

# KIC 005794240

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005794240-01	OBS	0254.01	2.455238	131.538654	36660.1	1.795	1514.3	1397.3	0.57	3793	11.03	67.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005794240-01	OBS	PC	1.00	0	0	0	0	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.

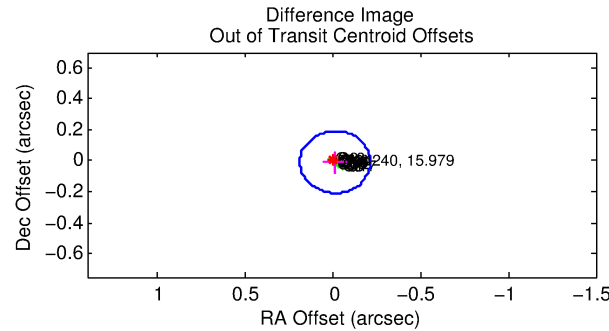
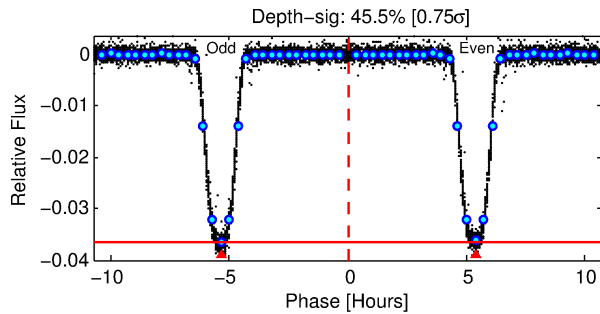
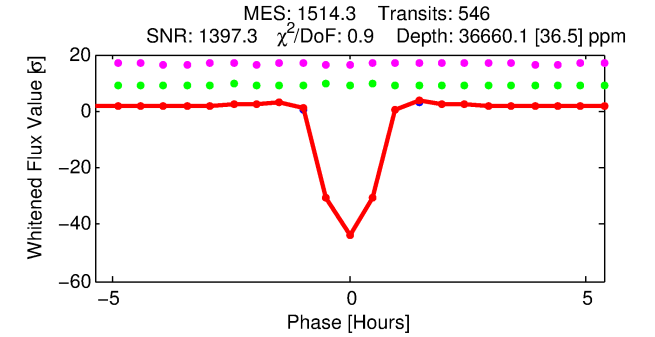
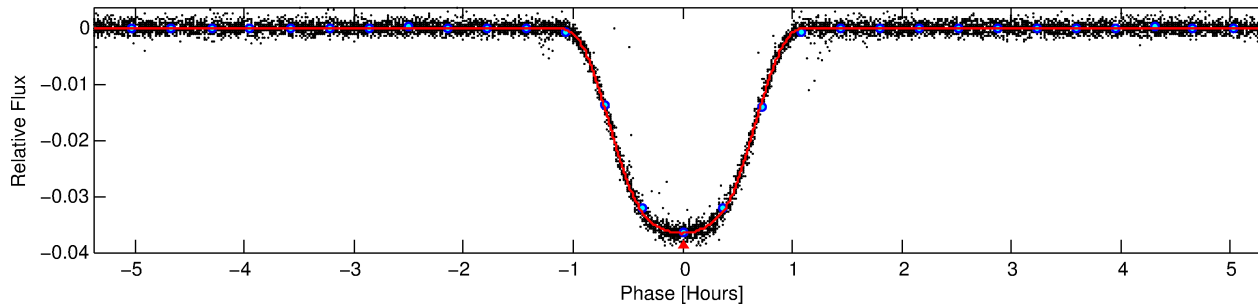
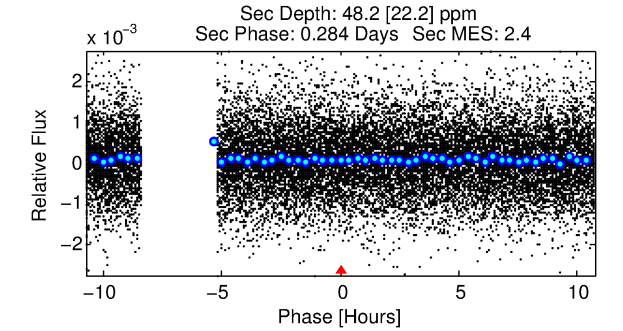
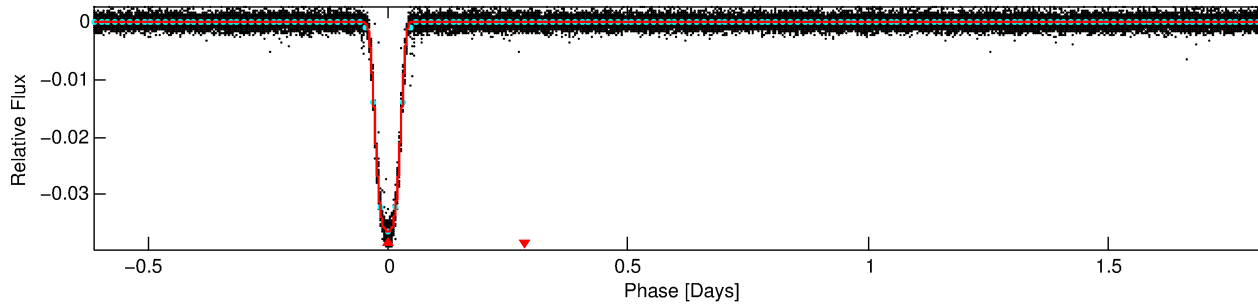
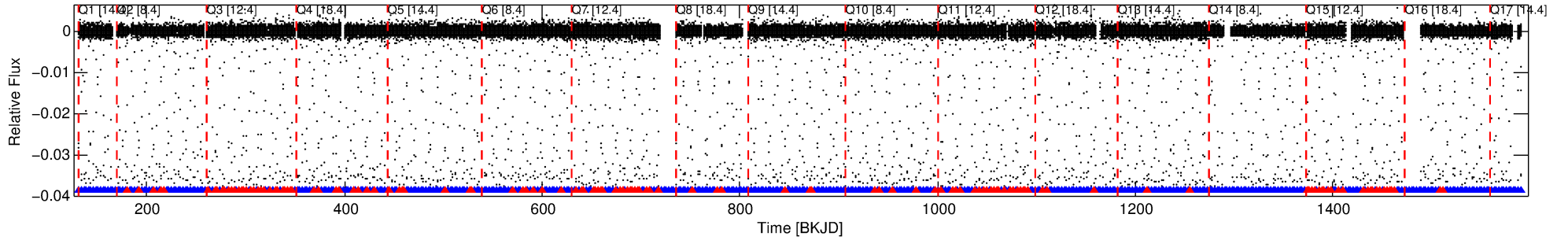
## Ephemeris Match Information For 005794240-01

No Significant Match Found

# DV One-Page Summary

KIC: 5794240 Candidate: 1 of 1 Period: 2.455 d  
KOI: K00254.01 Name: Kepler-45b Corr: 0.986

Kp: 15.98 R\*: 0.57 Rs Teff: 3793.0 K Logg: 4.70 Fe/H: 0.320



## DV Fit Results:

Period = 2.45524 [0.00000] d  
Epoch = 131.5387 [0.0000] BKJD  
Rp/R\* = 0.1780 [0.0005]  
a/R\* = 11.26 [0.08]  
b = 0.48 [0.01]  
Seff = 67.34 [7.45]  
Teq = 730 [20] K  
Rp = 11.03 [0.74] Re  
a = 0.0298 [0.0015] AU  
Ag = 0.19 [0.09] [-8.96σ]  
Teffp = 749 [88] K [0.21σ]

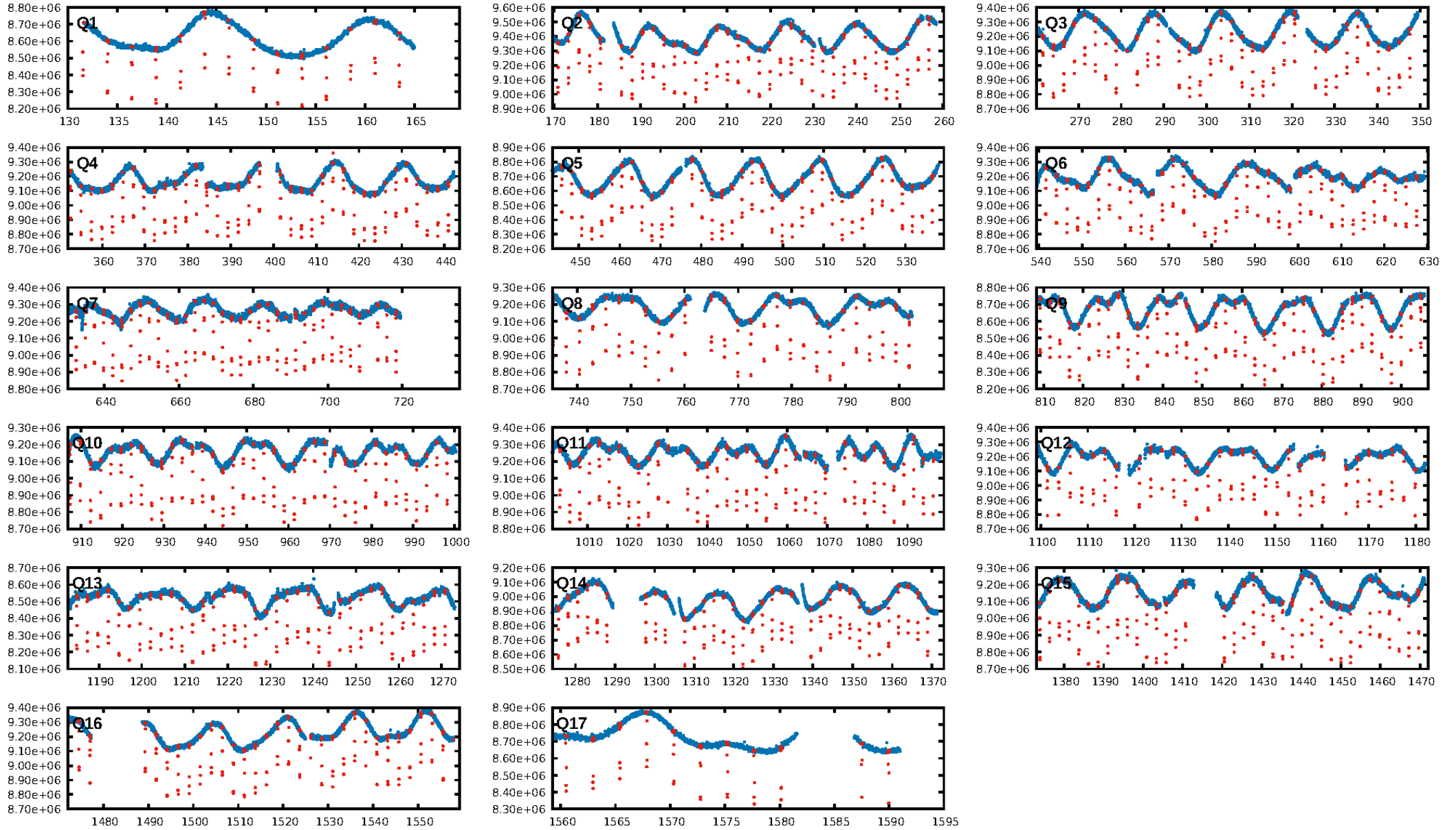
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.75 [390/521]  
GhostDiagnostic-chr: 3.079  
Centroid-sig: 0.0%  
Centroid-so: 0.363 arcsec [39.16σ]  
OotOffset-rm: 0.015 arcsec [0.23σ]  
KicOffset-rm: 0.359 arcsec [5.18σ]  
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]

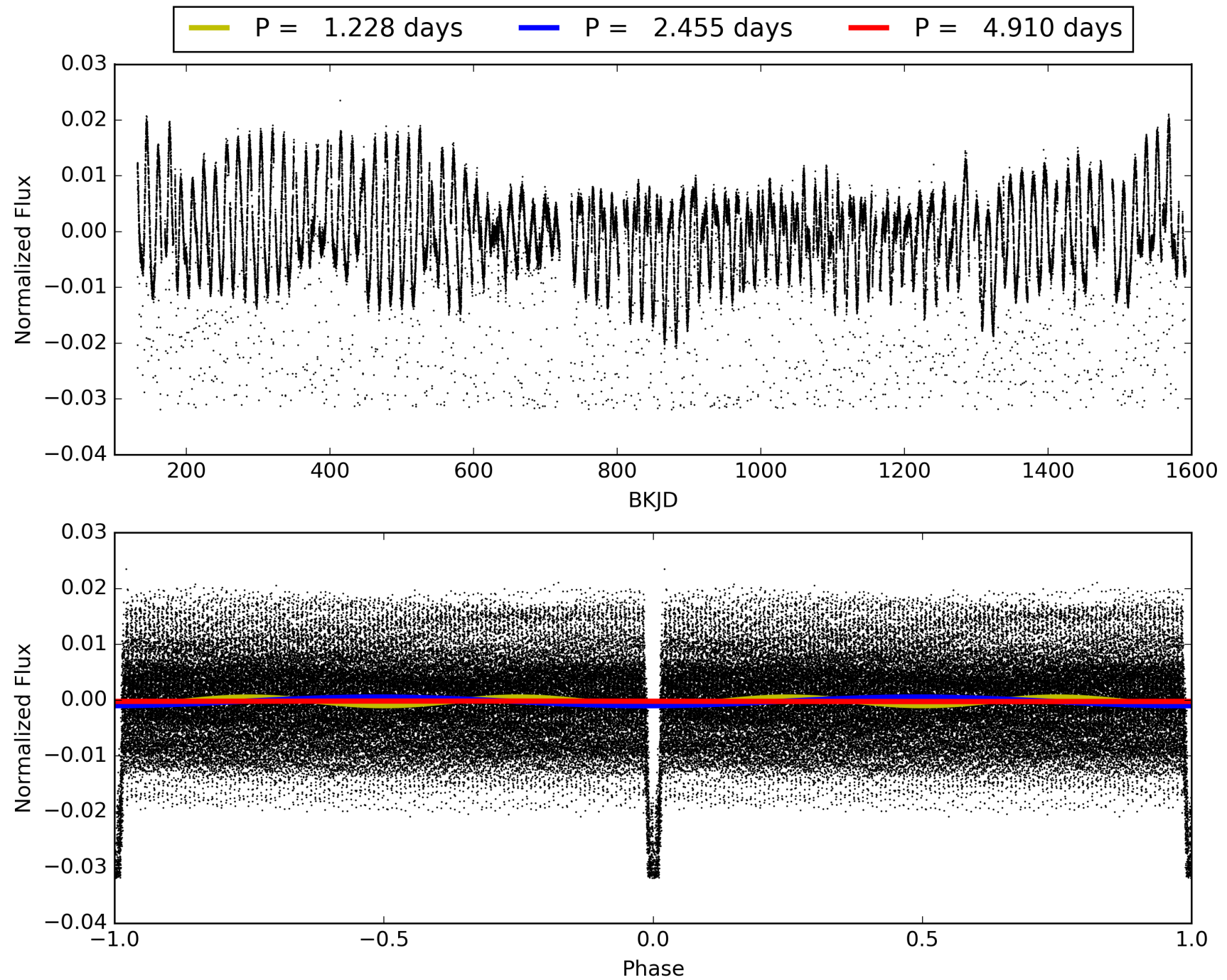
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:03:11 Z

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

# TCE 005794240-01, PDC Light Curves

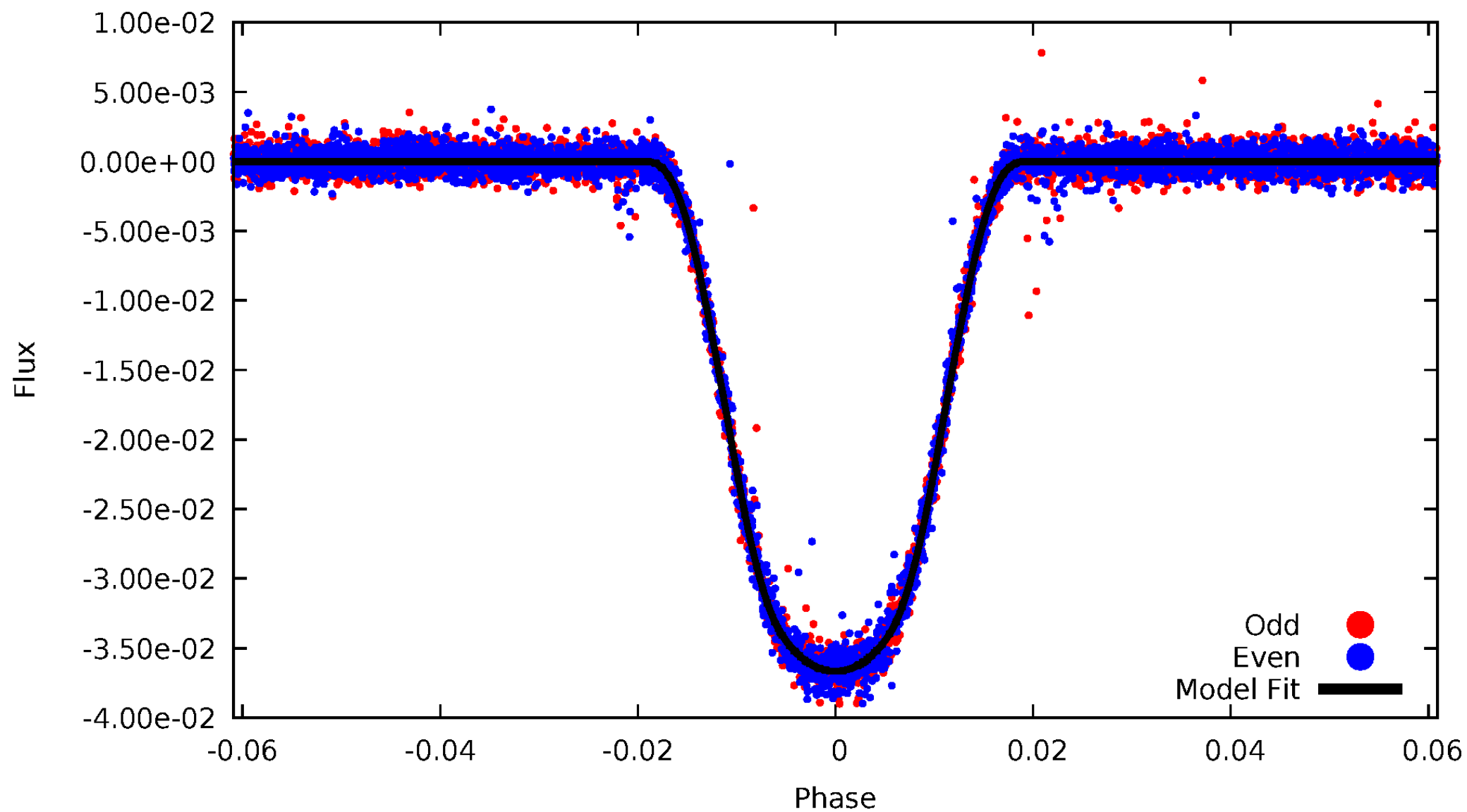


TCE 005794240-01



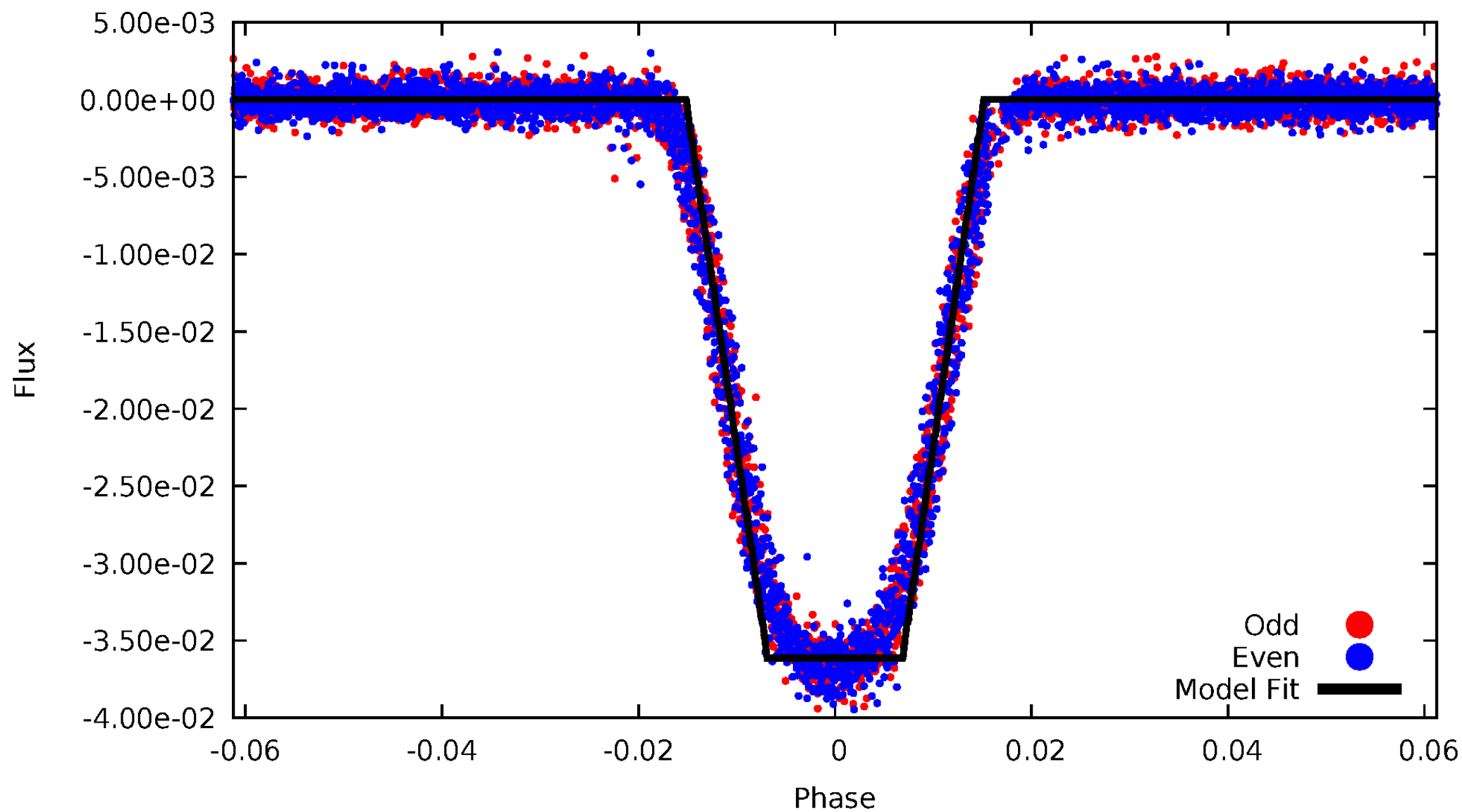
# DV Odd/Even

TCE 005794240-01



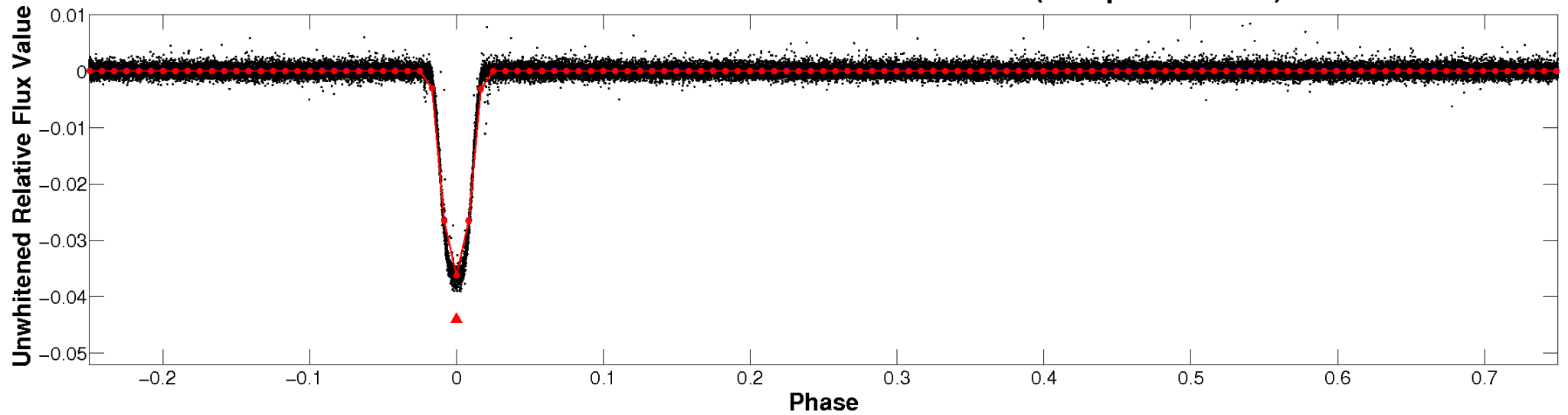
# ALT Odd/Even

TCE 005794240-01

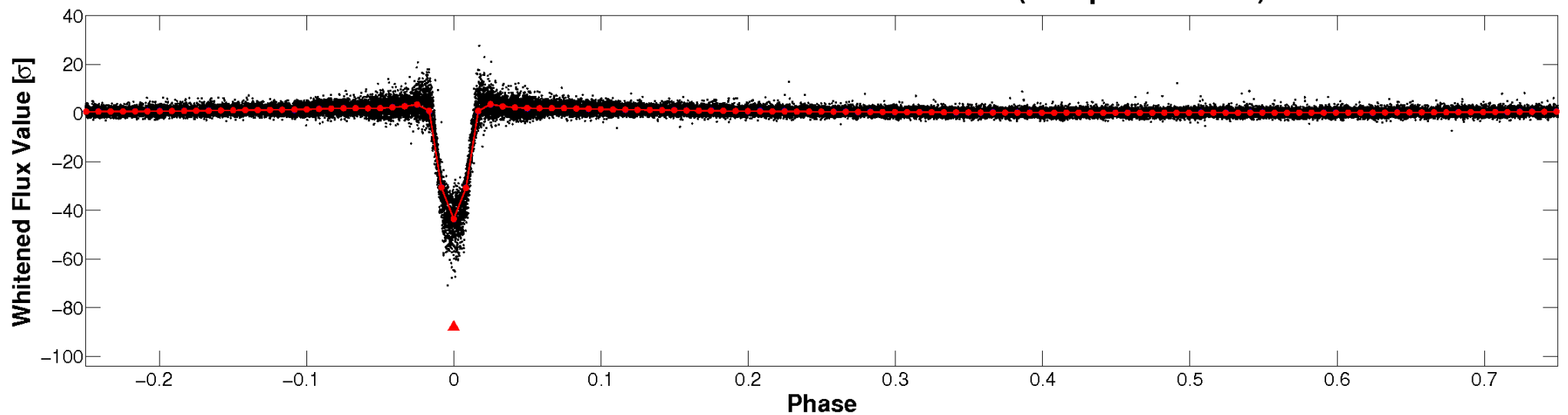


# Non-Whitened Vs. Whitened Light Curve

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



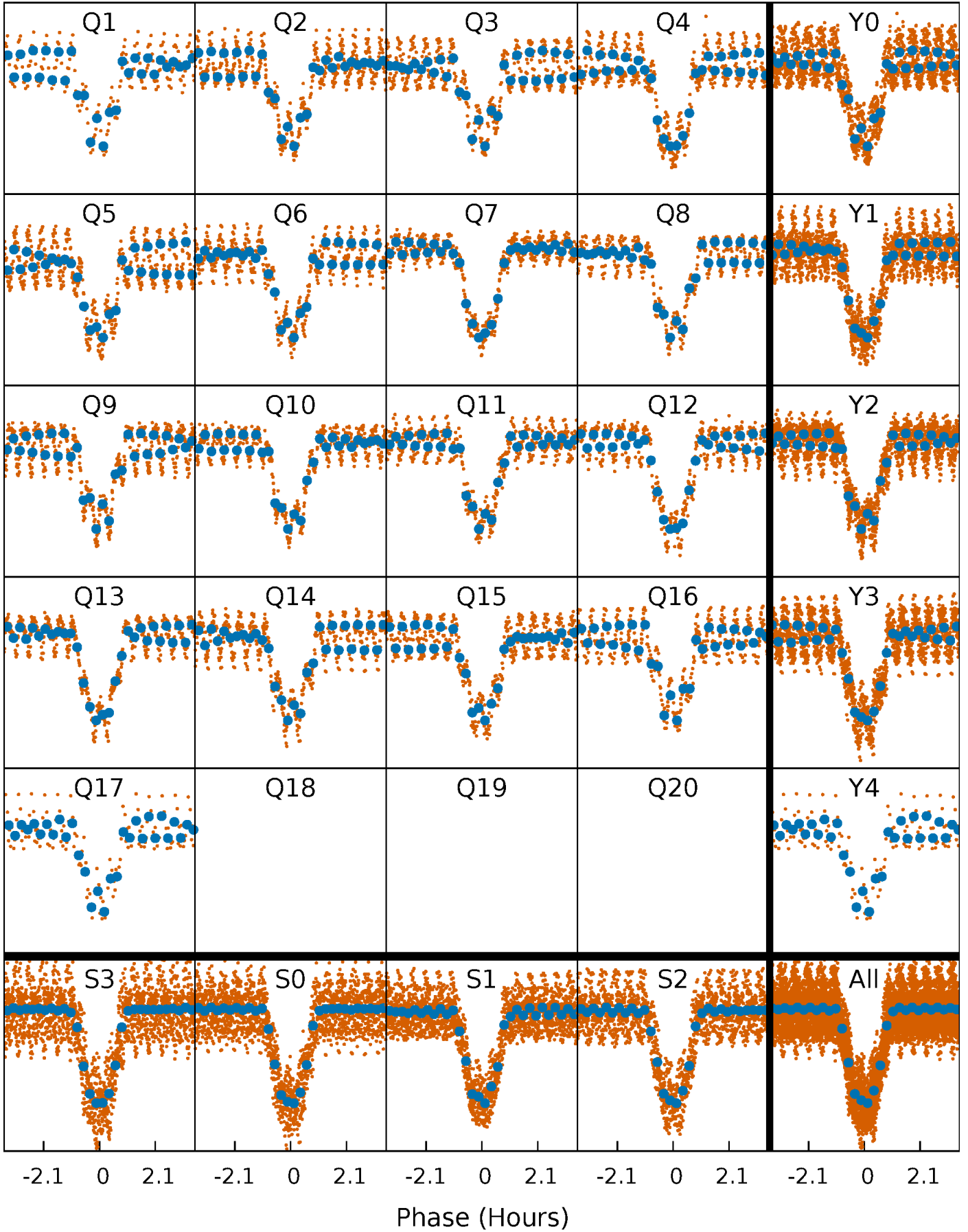
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

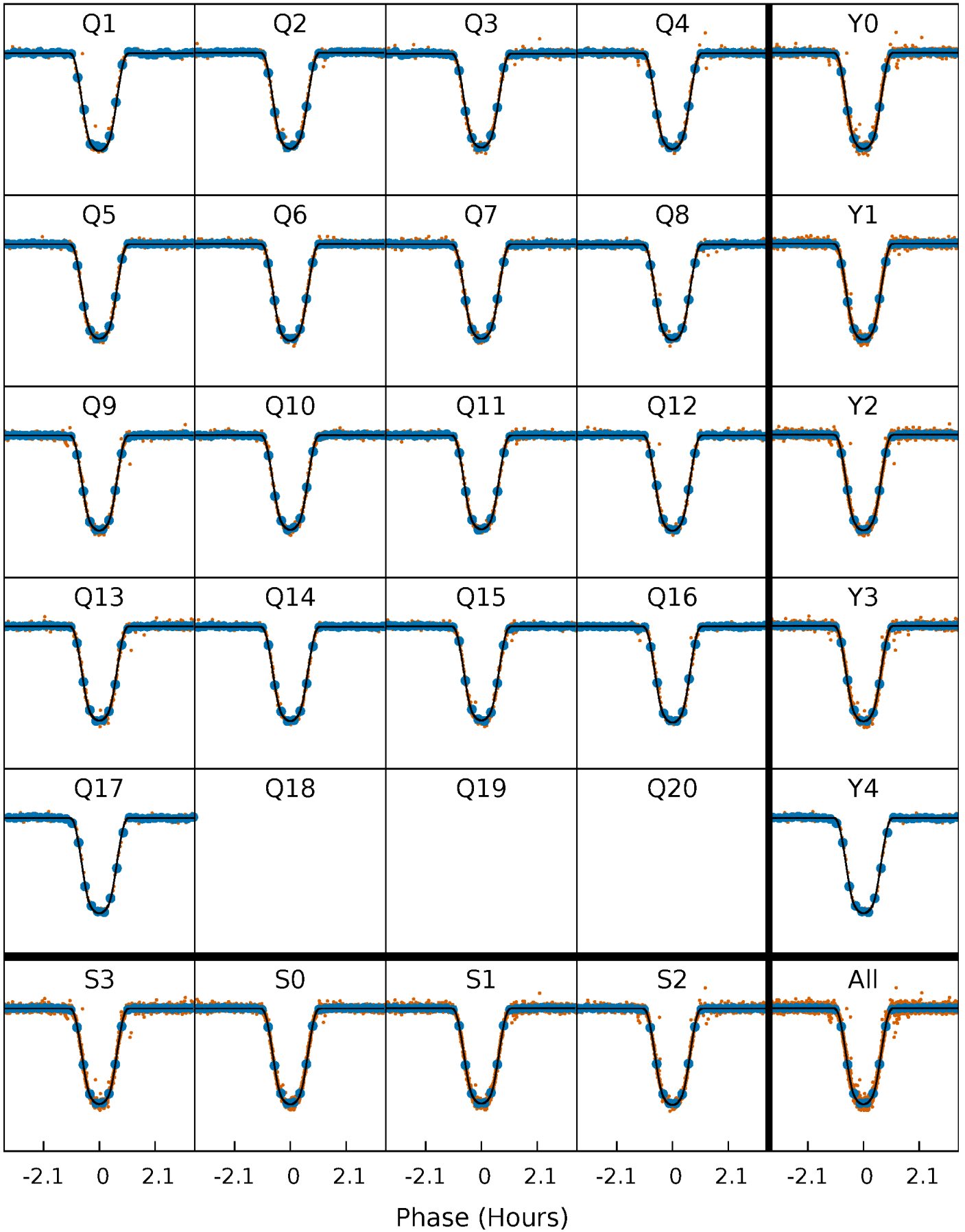
TCE 005794240-01 P= 2.455238 Days  $T_0=131.538654$  (BKJD)





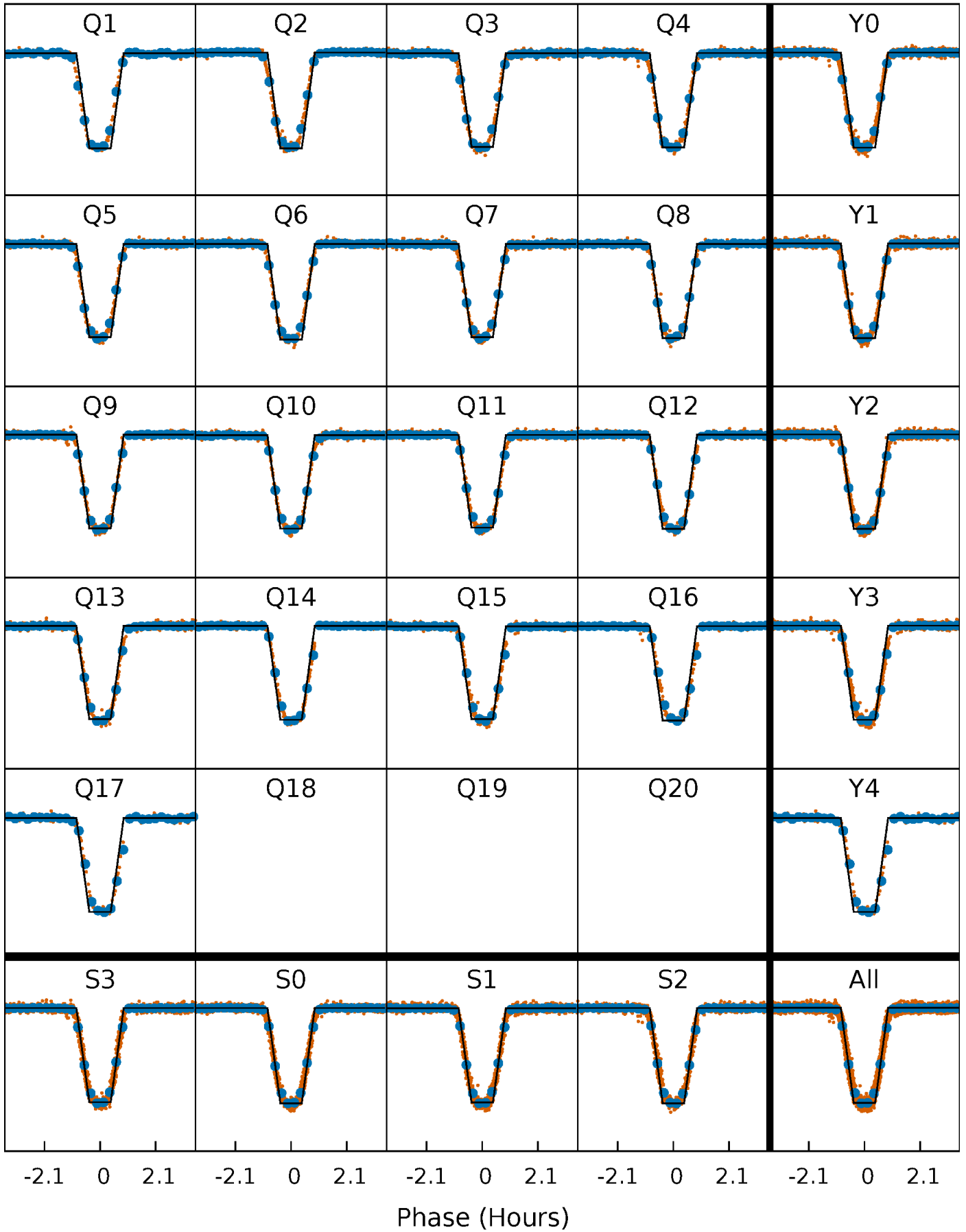
# DV Quarter-Phased Transit Curves

TCE 005794240-01 P= 2.455238 Days  $T_0=131.538654$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

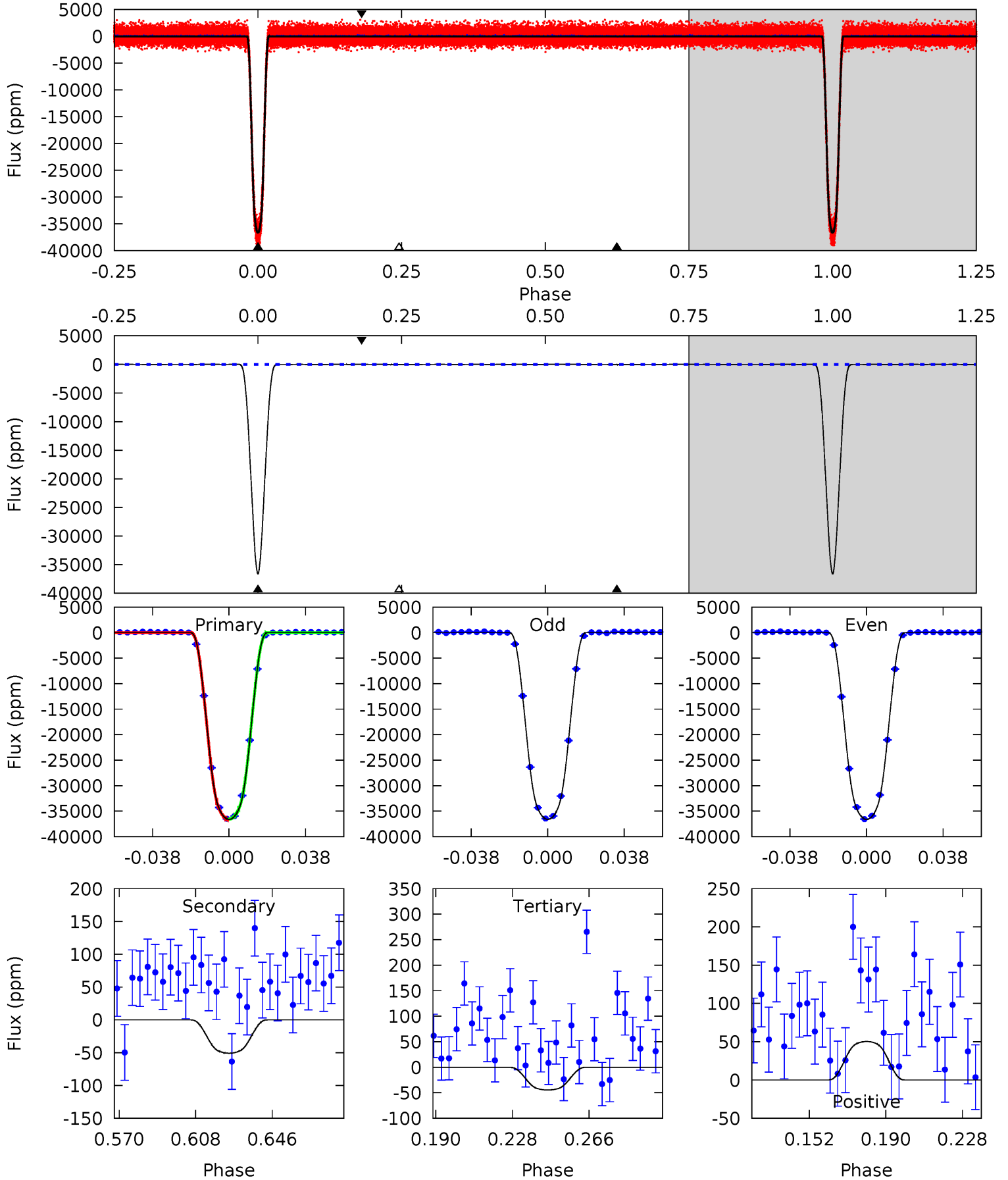
TCE 005794240-01   P= 2.455229 Days    $T_0=131.541245$  (BKJD)



# DV Model-Shift Uniqueness Test

005794240-01, P = 2.455238 Days, E = 129.083416 Days

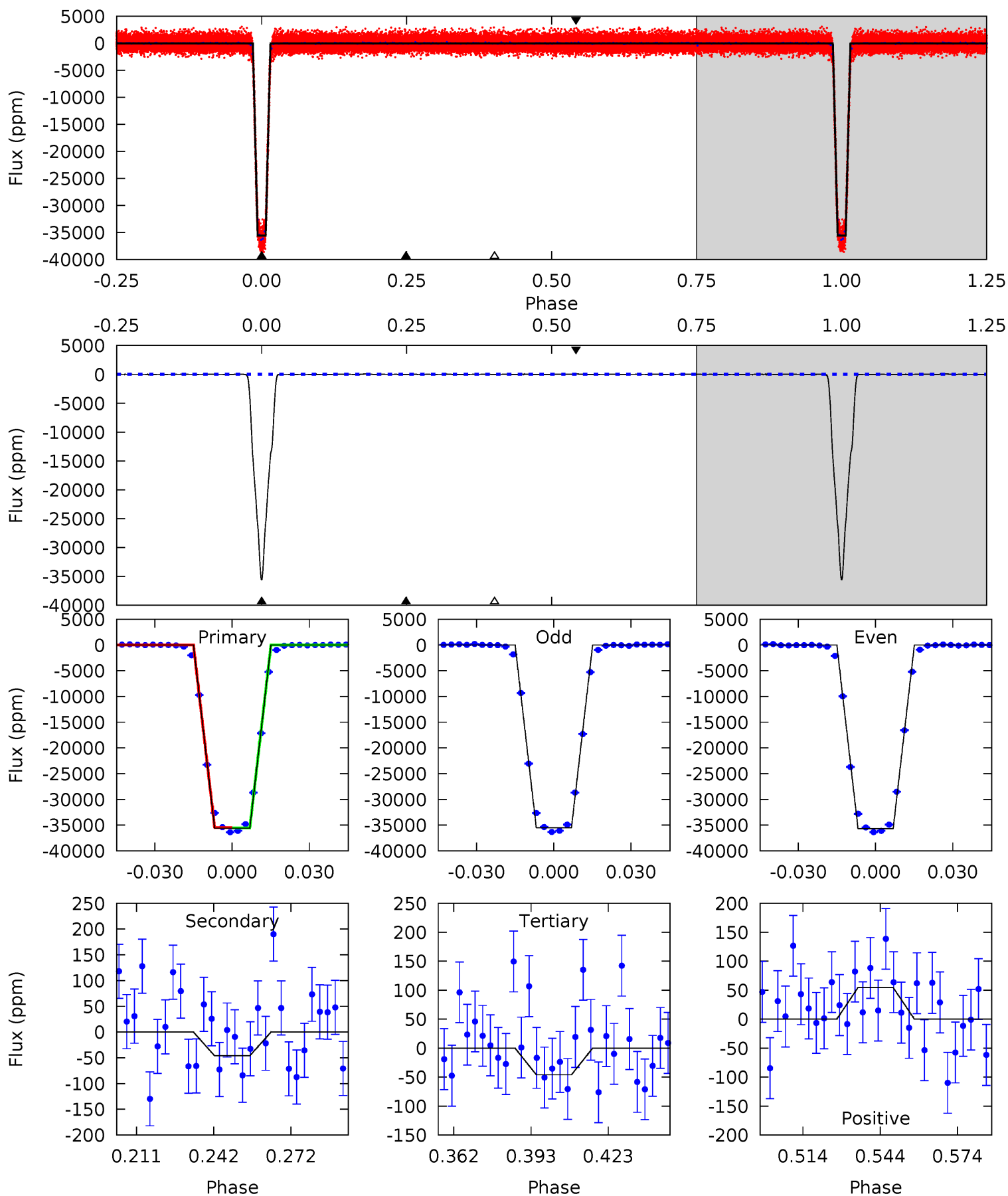
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2403	3.34	2.92	3.30	4.76	2.07	1.23	2400	2400	0.41	0.03	0.08	1.00	0.00	4.17



# Alt Model-Shift Uniqueness Test

005794240-01, P = 2.455229 Days, E = 129.086016 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
1841	2.39	2.38	2.83	4.81	2.17	1.06	1839	1838	0.01	-0.44	4.19	1.00	0.00	0.84



### Stellar Parameters For KIC 005794240

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3793^{+76}_{-84}$	$4.697^{+0.032}_{-0.020}$	$0.320^{+0.150}_{-0.150}$	$0.568^{+0.023}_{-0.038}$	$0.587^{+0.025}_{-0.037}$	$4.504^{+0.670}_{-0.398}$
	+2%/-2%	+1%/-0%	+47%/-47%	+4%/-7%	+4%/-6%	+15%/-9%
Source	SPE70	PHO43	SPE70	DSEP		

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

### Secondary Eclipse Parameters for KIC 005794240-01 / KOI 0254.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-51 \pm 15$	$11.06^{+0.25}_{-0.38}$	$1017^{+24}_{-25}$	$-1612^{+152}_{-73}$	$0.205^{+0.067}_{-0.058}$
Alt.	$-46 \pm 19$	$11.82^{+0.28}_{-0.40}$	$1019^{+23}_{-24}$	$-1667^{+93}_{-65}$	$0.162^{+0.069}_{-0.066}$

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

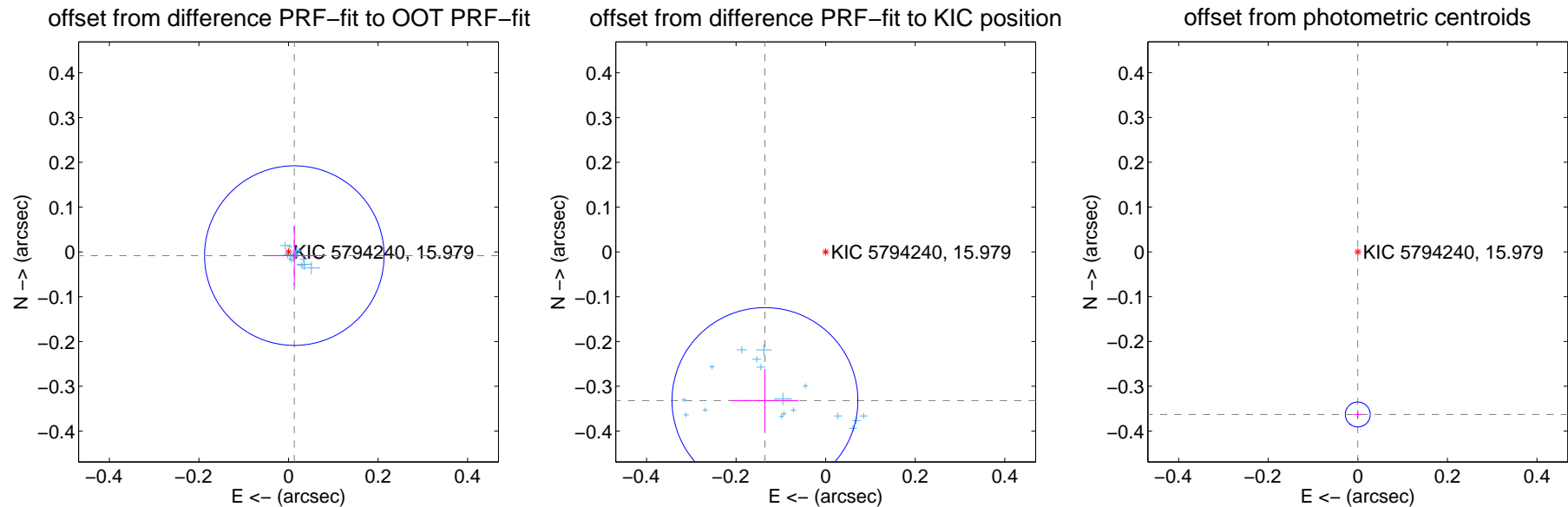
## DV Centroid Data

Supplemental centroid analysis for 005794240-01. Kepler magnitude: 15.98. Transit SNR 1397.30

There are 17 quarters with good PRF difference image offsets

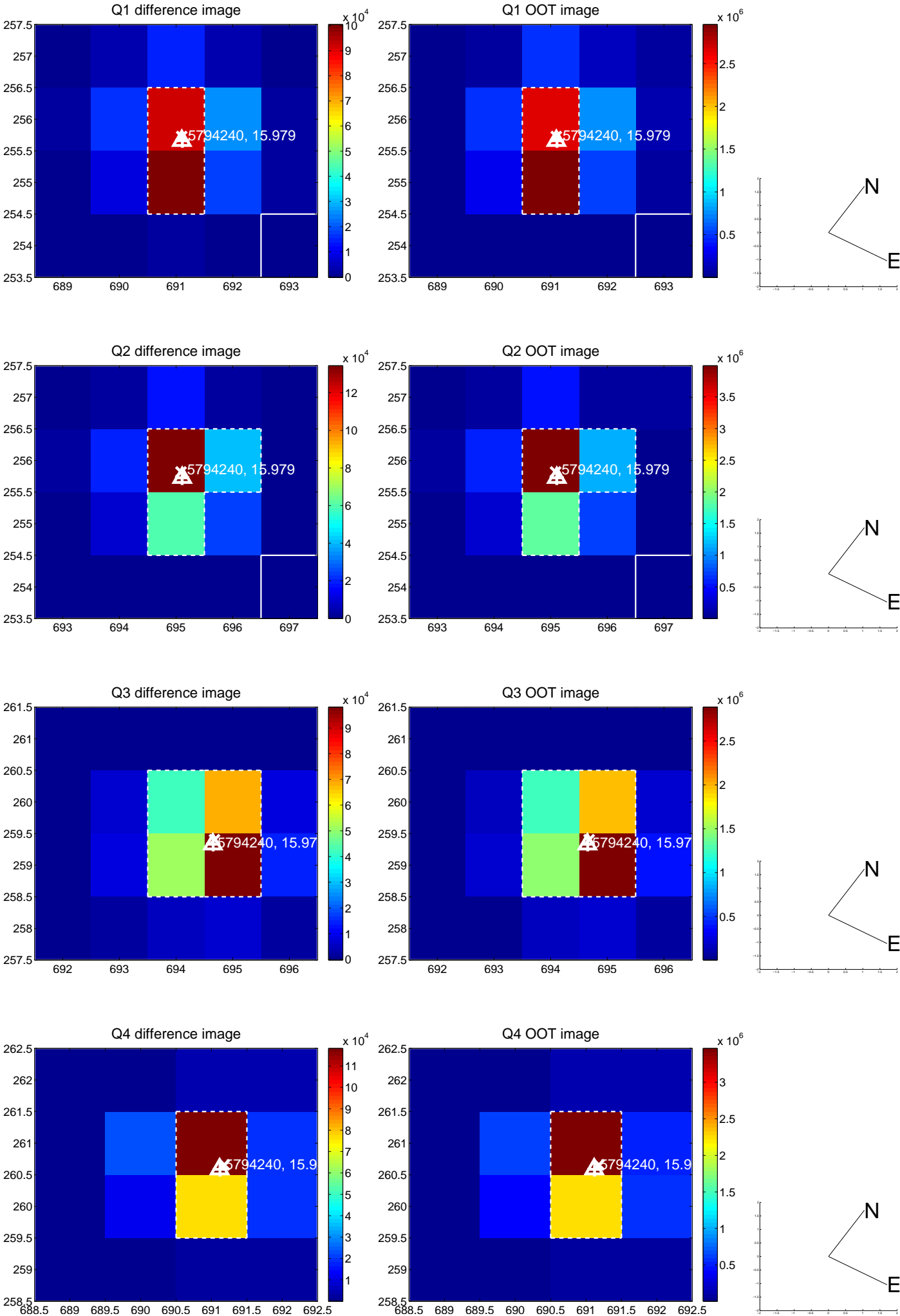
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.015 \pm 0.067$	0.23	$-0.013 \pm 0.067$	$-0.008 \pm 0.067$
PRF-fit source offset from KIC position	$0.359 \pm 0.069$	5.18	$0.136 \pm 0.075$	$-0.332 \pm 0.068$
photometric centroid source offset	$0.36 \pm 0.01$	39.16	$0.00 \pm 0.01$	$-0.36 \pm 0.01$



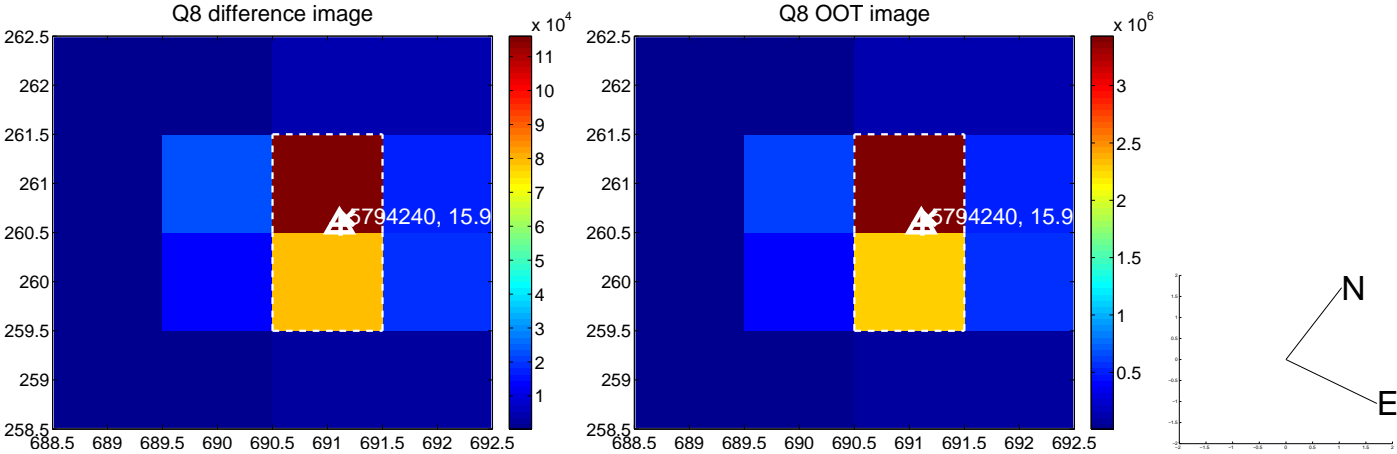
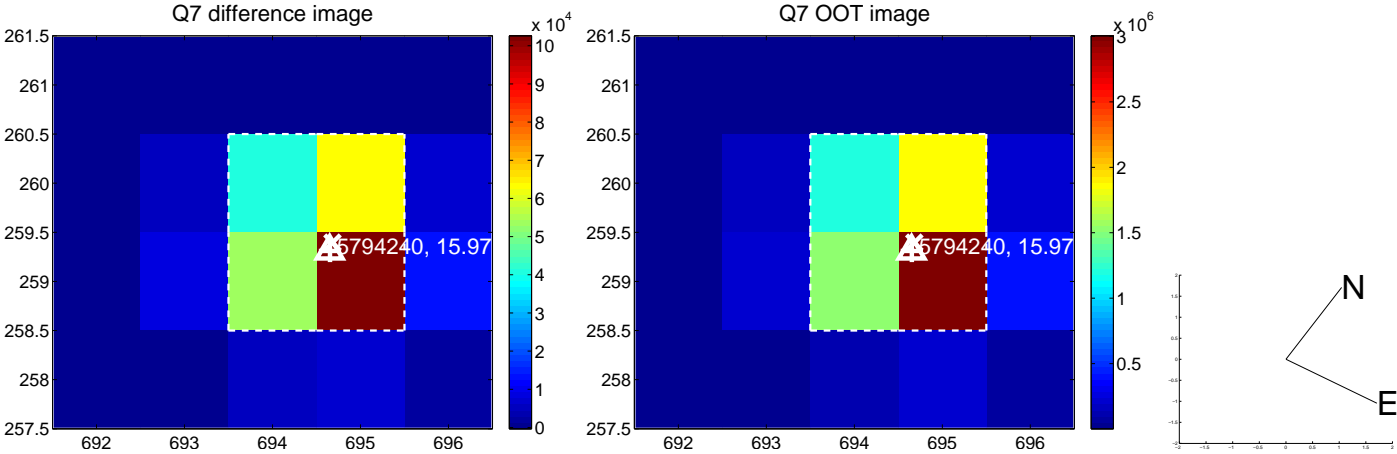
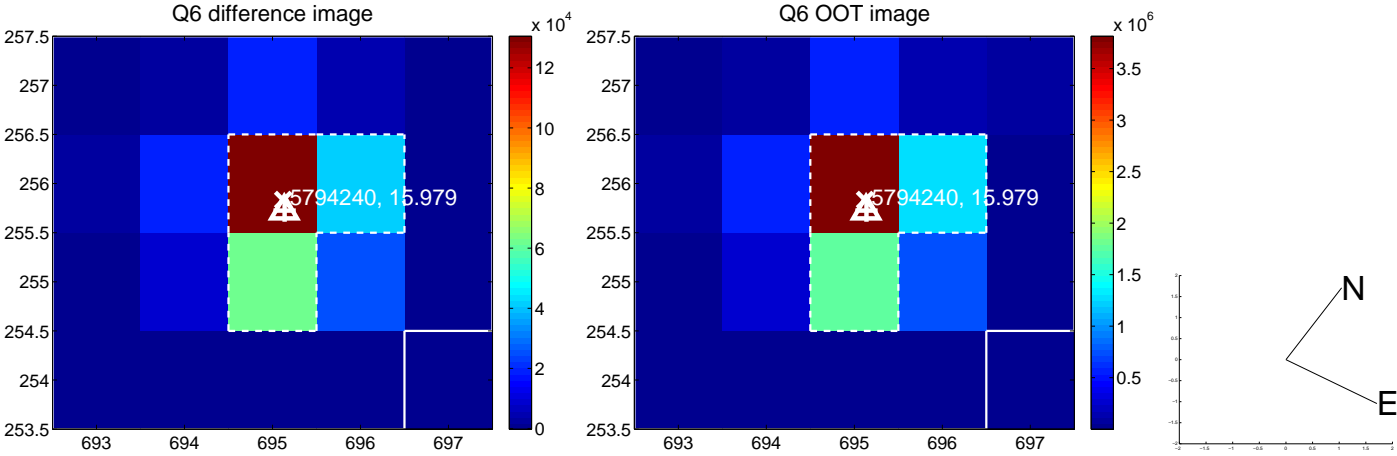
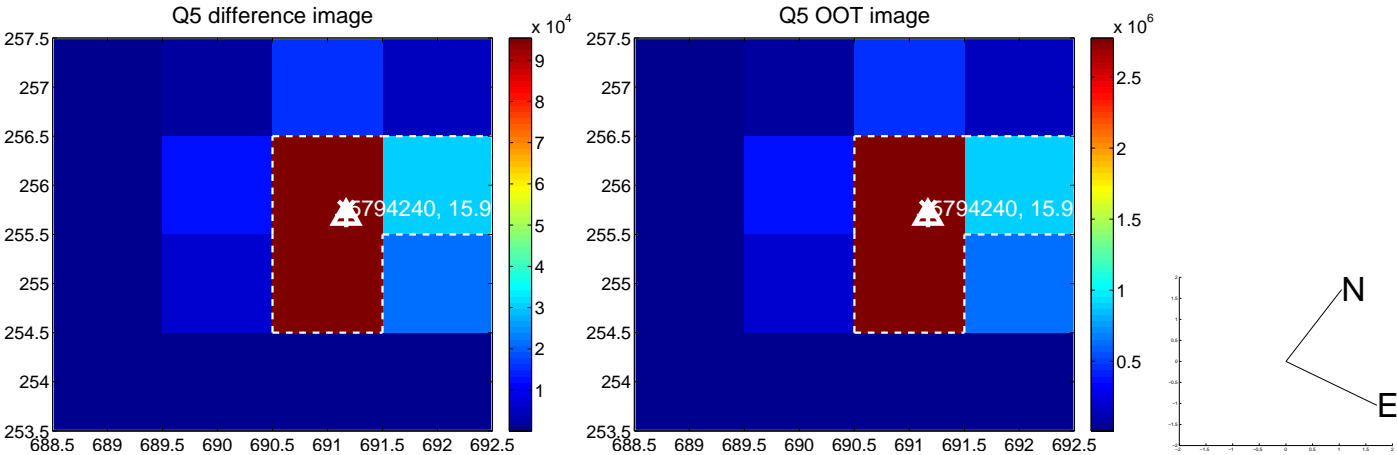
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

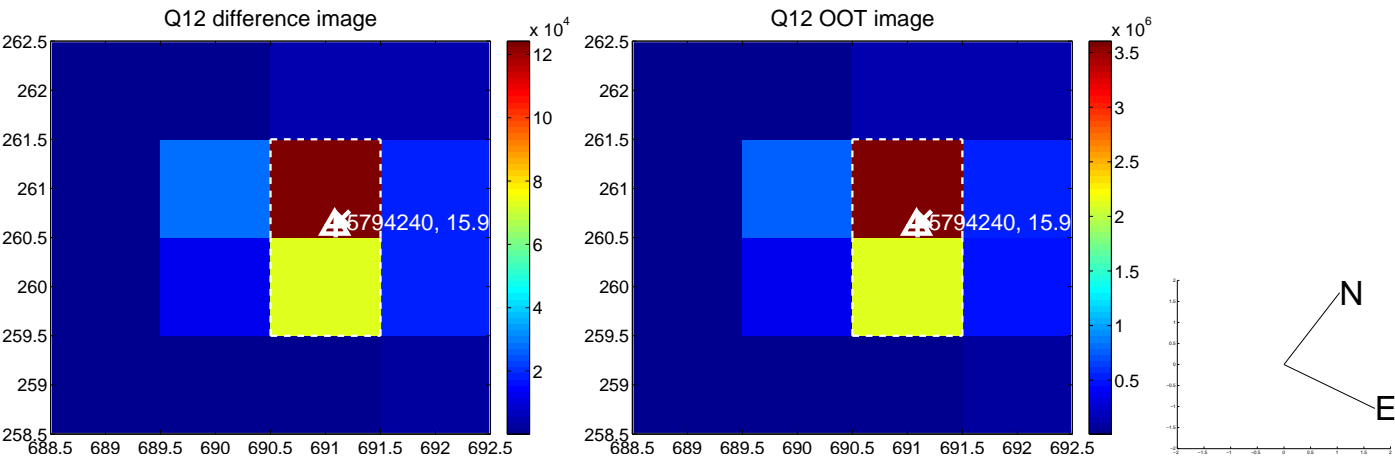
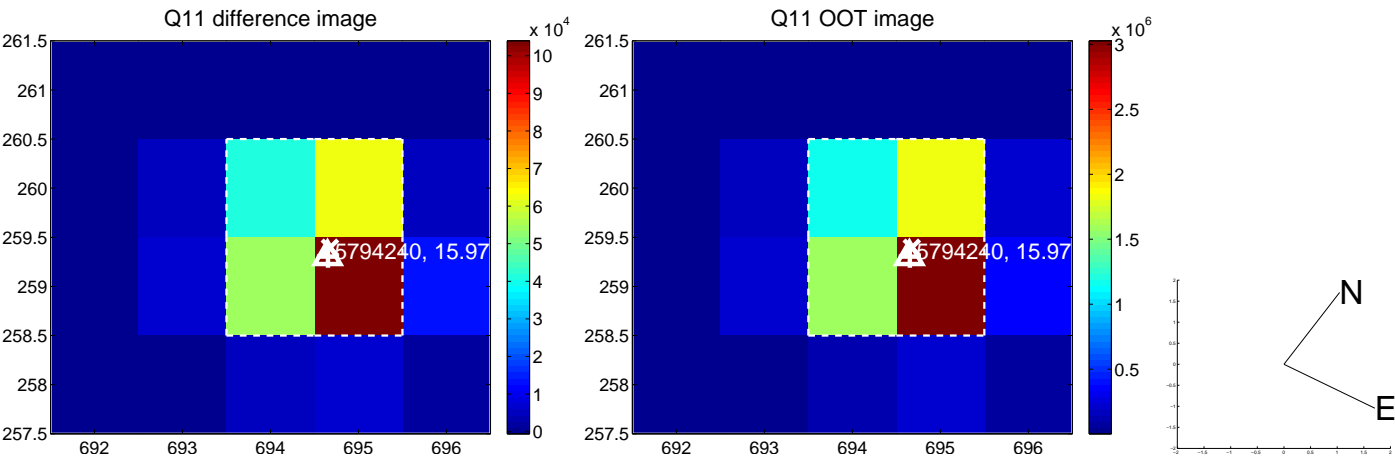
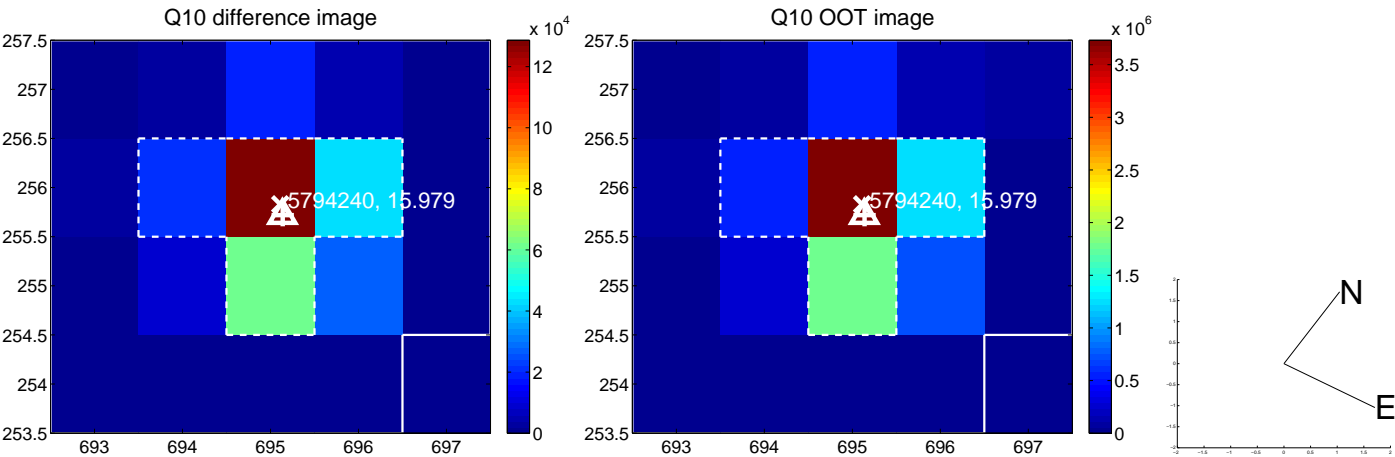
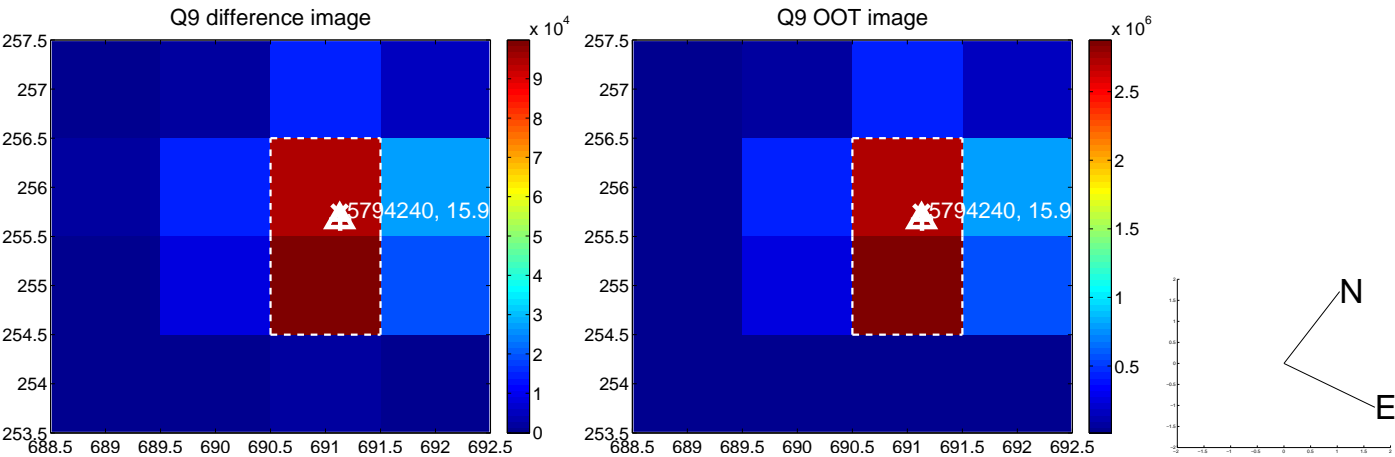




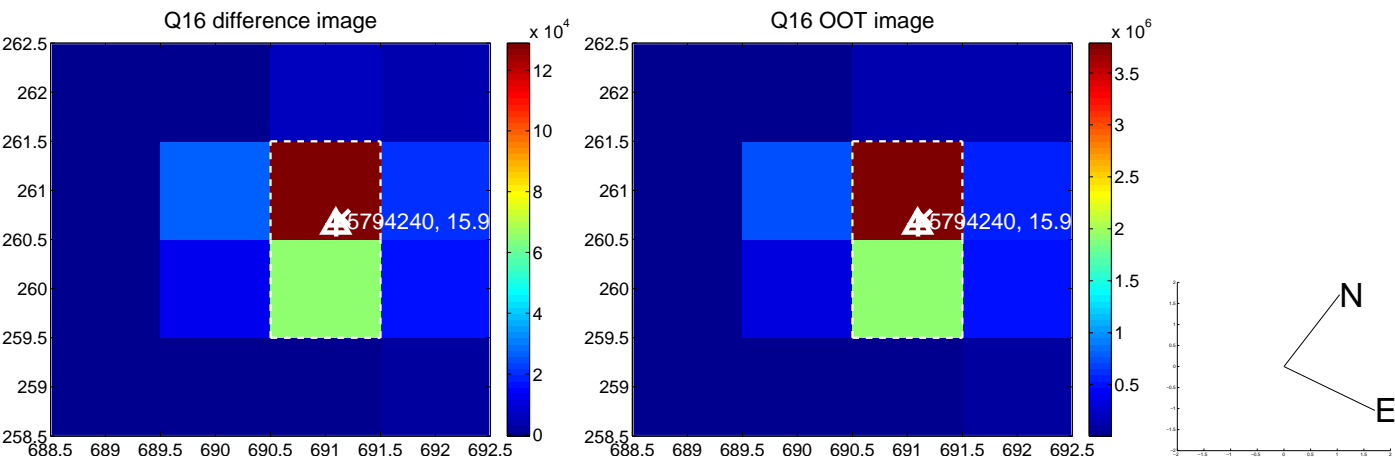
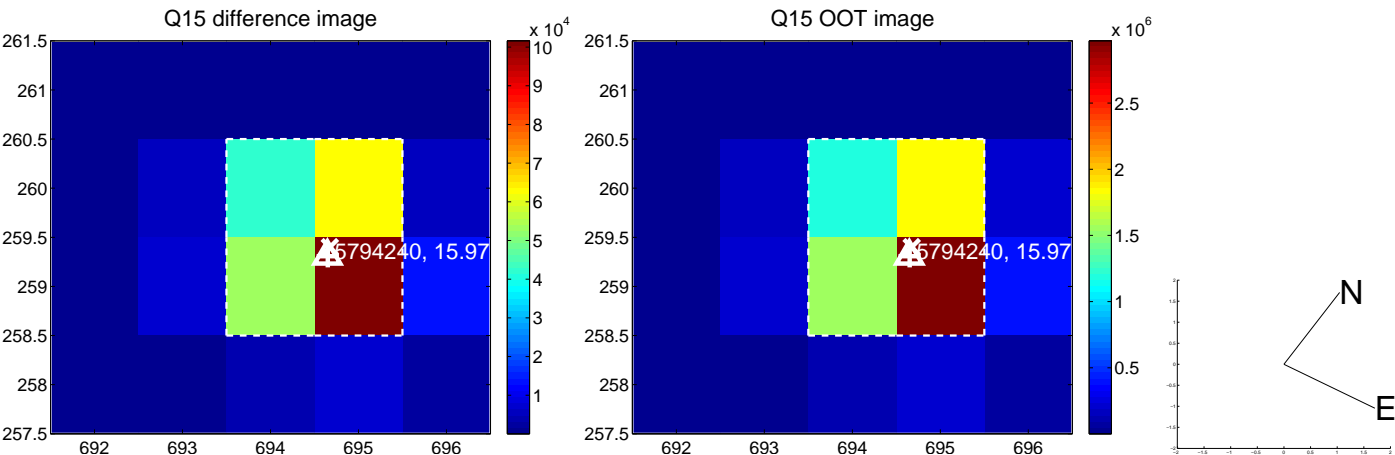
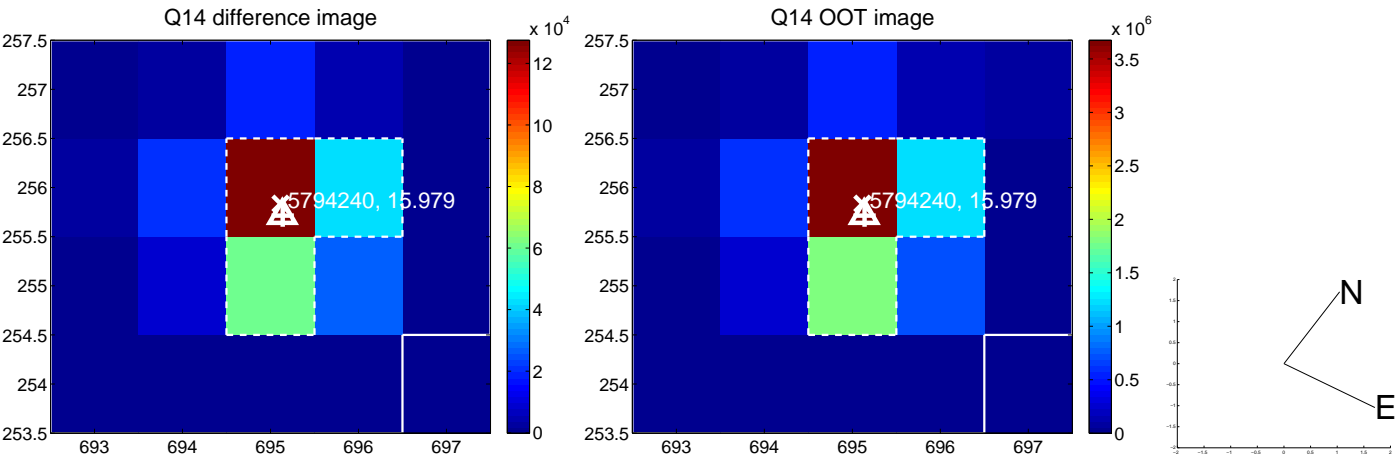
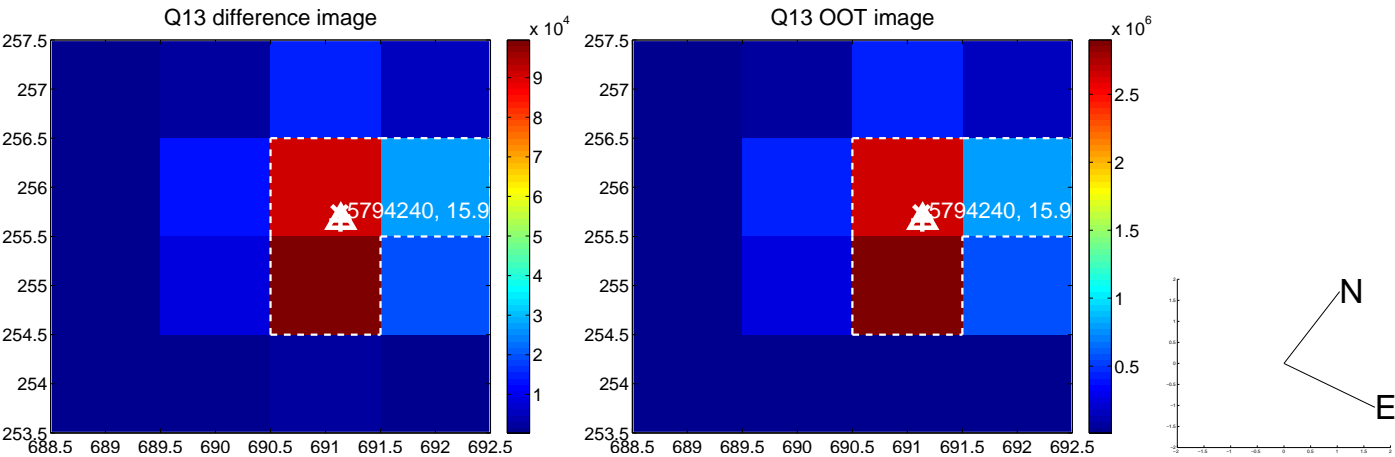
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



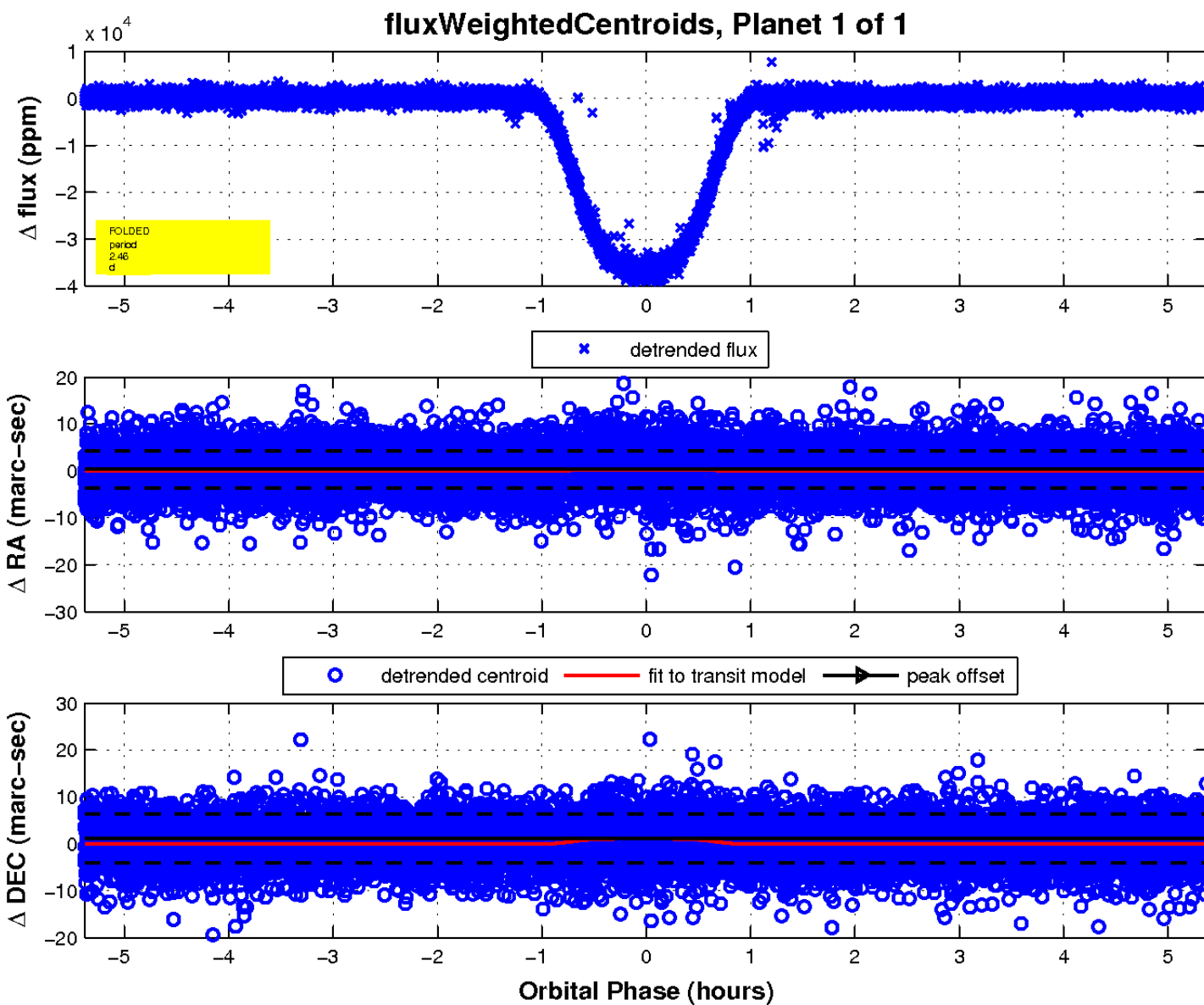
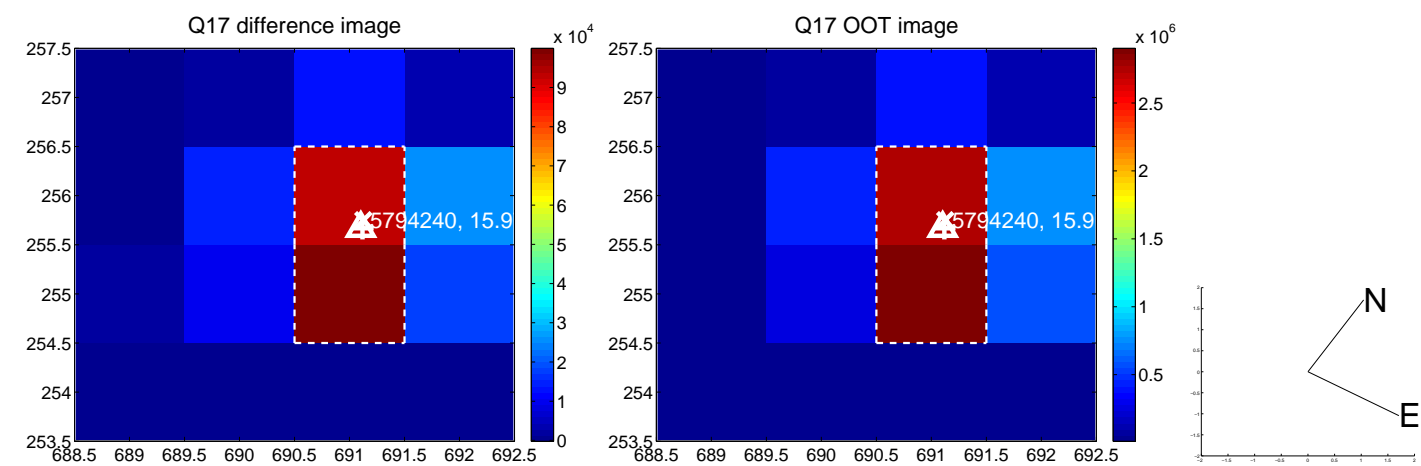
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

