

# KIC 010488450

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010488450-01	OBS	0290.01	2.683375	133.863343	208.5	1.986	41.2	45.2	1.53	6958	2.57	2832.67

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010488450-01	OBS	FP	0.00	0	0	1	0	CENT_UNRESOLVED_OFFSET—HALO_GHOST

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

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

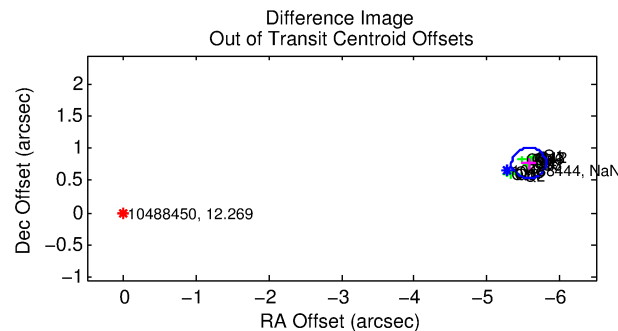
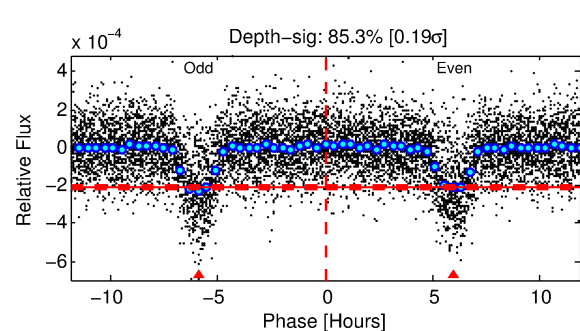
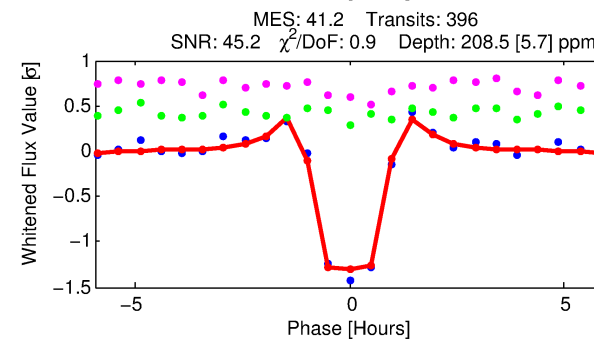
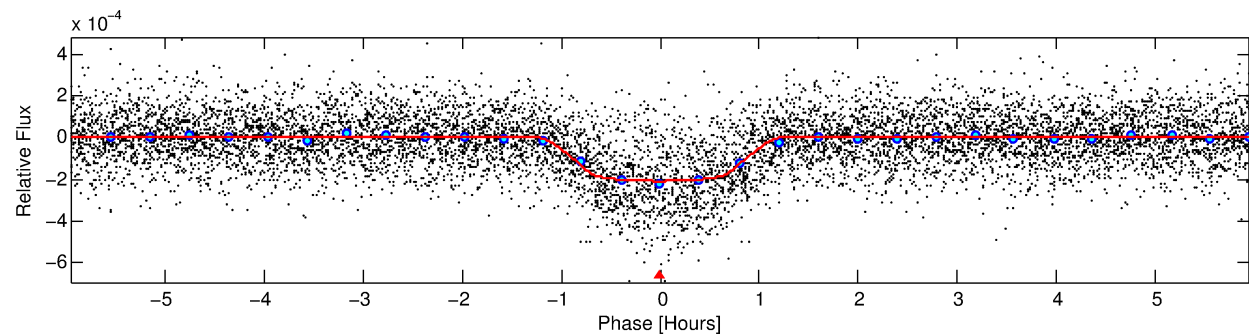
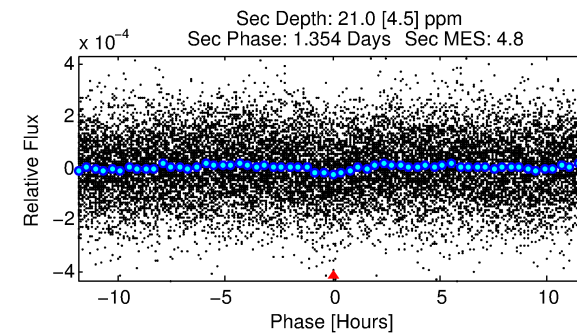
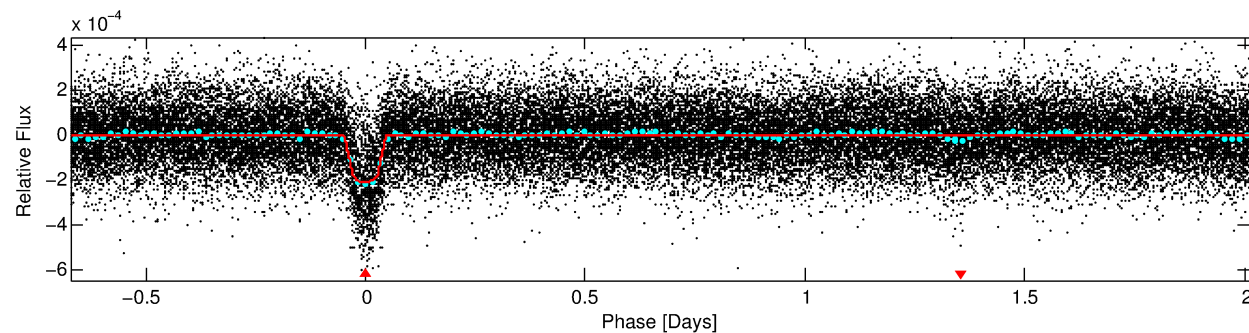
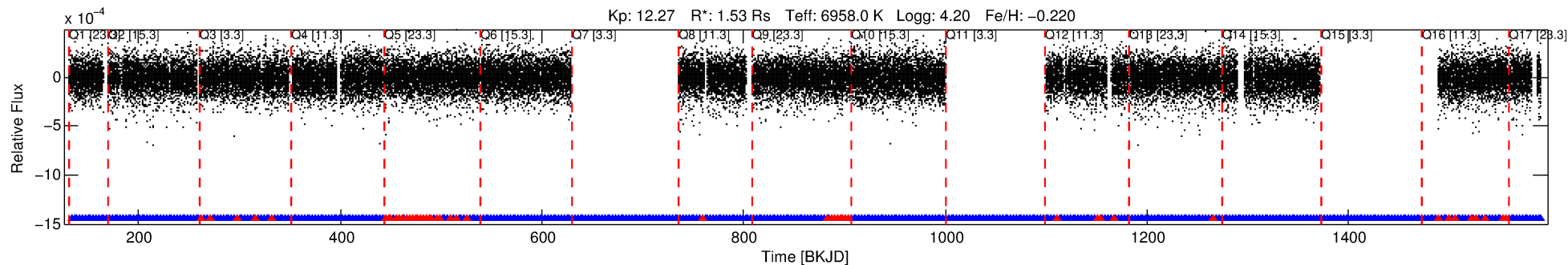
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010488450-01

No Significant Match Found

# DV One-Page Summary

KIC: 10488450 Candidate: 1 of 1 Period: 2.683 d  
KOI: K00290.01 Corr: 0.960



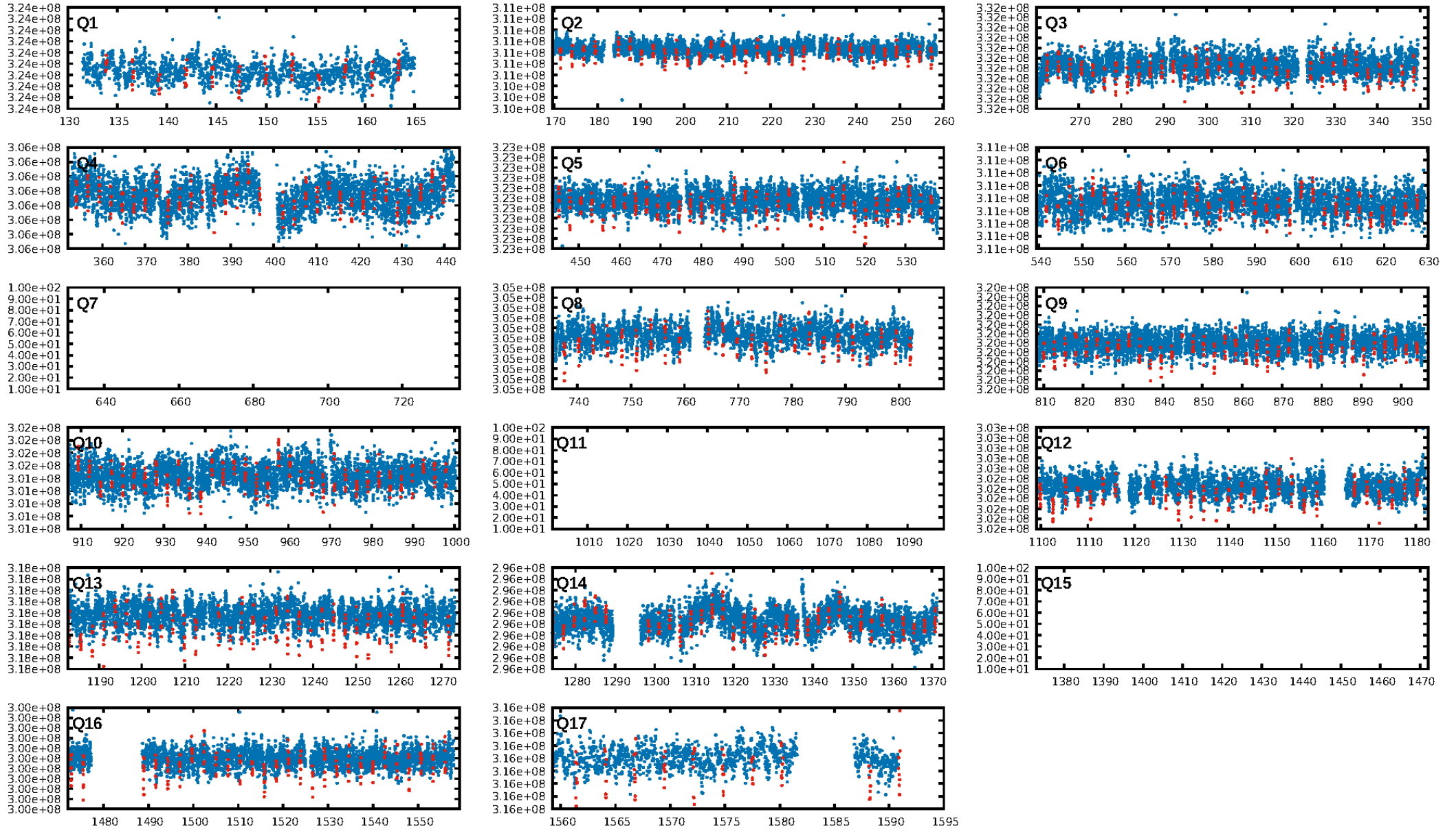
## DV Fit Results:

Period = 2.68337 [0.00000] d  
Epoch = 133.8633 [0.0005] BKJD  
Rp/R\* = 0.0154 [0.0012]  
a/R\* = 4.93 [2.24]  
b = 0.90 [0.10]  
Seff = 2832.67 [1126.56]  
Teq = 1860 [185] K  
Rp = 2.57 [0.83] Re  
a = 0.0416 [0.0104] AU  
Ag = 3.03 [1.32] [1.53σ]  
Teffp = 3794 [312] K [5.33σ]

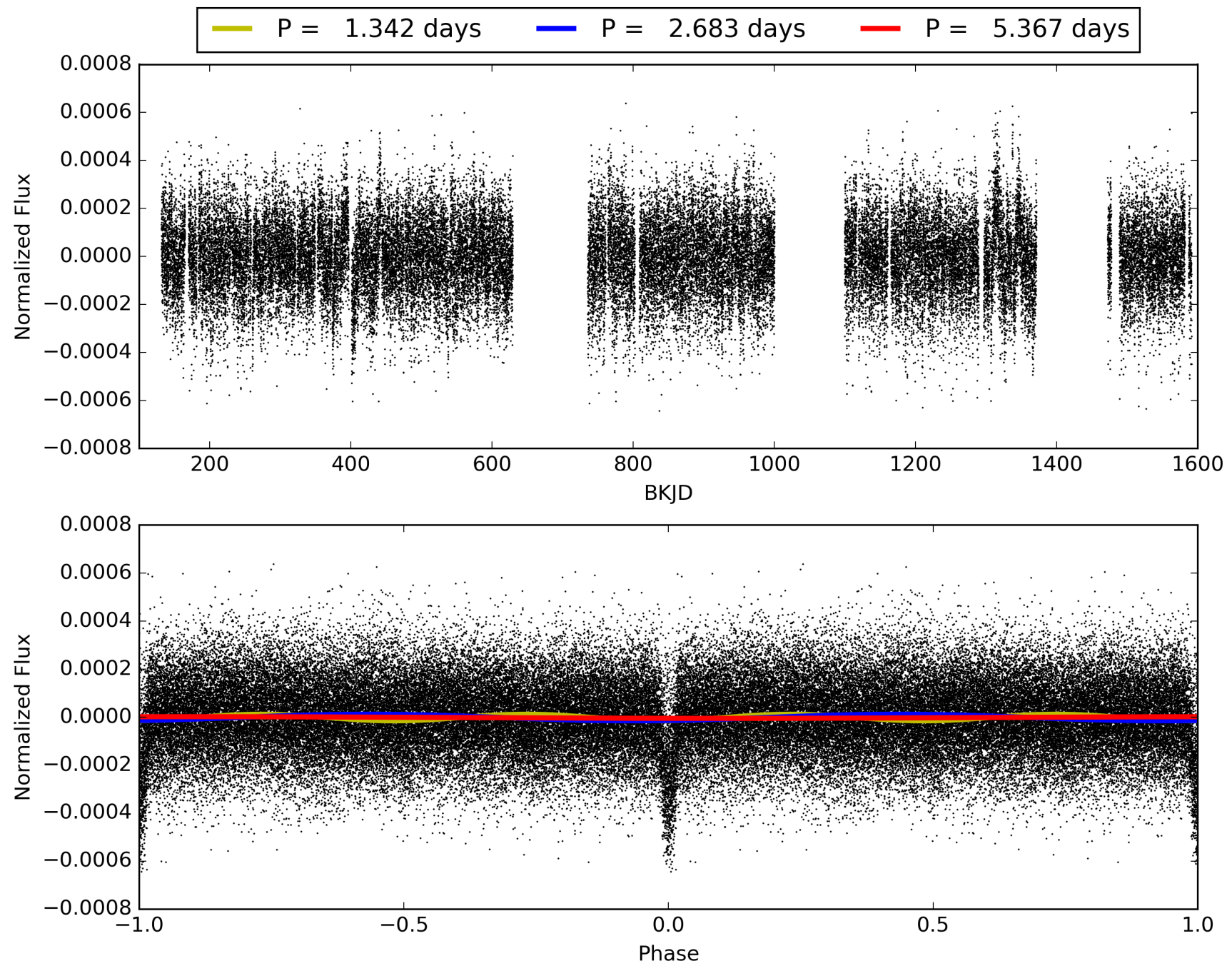
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.87 [326/374]  
GhostDiagnostic-chr: 0.2191  
Centroid-sig: 0.0%  
Centroid-so: 9.827 arcsec [72.86σ]  
OotOffset-rm: 5.627 arcsec [71.31σ]  
KicOffset-rm: 5.571 arcsec [72.88σ]  
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]

# TCE 010488450-01, PDC Light Curves

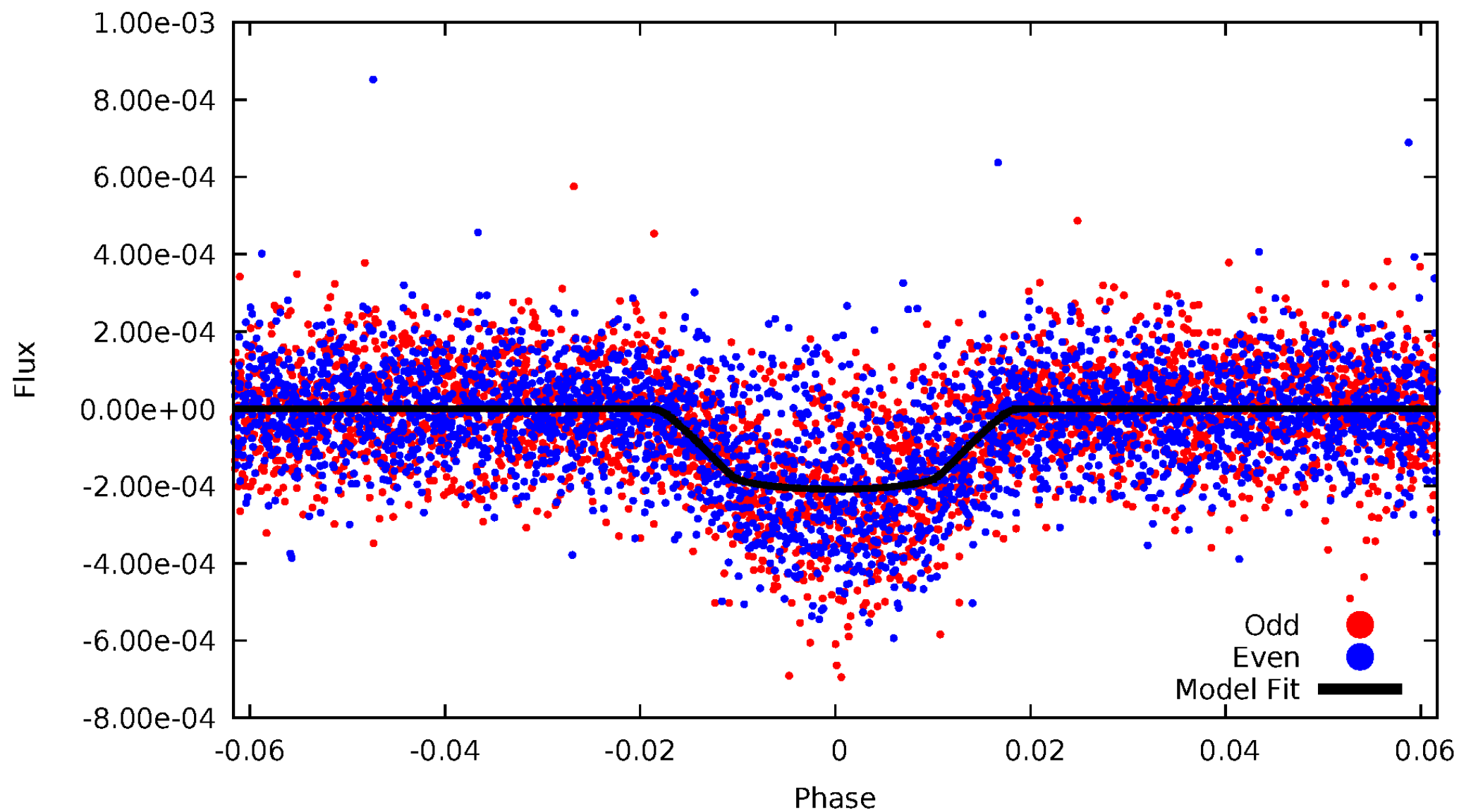


TCE 010488450-01



# DV Odd/Even

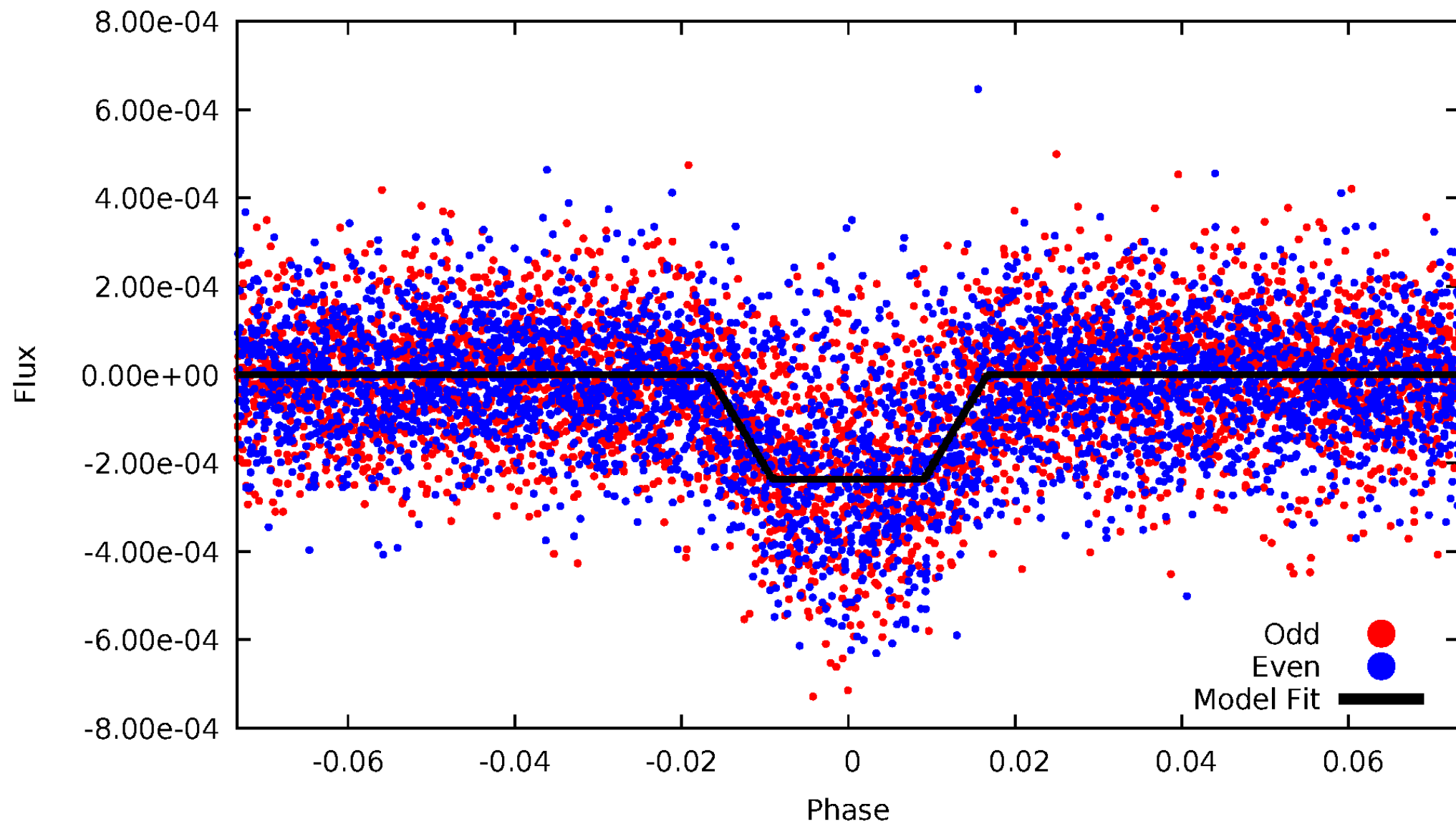
TCE 010488450-01





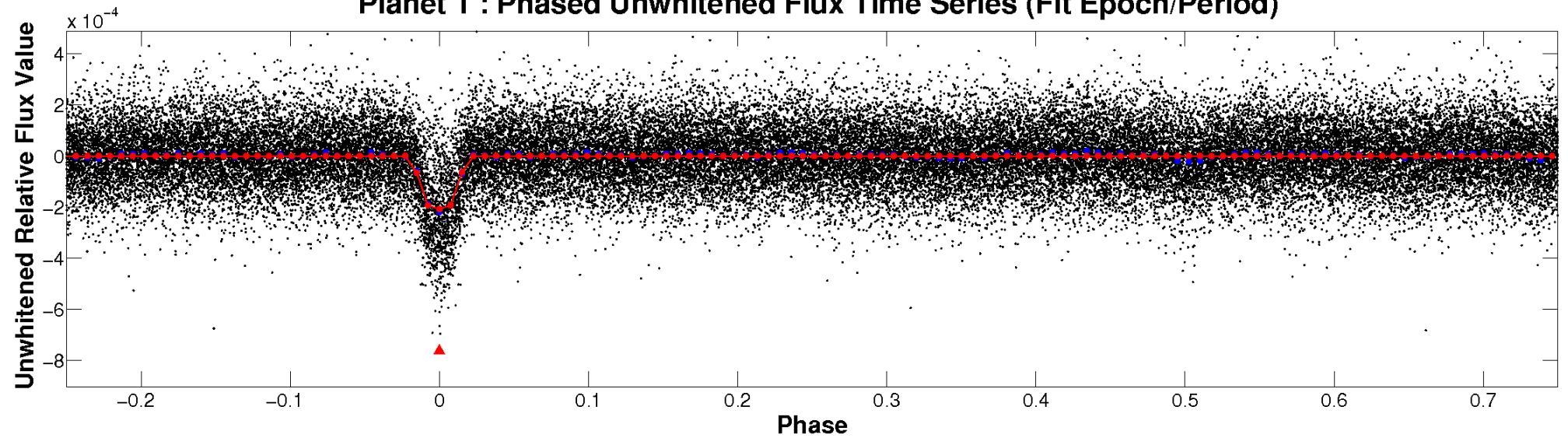
# ALT Odd/Even

TCE 010488450-01

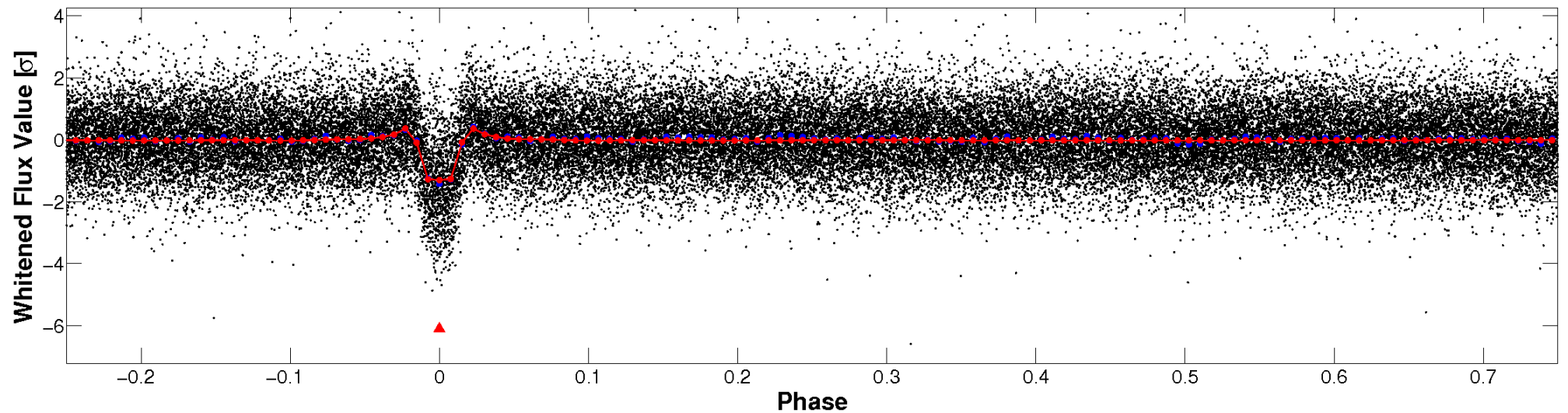


# Non-Whitened Vs. Whitened Light Curve

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

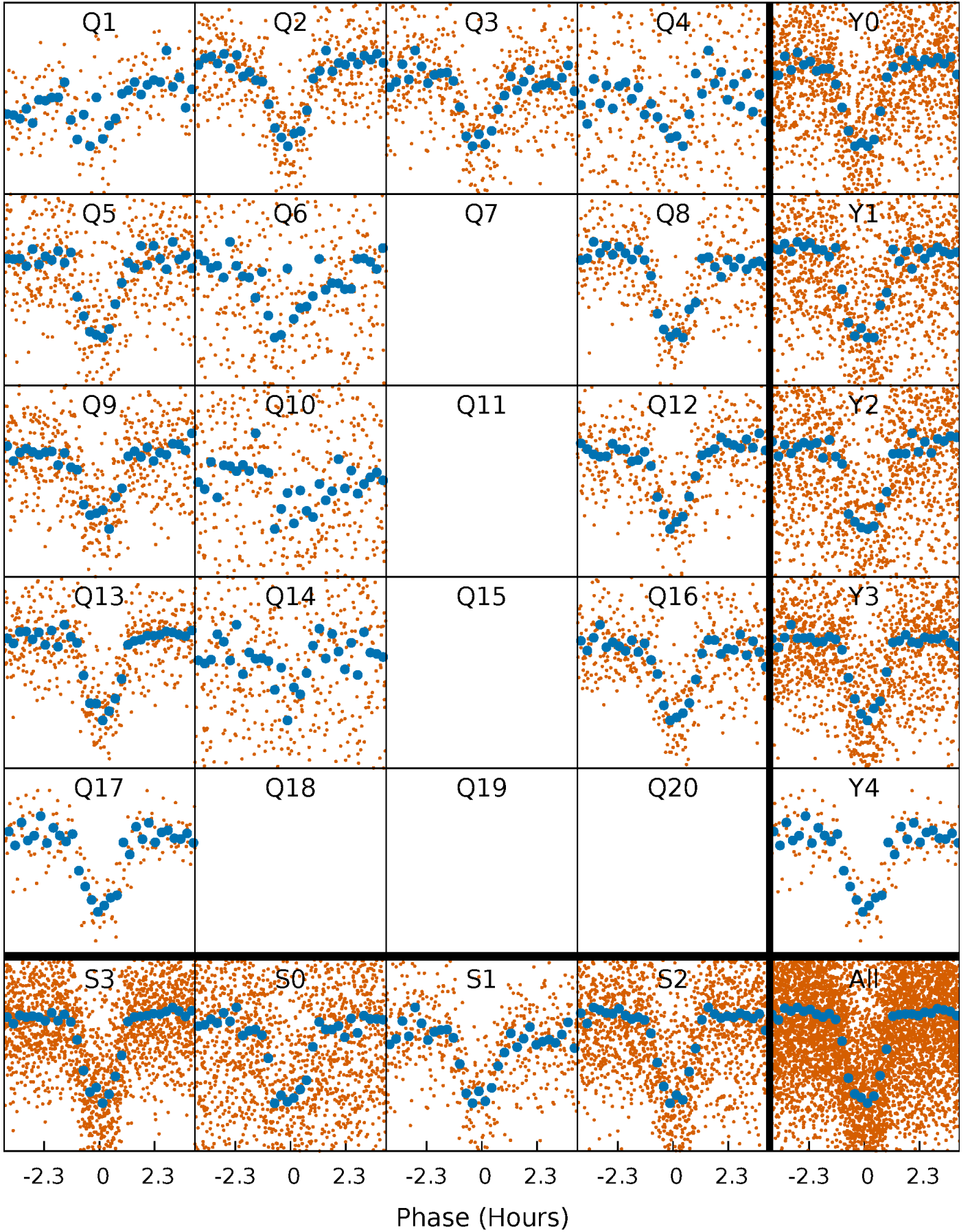


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

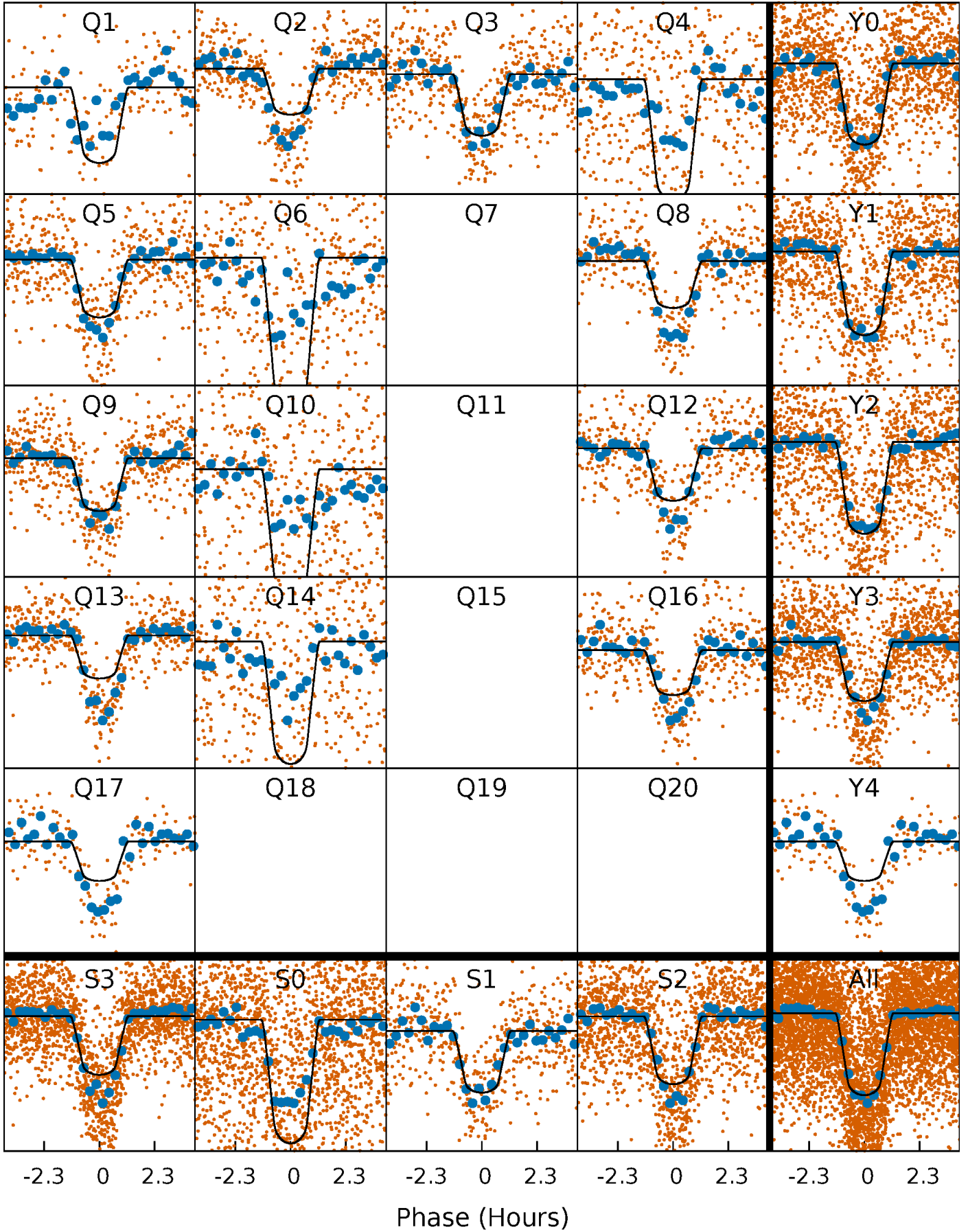
TCE 010488450-01   P= 2.683375 Days    $T_0=133.863343$  (BKJD)





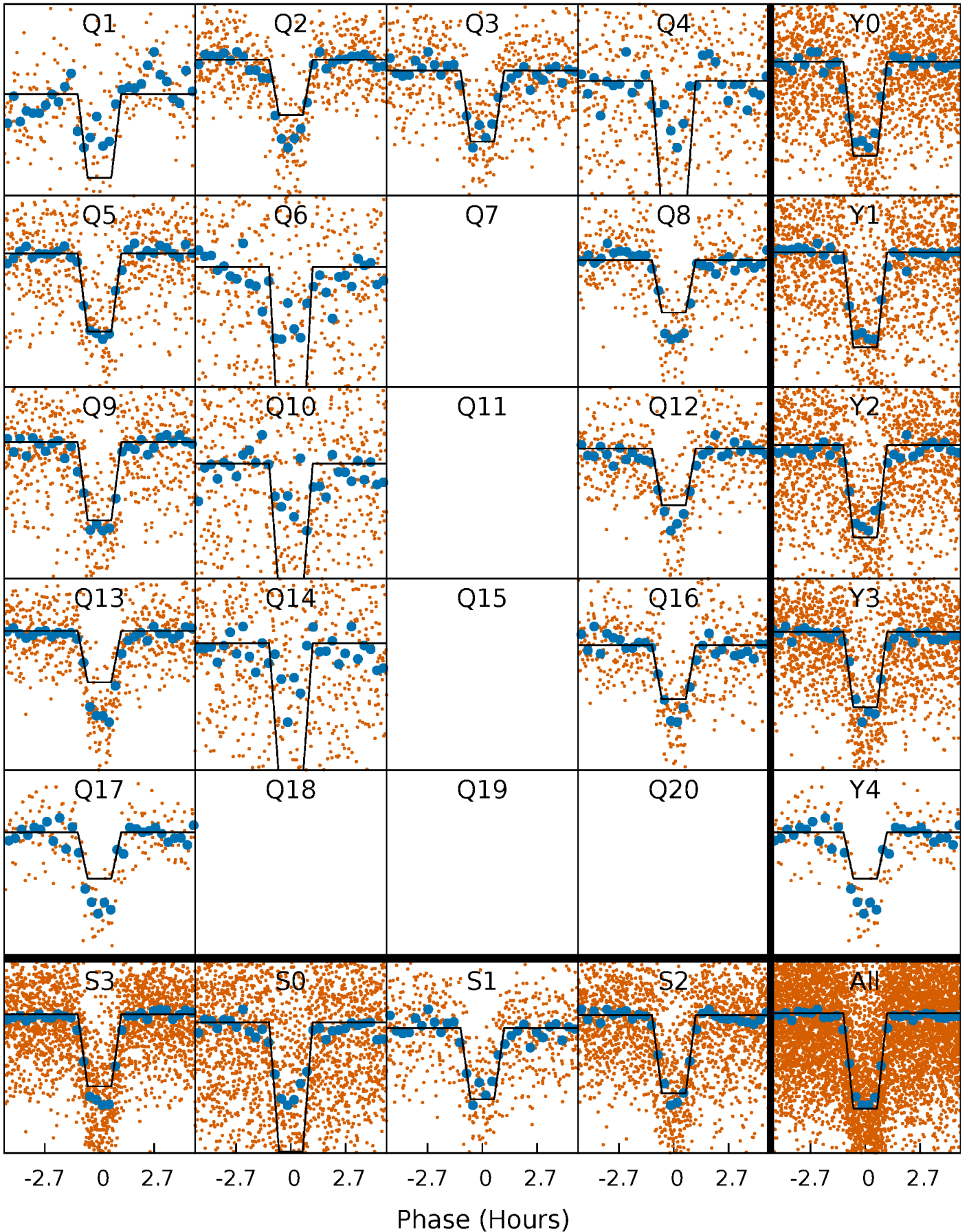
# DV Quarter-Phased Transit Curves

TCE 010488450-01 P= 2.683375 Days  $T_0=133.863343$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

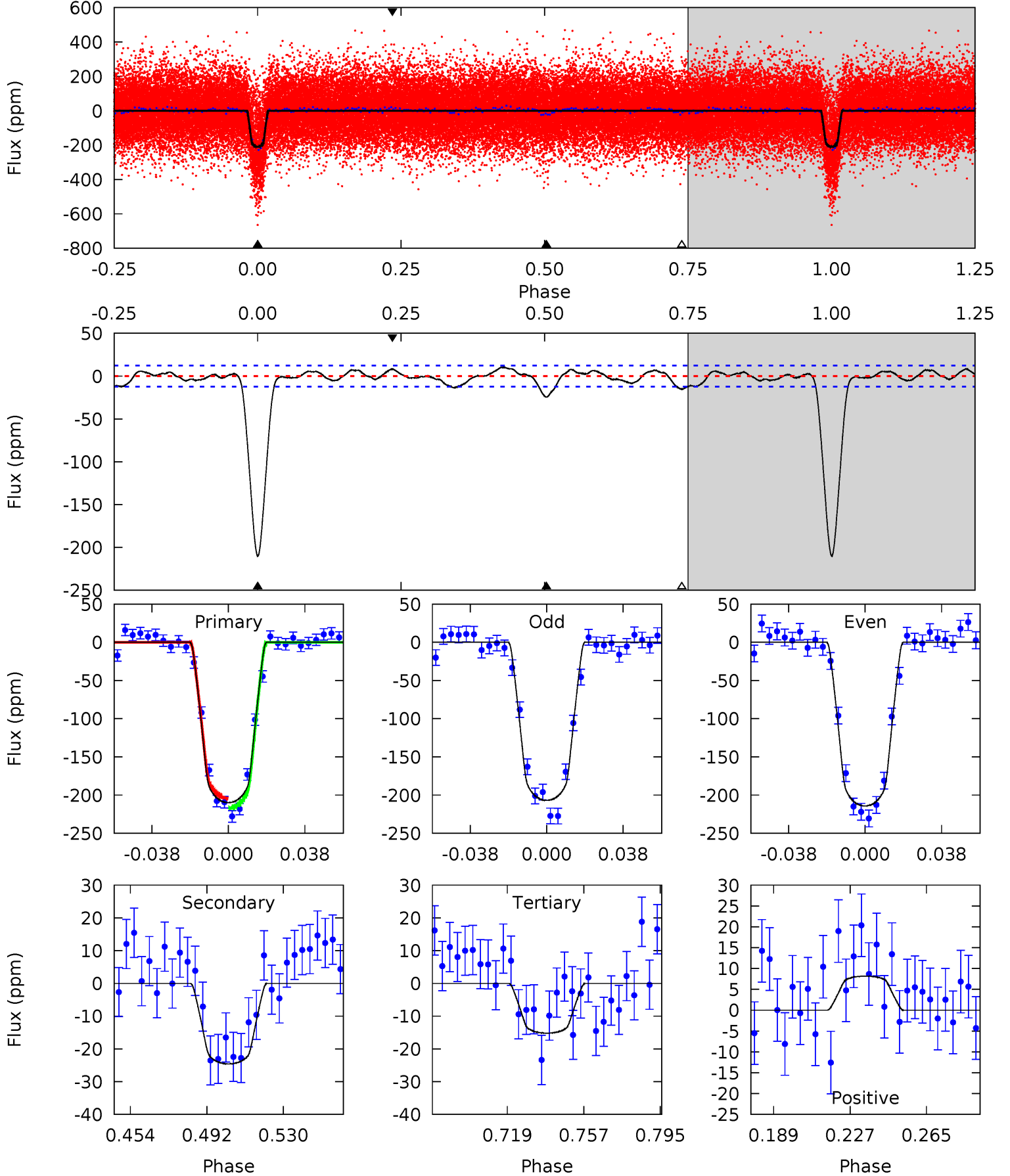
TCE 010488450-01 P= 2.683383 Days  $T_0=133.861753$  (BKJD)



# DV Model-Shift Uniqueness Test

010488450-01, P = 2.683375 Days, E = 131.179968 Days

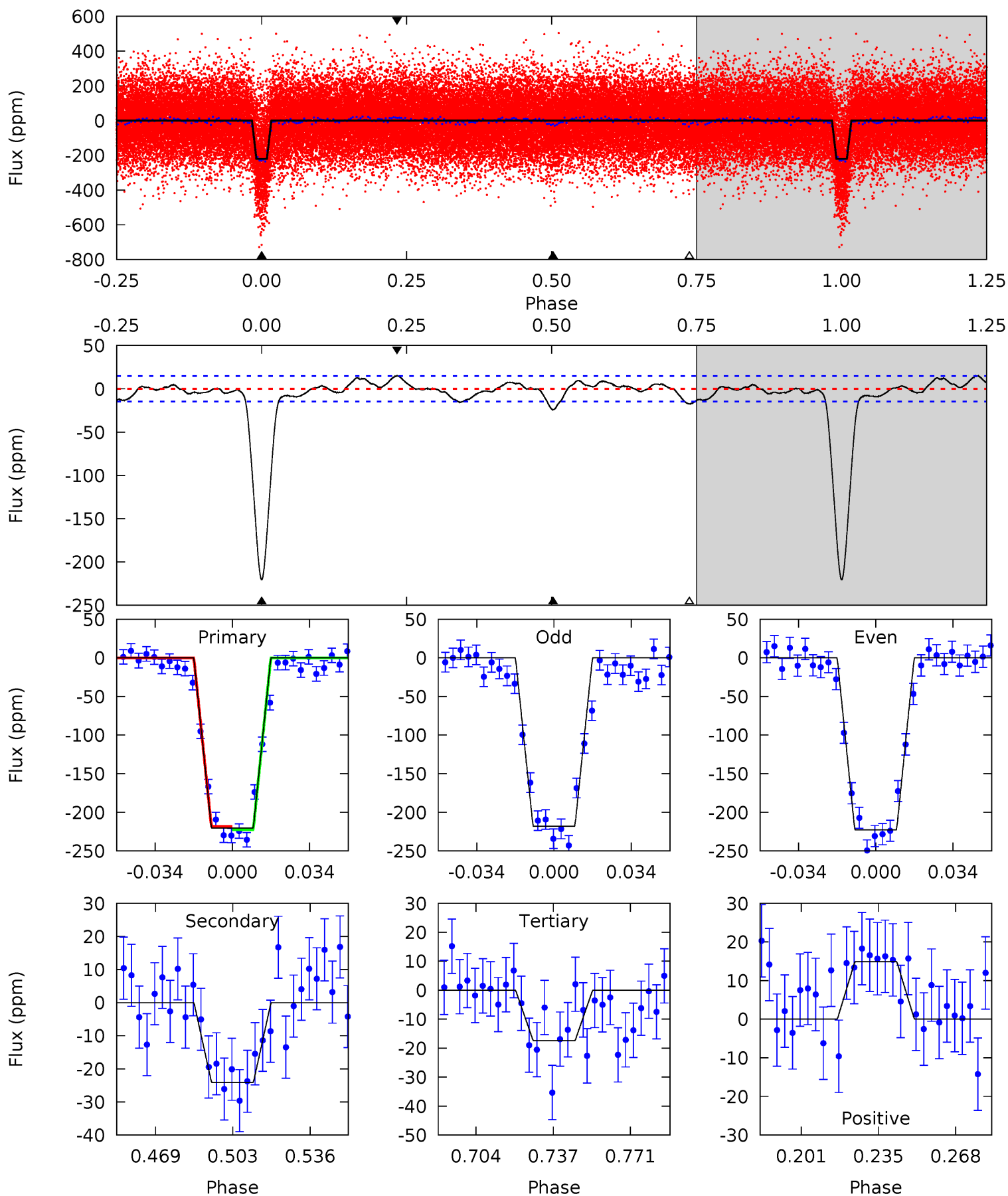
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
81.0	9.49	5.86	3.15	4.76	2.08	2.15	75.1	77.8	3.62	6.34	1.41	0.95	0.05	2.54



# Alt Model-Shift Uniqueness Test

010488450-01, P = 2.683383 Days, E = 131.178370 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
71.7	7.84	5.68	4.85	4.79	2.13	2.16	66.0	66.8	2.16	2.99	0.74	0.95	0.06	0.66



### Stellar Parameters For KIC 010488450

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6958^{+196}_{-337}$	$4.195^{+0.132}_{-0.181}$	$-0.220^{+0.250}_{-0.350}$	$1.529^{+0.478}_{-0.318}$	$1.344^{+0.192}_{-0.214}$	$0.529^{+0.376}_{-0.251}$
	+3%/-5%	+3%/-4%	+114%/-159%	+31%/-21%	+14%/-16%	+71%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 010488450-01 / KOI 0290.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-25 \pm 3$	$2.63^{+0.49}_{-0.35}$	$2610^{+196}_{-179}$	$4091^{+183}_{-192}$	$3.343^{+1.184}_{-0.920}$
Alt.	$-24 \pm 3$	$2.59^{+0.44}_{-0.36}$	$2596^{+201}_{-162}$	$4095^{+181}_{-193}$	$3.400^{+1.197}_{-0.996}$

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



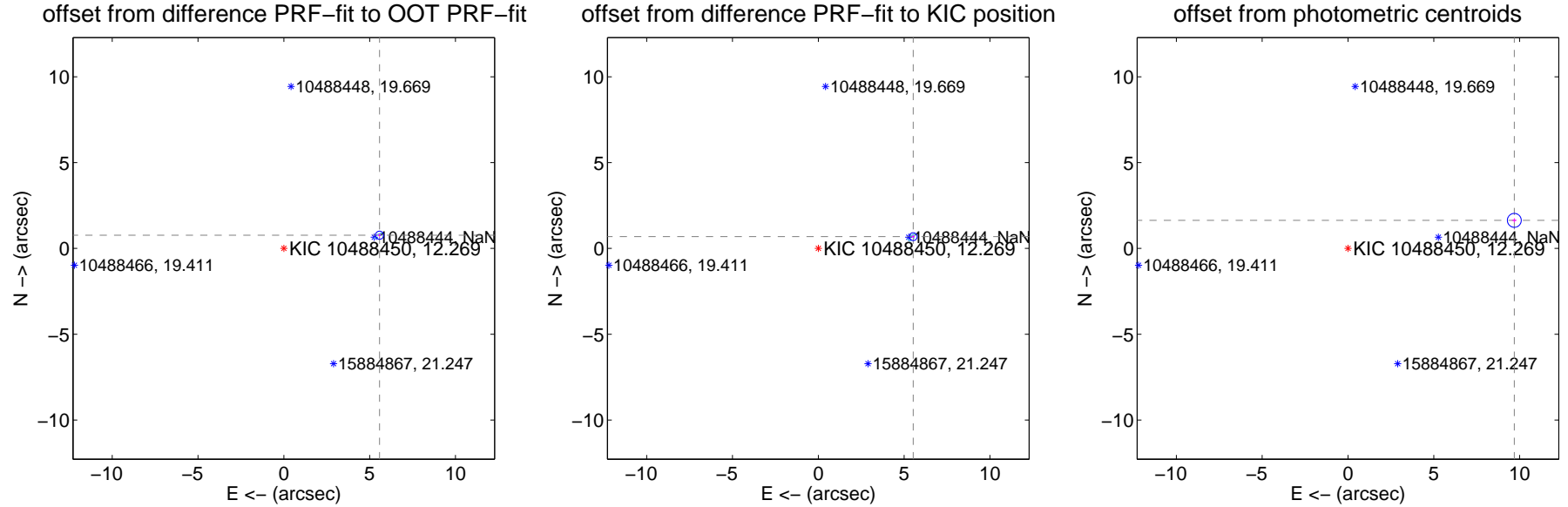
## DV Centroid Data

Supplemental centroid analysis for 010488450-01. Kepler magnitude: 12.27. Transit SNR 45.17

There are 14 quarters with good PRF difference image offsets

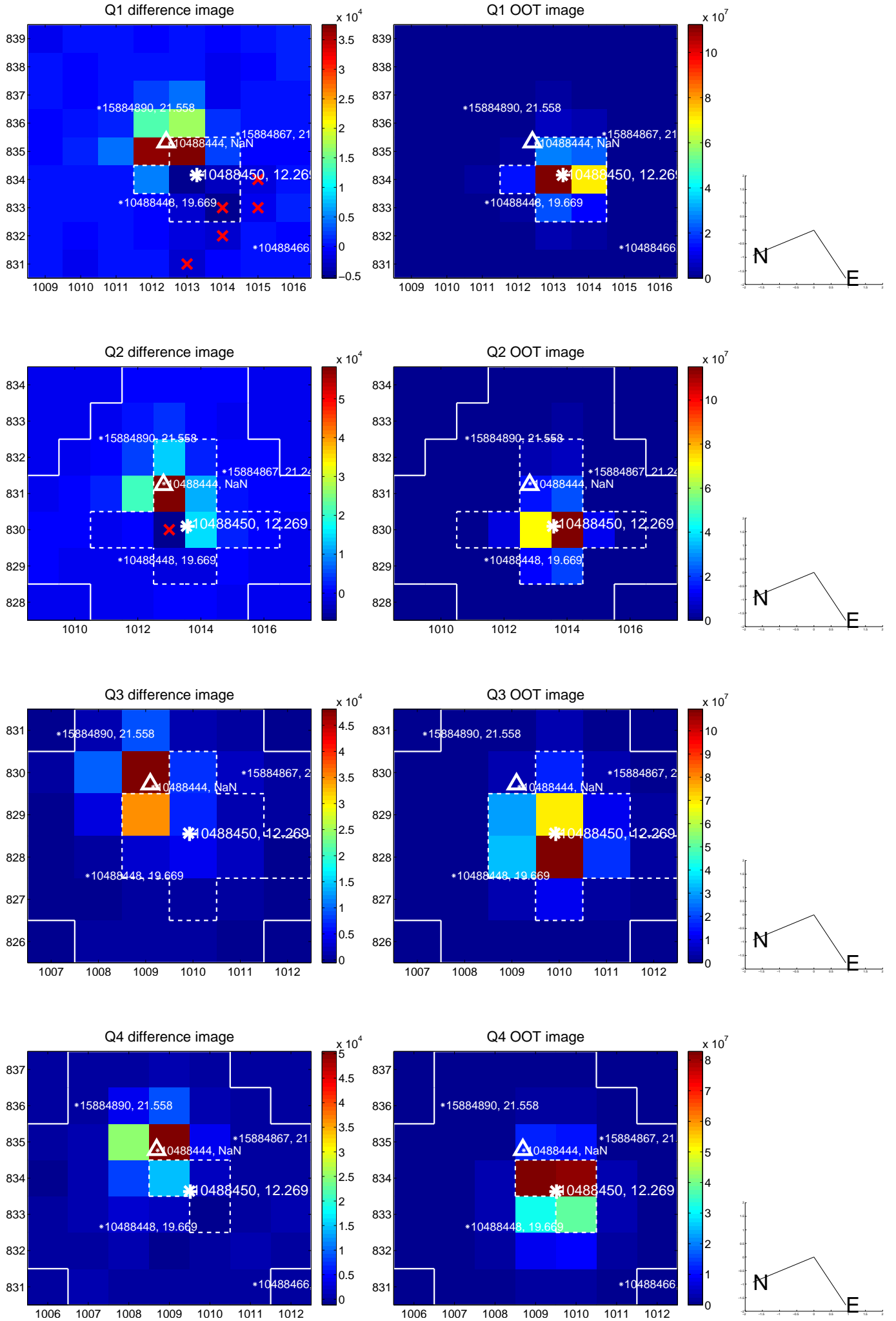
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.627 \pm 0.079$	71.31	$-5.574 \pm 0.079$	$0.770 \pm 0.073$
PRF-fit source offset from KIC position	$5.571 \pm 0.076$	72.88	$-5.529 \pm 0.075$	$0.688 \pm 0.077$
photometric centroid source offset	$9.83 \pm 0.13$	72.86	$-9.69 \pm 0.14$	$1.64 \pm 0.12$

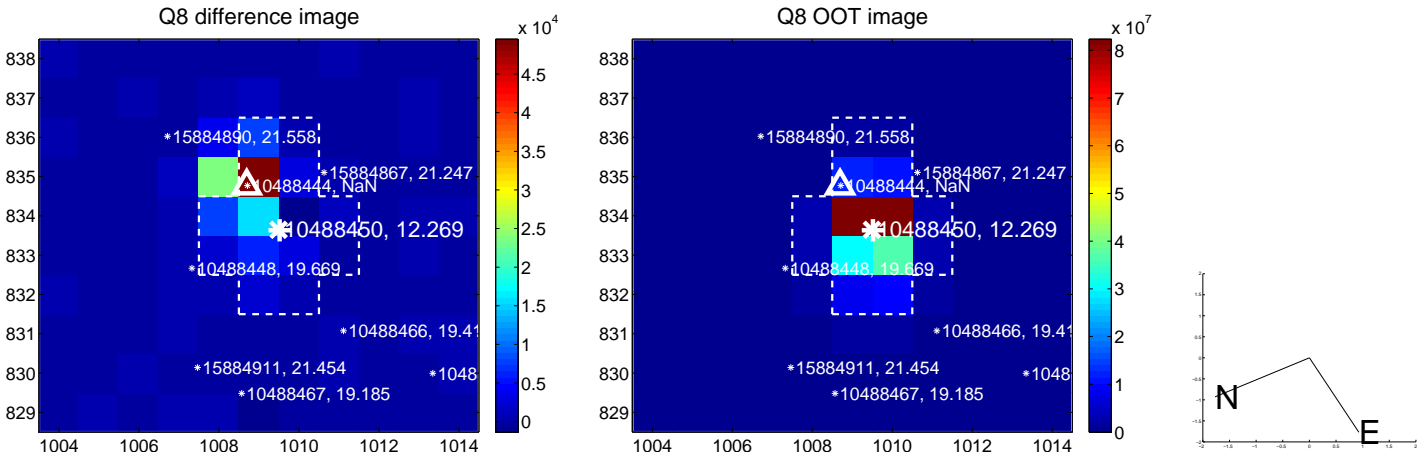
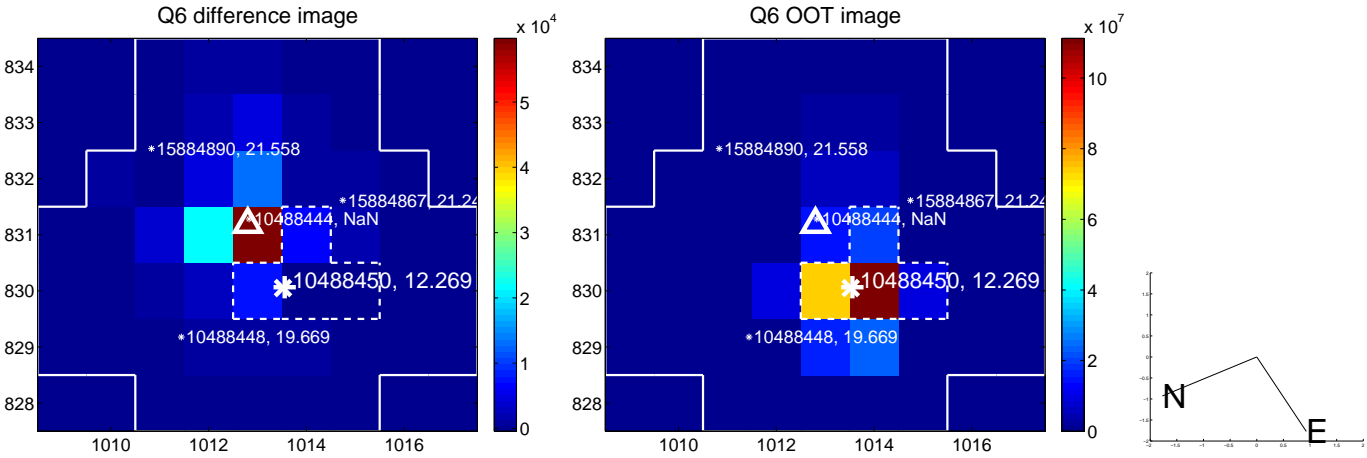
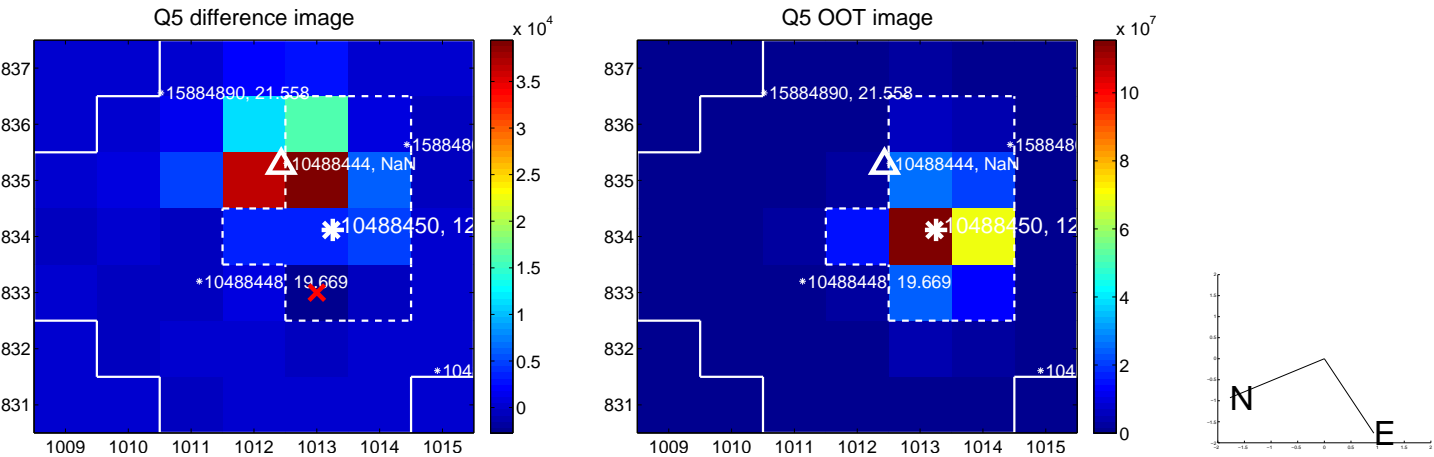


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

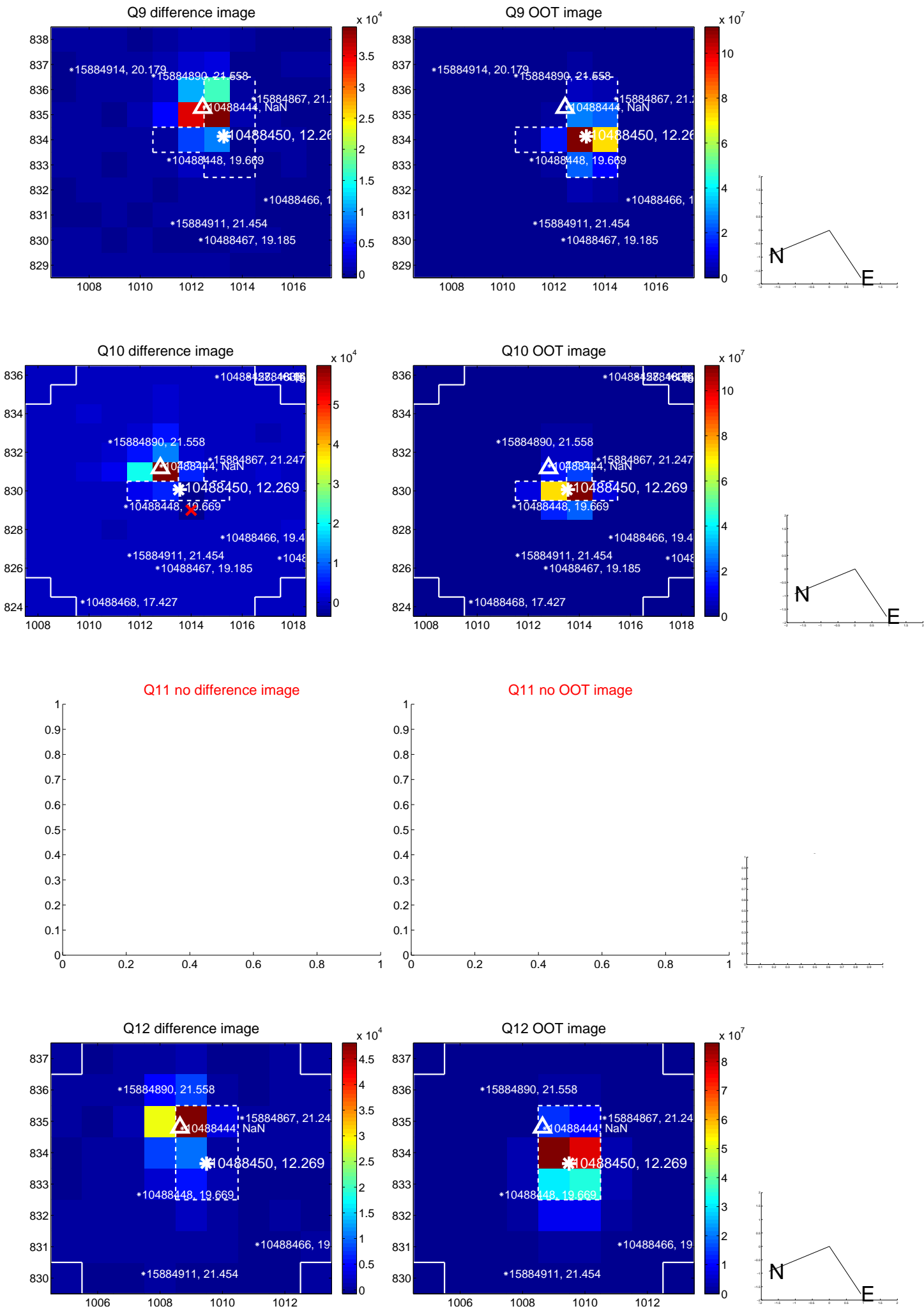
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



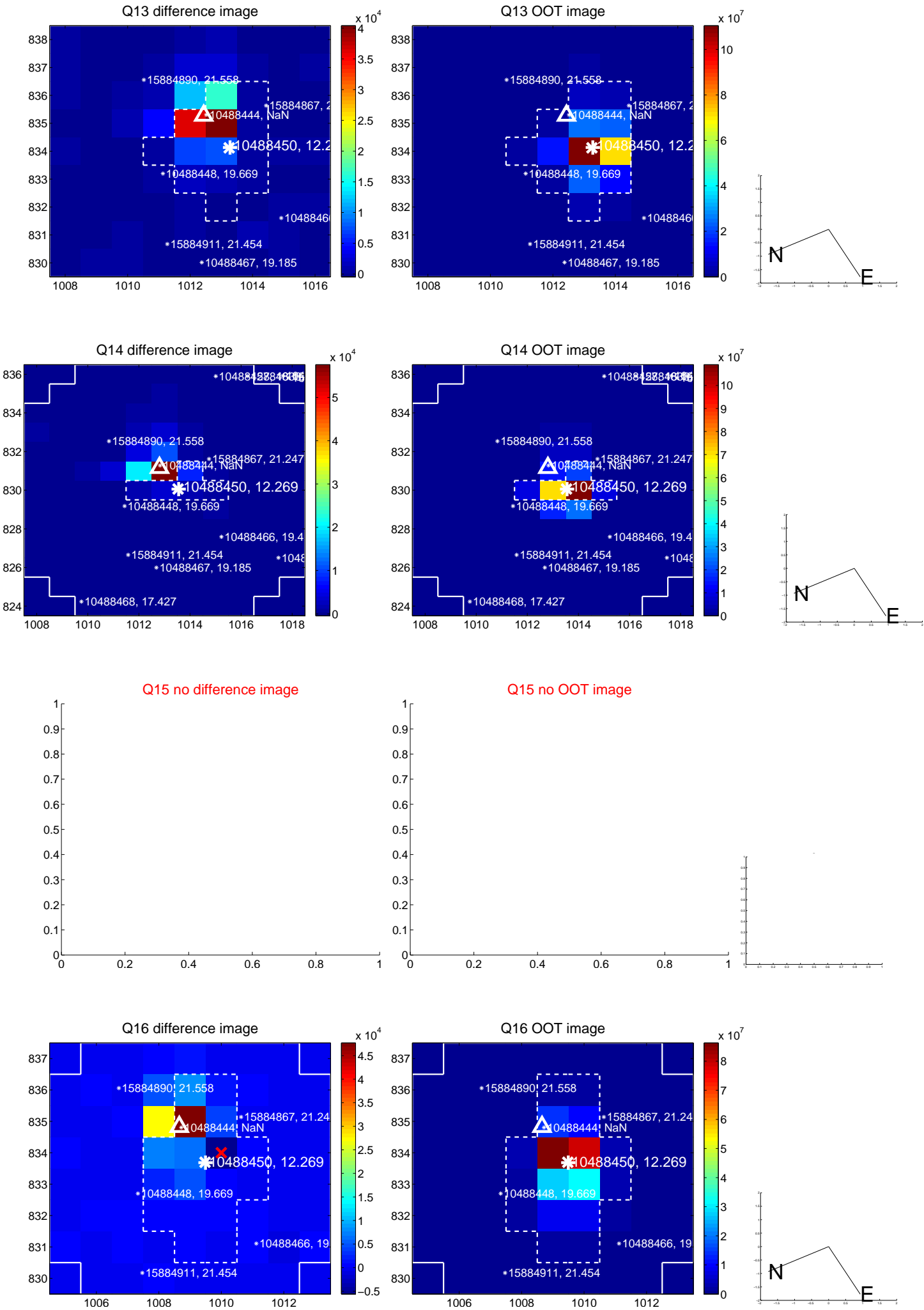
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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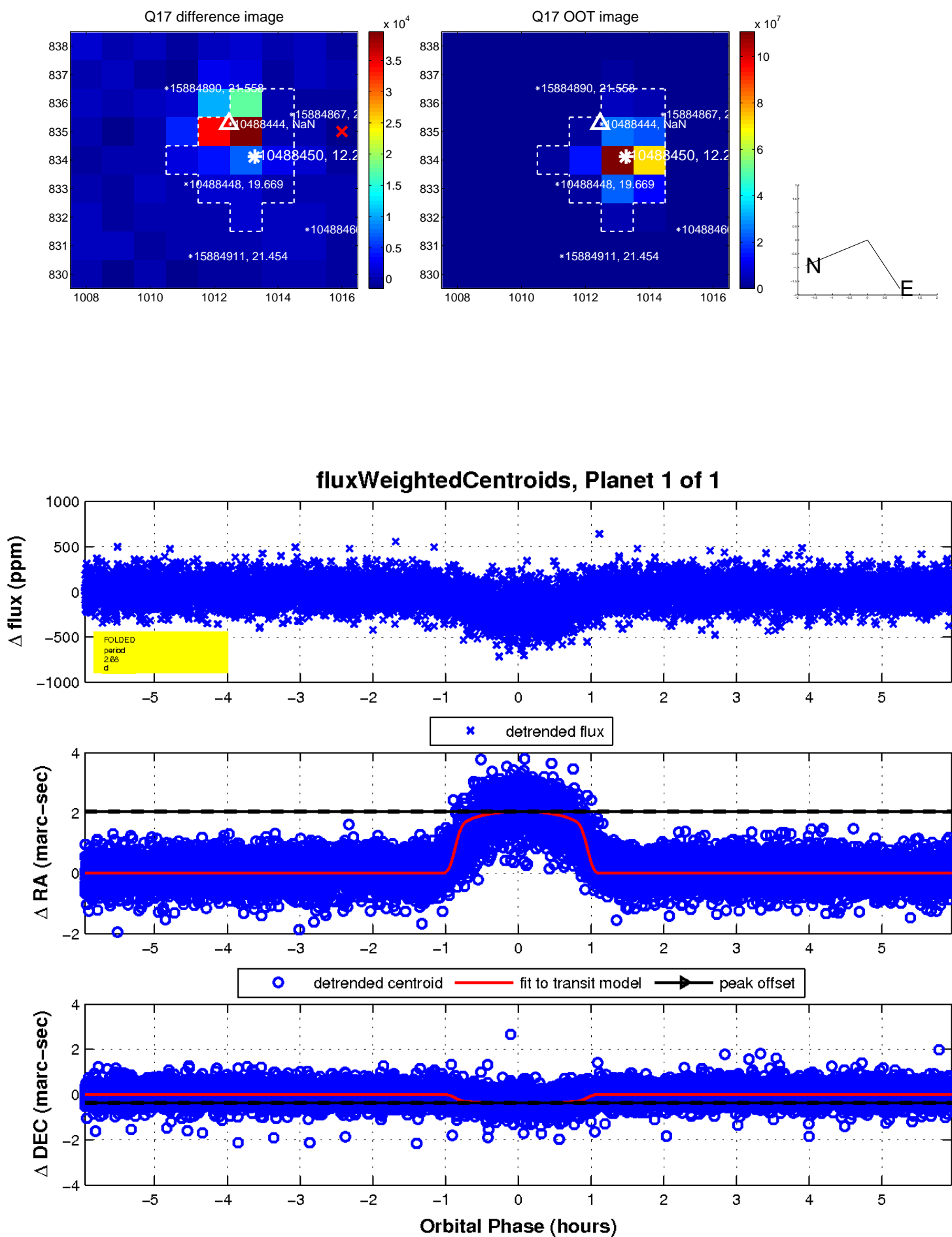


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

