

# KIC 005981058

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005981058-01	OBS	5219.01	27.766412	132.139814	163.0	29.003	10.2	12.6	1.00	5897	1.38	31.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005981058-01	OBS	FP	0.11	1	0	0	0	LPP_DV

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

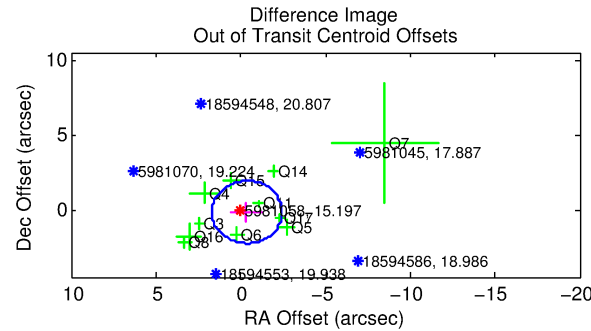
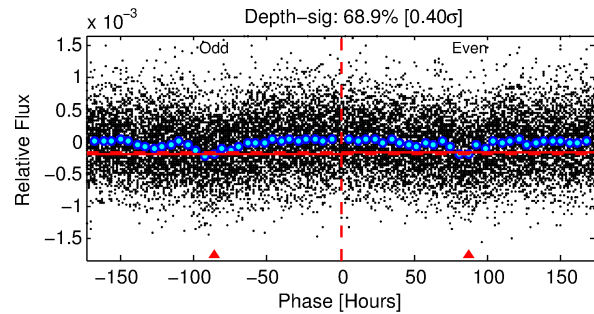
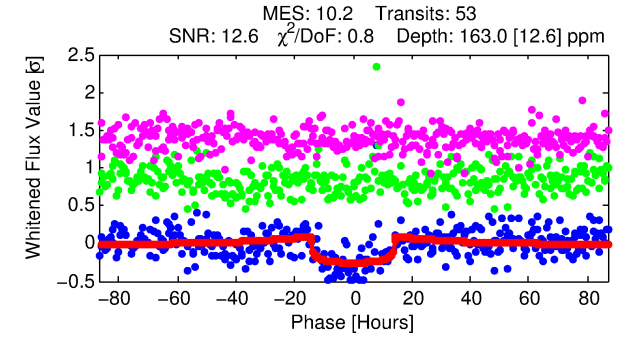
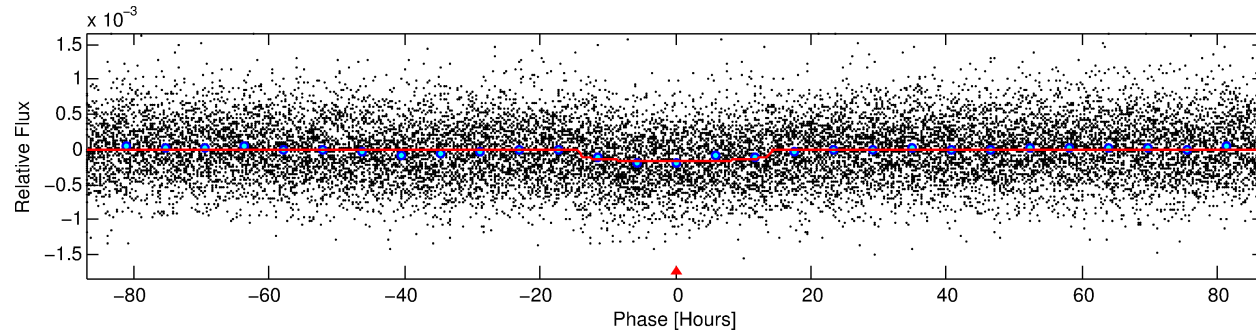
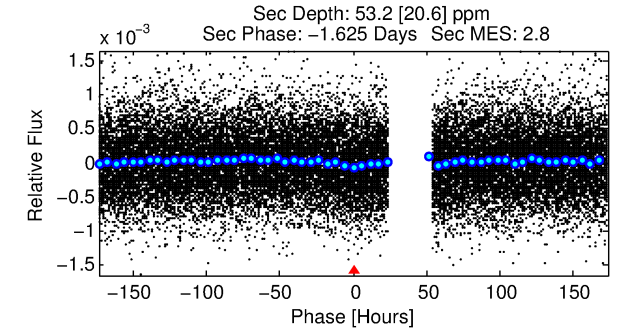
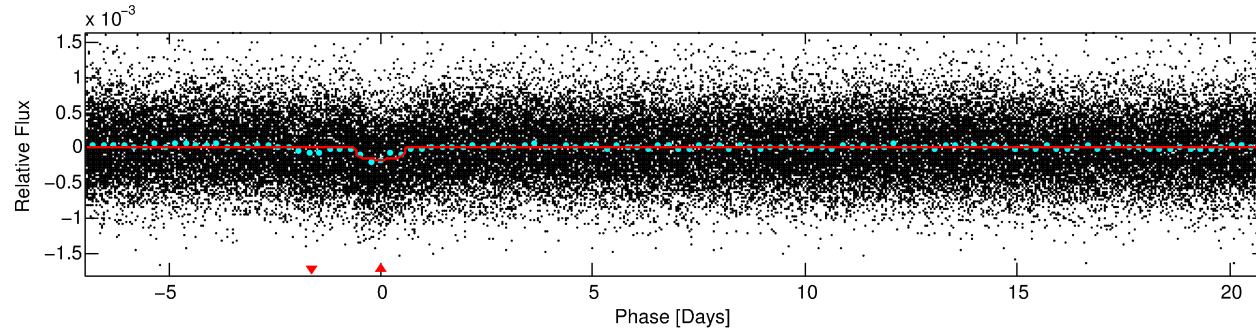
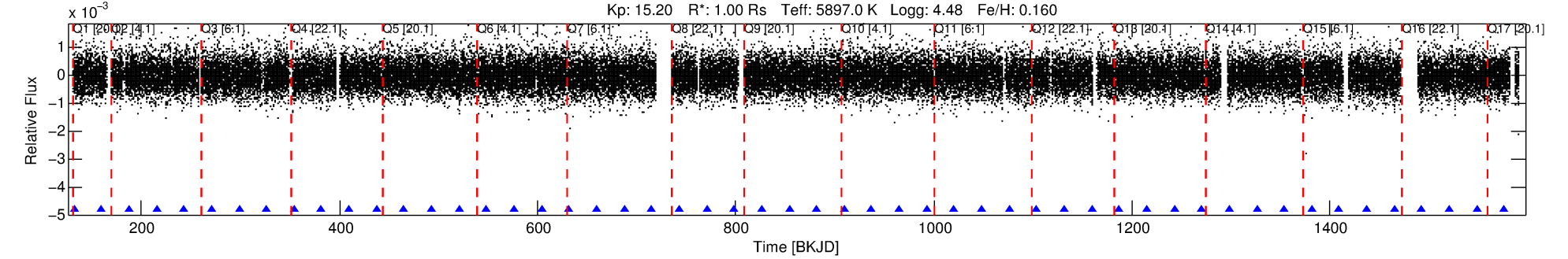
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005981058-01

No Significant Match Found

# DV One-Page Summary

KIC: 5981058 Candidate: 1 of 1 Period: 27.766 d  
KOI: K05219.01 Corr: 0.881



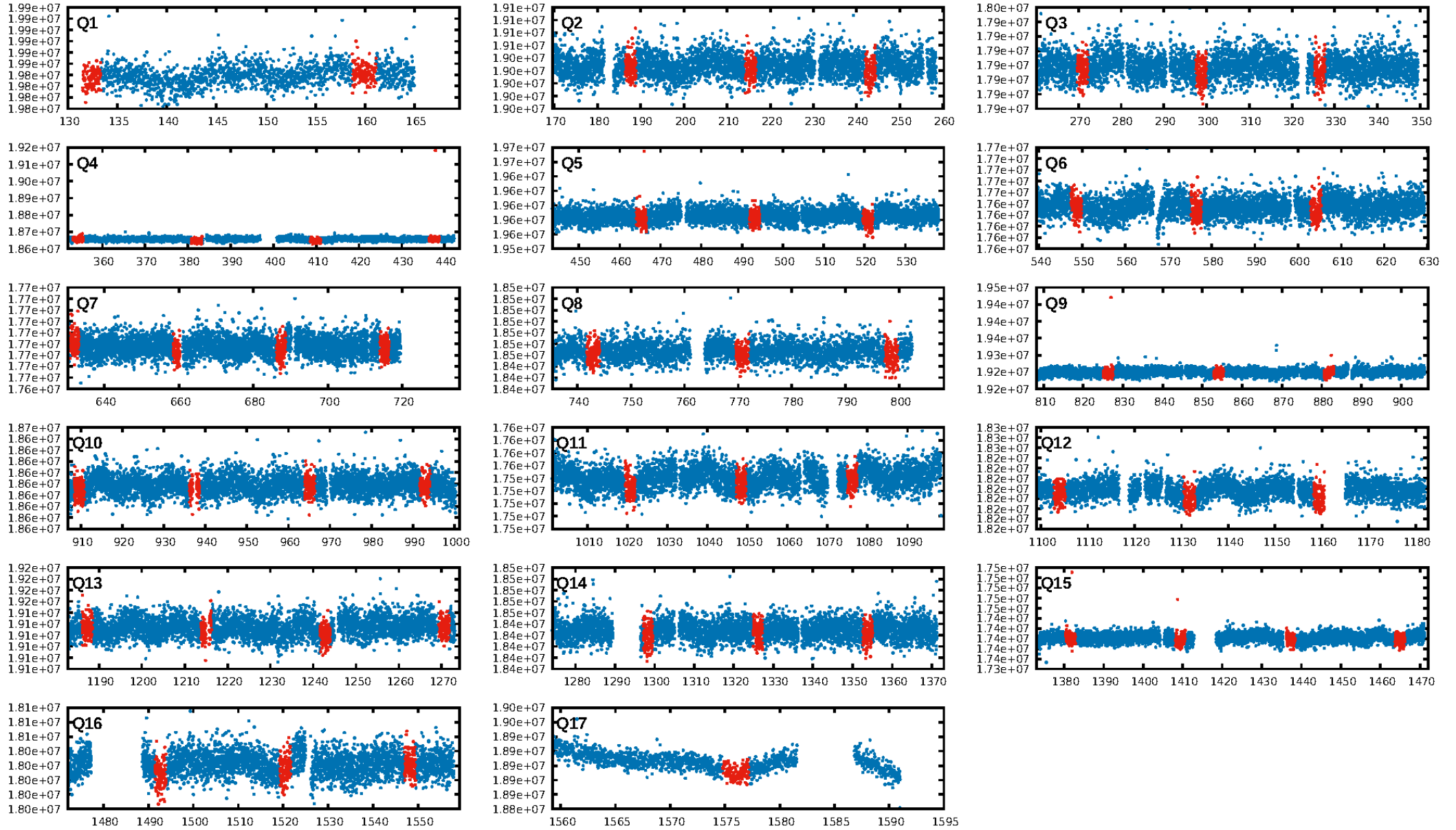
## DV Fit Results:

Period = 27.76641 [0.00077] d  
Epoch = 132.1398 [0.0234] BKJD  
Rp/R\* = 0.0126 [0.0020]  
a/R\* = 5.17 [3.41]  
b = 0.73 [0.43]  
Seff = 31.70 [6.09]  
Teq = 605 [29] K  
Rp = 1.38 [0.28] Re  
a = 0.1847 [0.0218] AU  
Ag = 526.96 [279.80] [1.88σ]  
Teffp = 4482 [563] K [6.88σ]

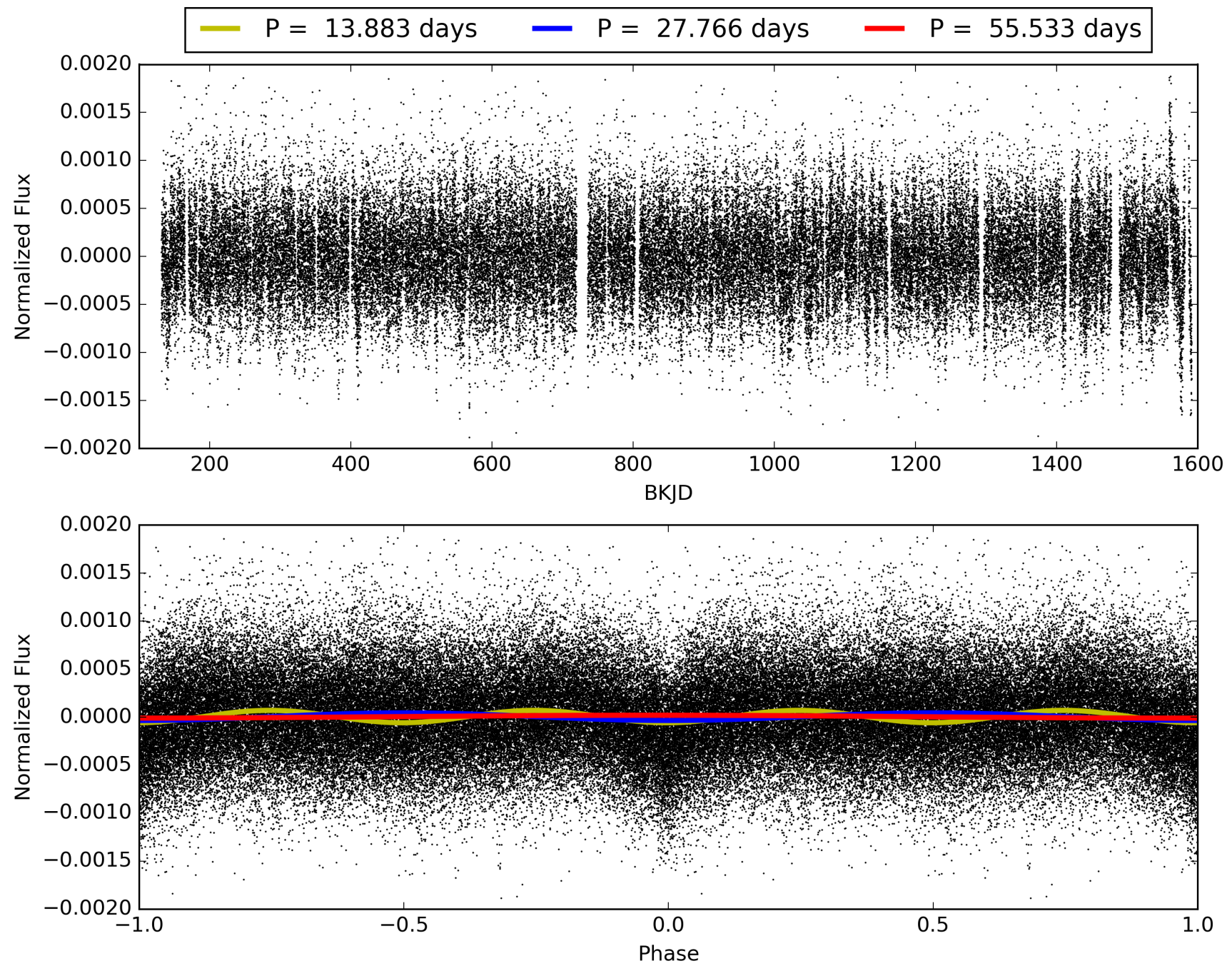
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 73.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.26e-24  
RollingBand-fgt: 1.00 [50/50]  
GhostDiagnostic-chr: 1.201  
Centroid-sig: 0.1%  
Centroid-so: 1.659 arcsec [1.95σ]  
OotOffset-rm: 0.398 arcsec [0.57σ]  
KicOffset-rm: 0.463 arcsec [0.55σ]  
OotOffset-st: 2/4/3/2 [11]  
KicOffset-st: 2/4/3/2 [11]  
DiffImageQuality-fgm: 0.73 [8/11]  
DiffImageOverlap-fno: 1.00 [15/15]

# TCE 005981058-01, PDC Light Curves

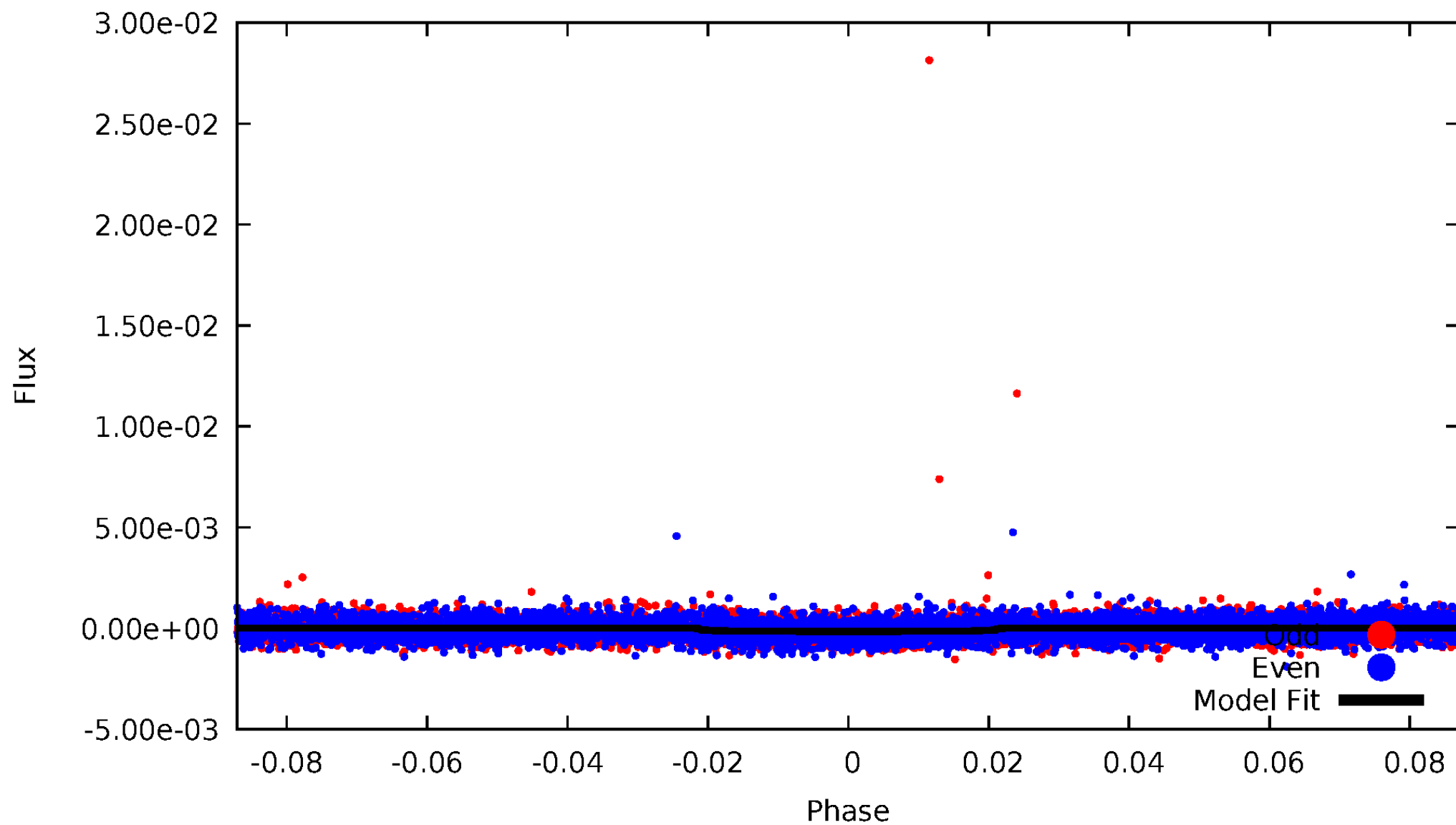


# TCE 005981058-01



# DV Odd/Even

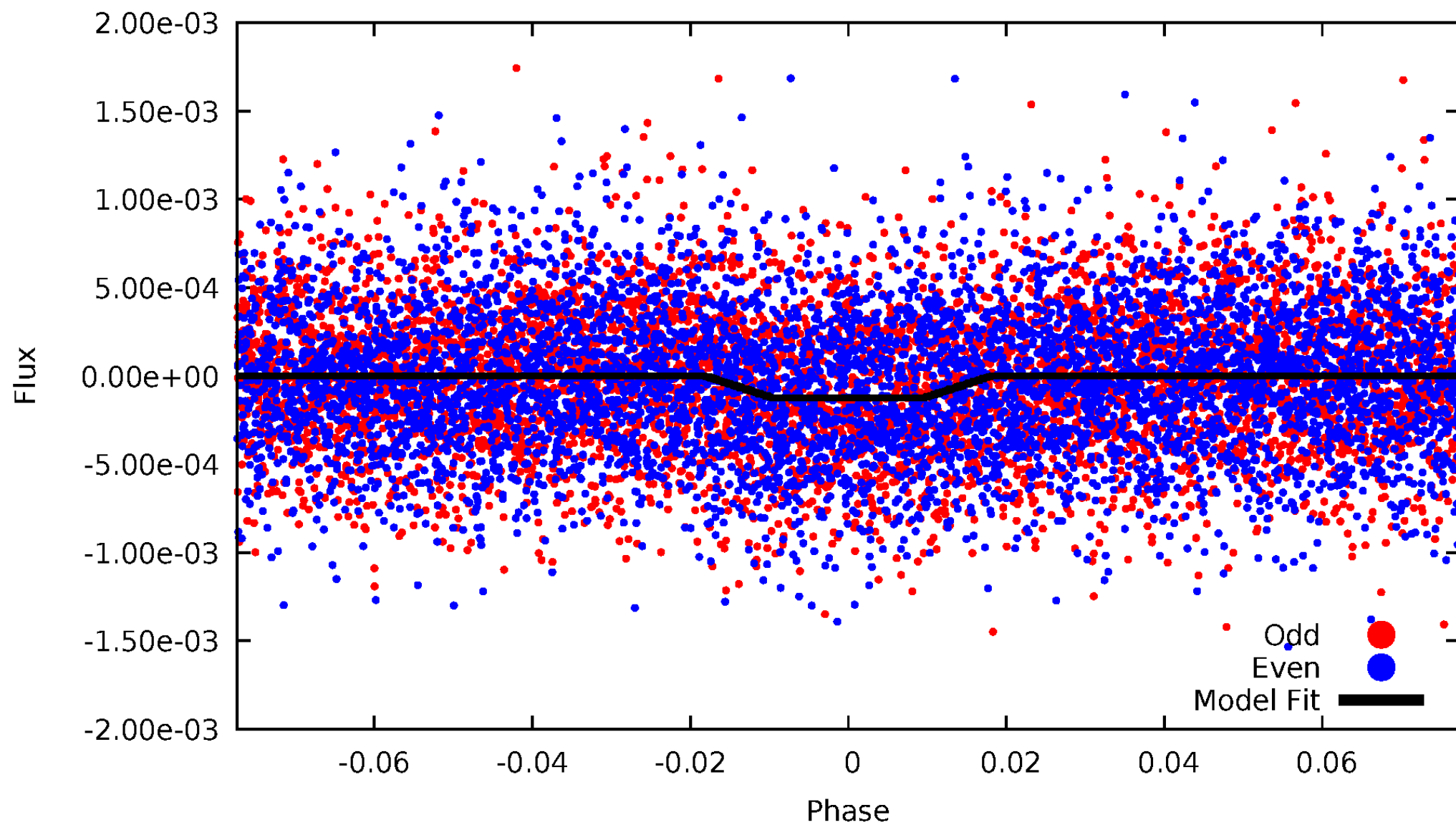
TCE 005981058-01





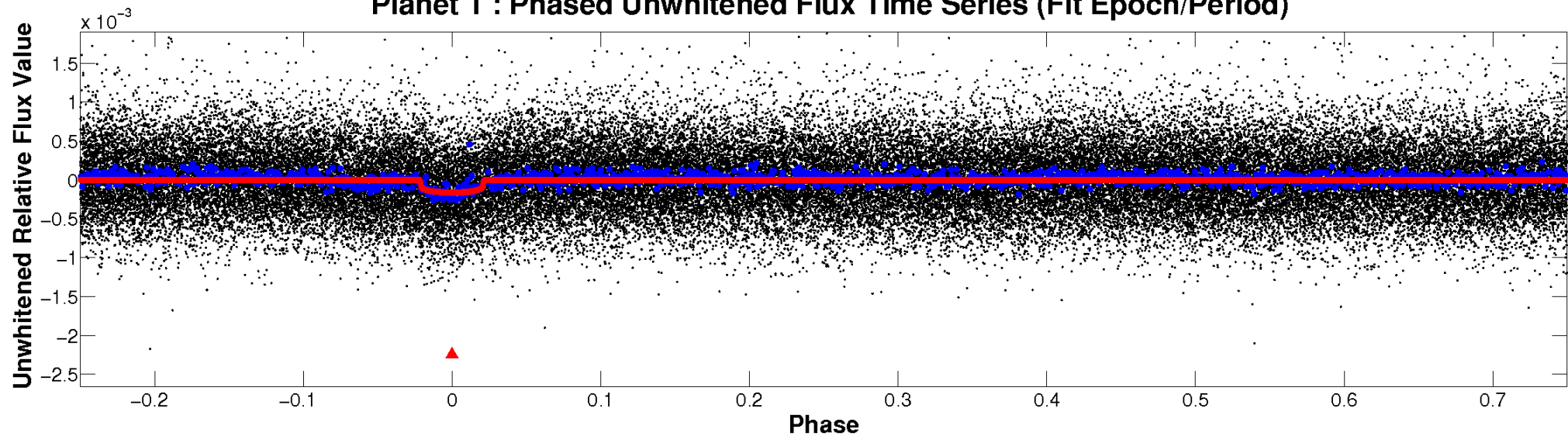
# ALT Odd/Even

TCE 005981058-01

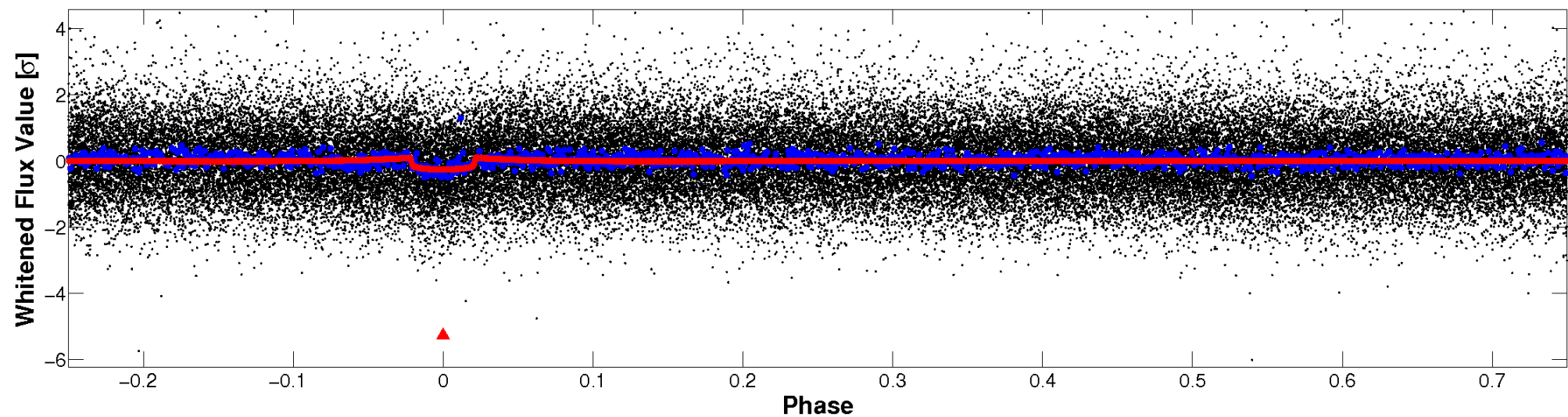


# Non-Whitened Vs. Whitened Light Curve

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

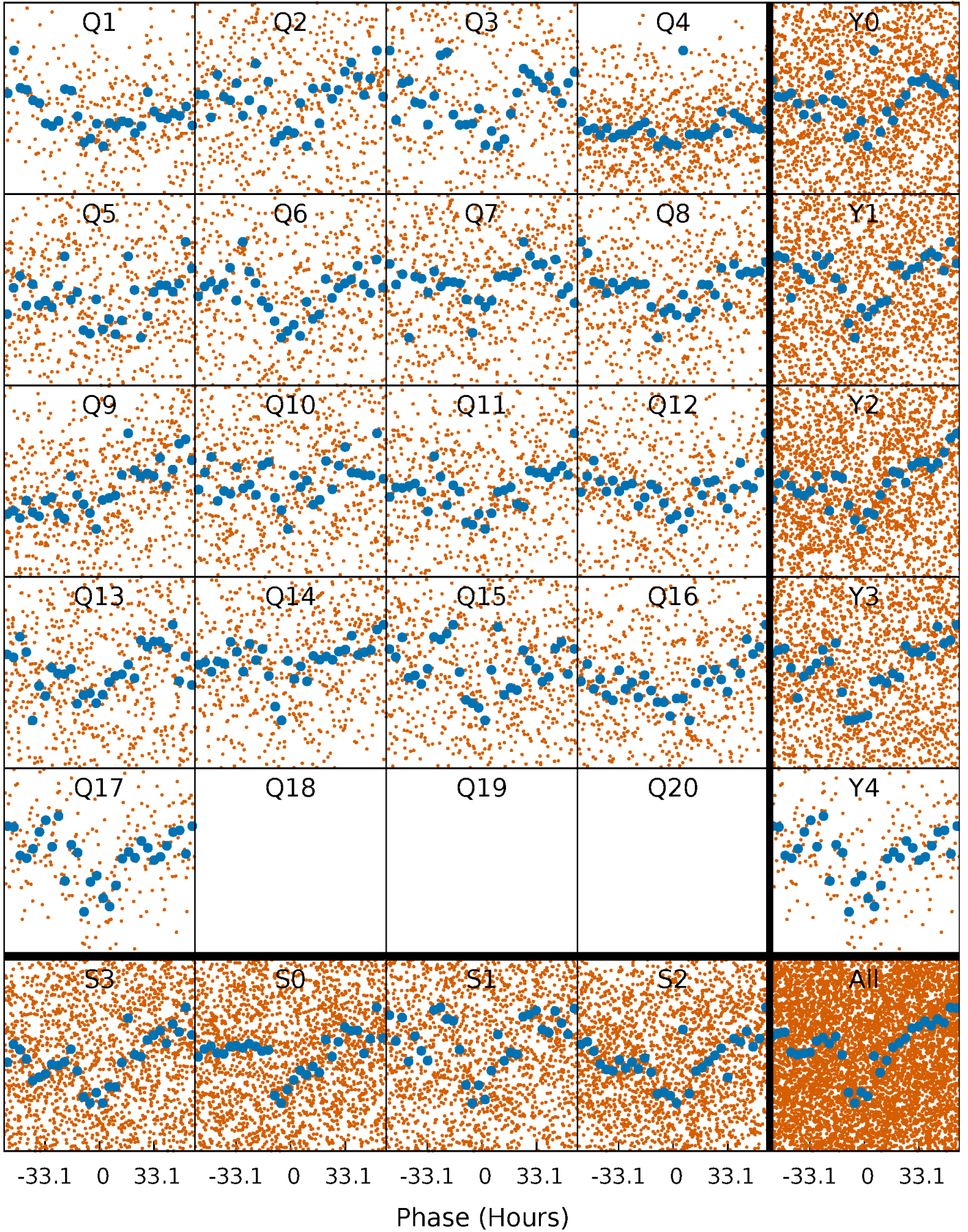


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

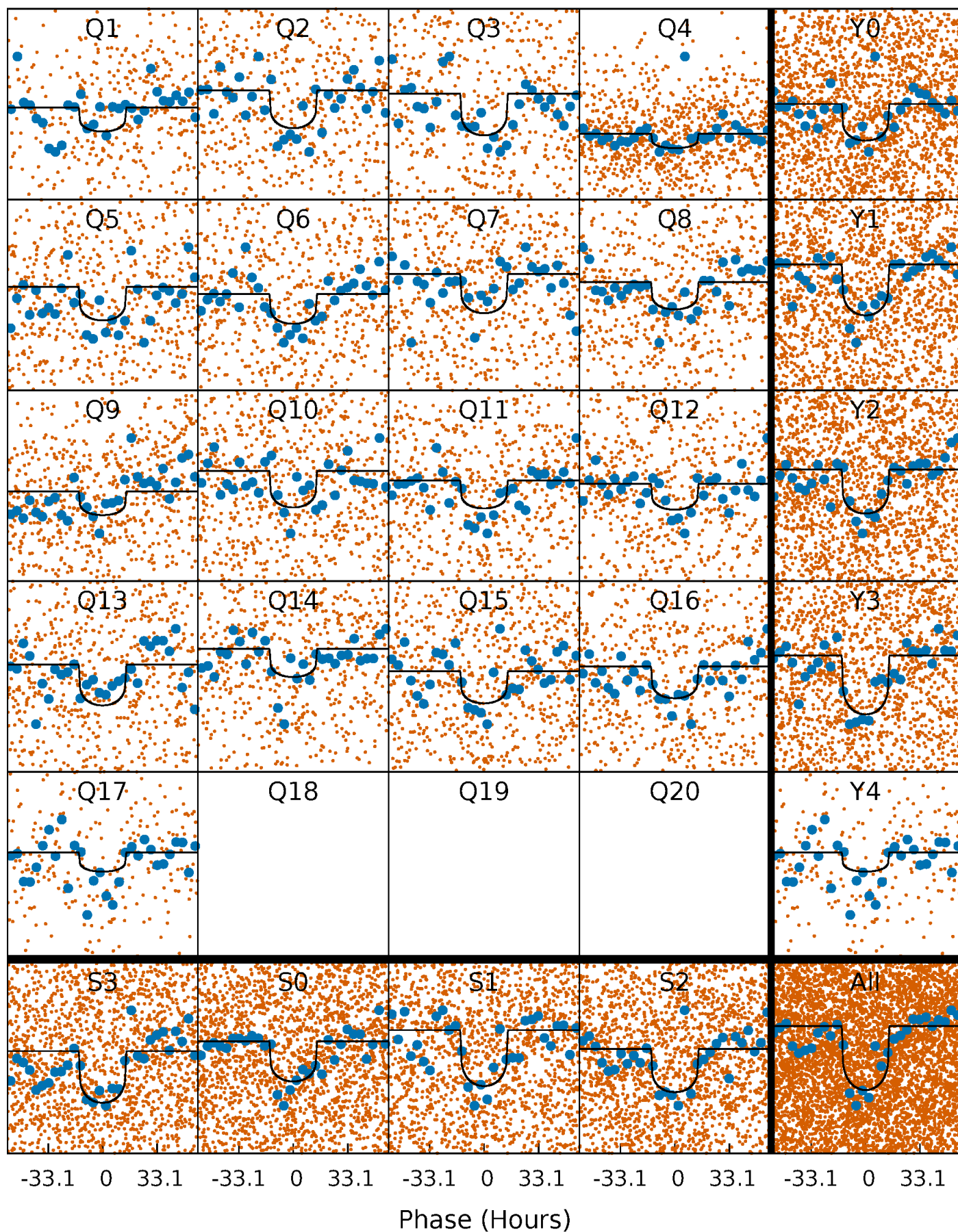
TCE 005981058-01   P= 27.766412 Days    $T_0=132.139814$  (BKJD)





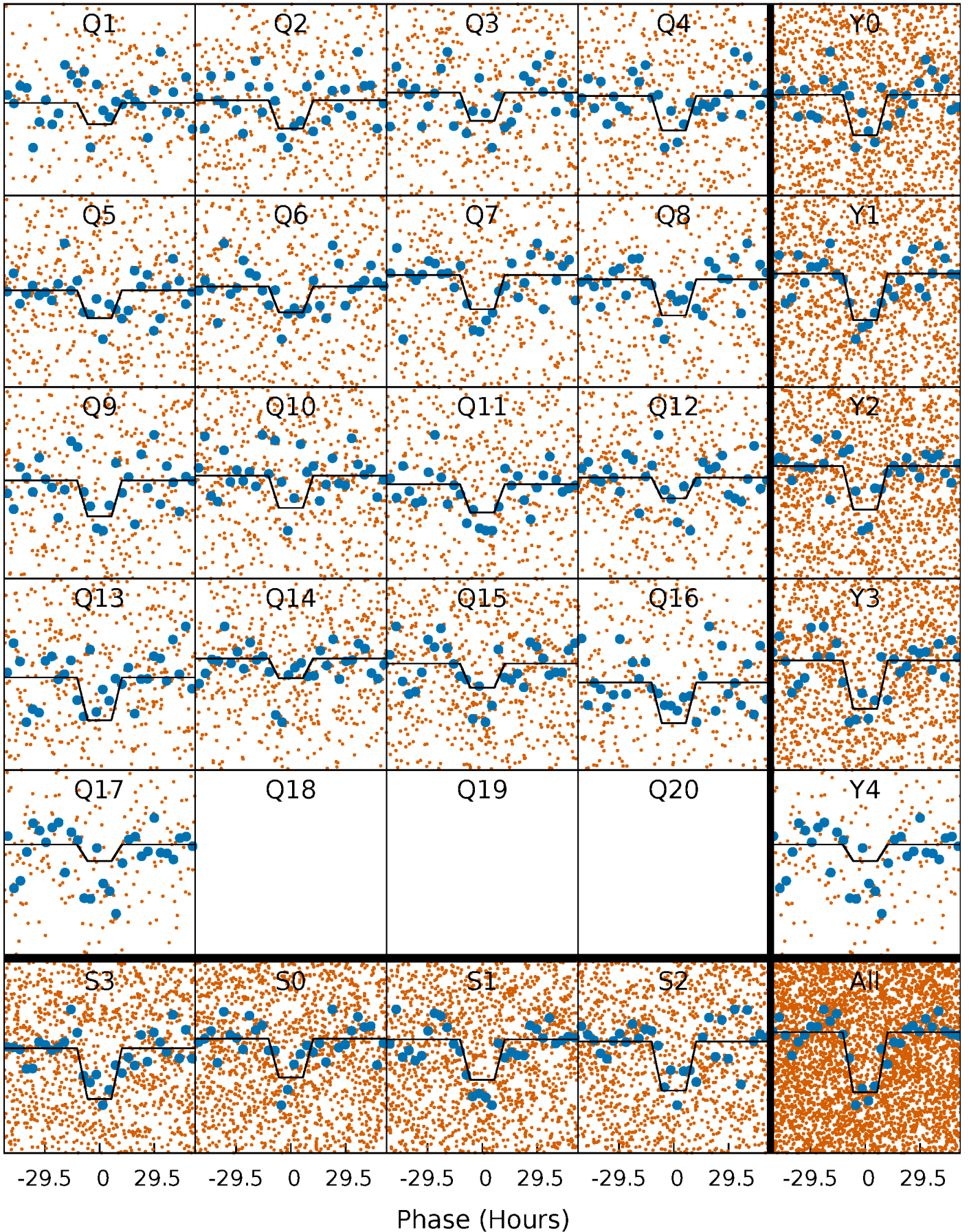
# DV Quarter-Phased Transit Curves

TCE 005981058-01 P= 27.766412 Days  $T_0=132.139814$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

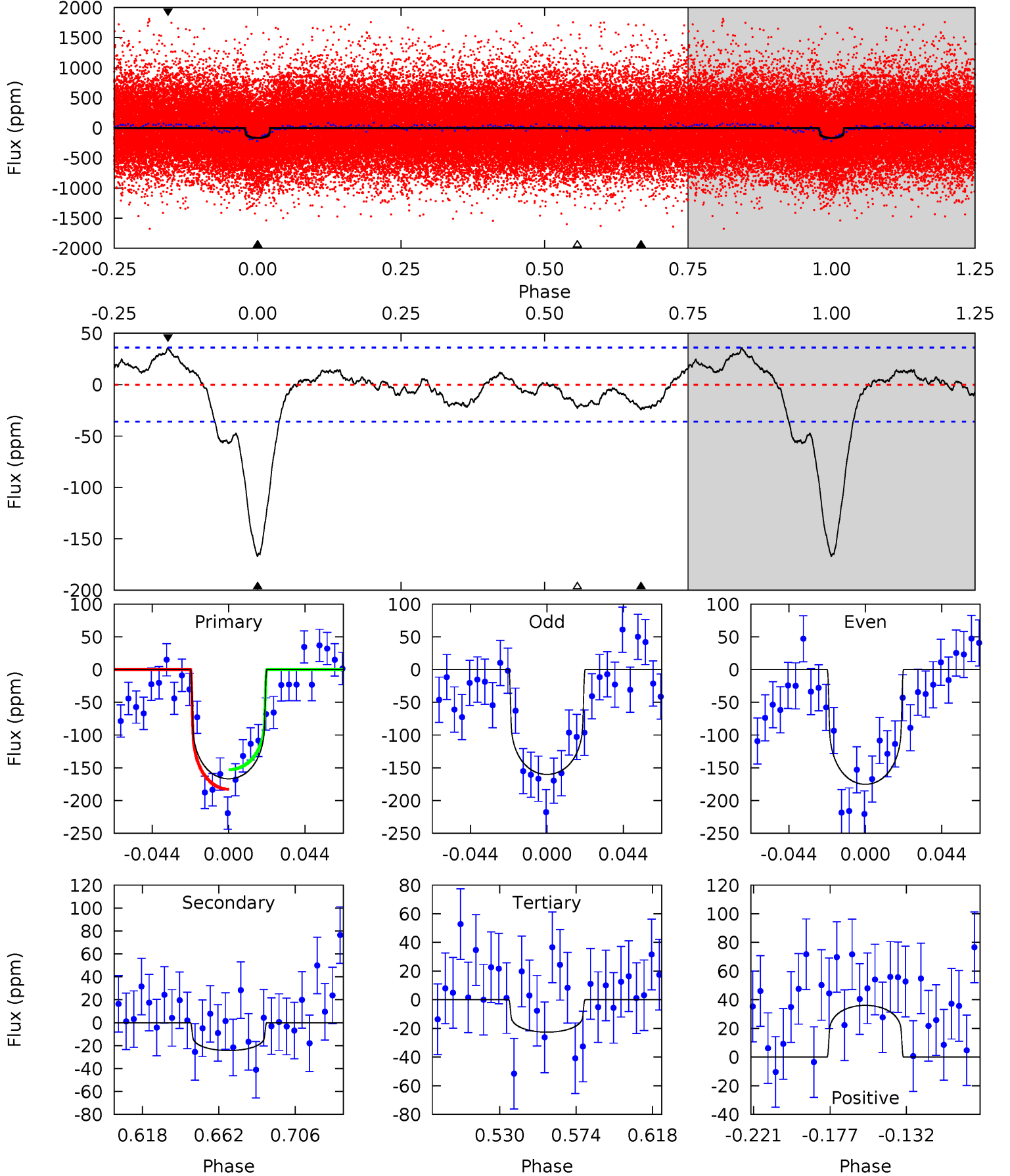
TCE 005981058-01 P= 27.766750 Days  $T_0=132.037903$  (BKJD)



# DV Model-Shift Uniqueness Test

005981058-01, P = 27.766412 Days, E = 104.373402 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
21.9	3.19	2.96	4.74	4.73	2.01	2.17	18.9	17.2	0.22	-1.55	0.99	0.96	0.18	1.97

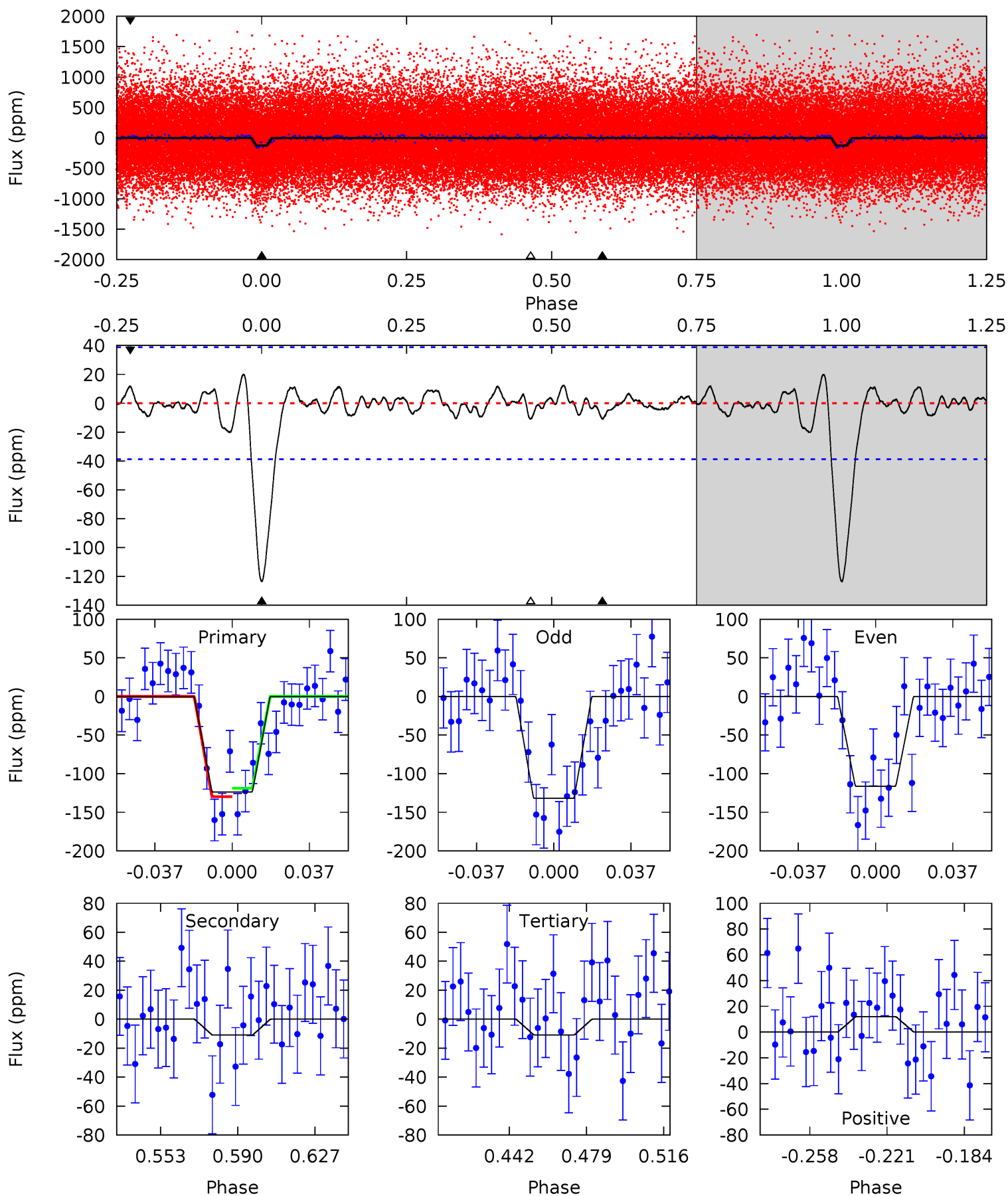




# Alt Model-Shift Uniqueness Test

005981058-01, P = 27.766750 Days, E = 104.271153 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
15.2	1.35	1.34	1.46	4.77	2.09	0.73	13.9	13.7	0.01	-0.11	0.97	1.03	0.14	0.68





### Stellar Parameters For KIC 005981058

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5897^{+70}_{-88}$	$4.476^{+0.028}_{-0.105}$	$0.160^{+0.150}_{-0.150}$	$0.999^{+0.129}_{-0.059}$	$1.088^{+0.045}_{-0.083}$	$1.537^{+0.198}_{-0.469}$
	+1%/-1%	+1%/-2%	+94%/-94%	+13%/-6%	+4%/-8%	+13%/-31%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 005981058-01 / KOI 5219.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-24 \pm 8$	$1.40^{+0.22}_{-0.22}$	$852^{+30}_{-19}$	$3976^{+318}_{-281}$	$221^{+128}_{-79}$
Alt.	$-11 \pm 8$	$1.23^{+0.23}_{-0.24}$	$853^{+28}_{-20}$	$3621^{+500}_{-672}$	$124^{+137}_{-91}$

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

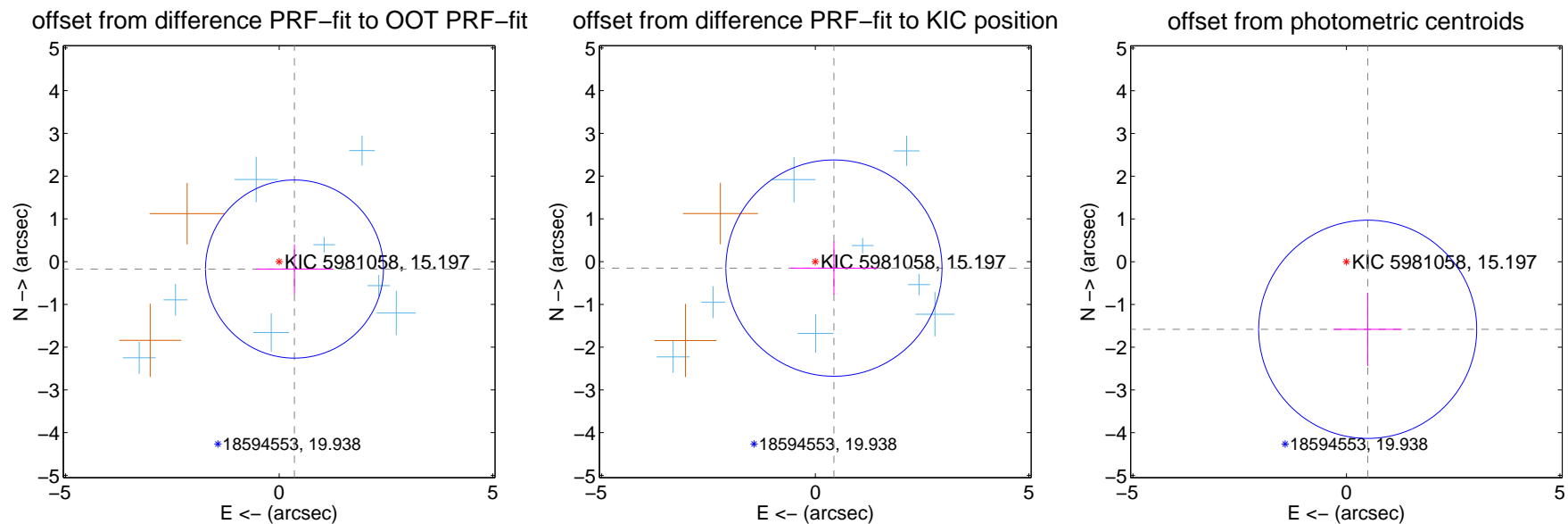
## DV Centroid Data

Supplemental centroid analysis for 005981058-01. Kepler magnitude: 15.20. Transit SNR 12.63

There are 8 quarters with good PRF difference image offsets

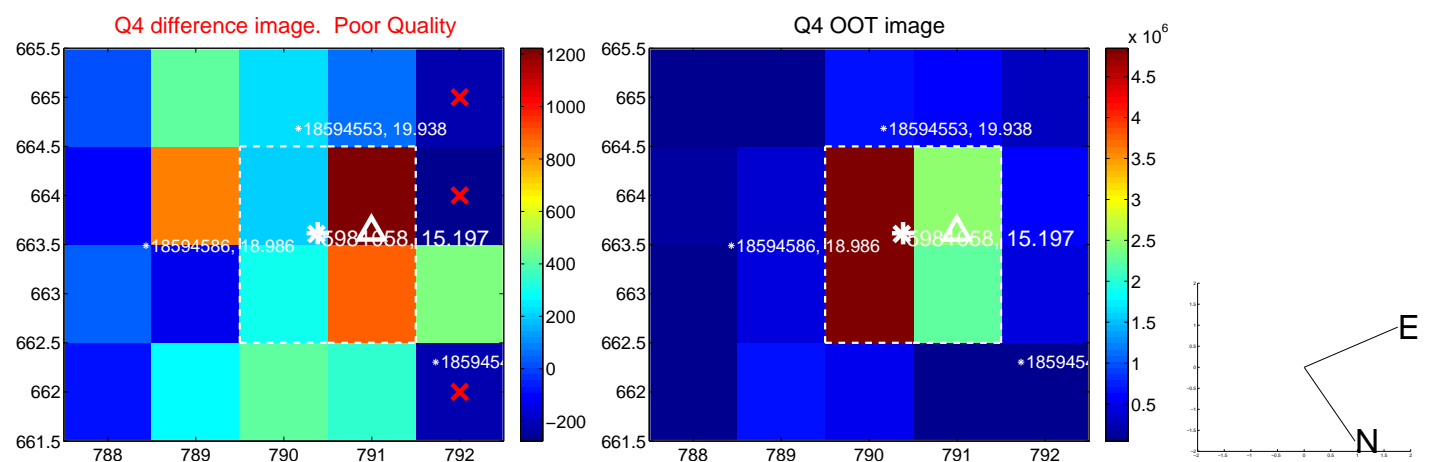
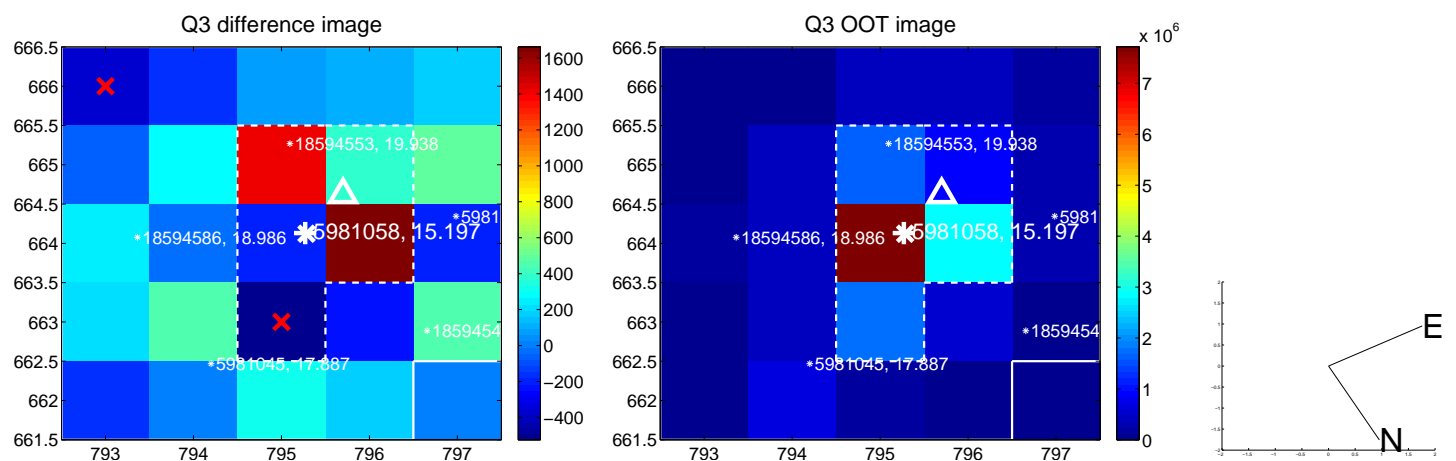
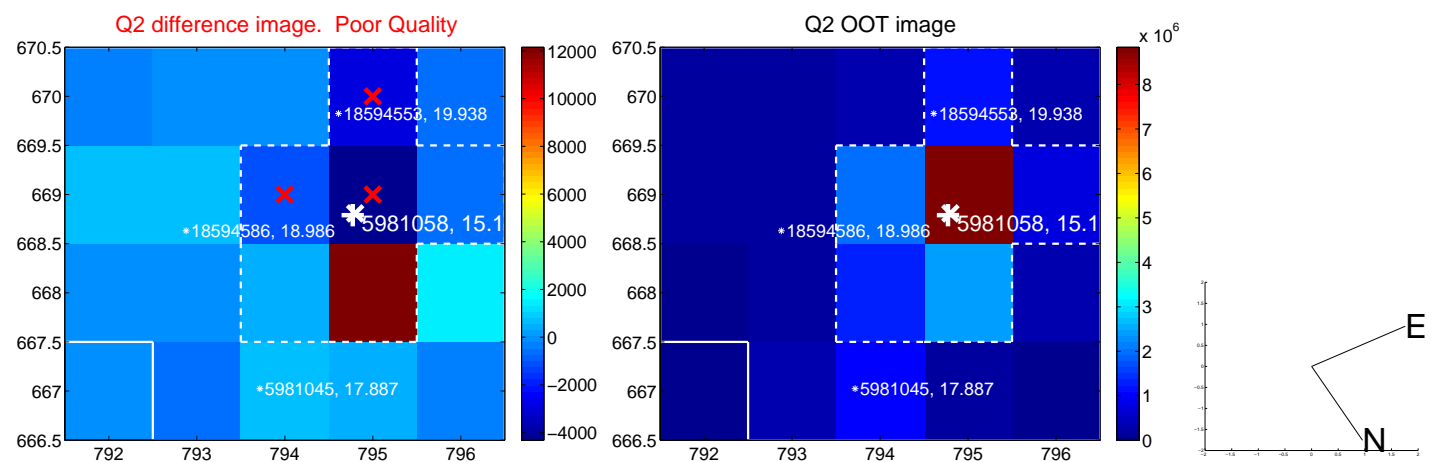
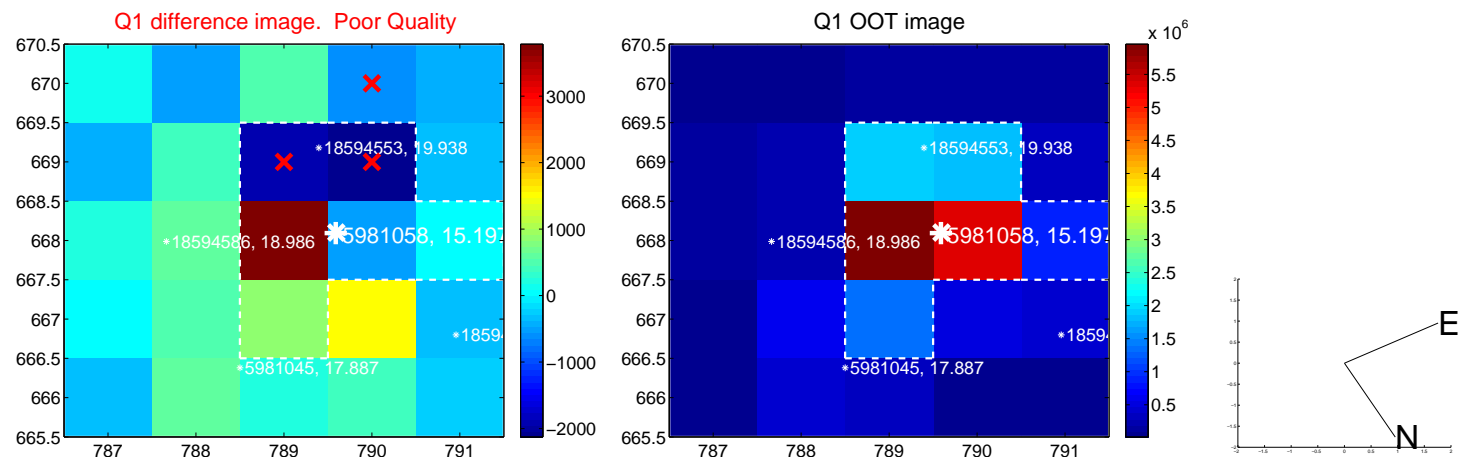
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.398 \pm 0.695$	0.57	$-0.359 \pm 0.900$	$-0.173 \pm 0.580$
PRF-fit source offset from KIC position	$0.463 \pm 0.844$	0.55	$-0.437 \pm 1.016$	$-0.151 \pm 0.622$
photometric centroid source offset	$1.66 \pm 0.85$	1.95	$-0.50 \pm 0.80$	$-1.58 \pm 0.86$

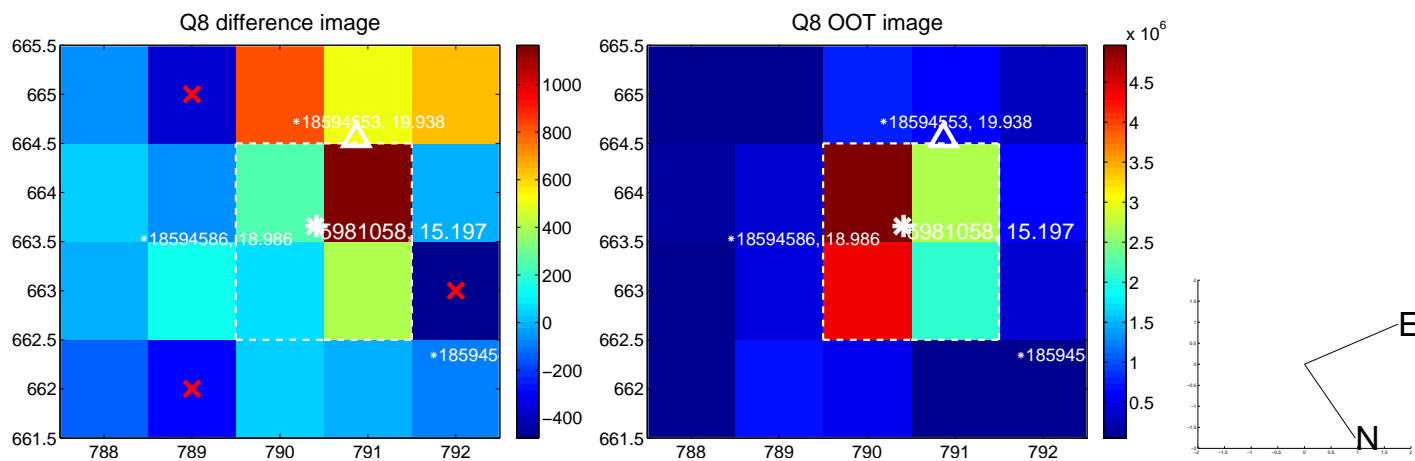
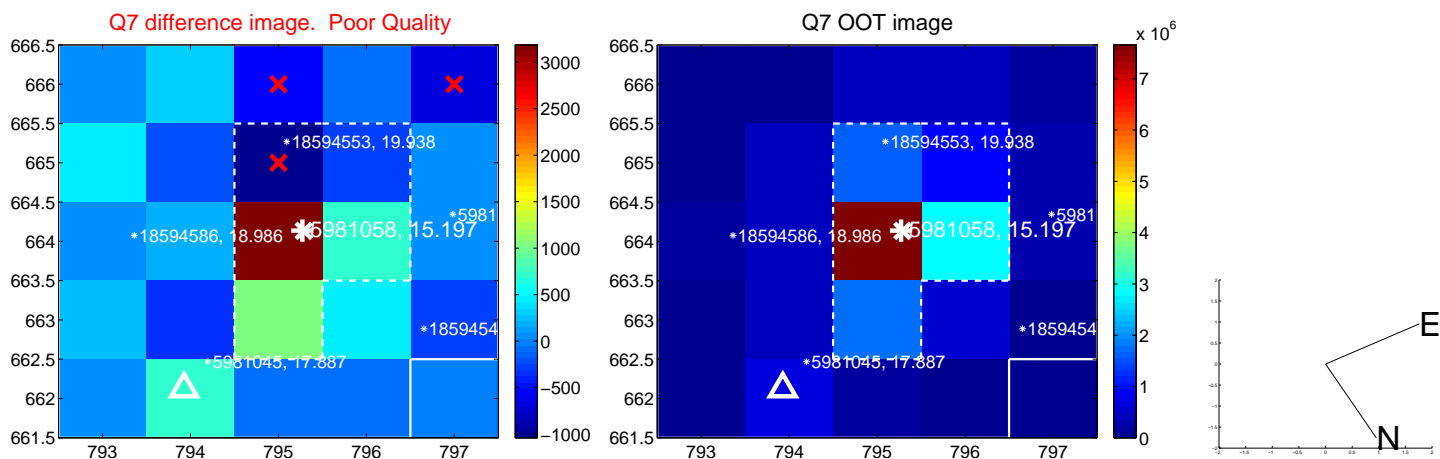
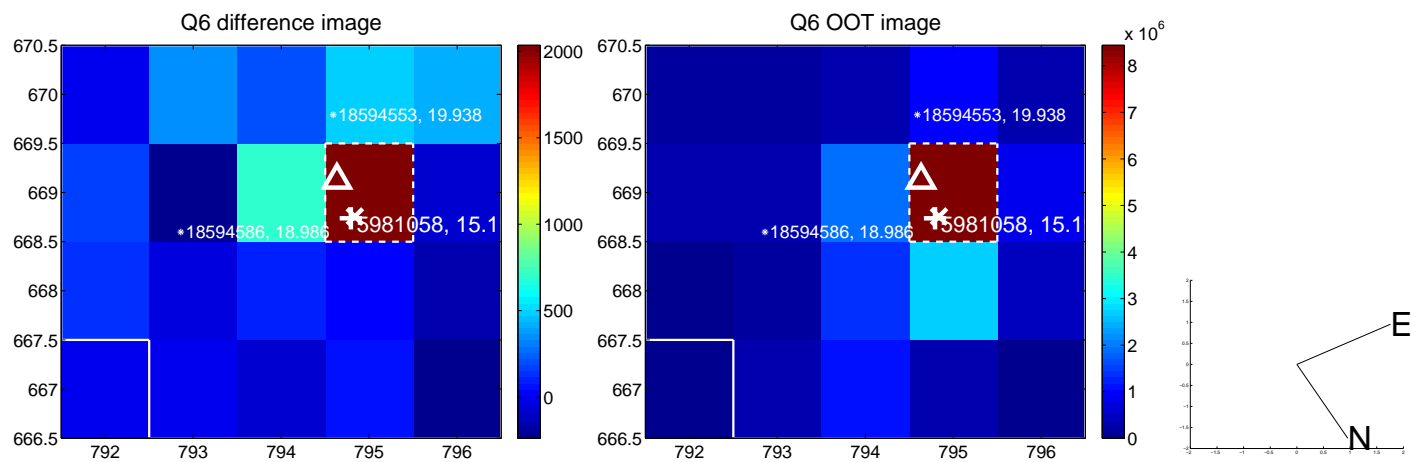
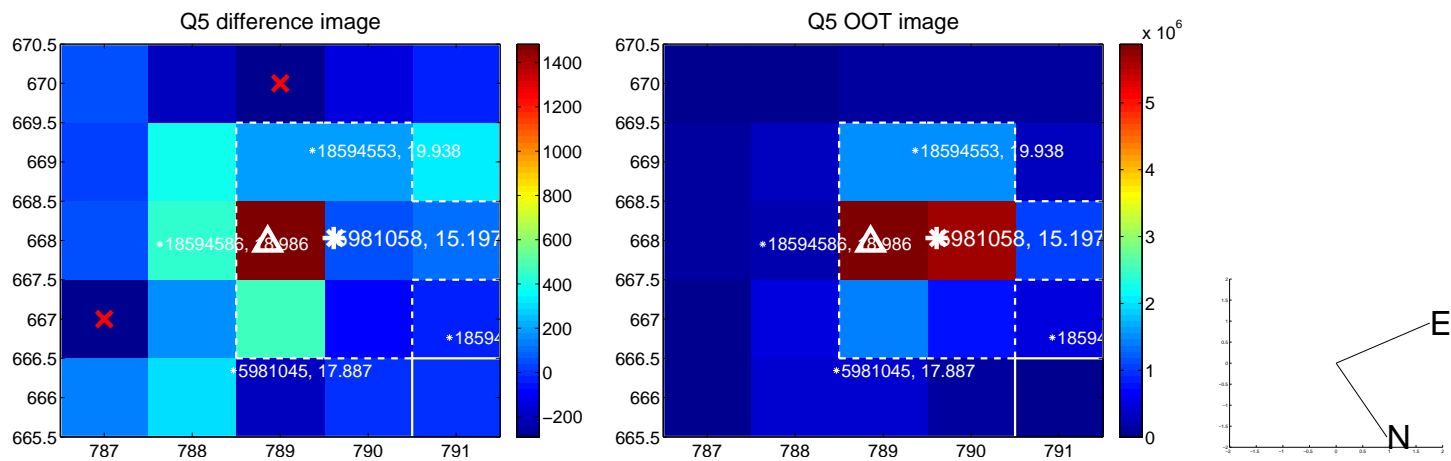


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

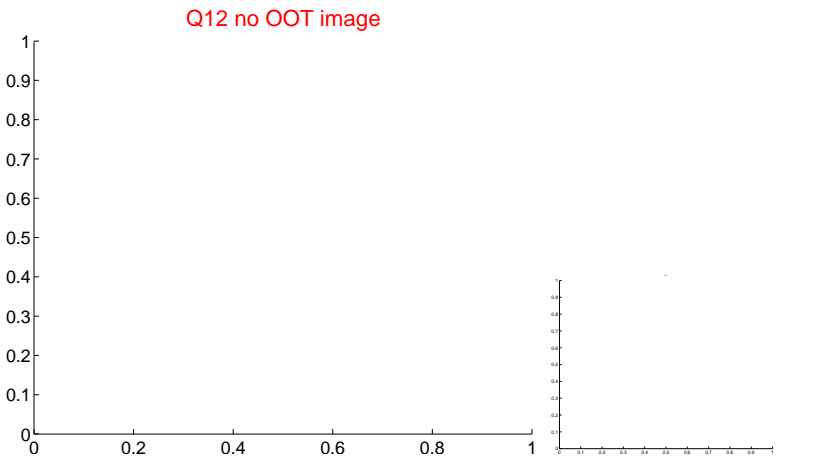
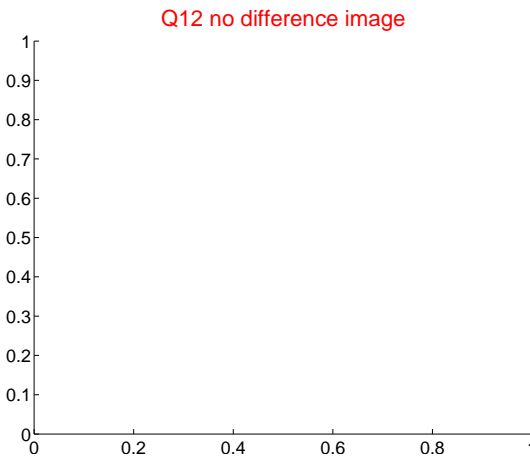
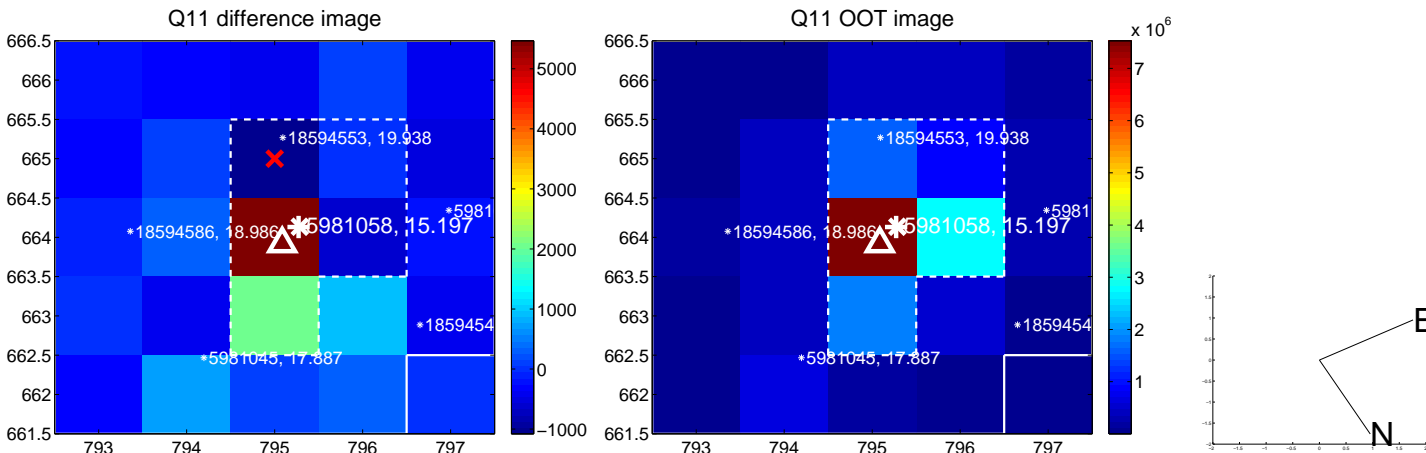
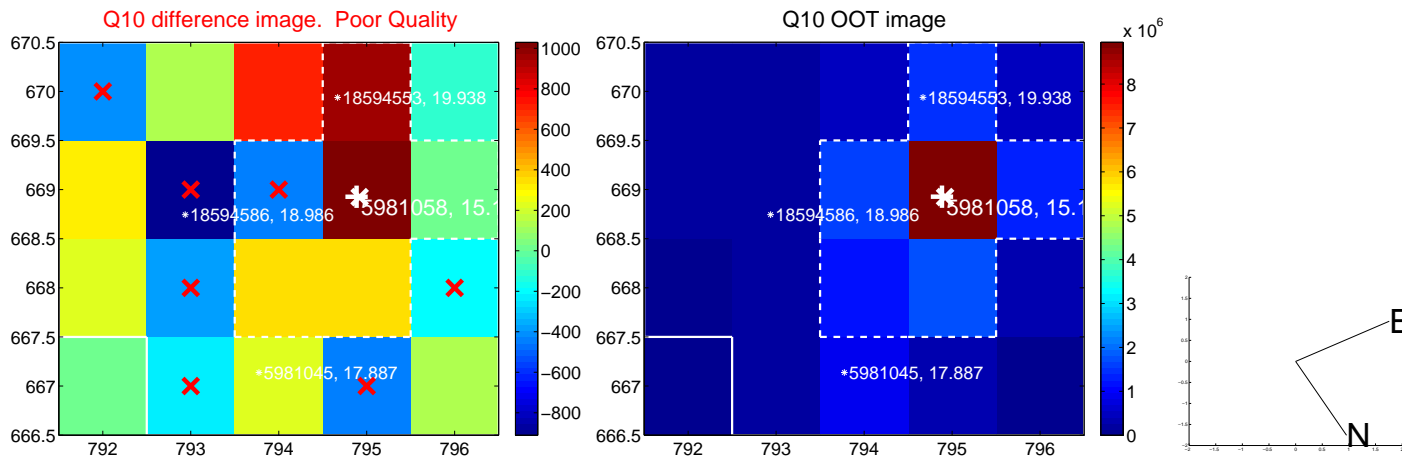
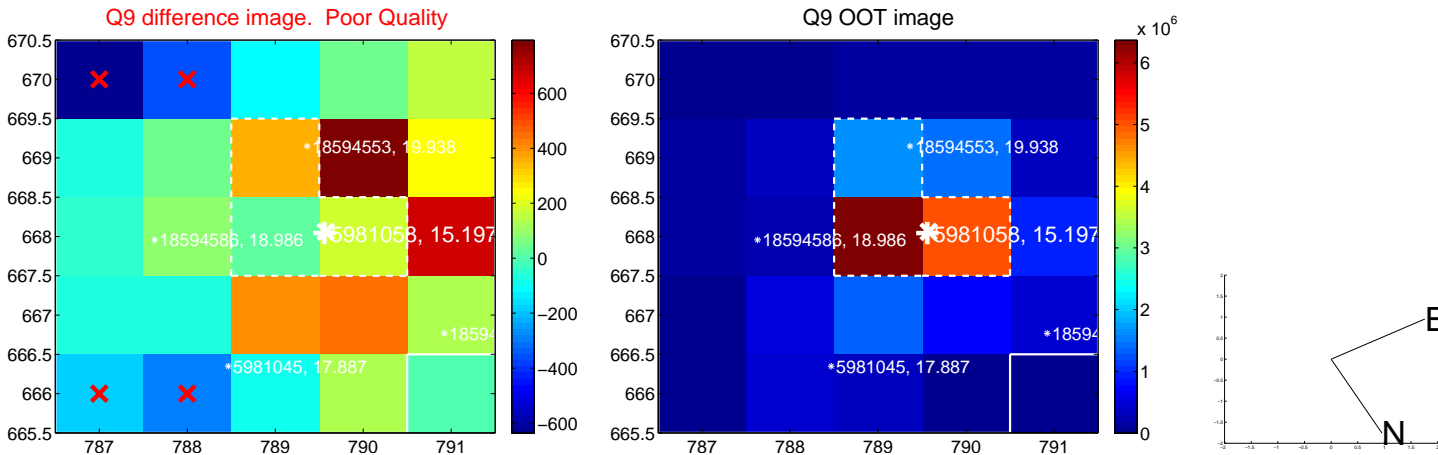


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

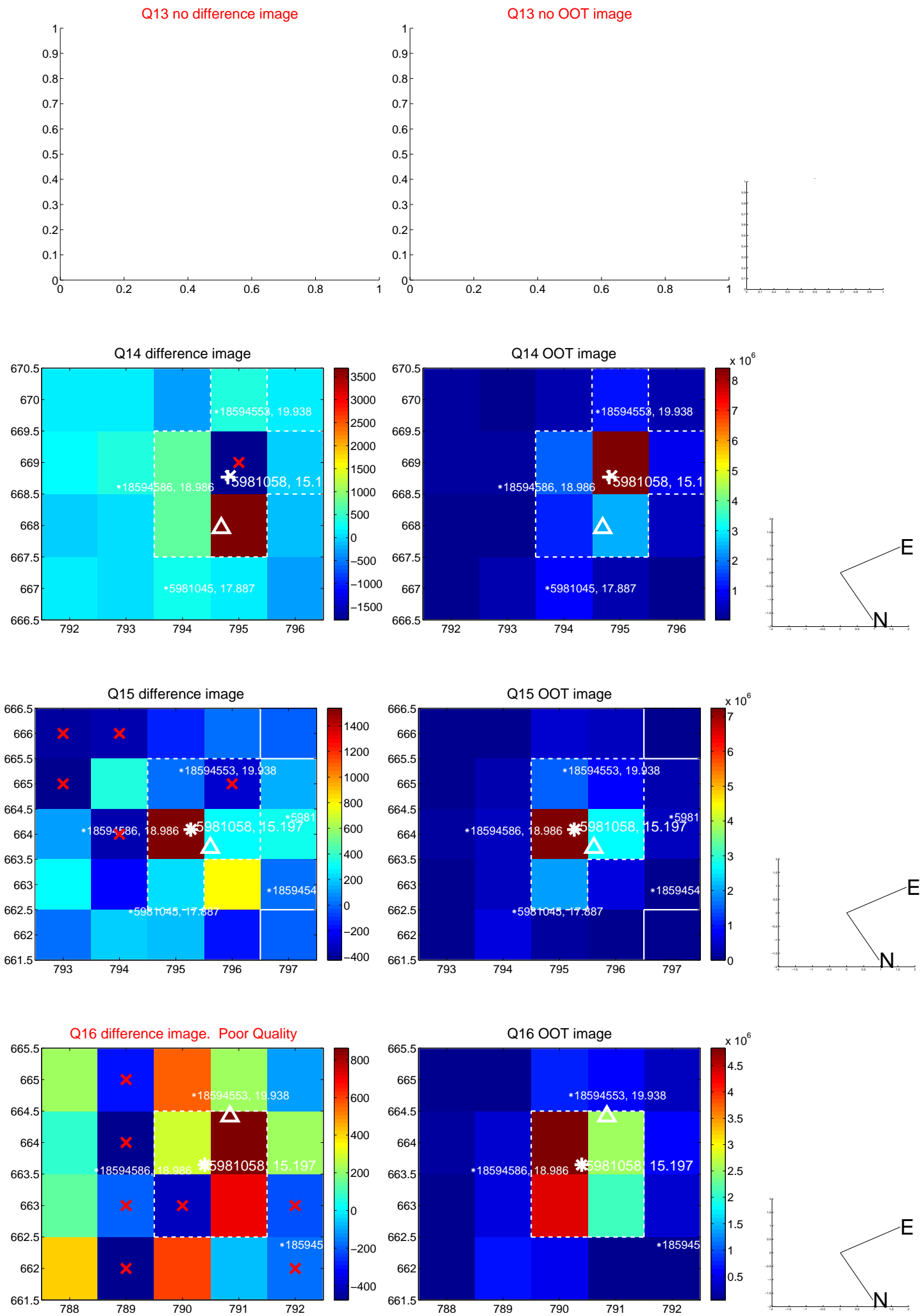




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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





UKIRT Image

Declination

