

# KIC 006837146

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006837146-01	OBS	1362.01	20.513578	131.845729	1155.6	3.455	28.0	29.8	0.70	5310	2.56	20.18

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006837146-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS

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

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

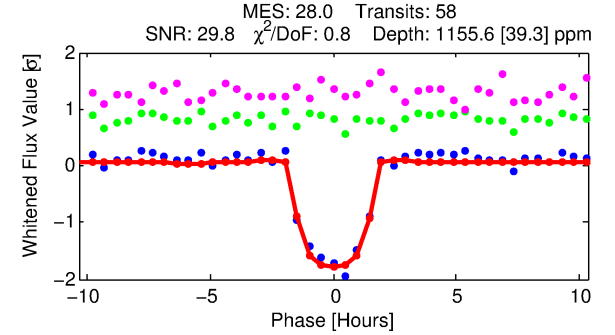
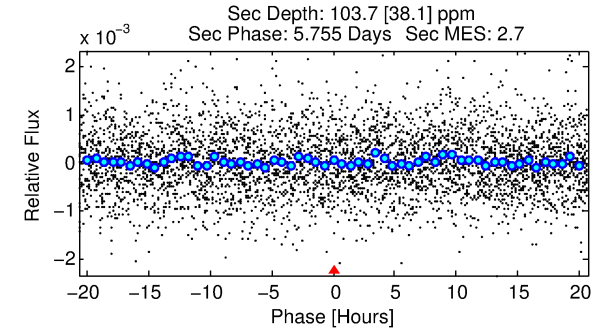
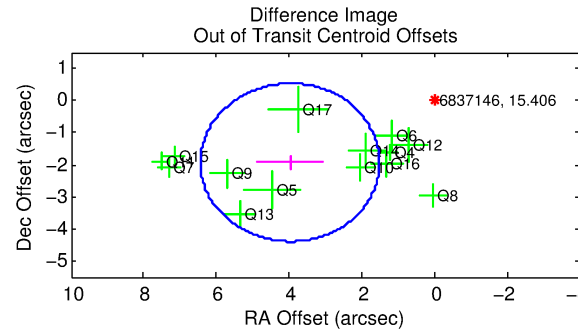
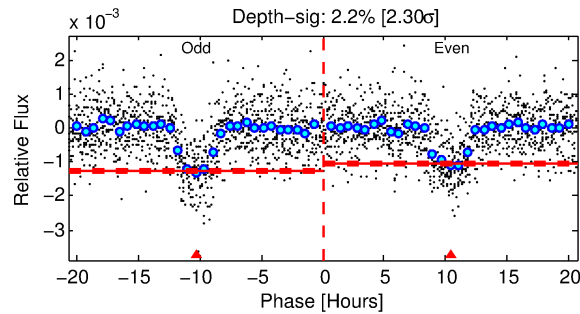
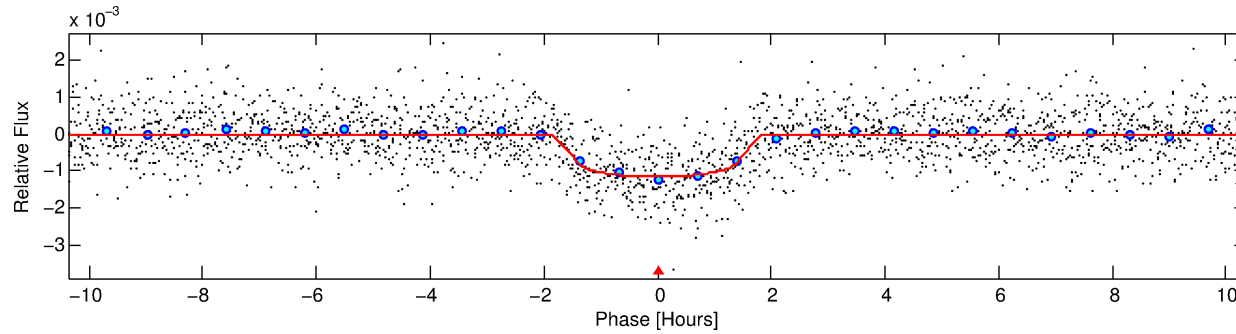
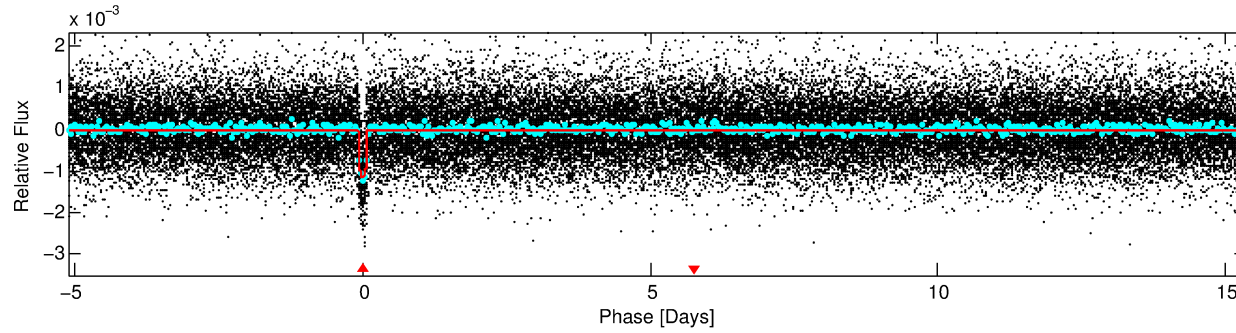
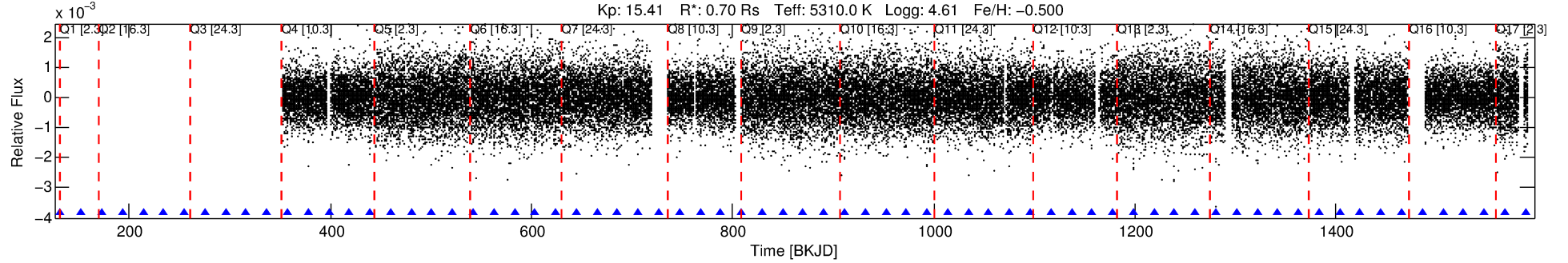
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006837146-01

No Significant Match Found

# DV One-Page Summary

KIC: 6837146 Candidate: 1 of 1 Period: 20.514 d  
KOI: K01362.01 Corr: 0.993



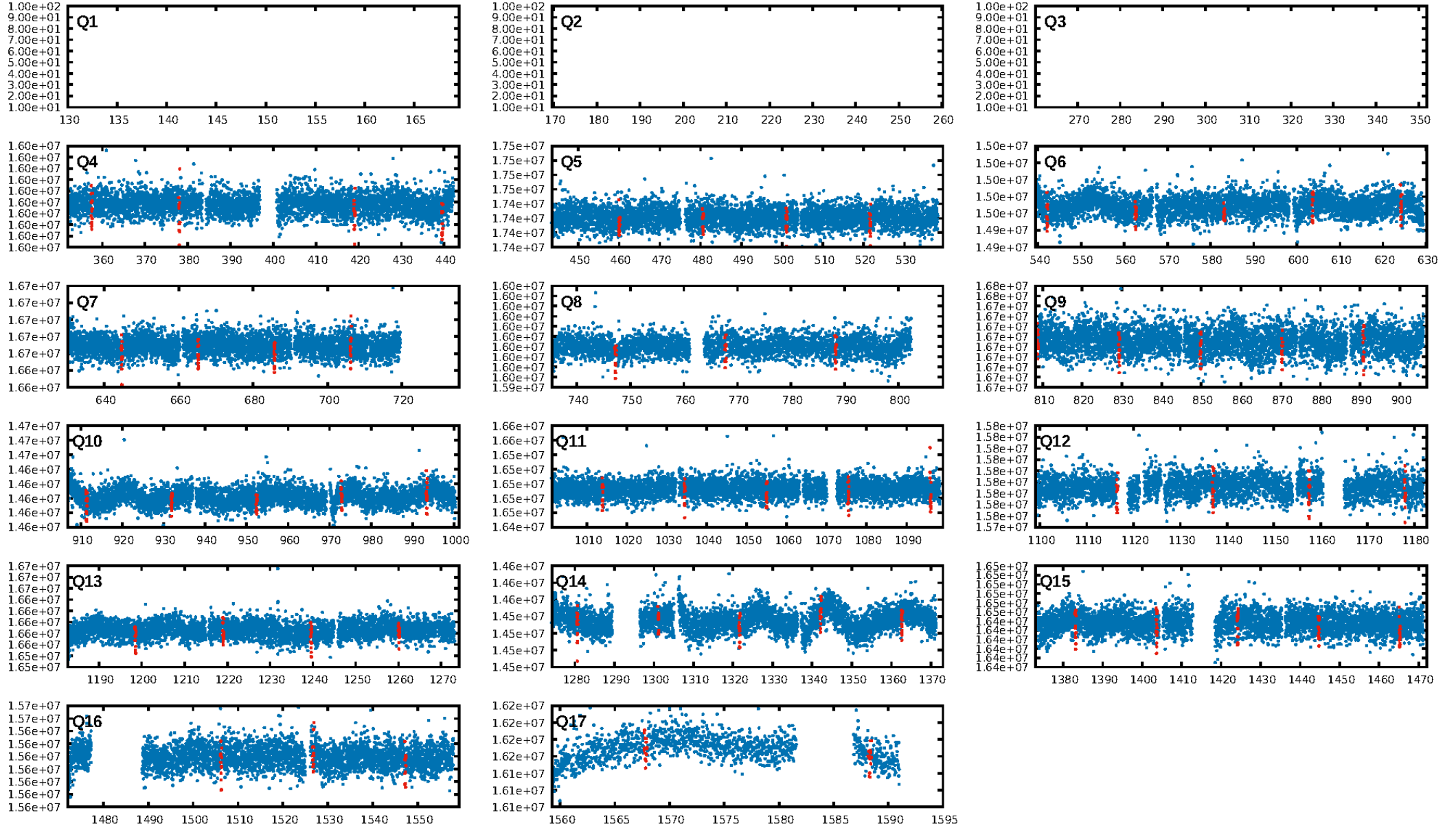
## DV Fit Results:

Period = 20.51358 [0.00008] d  
Epoch = 131.8457 [0.0034] BKJD  
Rp/R\* = 0.0334 [0.0107]  
a/R\* = 34.00 [44.08]  
b = 0.71 [0.92]  
Seff = 20.18 [4.17]  
Teff = 540 [28] K  
Rp = 2.56 [0.90] Re  
a = 0.1323 [0.0148] AU  
Ag = 151.72 [114.20] [1.32 $\sigma$ ]  
Teffp = 2933 [550] K [4.34 $\sigma$ ]

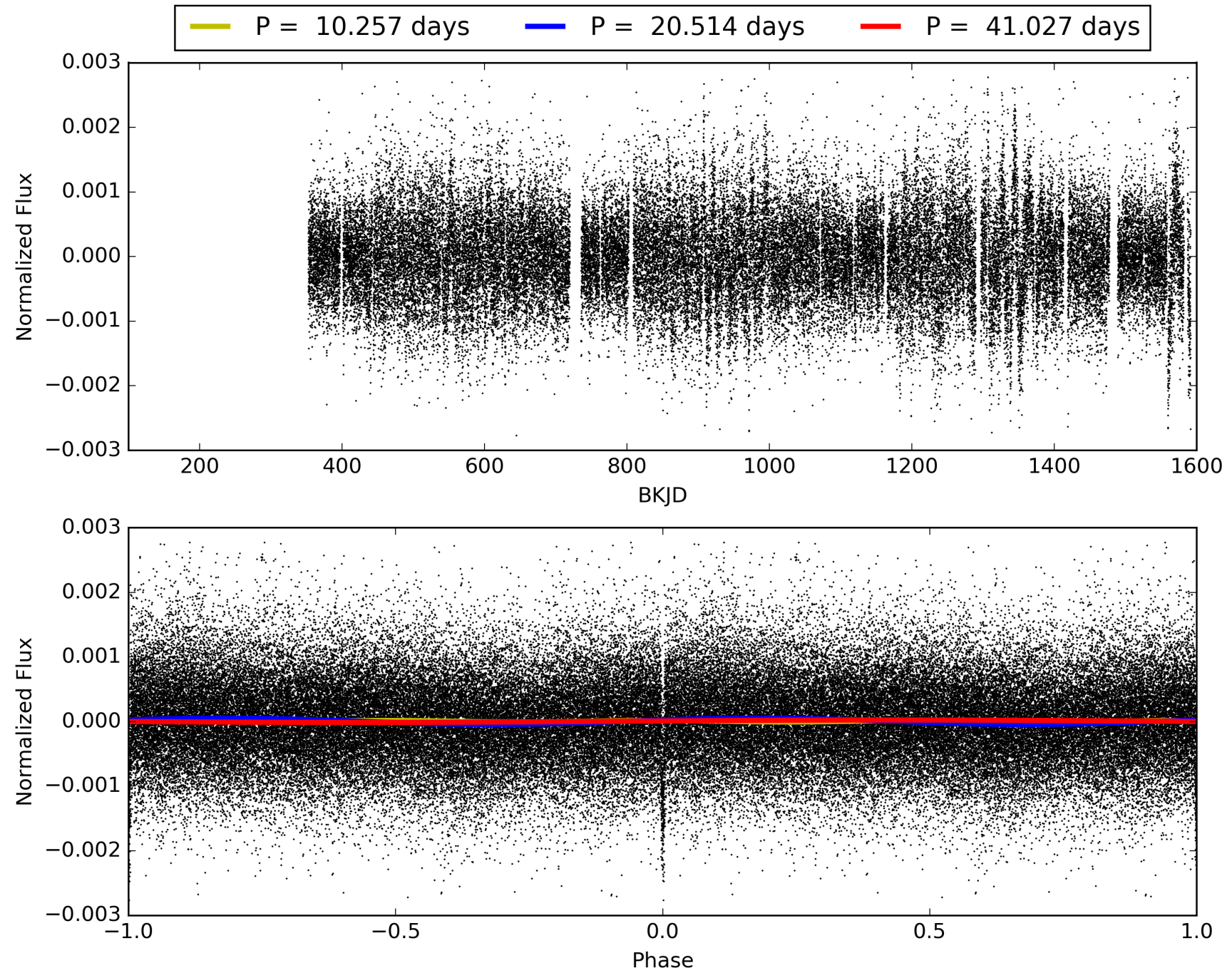
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 91.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.11e-166  
RollingBand-fgt: 1.00 [56/56]  
GhostDiagnostic-chr: 2.08  
Centroid-sig: 0.0%  
Centroid-so: 2.752 arcsec [11.16 $\sigma$ ]  
OotOffset-rm: 4.422 arcsec [5.38 $\sigma$ ]  
KicOffset-rm: 0.142 arcsec [0.49 $\sigma$ ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 006837146-01, PDC Light Curves

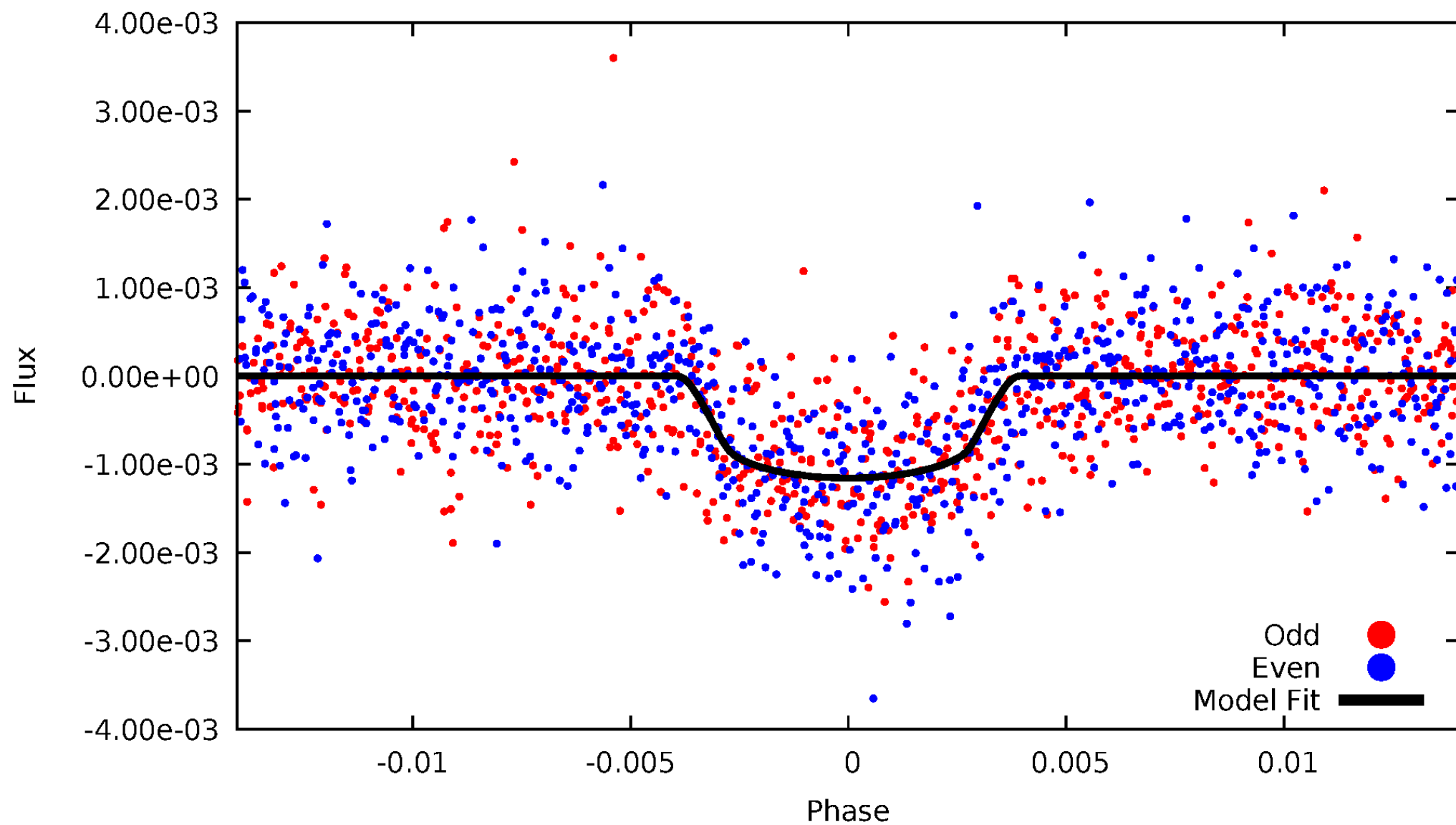


TCE 006837146-01



# DV Odd/Even

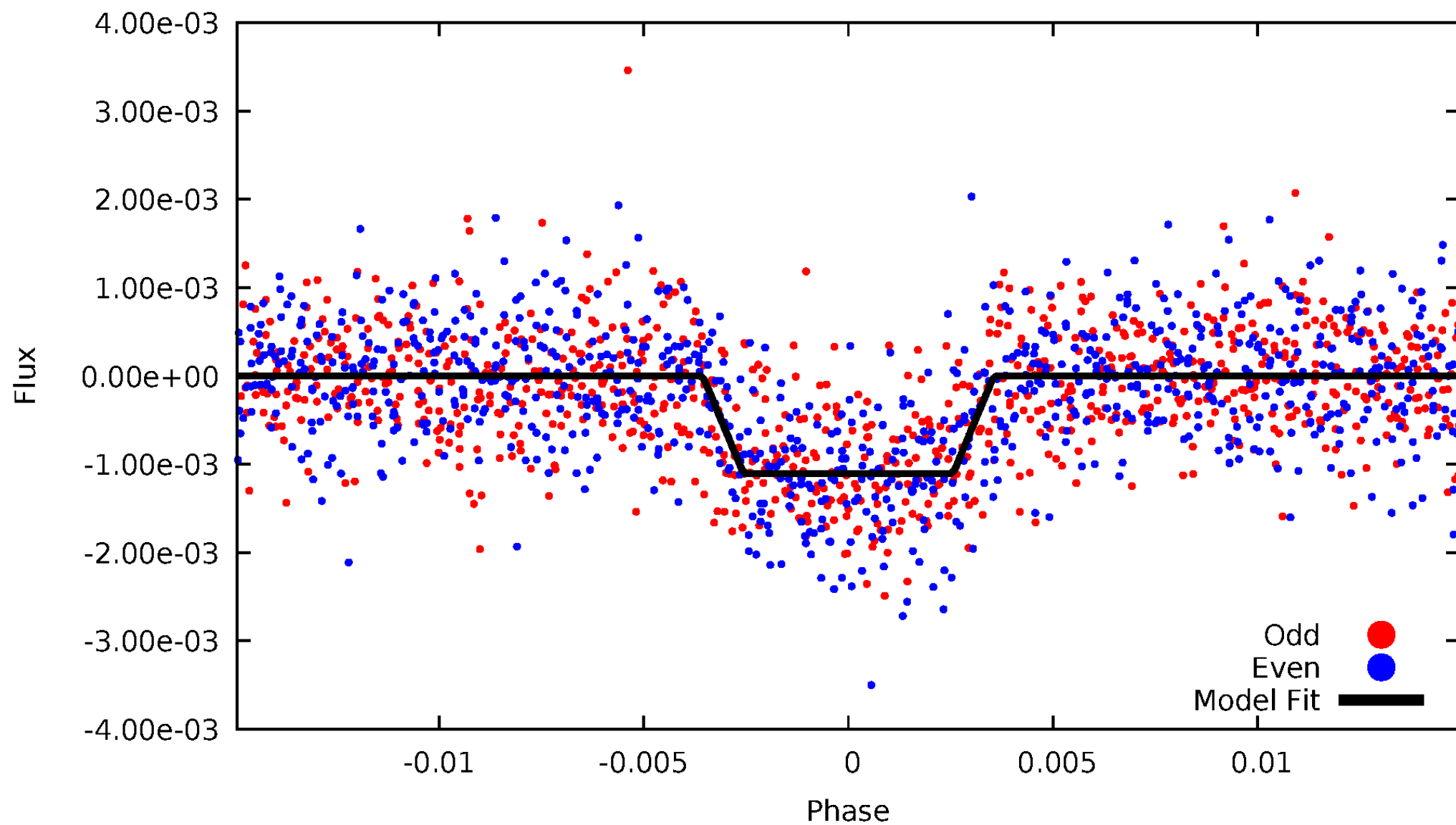
TCE 006837146-01





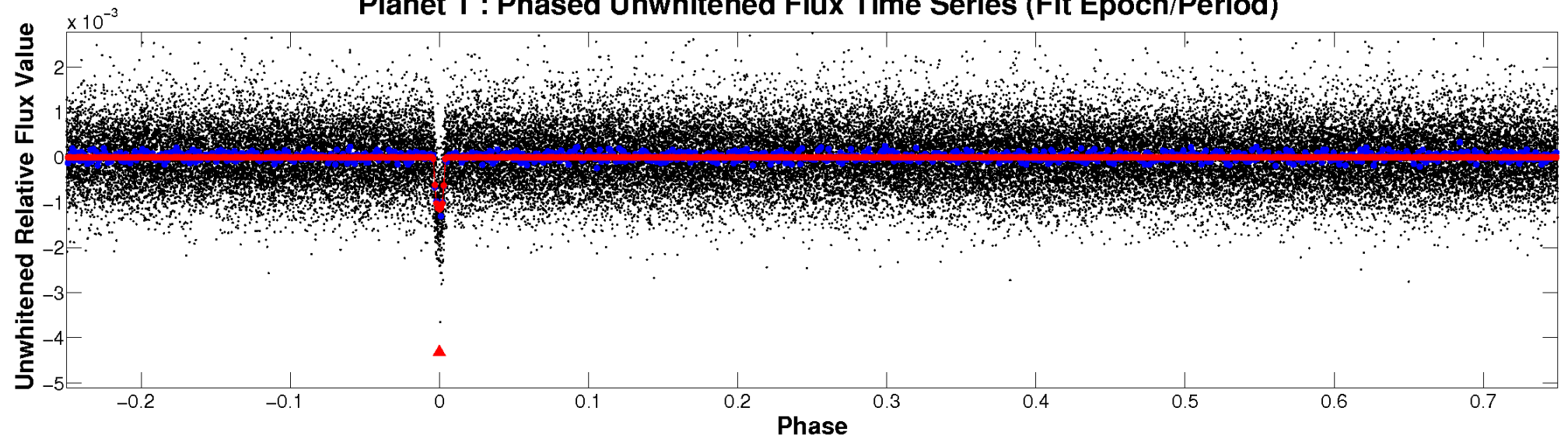
# ALT Odd/Even

TCE 006837146-01

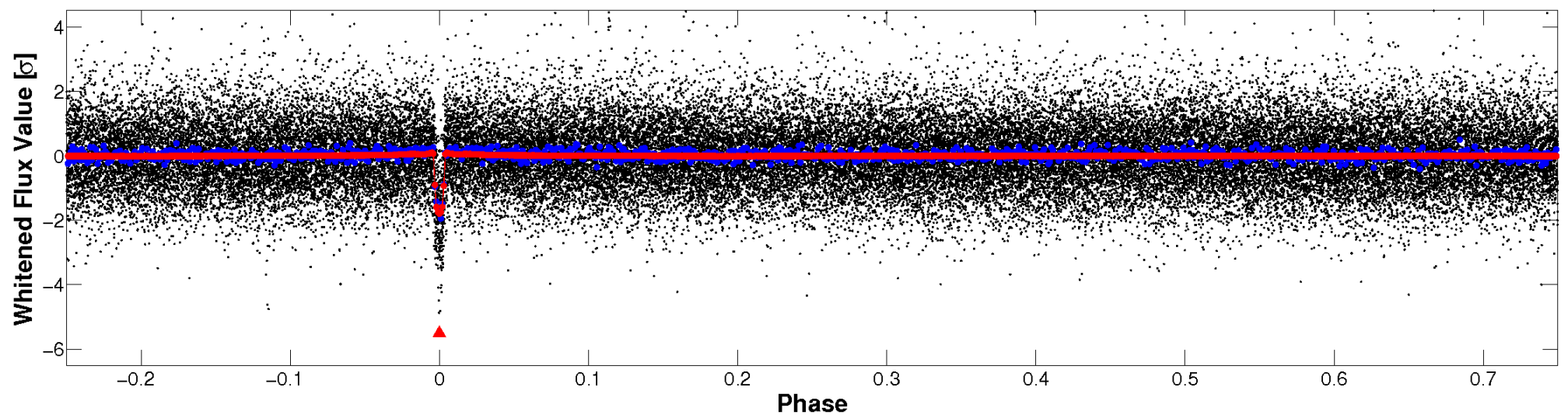


# Non-Whitened Vs. Whitened Light Curve

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

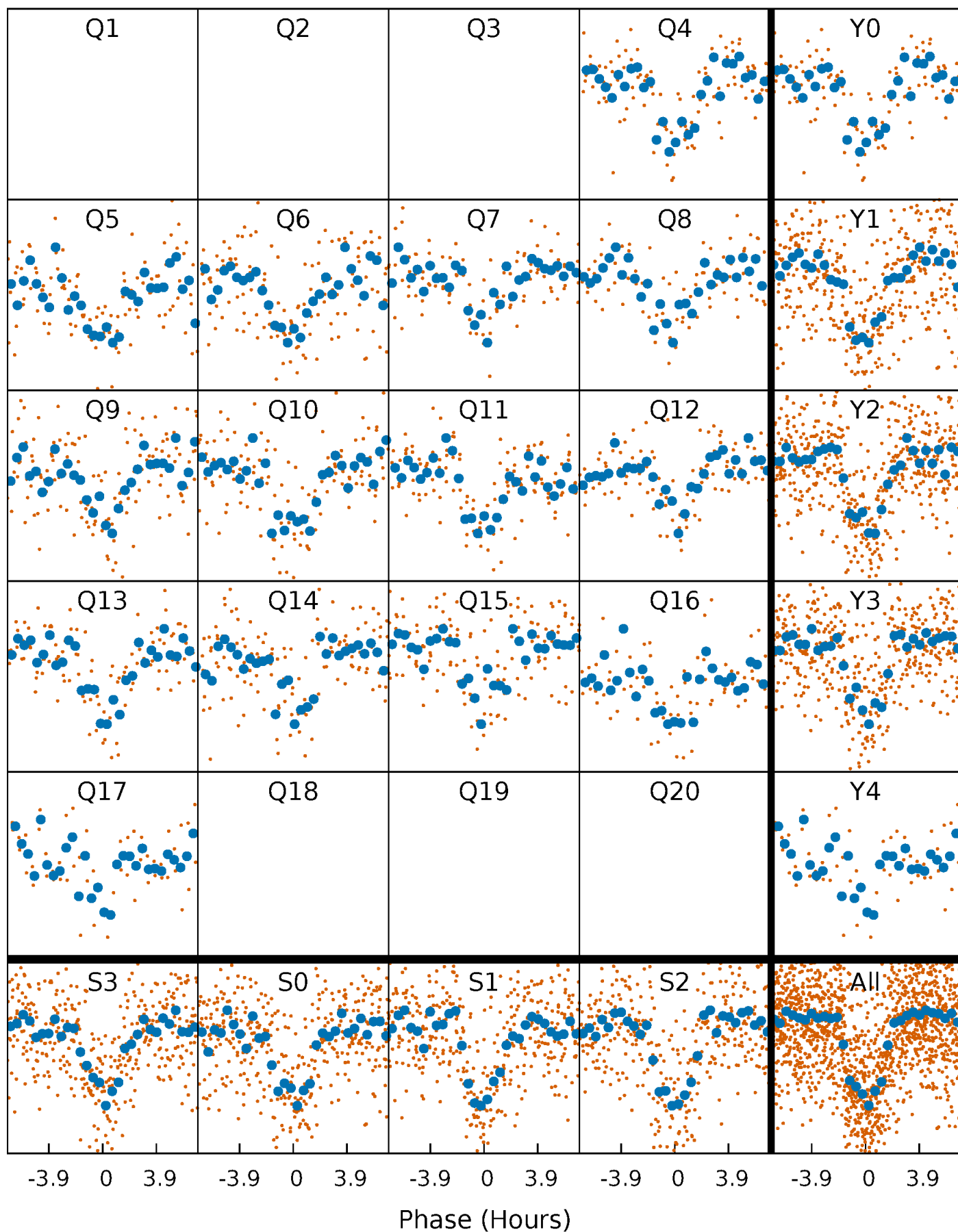


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

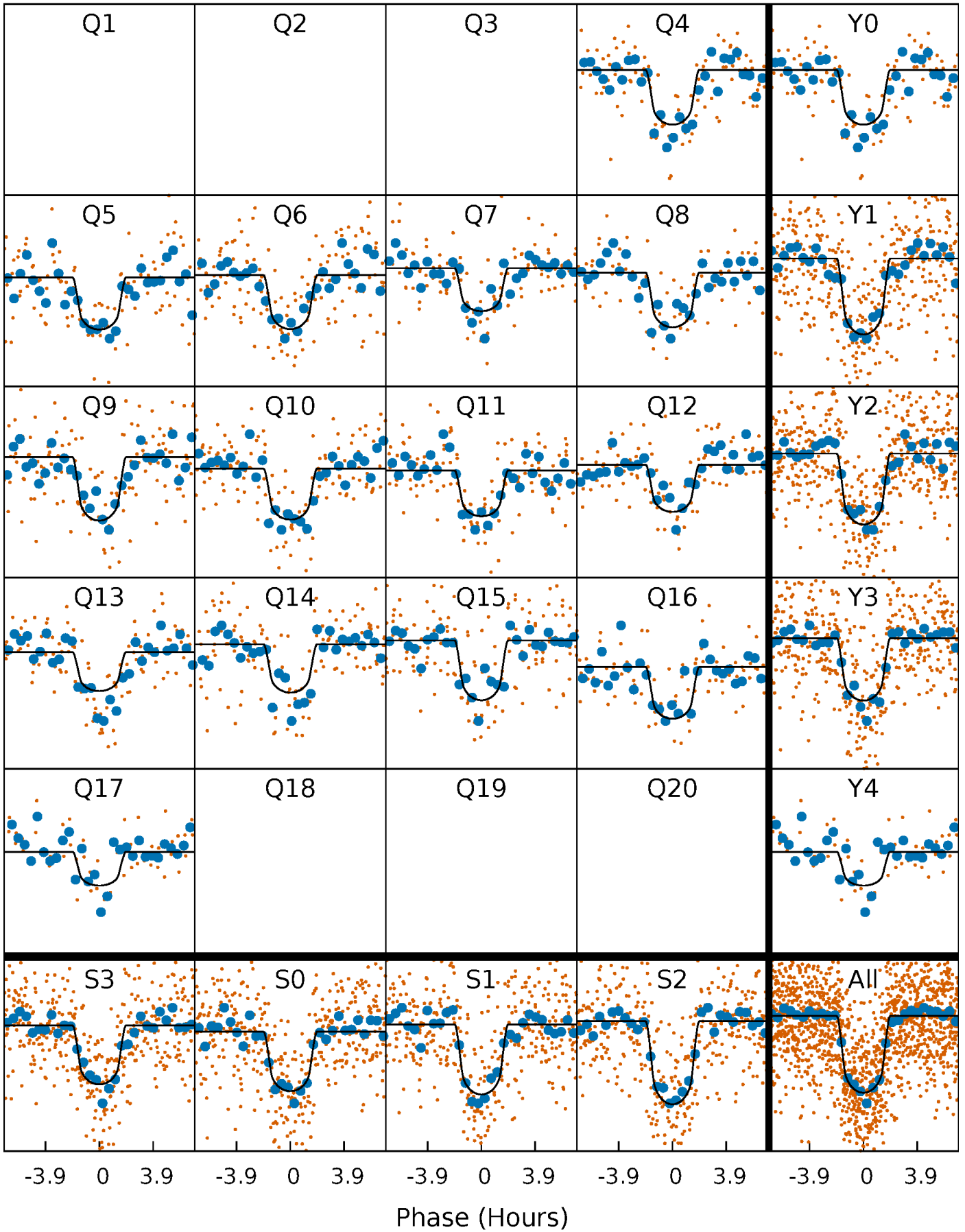
TCE 006837146-01 P= 20.513578 Days  $T_0=131.845729$  (BKJD)





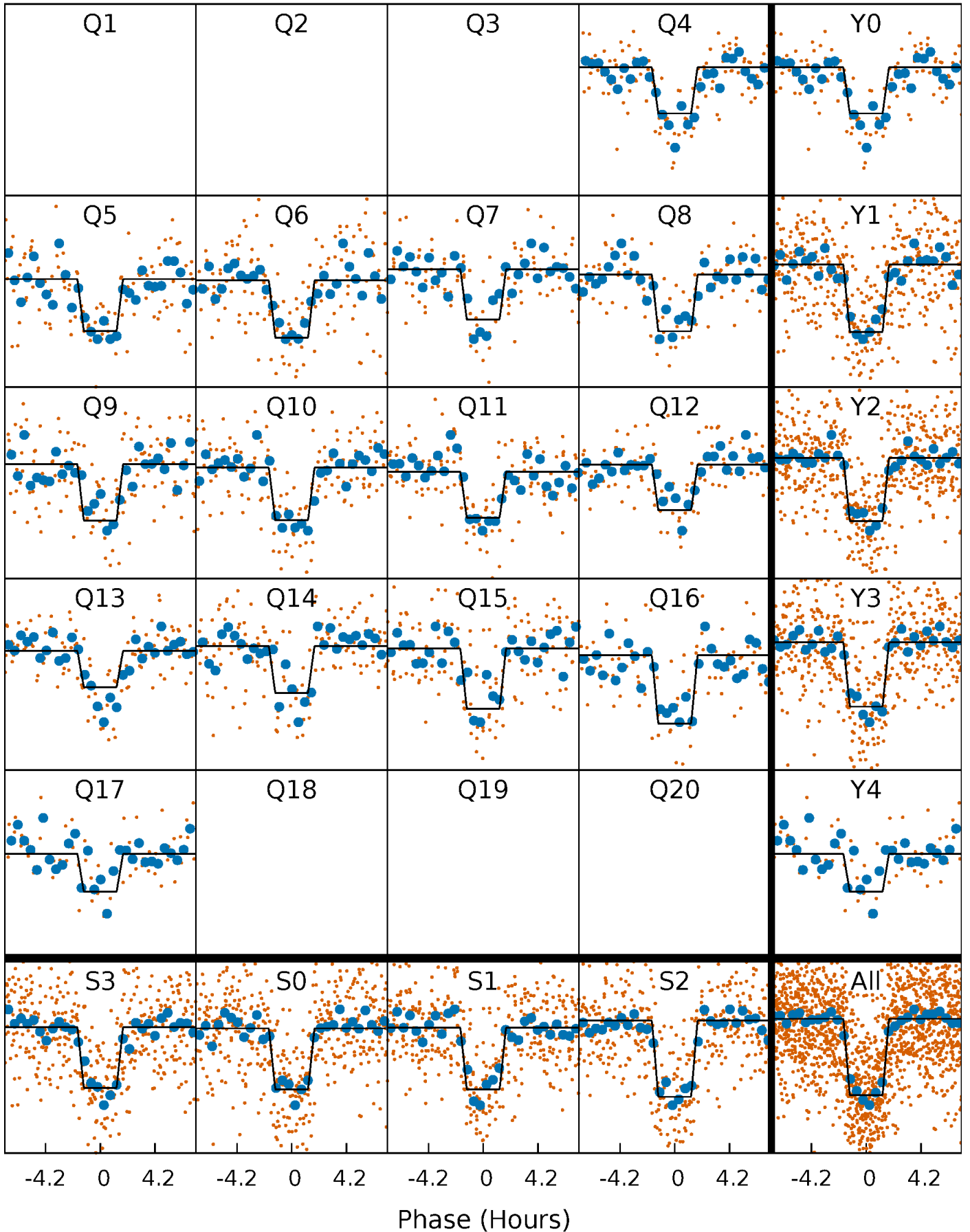
# DV Quarter-Phased Transit Curves

TCE 006837146-01 P= 20.513578 Days  $T_0=131.845729$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

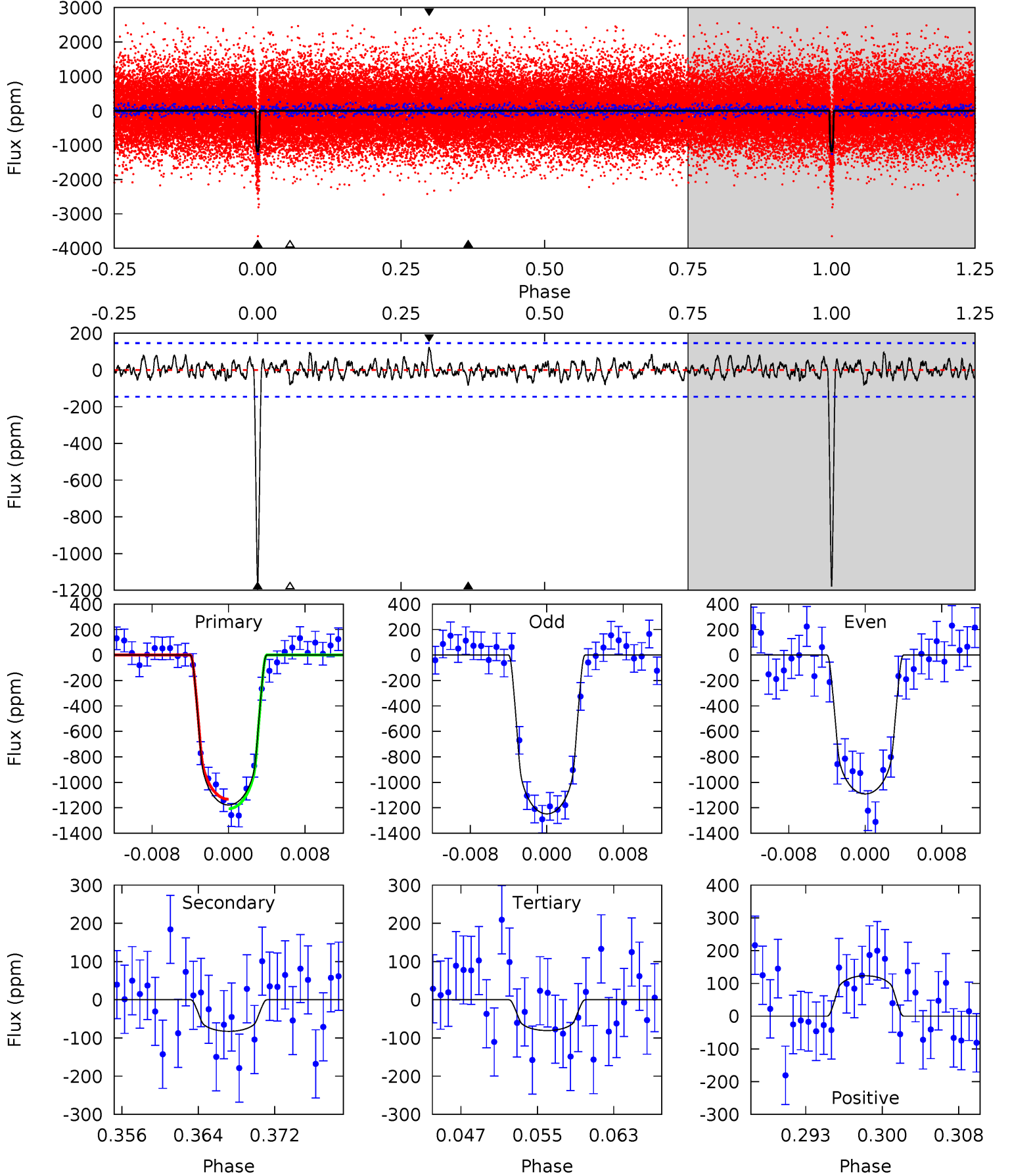
TCE 006837146-01 P= 20.513623 Days  $T_0=131.843490$  (BKJD)



# DV Model-Shift Uniqueness Test

006837146-01, P = 20.513578 Days, E = 131.845729 Days

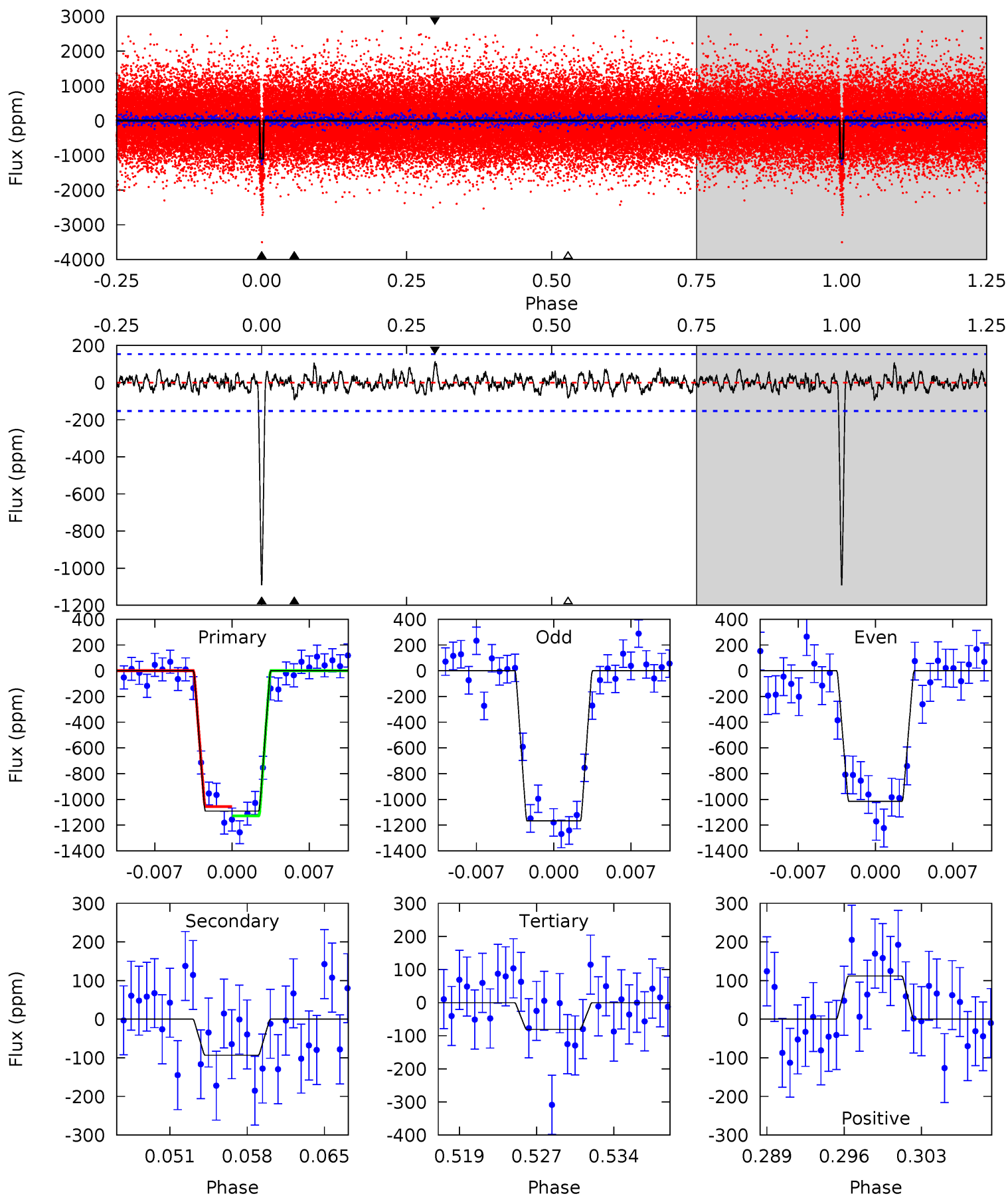
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.9	2.87	2.79	4.28	5.07	2.66	1.10	38.1	36.6	0.07	-1.41	2.72	0.99	0.09	1.30



# Alt Model-Shift Uniqueness Test

006837146-01, P = 20.513623 Days, E = 131.843490 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
36.3	3.10	2.69	3.72	5.09	2.69	0.99	33.6	32.5	0.41	-0.62	2.55	1.00	0.09	1.18



### Stellar Parameters For KIC 006837146

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5310^{+185}_{-185}$	$4.608^{+0.045}_{-0.078}$	$-0.500^{+0.300}_{-0.300}$	$0.704^{+0.100}_{-0.062}$	$0.733^{+0.088}_{-0.059}$	$2.957^{+0.670}_{-0.782}$
	+3%/-3%	+1%/-2%	+60%/-60%	+14%/-9%	+12%/-8%	+23%/-26%
Source	KIC0	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 006837146-01 / KOI 1362.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-83 \pm 29$	$2.62^{+0.82}_{-0.88}$	$761^{+33}_{-32}$	$3289^{+509}_{-302}$	$114^{+169}_{-54}$
Alt.	$-93 \pm 30$	$2.61^{+0.84}_{-0.83}$	$762^{+31}_{-33}$	$3348^{+463}_{-324}$	$128^{+153}_{-64}$

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



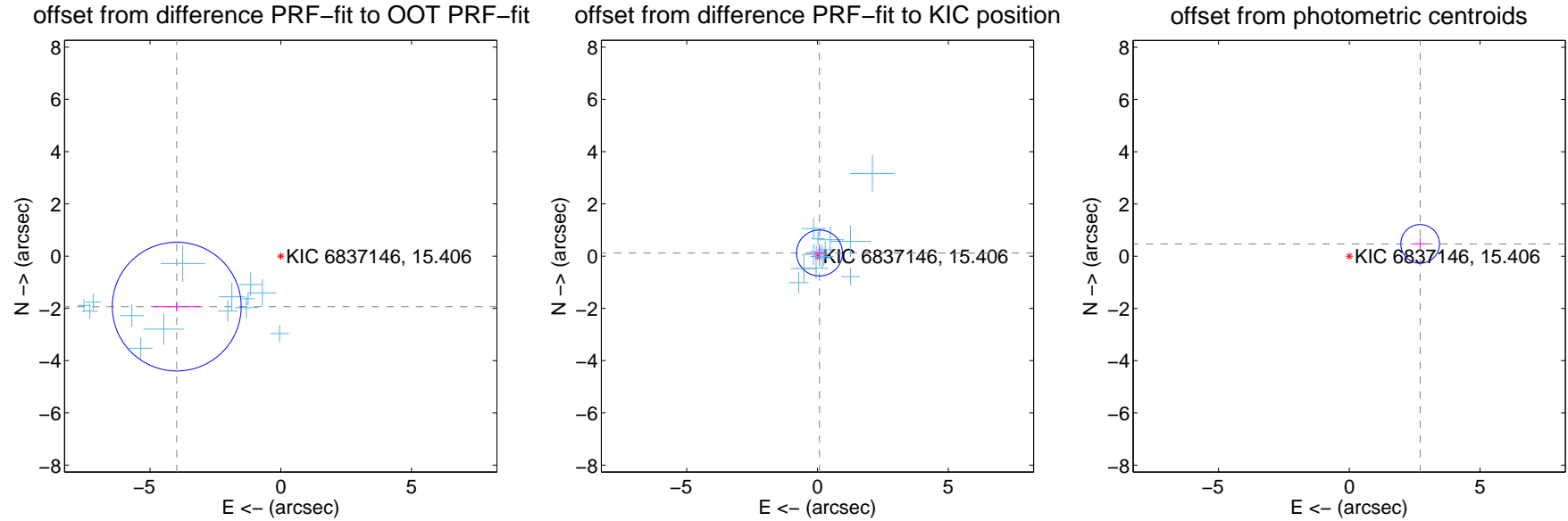
## DV Centroid Data

Supplemental centroid analysis for 006837146-01. Kepler magnitude: 15.41. Transit SNR 29.75

There are 14 quarters with good PRF difference image offsets

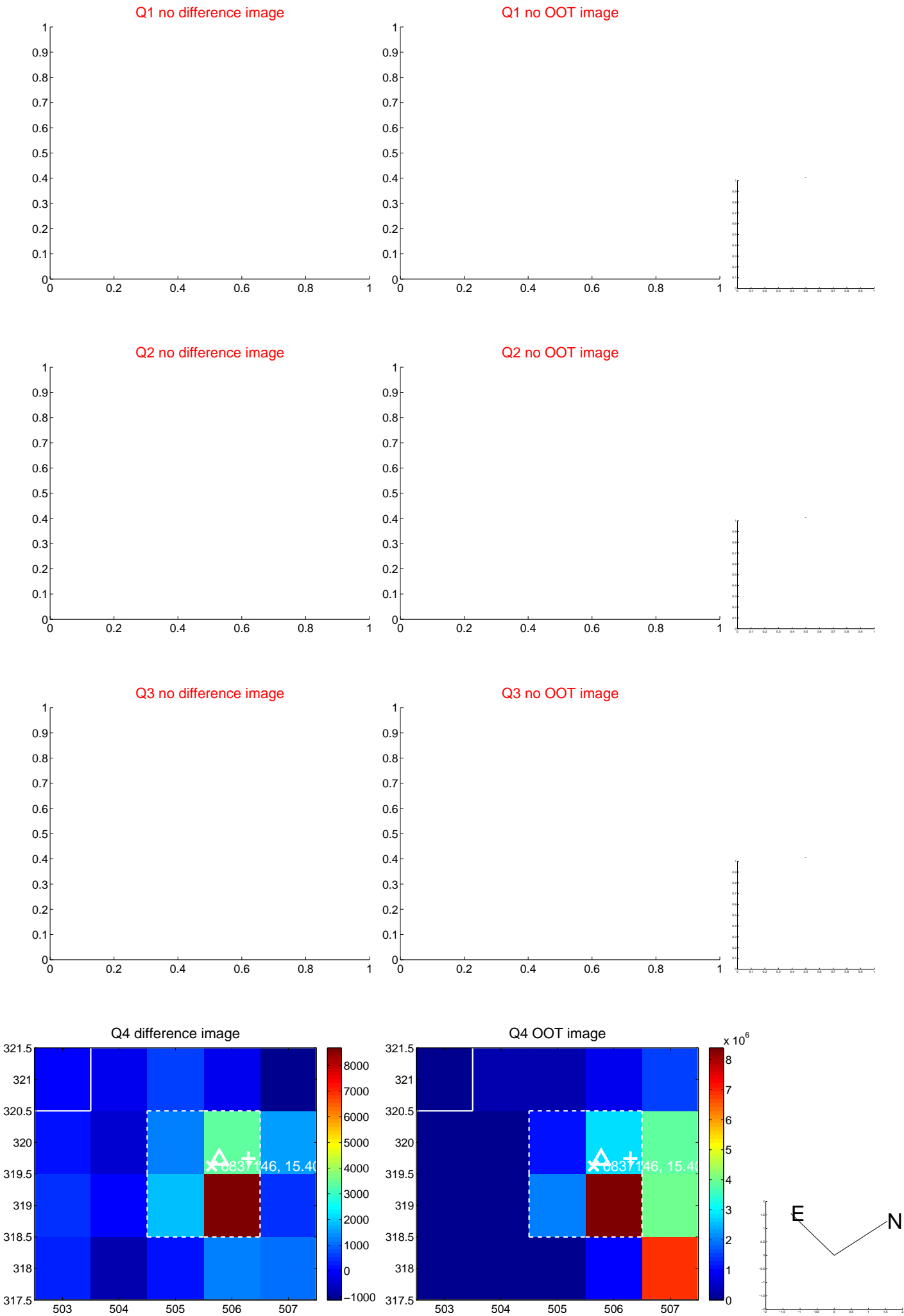
The OOT PRF centroid is offset from the target star catalog position by about 6.78 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.422 \pm 0.821$	5.38	$3.977 \pm 0.908$	$-1.932 \pm 0.189$
PRF-fit source offset from KIC position	$0.142 \pm 0.293$	0.49	$-0.076 \pm 0.196$	$0.120 \pm 0.265$
photometric centroid source offset	$2.75 \pm 0.25$	11.16	$-2.71 \pm 0.25$	$0.47 \pm 0.23$

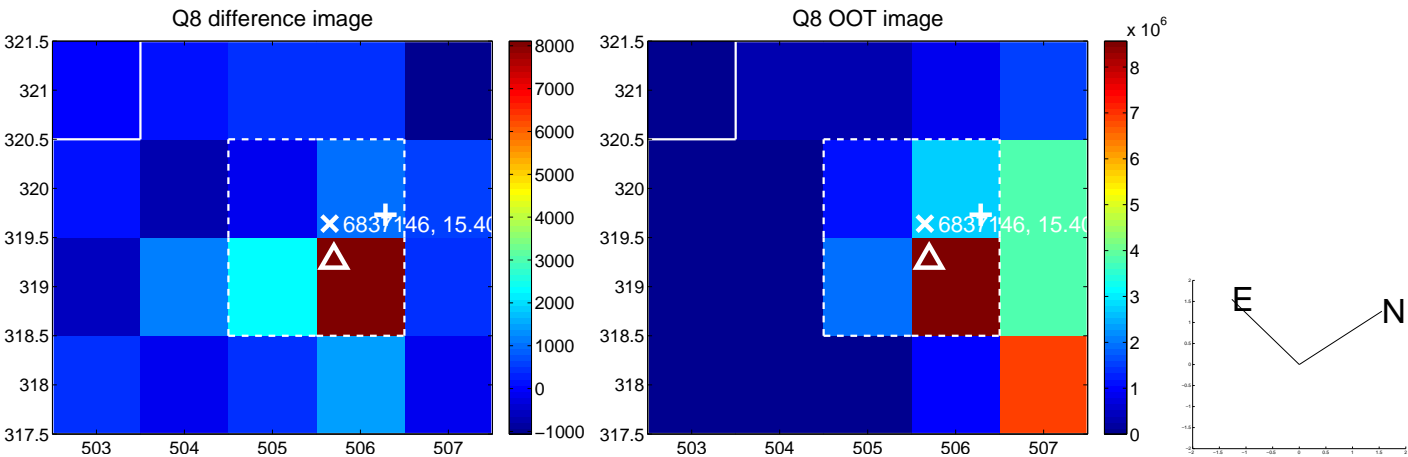
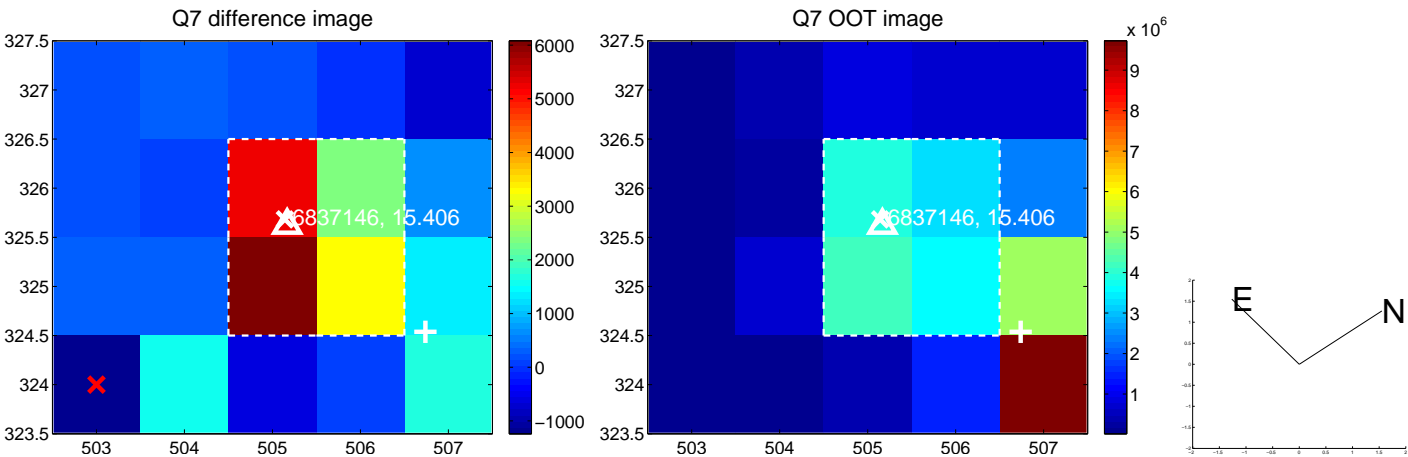
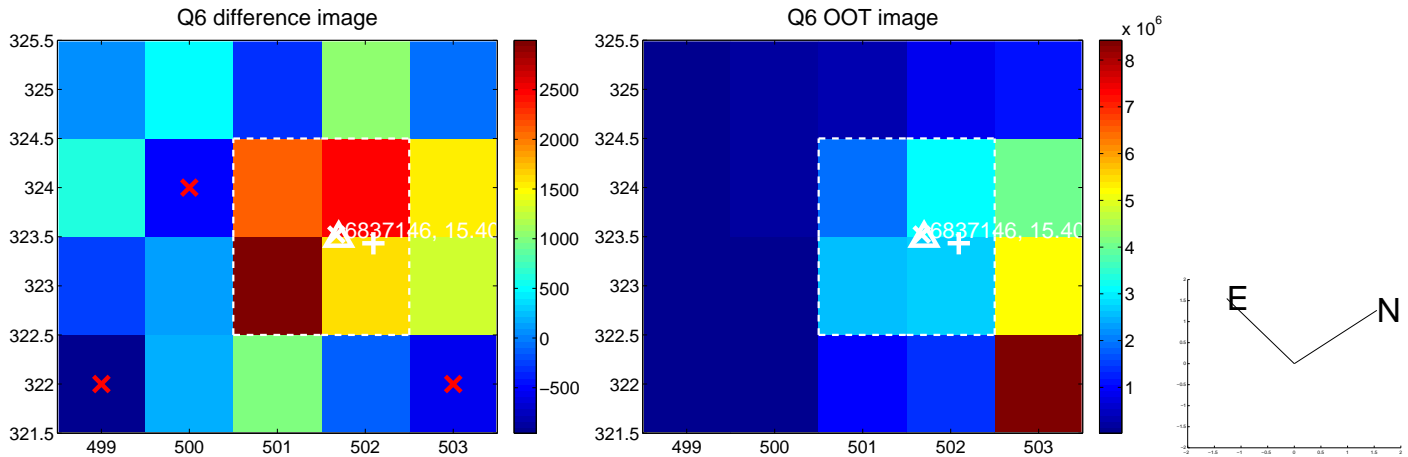
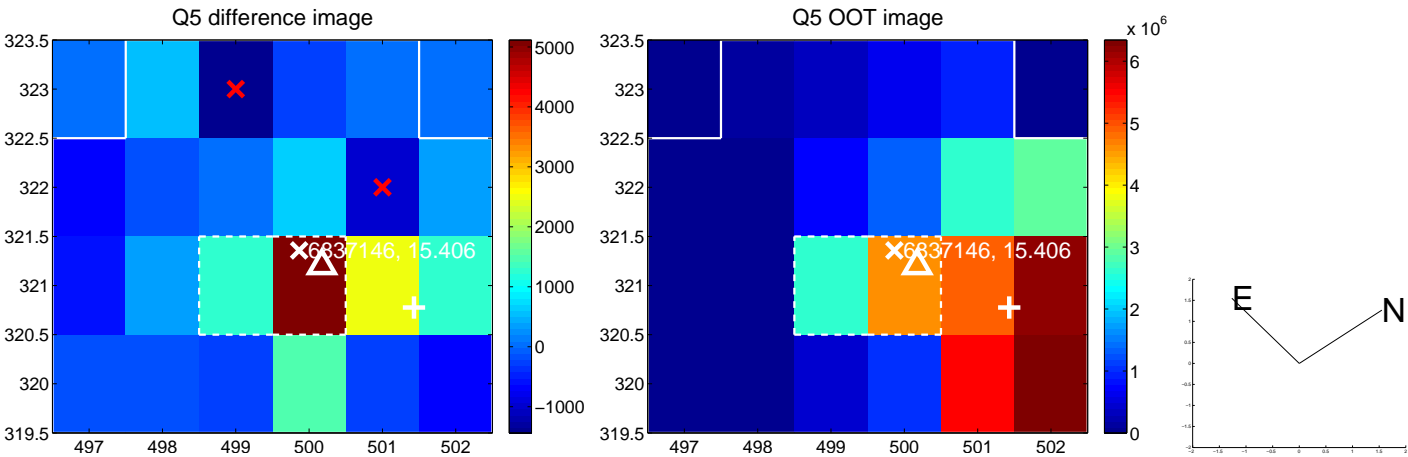


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

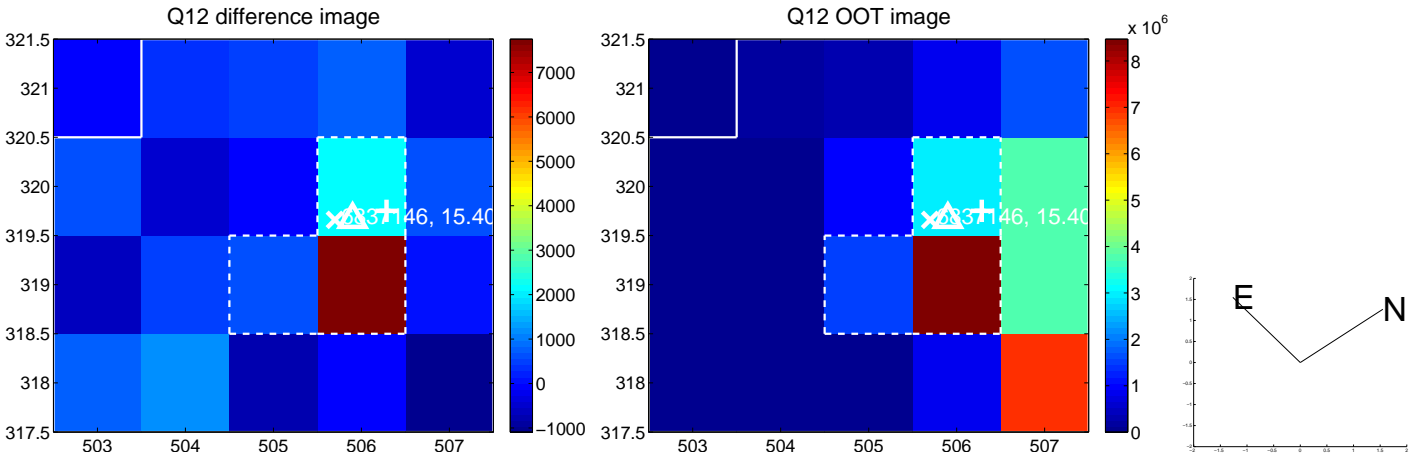
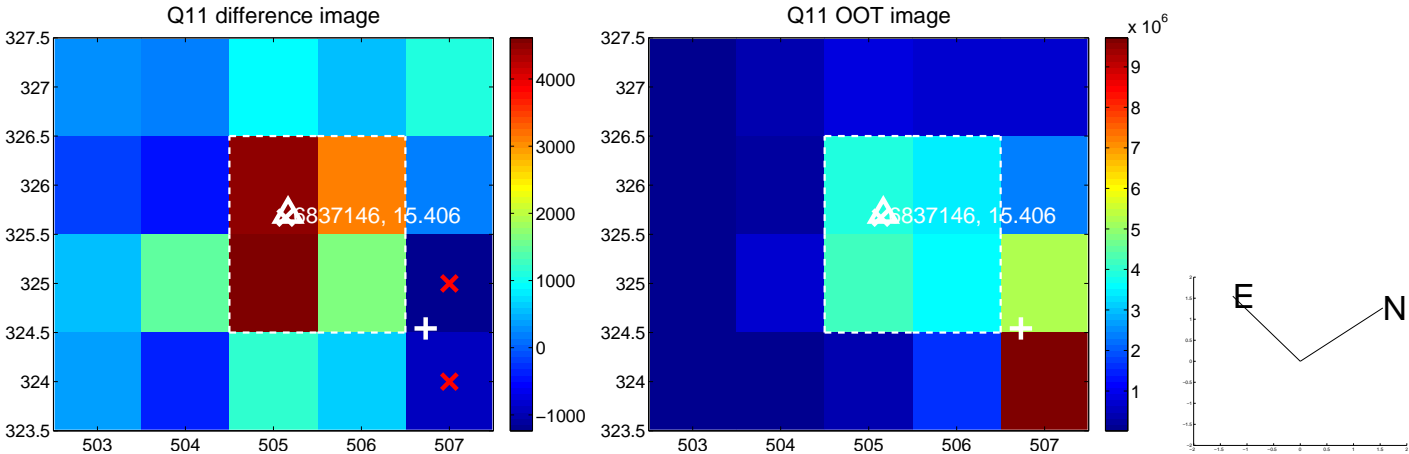
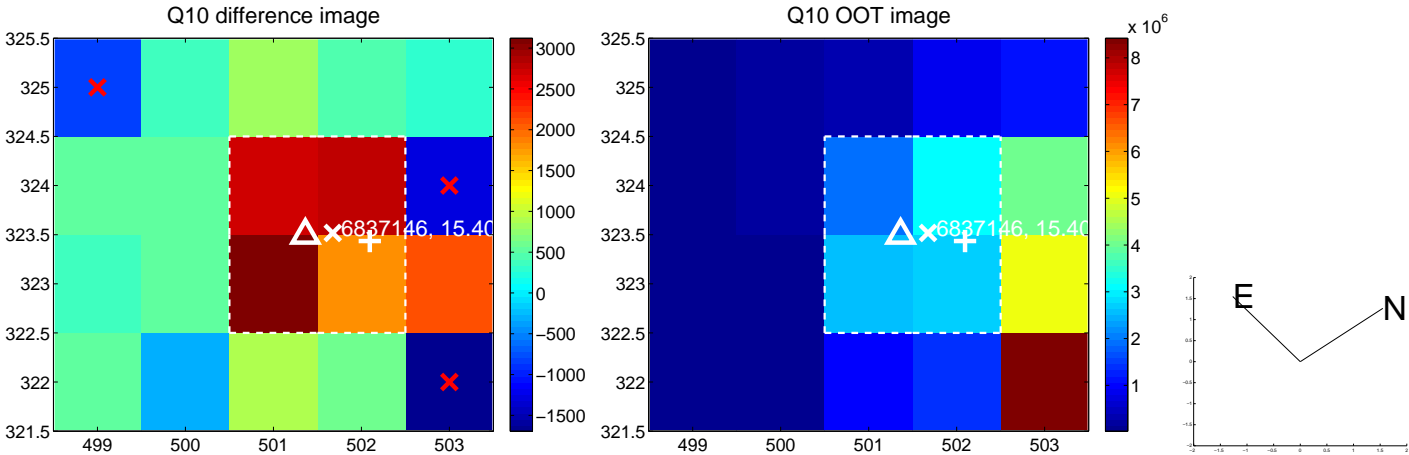
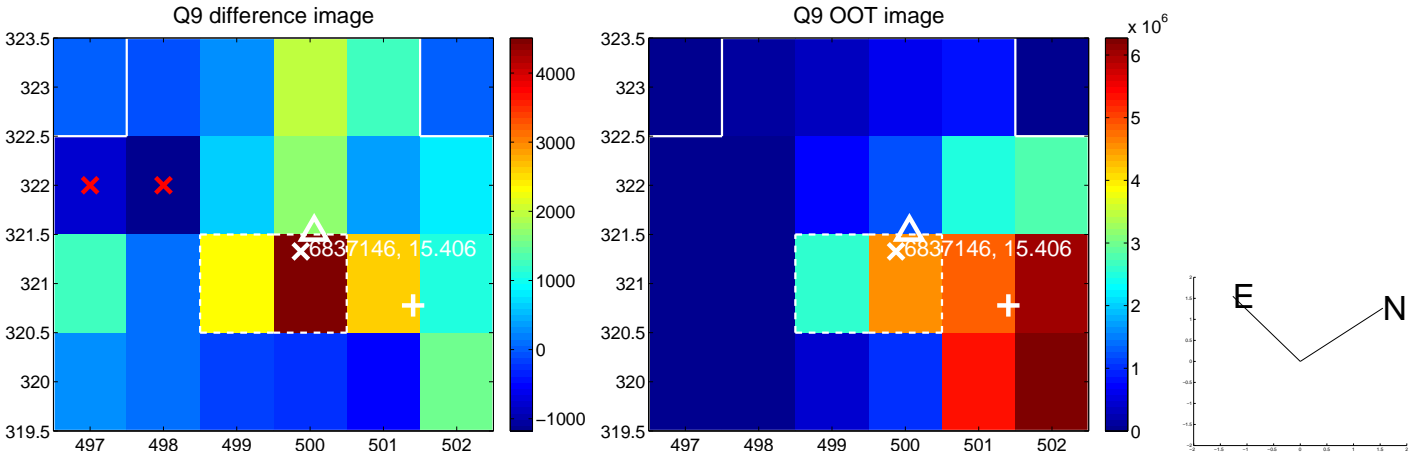
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



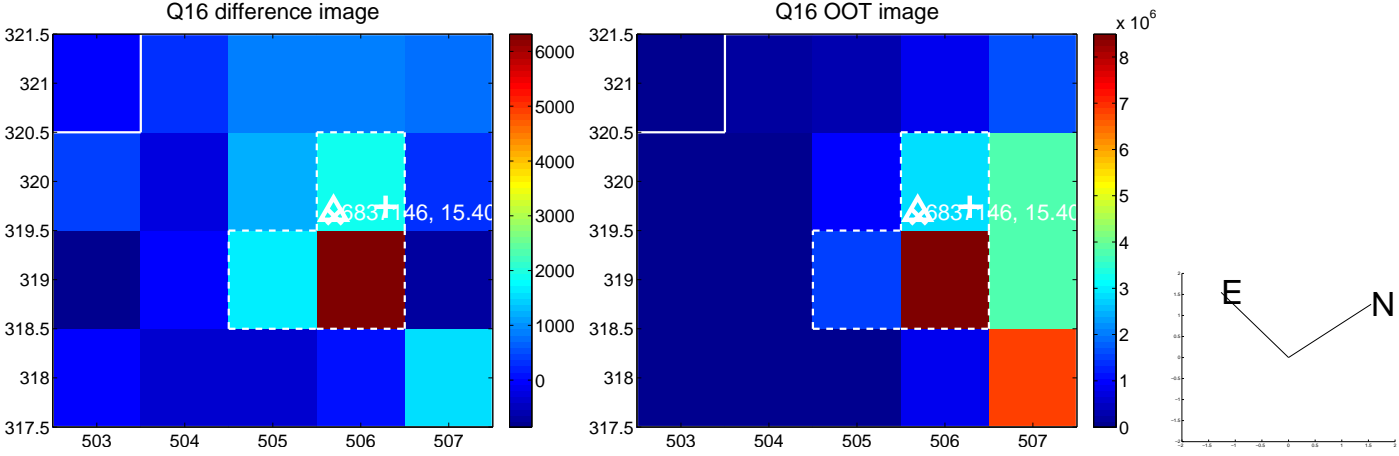
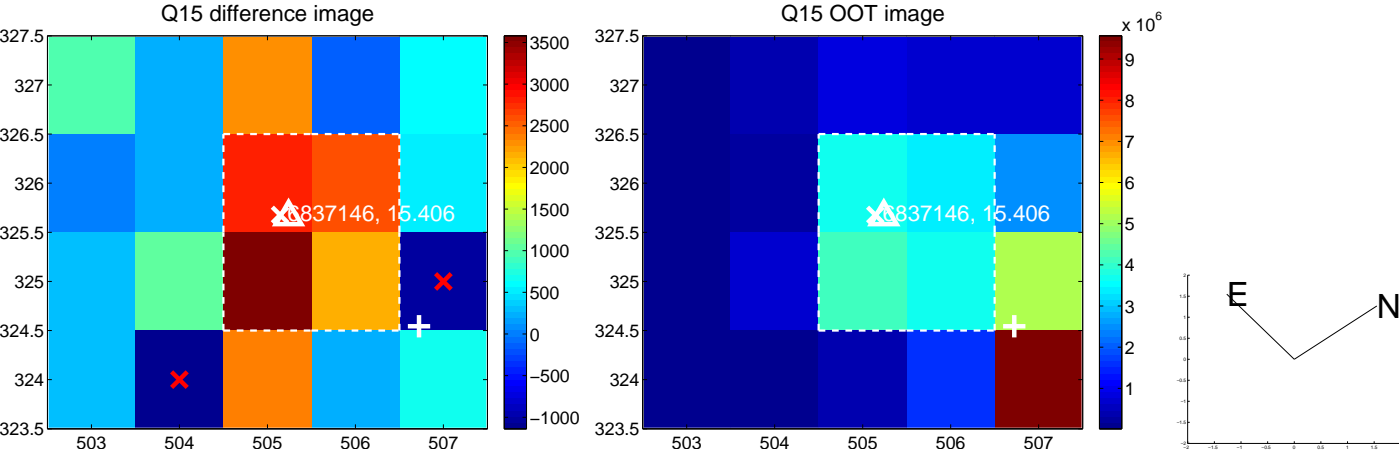
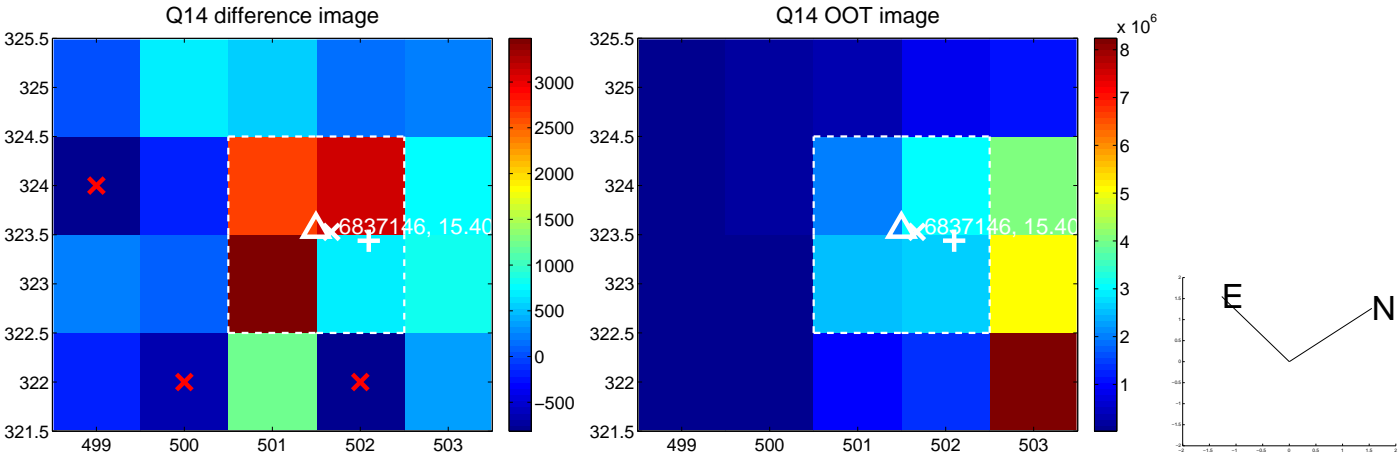
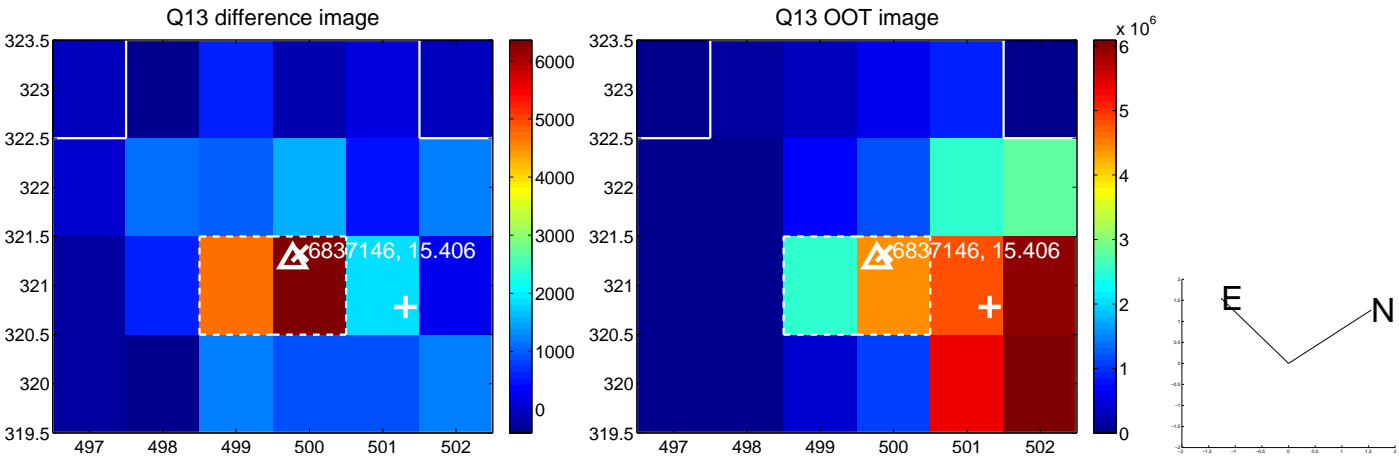
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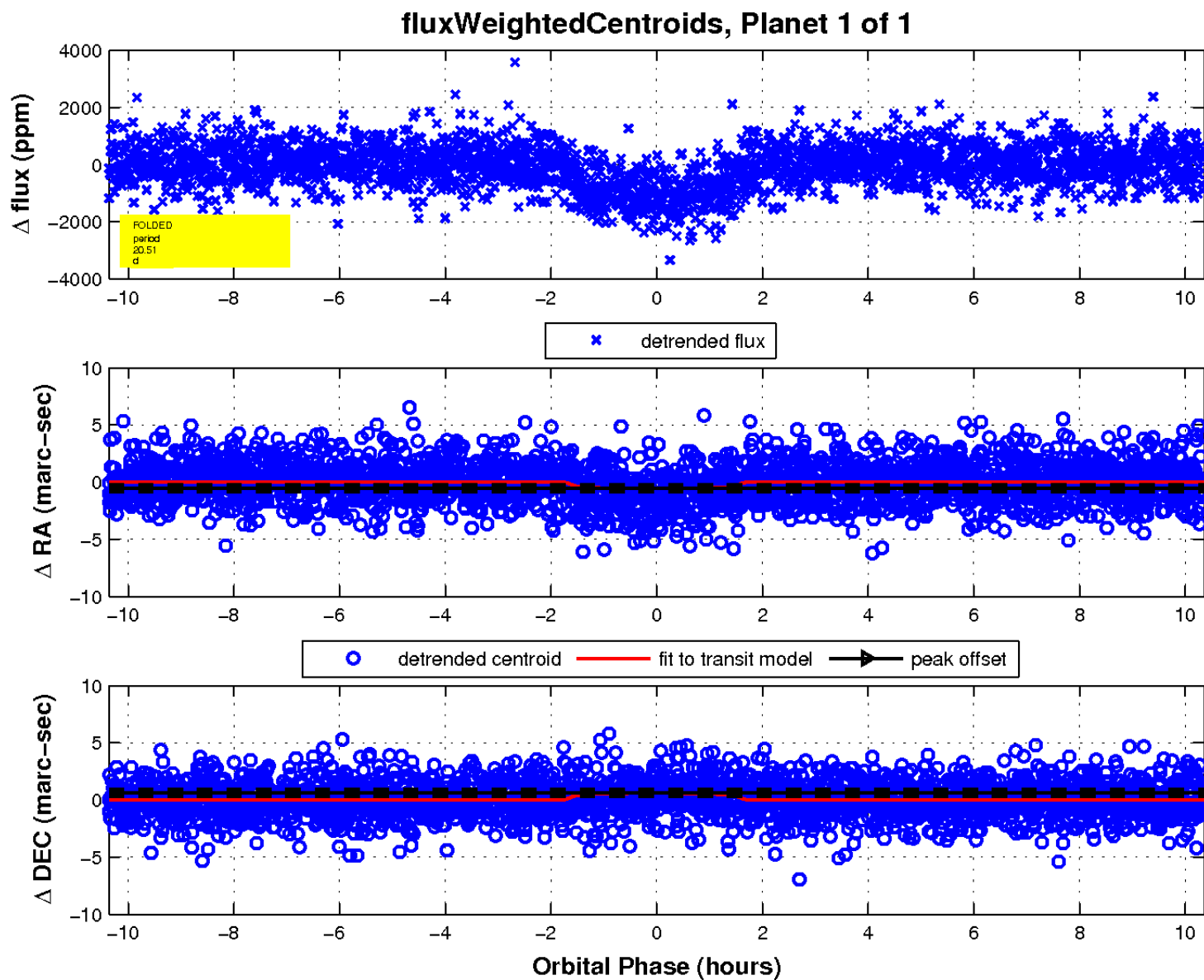
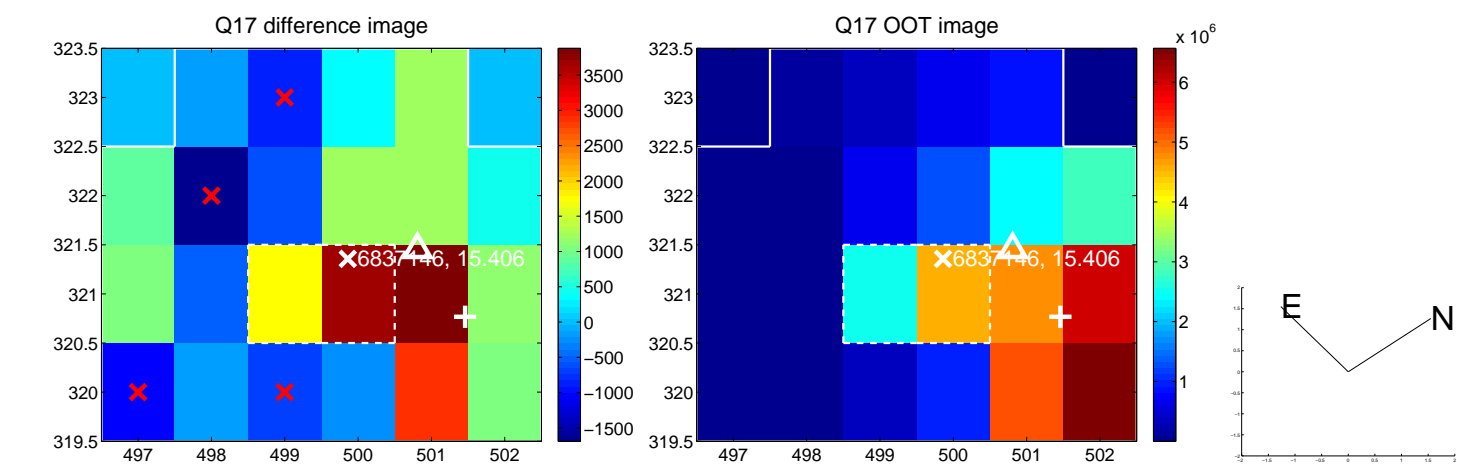


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Declination