

# KIC 002164165

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002164165-01	OBS	No	0.540373	131.617745	21.7	2.797	7.8	9.2	6.12	7135	2.87	0.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002164165-01	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.

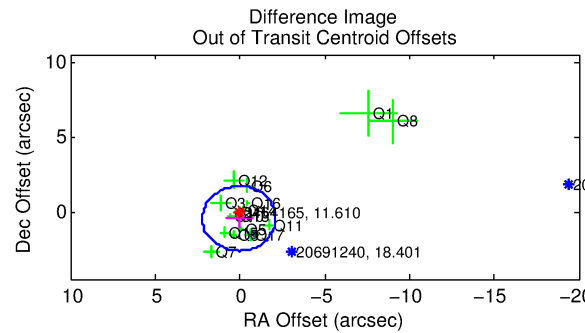
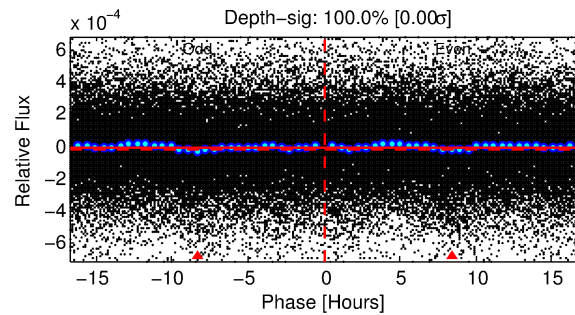
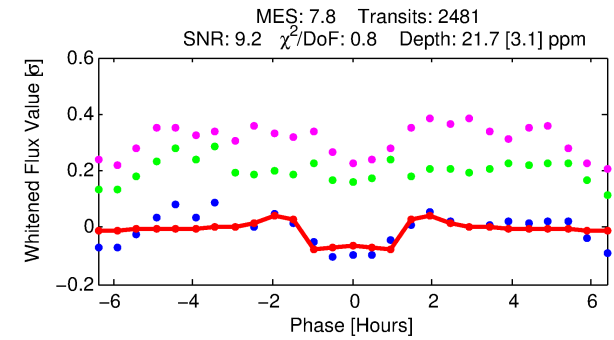
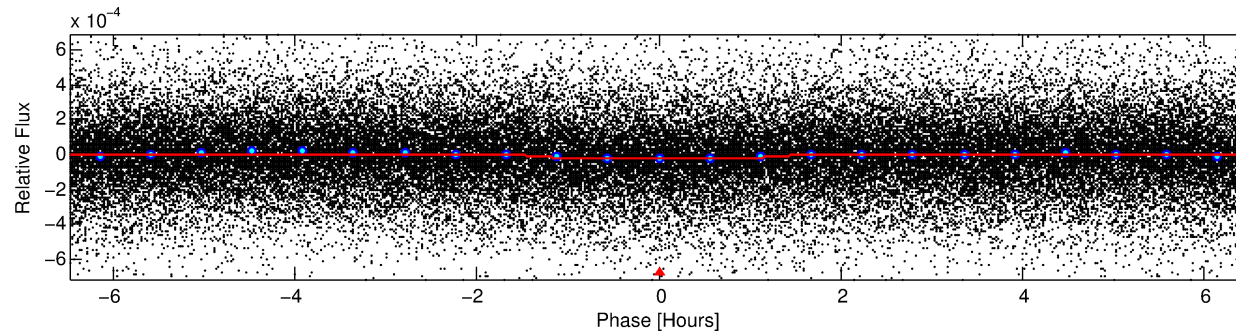
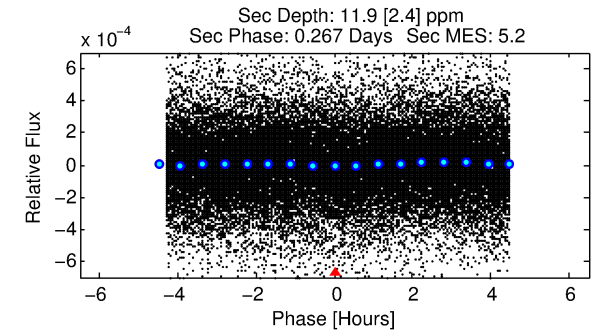
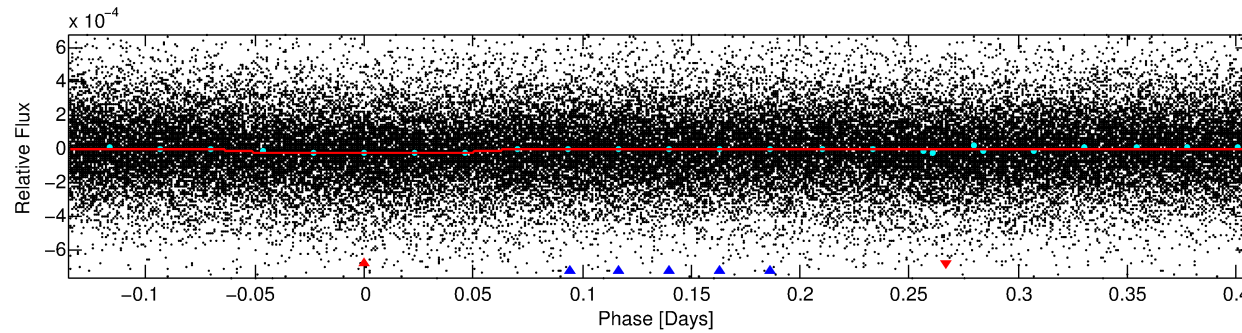
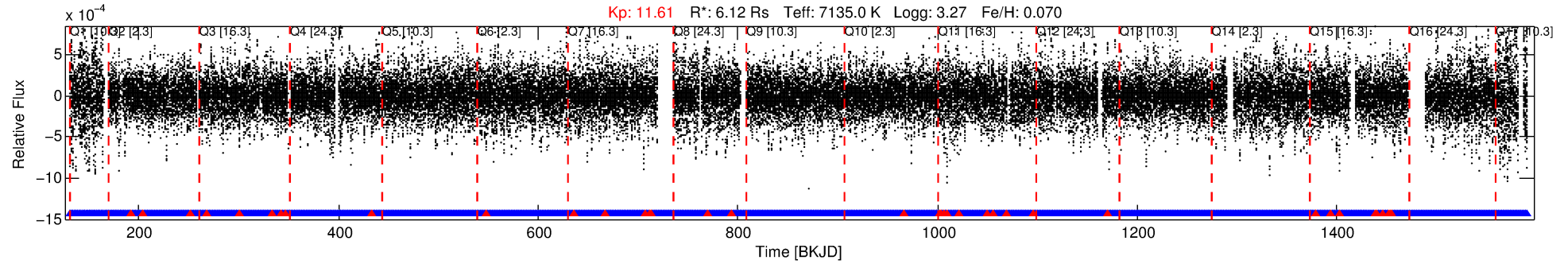
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002164165-01

No Significant Match Found

# DV One-Page Summary

KIC: 2164165 Candidate: 1 of 2 Period: 0.540 d



## DV Fit Results:

Period = 0.54037 [0.00001] d  
Epoch = 131.6177 [0.0017] BKJD  
Rp/R\* = 0.0043 [0.0017]  
a/R\* = 1.60 [2.07]  
b = 0.00 [8509.13]  
Seff = N/A  
Teq = N/A  
Rp = 2.87 [1.87] Re  
a = N/A  
Ag = N/A  
Teffp = N/A

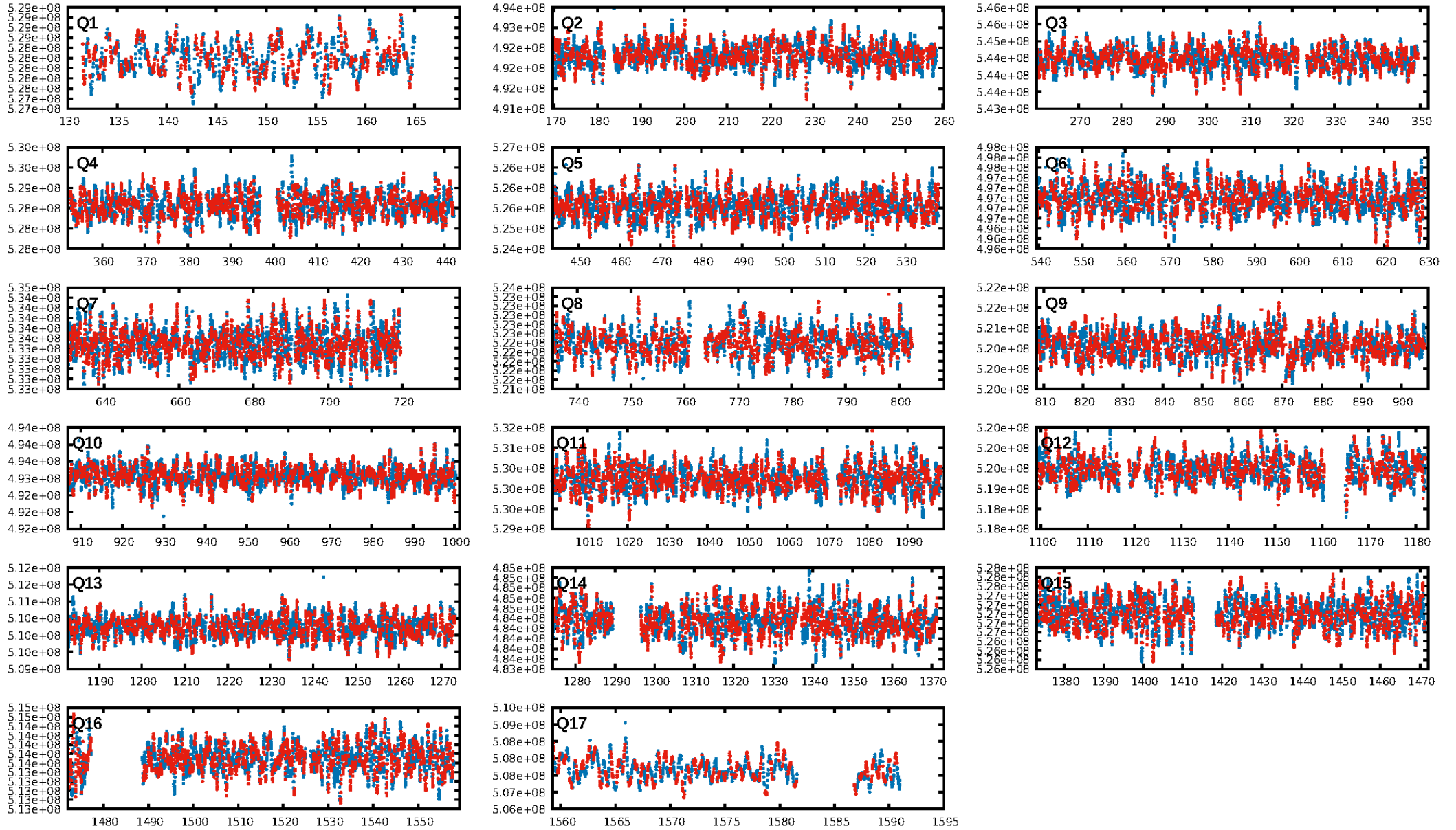
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [510.23σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 9.93e-10**  
RollingBand-fgt: 0.98 [2331/2369]  
GhostDiagnostic-chr: 3.766  
Centroid-sig: 1.9%  
Centroid-so: 0.842 arcsec [1.97σ]  
OotOffset-rm: 0.467 arcsec [0.65σ]  
KicOffset-rm: 0.458 arcsec [0.78σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.81 [13/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 09:22:01 Z

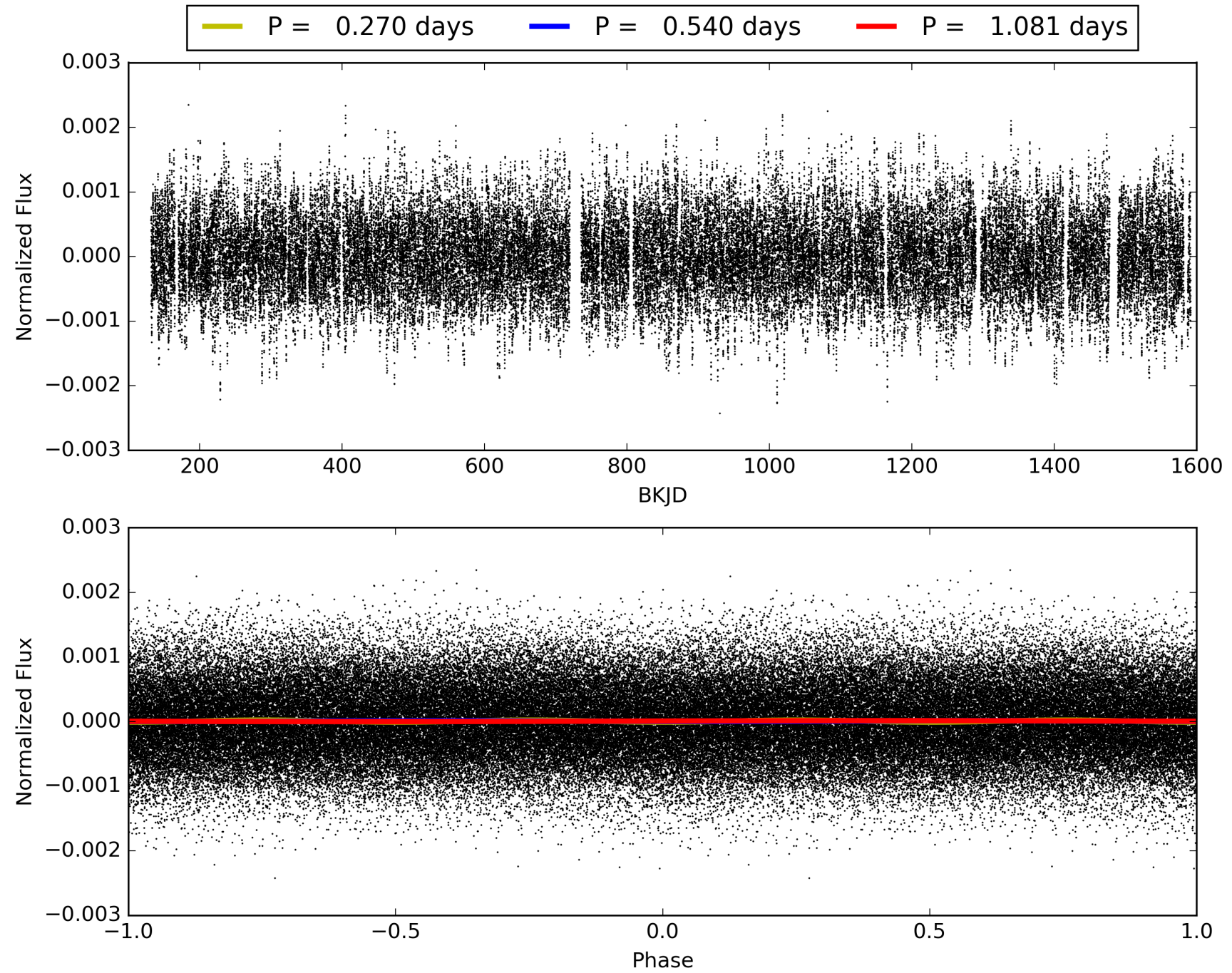
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 002164165-01, PDC Light Curves



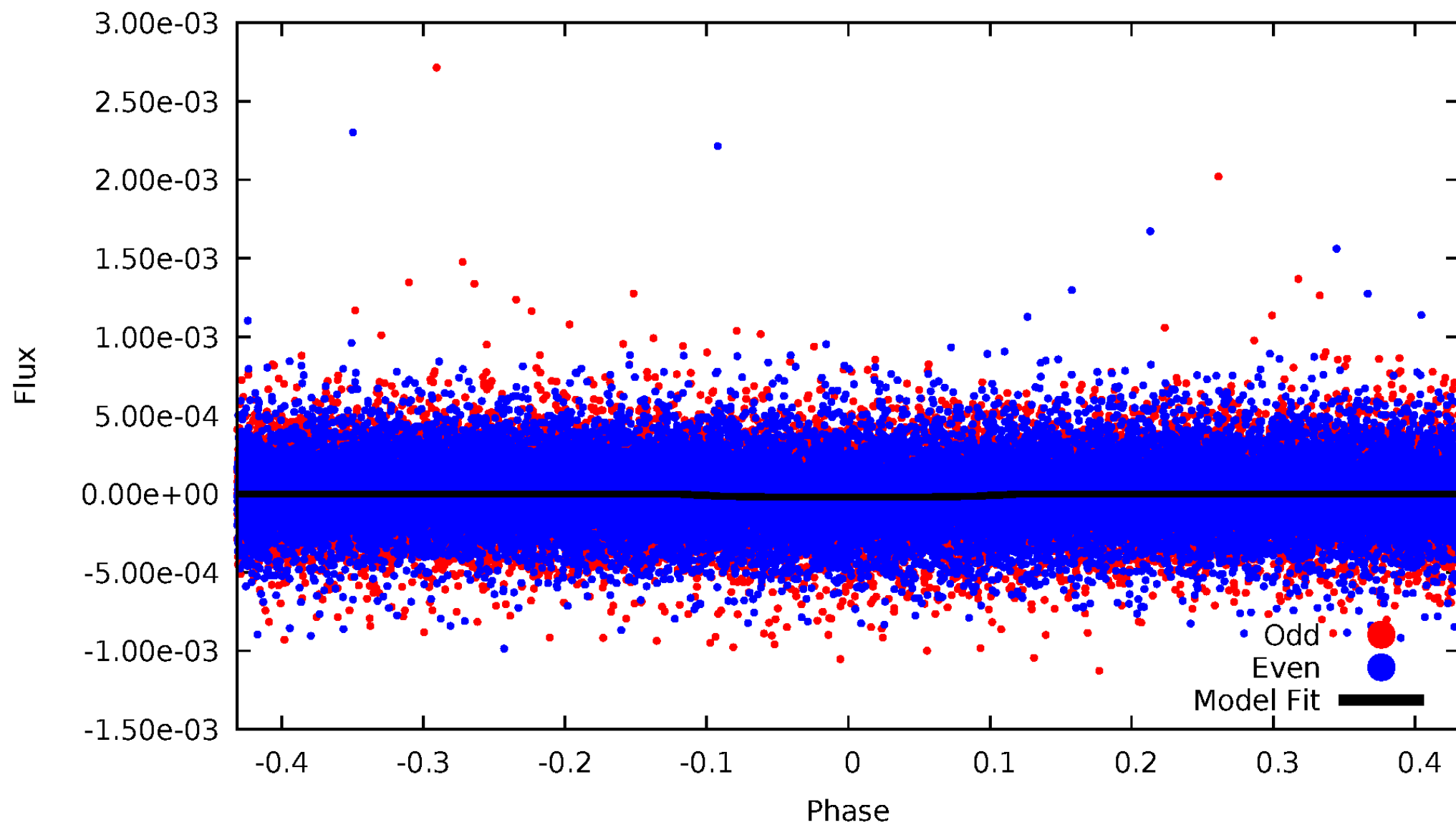


TCE 002164165-01



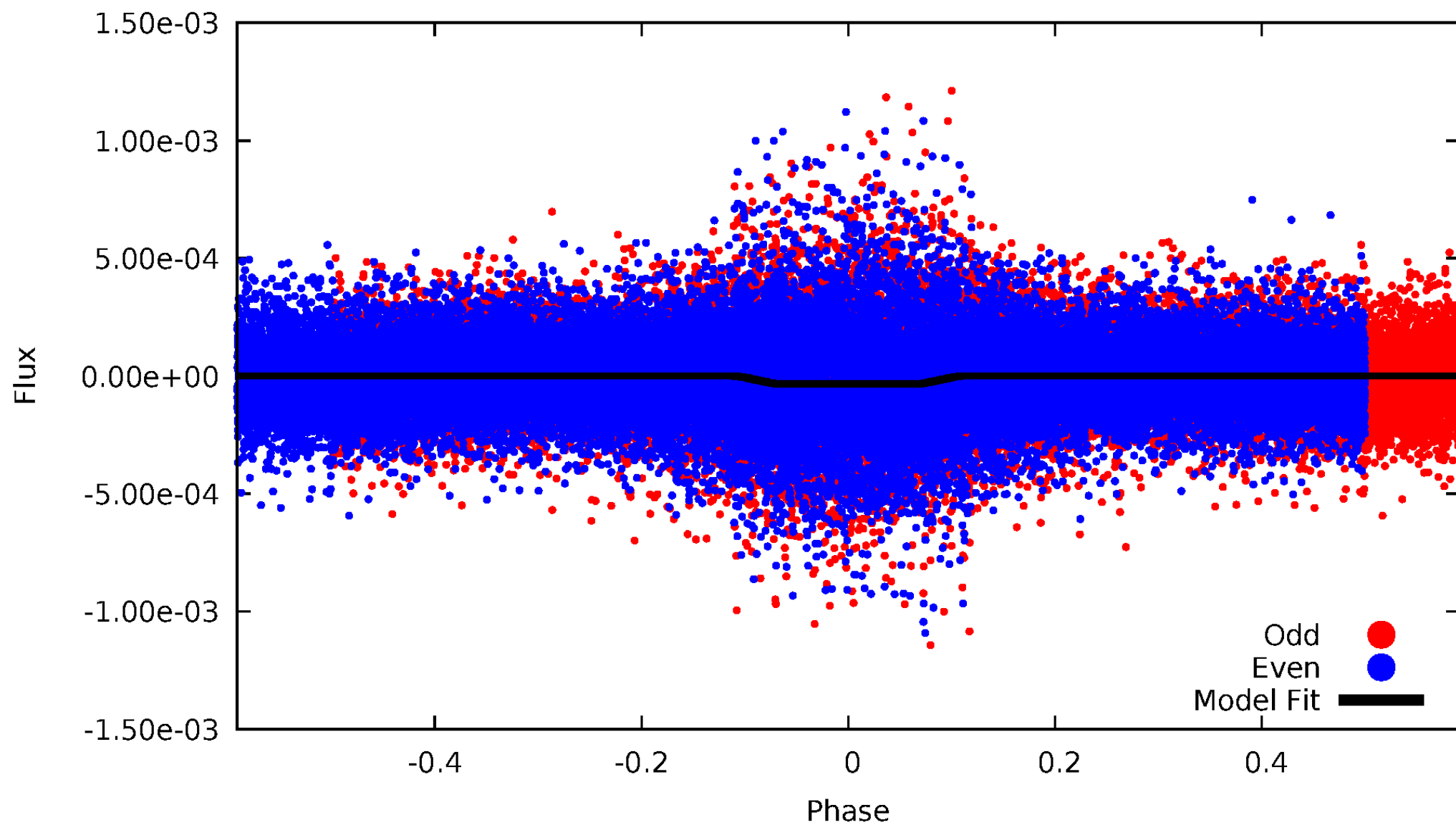
# DV Odd/Even

TCE 002164165-01

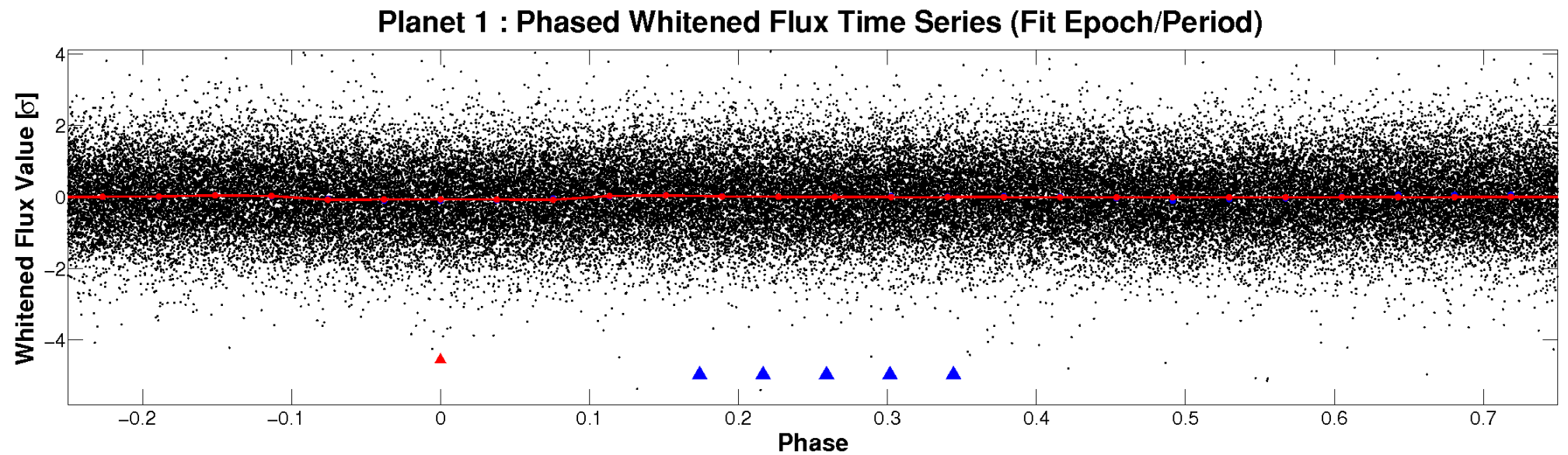
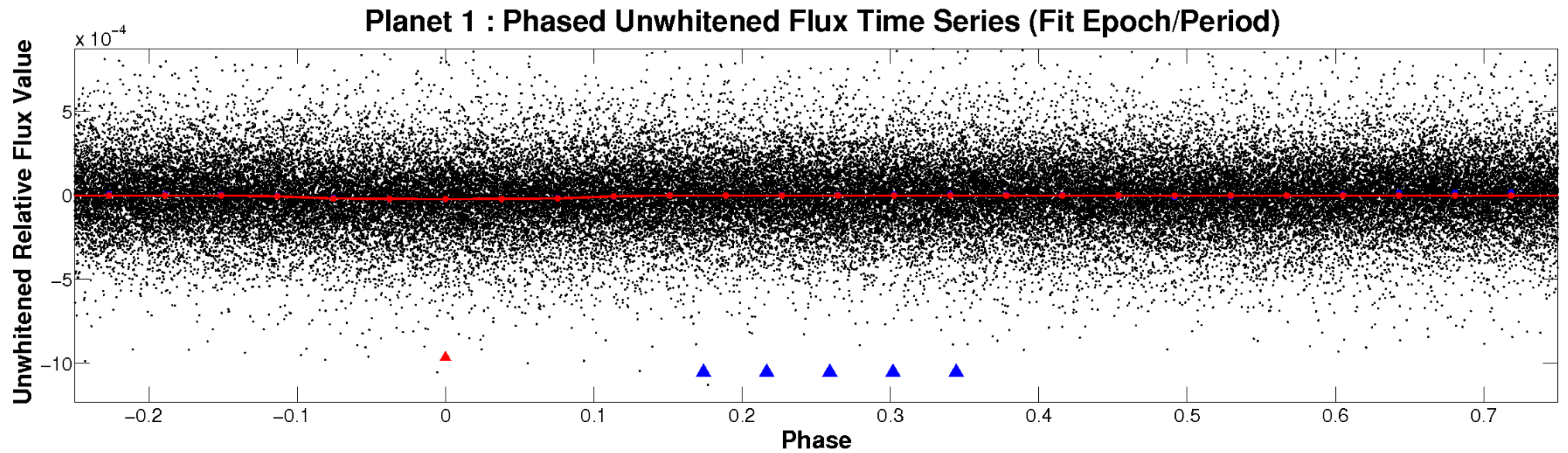


# ALT Odd/Even

TCE 002164165-01



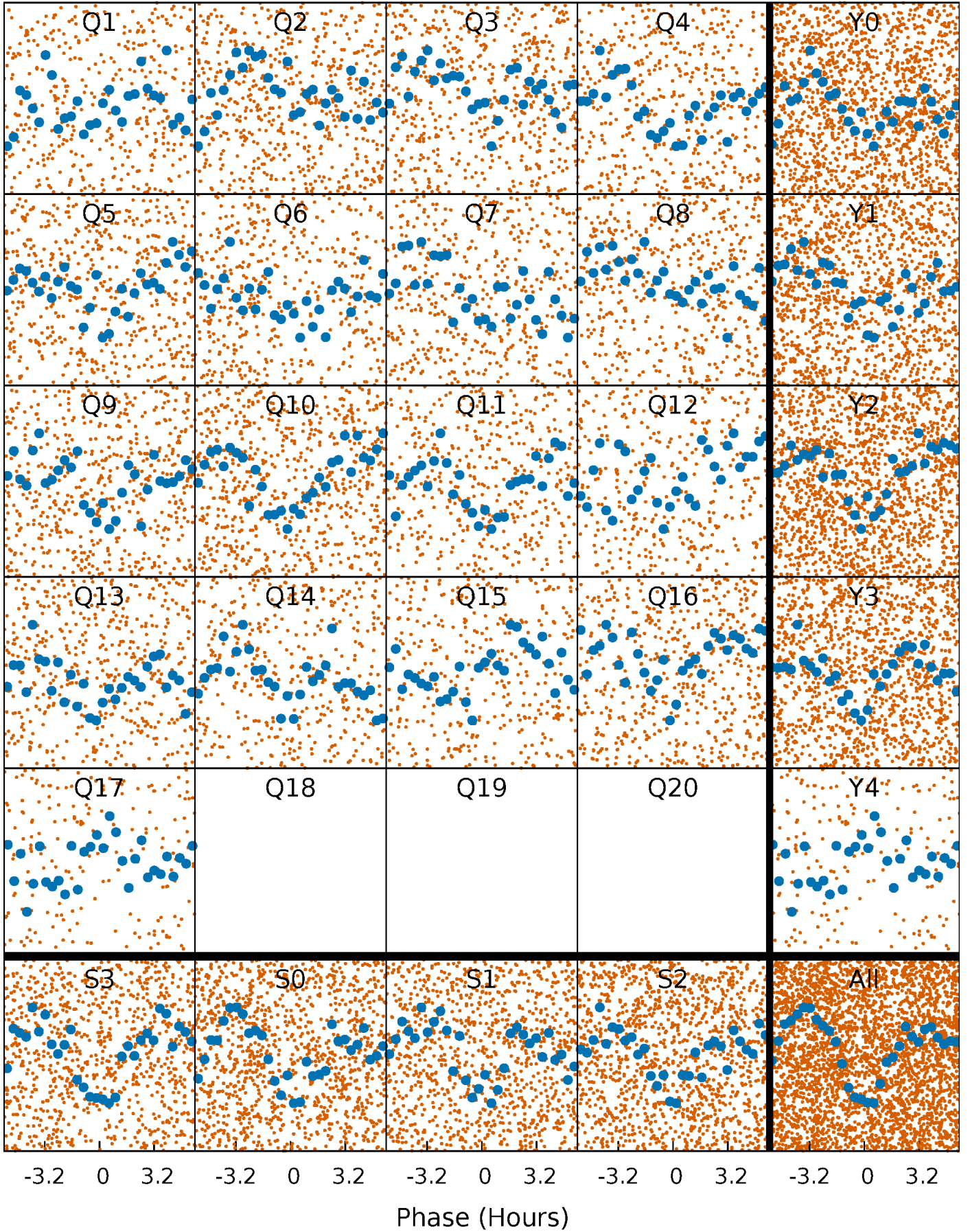
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

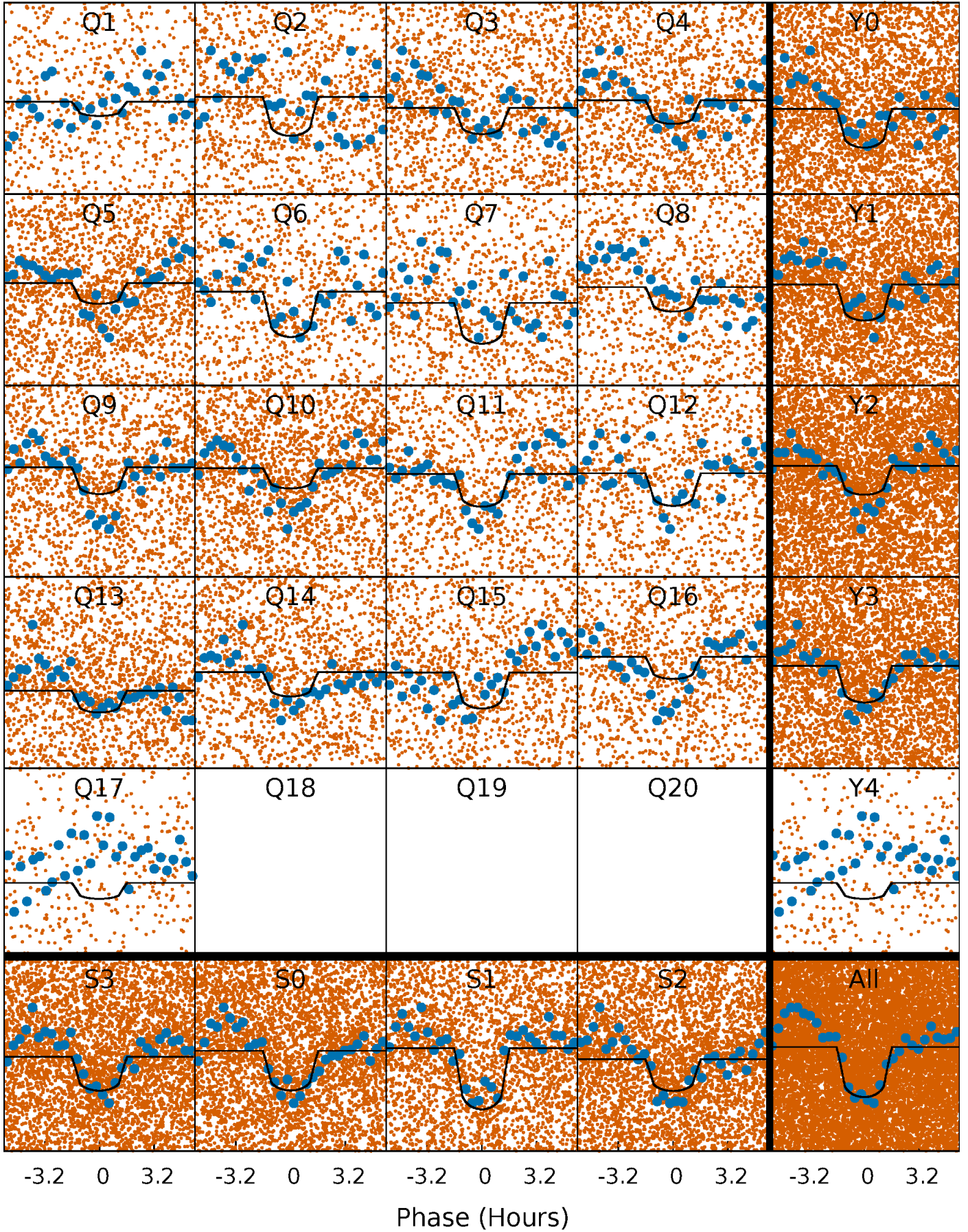
TCE 002164165-01   P= 0.540373 Days    $T_0=131.617745$  (BKJD)





# DV Quarter-Phased Transit Curves

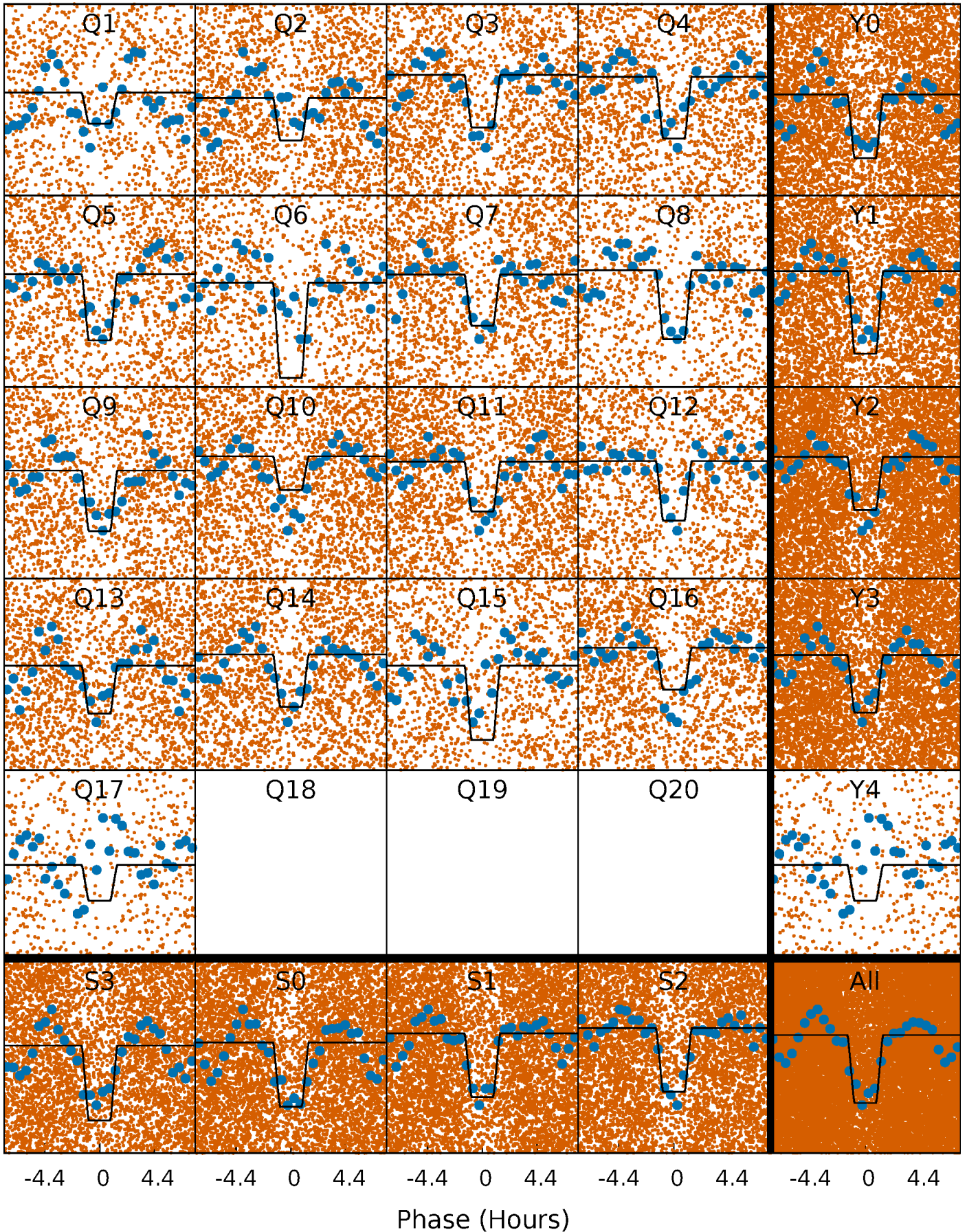
TCE 002164165-01 P= 0.540373 Days  $T_0=131.617745$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

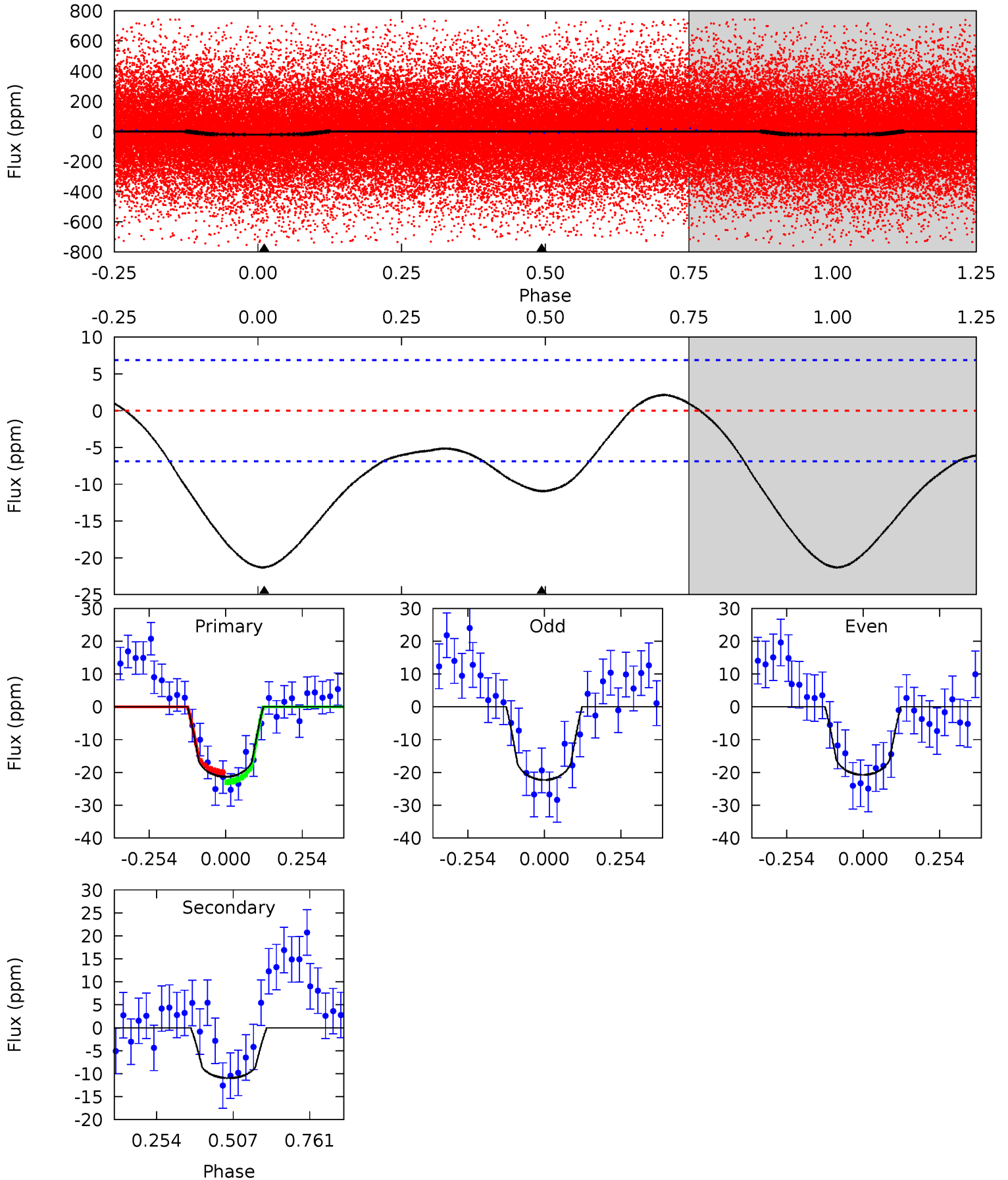
TCE 002164165-01 P= 0.540362 Days  $T_0=131.633070$  (BKJD)



# DV Model-Shift Uniqueness Test

002164165-01, P = 0.540373 Days, E = 131.077372 Days

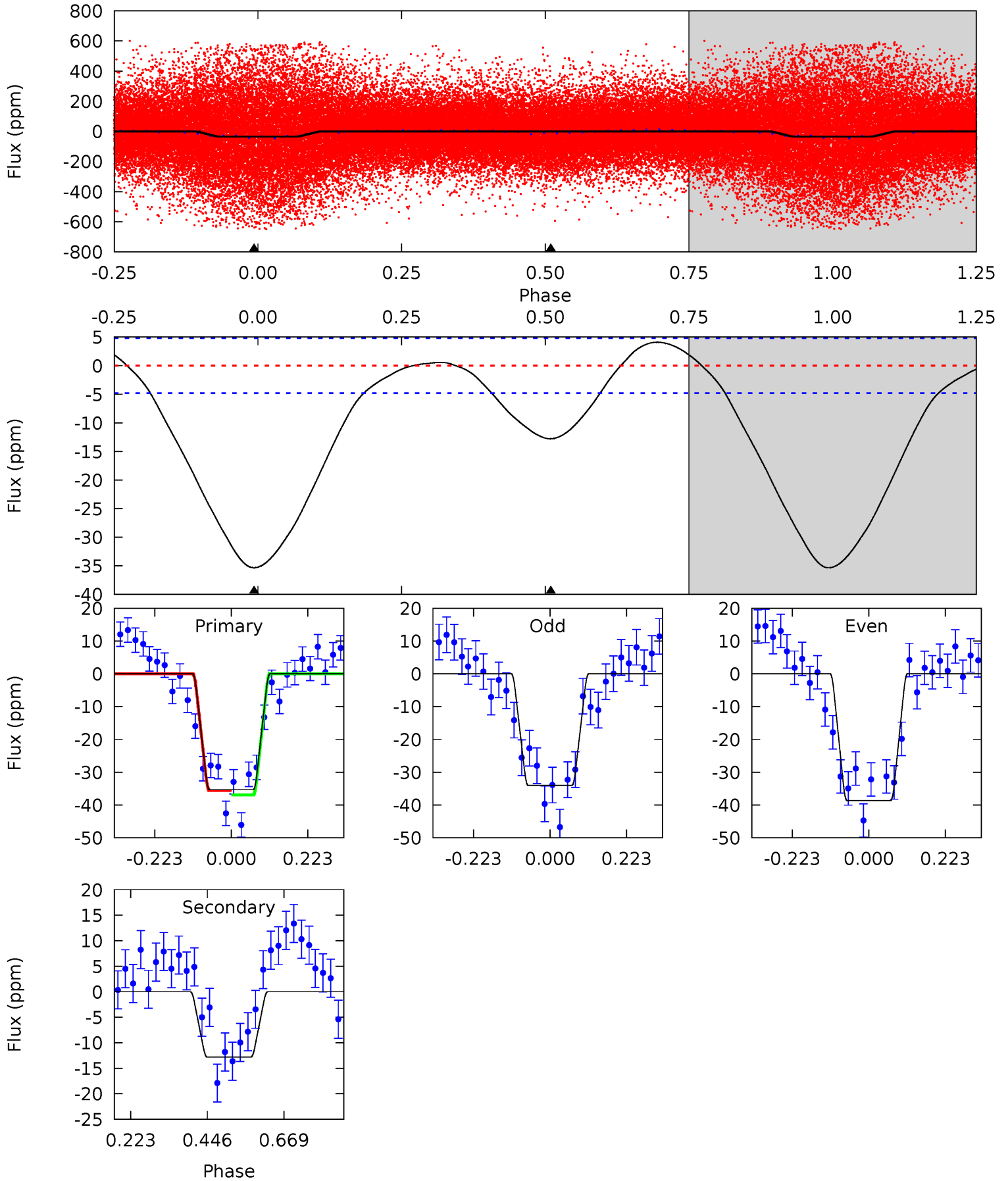
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	6.97	0	0	4.37	1.14	2.08	13.6	13.6	6.97	6.97	0.50	1.12	0.09	0.93



# Alt Model-Shift Uniqueness Test

002164165-01, P = 0.540362 Days, E = 131.092708 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
32.1	11.6	0	0	4.39	1.22	1.30	32.1	32.1	11.6	11.6	2.09	0.85	0.10	0.61





### Stellar Parameters For KIC 002164165

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7135^{+169}_{-253}$	$3.267^{+0.450}_{-0.150}$	$0.070^{+0.200}_{-0.300}$	$6.122^{+1.596}_{-3.192}$	$2.525^{+0.227}_{-0.680}$	$0.015^{+0.078}_{-0.006}$
	+2%/-4%	+14%/-5%	+286%/-429%	+26%/-52%	+9%/-27%	+503%/-41%
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 002164165-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-11 \pm 2$	$2.58^{+1.33}_{-1.07}$	$7957^{+667}_{-1011}$	$-3817^{+10612}_{-2069}$	$0.271^{+0.480}_{-0.149}$
Alt.	$-13 \pm 1$	$3.65^{+1.32}_{-1.31}$	$8037^{+663}_{-972}$	$-5321^{+9739}_{-962}$	$0.164^{+0.220}_{-0.076}$

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

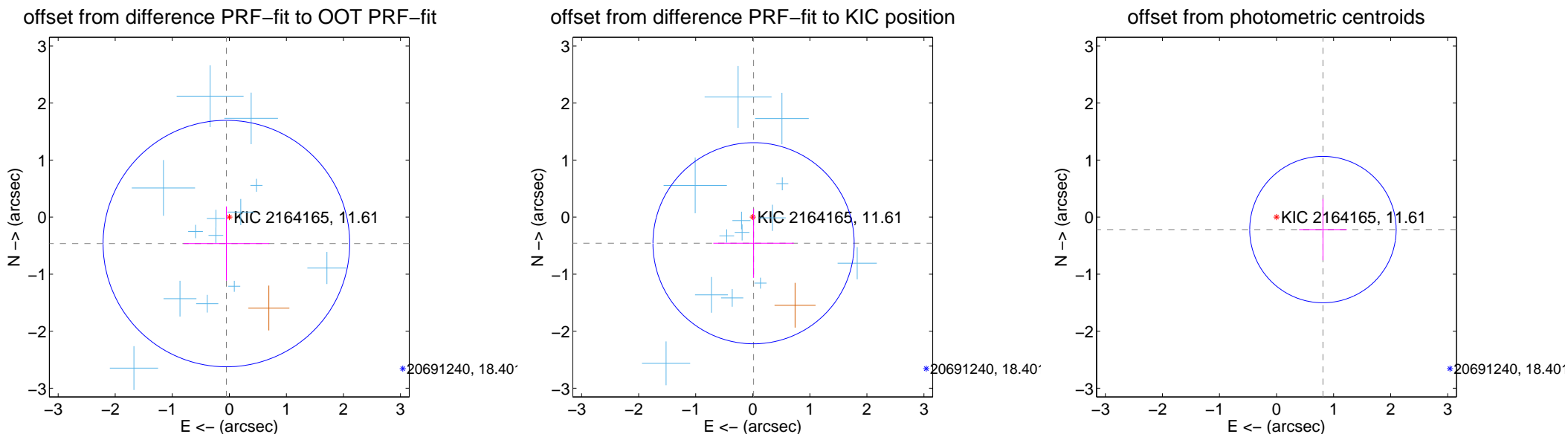
## DV Centroid Data

Supplemental centroid analysis for 002164165-01. **Kepler magnitude: 11.61.** Transit SNR 9.24

There are 13 quarters with good PRF difference image offsets

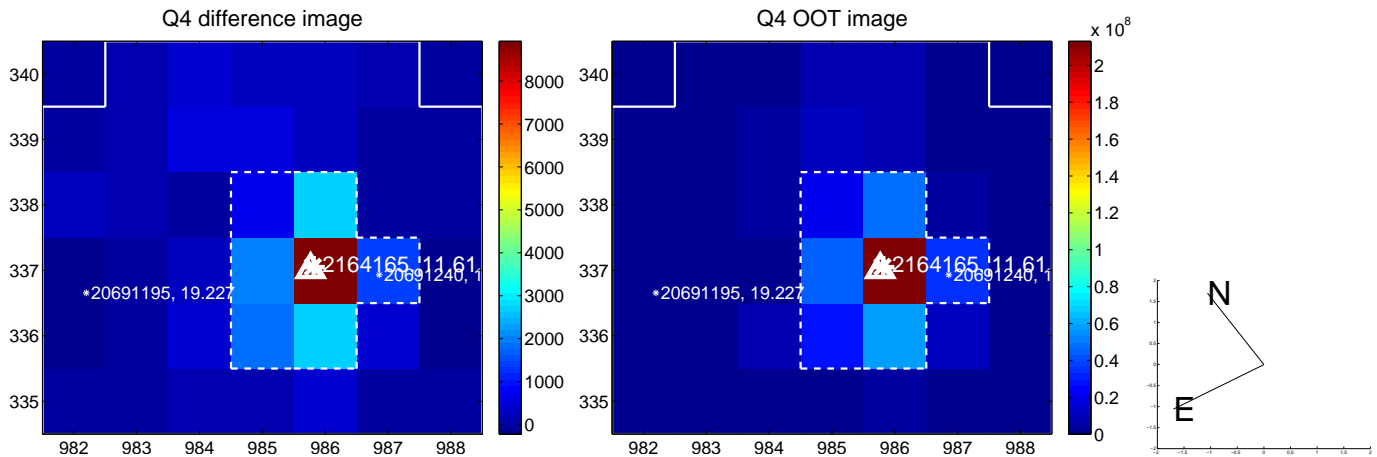
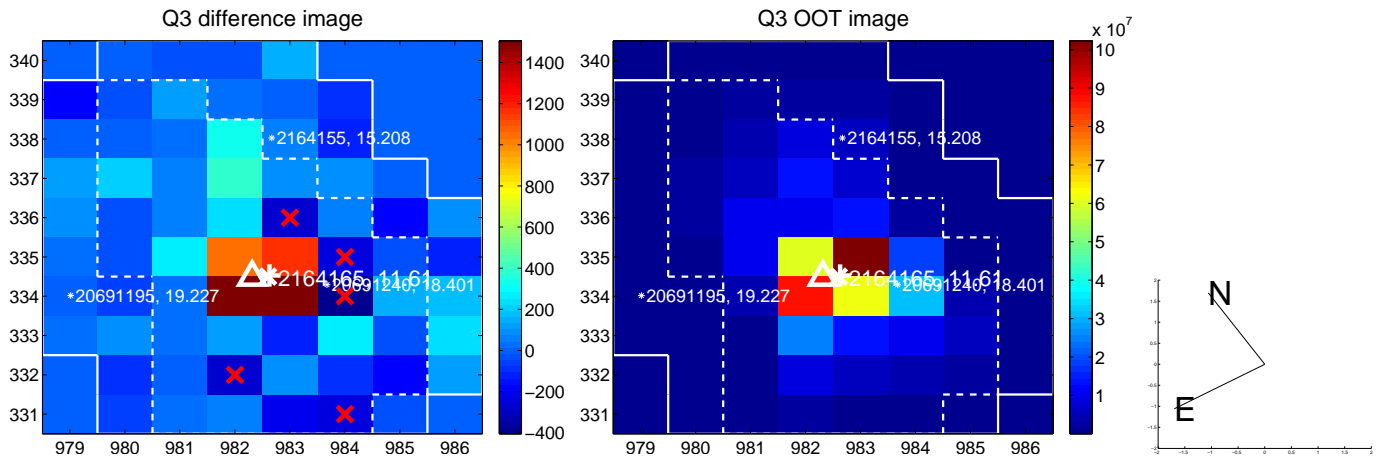
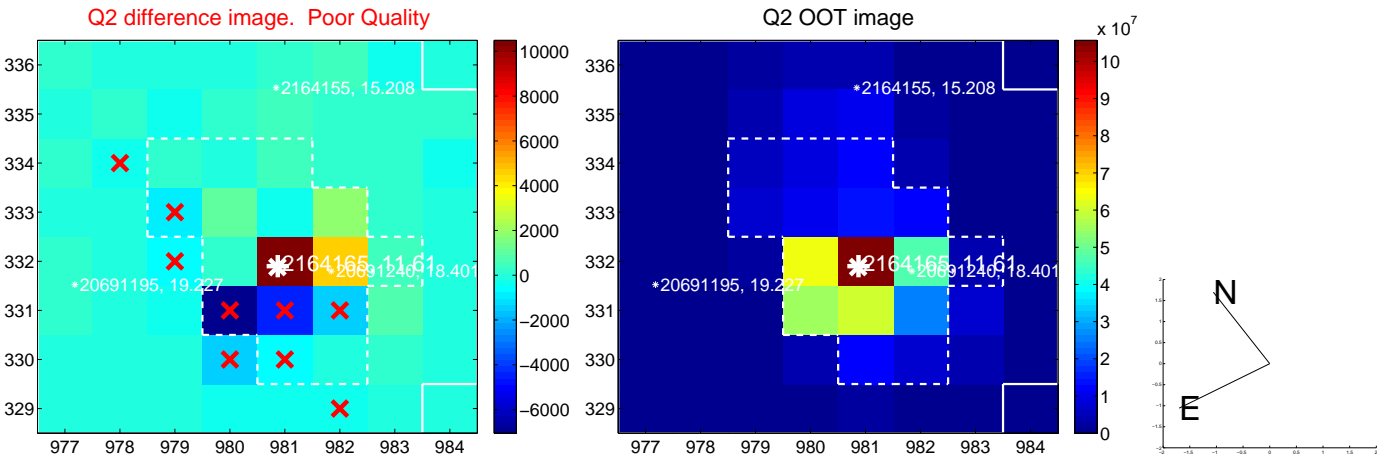
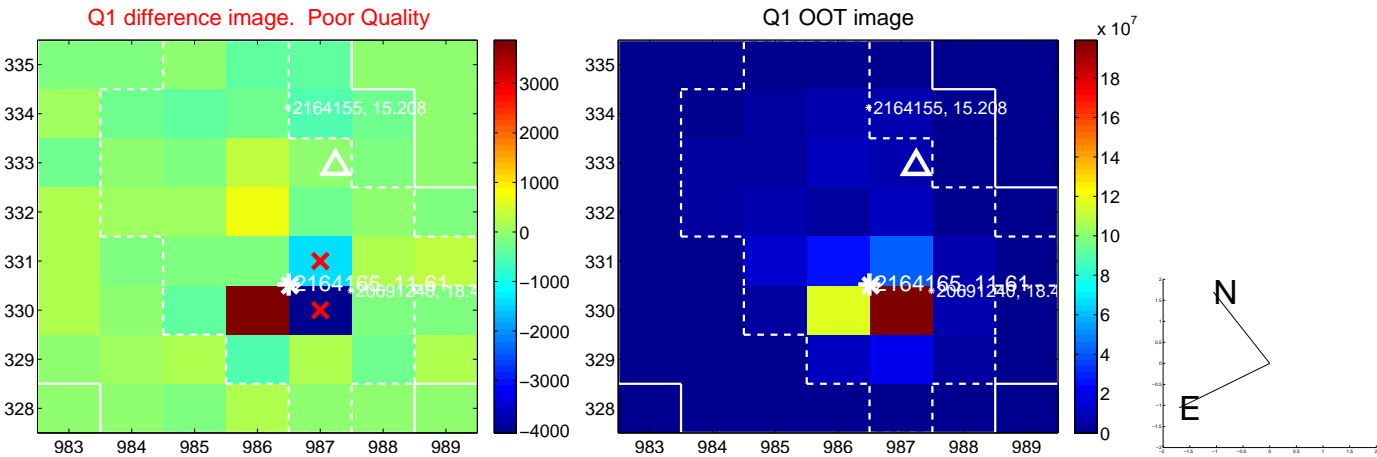
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.467 \pm 0.720$	0.65	$0.051 \pm 0.752$	$-0.464 \pm 0.651$
PRF-fit source offset from KIC position	$0.458 \pm 0.588$	0.78	$-0.014 \pm 0.706$	$-0.458 \pm 0.606$
photometric centroid source offset	$0.84 \pm 0.43$	1.97	$-0.81 \pm 0.42$	$-0.22 \pm 0.54$

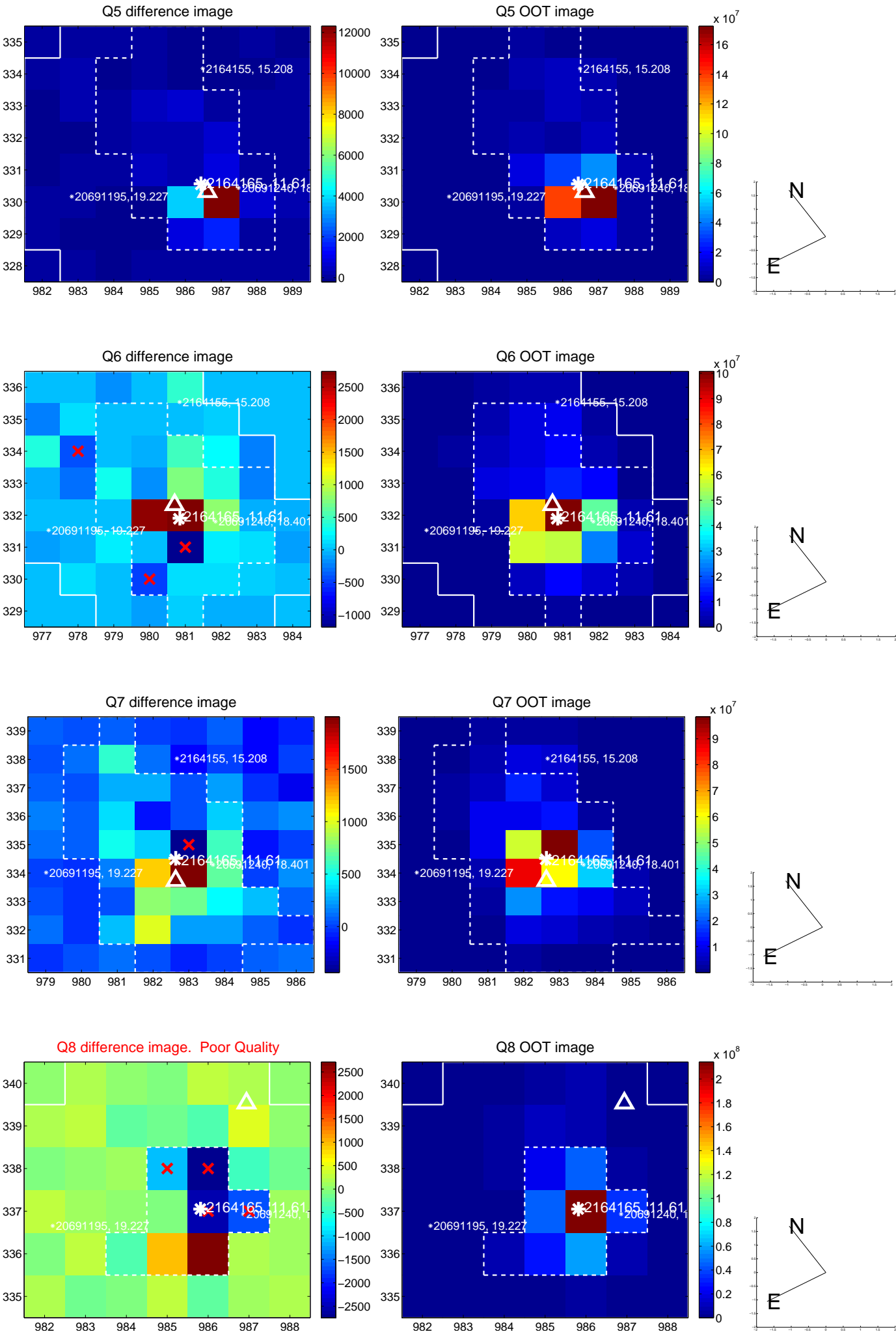


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

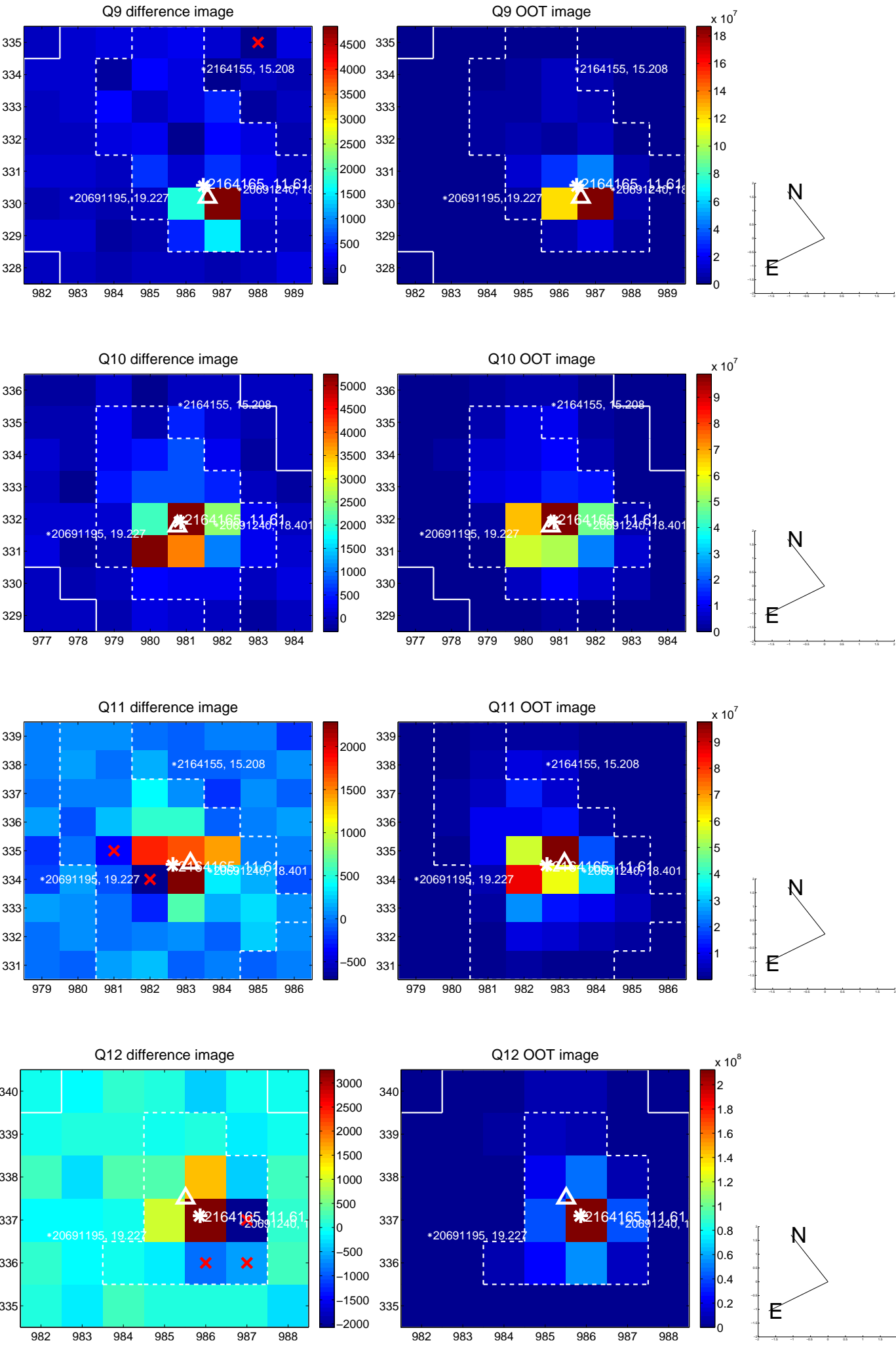


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

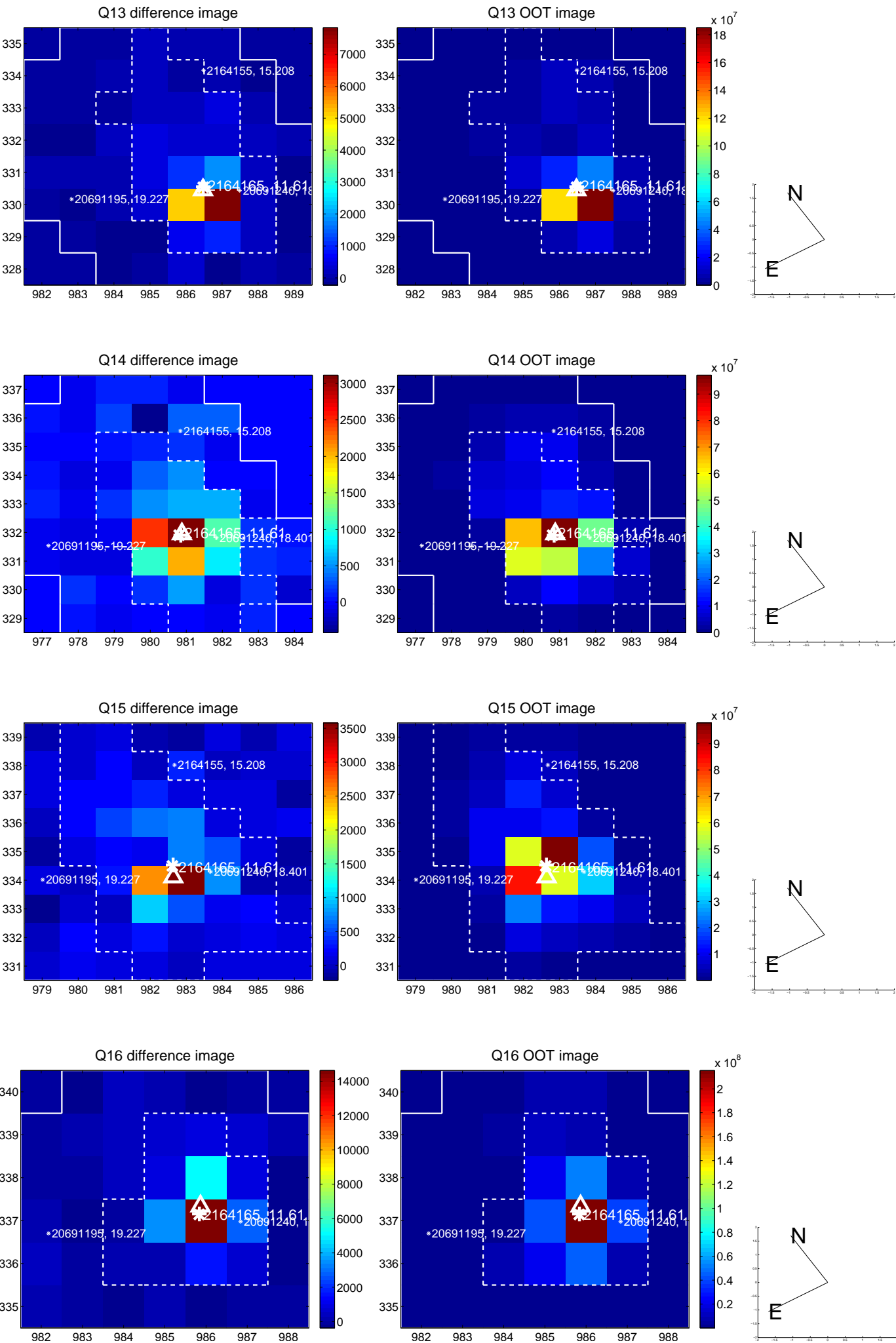




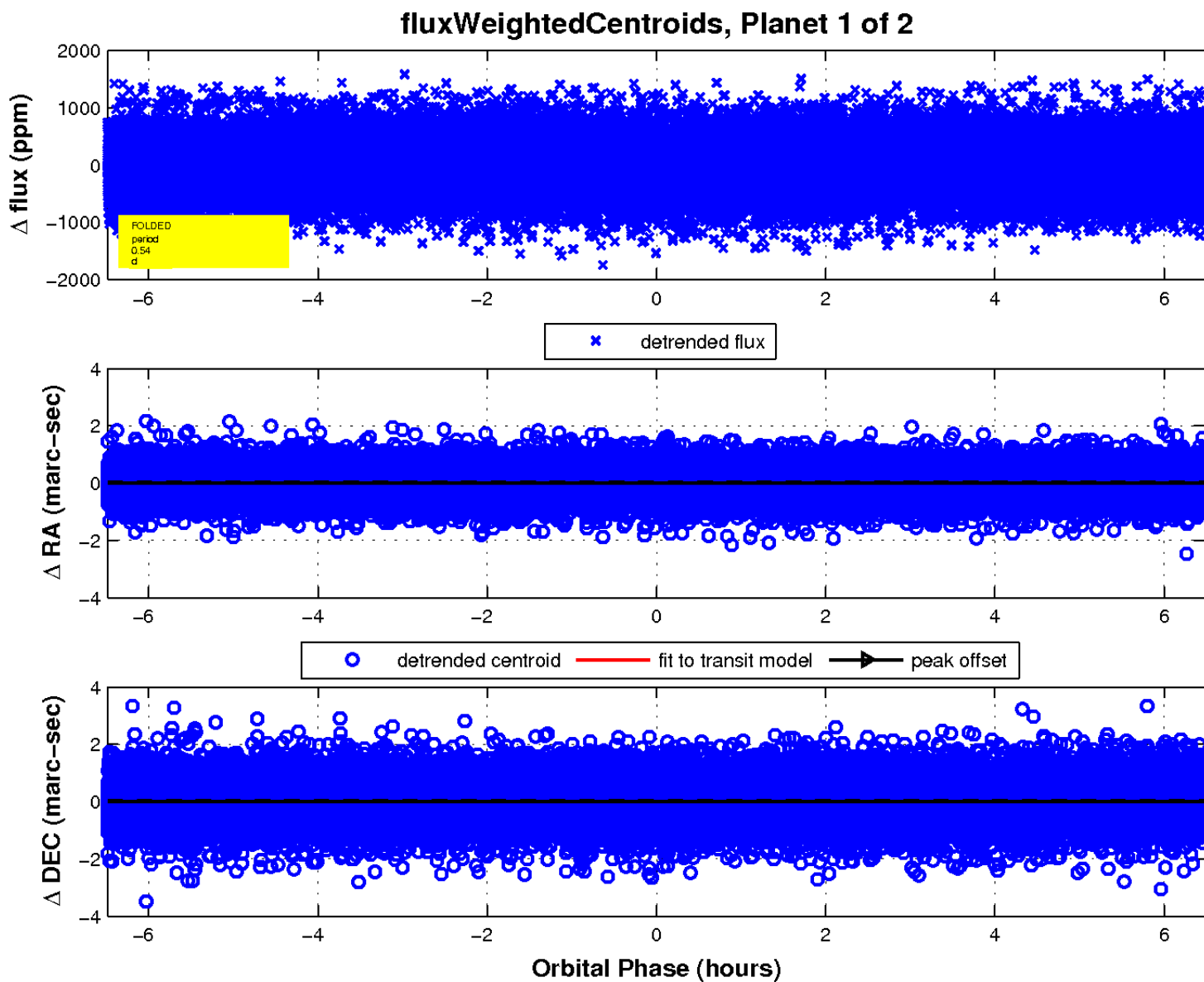
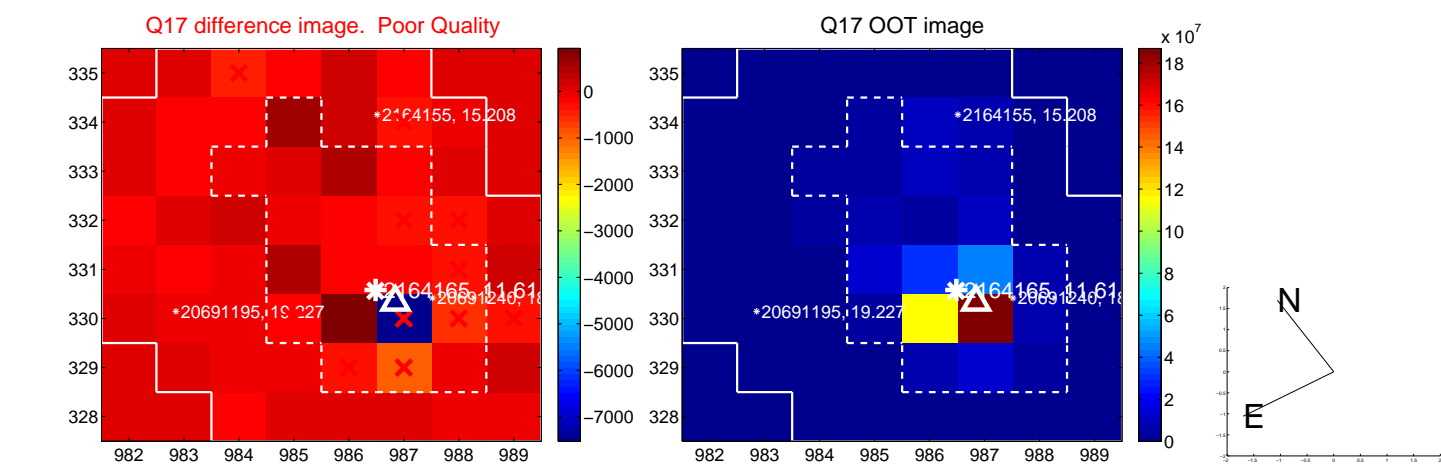
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

