

# KIC 005823159

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005823159-01	OBS	No	0.533228	131.566118	84.3	1.831	8.2	8.6	2.93	7350	3.11	92201.57

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005823159-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

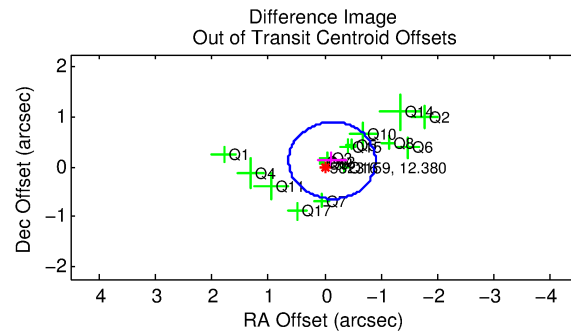
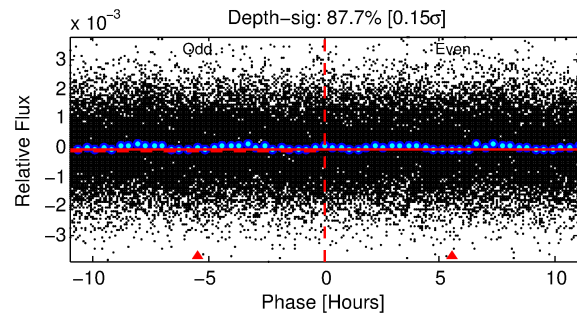
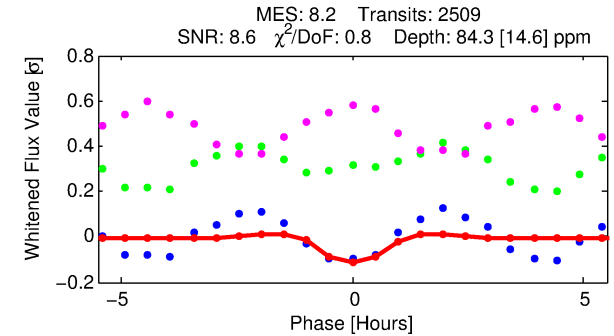
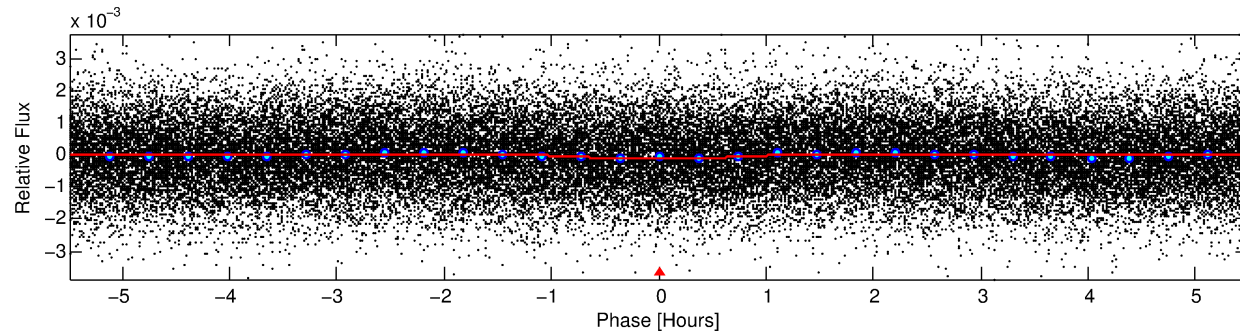
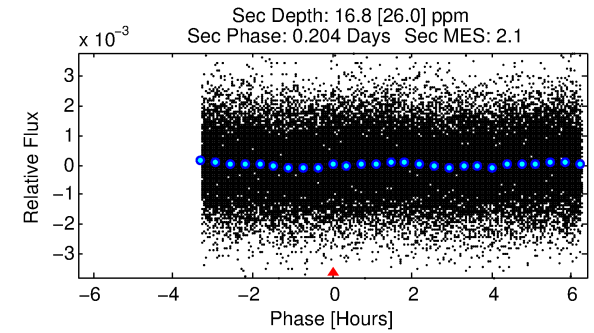
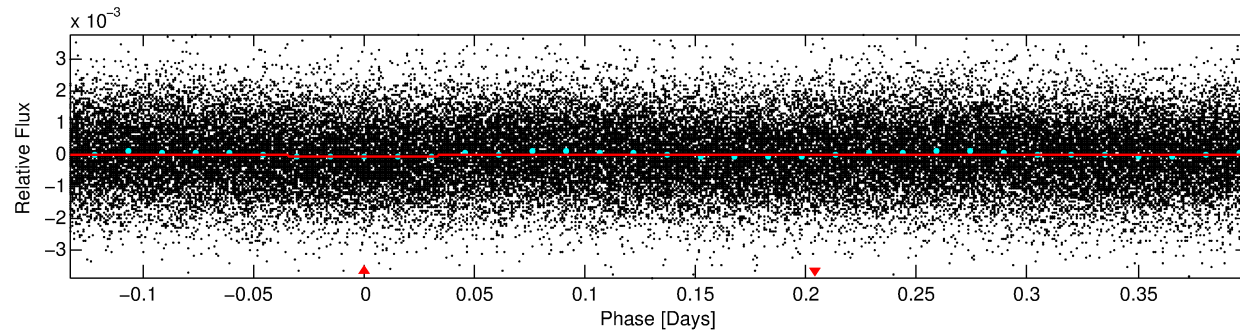
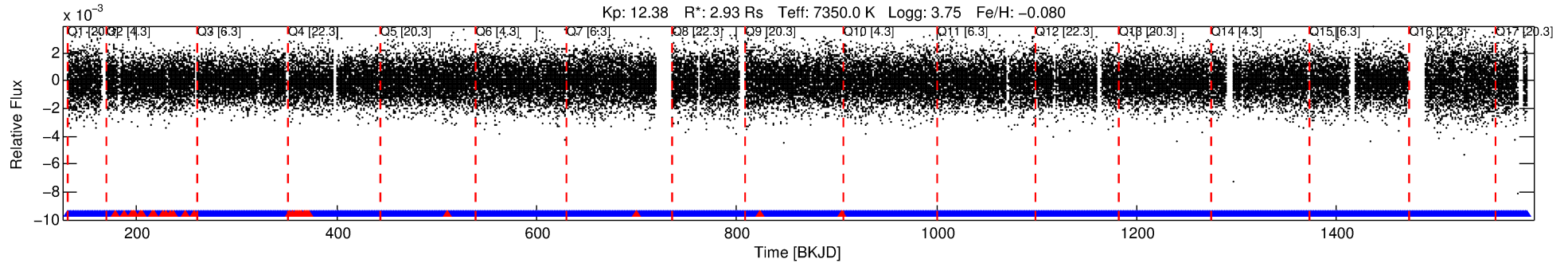
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005823159-01

No Significant Match Found

# DV One-Page Summary

KIC: 5823159 Candidate: 1 of 1 Period: 0.533 d



## DV Fit Results:

Period = 0.53323 [0.00001] d  
Epoch = 131.5661 [0.0031] BKJD  
 $R_p/R^* = 0.0097$  [0.0066]  
 $a/R^* = 1.40$  [2.95]  
 $b = 0.90$  [0.97]  
 $\text{Seff} = 92201.56$  [63497.74]  
 $T_{\text{eq}} = 4443$  [765] K  
 $R_p = 3.11$  [2.50]  $R_e$   
 $a = 0.0156$  [0.0065] AU  
 $A_g = 0.23$  [0.50] [-1.53σ]  
 $T_{\text{eff}} = 4772$  [2458] K [0.13σ]

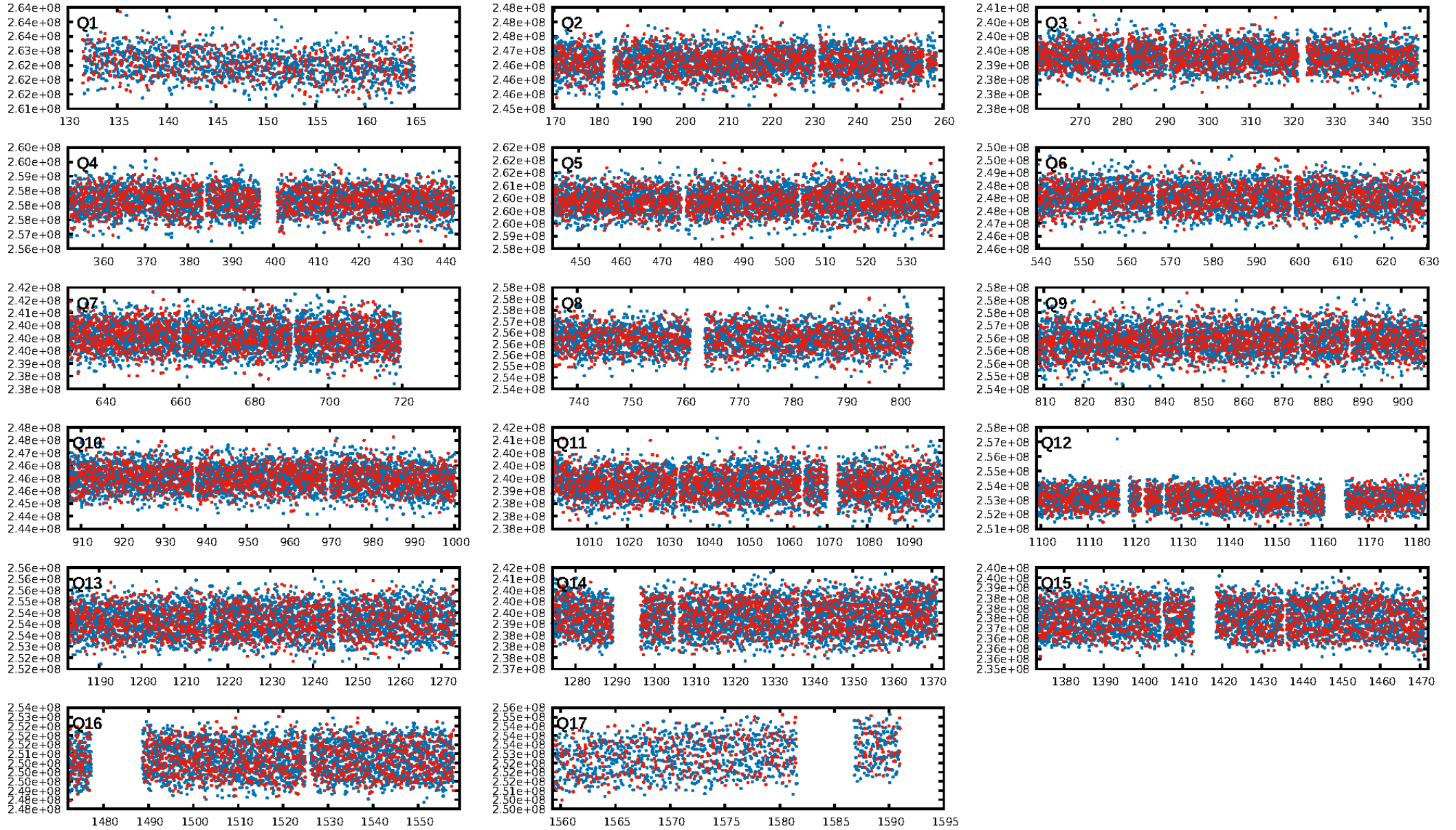
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.36e-15  
RollingBand-fgt: 0.98 [2357/2396]  
GhostDiagnostic-chr: 2.551  
Centroid-sig: 0.4%  
Centroid-so: 0.595 arcsec [2.46σ]  
OotOffset-rm: 0.180 arcsec [0.70σ]  
KicOffset-rm: 0.222 arcsec [1.04σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.81 [13/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:41:34 Z

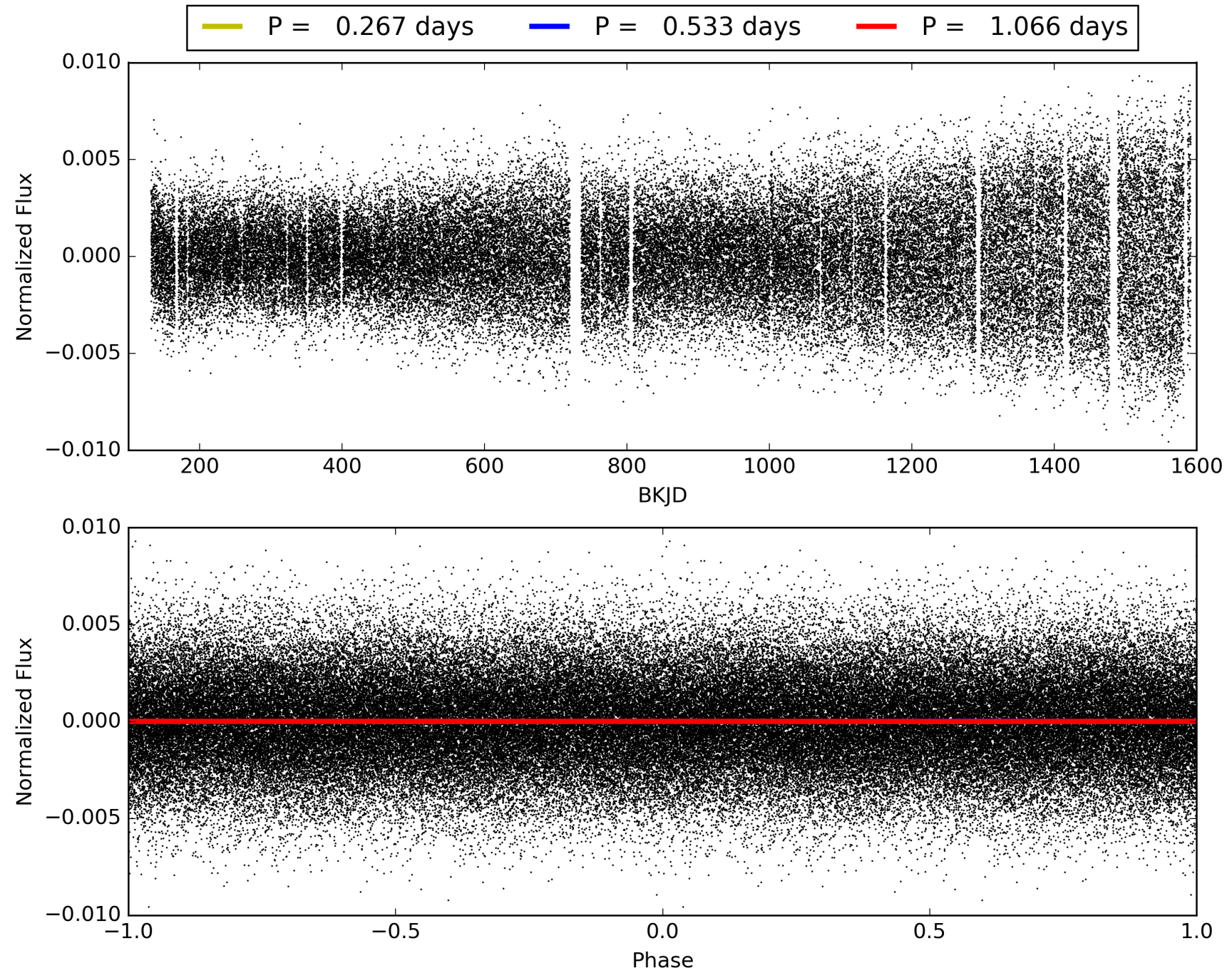
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005823159-01, PDC Light Curves



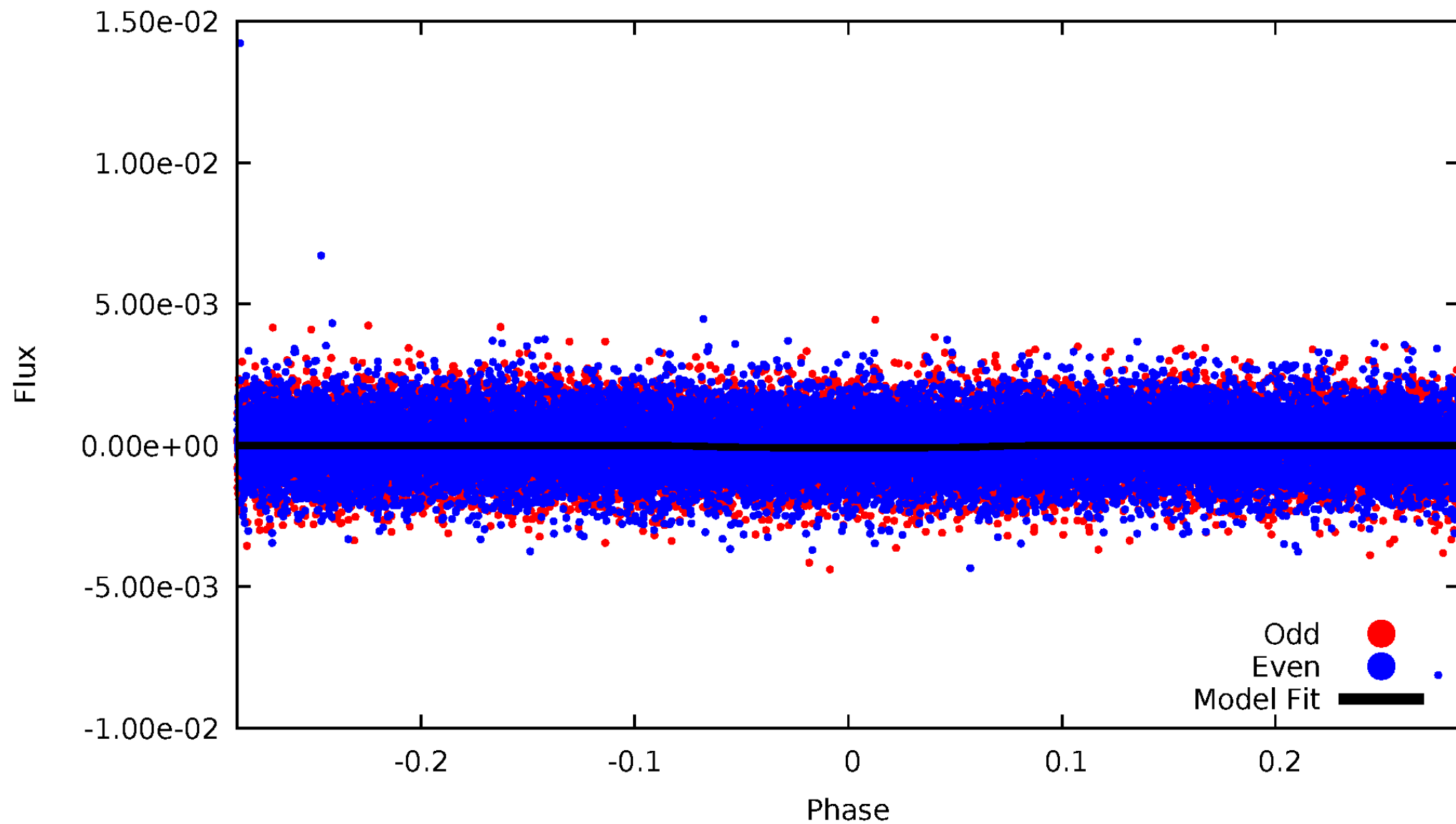


TCE 005823159-01



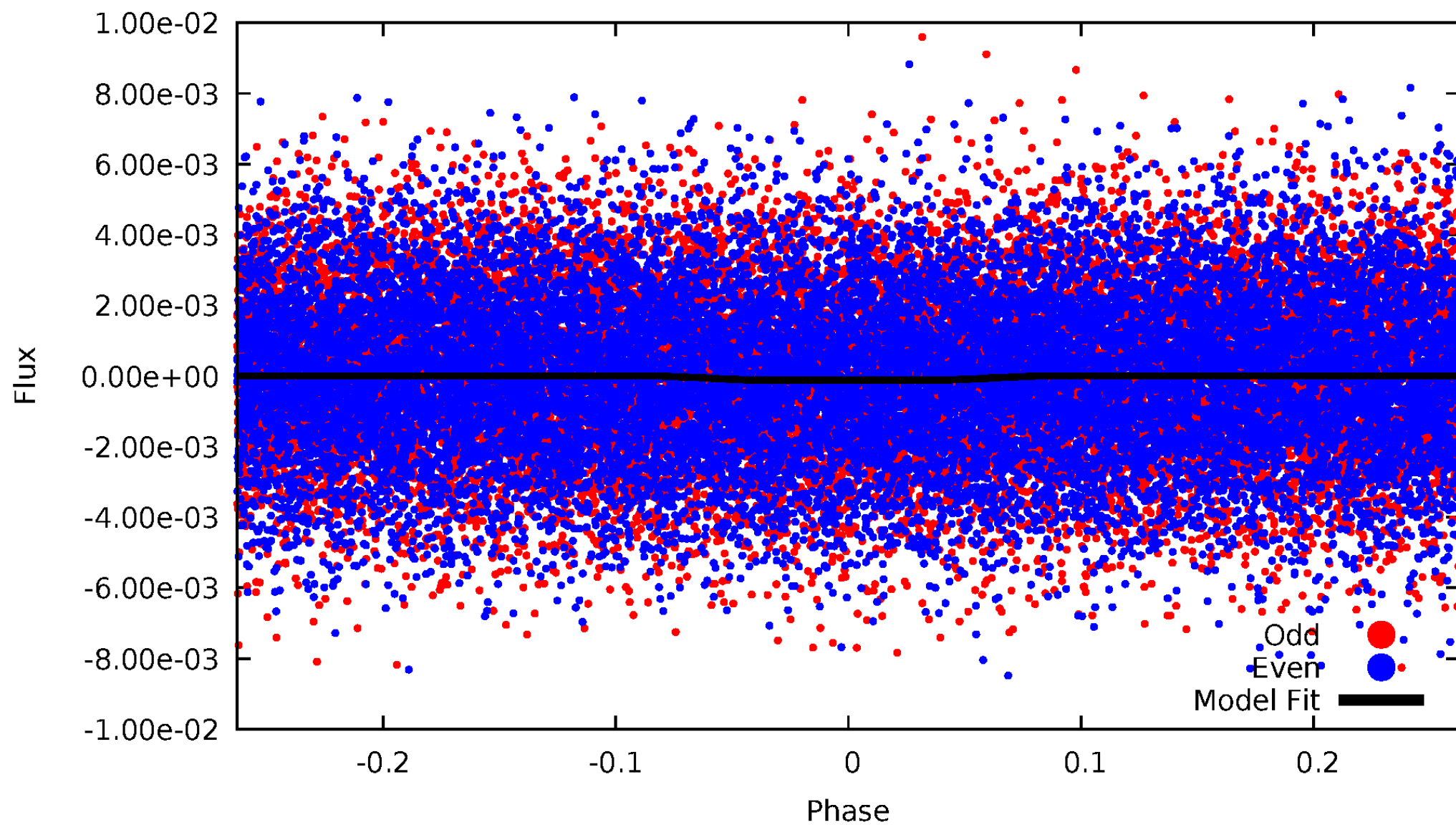
# DV Odd/Even

TCE 005823159-01



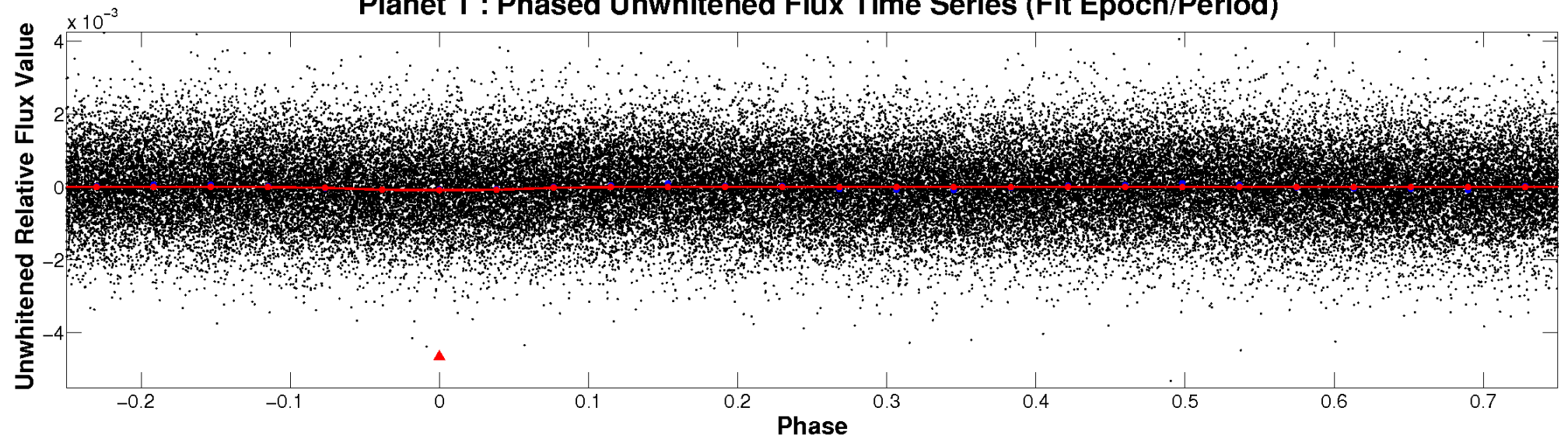
# ALT Odd/Even

TCE 005823159-01

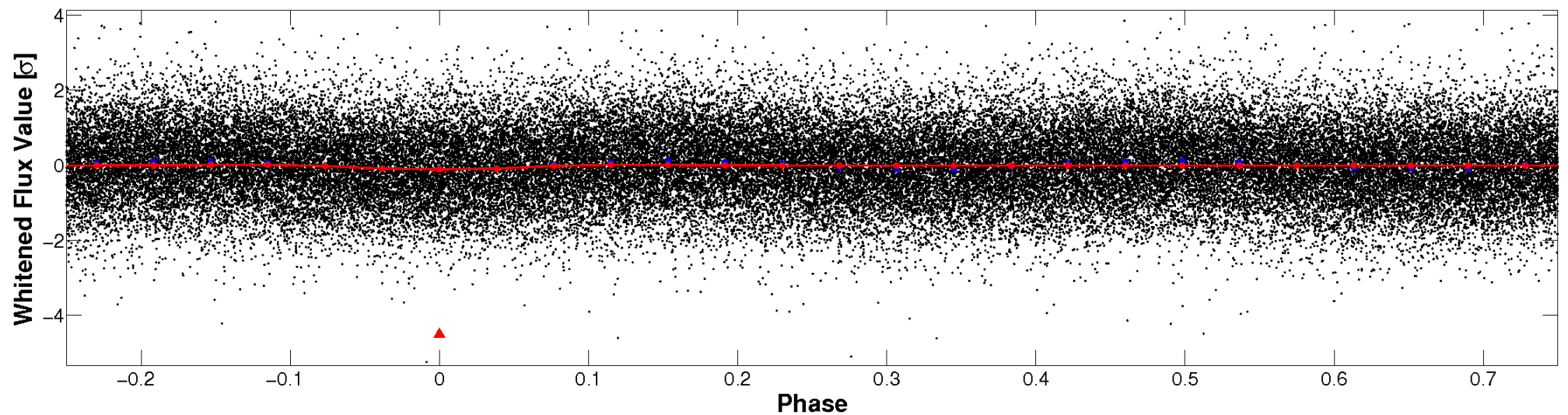


# Non-Whitened Vs. Whitened Light Curve

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



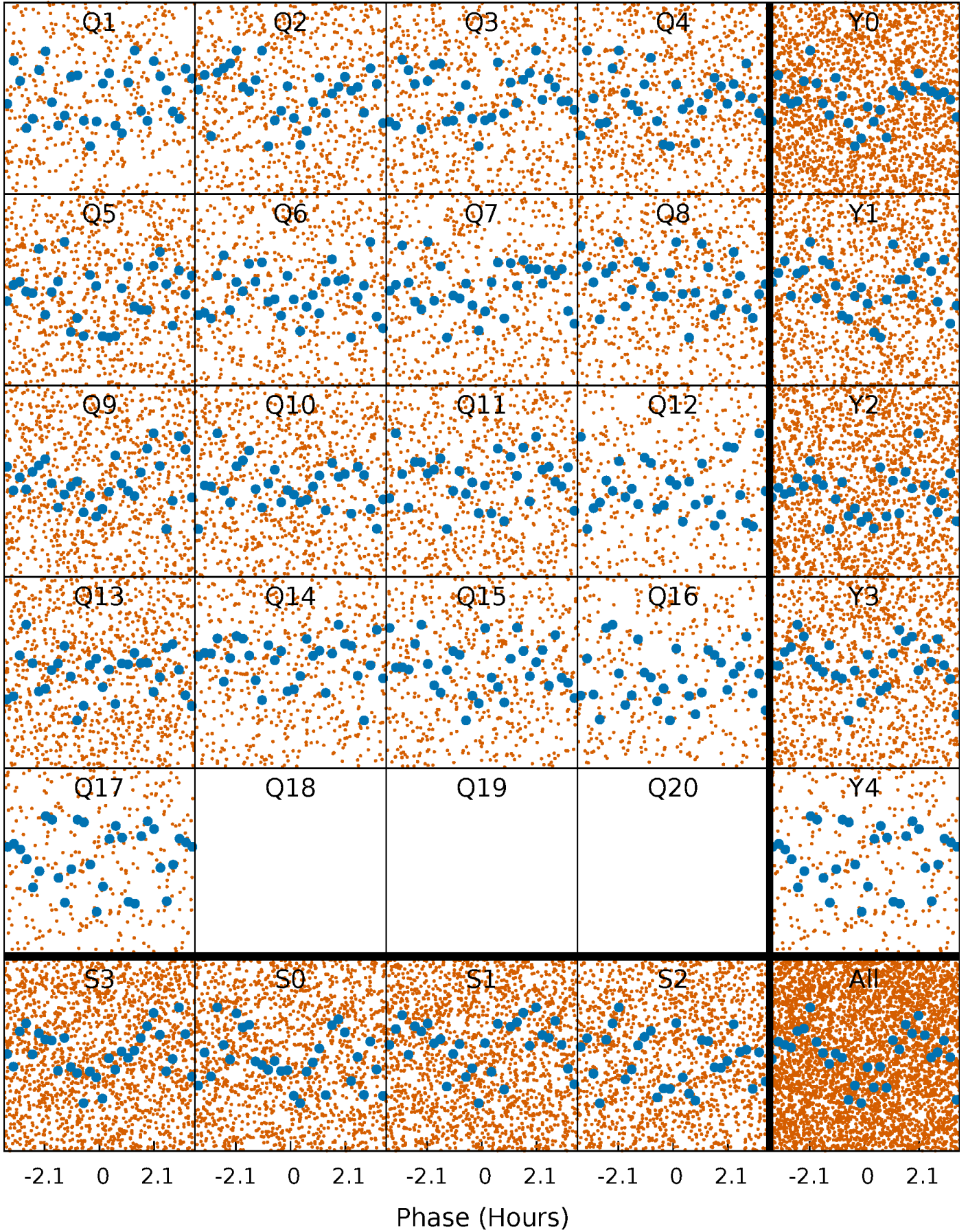
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

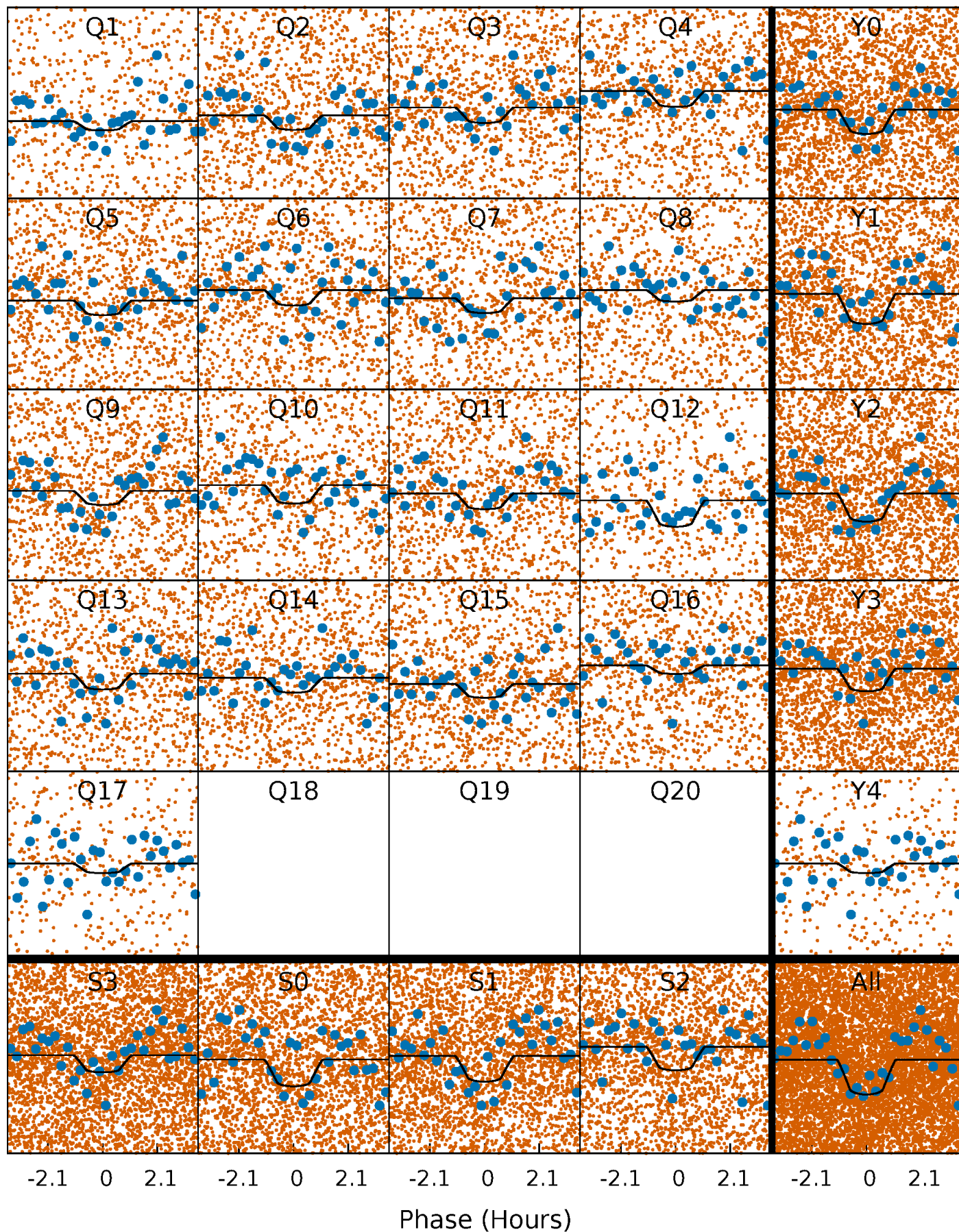
TCE 005823159-01 P= 0.533228 Days  $T_0=131.566118$  (BKJD)





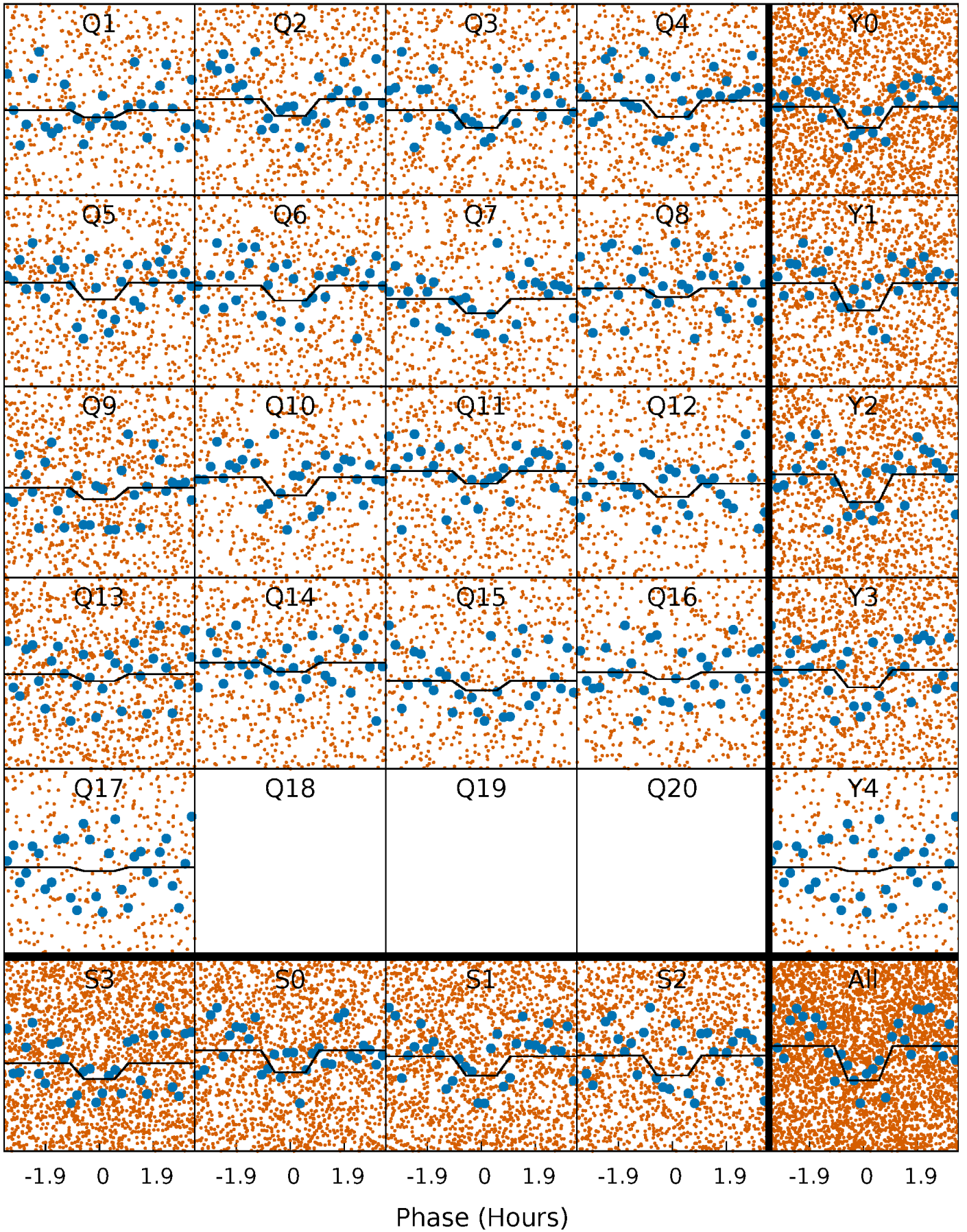
# DV Quarter-Phased Transit Curves

TCE 005823159-01 P= 0.533228 Days  $T_0=131.566118$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005823159-01 P= 0.533222 Days  $T_0=131.570821$  (BKJD)

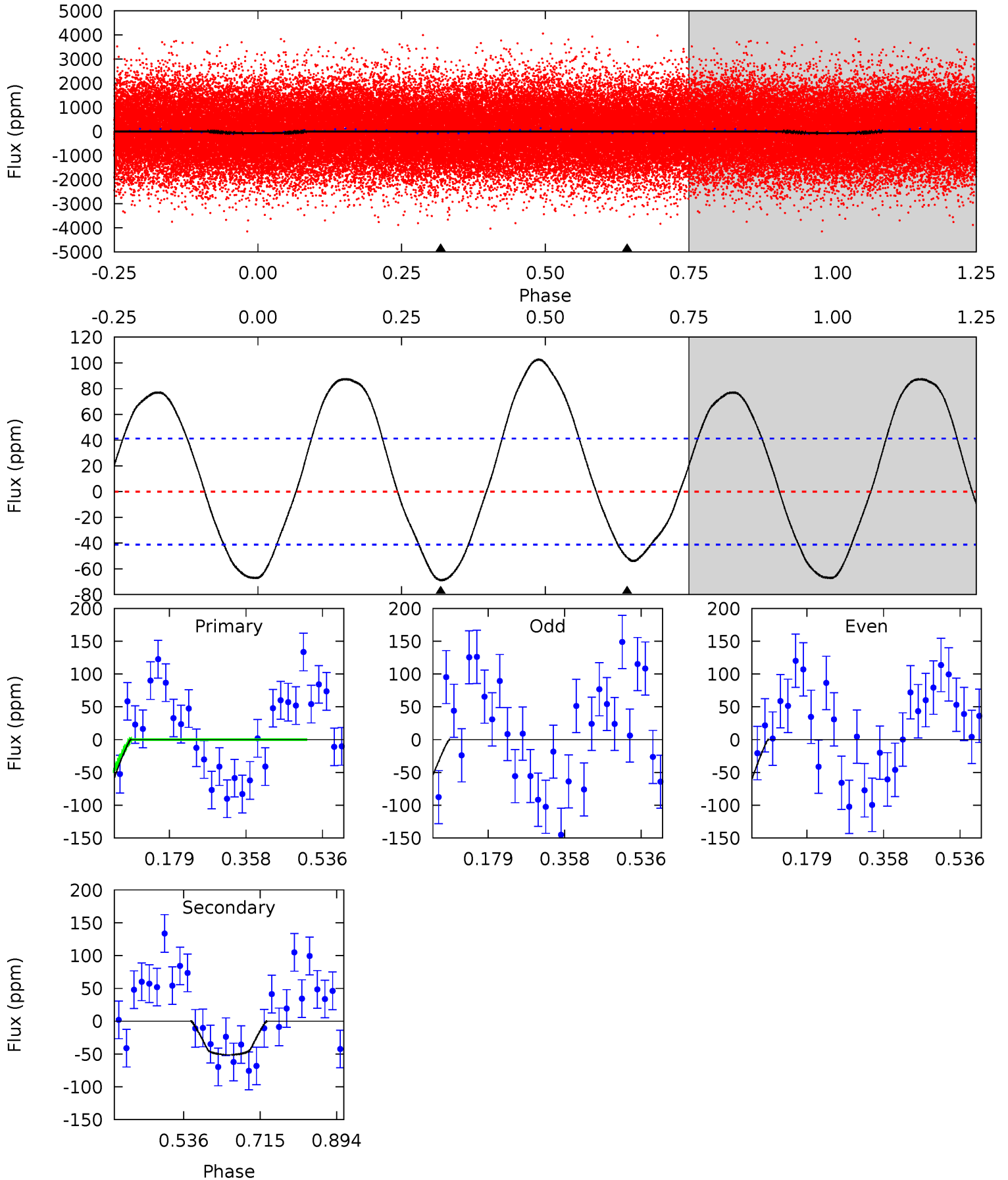




# DV Model-Shift Uniqueness Test

005823159-01, P = 0.533228 Days, E = 131.032890 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
7.43	5.53	0	0	4.44	1.34	5.63	7.43	7.43	5.53	5.53	0.43	0.80	0.60	1.36

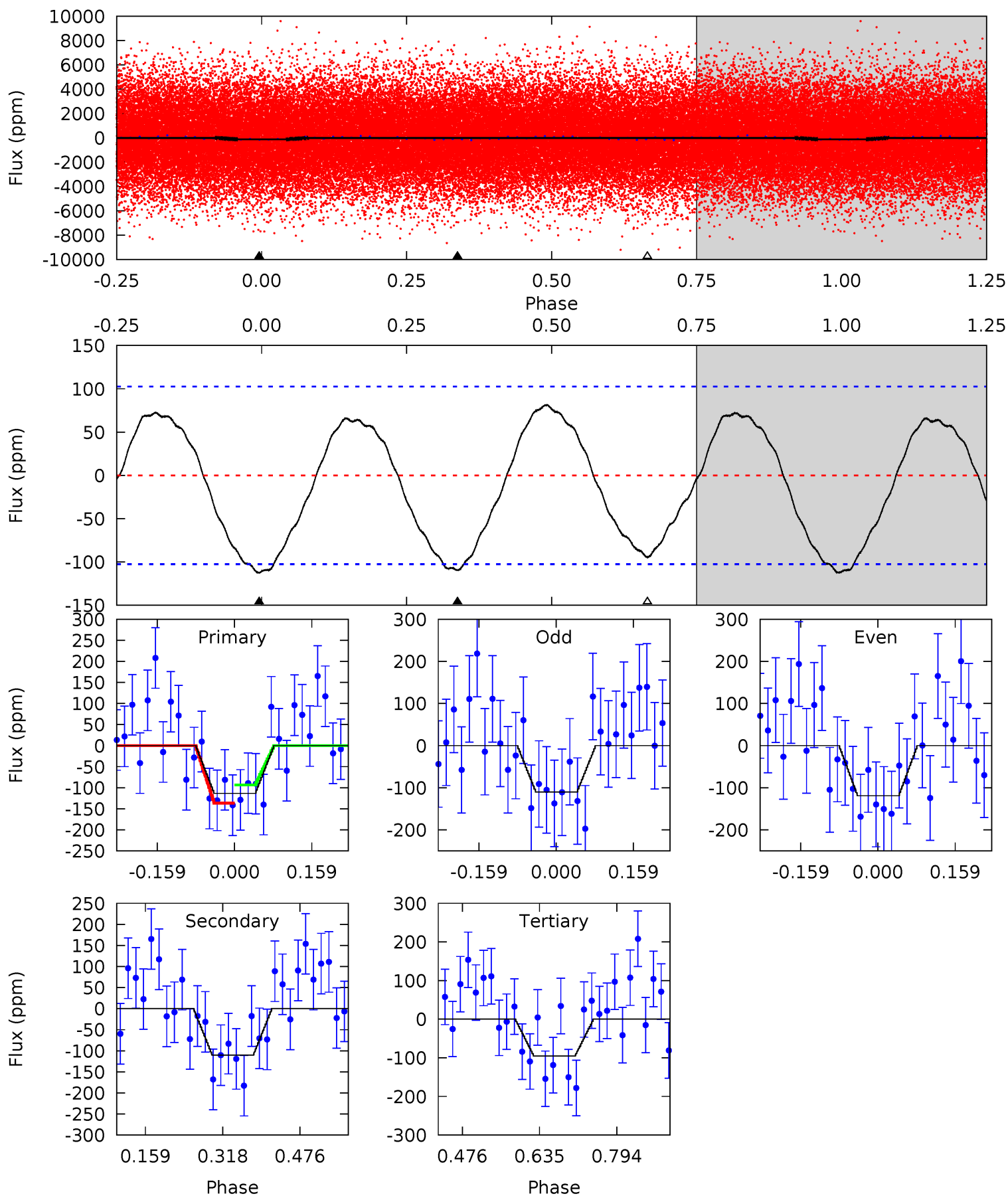




# Alt Model-Shift Uniqueness Test

005823159-01, P = 0.533222 Days, E = 131.037599 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
4.94	4.79	4.15	0	4.47	1.41	2.58	0.78	4.94	0.64	4.79	0.19	1.07	0.42	0.94



### Stellar Parameters For KIC 005823159

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7350^{+228}_{-304}$	$3.755^{+0.392}_{-0.098}$	$-0.080^{+0.200}_{-0.350}$	$2.930^{+0.427}_{-1.280}$	$1.780^{+0.194}_{-0.389}$	$0.100^{+0.342}_{-0.031}$
	+3%/-4%	+10%/-3%	+250%/-438%	+15%/-44%	+11%/-22%	+343%/-31%
Source	KIC0	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 005823159-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-51 \pm 9$	$2.98^{+2.14}_{-1.62}$	$6066^{+410}_{-654}$	$5268^{+3725}_{-8982}$	$0.742^{+2.691}_{-0.501}$
Alt.	$-110 \pm 23$	$3.17^{+2.16}_{-1.81}$	$6045^{+429}_{-665}$	$6515^{+5961}_{-1854}$	$1.377^{+6.166}_{-0.872}$

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

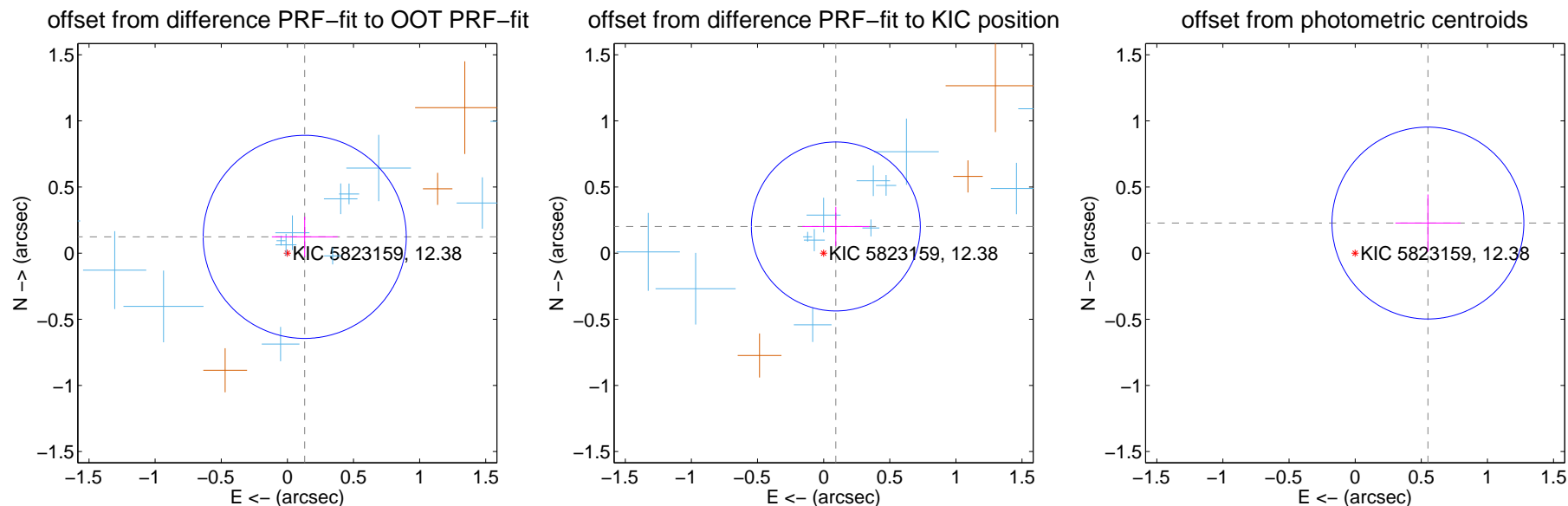
## DV Centroid Data

Supplemental centroid analysis for 005823159-01. Kepler magnitude: 12.38. Transit SNR 8.55

There are 13 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

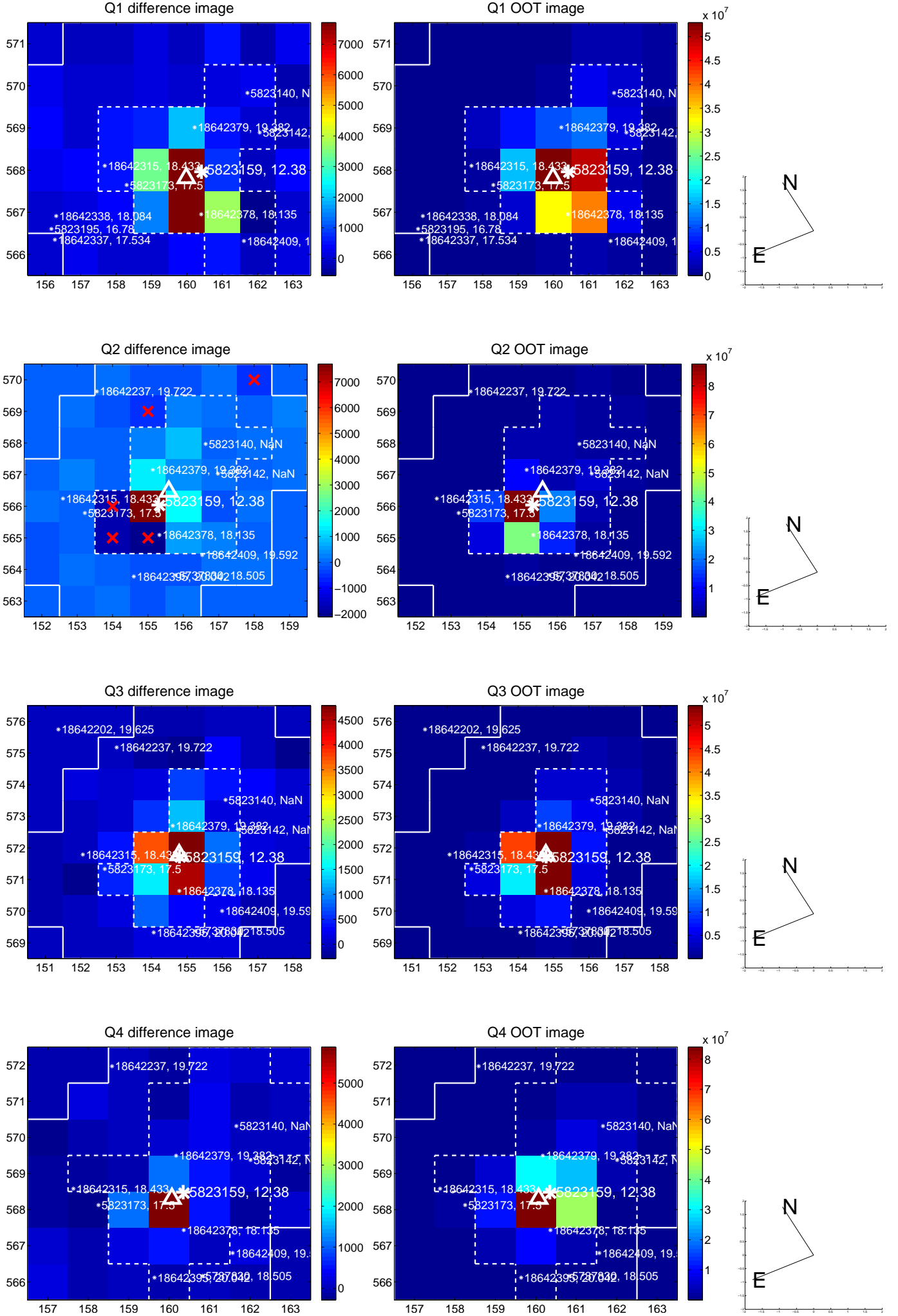
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.180 \pm 0.256$	0.70	$-0.131 \pm 0.249$	$0.123 \pm 0.152$
PRF-fit source offset from KIC position	$0.222 \pm 0.213$	1.04	$-0.092 \pm 0.253$	$0.202 \pm 0.148$
photometric centroid source offset	$0.60 \pm 0.24$	2.46	$-0.55 \pm 0.25$	$0.23 \pm 0.22$



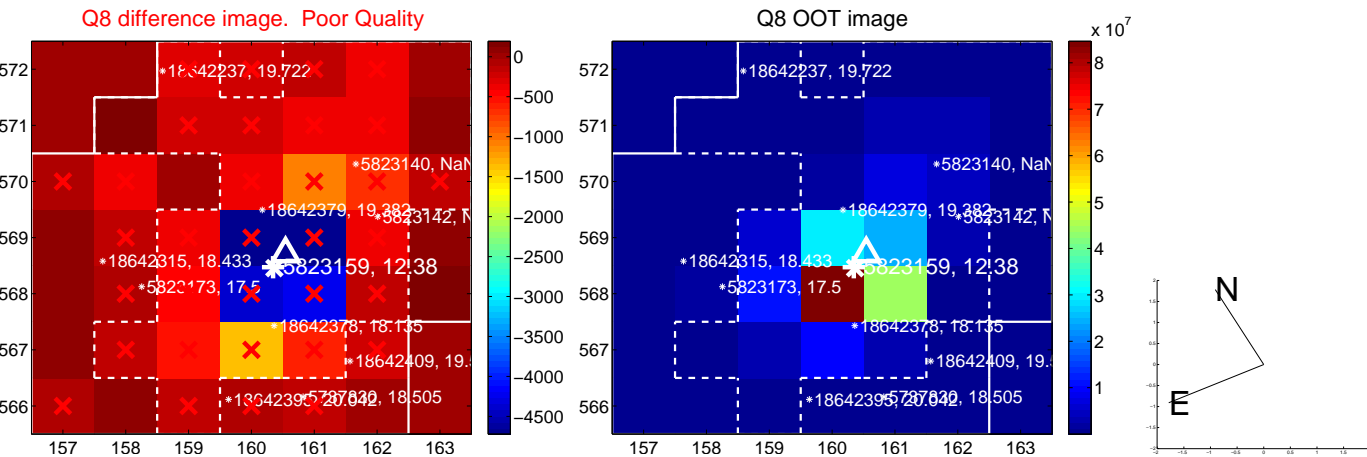
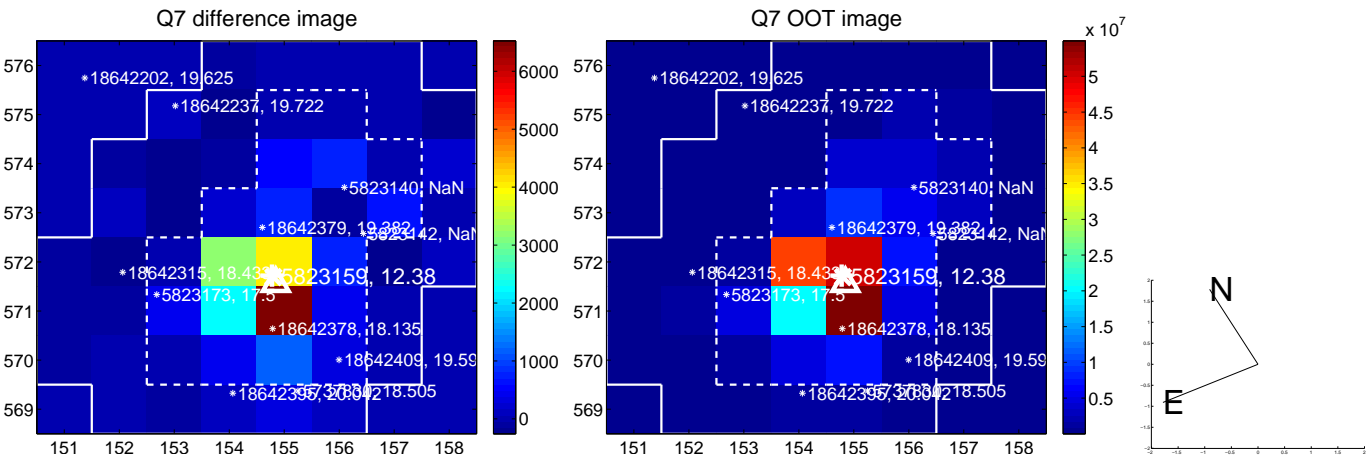
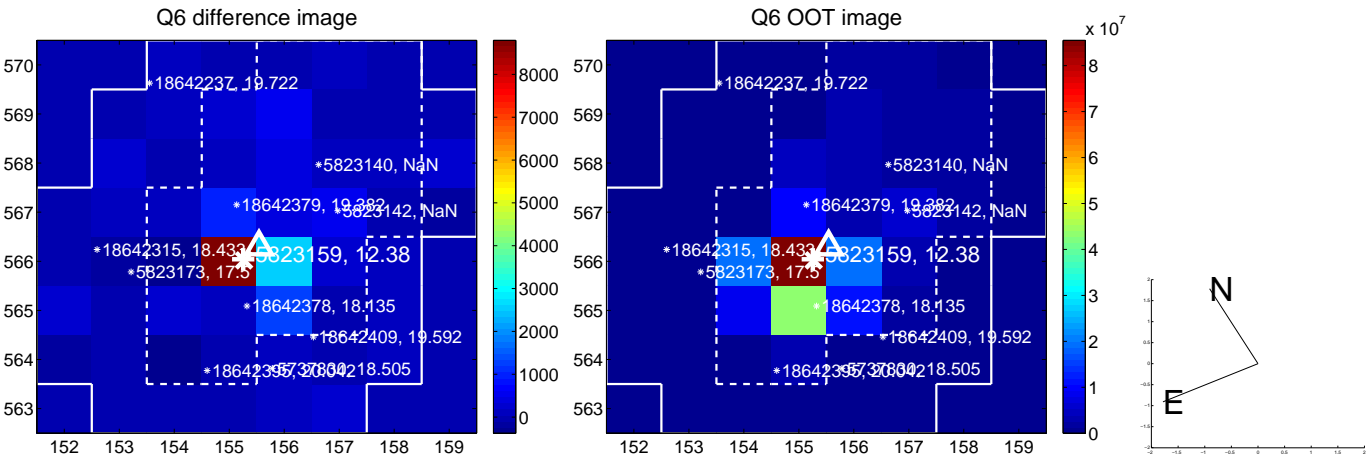
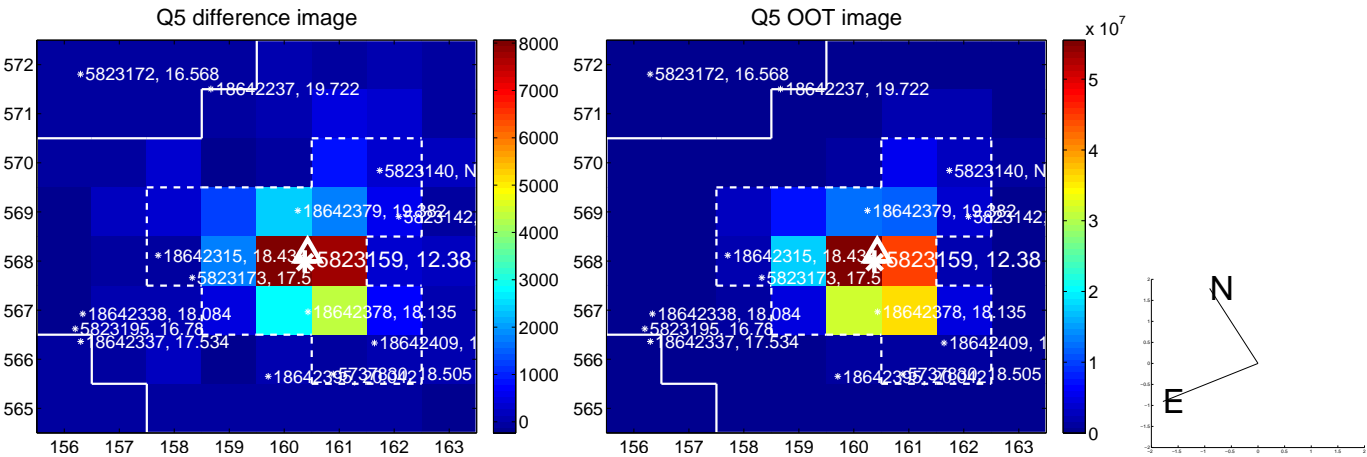
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



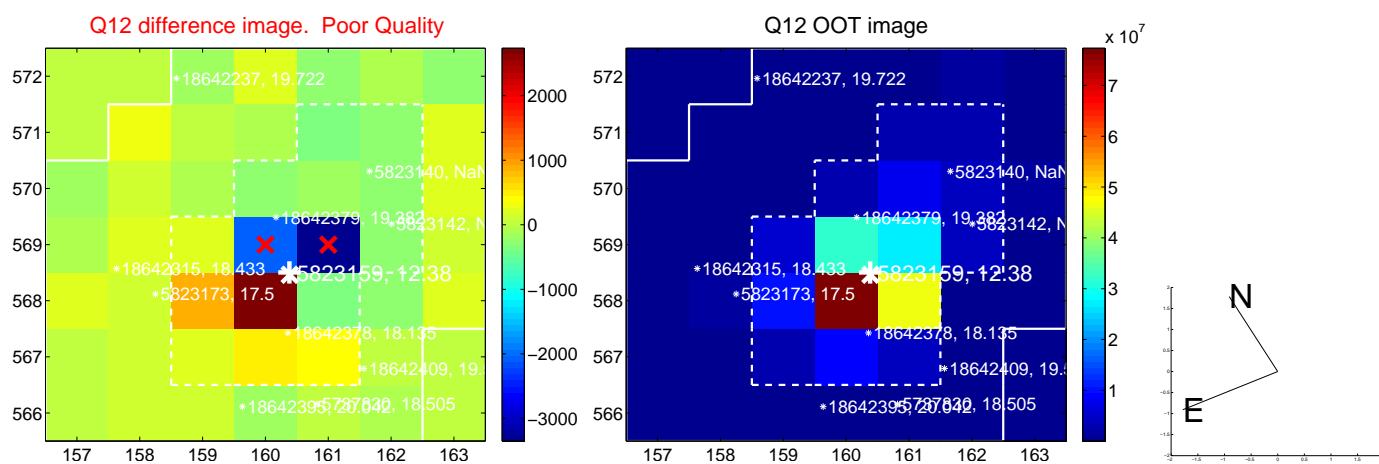
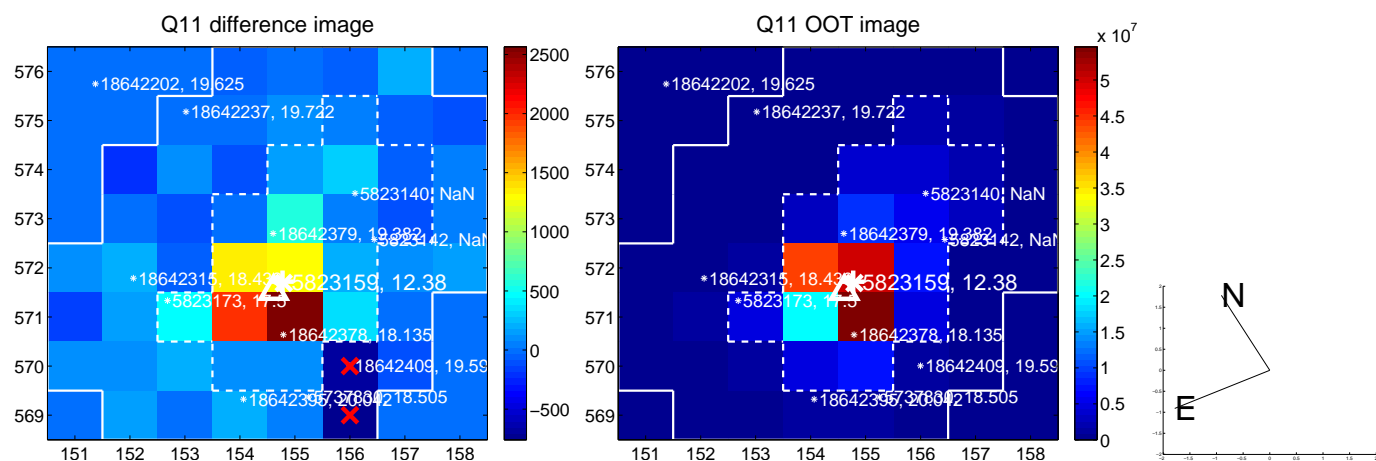
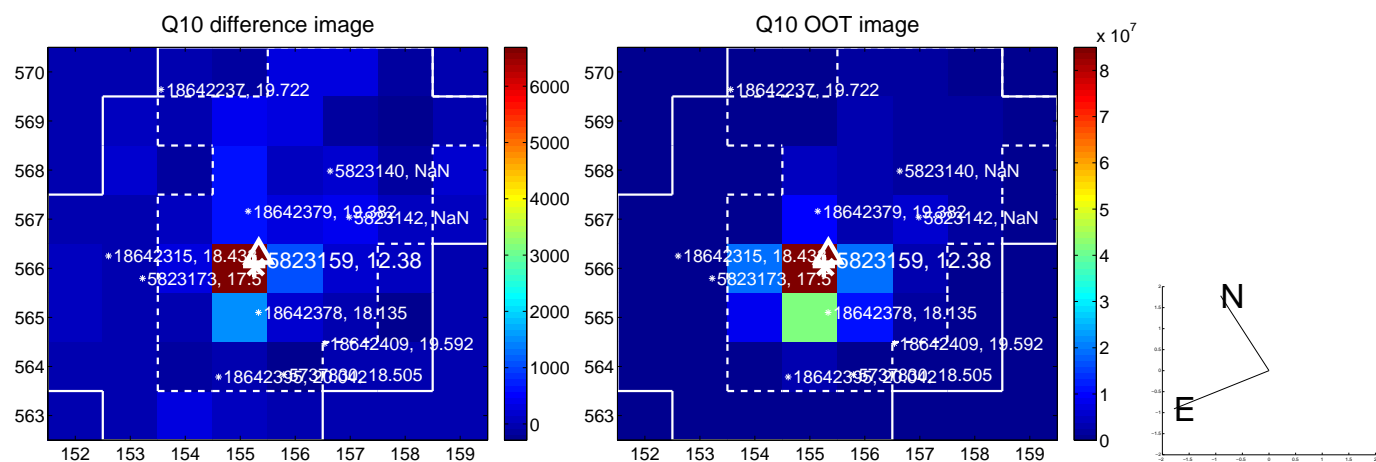
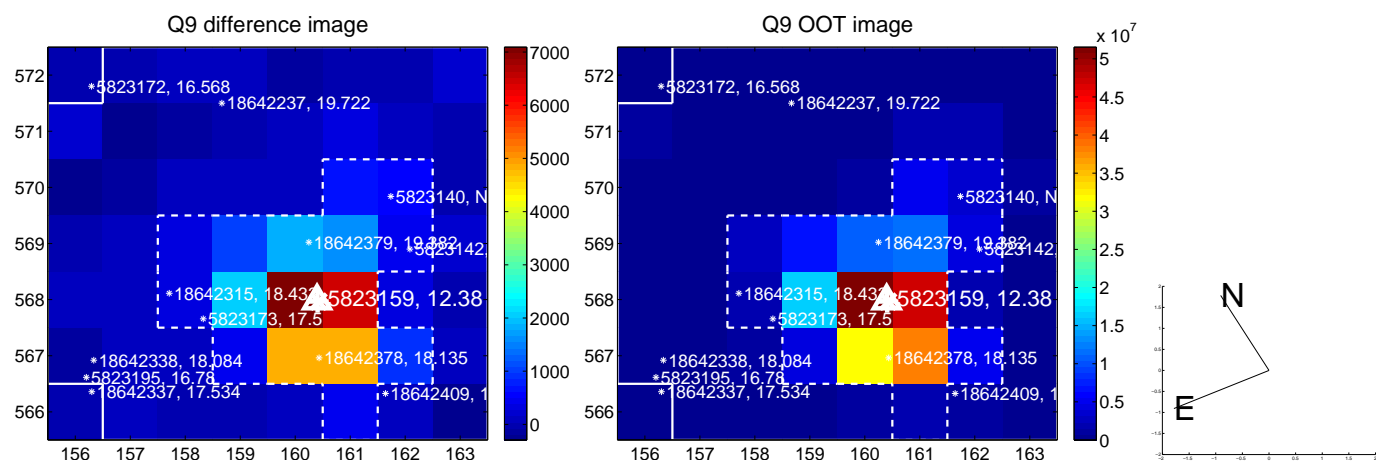
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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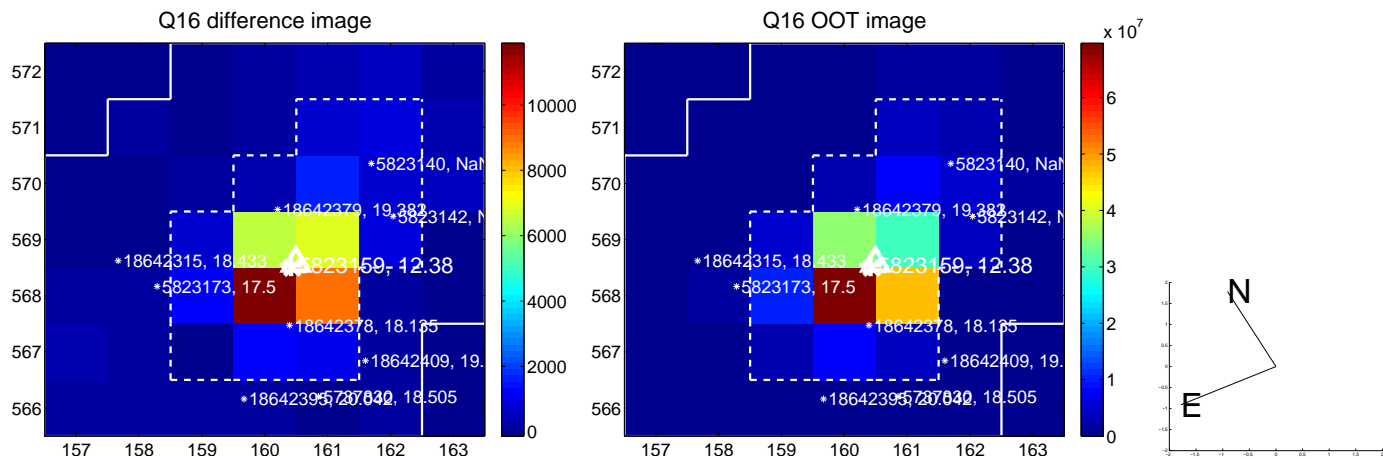
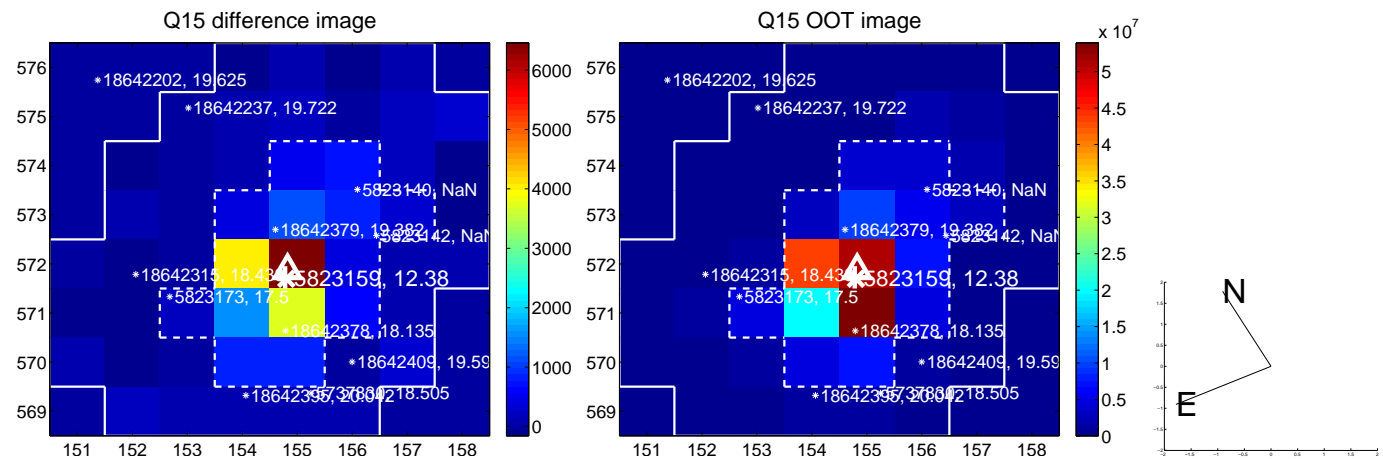
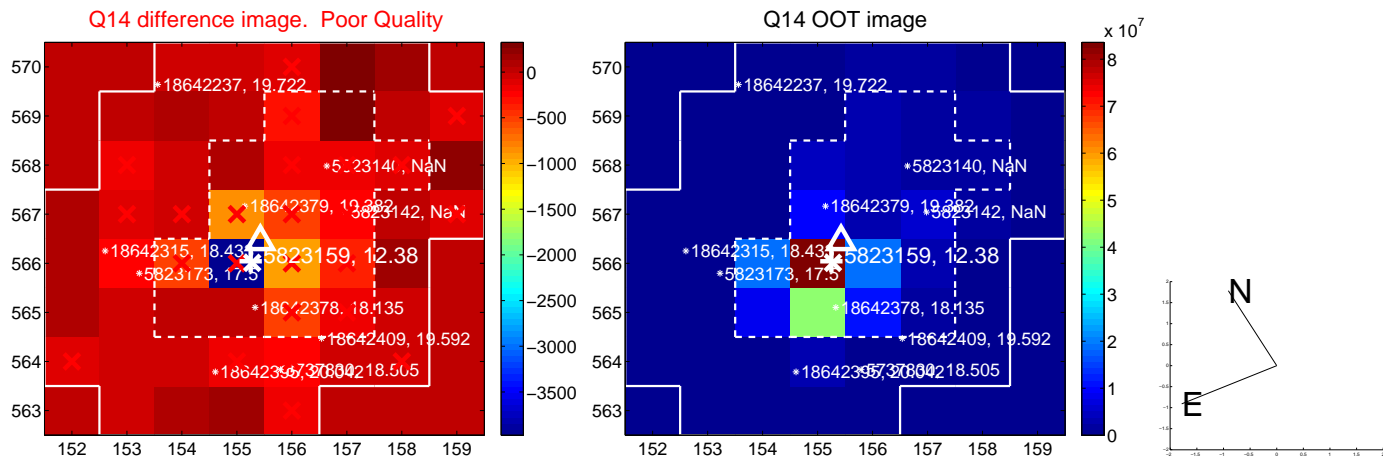
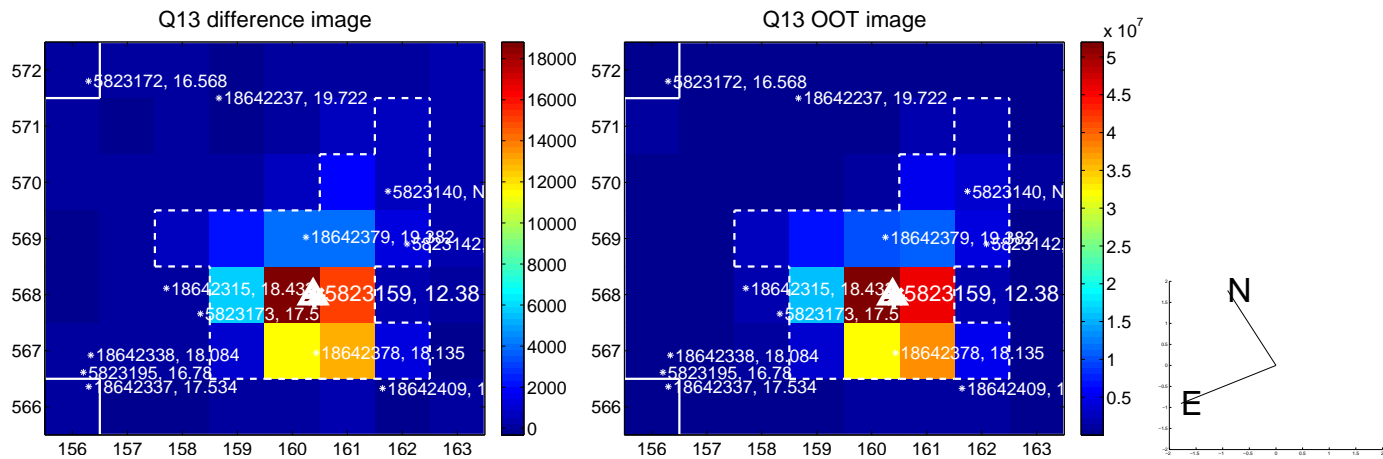


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

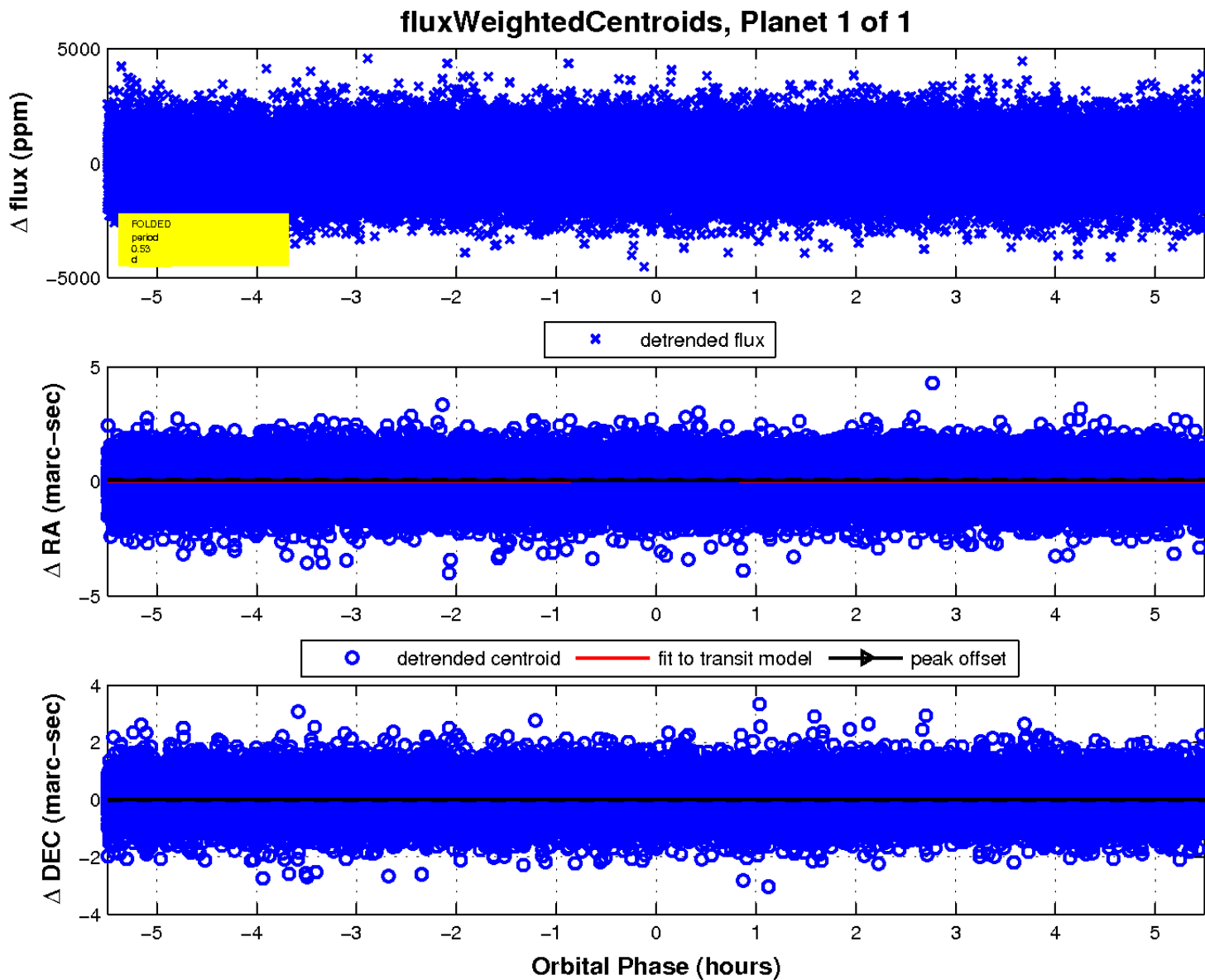
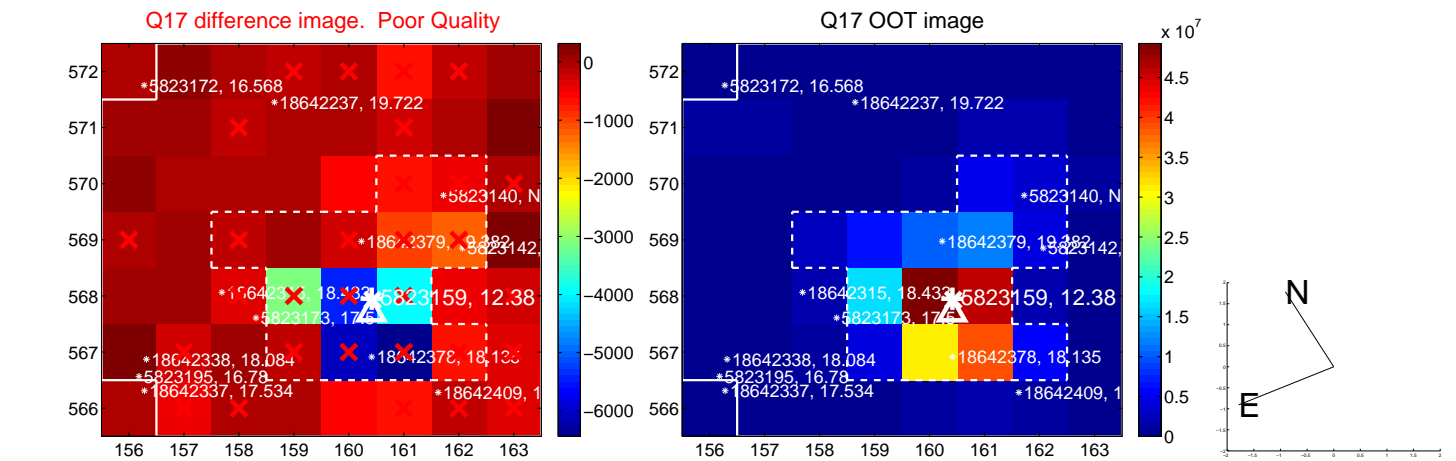




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UKIRT Image

Declination

