

# KIC 005358624

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005358624-01	OBS	0830.01	3.525632	134.791658	22307.3	2.643	2078.4	2064.7	0.79	5150	11.75	213.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005358624-01	OBS	PC	0.99	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.

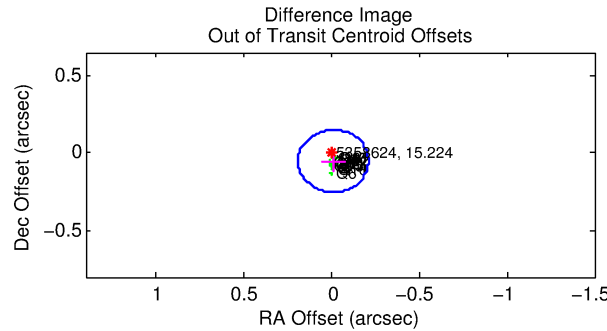
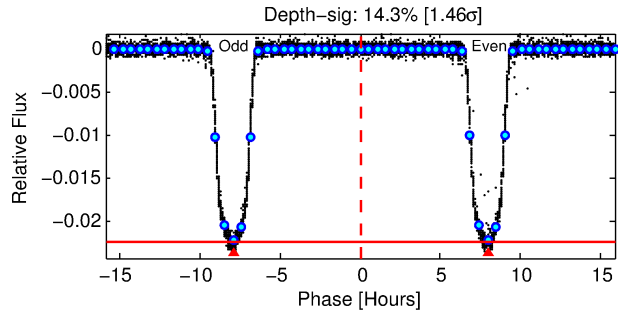
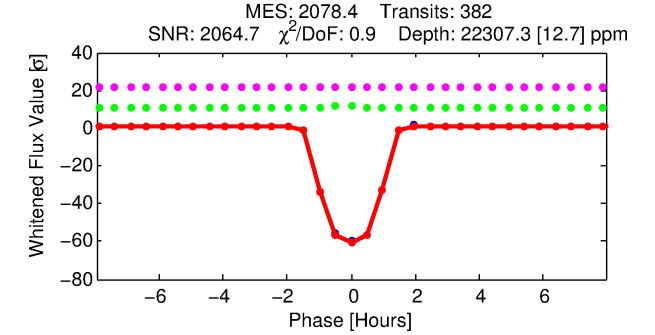
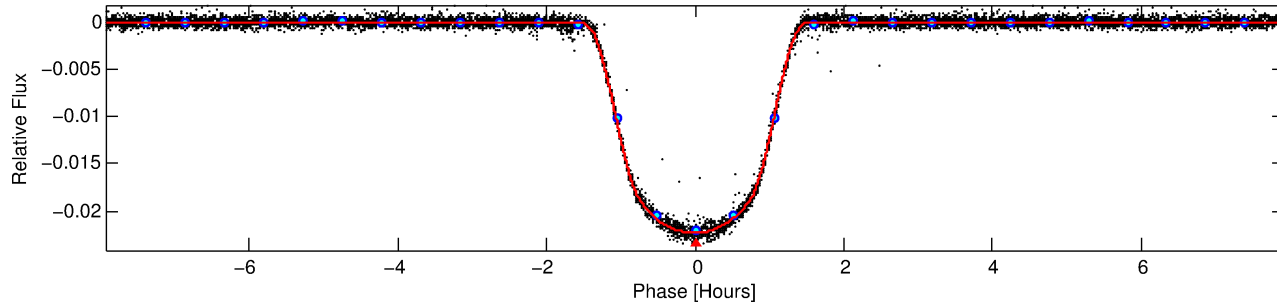
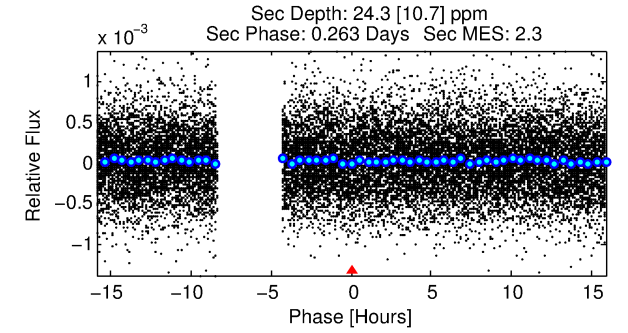
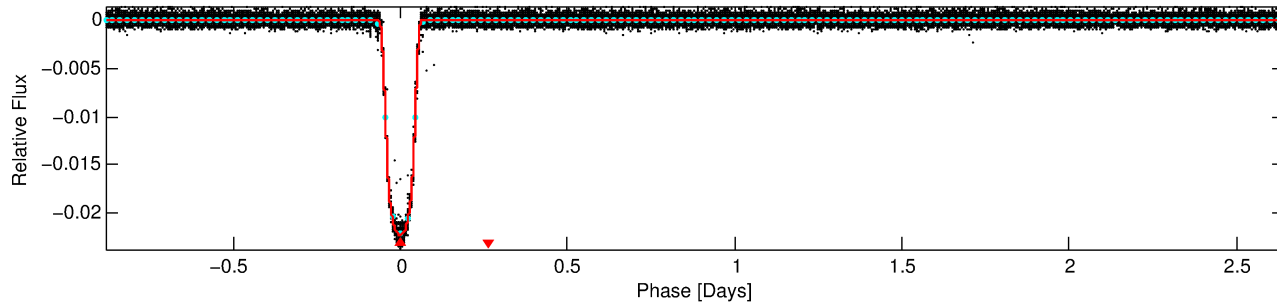
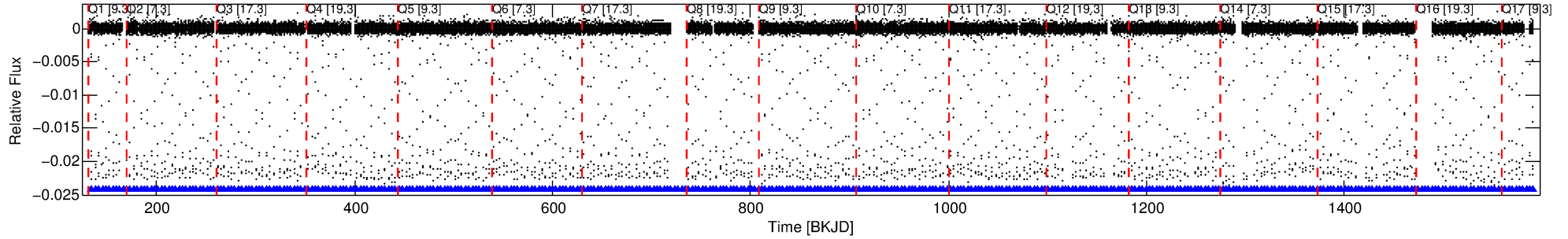
## Ephemeris Match Information For 005358624-01

No Significant Match Found

# DV One-Page Summary

KIC: 5358624 Candidate: 1 of 1 Period: 3.526 d  
KOI: K00830.01 Name: Kepler-428b Corr: 0.994

Kp: 15.22 R\*: 0.79 Rs Teff: 5150.0 K Logg: 4.57 Fe/H: 0.080



## DV Fit Results:

Period = 3.52563 [0.00000] d  
Epoch = 134.7917 [0.0000] BKJD  
Rp/R\* = 0.1358 [0.0003]  
a/R\* = 11.03 [0.08]  
b = 0.35 [0.02]  
Seff = 213.79 [27.40]  
Teq = 975 [31] K  
Rp = 11.75 [0.92] Re  
a = 0.0431 [0.0031] AU  
Ag = 0.18 [0.08] [-10.10σ]  
Teff = 982 [109] K [0.06σ]

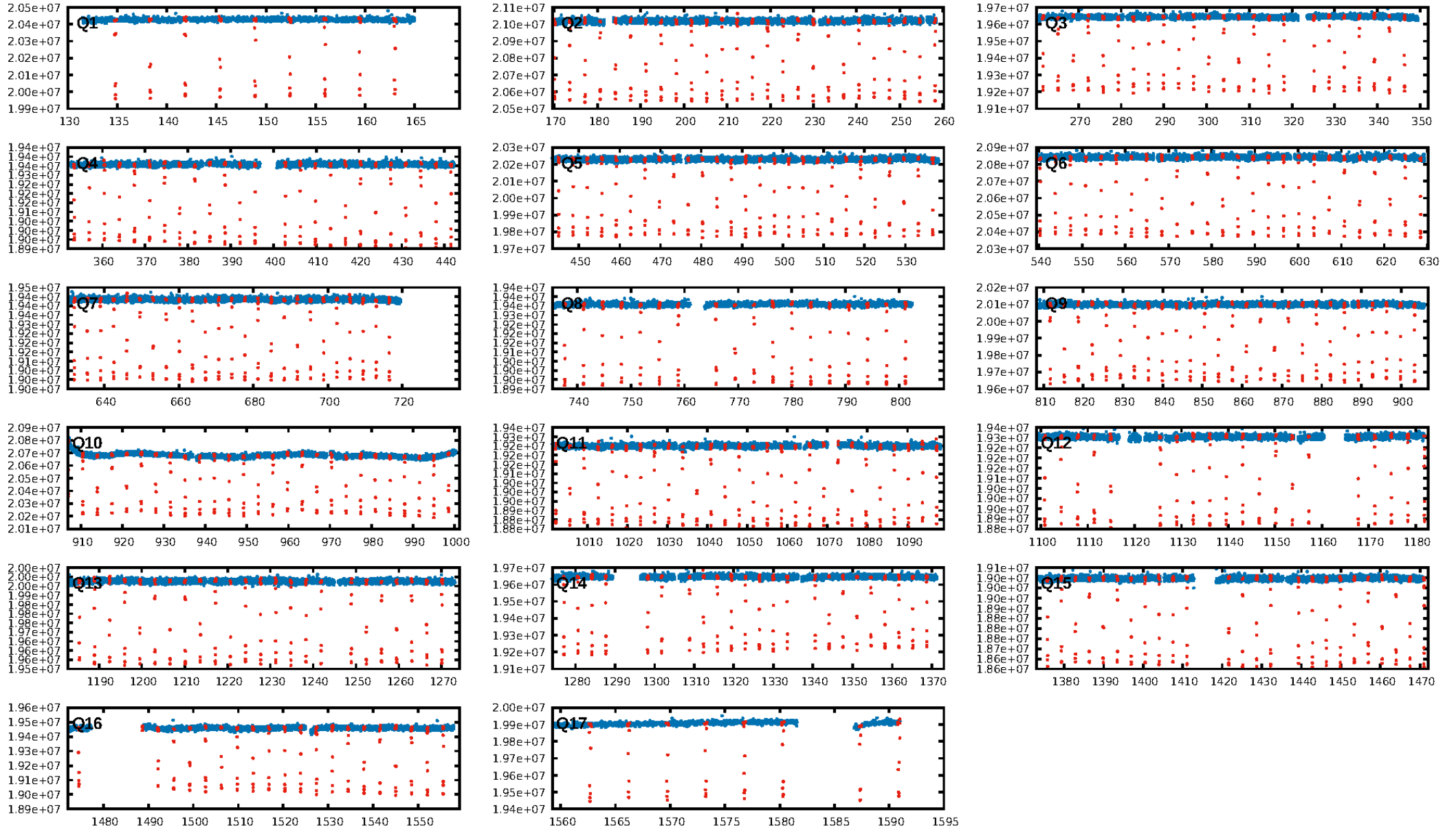
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [365/365]  
GhostDiagnostic-chr: 8.059  
Centroid-sig: 0.0%  
Centroid-so: 0.202 arcsec [31.34σ]  
OotOffset-rm: 0.053 arcsec [0.79σ]  
KicOffset-rm: 0.233 arcsec [3.34σ]  
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]

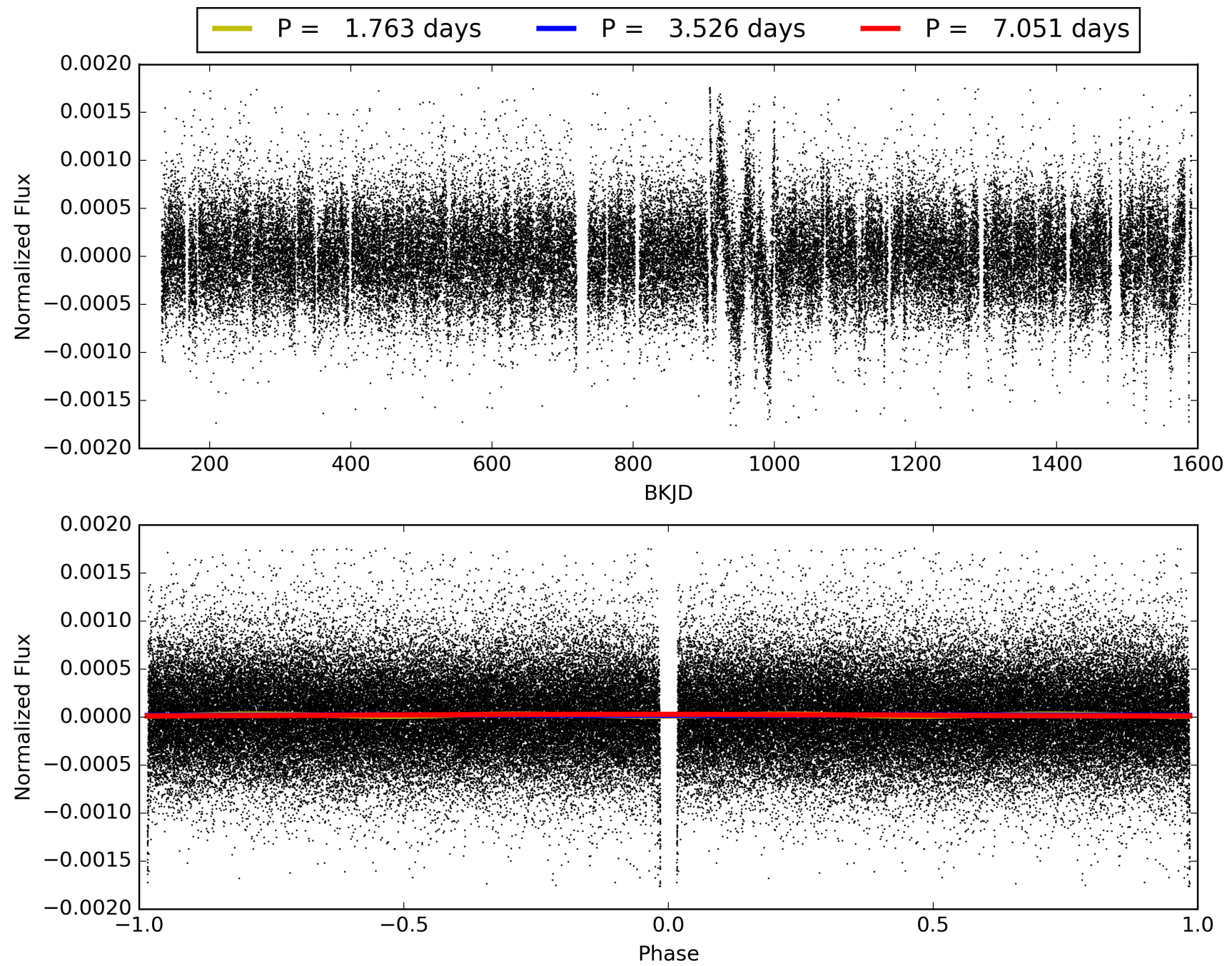
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:07:08 Z

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

# TCE 005358624-01, PDC Light Curves

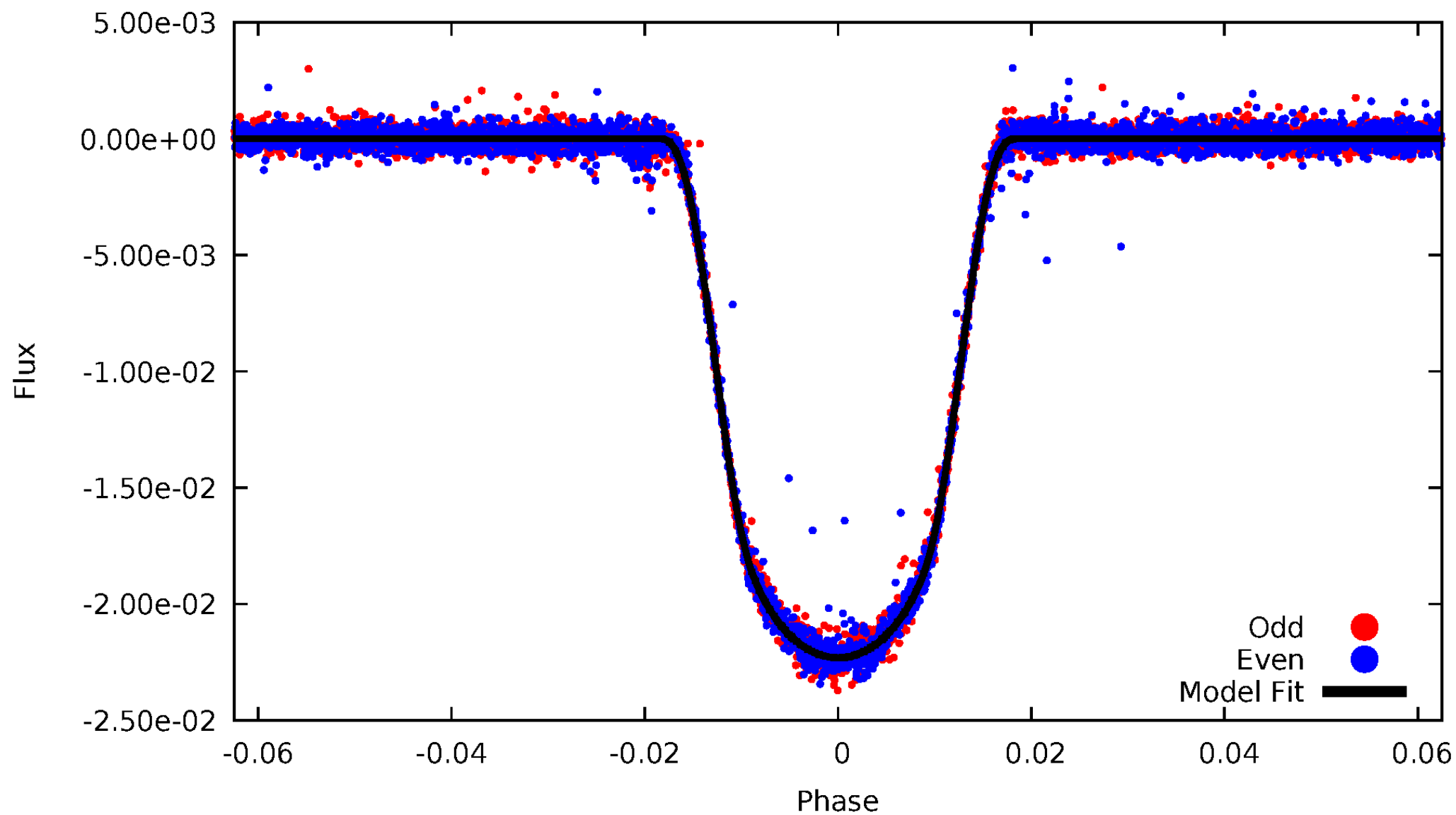


TCE 005358624-01



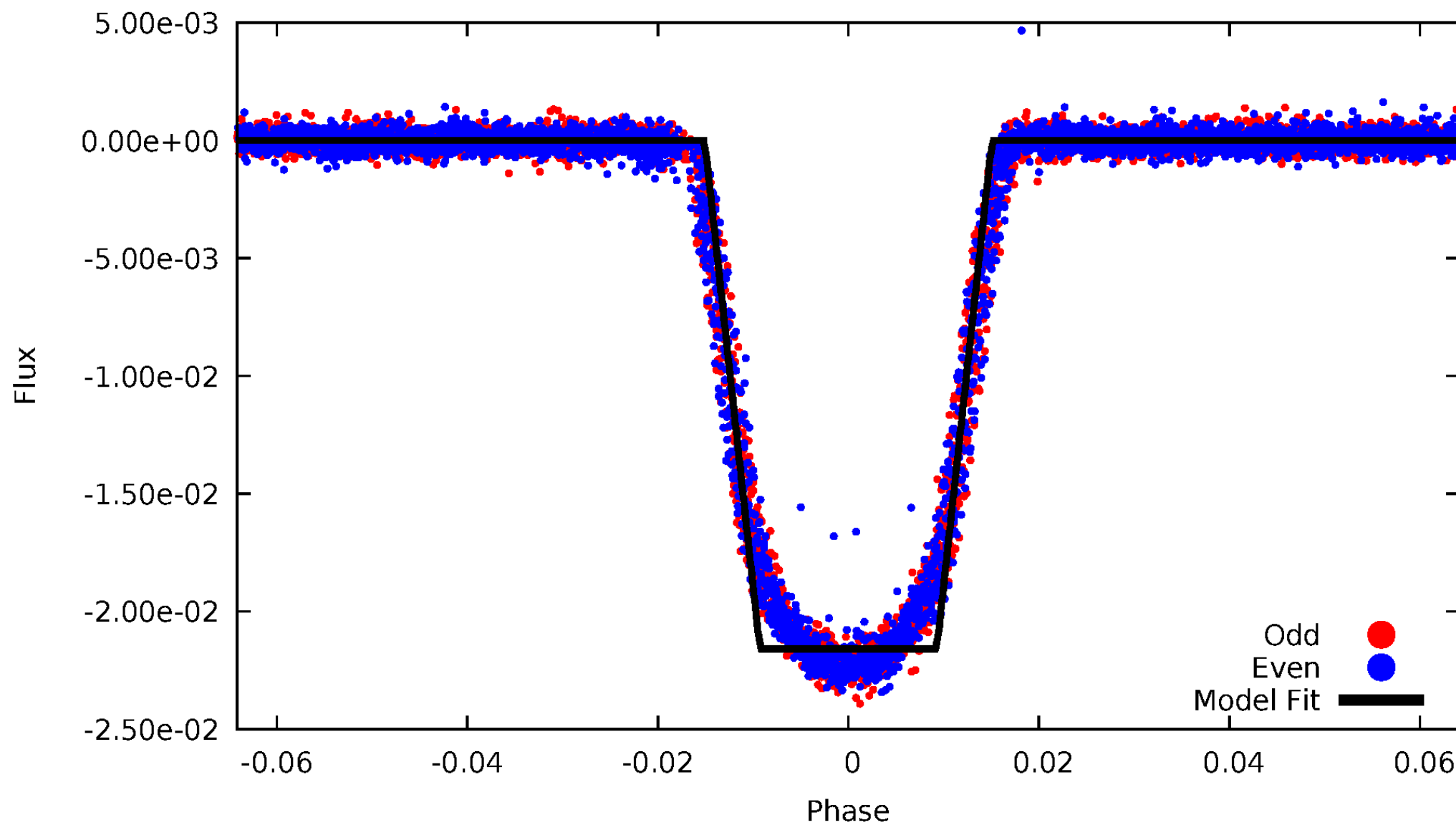
# DV Odd/Even

TCE 005358624-01



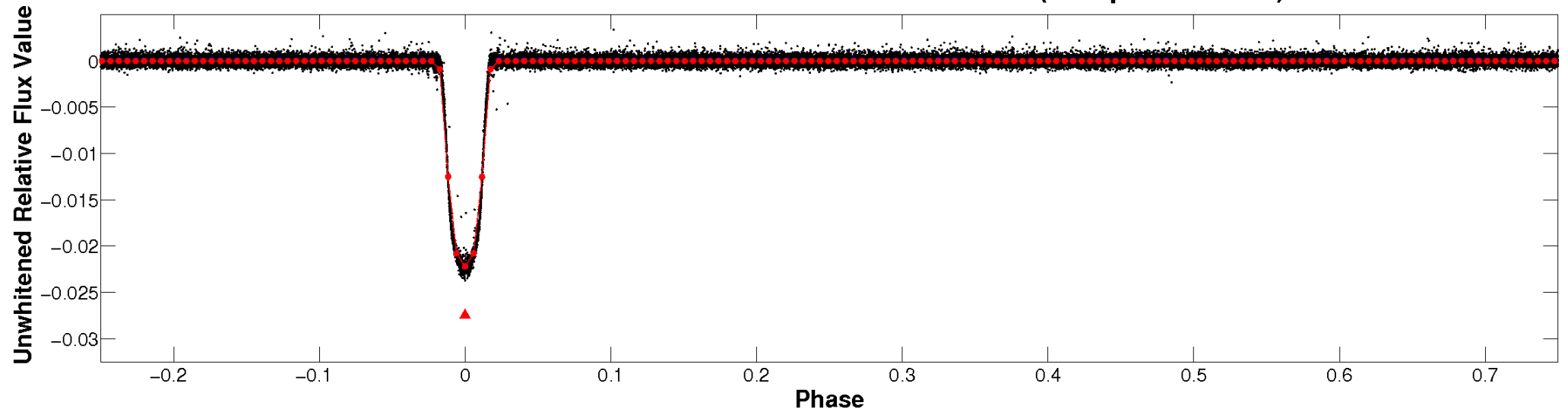
# ALT Odd/Even

TCE 005358624-01

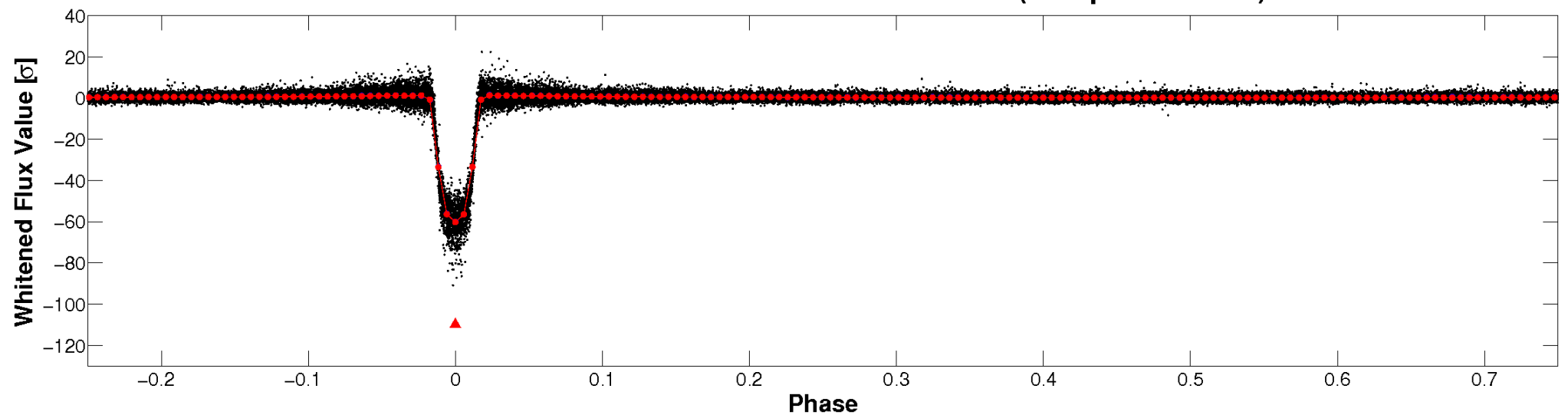


# Non-Whitened Vs. Whitened Light Curve

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

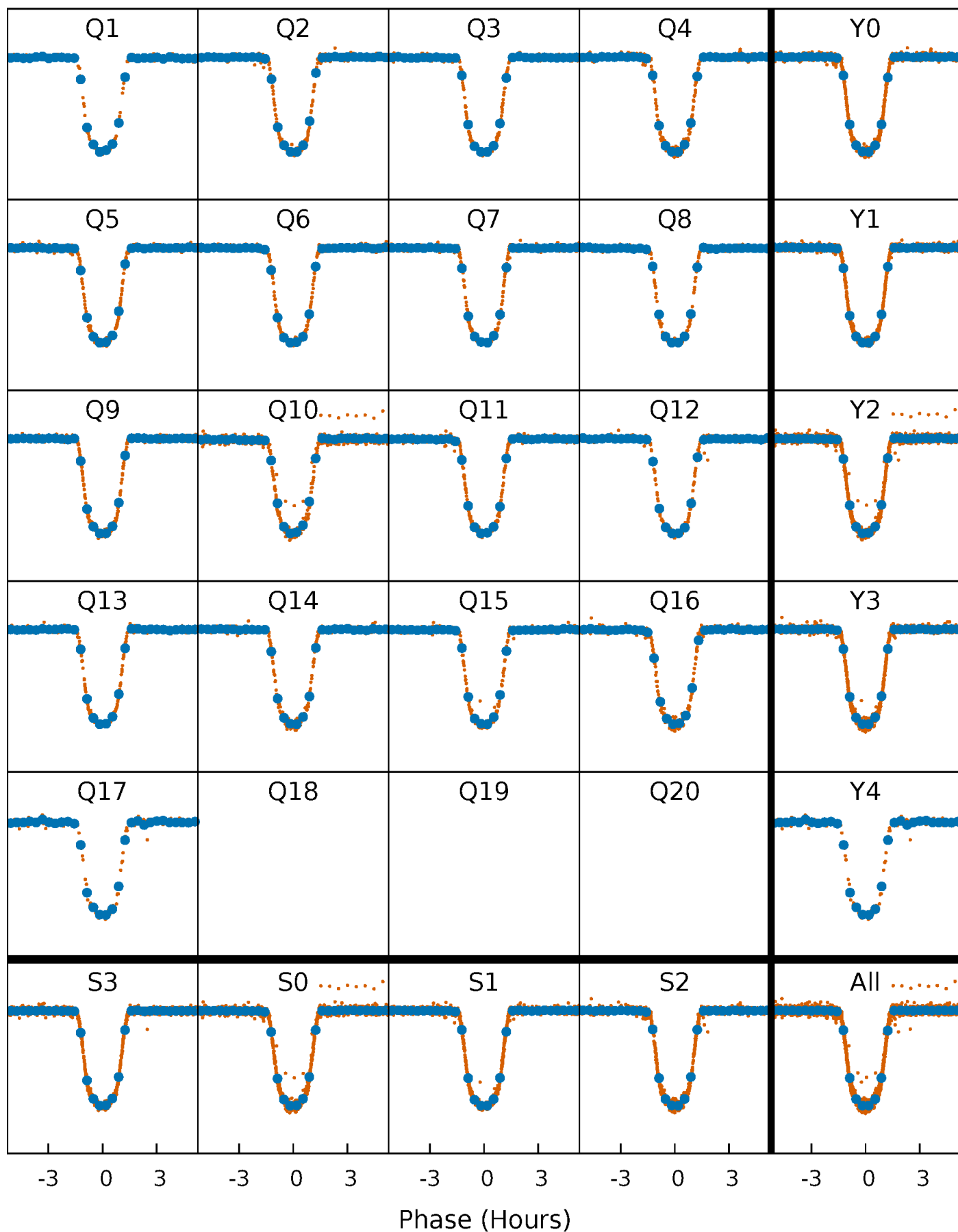


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

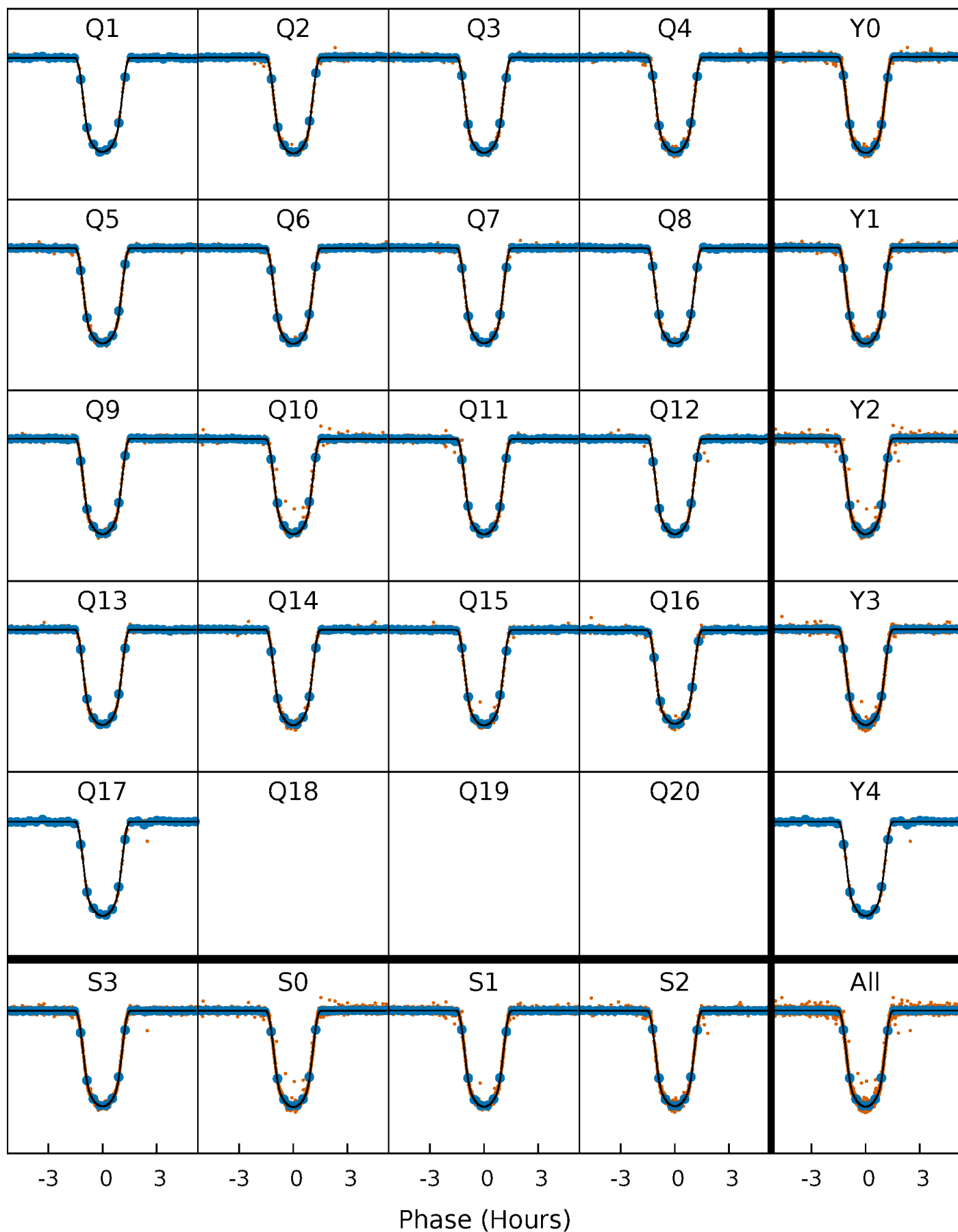
TCE 005358624-01 P= 3.525632 Days  $T_0=134.791658$  (BKJD)





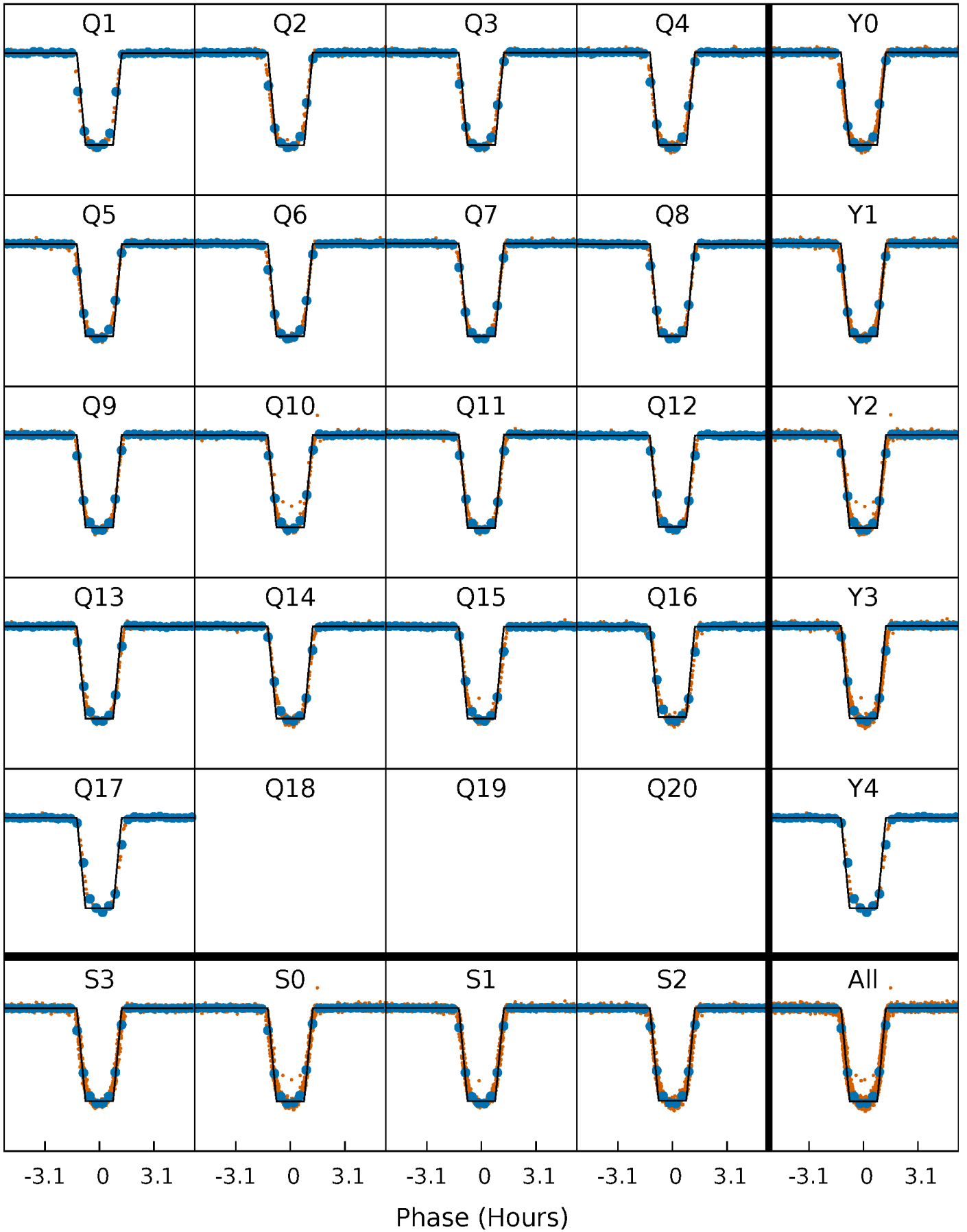
# DV Quarter-Phased Transit Curves

TCE 005358624-01 P= 3.525632 Days  $T_0=134.791658$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

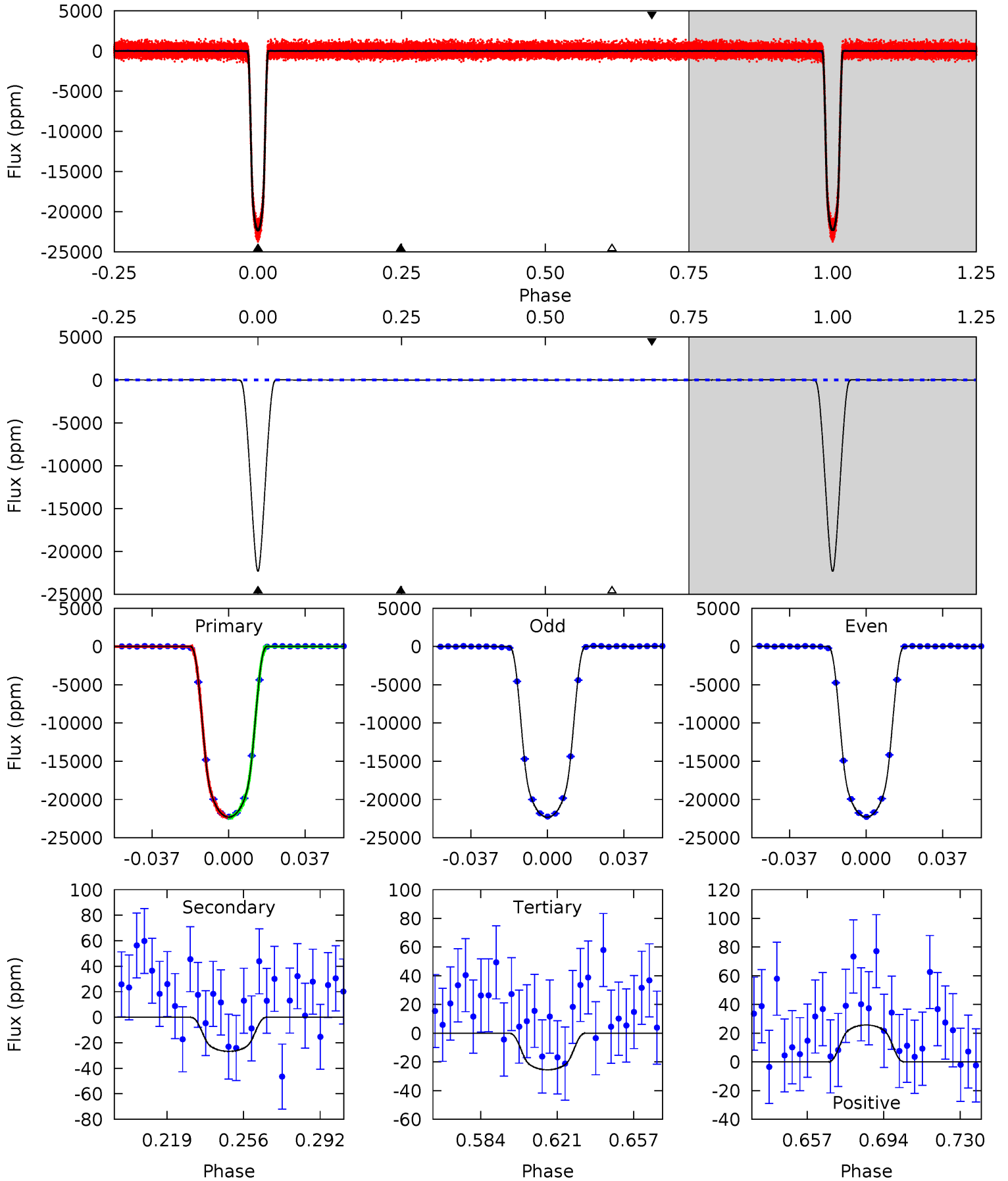
TCE 005358624-01 P= 3.525610 Days  $T_0=134.796069$  (BKJD)



# DV Model-Shift Uniqueness Test

005358624-01, P = 3.525632 Days, E = 131.266026 Days

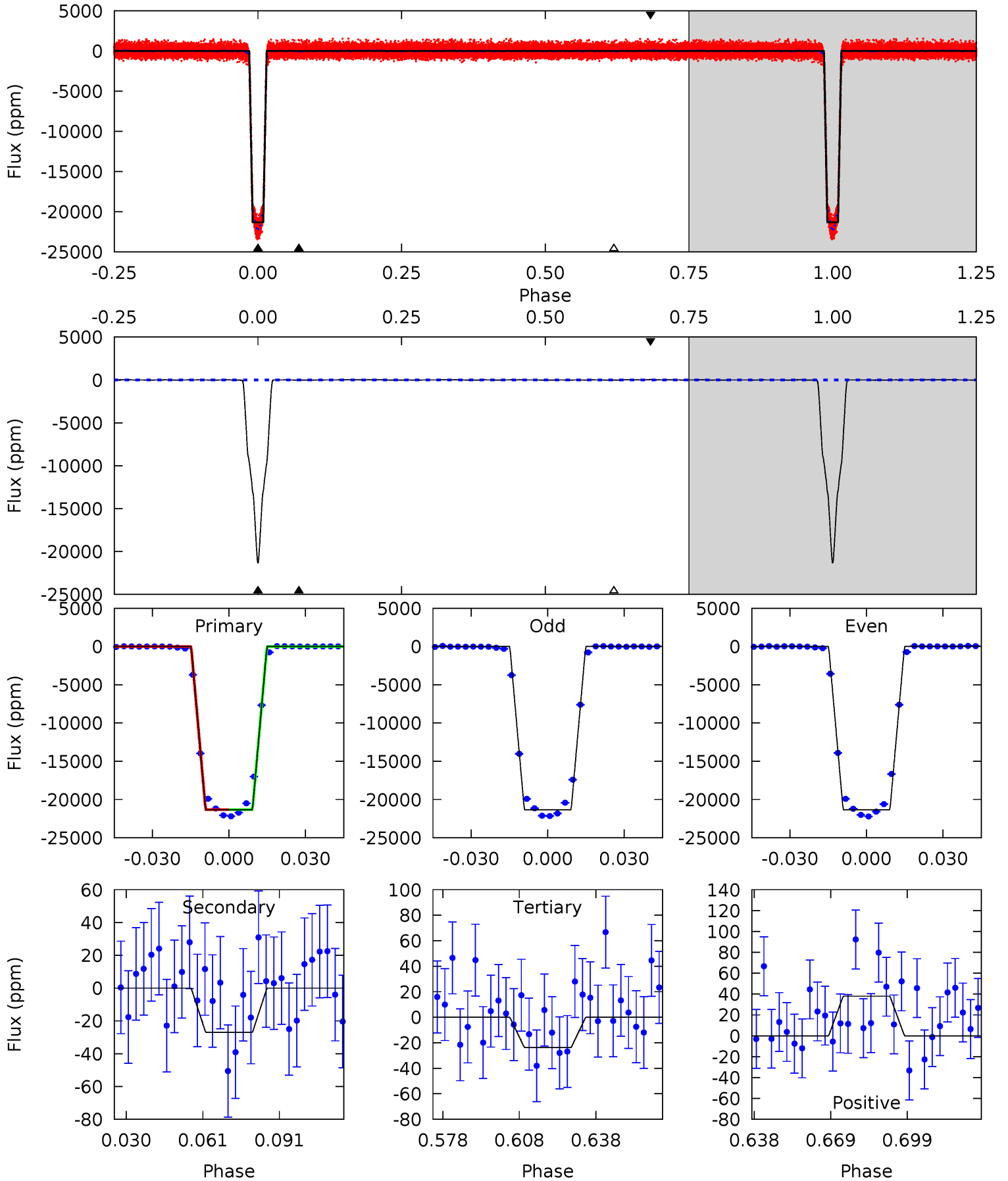
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2966	3.56	3.39	3.42	4.77	2.09	1.26	2963	2963	0.16	0.13	1.63	1.00	0.00	1.91



# Alt Model-Shift Uniqueness Test

005358624-01, P = 3.525610 Days, E = 131.270459 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
2171	2.75	2.42	3.86	4.81	2.16	1.11	2168	2167	0.33	-1.11	0.09	1.00	0.00	0.13



### Stellar Parameters For KIC 005358624

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5150^{+82}_{-82}$	$4.572^{+0.020}_{-0.064}$	$0.080^{+0.150}_{-0.150}$	$0.793^{+0.062}_{-0.033}$	$0.855^{+0.035}_{-0.049}$	$2.417^{+0.245}_{-0.456}$
	+2%/-2%	+0%/-1%	+188%/-188%	+8%/-4%	+4%/-6%	+10%/-19%
Source	SPE77	SPE77	SPE77	DSEP		

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

### Secondary Eclipse Parameters for KIC 005358624-01 / KOI 0830.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-27 \pm 8$	$11.84^{+0.53}_{-0.36}$	$1372^{+34}_{-27}$	$-1888^{+128}_{-83}$	$0.191^{+0.057}_{-0.053}$
Alt.	$-27 \pm 10$	$12.83^{+0.54}_{-0.40}$	$1372^{+31}_{-28}$	$-1926^{+127}_{-81}$	$0.166^{+0.066}_{-0.063}$

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

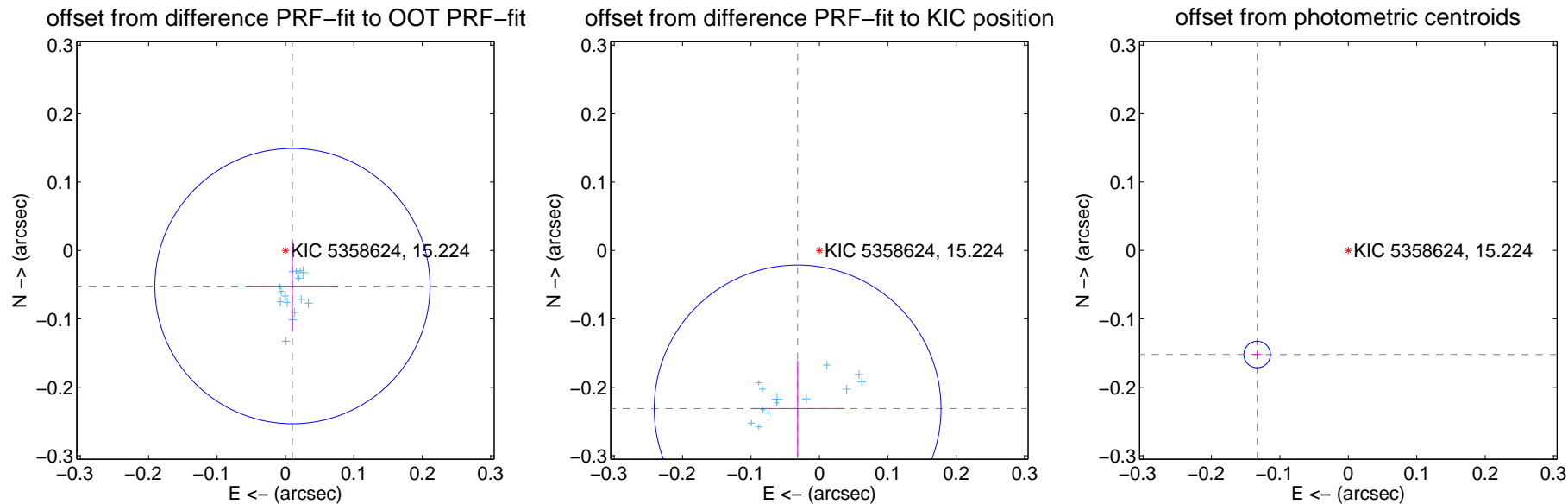
## DV Centroid Data

Supplemental centroid analysis for 005358624-01. Kepler magnitude: 15.22. Transit SNR 2064.74

There are 17 quarters with good PRF difference image offsets

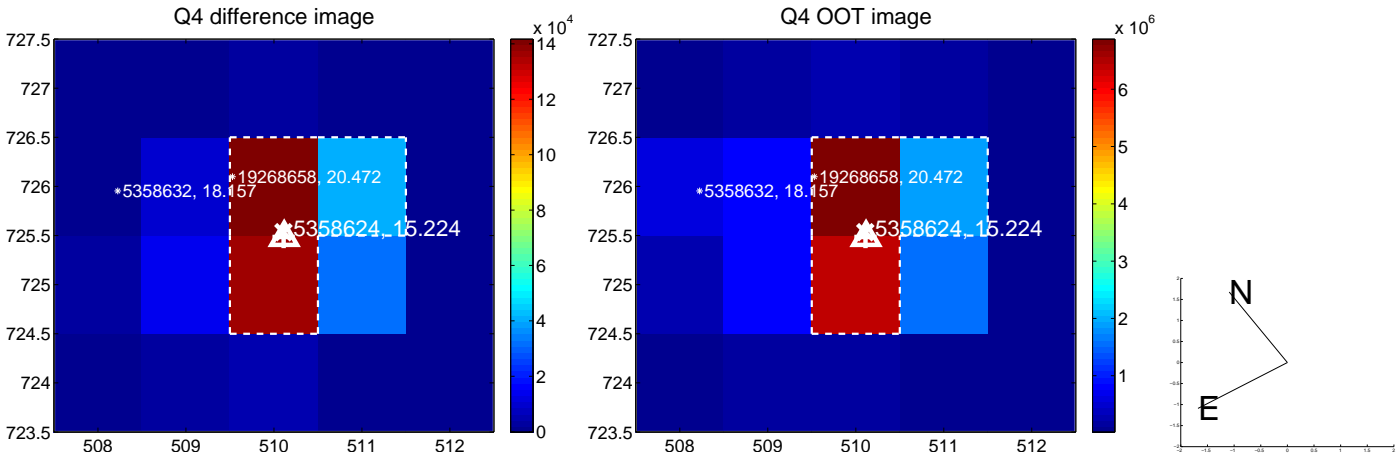
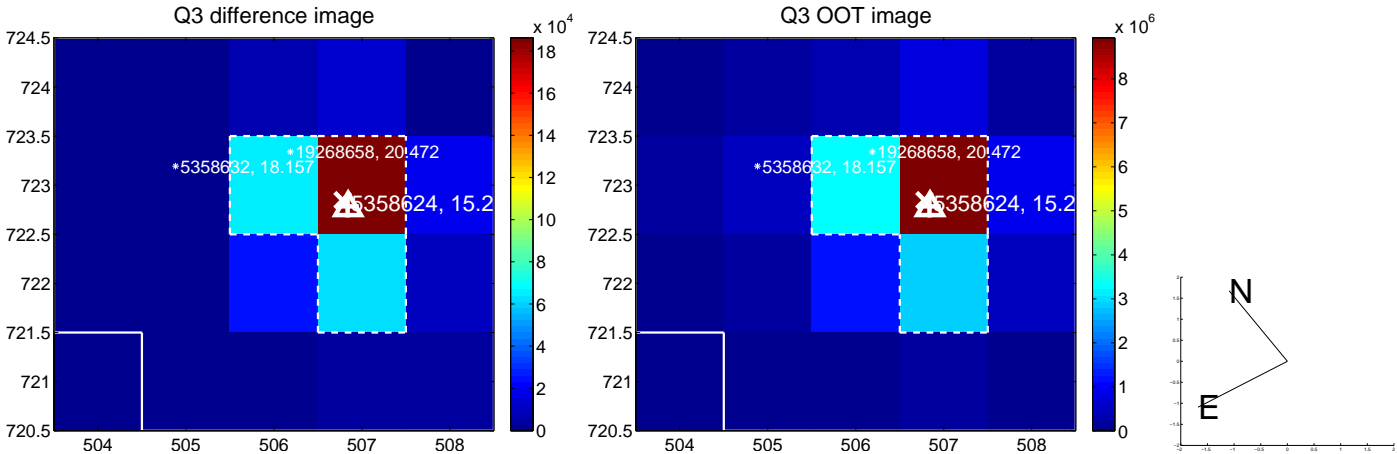
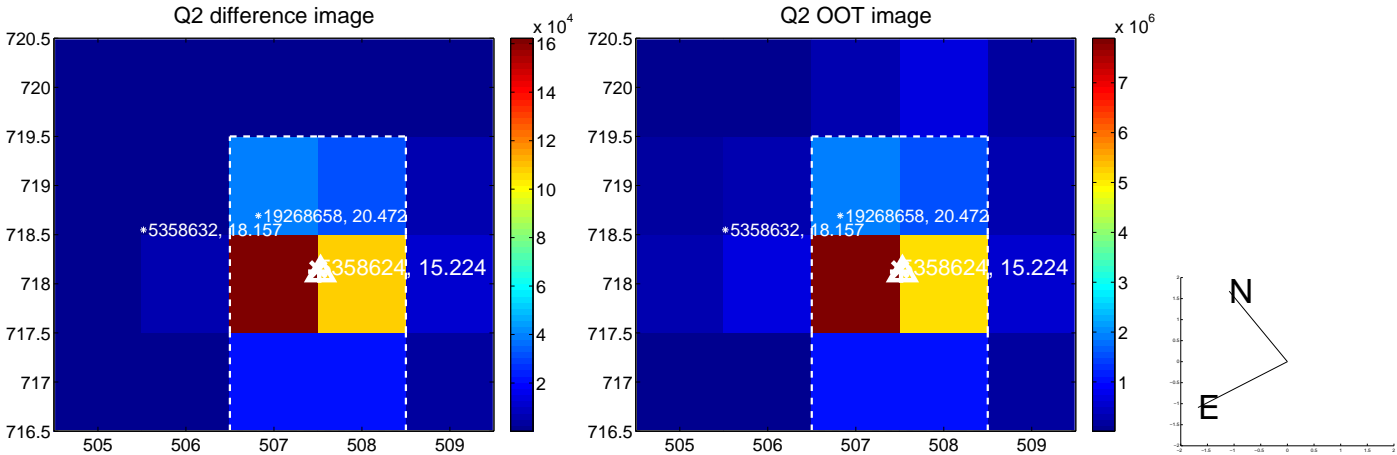
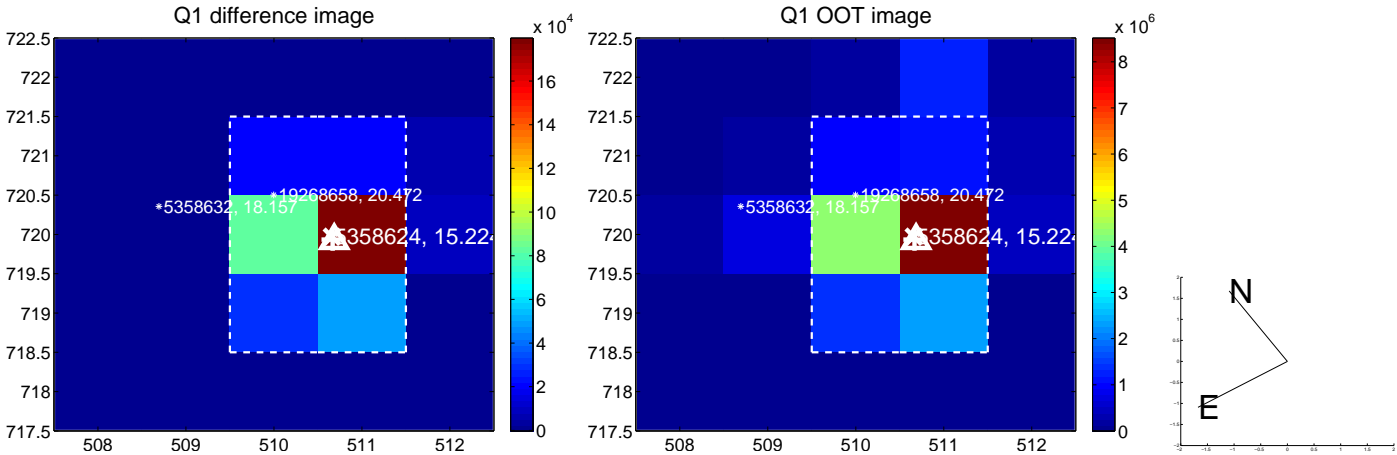
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.053 \pm 0.067$	0.79	$-0.010 \pm 0.067$	$-0.052 \pm 0.067$
PRF-fit source offset from KIC position	$0.233 \pm 0.070$	3.34	$0.032 \pm 0.068$	$-0.231 \pm 0.070$
photometric centroid source offset	$0.20 \pm 0.01$	31.34	$0.13 \pm 0.01$	$-0.15 \pm 0.01$

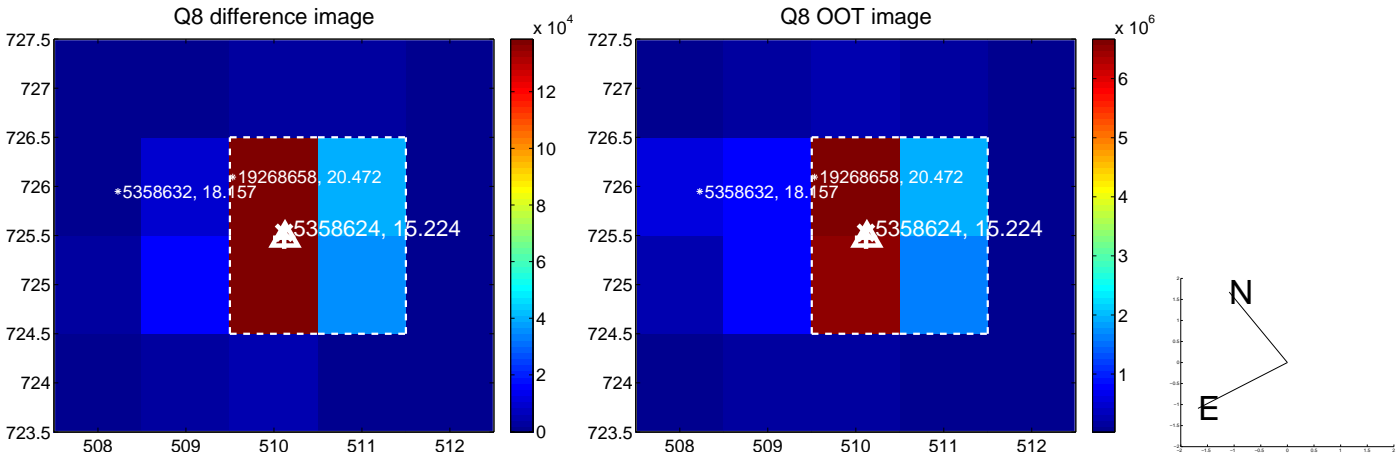
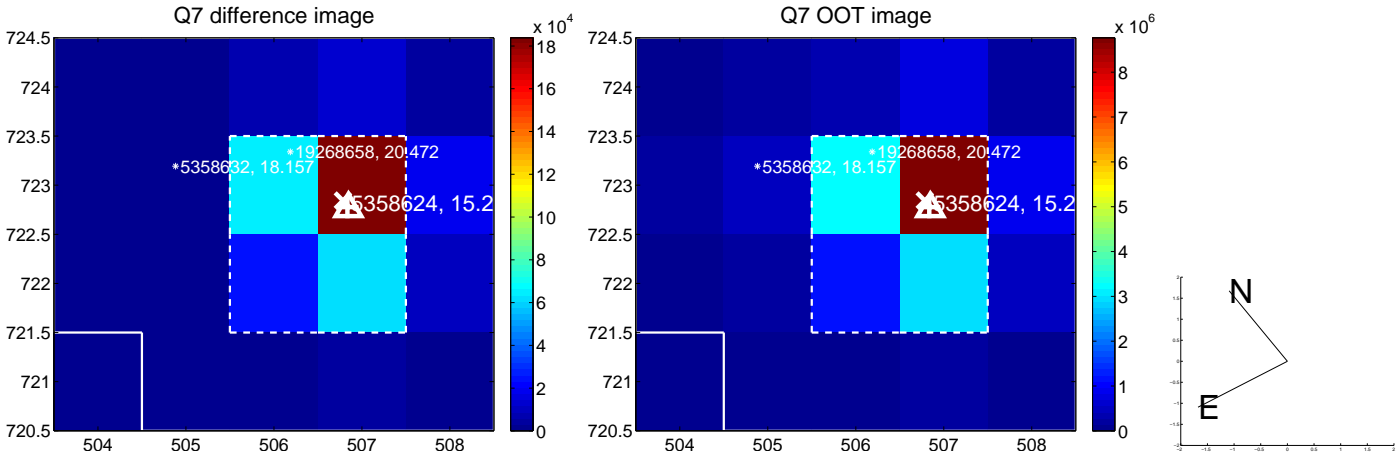
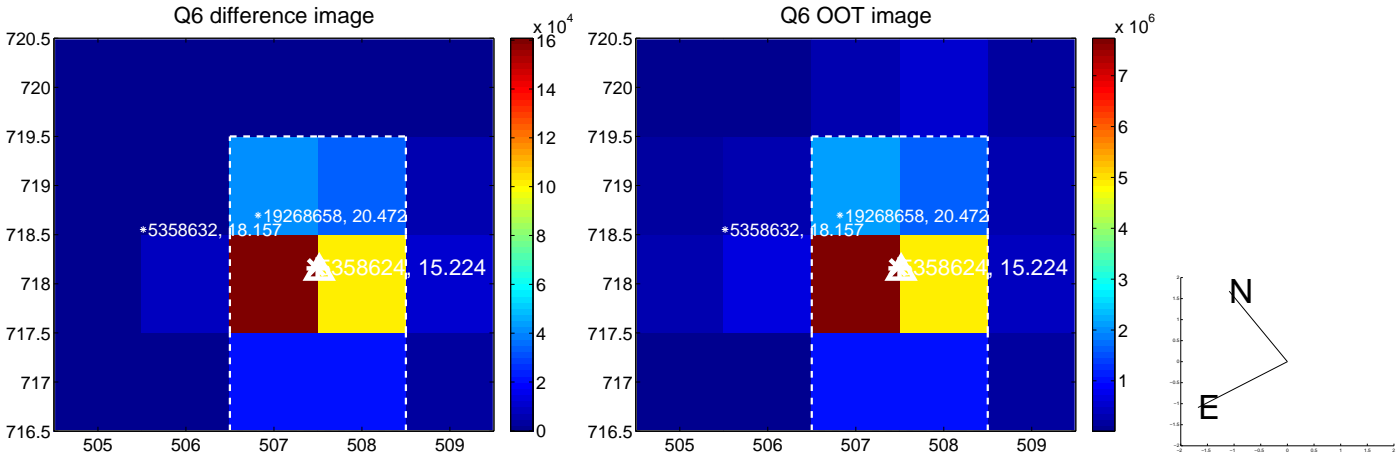
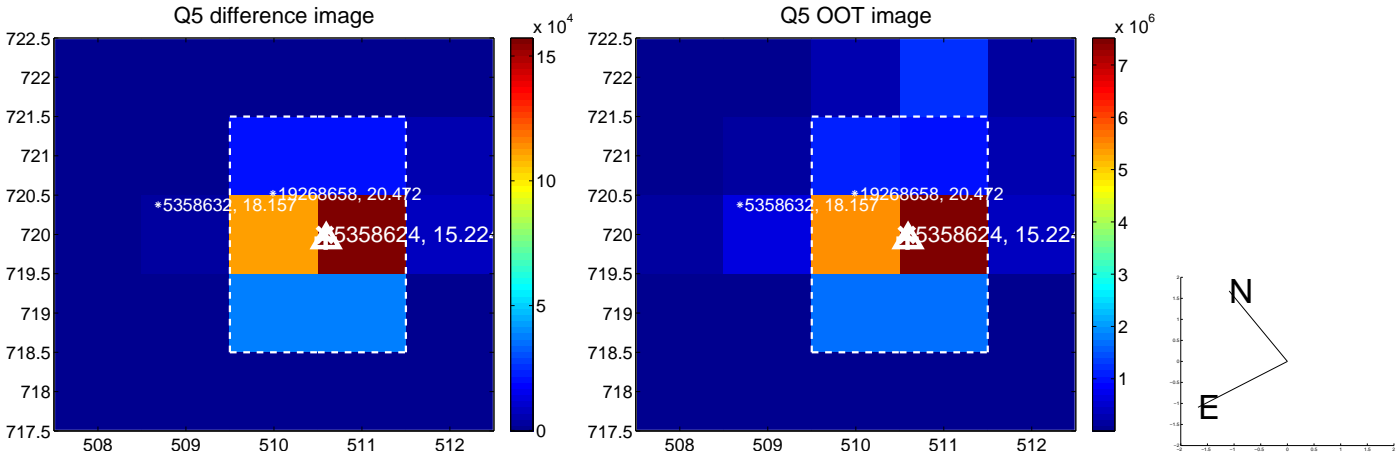


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

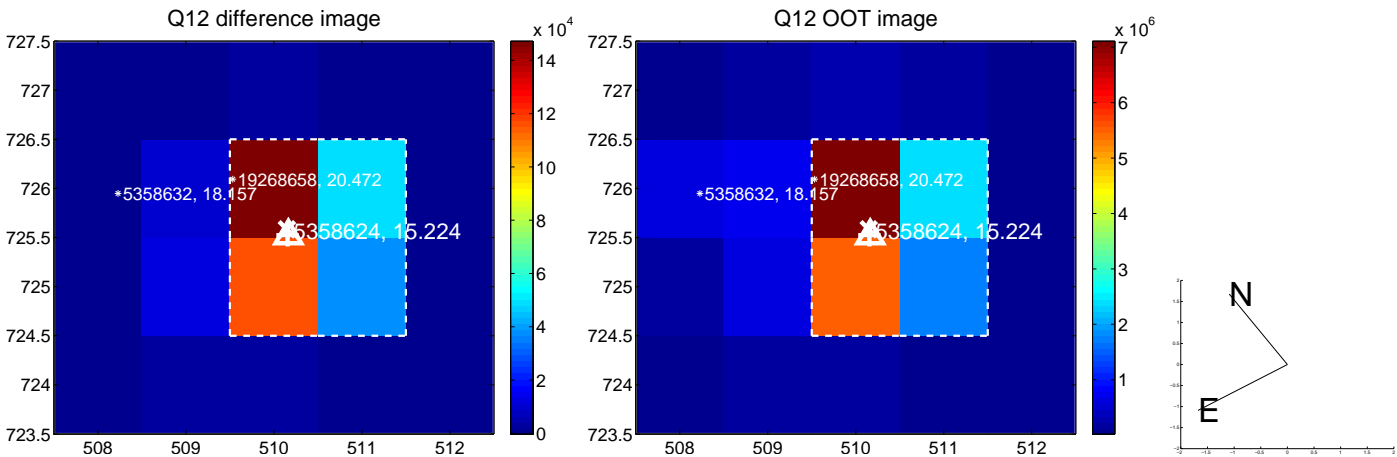
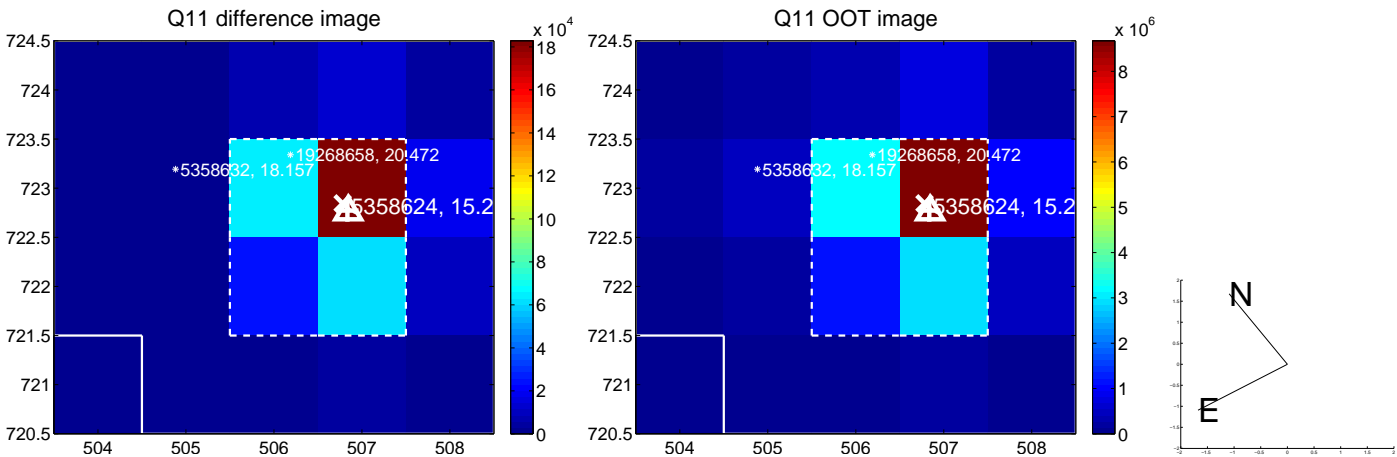
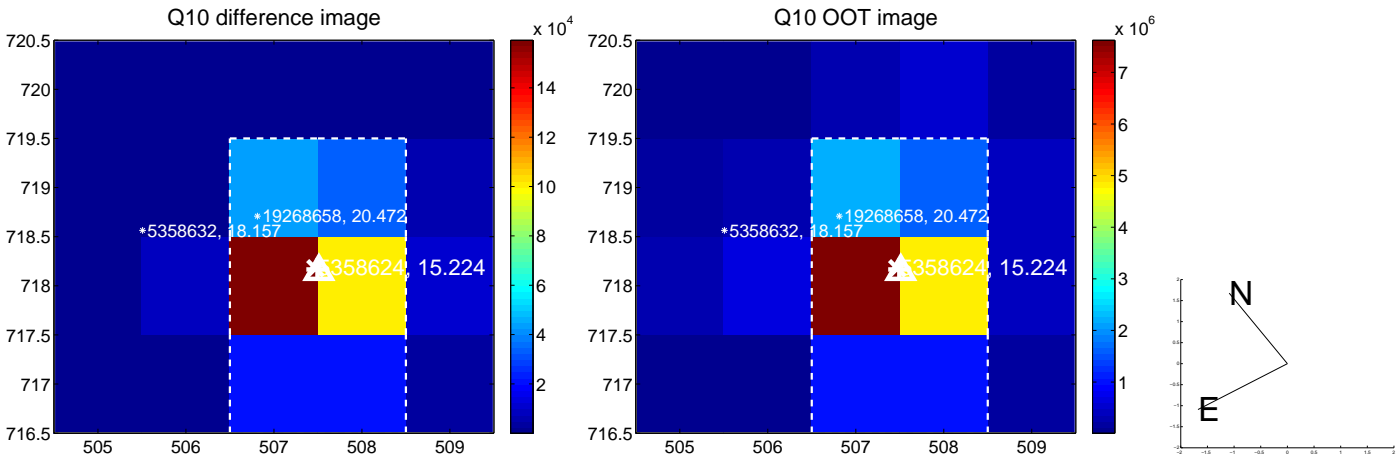
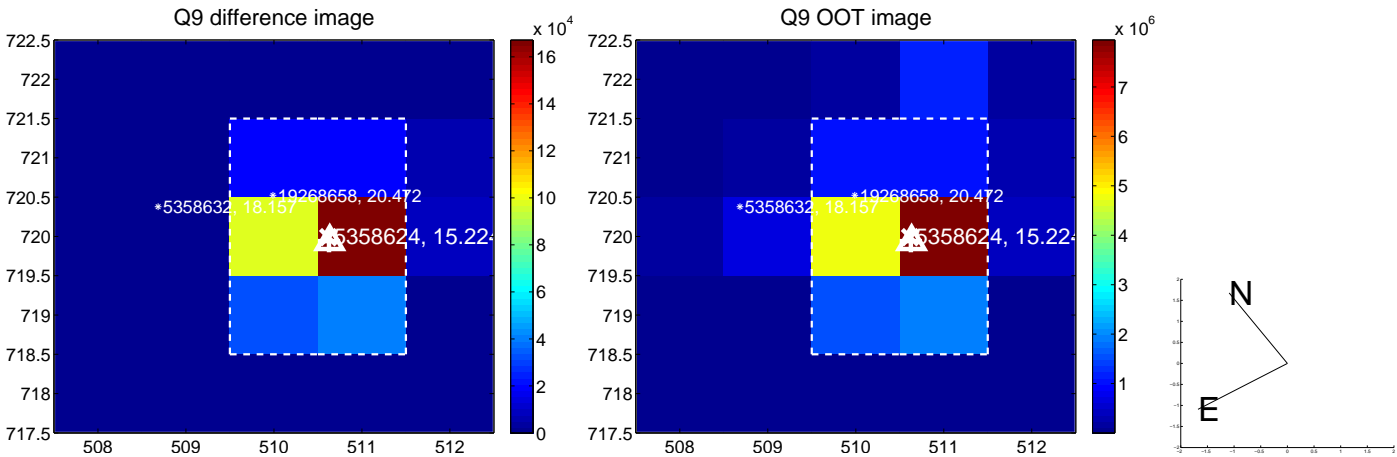


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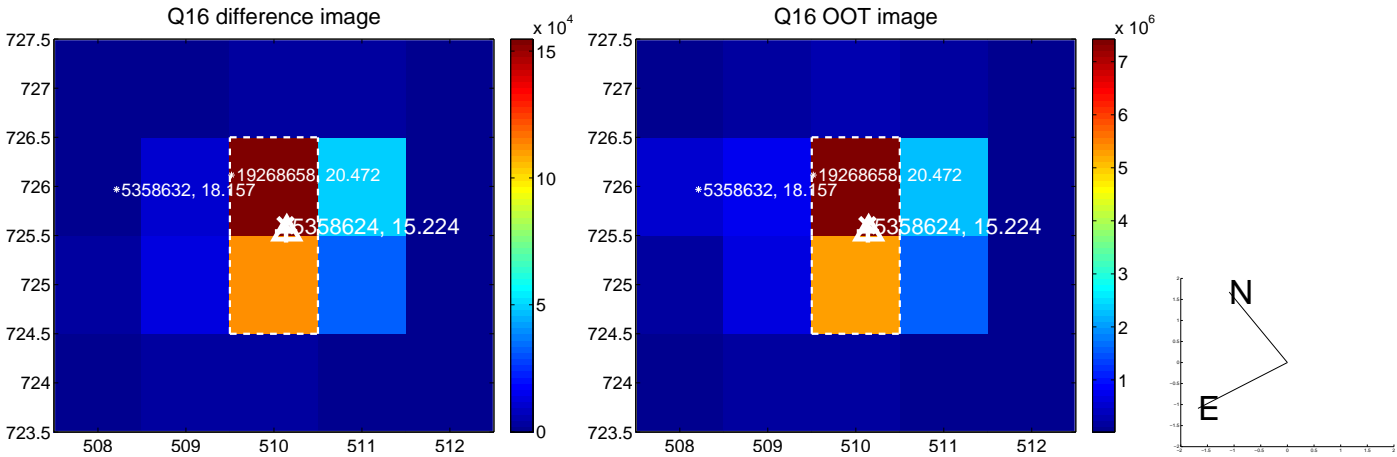
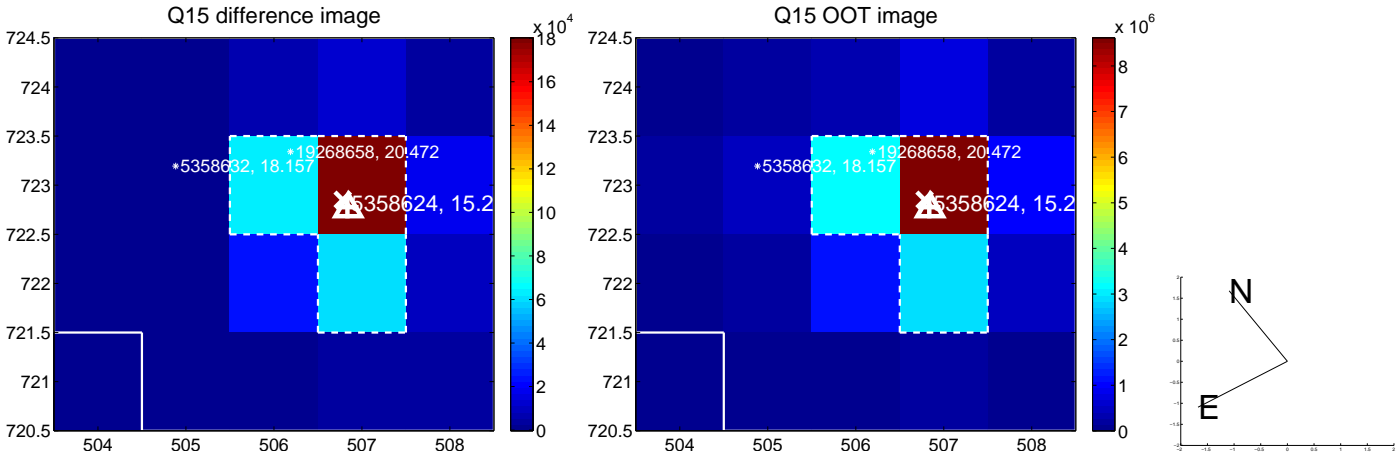
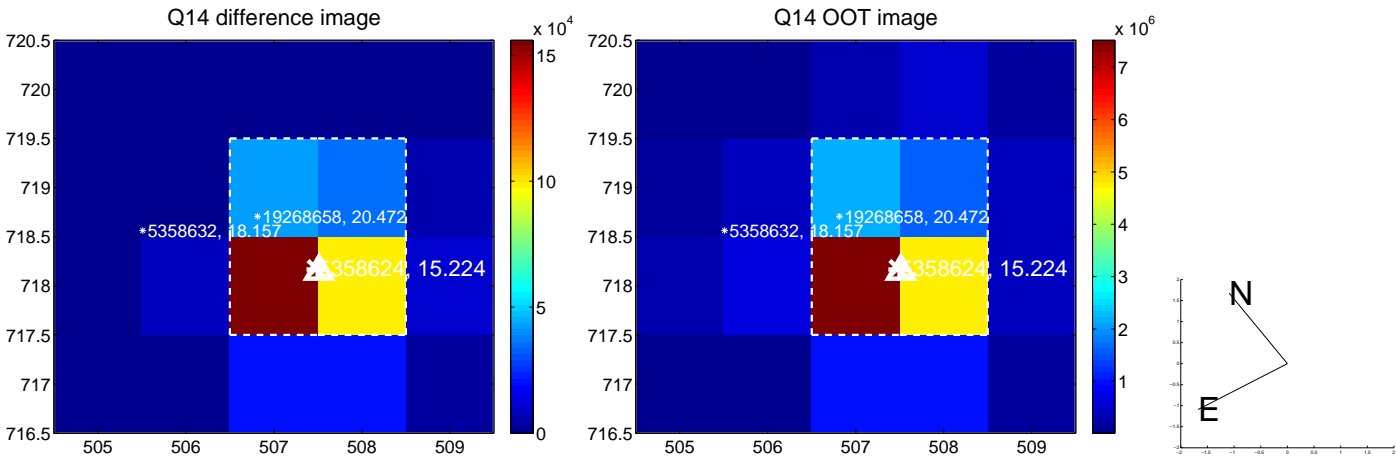
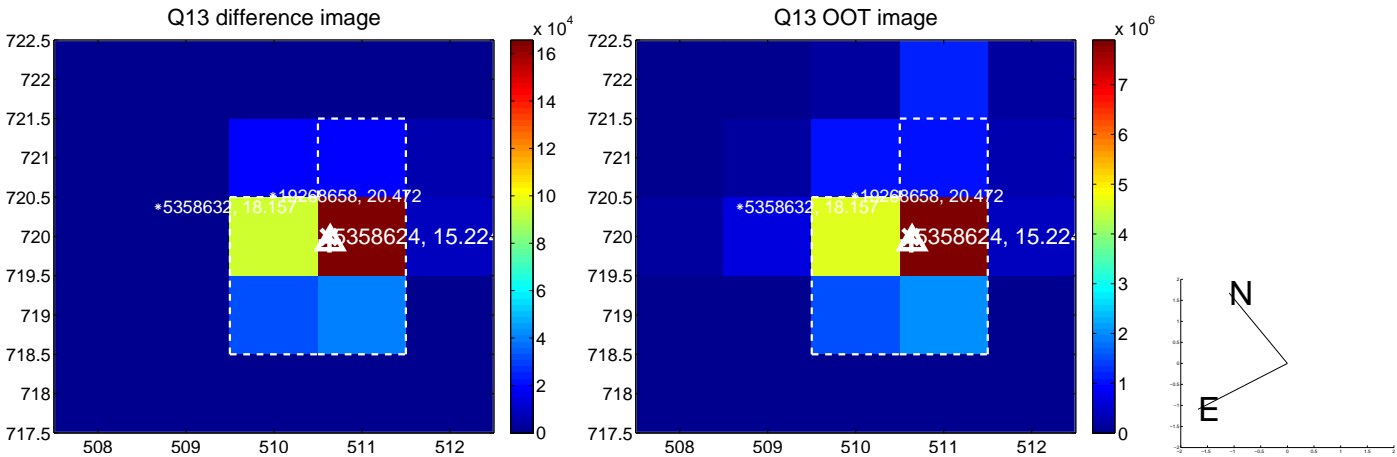




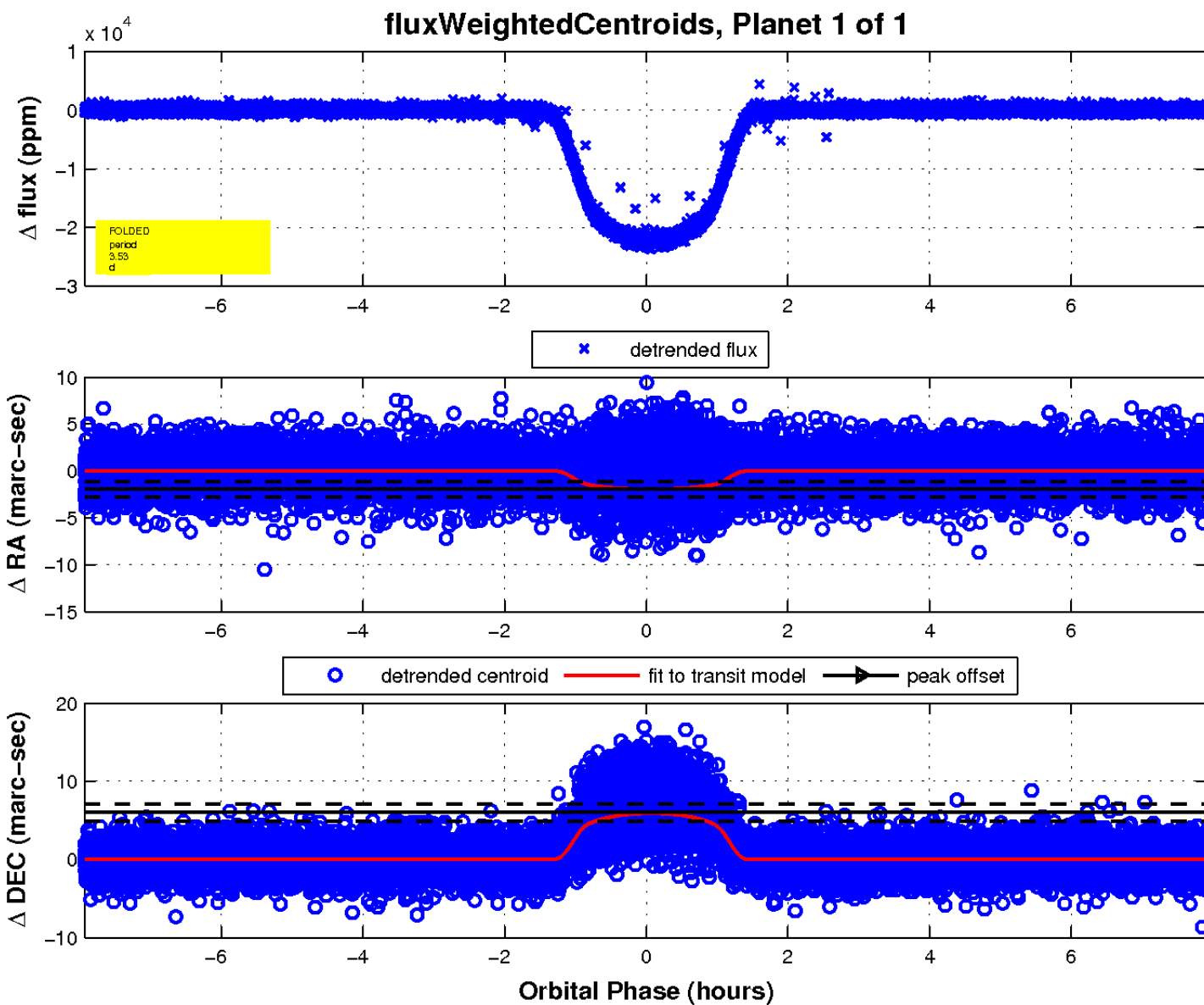
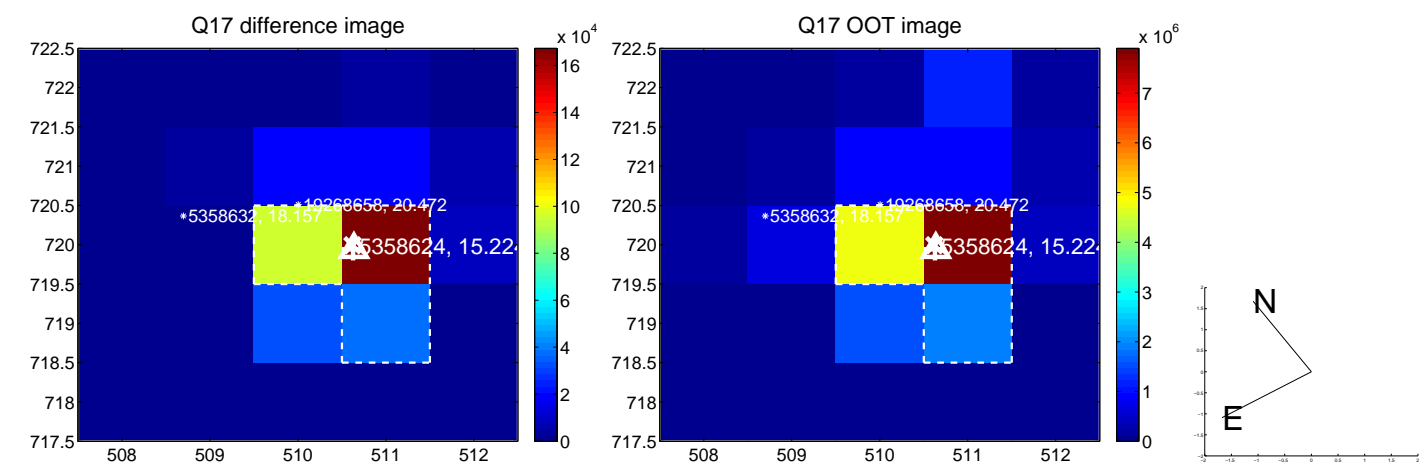
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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# UKIRT Image

Declination

