

# KIC 009899449

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
009899449-01	OBS	8190.01	1.332521	132.073016	494.2	3.135	62.6	60.1	0.96	6014	2.53	1860.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899449-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_ALT—CENT_FEW_DIFFS—HALO_GHOST—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.

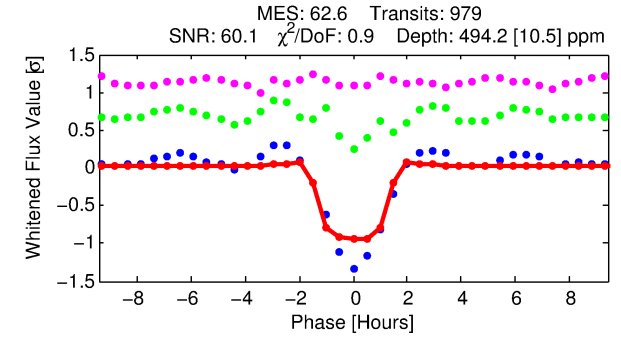
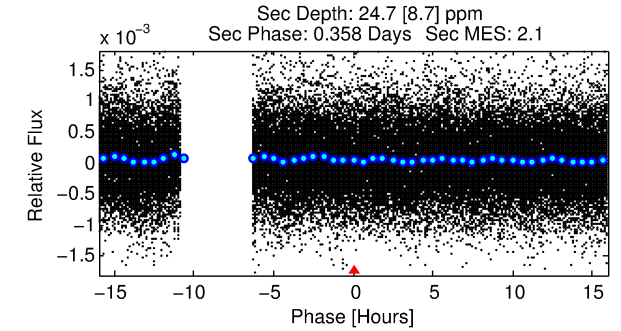
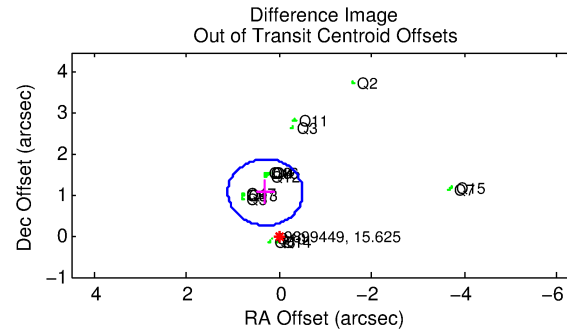
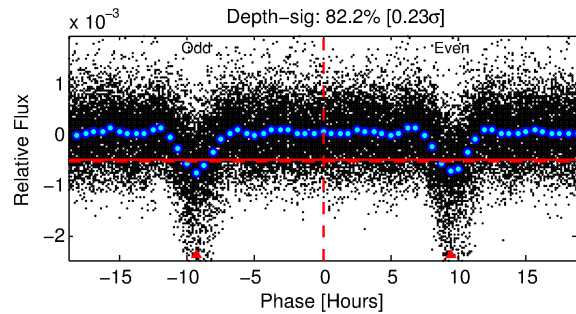
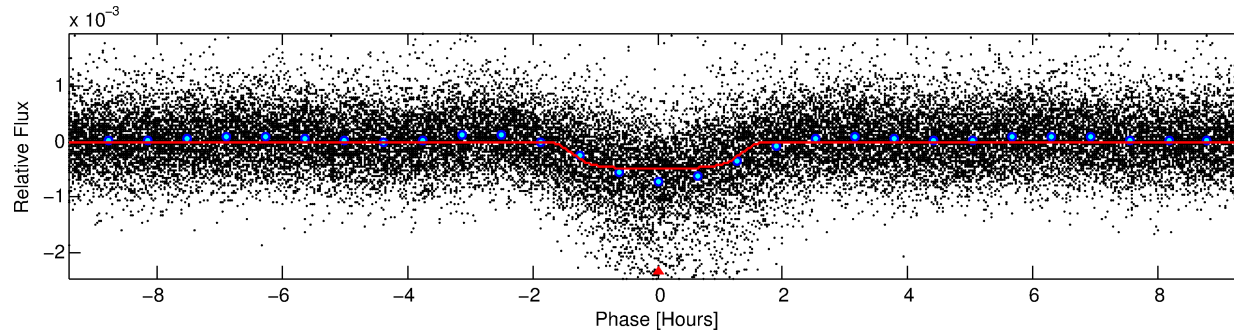
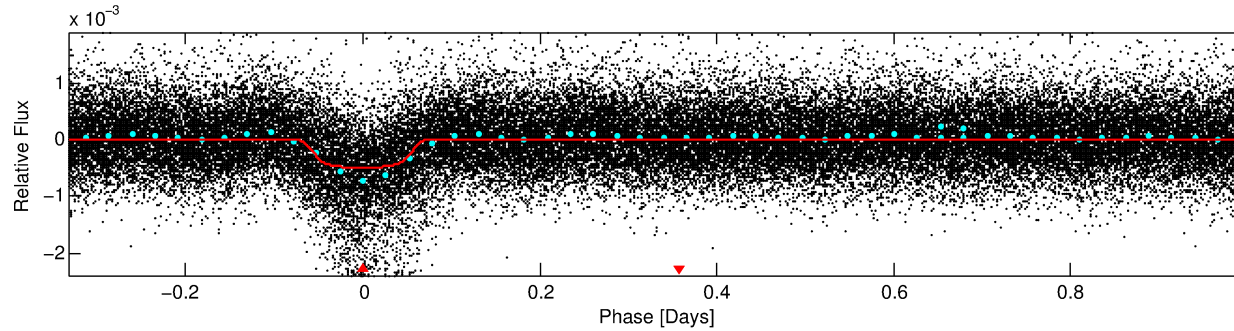
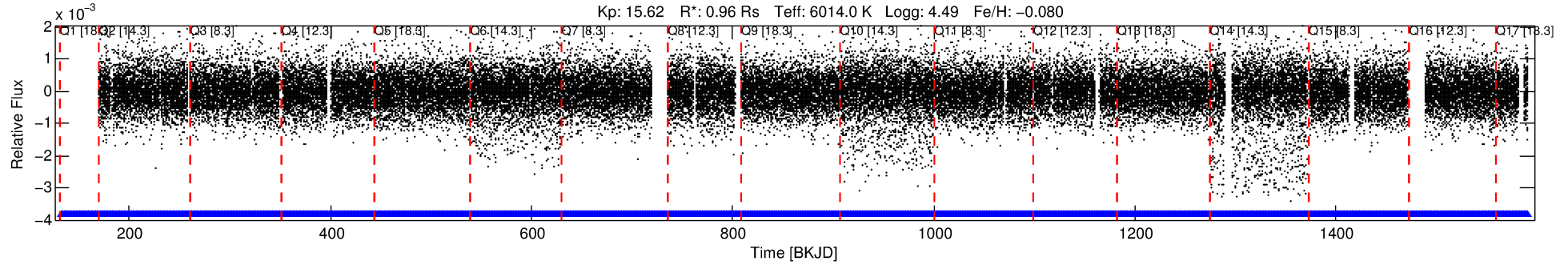
## Ephemeris Match Information For 009899449-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
009899449-01	9899449	BR-Cyg-pri	9899416	1:1	51.9	-13	-3	10.03	15.63	1354.00	Direct-PRF	0	2.64	1.66

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol 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. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 9899449 Candidate: 1 of 1 Period: 1.333 d



## DV Fit Results:

Period = 1.33252 [0.00000] d  
Epoch = 132.0730 [0.0007] BKJD  
Rp/R\* = 0.0242 [0.0010]  
a/R\* = 1.82 [0.26]  
b = 0.91 [0.04]  
Seff = 1860.20 [776.74]  
Teq = 1675 [175] K  
Rp = 2.53 [0.80] Re  
a = 0.0240 [0.0064] AU  
Ag = 1.23 [0.66] [0.35 $\sigma$ ]  
Teffp = 2725 [267] K [3.29 $\sigma$ ]

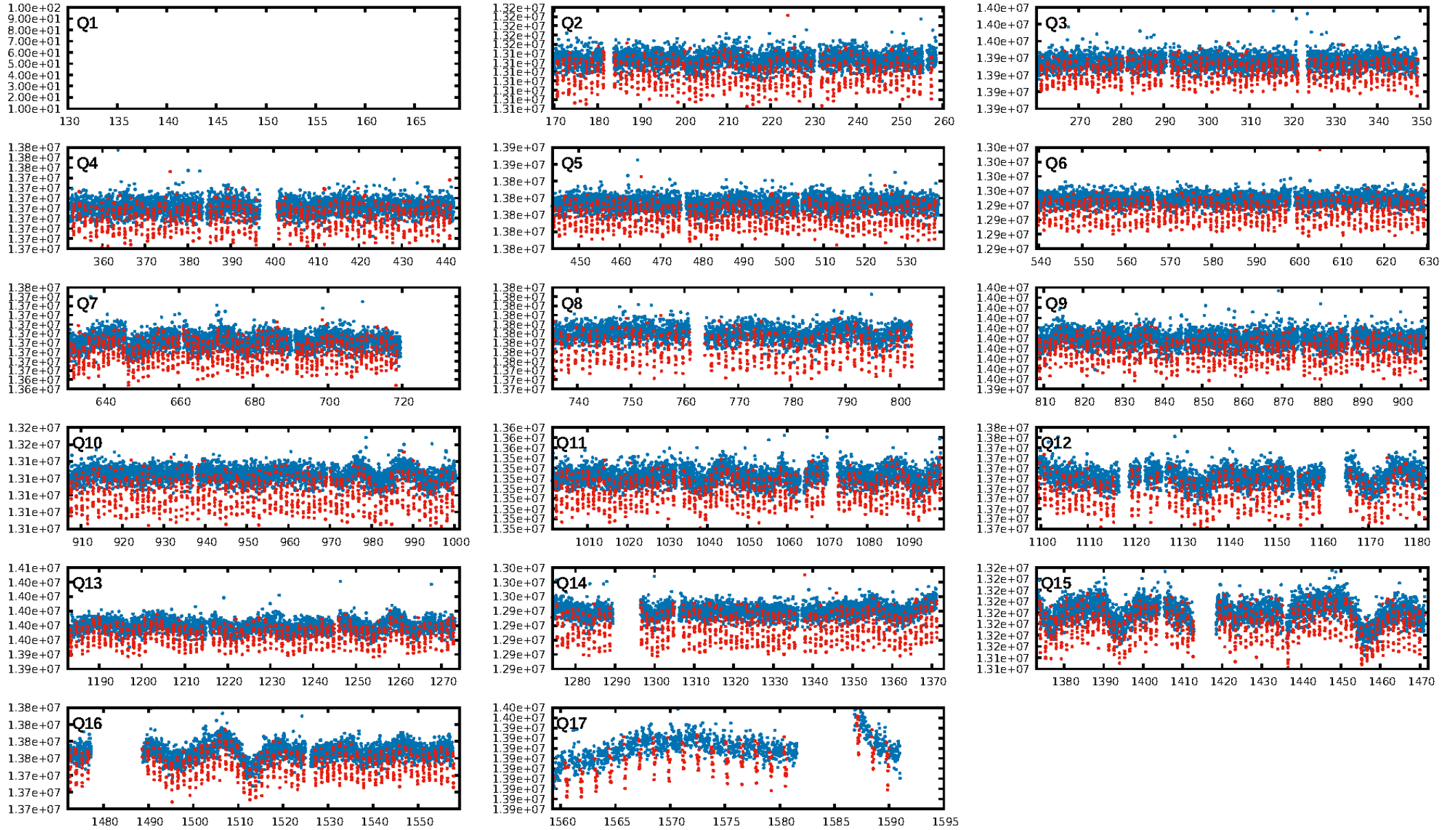
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [959/959]  
**GhostDiagnostic-chr: 0.03931**  
Centroid-sig: 5.8%  
Centroid-so: 0.459 arcsec [2.21 $\sigma$ ]  
**OotOffset-rm: 1.116 arcsec [4.13 $\sigma$ ]**  
**KicOffset-rm: 0.887 arcsec [3.50 $\sigma$ ]**  
OotOffset-st: 4/4/4 [16]  
KicOffset-st: 4/4/4 [16]  
DiffImageQuality-fgm: 0.00 [0/16]  
DiffImageOverlap-fno: 1.00 [16/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:48:15 Z

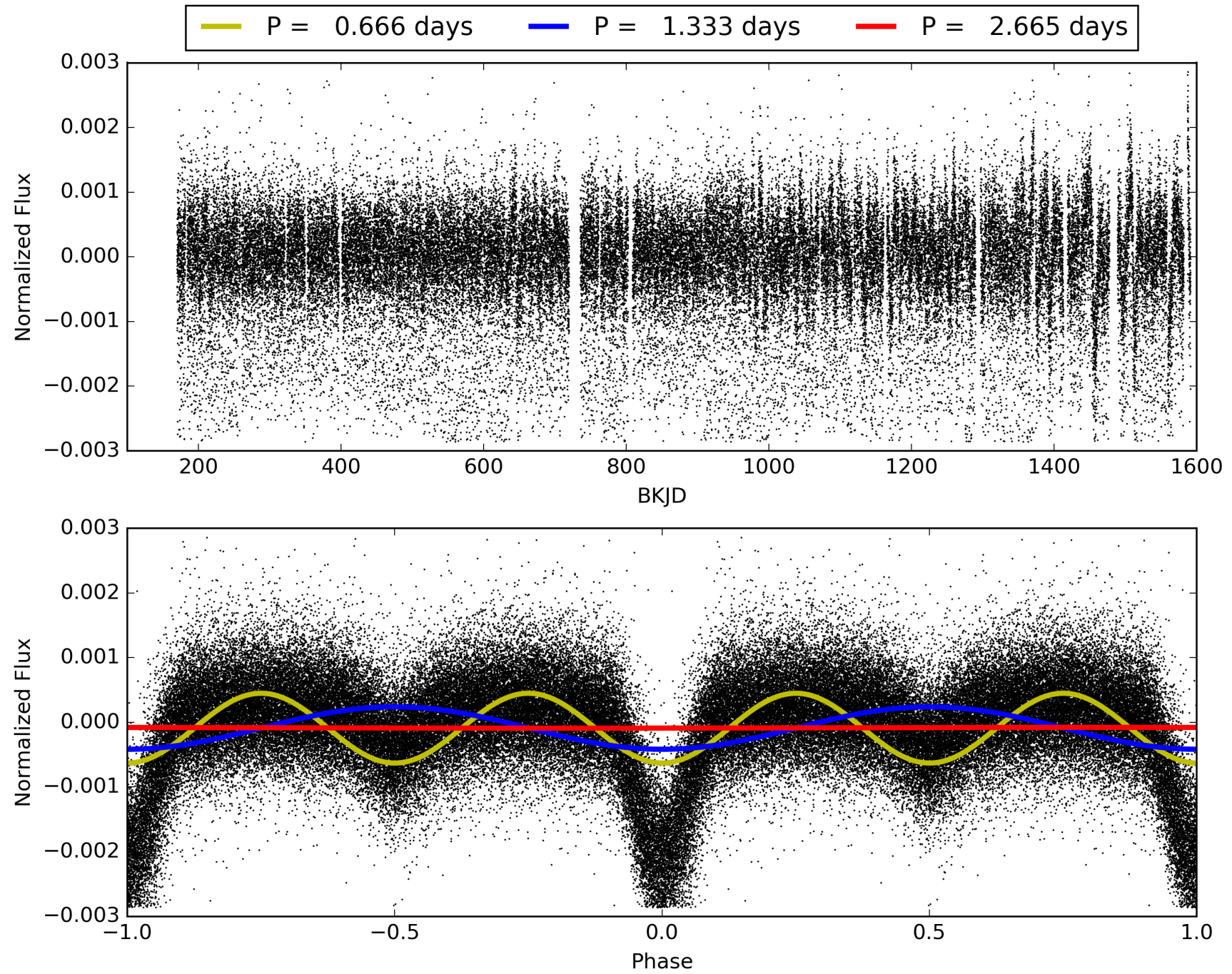
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009899449-01, PDC Light Curves



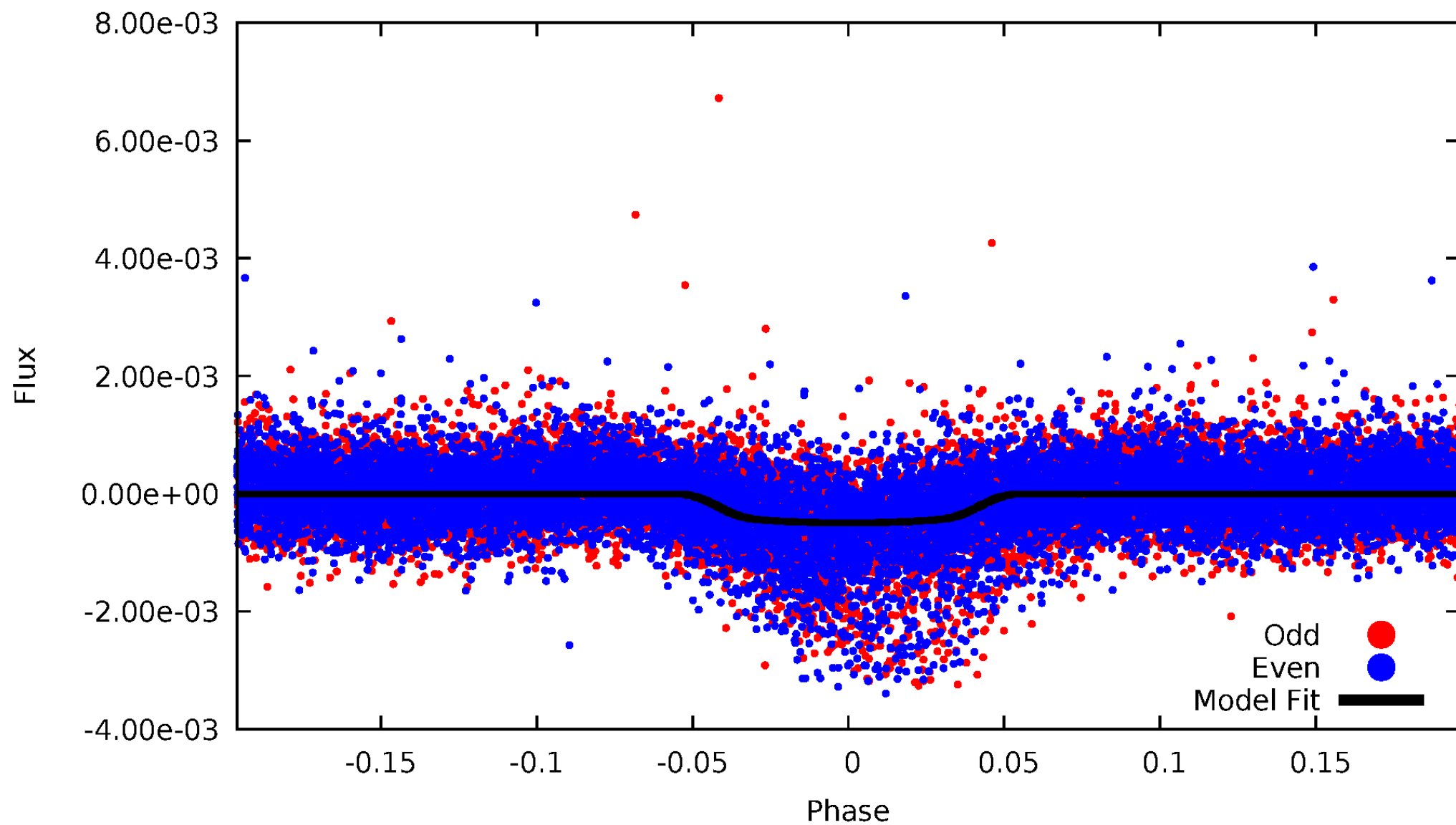


TCE 009899449-01



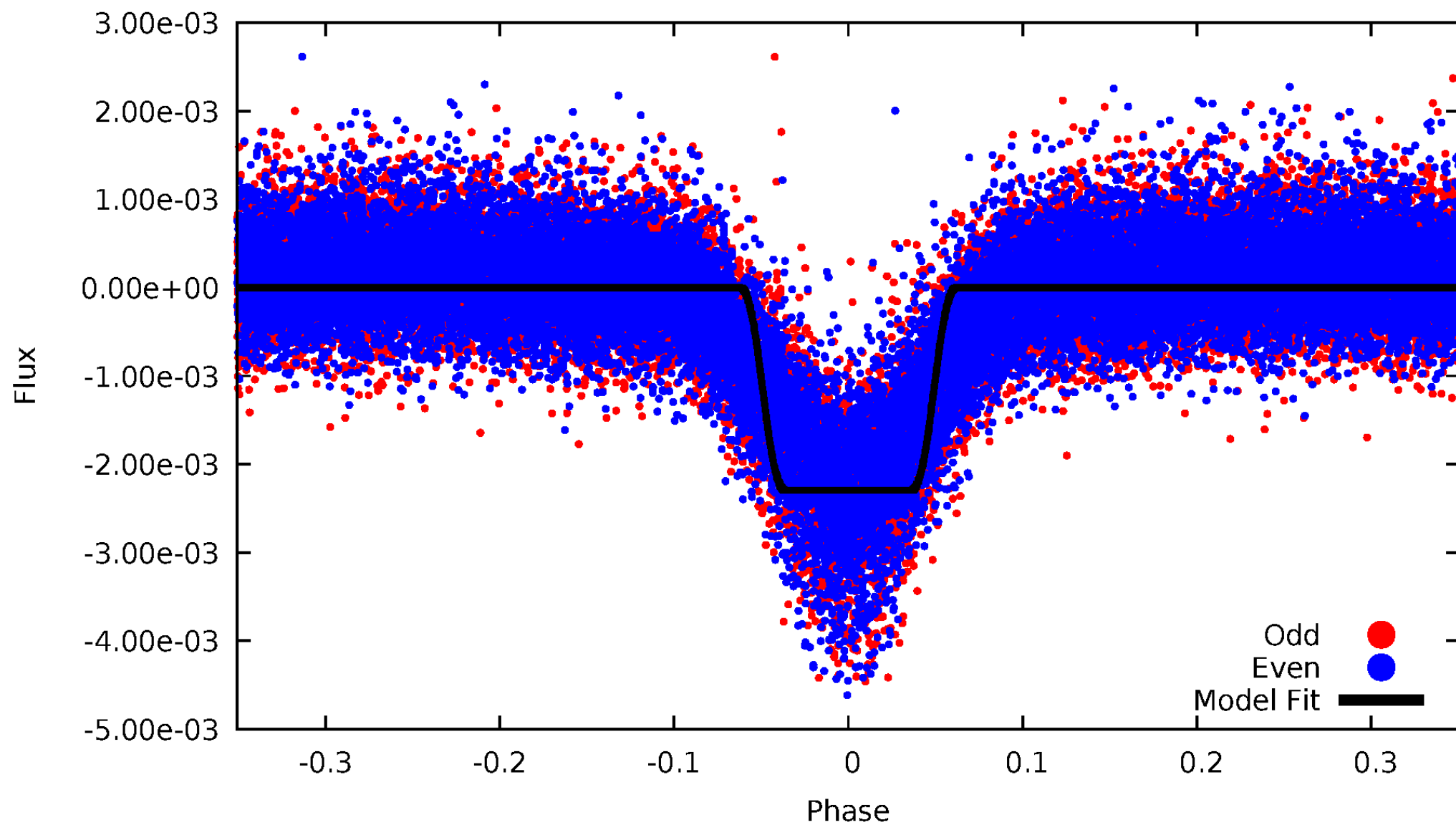
# DV Odd/Even

TCE 009899449-01

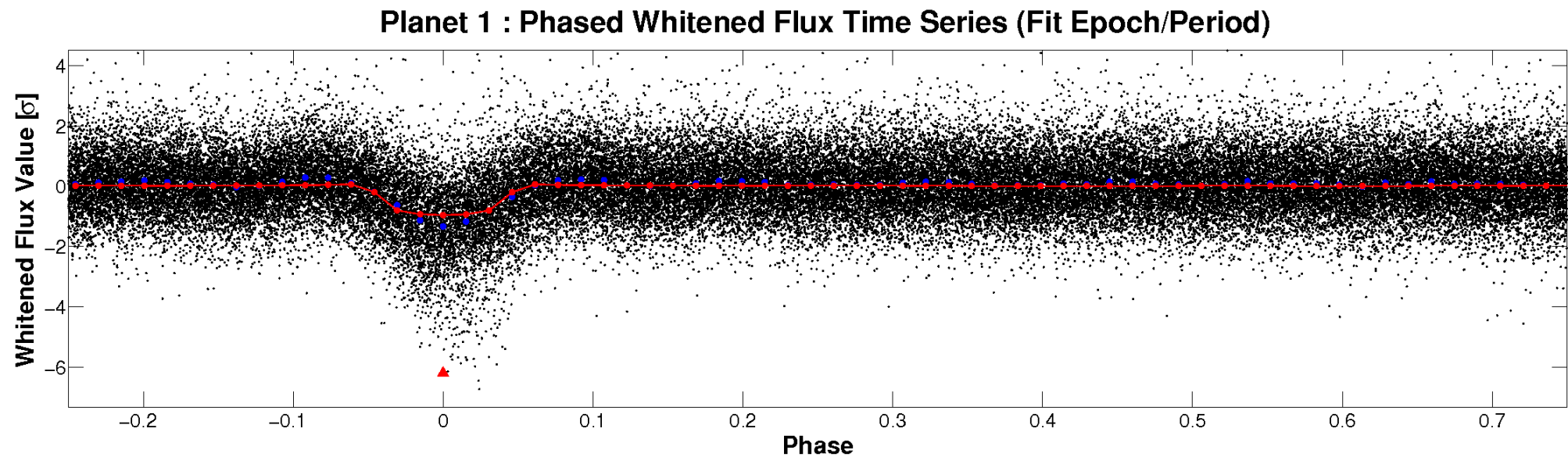
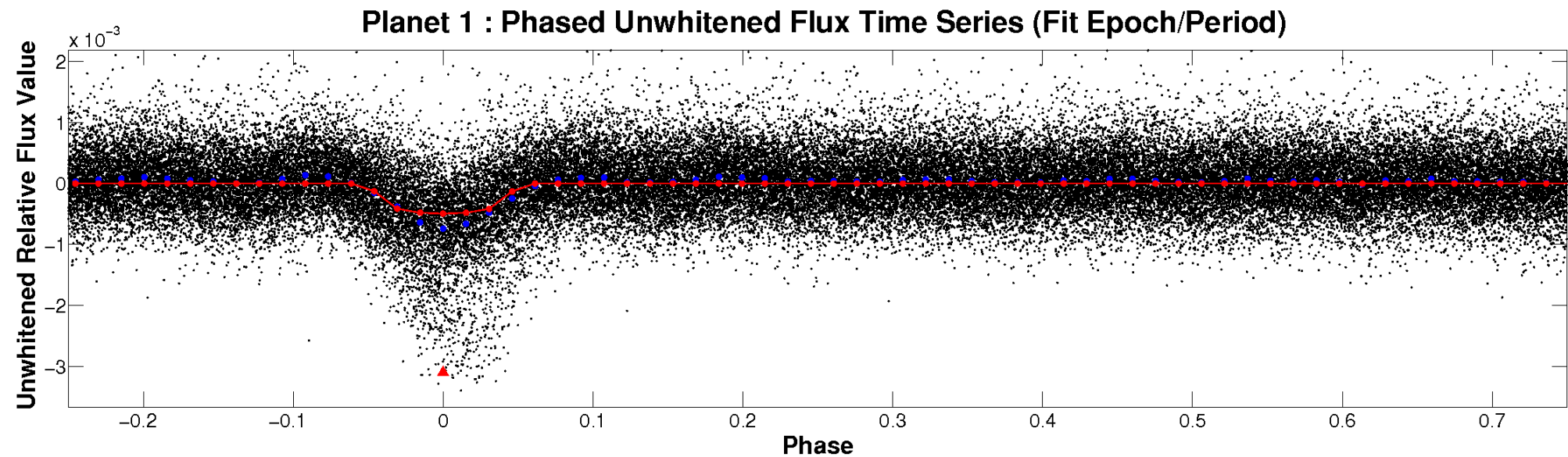


# ALT Odd/Even

TCE 009899449-01



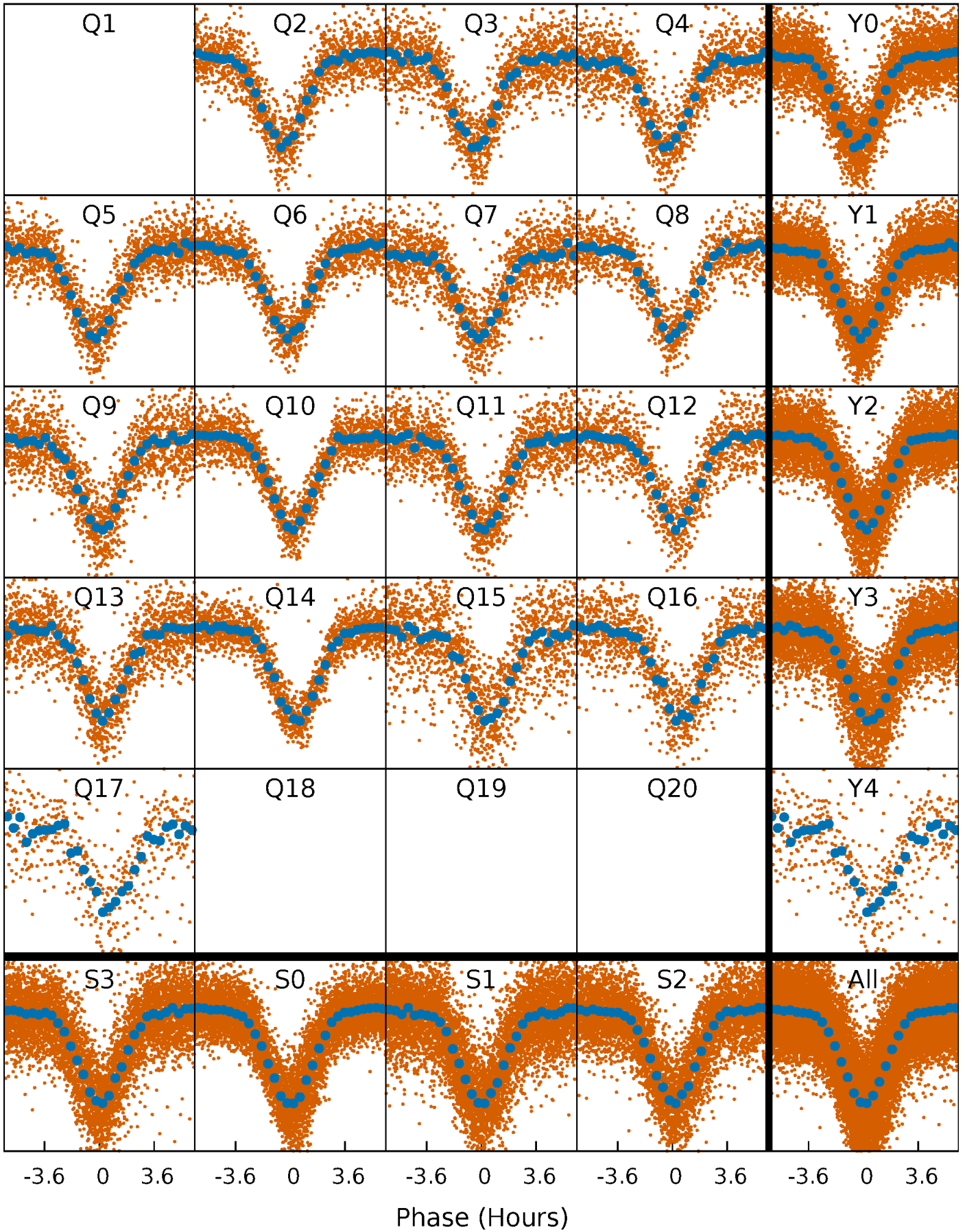
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

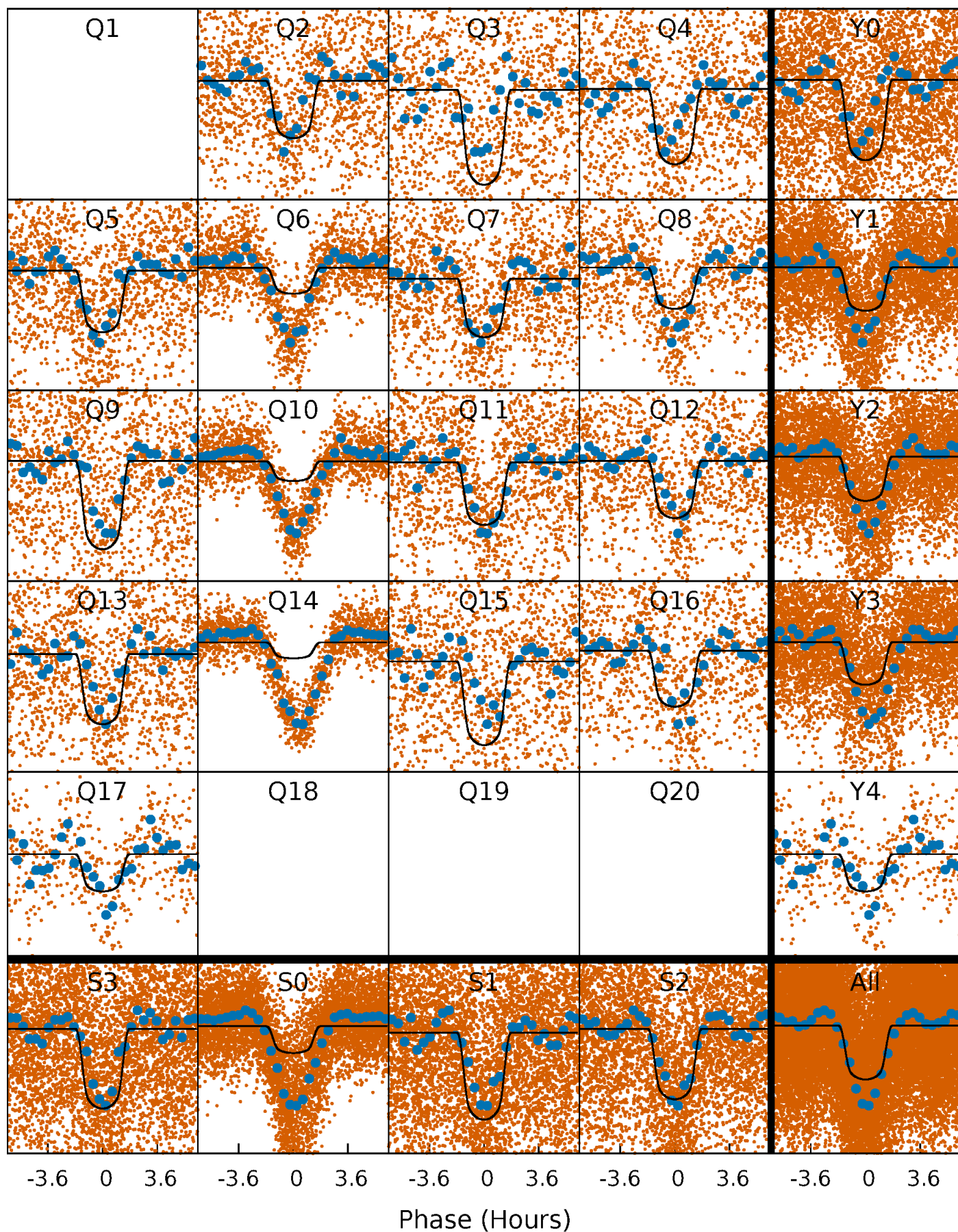
TCE 009899449-01 P= 1.332521 Days  $T_0=132.073016$  (BKJD)





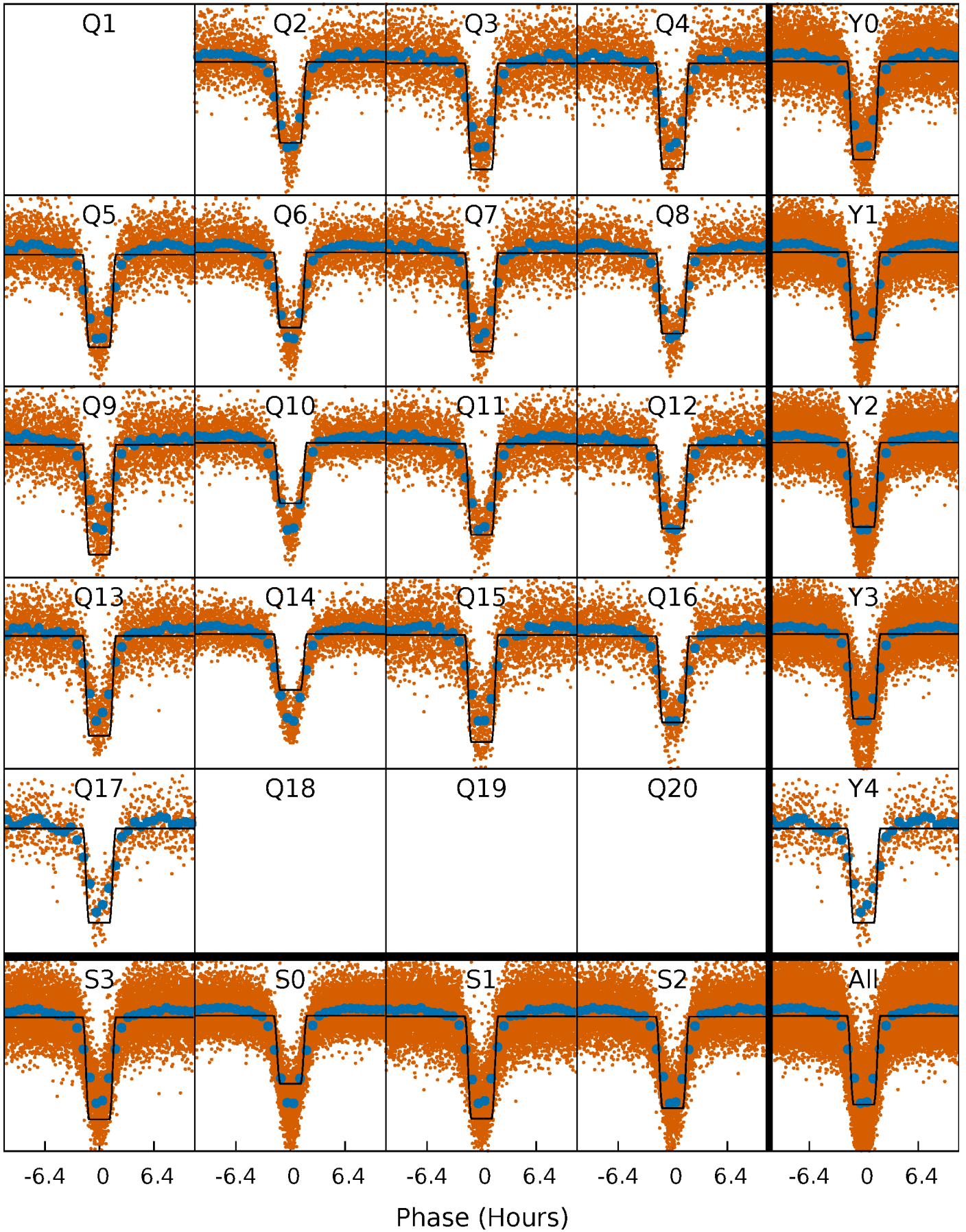
# DV Quarter-Phased Transit Curves

TCE 009899449-01 P= 1.332521 Days  $T_0=132.073016$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

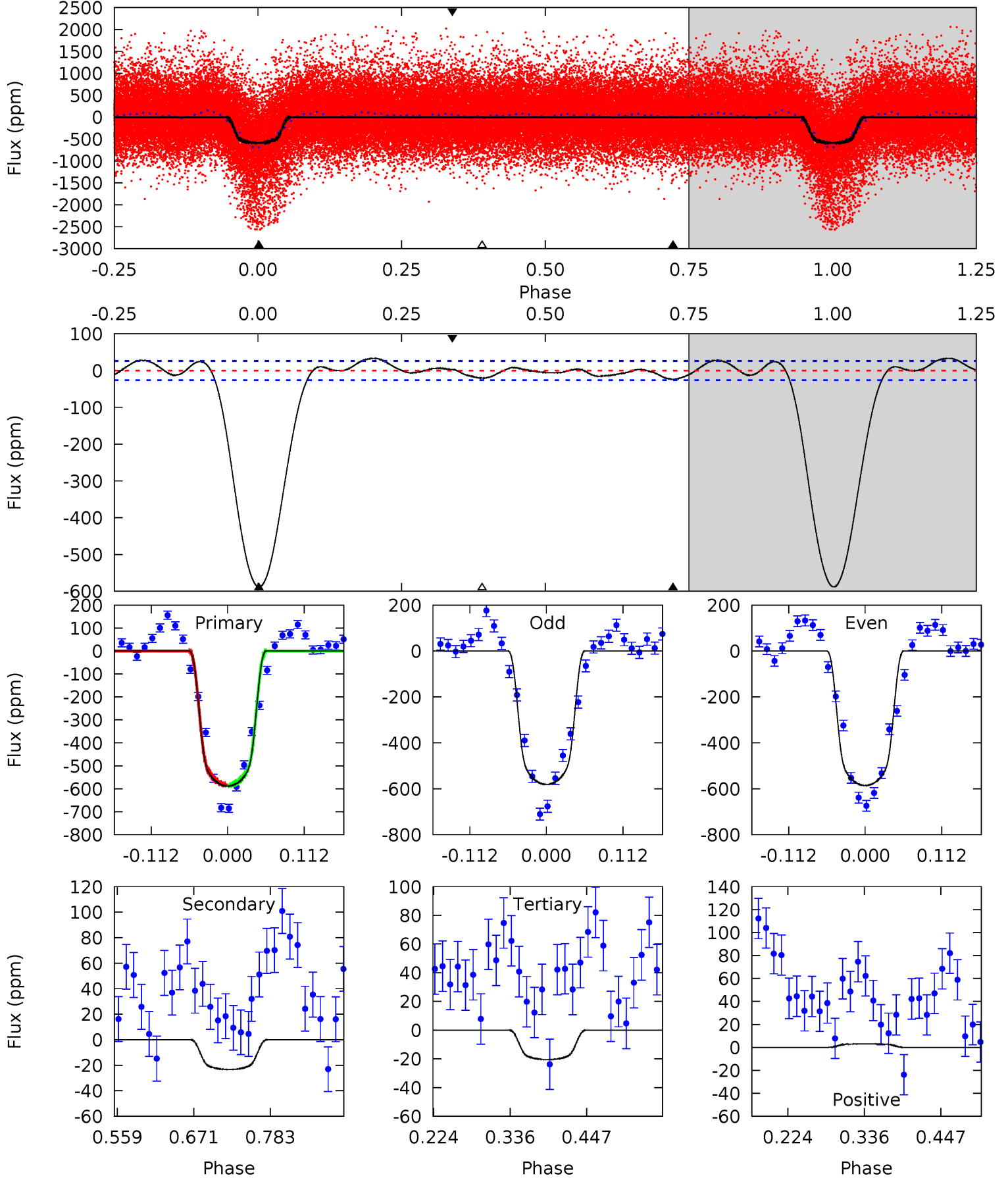
TCE 009899449-01 P= 1.332562 Days  $T_0=132.052042$  (BKJD)



# DV Model-Shift Uniqueness Test

009899449-01, P = 1.332521 Days, E = 132.073016 Days

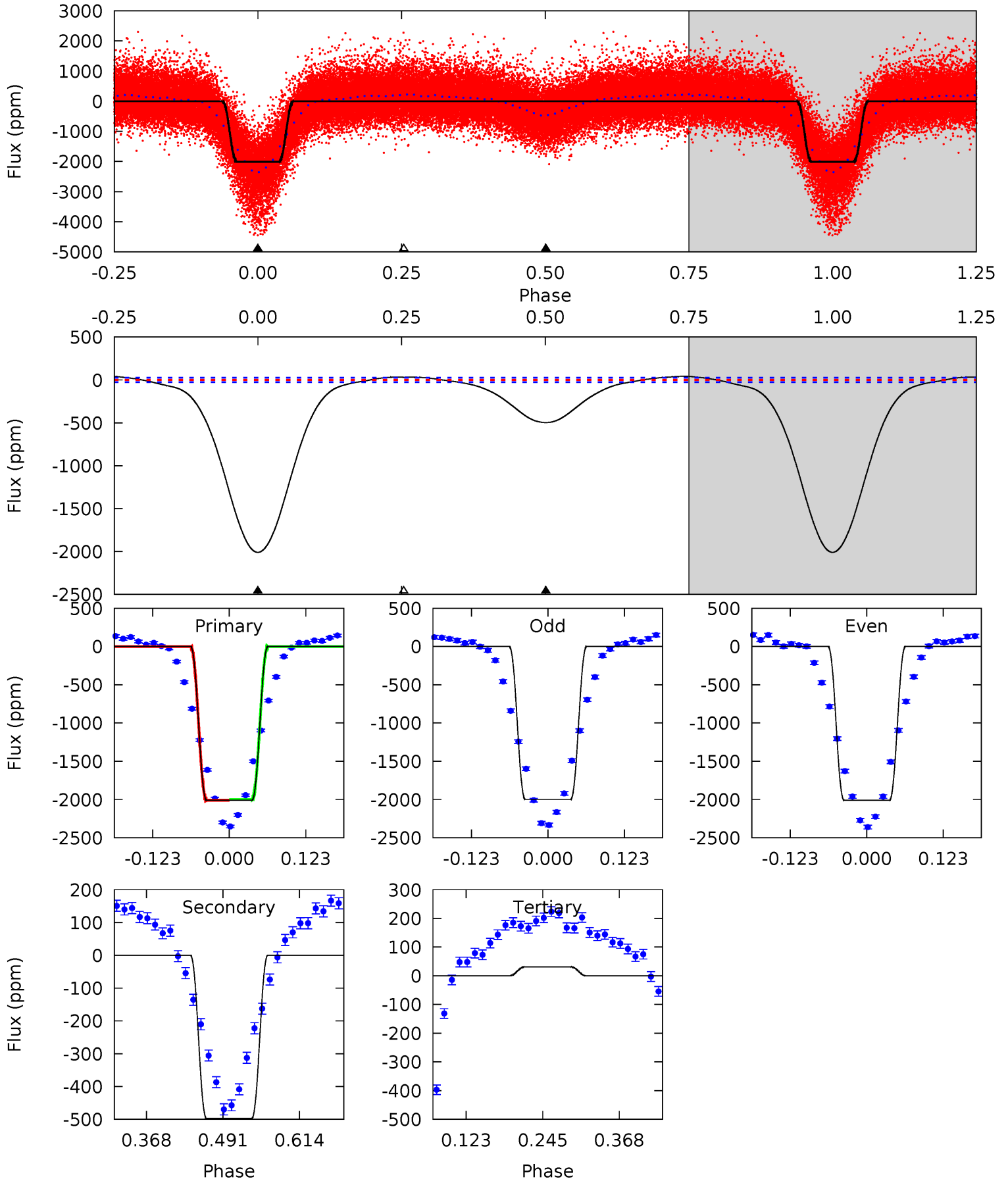
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
102.3	4.05	3.57	0.54	4.54	1.59	2.15	98.7	101.7	0.48	3.52	0.42	1.42	0.05	0.03



# Alt Model-Shift Uniqueness Test

009899449-01, P = 1.332562 Days, E = 132.052042 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
353.0	87.3	-5.49	0	4.52	1.54	7.87	358.5	353.0	92.8	87.3	1.01	1.06	0.02	0.88





### Stellar Parameters For KIC 009899449

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6014^{+198}_{-217}$	$4.494^{+0.054}_{-0.216}$	$-0.080^{+0.250}_{-0.350}$	$0.958^{+0.300}_{-0.100}$	$1.043^{+0.139}_{-0.139}$	$1.673^{+0.381}_{-0.903}$
	+3%/-4%	+1%/-5%	+312%/-438%	+31%/-10%	+13%/-13%	+23%/-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 009899449-01 / KOI 8190.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-23 \pm 6$	$2.60^{+0.46}_{-0.24}$	$2401^{+180}_{-135}$	$3082^{+179}_{-202}$	$1.021^{+0.382}_{-0.316}$
Alt.	$-497 \pm 6$	$5.14^{+0.89}_{-0.45}$	$2397^{+177}_{-133}$	$4288^{+120}_{-120}$	$5.904^{+0.980}_{-1.471}$

$T_{max}$  = 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

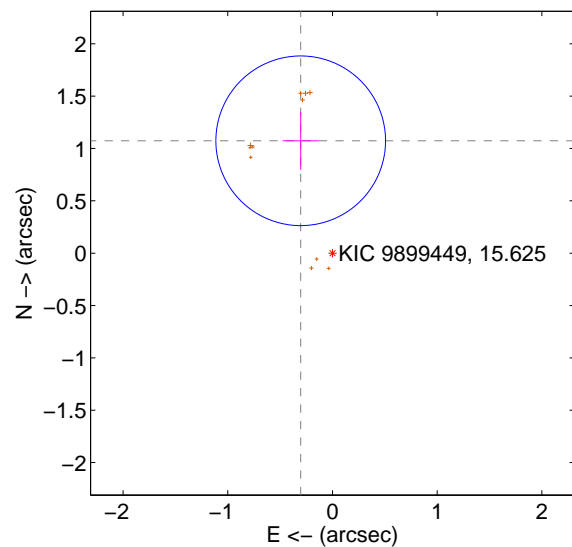
Supplemental centroid analysis for 009899449-01. Kepler magnitude: 15.62. Transit SNR 60.08

There are 0 quarters with good PRF difference image offsets

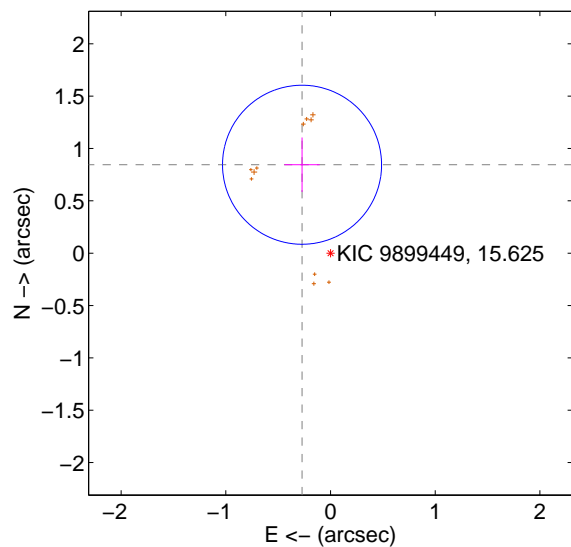
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.116 \pm 0.270$	4.13	$0.303 \pm 0.173$	$1.074 \pm 0.276$
PRF-fit source offset from KIC position	$0.887 \pm 0.253$	3.50	$0.272 \pm 0.169$	$0.845 \pm 0.260$
photometric centroid source offset	$0.46 \pm 0.21$	2.21	$0.31 \pm 0.21$	$-0.33 \pm 0.21$

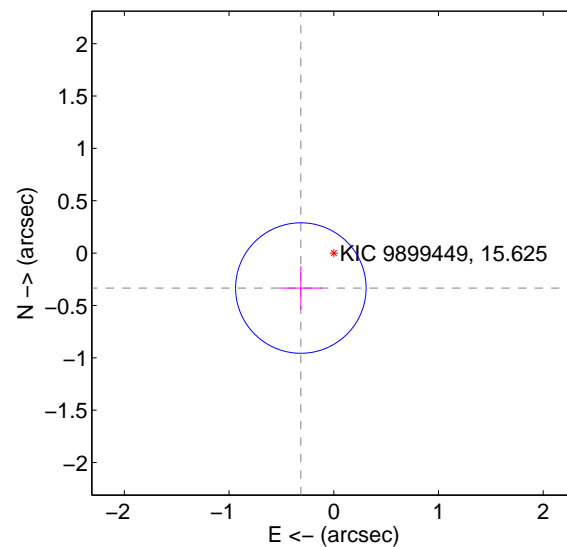
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

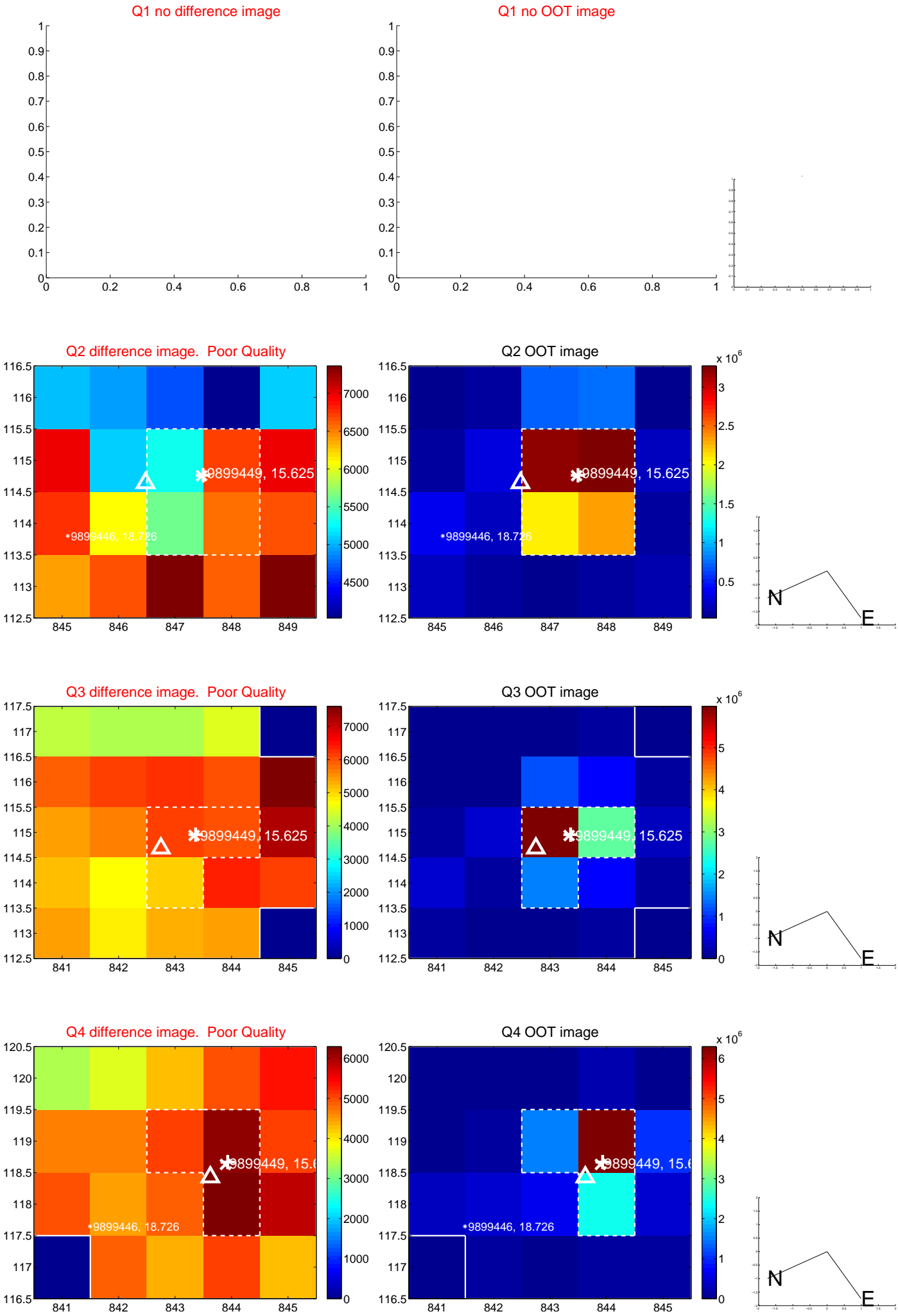


offset from photometric centroids

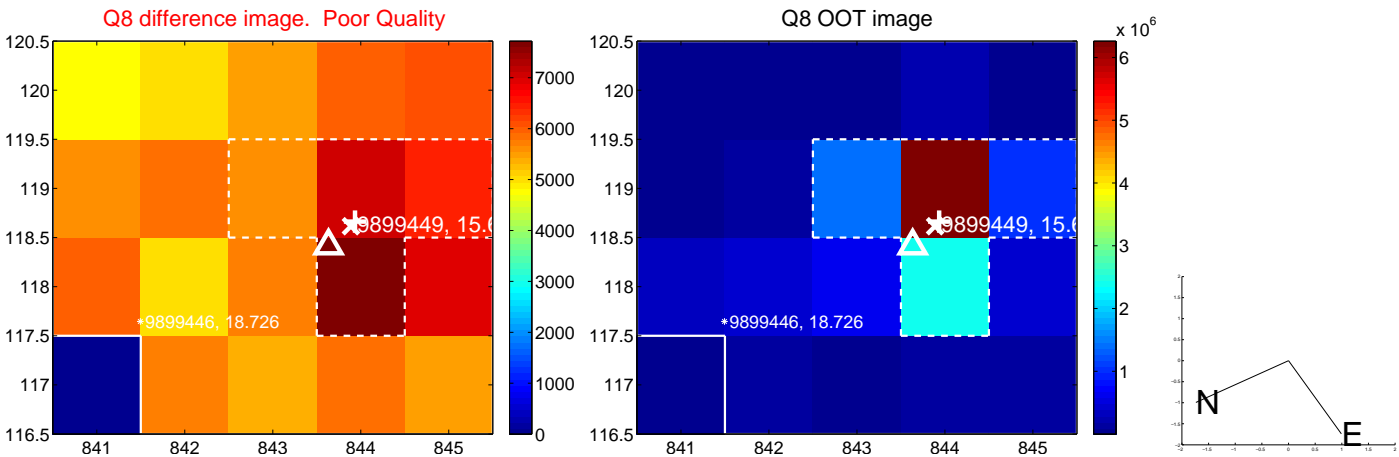
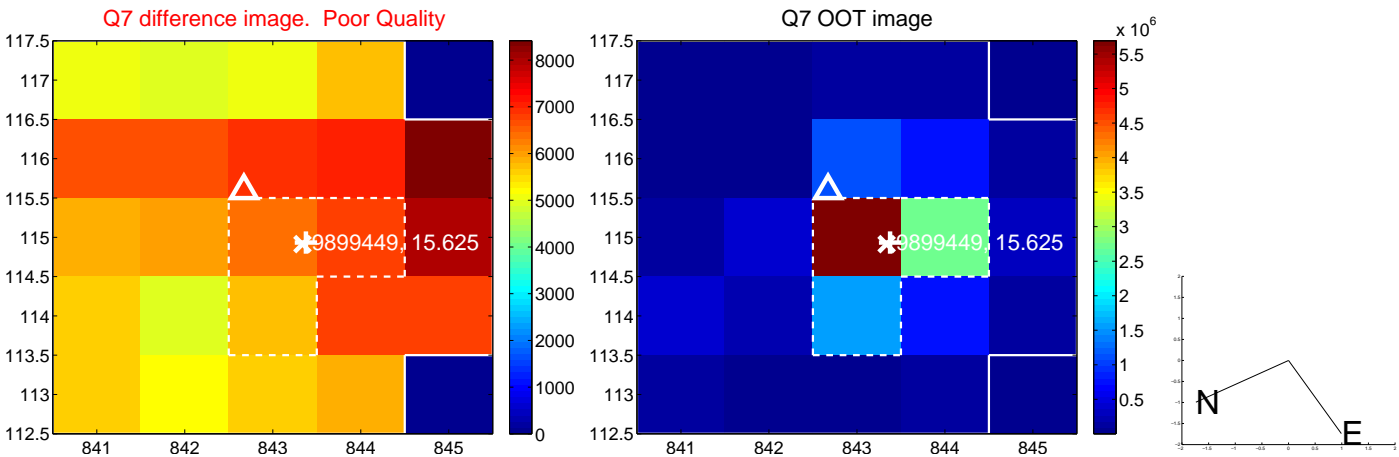
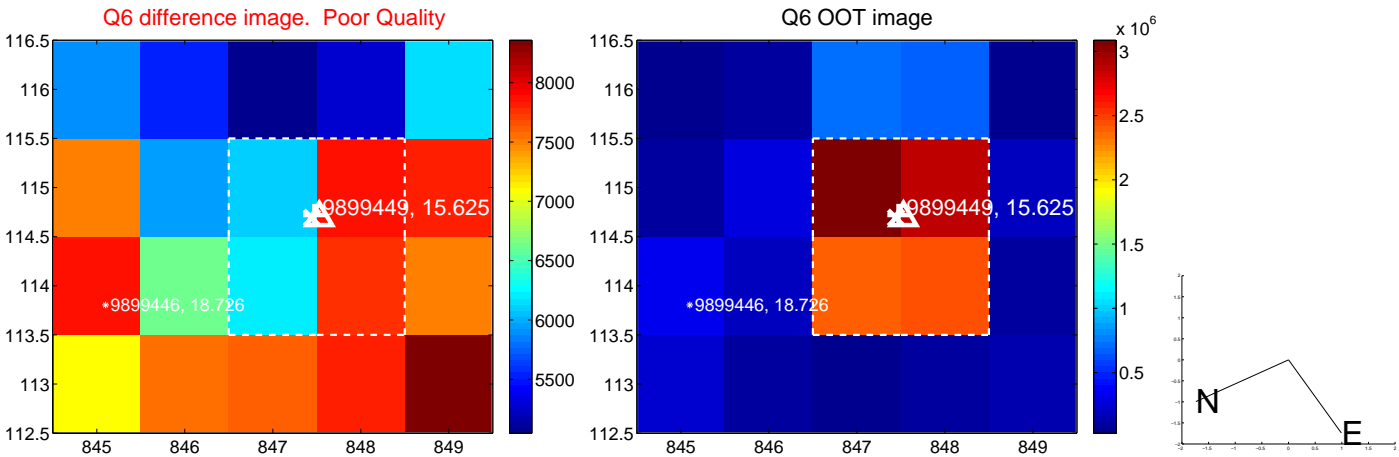
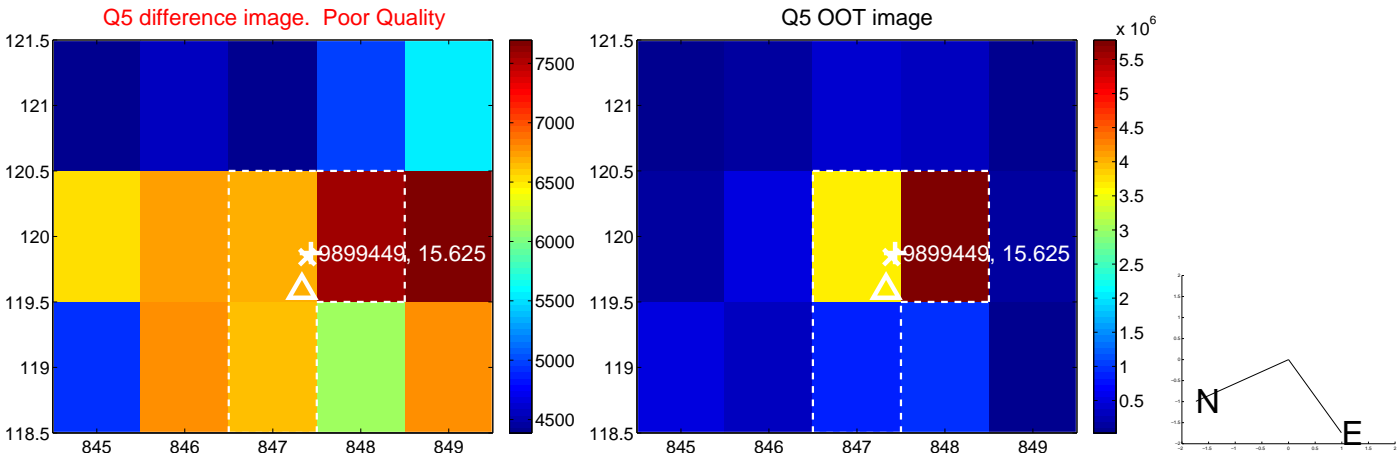


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

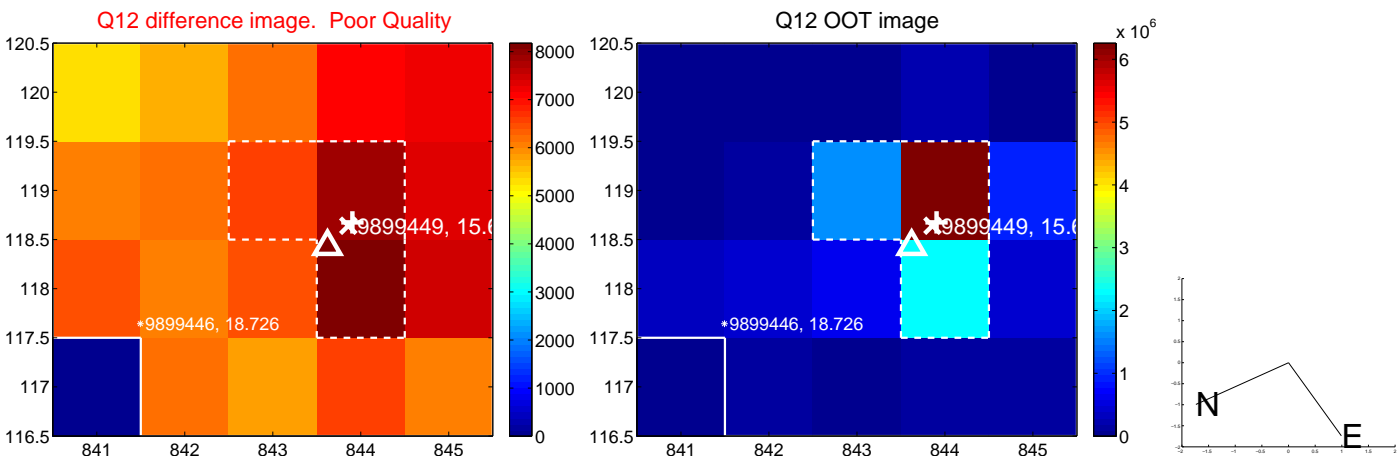
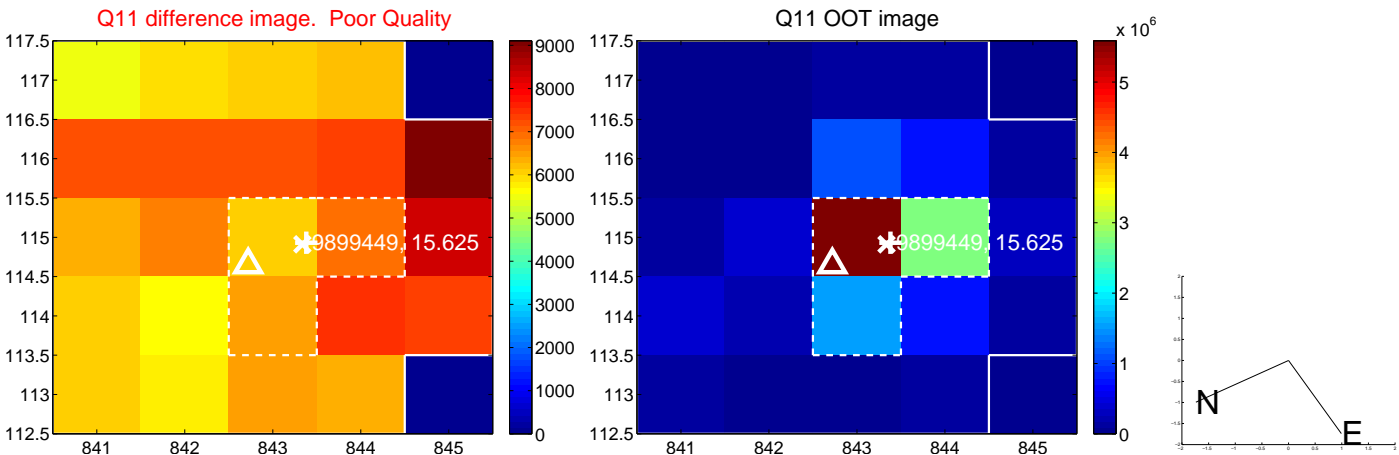
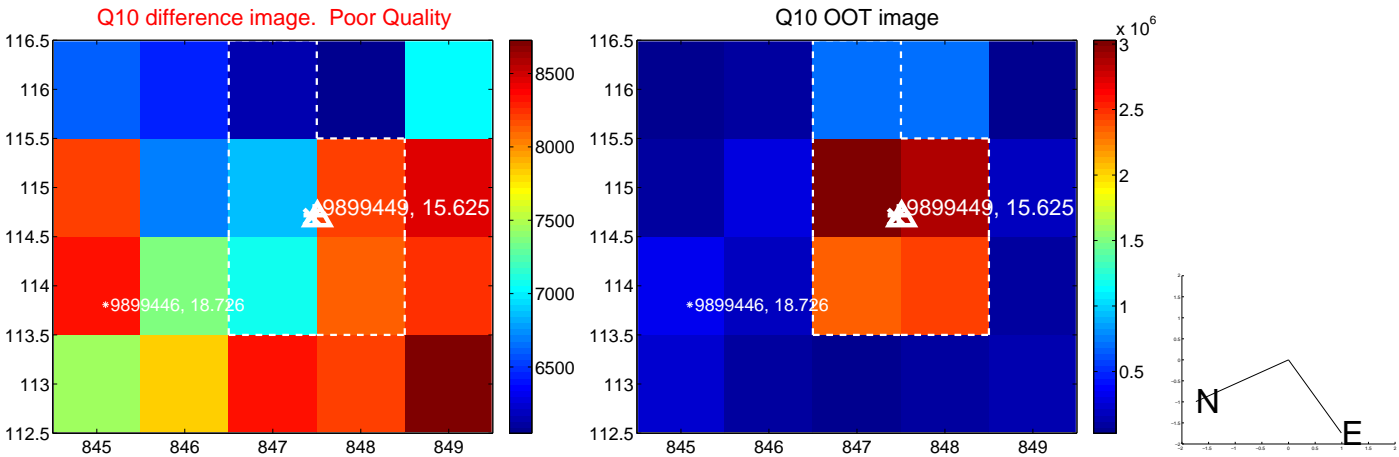
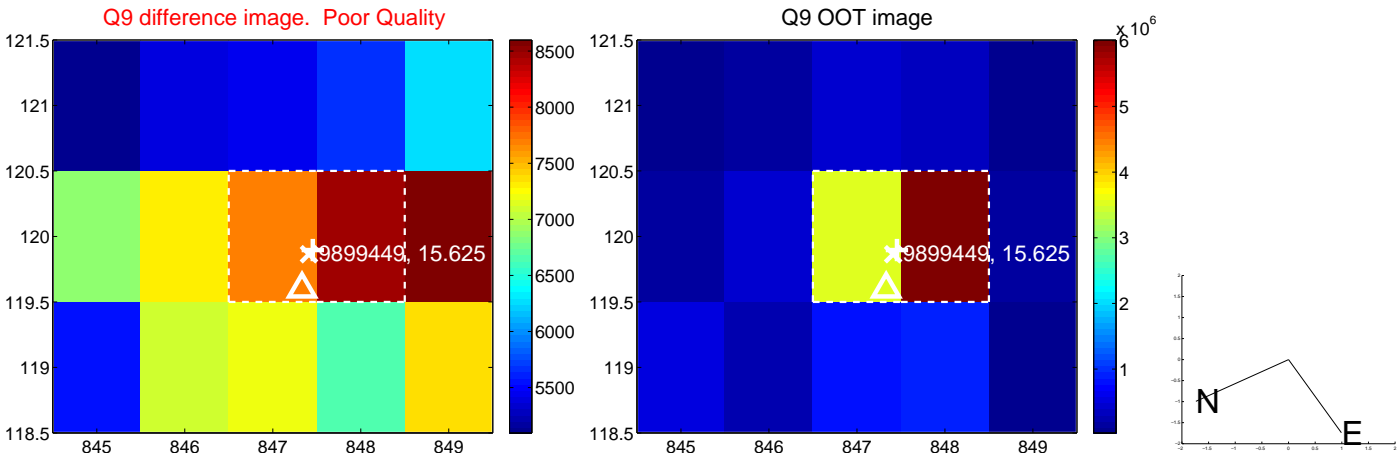


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

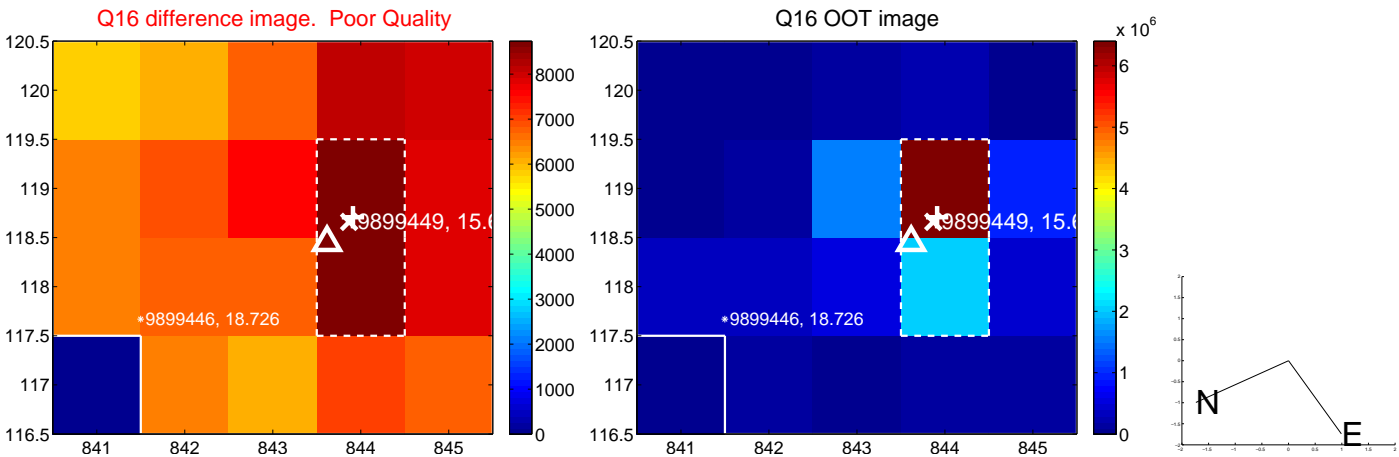
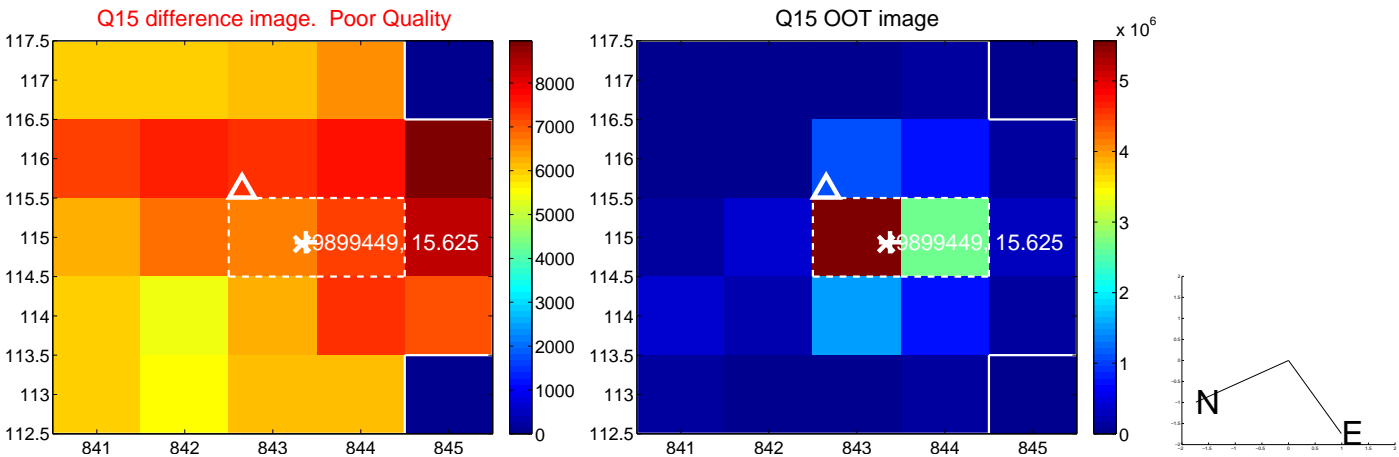
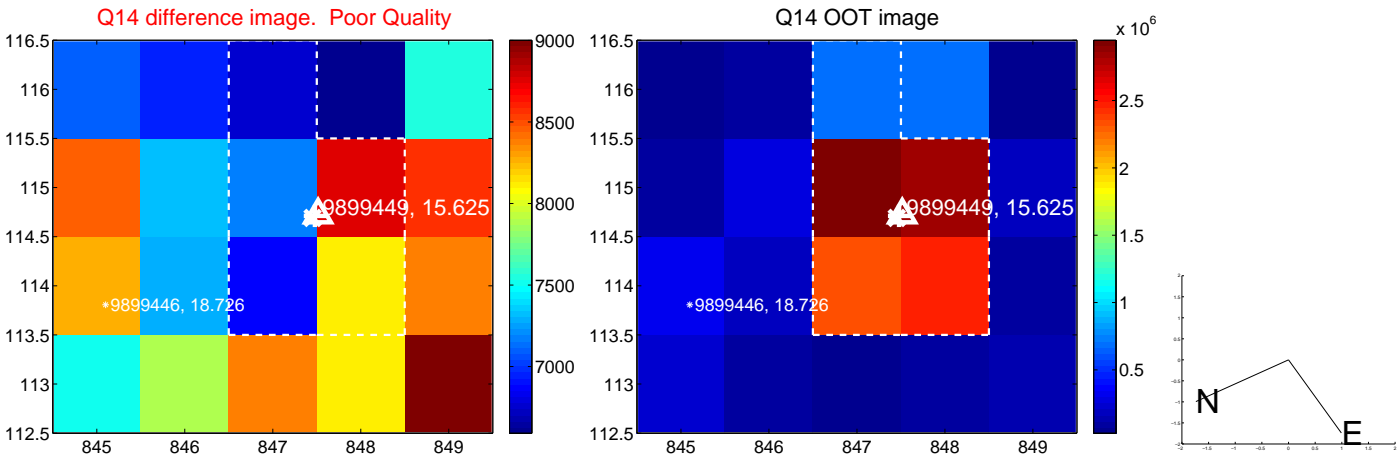
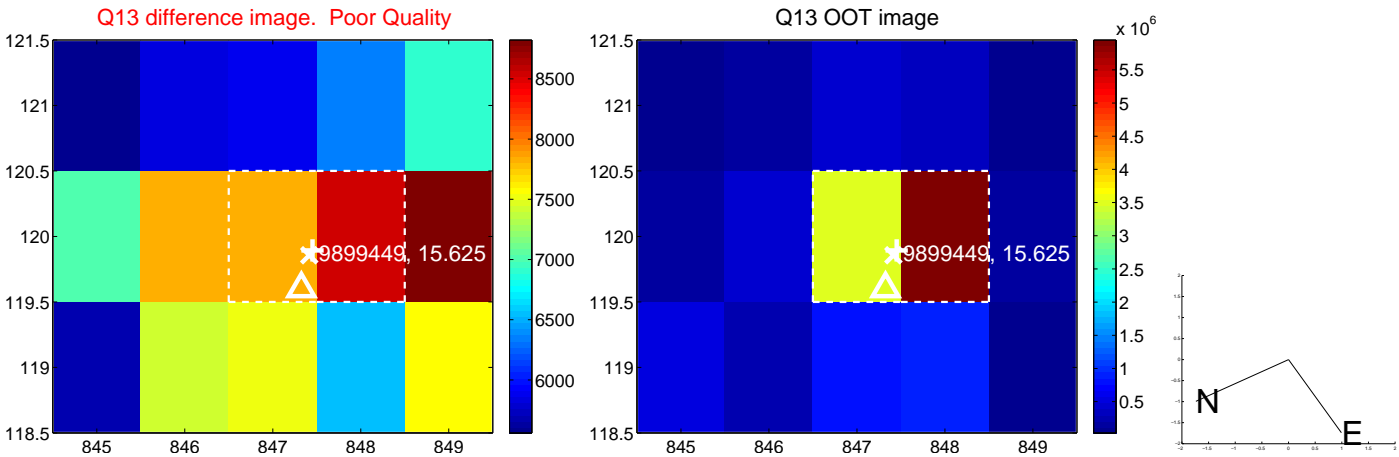




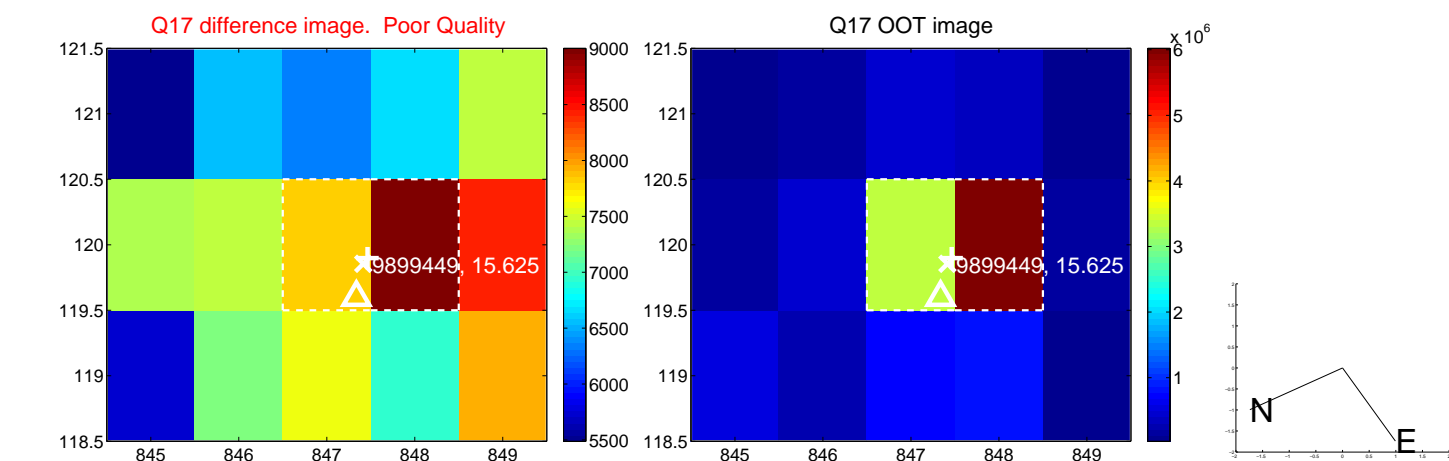
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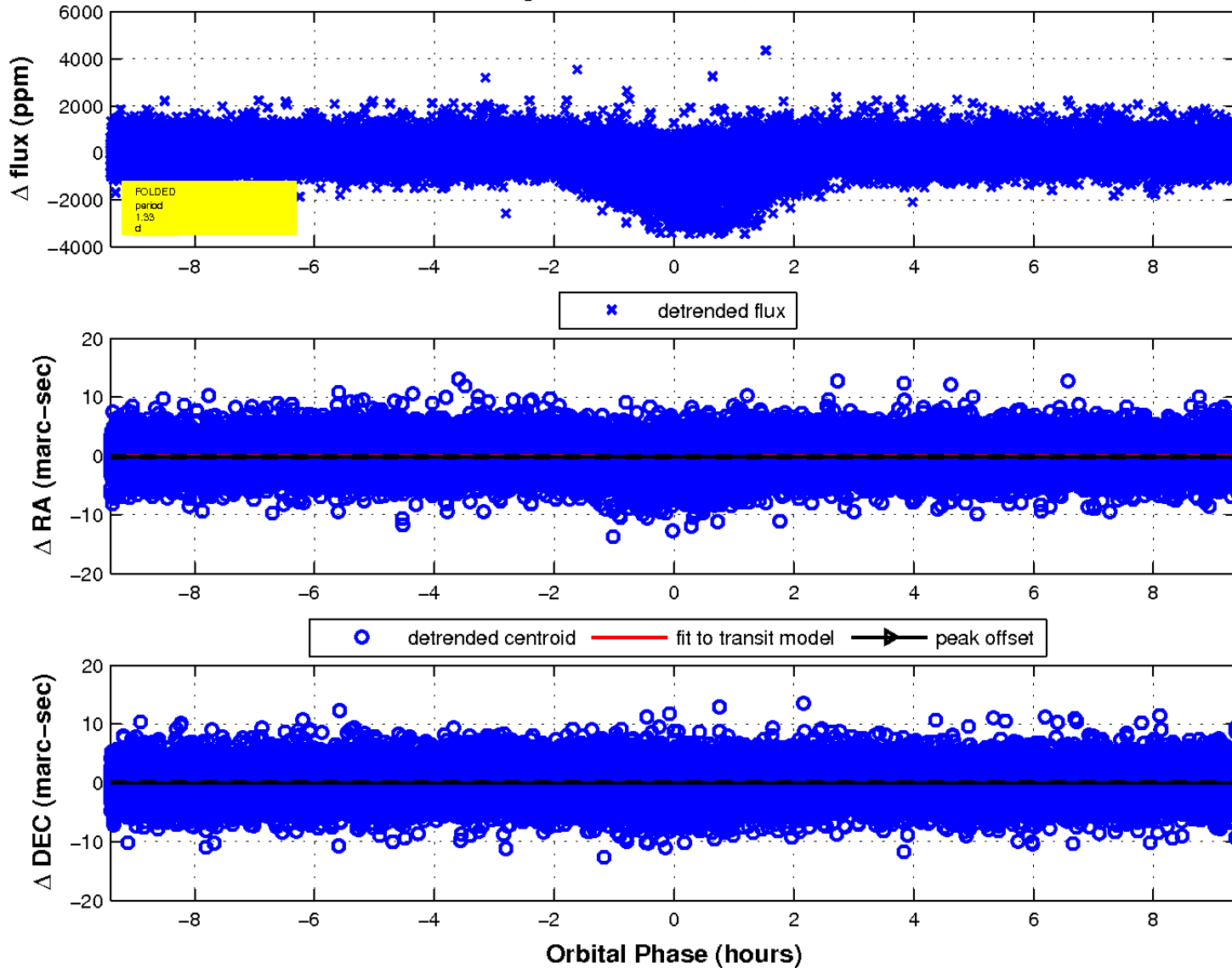
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

