

# KIC 007022603

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007022603-01	OBS	5346.01	21.127588	142.676107	45.2	2.170	15.5	19.1	30.88	4024	19.41	7214.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007022603-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED

**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 007022603-01

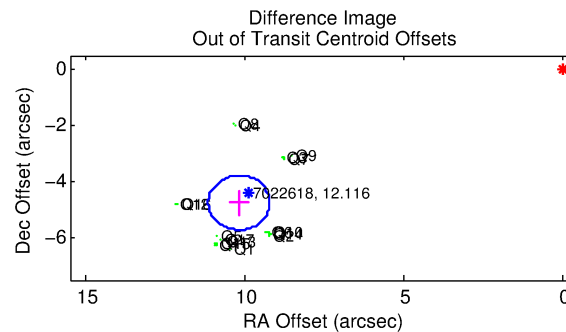
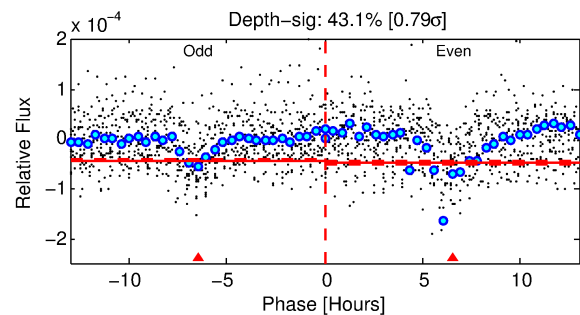
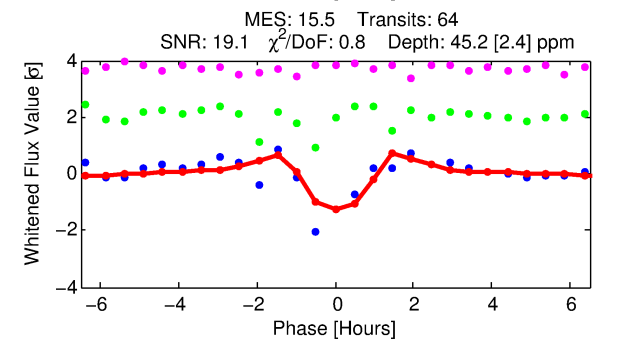
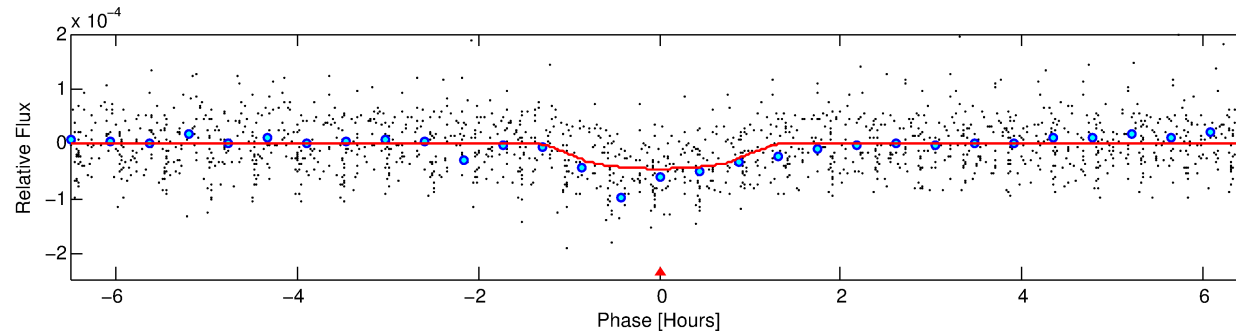
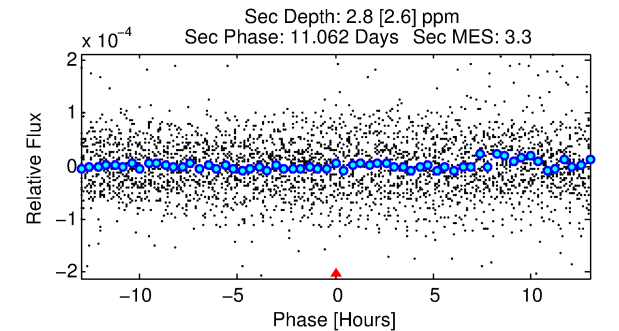
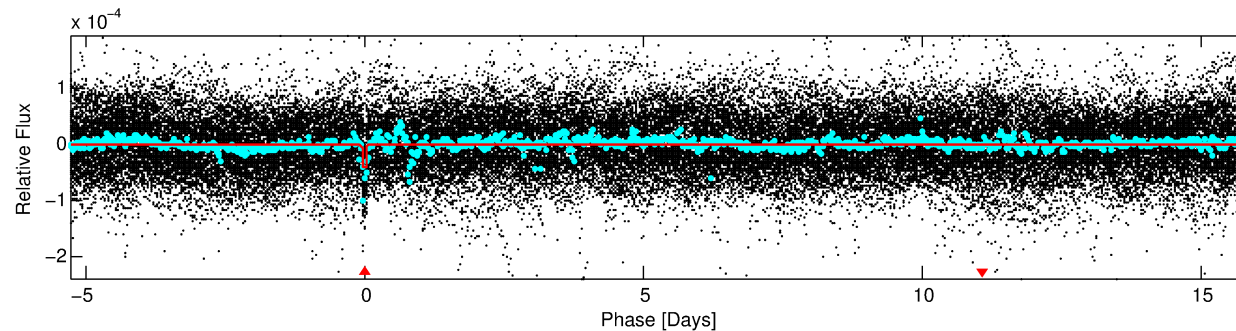
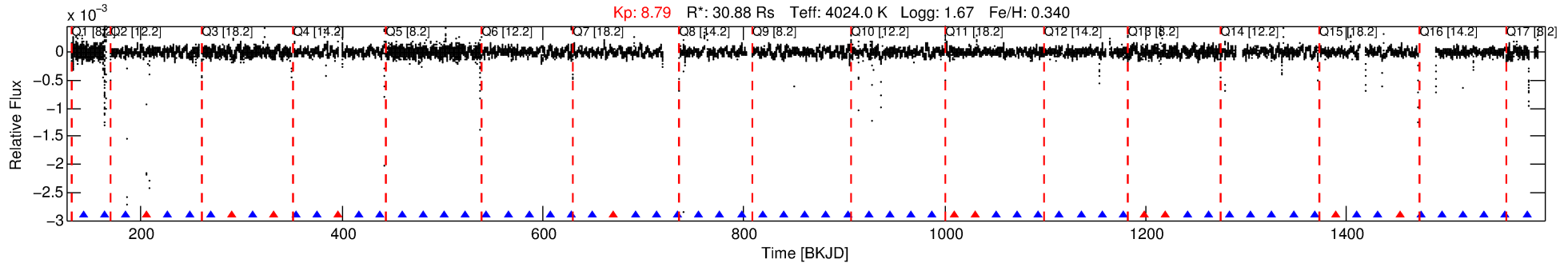
No Significant Match Found

# DV One-Page Summary

KIC: 7022603 Candidate: 1 of 1 Period: 21.128 d

KOI: K05346.01 Corr: 0.950

Kp: 8.79 R\*: 30.88 Rs Teff: 4024.0 K Logg: 1.67 Fe/H: 0.340



## DV Fit Results:

Period = 21.12759 [0.00006] d  
Epoch = 142.6761 [0.0024] BKJD  
Rp/R\* = 0.0058 [0.0022]  
a/R\* = 74.80 [68.91]  
b = 0.02 [60.94]  
Seff = 7214.34 [3557.30]  
Teq = 2350 [290] K  
Rp = 19.41 [9.78] Re  
a = 0.1762 [0.0528] AU  
Ag = 0.13 [0.16] [-5.30 sigma]  
Teffp = 2166 [663] K [-0.25 sigma]

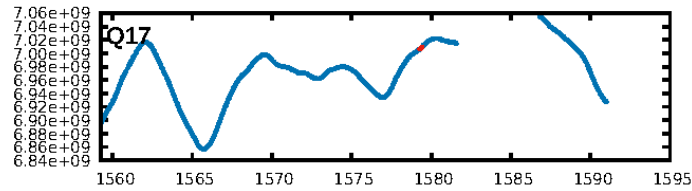
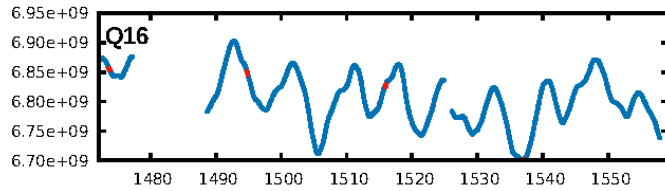
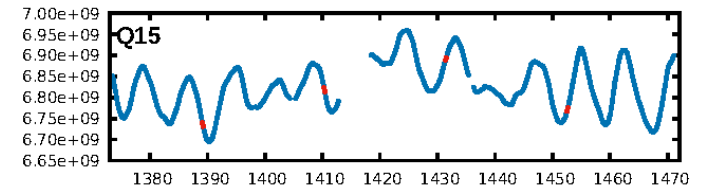
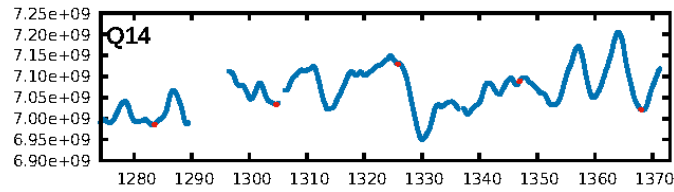
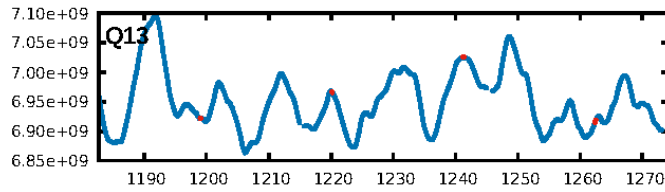
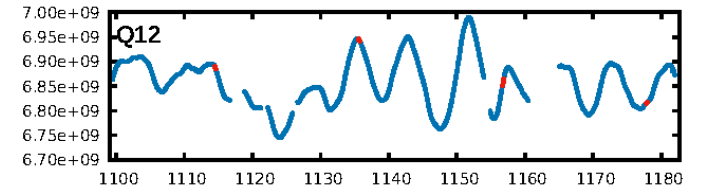
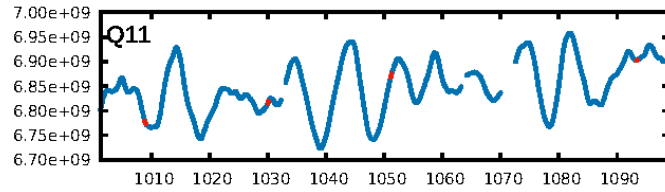
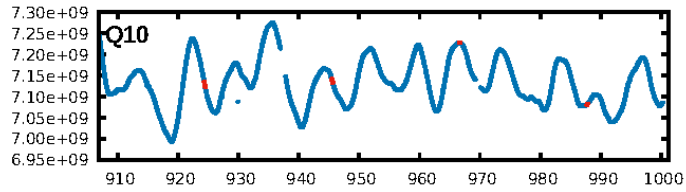
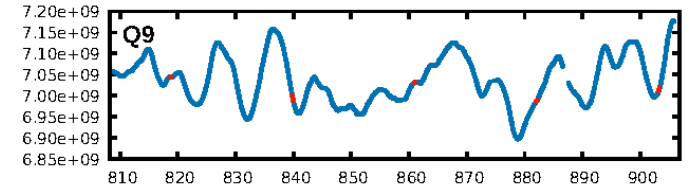
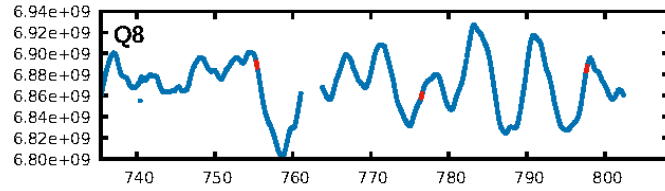
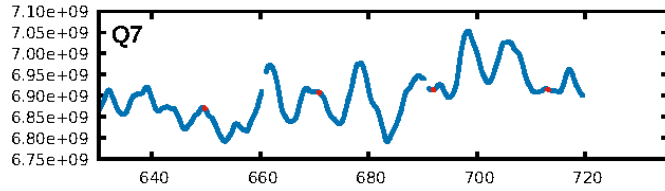
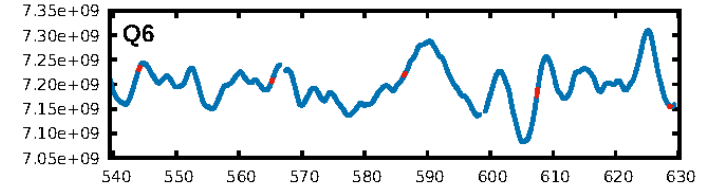
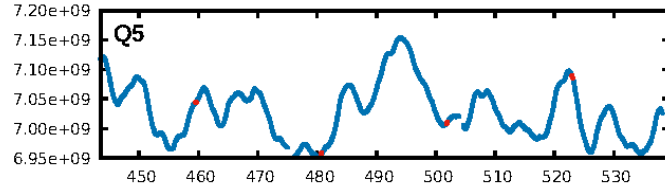
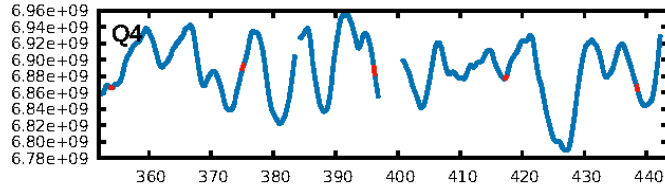
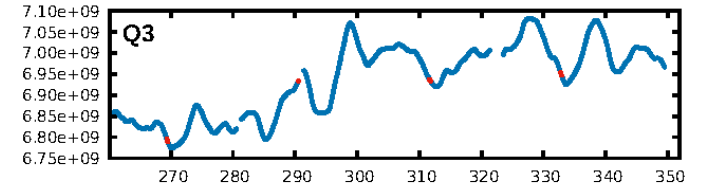
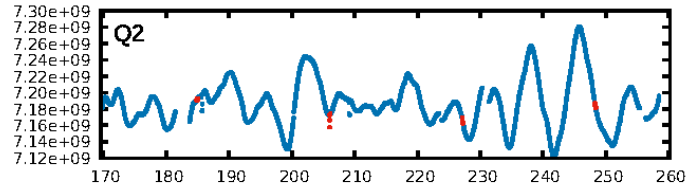
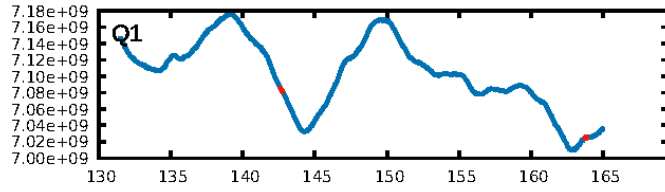
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 20.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 8.82e-13  
RollingBand-fgt: 0.82 [50/61]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.0%  
Centroid-so: 79.103 arcsec [18.07 sigma]  
OotOffset-rm: 11.240 arcsec [34.84 sigma]  
KicOffset-rm: 11.027 arcsec [163.12 sigma]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

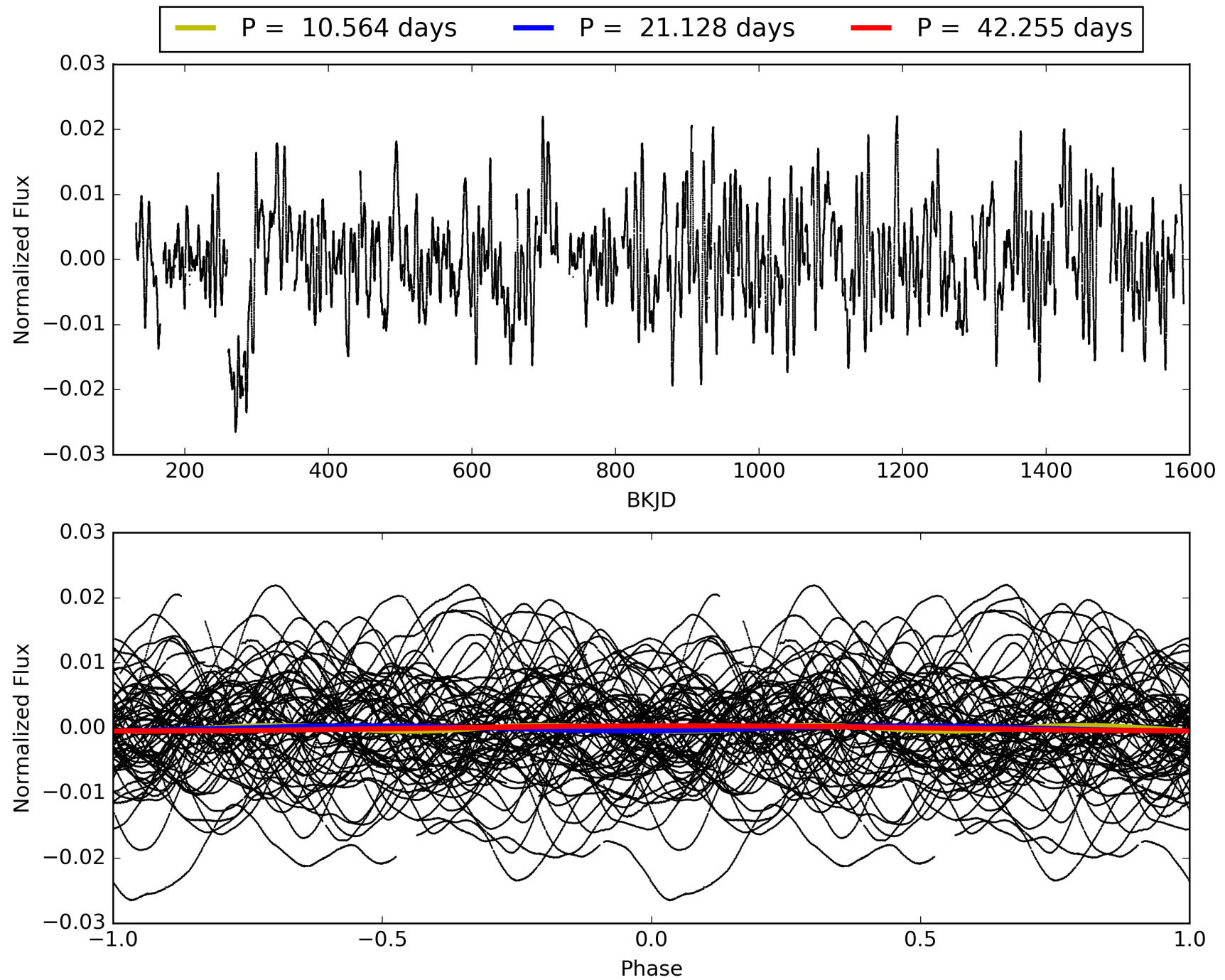
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:59:29 Z

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

# TCE 007022603-01, PDC Light Curves

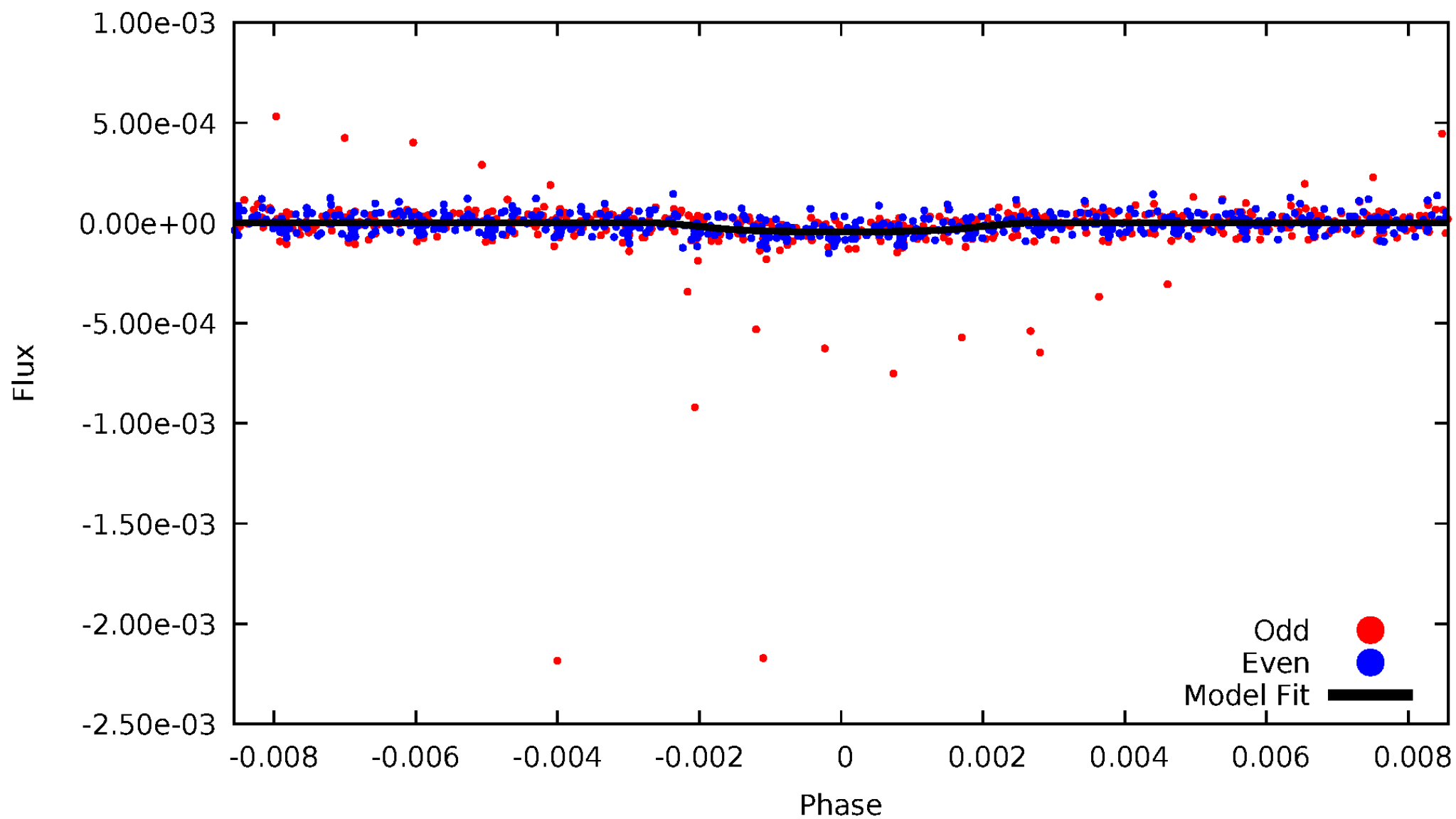


TCE 007022603-01



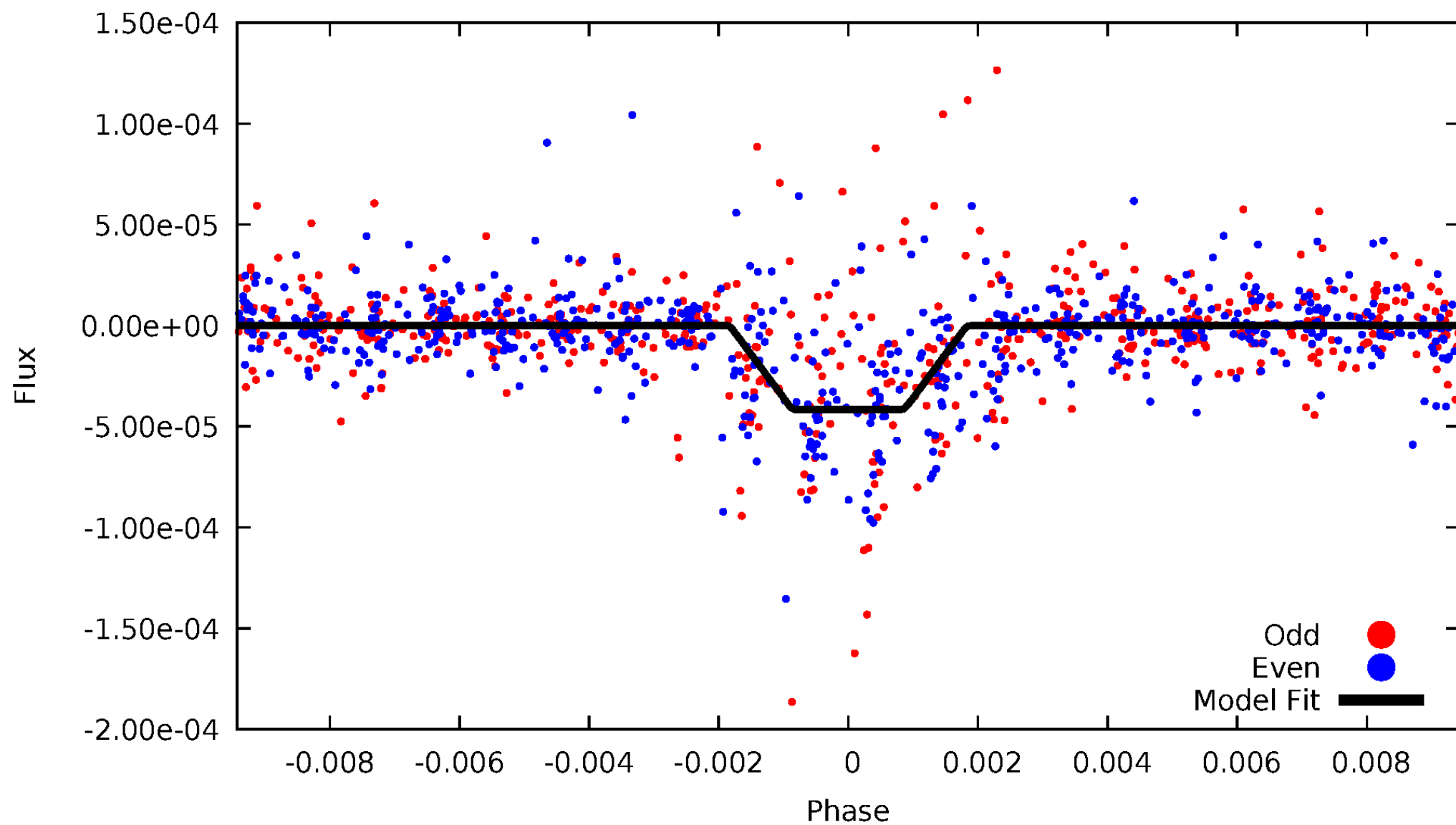
# DV Odd/Even

TCE 007022603-01



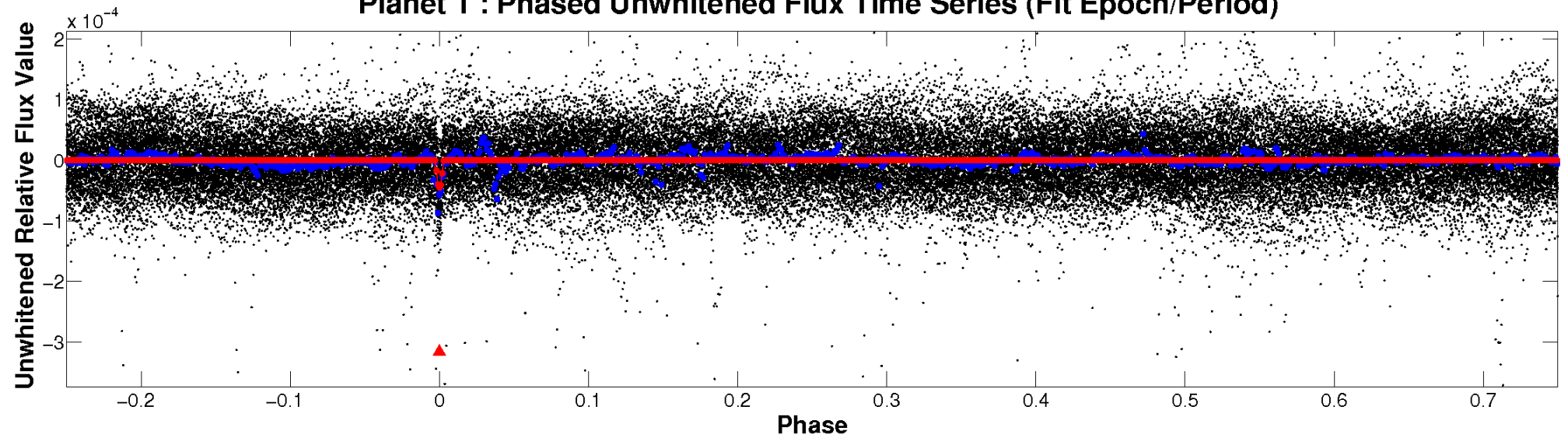
# ALT Odd/Even

TCE 007022603-01

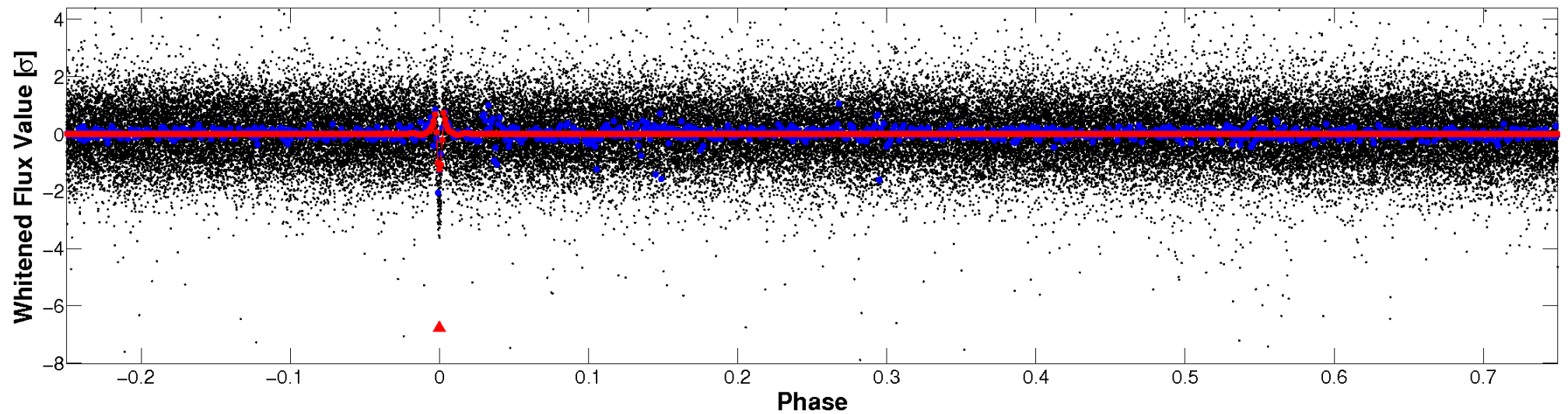


# Non-Whitened Vs. Whitened Light Curve

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



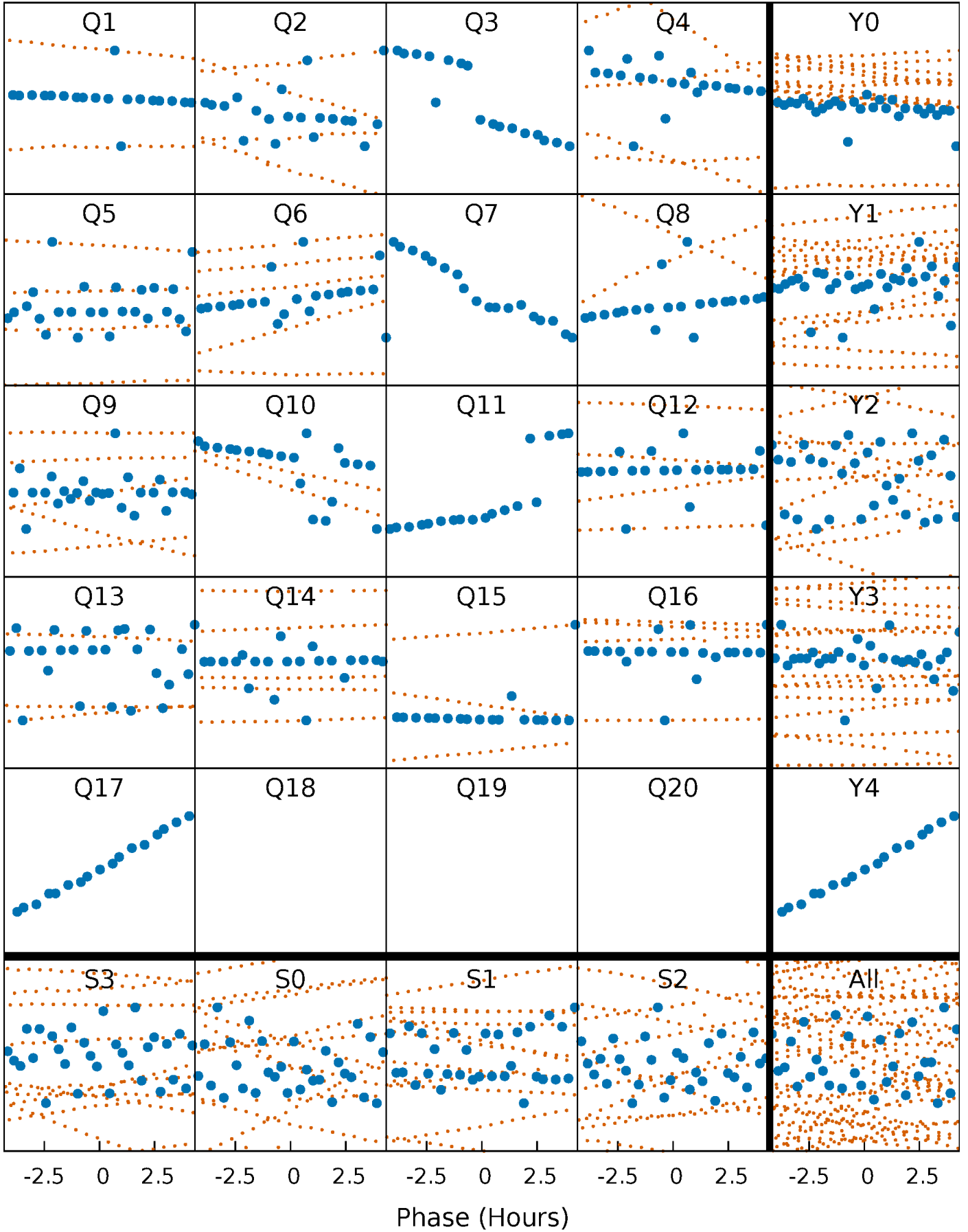
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

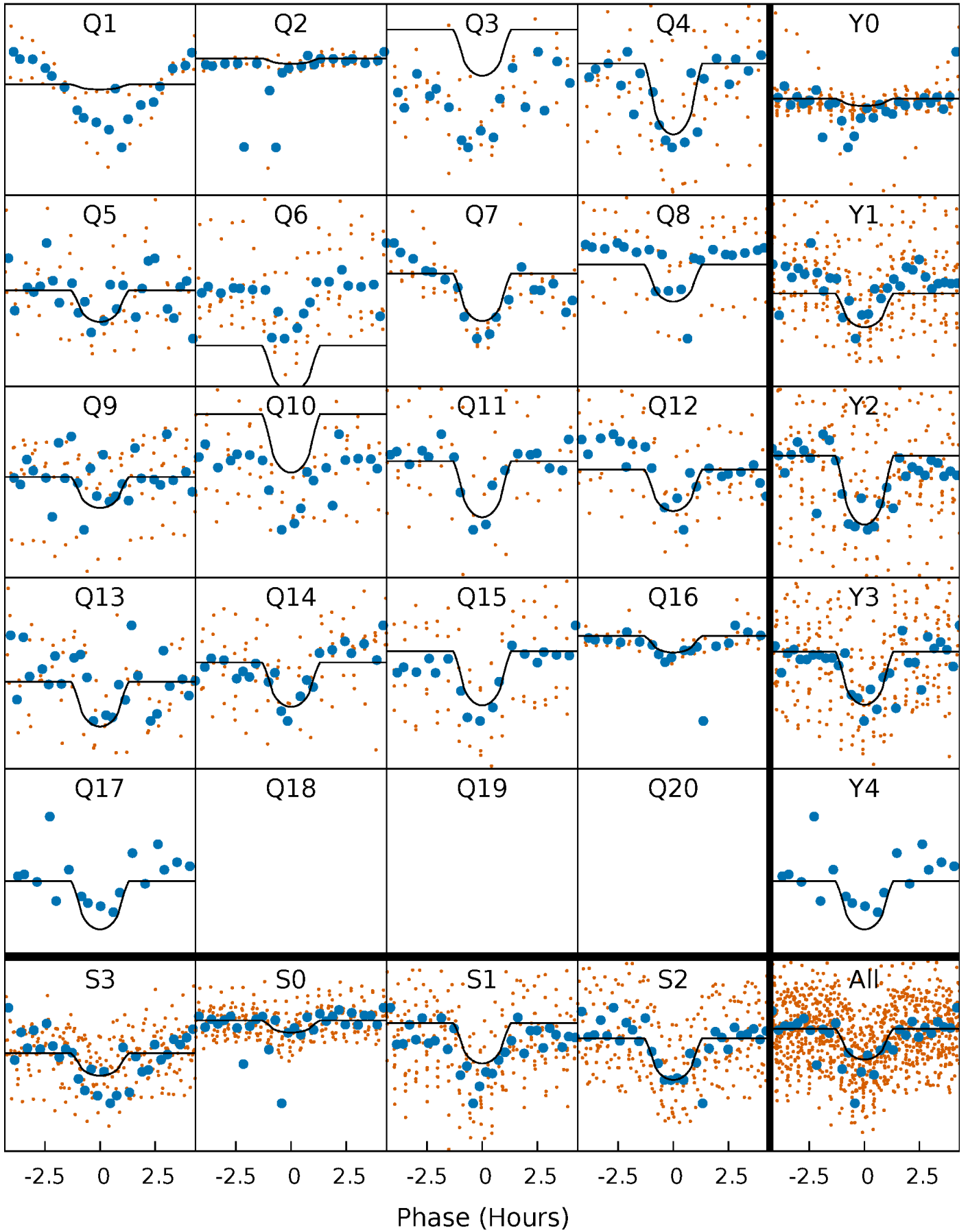
TCE 007022603-01 P= 21.127588 Days  $T_0=142.676107$  (BKJD)





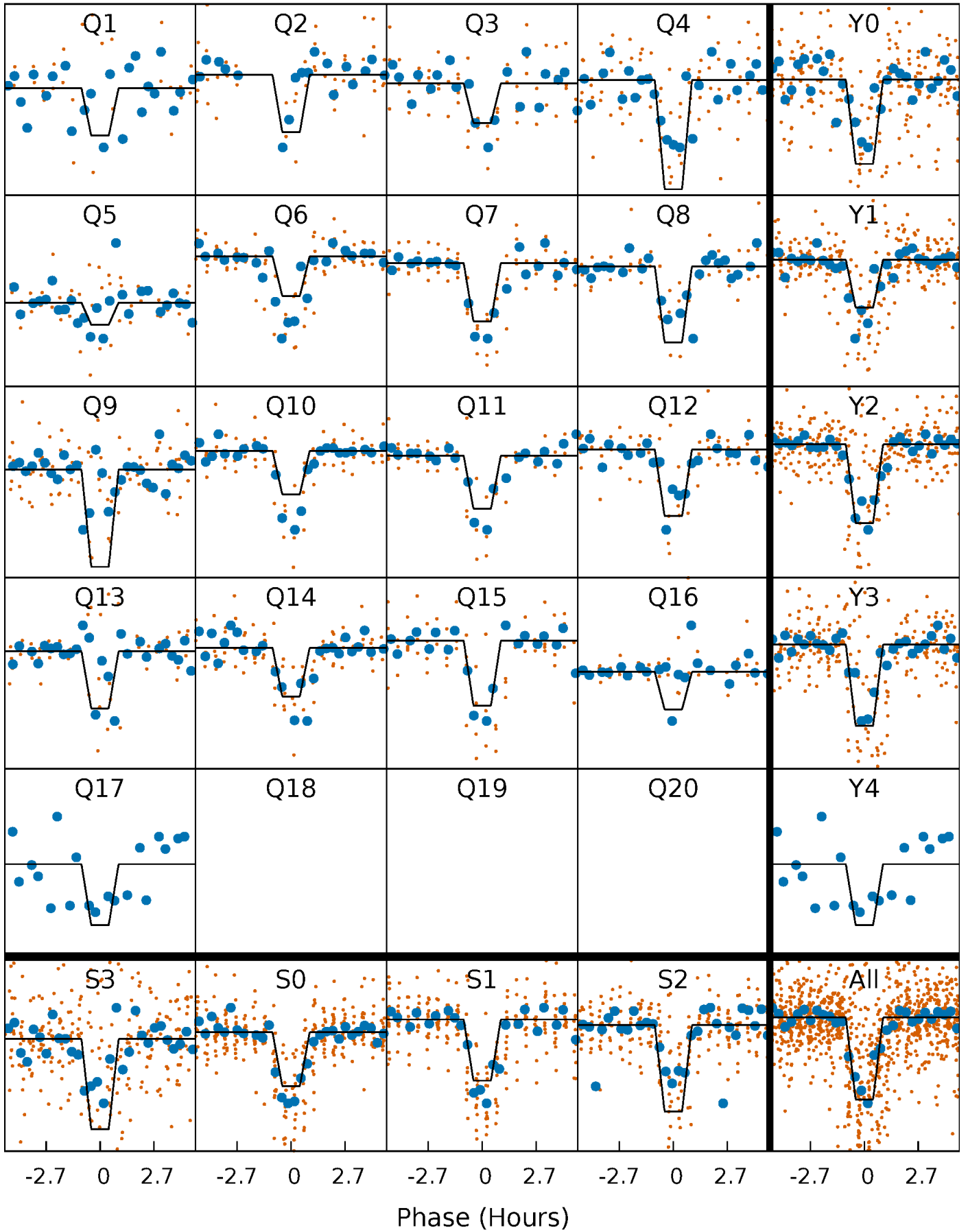
# DV Quarter-Phased Transit Curves

TCE 007022603-01 P= 21.127588 Days  $T_0=142.676107$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

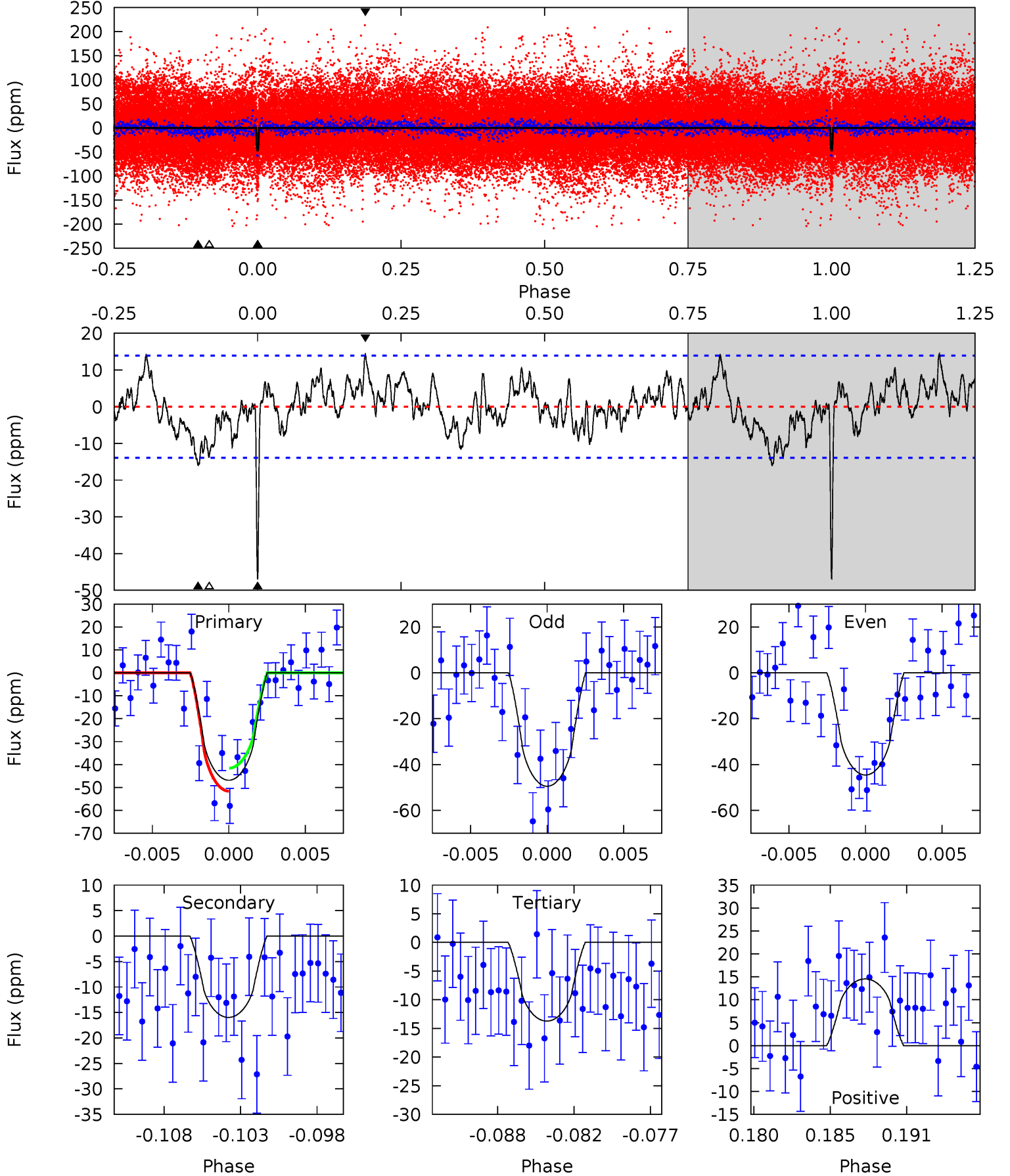
TCE 007022603-01 P= 21.127246 Days  $T_0=142.685890$  (BKJD)



# DV Model-Shift Uniqueness Test

007022603-01, P = 21.127588 Days, E = 121.548519 Days

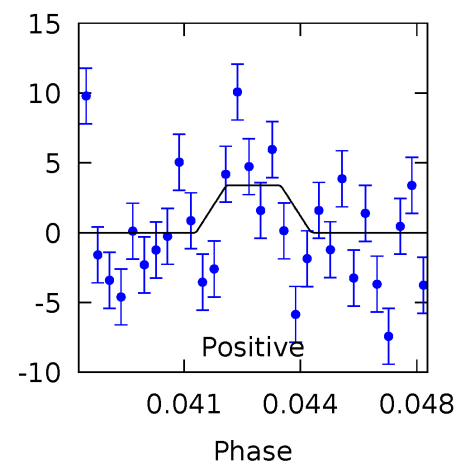
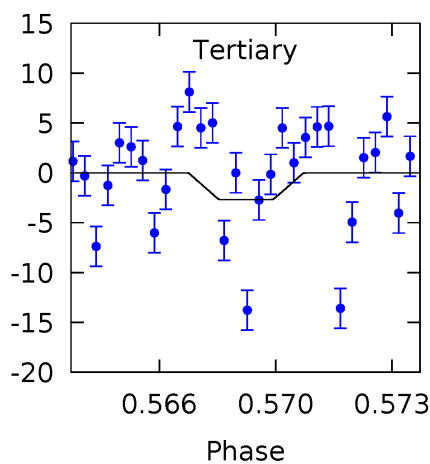
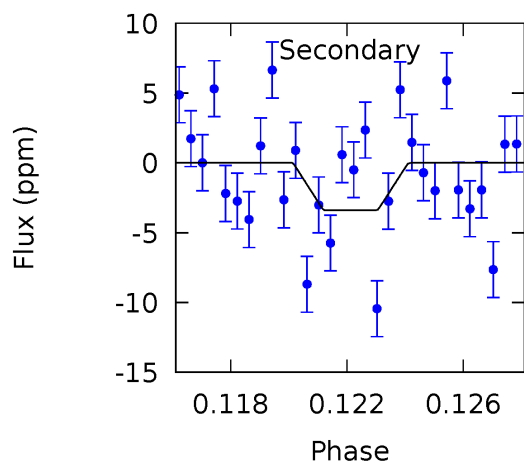
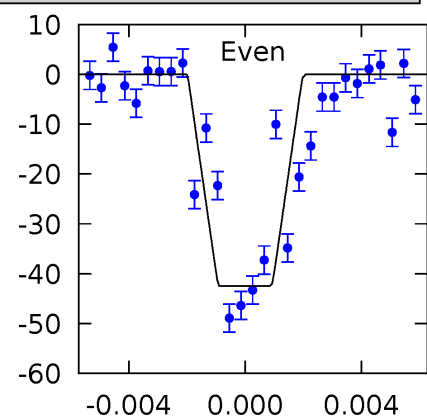
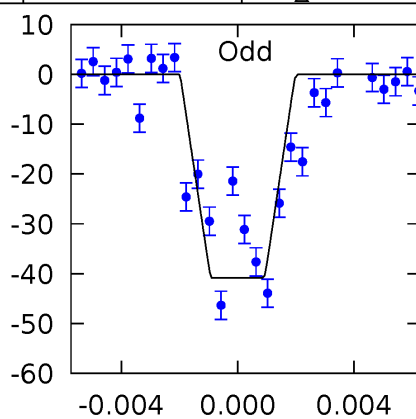
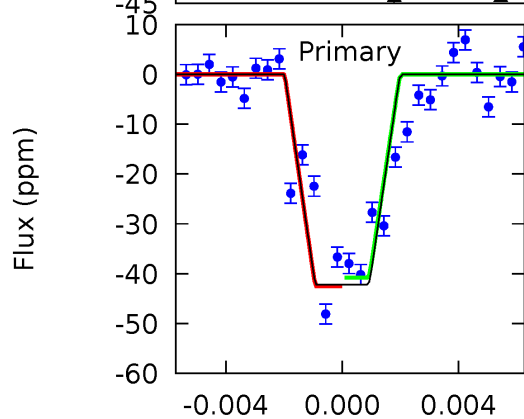
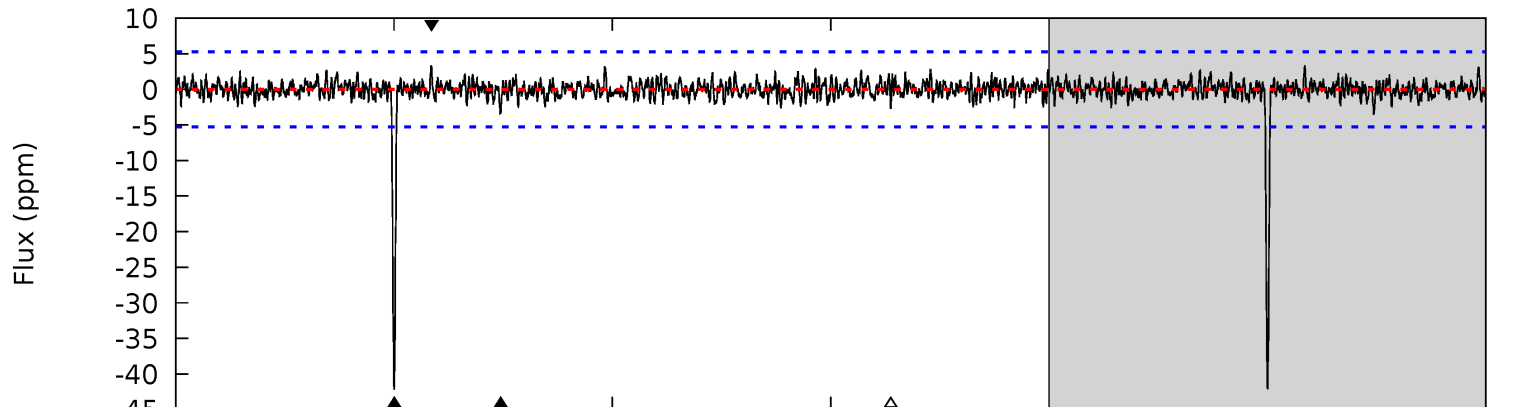
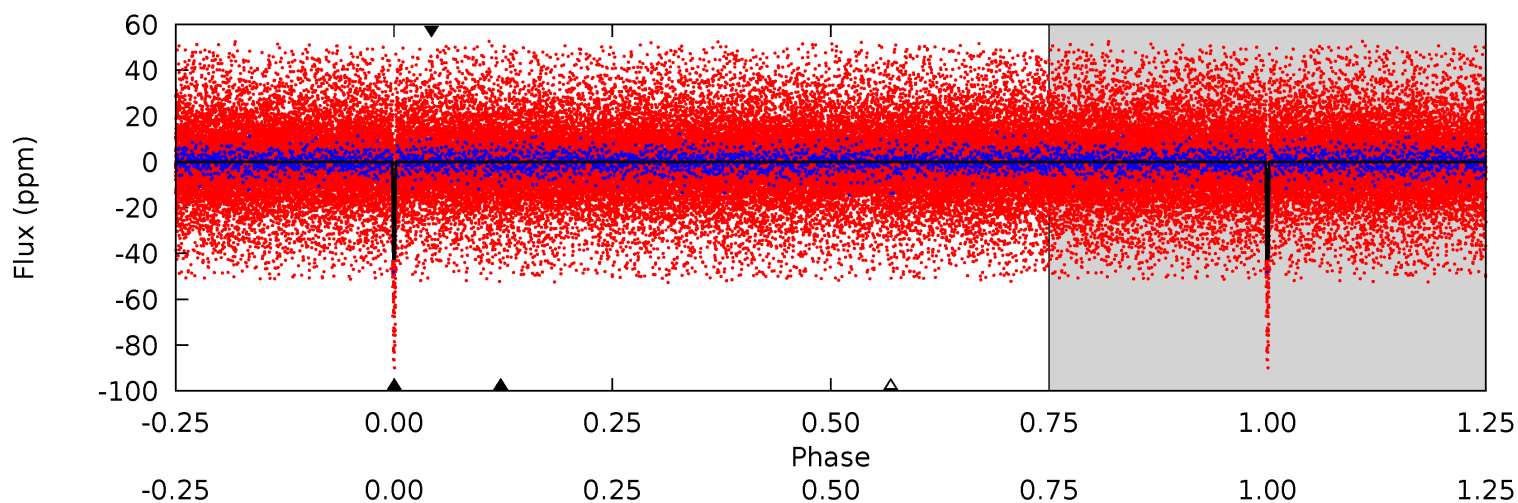
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	5.90	5.07	5.38	5.15	2.80	1.91	12.3	11.9	0.83	0.52	0.90	1.57	0.24	1.85



# Alt Model-Shift Uniqueness Test

007022603-01, P = 21.127246 Days, E = 121.558644 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
41.6	3.36	2.65	3.34	5.21	2.90	0.91	39.0	38.3	0.70	0.01	0.81	1.03	0.07	0.83



### Stellar Parameters For KIC 007022603

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4024^{+141}_{-112}$	$1.672^{+0.275}_{-0.225}$	$0.340^{+0.100}_{-0.250}$	$30.882^{+8.872}_{-9.858}$	$1.636^{+0.209}_{-0.523}$	$0.000^{+0.000}_{-0.000}$
	+4%/-3%	+16%/-13%	+29%/-74%	+29%/-32%	+13%/-32%	+197%/-52%
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 007022603-01 / KOI 5346.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-16 \pm 3$	$19.12^{+8.44}_{-7.79}$	$3287^{+290}_{-309}$	$3212^{+812}_{-805}$	$0.705^{+1.208}_{-0.364}$
Alt.	$-3 \pm 1$	$21.54^{+9.40}_{-8.39}$	$3309^{+322}_{-296}$	$-2871^{+4823}_{-270}$	$0.120^{+0.185}_{-0.066}$

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

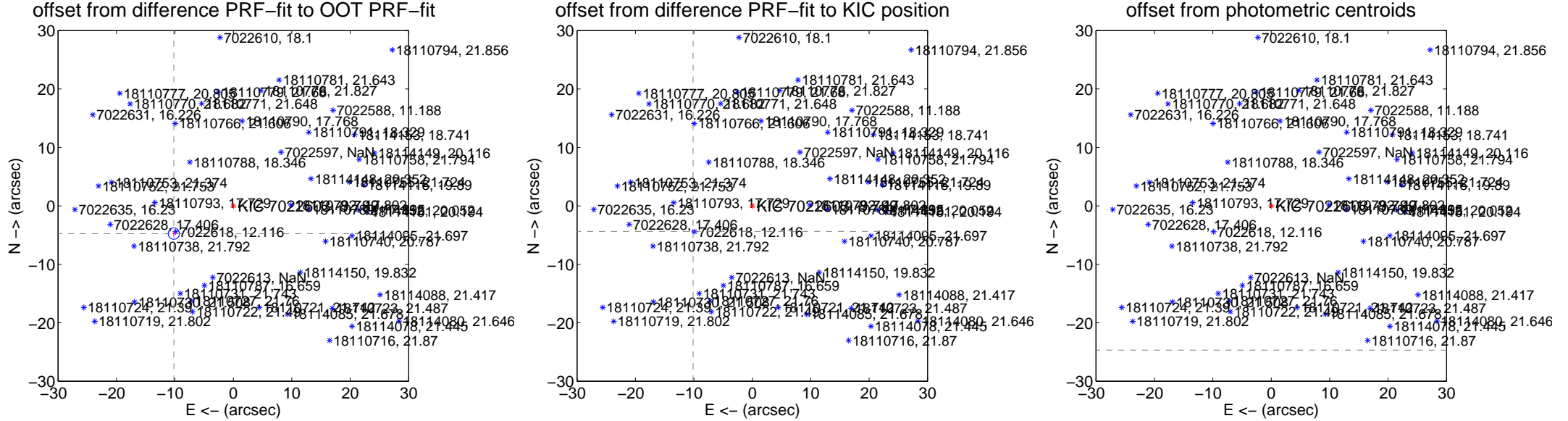
## DV Centroid Data

Supplemental centroid analysis for 007022603-01. **Kepler magnitude: 8.79.** Transit SNR 19.12

There are 17 quarters with good PRF difference image offsets

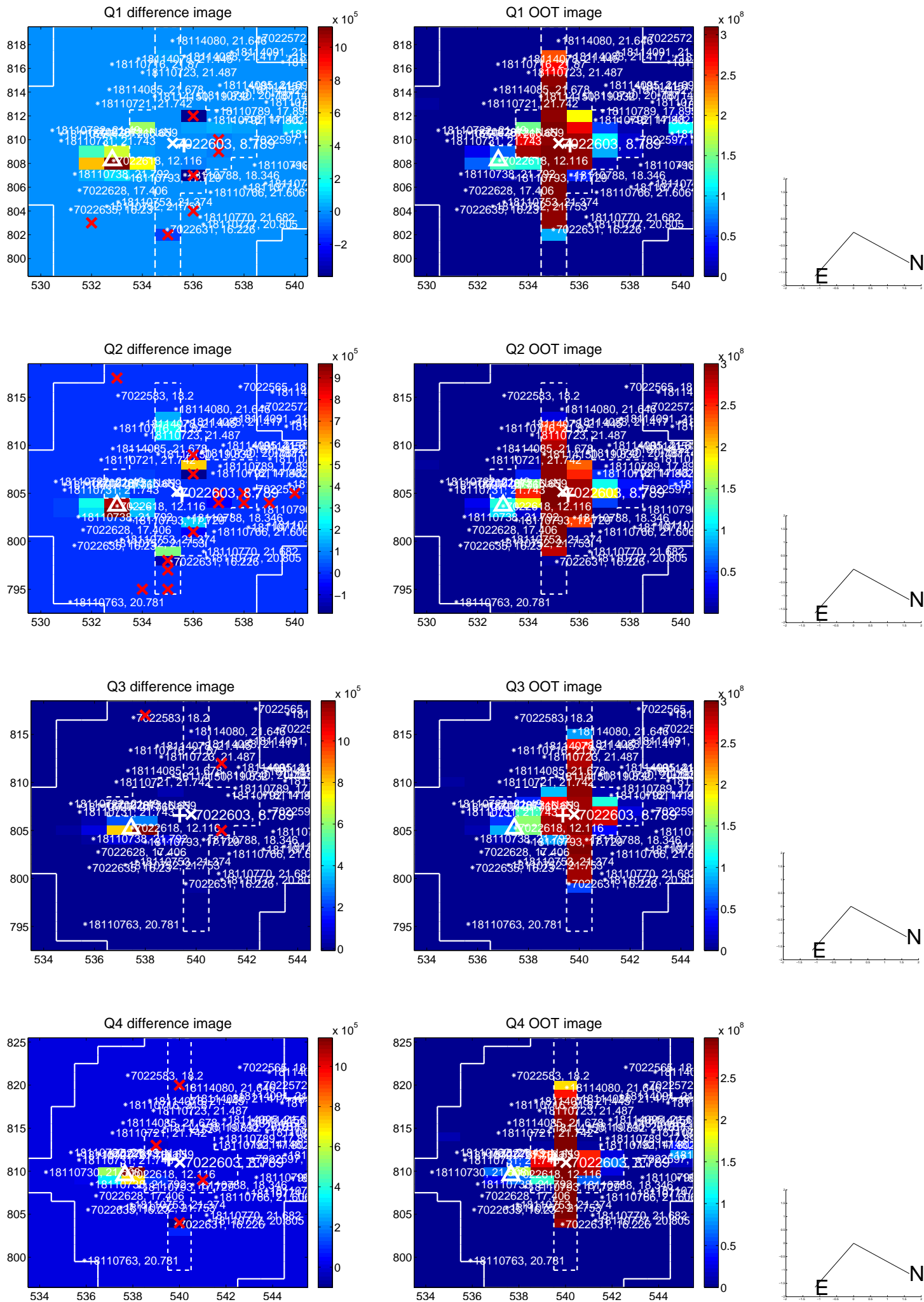
The direct PRF centroid is offset from the target star catalog position by about 1.84 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.240 <math>\pm</math> 0.323</b>	<b>34.84</b>	10.188 $\pm$ 0.292	-4.746 $\pm$ 0.437
PRF-fit source offset from KIC position	<b>11.027 <math>\pm</math> 0.068</b>	<b>163.12</b>	10.124 $\pm$ 0.068	-4.370 $\pm$ 0.067
photometric centroid source offset	<b>79.11 <math>\pm</math> 4.38</b>	<b>18.07</b>	75.16 $\pm$ 4.54	-24.68 $\pm$ 2.34



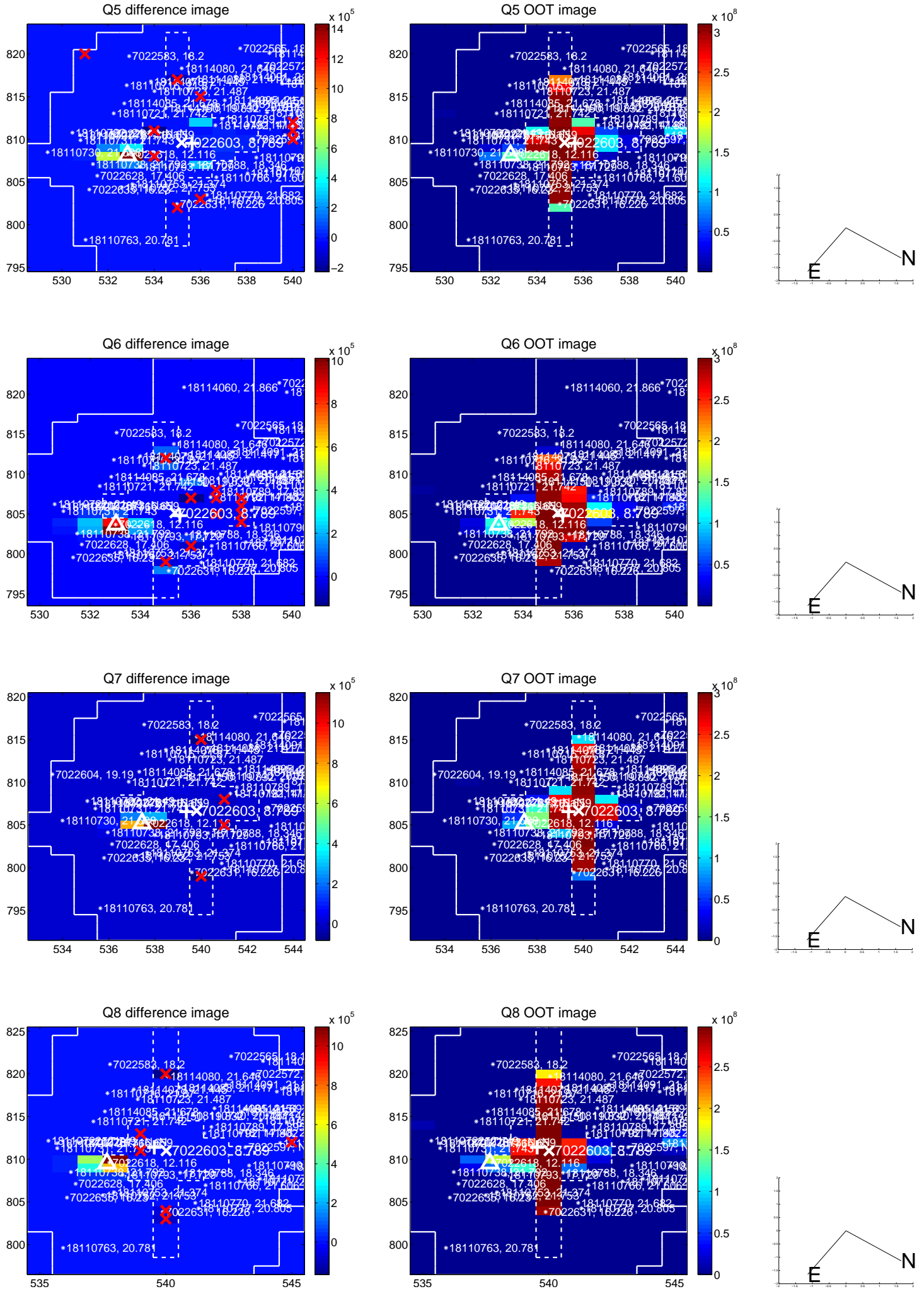
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

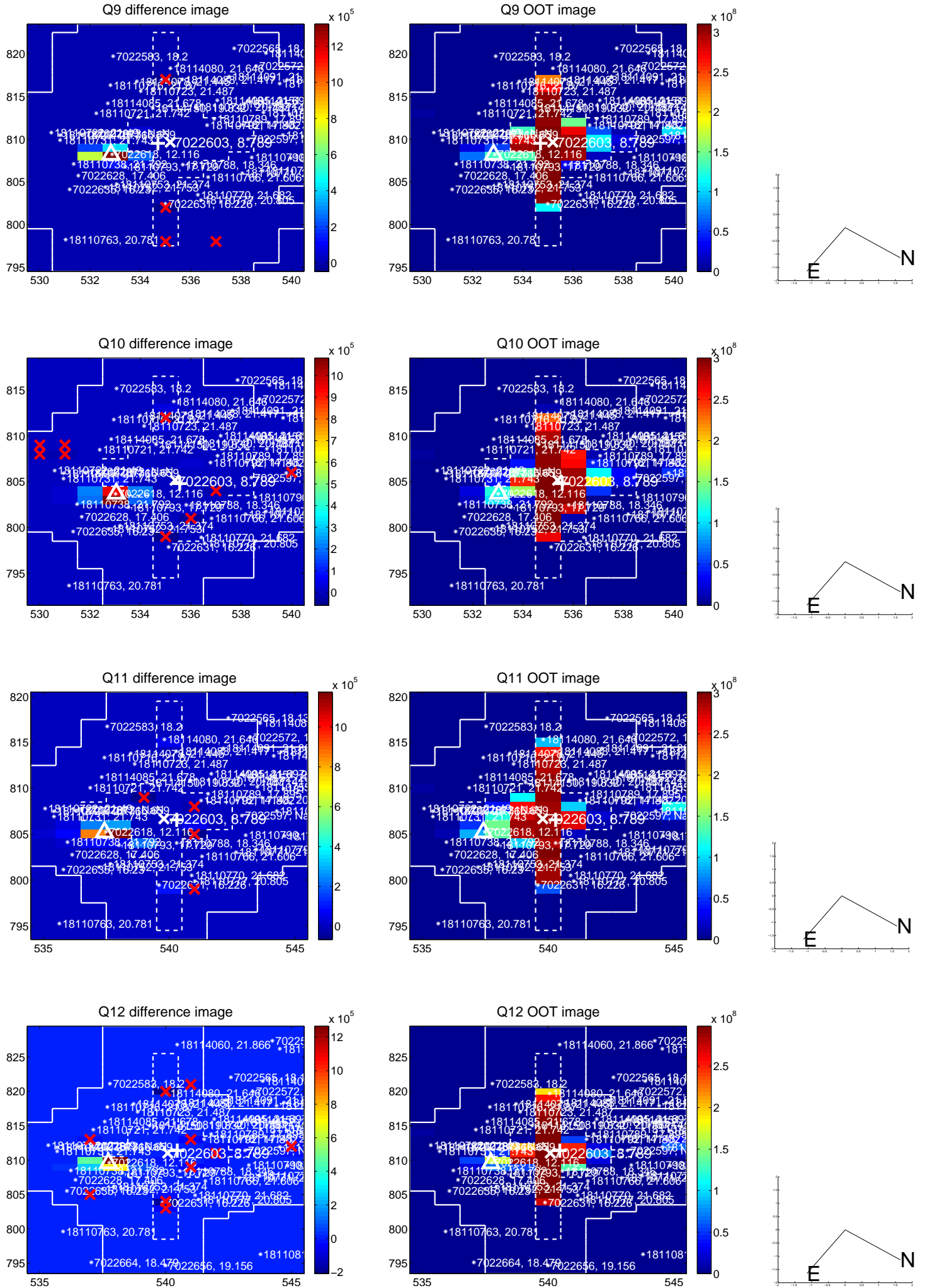




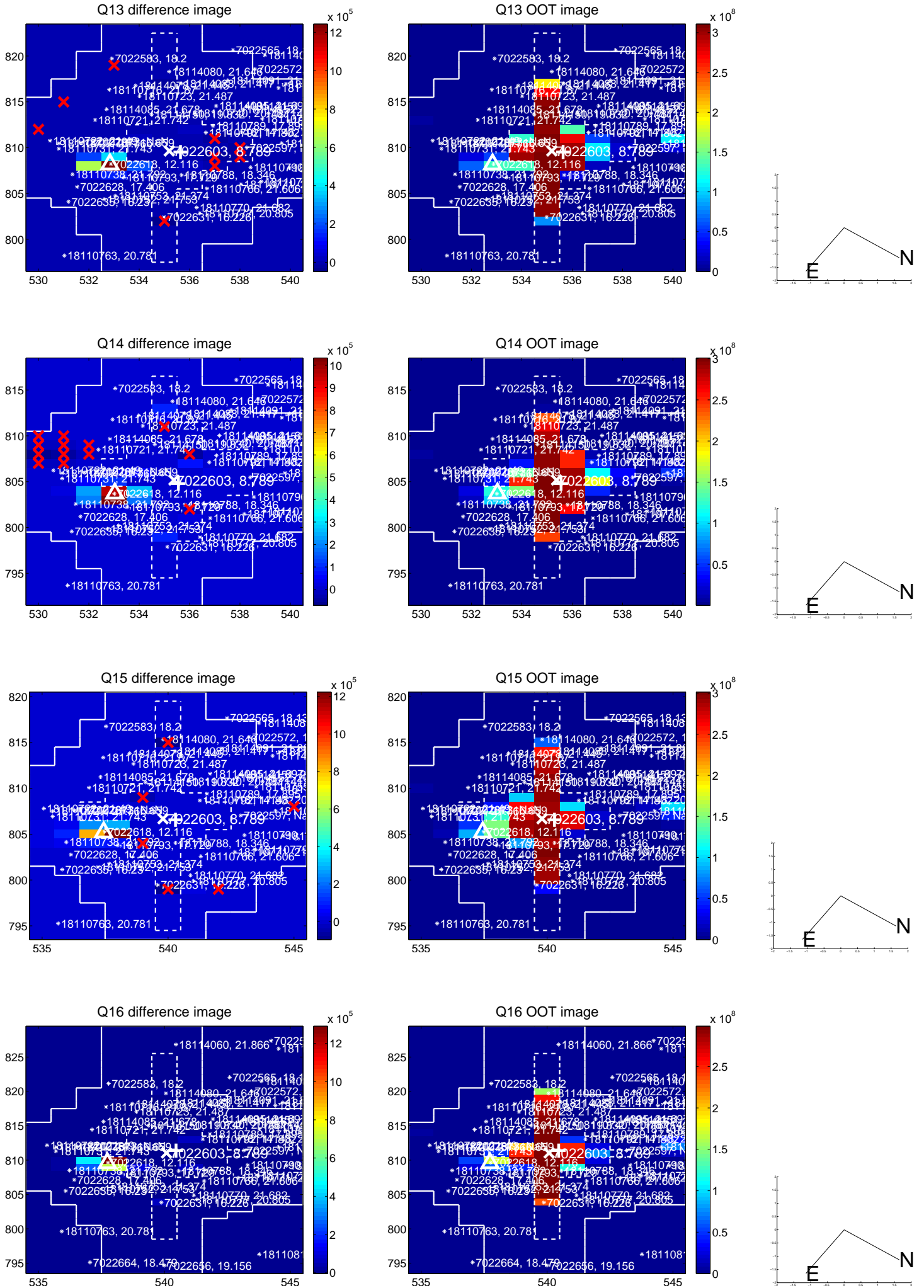
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



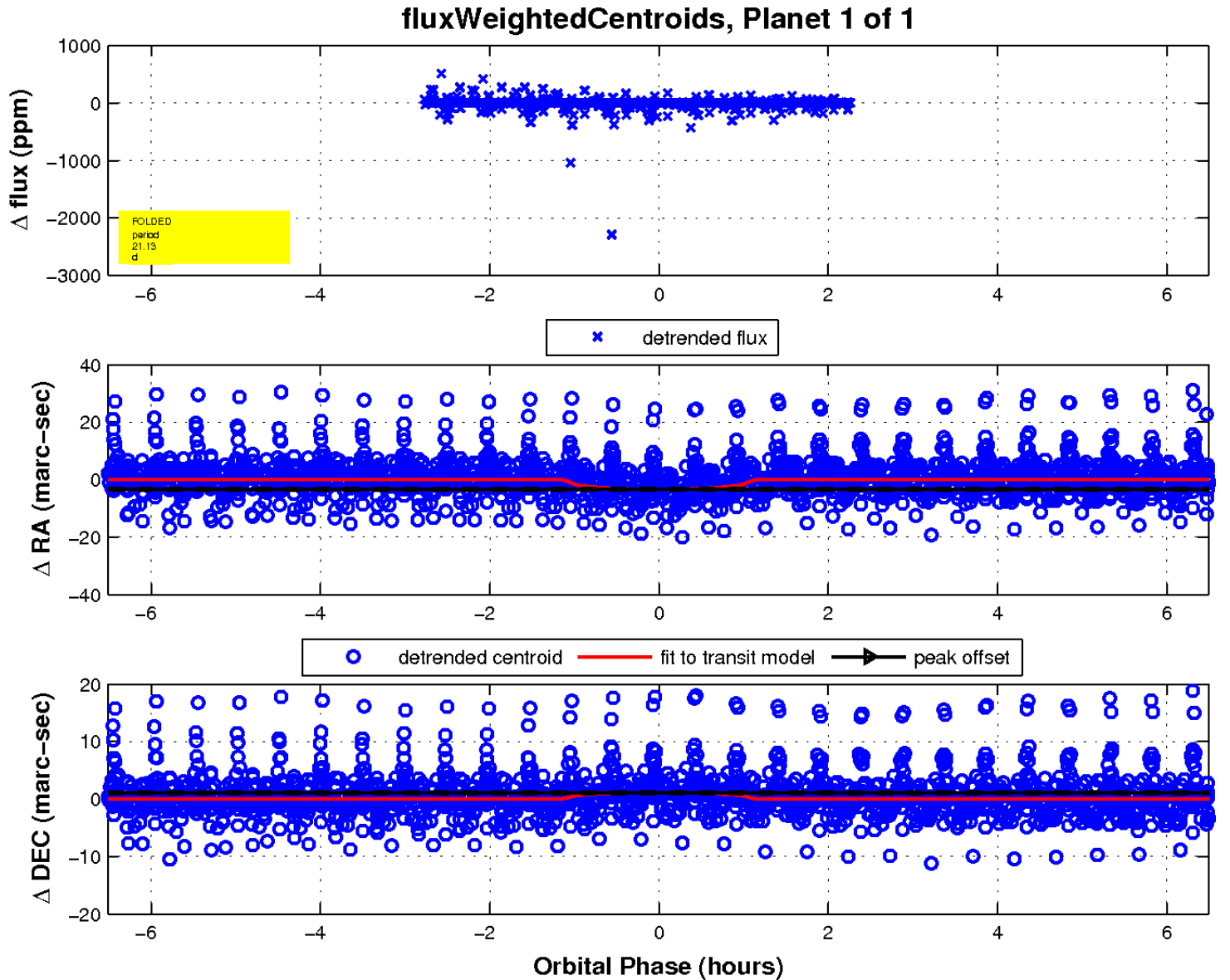
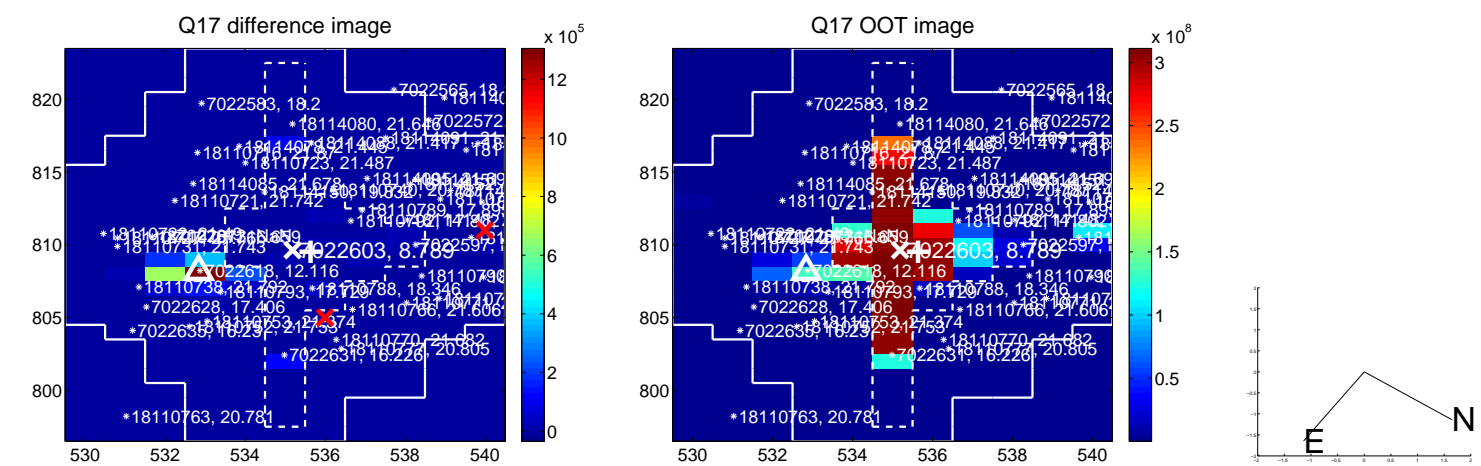
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

