

# KIC 005871116

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005871116-01	OBS	8258.01	54.433306	154.908239	334.8	3.775	7.2	7.3	0.83	5119	1.70	6.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005871116-01	OBS	FP	0.27	1	0	0	0	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.

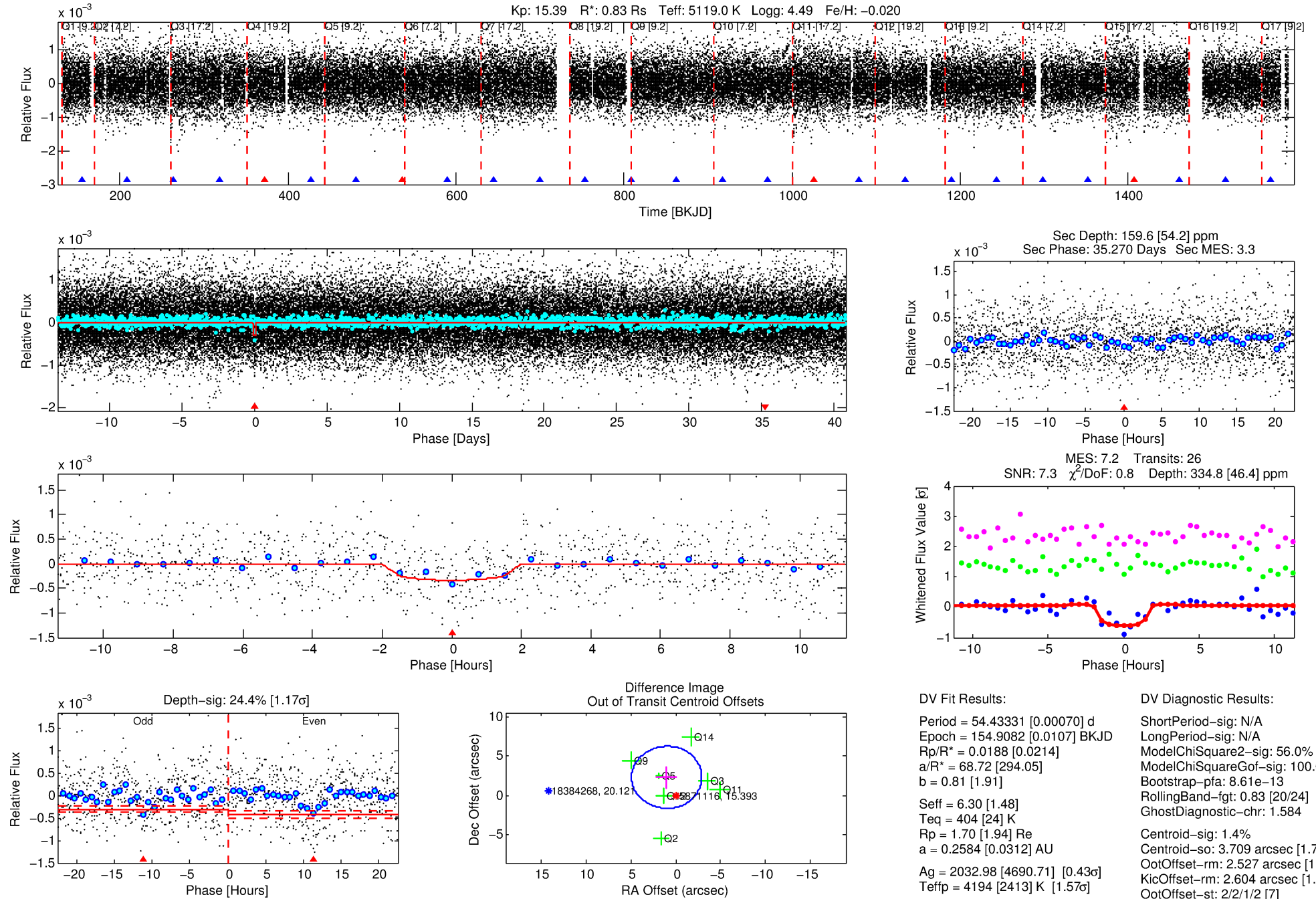
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005871116-01

No Significant Match Found

# DV One-Page Summary

KIC: 5871116 Candidate: 1 of 1 Period: 54.433 d



## DV Fit Results:

Period = 54.43331 [0.00070] d  
Epoch = 154.9082 [0.0107] BKJD  
Rp/R\* = 0.0188 [0.0214]  
a/R\* = 68.72 [294.05]  
b = 0.81 [1.91]  
Seff = 6.30 [1.48]  
Teq = 404 [24] K  
Rp = 1.70 [1.94] Re  
a = 0.2584 [0.0312] AU  
Ag = 2032.98 [4690.71] [0.43 $\sigma$ ]  
Teff = 4194 [2413] K [1.57 $\sigma$ ]

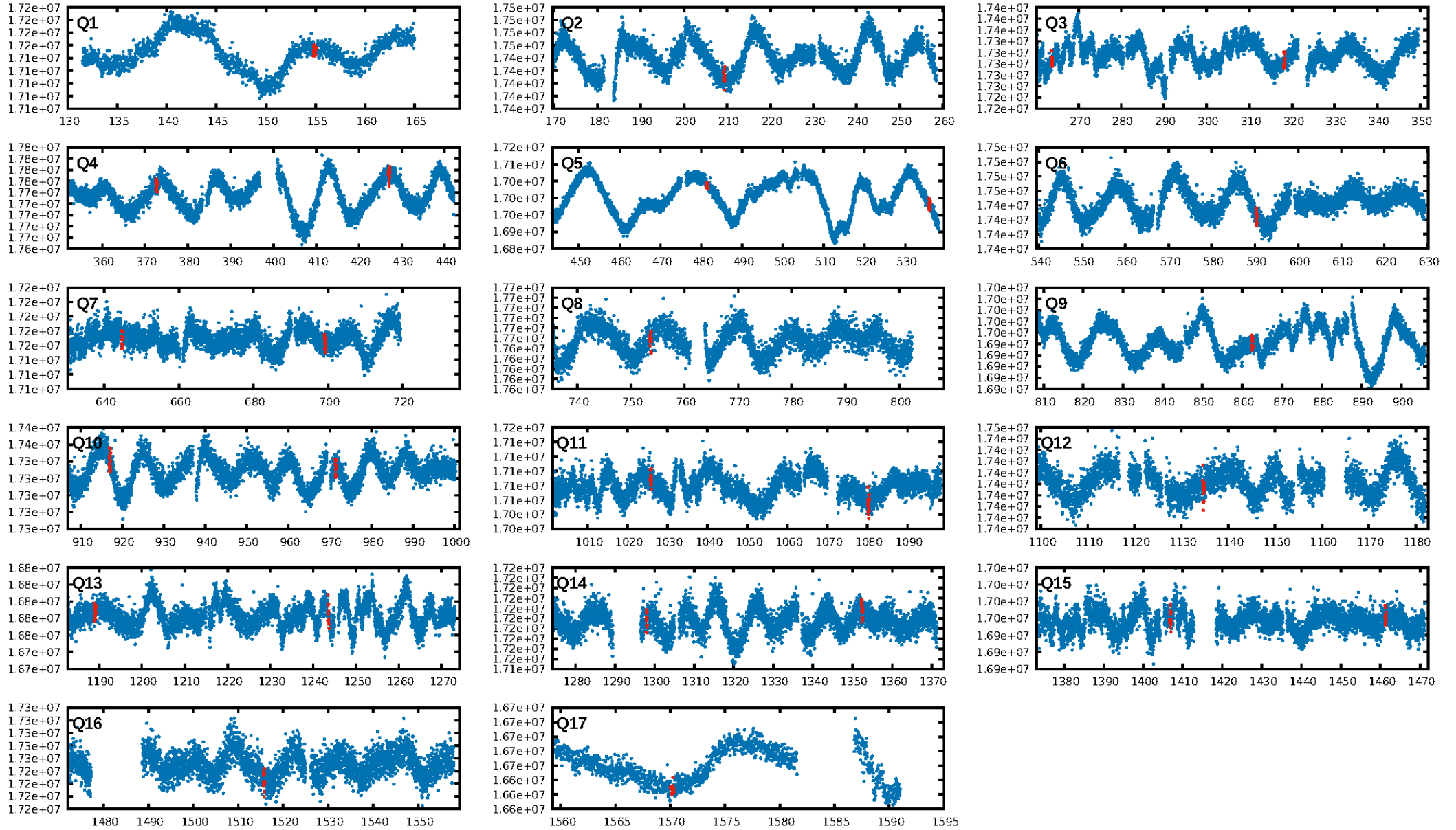
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 56.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 8.61e-13  
RollingBand-fgt: 0.83 [20/24]  
GhostDiagnostic-chr: 1.584  
Centroid-sig: 1.4%  
Centroid-so: 3.709 arcsec [1.78 $\sigma$ ]  
OotOffset-rm: 2.527 arcsec [1.93 $\sigma$ ]  
KicOffset-rm: 2.604 arcsec [1.64 $\sigma$ ]  
OotOffset-st: 2/2/1/2 [7]  
KicOffset-st: 2/2/1/2 [7]  
DiffImageQuality-fgm: 0.00 [0/7]  
DiffImageOverlap-fno: 1.00 [17/17]

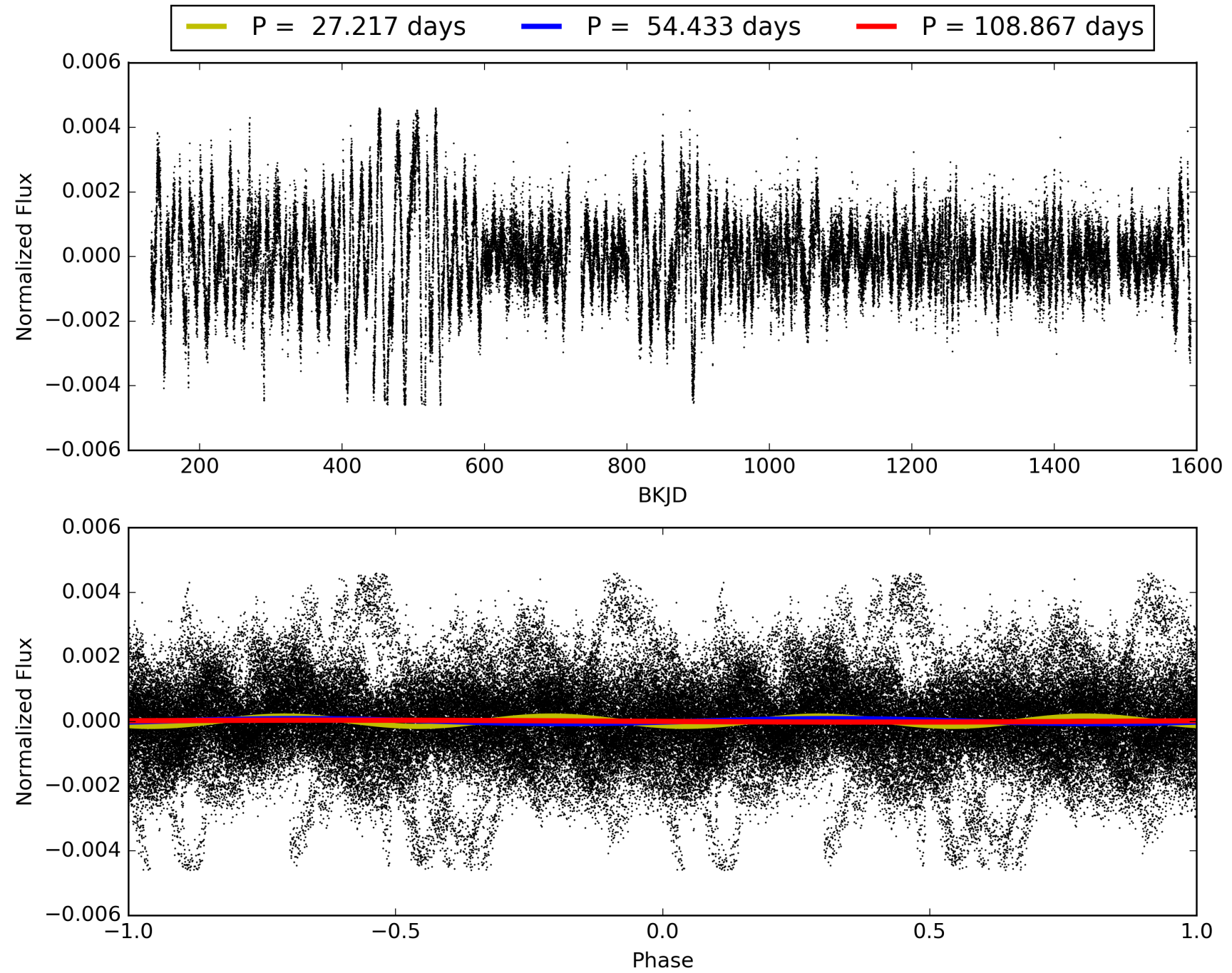
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:59:11 Z

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

# TCE 005871116-01, PDC Light Curves

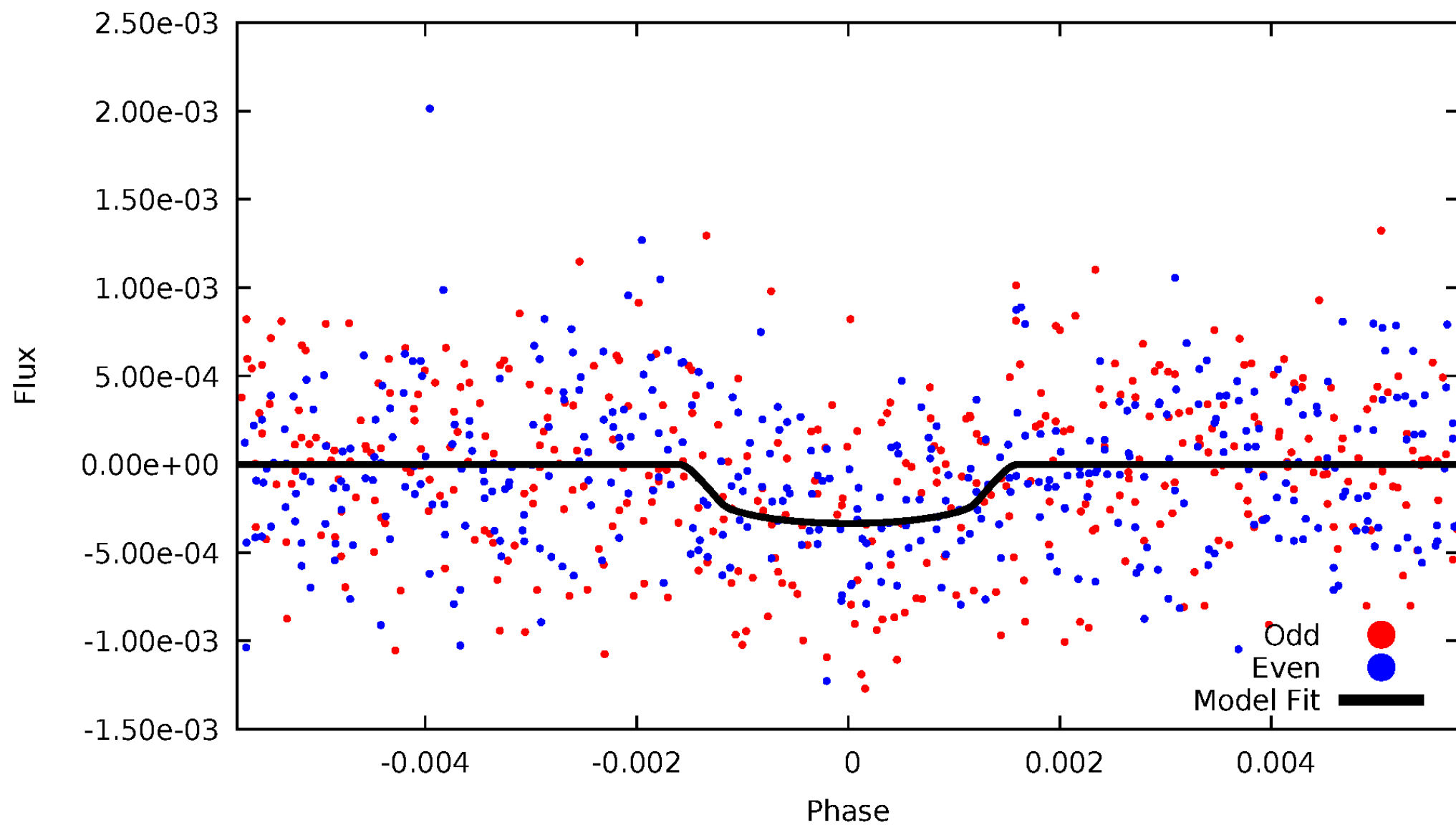


TCE 005871116-01



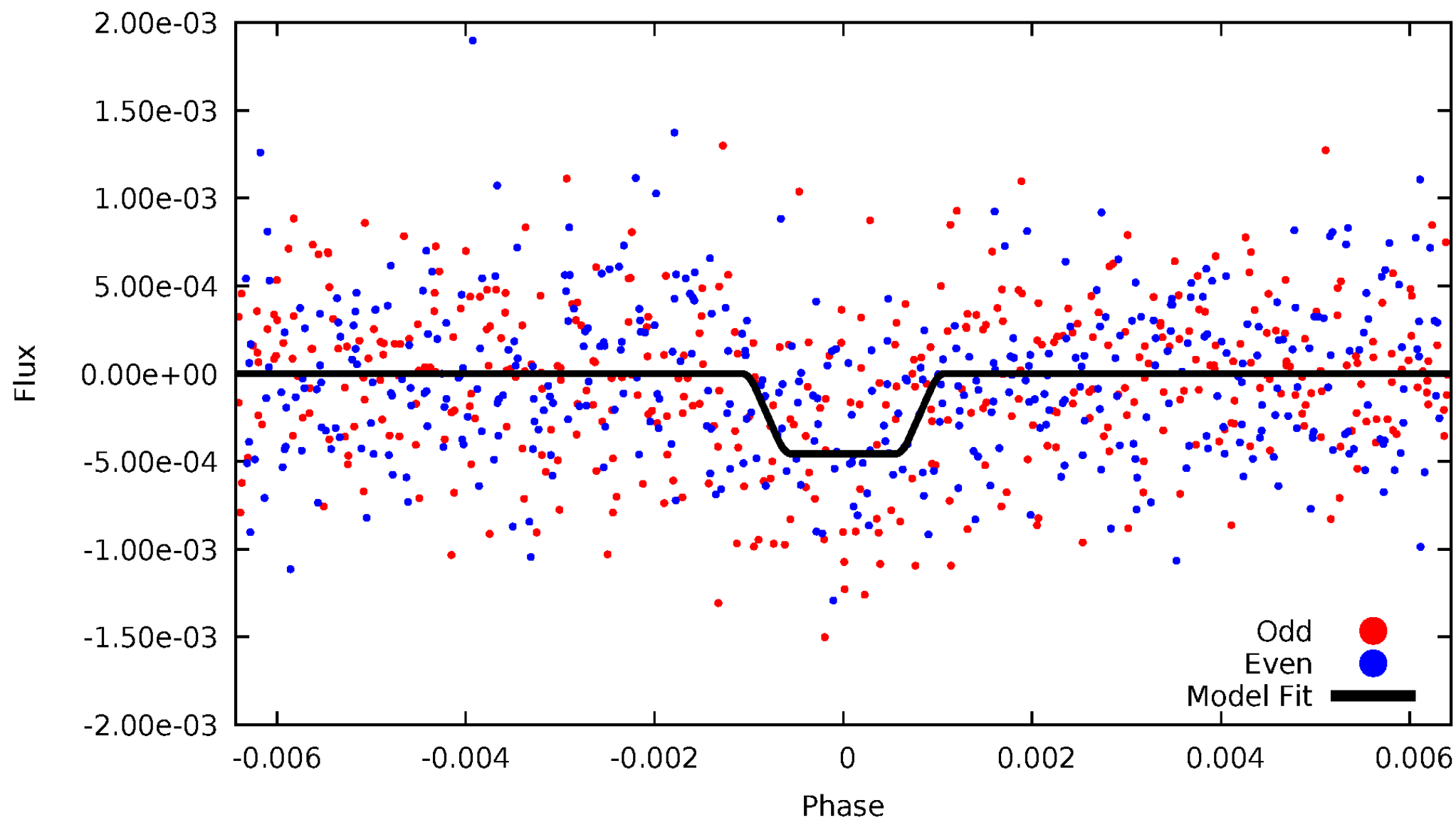
# DV Odd/Even

TCE 005871116-01



# ALT Odd/Even

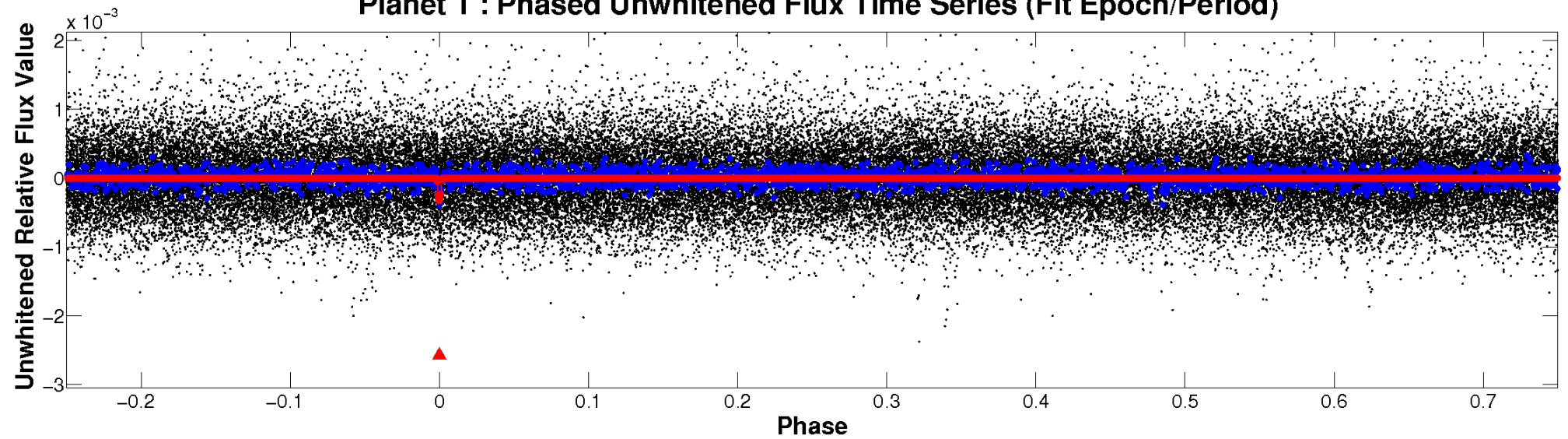
TCE 005871116-01



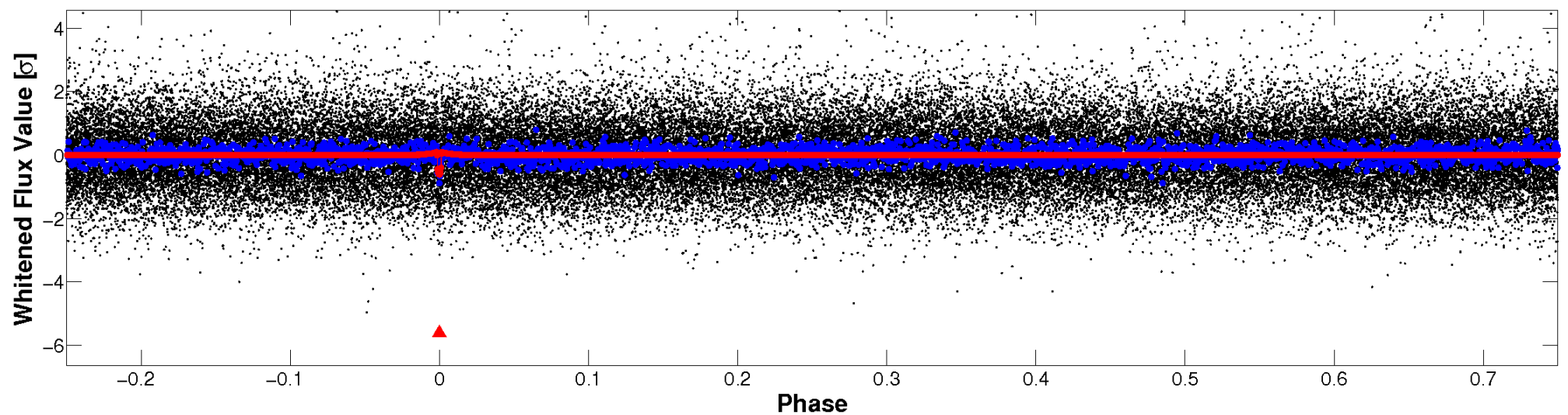


# Non-Whitened Vs. Whitened Light Curve

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

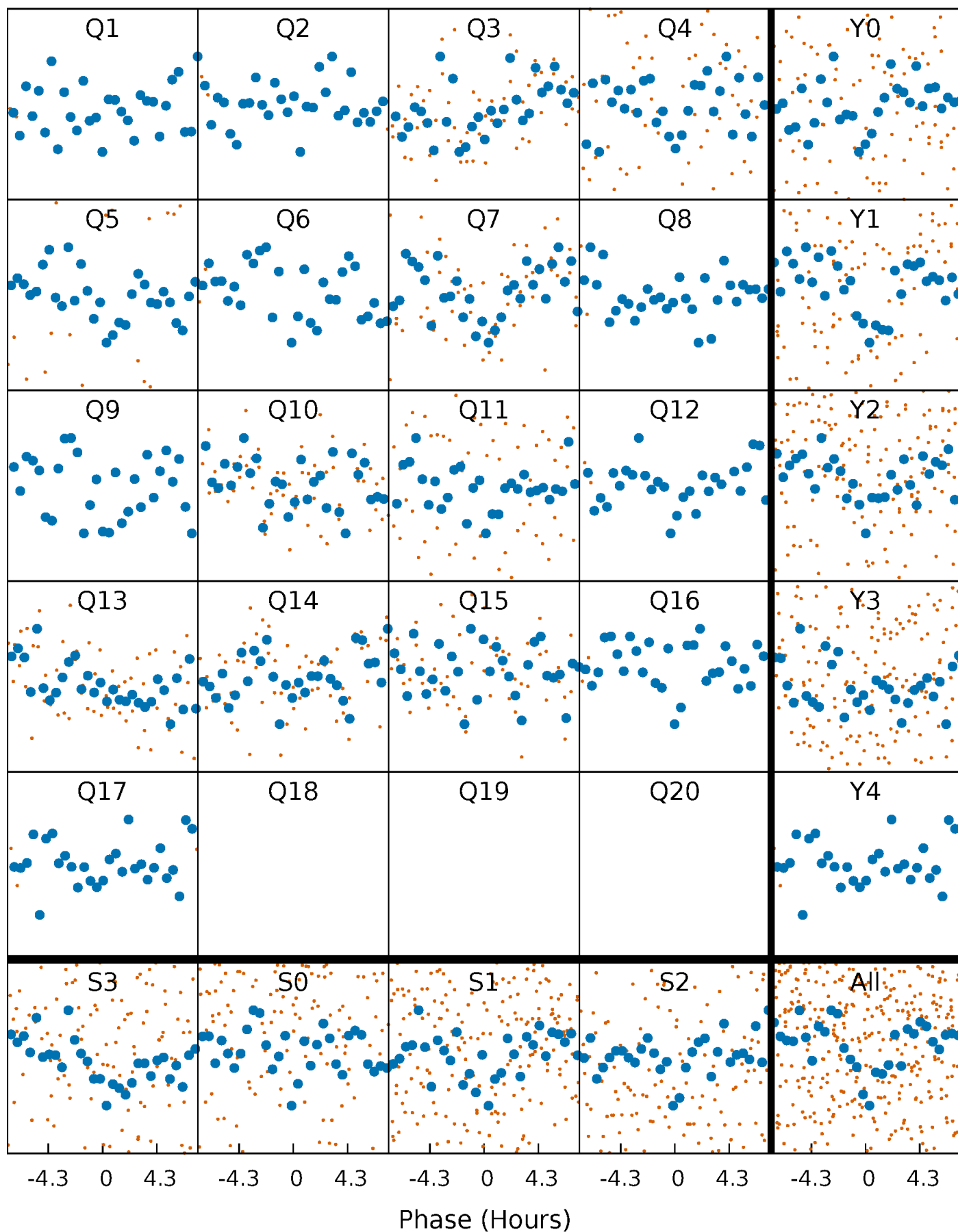


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

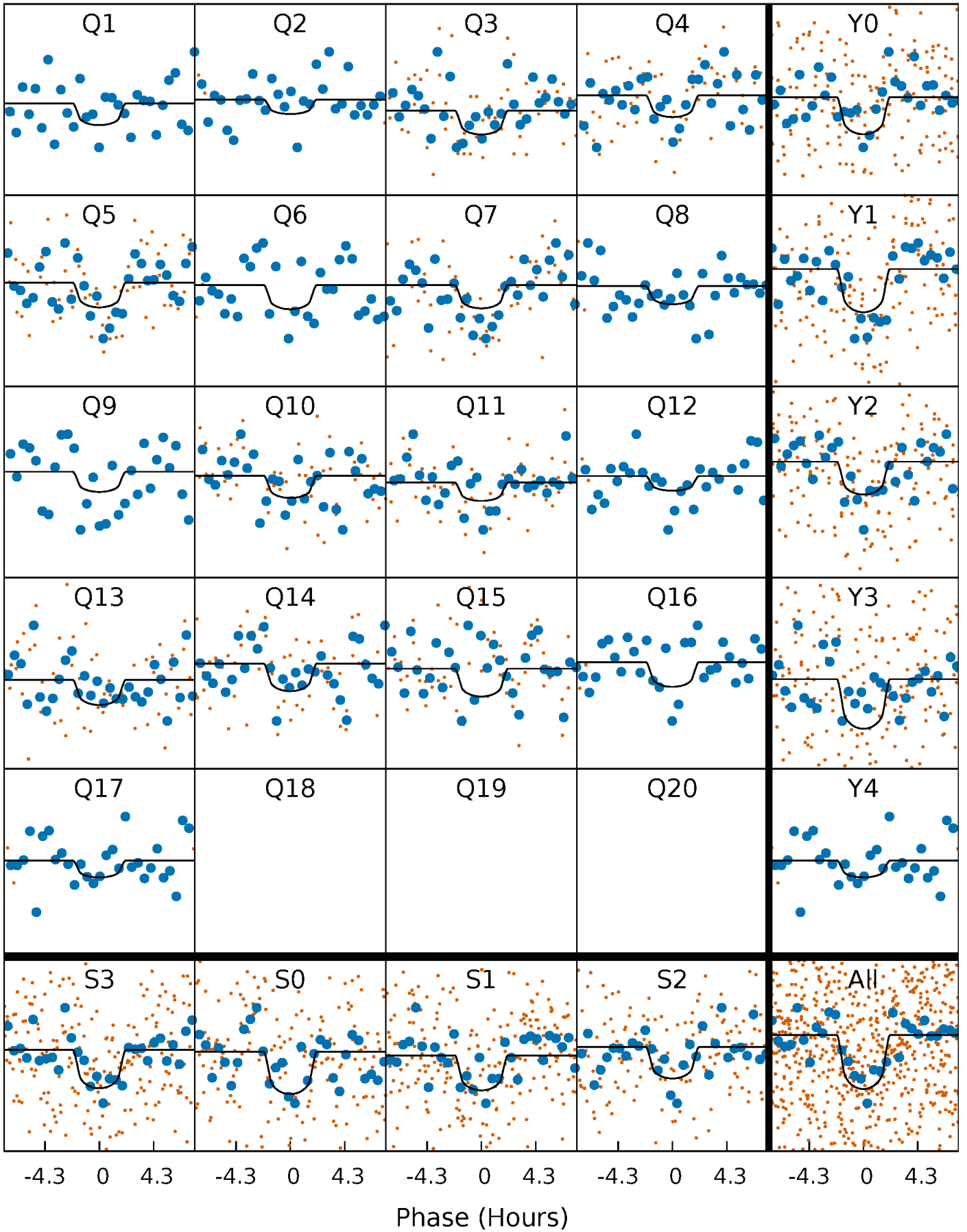
TCE 005871116-01 P= 54.433306 Days  $T_0=154.908239$  (BKJD)





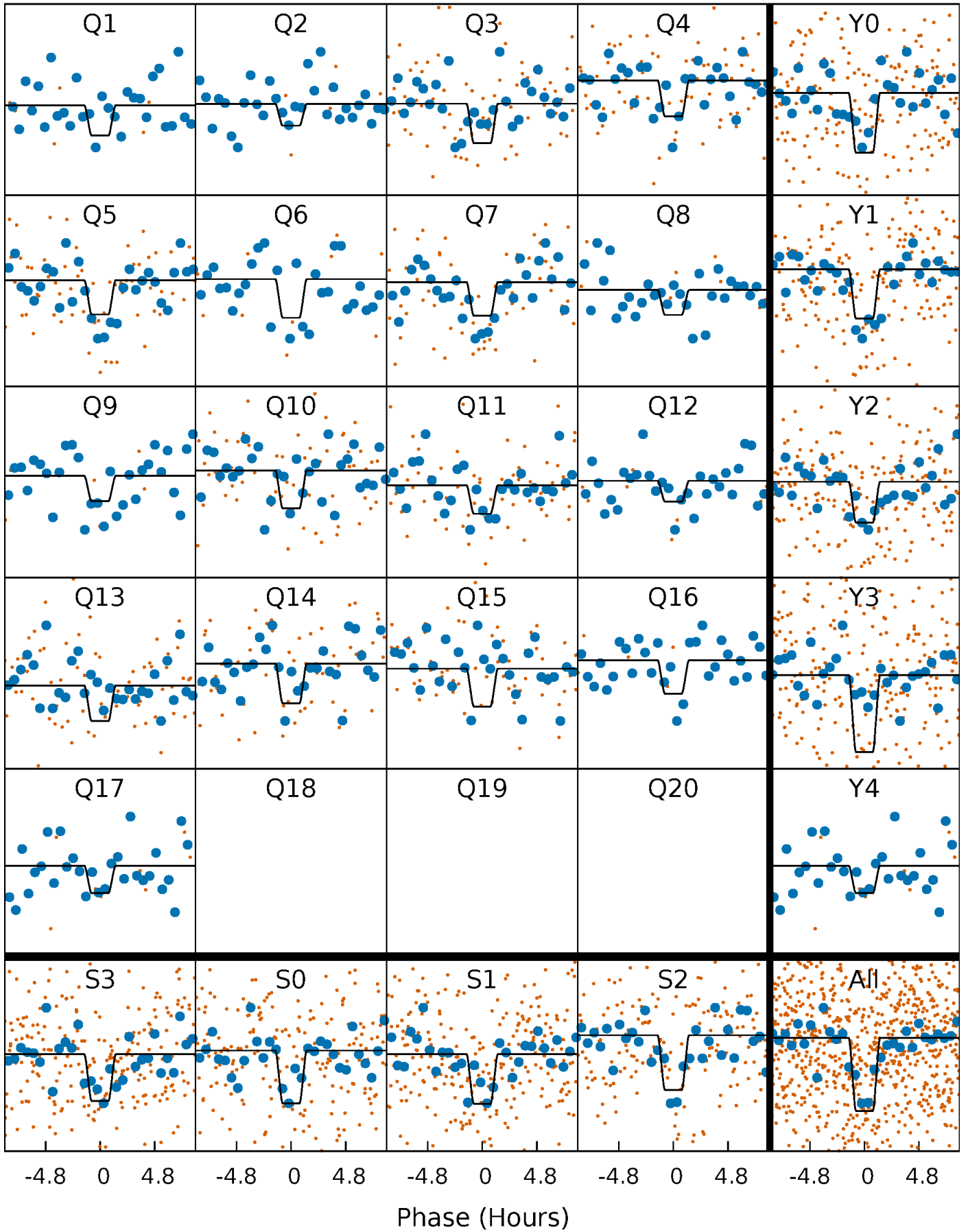
# DV Quarter-Phased Transit Curves

TCE 005871116-01 P= 54.433306 Days  $T_0=154.908239$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

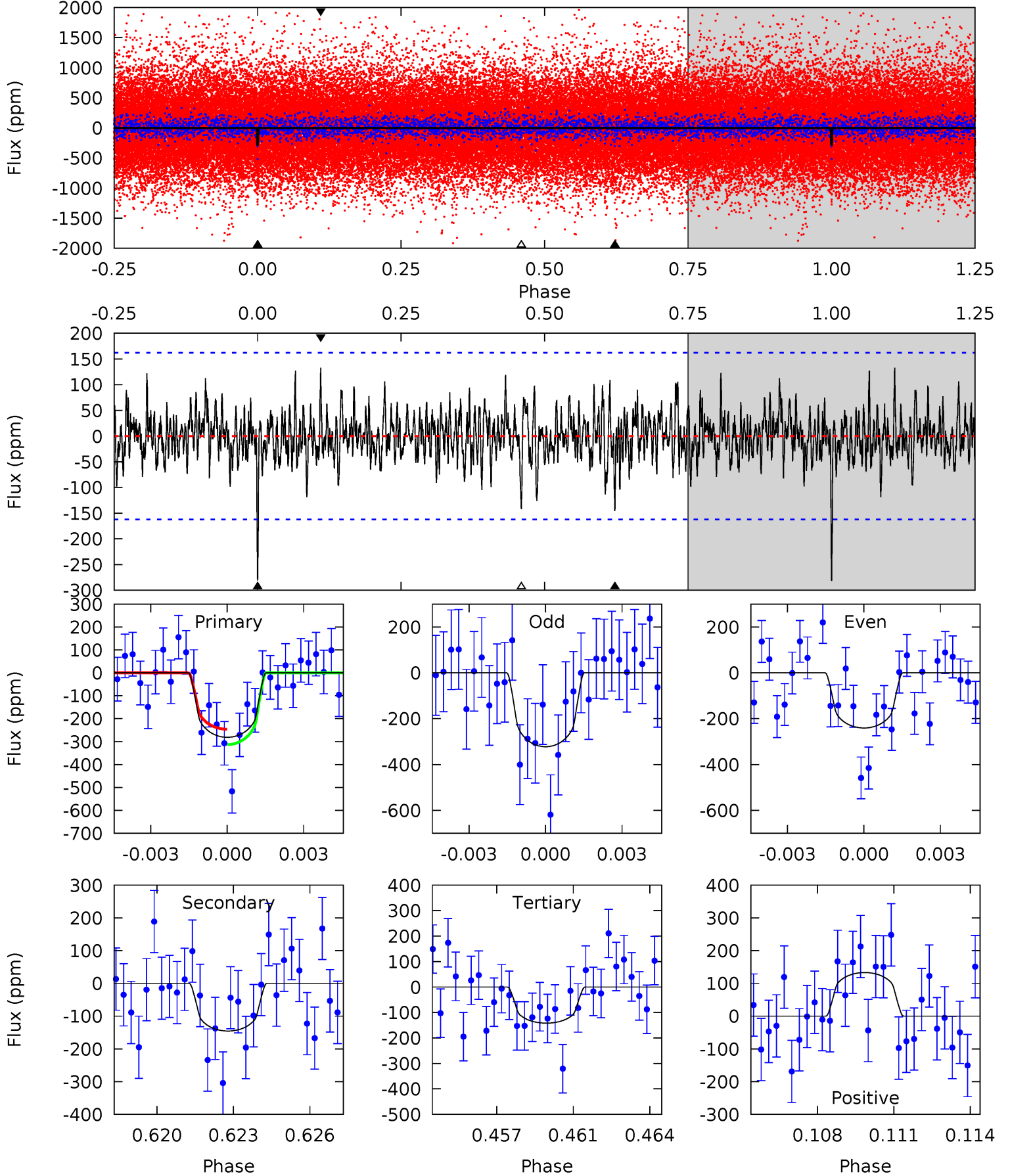
TCE 005871116-01 P= 54.431541 Days  $T_0=154.934566$  (BKJD)



# DV Model-Shift Uniqueness Test

005871116-01, P = 54.433306 Days, E = 100.474933 Days

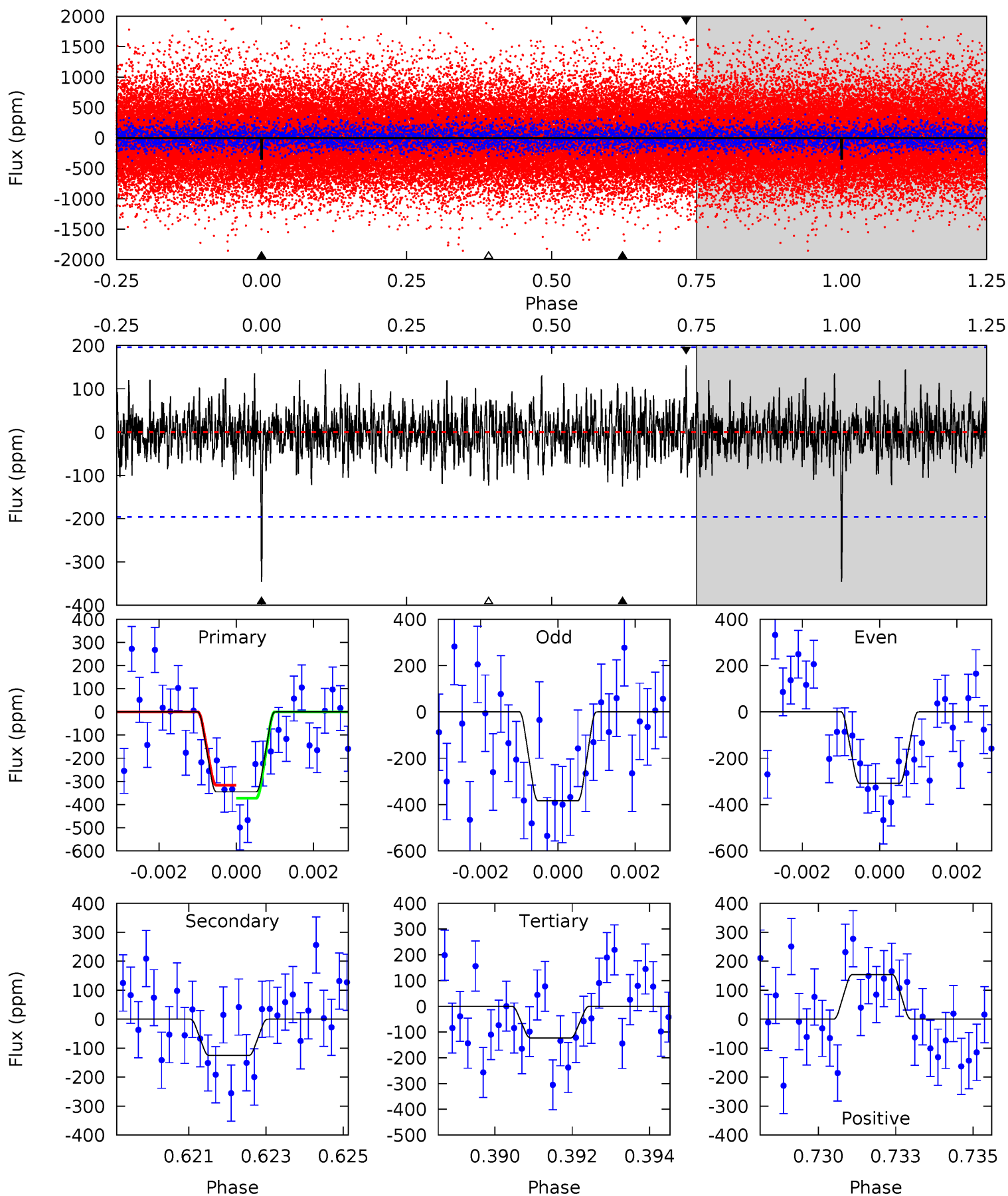
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.09	4.70	4.58	4.30	5.24	2.95	1.26	4.51	4.79	0.12	0.40	1.32	1.29	0.32	1.09



# Alt Model-Shift Uniqueness Test

005871116-01, P = 54.431541 Days, E = 100.503025 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
9.36	3.39	3.34	4.18	5.31	3.07	1.12	6.02	5.18	0.05	-0.79	1.02	1.16	0.31	0.76



### Stellar Parameters For KIC 005871116

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5119^{+153}_{-153}$	$4.493^{+0.099}_{-0.121}$	$-0.020^{+0.300}_{-0.250}$	$0.827^{+0.096}_{-0.096}$	$0.777^{+0.098}_{-0.057}$	$1.936^{+0.756}_{-0.586}$
	+3%/-3%	+2%/-3%	+1500%/-1250%	+12%/-12%	+13%/-7%	+39%/-30%
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 005871116-01 / KOI 8258.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-145 \pm 31$	$2.23^{+1.84}_{-1.40}$	$567^{+28}_{-25}$	$3916^{+1905}_{-717}$	$1079^{+6393}_{-765}$
Alt.	$-125 \pm 37$	$2.41^{+1.68}_{-1.52}$	$565^{+29}_{-25}$	$3690^{+1761}_{-574}$	$802^{+5034}_{-540}$

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

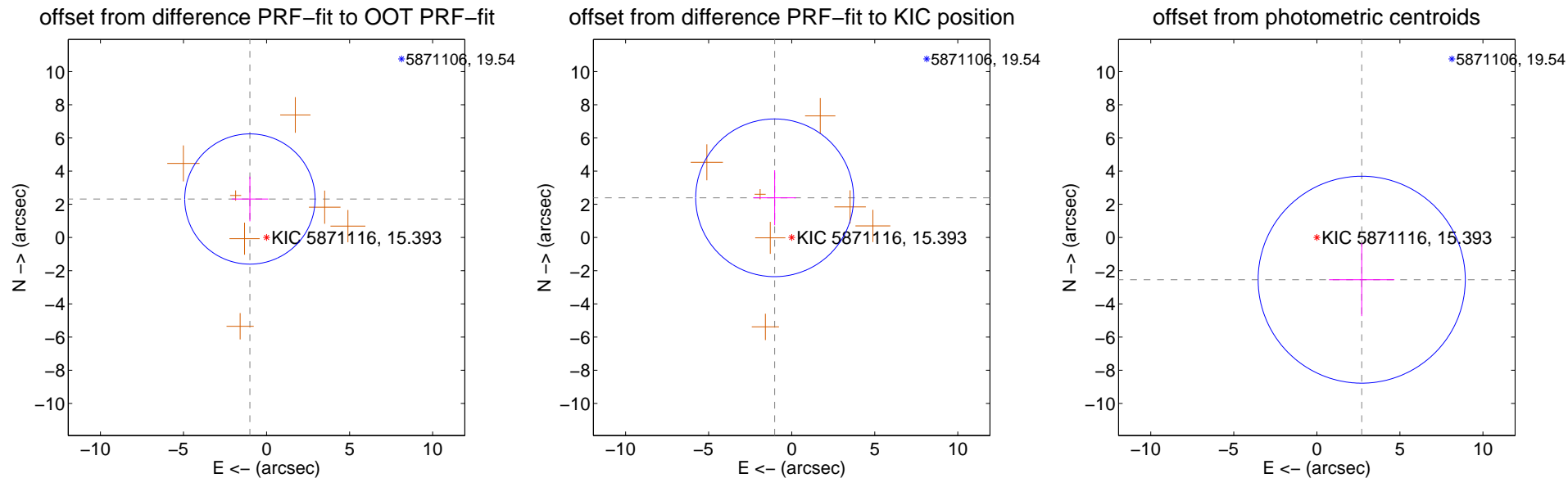
## DV Centroid Data

Supplemental centroid analysis for 005871116-01. Kepler magnitude: 15.39. Transit SNR 7.31

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

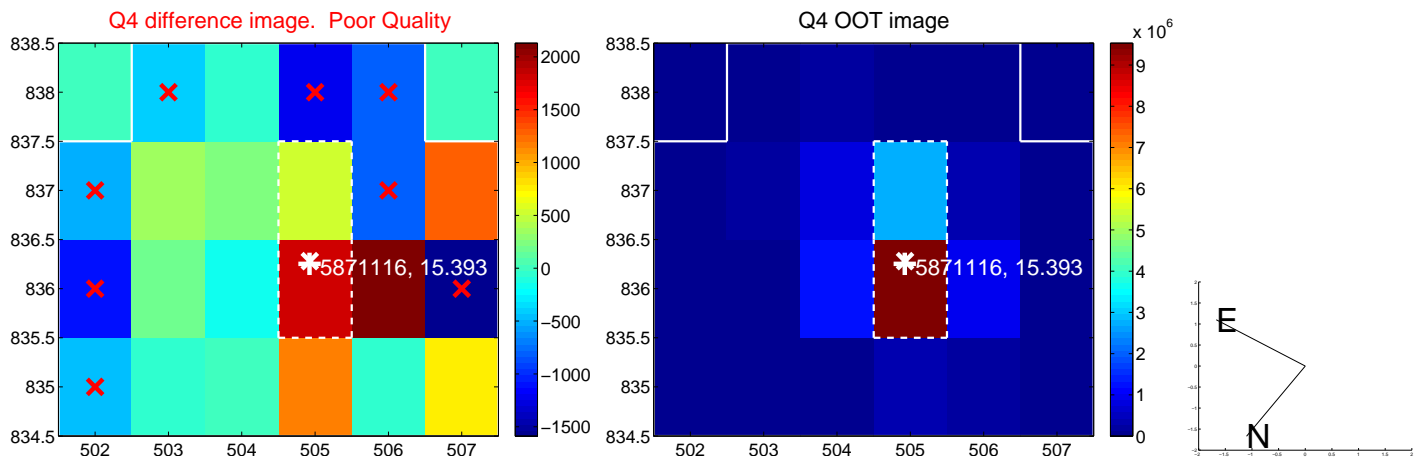
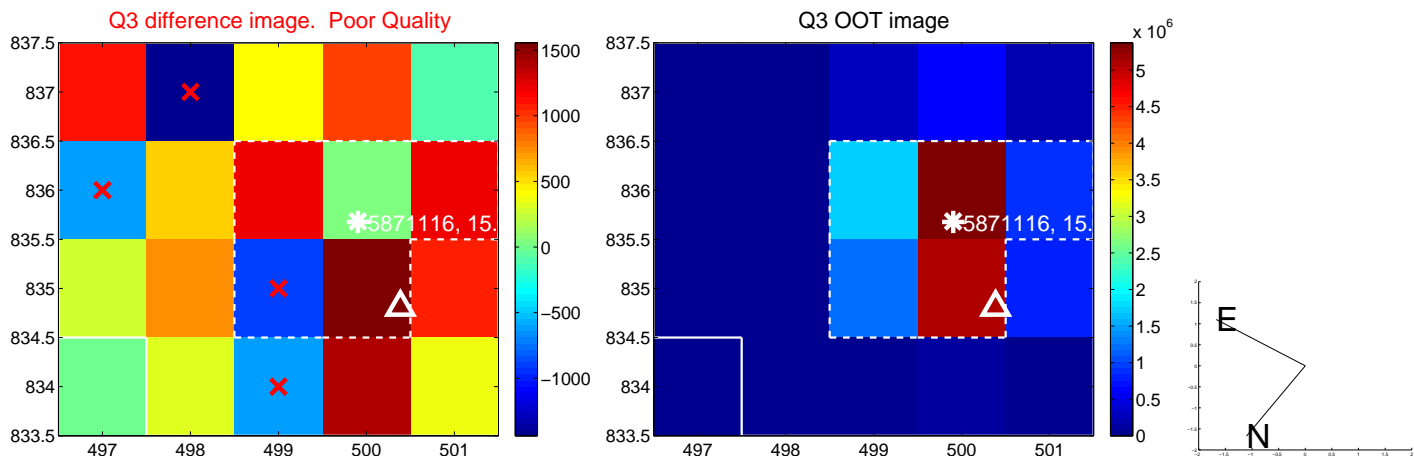
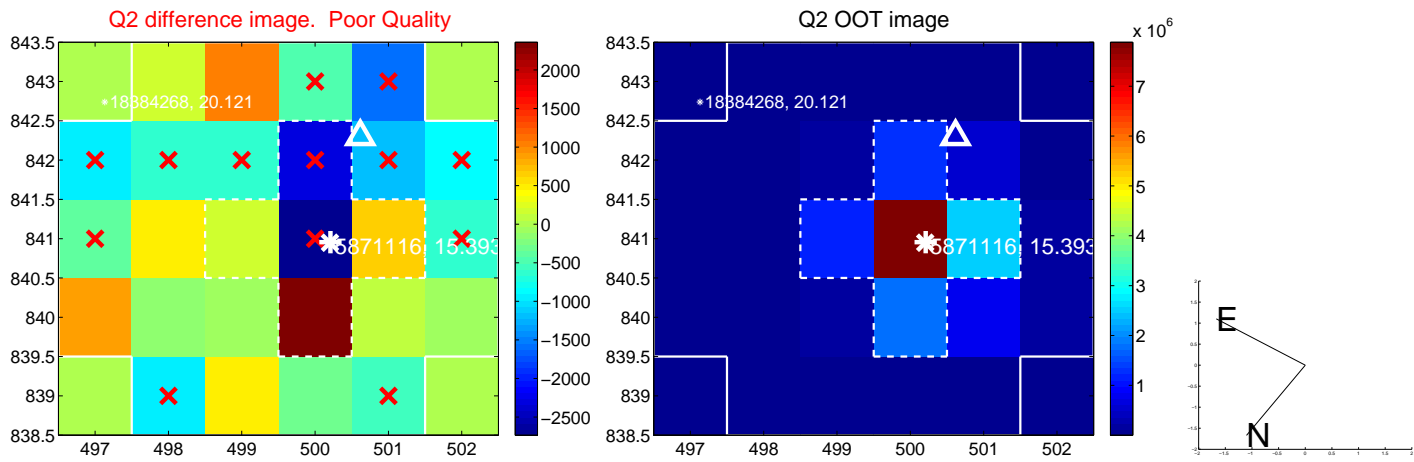
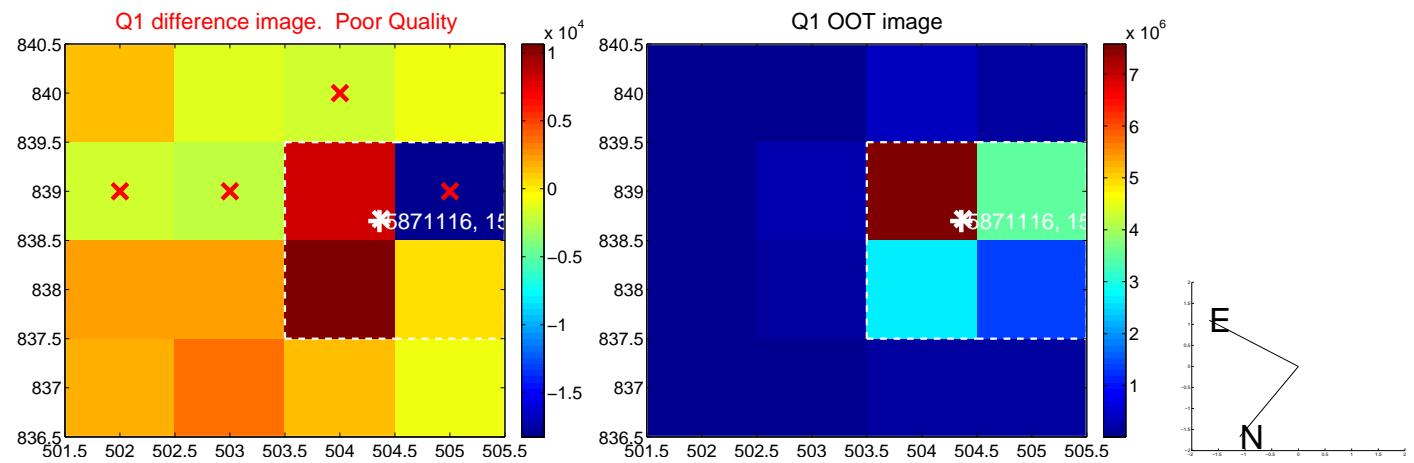
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.527 \pm 1.308$	1.93	$1.002 \pm 1.098$	$2.320 \pm 1.347$
PRF-fit source offset from KIC position	$2.604 \pm 1.584$	1.64	$1.028 \pm 1.292$	$2.393 \pm 1.656$
photometric centroid source offset	$3.71 \pm 2.08$	1.78	$-2.70 \pm 1.97$	$-2.54 \pm 2.19$



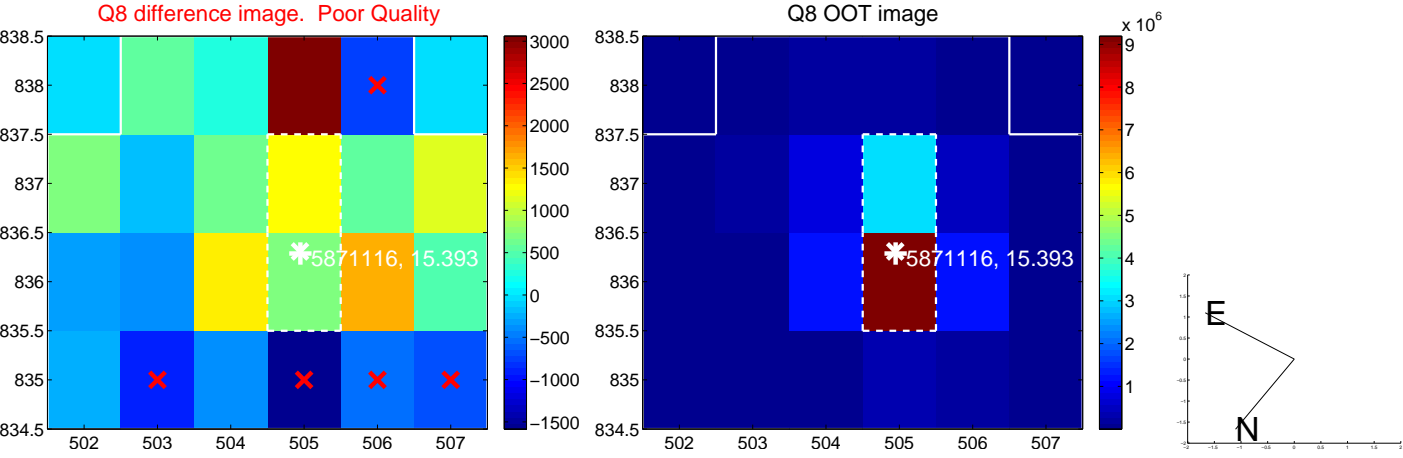
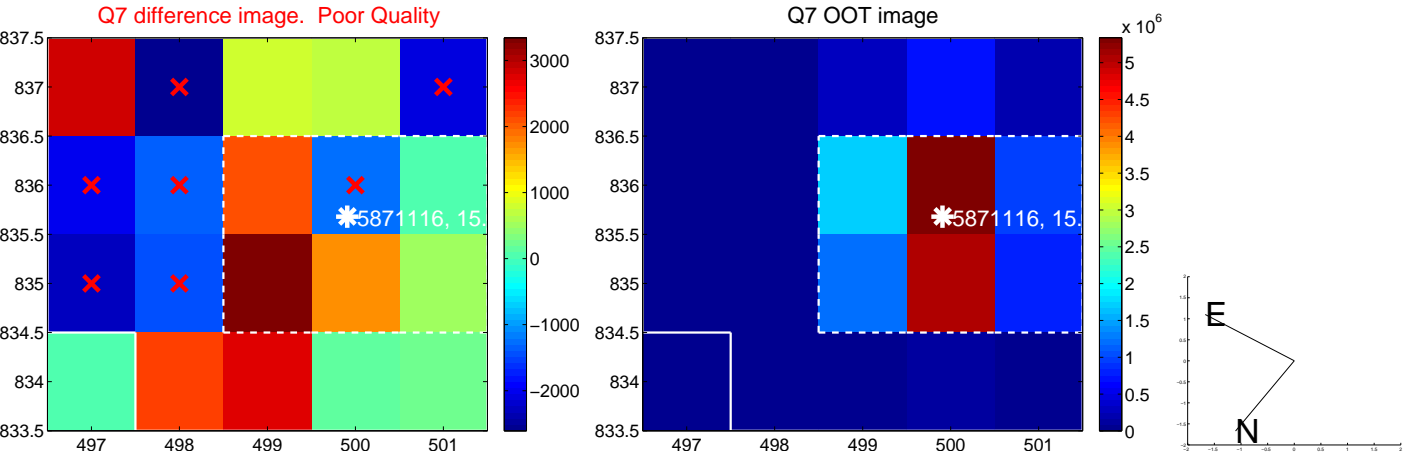
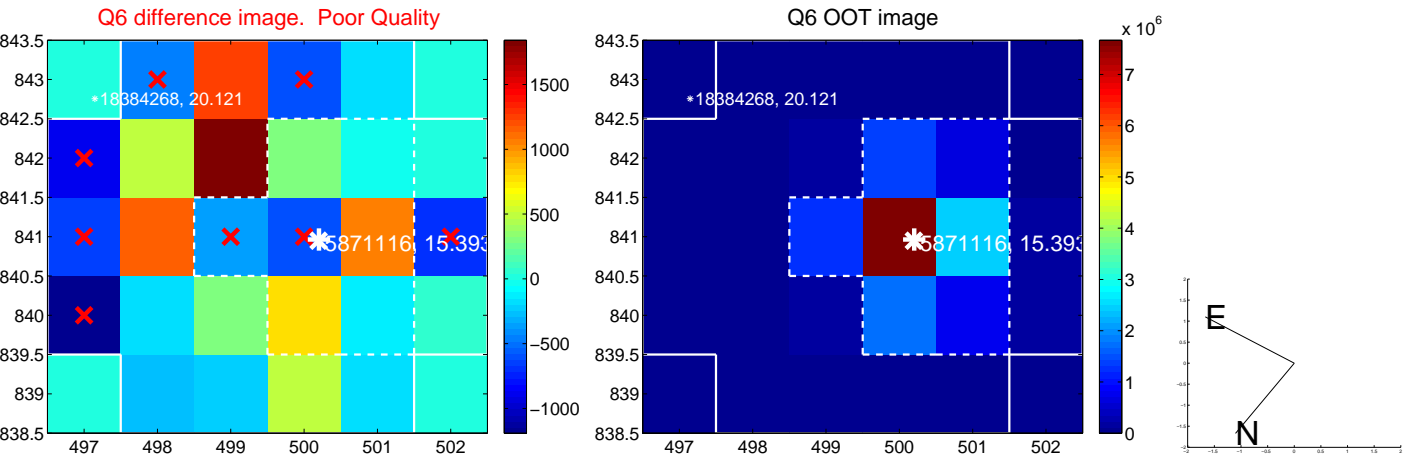
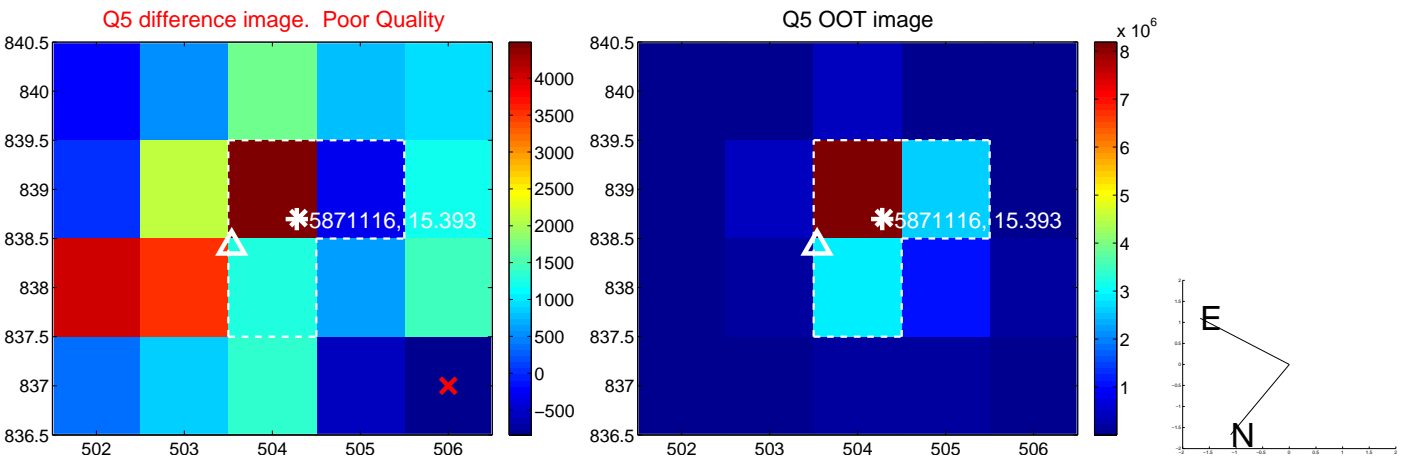
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



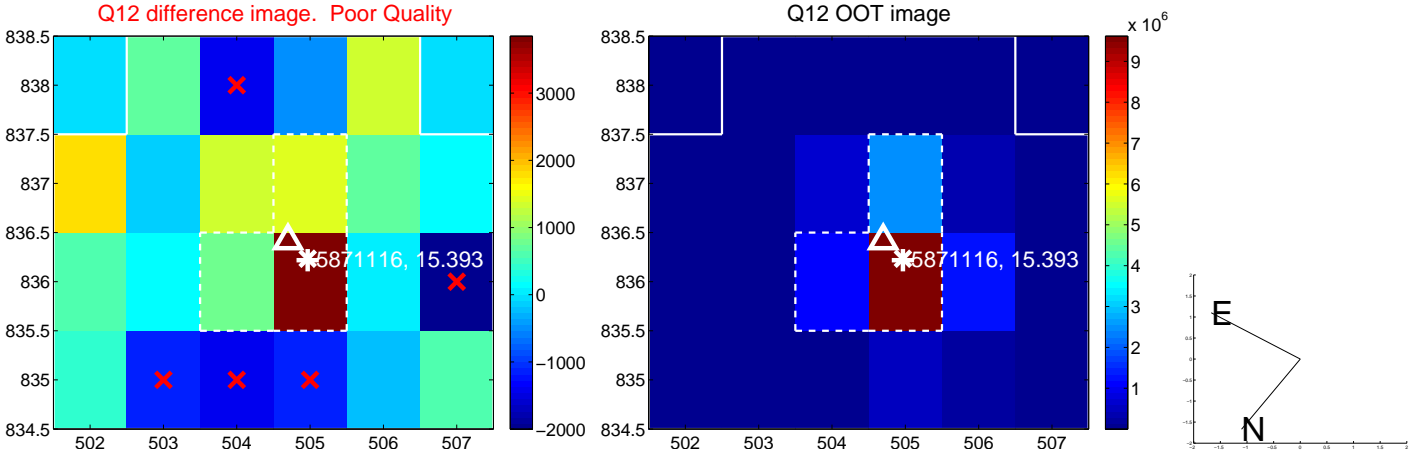
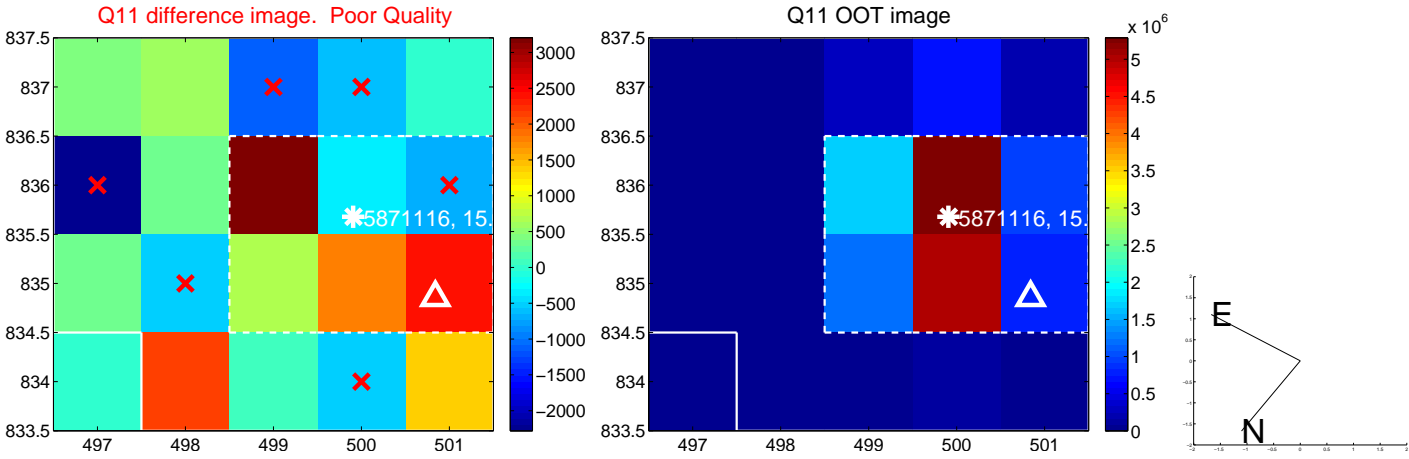
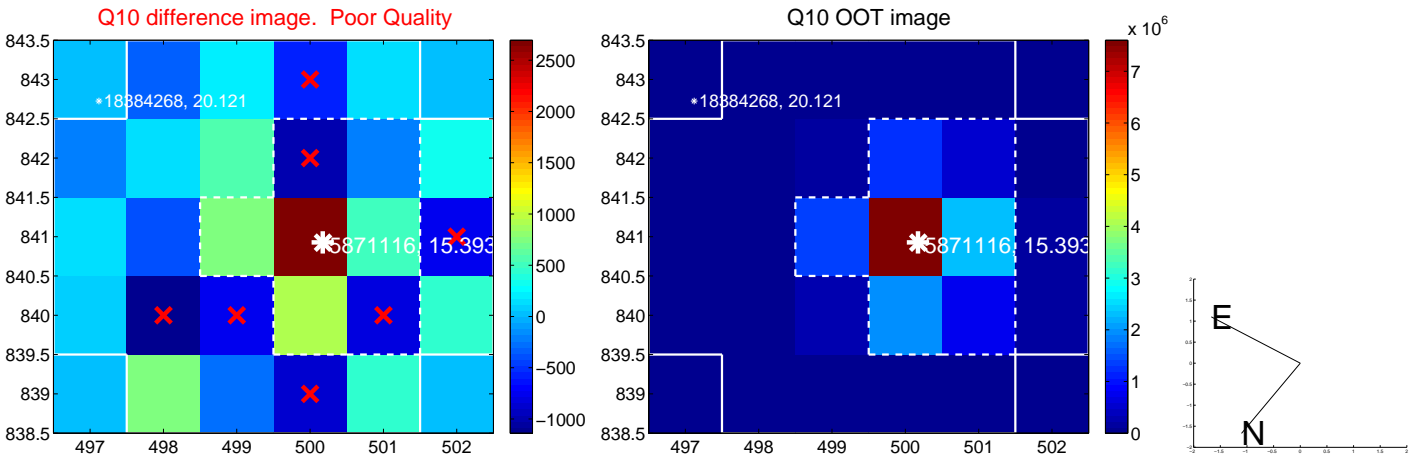
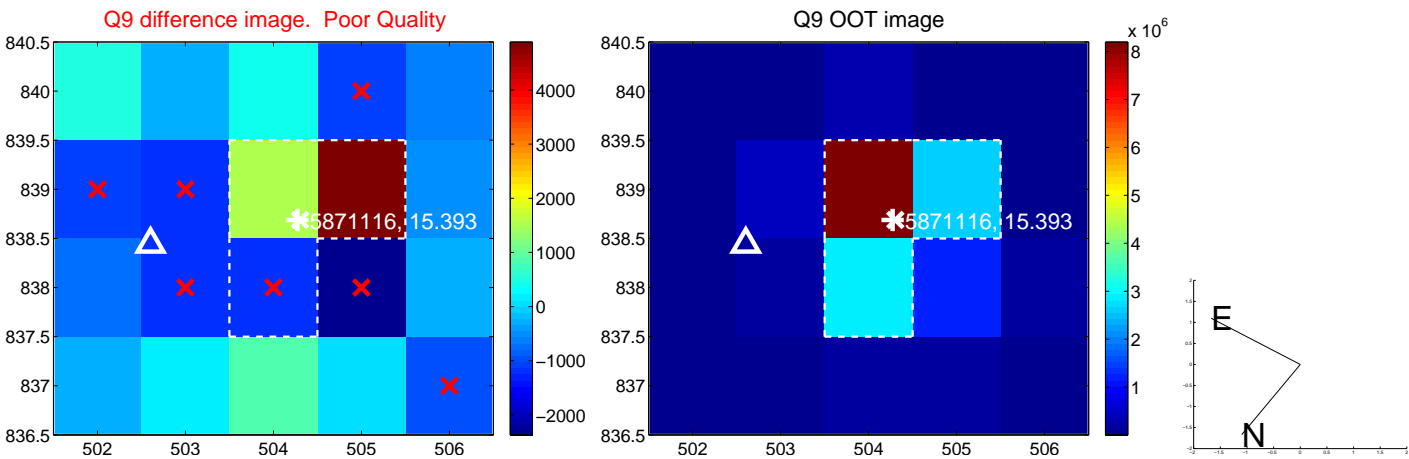
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



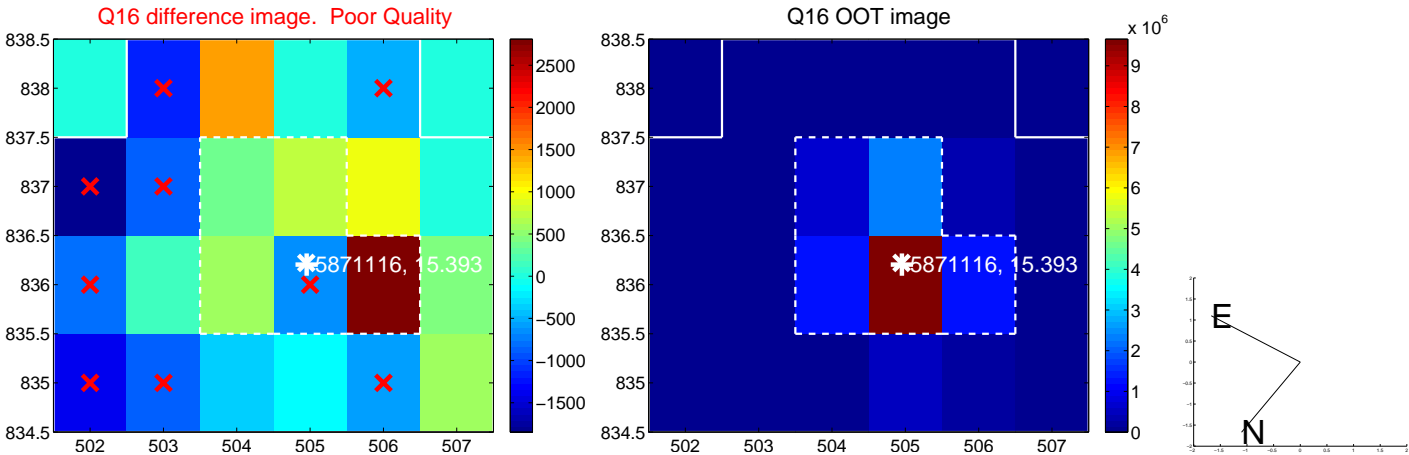
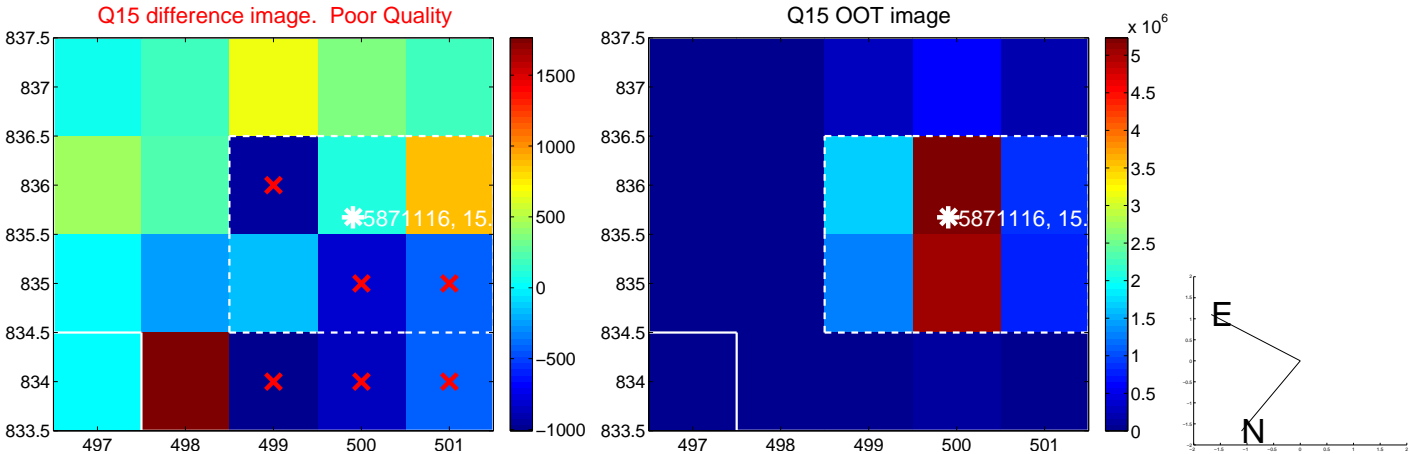
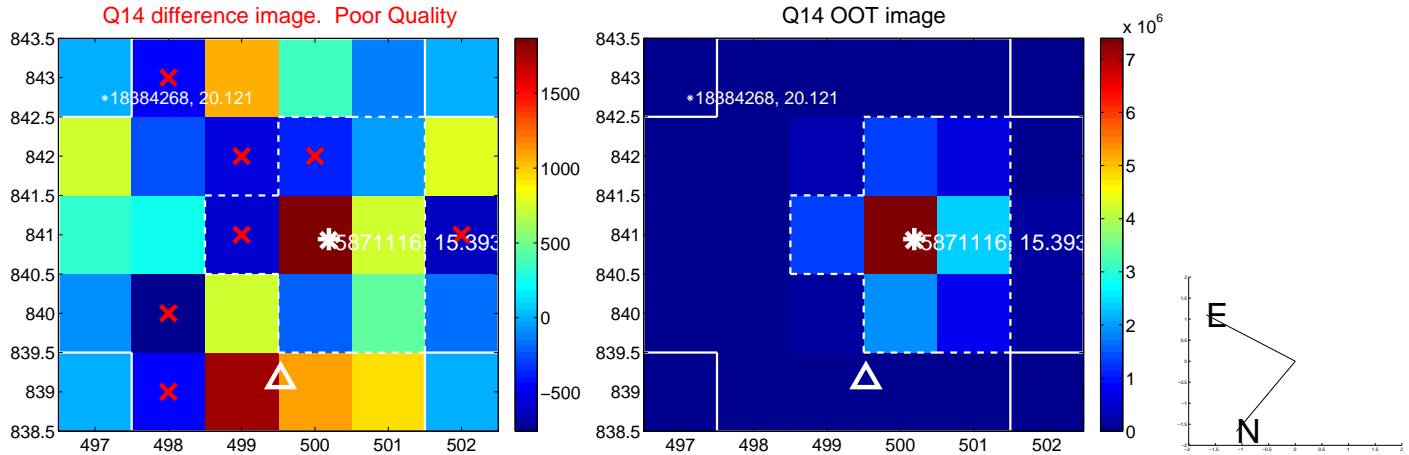
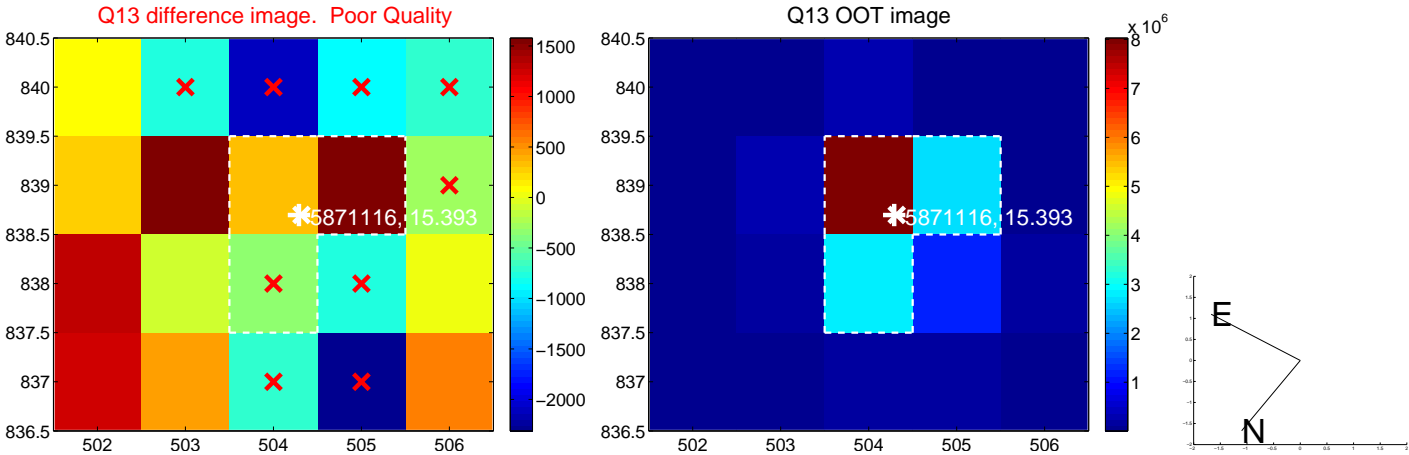
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



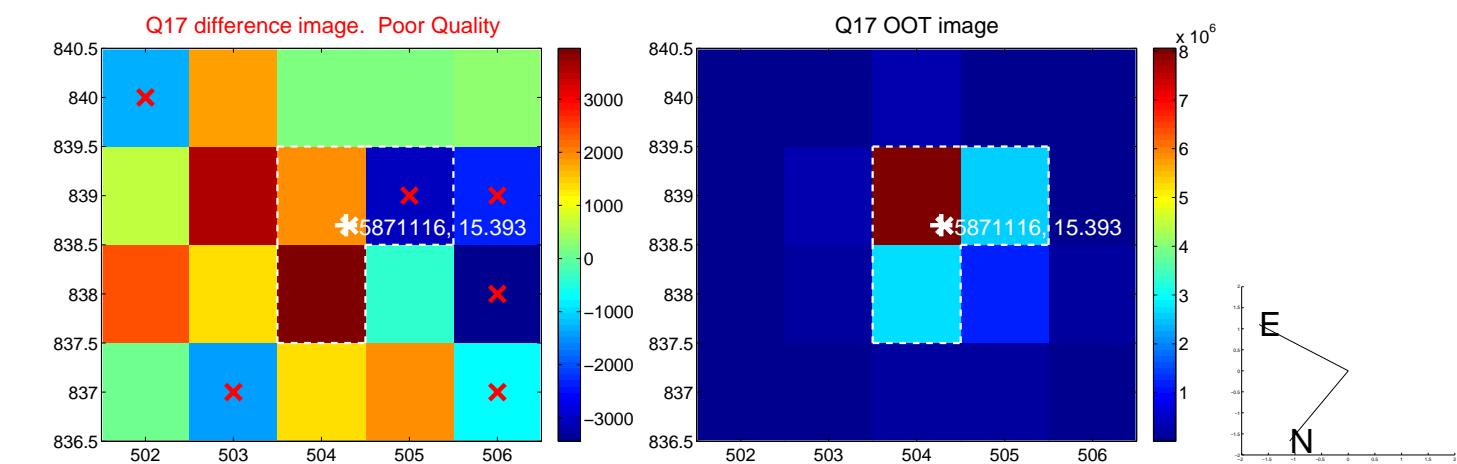
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



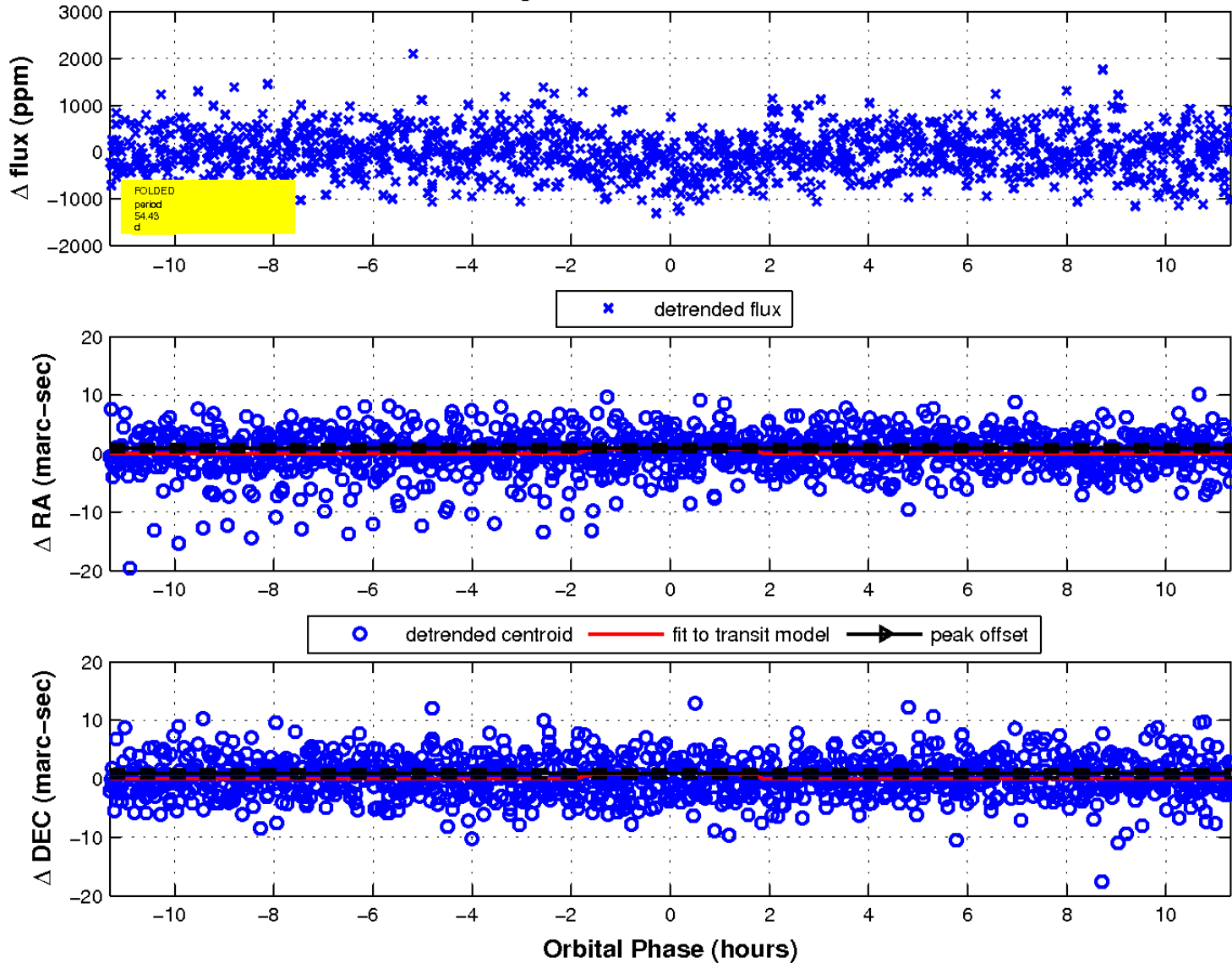
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

