

# KIC 011824222

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011824222-01	OBS	0437.01	15.841331	145.459197	30974.0	1.847	773.7	569.6	0.70	5119	17.60	25.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011824222-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED—CENT_KIC_POS

**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.

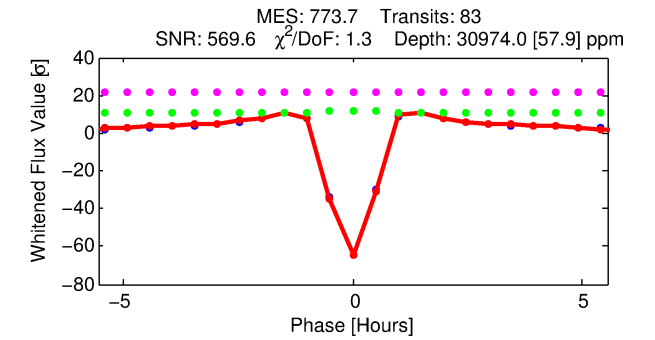
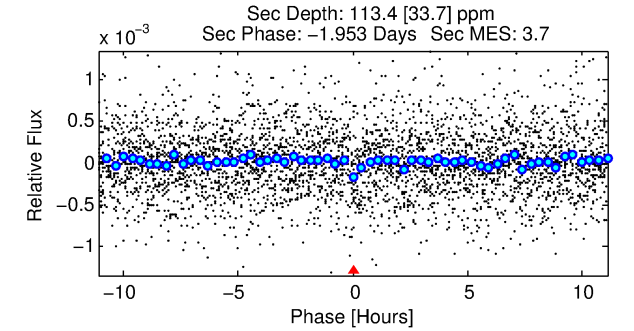
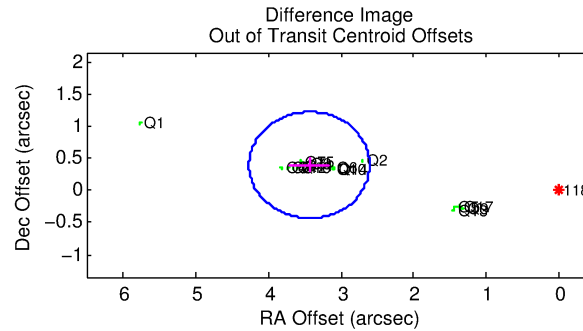
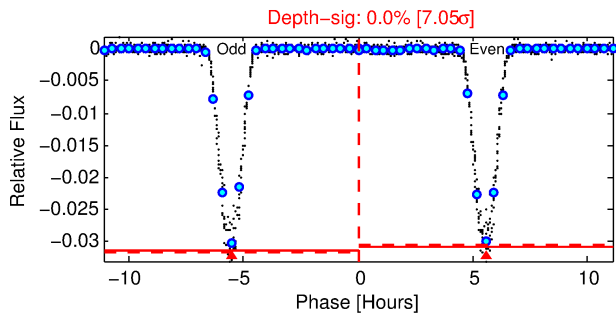
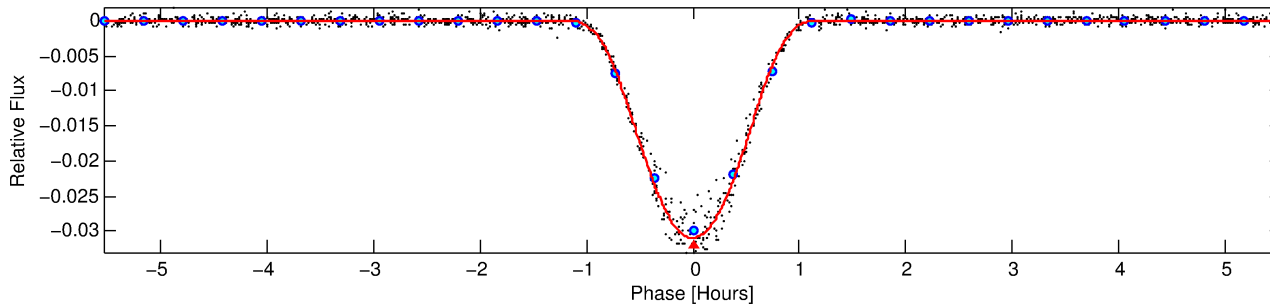
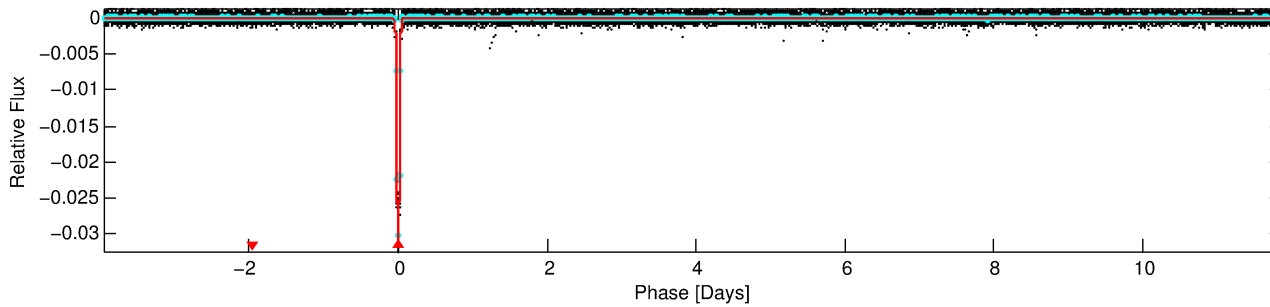
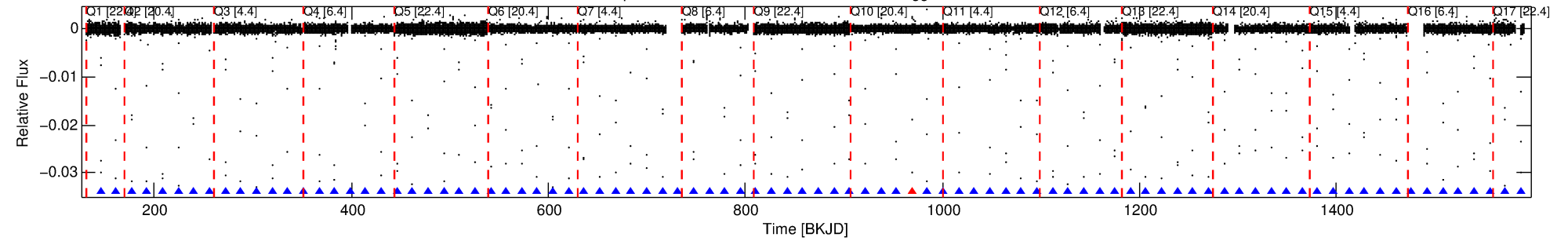
## Ephemeris Match Information For 011824222-01

No Significant Match Found

# DV One-Page Summary

KIC: 11824222 Candidate: 1 of 1 Period: 15.841 d  
KOI: K00437.01 Corr: 0.989

Kp: 14.50 R\*: 0.70 Rs Teff: 5119.0 K Logg: 4.58 Fe/H: -0.500



## DV Fit Results:

Period = 15.84133 [0.00000] d  
Epoch = 145.4592 [0.0001] BKJD  
Rp/R\* = 0.2297 [0.0149]  
a/R\* = 54.23 [0.59]  
b = 0.91 [0.03]  
Seff = 25.83 [4.58]  
Teq = 575 [26] K  
Rp = 17.60 [2.16] Re  
a = 0.1083 [0.0096] AU  
Ag = 2.36 [0.83] [1.65σ]  
Teffp = 1102 [95] K [5.34σ]

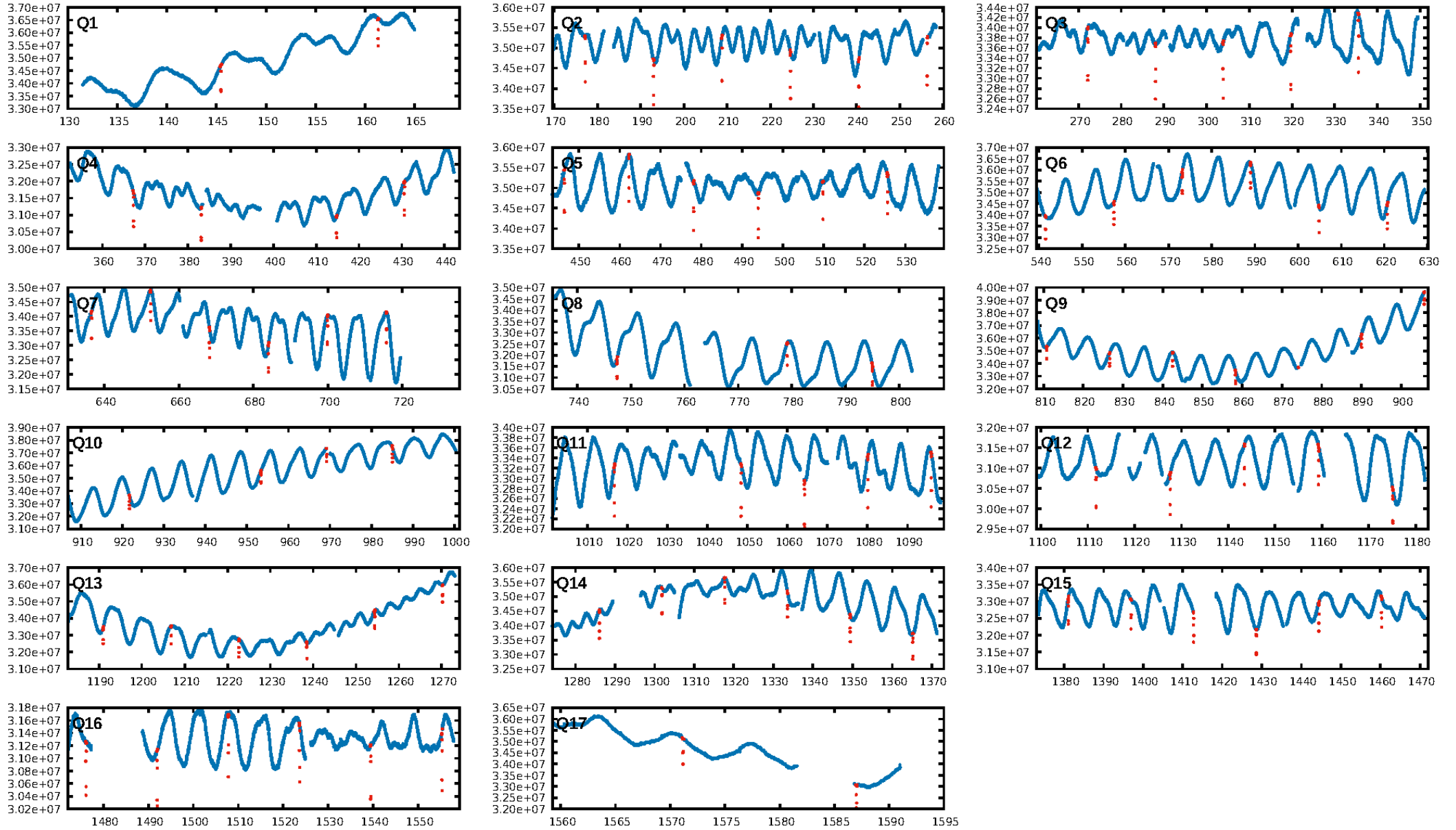
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 18.3%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.99 [78/79]  
GhostDiagnostic-chr: 1.999  
Centroid-sig: 0.0%  
Centroid-so: 1.355 arcsec [97.86σ]  
OotOffset-rm: 3.457 arcsec [12.52σ]  
KicOffset-rm: 0.063 arcsec [0.90σ]  
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]

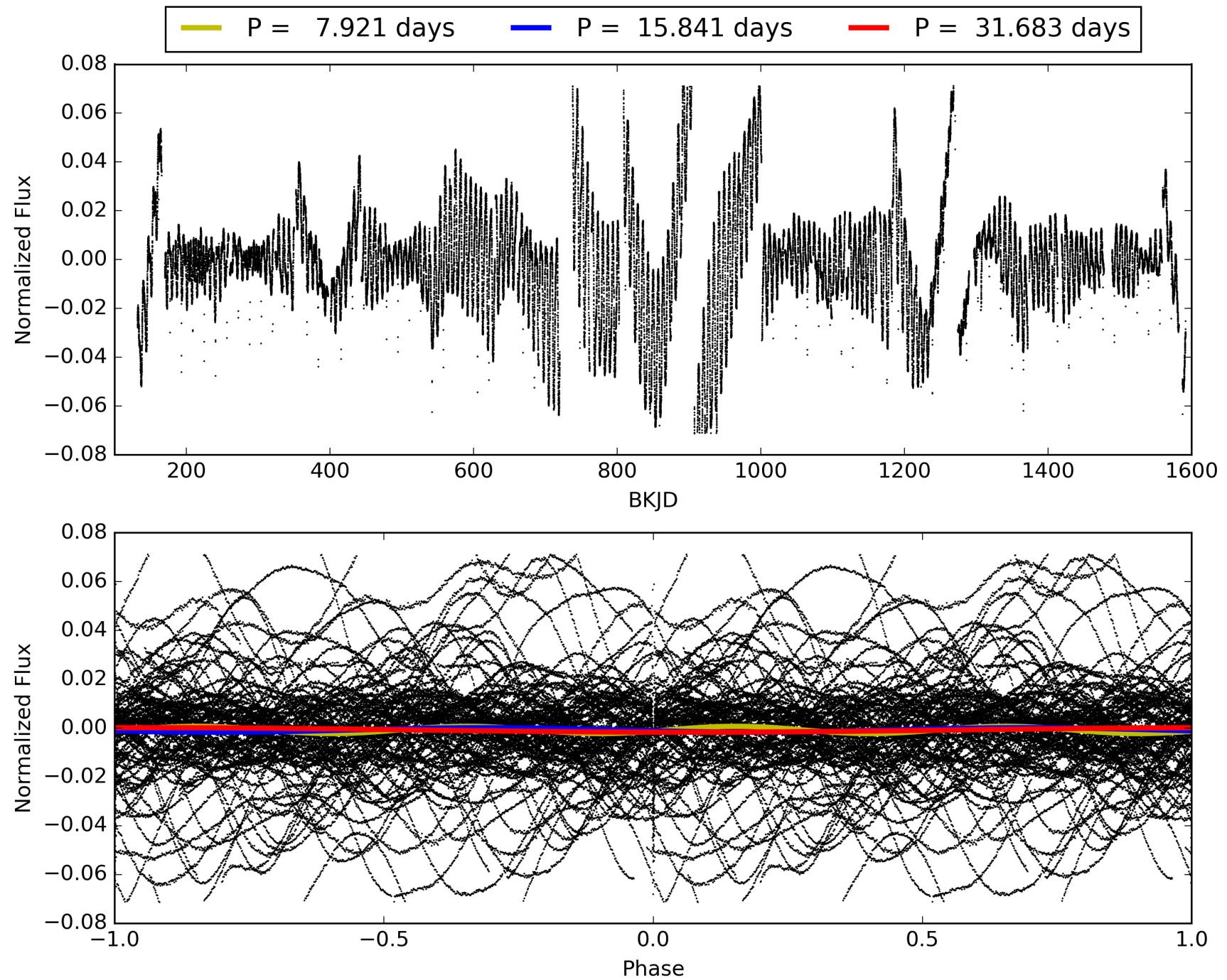
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:56:33 Z

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

# TCE 011824222-01, PDC Light Curves

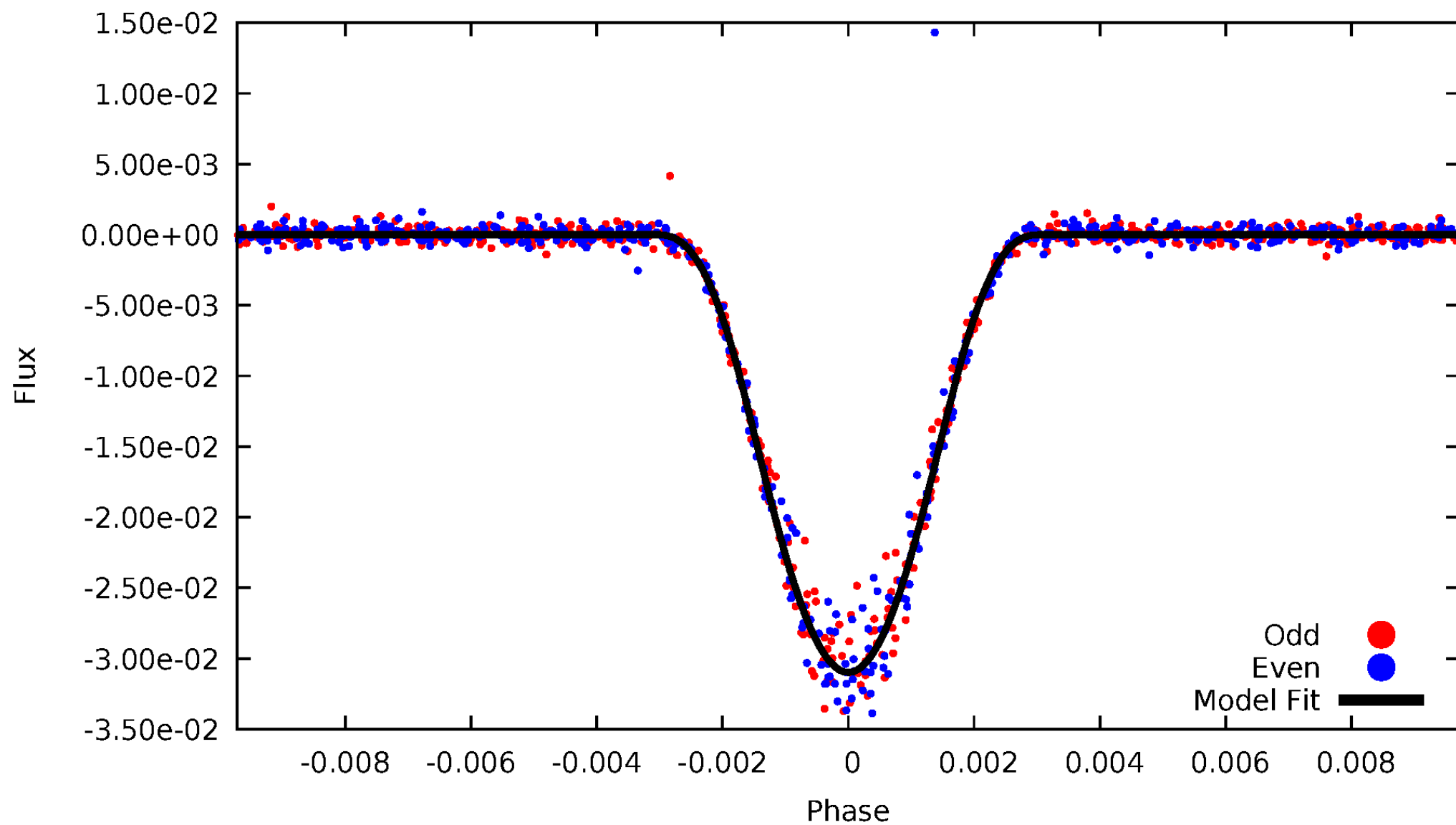


# TCE 011824222-01



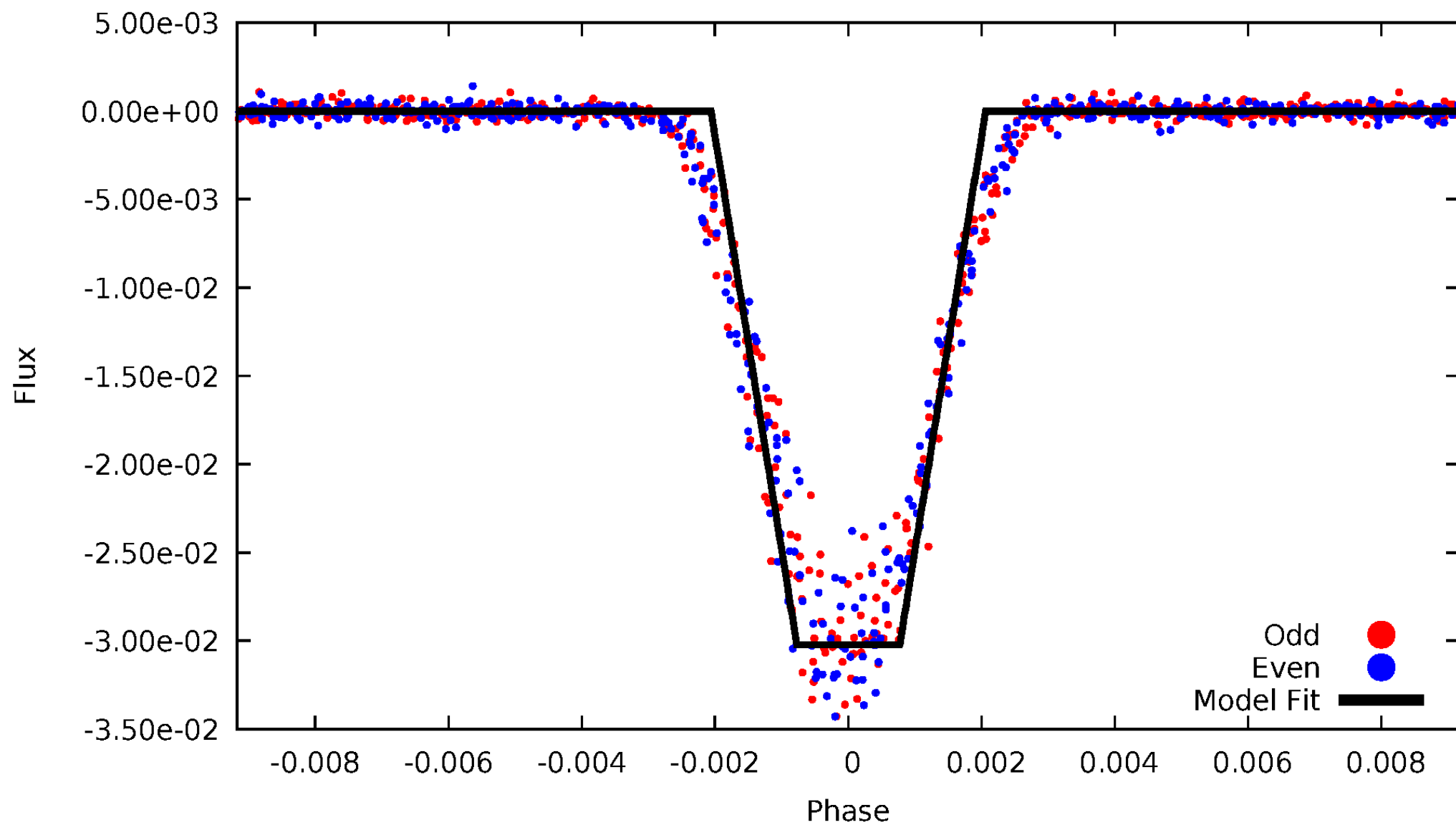
# DV Odd/Even

TCE 011824222-01



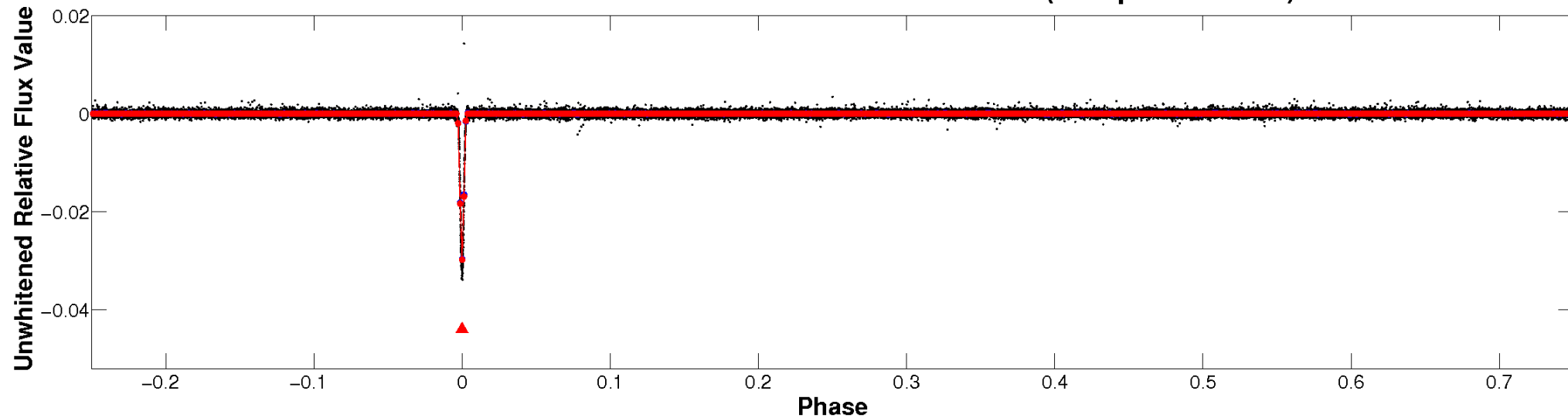
# ALT Odd/Even

TCE 011824222-01

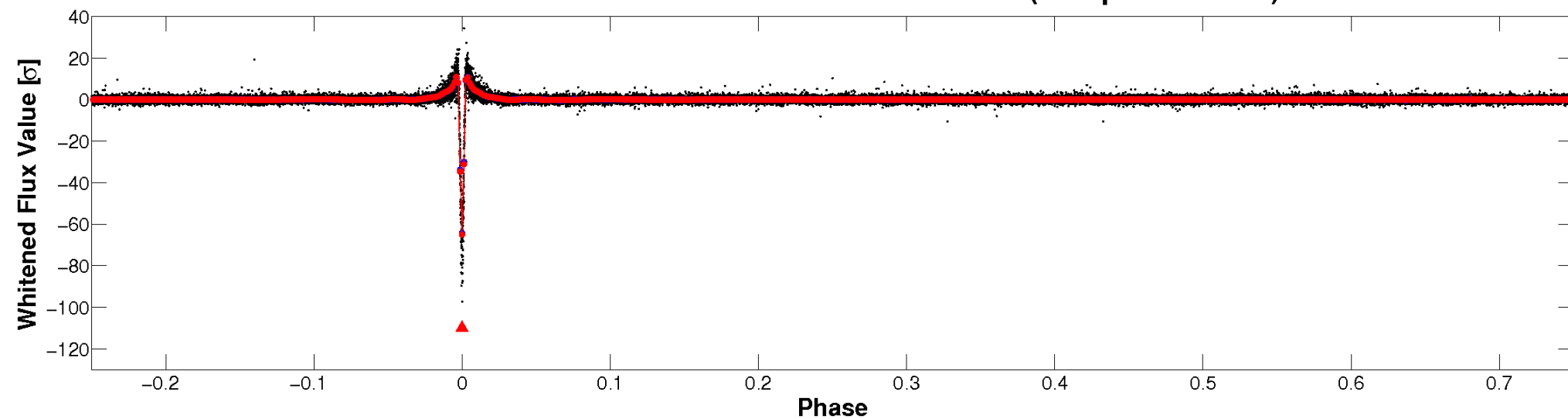


# Non-Whitened Vs. Whitened Light Curve

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

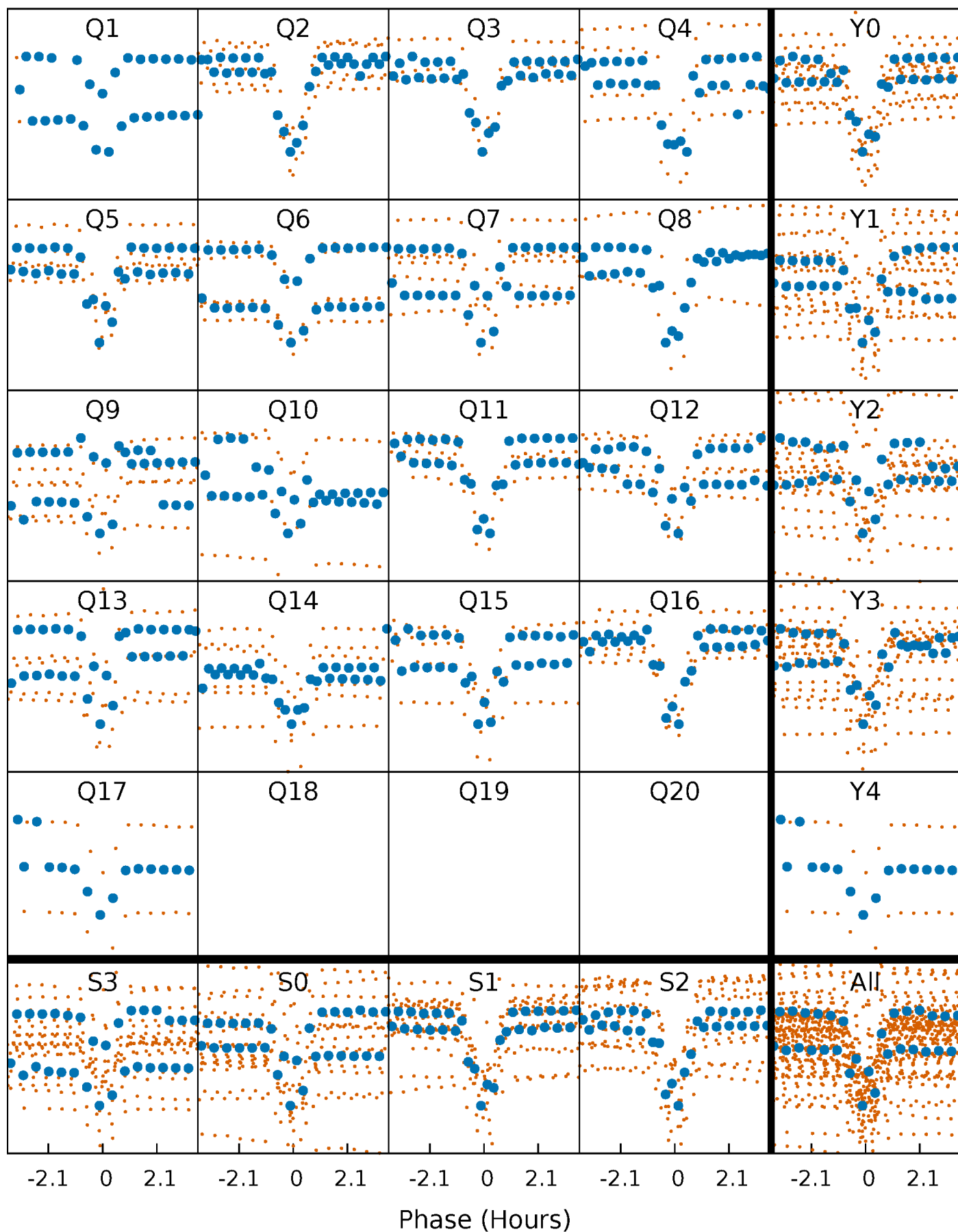


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

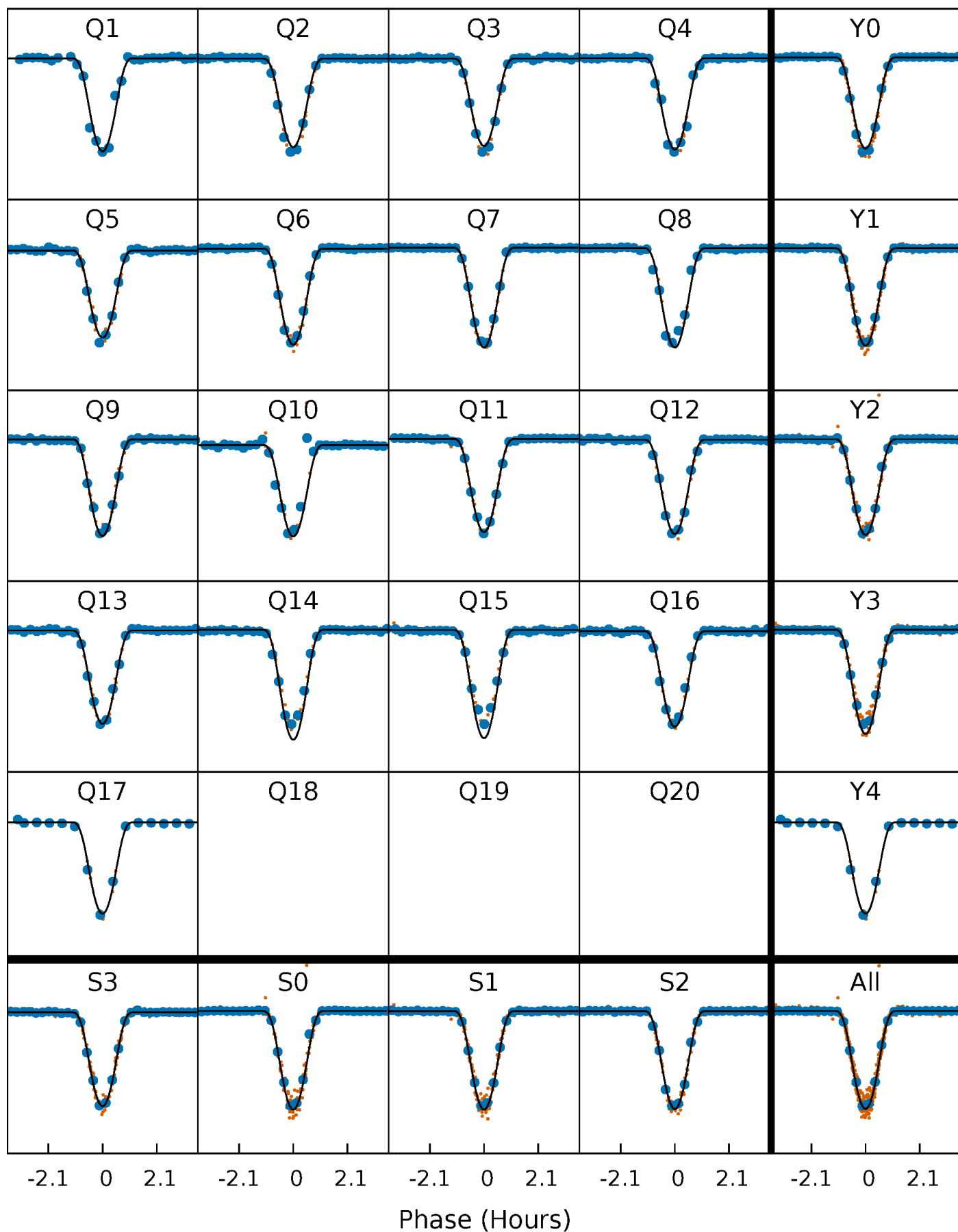
TCE 011824222-01 P= 15.841331 Days  $T_0=145.459197$  (BKJD)





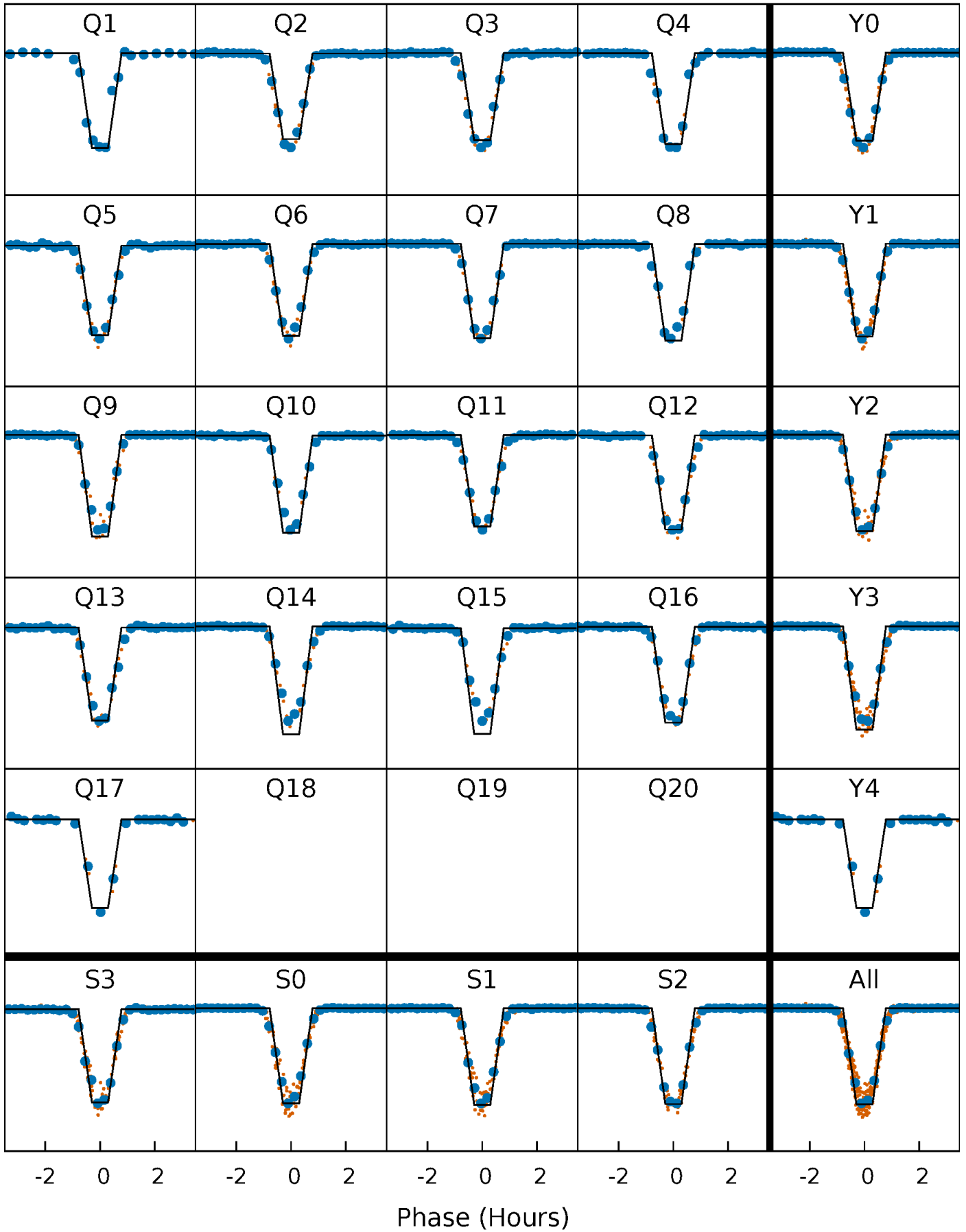
# DV Quarter-Phased Transit Curves

TCE 011824222-01 P= 15.841331 Days  $T_0=145.459197$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

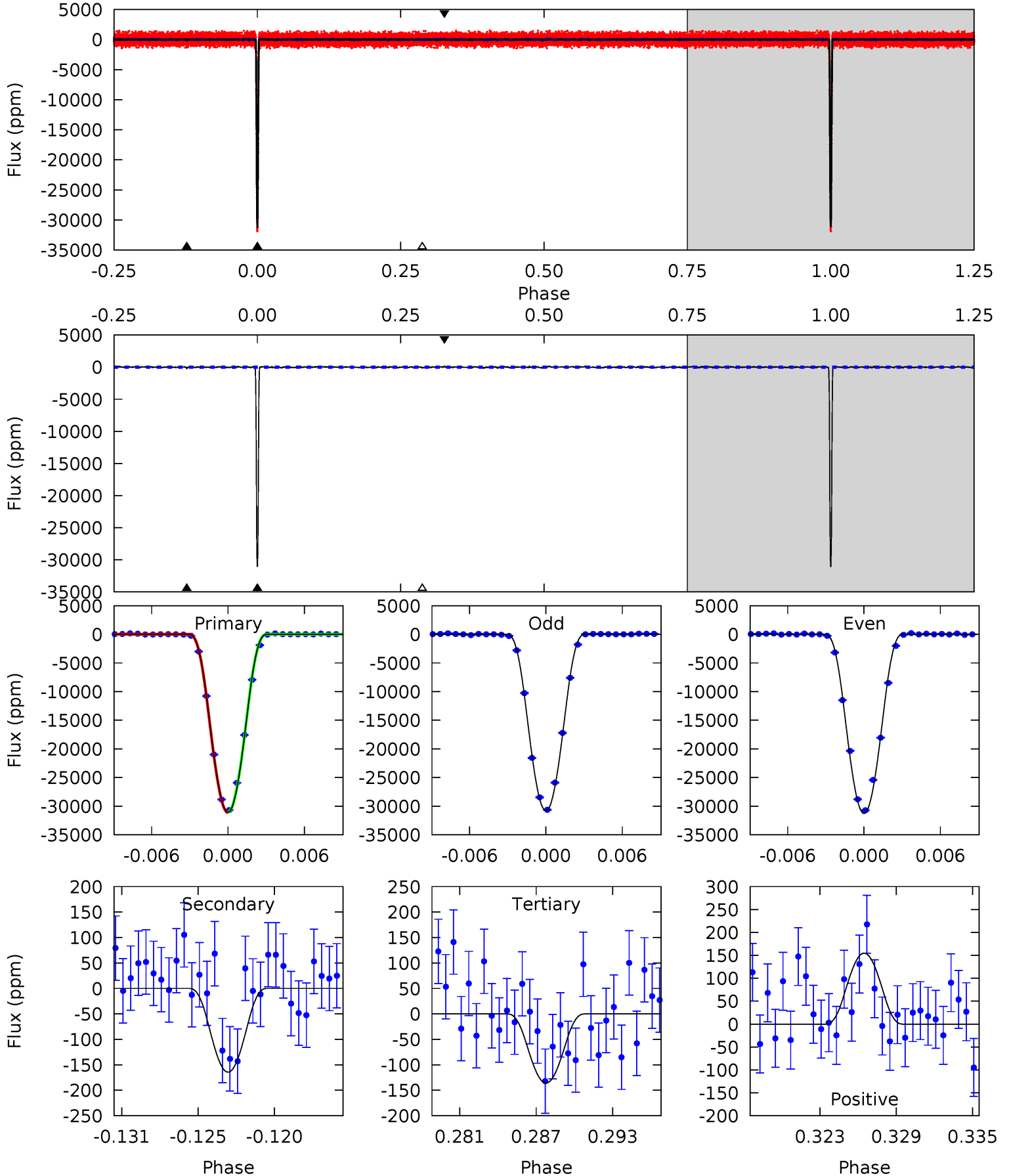
TCE 011824222-01 P= 15.841269 Days  $T_0=145.462216$  (BKJD)



# DV Model-Shift Uniqueness Test

011824222-01, P = 15.841331 Days, E = 129.617866 Days

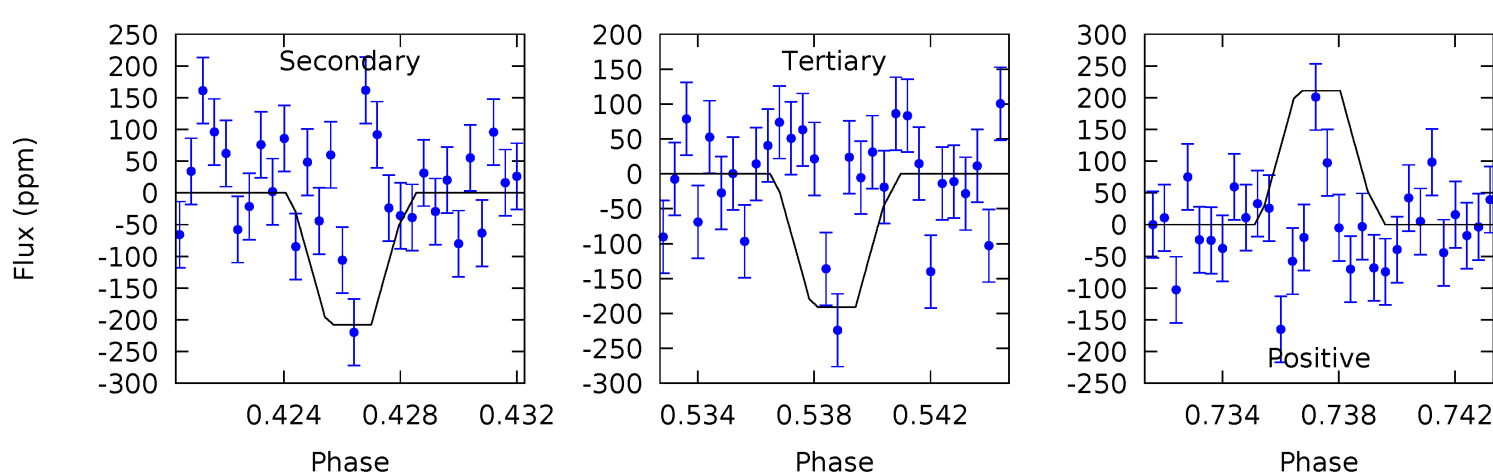
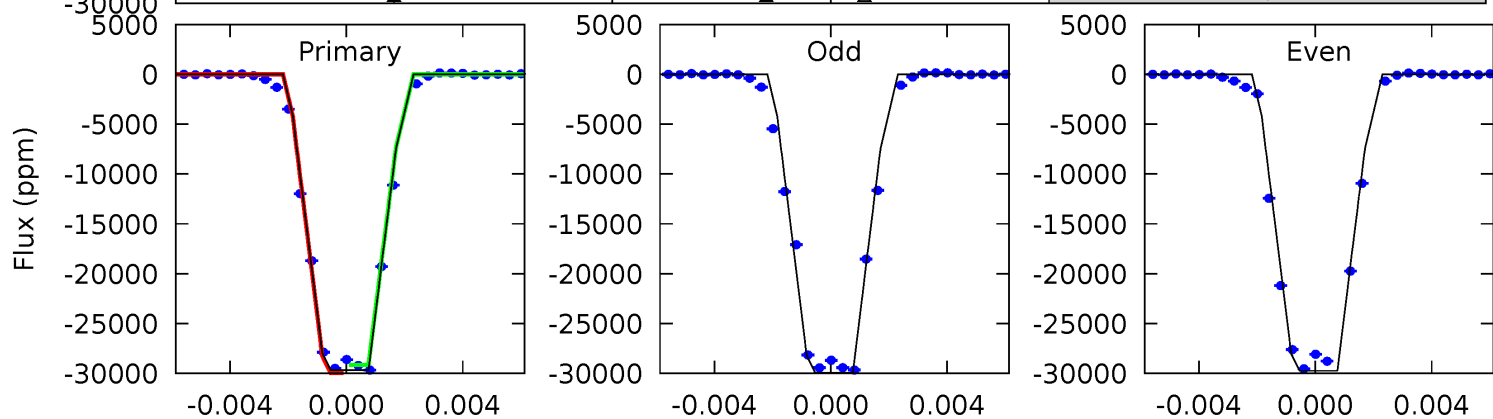
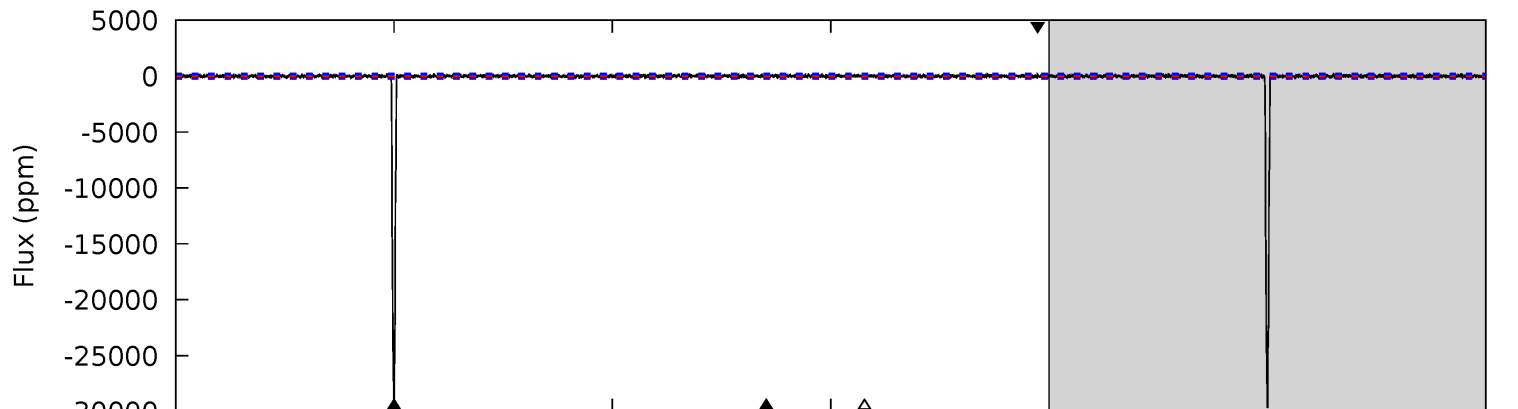
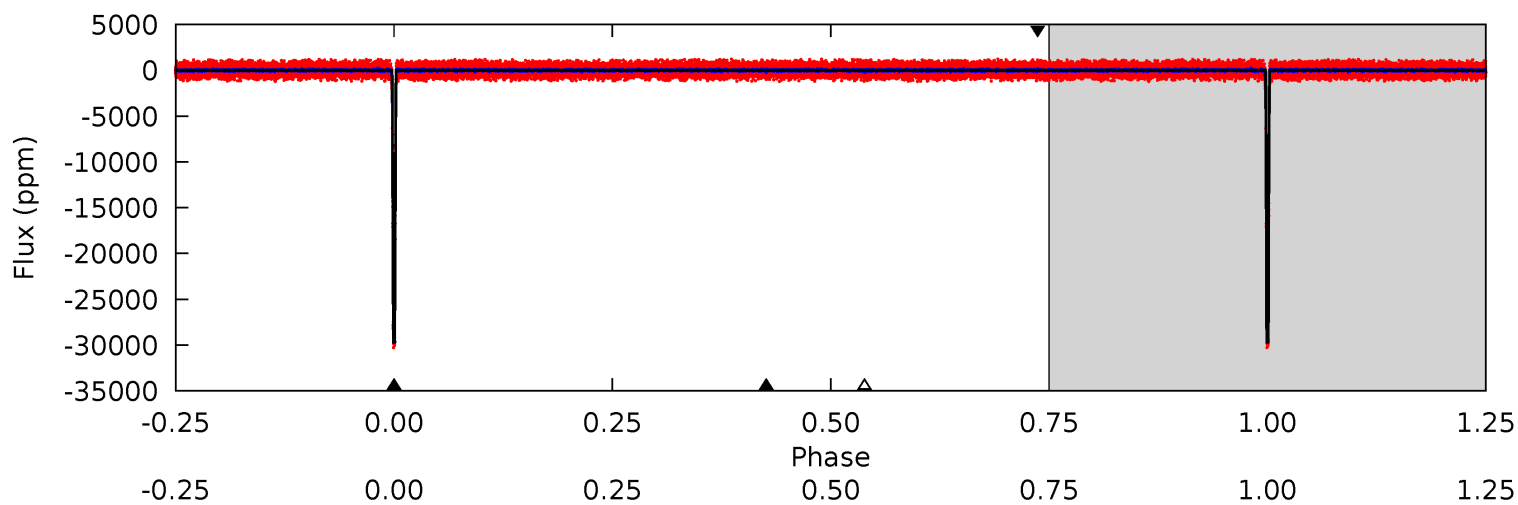
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1401	7.41	6.12	6.98	5.12	2.75	1.94	1395	1394	1.29	0.44	10.6	0.99	0.00	1.70



# Alt Model-Shift Uniqueness Test

011824222-01, P = 15.841269 Days, E = 129.620947 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
756.3	5.29	4.86	5.38	5.20	2.87	1.34	751.4	750.9	0.44	-0.08	2.47	0.98	0.01	0



### Stellar Parameters For KIC 011824222

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5119^{+154}_{-154}$	$4.575^{+0.072}_{-0.048}$	$-0.500^{+0.300}_{-0.300}$	$0.702^{+0.073}_{-0.067}$	$0.675^{+0.087}_{-0.037}$	$2.754^{+0.873}_{-0.462}$
	+3%/-3%	+2%/-1%	+60%/-60%	+10%/-10%	+13%/-5%	+32%/-17%
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 011824222-01 / KOI 0437.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-164 \pm 22$	$17.62^{+1.43}_{-1.43}$	$801^{+31}_{-31}$	$2140^{+56}_{-60}$	$3.476^{+0.814}_{-0.638}$
Alt.	$-208 \pm 39$	$13.31^{+1.35}_{-1.32}$	$801^{+32}_{-31}$	$2350^{+76}_{-84}$	$7.672^{+2.298}_{-1.770}$

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

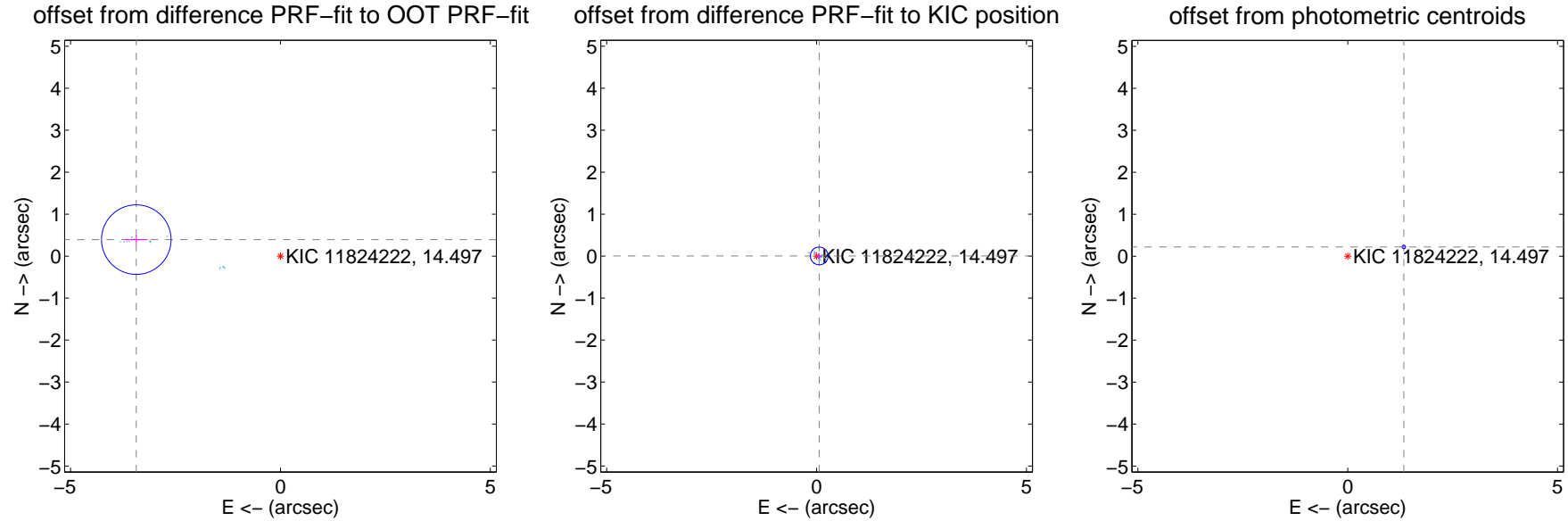
## DV Centroid Data

Supplemental centroid analysis for 011824222-01. Kepler magnitude: 14.50. Transit SNR 569.60

There are 17 quarters with good PRF difference image offsets

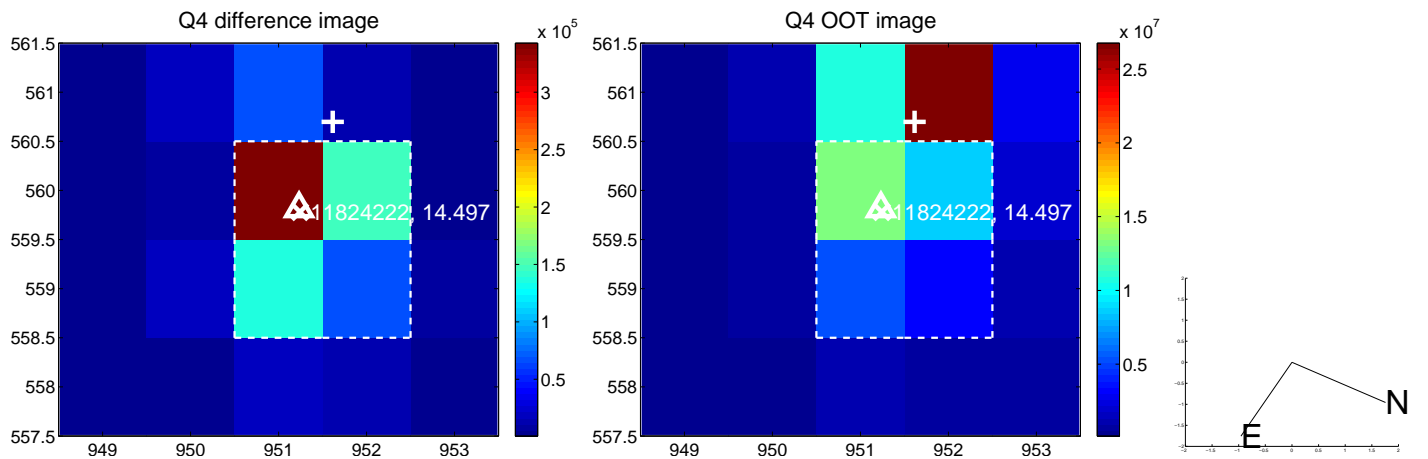
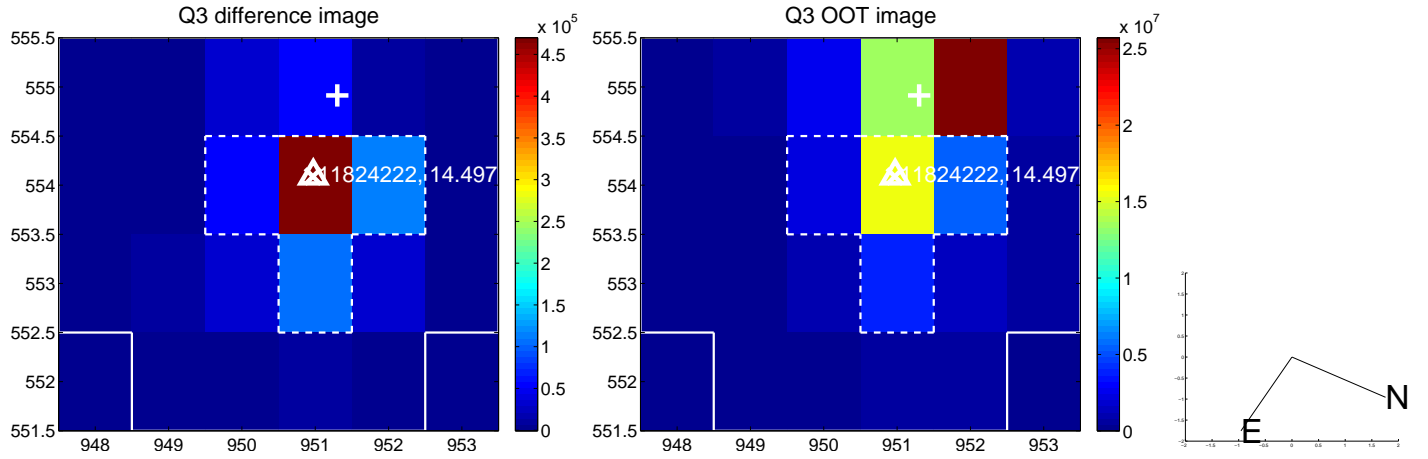
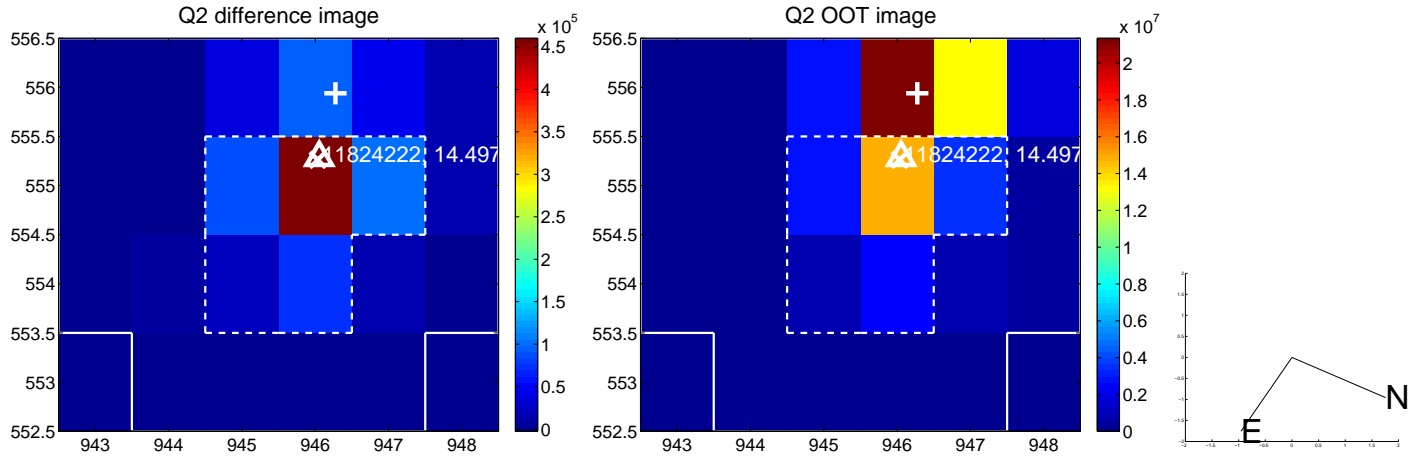
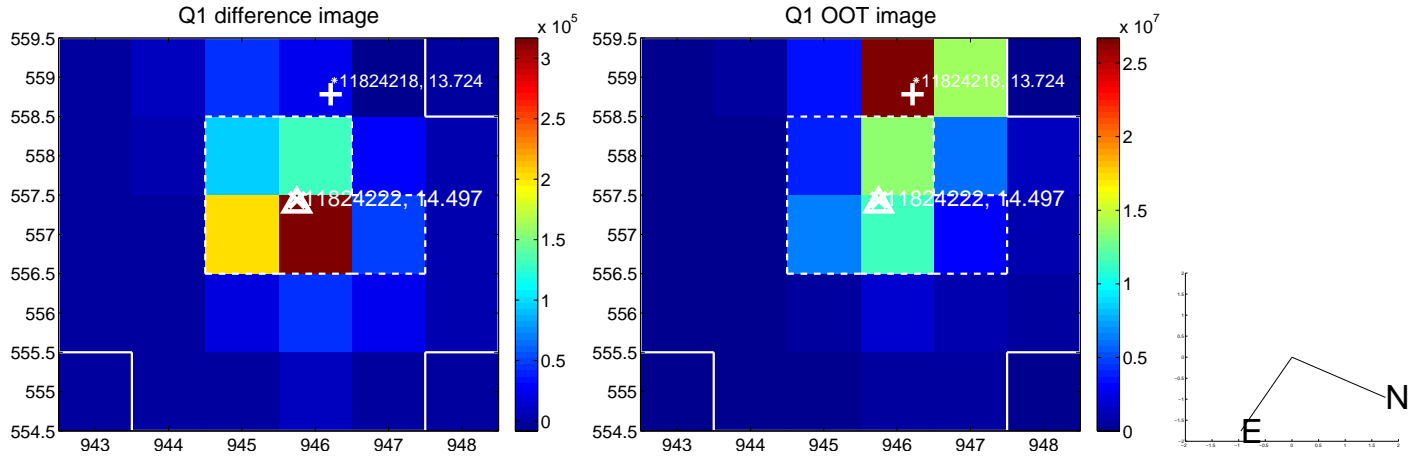
The direct PRF centroid is offset from the target star catalog position by about 1.36 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.457 \pm 0.276$	$12.52$	$3.435 \pm 0.270$	$0.394 \pm 0.103$
PRF-fit source offset from KIC position	$0.063 \pm 0.070$	$0.90$	$-0.063 \pm 0.070$	$0.004 \pm 0.068$
photometric centroid source offset	$1.35 \pm 0.01$	$97.86$	$-1.34 \pm 0.01$	$0.22 \pm 0.01$

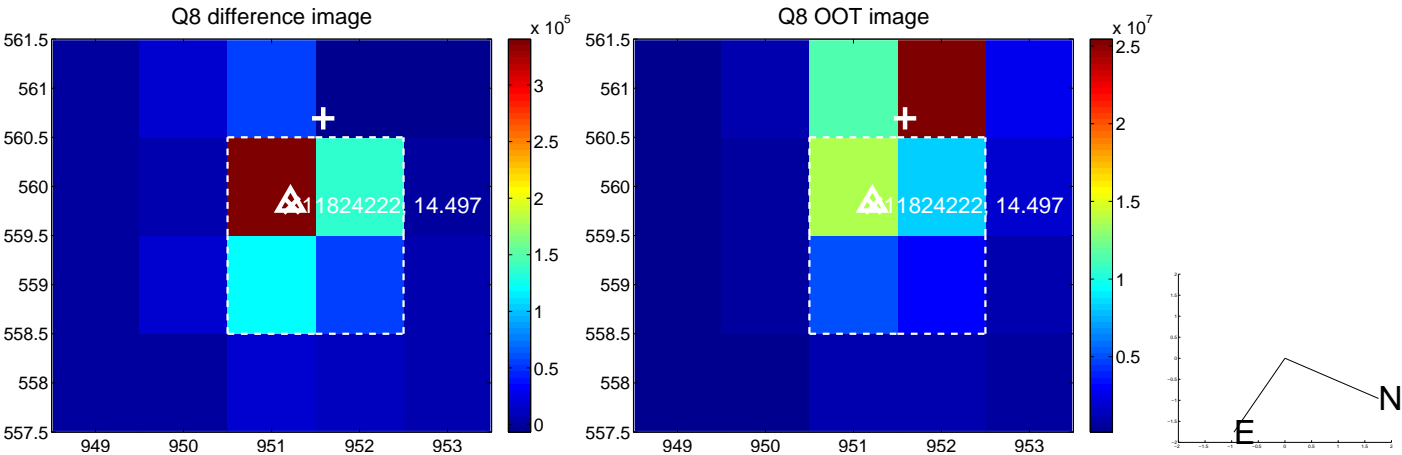
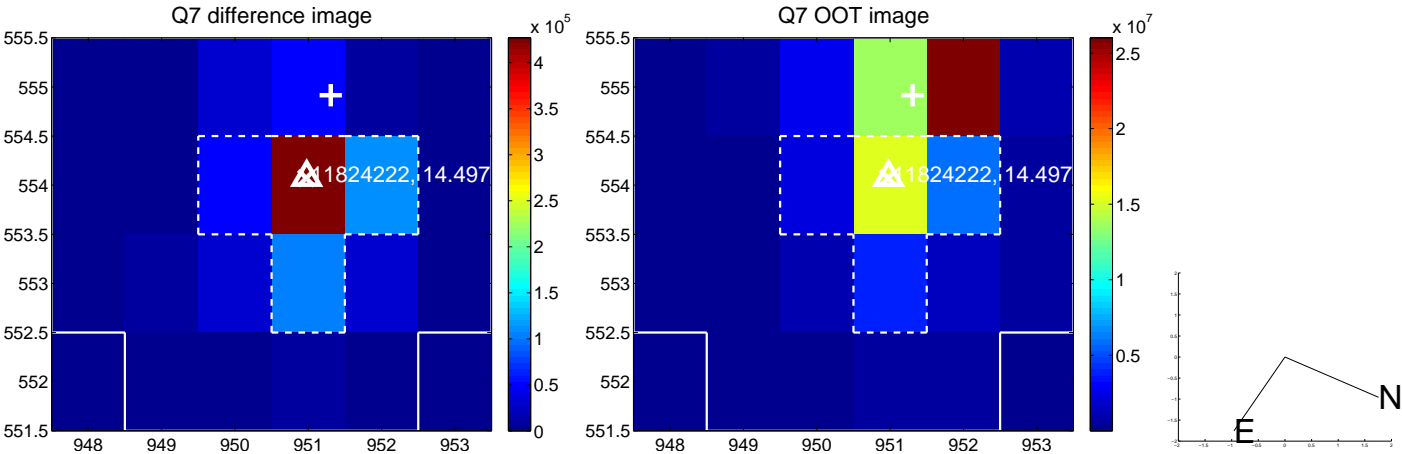
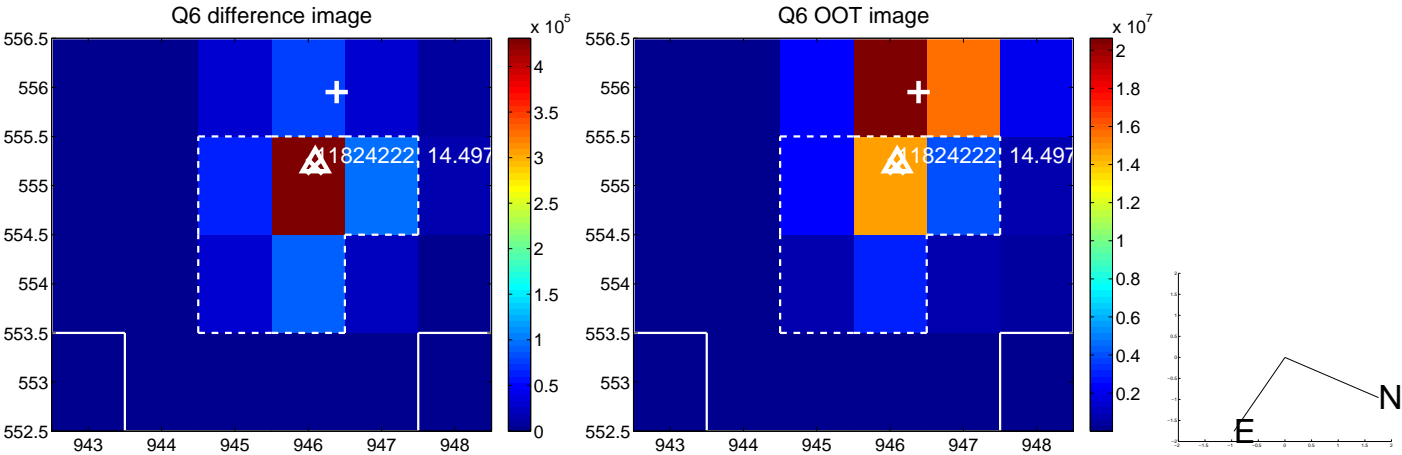
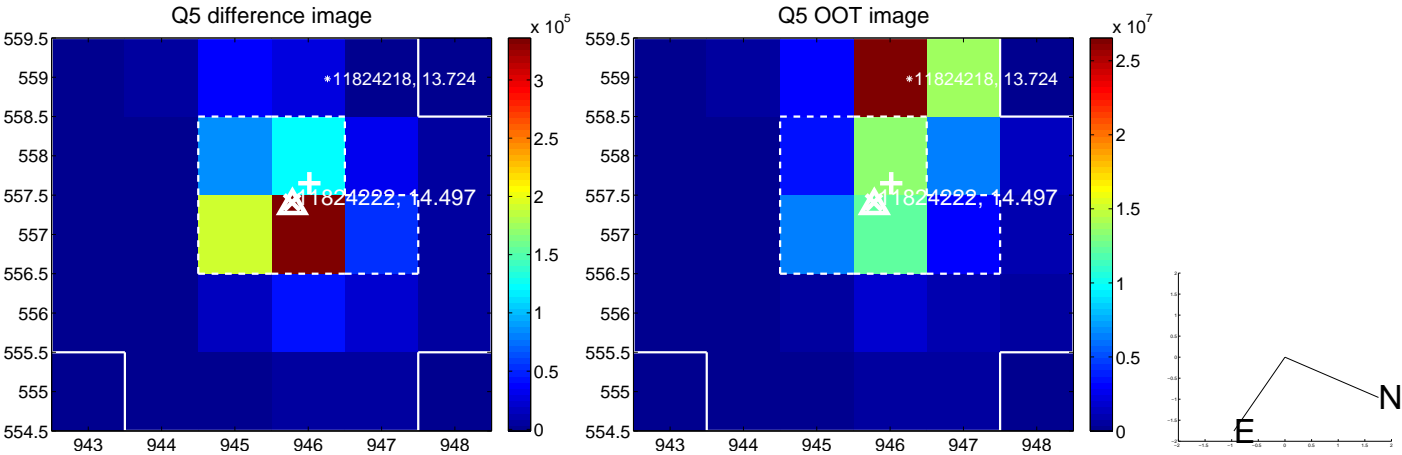


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

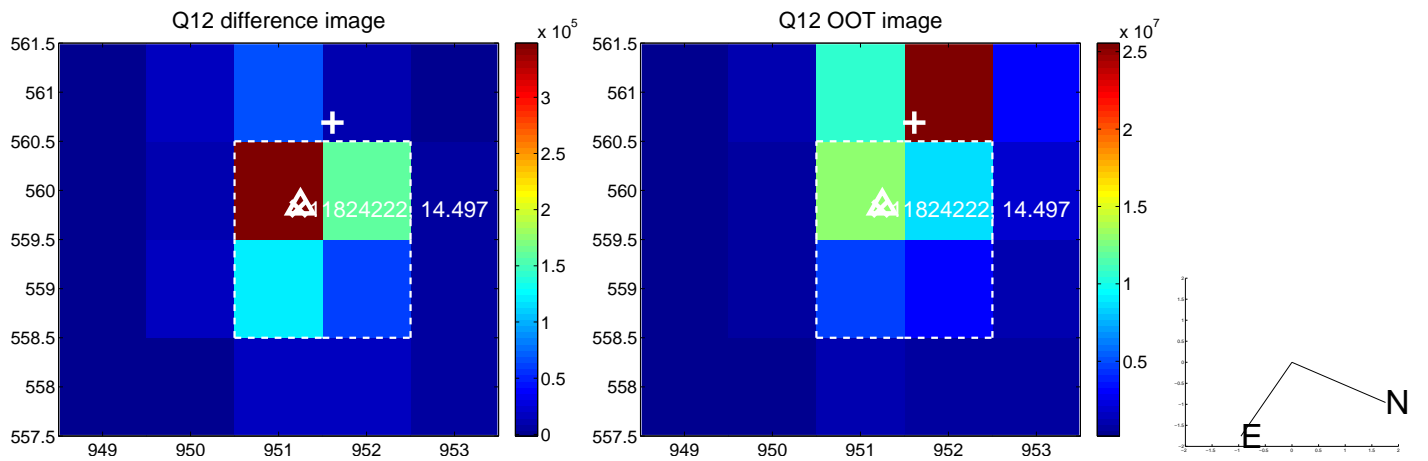
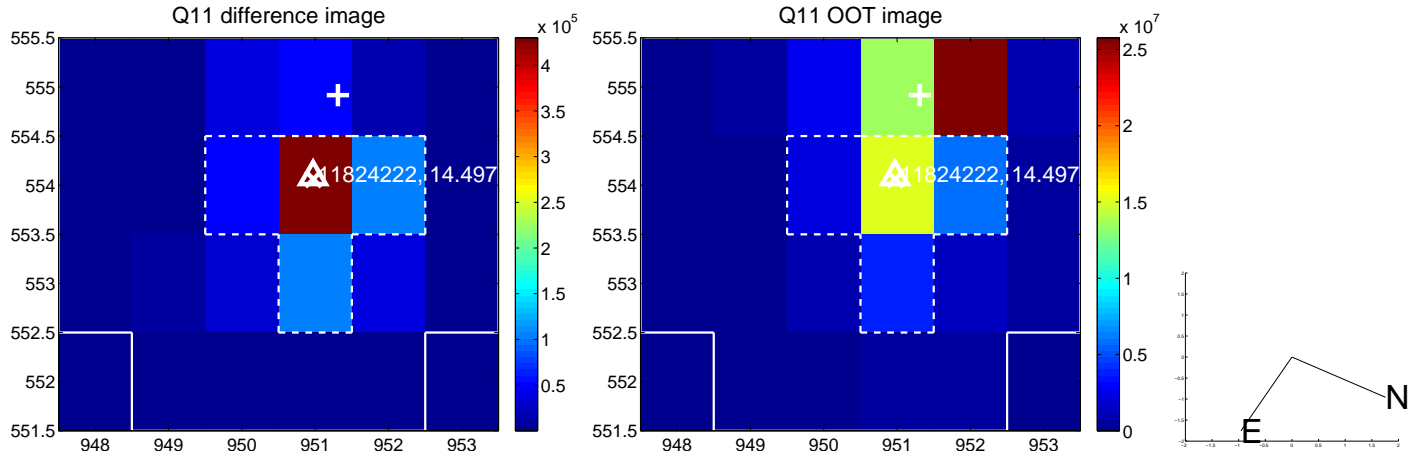
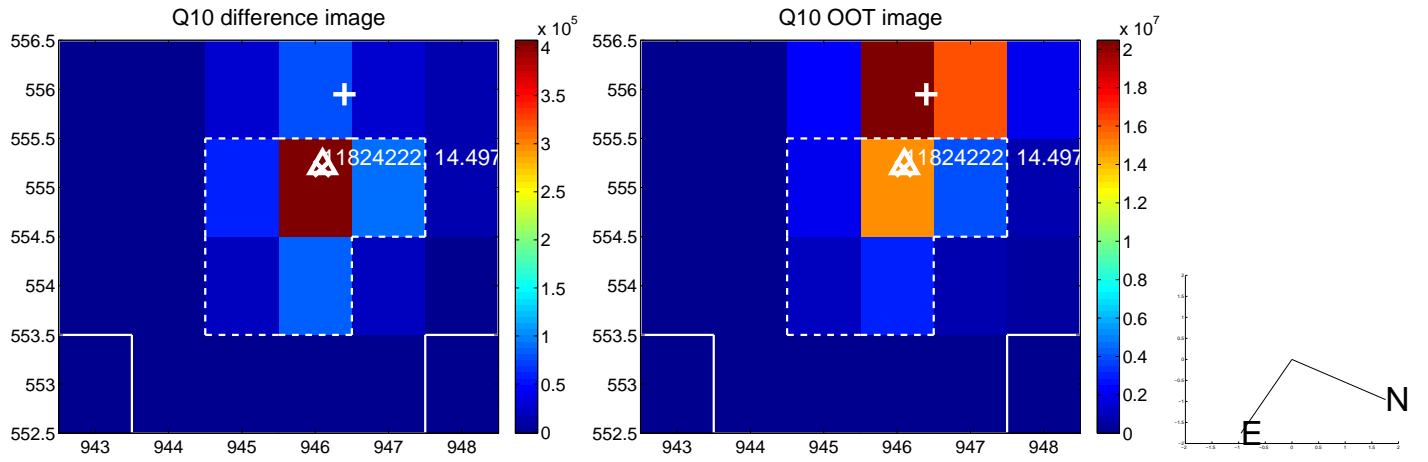
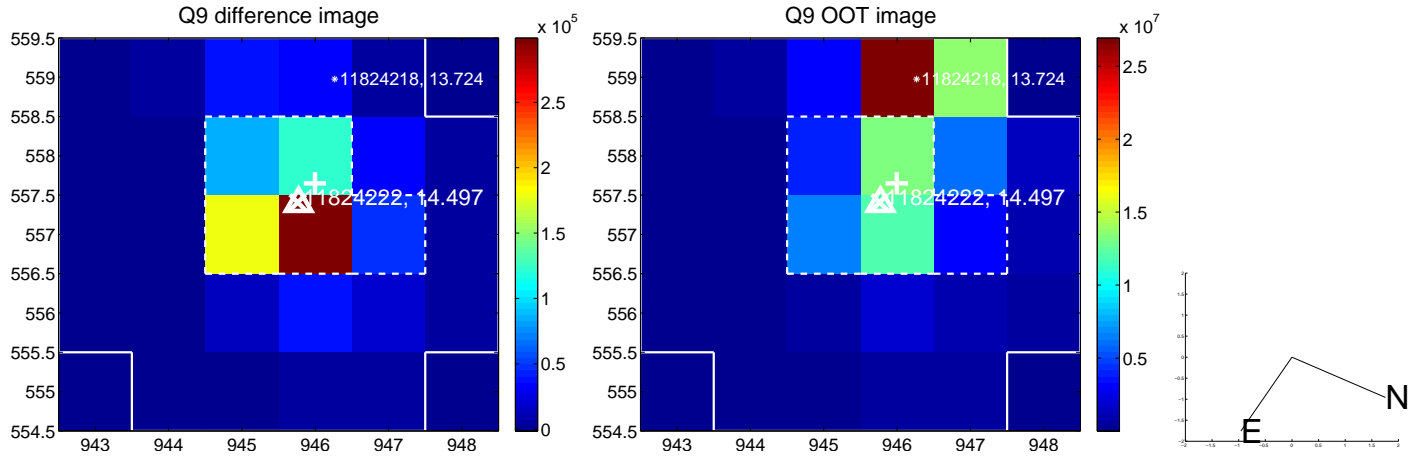


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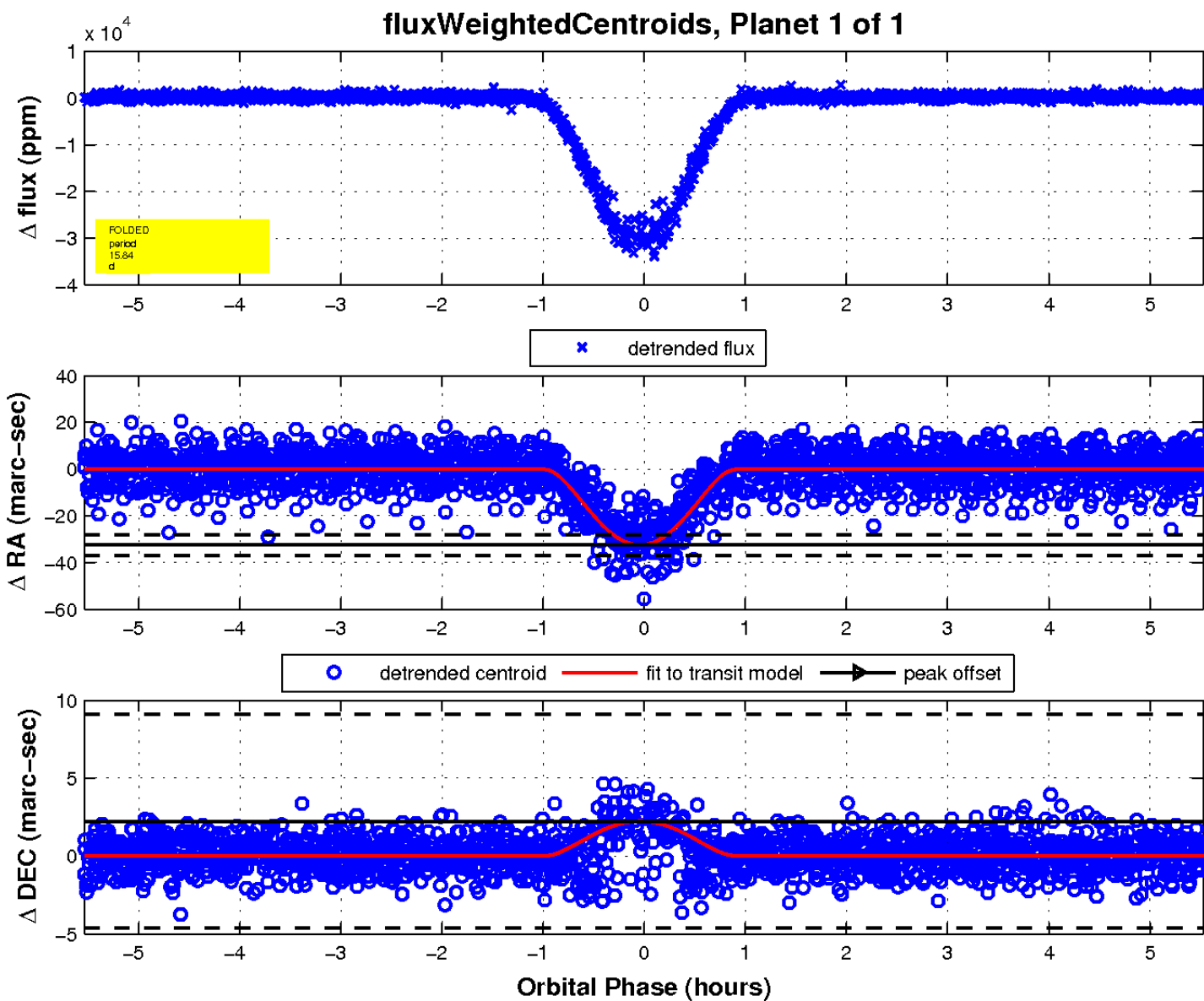
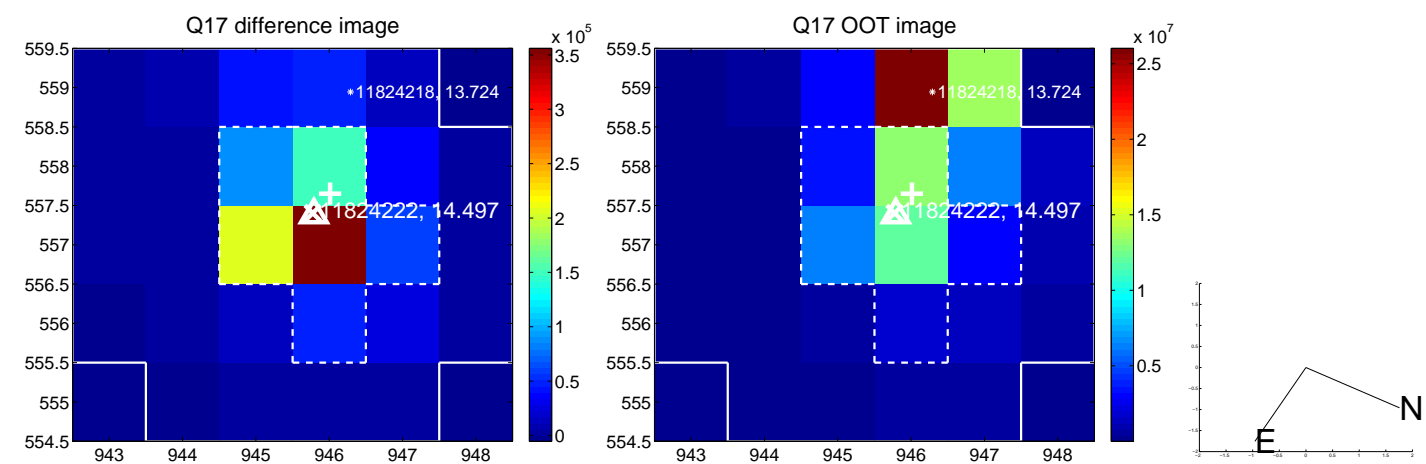


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UKIRT Image

Declination

