

# KIC 009588953

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009588953-01	OBS	No	0.787991	132.071729	57.1	5.384	13.3	10.0	1.87	7281	1.43	24146.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009588953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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

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

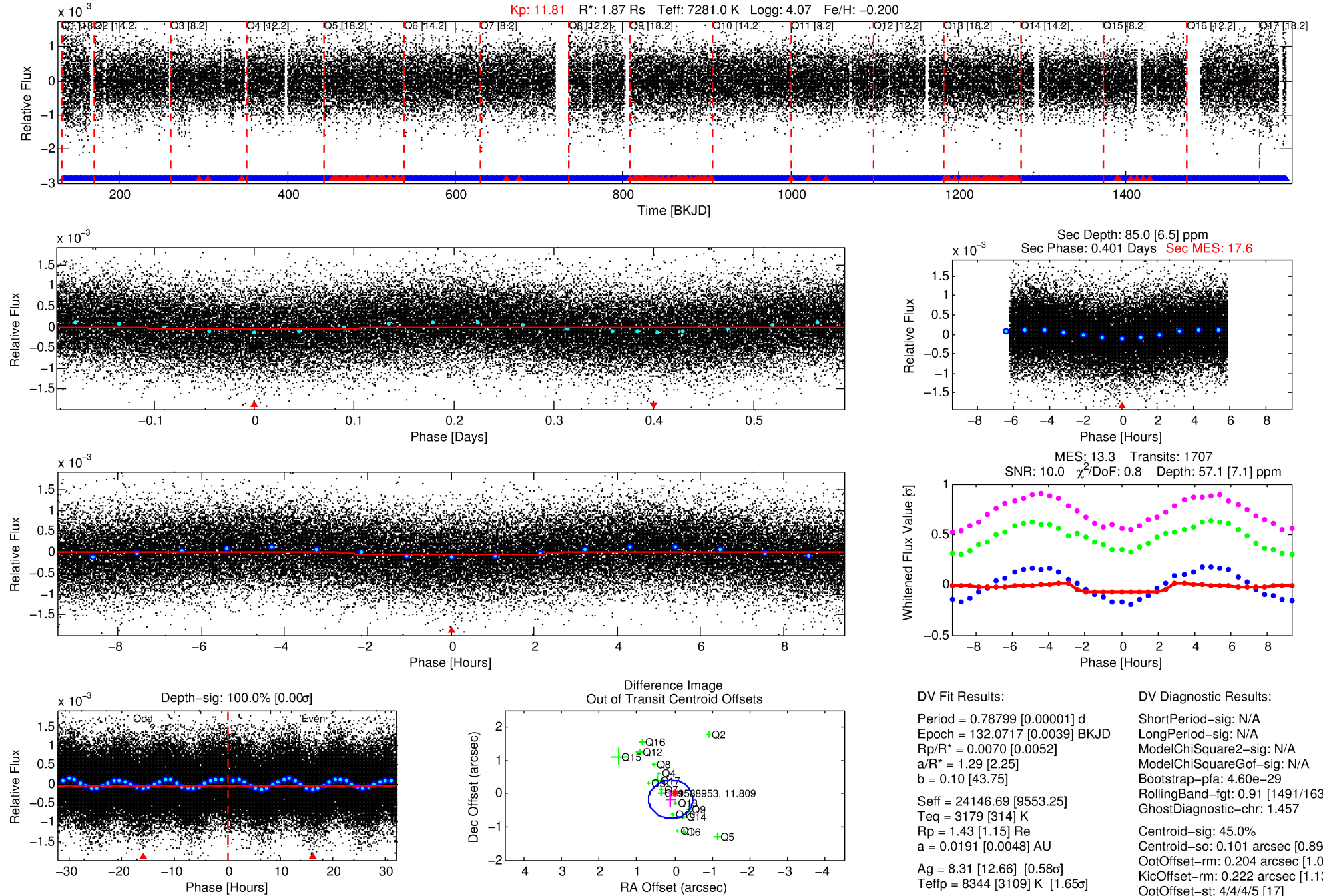
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009588953-01

No Significant Match Found

# DV One-Page Summary

KIC: 9588953 Candidate: 1 of 1 Period: 0.788 d



## DV Fit Results:

Period = 0.78799 [0.00001] d  
Epoch = 132.0717 [0.0039] BKJD  
Rp/R\* = 0.0070 [0.0052]  
a/R\* = 1.29 [2.25]  
b = 0.10 [43.75]  
Seff = 24146.69 [9553.25]  
Teq = 3179 [314] K  
Rp = 1.43 [1.15] Re  
a = 0.0191 [0.0048] AU  
Ag = 8.31 [12.66] [0.58σ]  
Teff = 8344 [3109] K [1.65σ]

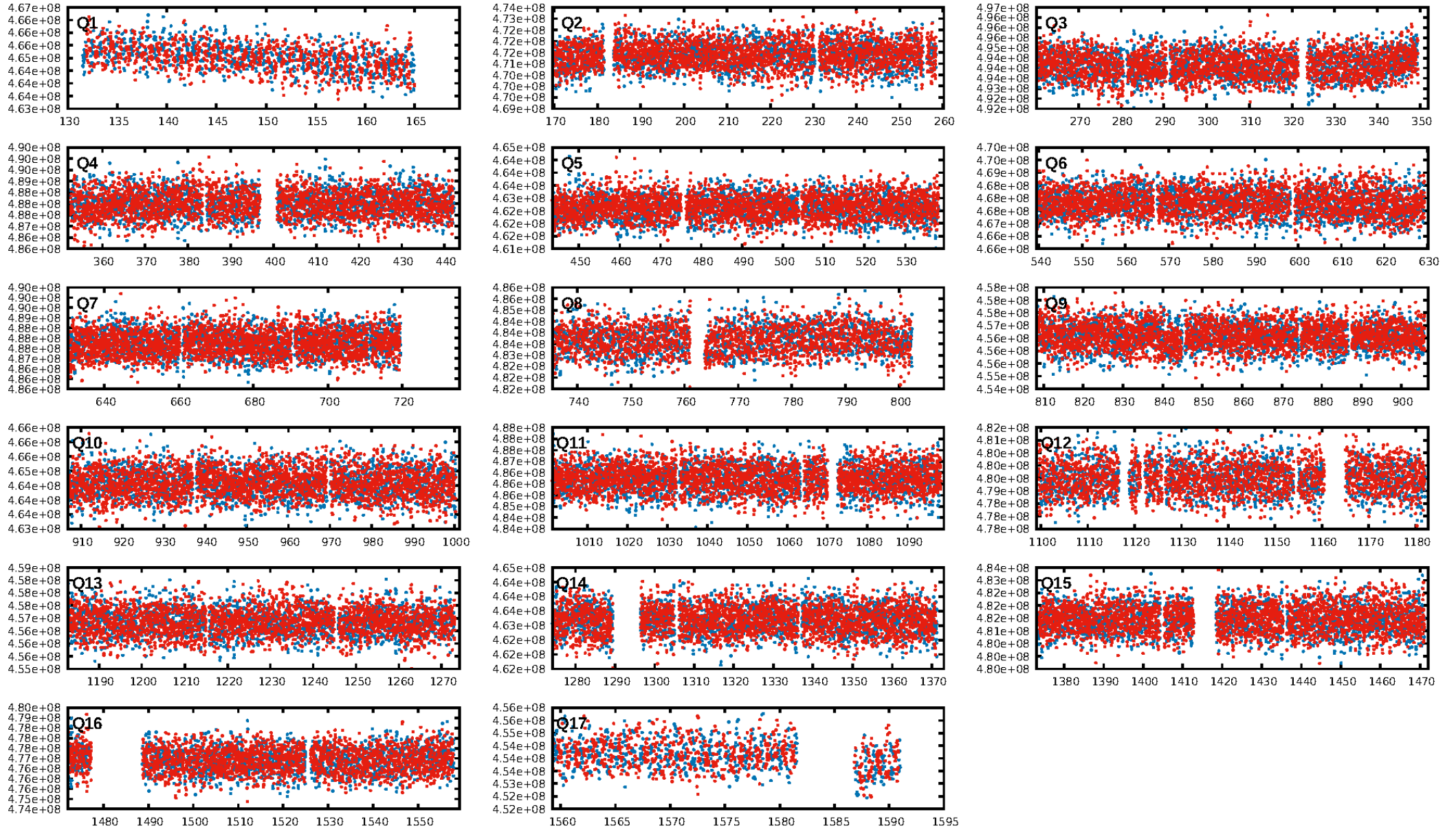
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.60e-29  
RollingBand-fgt: 0.91 [1491/1632]  
GhostDiagnostic-chr: 1.457  
Centroid-sig: 45.0%  
Centroid-so: 0.101 arcsec [0.89σ]  
OotOffset-rm: 0.204 arcsec [1.06σ]  
KicOffset-rm: 0.222 arcsec [1.13σ]  
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: 30-Jan-2016 20:14:51 Z

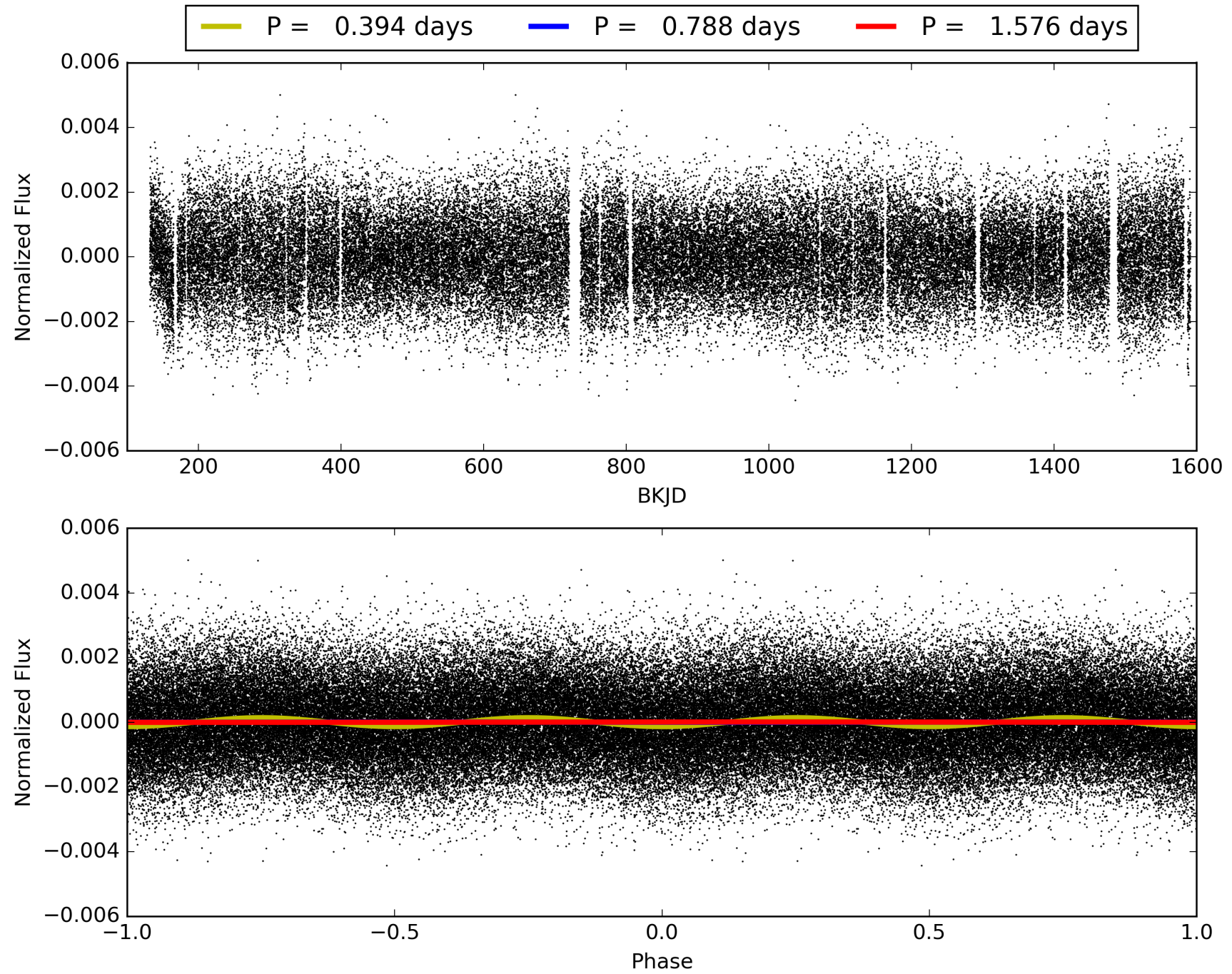
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009588953-01, PDC Light Curves



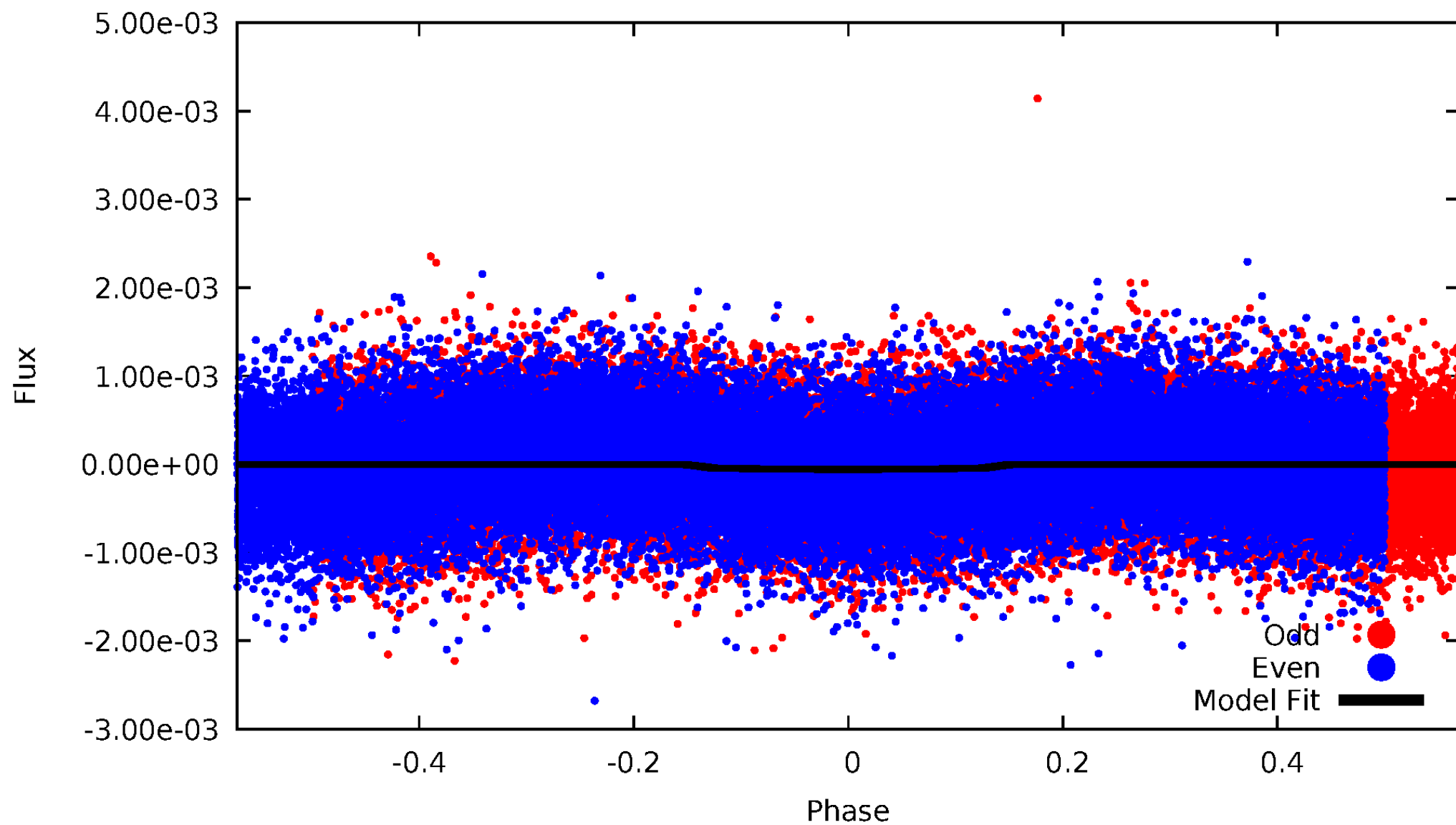


TCE 009588953-01



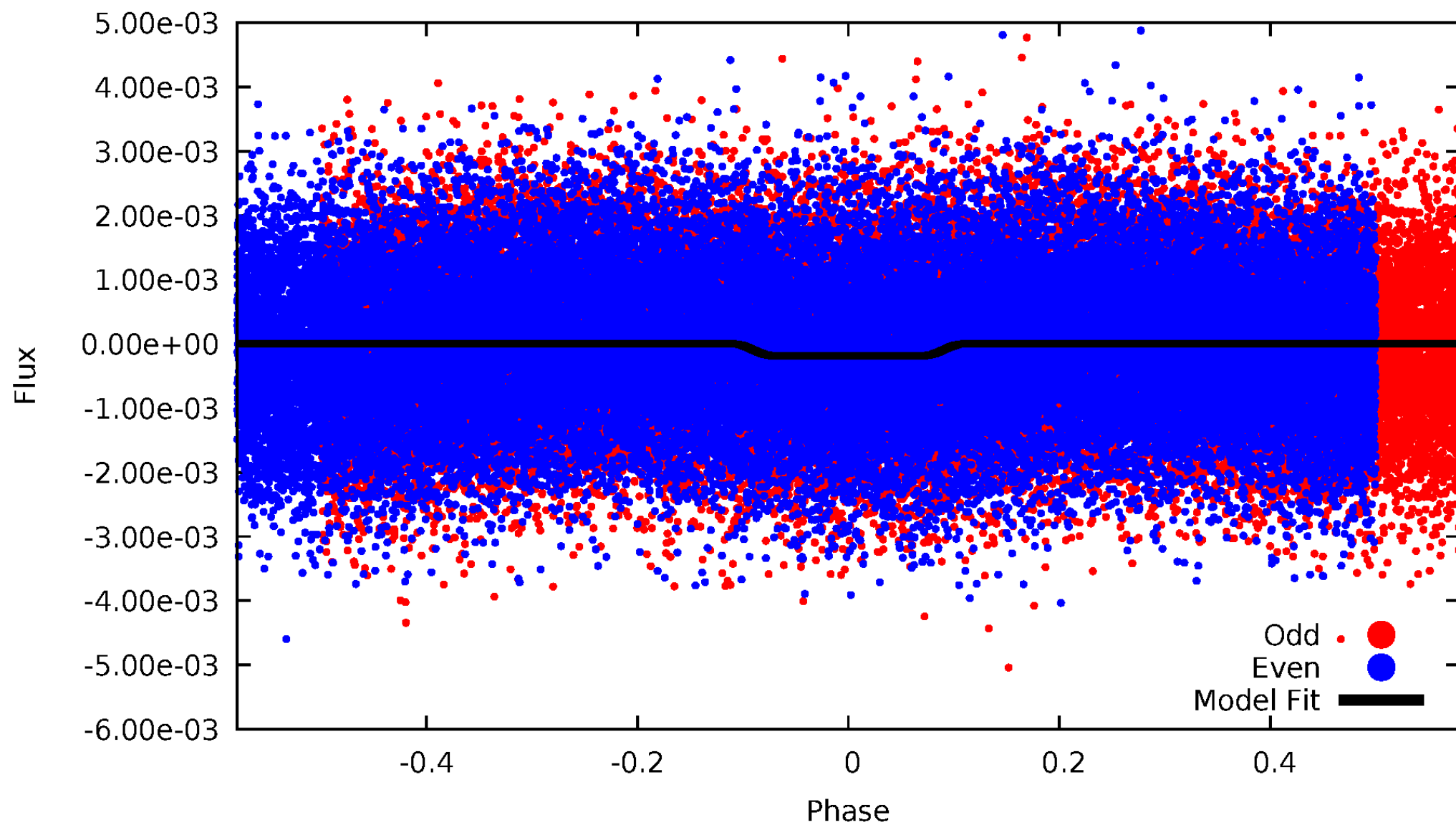
# DV Odd/Even

TCE 009588953-01



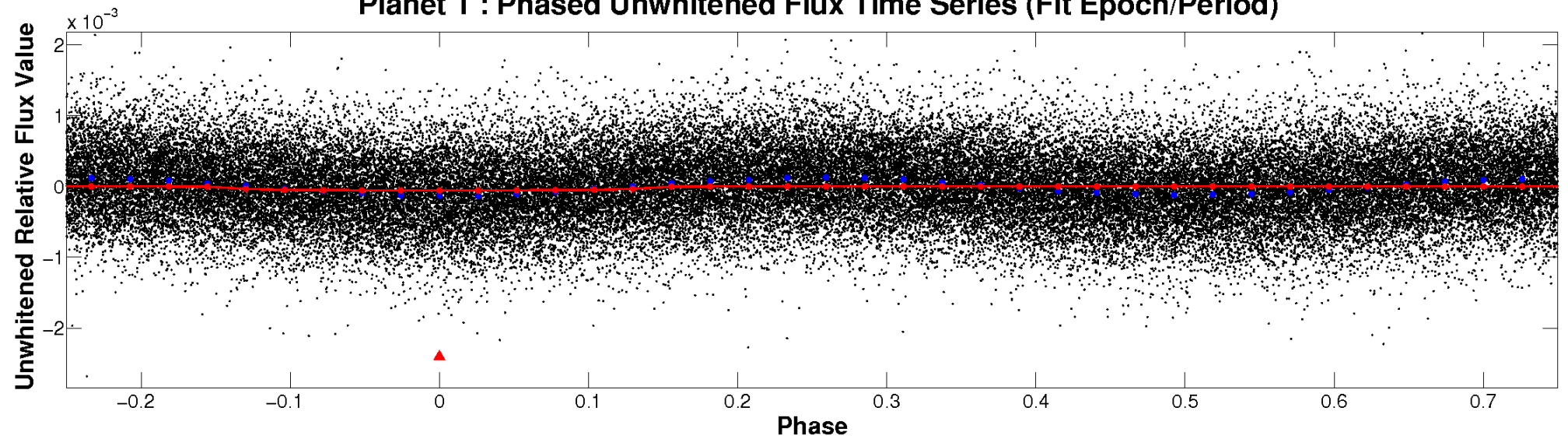
# ALT Odd/Even

TCE 009588953-01

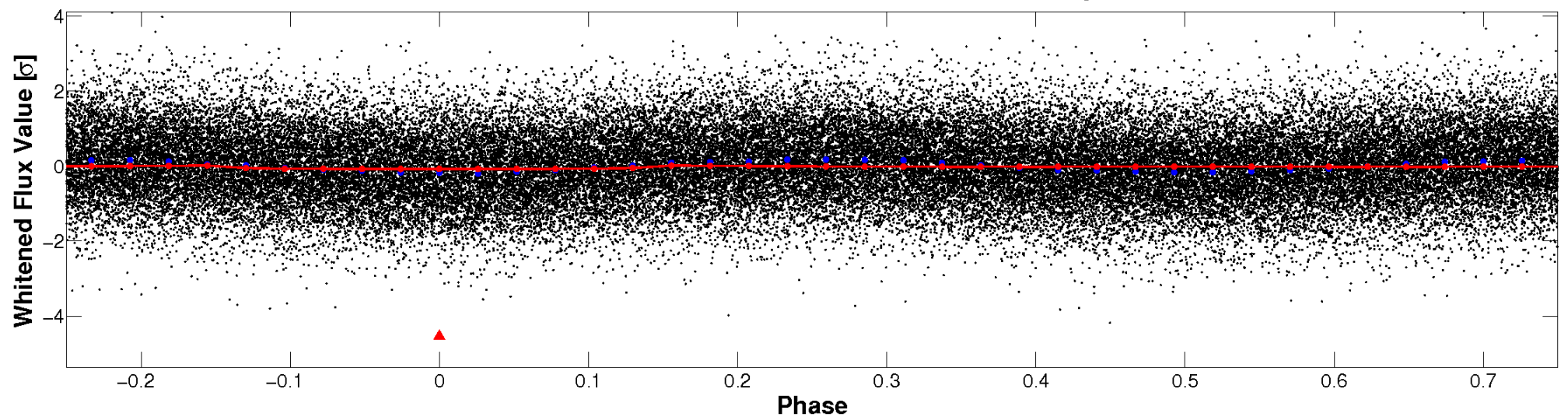


# Non-Whitened Vs. Whitened Light Curve

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



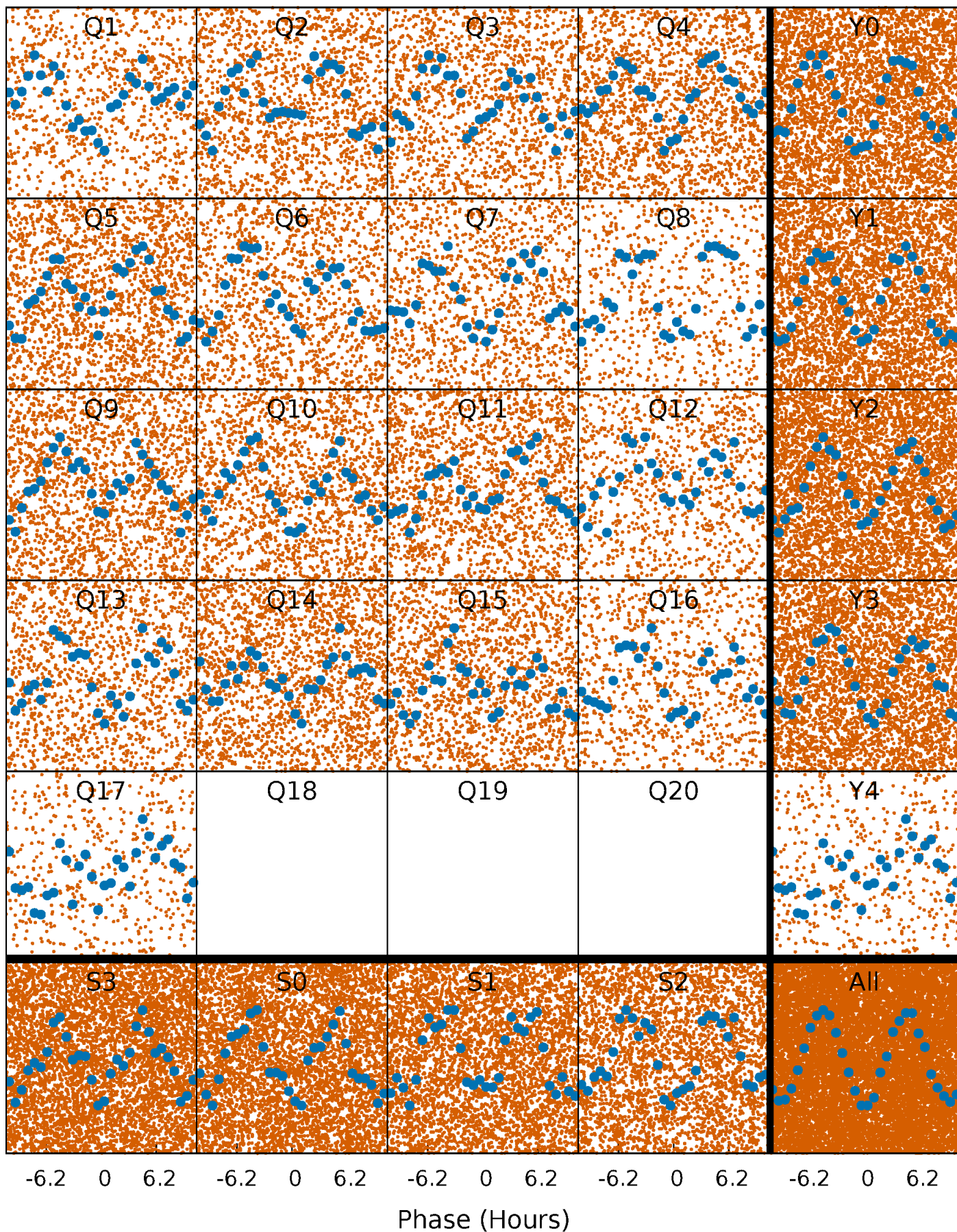
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

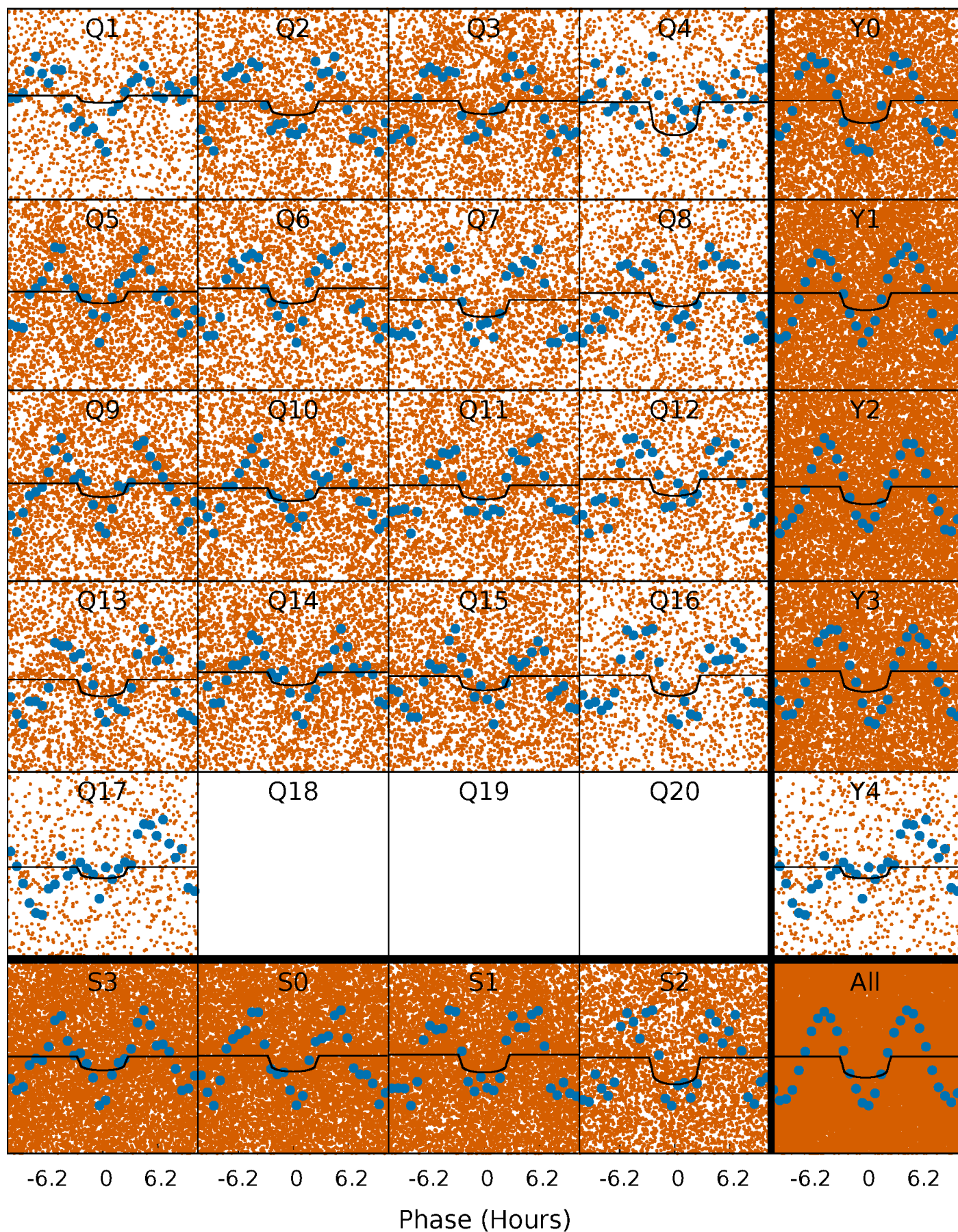
TCE 009588953-01 P= 0.787991 Days  $T_0=132.071729$  (BKJD)





# DV Quarter-Phased Transit Curves

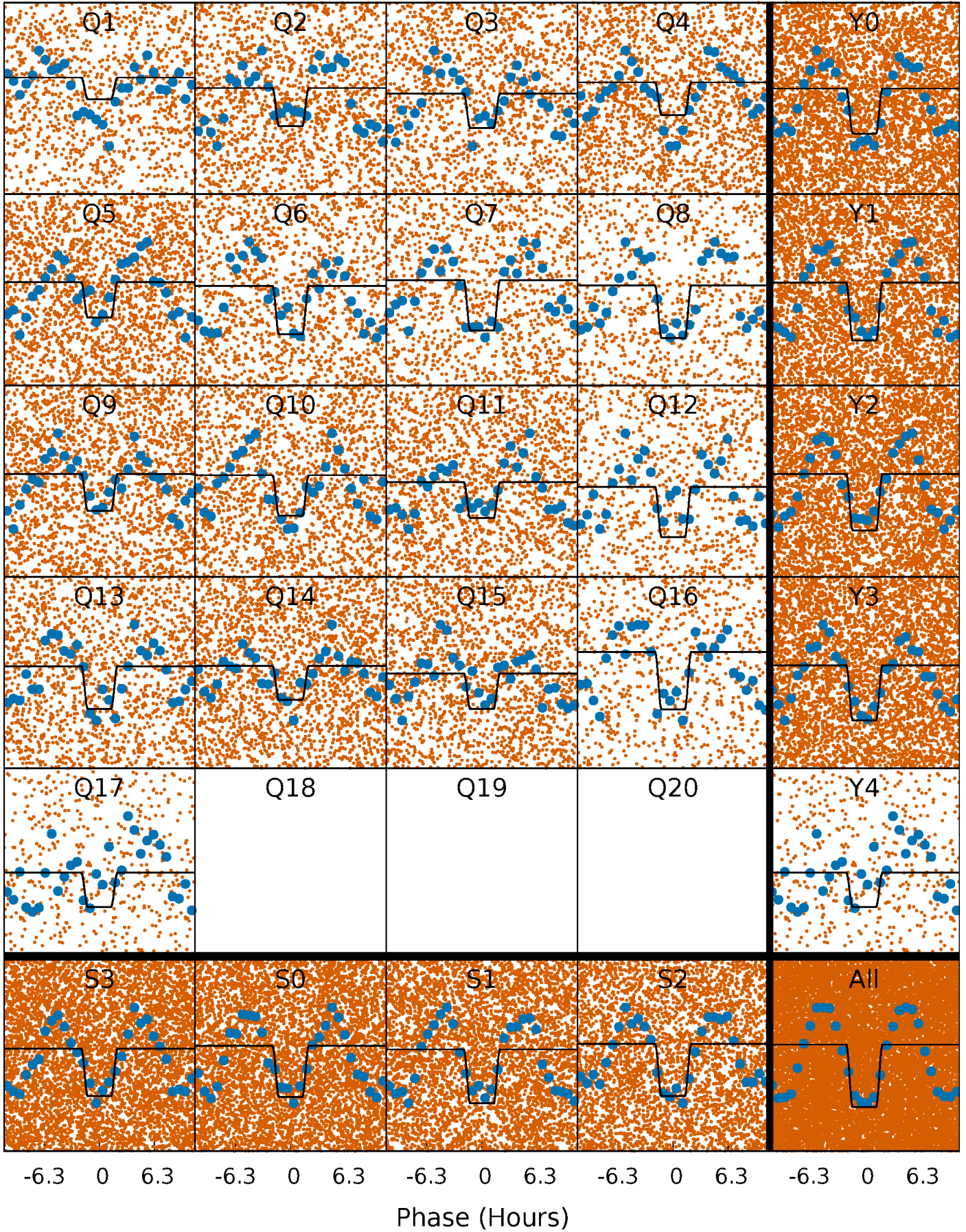
TCE 009588953-01 P= 0.787991 Days  $T_0=132.071729$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

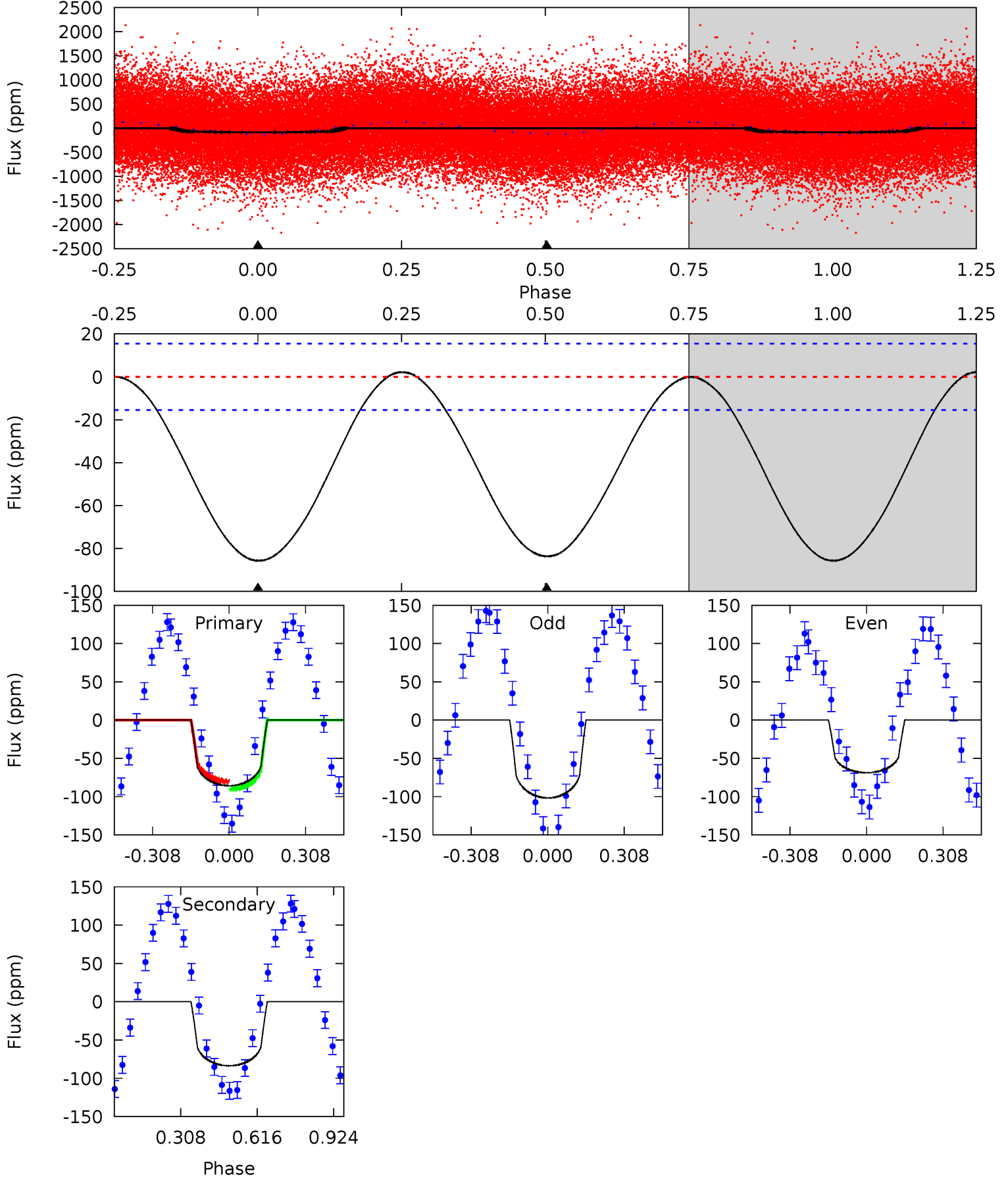
TCE 009588953-01 P= 0.788035 Days  $T_0=132.035391$  (BKJD)



# DV Model-Shift Uniqueness Test

009588953-01, P = 0.787991 Days, E = 131.283738 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
23.9	23.3	0	0	4.32	1.02	0.35	23.9	23.9	23.3	23.3	4.63	1.08	0.03	1.43

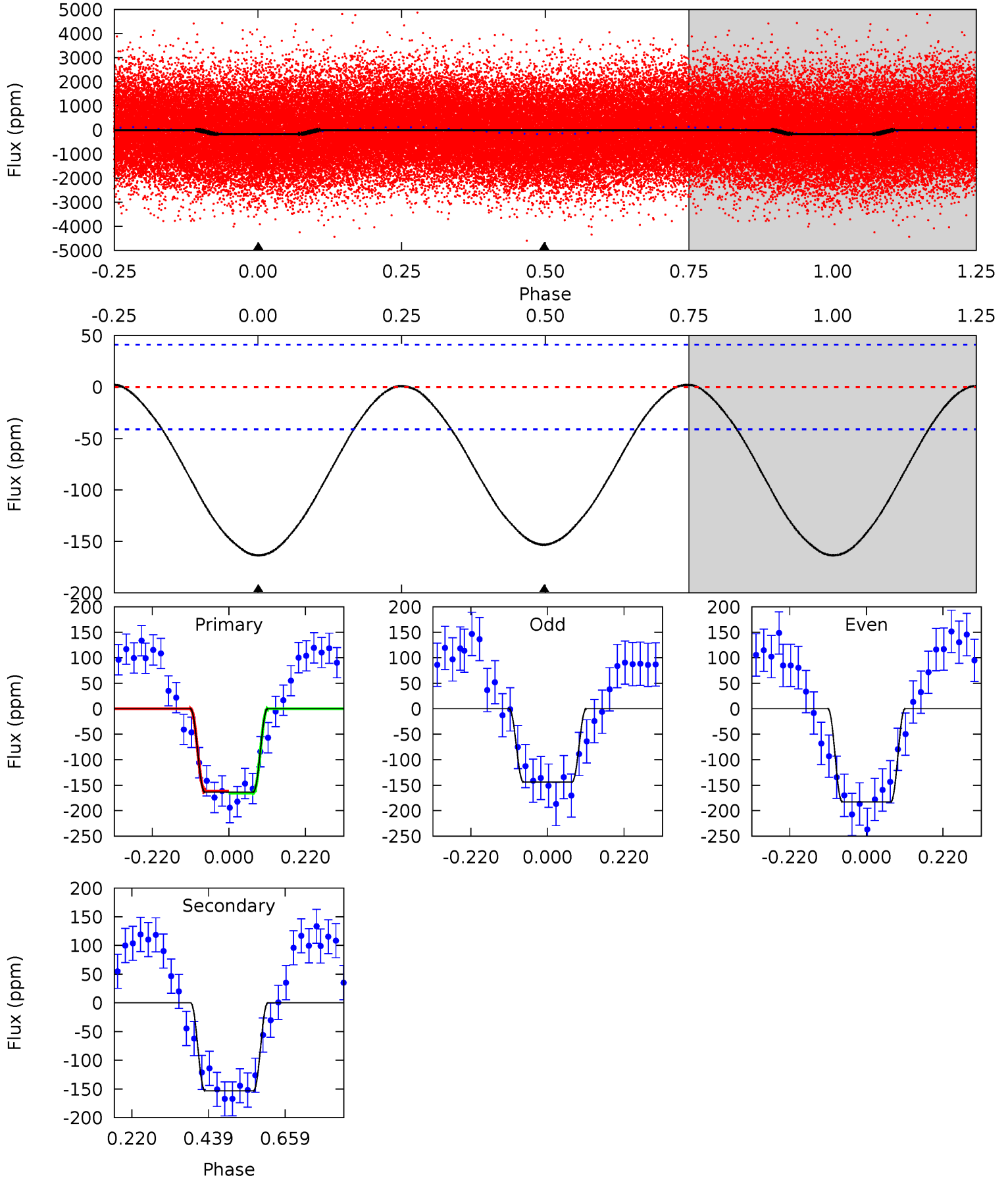




# Alt Model-Shift Uniqueness Test

009588953-01, P = 0.788035 Days, E = 131.247356 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
17.5	16.4	0	0	4.40	1.23	0.21	17.5	17.5	16.4	16.4	2.10	1.04	0.01	0.20



### Stellar Parameters For KIC 009588953

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7281^{+203}_{-304}$	$4.069^{+0.193}_{-0.175}$	$-0.200^{+0.250}_{-0.350}$	$1.870^{+0.567}_{-0.464}$	$1.491^{+0.211}_{-0.257}$	$0.321^{+0.349}_{-0.144}$
	+3%/-4%	+5%/-4%	+125%/-175%	+30%/-25%	+14%/-17%	+109%/-45%
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 009588953-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-84 \pm 4$	$1.56^{+1.05}_{-0.91}$	$4424^{+318}_{-320}$	$7879^{+7564}_{-1973}$	$6.812^{+31.925}_{-4.305}$
Alt.	$-153 \pm 9$	$2.74^{+1.14}_{-1.03}$	$4390^{+321}_{-307}$	$6665^{+2177}_{-1108}$	$4.081^{+6.116}_{-2.073}$

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

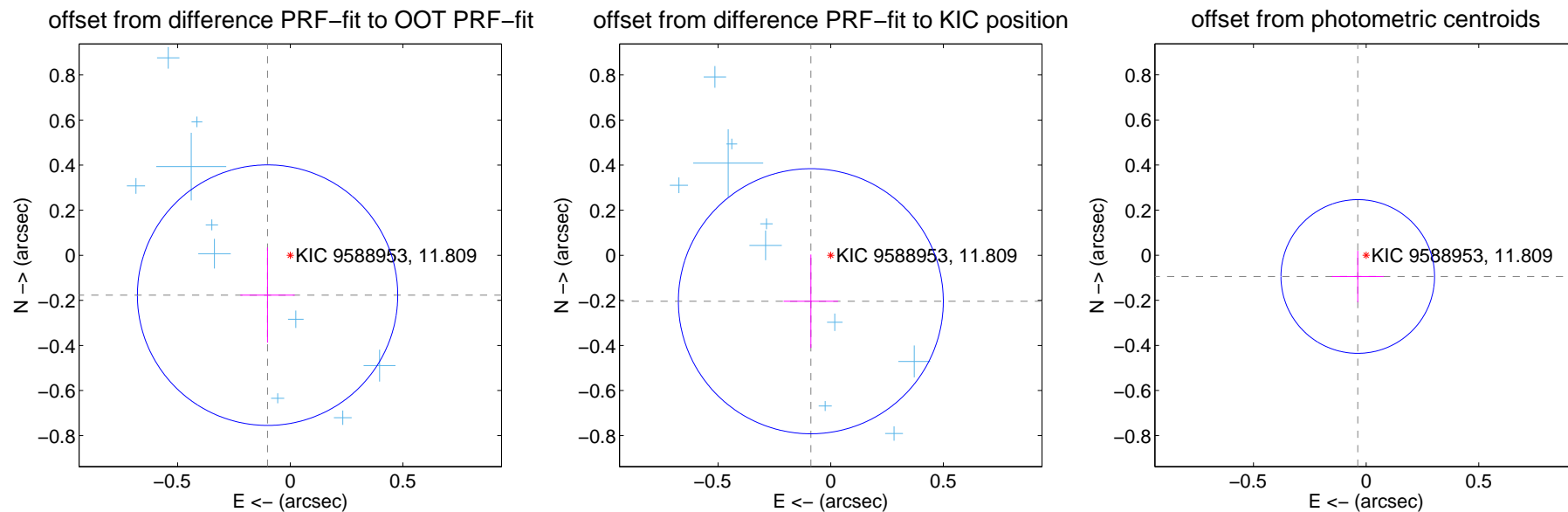
## DV Centroid Data

Supplemental centroid analysis for 009588953-01. **Kepler magnitude: 11.81.** Transit SNR 10.00

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

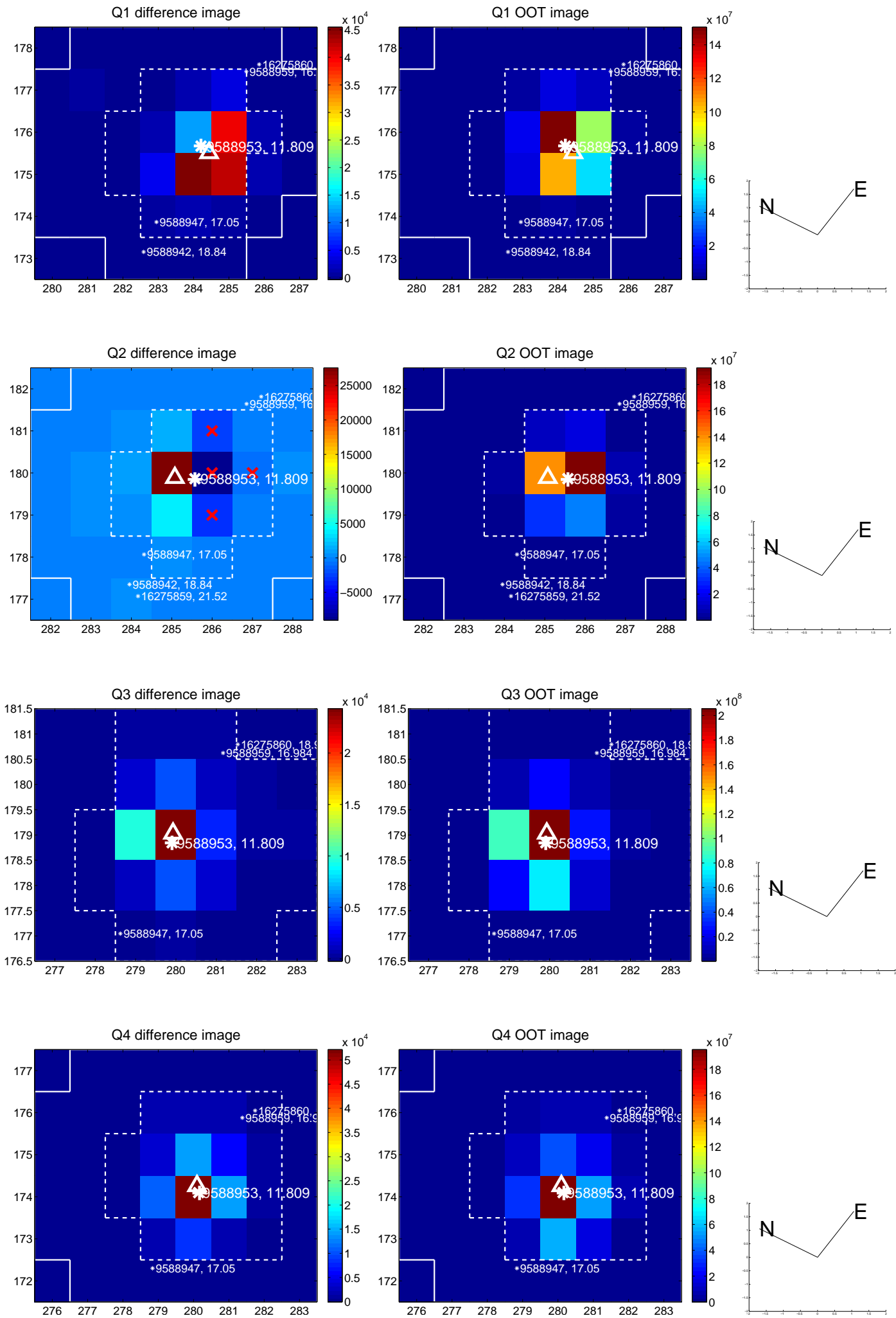
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.204 \pm 0.193$	1.06	$0.101 \pm 0.121$	$-0.177 \pm 0.211$
PRF-fit source offset from KIC position	$0.222 \pm 0.196$	1.13	$0.088 \pm 0.121$	$-0.204 \pm 0.207$
photometric centroid source offset	$0.10 \pm 0.11$	0.89	$0.04 \pm 0.11$	$-0.09 \pm 0.11$



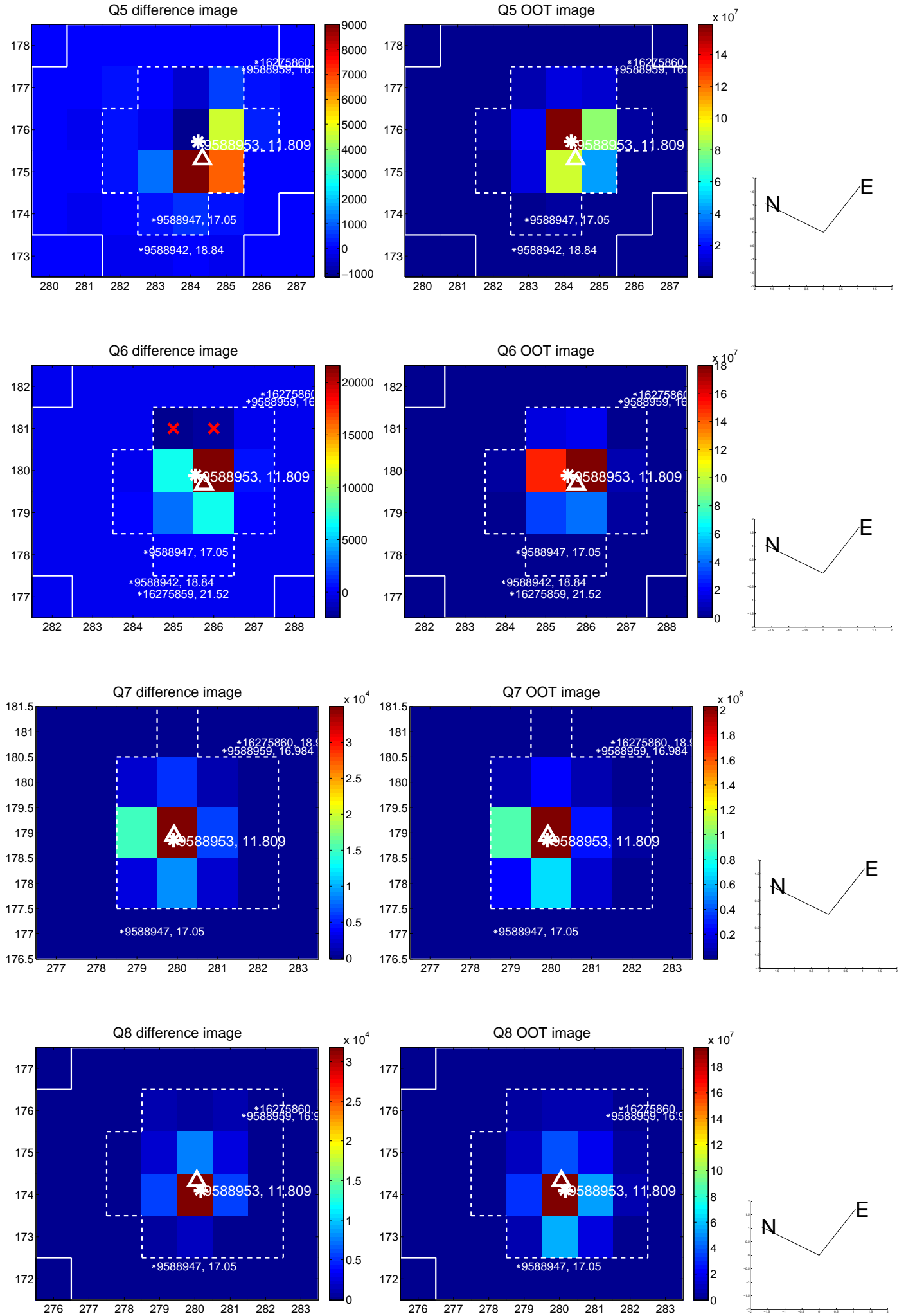
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



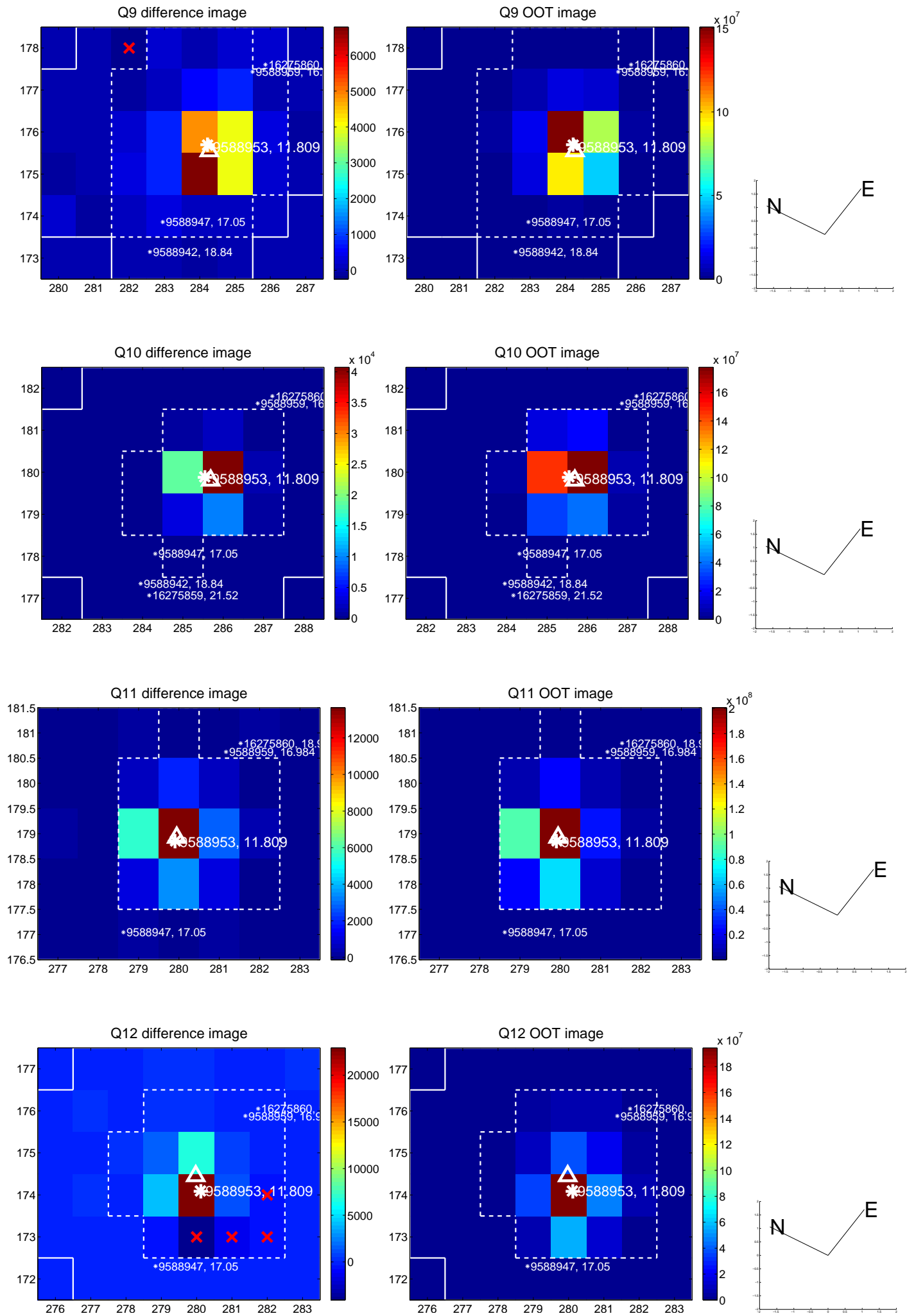
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

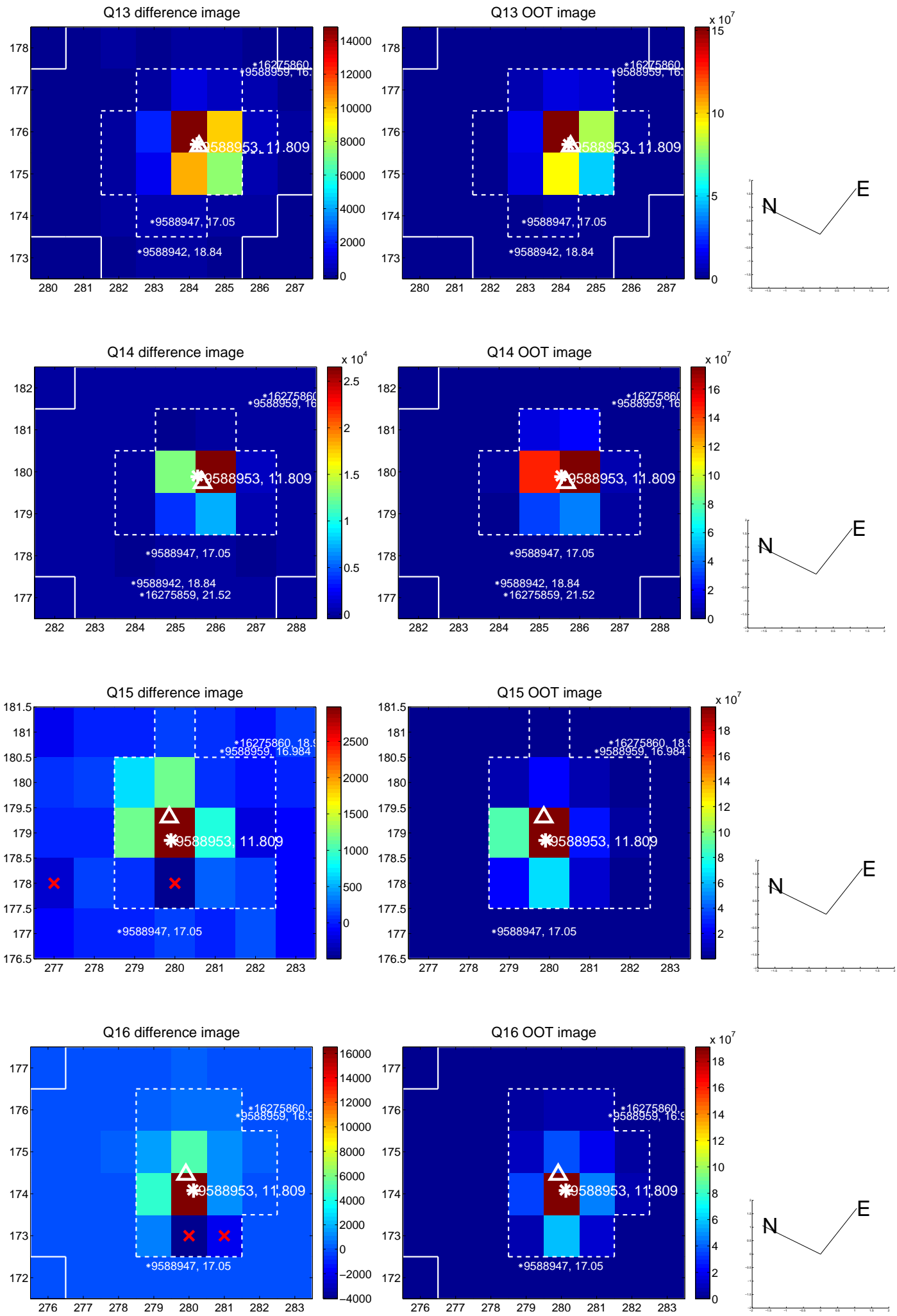


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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





UKIRT Image

Declination

