

# KIC 007021131

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007021131-01	OBS	No	0.622473	131.916210	68.4	4.277	12.6	12.6	12.17	5730	10.78	0.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007021131-01	OBS	FP	0.00	1	0	1	1	SWEET_NTL—LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET—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.

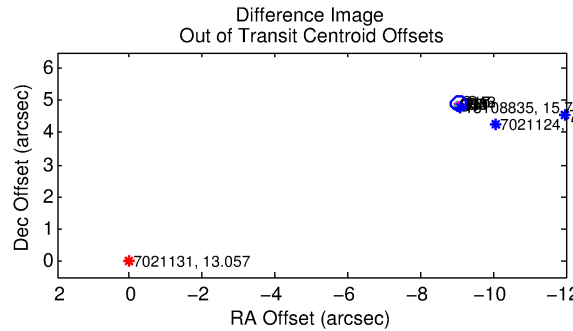
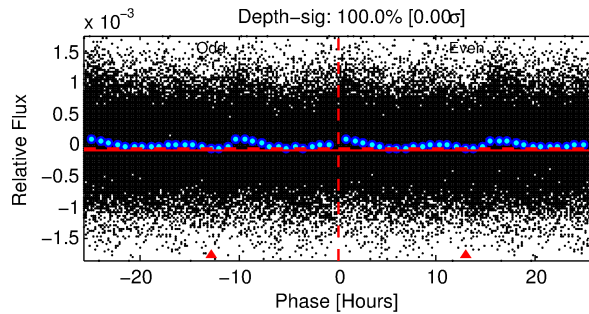
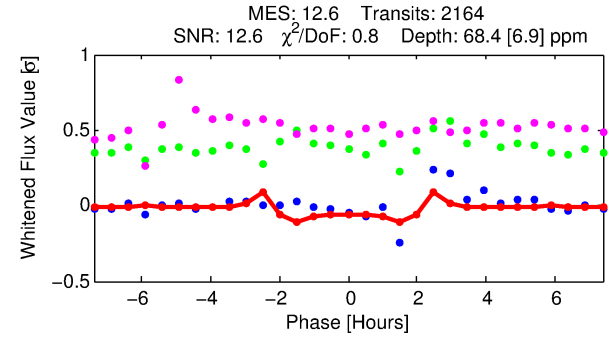
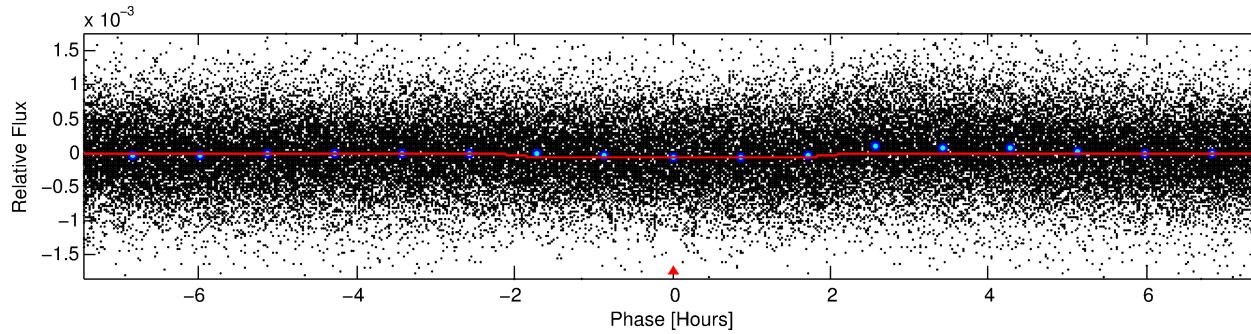
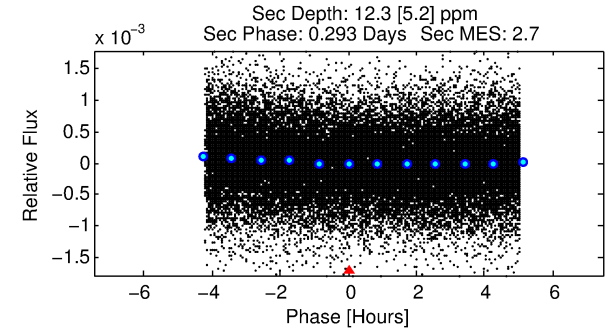
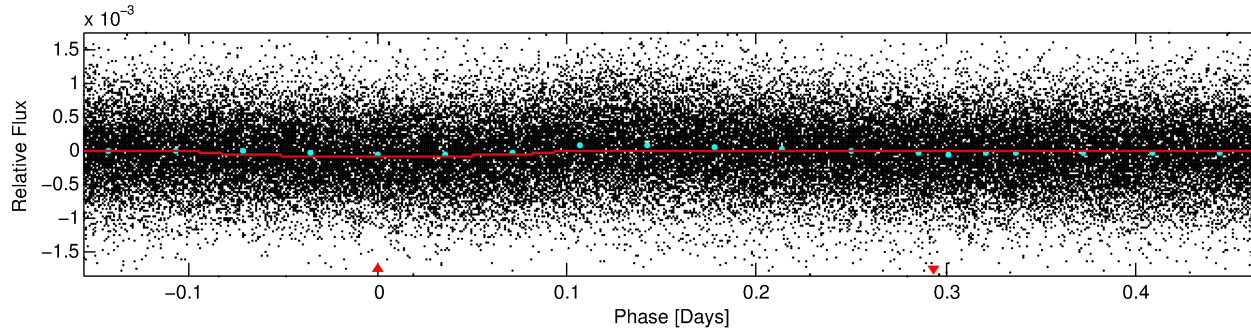
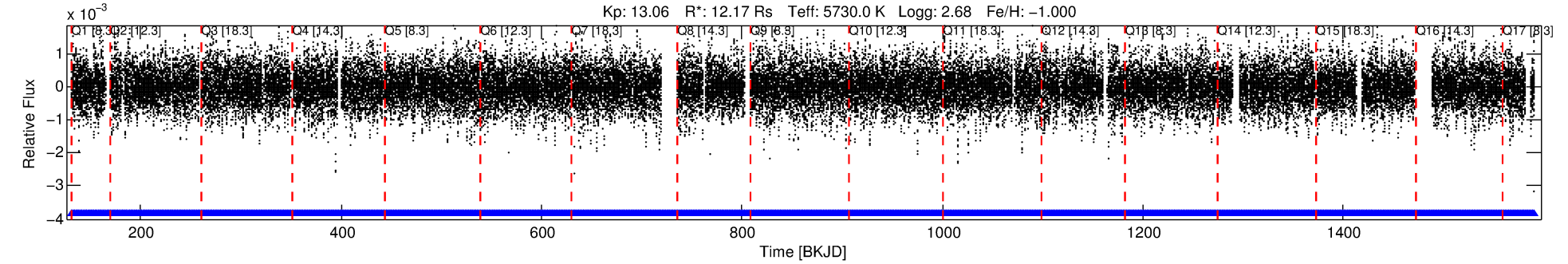
## Ephemeris Match Information For 007021131-01

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	$\sigma_P$	$\sigma_T$
007021131-01	7021131	007021124-01	7021124	1:1	10.9	1	-2	13.55	13.06	208.25	Direct-PRF	0	1.41	1.07

**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: 7021131 Candidate: 1 of 1 Period: 0.622 d



## DV Fit Results:

Period = 0.62247 [0.00001] d  
Epoch = 131.9162 [0.0011] BKJD  
Rp/R\* = 0.0081 [0.0018]  
a/R\* = 1.16 [0.36]  
b = 0.70 [0.88]  
Seff = N/A  
Teq = N/A  
Rp = 10.78 [6.20] Re  
a = N/A  
Ag = N/A  
Teff = N/A

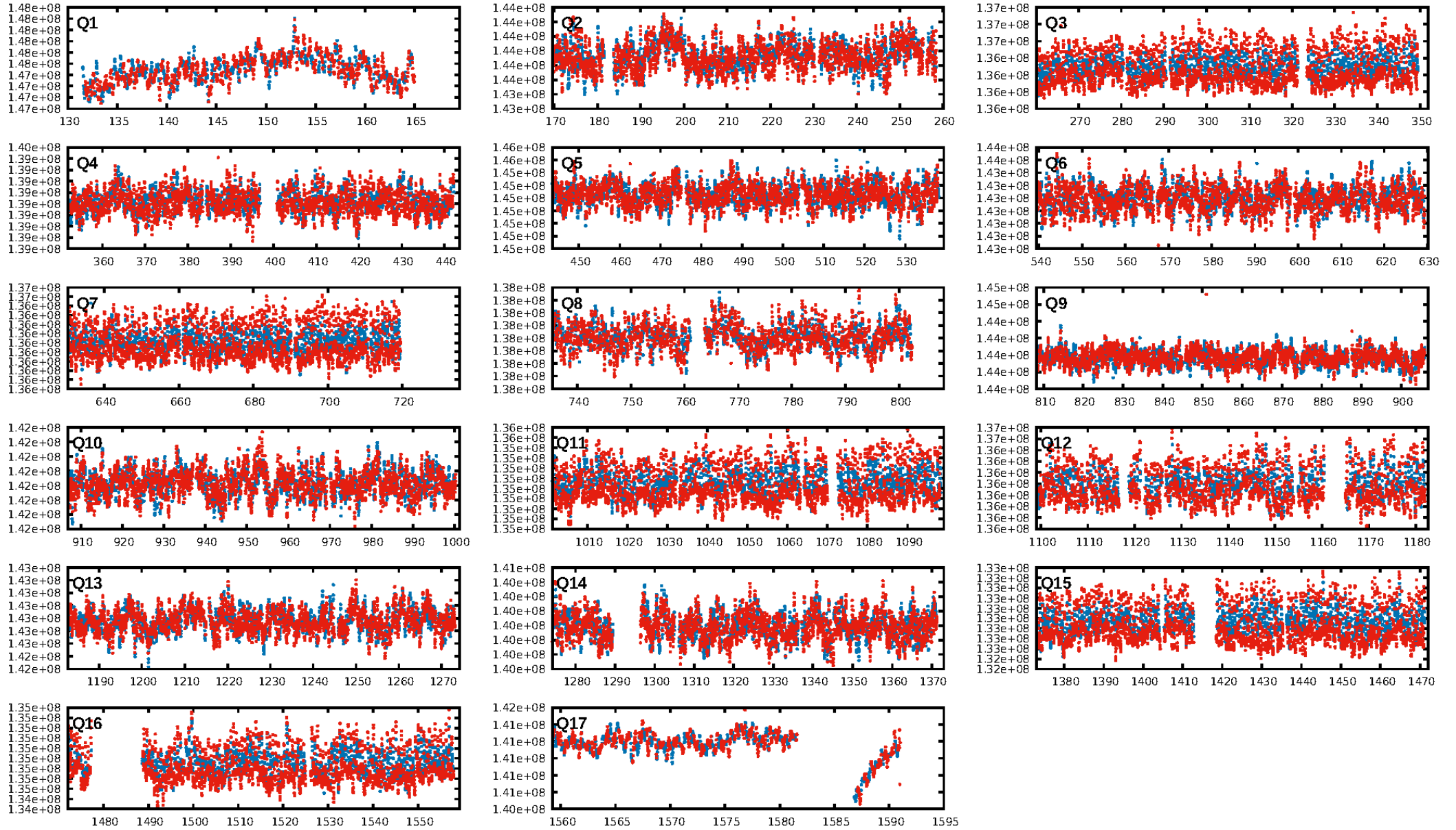
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.17e-25  
RollingBand-fgt: 1.00 [2066/2066]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 10.282 arcsec [140.64σ]  
KicOffset-rm: 10.286 arcsec [134.11σ]  
OotOffset-st: 0/0/4/5 [9]  
KicOffset-st: 0/0/4/5 [9]  
DiffImageQuality-fgm: 1.00 [9/9]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:07:21 Z

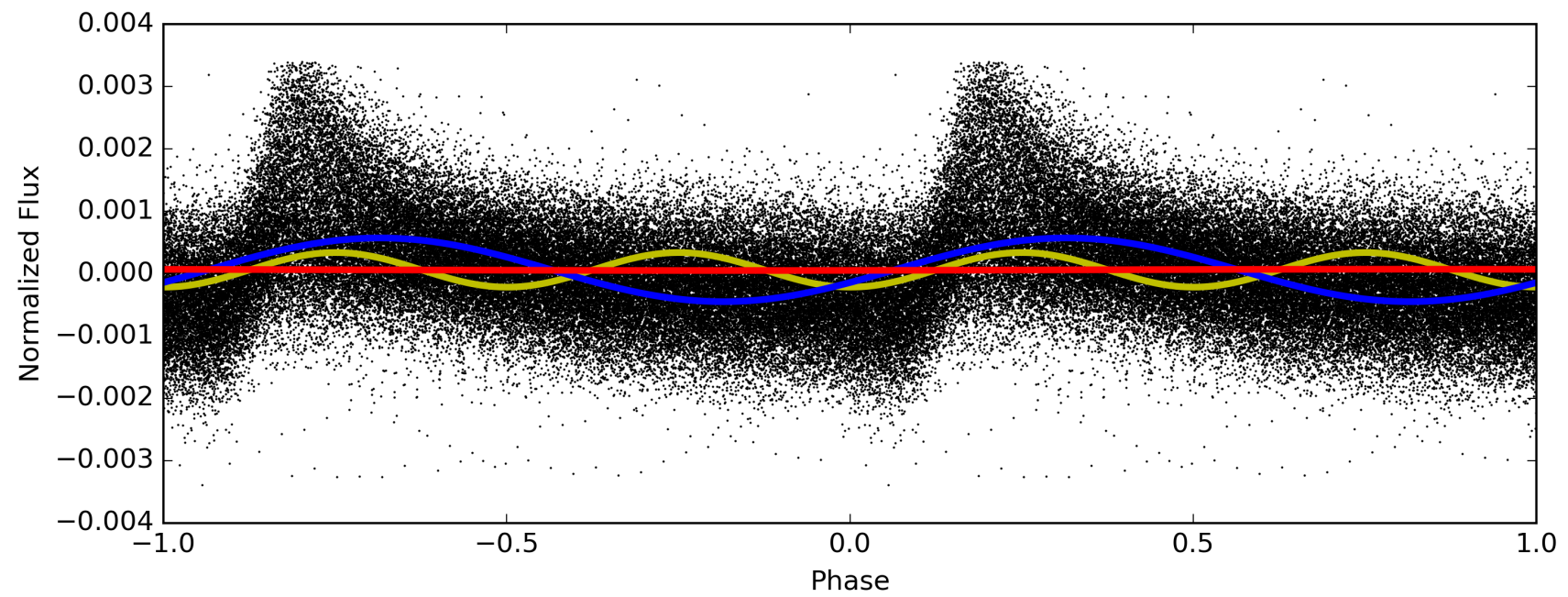
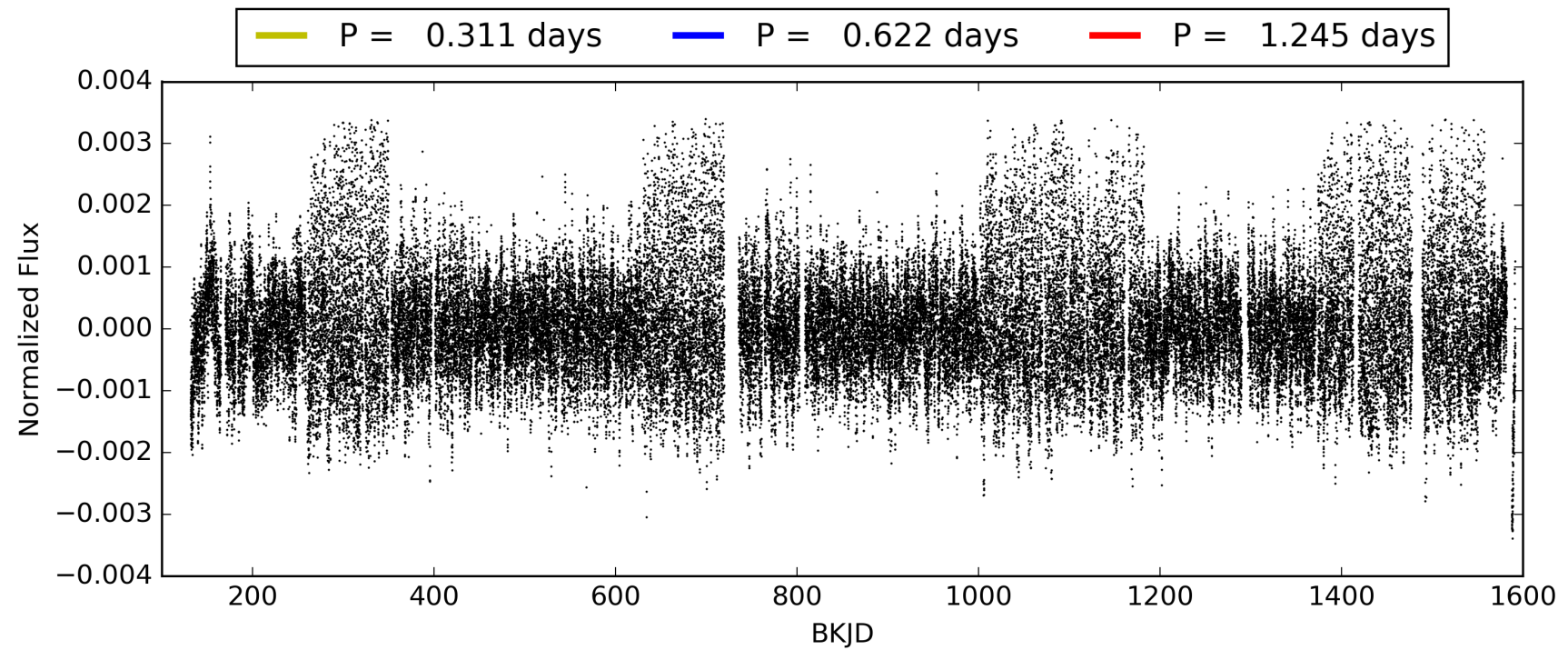
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007021131-01, PDC Light Curves



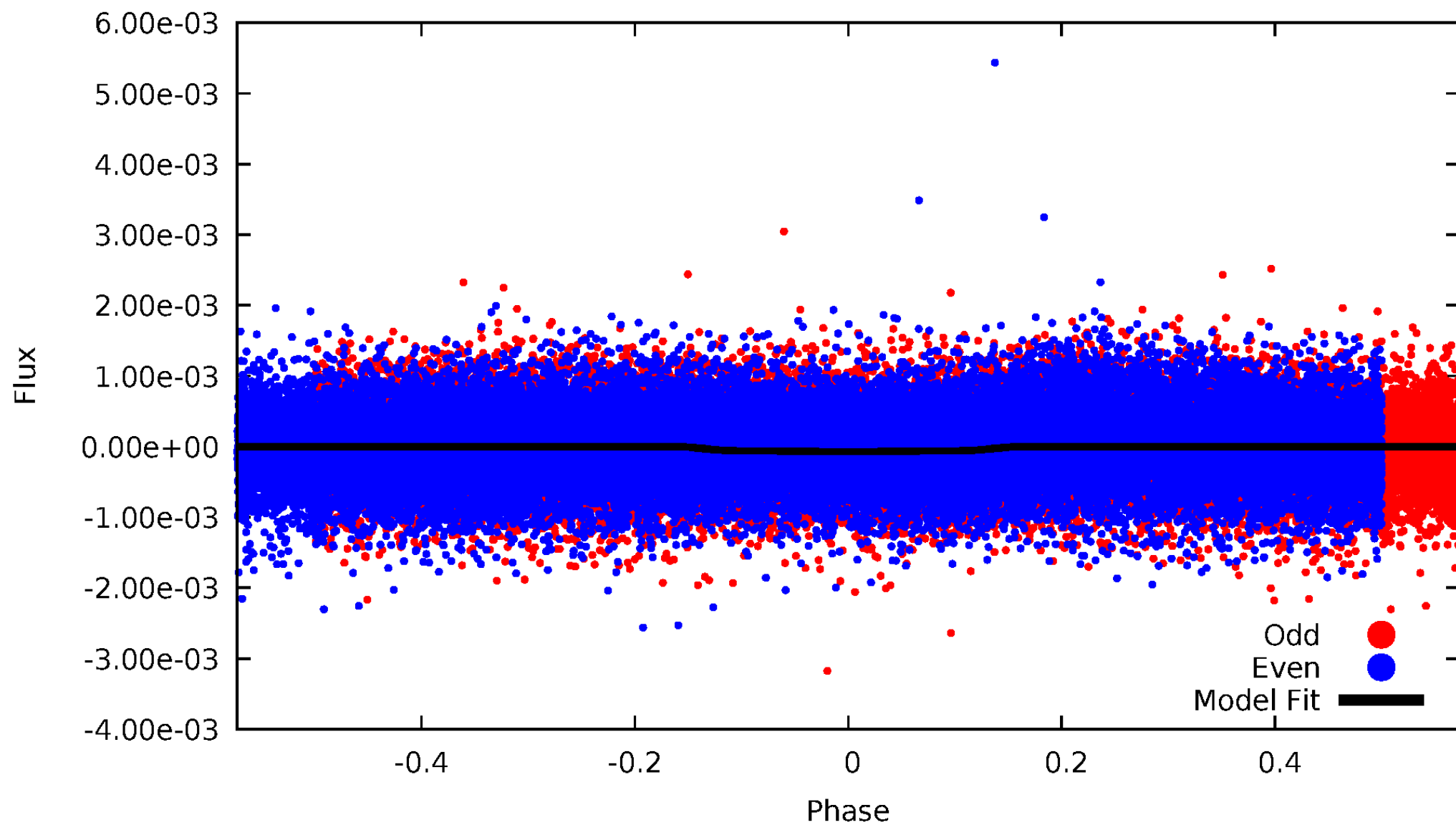


TCE 007021131-01



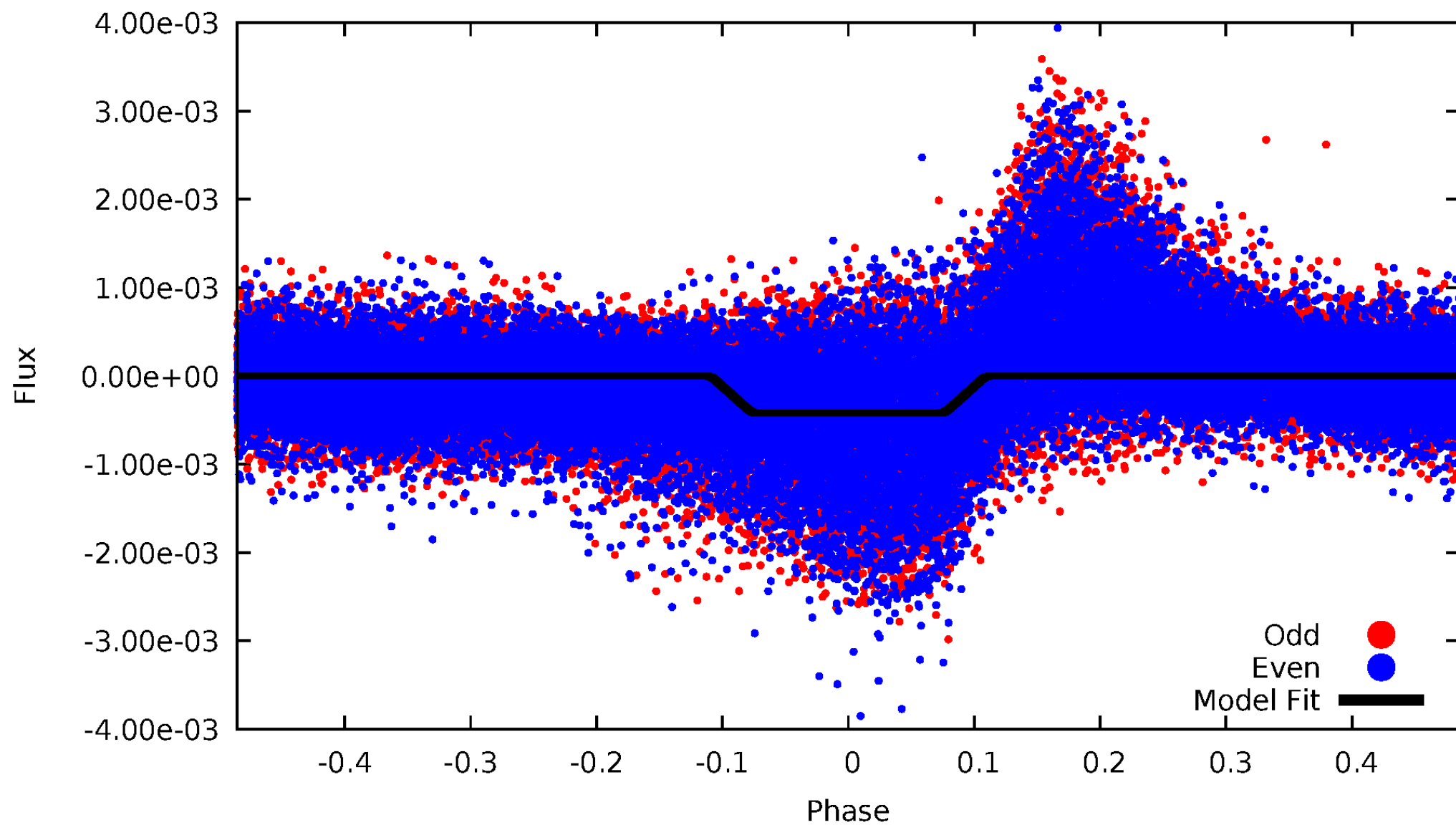
# DV Odd/Even

TCE 007021131-01

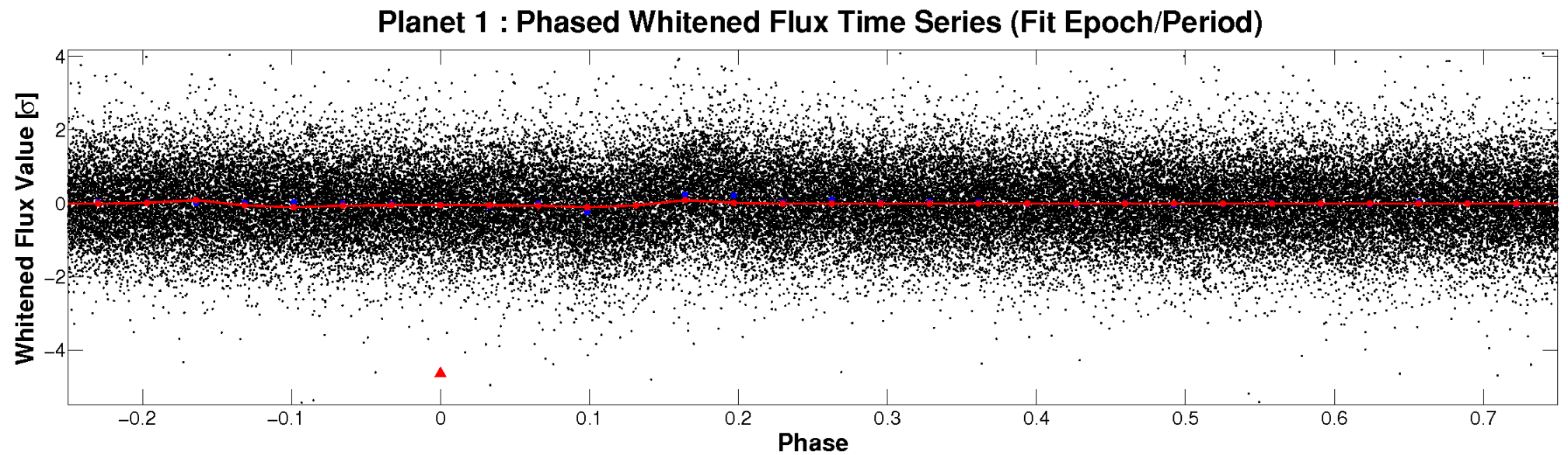
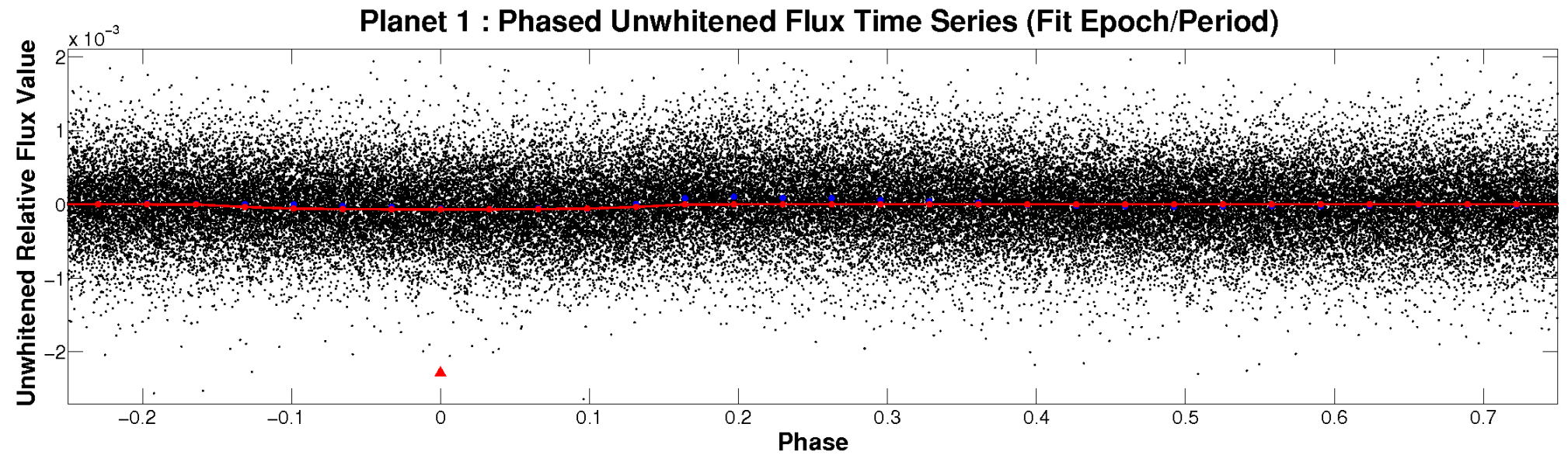


# ALT Odd/Even

TCE 007021131-01



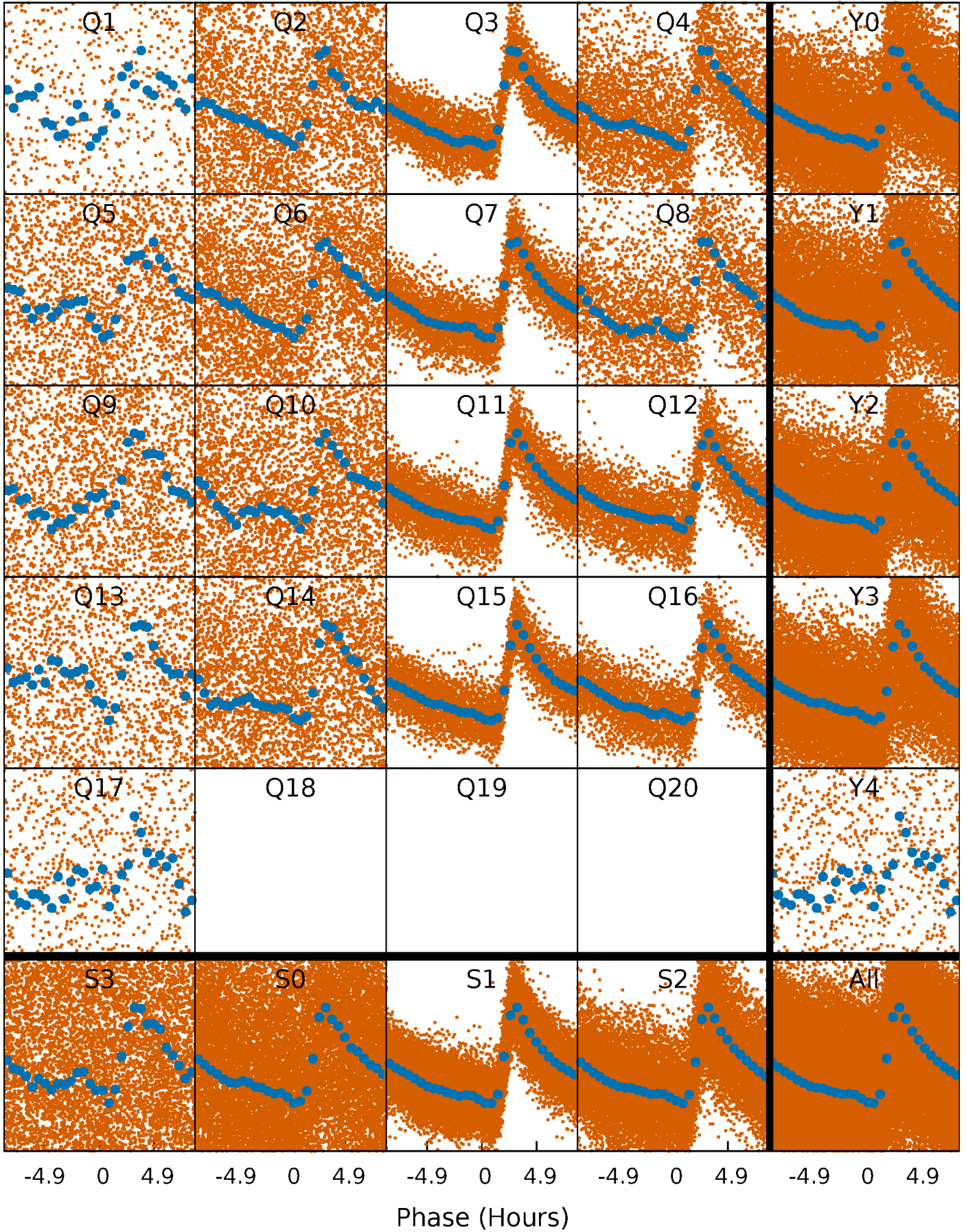
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

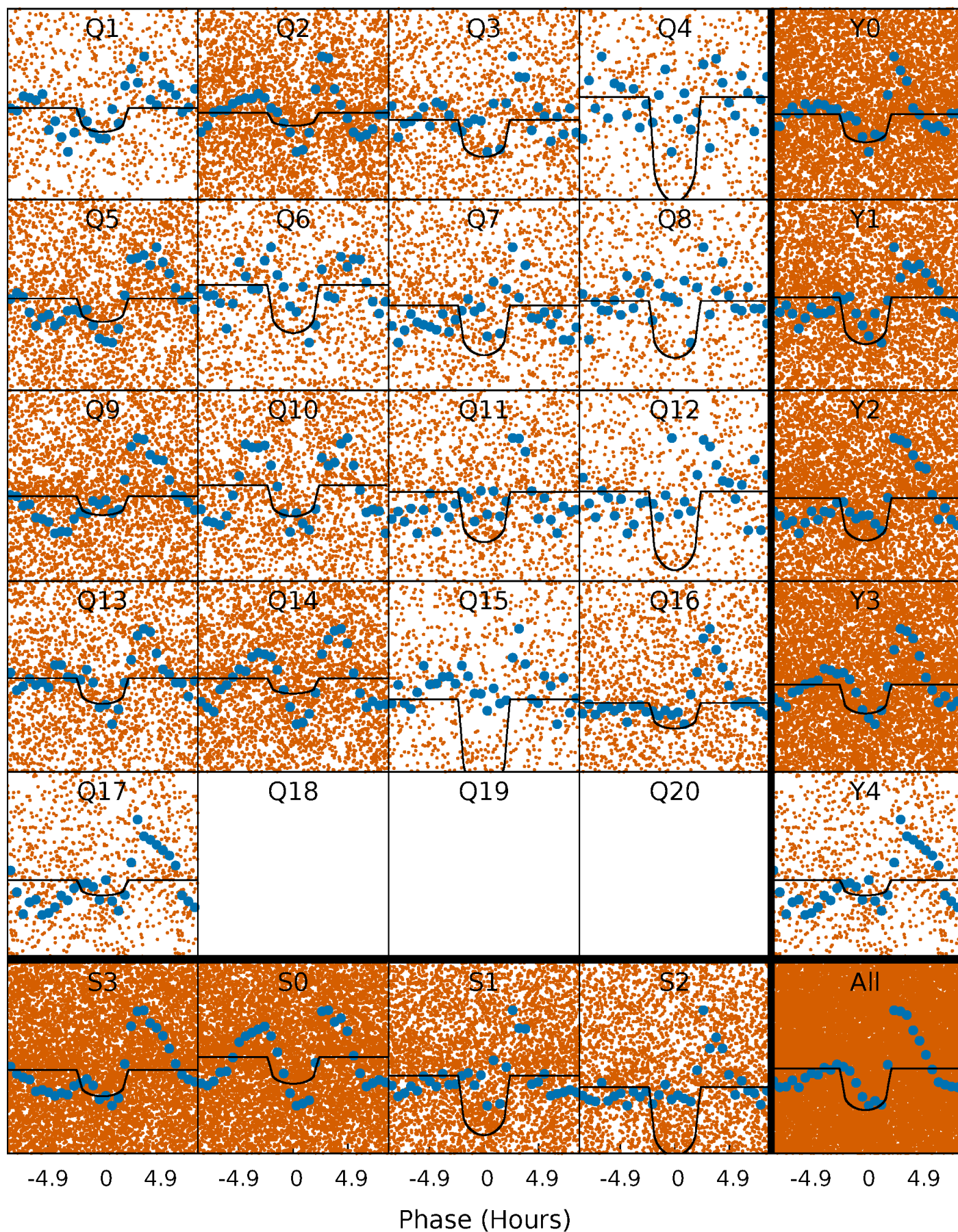
TCE 007021131-01 P= 0.622473 Days  $T_0=131.916210$  (BKJD)





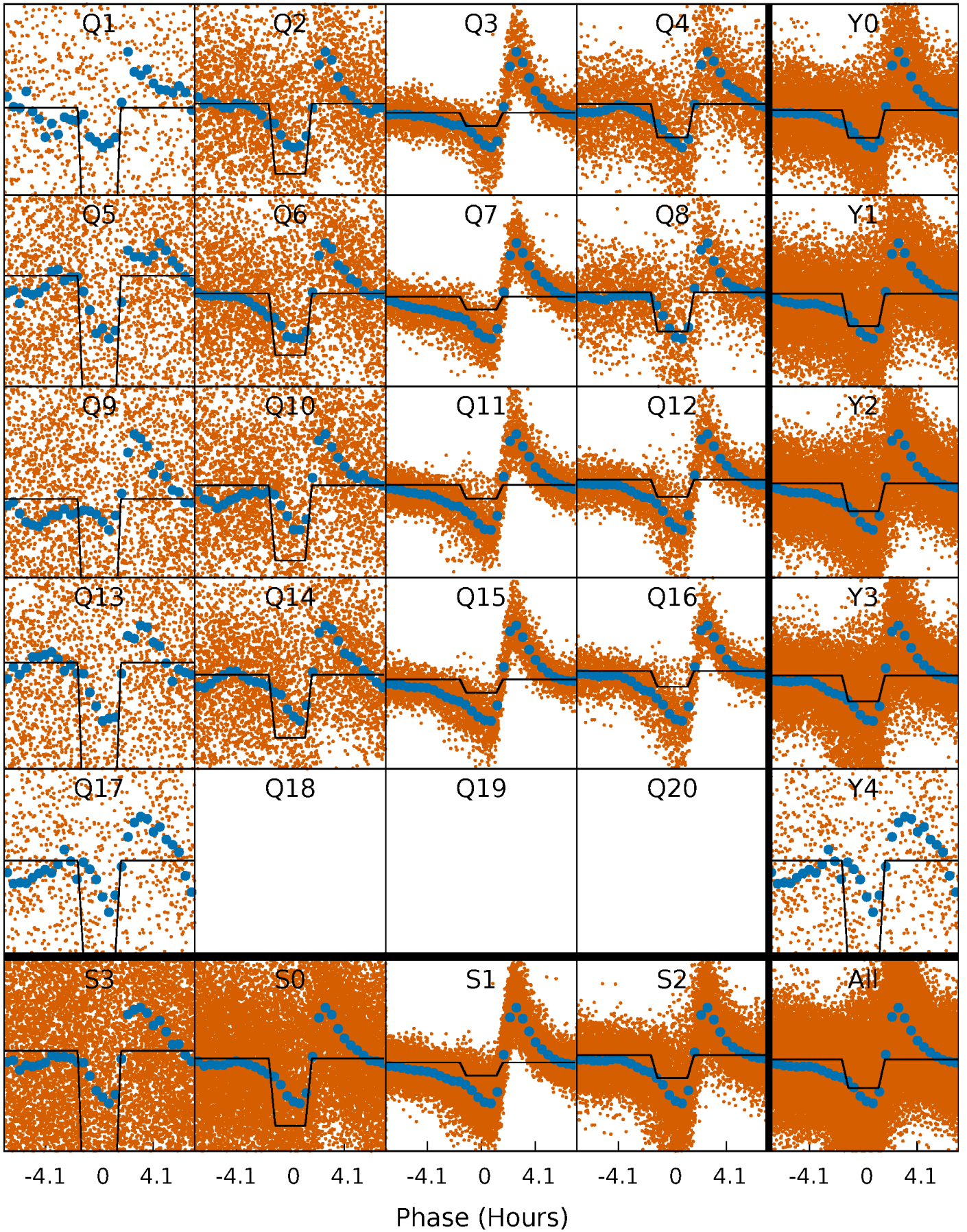
# DV Quarter-Phased Transit Curves

TCE 007021131-01 P= 0.622473 Days  $T_0=131.916210$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007021131-01 P= 0.622485 Days  $T_0=131.917177$  (BKJD)

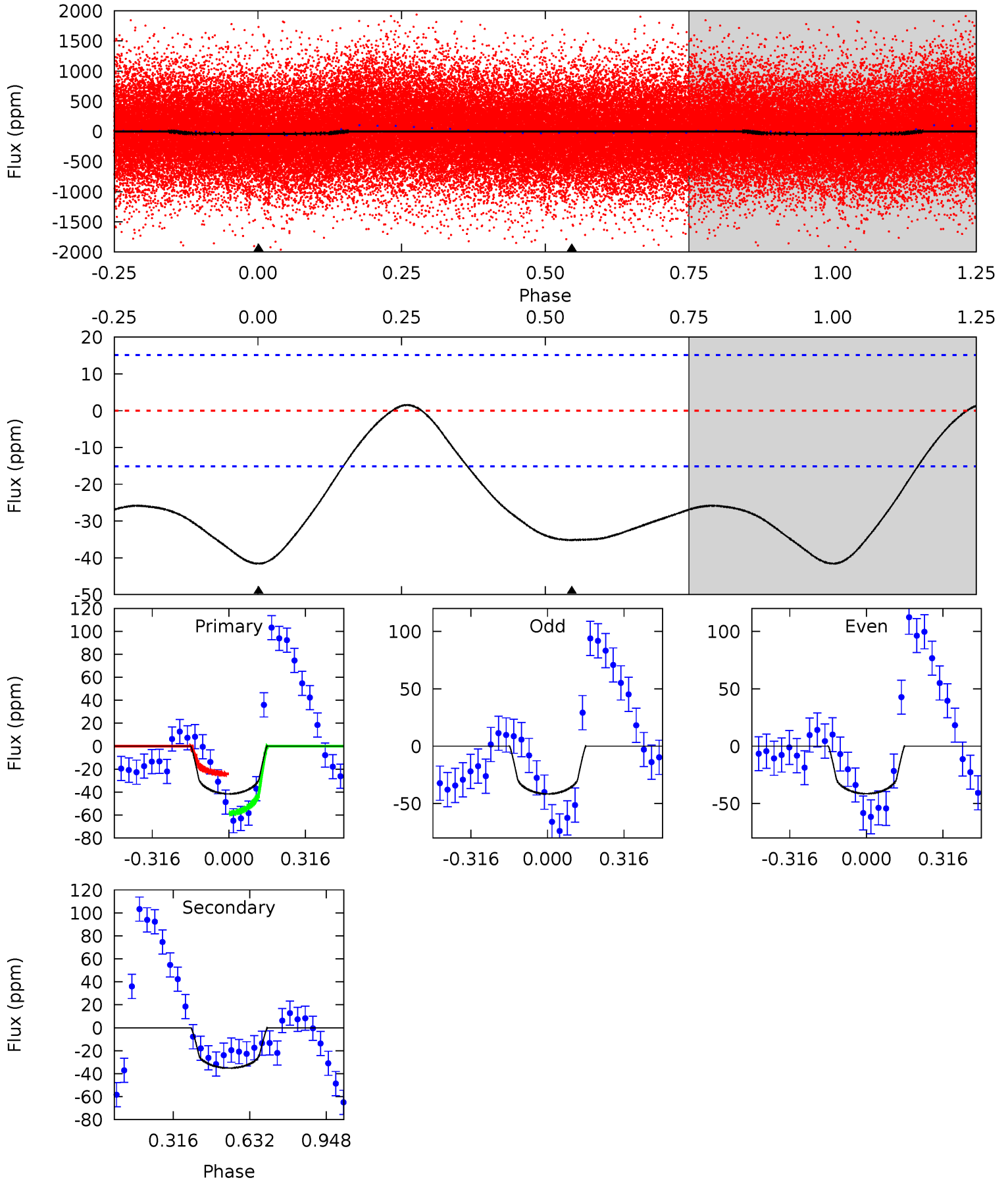




# DV Model-Shift Uniqueness Test

007021131-01, P = 0.622473 Days, E = 131.293737 Days

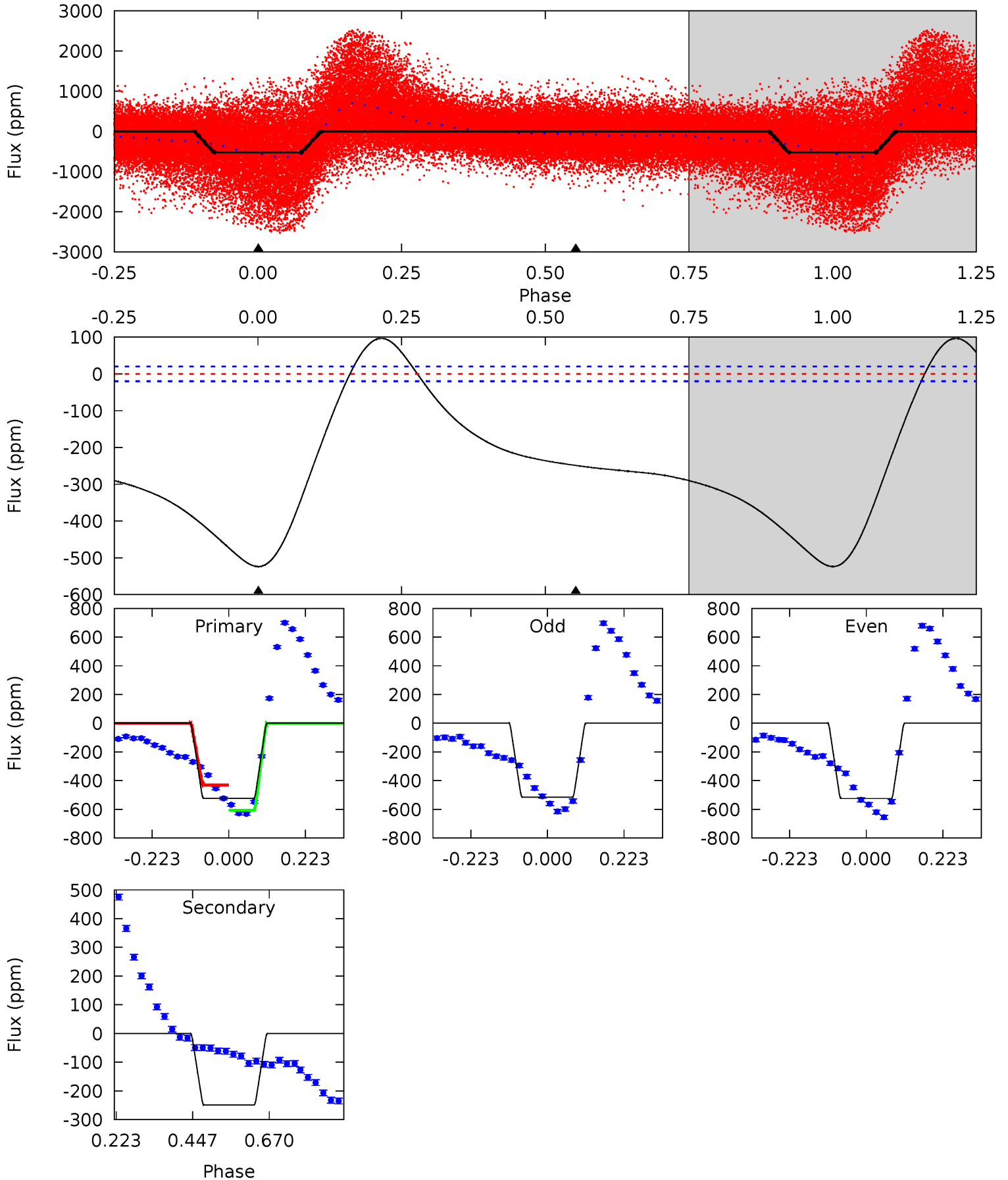
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	10.0	0	0	4.32	1.00	1.84	11.9	11.9	10.0	10.0	0.03	1.23	0.04	5.21



# Alt Model-Shift Uniqueness Test

007021131-01, P = 0.622485 Days, E = 131.294692 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
115.4	54.8	0	0	4.39	1.22	14.6	115.4	115.4	54.8	54.8	1.11	1.15	0.16	0





### Stellar Parameters For KIC 007021131

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5730^{+189}_{-441}$	$2.676^{+0.344}_{-0.185}$	$-1.000^{+0.200}_{-0.350}$	$12.169^{+3.458}_{-6.423}$	$2.560^{+0.236}_{-1.335}$	$0.002^{+0.007}_{-0.001}$
	$+3\%/-8\%$	$+13\%/-7\%$	$+20\%/-35\%$	$+28\%/-53\%$	$+9\%/-52\%$	$+366\%/-47\%$
Source	PHO1	FLK73	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 007021131-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-35 \pm 4$	$10.09^{+3.53}_{-3.14}$	$8615^{+831}_{-1064}$	$-6509^{+1109}_{-905}$	$0.069^{+0.067}_{-0.029}$
Alt.	$-249 \pm 5$	$27.39^{+5.24}_{-7.36}$	$8727^{+816}_{-1062}$	$-6684^{+1122}_{-867}$	$0.069^{+0.043}_{-0.020}$

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

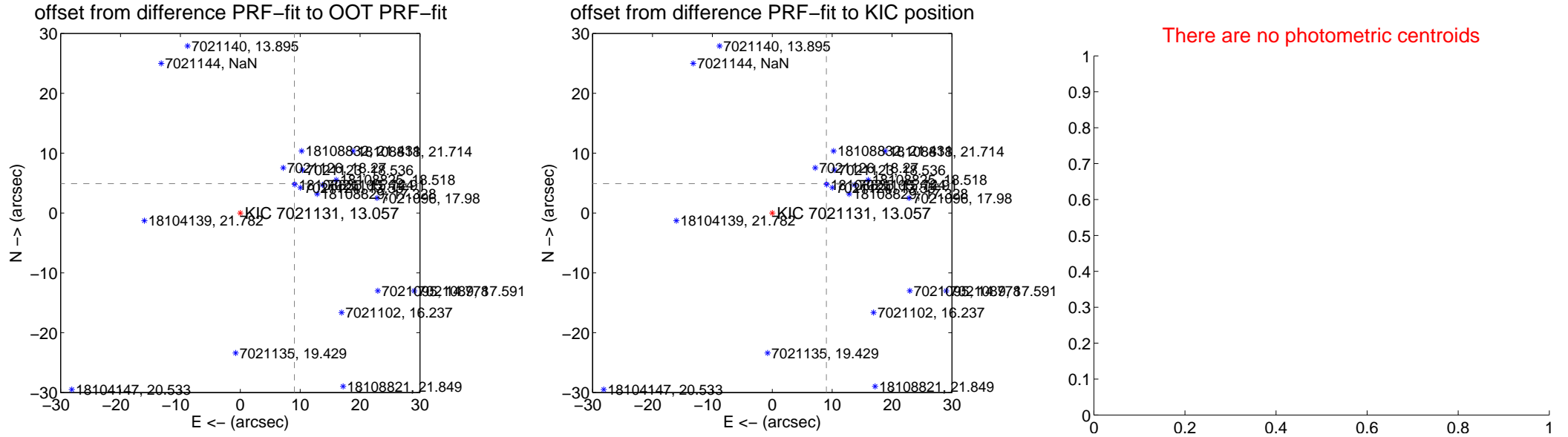
## DV Centroid Data

Supplemental centroid analysis for 007021131-01. Kepler magnitude: 13.06. Transit SNR 12.57

There are 9 quarters with good PRF difference image offsets

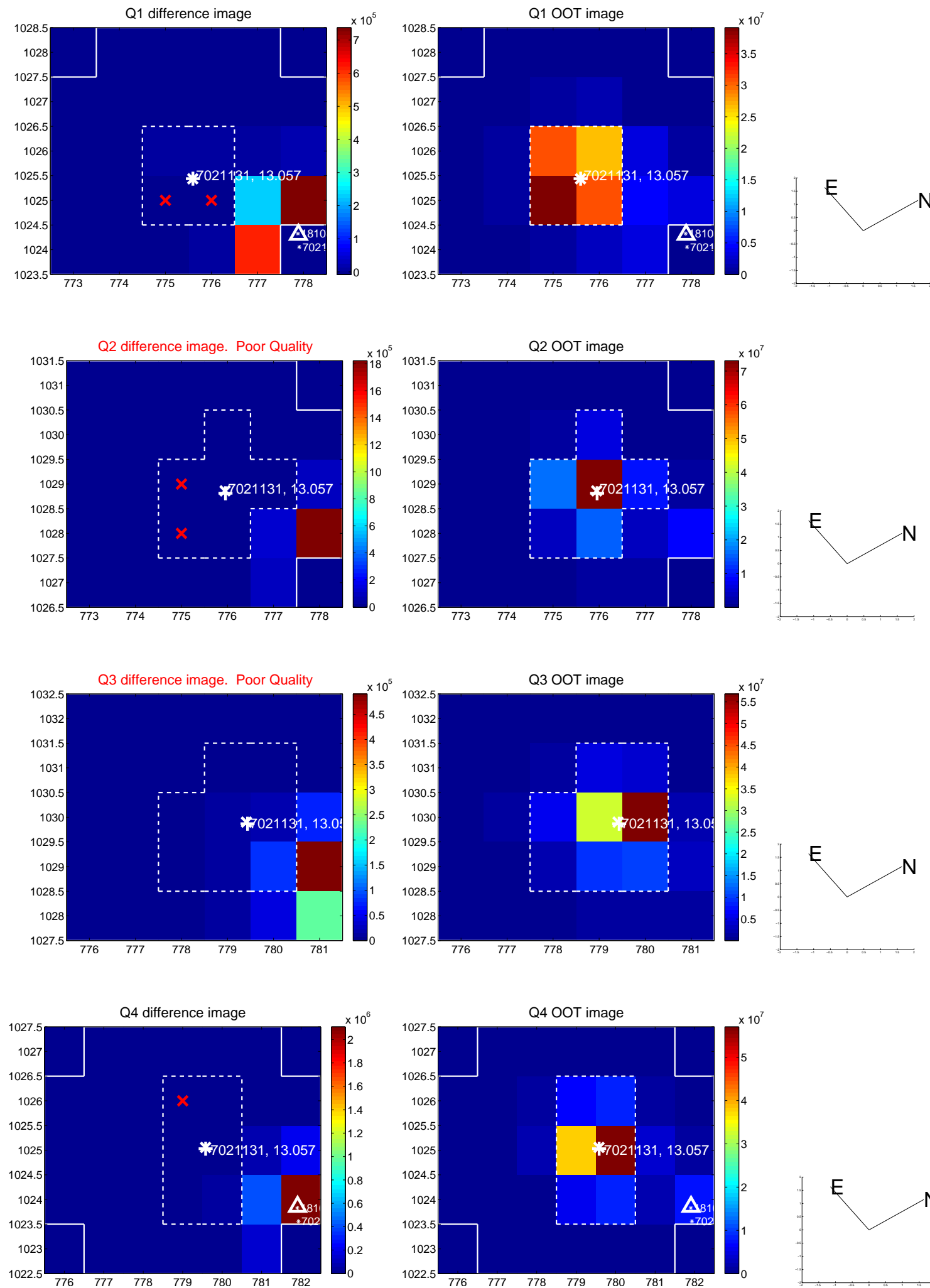
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	10.282 $\pm$ 0.073	140.64	-9.036 $\pm$ 0.075	4.905 $\pm$ 0.067
PRF-fit source offset from KIC position	10.286 $\pm$ 0.077	134.11	-9.040 $\pm$ 0.080	4.908 $\pm$ 0.067
photometric centroid source offset	—	—	—	—

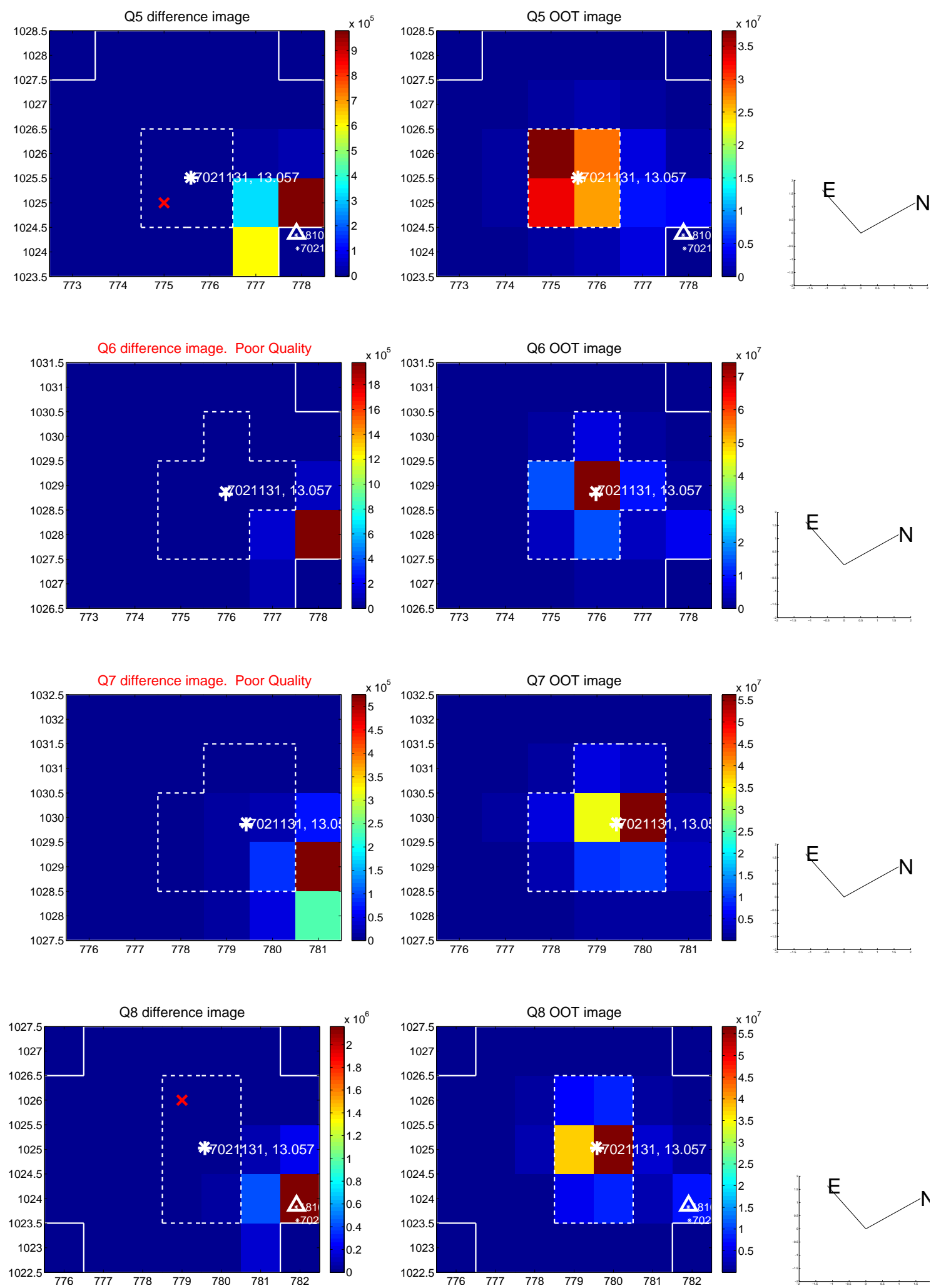


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

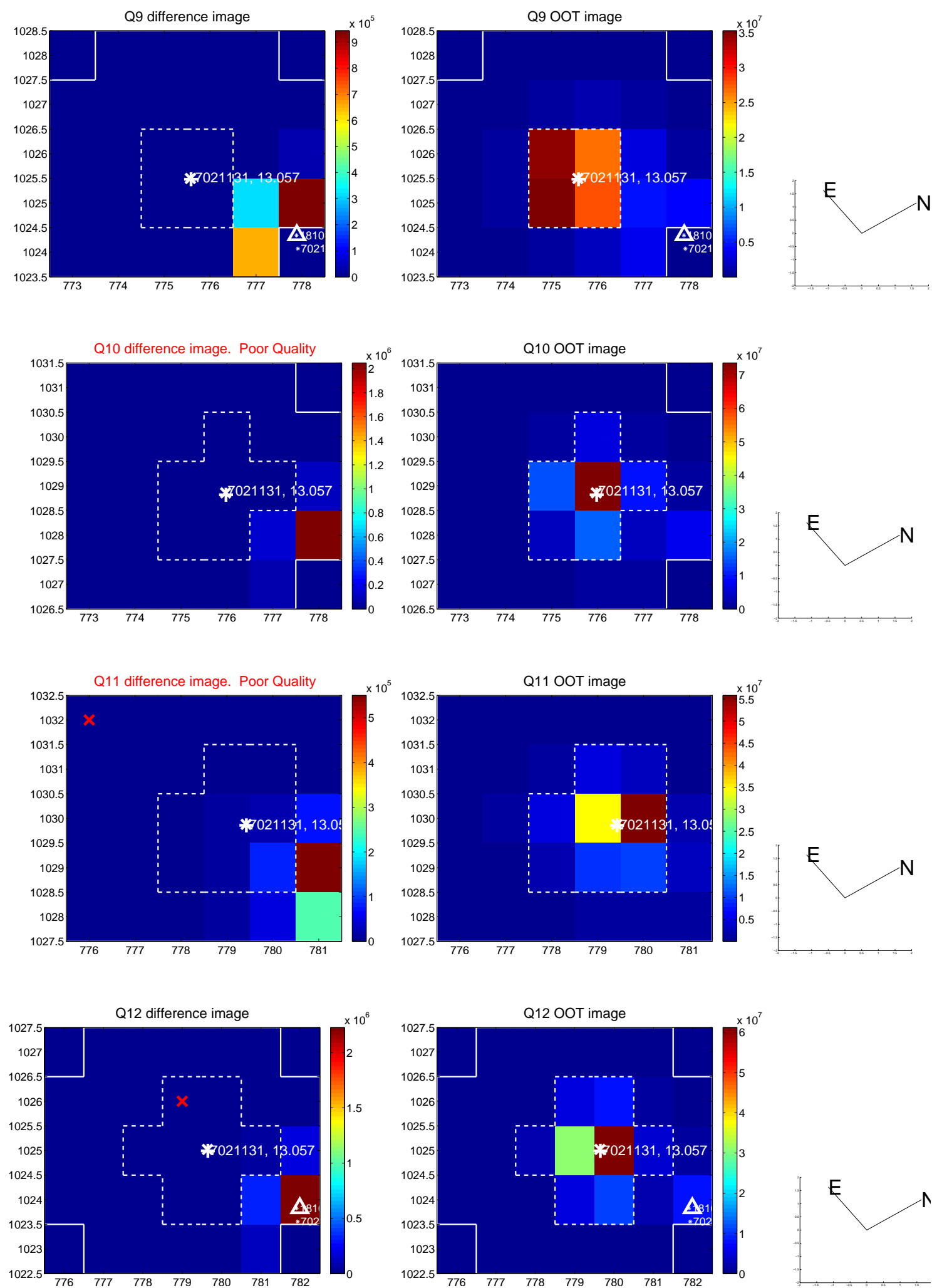


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

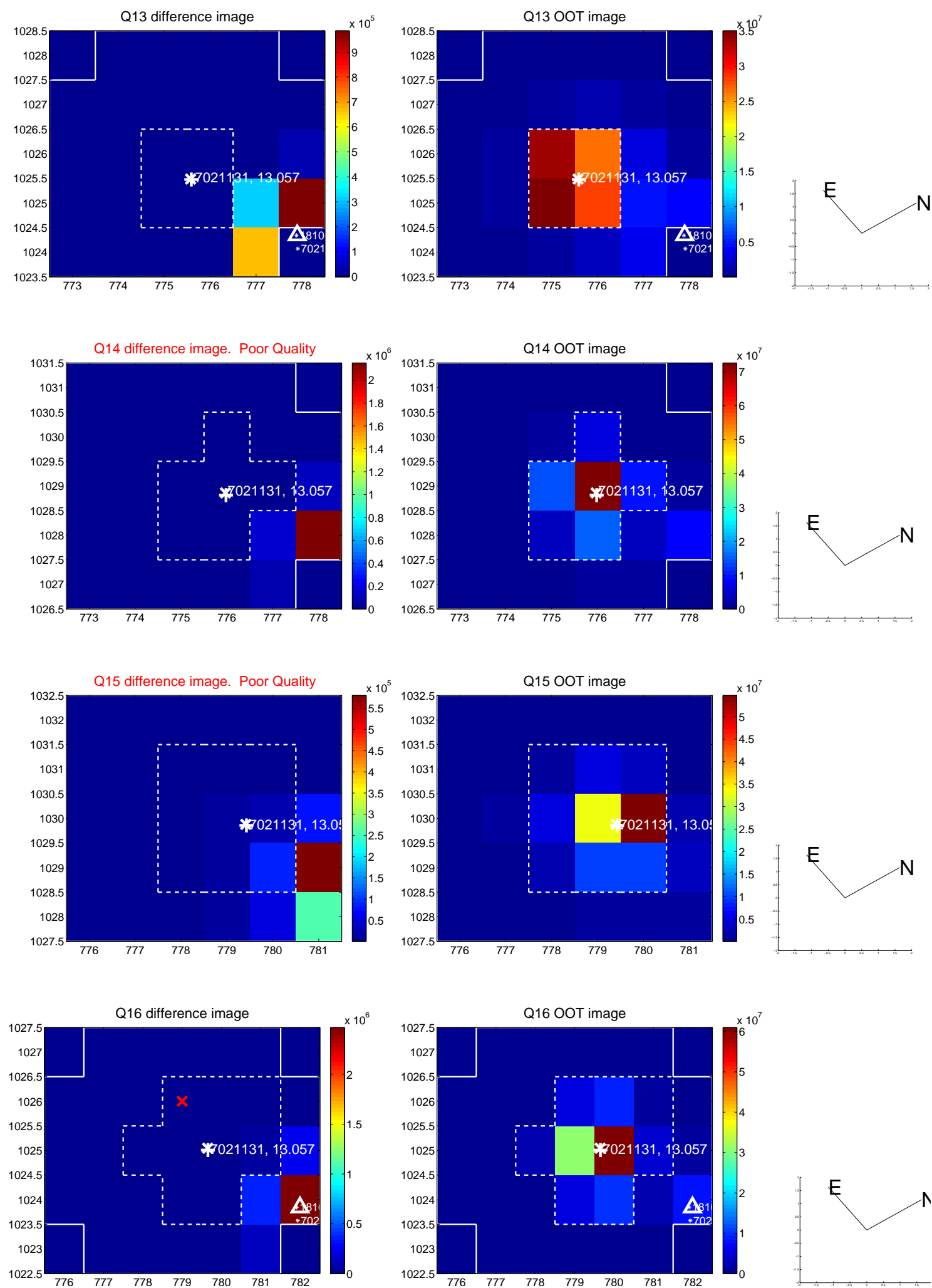




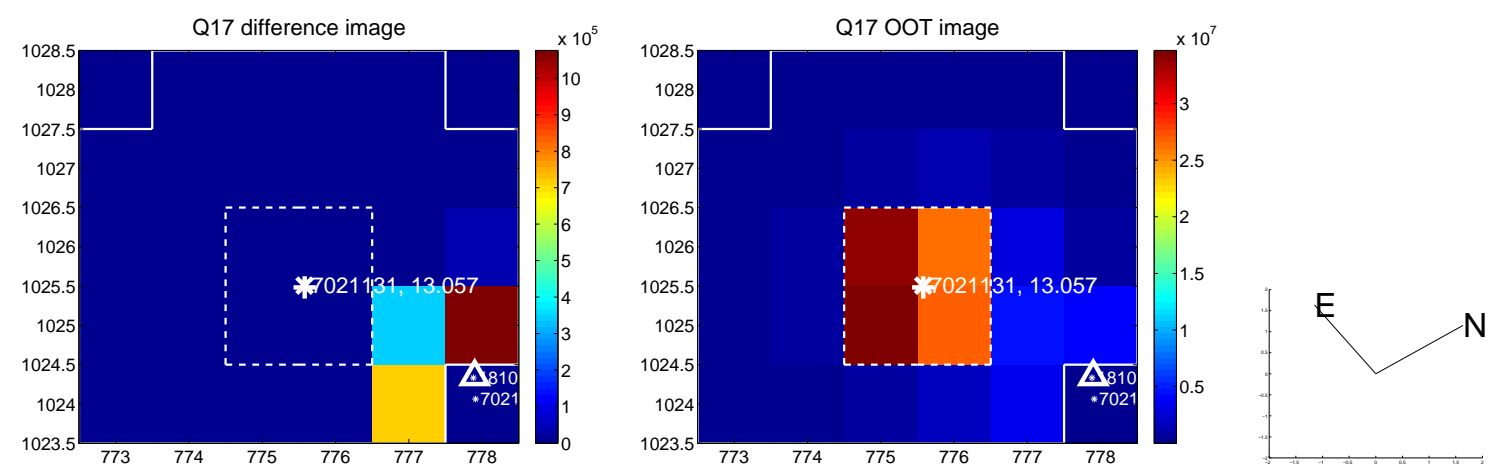
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

