

# KIC 007362631

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007362631-01	OBS	No	0.566785	131.849794	33.3	3.451	10.4	12.7	1.00	6063	0.66	6417.66

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007362631-01	OBS	FP	0.00	1	0	1	1	LPP_DV—MOD_NONUNIQ_ALT—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.

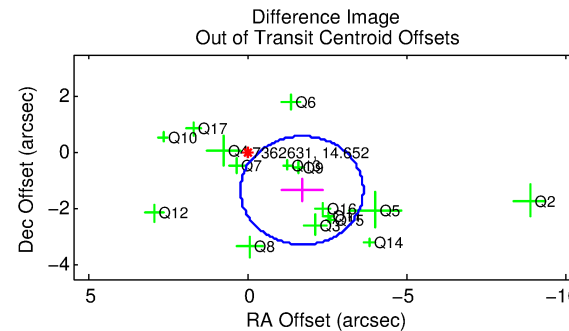
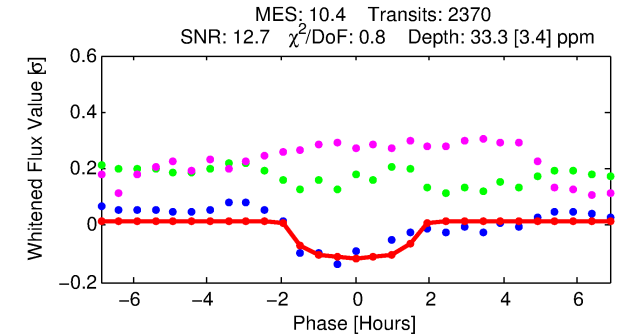
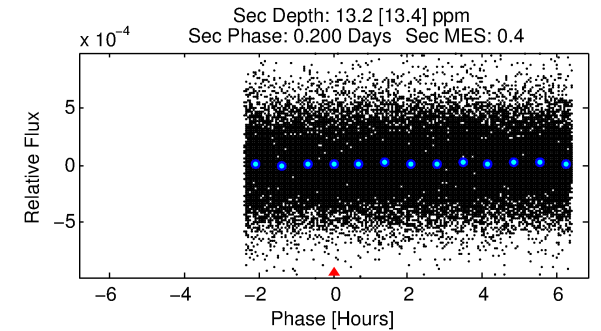
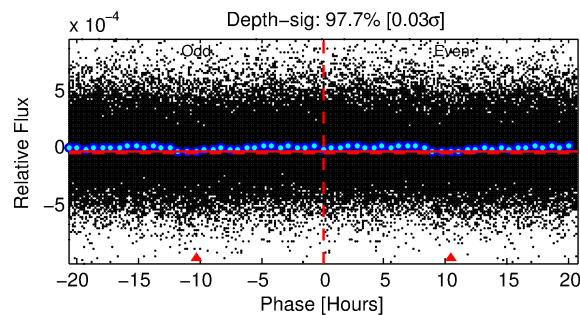
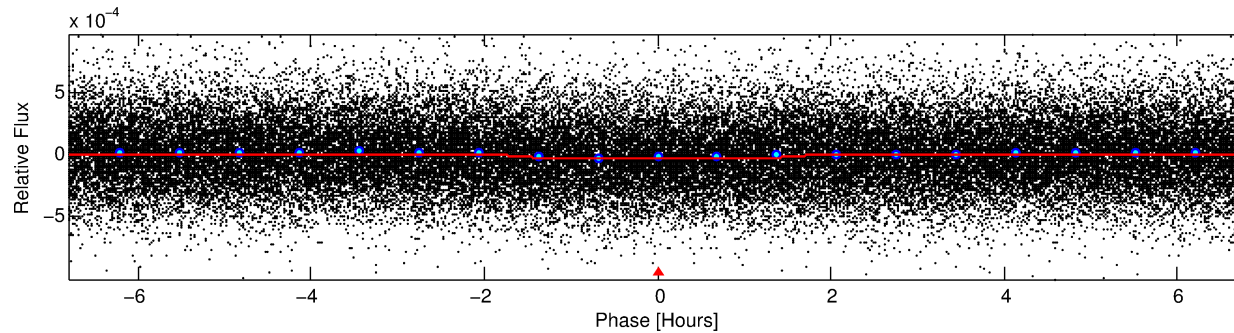
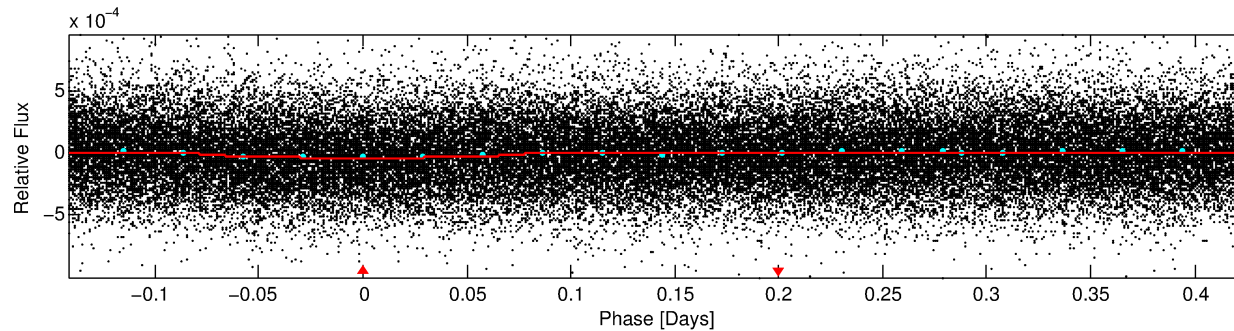
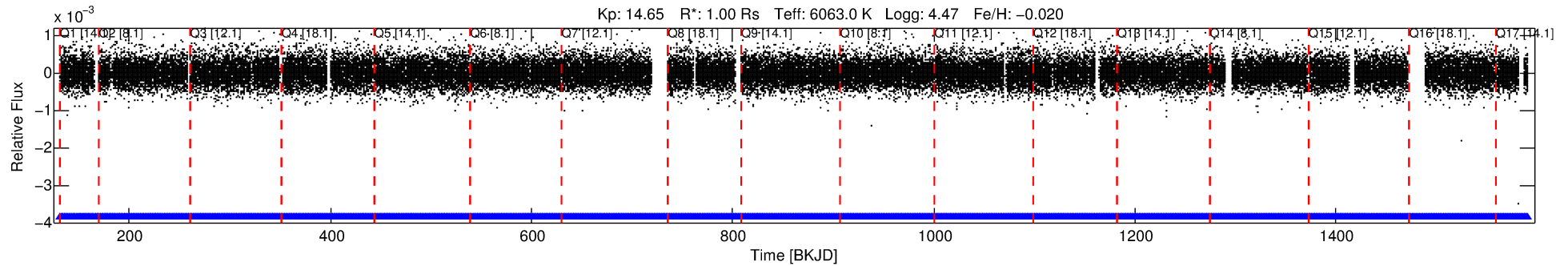
## Ephemeris Match Information For 007362631-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007362631-01	7362631	RR-Lyr-pri	7198959	1:1	1190.1	-7	299	7.86	14.65	18888.00	Direct-PRF	0	2.64	16.77

**Notes:** P<sub>1</sub>:P<sub>2</sub> 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<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> 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: 7362631 Candidate: 1 of 1 Period: 0.567 d



## DV Fit Results:

Period = 0.56678 [0.00001] d  
Epoch = 131.8498 [0.0030] BKJD  
Rp/R\* = 0.0060 [0.0037]  
a/R\* = 1.13 [0.76]  
b = 0.86 [0.98]  
Seff = 6417.66 [2528.31]  
Teff = 2282 [225] K  
Rp = 0.66 [0.45] Re  
a = 0.0137 [0.0035] AU  
Ag = 3.14 [5.16] [0.42 $\sigma$ ]  
Teffp = 4699 [1885] K [1.27 $\sigma$ ]

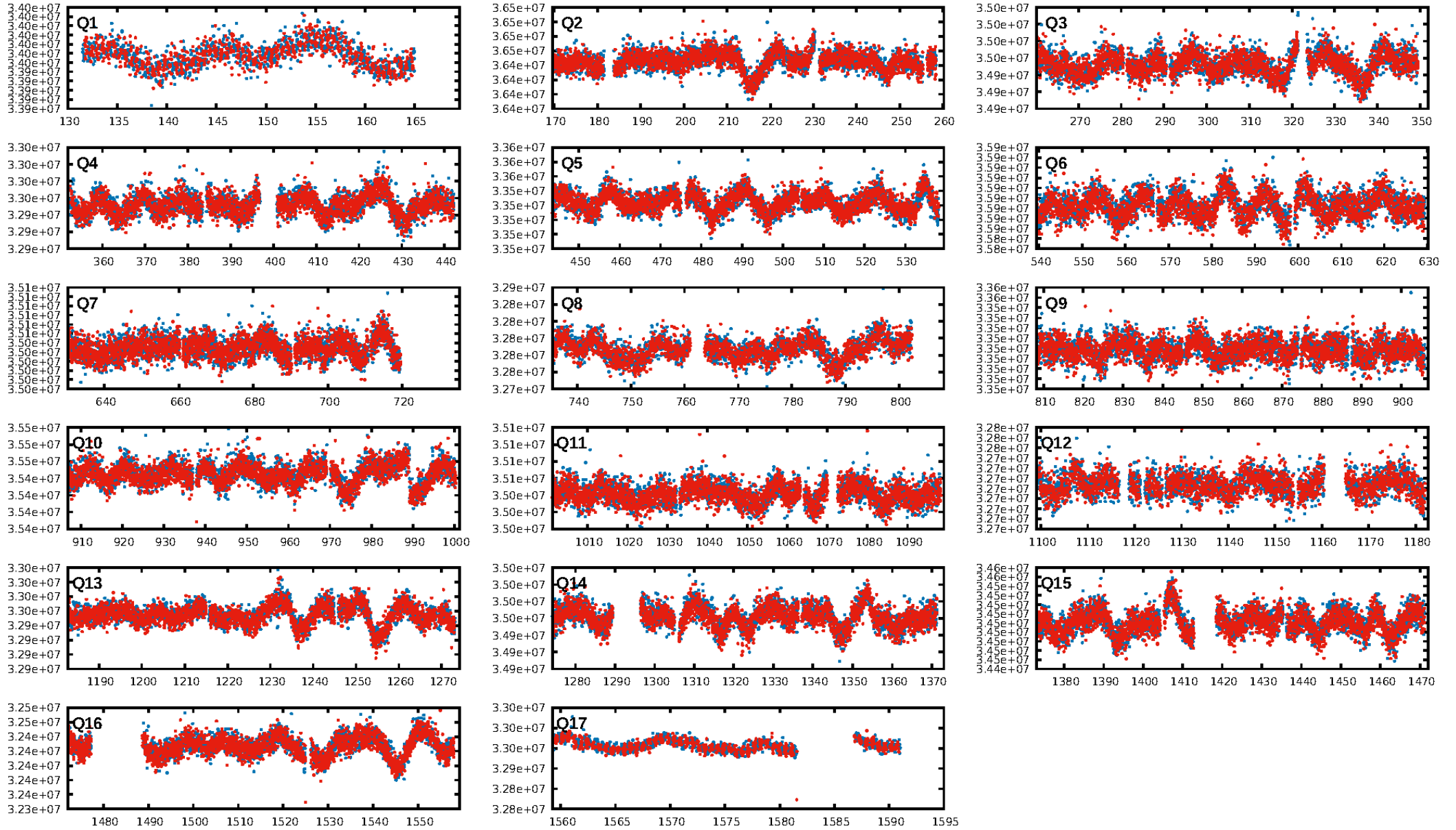
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof: N/A  
Bootstrap-pfa: 2.79e-18  
RollingBand-fgt: 1.00 [2264/2264]  
**GhostDiagnostic-chr: 0.06141**  
Centroid-sig: 0.0%  
Centroid-so: 4.168 arcsec [4.69 $\sigma$ ]  
OotOffset-rm: 2.164 arcsec [3.36 $\sigma$ ]  
KicOffset-rm: 2.006 arcsec [2.92 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.06 [1/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:44:48 Z

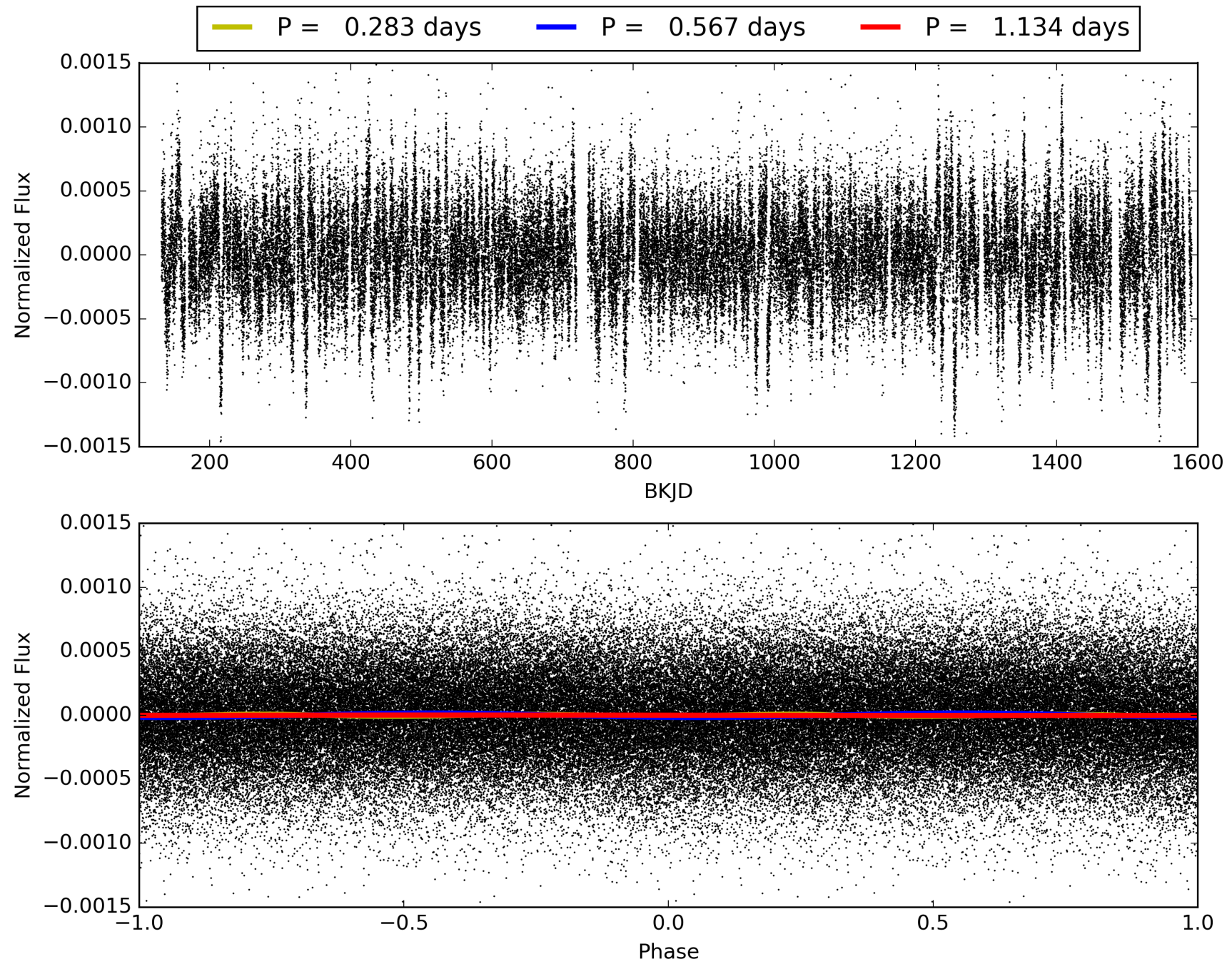
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007362631-01, PDC Light Curves



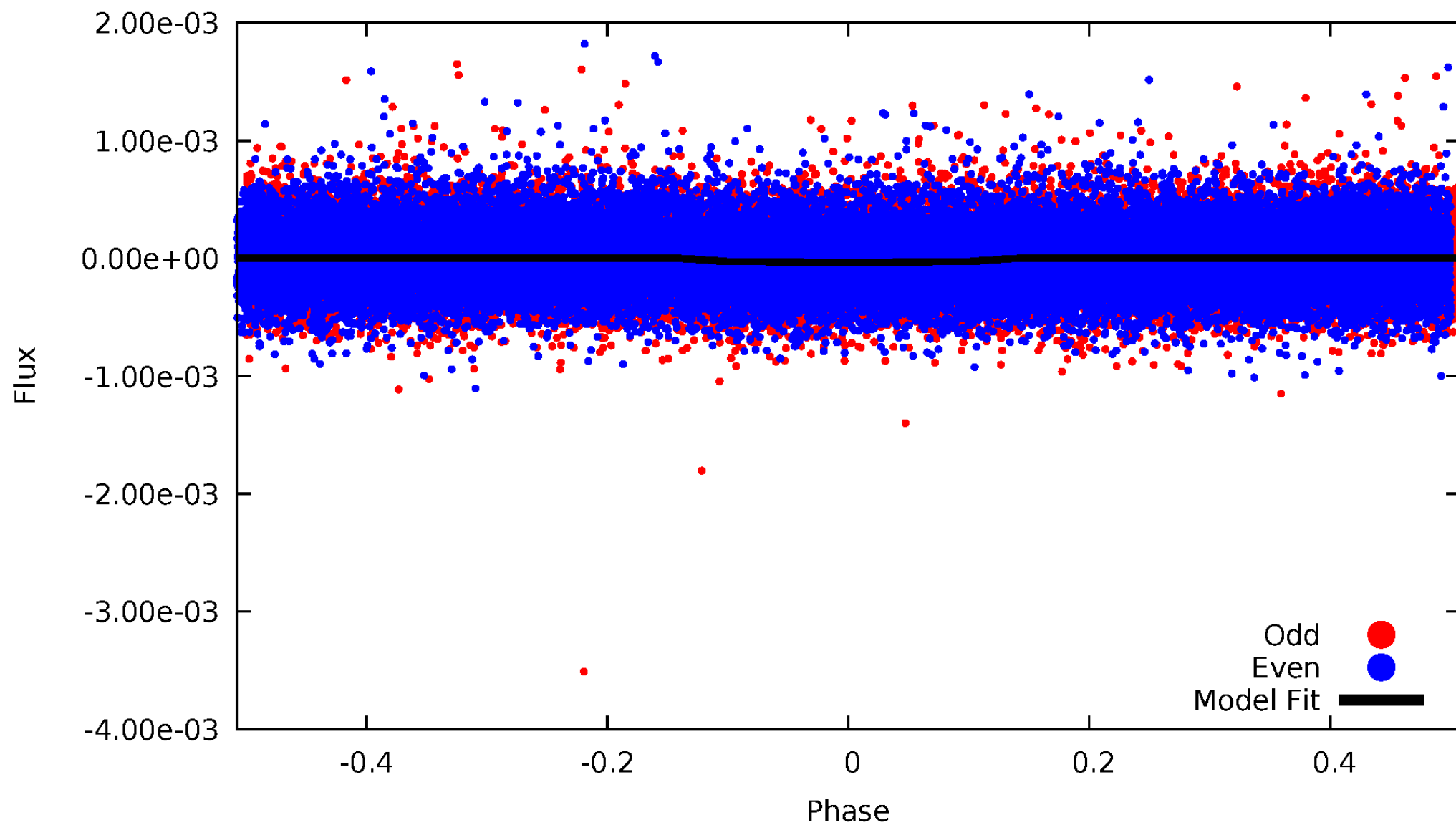


TCE 007362631-01



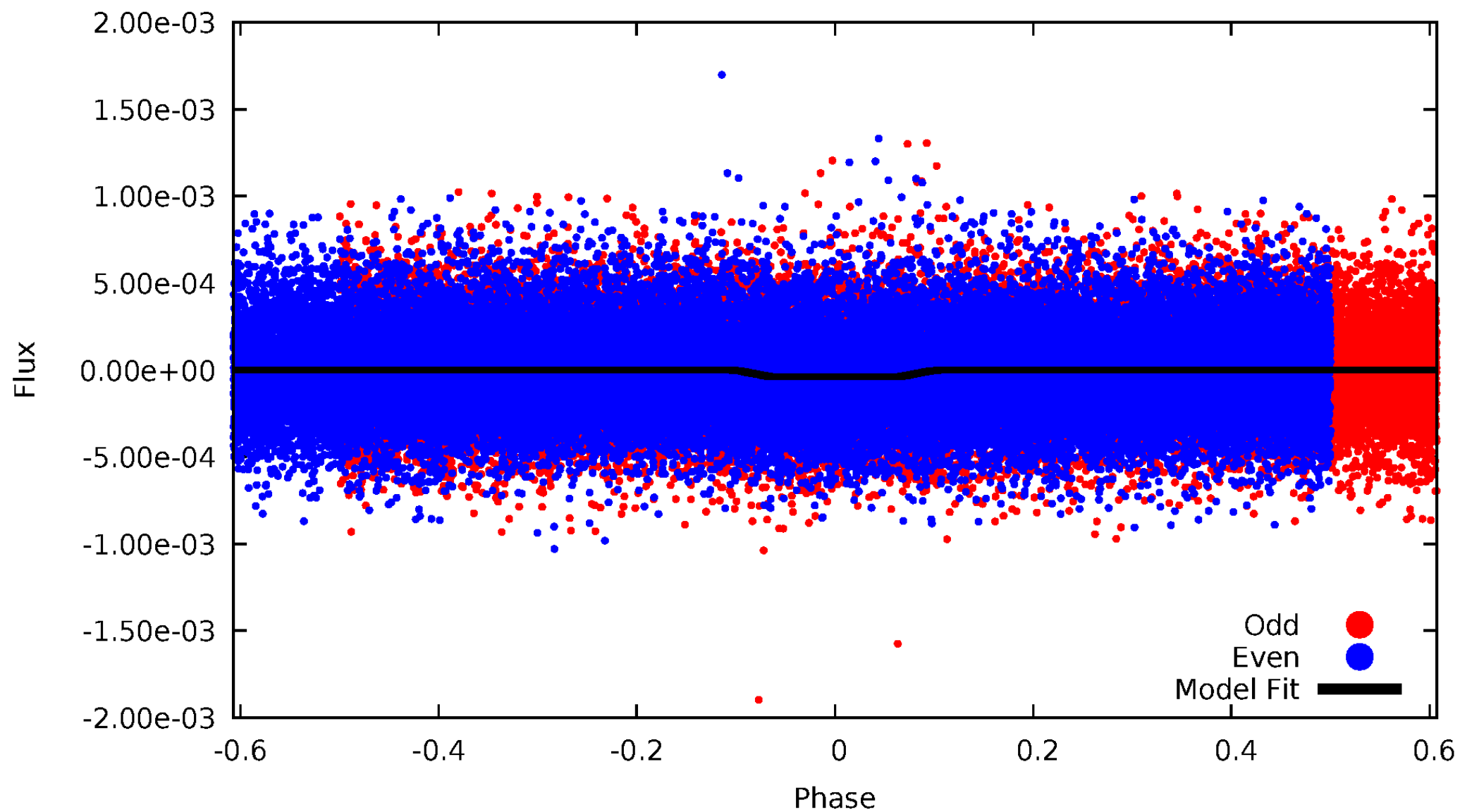
# DV Odd/Even

TCE 007362631-01



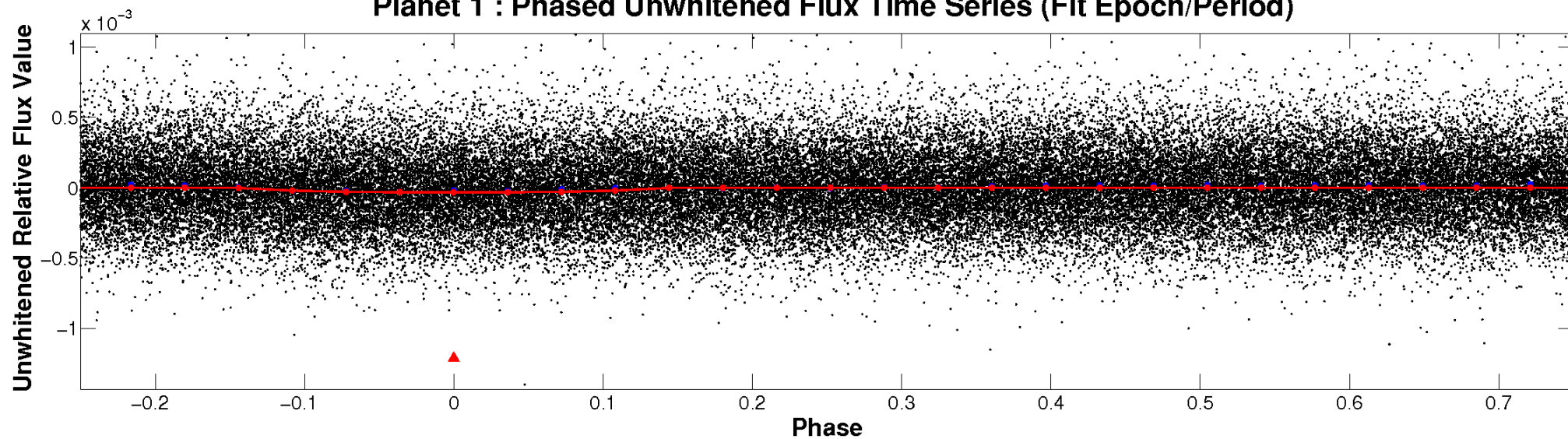
# ALT Odd/Even

TCE 007362631-01

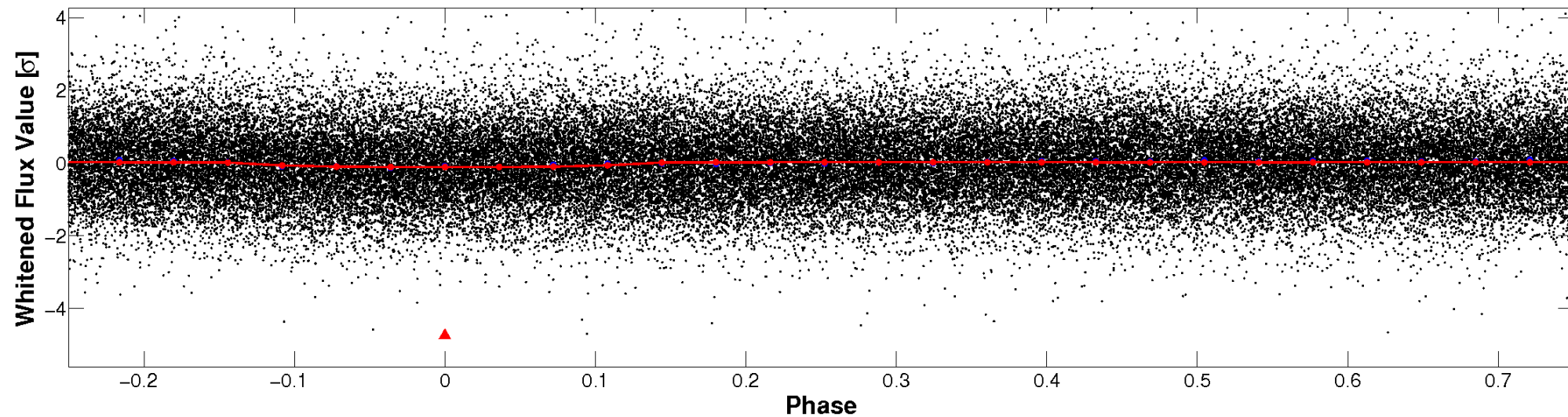


# Non-Whitened Vs. Whitened Light Curve

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



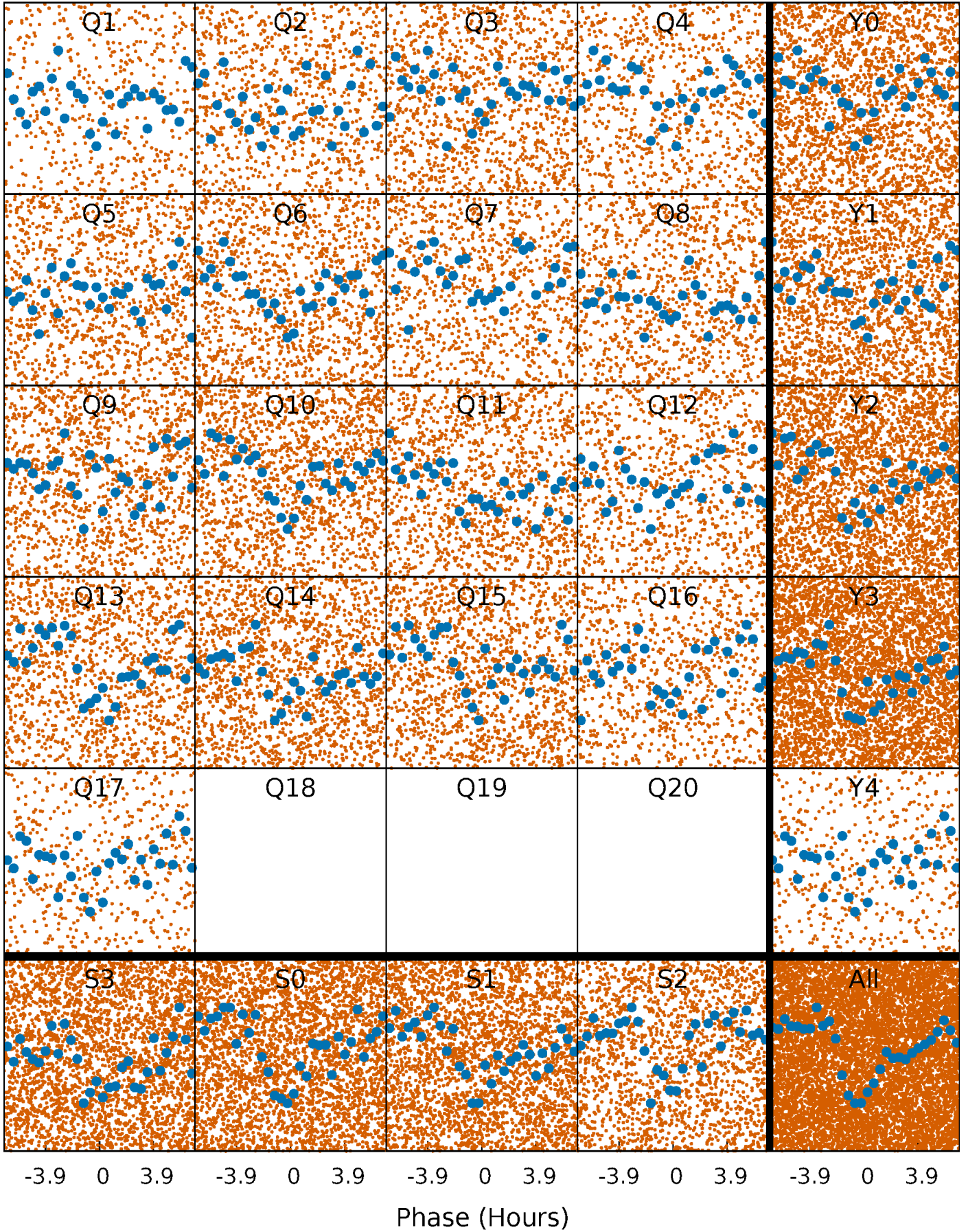
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

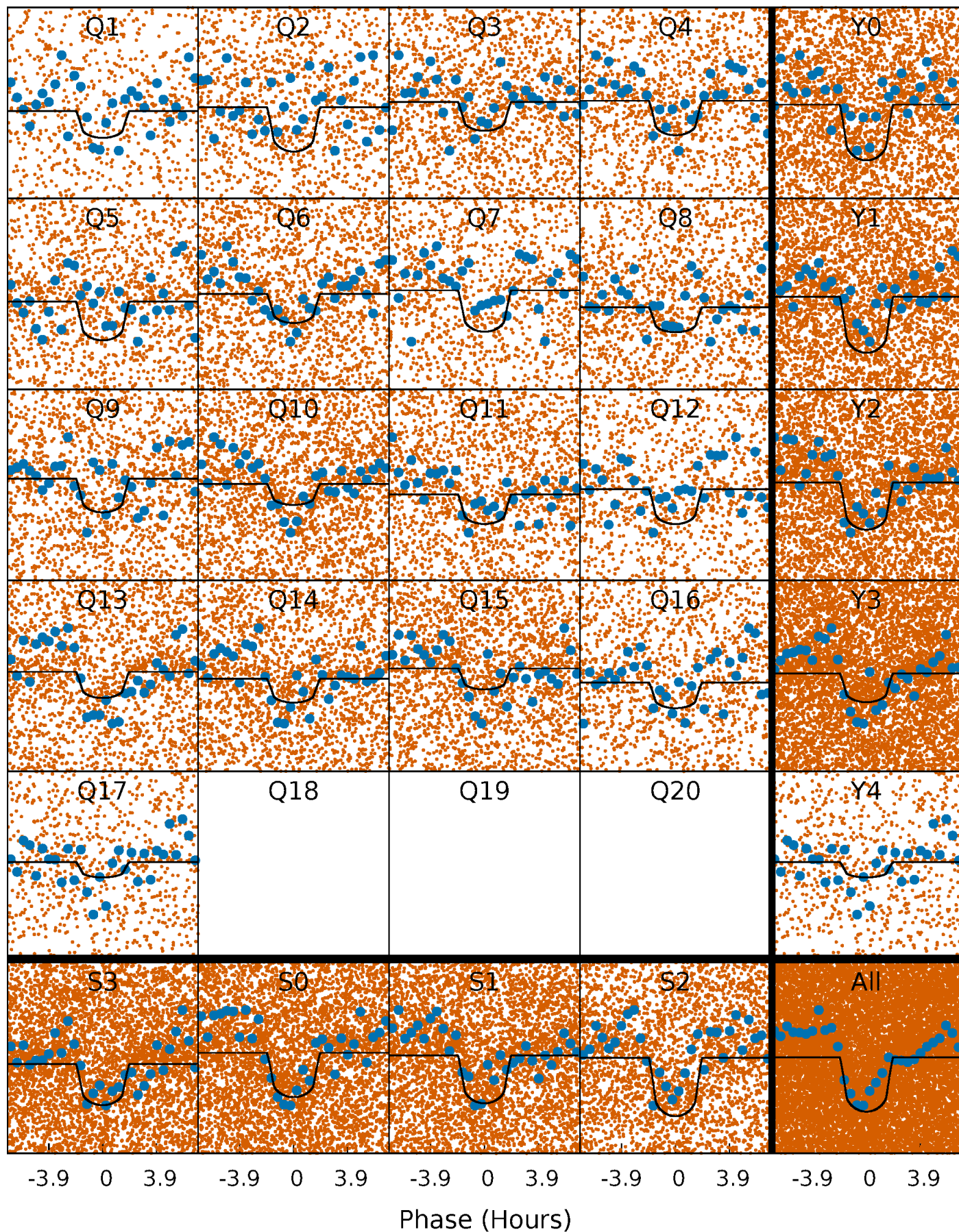
TCE 007362631-01 P= 0.566785 Days  $T_0=131.849794$  (BKJD)





# DV Quarter-Phased Transit Curves

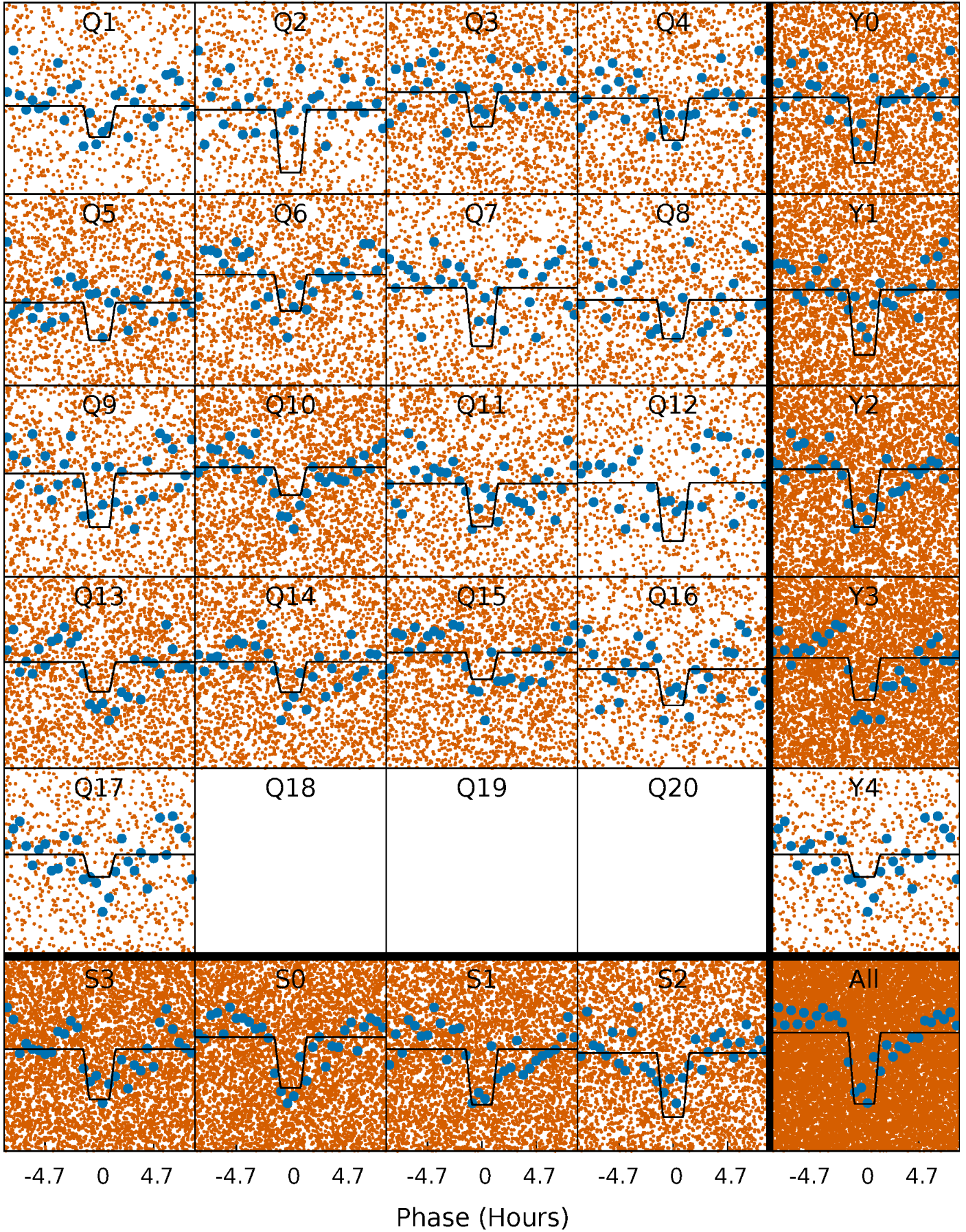
TCE 007362631-01 P= 0.566785 Days  $T_0=131.849794$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

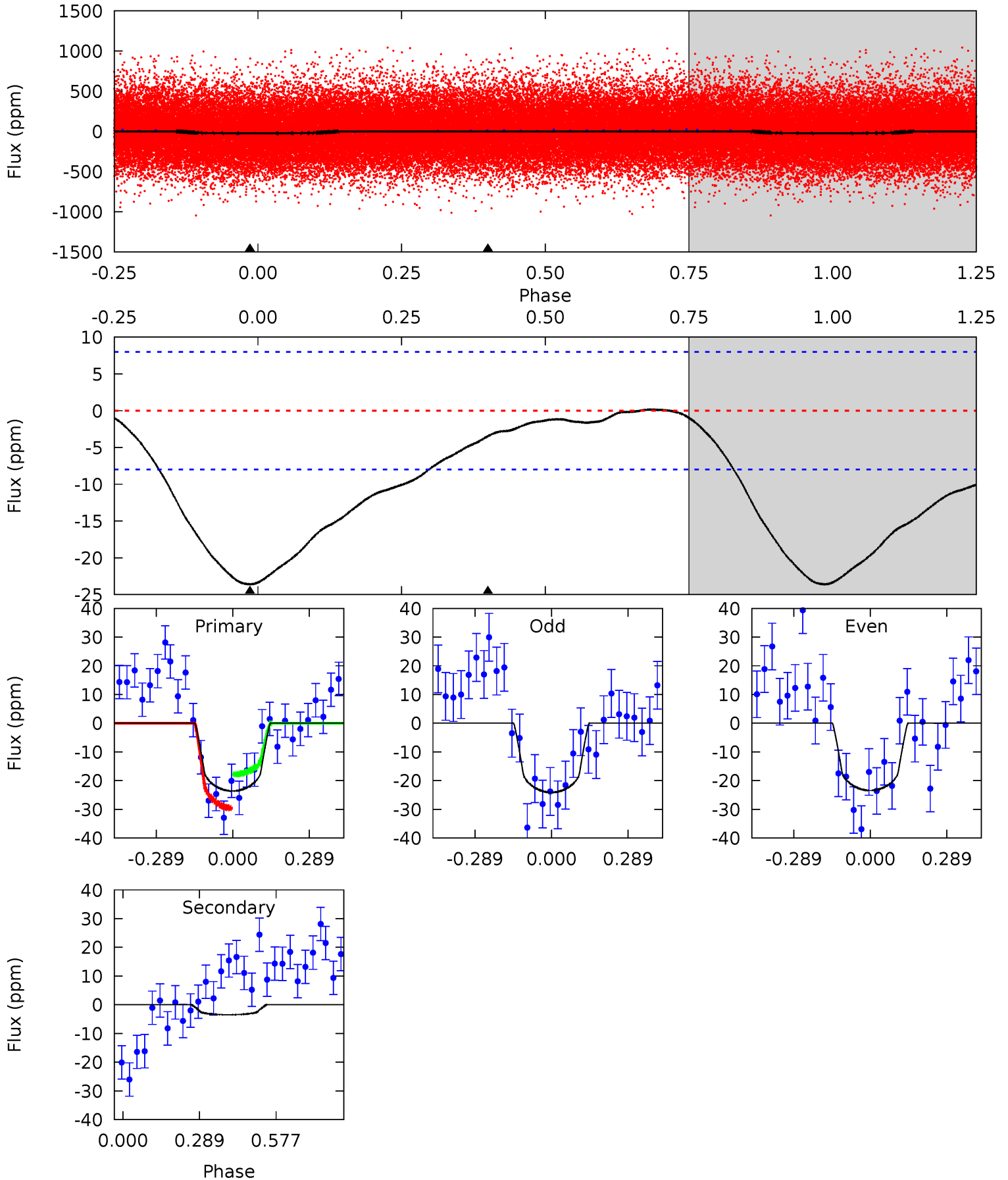
TCE 007362631-01 P= 0.566769 Days  $T_0=131.863397$  (BKJD)



# DV Model-Shift Uniqueness Test

007362631-01, P = 0.566785 Days, E = 131.283009 Days

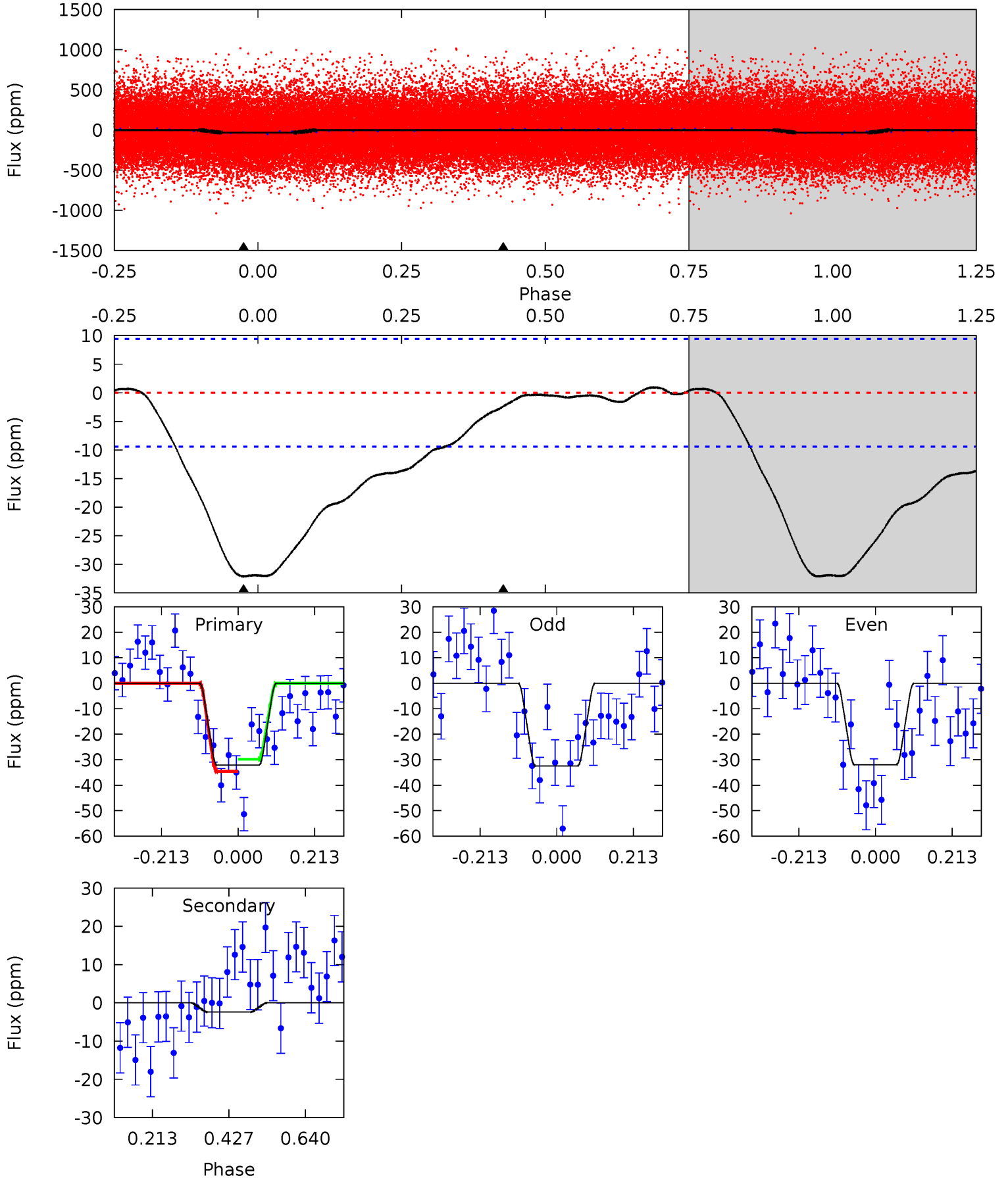
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	1.89	0	0	4.34	1.06	0.10	12.8	12.8	1.89	1.89	0.18	0.86	0.01	3.17



# Alt Model-Shift Uniqueness Test

007362631-01, P = 0.566769 Days, E = 131.296628 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
15.0	1.13	0	0	4.40	1.24	2.64	15.0	15.0	1.13	1.13	0.11	0.98	0.03	1.10





### Stellar Parameters For KIC 007362631

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6063^{+181}_{-217}$	$4.470^{+0.050}_{-0.200}$	$-0.020^{+0.250}_{-0.350}$	$1.001^{+0.302}_{-0.121}$	$1.079^{+0.130}_{-0.145}$	$1.517^{+0.412}_{-0.821}$
	+3%/-4%	+1%/-4%	+1250%/-1750%	+30%/-12%	+12%/-13%	+27%/-54%
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 007362631-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-3 \pm 2$	$0.72^{+0.41}_{-0.39}$	$3254^{+237}_{-164}$	$3310^{+1473}_{-6099}$	$0.641^{+2.674}_{-0.433}$
Alt.	$-2 \pm 2$	$0.73^{+0.46}_{-0.39}$	$3260^{+245}_{-157}$	$2690^{+1627}_{-5892}$	$0.373^{+1.556}_{-0.318}$

$T_{\text{max}}$  = 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

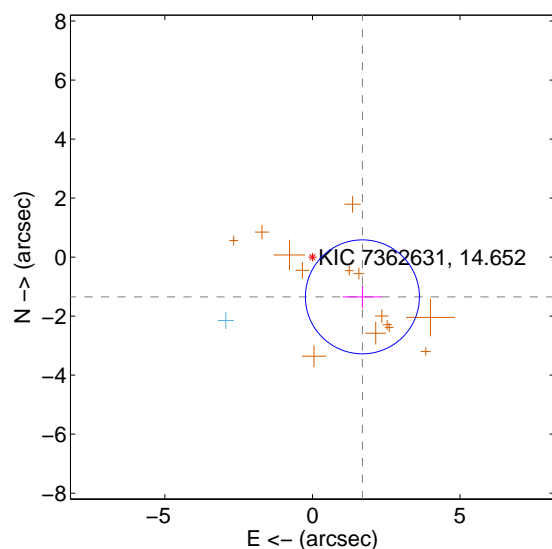
Supplemental centroid analysis for 007362631-01. Kepler magnitude: 14.65. Transit SNR 12.69

There are 1 quarters with good PRF difference image offsets

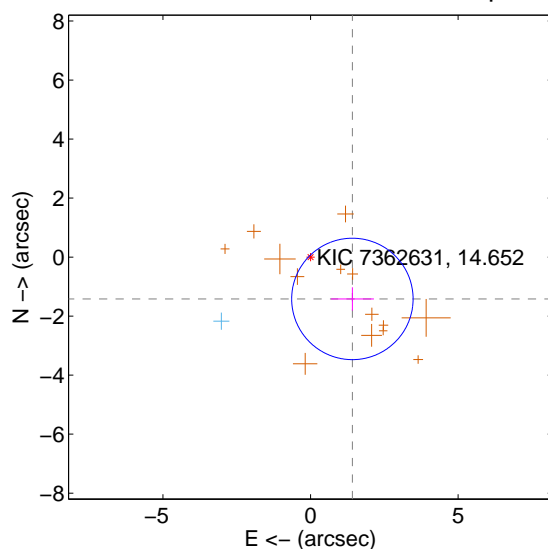
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.164 \pm 0.644$	3.36	$-1.693 \pm 0.662$	$-1.347 \pm 0.381$
PRF-fit source offset from KIC position	$2.006 \pm 0.686$	2.92	$-1.419 \pm 0.728$	$-1.418 \pm 0.397$
photometric centroid source offset	$4.17 \pm 0.89$	4.69	$-1.62 \pm 0.98$	$-3.84 \pm 0.87$

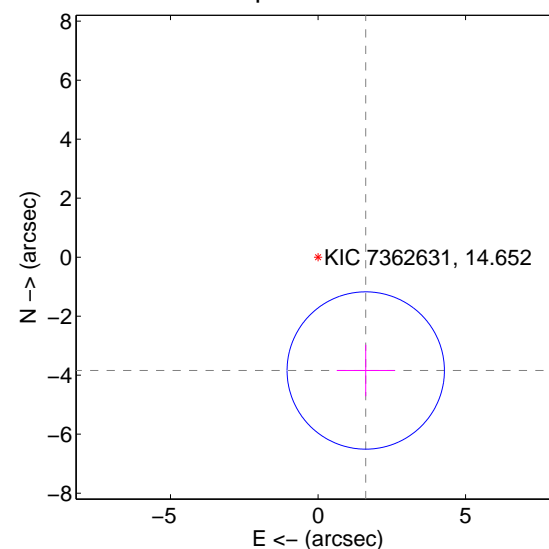
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

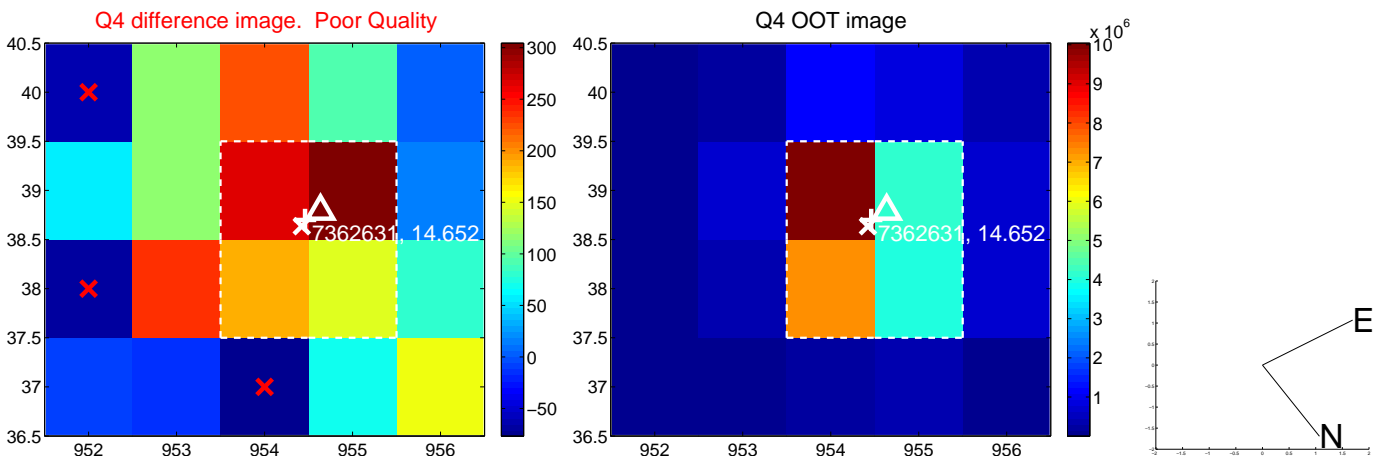
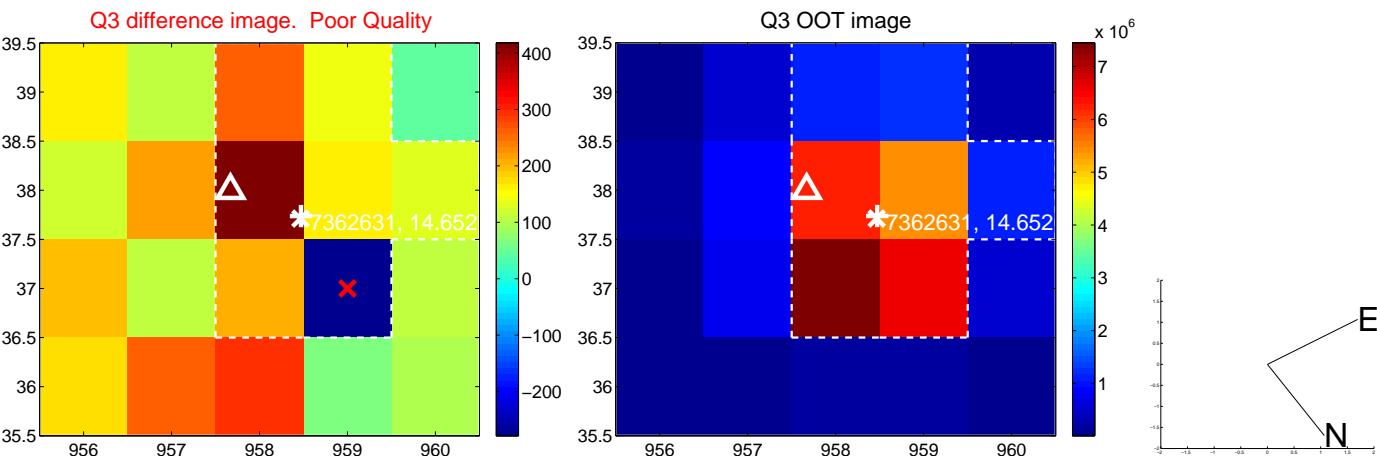
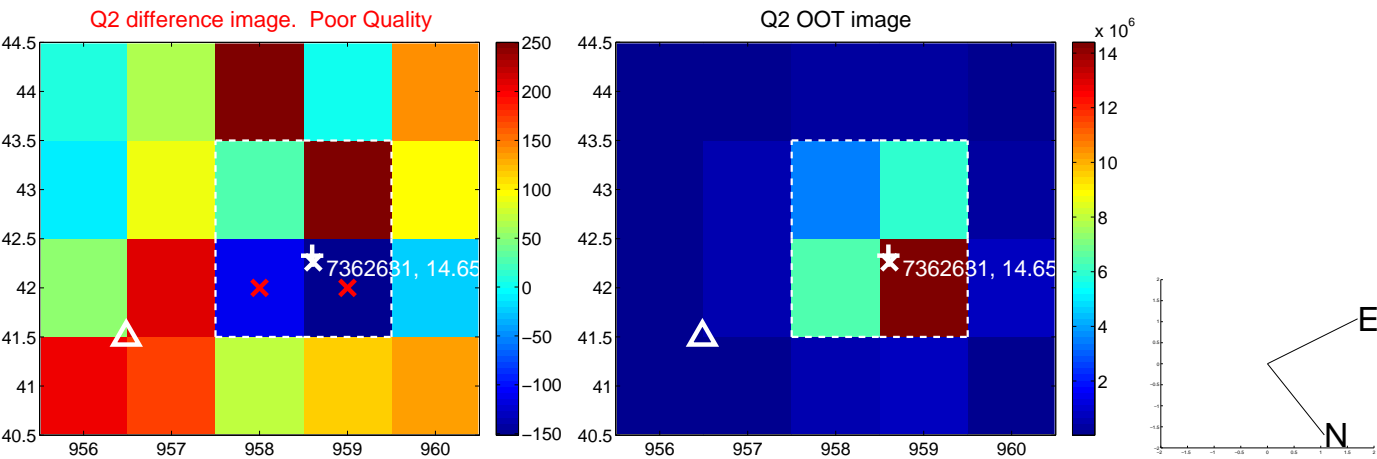
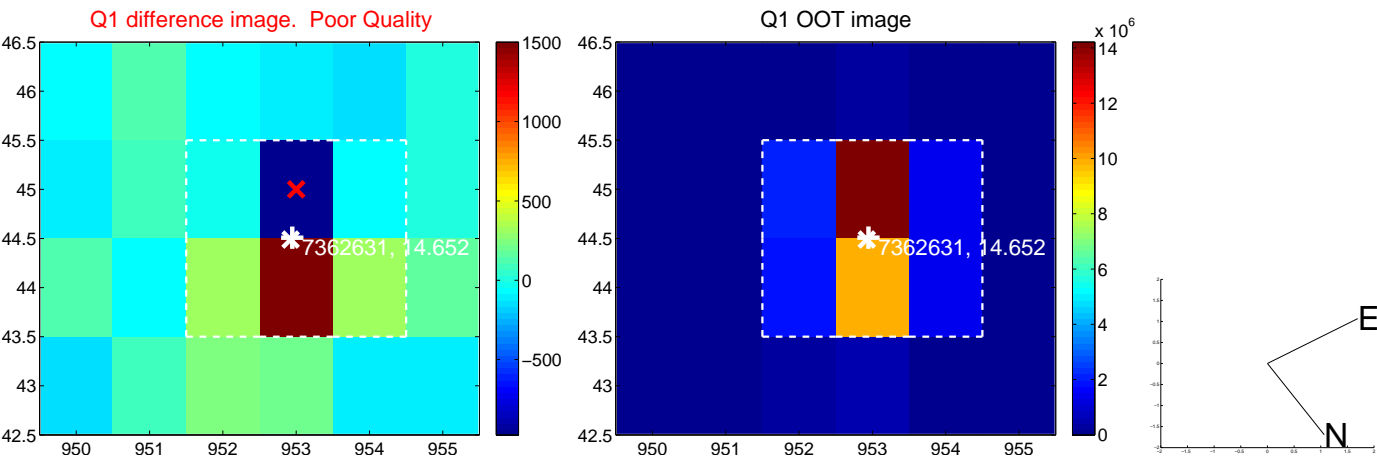


offset from photometric centroids

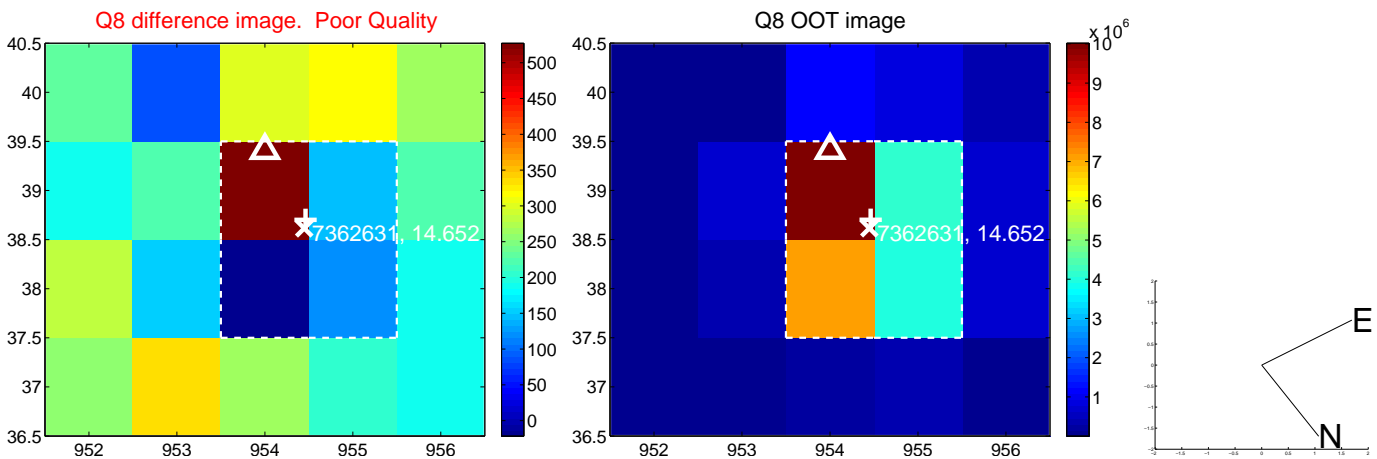
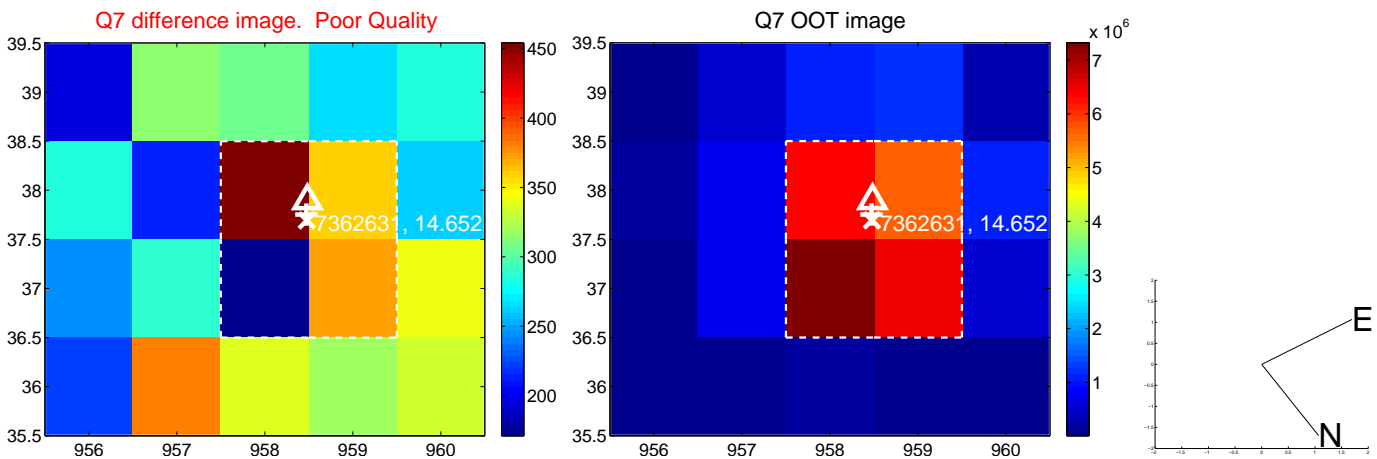
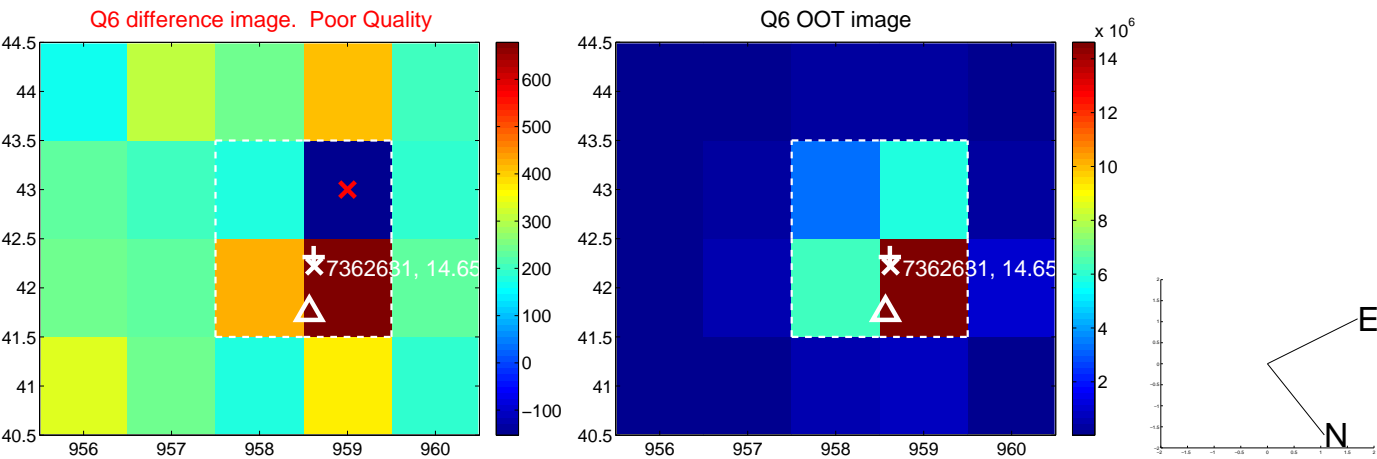
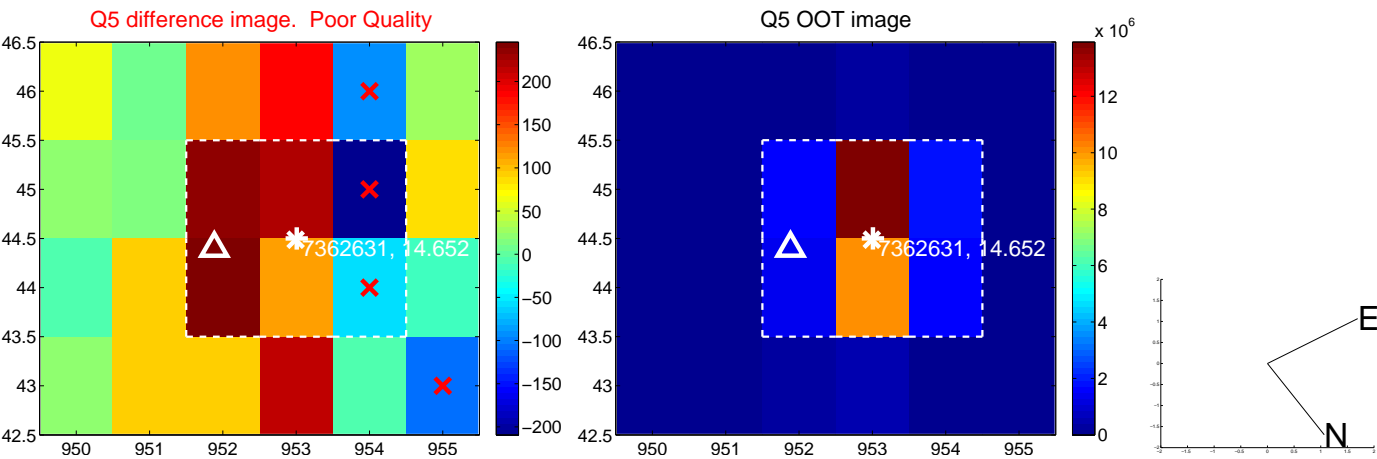


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

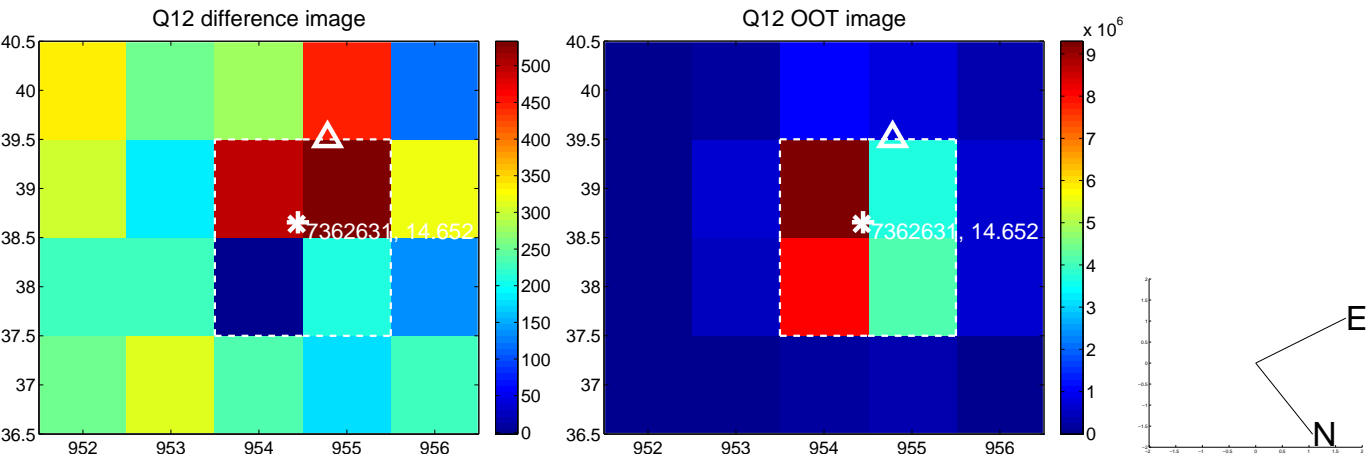
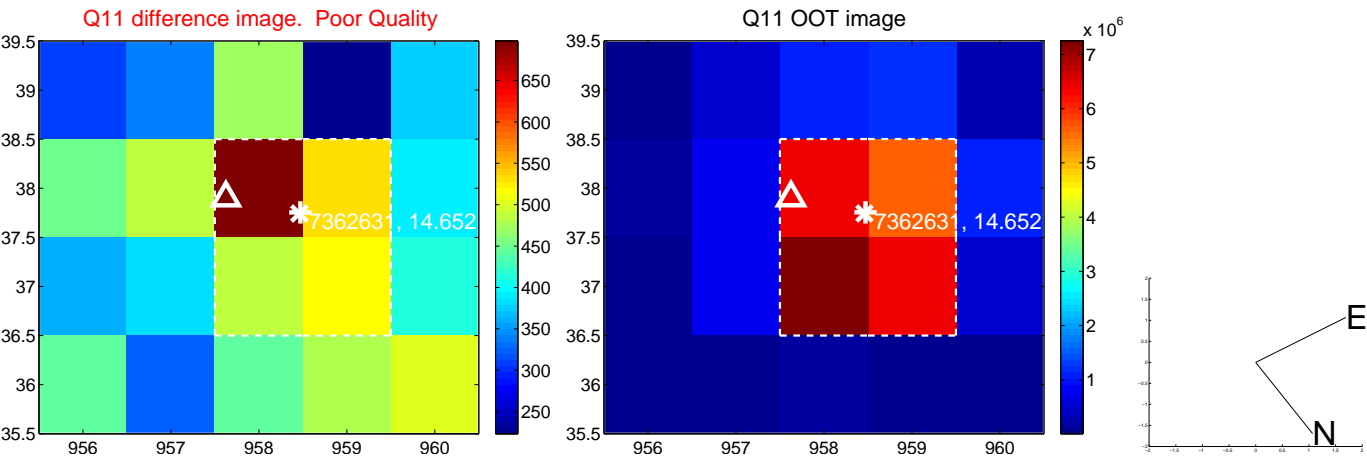
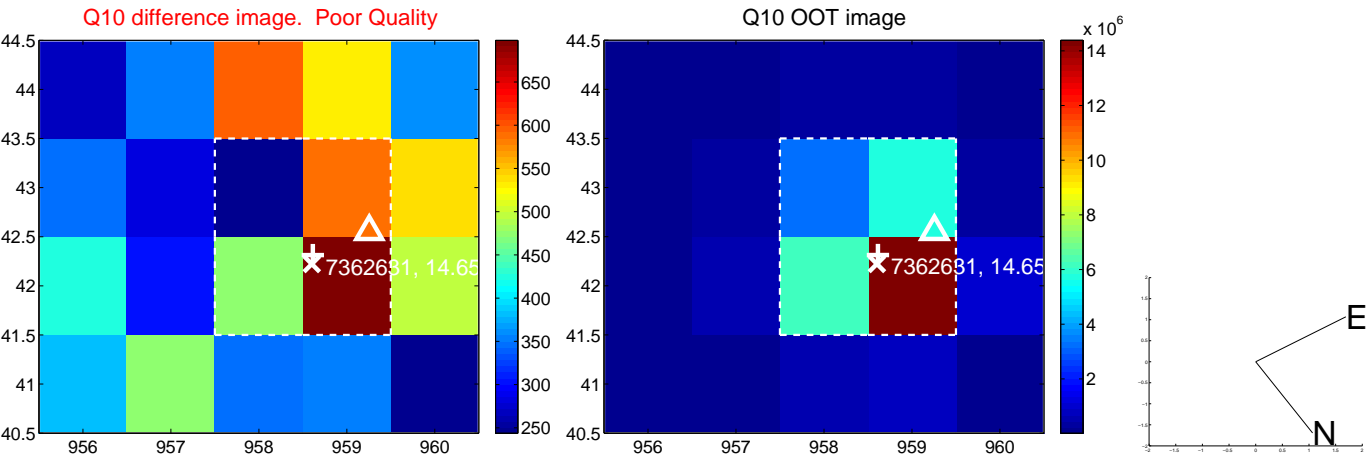
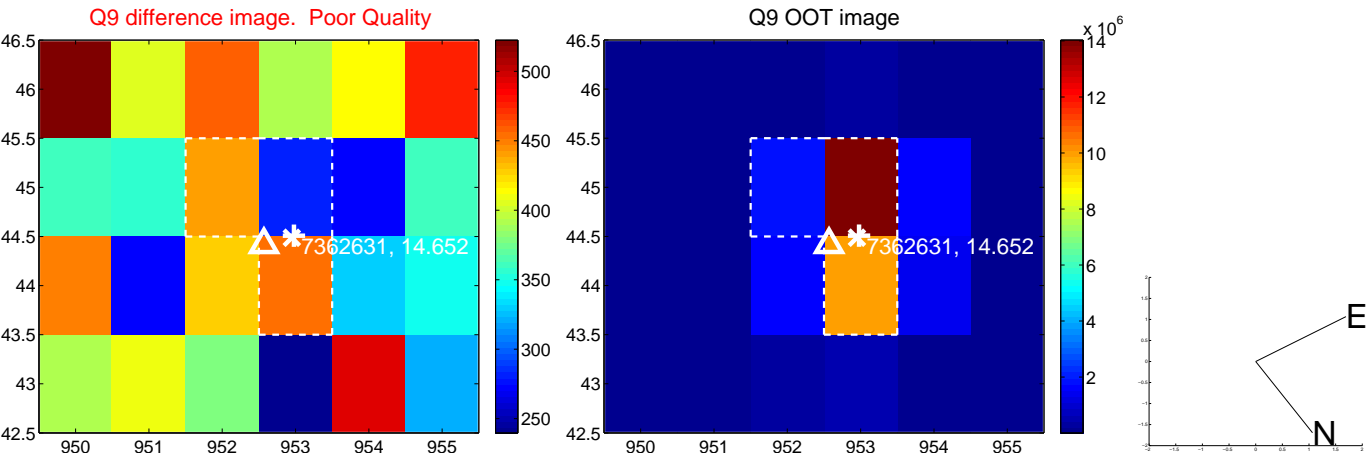


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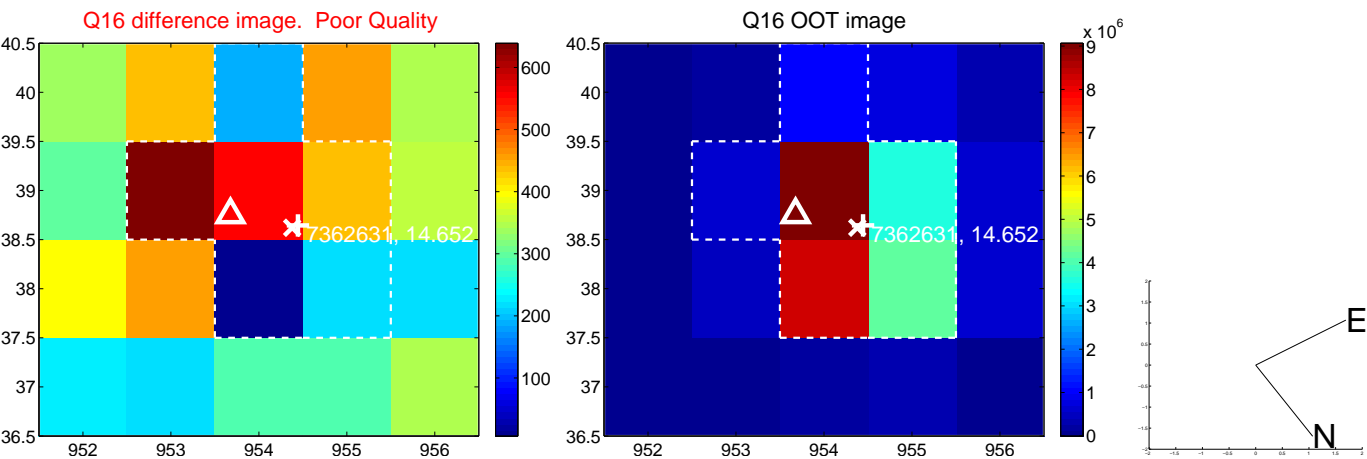
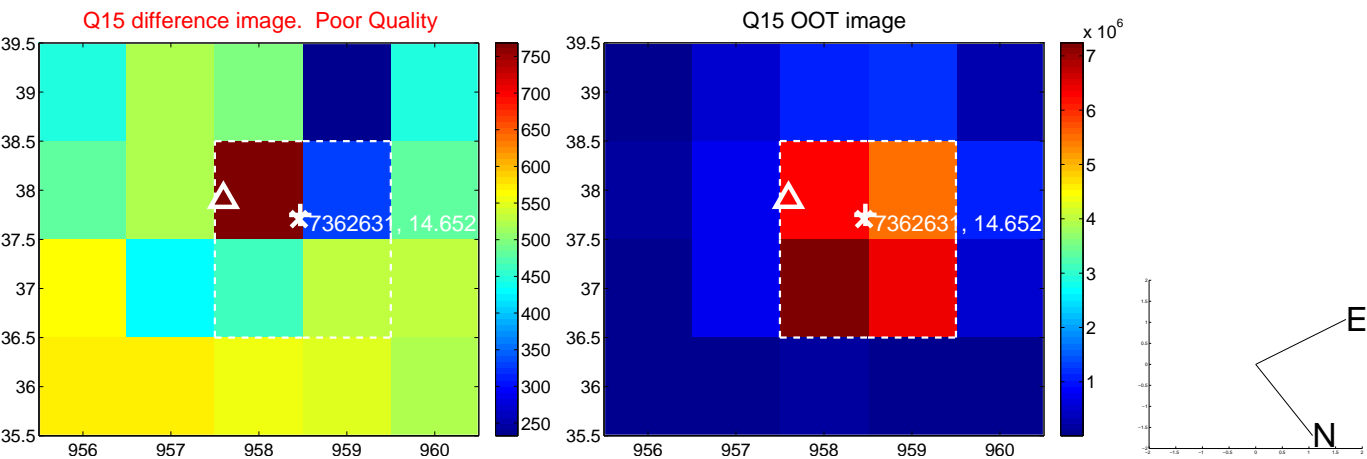
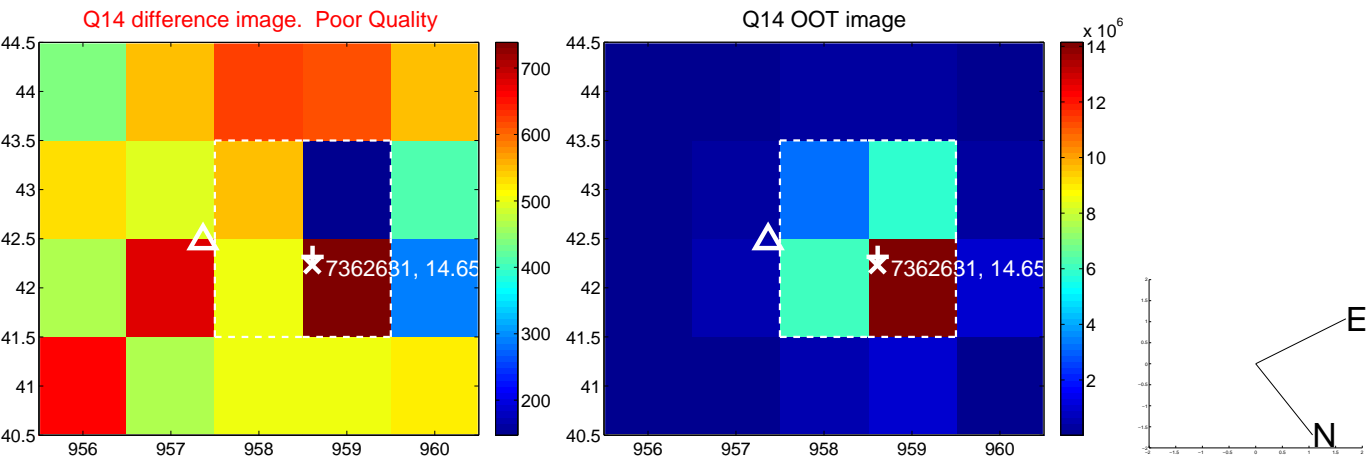
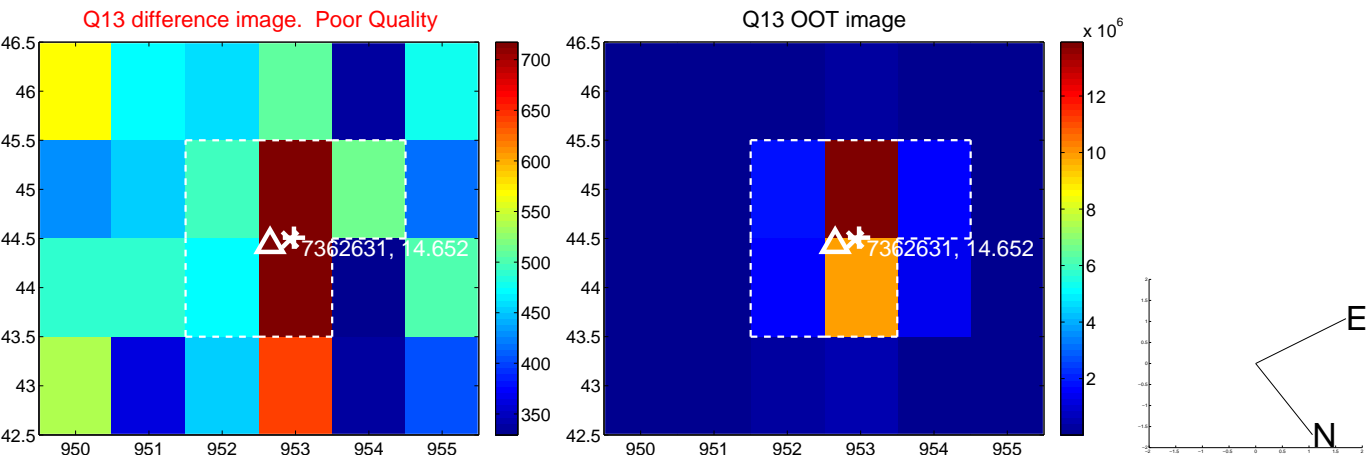




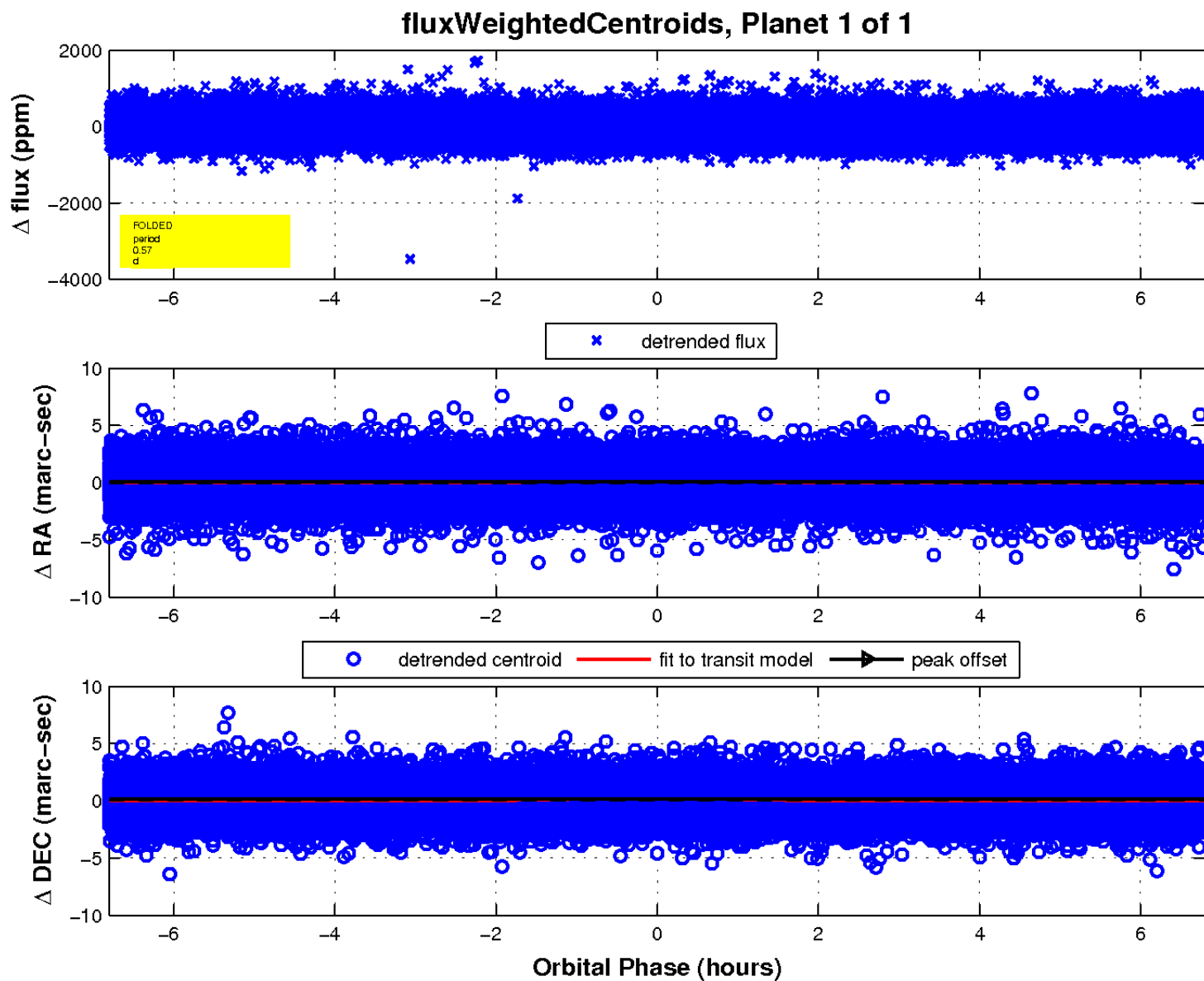
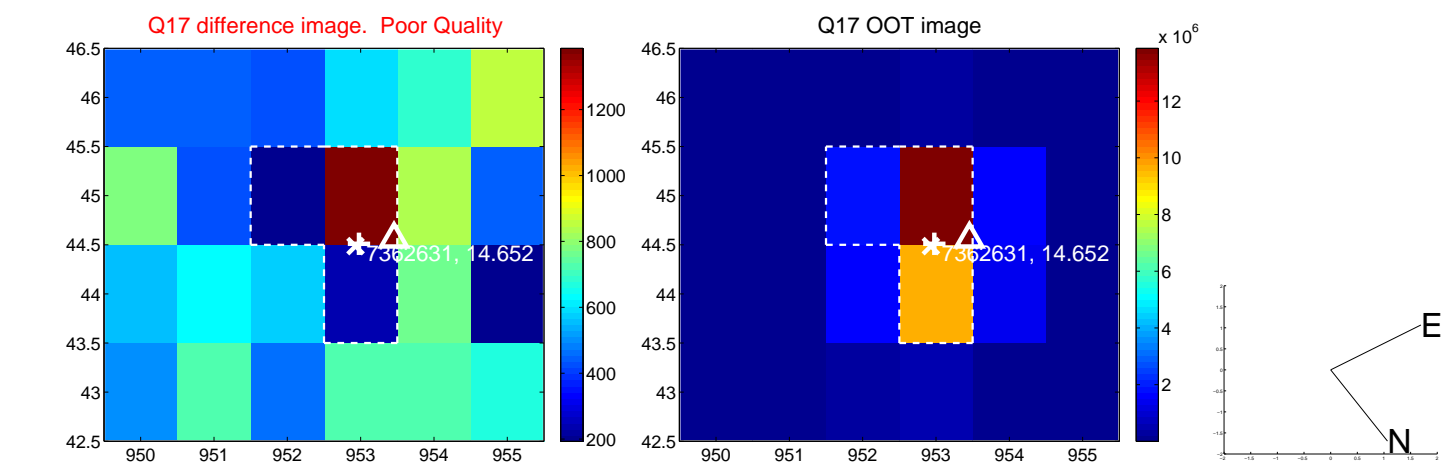
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

