

# KIC 012253490

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012253490-01	OBS	5961.01	19.159762	141.567938	32255.2	3.099	881.7	820.6	0.52	4492	14.46	7.67

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012253490-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

**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.

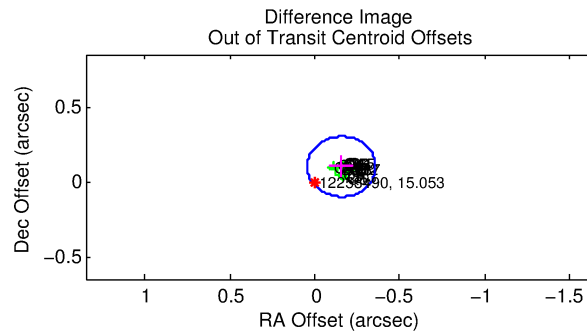
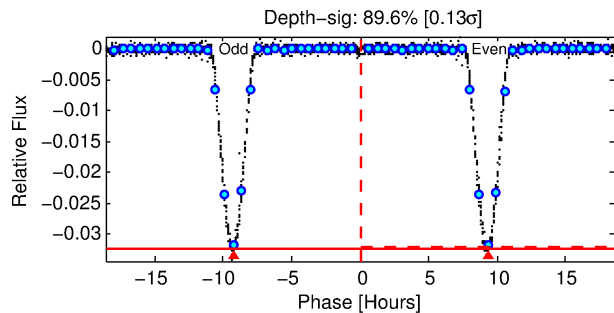
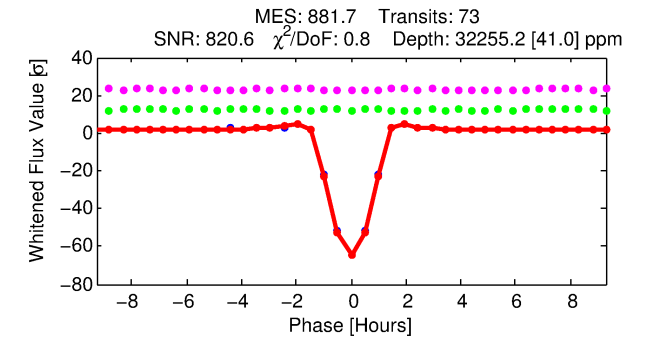
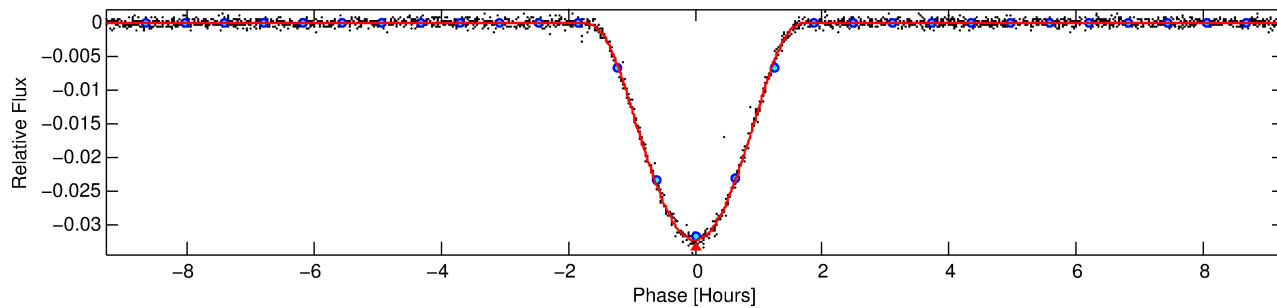
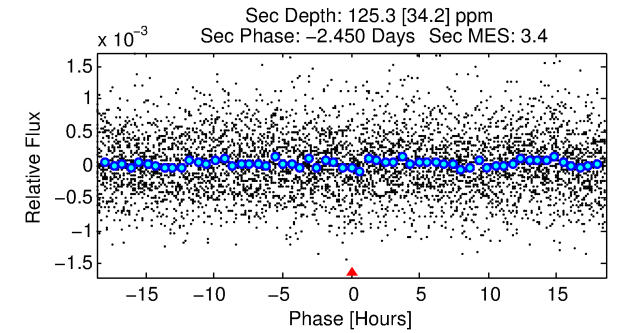
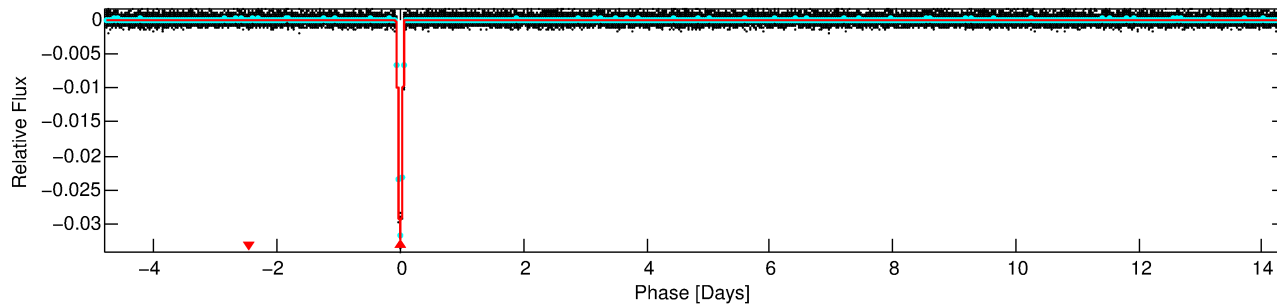
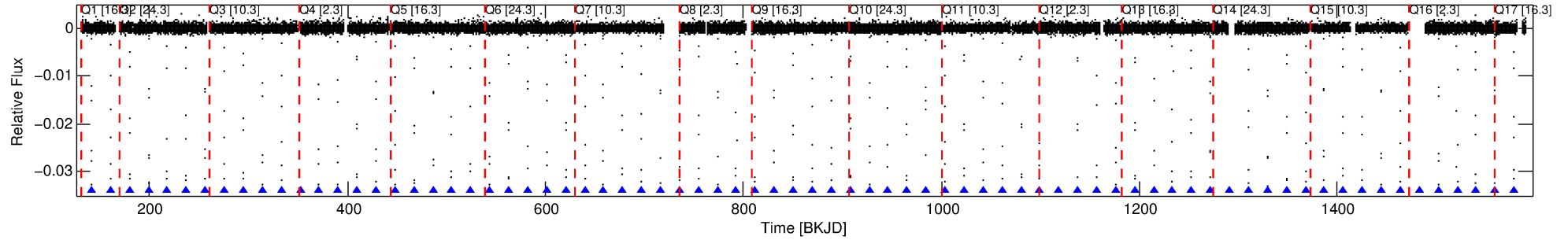
## Ephemeris Match Information For 012253490-01

No Significant Match Found

# DV One-Page Summary

KIC: 12253490 Candidate: 1 of 1 Period: 19.160 d  
KOI: K05961.01 Corr: 0.999

Kp: 15.05 R\*: 0.52 Rs Teff: 4492.0 K Logg: 4.73 Fe/H: -1.180



## DV Fit Results:

Period = 19.15976 [0.00000] d  
Epoch = 141.5679 [0.0001] BKJD  
Rp/R\* = 0.2568 [0.0144]  
a/R\* = 38.84 [0.22]  
b = 0.95 [0.02]  
Seff = 7.67 [1.32]  
Teq = 424 [18] K  
Rp = 14.46 [1.45] Re  
a = 0.1126 [0.0078] AU  
Ag = 4.18 [1.30] [2.44σ]  
Teff = 938 [77] K [6.52σ]

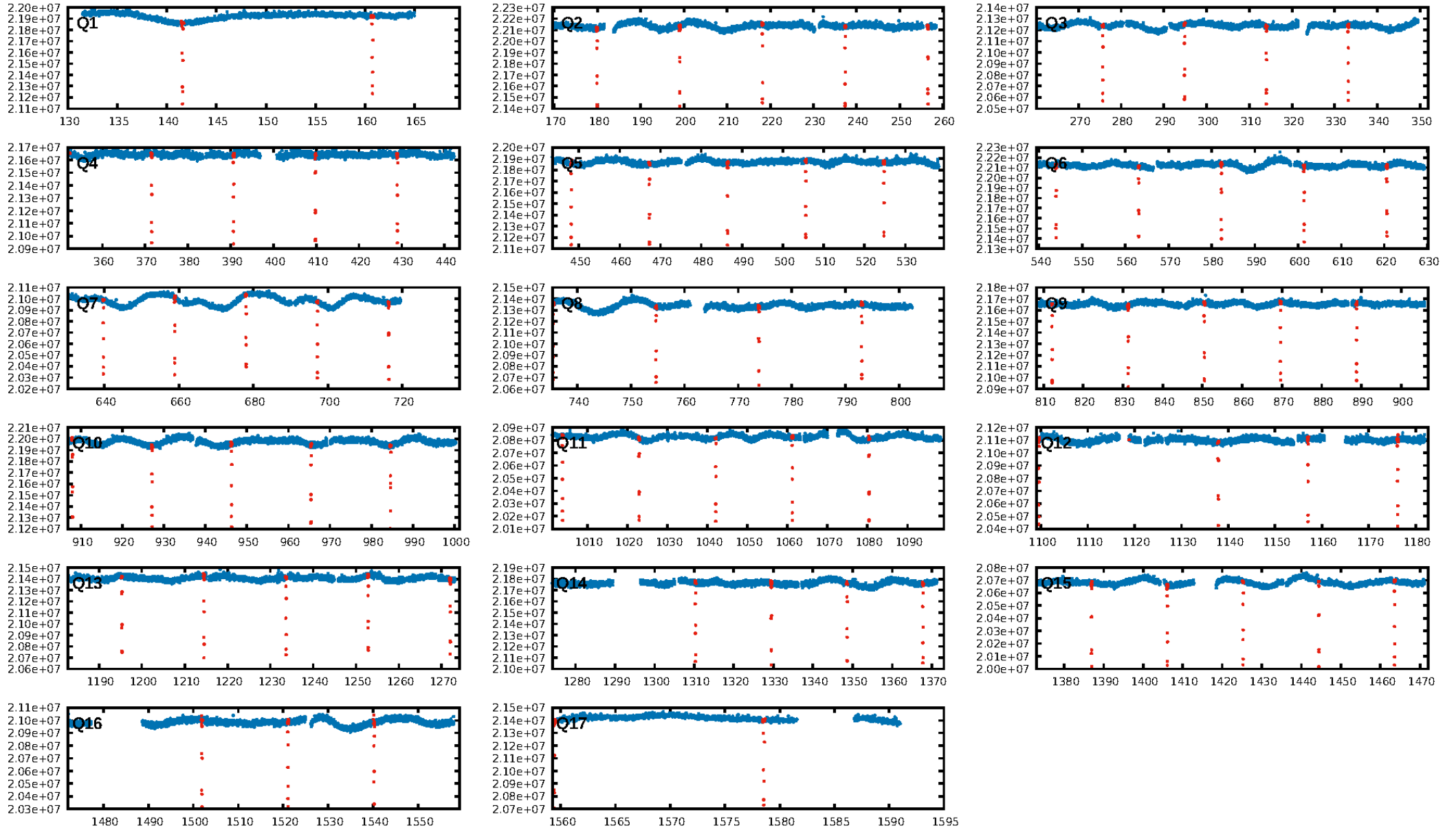
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-igt: 1.00 [69/69]  
GhostDiagnostic-chr: 3.474  
Centroid-sig: 0.0%  
Centroid-so: 0.774 arcsec [49.56σ]  
OotOffset-rm: 0.186 arcsec [2.77σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.412 arcsec [6.01σ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

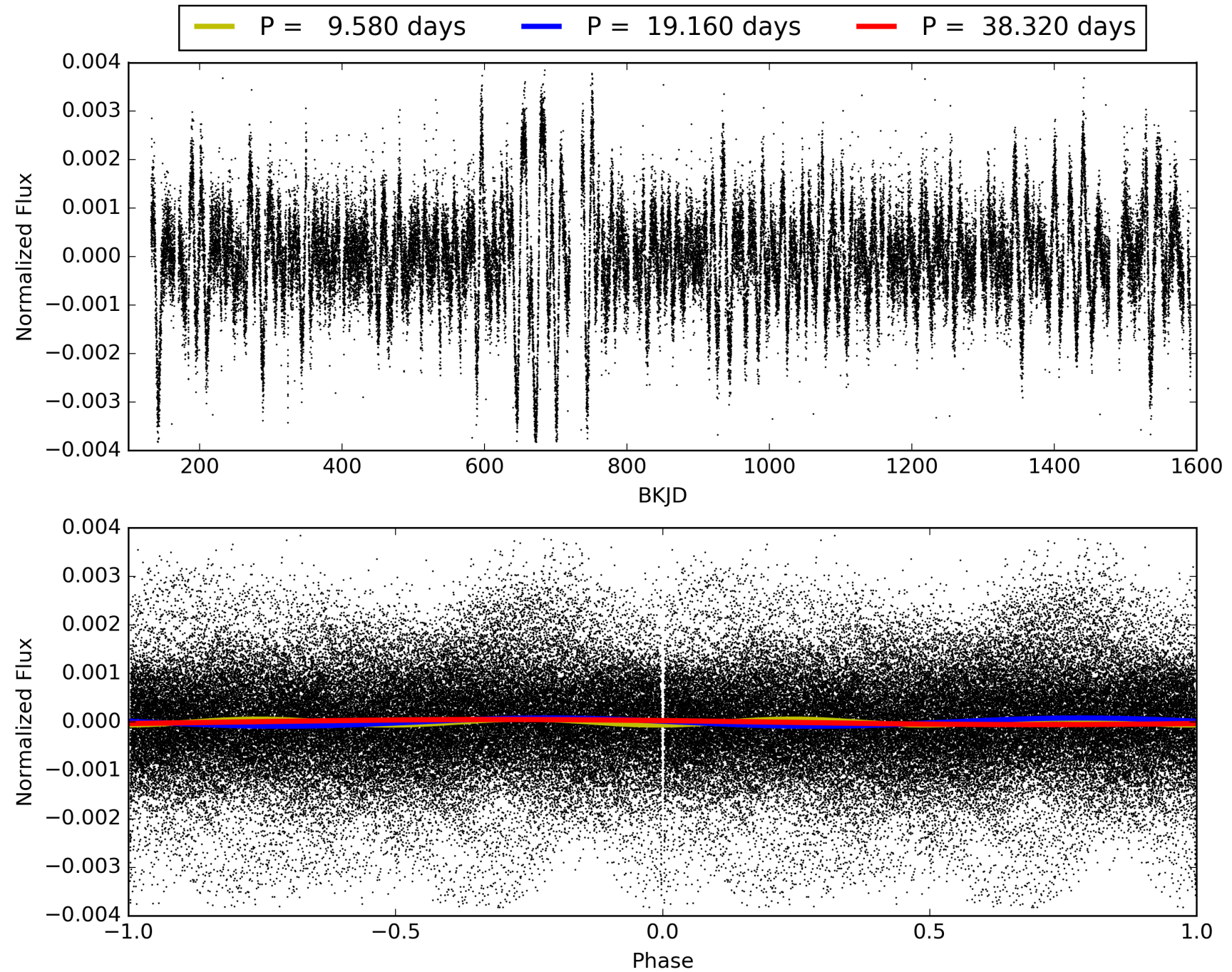
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:52:34 Z

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

# TCE 012253490-01, PDC Light Curves

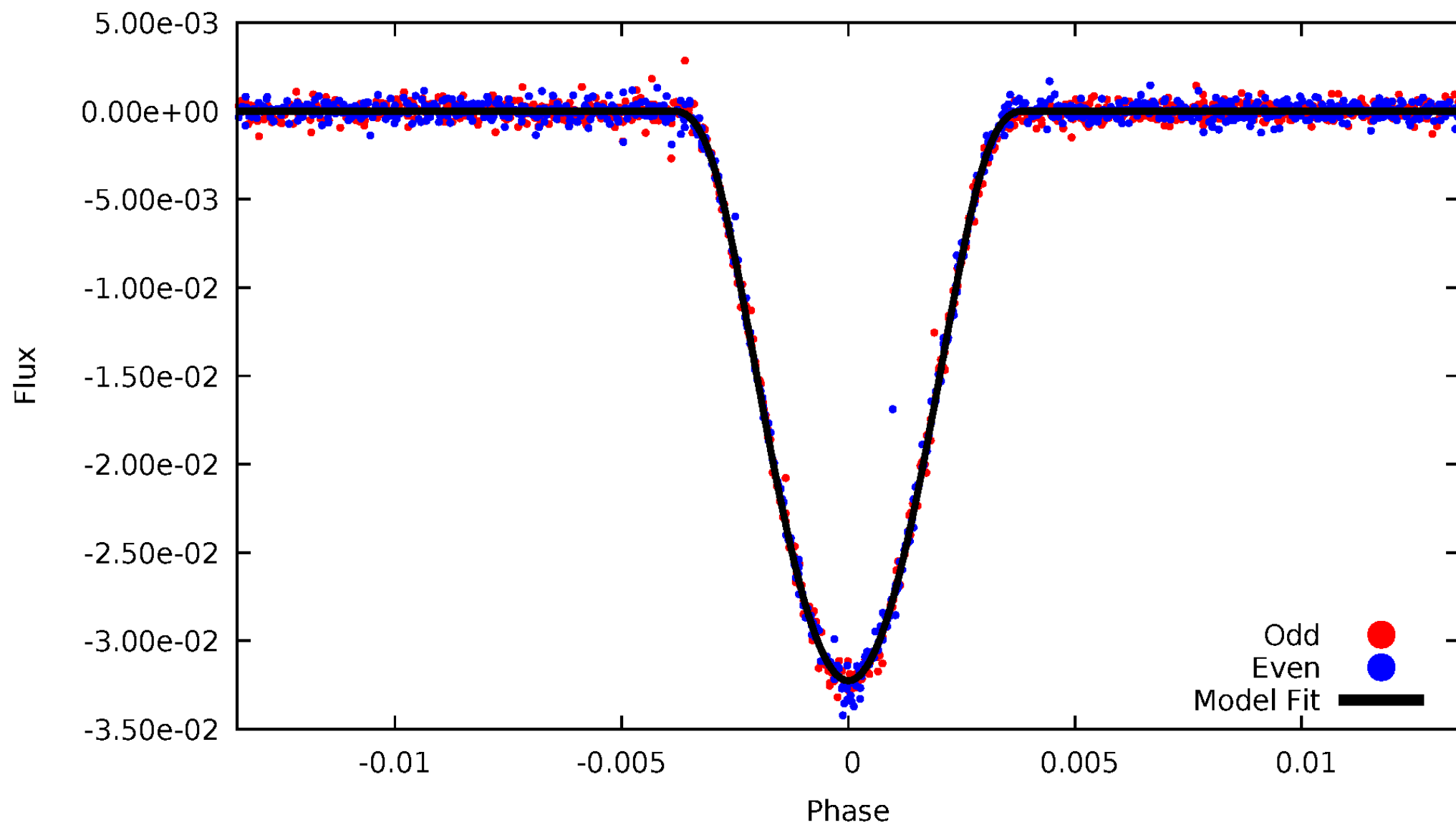


TCE 012253490-01



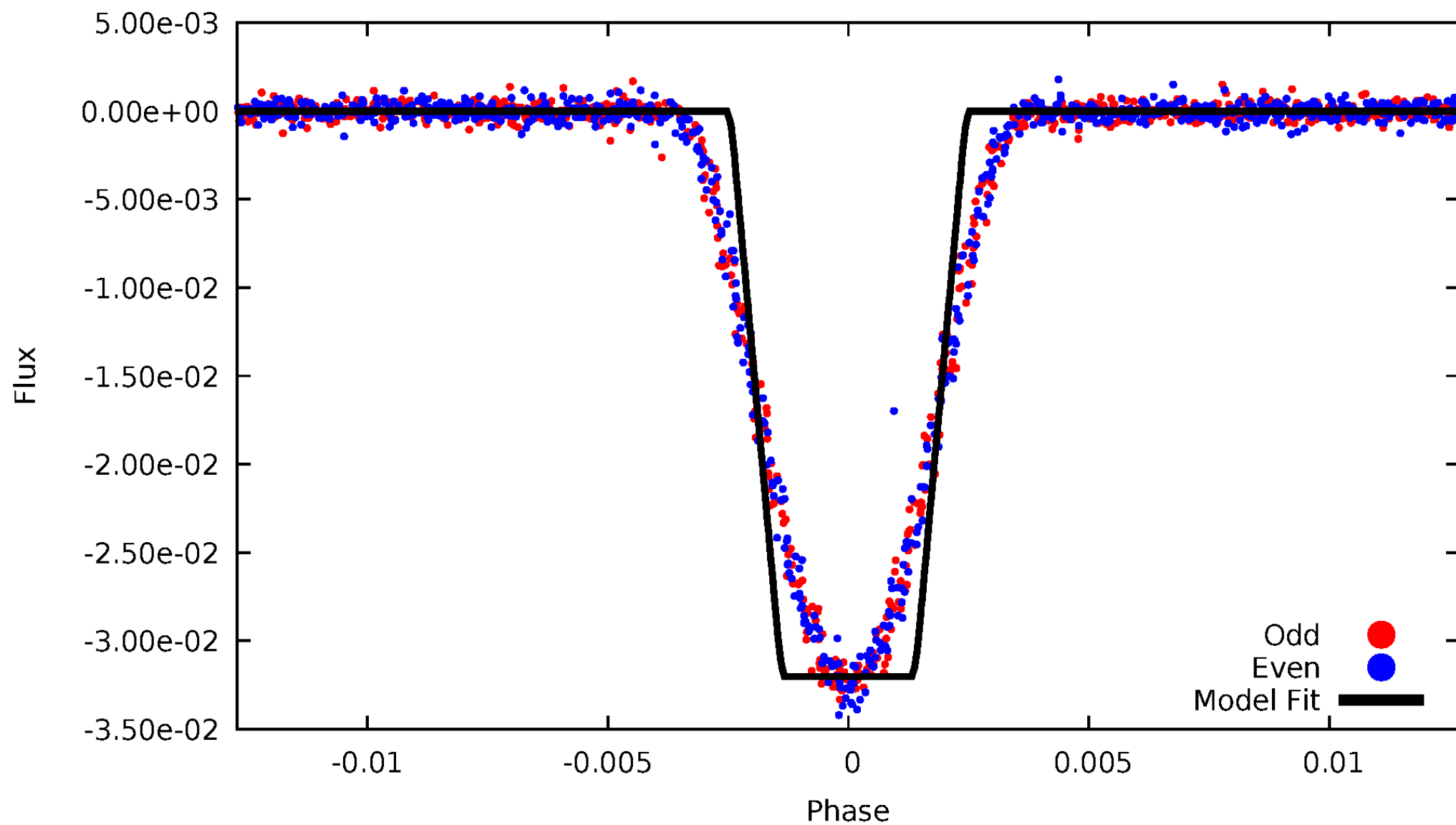
# DV Odd/Even

TCE 012253490-01



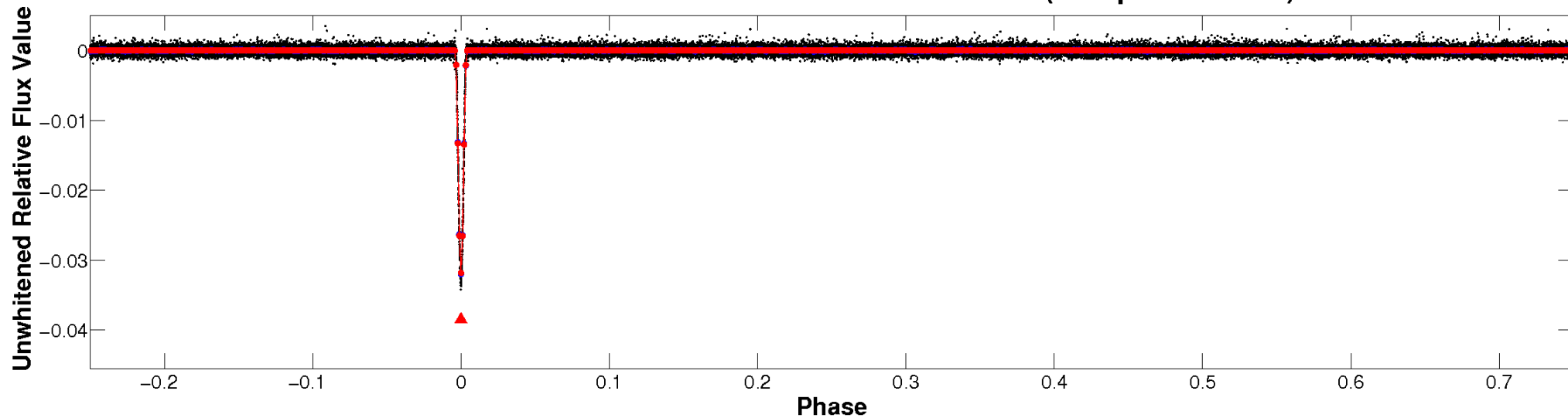
# ALT Odd/Even

TCE 012253490-01

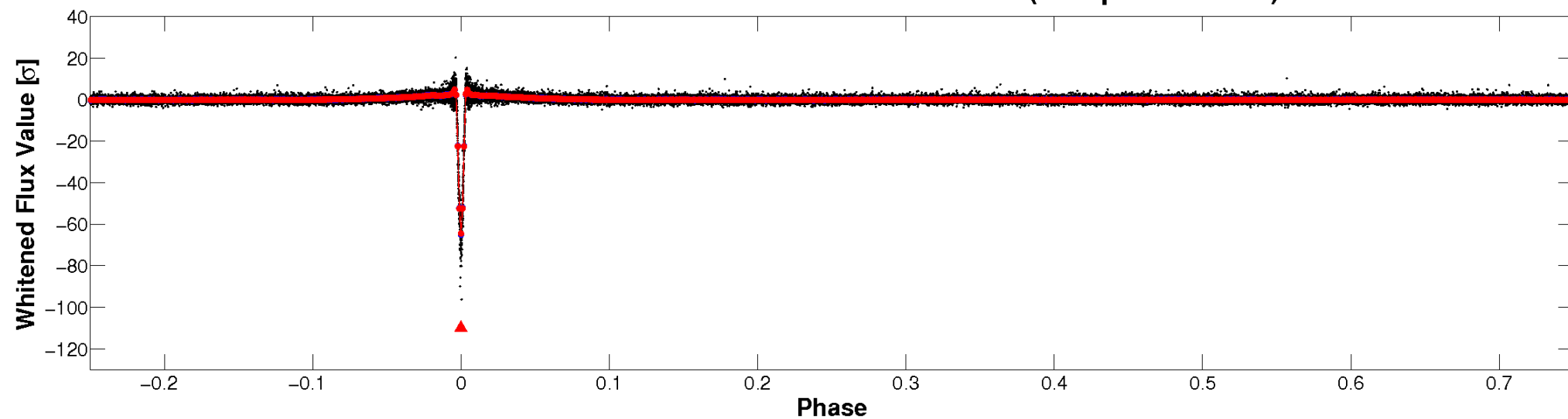


# Non-Whitened Vs. Whitened Light Curve

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

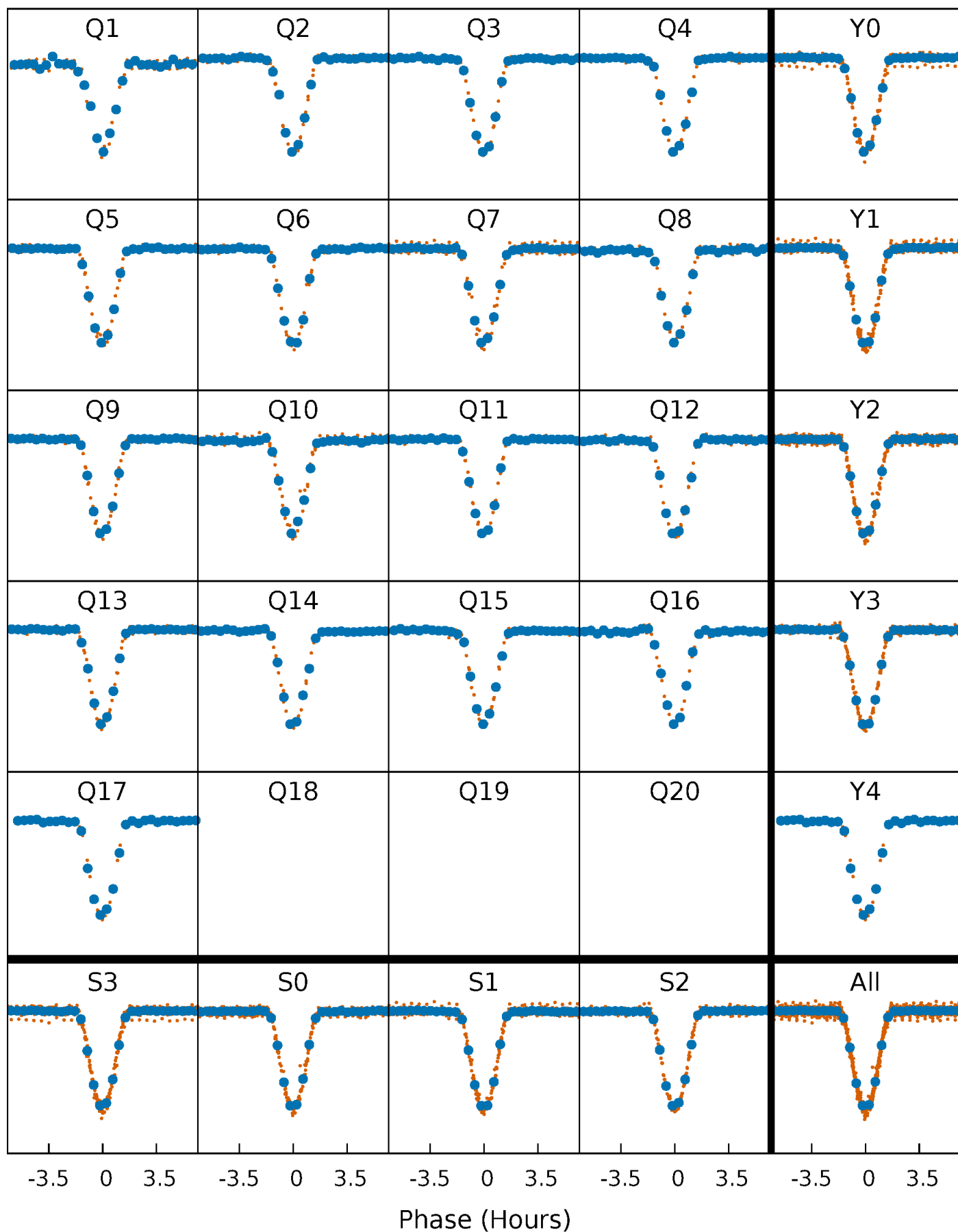


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

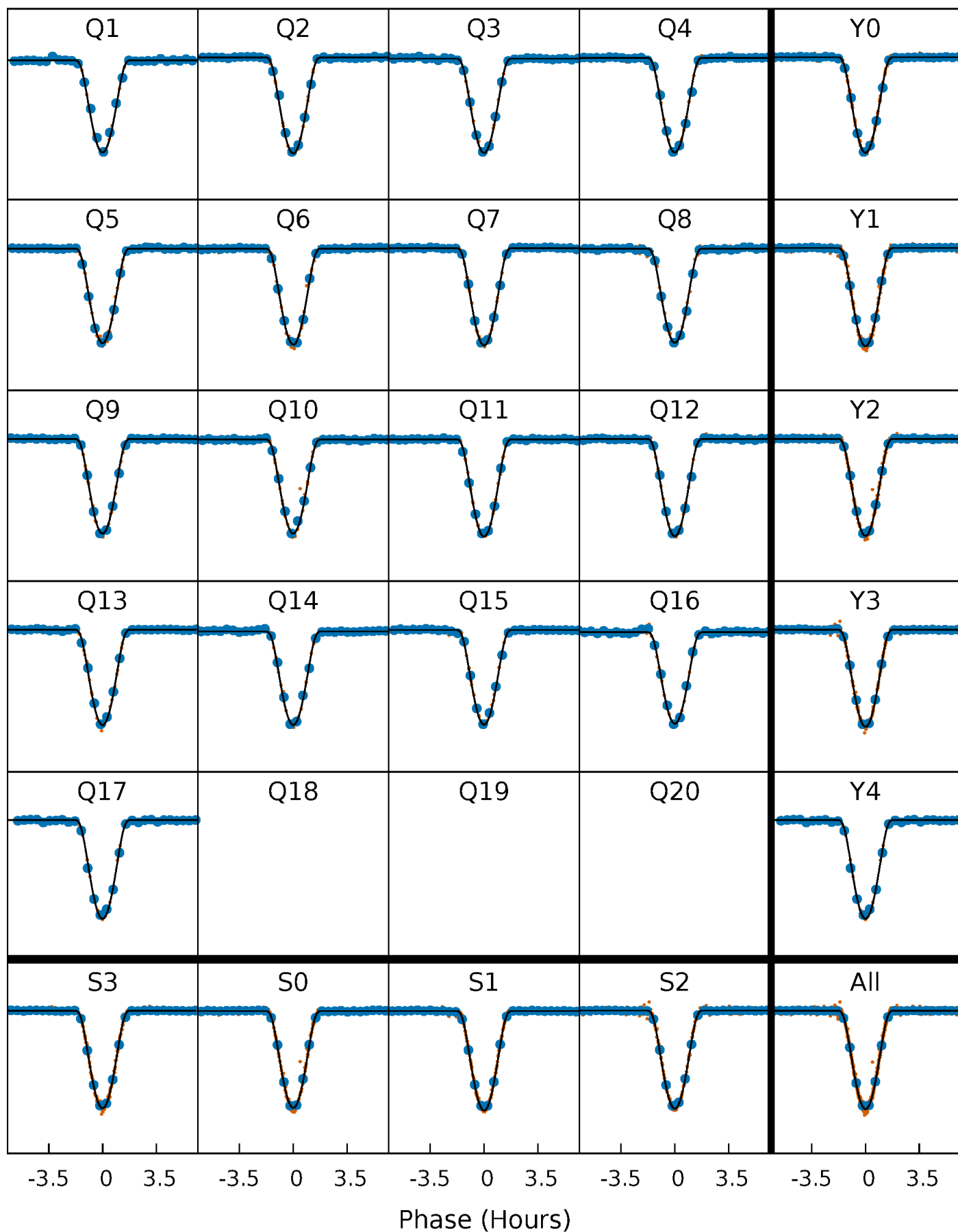
TCE 012253490-01 P= 19.159762 Days  $T_0=141.567938$  (BKJD)





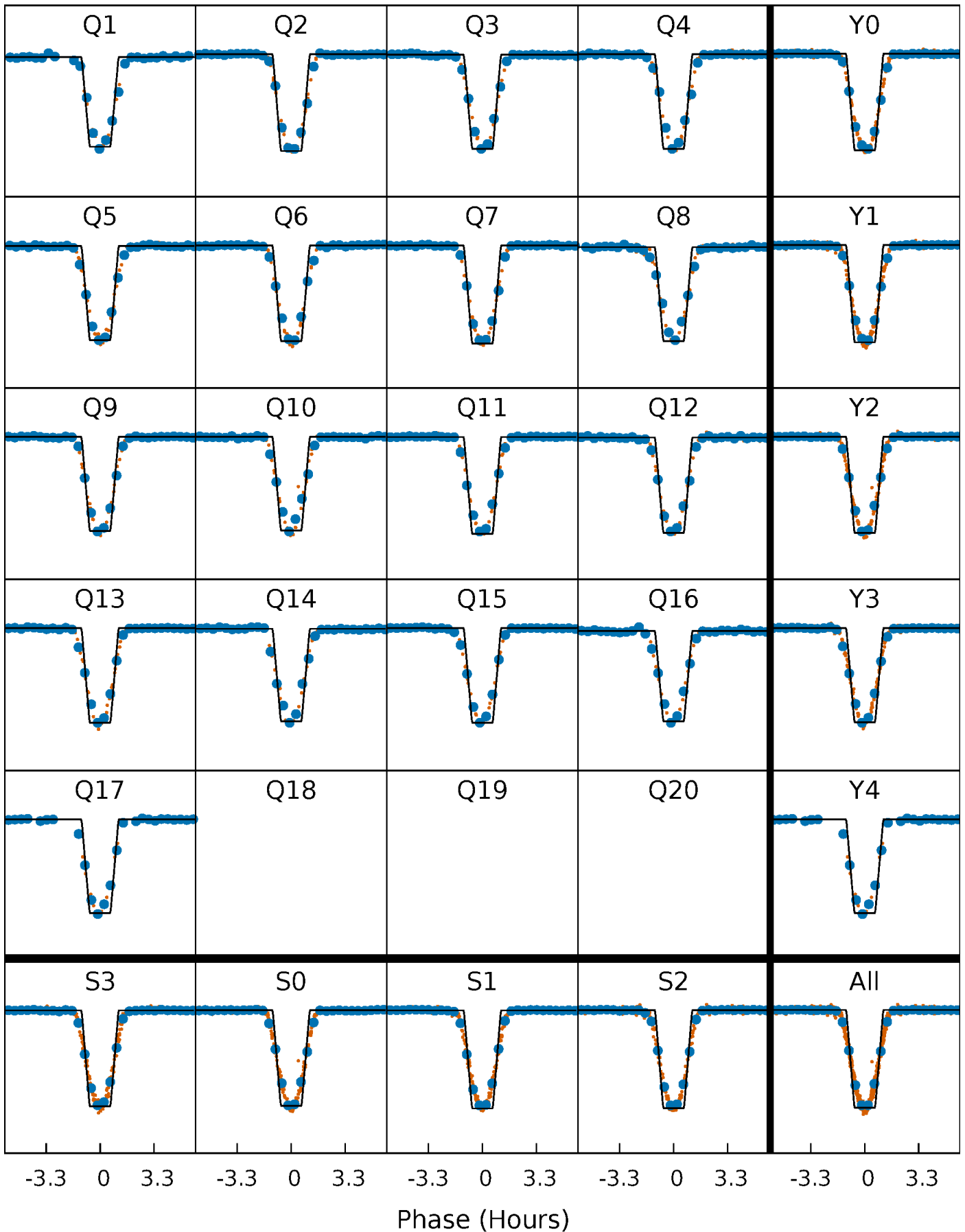
# DV Quarter-Phased Transit Curves

TCE 012253490-01 P= 19.159762 Days  $T_0=141.567938$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

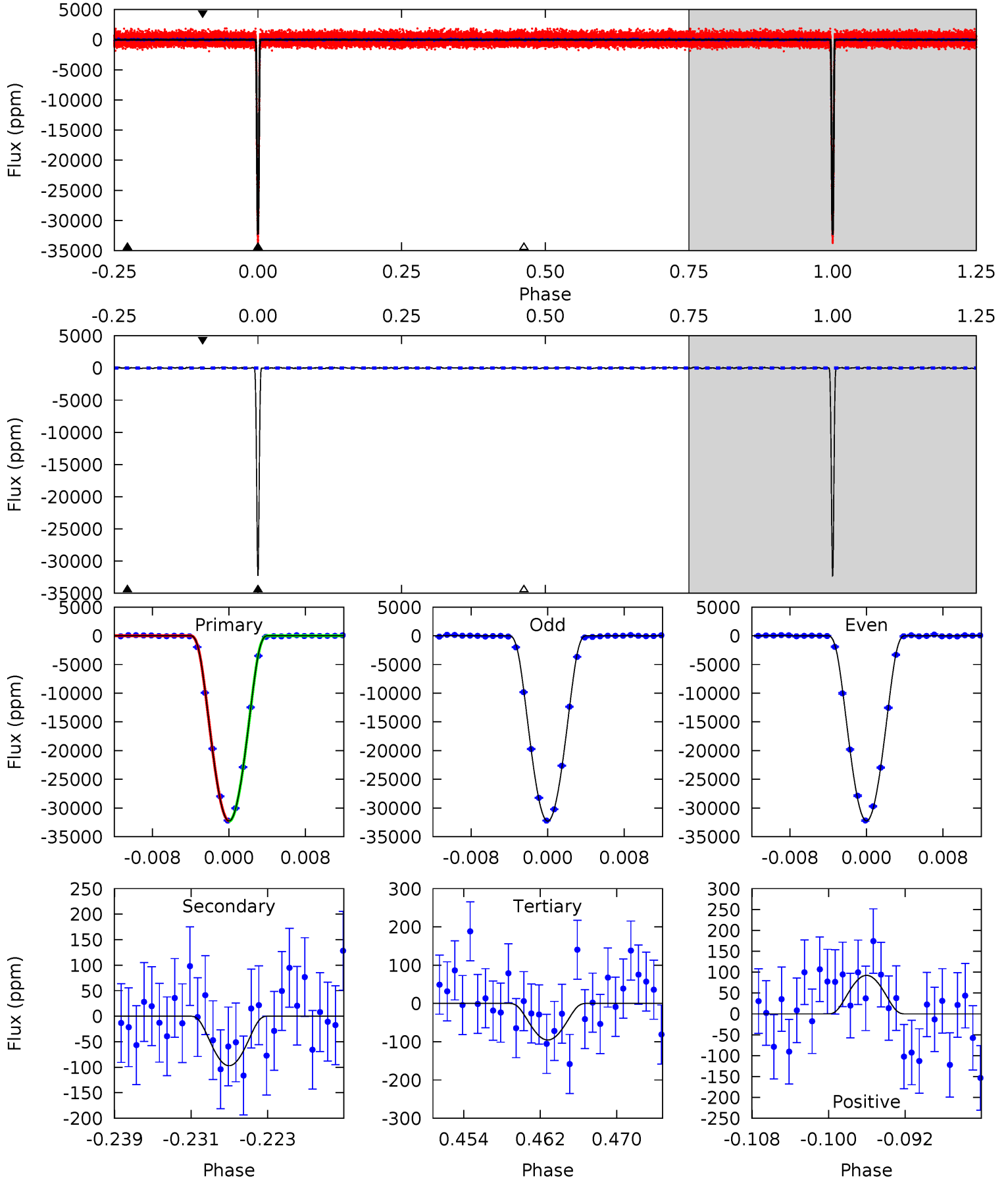
TCE 012253490-01 P= 19.159844 Days  $T_0=141.564850$  (BKJD)



# DV Model-Shift Uniqueness Test

012253490-01,  $P = 19.159762$  Days,  $E = 122.408176$  Days

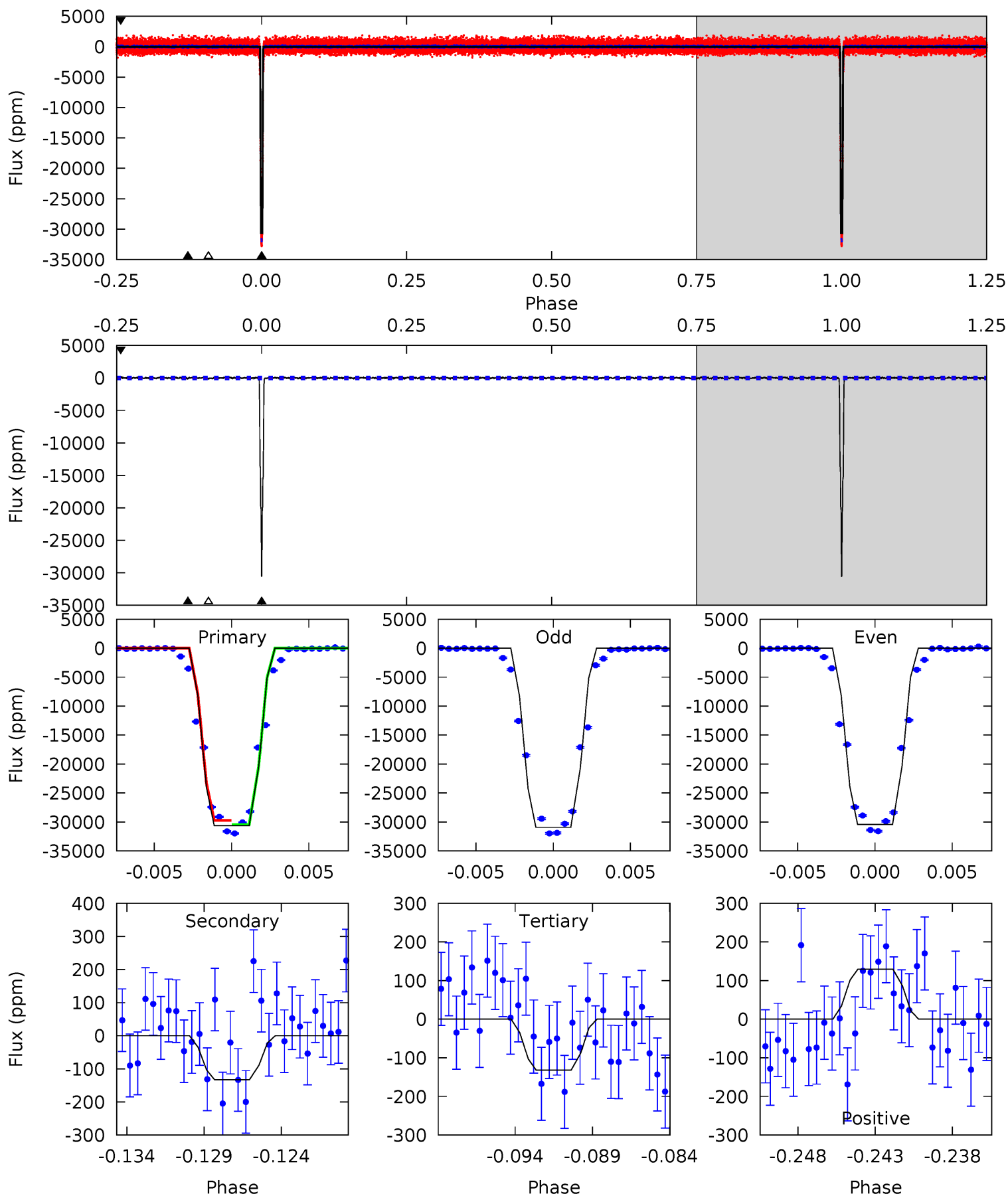
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1590	4.78	4.70	4.55	5.08	2.66	1.76	1585	1585	0.08	0.23	1.16	1.00	0.00	1.92



# Alt Model-Shift Uniqueness Test

012253490-01, P = 19.159844 Days, E = 122.405006 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
890.9	3.86	3.84	3.77	5.16	2.81	1.16	887.1	887.1	0.02	0.09	7.01	1.00	0.00	9.70



### Stellar Parameters For KIC 012253490

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4492^{+141}_{-157}$	$4.727^{+0.054}_{-0.032}$	$-1.180^{+0.300}_{-0.300}$	$0.516^{+0.036}_{-0.043}$	$0.518^{+0.036}_{-0.033}$	$5.317^{+1.235}_{-0.692}$
	+3%/-3%	+1%/-1%	+25%/-25%	+7%/-8%	+7%/-6%	+23%/-13%
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 012253490-01 / KOI 5961.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-97 \pm 20$	$14.37^{+0.99}_{-1.05}$	$590^{+21}_{-22}$	$1851^{+57}_{-58}$	$3.257^{+0.940}_{-0.779}$
Alt.	$-133 \pm 34$	$9.96^{+1.03}_{-0.92}$	$590^{+22}_{-23}$	$2075^{+76}_{-83}$	$9.600^{+3.154}_{-2.731}$

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

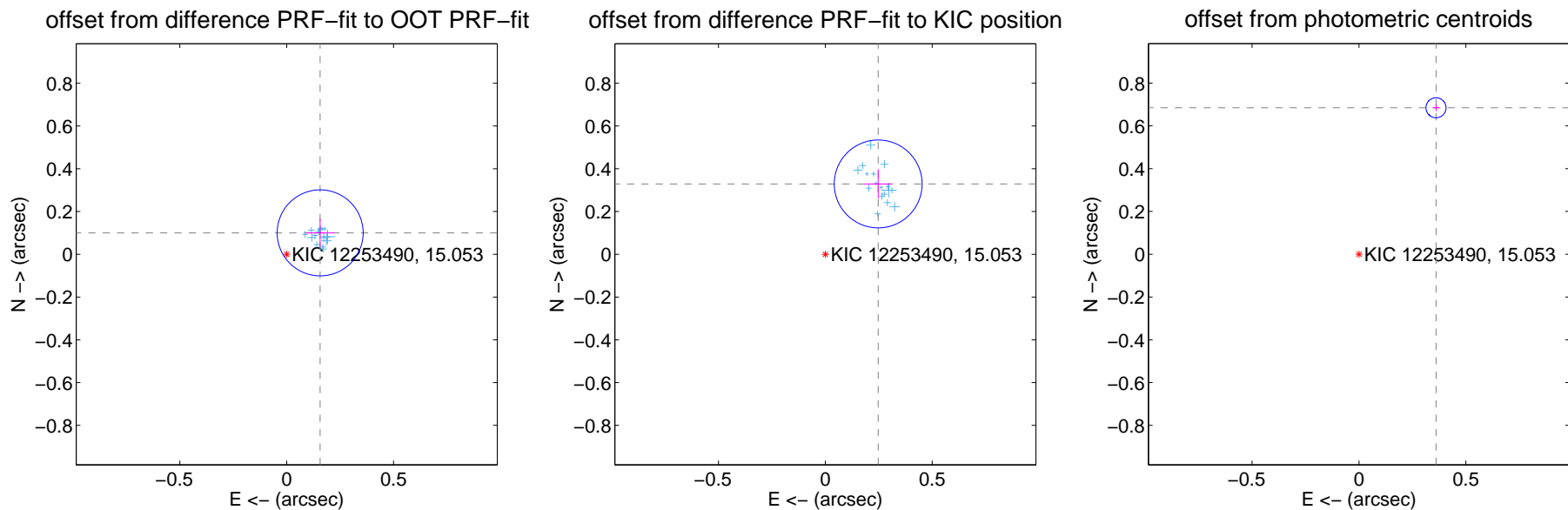
## DV Centroid Data

Supplemental centroid analysis for 012253490-01. Kepler magnitude: 15.05. Transit SNR 820.60

There are 17 quarters with good PRF difference image offsets

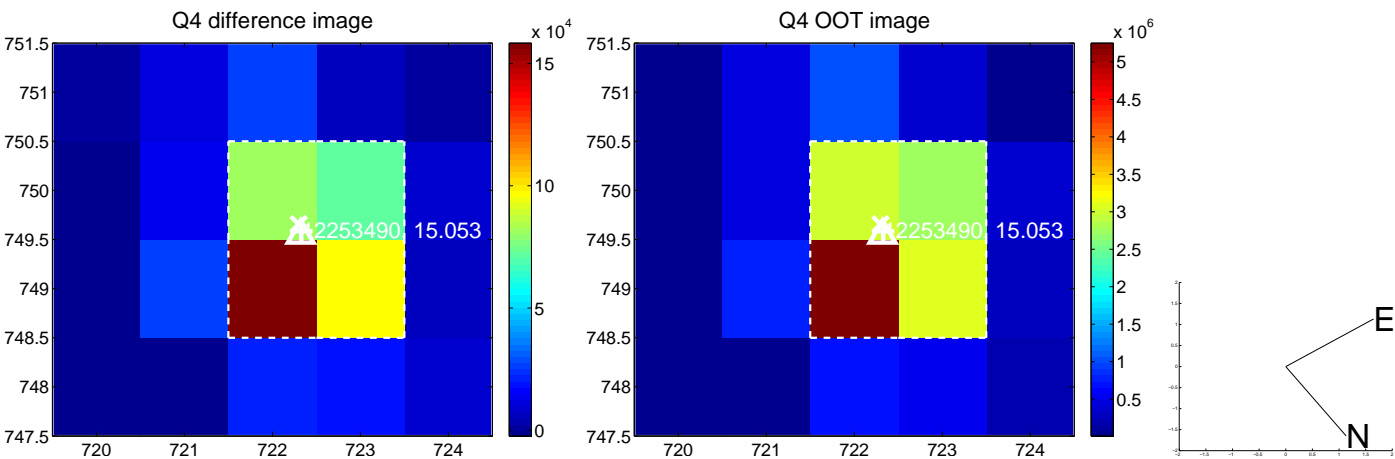
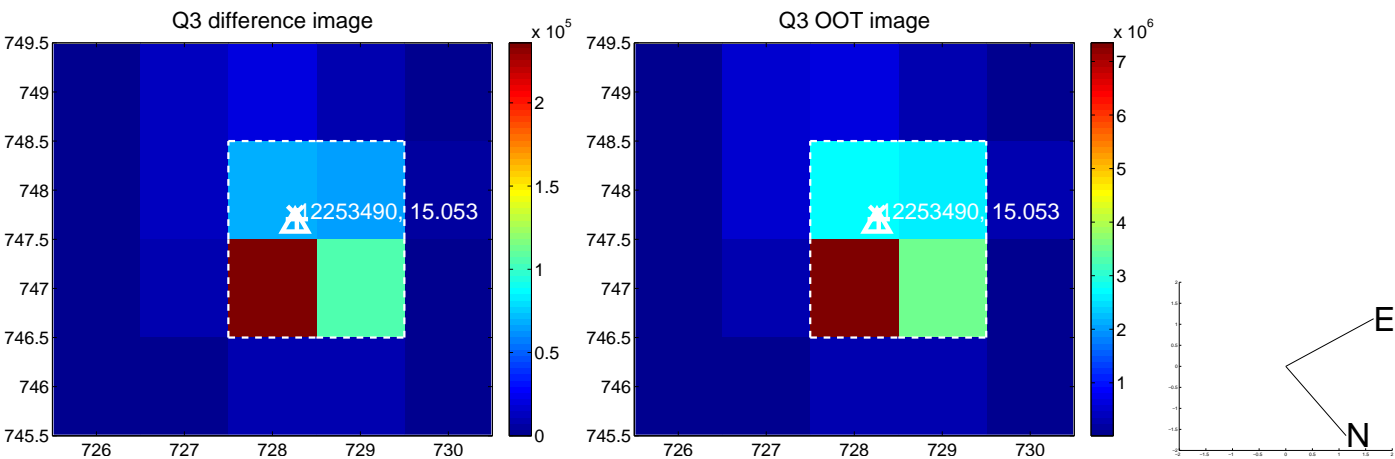
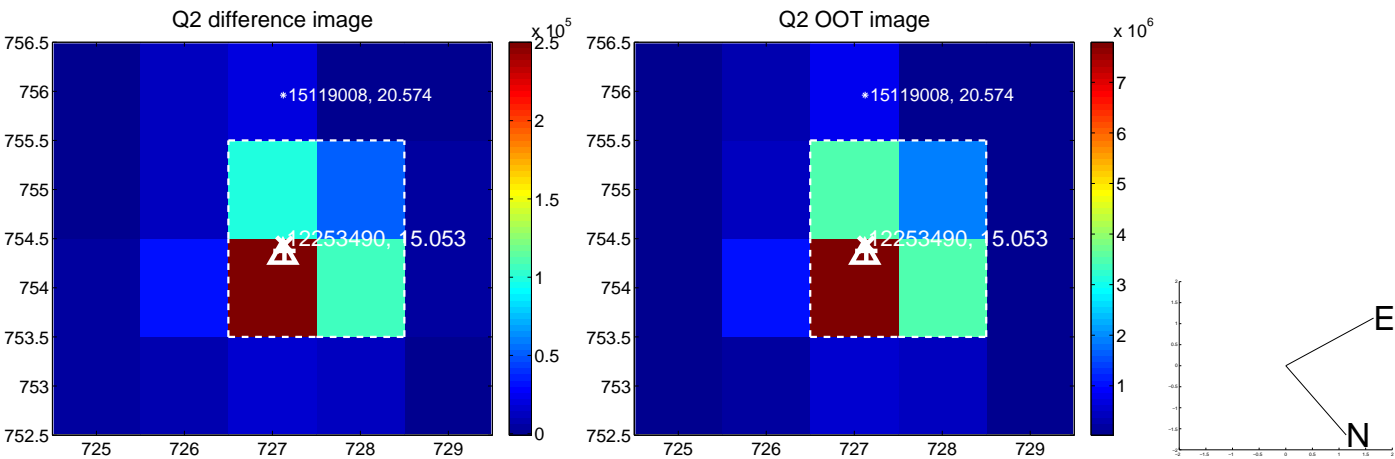
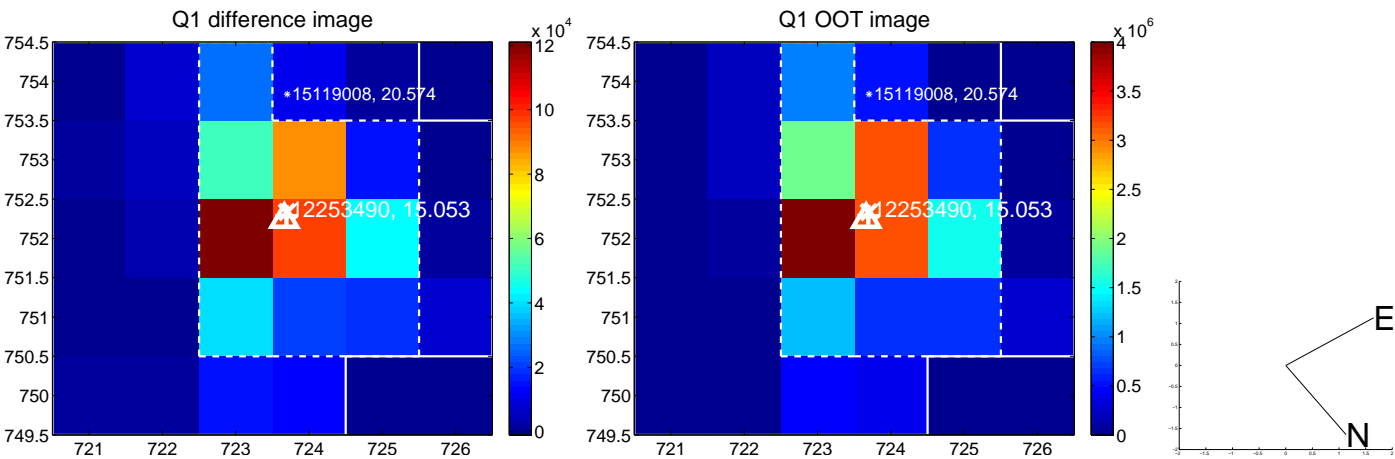
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.186 \pm 0.067$	2.77	$-0.157 \pm 0.067$	$0.100 \pm 0.067$
PRF-fit source offset from KIC position	$0.412 \pm 0.069$	6.01	$-0.247 \pm 0.068$	$0.329 \pm 0.069$
photometric centroid source offset	$0.77 \pm 0.02$	49.56	$-0.36 \pm 0.02$	$0.68 \pm 0.02$

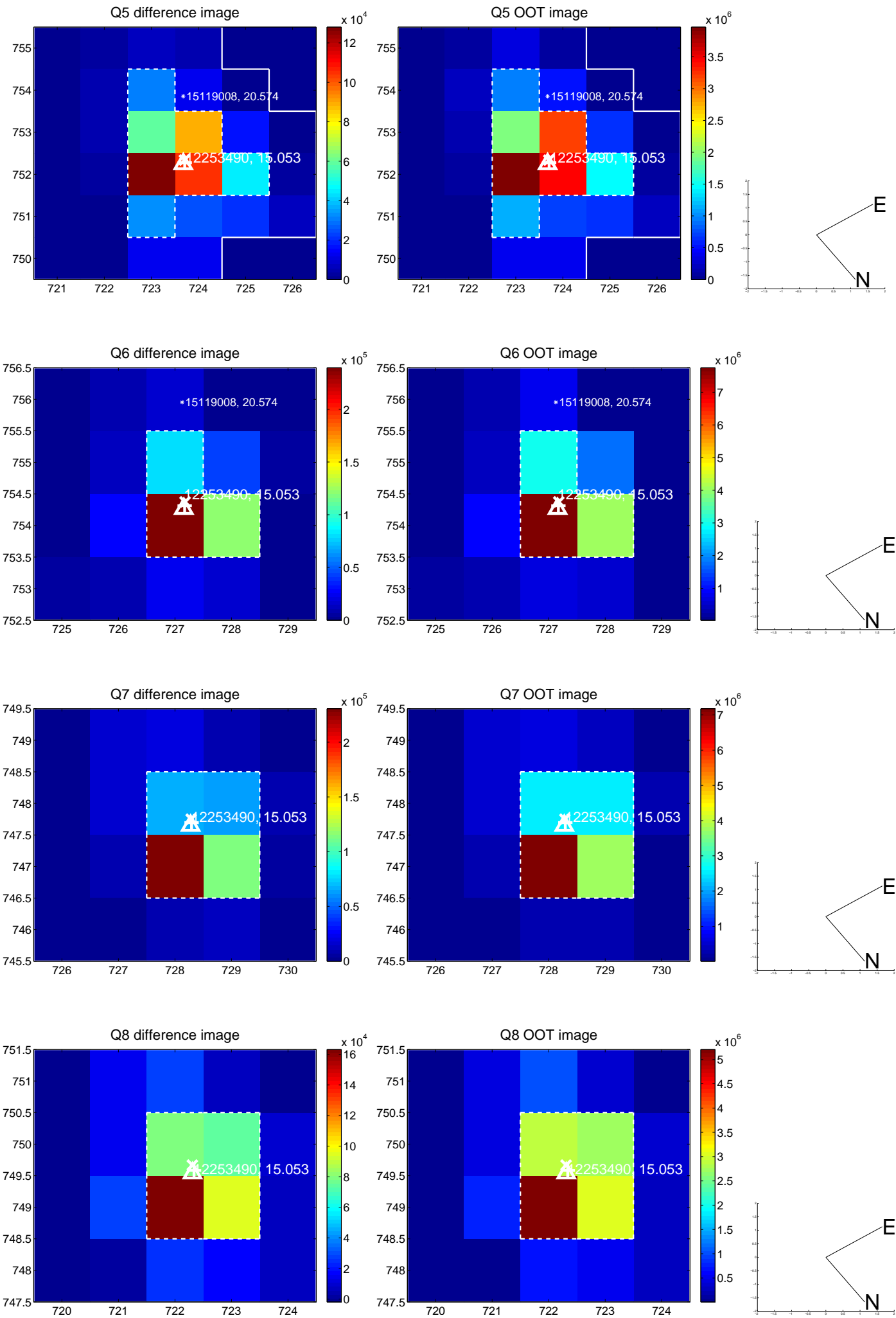


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

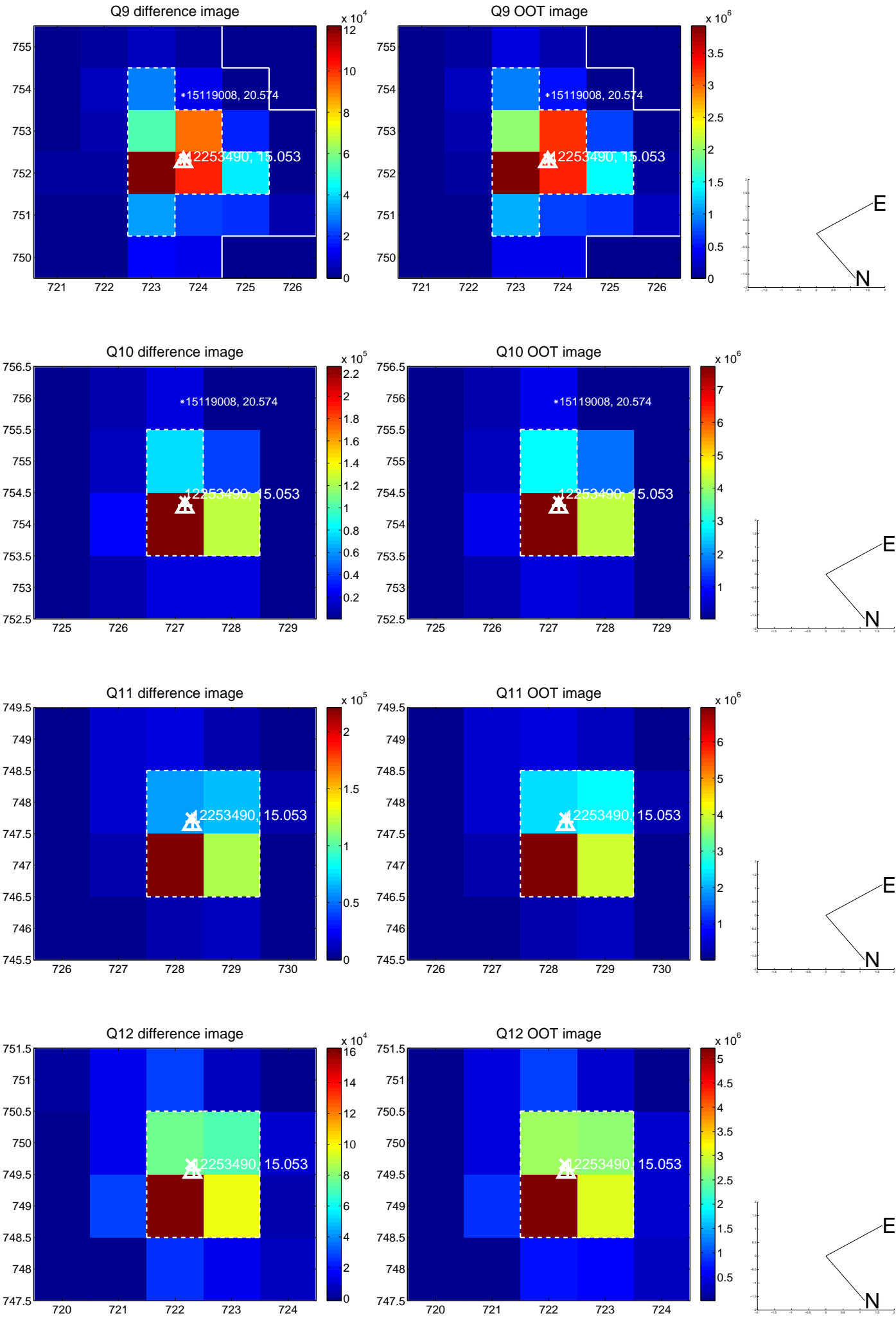


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

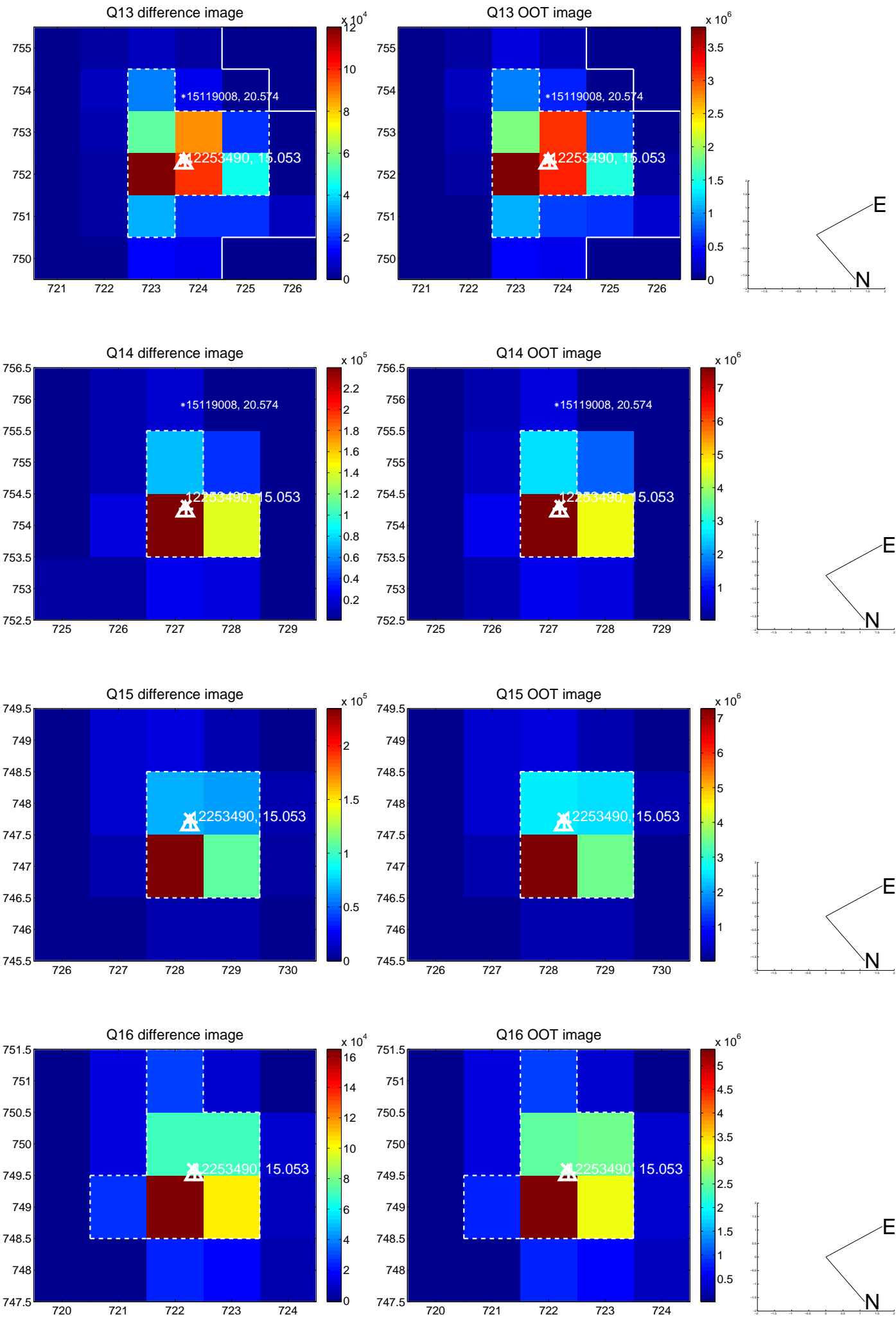




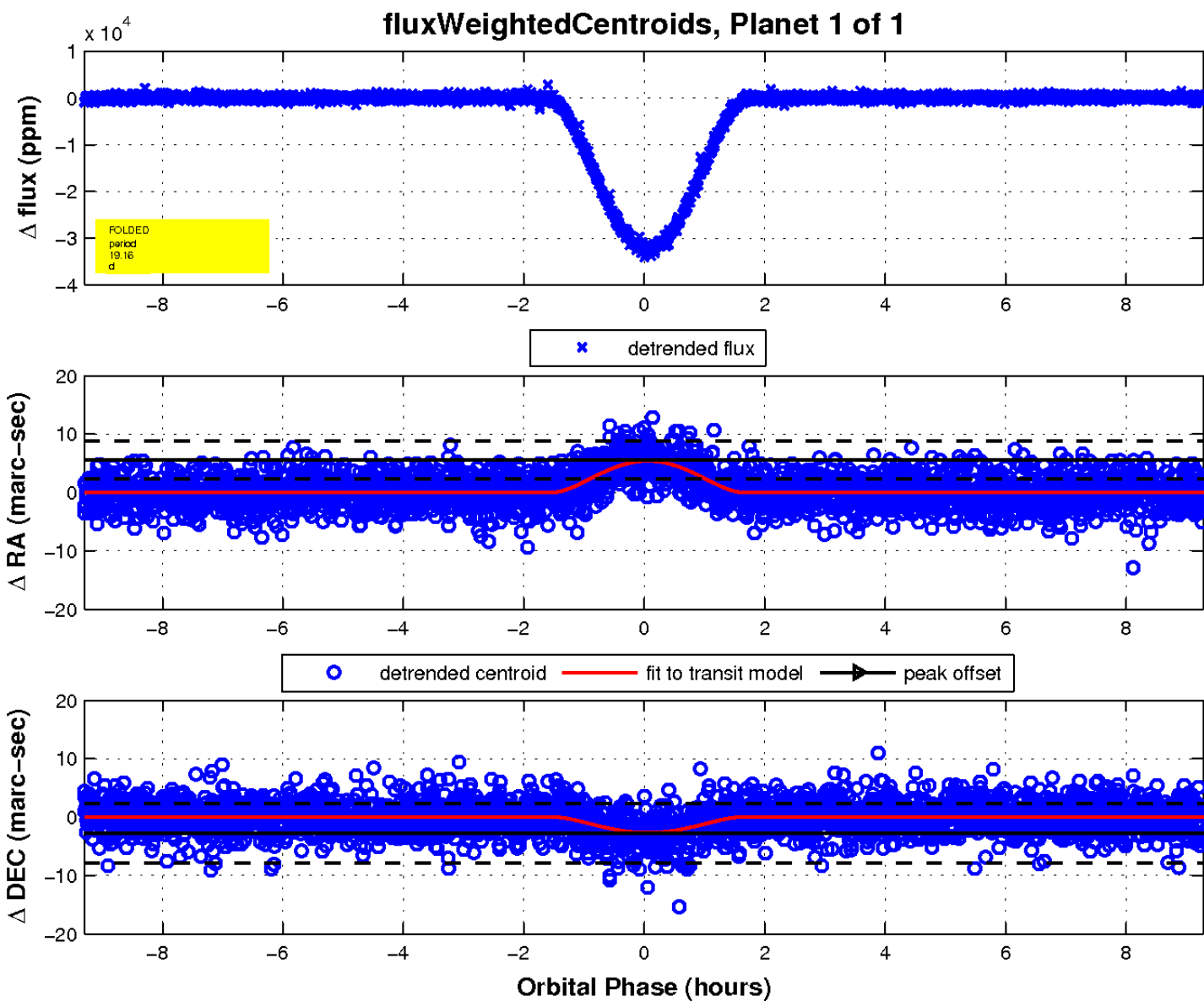
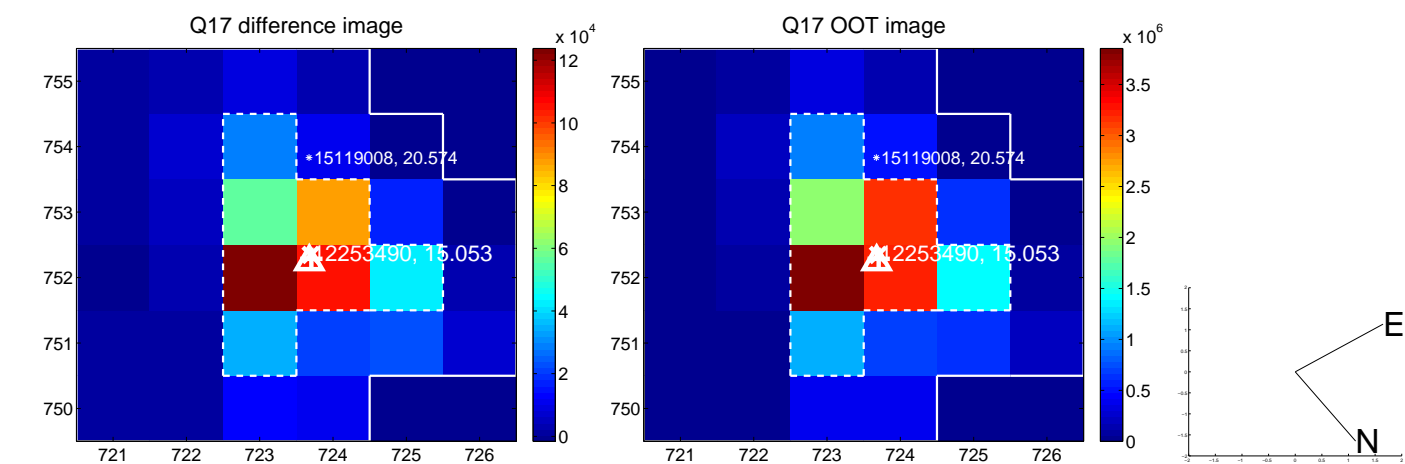
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

