

# KIC 009304698

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009304698-01	OBS	No	1.208243	131.858716	9.7	13.484	12.8	1.9	1.21	5967	0.37	2989.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009304698-01	OBS	FP	0.00	1	0	0	0	<del>SWEET_NTL</del> — <del>LPP_DV</del> — <del>CENT_FEW_DIFFS</del>

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

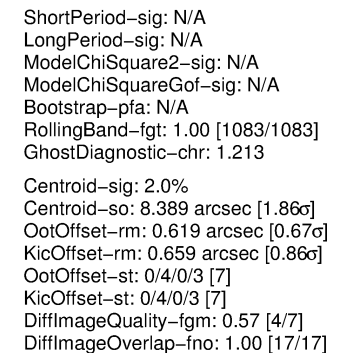
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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.

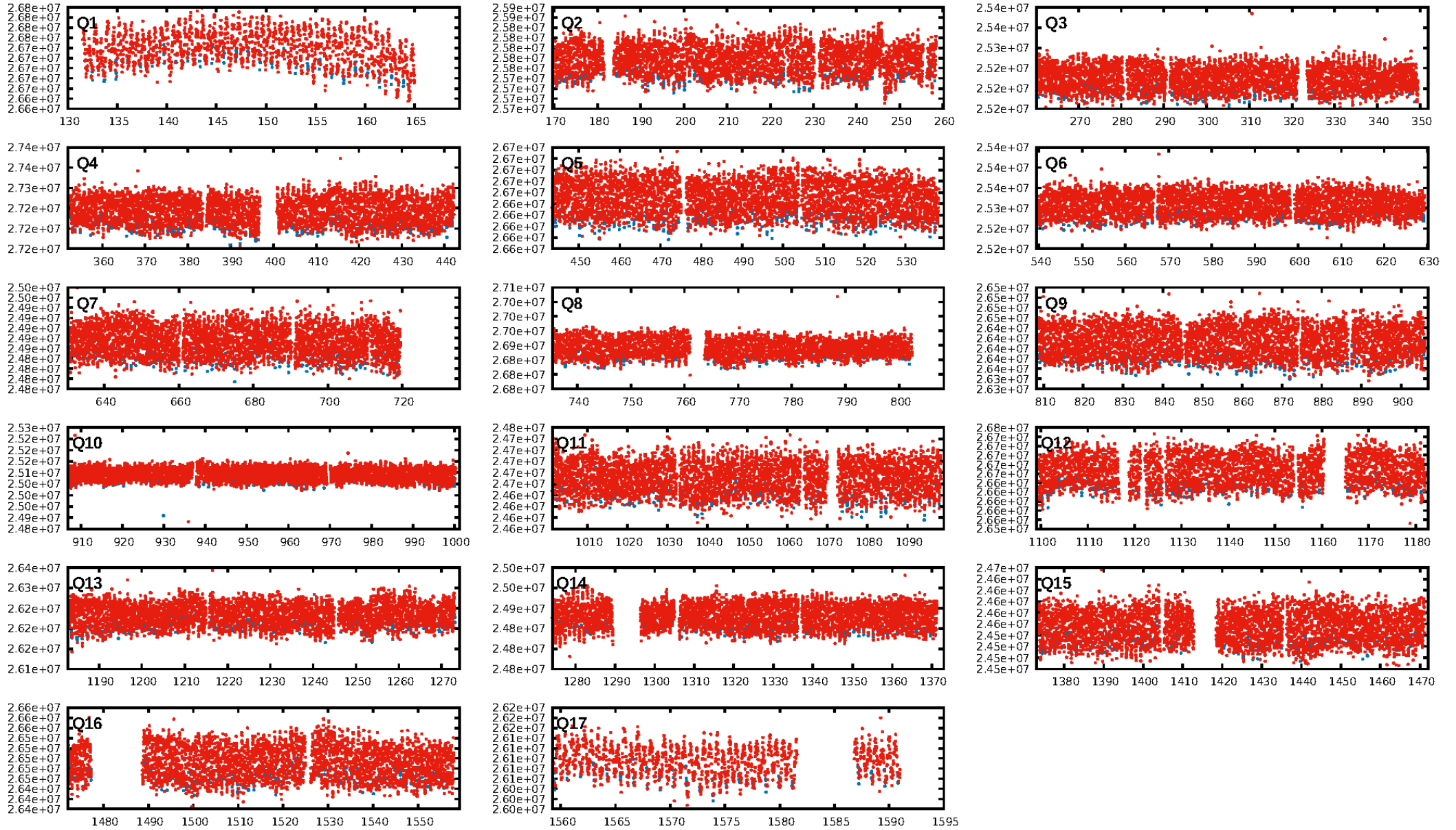
## Ephemeris Match Information For 009304698-01

No Significant Match Found

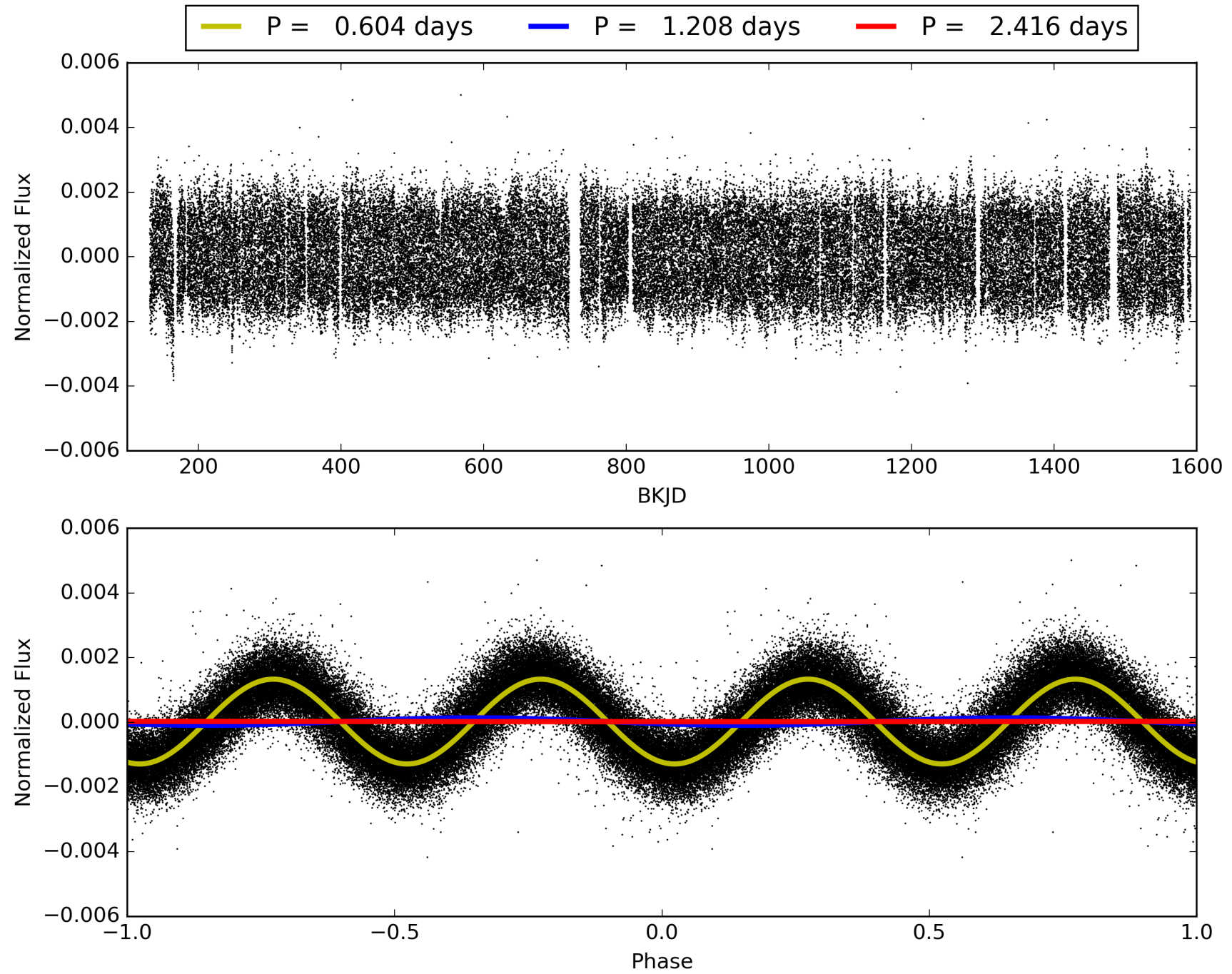
## KIC: 9304698    Candidate: 1 of 1    Period: 1.208 d



# TCE 009304698-01, PDC Light Curves

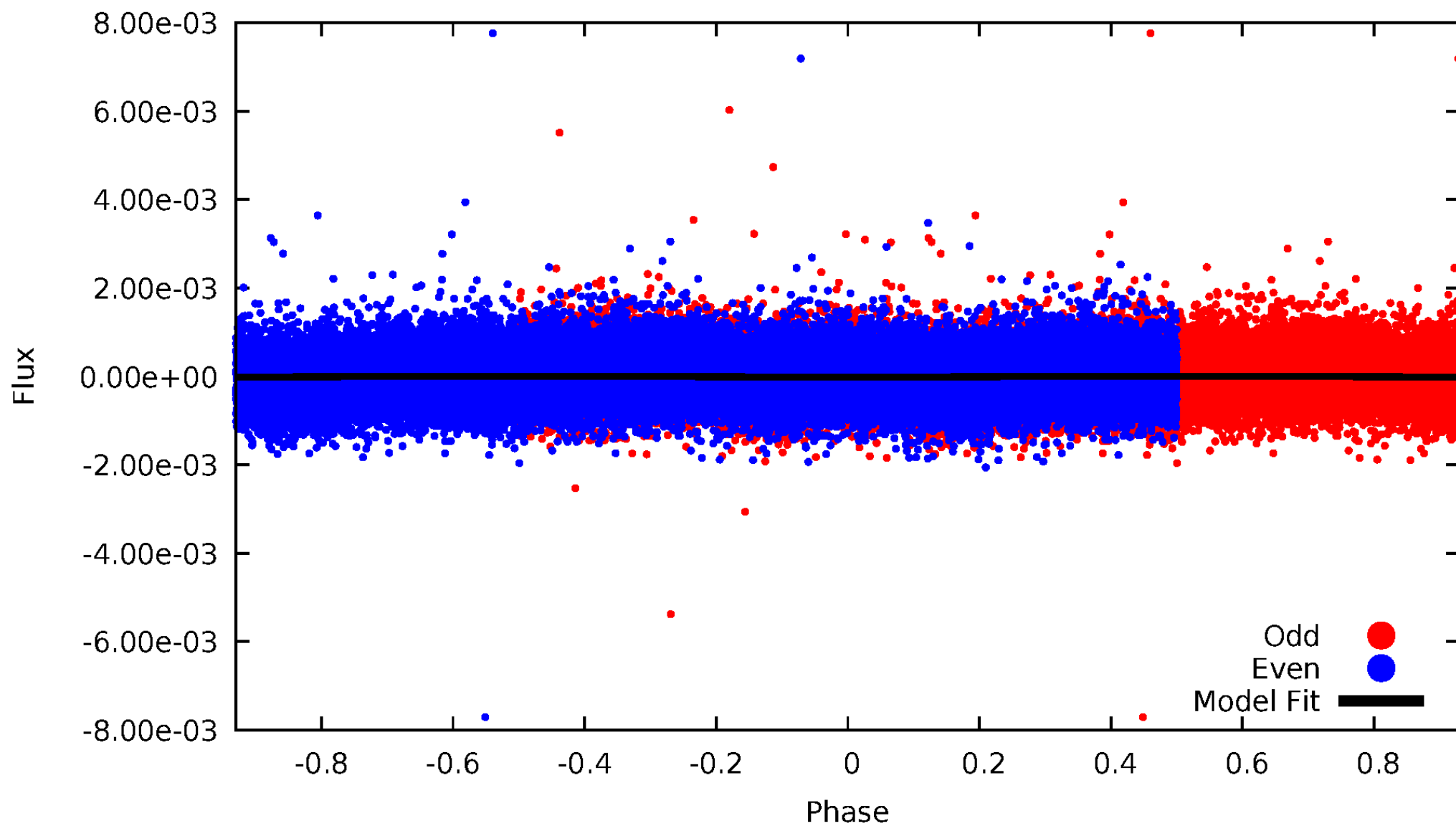


TCE 009304698-01



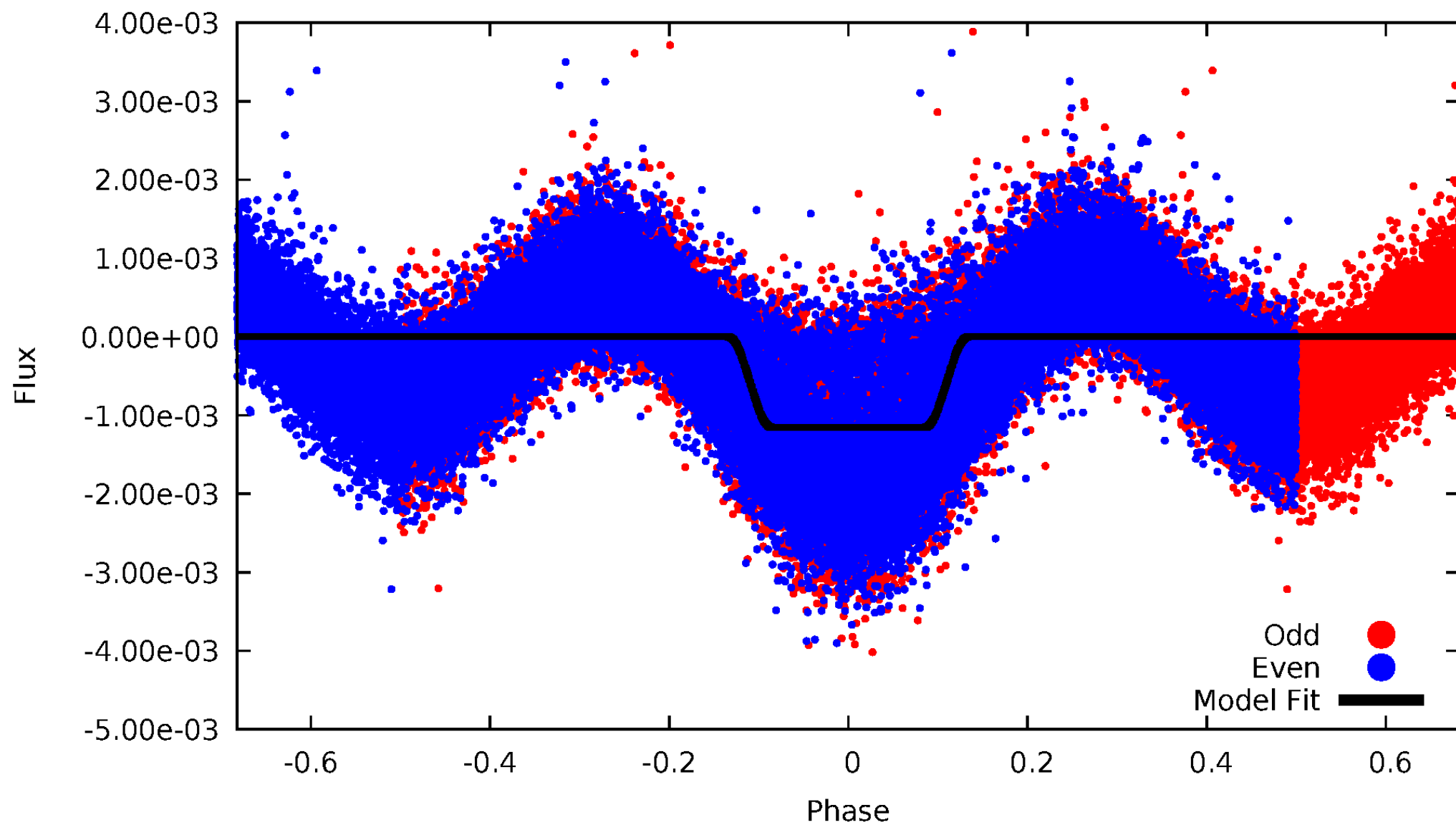
# DV Odd/Even

TCE 009304698-01



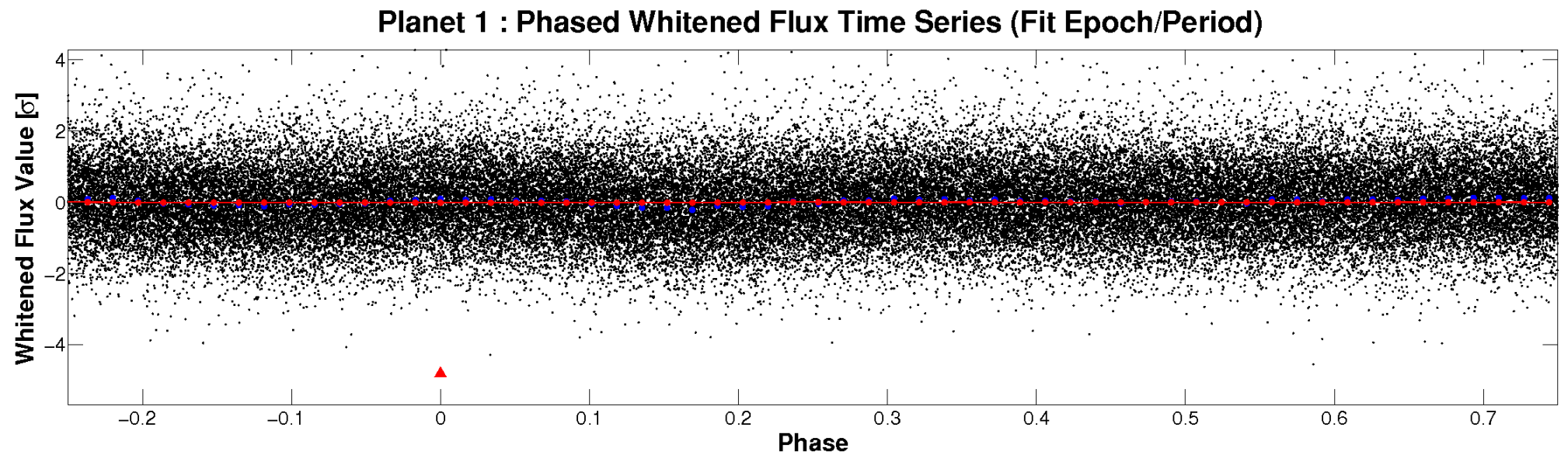
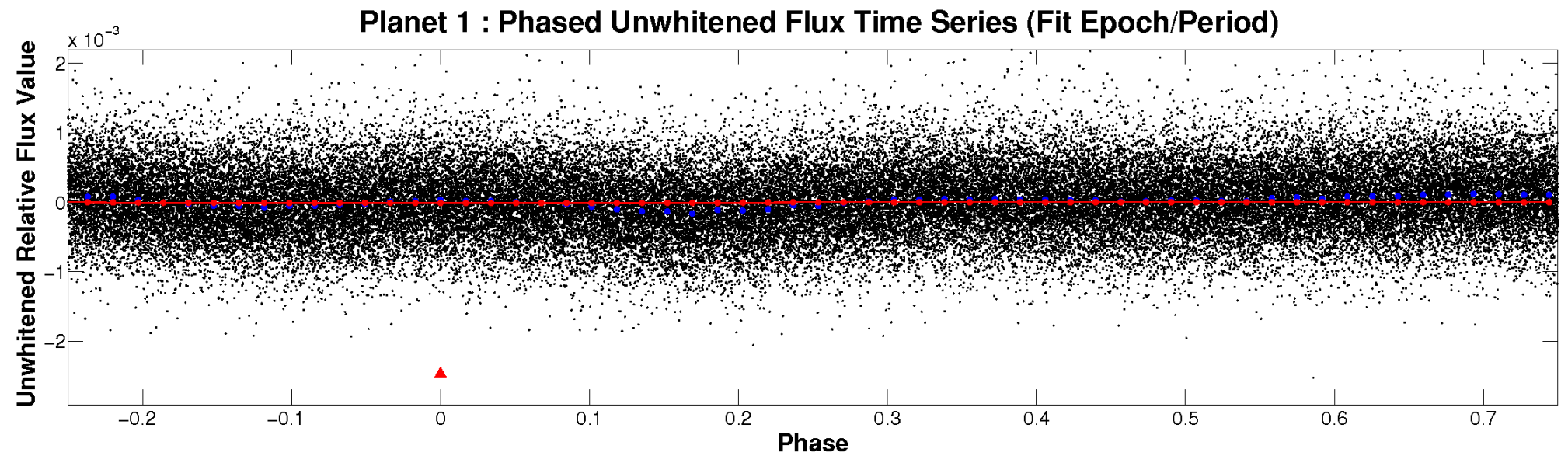
# ALT Odd/Even

TCE 009304698-01



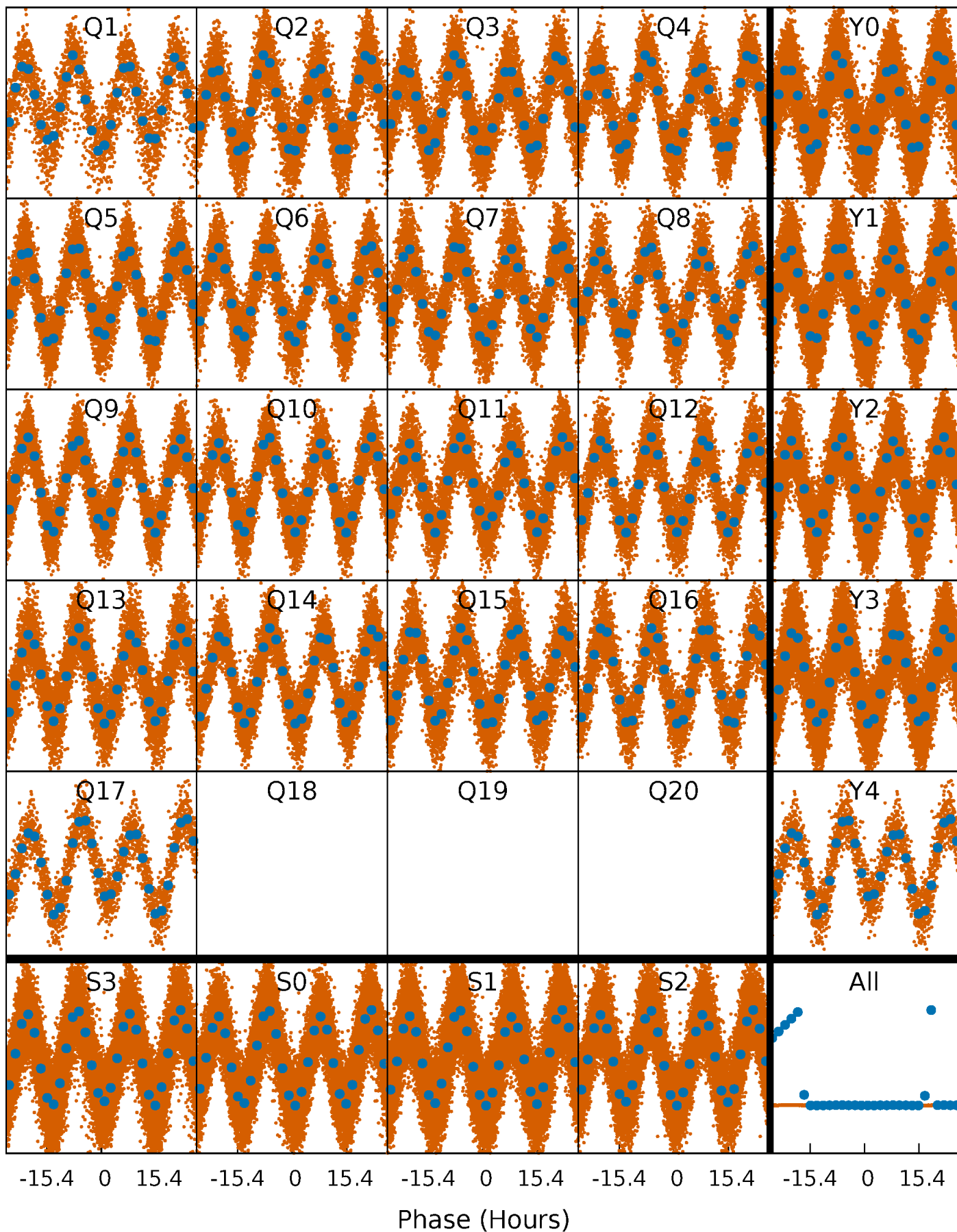


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

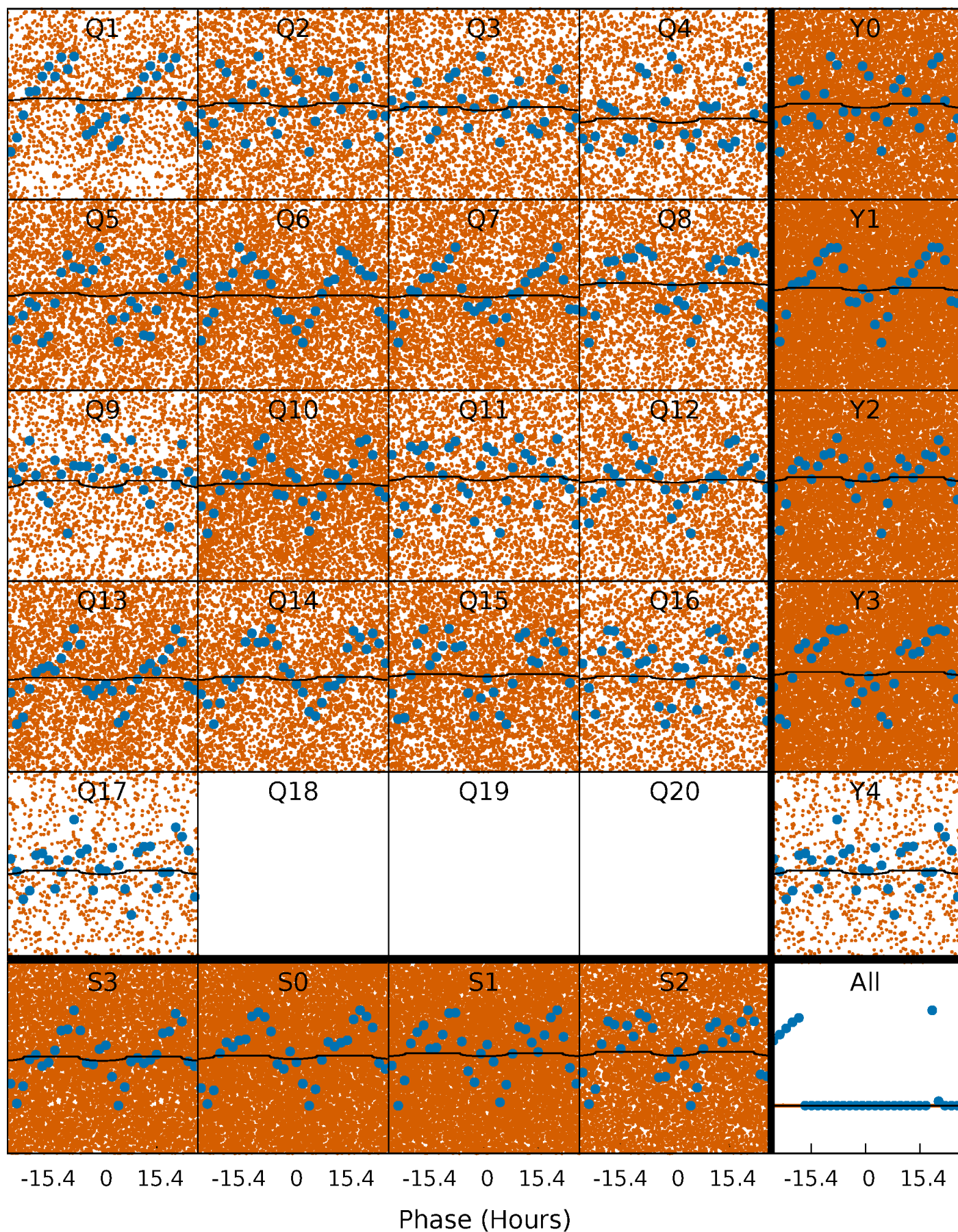
TCE 009304698-01   P= 1.208243 Days    $T_0=131.858716$  (BKJD)





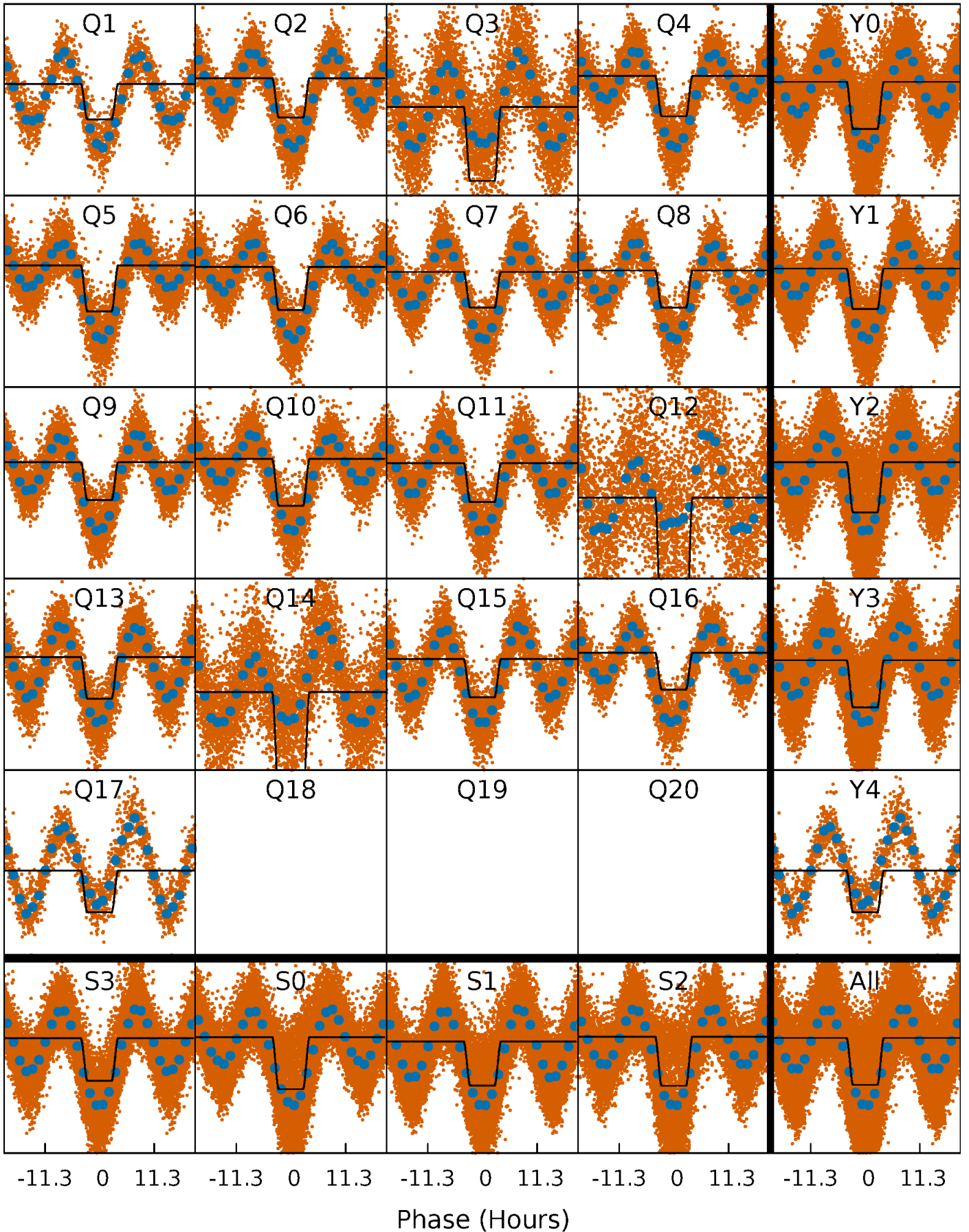
# DV Quarter-Phased Transit Curves

TCE 009304698-01   P= 1.208243 Days    $T_0=131.858716$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

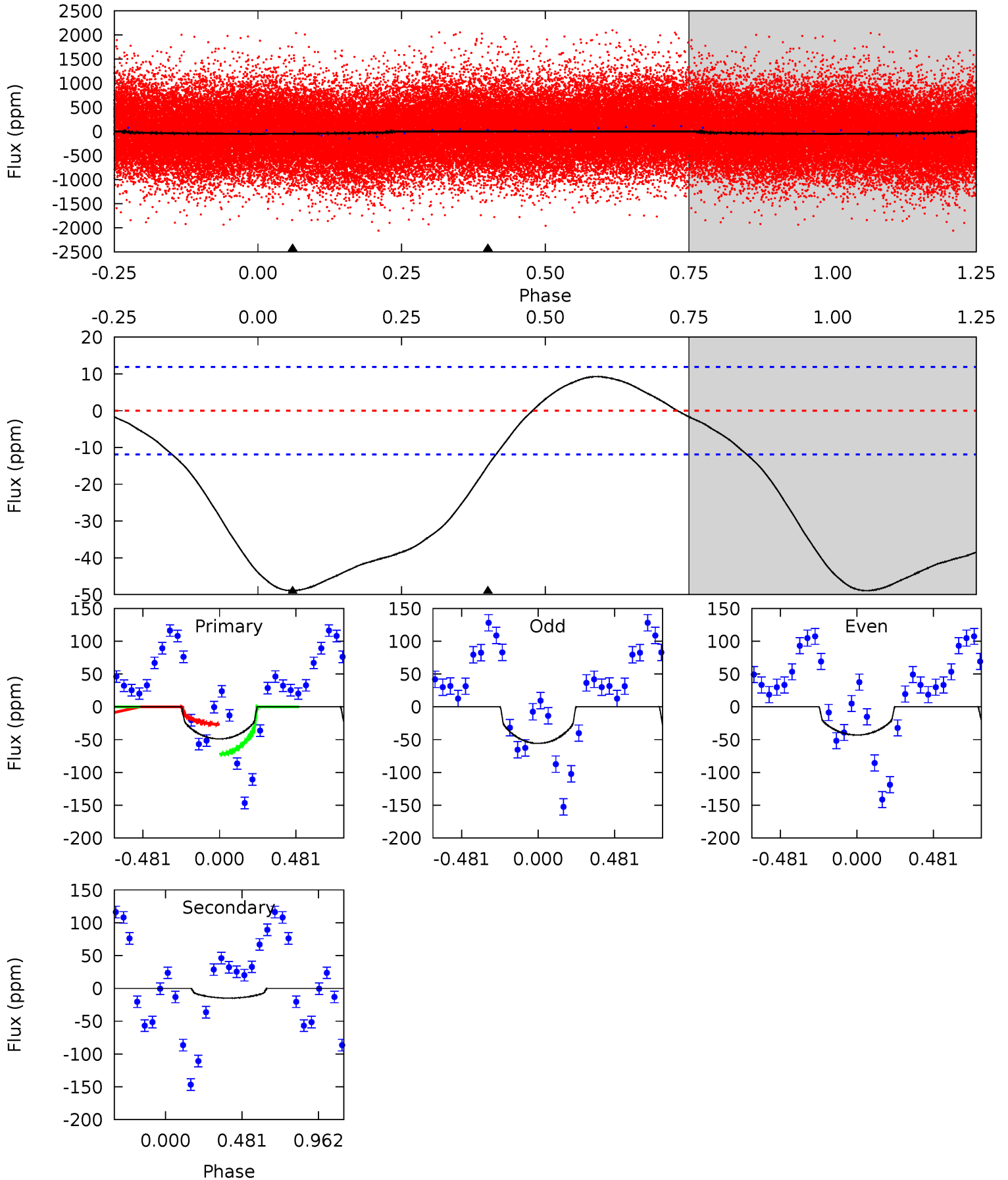
TCE 009304698-01   P= 1.208337 Days    $T_0=131.829588$  (BKJD)



# DV Model-Shift Uniqueness Test

009304698-01, P = 1.208243 Days, E = 130.650473 Days

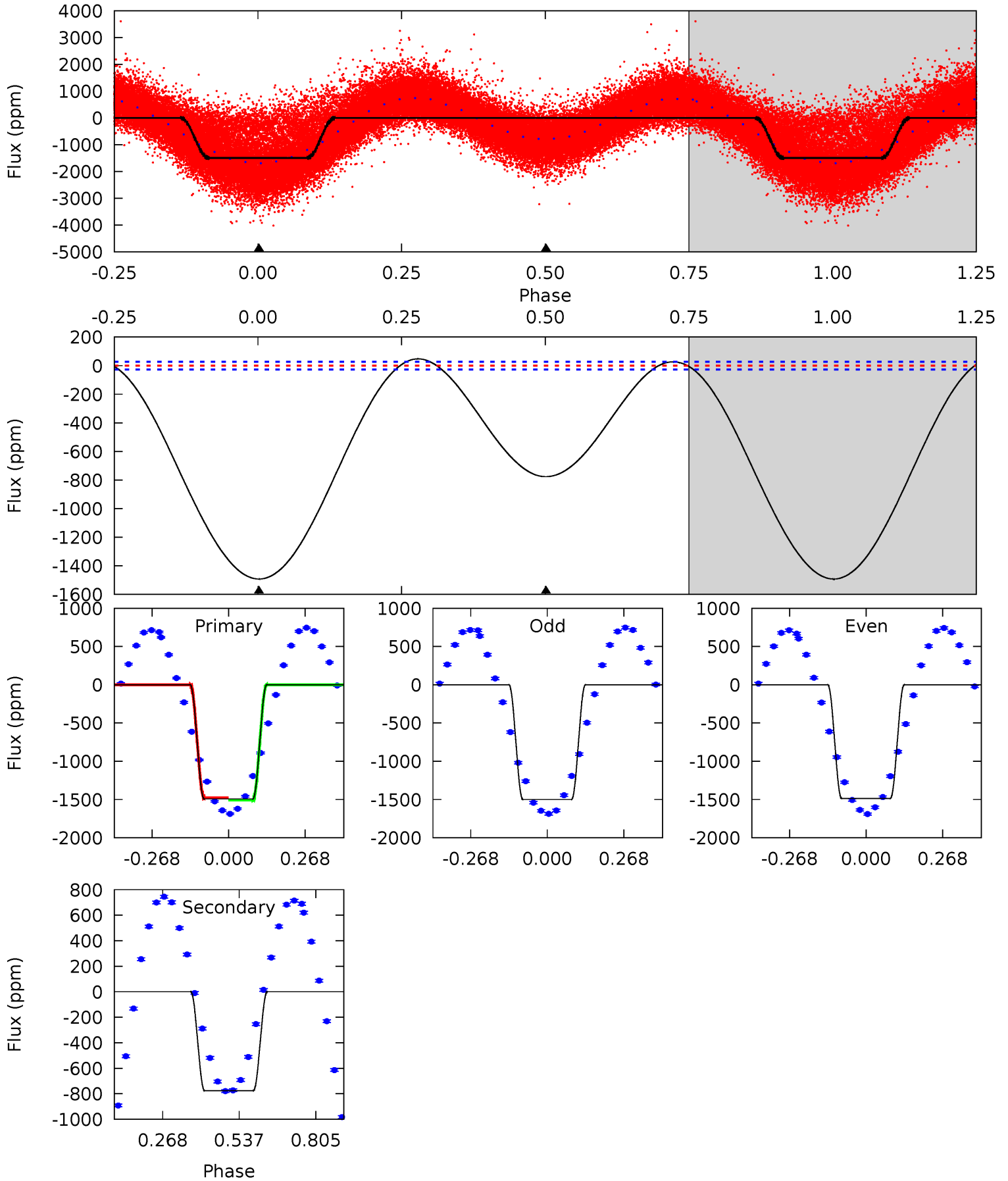
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	5.29	0	0	4.22	0.70	0.90	17.4	17.4	5.29	5.29	2.26	0.93	0.16	8.14



# Alt Model-Shift Uniqueness Test

009304698-01, P = 1.208337 Days, E = 130.621251 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
238.3	124.0	0	0	4.35	1.11	6.47	238.3	238.3	124.0	124.0	1.12	0.89	0.03	2.29





### Stellar Parameters For KIC 009304698

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5967^{+169}_{-232}$	$4.351^{+0.090}_{-0.210}$	$0.480^{+0.050}_{-0.300}$	$1.210^{+0.389}_{-0.167}$	$1.199^{+0.136}_{-0.151}$	$0.953^{+0.372}_{-0.510}$
	+3%/-4%	+2%/-5%	+10%/-62%	+32%/-14%	+11%/-13%	+39%/-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 009304698-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-15 \pm 3$	$1.10^{+1.04}_{-0.77}$	$2659^{+205}_{-141}$	$4294^{+3258}_{-1056}$	$3.773^{+37.087}_{-2.840}$
Alt.	$-776 \pm 6$	$4.65^{+1.54}_{-1.32}$	$2658^{+211}_{-146}$	$5330^{+965}_{-510}$	$11^{+10}_{-4}$

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



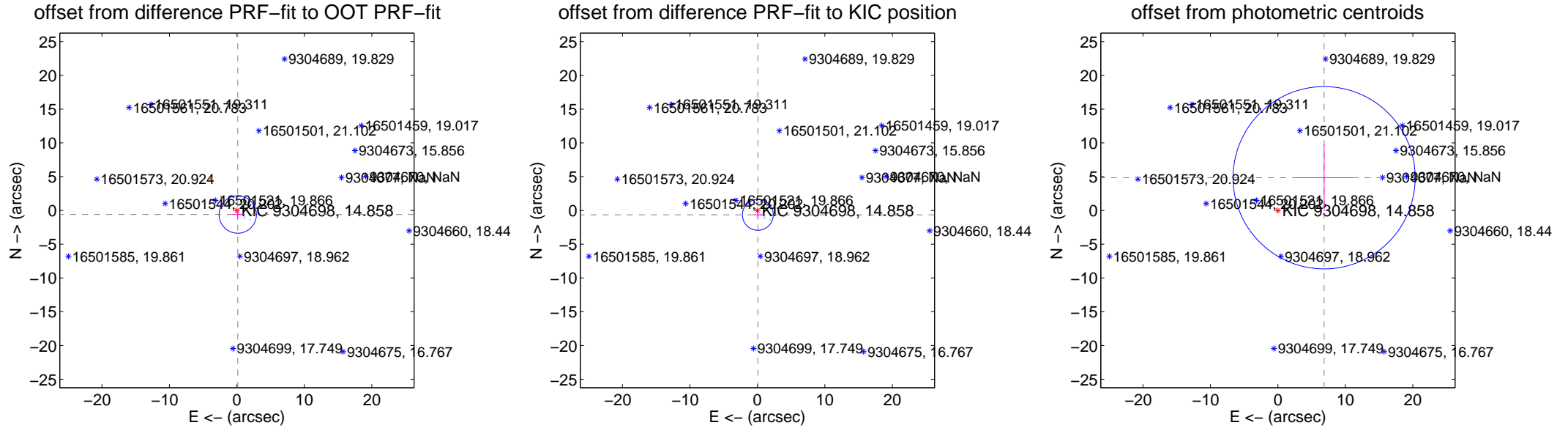
## DV Centroid Data

Supplemental centroid analysis for 009304698-01. Kepler magnitude: 14.86. Transit SNR 1.87

There are 4 quarters with good PRF difference image offsets

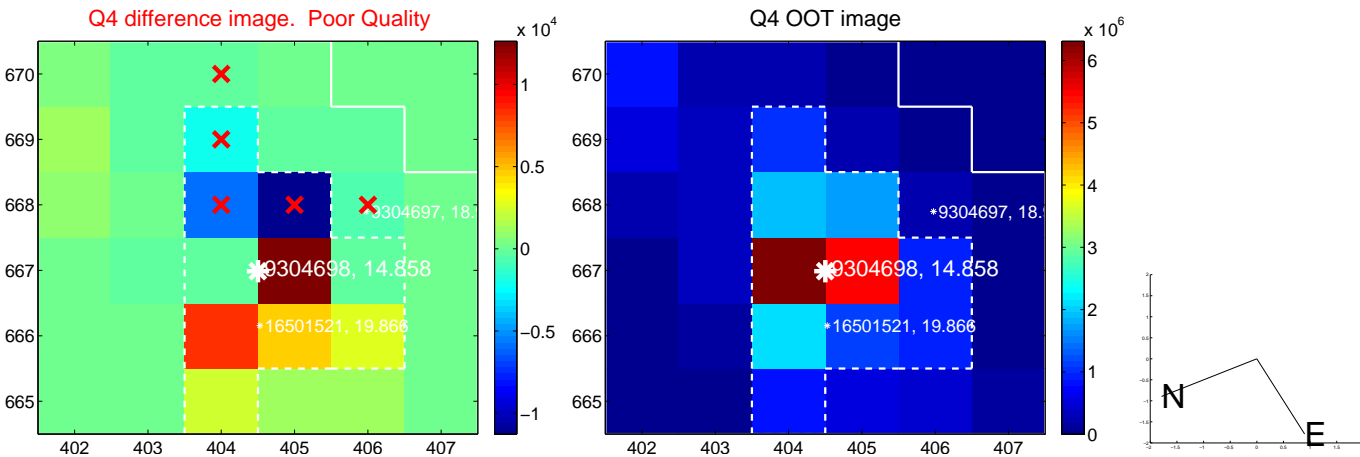
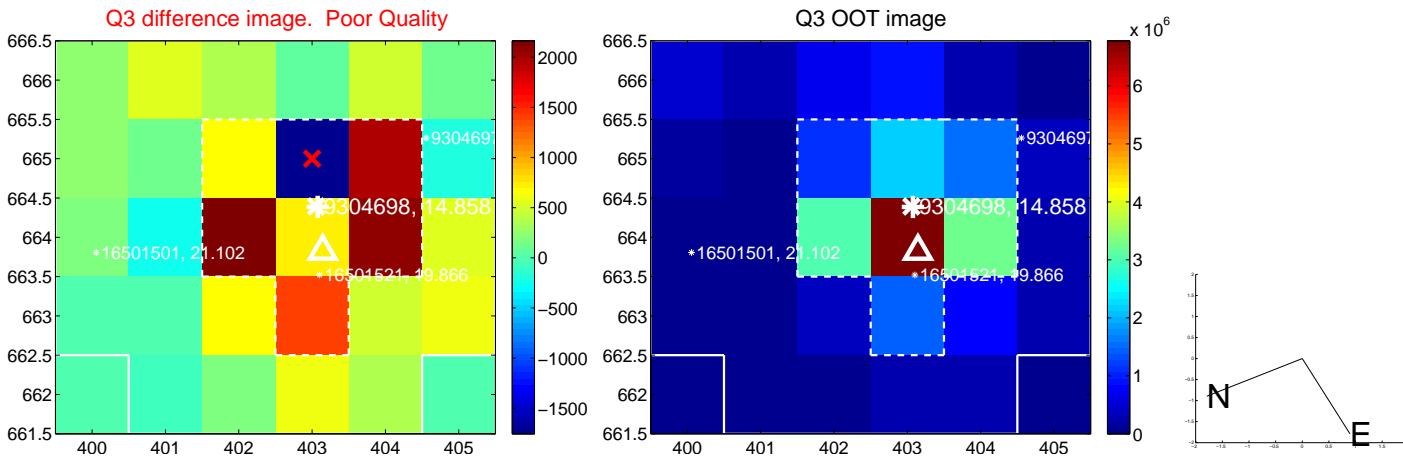
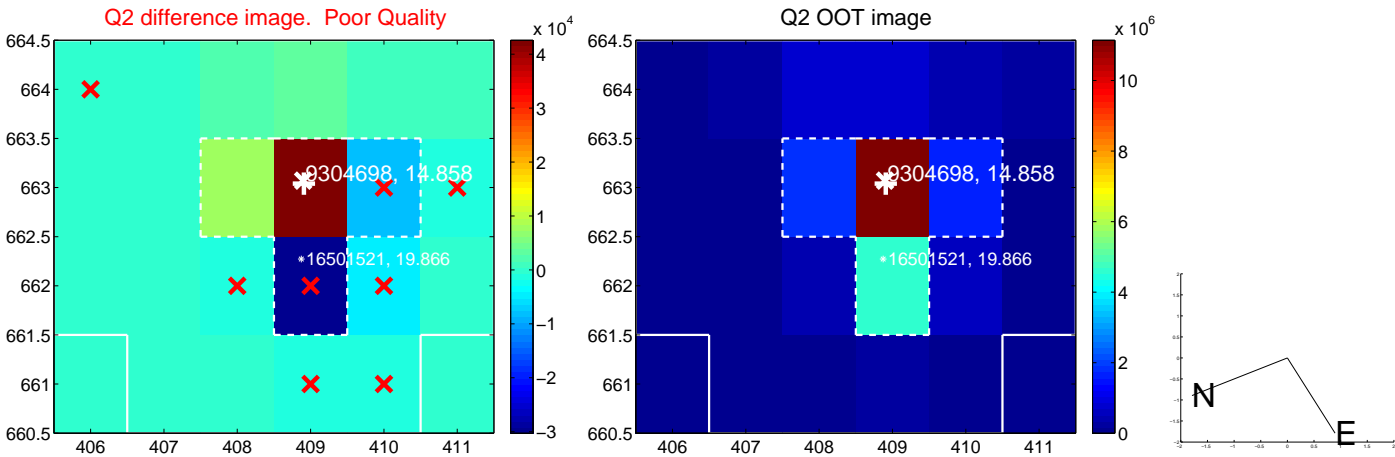
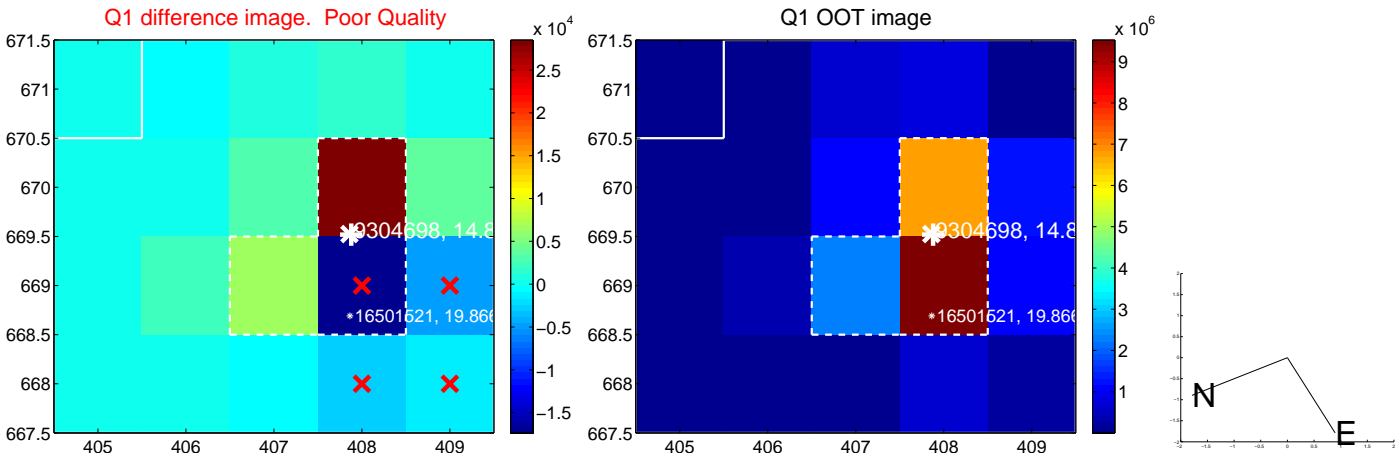
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.619 \pm 0.924$	0.67	$-0.126 \pm 0.806$	$-0.605 \pm 0.784$
PRF-fit source offset from KIC position	$0.659 \pm 0.763$	0.86	$-0.066 \pm 0.668$	$-0.655 \pm 0.705$
photometric centroid source offset	$8.39 \pm 4.50$	1.86	$-6.85 \pm 4.27$	$4.84 \pm 4.93$



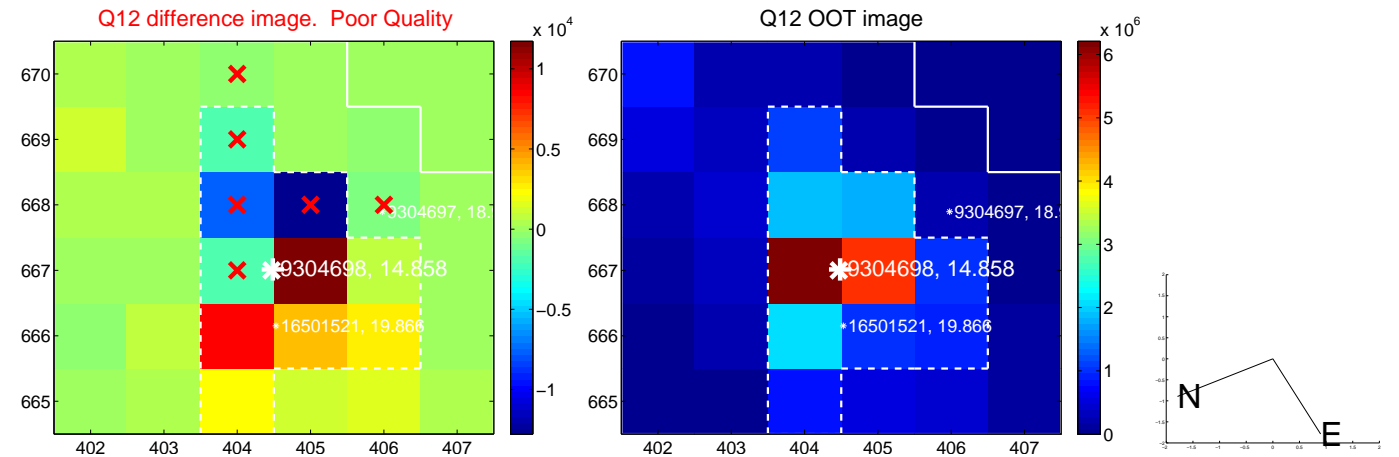
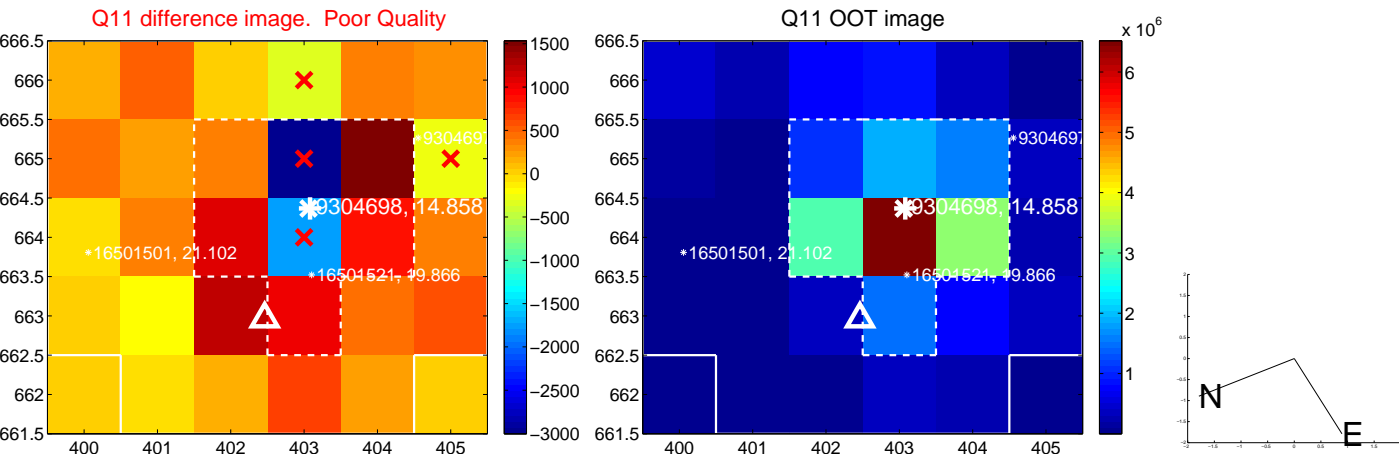
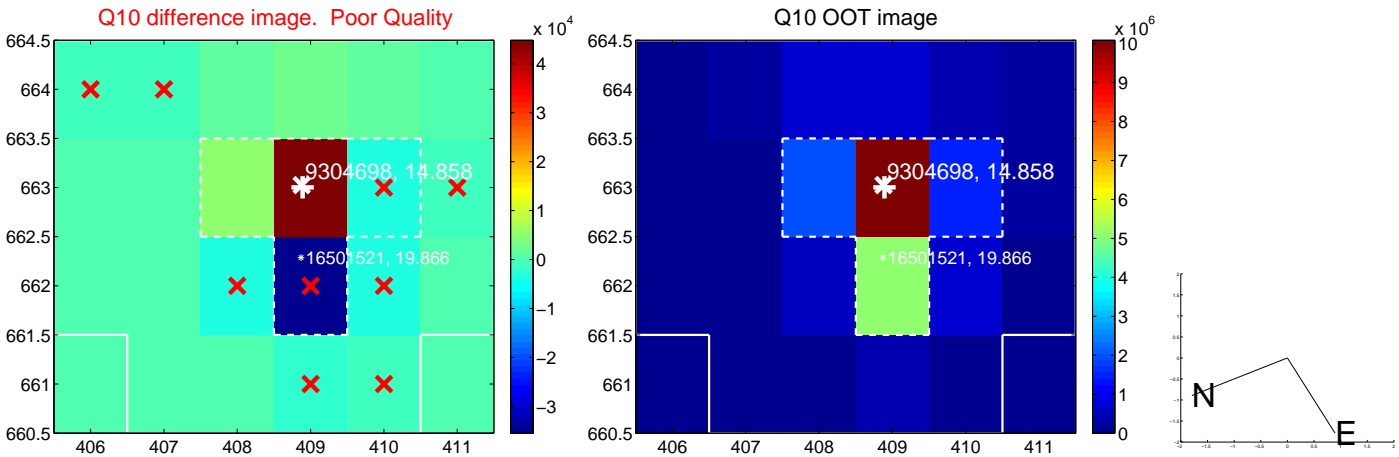
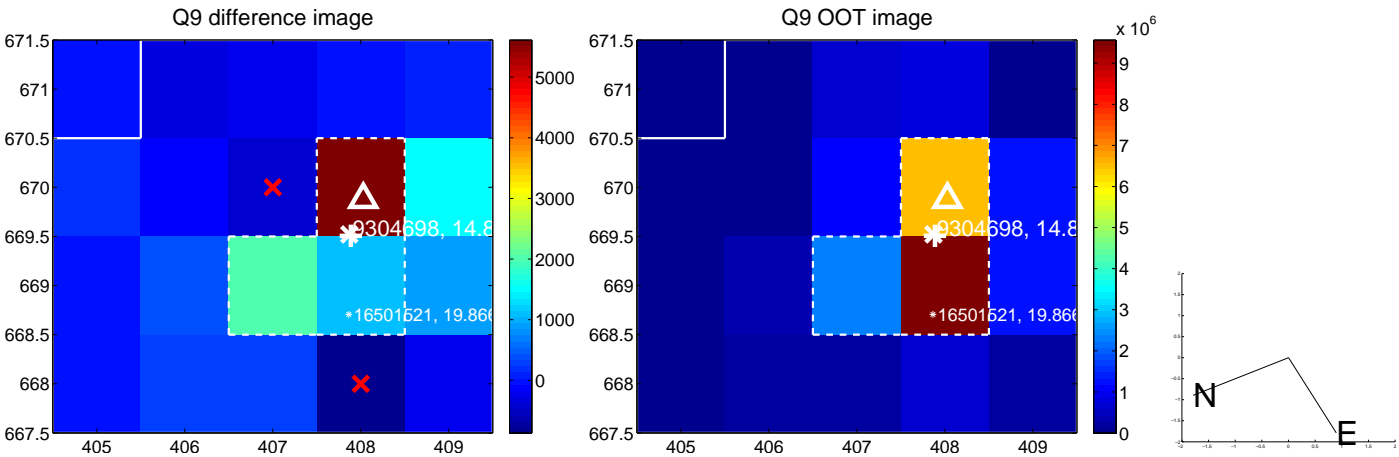
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

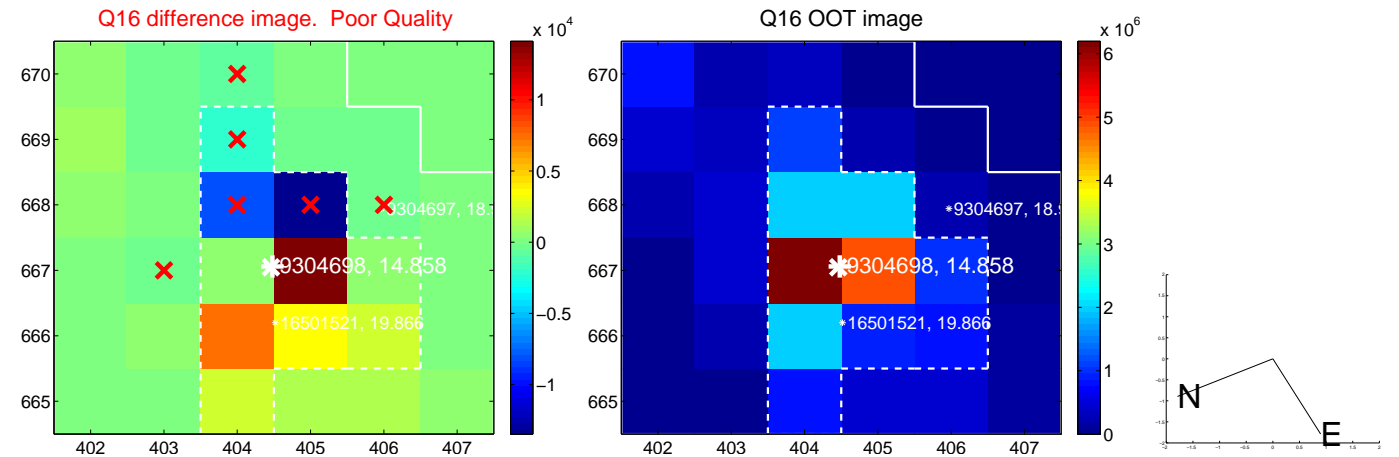
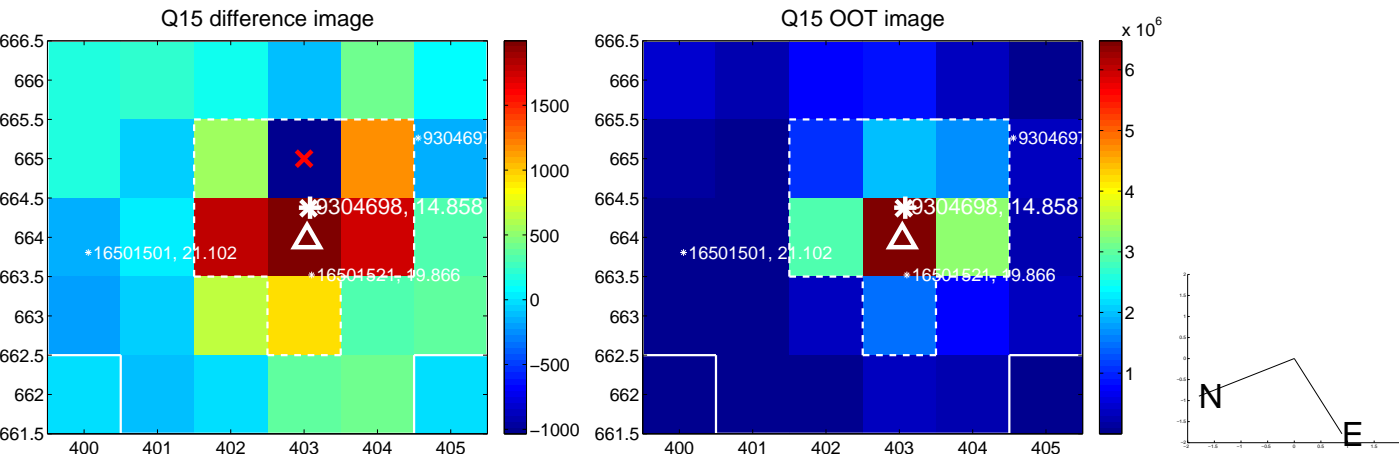
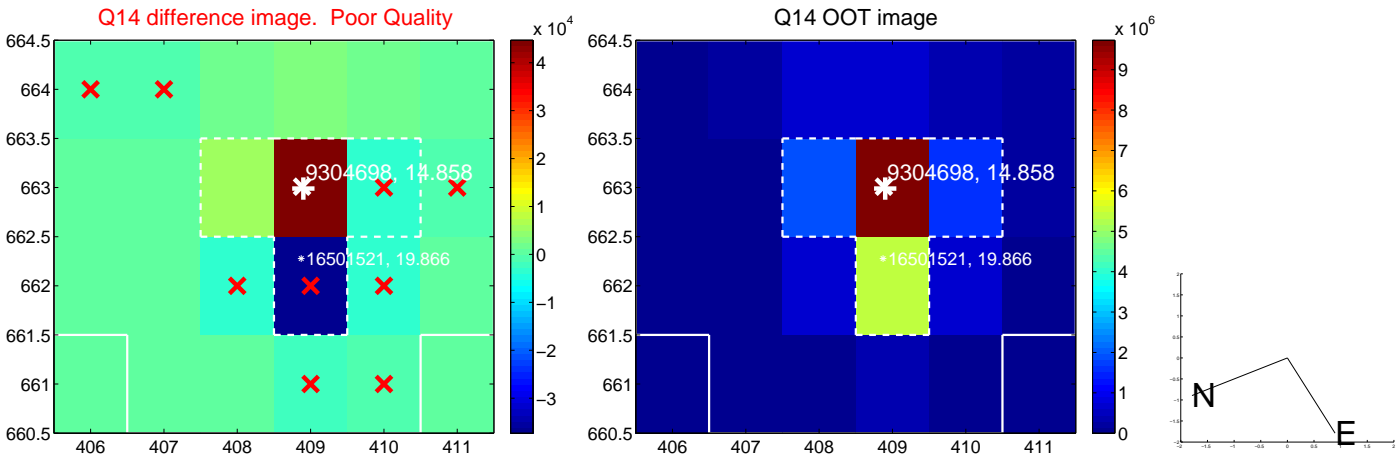
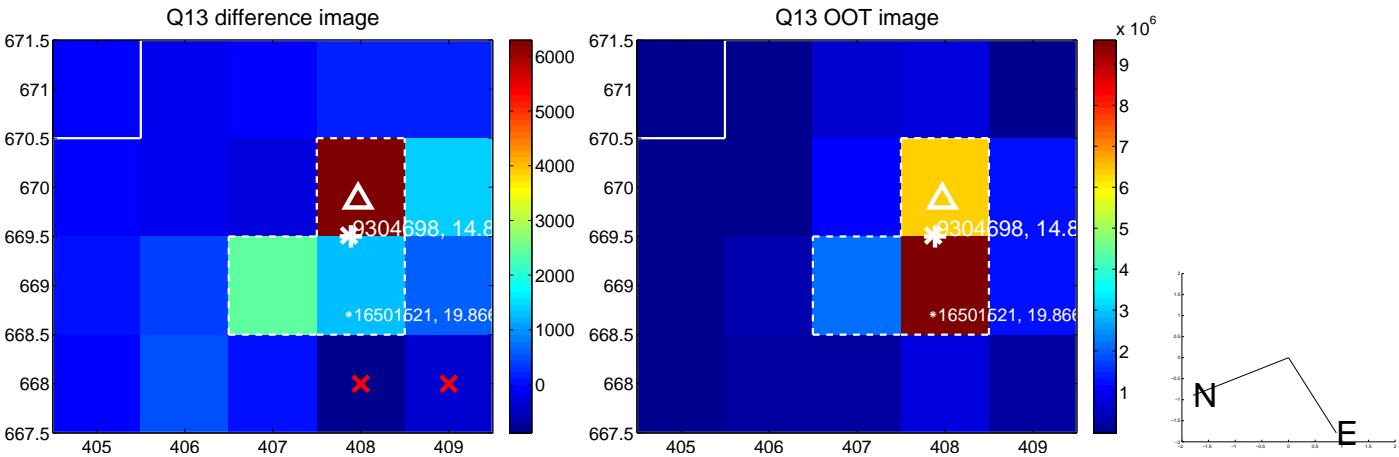




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

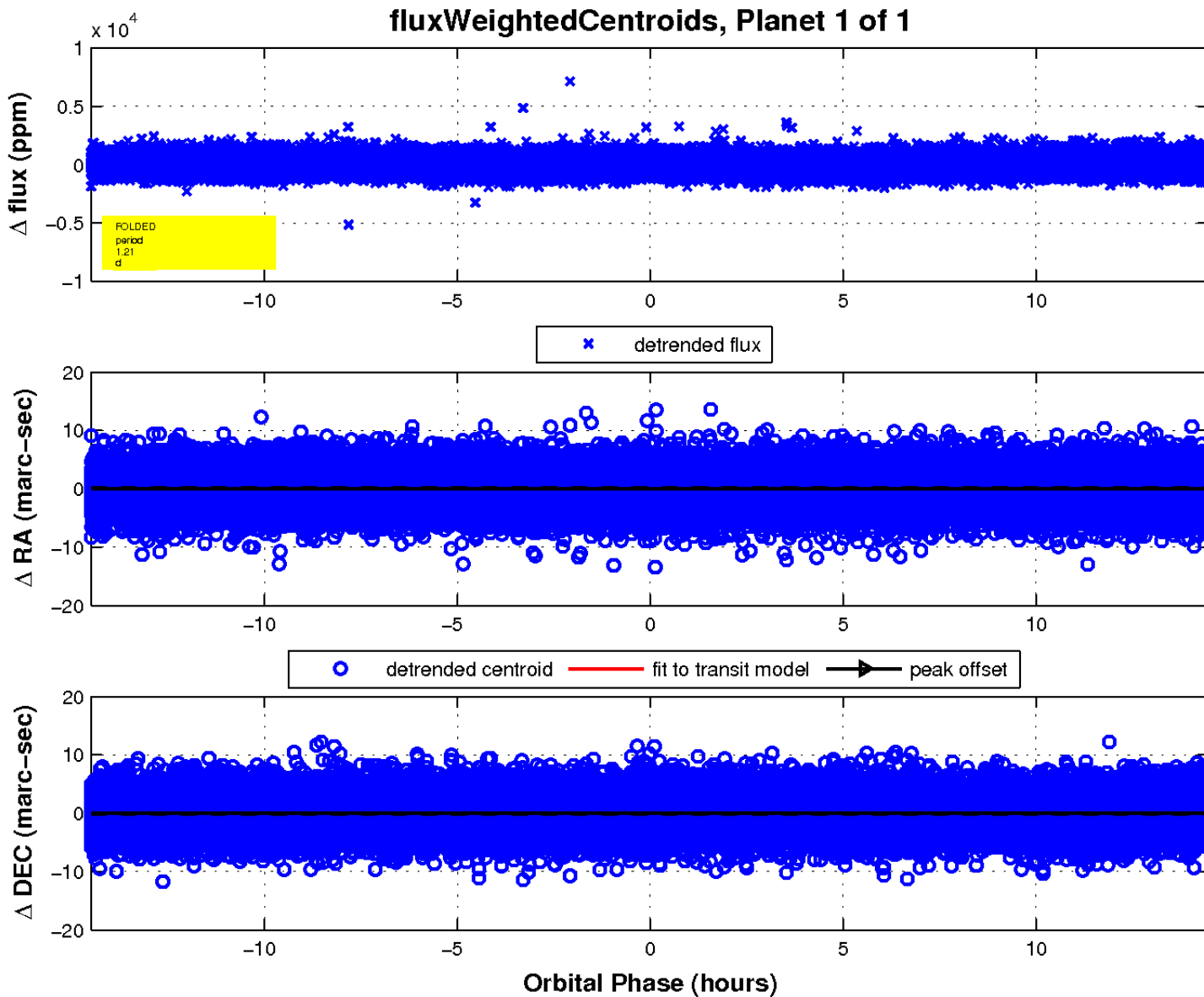
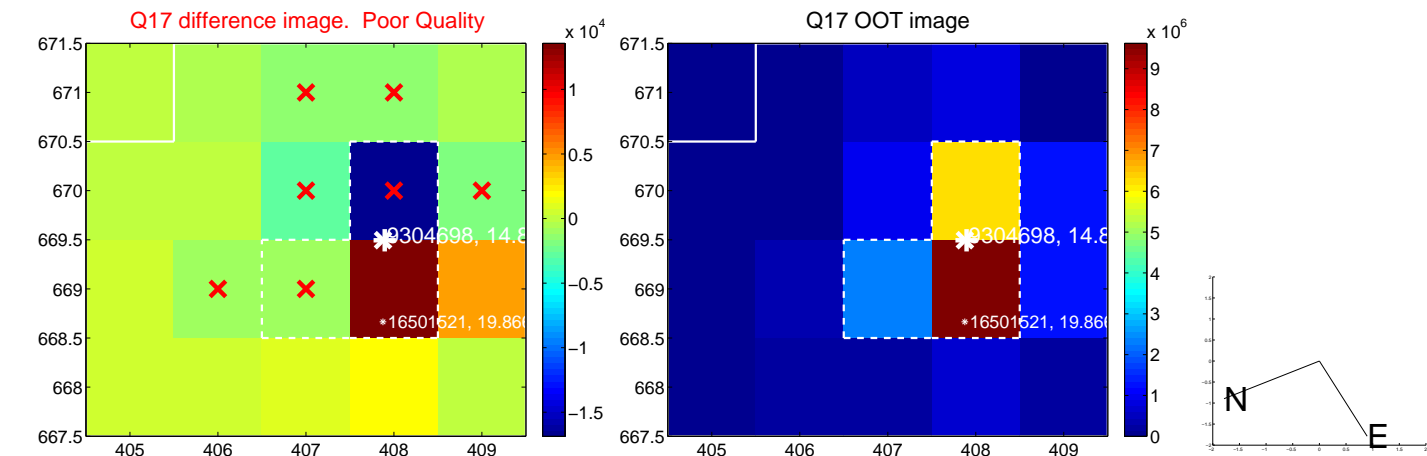


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

