

# KIC 011506938

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011506938-01	OBS	5906.01	22.575342	149.115855	1277.8	36.758	98.1	153.4	1.47	6581	9.80	129.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011506938-01	OBS	FP	0.00	1	0	0	0	LPP_DV

**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.

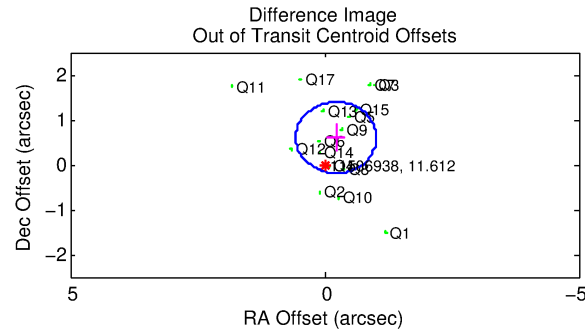
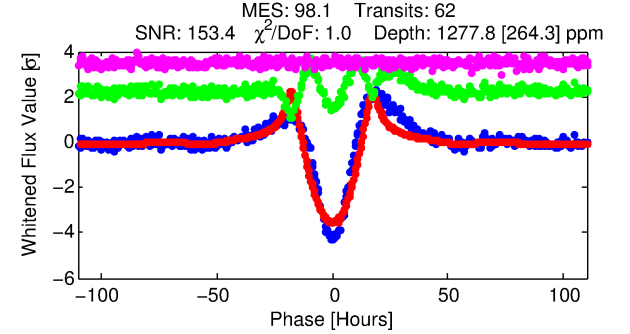
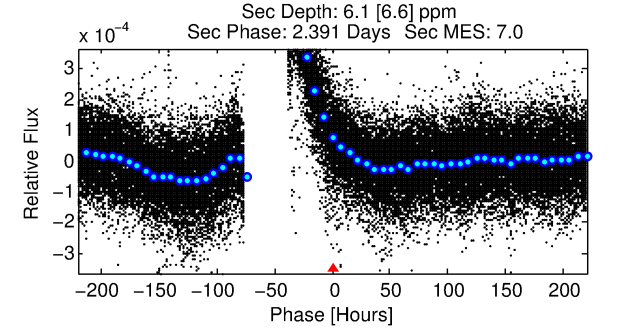
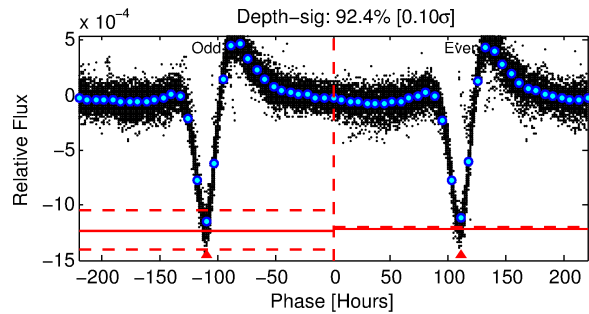
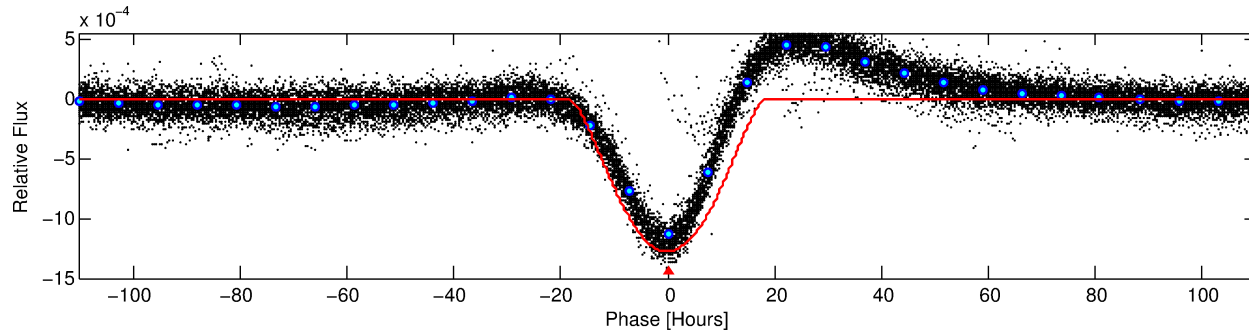
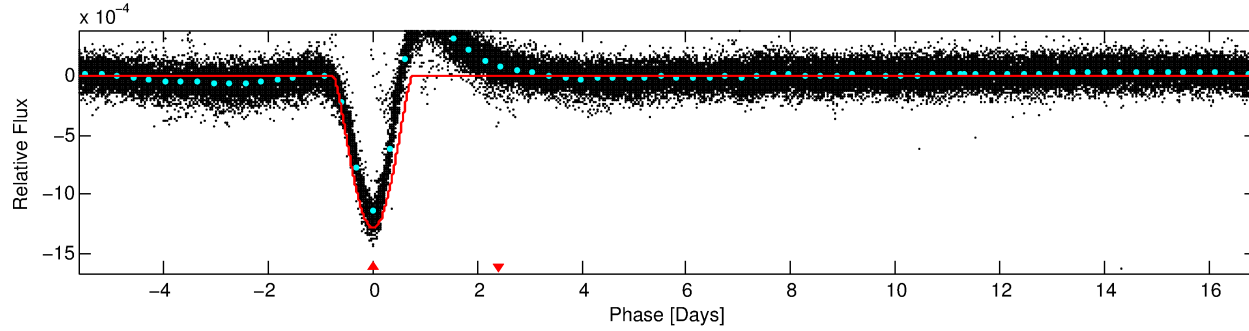
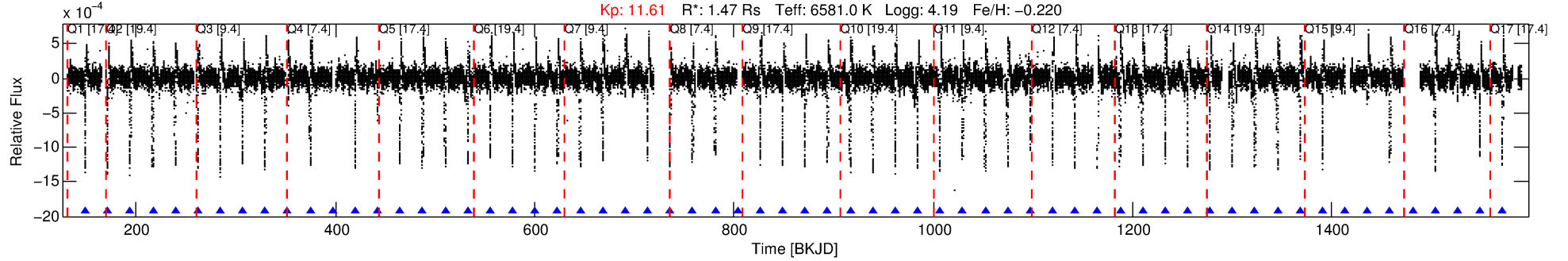
## Ephemeris Match Information For 011506938-01

No Significant Match Found

# DV One-Page Summary

KIC: 11506938 Candidate: 1 of 1 Period: 22.575 d

KOI: K05906.01 Corr: 0.967



## DV Fit Results:

Period = 22.57534 [0.00010] d  
Epoch = 149.1159 [0.0035] BKJD  
Rp/R\* = 0.0612 [0.0055]  
a/R\* = 1.95 [0.03]  
b = 1.00 [0.00]  
Seff = 129.53 [38.36]  
Teq = 860 [64] K  
Rp = 9.80 [2.23] Re  
a = 0.1672 [0.0306] AU  
Ag = 0.97 [1.11] [-0.03 $\sigma$ ]  
Teffp = 1321 [367] K [1.24 $\sigma$ ]

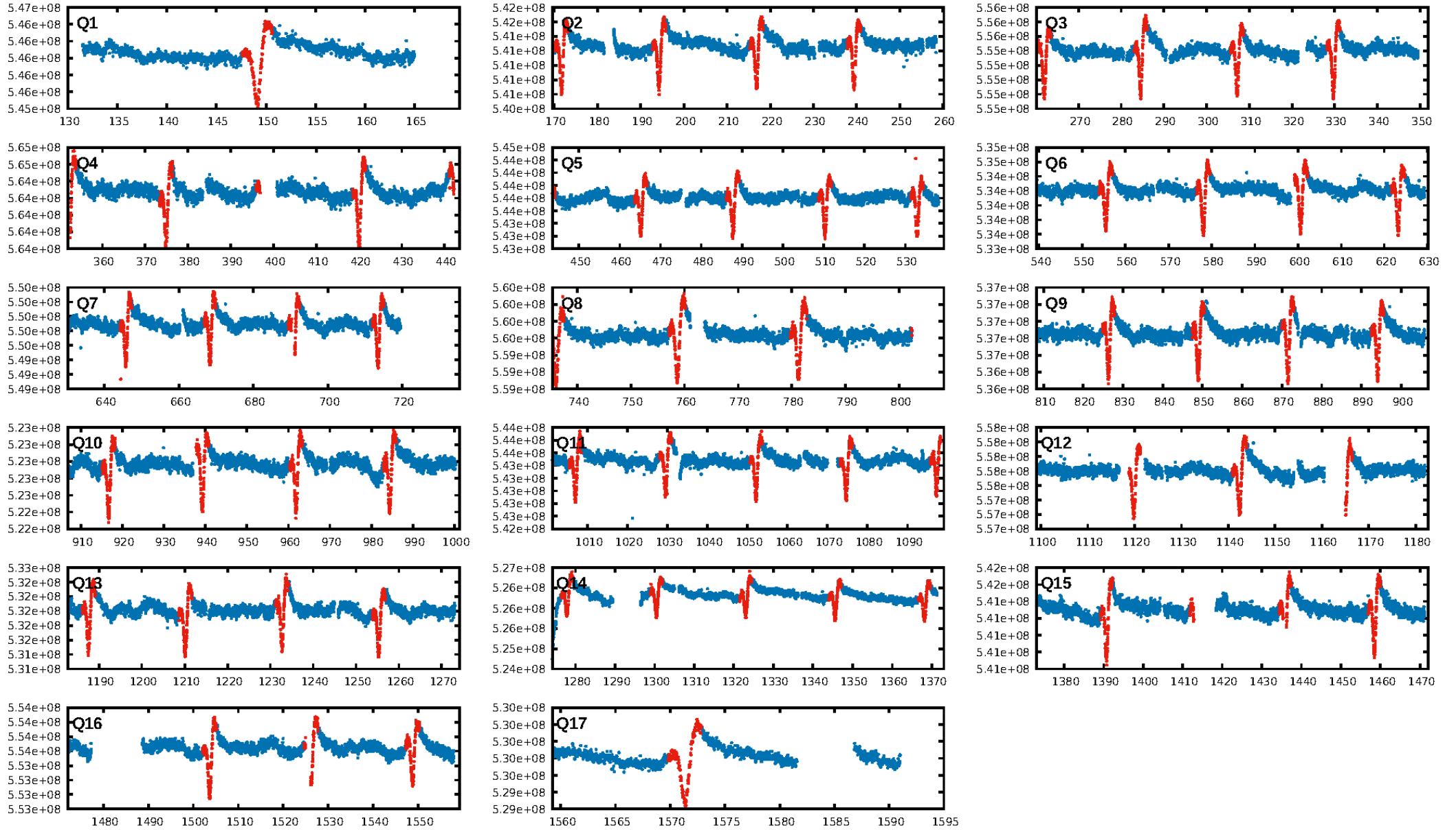
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [60/60]  
GhostDiagnostic-chr: 2.445  
Centroid-sig: 0.6%  
Centroid-so: 0.059 arcsec [2.71 $\sigma$ ]  
OotOffset-rm: 0.642 arcsec [2.43 $\sigma$ ]  
KicOffset-rm: 0.747 arcsec [2.87 $\sigma$ ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [16/16]

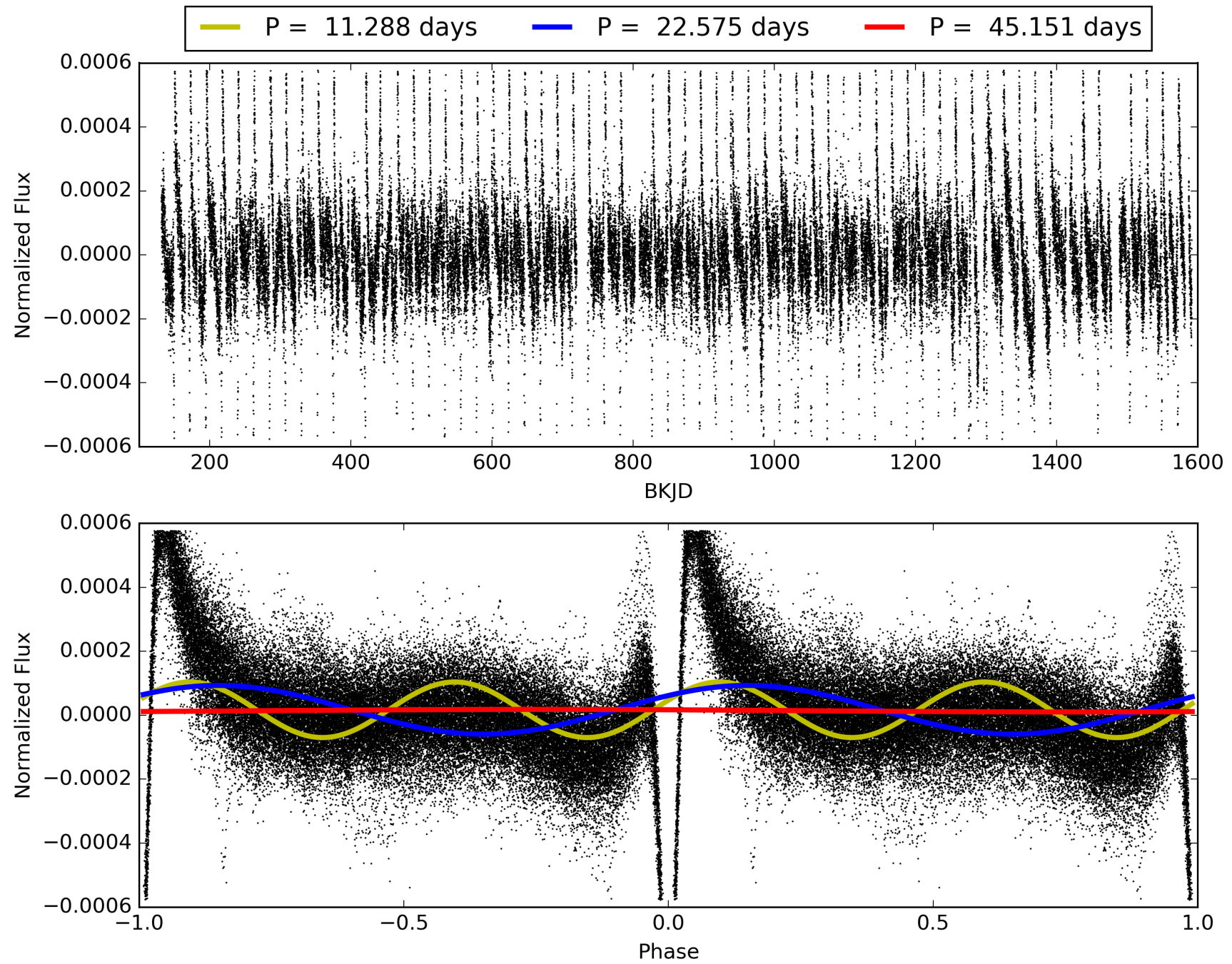
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:43:50 Z

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

# TCE 011506938-01, PDC Light Curves

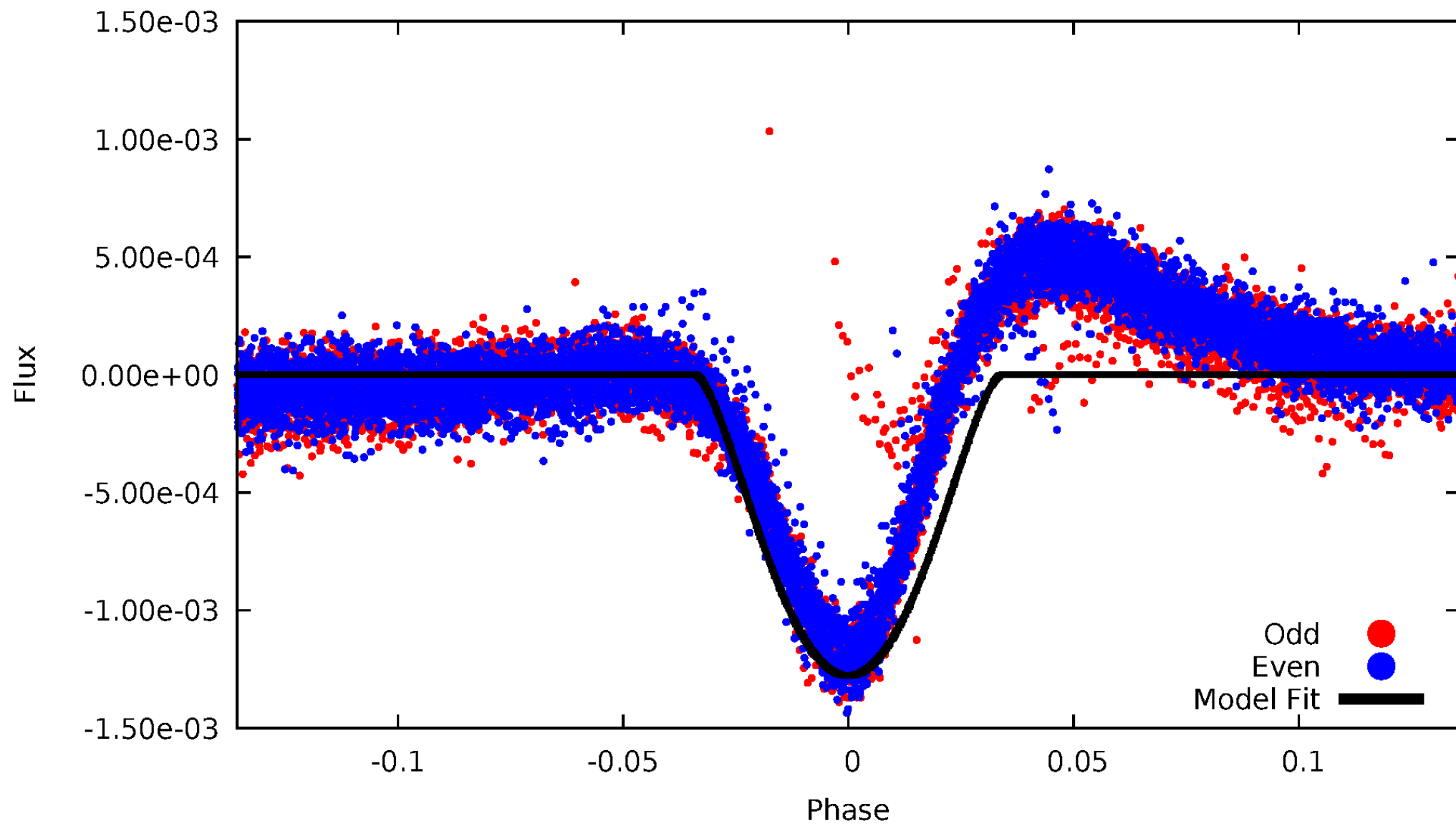


TCE 011506938-01



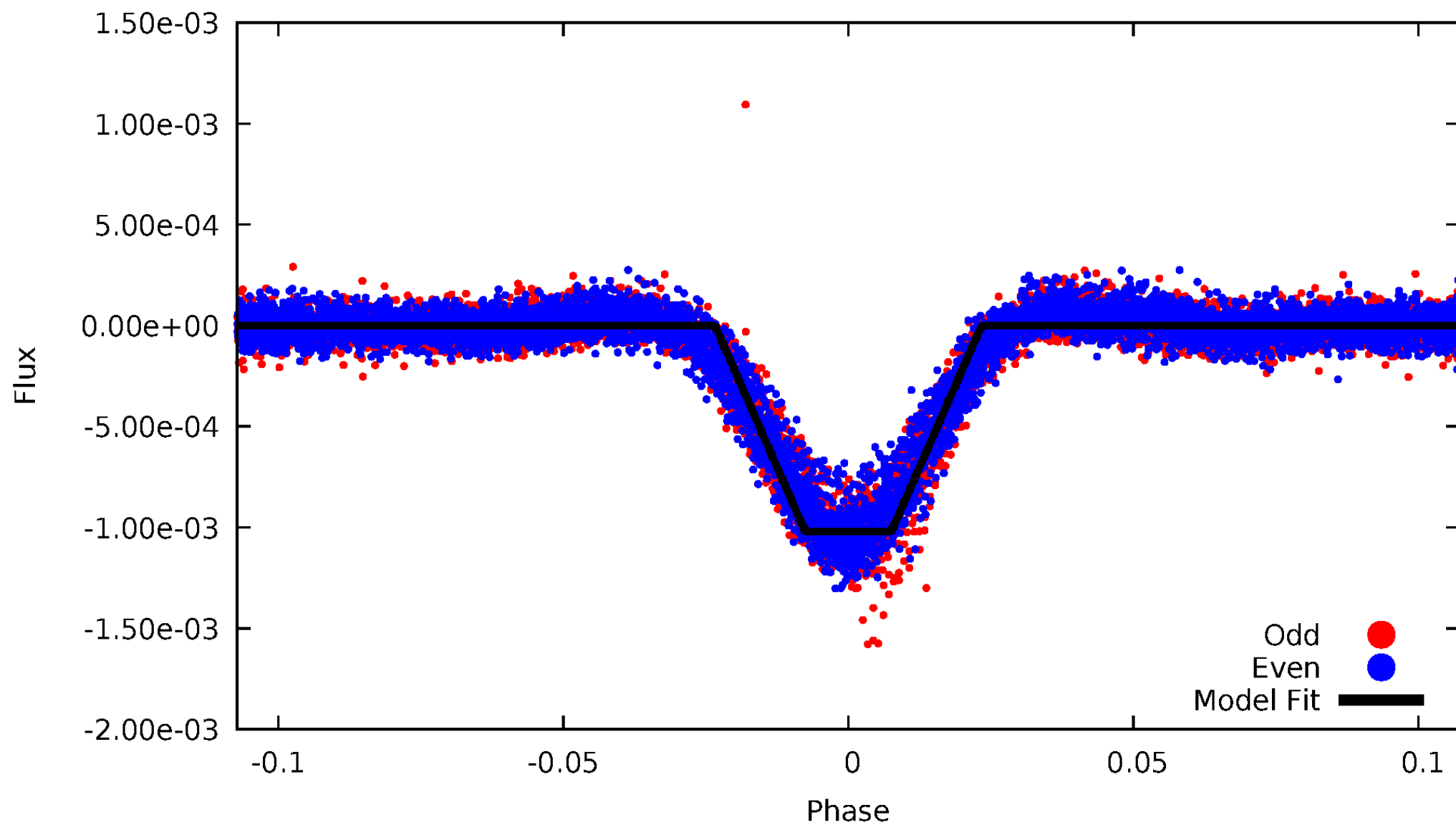
# DV Odd/Even

TCE 011506938-01



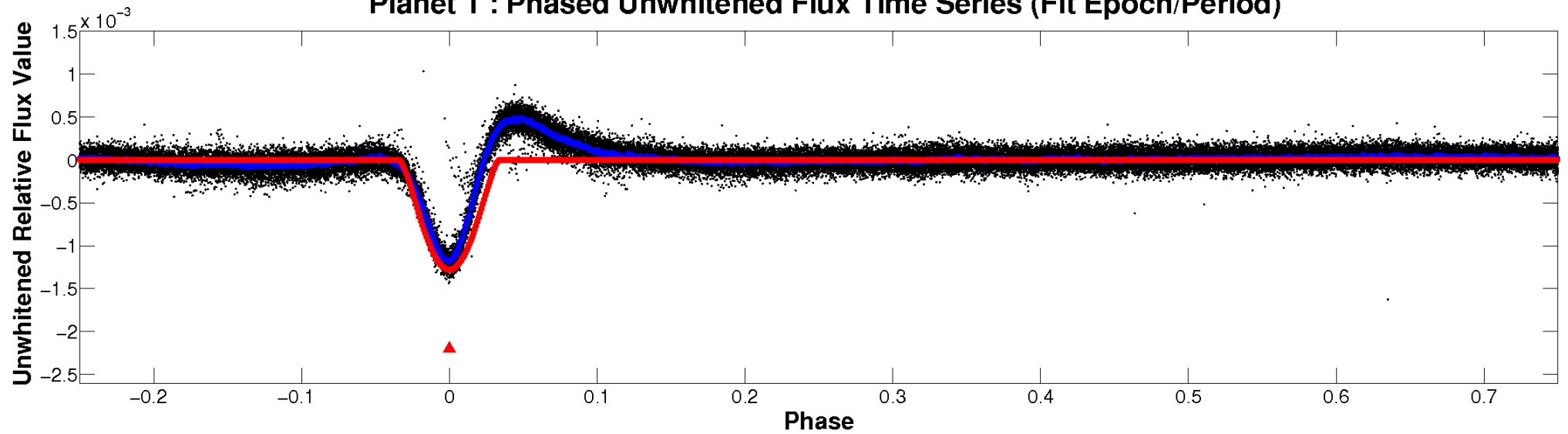
# ALT Odd/Even

TCE 011506938-01

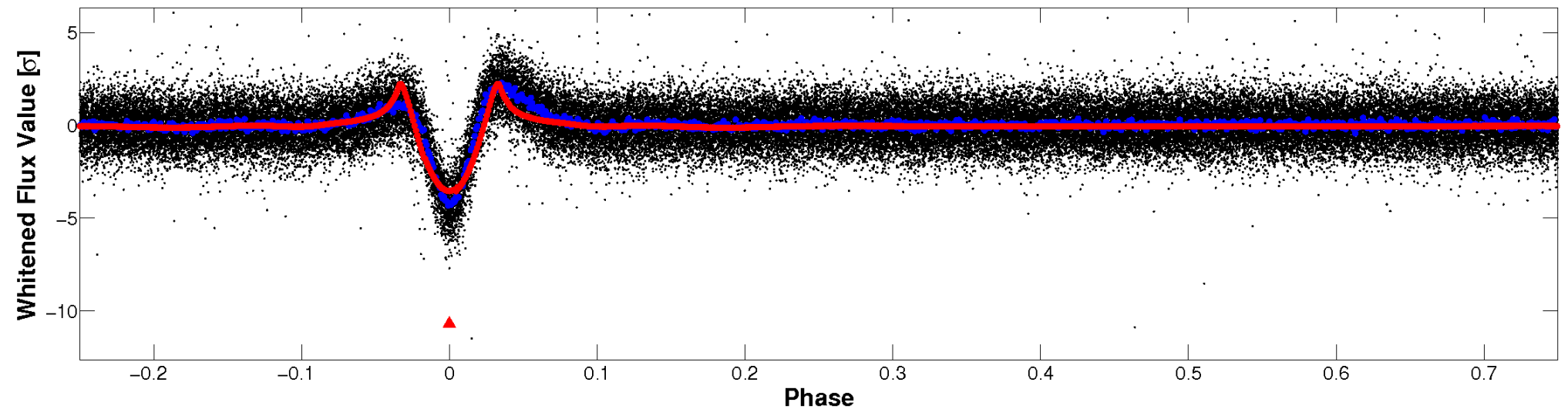


# Non-Whitened Vs. Whitened Light Curve

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



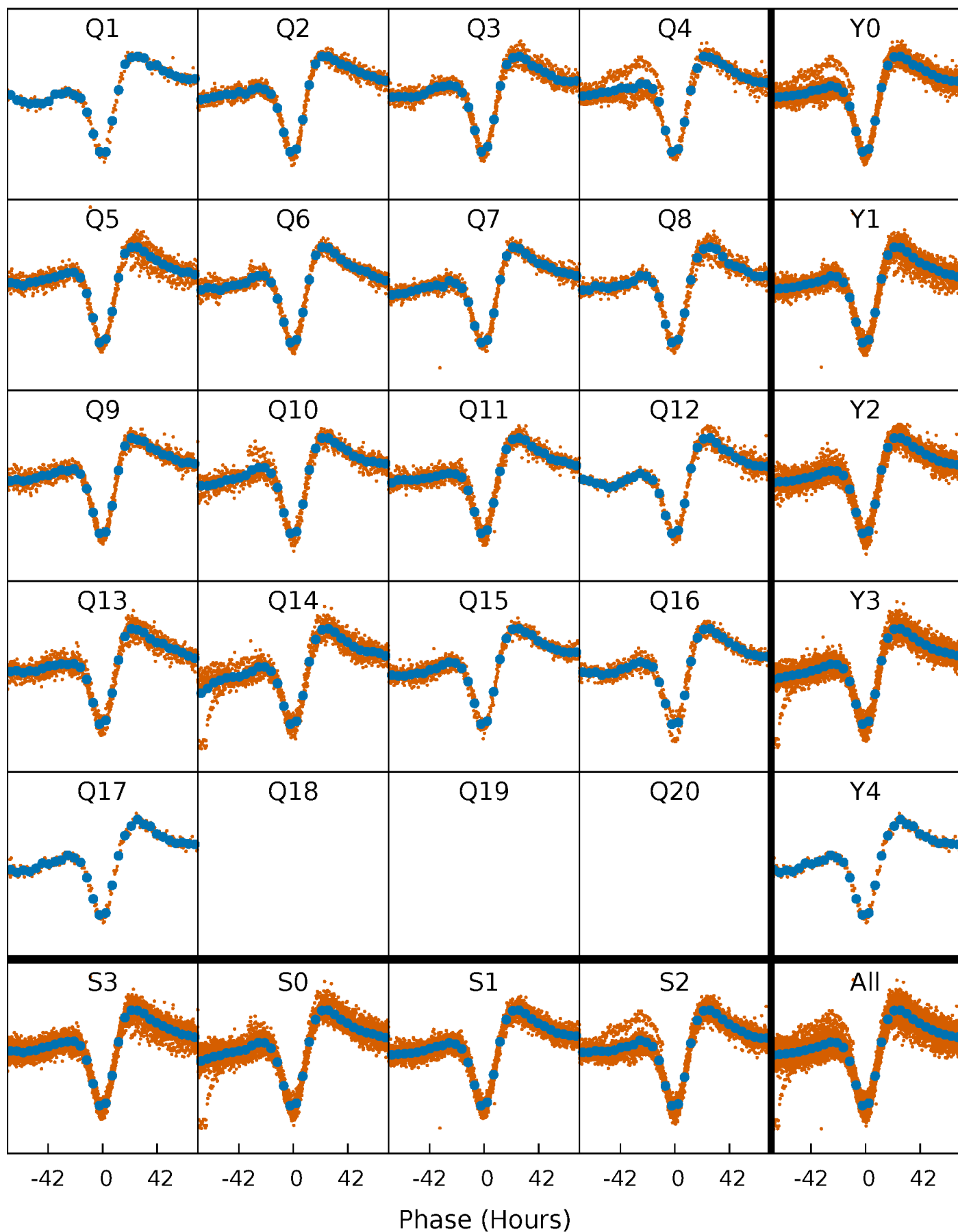
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

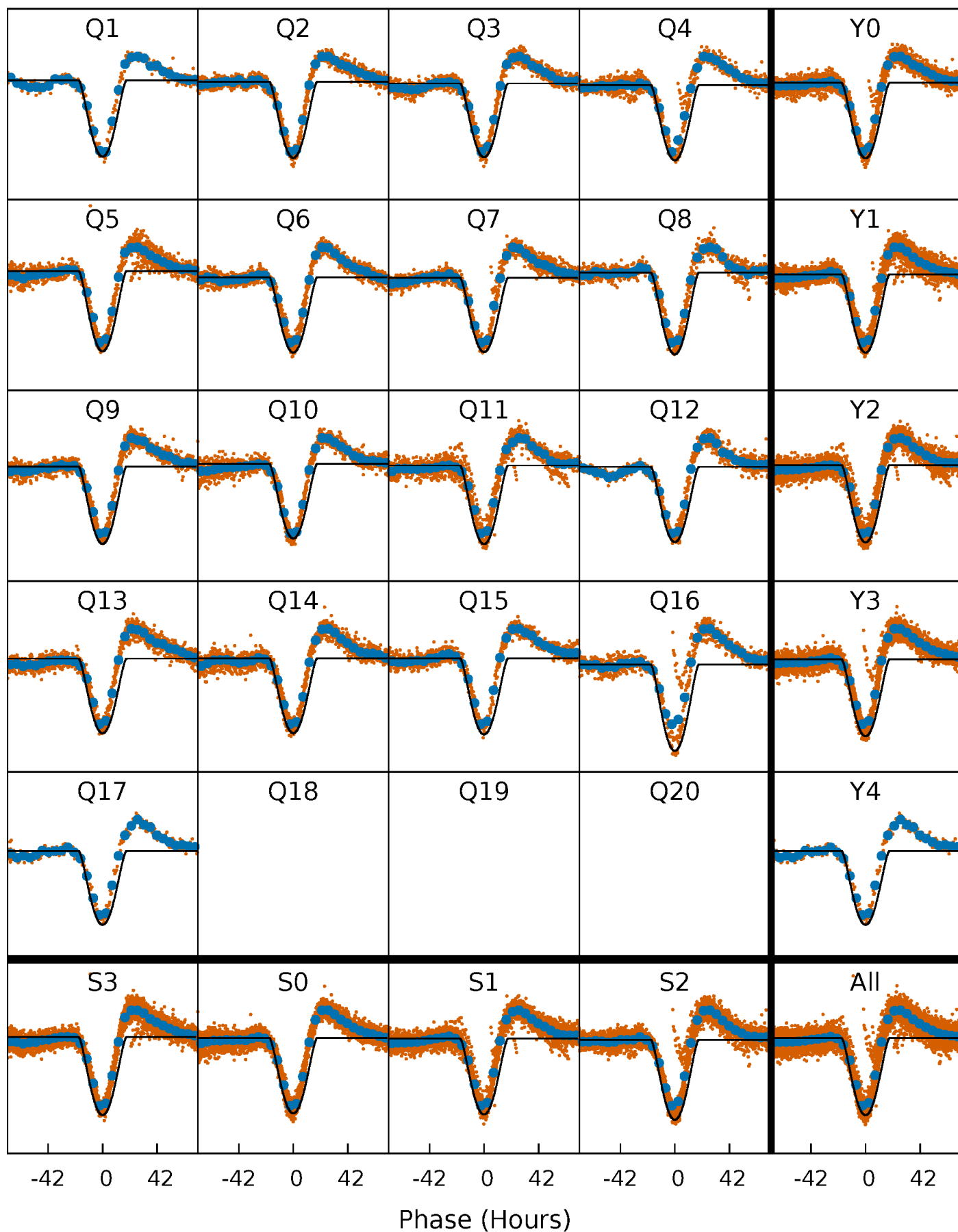
TCE 011506938-01   P= 22.575342 Days    $T_0=149.115855$  (BKJD)





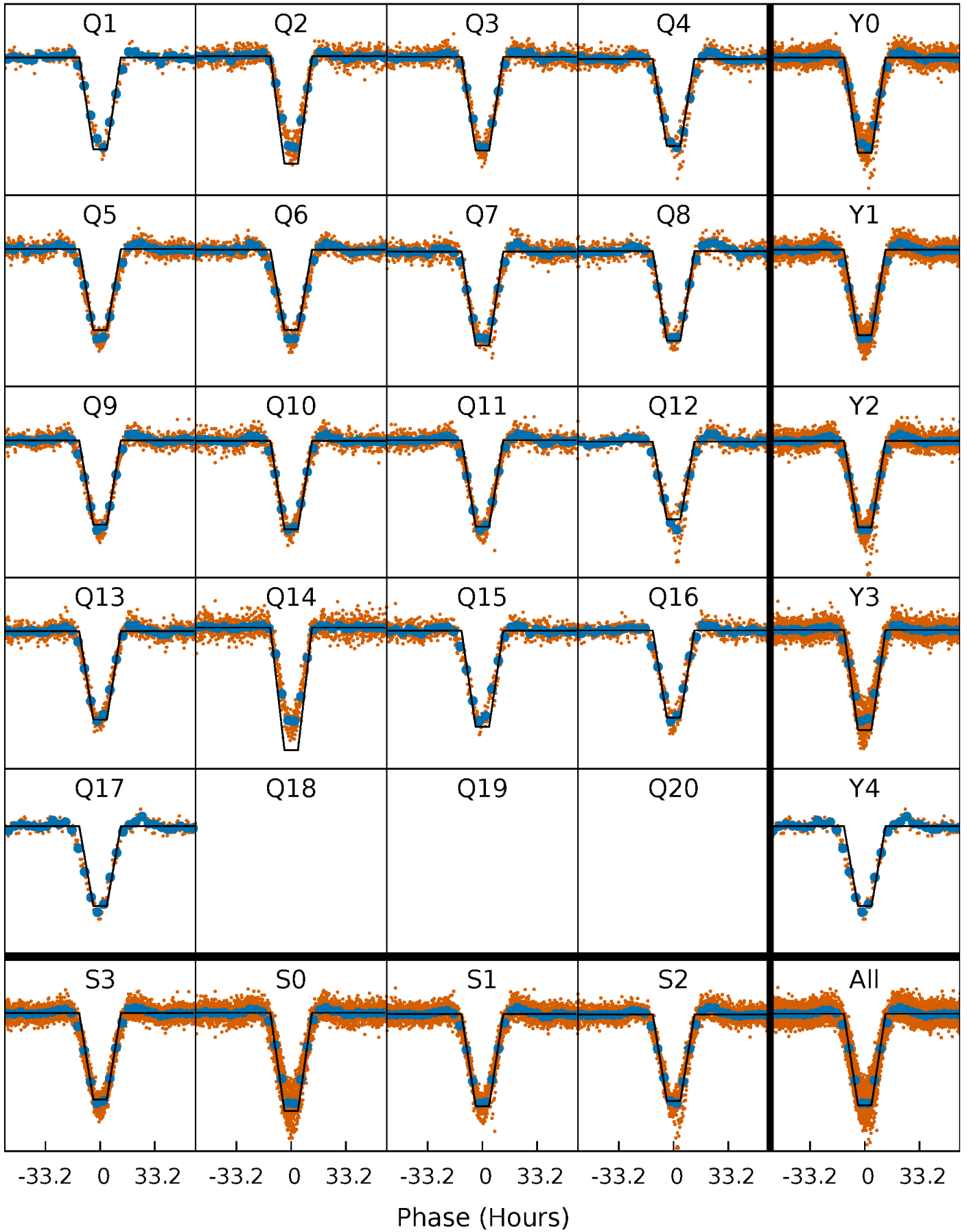
# DV Quarter-Phased Transit Curves

TCE 011506938-01 P= 22.575342 Days  $T_0=149.115855$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

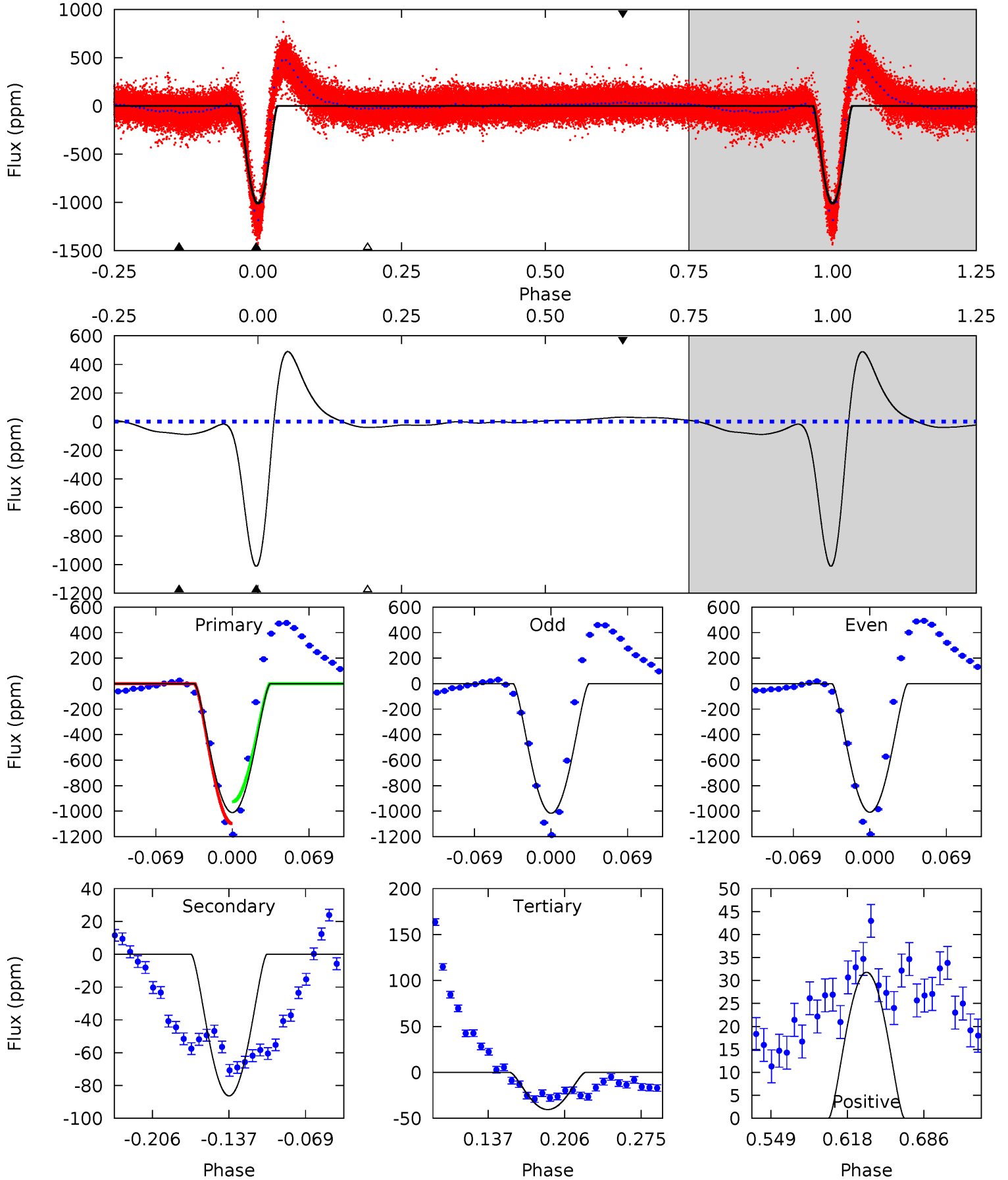
TCE 011506938-01   P= 22.576287 Days    $T_0=149.112310$  (BKJD)



# DV Model-Shift Uniqueness Test

011506938-01, P = 22.575342 Days, E = 126.540513 Days

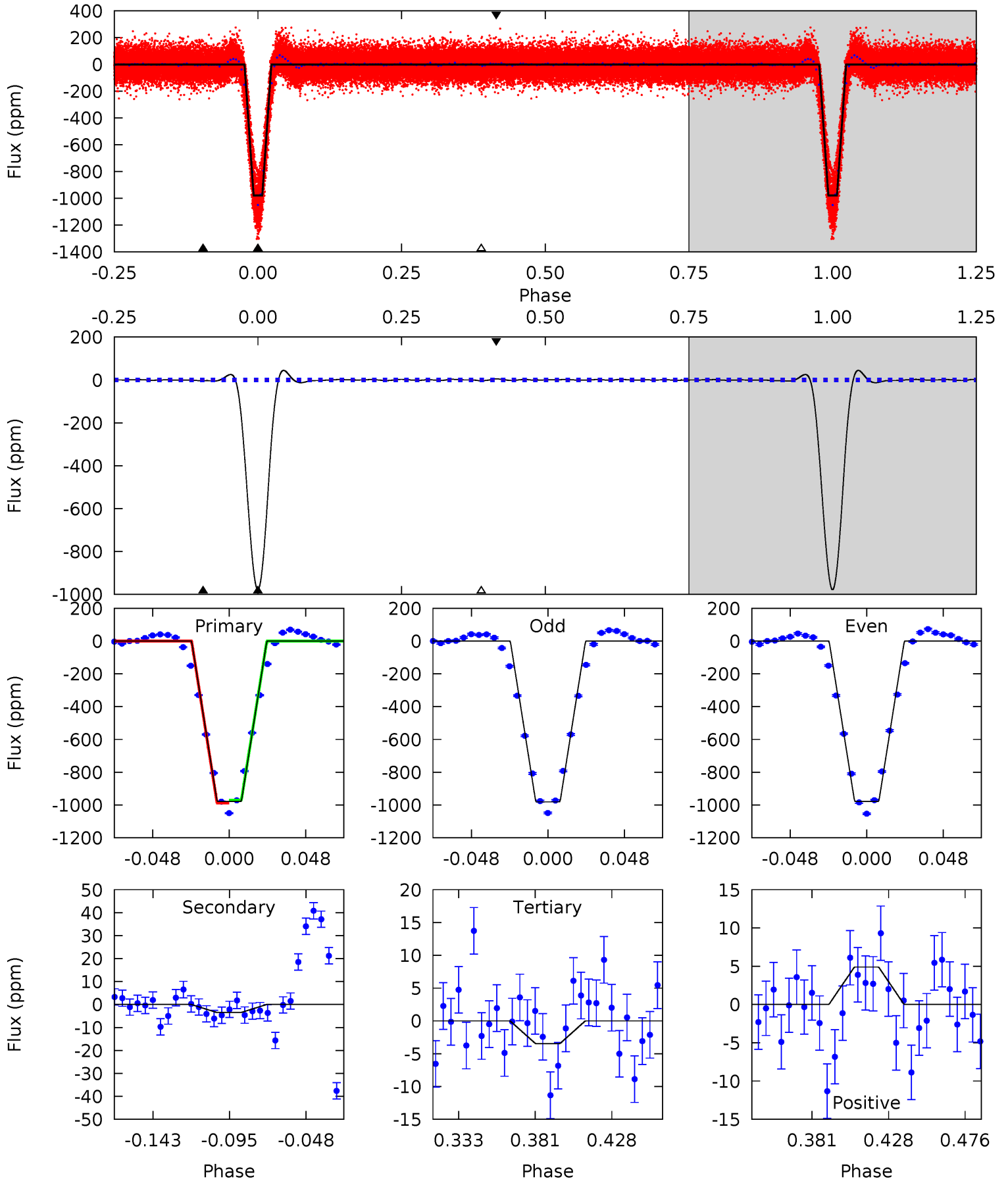
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
693.2	59.2	27.8	21.8	4.64	1.82	42.9	665.5	671.4	31.4	37.4	2.71	0.94	0.33	58.2



# Alt Model-Shift Uniqueness Test

011506938-01, P = 22.576287 Days, E = 126.536023 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
841.7	3.01	2.98	4.21	4.72	1.98	3.46	838.7	837.5	0.02	-1.20	1.58	1.01	0.04	7.37



### Stellar Parameters For KIC 011506938

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6581^{+149}_{-183}$	$4.192^{+0.154}_{-0.126}$	$-0.220^{+0.250}_{-0.300}$	$1.468^{+0.307}_{-0.307}$	$1.230^{+0.145}_{-0.177}$	$0.548^{+0.387}_{-0.210}$
	+2%/-3%	+4%/-3%	+114%/-136%	+21%/-21%	+12%/-14%	+71%/-38%
Source	PHO1	FLK73	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 011506938-01 / KOI 5906.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-86 \pm 1$	$9.77^{+1.28}_{-1.40}$	$1196^{+65}_{-65}$	$3151^{+95}_{-87}$	$14^{+5}_{-3}$
Alt.	$-3 \pm 1$	$5.04^{+1.15}_{-1.03}$	$1197^{+69}_{-66}$	$2419^{+166}_{-166}$	$2.121^{+1.391}_{-0.871}$

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

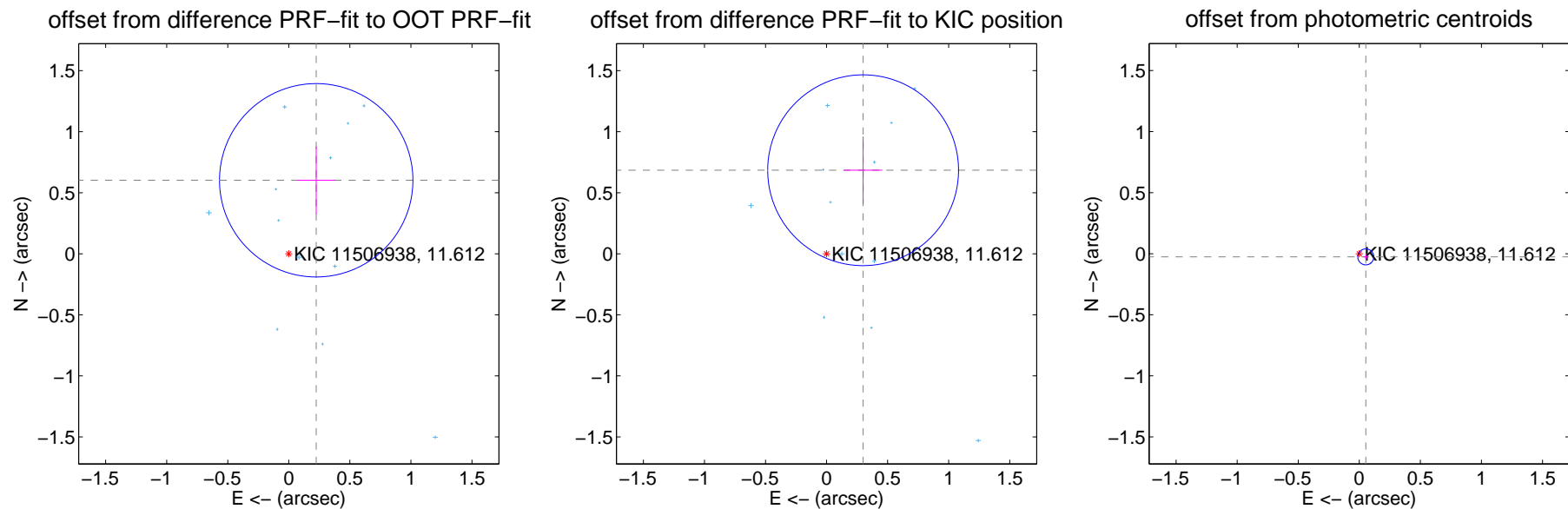
## DV Centroid Data

Supplemental centroid analysis for 011506938-01. **Kepler magnitude: 11.61.** Transit SNR 153.38

There are 16 quarters with good PRF difference image offsets

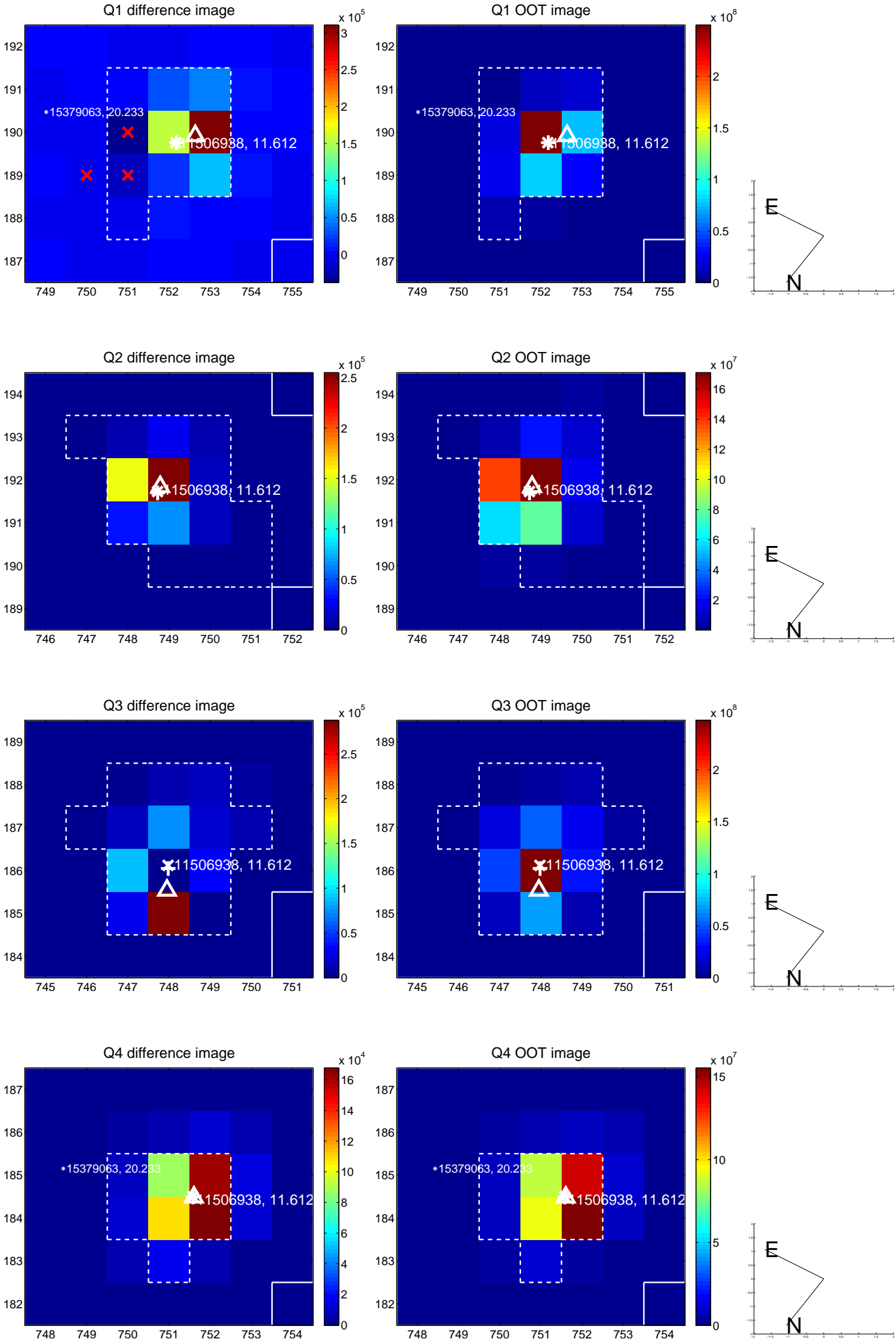
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.642 \pm 0.264$	2.43	$-0.224 \pm 0.155$	$0.602 \pm 0.276$
PRF-fit source offset from KIC position	$0.747 \pm 0.260$	2.87	$-0.299 \pm 0.158$	$0.684 \pm 0.276$
photometric centroid source offset	$0.06 \pm 0.02$	2.71	$-0.05 \pm 0.02$	$-0.03 \pm 0.02$



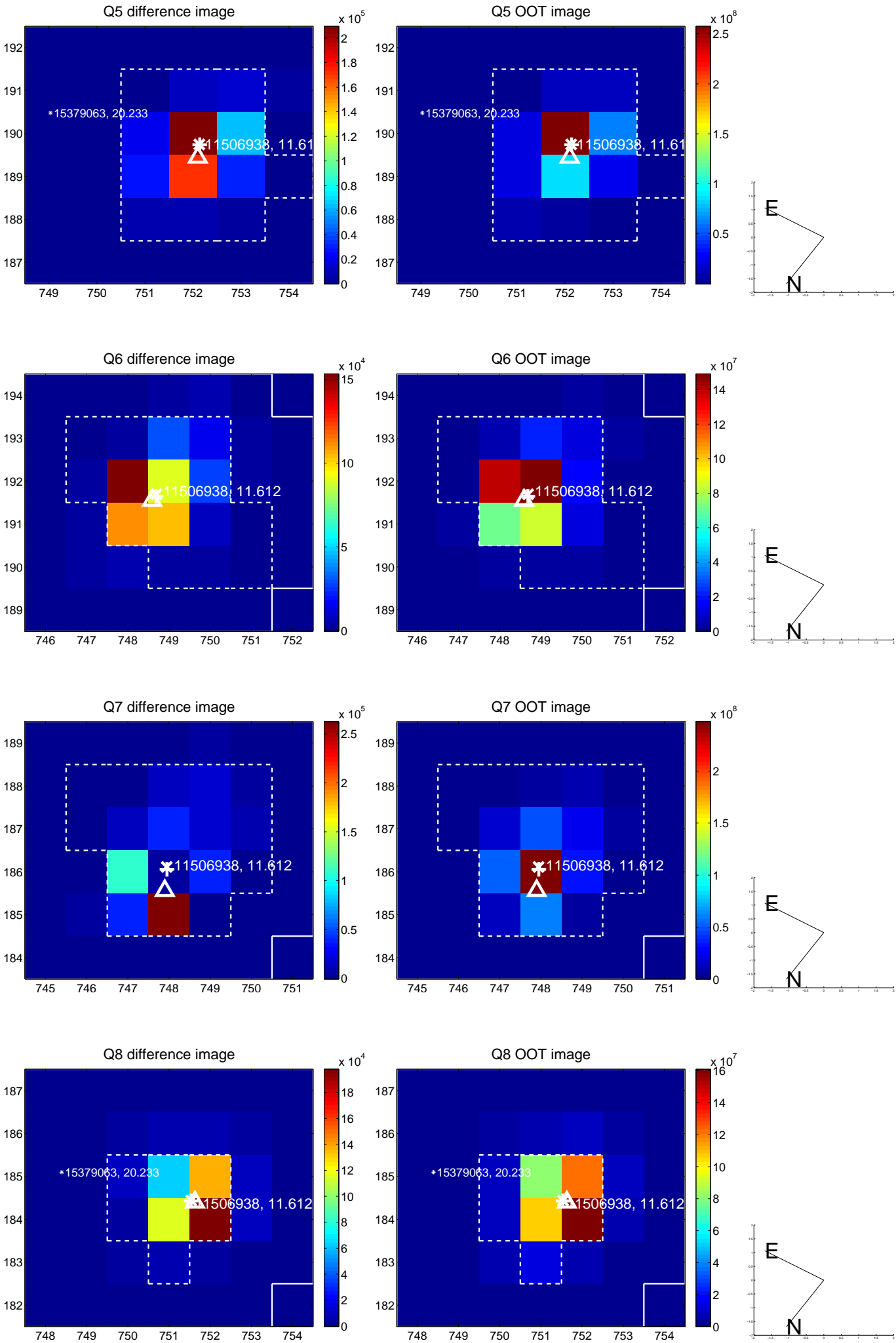
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

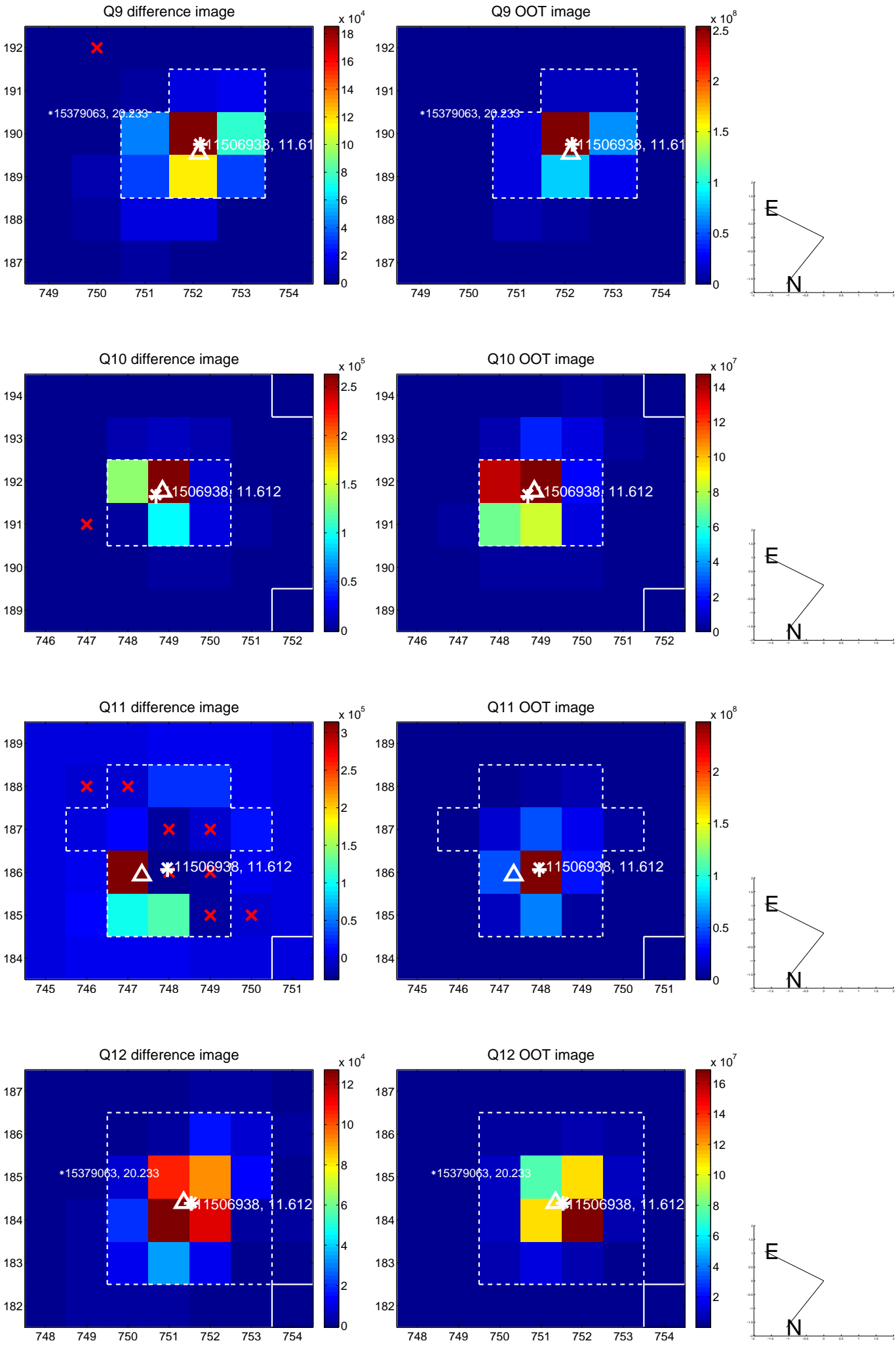




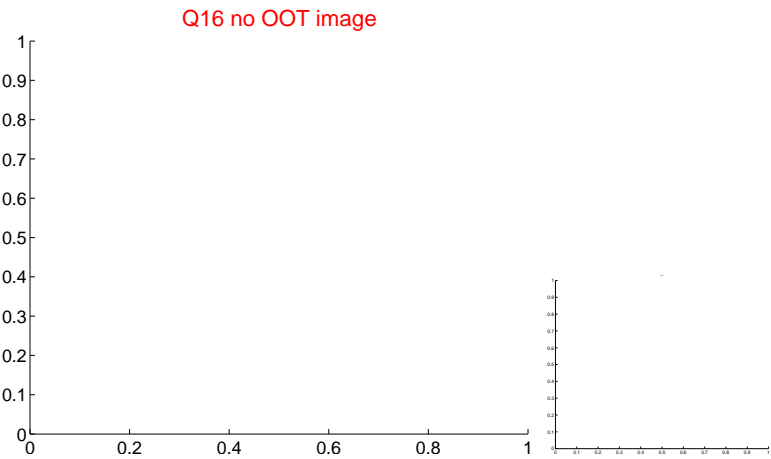
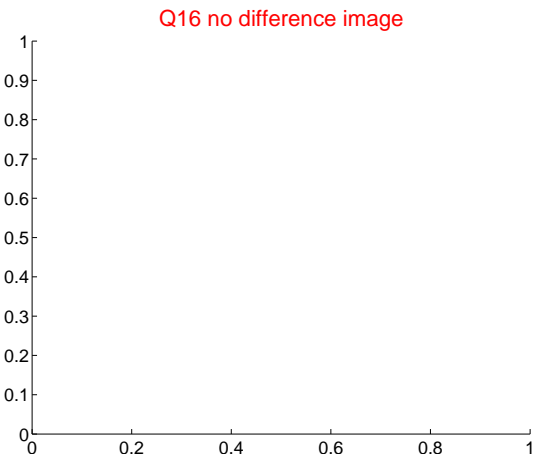
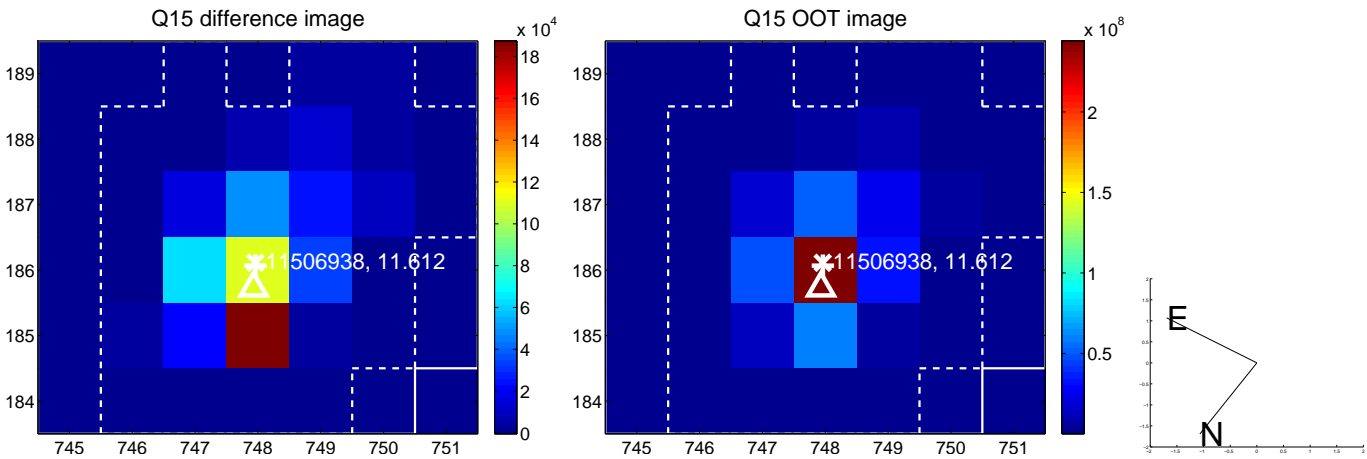
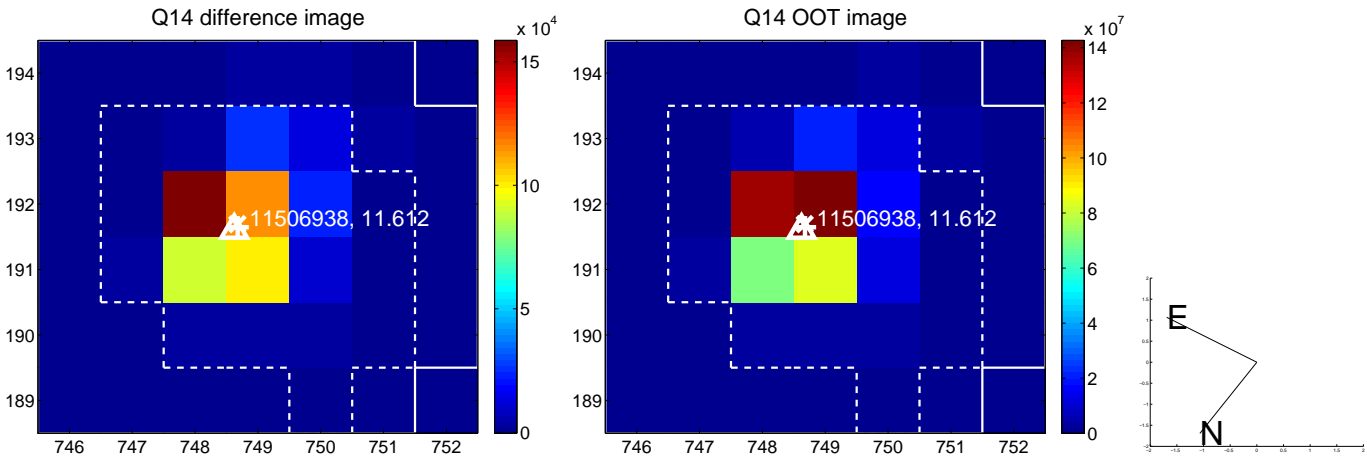
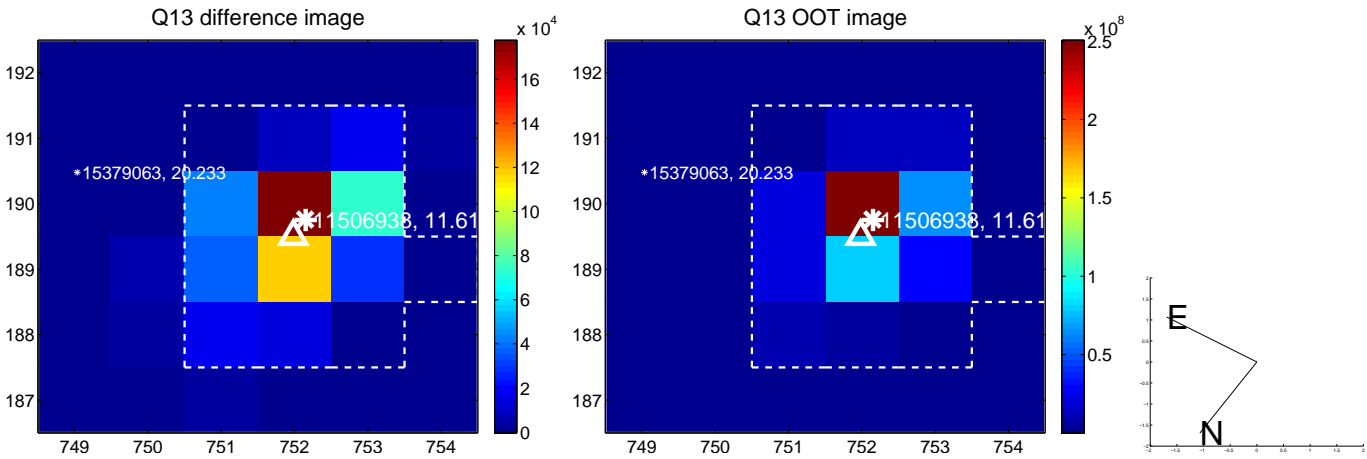
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



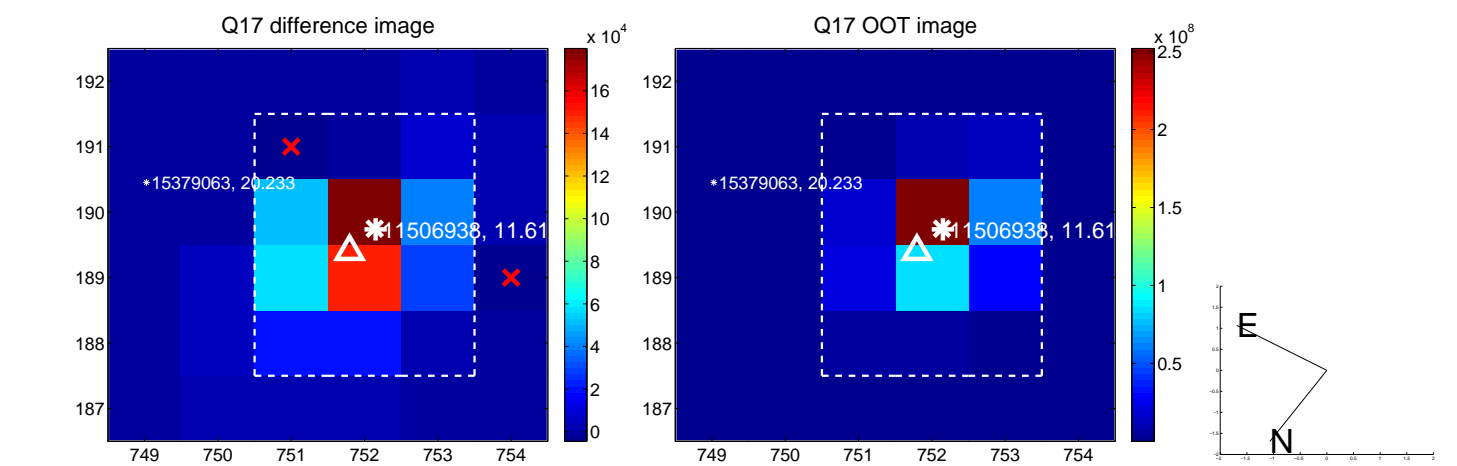
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



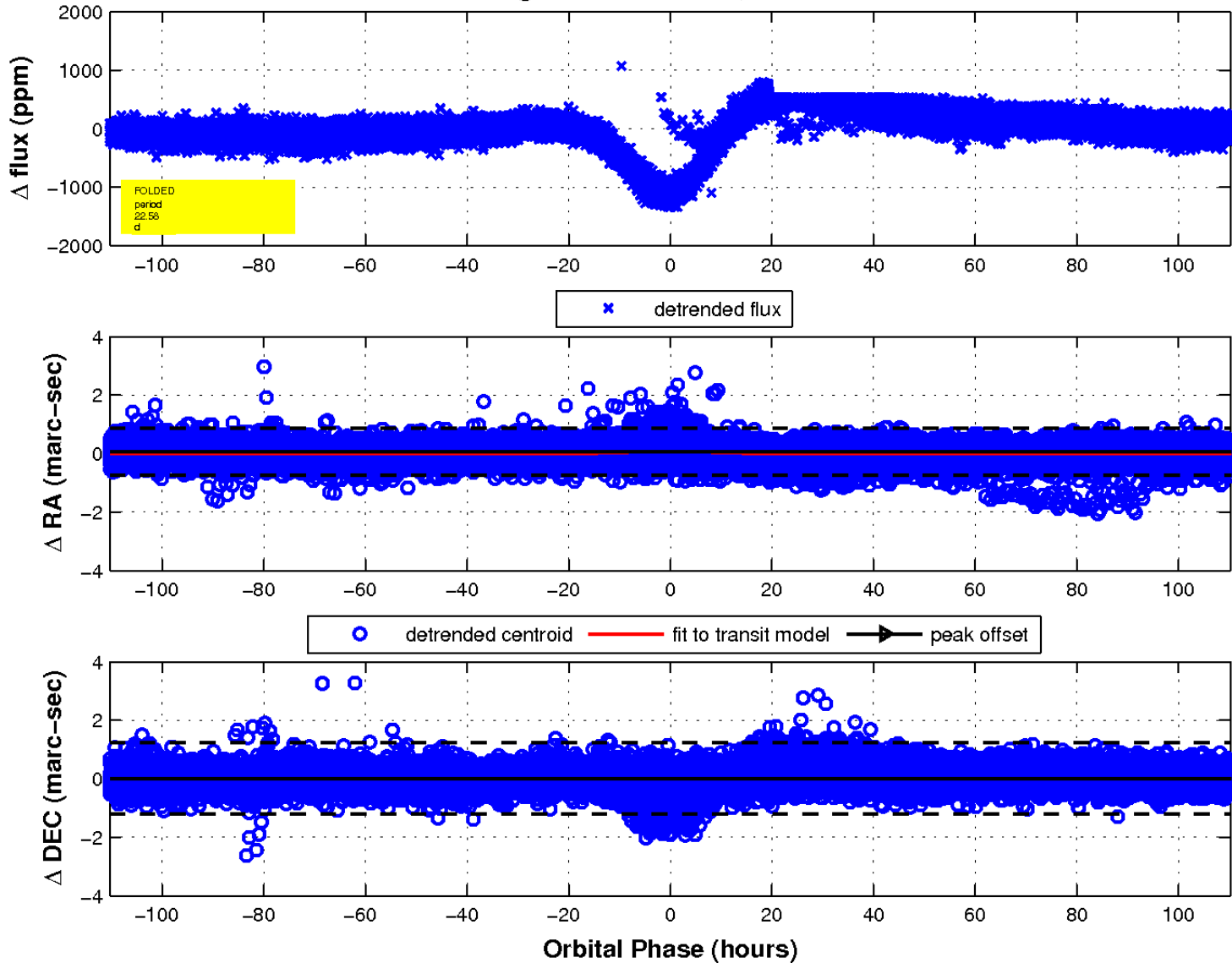
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

