

# KIC 001724513

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
001724513-01	OBS	4224.01	1.975185	131.636138	62.9	1.634	13.1	12.6	1.74	6401	1.62	4299.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001724513-01	OBS	FP	0.00	0	0	1	0	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.

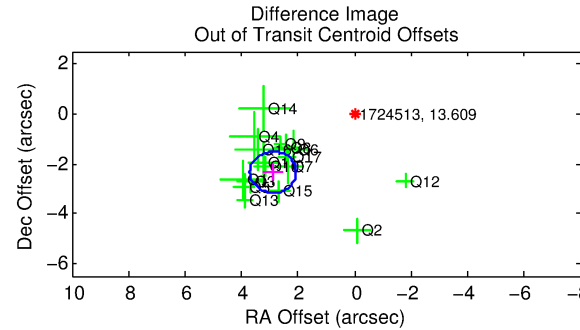
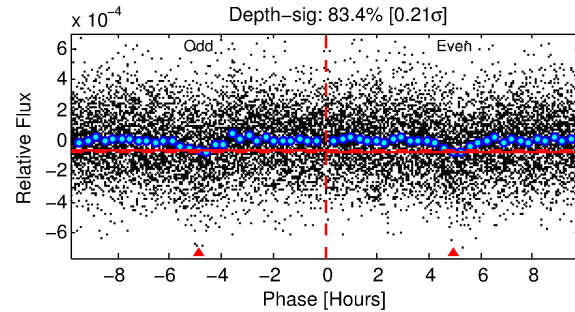
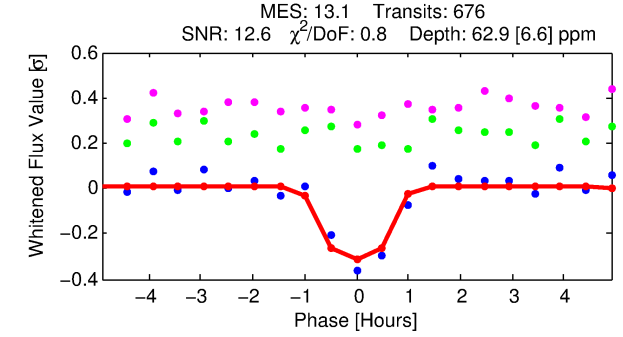
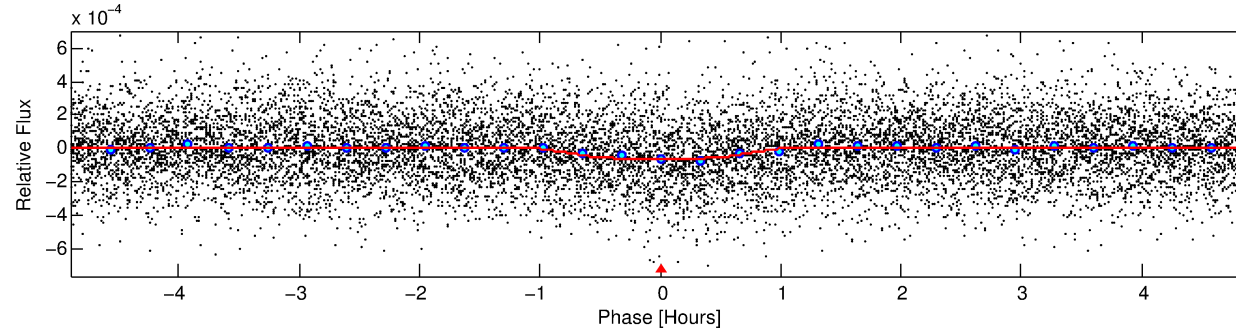
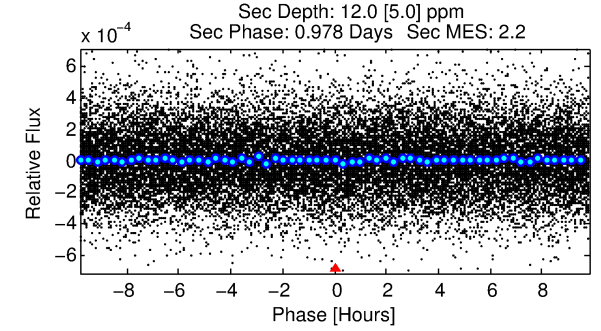
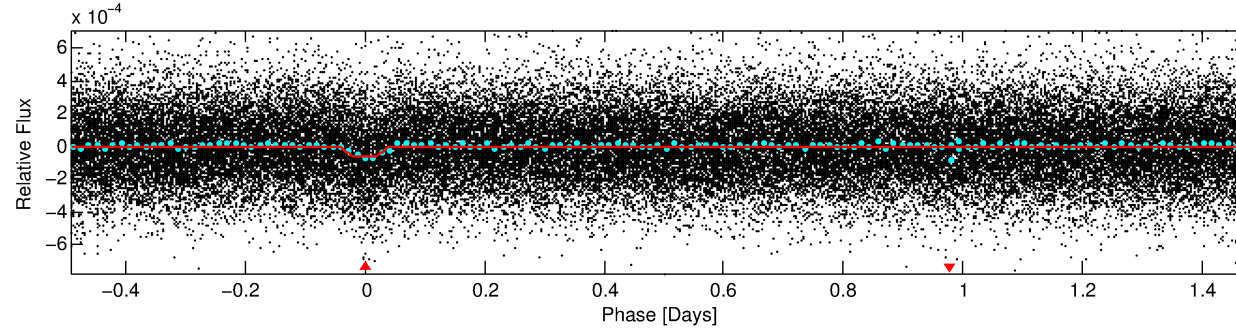
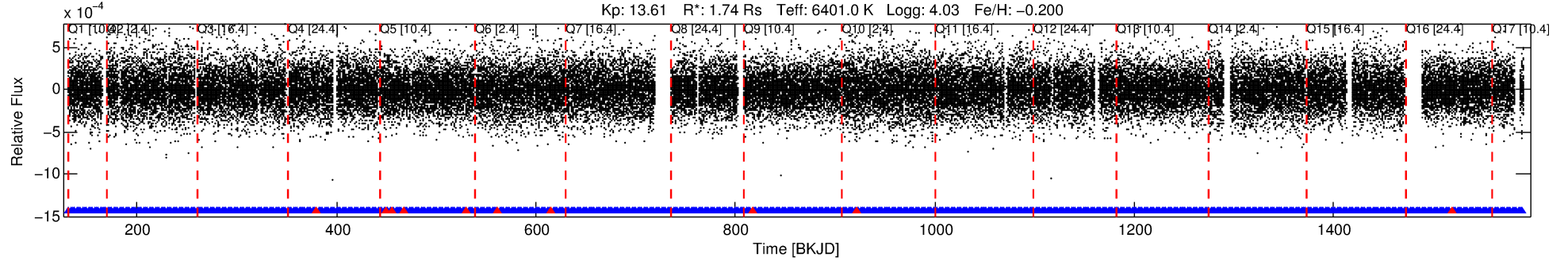
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 001724513-01

No Significant Match Found

# DV One-Page Summary

KIC: 1724513 Candidate: 1 of 1 Period: 1.975 d  
KOI: K04224.01 Corr: 0.938



## DV Fit Results:

Period = 1.97518 [0.00001] d  
Epoch = 131.6361 [0.0021] BKJD  
Rp/R\* = 0.0085 [0.0037]  
a/R\* = 4.31 [10.07]  
b = 0.90 [0.53]  
Seff = 4299.72 [1448.55]  
Teq = 2065 [174] K  
Rp = 1.62 [0.79] Re  
a = 0.0326 [0.0068] AU  
Ag = 2.66 [2.72] [0.61σ]  
Teffp = 4079 [987] K [2.01σ]

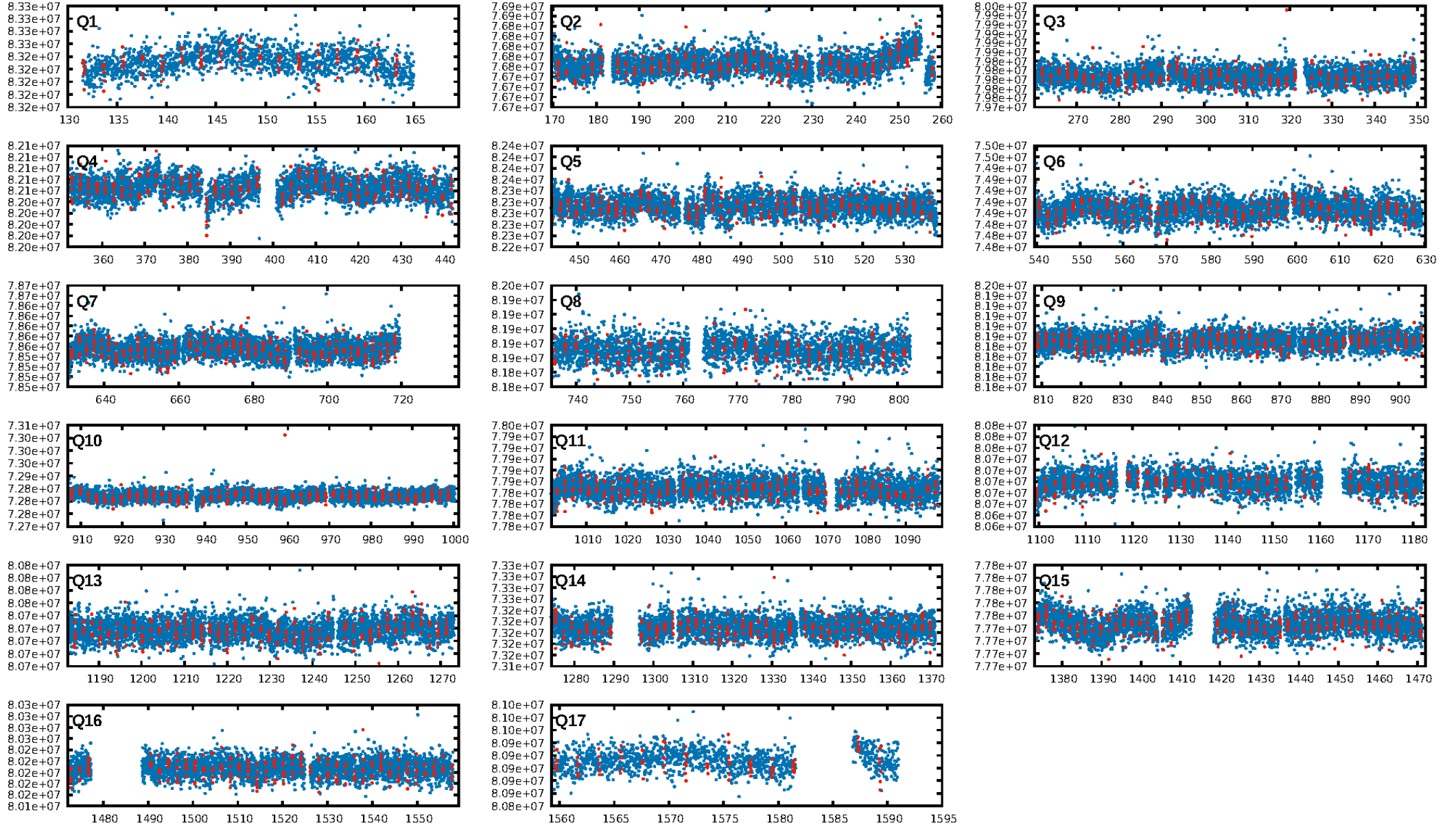
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.26e-37  
RollingBand-fgt: 0.98 [635/645]  
GhostDiagnostic-chr: 0.9761  
Centroid-sig: 0.0%  
Centroid-so: 5.151 arcsec [5.18σ]  
OotOffset-rm: 3.725 arcsec [13.57σ]  
KicOffset-rm: 3.745 arcsec [13.20σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.71 [12/17]  
DiffImageOverlap-fno: 1.00 [17/17]

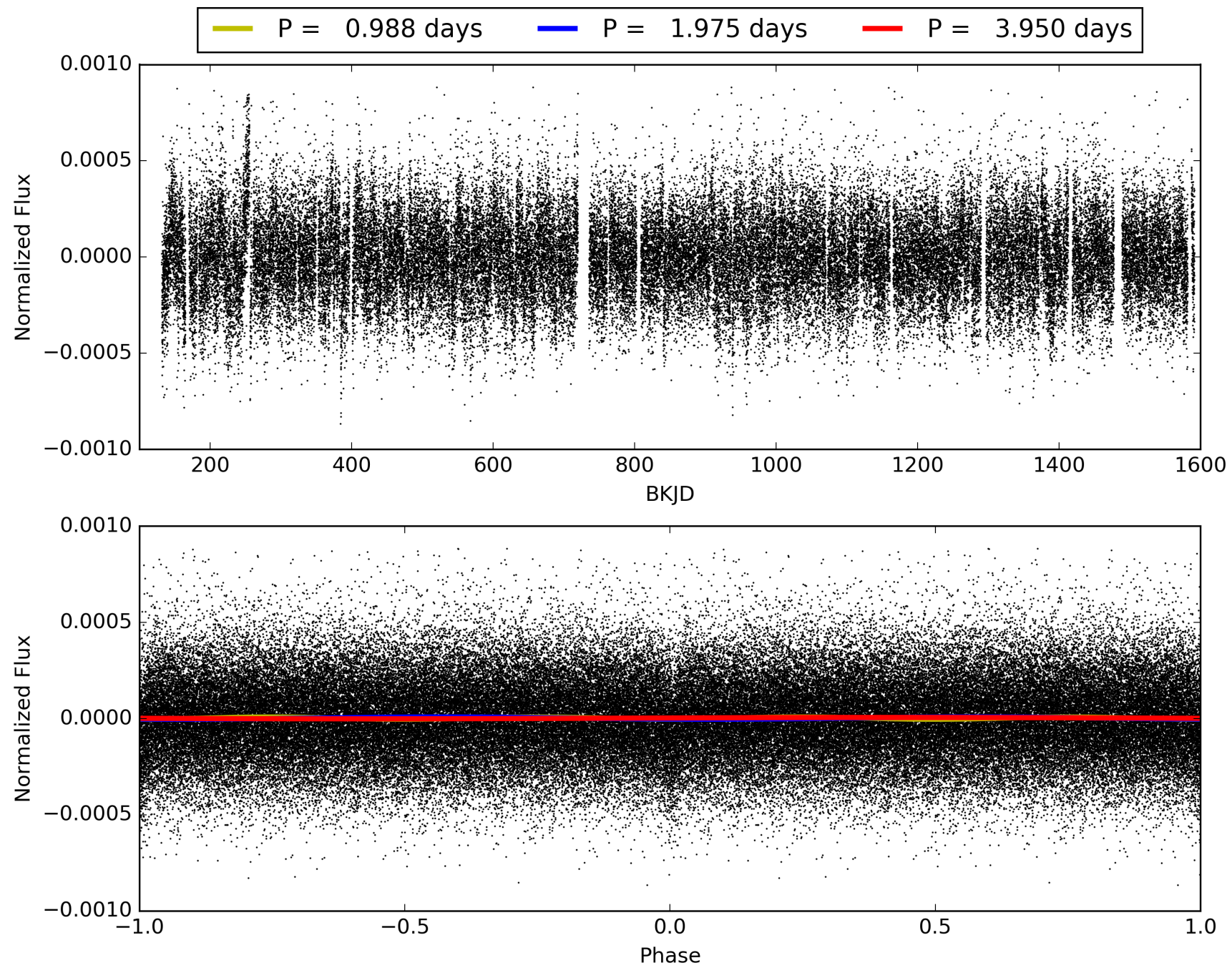
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:00:10 Z

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

# TCE 001724513-01, PDC Light Curves



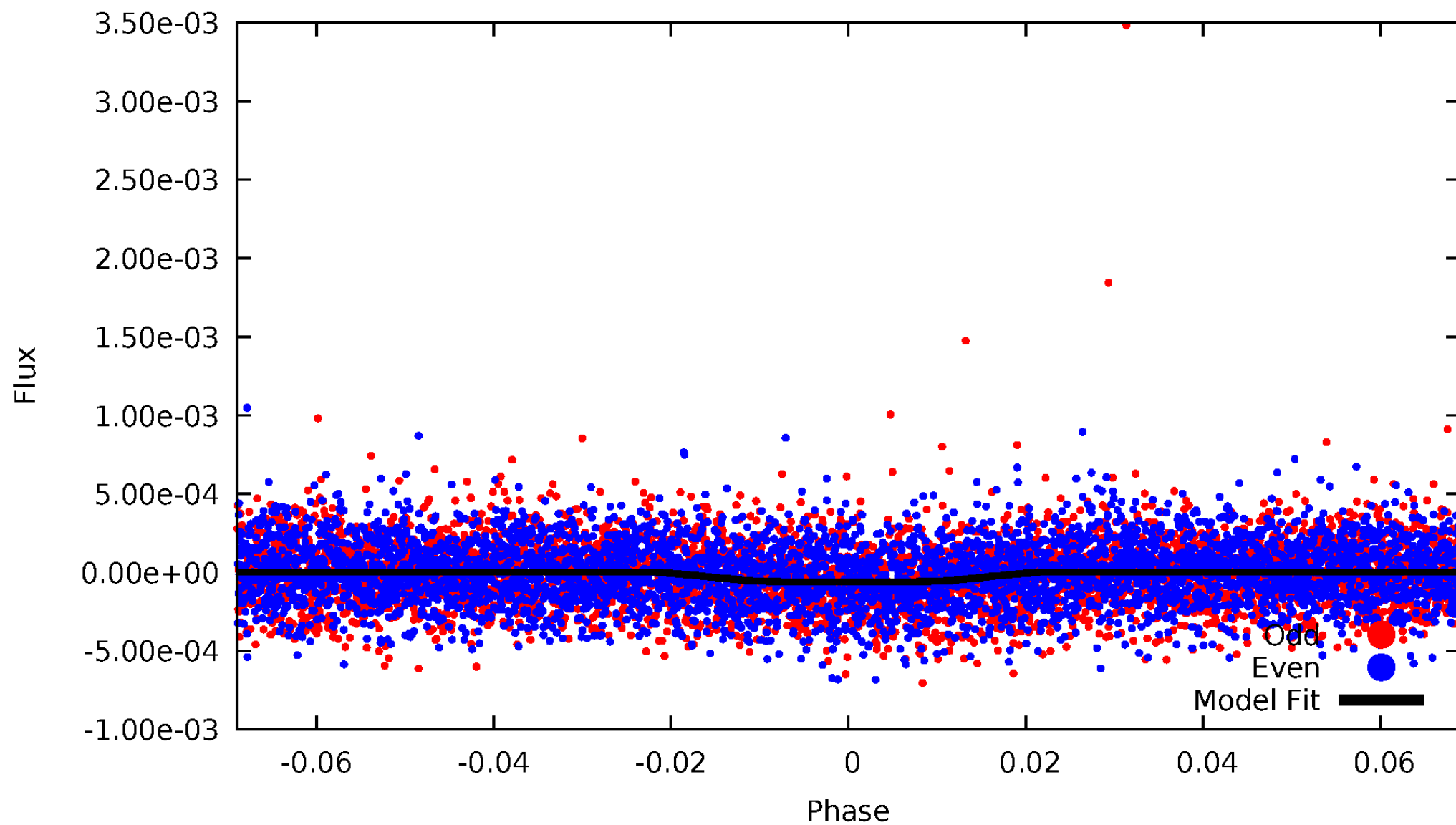
TCE 001724513-01





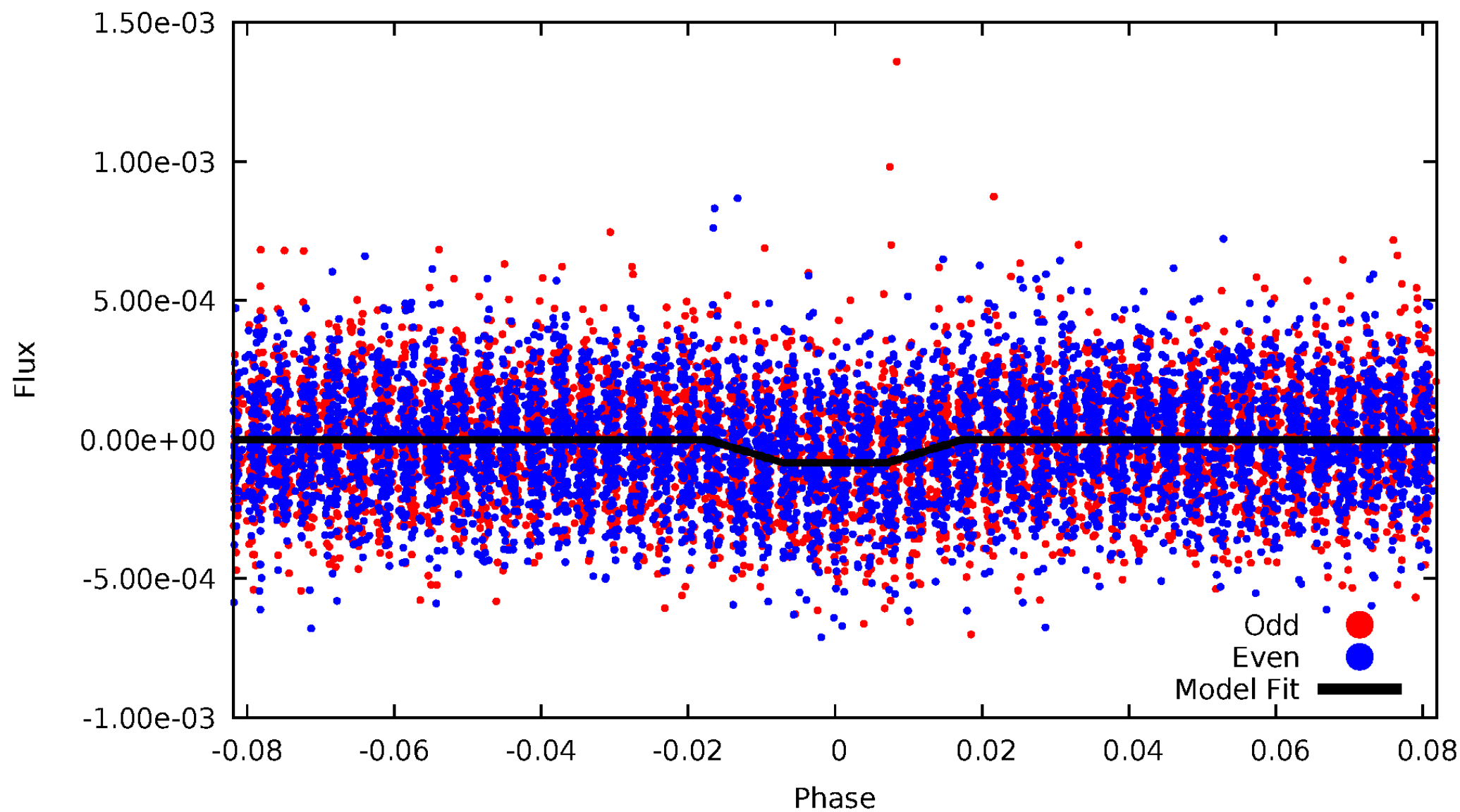
# DV Odd/Even

TCE 001724513-01

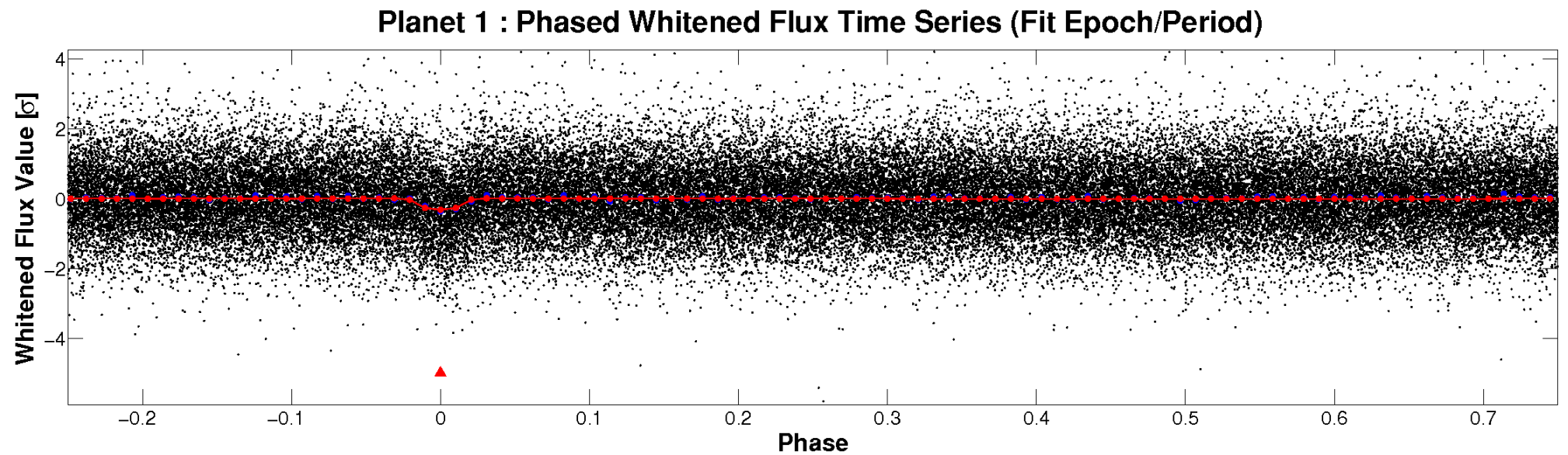
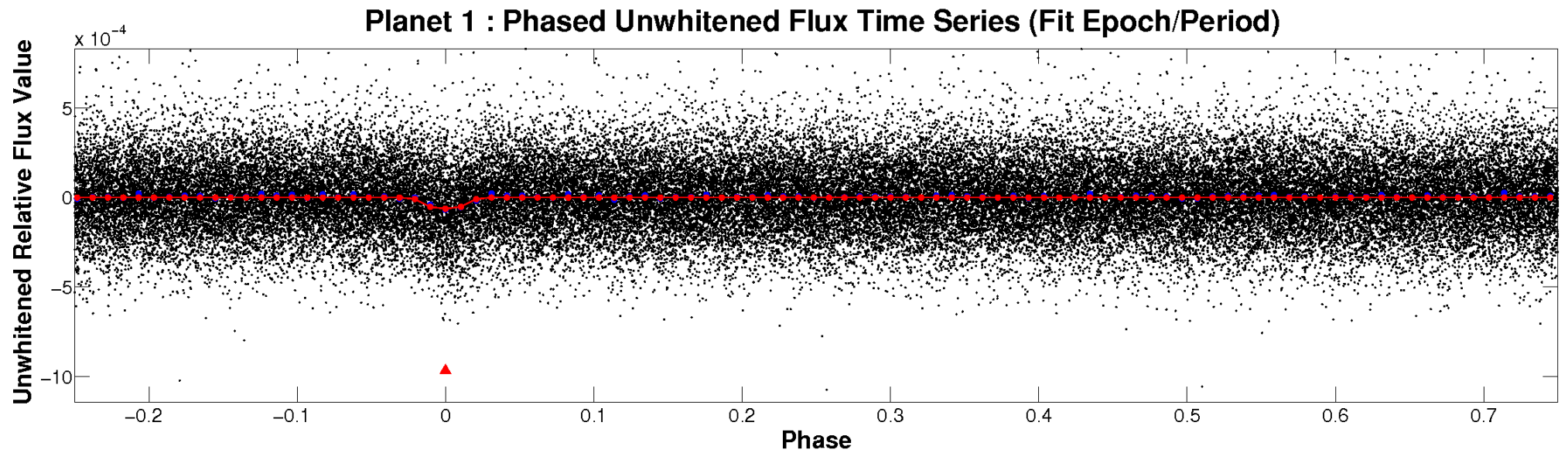


# ALT Odd/Even

TCE 001724513-01

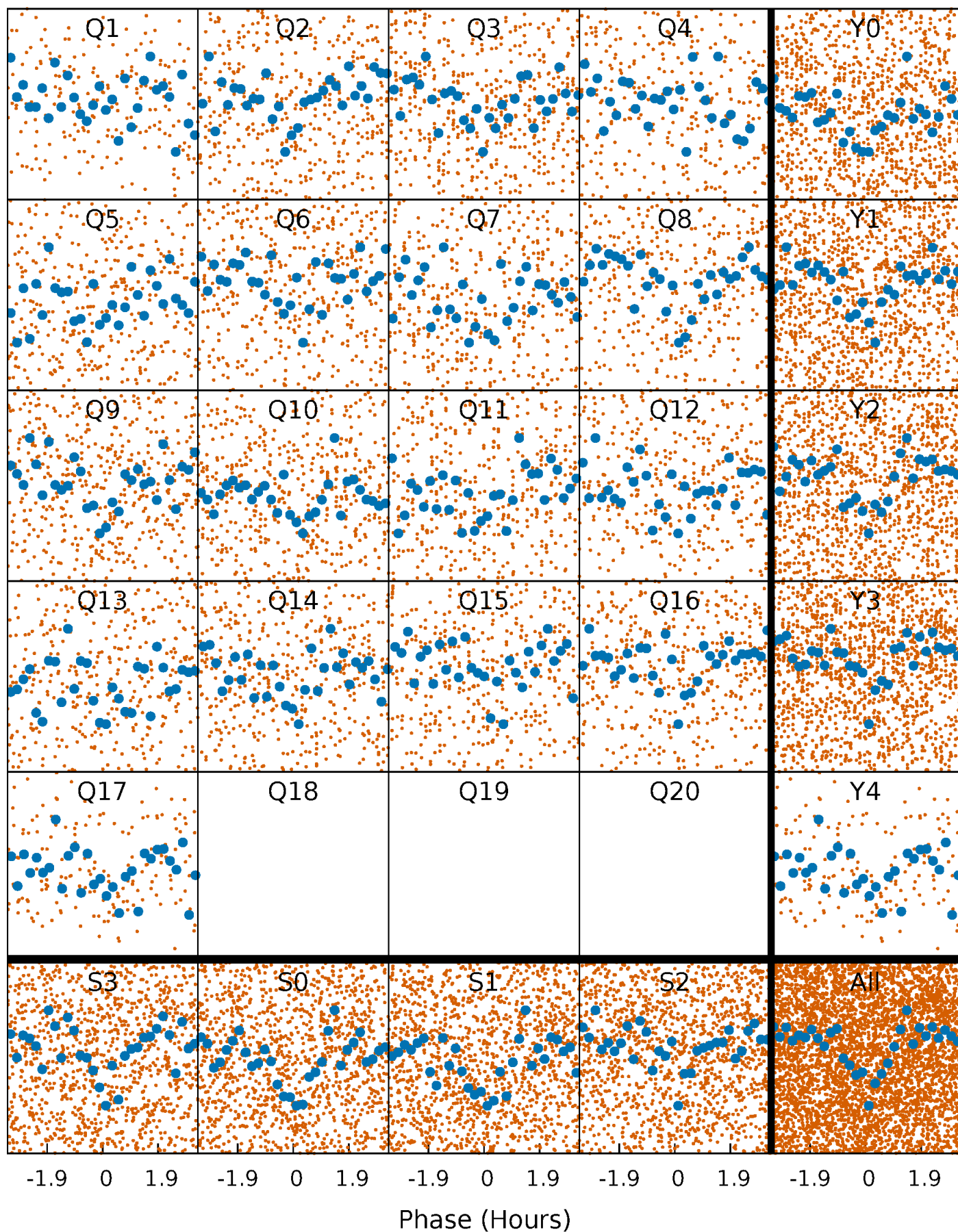


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

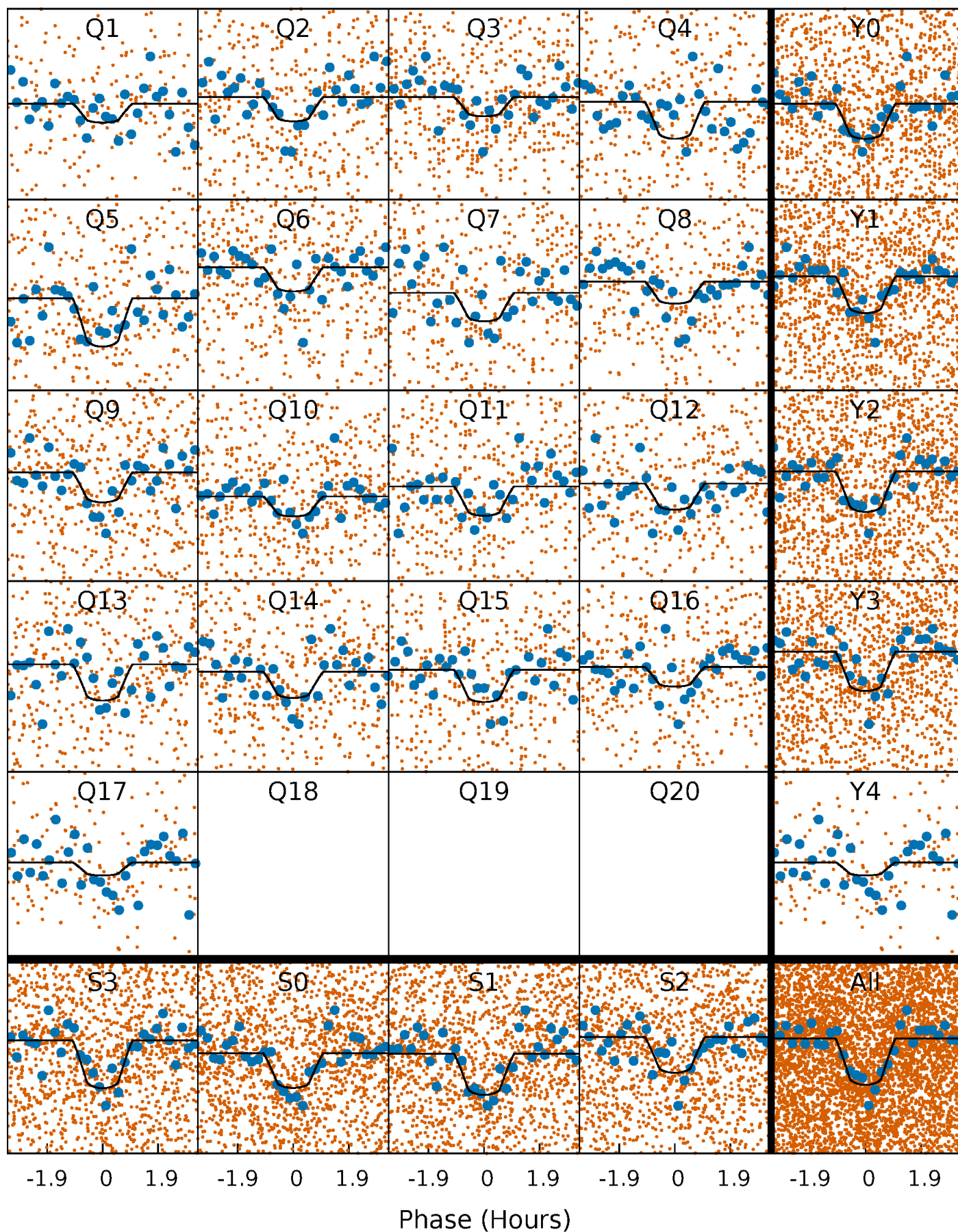
TCE 001724513-01 P= 1.975185 Days  $T_0=131.636138$  (BKJD)





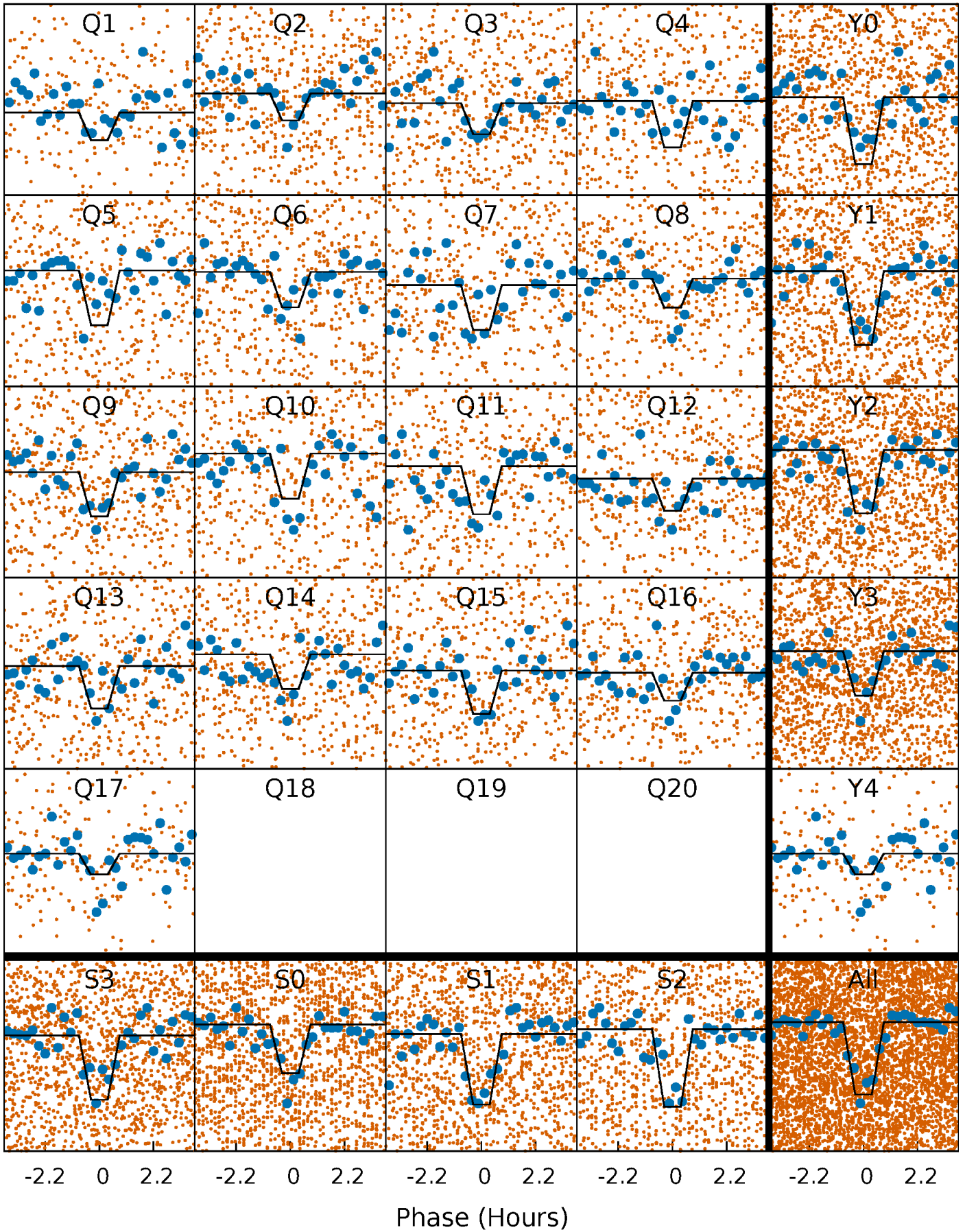
# DV Quarter-Phased Transit Curves

TCE 001724513-01 P= 1.975185 Days  $T_0=131.636138$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

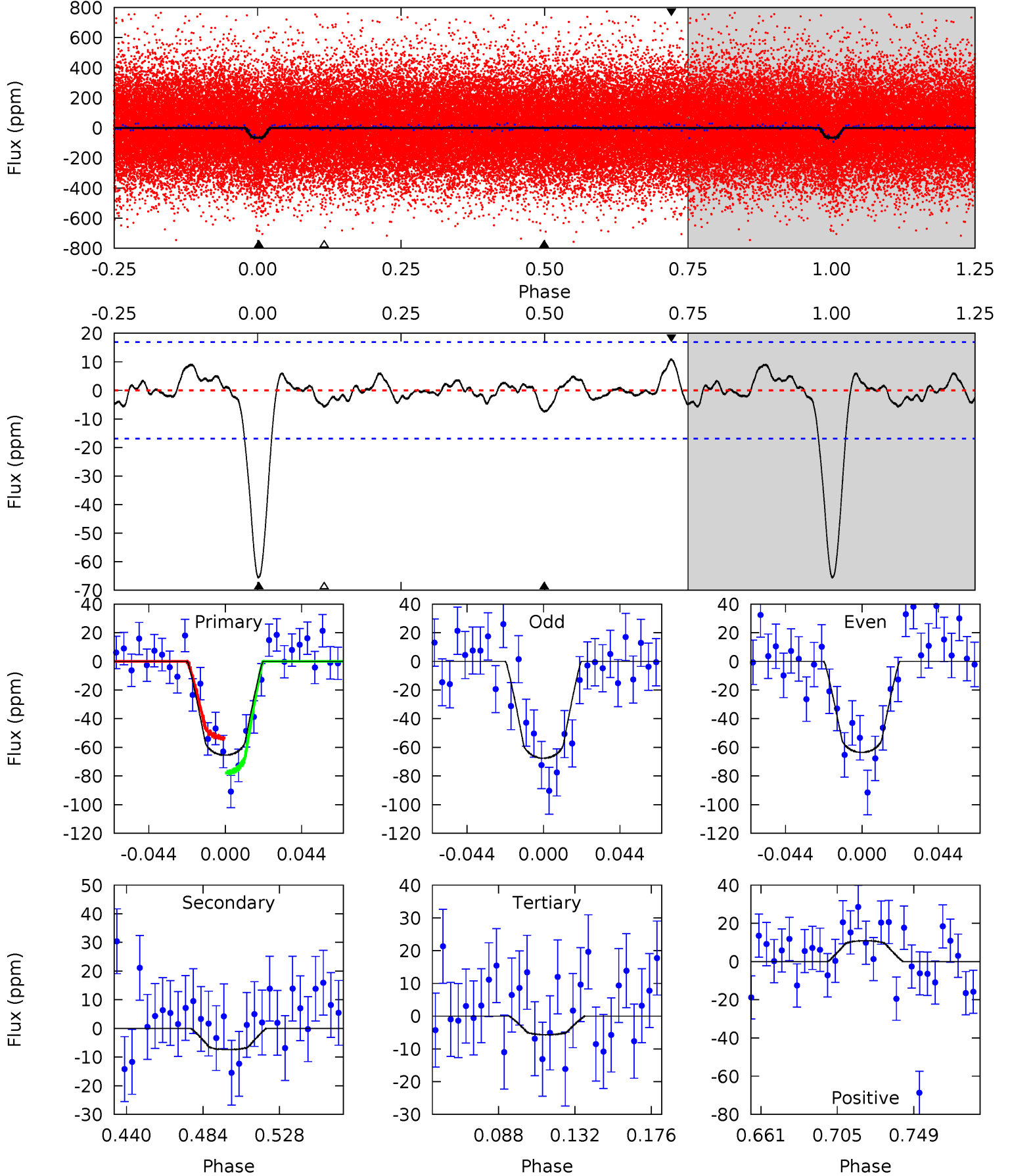
TCE 001724513-01 P= 1.975210 Days  $T_0=131.630138$  (BKJD)



# DV Model-Shift Uniqueness Test

001724513-01,  $P = 1.975185$  Days,  $E = 129.660953$  Days

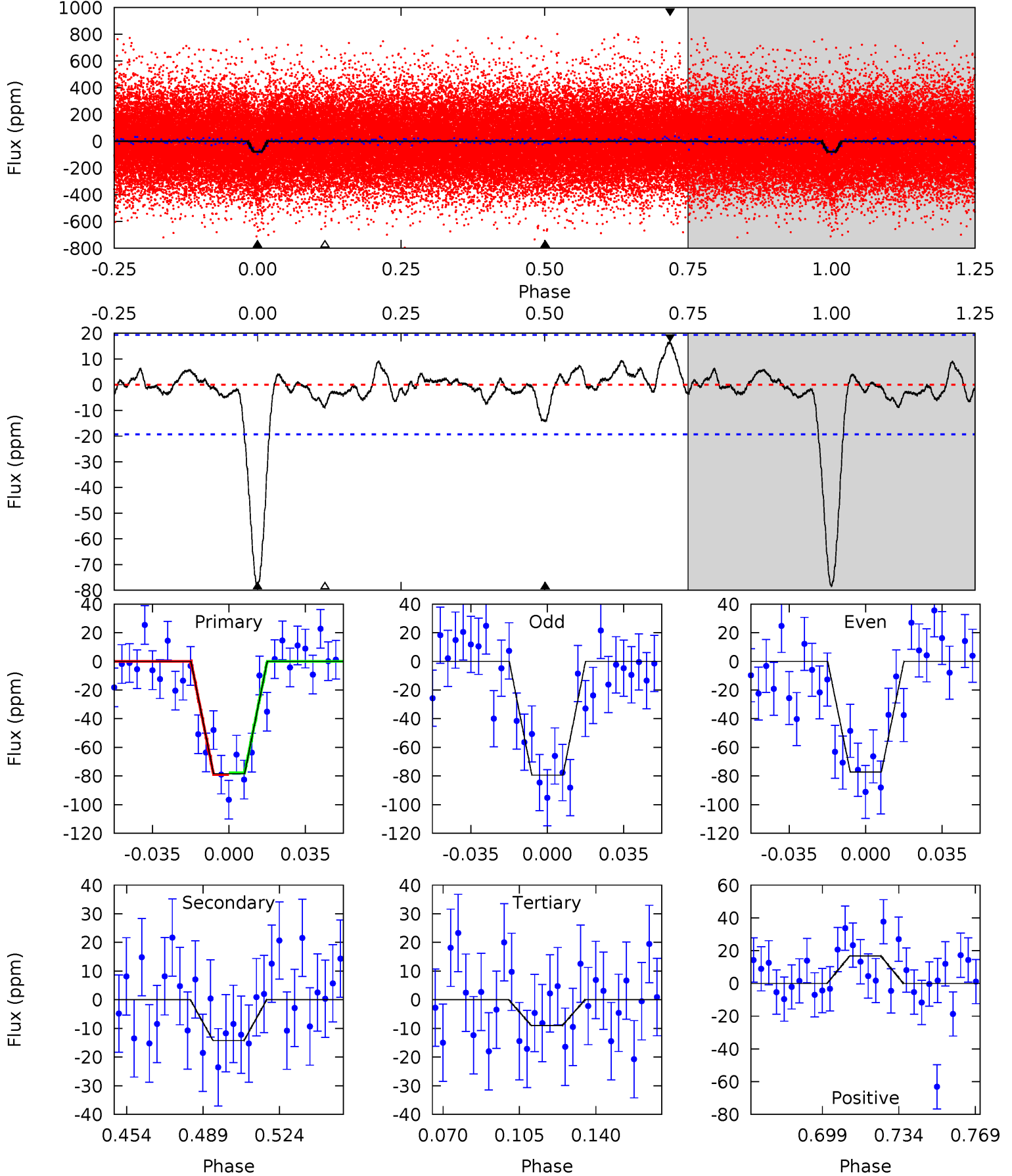
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	2.07	1.59	3.04	4.73	2.01	0.89	16.8	15.3	0.48	-0.97	0.57	1.02	0.14	3.44



# Alt Model-Shift Uniqueness Test

001724513-01, P = 1.975210 Days, E = 129.654928 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
19.4	3.52	2.22	4.15	4.78	2.11	1.05	17.2	15.2	1.30	-0.63	0.26	1.01	0.18	0.13





### Stellar Parameters For KIC 001724513

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6401^{+77}_{-77}$	$4.029^{+0.196}_{-0.098}$	$-0.200^{+0.150}_{-0.100}$	$1.744^{+0.273}_{-0.376}$	$1.185^{+0.135}_{-0.098}$	$0.315^{+0.312}_{-0.098}$
	+1%/-1%	+5%/-2%	+75%/-50%	+16%/-22%	+11%/-8%	+99%/-31%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 001724513-01 / KOI 4224.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-7 \pm 4$	$1.57^{+0.69}_{-0.60}$	$2865^{+115}_{-146}$	$3804^{+1018}_{-792}$	$1.730^{+3.516}_{-1.124}$
Alt.	$-14 \pm 4$	$1.66^{+0.83}_{-0.70}$	$2873^{+133}_{-175}$	$4277^{+1206}_{-675}$	$2.938^{+6.434}_{-1.710}$

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

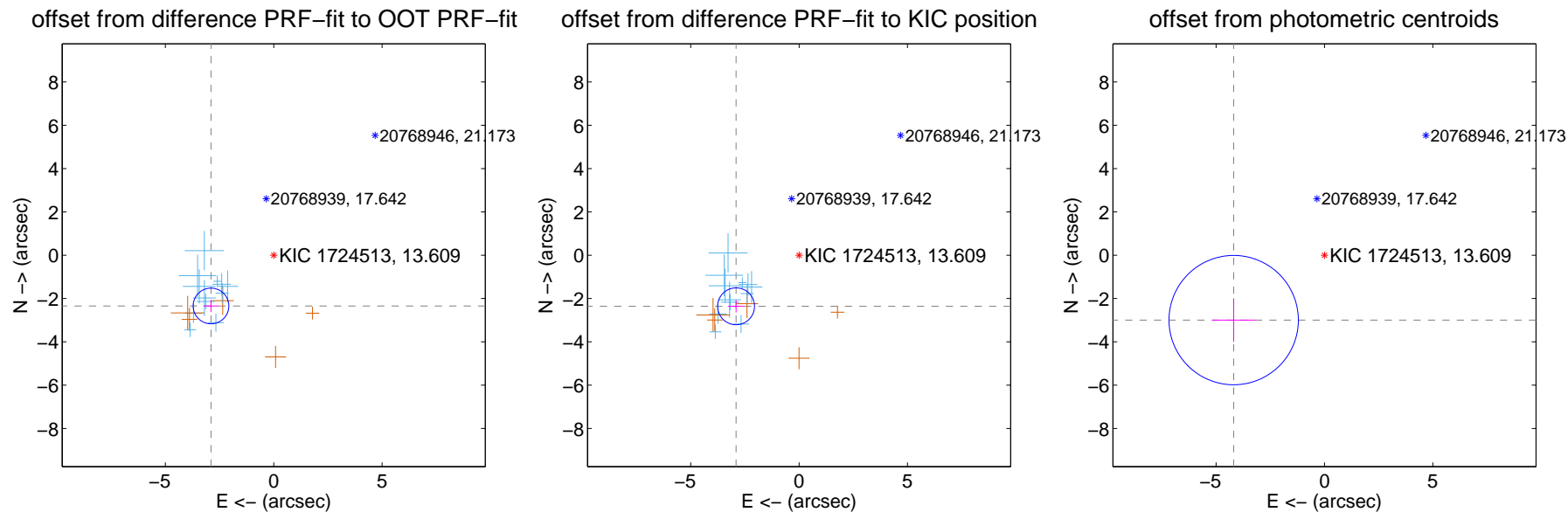
## DV Centroid Data

Supplemental centroid analysis for 001724513-01. Kepler magnitude: 13.61. Transit SNR 12.64

There are 12 quarters with good PRF difference image offsets

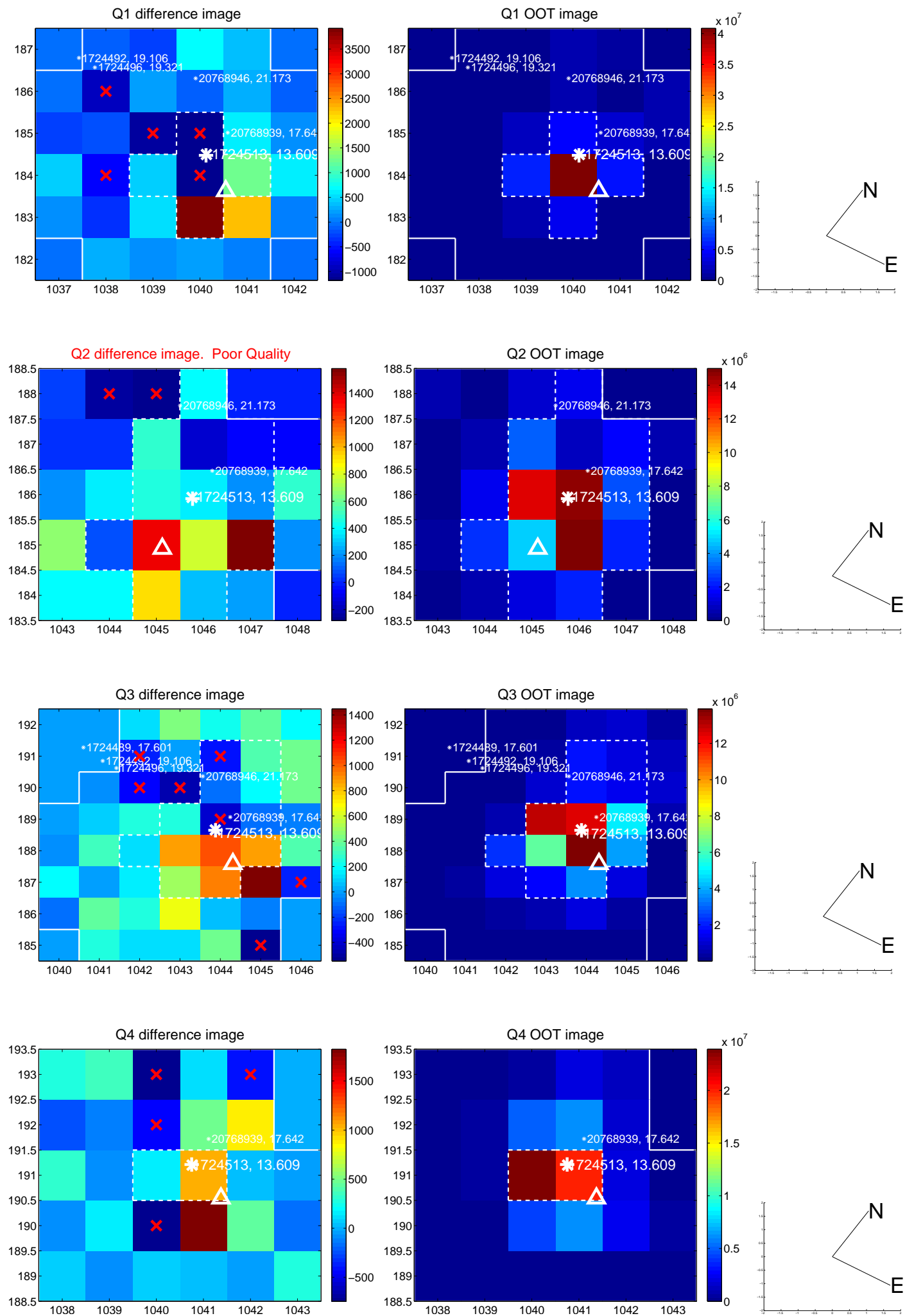
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.725 \pm 0.274$	<b>13.57</b>	$2.896 \pm 0.350$	$-2.343 \pm 0.283$
PRF-fit source offset from KIC position	$3.745 \pm 0.284$	<b>13.20</b>	$2.909 \pm 0.372$	$-2.359 \pm 0.284$
photometric centroid source offset	$5.15 \pm 1.00$	<b>5.18</b>	$4.19 \pm 0.99$	$-3.00 \pm 1.01$

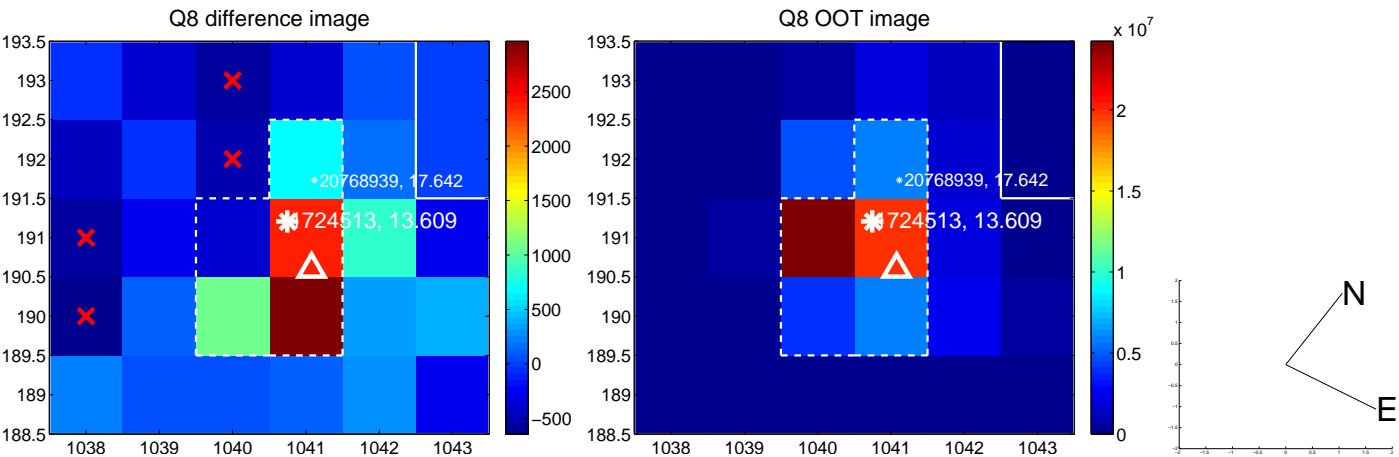
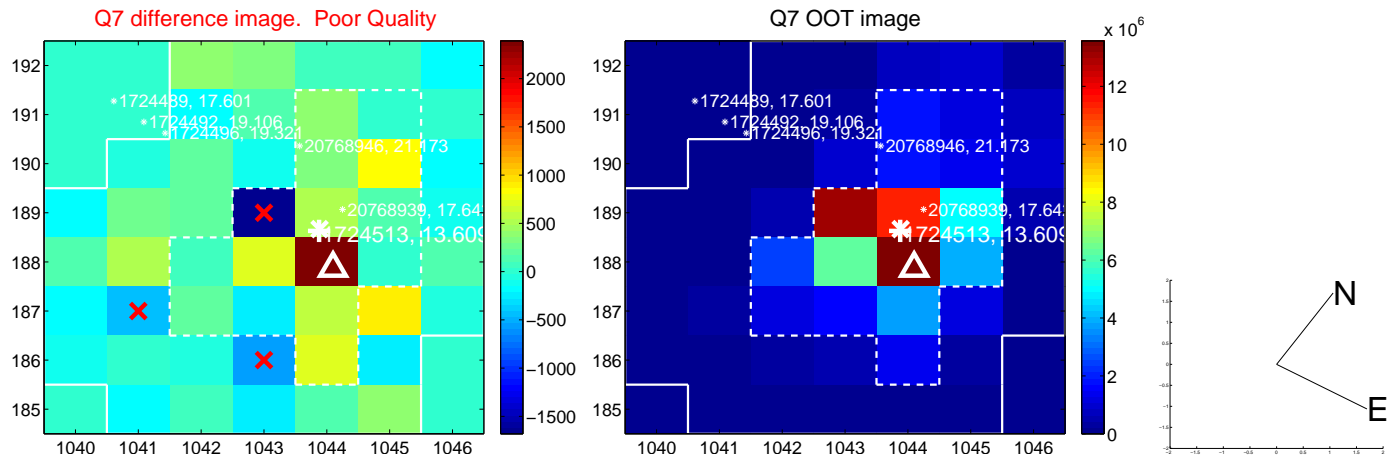
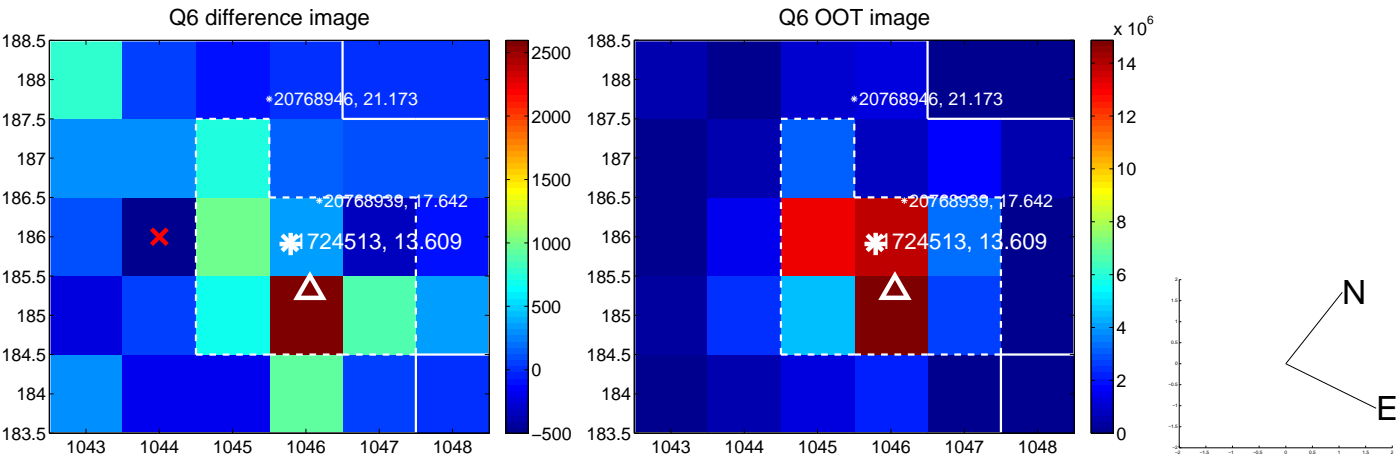
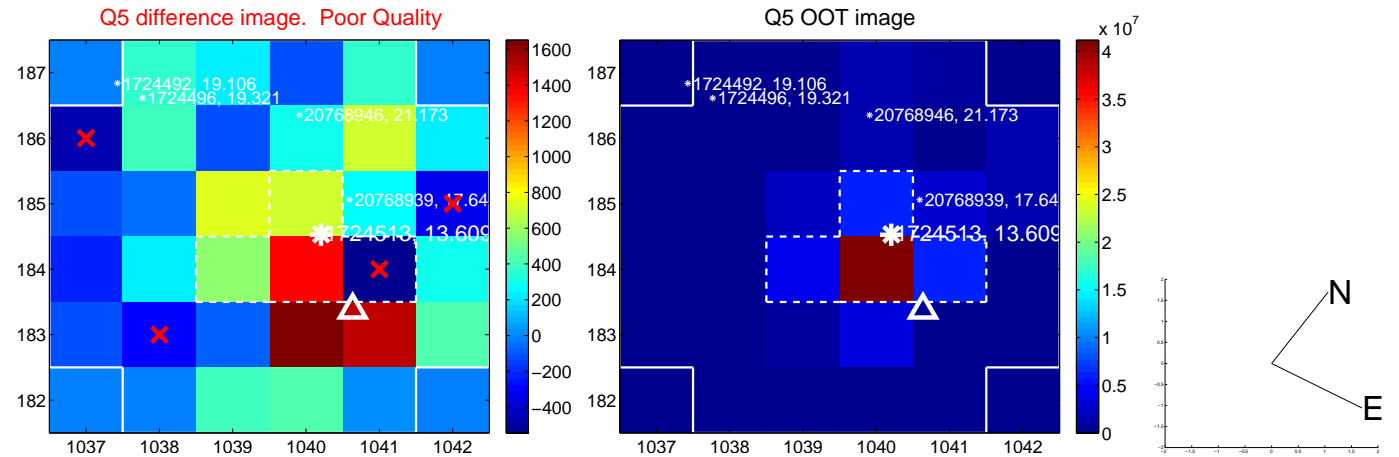


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

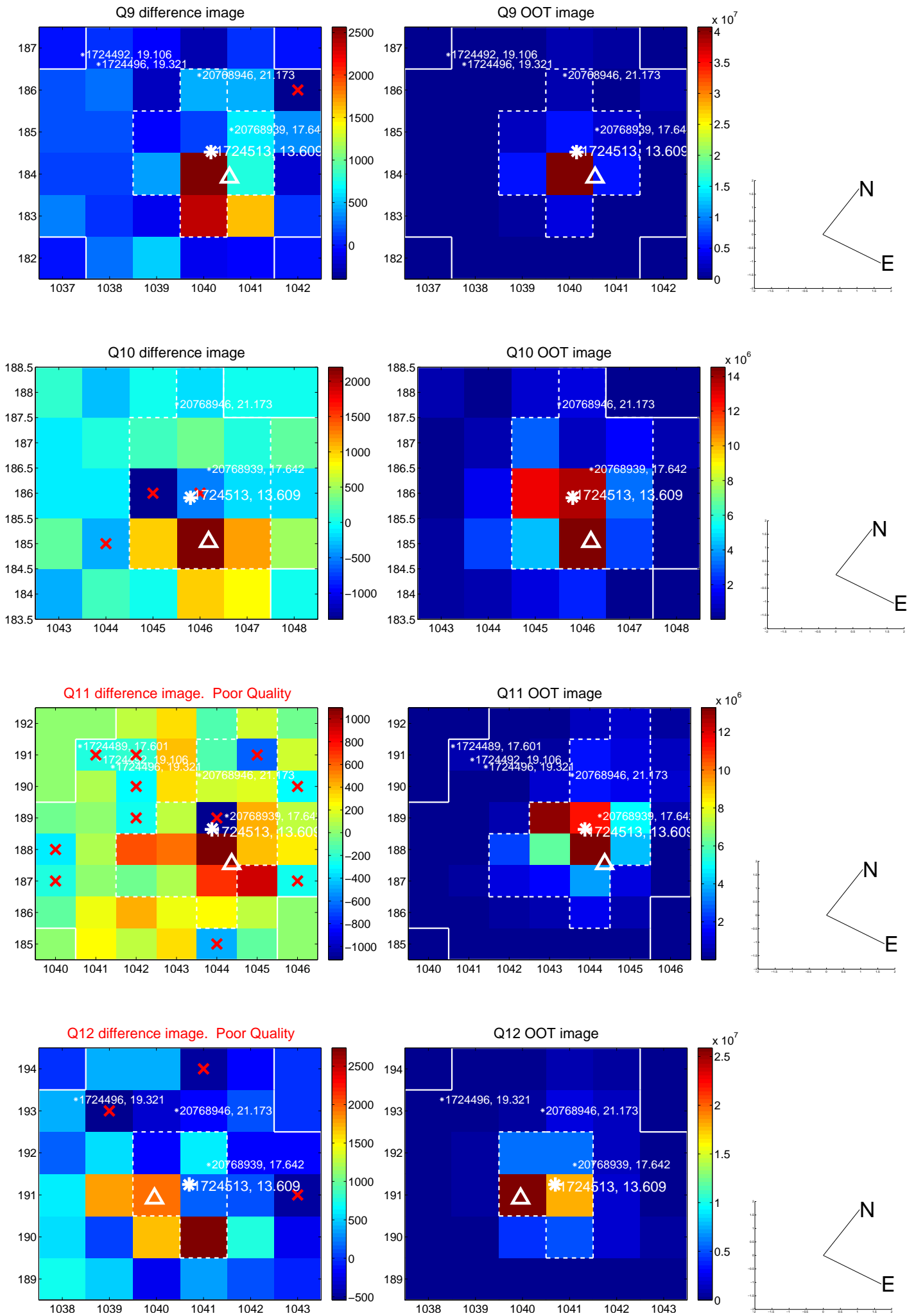


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

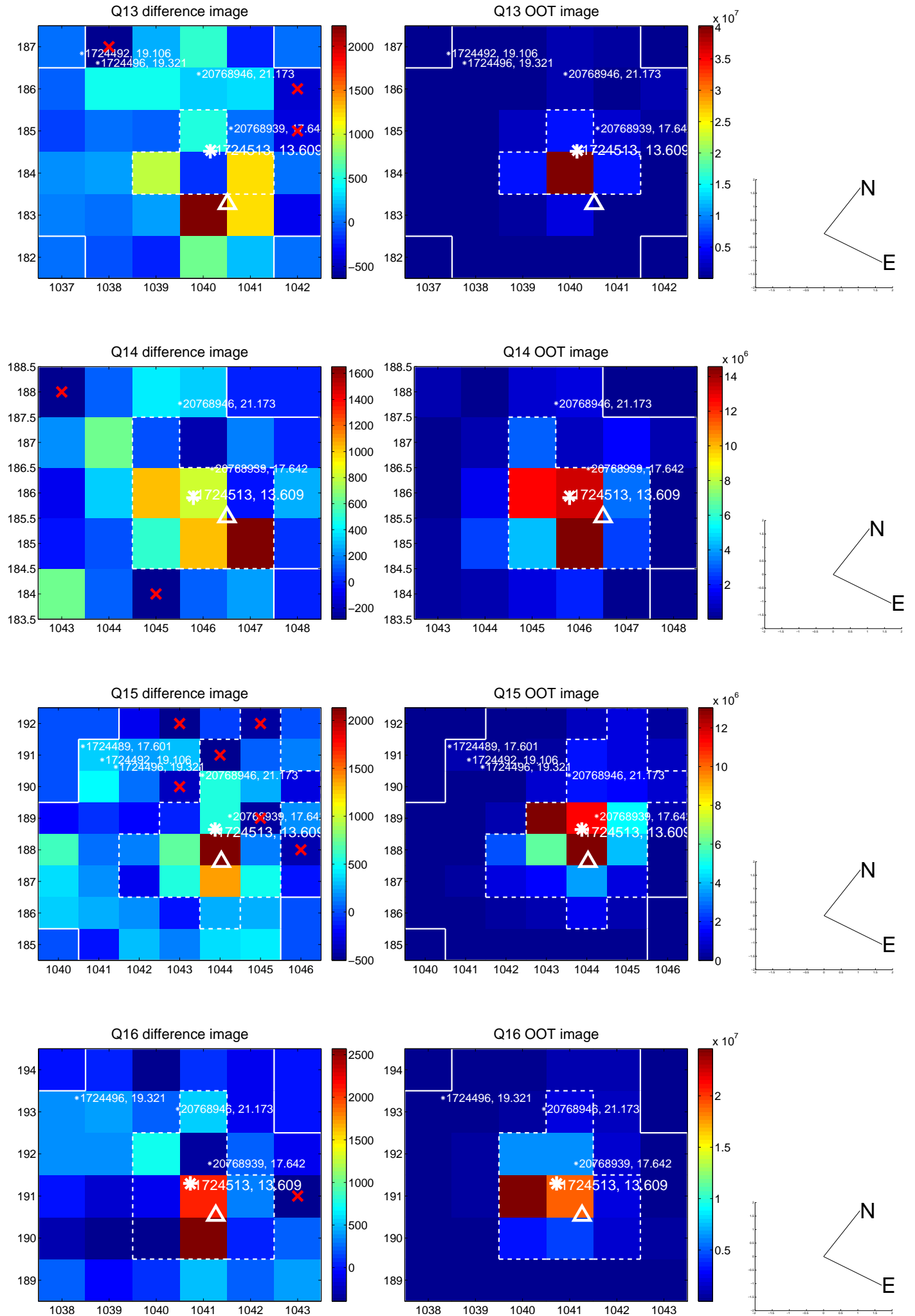




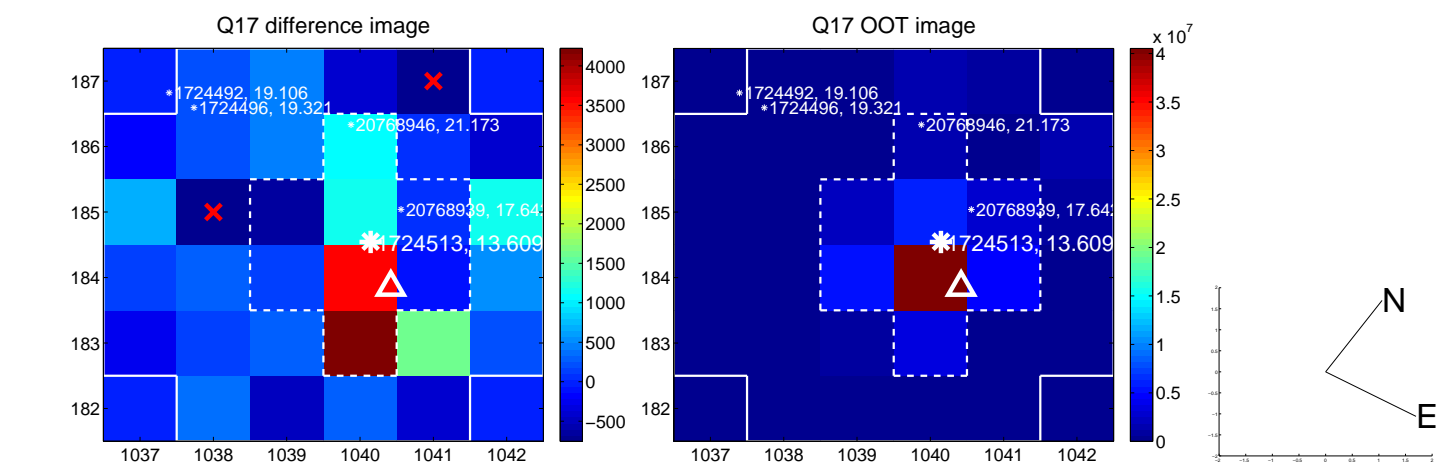
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



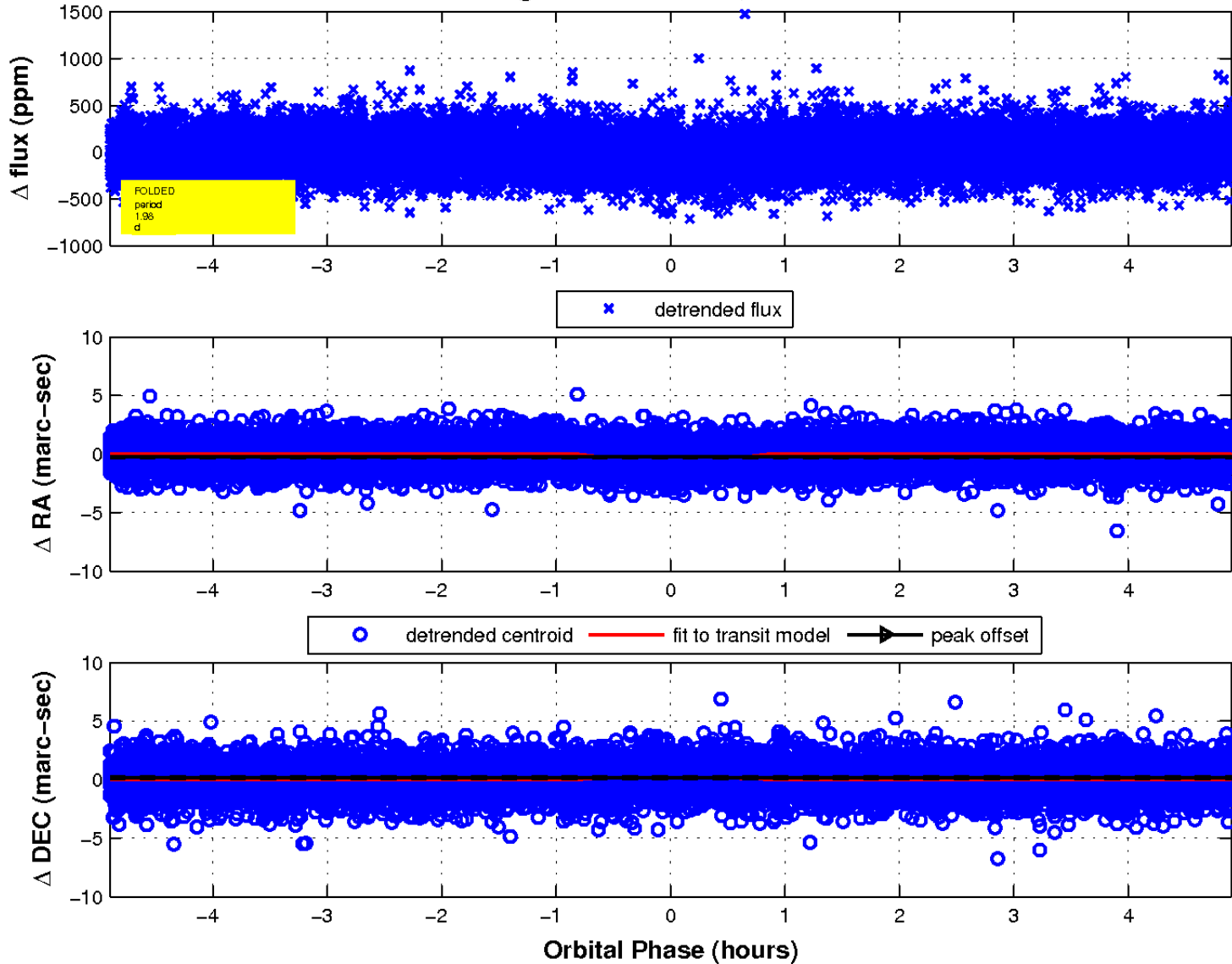
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

