

# KIC 002569516

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002569516-01	OBS	4945.01	45.582710	138.675171	77.1	3.283	8.4	8.8	2.71	7266	2.72	198.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002569516-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_SKYE_ZUMA—CENT_RESOLVED_OFFSET—HALO_GHOST

**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.

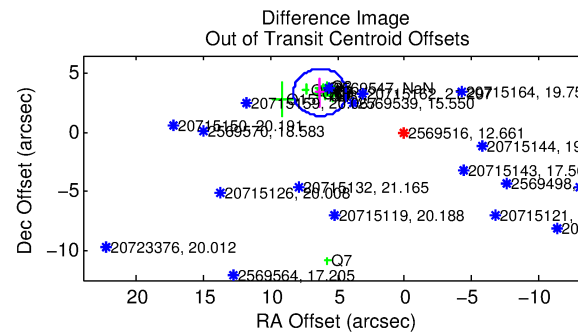
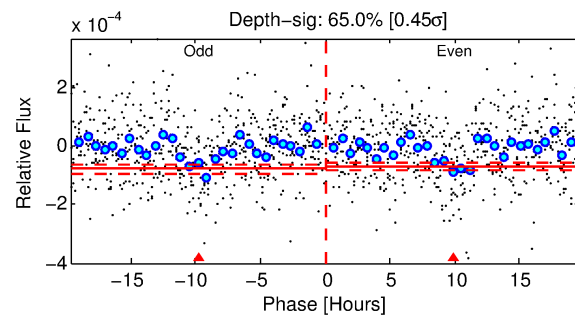
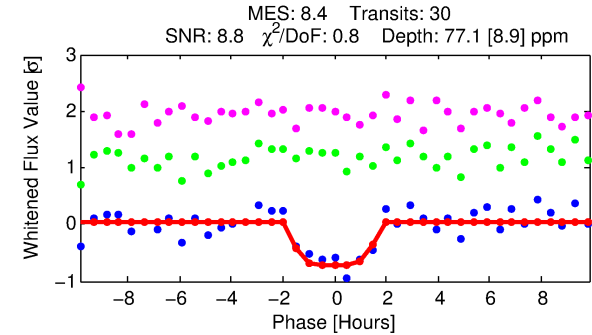
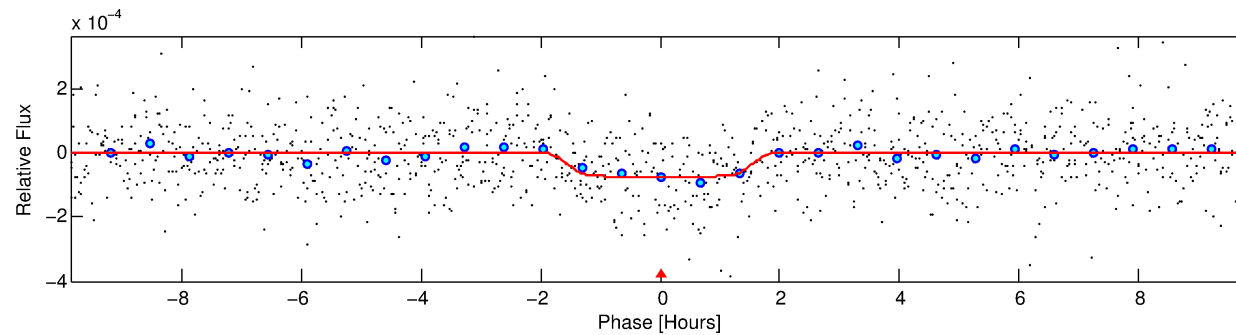
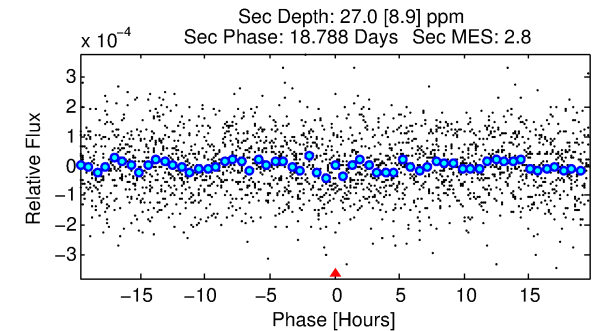
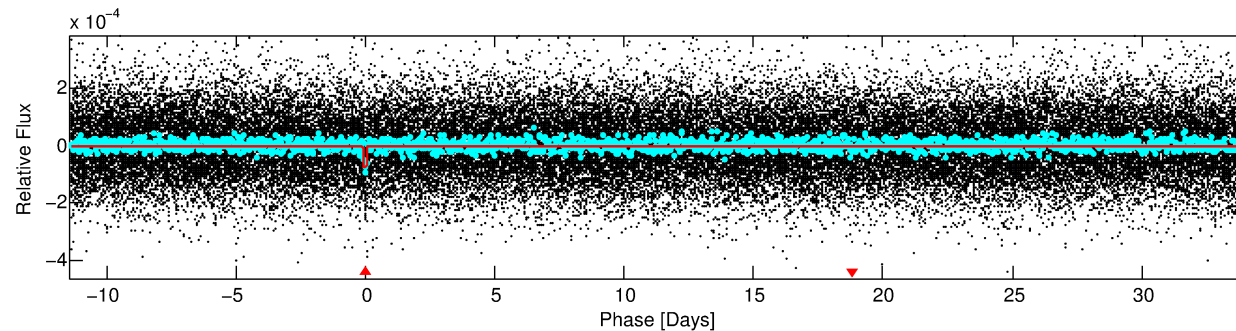
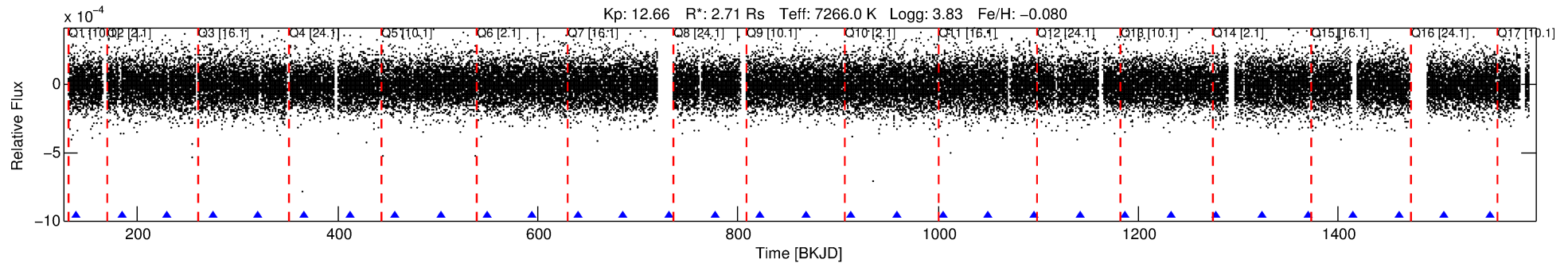
## Ephemeris Match Information For 002569516-01

No Significant Match Found

# DV One-Page Summary

KIC: 2569516 Candidate: 1 of 1 Period: 45.583 d

KOI: K04945.01 Corr: 0.976



## DV Fit Results:

Period = 45.58271 [0.00045] d  
Epoch = 138.6752 [0.0077] BKJD  
Rp/R\* = 0.0092 [0.0044]  
a/R\* = 53.76 [162.05]  
b = 0.87 [0.83]  
Seff = 198.70 [127.40]  
Teq = 957 [153] K  
Rp = 2.72 [1.75] Re  
a = 0.3044 [0.1198] AU  
Ag = 186.85 [221.30] [0.84σ]  
Teffp = 5473 [1411] K [3.18σ]

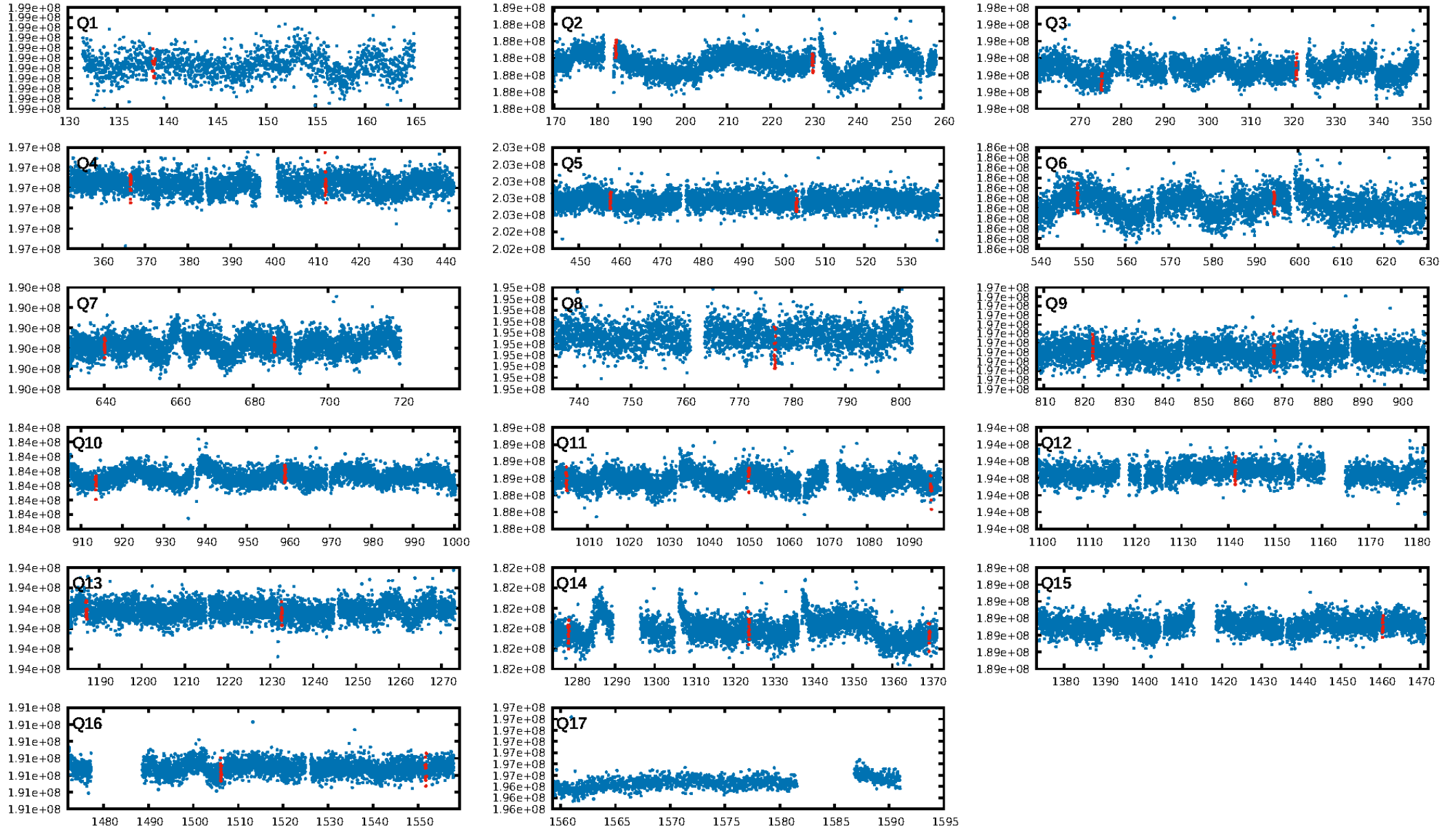
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 76.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.24e-16  
RollingBand-fgt: 1.00 [29/29]  
GhostDiagnostic-chr: -0.08488  
Centroid-sig: 0.0%  
Centroid-so: 11.489 arcsec [6.99σ]  
OotOffset-rm: 7.148 arcsec [10.77σ]  
KicOffset-rm: 7.188 arcsec [9.80σ]  
OotOffset-st: 3/4/2/2 [11]  
KicOffset-st: 3/4/2/2 [11]  
DiffImageQuality-fgm: 0.45 [5/11]  
DiffImageOverlap-fno: 1.00 [16/16]

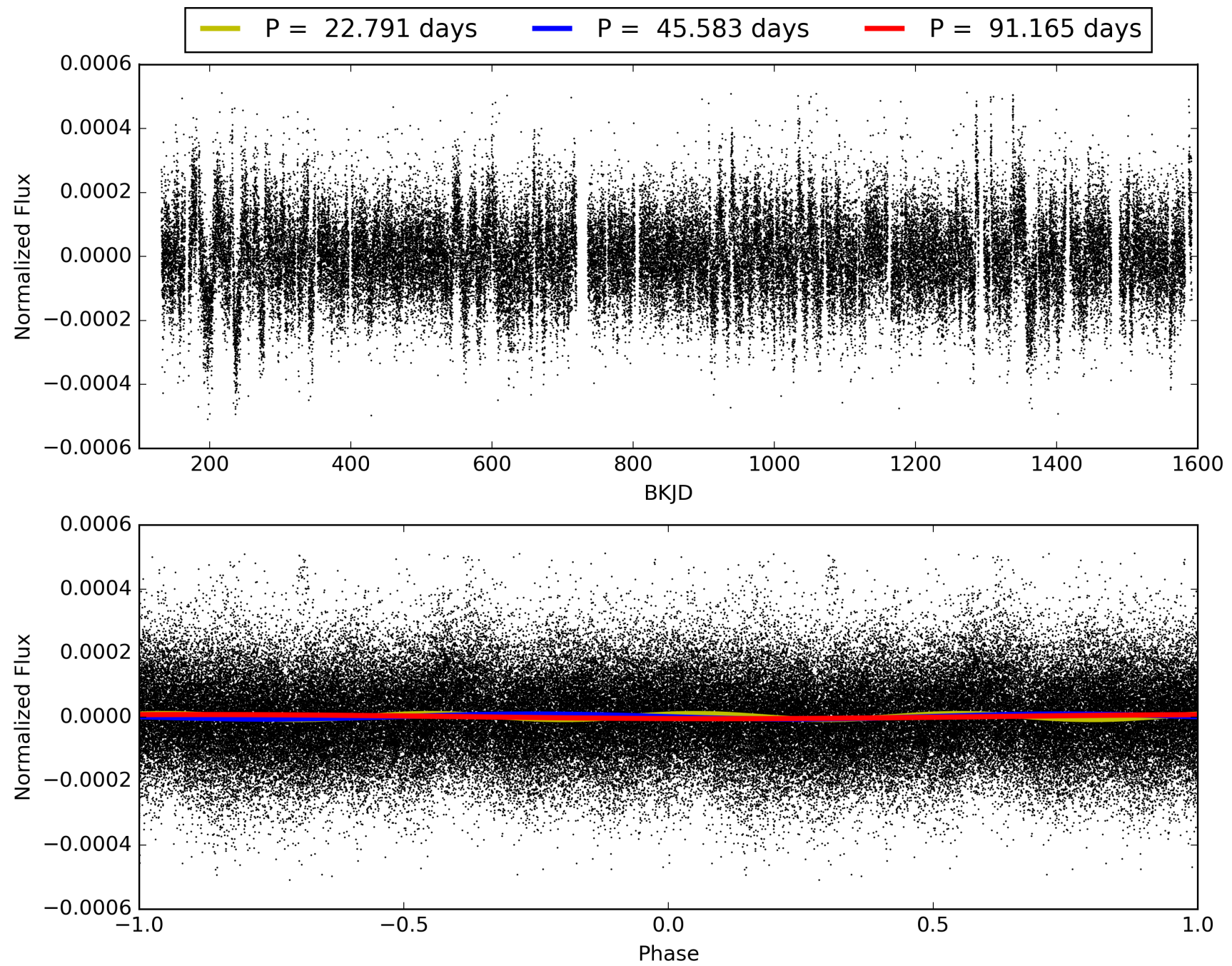
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:21:50 Z

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

# TCE 002569516-01, PDC Light Curves

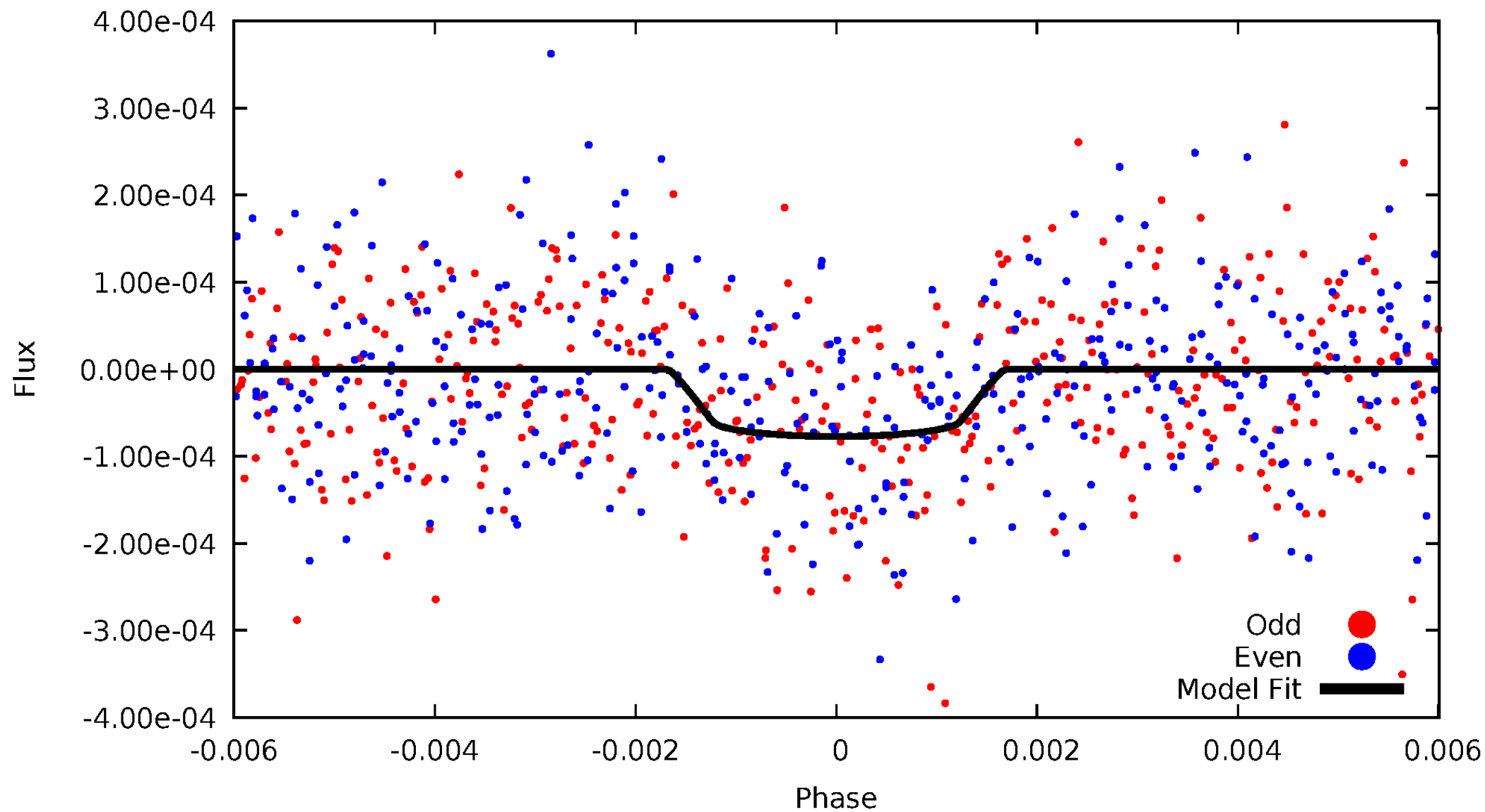


TCE 002569516-01



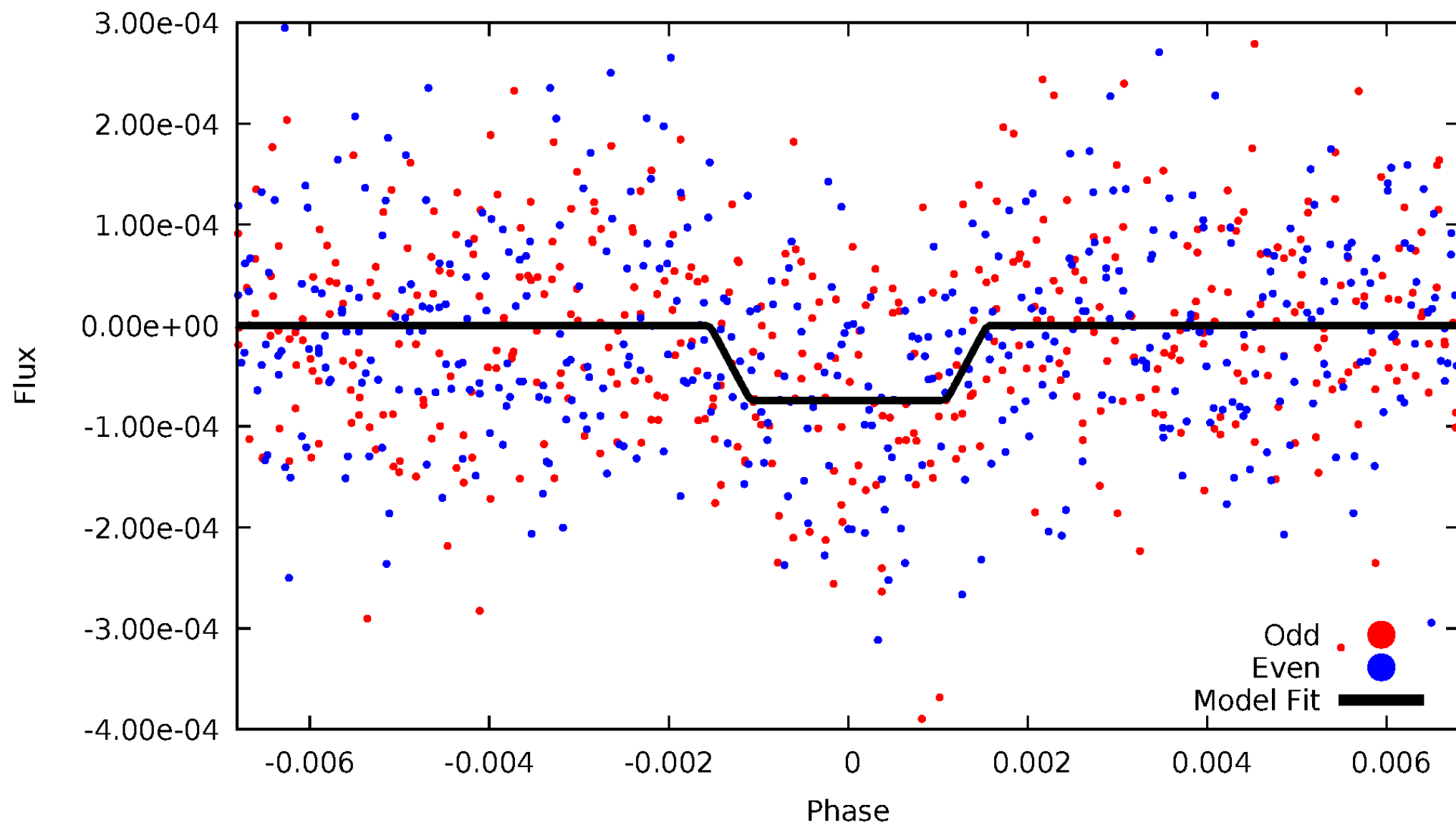
# DV Odd/Even

TCE 002569516-01



# ALT Odd/Even

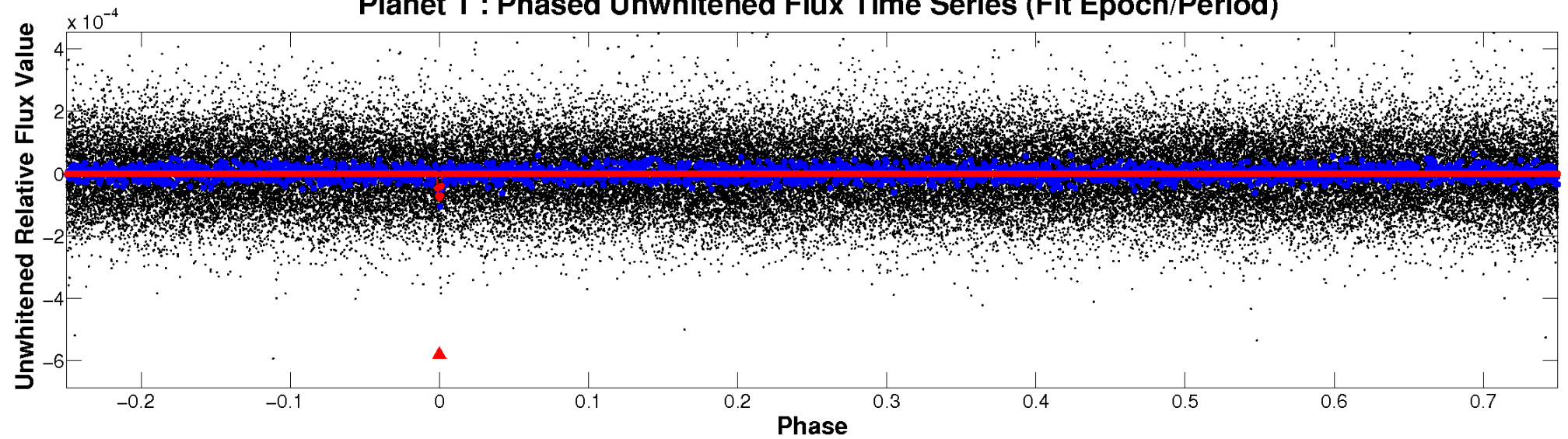
TCE 002569516-01



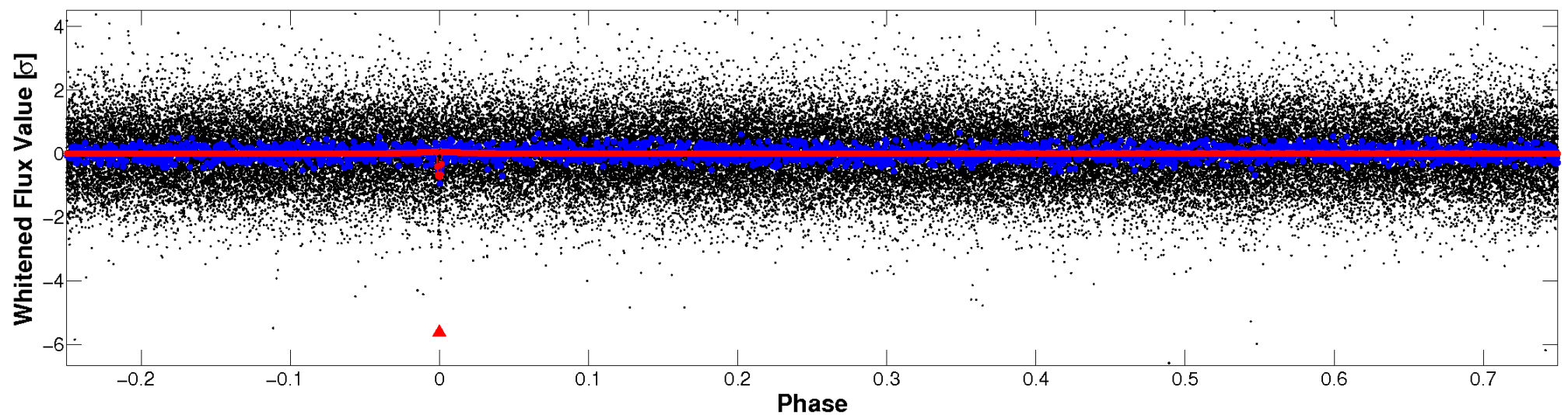


# Non-Whitened Vs. Whitened Light Curve

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

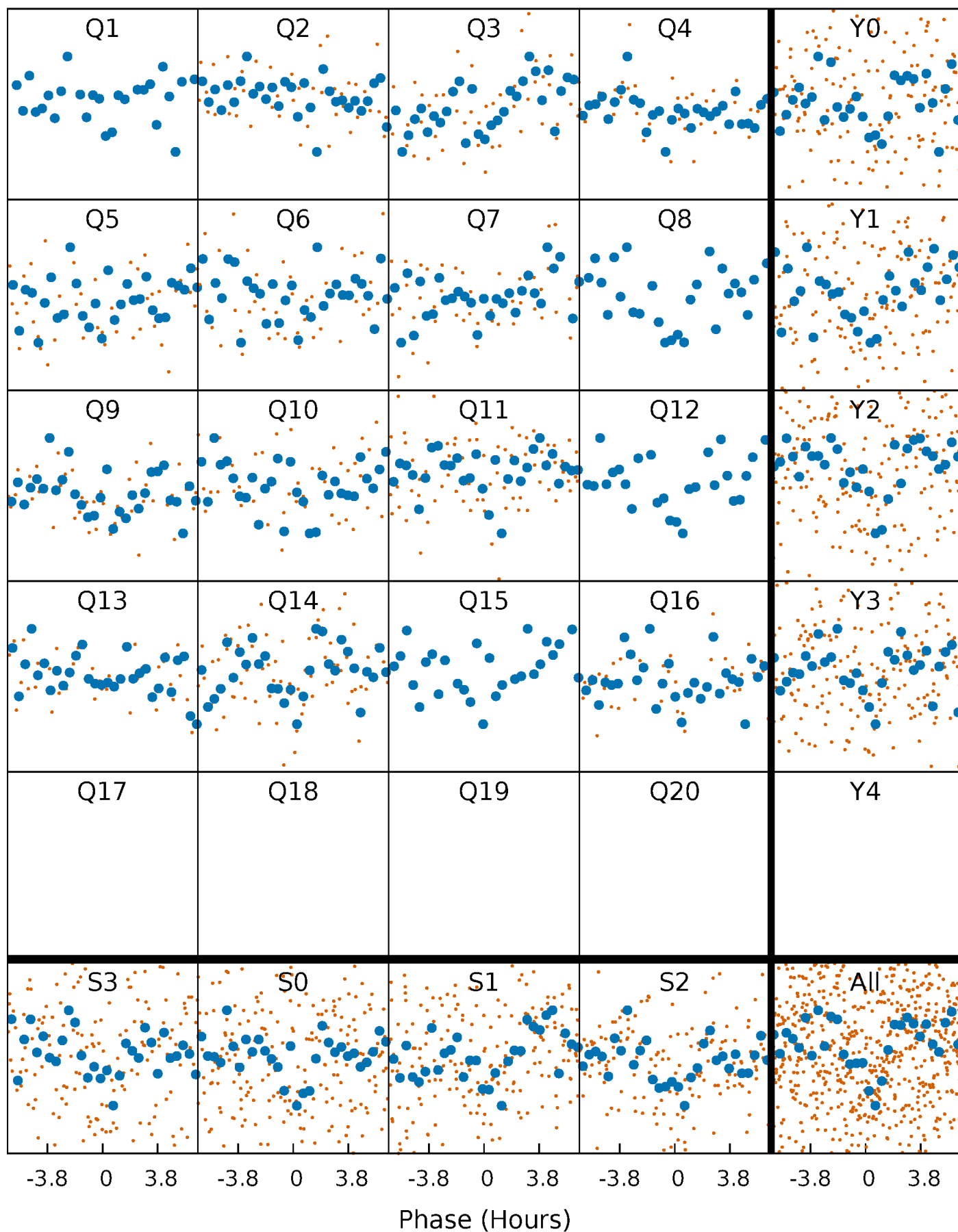


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

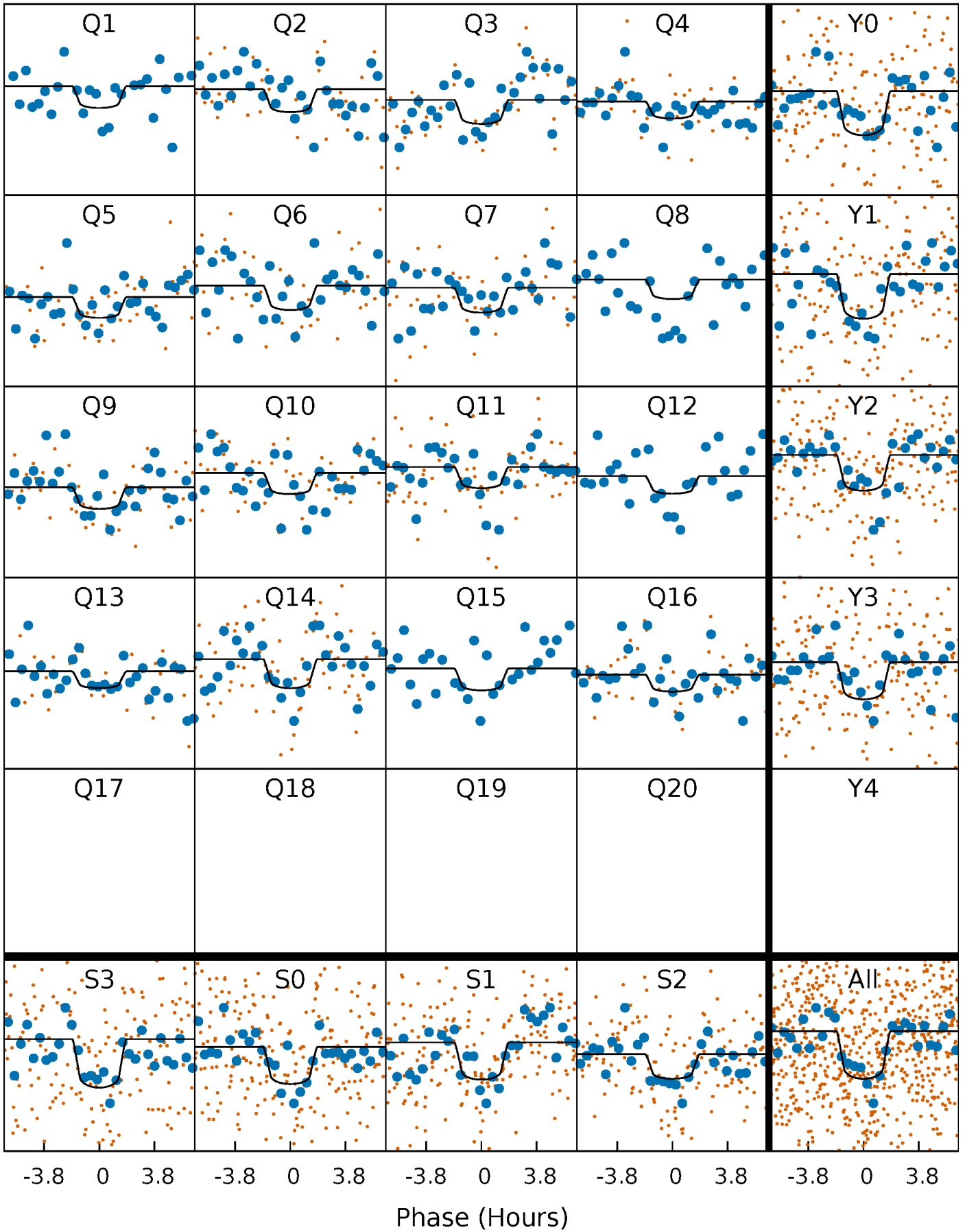
TCE 002569516-01 P= 45.582710 Days  $T_0=138.675171$  (BKJD)





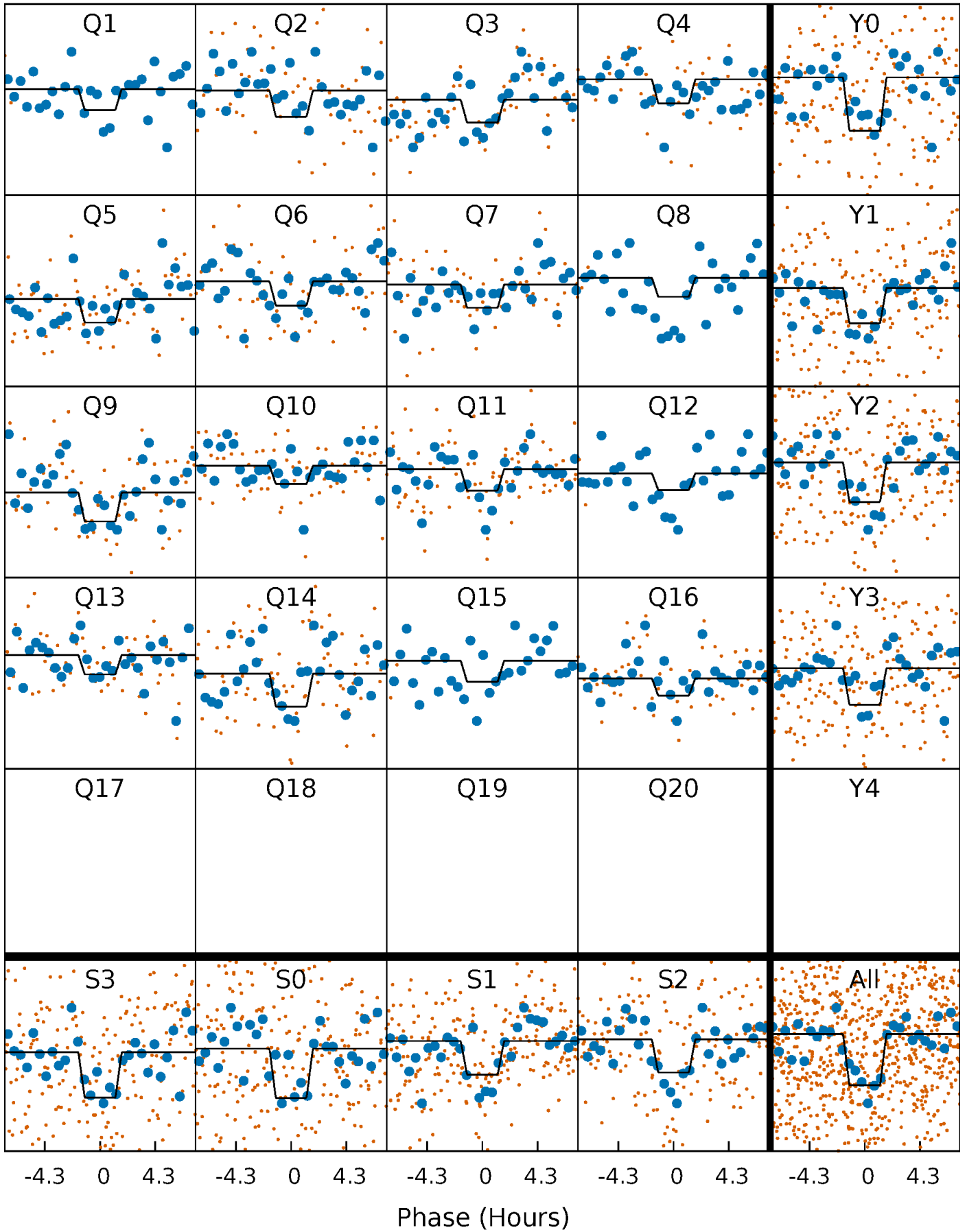
# DV Quarter-Phased Transit Curves

TCE 002569516-01 P= 45.582710 Days  $T_0=138.675171$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

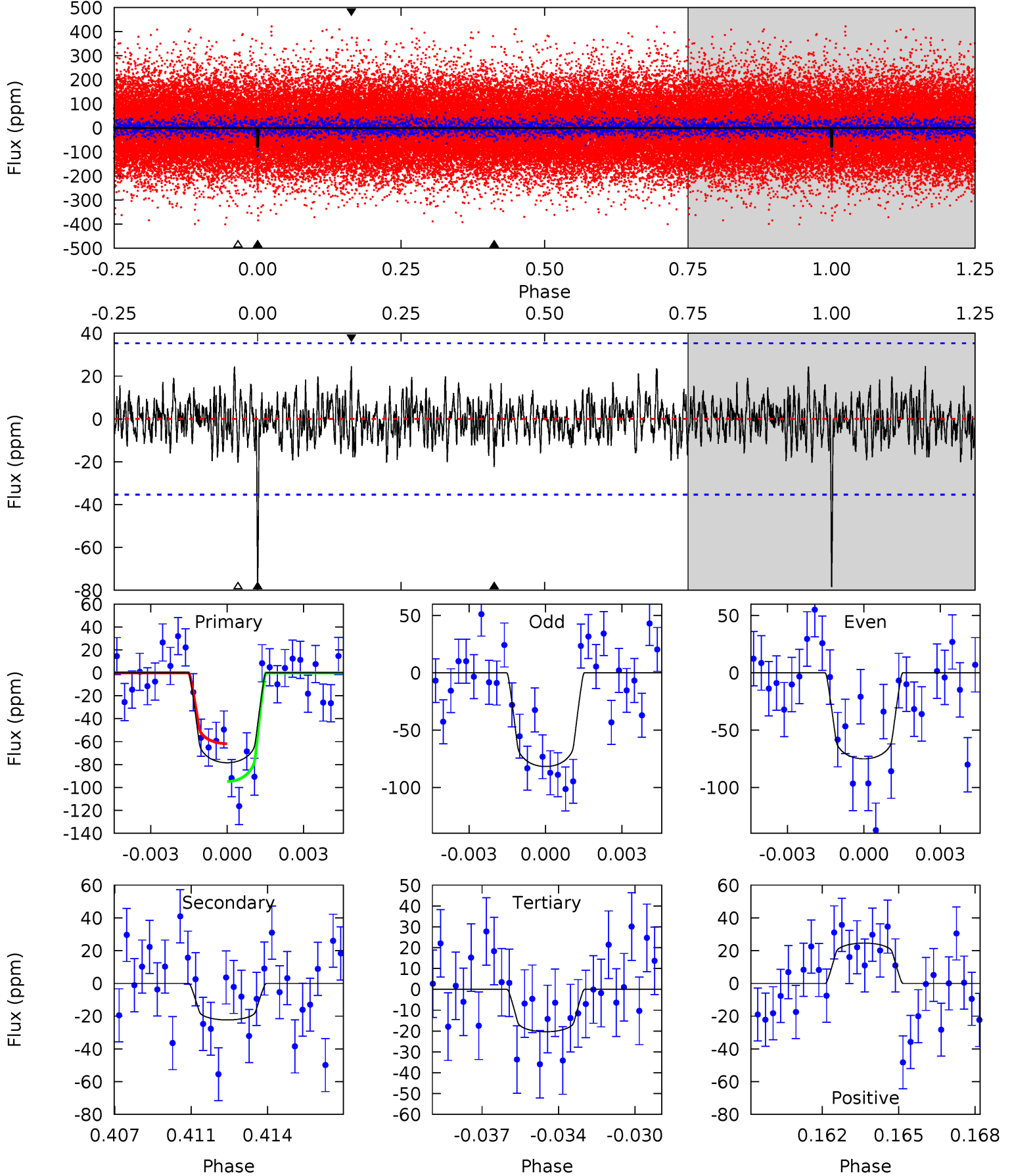
TCE 002569516-01 P= 45.583296 Days  $T_0=138.668220$  (BKJD)



# DV Model-Shift Uniqueness Test

002569516-01, P = 45.582710 Days, E = 93.092461 Days

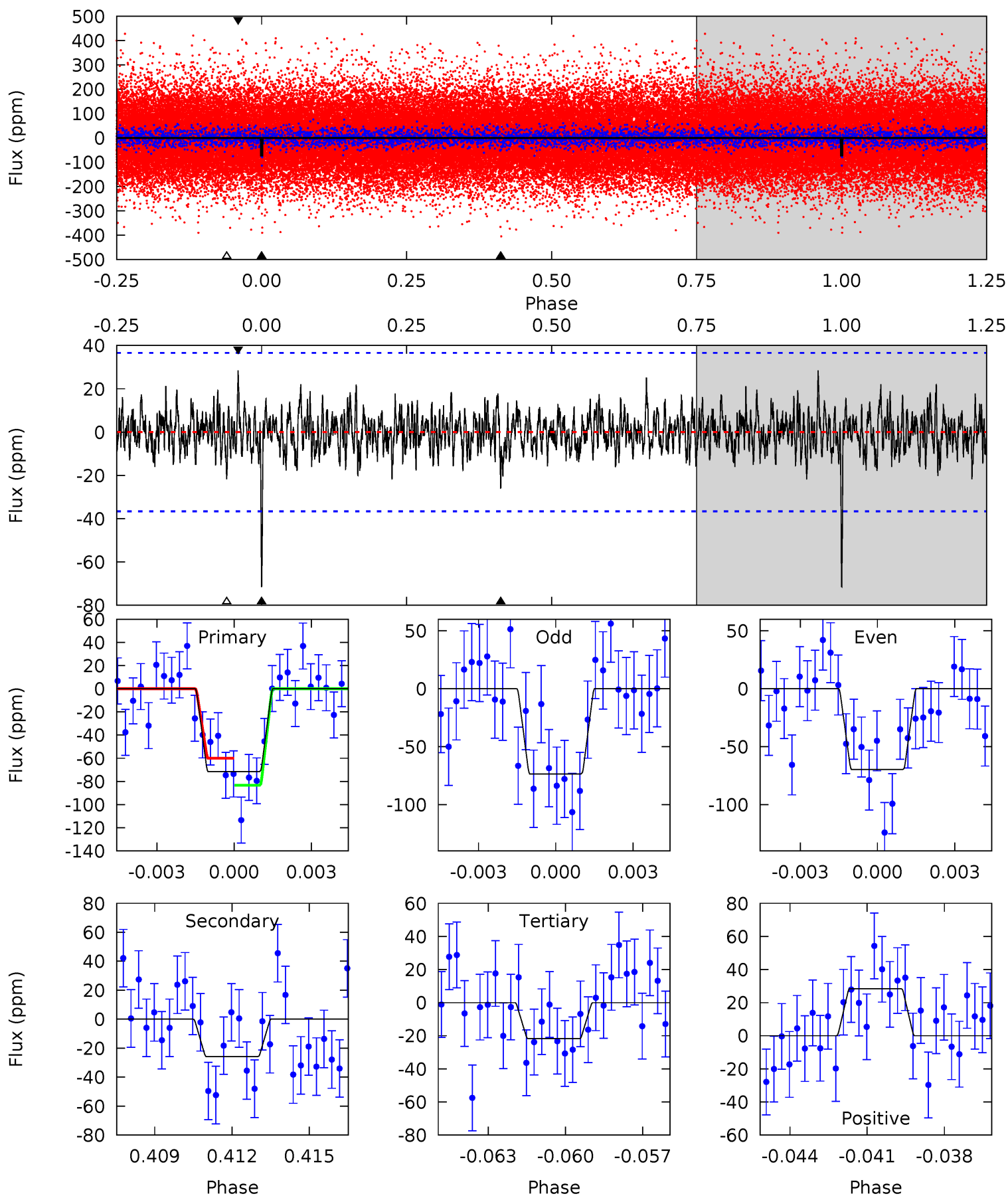
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	3.30	3.01	3.64	5.23	2.93	1.09	8.60	7.97	0.29	-0.34	0.50	1.01	0.24	2.45



# Alt Model-Shift Uniqueness Test

002569516-01, P = 45.583296 Days, E = 93.084924 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
10.3	3.70	3.13	4.08	5.24	2.95	1.05	7.13	6.18	0.58	-0.37	0.27	1.00	0.28	1.68



### Stellar Parameters For KIC 002569516

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7266^{+230}_{-345}$	$3.828^{+0.353}_{-0.118}$	$-0.080^{+0.250}_{-0.350}$	$2.715^{+0.498}_{-1.162}$	$1.807^{+0.194}_{-0.454}$	$0.127^{+0.369}_{-0.047}$
	+3%/-5%	+9%/-3%	+312%/-438%	+18%/-43%	+11%/-25%	+290%/-37%
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 002569516-01 / KOI 4945.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-22 \pm 7$	$2.46^{+1.42}_{-1.12}$	$1308^{+98}_{-146}$	$5230^{+1773}_{-922}$	$184^{+424}_{-117}$
Alt.	$-26 \pm 7$	$2.40^{+1.30}_{-1.11}$	$1304^{+102}_{-128}$	$5466^{+2415}_{-932}$	$217^{+642}_{-128}$

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

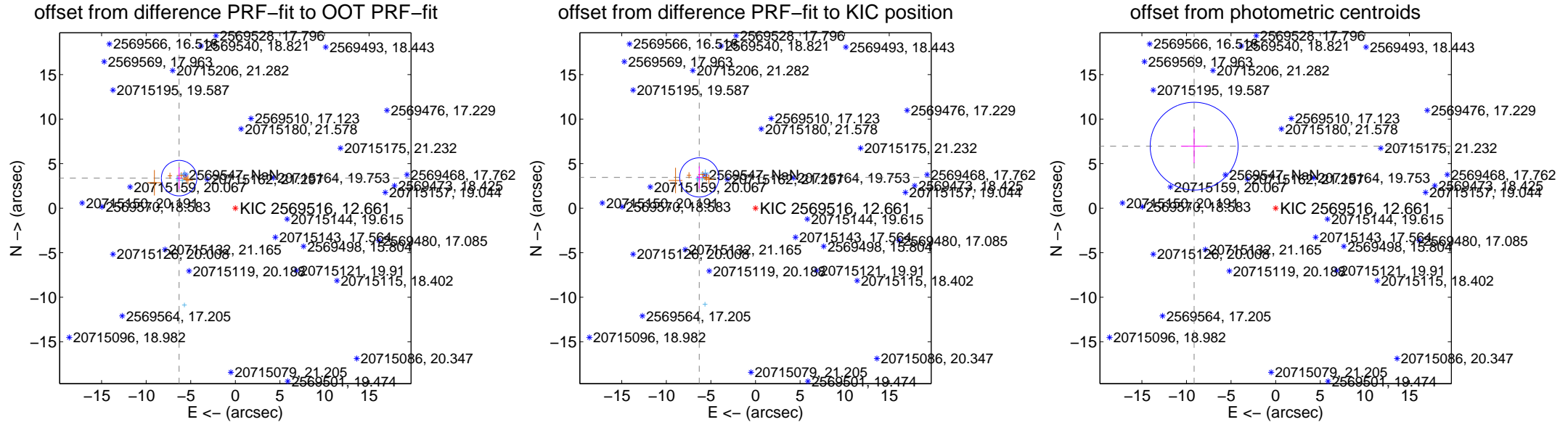
## DV Centroid Data

Supplemental centroid analysis for 002569516-01. Kepler magnitude: 12.66. Transit SNR 8.79

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

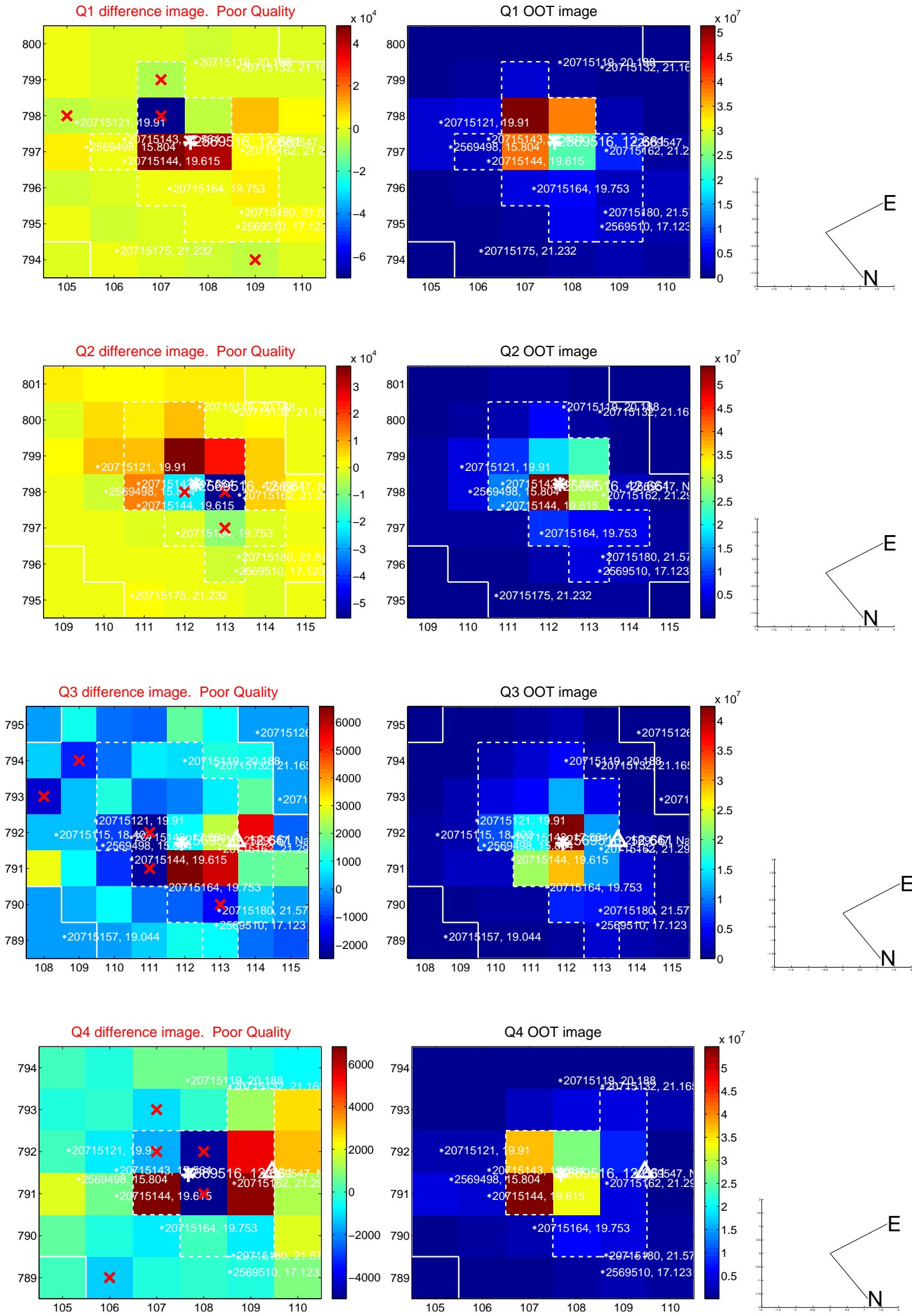
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>7.148 <math>\pm</math> 0.664</b>	<b>10.77</b>	6.303 $\pm$ 0.281	3.372 $\pm$ 1.226
PRF-fit source offset from KIC position	<b>7.188 <math>\pm</math> 0.734</b>	<b>9.80</b>	6.304 $\pm$ 0.316	3.453 $\pm$ 1.254
photometric centroid source offset	<b>11.49 <math>\pm</math> 1.64</b>	<b>6.99</b>	9.14 $\pm$ 1.48	6.96 $\pm$ 1.90



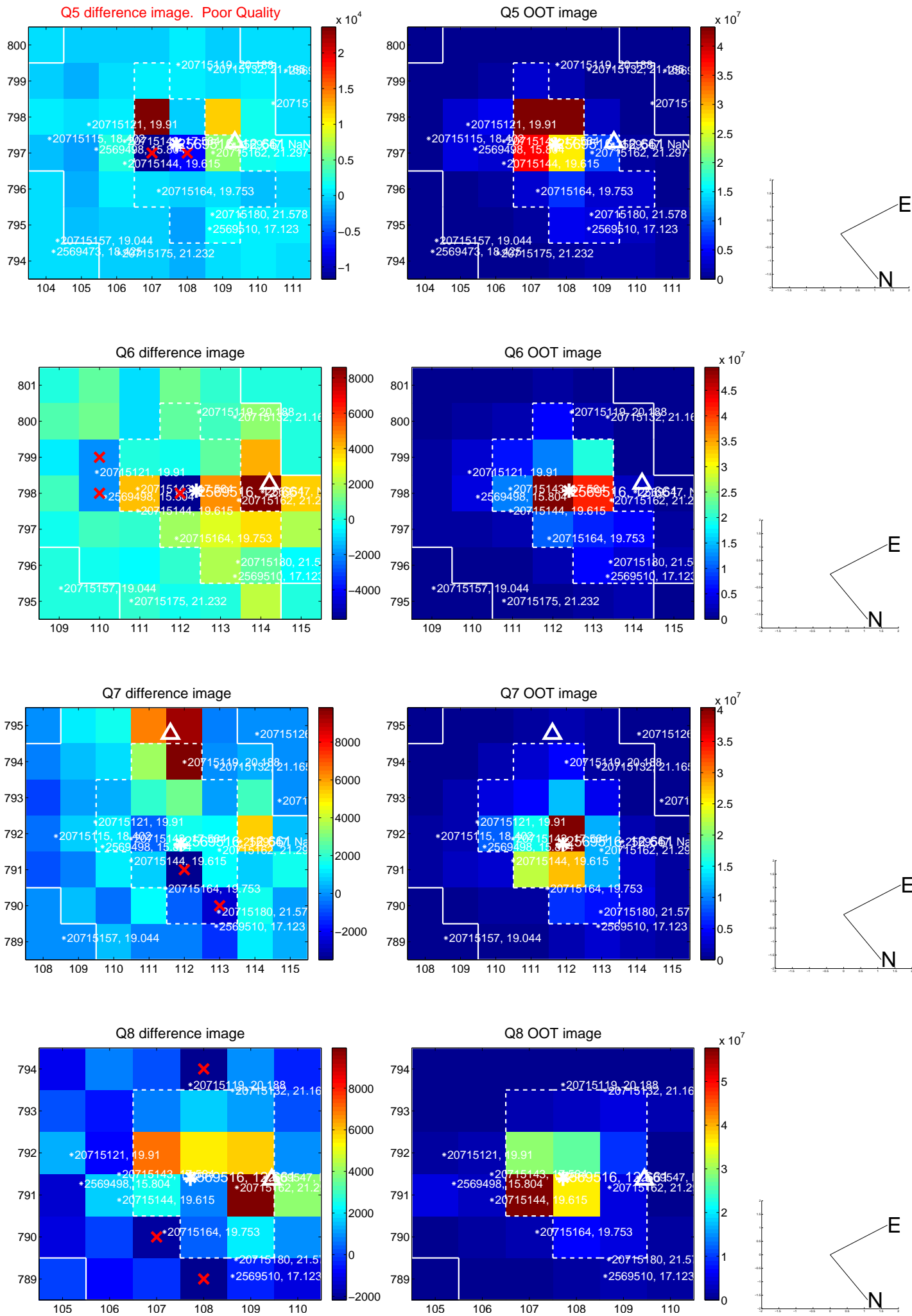
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



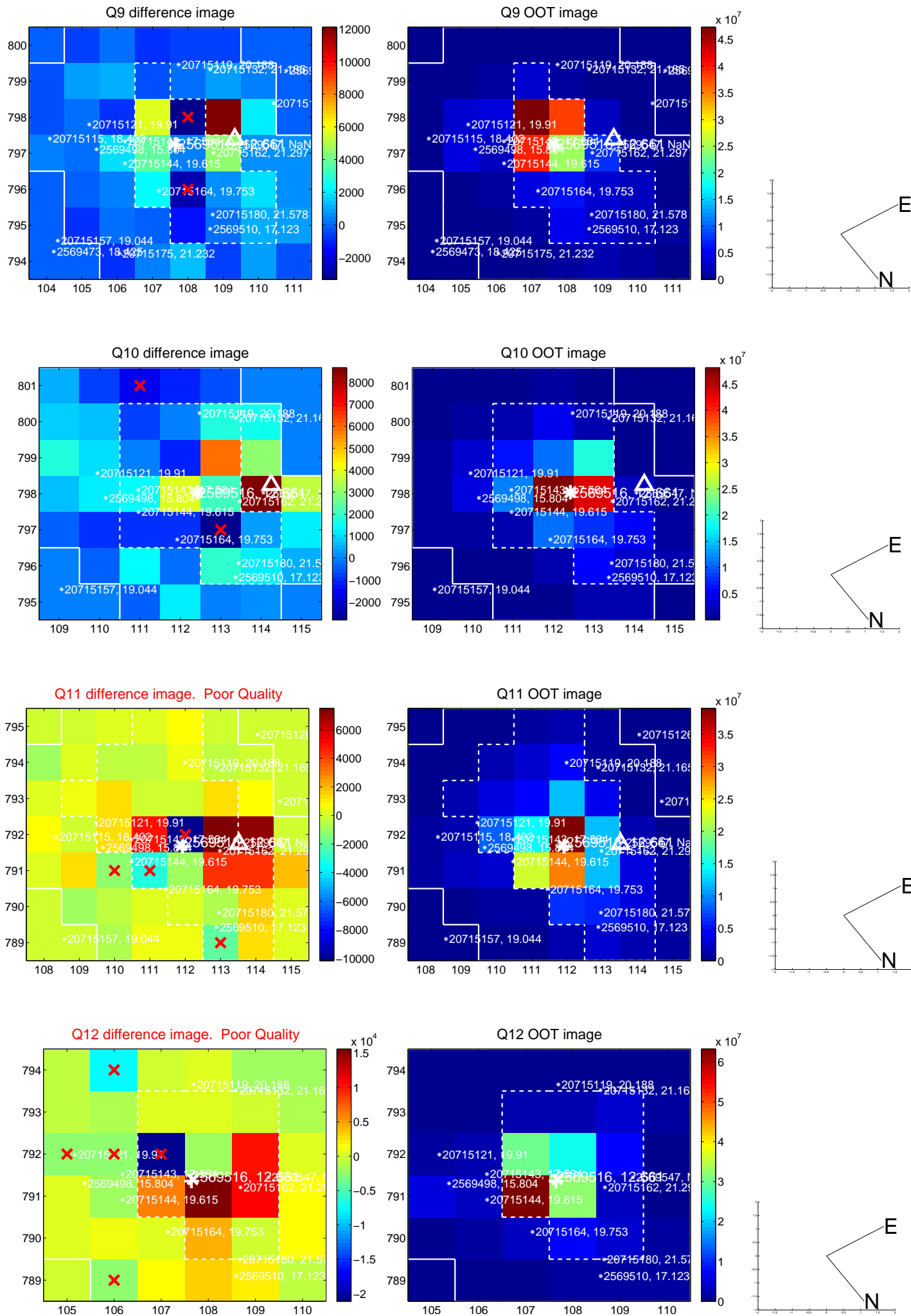
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



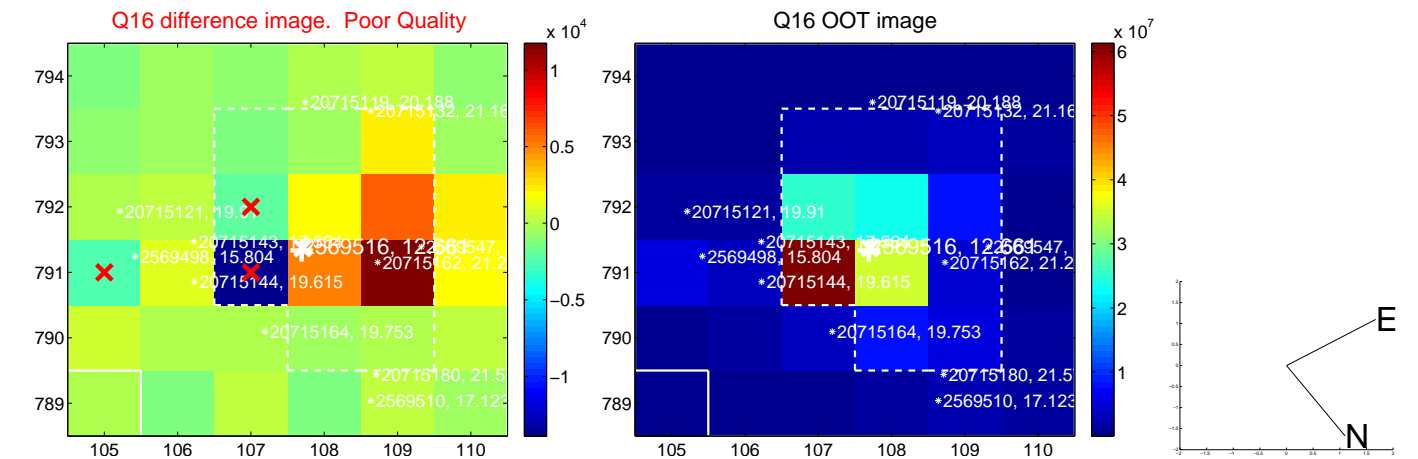
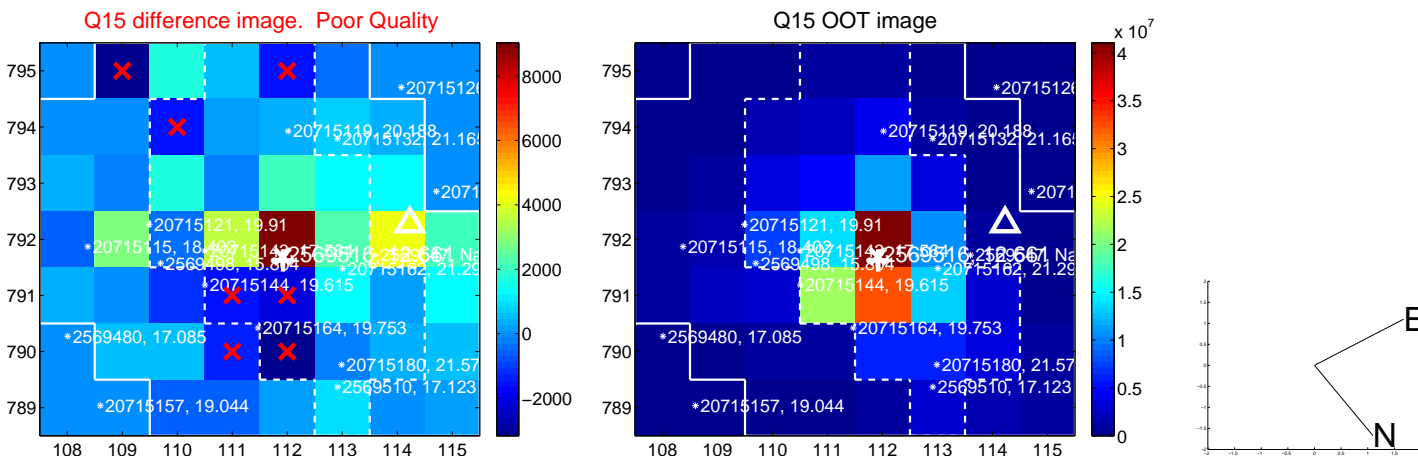
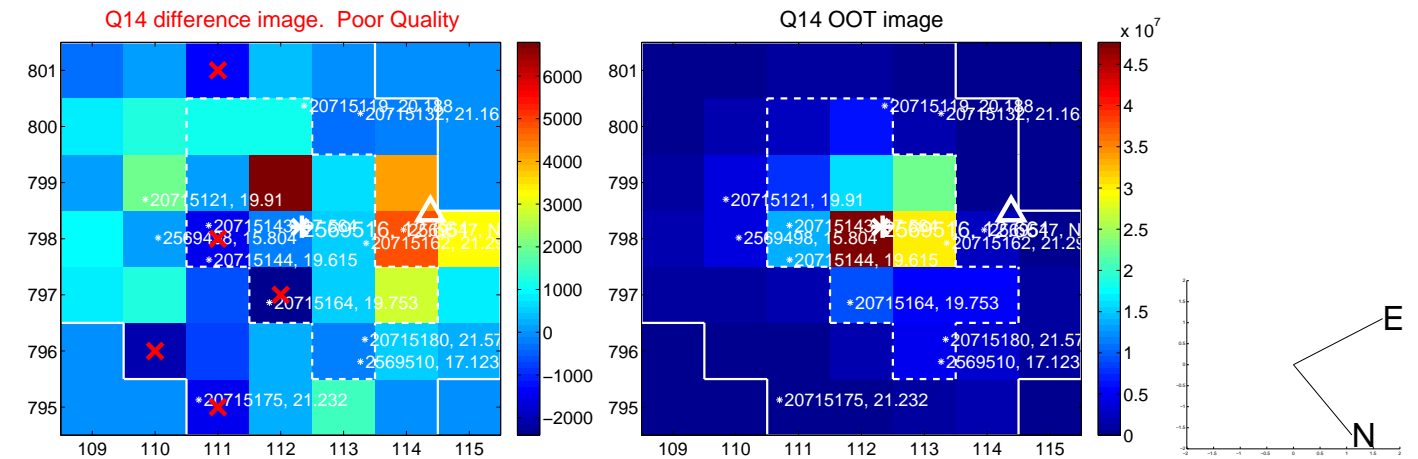
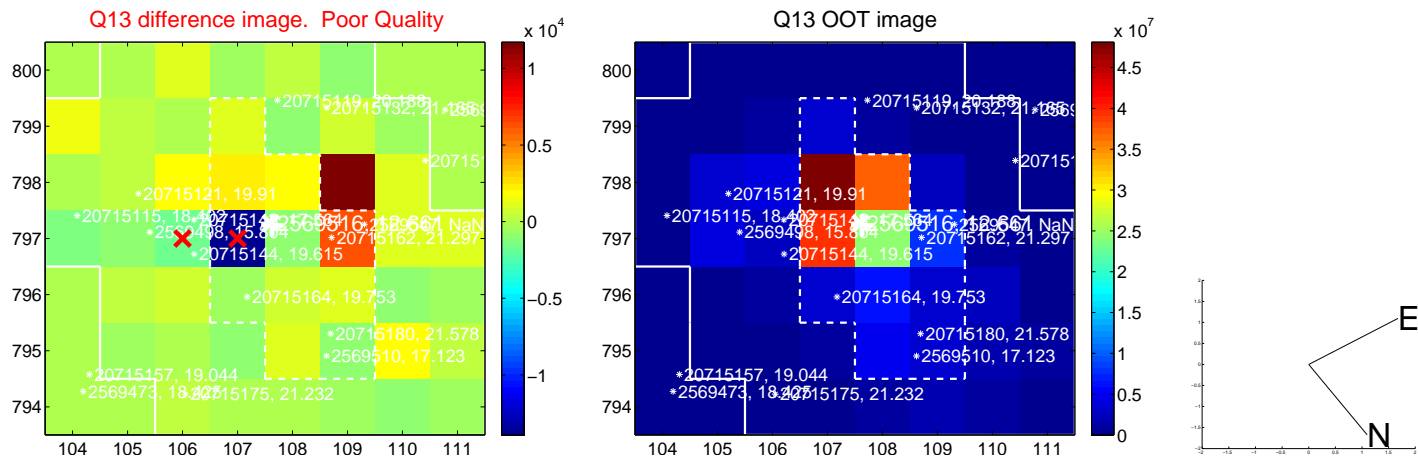
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



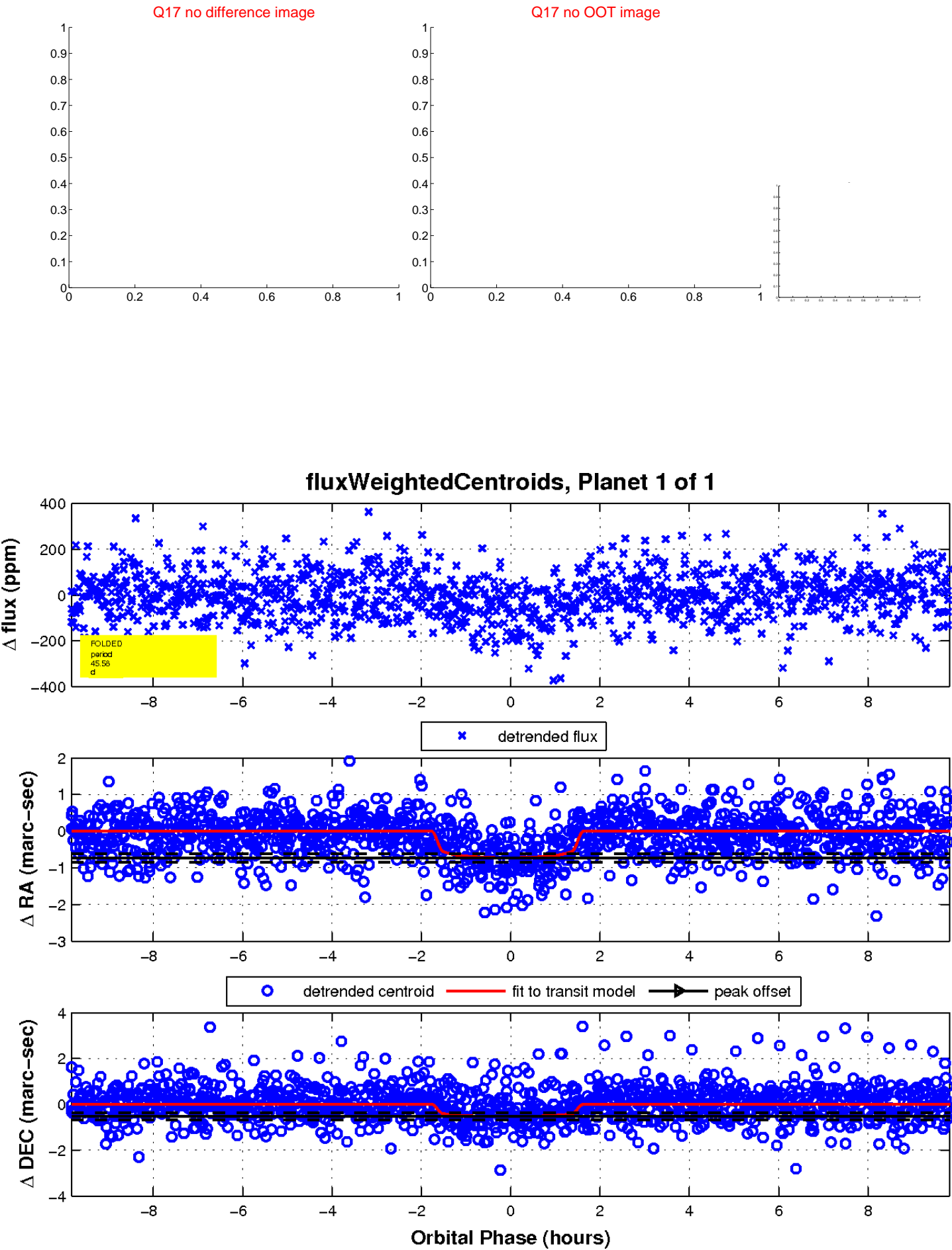
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

