

# KIC 005164255

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
005164255-01	OBS	0824.01	15.375579	142.865807	15324.5	3.305	170.0	167.2	0.83	4986	11.10	30.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005164255-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

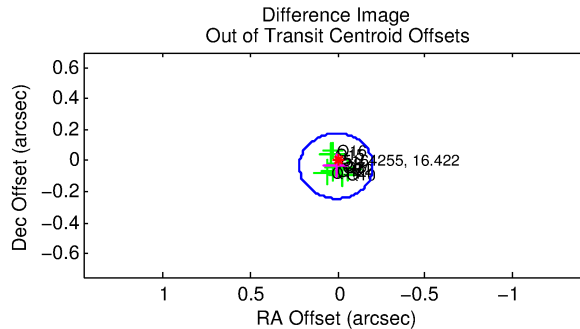
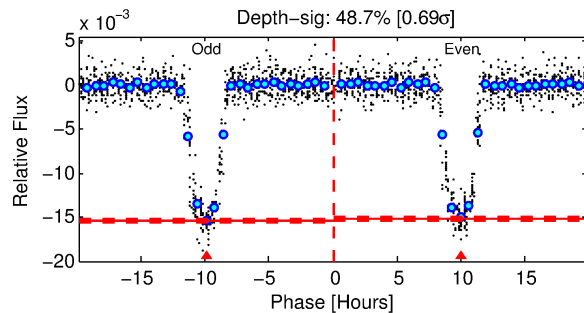
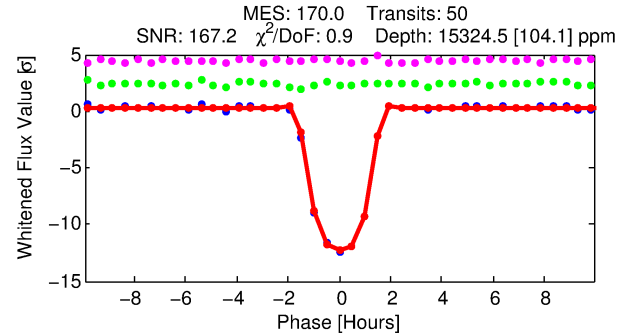
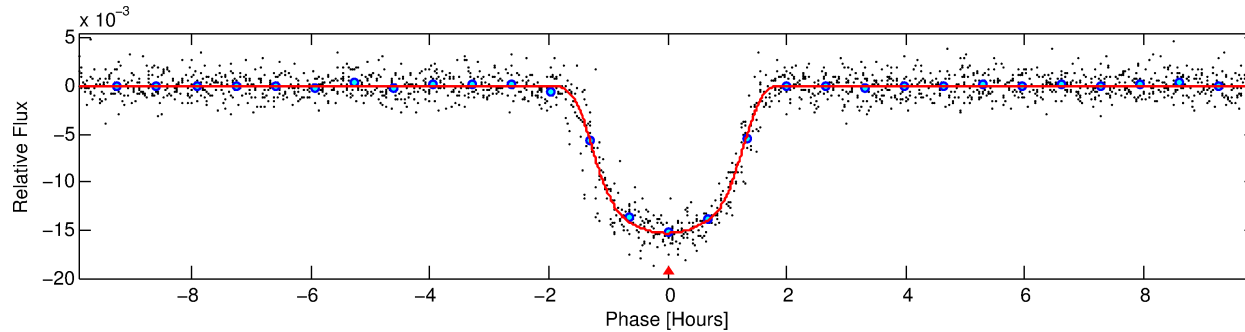
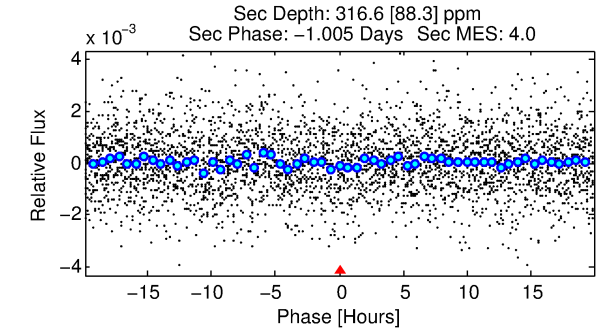
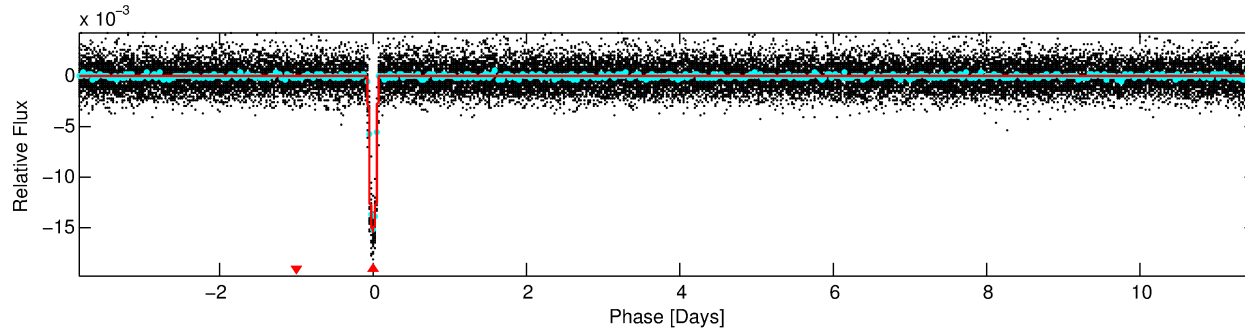
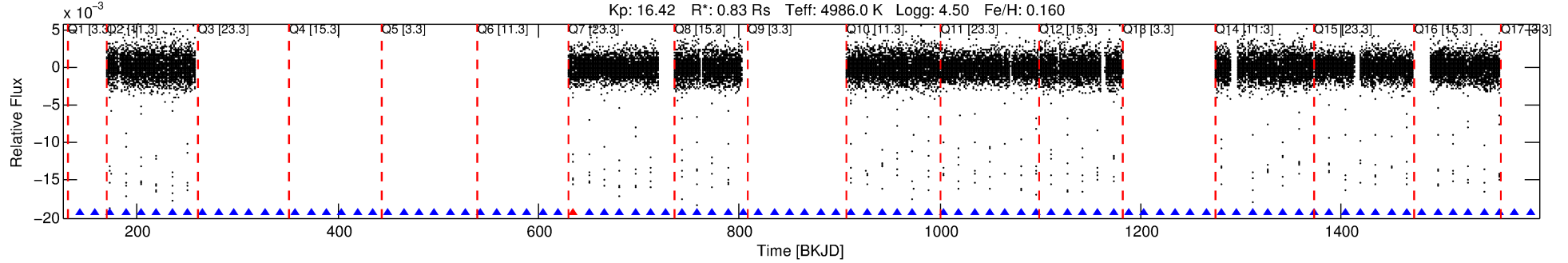
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005164255-01

No Significant Match Found

# DV One-Page Summary

KIC: 5164255 Candidate: 1 of 1 Period: 15.376 d  
KOI: K00824.01 Corr: 0.988



## DV Fit Results:

Period = 15.37558 [0.00001] d  
Epoch = 142.8658 [0.0006] BKJD  
Rp/R\* = 0.1221 [0.0015]  
a/R\* = 30.85 [1.06]  
b = 0.71 [0.03]  
Seff = 30.61 [4.30]  
Teq = 600 [21] K  
Rp = 11.10 [0.84] Re  
a = 0.1120 [0.0085] AU  
Ag = 17.74 [5.44] [3.08 $\sigma$ ]  
Teffp = 1903 [137] K [9.44 $\sigma$ ]

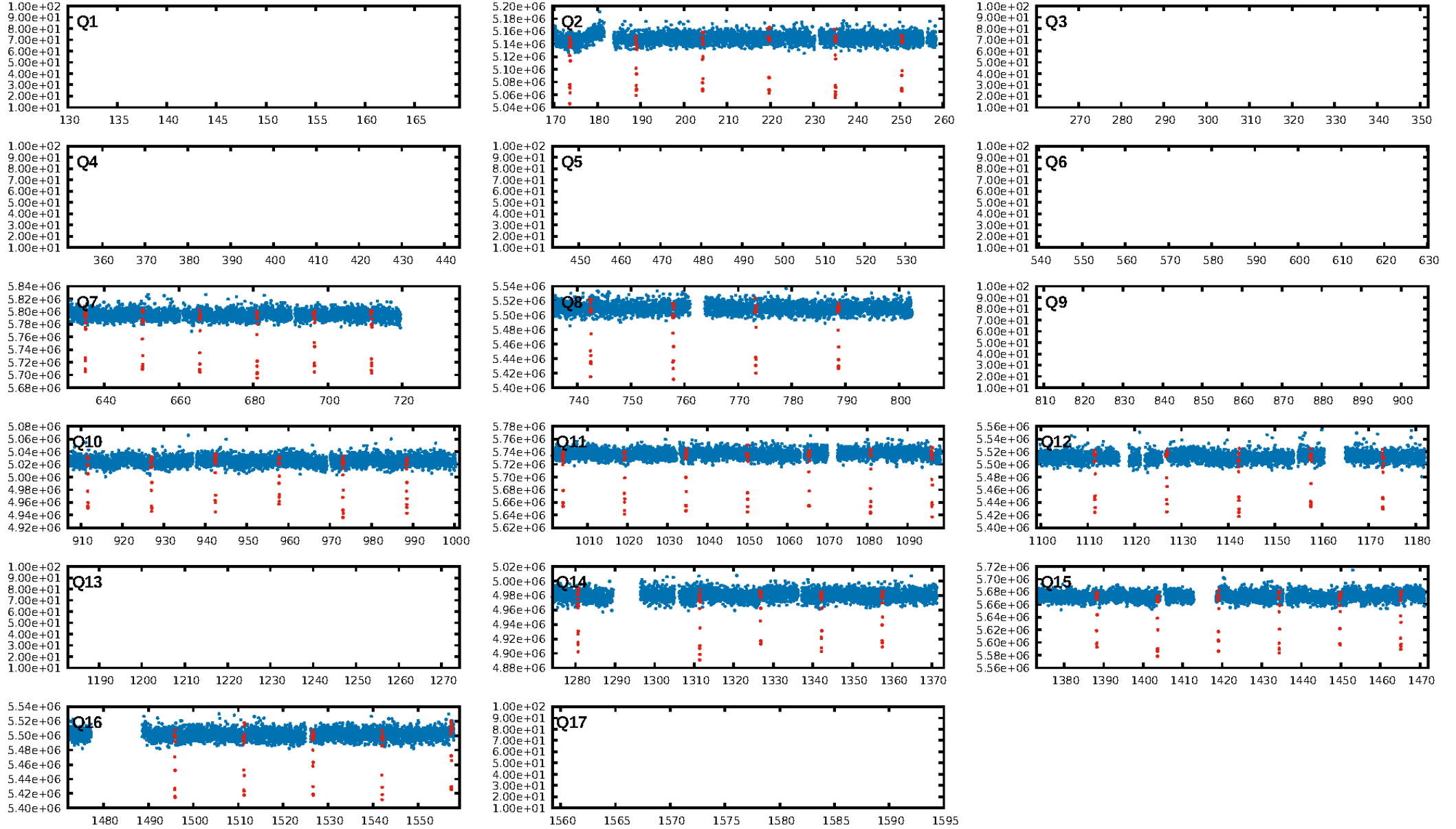
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 6.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.98 [49/50]  
GhostDiagnostic-chr: 3.698  
Centroid-sig: 0.6%  
Centroid-so: 0.390 arcsec [4.94 $\sigma$ ]  
OotOffset-rm: 0.035 arcsec [0.50 $\sigma$ ]  
KicOffset-rm: 0.112 arcsec [1.47 $\sigma$ ]  
OotOffset-st: 3/3/3/0 [9]  
KicOffset-st: 3/3/3/0 [9]  
DiffImageQuality-fgm: 1.00 [9/9]  
DiffImageOverlap-fno: 1.00 [9/9]

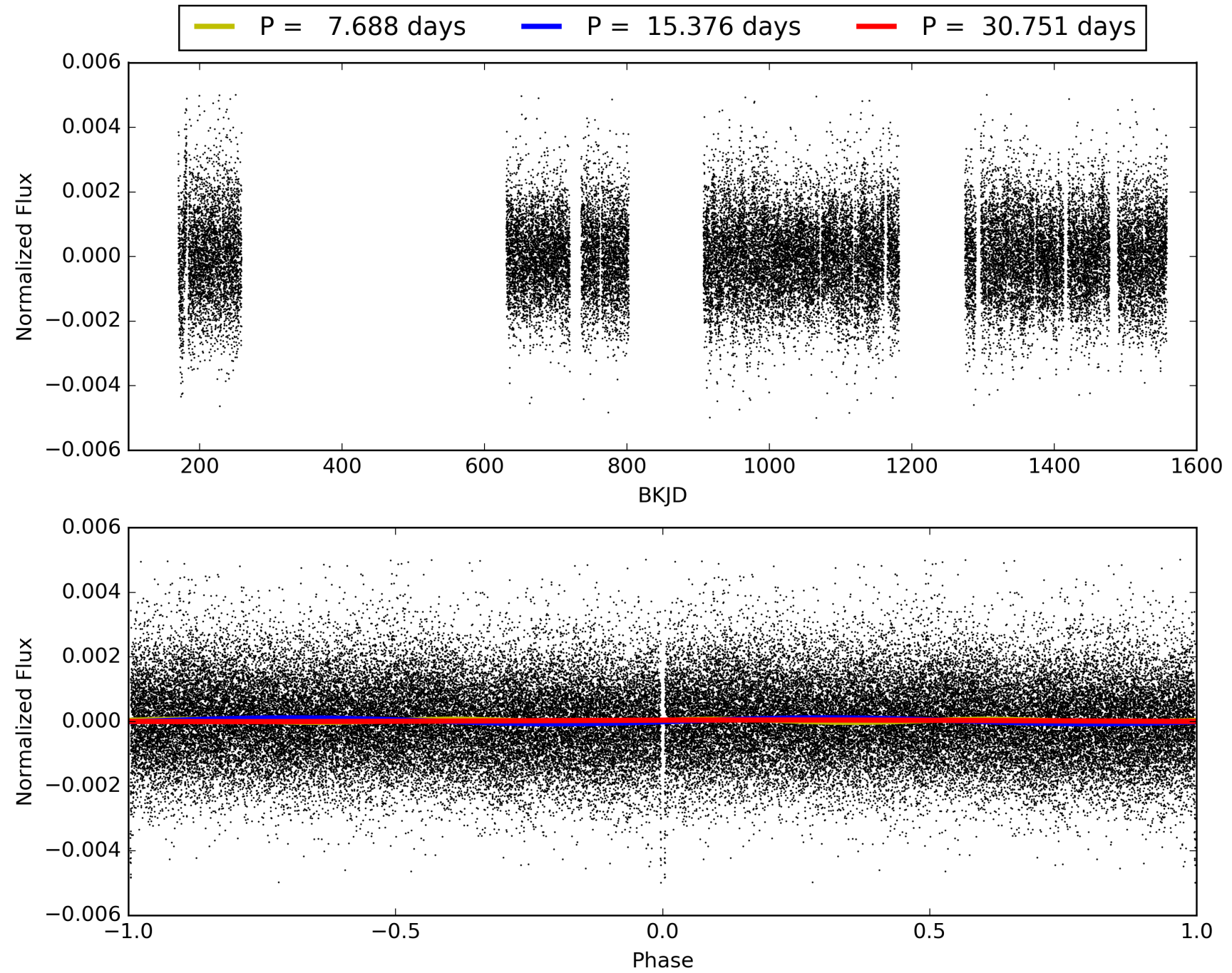
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:37:08 Z

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

# TCE 005164255-01, PDC Light Curves

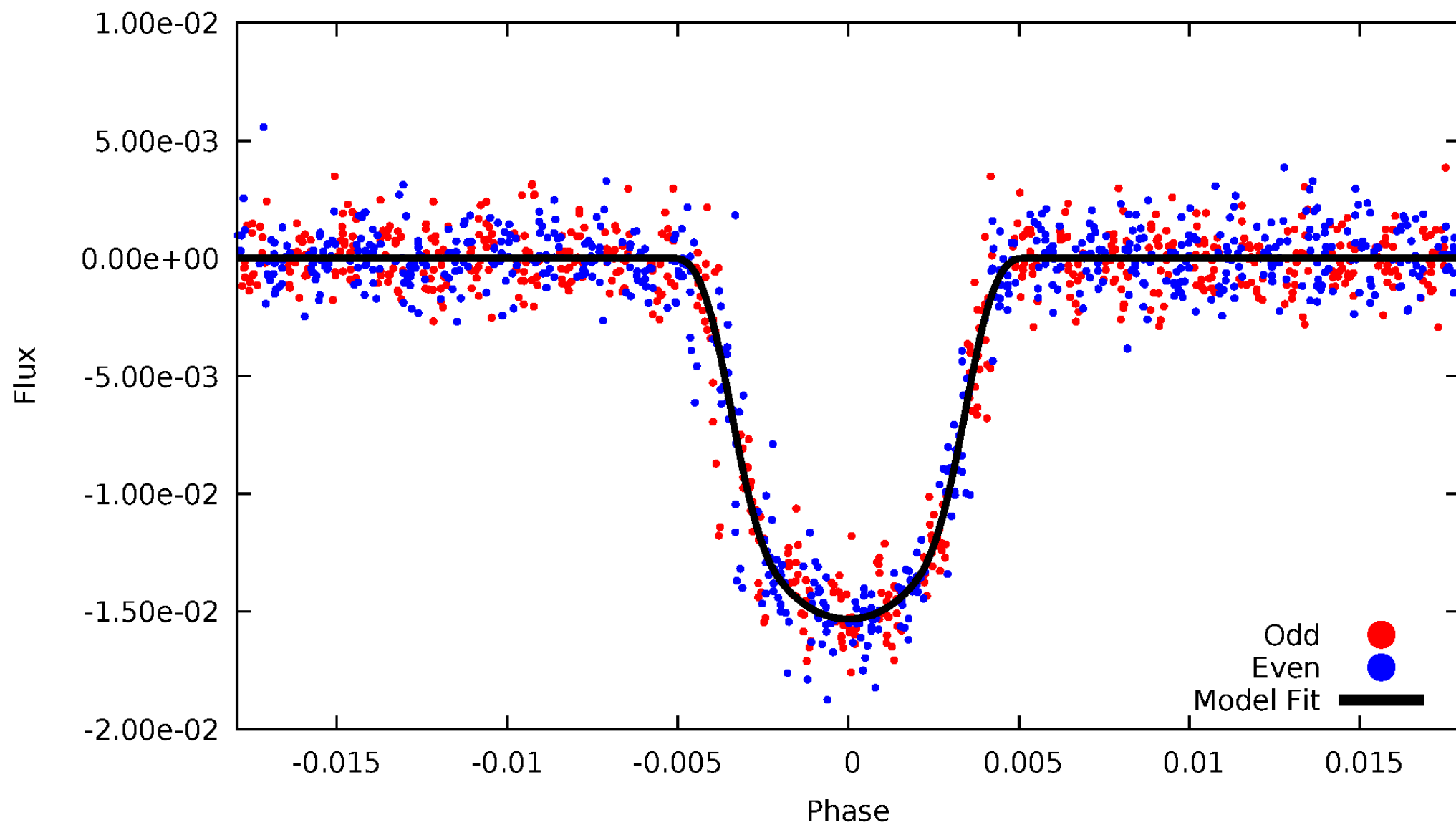


# TCE 005164255-01



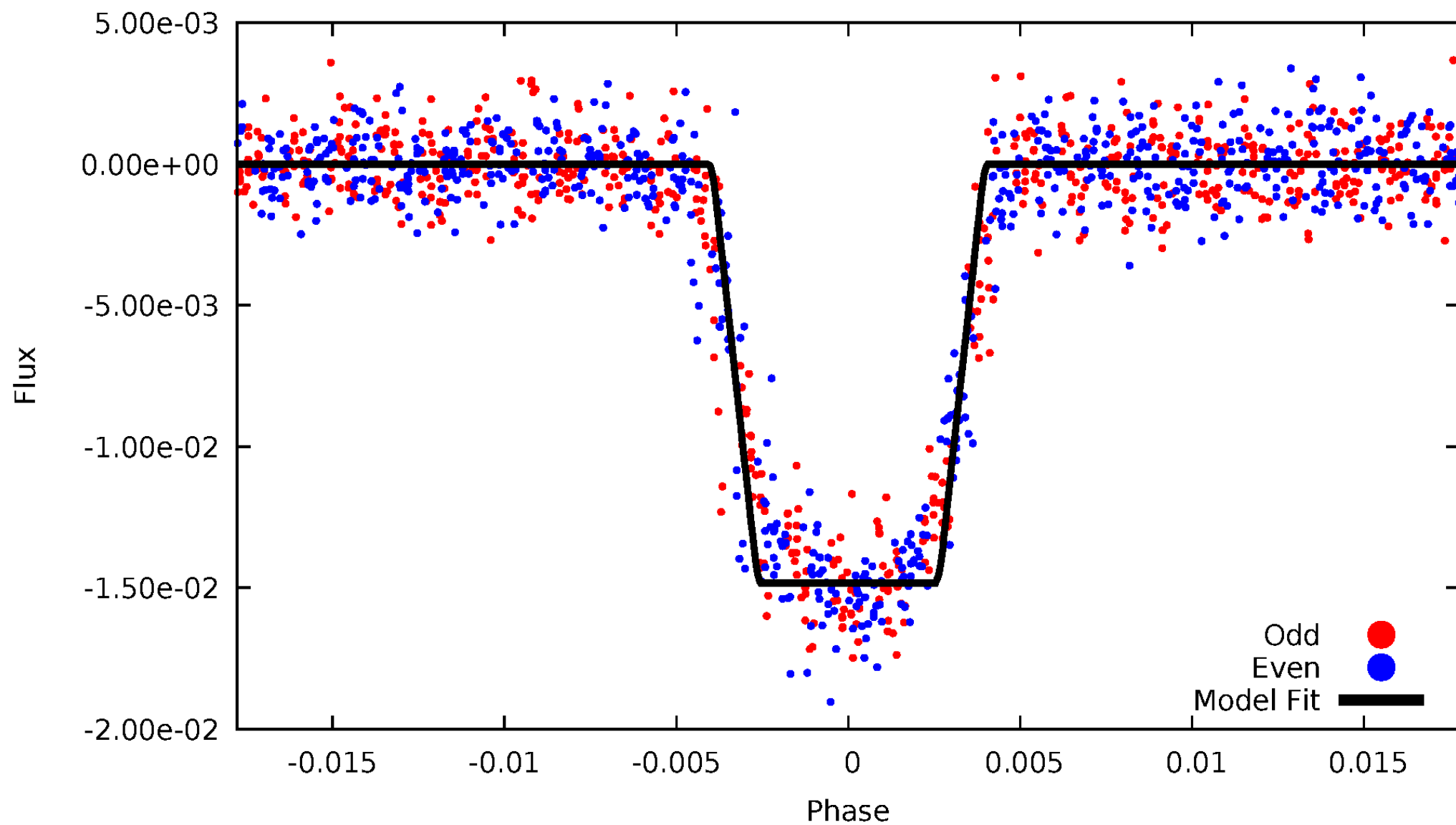
# DV Odd/Even

TCE 005164255-01



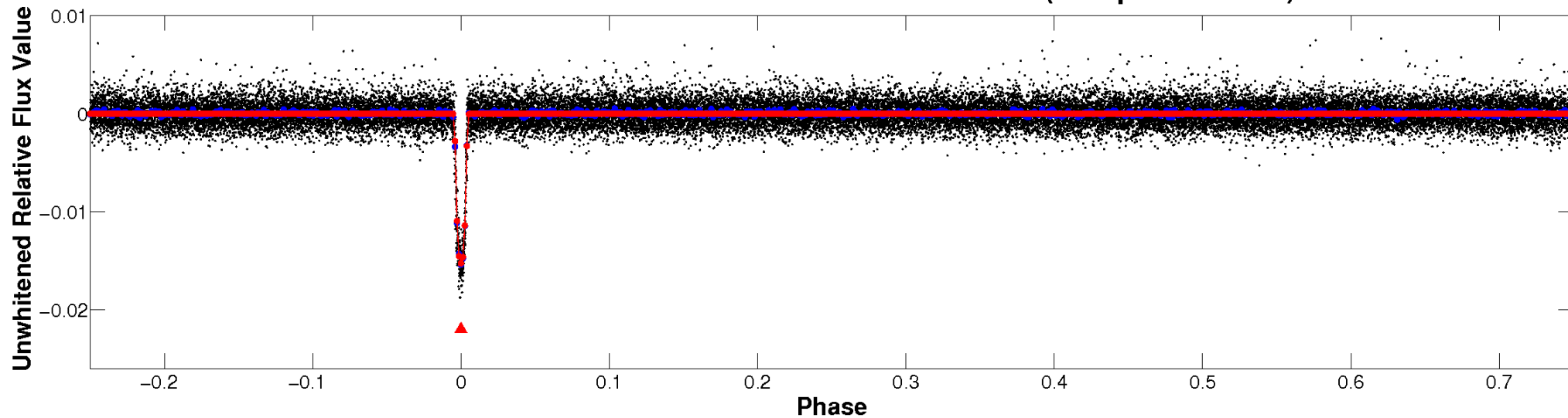
# ALT Odd/Even

TCE 005164255-01

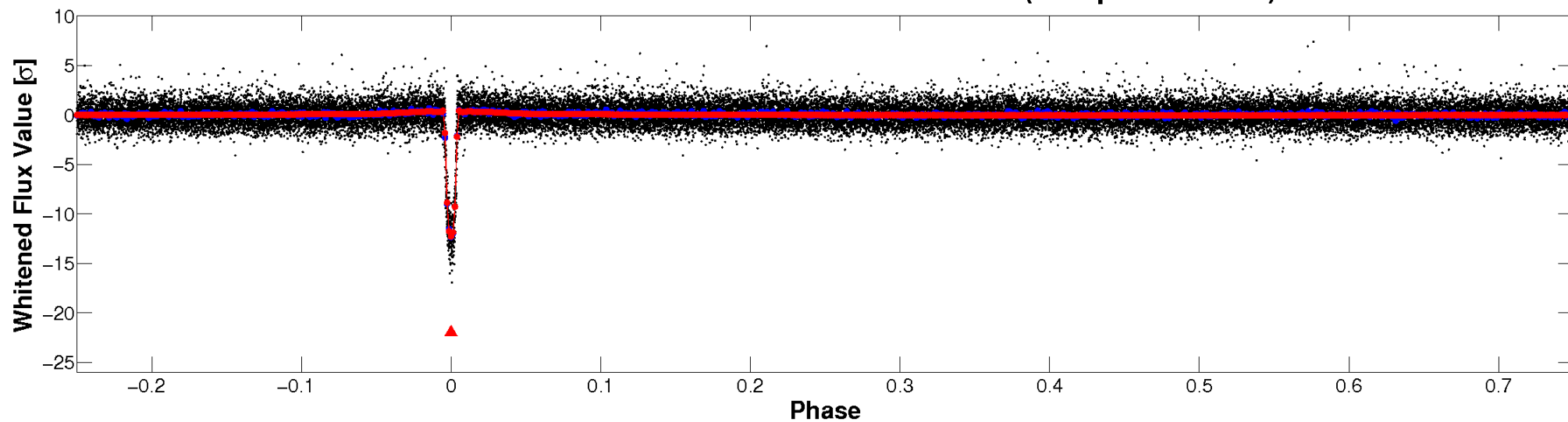


# Non-Whitened Vs. Whitened Light Curve

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

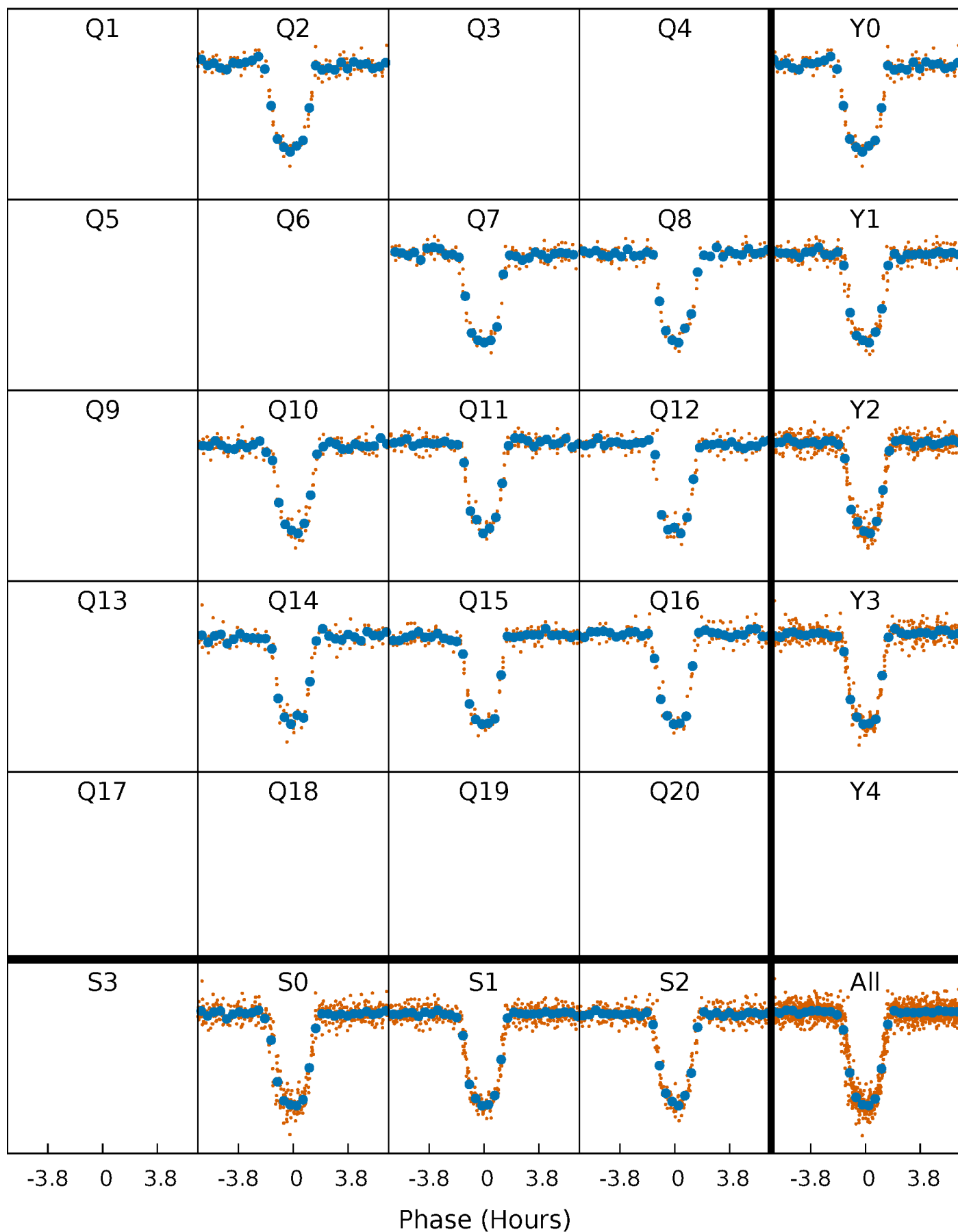


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

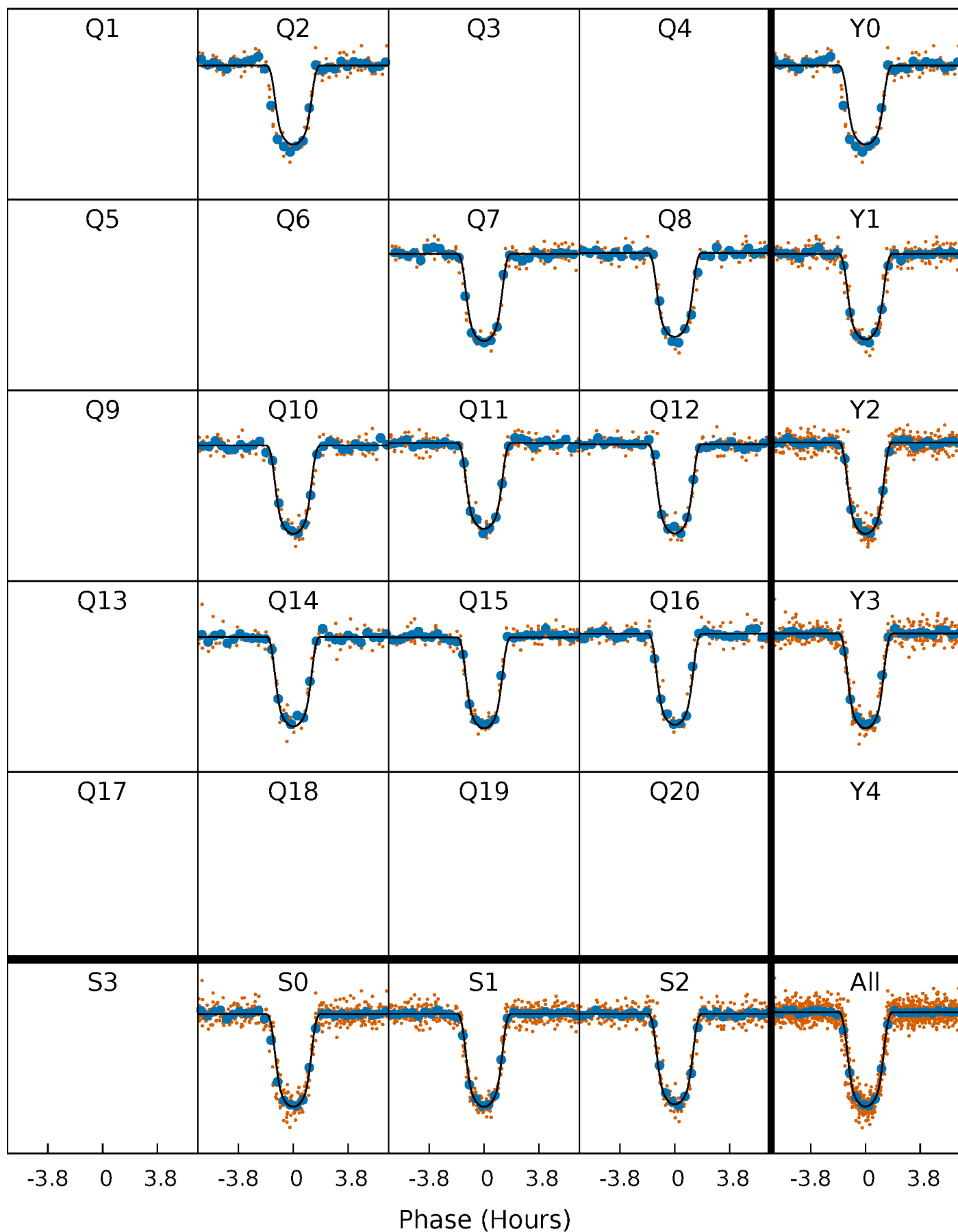
TCE 005164255-01 P= 15.375579 Days  $T_0=142.865807$  (BKJD)





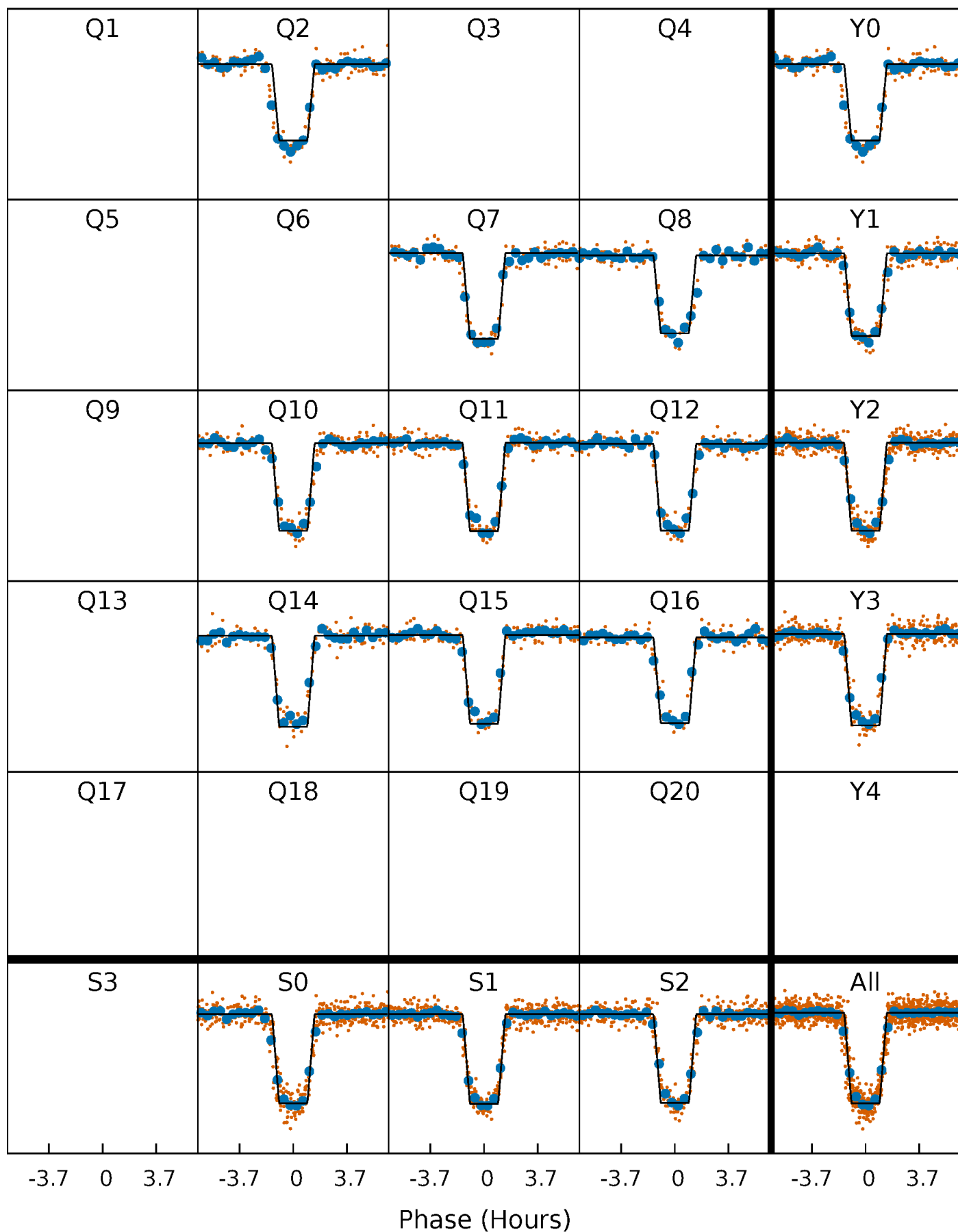
# DV Quarter-Phased Transit Curves

TCE 005164255-01 P= 15.375579 Days  $T_0=142.865807$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

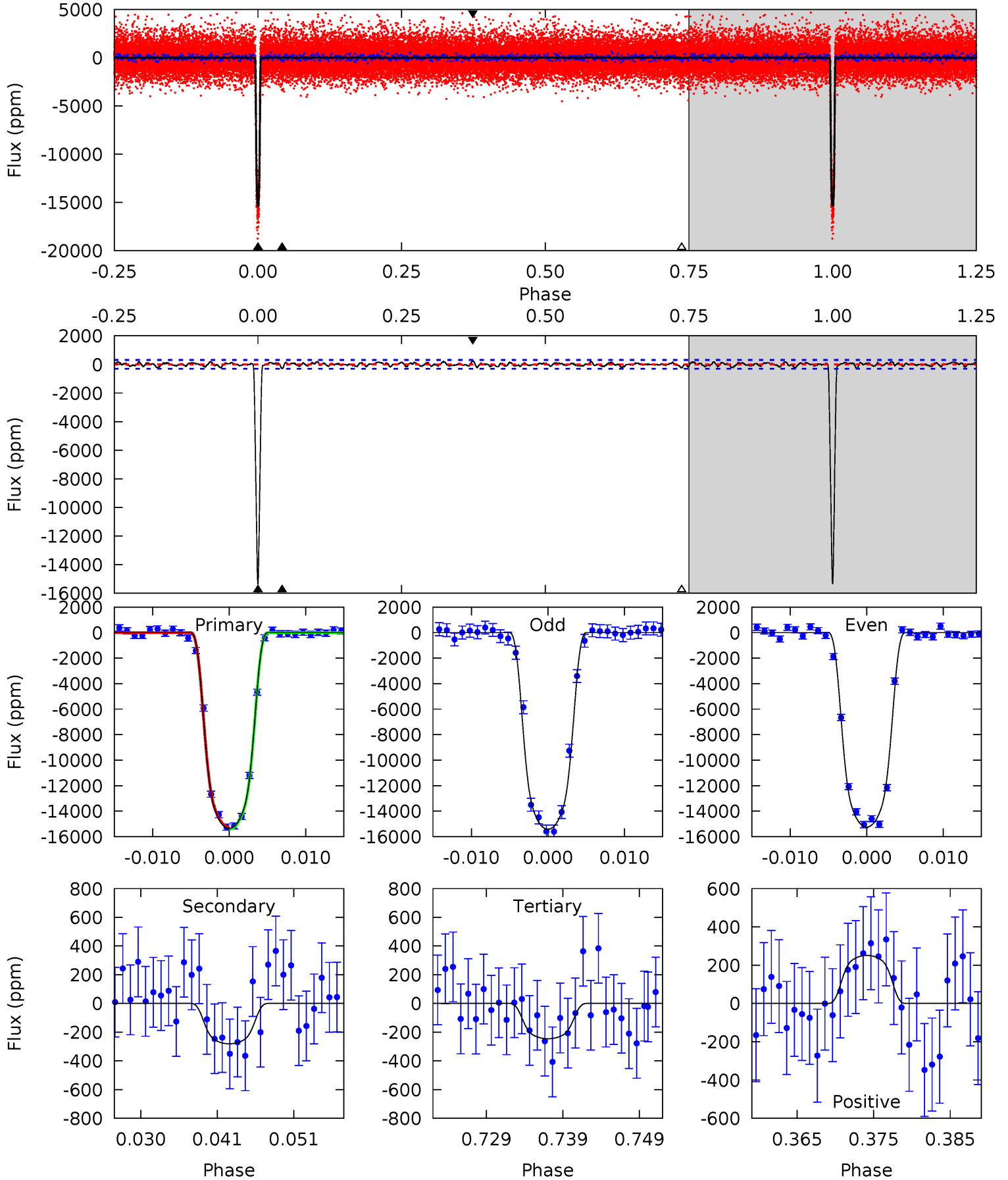
TCE 005164255-01 P= 15.375599 Days  $T_0=142.864202$  (BKJD)



# DV Model-Shift Uniqueness Test

005164255-01, P = 15.375579 Days, E = 142.865807 Days

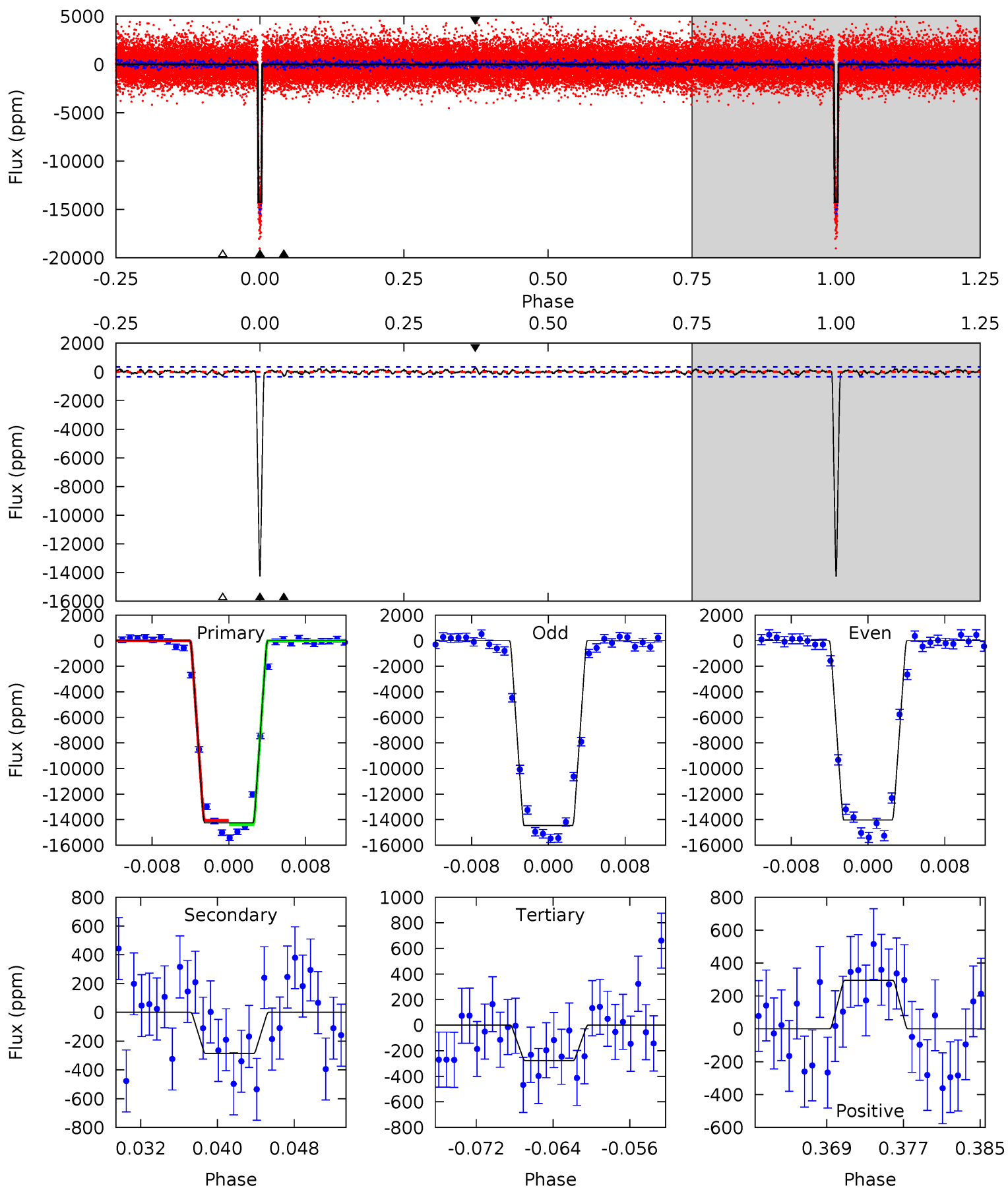
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
252.9	4.63	4.05	4.14	5.02	2.57	1.36	248.8	248.7	0.59	0.50	1.45	1.00	0.02	1.29



# Alt Model-Shift Uniqueness Test

005164255-01,  $P = 15.375599$  Days,  $E = 142.864202$  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
208.9	4.19	4.06	4.32	5.07	2.65	1.17	204.9	204.6	0.13	-0.13	3.19	1.00	0.02	2.35



### Stellar Parameters For KIC 005164255

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4986^{+79}_{-79}$	$4.496^{+0.075}_{-0.025}$	$0.160^{+0.150}_{-0.150}$	$0.833^{+0.033}_{-0.062}$	$0.793^{+0.054}_{-0.029}$	$1.931^{+0.526}_{-0.177}$
	+2%/-2%	+2%/-1%	+94%/-94%	+4%/-7%	+7%/-4%	+27%/-9%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 005164255-01 / KOI 0824.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-281 \pm 61$	$11.07^{+0.36}_{-0.51}$	$832^{+19}_{-20}$	$2625^{+70}_{-90}$	$16^{+4}_{-4}$
Alt.	$-286 \pm 68$	$11.01^{+0.36}_{-0.51}$	$832^{+18}_{-20}$	$2627^{+86}_{-95}$	$17^{+4}_{-4}$

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

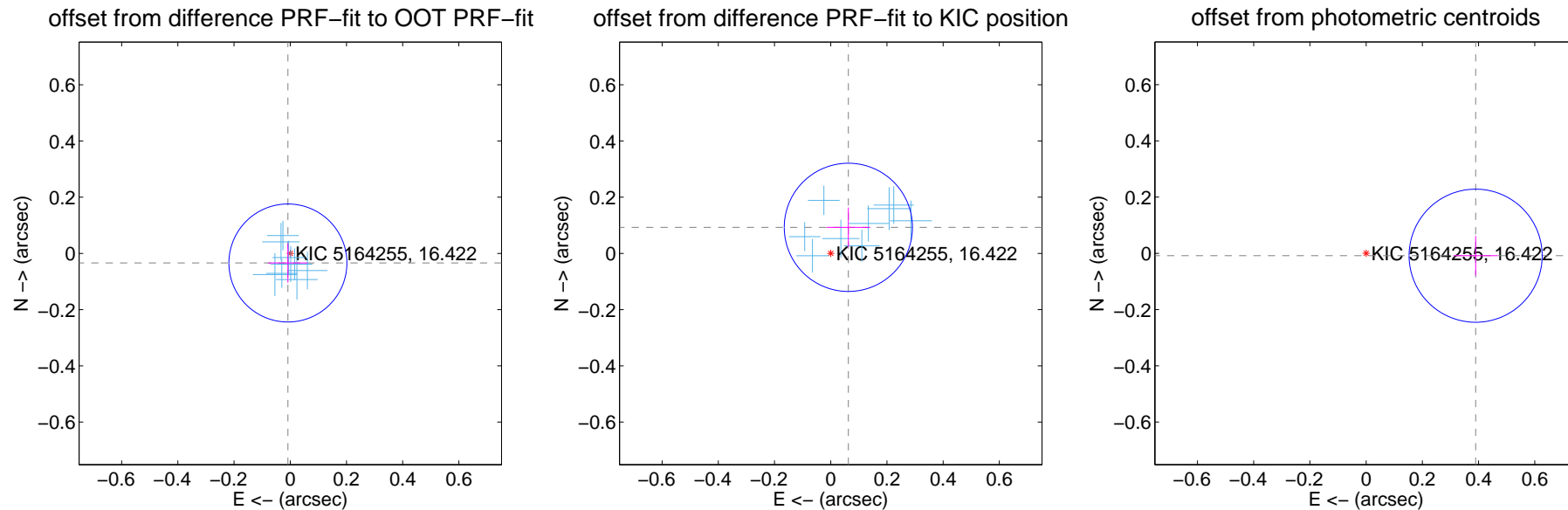
## DV Centroid Data

Supplemental centroid analysis for 005164255-01. Kepler magnitude: 16.42. Transit SNR 167.22

There are 9 quarters with good PRF difference image offsets

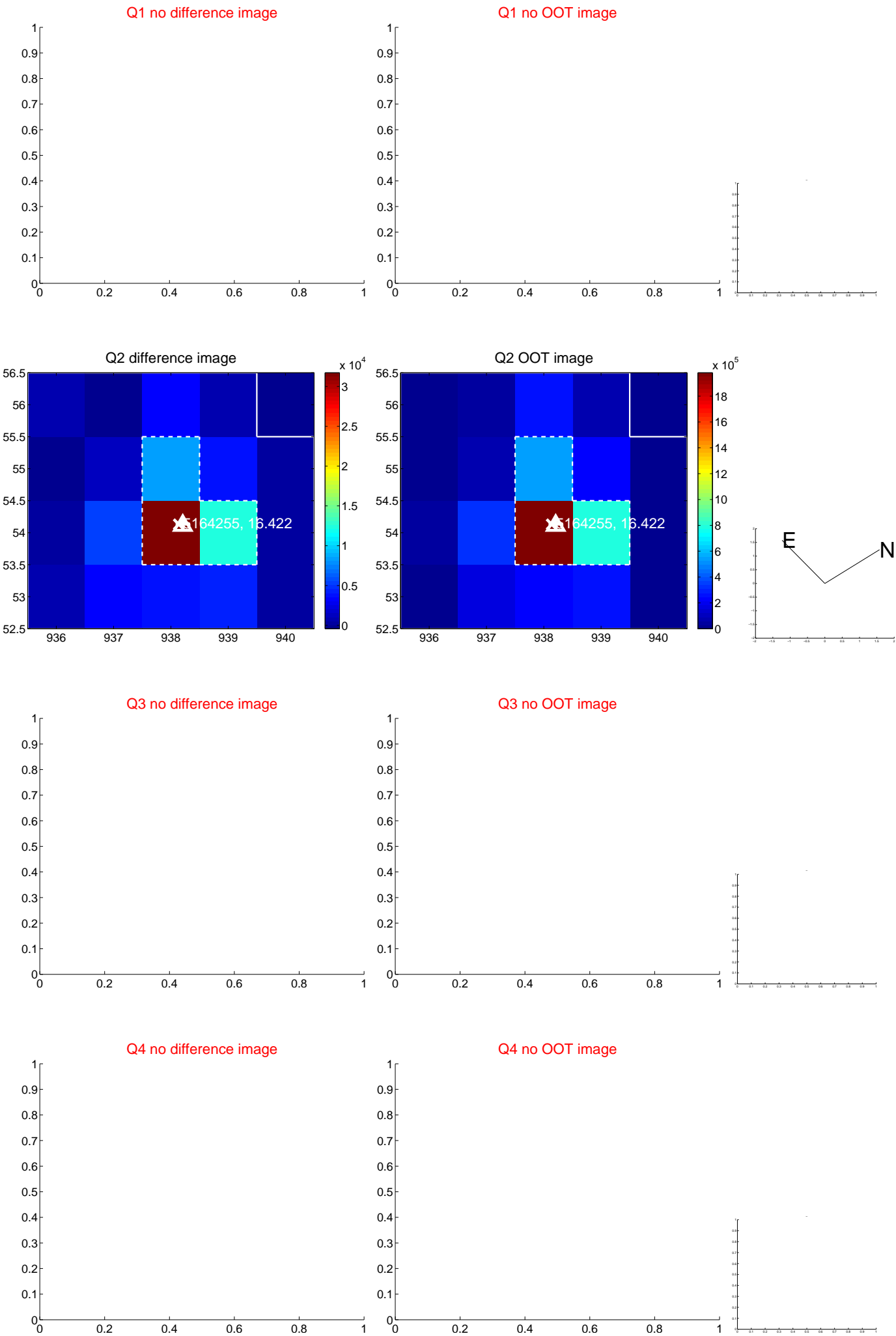
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.035 \pm 0.070$	0.50	$0.008 \pm 0.070$	$-0.034 \pm 0.070$
PRF-fit source offset from KIC position	$0.112 \pm 0.076$	1.47	$-0.063 \pm 0.078$	$0.093 \pm 0.070$
photometric centroid source offset	$0.39 \pm 0.08$	4.94	$-0.39 \pm 0.08$	$-0.01 \pm 0.07$



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.

Q5 no difference image



Q5 no OOT image



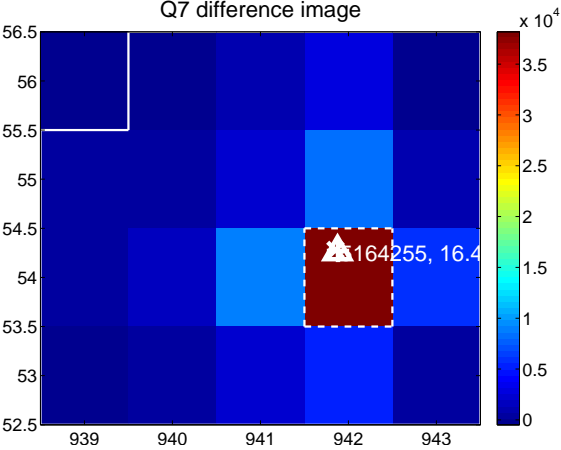
Q6 no difference image



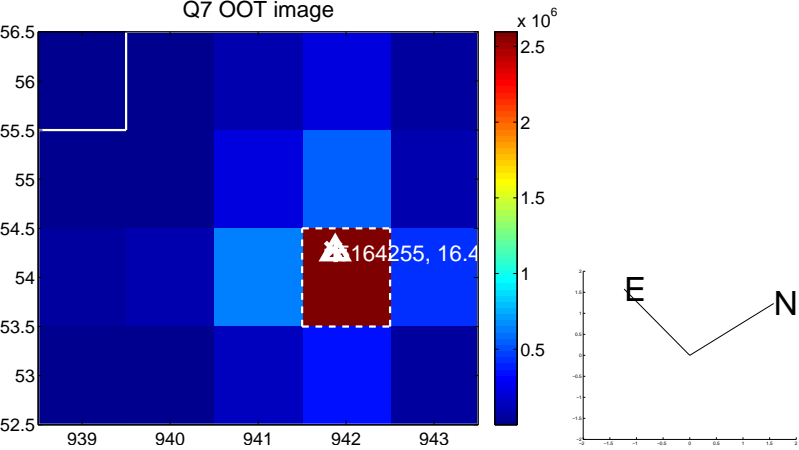
Q6 no OOT image



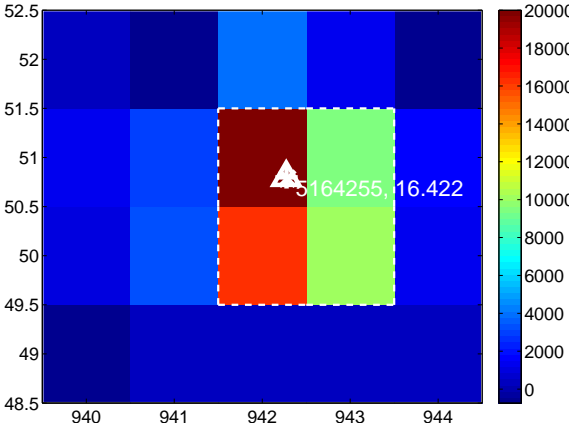
Q7 difference image



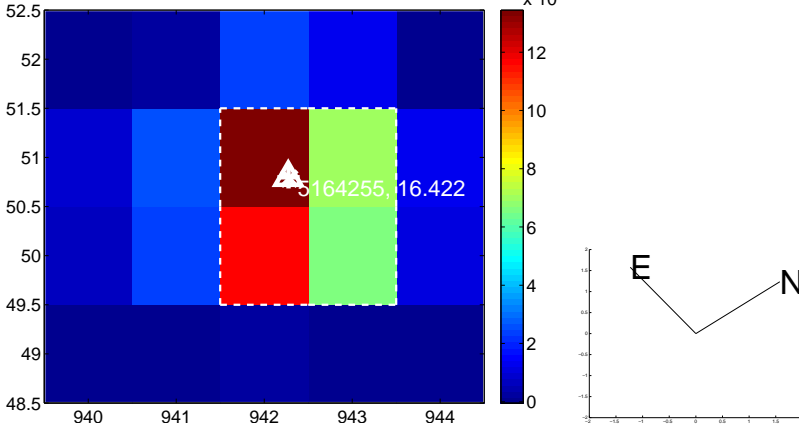
Q7 OOT image



Q8 difference image

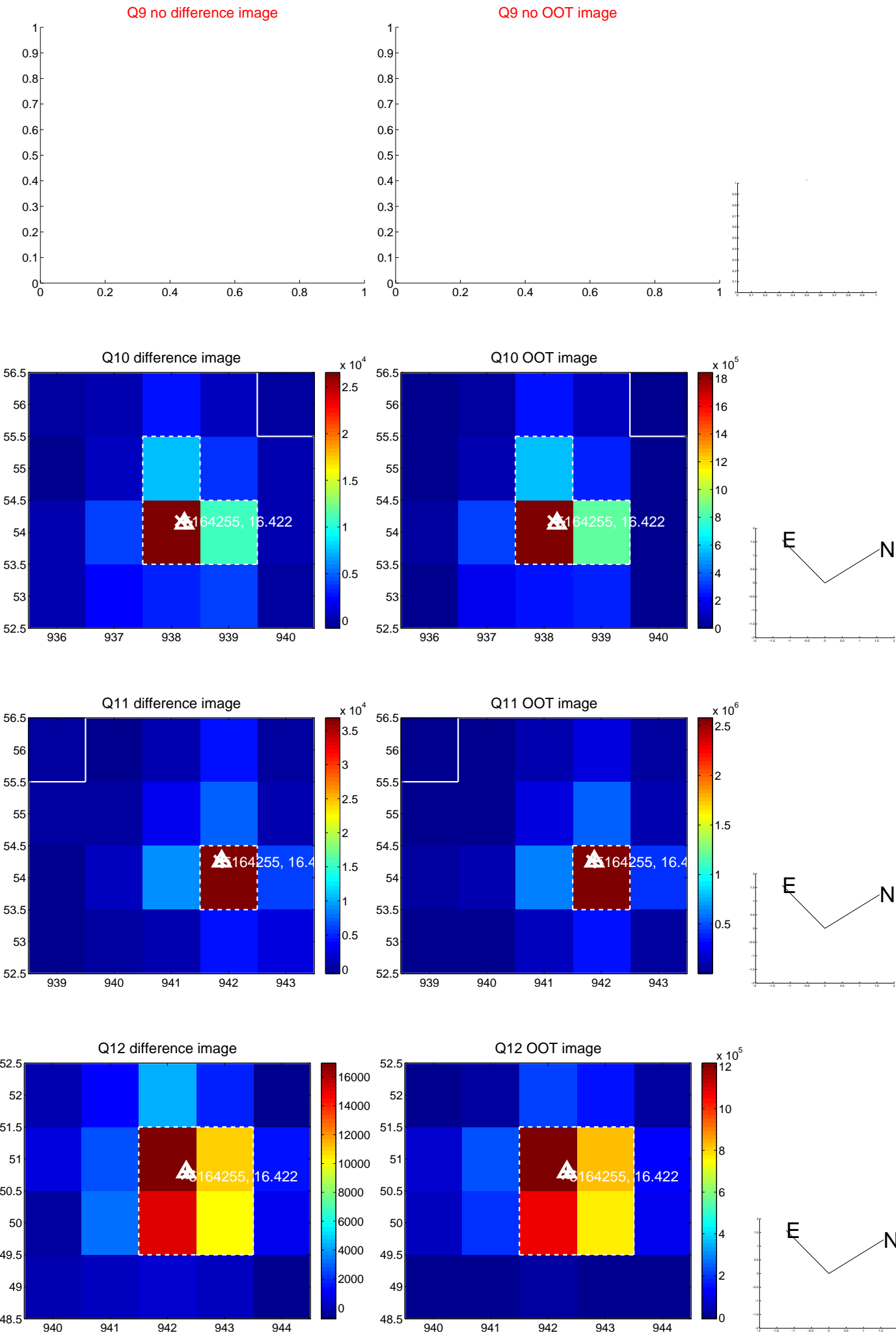


Q8 OOT image

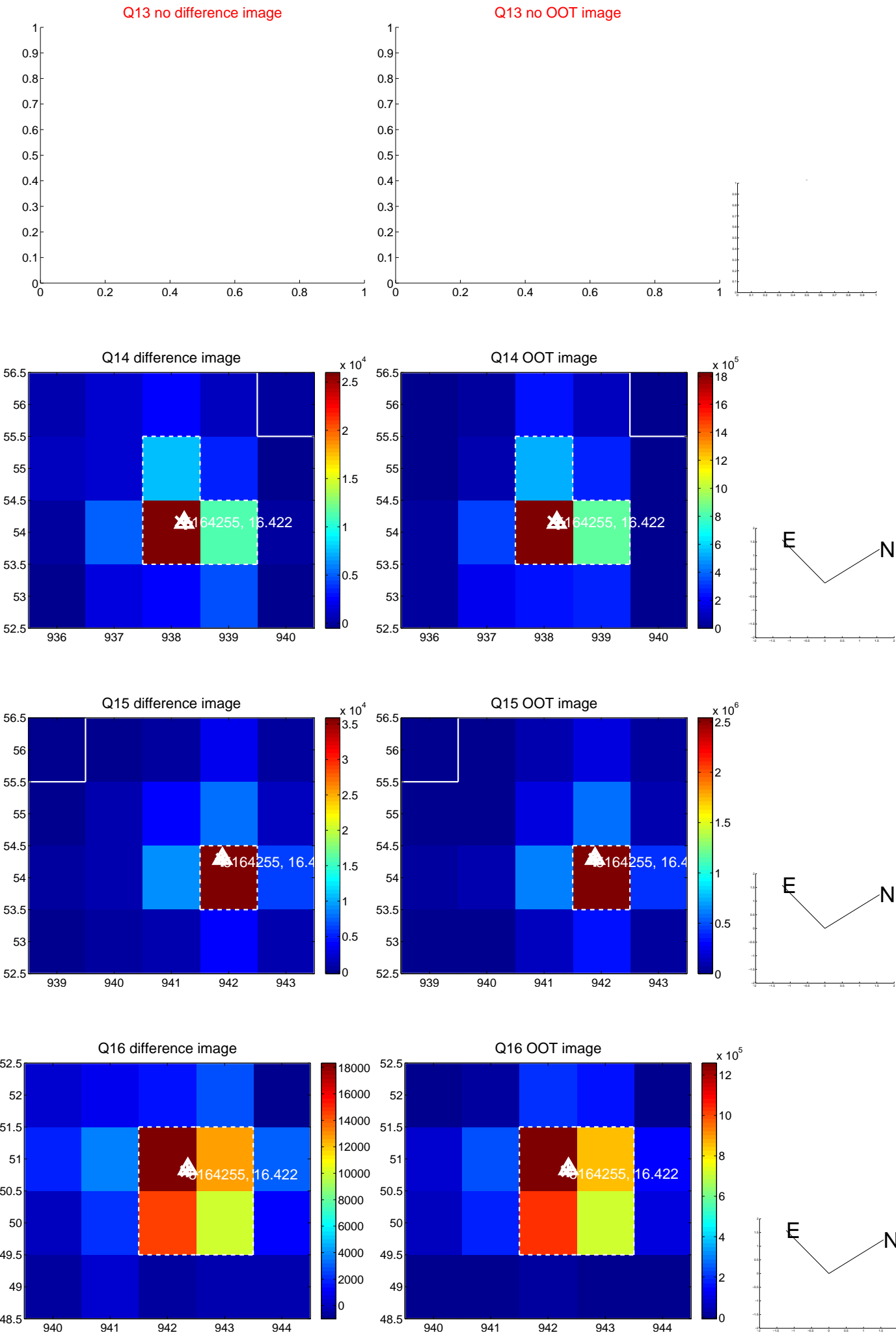




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

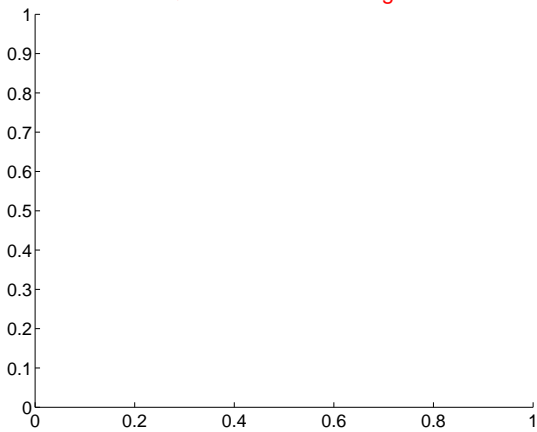


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

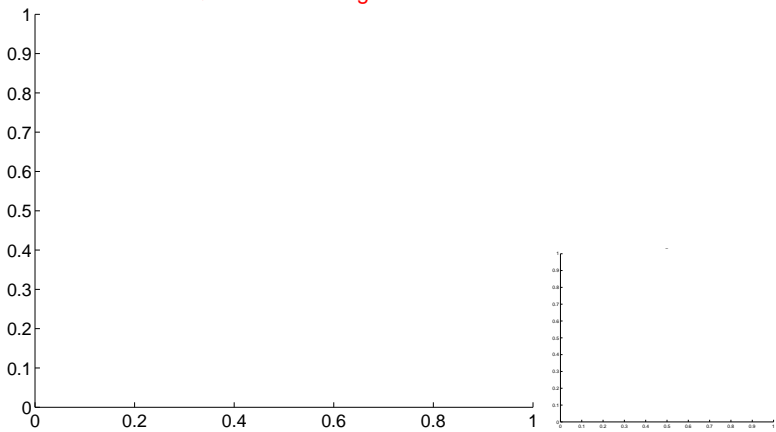


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

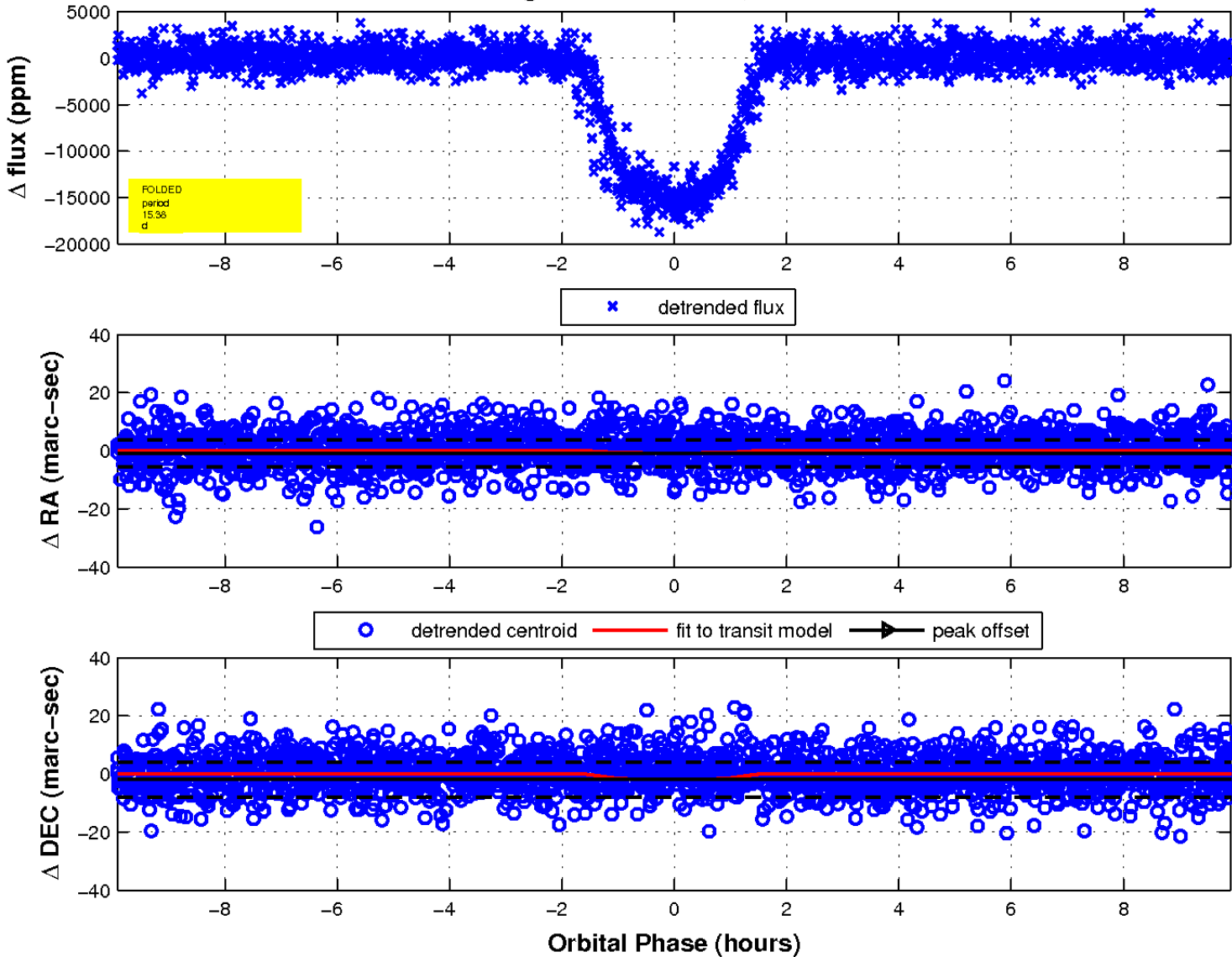
Q17 no difference image



Q17 no OOT image



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

