

# KIC 009245070

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009245070-01	OBS	No	3.586014	131.883497	73.9	24.816	7.7	11.2	1.40	6422	1.59	1244.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009245070-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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

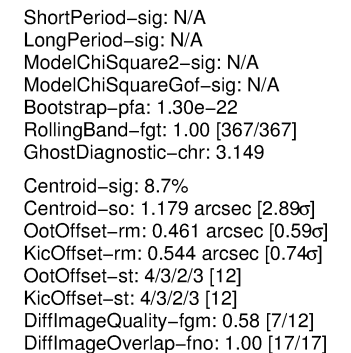
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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.

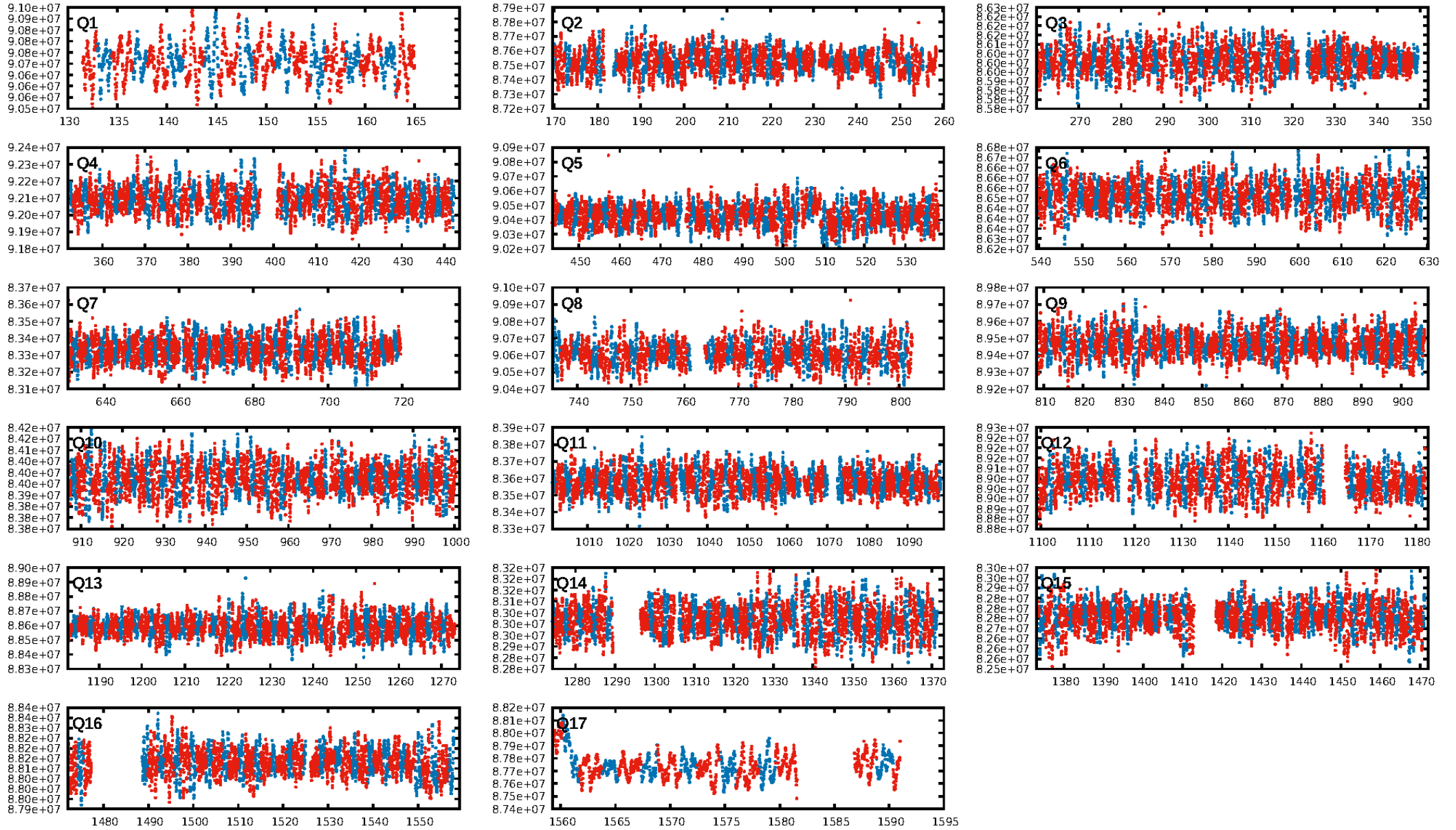
## Ephemeris Match Information For 009245070-01

No Significant Match Found

## KIC: 9245070    Candidate: 1 of 1    Period: 3.586 d

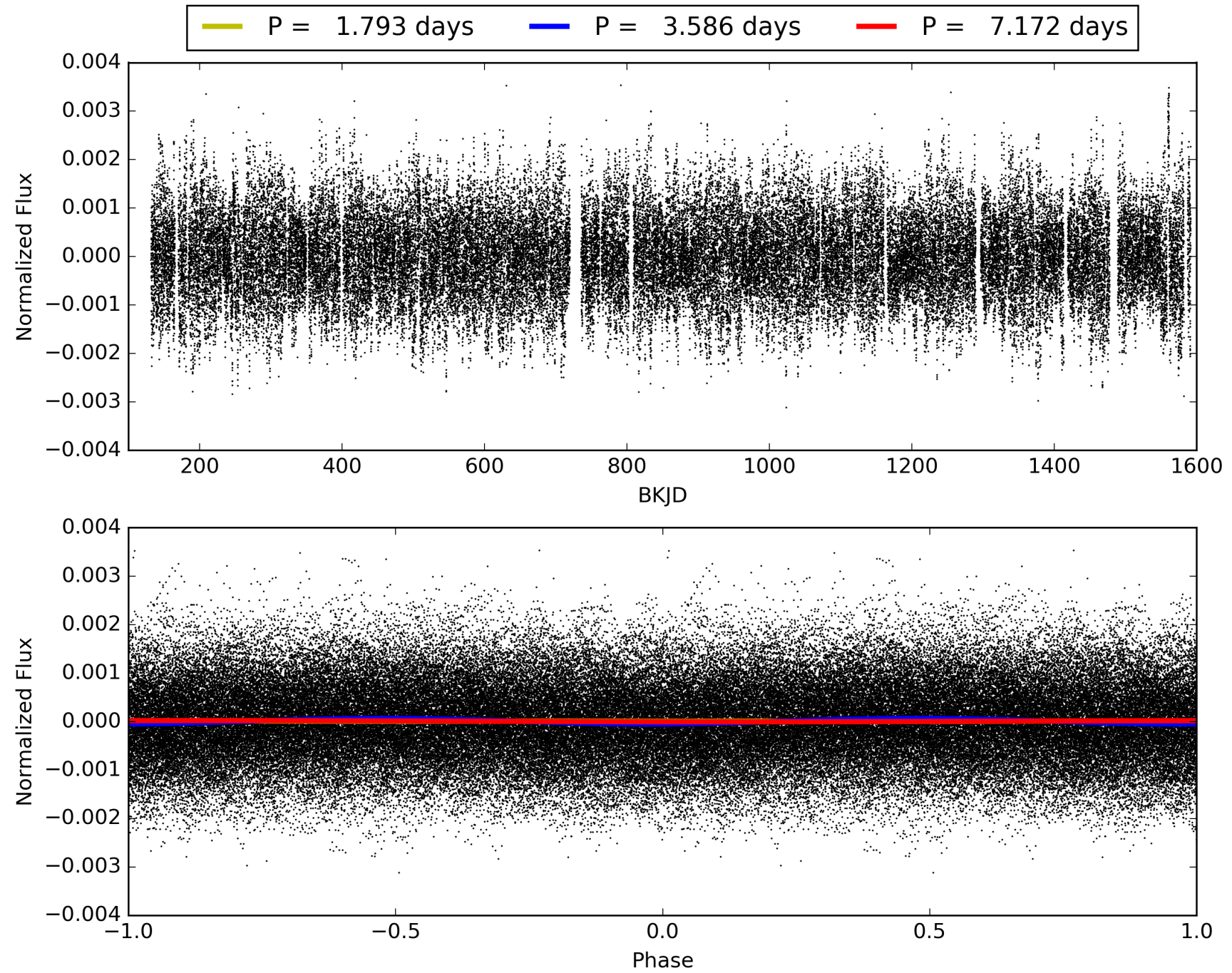


# TCE 009245070-01, PDC Light Curves



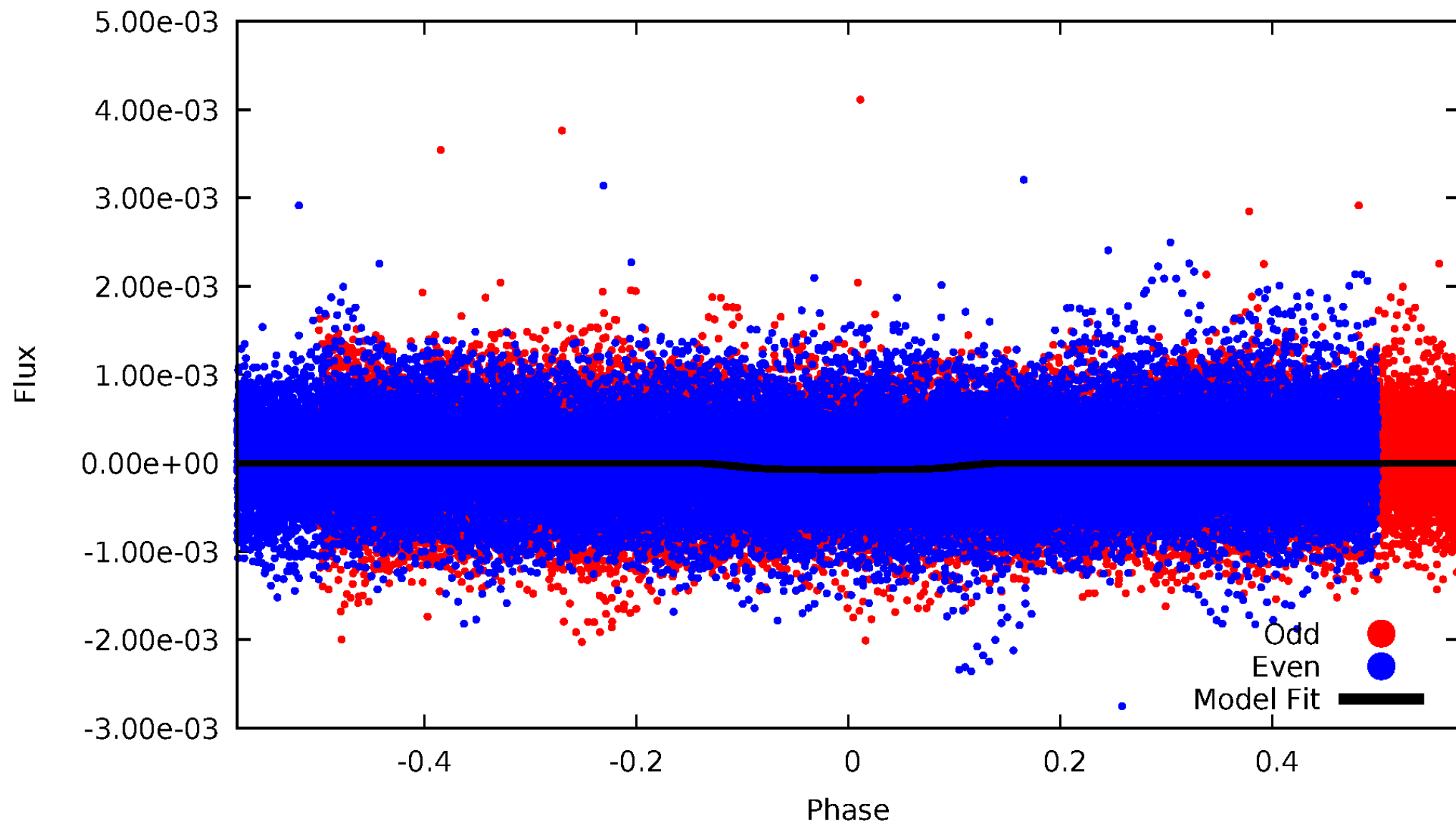


TCE 009245070-01



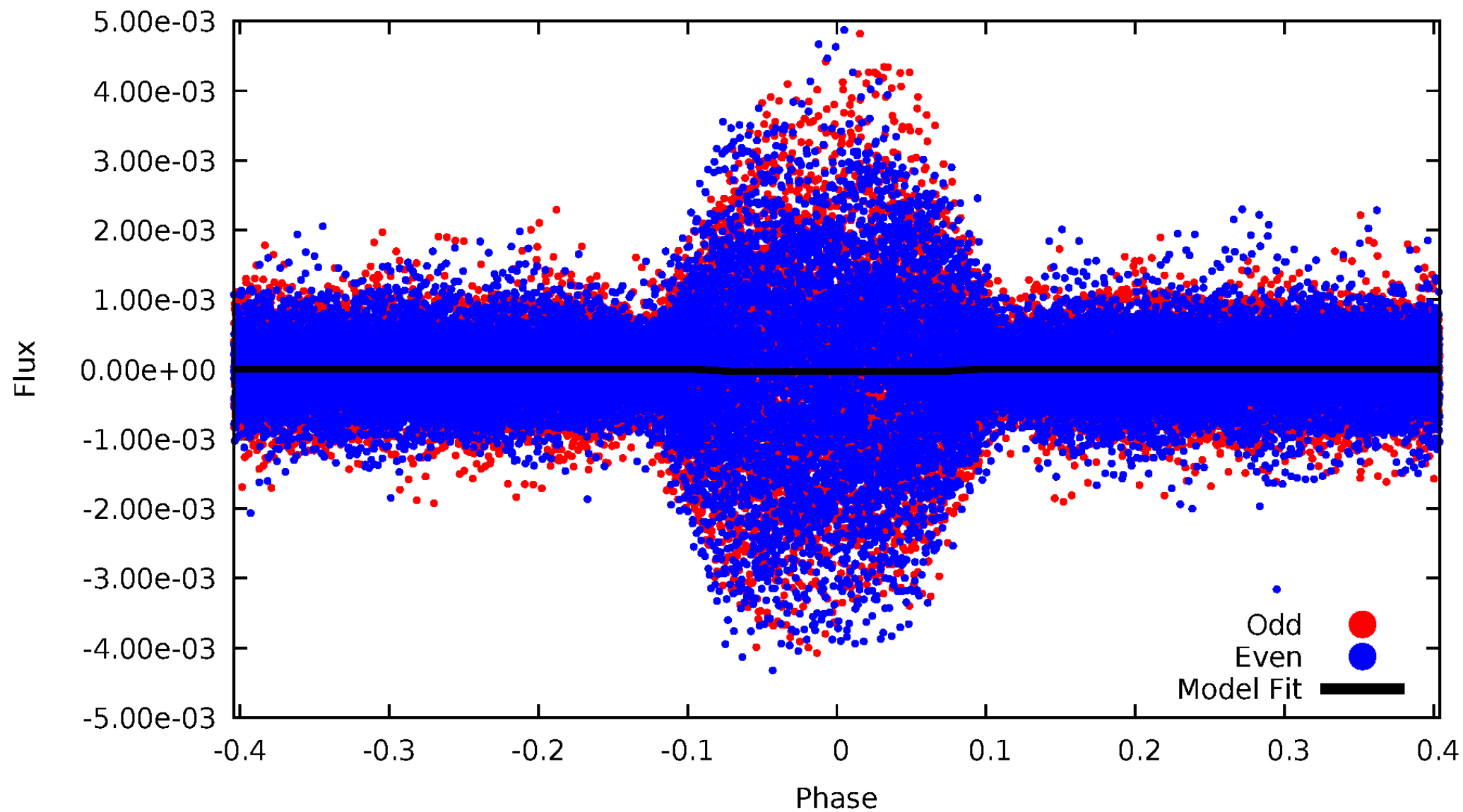
# DV Odd/Even

TCE 009245070-01



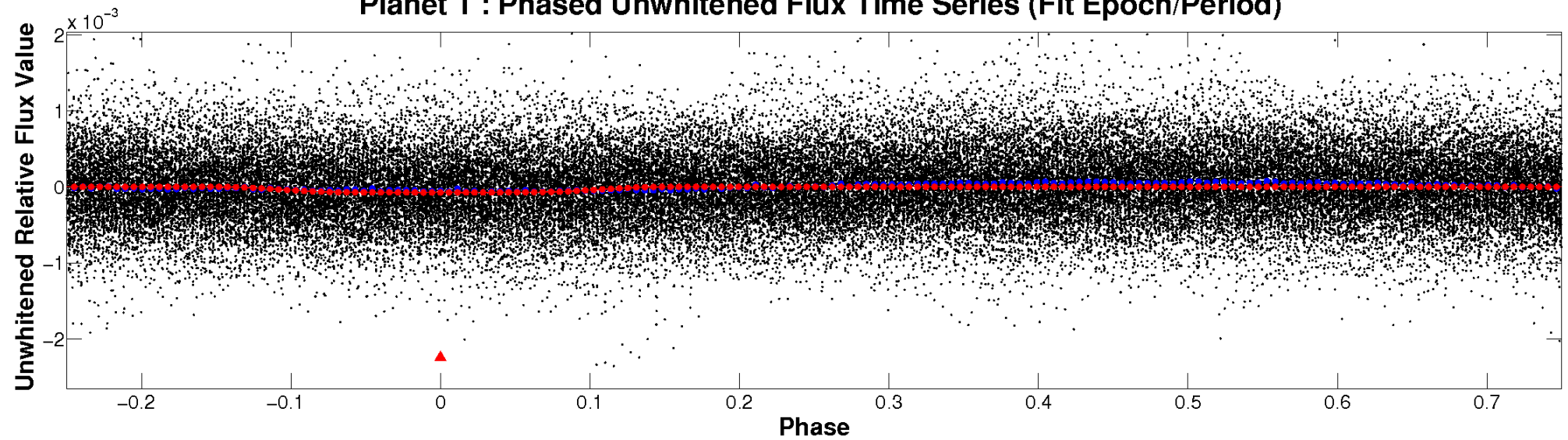
# ALT Odd/Even

TCE 009245070-01

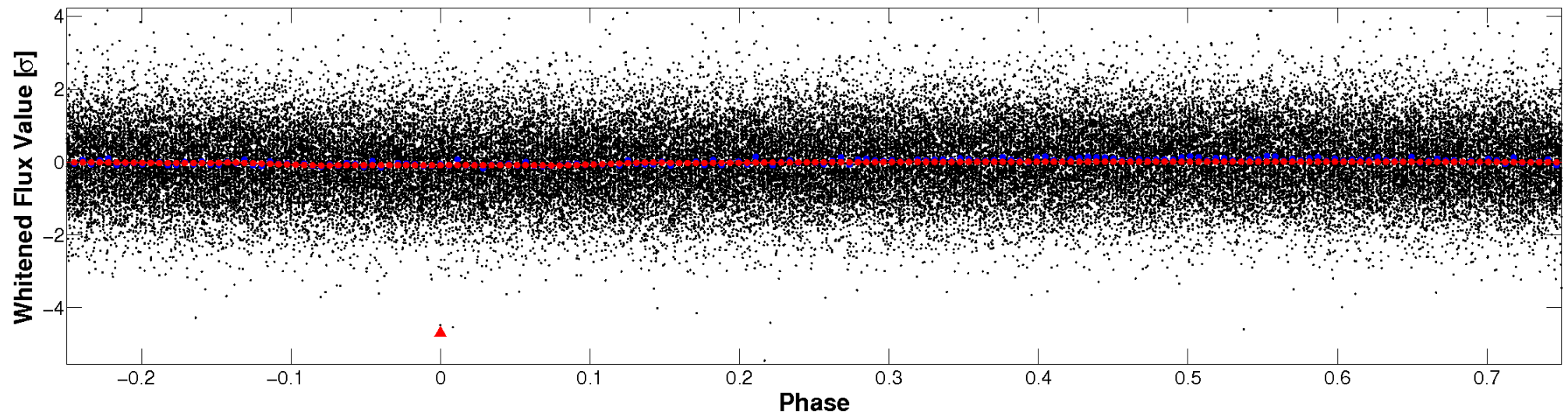


# Non-Whitened Vs. Whitened Light Curve

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



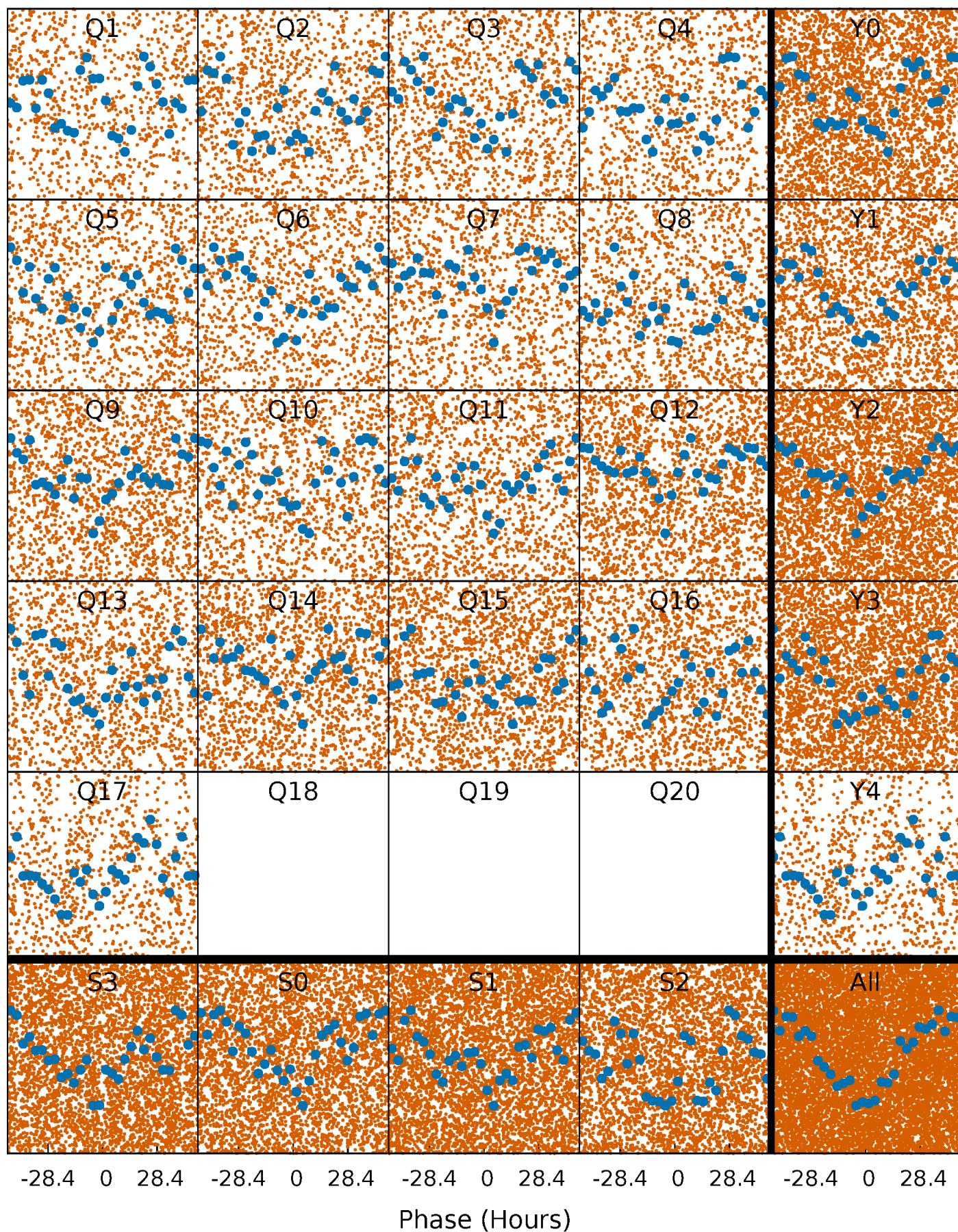
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

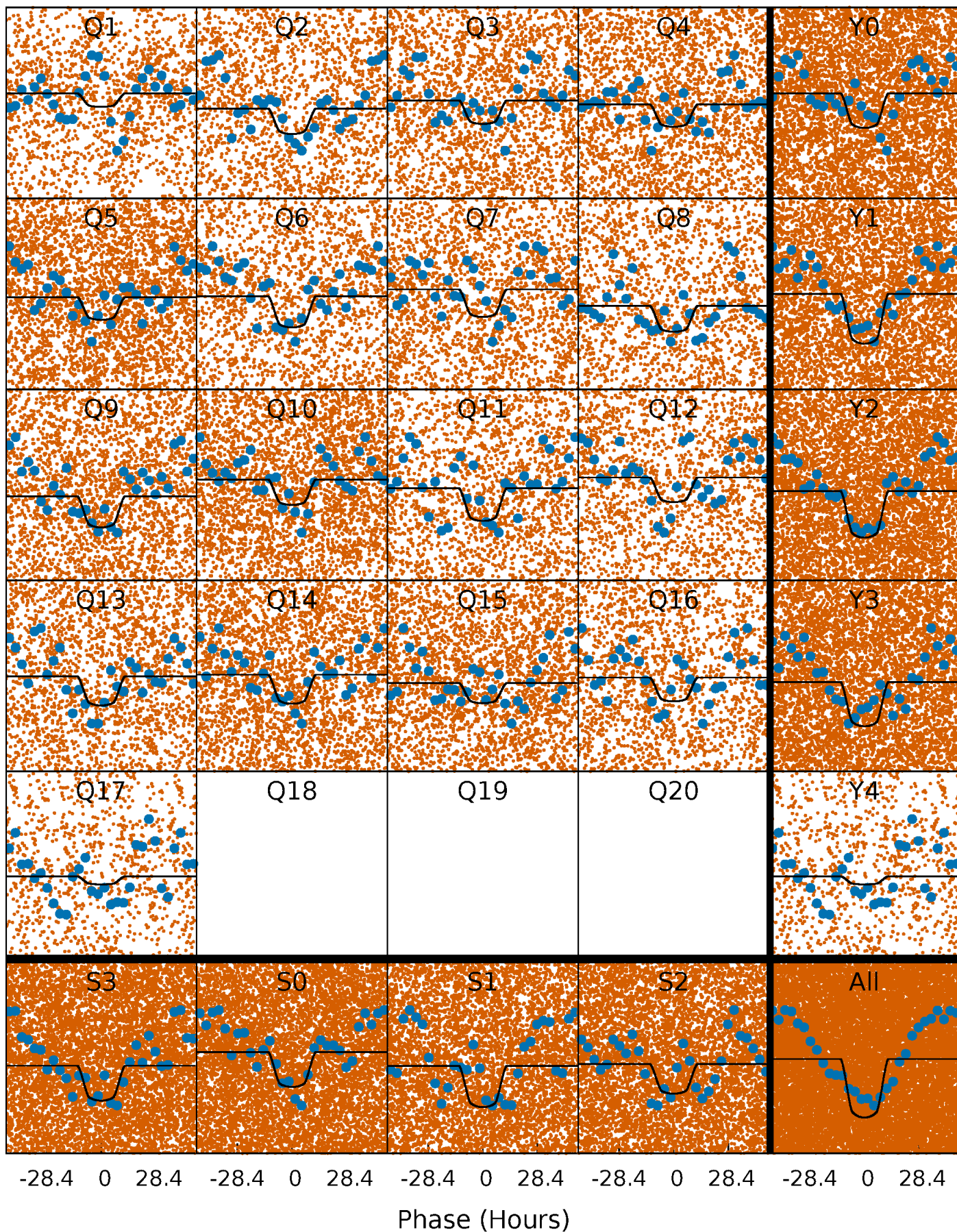
TCE 009245070-01 P= 3.586014 Days  $T_0=131.883497$  (BKJD)





# DV Quarter-Phased Transit Curves

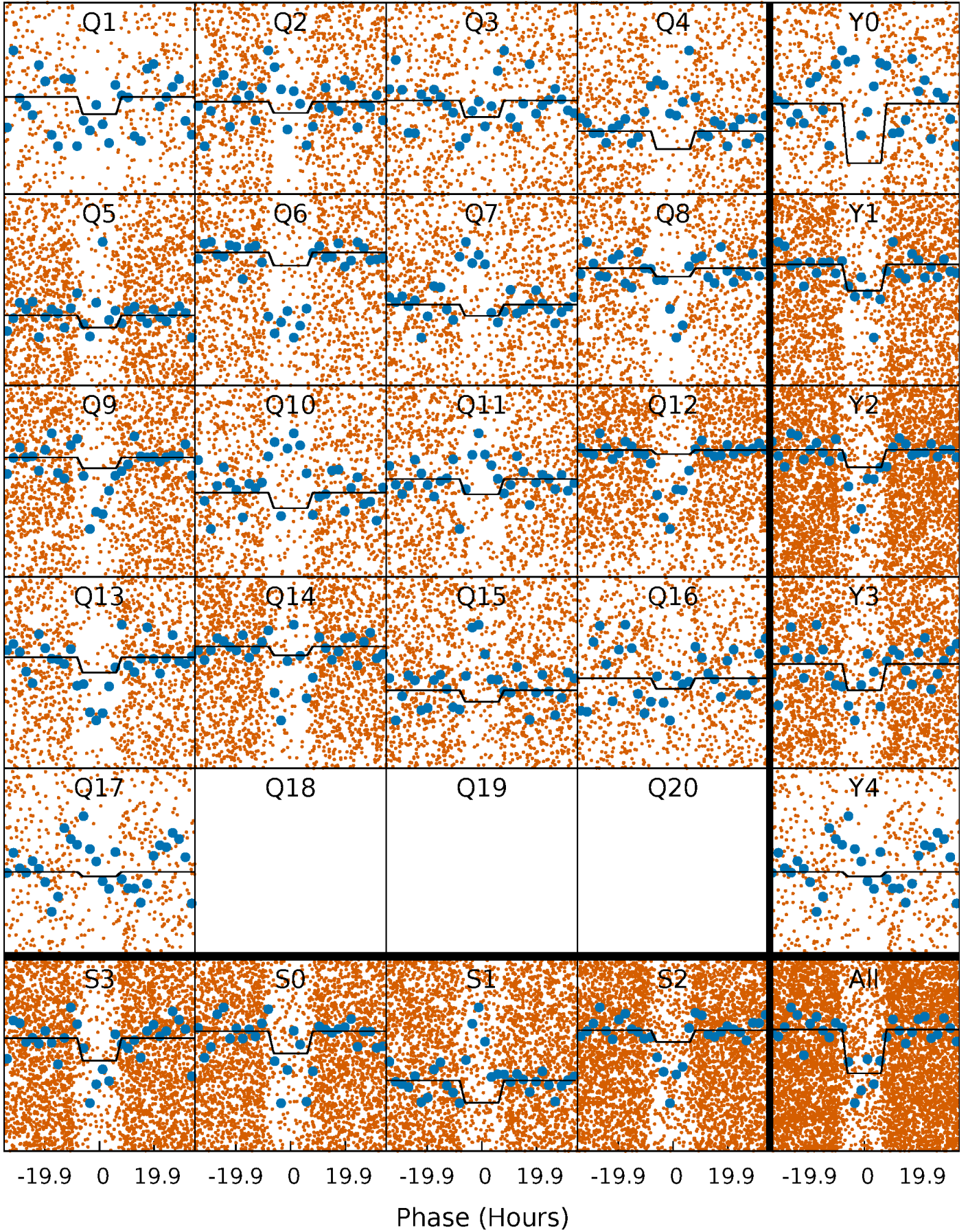
TCE 009245070-01 P= 3.586014 Days  $T_0=131.883497$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

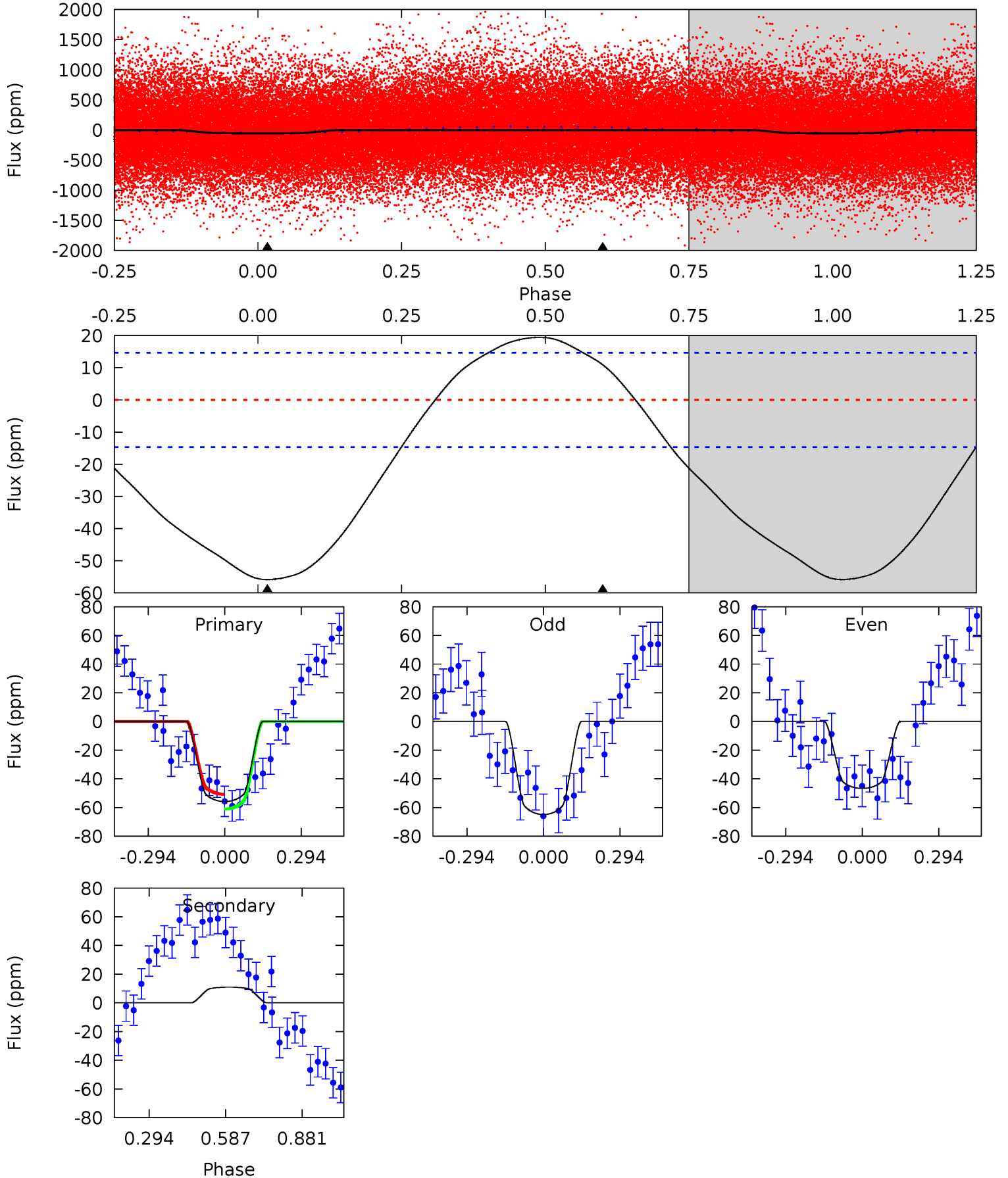
TCE 009245070-01   P= 3.585581 Days    $T_0=131.928089$  (BKJD)



# DV Model-Shift Uniqueness Test

009245070-01, P = 3.586014 Days, E = 128.297483 Days

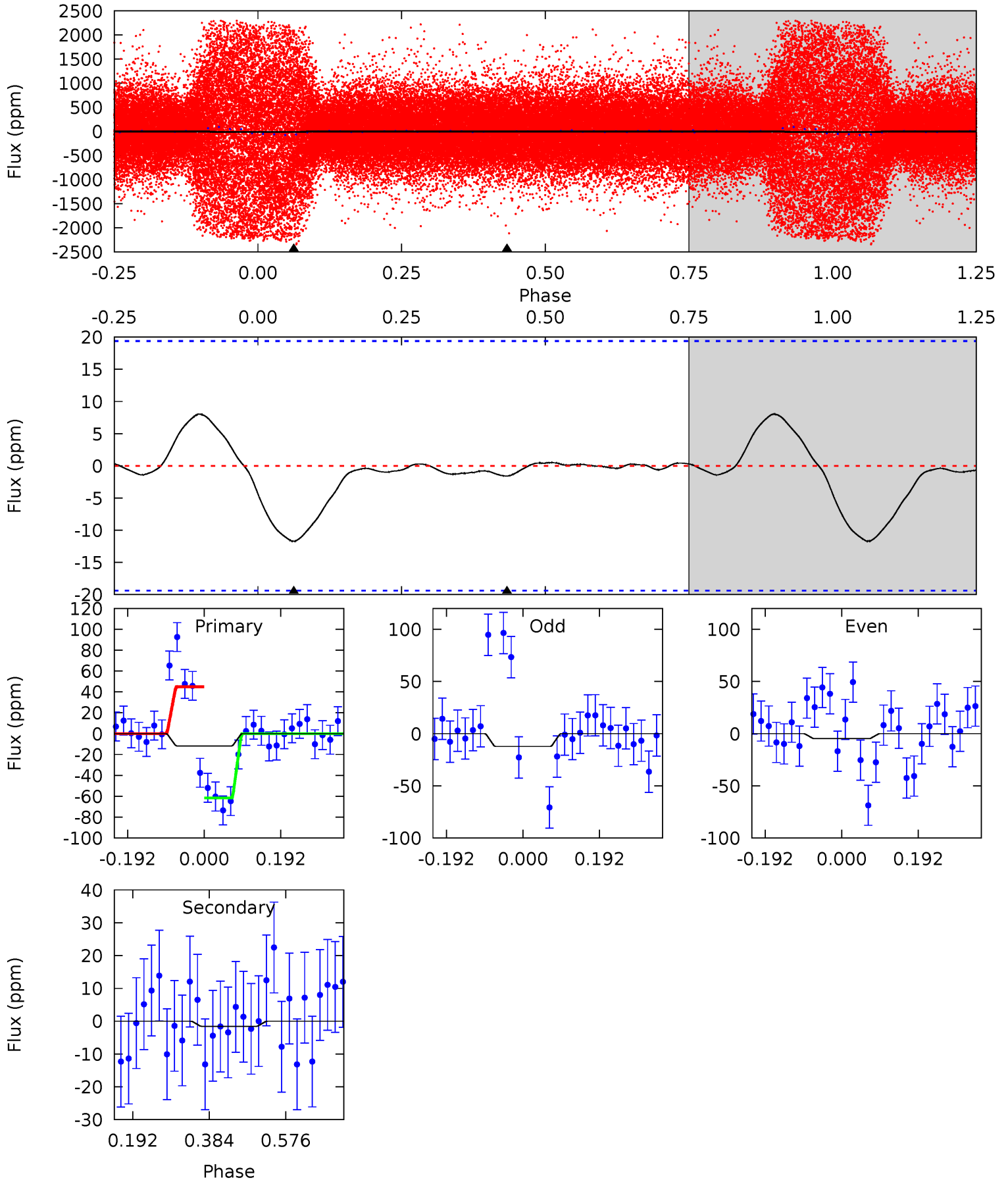
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.5	-3.24	0	0	4.33	1.05	1.96	16.5	16.5	-3.24	-3.24	2.71	-1.55	0.26	1.52



# Alt Model-Shift Uniqueness Test

009245070-01, P = 3.585581 Days, E = 128.342508 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
2.68	0.36	0	0	4.43	1.31	0.34	2.68	2.68	0.36	0.36	0.85	-0.41	0.41	1.83





### Stellar Parameters For KIC 009245070

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6422^{+154}_{-192}$	$4.231^{+0.149}_{-0.198}$	$-0.060^{+0.250}_{-0.300}$	$1.398^{+0.421}_{-0.280}$	$1.213^{+0.196}_{-0.178}$	$0.625^{+0.477}_{-0.312}$
	+2%/-3%	+4%/-5%	+417%/-500%	+30%/-20%	+16%/-15%	+76%/-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 009245070-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$11 \pm 3$	$1.60^{+0.31}_{-0.21}$	$2131^{+164}_{-141}$	$-3962^{+245}_{-242}$	$-5.292^{+2.058}_{-2.830}$
Alt.	$-2 \pm 4$	$0.87^{+0.18}_{-0.15}$	$2126^{+157}_{-134}$	$3371^{+995}_{-7311}$	$2.324^{+7.662}_{-7.328}$

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

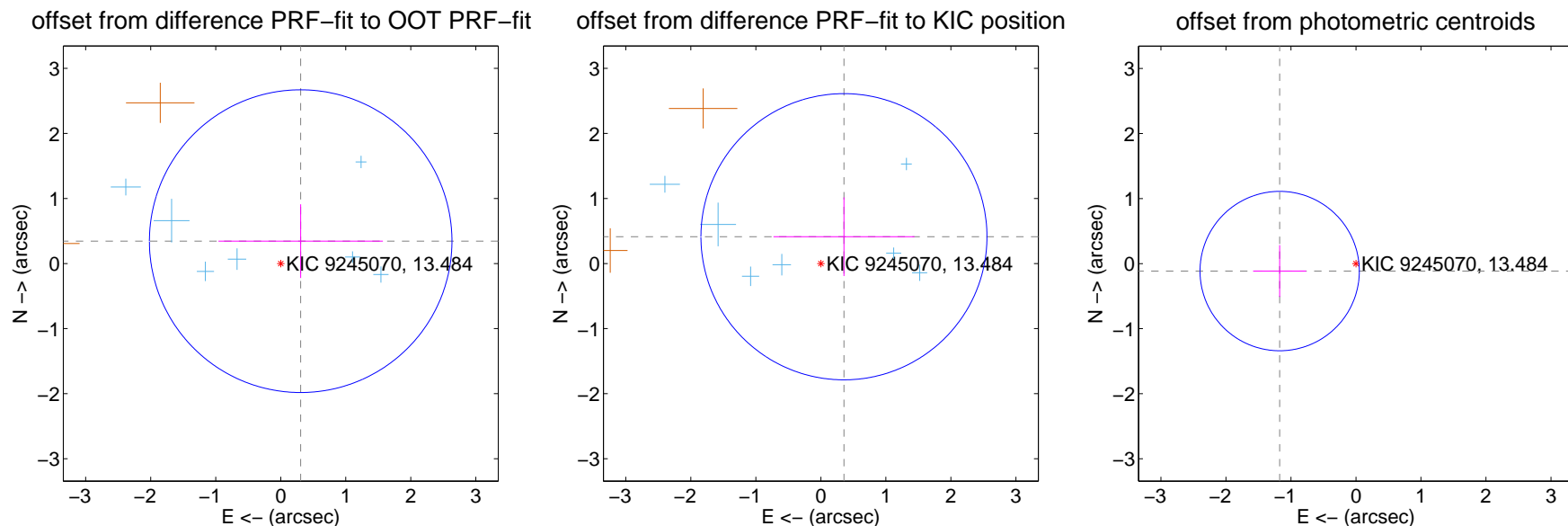
## DV Centroid Data

Supplemental centroid analysis for 009245070-01. Kepler magnitude: 13.48. Transit SNR 11.16

There are 7 quarters with good PRF difference image offsets

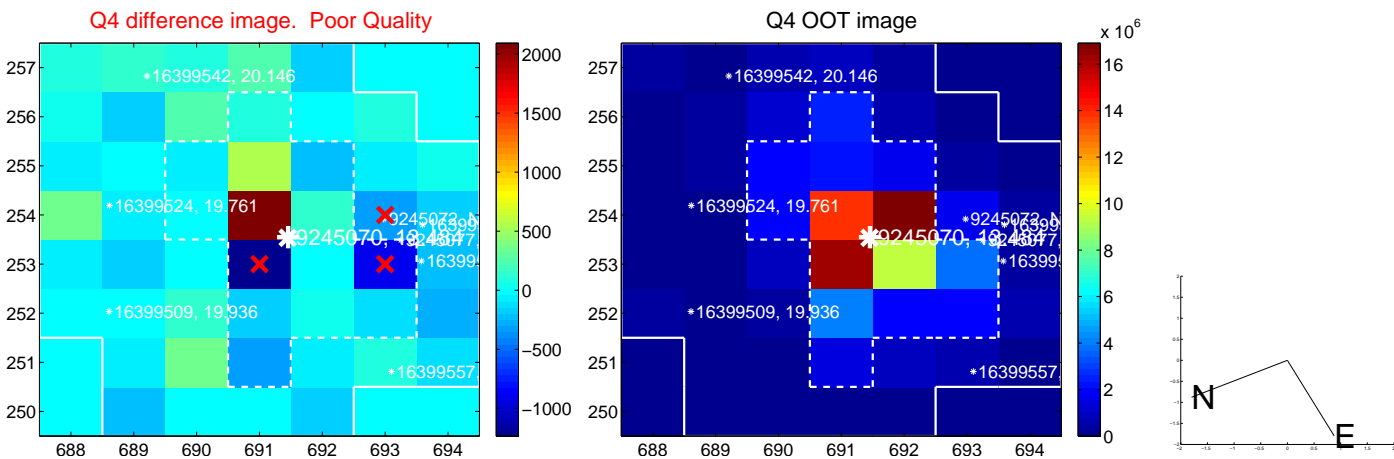
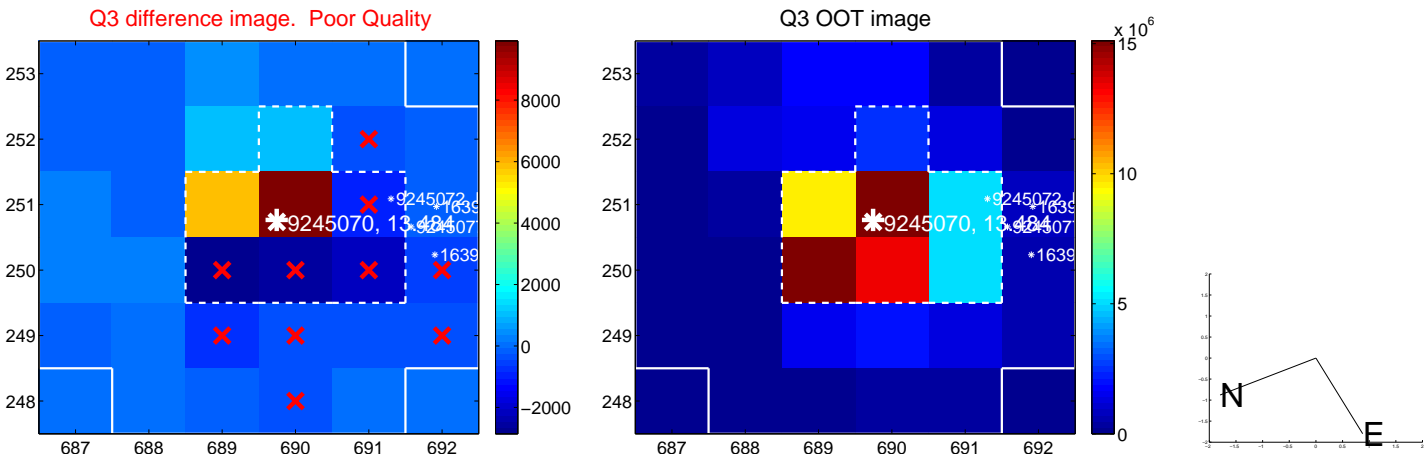
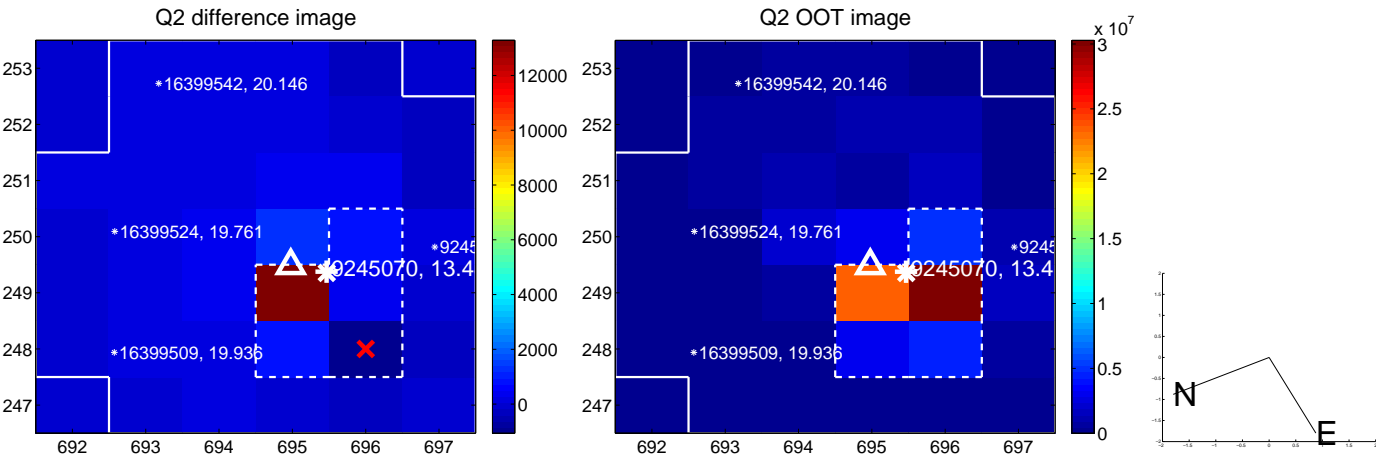
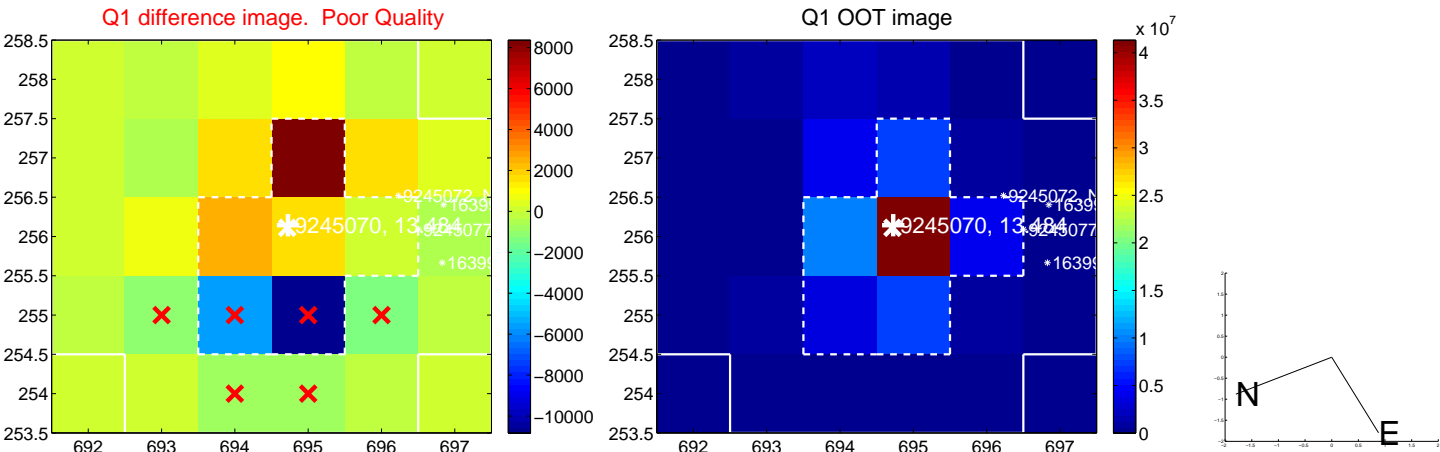
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.461 \pm 0.775$	0.59	$-0.307 \pm 1.264$	$0.344 \pm 0.566$
PRF-fit source offset from KIC position	$0.544 \pm 0.733$	0.74	$-0.355 \pm 1.084$	$0.412 \pm 0.605$
photometric centroid source offset	$1.18 \pm 0.41$	2.89	$1.17 \pm 0.41$	$-0.11 \pm 0.40$

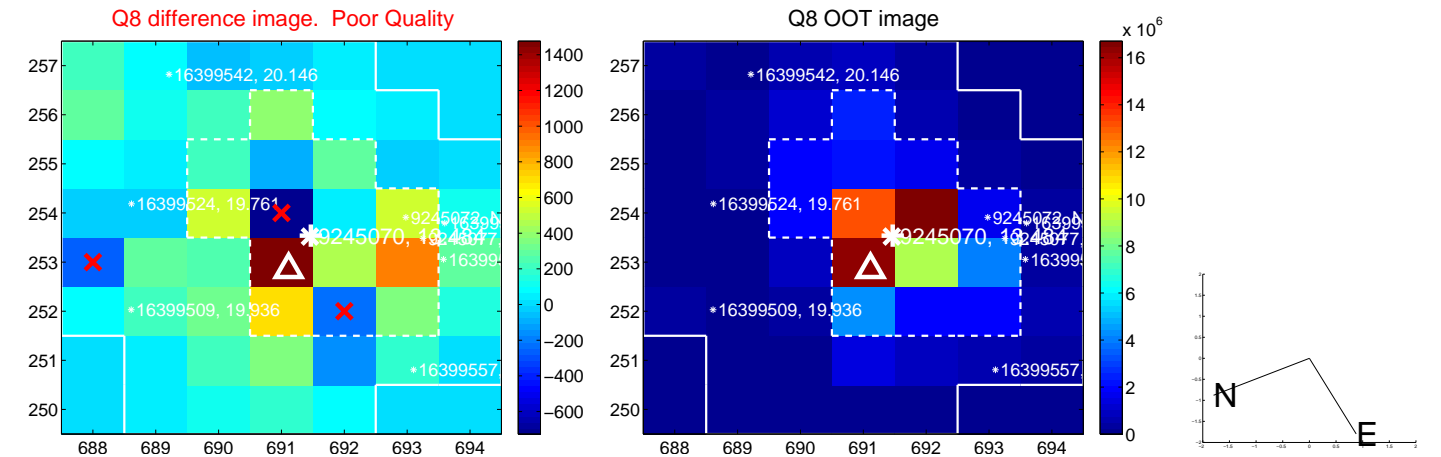
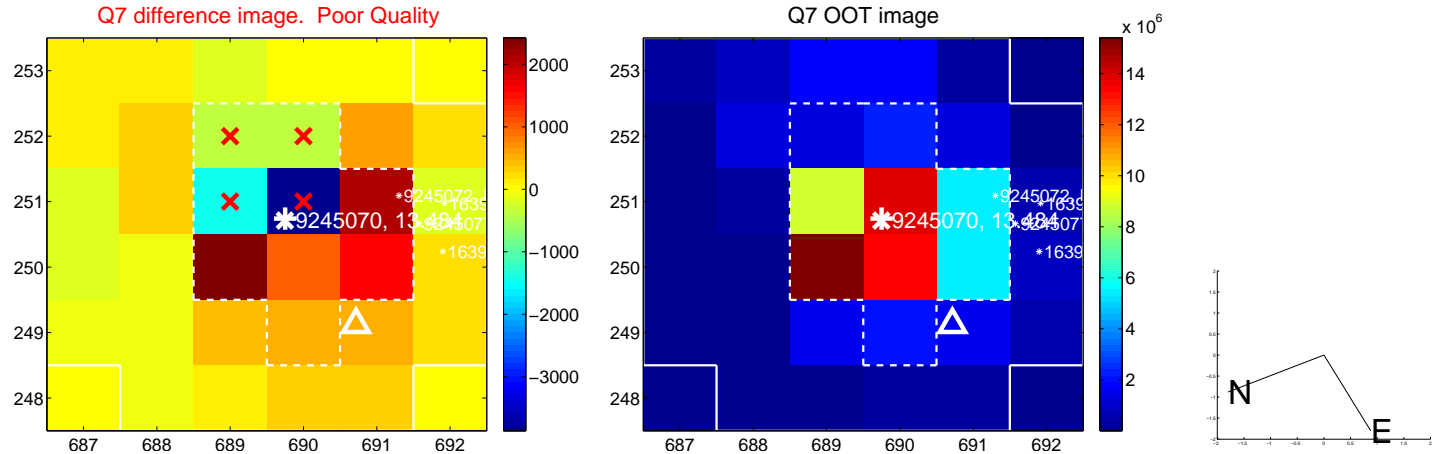
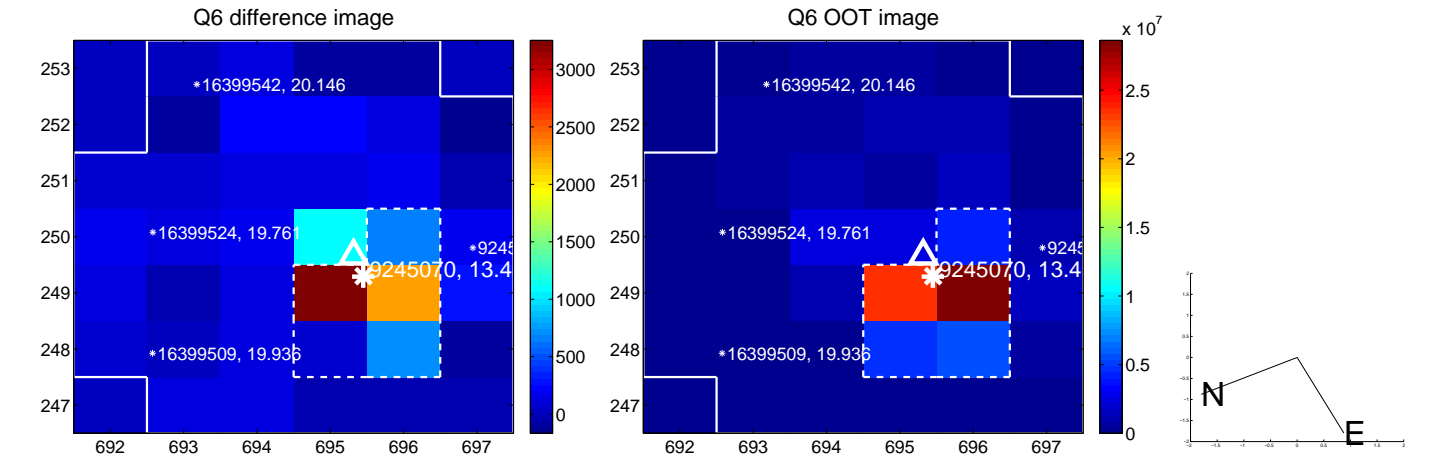
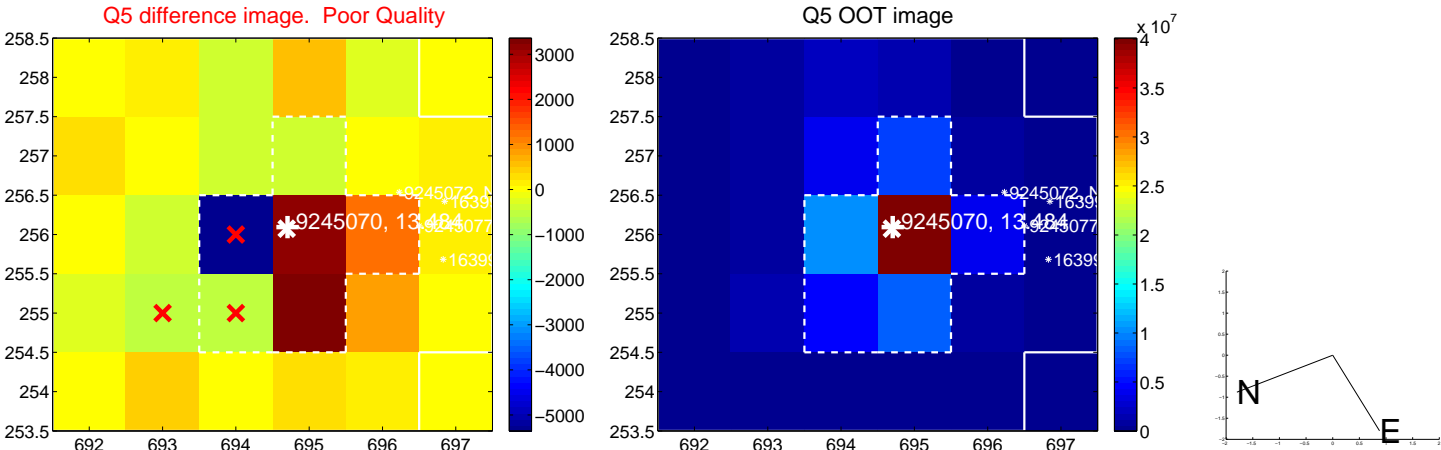


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

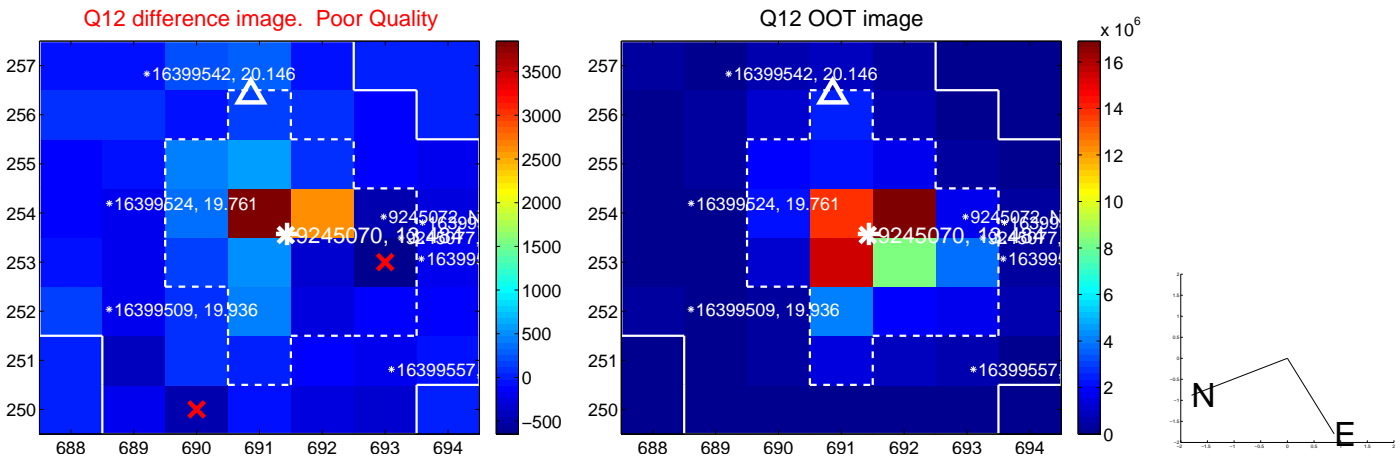
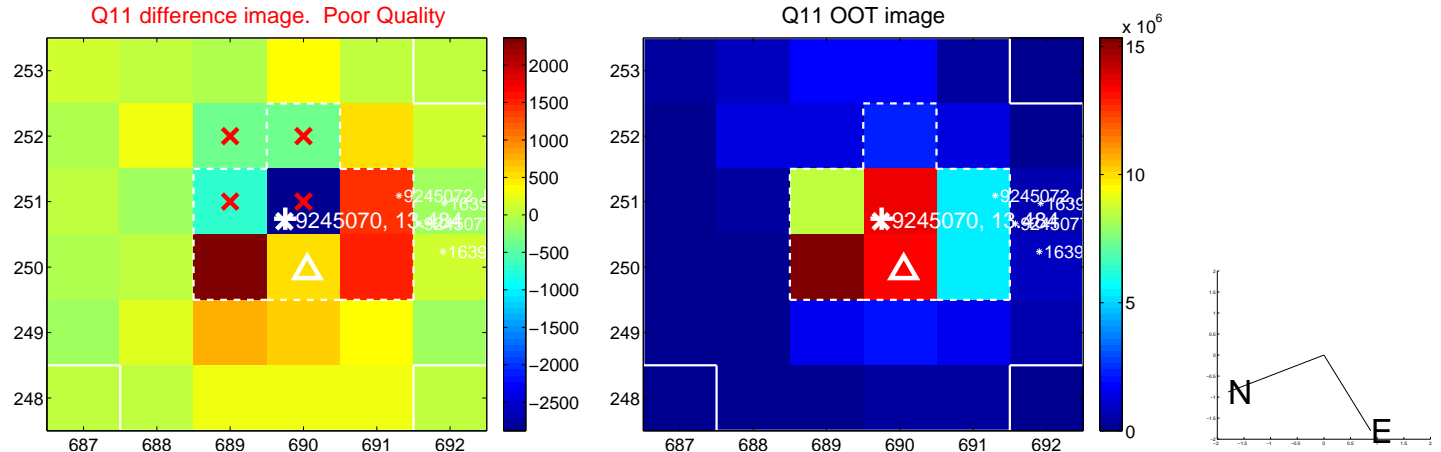
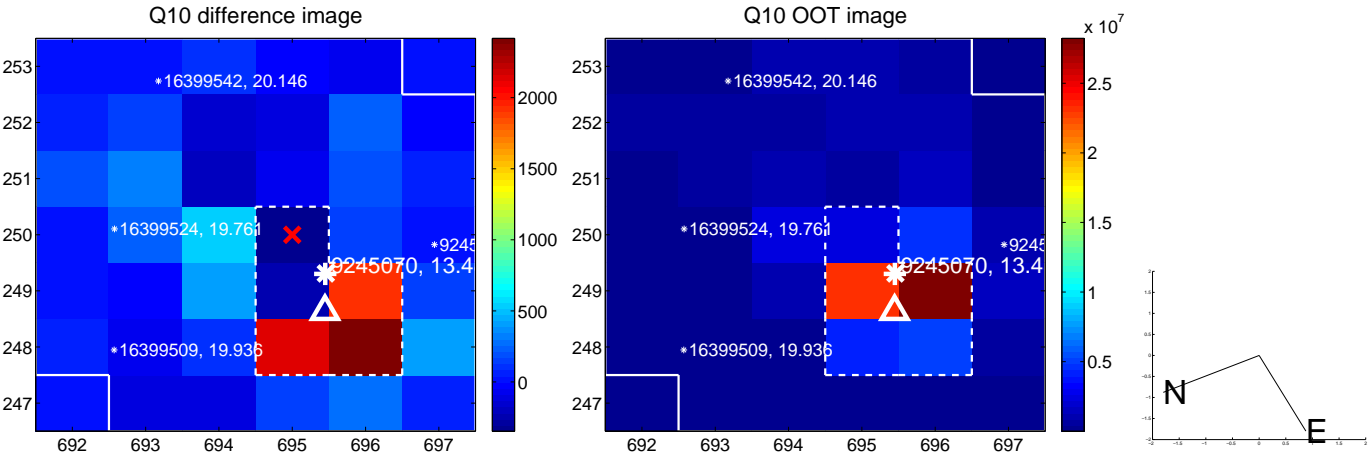
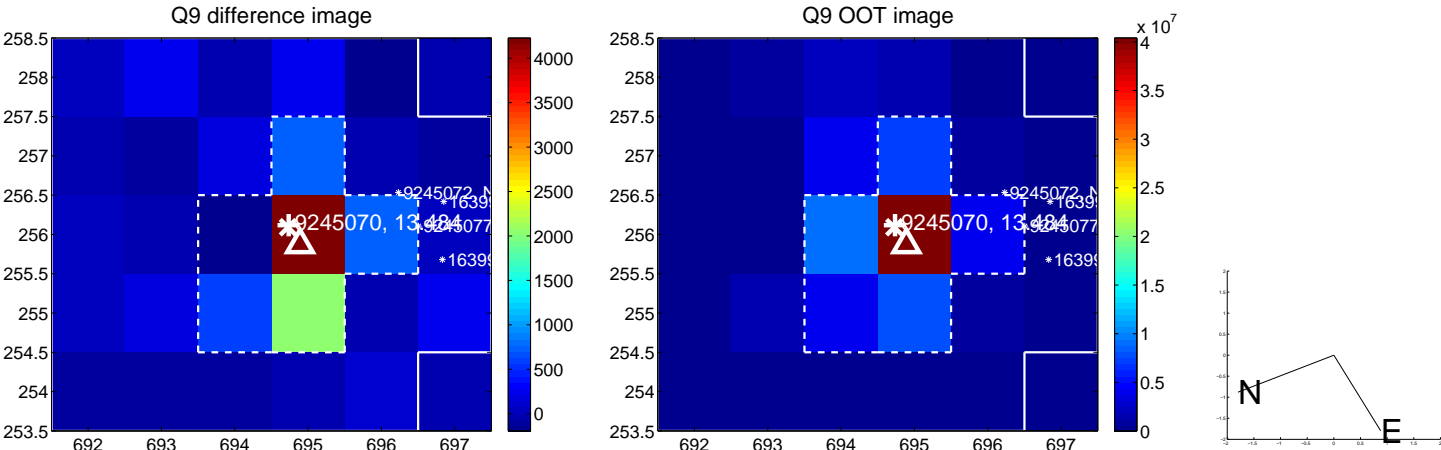


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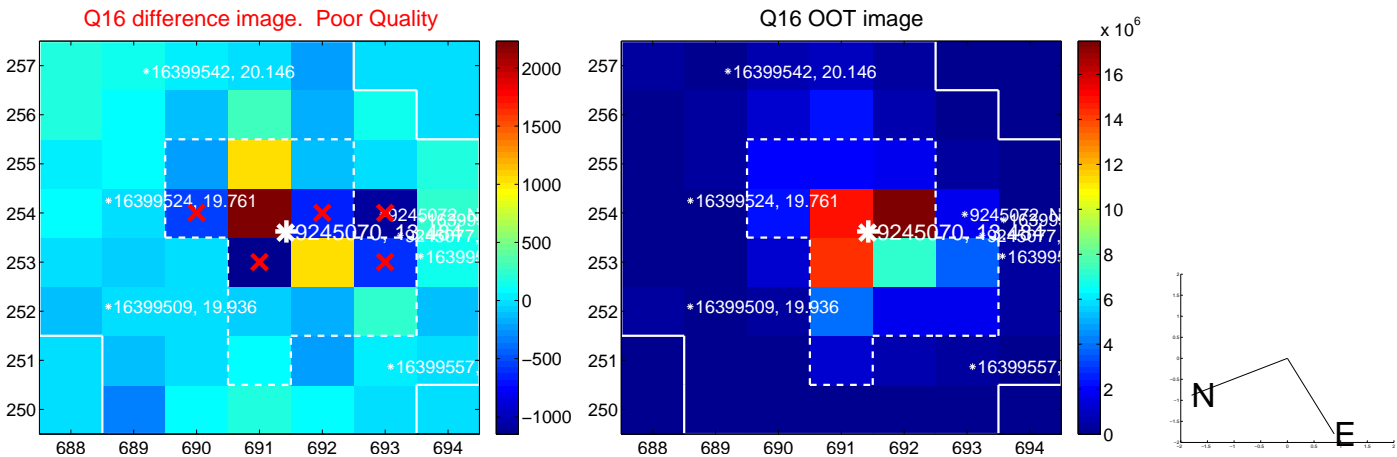
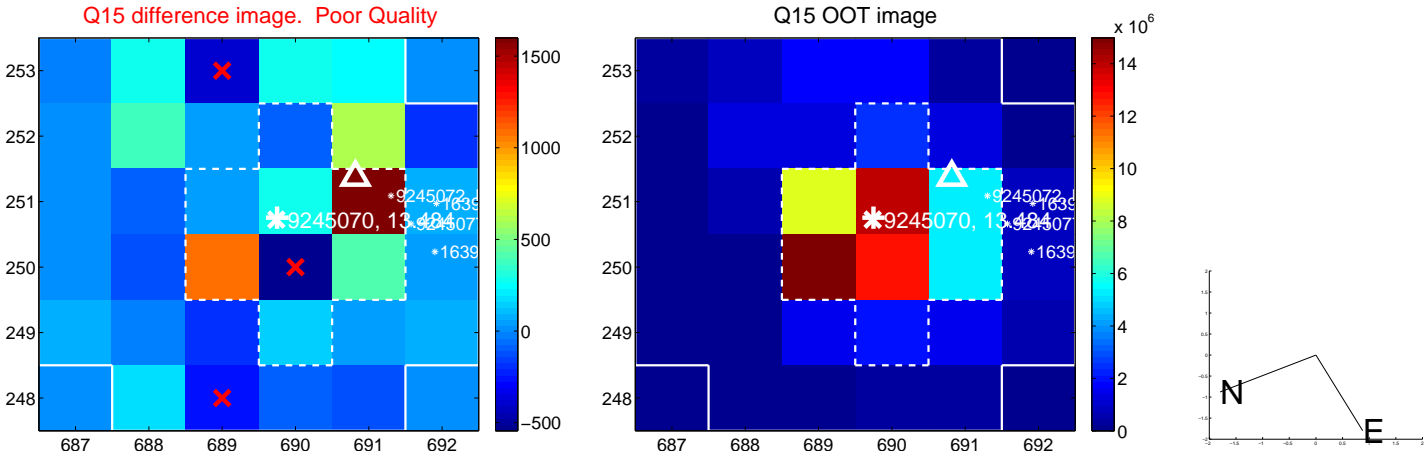
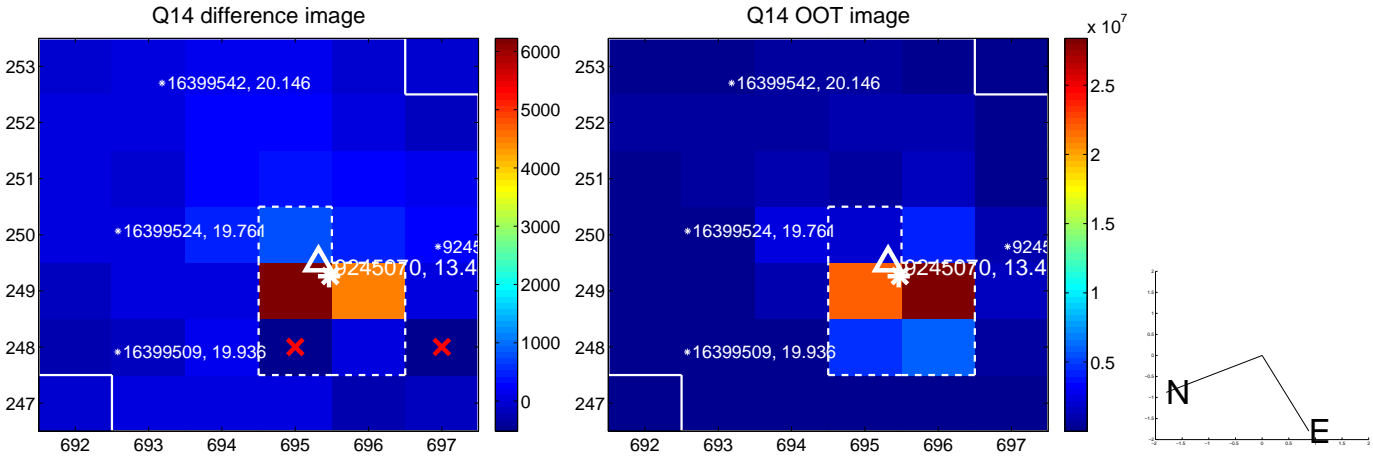
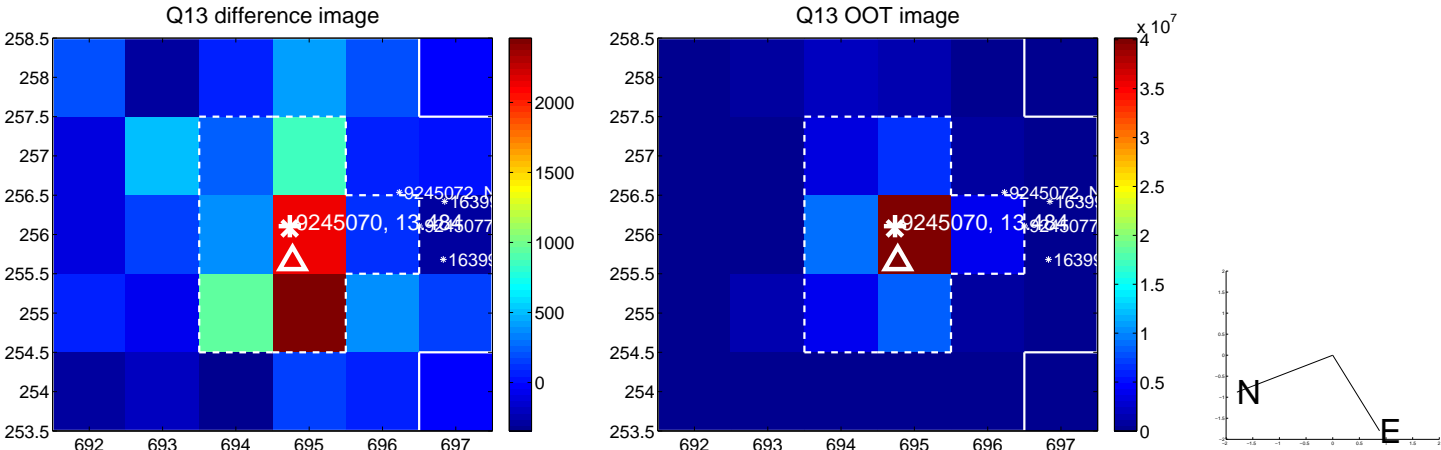




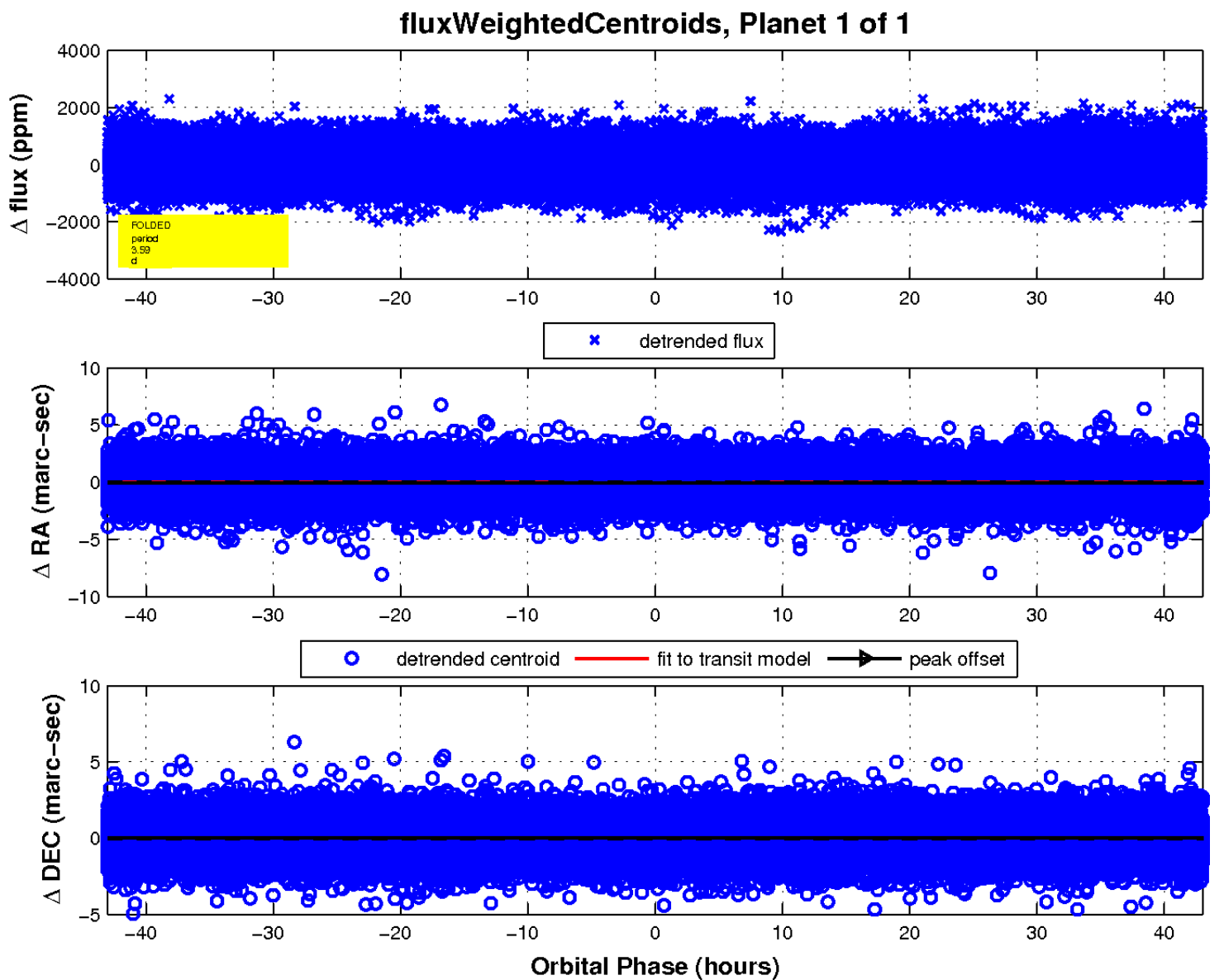
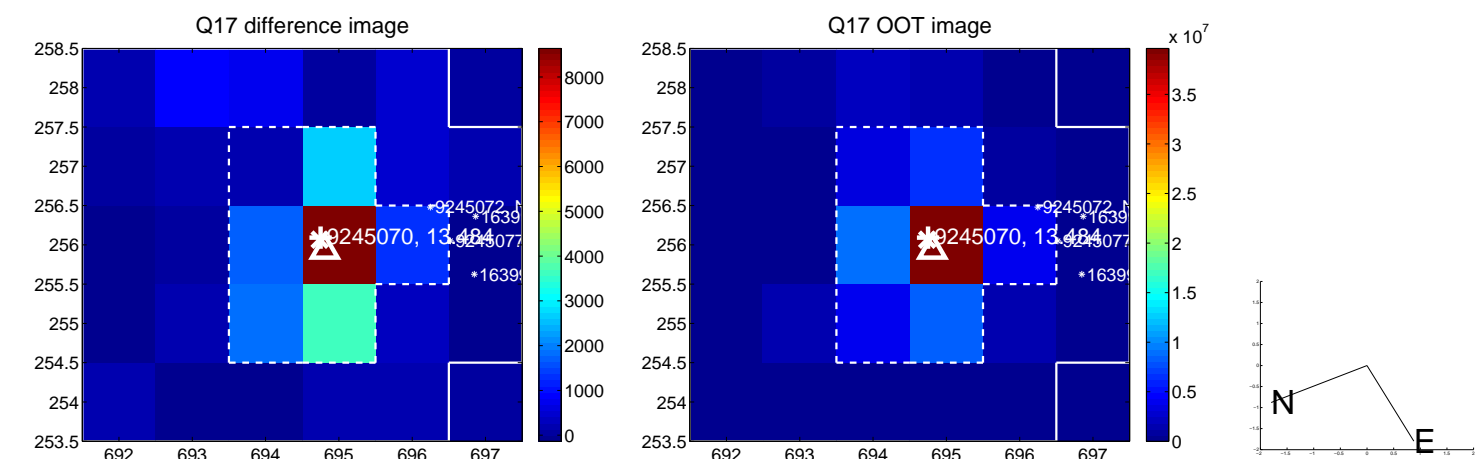
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white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

