

# KIC 007977956

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007977956-01	OBS	No	0.640098	131.576593	48.9	1.150	9.7	10.6	1.90	7272	1.55	31892.16

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007977956-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT

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

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

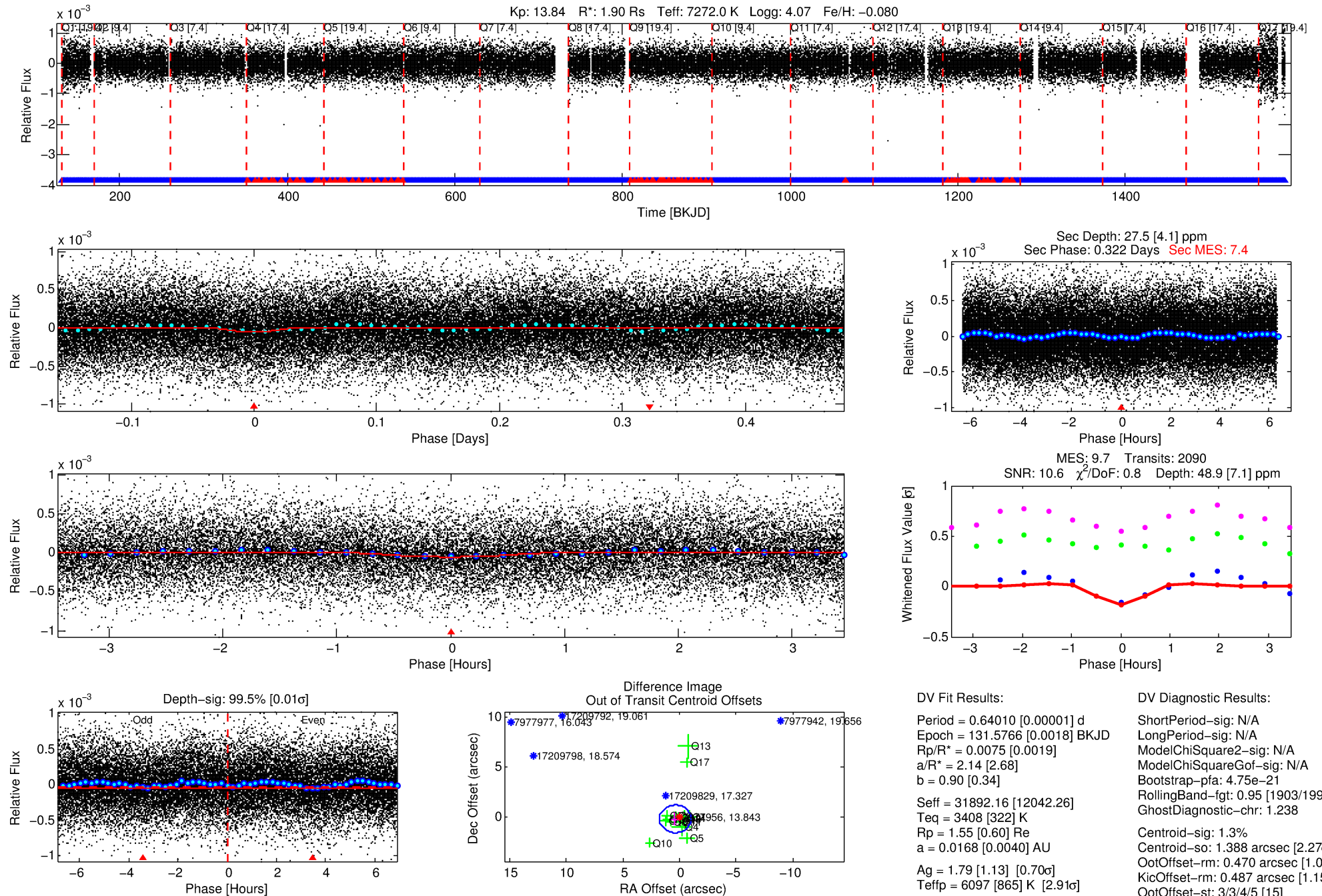
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007977956-01

No Significant Match Found

# DV One-Page Summary

KIC: 7977956 Candidate: 1 of 1 Period: 0.640 d



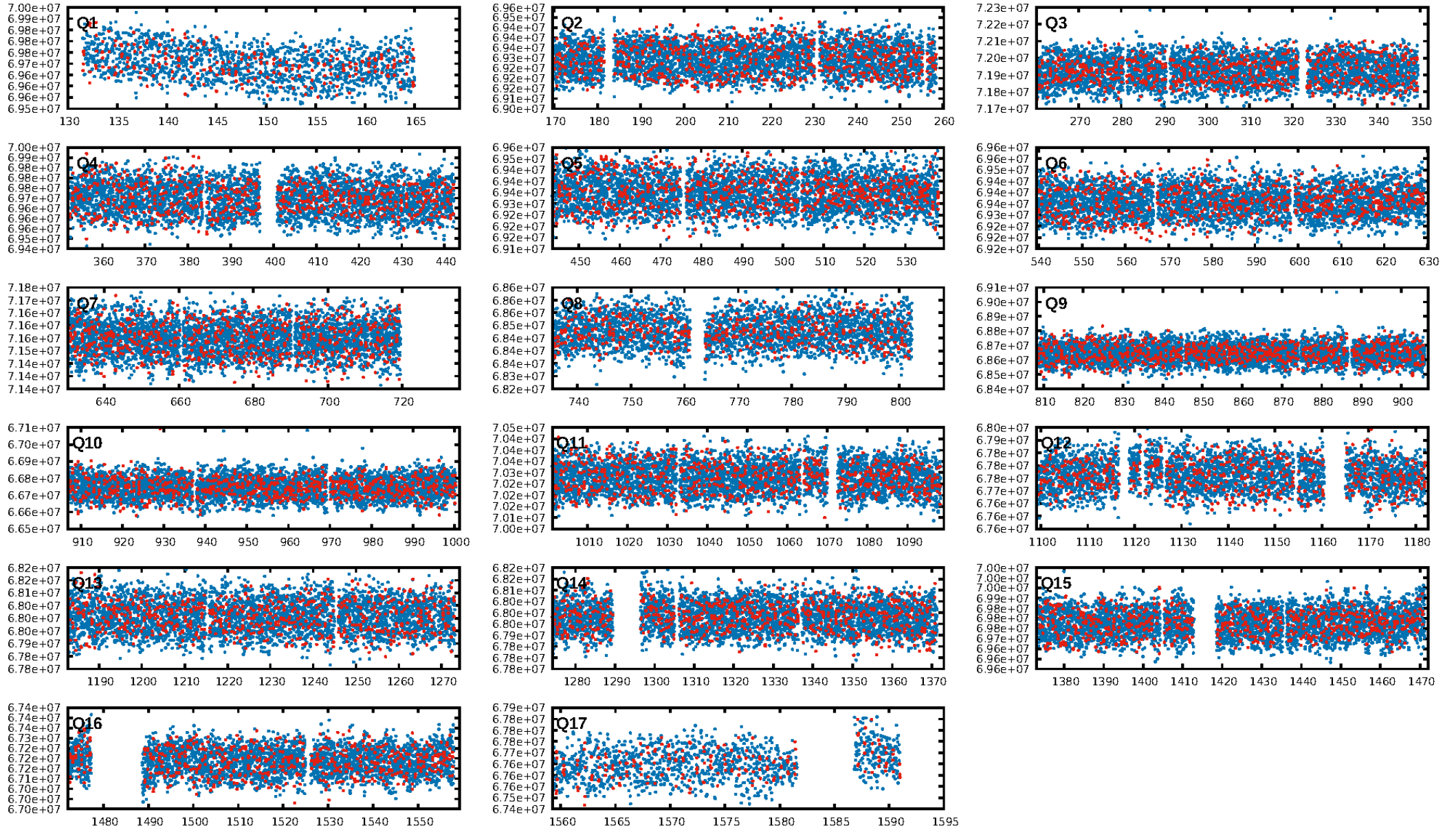
## DV Fit Results:

Period = 0.64010 [0.00001] d  
Epoch = 131.5766 [0.0018] BKJD  
Rp/R\* = 0.0075 [0.0019]  
a/R\* = 2.14 [2.68]  
b = 0.90 [0.34]  
Seff = 31892.16 [12042.26]  
Teff = 3408 [322] K  
Rp = 1.55 [0.60] Re  
a = 0.0168 [0.0040] AU  
Ag = 1.79 [1.13] [0.70 $\sigma$ ]  
Teffp = 6097 [865] K [2.91 $\sigma$ ]

## DV Diagnostic Results:

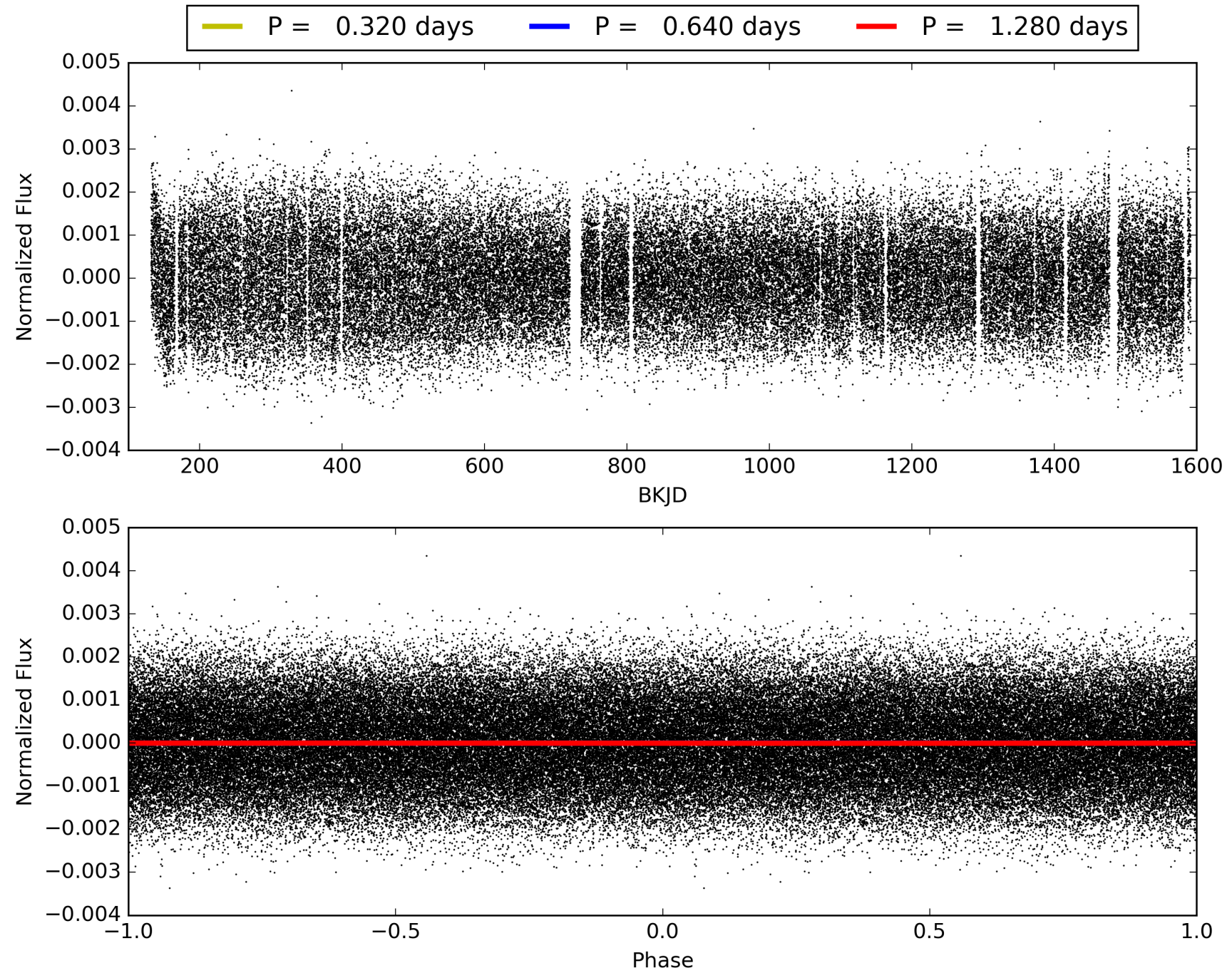
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.75e-21  
RollingBand-fgt: 0.95 [1903/1996]  
GhostDiagnostic-chr: 1.238  
Centroid-sig: 1.3%  
Centroid-so: 1.388 arcsec [2.27 $\sigma$ ]  
OotOffset-rm: 0.470 arcsec [1.01 $\sigma$ ]  
KicOffset-rm: 0.487 arcsec [1.15 $\sigma$ ]  
OotOffset-st: 3/3/4/5 [15]  
KicOffset-st: 3/3/4/5 [15]  
DiffImageQuality-fgm: 0.47 [7/15]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007977956-01, PDC Light Curves



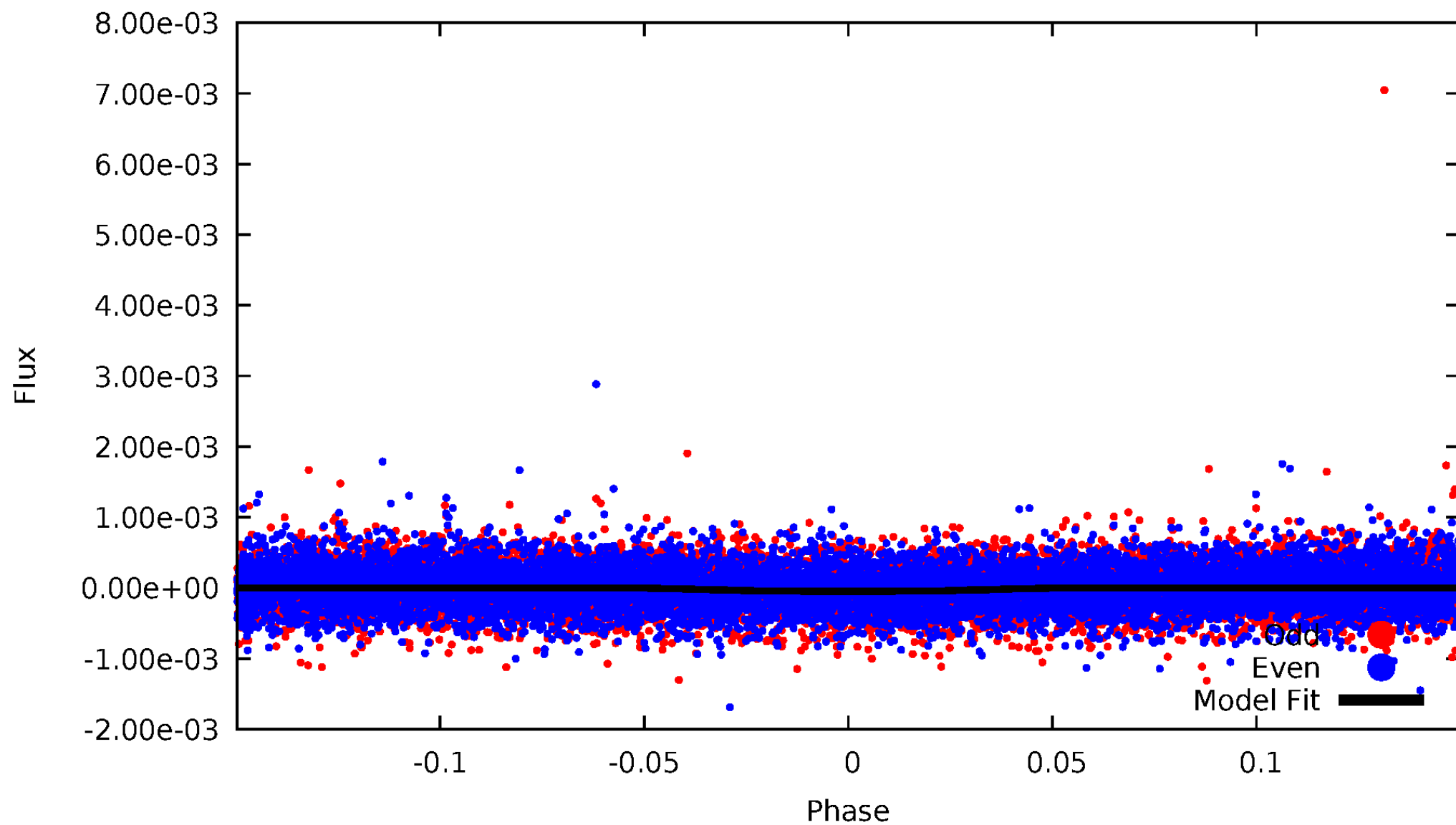


TCE 007977956-01



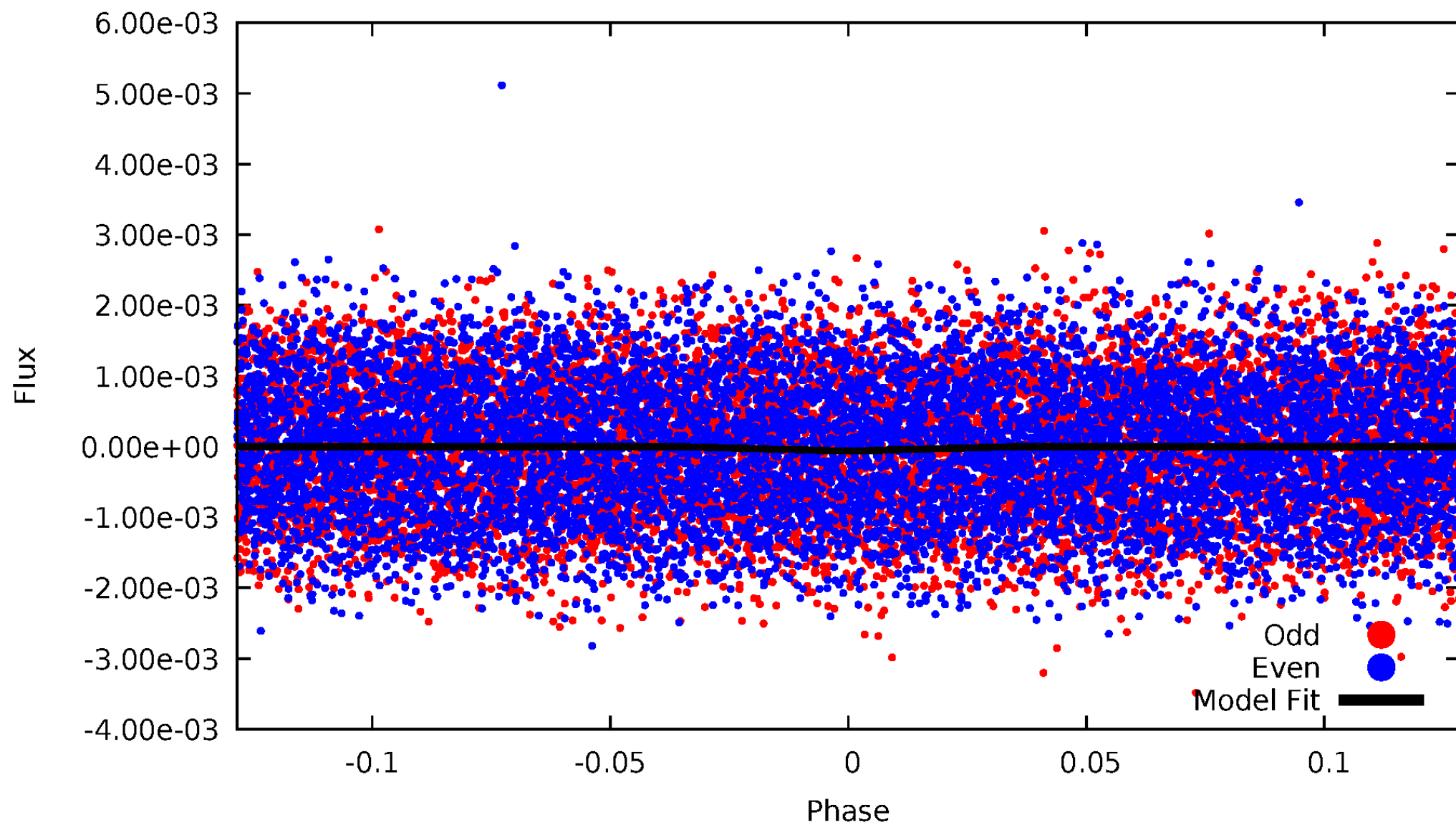
# DV Odd/Even

TCE 007977956-01

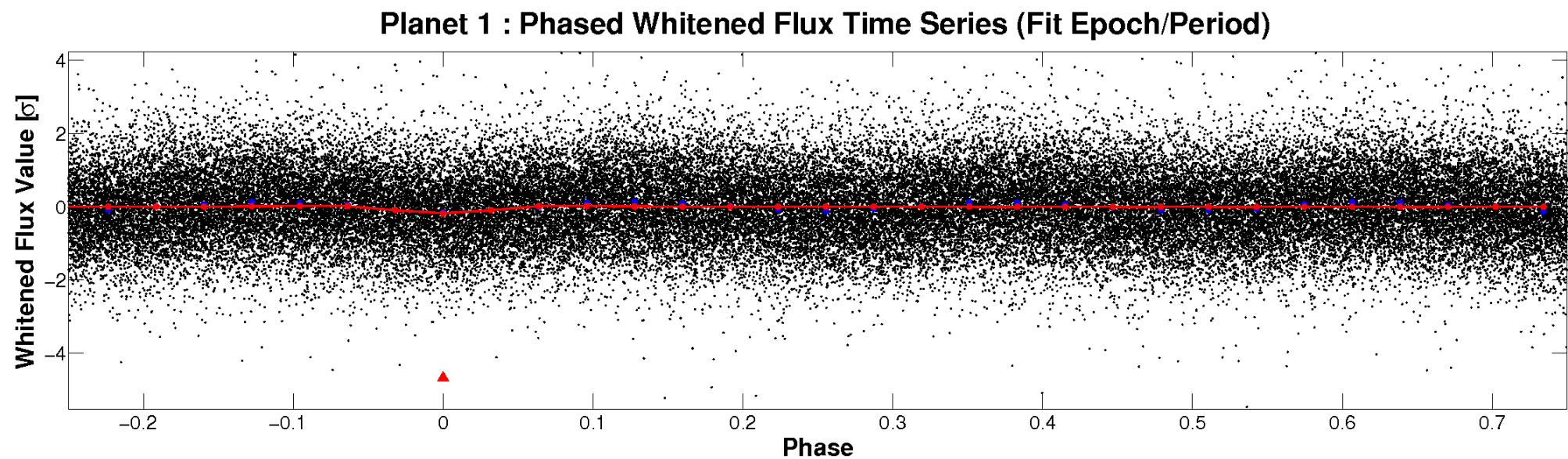
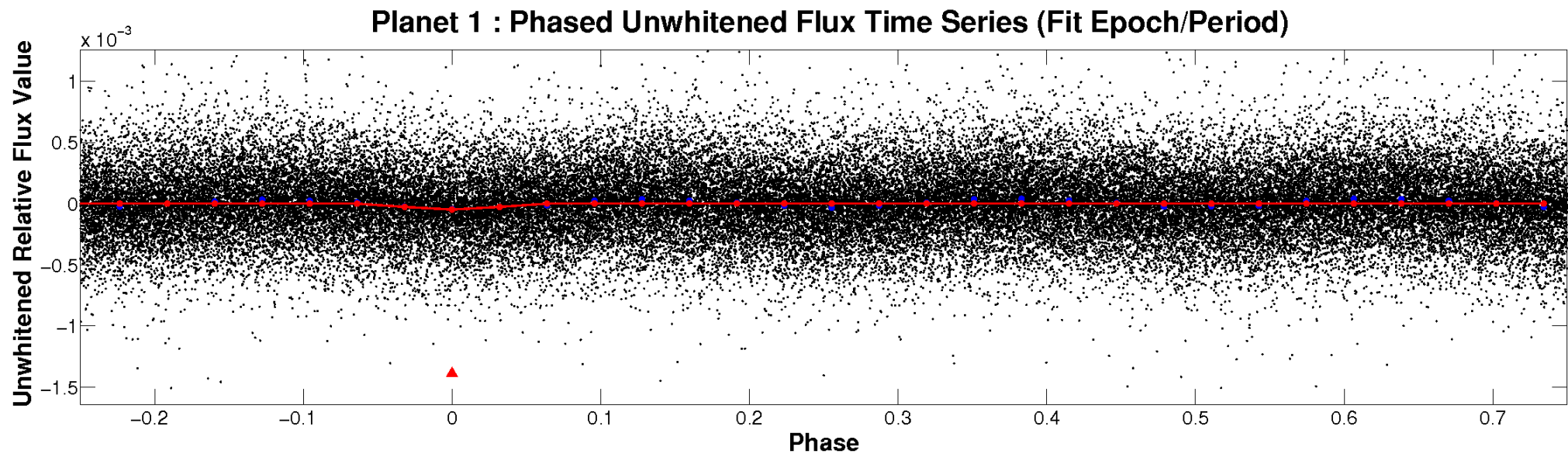


# ALT Odd/Even

TCE 007977956-01



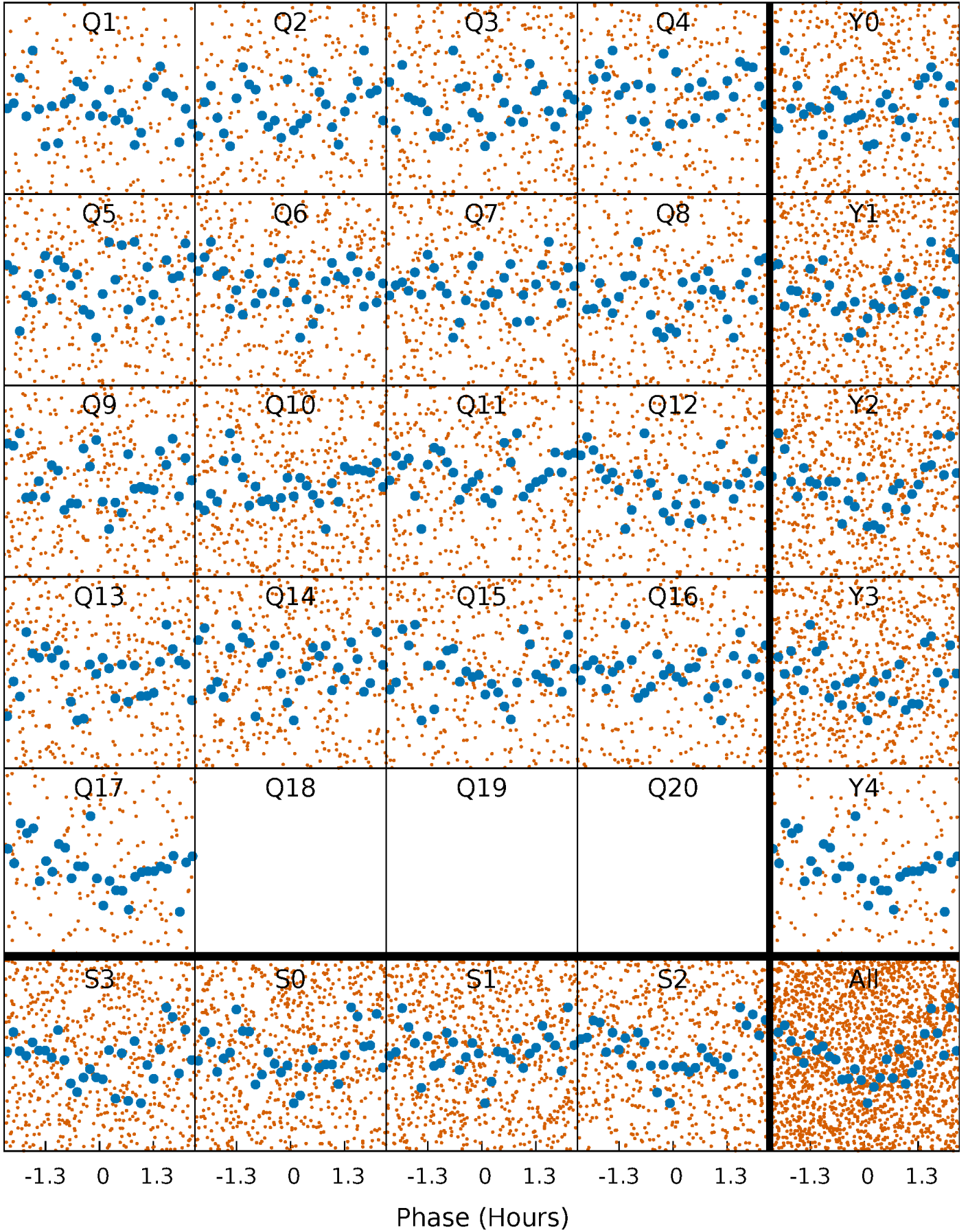
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

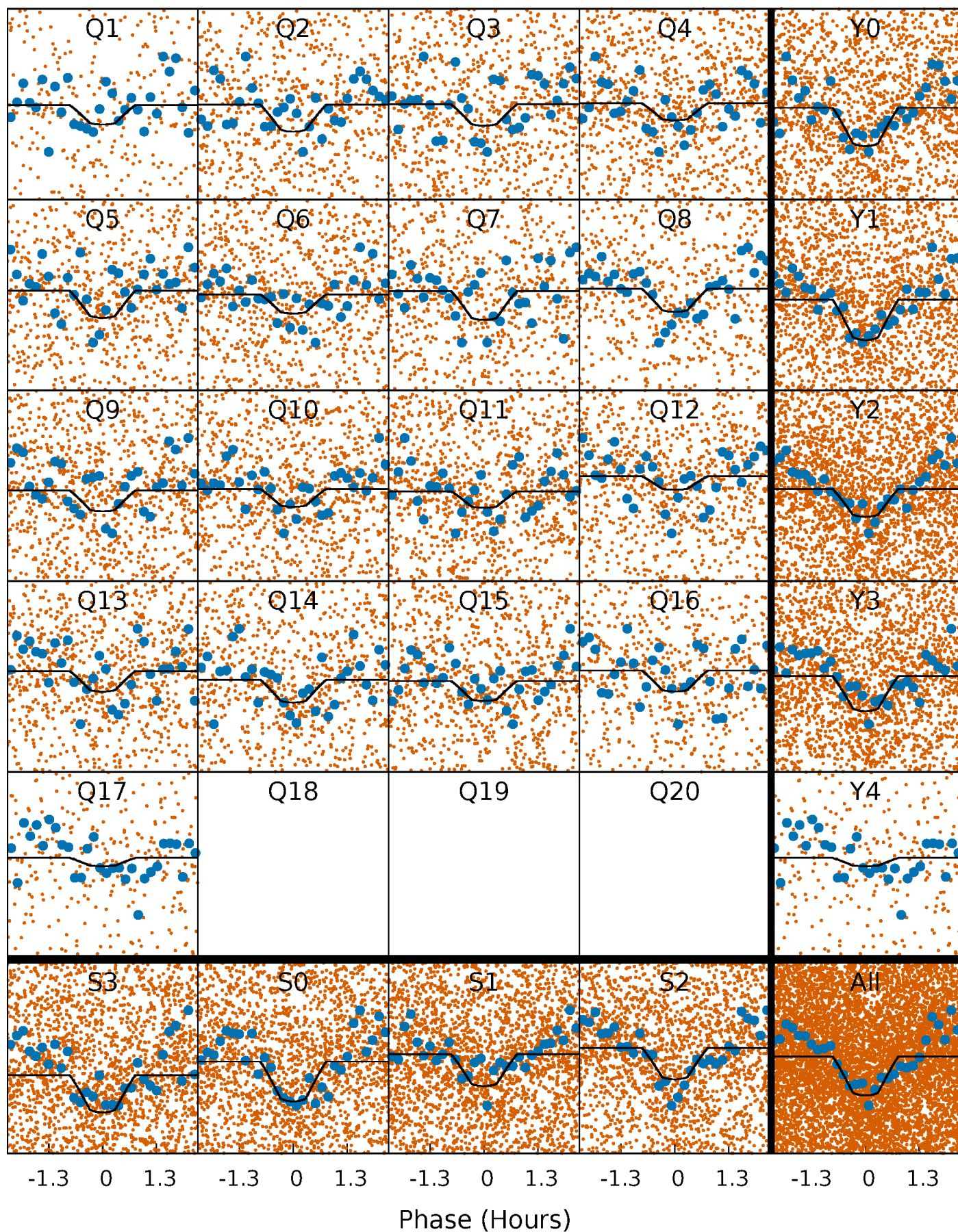
TCE 007977956-01   P= 0.640098 Days    $T_0=131.576593$  (BKJD)





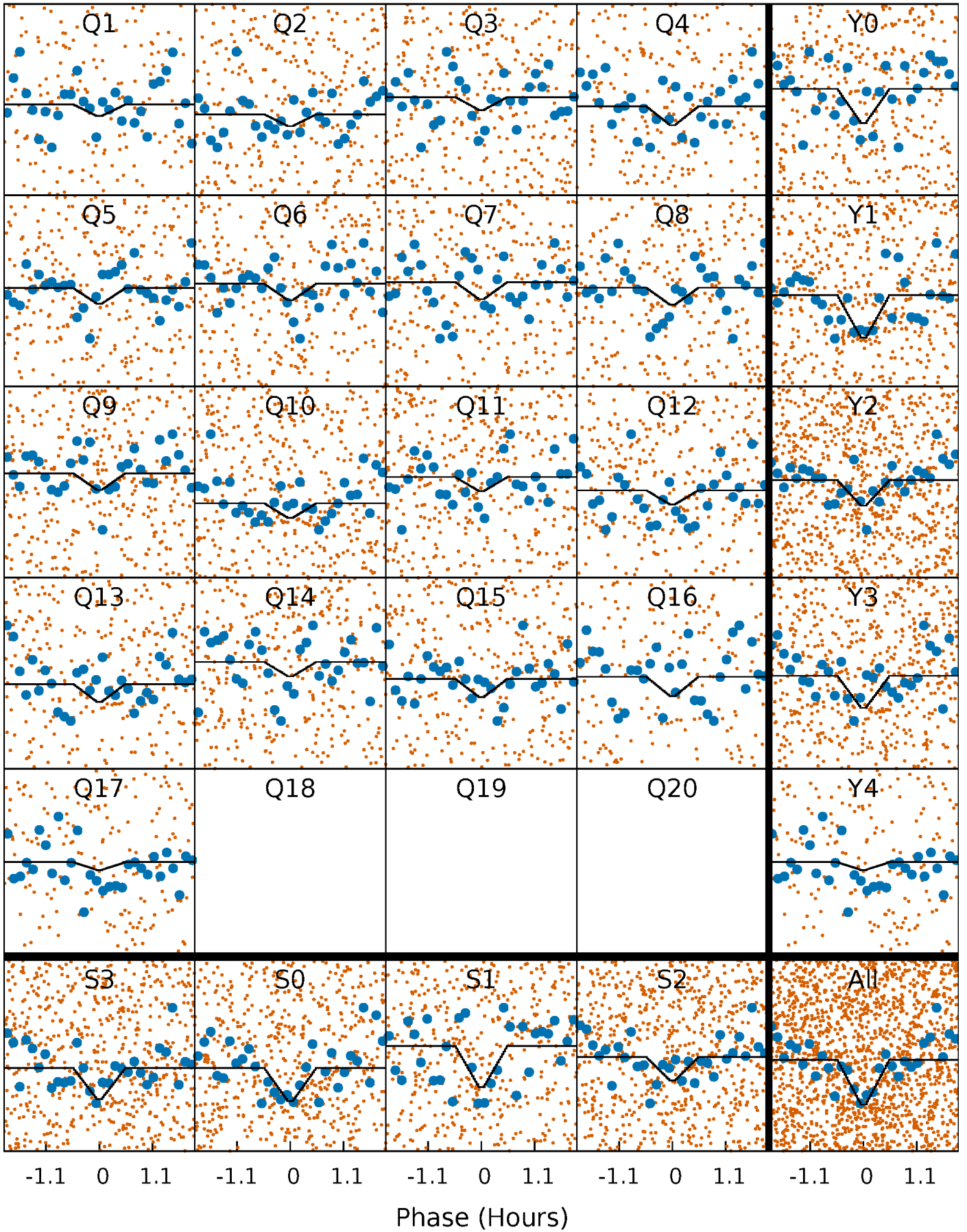
# DV Quarter-Phased Transit Curves

TCE 007977956-01 P= 0.640098 Days  $T_0=131.576593$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

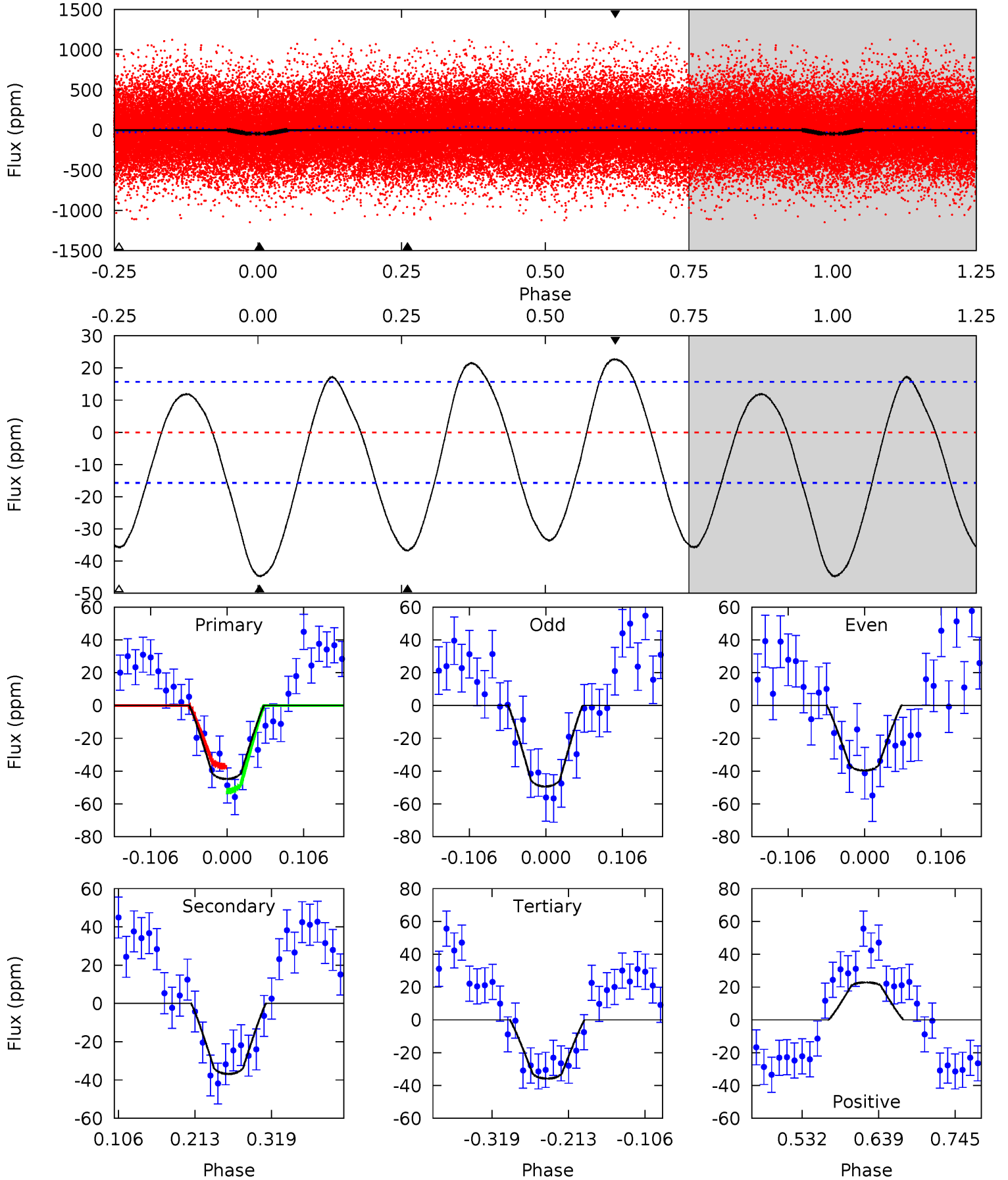
TCE 007977956-01 P= 0.640103 Days  $T_0=131.577219$  (BKJD)



# DV Model-Shift Uniqueness Test

007977956-01, P = 0.640098 Days, E = 130.936495 Days

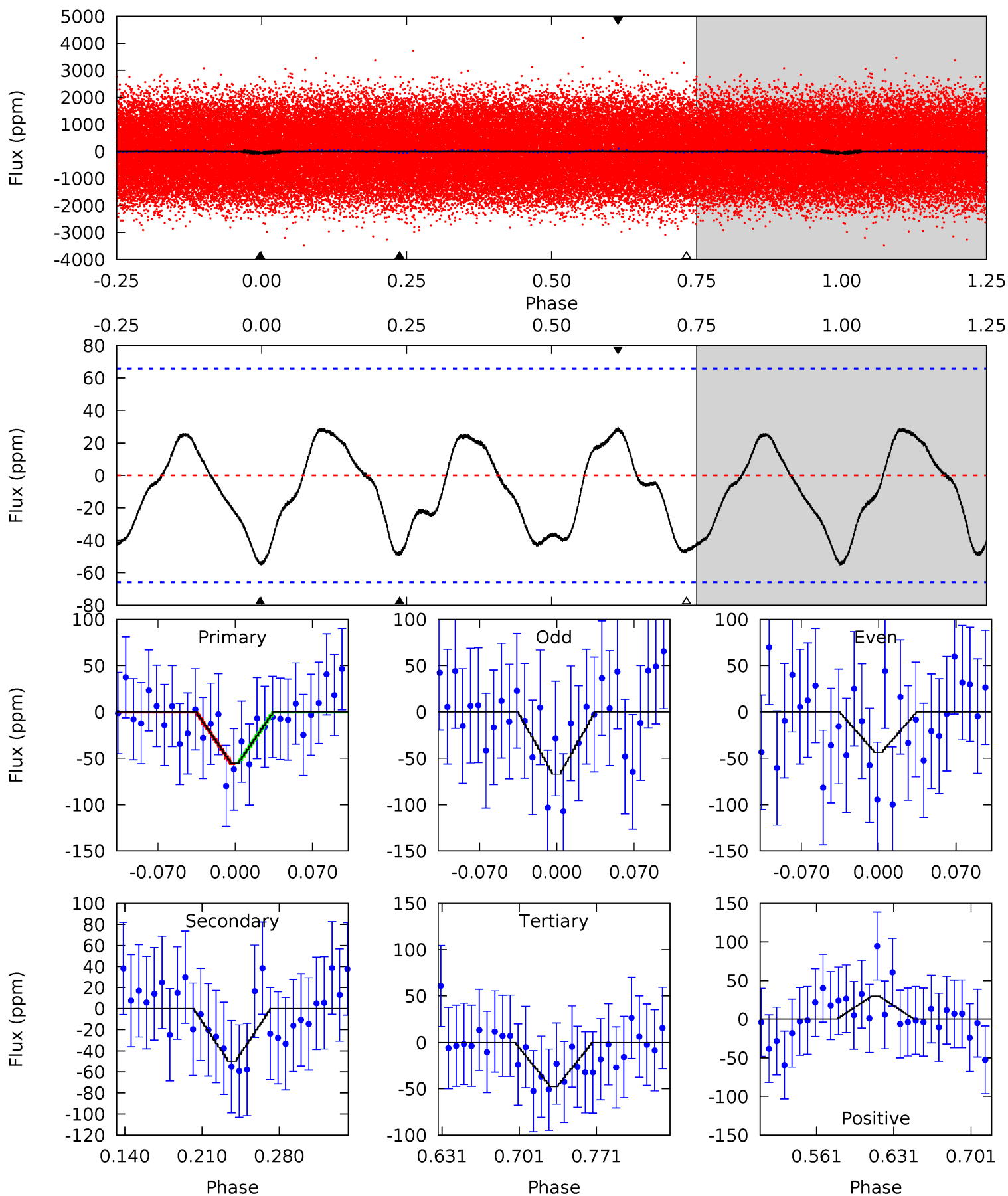
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	10.7	10.4	6.61	4.55	1.61	5.61	2.61	6.36	0.30	4.05	1.41	0.99	0.34	2.18



# Alt Model-Shift Uniqueness Test

007977956-01, P = 0.640103 Days, E = 130.937116 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
3.91	3.51	3.36	2.11	4.64	1.81	1.67	0.54	1.80	0.15	1.40	0.83	0.83	0.35	0.02





### Stellar Parameters For KIC 007977956

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7272^{+201}_{-327}$	$4.072^{+0.175}_{-0.175}$	$-0.080^{+0.250}_{-0.350}$	$1.900^{+0.556}_{-0.455}$	$1.555^{+0.225}_{-0.275}$	$0.319^{+0.306}_{-0.155}$
	+3%/-4%	+4%/-4%	+312%/-438%	+29%/-24%	+14%/-18%	+96%/-49%
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 007977956-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-37 \pm 3$	$1.53^{+0.48}_{-0.44}$	$4736^{+374}_{-363}$	$6231^{+1340}_{-797}$	$2.410^{+2.396}_{-1.016}$
Alt.	$-50 \pm 14$	$1.59^{+0.45}_{-0.43}$	$4736^{+352}_{-336}$	$6585^{+1485}_{-919}$	$2.965^{+2.722}_{-1.358}$

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

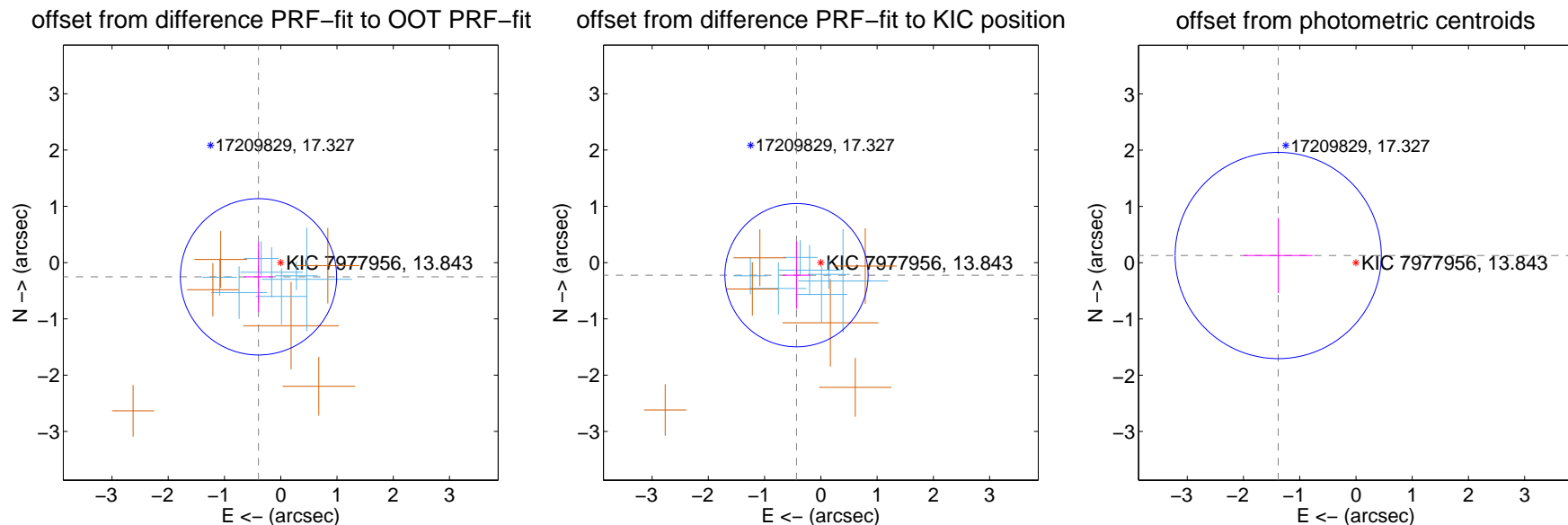
## DV Centroid Data

Supplemental centroid analysis for 007977956-01. Kepler magnitude: 13.84. Transit SNR 10.60

There are 7 quarters with good PRF difference image offsets

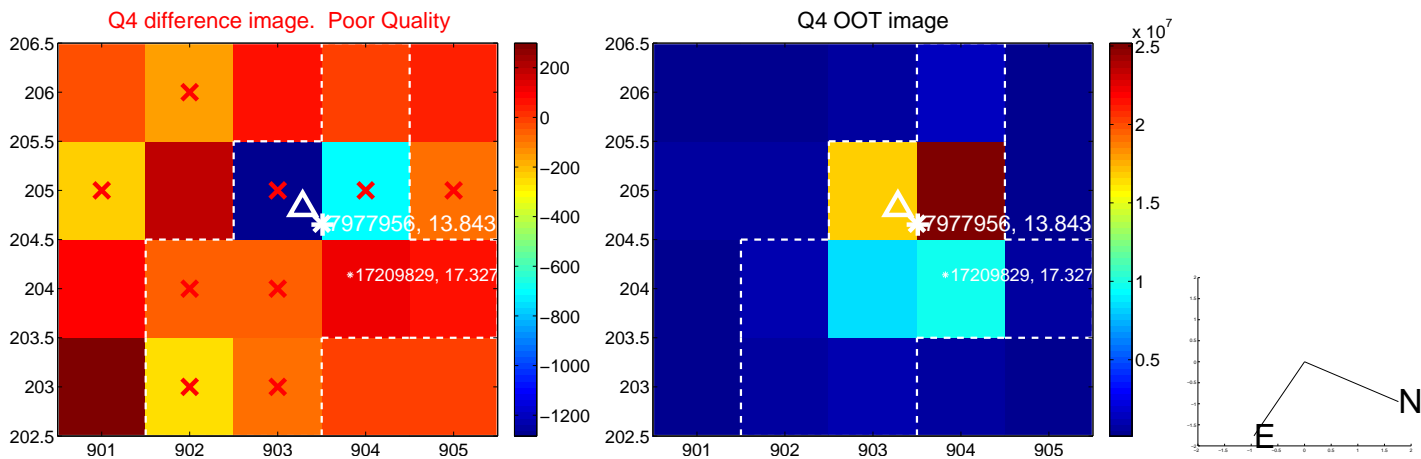
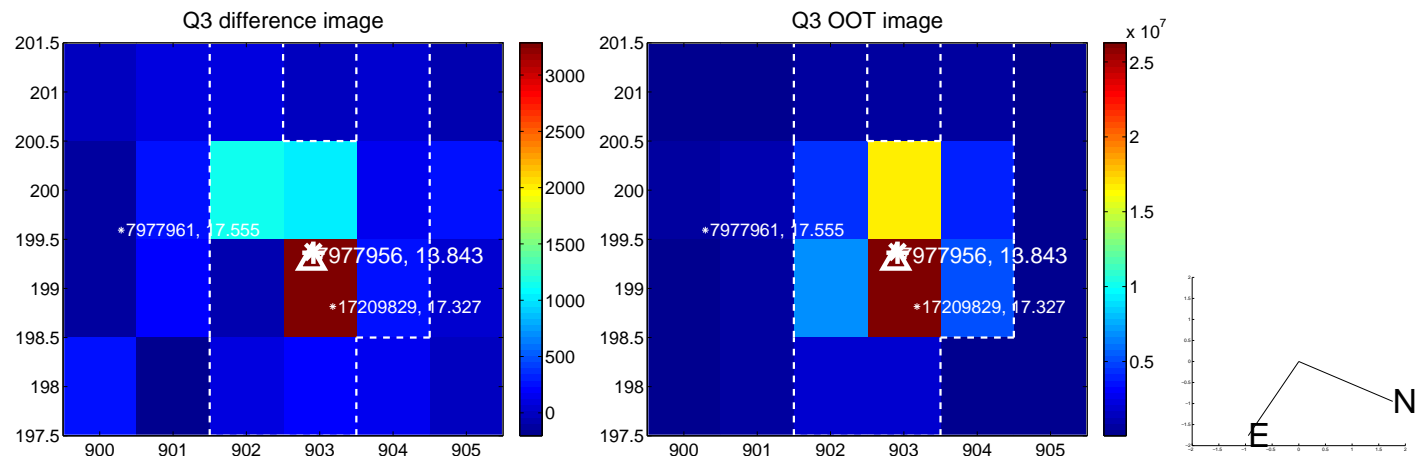
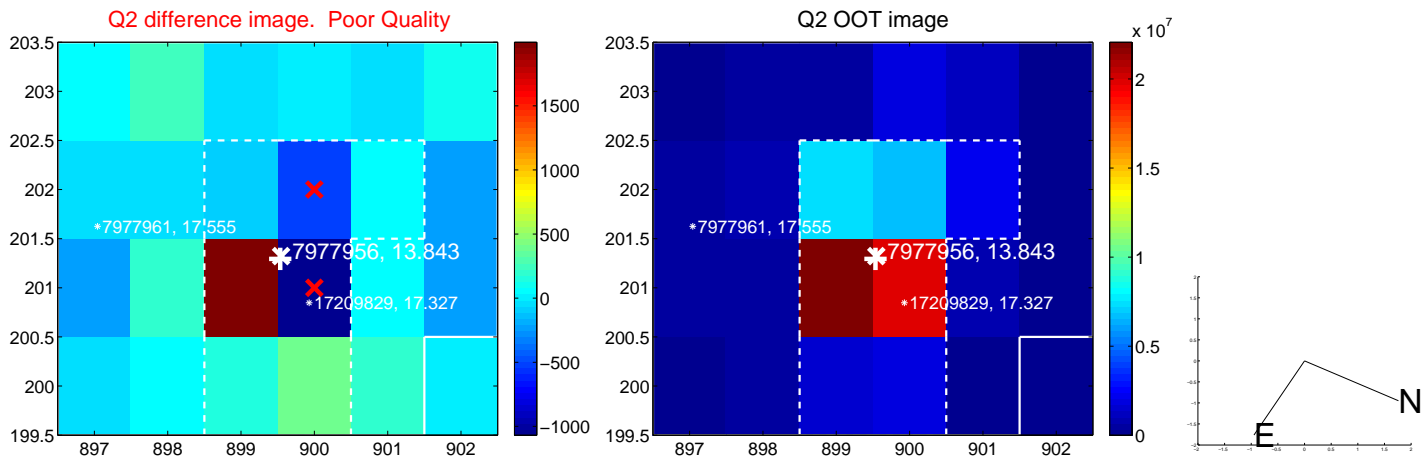
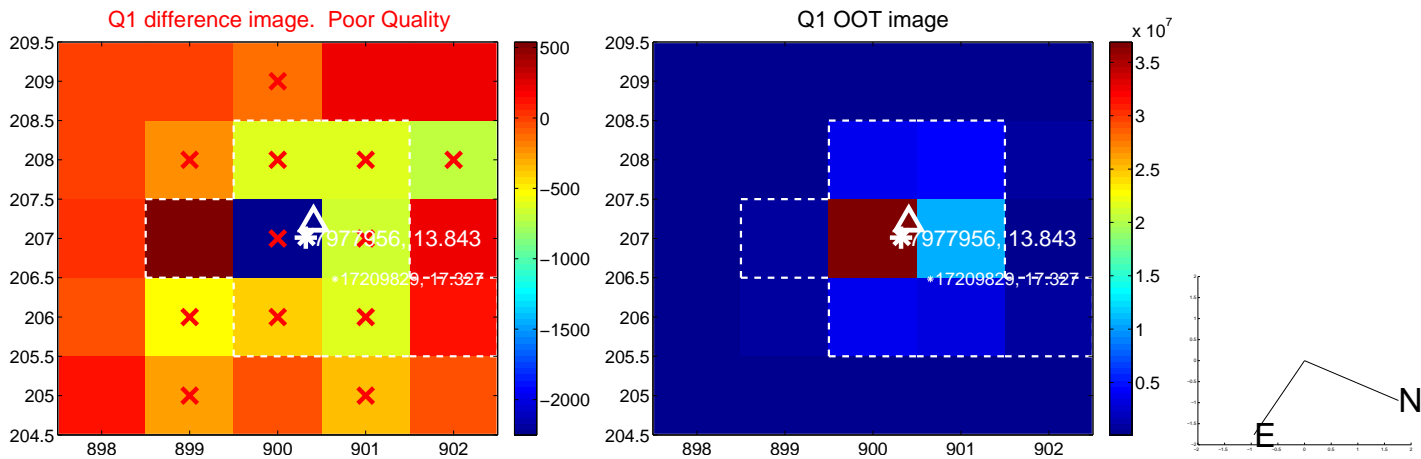
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.470 \pm 0.463$	1.01	$0.395 \pm 0.259$	$-0.253 \pm 0.618$
PRF-fit source offset from KIC position	$0.487 \pm 0.424$	1.15	$0.433 \pm 0.245$	$-0.224 \pm 0.599$
photometric centroid source offset	$1.39 \pm 0.61$	2.27	$1.38 \pm 0.61$	$0.13 \pm 0.67$

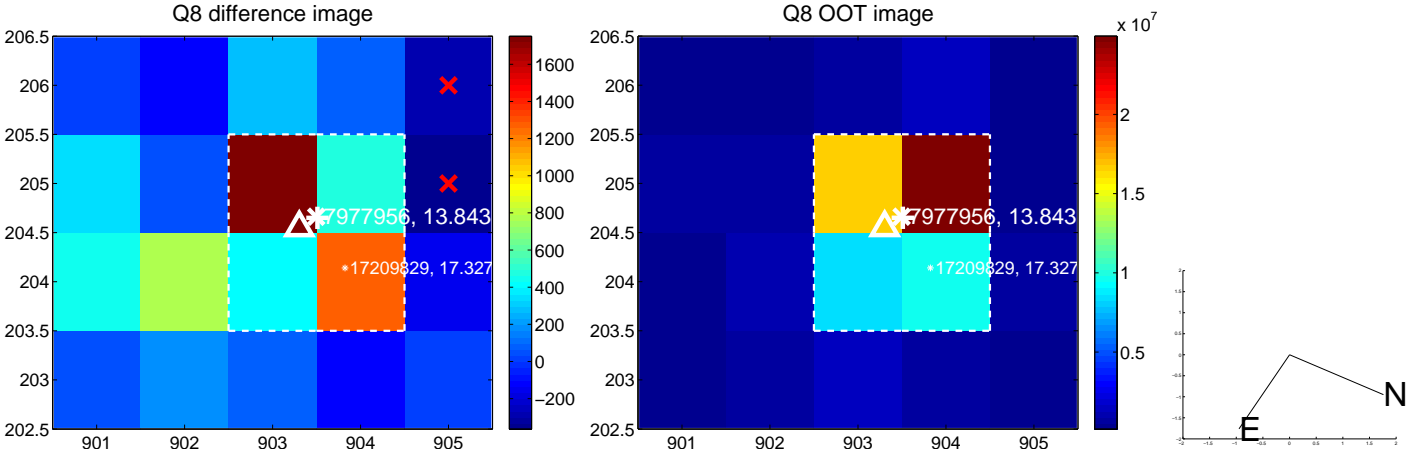
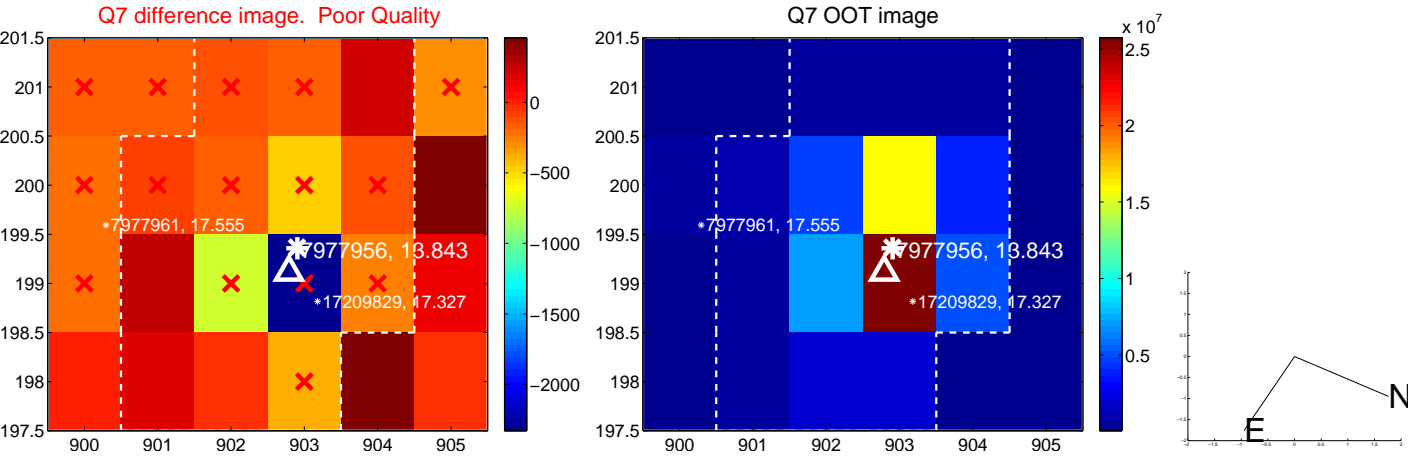
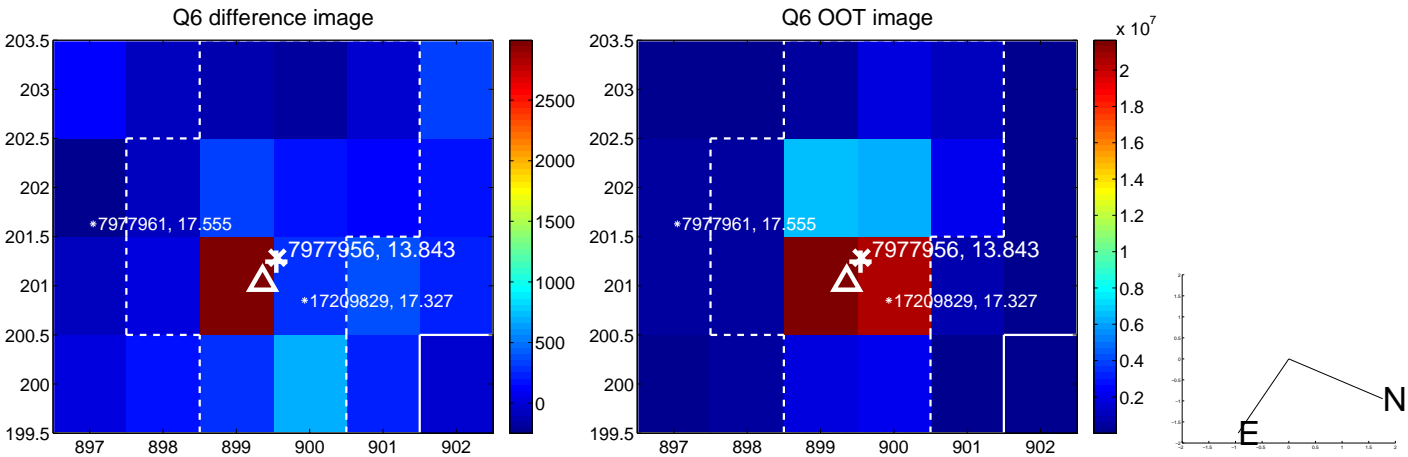
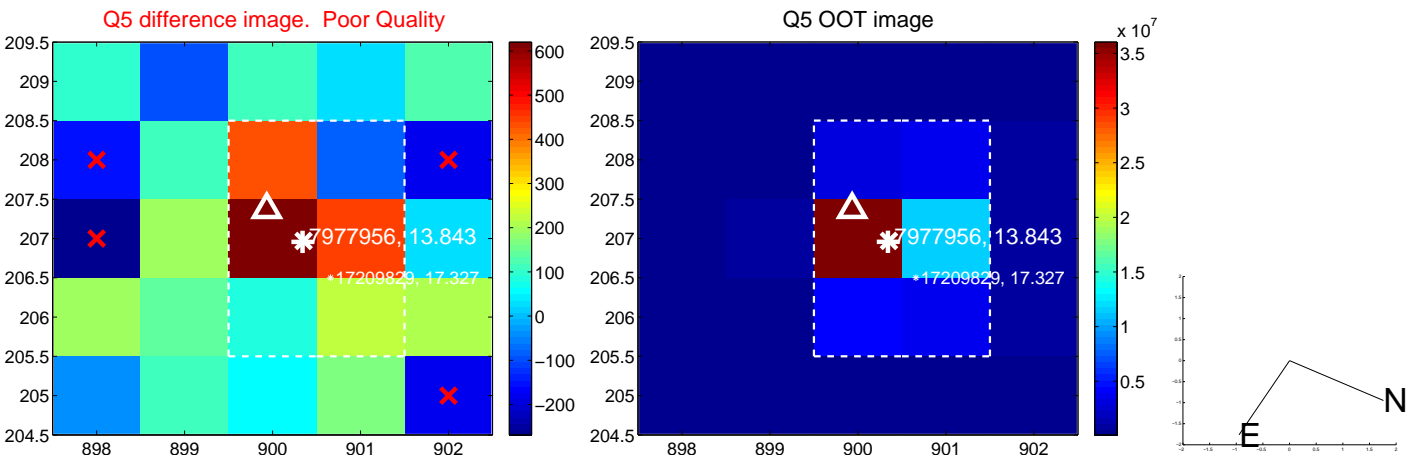


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

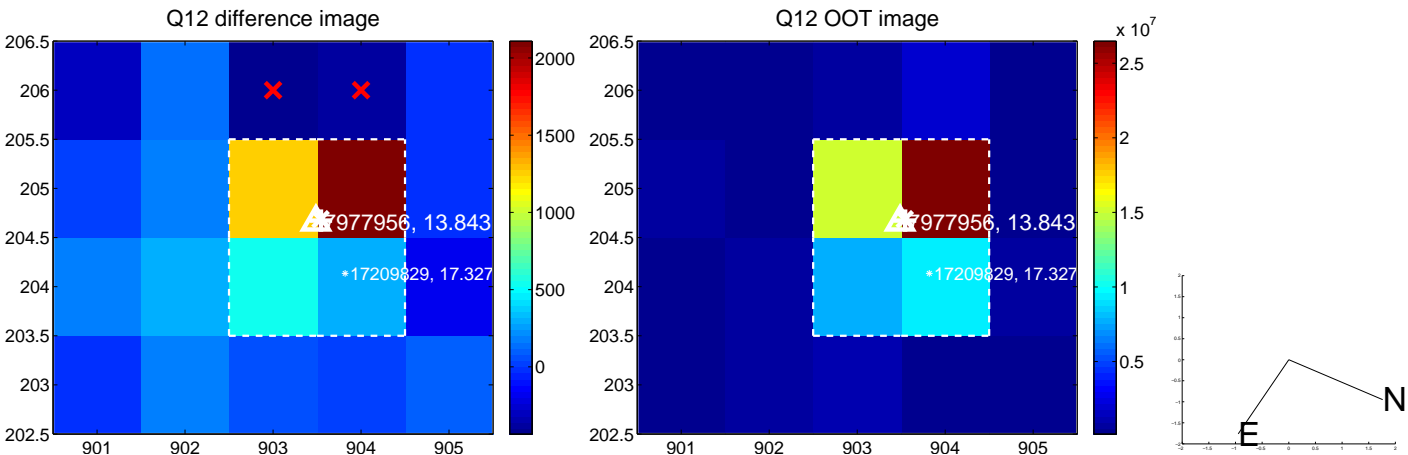
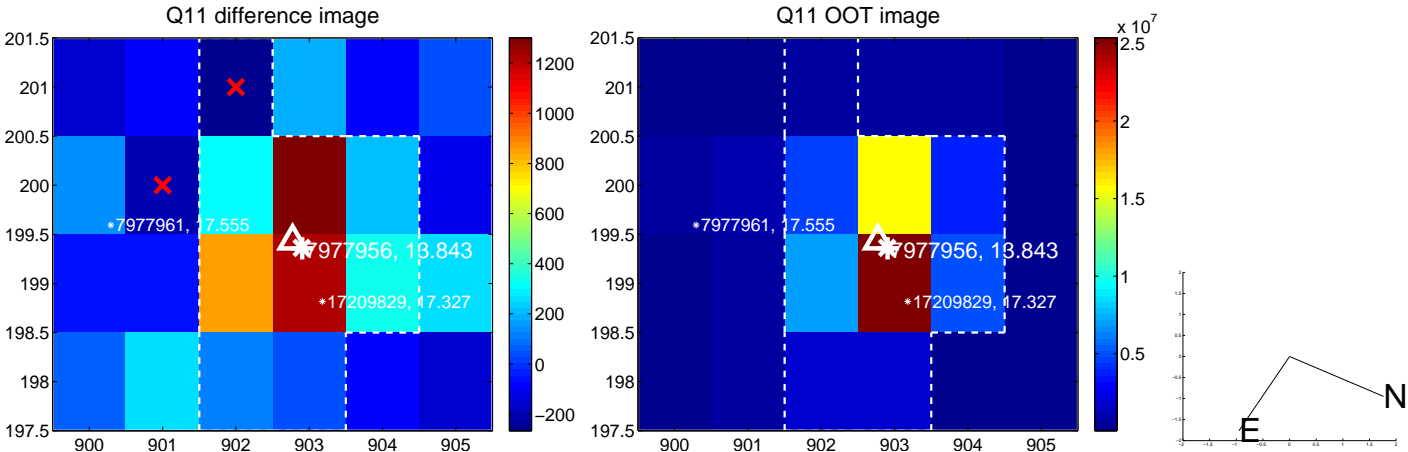
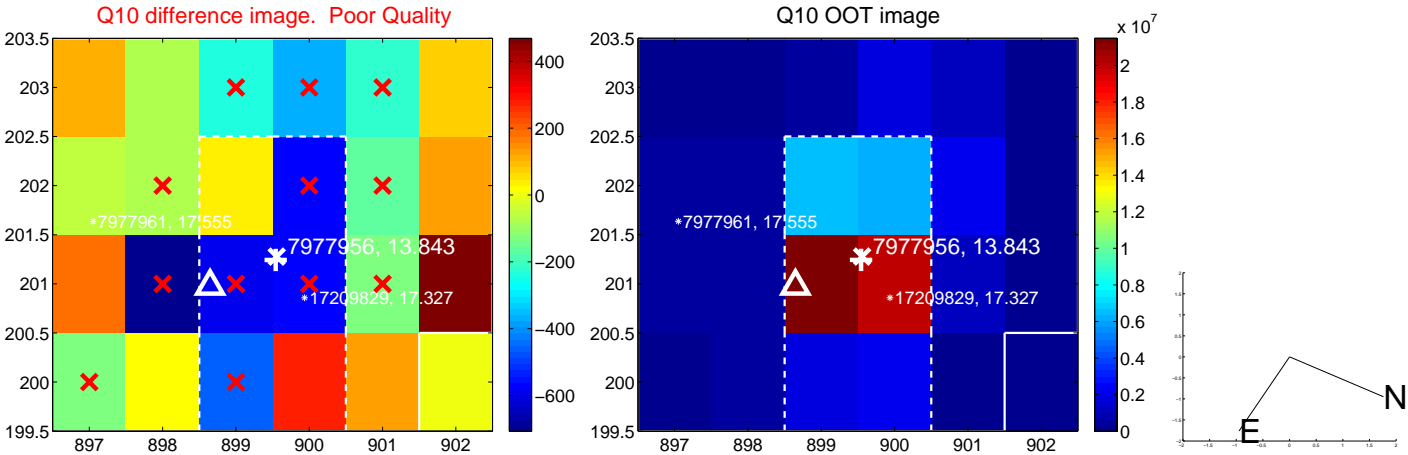
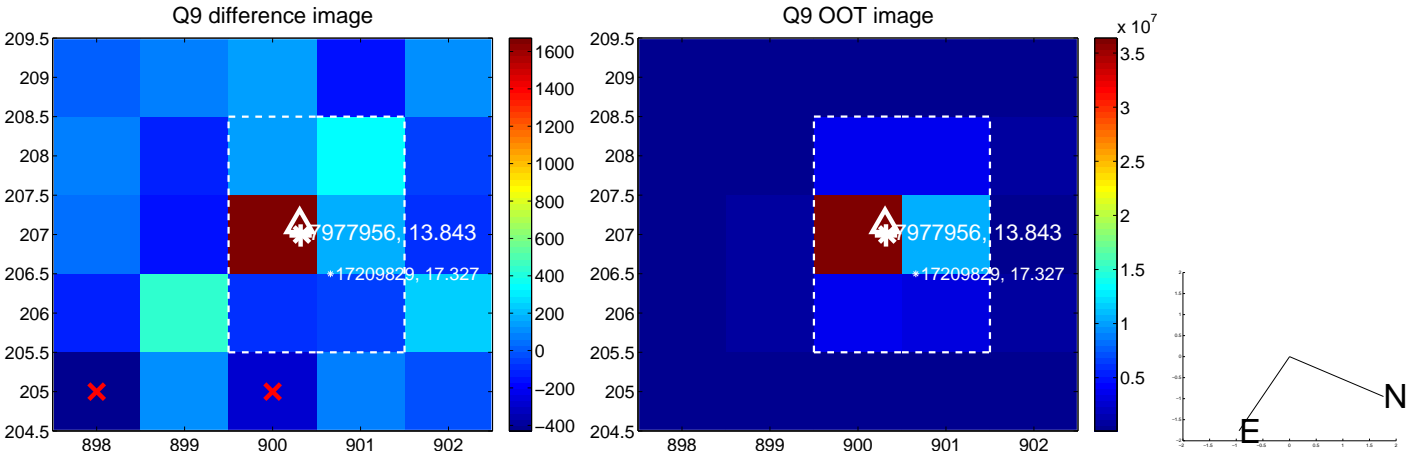


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

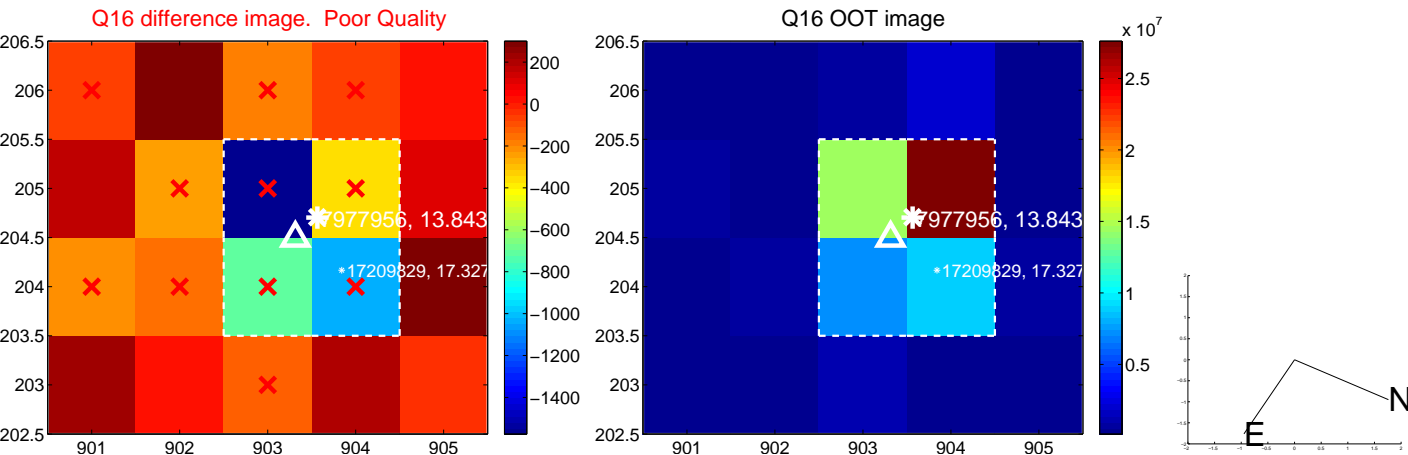
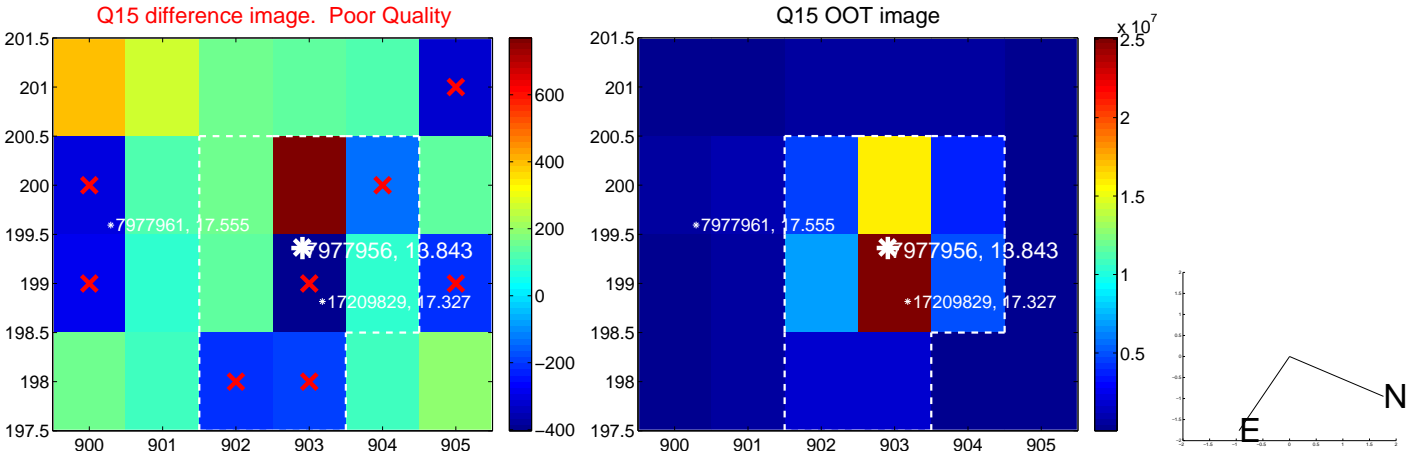
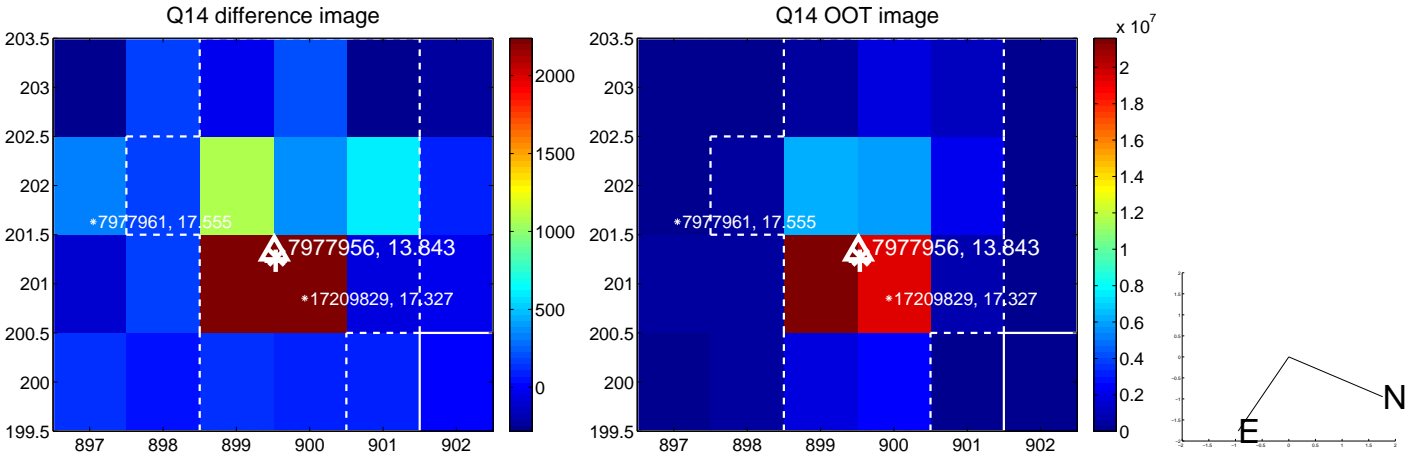
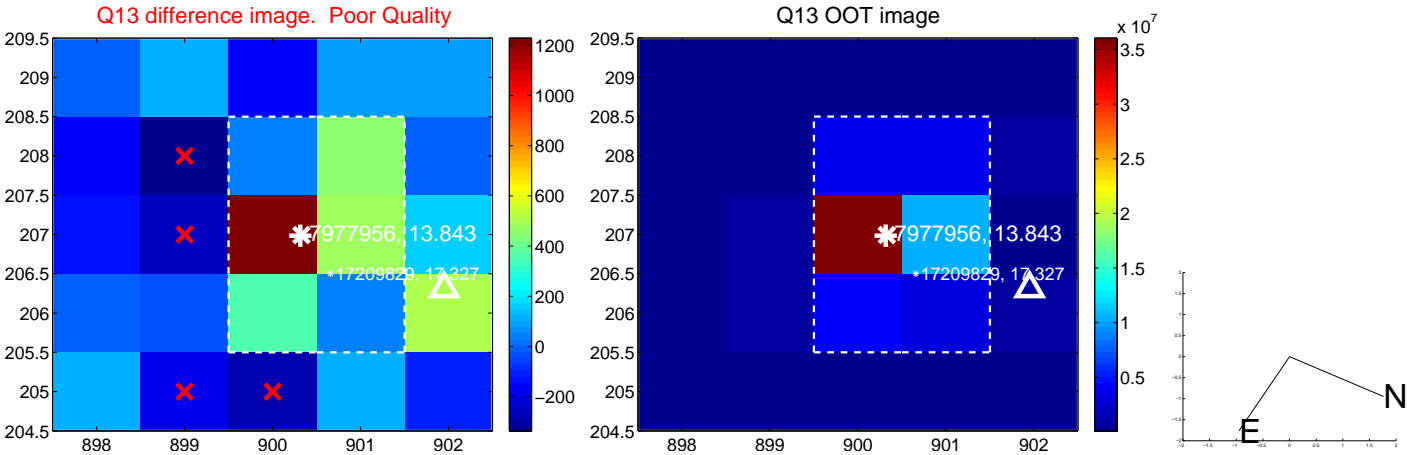




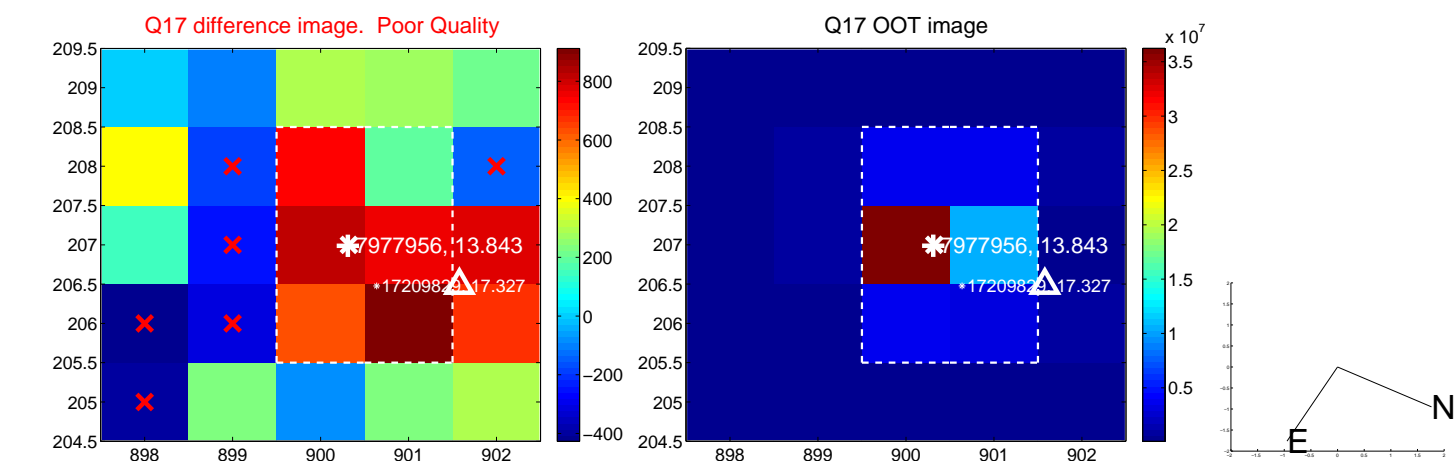
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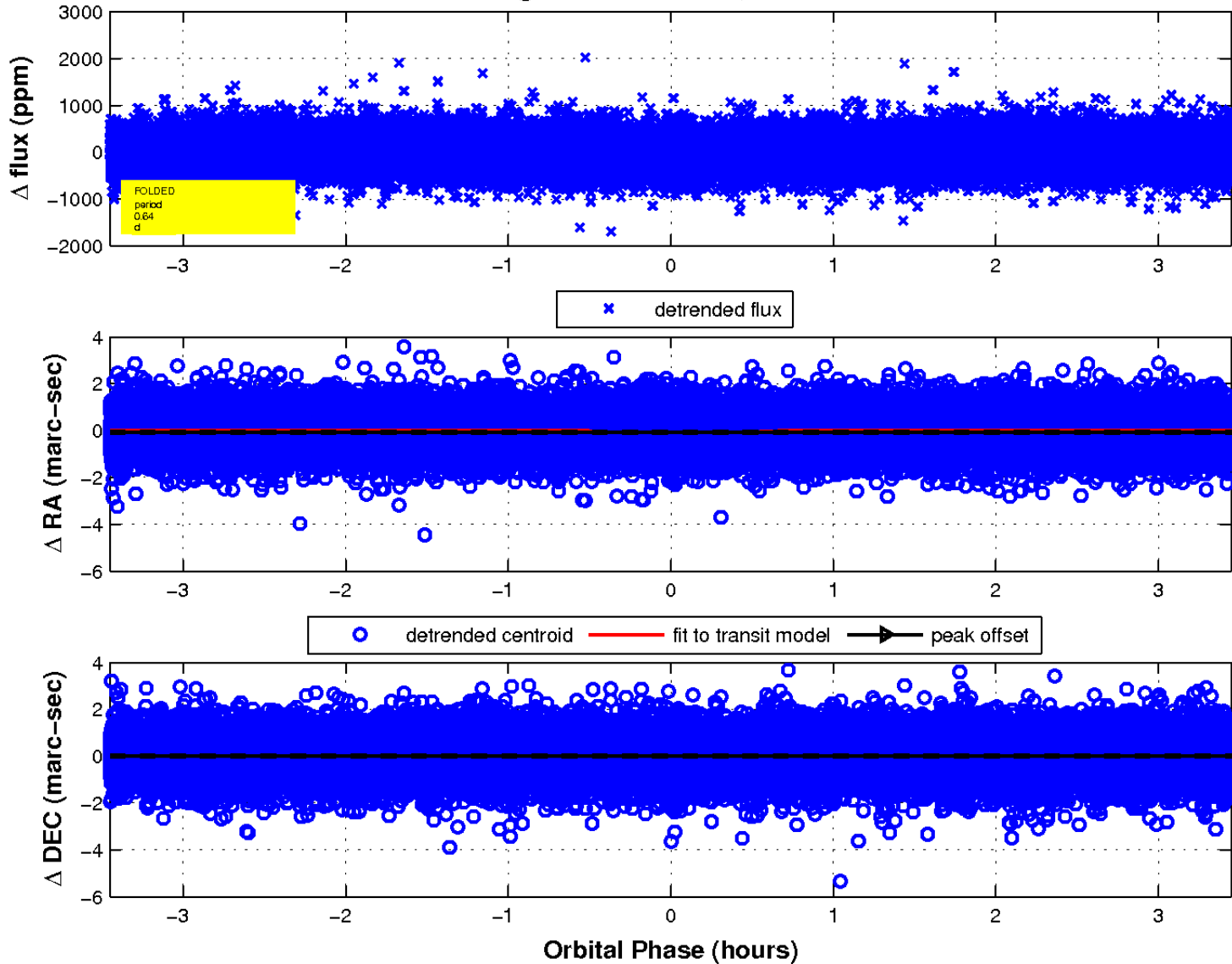
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

