

# KIC 009099427

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009099427-01	OBS	No	3.058681	134.057587	8.6	22.545	8.2	10.6	2.06	8474	0.62	7844.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009099427-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_MEAS

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

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

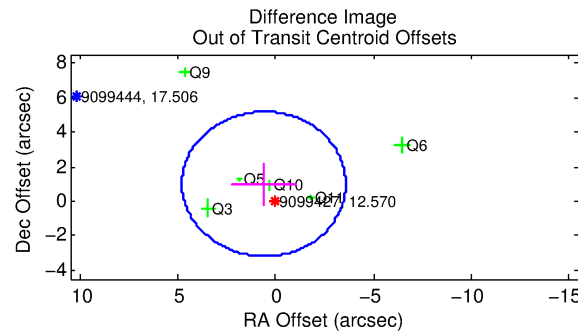
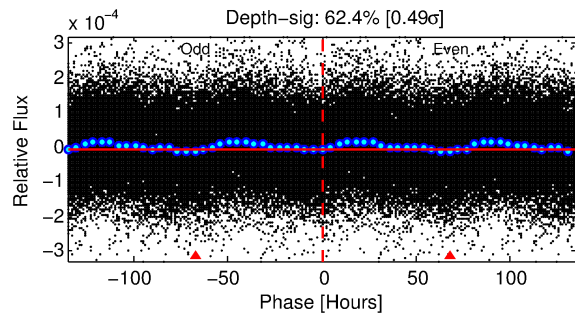
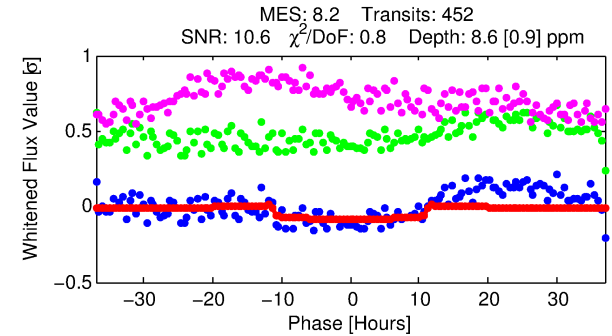
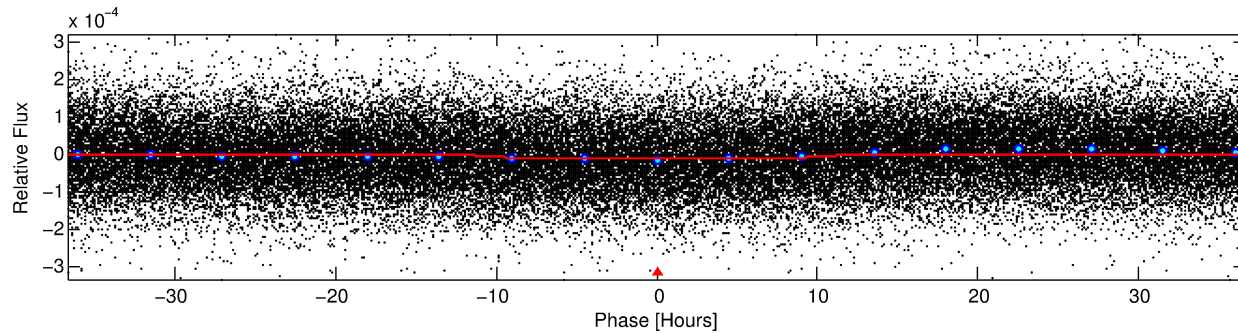
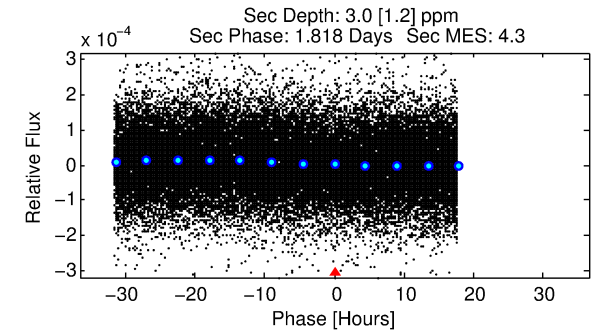
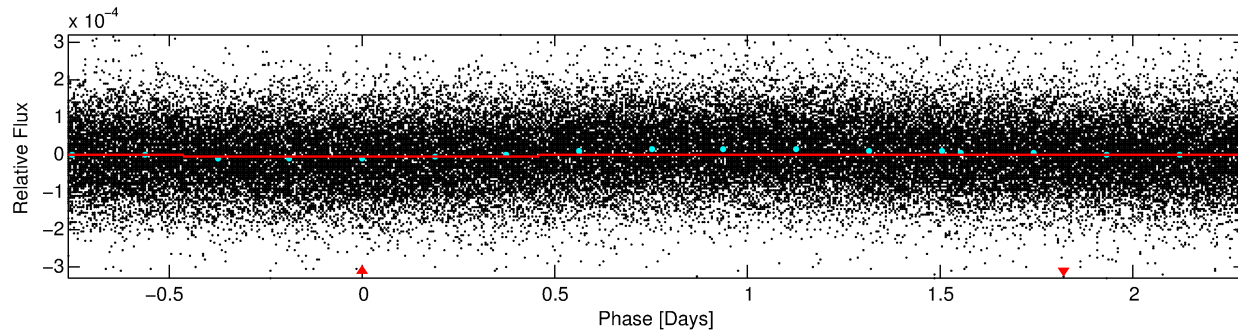
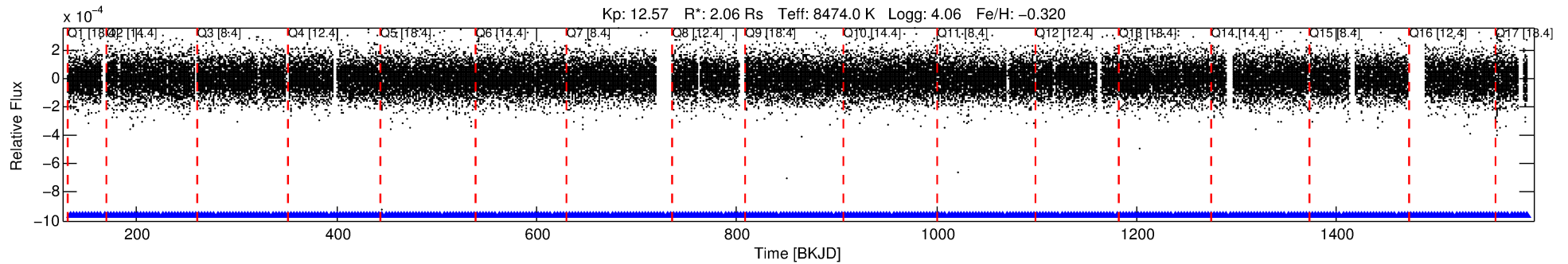
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009099427-01

No Significant Match Found

# DV One-Page Summary

KIC: 9099427 Candidate: 1 of 1 Period: 3.059 d



## DV Fit Results:

Period = 3.05868 [0.00007] d  
Epoch = 134.0576 [0.0145] BKJD  
Rp/R\* = 0.0028 [0.0017]  
a/R\* = 1.18 [1.30]  
b = 0.43 [7.26]  
Seff = 7844.25 [3023.75]  
Teq = 2400 [231] K  
Rp = 0.62 [0.43] Re  
a = 0.0499 [0.0118] AU  
Ag = 10.46 [14.31] [0.66σ]  
Teffp = 6672 [2225] K [1.91σ]

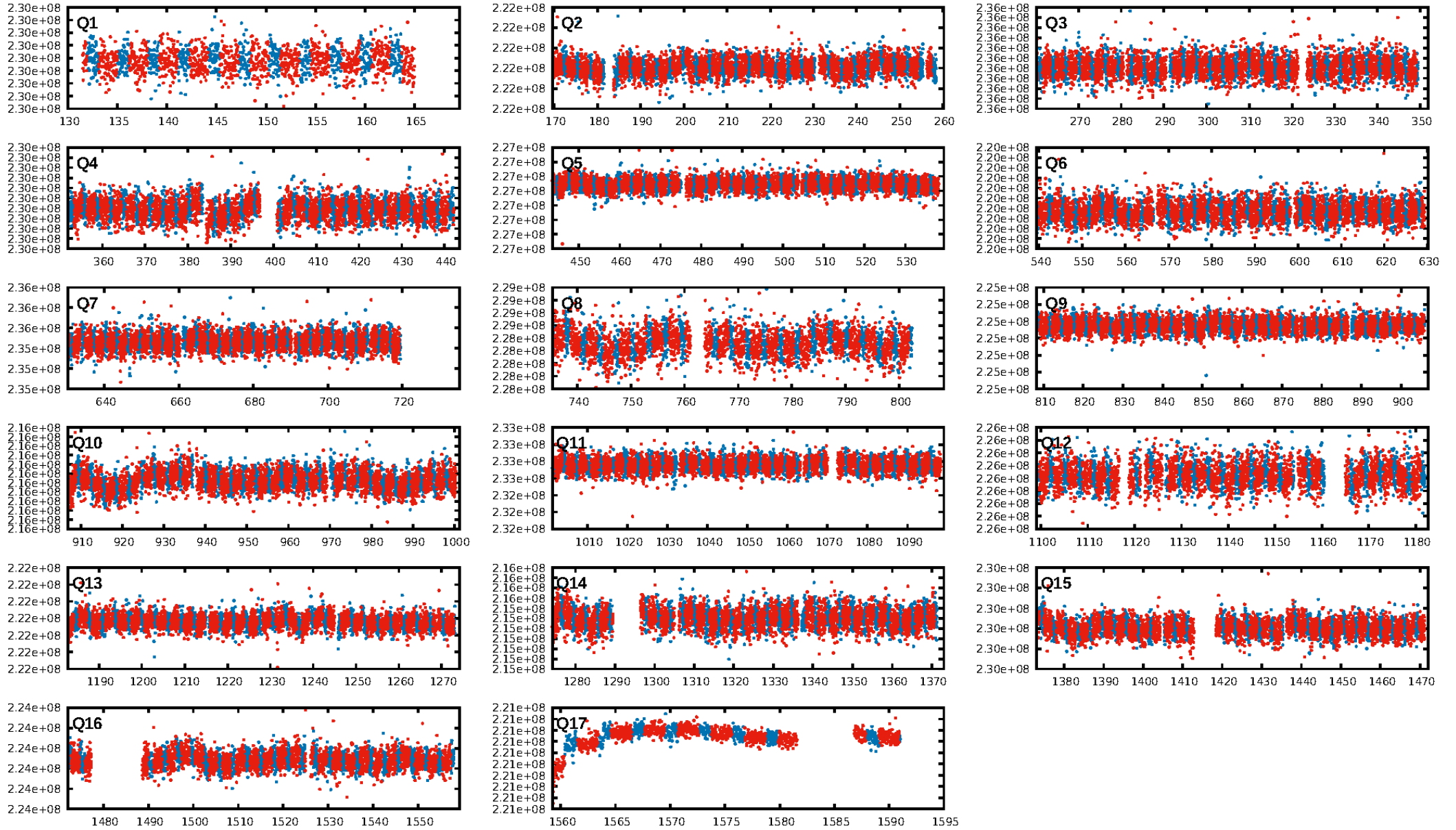
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [431/431]  
GhostDiagnostic-chr: 6.255  
Centroid-sig: 13.3%  
Centroid-so: 1.530 arcsec [1.29σ]  
OotOffset-rm: 1.163 arcsec [0.83σ]  
KicOffset-rm: 1.088 arcsec [0.83σ]  
OotOffset-st: 2/2/0/2 [6]  
KicOffset-st: 2/2/0/2 [6]  
DiffImageQuality-fgm: 0.33 [2/6]  
DiffImageOverlap-fno: 1.00 [17/17]

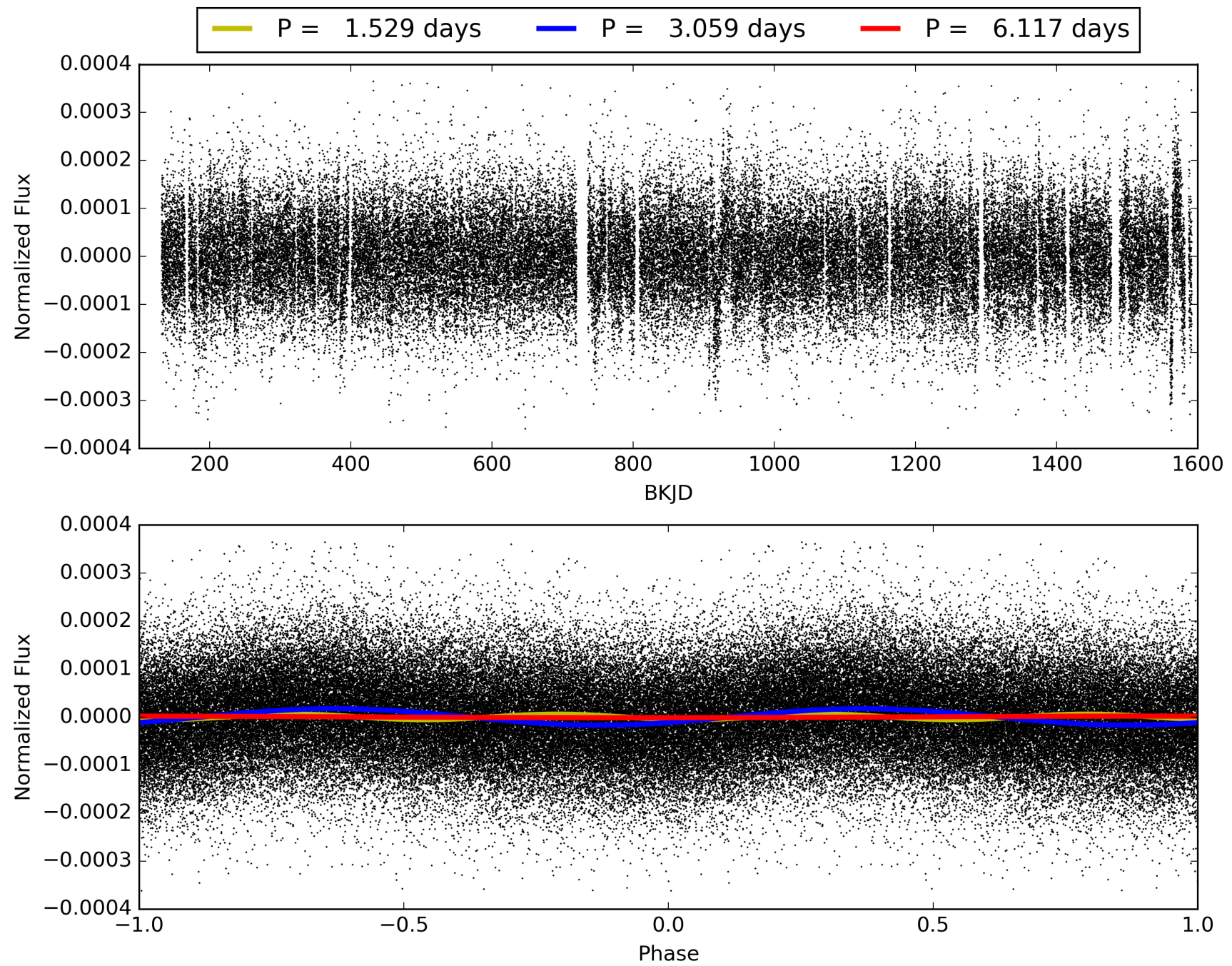
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:32:43 Z

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

# TCE 009099427-01, PDC Light Curves



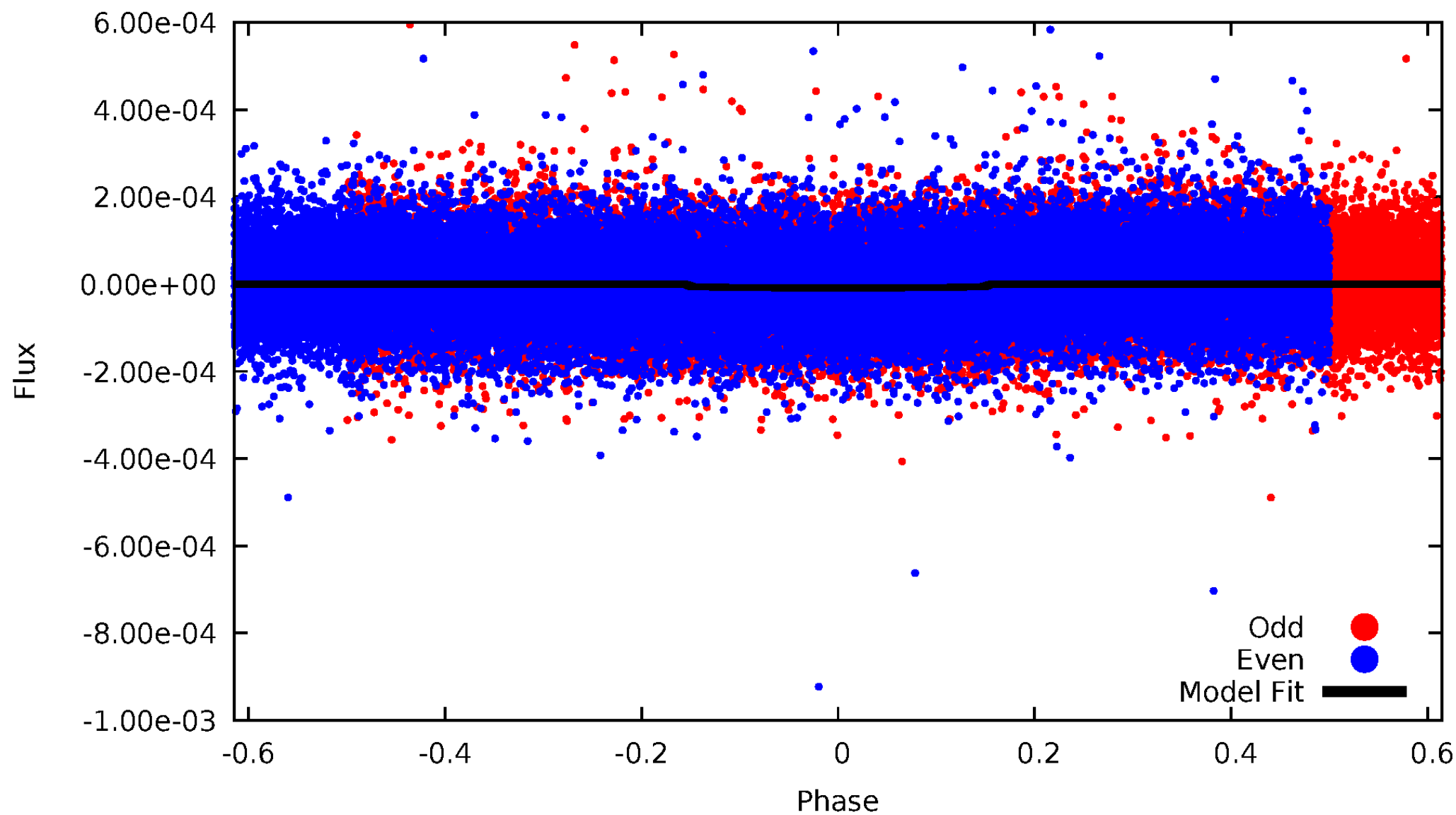
TCE 009099427-01





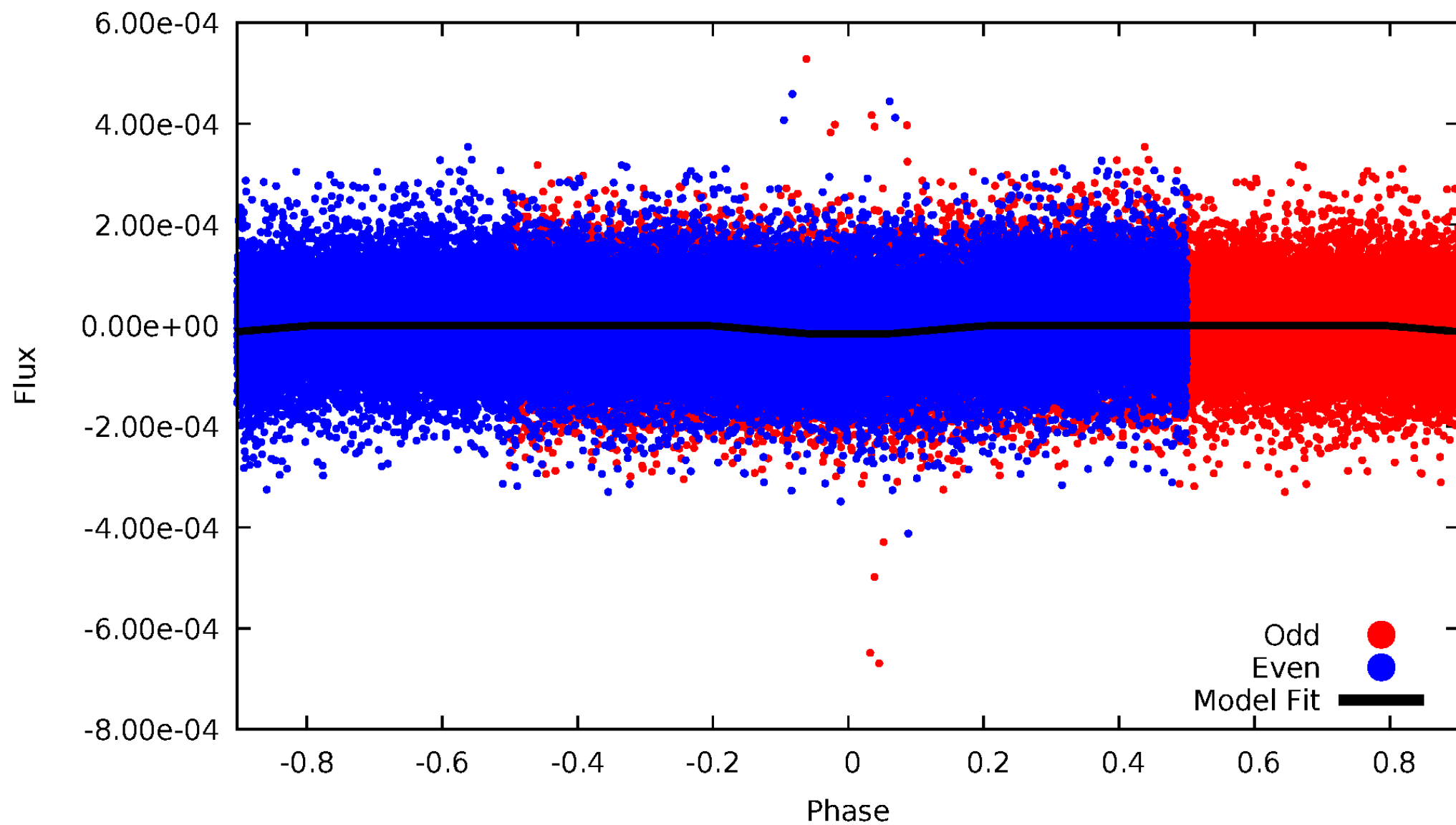
# DV Odd/Even

TCE 009099427-01



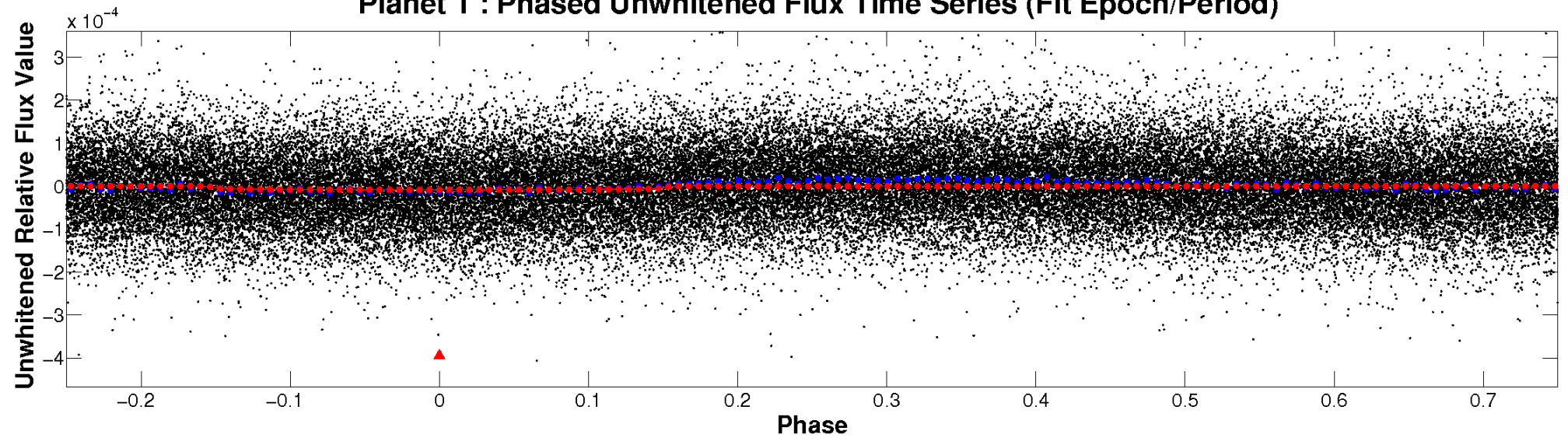
# ALT Odd/Even

TCE 009099427-01

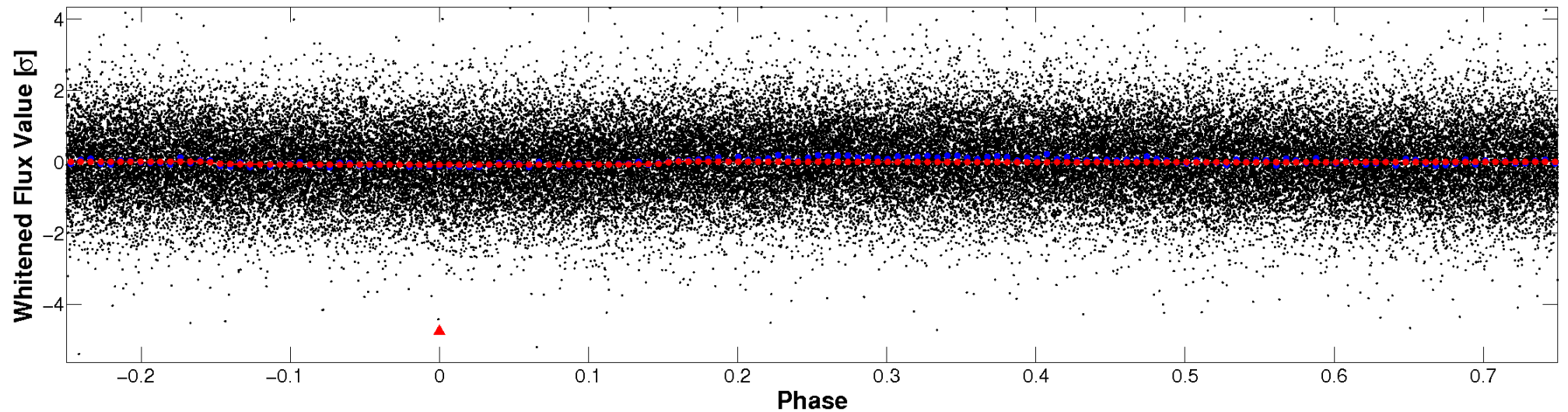


# Non-Whitened Vs. Whitened Light Curve

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

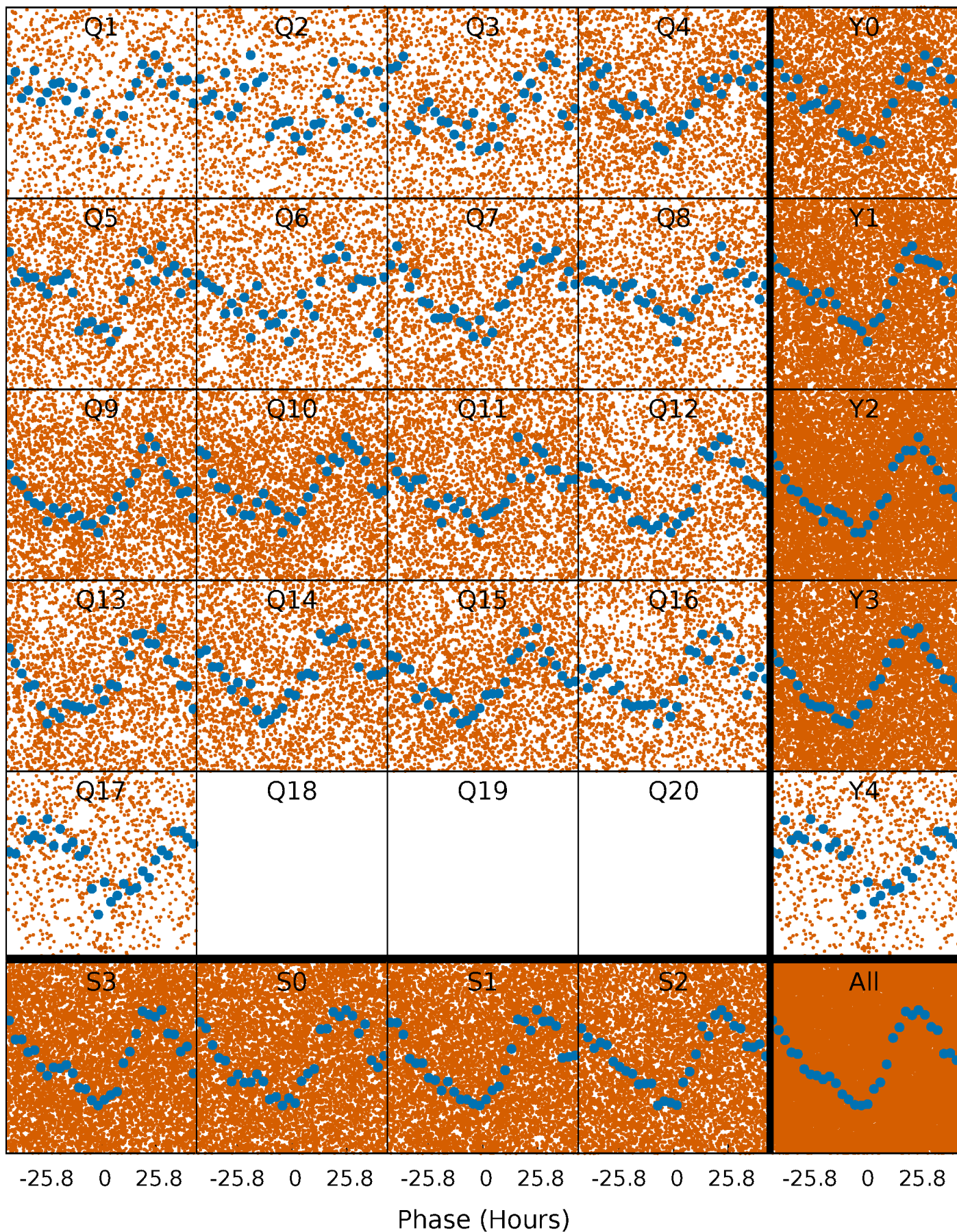


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

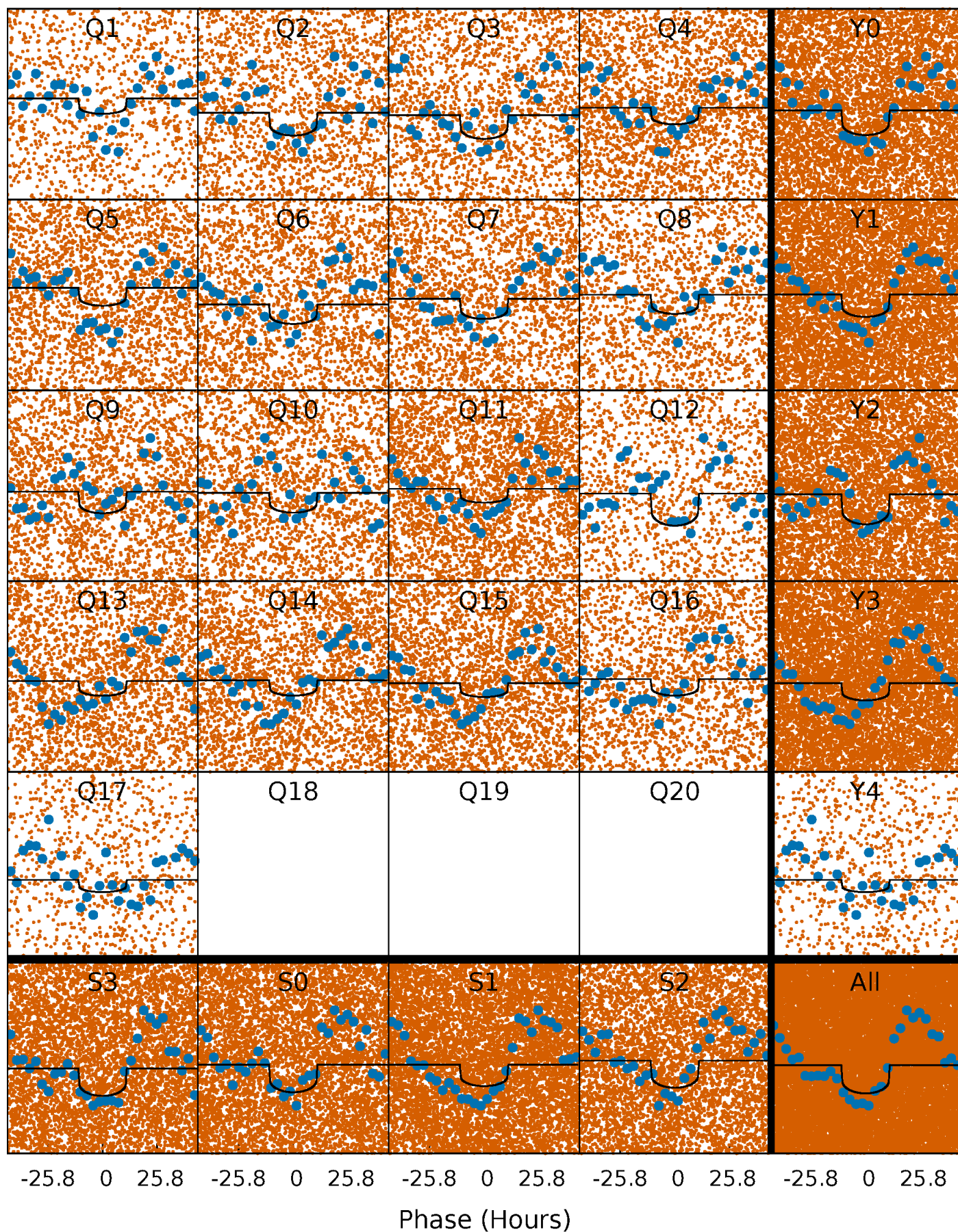
TCE 009099427-01   P= 3.058681 Days    $T_0=134.057587$  (BKJD)





# DV Quarter-Phased Transit Curves

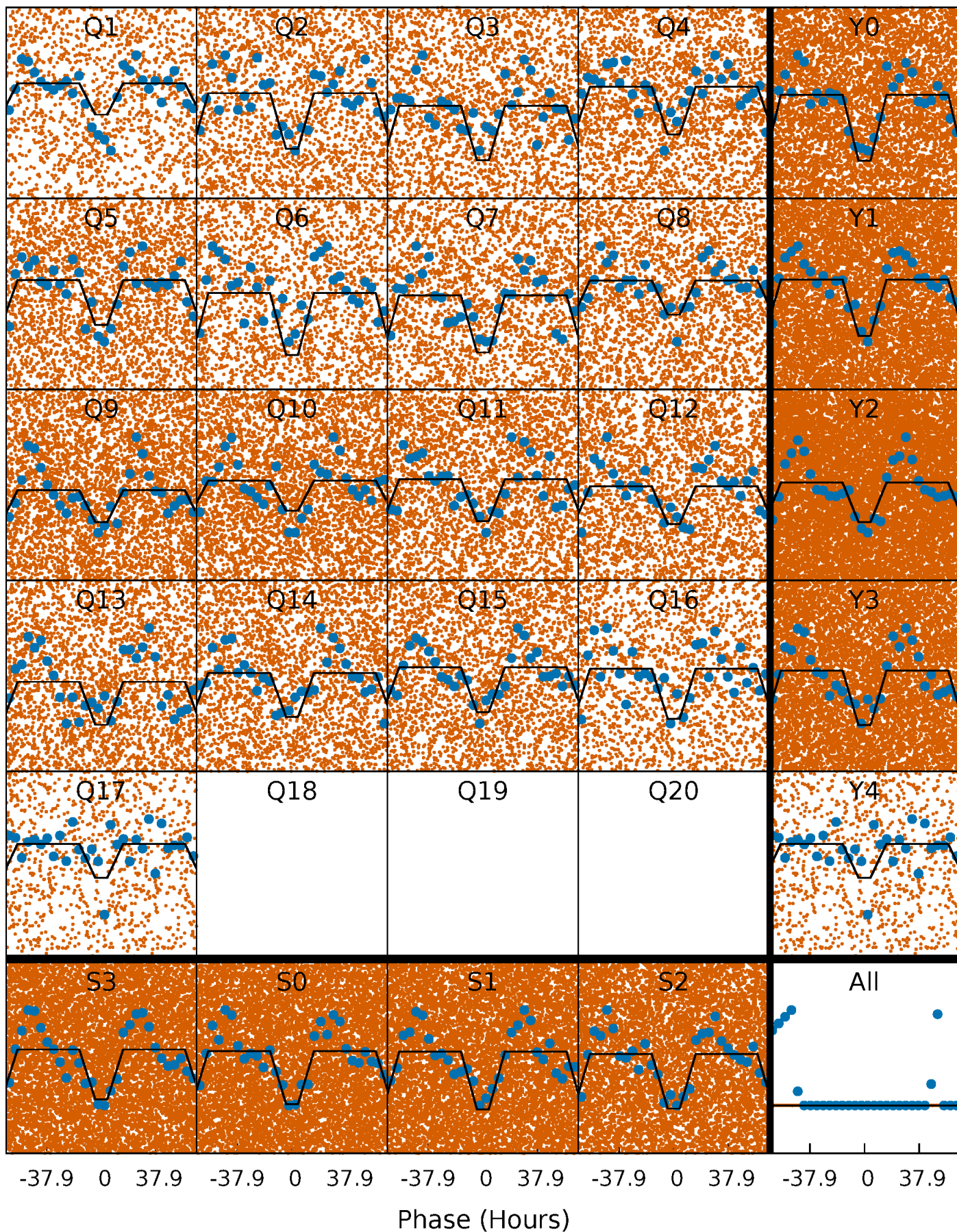
TCE 009099427-01 P= 3.058681 Days  $T_0=134.057587$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

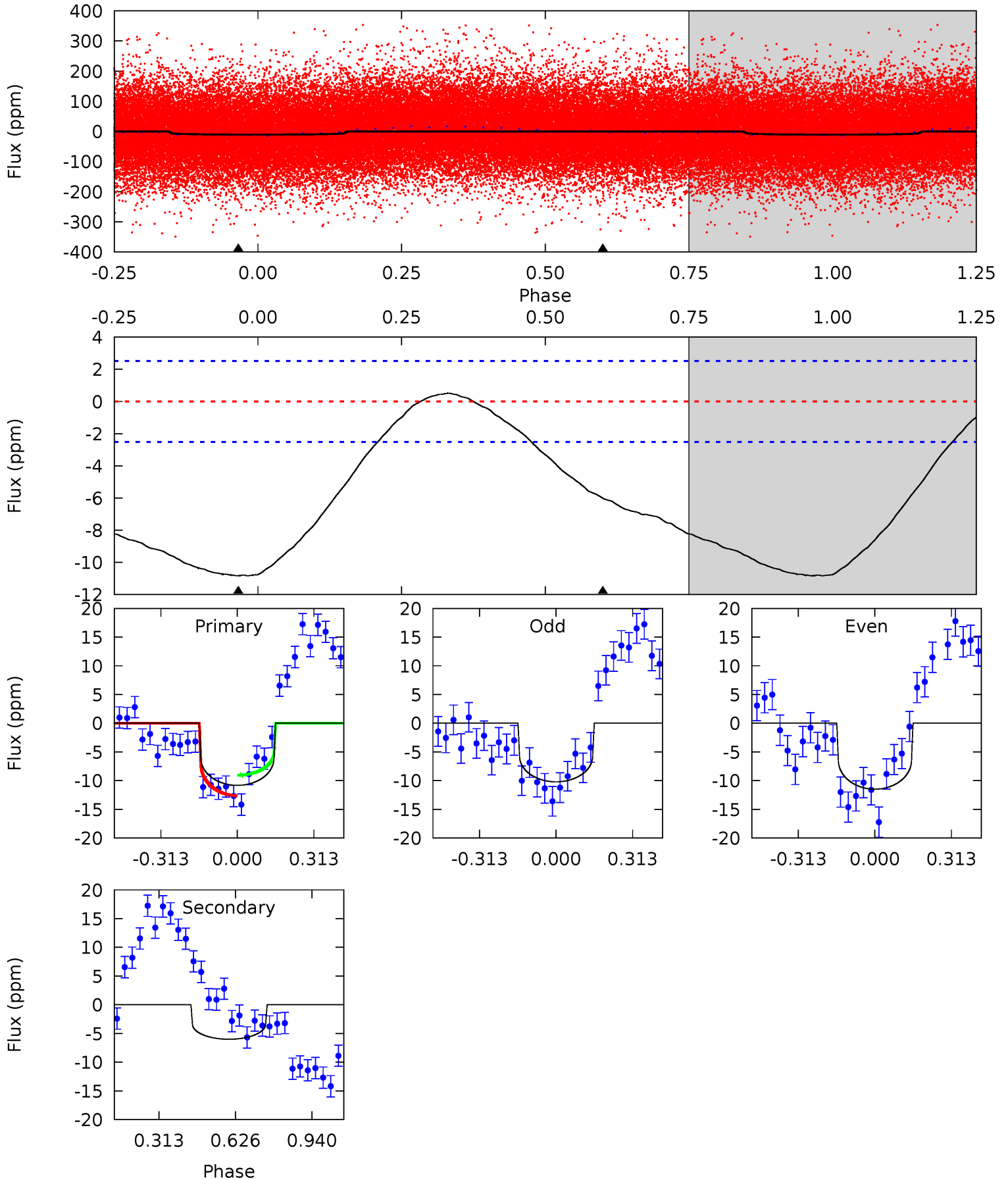
TCE 009099427-01   P= 3.057870 Days    $T_0=134.180091$  (BKJD)



# DV Model-Shift Uniqueness Test

009099427-01, P = 3.058681 Days, E = 130.998906 Days

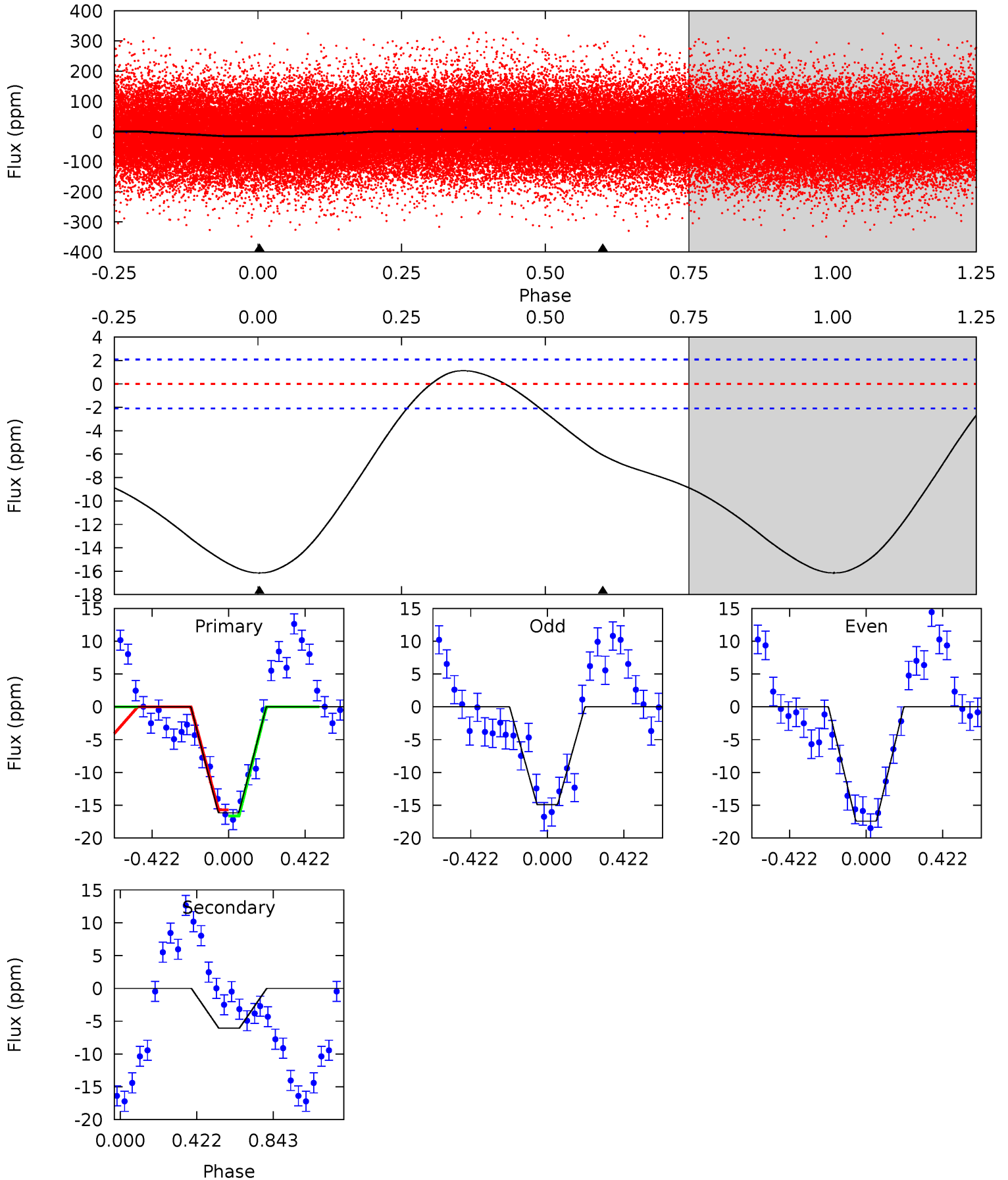
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	10.3	0	0	4.32	1.01	1.09	18.6	18.6	10.3	10.3	1.10	0.96	0.04	3.10



# Alt Model-Shift Uniqueness Test

009099427-01, P = 3.057870 Days, E = 131.122221 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
32.9	12.4	0	0	4.25	0.80	2.26	32.9	32.9	12.4	12.4	2.56	1.23	0.07	0.94





### Stellar Parameters For KIC 009099427

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$8474^{+236}_{-354}$	$4.060^{+0.192}_{-0.128}$	$-0.320^{+0.200}_{-0.300}$	$2.056^{+0.378}_{-0.567}$	$1.771^{+0.114}_{-0.285}$	$0.287^{+0.309}_{-0.112}$
	+3%/-4%	+5%/-3%	+62%/-94%	+18%/-28%	+6%/-16%	+108%/-39%
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 009099427-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-6 \pm 1$	$0.63^{+0.39}_{-0.36}$	$3330^{+213}_{-255}$	$7564^{+6322}_{-1659}$	$20^{+91}_{-12}$
Alt.	$-6 \pm 0$	$0.92^{+0.42}_{-0.39}$	$3332^{+207}_{-238}$	$6167^{+2322}_{-992}$	$9.796^{+18.875}_{-5.279}$

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

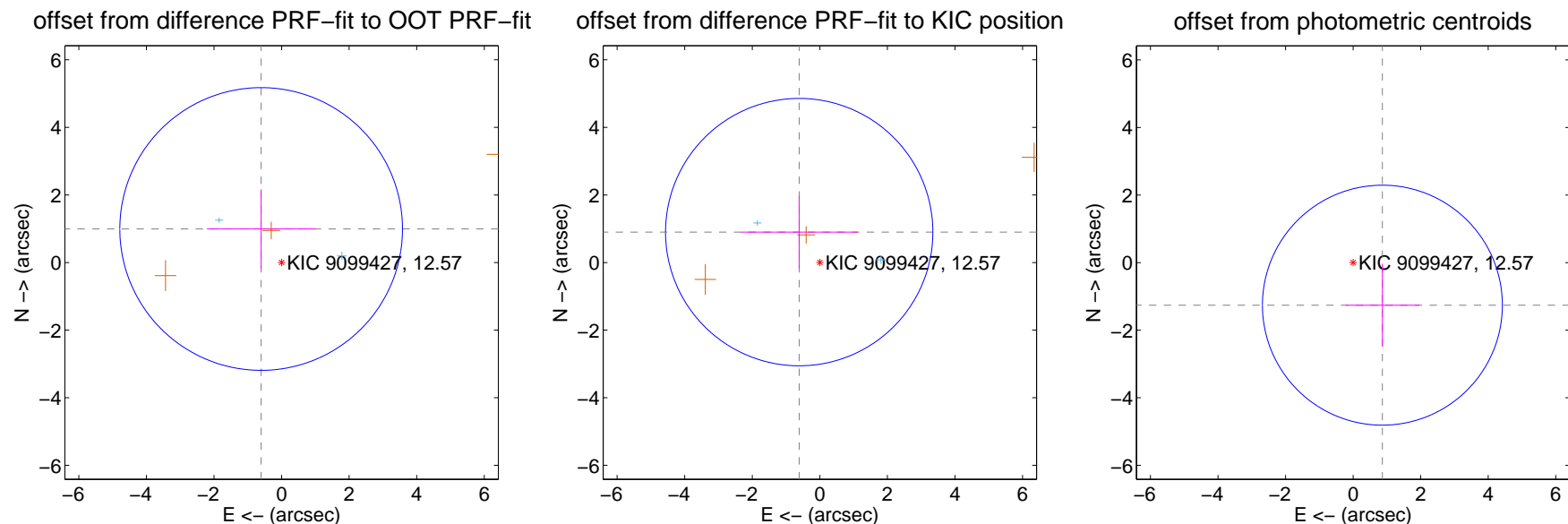
## DV Centroid Data

Supplemental centroid analysis for 009099427-01. Kepler magnitude: 12.57. Transit SNR 10.59

There are 2 quarters with good PRF difference image offsets

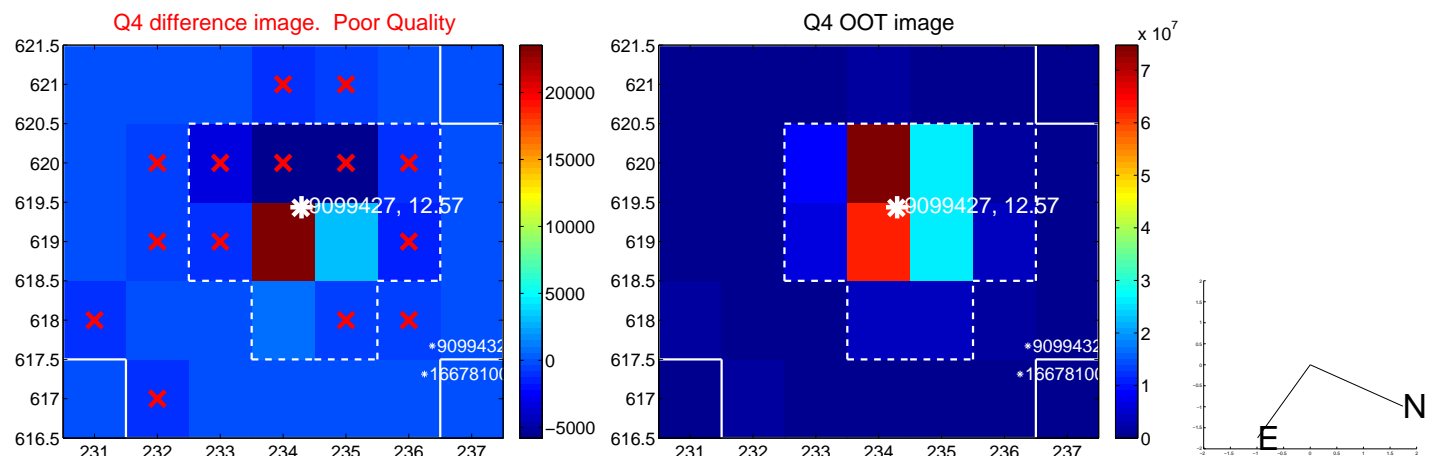
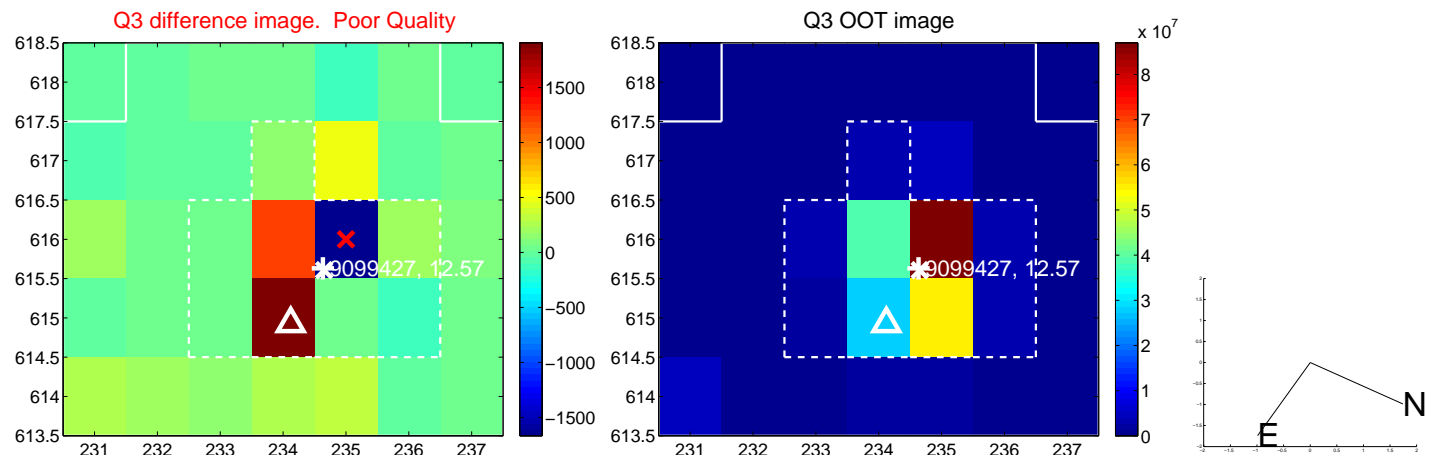
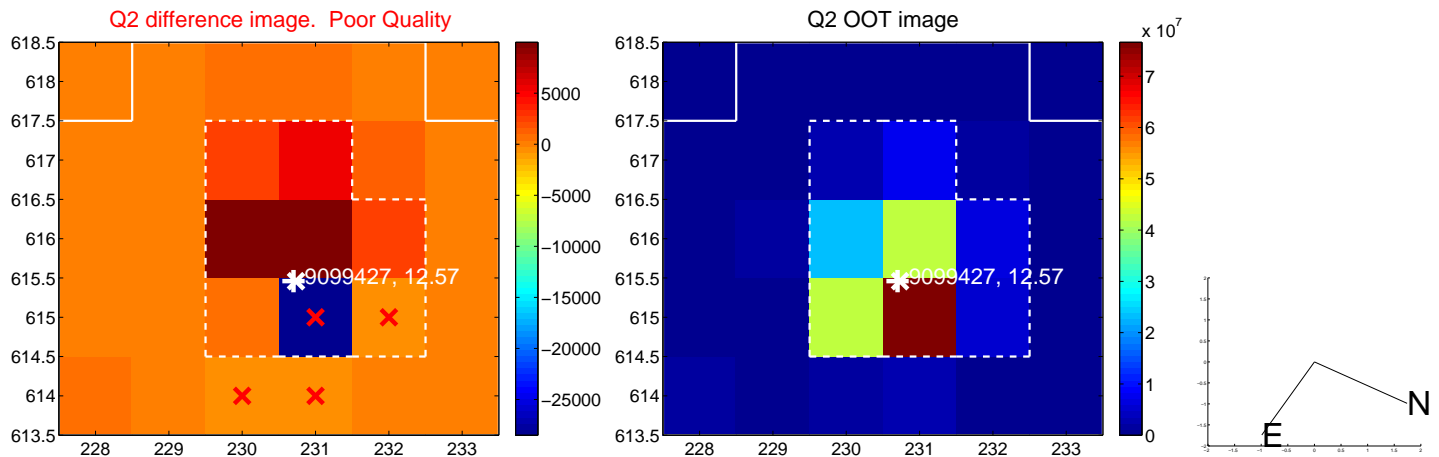
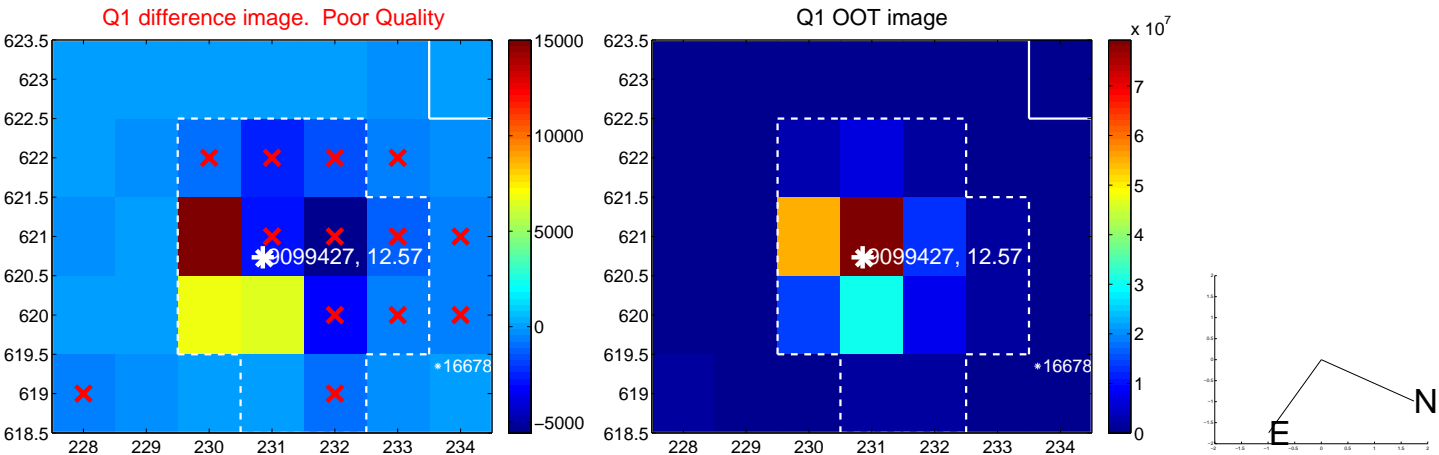
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.163 \pm 1.395$	0.83	$0.605 \pm 1.606$	$0.993 \pm 1.171$
PRF-fit source offset from KIC position	$1.088 \pm 1.319$	0.83	$0.611 \pm 1.731$	$0.900 \pm 1.071$
photometric centroid source offset	$1.53 \pm 1.18$	1.29	$-0.87 \pm 1.09$	$-1.26 \pm 1.22$

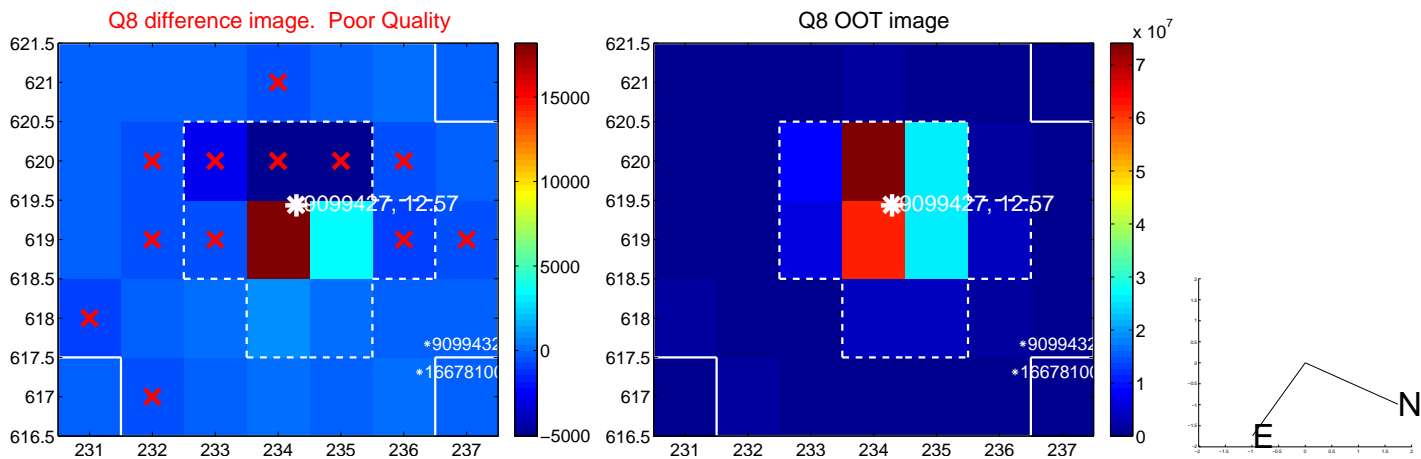
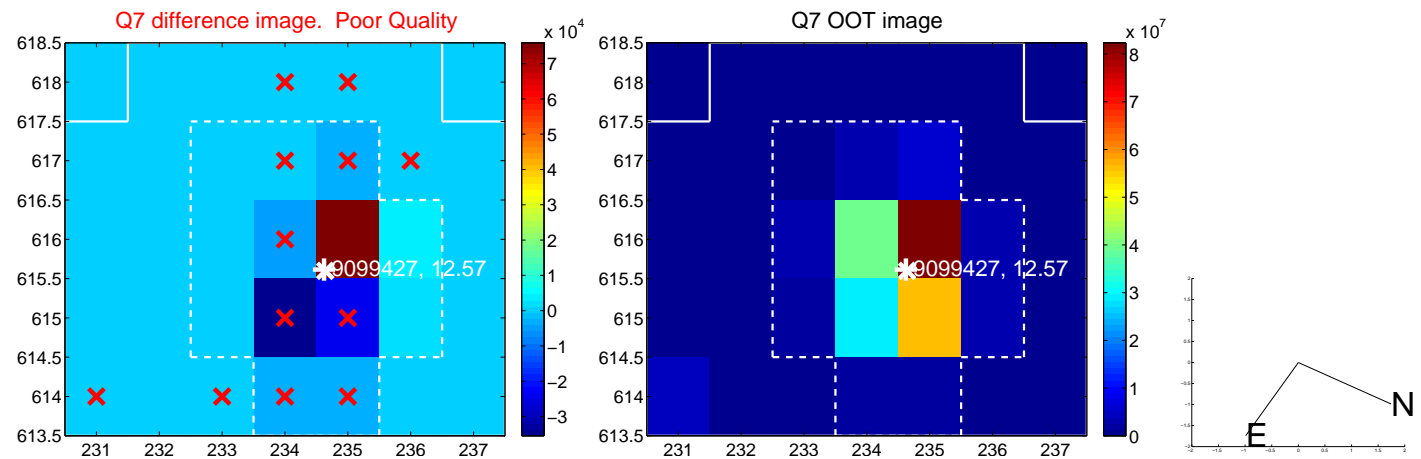
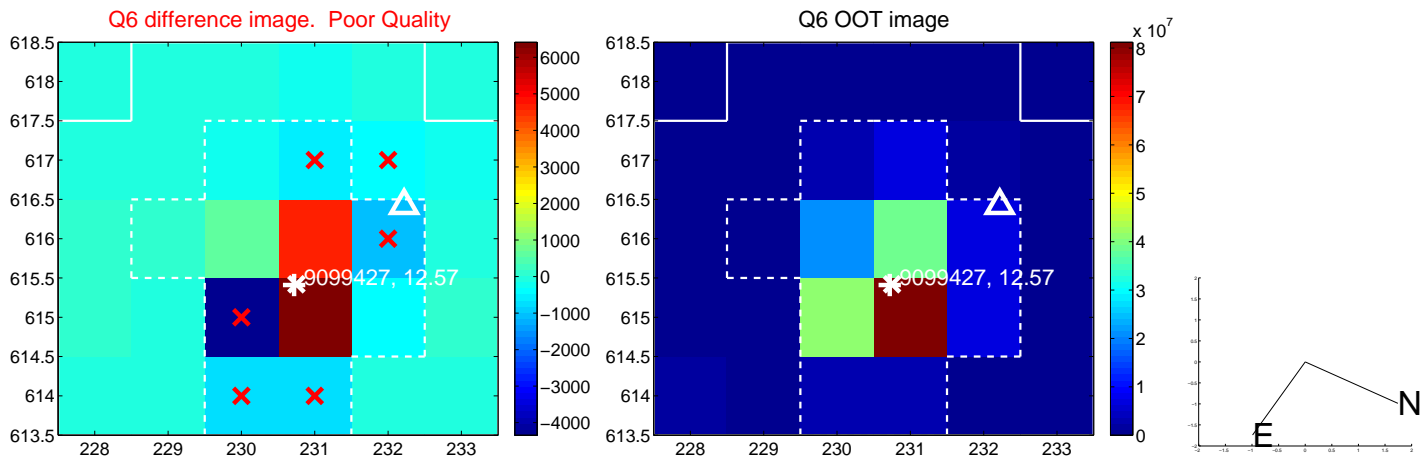
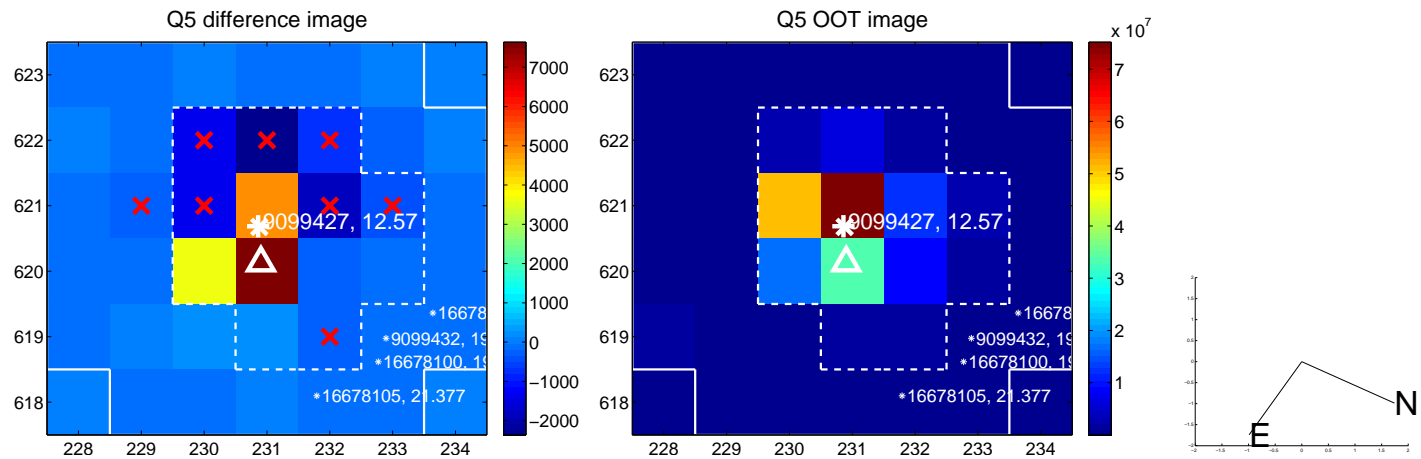


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

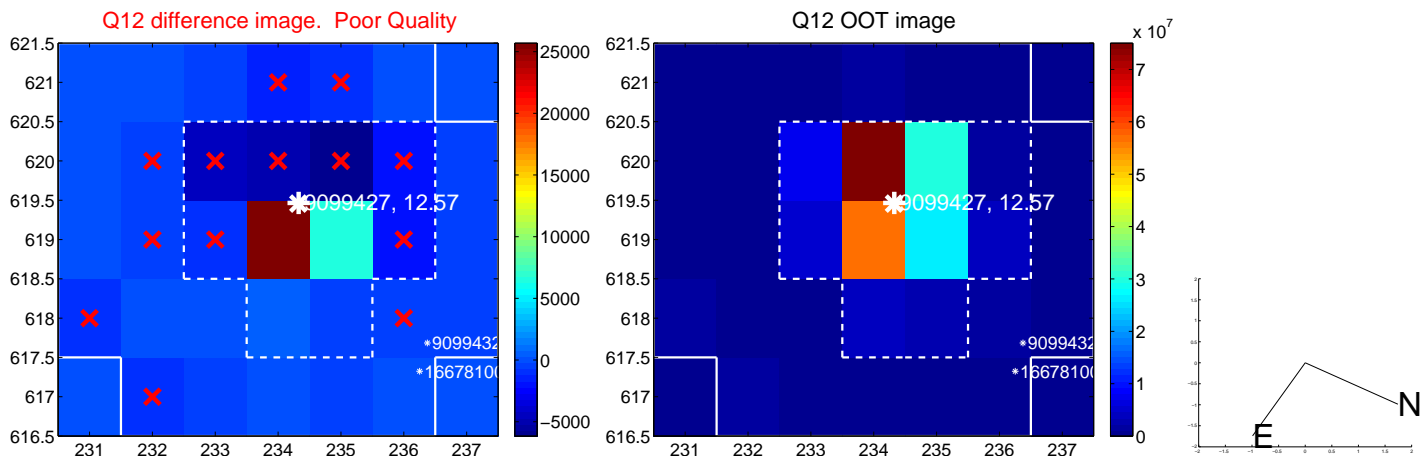
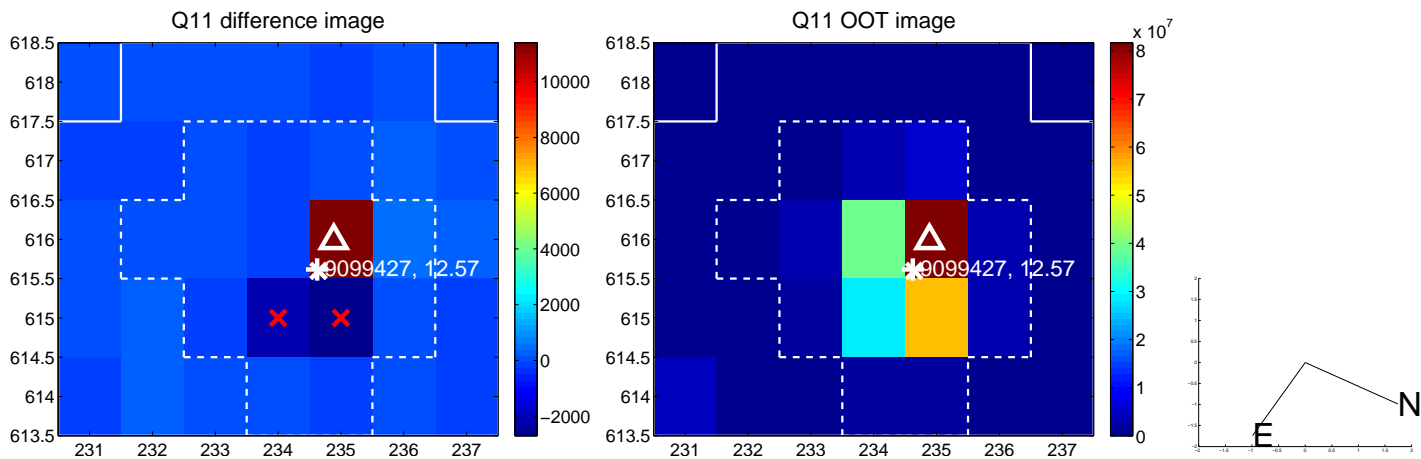
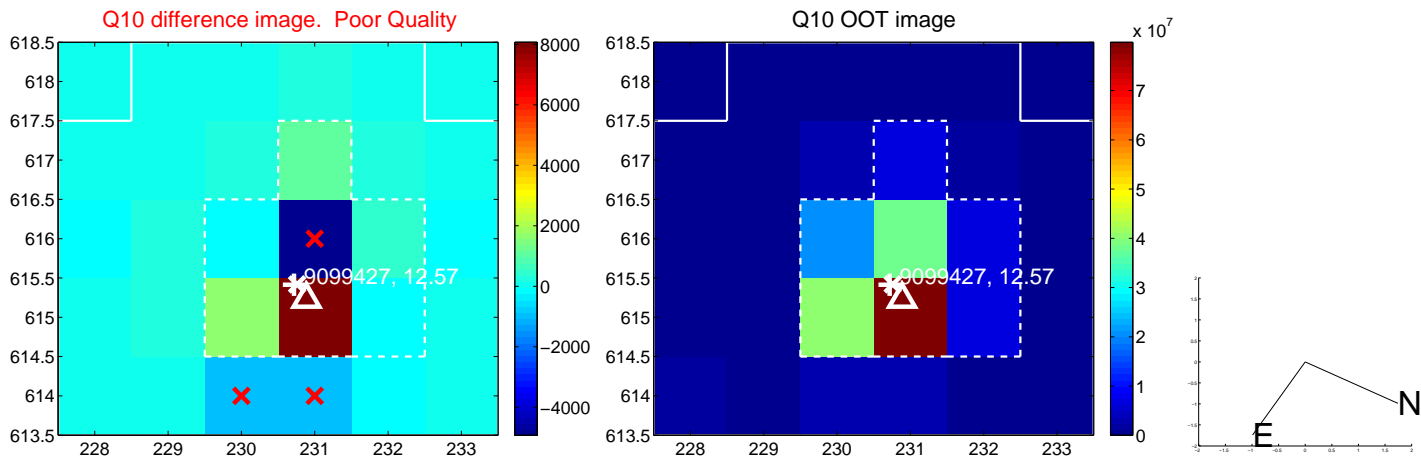
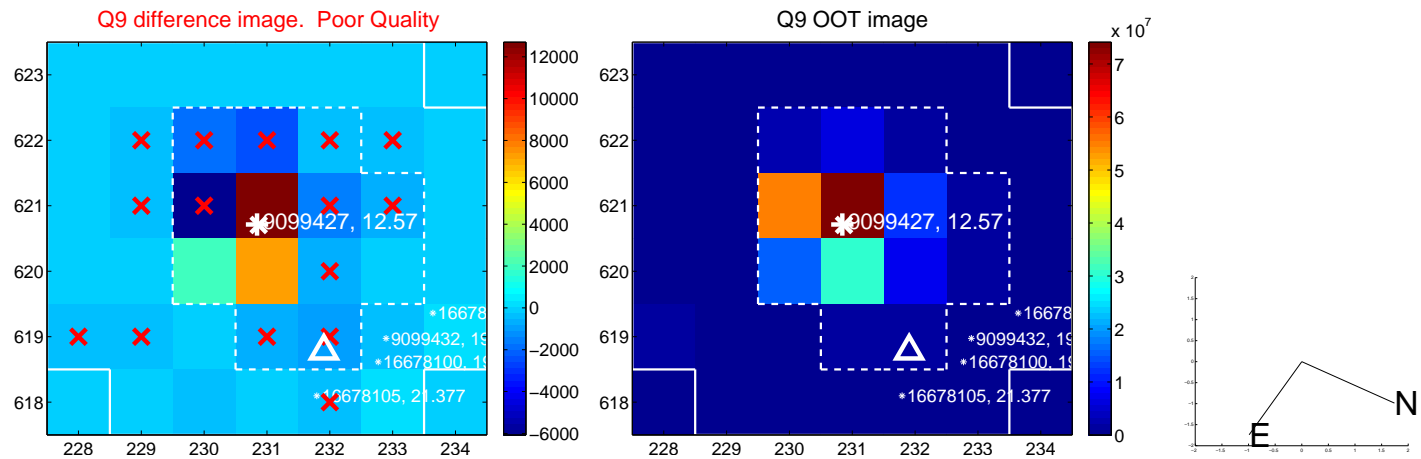


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

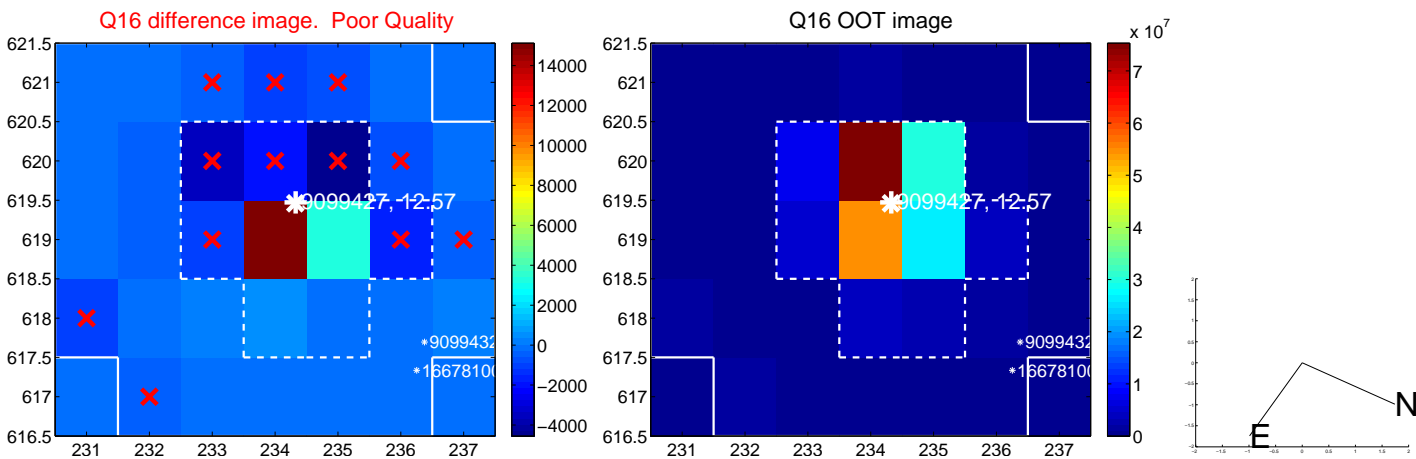
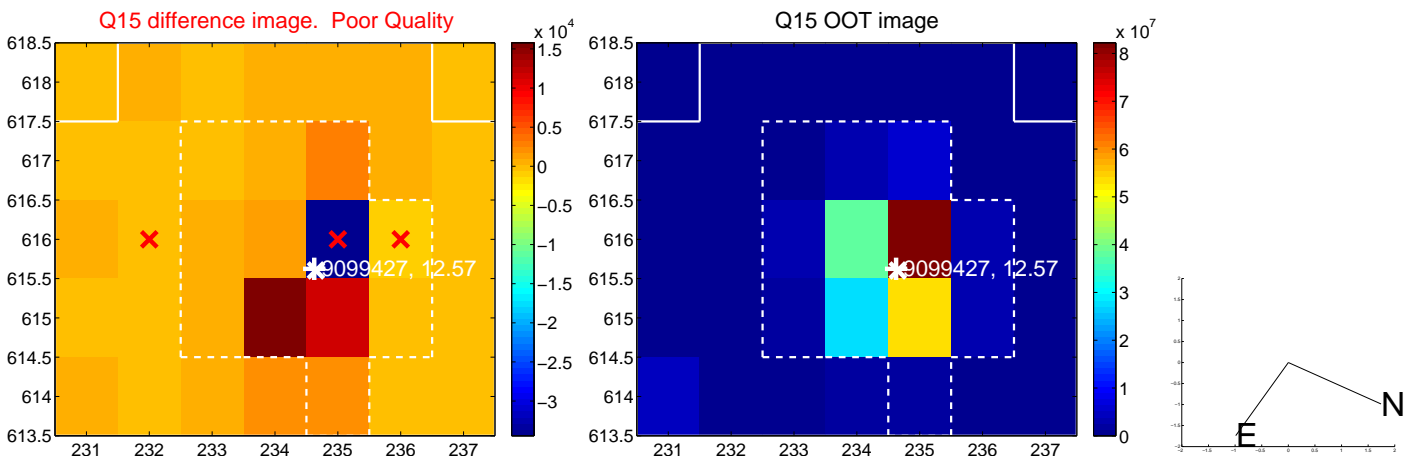
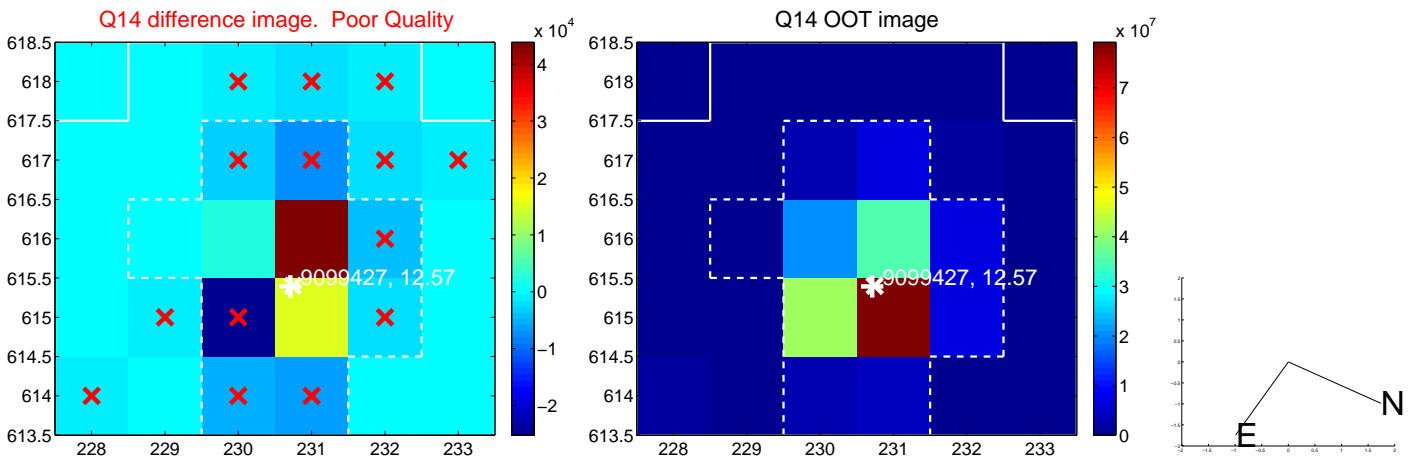
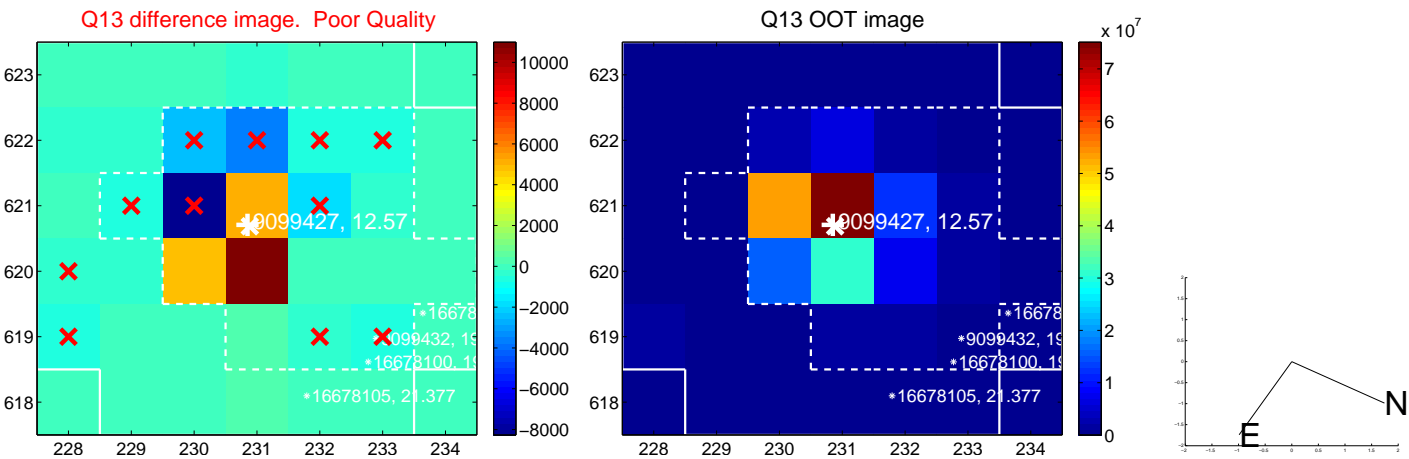




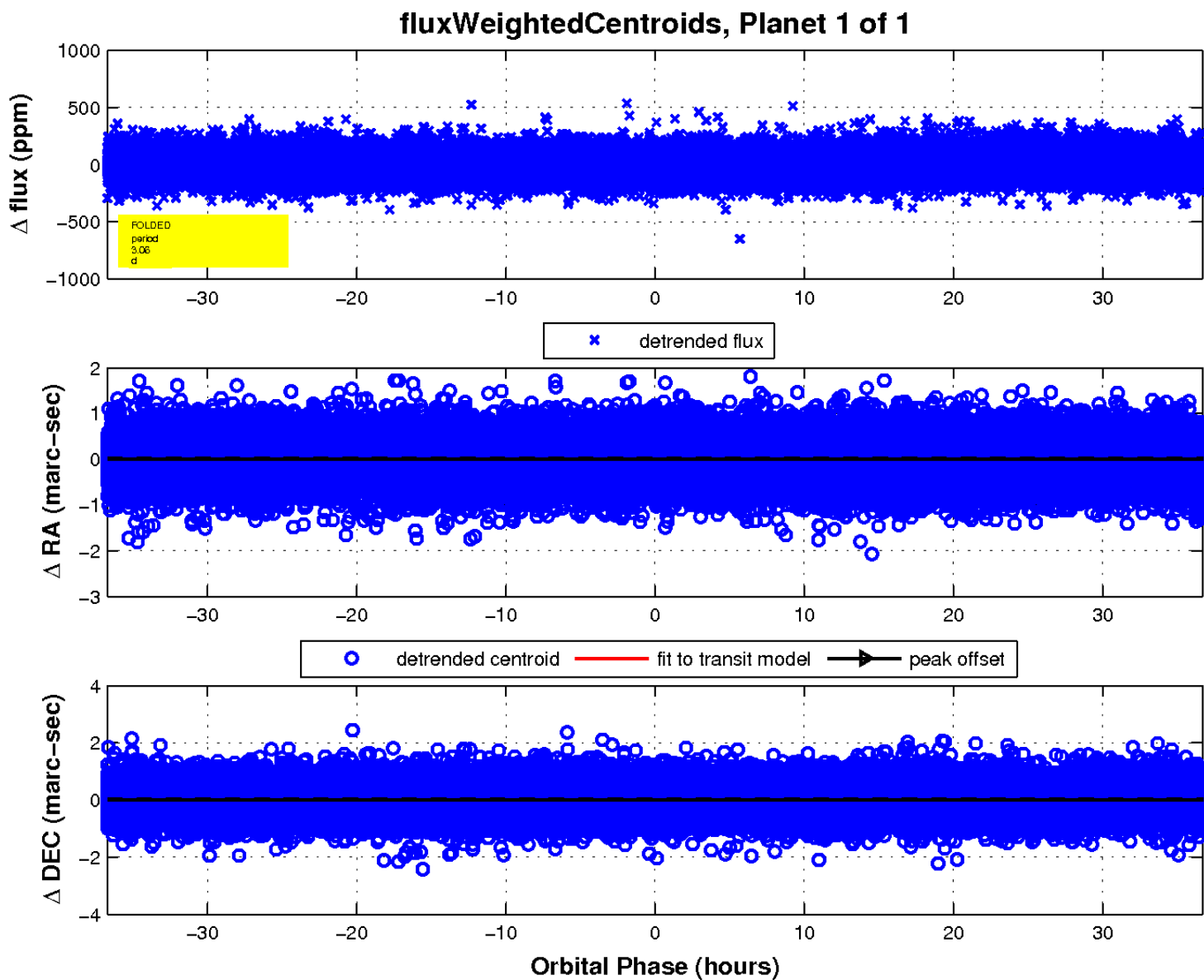
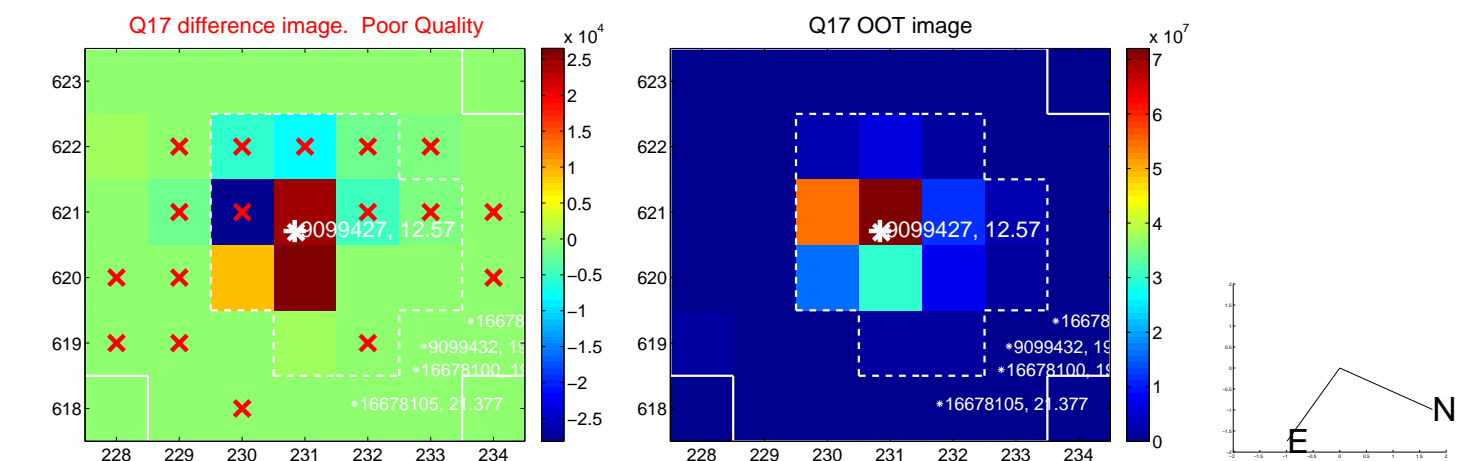
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

