

# KIC 008039925

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008039925-01	OBS	6956.01	20.260707	141.367567	61.5	27.870	9.9	10.7	1.27	6602	1.04	116.33

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008039925-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET

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

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

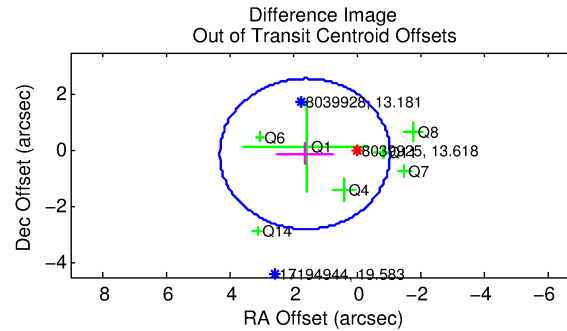
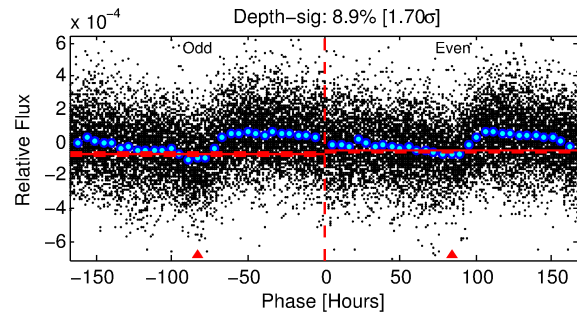
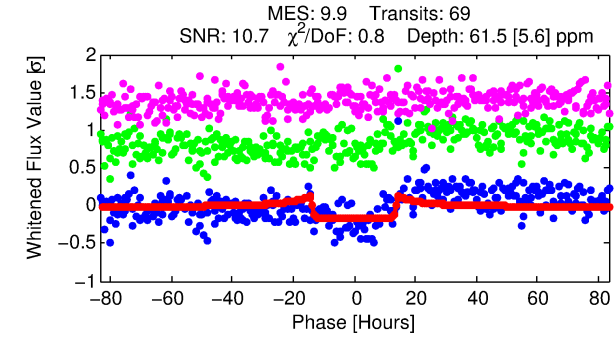
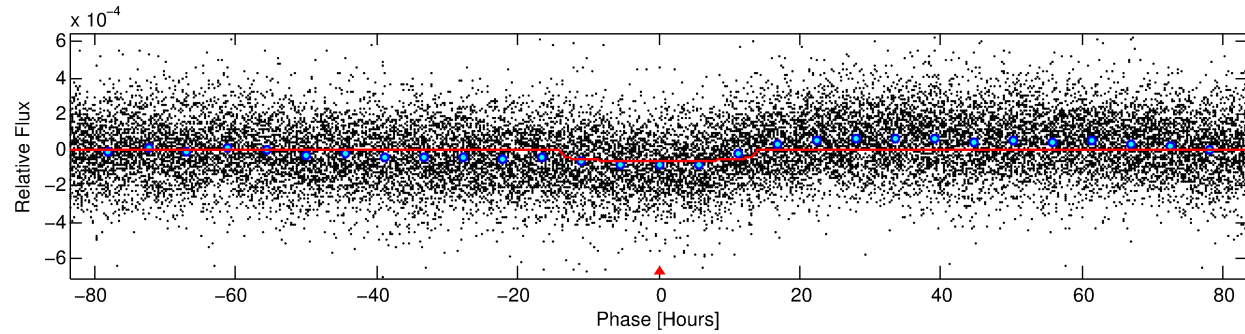
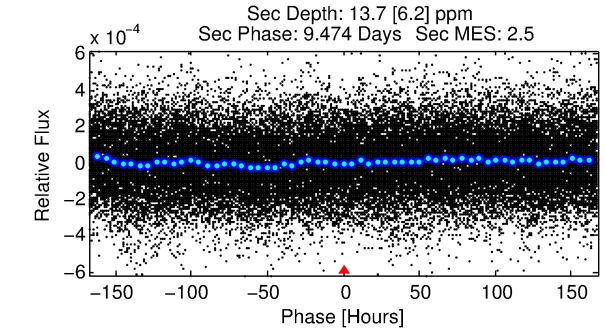
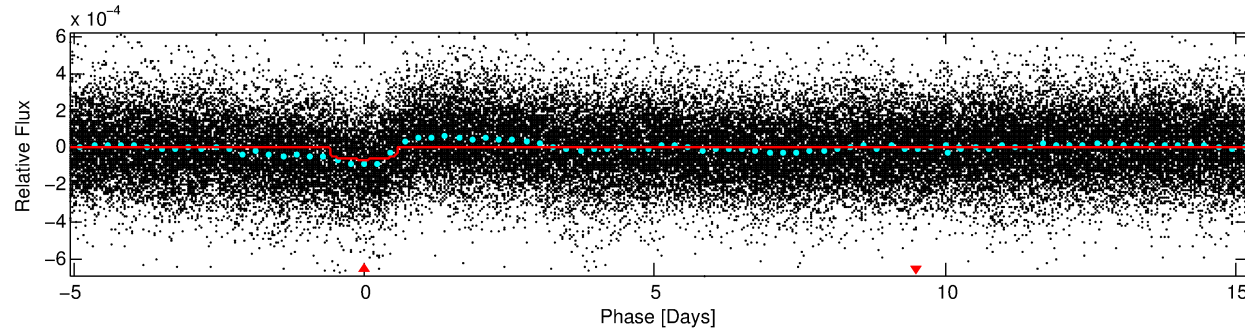
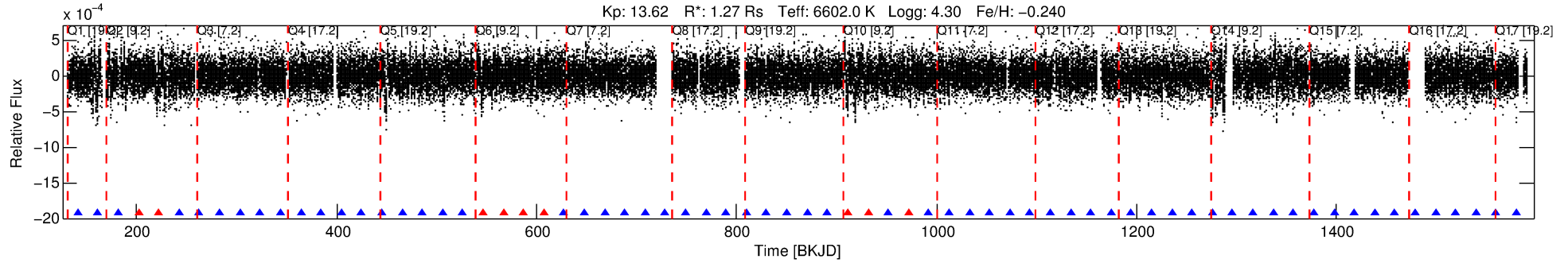
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008039925-01

No Significant Match Found

# DV One-Page Summary

KIC: 8039925 Candidate: 1 of 1 Period: 20.261 d  
KOI: K06956.01 Corr: 0.909



## DV Fit Results:

Period = 20.26071 [0.00040] d  
Epoch = 141.3676 [0.0162] BKJD  
Rp/R\* = 0.0075 [0.0013]  
a/R\* = 4.63 [4.21]  
b = 0.58 [1.09]  
Seff = 116.33 [44.48]  
Teq = 837 [80] K  
Rp = 1.04 [0.38] Re  
a = 0.1535 [0.0395] AU  
Ag = 163.73 [111.31] [1.46σ]  
Teffp = 4632 [686] K [5.49σ]

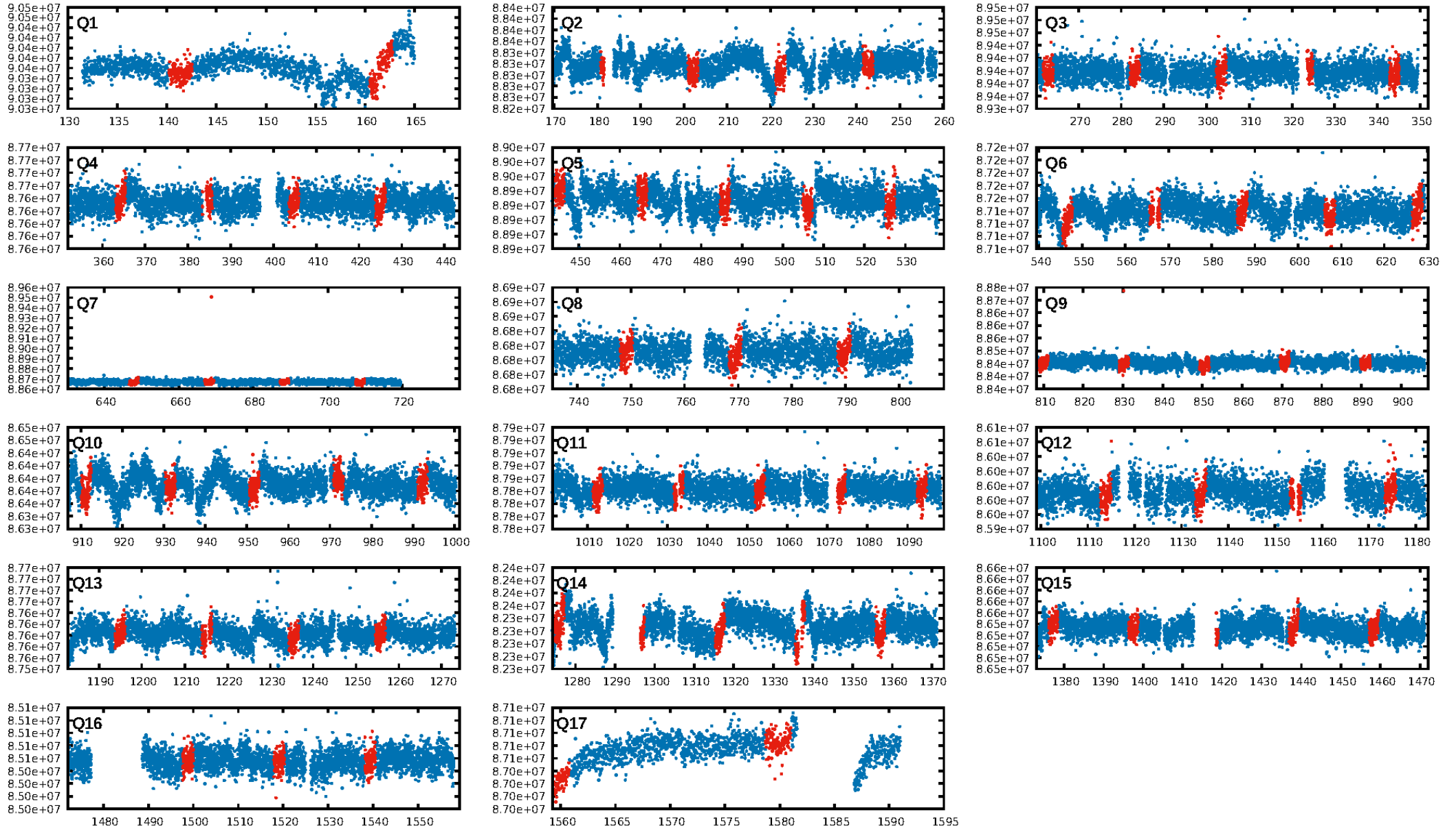
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 87.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 7.65e-21  
RollingBand-fgt: 0.86 [56/65]  
GhostDiagnostic-chr: -1.365  
Centroid-sig: 62.7%  
Centroid-so: 0.493 arcsec [0.46σ]  
OotOffset-rm: 1.623 arcsec [1.82σ]  
KicOffset-rm: 1.671 arcsec [1.89σ]  
OotOffset-st: 2/2/2/1 [7]  
KicOffset-st: 2/2/2/1 [7]  
DiffImageQuality-fgm: 0.29 [2/7]  
DiffImageOverlap-fno: 1.00 [16/16]

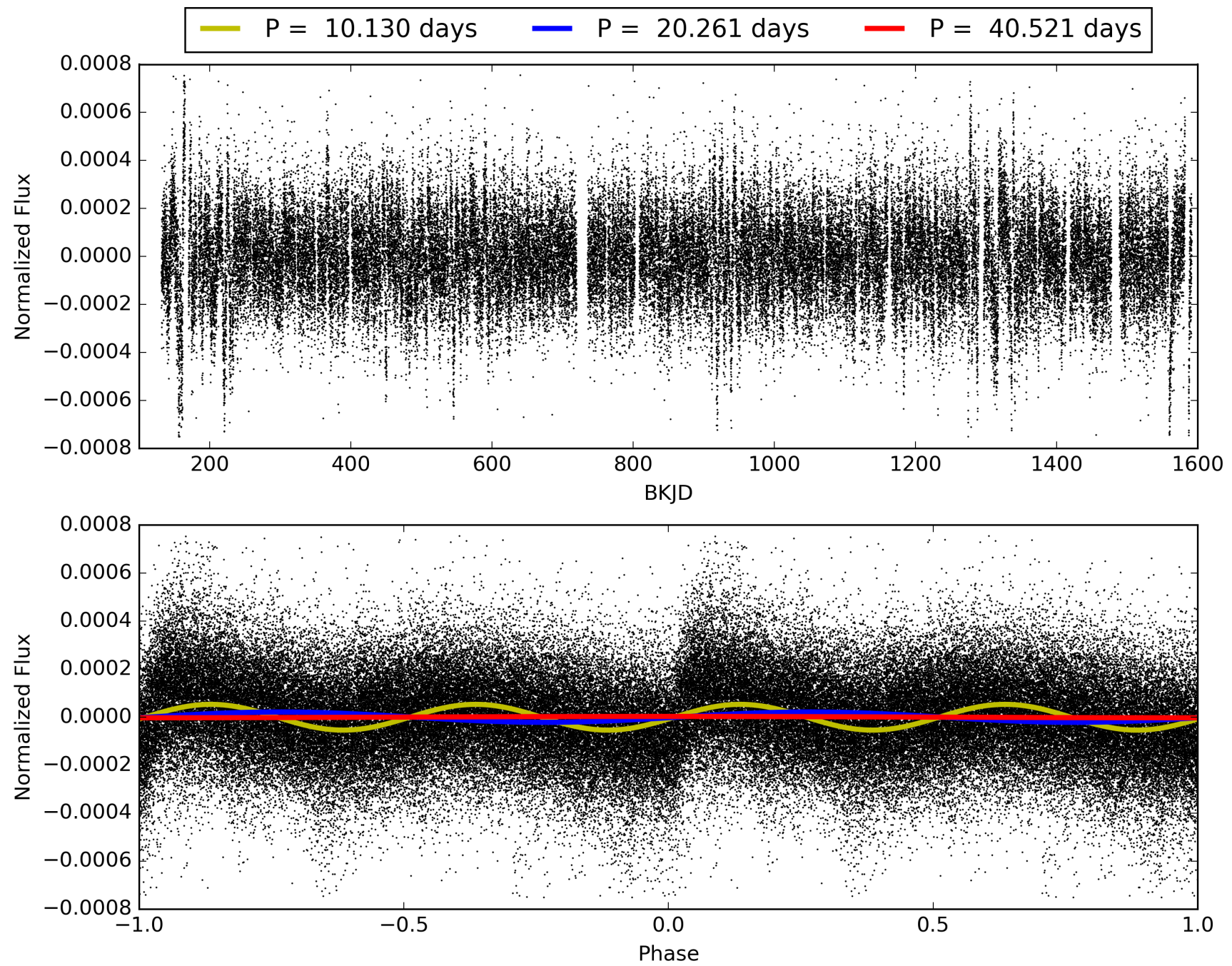
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:03:58 Z

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

# TCE 008039925-01, PDC Light Curves

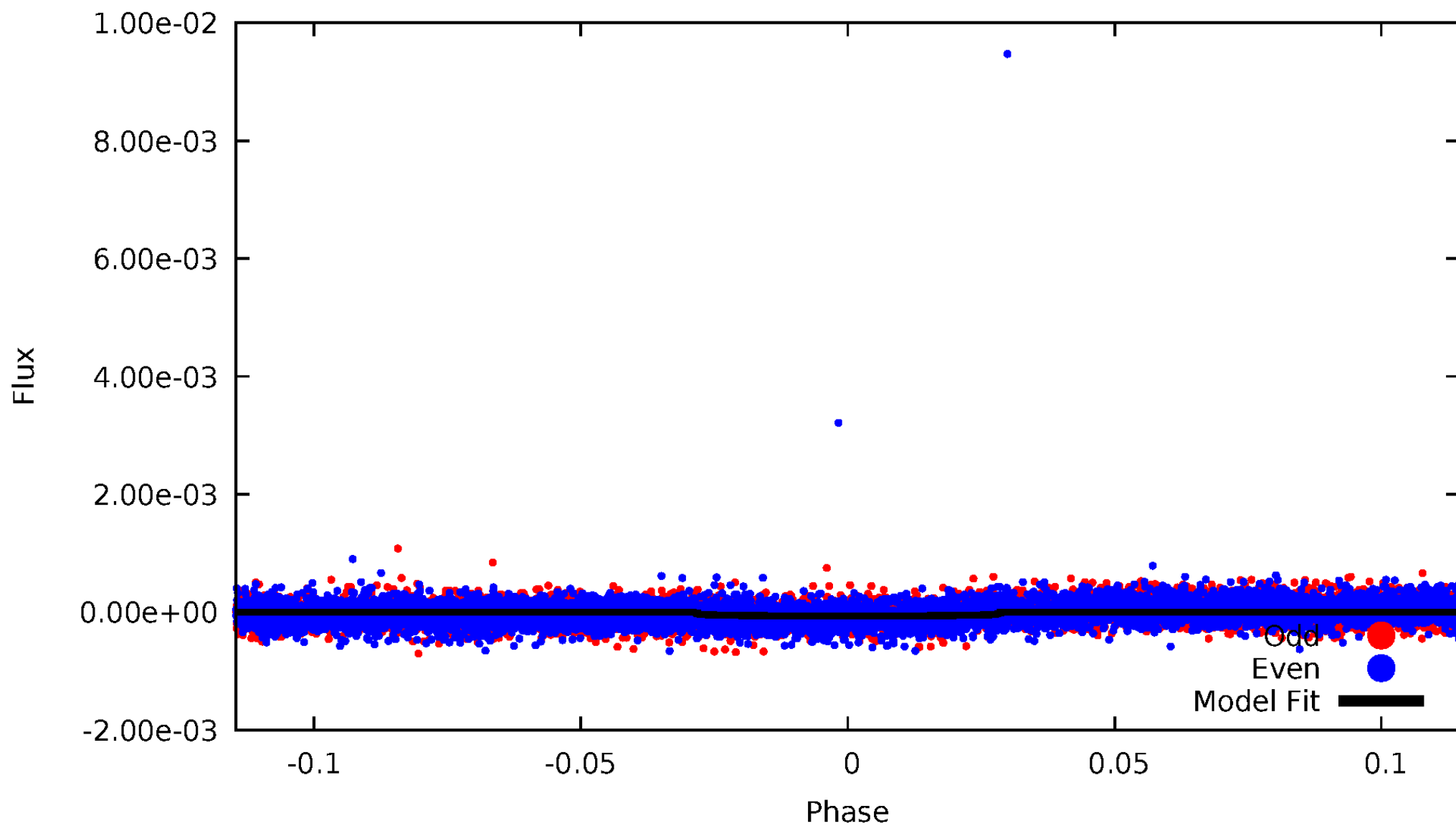


TCE 008039925-01



# DV Odd/Even

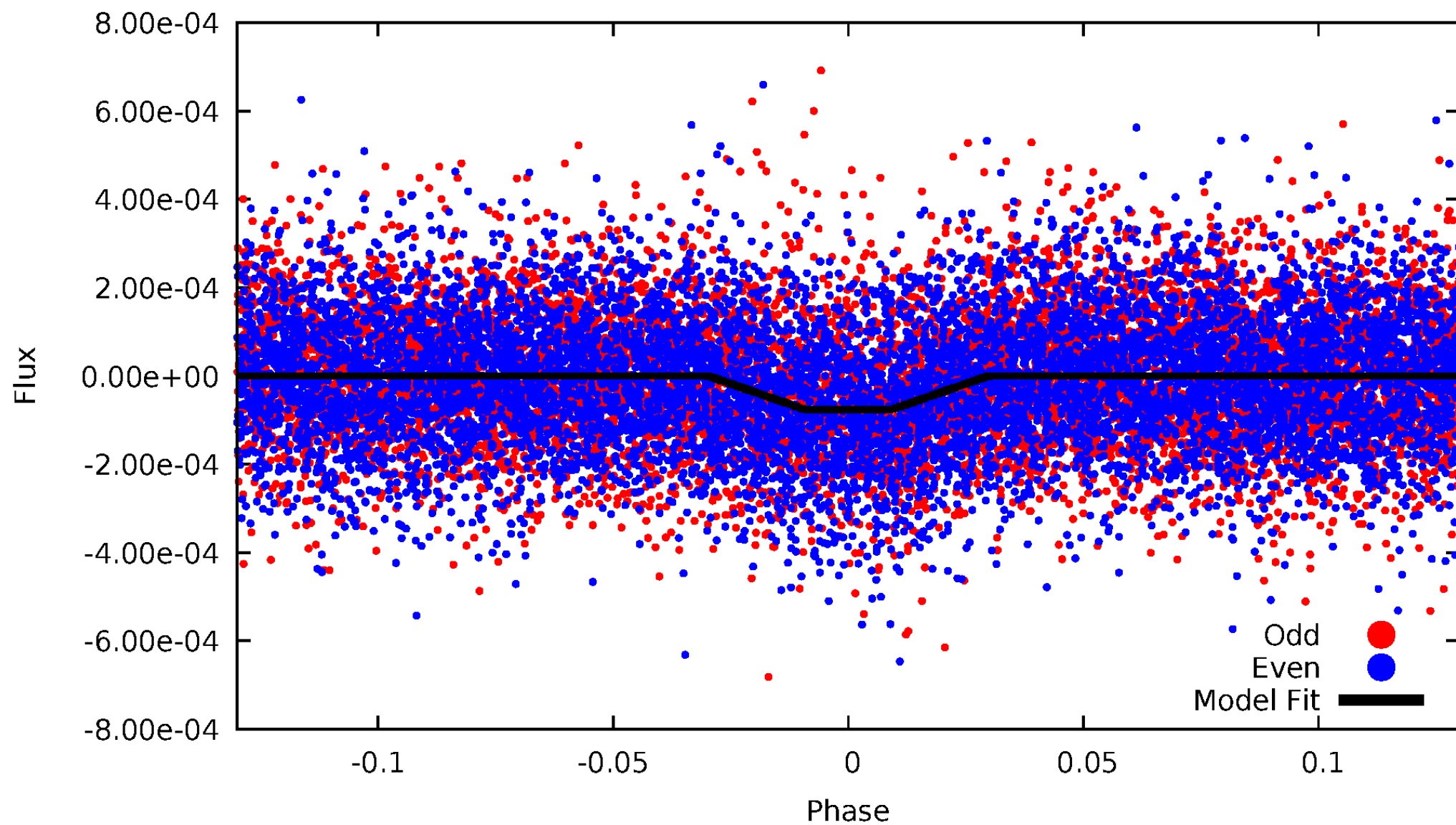
TCE 008039925-01





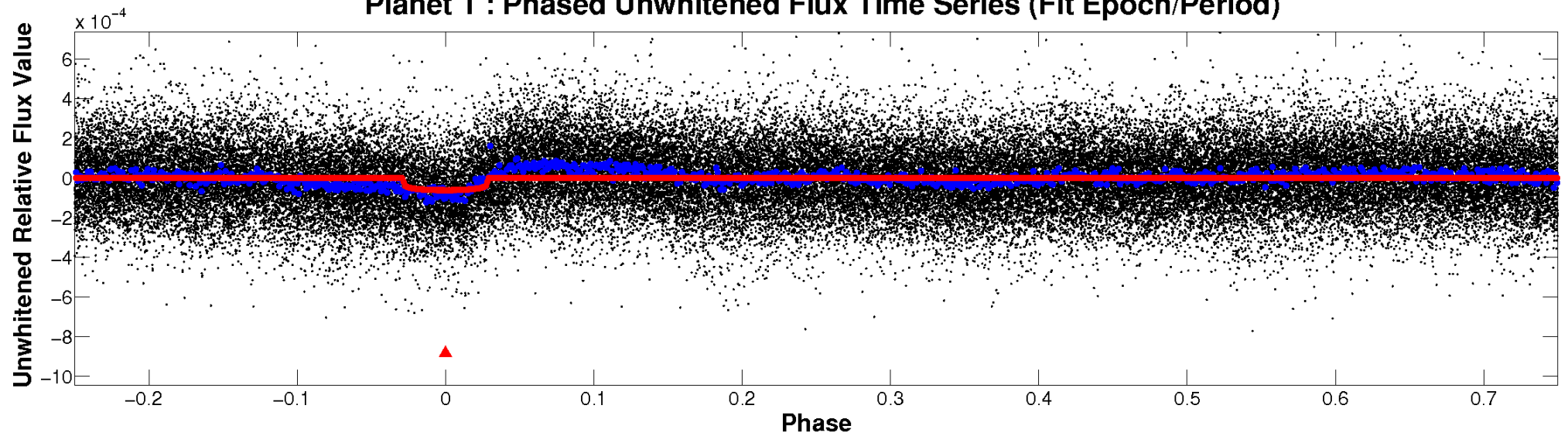
# ALT Odd/Even

TCE 008039925-01

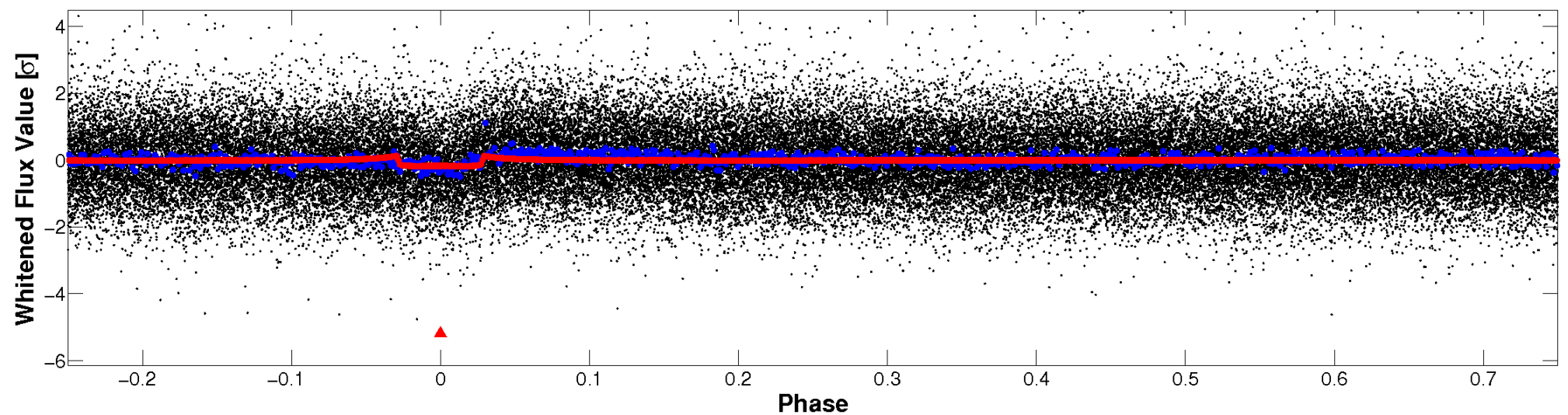


# Non-Whitened Vs. Whitened Light Curve

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

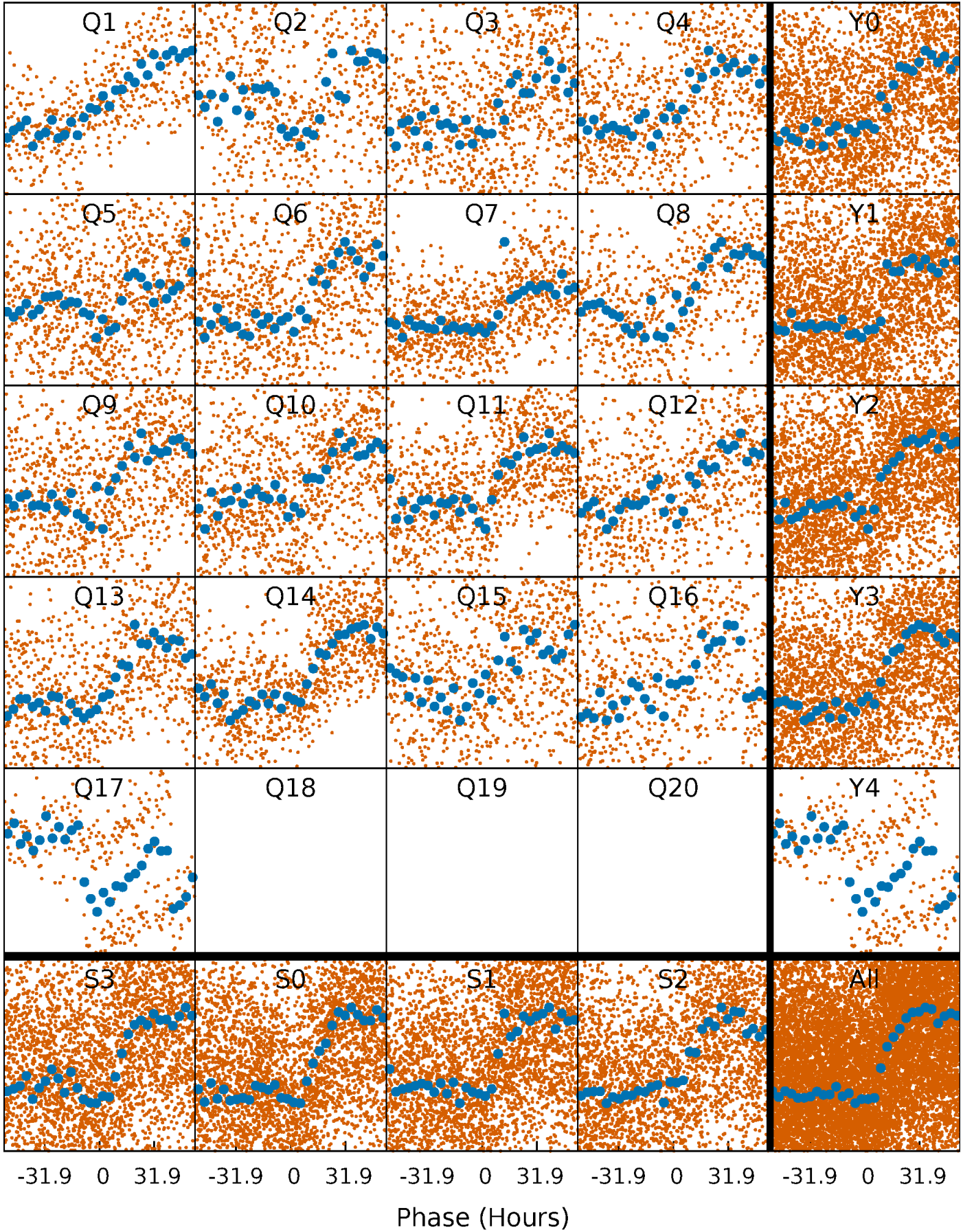


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

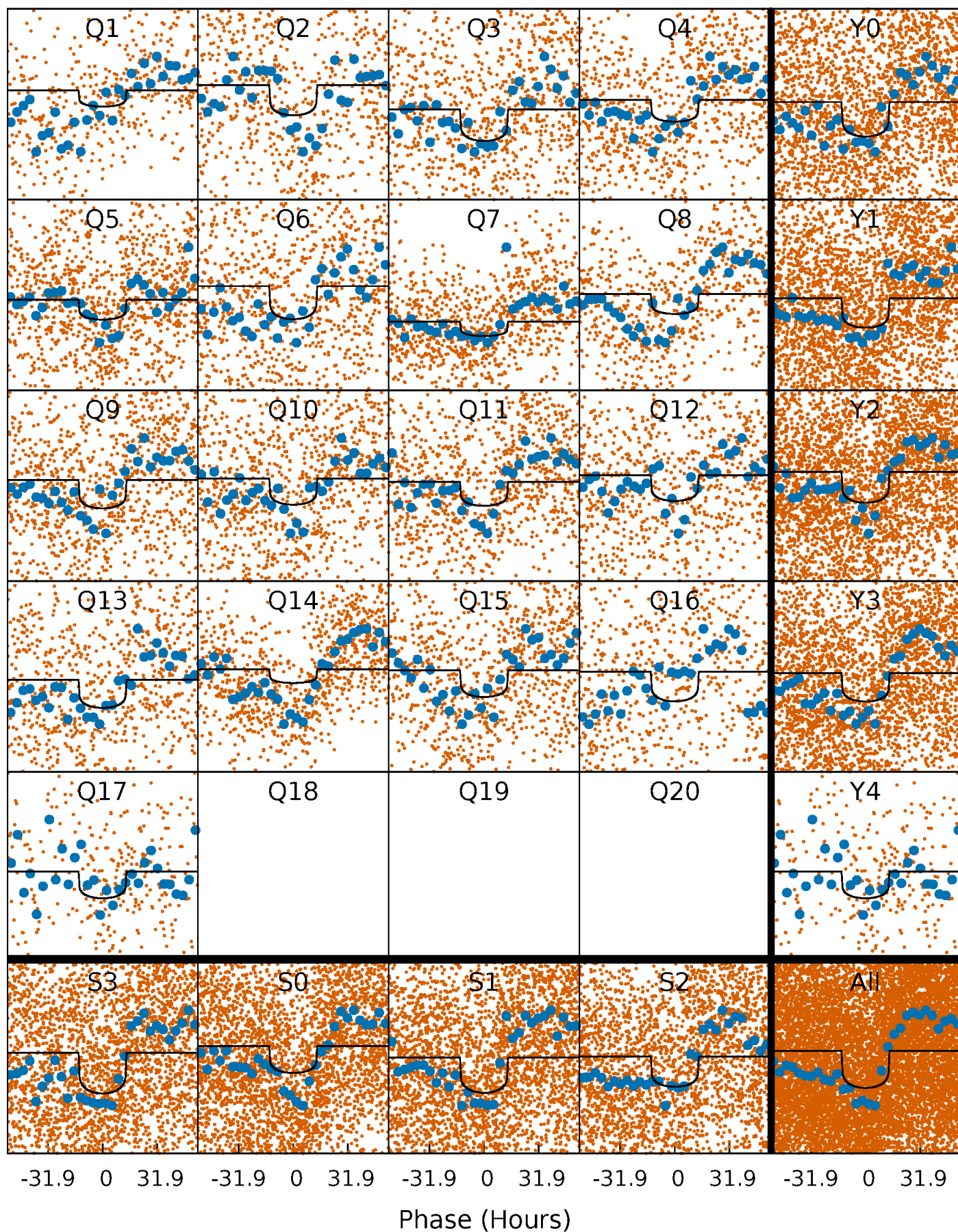
TCE 008039925-01 P= 20.260707 Days  $T_0=141.367567$  (BKJD)





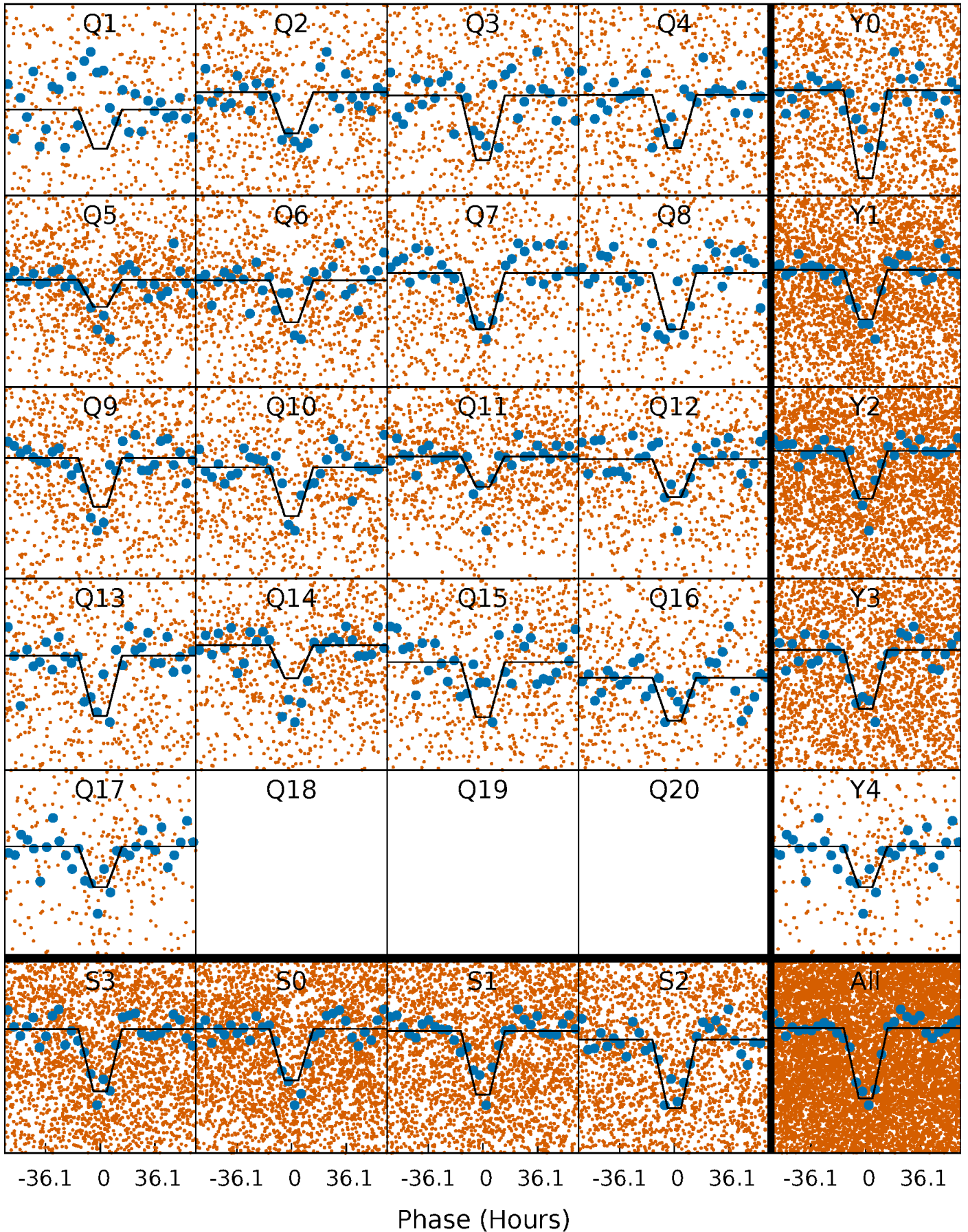
# DV Quarter-Phased Transit Curves

TCE 008039925-01 P= 20.260707 Days  $T_0=141.367567$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

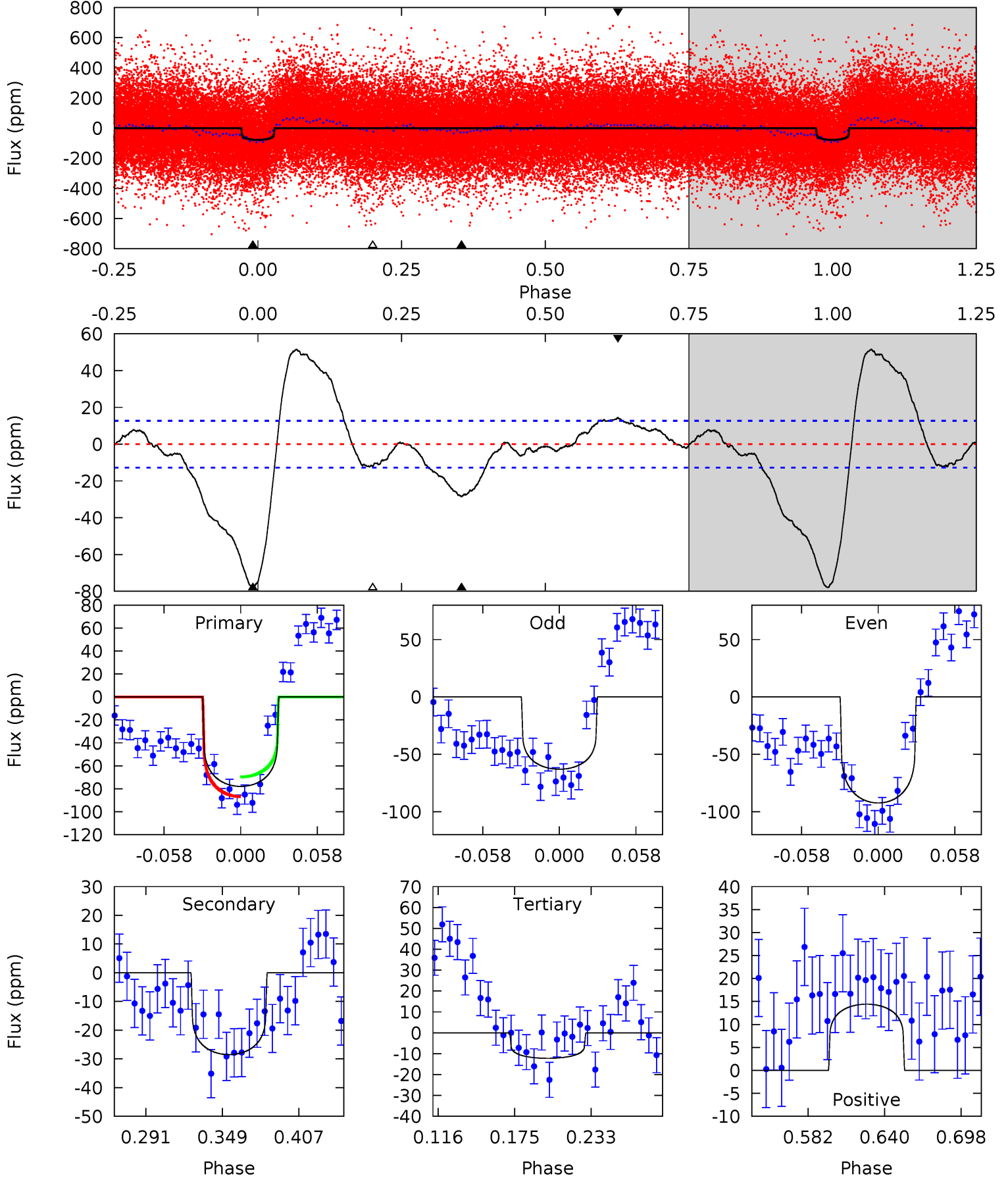
TCE 008039925-01 P= 20.260044 Days  $T_0=141.439213$  (BKJD)



# DV Model-Shift Uniqueness Test

008039925-01, P = 20.260707 Days, E = 121.106860 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
28.6	10.5	4.49	5.28	4.68	1.89	6.57	24.1	23.3	5.97	5.17	5.42	1.05	0.40	3.14

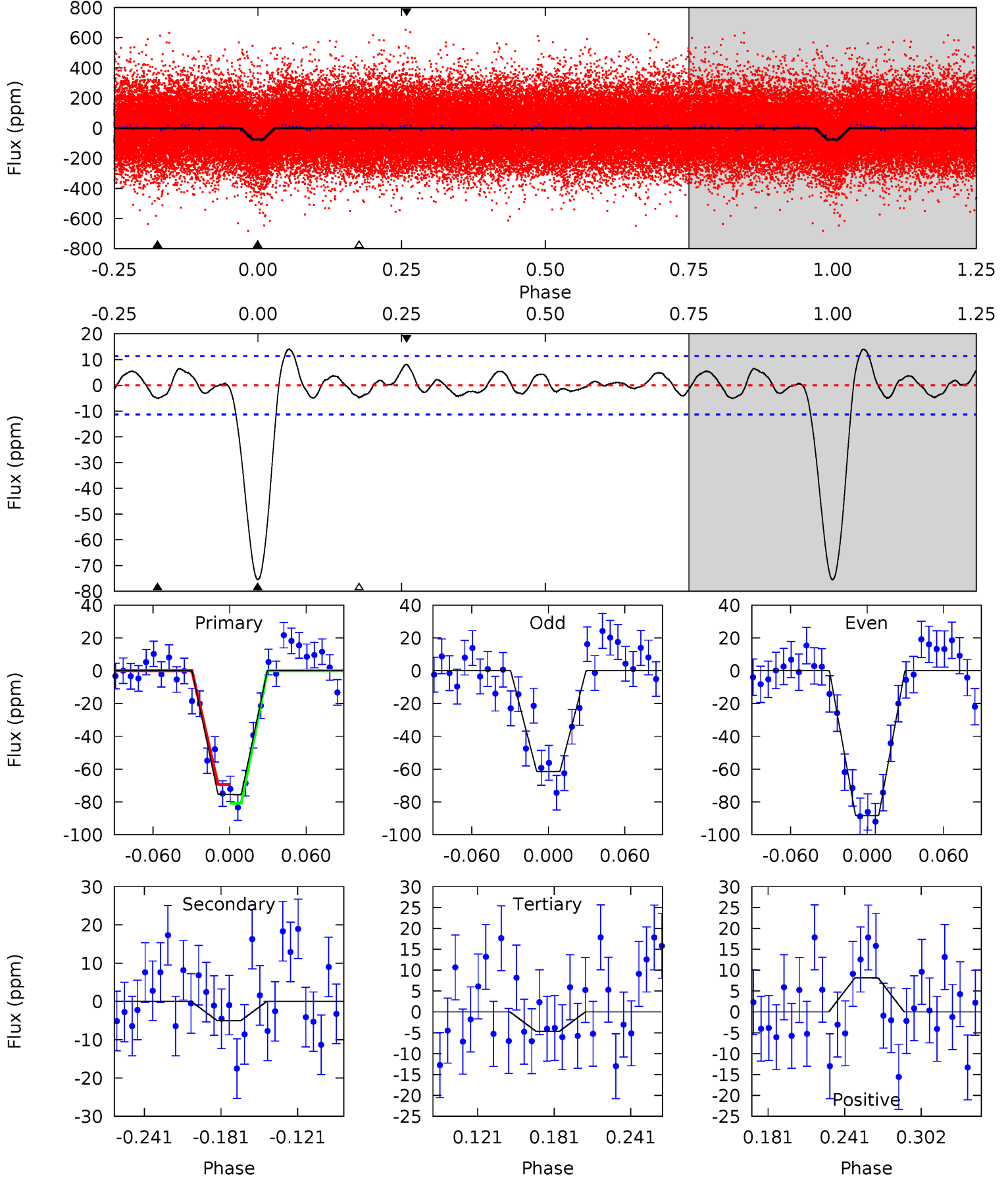




# Alt Model-Shift Uniqueness Test

008039925-01, P = 20.260044 Days, E = 121.179169 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
31.0	2.08	1.92	3.35	4.67	1.88	1.22	29.1	27.7	0.16	-1.27	5.52	1.04	0.16	2.35





### Stellar Parameters For KIC 008039925

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6602^{+158}_{-218}$	$4.301^{+0.101}_{-0.188}$	$-0.240^{+0.250}_{-0.300}$	$1.269^{+0.406}_{-0.203}$	$1.178^{+0.175}_{-0.158}$	$0.812^{+0.391}_{-0.424}$
	+2%/-3%	+2%/-4%	+104%/-125%	+32%/-16%	+15%/-13%	+48%/-52%
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 008039925-01 / KOI 6956.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-29 \pm 3$	$1.04^{+0.24}_{-0.20}$	$1178^{+83}_{-65}$	$5586^{+627}_{-425}$	$340^{+178}_{-120}$
Alt.	$-5 \pm 2$	$1.24^{+0.29}_{-0.24}$	$1179^{+94}_{-63}$	$3723^{+372}_{-409}$	$41^{+32}_{-21}$

$T_{max}$  = 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

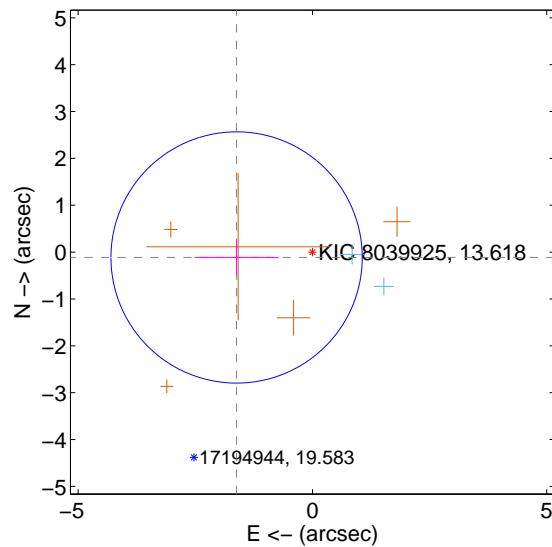
Supplemental centroid analysis for 008039925-01. Kepler magnitude: 13.62. Transit SNR 10.71

There are 2 quarters with good PRF difference image offsets

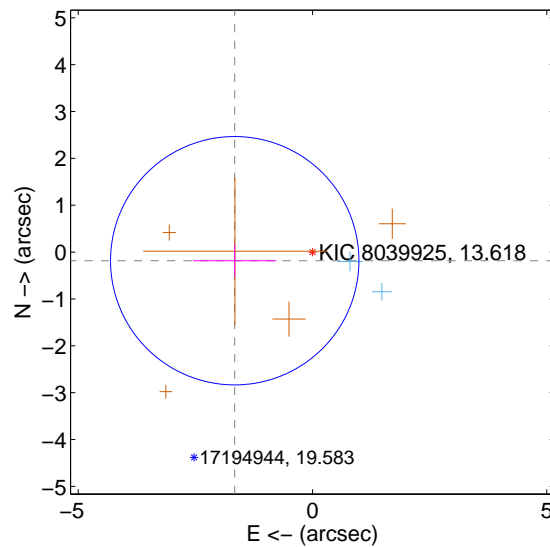
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.623 \pm 0.894$	1.82	$1.619 \pm 0.896$	$-0.115 \pm 0.350$
PRF-fit source offset from KIC position	$1.671 \pm 0.884$	1.89	$1.661 \pm 0.888$	$-0.184 \pm 0.343$
photometric centroid source offset	$0.49 \pm 1.06$	0.46	$0.33 \pm 1.07$	$-0.36 \pm 1.06$

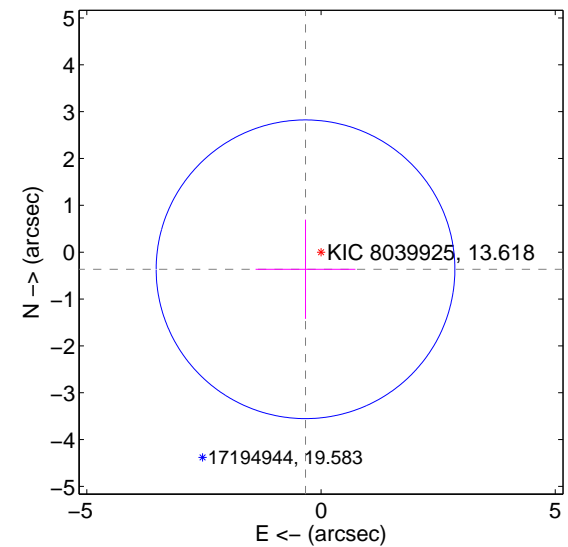
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

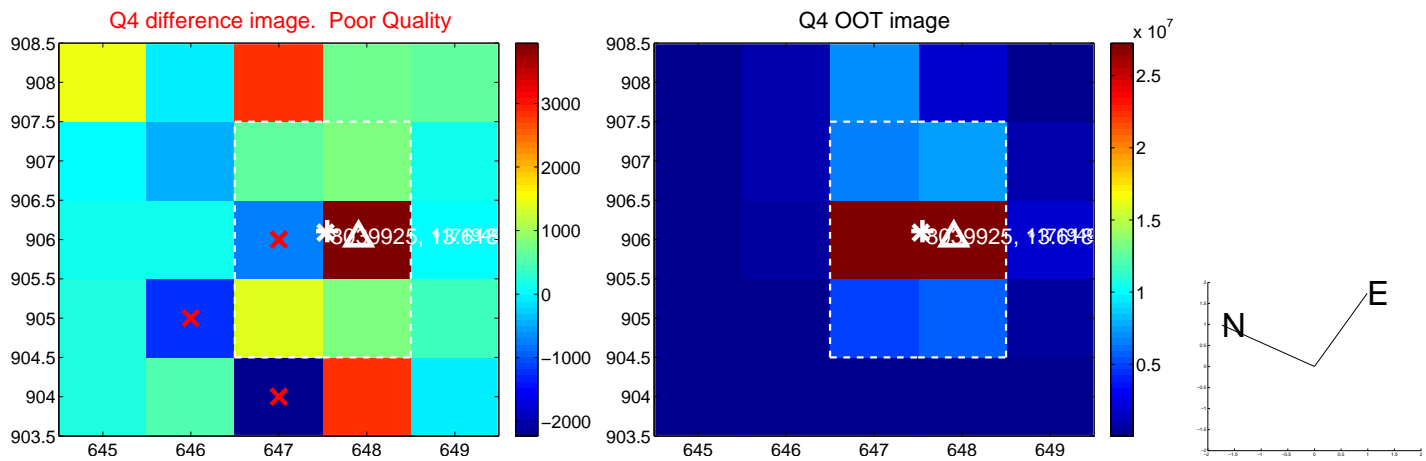
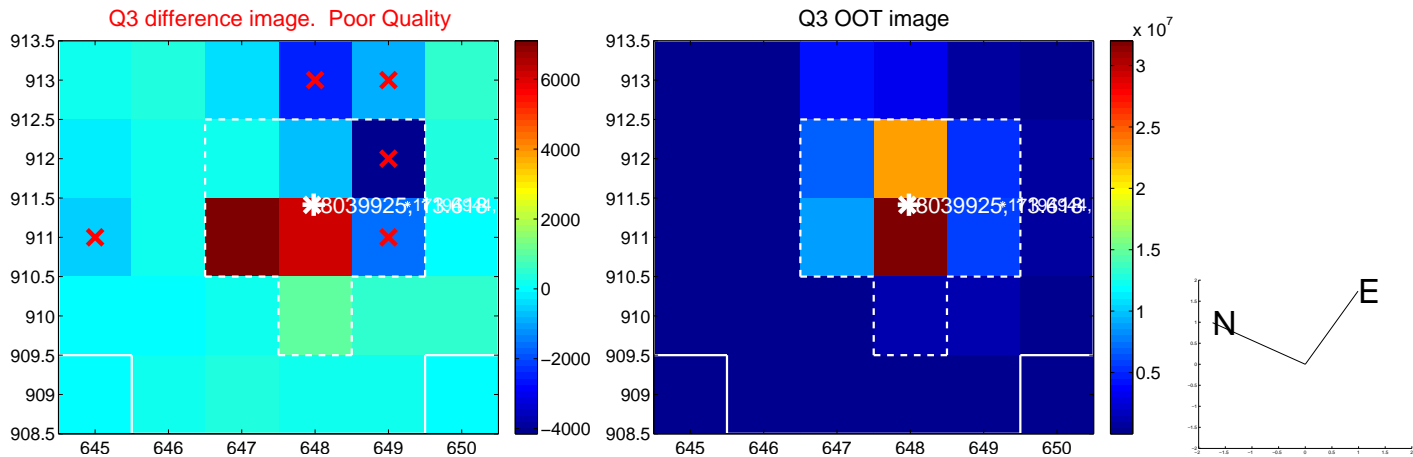
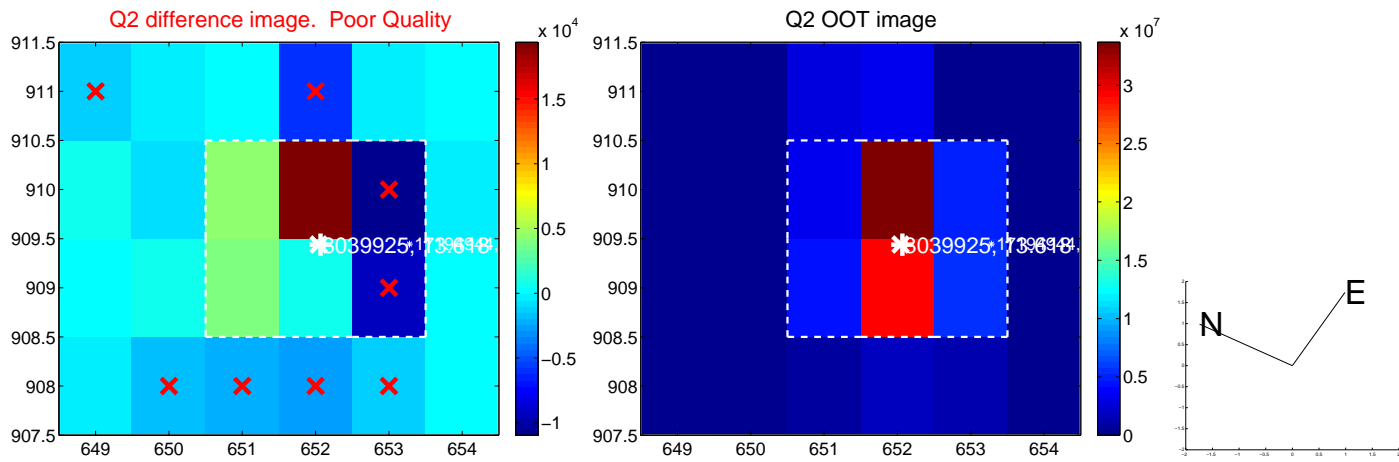
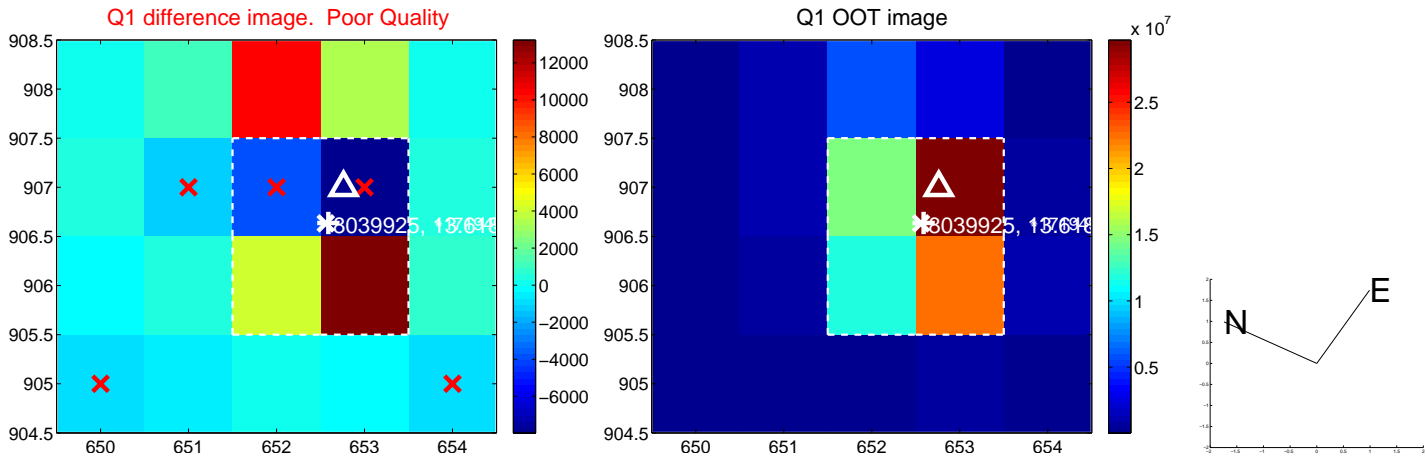


offset from photometric centroids

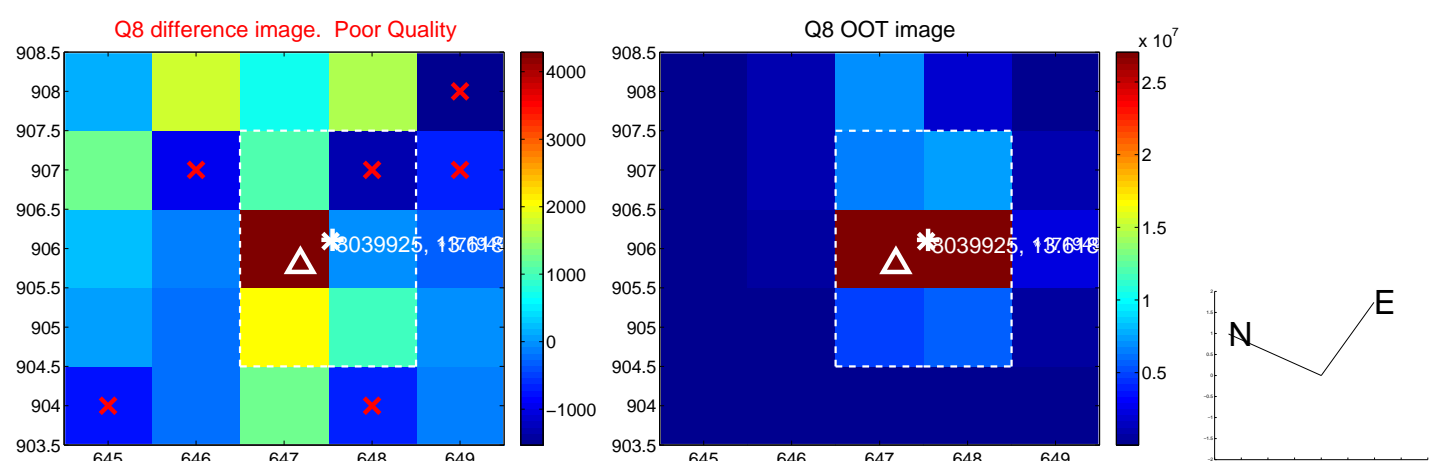
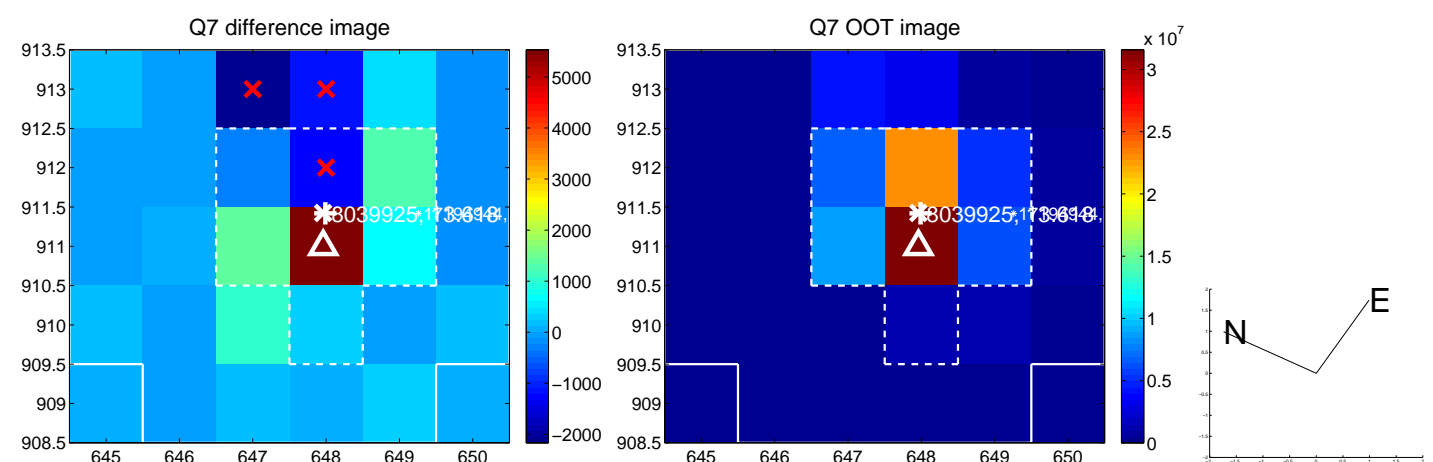
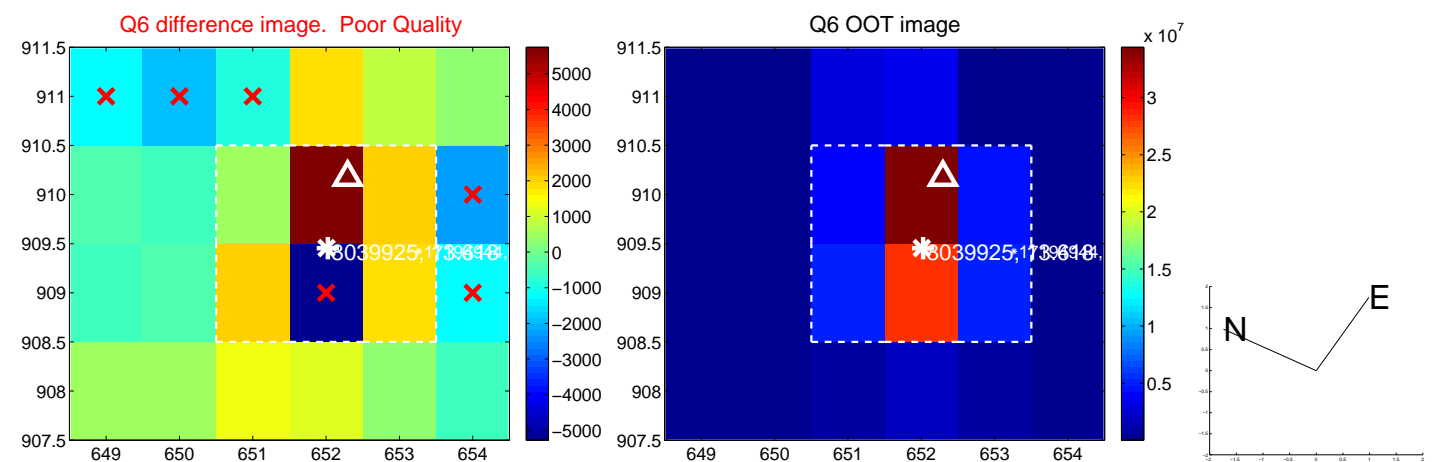
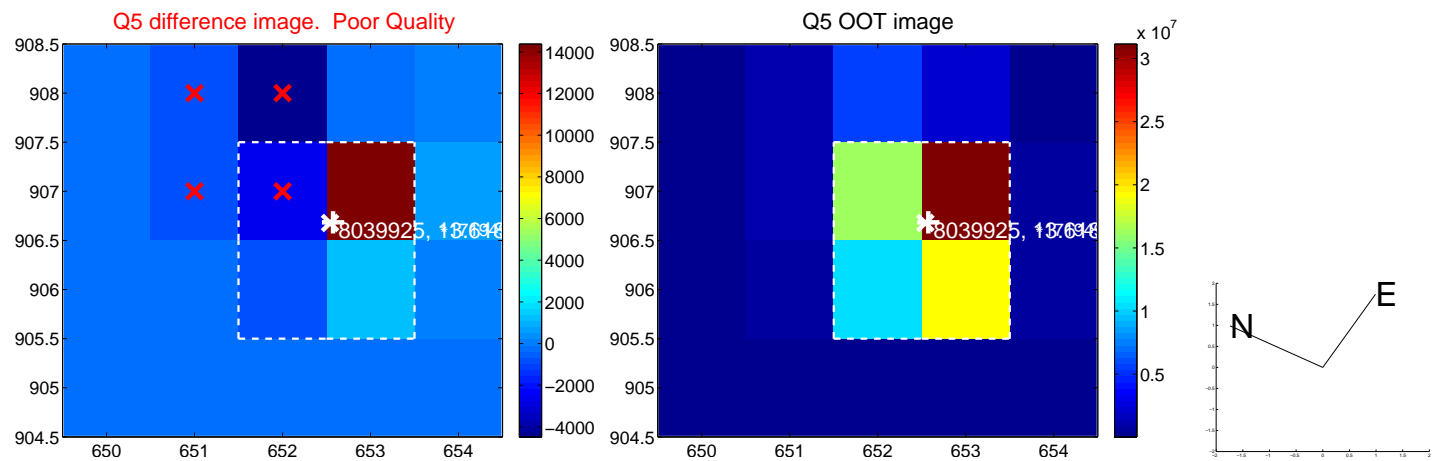


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

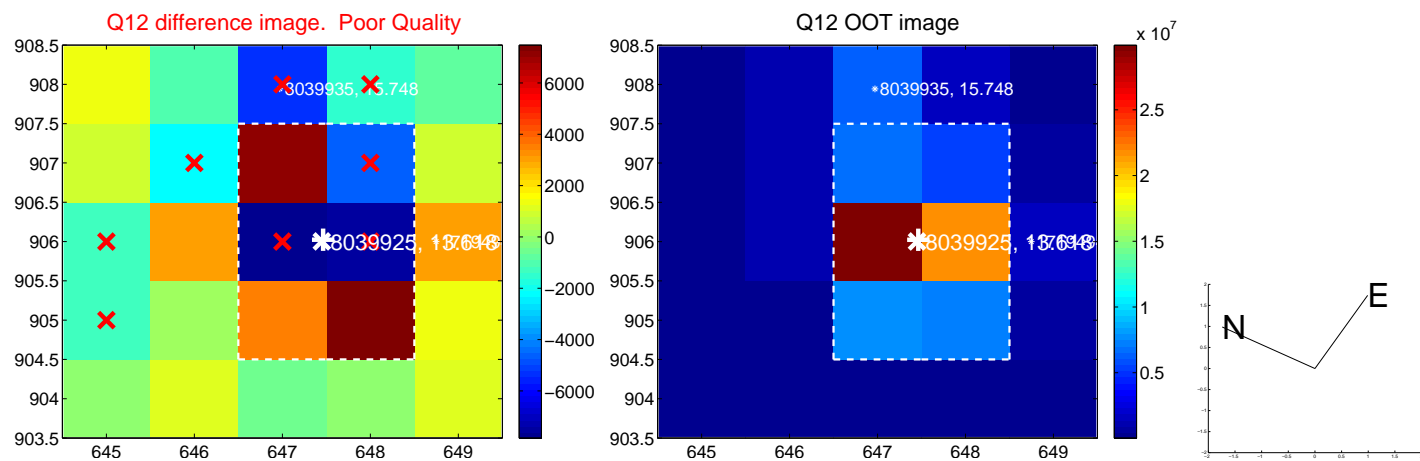
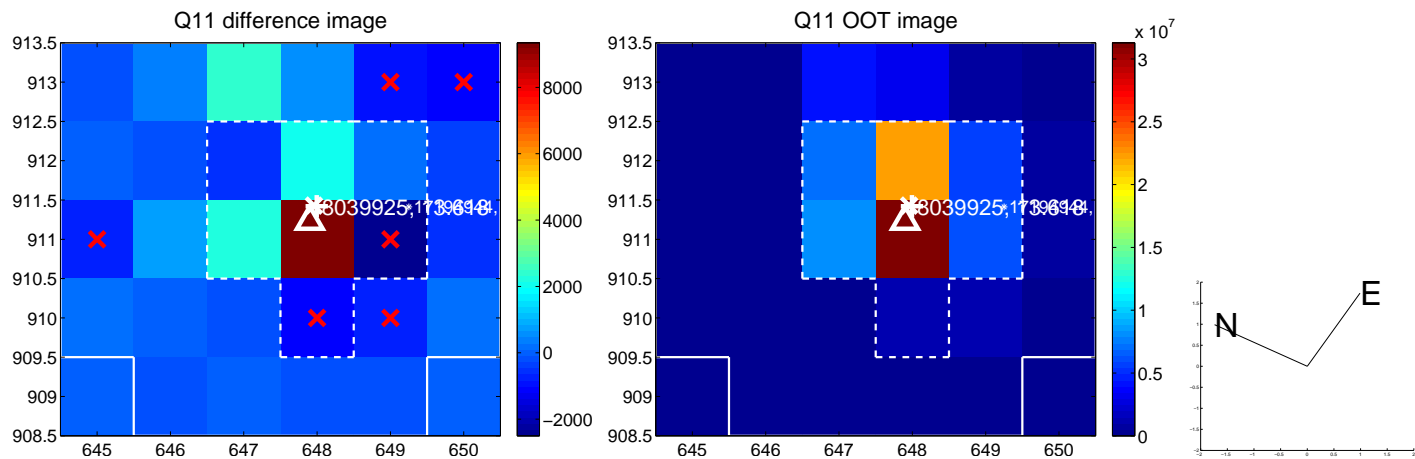
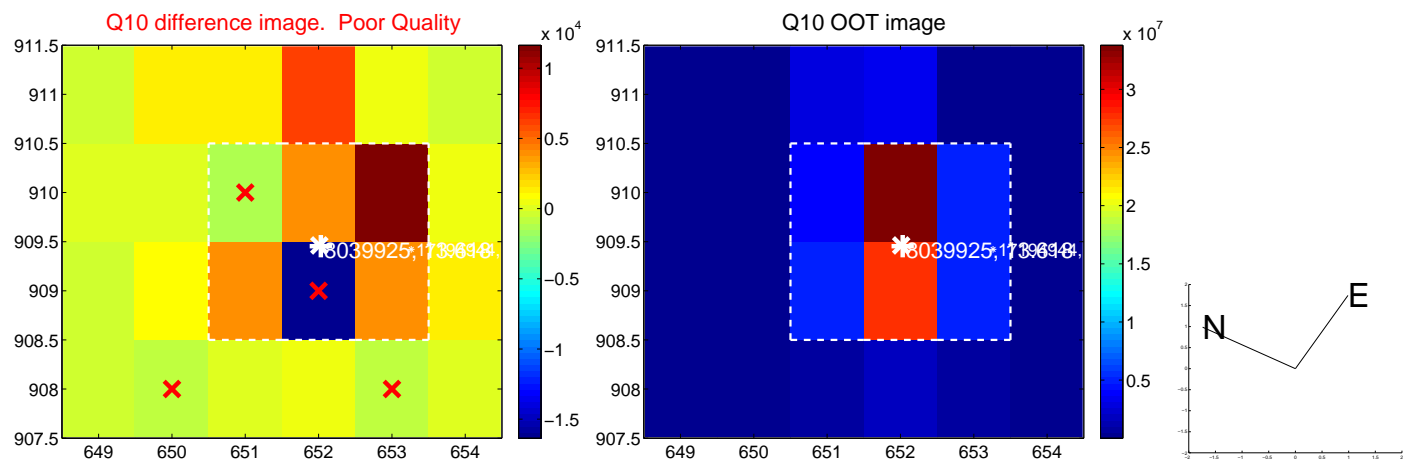
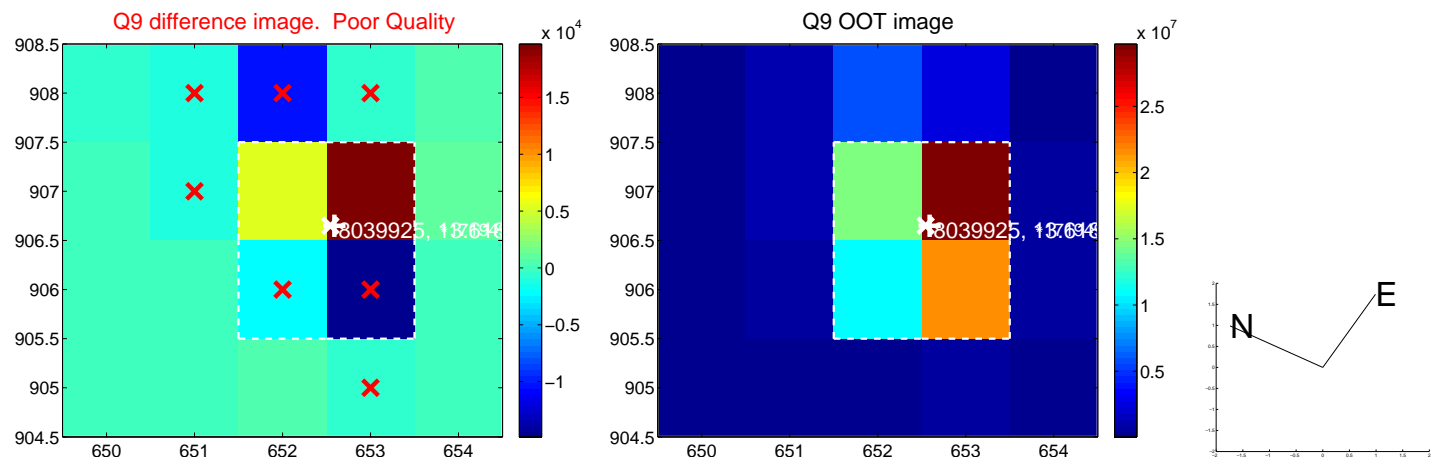


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

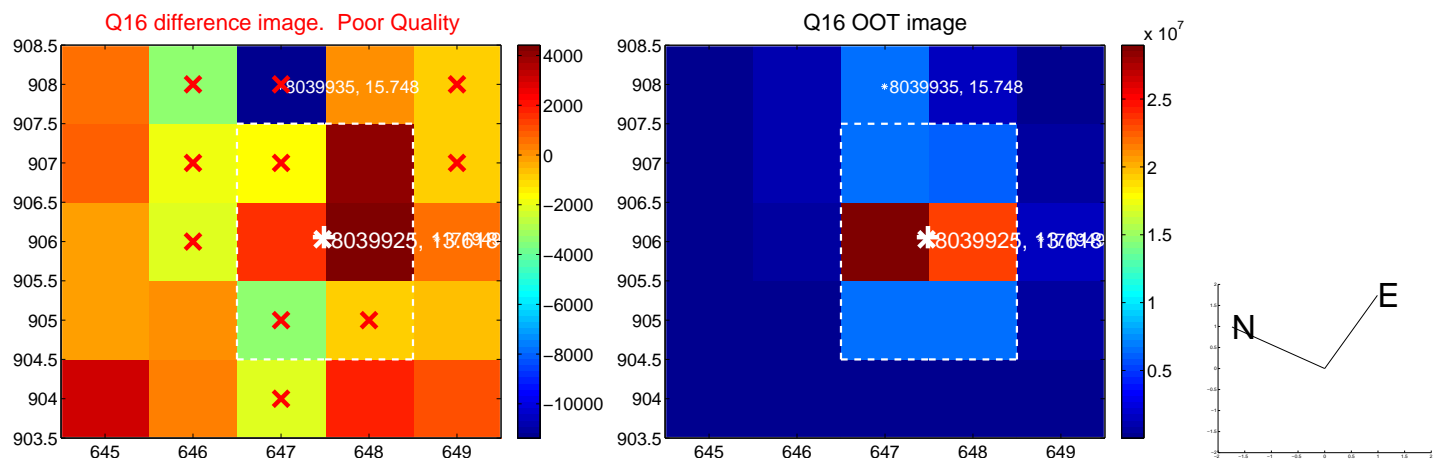
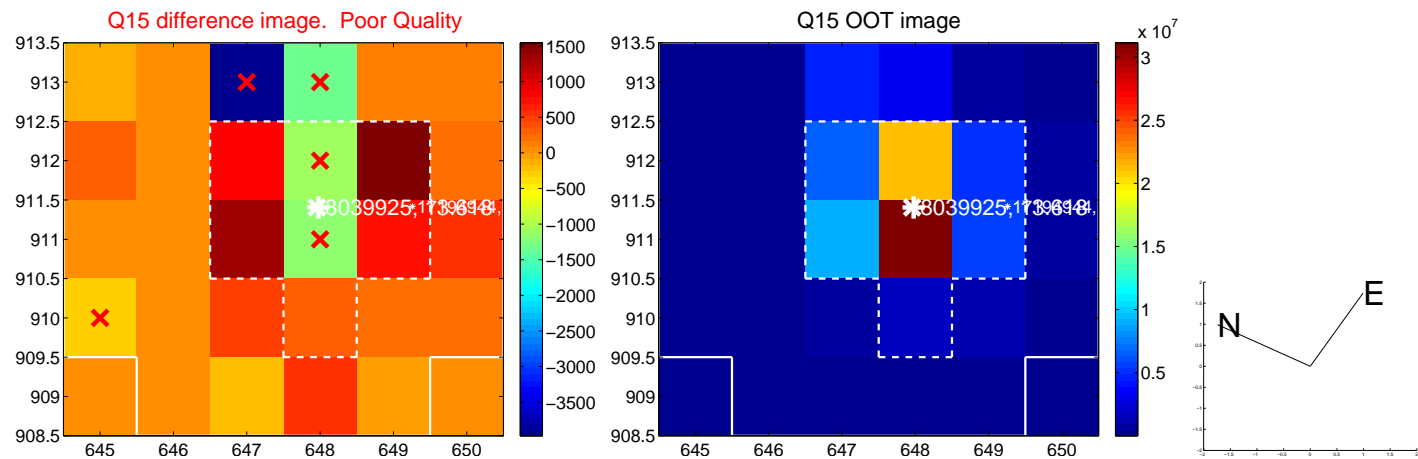
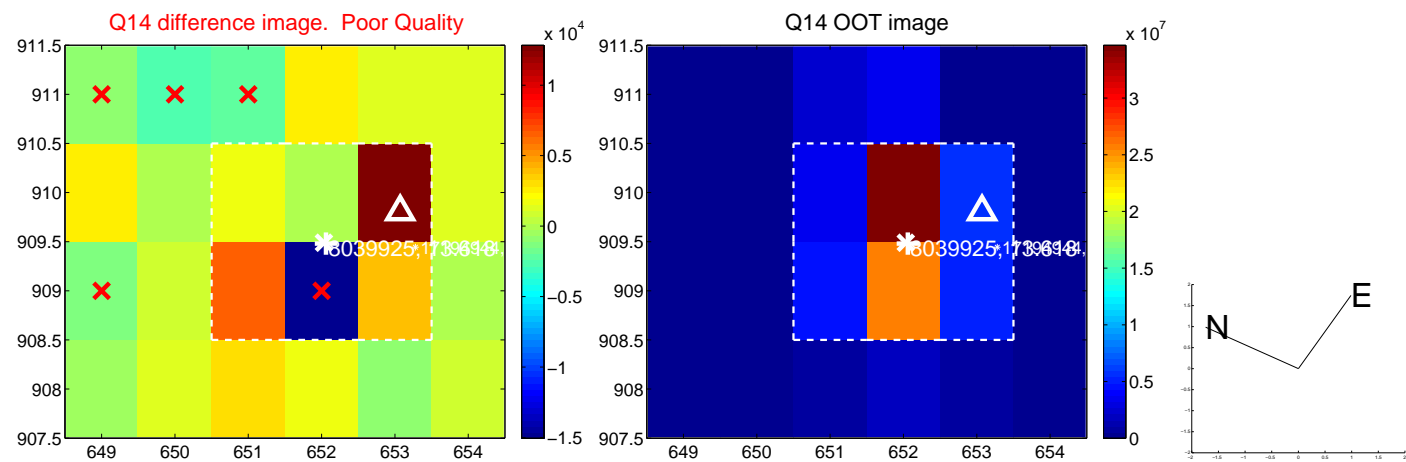
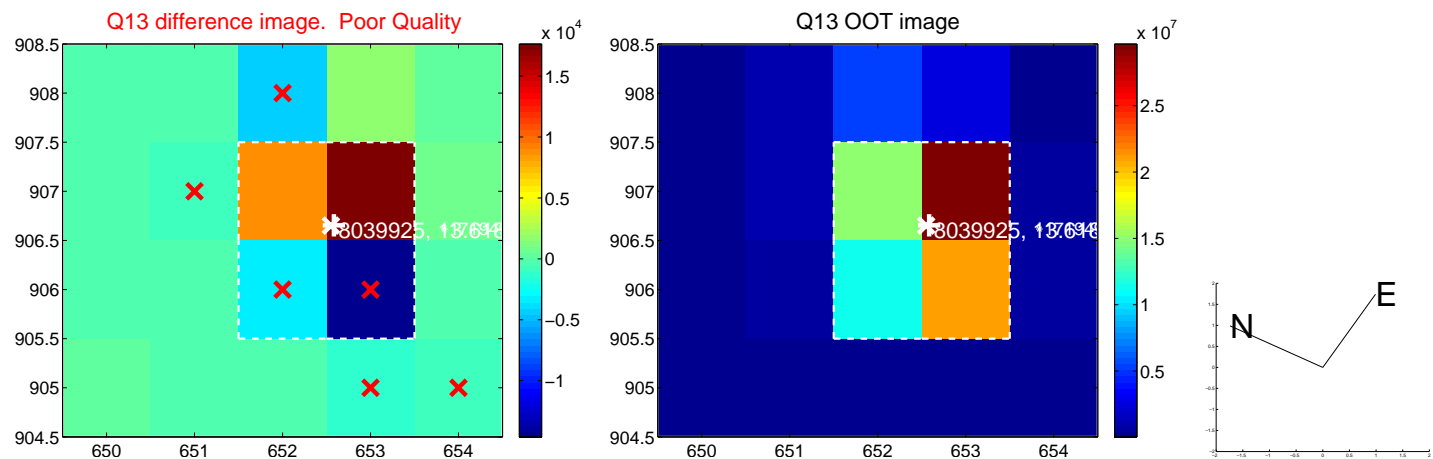




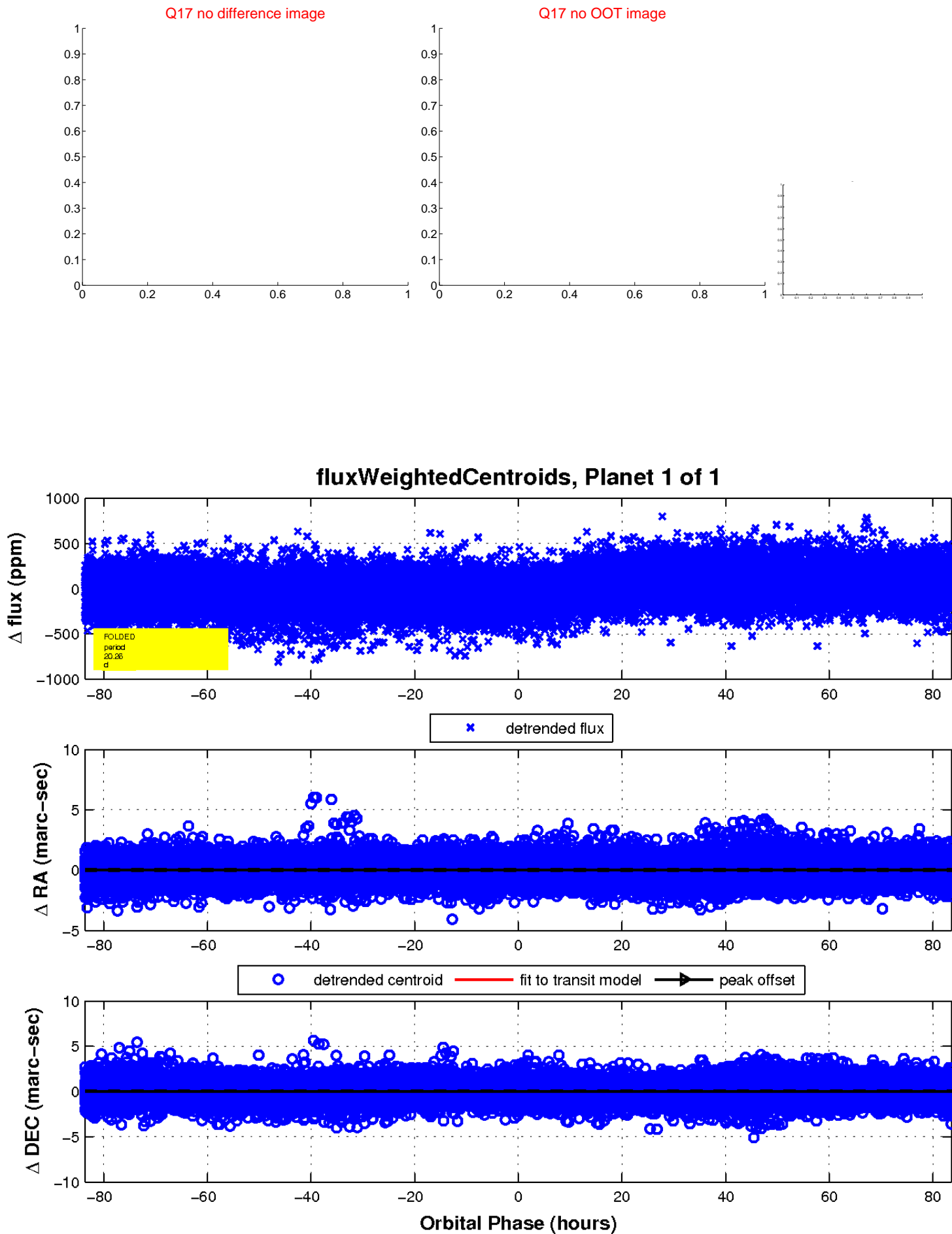
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

