

# KIC 008836888

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008836888-01	OBS	2508.01	7.103992	136.330353	361.5	1.602	14.4	16.5	0.79	5488	1.76	105.99

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008836888-01	OBS	FP	0.29	0	0	1	0	CENT_UNRESOLVED_OFFSET

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

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

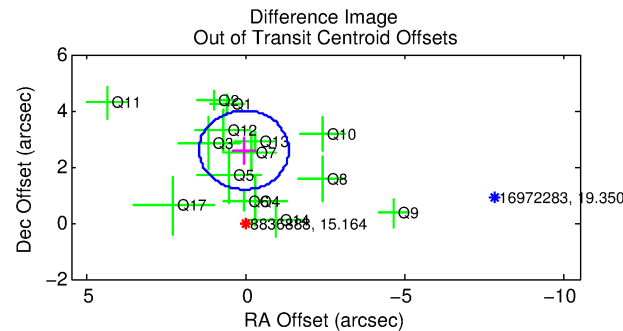
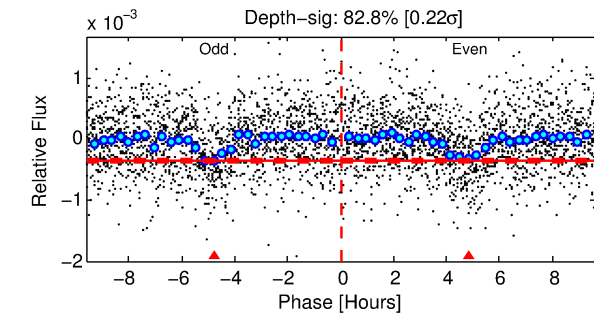
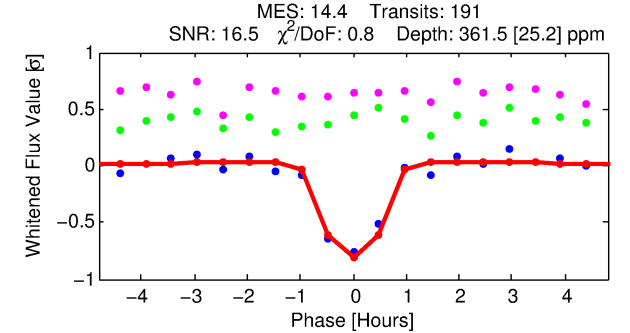
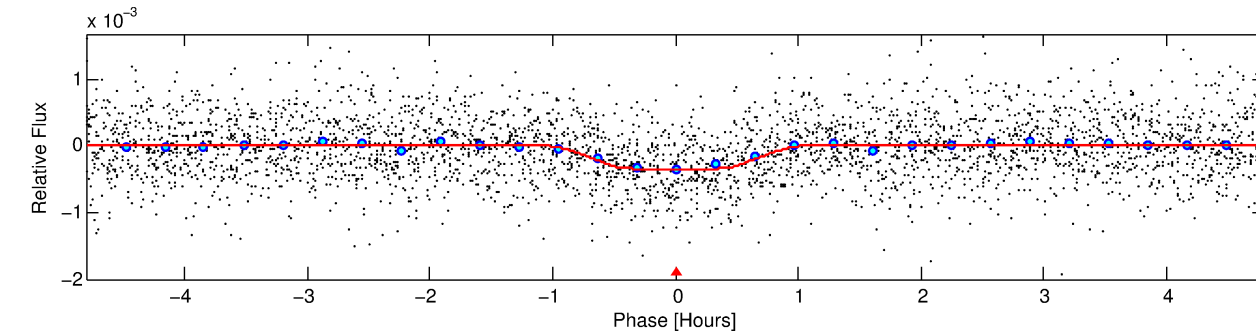
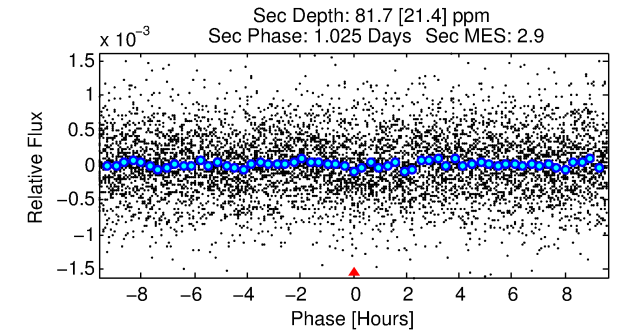
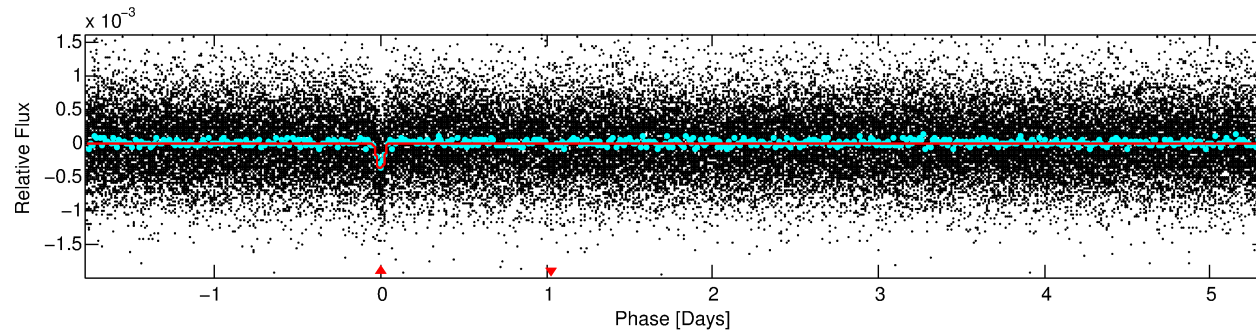
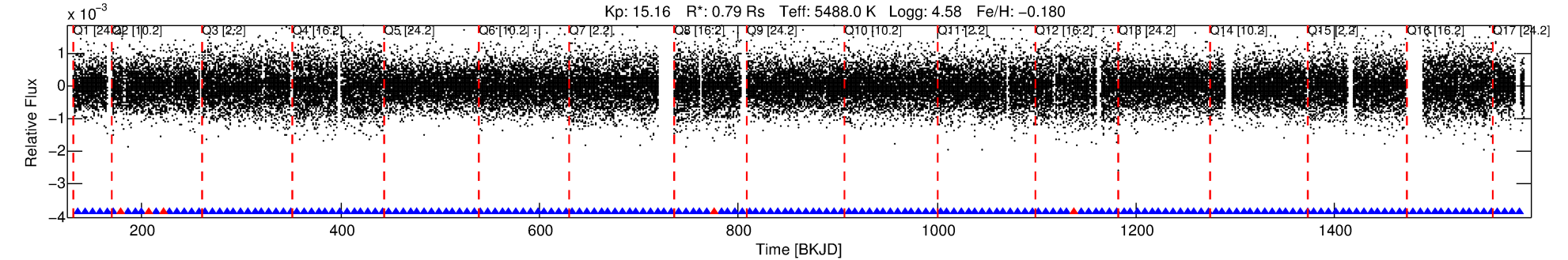
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008836888-01

No Significant Match Found

# DV One-Page Summary

KIC: 8836888 Candidate: 1 of 1 Period: 7.104 d  
KOI: K02508.01 Corr: 0.963



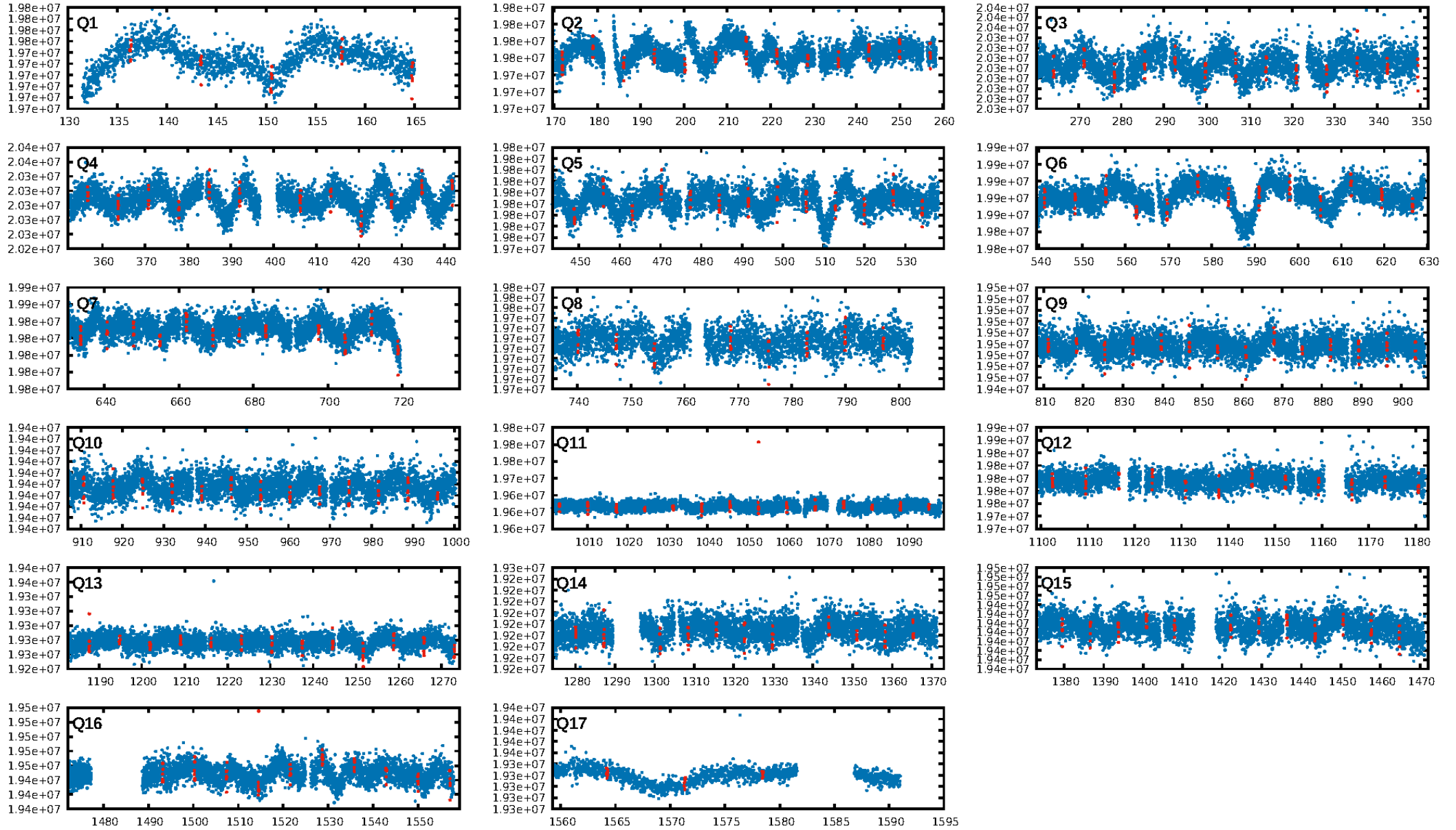
## DV Fit Results:

Period = 7.10399 [0.00002] d  
Epoch = 136.3304 [0.0023] BKJD  
Rp/R\* = 0.0205 [0.0105]  
a/R\* = 17.61 [39.29]  
b = 0.88 [0.60]  
Seff = 105.99 [29.37]  
Teff = 818 [57] K  
Rp = 1.77 [0.98] Re  
a = 0.0691 [0.0120] AU  
Ag = 68.85 [74.85] [0.91σ]  
Teffp = 3644 [970] K [2.91σ]

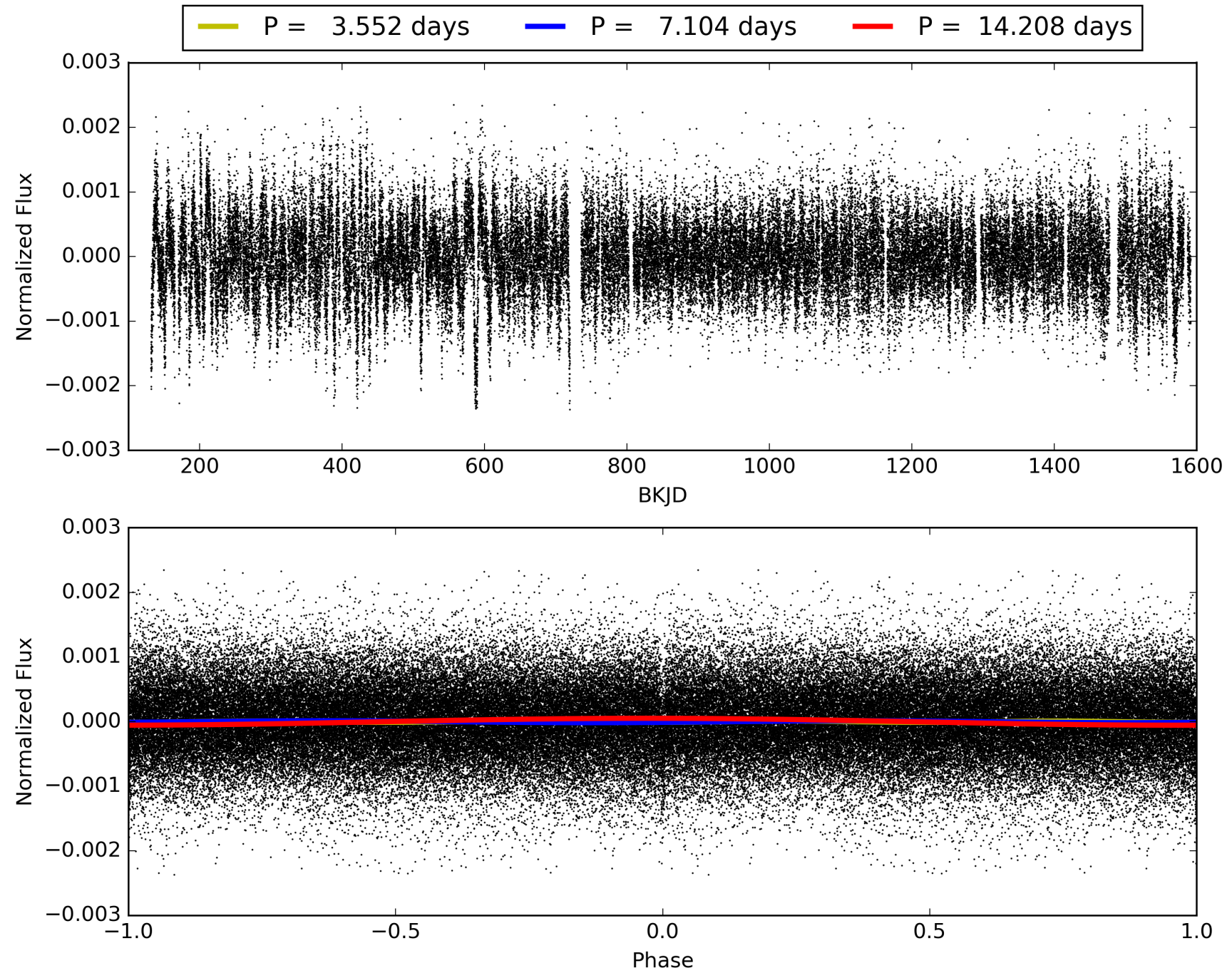
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.91e-46  
RollingBand-fgt: 0.97 [178/183]  
GhostDiagnostic-chr: 3.249  
Centroid-sig: 0.0%  
Centroid-so: 0.494 arcsec [0.76σ]  
OotOffset-rm: 2.593 arcsec [5.53σ]  
KicOffset-rm: 1.420 arcsec [3.28σ]  
OotOffset-st: 4/3/3/5 [15]  
KicOffset-st: 4/3/3/5 [15]  
DiffImageQuality-fgm: 0.53 [8/15]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008836888-01, PDC Light Curves

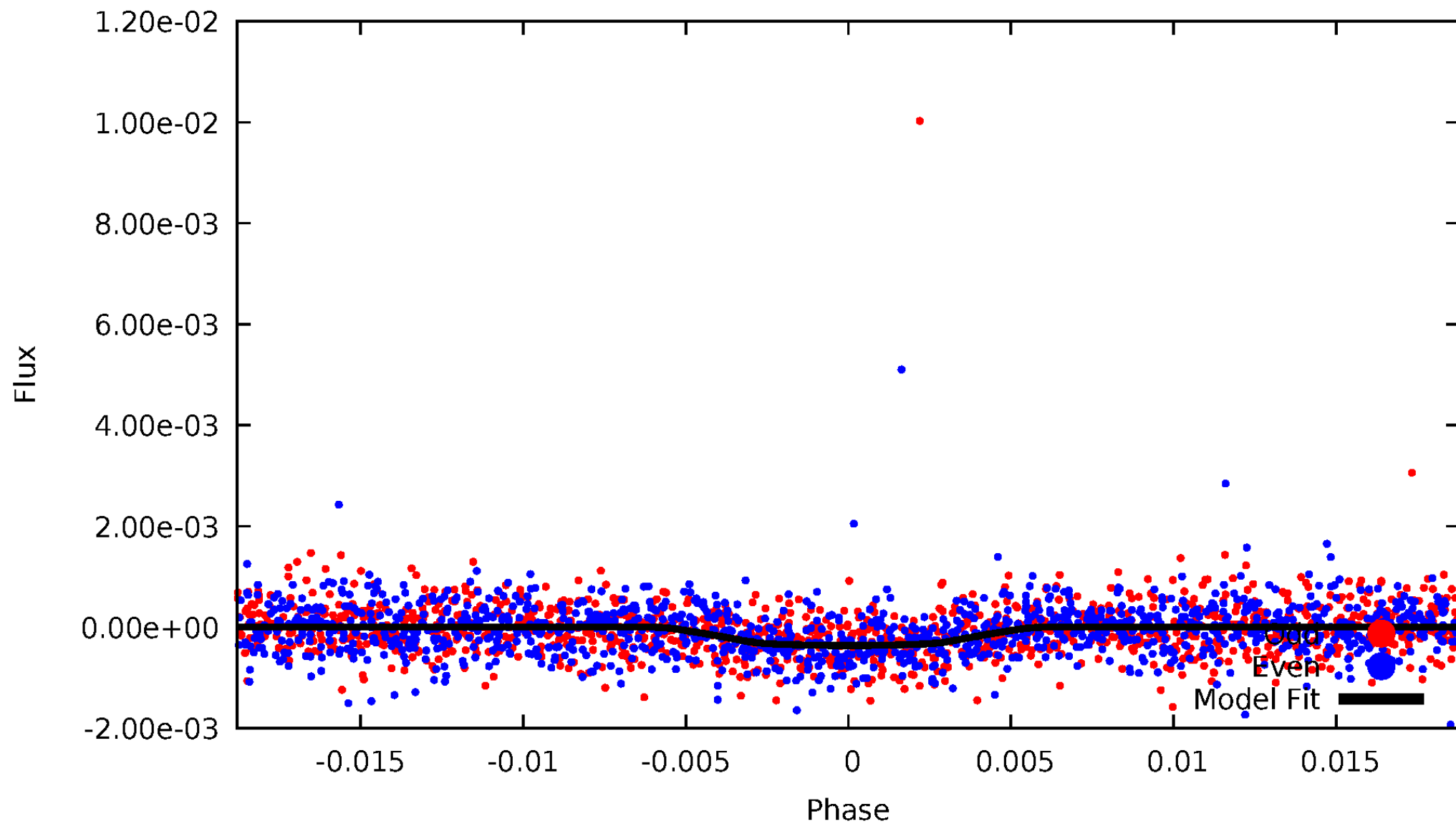


TCE 008836888-01



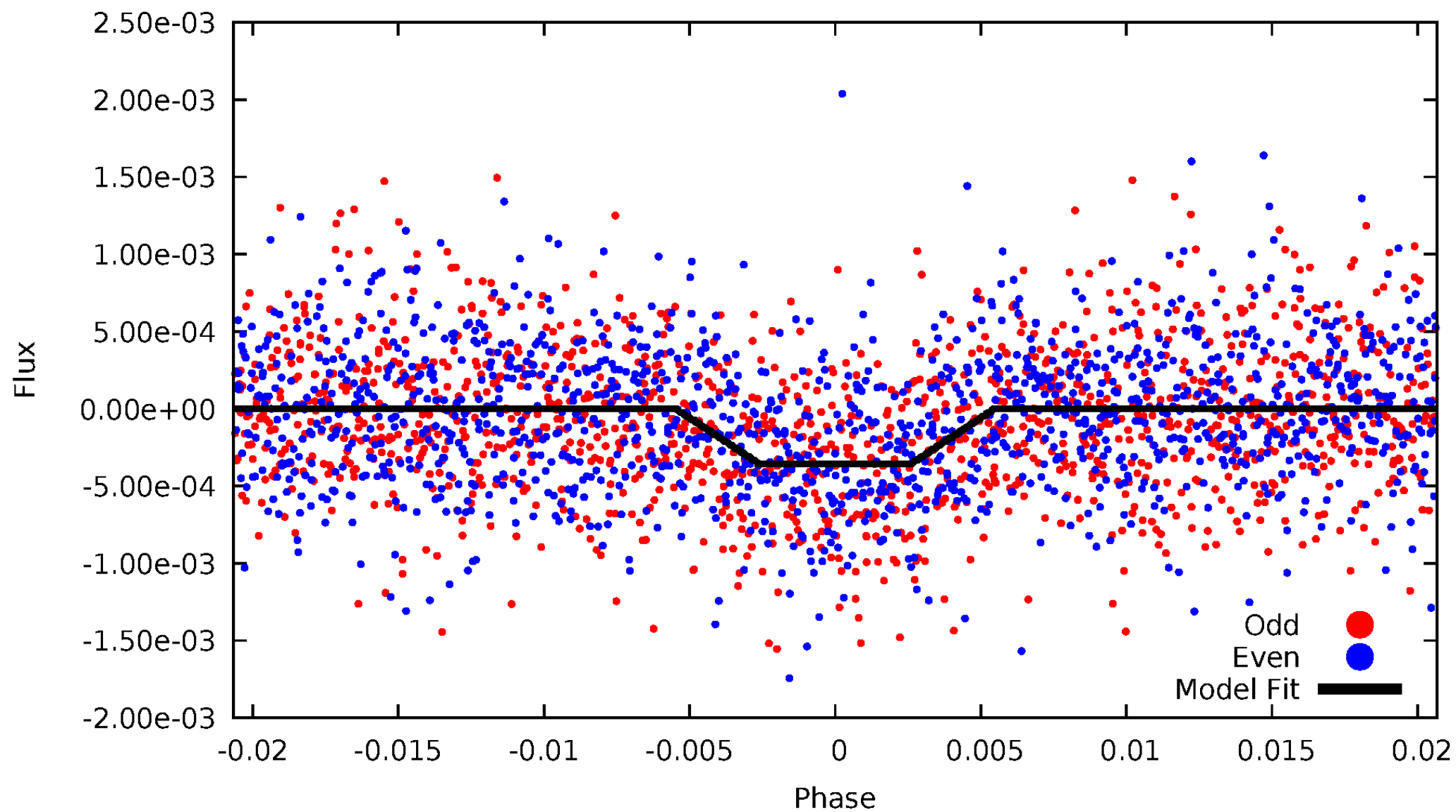
# DV Odd/Even

TCE 008836888-01



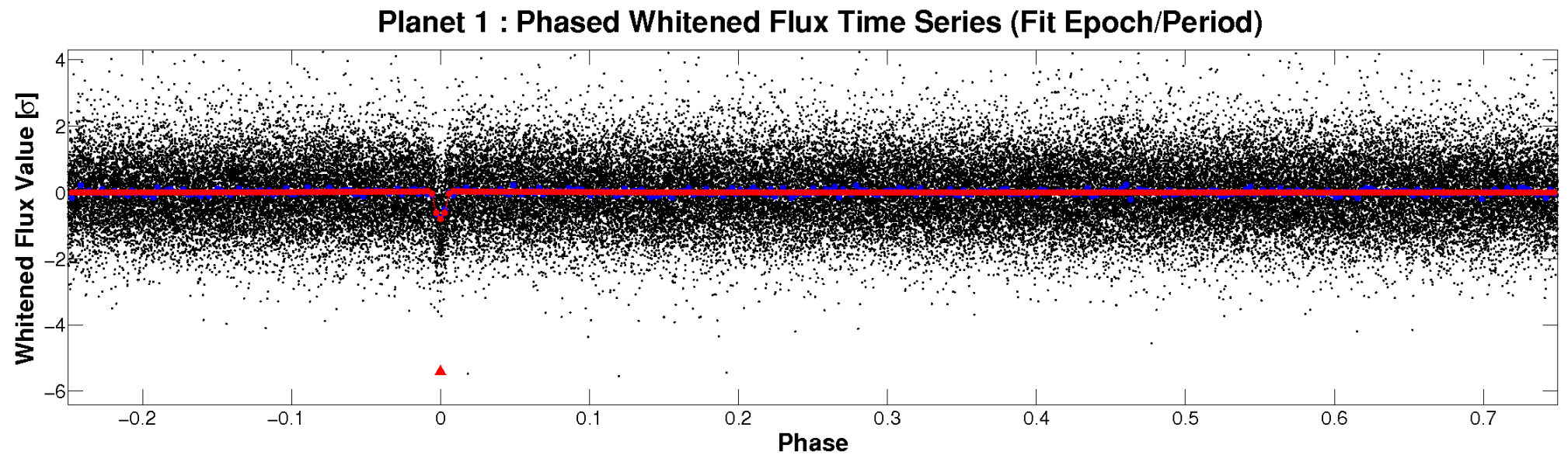
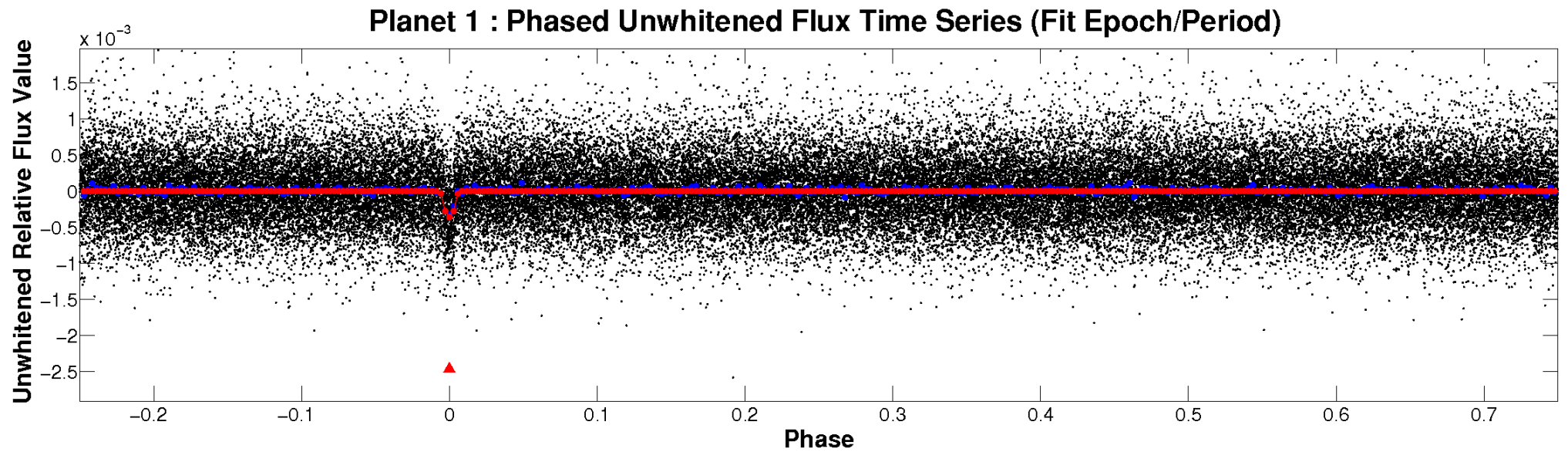
# ALT Odd/Even

TCE 008836888-01



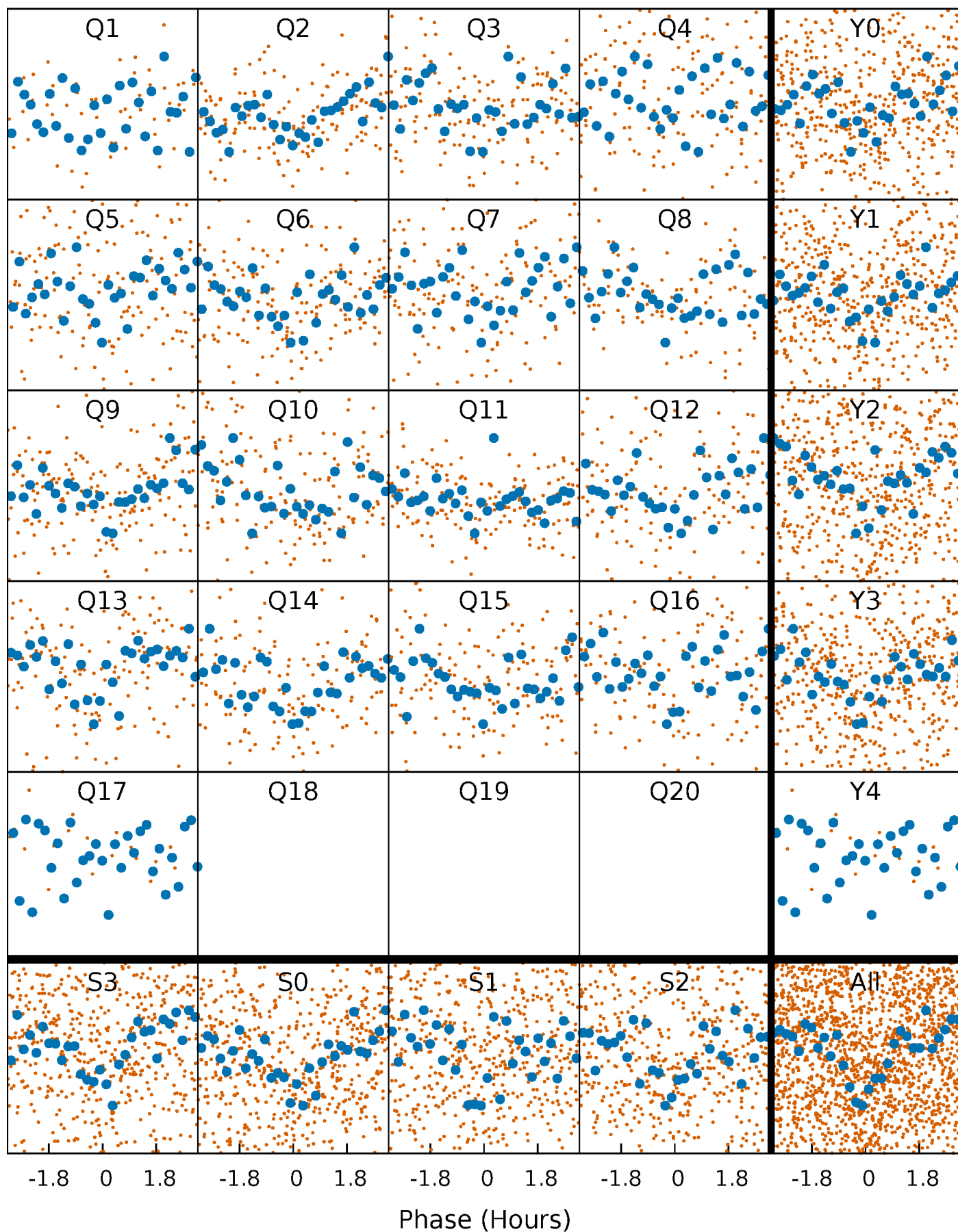


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

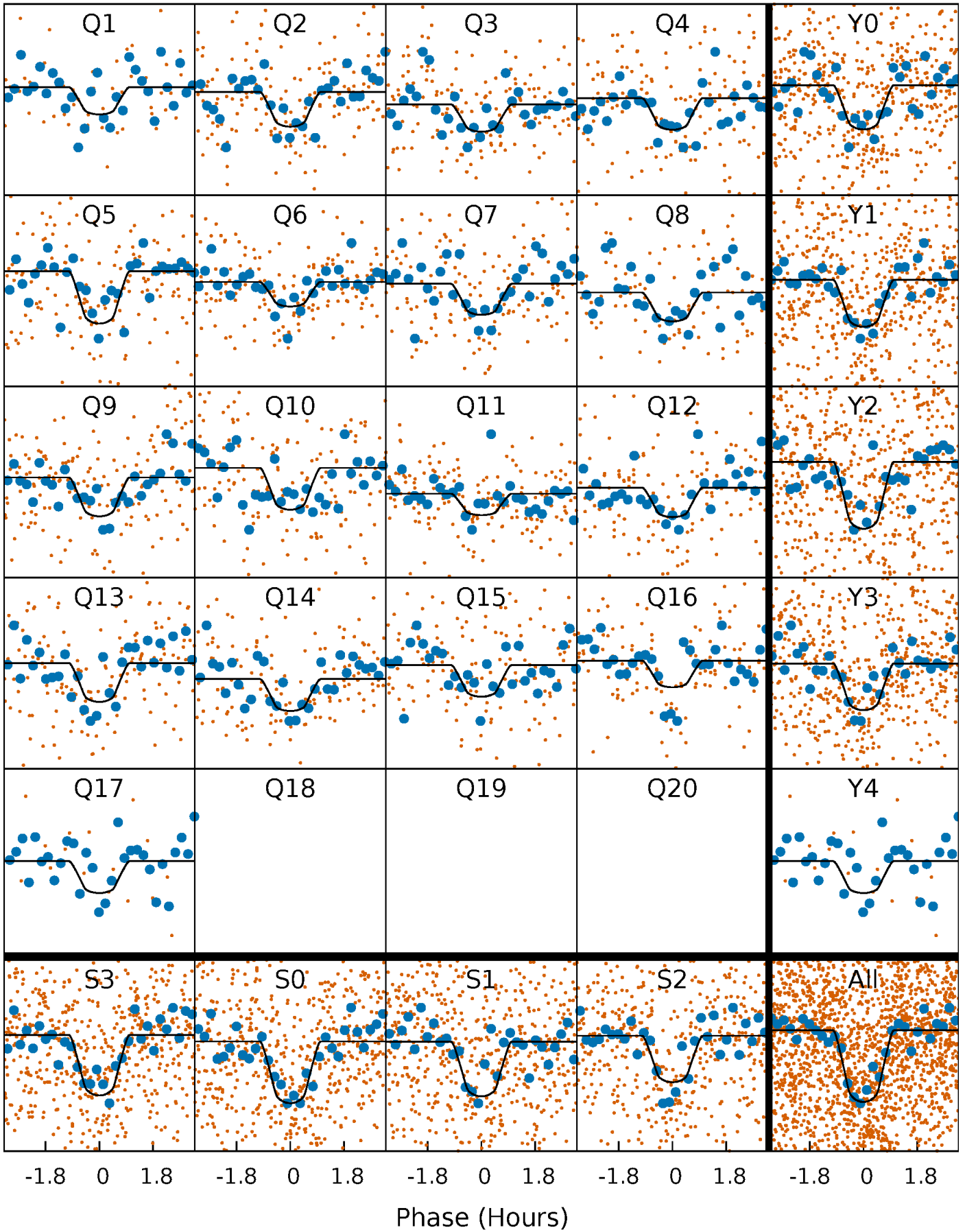
TCE 008836888-01   P= 7.103992 Days    $T_0=136.330353$  (BKJD)





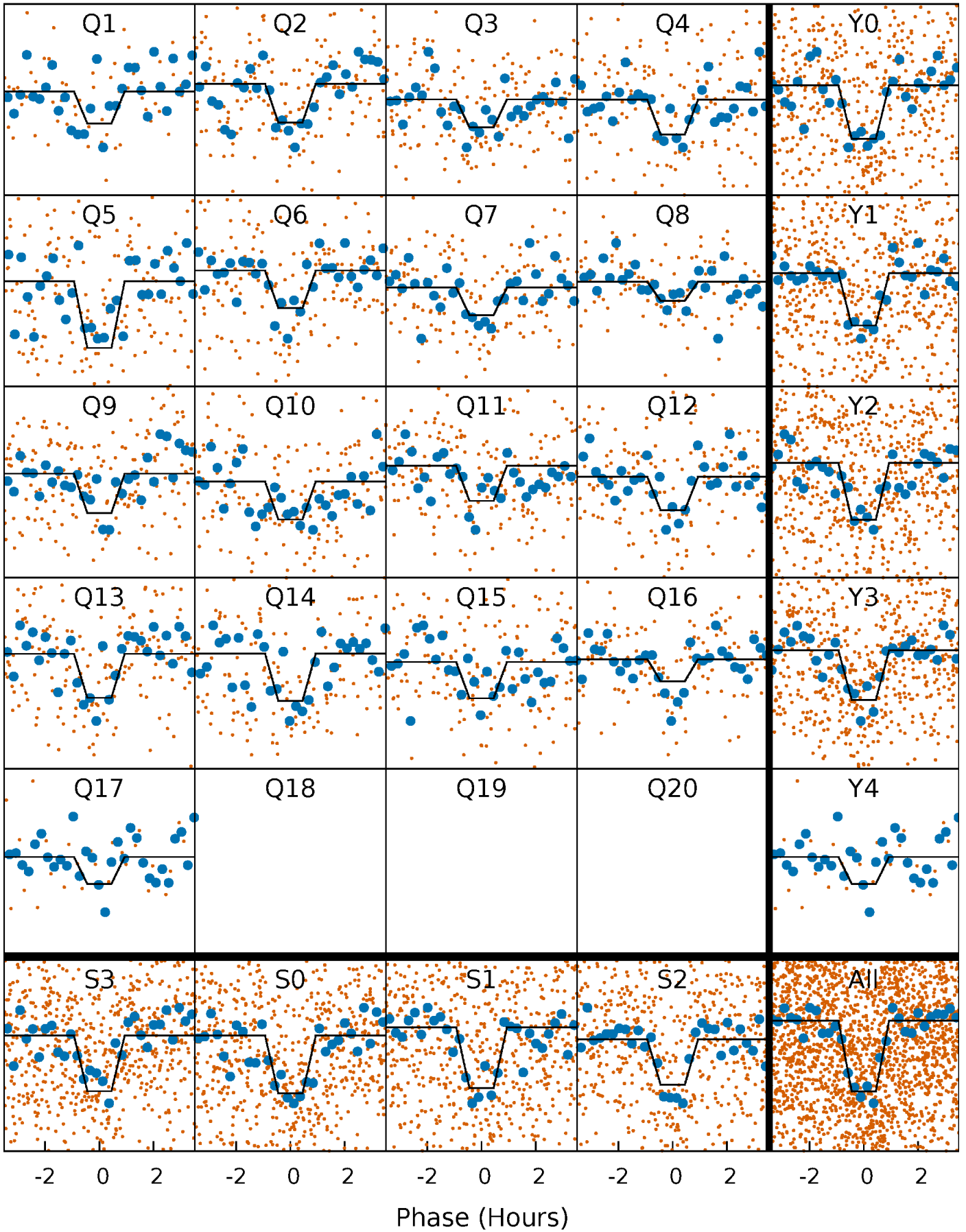
# DV Quarter-Phased Transit Curves

TCE 008836888-01 P= 7.103992 Days  $T_0=136.330353$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

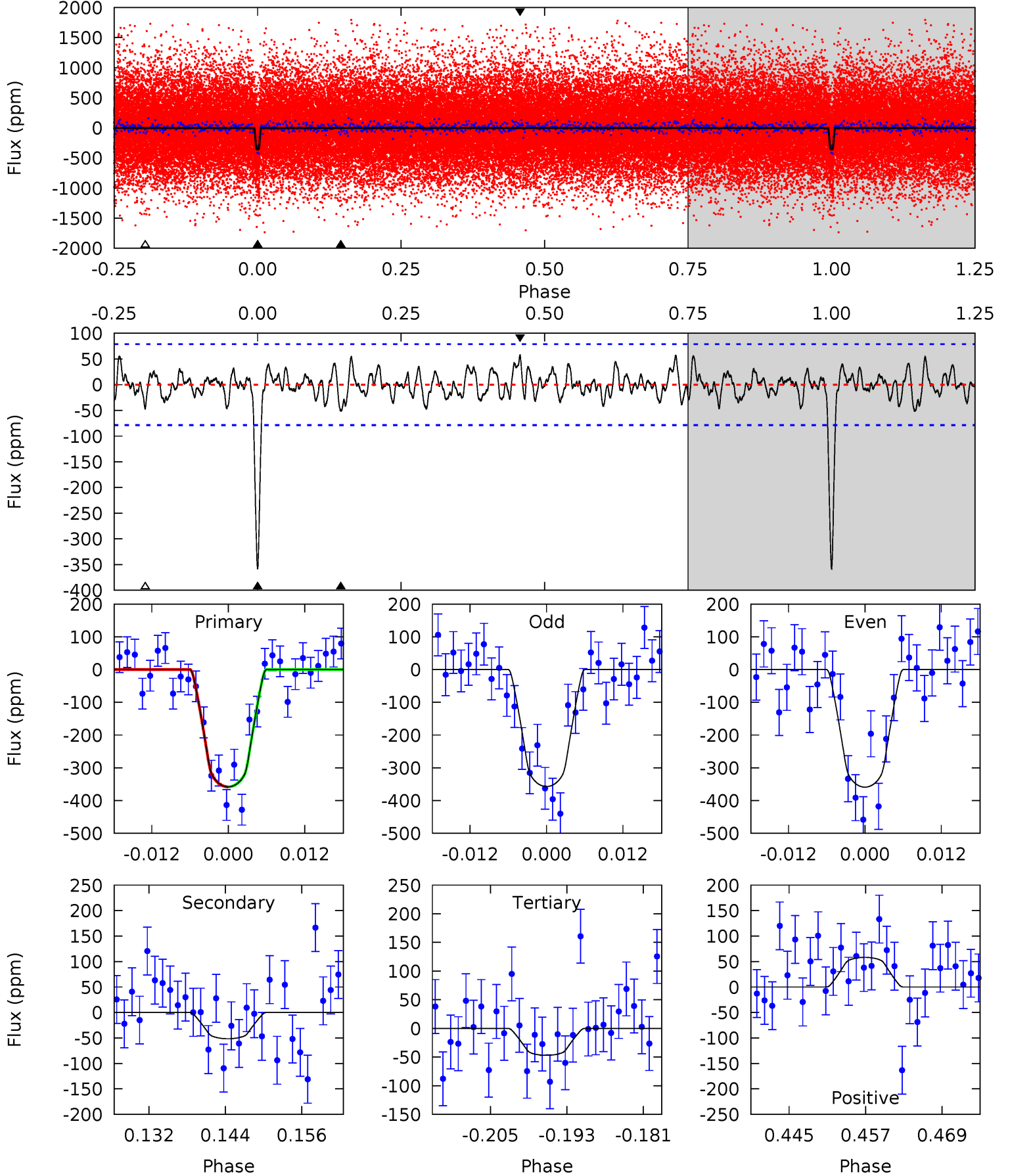
TCE 008836888-01   P= 7.103984 Days    $T_0=136.331072$  (BKJD)



# DV Model-Shift Uniqueness Test

008836888-01, P = 7.103992 Days, E = 129.226361 Days

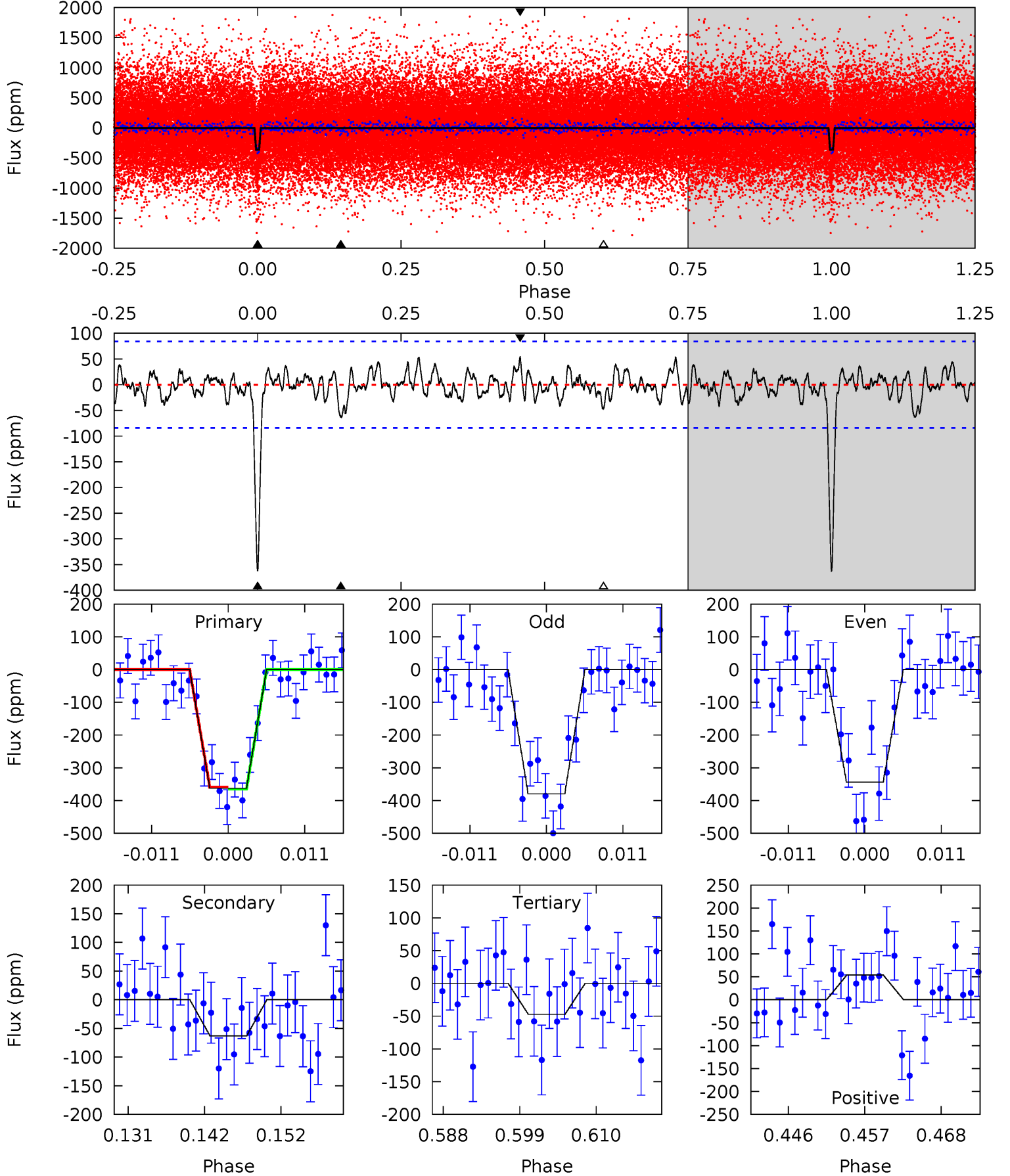
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	3.26	2.98	3.69	4.99	2.51	1.26	19.7	19.0	0.28	-0.43	0.06	0.85	0.14	0.01



# Alt Model-Shift Uniqueness Test

008836888-01, P = 7.103984 Days, E = 129.227088 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
21.6	3.76	2.82	3.20	5.01	2.55	1.13	18.8	18.4	0.94	0.56	1.07	1.00	0.13	0.18



### Stellar Parameters For KIC 008836888

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5488^{+166}_{-149}$	$4.584^{+0.036}_{-0.135}$	$-0.180^{+0.300}_{-0.300}$	$0.789^{+0.164}_{-0.070}$	$0.877^{+0.083}_{-0.102}$	$2.514^{+0.452}_{-0.980}$
	+3%/-3%	+1%/-3%	+167%/-167%	+21%/-9%	+9%/-12%	+18%/-39%
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 008836888-01 / KOI 2508.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-51 \pm 16$	$1.92^{+1.01}_{-0.92}$	$1166^{+61}_{-47}$	$3610^{+977}_{-478}$	$36^{+102}_{-21}$
Alt.	$-63 \pm 17$	$1.72^{+0.92}_{-0.89}$	$1163^{+60}_{-46}$	$3861^{+1229}_{-533}$	$53^{+184}_{-32}$

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



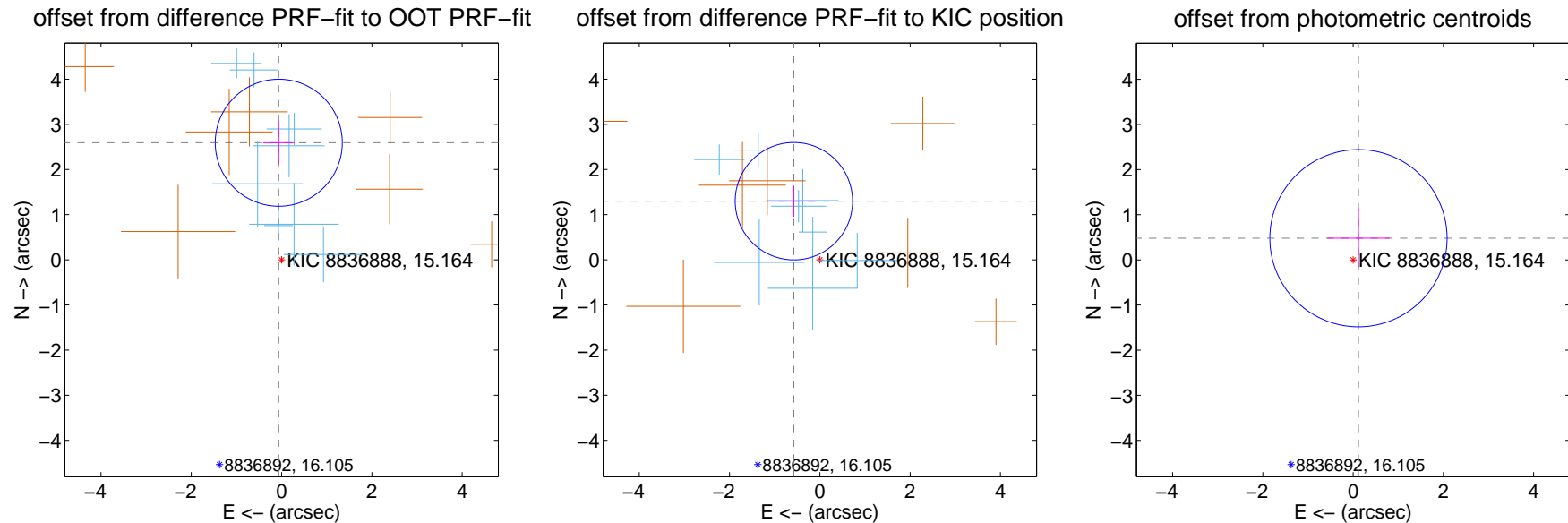
## DV Centroid Data

Supplemental centroid analysis for 008836888-01. Kepler magnitude: 15.16. Transit SNR 16.45

There are 8 quarters with good PRF difference image offsets

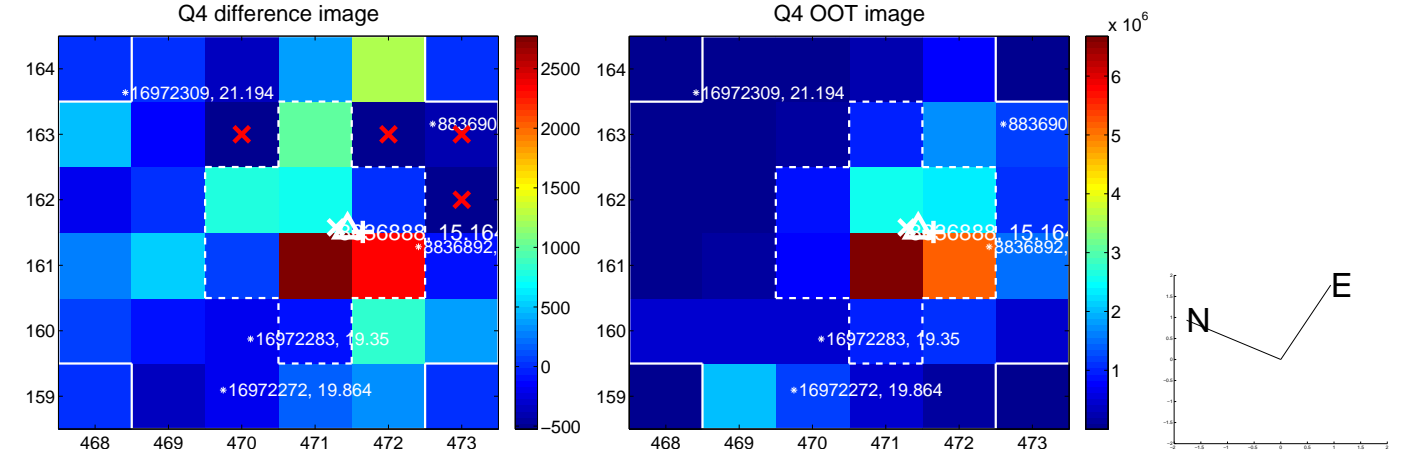
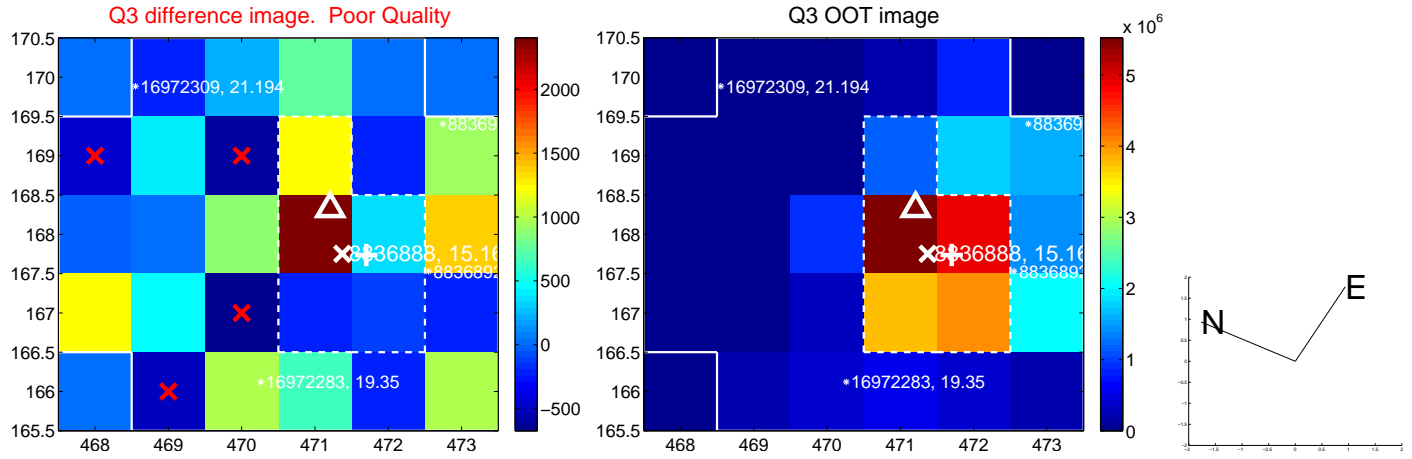
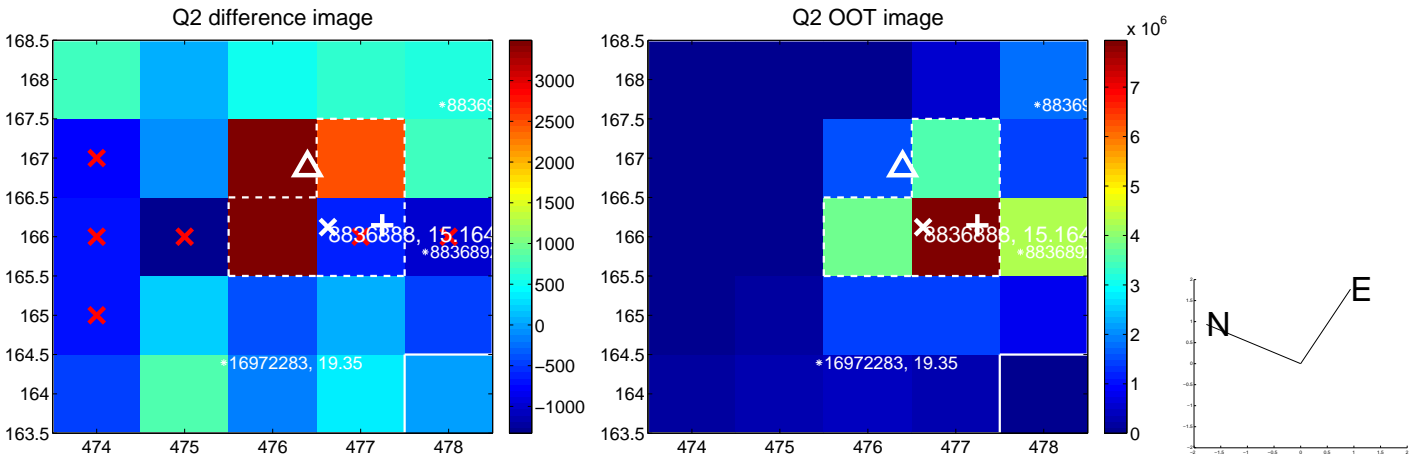
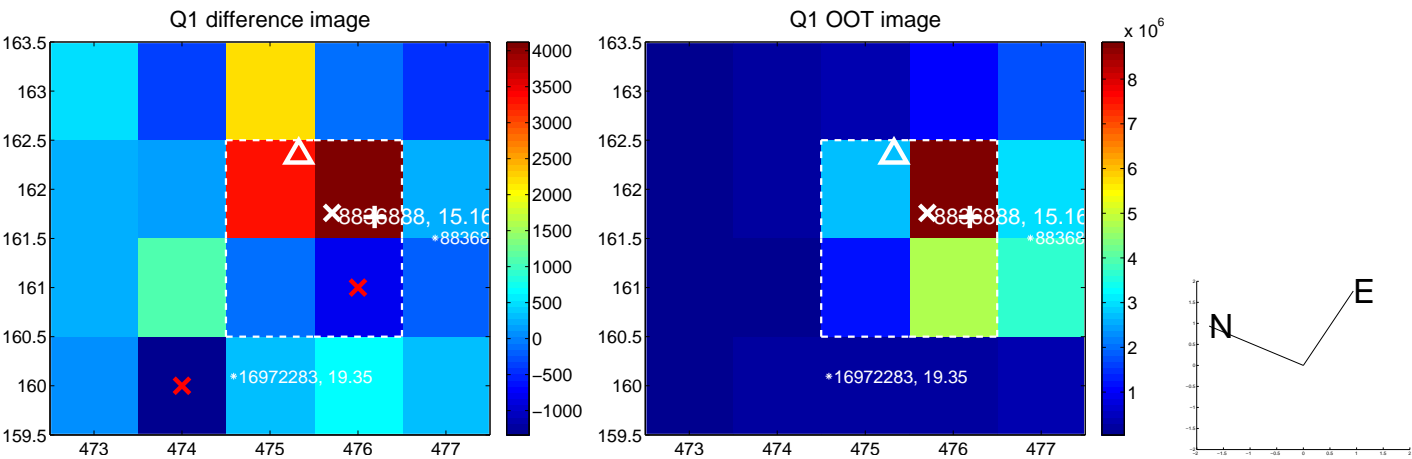
The direct PRF centroid is offset from the target star catalog position by about 1.81 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.593 \pm 0.469$	$5.53$	$0.062 \pm 0.346$	$2.592 \pm 0.469$
PRF-fit source offset from KIC position	$1.420 \pm 0.433$	$3.28$	$0.575 \pm 0.509$	$1.298 \pm 0.346$
photometric centroid source offset	$0.49 \pm 0.65$	$0.76$	$-0.12 \pm 0.69$	$0.48 \pm 0.65$

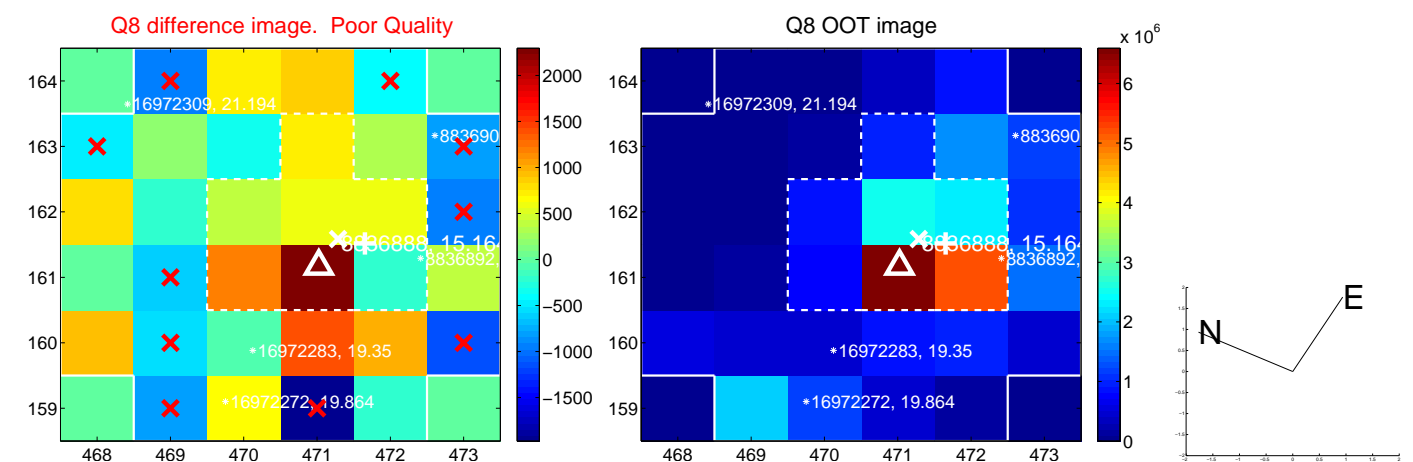
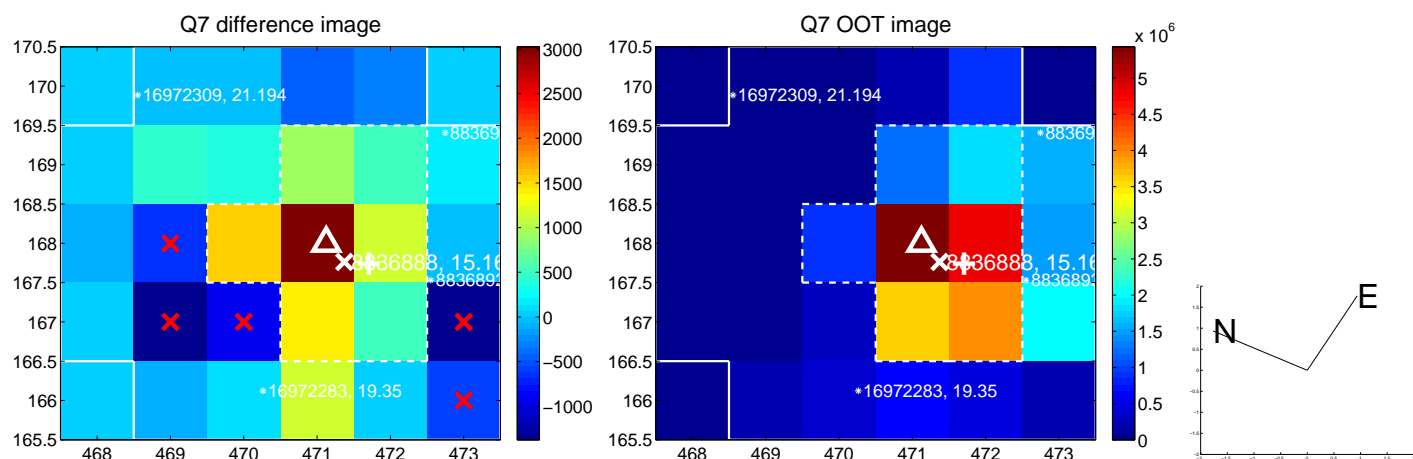
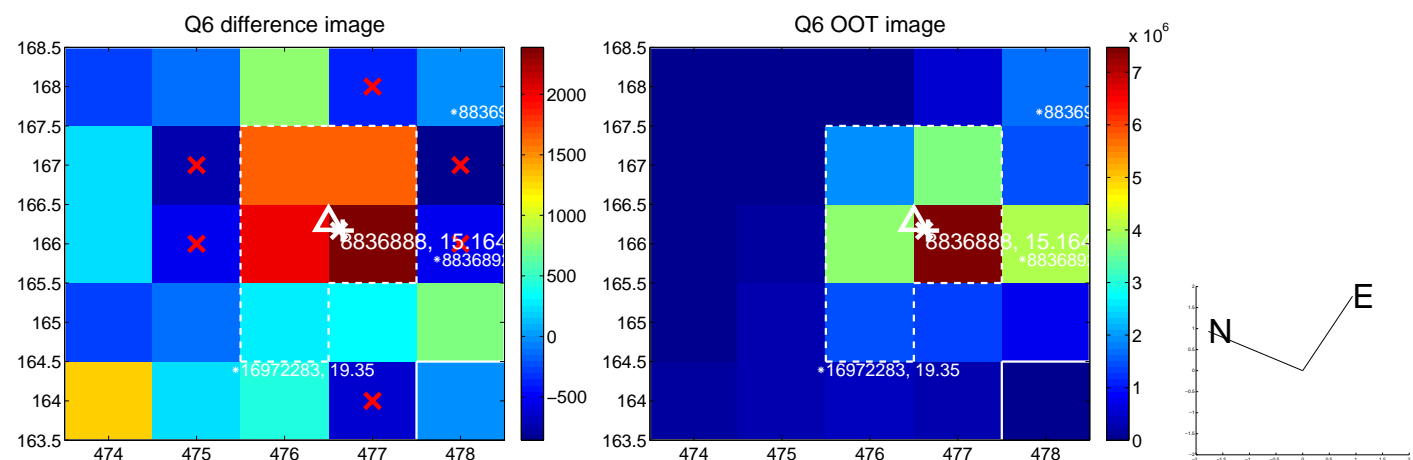
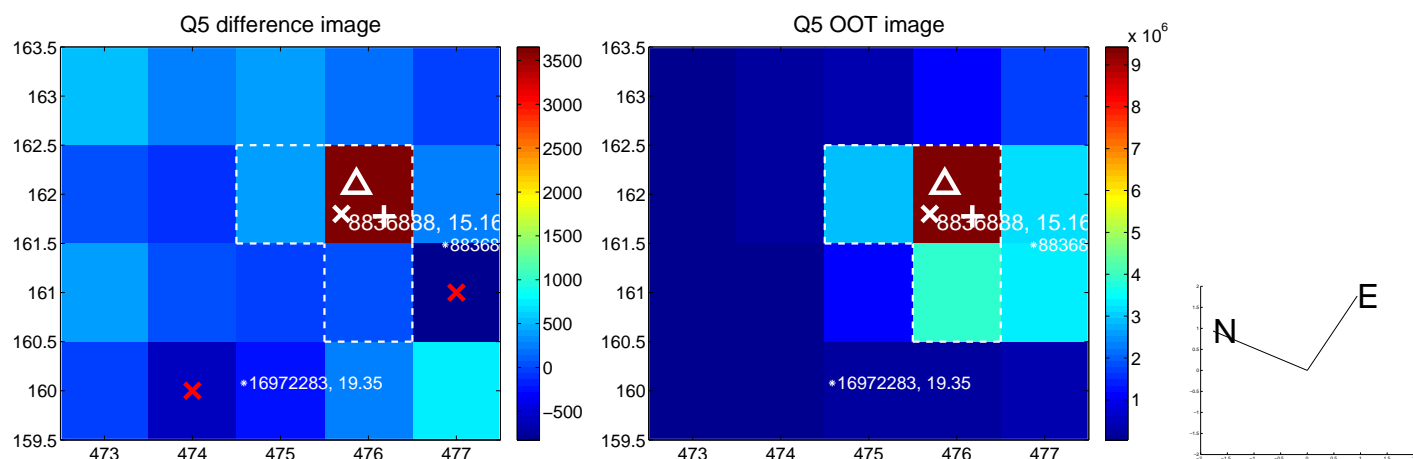


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

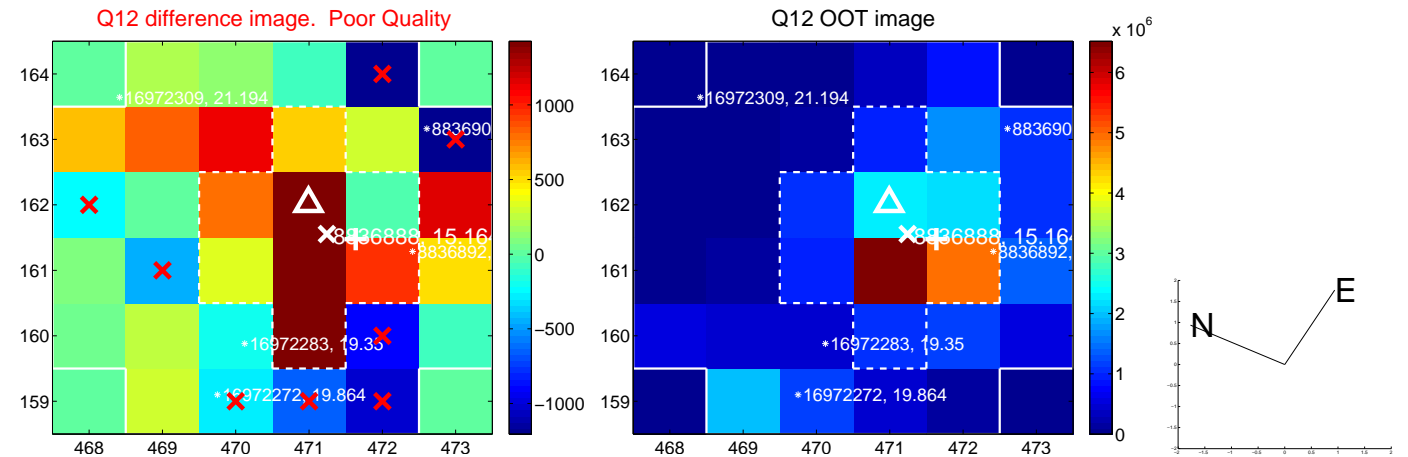
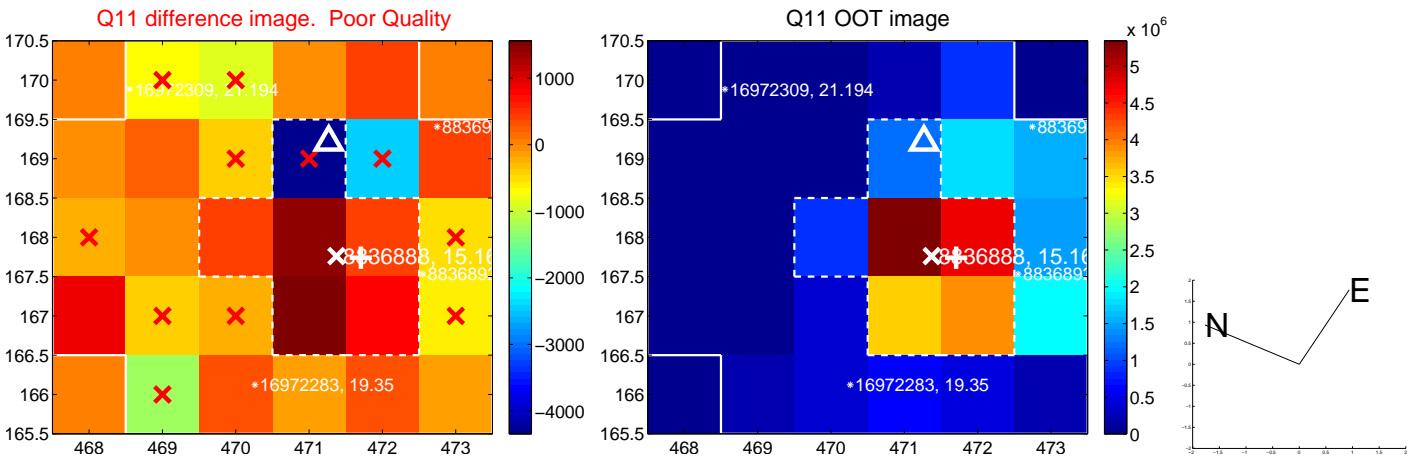
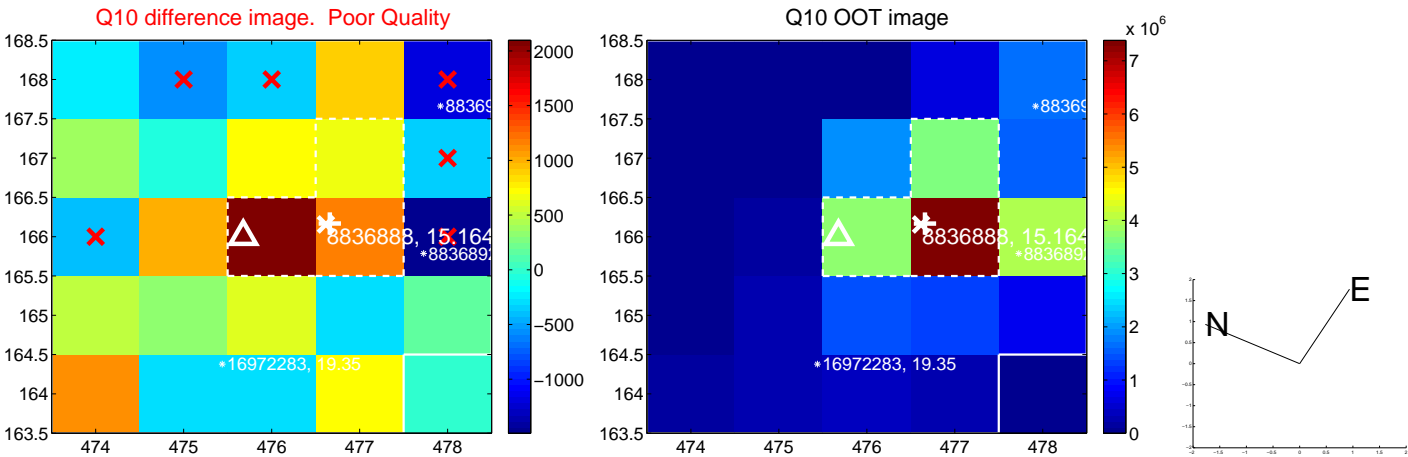
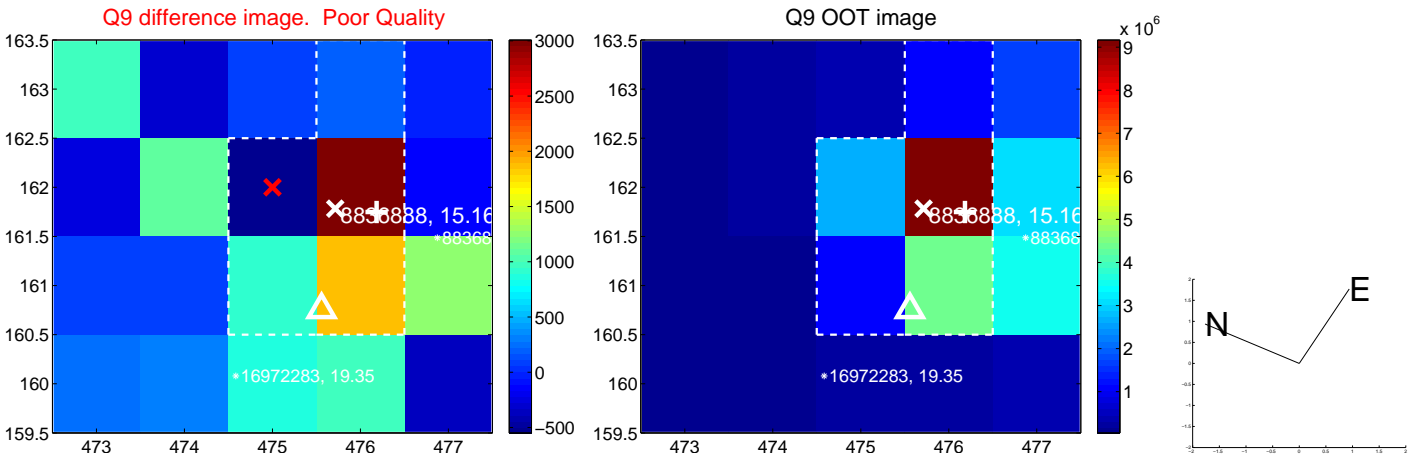
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



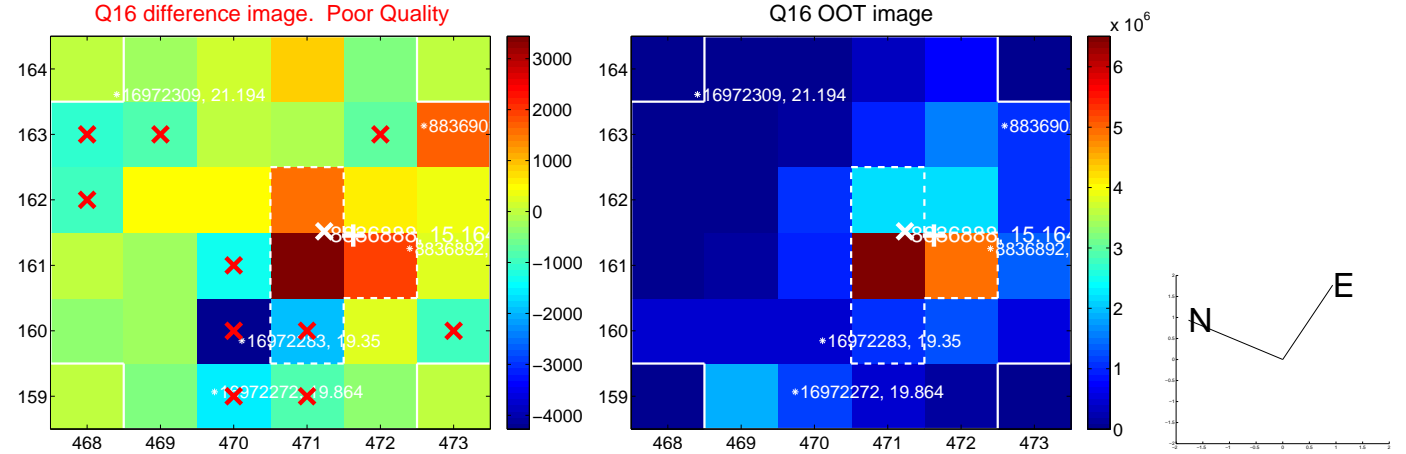
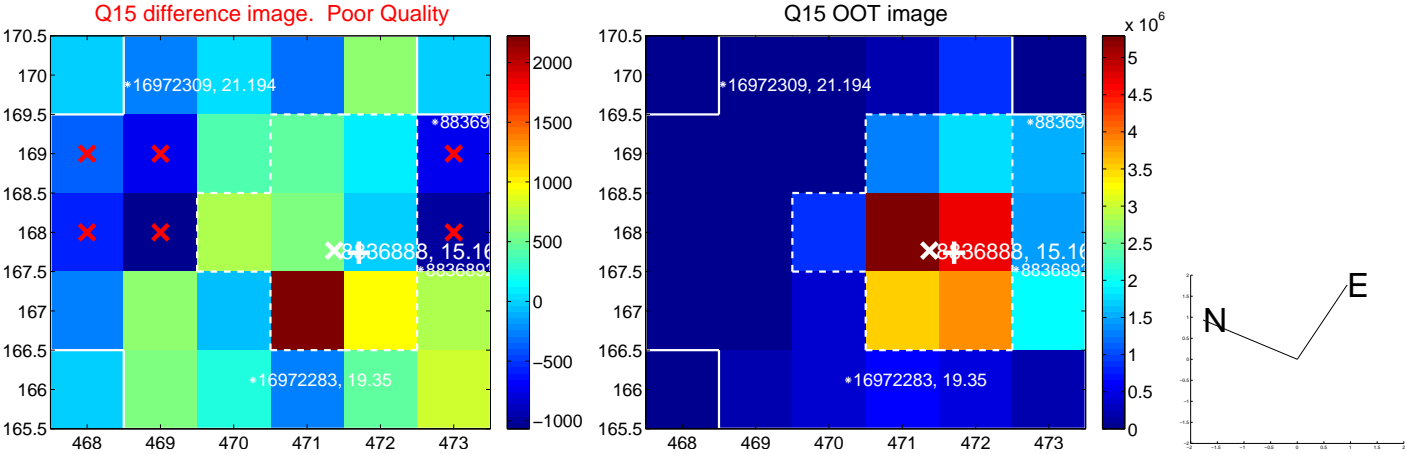
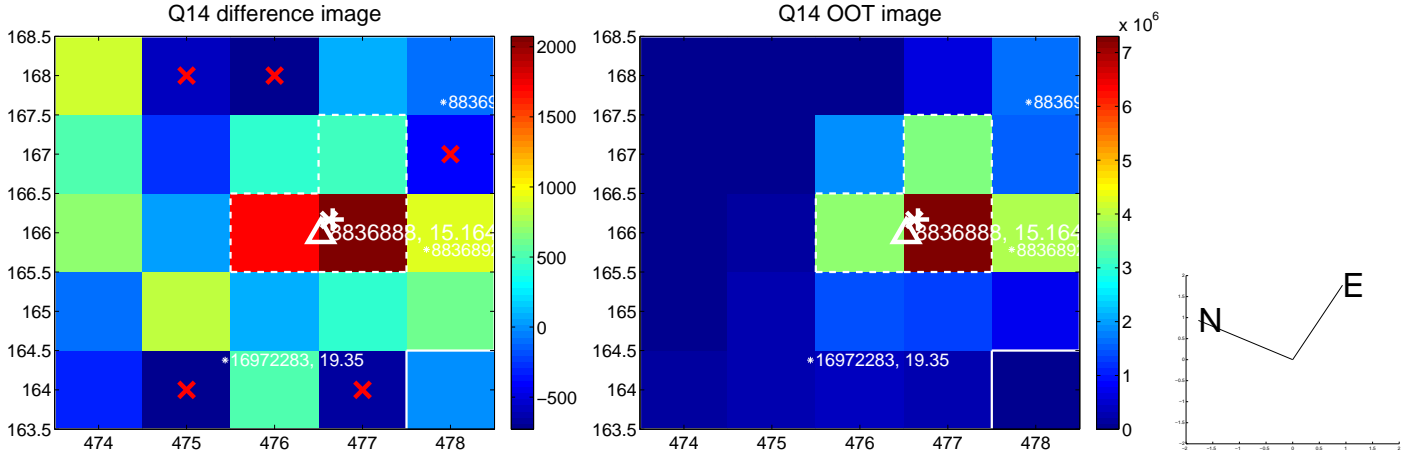
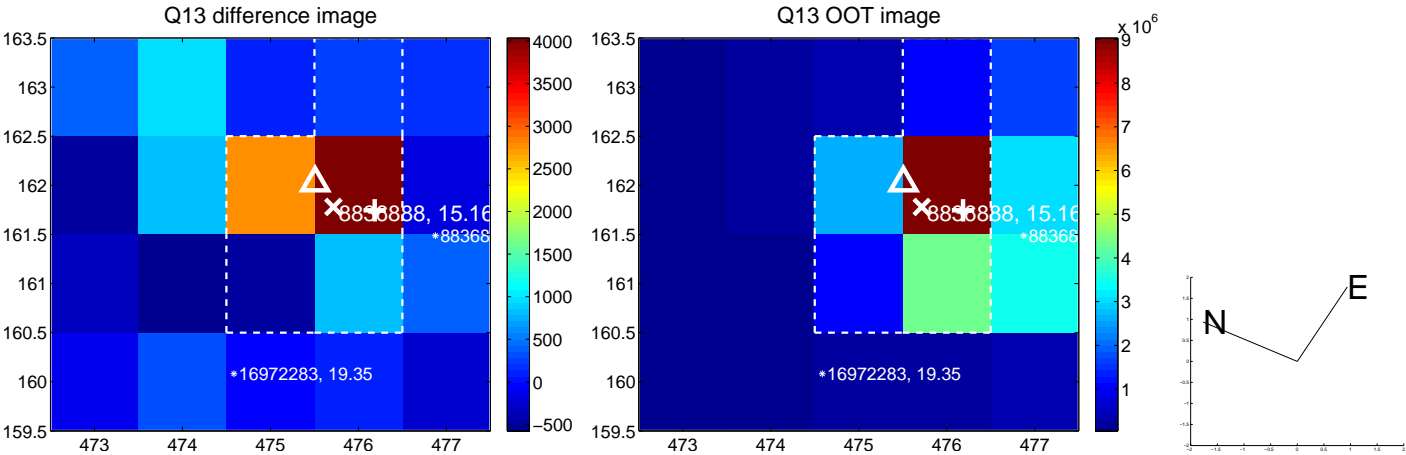
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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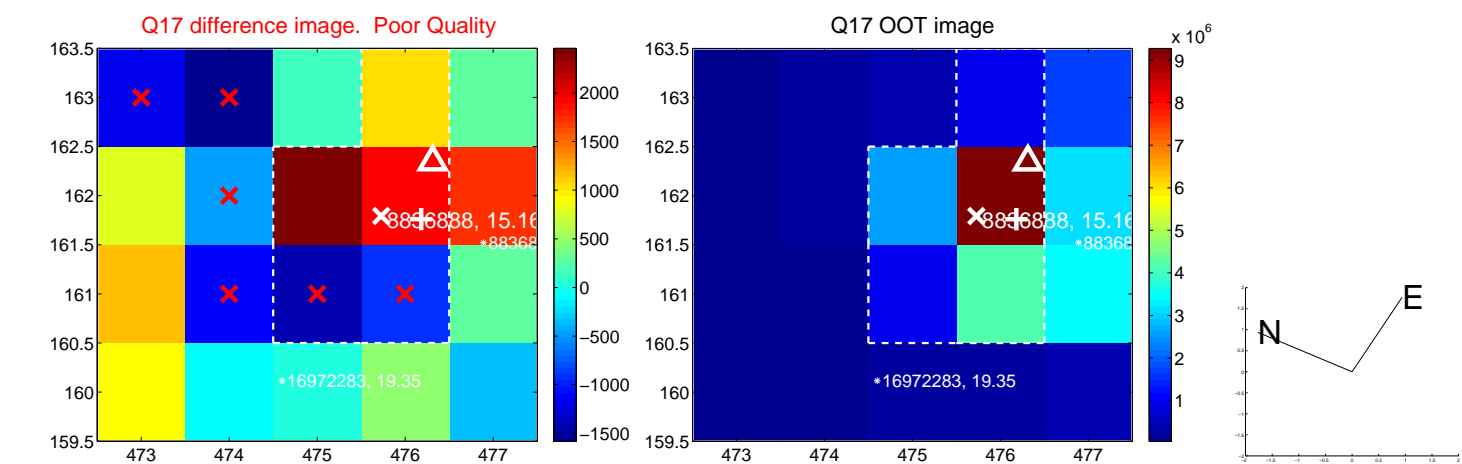


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

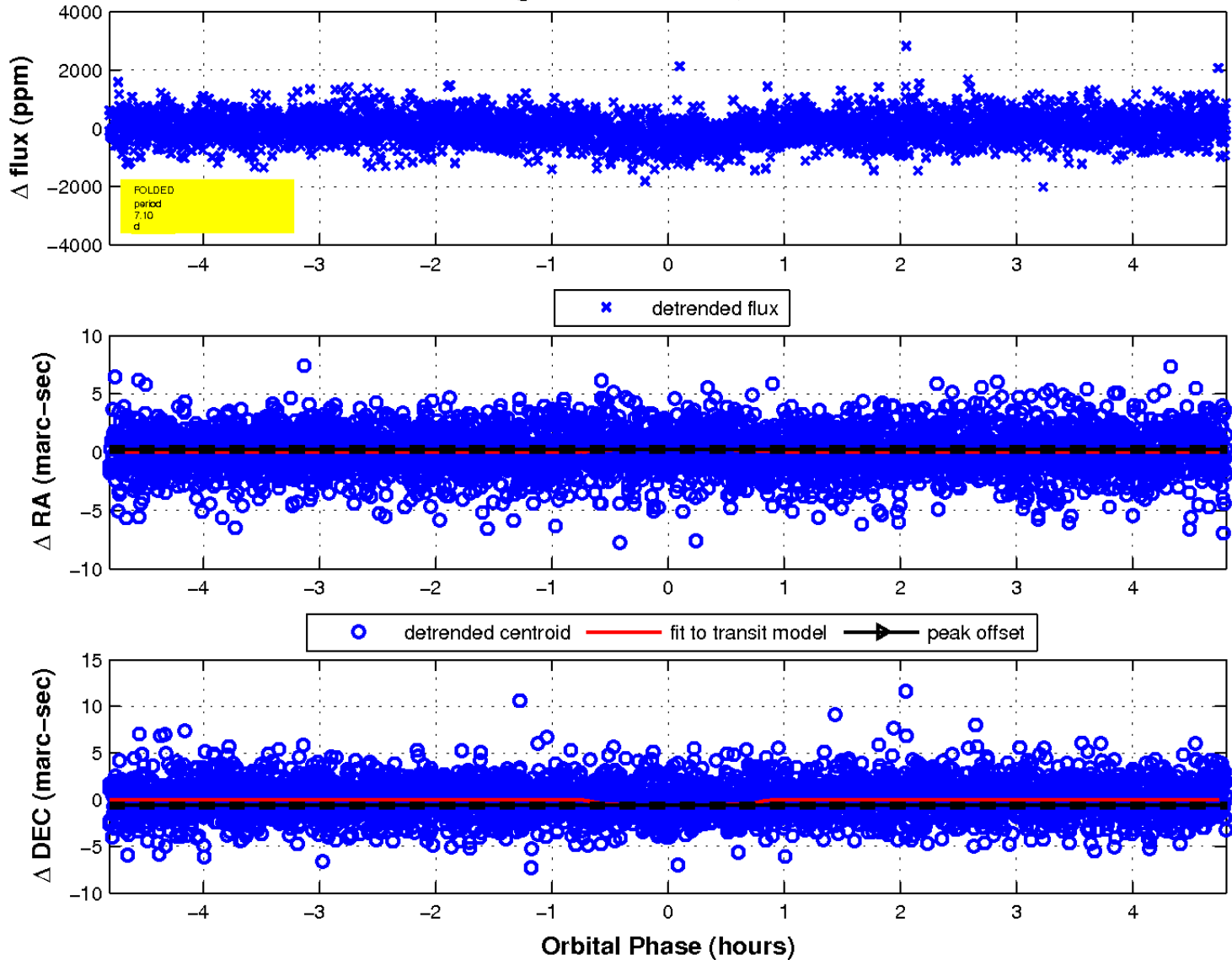




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

