

# KIC 002708885

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002708885-01	OBS	2907.01	1.146912	132.273996	171.0	1.979	15.5	14.0	0.86	5423	1.36	1382.98

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002708885-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET

**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 002708885-01

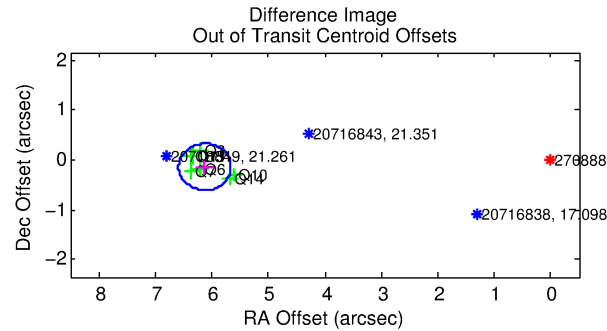
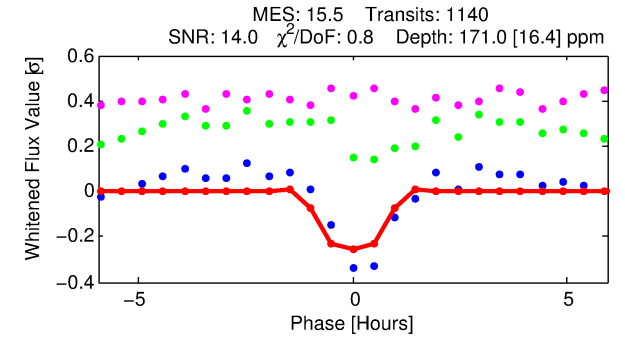
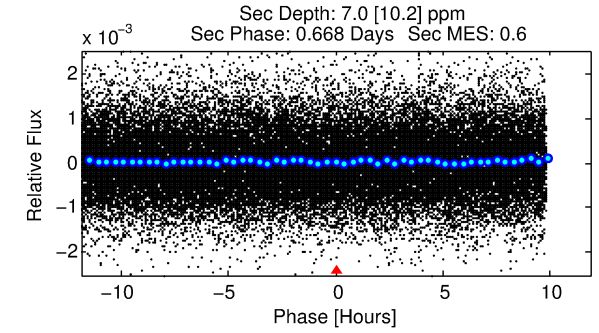
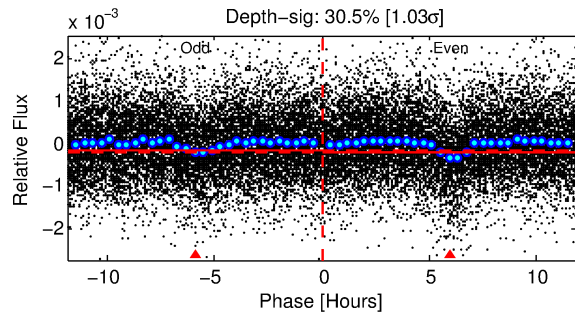
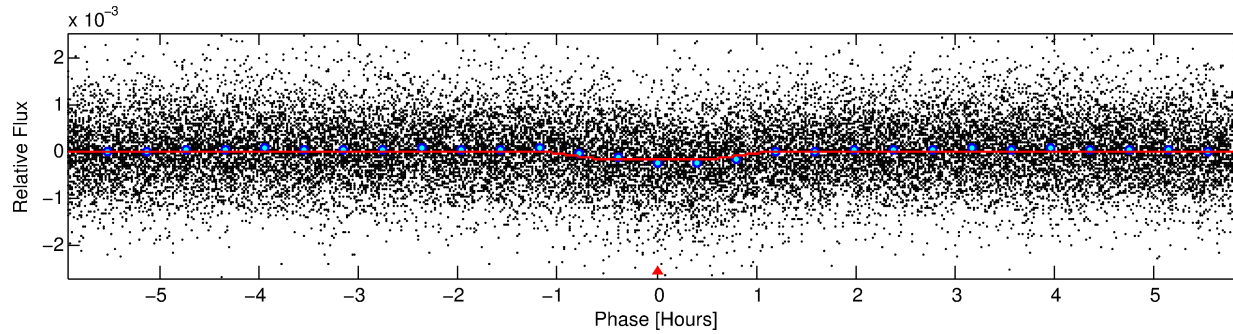
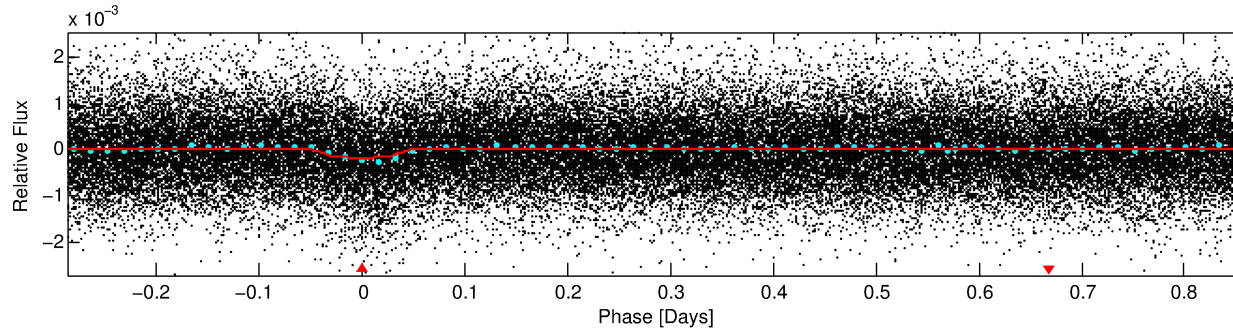
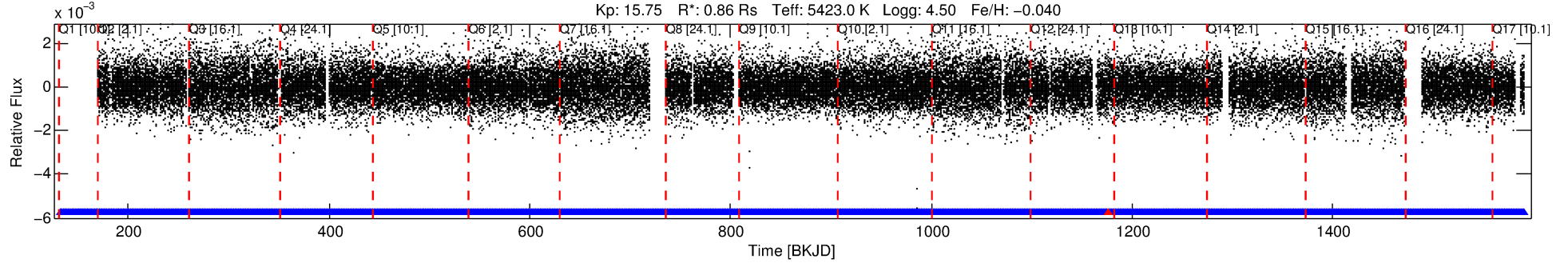
No Significant Match Found

# DV One-Page Summary

KIC: 2708885 Candidate: 1 of 1 Period: 1.147 d

KOI: K02907.01 Corr: 0.872

Kp: 15.75 R\*: 0.86 Rs Teff: 5423.0 K Logg: 4.50 Fe/H: -0.040



## DV Fit Results:

Period = 1.14691 [0.00001] d  
Epoch = 132.2740 [0.0021] BKJD  
Rp/R\* = 0.0144 [0.0093]  
a/R\* = 2.28 [5.20]  
b = 0.90 [0.61]  
Seff = 1382.98 [420.73]  
Teq = 1555 [118] K  
Rp = 1.36 [0.92] Re  
a = 0.0204 [0.0038] AU  
Ag = 0.88 [1.72] [-0.07σ]  
Teffp = 2327 [1129] K [0.68σ]

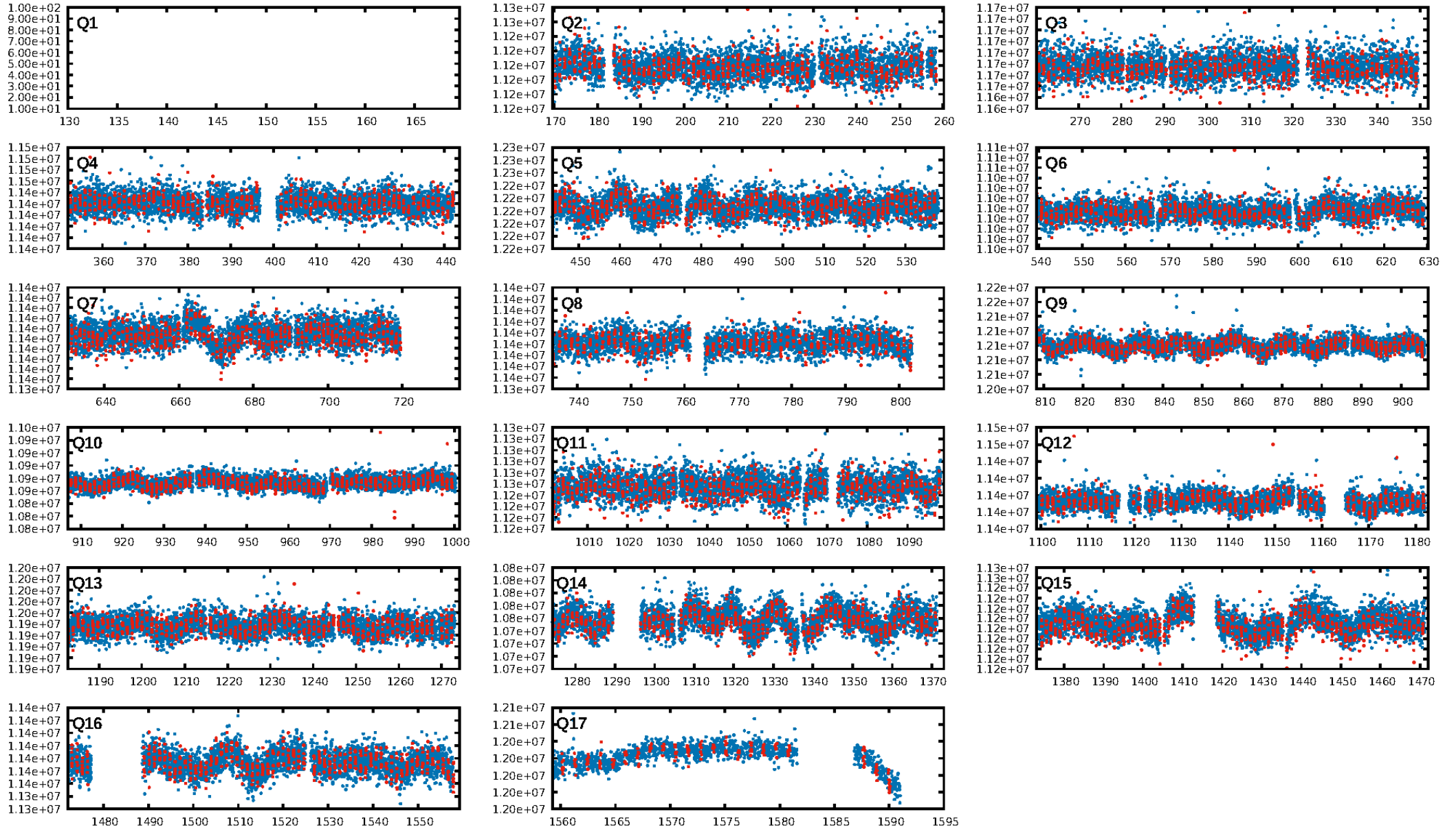
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.31e-52  
RollingBand-fgt: 1.00 [1117/1118]  
GhostDiagnostic-chr: -0.2946  
Centroid-sig: 0.0%  
Centroid-so: 15.609 arcsec [14.79σ]  
OotOffset-rm: 6.124 arcsec [39.53σ]  
KicOffset-rm: 6.217 arcsec [32.19σ]  
OotOffset-st: 3/4/0/0 [7]  
KicOffset-st: 3/4/0/0 [7]  
DiffImageQuality-fgm: 1.00 [7/7]  
DiffImageOverlap-fno: 1.00 [16/16]

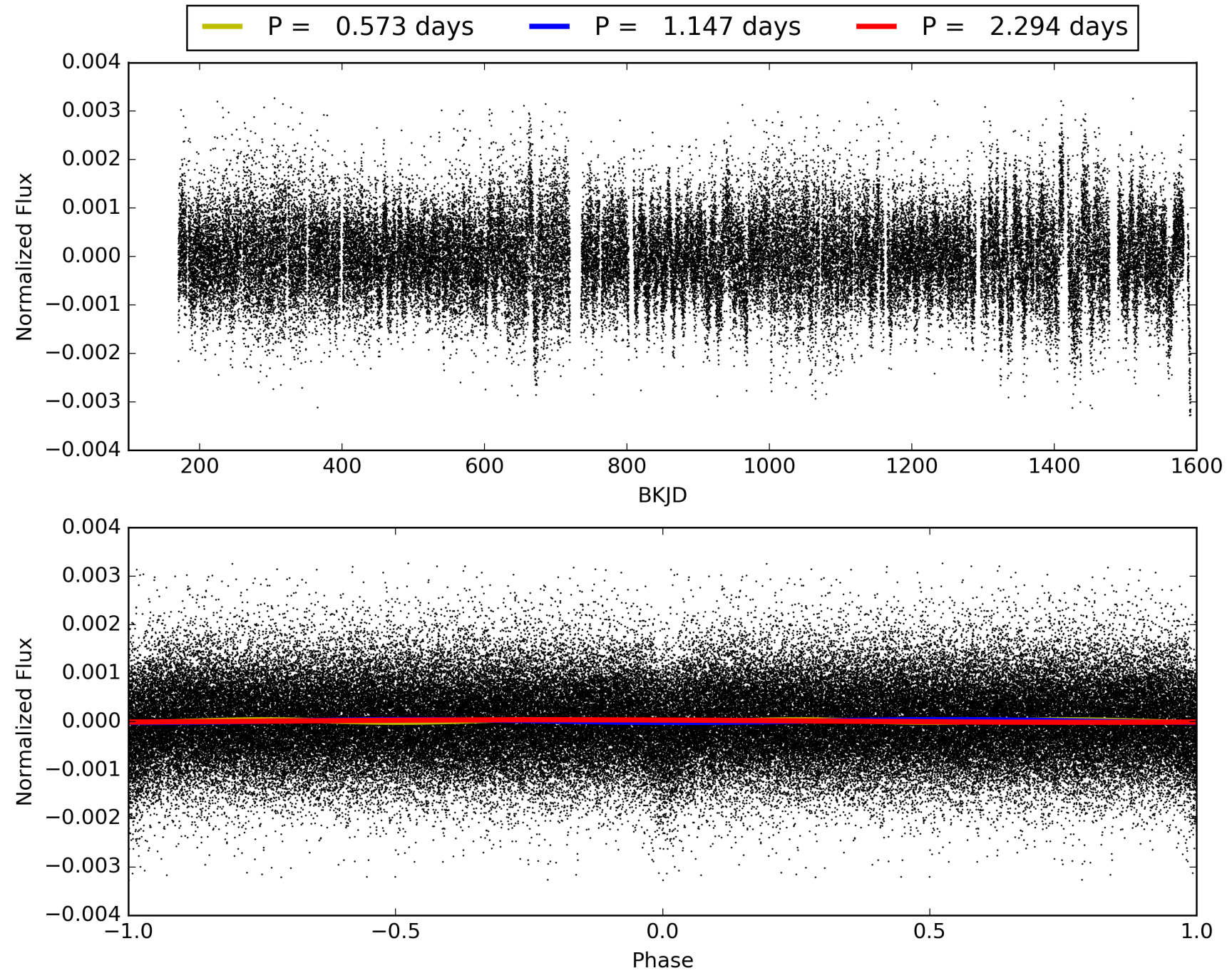
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:28:50 Z

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

# TCE 002708885-01, PDC Light Curves



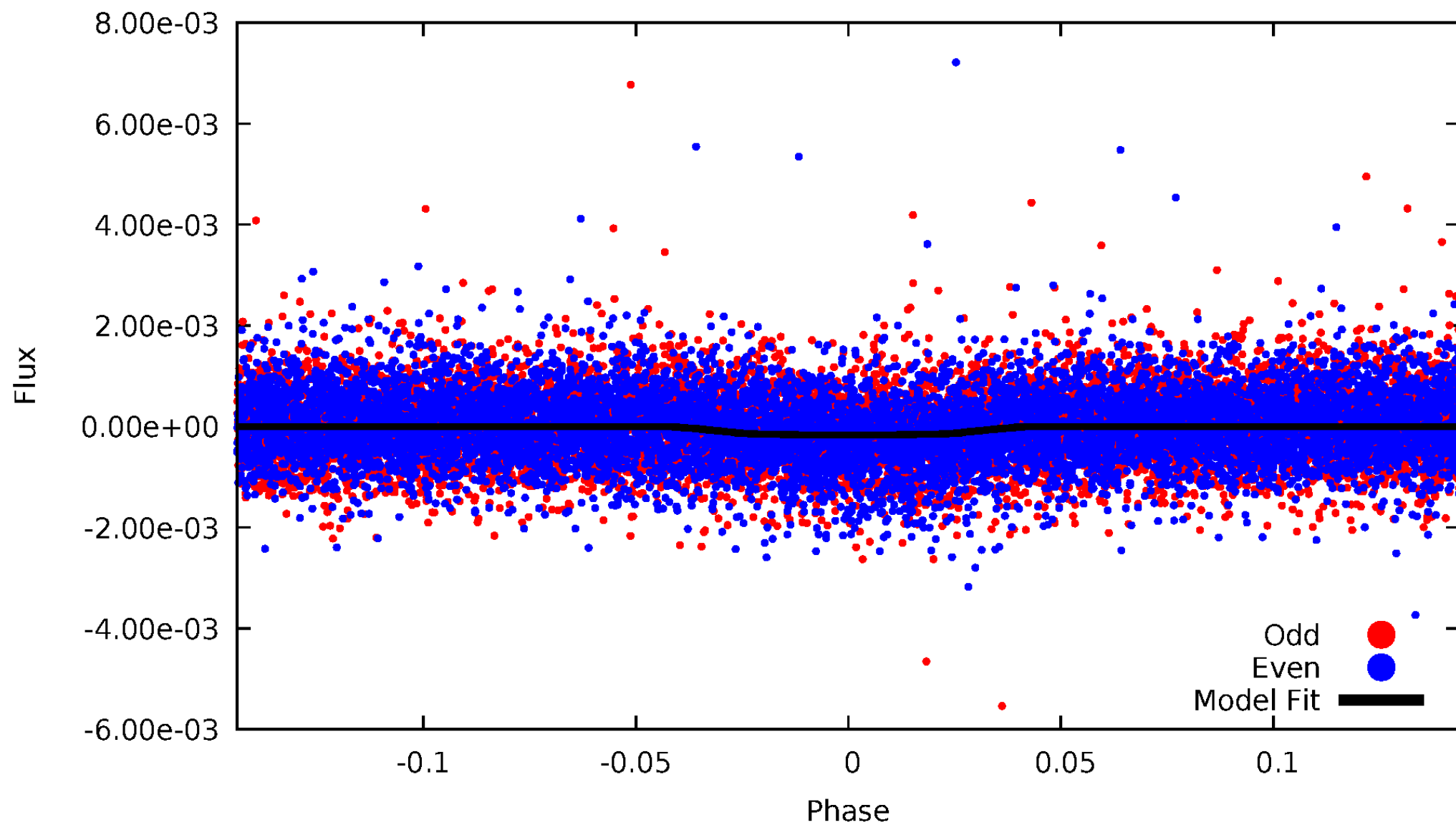
TCE 002708885-01





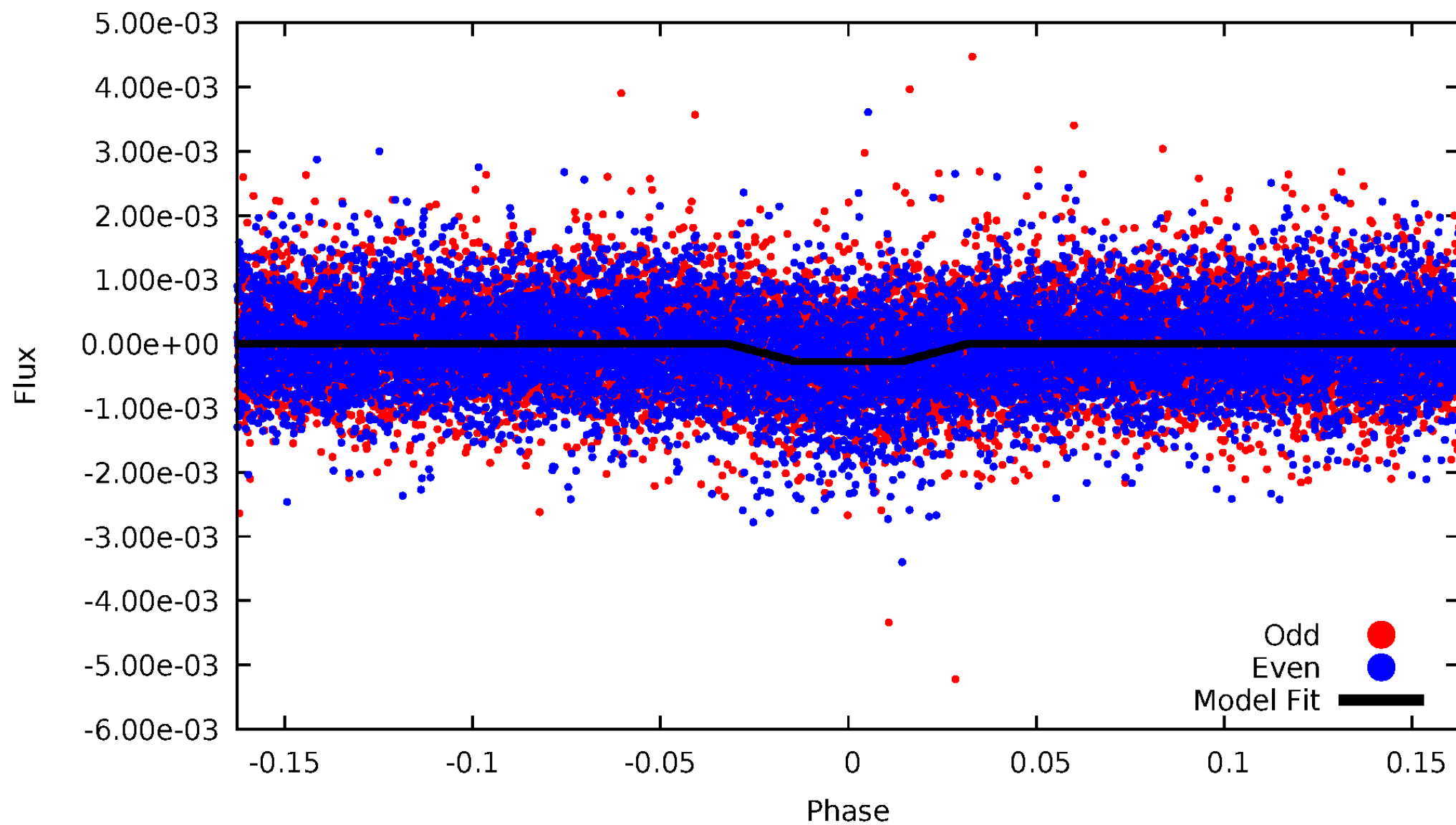
# DV Odd/Even

TCE 002708885-01

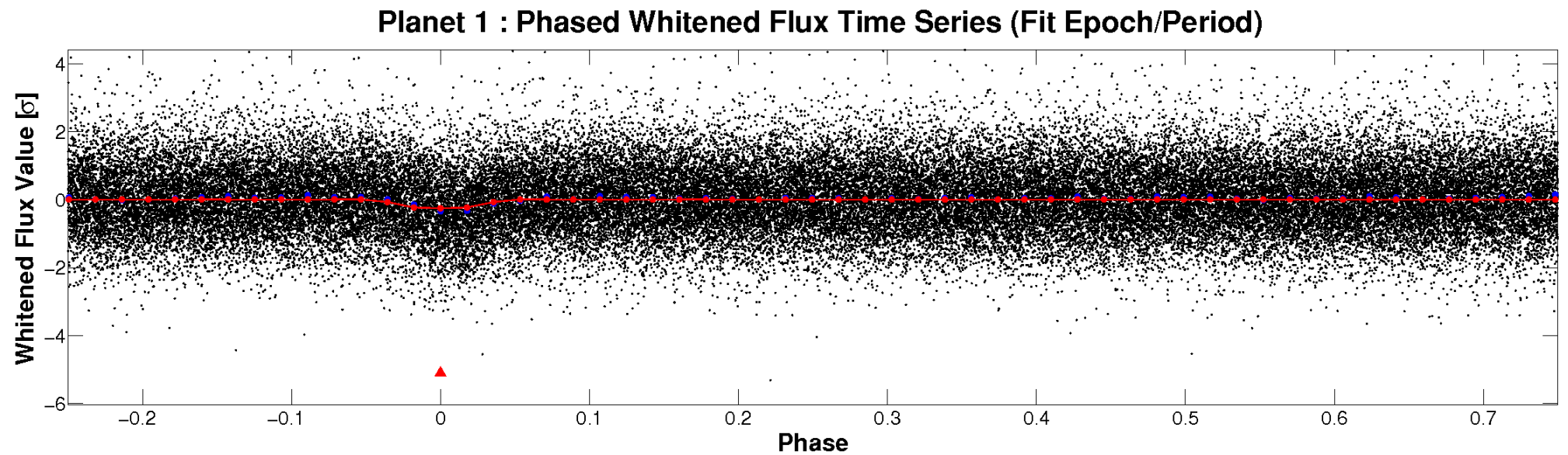
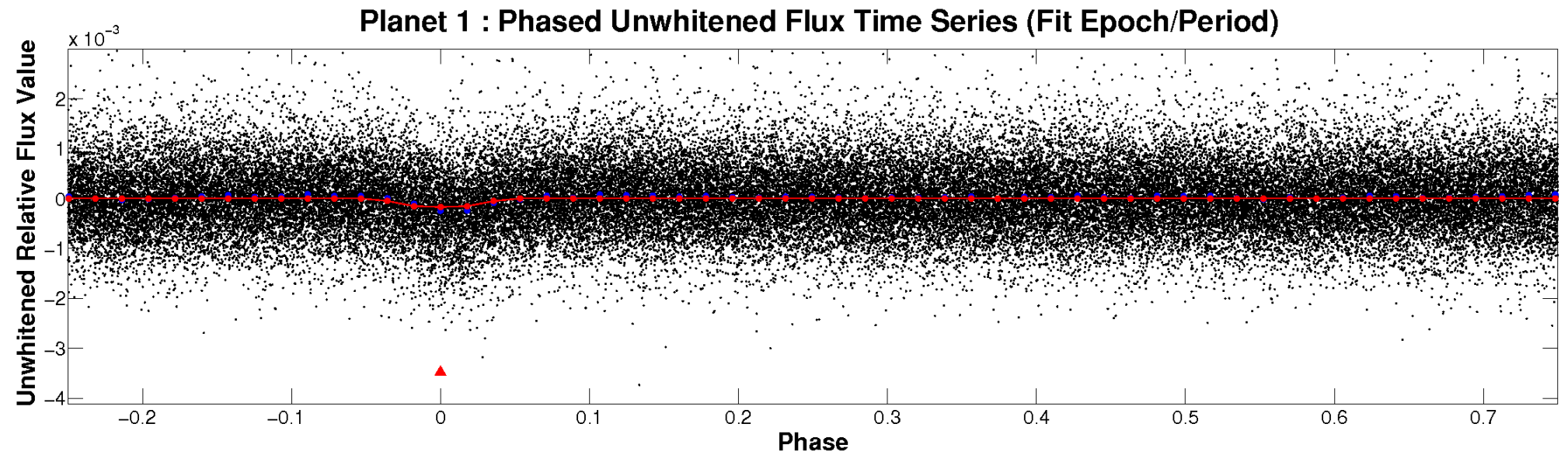


# ALT Odd/Even

TCE 002708885-01

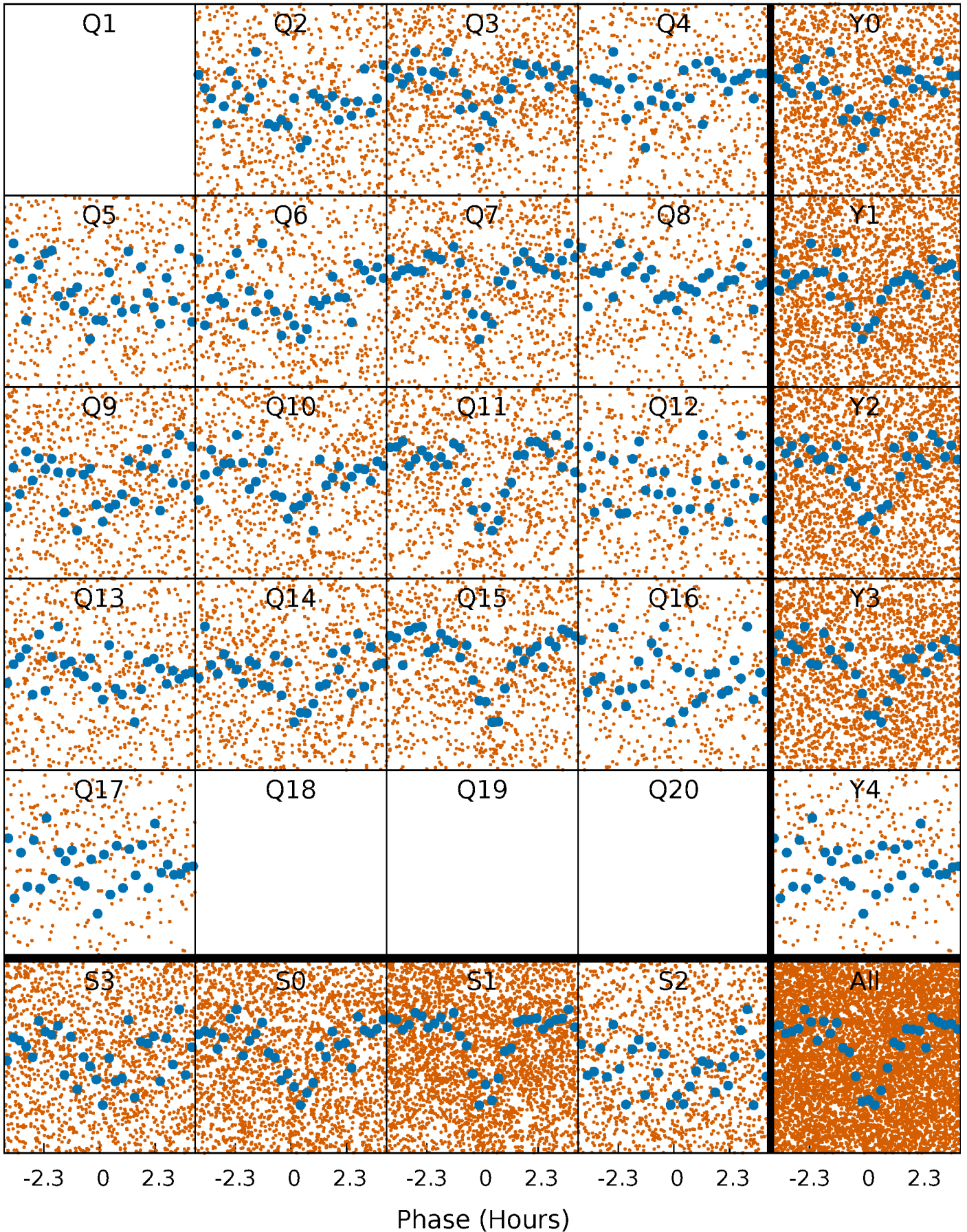


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

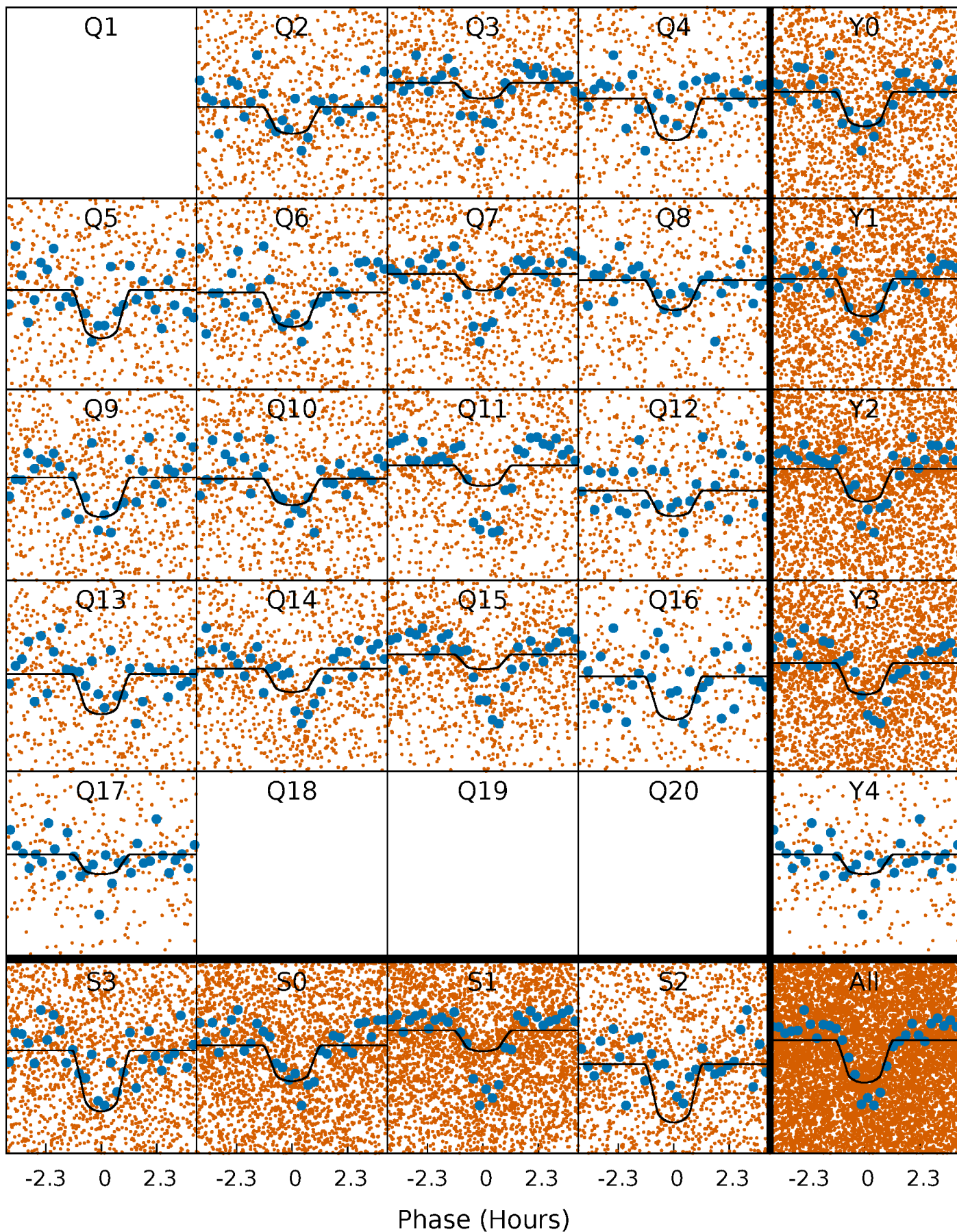
TCE 002708885-01 P= 1.146912 Days  $T_0=132.273996$  (BKJD)





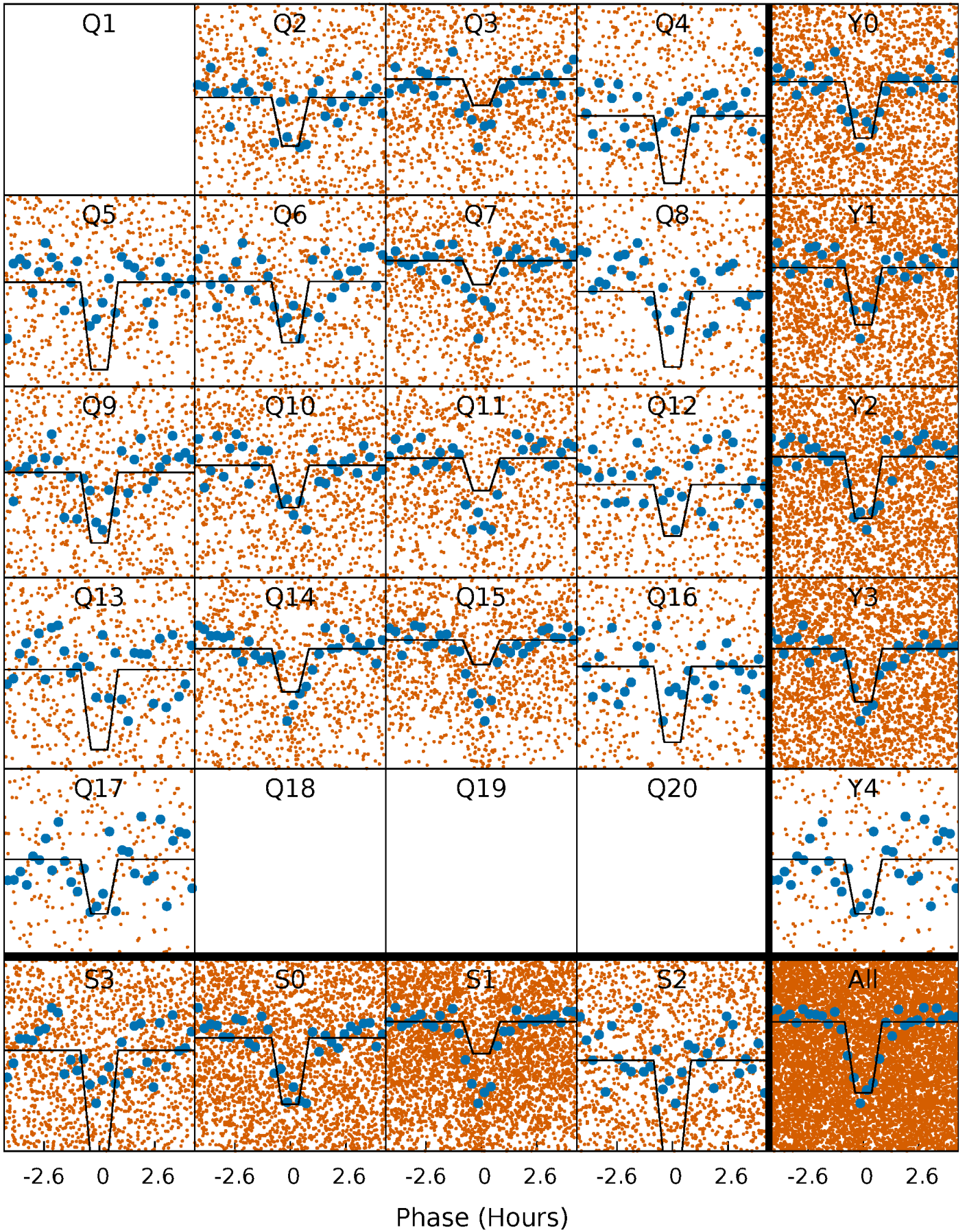
# DV Quarter-Phased Transit Curves

TCE 002708885-01 P= 1.146912 Days  $T_0=132.273996$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

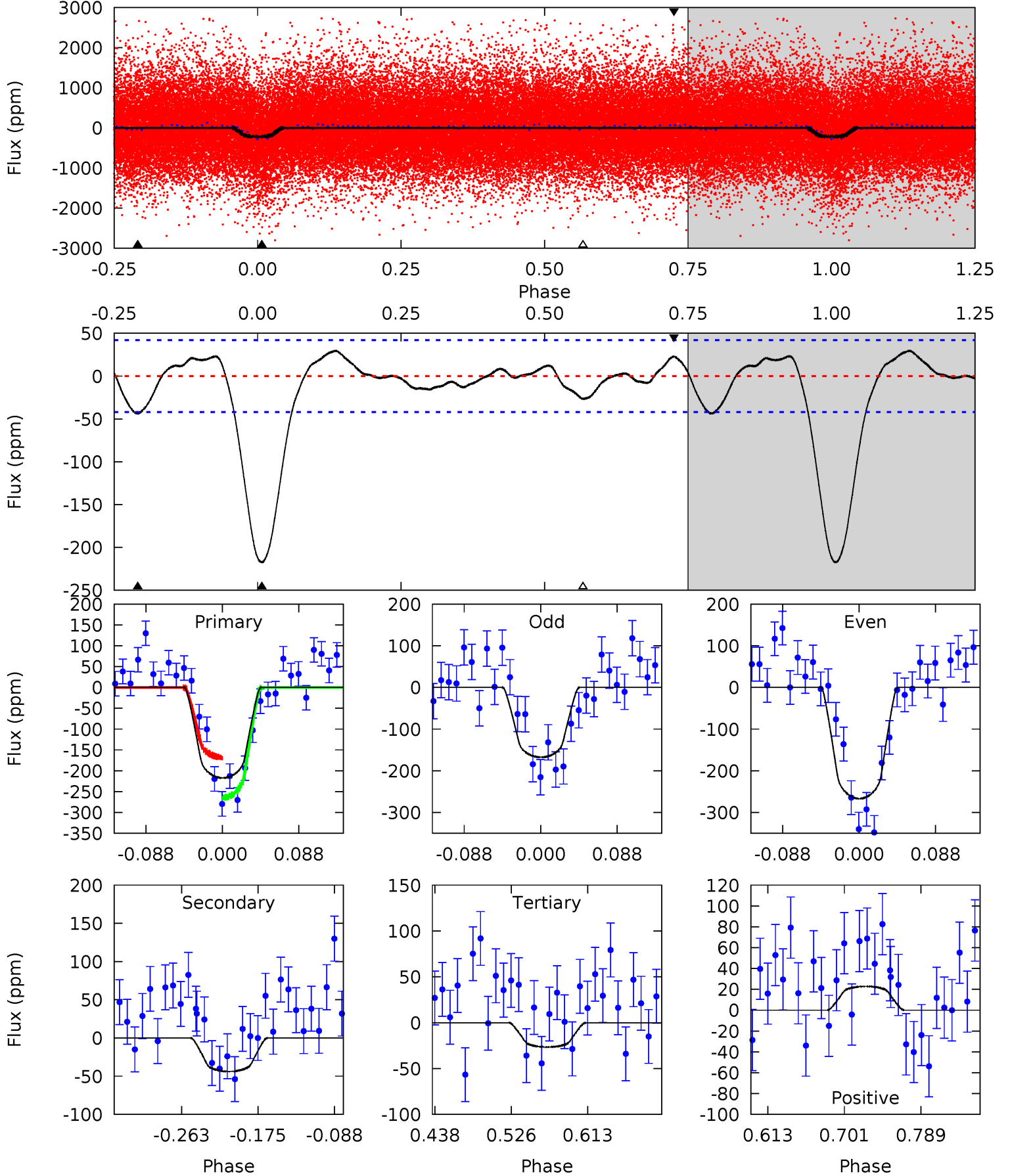
TCE 002708885-01 P= 1.146930 Days  $T_0=132.270004$  (BKJD)



# DV Model-Shift Uniqueness Test

002708885-01, P = 1.146912 Days, E = 132.273996 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
23.7	4.78	2.91	2.49	4.59	1.71	1.43	20.8	21.2	1.88	2.29	5.44	1.11	0.12	5.30

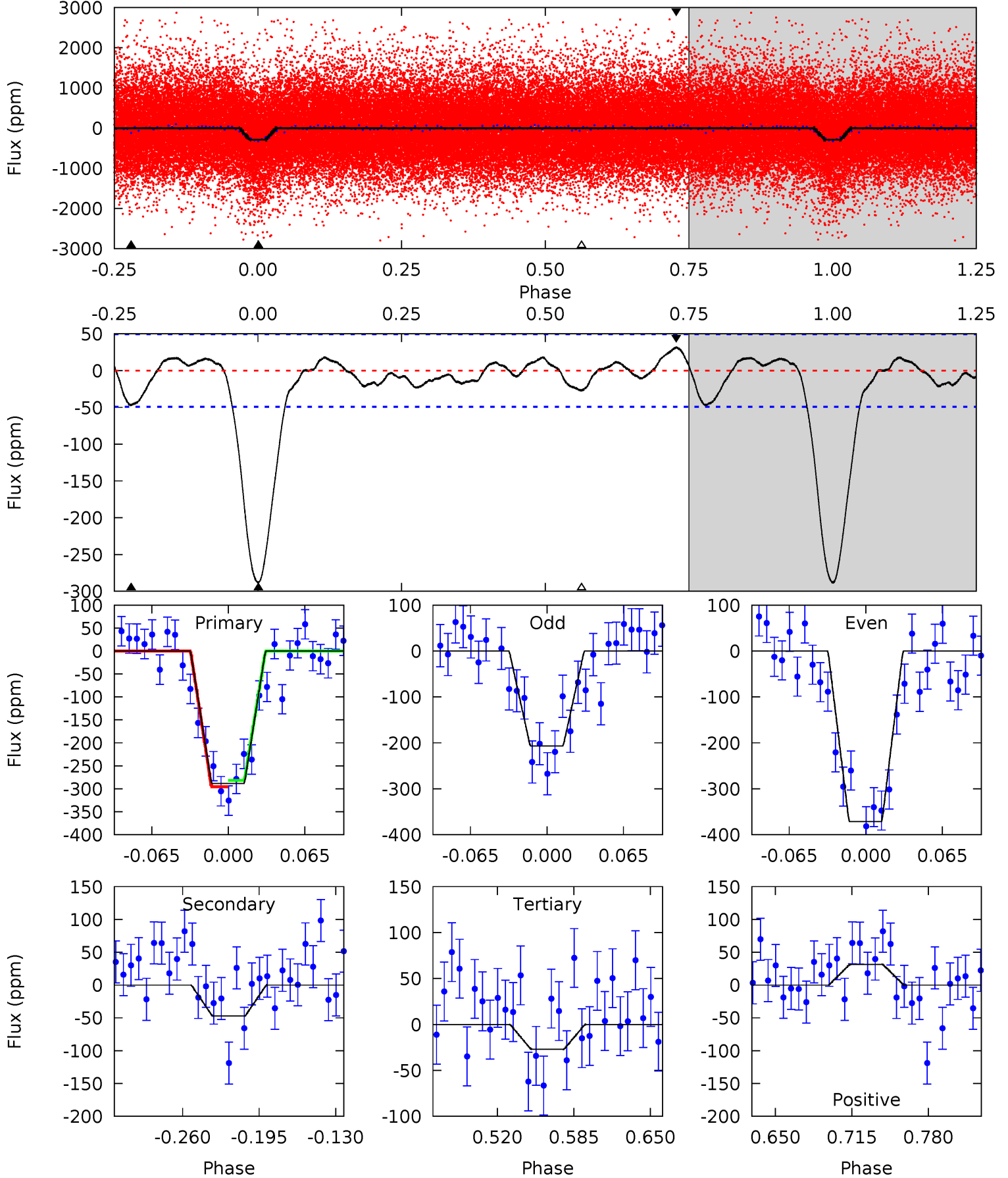




# Alt Model-Shift Uniqueness Test

002708885-01, P = 1.146930 Days, E = 132.270004 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
27.2	4.44	2.56	2.98	4.65	1.85	1.26	24.7	24.2	1.88	1.46	7.76	1.05	0.10	0.66





### Stellar Parameters For KIC 002708885

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5423^{+193}_{-193}$	$4.502^{+0.074}_{-0.147}$	$-0.040^{+0.300}_{-0.300}$	$0.862^{+0.189}_{-0.087}$	$0.862^{+0.099}_{-0.081}$	$1.895^{+0.607}_{-0.759}$
	+4%/-4%	+2%/-3%	+750%/-750%	+22%/-10%	+11%/-9%	+32%/-40%
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 002708885-01 / KOI 2907.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-44 \pm 9$	$1.44^{+0.89}_{-0.76}$	$2195^{+115}_{-113}$	$3850^{+1390}_{-646}$	$4.587^{+16.732}_{-2.889}$
Alt.	$-47 \pm 11$	$1.67^{+0.87}_{-0.85}$	$2189^{+135}_{-109}$	$3709^{+1208}_{-516}$	$3.900^{+12.245}_{-2.300}$

$T_{max}$  = 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

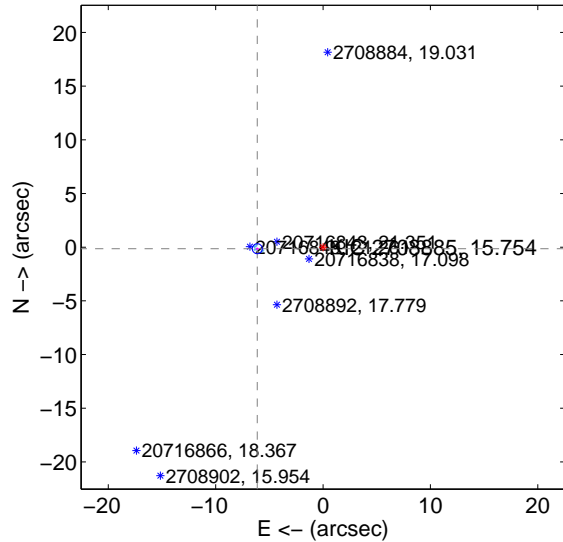
Supplemental centroid analysis for 002708885-01. Kepler magnitude: 15.75. Transit SNR 14.05

There are 7 quarters with good PRF difference image offsets

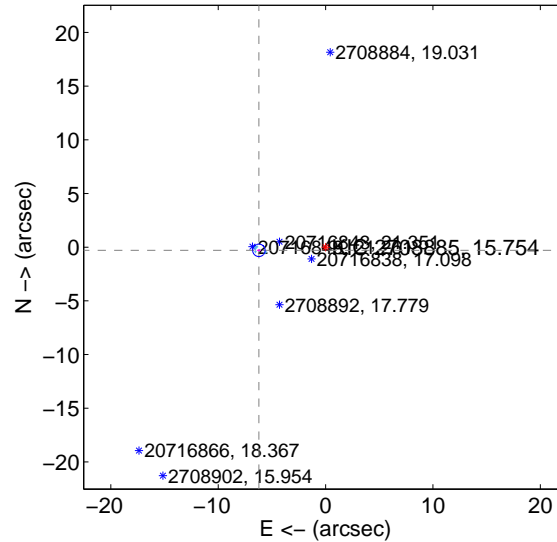
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	6.124 $\pm$ 0.155	39.53	6.122 $\pm$ 0.155	-0.145 $\pm$ 0.112
PRF-fit source offset from KIC position	6.217 $\pm$ 0.193	32.19	6.210 $\pm$ 0.193	-0.294 $\pm$ 0.114
photometric centroid source offset	15.61 $\pm$ 1.06	14.79	15.35 $\pm$ 1.06	-2.83 $\pm$ 0.99

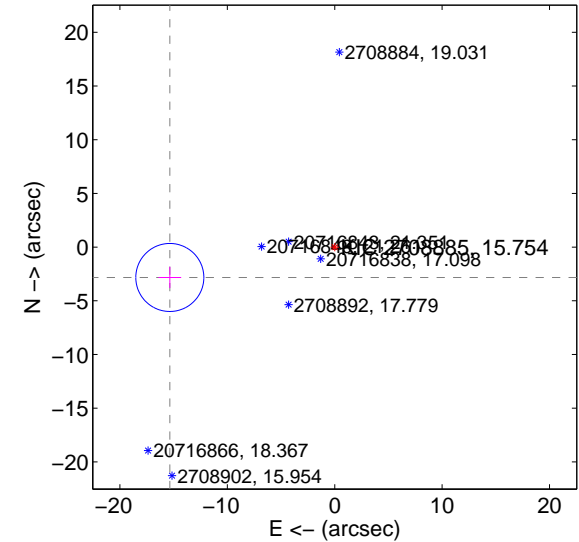
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

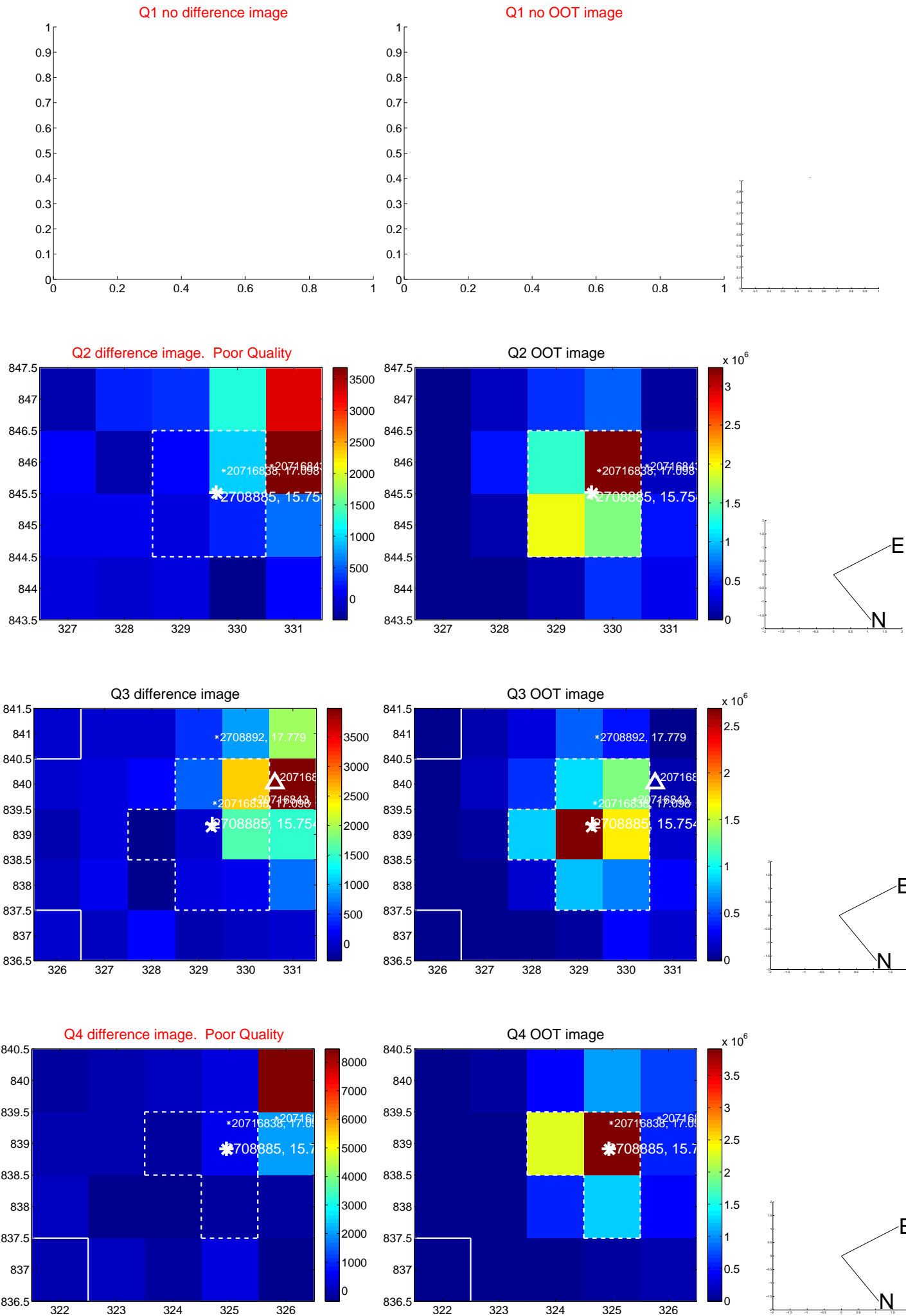


offset from photometric centroids

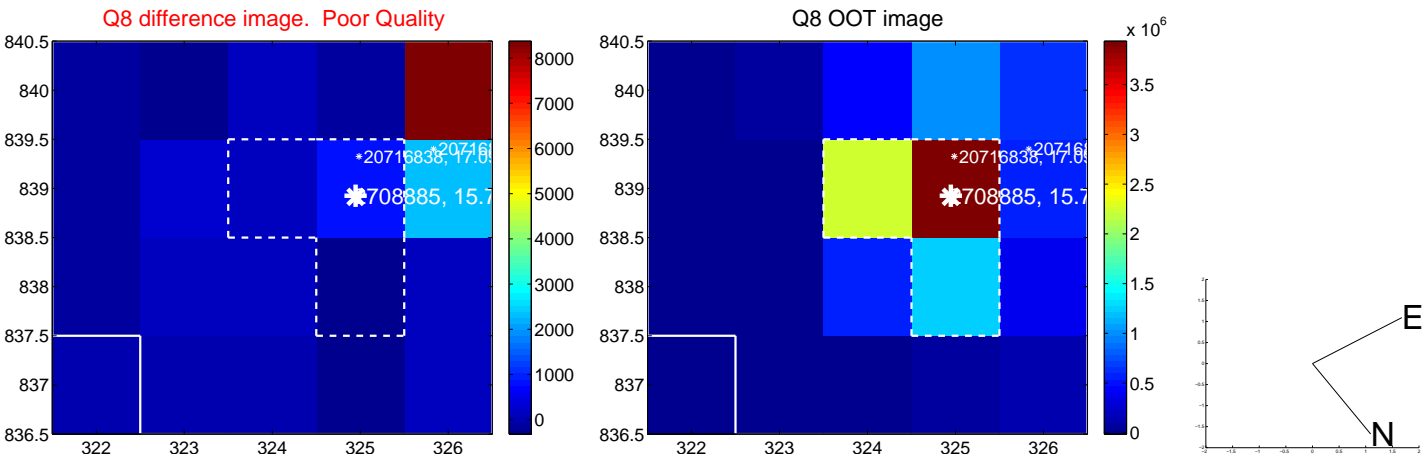
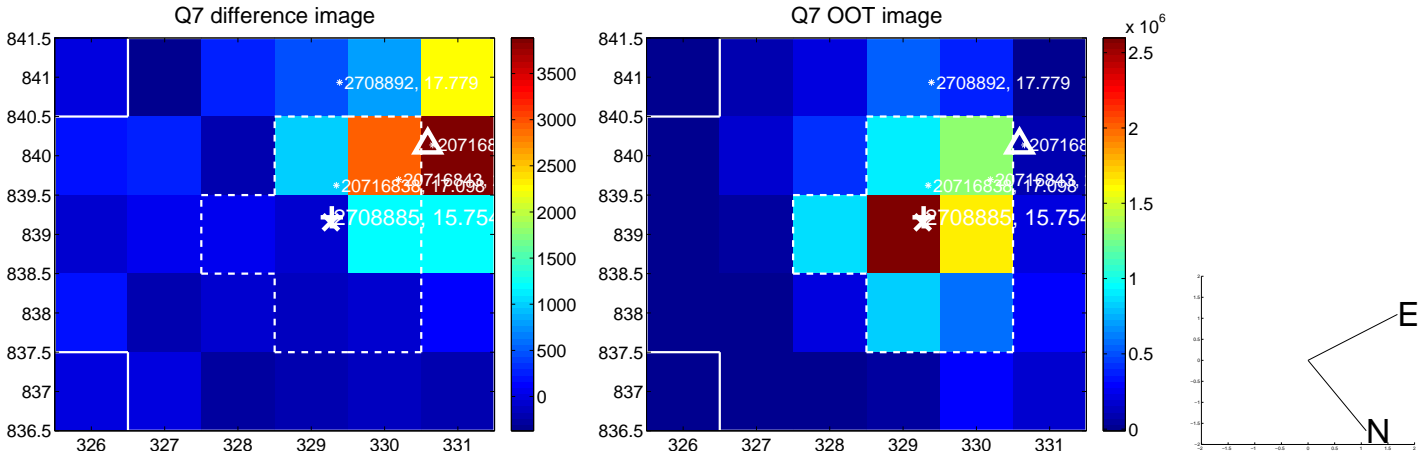
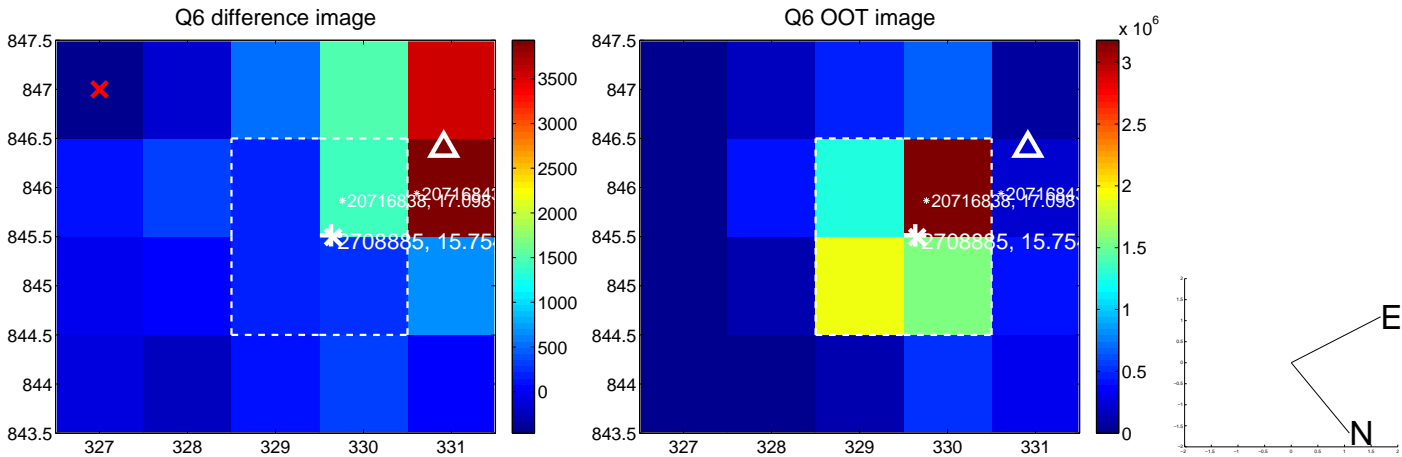
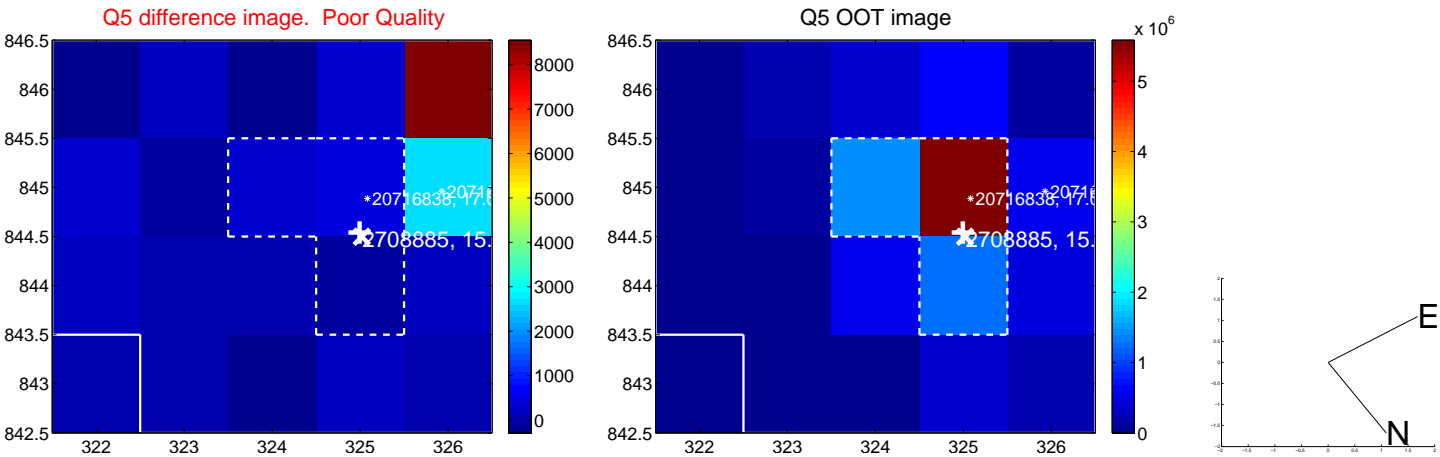


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

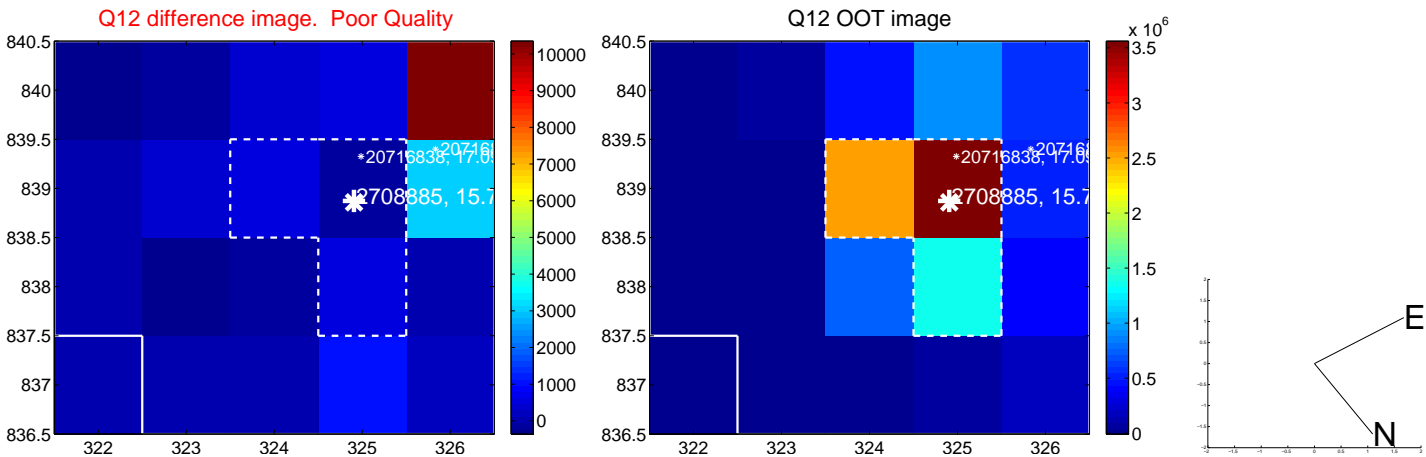
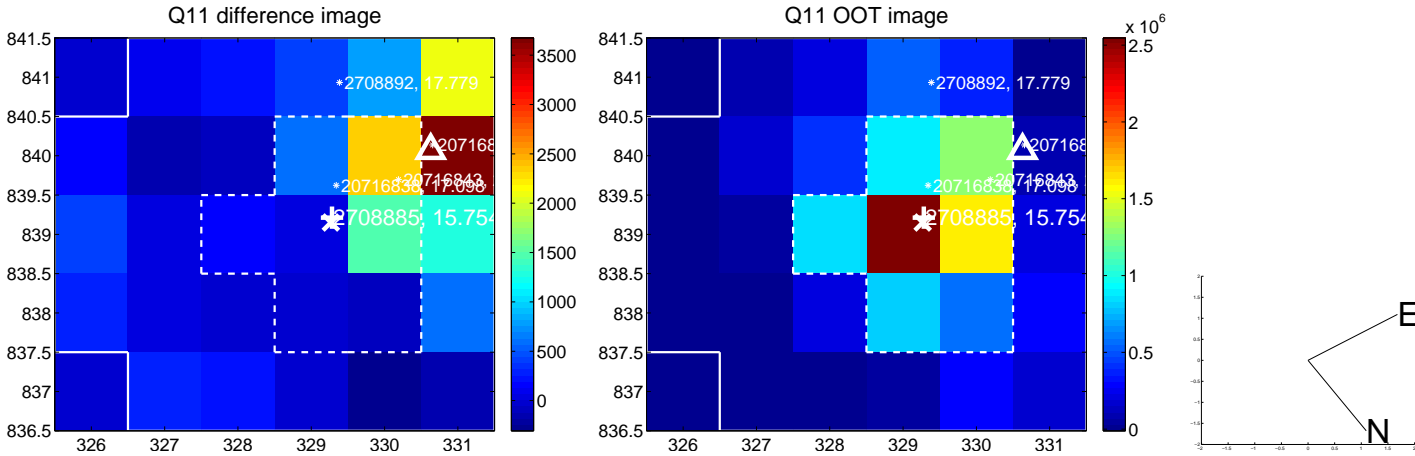
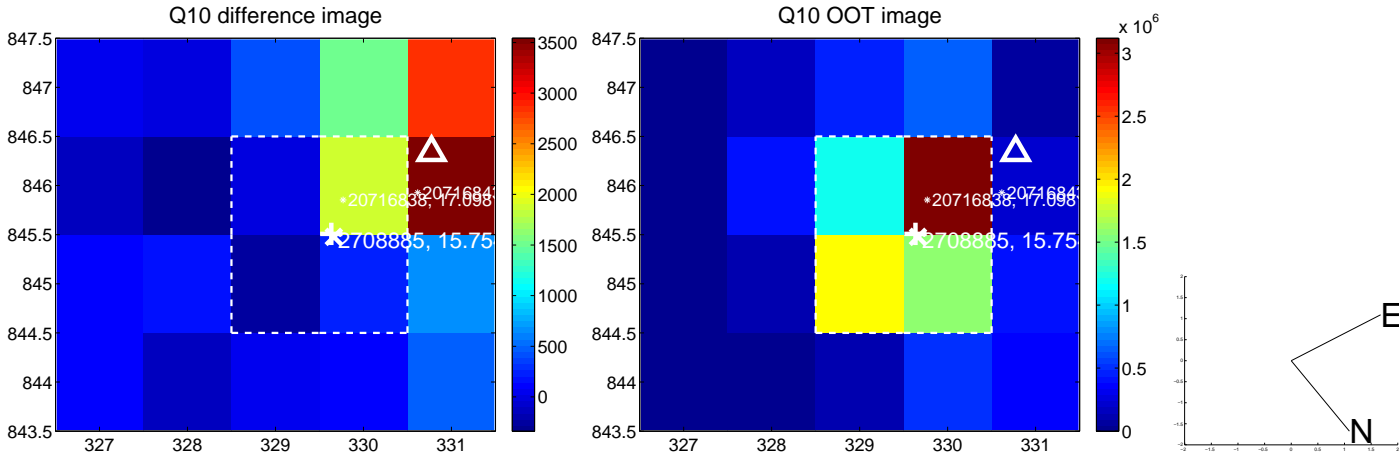
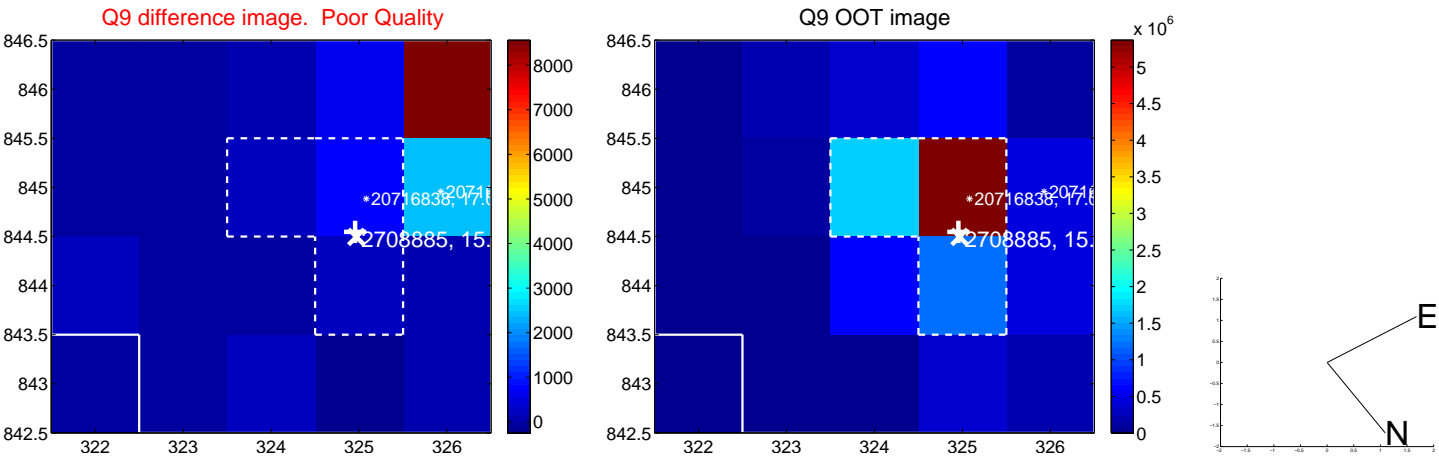


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

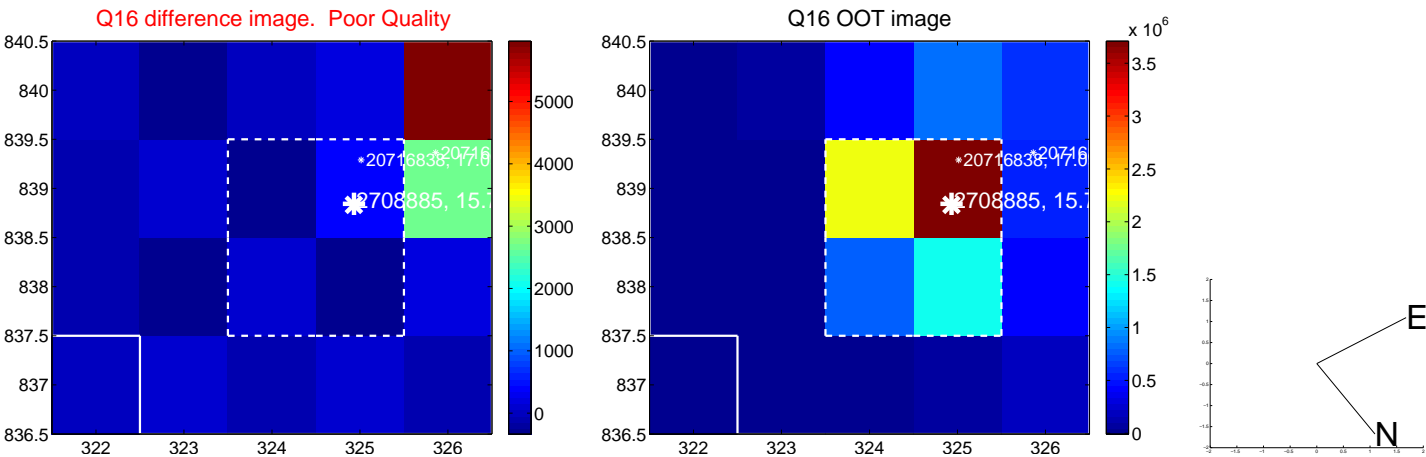
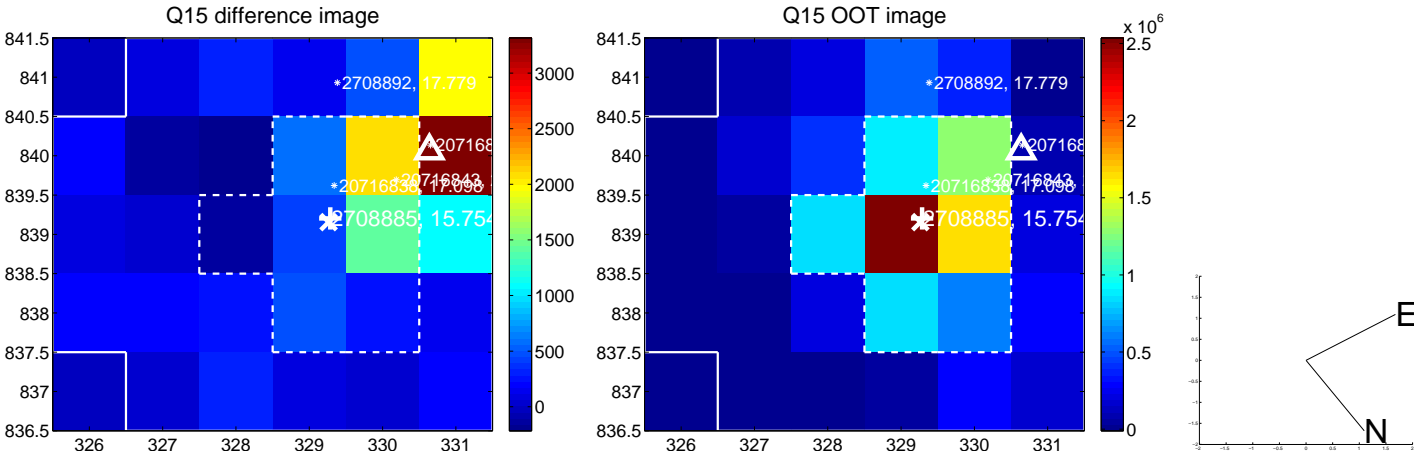
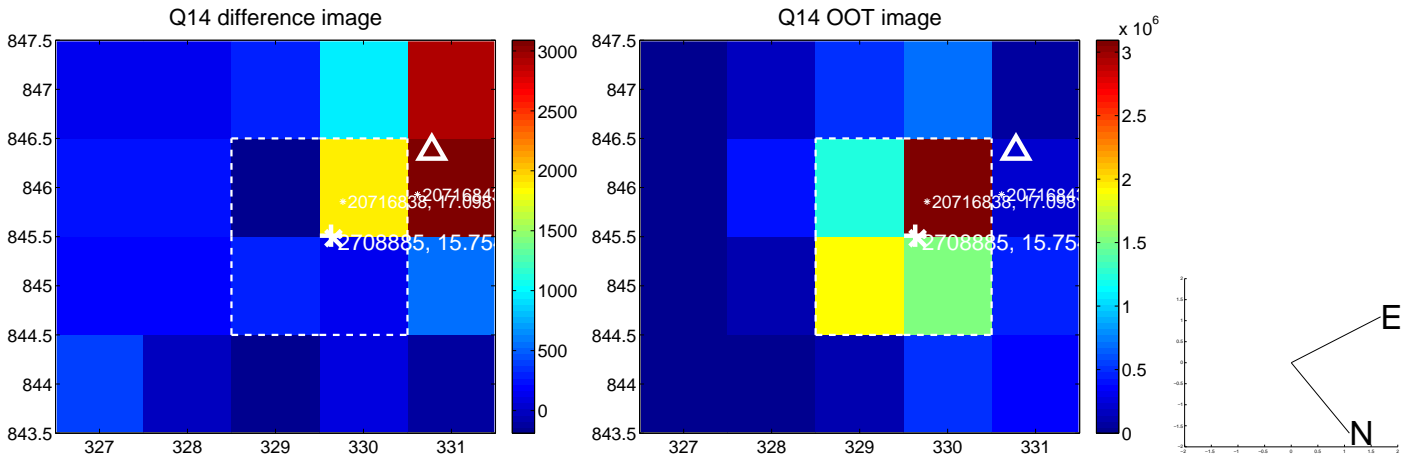
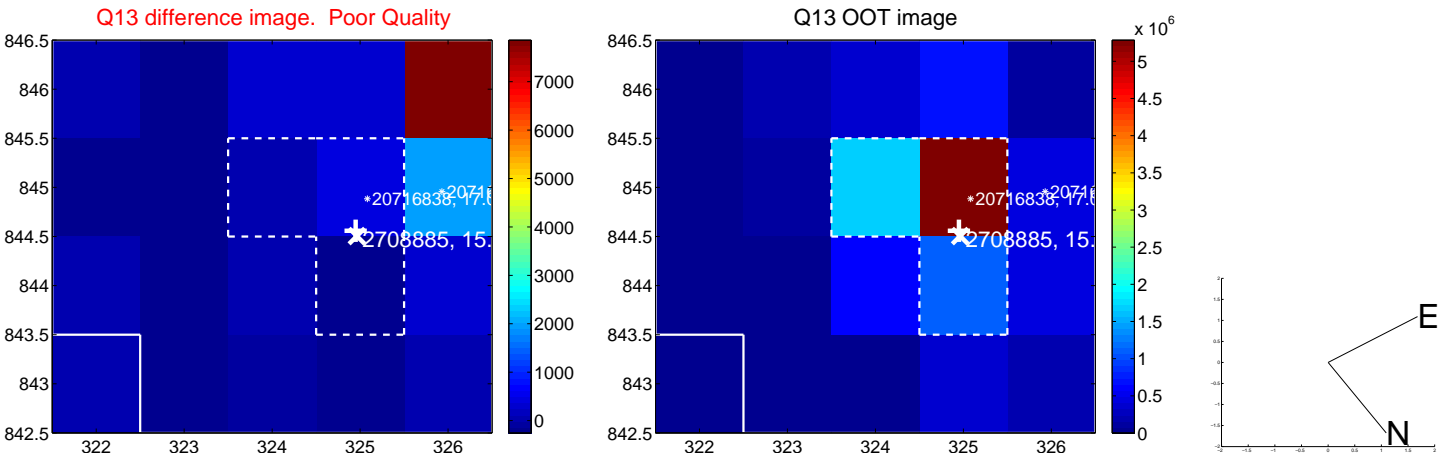




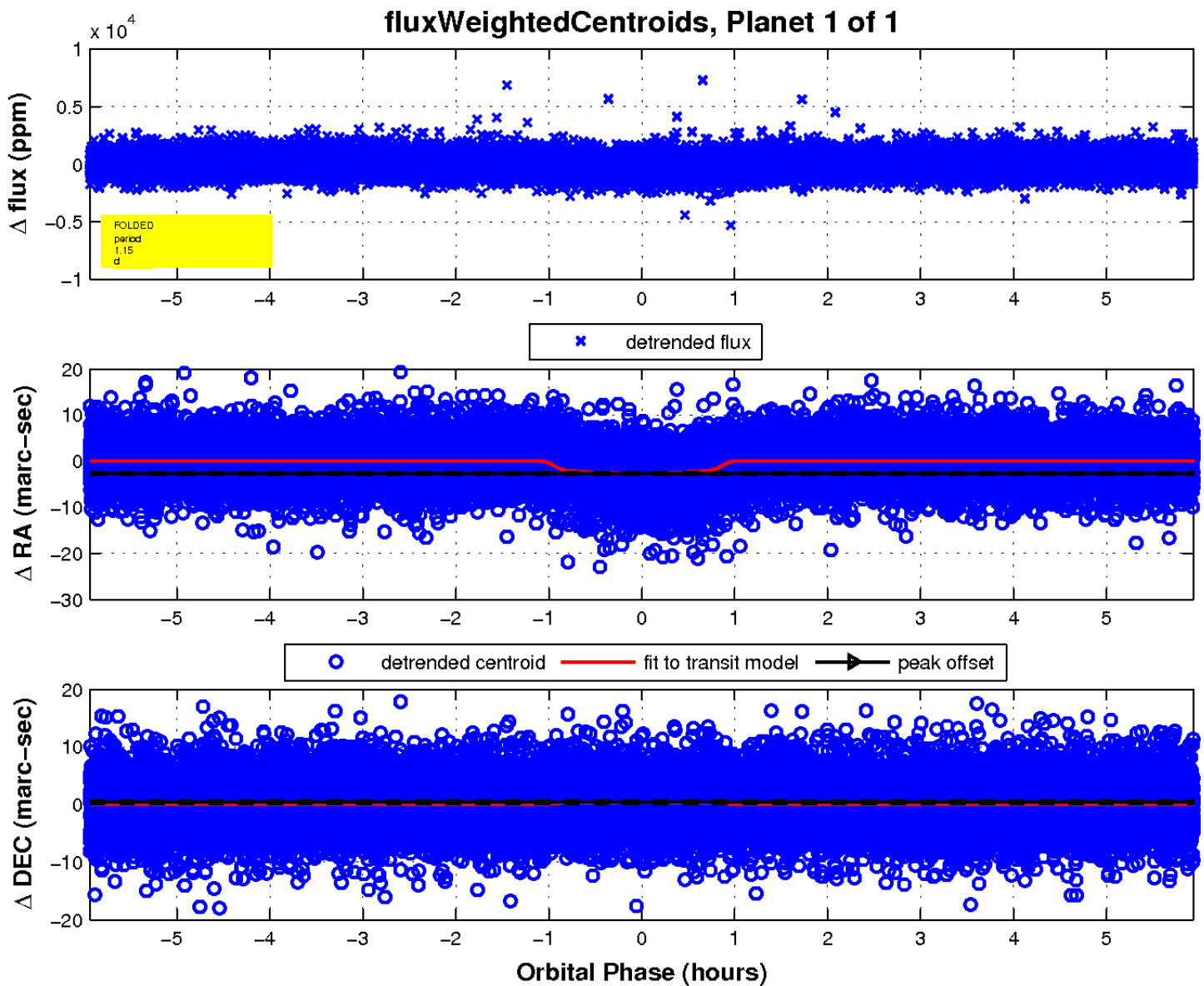
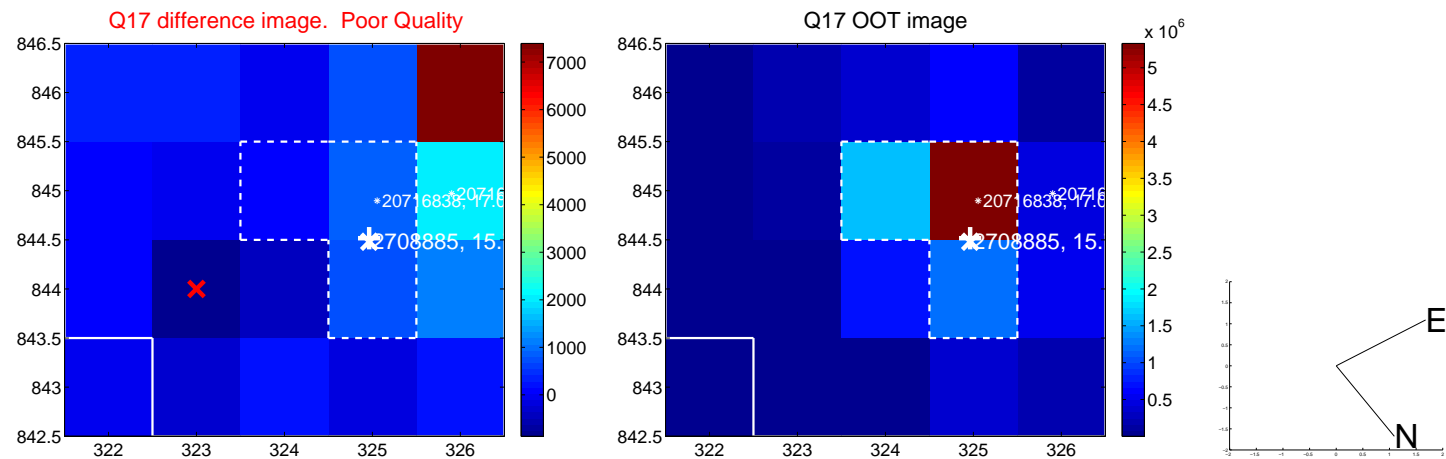
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

