

# KIC 005103998

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005103998-01	OBS	3660.01	174.769689	172.472481	67495.0	2.354	483.8	408.8	0.80	5704	31.22	1.77

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005103998-01	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 005103998-01

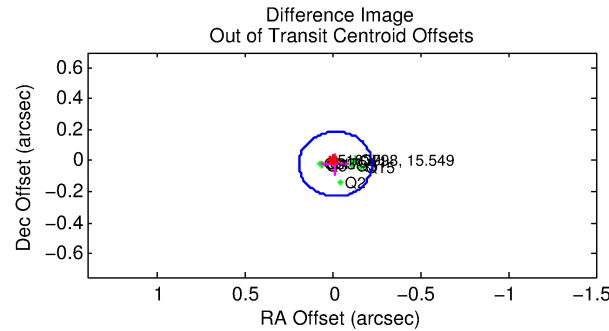
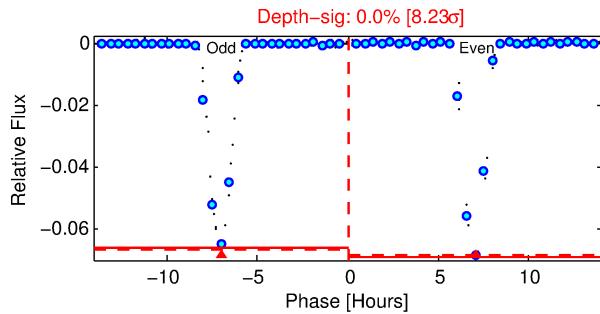
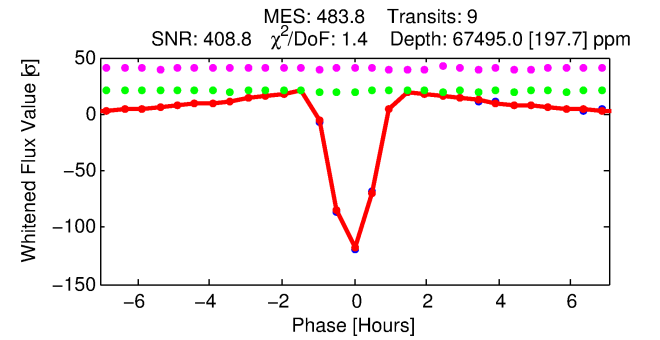
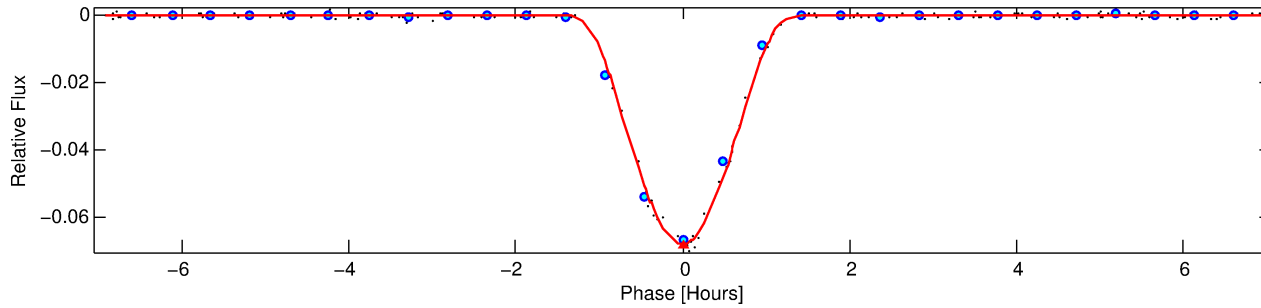
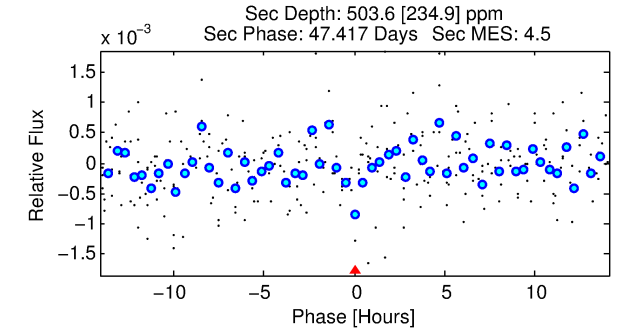
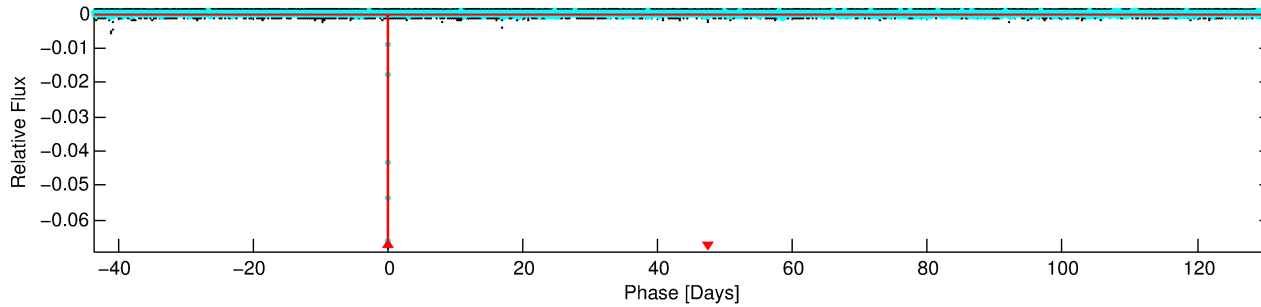
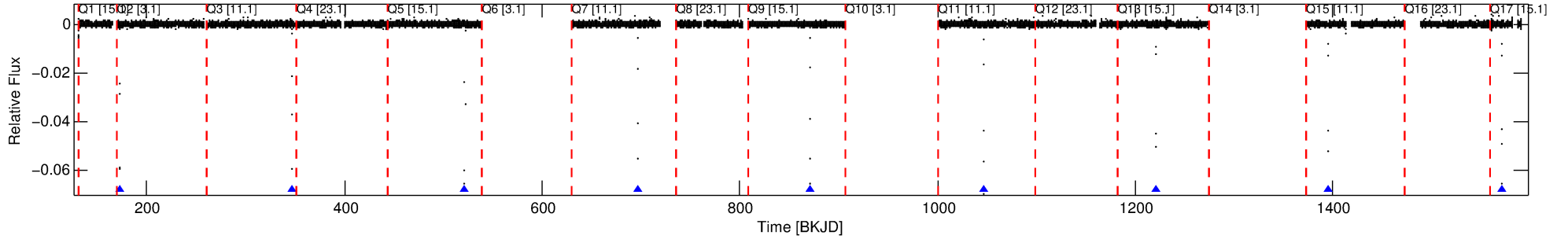
No Significant Match Found

# DV One-Page Summary

KIC: 5103998 Candidate: 1 of 1 Period: 174.770 d

KOI: K03660.01 Corr: 0.983

Kp: 15.55 R\*: 0.80 Rs Teff: 5704.0 K Logg: 4.58 Fe/H: -0.300



## DV Fit Results:

Period = 174.76969 [0.00003] d  
Epoch = 172.4725 [0.0001] BKJD  
Rp/R\* = 0.3558 [0.0653]  
a/R\* = 564.74 [3.50]  
b = 0.92 [0.10]  
Seff = 1.77 [0.56]  
Teq = 294 [23] K  
Ag = 98.19 [65.02] [1.49σ]  
Teffp = 1432 [217] K [5.22σ]

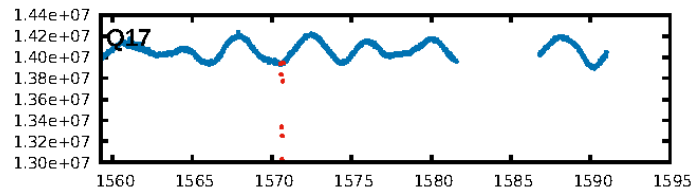
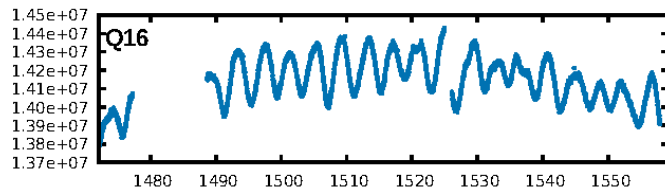
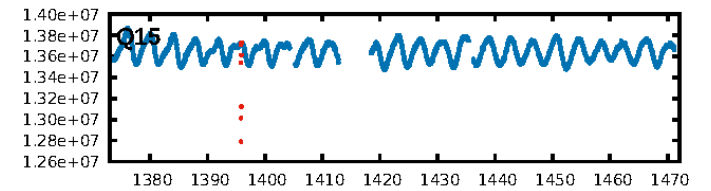
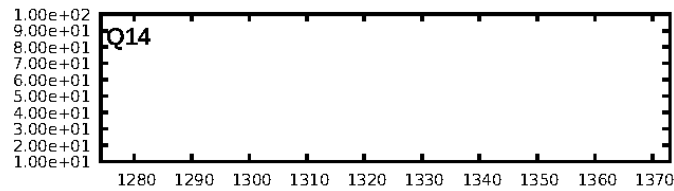
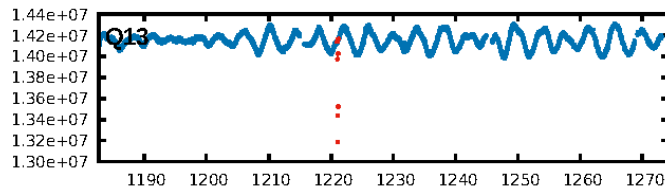
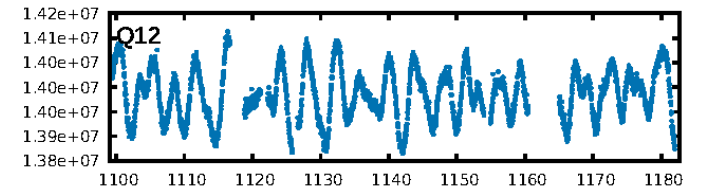
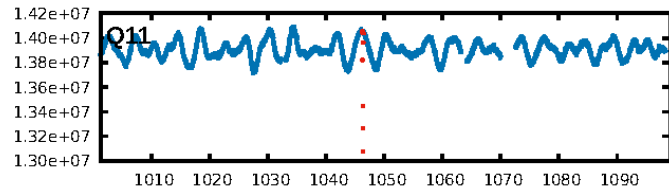
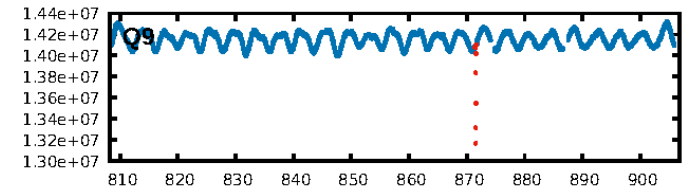
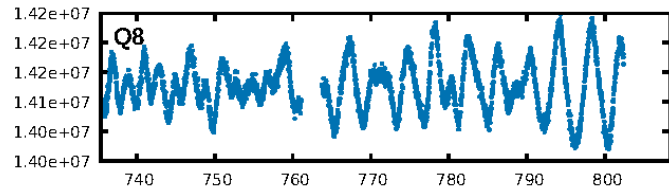
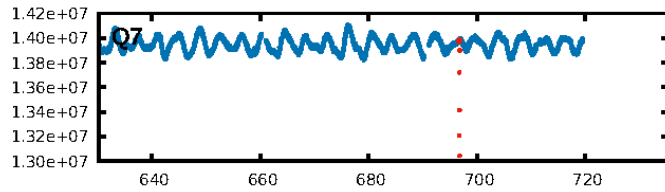
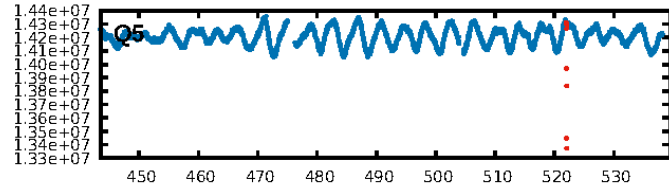
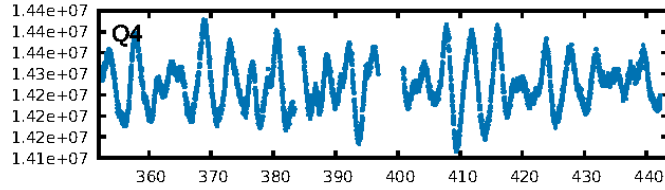
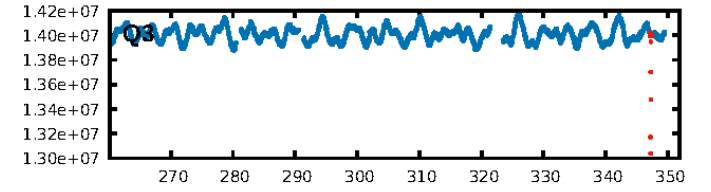
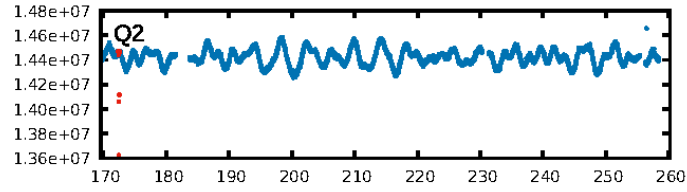
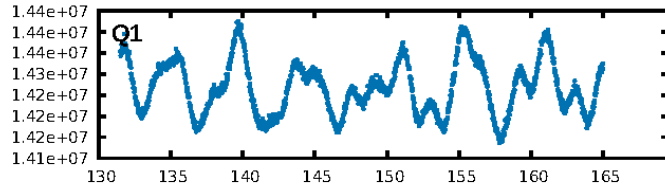
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 33.7%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 2.42  
Centroid-sig: 0.0%  
Centroid-so: 0.401 arcsec [16.51σ]  
OotOffset-rm: 0.026 arcsec [0.37σ]  
KicOffset-rm: 0.256 arcsec [3.65σ]  
OotOffset-st: 1/4/0/4 [9]  
KicOffset-st: 1/4/0/4 [9]  
DiffImageQuality-fgm: 1.00 [9/9]  
DiffImageOverlap-fno: 1.00 [9/9]

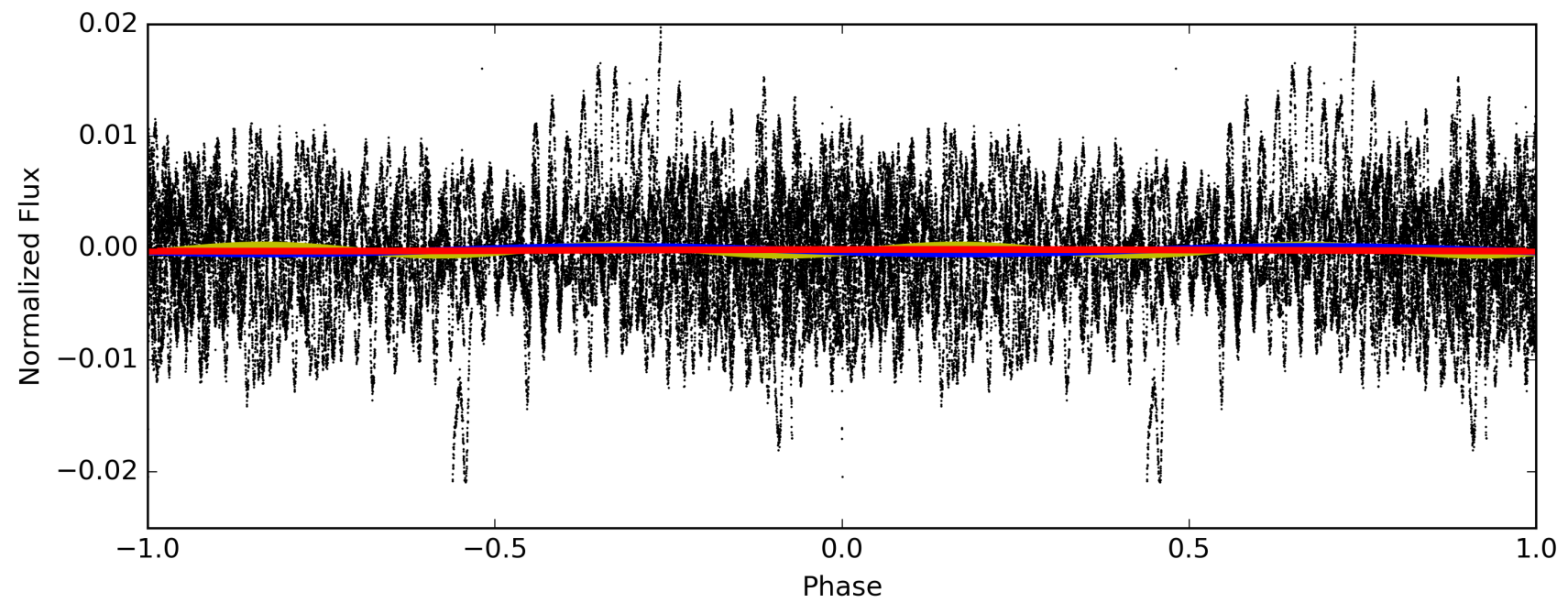
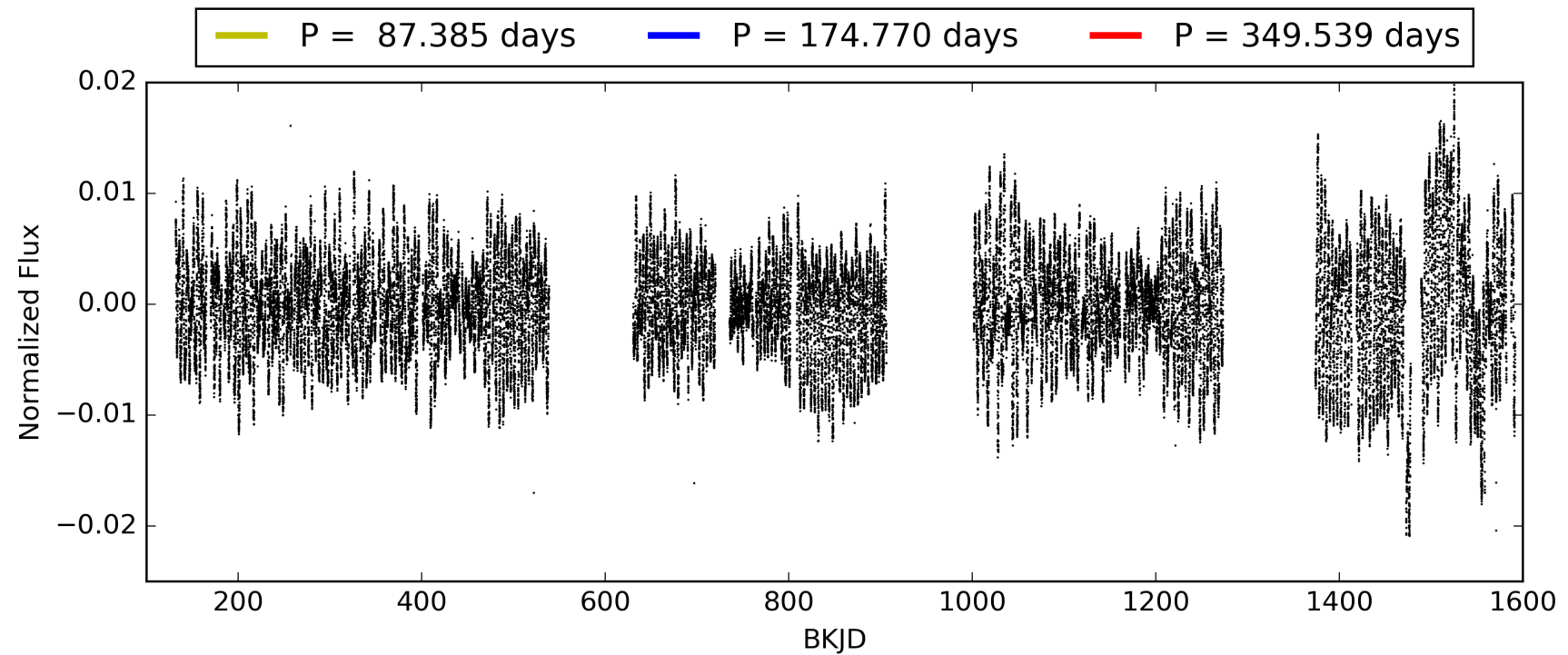
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:25:16 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005103998-01, PDC Light Curves

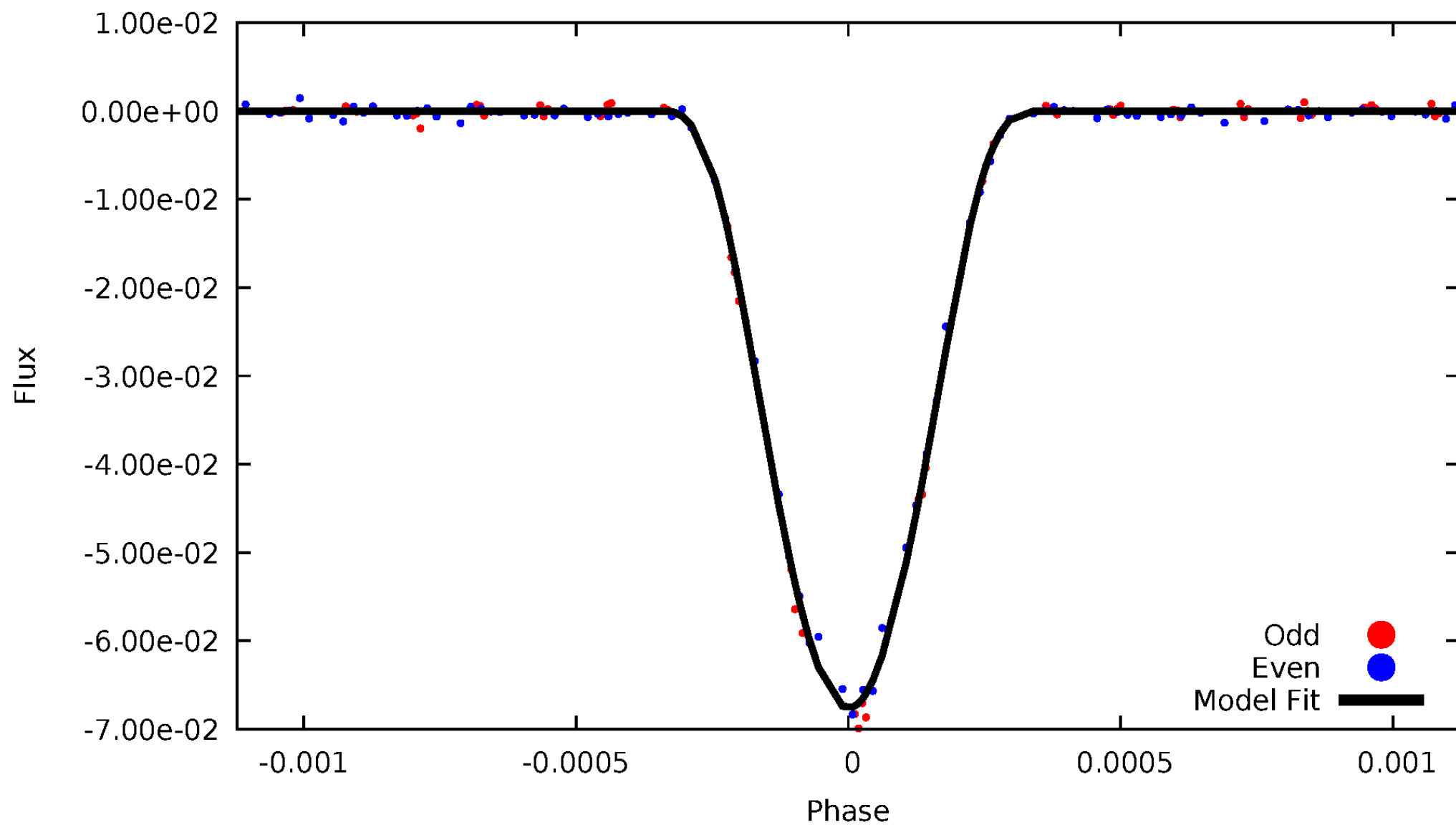


TCE 005103998-01



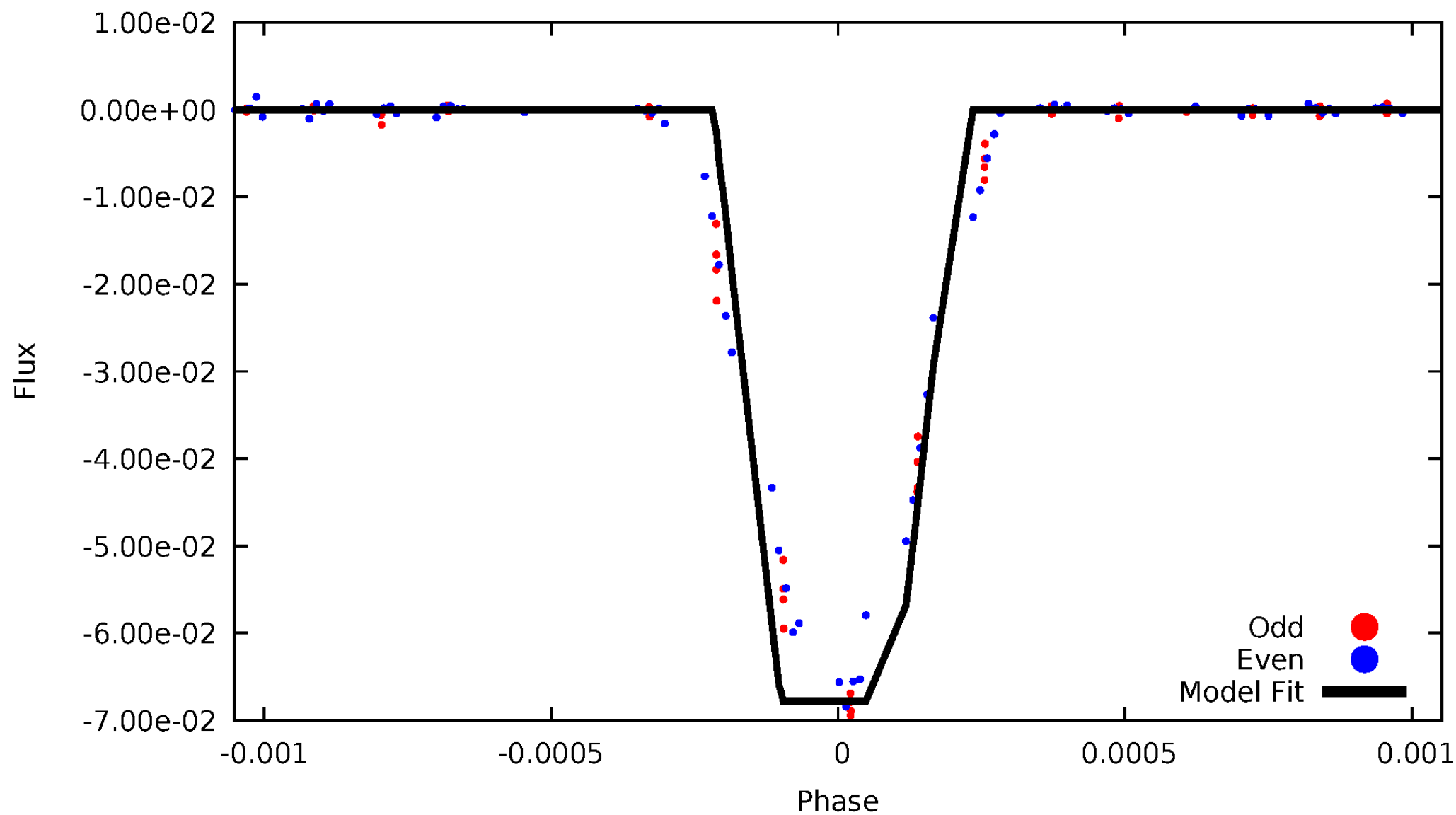
# DV Odd/Even

TCE 005103998-01



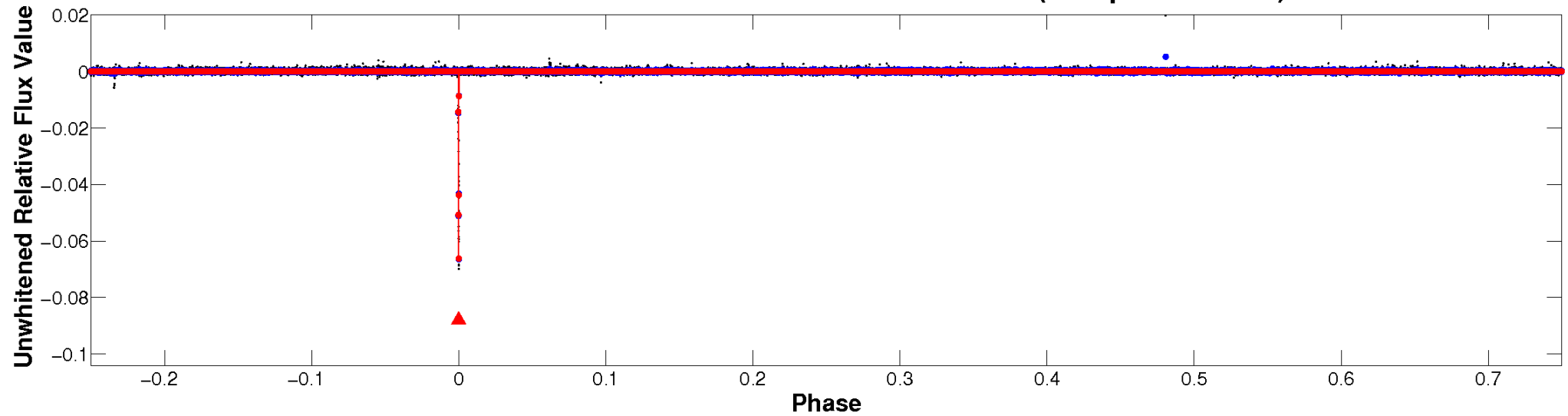
# ALT Odd/Even

TCE 005103998-01

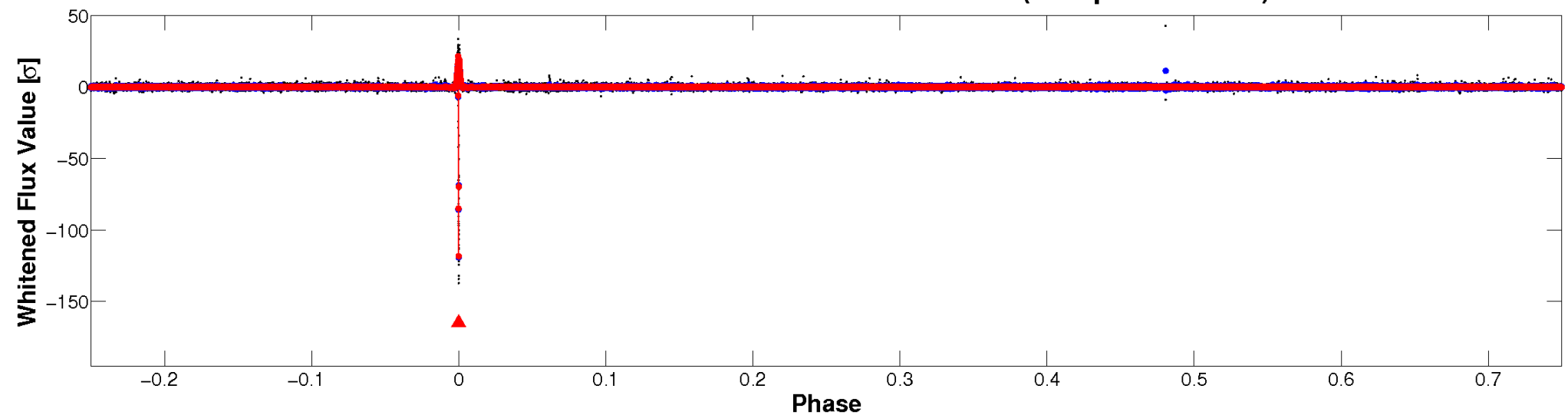


# Non-Whitened Vs. Whitened Light Curve

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

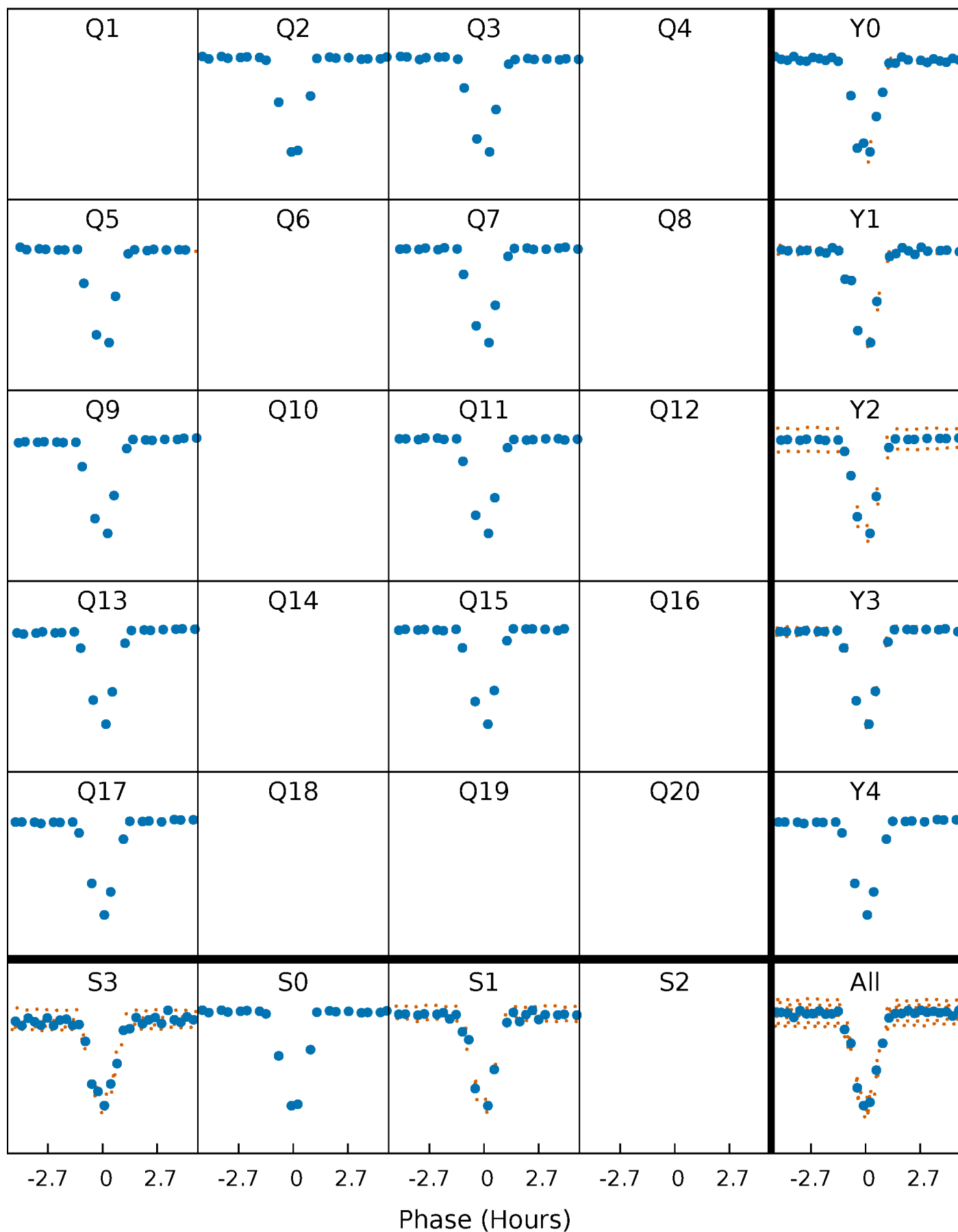


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

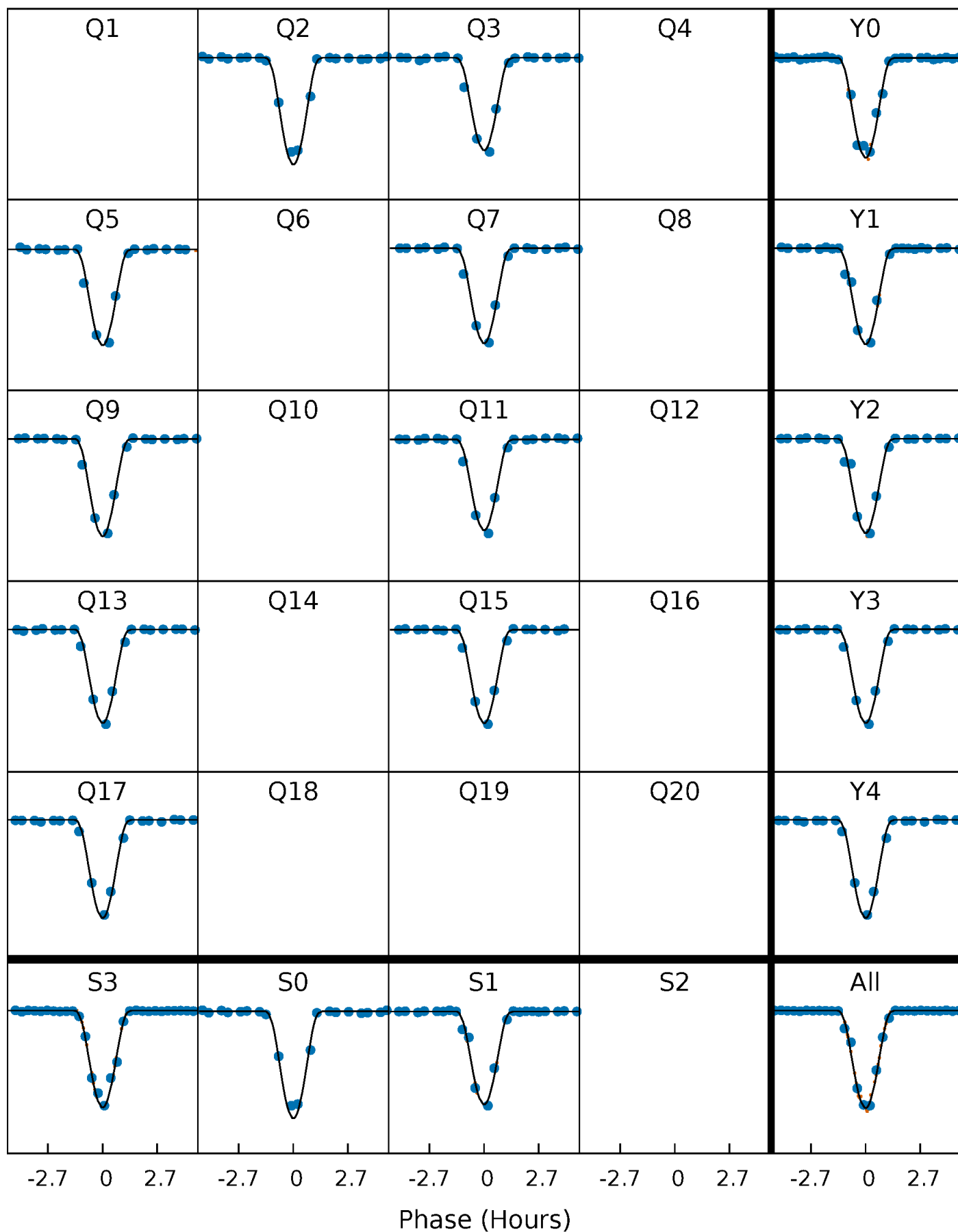
TCE 005103998-01 P=174.769689 Days  $T_0=172.472481$  (BKJD)





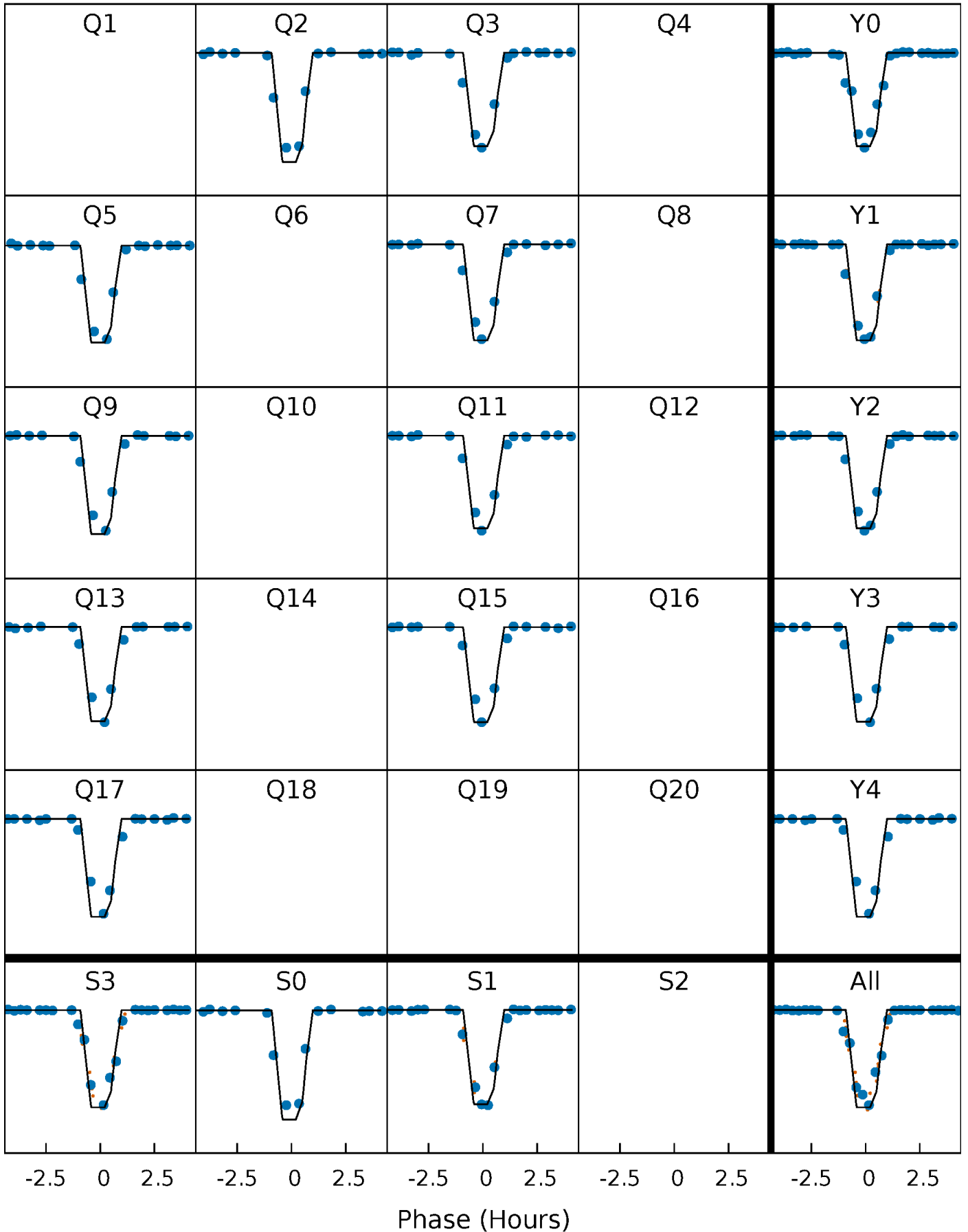
# DV Quarter-Phased Transit Curves

TCE 005103998-01 P=174.769689 Days  $T_0=172.472481$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

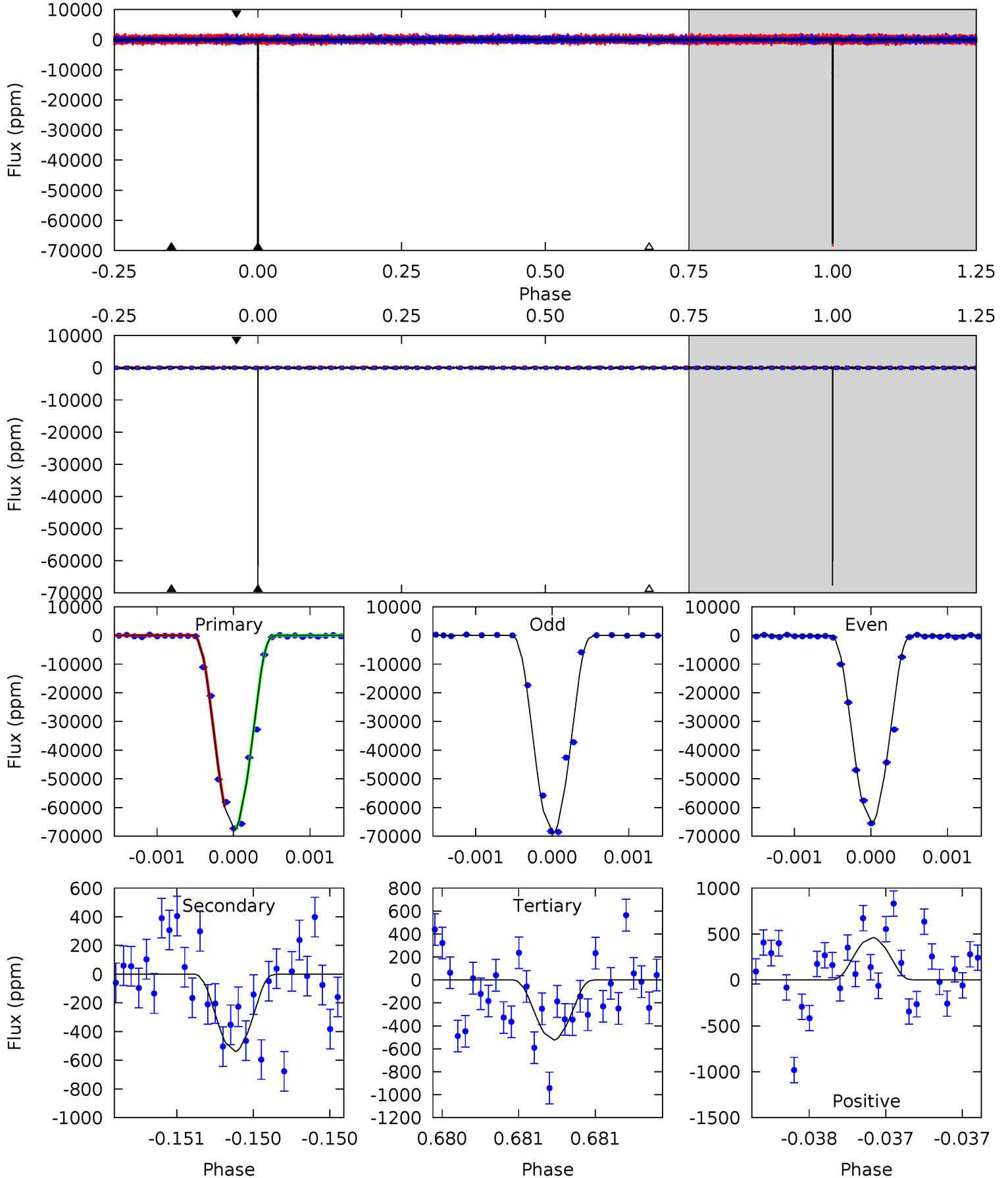
TCE 005103998-01 P=174.769127 Days  $T_0=172.474809$  (BKJD)



# DV Model-Shift Uniqueness Test

005103998-01, P = 174.769689 Days, E = 172.472481 Days

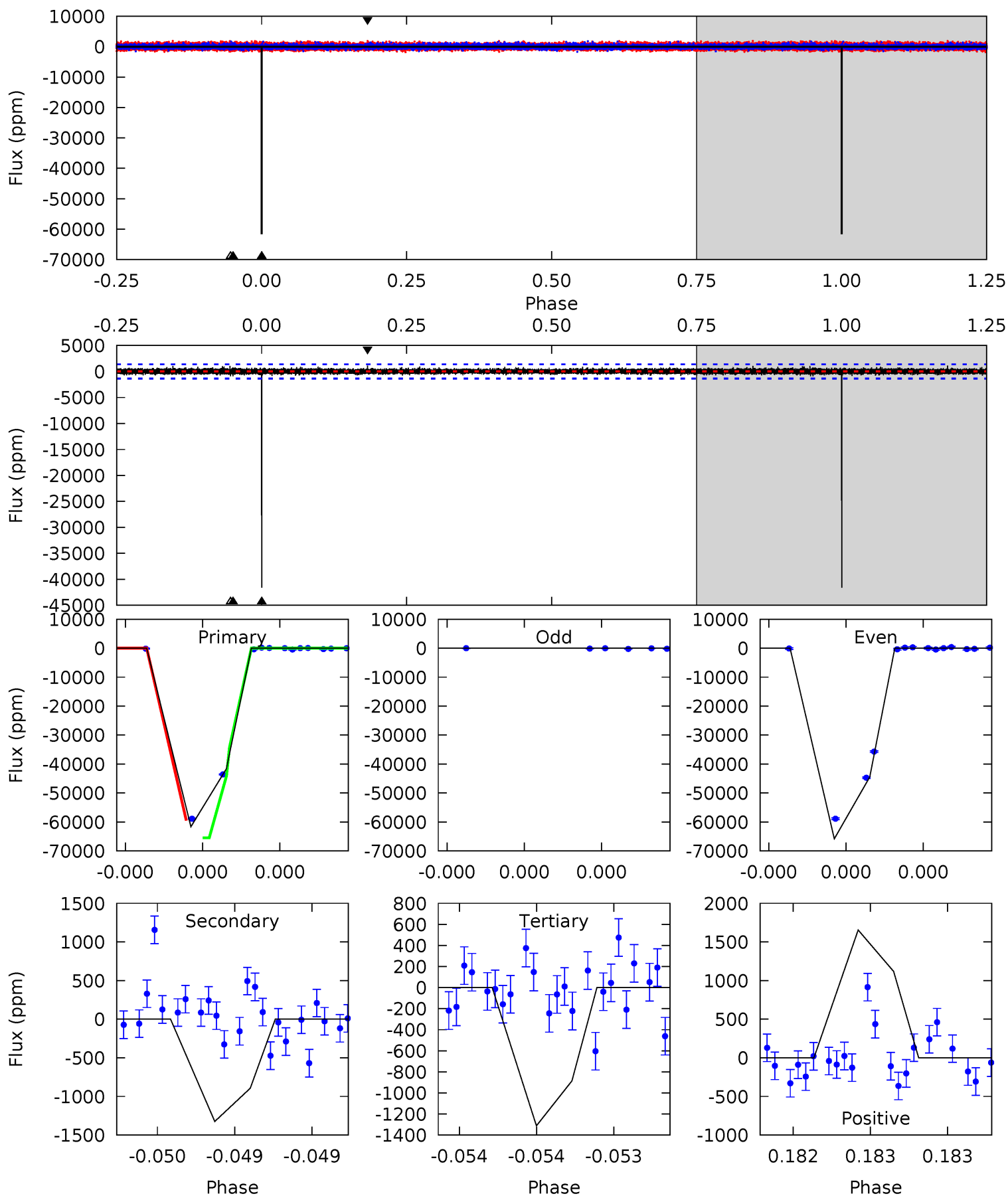
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
929.6	7.40	7.19	6.34	5.54	3.42	1.81	922.4	923.2	0.21	1.06	25.5	0.99	0.01	0



# Alt Model-Shift Uniqueness Test

005103998-01, P = 174.769127 Days, E = 172.474809 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
170.1	3.65	3.62	4.57	5.59	3.51	0.89	166.5	165.5	0.03	-0.91	0	1.01	0.03	0



### Stellar Parameters For KIC 005103998

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5704^{+152}_{-169}$	$4.575^{+0.040}_{-0.160}$	$-0.300^{+0.300}_{-0.300}$	$0.804^{+0.194}_{-0.065}$	$0.897^{+0.088}_{-0.107}$	$2.429^{+0.499}_{-1.036}$
	+3%/-3%	+1%/-3%	+100%/-100%	+24%/-8%	+10%/-12%	+21%/-43%
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 005103998-01 / KOI 3660.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-539 \pm 73$	$32.51^{+6.98}_{-6.07}$	$419^{+23}_{-18}$	$2349^{+130}_{-101}$	$95^{+51}_{-29}$
Alt.	$-893 \pm 245$	$23.75^{+6.71}_{-6.59}$	$419^{+24}_{-17}$	$2704^{+261}_{-182}$	$292^{+277}_{-128}$

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

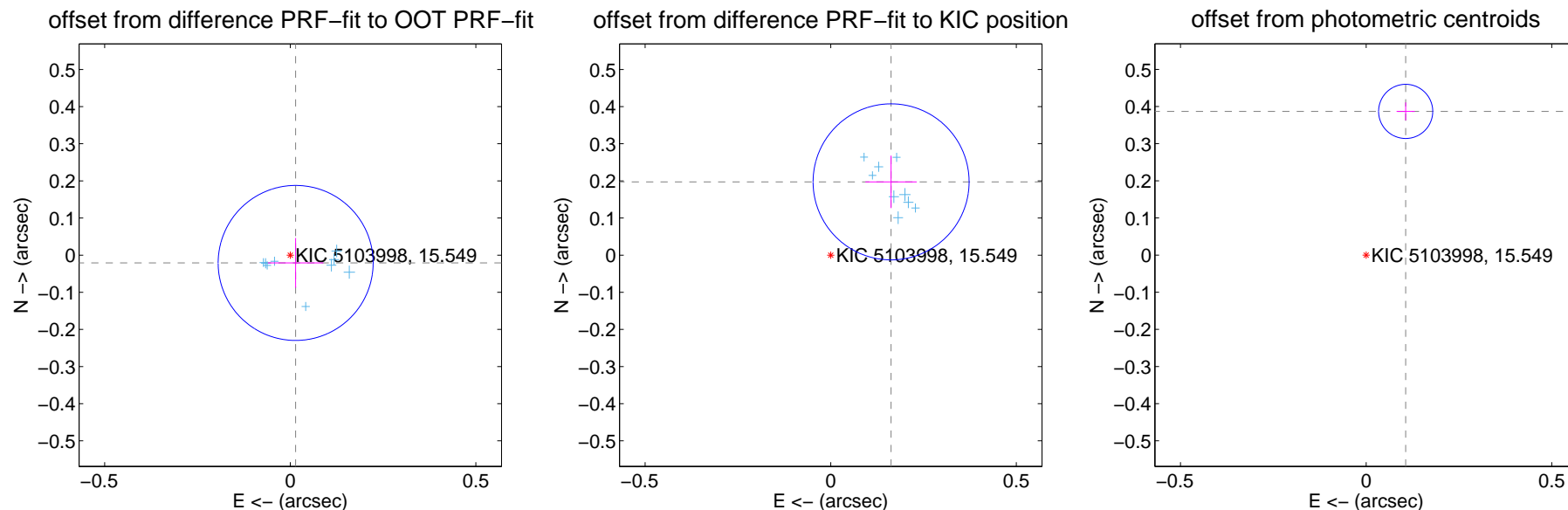
## DV Centroid Data

Supplemental centroid analysis for 005103998-01. Kepler magnitude: 15.55. Transit SNR 408.80

There are 9 quarters with good PRF difference image offsets

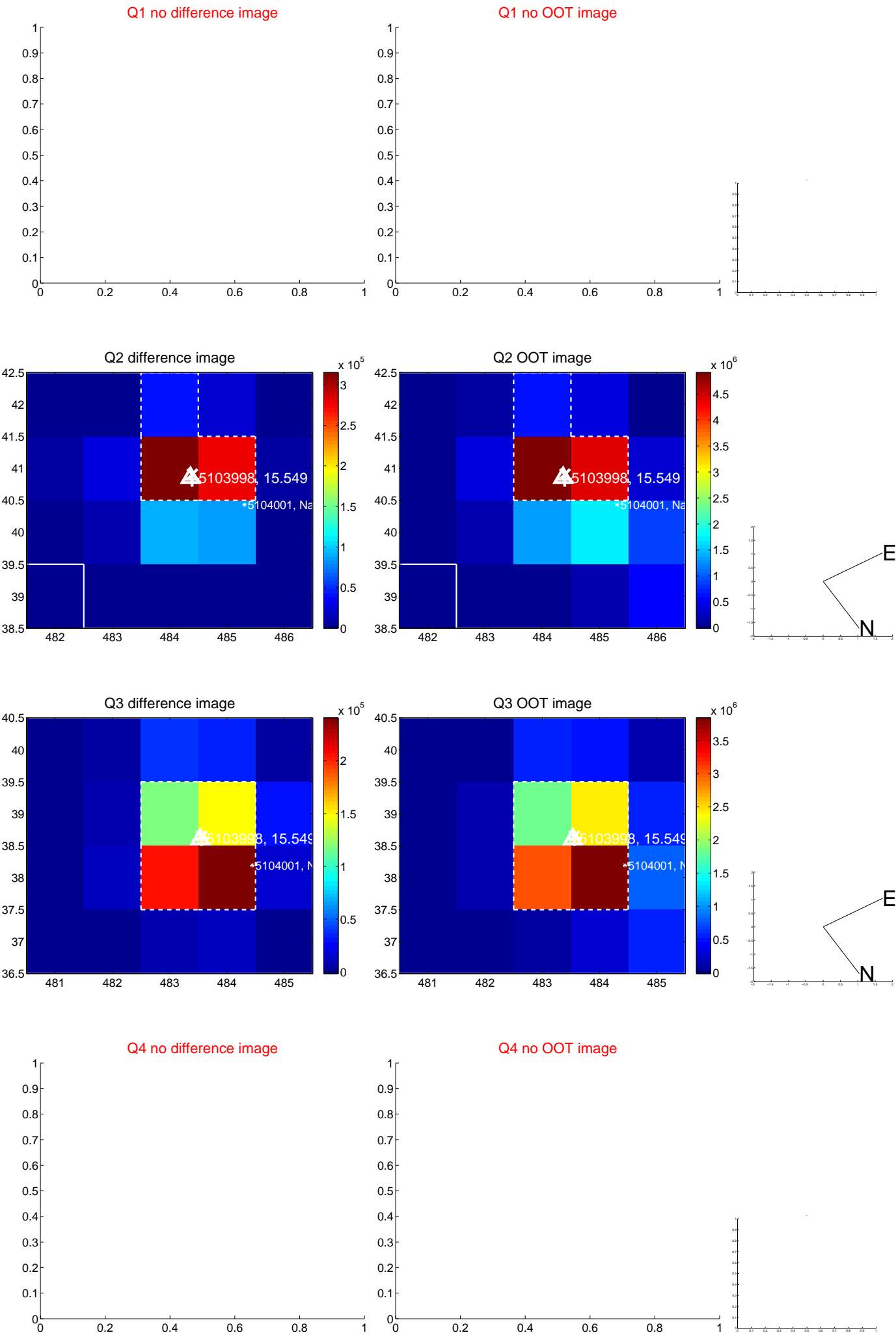
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.026 \pm 0.070$	0.37	$-0.015 \pm 0.075$	$-0.021 \pm 0.067$
PRF-fit source offset from KIC position	$0.256 \pm 0.070$	3.65	$-0.163 \pm 0.069$	$0.197 \pm 0.071$
photometric centroid source offset	$0.40 \pm 0.02$	16.51	$-0.11 \pm 0.02$	$0.39 \pm 0.02$

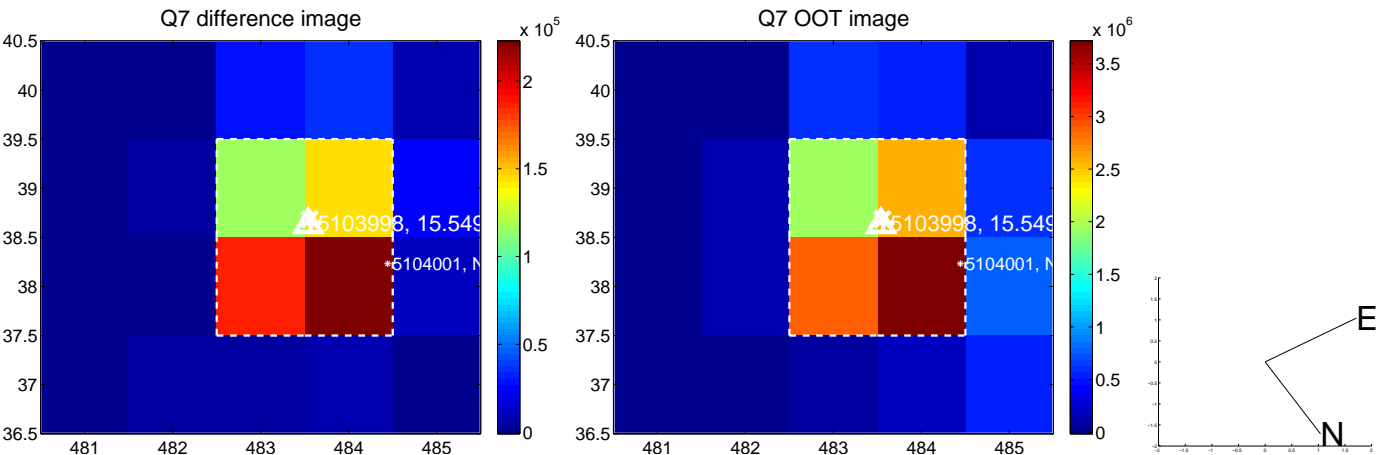
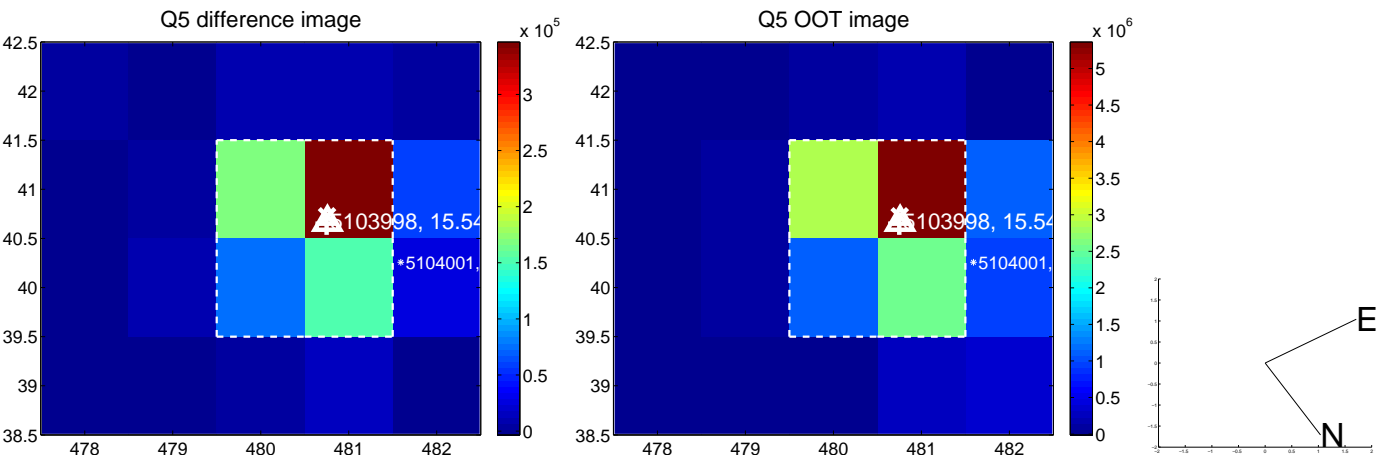


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

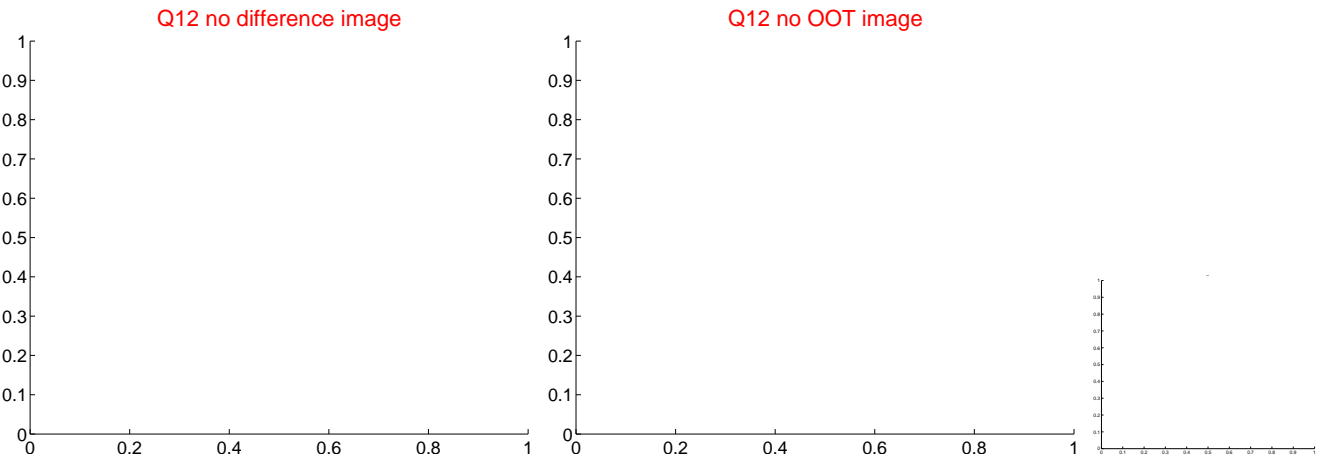
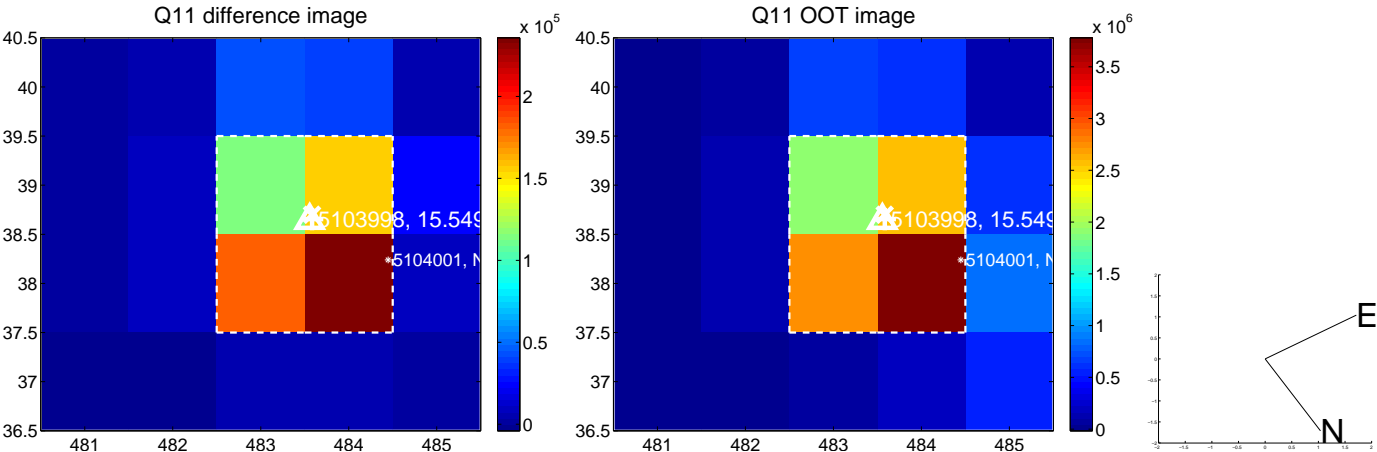
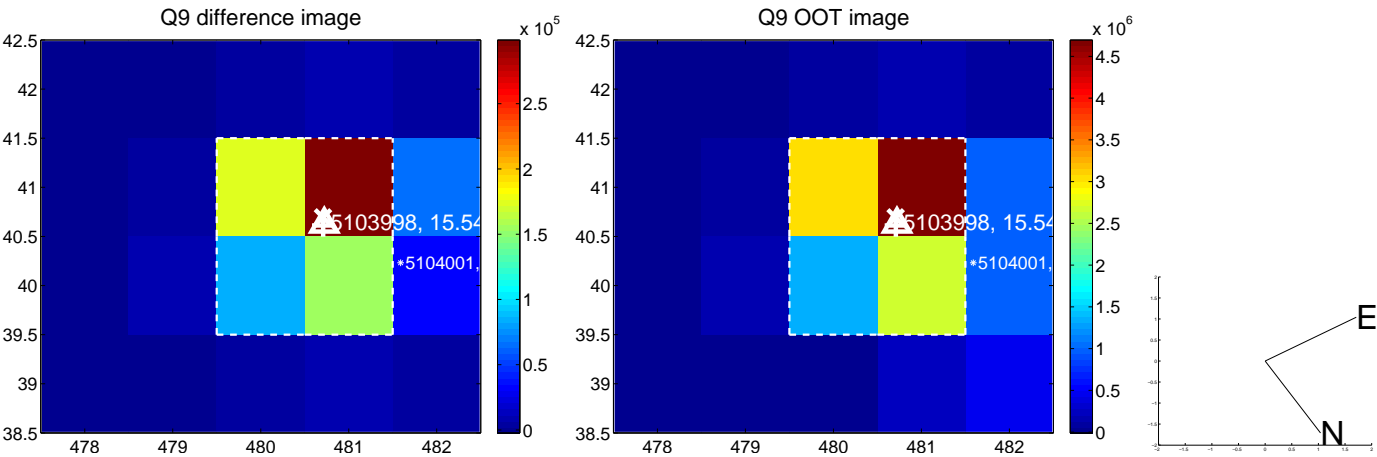


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

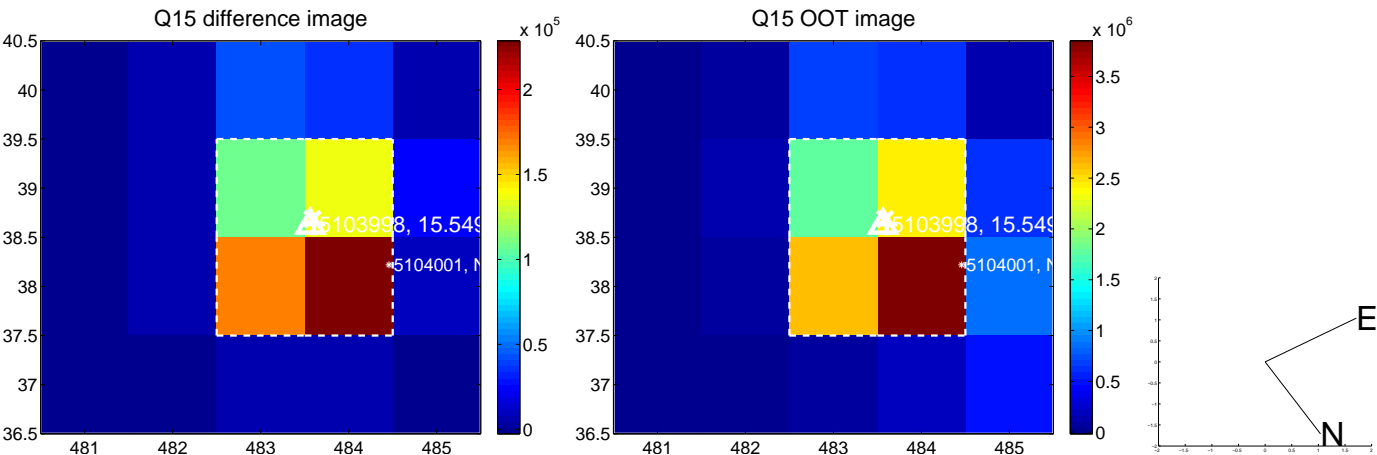
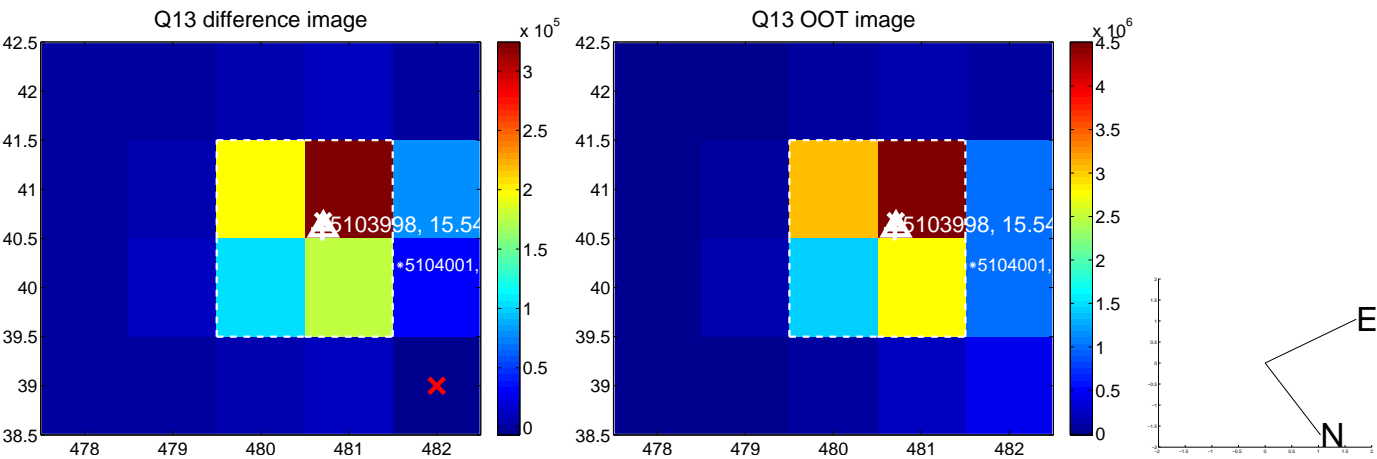




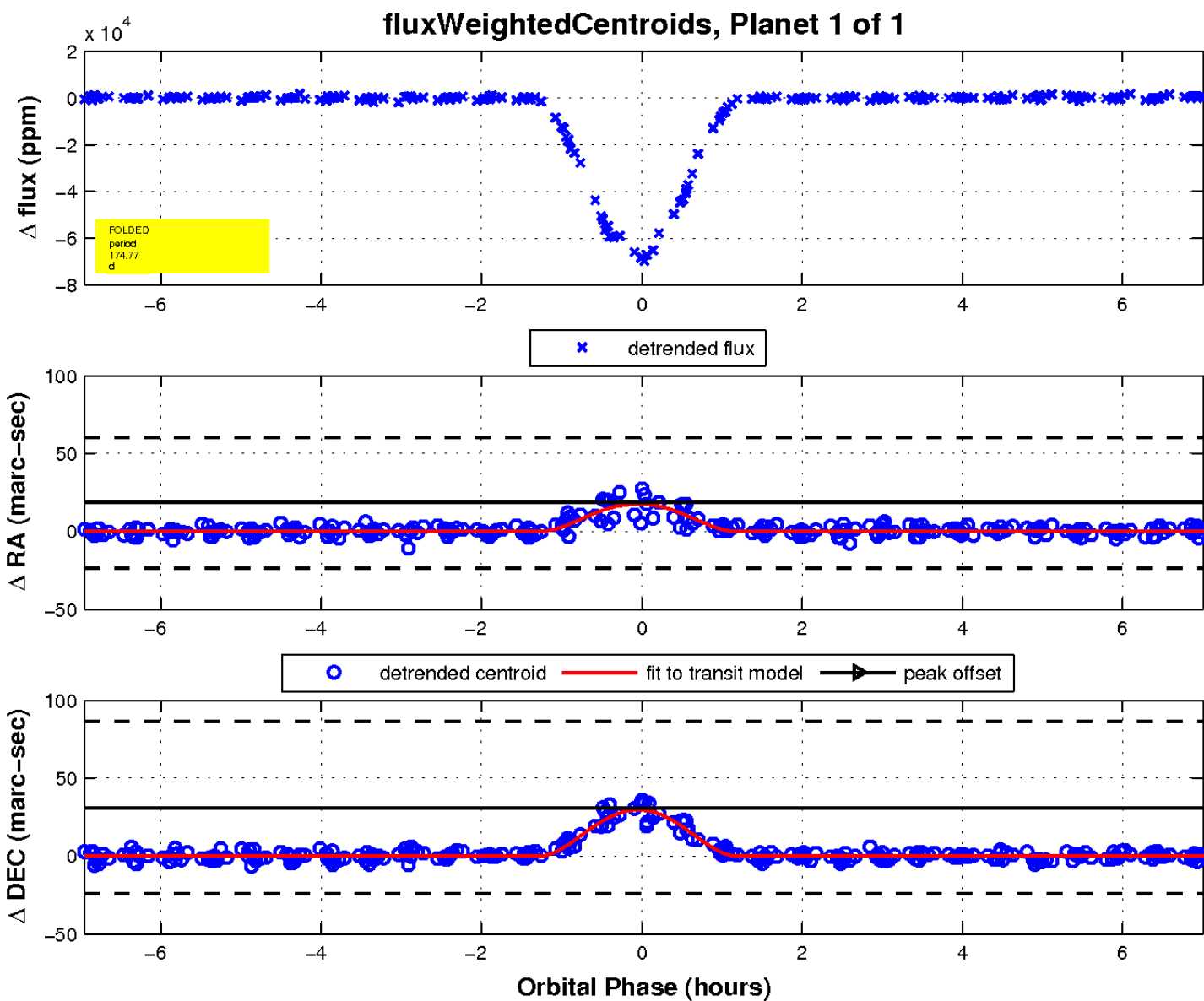
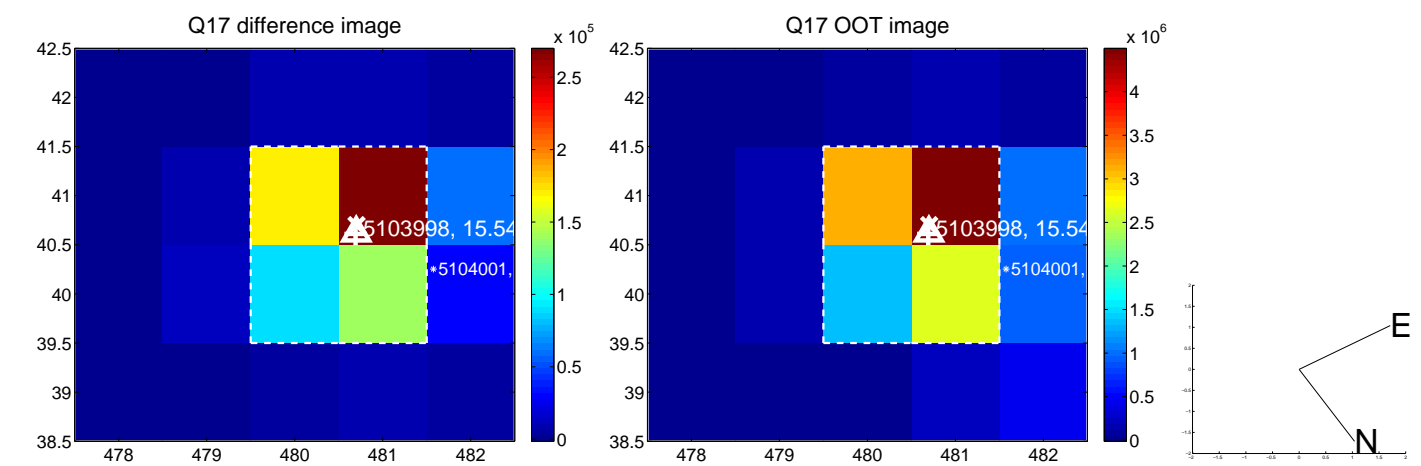
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

