

# KIC 010618322

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010618322-01	OBS	No	0.656102	131.984567	72.6	2.360	7.5	4.9	80.05	3486	86.61	0.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010618322-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH

**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.

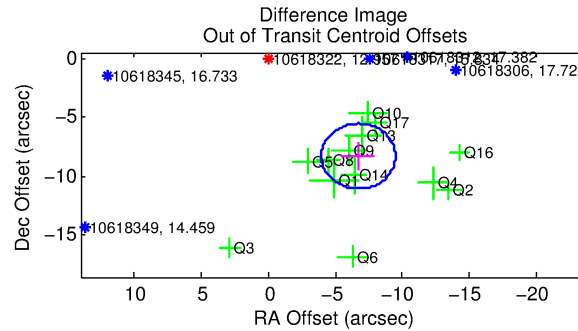
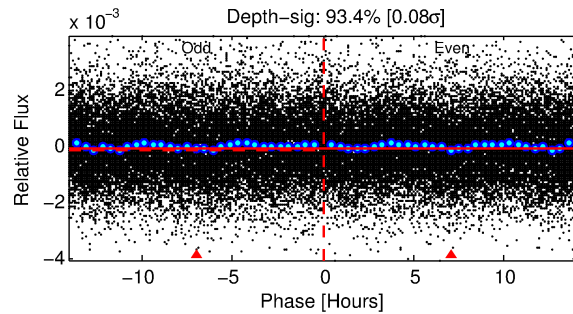
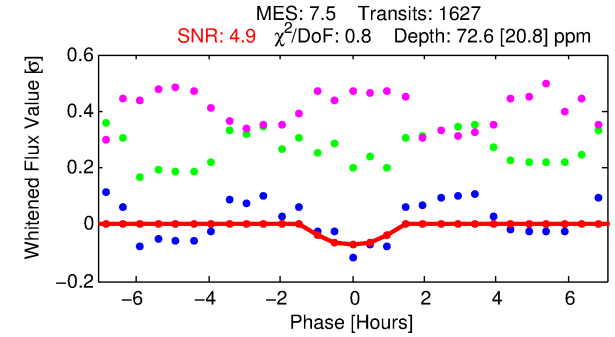
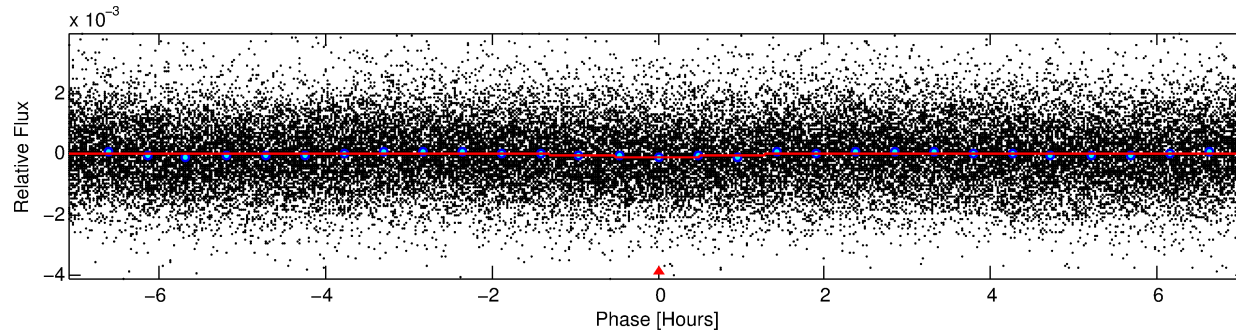
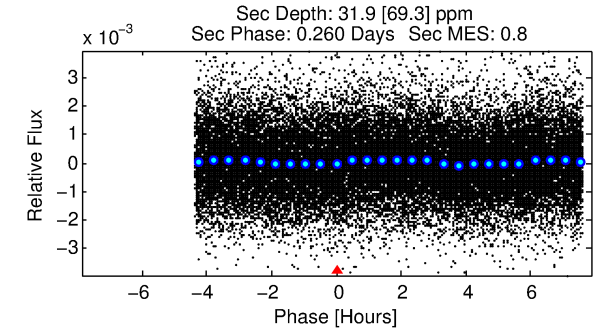
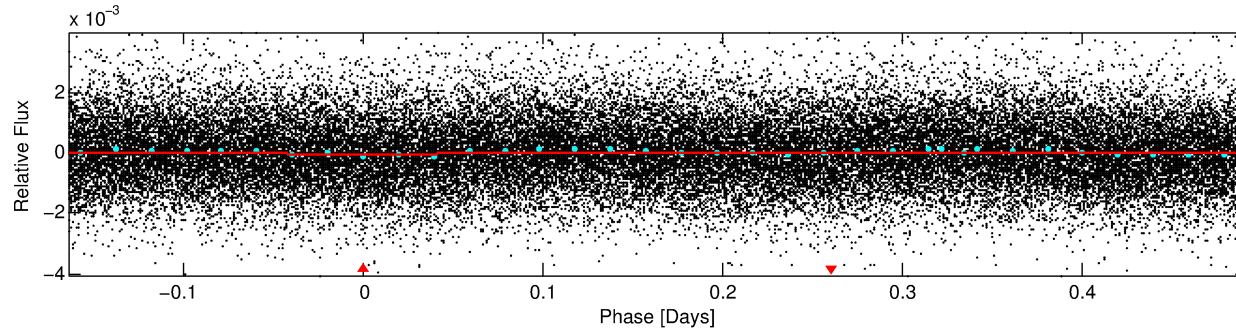
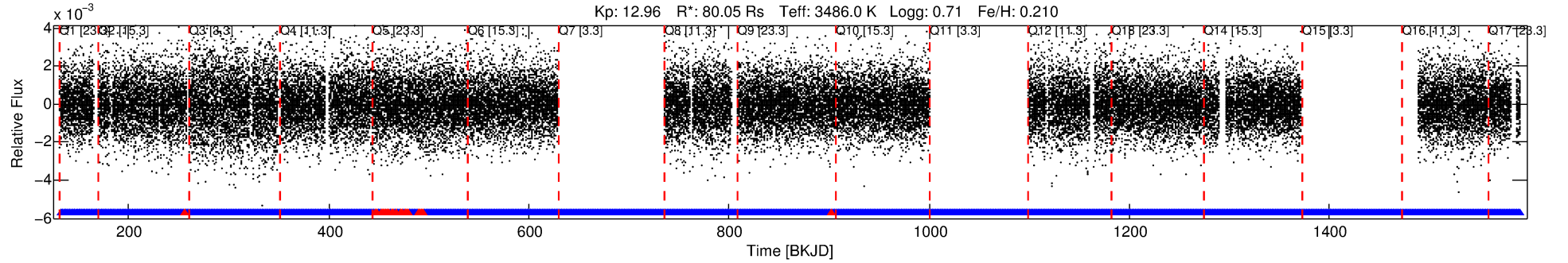
## Ephemeris Match Information For 010618322-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
010618322-01	10618322	010618236-01	10618236	1:1	64.8	-17	0	15.53	12.96	0.95	Direct-PRF	1	2.03	1.20

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 10618322 Candidate: 1 of 1 Period: 0.656 d



## DV Fit Results:

Period = 0.65610 [0.00002] d  
Epoch = 131.9846 [0.0067] BKJD  
Rp/R\* = 0.0099 [0.0194]  
a/R\* = 1.37 [3.94]  
b = 0.89 [1.46]  
Seff = N/A  
Teq = N/A  
Rp = 86.61 [172.60] Re  
a = N/A  
Ag = N/A  
Teff = N/A

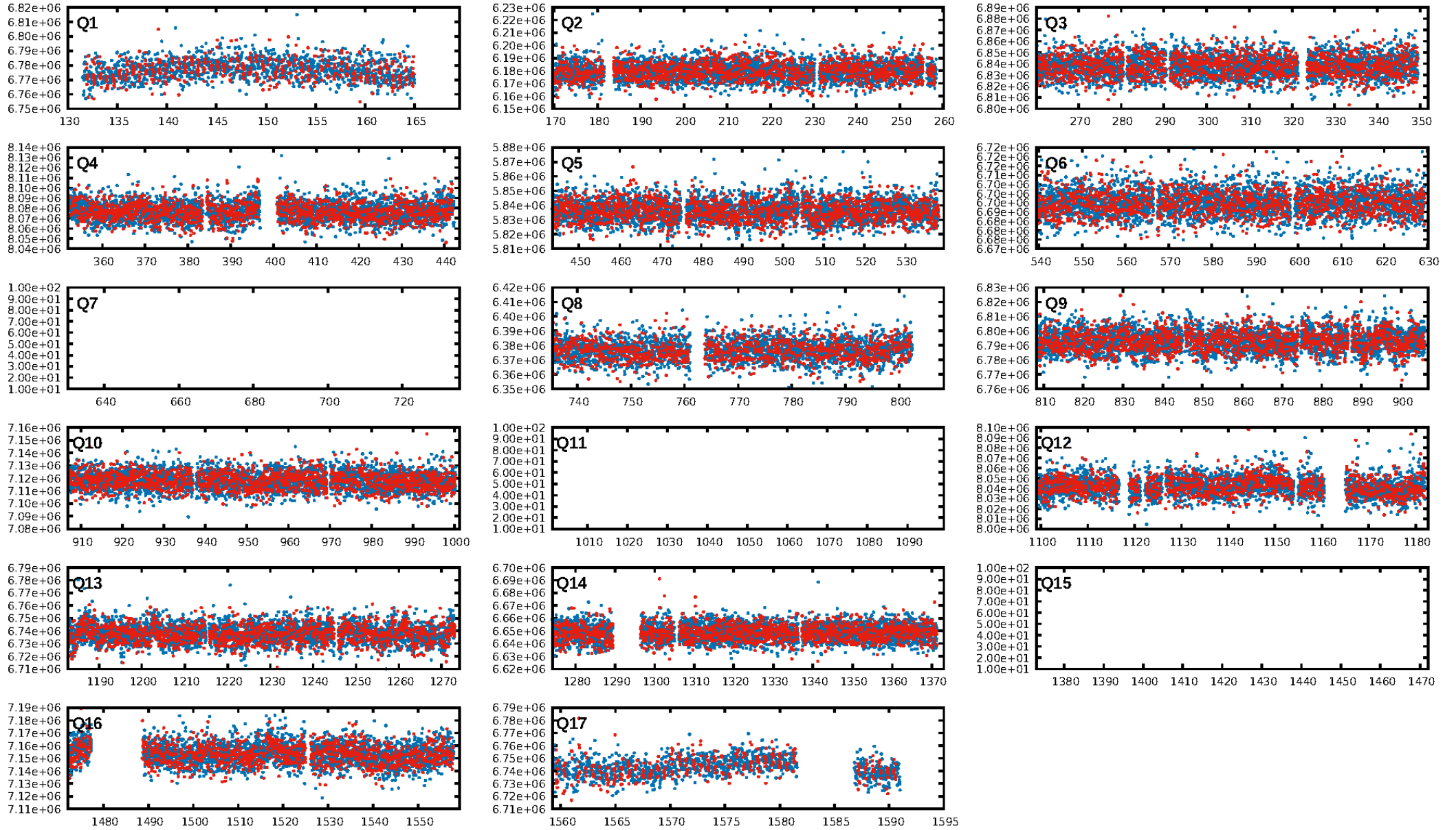
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.17e-17  
RollingBand-fgt: 0.98 [1507/1536]  
GhostDiagnostic-chr: 0.03503  
Centroid-sig: 0.0%  
Centroid-so: 0.106 arcsec [0.07σ]  
OotOffset-rm: 10.670 arcsec [11.57σ]  
KicOffset-rm: 3.679 arcsec [2.82σ]  
OotOffset-st: 4/1/3/5 [13]  
KicOffset-st: 4/1/3/5 [13]  
DiffImageQuality-fgm: 0.00 [0/13]  
DiffImageOverlap-fno: 1.00 [14/14]

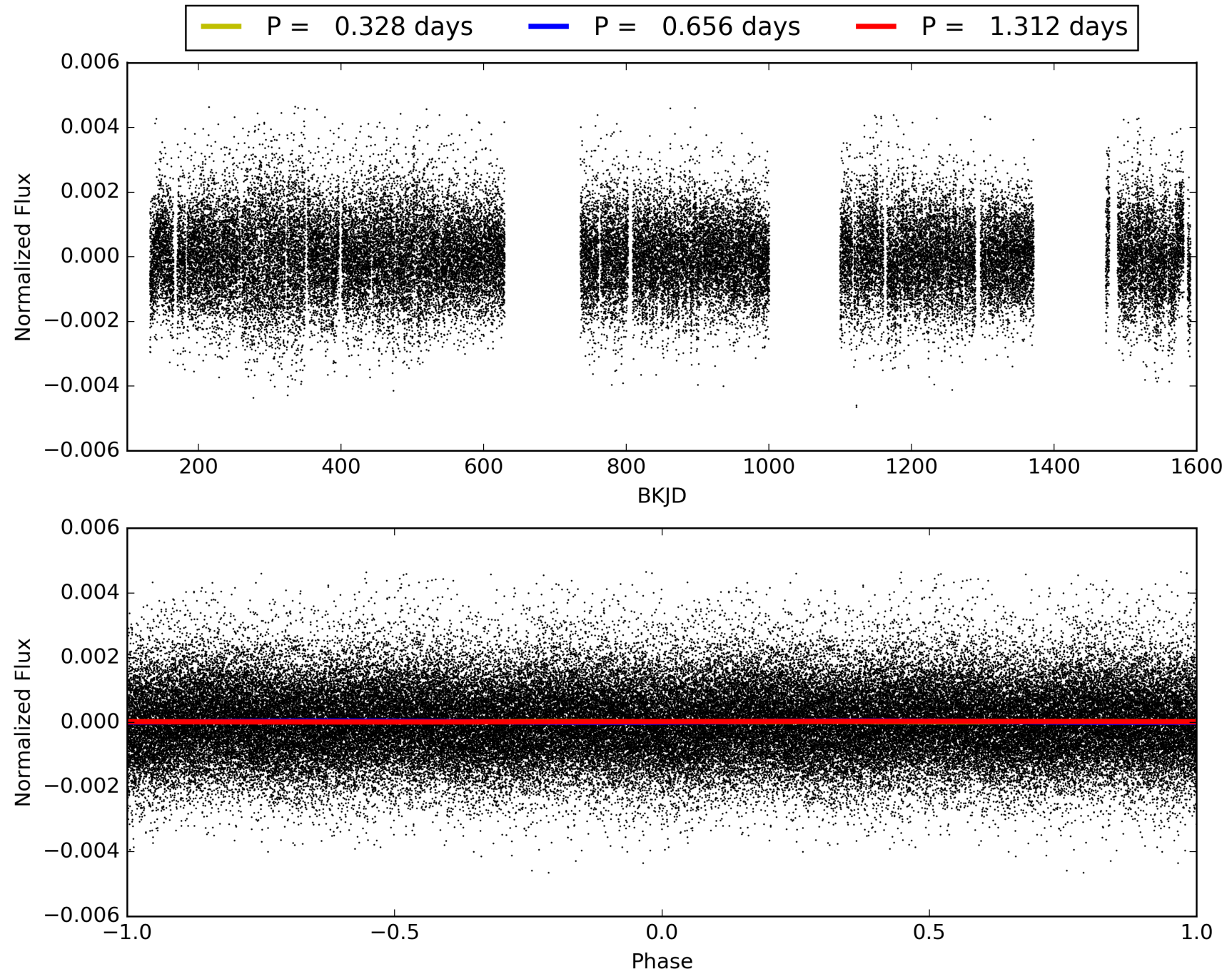
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:11:08 Z

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

# TCE 010618322-01, PDC Light Curves



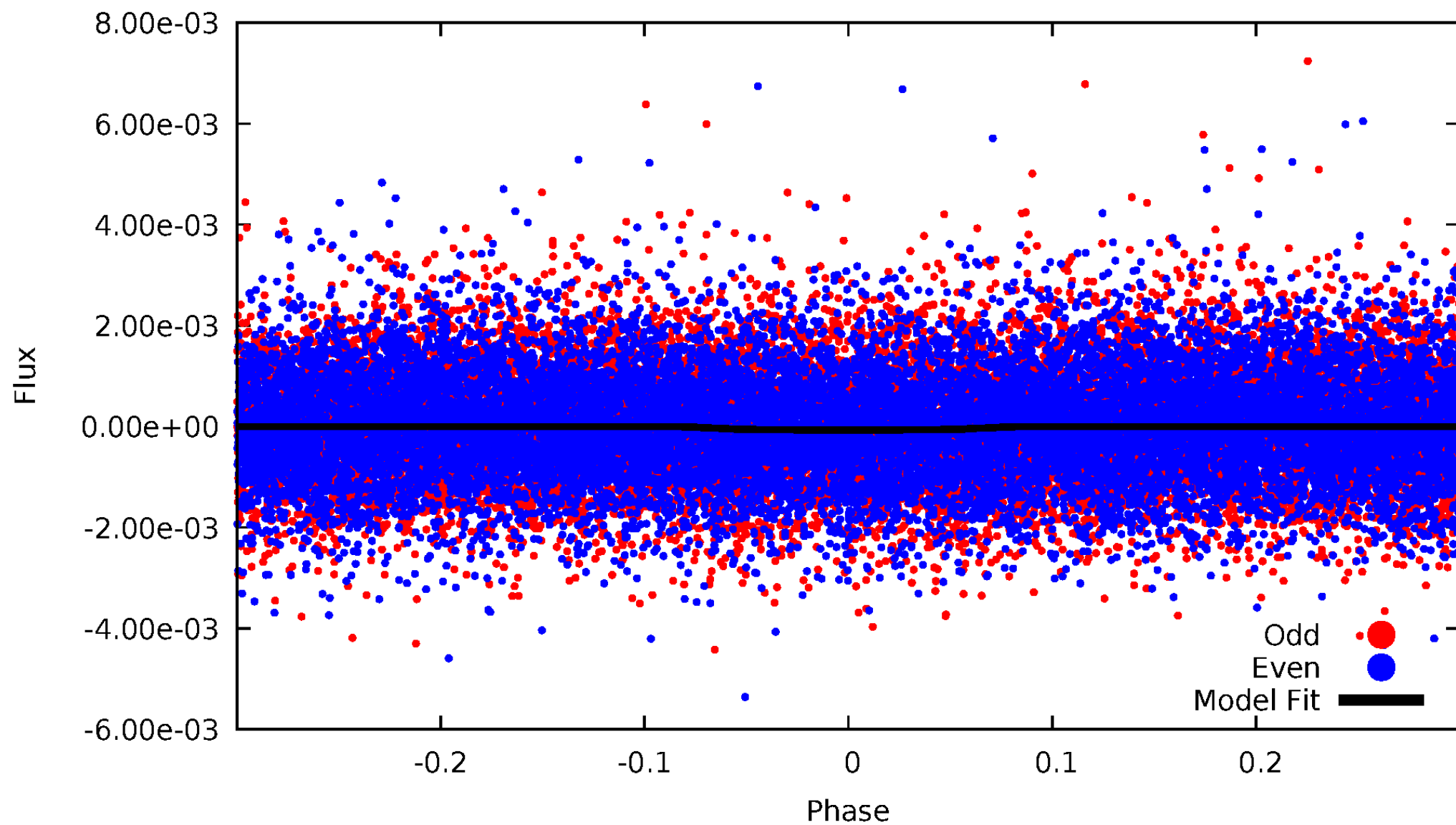
TCE 010618322-01





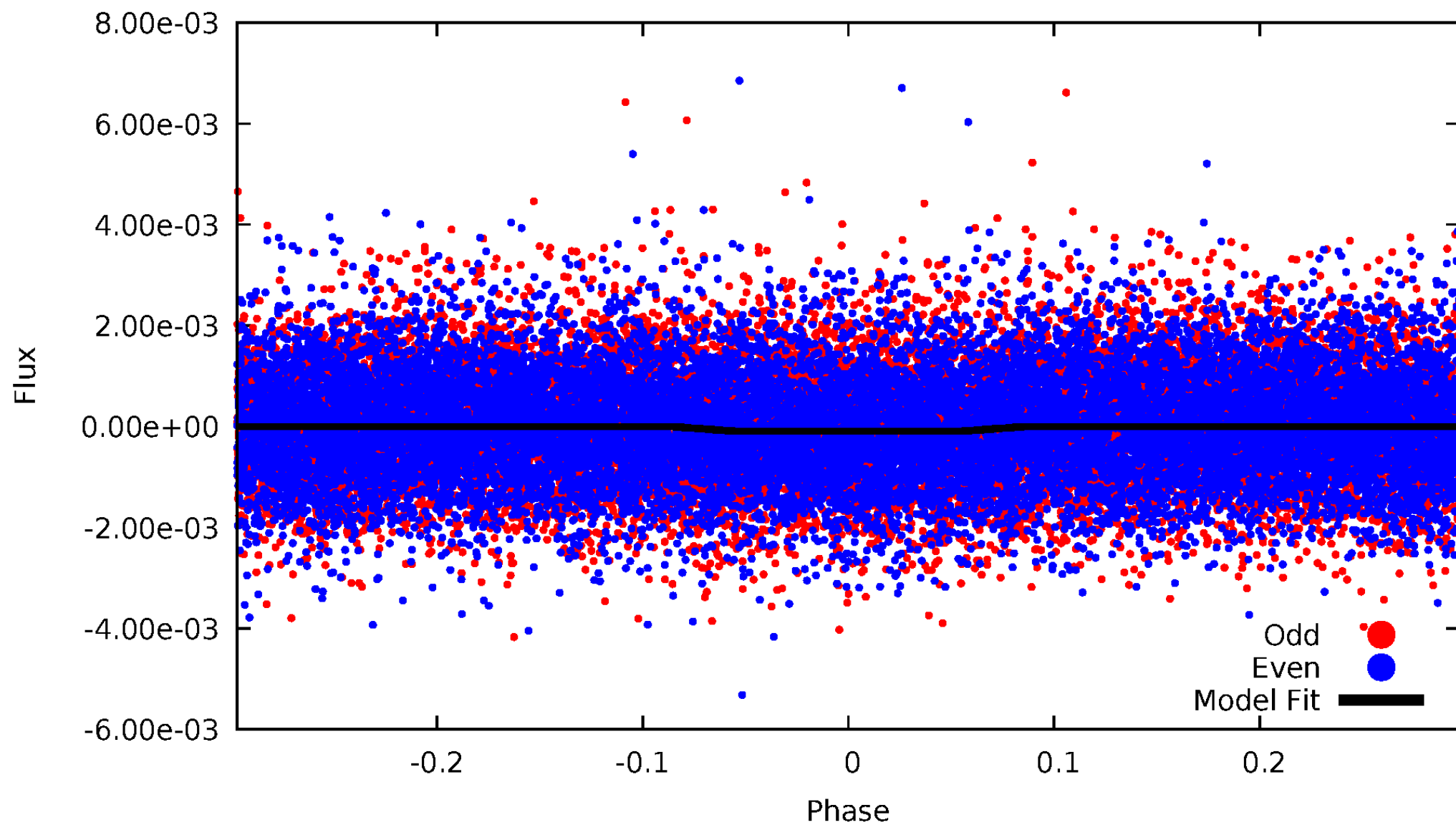
# DV Odd/Even

TCE 010618322-01



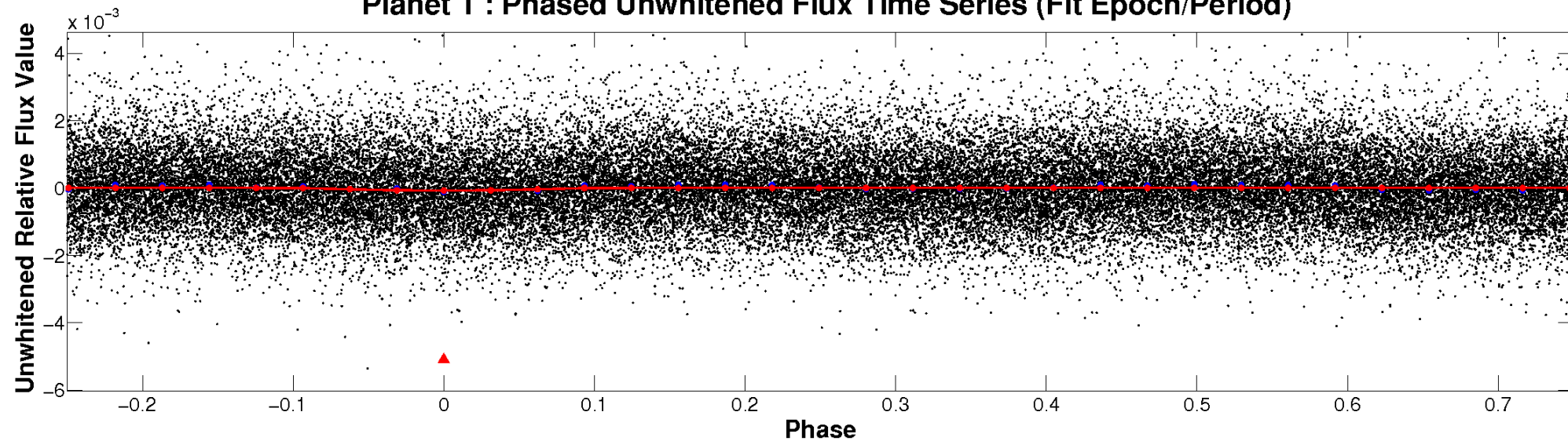
# ALT Odd/Even

TCE 010618322-01

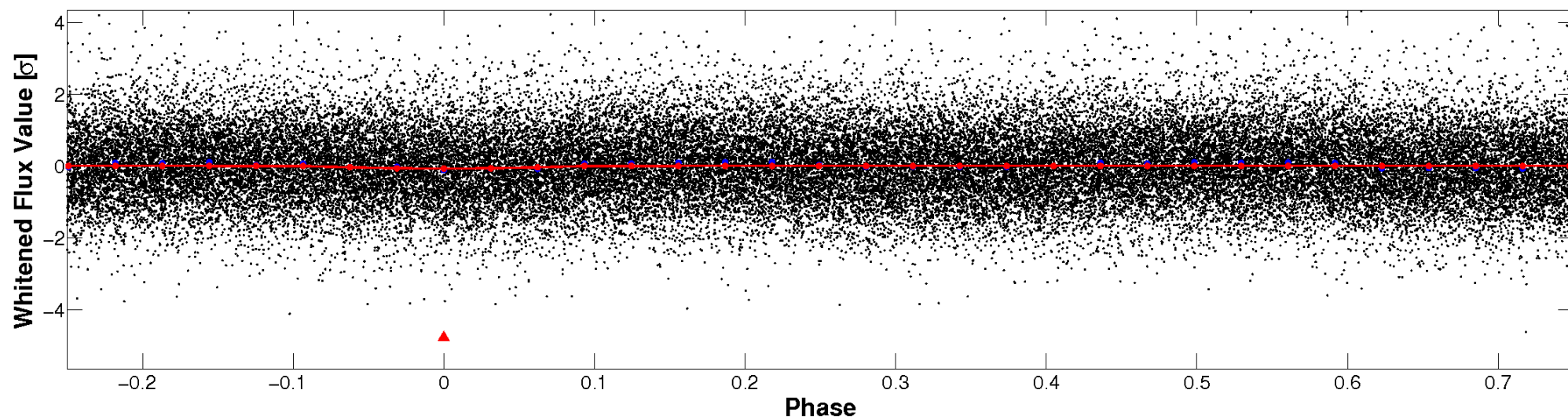


# Non-Whitened Vs. Whitened Light Curve

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

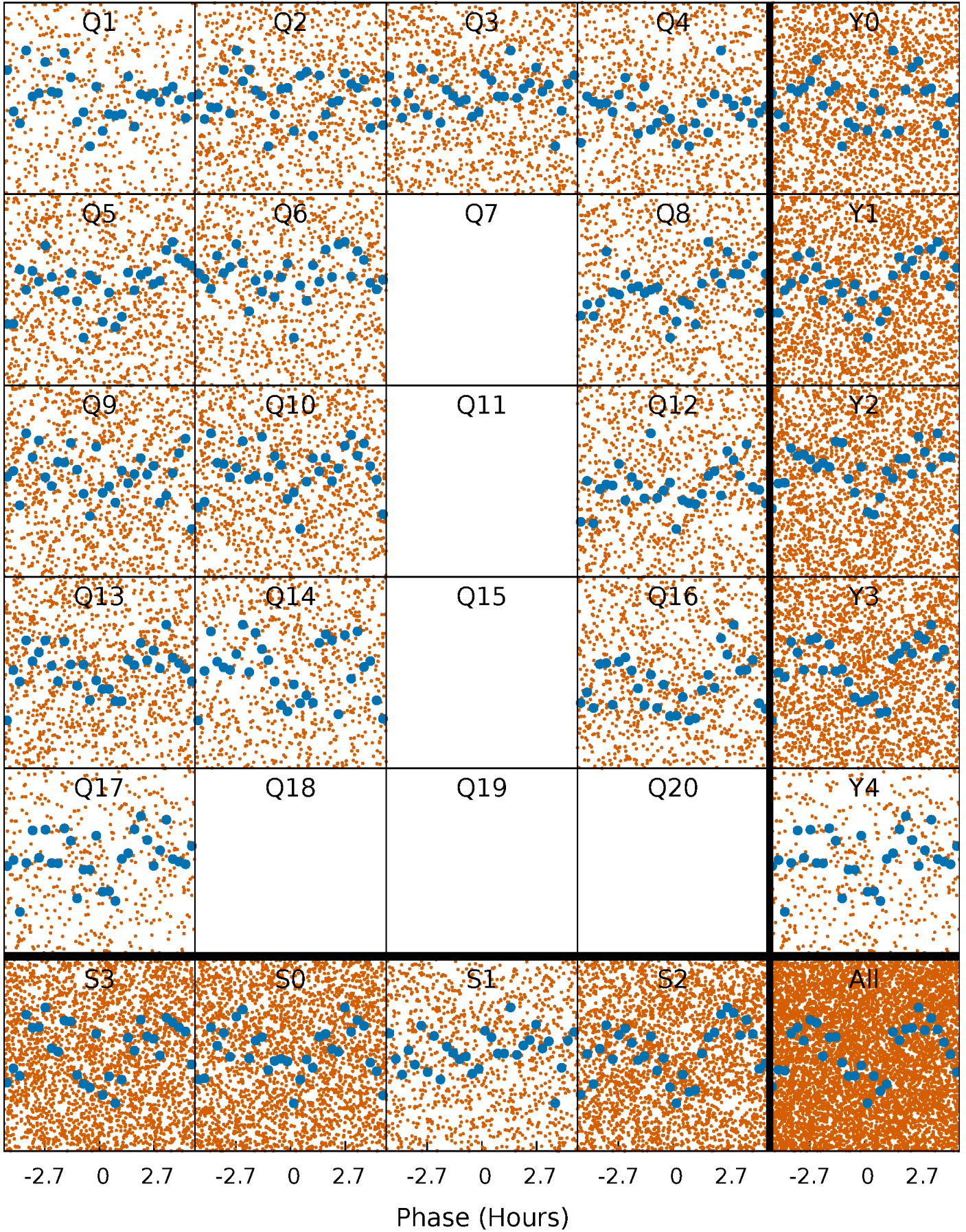


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

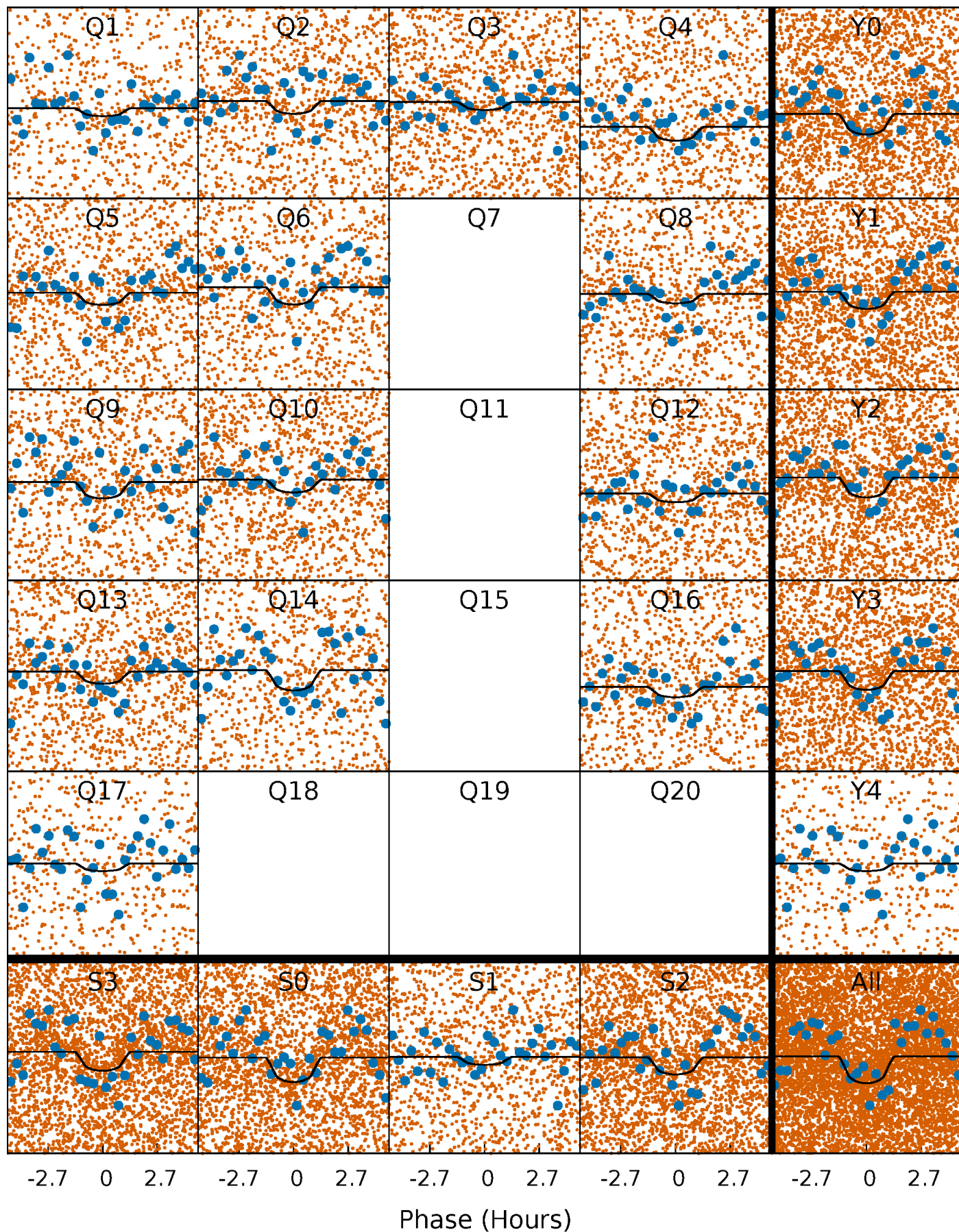
TCE 010618322-01 P= 0.656102 Days  $T_0=131.984567$  (BKJD)





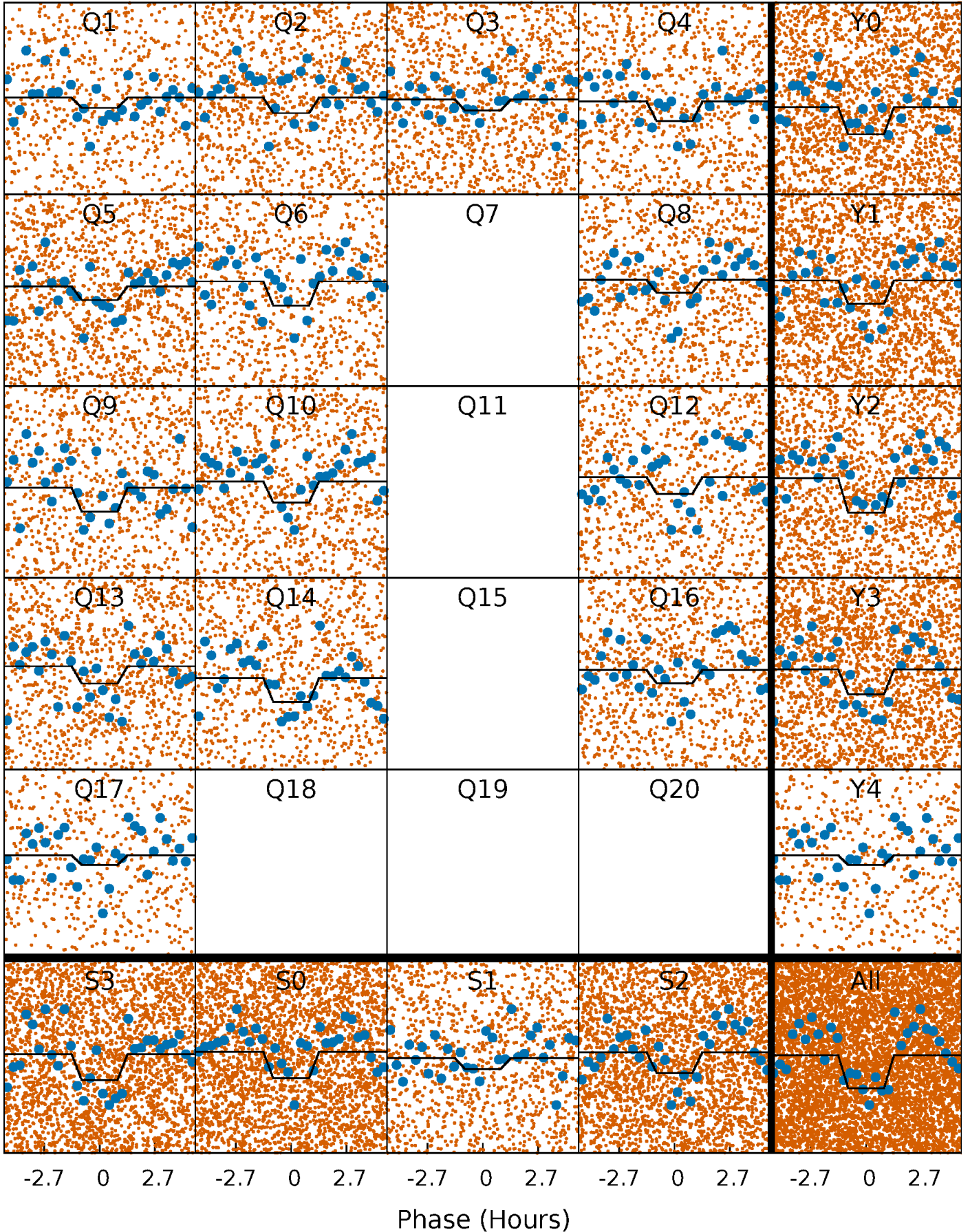
# DV Quarter-Phased Transit Curves

TCE 010618322-01 P= 0.656102 Days  $T_0=131.984567$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

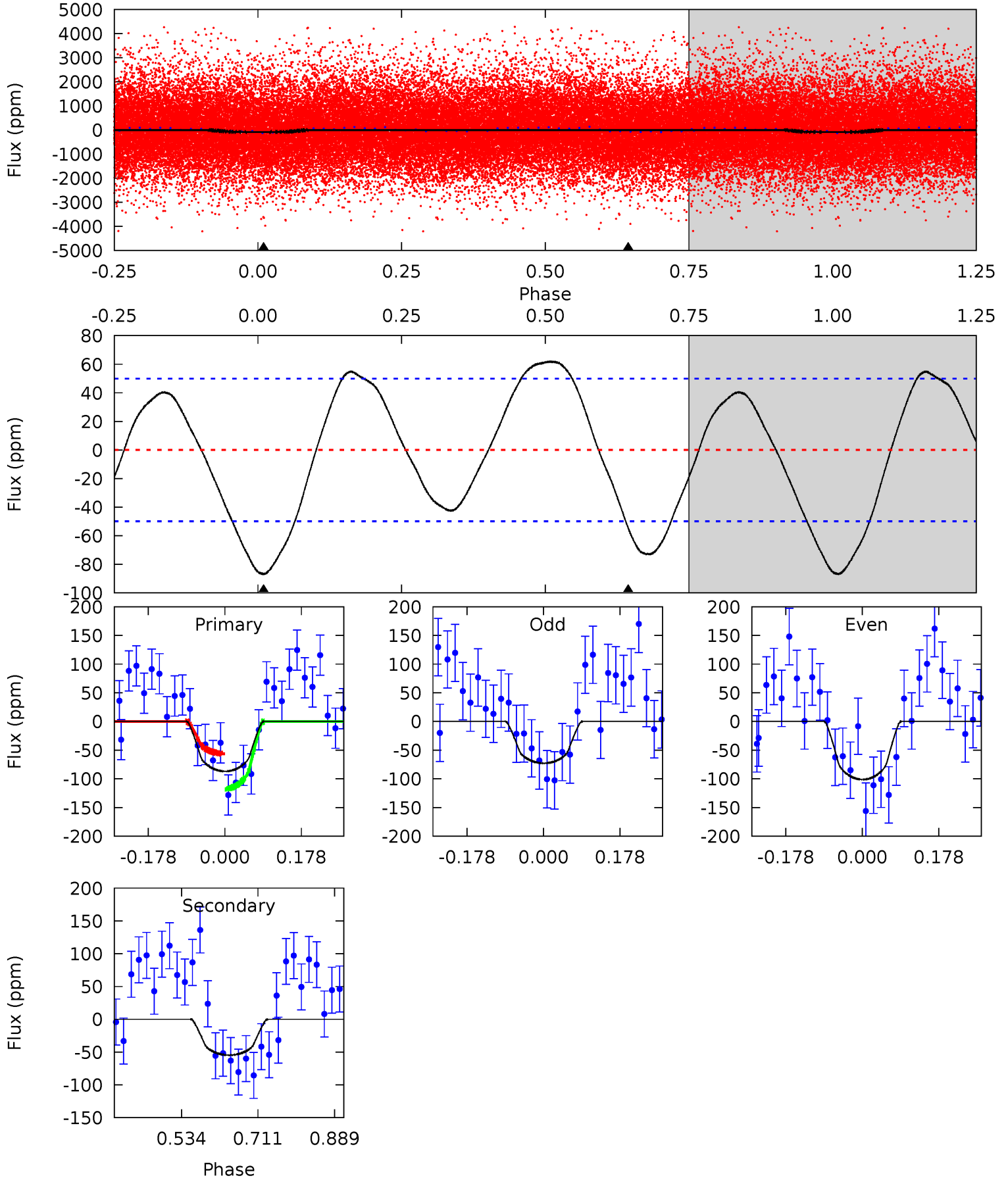
TCE 010618322-01 P= 0.656106 Days  $T_0=131.984001$  (BKJD)



# DV Model-Shift Uniqueness Test

010618322-01, P = 0.656102 Days, E = 131.328465 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
7.73	4.87	0	0	4.44	1.35	2.79	7.73	7.73	4.87	4.87	1.27	0.88	0.42	2.74

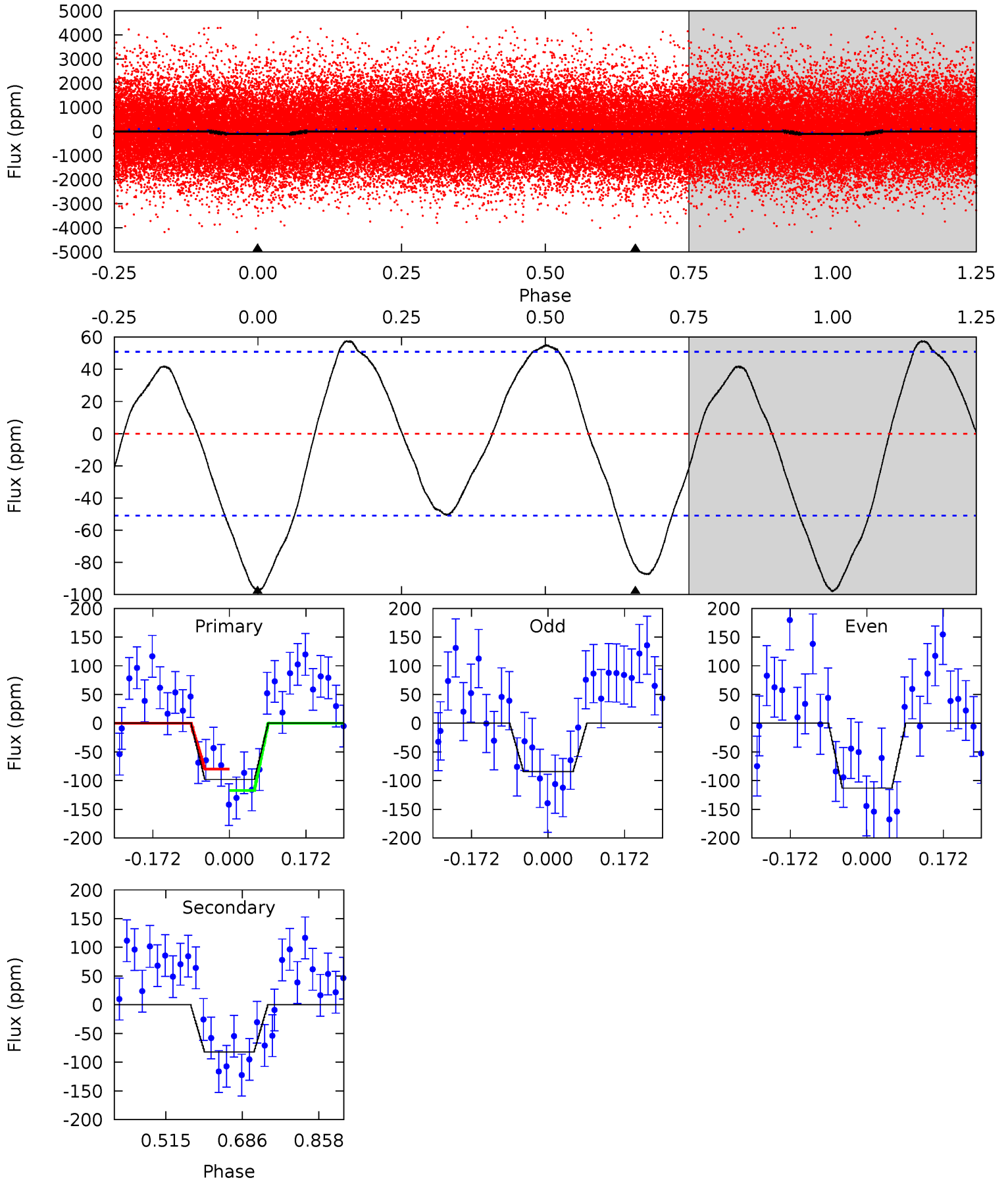




# Alt Model-Shift Uniqueness Test

010618322-01, P = 0.656106 Days, E = 131.327895 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
8.57	7.18	0	0	4.45	1.37	3.01	8.57	8.57	7.18	7.18	1.26	1.10	0.37	1.61





### Stellar Parameters For KIC 010618322

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3486^{+129}_{-94}$	$0.706^{+0.245}_{-0.245}$	$0.210^{+0.200}_{-0.250}$	$80.049^{+31.575}_{-19.431}$	$1.186^{+0.342}_{-0.158}$	$0.000^{+0.000}_{-0.000}$
	+4%/-3%	+35%/-35%	+95%/-119%	+39%/-24%	+29%/-13%	+116%/-62%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 010618322-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-55 \pm 11$	$153.76^{+150.96}_{-103.68}$	$15451^{+1420}_{-1294}$	$-12973^{+2028}_{-2663}$	$0.000^{+0.003}_{-0.000}$
Alt.	$-82 \pm 11$	$156.21^{+142.69}_{-101.86}$	$15374^{+1584}_{-1303}$	$-12860^{+1990}_{-2789}$	$0.000^{+0.003}_{-0.000}$

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

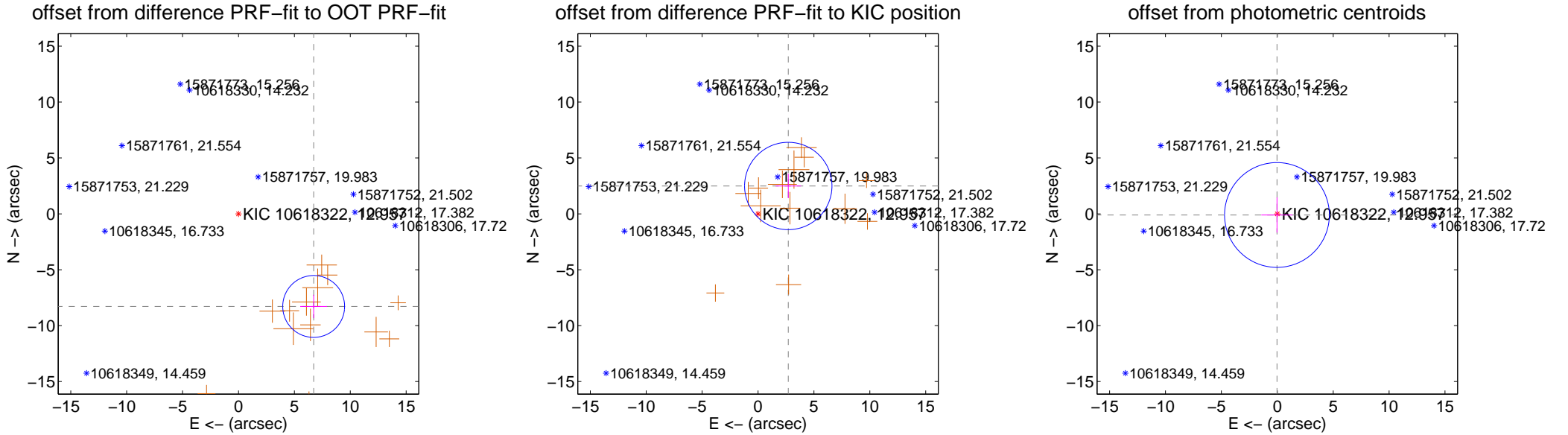
## DV Centroid Data

Supplemental centroid analysis for 010618322-01. Kepler magnitude: 12.96. Transit SNR 4.88

There are 0 quarters with good PRF difference image offsets

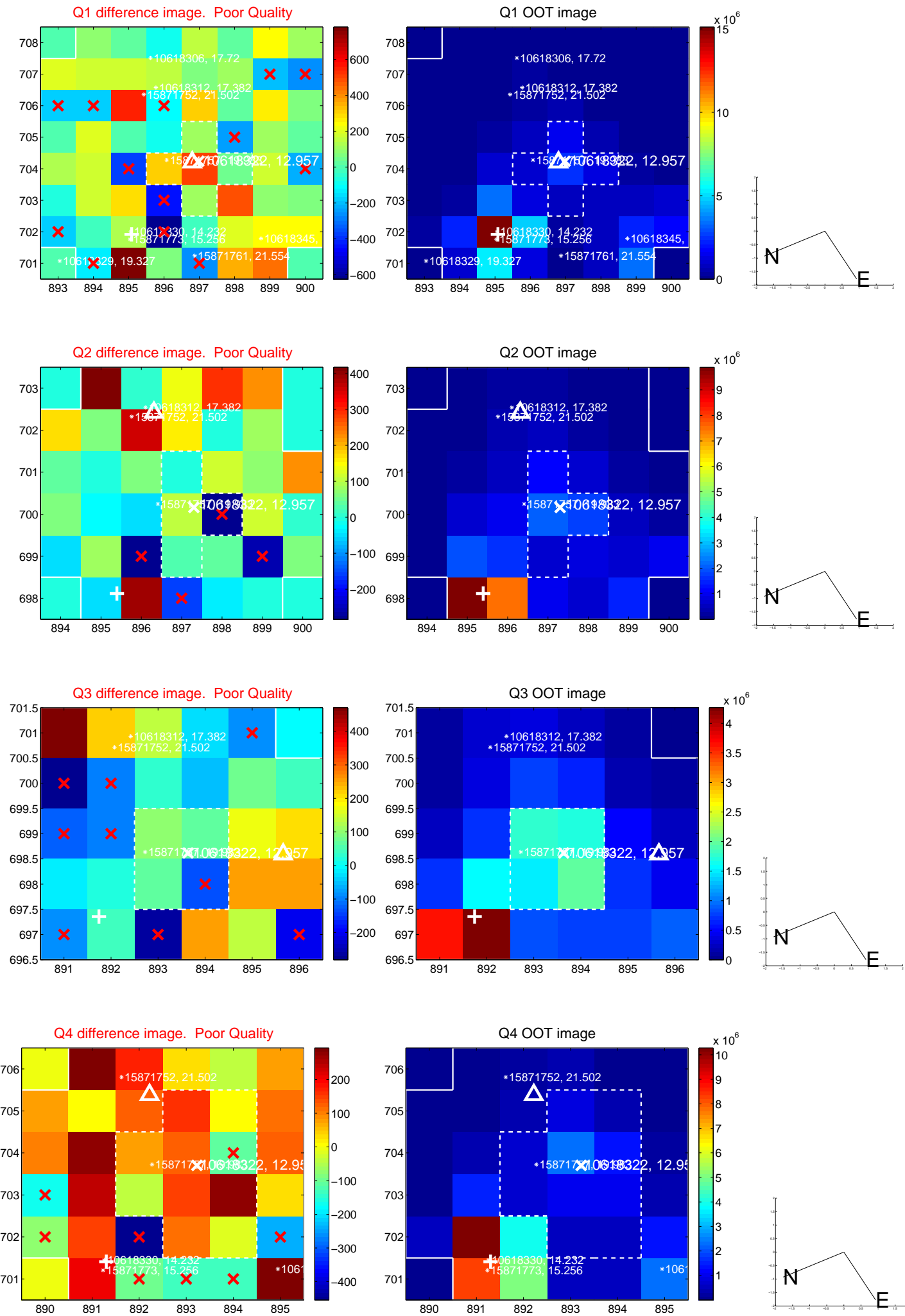
The OOT PRF centroid is offset from the target star catalog position by about 11.22 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$10.670 \pm 0.922$	$11.57$	$-6.726 \pm 1.203$	$-8.283 \pm 1.048$
PRF-fit source offset from KIC position	$3.679 \pm 1.302$	2.82	$-2.705 \pm 1.133$	$2.493 \pm 1.096$
photometric centroid source offset	$0.11 \pm 1.56$	0.07	$0.03 \pm 1.40$	$-0.10 \pm 1.58$

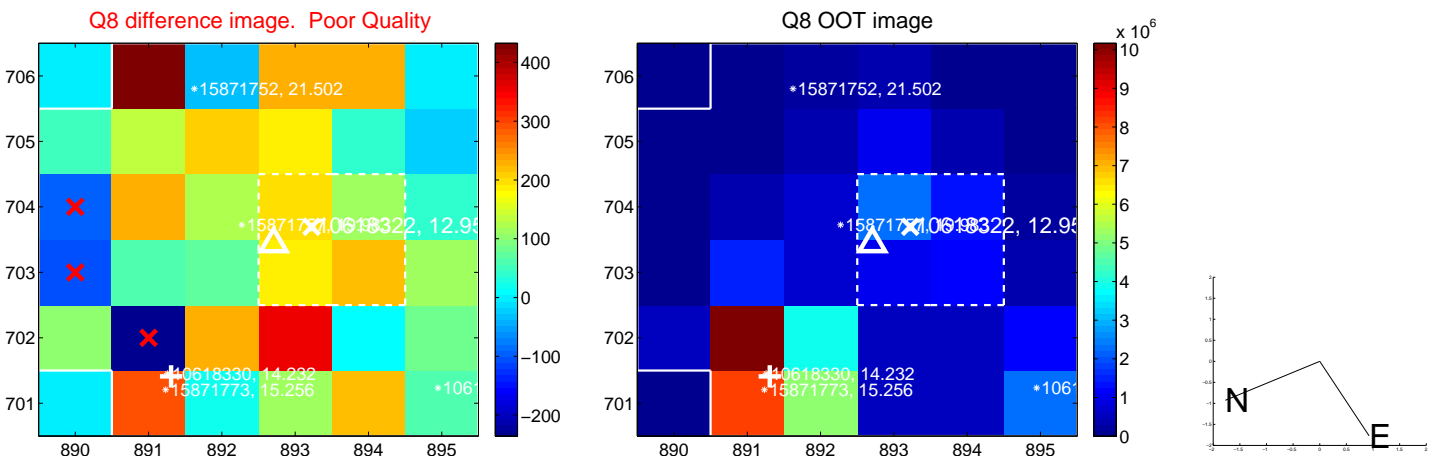
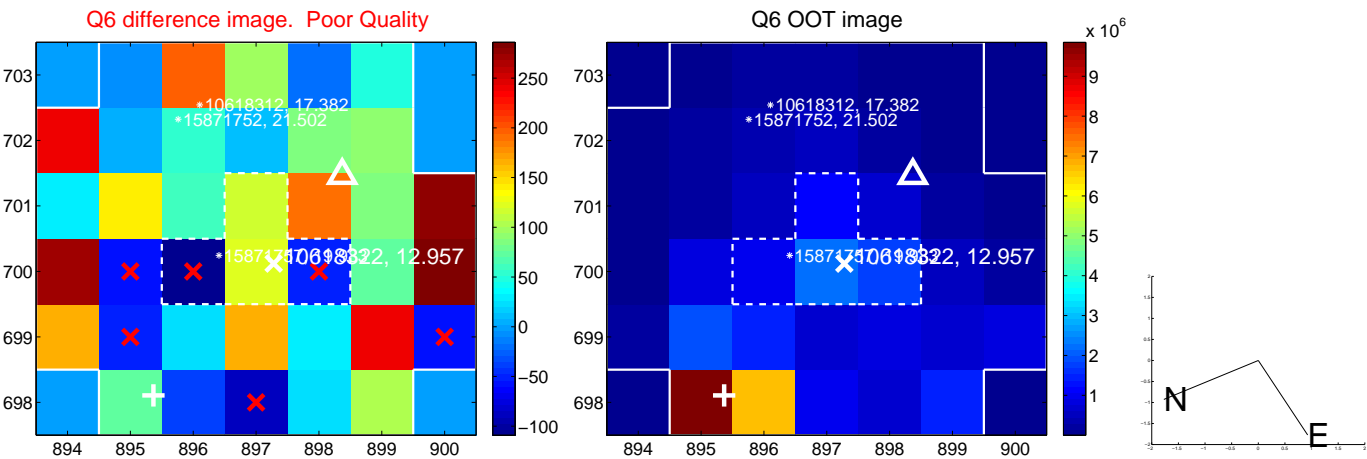
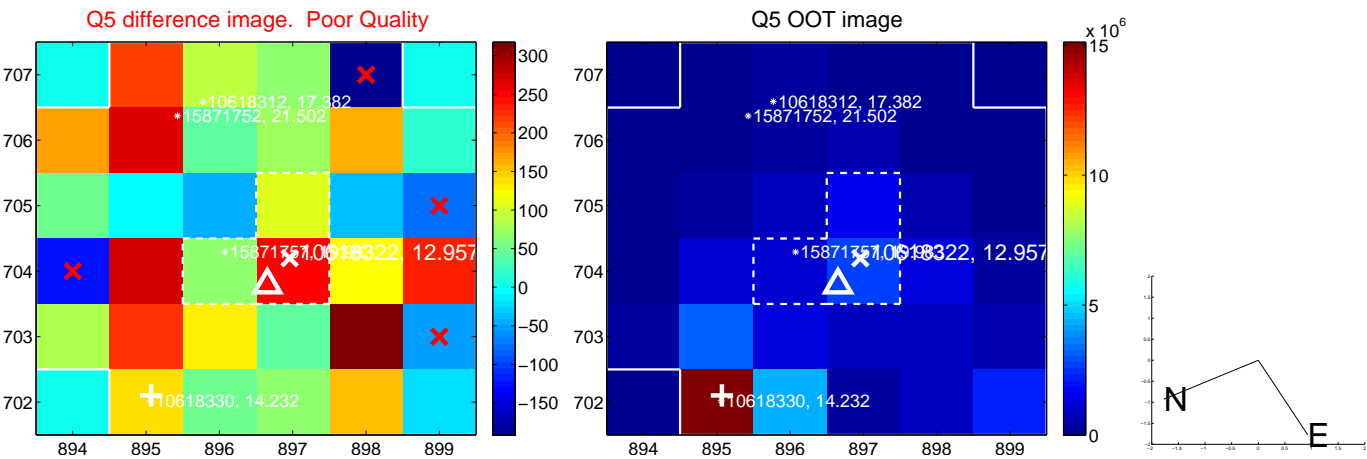


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

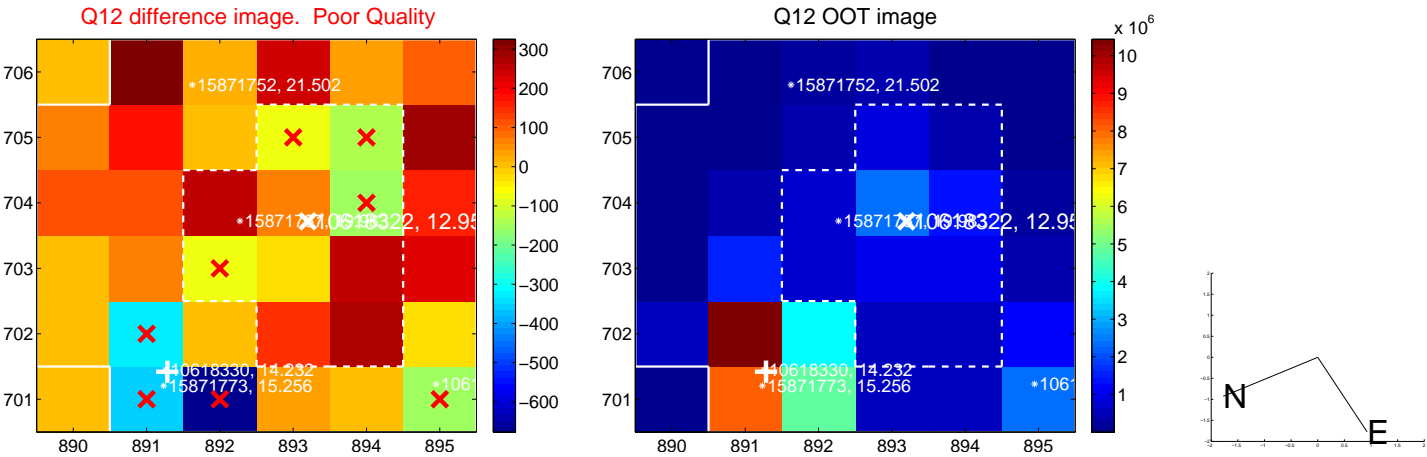
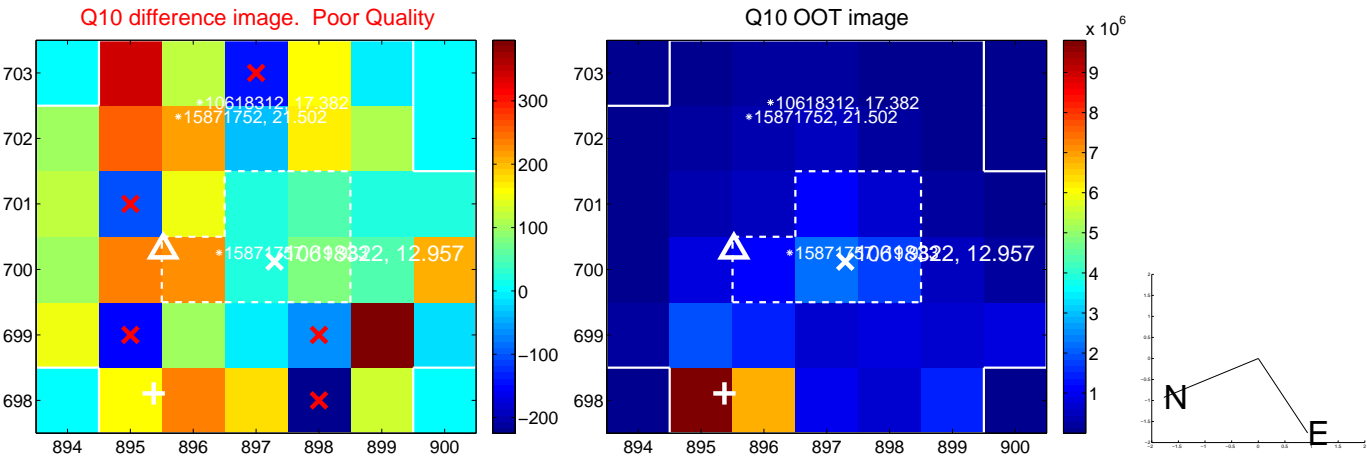
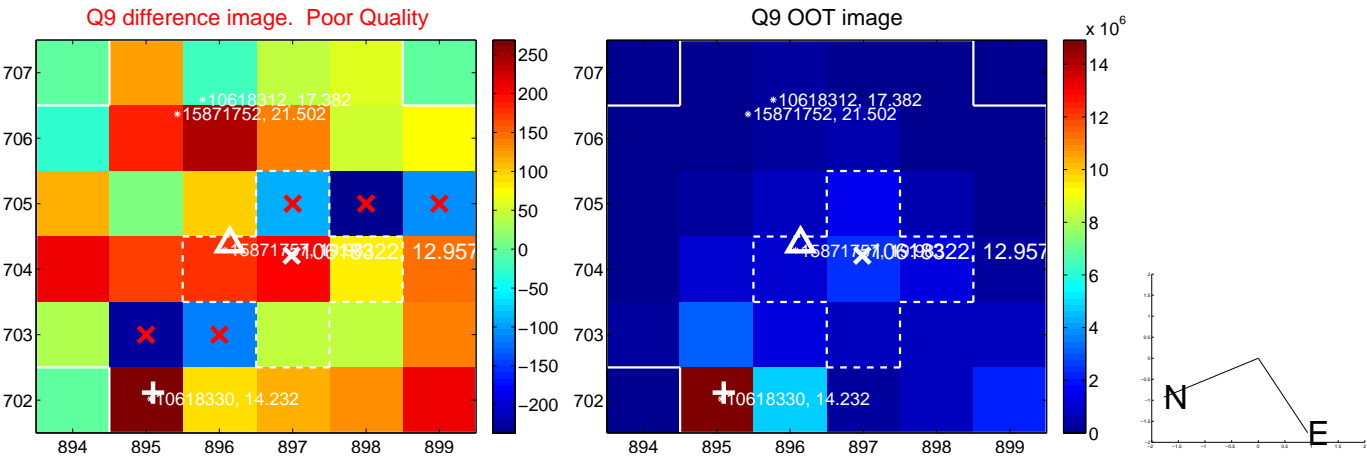


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

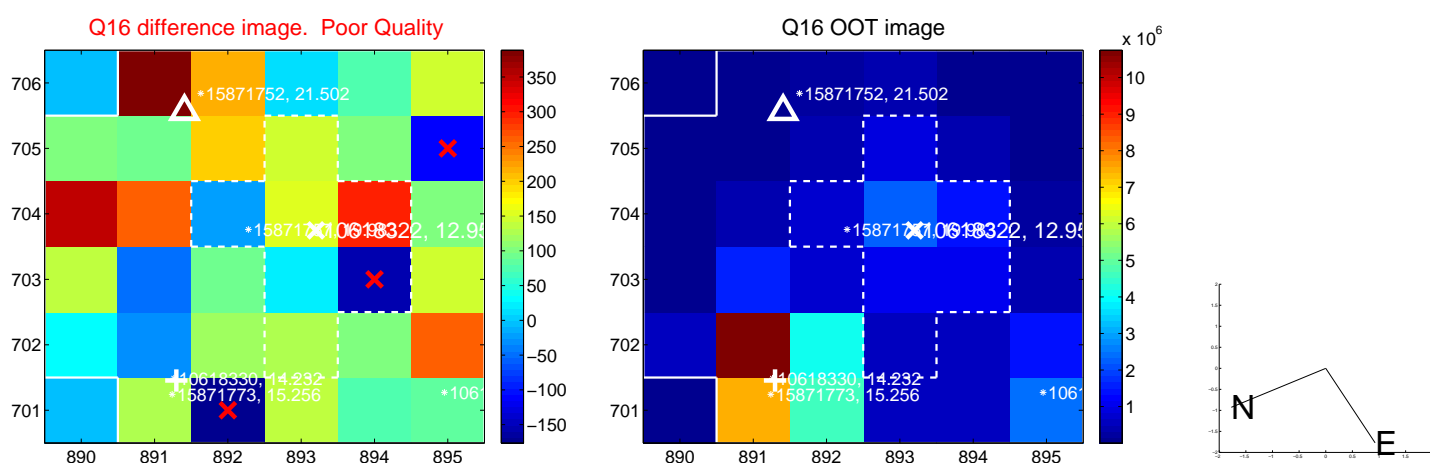
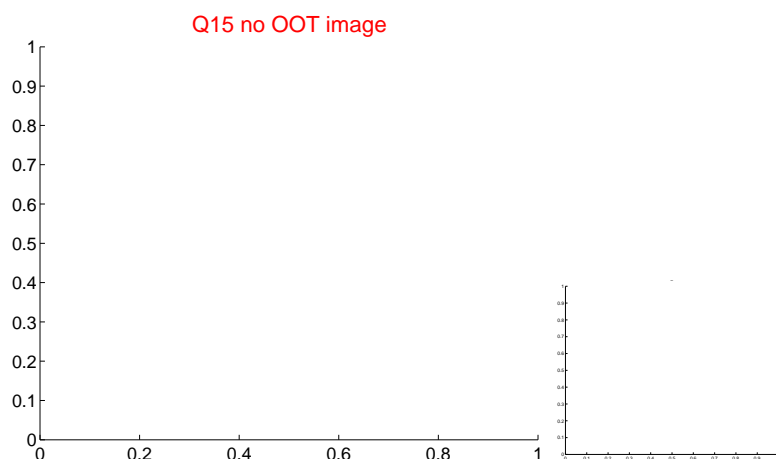
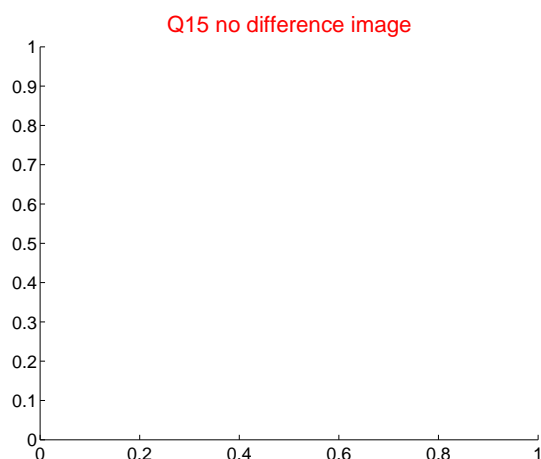
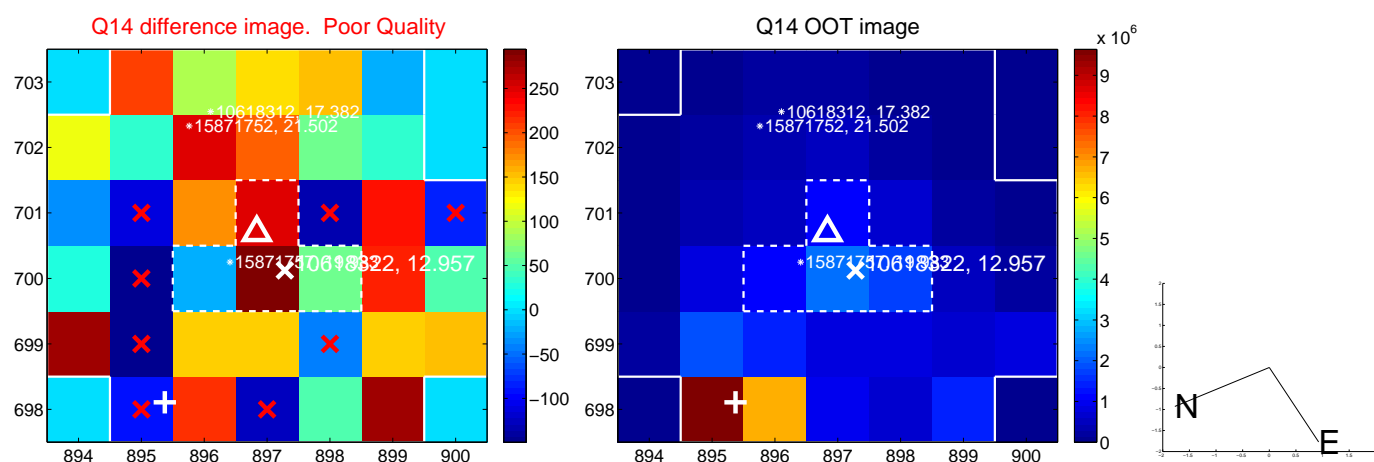
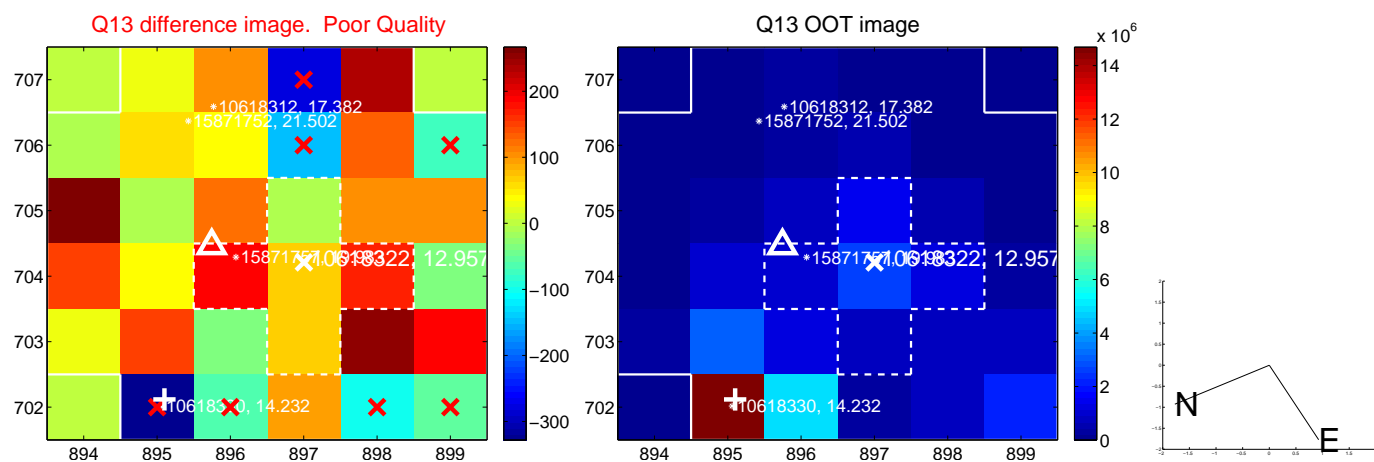




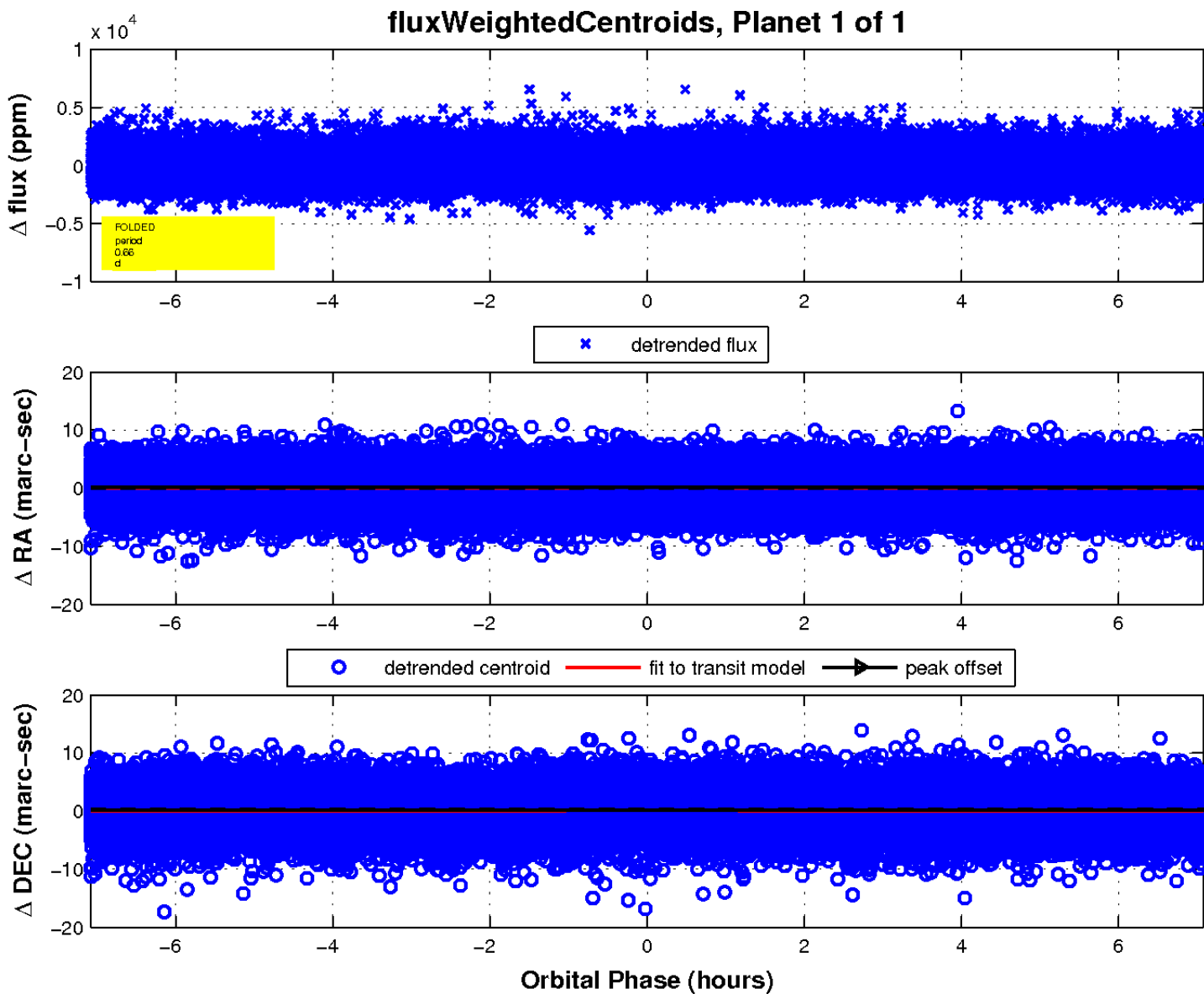
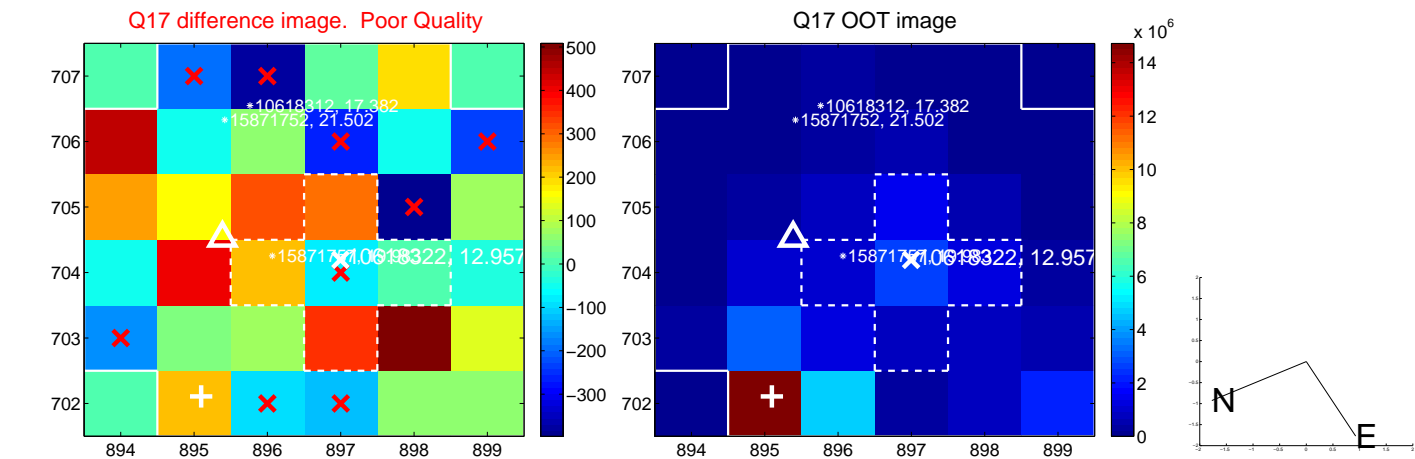
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

