

# KIC 012365184

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012365184-01	OBS	1474.01	69.724718	196.117557	4537.8	3.922	177.5	203.4	1.73	6430	11.81	33.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012365184-01	OBS	PC	0.98	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.

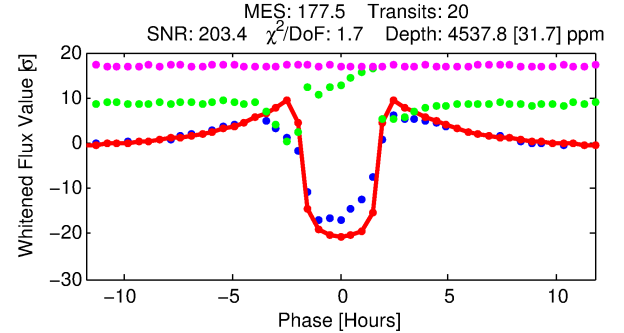
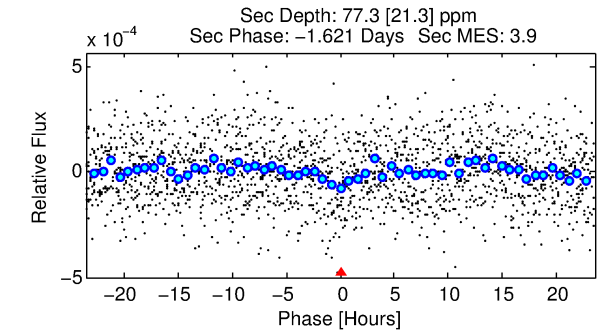
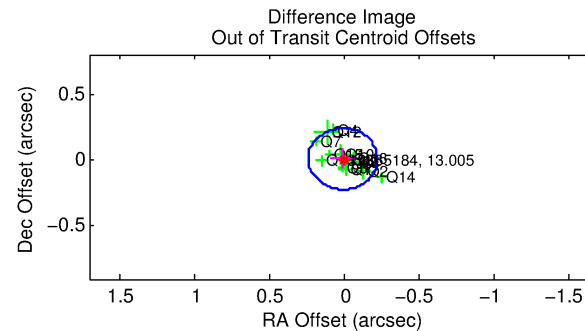
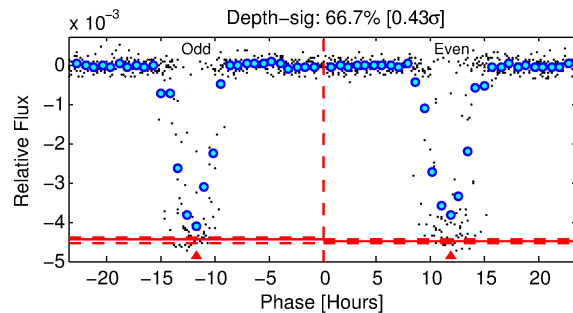
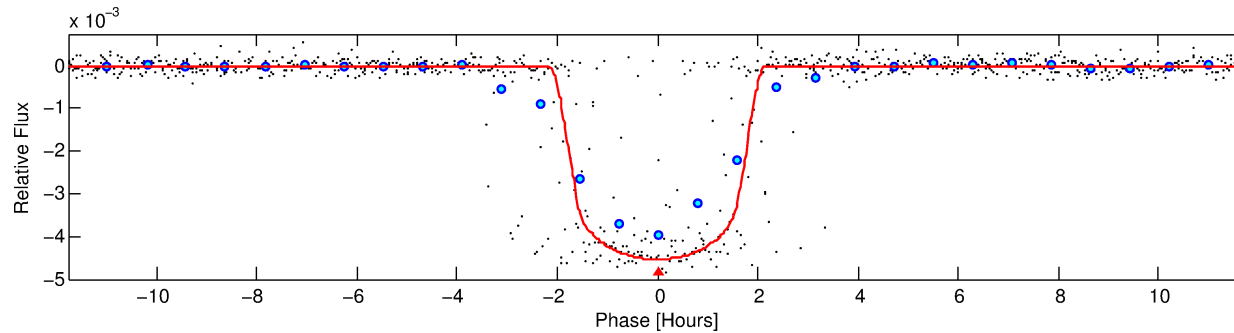
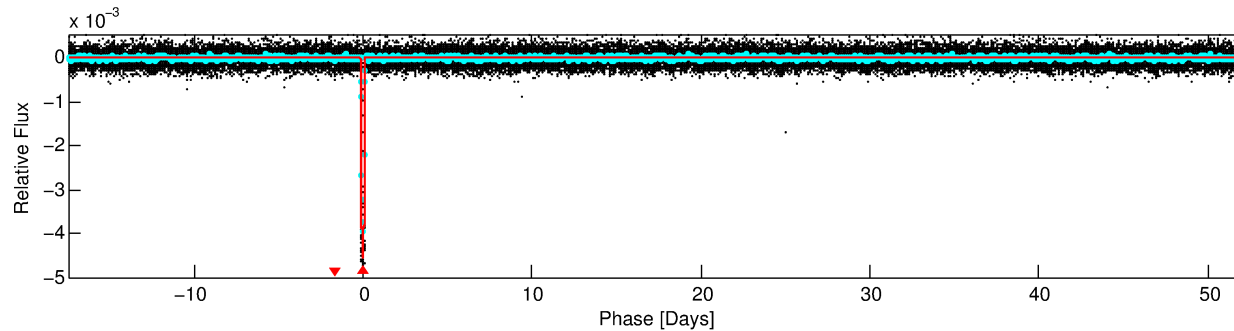
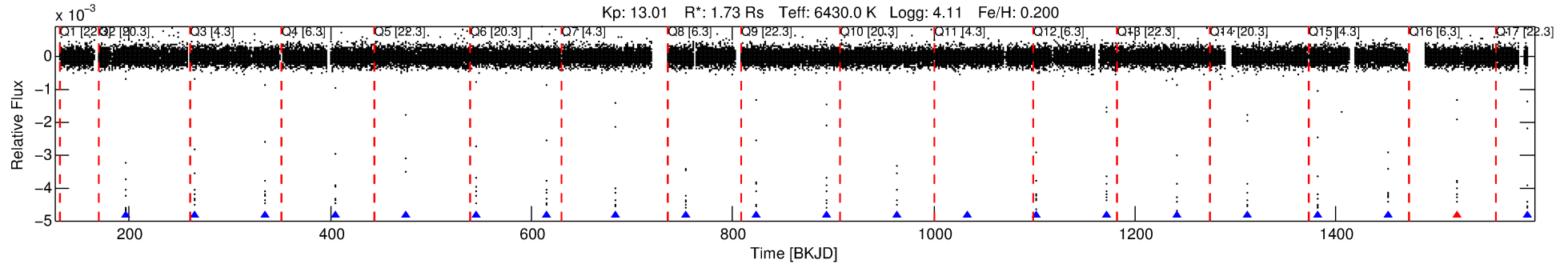
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012365184-01

No Significant Match Found

# DV One-Page Summary

KIC: 12365184 Candidate: 1 of 1 Period: 69.725 d  
KOI: K01474.01 Name: Kepler-419b Corr: 0.846



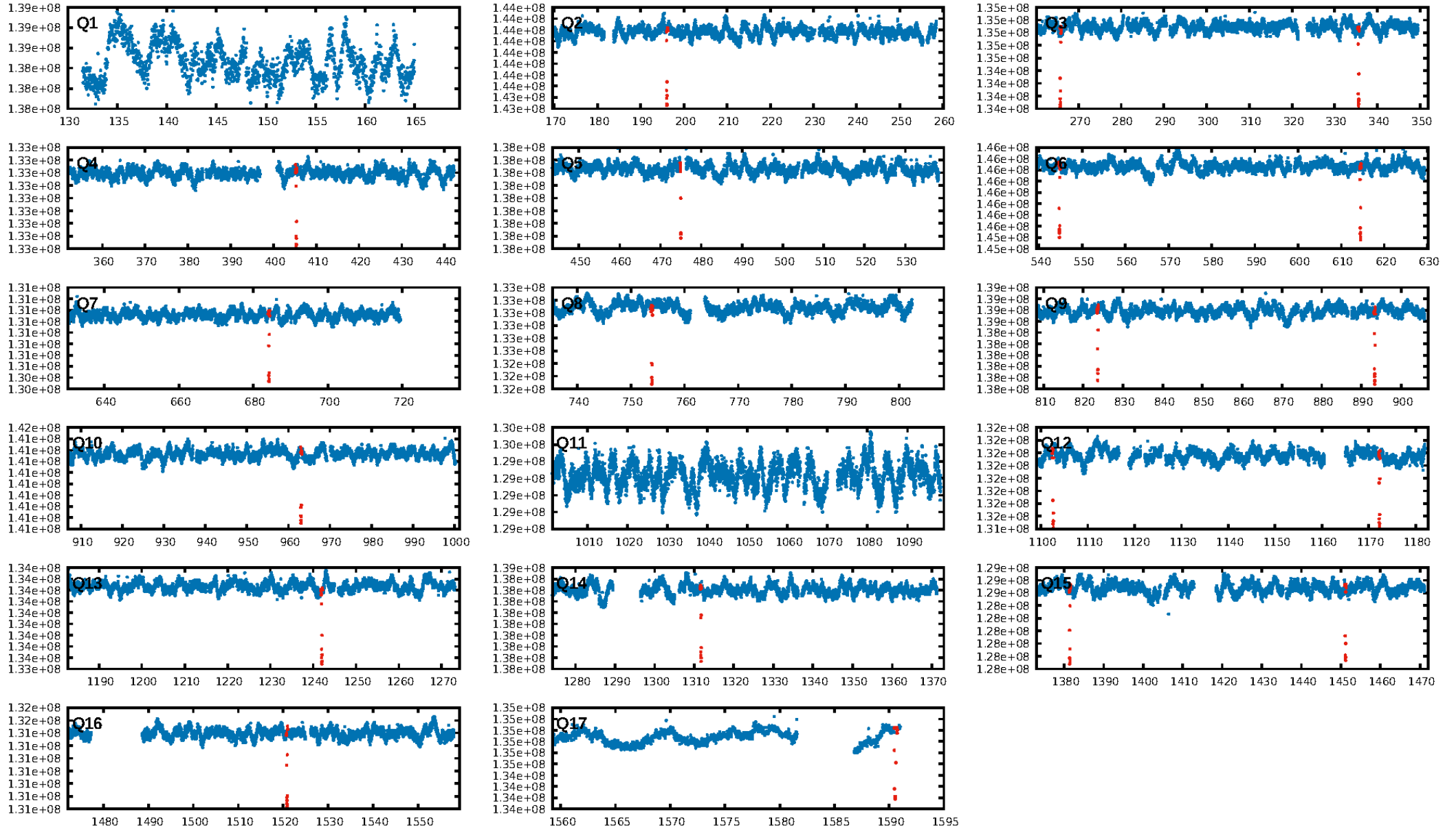
## DV Fit Results:

Period = 69.72472 [0.00004] d  
Epoch = 196.1176 [0.0004] BKJD  
Rp/R\* = 0.0625 [0.0022]  
a/R\* = 137.67 [23.27]  
b = 0.32 [0.48]  
Seff = 33.37 [8.81]  
Teq = 613 [40] K  
Rp = 11.81 [2.19] Re  
a = 0.3708 [0.0618] AU  
Ag = 41.97 [16.12] [2.54 $\sigma$ ]  
Teffp = 2412 [174] K [10.08 $\sigma$ ]

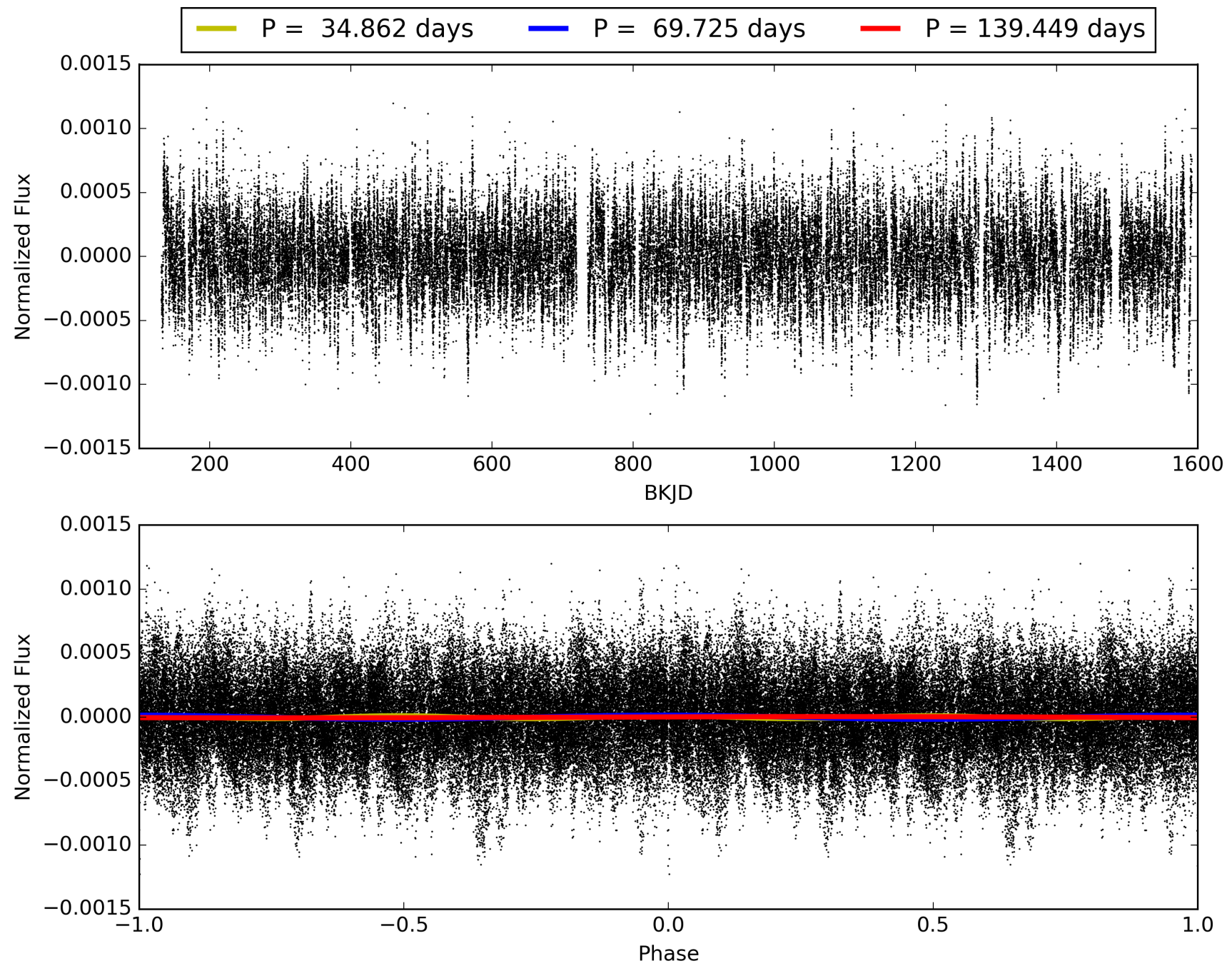
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 10.0%  
ModelChiSquareGof-sig: 63.9%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.95 [18/19]  
GhostDiagnostic-chr: 2.425  
Centroid-sig: 54.0%  
Centroid-so: 0.666 arcsec [18.64 $\sigma$ ]  
OotOffset-rm: 0.010 arcsec [0.13 $\sigma$ ]  
KicOffset-rm: 0.109 arcsec [1.46 $\sigma$ ]  
OotOffset-st: 4/3/4/3 [14]  
KicOffset-st: 4/3/4/3 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 012365184-01, PDC Light Curves

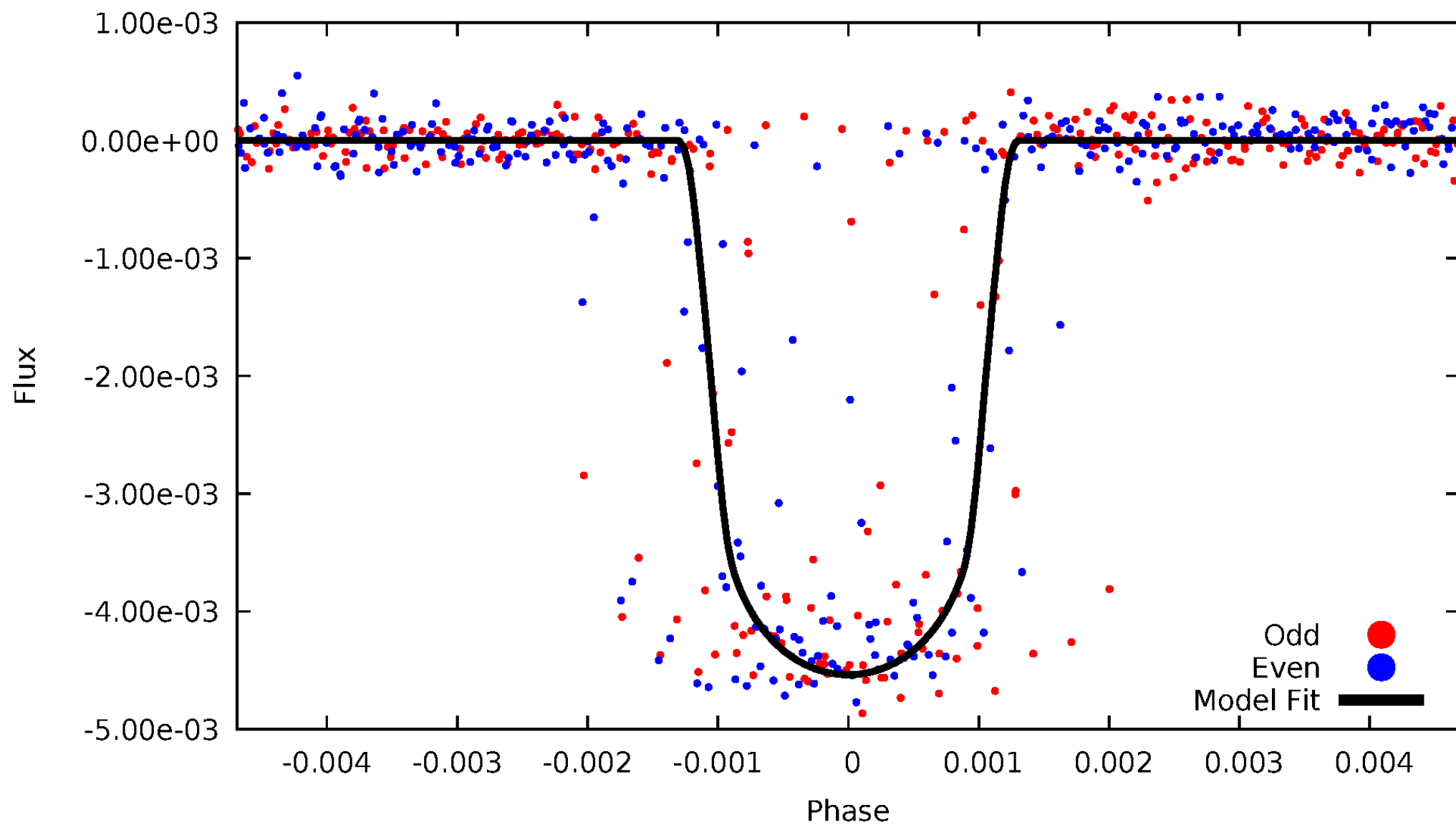


# TCE 012365184-01



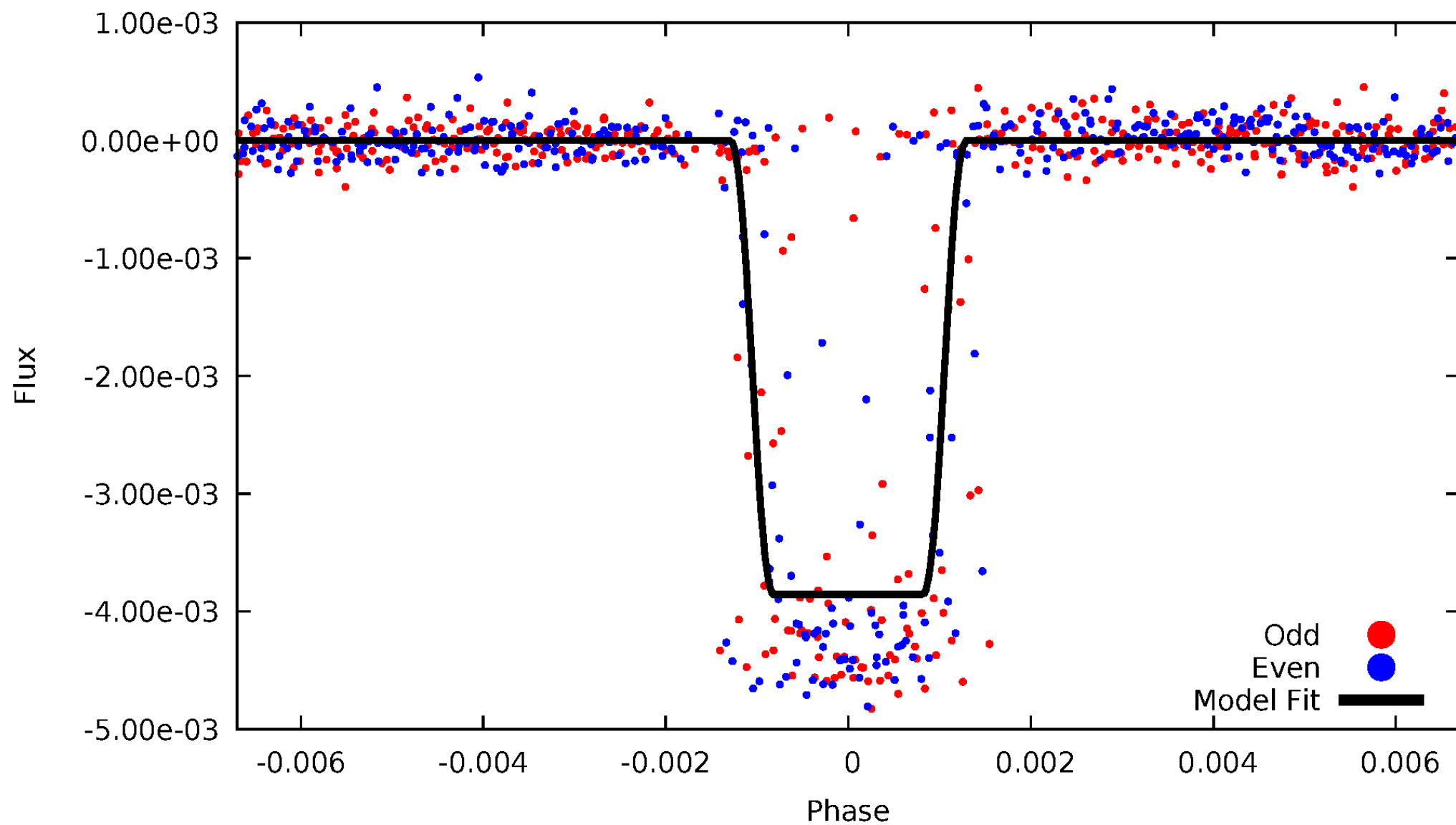
# DV Odd/Even

TCE 012365184-01



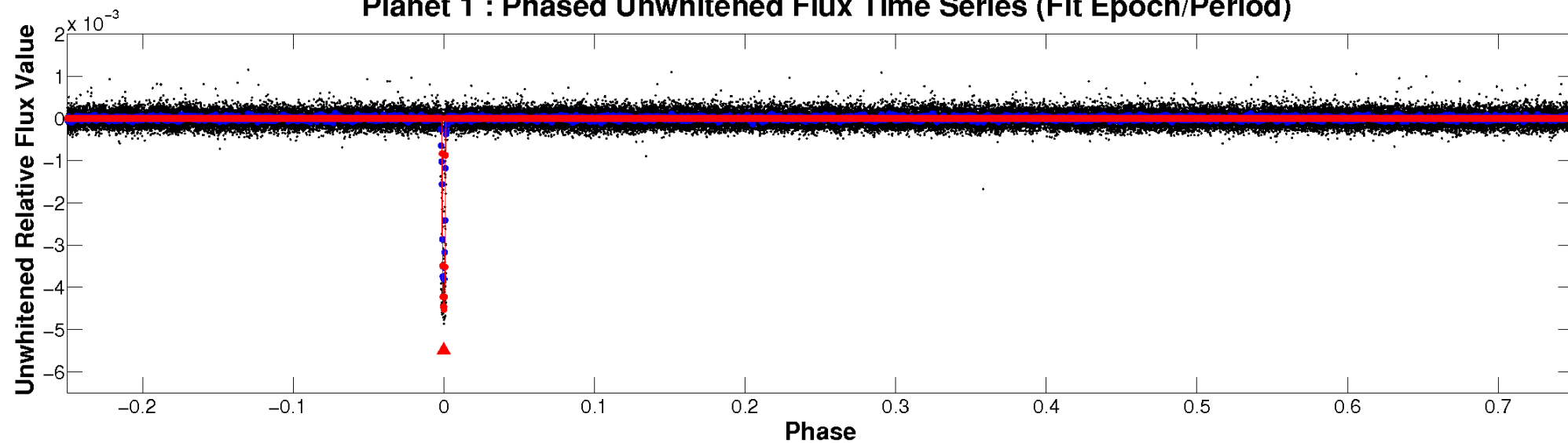
# ALT Odd/Even

TCE 012365184-01

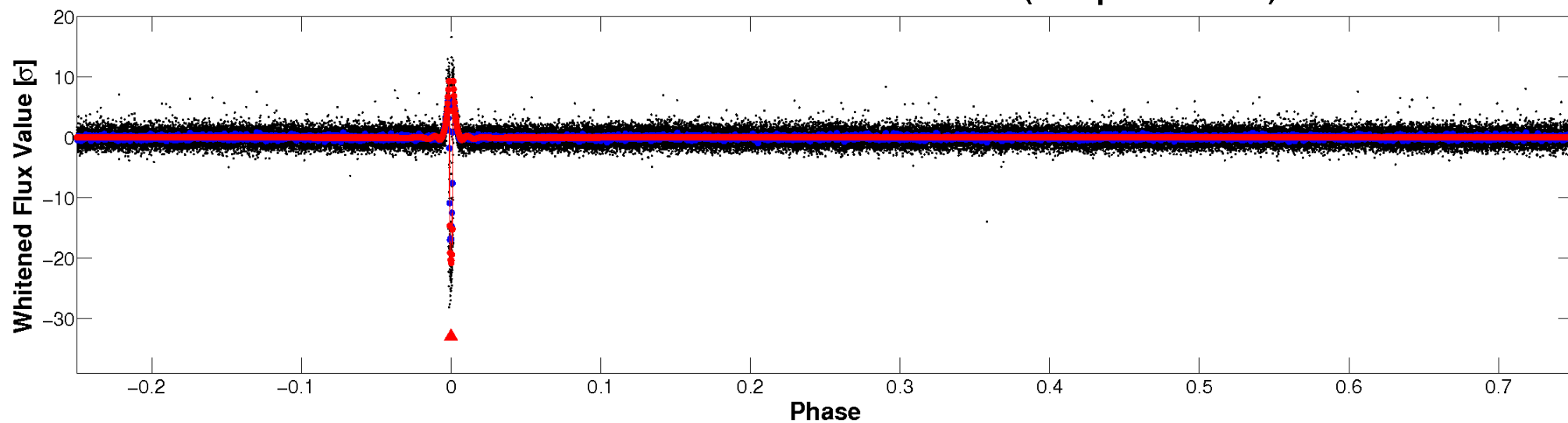


# Non-Whitened Vs. Whitened Light Curve

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

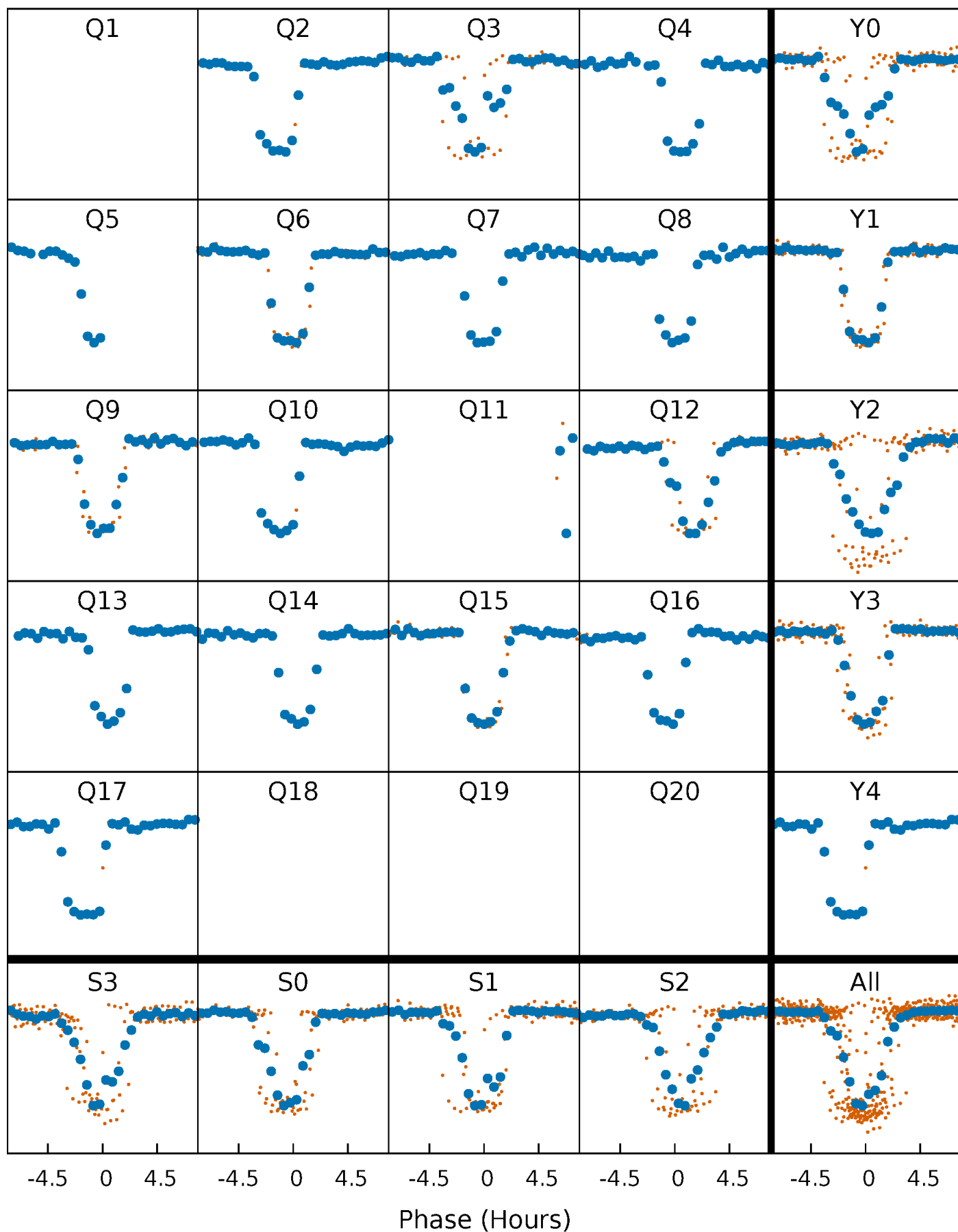


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

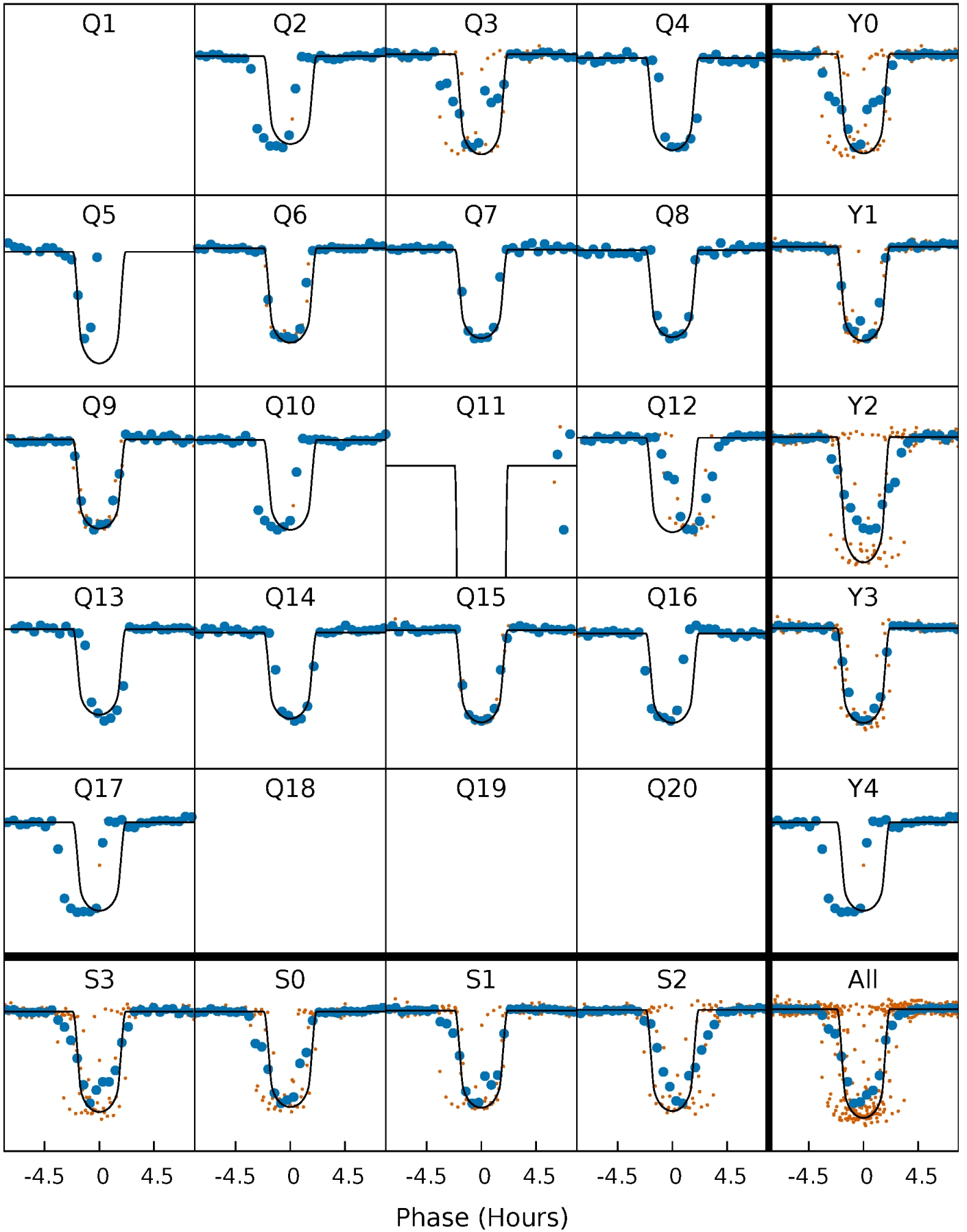
TCE 012365184-01 P= 69.724718 Days  $T_0=196.117557$  (BKJD)





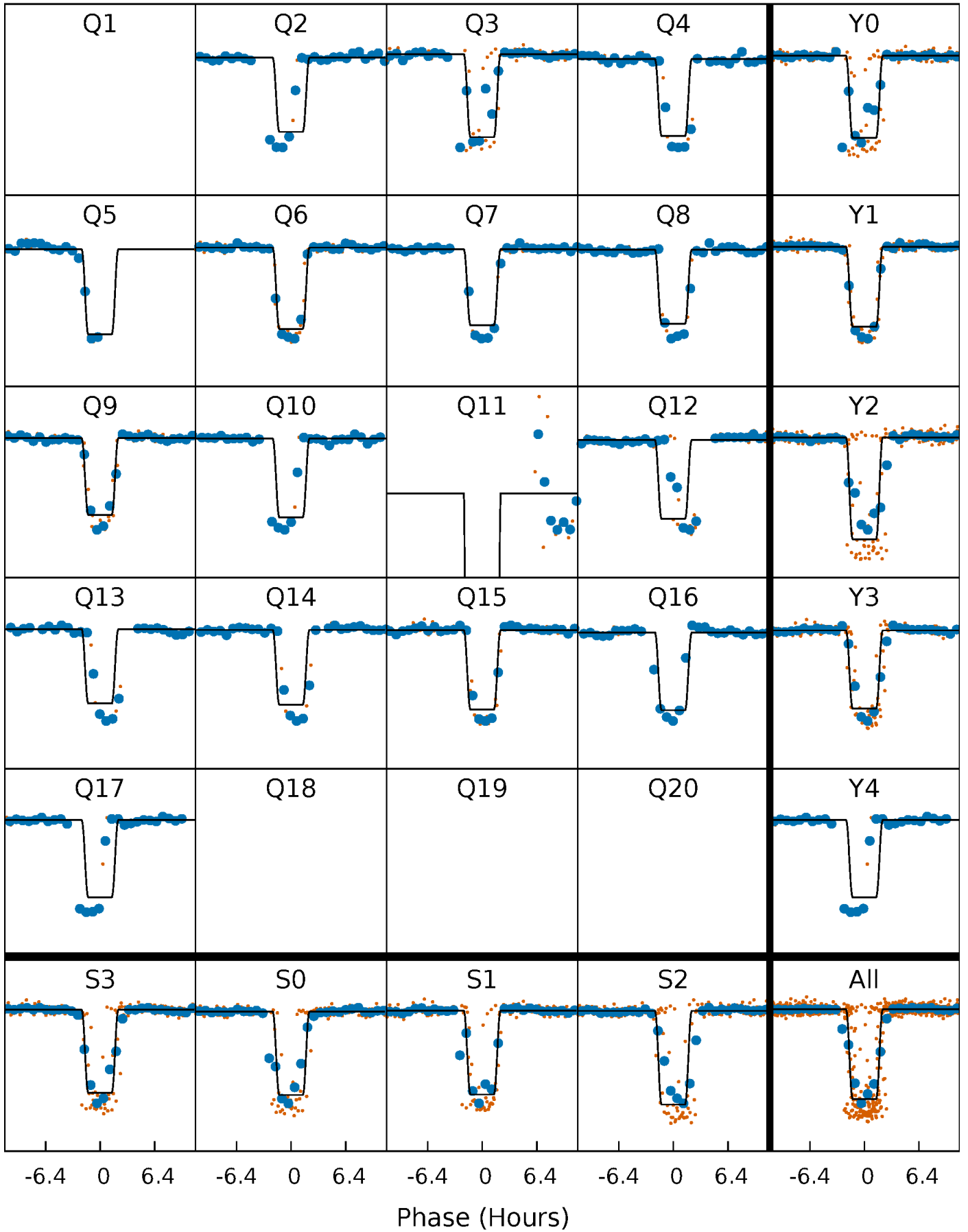
# DV Quarter-Phased Transit Curves

TCE 012365184-01 P= 69.724718 Days  $T_0=196.117557$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

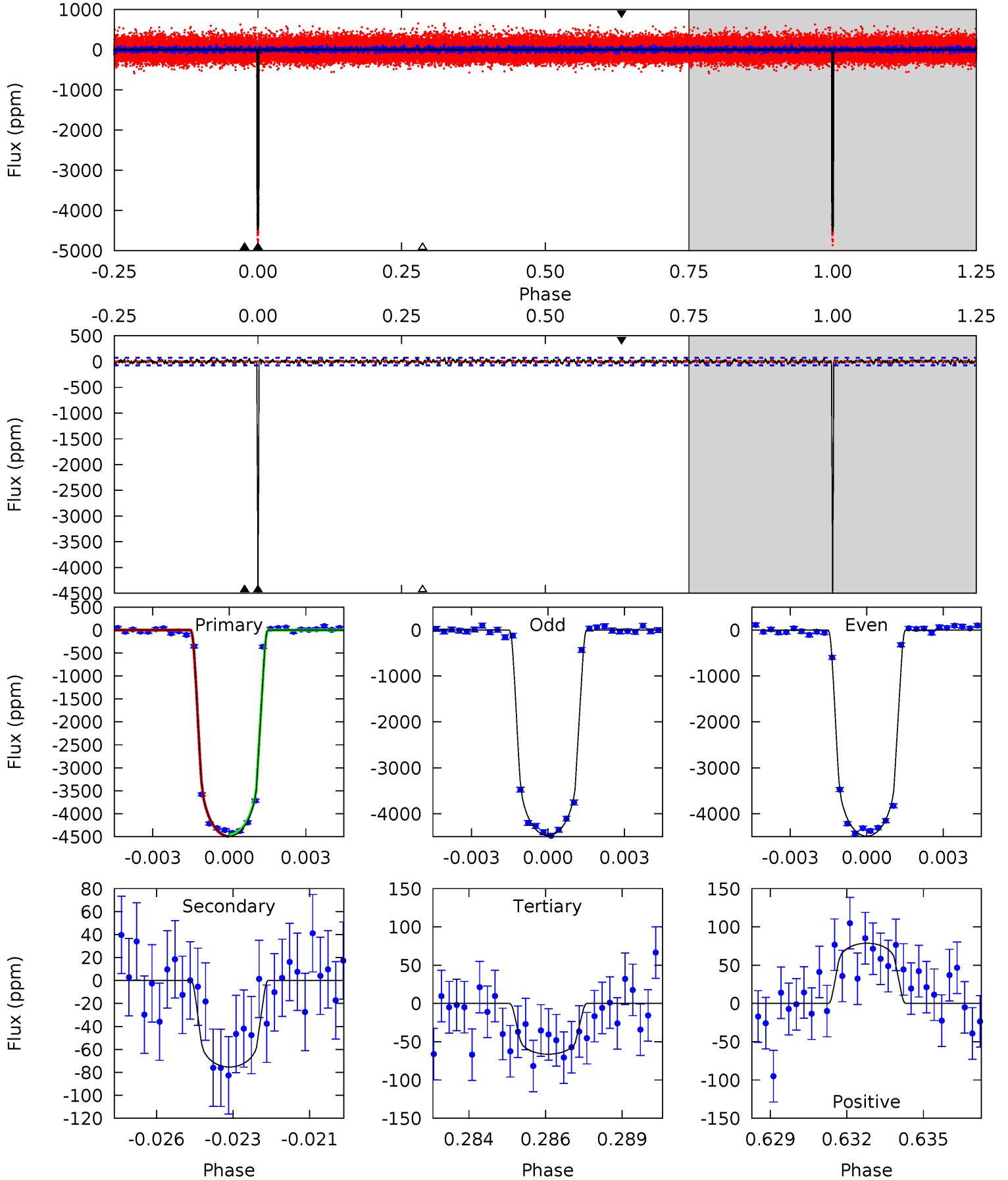
TCE 012365184-01 P= 69.724173 Days  $T_0=196.115634$  (BKJD)



# DV Model-Shift Uniqueness Test

012365184-01,  $P = 69.724718$  Days,  $E = 126.392839$  Days

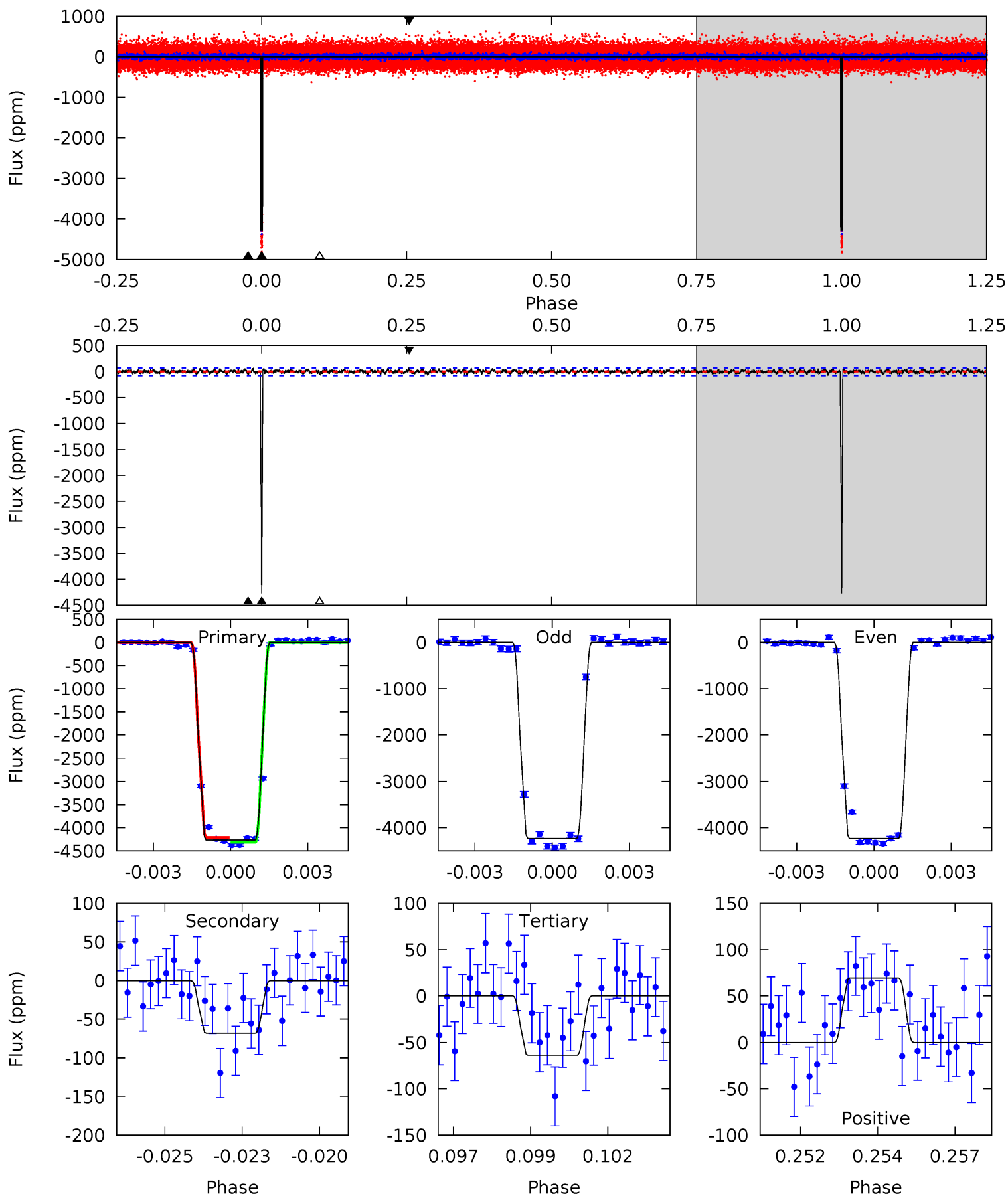
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
322.1	5.41	4.76	5.65	5.28	3.01	1.47	317.4	316.5	0.65	-0.24	0.51	0.89	0.02	1.42



# Alt Model-Shift Uniqueness Test

012365184-01, P = 69.724173 Days, E = 126.391461 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
301.0	4.80	4.50	4.90	5.28	3.02	1.34	296.5	296.1	0.29	-0.10	0.12	0.92	0.02	3.73



### Stellar Parameters For KIC 012365184

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6430^{+77}_{-83}$	$4.107^{+0.149}_{-0.122}$	$0.200^{+0.150}_{-0.150}$	$1.731^{+0.315}_{-0.315}$	$1.398^{+0.121}_{-0.121}$	$0.380^{+0.273}_{-0.135}$
	+1%/-1%	+4%/-3%	+75%/-75%	+18%/-18%	+9%/-9%	+72%/-36%
Source	SPE79	SPE79	SPE79	DSEP		

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

### Secondary Eclipse Parameters for KIC 012365184-01 / KOI 1474.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-75 \pm 14$	$11.85^{+1.24}_{-1.21}$	$858^{+43}_{-43}$	$3046^{+86}_{-99}$	$41^{+12}_{-10}$
Alt.	$-68 \pm 14$	$11.69^{+1.19}_{-1.25}$	$853^{+41}_{-40}$	$3004^{+91}_{-101}$	$38^{+13}_{-10}$

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

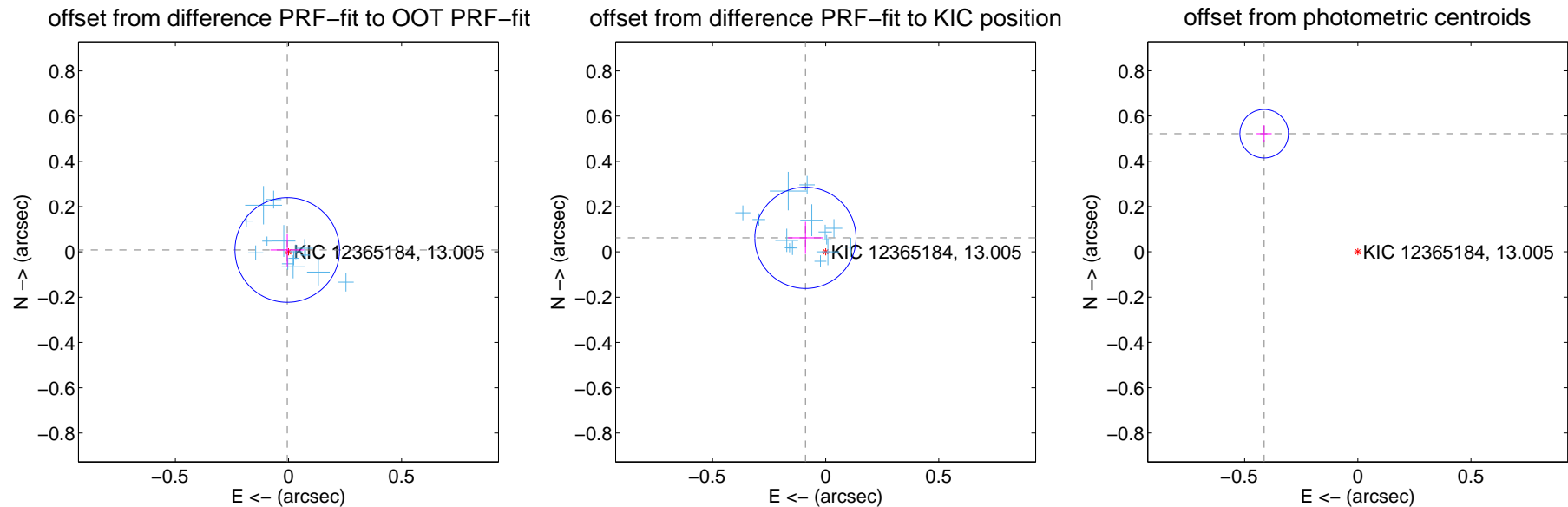
## DV Centroid Data

Supplemental centroid analysis for 012365184-01. Kepler magnitude: 13.01. Transit SNR 203.44

There are 14 quarters with good PRF difference image offsets

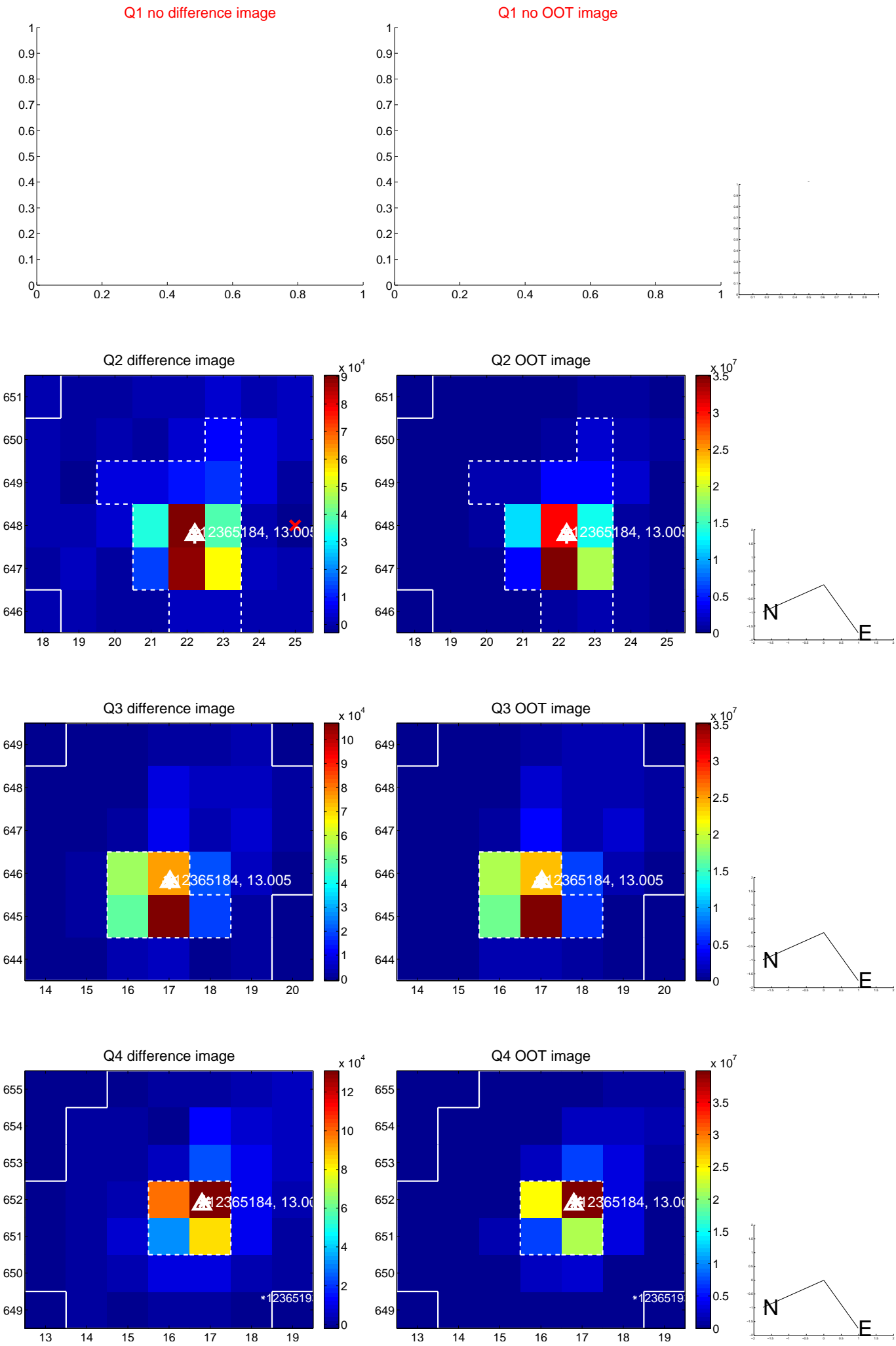
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.010 \pm 0.077$	0.13	$0.006 \pm 0.074$	$0.009 \pm 0.072$
PRF-fit source offset from KIC position	$0.109 \pm 0.075$	1.46	$0.089 \pm 0.076$	$0.062 \pm 0.071$
photometric centroid source offset	$0.67 \pm 0.04$	18.64	$0.41 \pm 0.03$	$0.52 \pm 0.04$

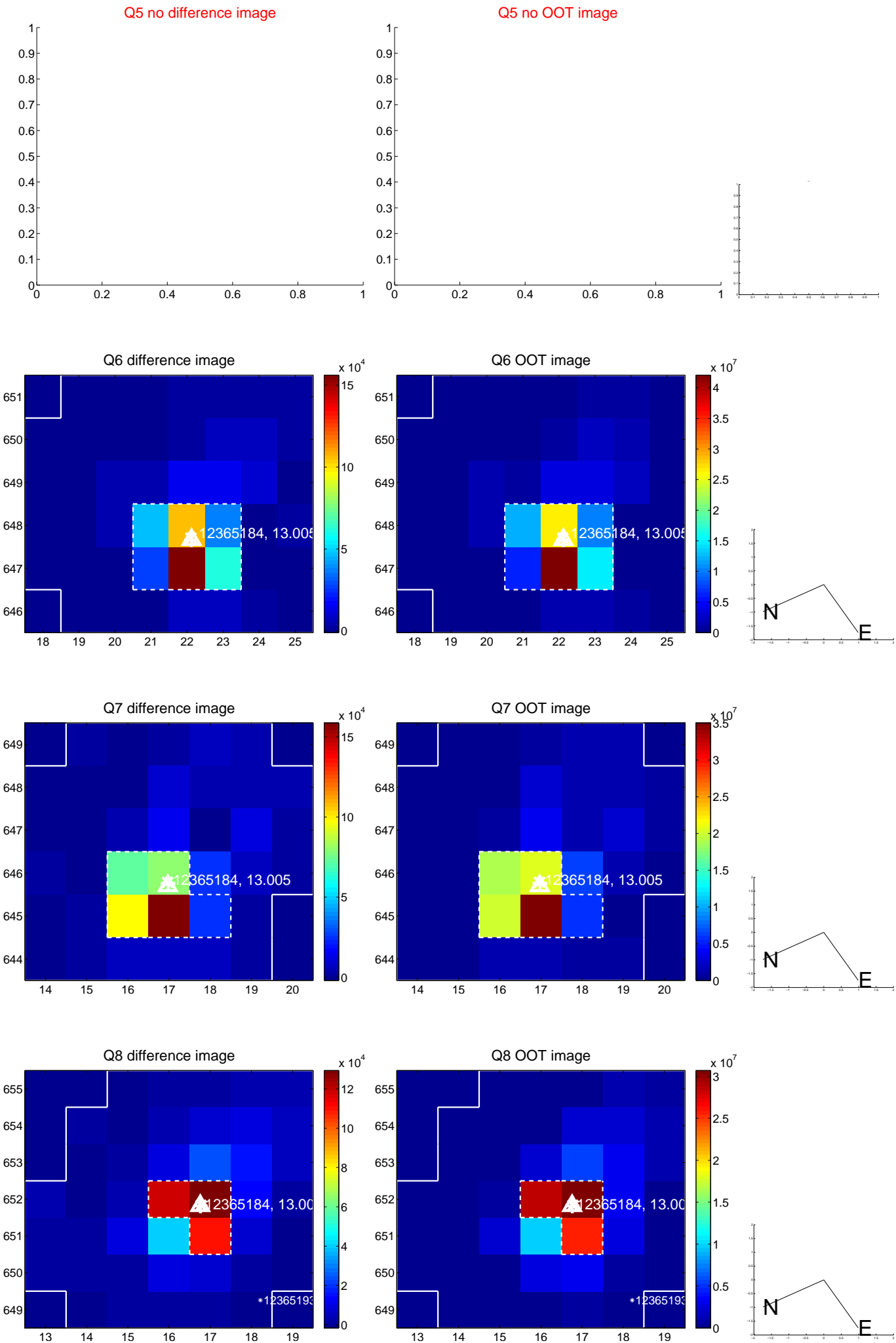


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

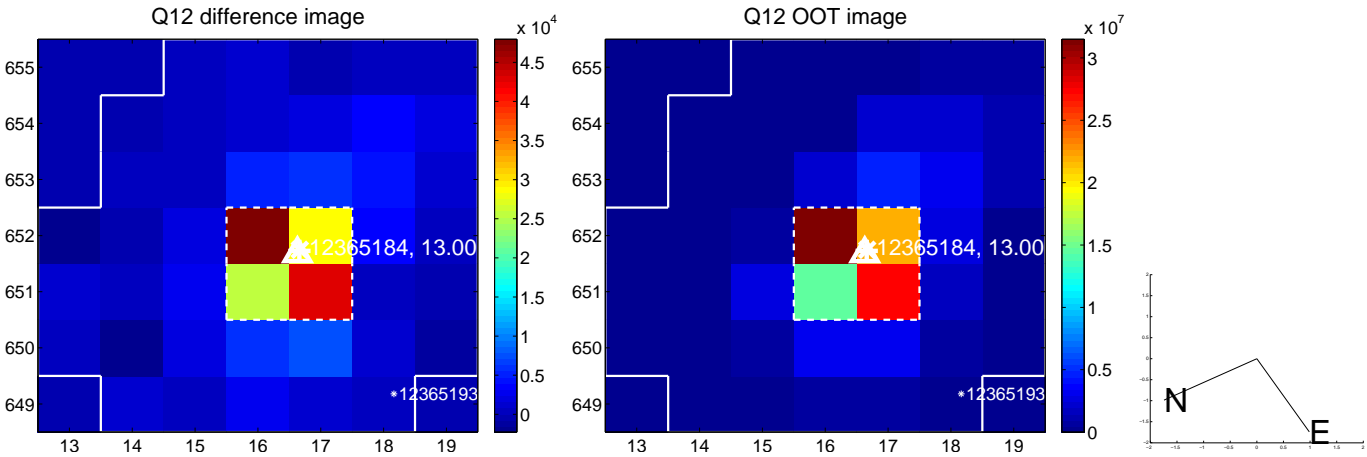
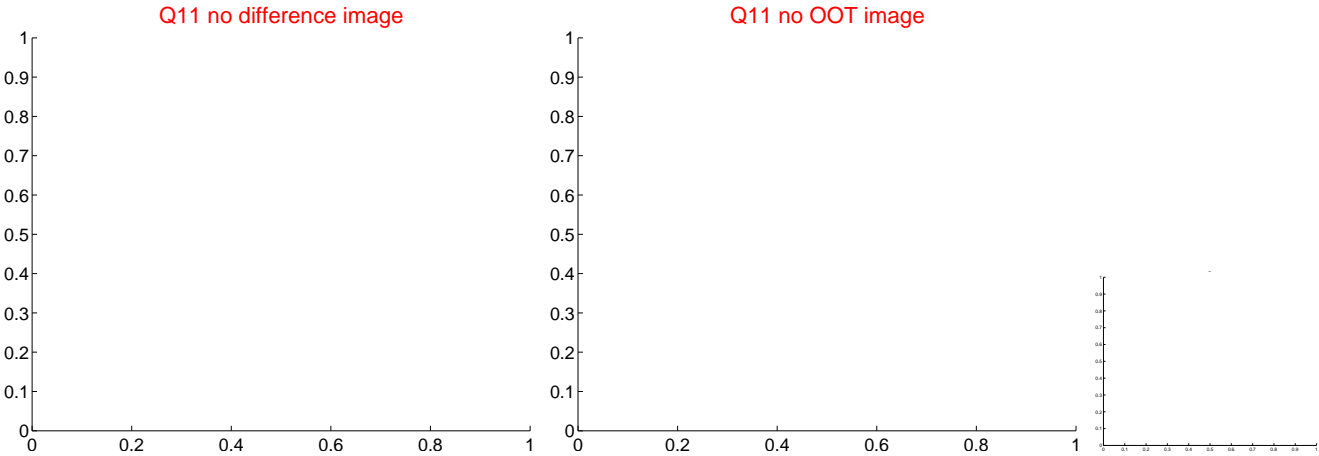
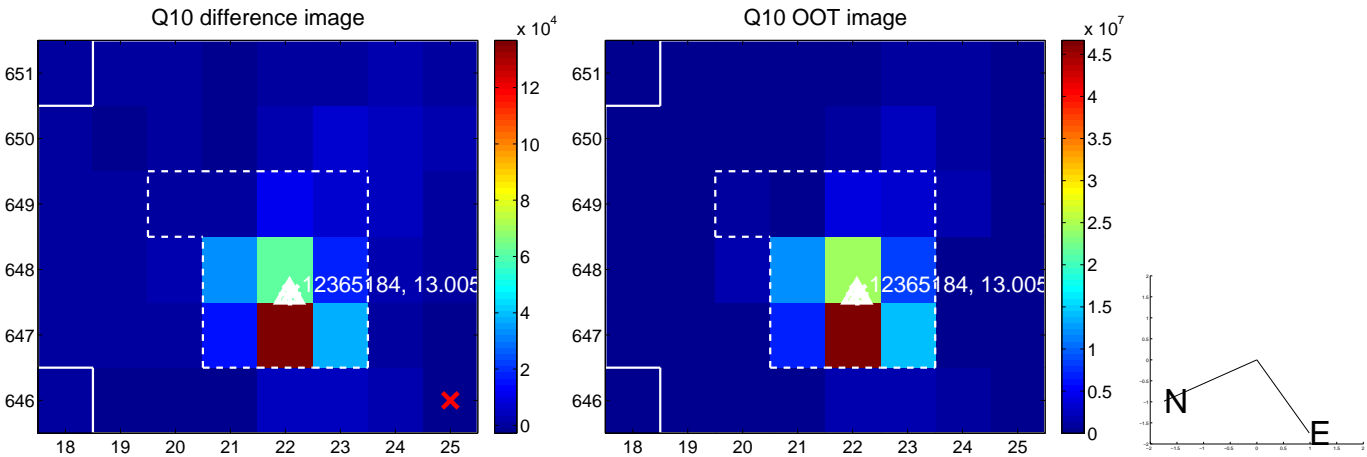
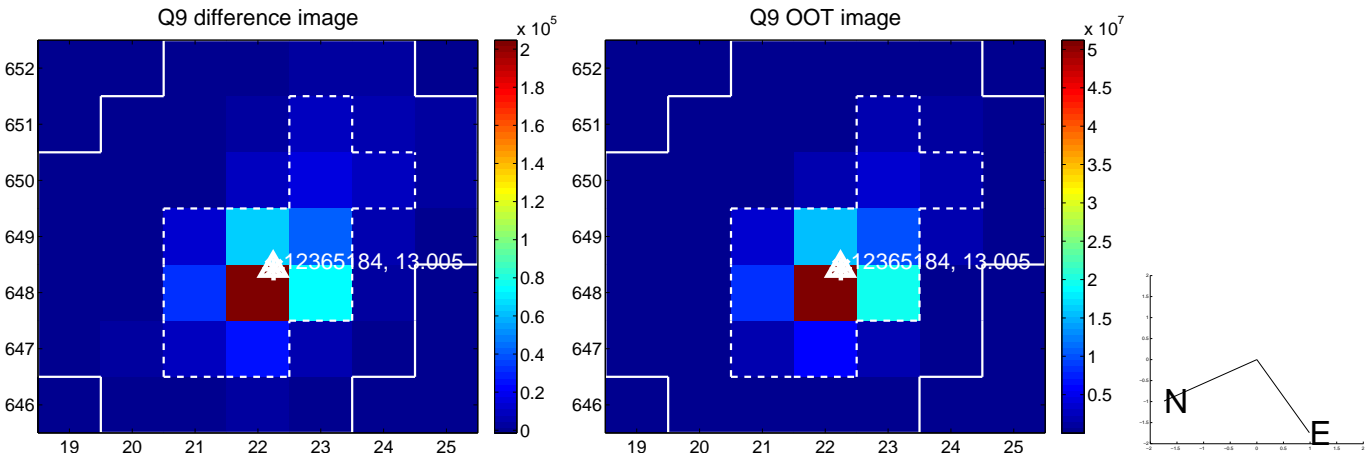


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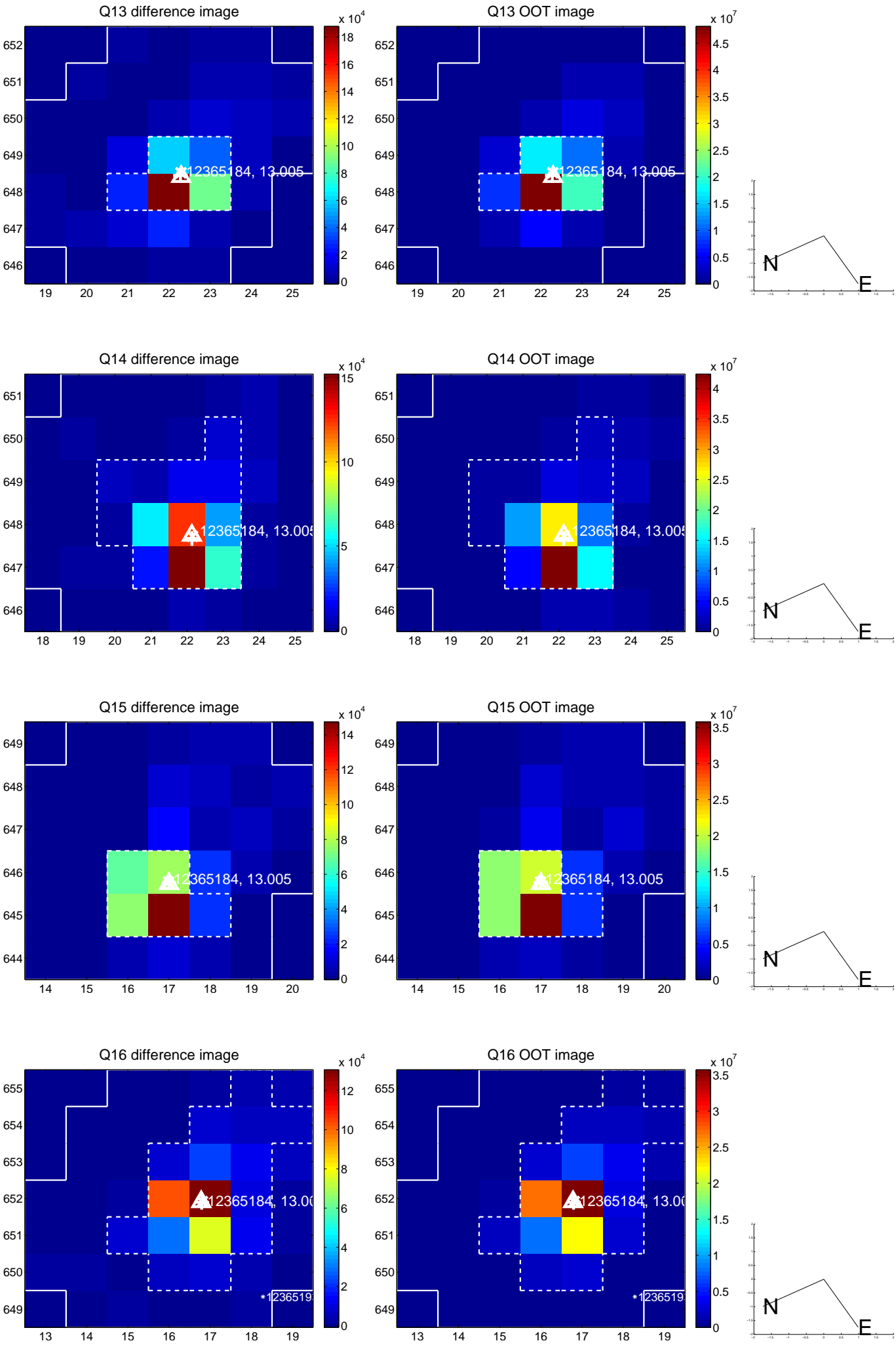




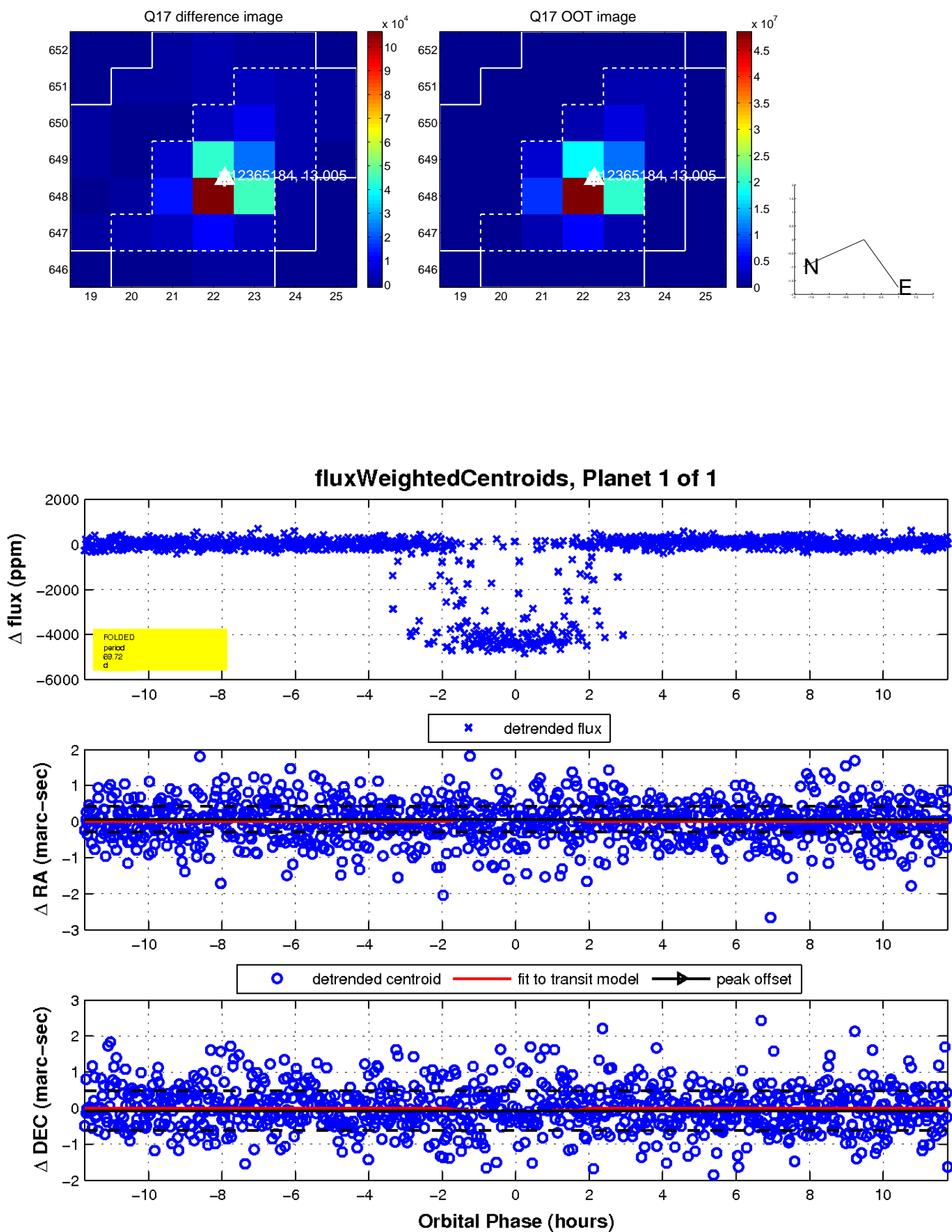
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UKIRT Image

Declination

