

# KIC 002440757

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002440757-01	OBS	0792.01	1.433763	131.692792	1310.8	1.413	67.8	77.0	1.34	6017	5.77	3218.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002440757-01	OBS	FP	0.00	0	1	0	0	MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT

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

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

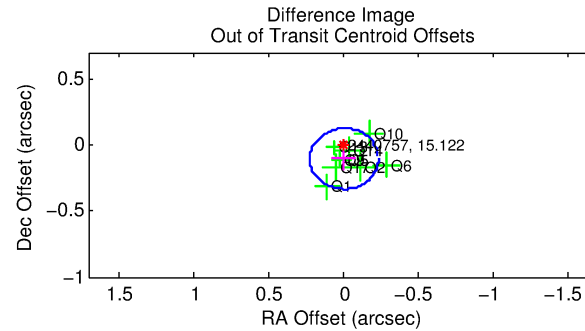
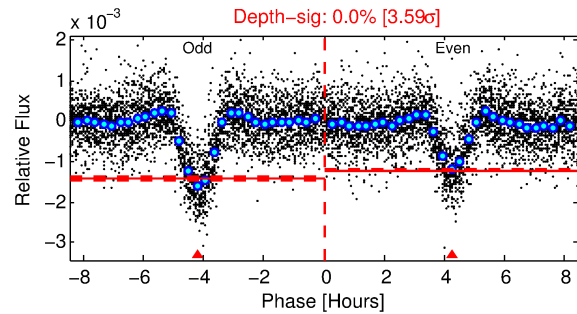
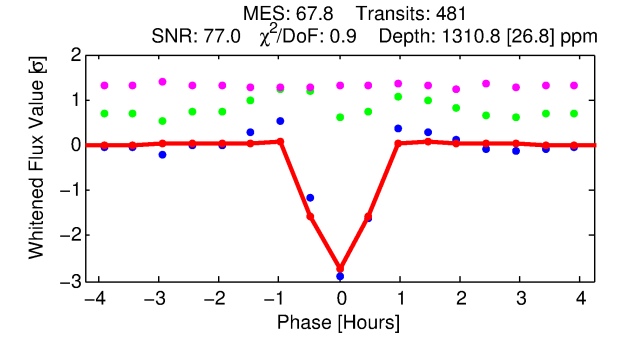
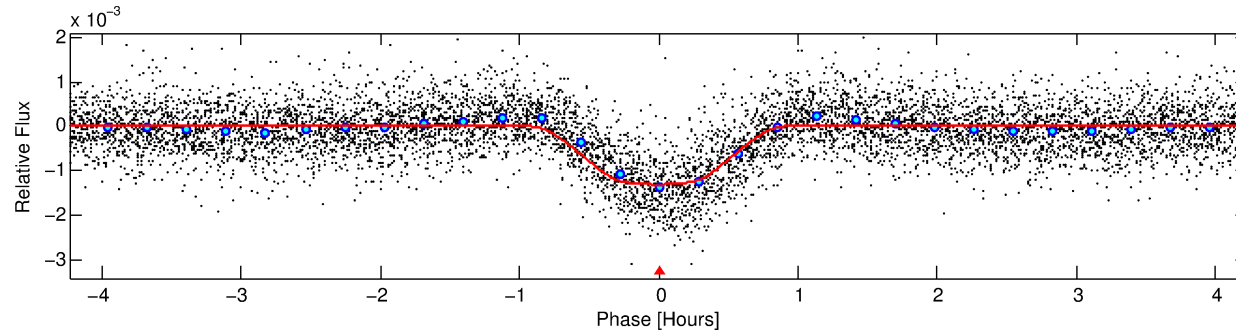
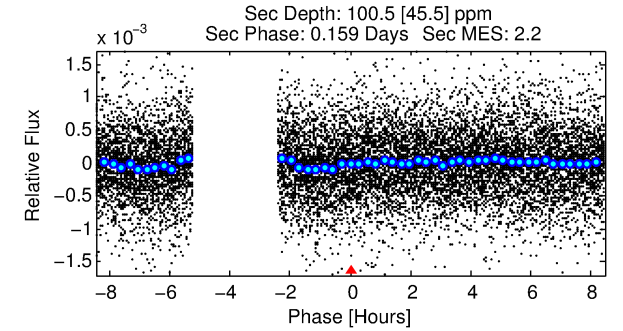
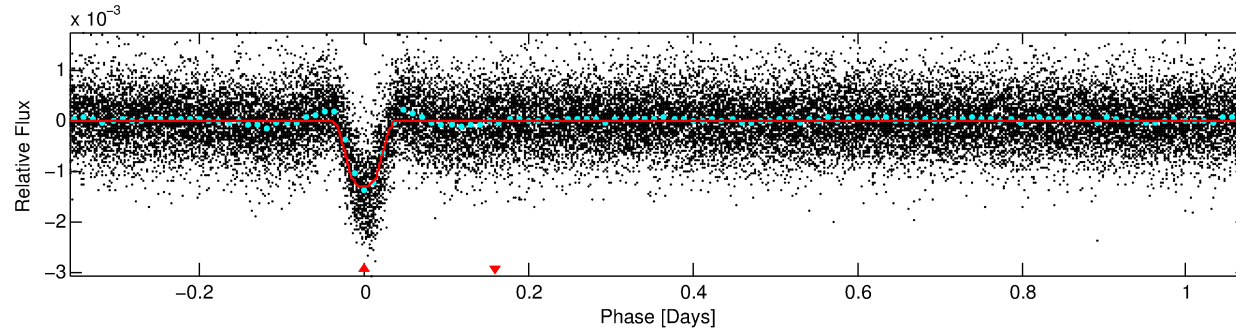
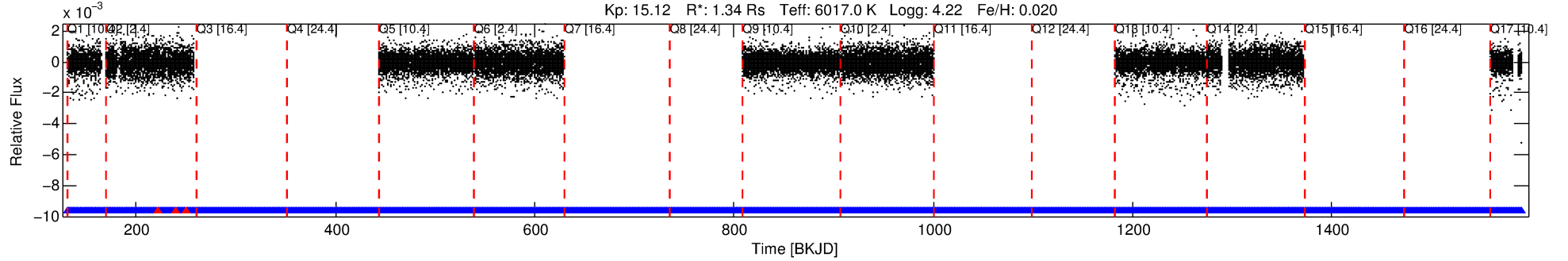
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002440757-01

No Significant Match Found

# DV One-Page Summary

KIC: 2440757 Candidate: 1 of 1 Period: 1.434 d  
KOI: K00792.01 Corr: 0.866



## DV Fit Results:

Period = 1.43376 [0.00000] d  
Epoch = 131.6928 [0.0003] BKJD  
Rp/R\* = 0.0395 [0.0018]  
a/R\* = 4.13 [0.76]  
b = 0.90 [0.04]  
Seff = 3218.34 [875.71]  
Teq = 1921 [131] K  
Rp = 5.77 [1.02] Re  
a = 0.0256 [0.0042] AU  
Ag = 1.09 [0.58] [0.15σ]  
Teffp = 3032 [353] K [2.95σ]

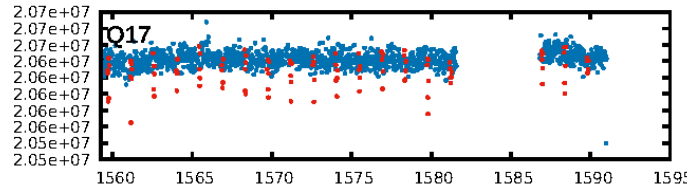
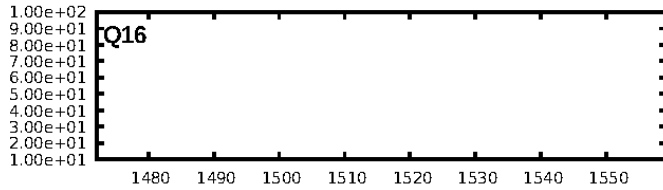
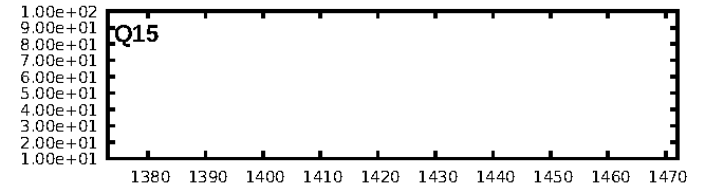
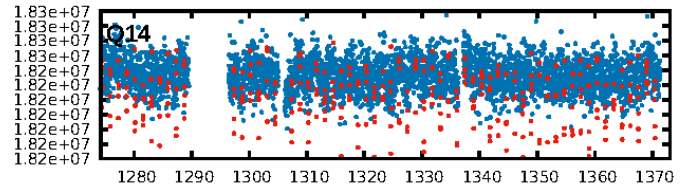
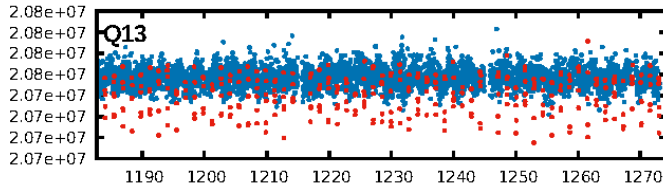
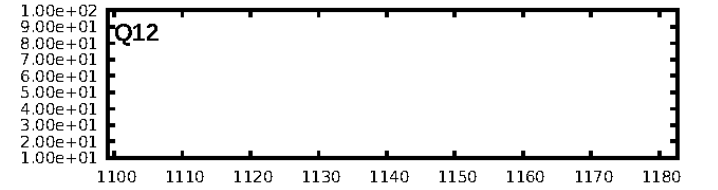
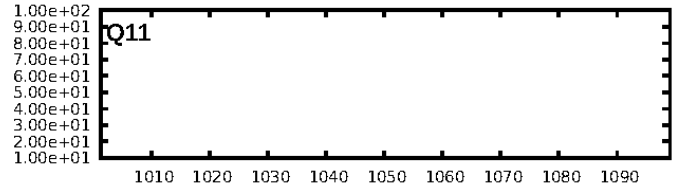
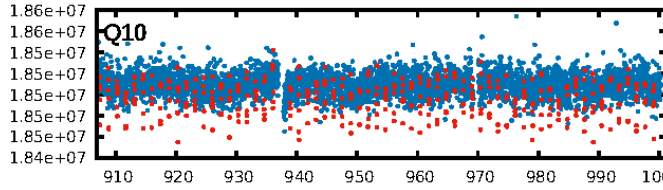
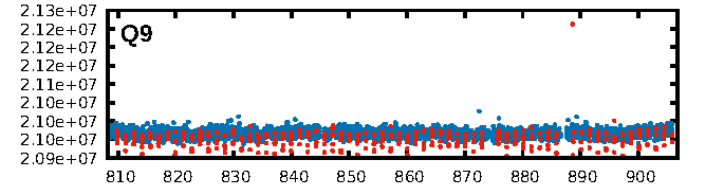
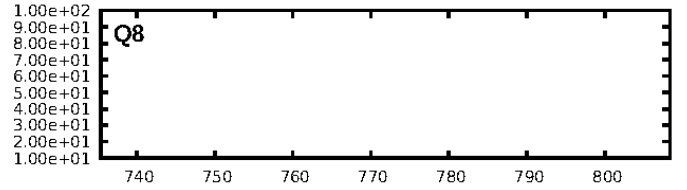
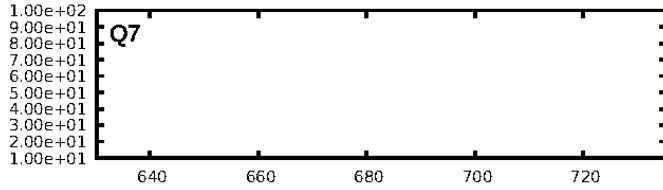
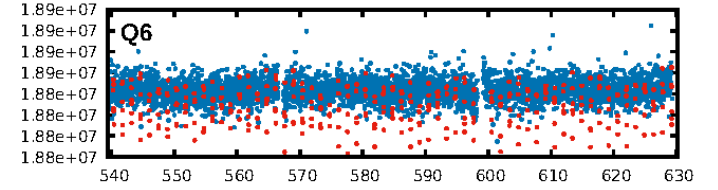
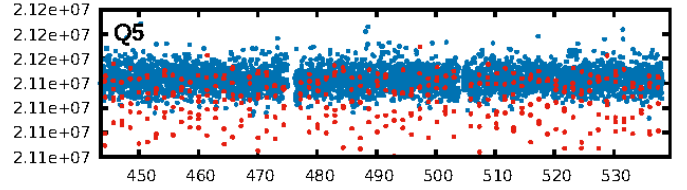
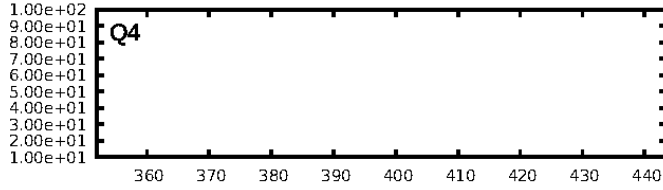
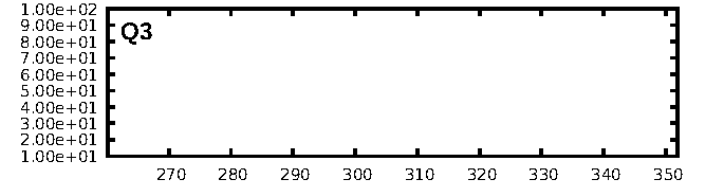
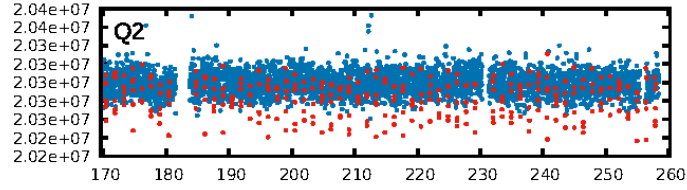
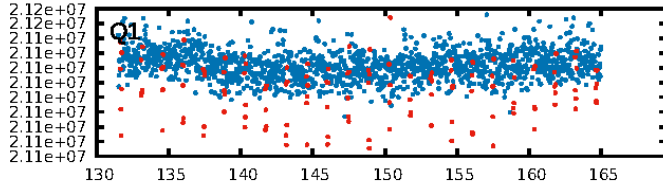
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.99 [435/438]  
GhostDiagnostic-chr: 1.5  
Centroid-sig: 2.1%  
Centroid-so: 1.399 arcsec [8.56σ]  
OotOffset-rm: 0.106 arcsec [1.38σ]  
KicOffset-rm: 0.110 arcsec [1.05σ]  
OotOffset-st: 4/0/0/5 [9]  
KicOffset-st: 4/0/0/5 [9]  
DiffImageQuality-fgm: 1.00 [9/9]  
DiffImageOverlap-fno: 1.00 [9/9]

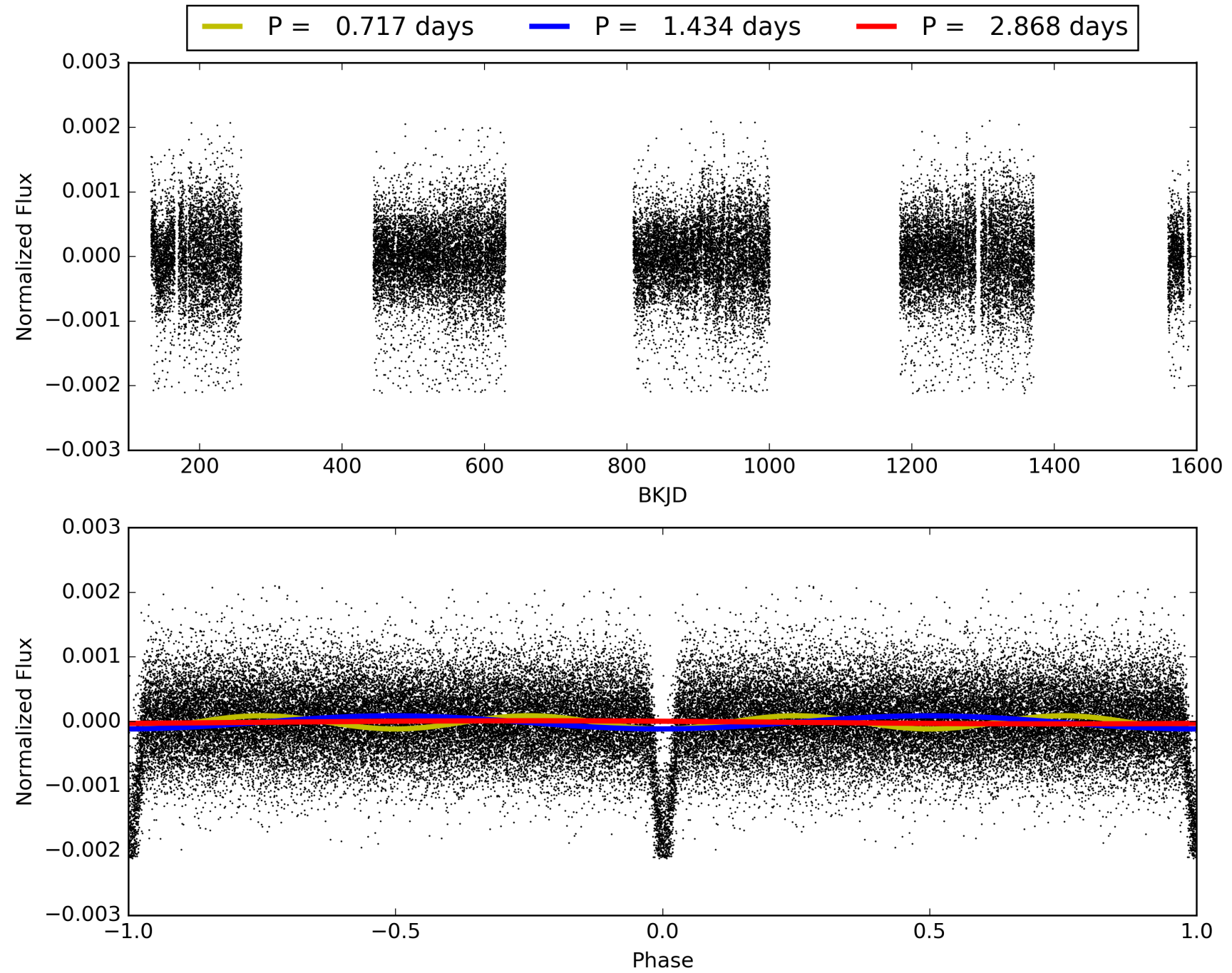
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:28:47 Z

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

# TCE 002440757-01, PDC Light Curves

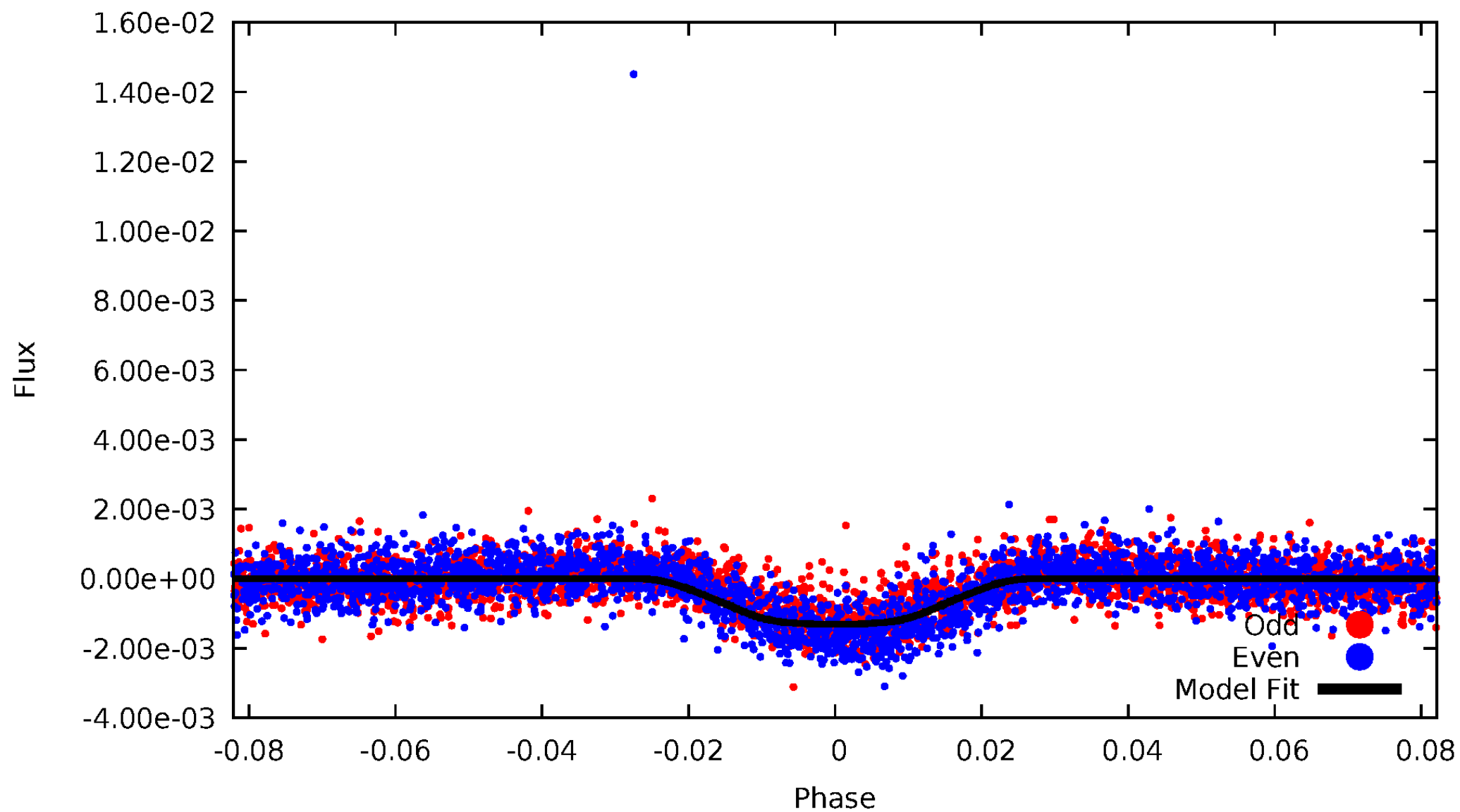


TCE 002440757-01



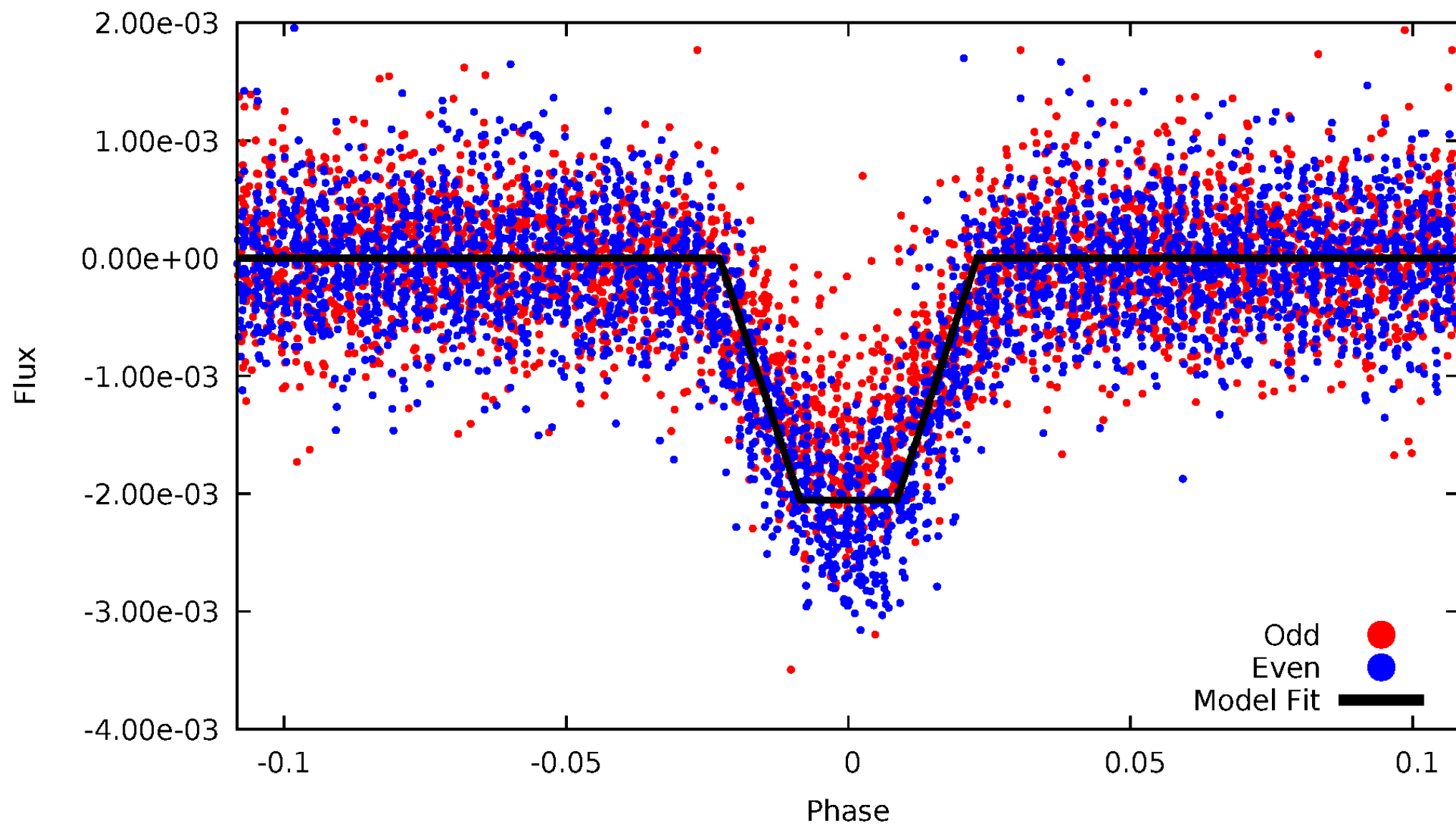
# DV Odd/Even

TCE 002440757-01



# ALT Odd/Even

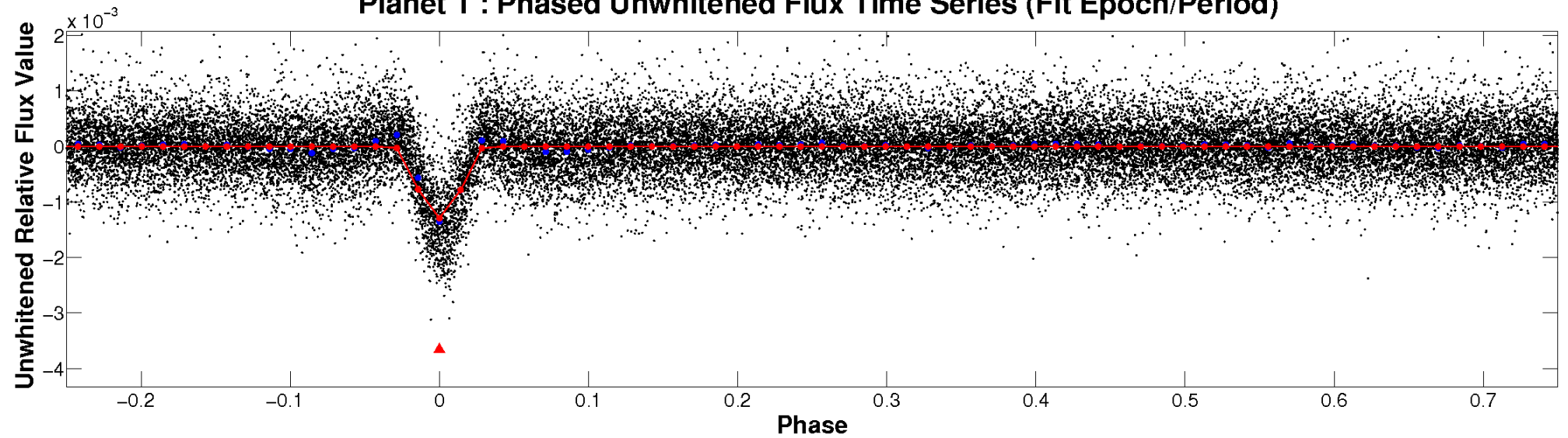
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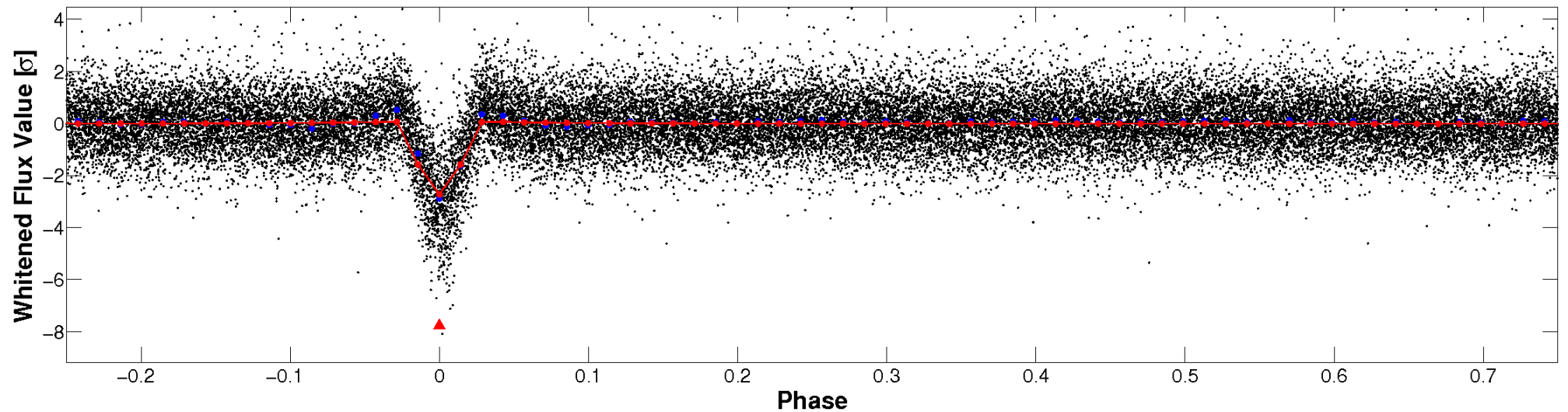


# Non-Whitened Vs. Whitened Light Curve

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

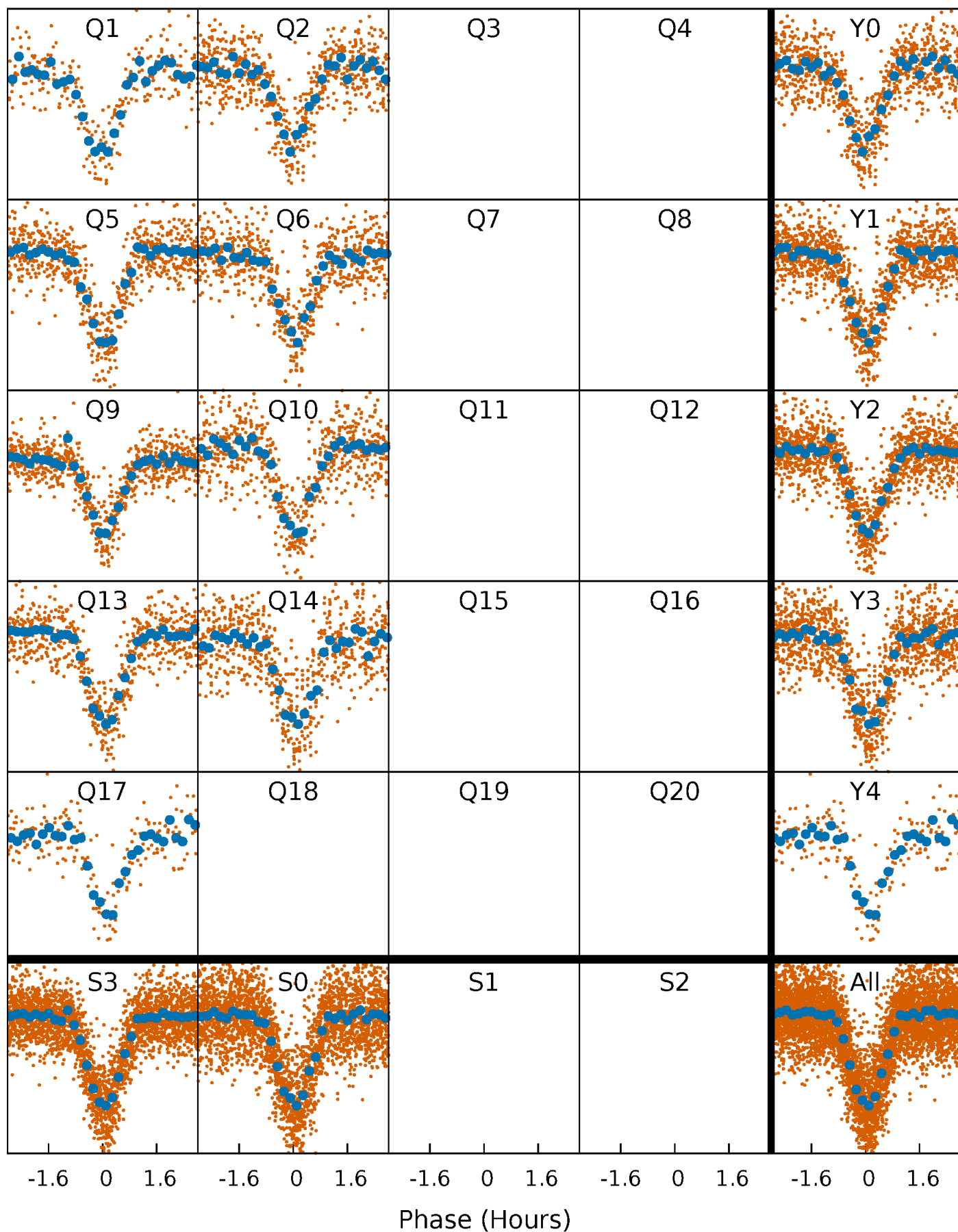


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

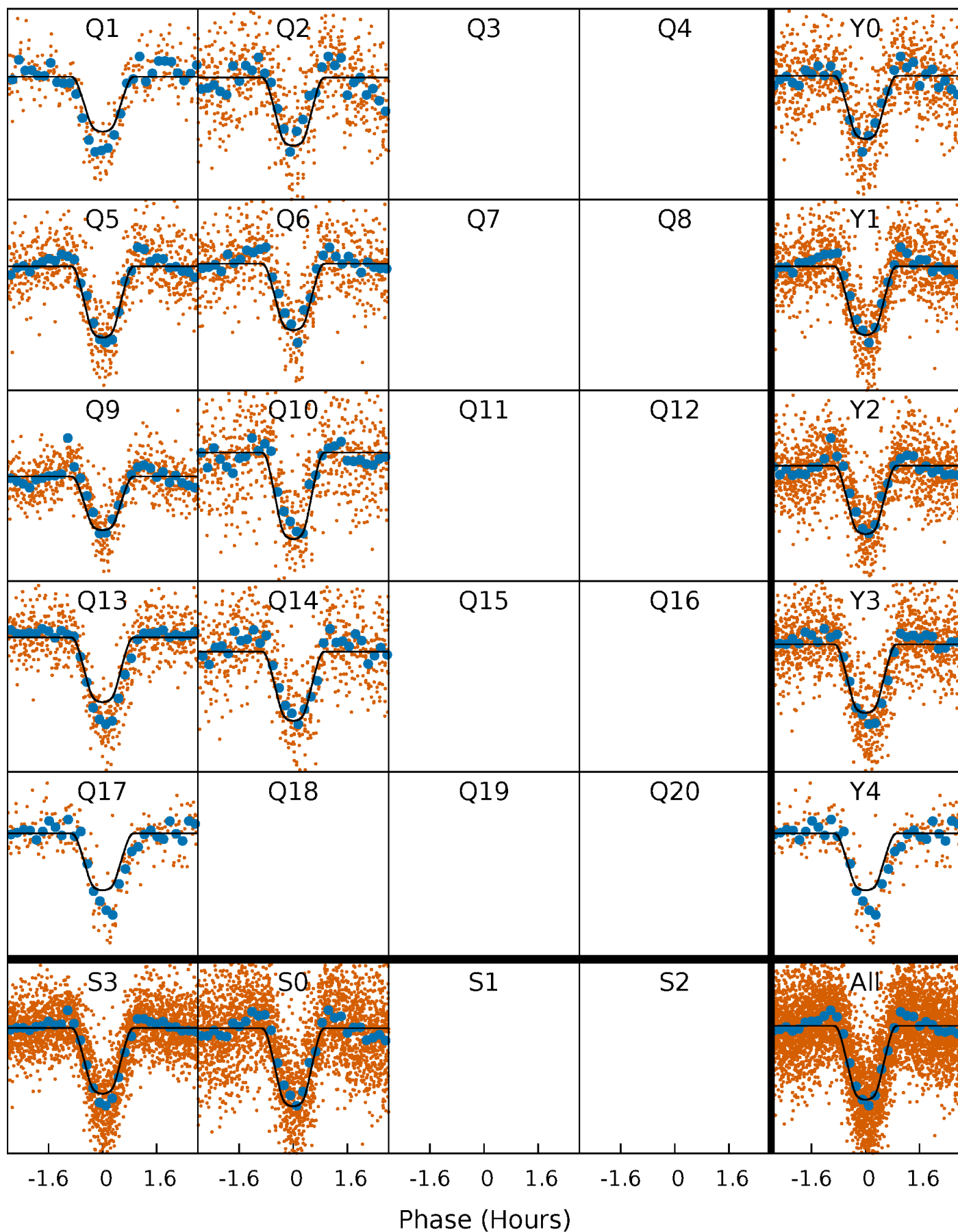
TCE 002440757-01   P= 1.433763 Days    $T_0=131.692792$  (BKJD)





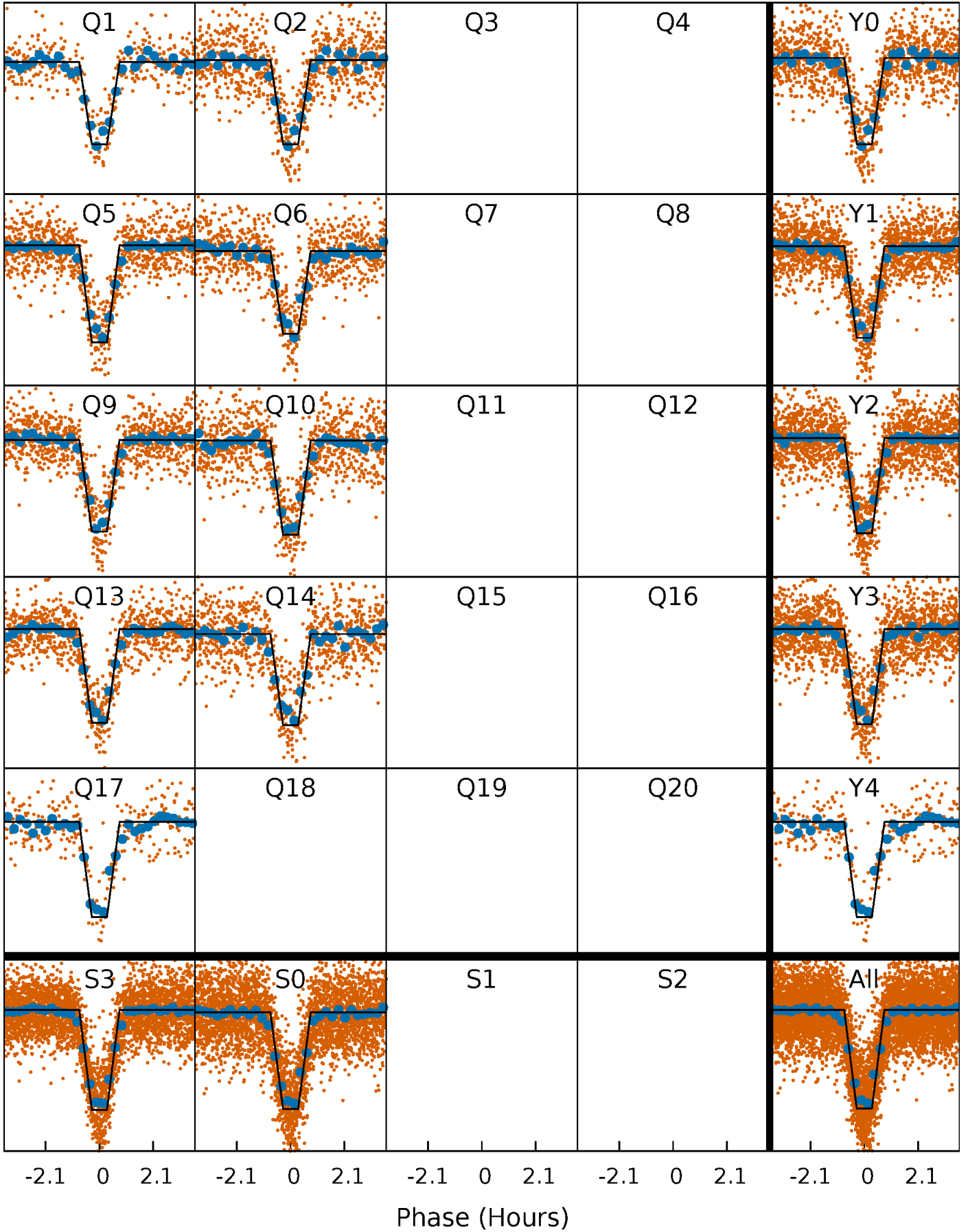
# DV Quarter-Phased Transit Curves

TCE 002440757-01 P= 1.433763 Days  $T_0=131.692792$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

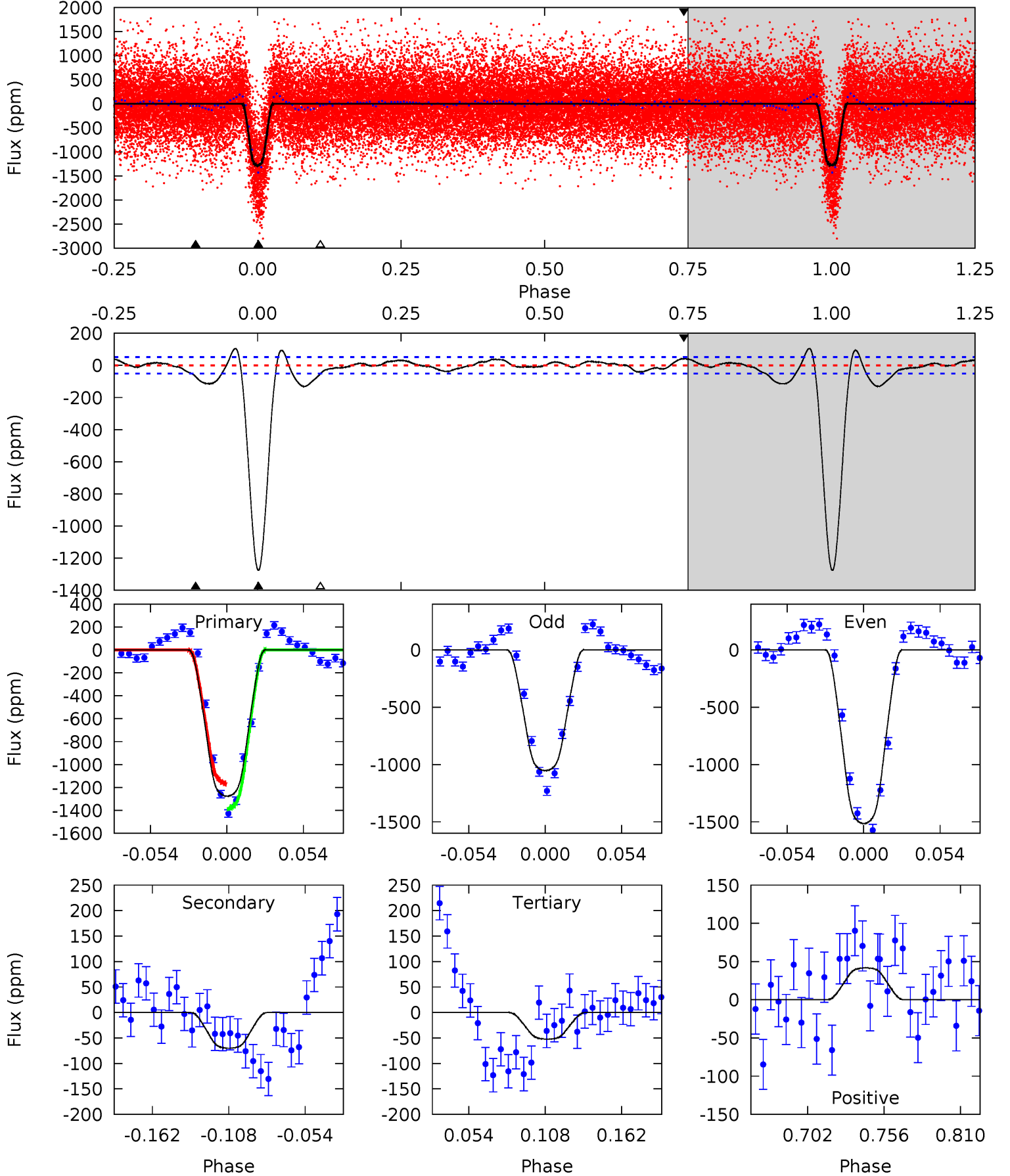
TCE 002440757-01   P= 1.433772 Days    $T_0=131.690949$  (BKJD)



# DV Model-Shift Uniqueness Test

002440757-01, P = 1.433763 Days, E = 130.259029 Days

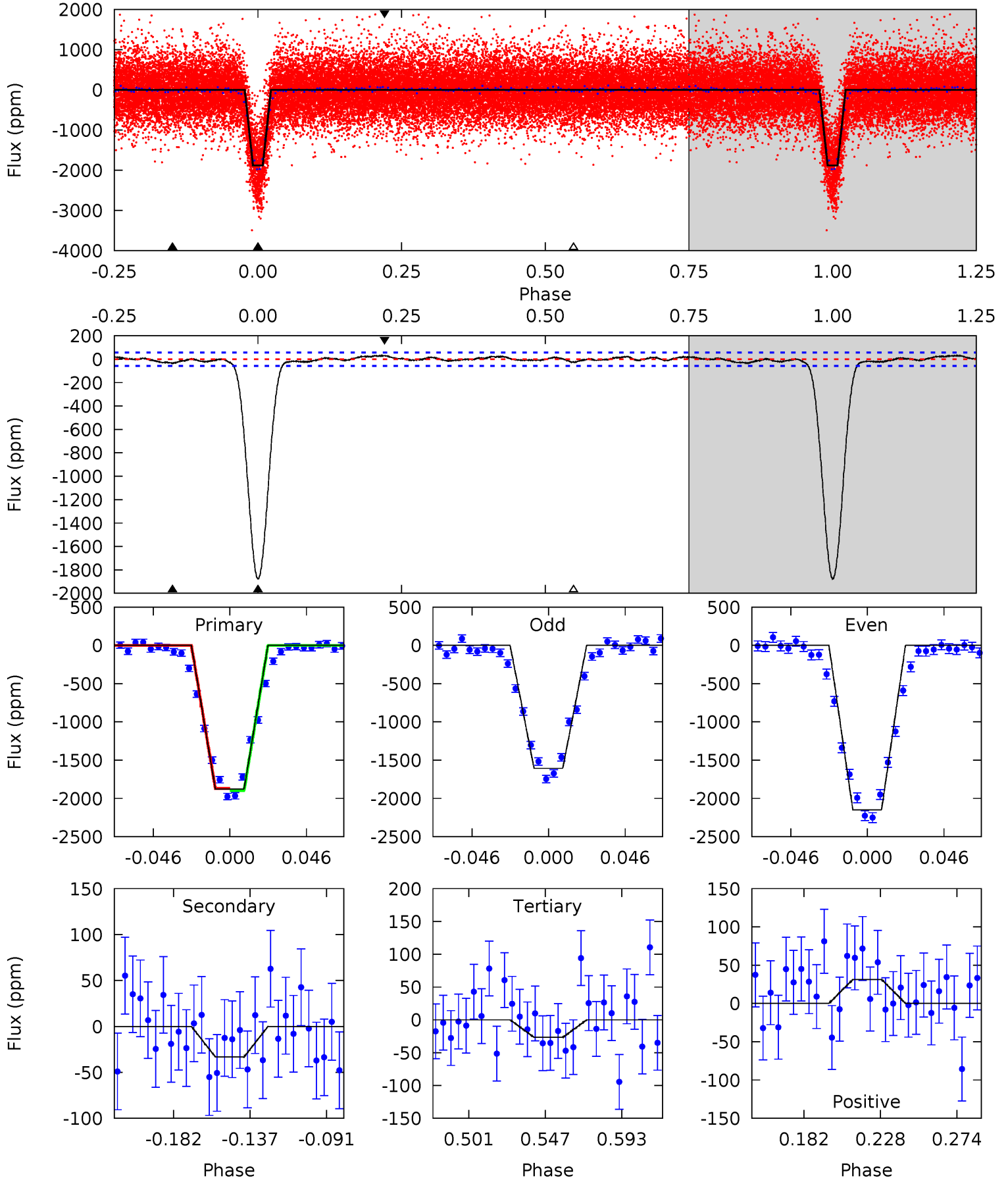
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
116.3	6.39	4.77	3.81	4.69	1.93	2.91	111.6	112.5	1.62	2.58	21.1	0.98	0.08	9.86



# Alt Model-Shift Uniqueness Test

002440757-01, P = 1.433772 Days, E = 130.257177 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
154.9	2.74	2.20	2.59	4.73	2.00	1.09	152.7	152.3	0.54	0.15	22.4	0.99	0.02	1.21



### Stellar Parameters For KIC 002440757

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6017^{+72}_{-90}$	$4.220^{+0.156}_{-0.117}$	$0.020^{+0.150}_{-0.150}$	$1.339^{+0.230}_{-0.230}$	$1.083^{+0.100}_{-0.082}$	$0.636^{+0.428}_{-0.217}$
	+1%/-1%	+4%/-3%	+750%/-750%	+17%/-17%	+9%/-8%	+67%/-34%
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 002440757-01 / KOI 0792.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-70 \pm 11$	$5.77^{+0.58}_{-0.62}$	$2673^{+132}_{-123}$	$3080^{+124}_{-170}$	$0.759^{+0.236}_{-0.181}$
Alt.	$-33 \pm 12$	$6.62^{+0.68}_{-0.72}$	$2667^{+132}_{-131}$	$-2124^{+4638}_{-511}$	$0.279^{+0.131}_{-0.110}$

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

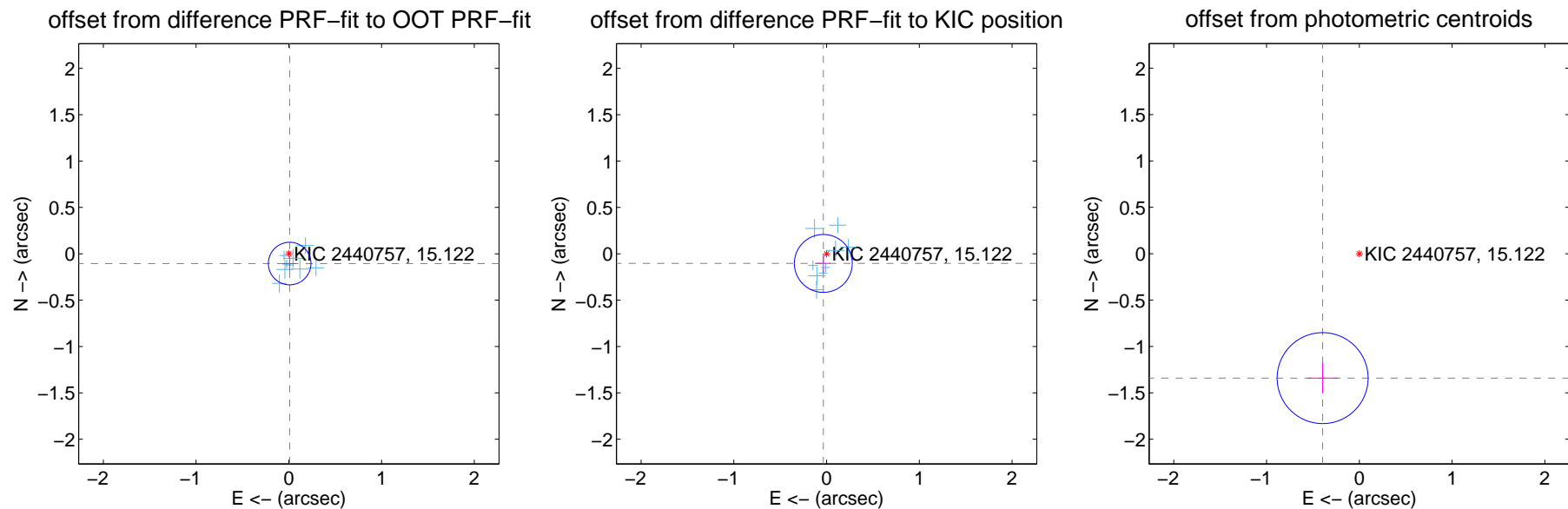
## DV Centroid Data

Supplemental centroid analysis for 002440757-01. Kepler magnitude: 15.12. Transit SNR 76.99

There are 9 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

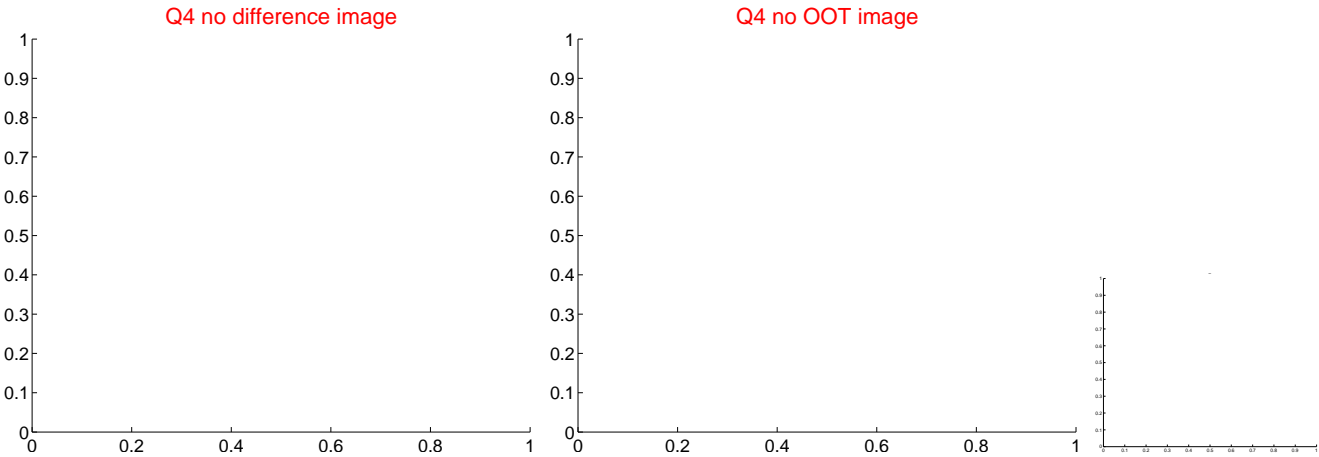
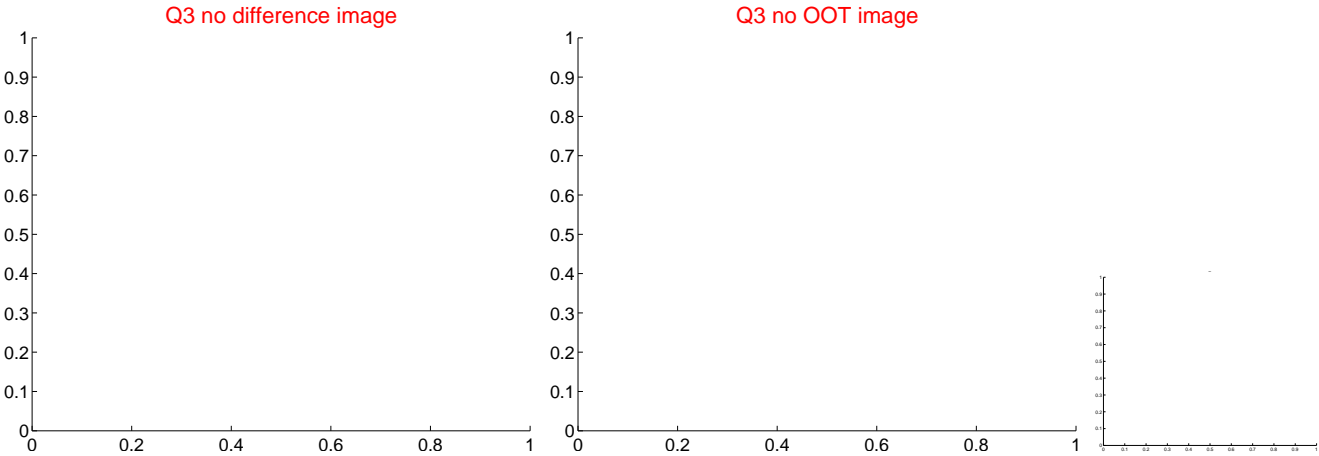
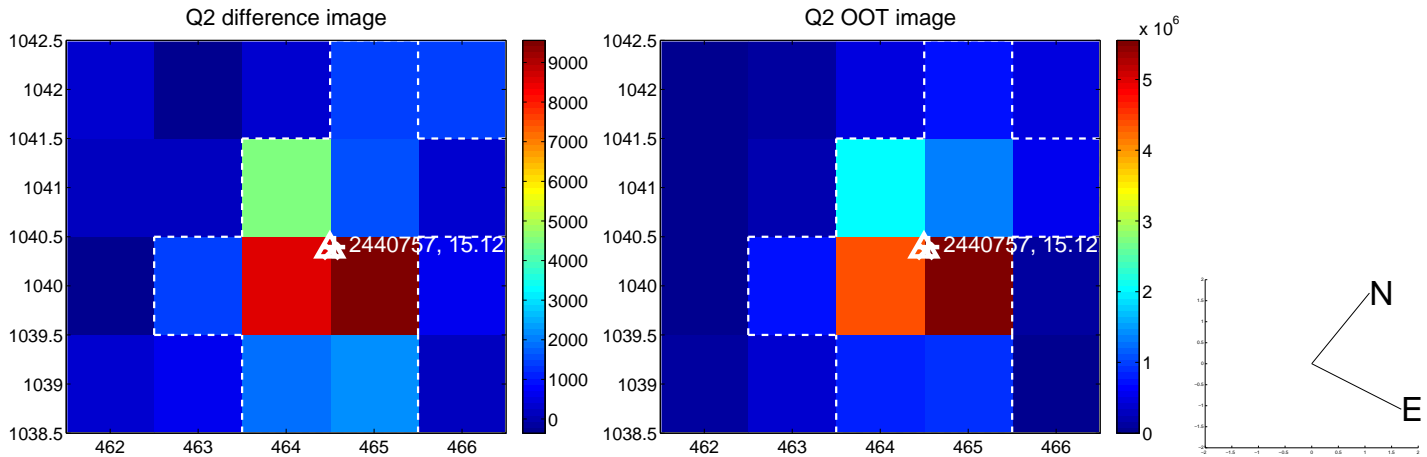
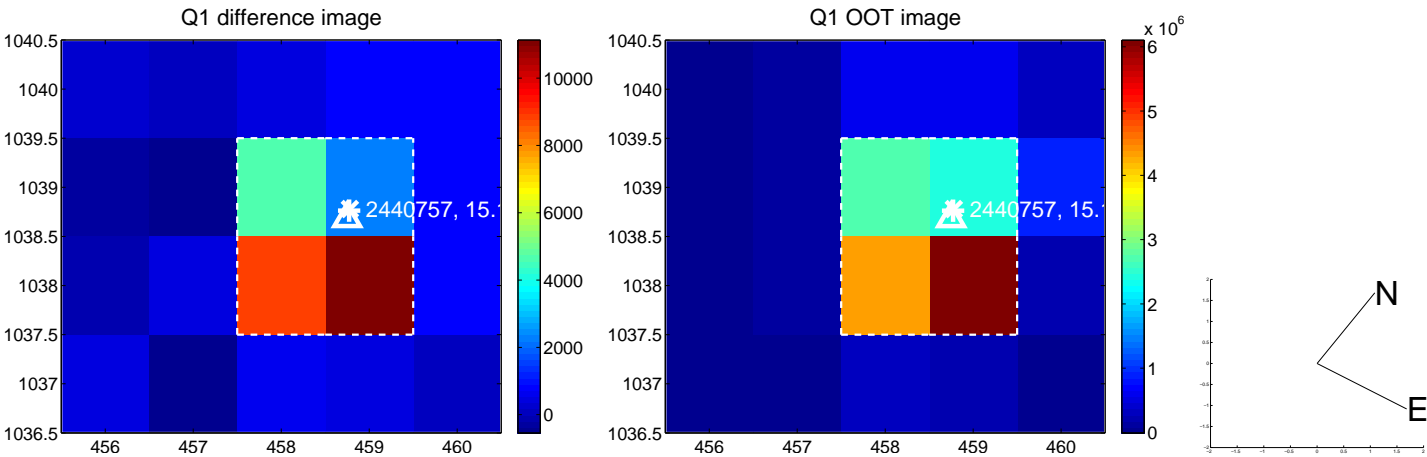
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.106 \pm 0.077$	1.38	$-0.009 \pm 0.076$	$-0.105 \pm 0.077$
PRF-fit source offset from KIC position	$0.110 \pm 0.104$	1.05	$0.035 \pm 0.078$	$-0.104 \pm 0.102$
photometric centroid source offset	$1.40 \pm 0.16$	8.56	$0.40 \pm 0.16$	$-1.34 \pm 0.16$



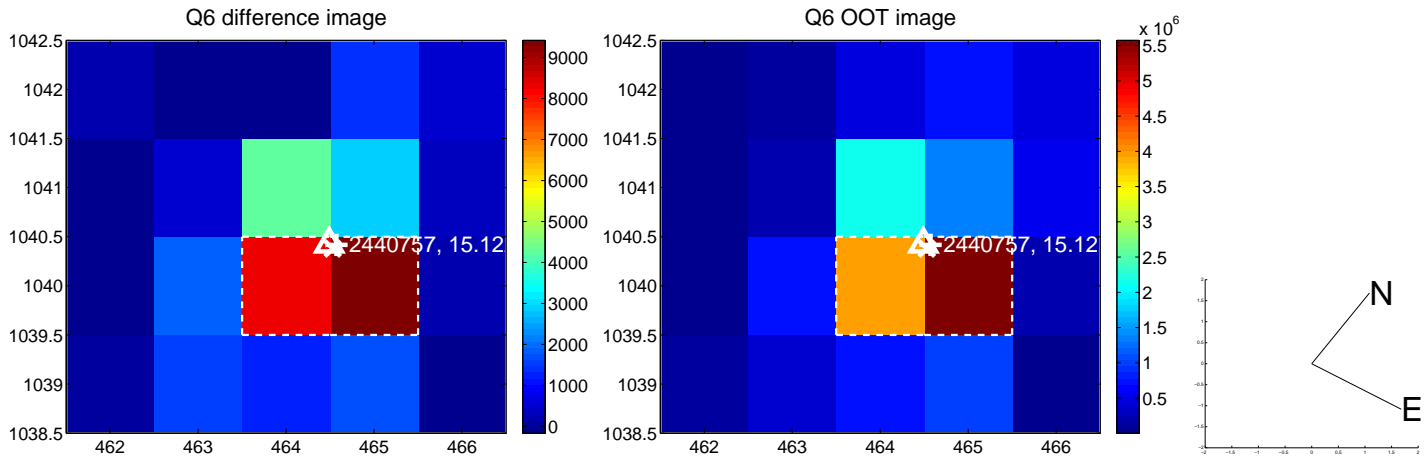
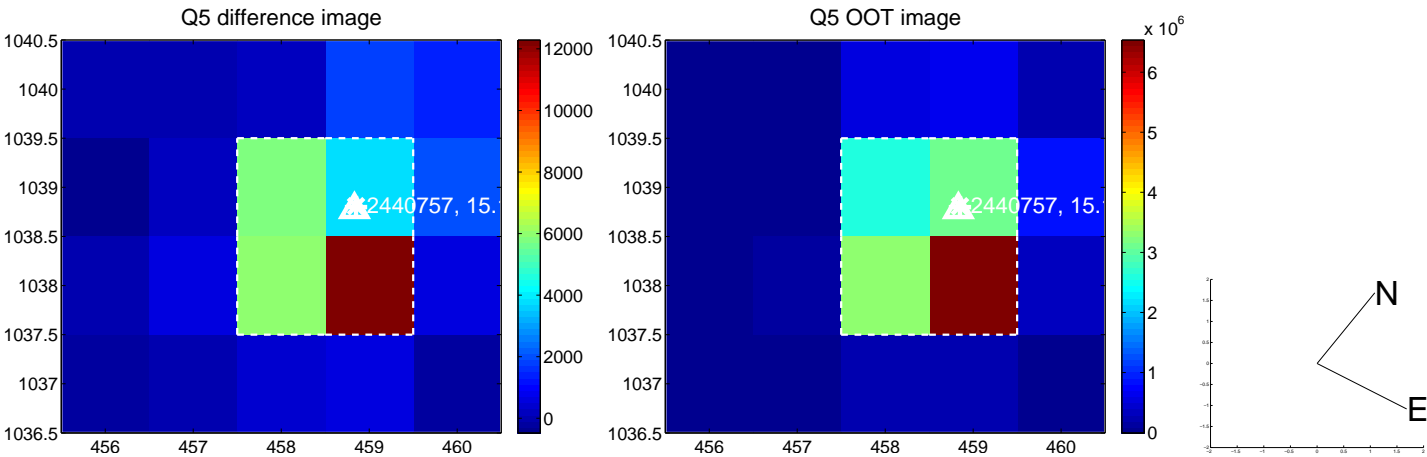
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



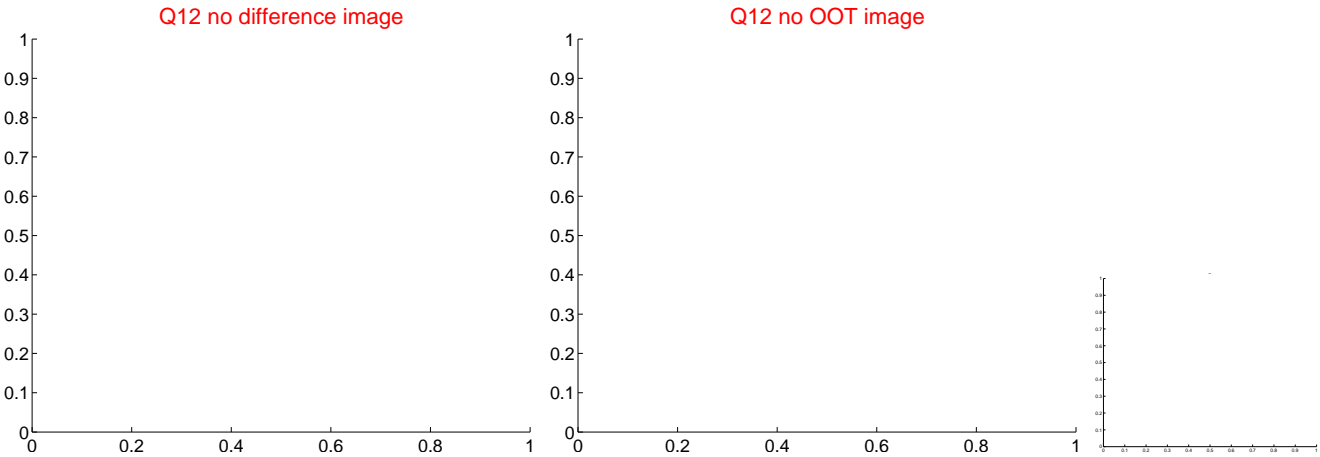
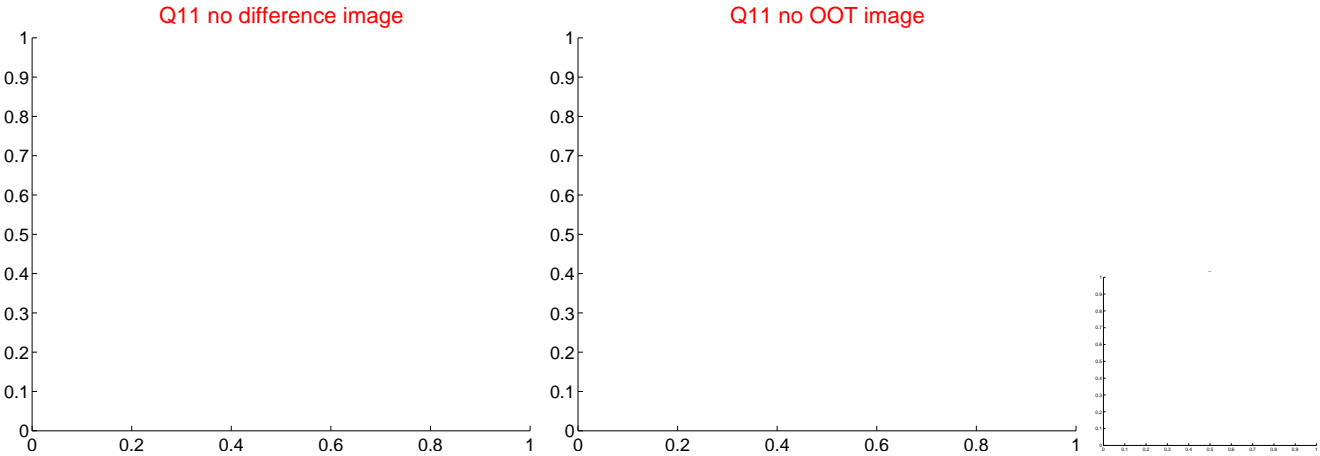
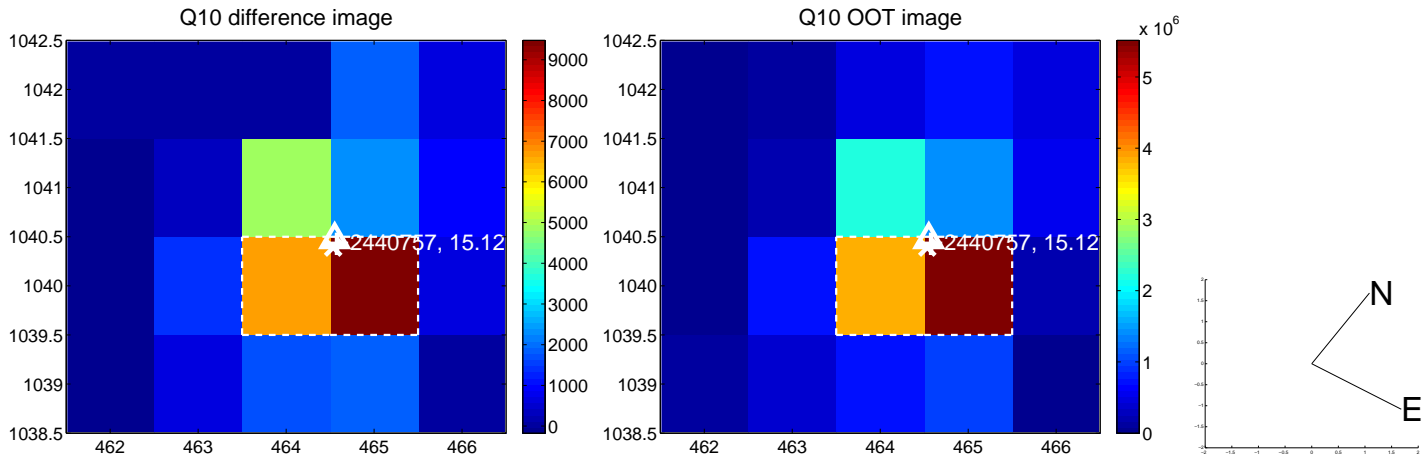
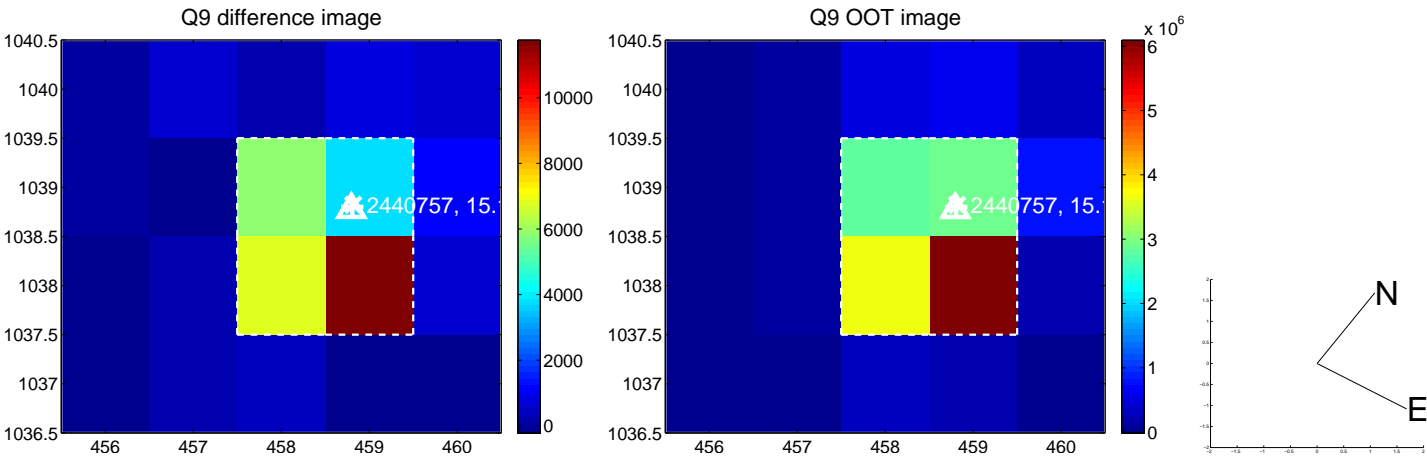
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



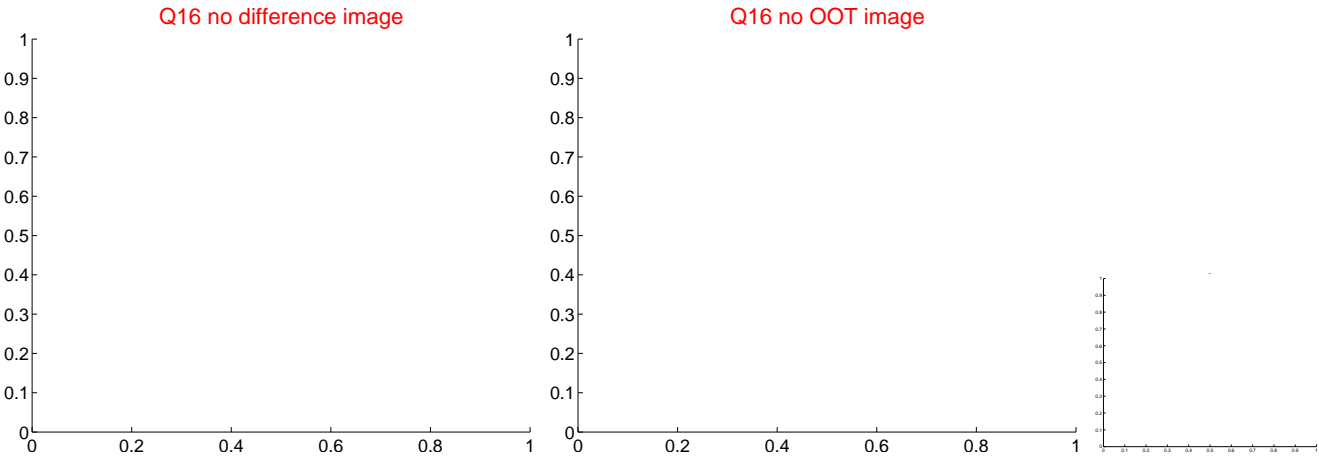
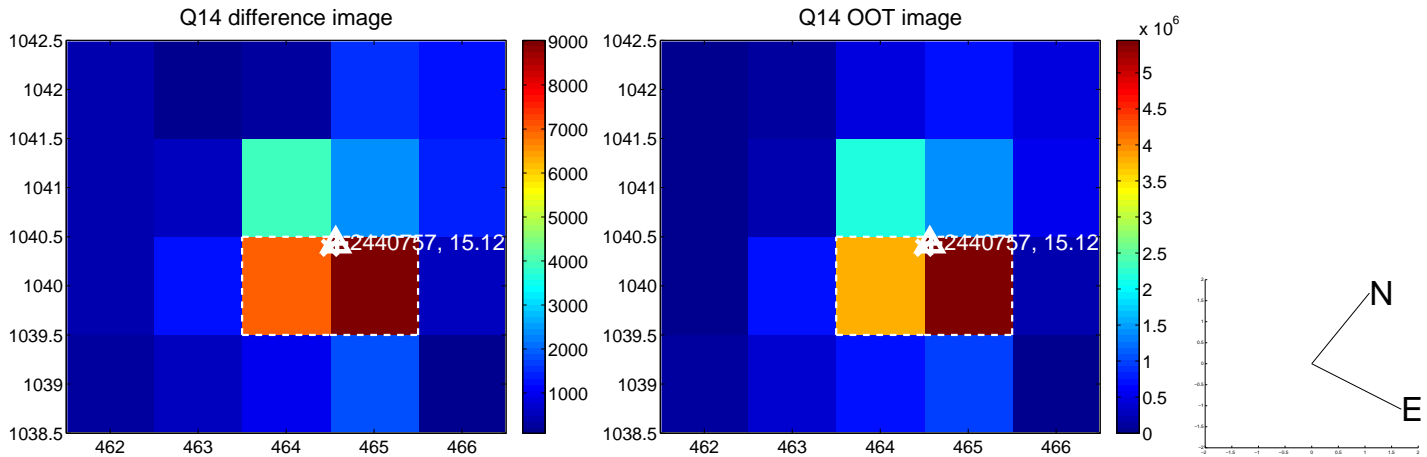
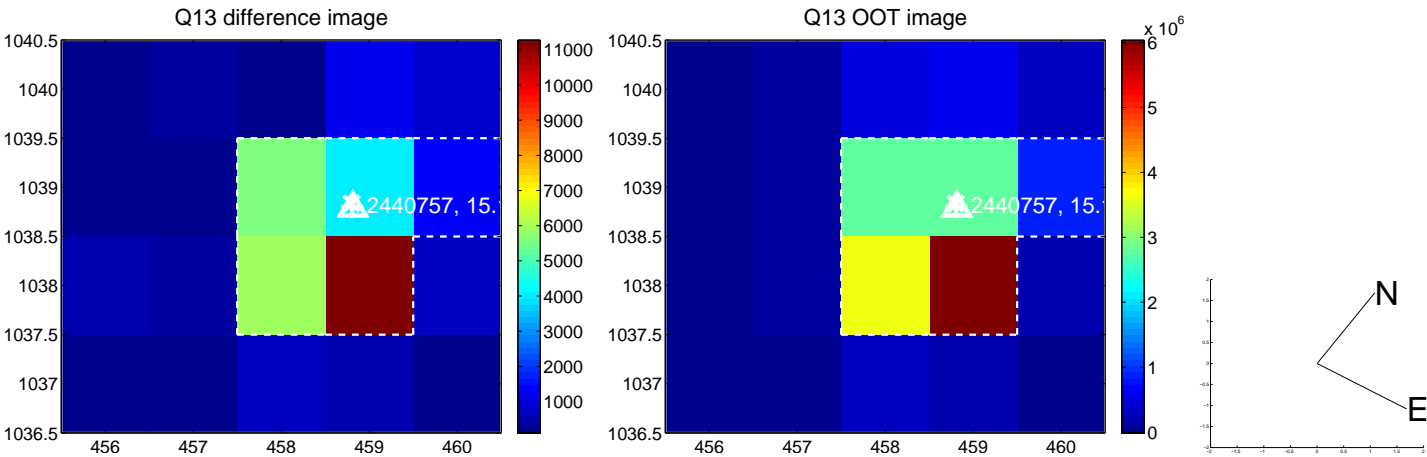
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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





UKIRT Image

