

# KIC 002976017

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002976017-01	OBS	4849.01	3.199454	132.995571	77.4	1.625	8.5	9.4	0.70	5483	0.73	262.88

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002976017-01	OBS	PC	0.99	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.

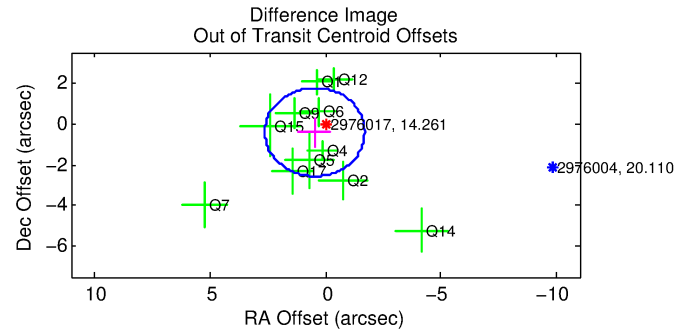
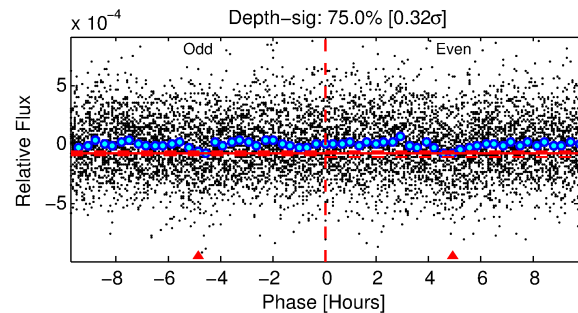
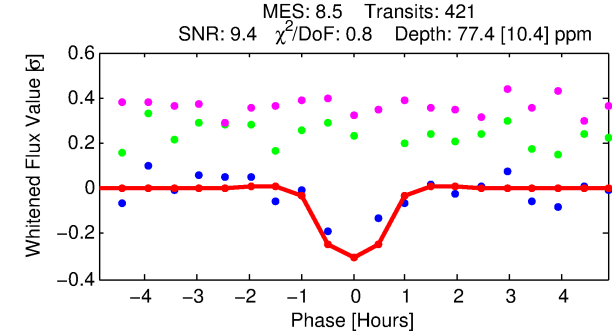
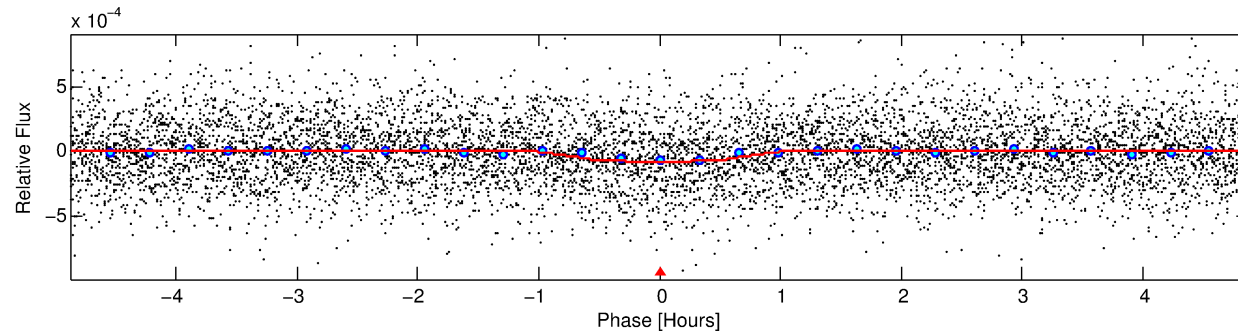
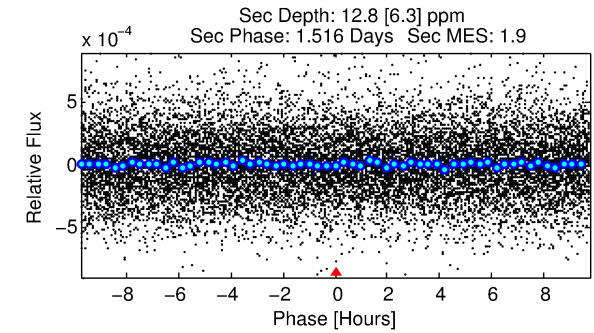
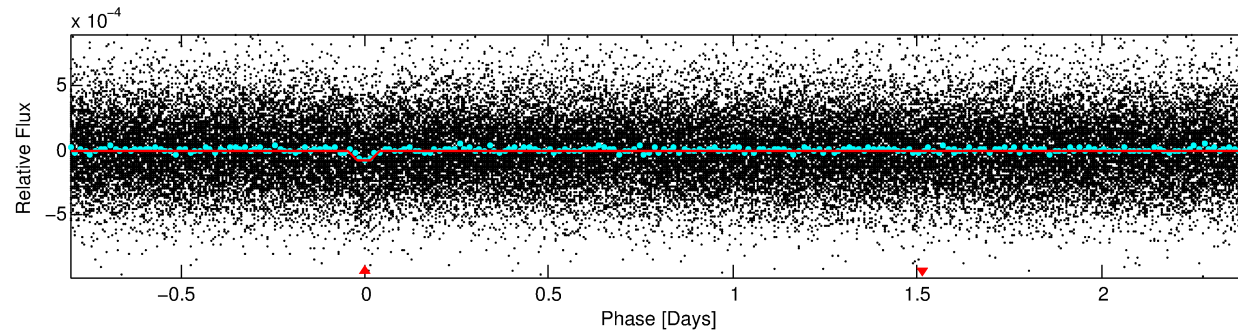
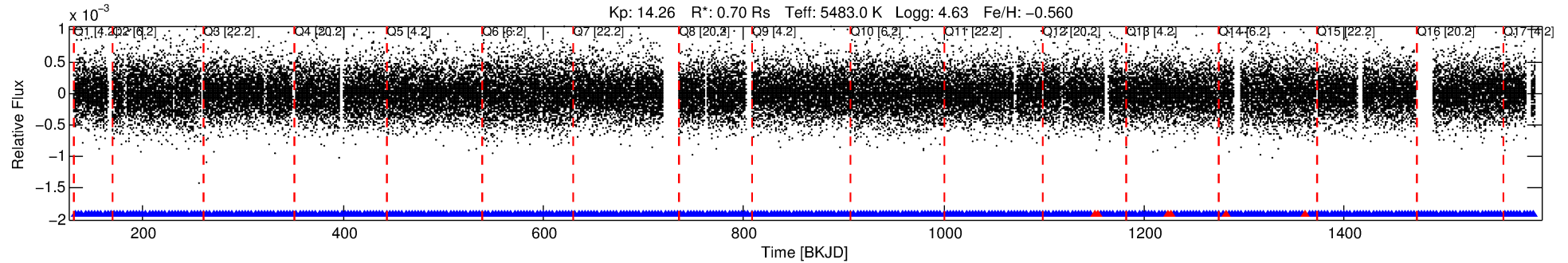
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002976017-01

No Significant Match Found

# DV One-Page Summary

KIC: 2976017 Candidate: 1 of 1 Period: 3.199 d  
KOI: K04849.01 Corr: 0.904



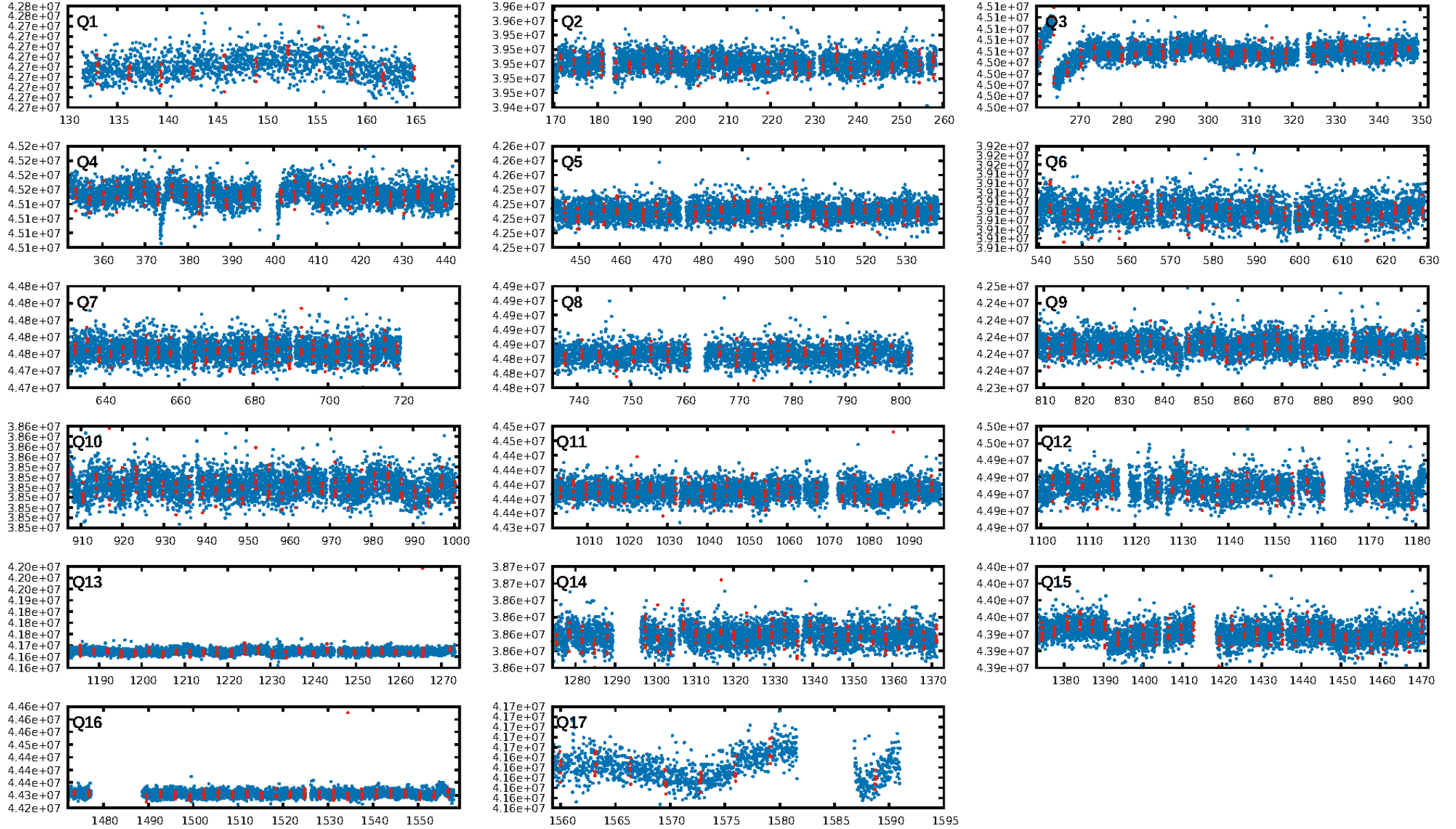
## DV Fit Results:

Period = 3.19945 [0.00002] d  
Epoch = 132.9956 [0.0033] BKJD  
Rp/R\* = 0.0096 [0.0076]  
a/R\* = 6.98 [25.68]  
b = 0.90 [0.82]  
Seff = 262.88 [59.69]  
Teff = 1027 [58] K  
Rp = 0.74 [0.59] Re  
a = 0.0390 [0.0053] AU  
Ag = 19.80 [33.02] [0.57σ]  
Teffp = 3349 [1390] K [1.67σ]

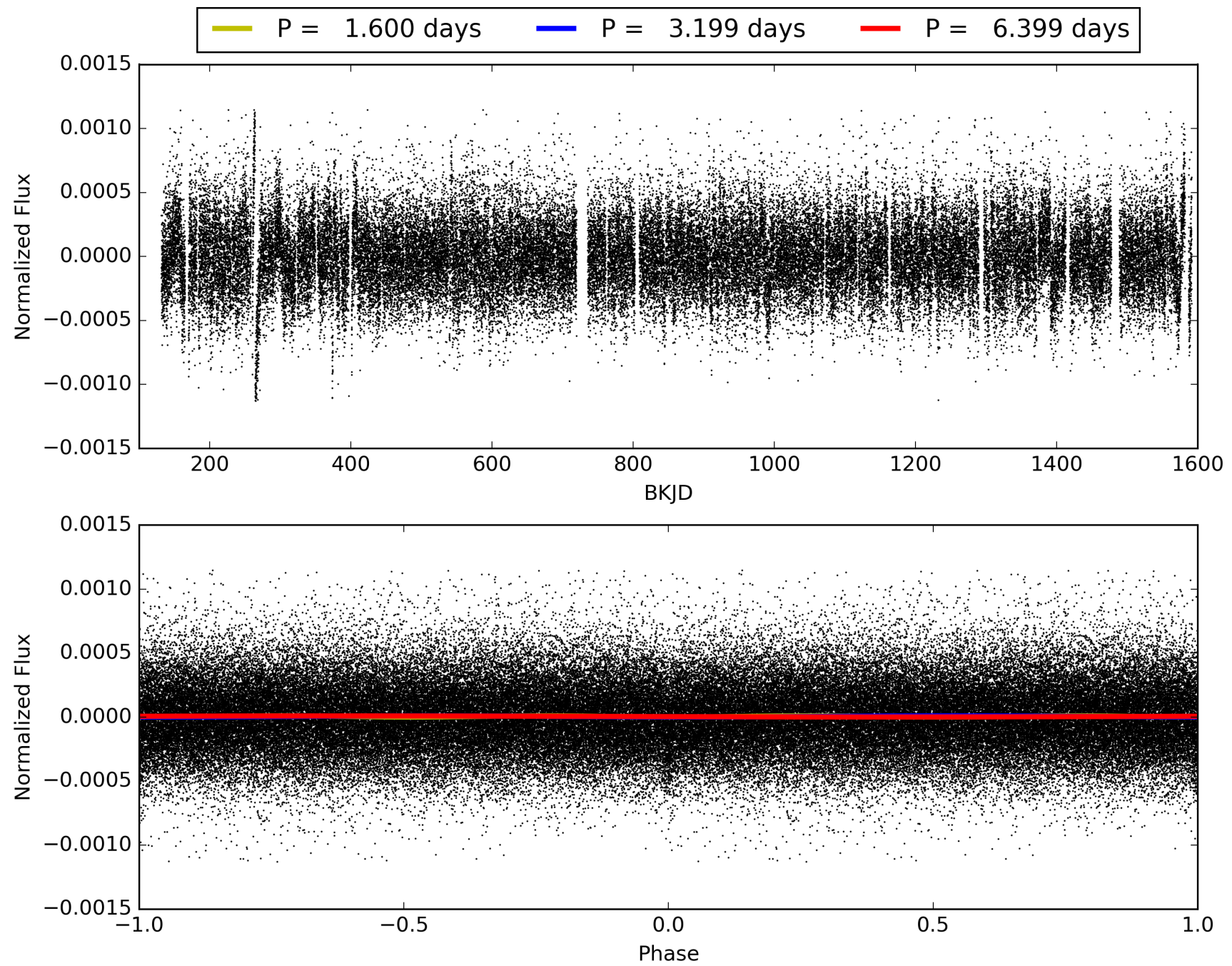
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.07e-17  
RollingBand-fgt: 0.99 [396/402]  
GhostDiagnostic-chr: 1.192  
Centroid-sig: 0.0%  
Centroid-so: 4.384 arcsec [2.72σ]  
OotOffset-rm: 0.616 arcsec [0.86σ]  
KicOffset-rm: 0.686 arcsec [1.04σ]  
OotOffset-st: 3/2/2/4 [11]  
KicOffset-st: 3/2/2/4 [11]  
DiffImageQuality-fgm: 0.36 [4/11]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 002976017-01, PDC Light Curves

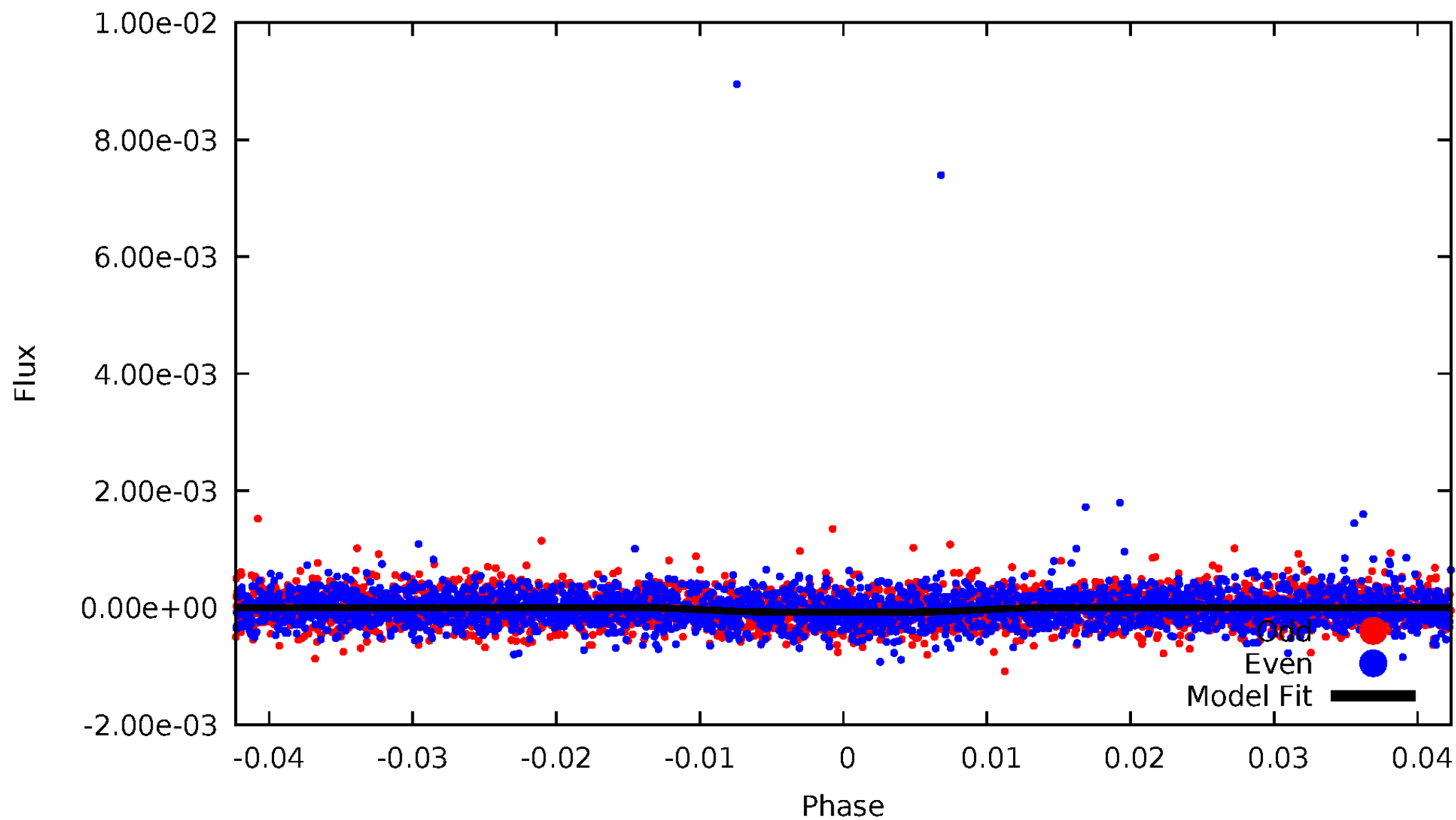


TCE 002976017-01



# DV Odd/Even

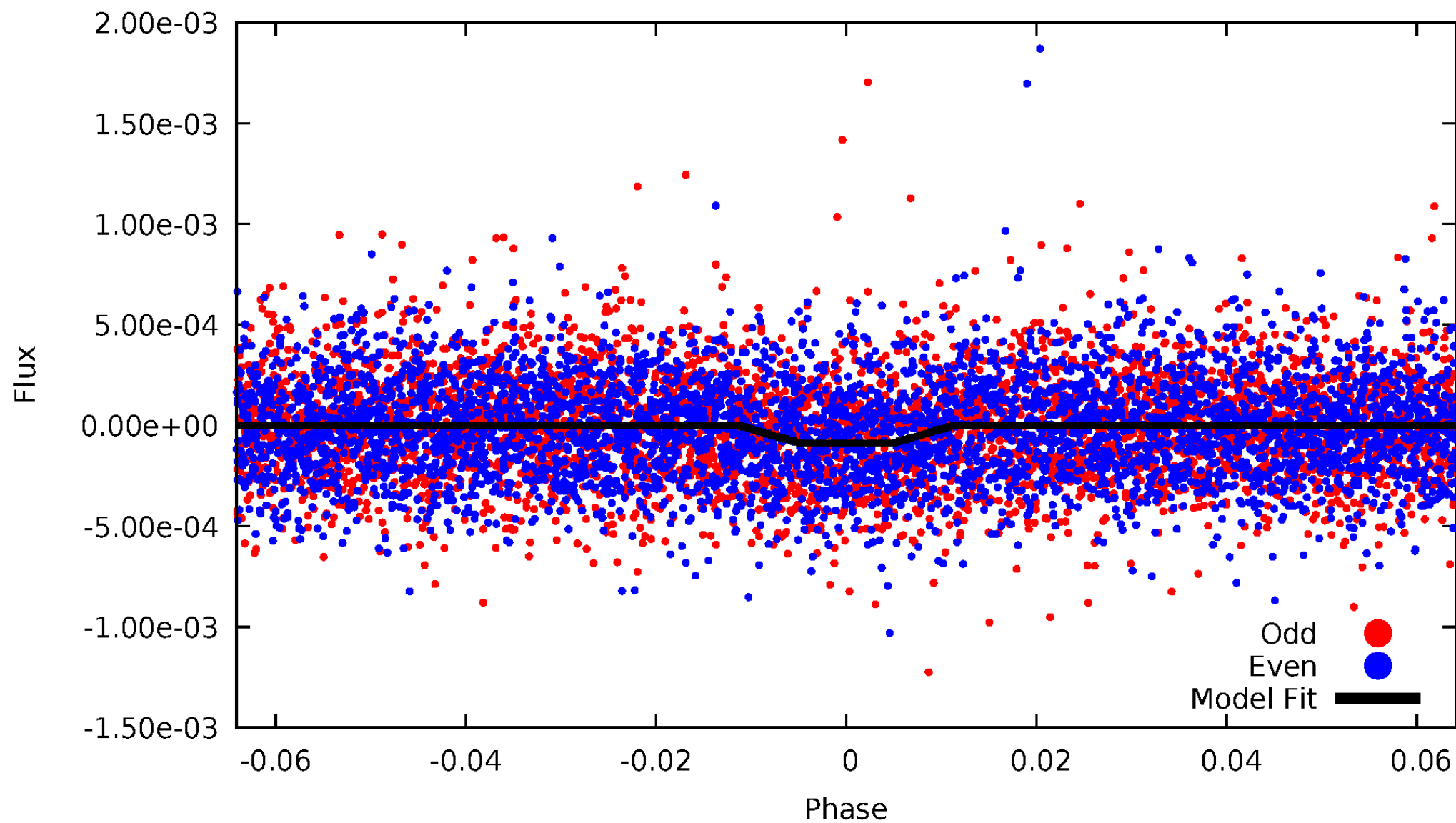
TCE 002976017-01





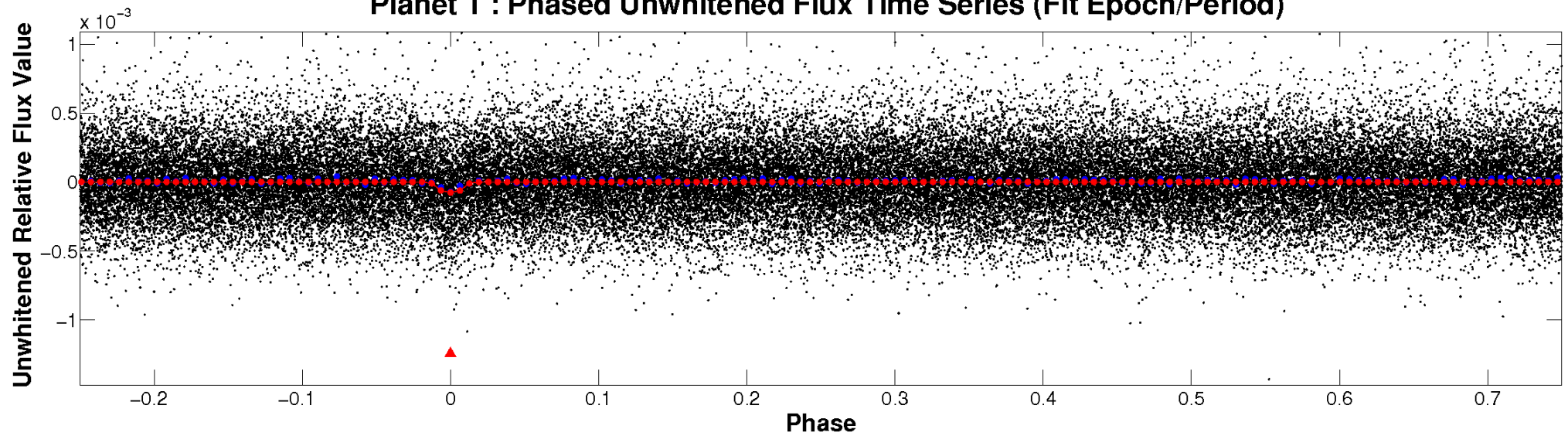
# ALT Odd/Even

TCE 002976017-01

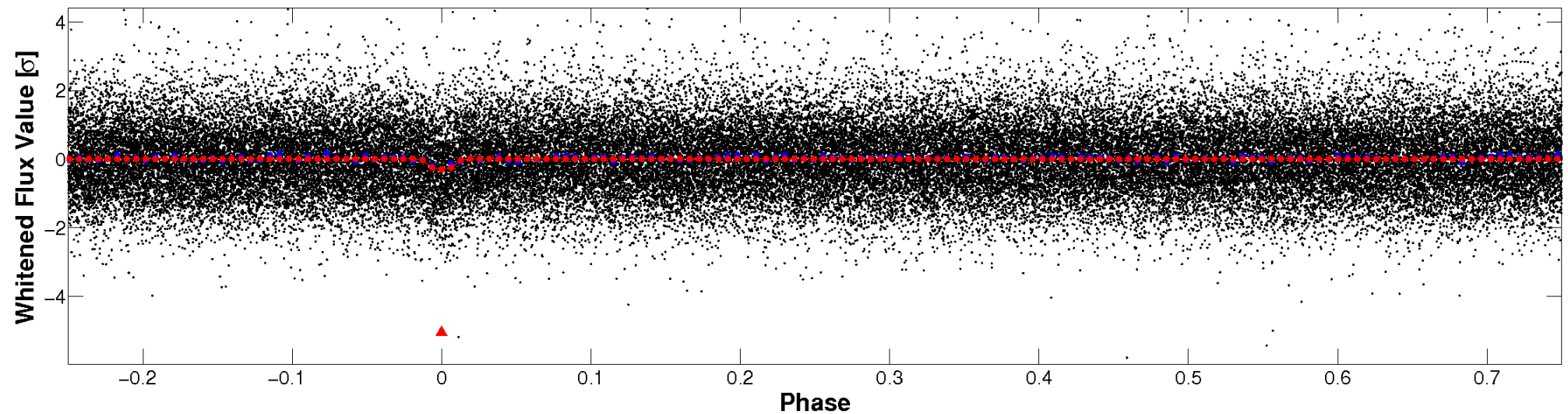


# Non-Whitened Vs. Whitened Light Curve

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

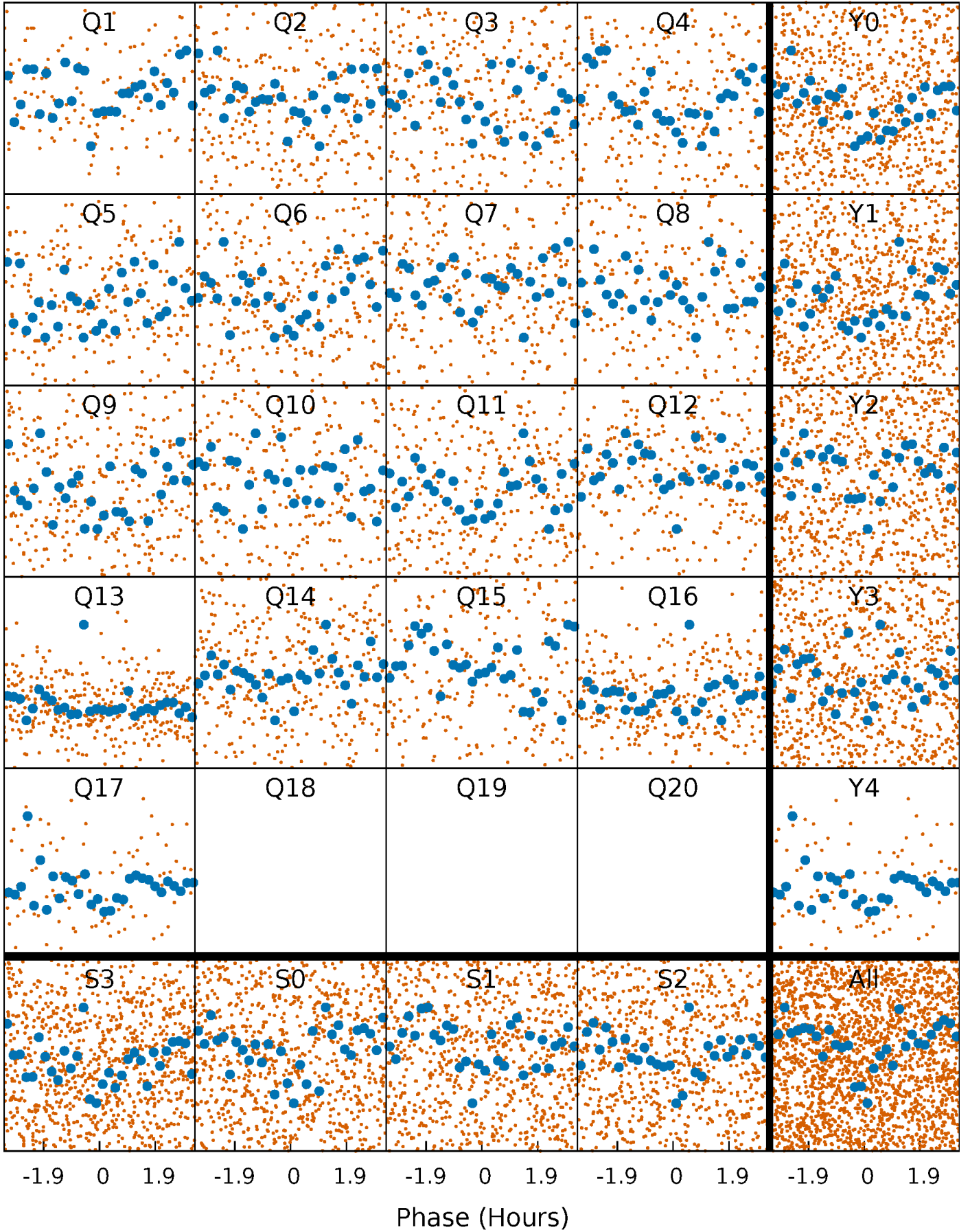


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

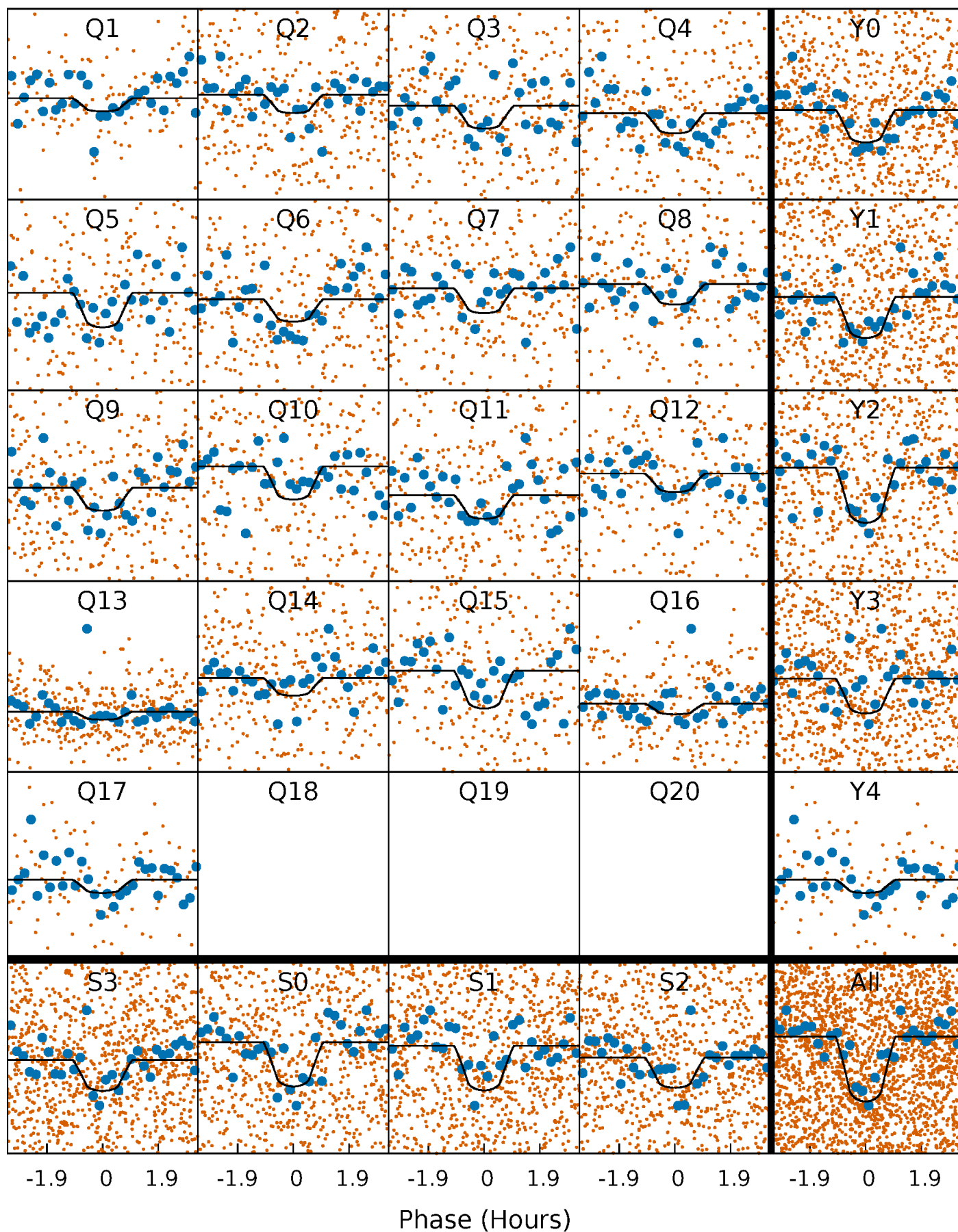
TCE 002976017-01   P= 3.199454 Days    $T_0=132.995571$  (BKJD)





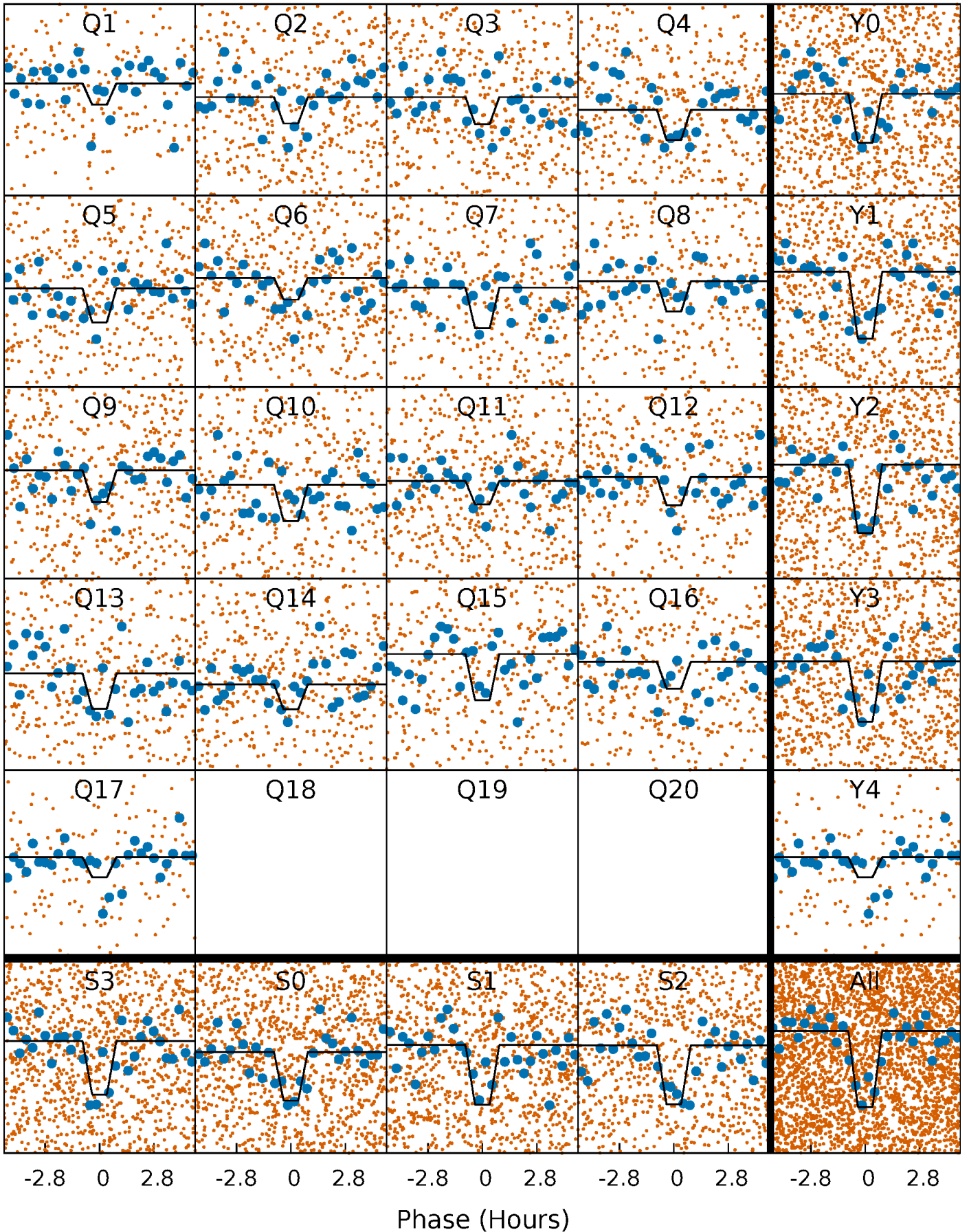
# DV Quarter-Phased Transit Curves

TCE 002976017-01 P= 3.199454 Days  $T_0=132.995571$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

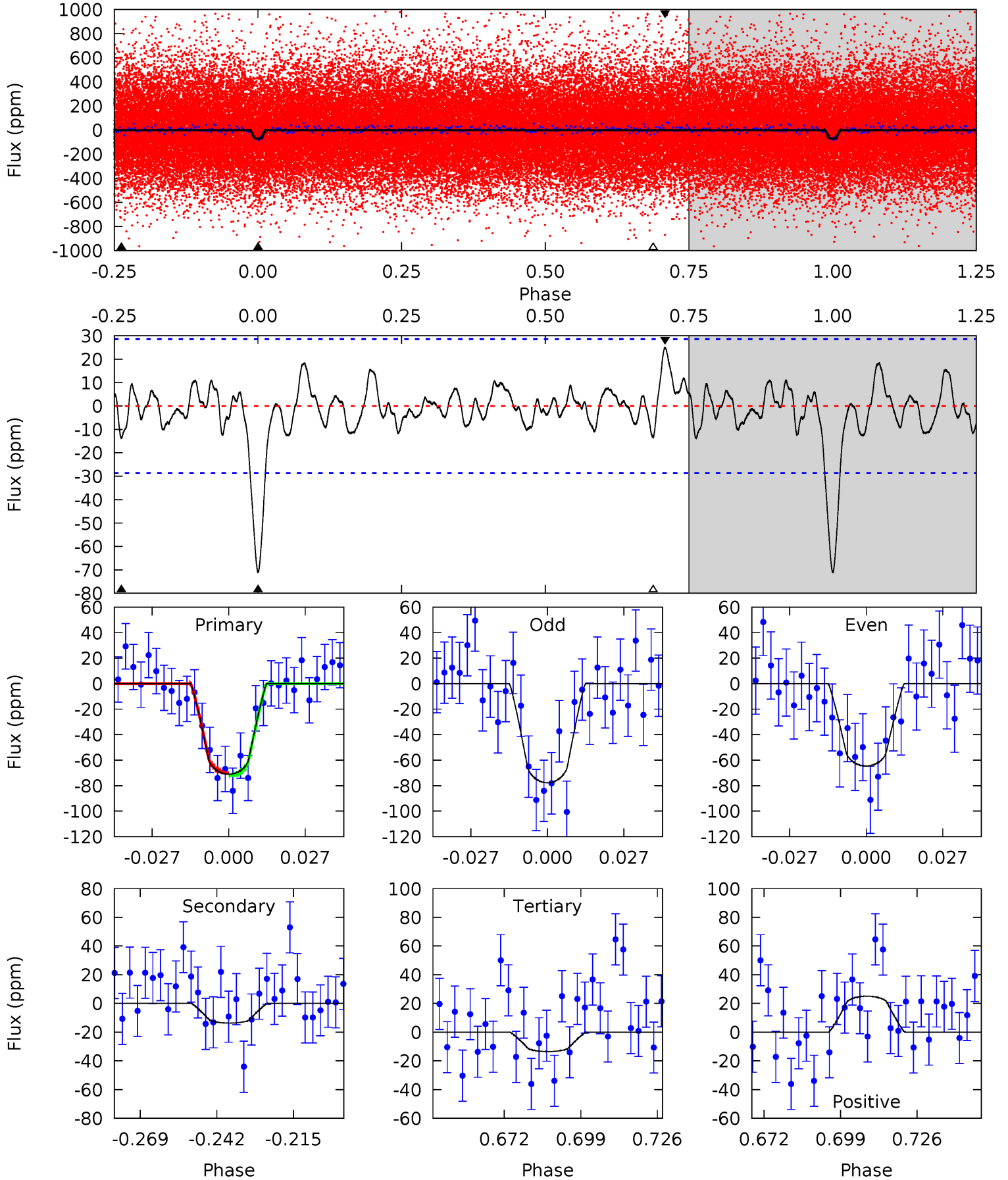
TCE 002976017-01 P= 3.199407 Days  $T_0=133.005772$  (BKJD)



# DV Model-Shift Uniqueness Test

002976017-01, P = 3.199454 Days, E = 129.796117 Days

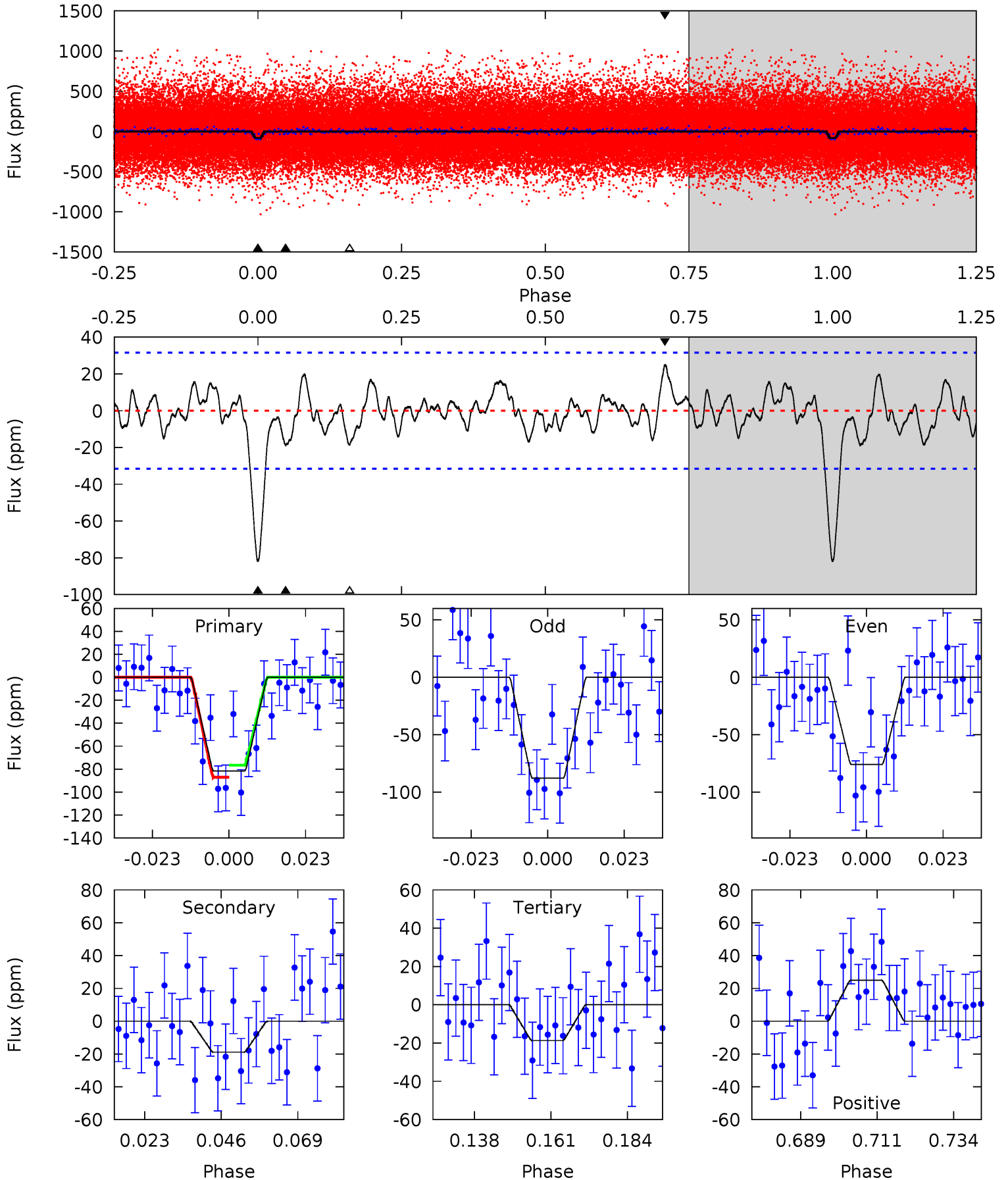
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	2.32	2.29	4.24	4.83	2.21	1.16	9.73	7.78	0.03	-1.92	1.11	0.67	0.26	0.17



# Alt Model-Shift Uniqueness Test

002976017-01, P = 3.199407 Days, E = 129.806365 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
12.6	2.91	2.88	3.85	4.86	2.27	1.22	9.73	8.76	0.03	-0.94	0.93	0.88	0.23	0.81



### Stellar Parameters For KIC 002976017

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5483^{+163}_{-147}$	$4.632^{+0.032}_{-0.104}$	$-0.560^{+0.300}_{-0.300}$	$0.702^{+0.115}_{-0.046}$	$0.779^{+0.074}_{-0.081}$	$3.176^{+0.454}_{-1.050}$
	+3%/-3%	+1%/-2%	+54%/-54%	+16%/-7%	+9%/-10%	+14%/-33%
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 002976017-01 / KOI 4849.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-14 \pm 6$	$0.81^{+0.56}_{-0.49}$	$1459^{+61}_{-53}$	$3634^{+1586}_{-596}$	$16^{+85}_{-11}$
Alt.	$-19 \pm 6$	$0.82^{+0.56}_{-0.50}$	$1455^{+59}_{-54}$	$3882^{+1751}_{-667}$	$23^{+127}_{-15}$

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



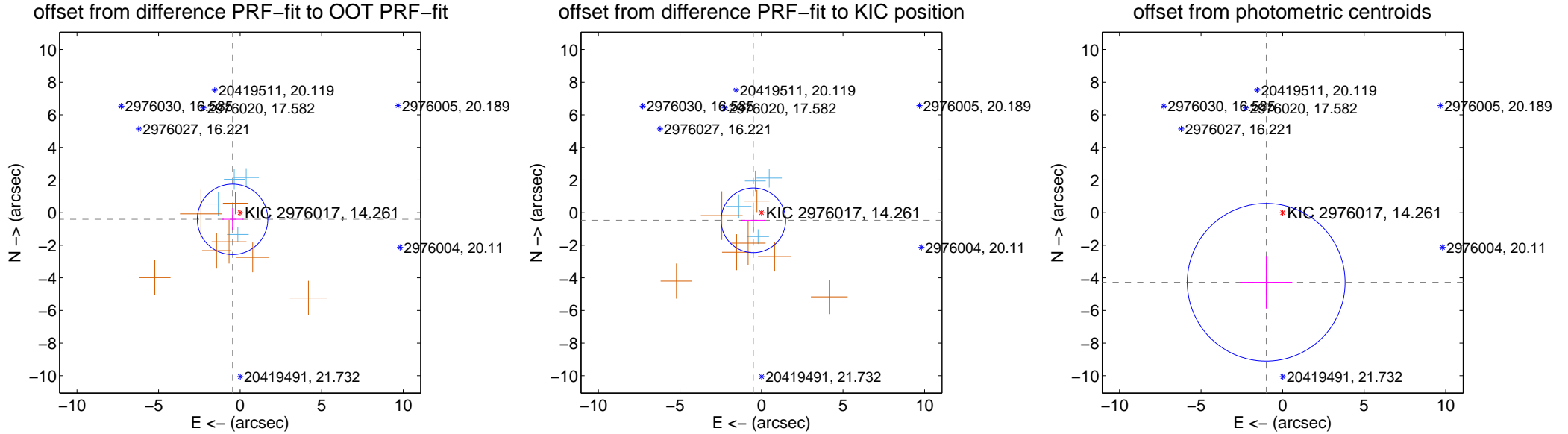
## DV Centroid Data

Supplemental centroid analysis for 002976017-01. Kepler magnitude: 14.26. Transit SNR 9.40

There are 4 quarters with good PRF difference image offsets

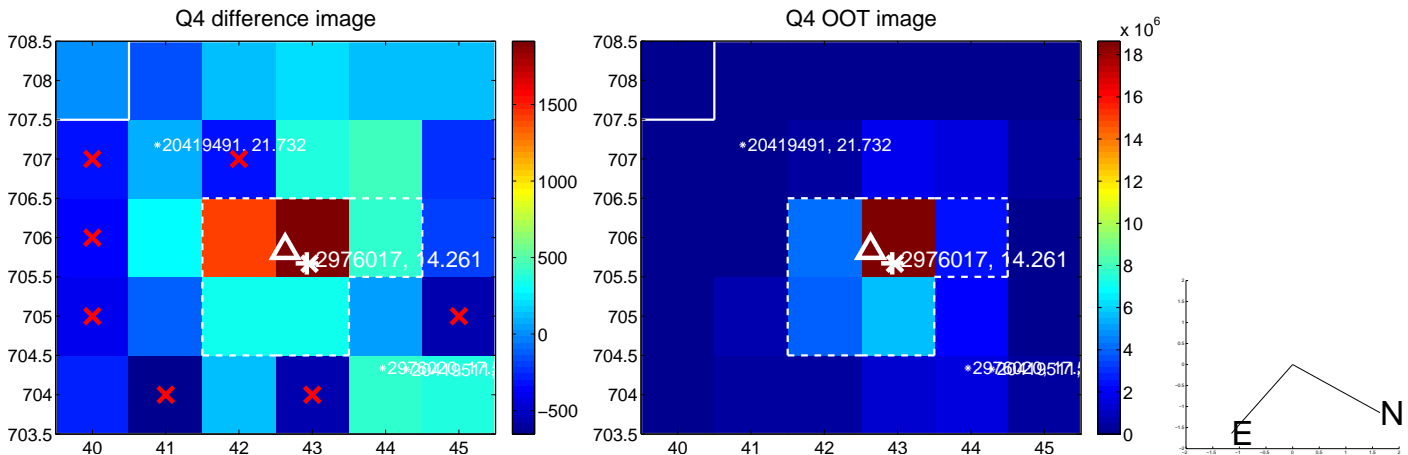
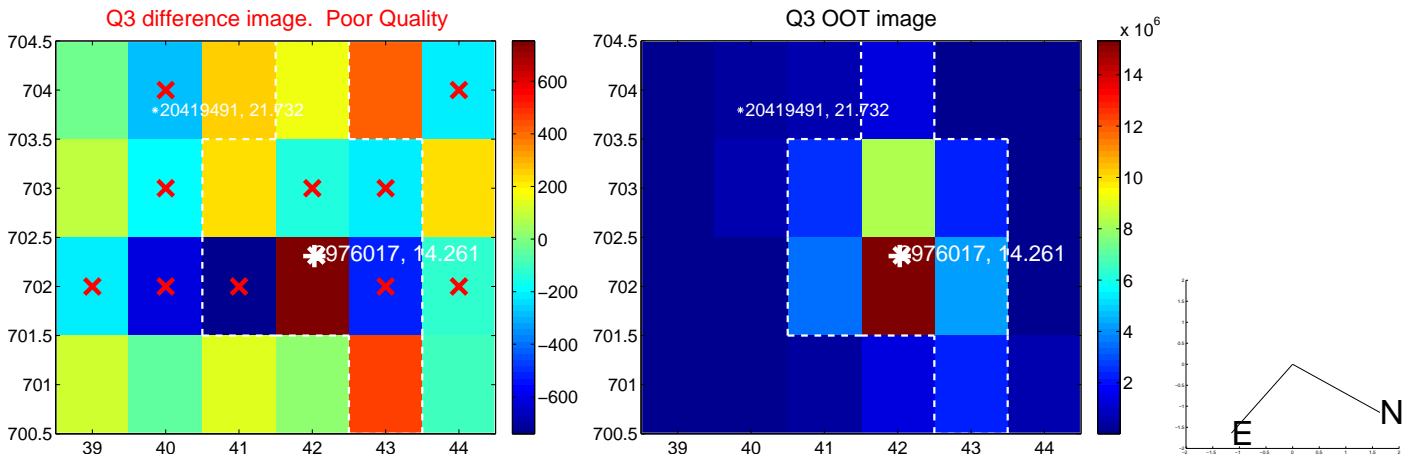
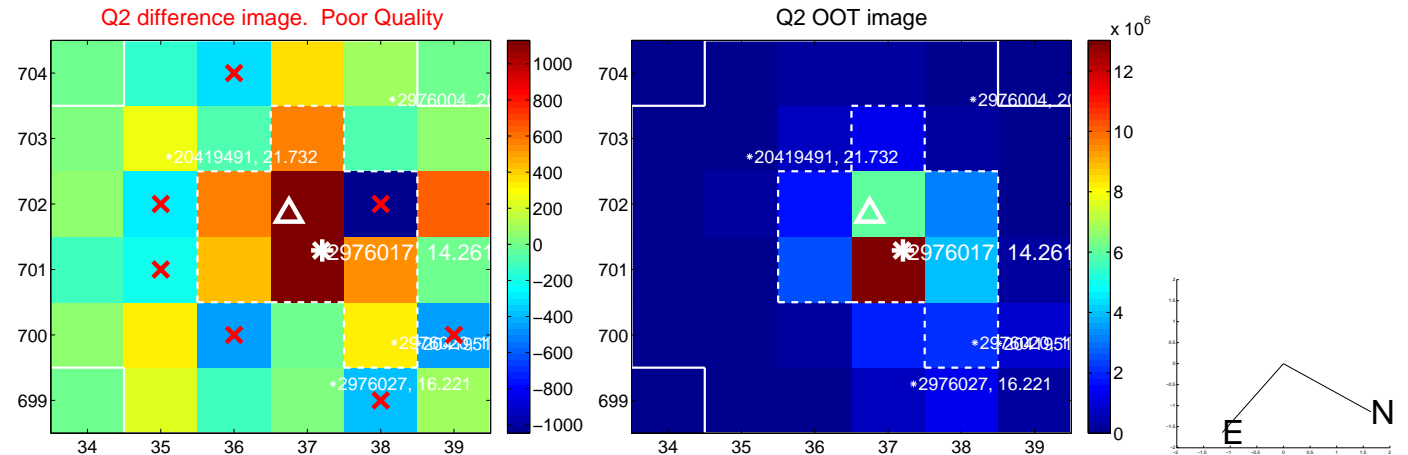
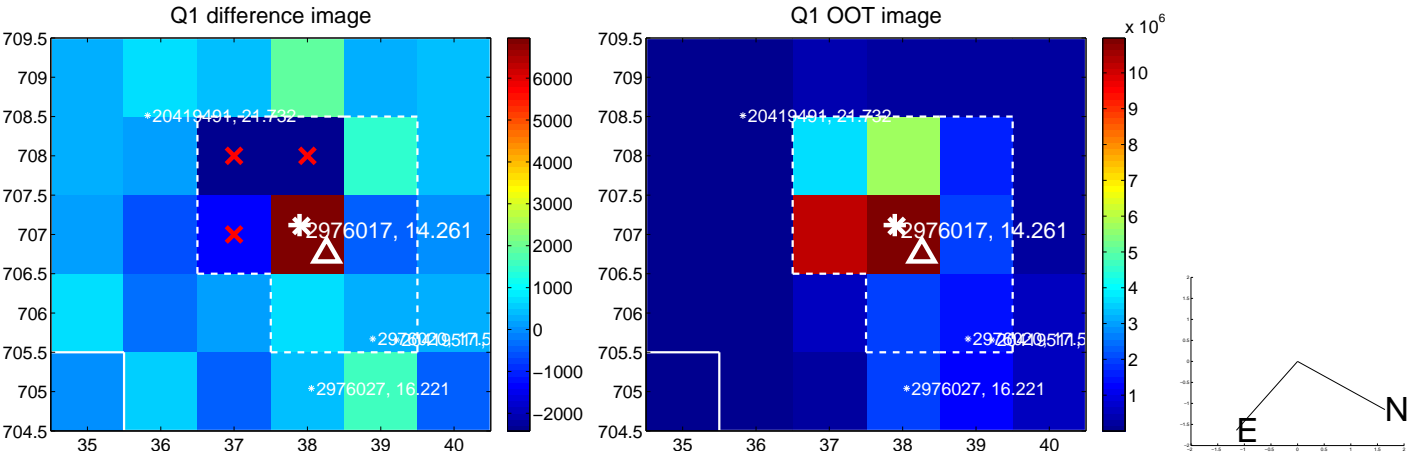
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.616 \pm 0.720$	0.86	$0.462 \pm 0.679$	$-0.408 \pm 0.678$
PRF-fit source offset from KIC position	$0.686 \pm 0.660$	1.04	$0.499 \pm 0.753$	$-0.470 \pm 0.697$
photometric centroid source offset	$4.38 \pm 1.61$	2.72	$1.00 \pm 1.60$	$-4.27 \pm 1.61$

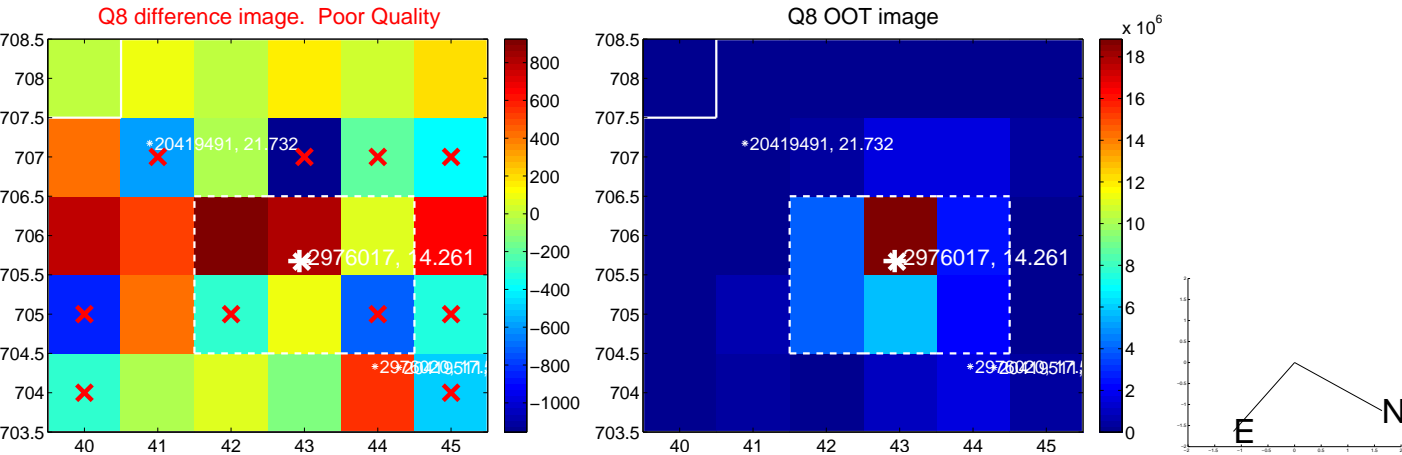
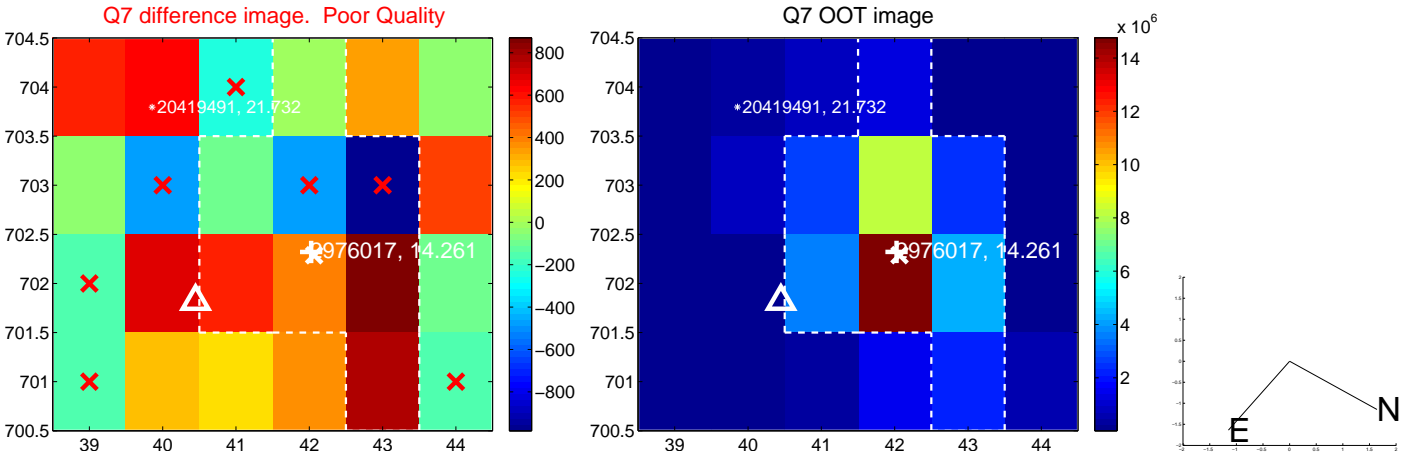
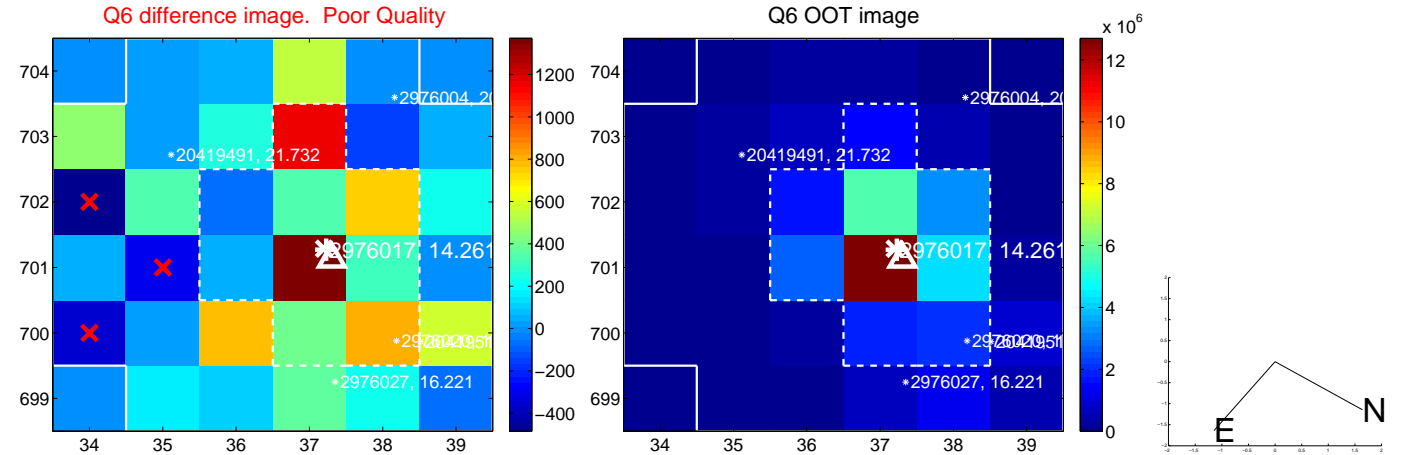
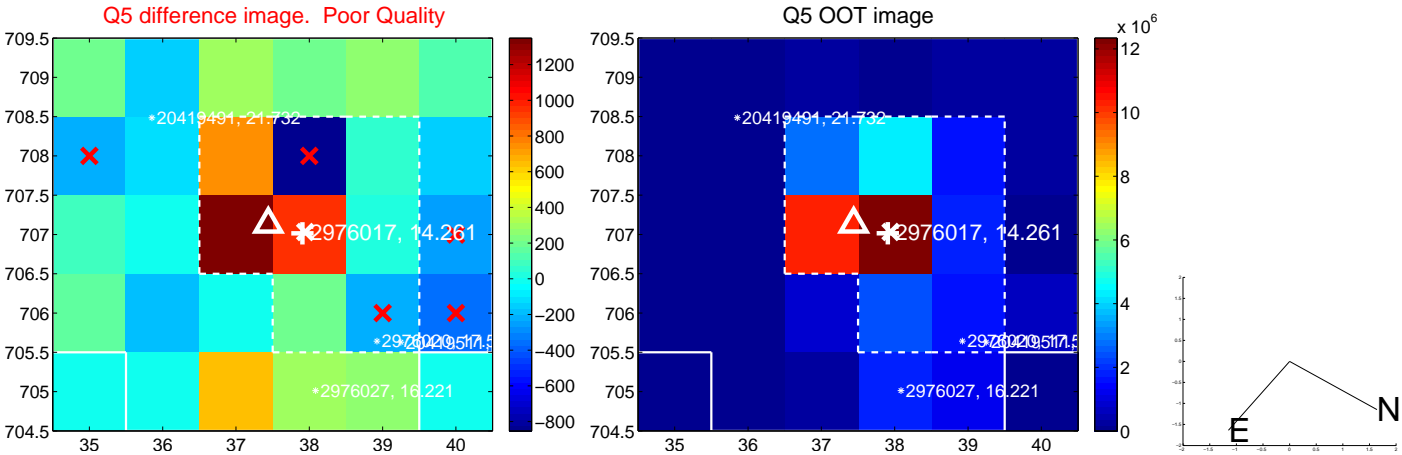


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

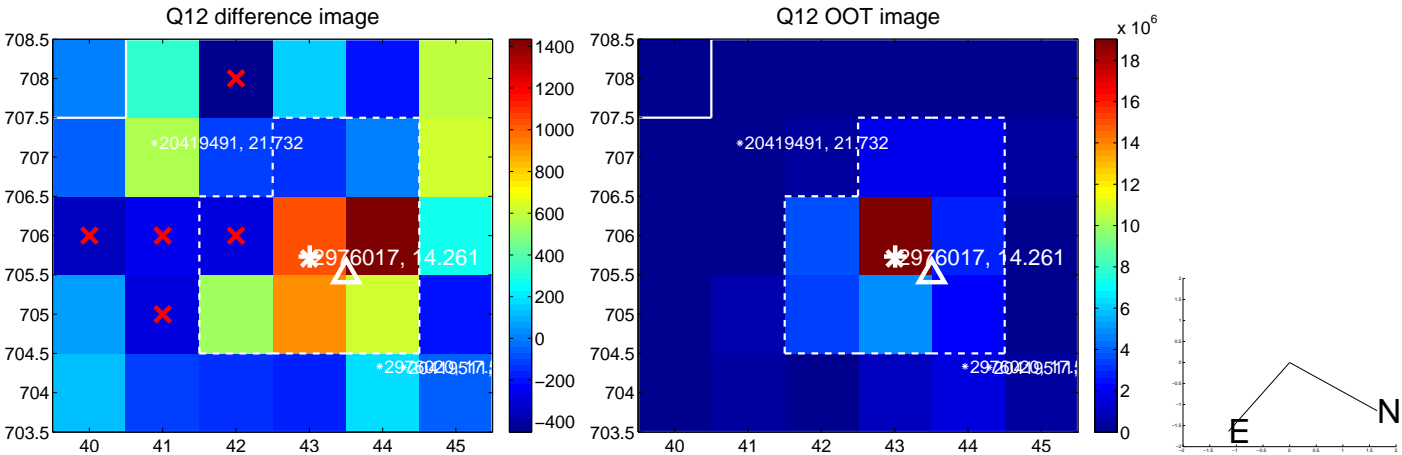
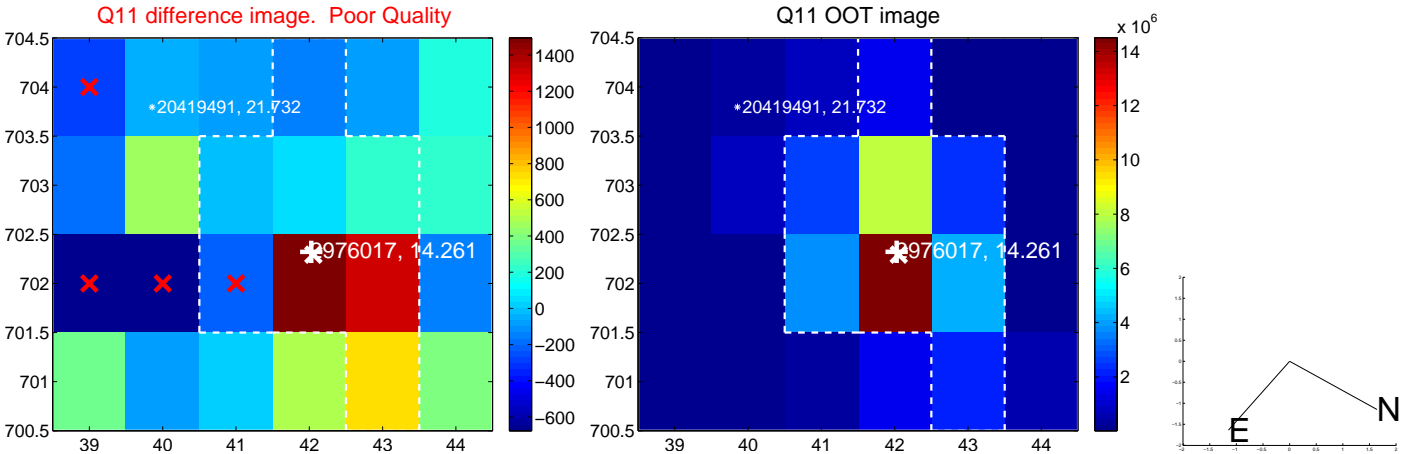
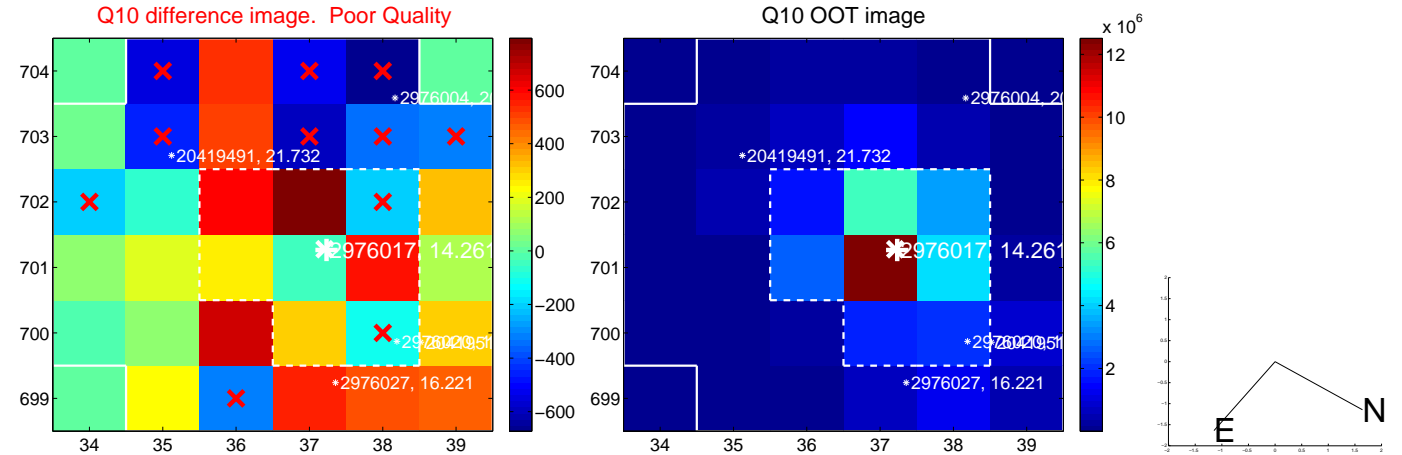
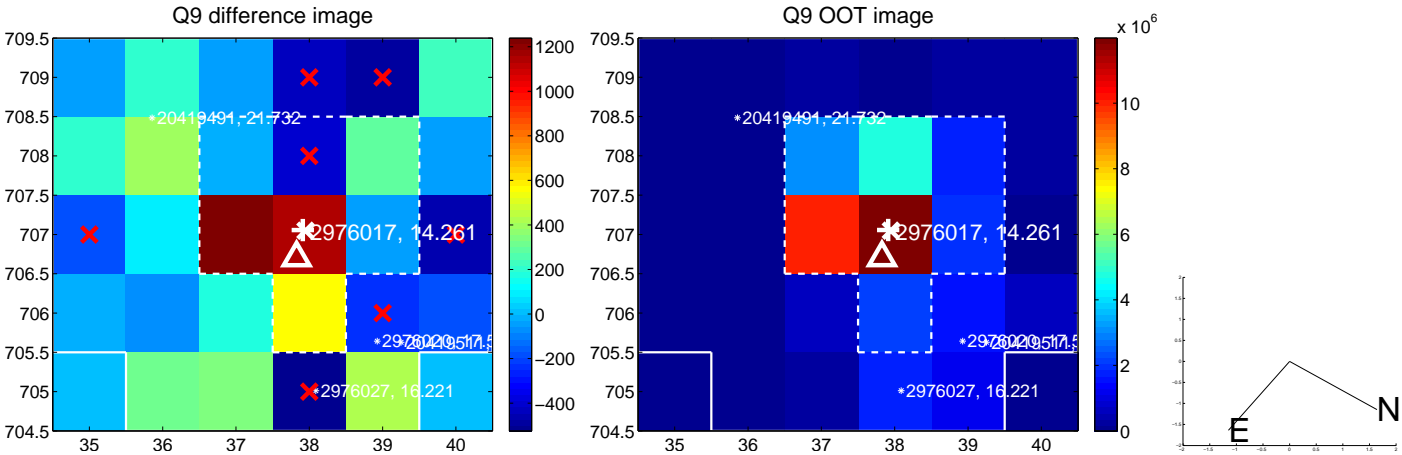
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



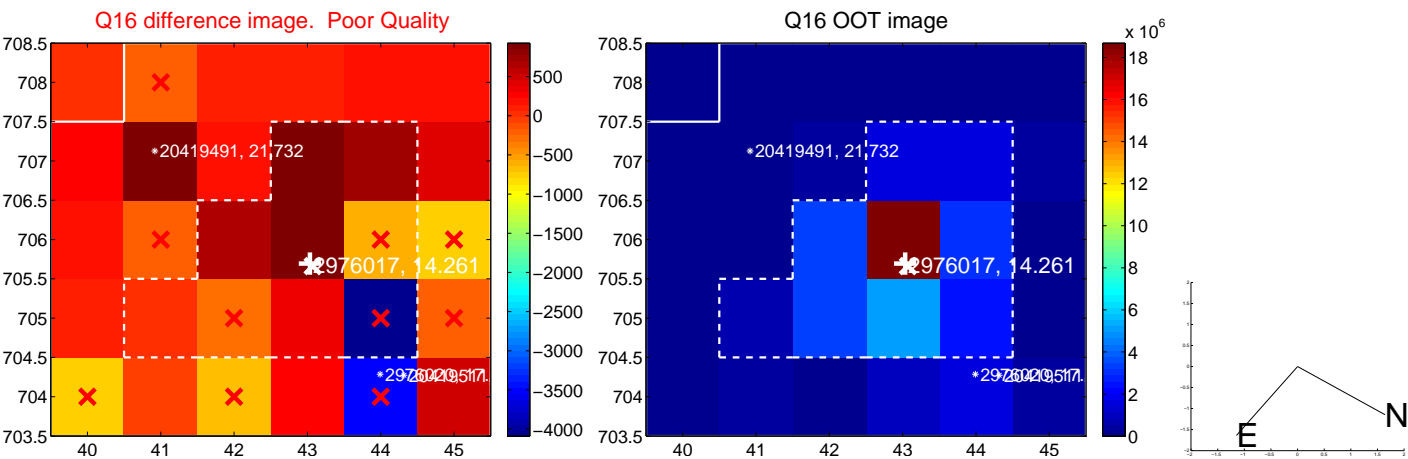
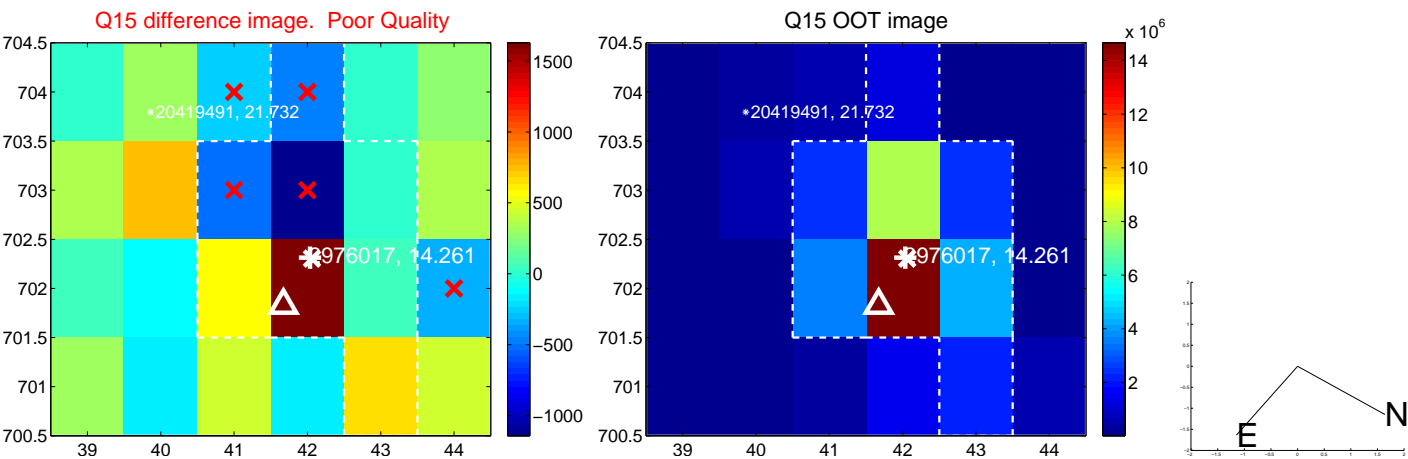
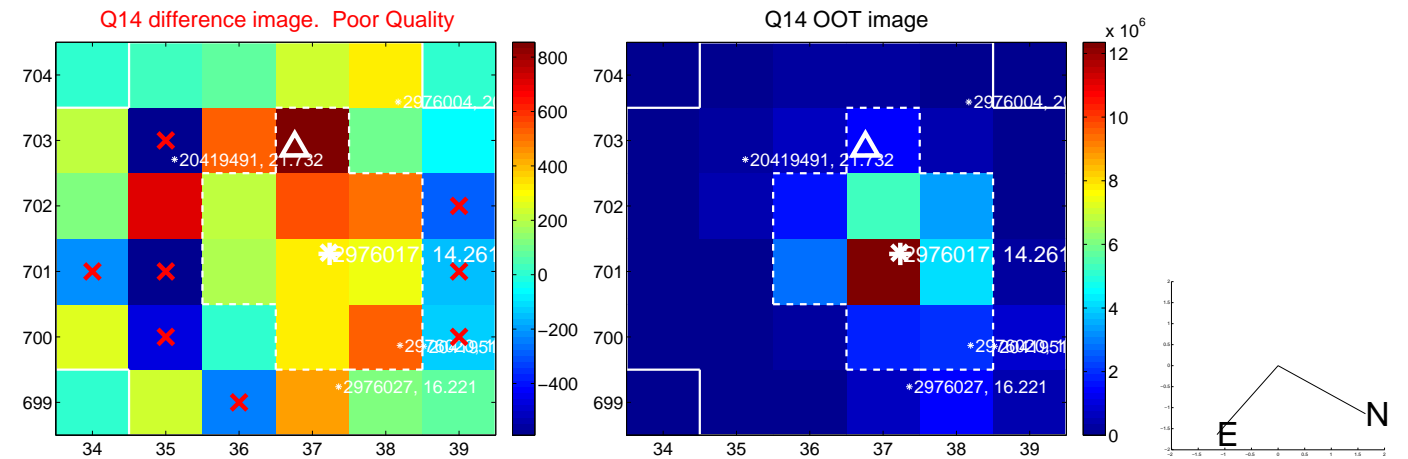
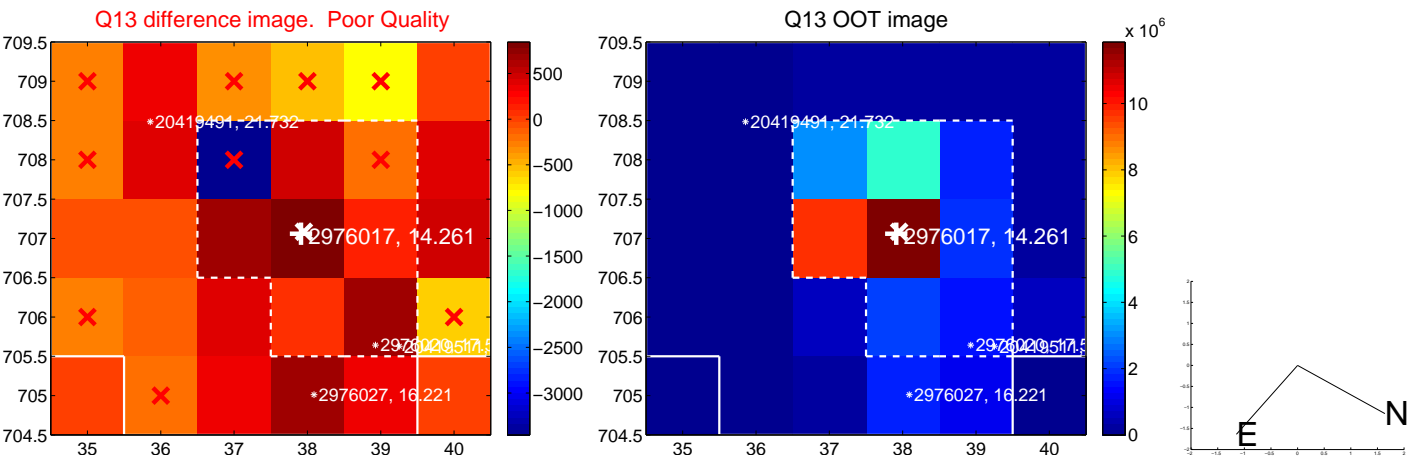
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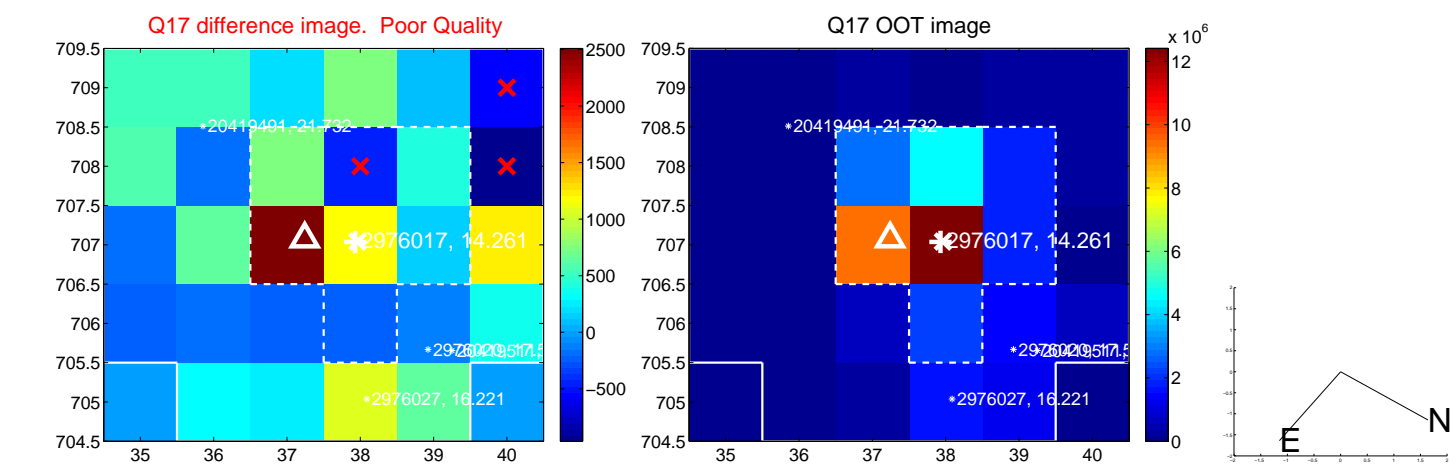


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

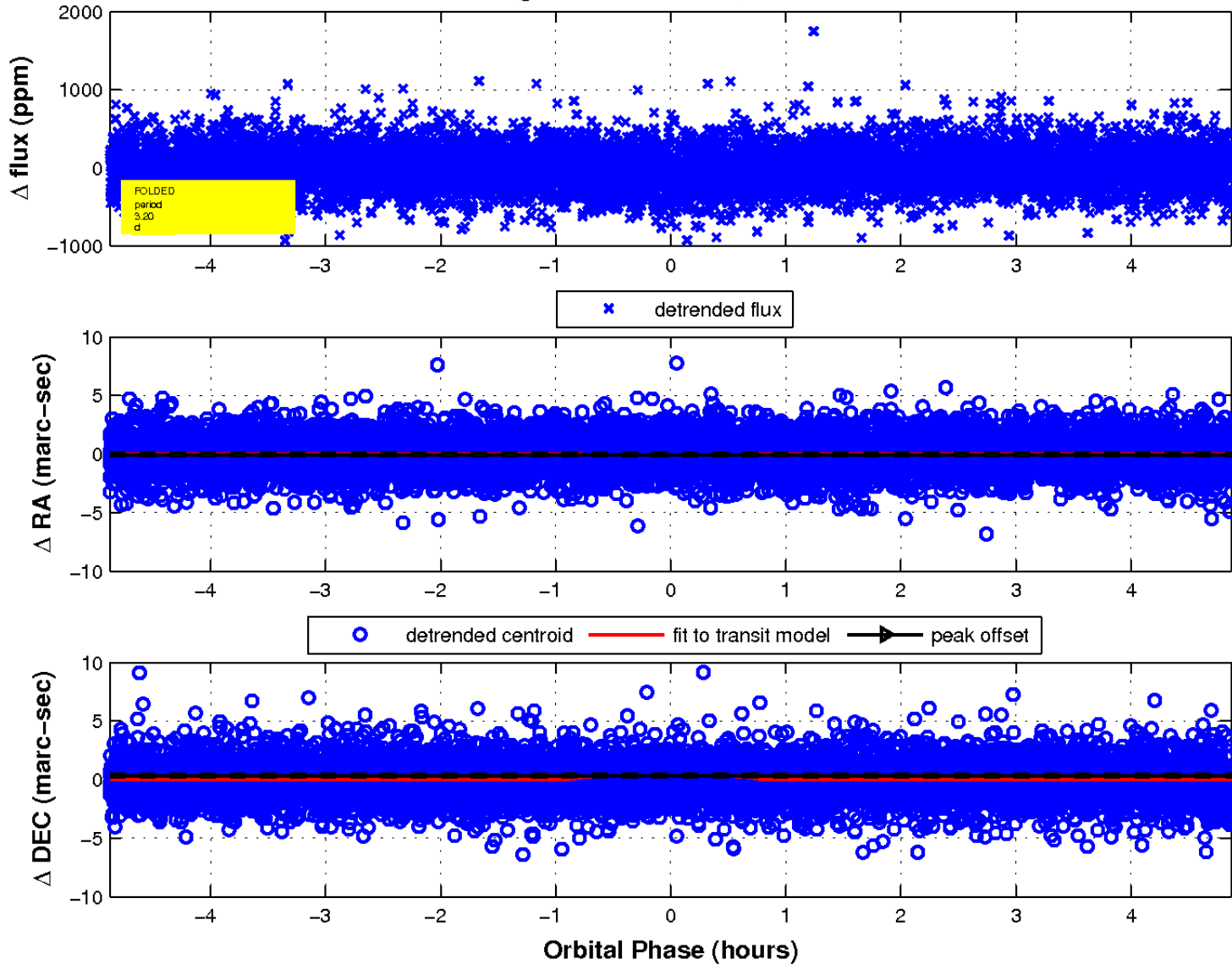




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

