

# KIC 009899514

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009899514-01	OBS	5729.01	1.332486	132.110344	129.8	4.225	12.6	14.1	0.88	5122	1.19	961.80

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899514-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—CENT_RESOLVED_OFFSET—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.

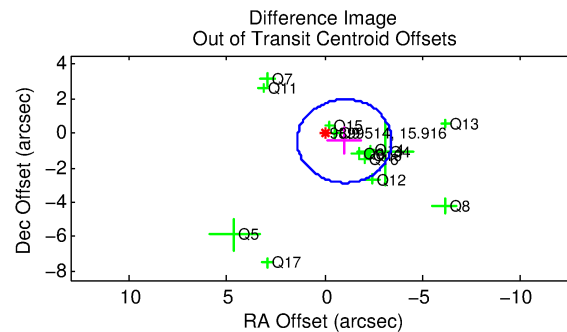
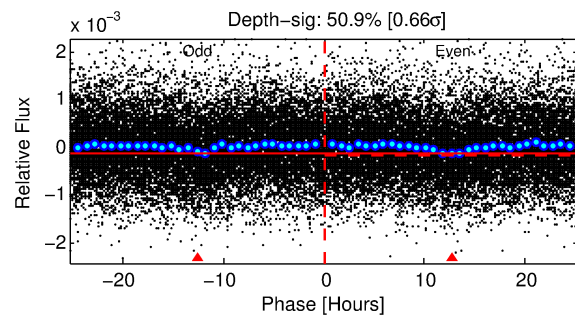
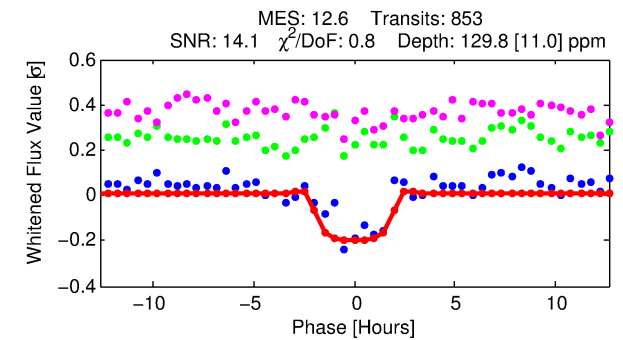
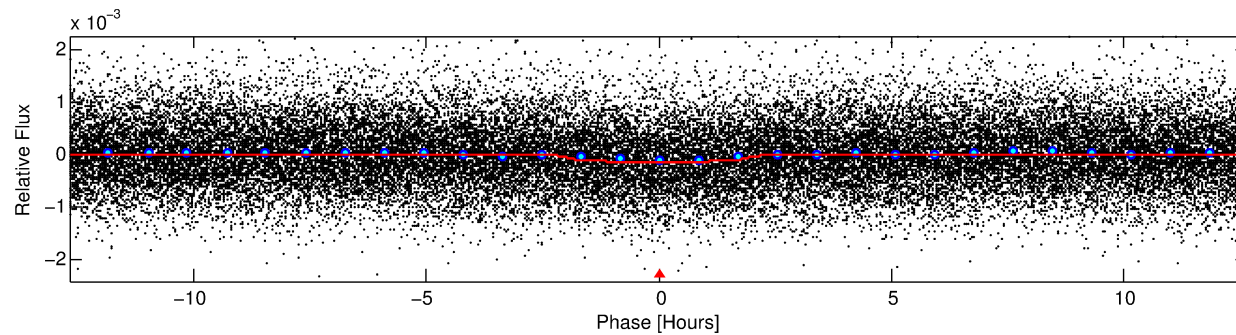
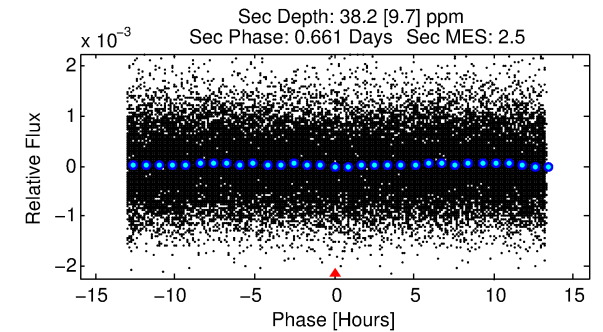
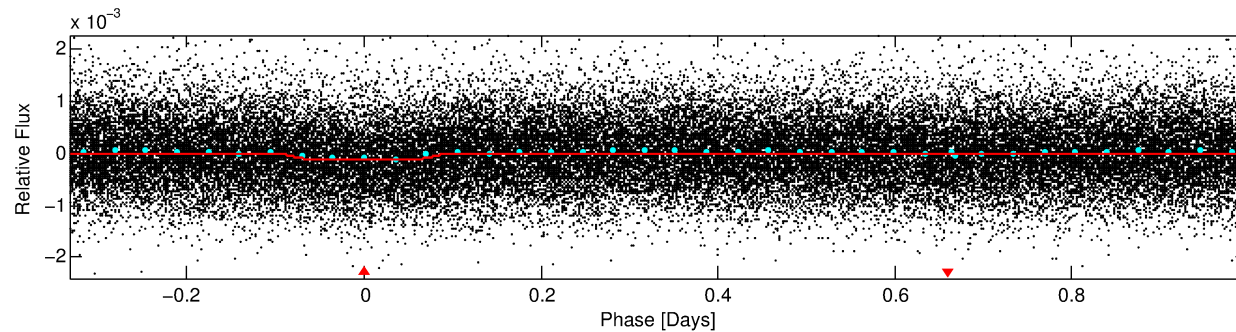
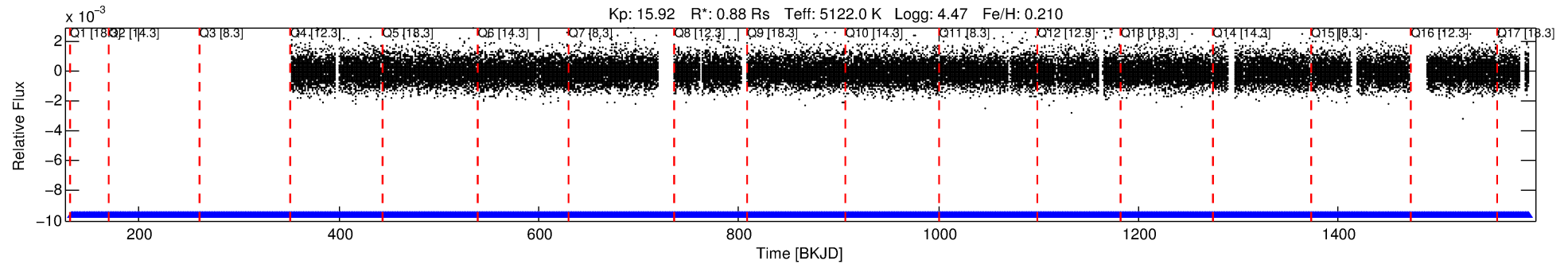
## Ephemeris Match Information For 009899514-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
009899514-01	9899514	BR-Cyg-pri	9899416	1:1	166.0	-2	41	10.03	15.92	5145.10	Direct-PRF	0	4.84	4.22

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 9899514 Candidate: 1 of 1 Period: 1.332 d  
KOI: K05729.01 Corr: 0.876



## DV Fit Results:

Period = 1.33249 [0.00001] d  
Epoch = 132.1103 [0.0037] BKJD  
Rp/R\* = 0.0123 [0.0062]  
a/R\* = 1.54 [1.77]  
b = 0.87 [0.55]  
Seff = 961.80 [223.02]  
Teq = 1420 [82] K  
Rp = 1.19 [0.62] Re  
a = 0.0223 [0.0027] AU  
Ag = 7.43 [7.82] [0.82σ]  
Teffp = 3624 [948] K [2.32σ]

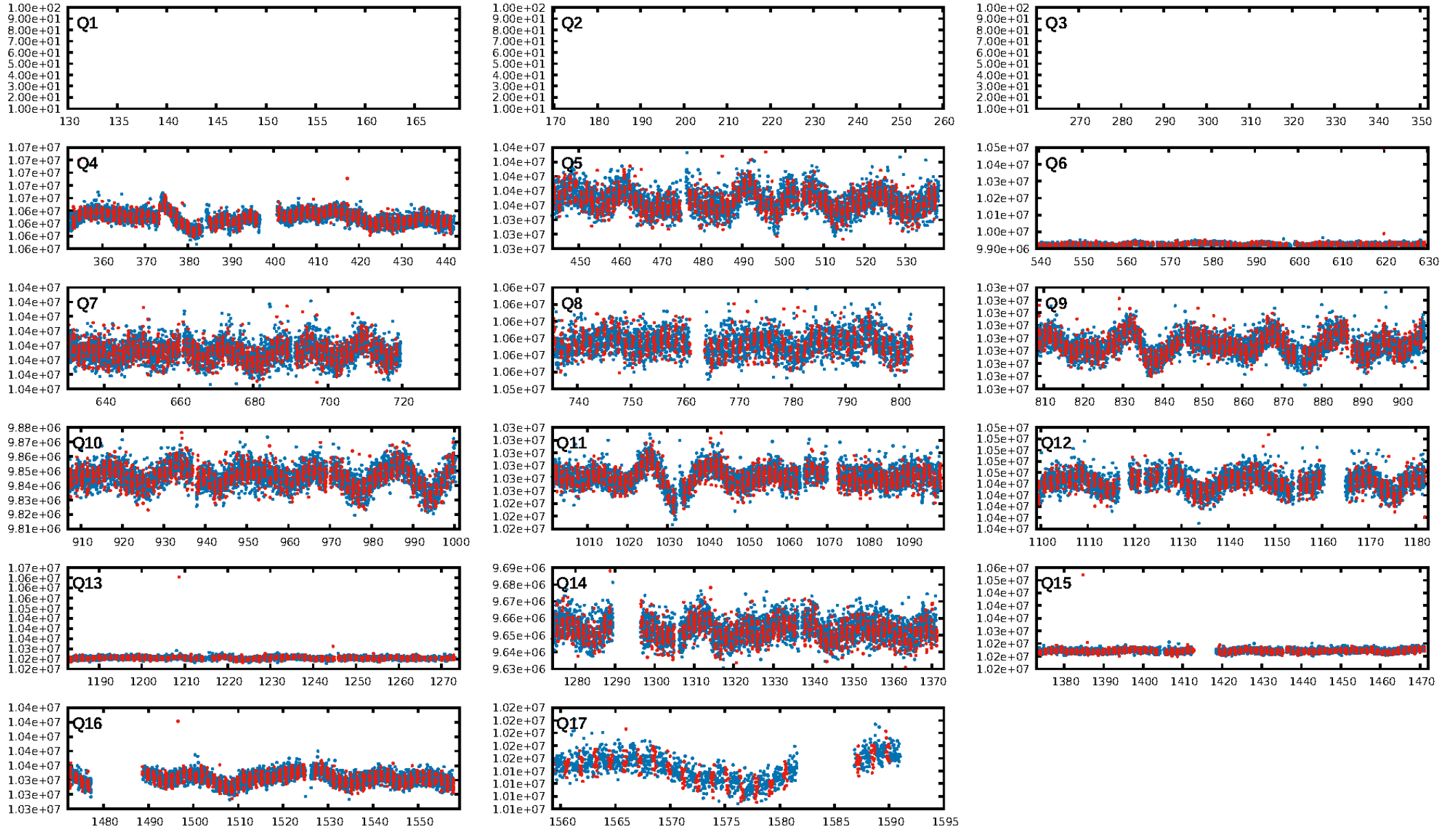
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.82e-33  
RollingBand-fgt: 1.00 [833/833]  
GhostDiagnostic-chr: -0.05809  
Centroid-sig: 0.0%  
Centroid-so: 3.287 arcsec [4.17σ]  
OotOffset-rm: 1.113 arcsec [1.38σ]  
KicOffset-rm: 3.412 arcsec [4.37σ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.07 [1/14]  
DiffImageOverlap-fno: 1.00 [14/14]

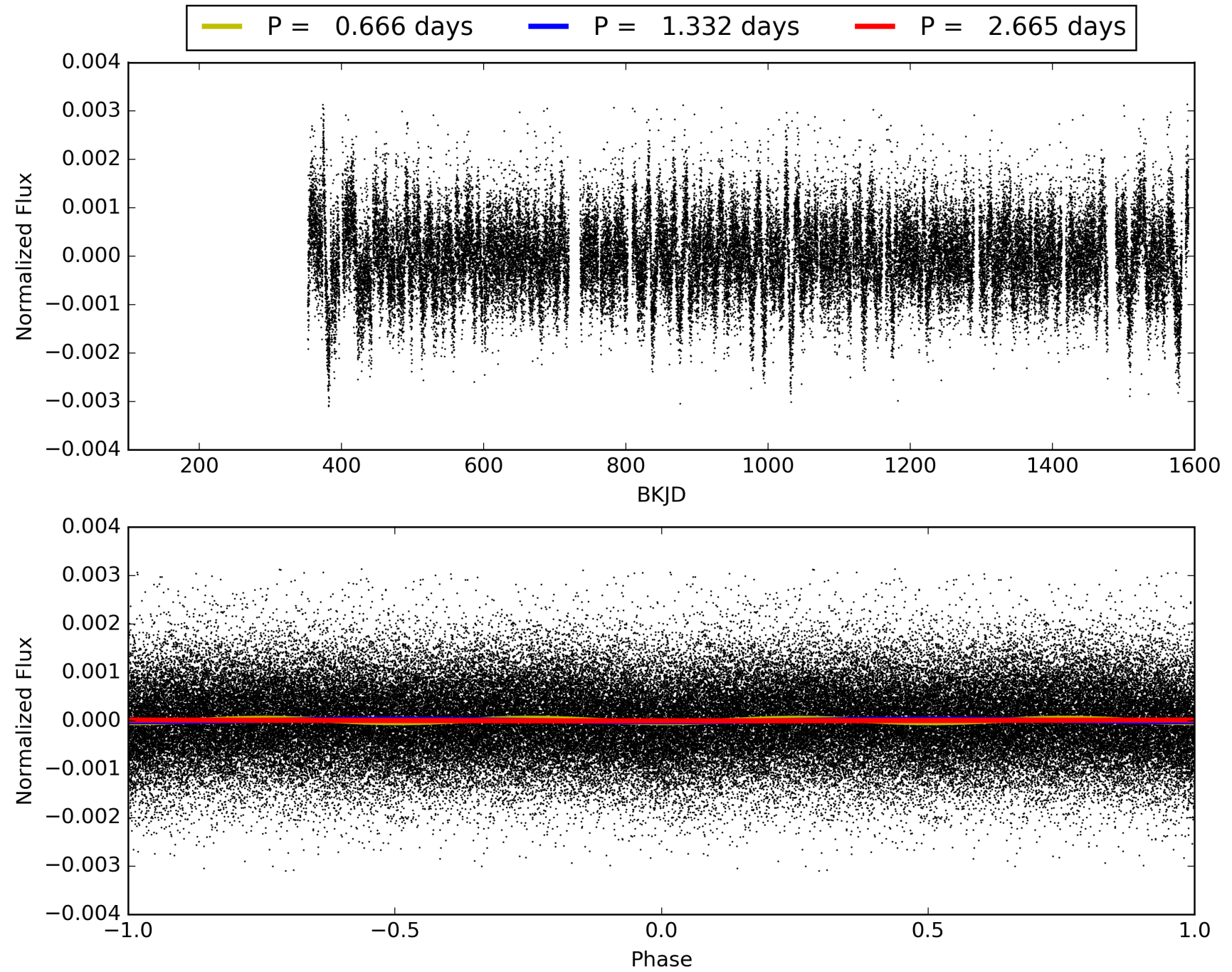
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:44:33 Z

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

# TCE 009899514-01, PDC Light Curves

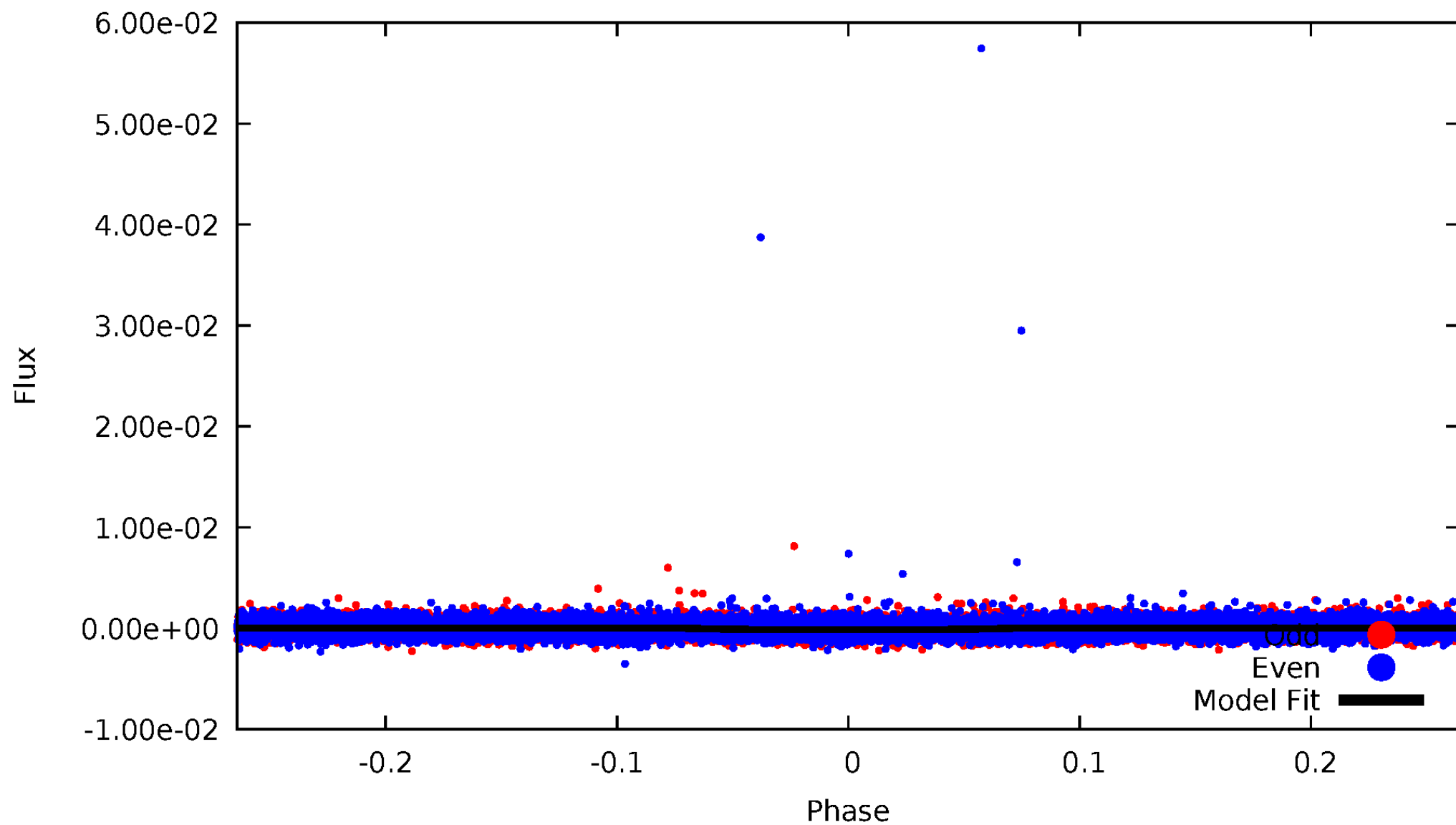


# TCE 009899514-01



# DV Odd/Even

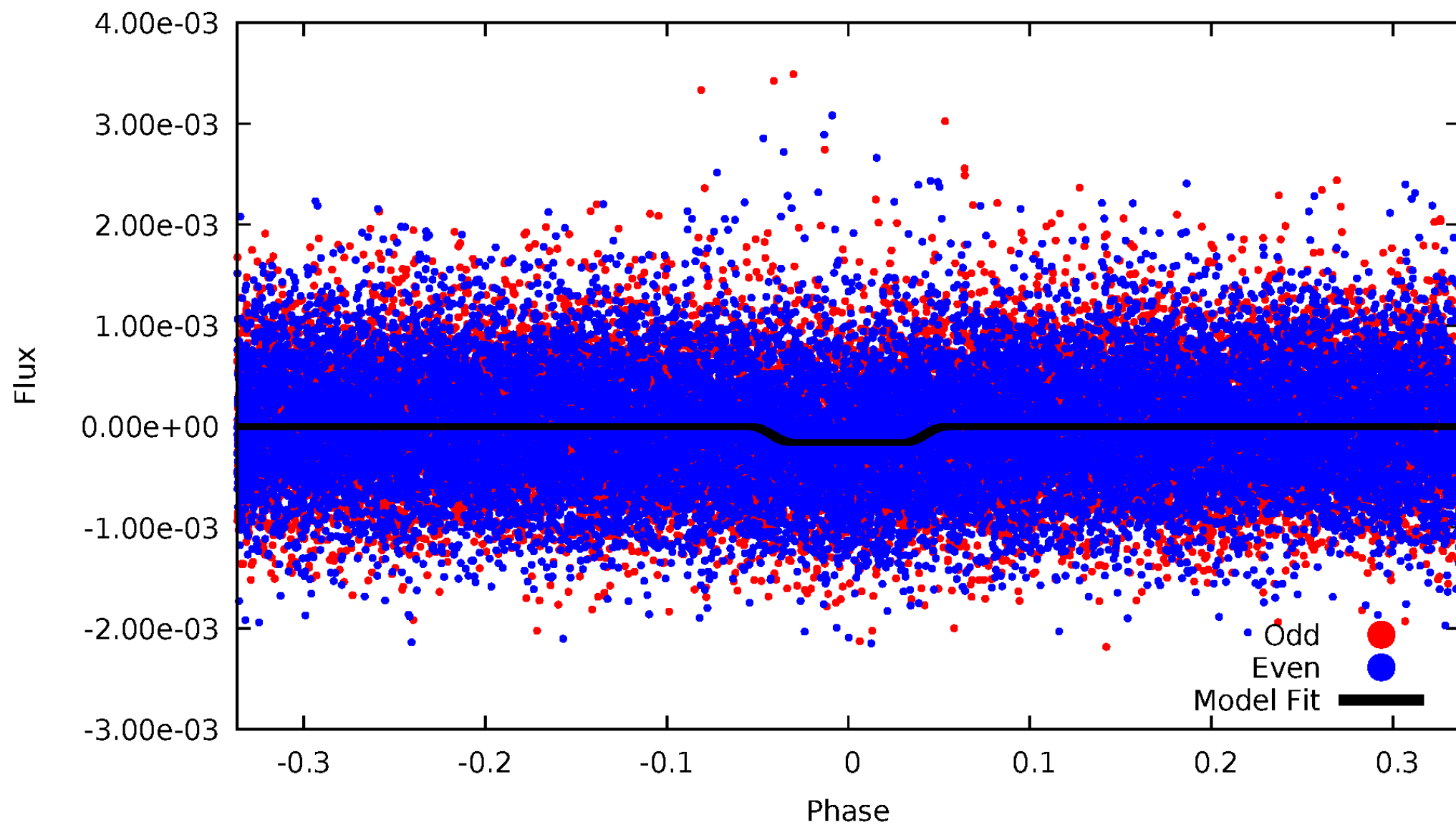
TCE 009899514-01





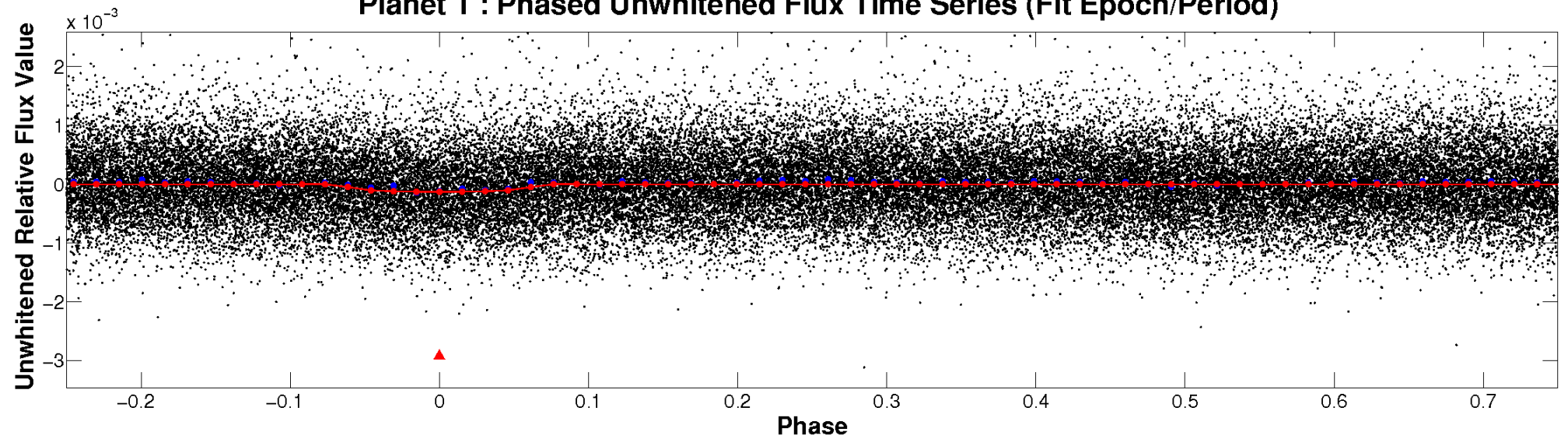
# ALT Odd/Even

TCE 009899514-01

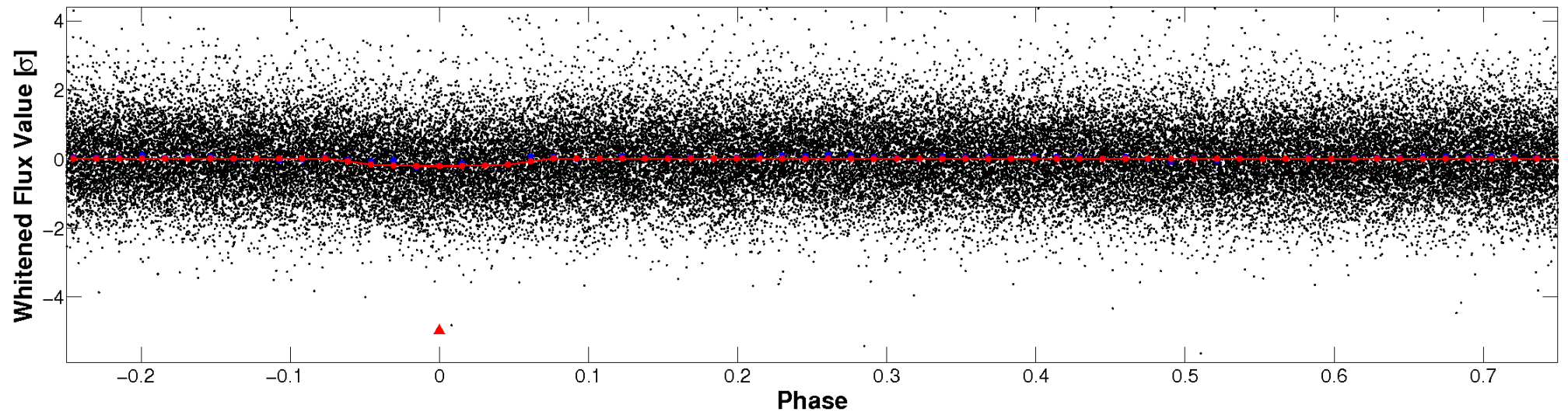


# Non-Whitened Vs. Whitened Light Curve

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

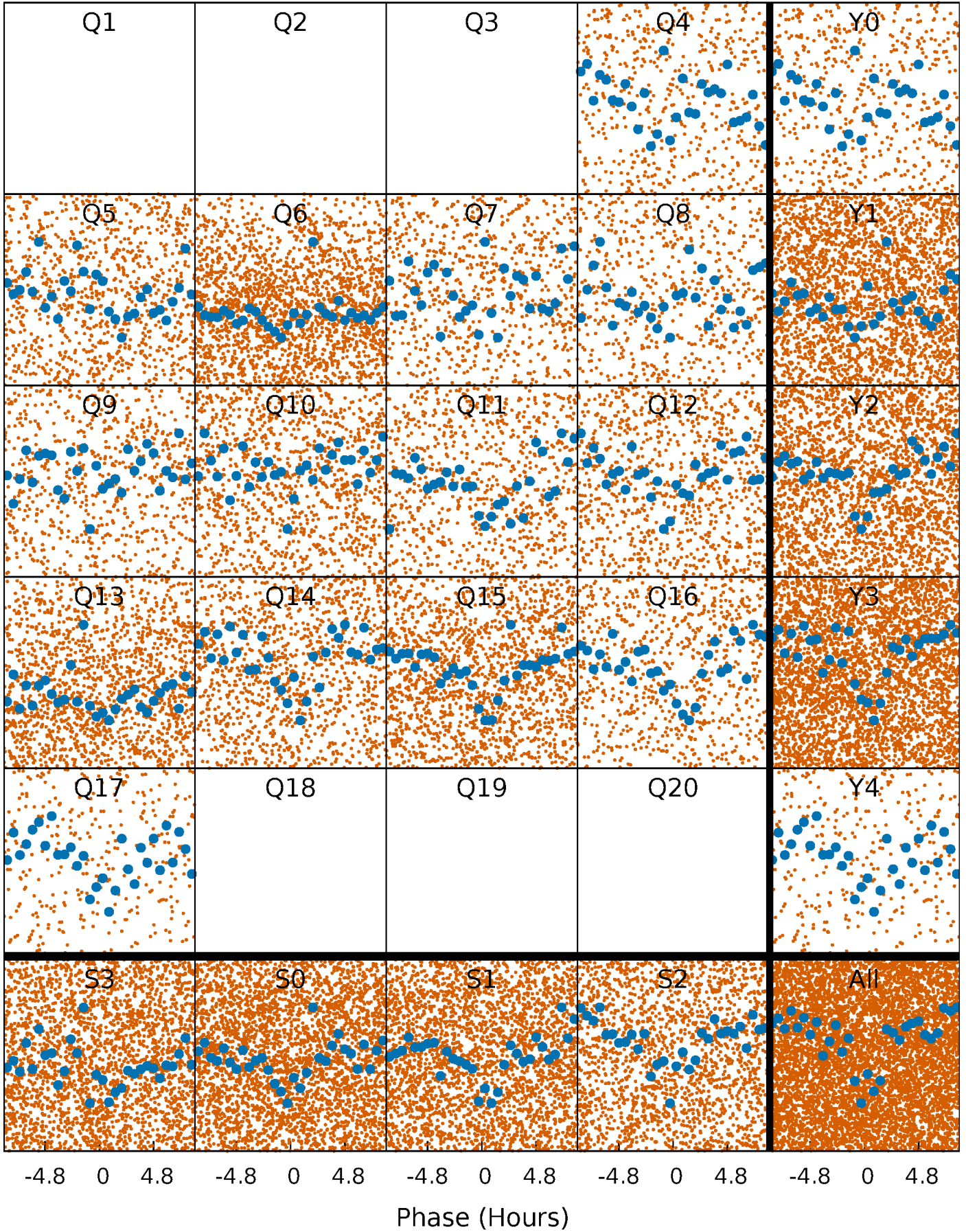


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

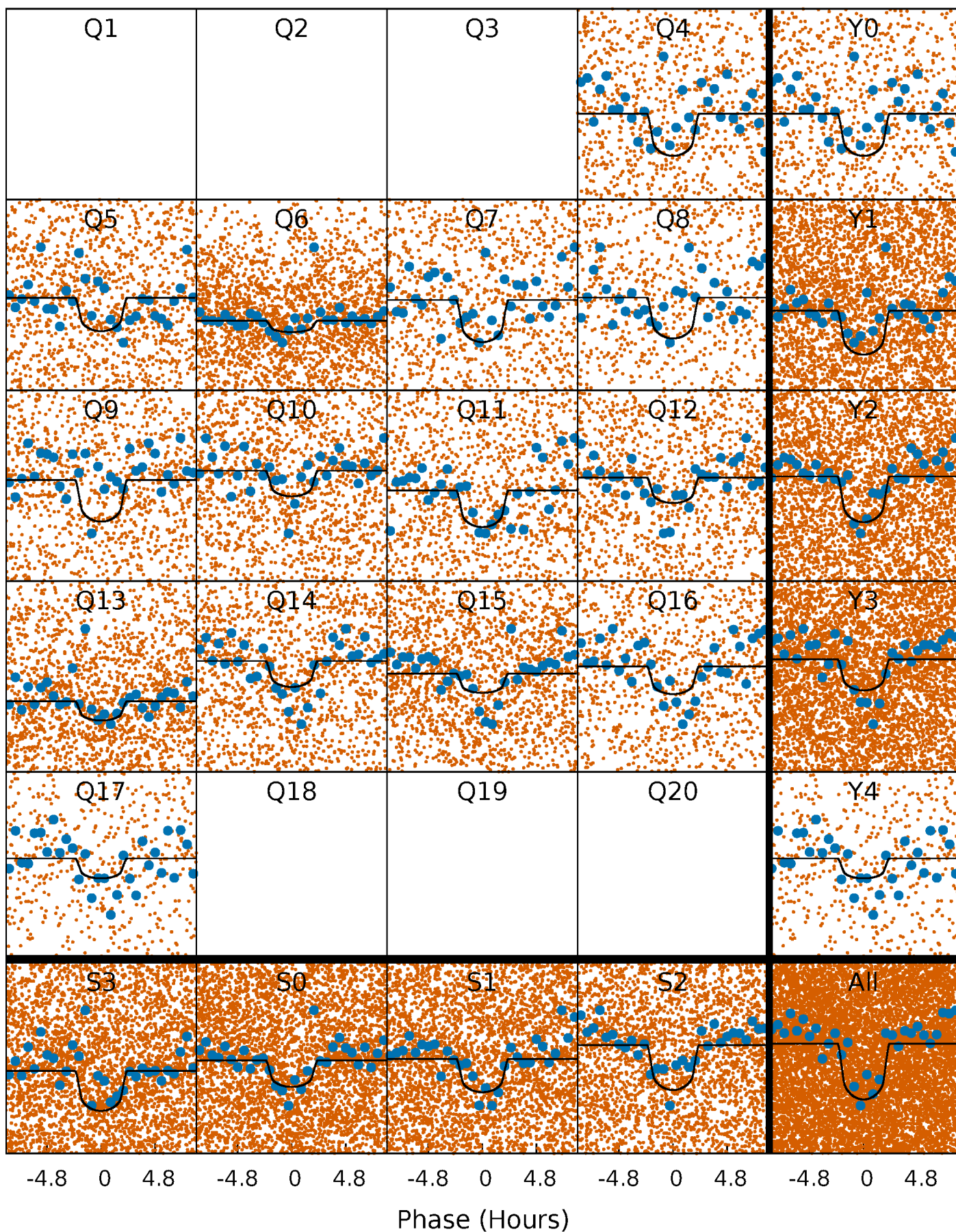
TCE 009899514-01 P= 1.332486 Days  $T_0=132.110344$  (BKJD)





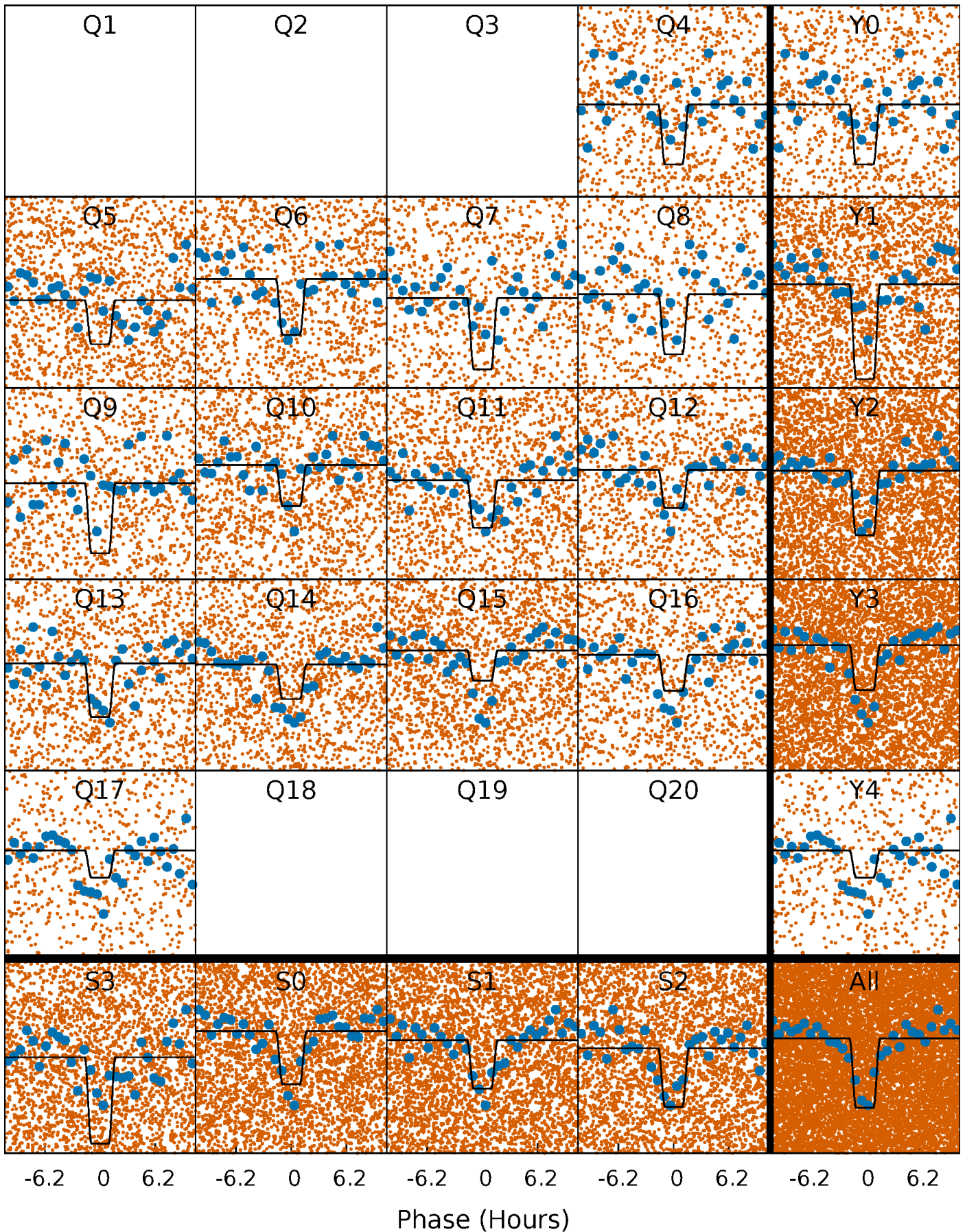
# DV Quarter-Phased Transit Curves

TCE 009899514-01 P= 1.332486 Days  $T_0=132.110344$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 009899514-01 P= 1.332579 Days  $T_0=132.041933$  (BKJD)

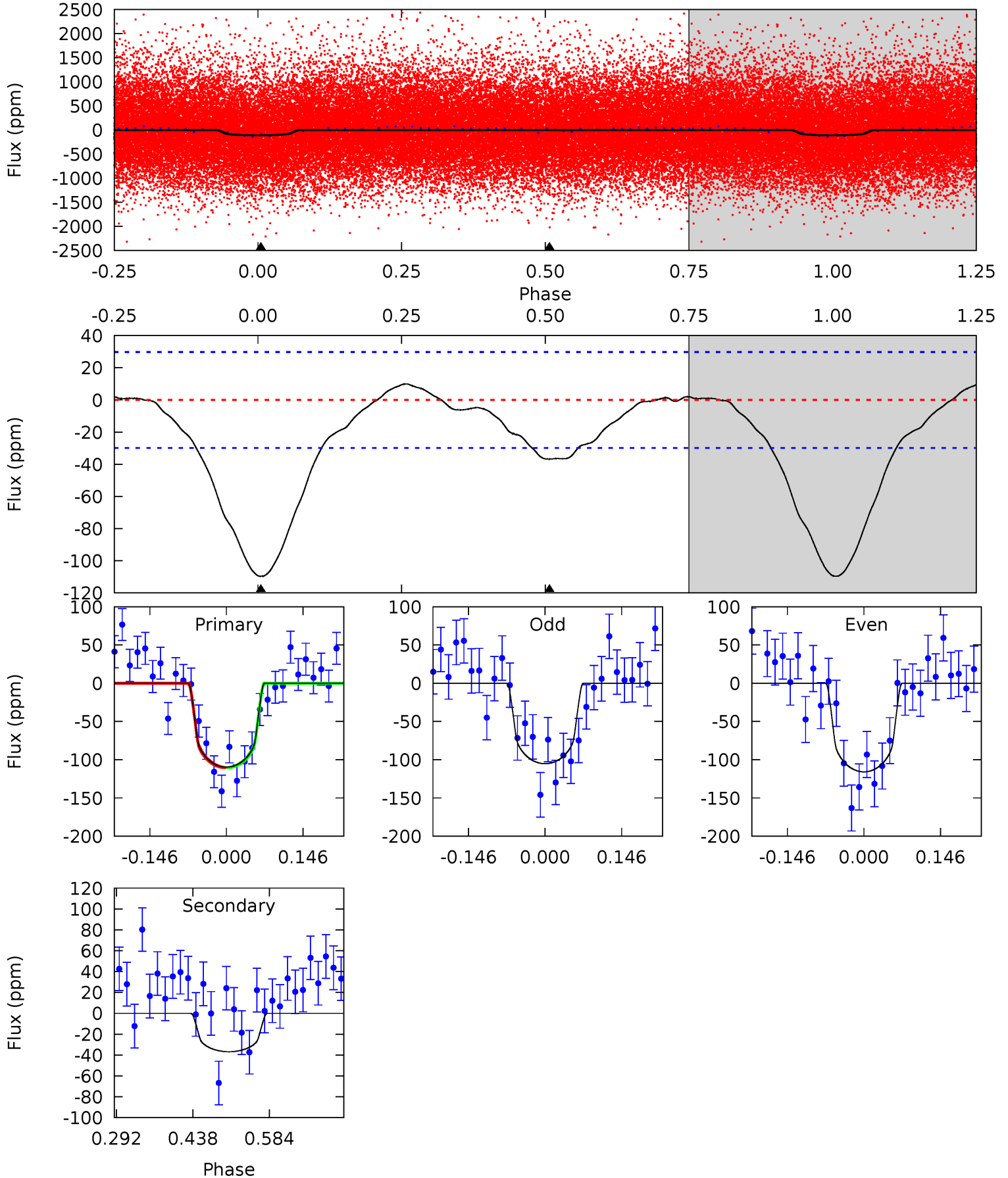




# DV Model-Shift Uniqueness Test

009899514-01, P = 1.332486 Days, E = 132.110344 Days

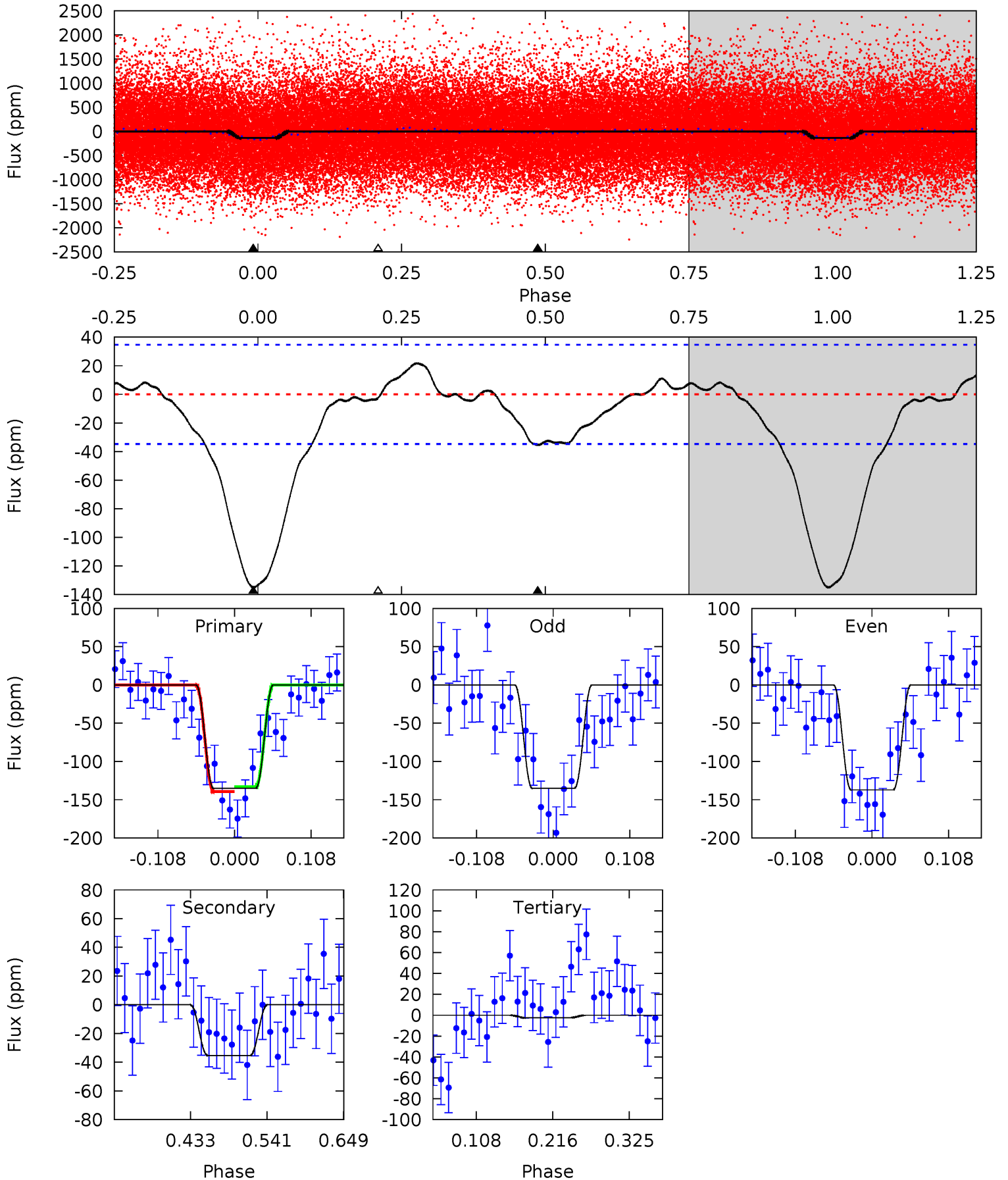
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.5	5.54	0	0	4.48	1.45	0.88	16.5	16.5	5.54	5.54	0.80	0.87	0.08	0.01



# Alt Model-Shift Uniqueness Test

009899514-01, P = 1.332579 Days, E = 132.041933 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
17.7	4.64	0.33	0	4.55	1.61	1.21	17.4	17.7	4.31	4.64	0.13	1.01	0.14	0.41





### Stellar Parameters For KIC 009899514

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$5122^{+179}_{-179}$	$4.469^{+0.095}_{-0.105}$	$0.210^{+0.200}_{-0.300}$	$0.881^{+0.120}_{-0.098}$	$0.835^{+0.079}_{-0.059}$	$1.716^{+0.678}_{-0.532}$
	+3%/-3%	+2%/-2%	+95%/-143%	+14%/-11%	+9%/-7%	+40%/-31%
Source	KIC0	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 009899514-01 / KOI 5729.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-37 \pm 7$	$1.23^{+0.66}_{-0.56}$	$1992^{+101}_{-100}$	$3810^{+1009}_{-525}$	$6.546^{+14.824}_{-3.832}$
Alt.	$-35 \pm 8$	$1.24^{+0.60}_{-0.58}$	$1990^{+110}_{-97}$	$3778^{+1029}_{-476}$	$6.284^{+15.937}_{-3.538}$

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

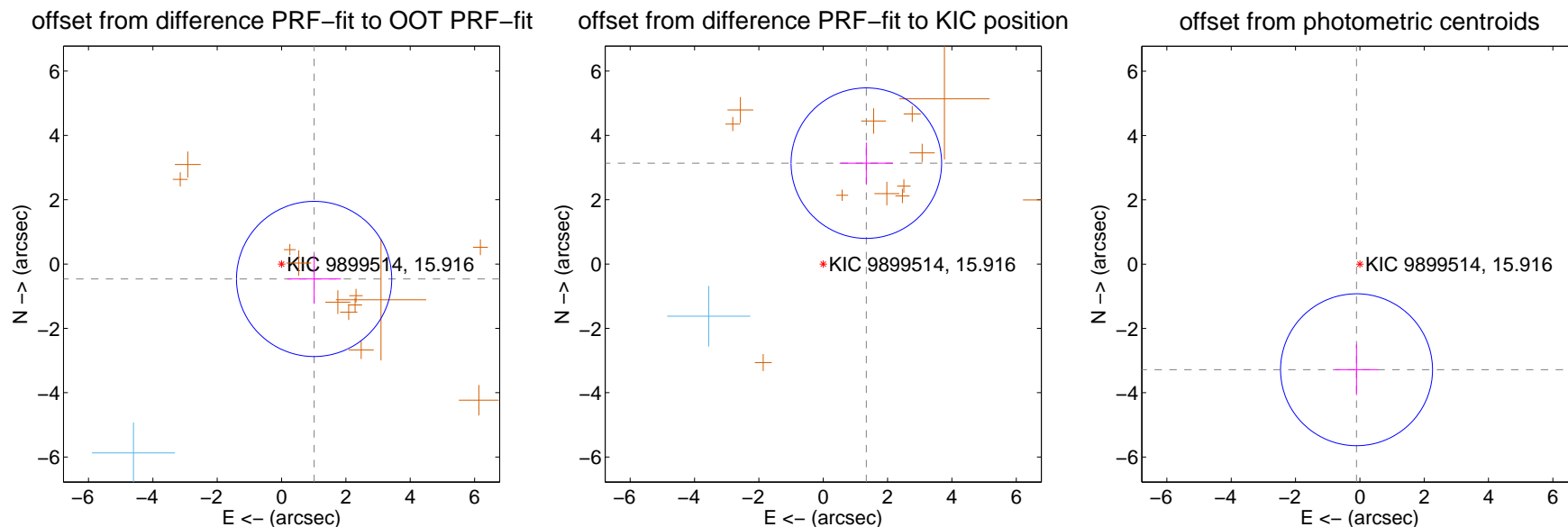
## DV Centroid Data

Supplemental centroid analysis for 009899514-01. Kepler magnitude: 15.92. Transit SNR 14.11

There are 1 quarters with good PRF difference image offsets

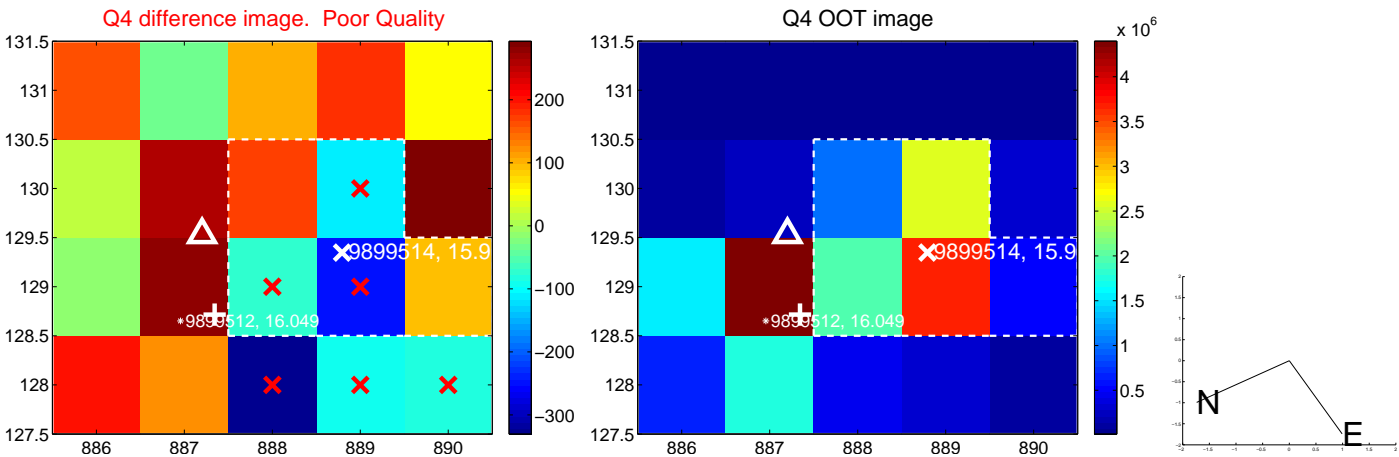
The OOT PRF centroid is offset from the target star catalog position by about 4.54 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.113 \pm 0.804$	1.38	$-1.012 \pm 0.834$	$-0.463 \pm 0.756$
PRF-fit source offset from KIC position	$3.412 \pm 0.780$	4.37	$-1.340 \pm 0.832$	$3.137 \pm 0.639$
photometric centroid source offset	$3.29 \pm 0.79$	4.17	$0.10 \pm 0.67$	$-3.29 \pm 0.79$

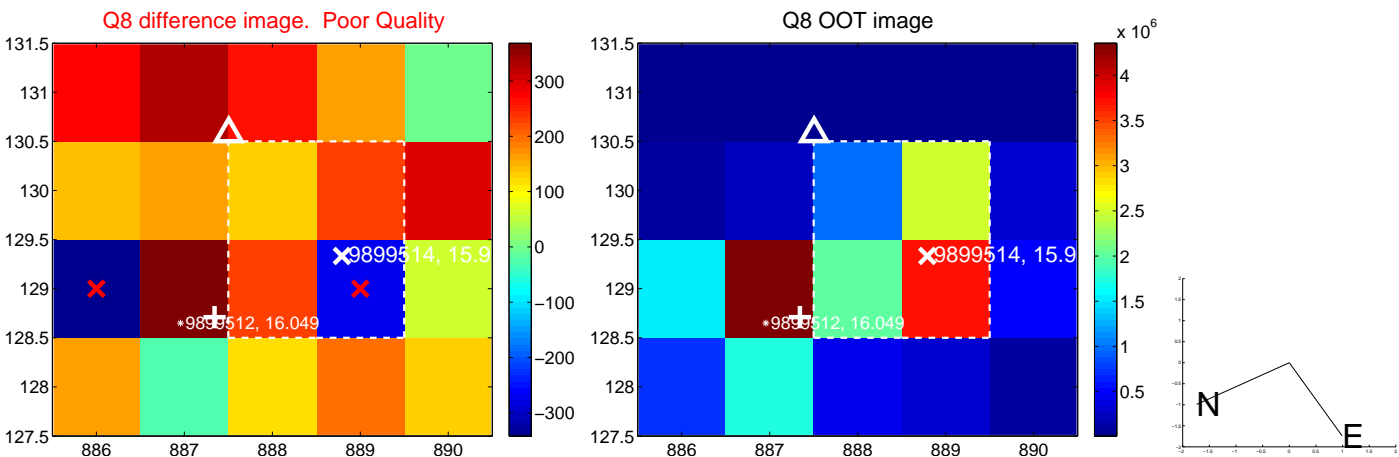
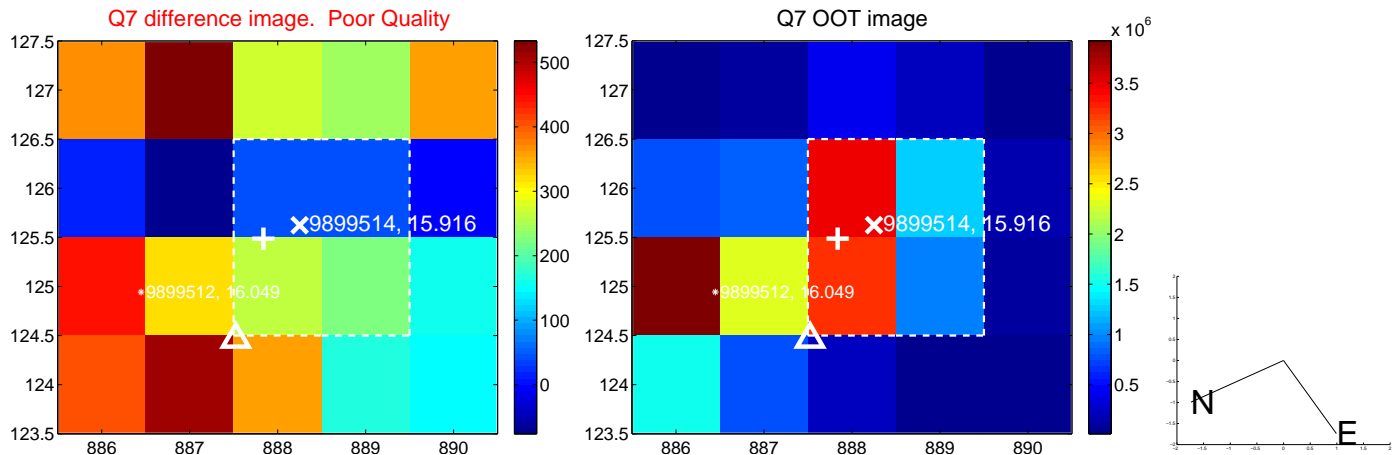
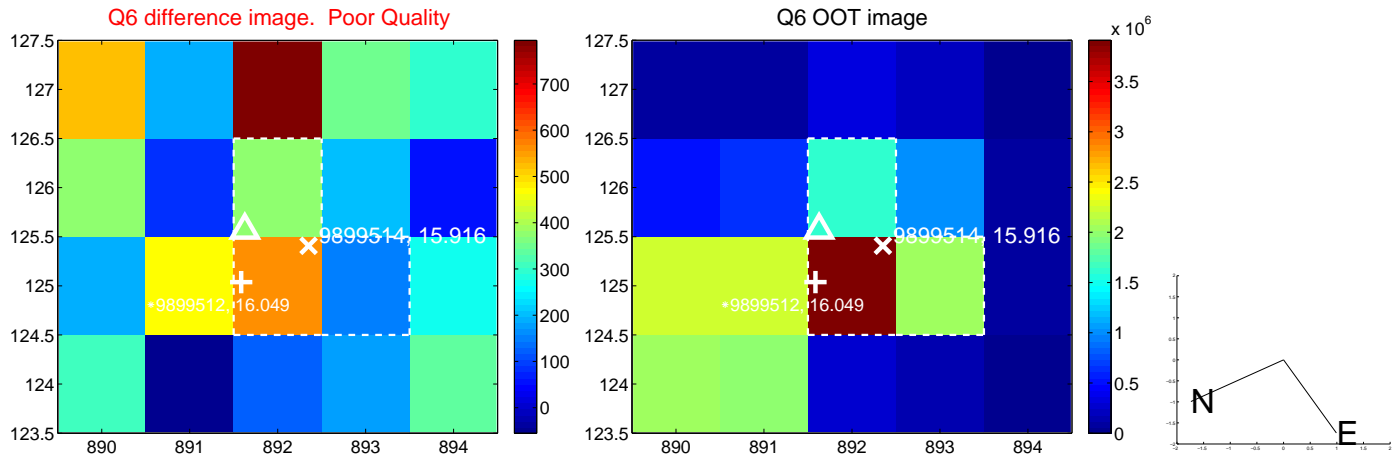
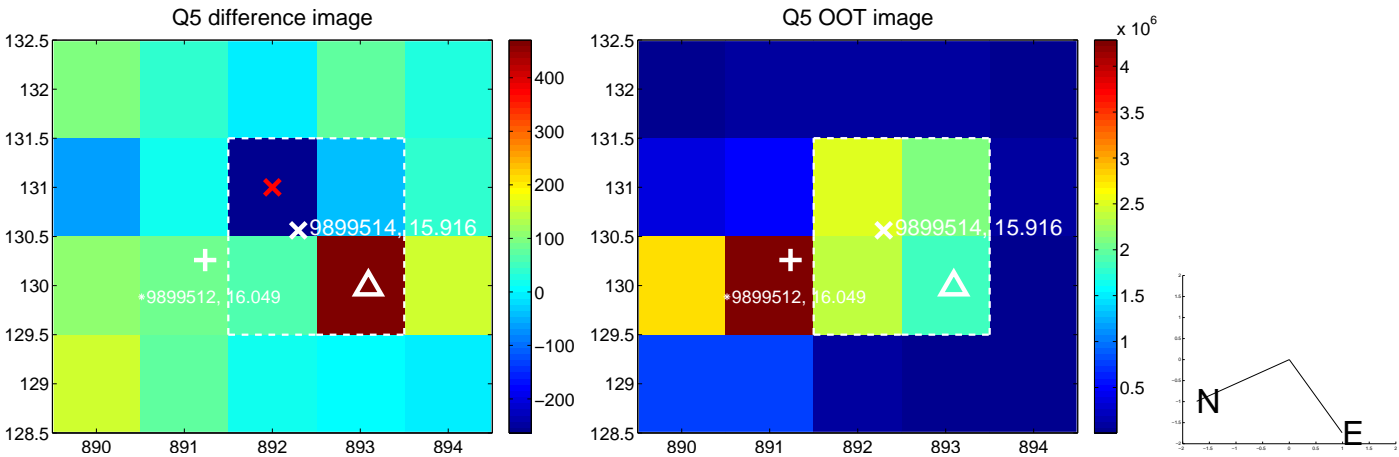


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

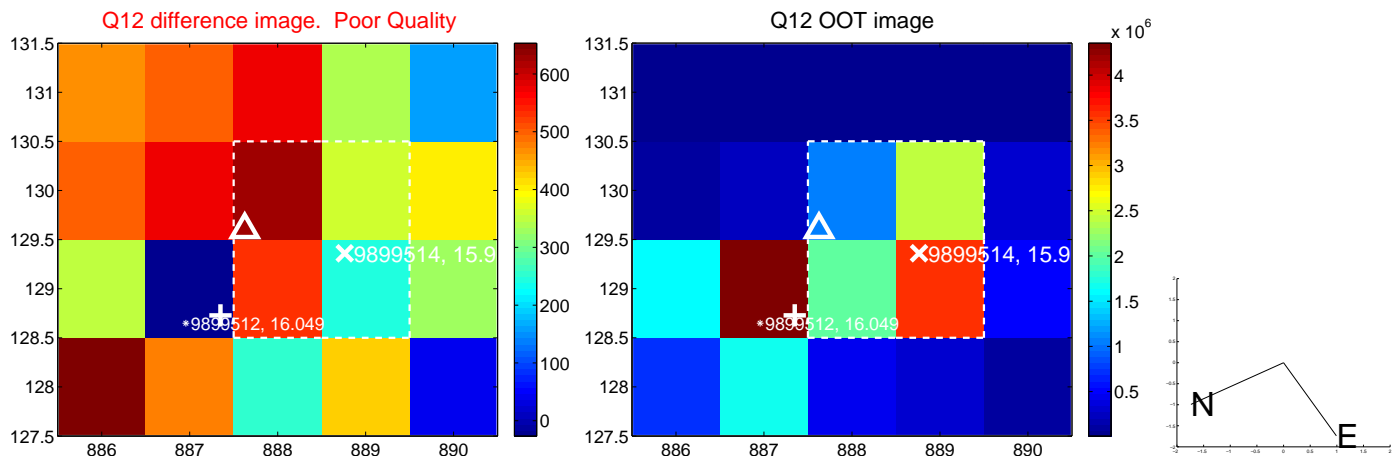
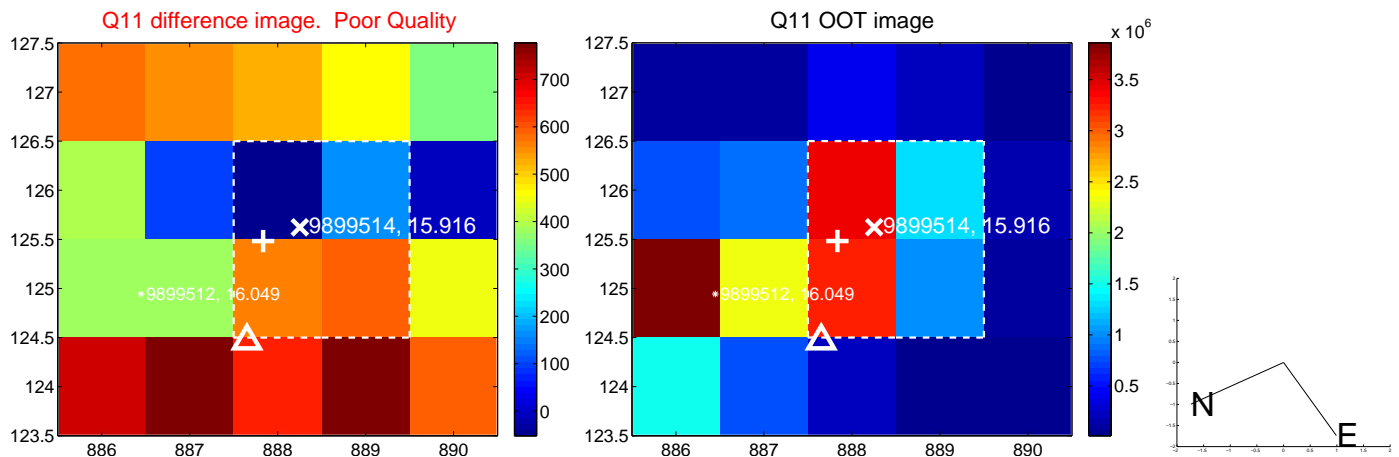
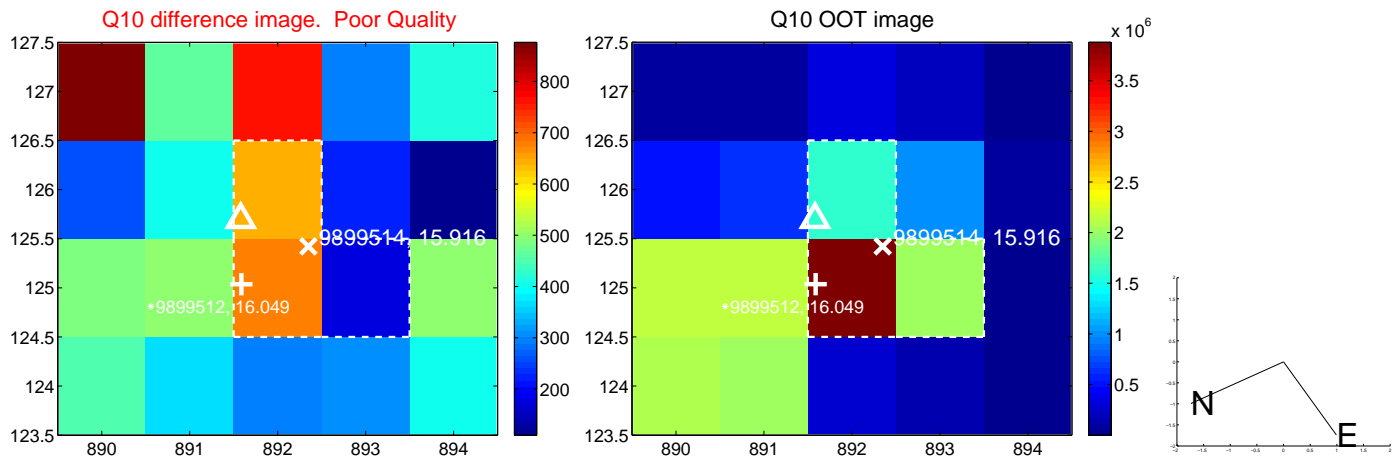
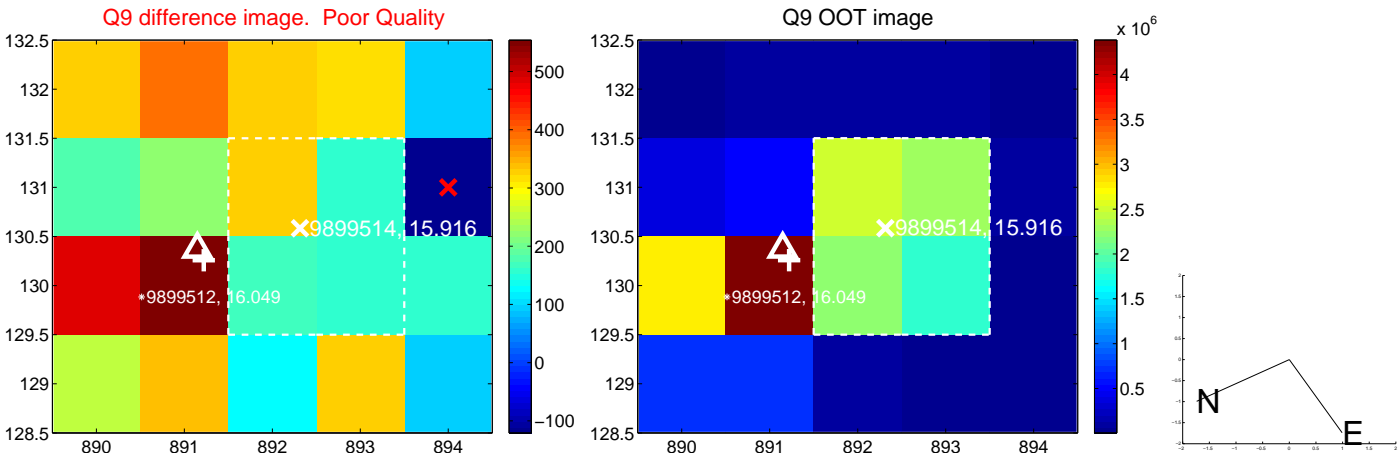


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

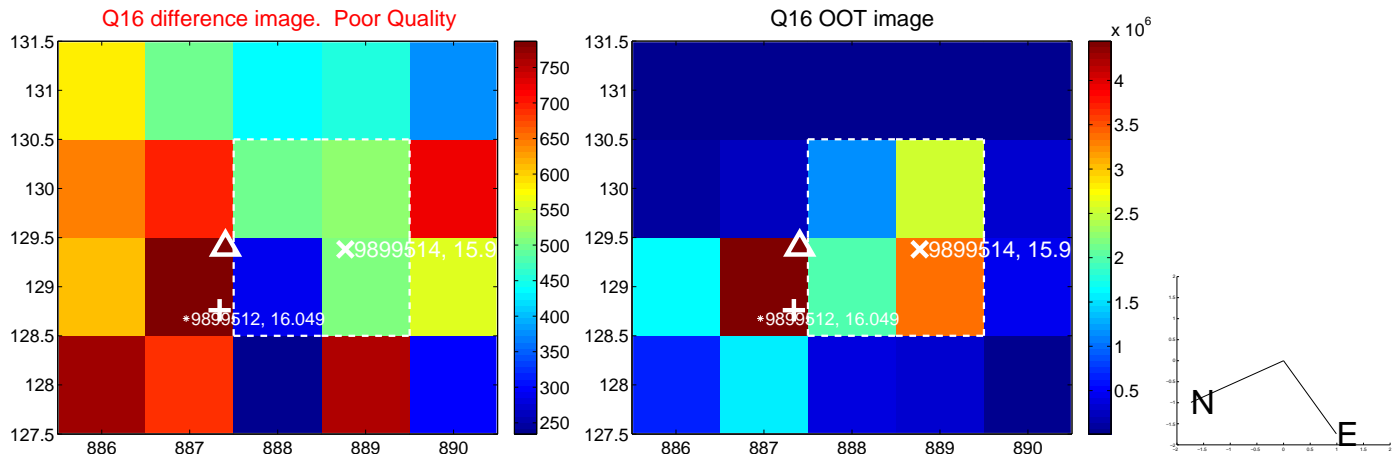
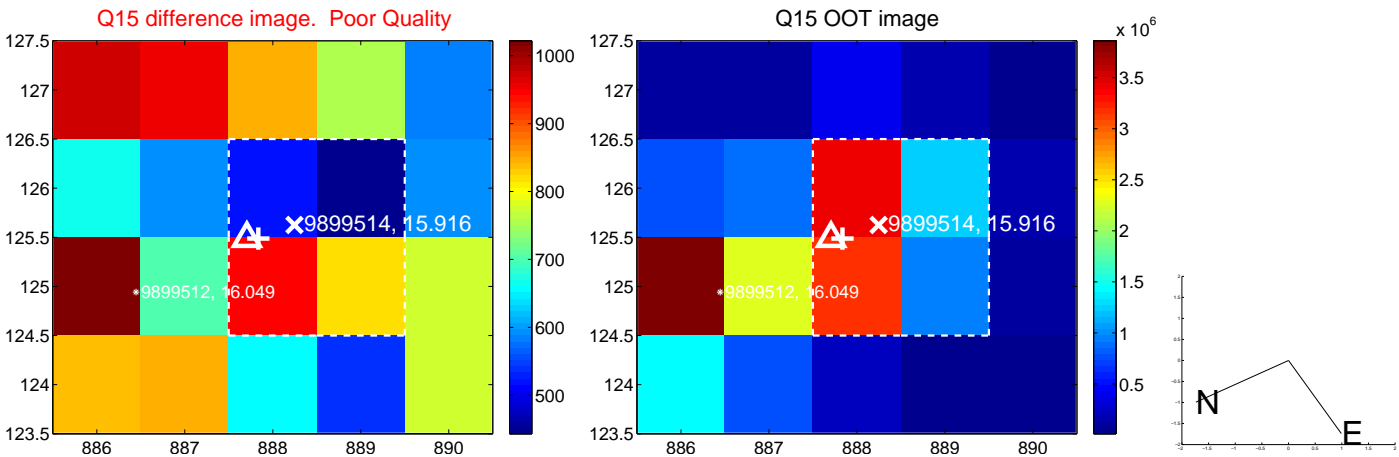
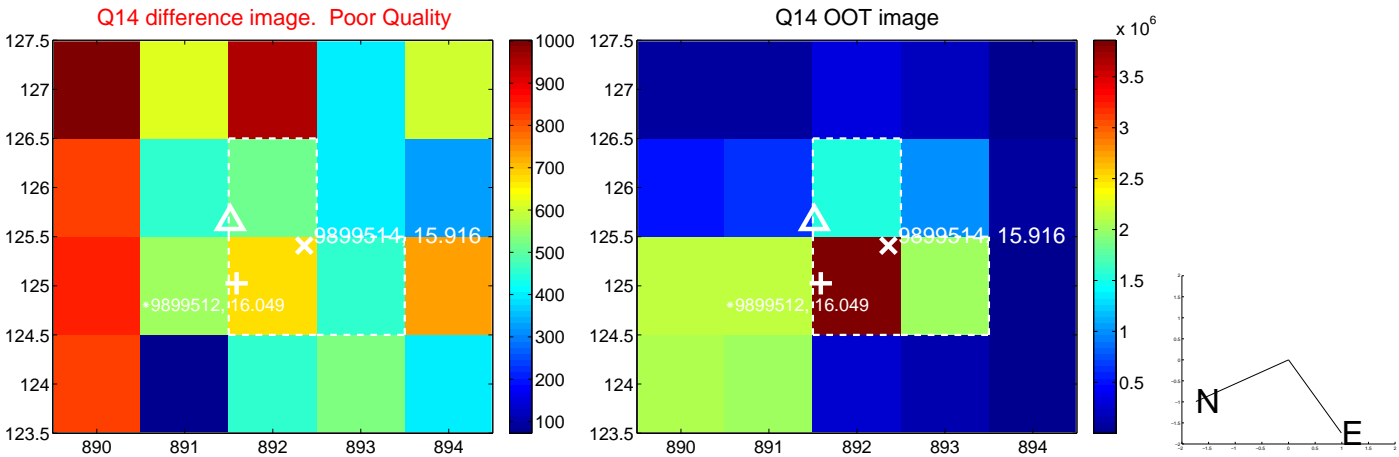
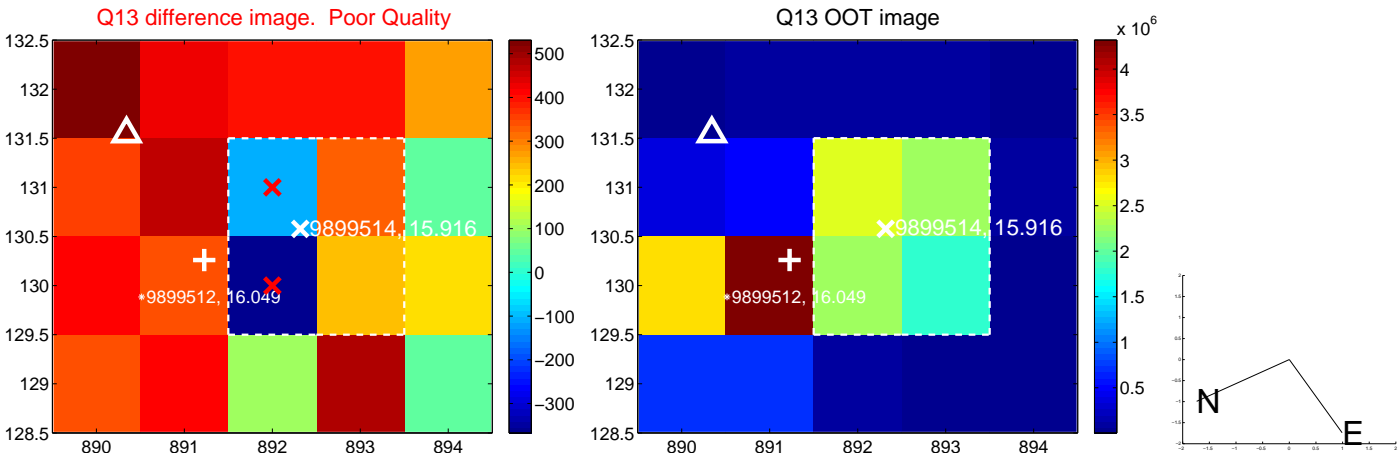




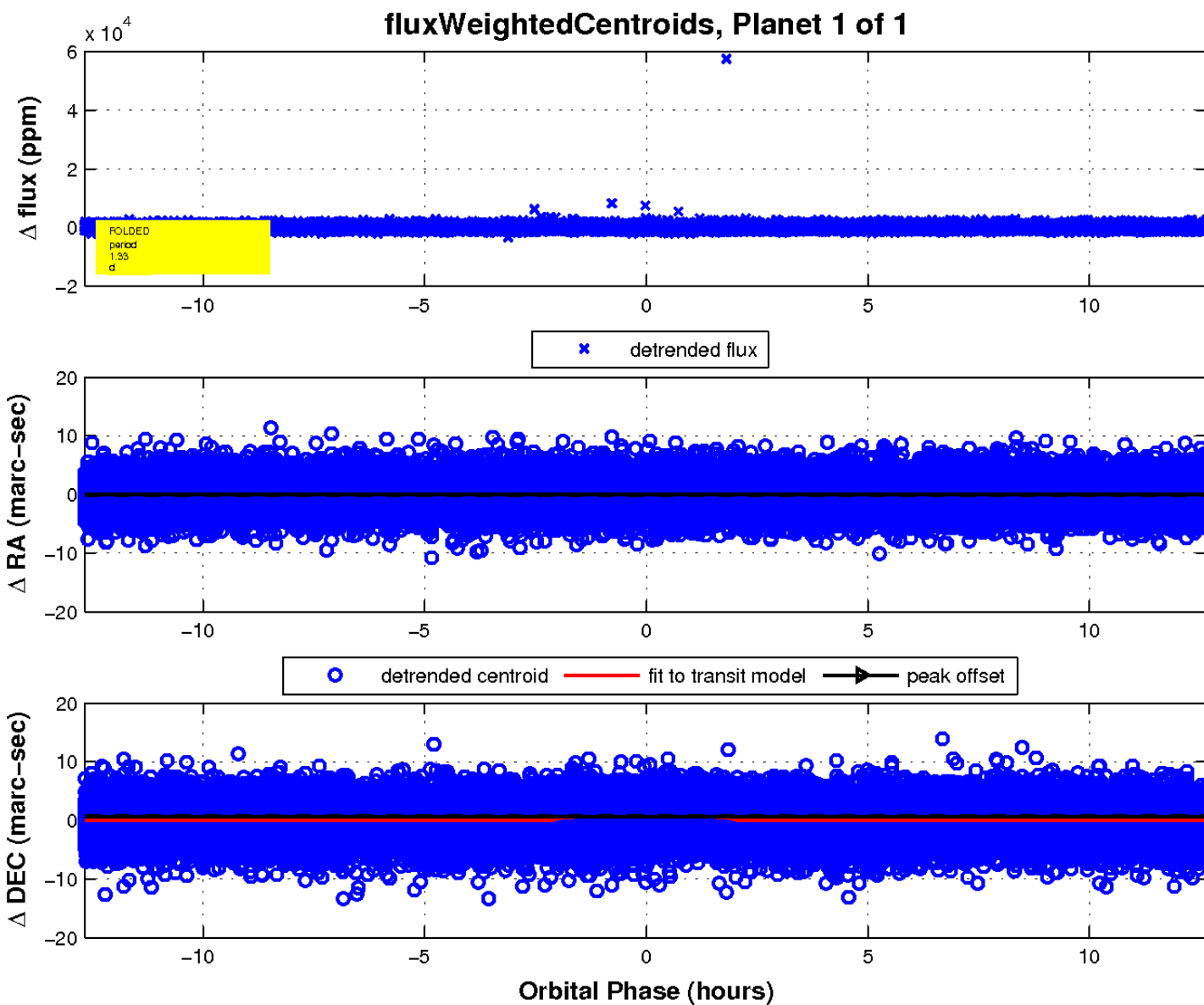
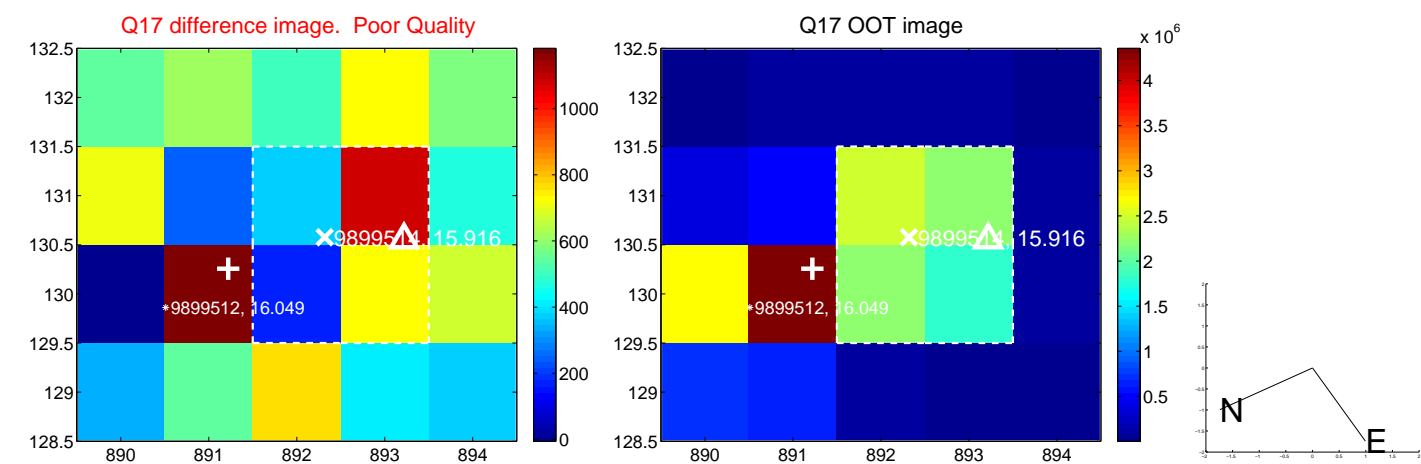
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

