

# KIC 008838620

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008838620-01	OBS	No	0.821508	131.801339	16.3	2.870	7.8	8.3	2.76	6722	1.30	34789.67

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008838620-01	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

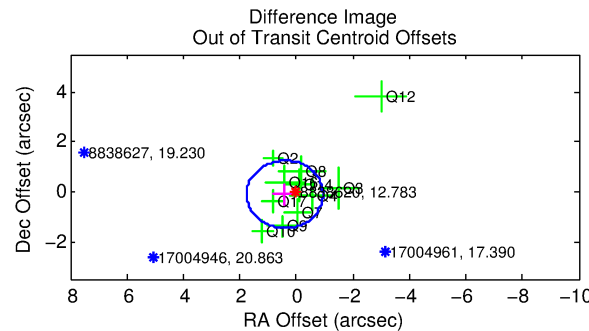
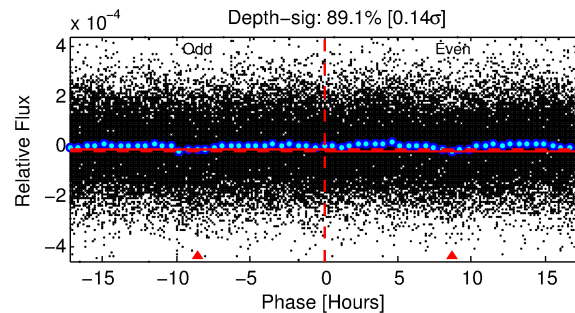
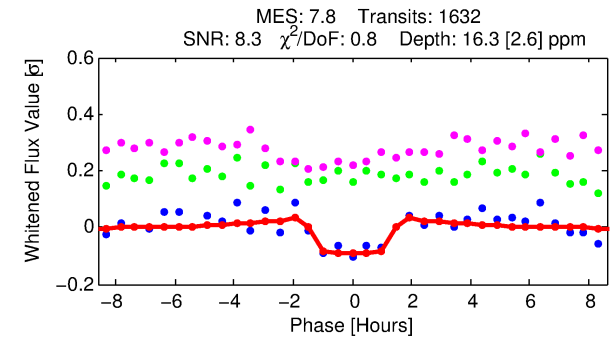
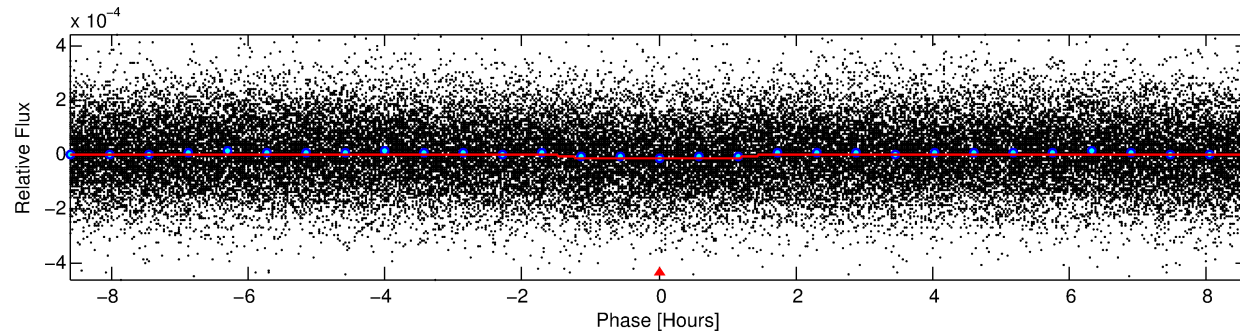
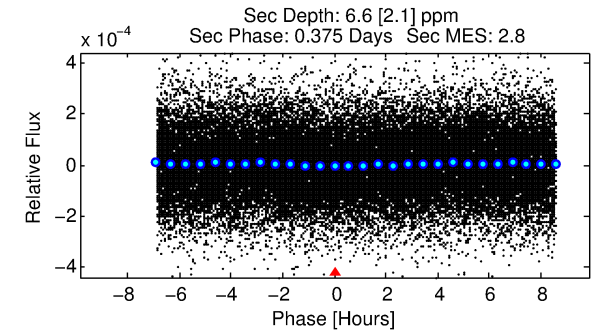
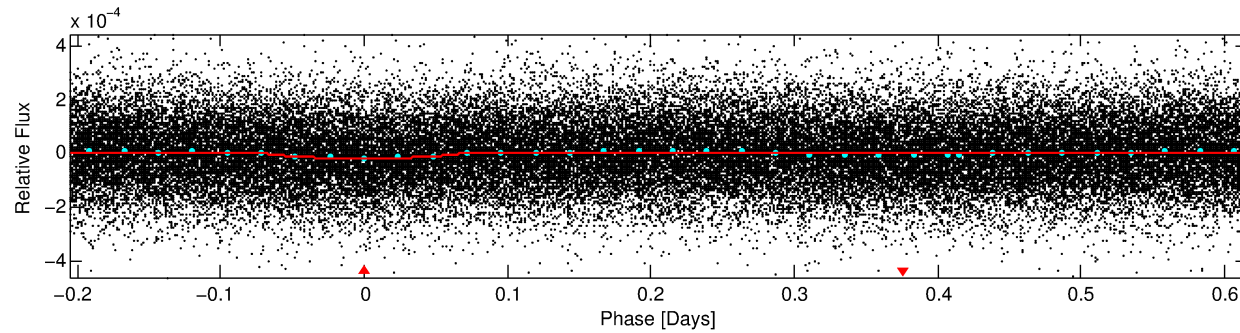
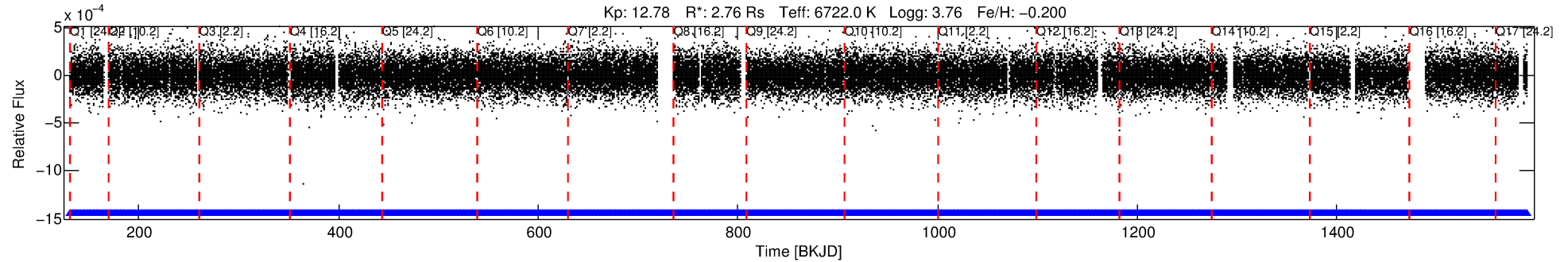
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008838620-01

No Significant Match Found

# DV One-Page Summary

KIC: 8838620 Candidate: 1 of 1 Period: 0.822 d



## DV Fit Results:

Period = 0.82151 [0.00001] d  
Epoch = 131.8013 [0.0031] BKJD  
Rp/R\* = 0.0043 [0.0013]  
a/R\* = 1.34 [1.06]  
b = 0.90 [0.36]  
Seff = 34789.67 [18423.68]  
Teq = 3482 [461] K  
Rp = 1.30 [0.62] Re  
a = 0.0200 [0.0067] AU  
Ag = 0.85 [0.73] [-0.20σ]  
Teffp = 5174 [907] K [1.66σ]

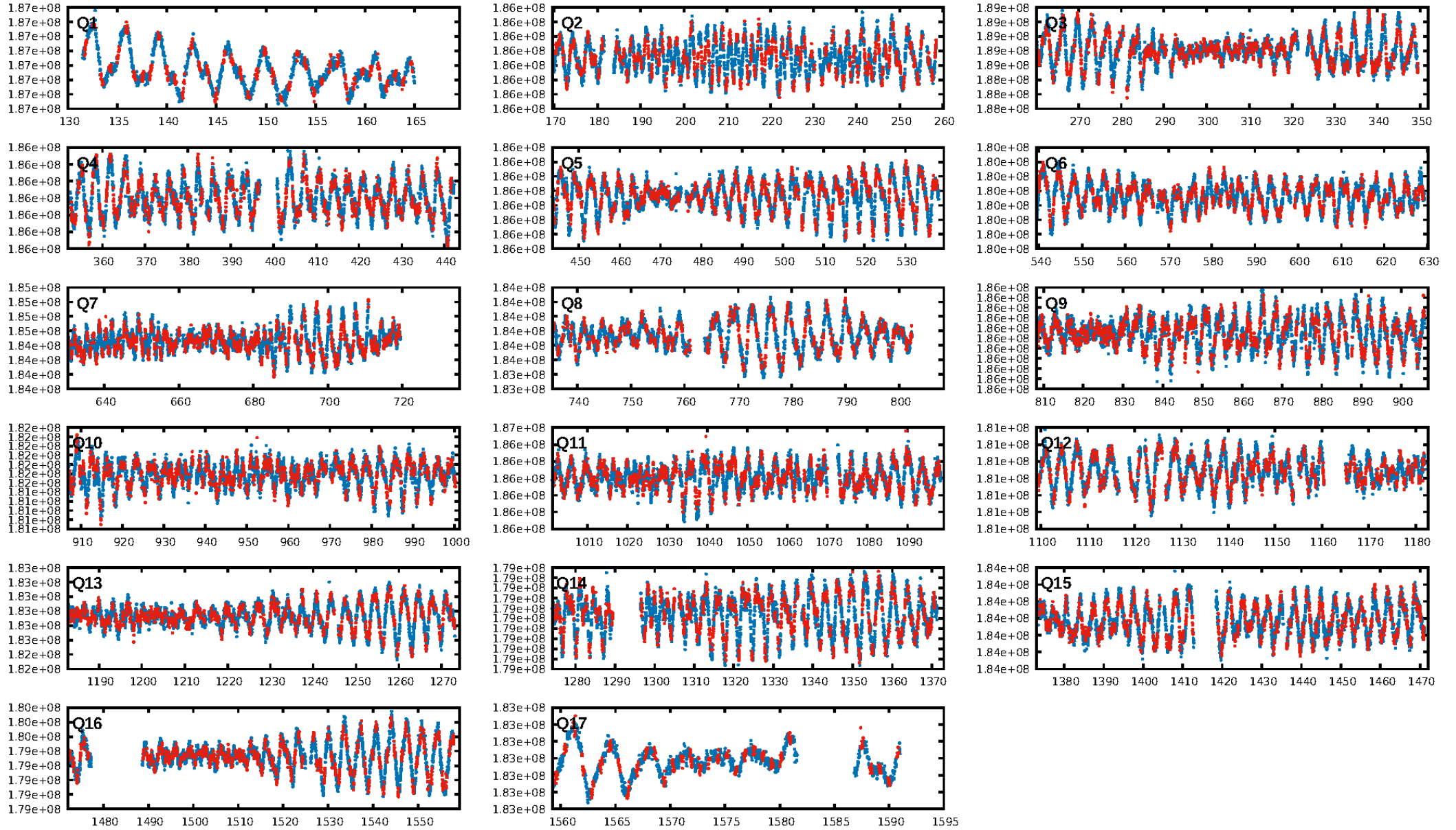
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.73e-14  
RollingBand-fgt: 1.00 [1559/1559]  
GhostDiagnostic-chr: 3.755  
Centroid-sig: 39.9%  
Centroid-so: 0.596 arcsec [0.61σ]  
OotOffset-rm: 0.429 arcsec [0.95σ]  
KicOffset-rm: 0.618 arcsec [1.24σ]  
OotOffset-st: 3/2/4/2 [11]  
KicOffset-st: 3/2/4/2 [11]  
DiffImageQuality-fgm: 0.64 [7/11]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:21:39 Z

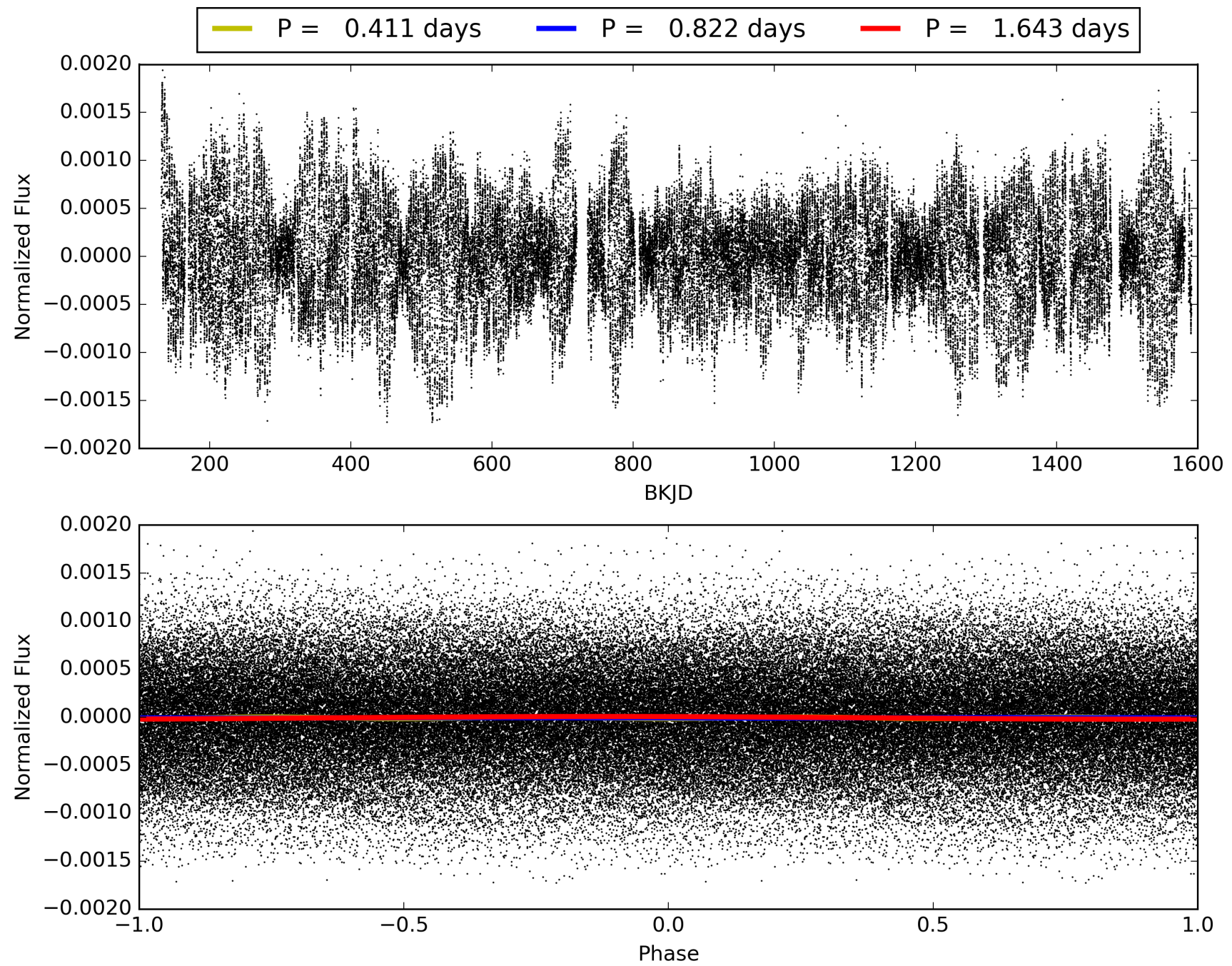
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008838620-01, PDC Light Curves



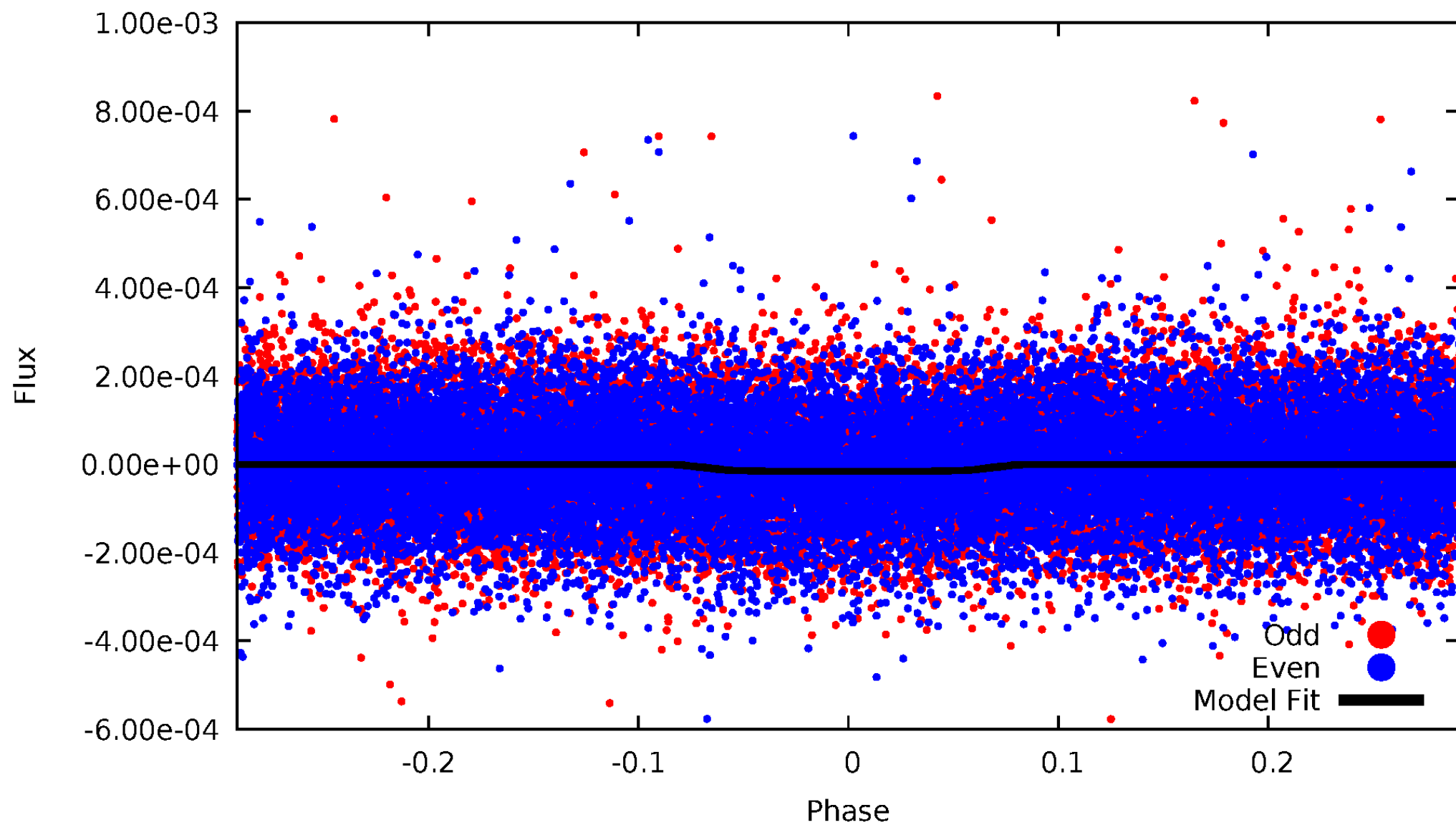


TCE 008838620-01



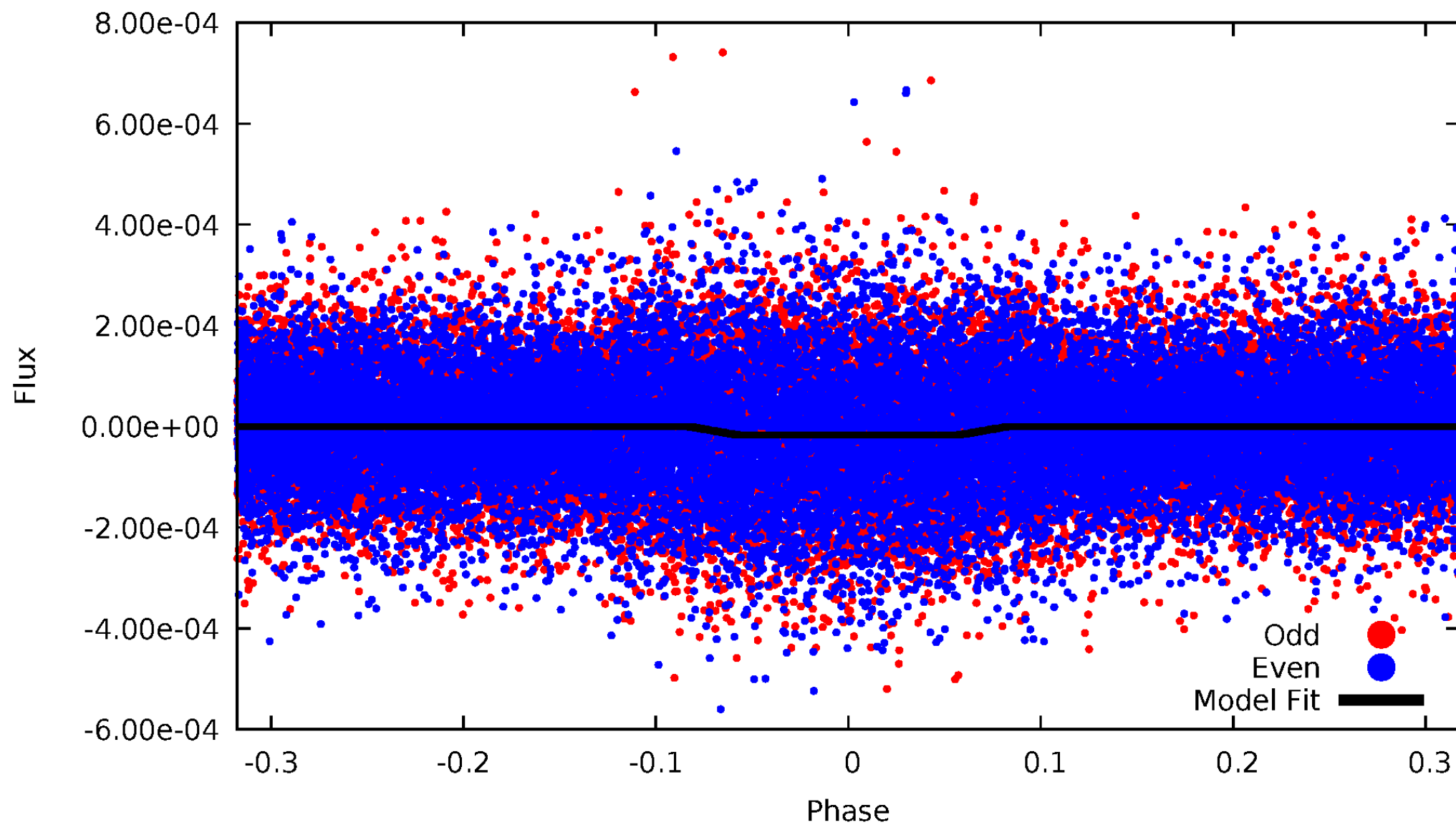
# DV Odd/Even

TCE 008838620-01



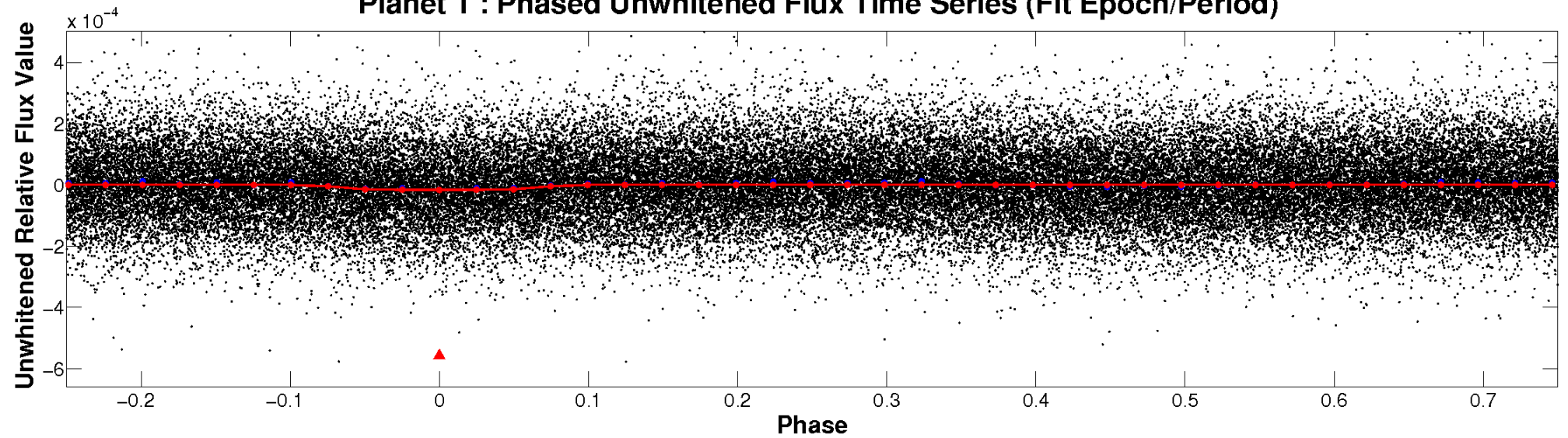
# ALT Odd/Even

TCE 008838620-01

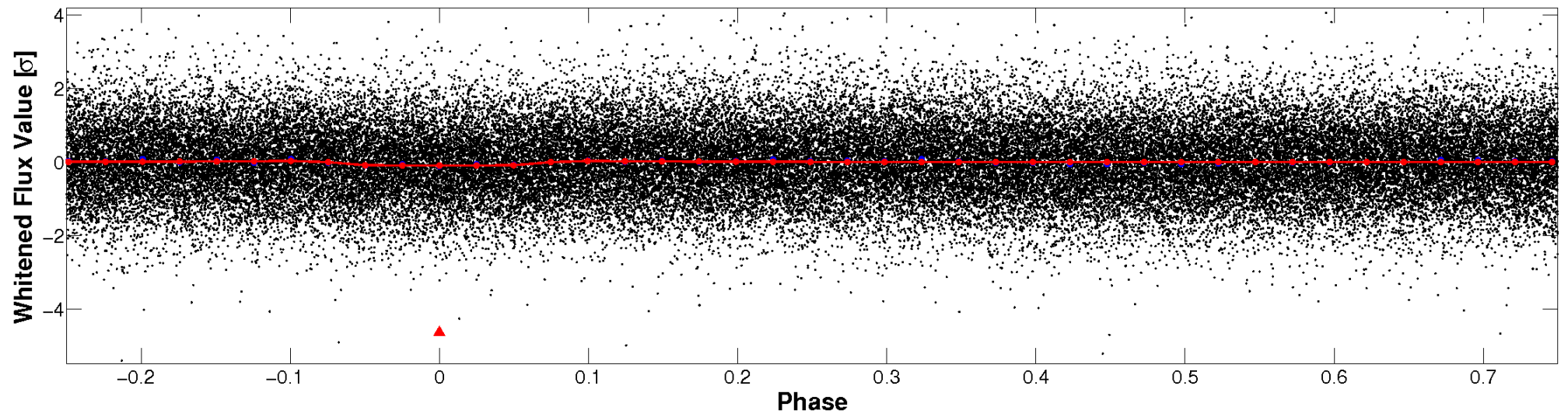


# Non-Whitened Vs. Whitened Light Curve

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



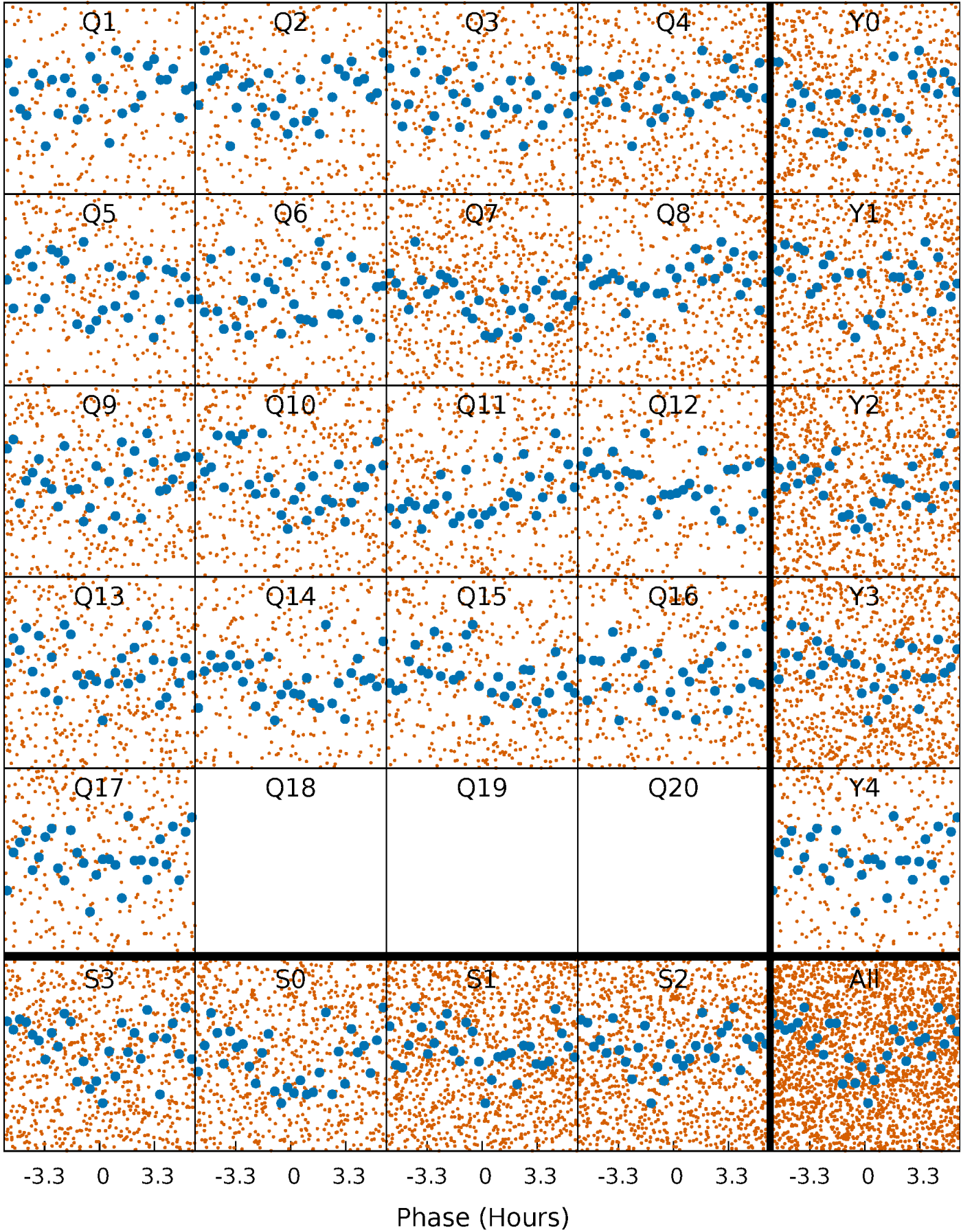
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

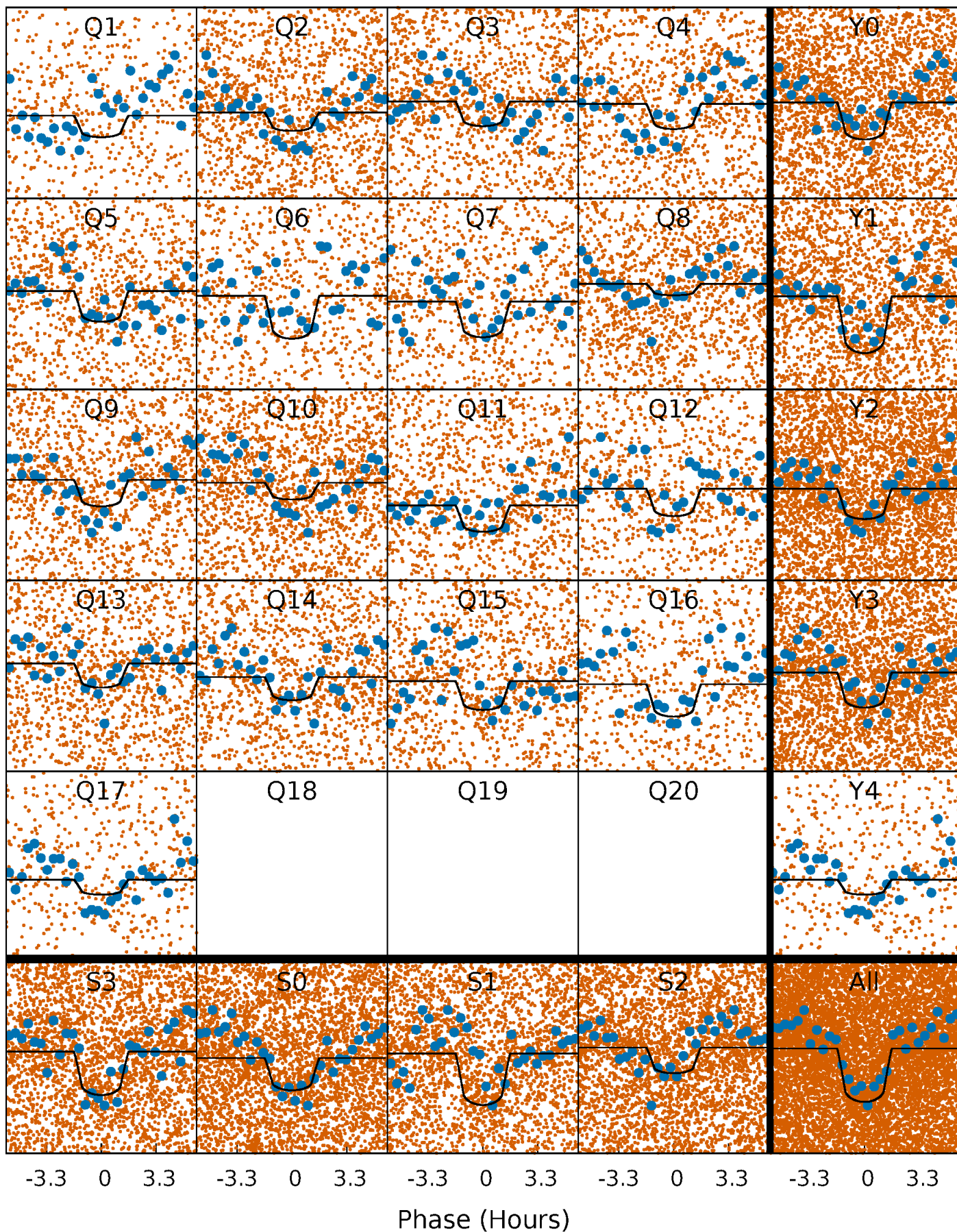
TCE 008838620-01   P= 0.821508 Days    $T_0=131.801339$  (BKJD)





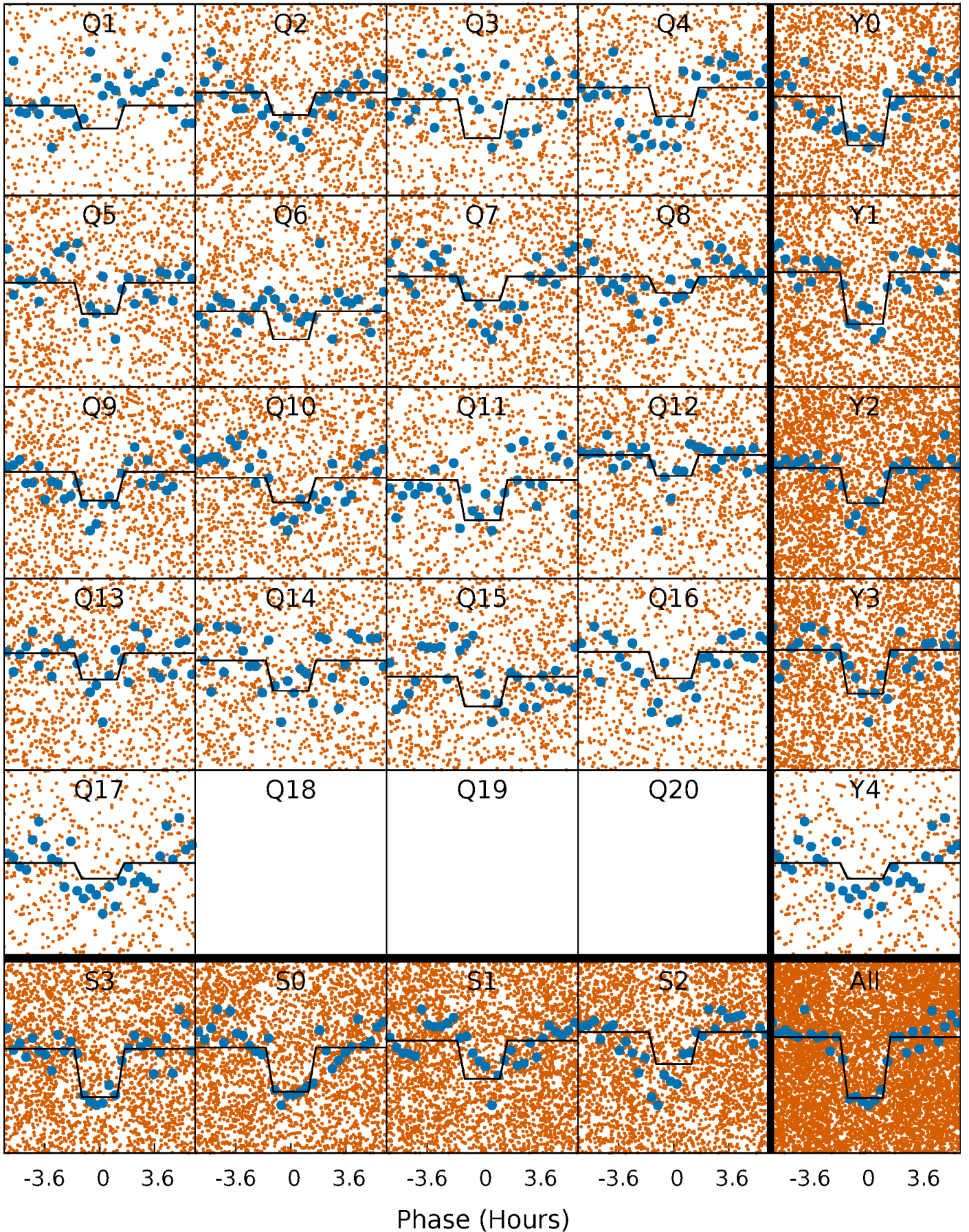
# DV Quarter-Phased Transit Curves

TCE 008838620-01 P= 0.821508 Days  $T_0=131.801339$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008838620-01 P= 0.821505 Days  $T_0=131.804481$  (BKJD)

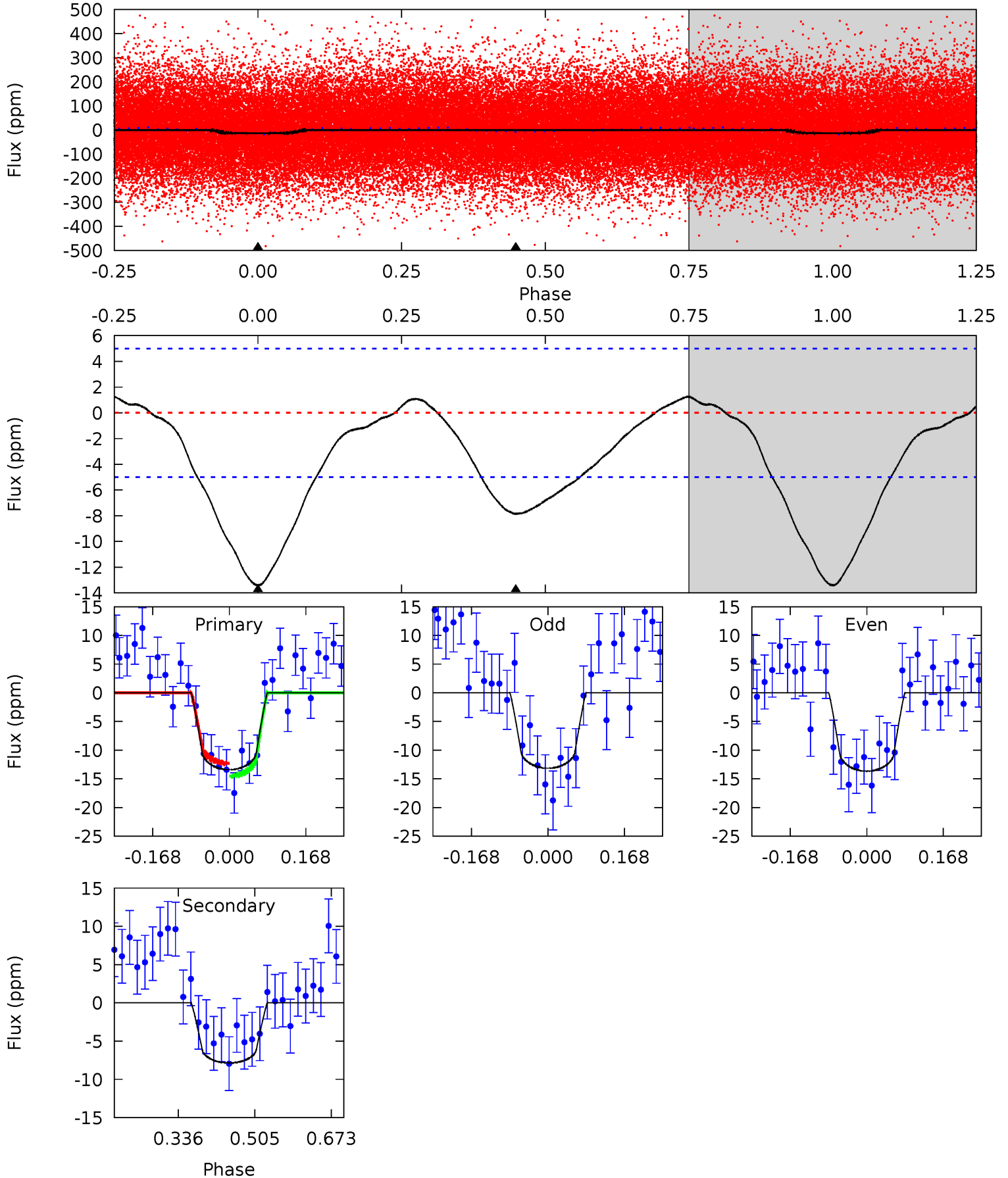




# DV Model-Shift Uniqueness Test

008838620-01, P = 0.821508 Days, E = 130.979831 Days

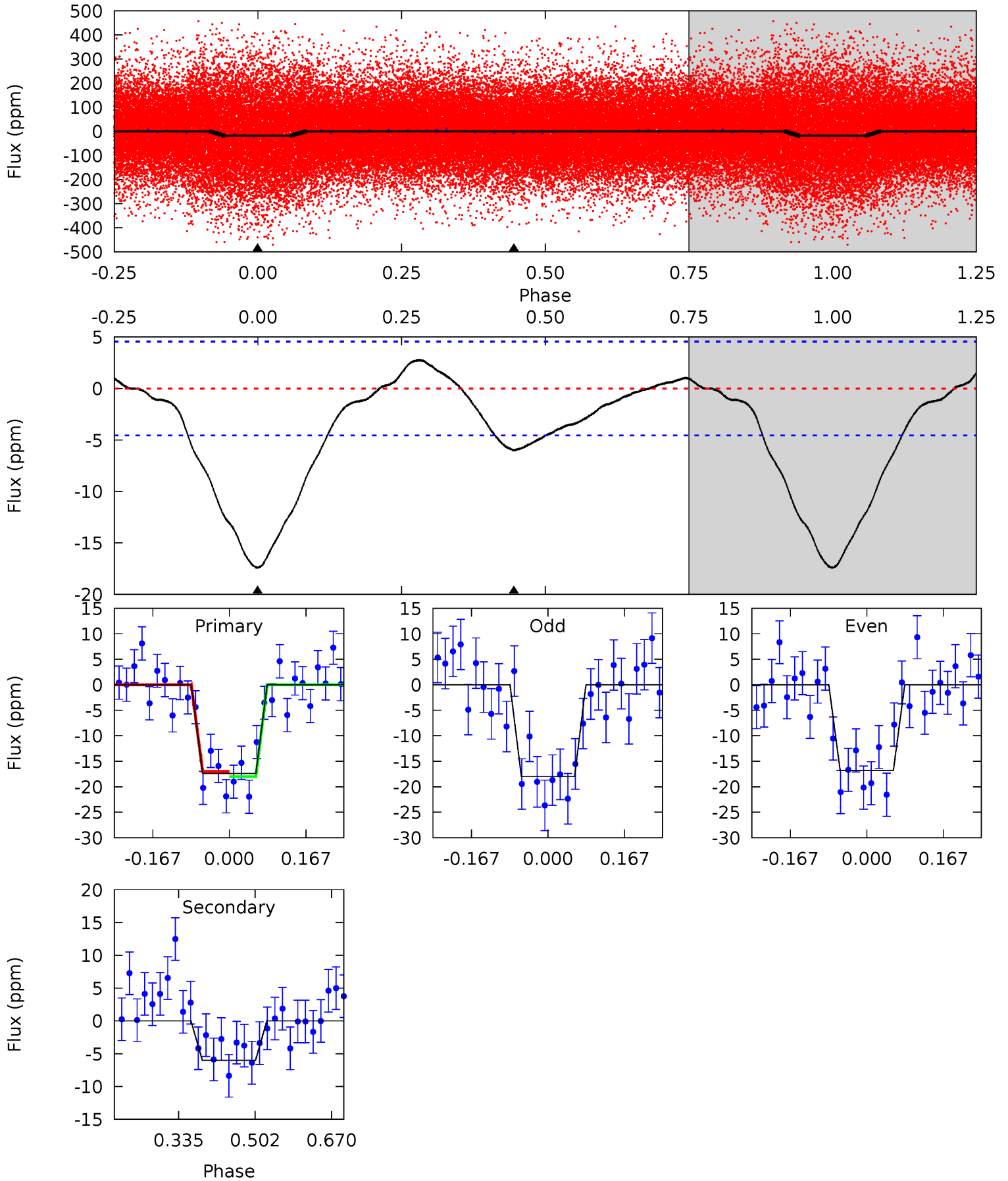
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	7.01	0	0	4.45	1.38	0.88	12.0	12.0	7.01	7.01	0.23	1.00	0.09	0.99



# Alt Model-Shift Uniqueness Test

008838620-01, P = 0.821505 Days, E = 130.982976 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
17.0	5.86	0	0	4.46	1.38	0.95	17.0	17.0	5.86	5.86	0.58	1.07	0.14	0.49





### Stellar Parameters For KIC 008838620

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6722^{+180}_{-220}$	$3.756^{+0.293}_{-0.078}$	$-0.200^{+0.300}_{-0.250}$	$2.761^{+0.439}_{-1.023}$	$1.585^{+0.210}_{-0.342}$	$0.106^{+0.220}_{-0.033}$
	+3%/-3%	+8%/-2%	+150%/-125%	+16%/-37%	+13%/-22%	+207%/-31%
Source	PHO1	FLK73	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 008838620-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-8 \pm 1$	$1.21^{+0.44}_{-0.40}$	$4753^{+273}_{-416}$	$5028^{+1218}_{-737}$	$1.148^{+1.476}_{-0.508}$
Alt.	$-6 \pm 1$	$1.12^{+0.45}_{-0.41}$	$4753^{+296}_{-400}$	$4868^{+1299}_{-941}$	$1.047^{+1.430}_{-0.528}$

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

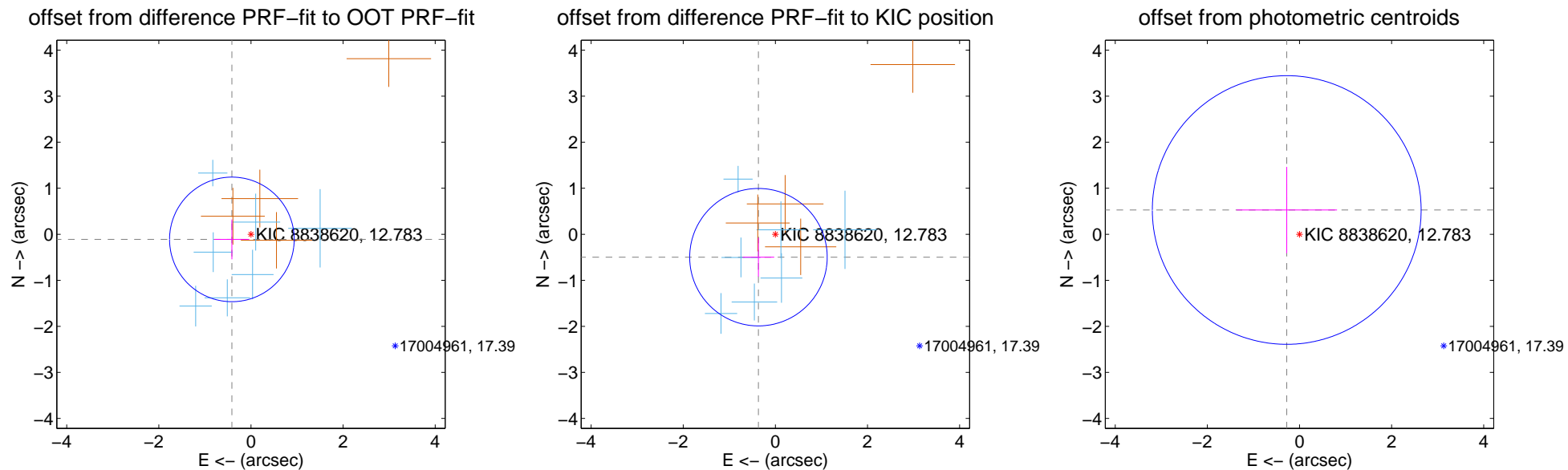
## DV Centroid Data

Supplemental centroid analysis for 008838620-01. Kepler magnitude: 12.78. Transit SNR 8.31

There are 7 quarters with good PRF difference image offsets

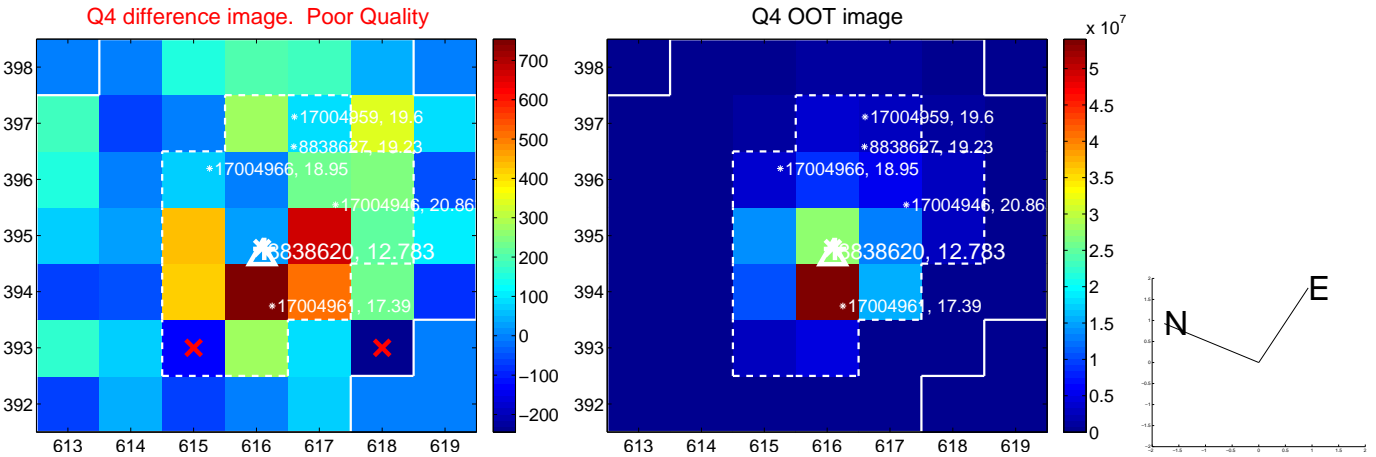
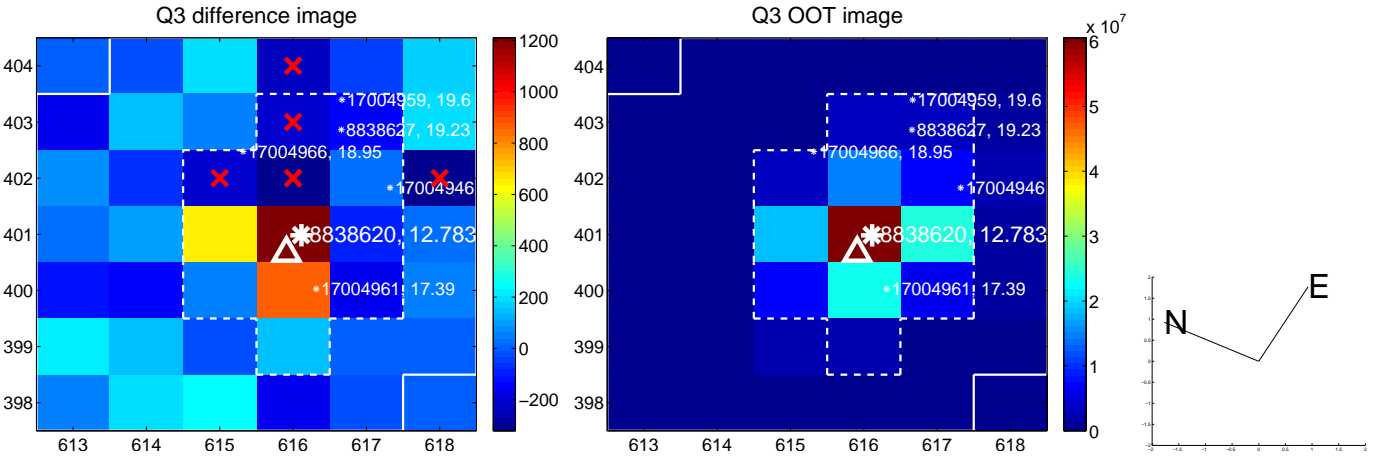
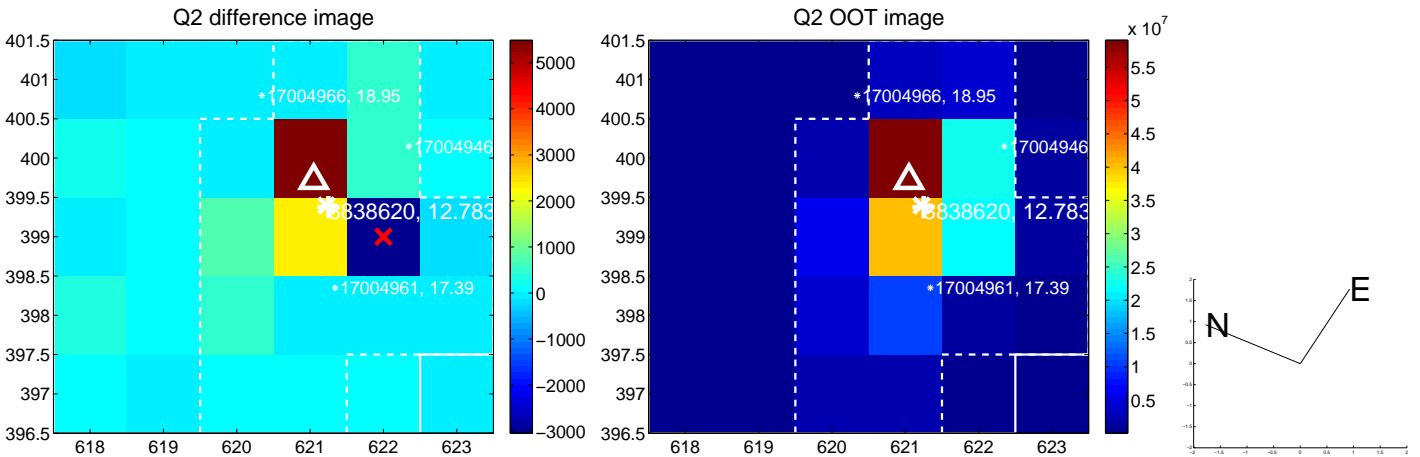
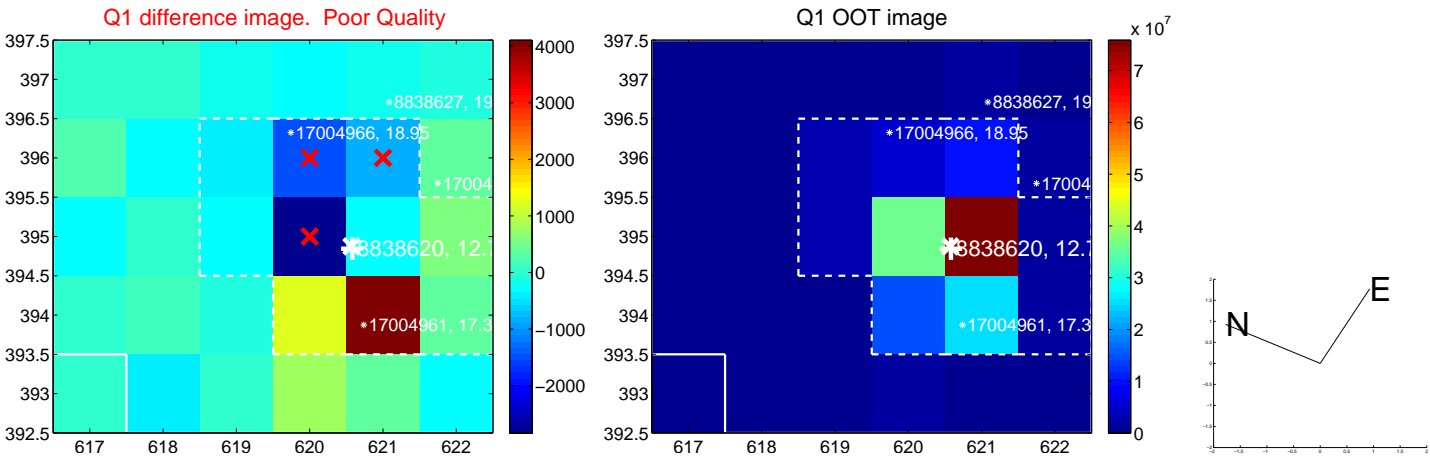
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.429 \pm 0.451$	0.95	$0.414 \pm 0.376$	$-0.111 \pm 0.432$
PRF-fit source offset from KIC position	$0.618 \pm 0.498$	1.24	$0.367 \pm 0.342$	$-0.498 \pm 0.420$
photometric centroid source offset	$0.60 \pm 0.97$	0.61	$0.28 \pm 1.09$	$0.53 \pm 0.94$

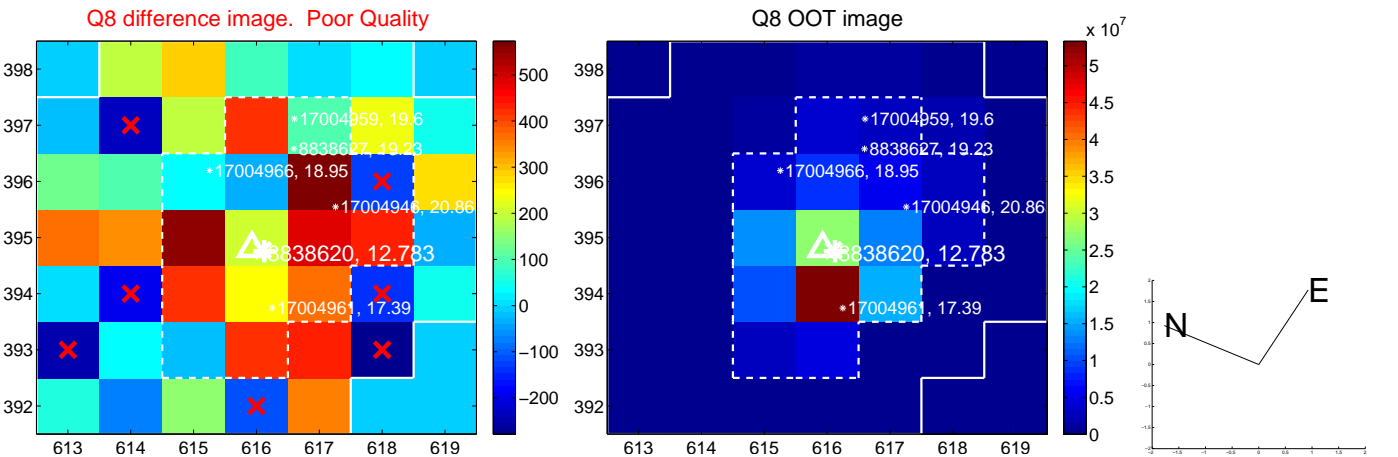
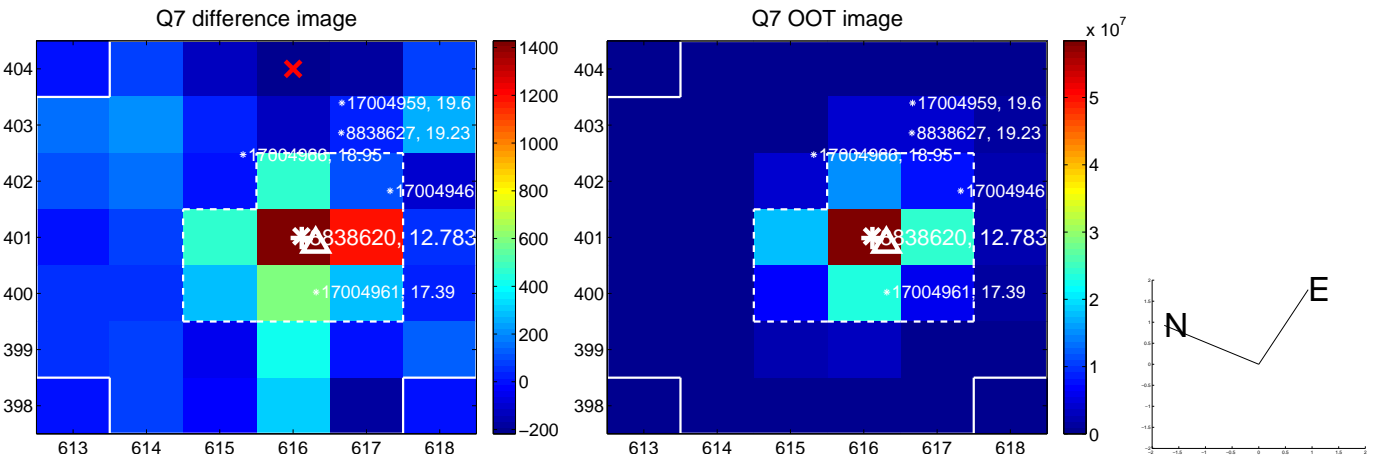
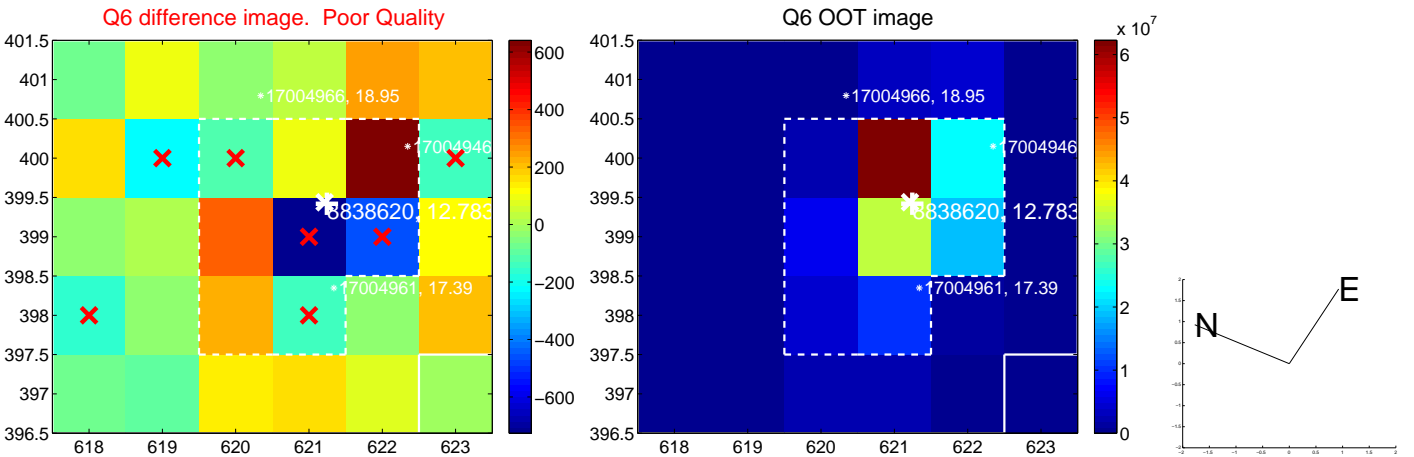
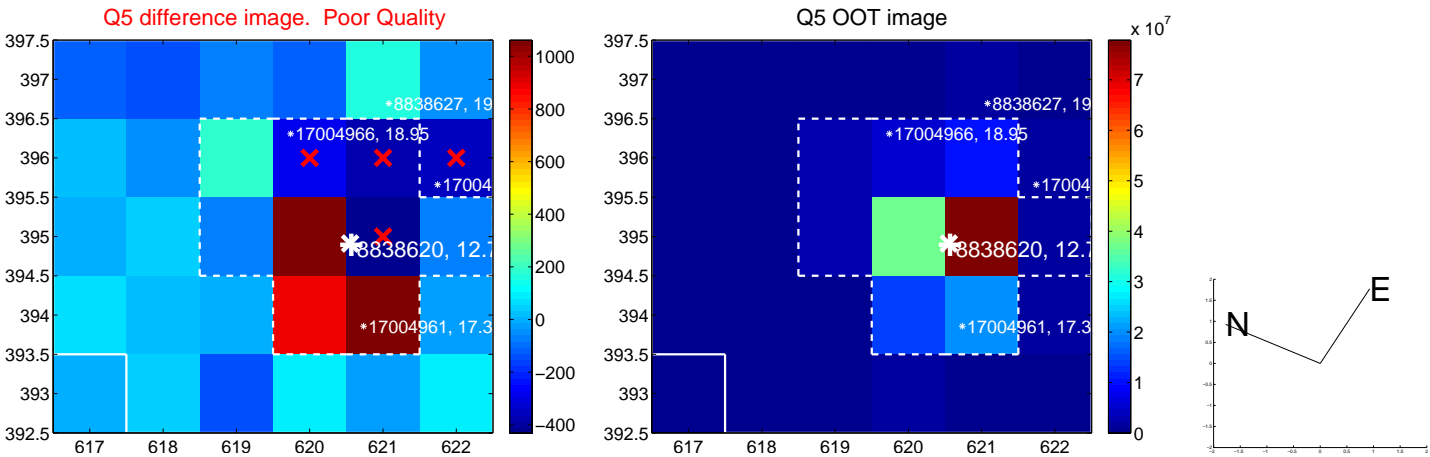


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

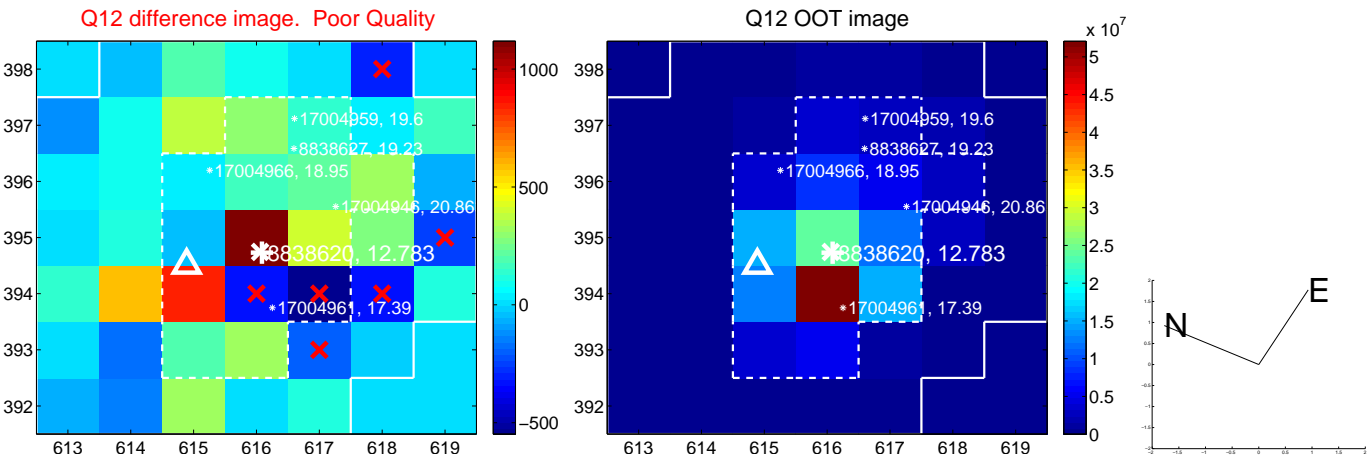
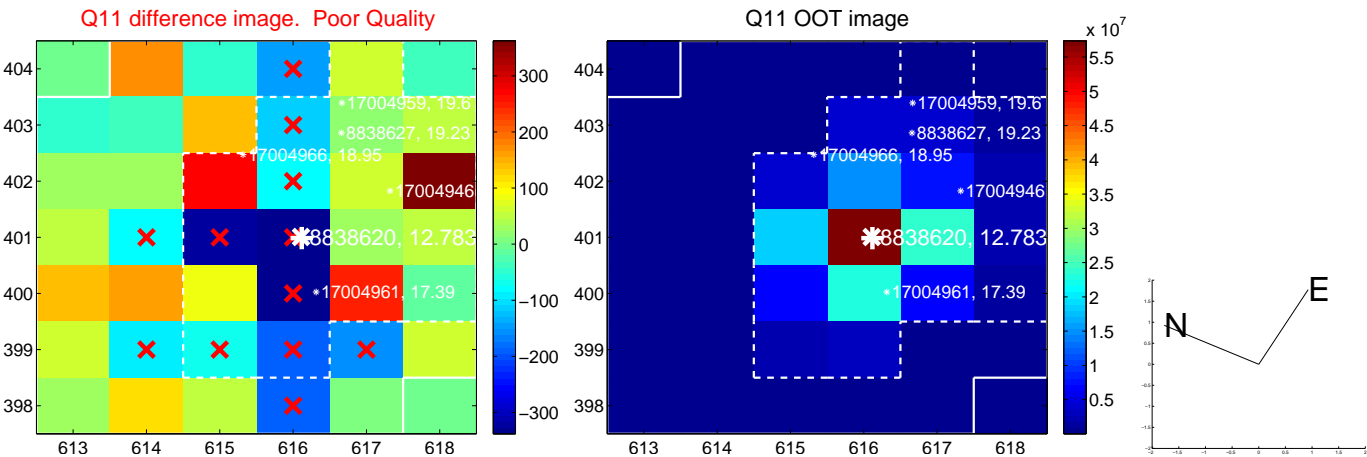
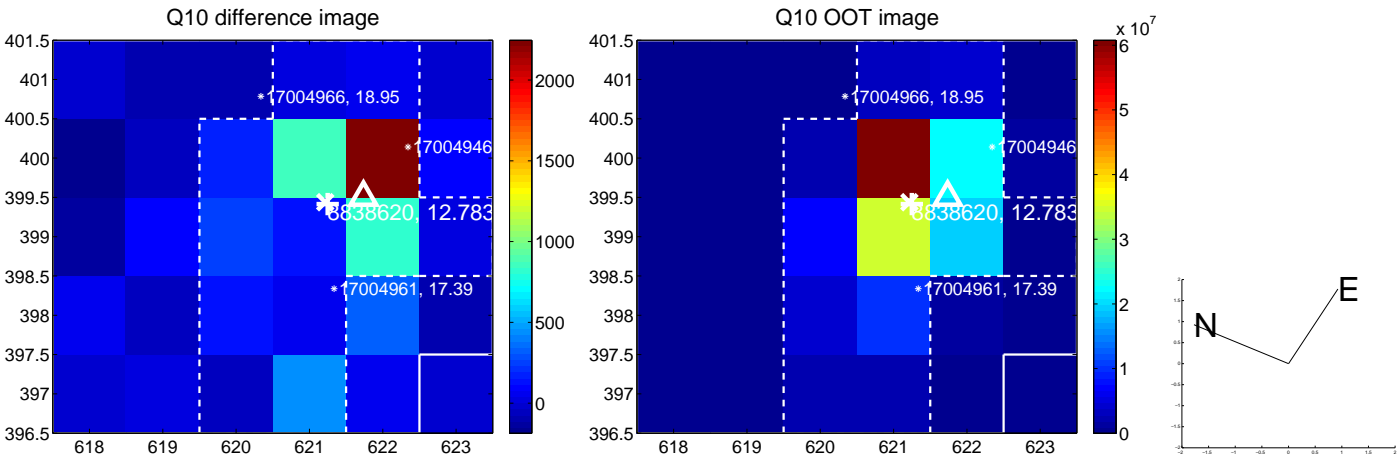
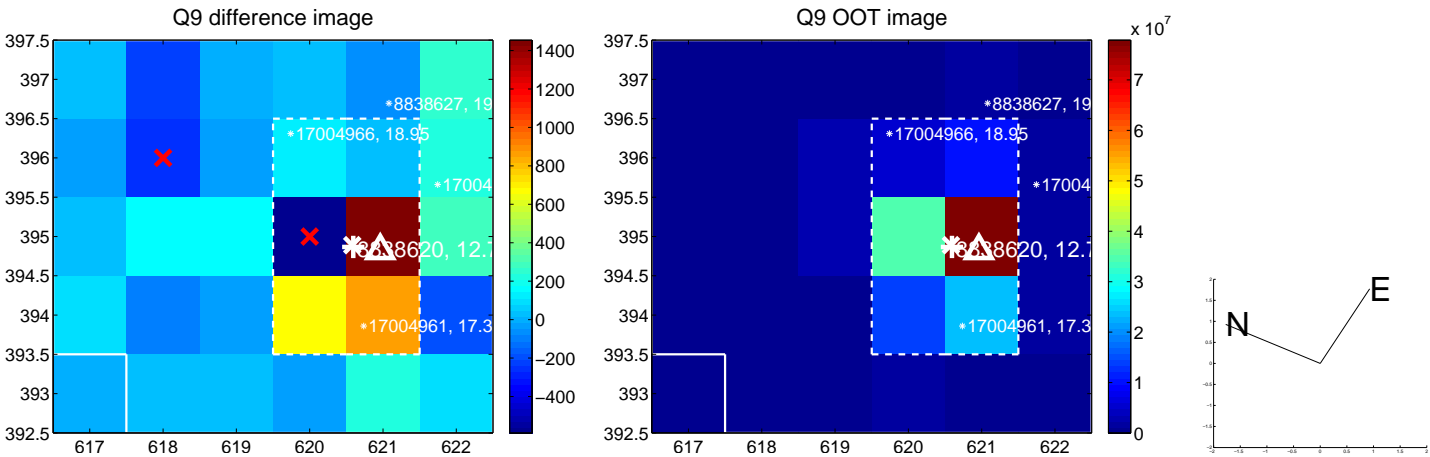


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

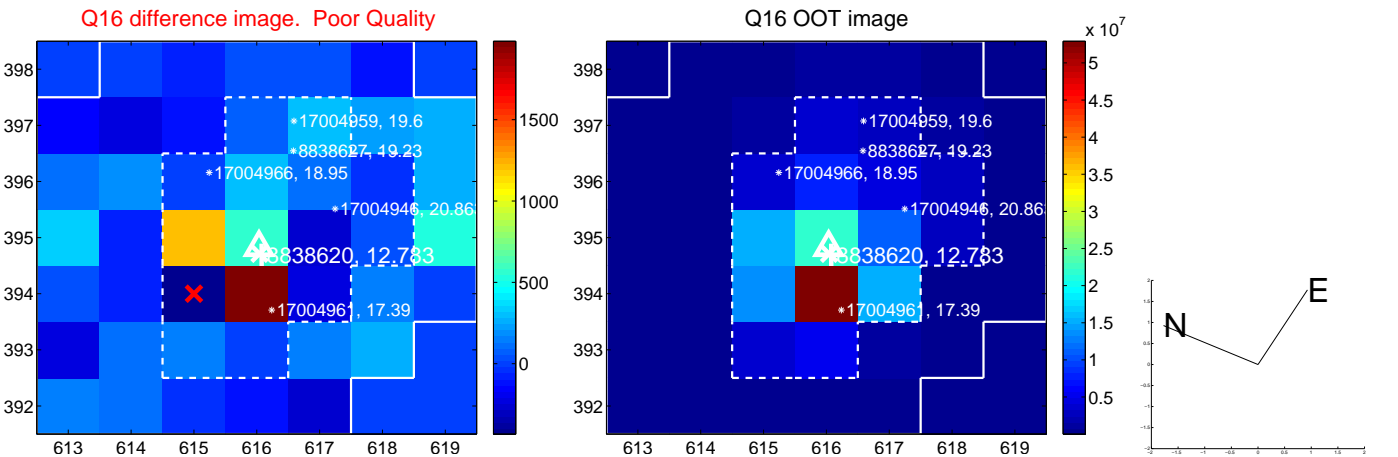
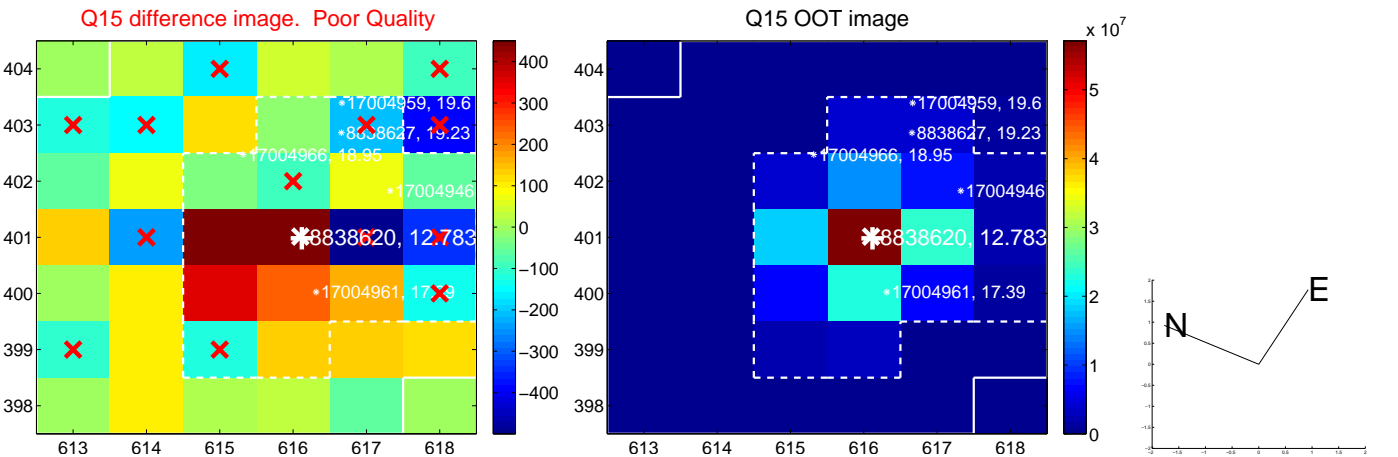
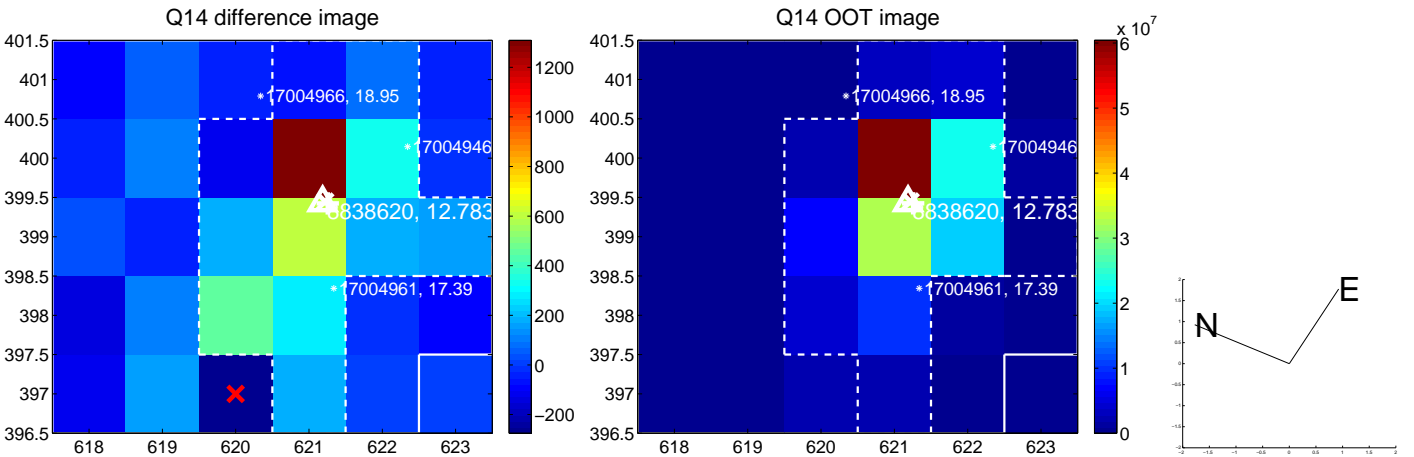
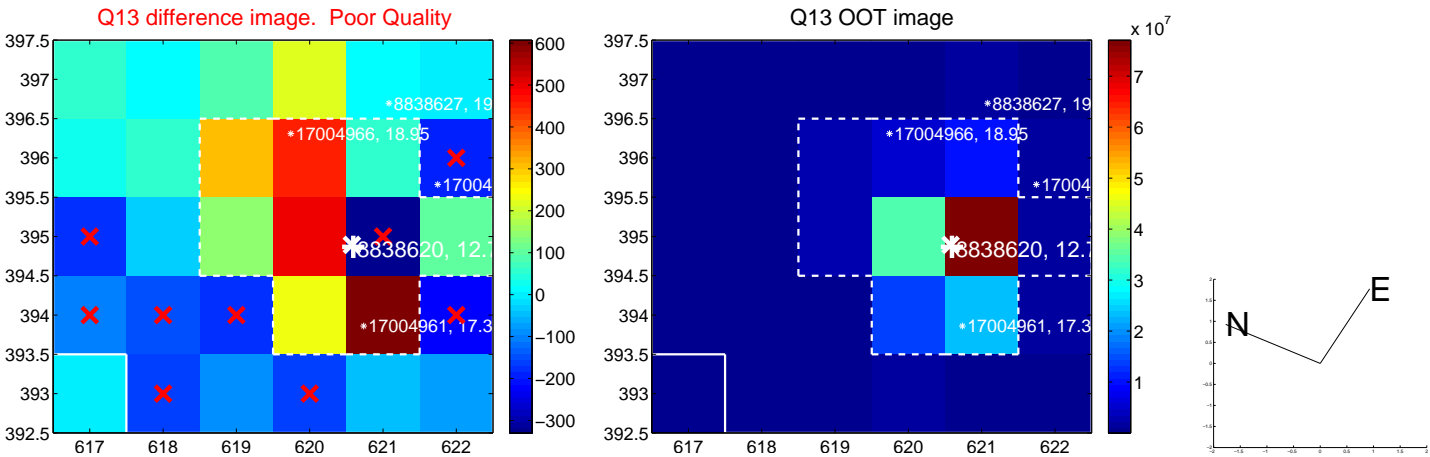




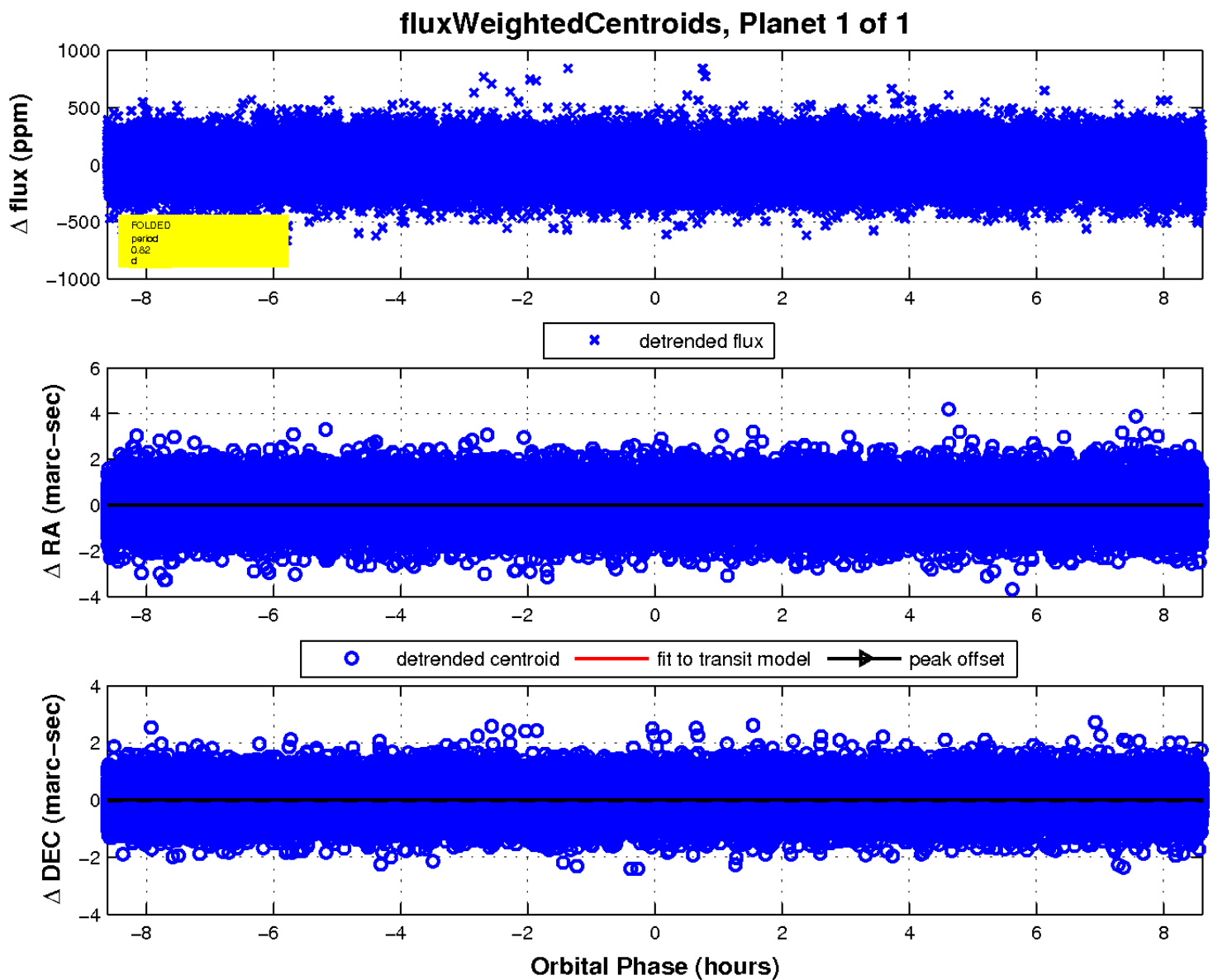
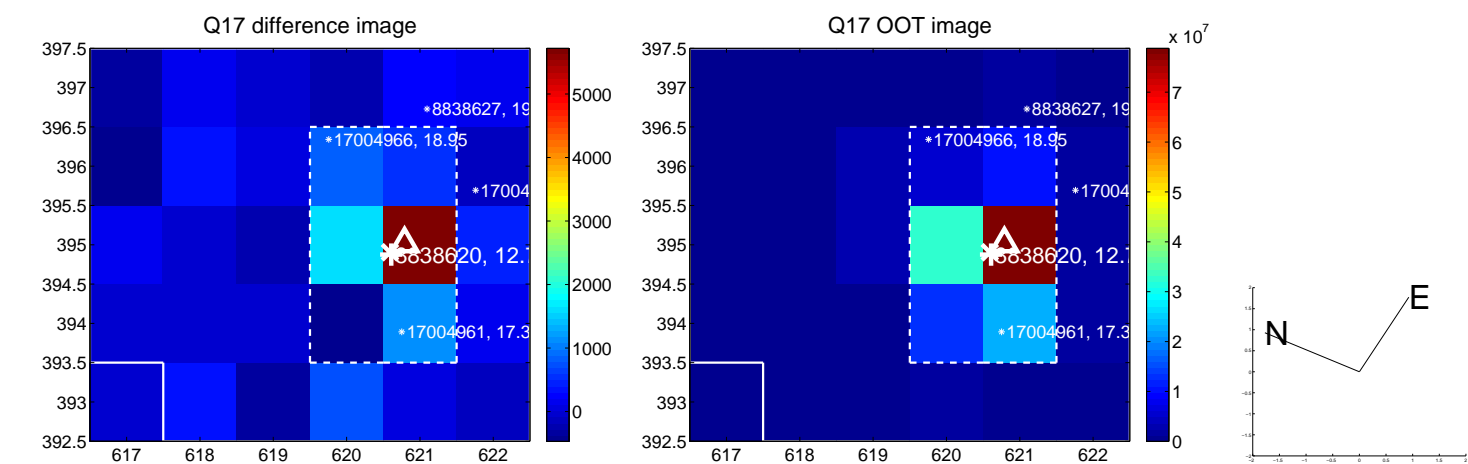
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

