

KIC 012167361

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})
012167361-01	OBS	0980.01	47.930938	179.096478	2111.9	2.659	271.9	268.1	1.94	8214	16.32	158.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012167361-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED—CENT_SATURATED

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

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

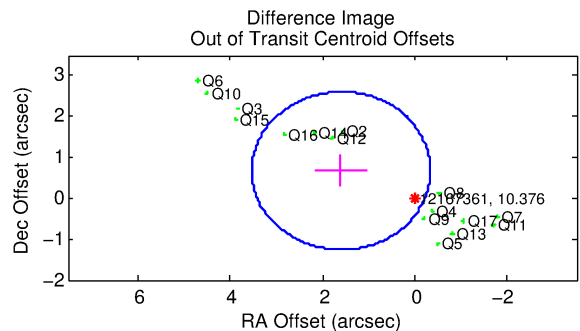
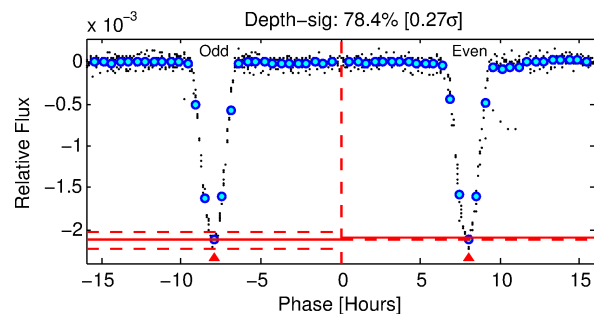
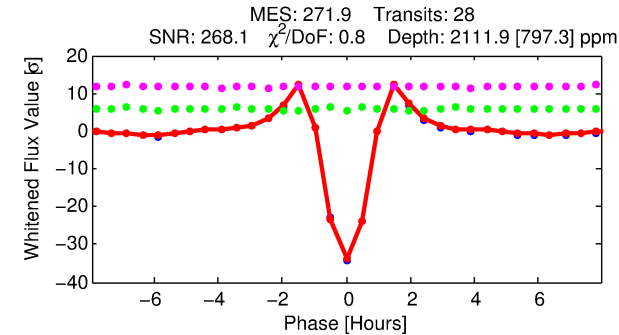
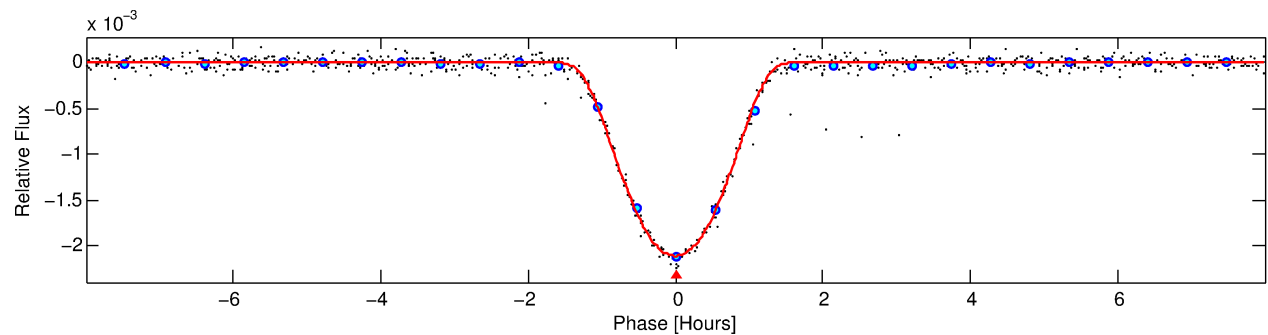
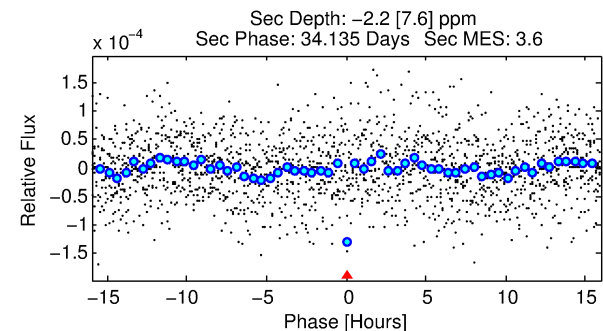
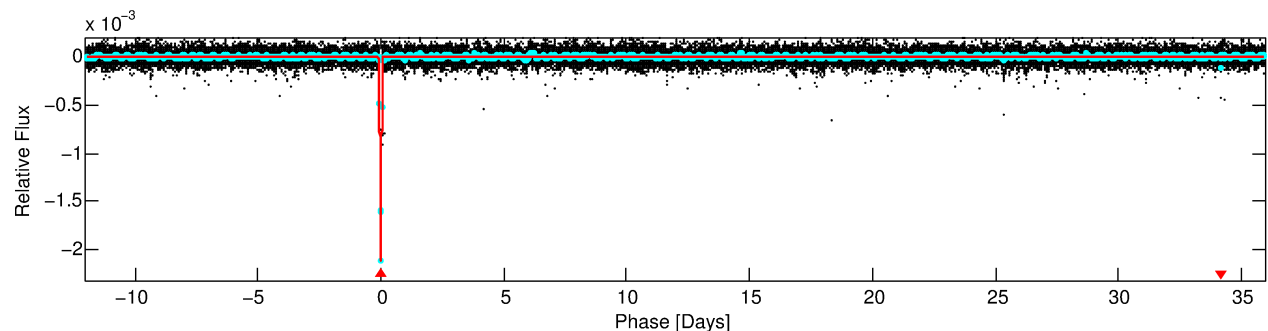
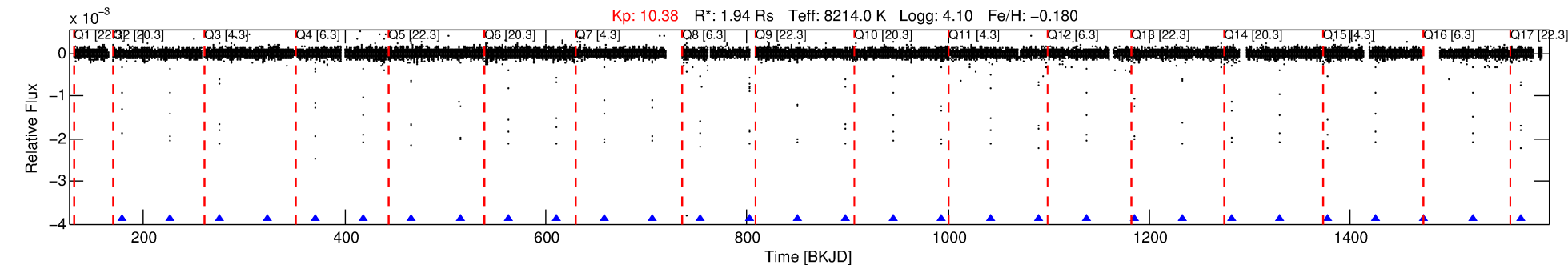
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012167361-01

No Significant Match Found

DV One-Page Summary

KIC: 12167361 Candidate: 1 of 1 Period: 47.931 d
KOI: K00980.01 Corr: 0.995



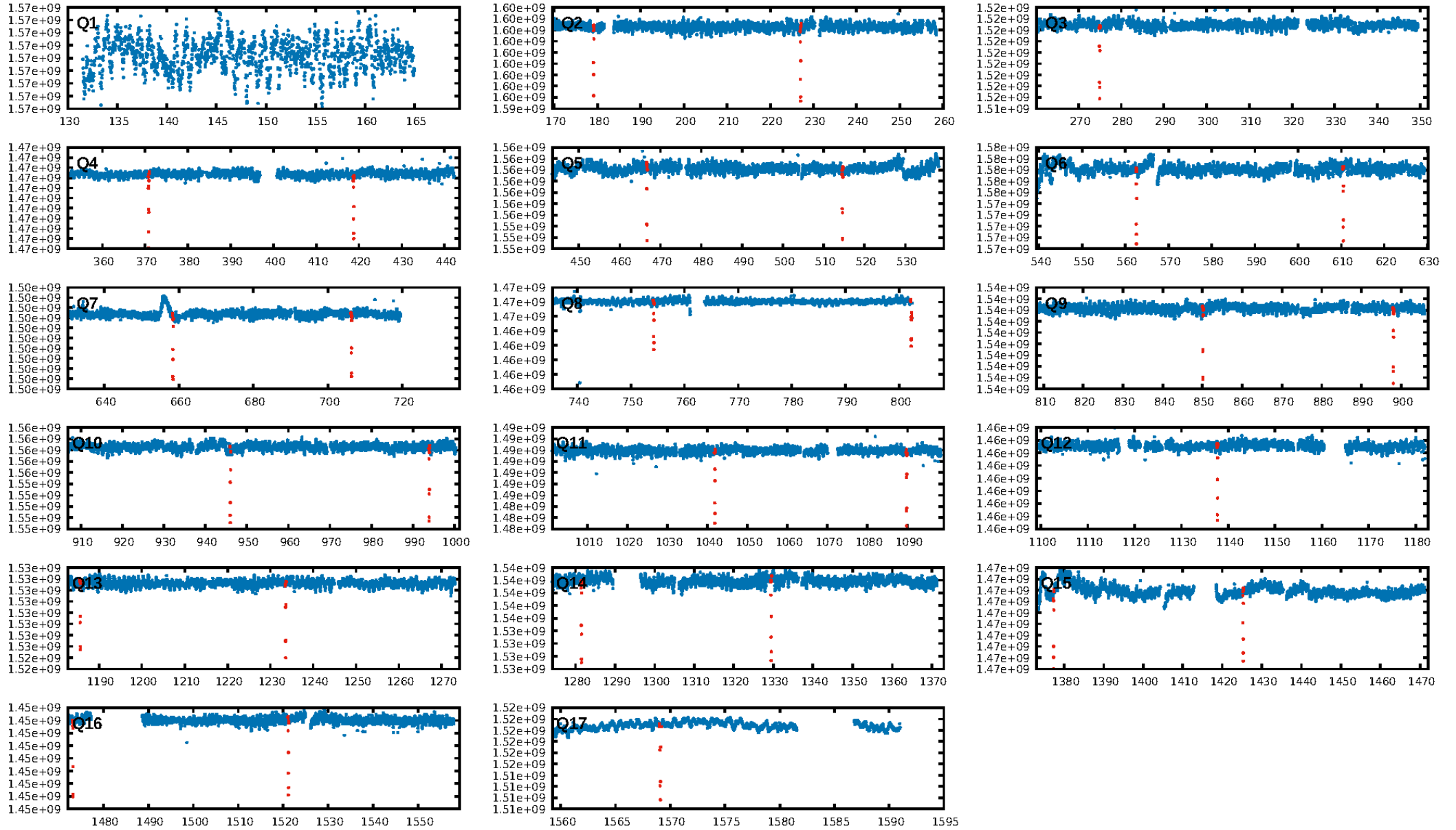
DV Fit Results:

Period = 47.93094 [0.00001] d
Epoch = 179.0965 [0.0002] BKJD
 $R_p/R^* = 0.0771 [0.0088]$
 $a/R^* = 55.13 [1.43]$
 $b = 1.00 [0.03]$
 $\text{Seff} = 158.68 [50.52]$
 $\text{Teq} = 905 [72] \text{ K}$
 $R_p = 16.31 [4.25] R_e$
 $a = 0.3107 [0.0596] \text{ AU}$
 $\text{Ag} = \text{N/A}$
 $\text{Teffp} = \text{N/A}$

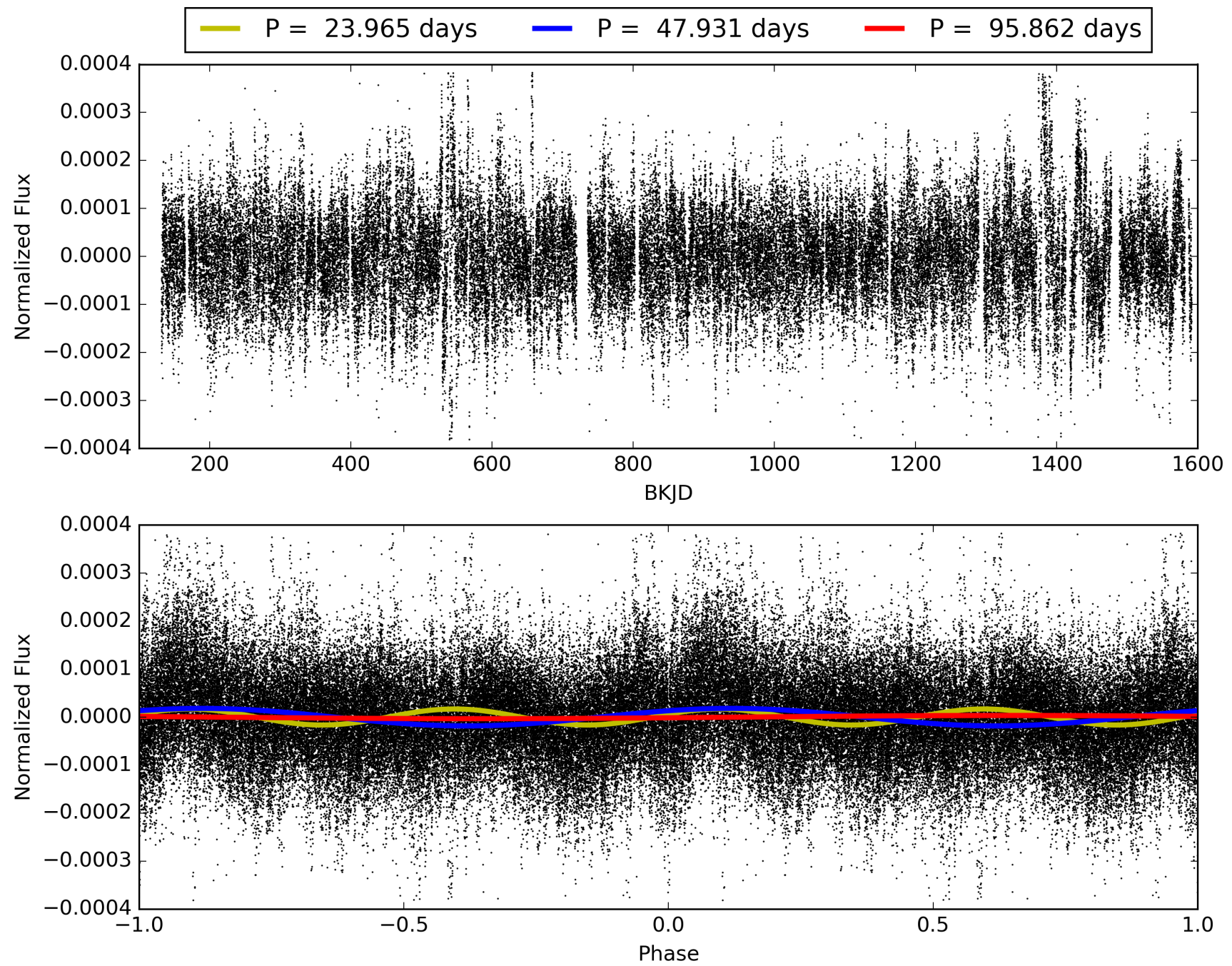
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 91.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [27/27]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 0.512 arcsec [11.21σ]
OotOffset-rm: 1.734 arcsec [2.69σ]
KicOffset-rm: 1.790 arcsec [2.42σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.50 [8/16]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 012167361-01, PDC Light Curves

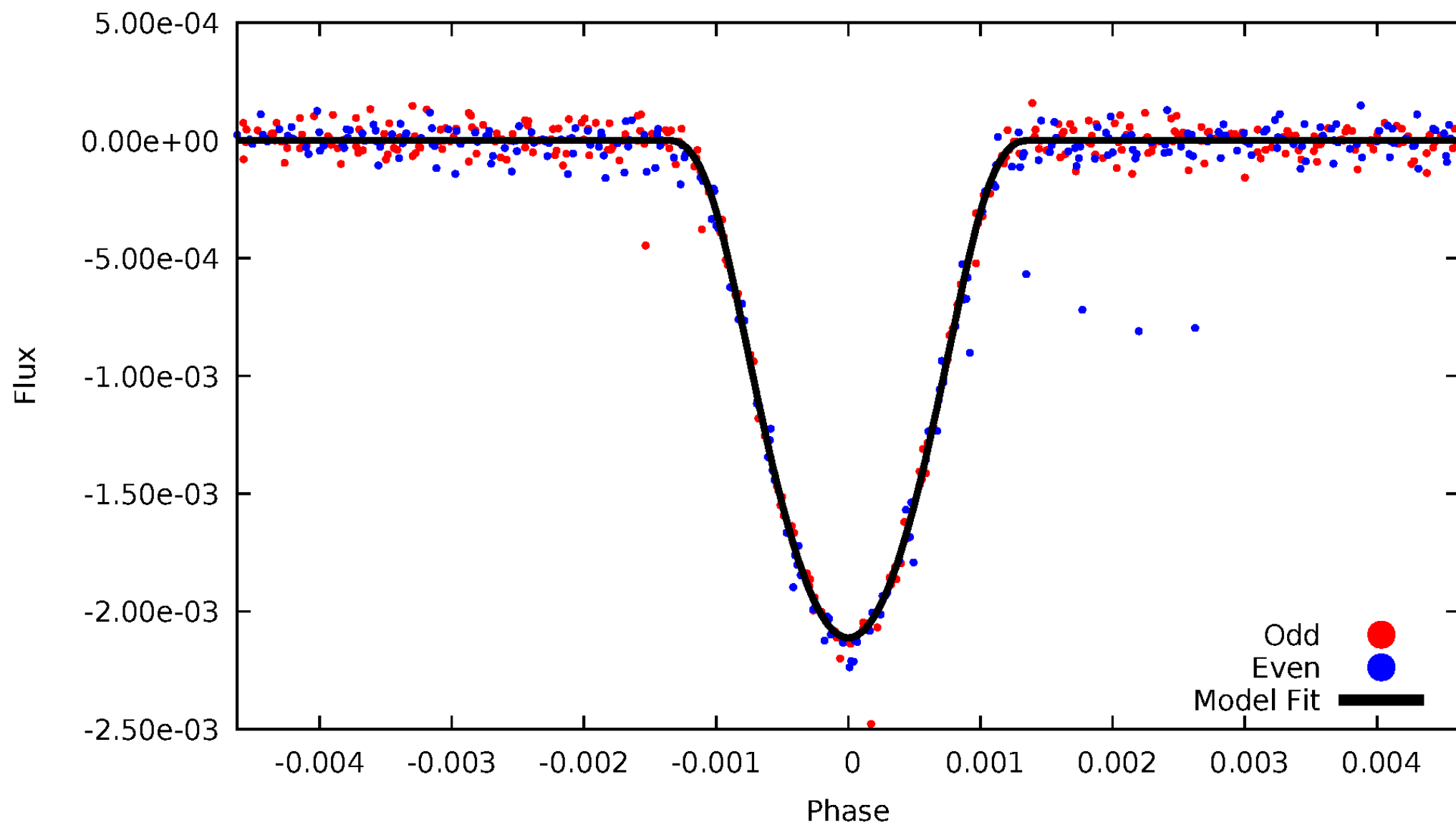


TCE 012167361-01



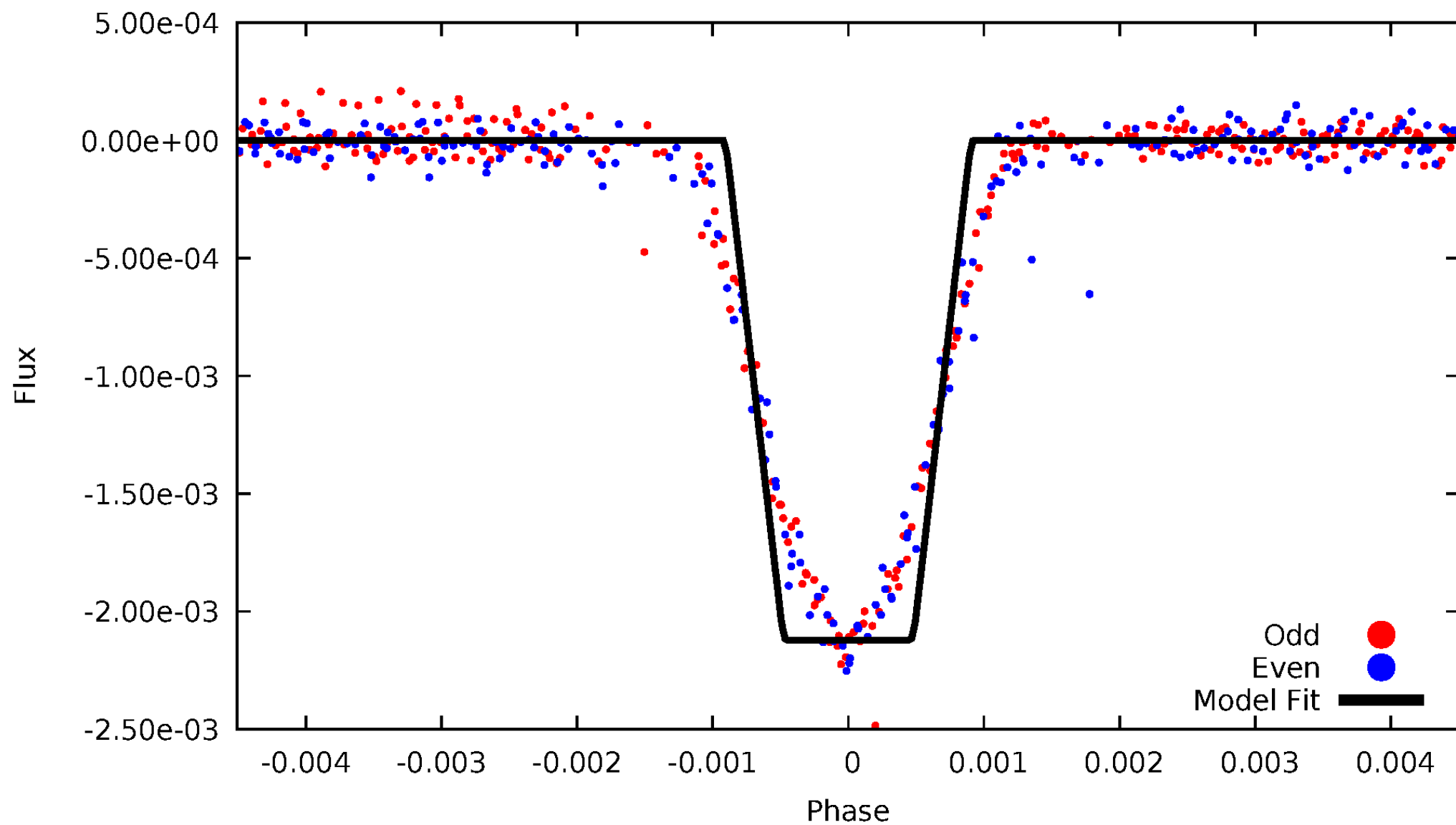
DV Odd/Even

TCE 012167361-01



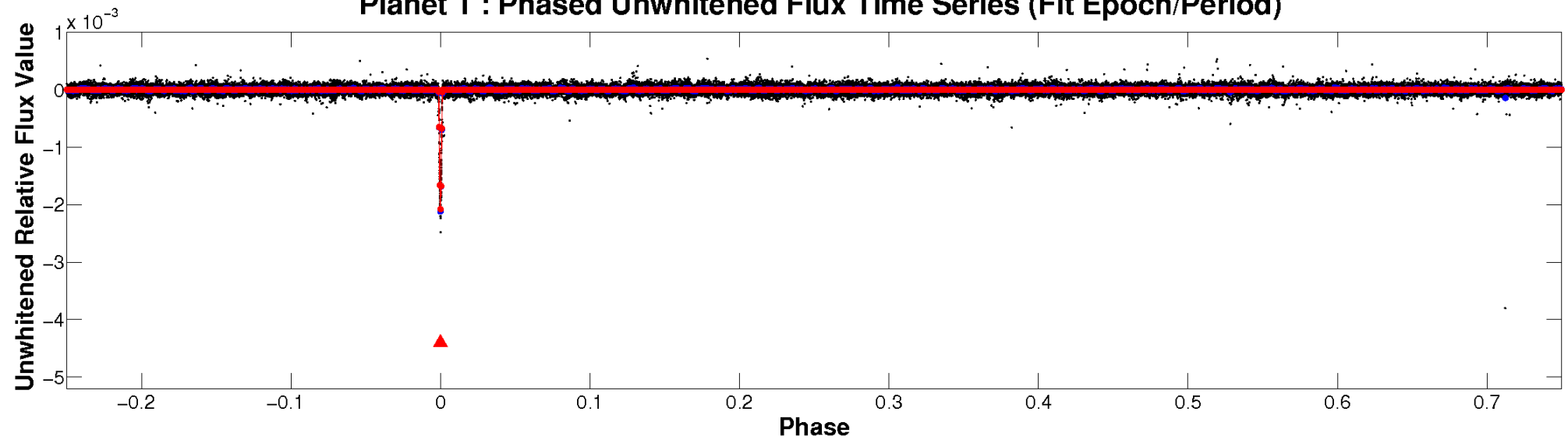
ALT Odd/Even

TCE 012167361-01

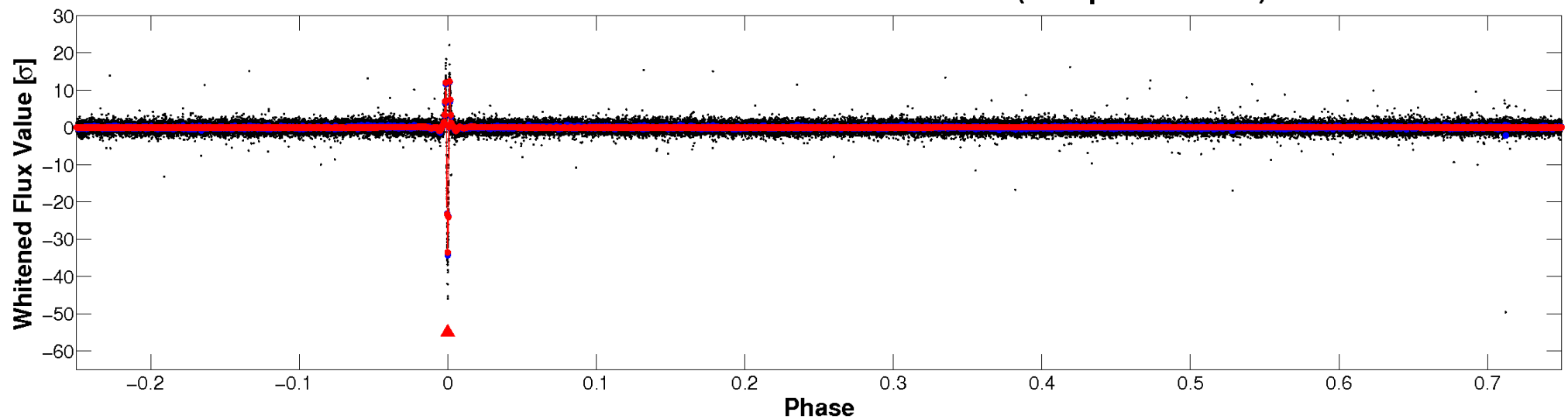


Non-Whitened Vs. Whitened Light Curve

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

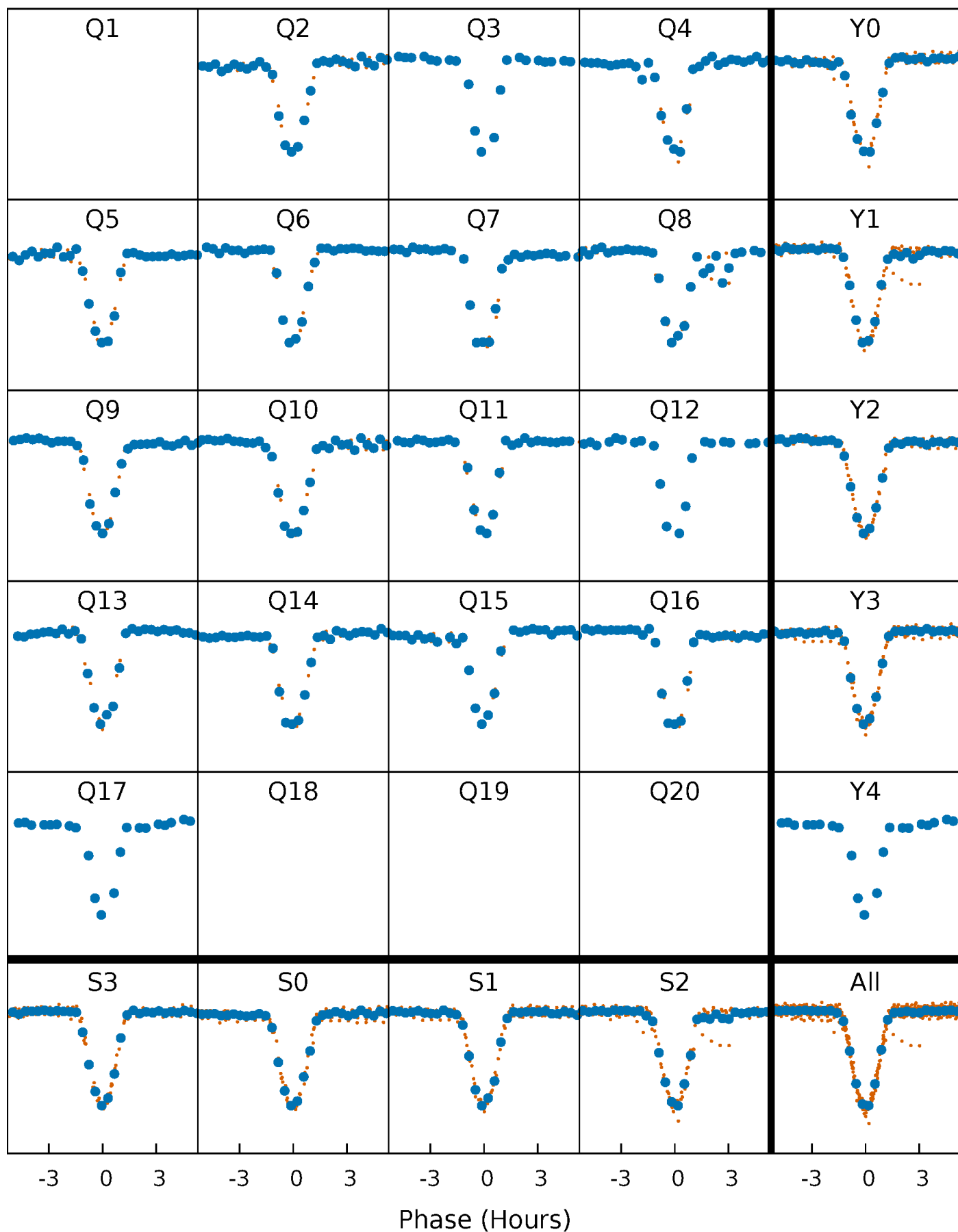


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



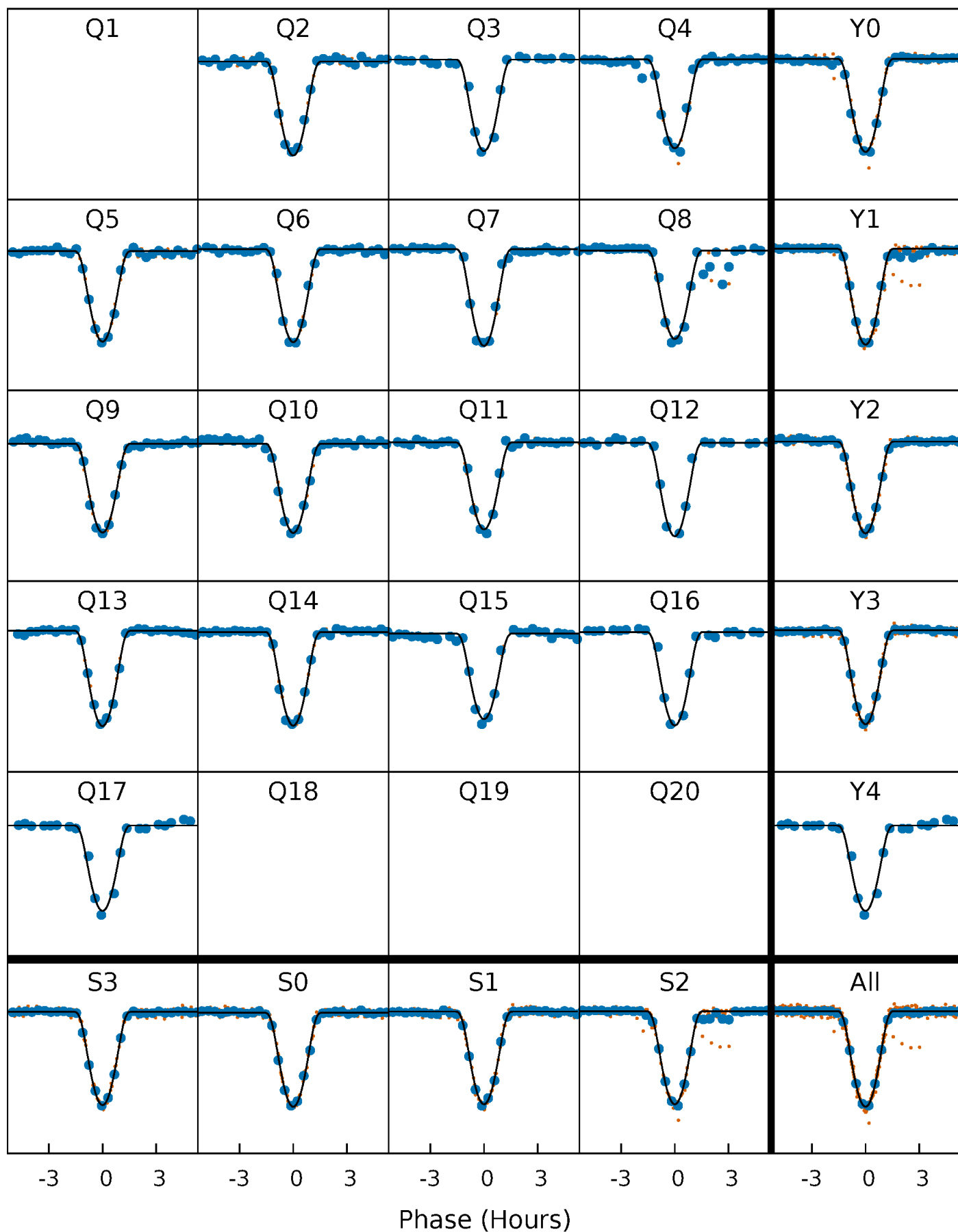
PDC Quarter-Phased Transit Curves

TCE 012167361-01 P= 47.930938 Days $T_0=179.096478$ (BKJD)



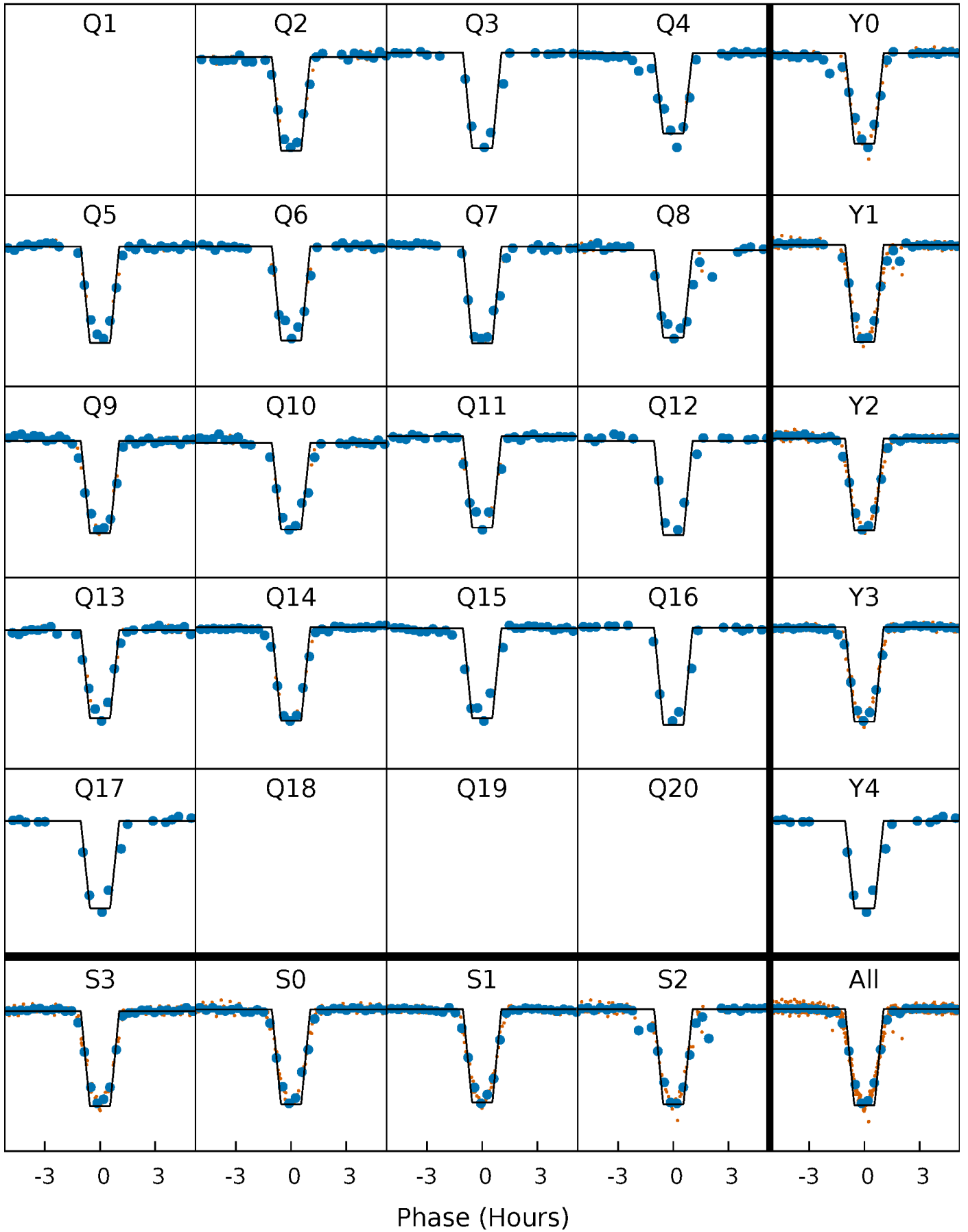
DV Quarter-Phased Transit Curves

TCE 012167361-01 P= 47.930938 Days $T_0=179.096478$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

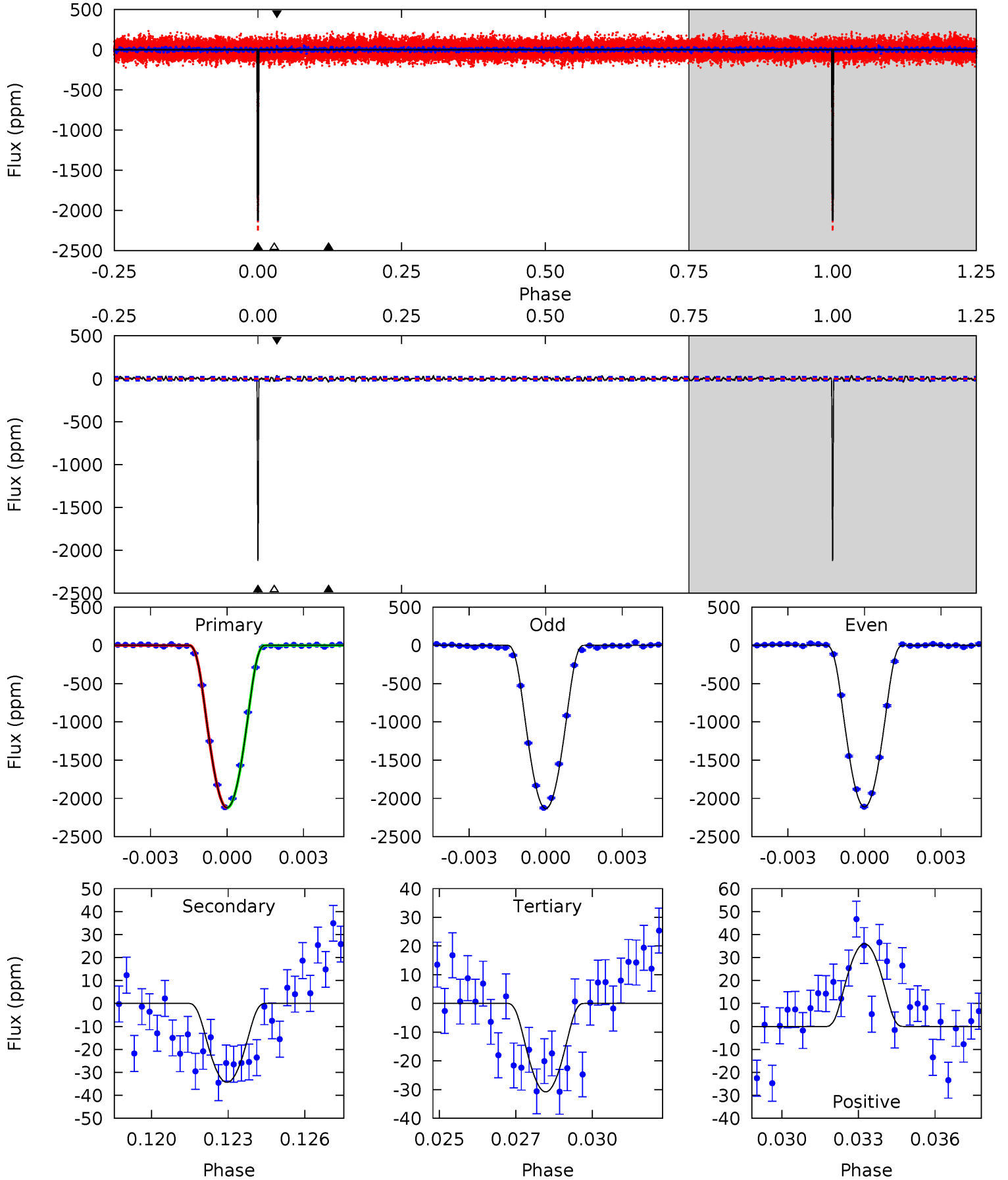
TCE 012167361-01 P= 47.931057 Days $T_0=179.094636$ (BKJD)



DV Model-Shift Uniqueness Test

012167361-01, P = 47.930938 Days, E = 131.165540 Days

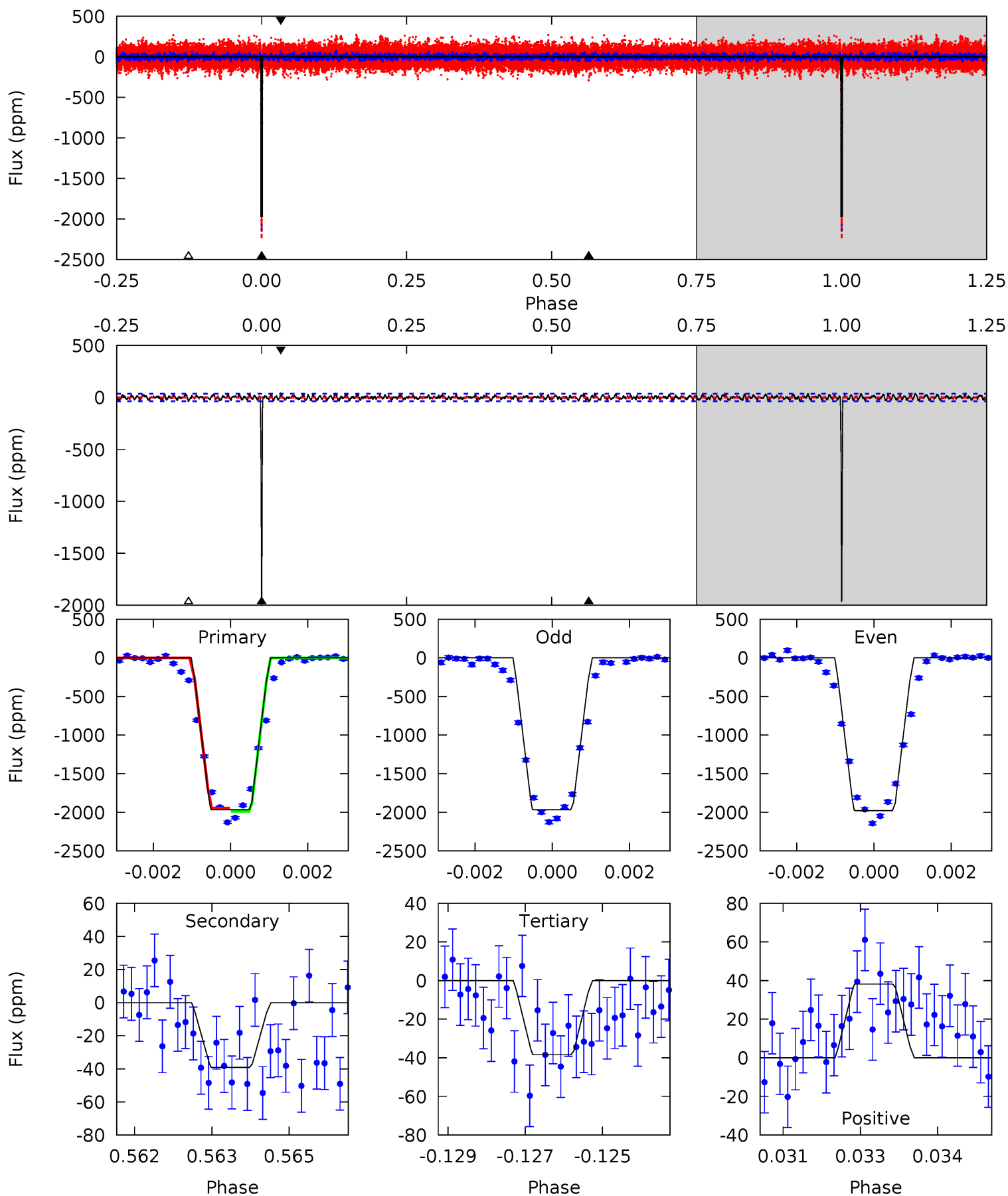
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
501.7	8.12	7.28	8.50	5.27	3.00	2.56	494.5	493.2	0.84	-0.38	2.63	1.01	0.02	0.49



Alt Model-Shift Uniqueness Test

012167361-01, P = 47.931057 Days, E = 131.163579 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
290.8	5.79	5.68	5.65	5.34	3.12	1.82	285.1	285.1	0.12	0.14	0.70	1.00	0.02	0



Stellar Parameters For KIC 012167361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8214^{+226}_{-340}	$4.104^{+0.145}_{-0.145}$	$-0.180^{+0.250}_{-0.300}$	$1.938^{+0.454}_{-0.413}$	$1.737^{+0.157}_{-0.269}$	$0.336^{+0.261}_{-0.148}$
	+3%/-4%	+4%/-4%	+139%/-167%	+23%/-21%	+9%/-15%	+78%/-44%
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 012167361-01 / KOI 0980.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-34 ± 4	$16.24^{+2.92}_{-2.60}$	1259^{+84}_{-75}	2876^{+117}_{-111}	$6.789^{+2.903}_{-2.007}$
Alt.	-39 ± 7	$9.59^{+2.17}_{-2.02}$	1262^{+79}_{-86}	3435^{+249}_{-208}	22^{+14}_{-8}

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

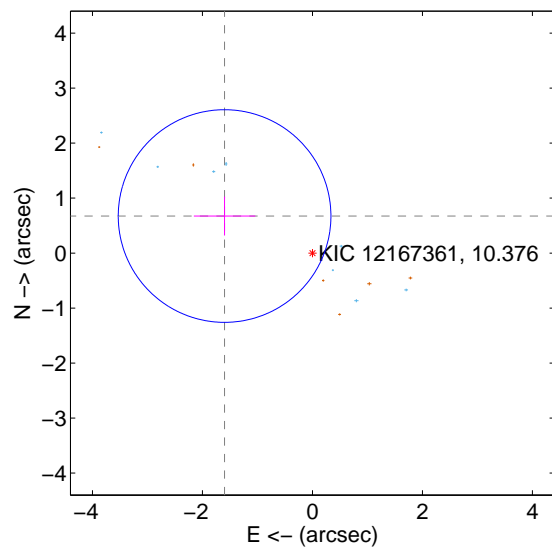
Supplemental centroid analysis for 012167361-01. **Kepler magnitude: 10.38.** Transit SNR 268.09

There are 8 quarters with good PRF difference image offsets

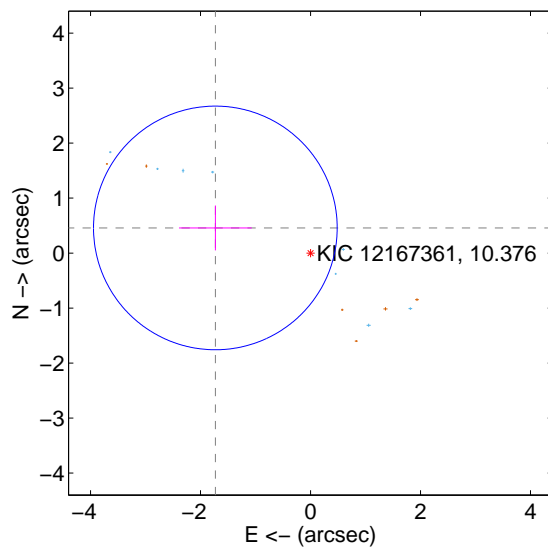
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.734 ± 0.644	2.69	1.598 ± 0.559	0.674 ± 0.354
PRF-fit source offset from KIC position	1.790 ± 0.738	2.42	1.731 ± 0.661	0.458 ± 0.408
photometric centroid source offset	0.51 ± 0.05	11.21	0.51 ± 0.05	0.03 ± 0.05

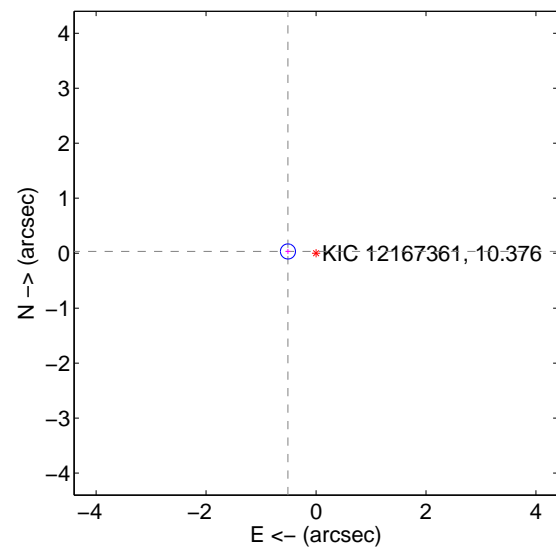
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

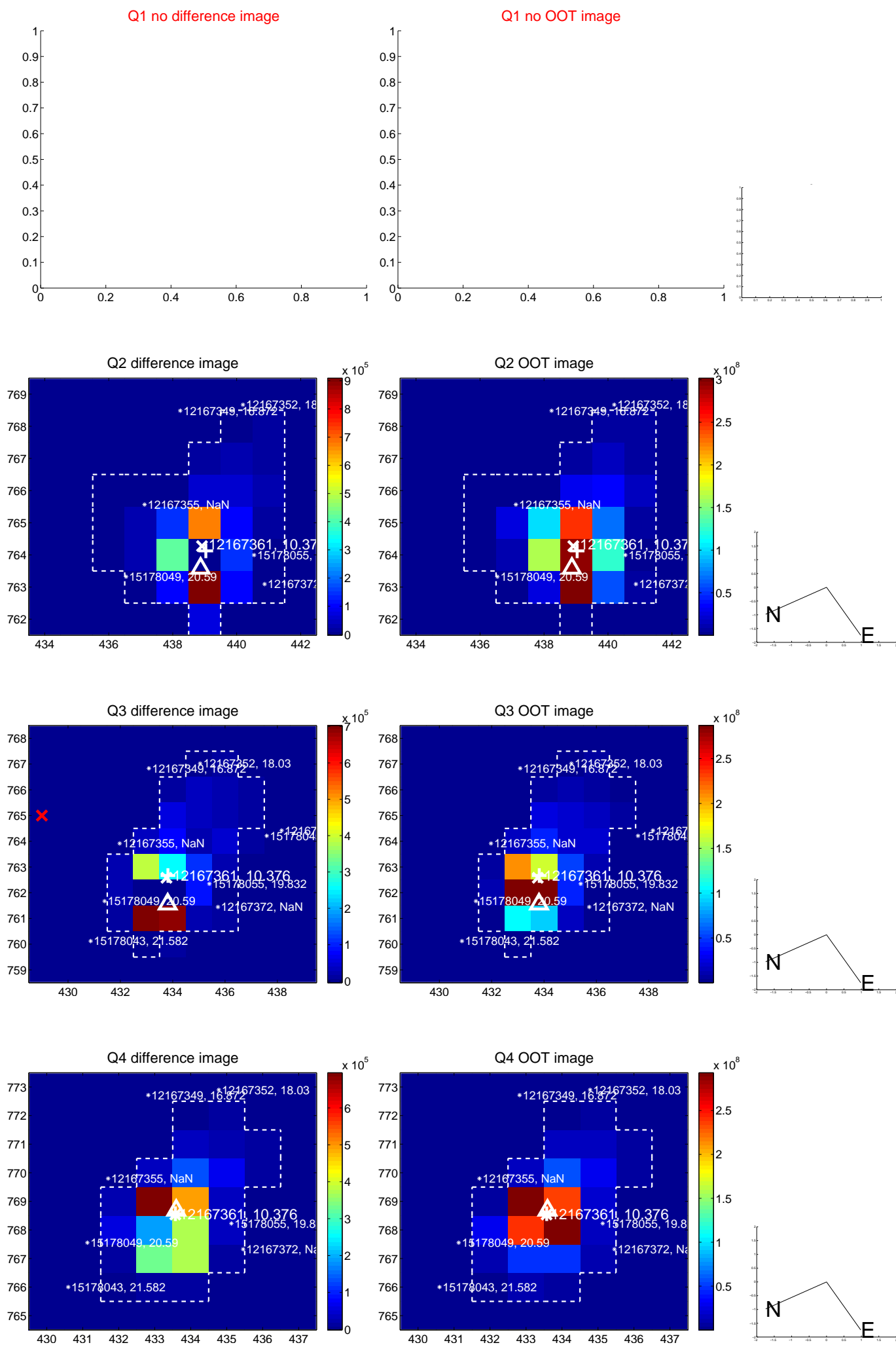


offset from photometric centroids

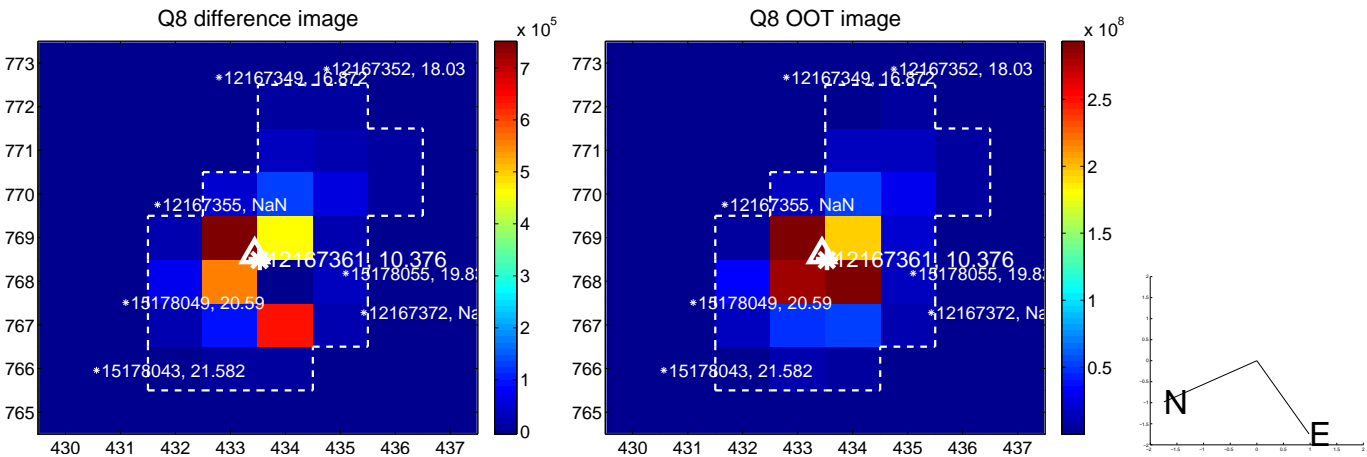
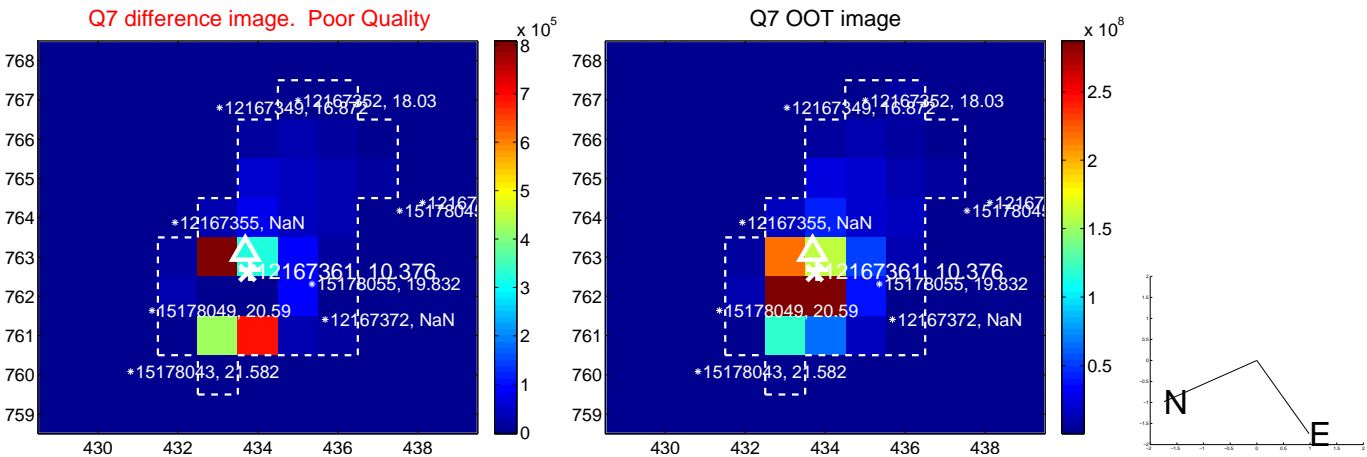
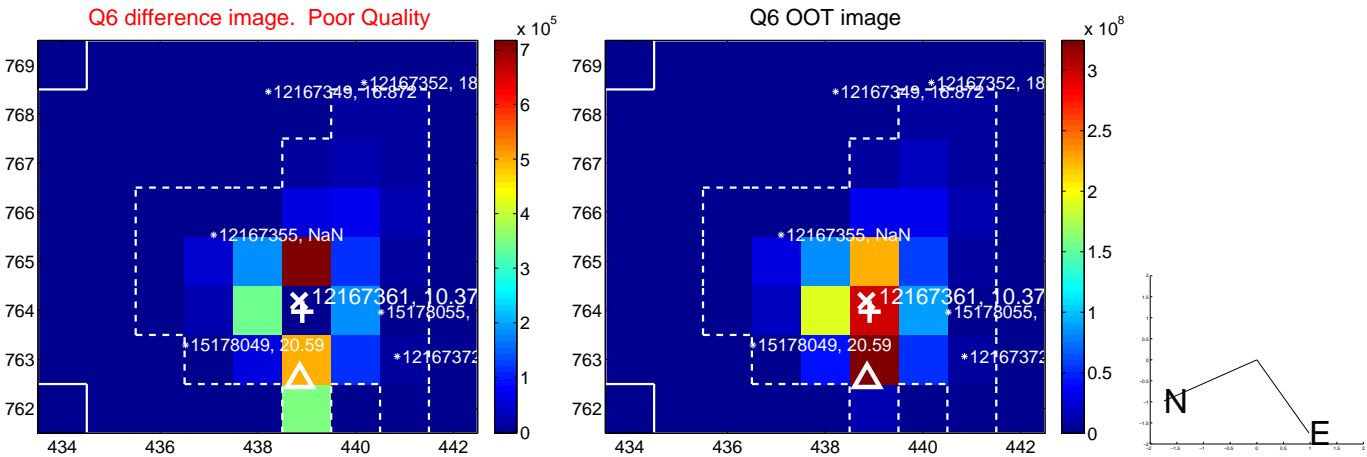
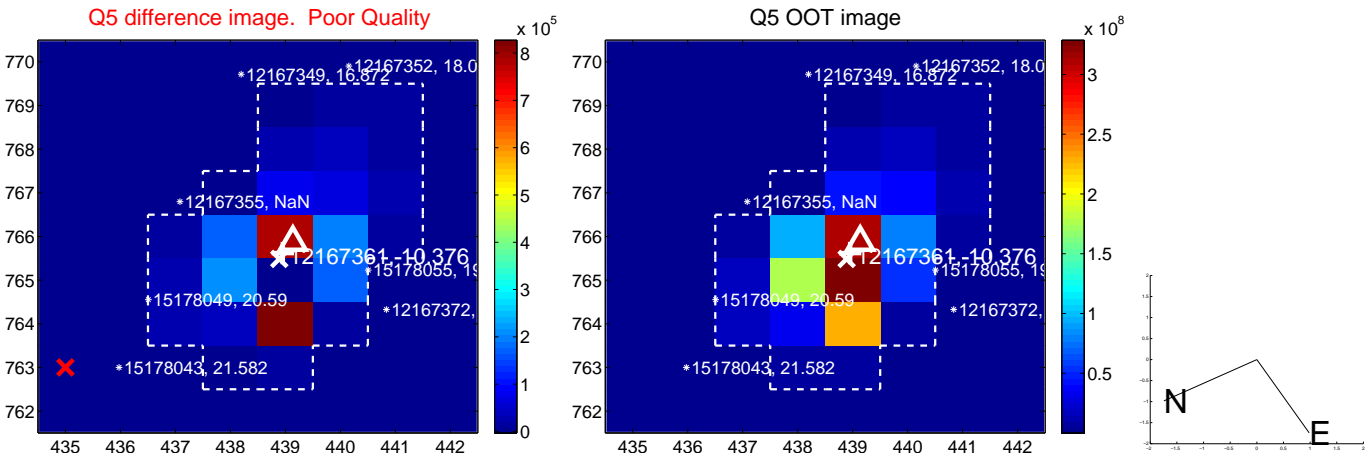


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

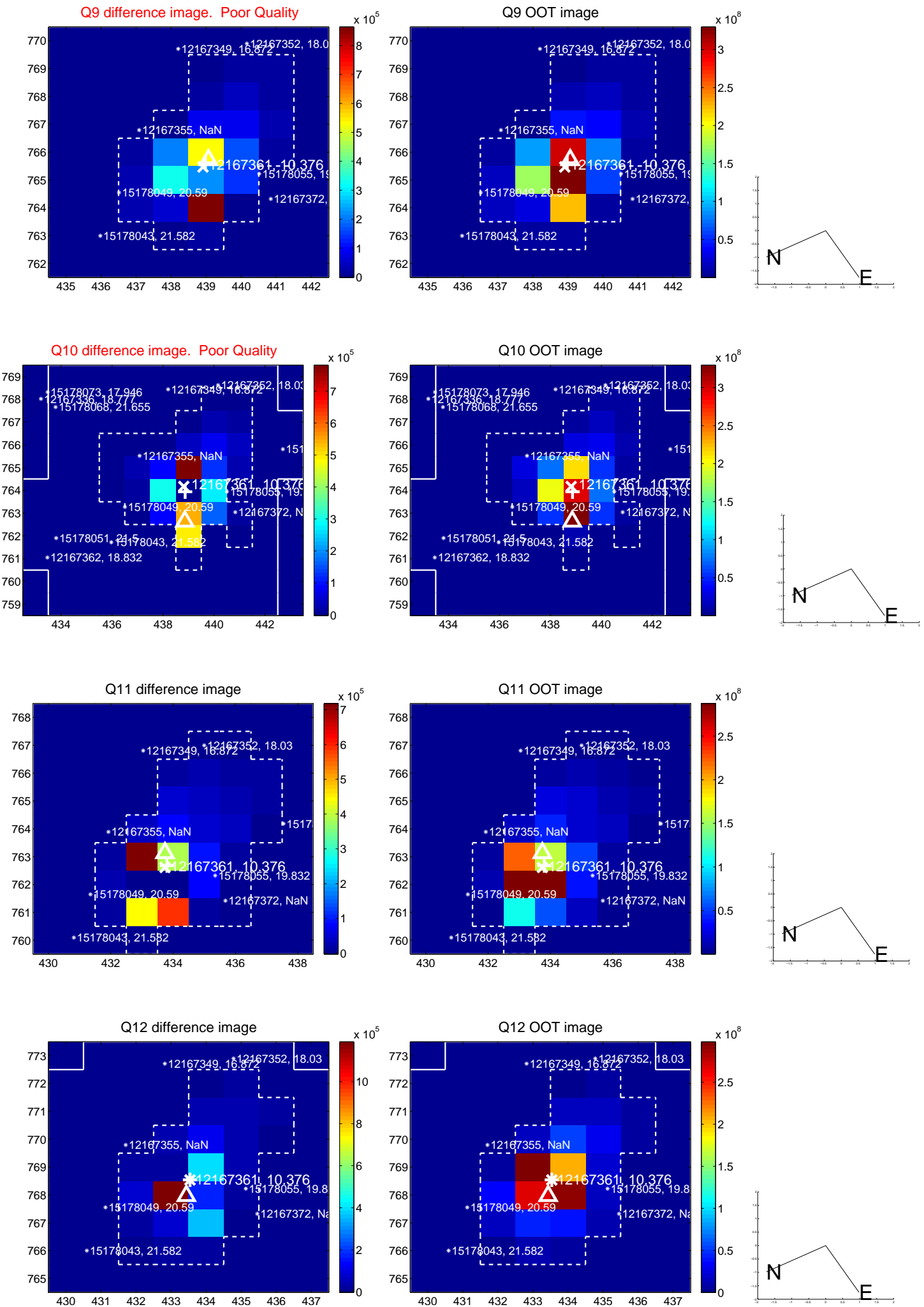
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



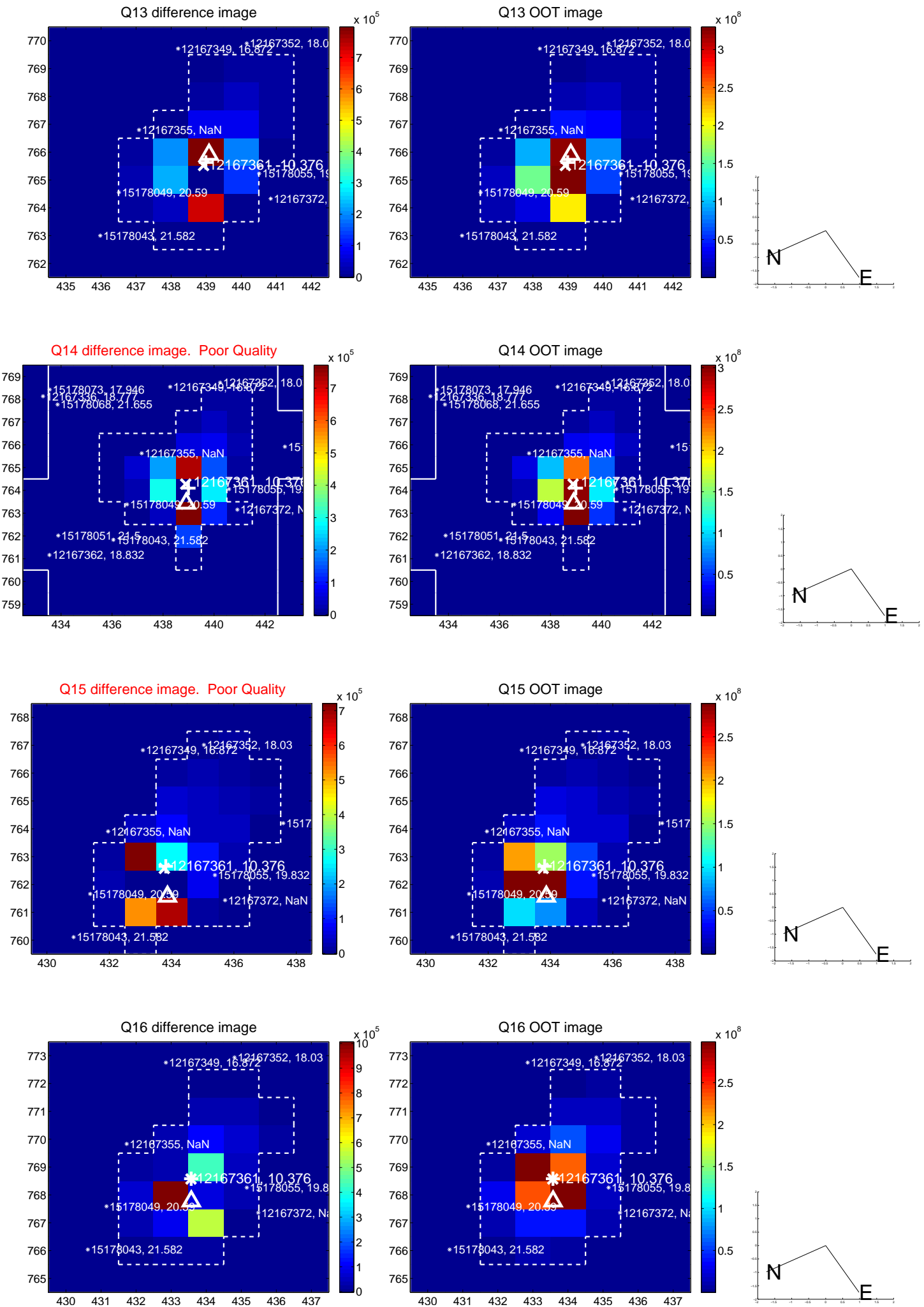
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



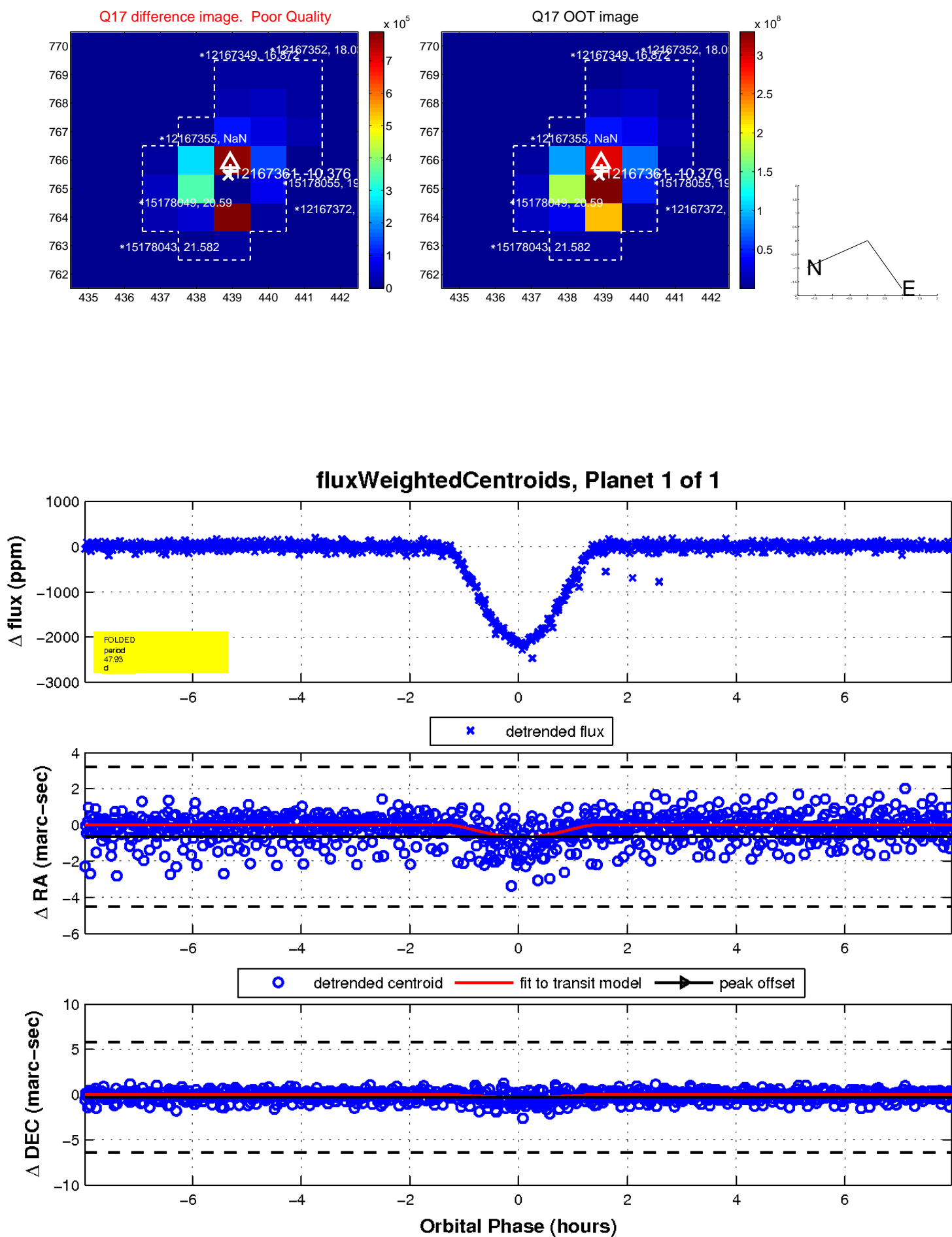
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

