

# KIC 010157573

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010157573-01	OBS	0726.01	5.115743	132.341278	1028.2	2.478	49.8	56.3	1.10	6398	5.34	493.99

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010157573-01	OBS	PC	0.76	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.

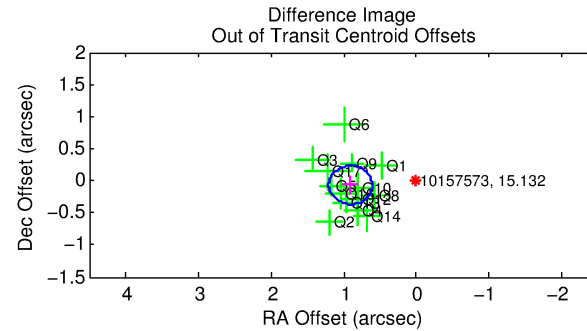
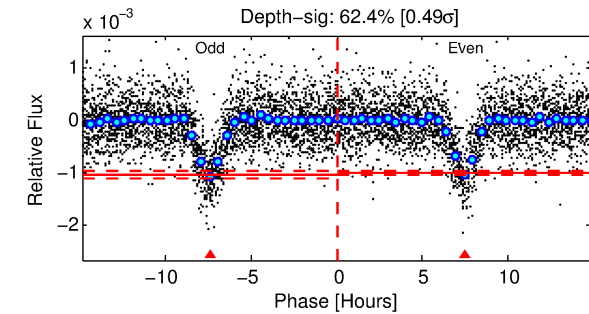
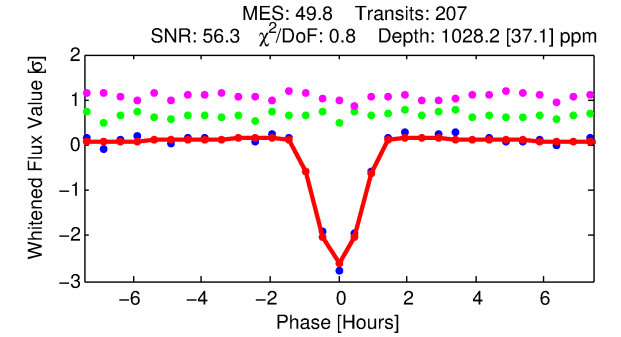
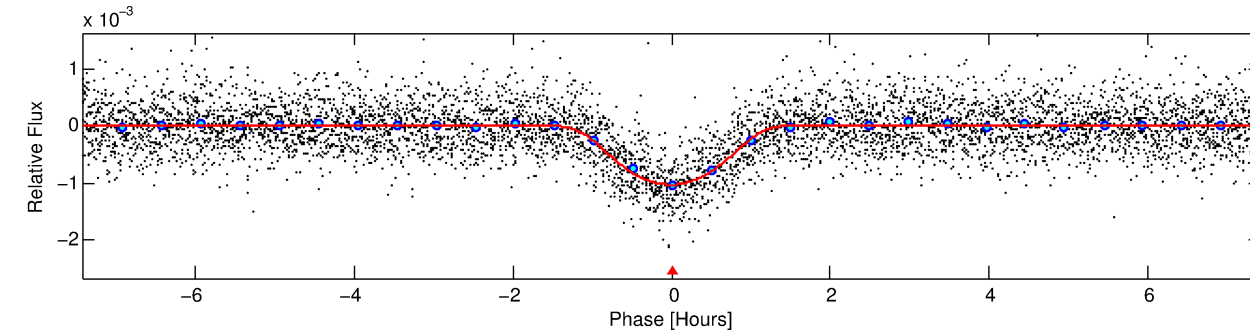
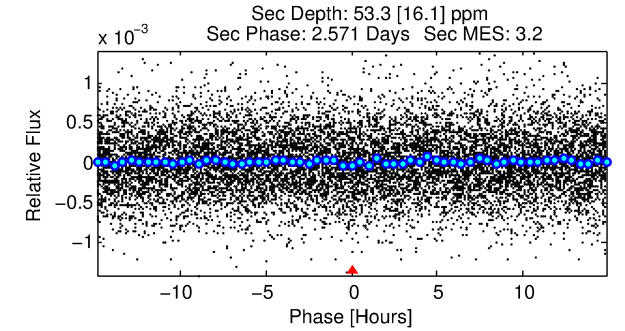
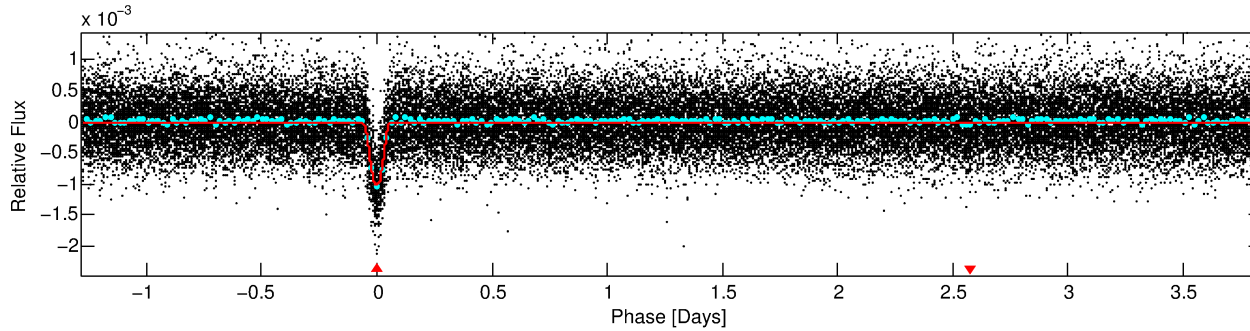
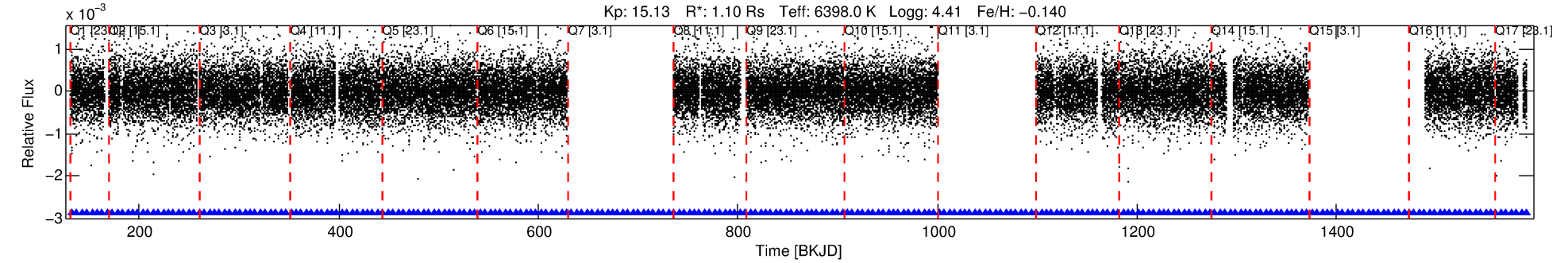
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010157573-01

No Significant Match Found

# DV One-Page Summary

KIC: 10157573 Candidate: 1 of 1 Period: 5.116 d  
KOI: K00726.01 Corr: 0.989



## DV Fit Results:

Period = 5.11574 [0.00001] d  
Epoch = 132.3413 [0.0009] BKJD  
Rp/R\* = 0.0444 [0.0146]  
a/R\* = 5.76 [0.73]  
b = 0.98 [0.03]  
Seff = 493.99 [201.09]  
Teq = 1202 [122] K  
Rp = 5.34 [2.43] Re  
a = 0.0607 [0.0160] AU  
Ag = 3.79 [3.10] [0.90σ]  
Teffp = 2594 [477] K [2.83σ]

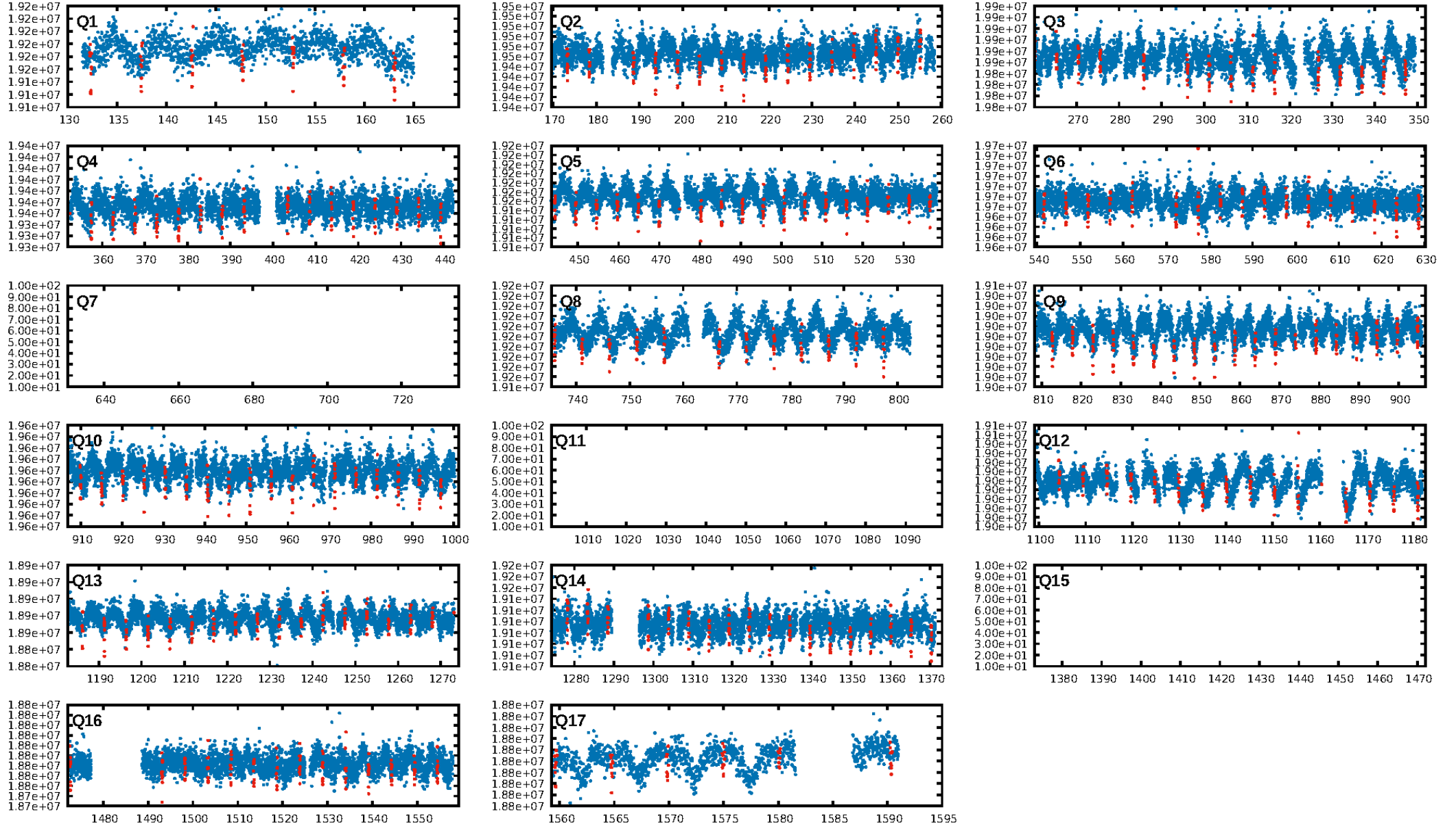
## DV Diagnostic Results:

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 [194/194]  
GhostDiagnostic-chr: 7.009  
Centroid-sig: 0.0%  
Centroid-so: 0.943 arcsec [3.67σ]  
OotOffset-rm: 0.911 arcsec [9.12σ]  
KicOffset-rm: 0.956 arcsec [10.07σ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

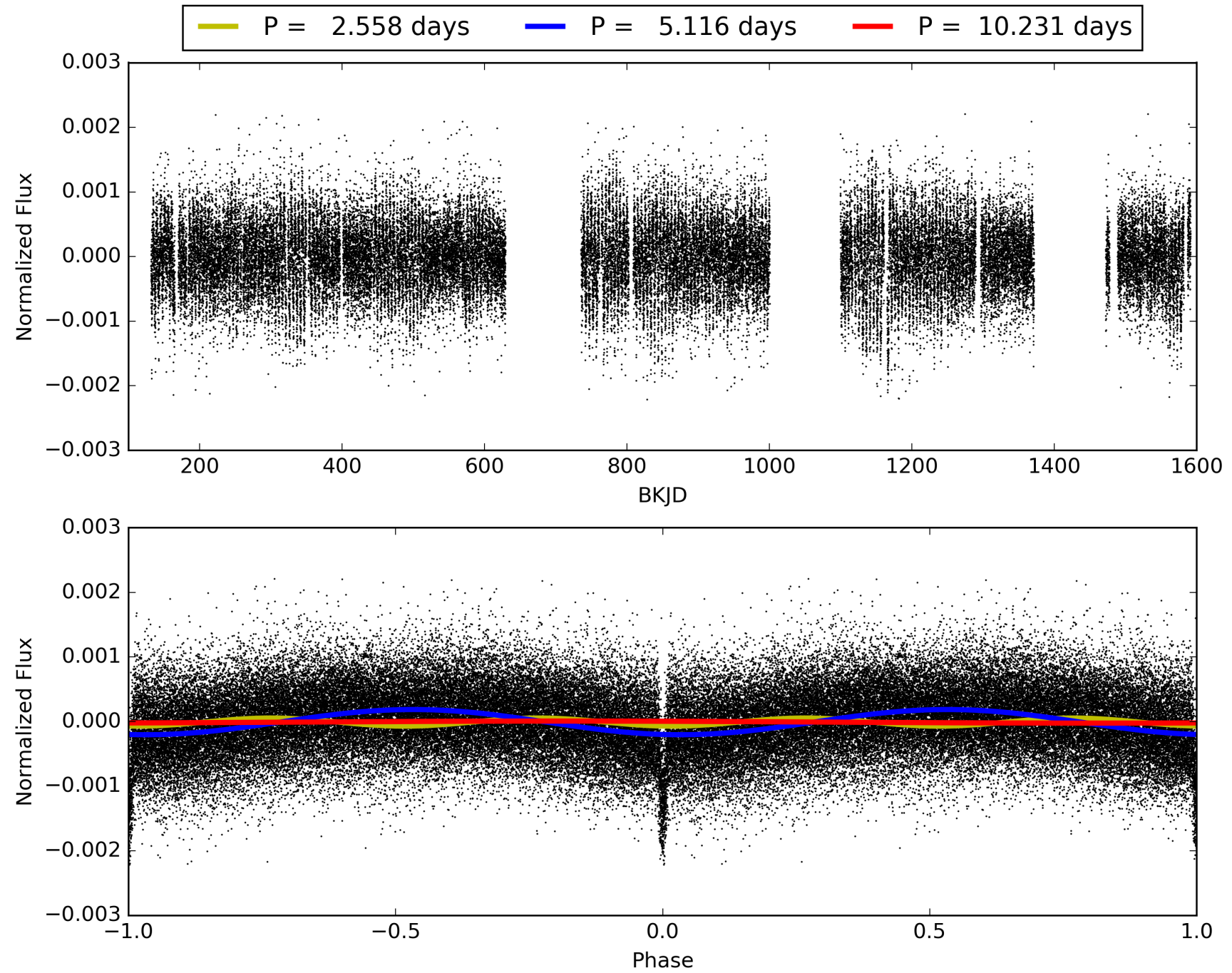
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:47:11 Z

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

# TCE 010157573-01, PDC Light Curves

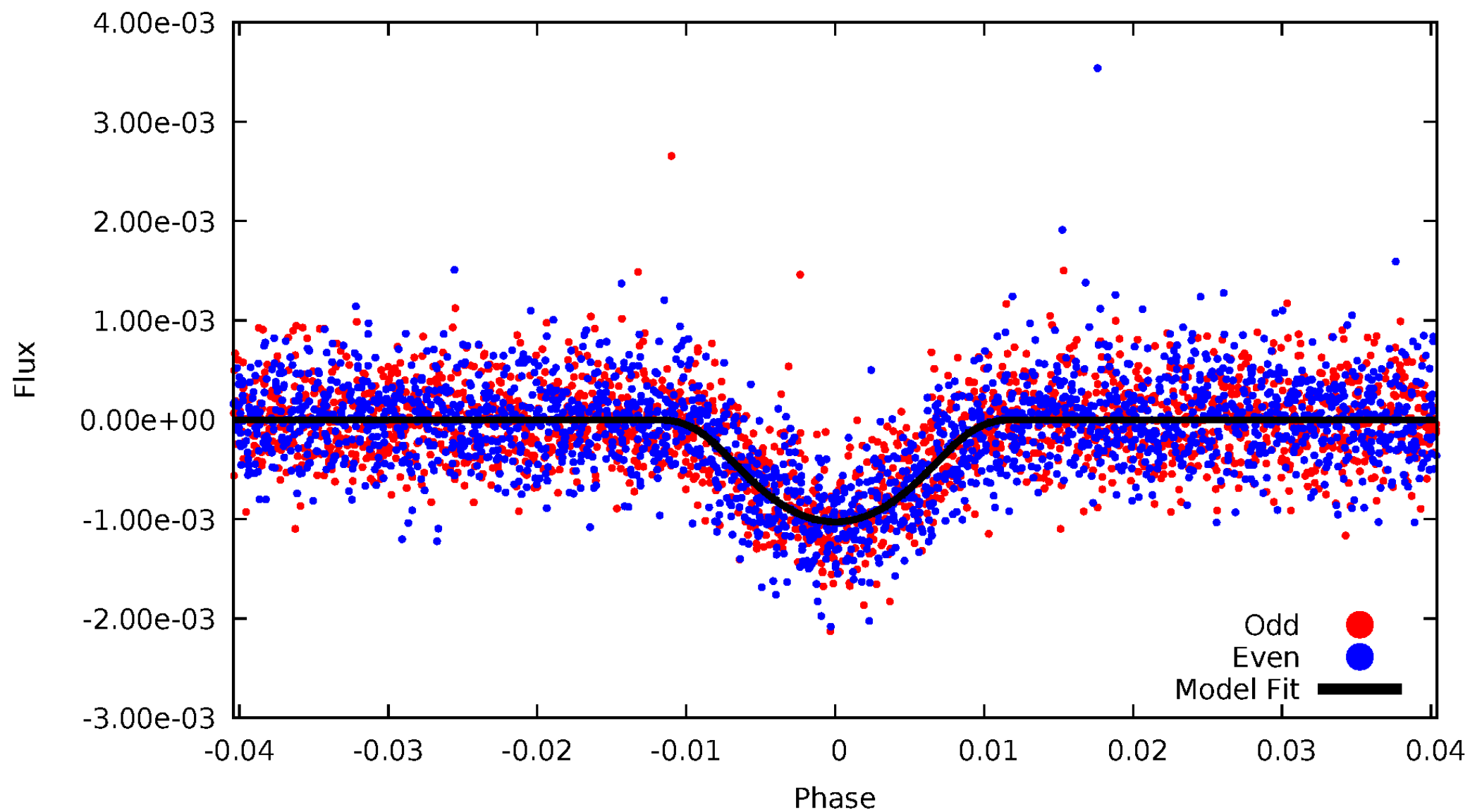


# TCE 010157573-01



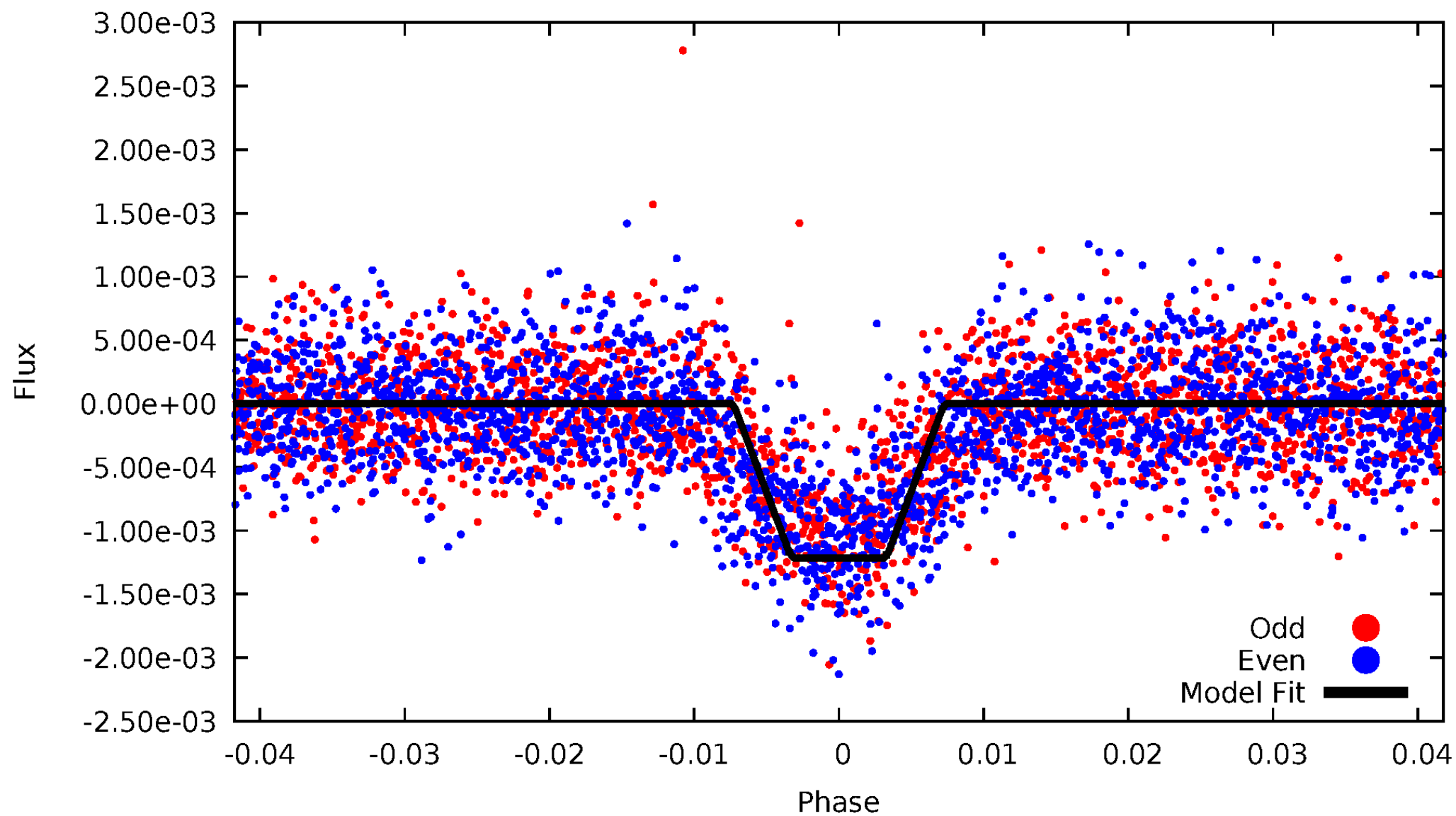
# DV Odd/Even

TCE 010157573-01



# ALT Odd/Even

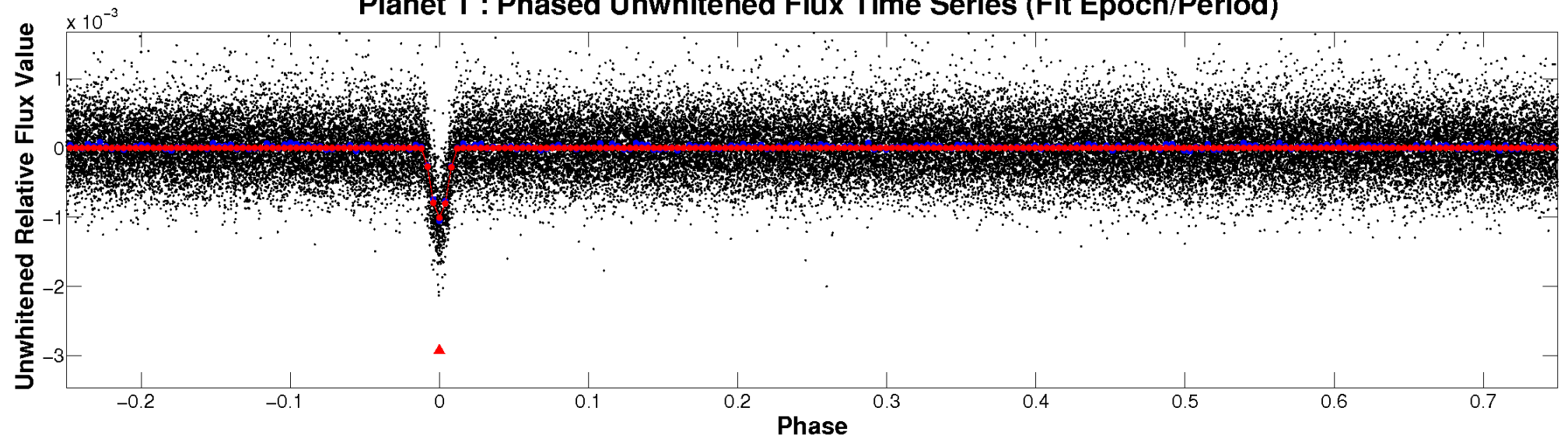
TCE 010157573-01



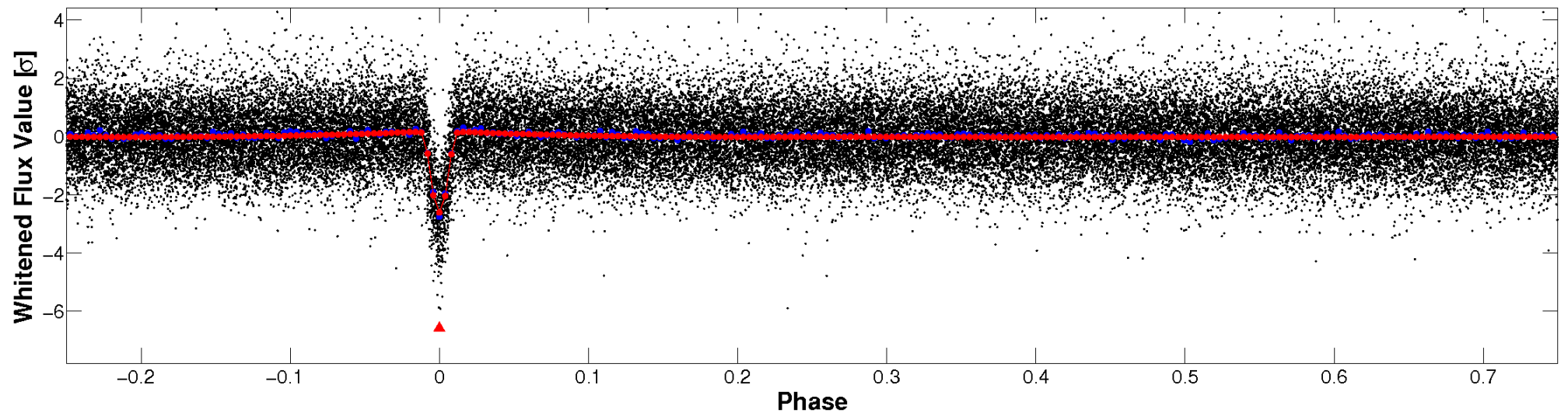


# Non-Whitened Vs. Whitened Light Curve

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

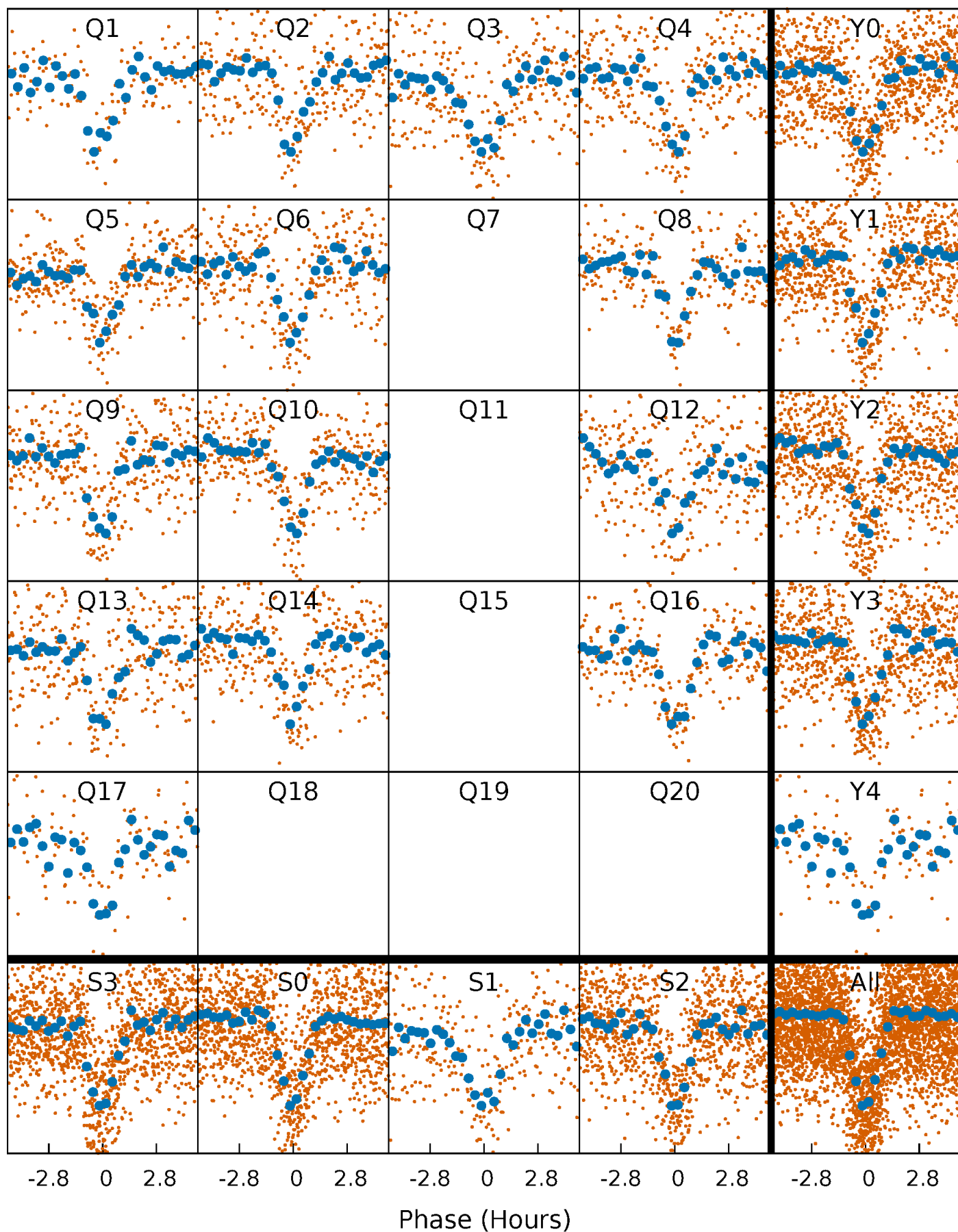


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

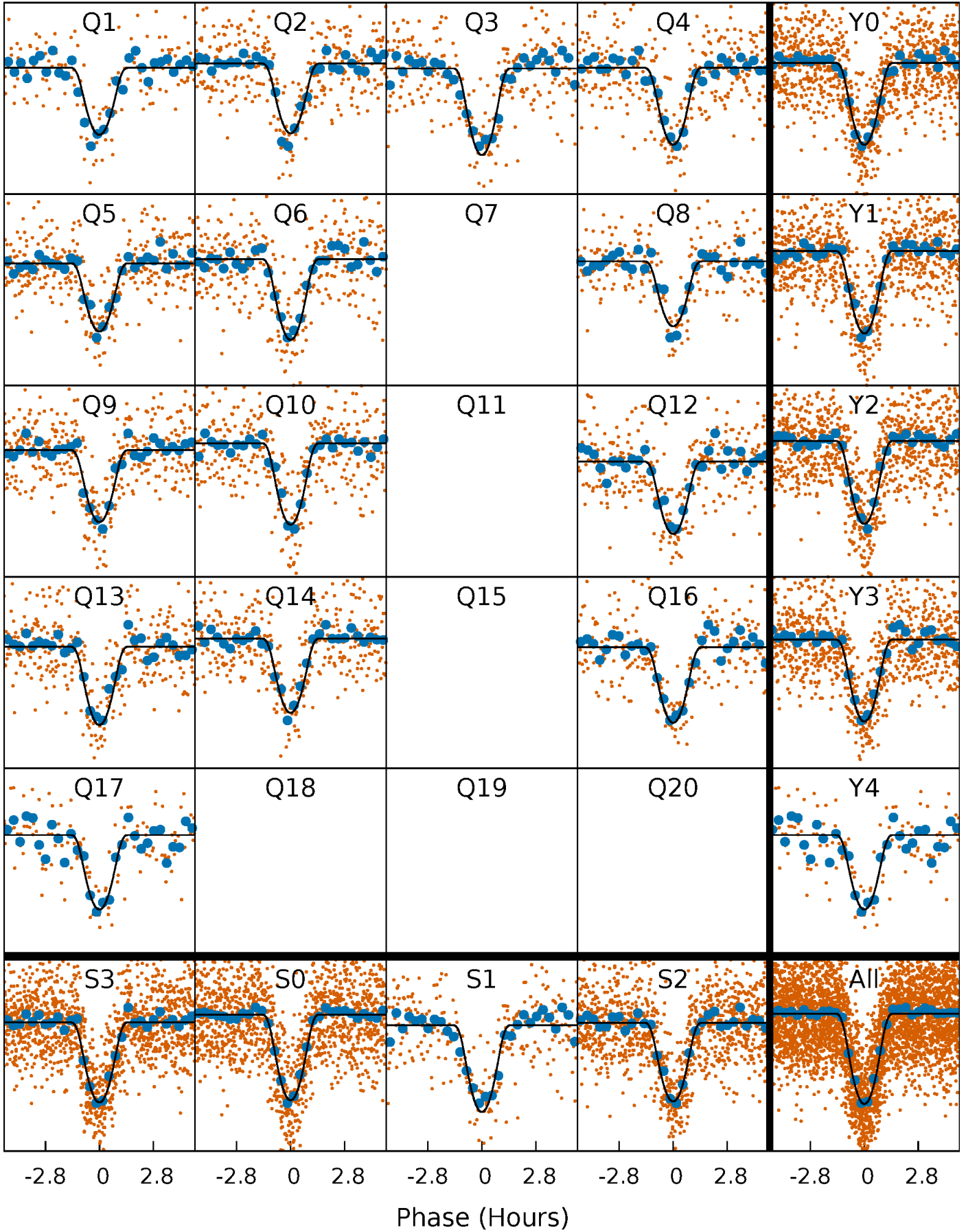
TCE 010157573-01 P= 5.115743 Days  $T_0=132.341277$  (BKJD)





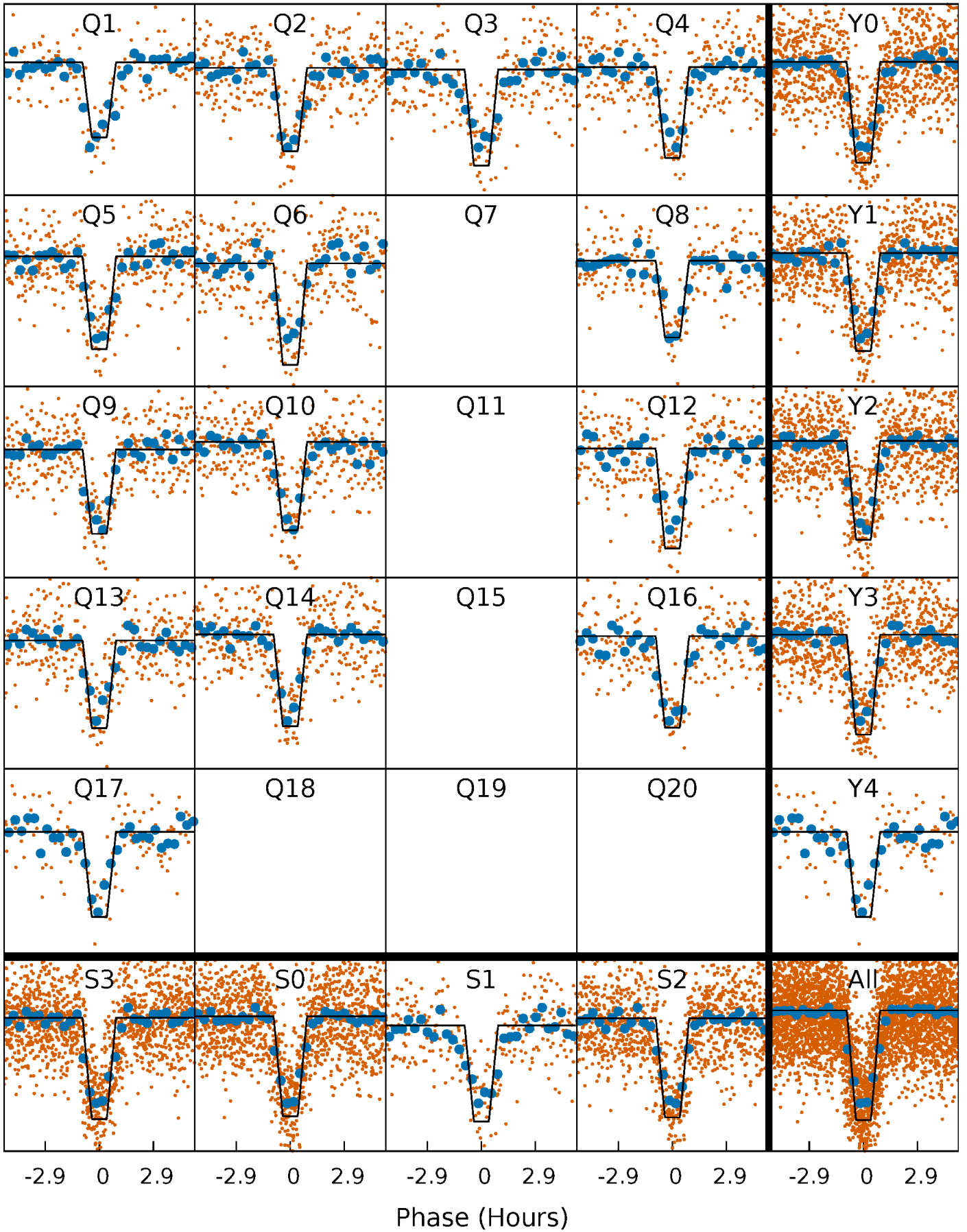
# DV Quarter-Phased Transit Curves

TCE 010157573-01 P= 5.115743 Days  $T_0=132.341277$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

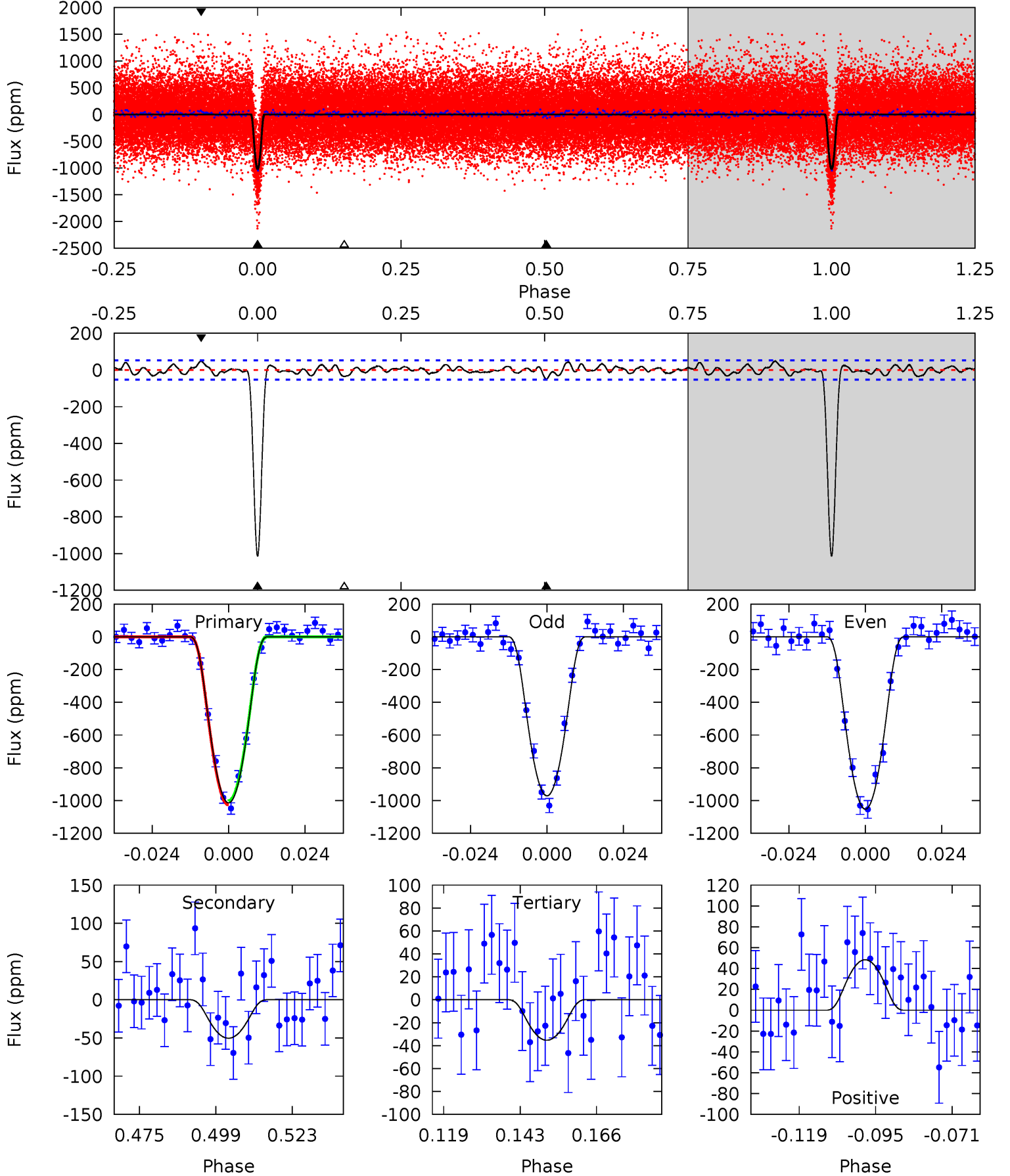
TCE 010157573-01 P= 5.115766 Days  $T_0=132.338186$  (BKJD)



# DV Model-Shift Uniqueness Test

010157573-01, P = 5.115743 Days, E = 127.225534 Days

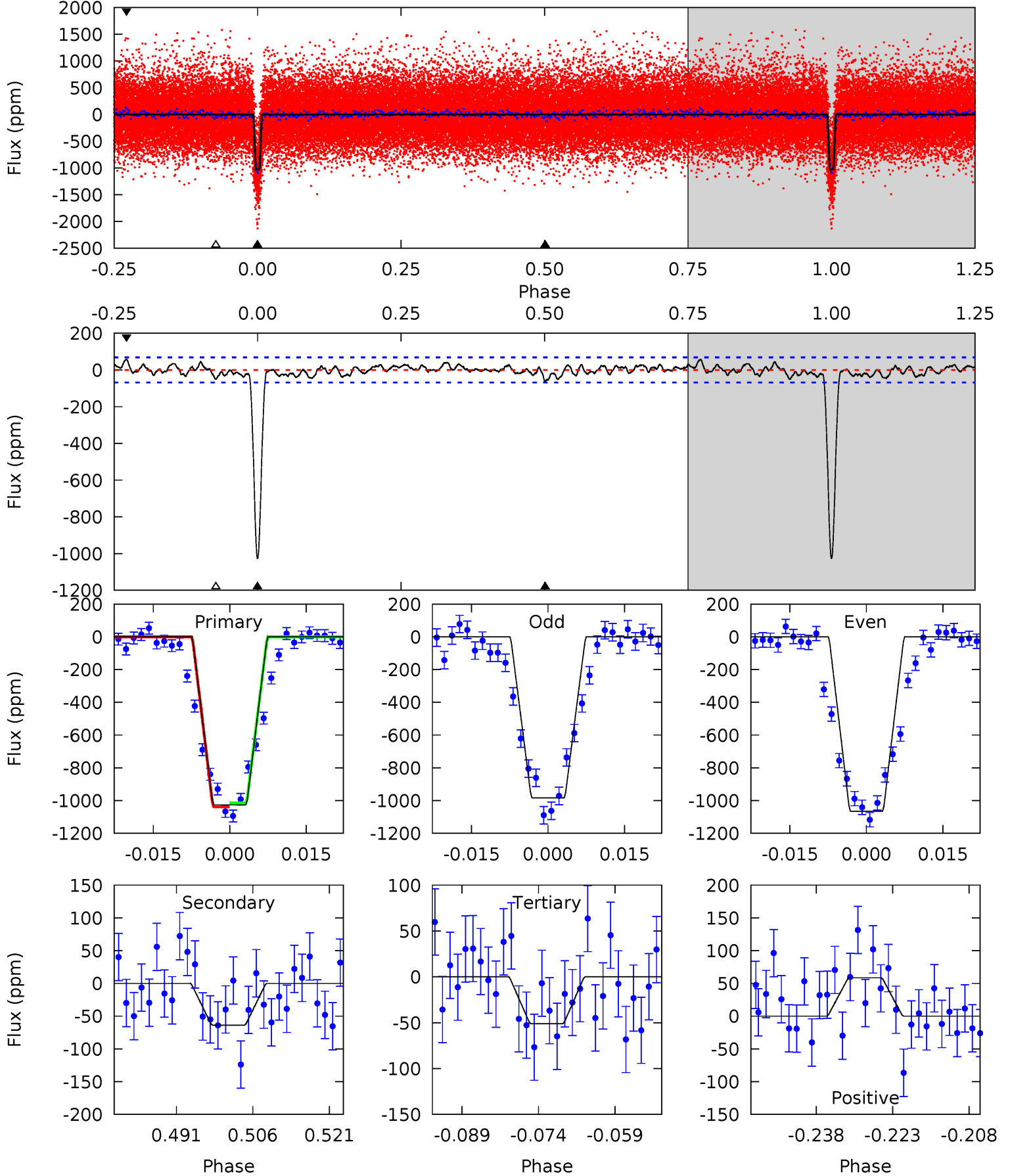
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
93.6	4.64	3.26	4.46	4.86	2.26	1.48	90.3	89.1	1.39	0.18	3.76	1.00	0.05	1.18



# Alt Model-Shift Uniqueness Test

010157573-01, P = 5.115766 Days, E = 127.222420 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
74.4	4.61	3.70	4.24	4.95	2.44	1.41	70.7	70.1	0.91	0.37	2.97	0.98	0.05	0.88



### Stellar Parameters For KIC 010157573

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6398^{+179}_{-224}$	$4.411^{+0.065}_{-0.208}$	$-0.140^{+0.250}_{-0.300}$	$1.101^{+0.347}_{-0.124}$	$1.141^{+0.165}_{-0.150}$	$1.204^{+0.342}_{-0.638}$
	+3%/-4%	+1%/-5%	+179%/-214%	+32%/-11%	+14%/-13%	+28%/-53%
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 010157573-01 / KOI 0726.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-50 \pm 11$	$5.55^{+1.92}_{-1.89}$	$1706^{+120}_{-83}$	$3114^{+463}_{-306}$	$3.290^{+4.091}_{-1.584}$
Alt.	$-64 \pm 14$	$4.26^{+2.03}_{-1.77}$	$1708^{+113}_{-82}$	$3510^{+741}_{-400}$	$6.695^{+13.582}_{-3.614}$

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



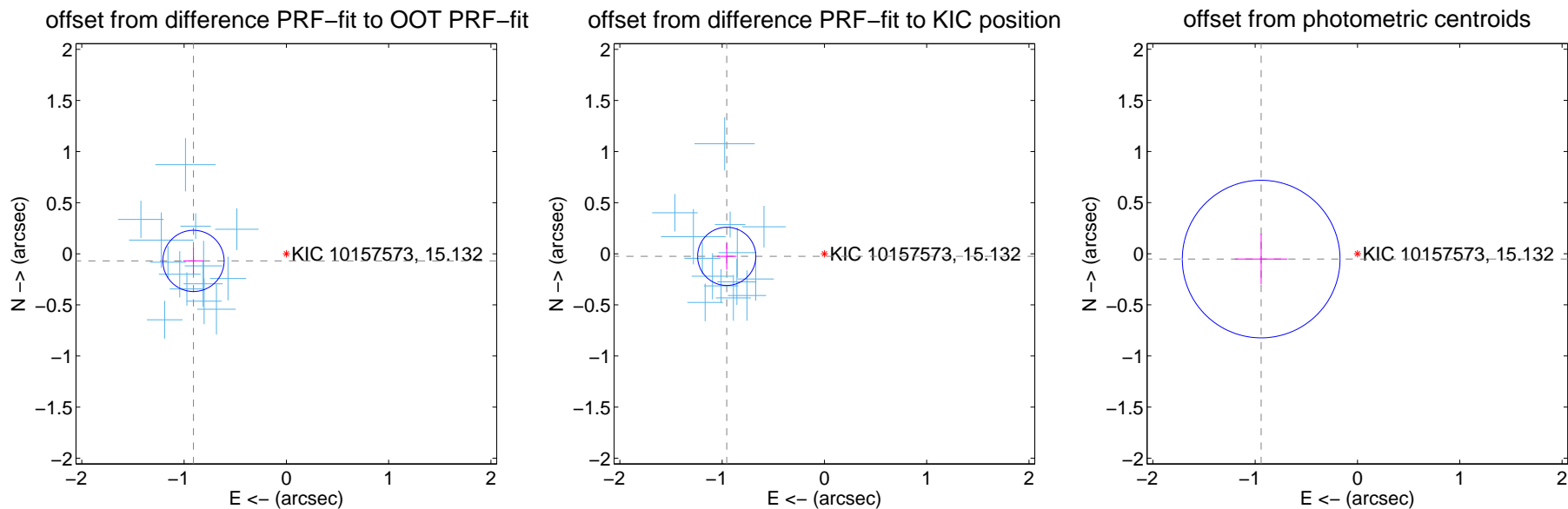
## DV Centroid Data

Supplemental centroid analysis for 010157573-01. Kepler magnitude: 15.13. Transit SNR 56.26

There are 14 quarters with good PRF difference image offsets

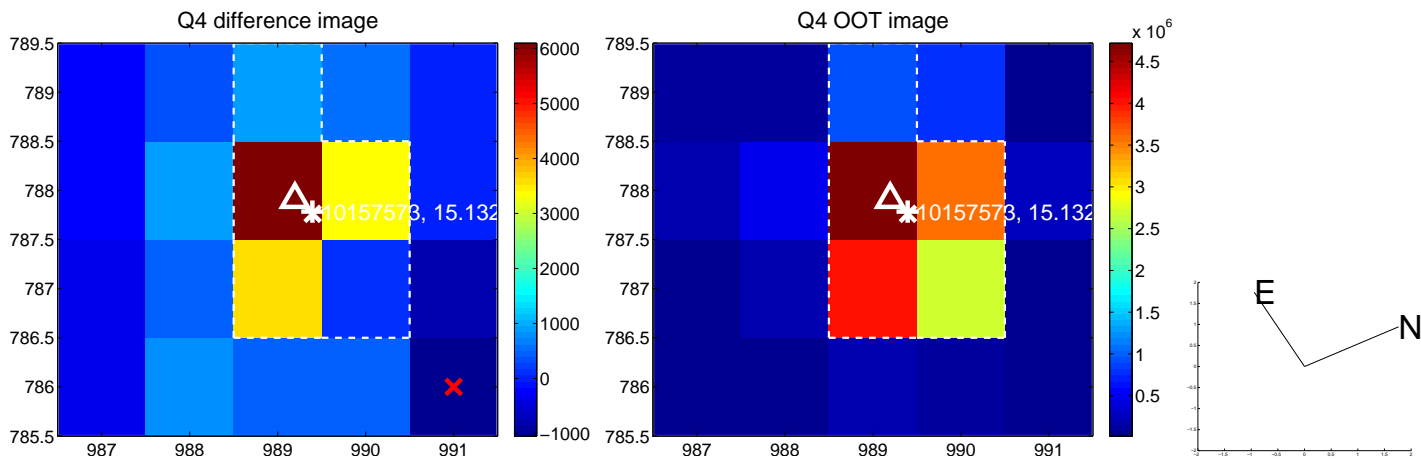
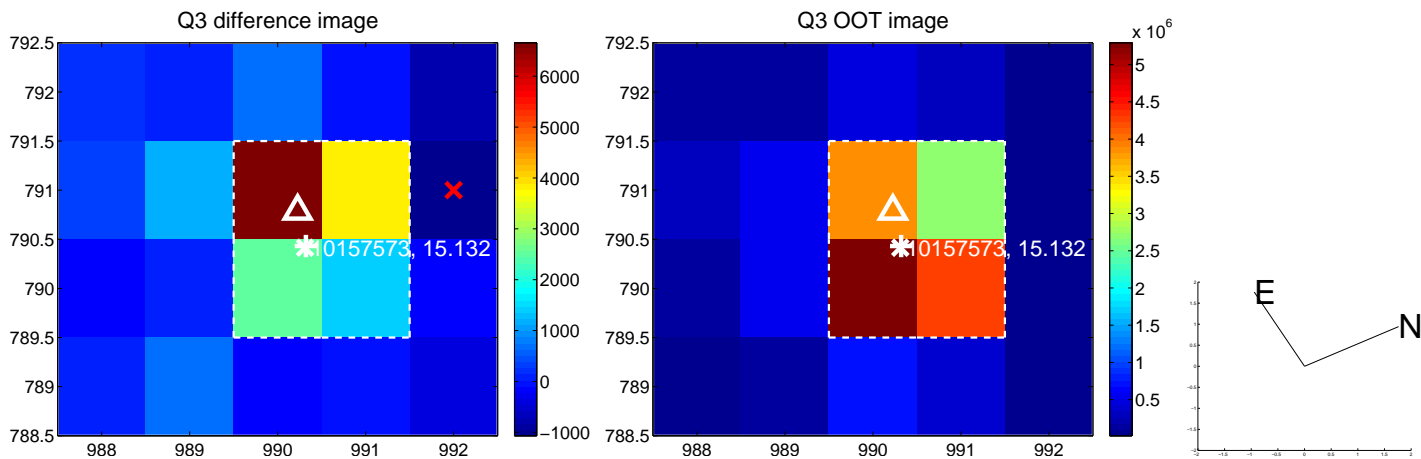
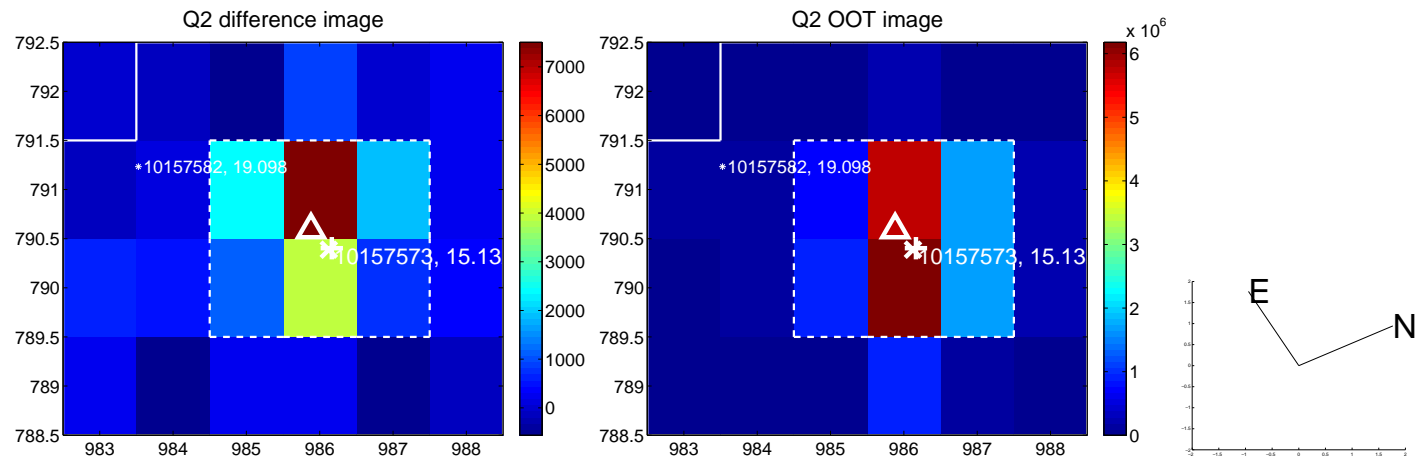
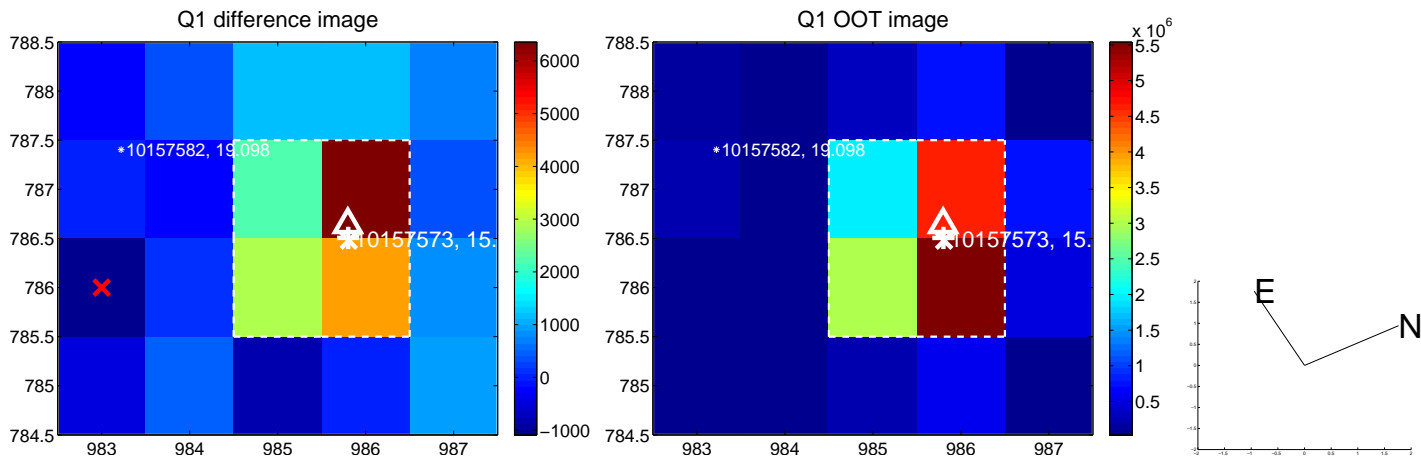
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.911 \pm 0.100$	9.12	$0.908 \pm 0.100$	$-0.070 \pm 0.128$
PRF-fit source offset from KIC position	$0.956 \pm 0.095$	10.07	$0.955 \pm 0.095$	$-0.025 \pm 0.131$
photometric centroid source offset	$0.94 \pm 0.26$	3.67	$0.94 \pm 0.26$	$-0.05 \pm 0.25$

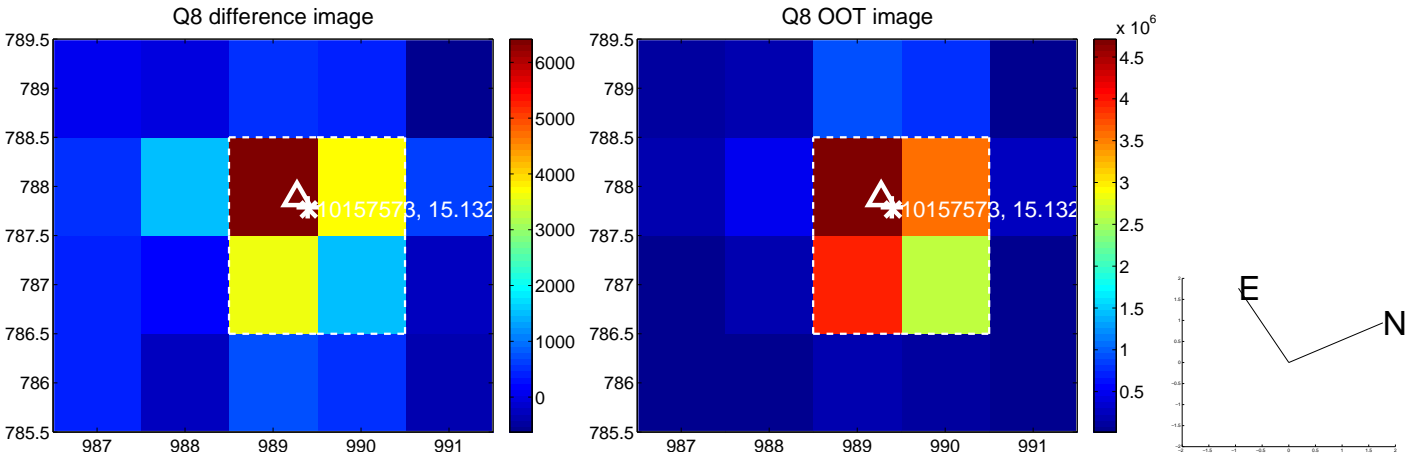
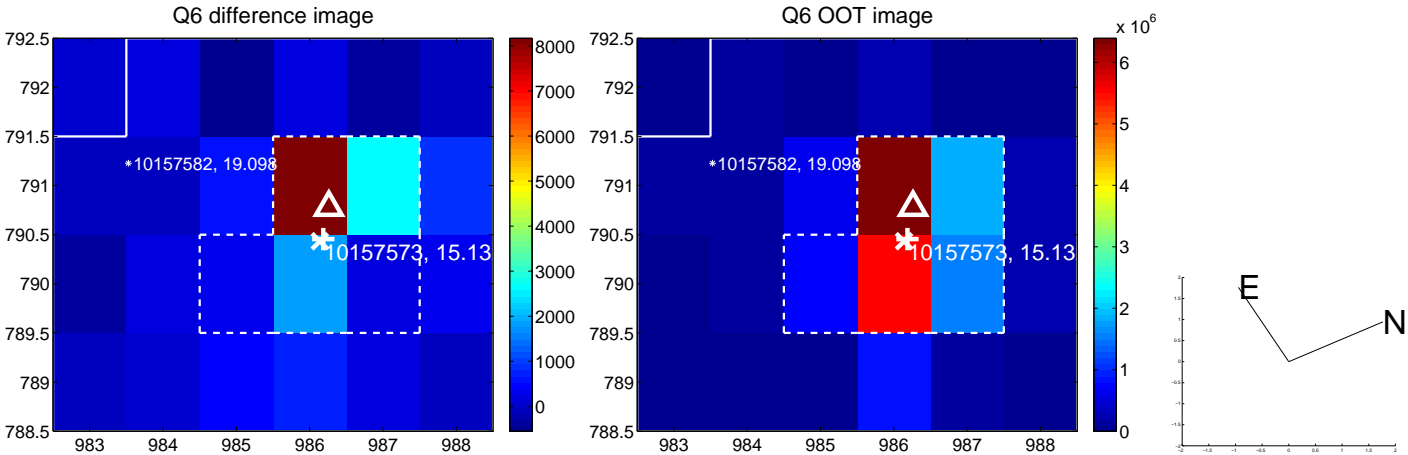
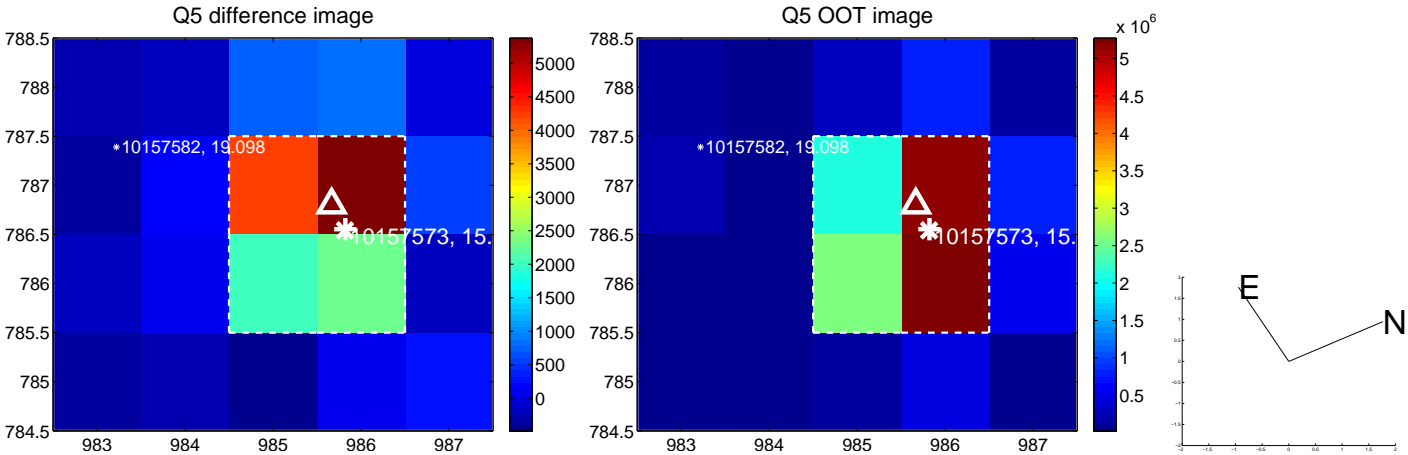


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

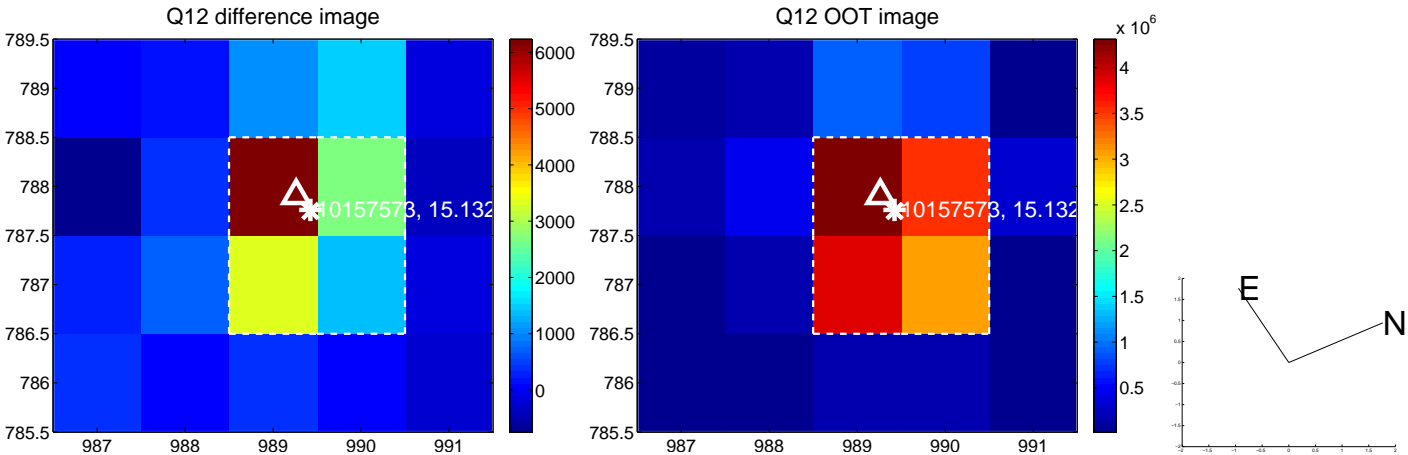
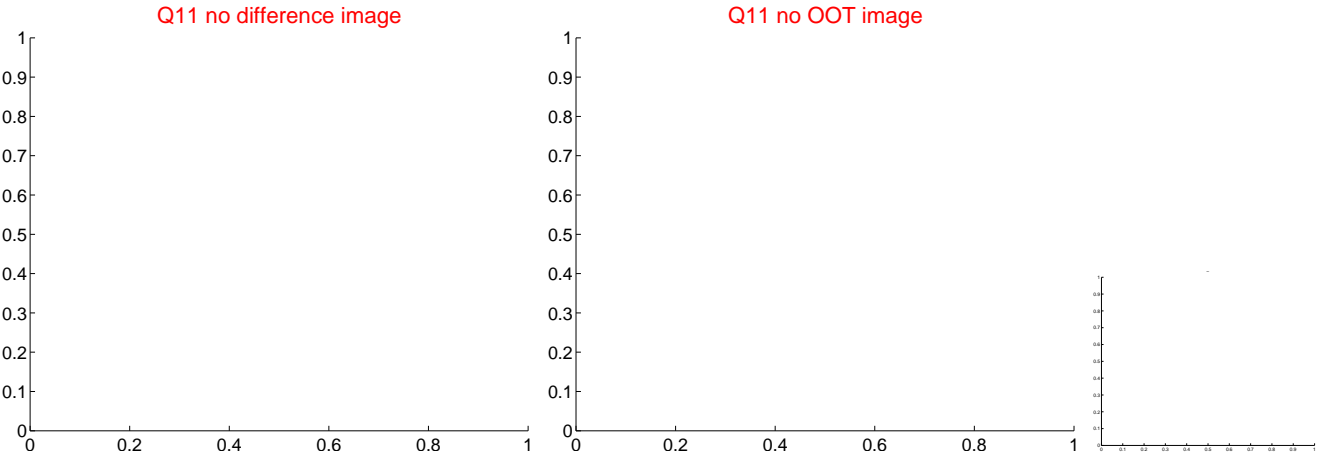
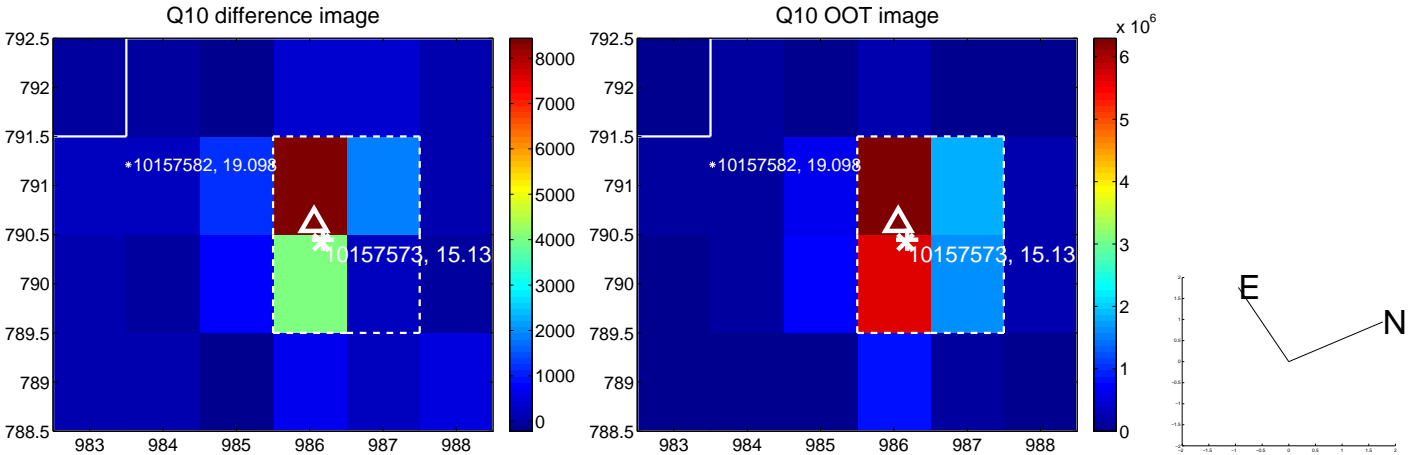
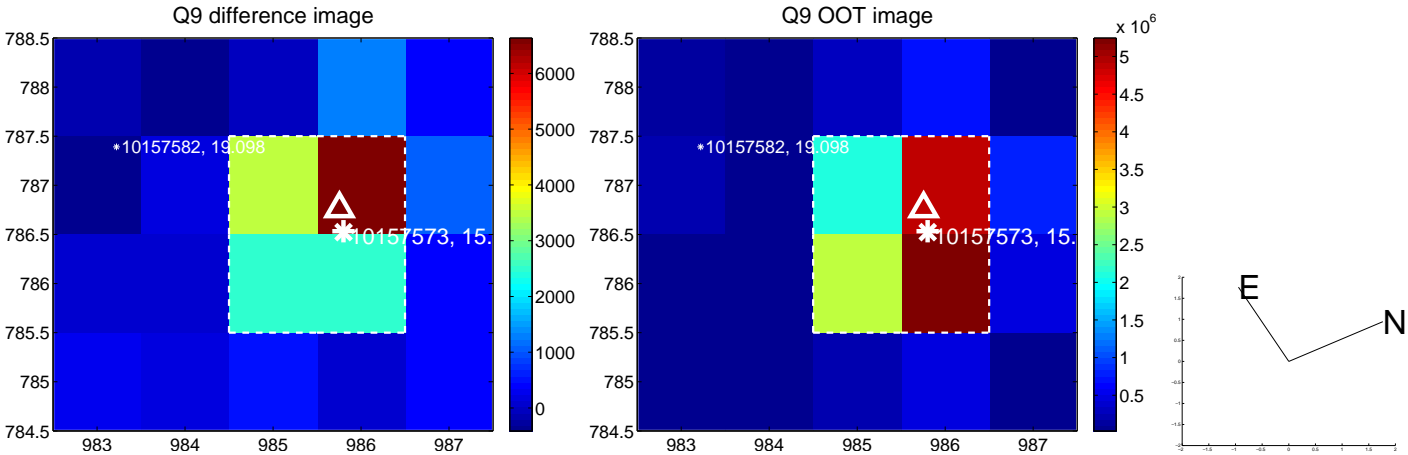
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



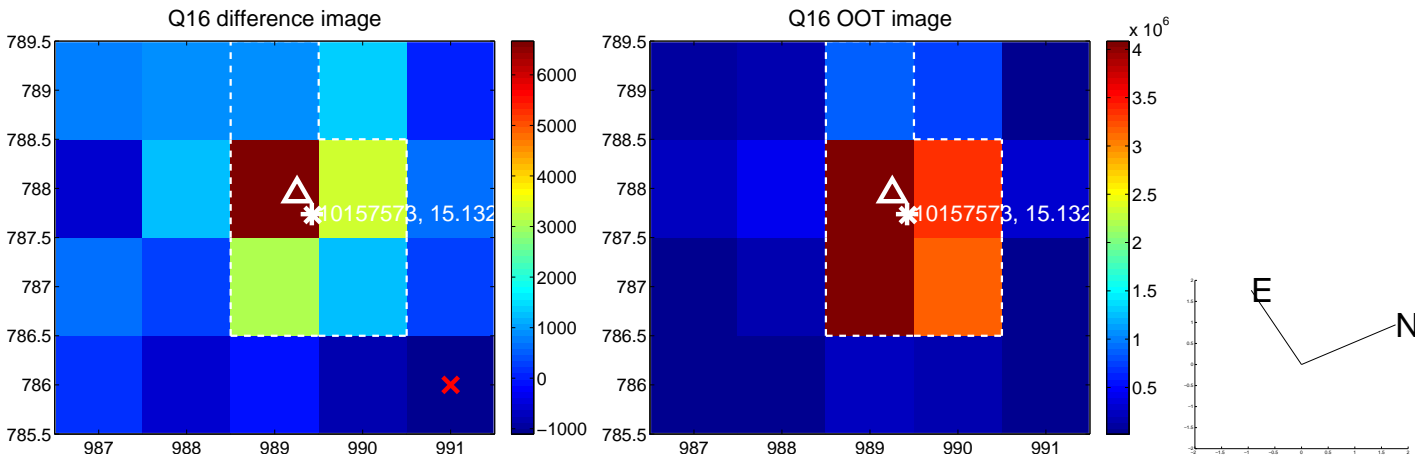
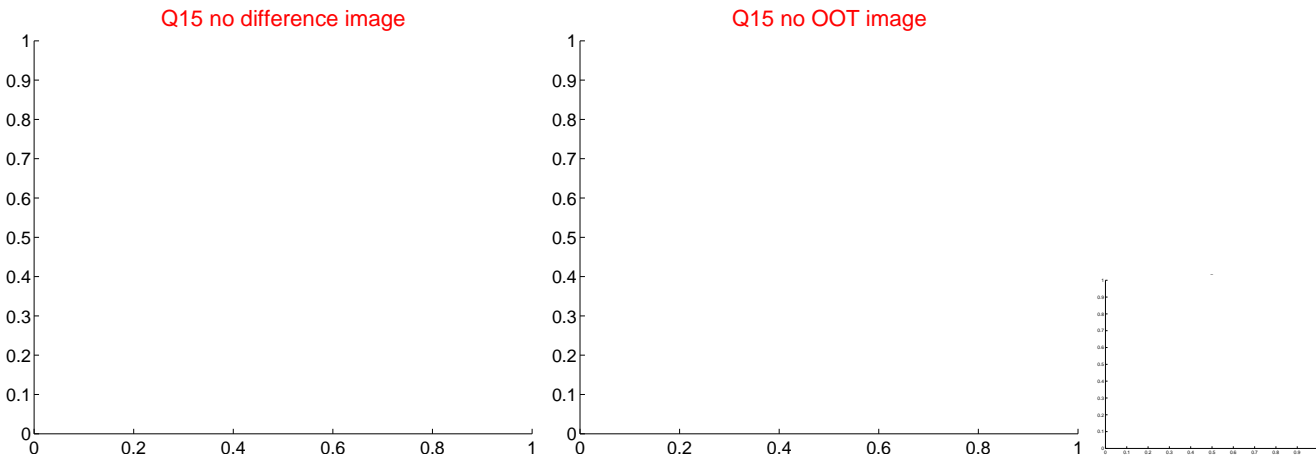
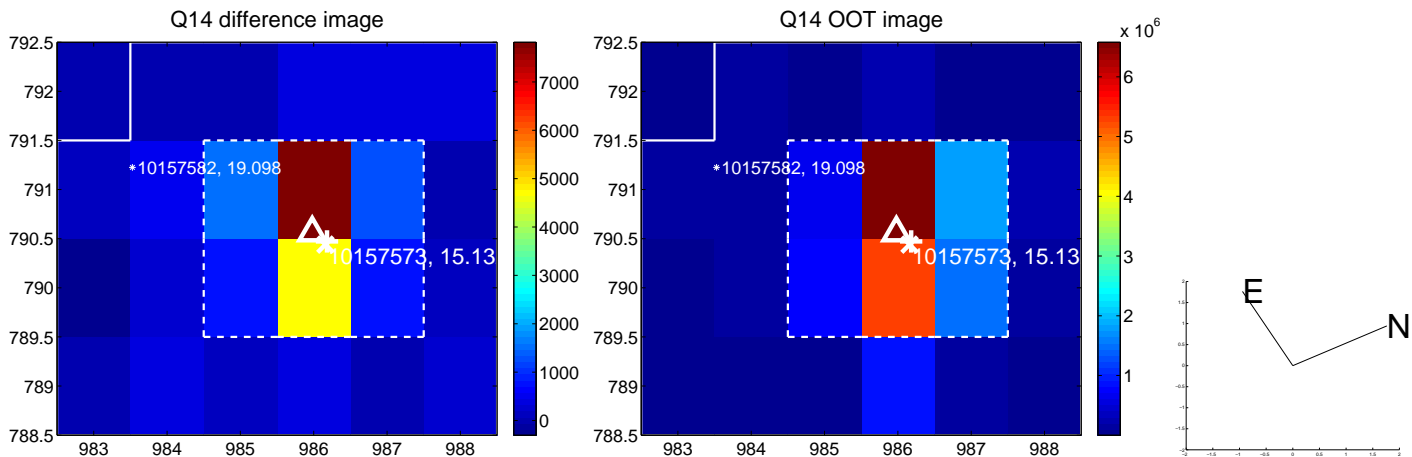
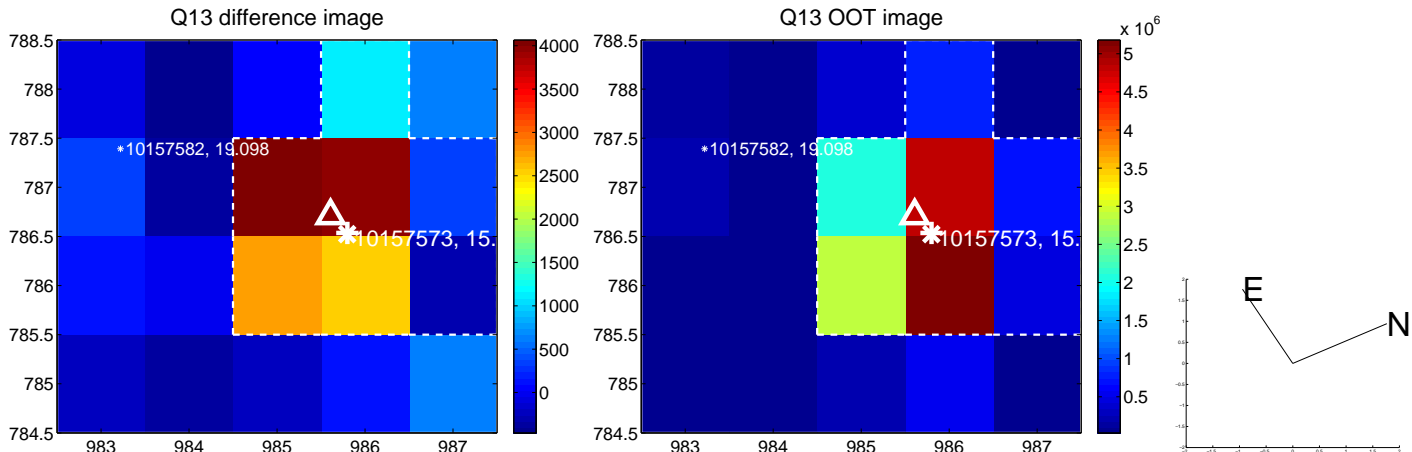
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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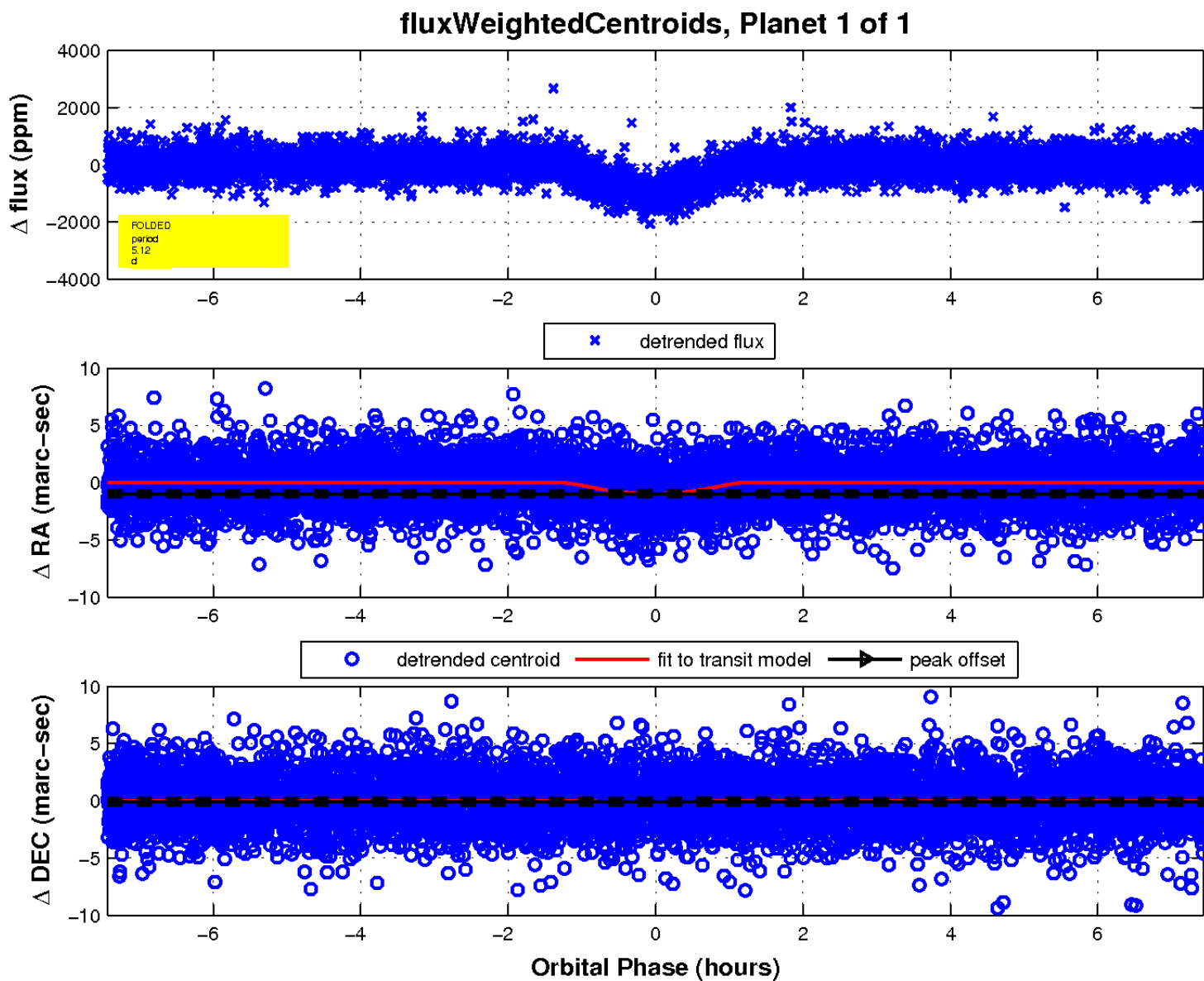
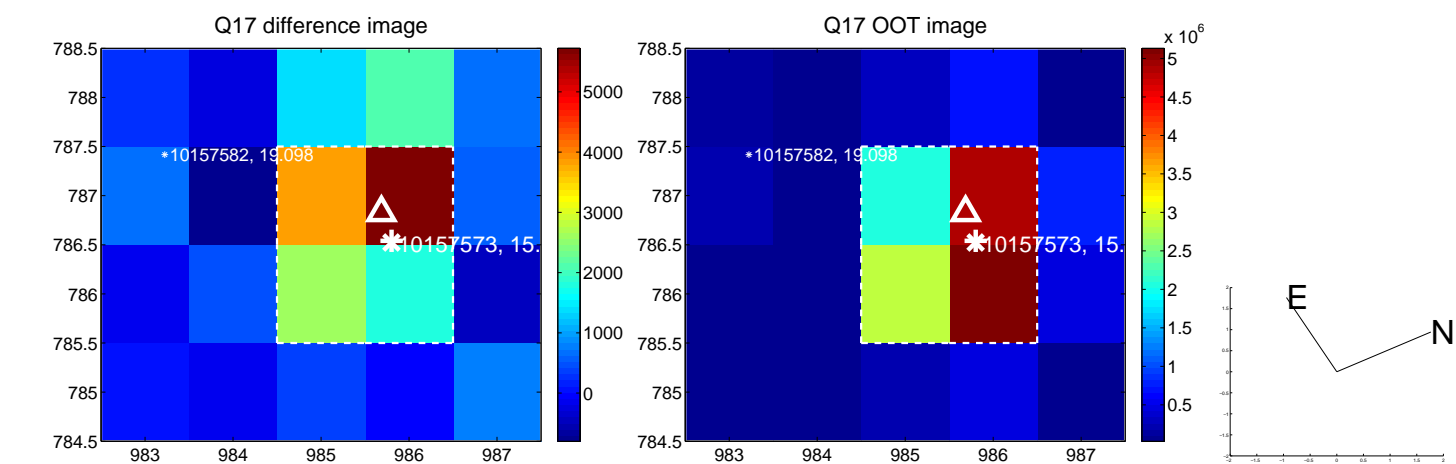


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

