

# KIC 006049190

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006049190-01	OBS	1685.01	70.468314	189.155733	911.9	6.951	38.2	40.3	1.13	6461	3.75	16.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006049190-01	OBS	PC	0.36	0	0	0	0	NO_COMMENT

**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.

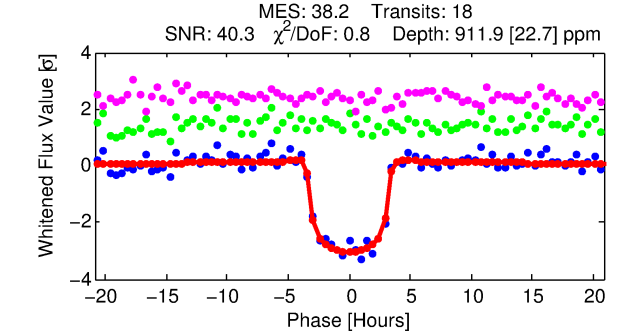
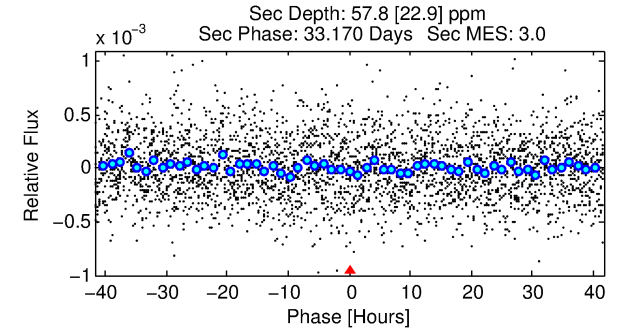
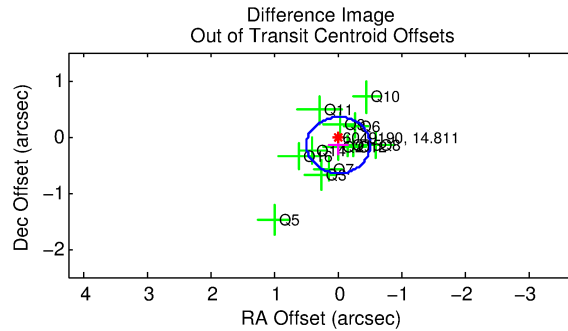
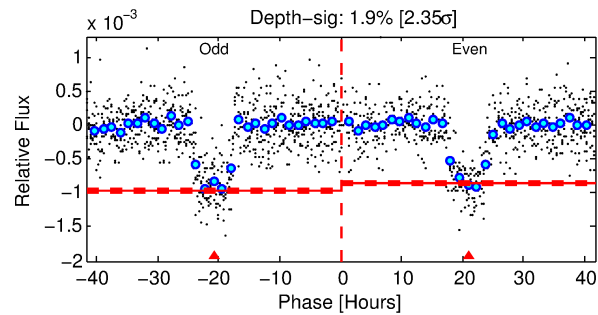
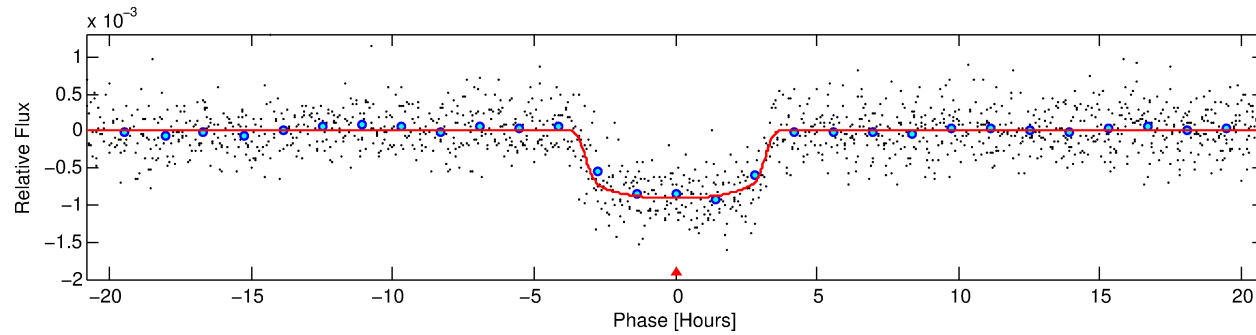
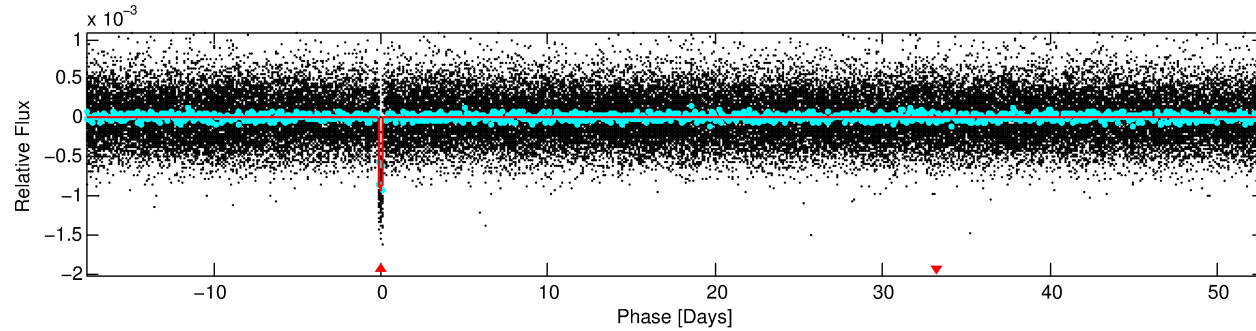
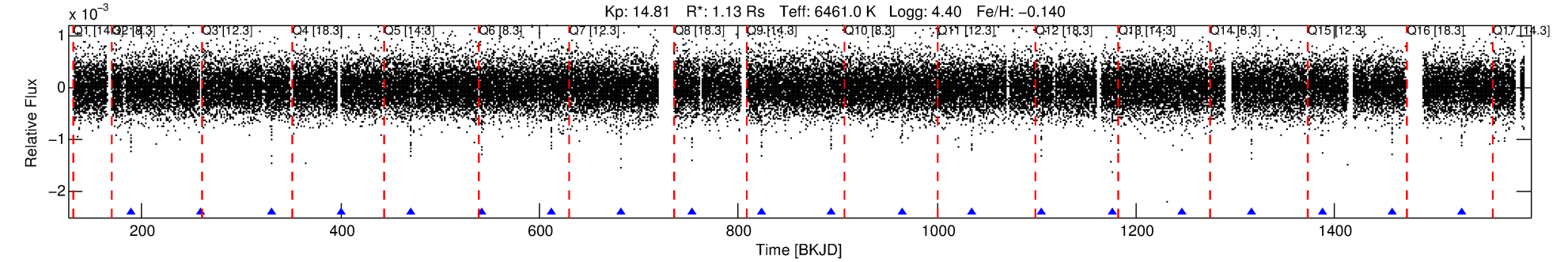
## Ephemeris Match Information For 006049190-01

No Significant Match Found

# DV One-Page Summary

KIC: 6049190 Candidate: 1 of 1 Period: 70.468 d

KOI: K01685.01 Corr: 0.976



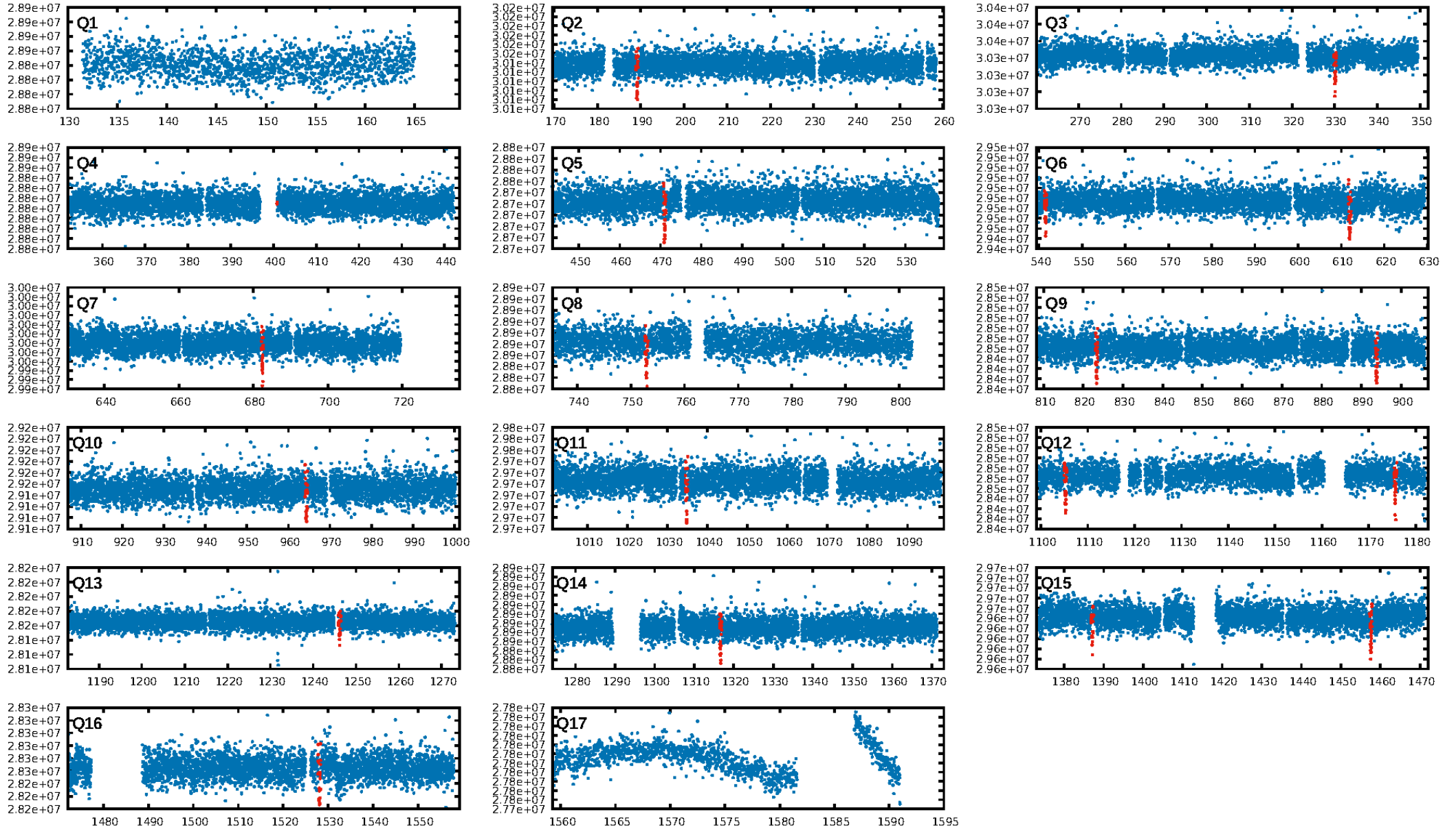
## DV Fit Results:

Period = 70.46831 [0.00030] d  
Epoch = 189.1557 [0.0036] BKJD  
Rp/R\* = 0.0304 [0.0020]  
a/R\* = 51.59 [17.42]  
b = 0.79 [0.17]  
Seff = 16.21 [6.51]  
Teff = 512 [51] K  
Rp = 3.75 [1.23] Re  
a = 0.3510 [0.0928] AU  
Ag = 278.03 [156.31] [1.77σ]  
Teffp = 3230 [355] K [7.57σ]

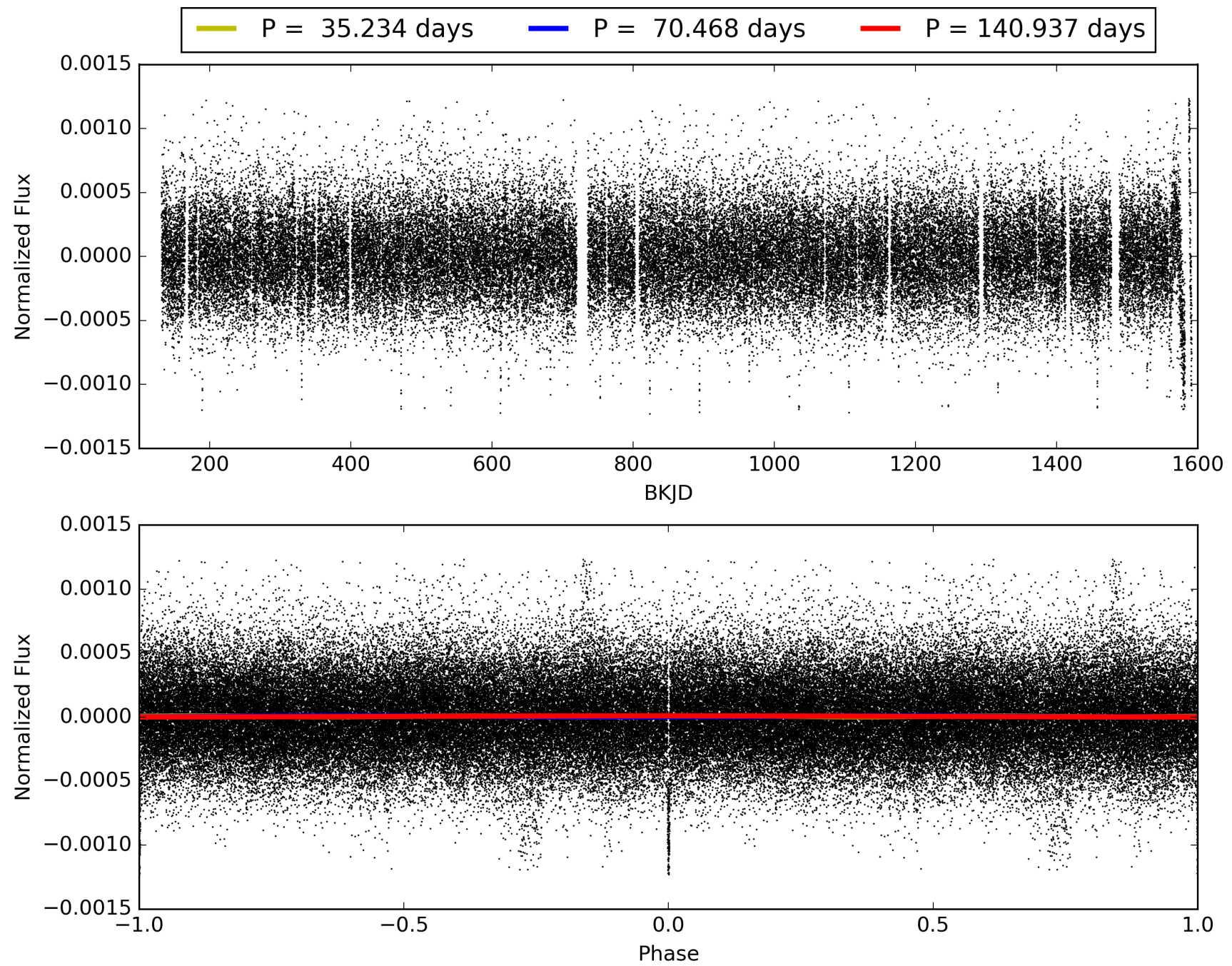
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 78.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 6.08e-292  
RollingBand-fgt: 1.00 [18/18]  
GhostDiagnostic-chr: 8.395  
Centroid-sig: 5.9%  
Centroid-so: 0.290 arcsec [0.76σ]  
OotOffset-rm: 0.153 arcsec [0.92σ]  
KicOffset-rm: 0.115 arcsec [0.76σ]  
OotOffset-st: 4/4/3/2 [13]  
KicOffset-st: 4/4/3/2 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [13/13]

# TCE 006049190-01, PDC Light Curves

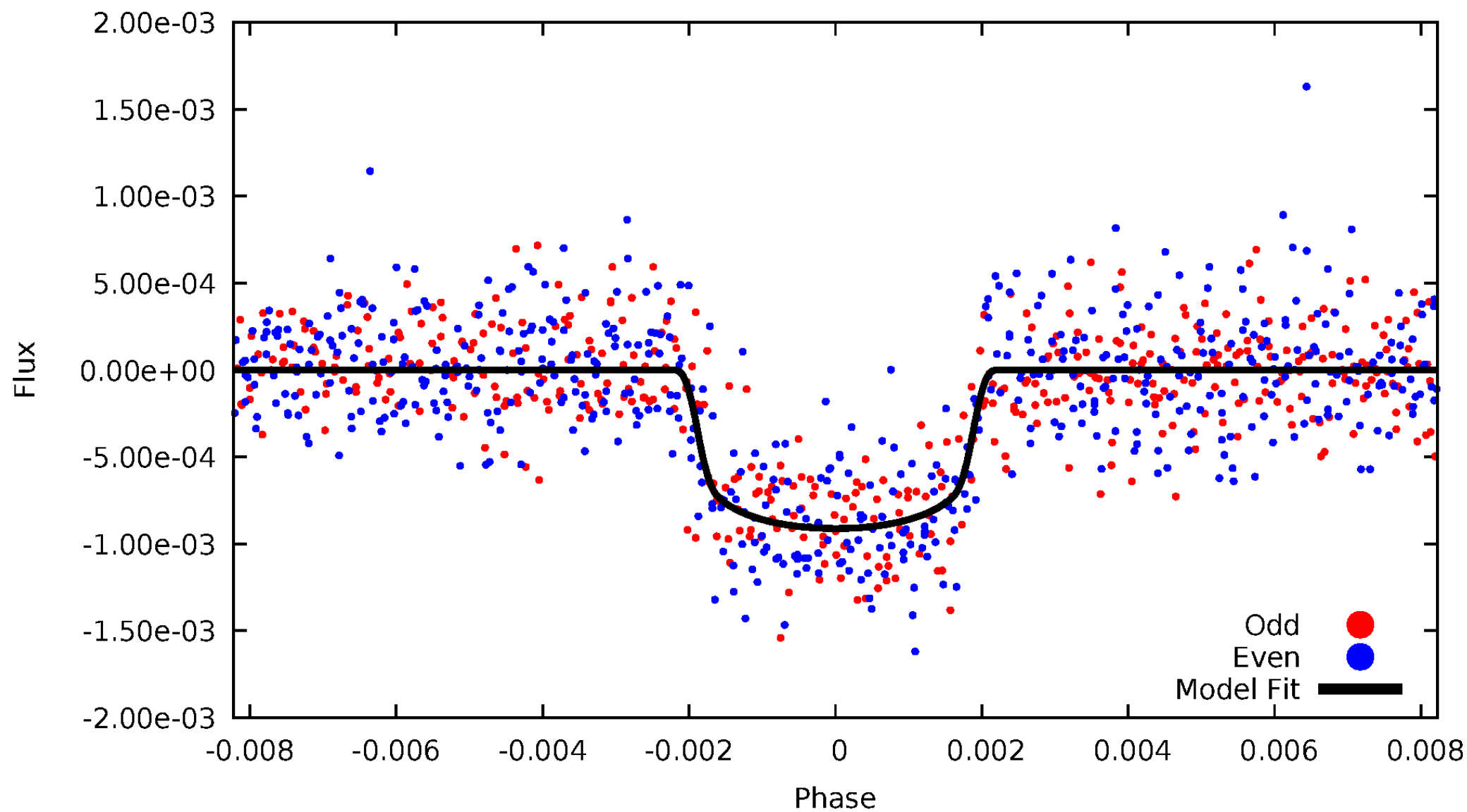


TCE 006049190-01



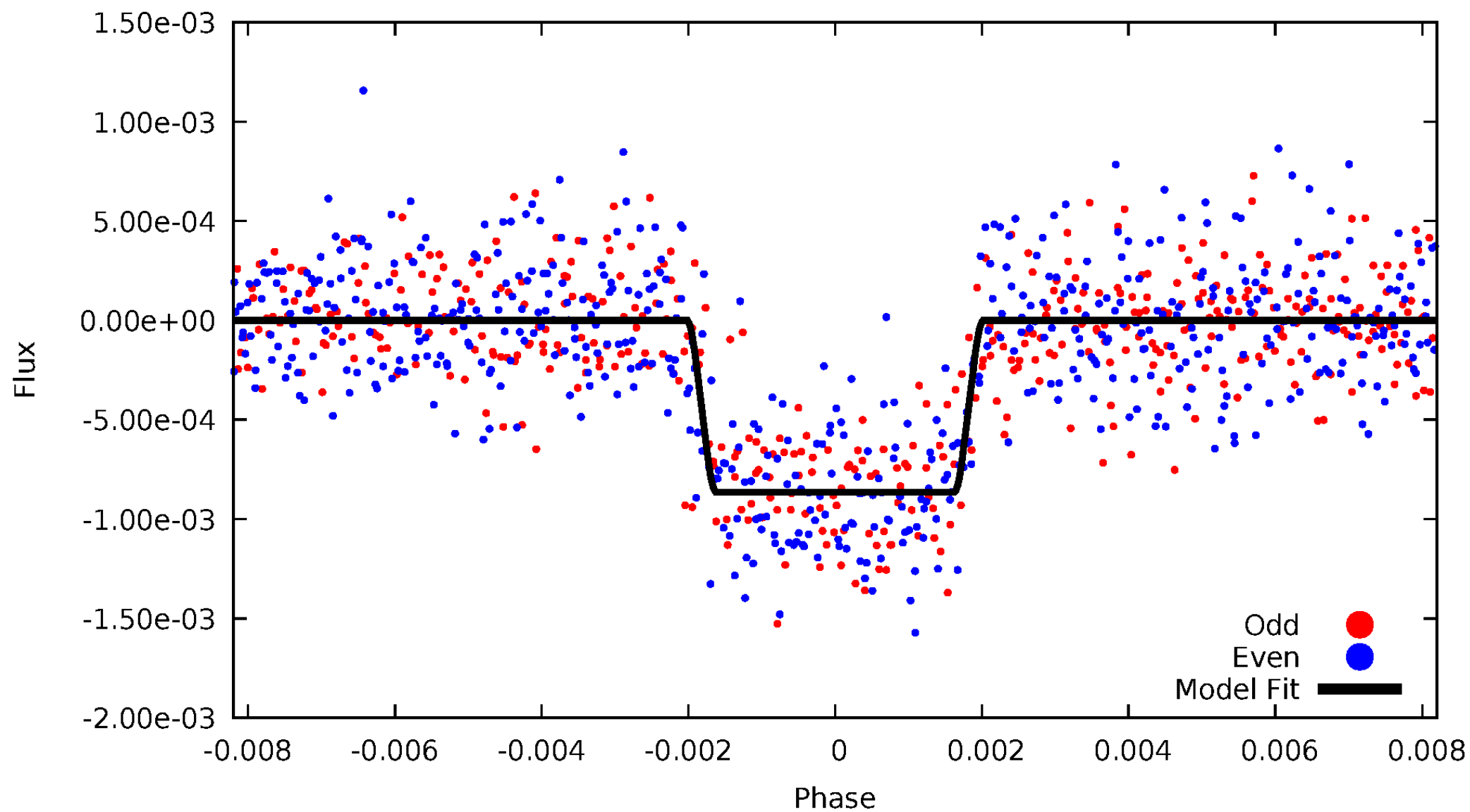
# DV Odd/Even

TCE 006049190-01



# ALT Odd/Even

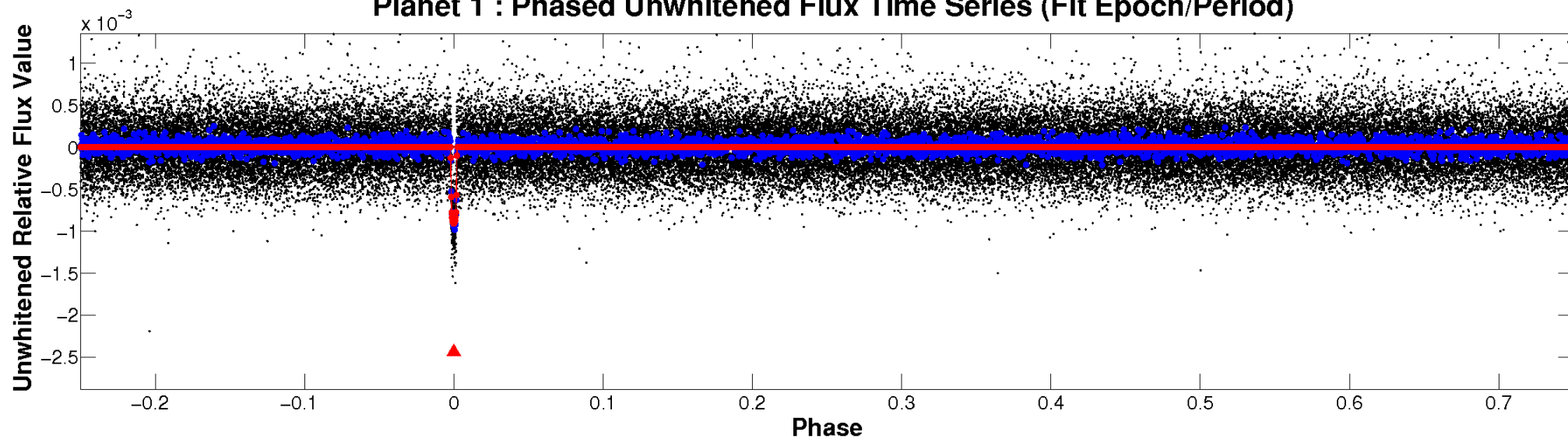
TCE 006049190-01



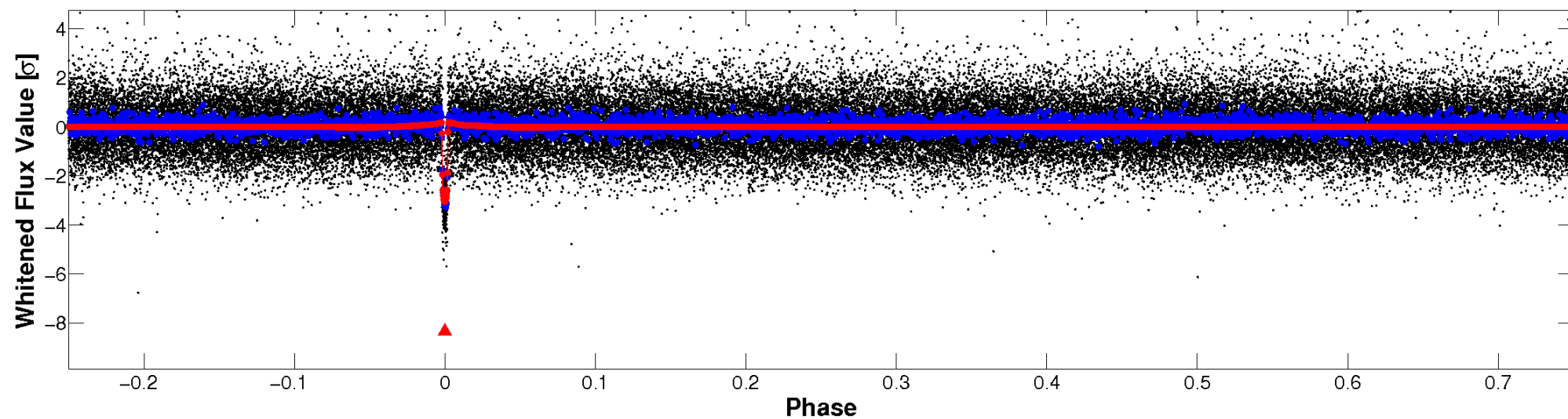


# Non-Whitened Vs. Whitened Light Curve

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

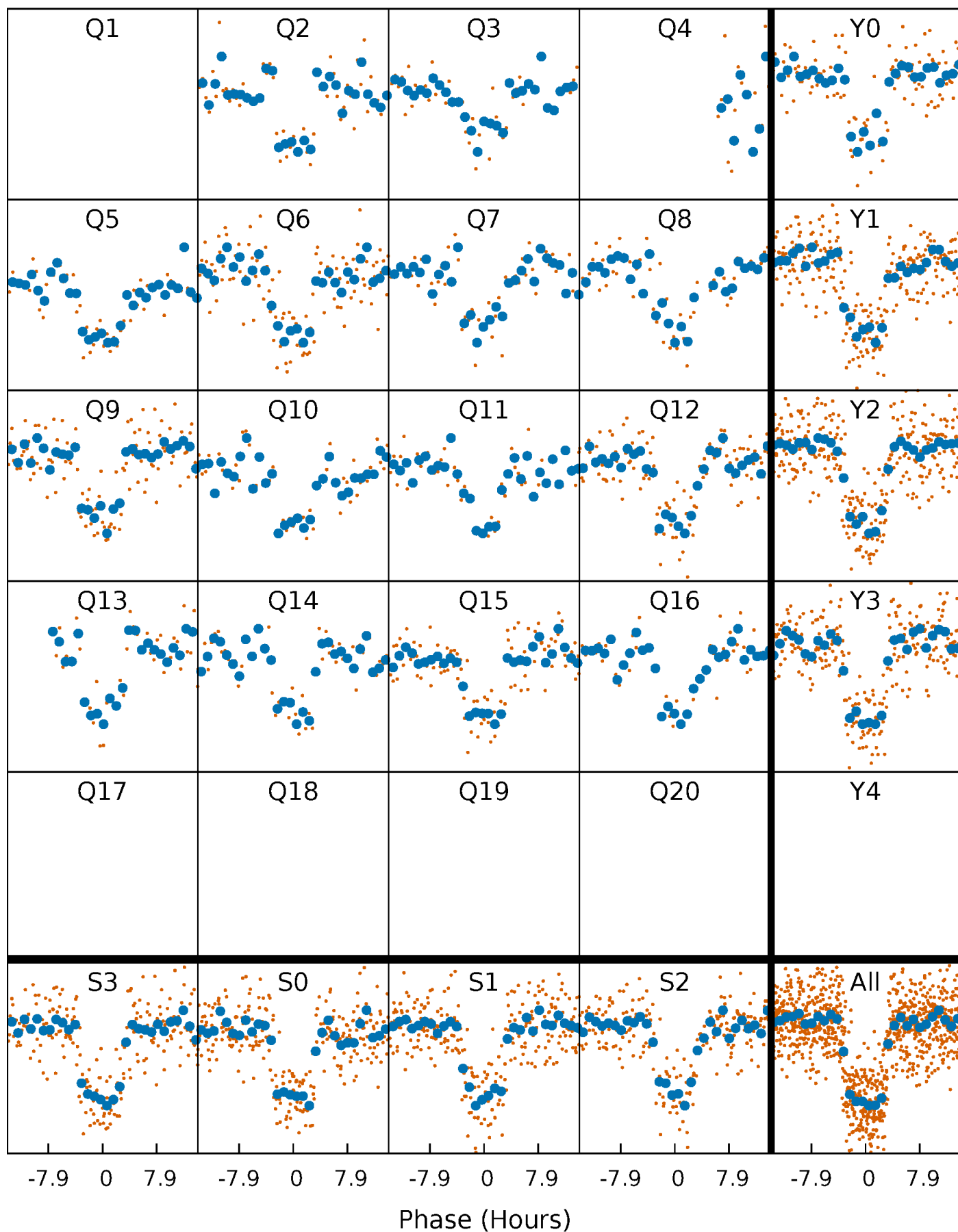


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

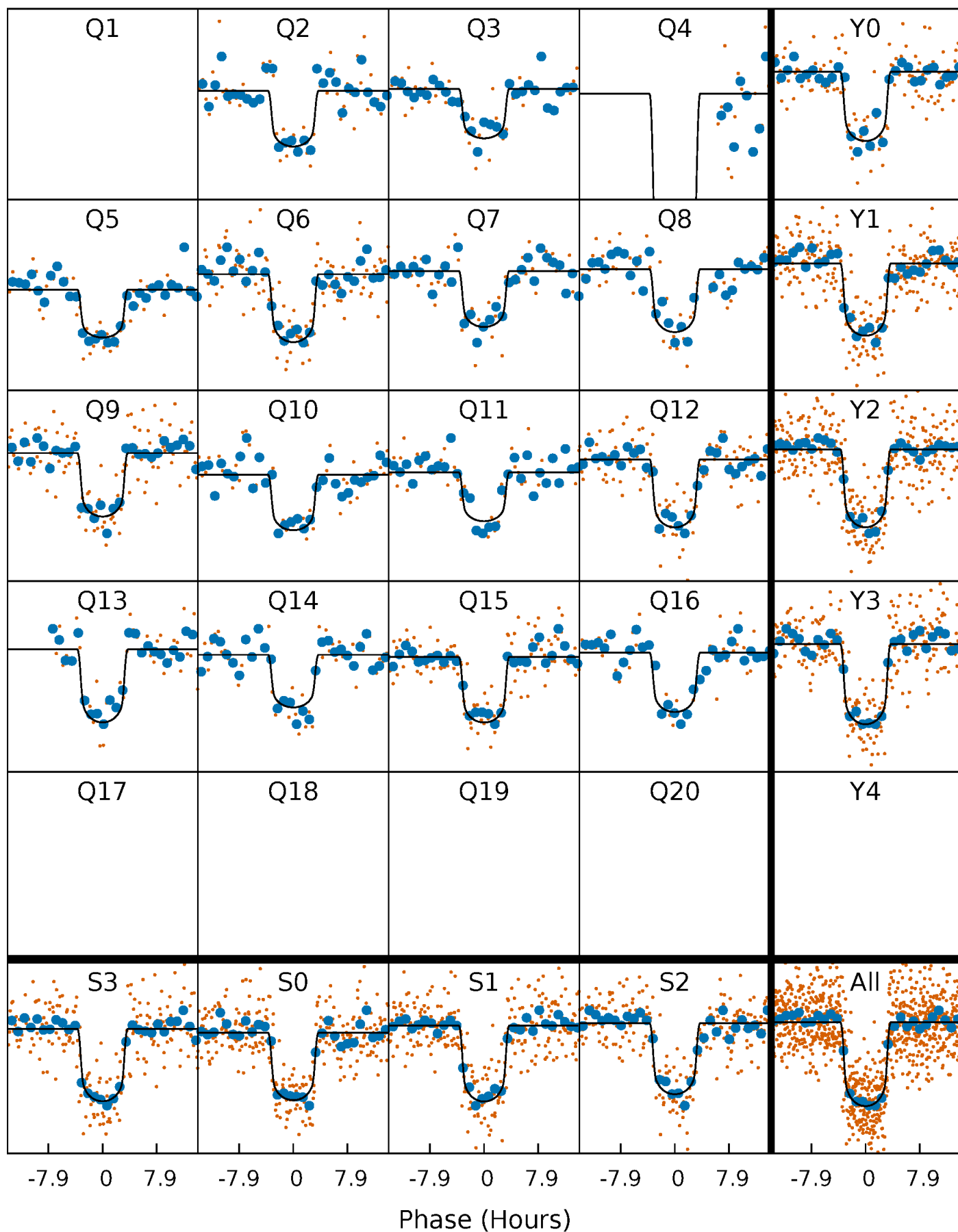
TCE 006049190-01   P= 70.468314 Days    $T_0=189.155733$  (BKJD)





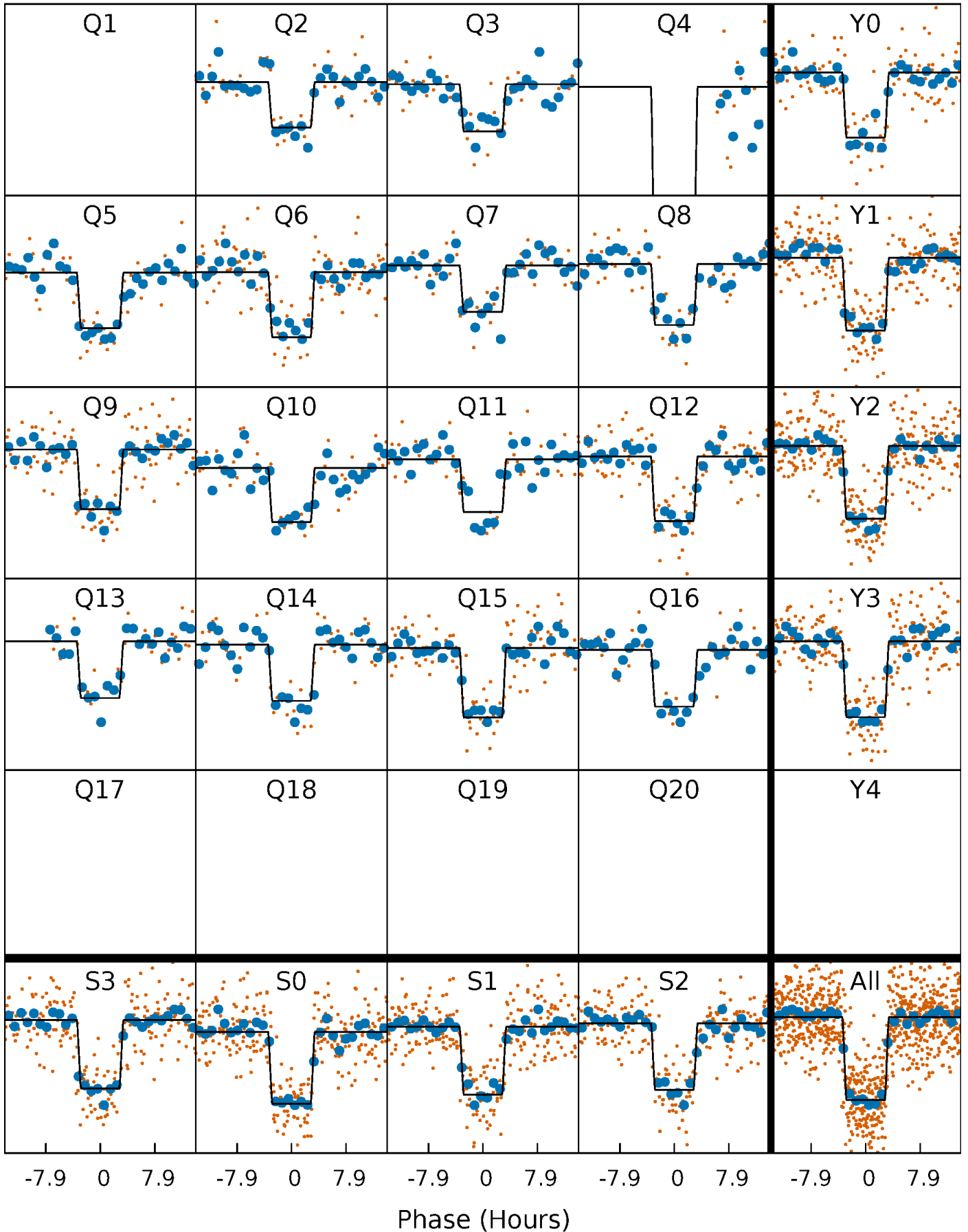
# DV Quarter-Phased Transit Curves

TCE 006049190-01 P= 70.468314 Days  $T_0=189.155733$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

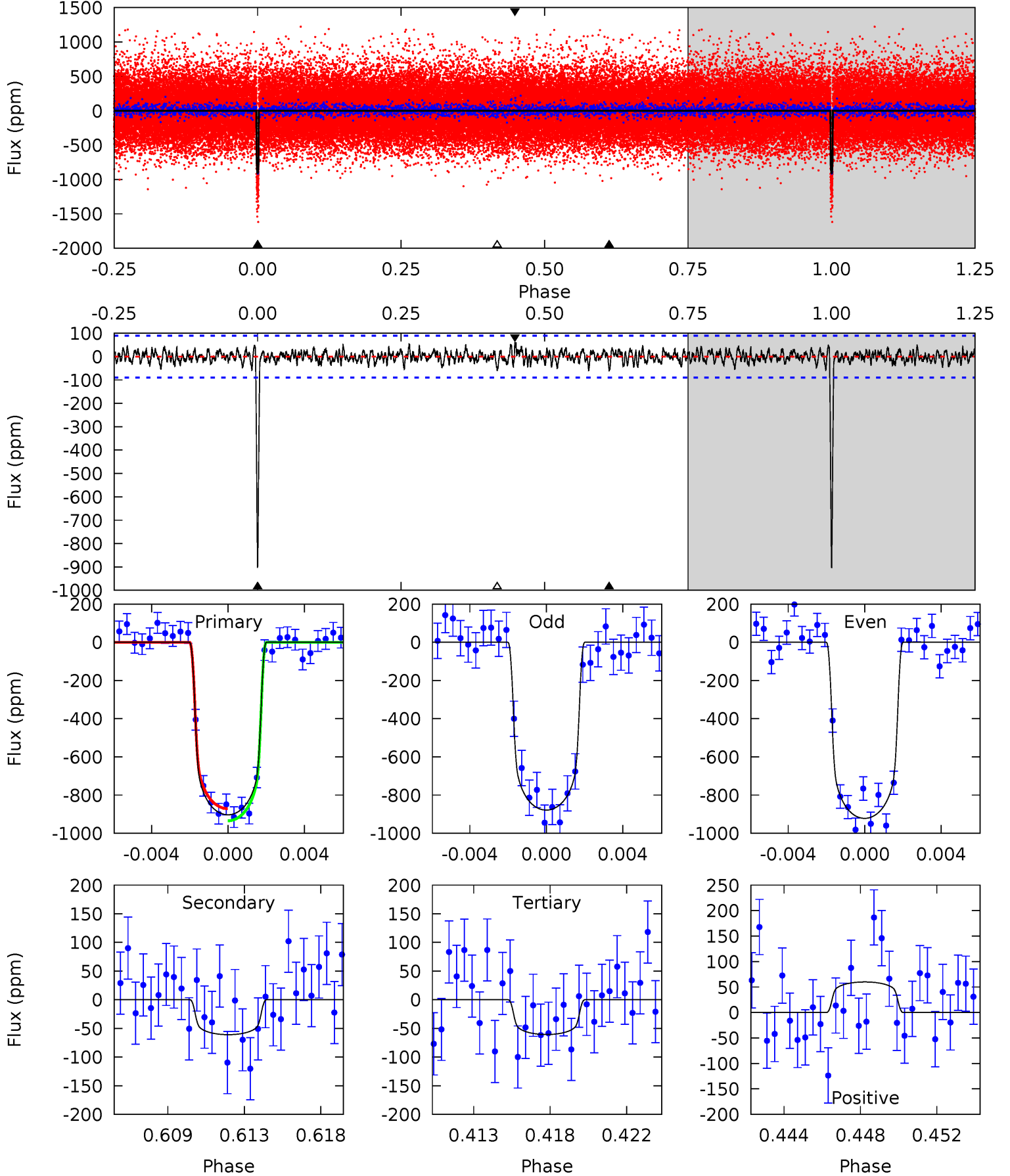
TCE 006049190-01 P= 70.467933 Days  $T_0=189.160859$  (BKJD)



# DV Model-Shift Uniqueness Test

006049190-01, P = 70.468314 Days, E = 118.687419 Days

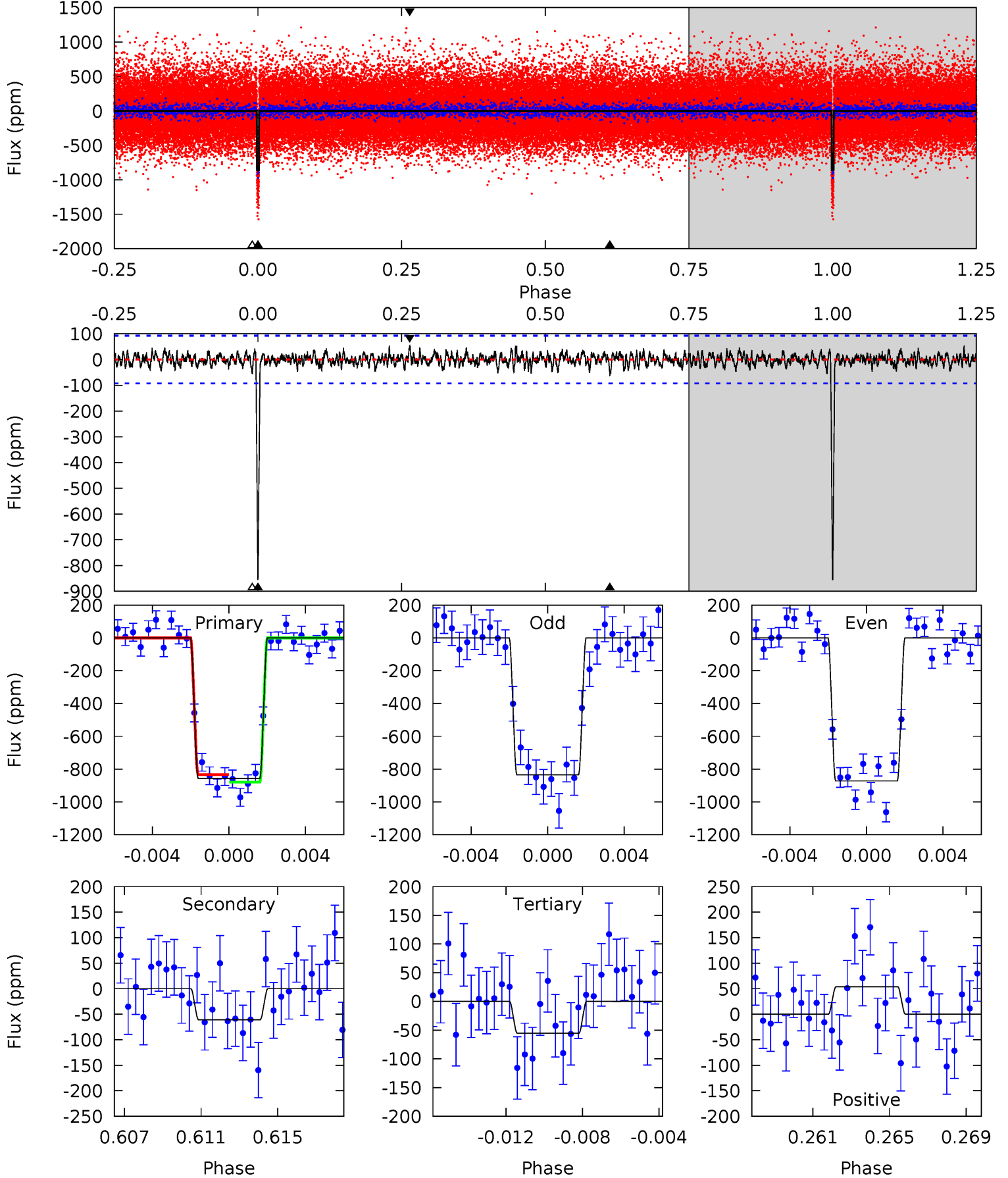
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.3	3.53	3.51	3.47	5.18	2.85	1.12	48.8	48.8	0.02	0.06	1.24	0.99	0.06	1.83



# Alt Model-Shift Uniqueness Test

006049190-01, P = 70.467933 Days, E = 118.692926 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
48.0	3.40	3.10	3.02	5.20	2.88	0.99	44.9	45.0	0.30	0.39	1.04	0.99	0.06	1.27



### Stellar Parameters For KIC 006049190

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6461^{+158}_{-225}$	$4.396^{+0.067}_{-0.202}$	$-0.140^{+0.250}_{-0.300}$	$1.131^{+0.363}_{-0.121}$	$1.162^{+0.164}_{-0.164}$	$1.131^{+0.332}_{-0.580}$
	+2%/-3%	+2%/-5%	+179%/-214%	+32%/-11%	+14%/-14%	+29%/-51%
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 006049190-01 / KOI 1685.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-61 \pm 17$	$3.84^{+0.70}_{-0.39}$	$727^{+49}_{-39}$	$3674^{+190}_{-218}$	$263^{+105}_{-91}$
Alt.	$-61 \pm 18$	$3.73^{+0.62}_{-0.42}$	$726^{+52}_{-36}$	$3719^{+198}_{-219}$	$282^{+114}_{-100}$

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

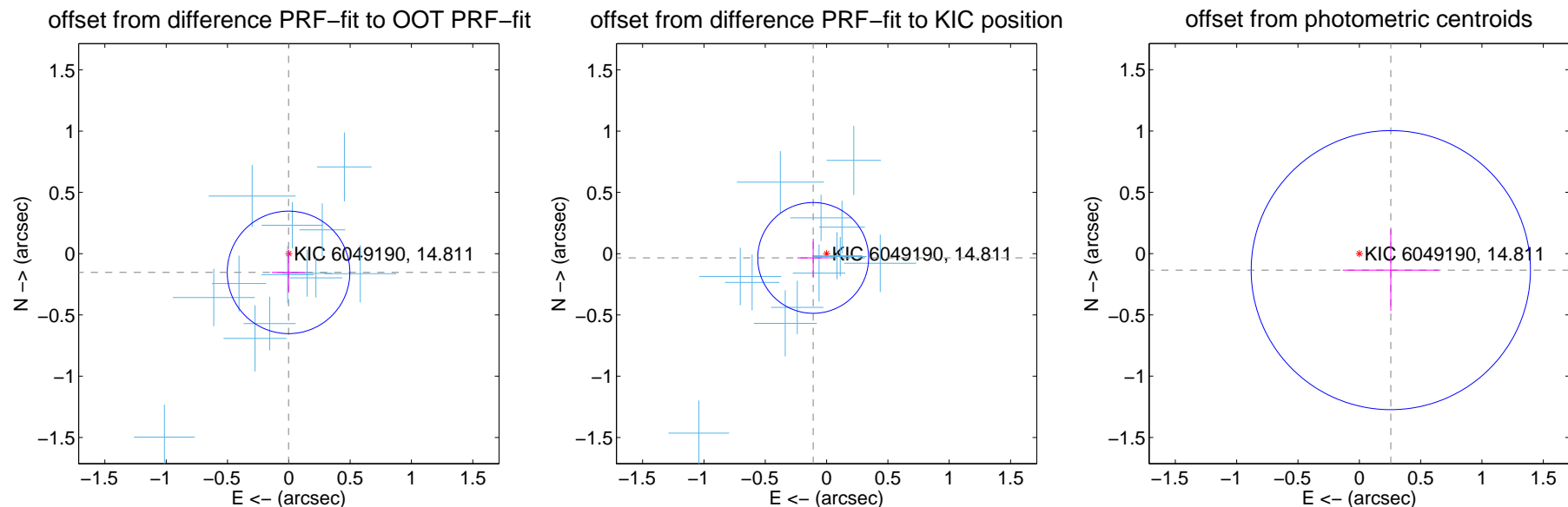
## DV Centroid Data

Supplemental centroid analysis for 006049190-01. Kepler magnitude: 14.81. Transit SNR 40.31

There are 13 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.153 \pm 0.167$	0.92	$0.002 \pm 0.137$	$-0.153 \pm 0.165$
PRF-fit source offset from KIC position	$0.115 \pm 0.151$	0.76	$0.109 \pm 0.128$	$-0.035 \pm 0.157$
photometric centroid source offset	$0.29 \pm 0.38$	0.76	$-0.26 \pm 0.39$	$-0.13 \pm 0.33$



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.

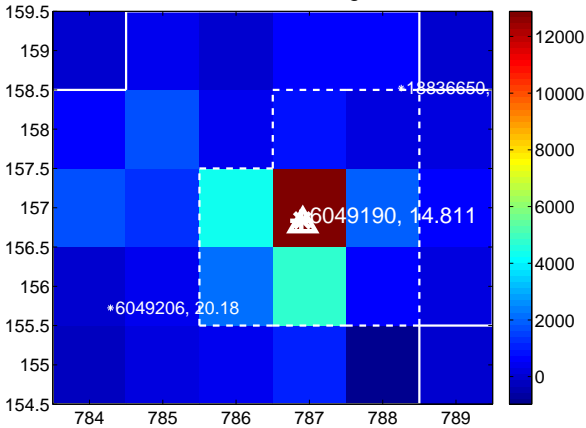
Q1 no difference image



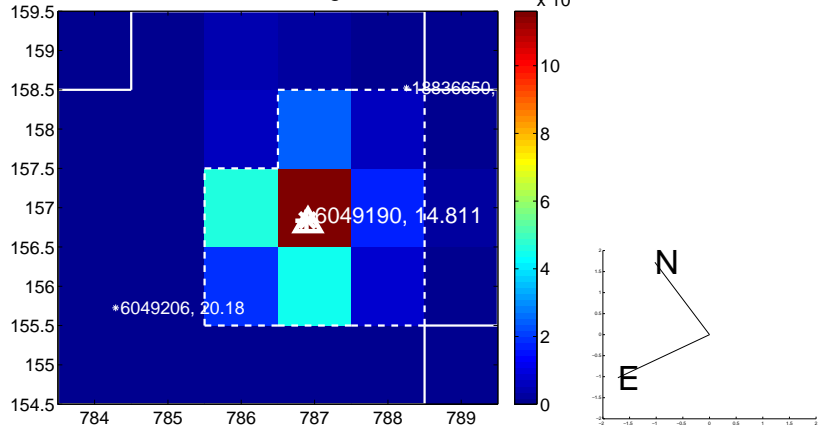
Q1 no OOT image



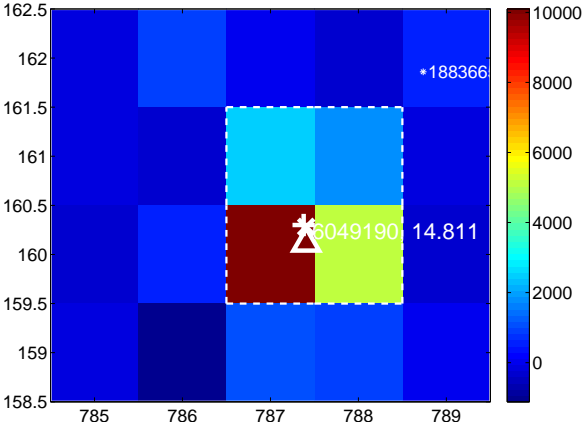
Q2 difference image



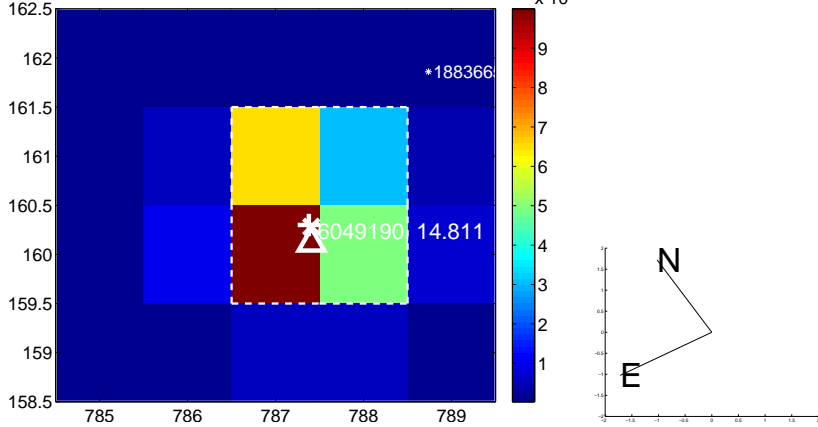
Q2 OOT image



Q3 difference image



Q3 OOT image



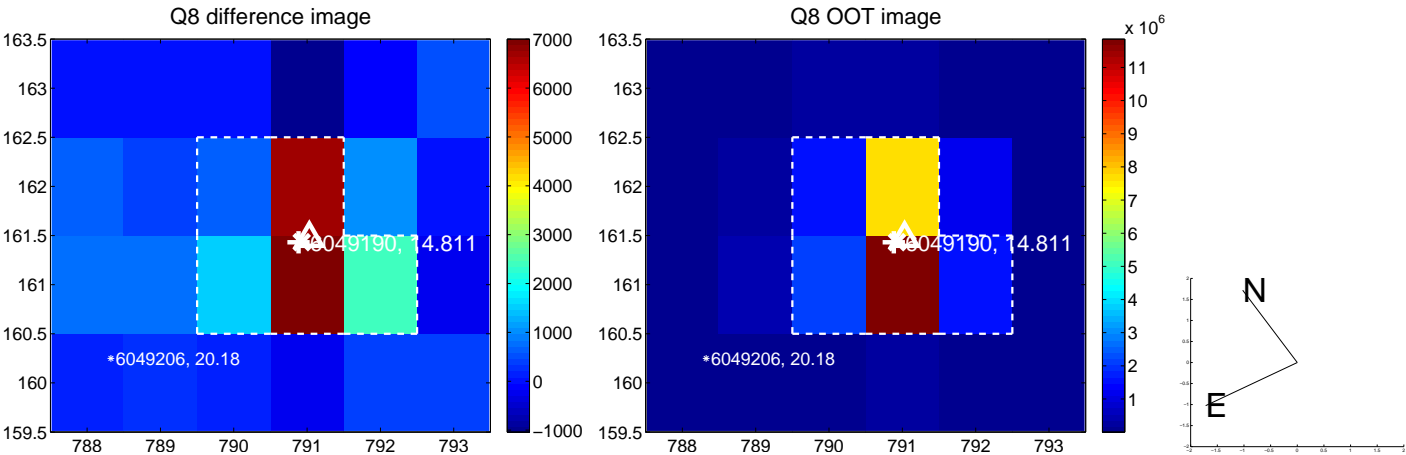
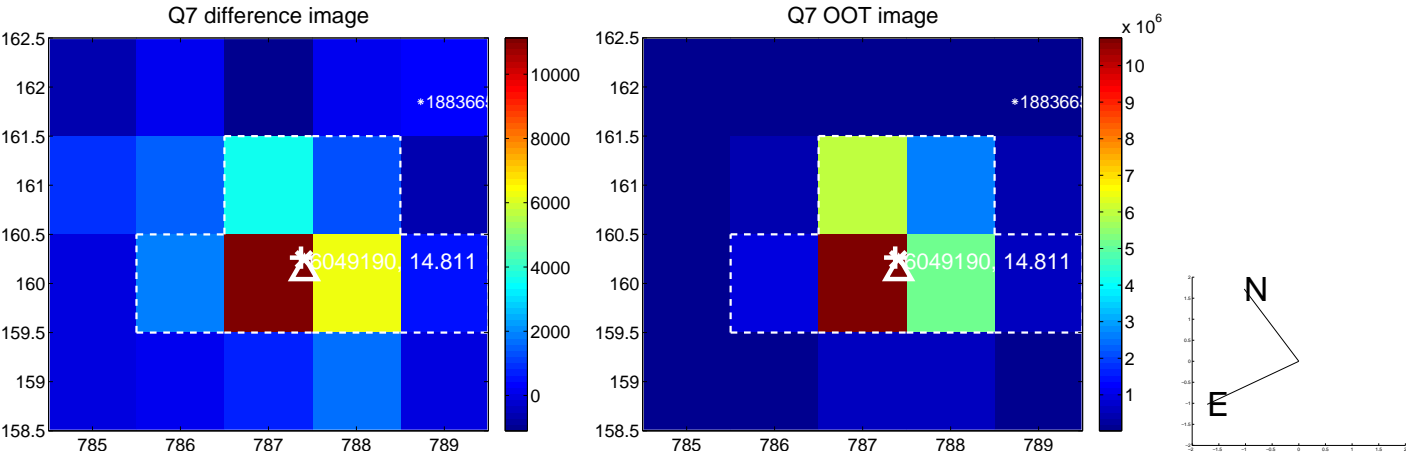
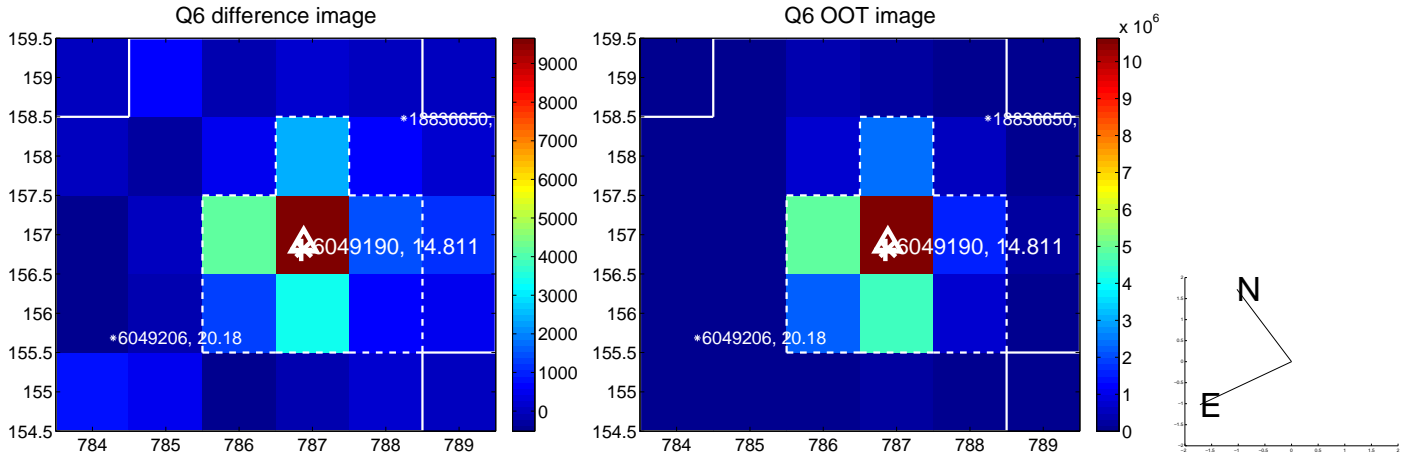
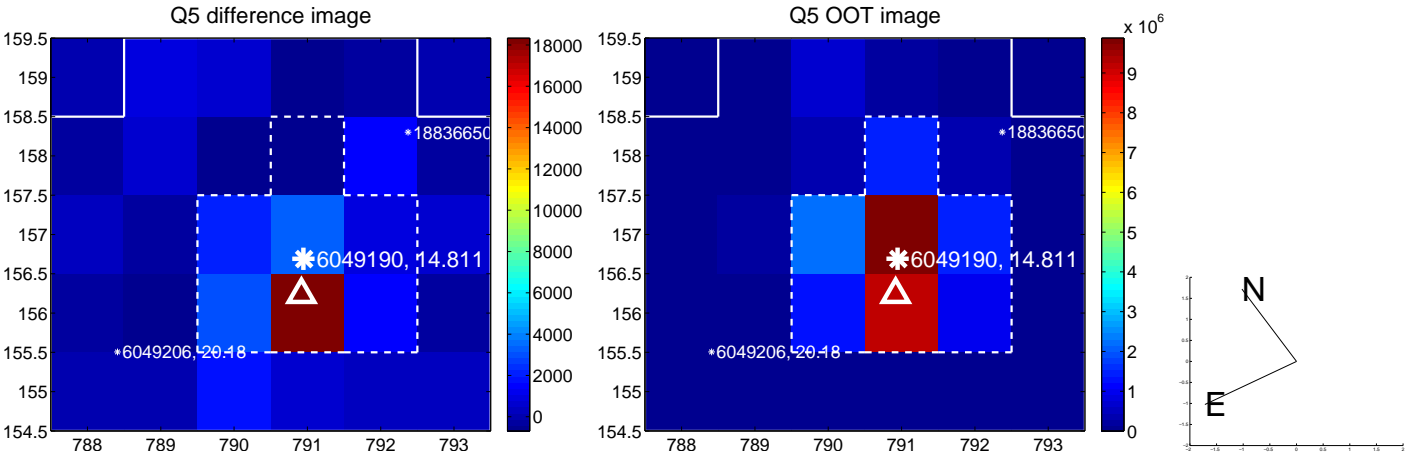
Q4 no difference image



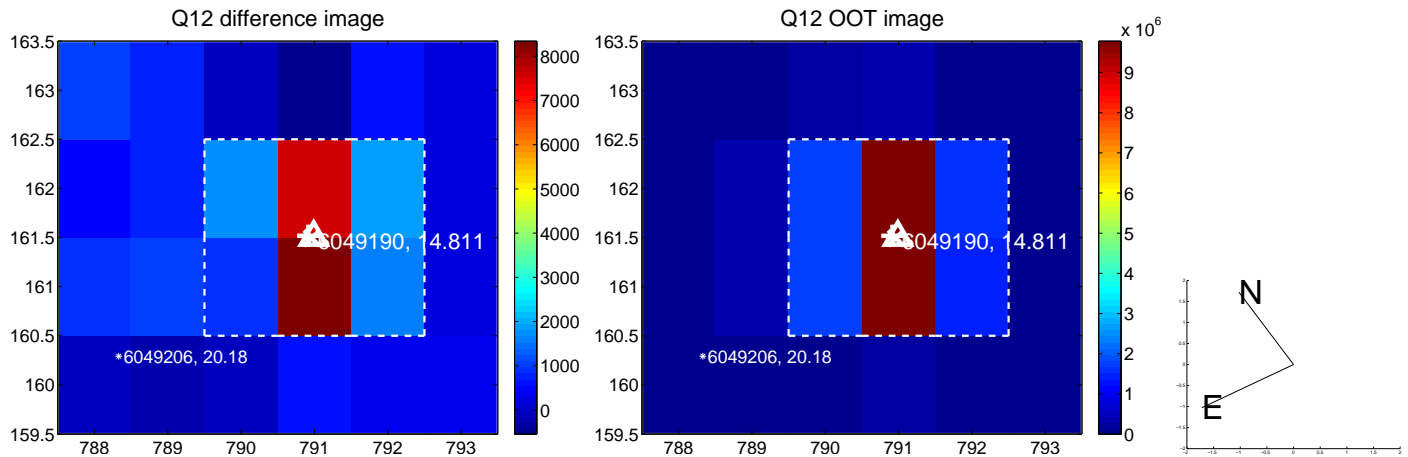
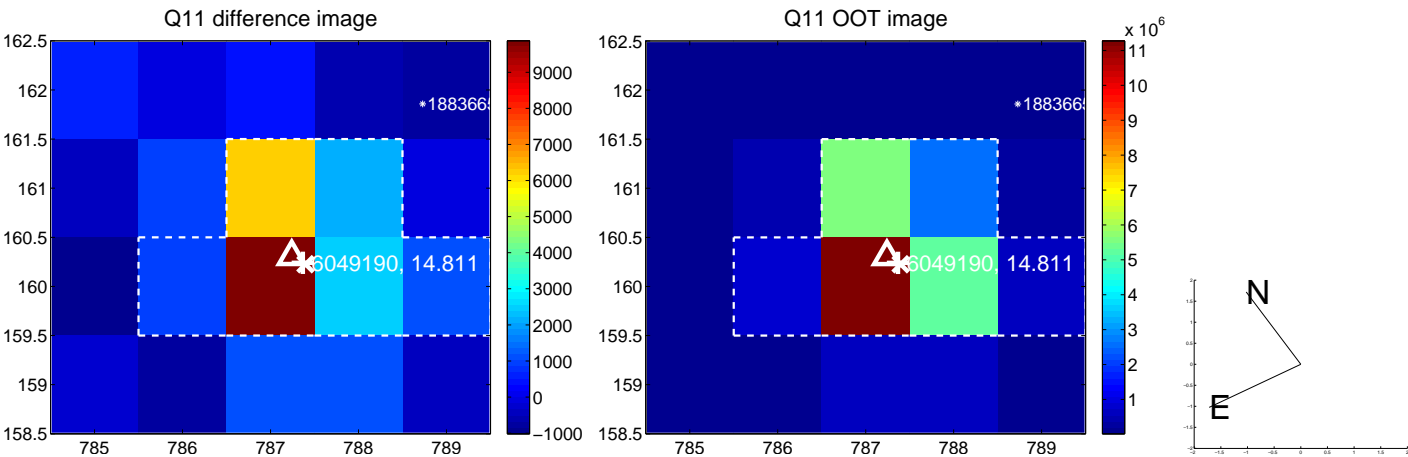
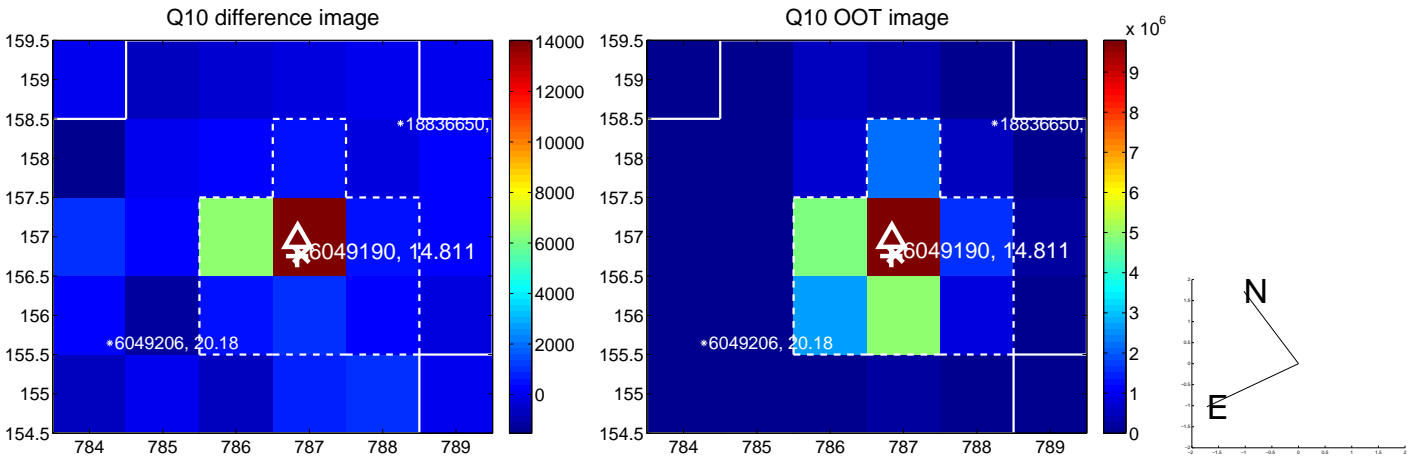
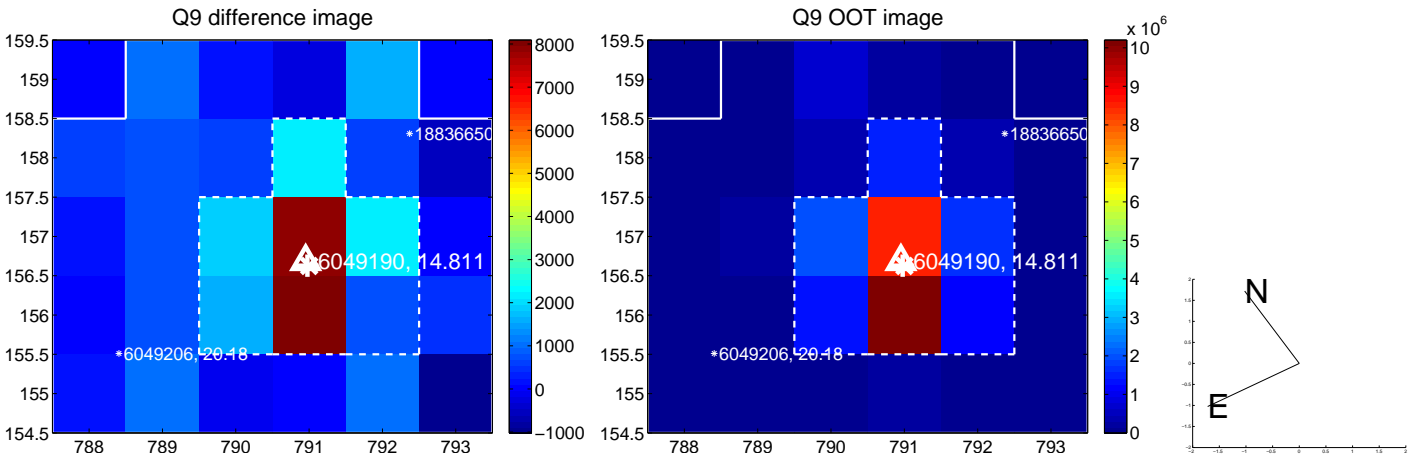
Q4 no OOT image



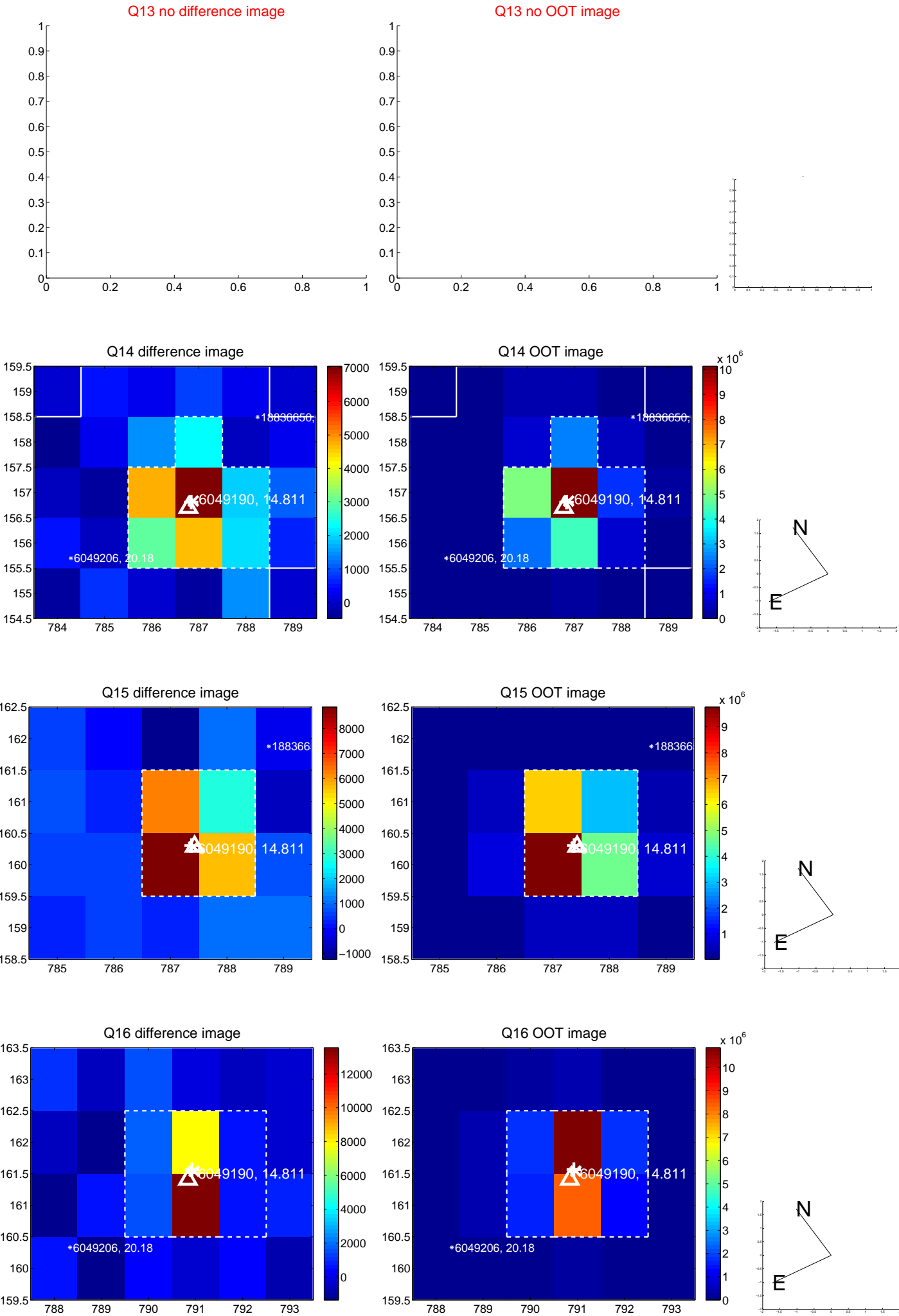
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



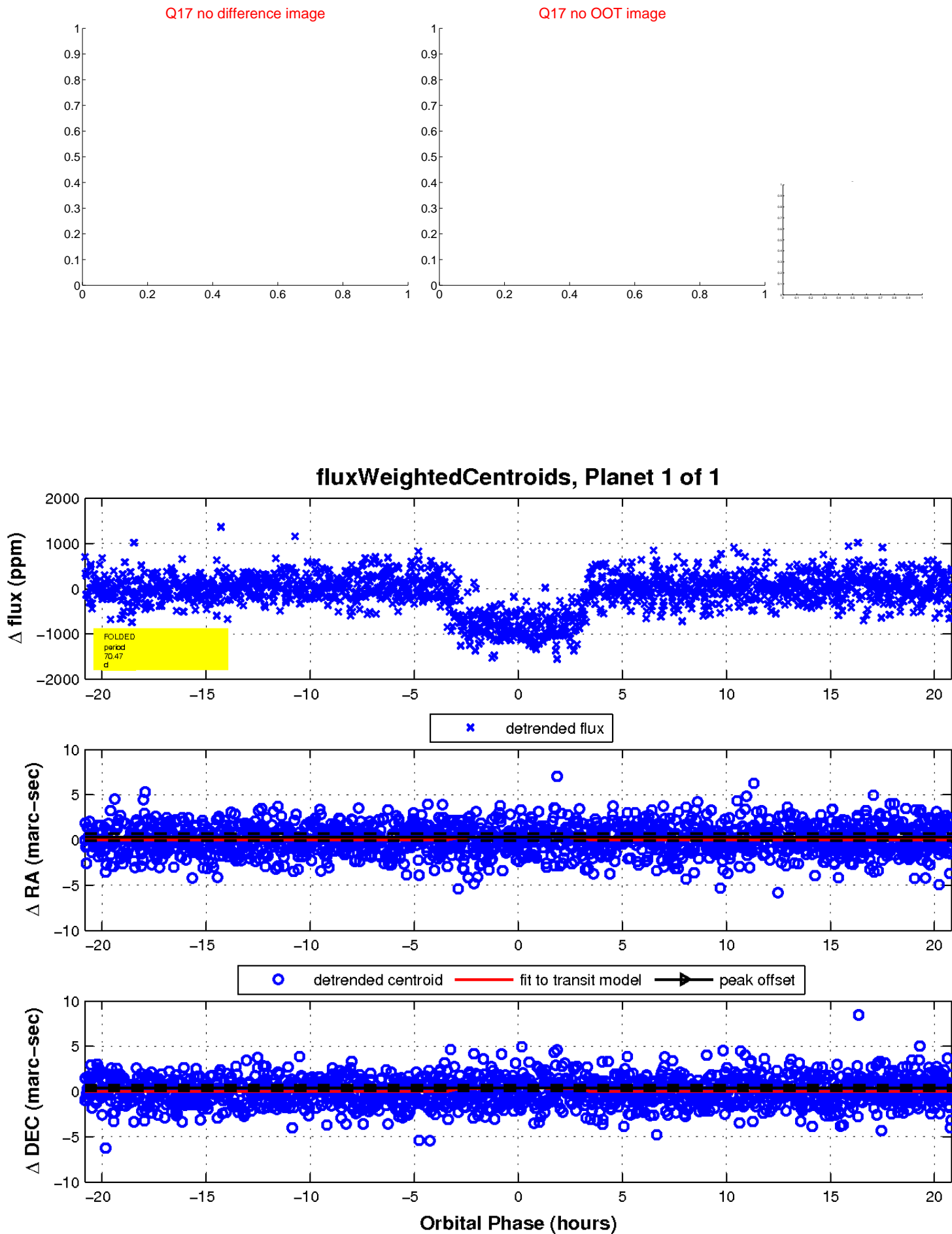
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

