

# KIC 006869373

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006869373-01	OBS	5331.01	31.502966	159.967773	191.8	3.858	7.5	8.1	0.82	5269	1.29	13.05

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006869373-01	OBS	PC	0.88	0	0	0	0	CENT_FEW_DIFFS

**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.

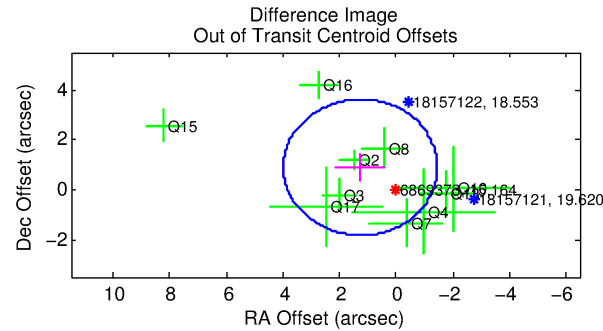
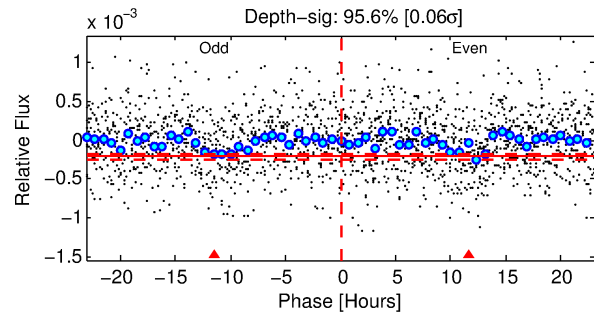
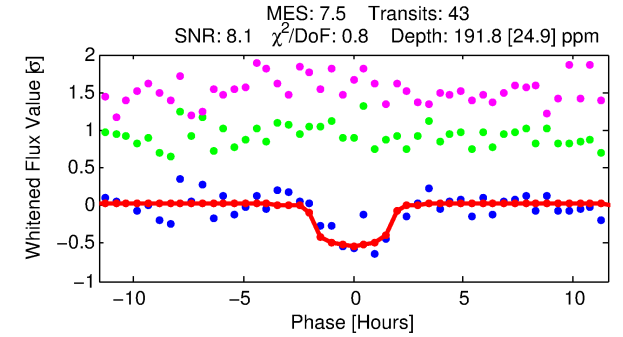
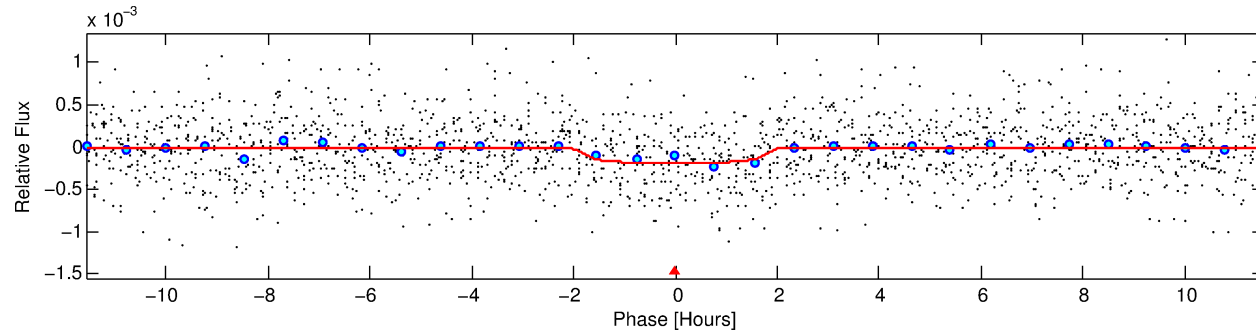
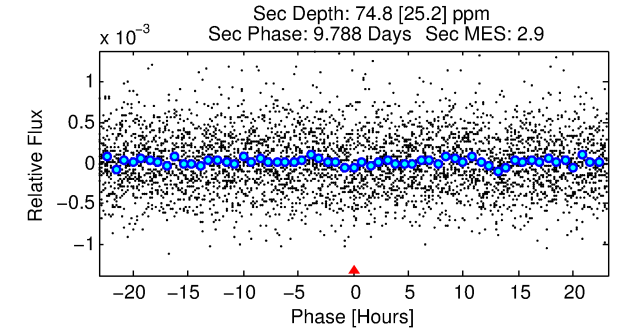
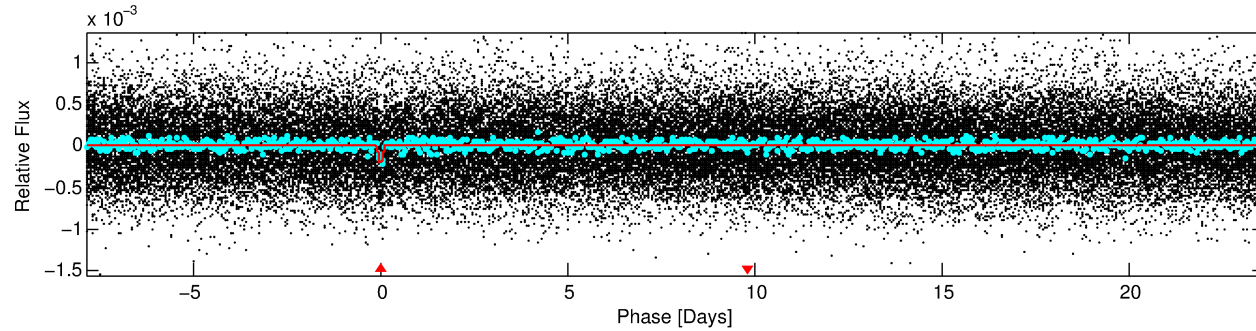
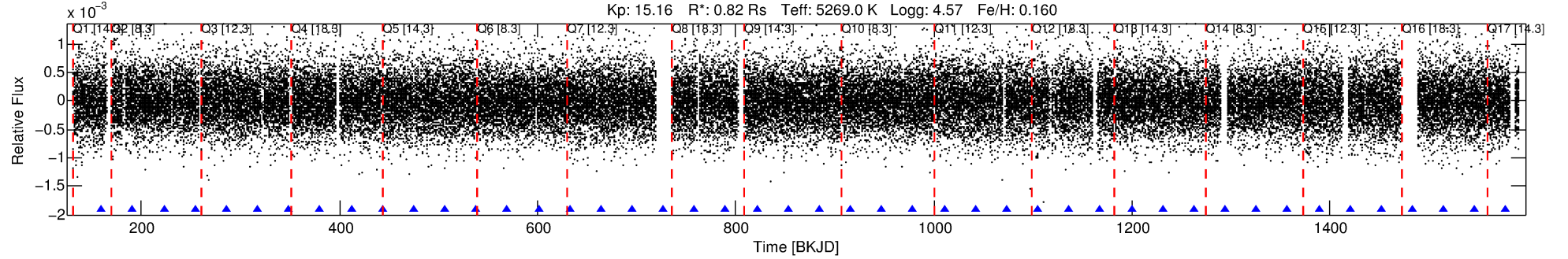
## Ephemeris Match Information For 006869373-01

No Significant Match Found

# DV One-Page Summary

KIC: 6869373 Candidate: 1 of 1 Period: 31.503 d

KOI: K05331.01 Corr: 0.854



## DV Fit Results:

Period = 31.50297 [0.00042] d  
Epoch = 159.9678 [0.0107] BKJD  
Rp/R\* = 0.0144 [0.0174]  
a/R\* = 36.62 [173.30]  
b = 0.83 [1.85]  
Seff = 13.05 [2.12]  
Teff = 485 [20] K  
Rp = 1.30 [1.57] Re  
a = 0.1893 [0.0177] AU  
Ag = 878.96 [2149.96] [0.41σ]  
Teffp = 4080 [2491] K [1.44σ]

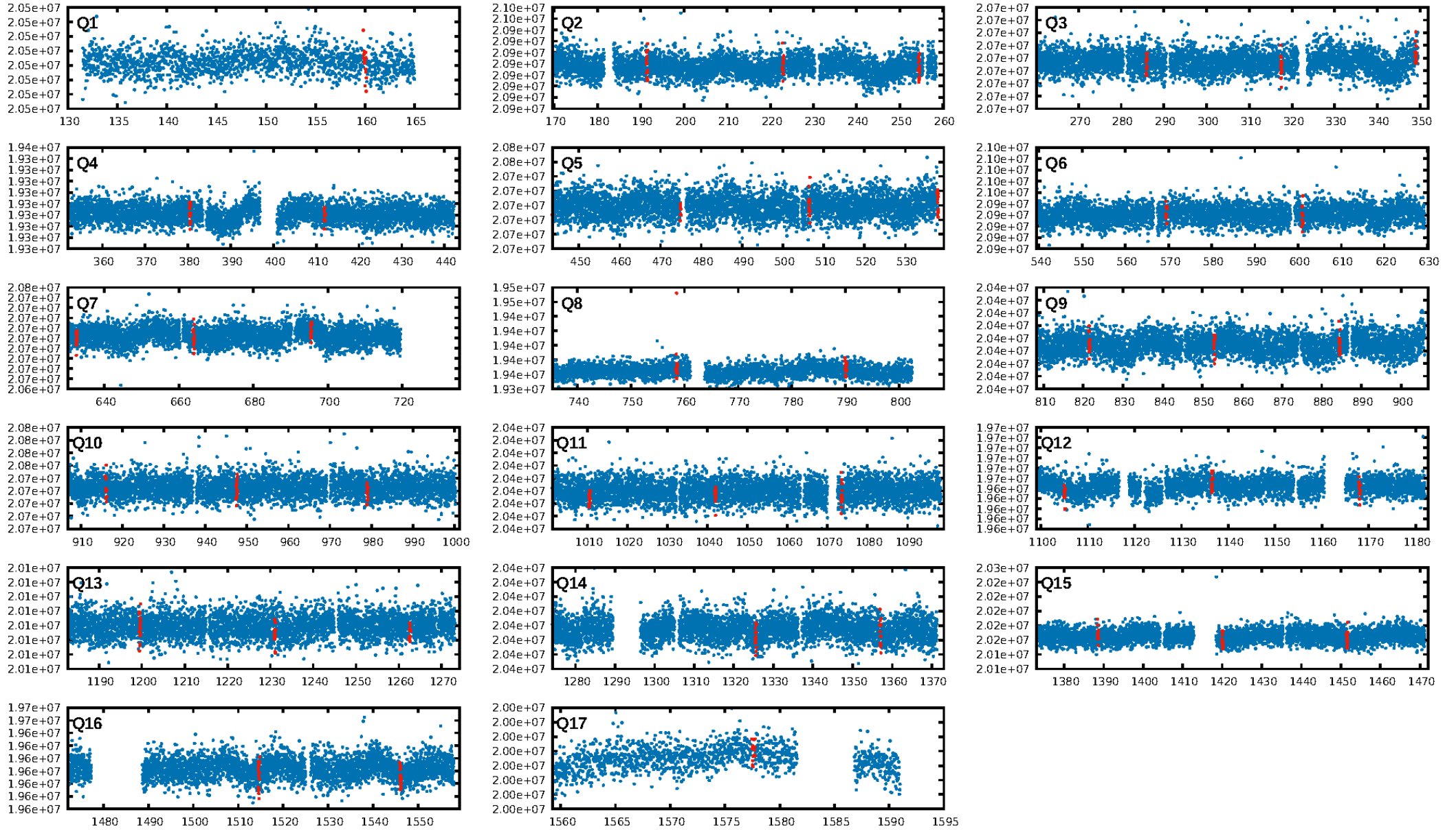
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.32e-14  
RollingBand-fgt: 1.00 [41/41]  
GhostDiagnostic-chr: 2.788  
Centroid-sig: 52.0%  
Centroid-so: 1.341 arcsec [0.79σ]  
OotOffset-rm: 1.549 arcsec [1.70σ]  
KicOffset-rm: 1.795 arcsec [1.99σ]  
OotOffset-st: 2/3/3/2 [10]  
KicOffset-st: 2/3/3/2 [10]  
DiffImageQuality-fgm: 0.20 [2/10]  
DiffImageOverlap-fno: 1.00 [17/17]

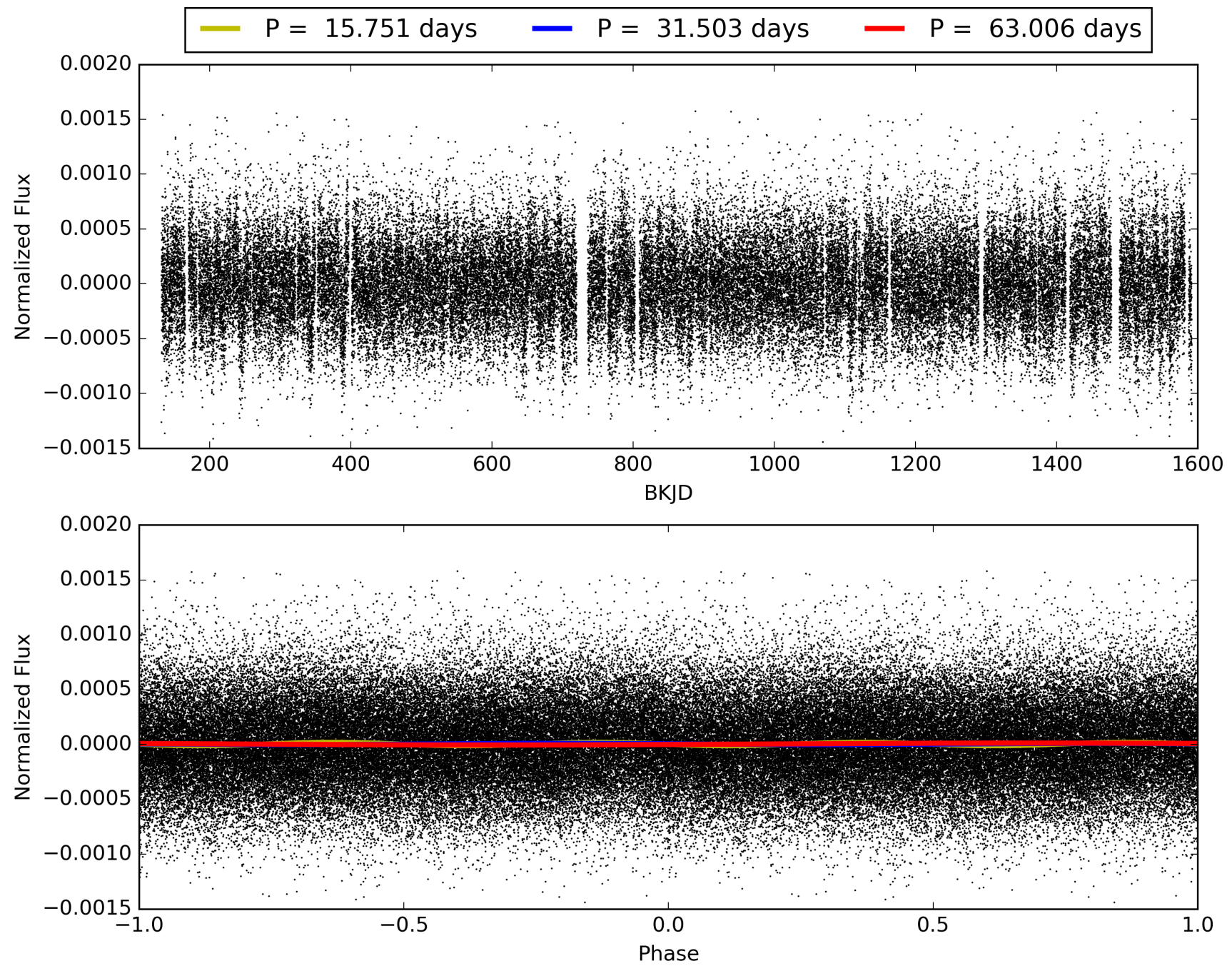
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:16:15 Z

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

# TCE 006869373-01, PDC Light Curves

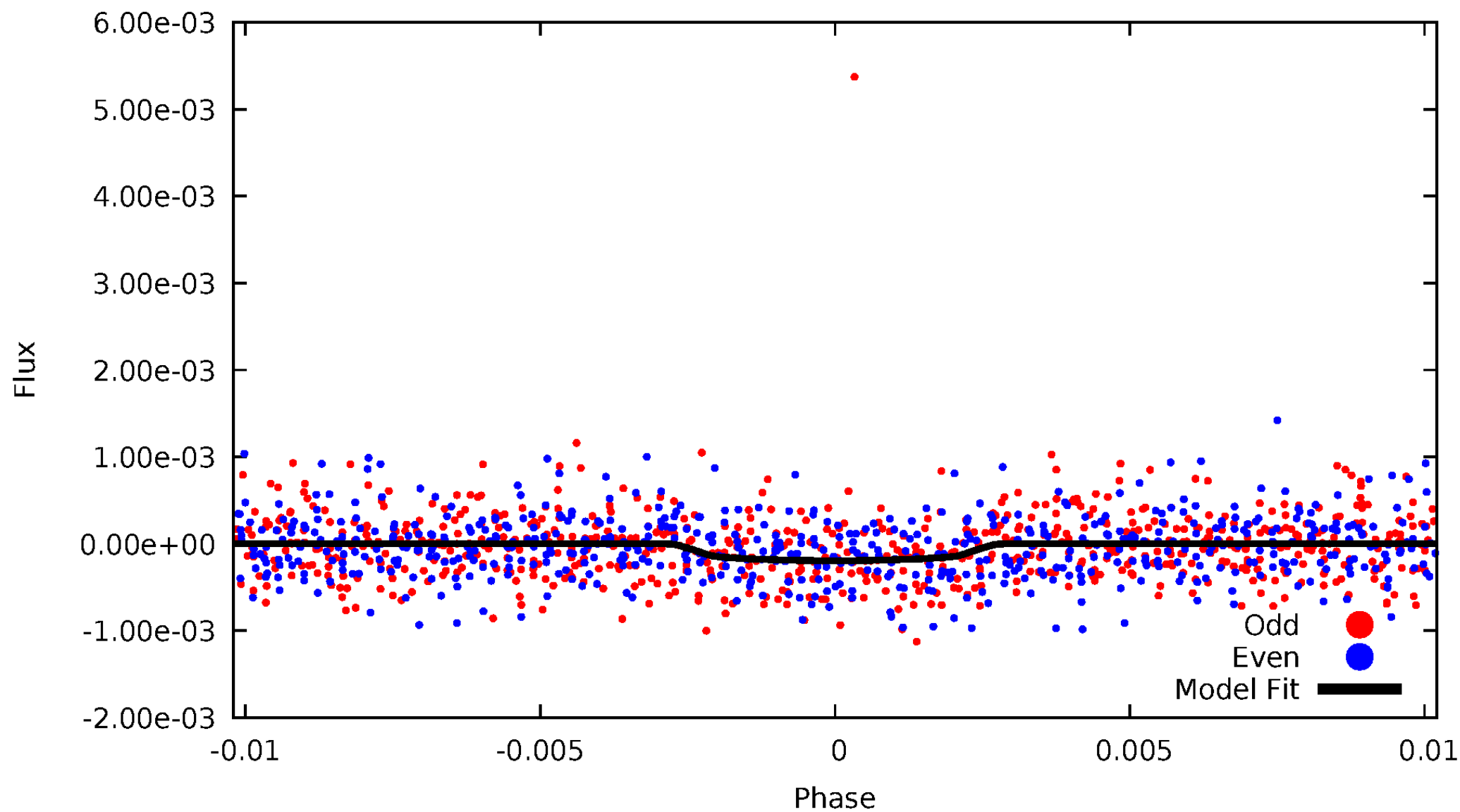


TCE 006869373-01



# DV Odd/Even

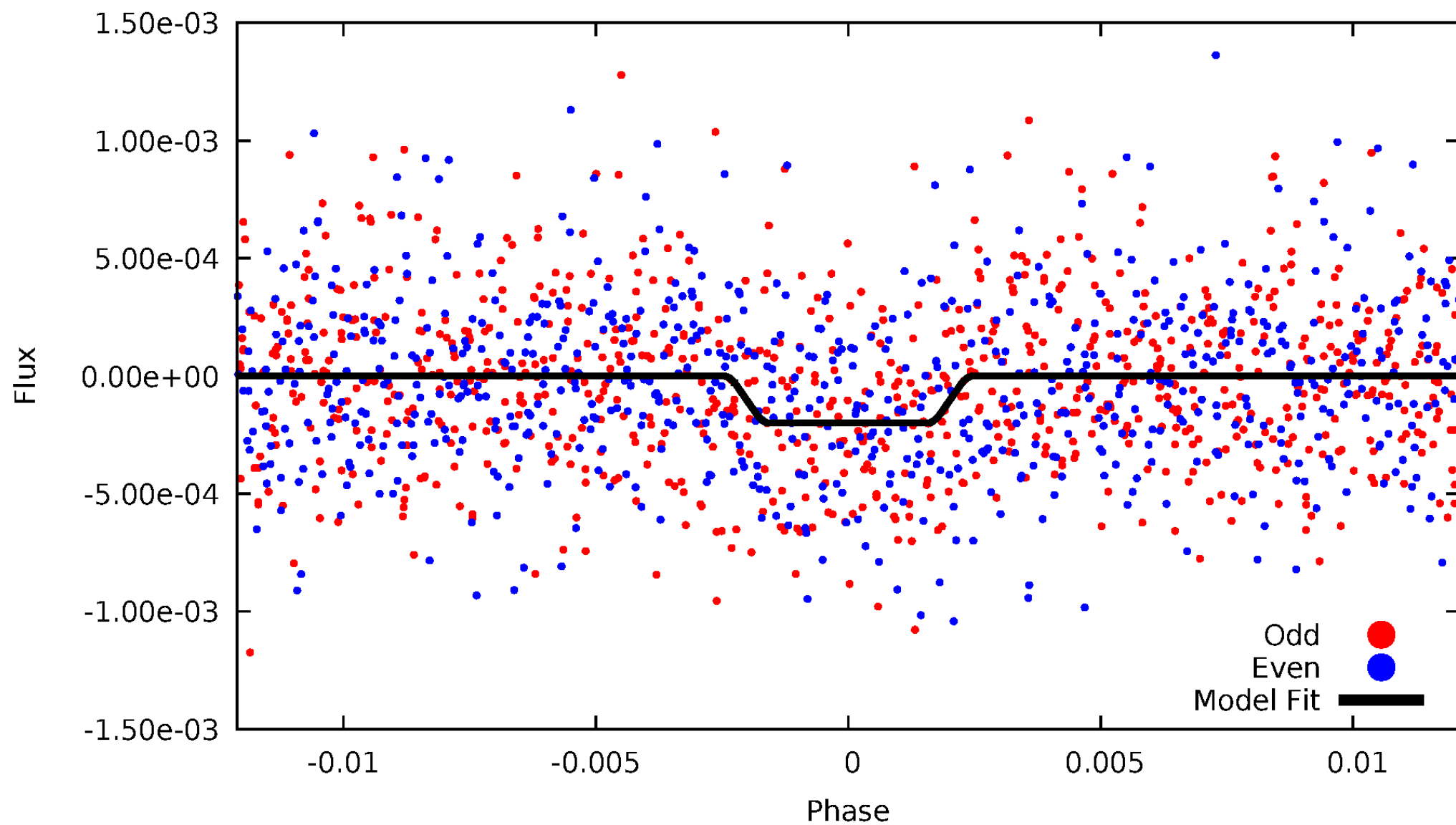
TCE 006869373-01





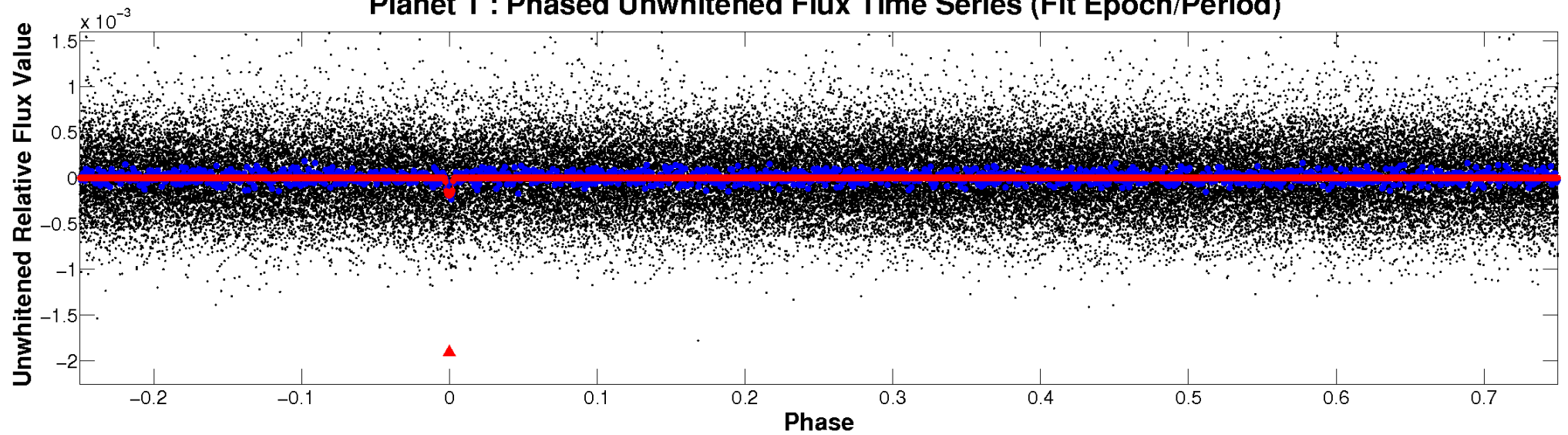
# ALT Odd/Even

TCE 006869373-01

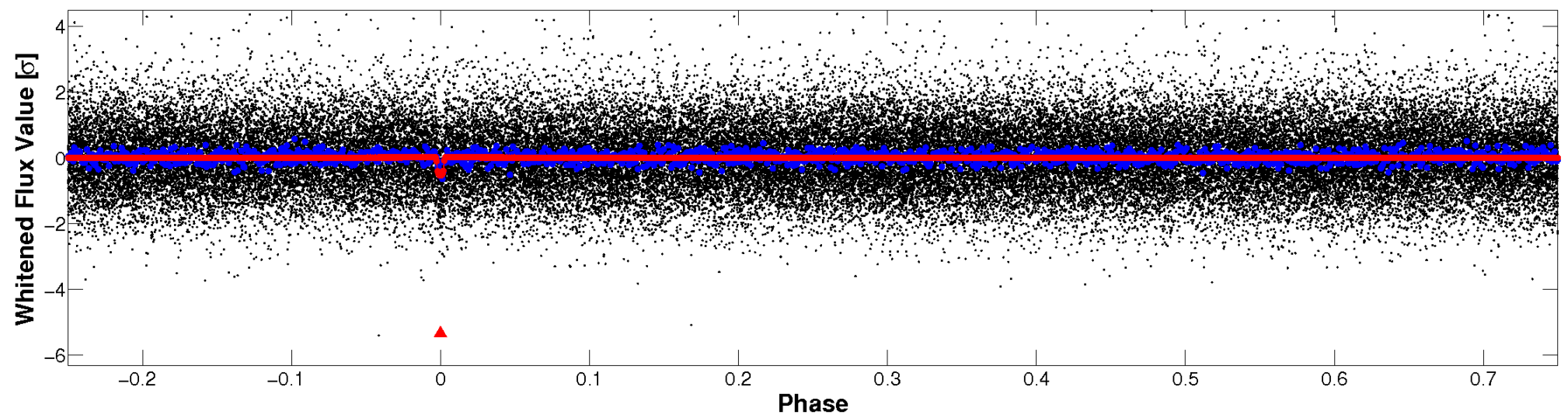


# Non-Whitened Vs. Whitened Light Curve

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

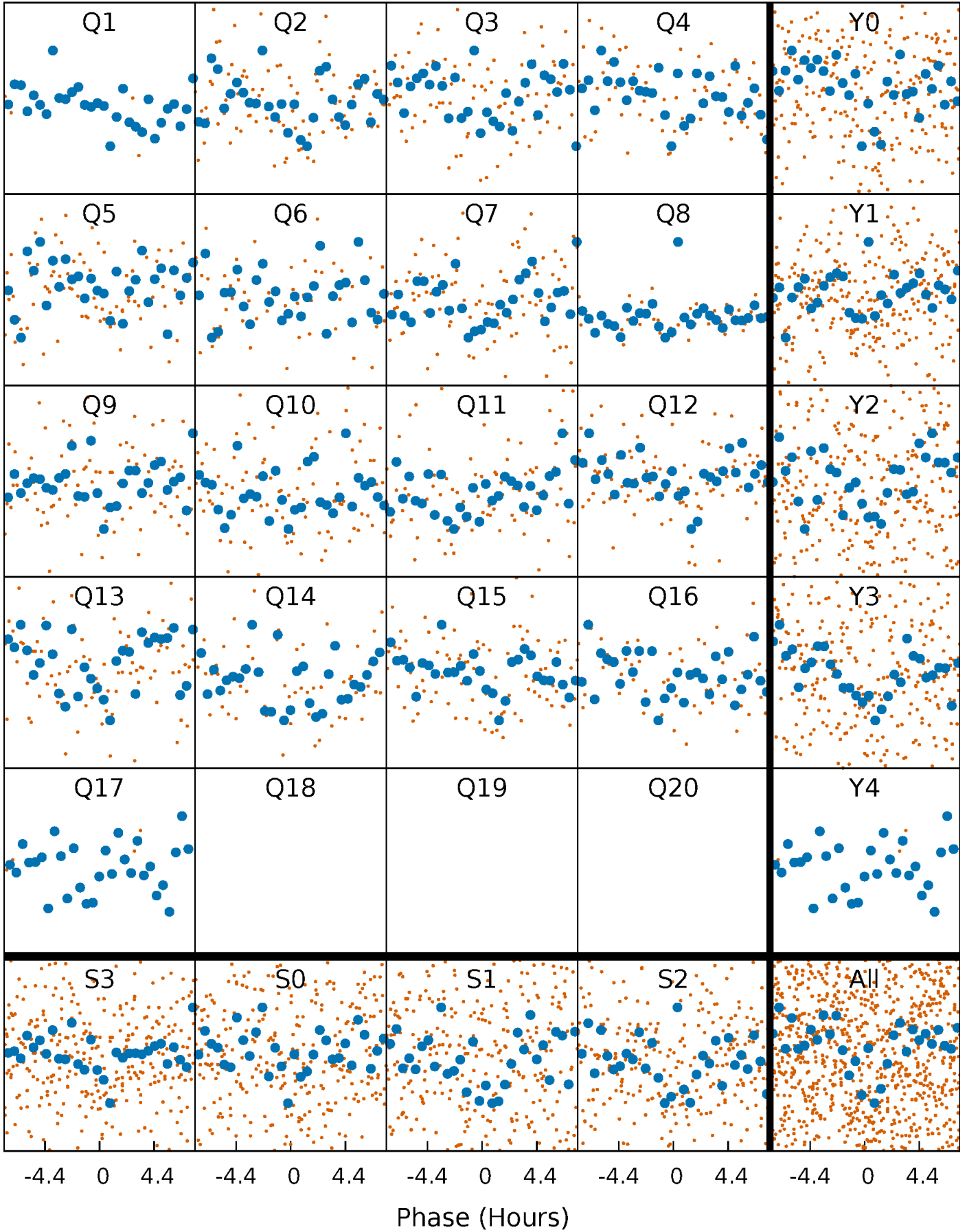


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

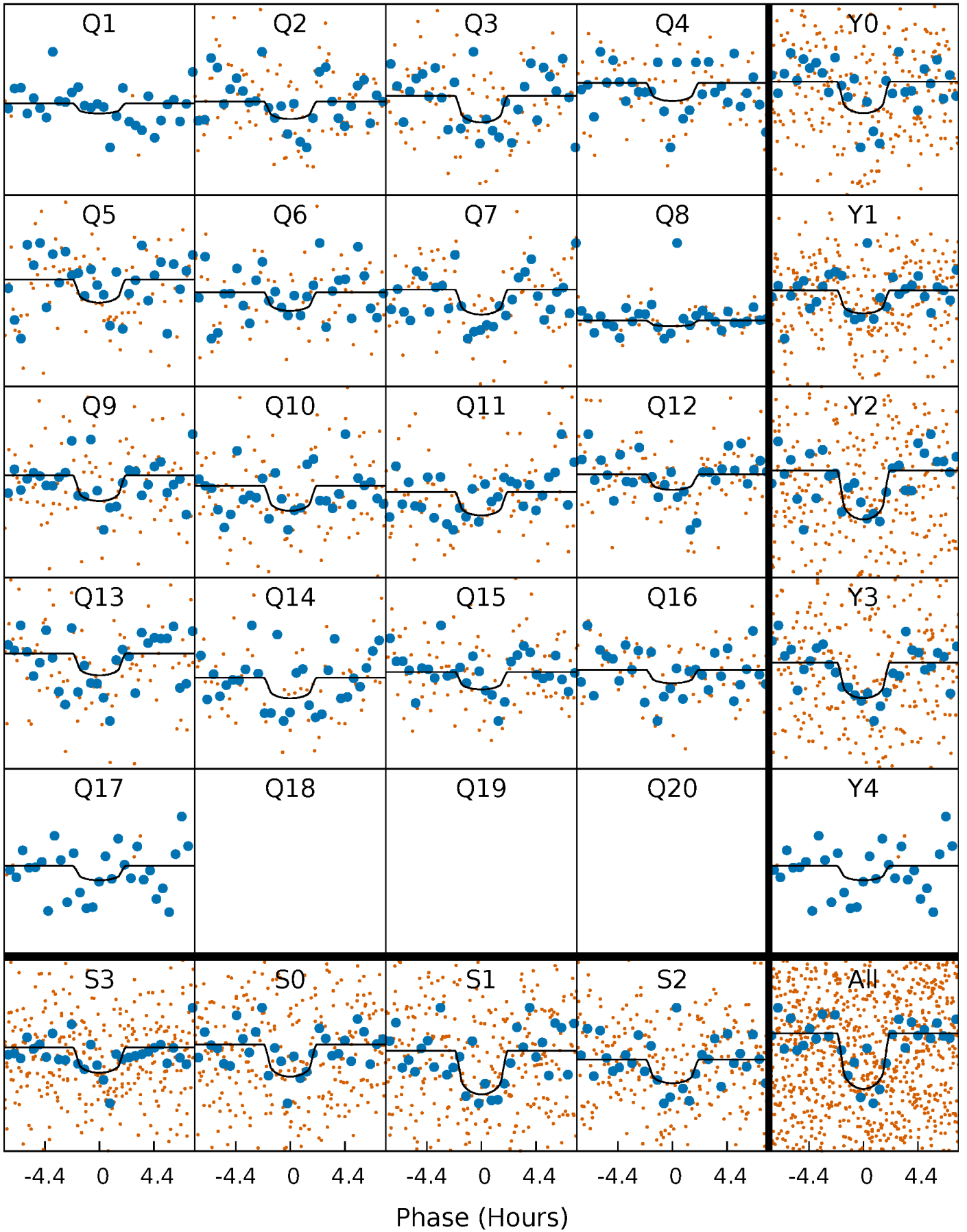
TCE 006869373-01 P= 31.502966 Days  $T_0=159.967773$  (BKJD)





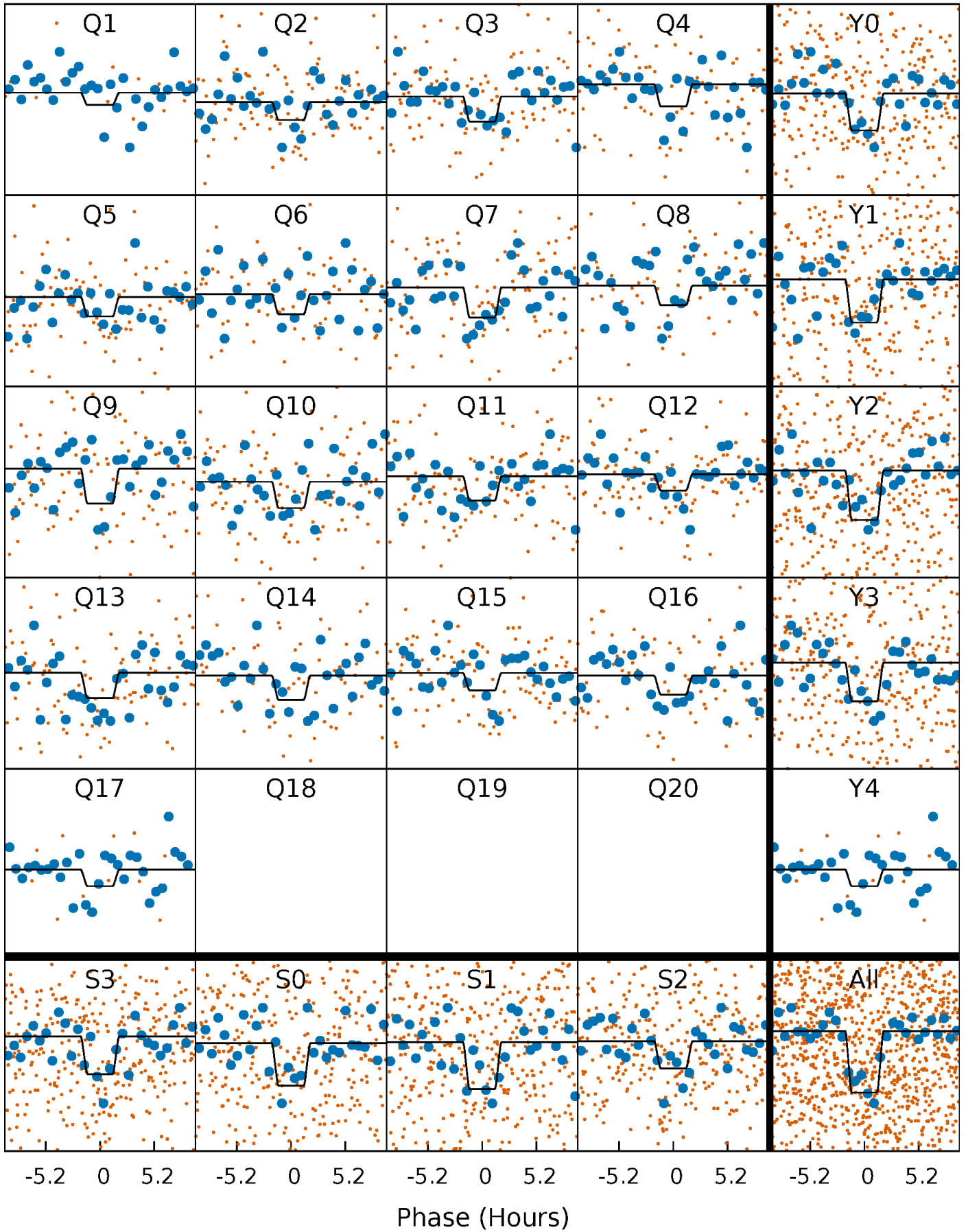
# DV Quarter-Phased Transit Curves

TCE 006869373-01 P= 31.502966 Days  $T_0=159.967773$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

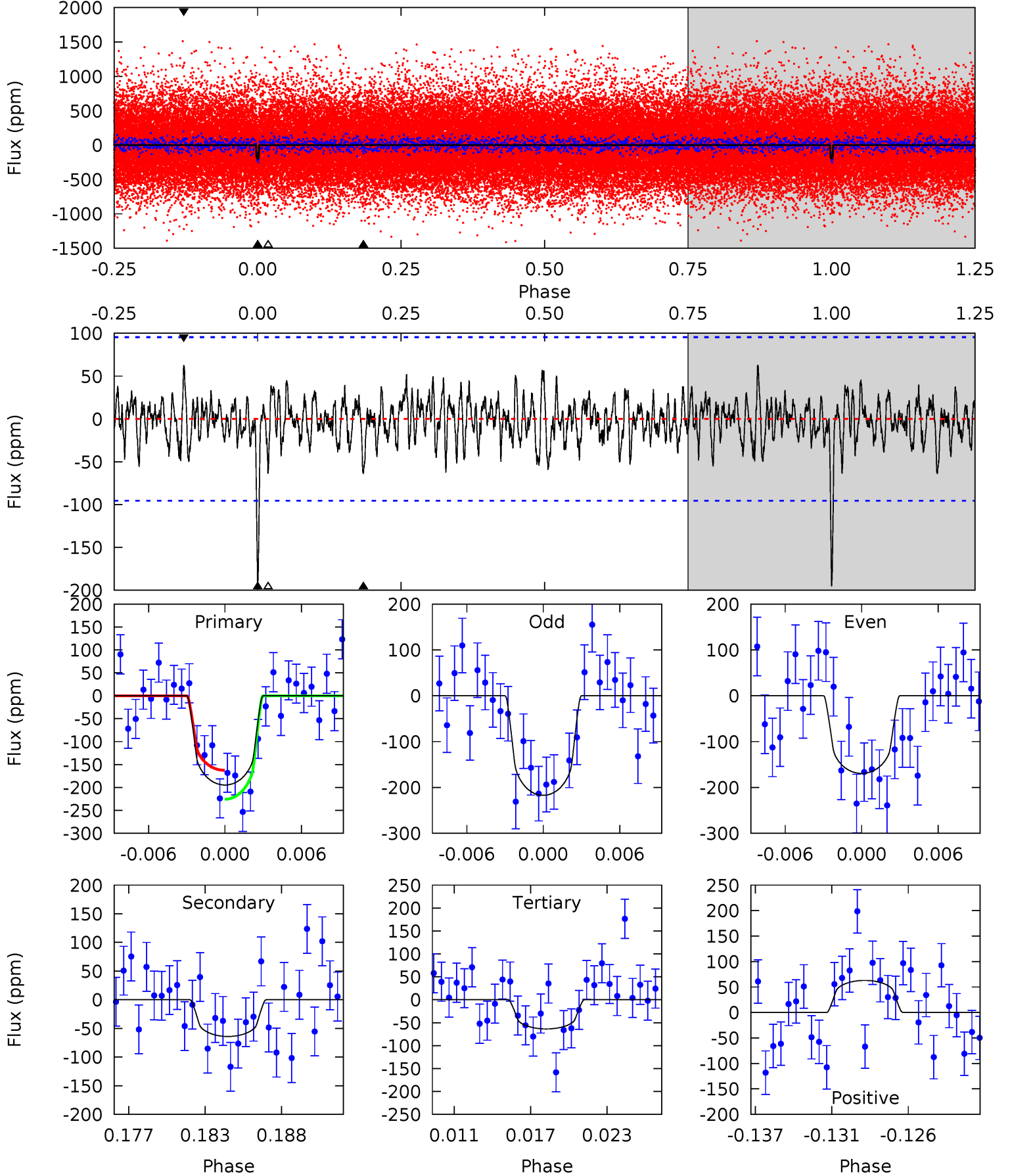
TCE 006869373-01 P= 31.502561 Days  $T_0=159.987134$  (BKJD)



# DV Model-Shift Uniqueness Test

006869373-01,  $P = 31.502966$  Days,  $E = 128.464807$  Days

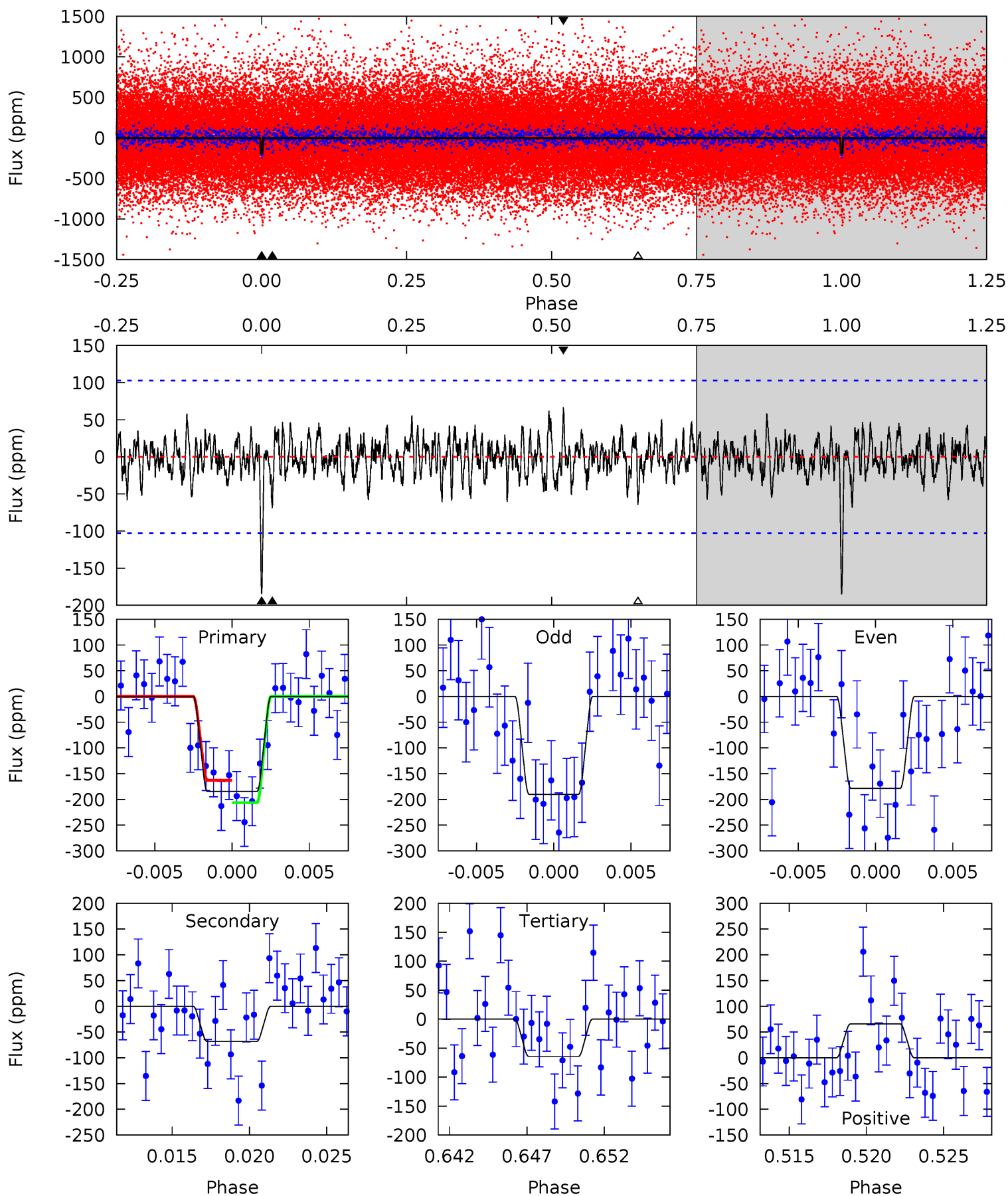
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	3.44	3.42	3.38	5.13	2.76	1.12	7.04	7.08	0.02	0.06	1.29	0.92	0.24	1.70



# Alt Model-Shift Uniqueness Test

006869373-01,  $P = 31.502561$  Days,  $E = 128.484573$  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
9.27	3.42	3.23	3.31	5.16	2.81	1.04	6.04	5.96	0.19	0.12	0.29	1.26	0.26	1.09



### Stellar Parameters For KIC 006869373

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5269^{+84}_{-84}$	$4.567^{+0.017}_{-0.088}$	$0.160^{+0.150}_{-0.150}$	$0.823^{+0.080}_{-0.034}$	$0.910^{+0.033}_{-0.060}$	$2.298^{+0.176}_{-0.586}$
	+2%/-2%	+0%/-2%	+94%/-94%	+10%/-4%	+4%/-7%	+8%/-26%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 006869373-01 / KOI 5331.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-64 \pm 19$	$1.70^{+1.44}_{-1.09}$	$685^{+21}_{-15}$	$3783^{+1821}_{-670}$	$419^{+2618}_{-301}$
Alt.	$-68 \pm 20$	$1.70^{+1.38}_{-1.09}$	$686^{+19}_{-16}$	$3842^{+1869}_{-680}$	$455^{+3060}_{-324}$

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



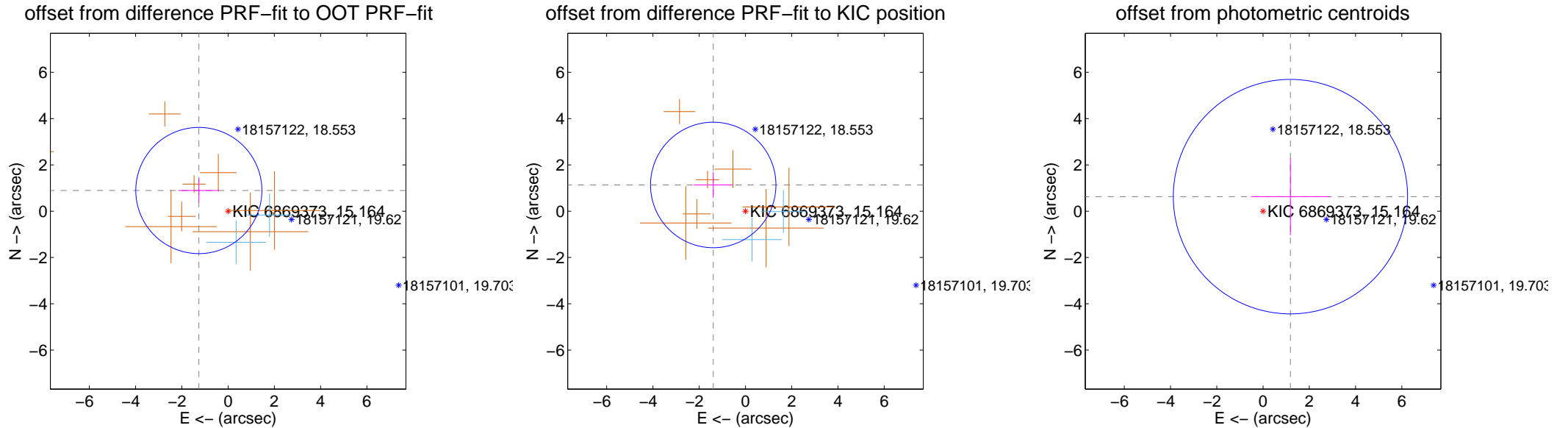
## DV Centroid Data

Supplemental centroid analysis for 006869373-01. Kepler magnitude: 15.16. Transit SNR 8.11

There are 2 quarters with good PRF difference image offsets

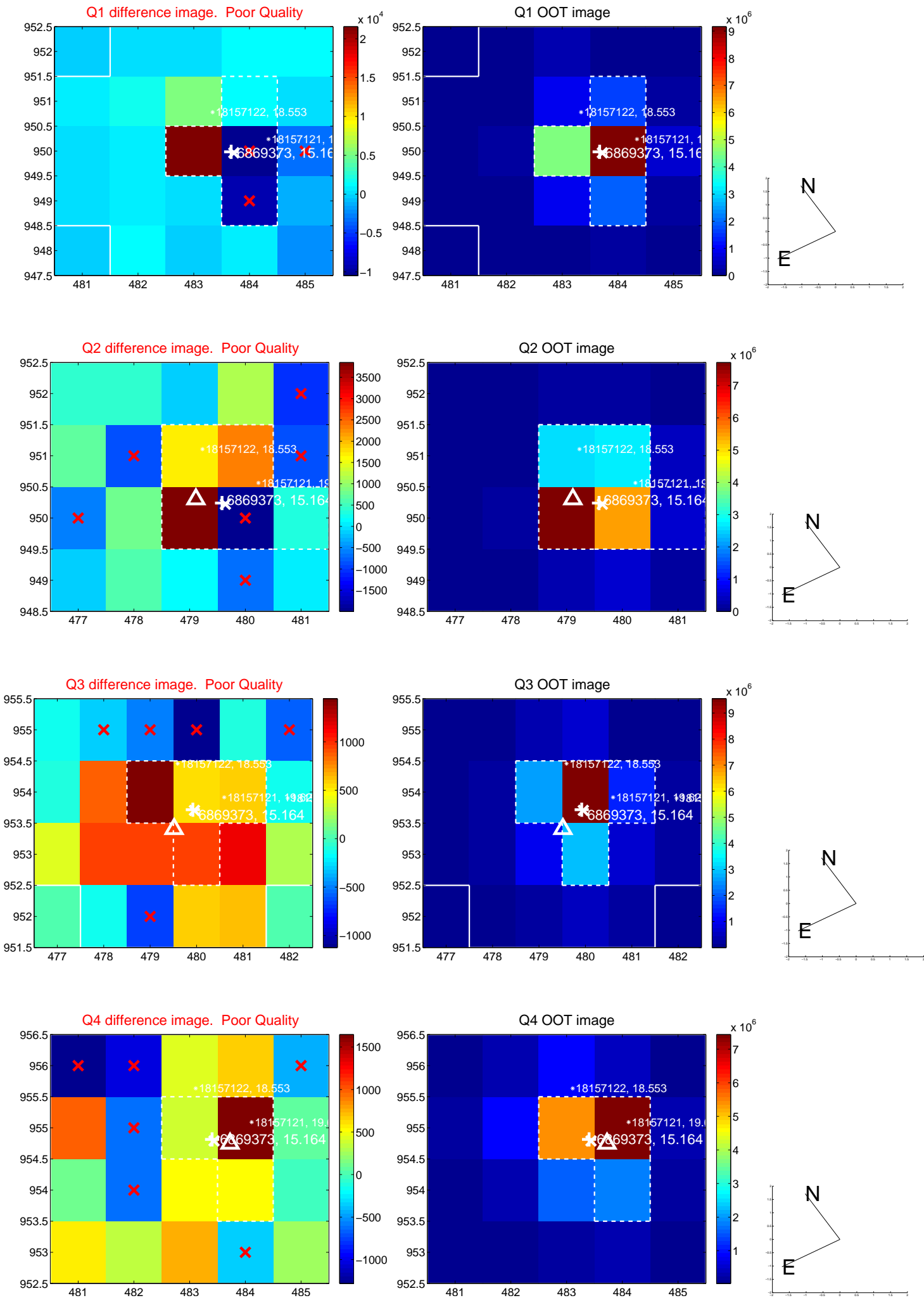
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.549 \pm 0.909$	1.70	$1.265 \pm 0.881$	$0.893 \pm 0.514$
PRF-fit source offset from KIC position	$1.795 \pm 0.904$	1.99	$1.392 \pm 0.832$	$1.133 \pm 0.558$
photometric centroid source offset	$1.34 \pm 1.69$	0.79	$-1.18 \pm 1.70$	$0.63 \pm 1.66$

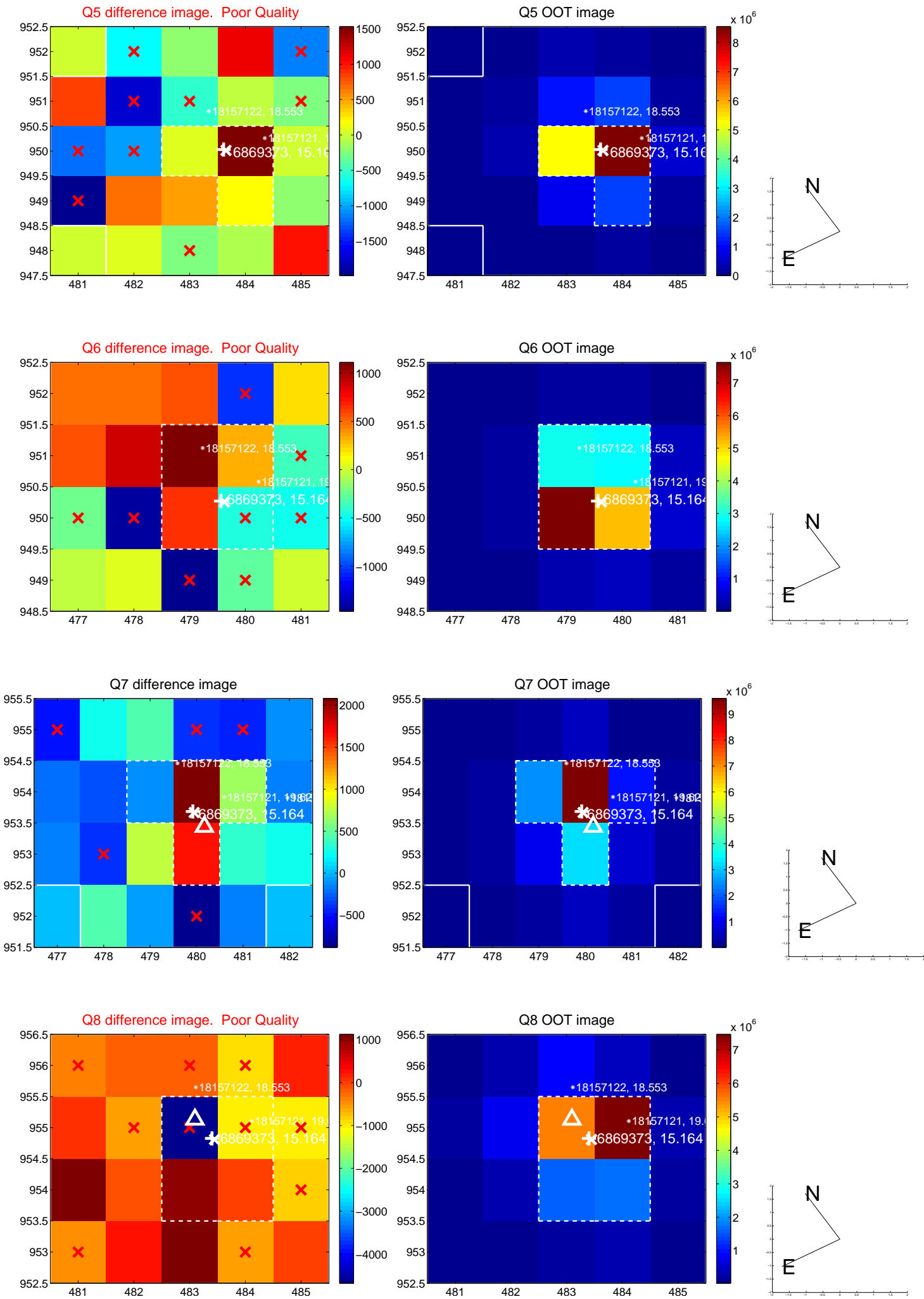


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

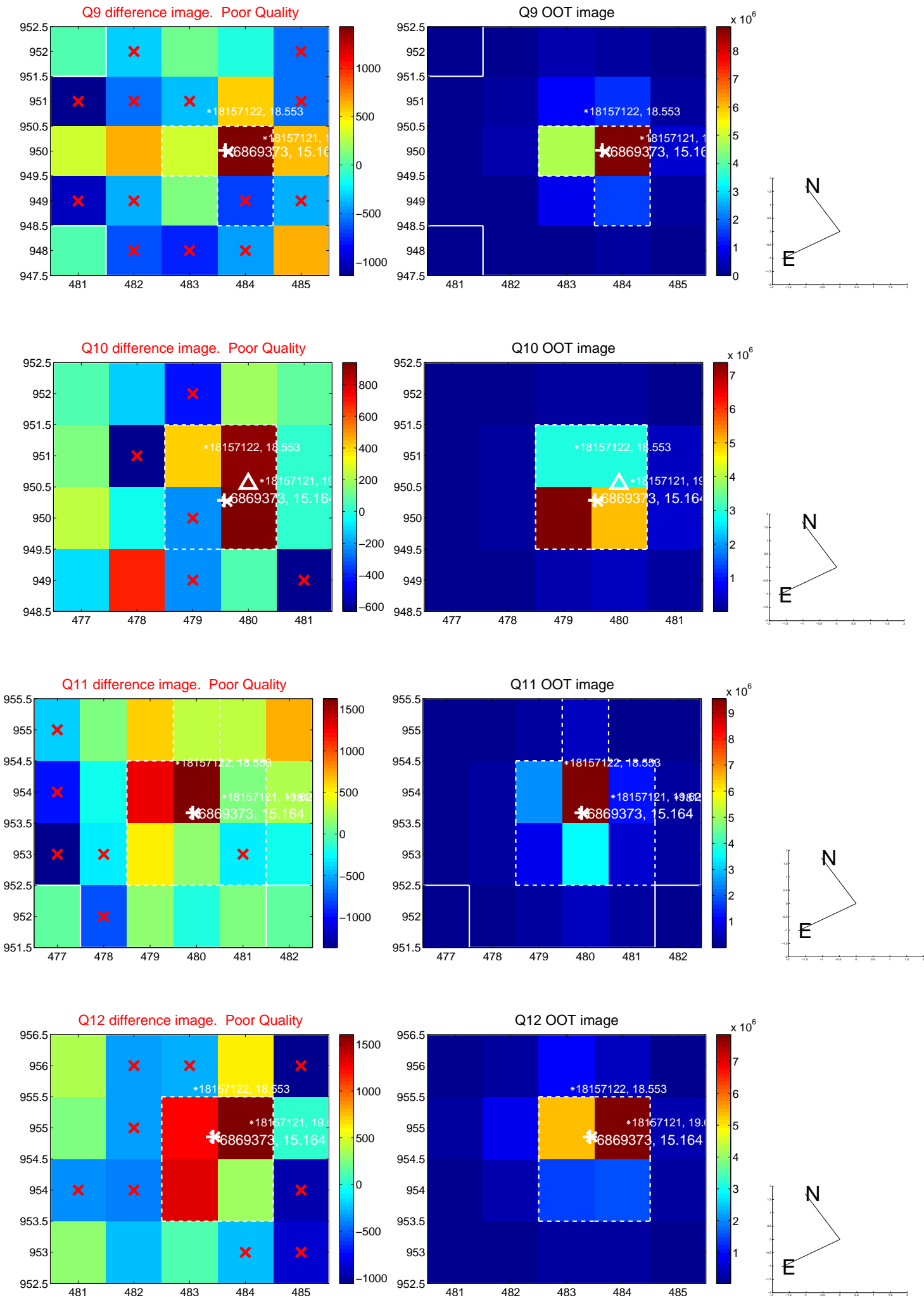
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



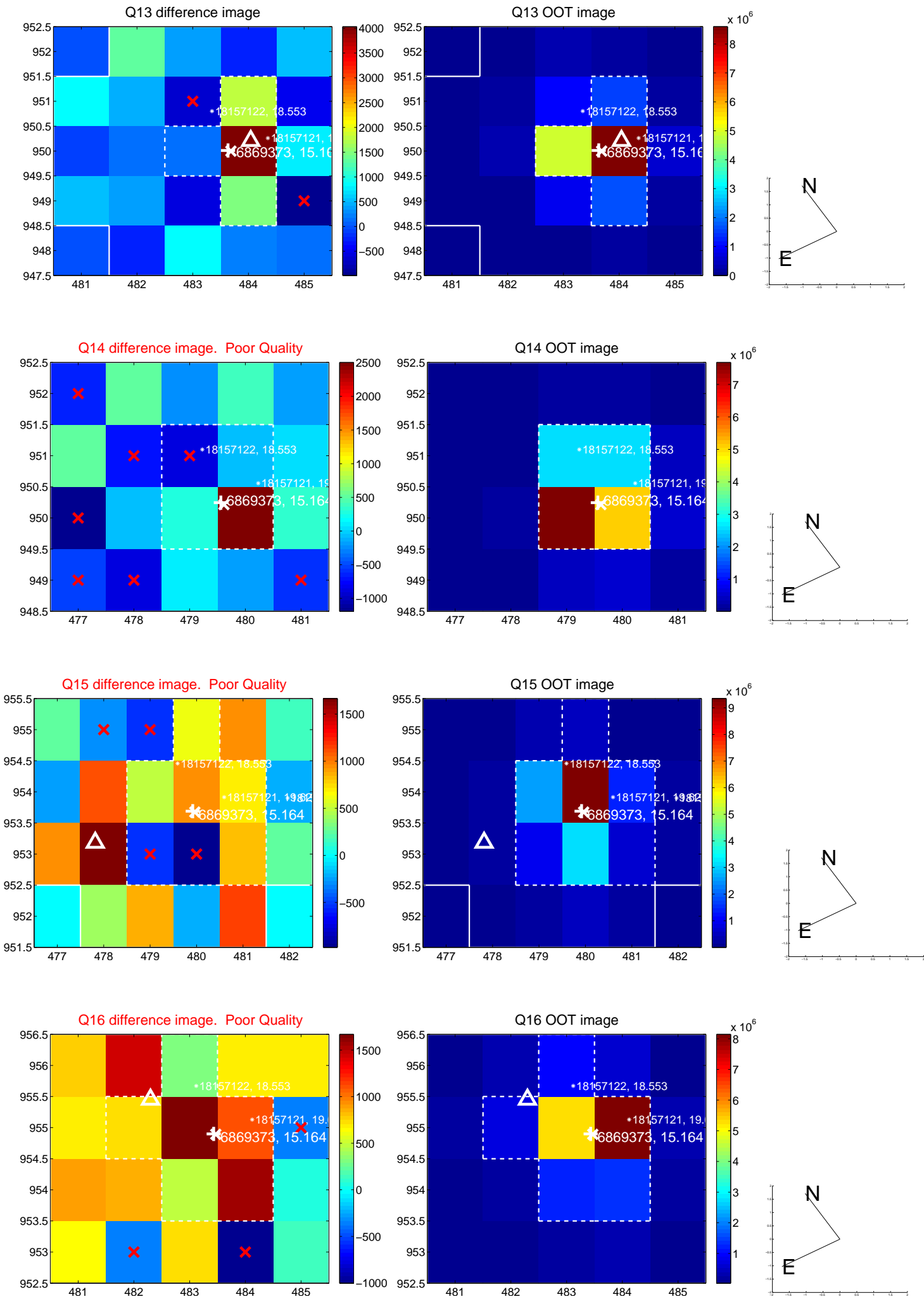
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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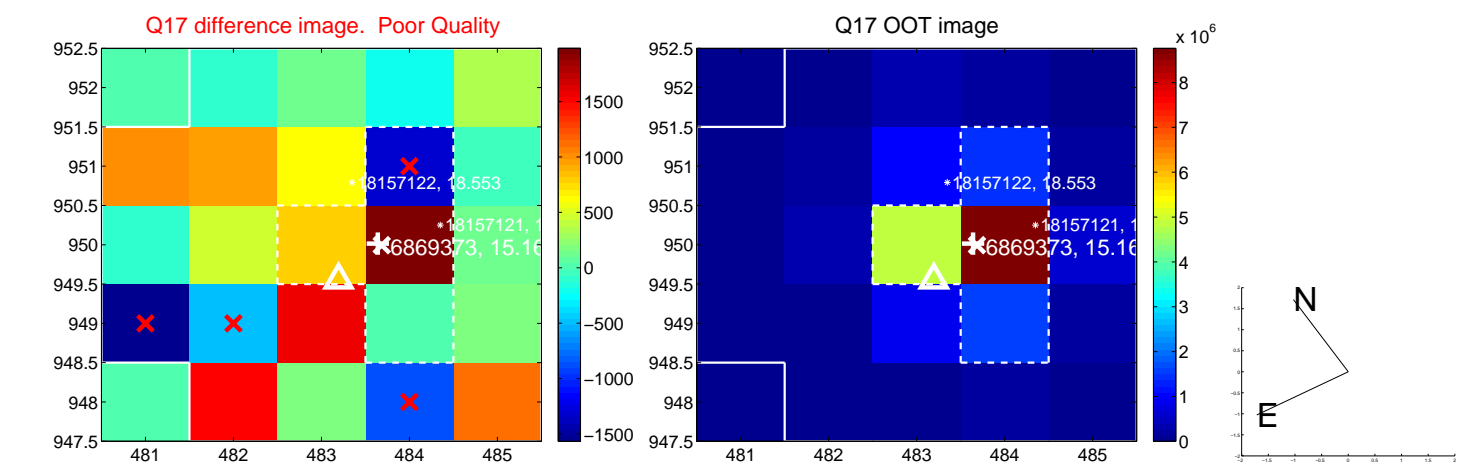


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

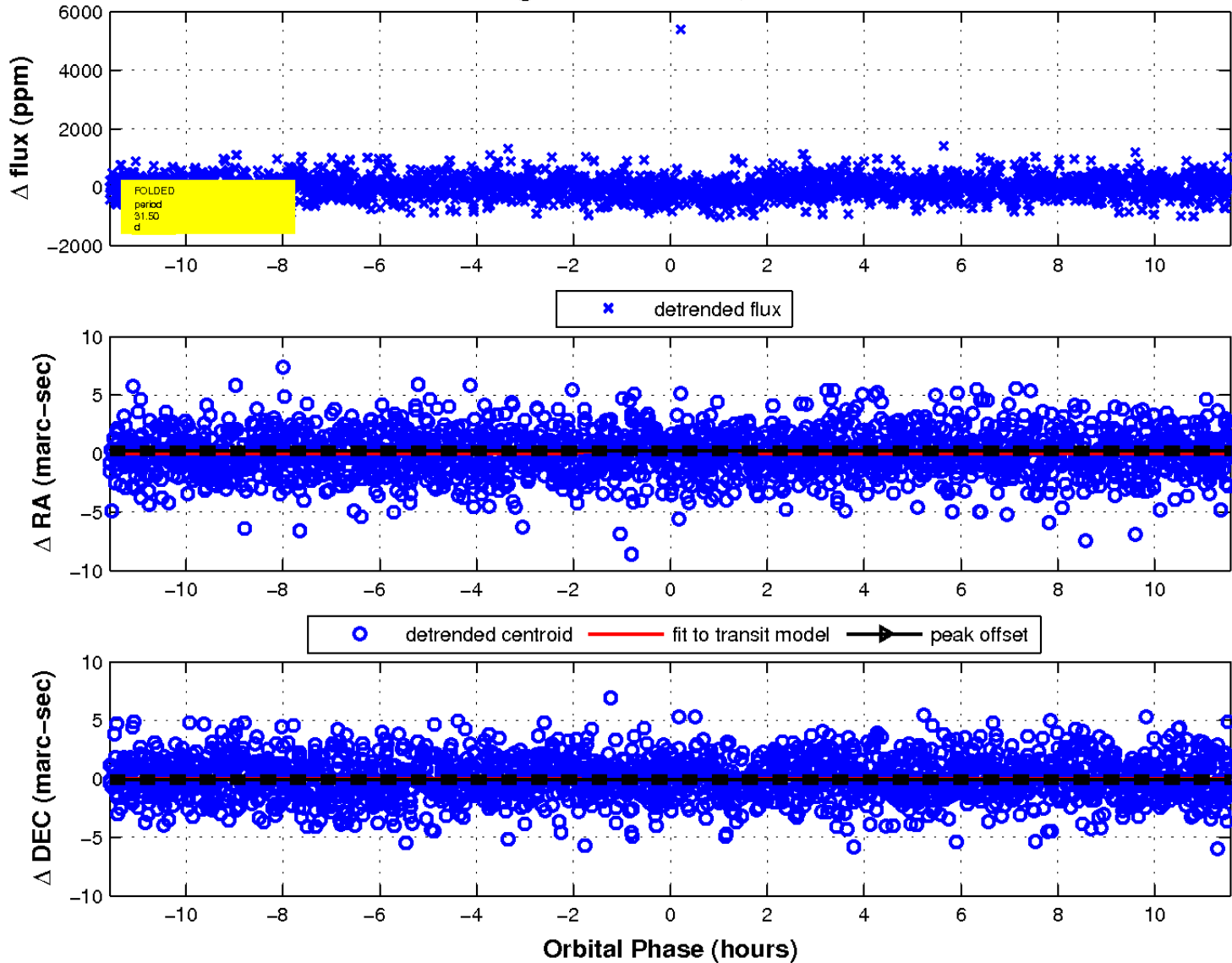




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

