

# KIC 012105051

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012105051-01	OBS	0141.01	2.624238	132.304211	2596.0	1.527	249.1	360.5	0.90	5340	5.55	435.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012105051-01	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 012105051-01

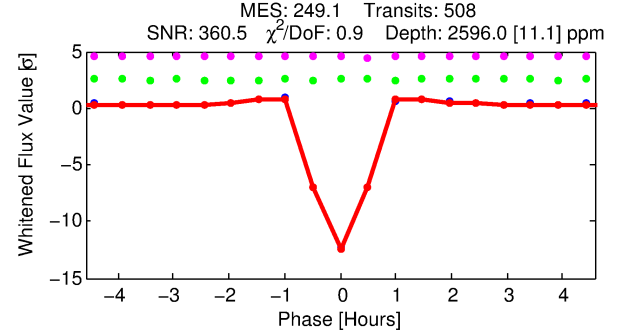
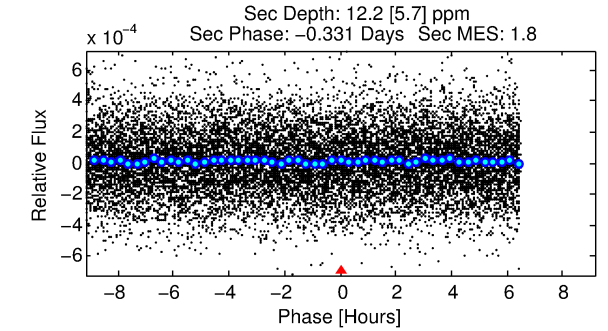
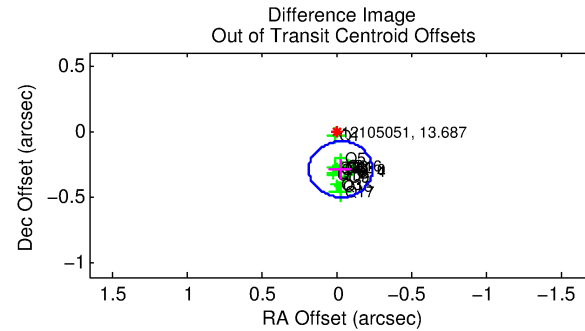
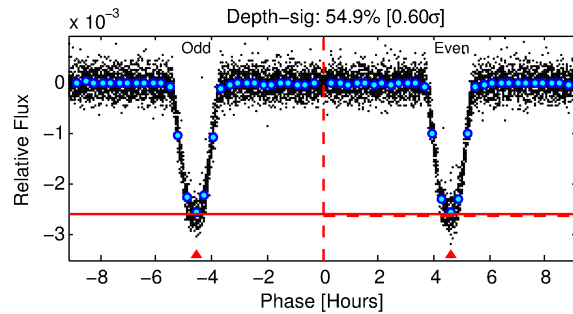
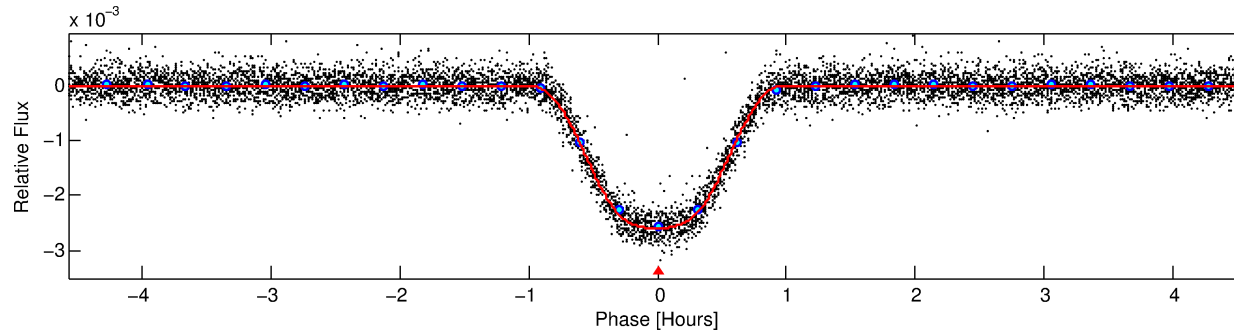
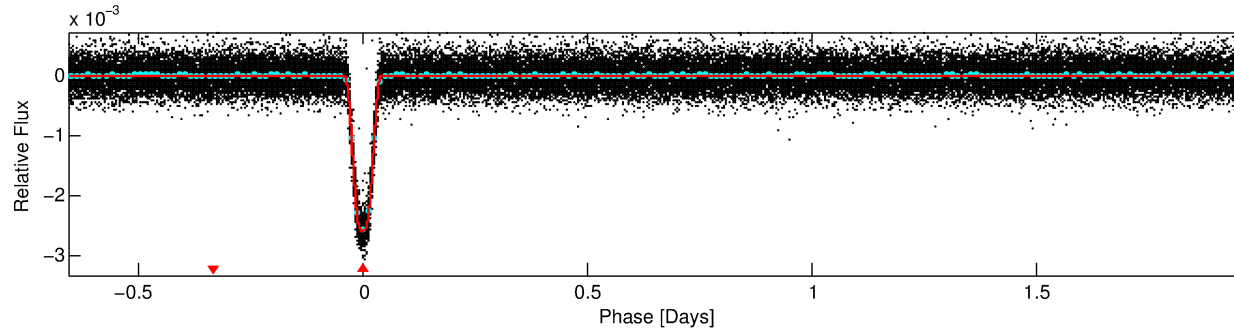
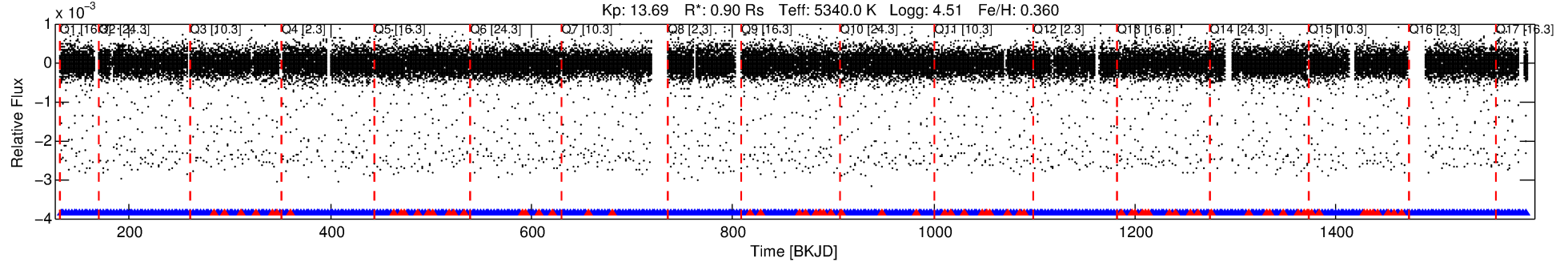
No Significant Match Found

# DV One-Page Summary

KIC: 12105051 Candidate: 1 of 1 Period: 2.624 d

KOI: K00141.01 Corr: 0.958

Kp: 13.69 R\*: 0.90 Rs Teff: 5340.0 K Logg: 4.51 Fe/H: 0.360



## DV Fit Results:

Period = 2.62424 [0.00000] d  
Epoch = 132.3042 [0.0001] BKJD  
Rp/R\* = 0.0566 [0.0005]  
a/R\* = 7.49 [0.20]  
b = 0.89 [0.01]  
Seff = 435.41 [84.71]  
Teff = 1165 [57] K  
Rp = 5.55 [0.65] Re  
a = 0.0368 [0.0041] AU  
Ag = 0.29 [0.15] [-4.80σ]  
Teffp = 1327 [157] K [0.98σ]

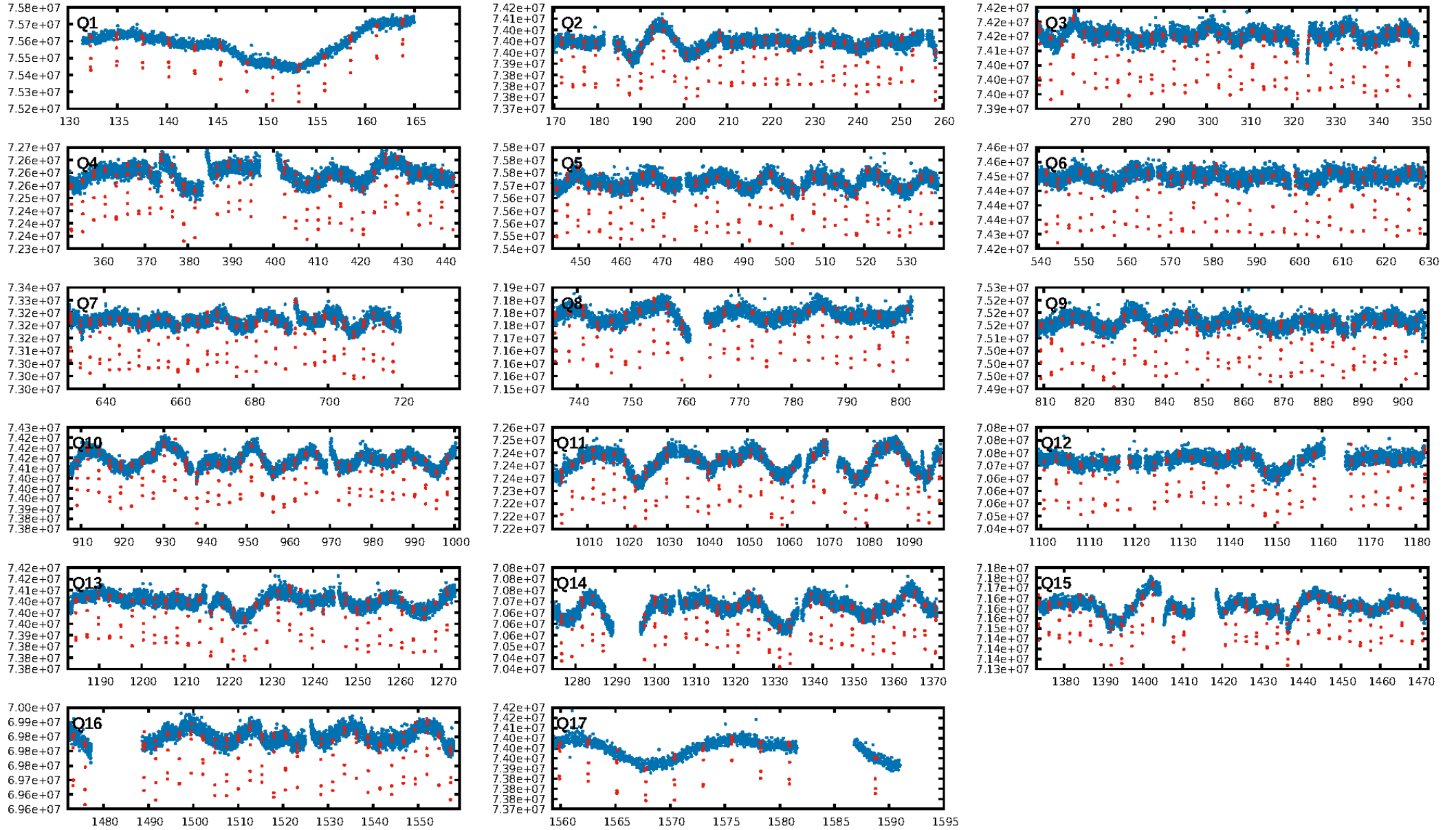
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.85 [414/485]  
GhostDiagnostic-chr: 5.767  
Centroid-sig: 0.1%  
Centroid-so: 0.313 arcsec [9.01σ]  
OotOffset-rm: 0.287 arcsec [4.06σ]  
KicOffset-rm: 0.470 arcsec [6.64σ]  
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]

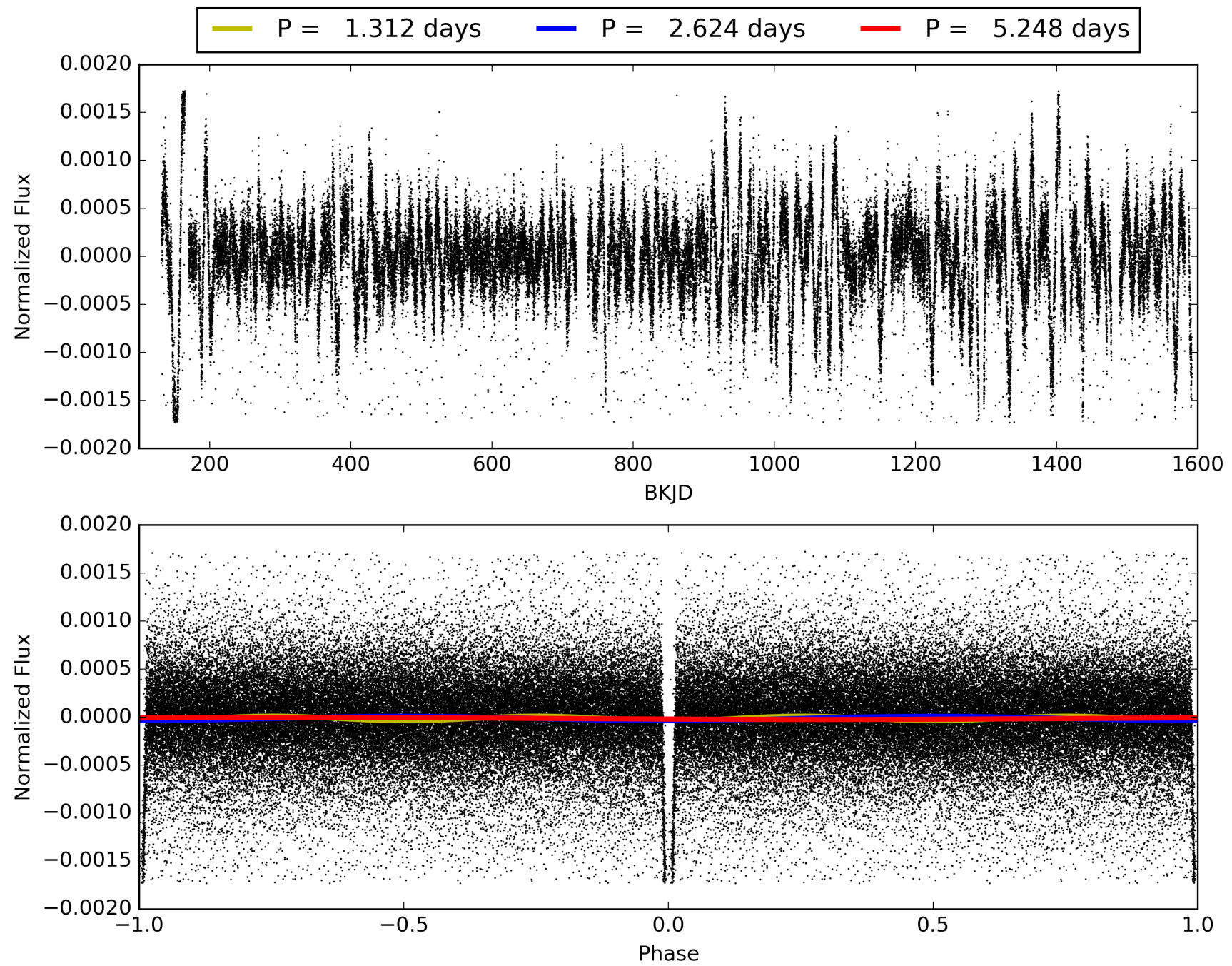
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:52:42 Z

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

# TCE 012105051-01, PDC Light Curves

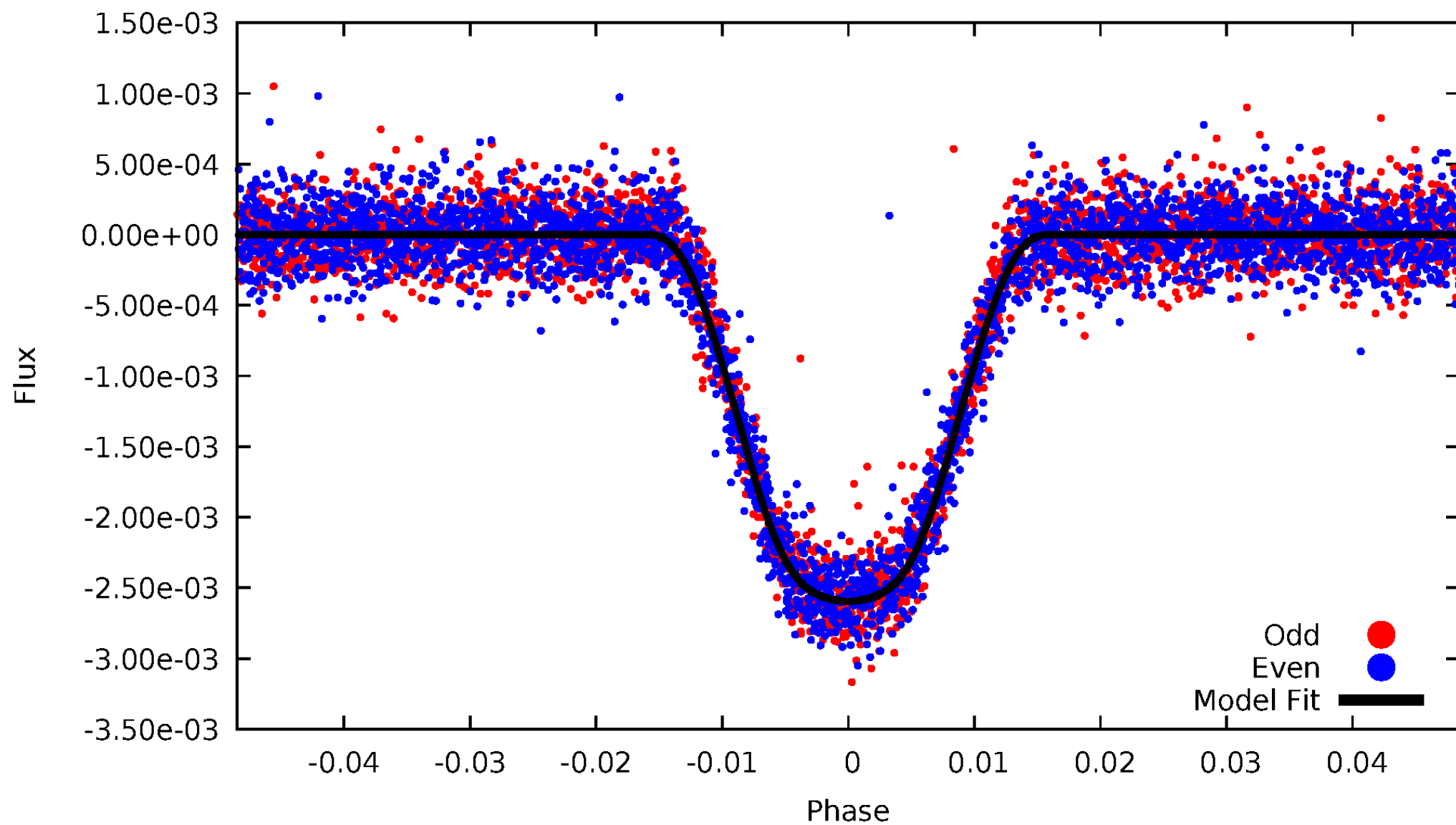


TCE 012105051-01



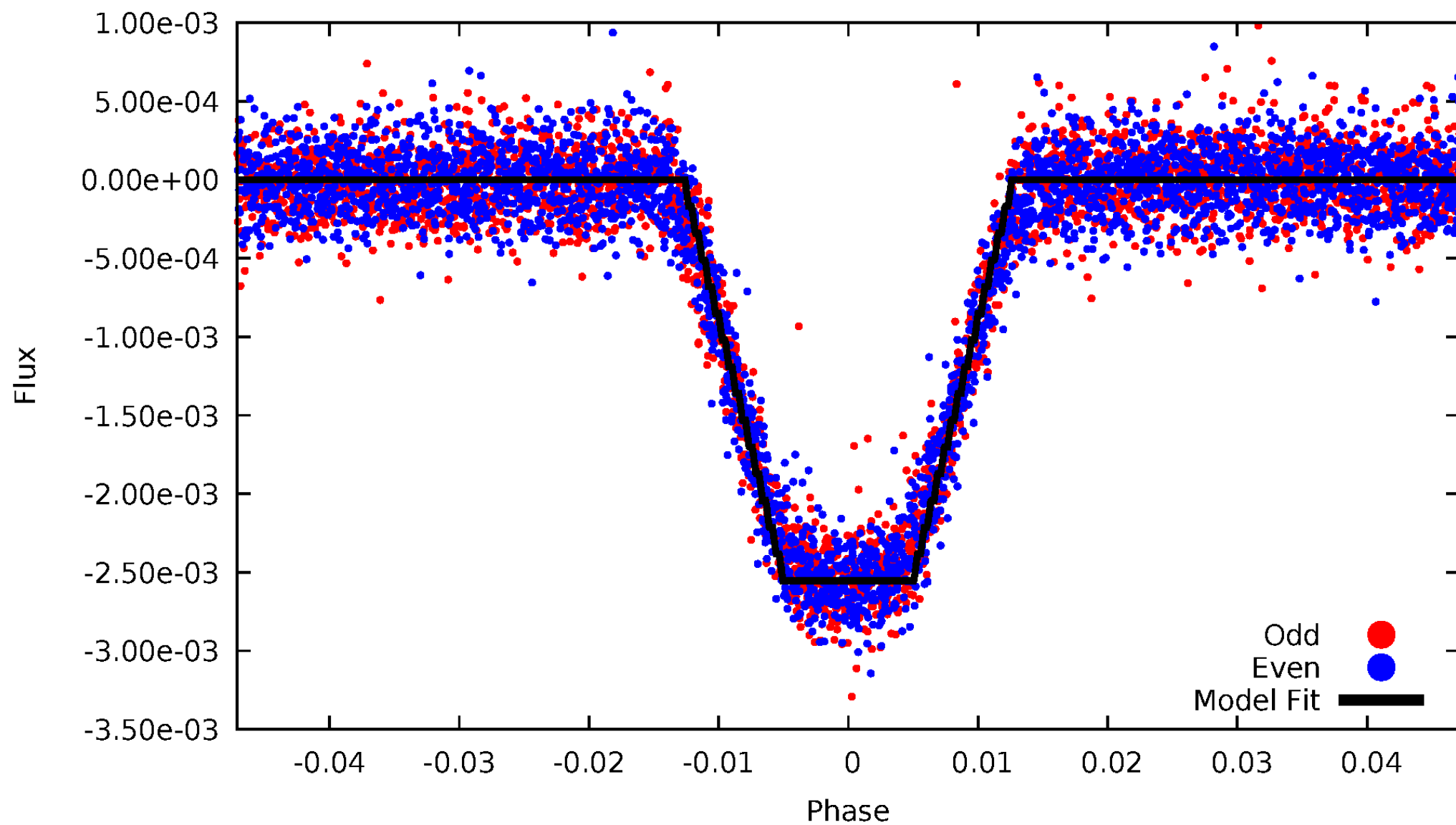
# DV Odd/Even

TCE 012105051-01



# ALT Odd/Even

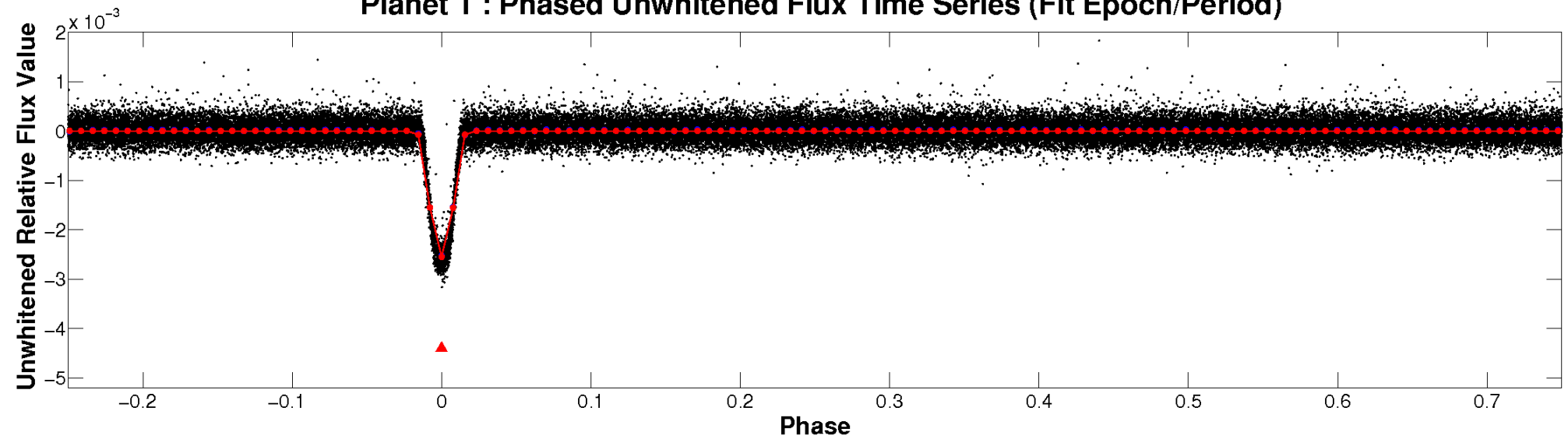
TCE 012105051-01



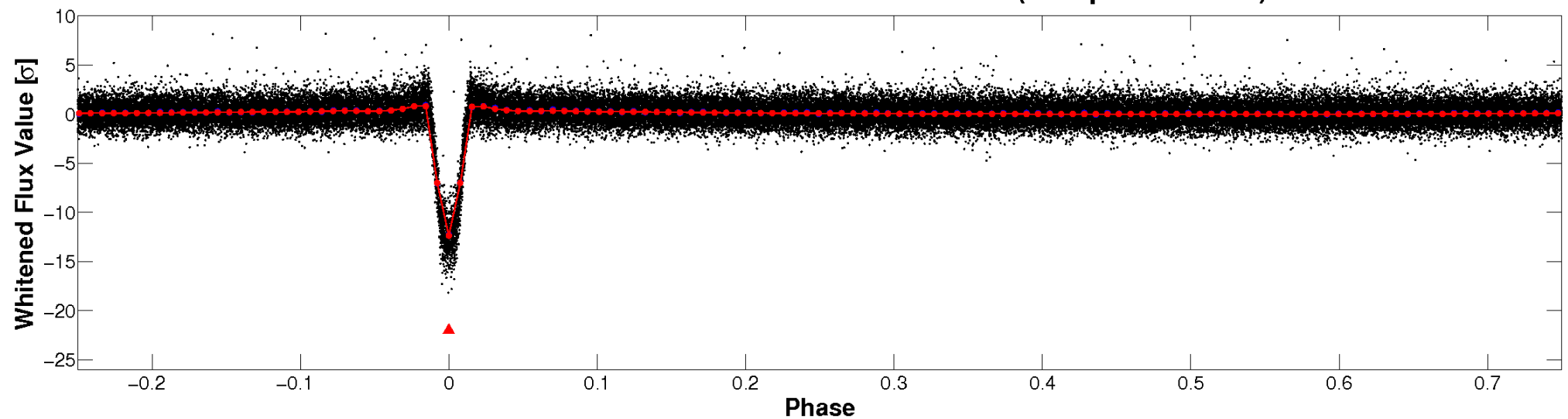


# Non-Whitened Vs. Whitened Light Curve

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

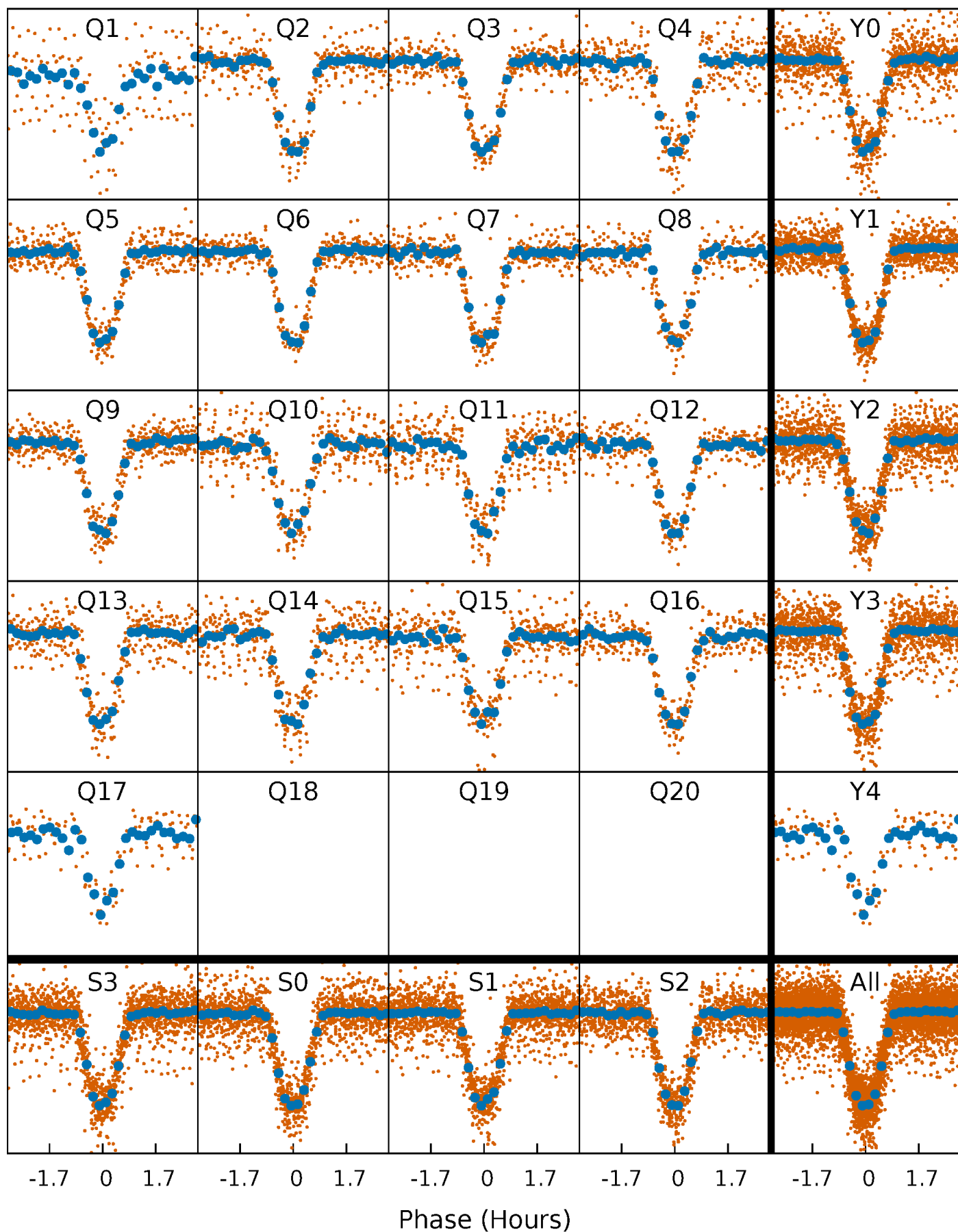


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

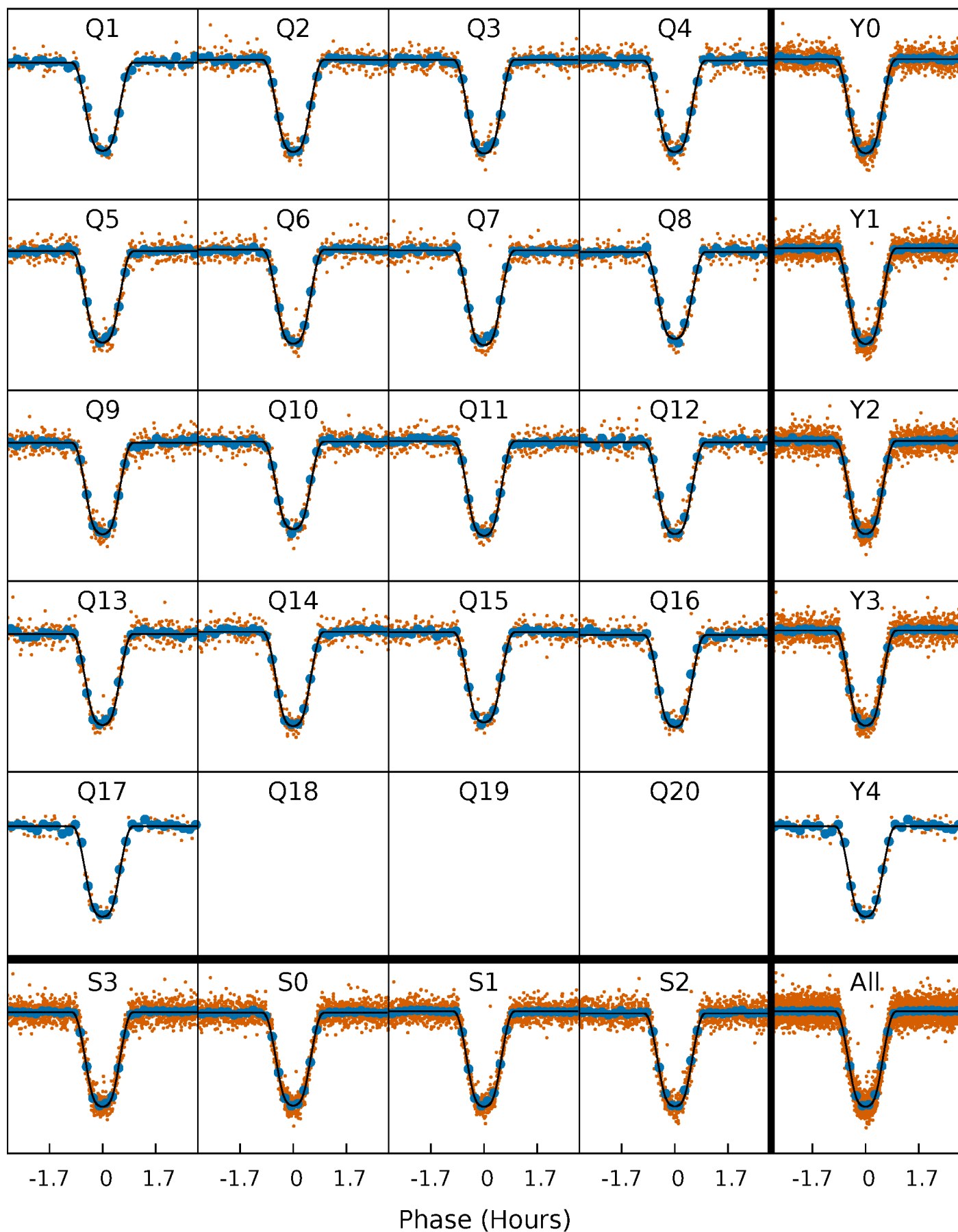
TCE 012105051-01 P= 2.624238 Days  $T_0=132.304211$  (BKJD)





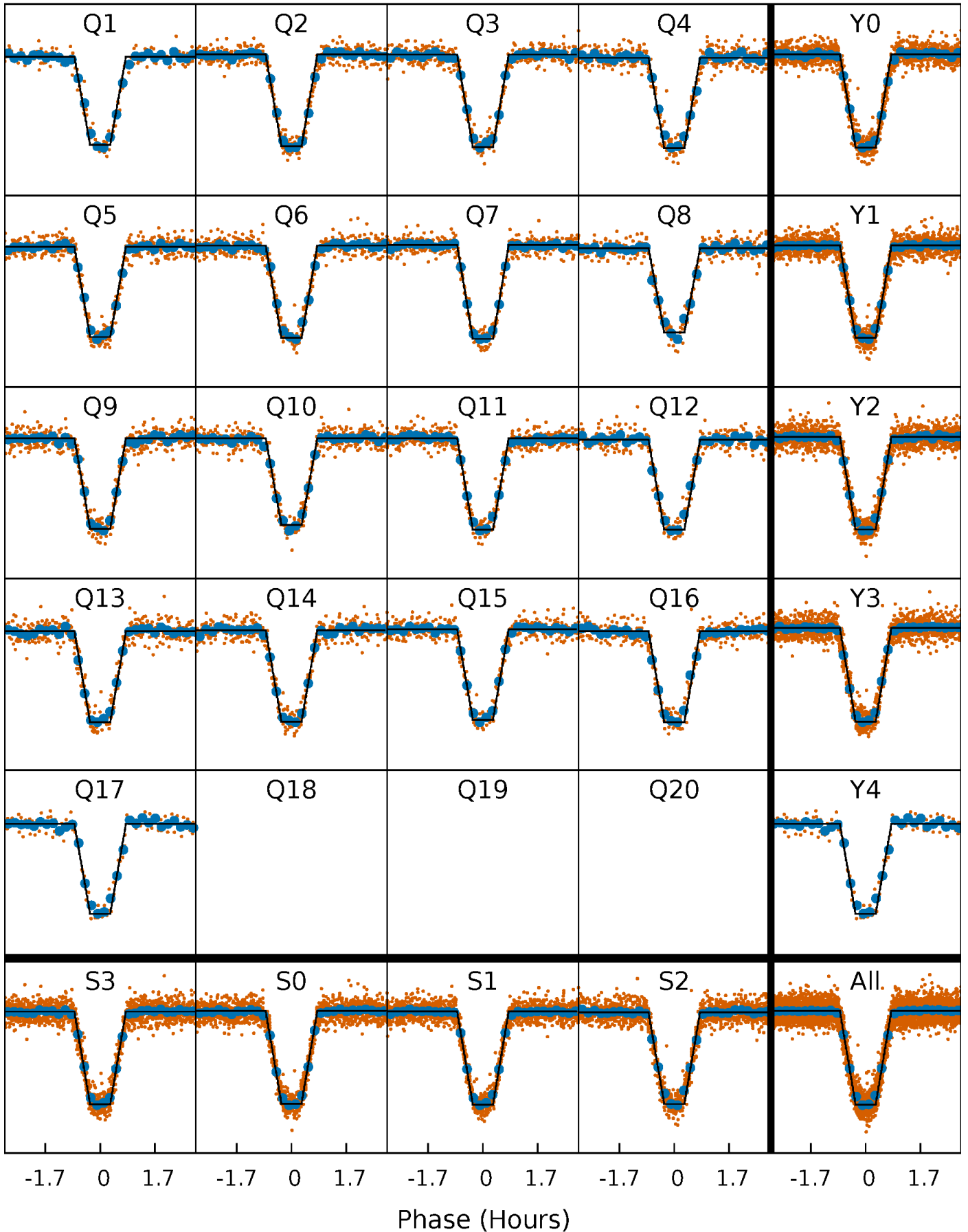
# DV Quarter-Phased Transit Curves

TCE 012105051-01 P= 2.624238 Days  $T_0=132.304211$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

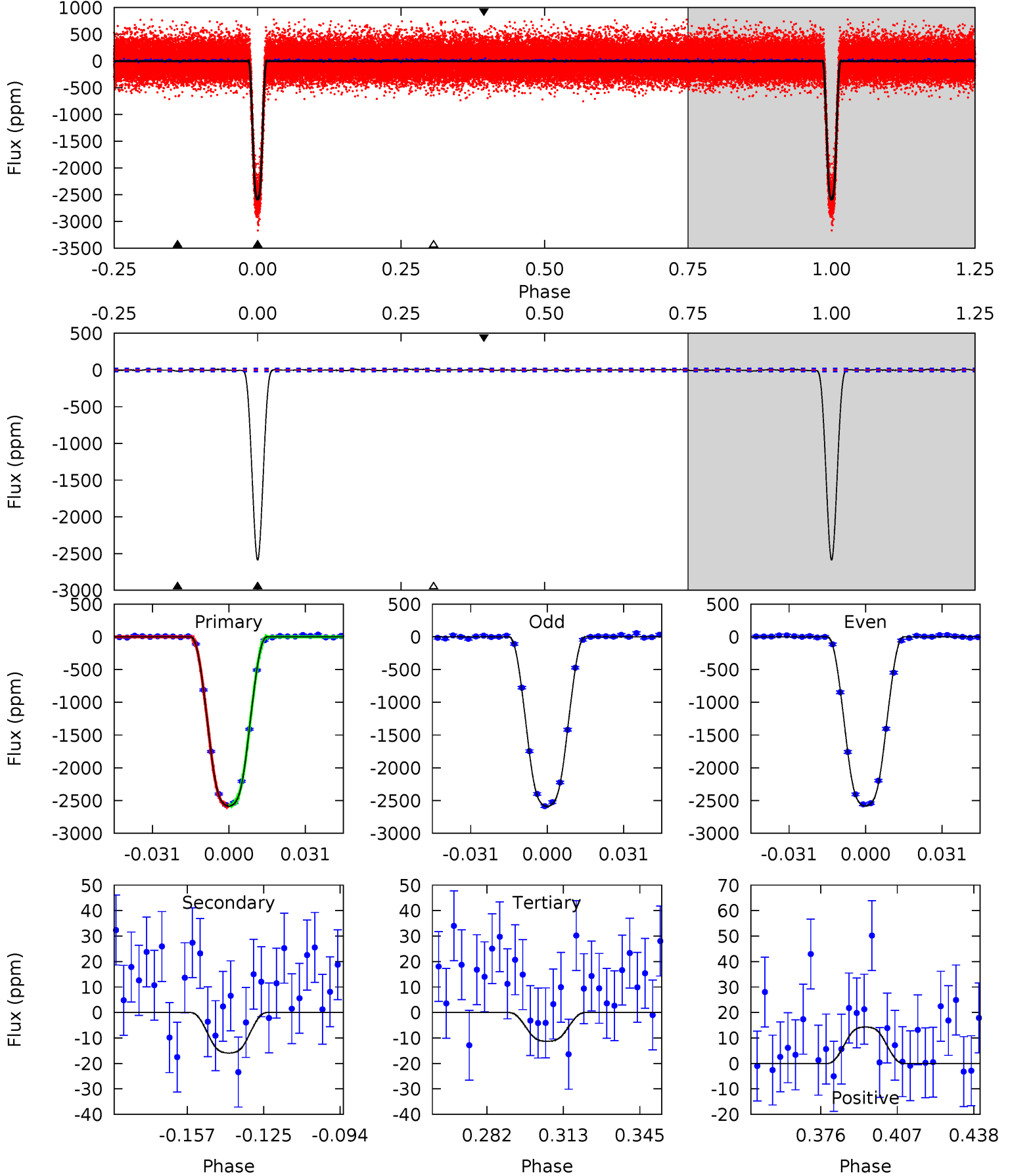
TCE 012105051-01 P= 2.624238 Days  $T_0=132.304181$  (BKJD)



# DV Model-Shift Uniqueness Test

012105051-01, P = 2.624238 Days, E = 129.679973 Days

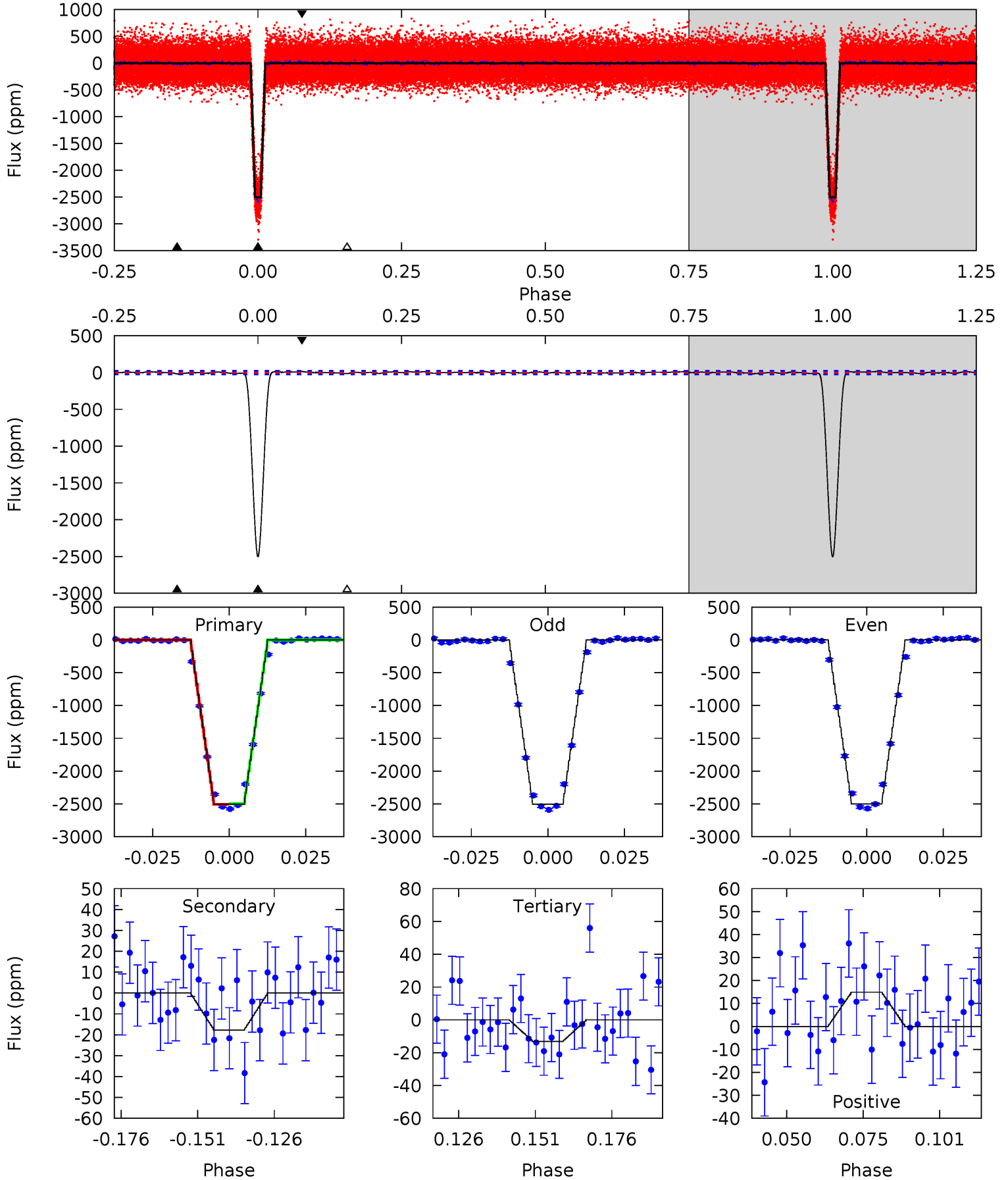
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
603.4	3.72	2.64	3.34	4.80	2.15	1.09	600.8	600.1	1.08	0.37	0.62	1.00	0.01	1.01



# Alt Model-Shift Uniqueness Test

012105051-01, P = 2.624238 Days, E = 129.679943 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
517.6	3.67	2.70	3.08	4.85	2.24	1.21	514.9	514.5	0.97	0.59	0.72	1.00	0.01	1.32



### Stellar Parameters For KIC 012105051

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5340^{+106}_{-106}$	$4.514^{+0.033}_{-0.104}$	$0.360^{+0.100}_{-0.150}$	$0.899^{+0.105}_{-0.040}$	$0.963^{+0.030}_{-0.059}$	$1.867^{+0.230}_{-0.550}$
	+2%/-2%	+1%/-2%	+28%/-42%	+12%/-4%	+3%/-6%	+12%/-29%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 012105051-01 / KOI 0141.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-16 \pm 4$	$5.57^{+0.37}_{-0.20}$	$1640^{+57}_{-43}$	$1943^{+195}_{-3797}$	$0.371^{+0.110}_{-0.110}$
Alt.	$-18 \pm 5$	$4.99^{+0.34}_{-0.17}$	$1639^{+59}_{-41}$	$2193^{+129}_{-215}$	$0.522^{+0.157}_{-0.144}$

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

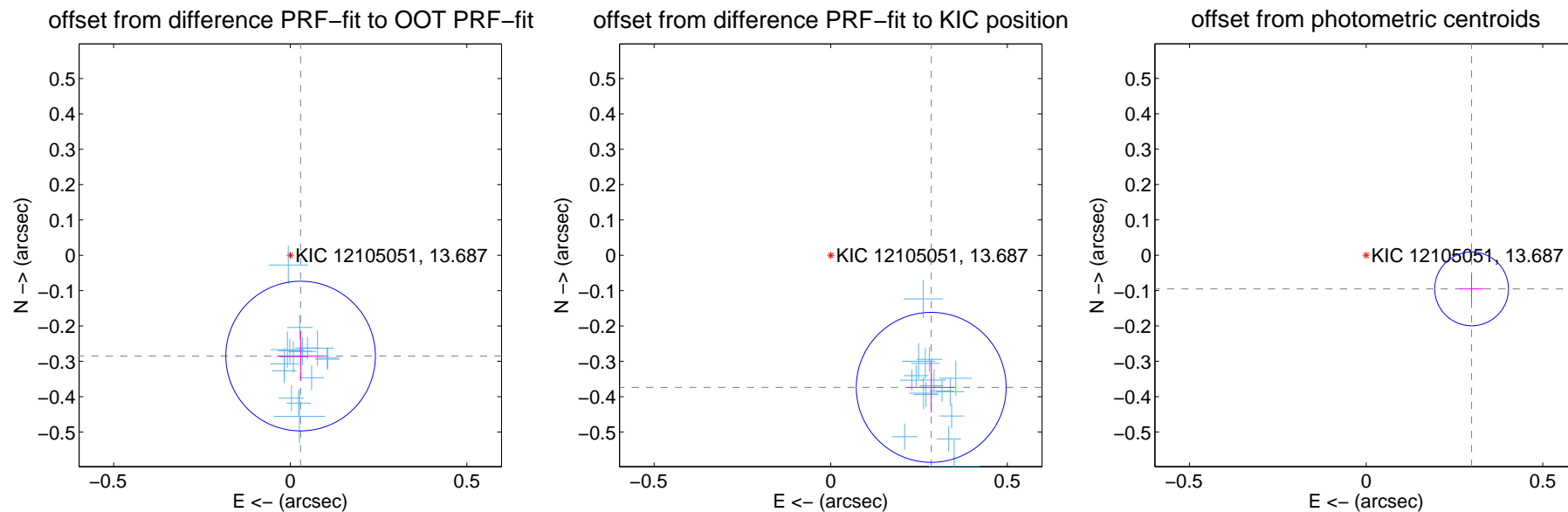
## DV Centroid Data

Supplemental centroid analysis for 012105051-01. Kepler magnitude: 13.69. Transit SNR 360.52

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

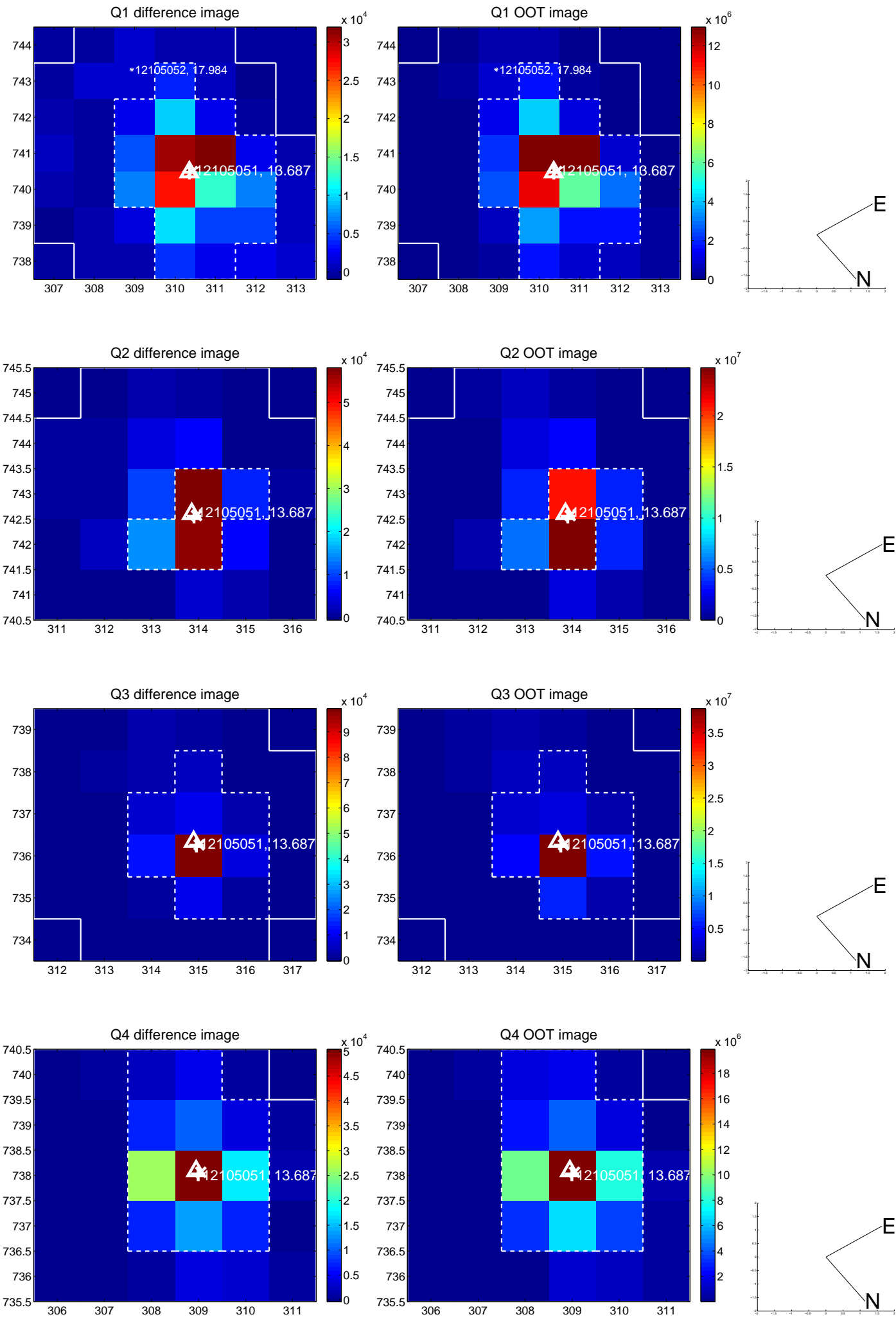
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.287 \pm 0.071$	4.06	$-0.029 \pm 0.067$	$-0.285 \pm 0.071$
PRF-fit source offset from KIC position	$0.470 \pm 0.071$	6.64	$-0.285 \pm 0.068$	$-0.374 \pm 0.071$
photometric centroid source offset	$0.31 \pm 0.03$	9.01	$-0.30 \pm 0.03$	$-0.10 \pm 0.04$



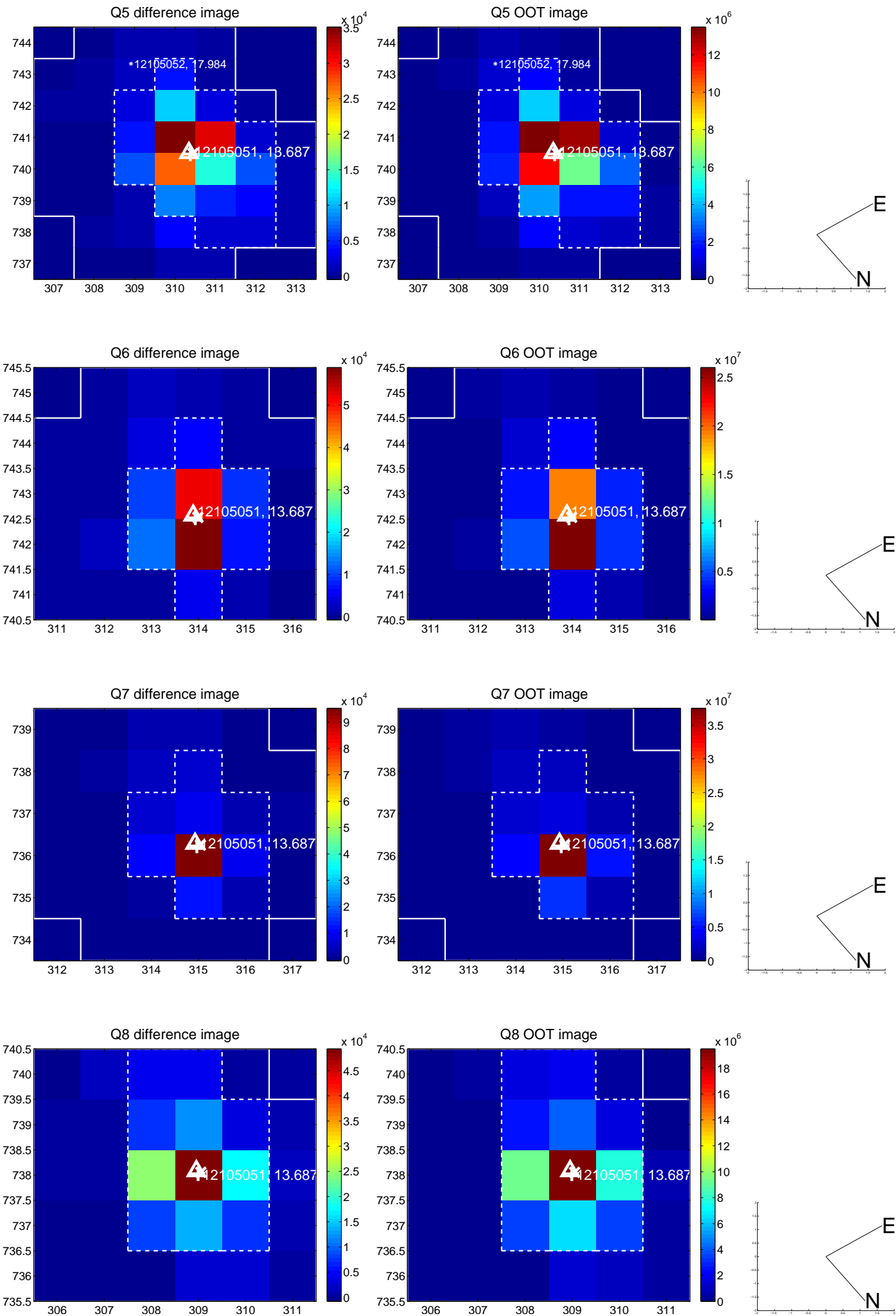
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



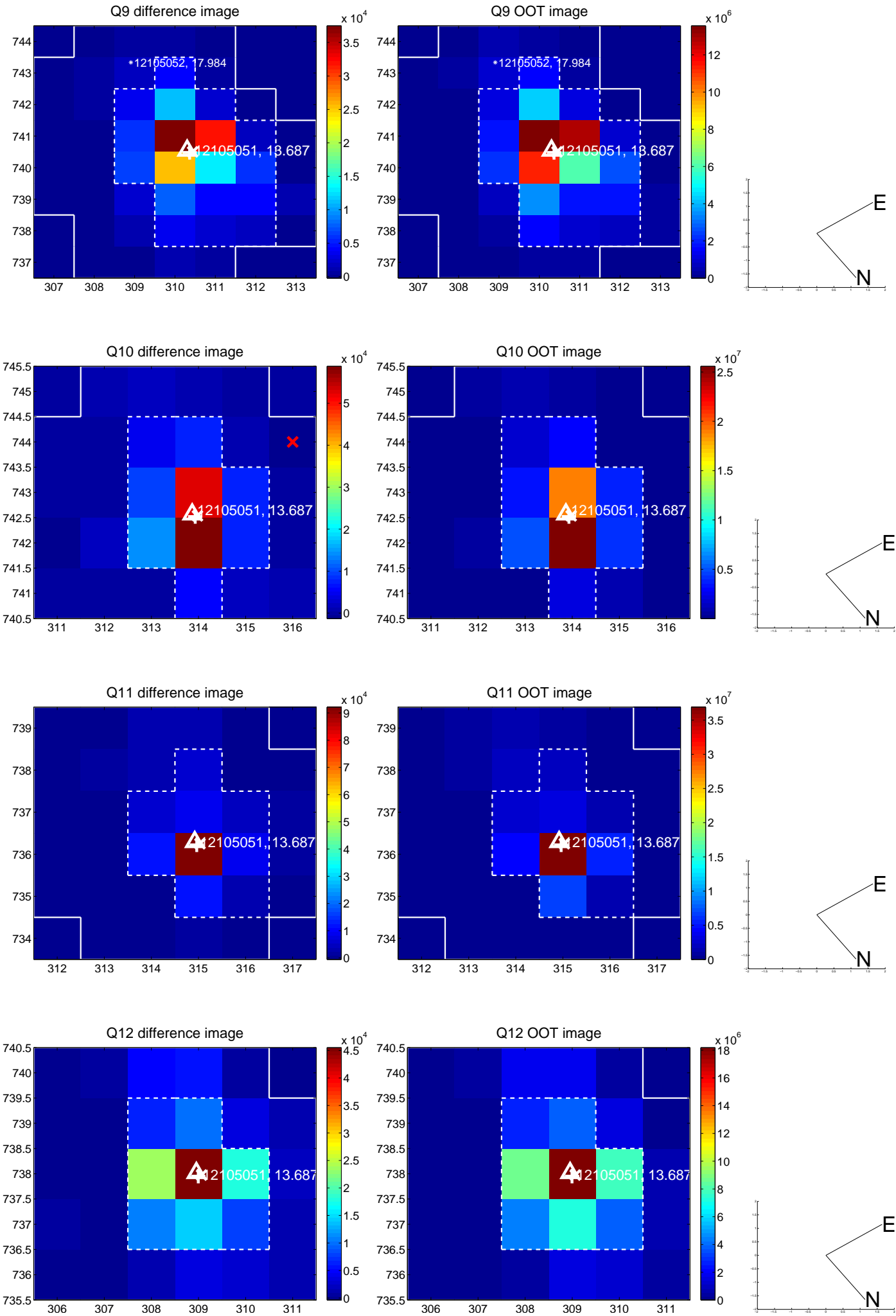
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



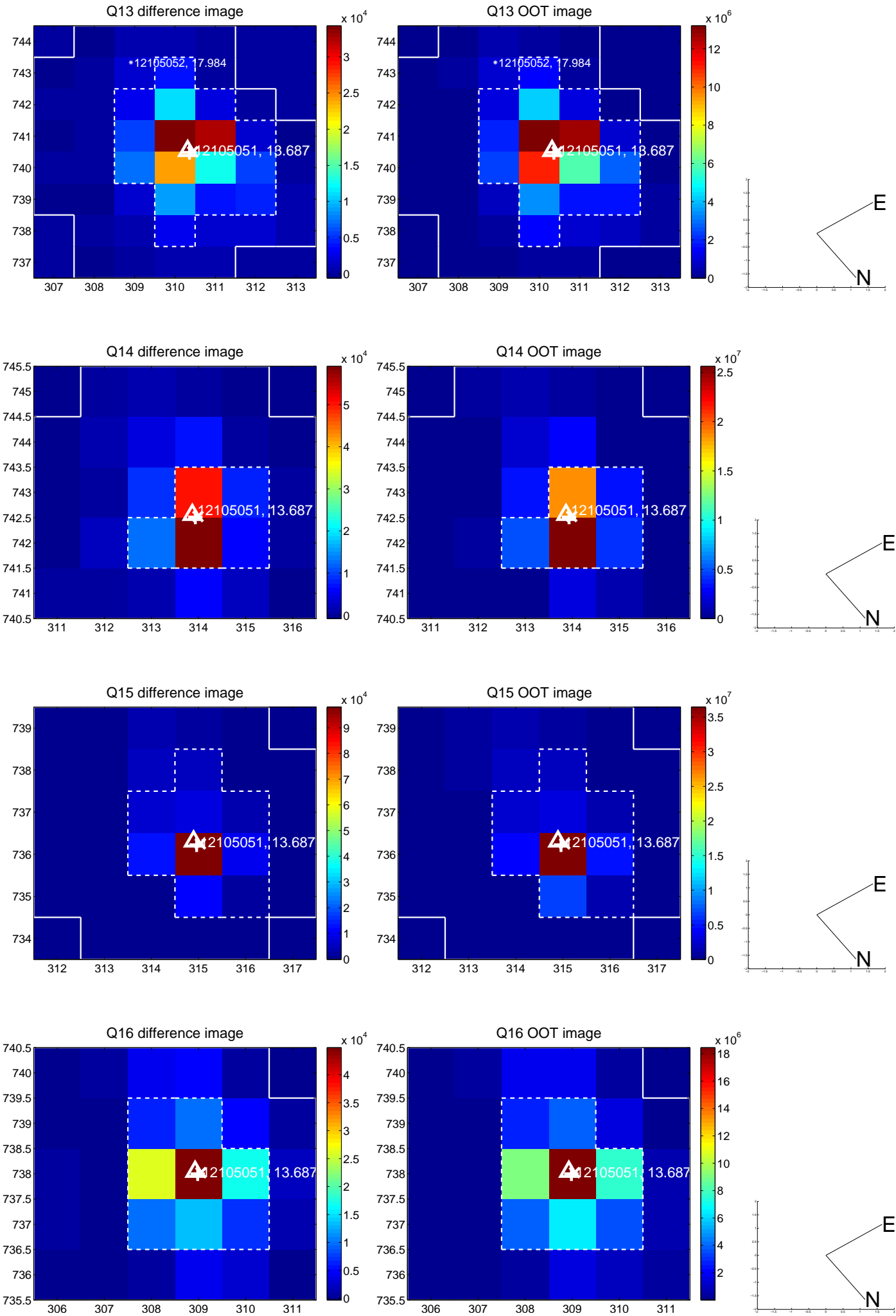
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



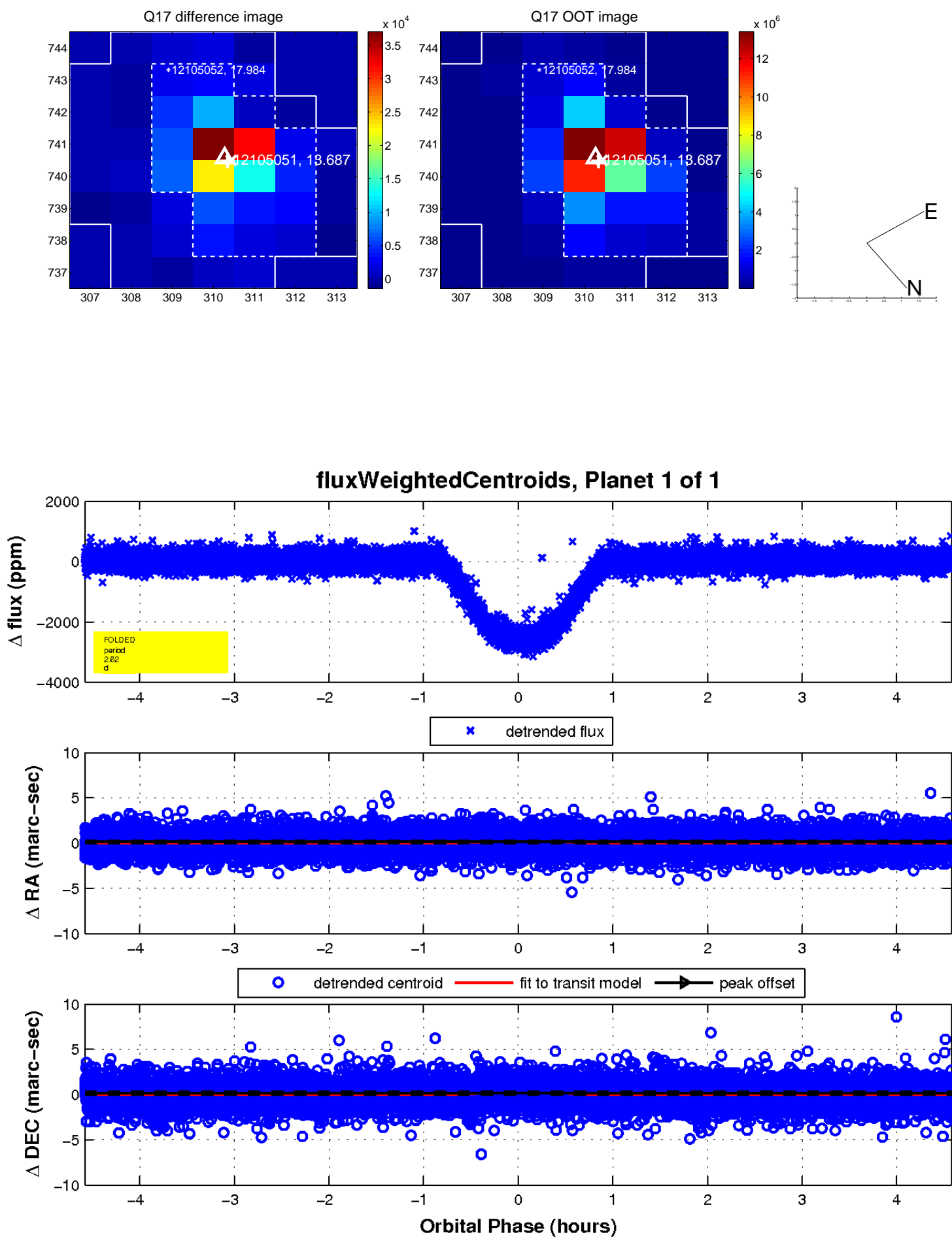
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

