

# KIC 004451755

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004451755-01	OBS	No	3.623000	134.512309	42.4	17.861	11.4	8.8	1.12	6419	0.79	813.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004451755-01	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.

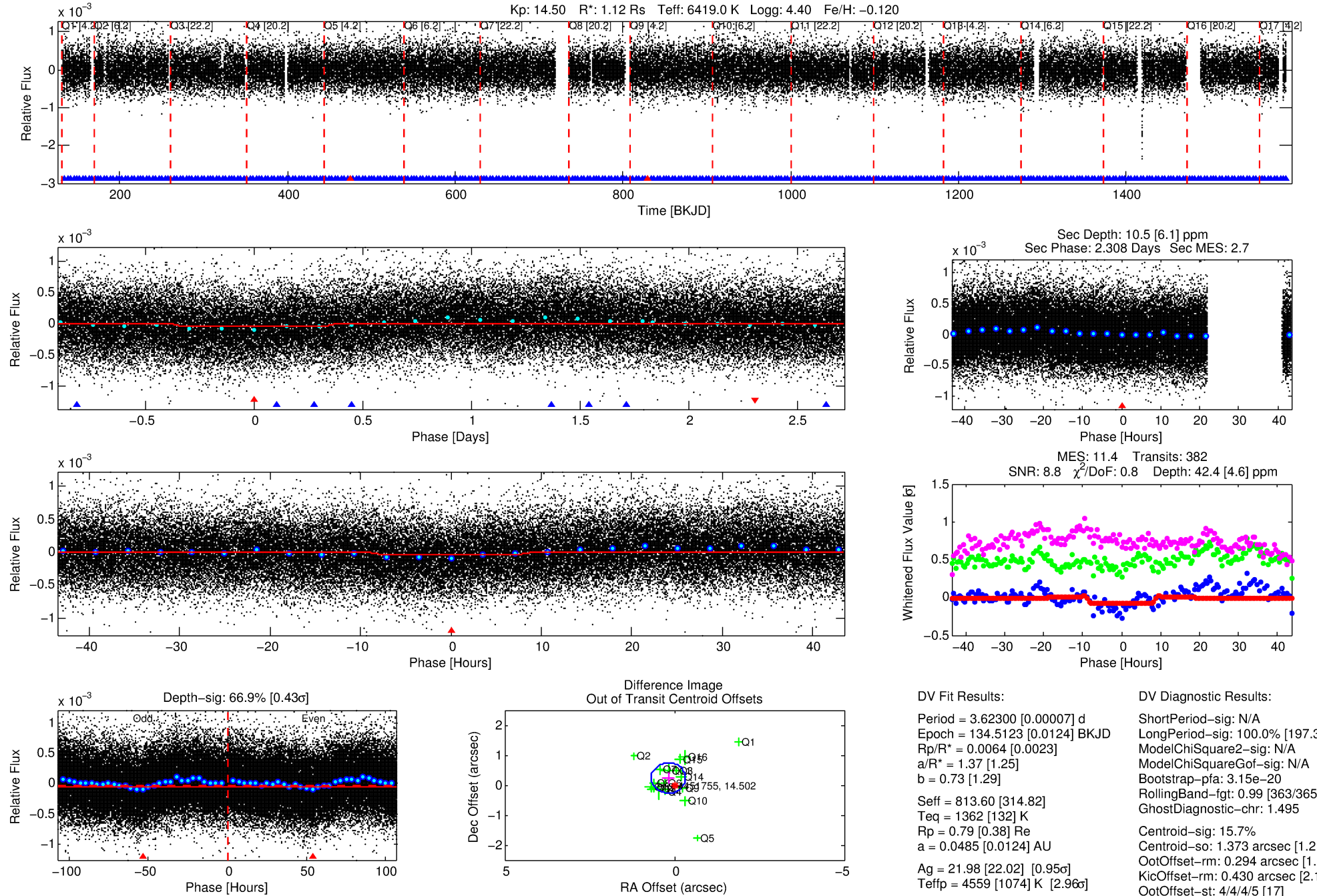
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004451755-01

No Significant Match Found

# DV One-Page Summary

KIC: 4451755 Candidate: 1 of 2 Period: 3.623 d



## DV Fit Results:

Period = 3.62300 [0.00007] d  
Epoch = 134.5123 [0.0124] BKJD  
Rp/R\* = 0.0064 [0.0023]  
a/R\* = 1.37 [1.25]  
b = 0.73 [1.29]  
Seff = 813.60 [314.82]  
Teff = 1362 [132] K  
Rp = 0.79 [0.38] Re  
a = 0.0485 [0.0124] AU  
Ag = 21.98 [22.02] [0.95 $\sigma$ ]  
Teffp = 4559 [1074] K [2.96 $\sigma$ ]

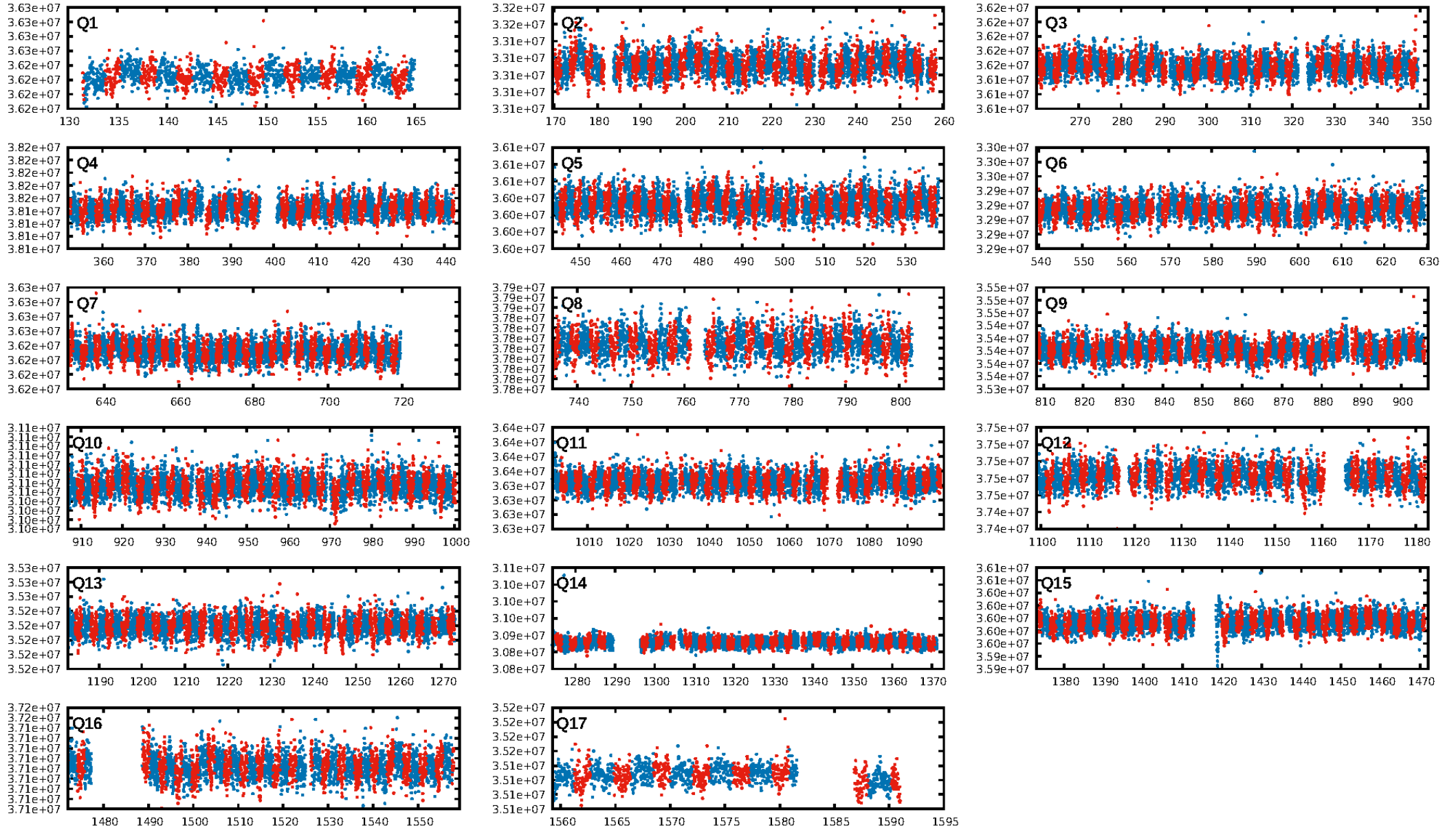
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [197.31 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.15e-20  
RollingBand-fgt: 0.99 [363/365]  
GhostDiagnostic-chr: 1.495  
Centroid-sig: 15.7%  
Centroid-so: 1.373 arcsec [1.21 $\sigma$ ]  
OotOffset-rm: 0.294 arcsec [1.74 $\sigma$ ]  
KicOffset-rm: 0.430 arcsec [2.19 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

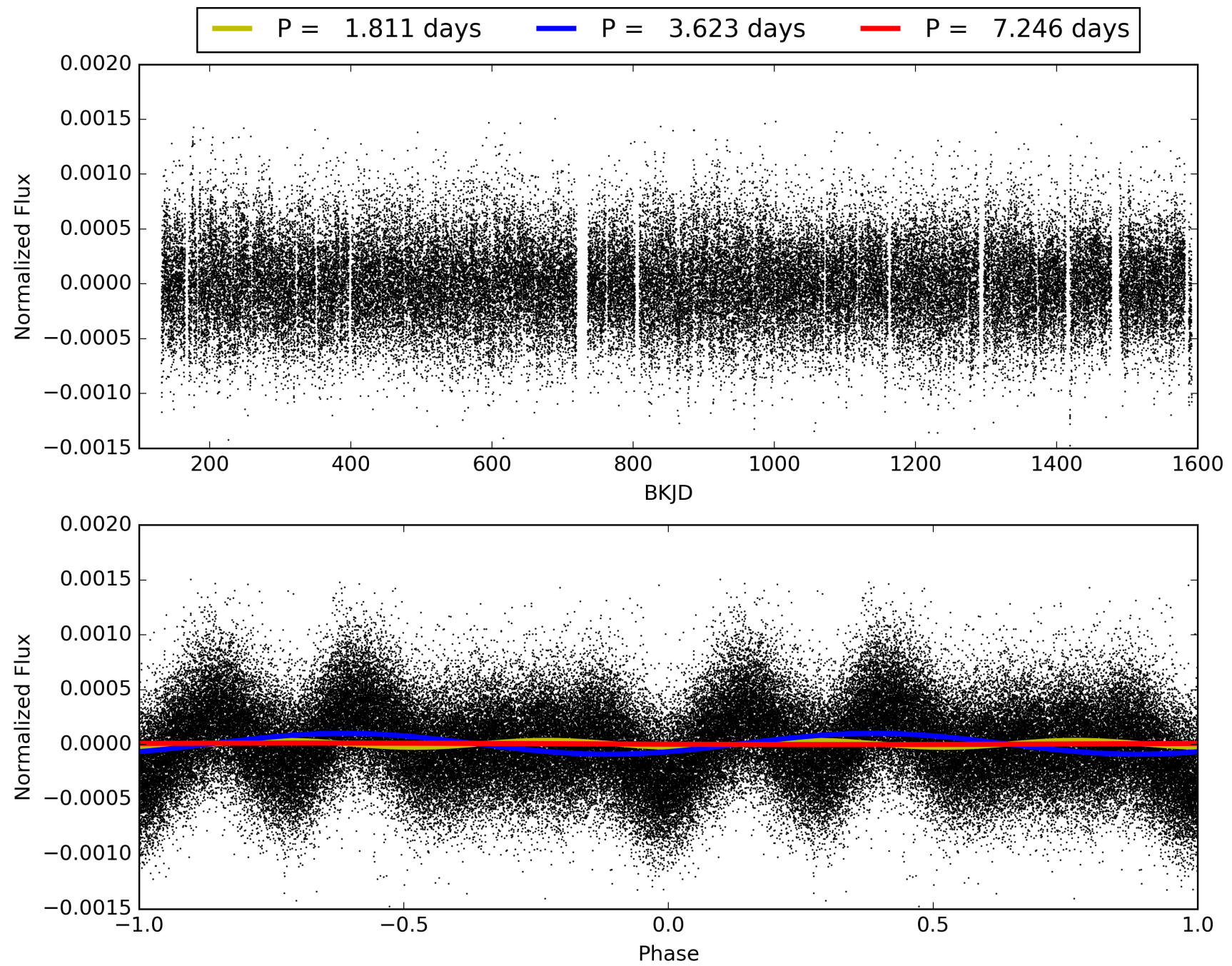
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:41:10 Z

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

# TCE 004451755-01, PDC Light Curves

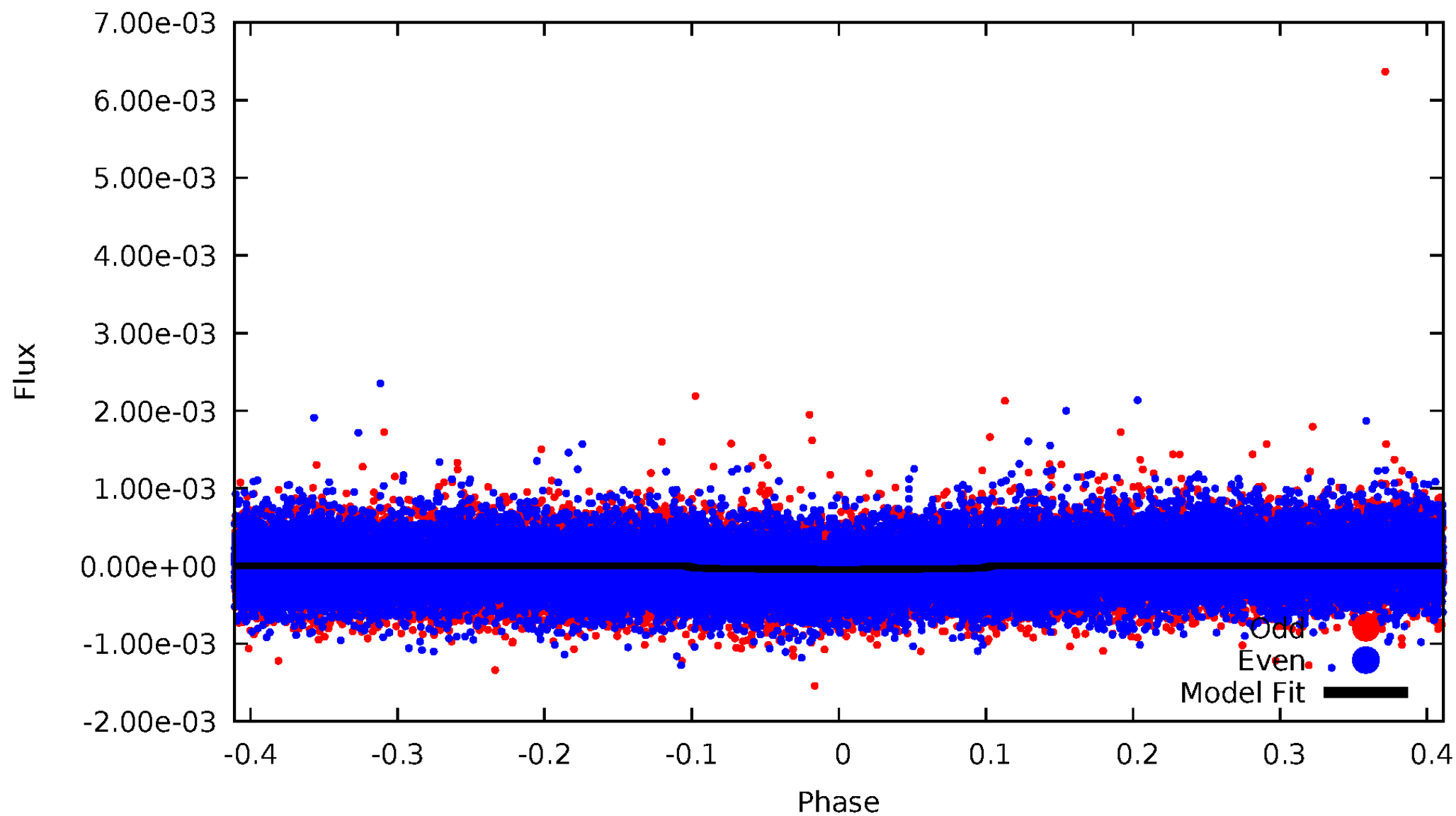


TCE 004451755-01



# DV Odd/Even

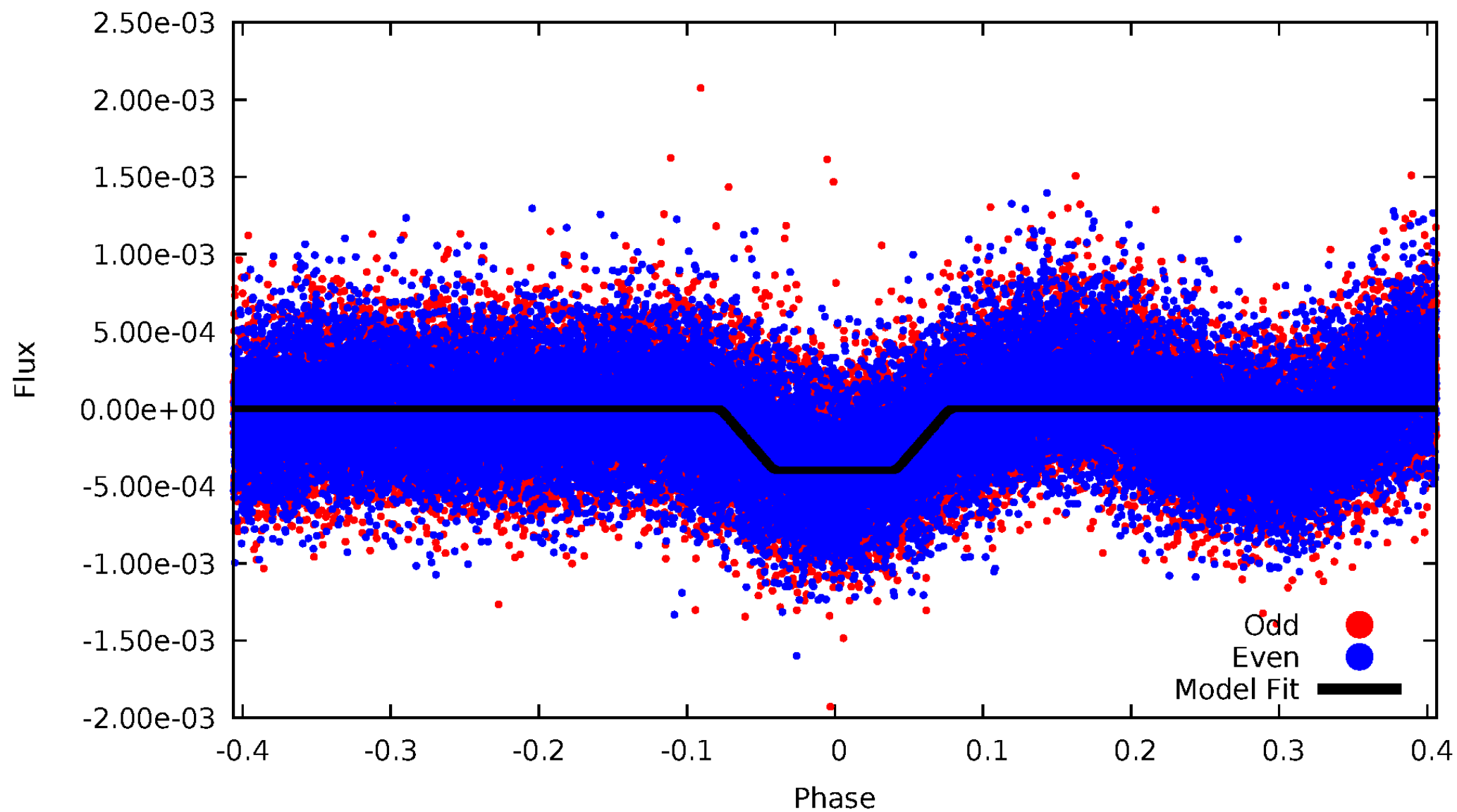
TCE 004451755-01



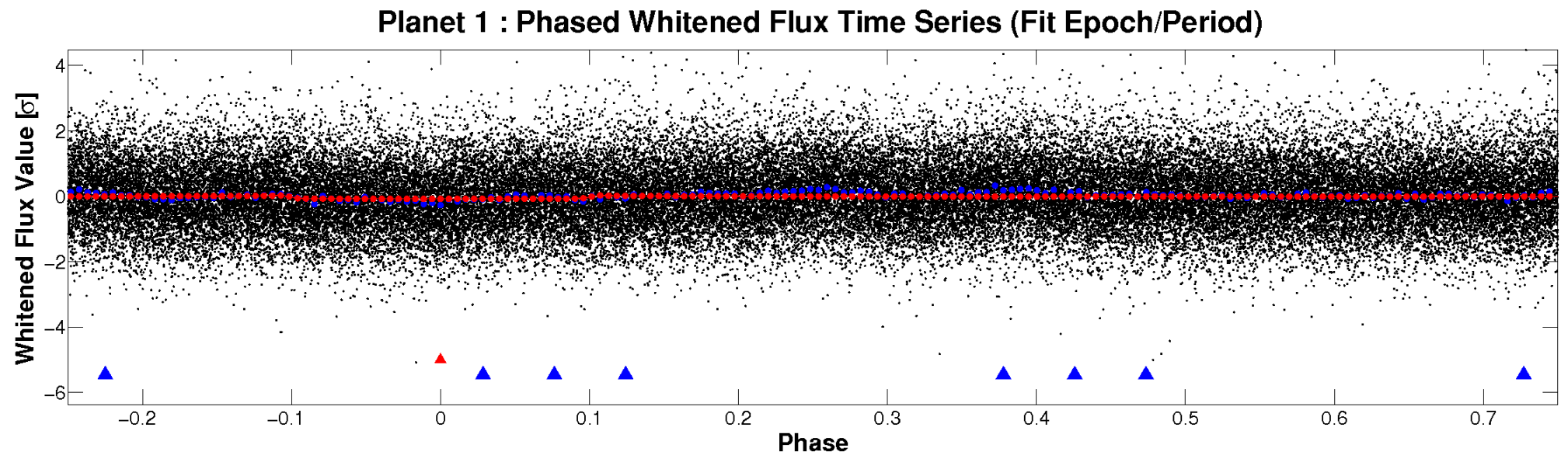
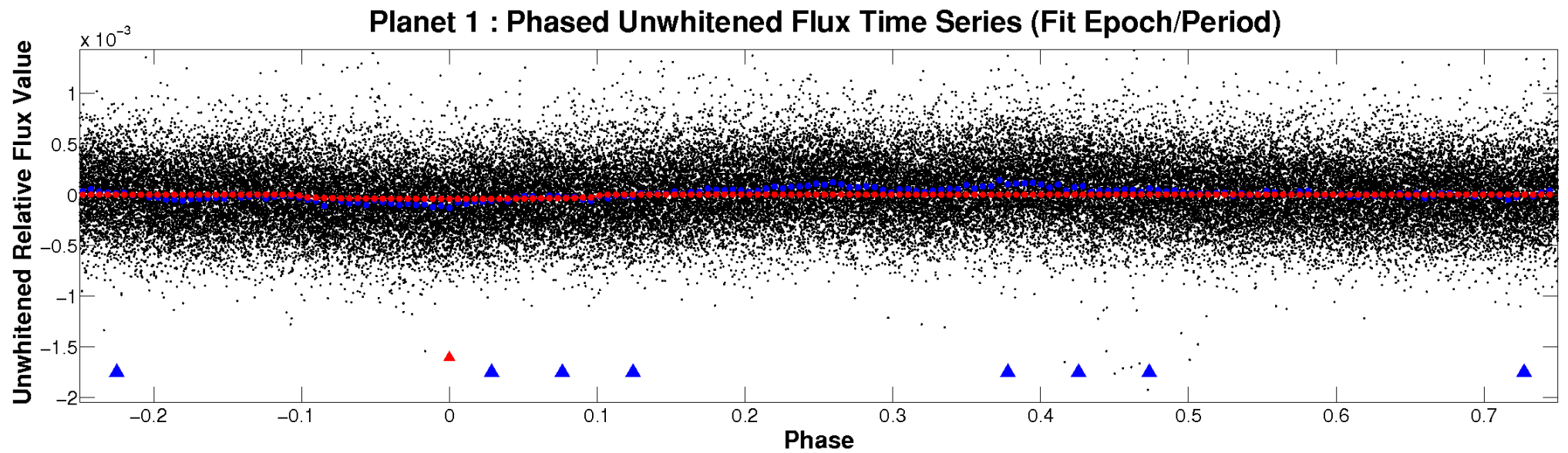


# ALT Odd/Even

TCE 004451755-01

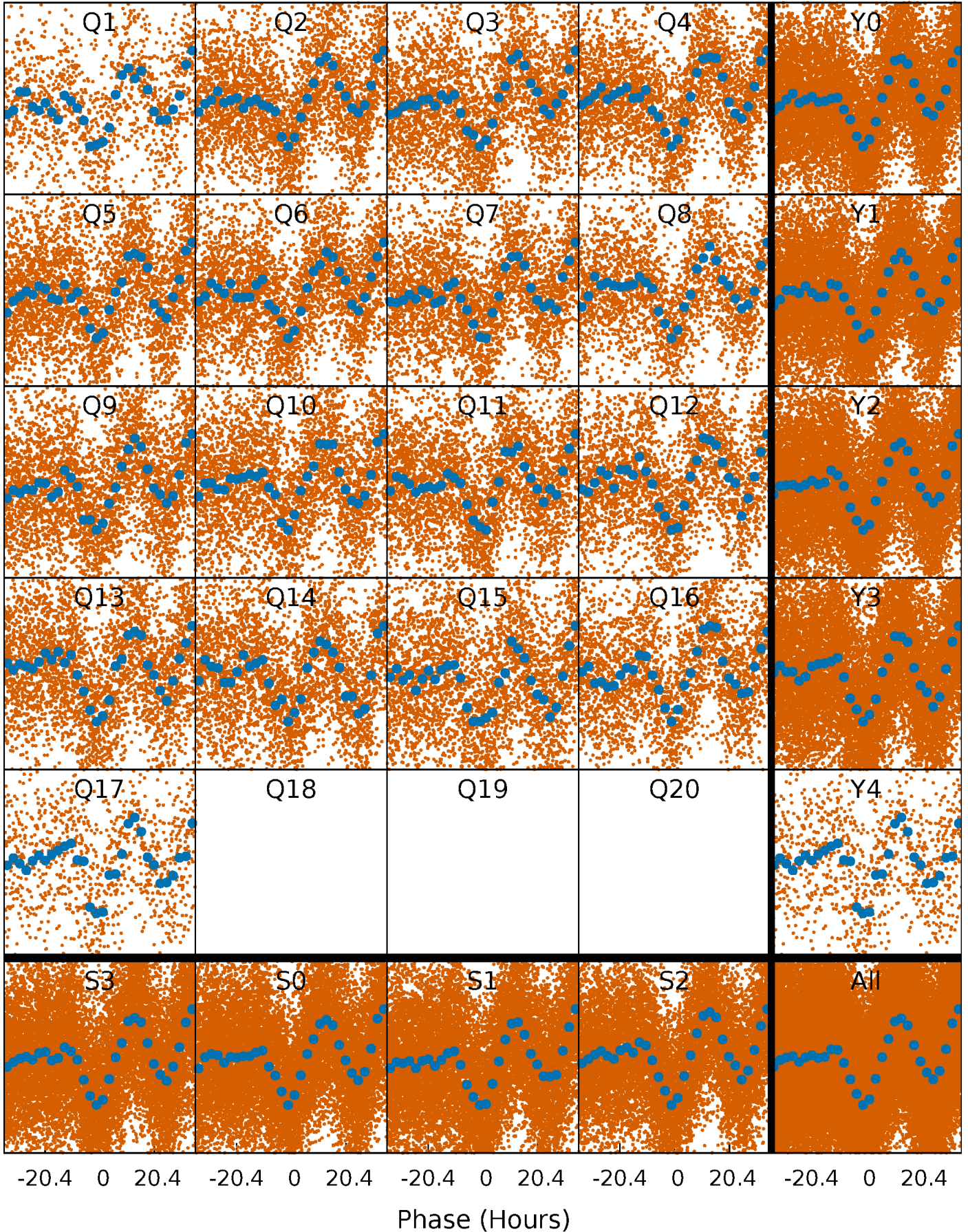


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

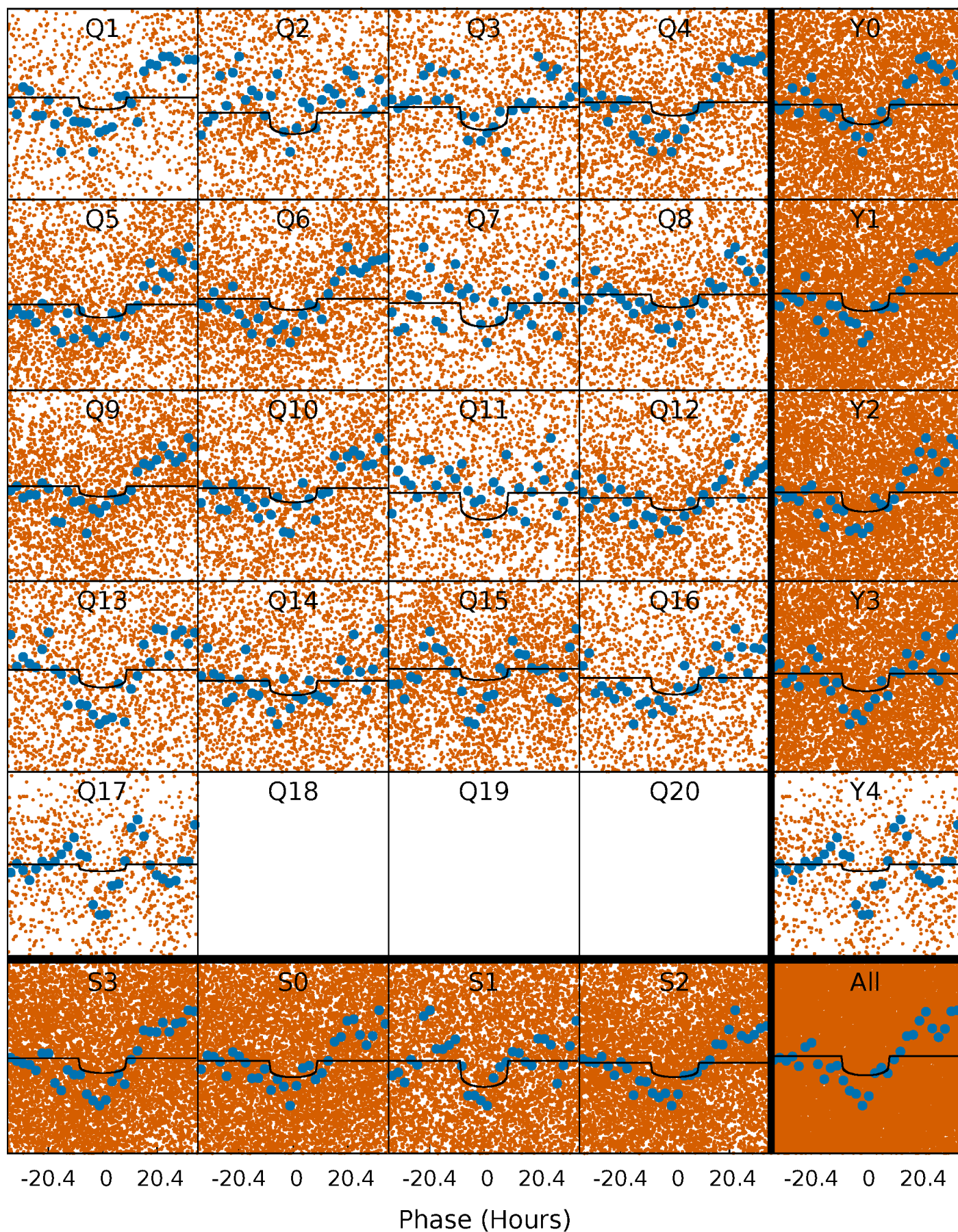
TCE 004451755-01 P= 3.623000 Days  $T_0=134.512309$  (BKJD)





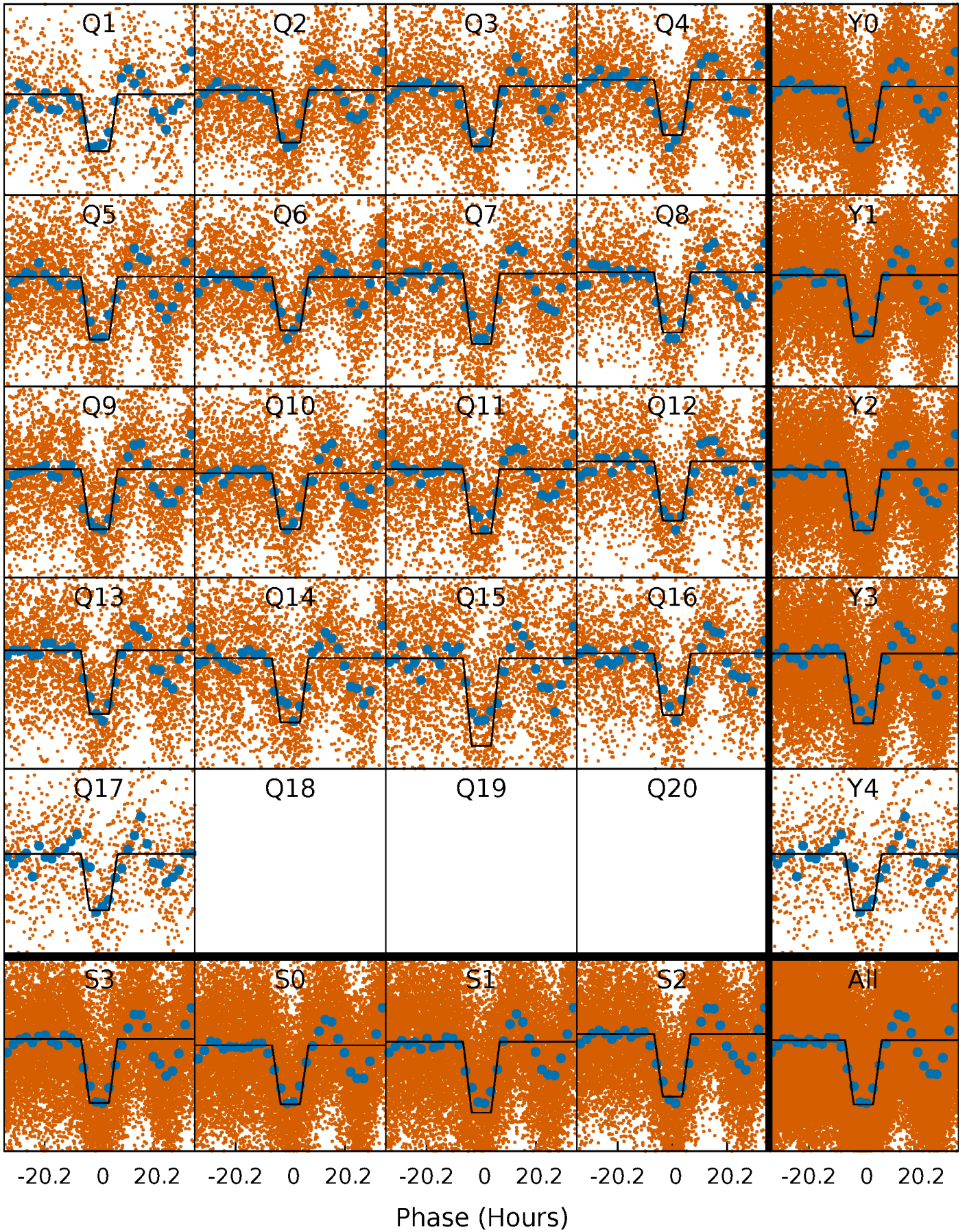
# DV Quarter-Phased Transit Curves

TCE 004451755-01 P= 3.623000 Days  $T_0=134.512309$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004451755-01 P= 3.622823 Days  $T_0=134.511877$  (BKJD)

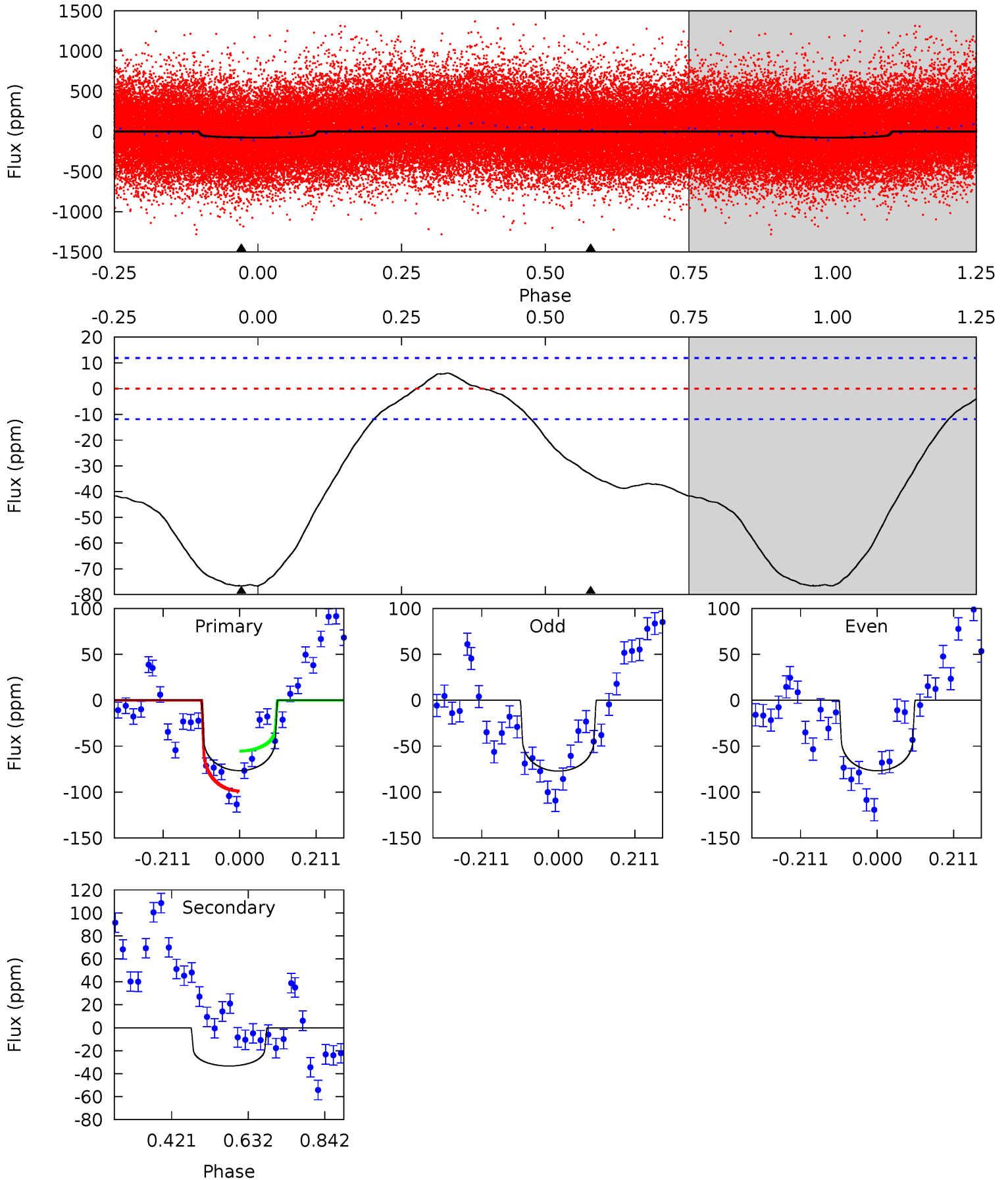




# DV Model-Shift Uniqueness Test

004451755-01, P = 3.623000 Days, E = 130.889309 Days

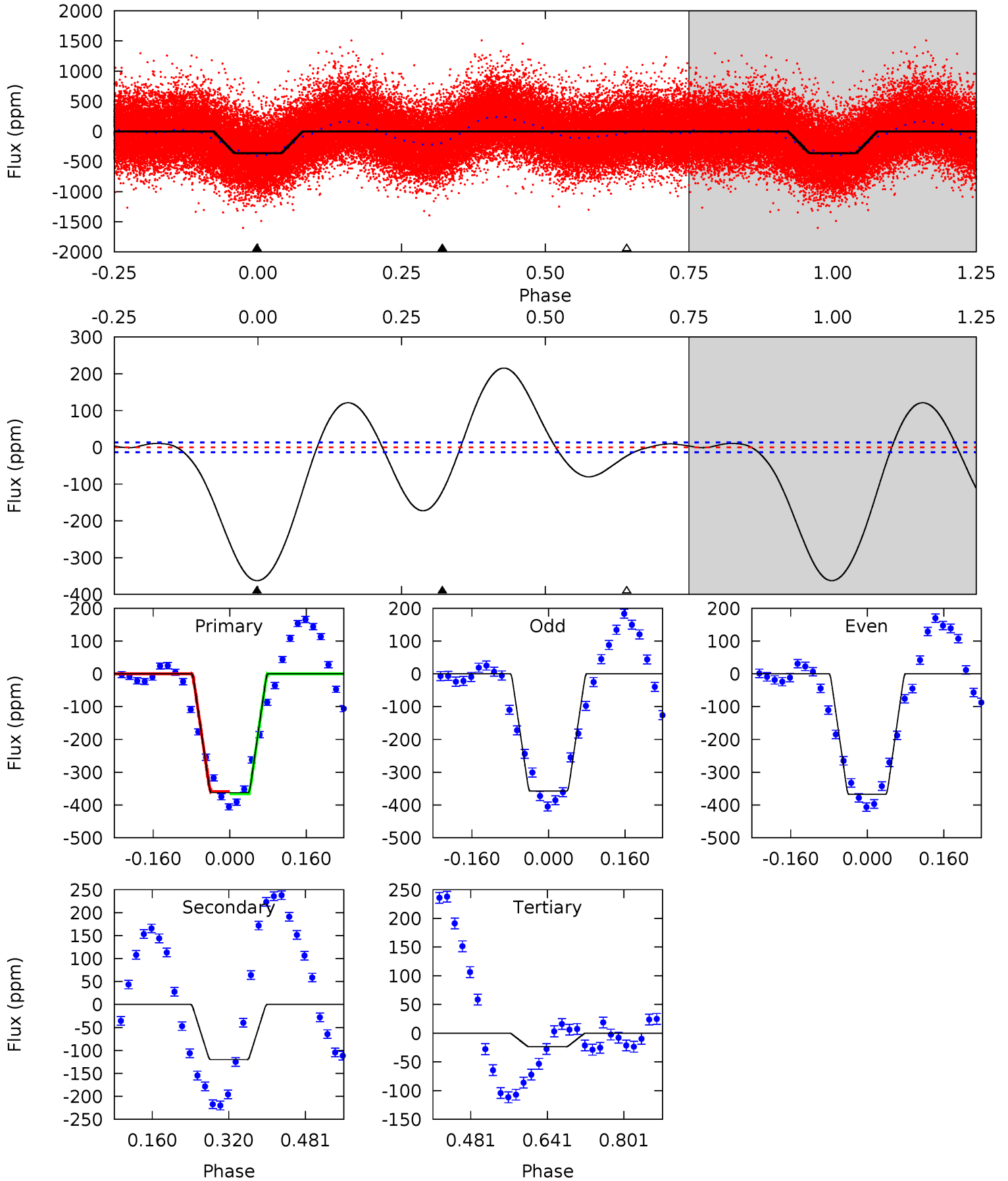
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.5	12.4	0	0	4.41	1.25	2.51	28.5	28.5	12.4	12.4	0.08	1.06	0.07	8.01



# Alt Model-Shift Uniqueness Test

004451755-01, P = 3.622823 Days, E = 130.889054 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
121.8	40.3	7.93	0	4.46	1.40	13.2	113.9	121.8	32.4	40.3	1.72	1.00	0.37	1.20





### Stellar Parameters For KIC 004451755

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6419^{+160}_{-208}$	$4.402^{+0.065}_{-0.195}$	$-0.120^{+0.250}_{-0.300}$	$1.121^{+0.350}_{-0.117}$	$1.156^{+0.157}_{-0.157}$	$1.157^{+0.313}_{-0.591}$
	+2%/-3%	+1%/-4%	+208%/-250%	+31%/-10%	+14%/-14%	+27%/-51%
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 004451755-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-33 \pm 3$	$0.81^{+0.33}_{-0.28}$	$1924^{+130}_{-86}$	$6056^{+1482}_{-868}$	$63^{+83}_{-31}$
Alt.	$-120 \pm 3$	$2.51^{+0.48}_{-0.38}$	$1929^{+135}_{-94}$	$4842^{+294}_{-244}$	$24^{+9}_{-7}$

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

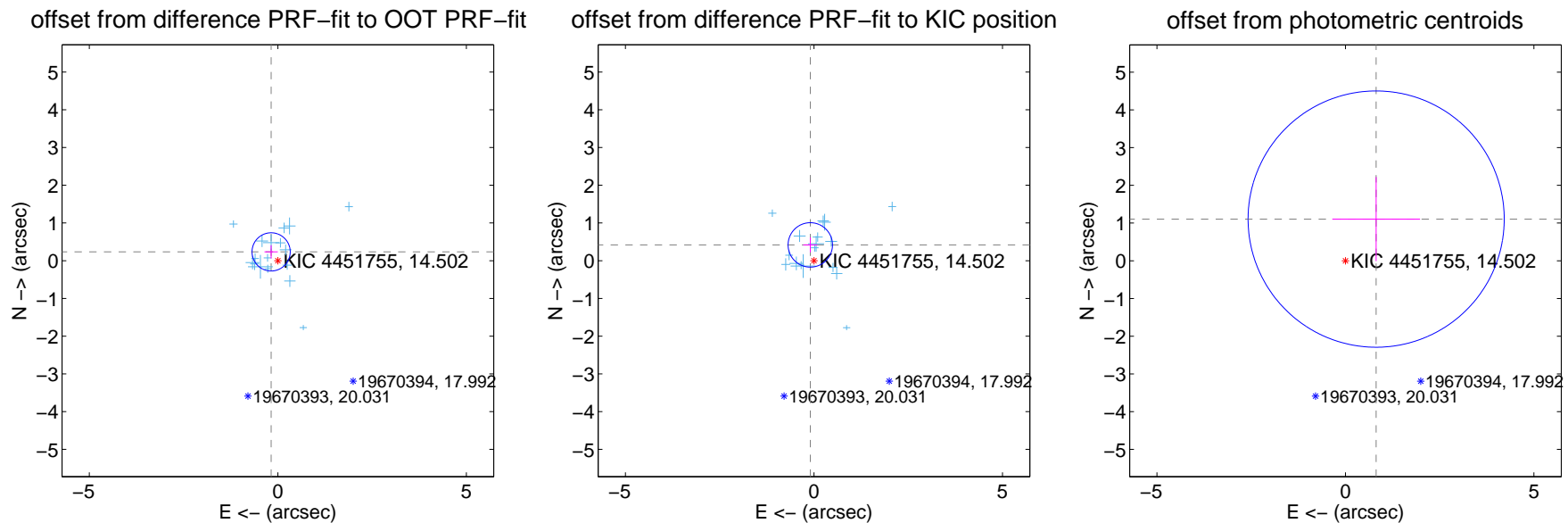
## DV Centroid Data

Supplemental centroid analysis for 004451755-01. Kepler magnitude: 14.50. Transit SNR 8.84

There are 17 quarters with good PRF difference image offsets

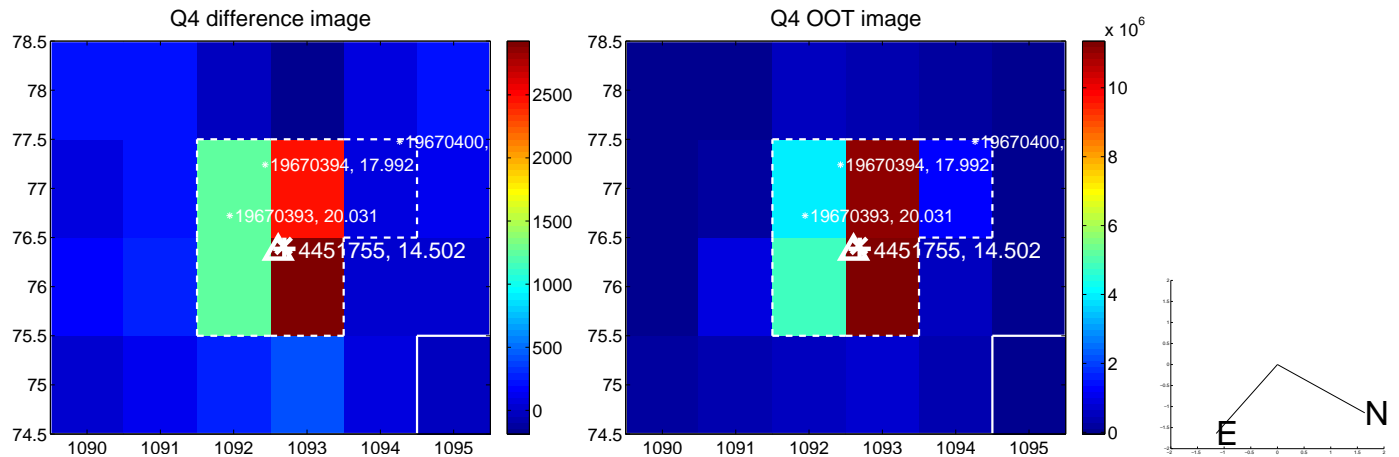
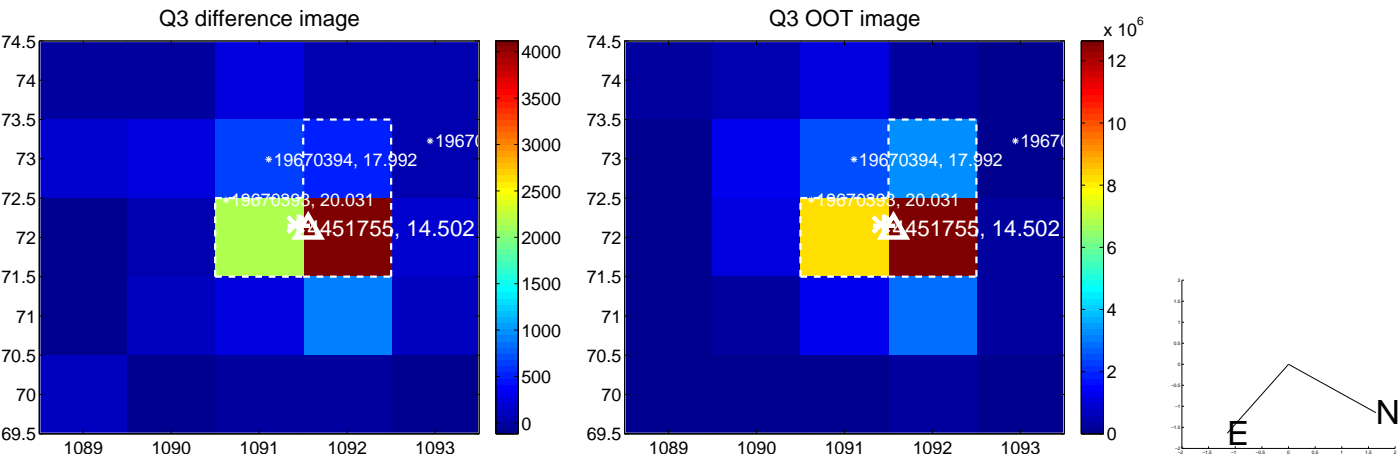
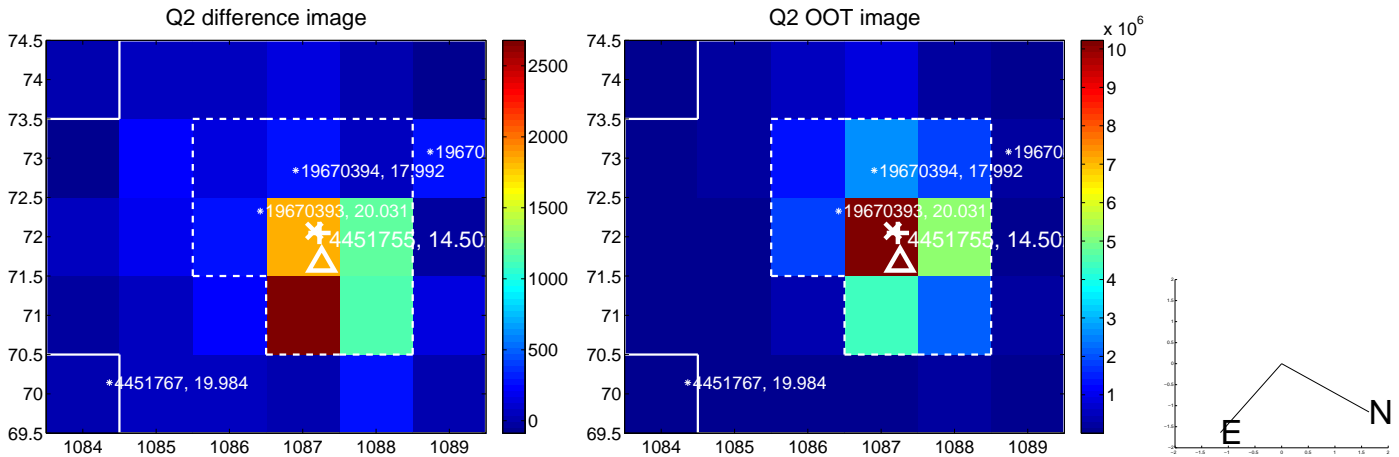
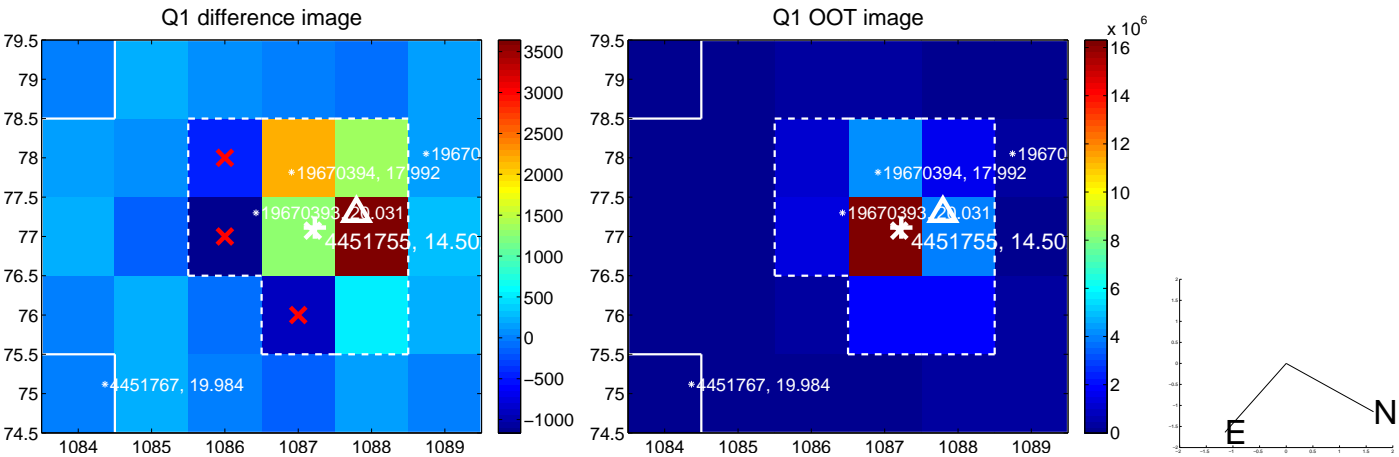
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.294 \pm 0.169$	1.74	$0.178 \pm 0.176$	$0.233 \pm 0.176$
PRF-fit source offset from KIC position	$0.430 \pm 0.196$	2.19	$0.097 \pm 0.187$	$0.418 \pm 0.195$
photometric centroid source offset	$1.37 \pm 1.13$	1.21	$-0.82 \pm 1.16$	$1.11 \pm 1.12$

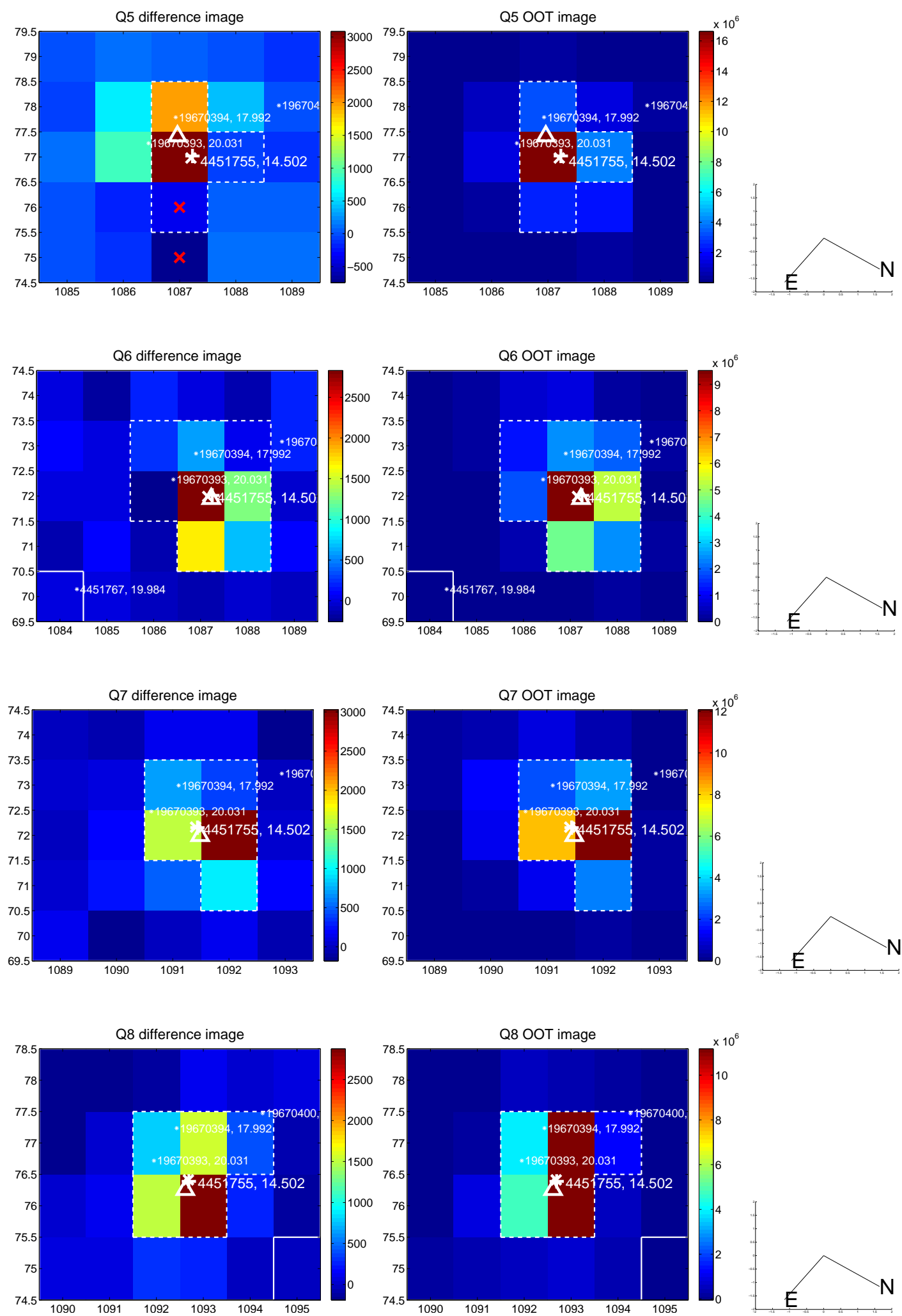


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

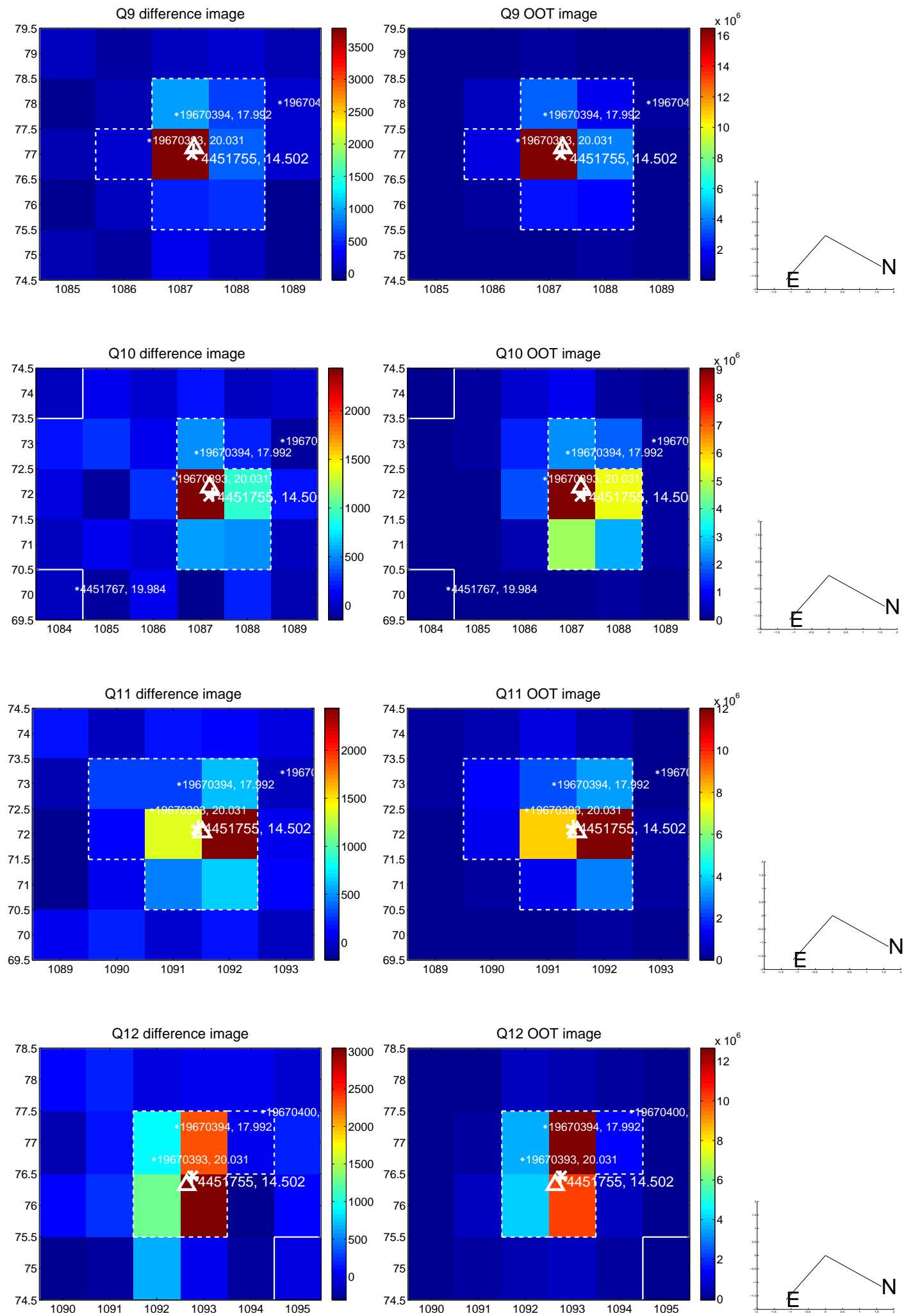


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

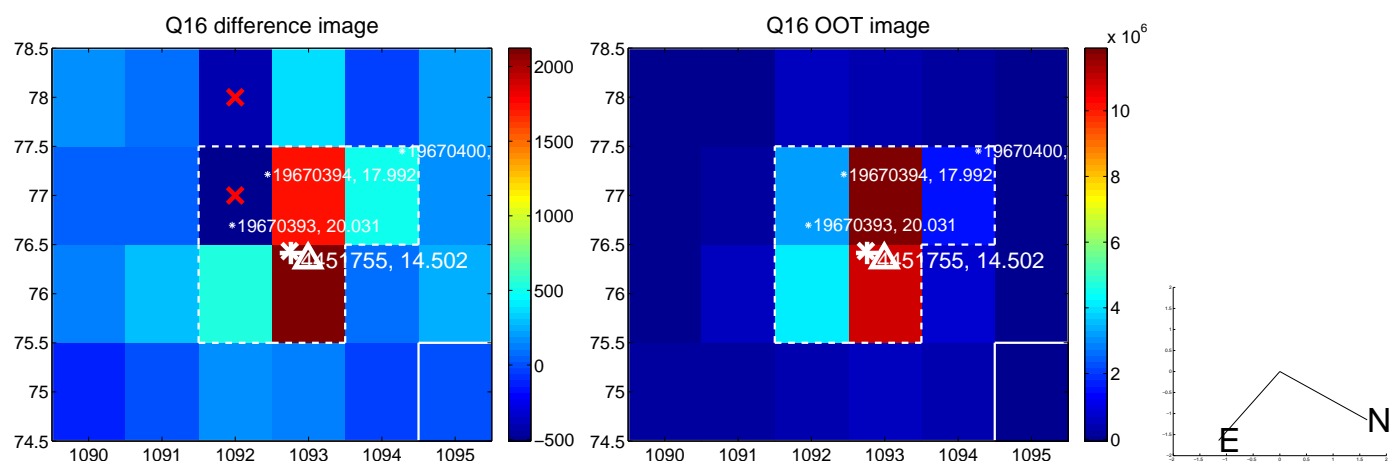
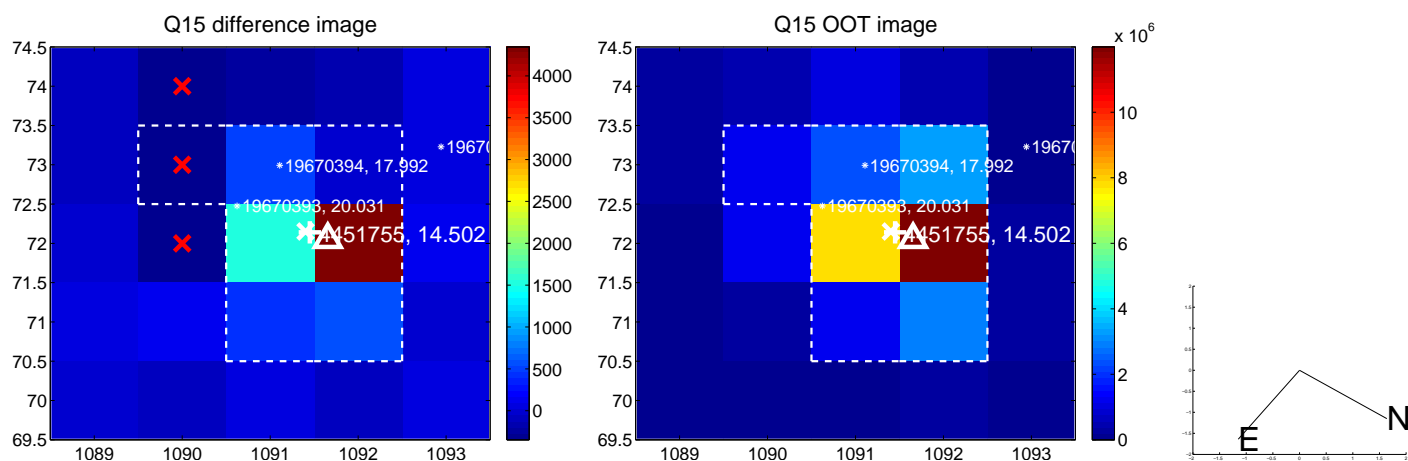
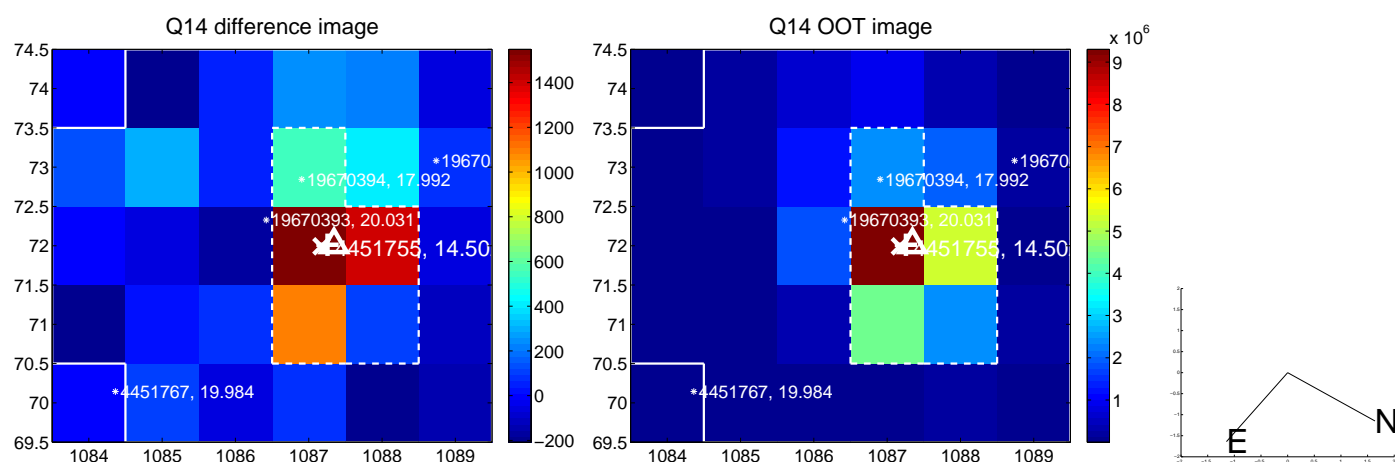
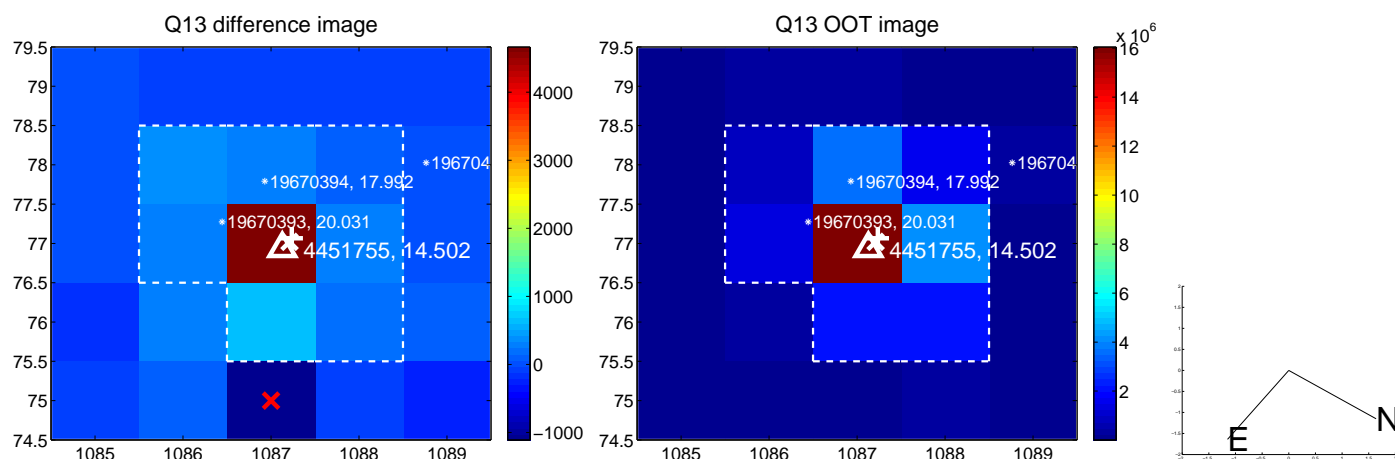




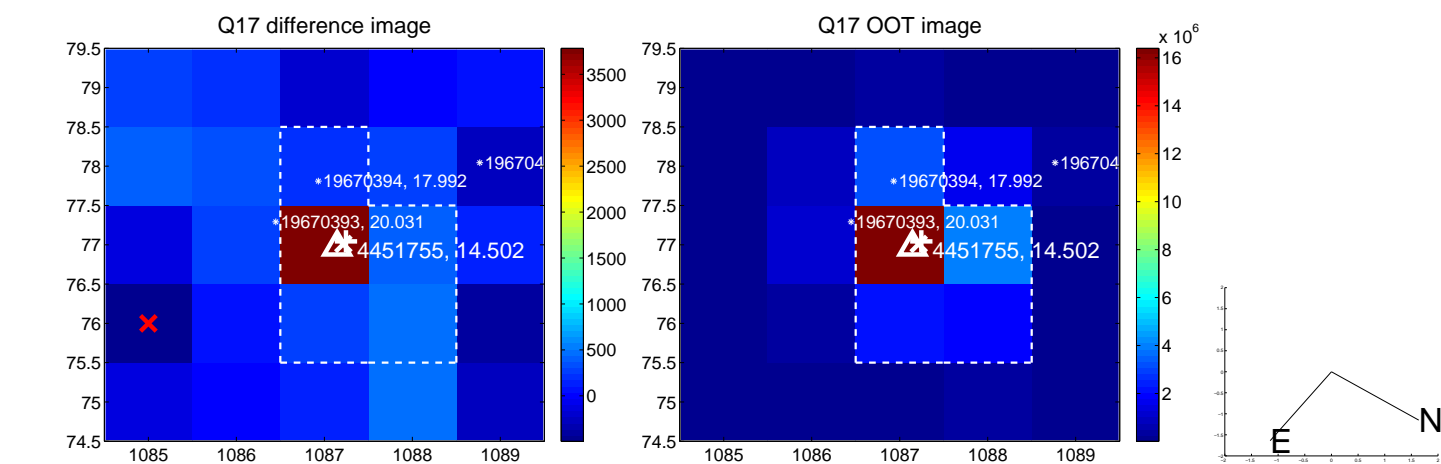
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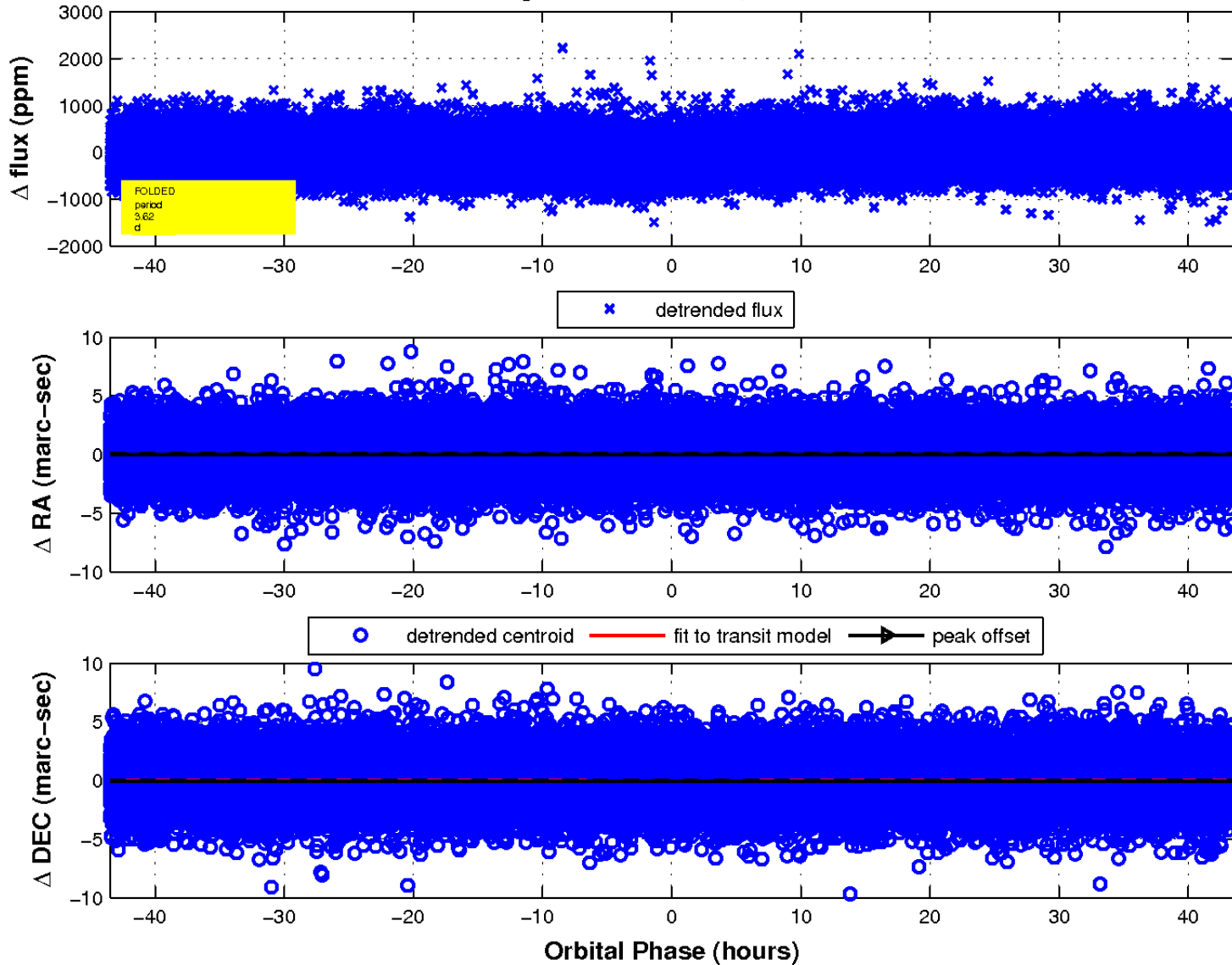
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination

