

# KIC 005130740

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005130740-01	OBS	3583.01	210.306384	285.127146	46293.6	6.646	1570.9	1345.0	2.02	7591	67.25	17.98

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005130740-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

**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.

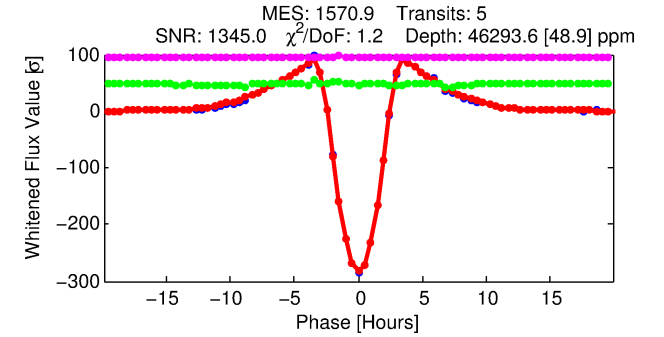
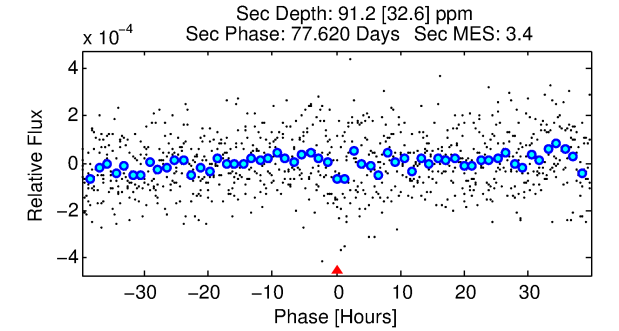
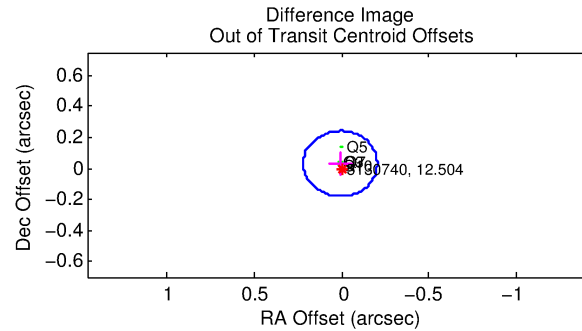
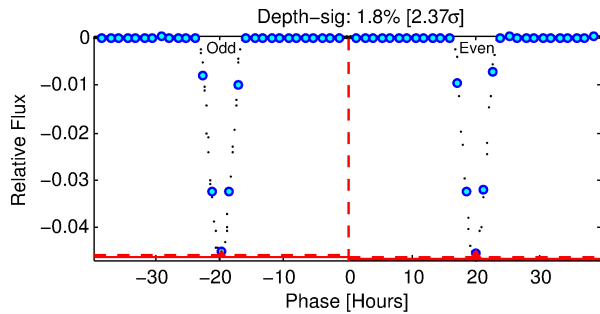
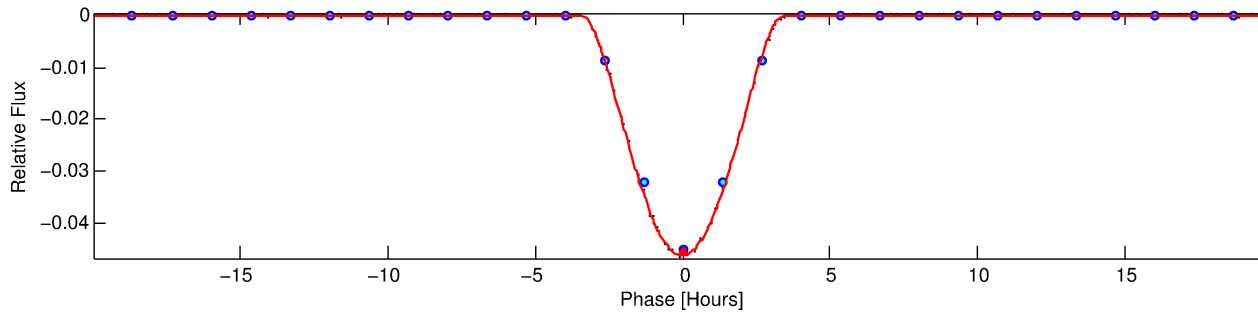
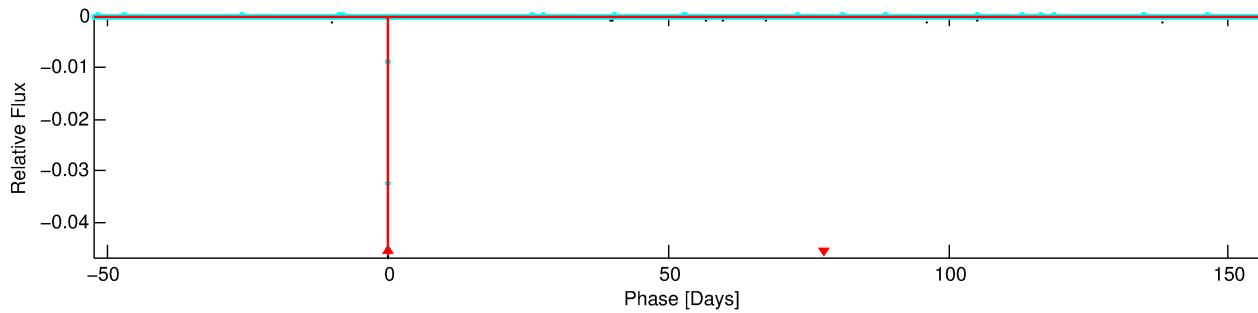
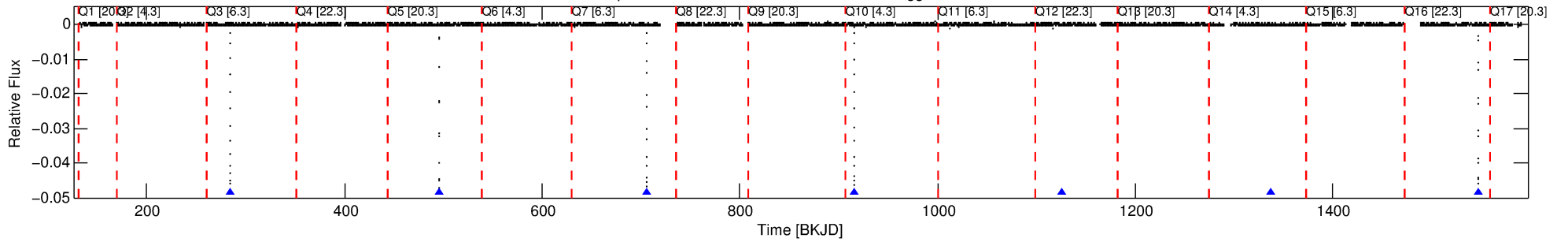
## Ephemeris Match Information For 005130740-01

No Significant Match Found

# DV One-Page Summary

KIC: 5130740 Candidate: 1 of 1 Period: 210.306 d  
KOI: K03583.01 Corr: 0.997

Kp: 12.50 R\*: 2.02 Rs Teff: 7591.0 K Logg: 4.05 Fe/H: -0.080



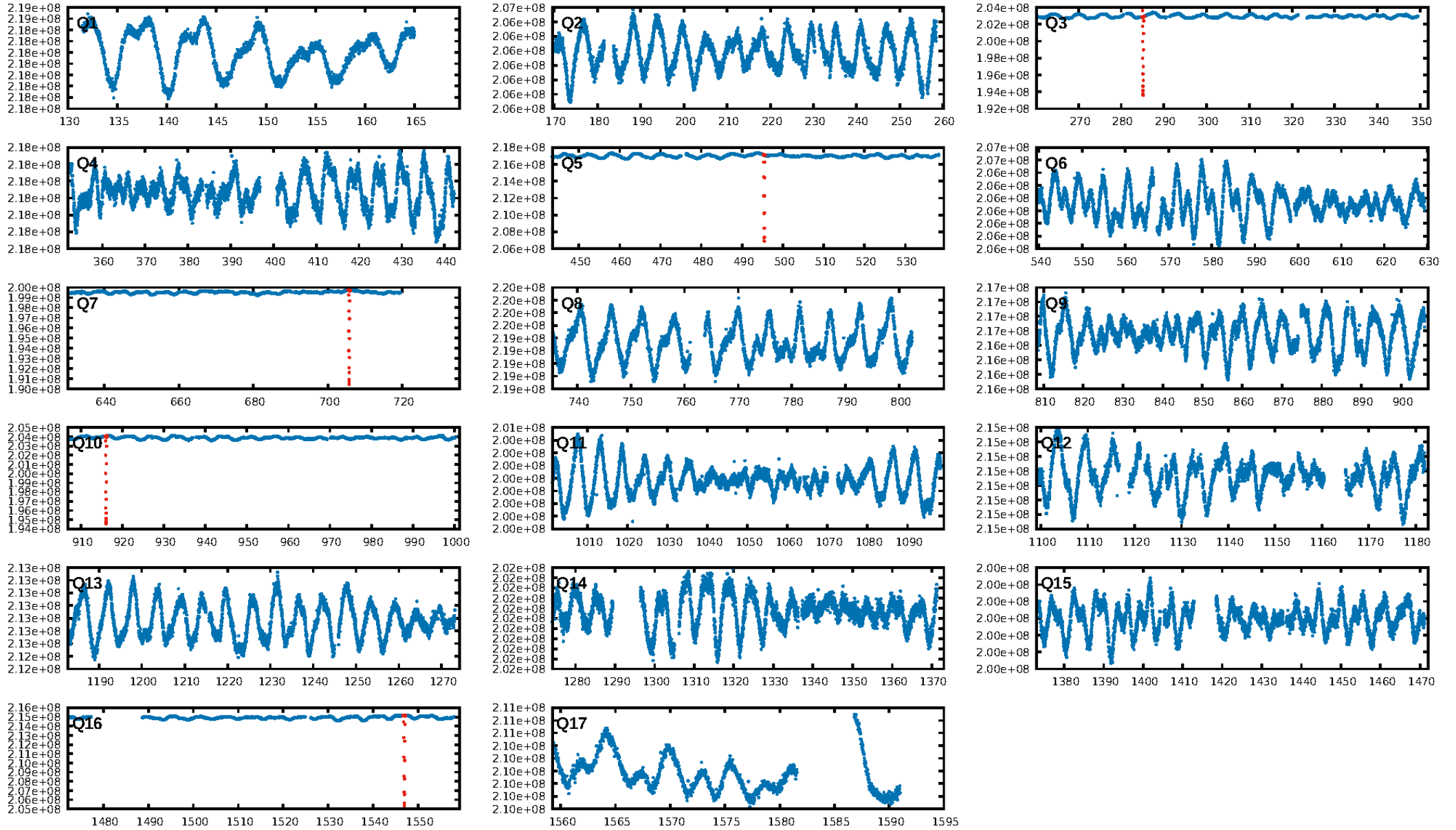
## DV Fit Results:

Period = 210.30638 [0.00003] d  
Epoch = 285.1271 [0.0001] BKJD  
Rp/R\* = 0.3055 [0.0131]  
a/R\* = 213.93 [0.63]  
b = 0.96 [0.02]  
Seff = 17.98 [6.85]  
Teq = 525 [50] K  
Rp = 67.25 [17.74] Re  
a = 0.8205 [0.1848] AU  
Ag = 7.47 [3.72] [1.74σ]  
Teffp = 1342 [137] K [5.59σ]

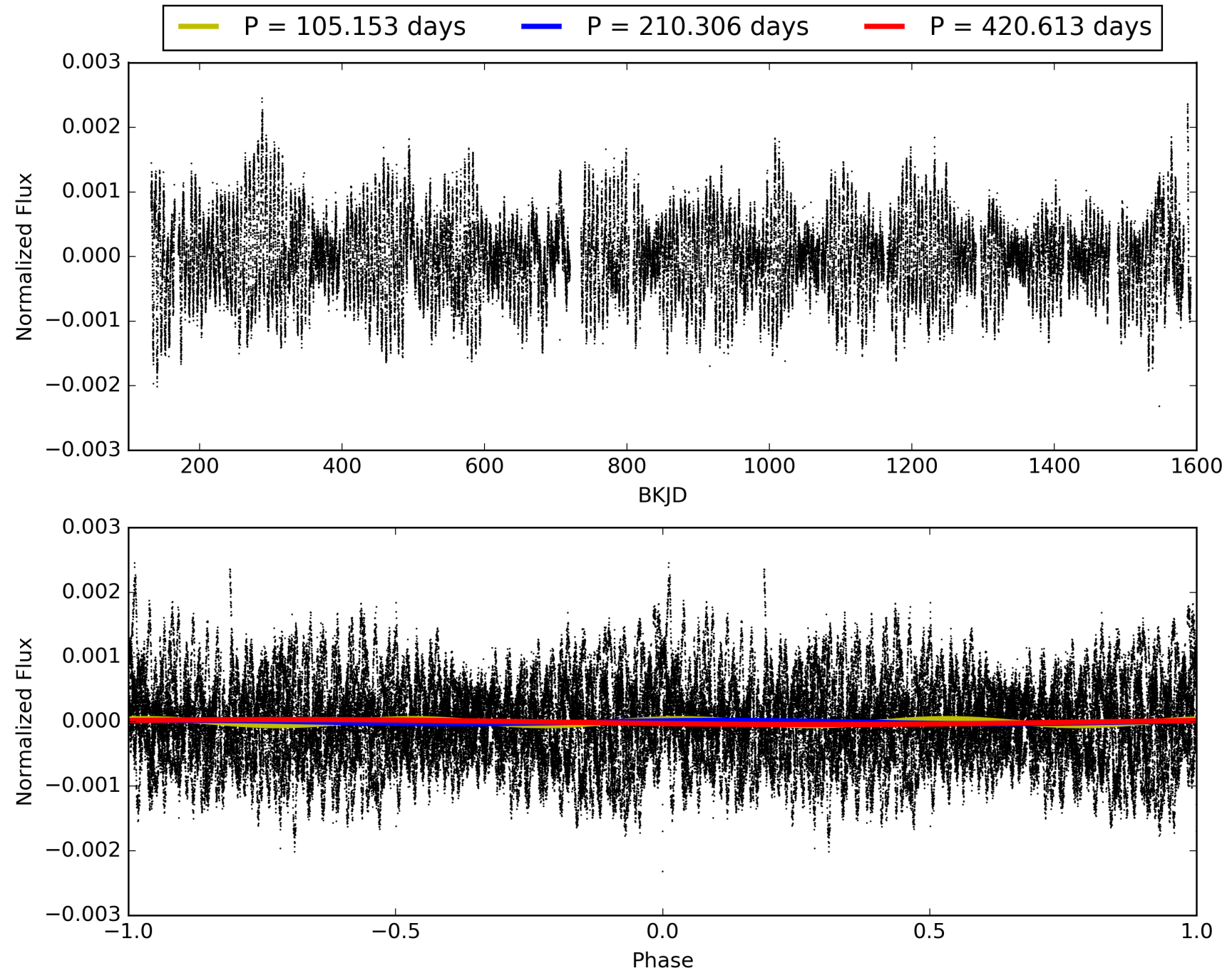
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 12.1%  
ModelChiSquareGof-sig: 35.9%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 5.423  
Centroid-sig: 0.0%  
Centroid-so: 1.236 arcsec [94.16σ]  
OotOffset-rm: 0.033 arcsec [0.46σ]  
KicOffset-rm: 0.130 arcsec [1.53σ]  
OotOffset-st: 1/2/0/1 [4]  
KicOffset-st: 1/2/0/1 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

# TCE 005130740-01, PDC Light Curves

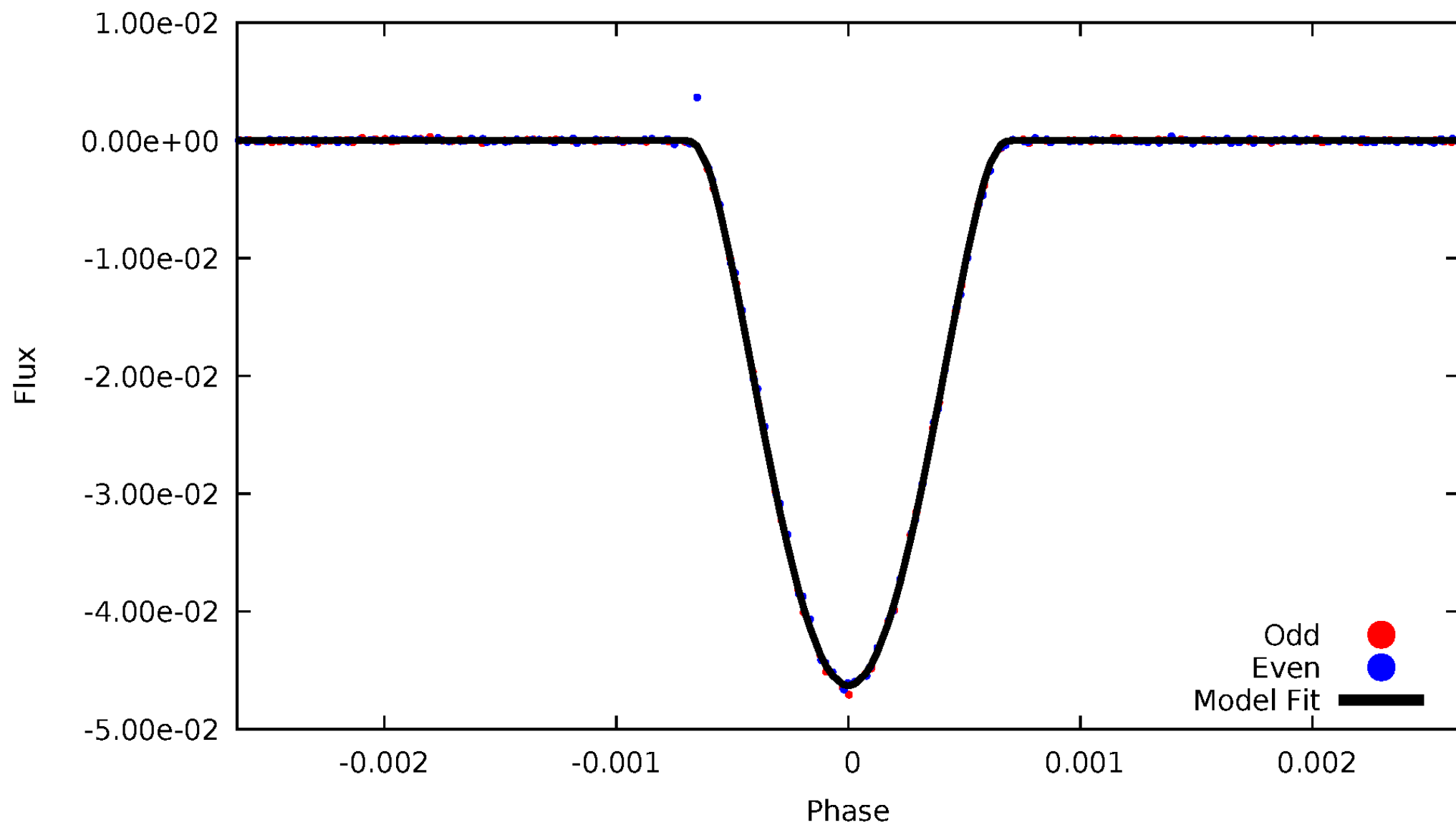


TCE 005130740-01



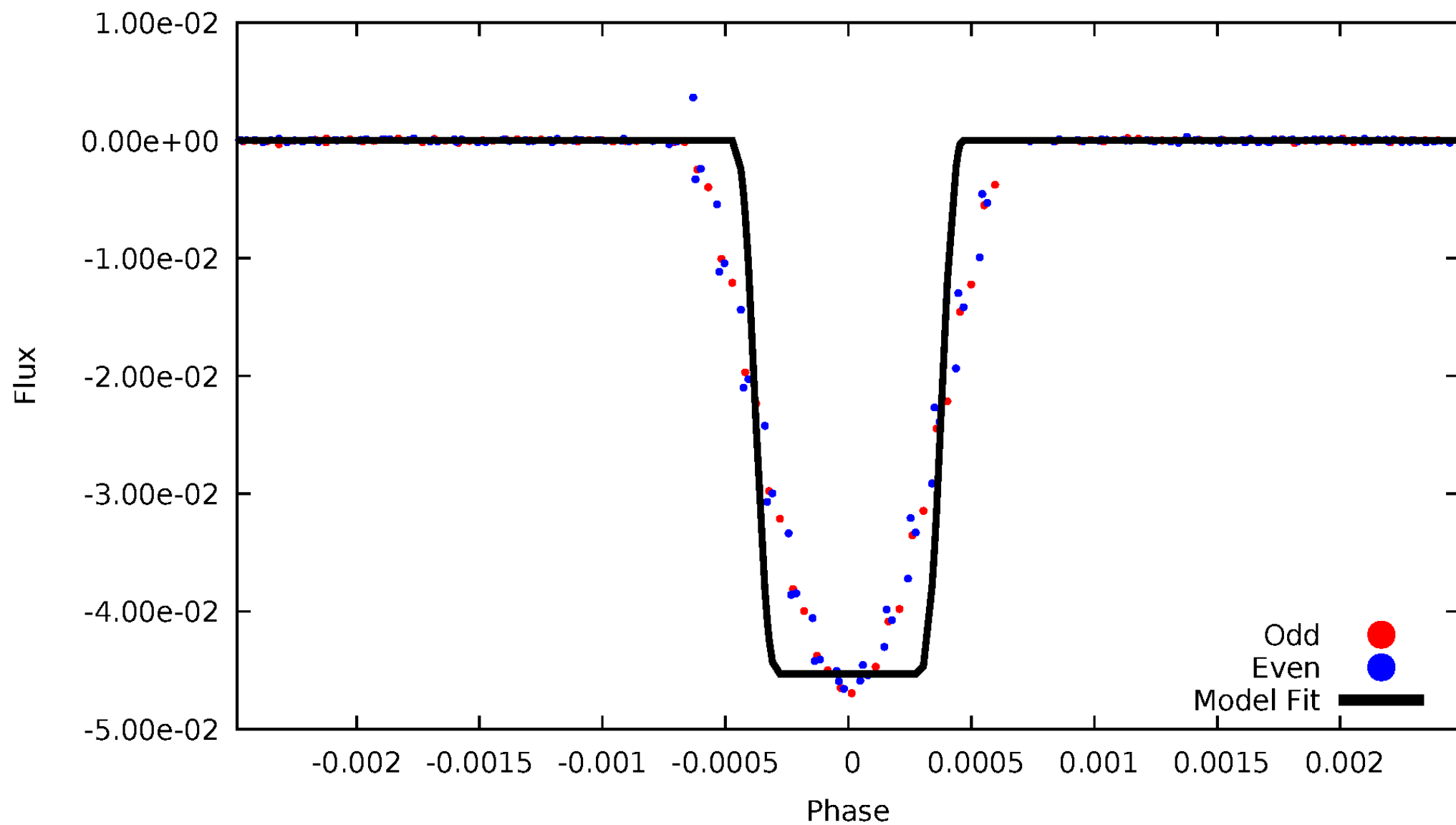
# DV Odd/Even

TCE 005130740-01



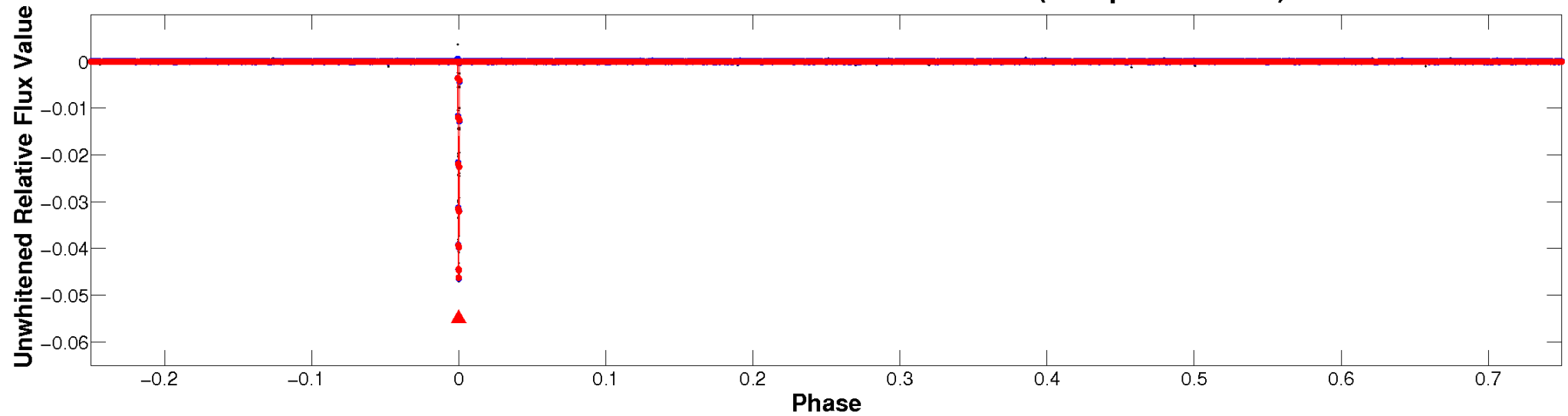
# ALT Odd/Even

TCE 005130740-01

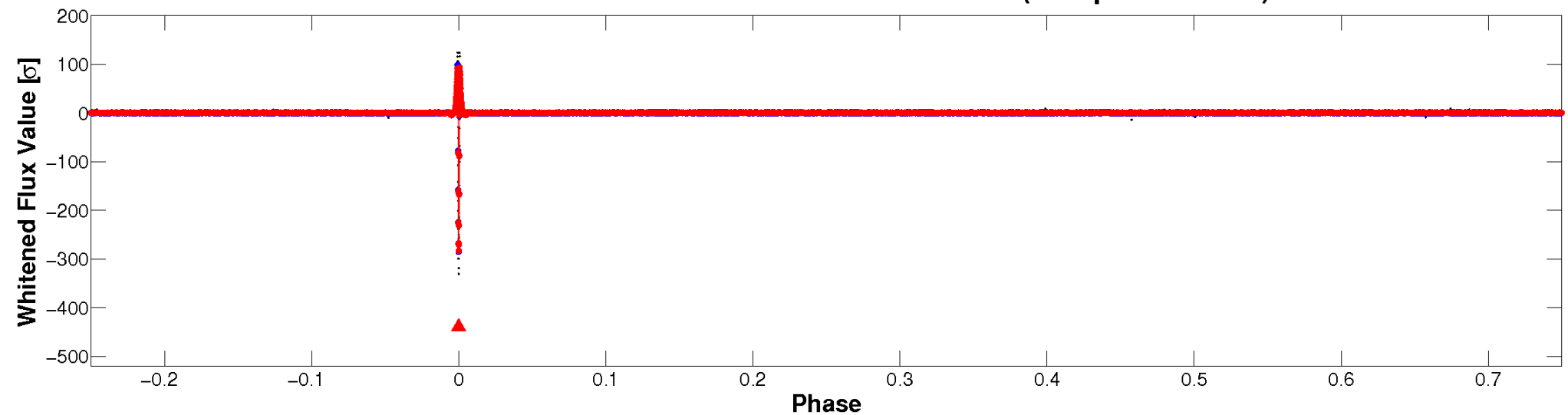


# Non-Whitened Vs. Whitened Light Curve

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

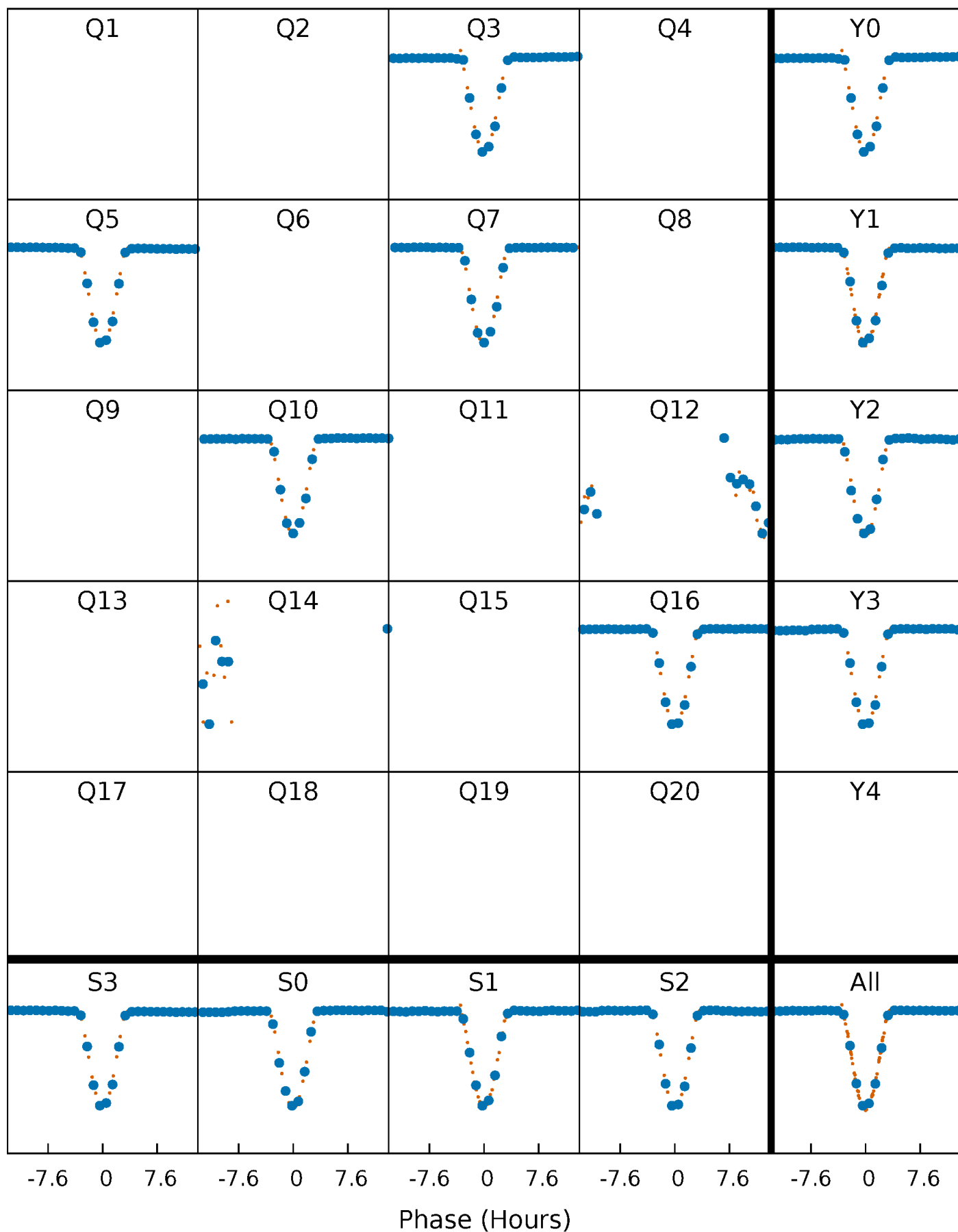


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

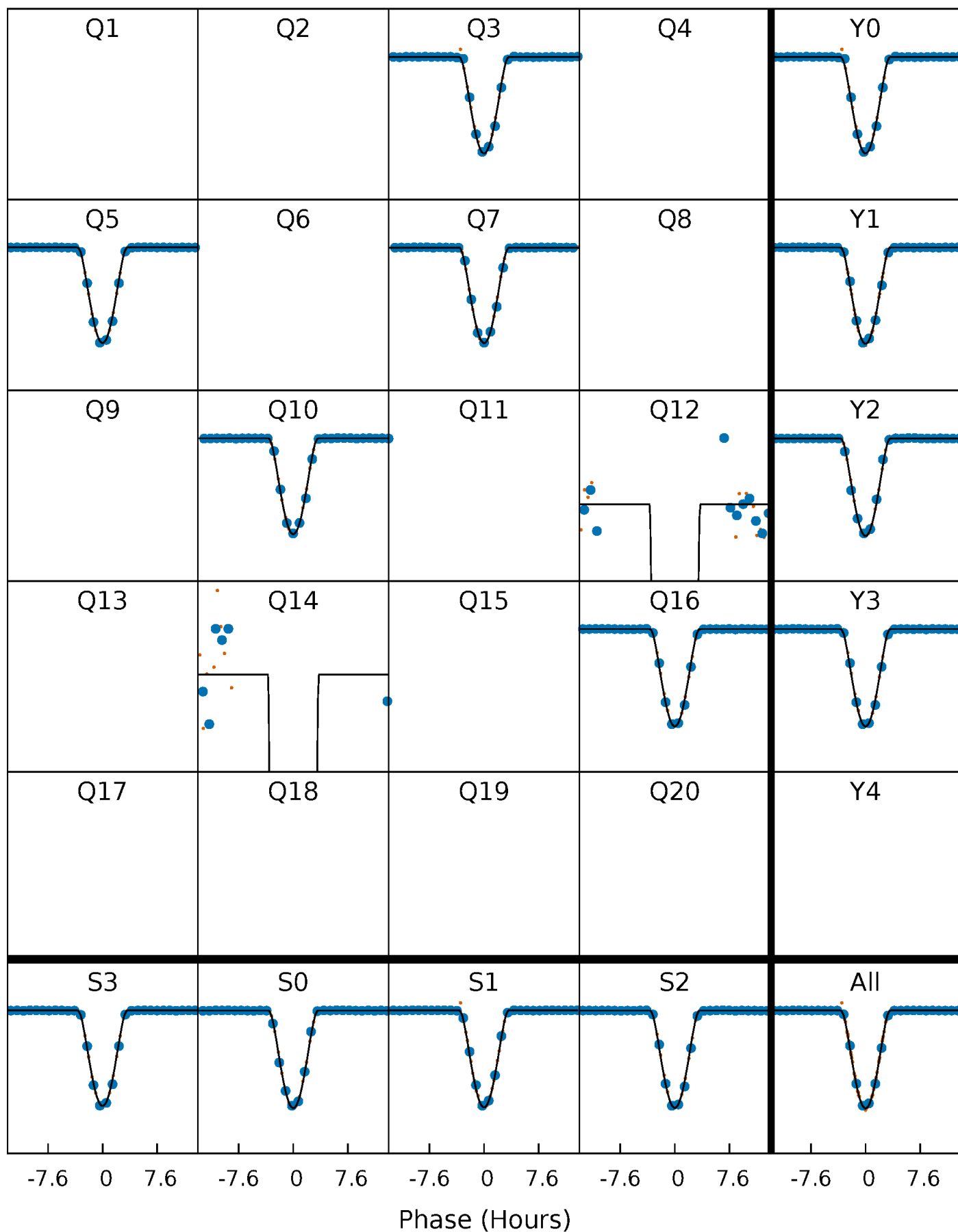
TCE 005130740-01 P=210.306384 Days  $T_0=285.127146$  (BKJD)





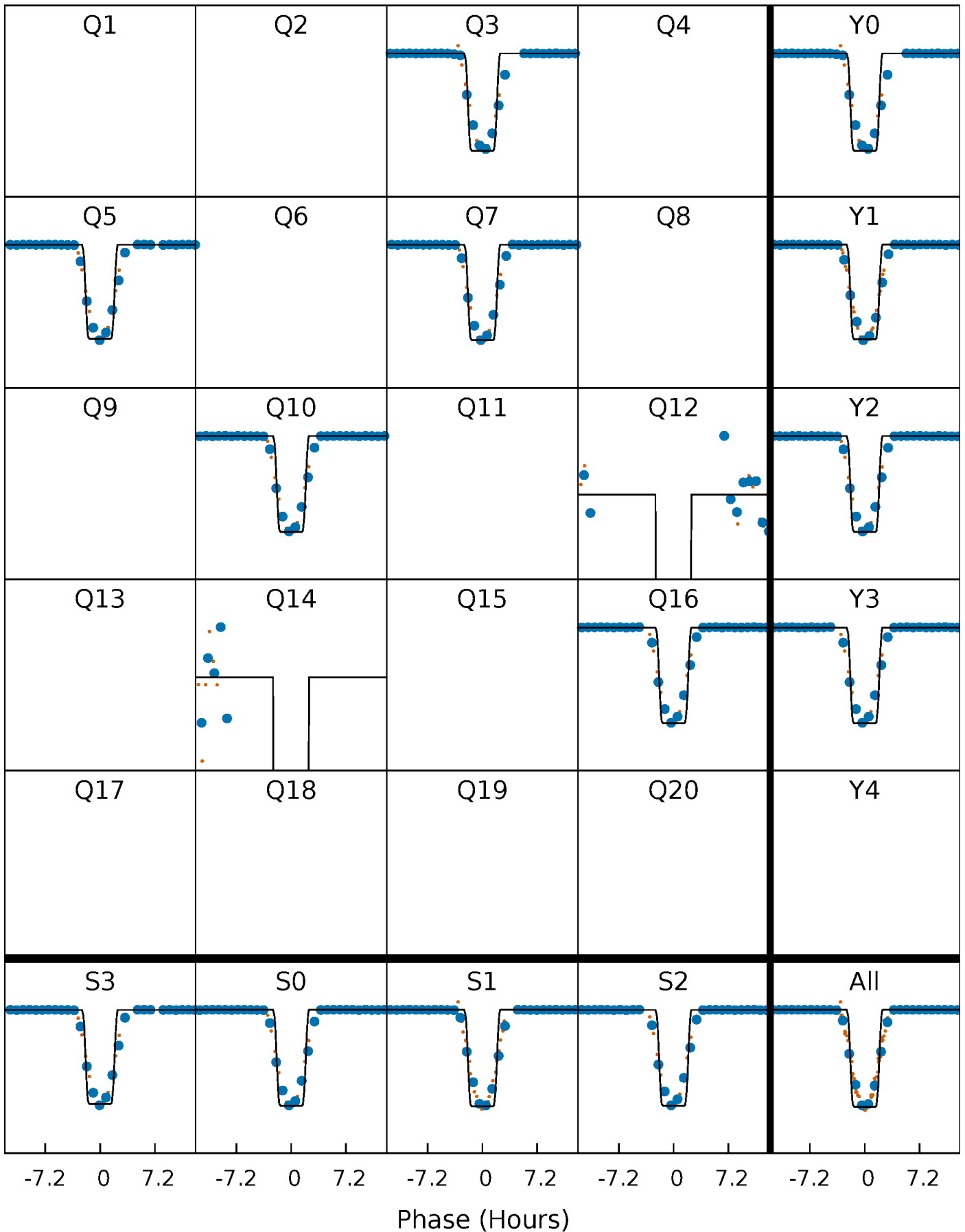
# DV Quarter-Phased Transit Curves

TCE 005130740-01 P=210.306384 Days  $T_0=285.127146$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

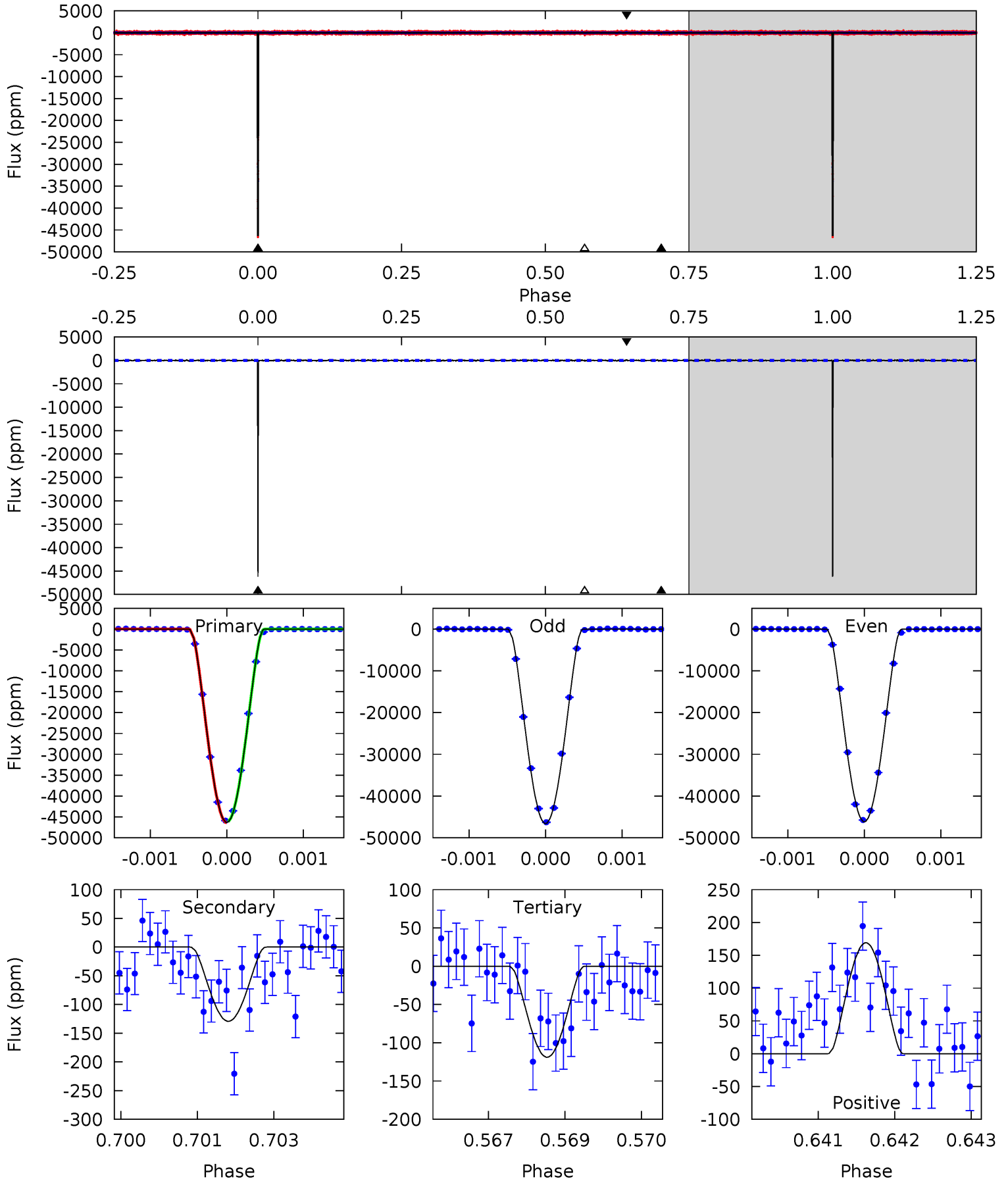
TCE 005130740-01 P=210.308357 Days  $T_0=285.122796$  (BKJD)



# DV Model-Shift Uniqueness Test

005130740-01, P = 210.306384 Days, E = 74.820762 Days

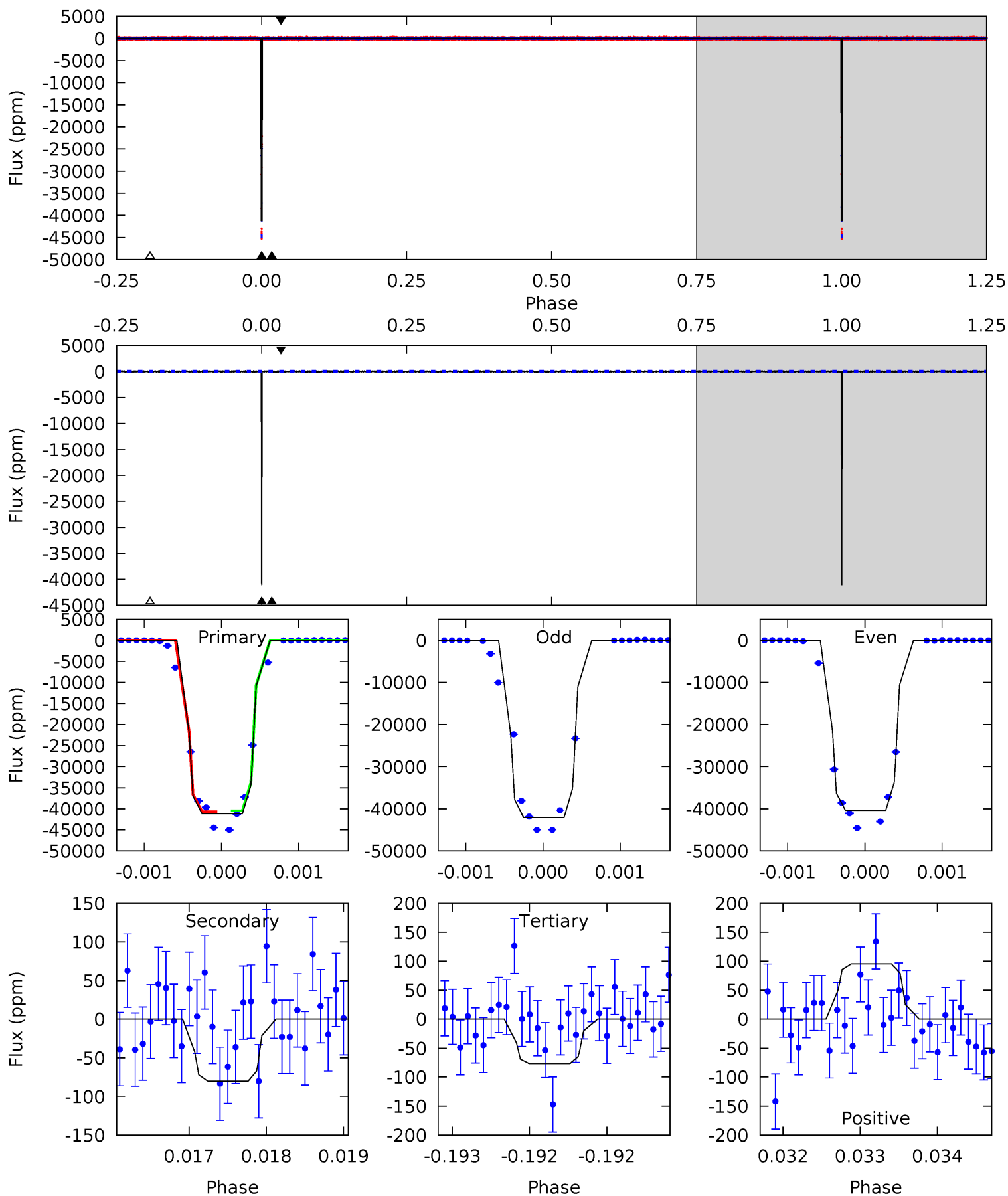
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3066	8.56	7.87	11.2	5.39	3.19	2.40	3058	3054	0.69	-2.64	14.8	1.00	0.00	8.67



# Alt Model-Shift Uniqueness Test

005130740-01, P = 210.308357 Days, E = 74.814439 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
1917	3.74	3.57	4.45	5.47	3.32	1.06	1914	1913	0.17	-0.70	43.1	1.00	0.00	0



### Stellar Parameters For KIC 005130740

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7591^{+211}_{-343}$	$4.050^{+0.187}_{-0.153}$	$-0.080^{+0.150}_{-0.400}$	$2.017^{+0.525}_{-0.525}$	$1.665^{+0.198}_{-0.322}$	$0.286^{+0.311}_{-0.130}$
	+3%/-5%	+5%/-4%	+188%/-500%	+26%/-26%	+12%/-19%	+109%/-45%
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 005130740-01 / KOI 3583.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	-129±15	$66.77^{+10.16}_{-9.33}$	$727^{+56}_{-53}$	$2334^{+51}_{-56}$	$11^{+3}_{-3}$
Alt.	-80±21	$46.80^{+6.81}_{-7.39}$	$727^{+52}_{-53}$	$2402^{+95}_{-112}$	$14^{+6}_{-5}$

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

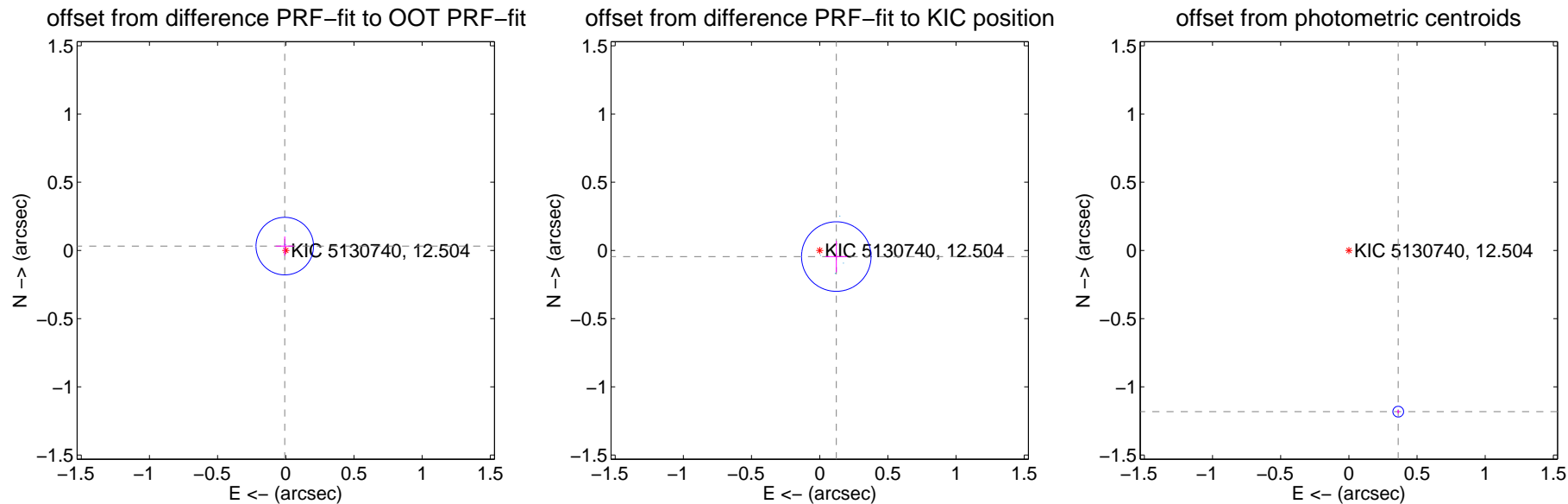
## DV Centroid Data

Supplemental centroid analysis for 005130740-01. Kepler magnitude: 12.50. Transit SNR 1345.00

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.033 \pm 0.070$	0.46	$0.007 \pm 0.067$	$0.032 \pm 0.071$
PRF-fit source offset from KIC position	$0.130 \pm 0.085$	1.53	$-0.122 \pm 0.080$	$-0.045 \pm 0.115$
photometric centroid source offset	$1.24 \pm 0.01$	94.16	$-0.36 \pm 0.01$	$-1.18 \pm 0.01$



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.

Q1 no difference image



Q1 no OOT image



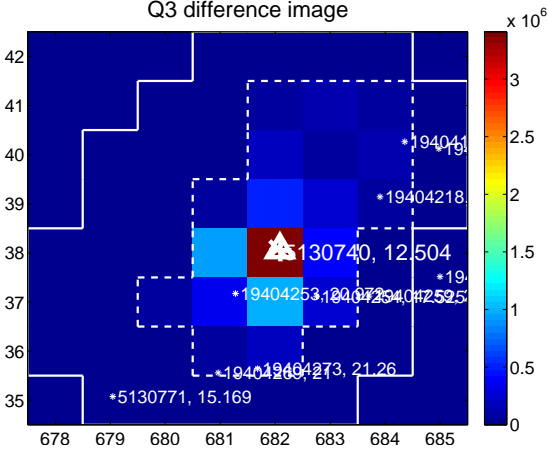
Q2 no difference image



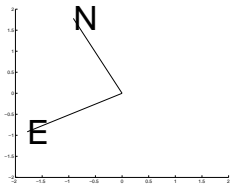
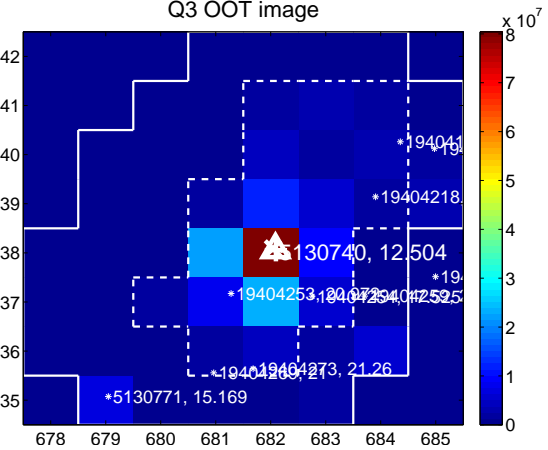
Q2 no OOT image



Q3 difference image



Q3 OOT image



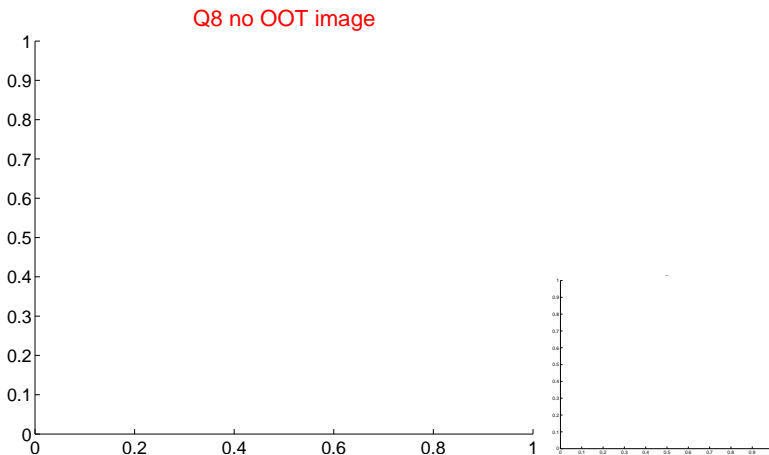
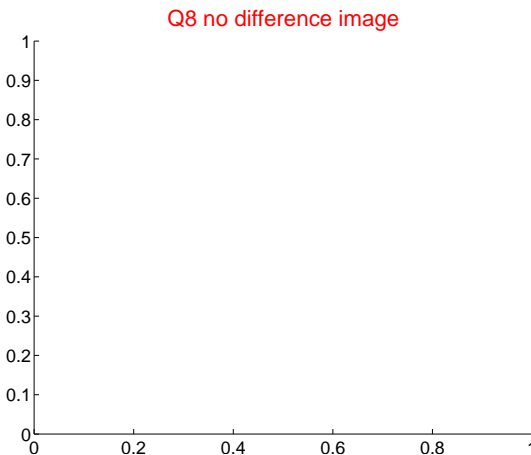
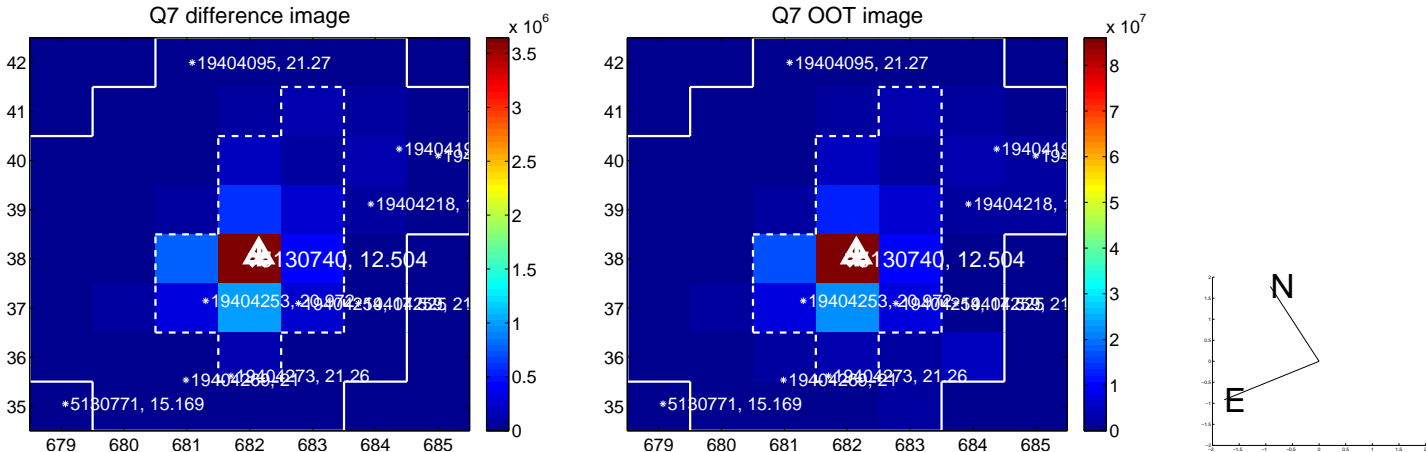
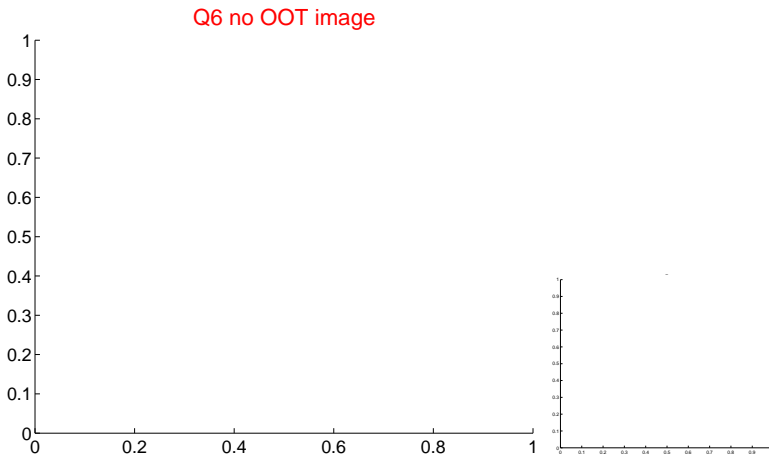
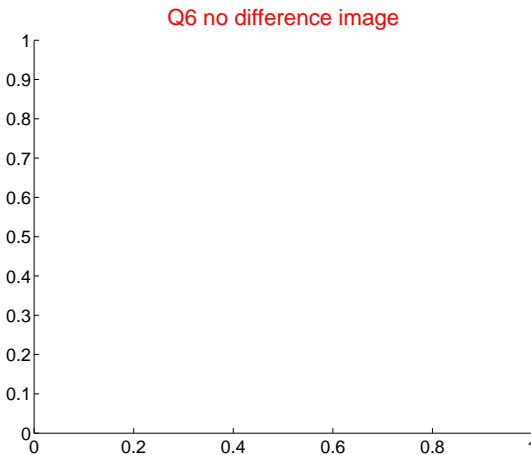
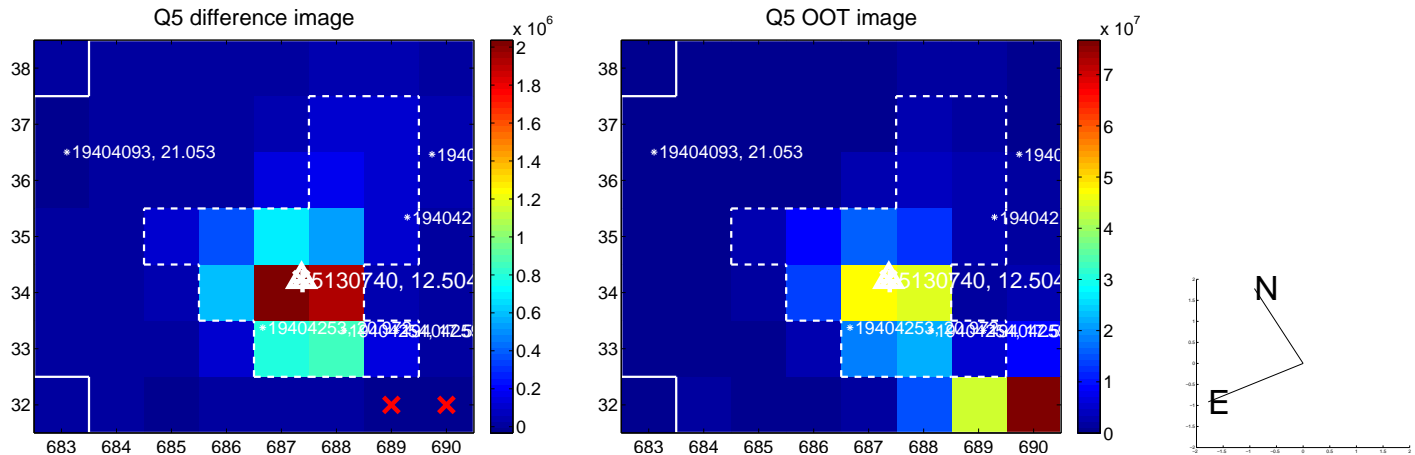
Q4 no difference image



Q4 no OOT image

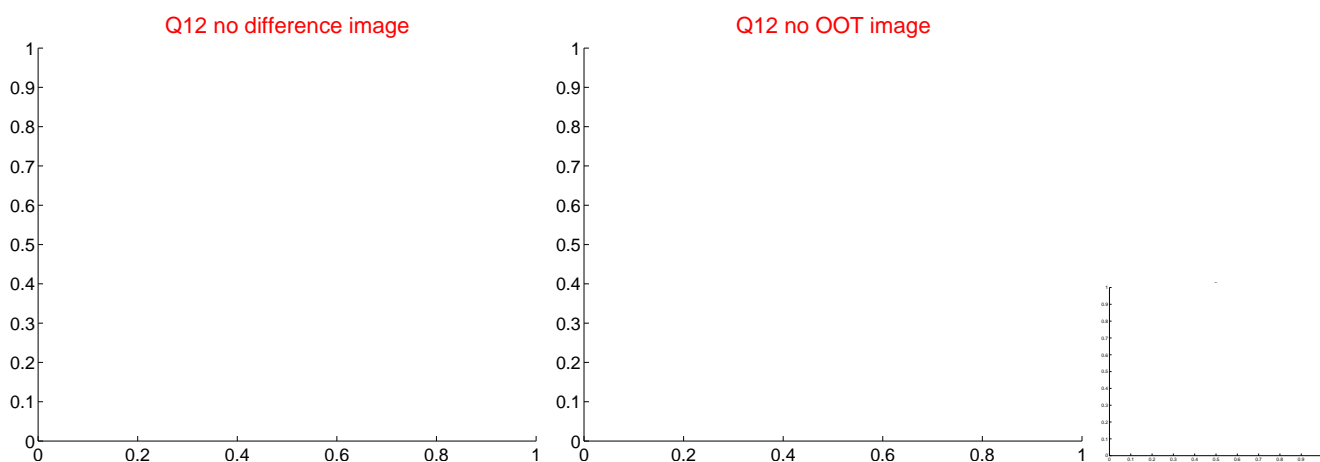
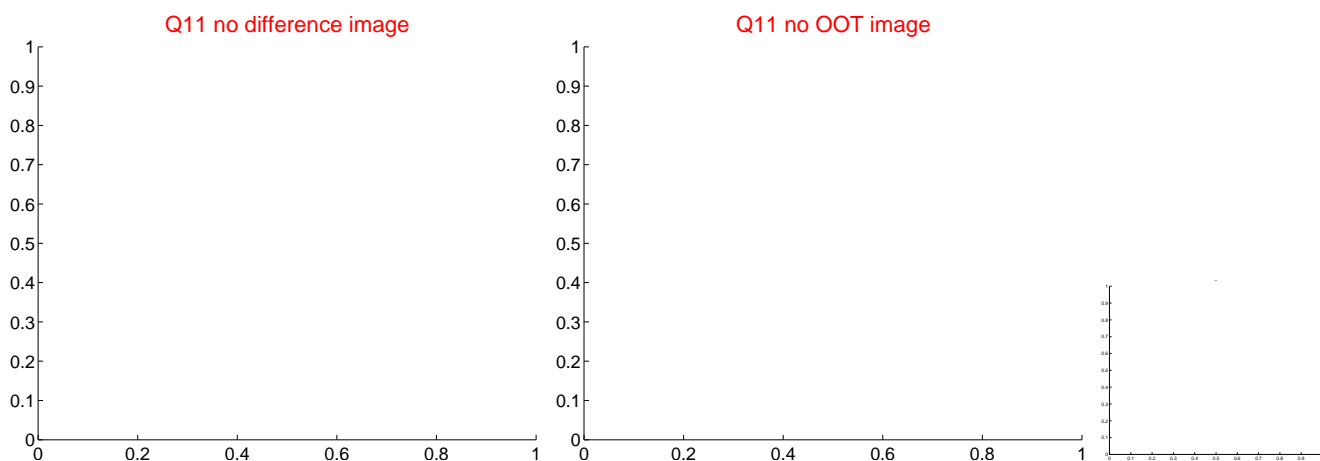
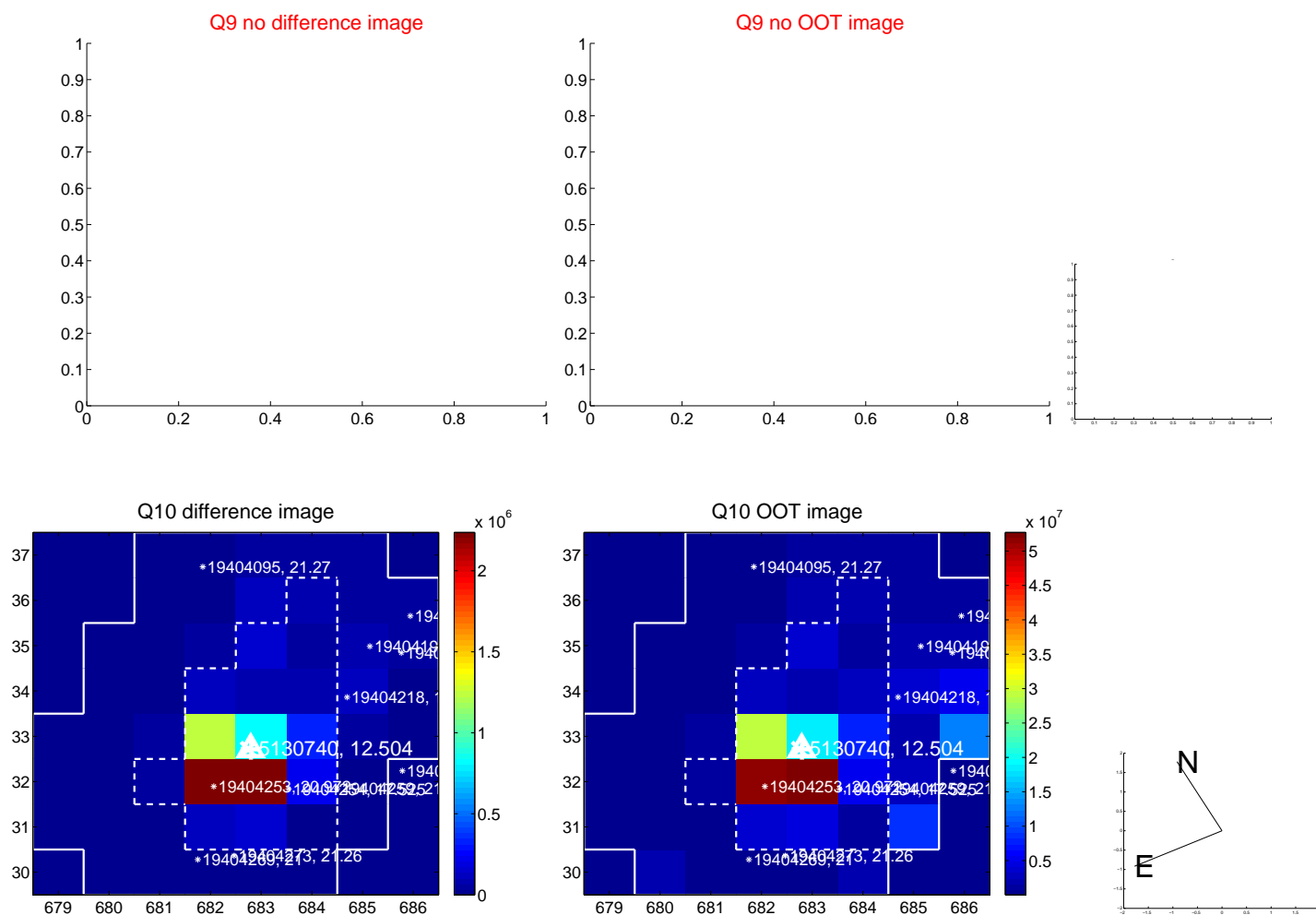


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value





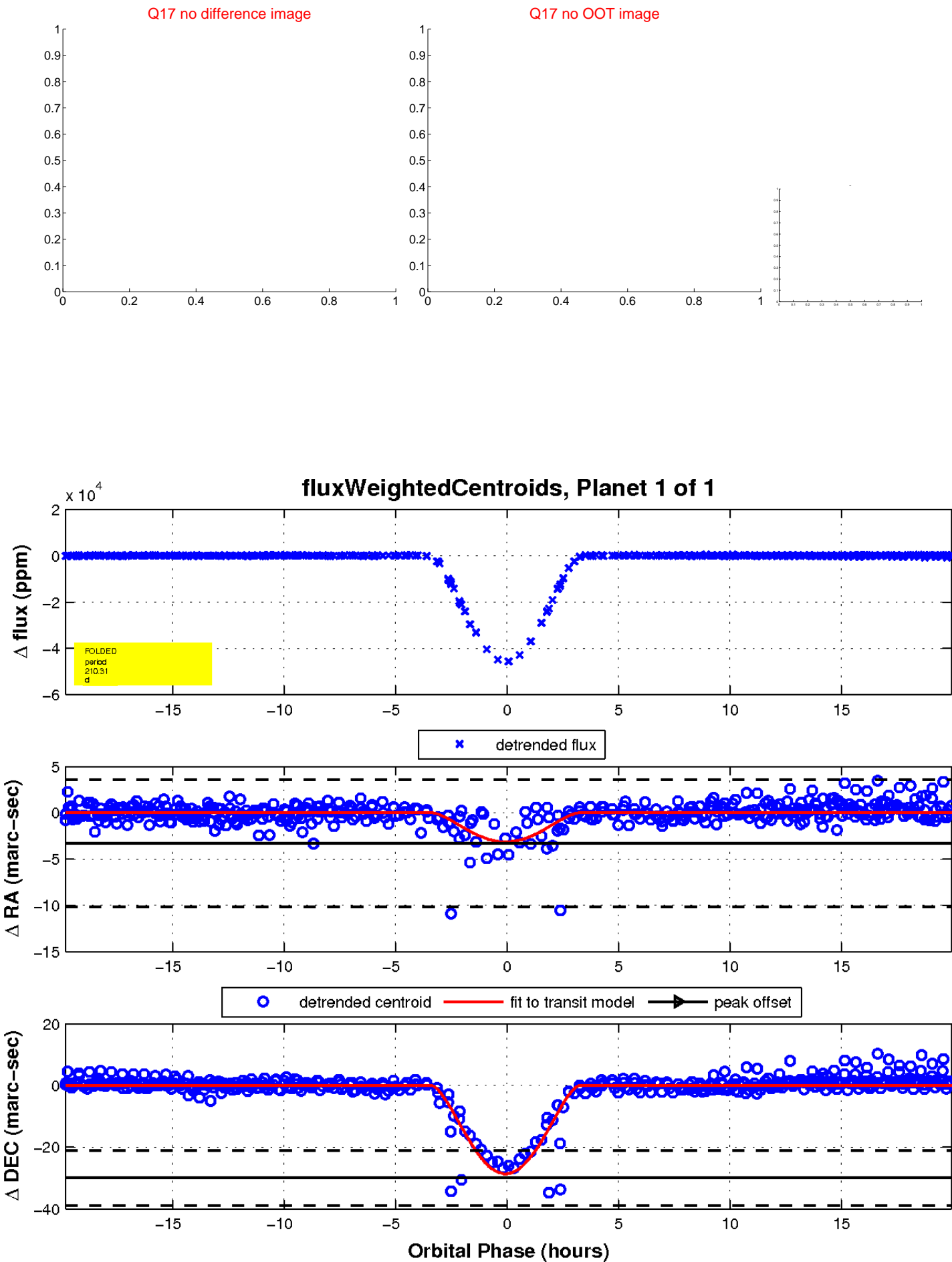
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

