

# KIC 007986166

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007986166-01	OBS	No	1.381460	131.953025	117.0	14.035	10.6	14.2	2.95	7877	3.24	33630.16

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007986166-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS

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

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

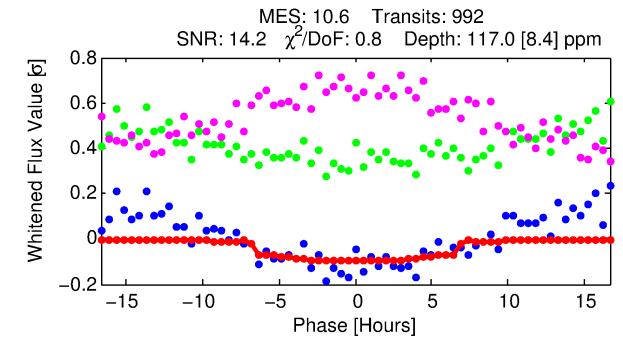
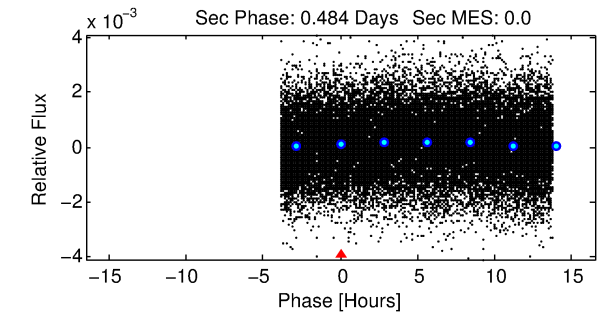
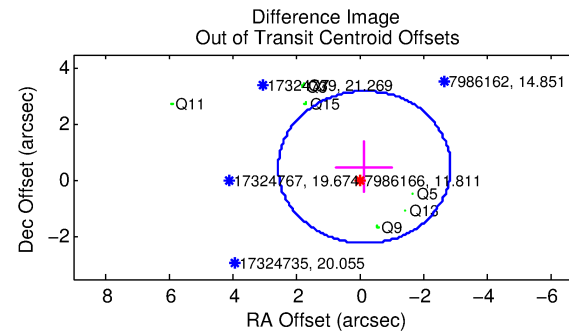
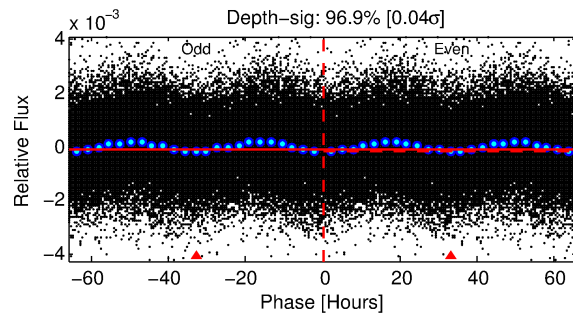
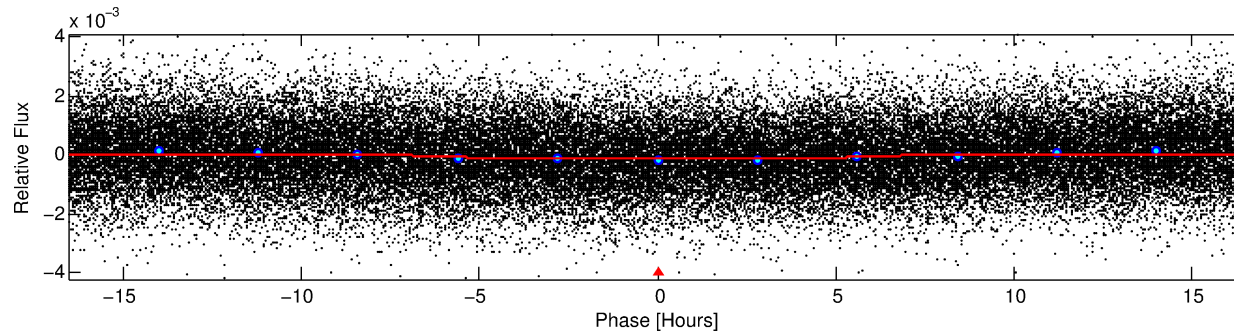
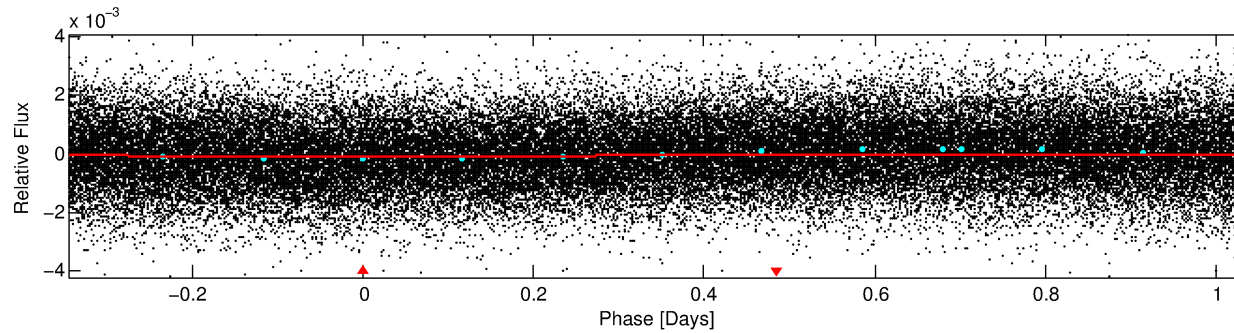
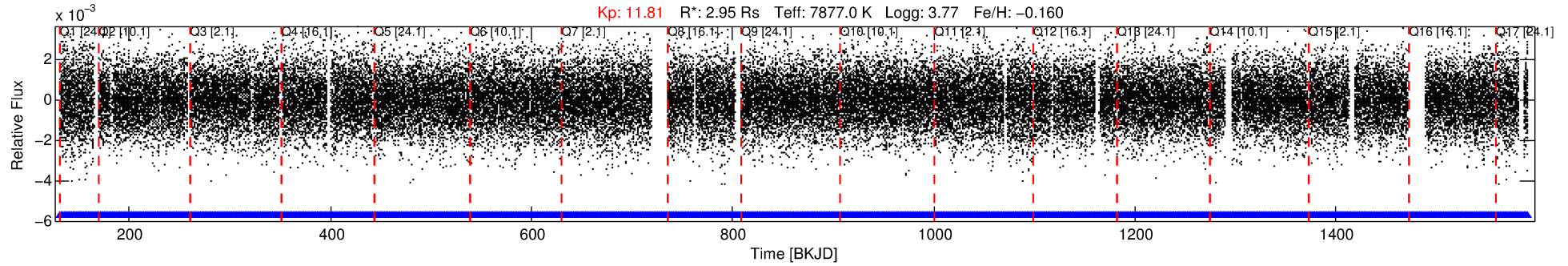
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007986166-01

No Significant Match Found

# DV One-Page Summary

KIC: 7986166 Candidate: 1 of 1 Period: 1.381 d



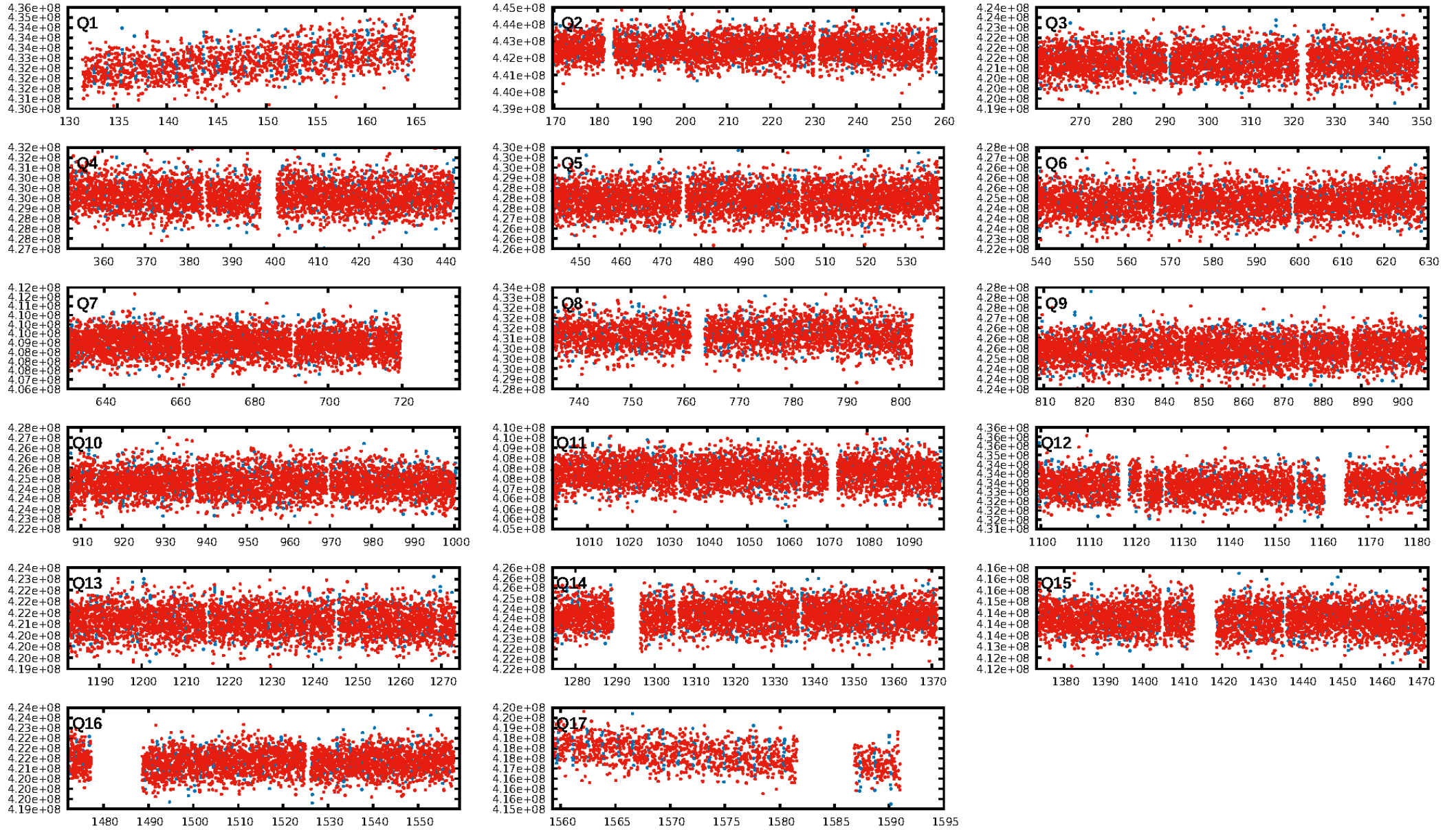
## DV Fit Results:

Period = 1.38146 [0.00002] d  
Epoch = 131.9530 [0.0076] BKJD  
Rp/R\* = 0.0100 [0.0036]  
a/R\* = 1.04 [0.15]  
b = 0.22 [8.95]  
Seff = 33630.16 [23922.97]  
Teq = 3453 [614] K  
Rp = 3.24 [1.84] Re  
a = 0.0299 [0.0128] AU  
Ag = N/A  
Teffp = N/A

## DV Diagnostic Results:

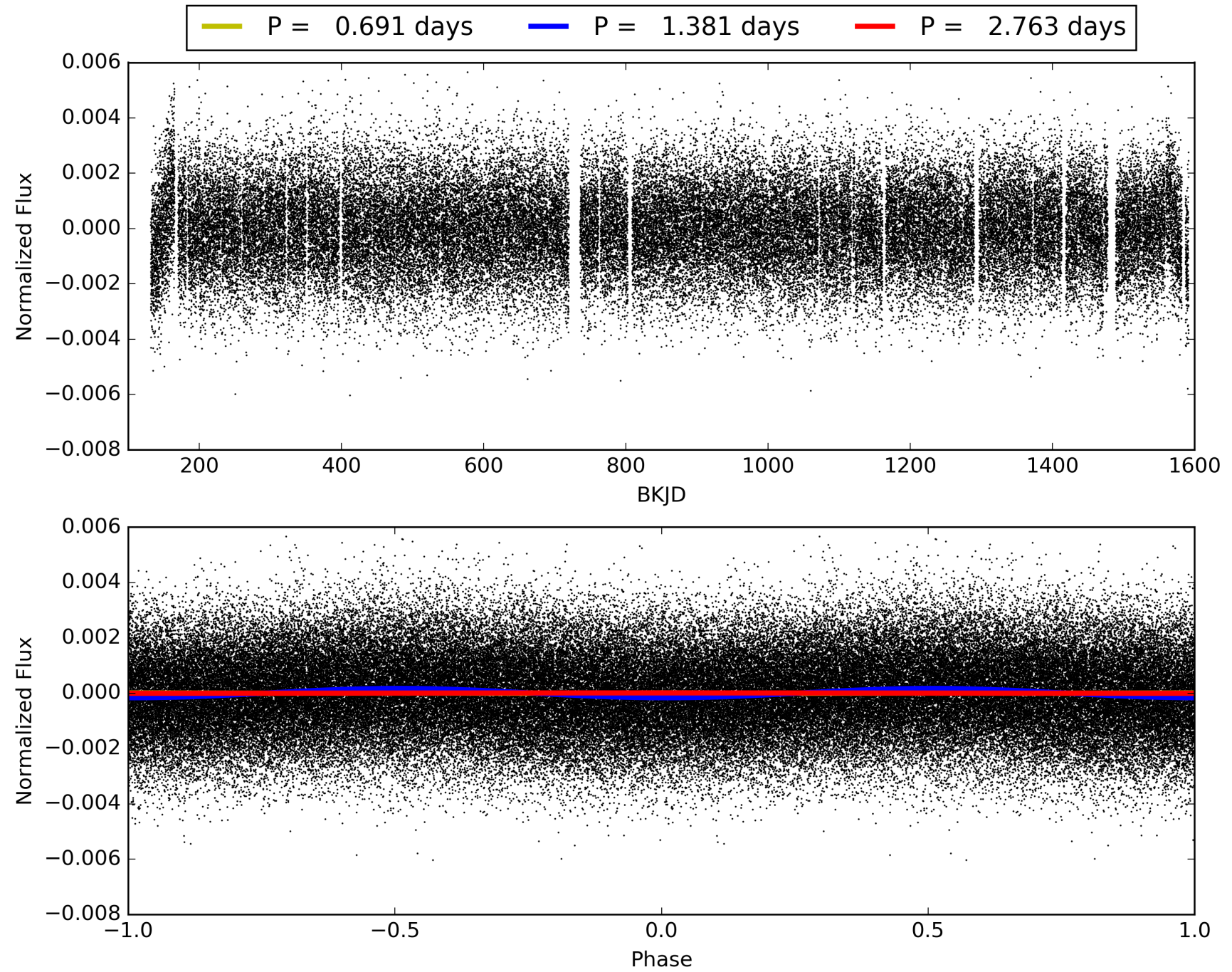
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [946/946]  
GhostDiagnostic-chr: 1.698  
Centroid-sig: 0.0%  
Centroid-so: 0.202 arcsec [2.61 $\sigma$ ]  
OotOffset-rm: 0.506 arcsec [0.56 $\sigma$ ]  
KicOffset-rm: 0.666 arcsec [0.73 $\sigma$ ]  
OotOffset-st: 0/4/0/3 [7]  
KicOffset-st: 0/4/0/3 [7]  
DiffImageQuality-fgm: 0.43 [3/7]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007986166-01, PDC Light Curves



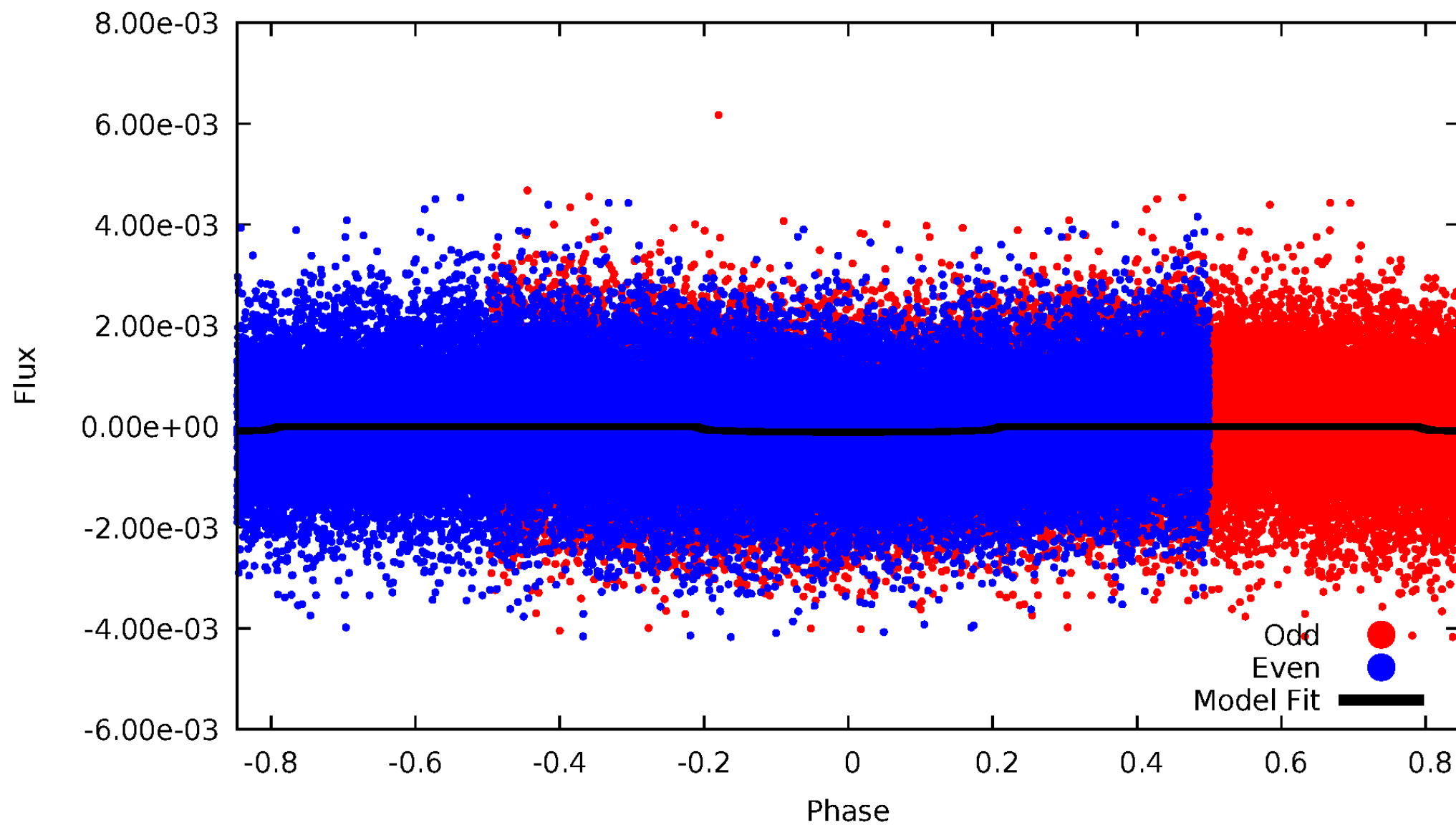


# TCE 007986166-01



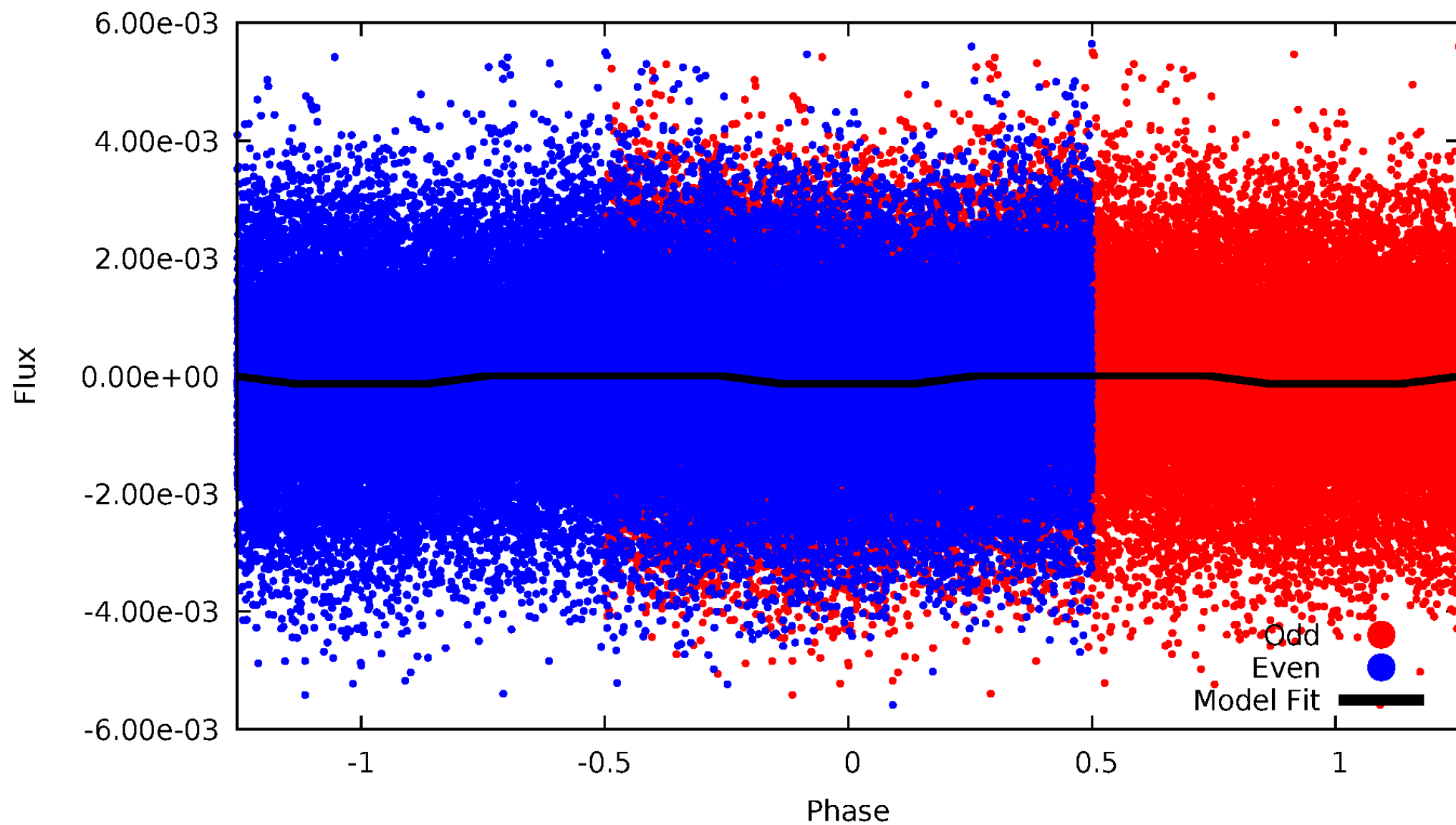
# DV Odd/Even

TCE 007986166-01



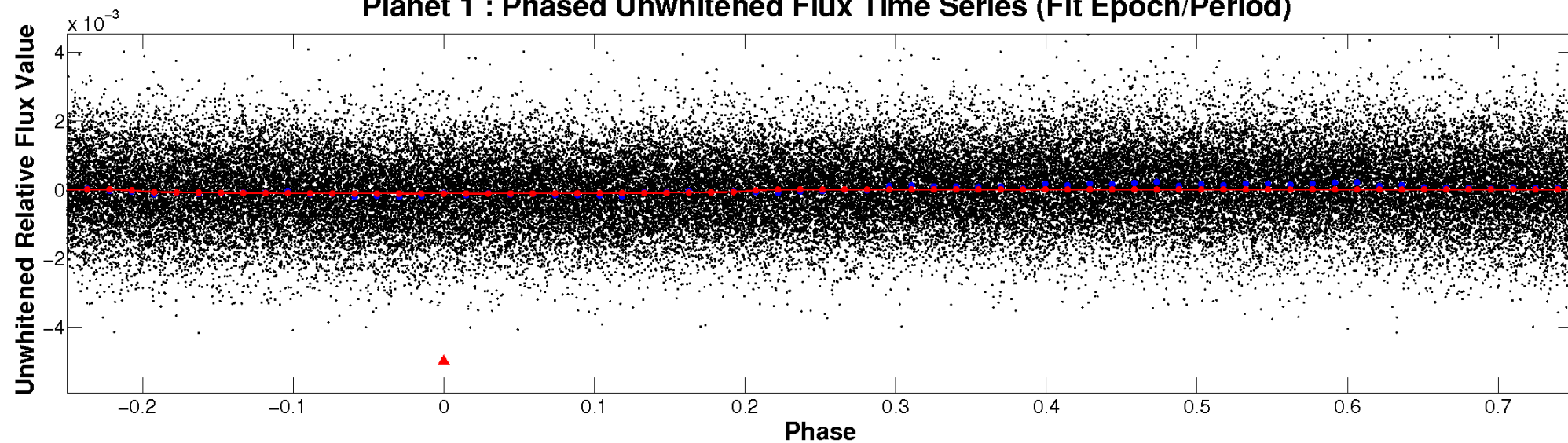
# ALT Odd/Even

TCE 007986166-01

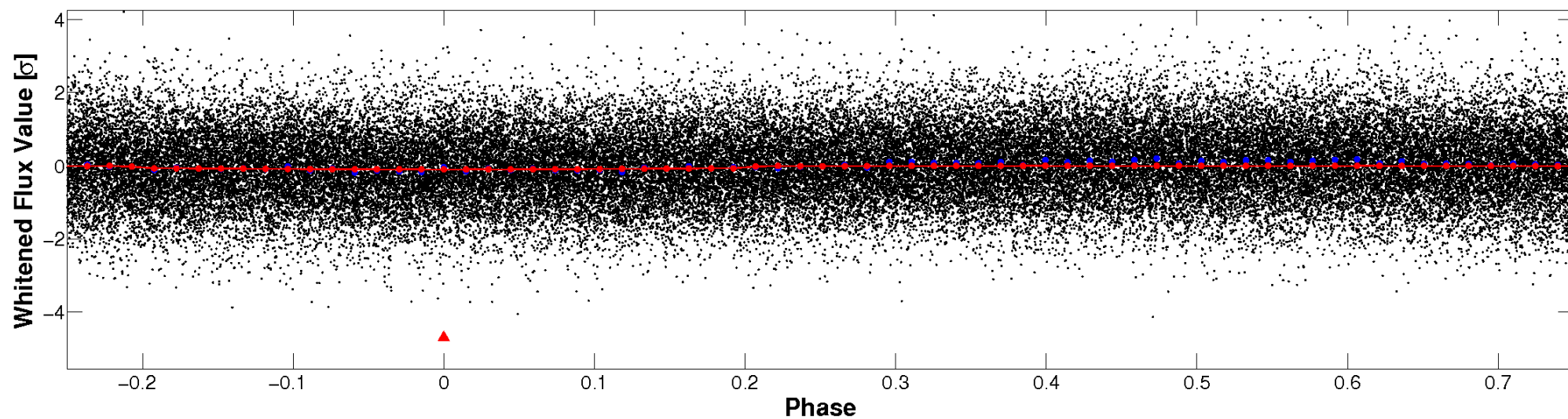


# Non-Whitened Vs. Whitened Light Curve

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



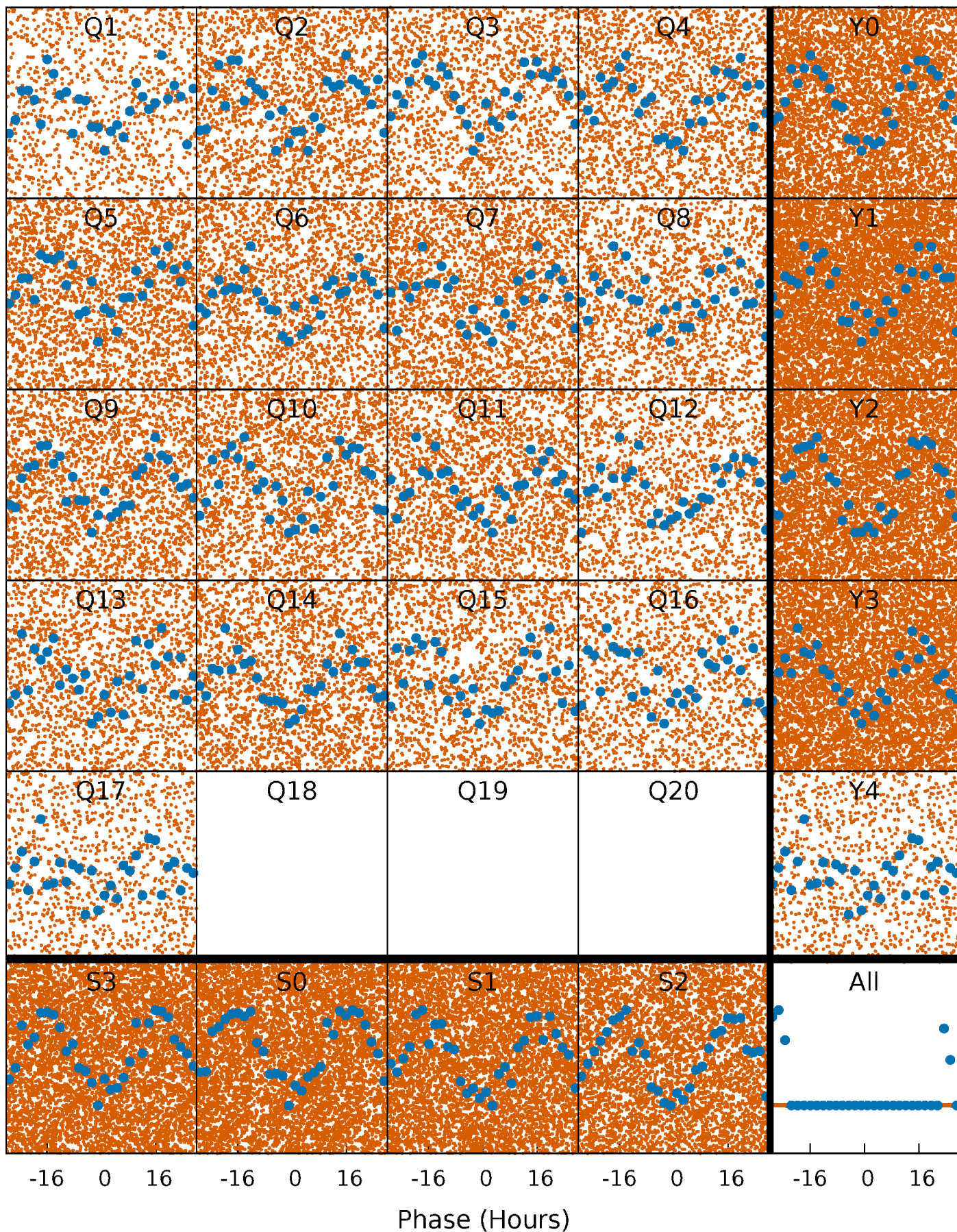
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

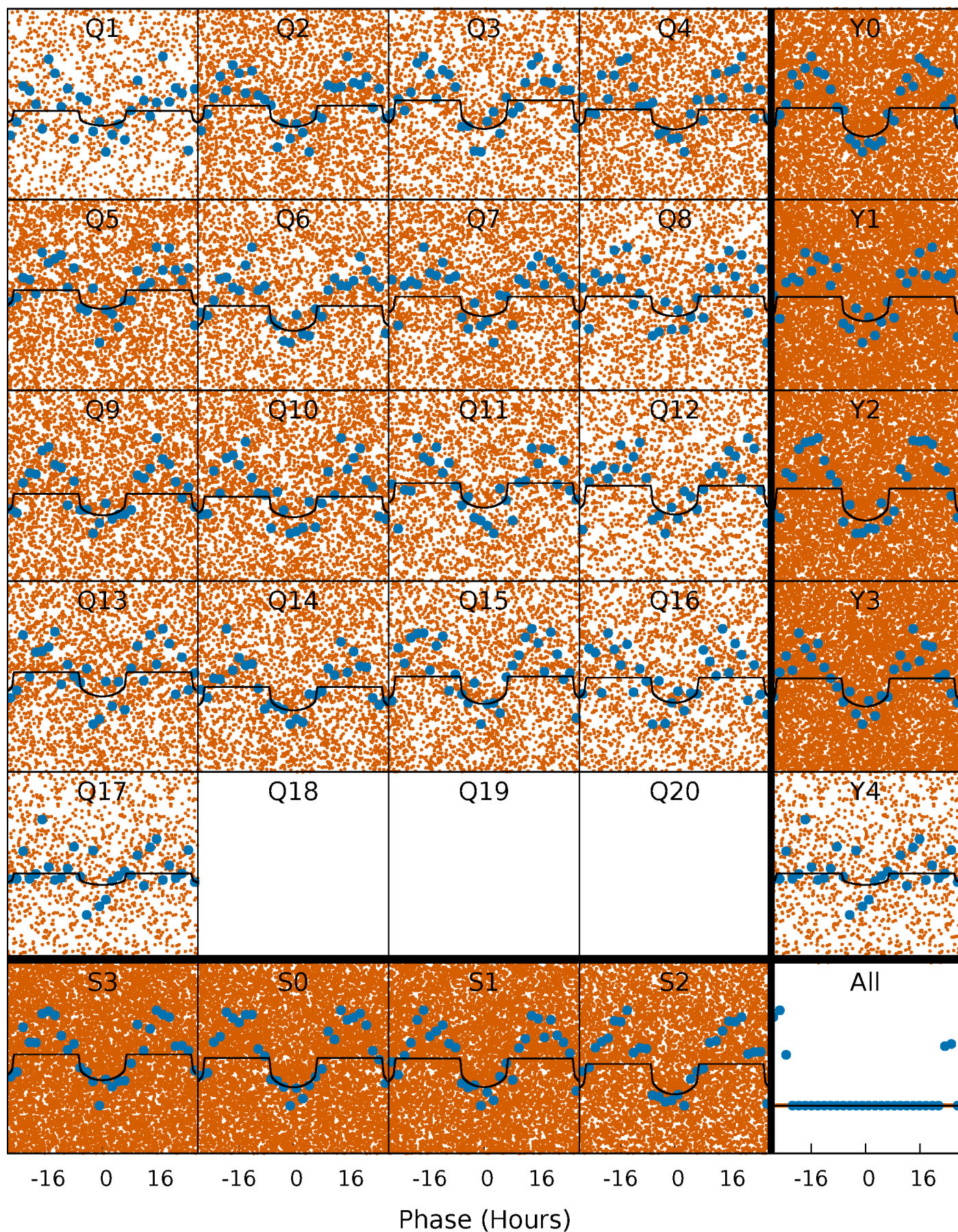
TCE 007986166-01   P= 1.381460 Days    $T_0=131.953024$  (BKJD)





# DV Quarter-Phased Transit Curves

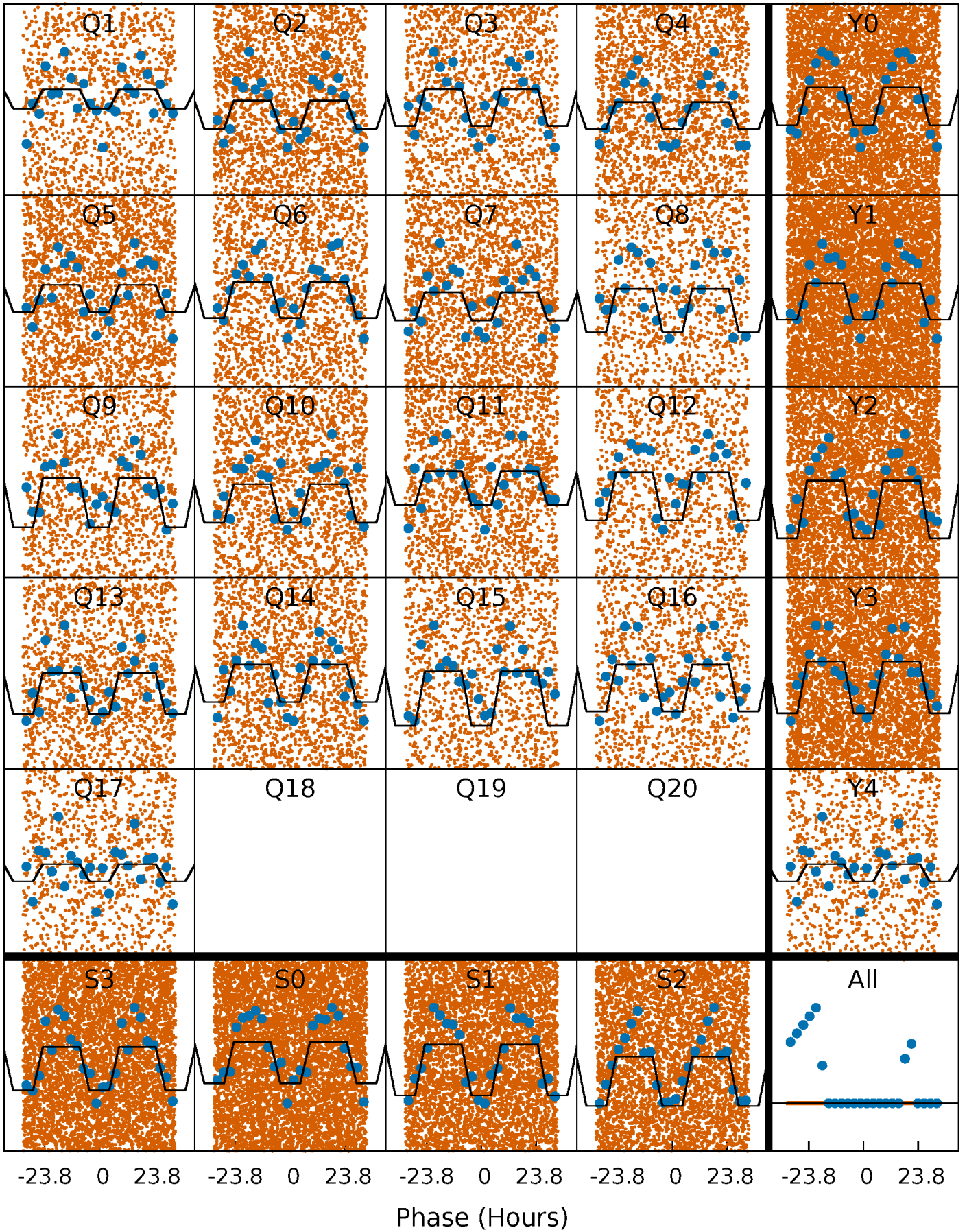
TCE 007986166-01 P= 1.381460 Days  $T_0=131.953024$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

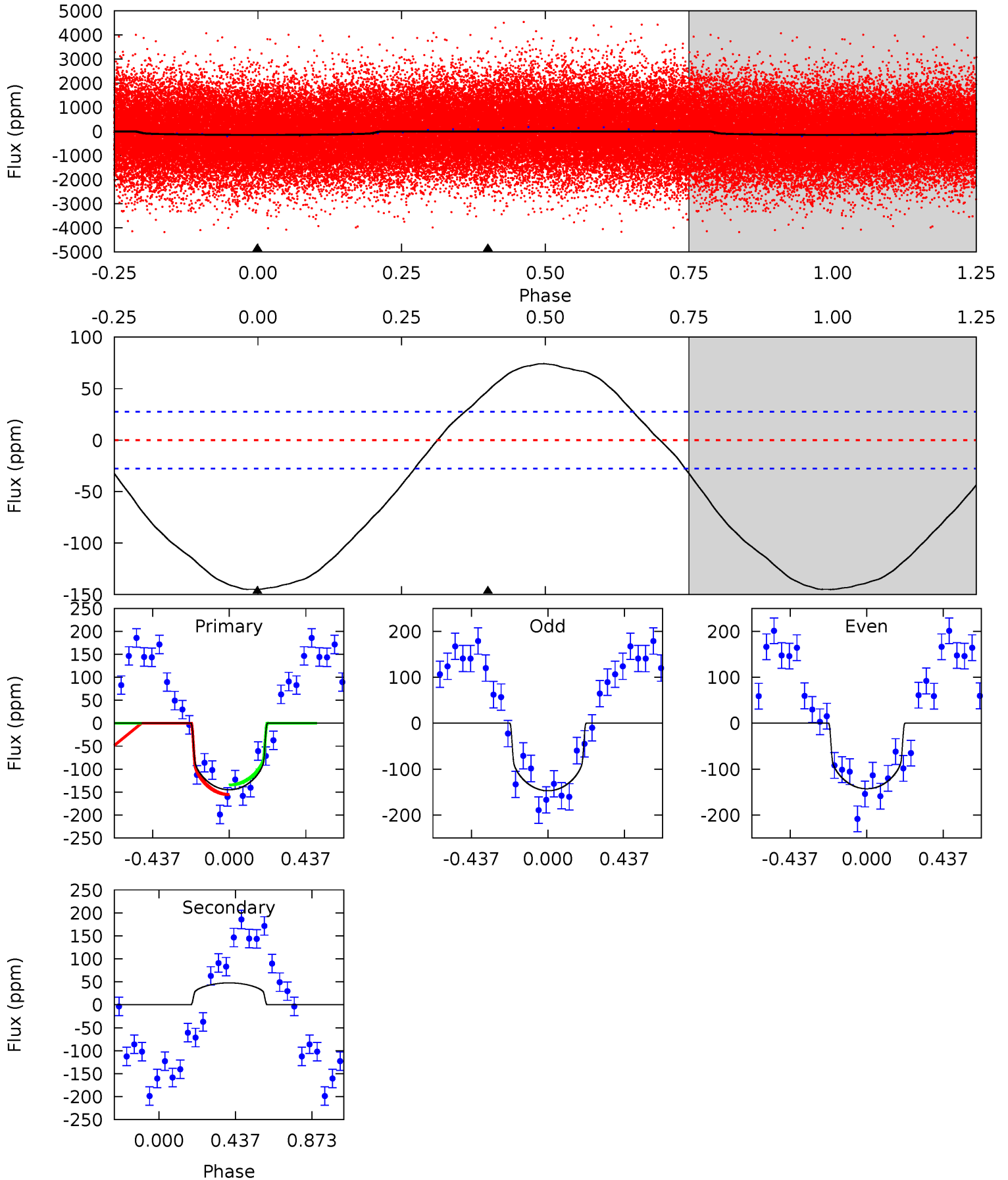
TCE 007986166-01 P= 1.381469 Days  $T_0=131.969586$  (BKJD)



# DV Model-Shift Uniqueness Test

007986166-01, P = 1.381460 Days, E = 130.571564 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
22.3	-7.33	0	0	4.25	0.78	2.67	22.3	22.3	-7.33	-7.33	0.33	1.03	0.34	1.72

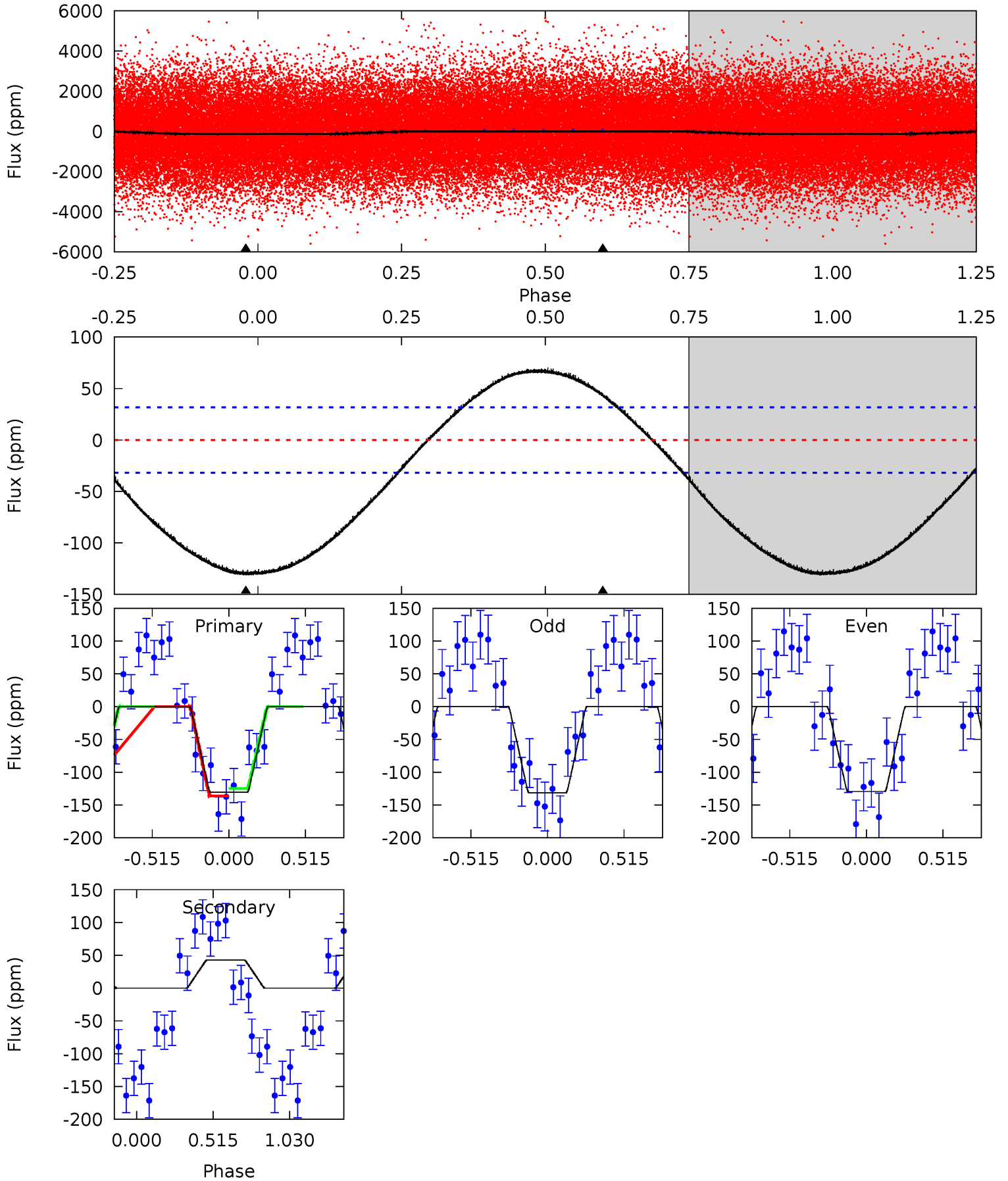




# Alt Model-Shift Uniqueness Test

007986166-01, P = 1.381469 Days, E = 130.588117 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	-5.67	0	0	4.21	0.65	2.21	17.3	17.3	-5.67	-5.67	0.13	1.31	0.35	0.73



### Stellar Parameters For KIC 007986166

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7877^{+216}_{-325}$	$3.769^{+0.408}_{-0.072}$	$-0.160^{+0.200}_{-0.350}$	$2.953^{+0.326}_{-1.303}$	$1.870^{+0.098}_{-0.417}$	$0.102^{+0.348}_{-0.023}$
	+3%/-4%	+11%/-2%	+125%/-219%	+11%/-44%	+5%/-22%	+341%/-23%
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 007986166-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$48 \pm 7$	$2.82^{+1.23}_{-1.12}$	$4653^{+315}_{-519}$	$-6585^{+890}_{-1753}$	$-2.925^{+1.549}_{-4.834}$
Alt.	$43 \pm 8$	$3.39^{+1.30}_{-1.29}$	$4656^{+310}_{-521}$	$-5957^{+669}_{-1277}$	$-1.768^{+0.865}_{-2.700}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

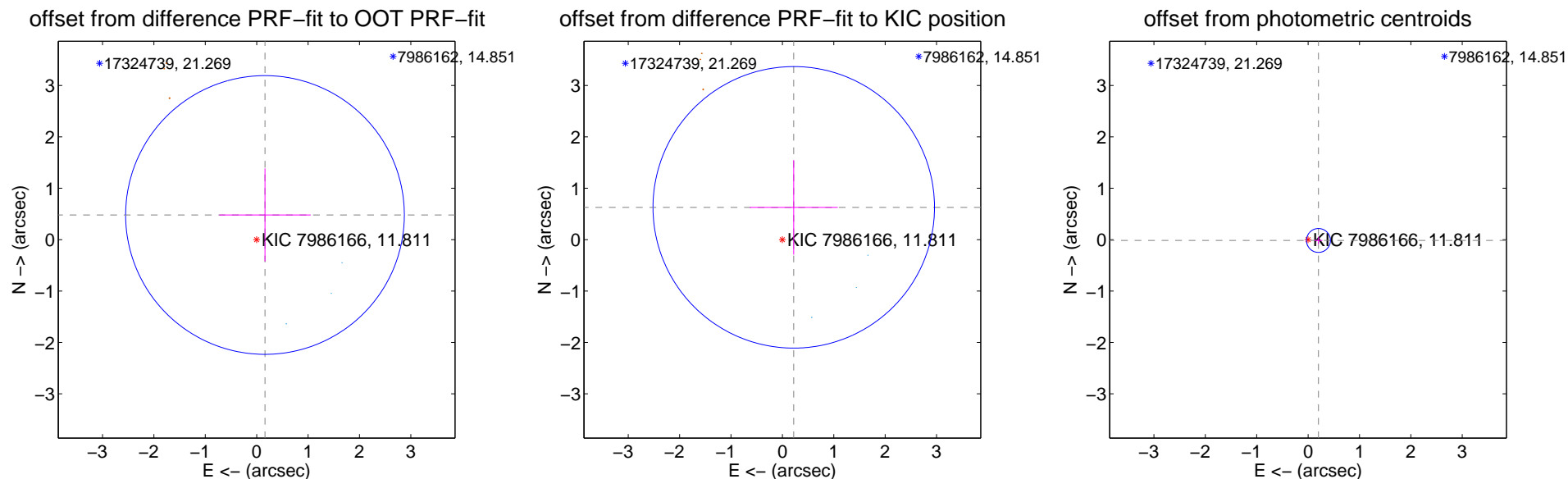
## DV Centroid Data

Supplemental centroid analysis for 007986166-01. **Kepler magnitude: 11.81.** Transit SNR 14.21

**There are 3 quarters with good PRF difference image offsets**

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

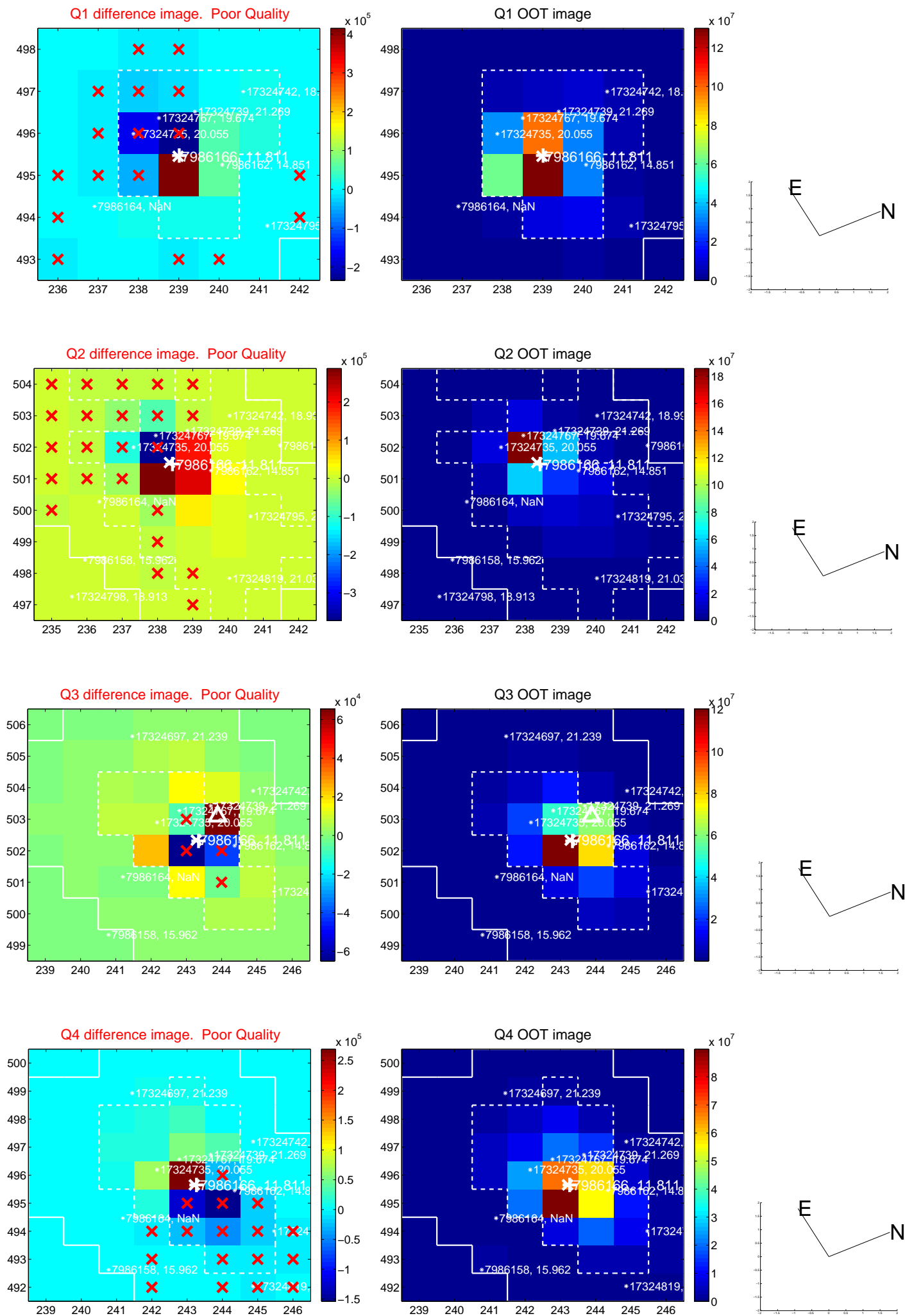
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.506 \pm 0.904$	0.56	$-0.161 \pm 0.890$	$0.480 \pm 0.905$
PRF-fit source offset from KIC position	$0.666 \pm 0.913$	0.73	$-0.221 \pm 0.856$	$0.628 \pm 0.920$
photometric centroid source offset	$0.20 \pm 0.08$	2.61	$-0.20 \pm 0.08$	$-0.02 \pm 0.07$



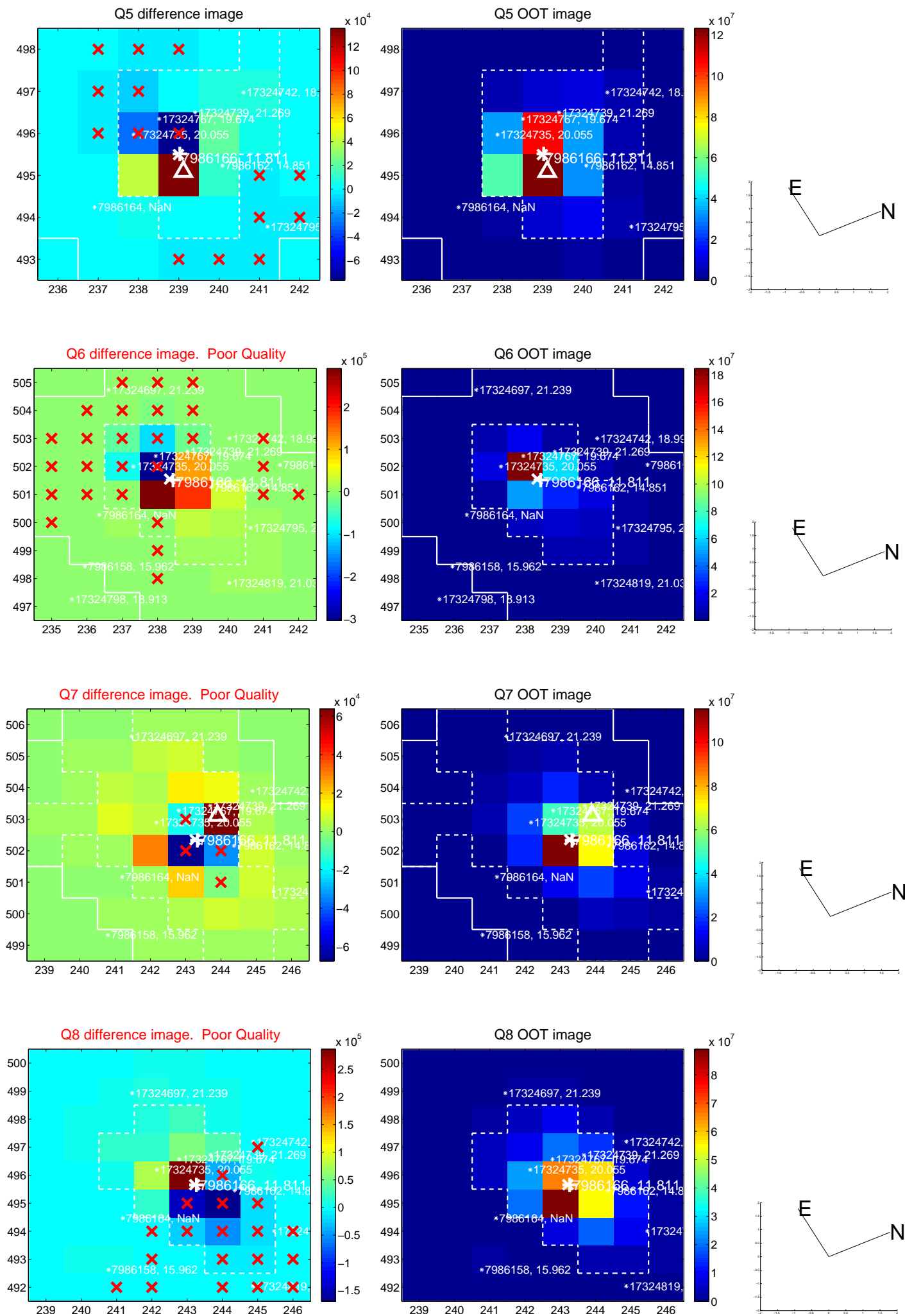
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



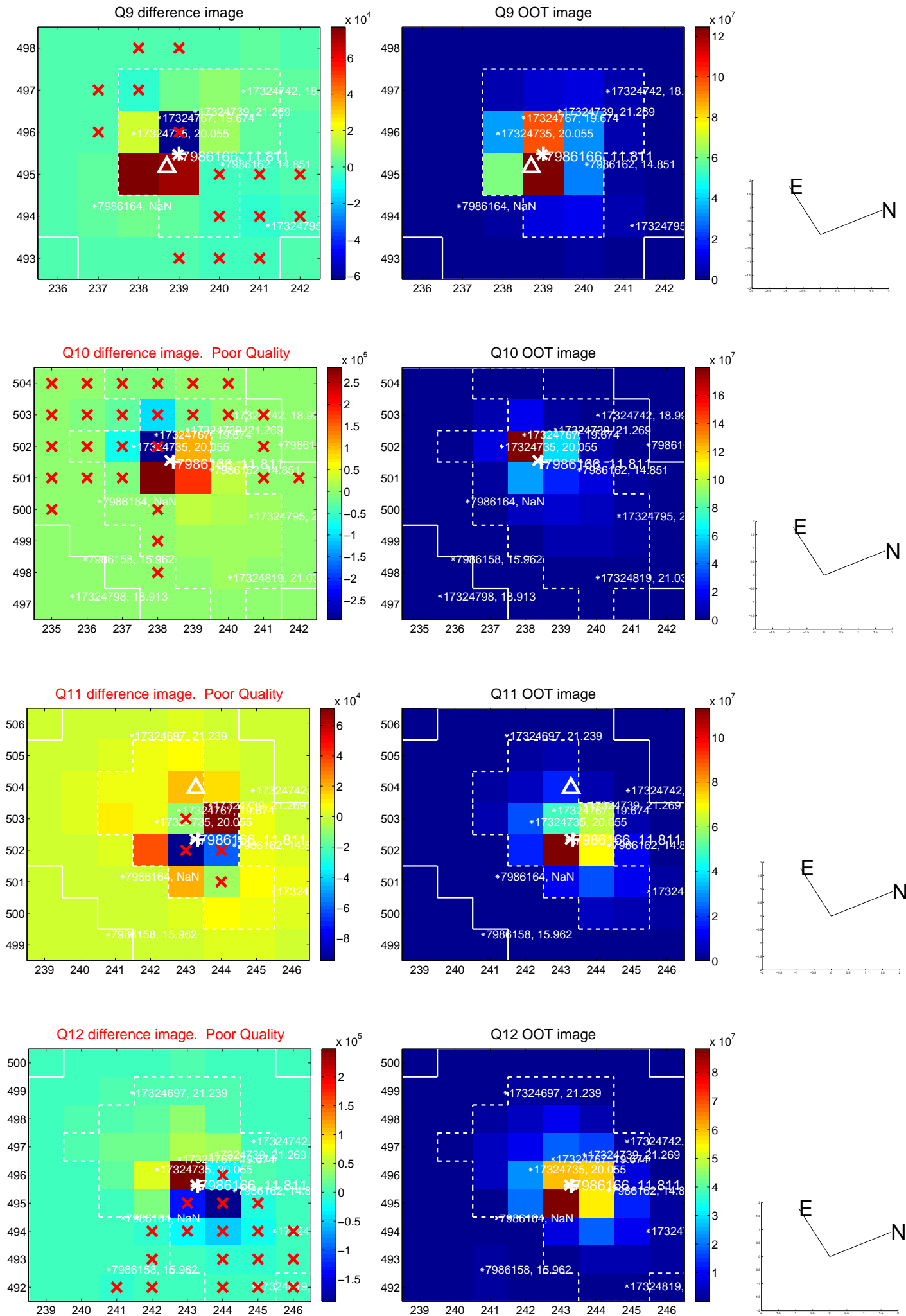
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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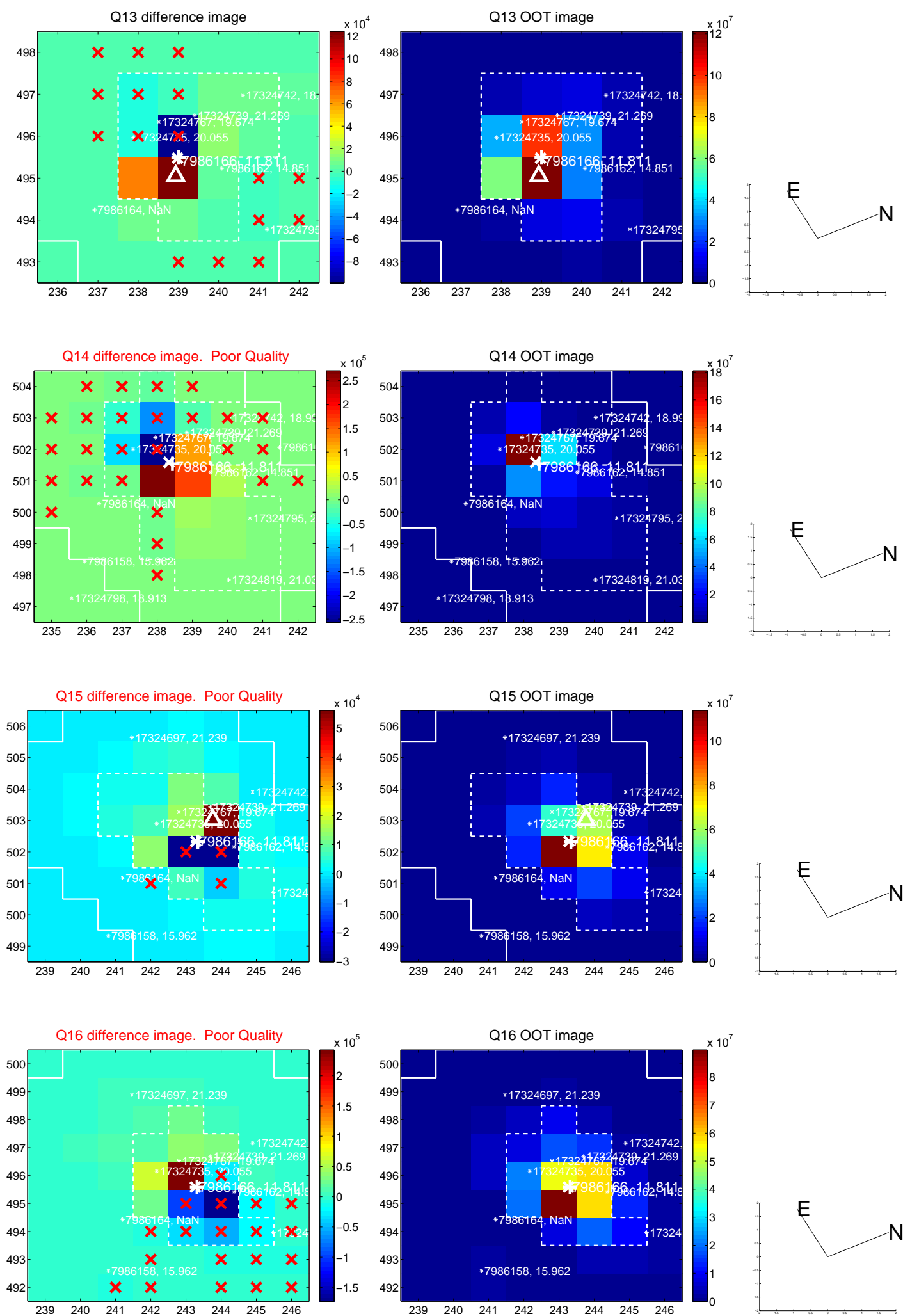


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

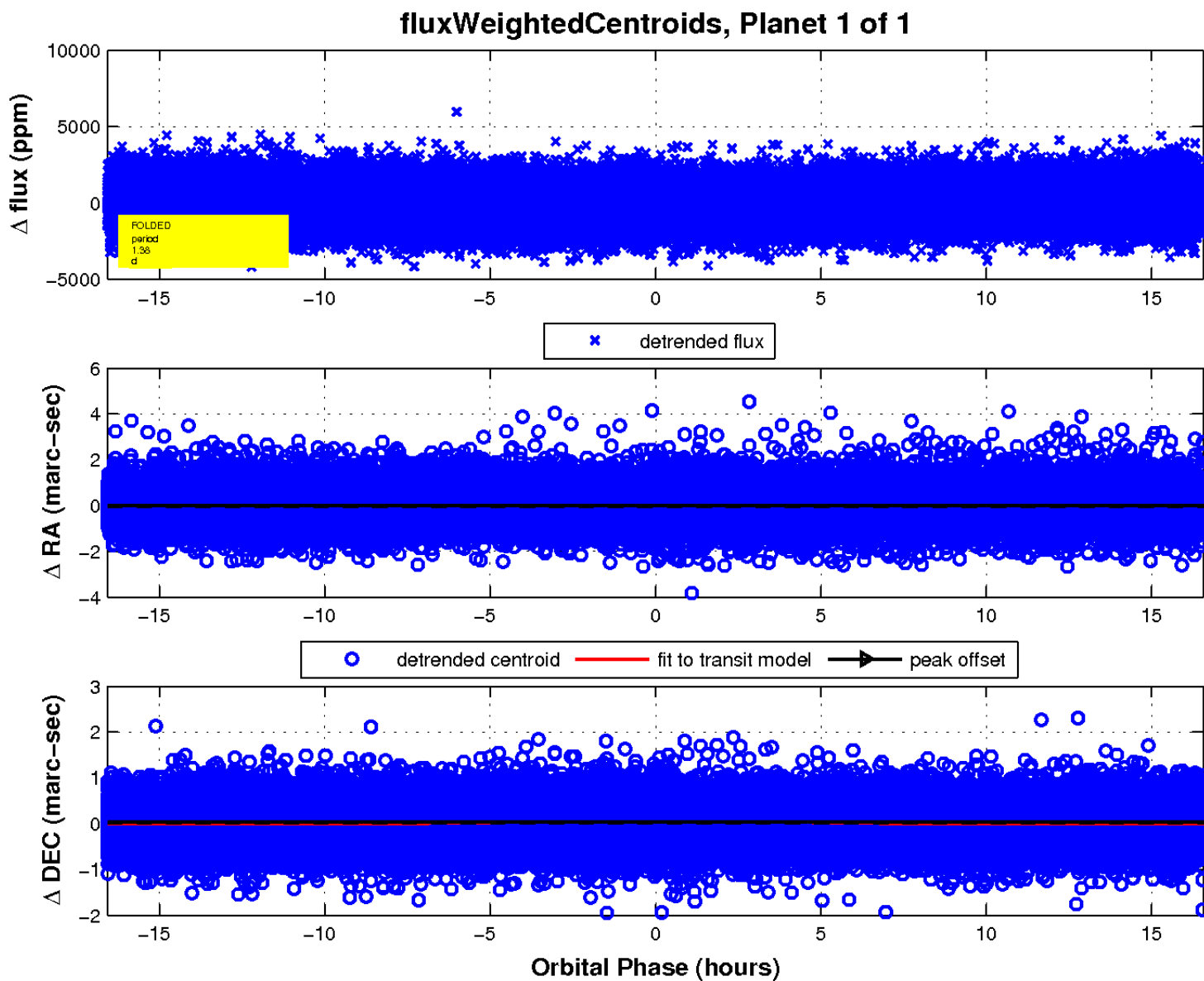
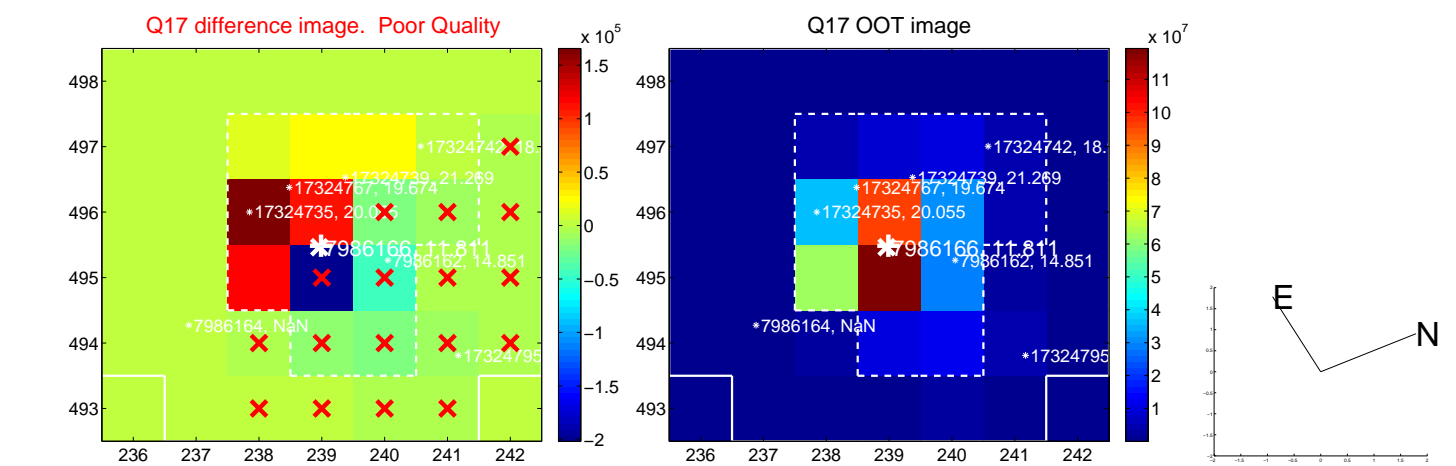




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

