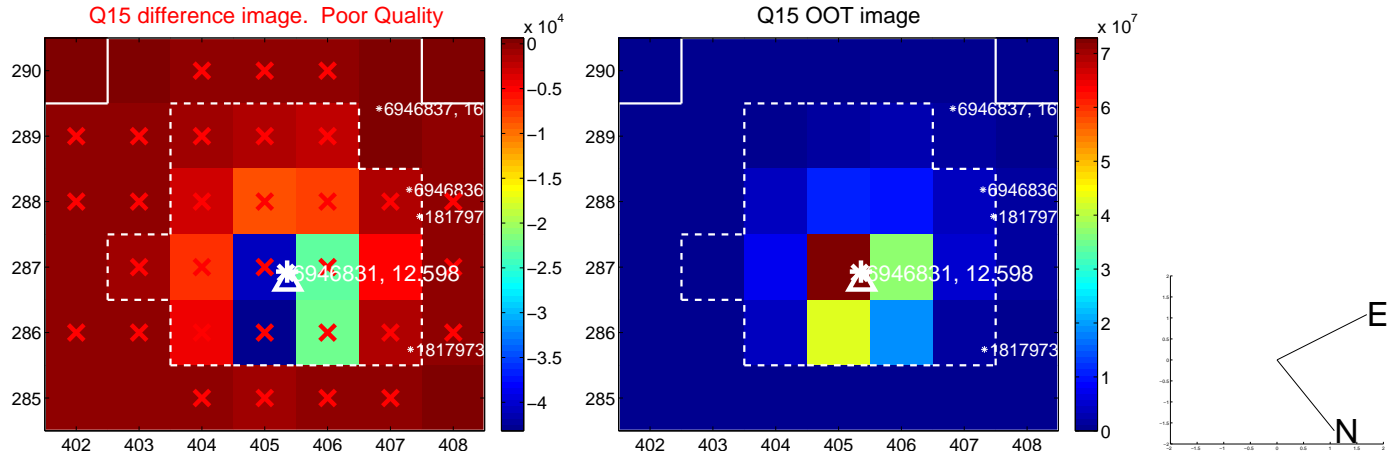
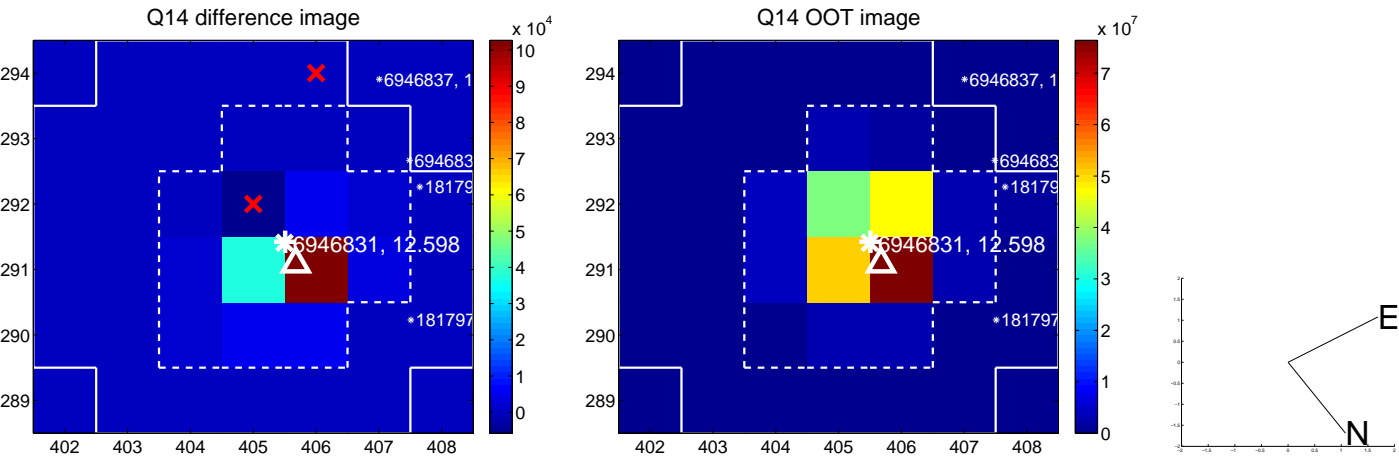
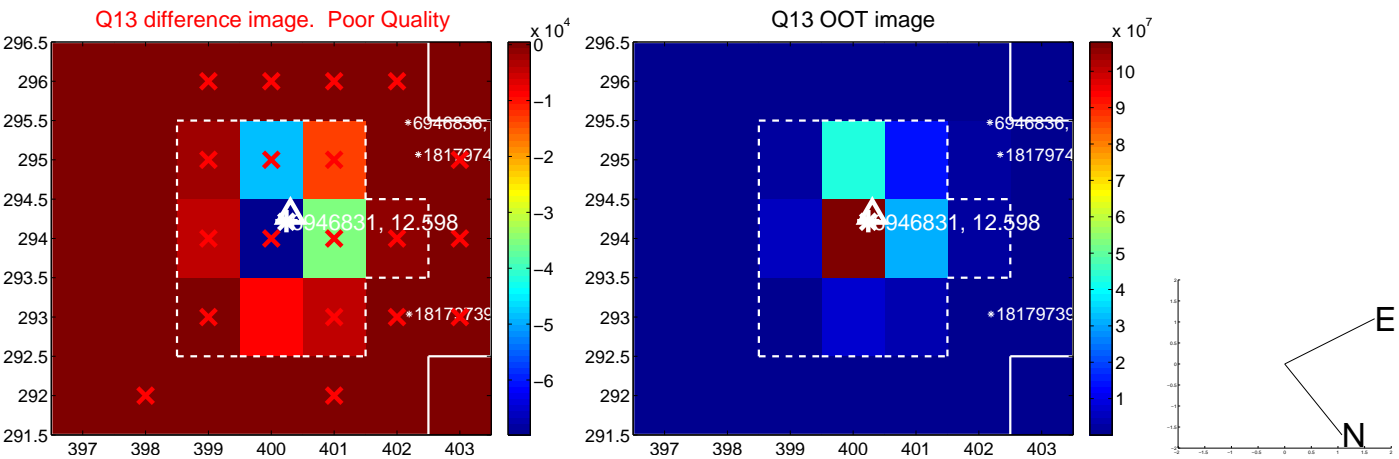




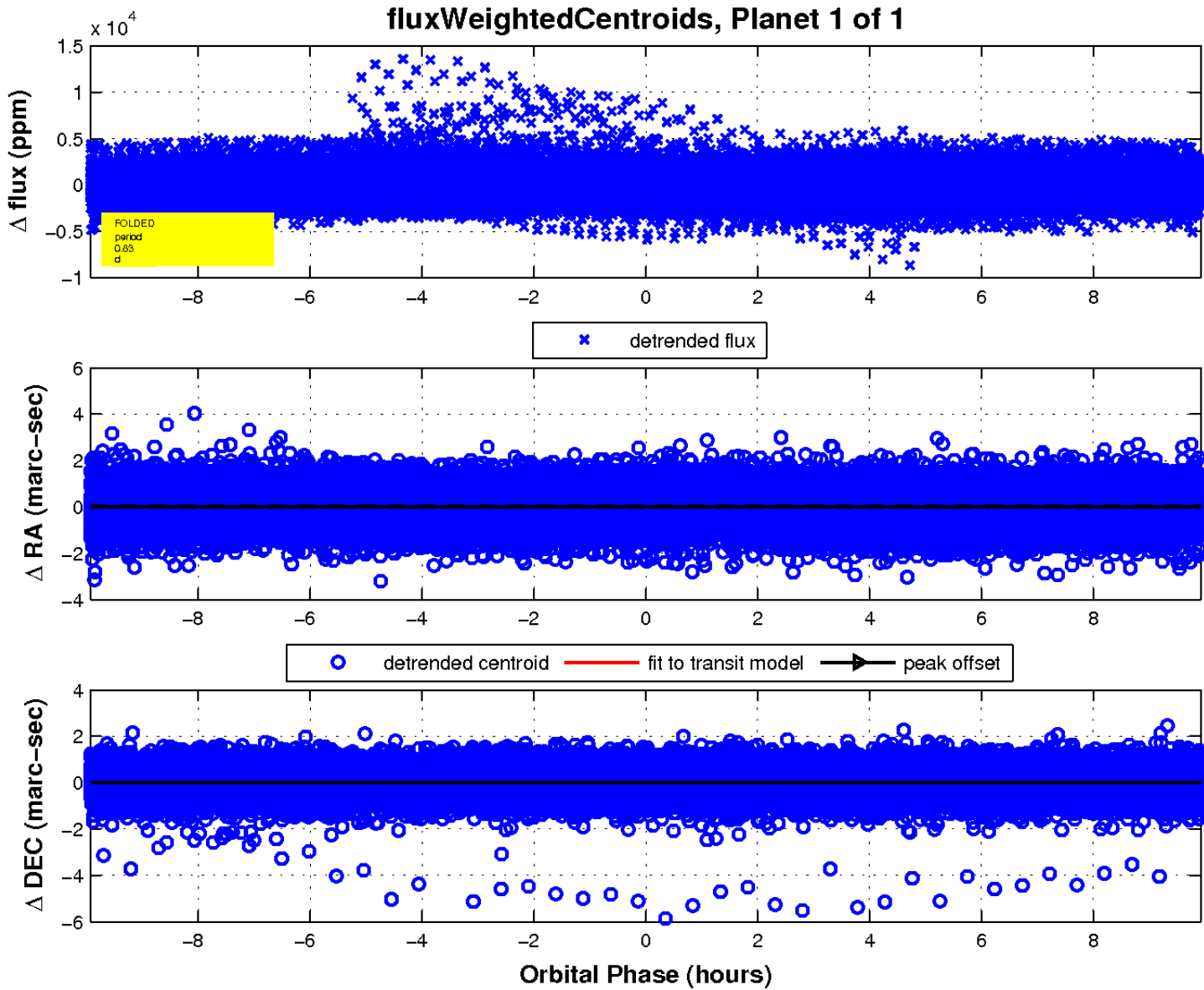
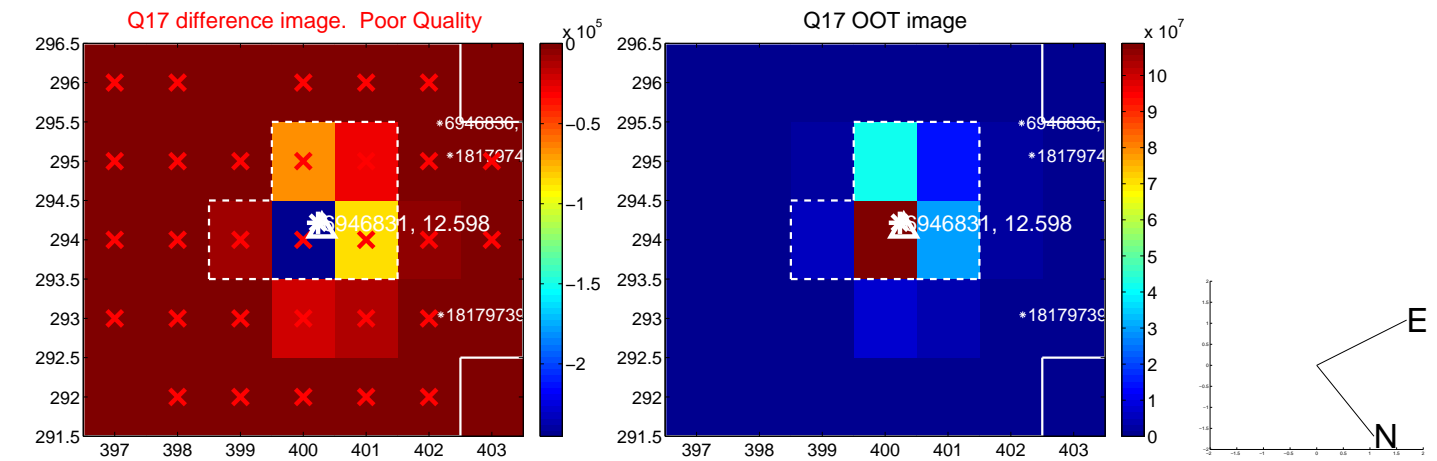
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

