

# KIC 012066629

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012066629-01	OBS	No	0.549151	131.966808	29.3	6.283	9.0	9.2	0.97	5945	0.52	6198.49

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012066629-01	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—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.

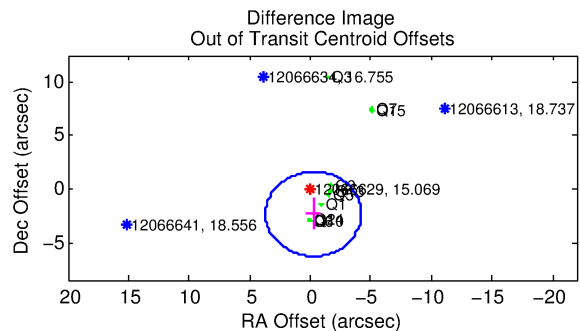
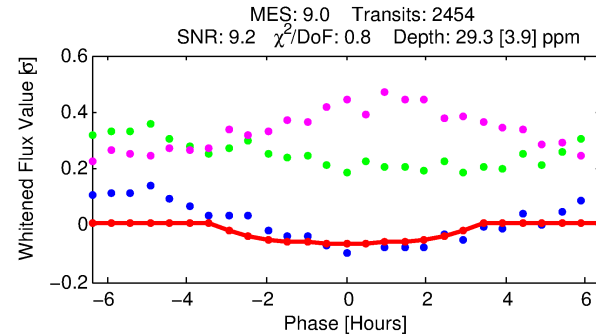
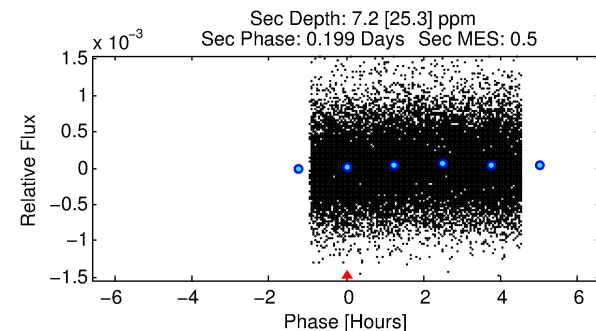
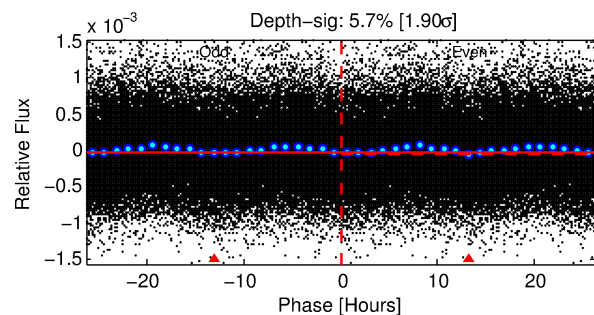
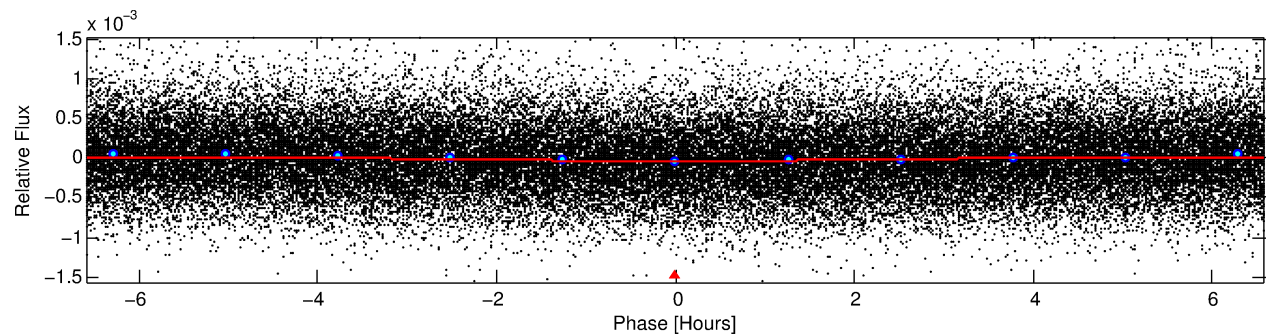
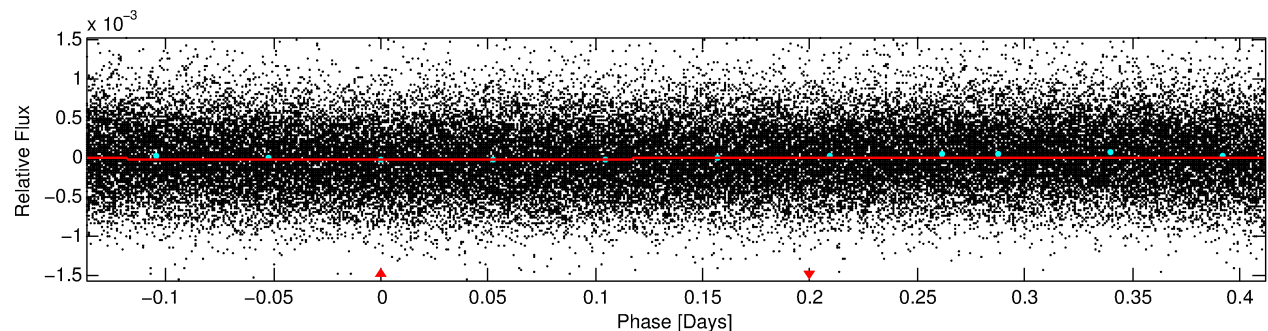
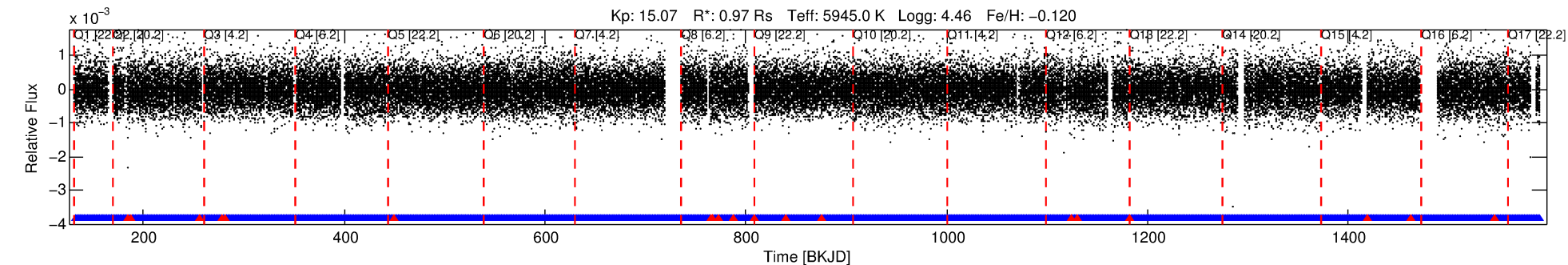
## Ephemeris Match Information For 012066629-01

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	$\sigma_P$	$\sigma_T$
012066629-01	12066629	012066583-01	12066583	1:1	49.5	9	9	13.52	15.07	0.31	Direct-PRF	1	1.39	2.67

**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: 12066629 Candidate: 1 of 1 Period: 0.549 d



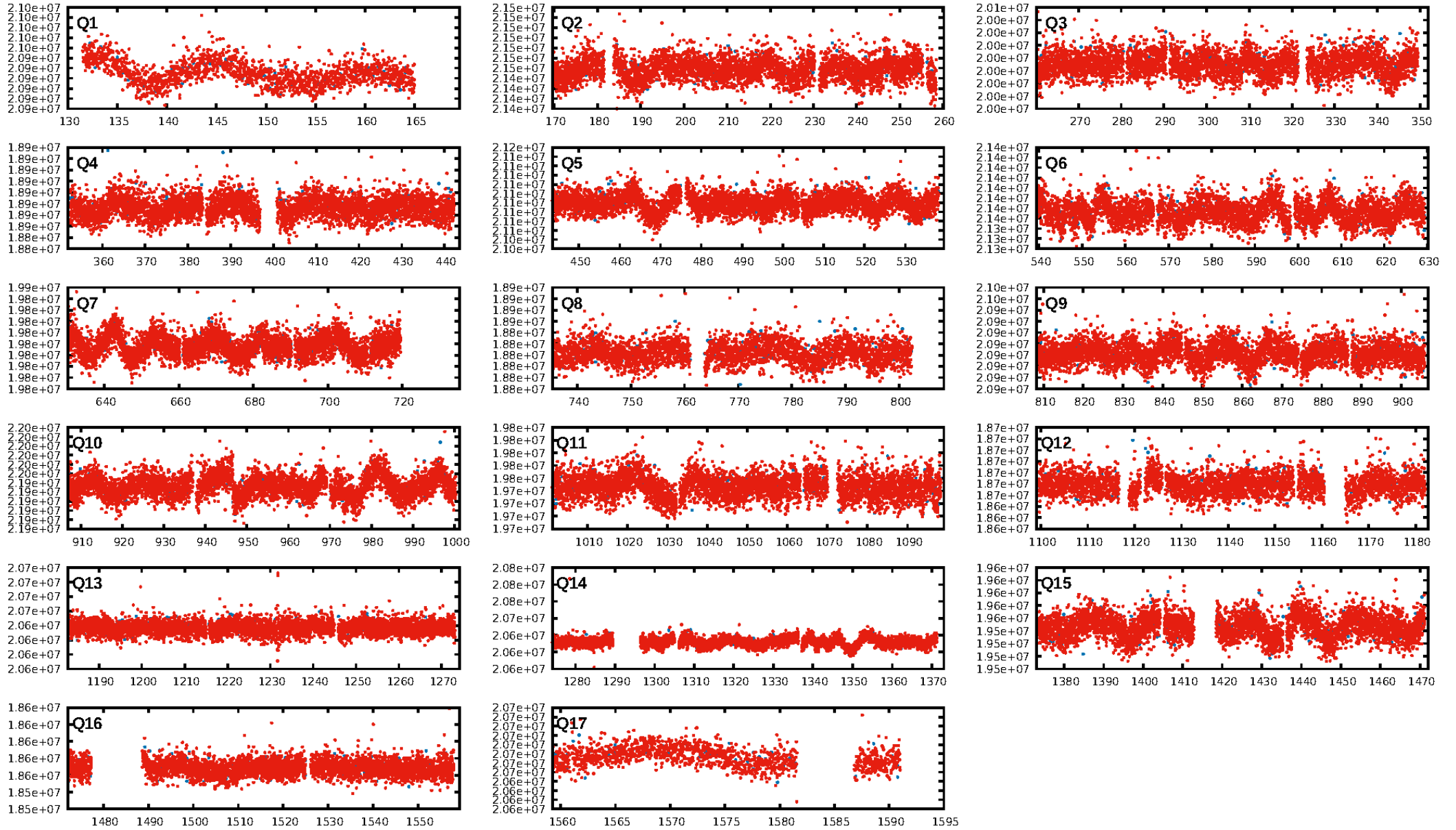
## DV Fit Results:

Period = 0.54915 [0.00001] d  
Epoch = 131.9668 [0.0074] BKJD  
Rp/R\* = 0.0049 [0.0058]  
a/R\* = 1.01 [0.07]  
b = 0.01 [462.23]  
Seff = 6198.49 [2419.79]  
Teff = 2263 [221] K  
Rp = 0.52 [0.63] Re  
a = 0.0131 [0.0033] AU  
Ag = 2.46 [10.45] [0.14 $\sigma$ ]  
Teffp = 4381 [4635] K [0.46 $\sigma$ ]

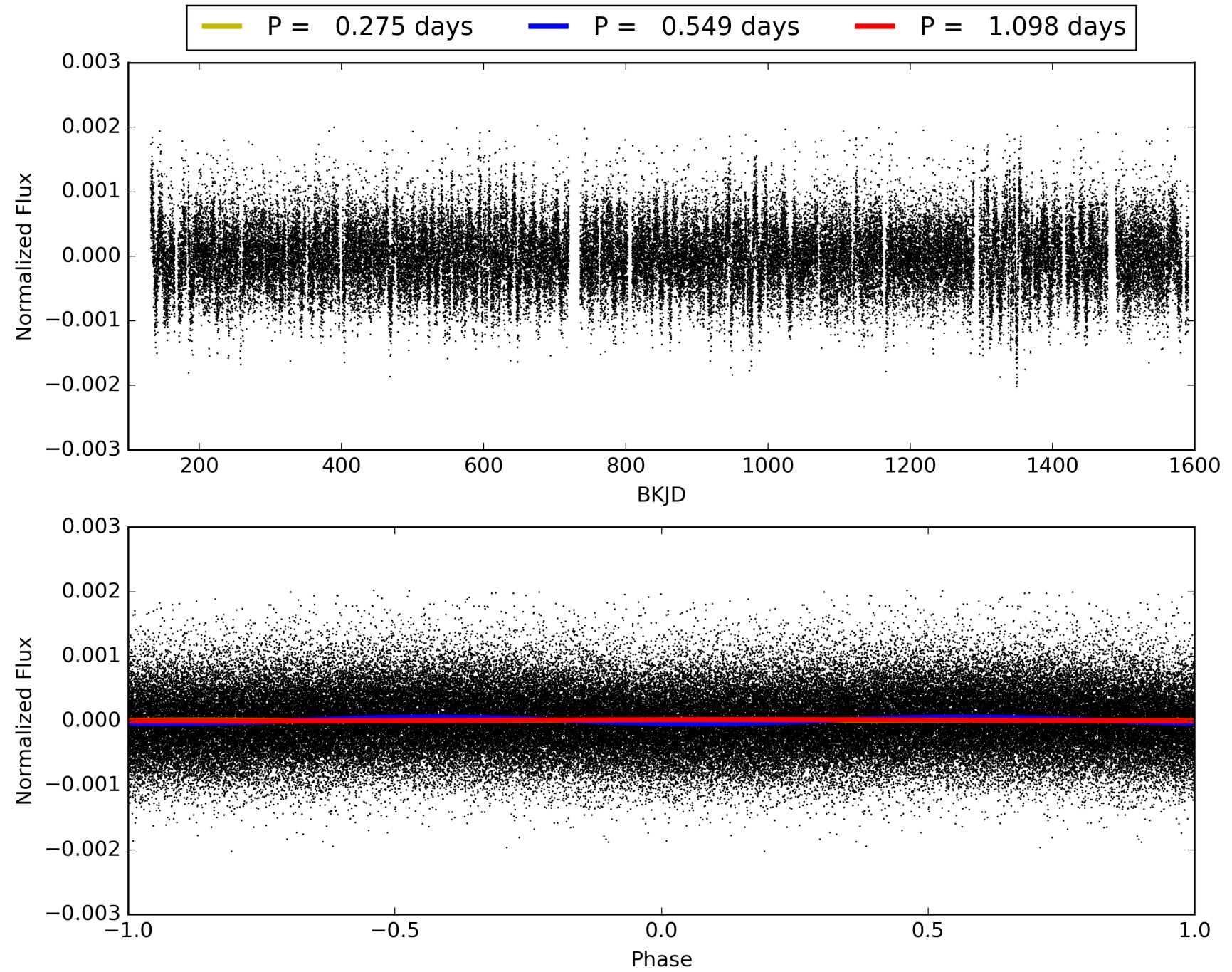
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [2321/2343]  
GhostDiagnostic-chr: -1.016  
Centroid-sig: 0.0%  
Centroid-so: 9.396 arcsec [6.64 $\sigma$ ]  
OotOffset-rm: 2.345 arcsec [1.78 $\sigma$ ]  
KicOffset-rm: 2.120 arcsec [1.41 $\sigma$ ]  
OotOffset-st: 4/3/0/4 [11]  
KicOffset-st: 4/3/0/4 [11]  
DiffImageQuality-fgm: 0.27 [3/11]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 012066629-01, PDC Light Curves

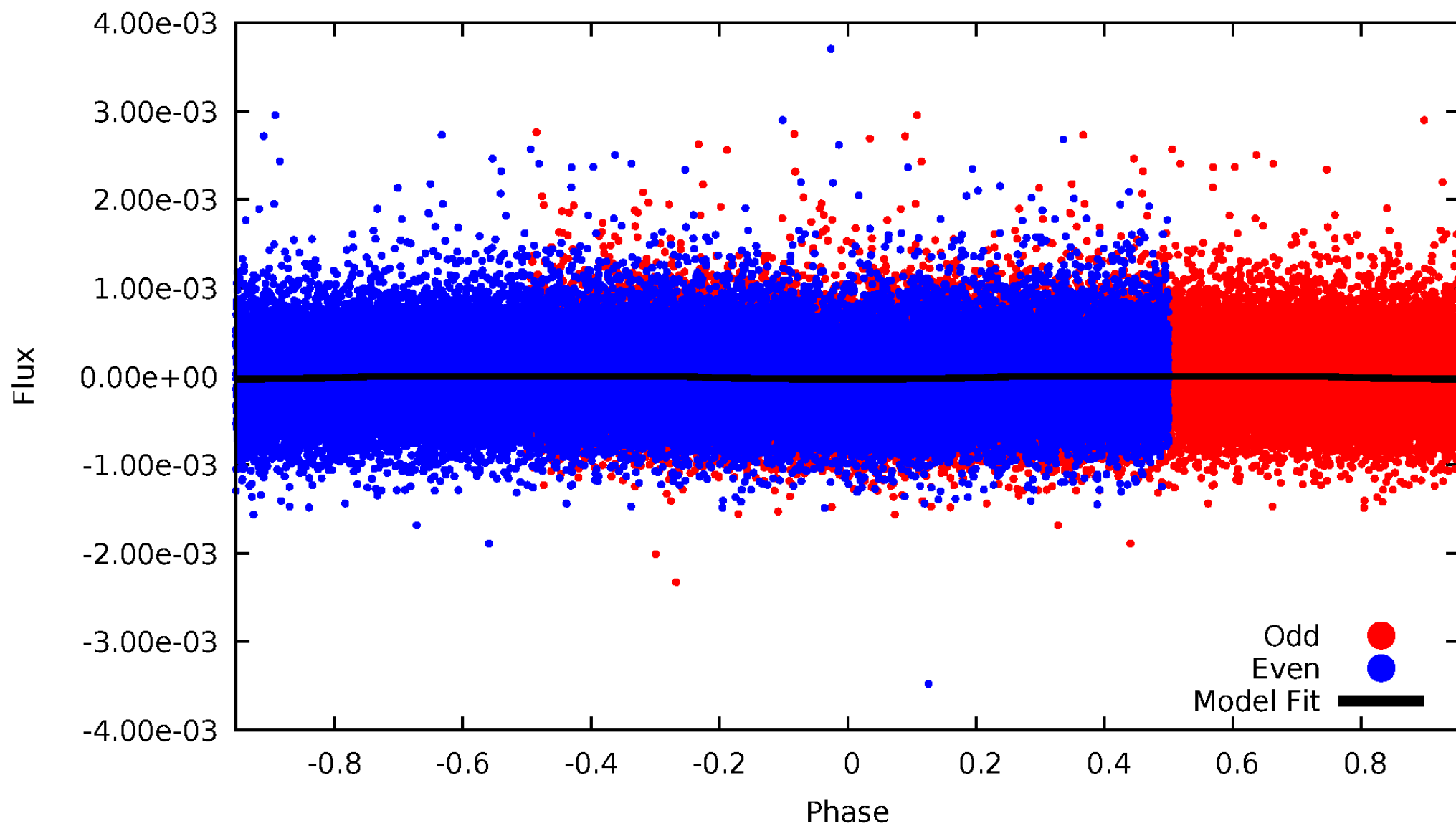


# TCE 012066629-01



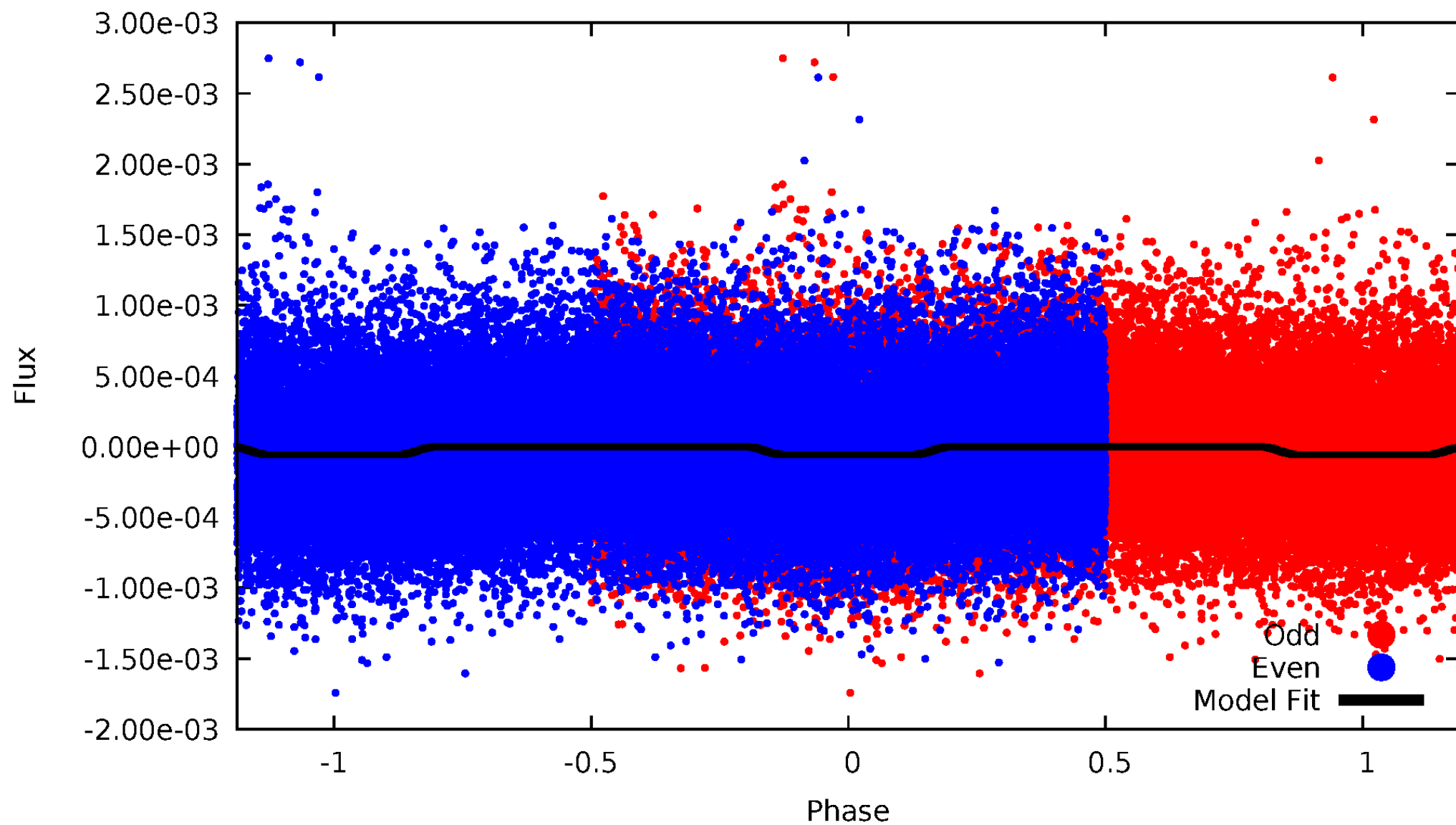
# DV Odd/Even

TCE 012066629-01



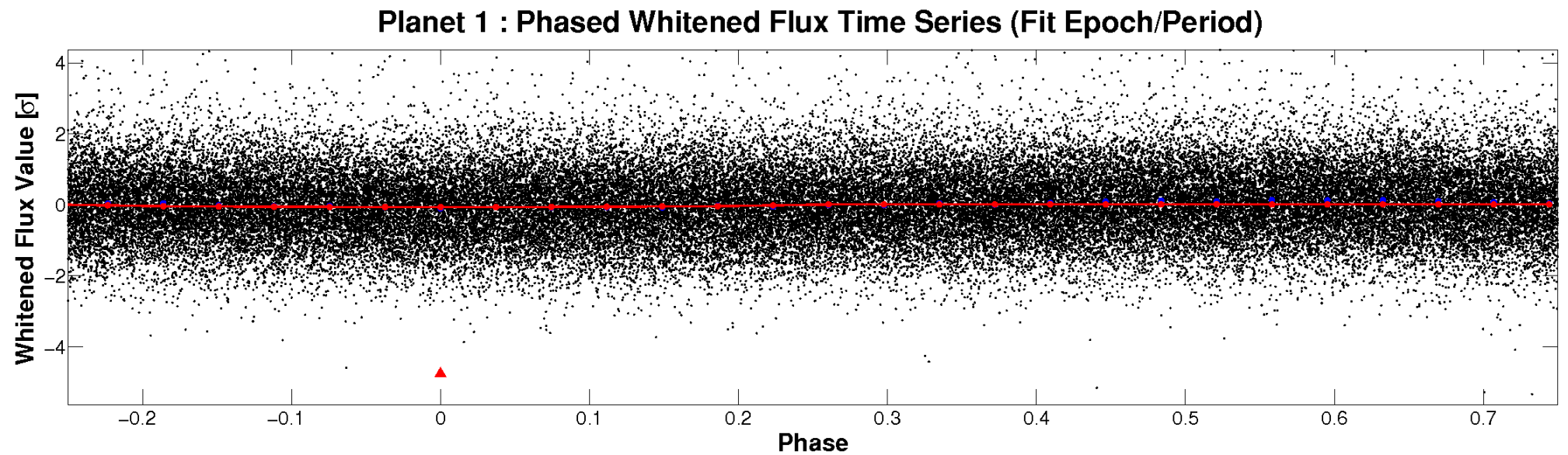
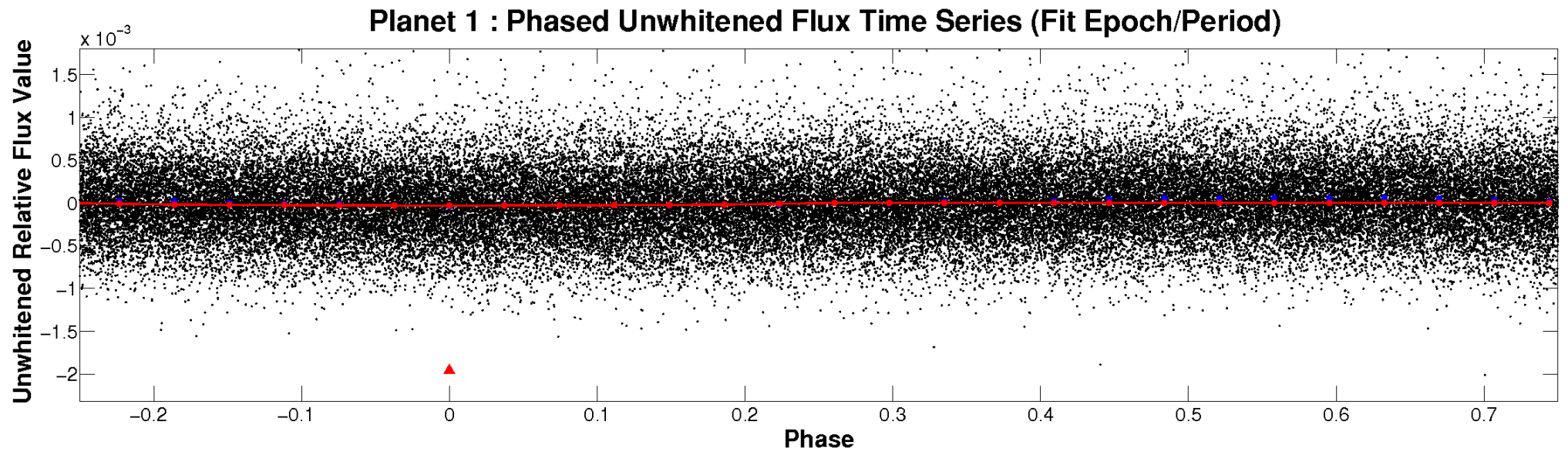
# ALT Odd/Even

TCE 012066629-01



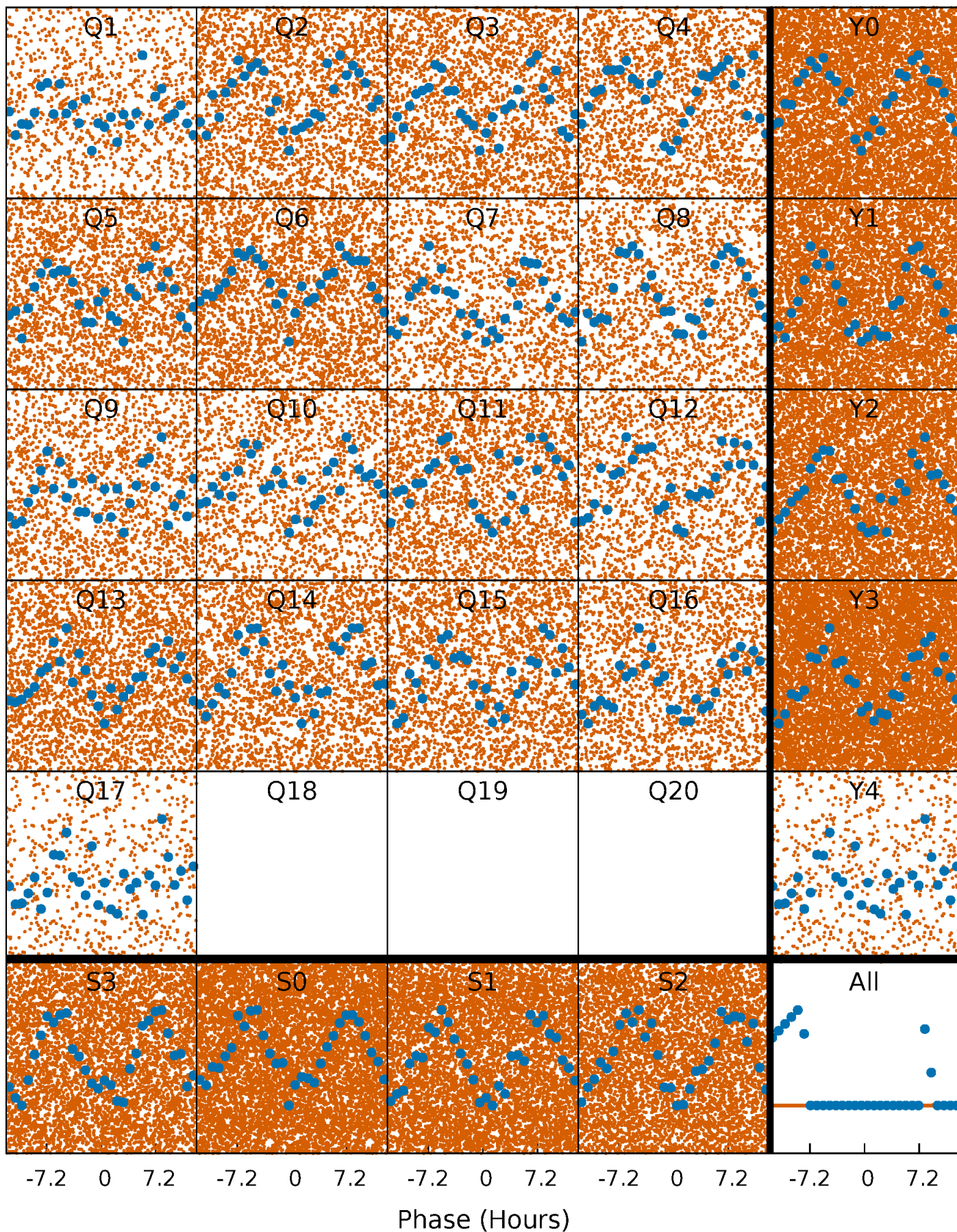


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

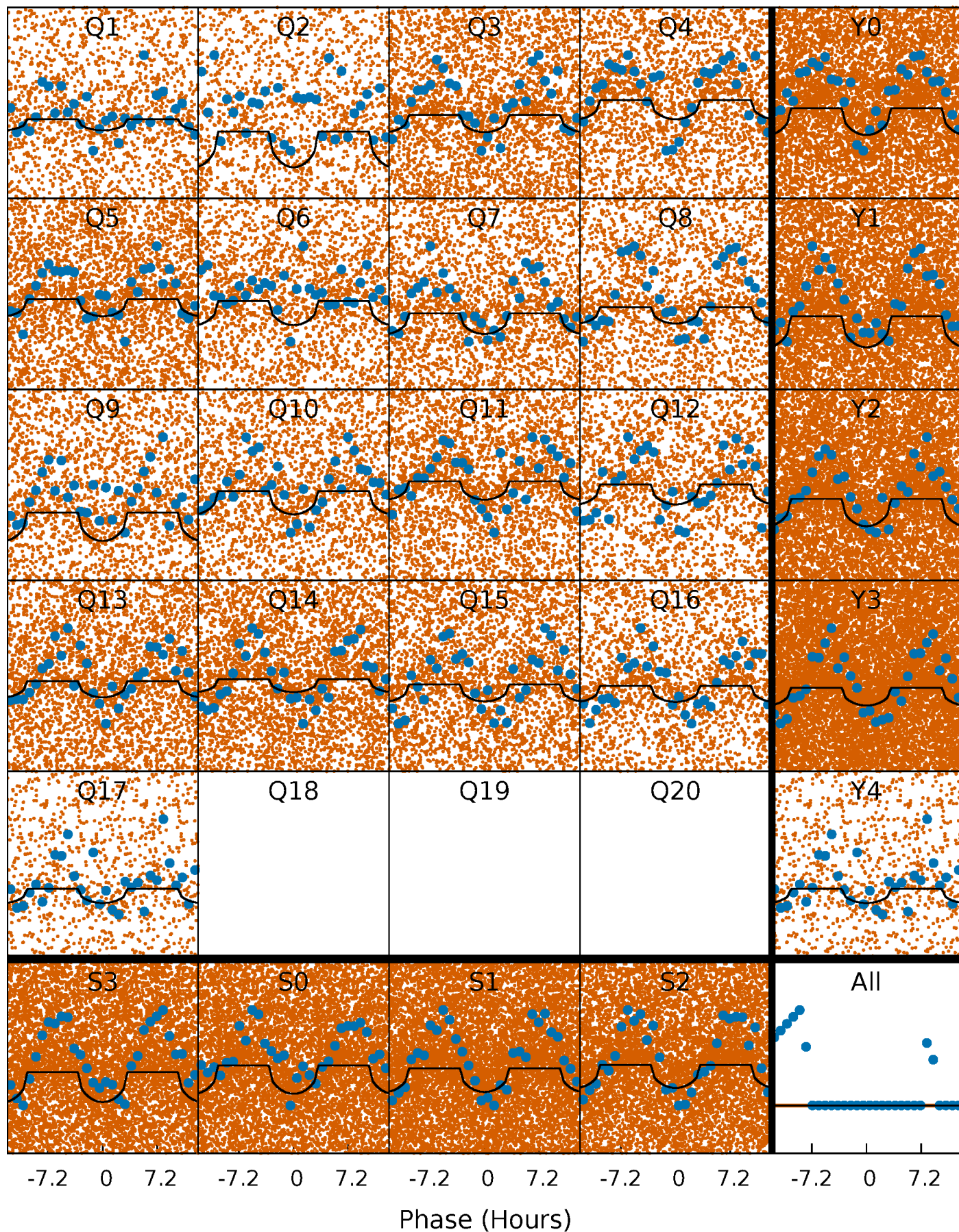
TCE 012066629-01 P= 0.549151 Days  $T_0=131.966808$  (BKJD)





# DV Quarter-Phased Transit Curves

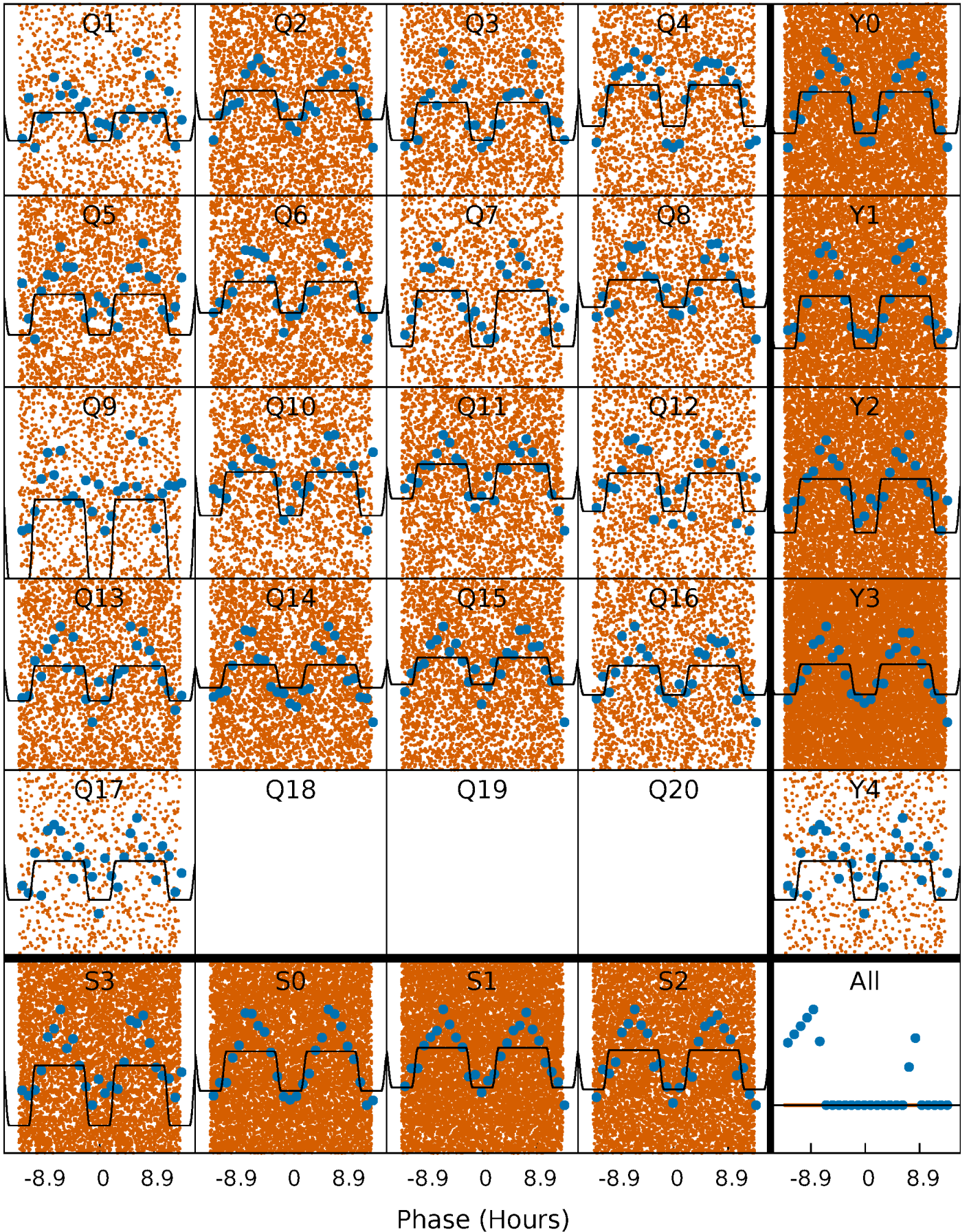
TCE 012066629-01 P= 0.549151 Days  $T_0=131.966808$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

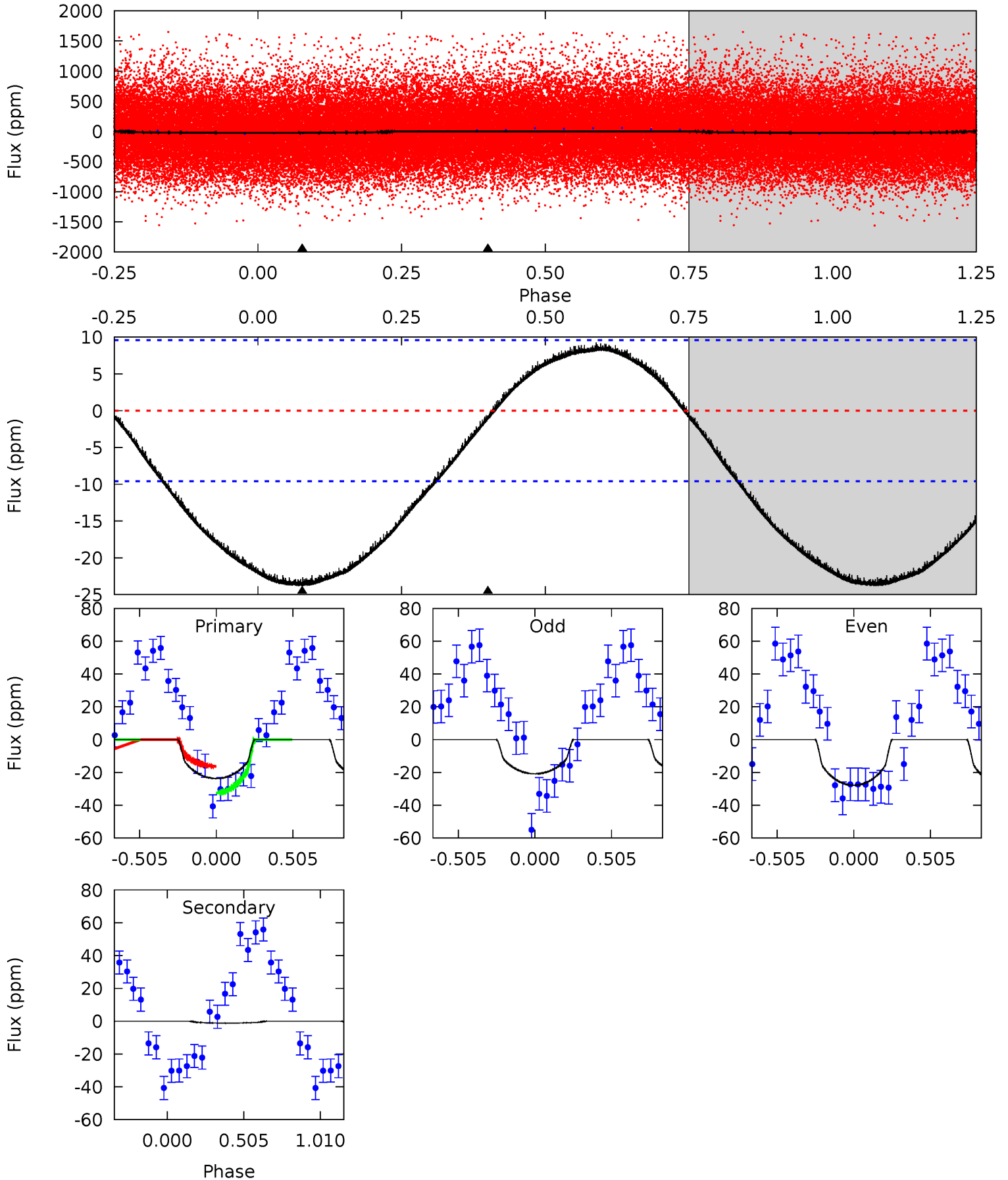
TCE 012066629-01 P= 0.549194 Days  $T_0=131.941389$  (BKJD)



# DV Model-Shift Uniqueness Test

012066629-01, P = 0.549151 Days, E = 131.417657 Days

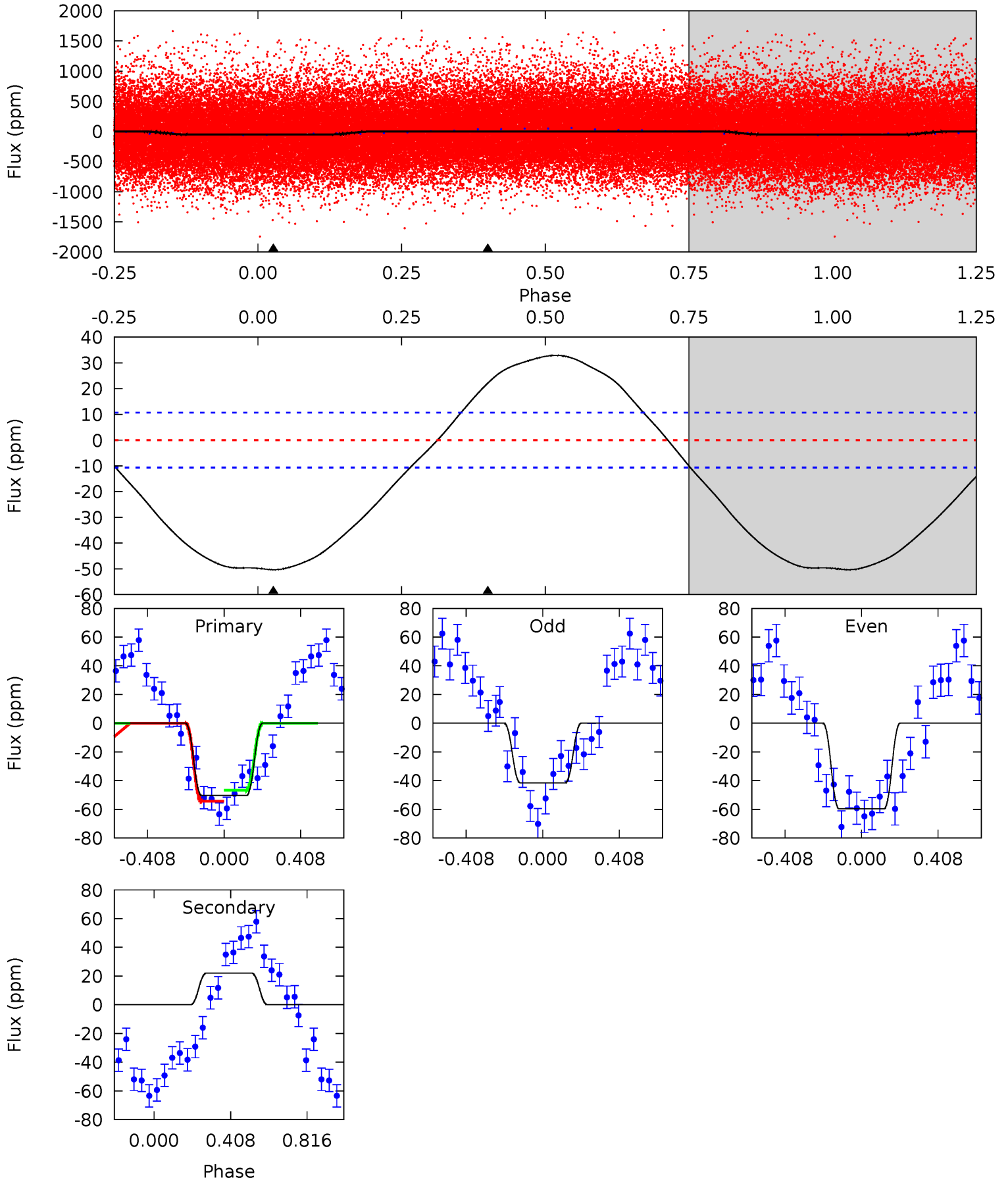
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	0.51	0	0	4.21	0.67	1.25	10.4	10.4	0.51	0.51	1.53	0.96	0.28	3.67



# Alt Model-Shift Uniqueness Test

012066629-01, P = 0.549194 Days, E = 131.392195 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
20.1	-8.85	0	0	4.26	0.83	3.05	20.1	20.1	-8.85	-8.85	3.64	1.02	0.40	1.55





### Stellar Parameters For KIC 012066629

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5945^{+178}_{-196}$	$4.457^{+0.067}_{-0.202}$	$-0.120^{+0.300}_{-0.300}$	$0.974^{+0.288}_{-0.123}$	$0.991^{+0.132}_{-0.119}$	$1.511^{+0.526}_{-0.752}$
	+3%/-3%	+2%/-5%	+250%/-250%	+30%/-13%	+13%/-12%	+35%/-50%
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 012066629-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1 \pm 2$	$0.68^{+0.62}_{-0.45}$	$3228^{+217}_{-170}$	$-2892^{+7226}_{-608}$	$0.160^{+1.825}_{-0.352}$
Alt.	$22 \pm 3$	$0.94^{+0.67}_{-0.54}$	$3229^{+229}_{-168}$	$-4686^{+671}_{-2244}$	$-2.250^{+1.444}_{-10.905}$

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

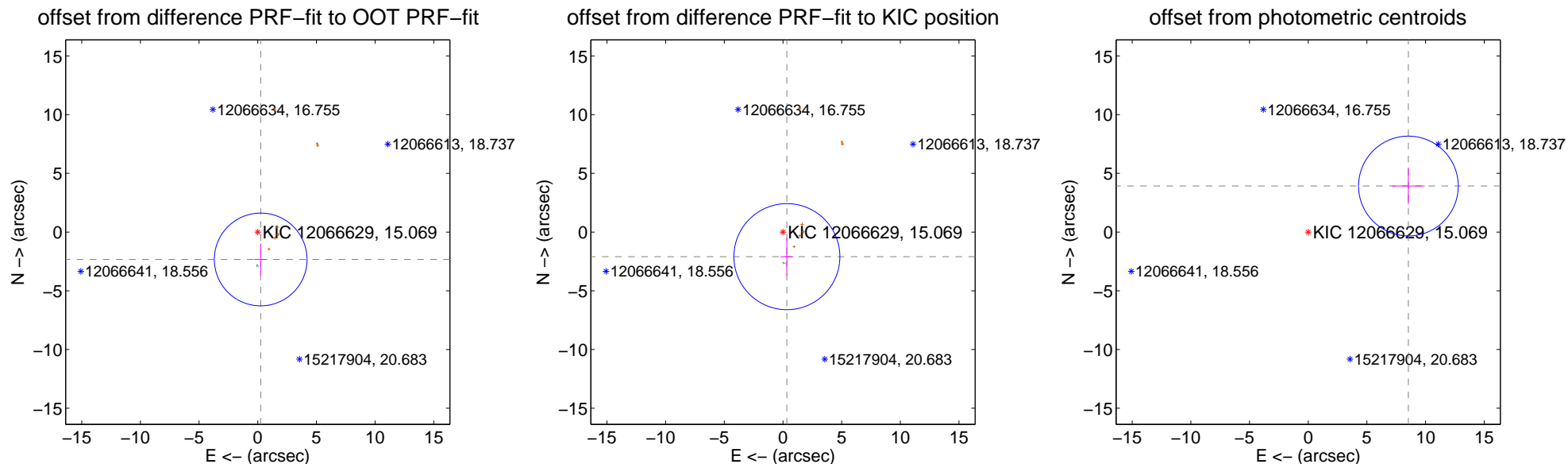
## DV Centroid Data

Supplemental centroid analysis for 012066629-01. Kepler magnitude: 15.07. Transit SNR 9.22

There are 3 quarters with good PRF difference image offsets

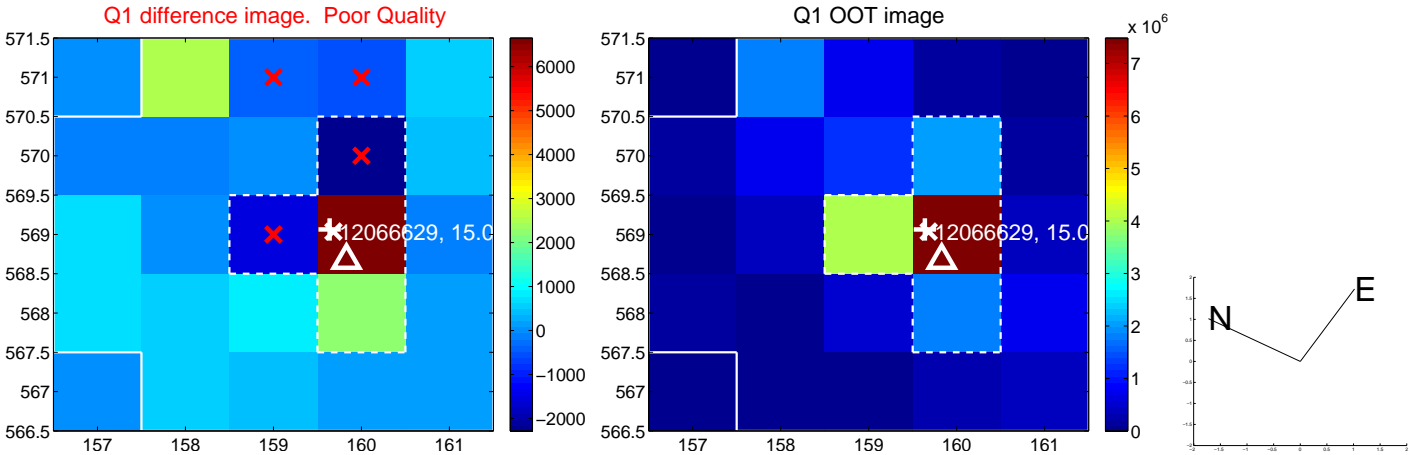
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.345 \pm 1.317$	1.78	$-0.250 \pm 0.548$	$-2.331 \pm 1.369$
PRF-fit source offset from KIC position	$2.120 \pm 1.505$	1.41	$-0.333 \pm 0.541$	$-2.094 \pm 1.588$
photometric centroid source offset	$9.40 \pm 1.42$	6.64	$-8.54 \pm 1.38$	$3.92 \pm 1.56$

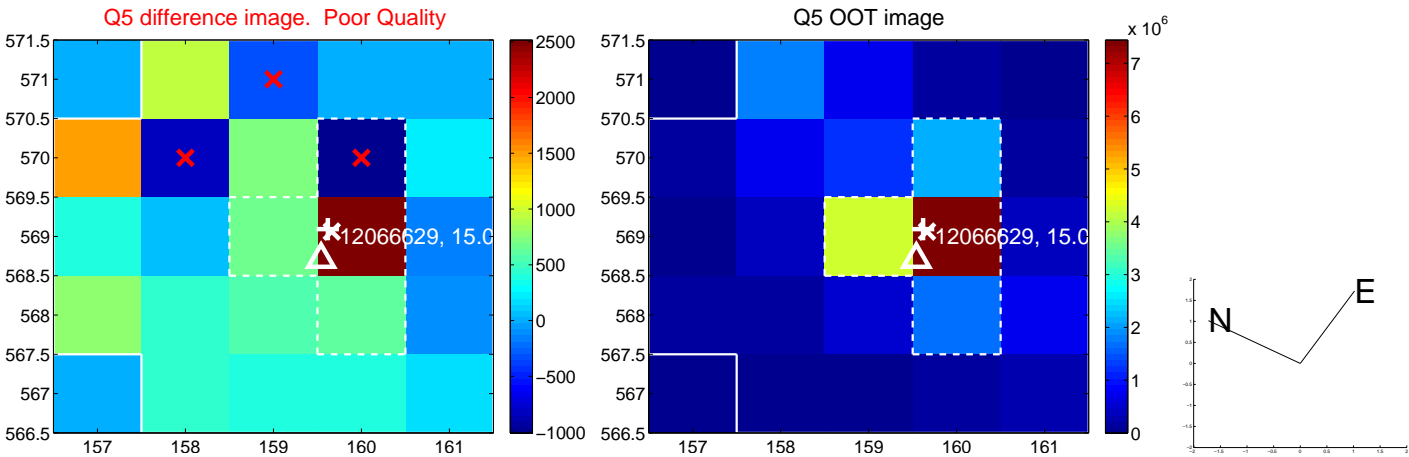


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

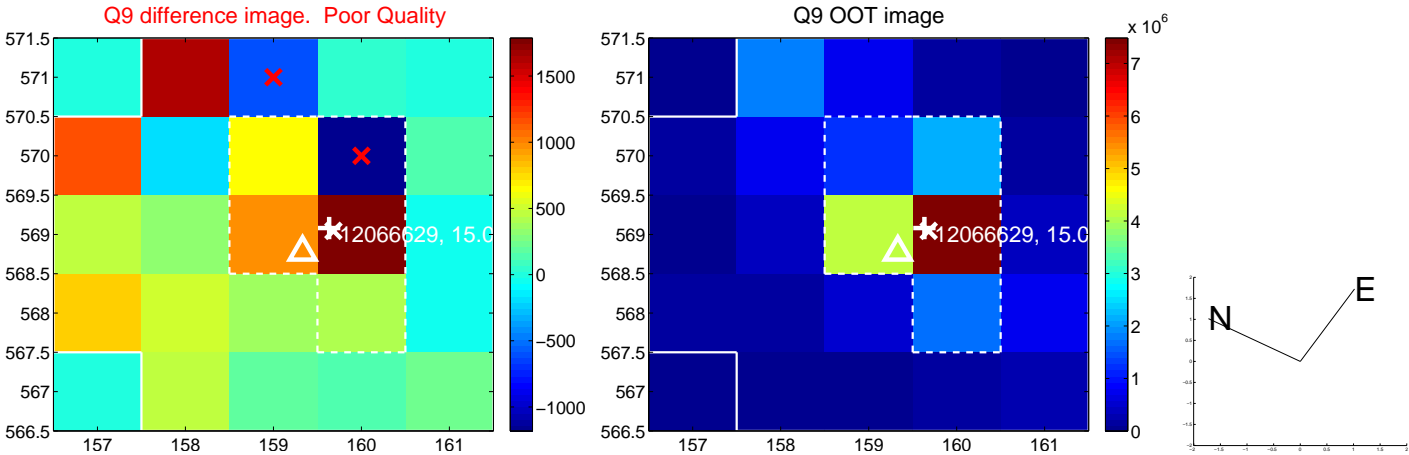


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

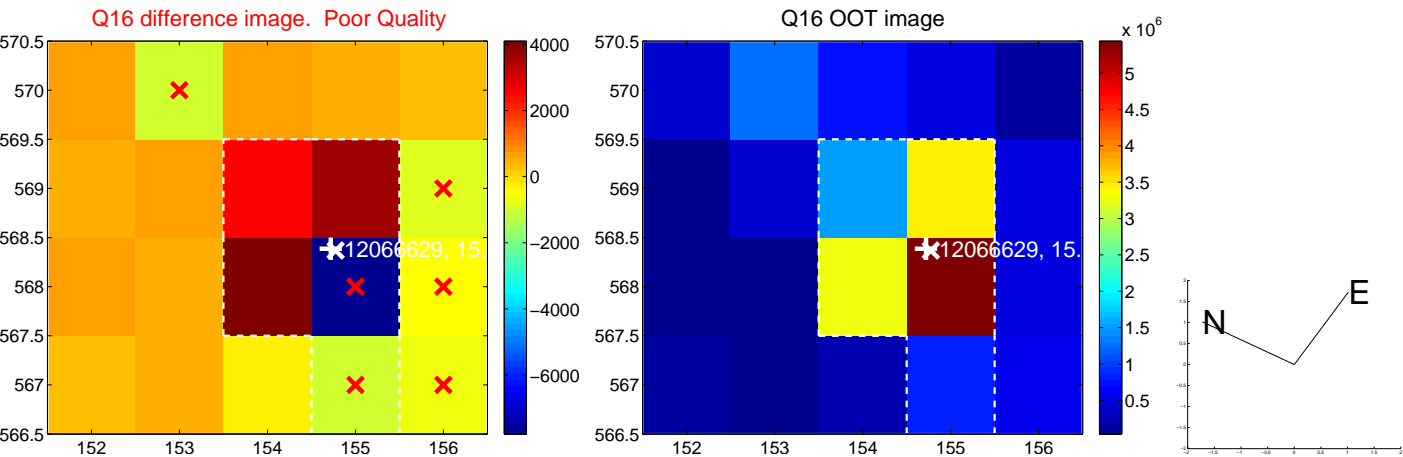
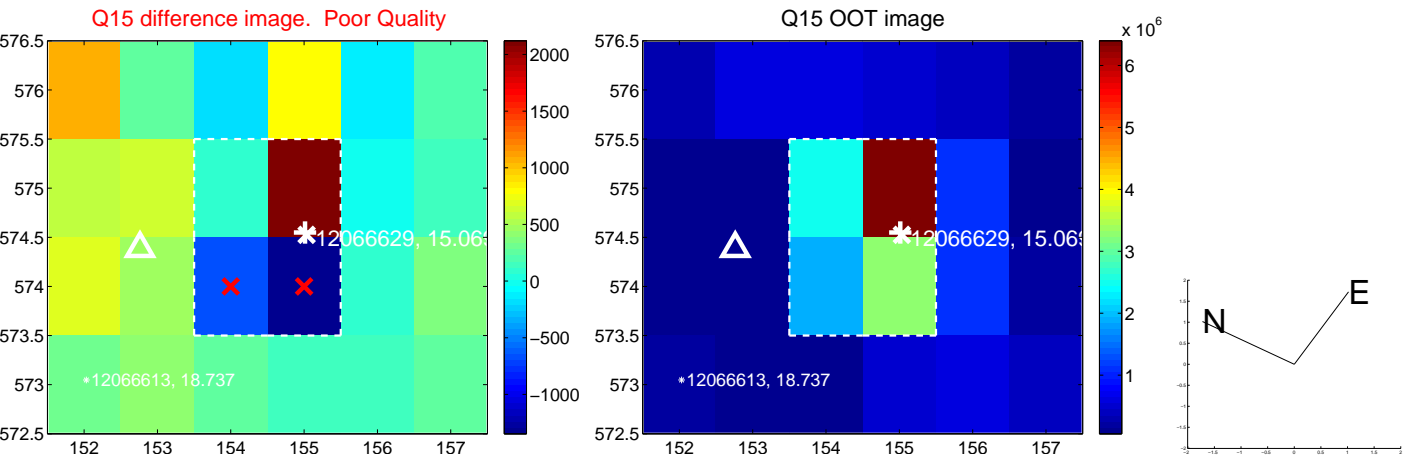
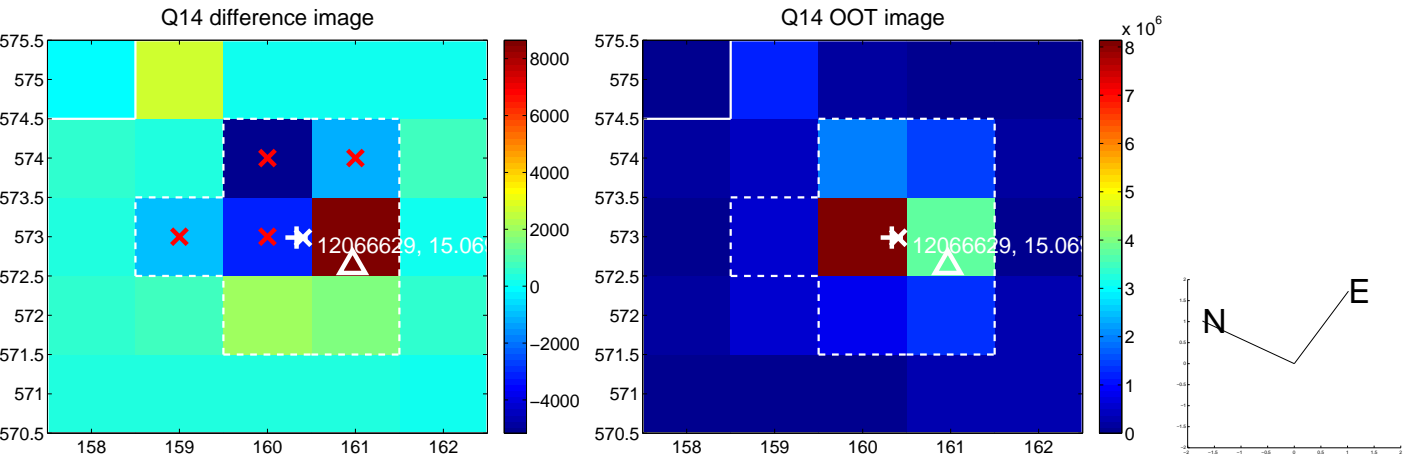
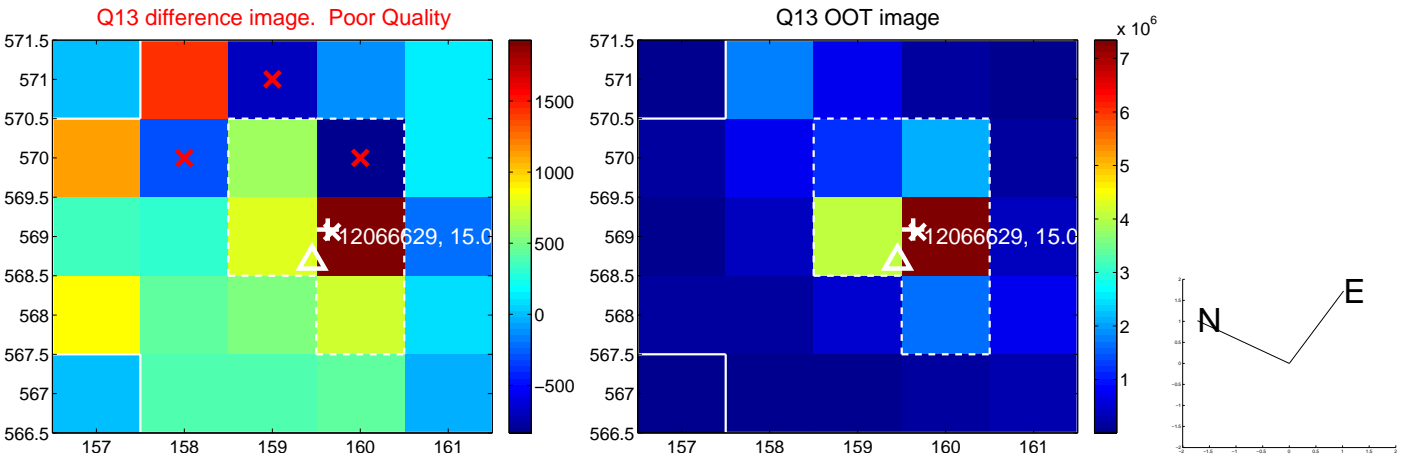




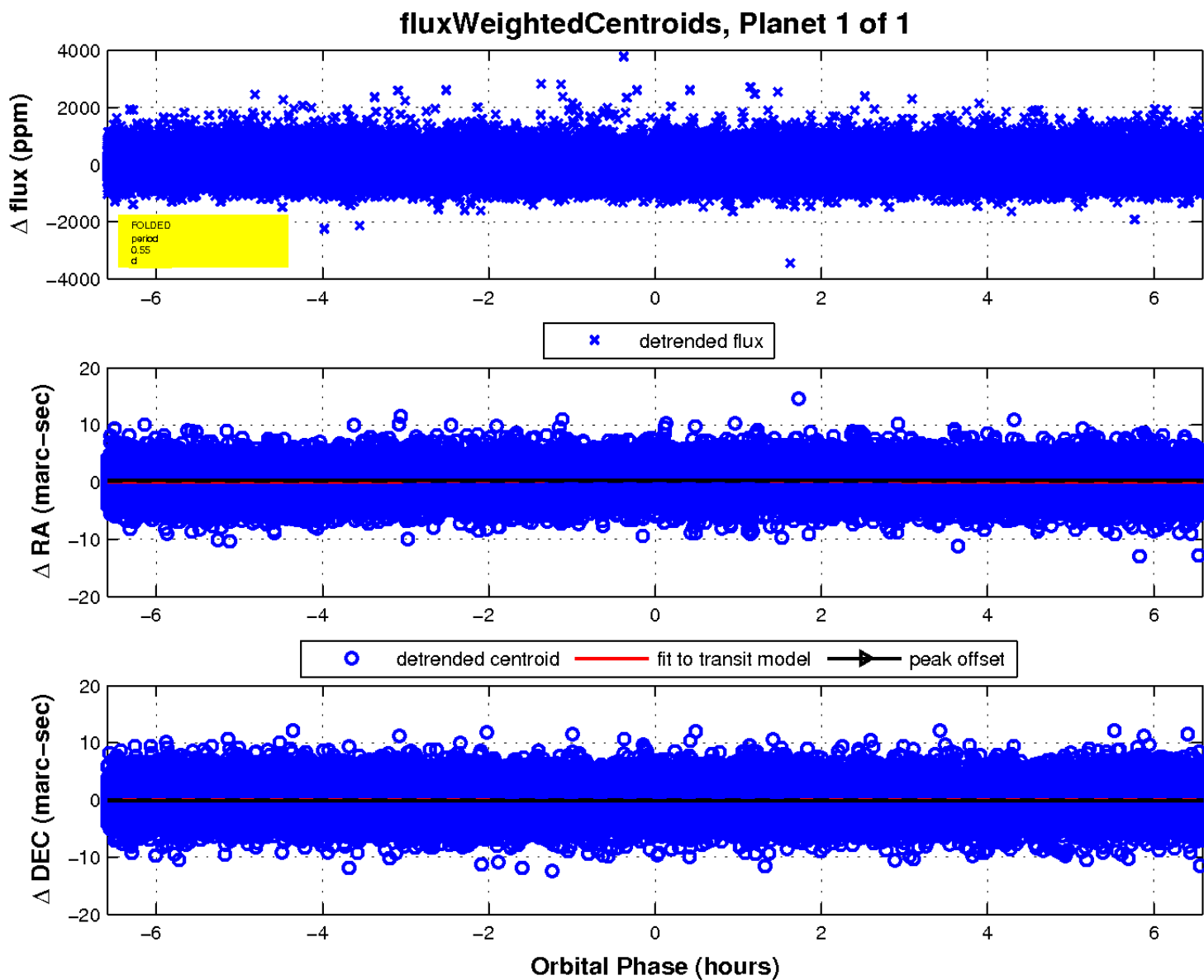
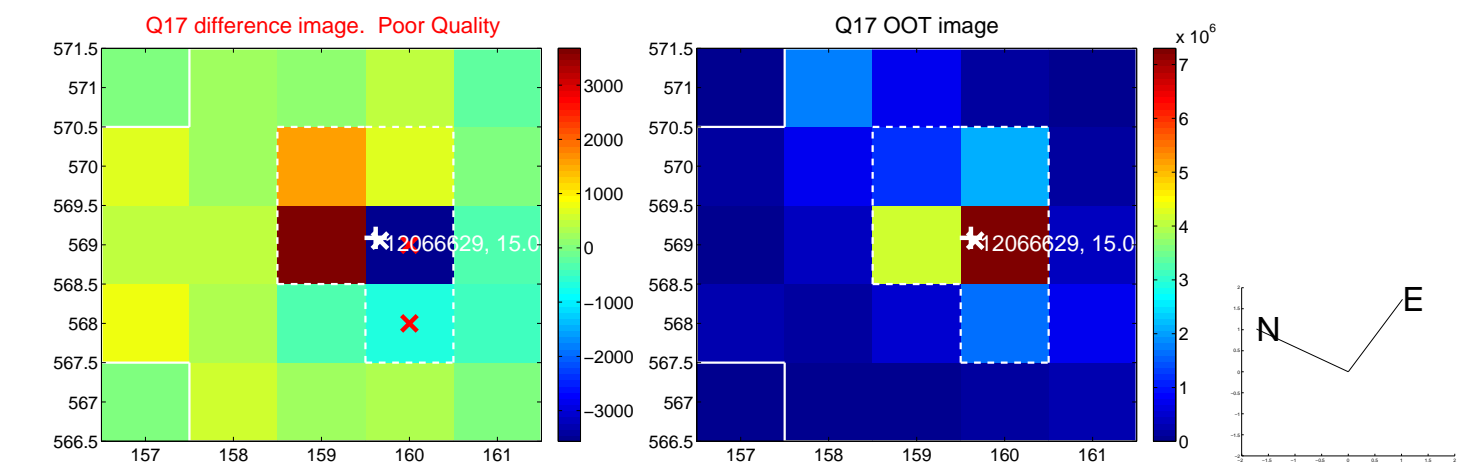
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



UKIRT Image

Declination

