

KIC 005431027

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})
005431027-01	OBS	4558.01	8.823355	136.895940	97.8	6.845	9.9	11.5	1.12	5602	1.29	176.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005431027-01	OBS	PC	0.97	0	0	0	0	NO_COMMENT

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

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

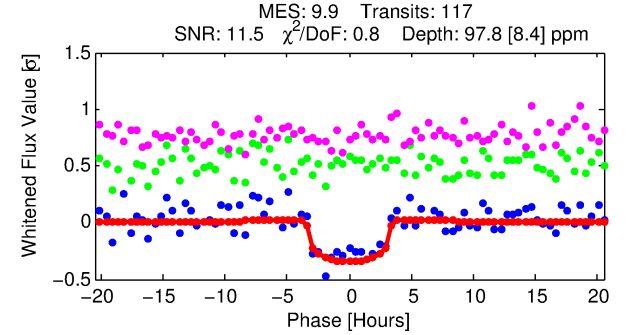
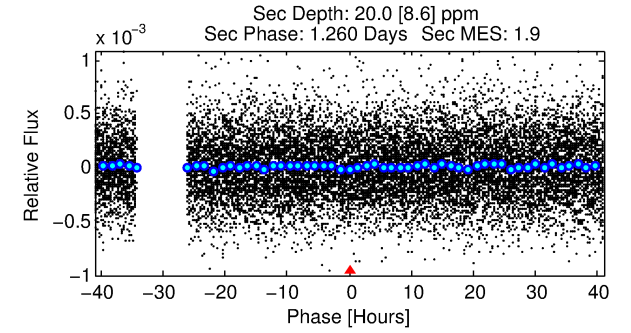
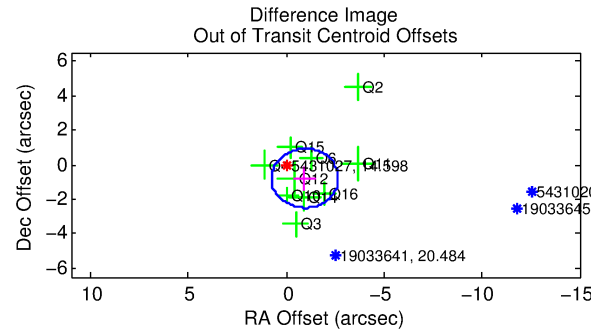
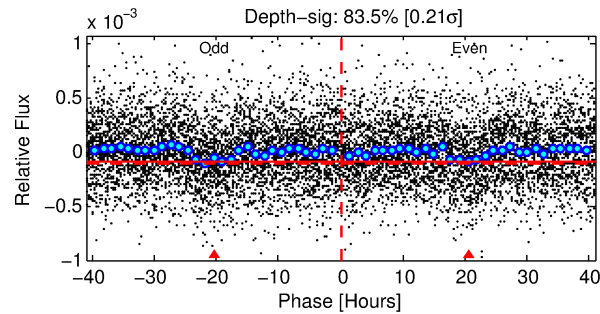
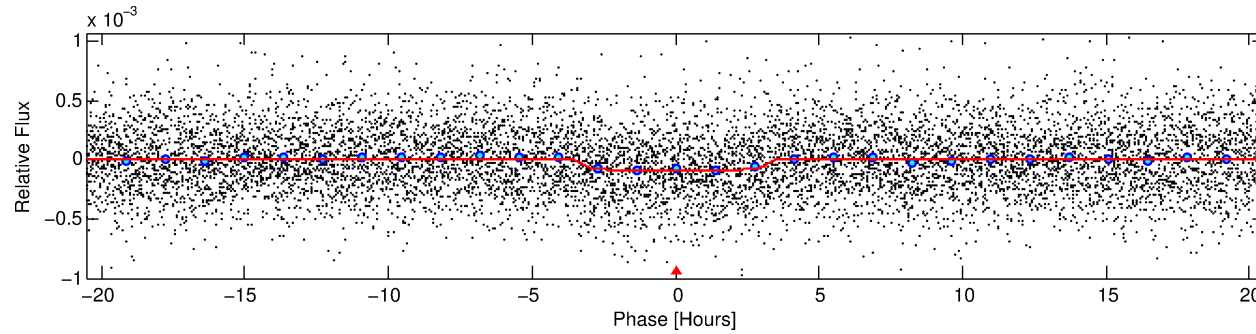
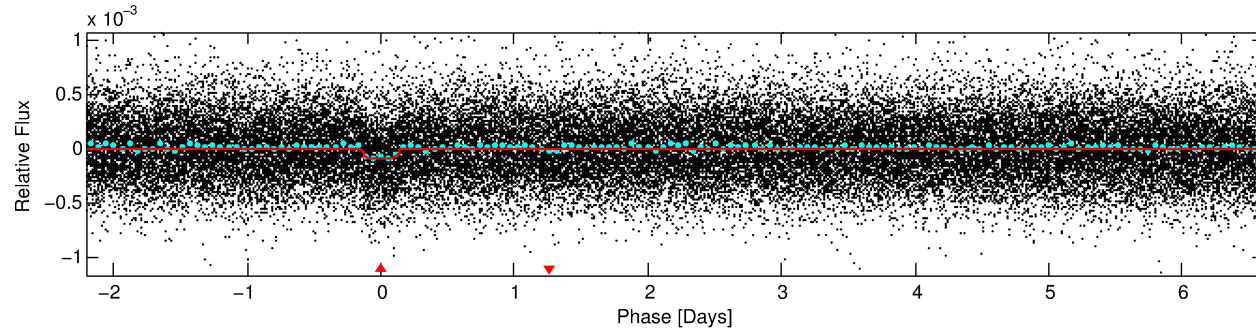
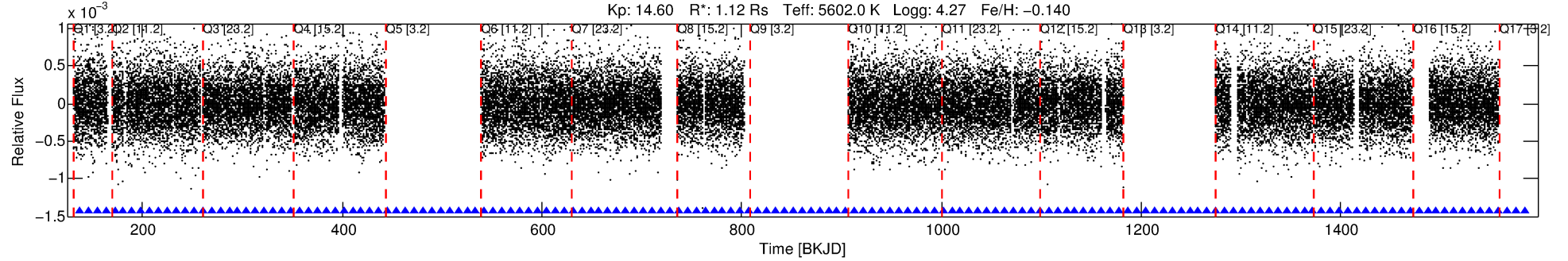
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005431027-01

No Significant Match Found

DV One-Page Summary

KIC: 5431027 Candidate: 1 of 1 Period: 8.823 d
KOI: K04558.01 Corr: 0.992



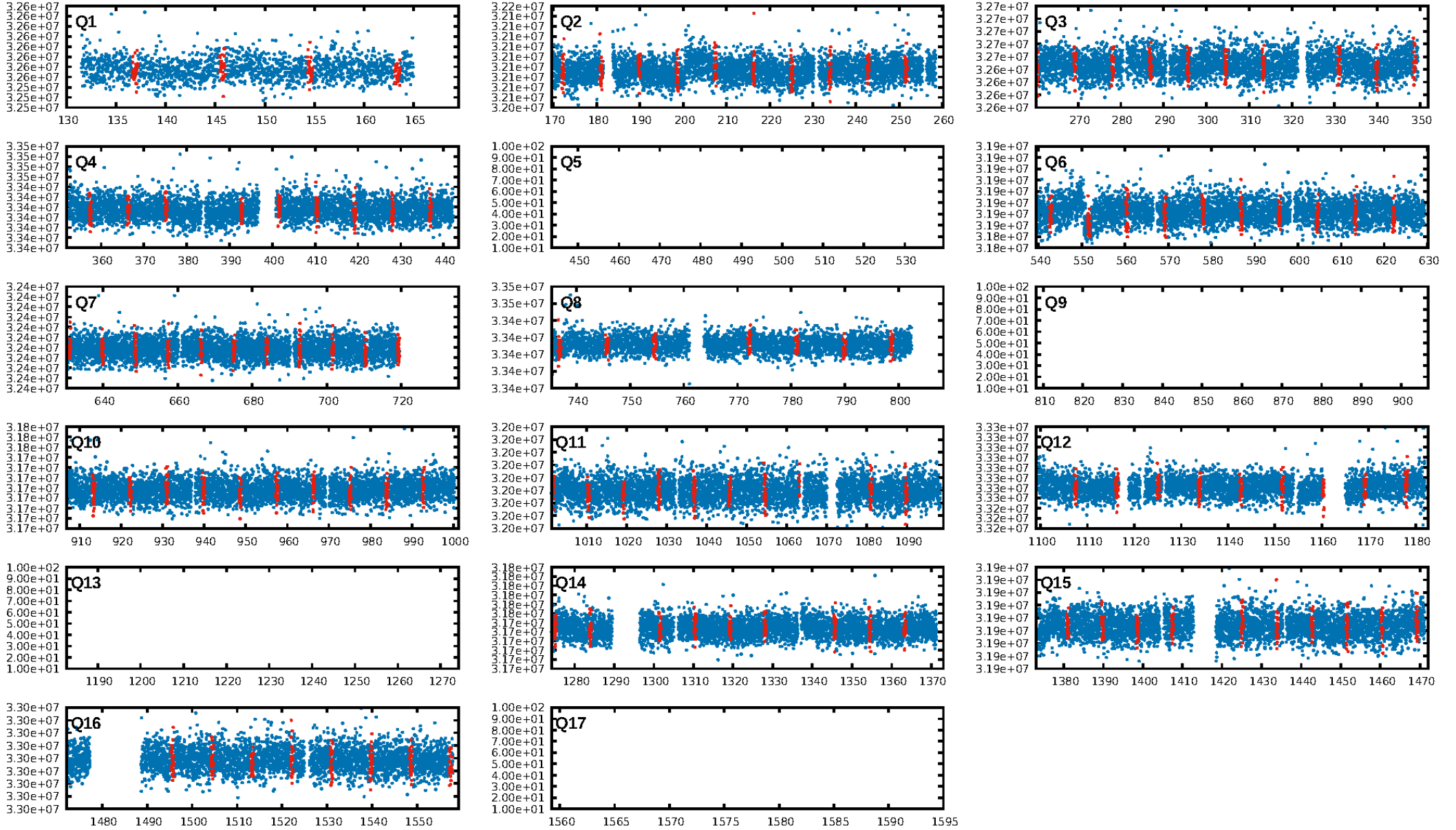
DV Fit Results:

Period = 8.82336 [0.00011] d
Epoch = 136.8959 [0.0095] BKJD
Rp/R* = 0.0105 [0.0044]
a/R* = 5.13 [9.51]
b = 0.87 [0.54]
Seff = 176.67 [79.79]
Teff = 930 [105] K
Rp = 1.29 [0.67] Re
a = 0.0792 [0.0223] AU
Ag = 41.70 [43.20] [0.94 σ]
Teffp = 3652 [863] K [3.13 σ]

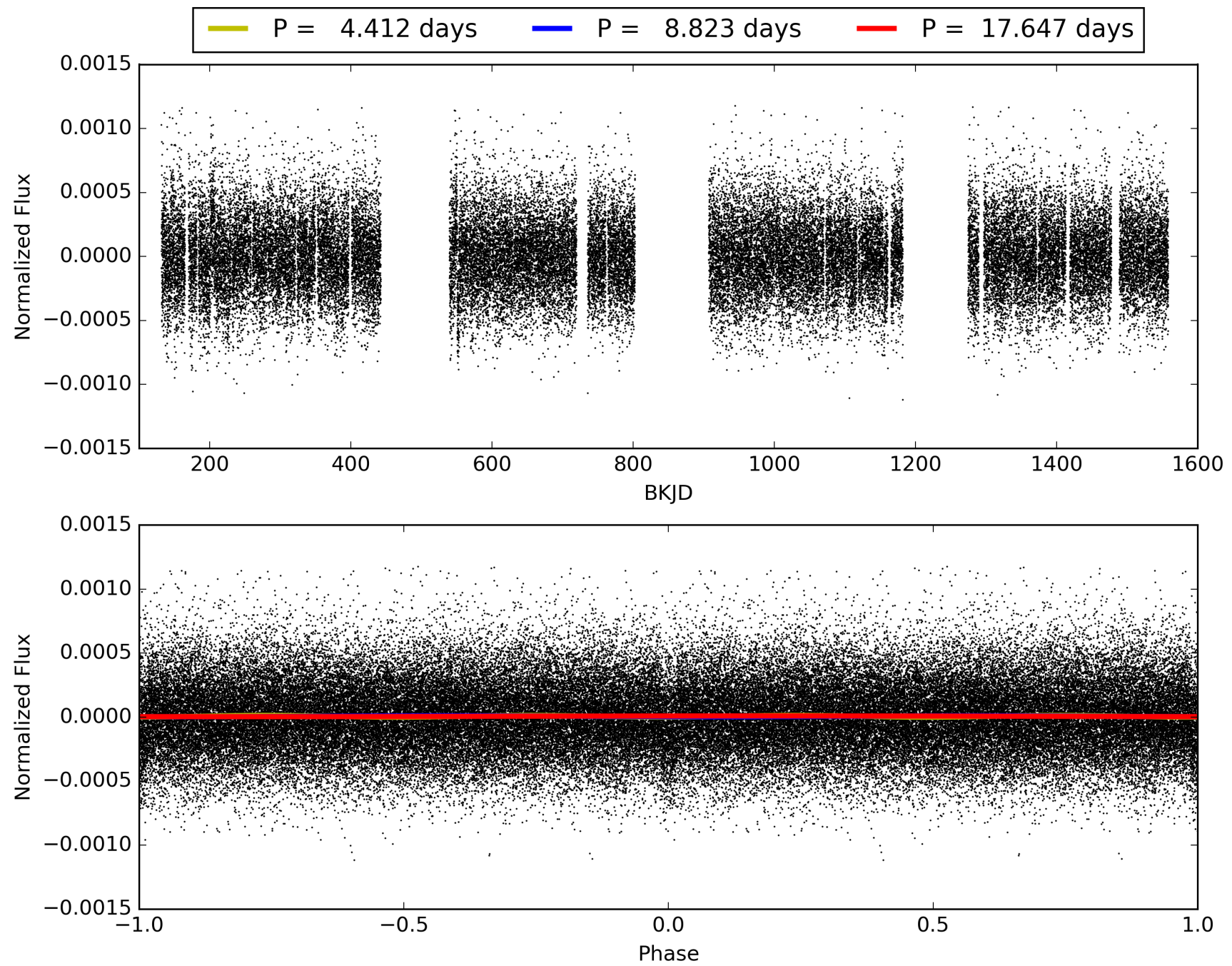
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.17e-24
RollingBand-fgt: 1.00 [113/113]
GhostDiagnostic-chr: 1.633
Centroid-sig: 0.0%
Centroid-so: 3.772 arcsec [2.72 σ]
OotOffset-rm: 1.228 arcsec [2.15 σ]
KicOffset-rm: 1.506 arcsec [2.64 σ]
OotOffset-st: 4/3/3/0 [10]
KicOffset-st: 4/3/3/0 [10]
DiffImageQuality-fgm: 0.60 [6/10]
DiffImageOverlap-fno: 1.00 [13/13]

TCE 005431027-01, PDC Light Curves

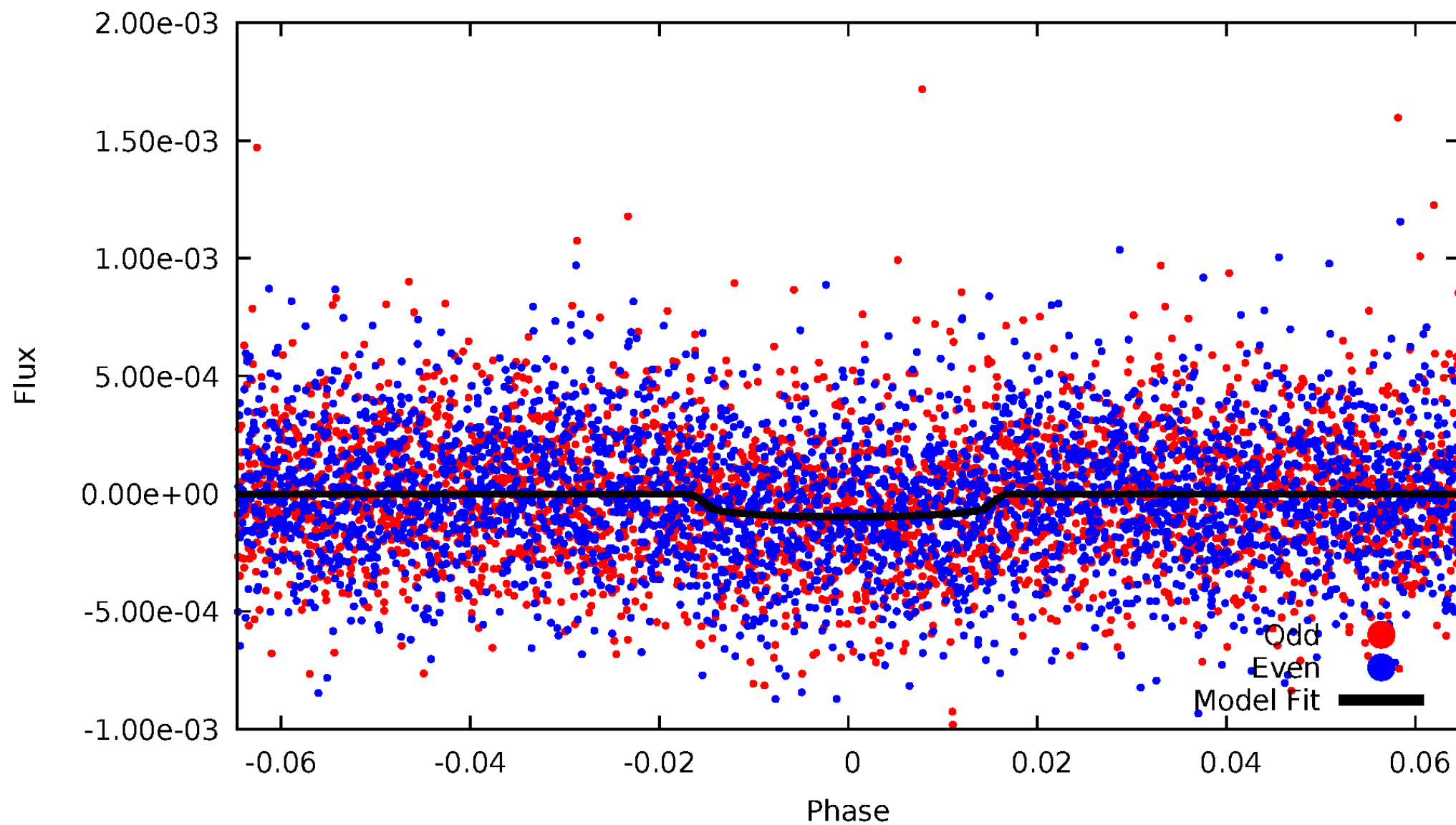


TCE 005431027-01



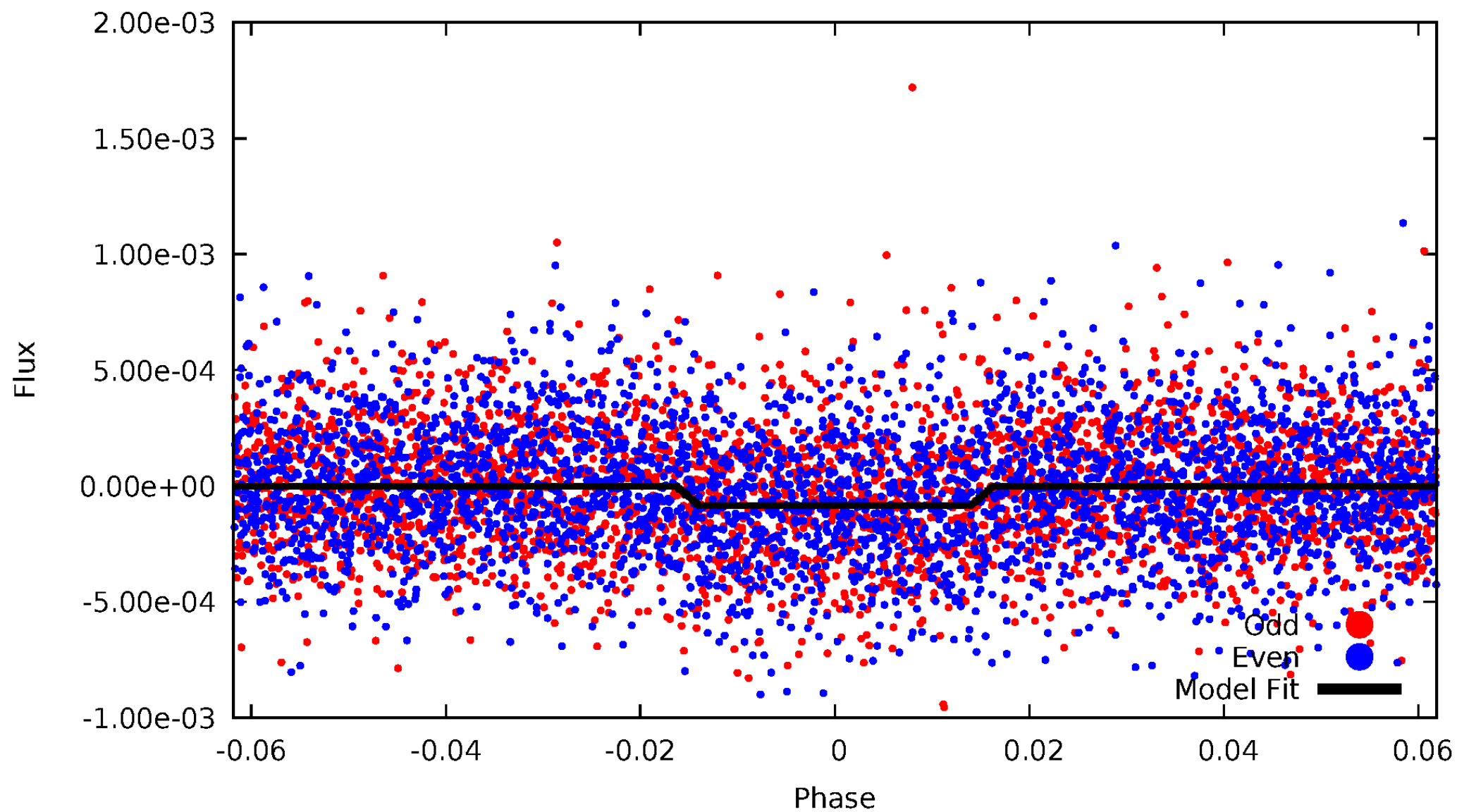
DV Odd/Even

TCE 005431027-01

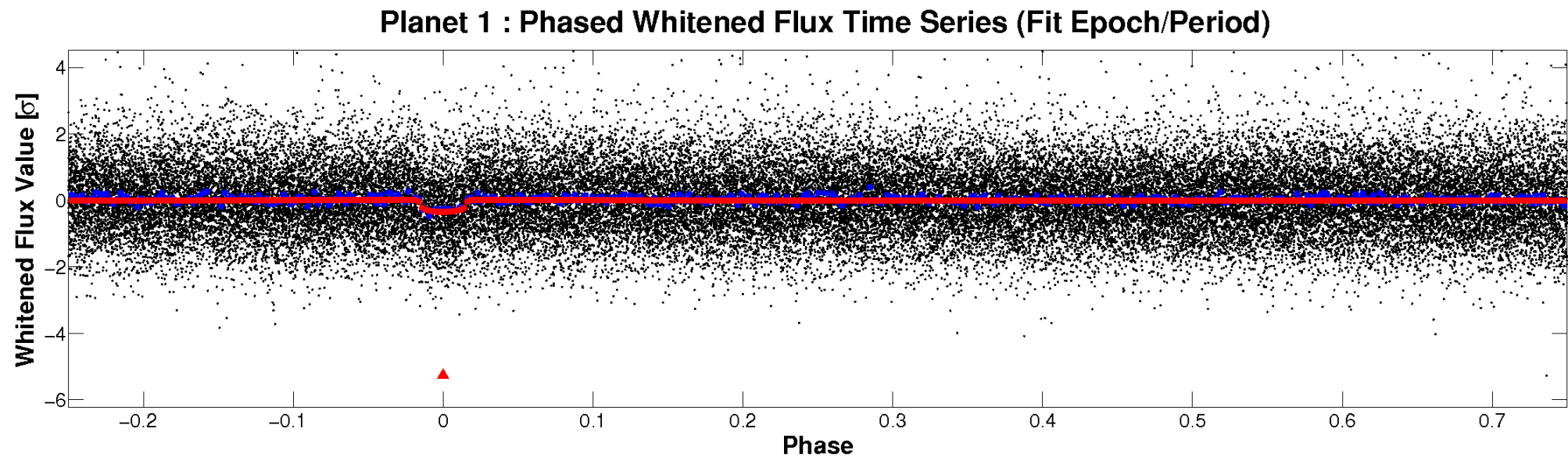
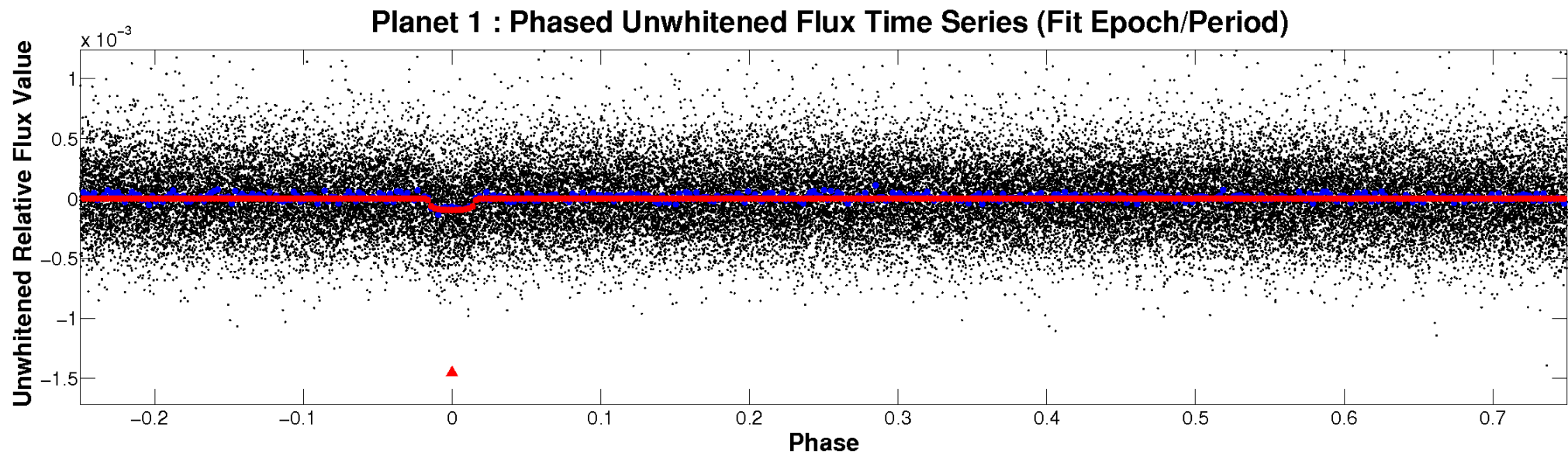


ALT Odd/Even

TCE 005431027-01

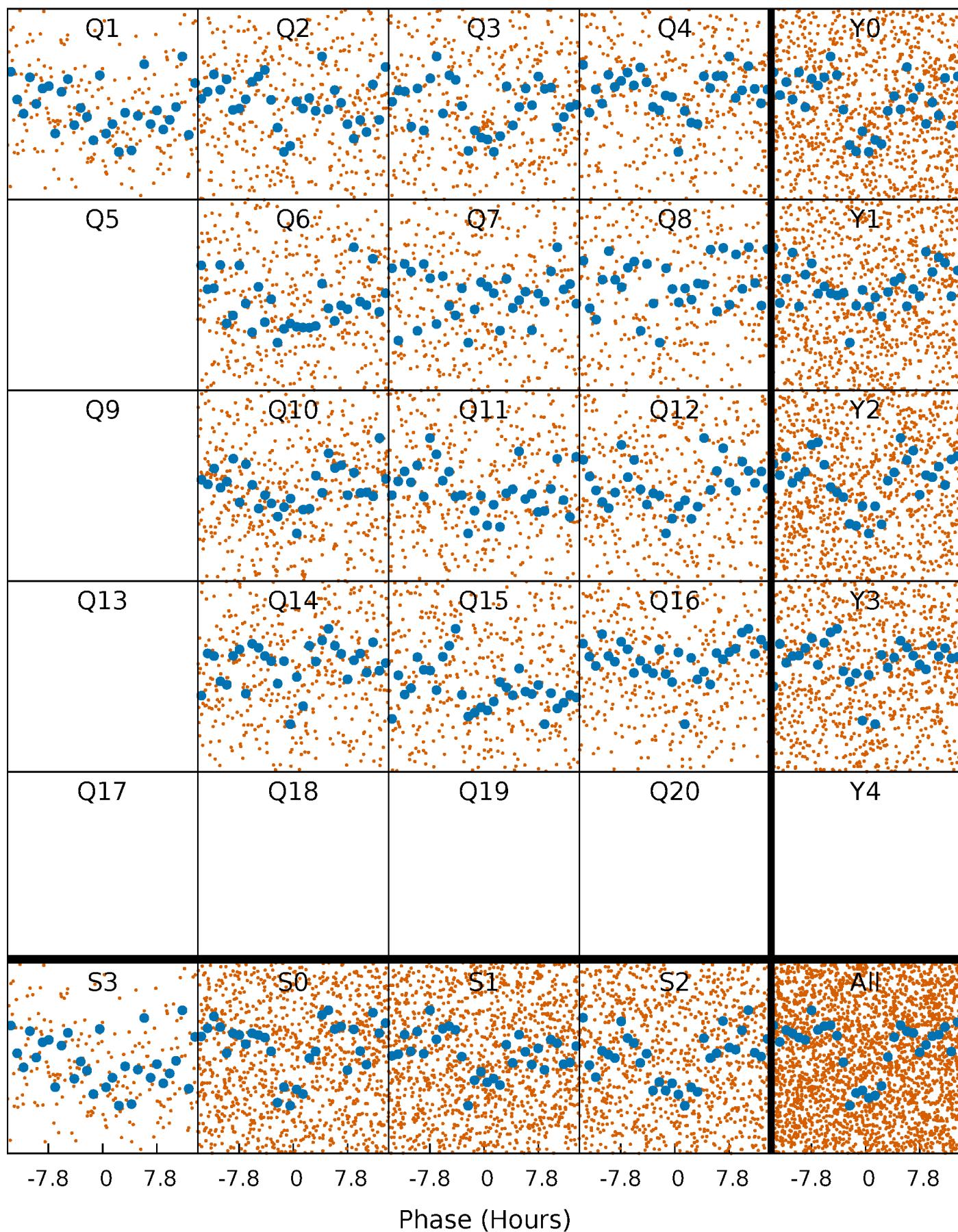


Non-Whitened Vs. Whitened Light Curve



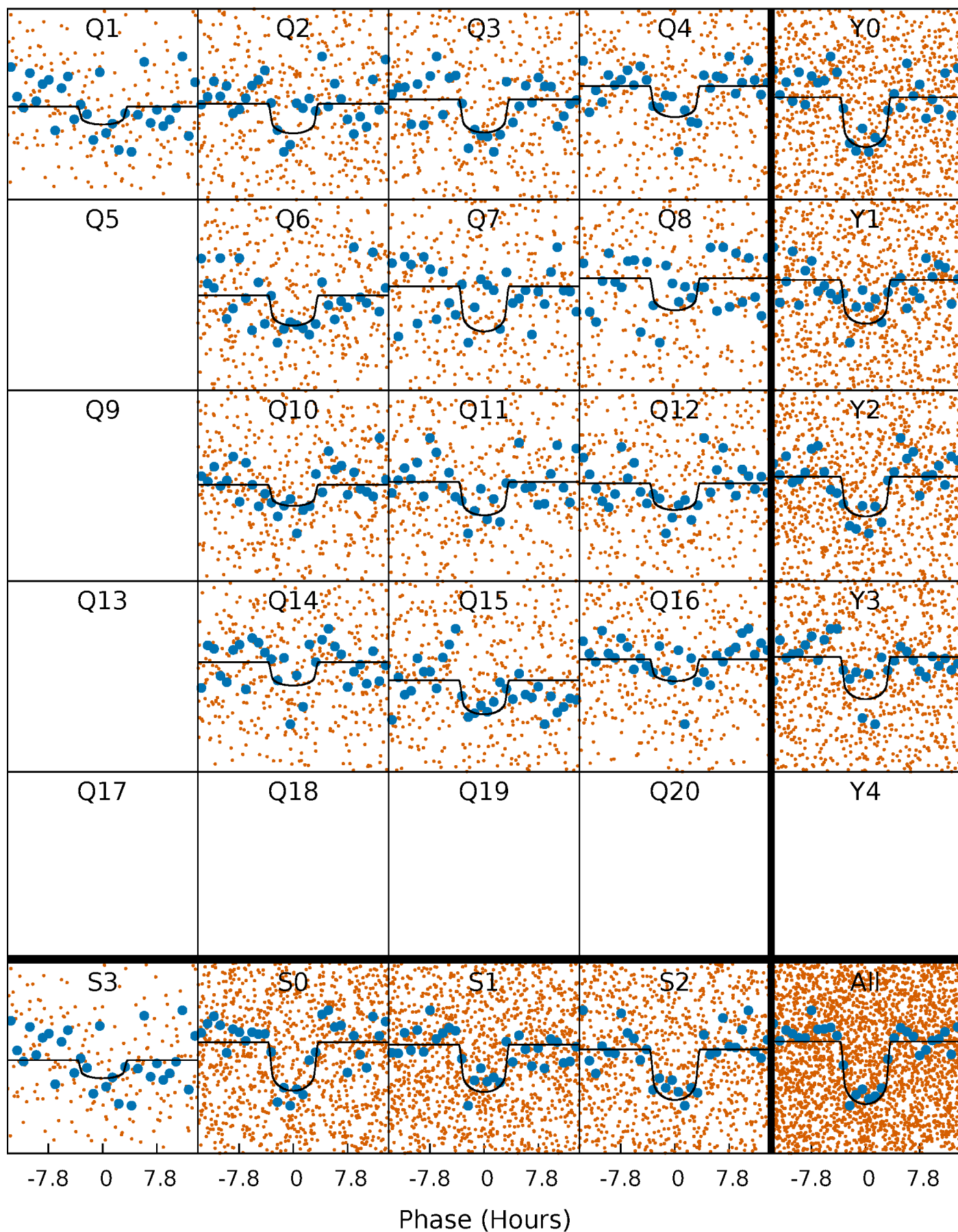
PDC Quarter-Phased Transit Curves

TCE 005431027-01 P= 8.823355 Days $T_0=136.895940$ (BKJD)



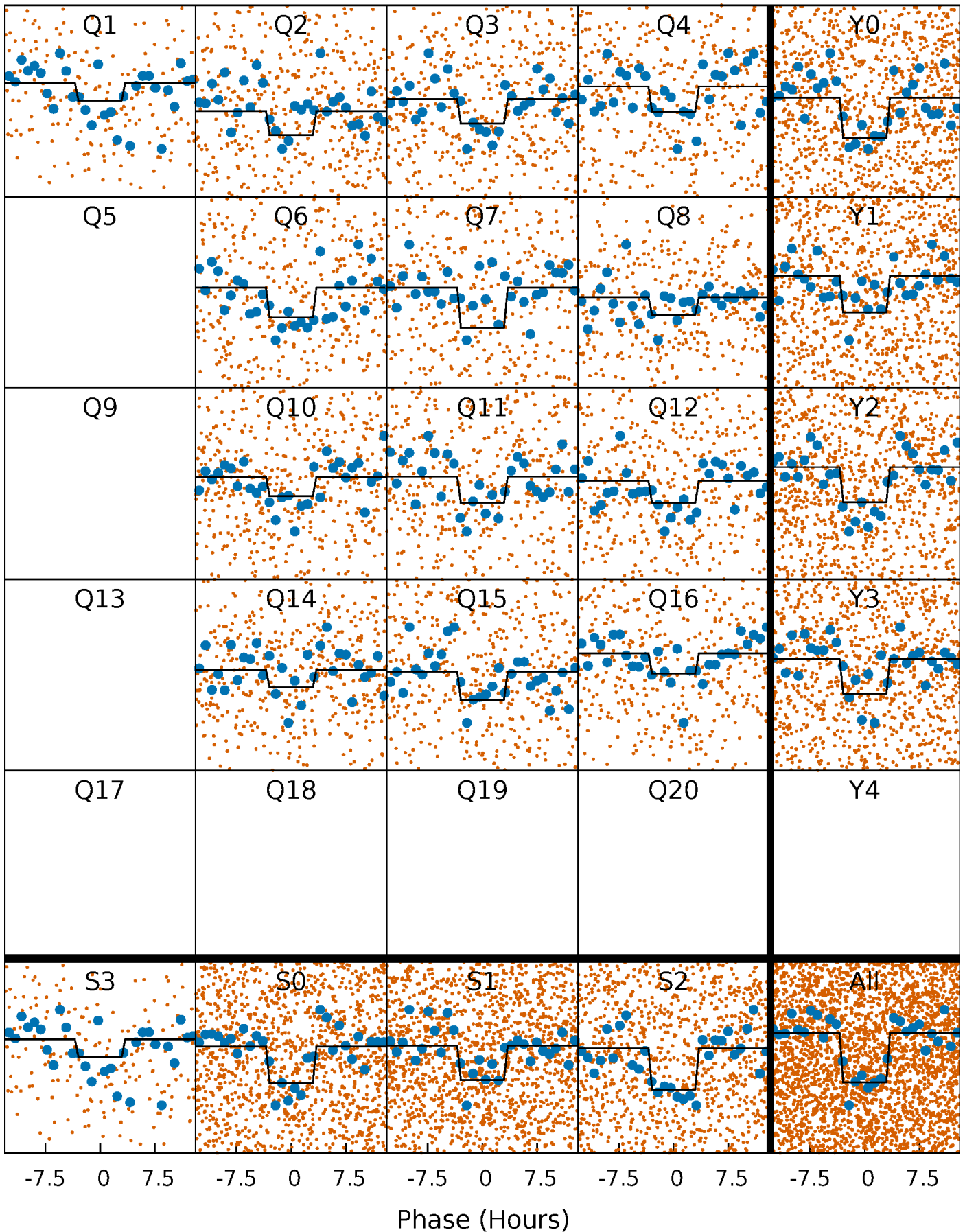
DV Quarter-Phased Transit Curves

TCE 005431027-01 P= 8.823355 Days $T_0=136.895940$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

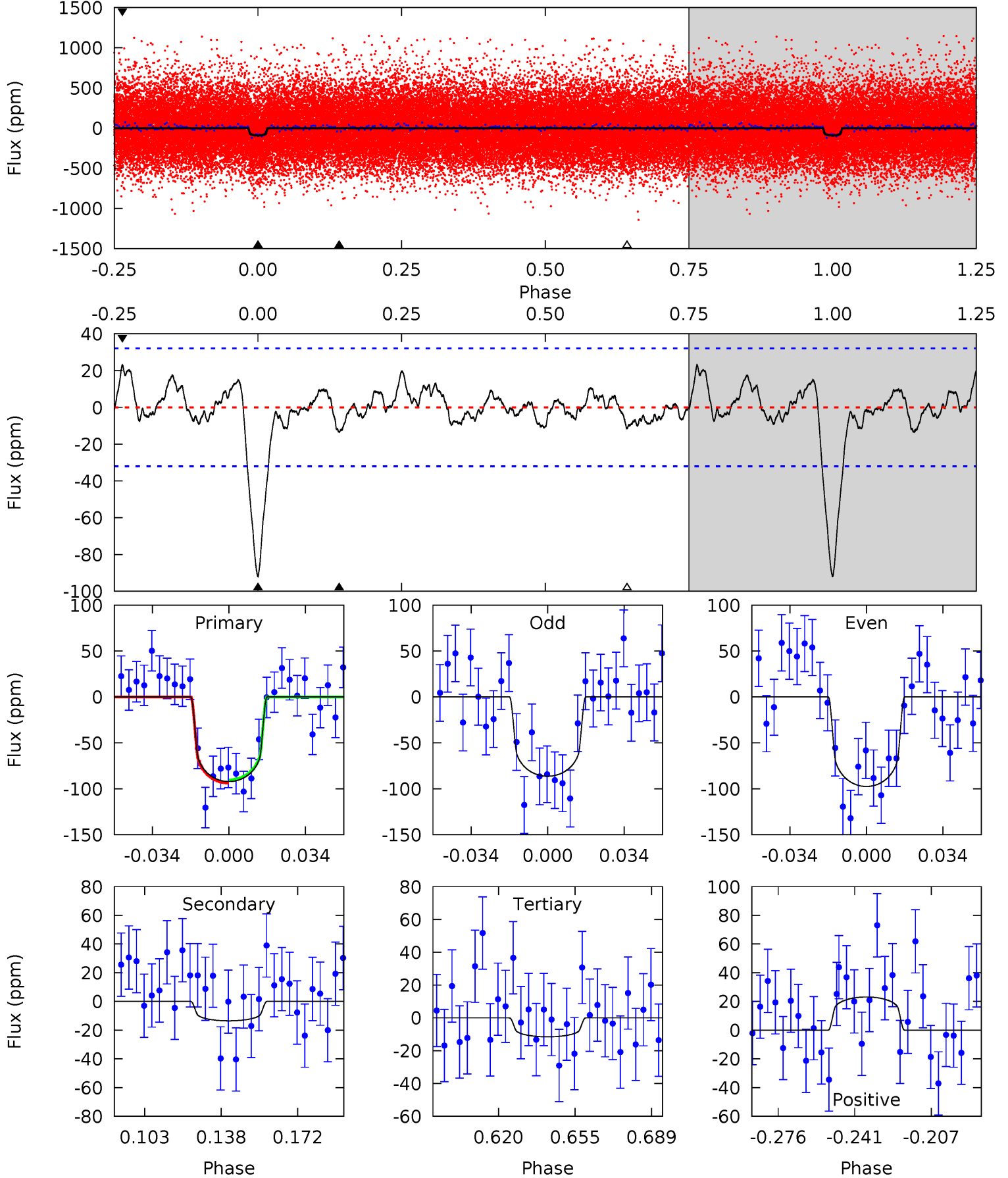
TCE 005431027-01 P= 8.823366 Days $T_0=136.894639$ (BKJD)



DV Model-Shift Uniqueness Test

005431027-01, P = 8.823355 Days, E = 128.072585 Days

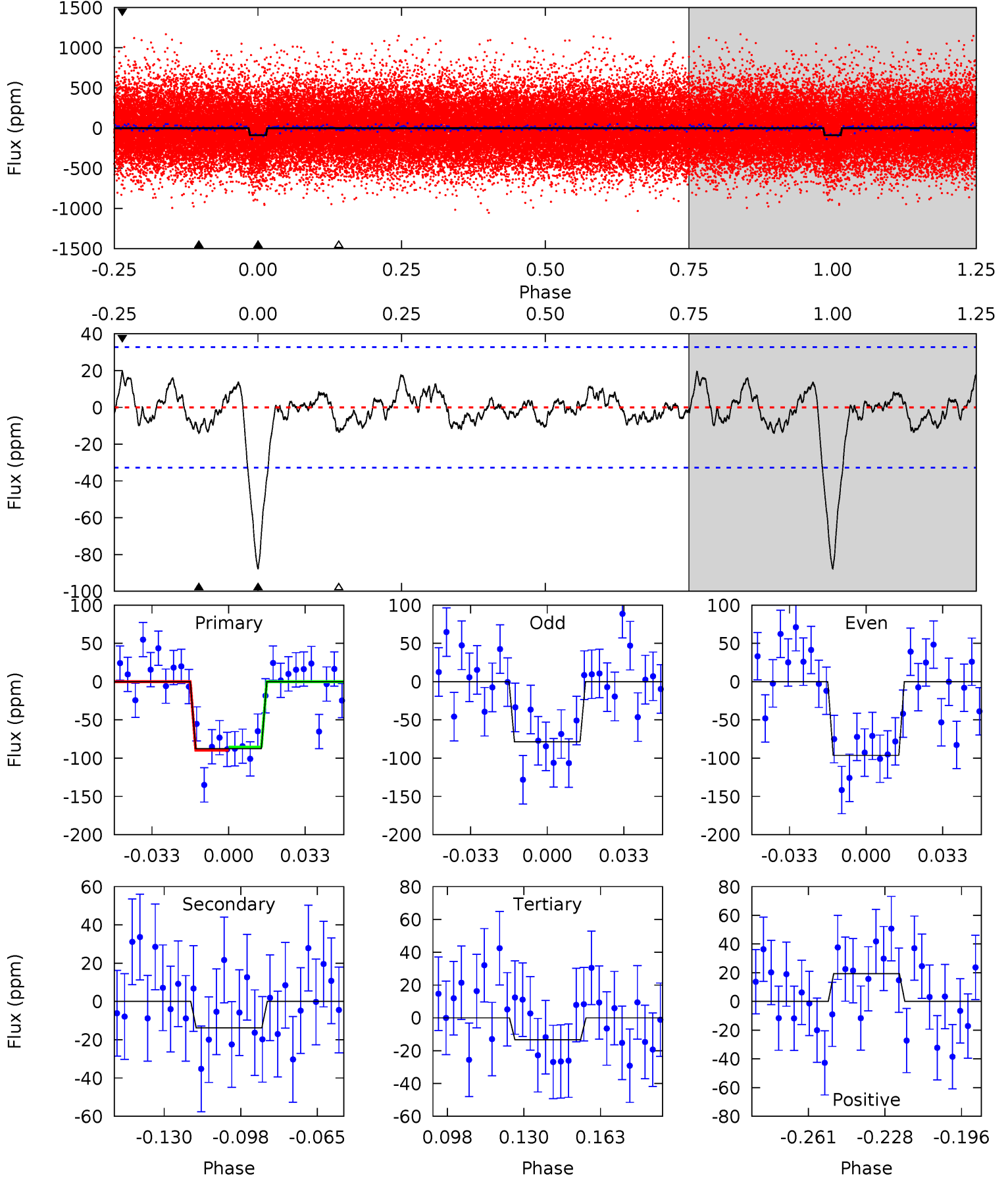
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	2.02	1.72	3.45	4.78	2.11	1.06	12.0	10.3	0.30	-1.43	0.83	0.97	0.20	0.24



Alt Model-Shift Uniqueness Test

005431027-01, P = 8.823366 Days, E = 128.071273 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	2.03	1.96	2.85	4.79	2.14	0.95	10.9	9.99	0.07	-0.82	1.31	1.00	0.18	0.31



Stellar Parameters For KIC 005431027

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5602^{+152}_{-152}	$4.269^{+0.253}_{-0.207}$	$-0.140^{+0.300}_{-0.250}$	$1.121^{+0.342}_{-0.280}$	$0.852^{+0.125}_{-0.073}$	$0.851^{+1.207}_{-0.442}$
	+3%/-3%	+6%/-5%	+214%/-179%	+31%/-25%	+15%/-9%	+142%/-52%
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 005431027-01 / KOI 4558.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-14 ± 7	$1.29^{+0.55}_{-0.55}$	1298^{+107}_{-102}	3711^{+801}_{-532}	28^{+67}_{-18}
Alt.	-14 ± 7	$1.13^{+0.61}_{-0.49}$	1300^{+111}_{-107}	3855^{+984}_{-617}	35^{+89}_{-23}

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 $A_{obs} \gg 1.0$

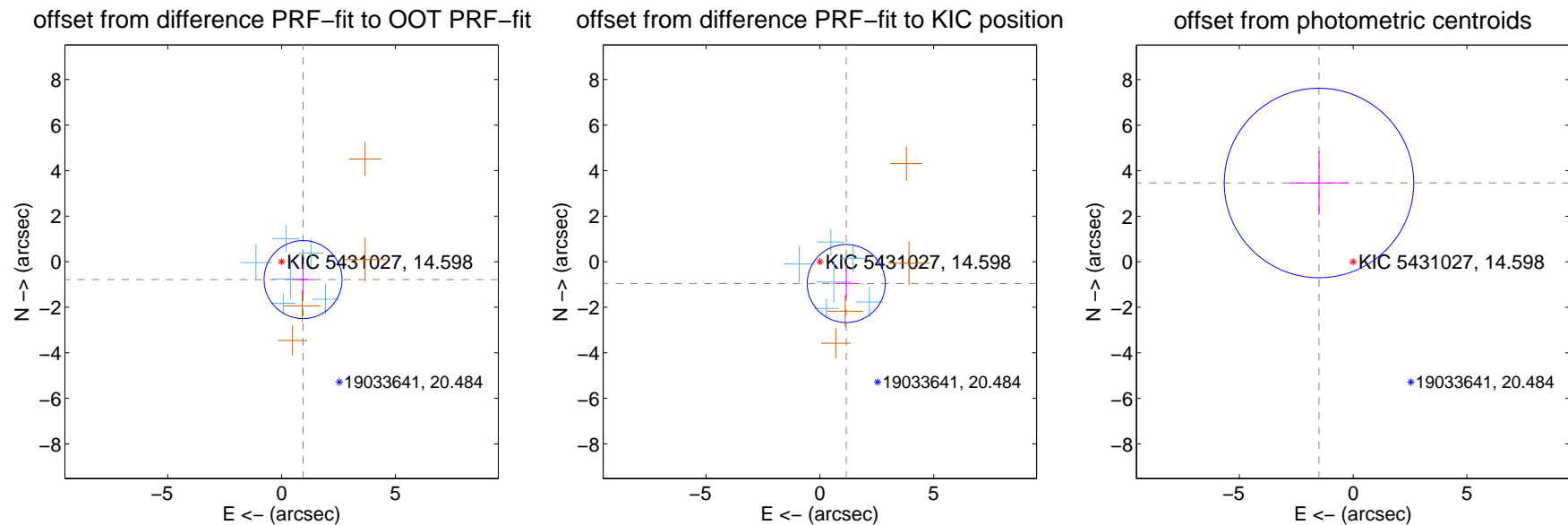
DV Centroid Data

Supplemental centroid analysis for 005431027-01. Kepler magnitude: 14.60. Transit SNR 11.53

There are 6 quarters with good PRF difference image offsets

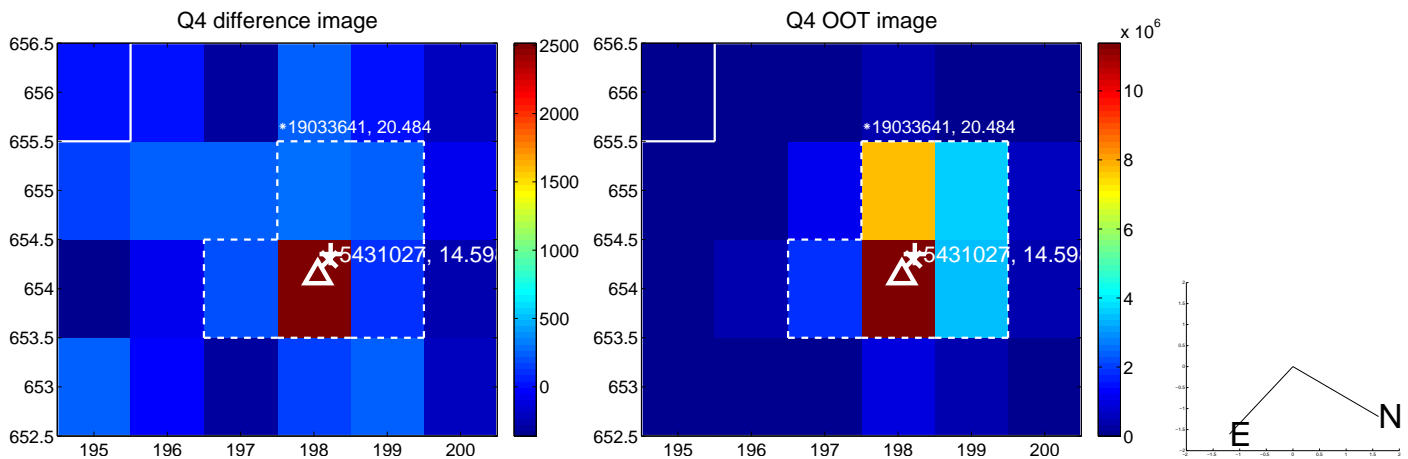
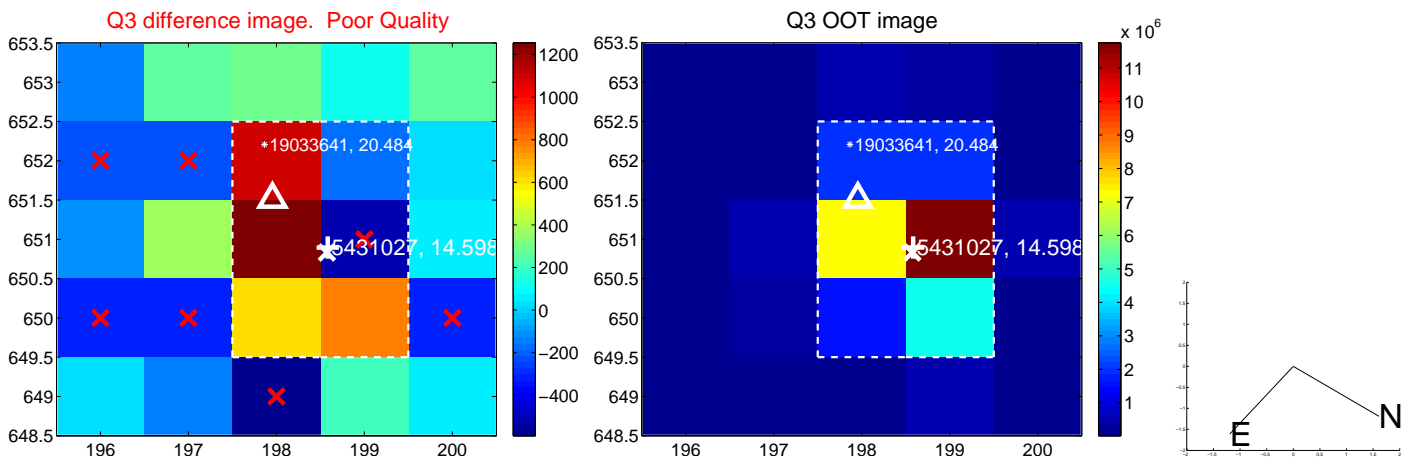
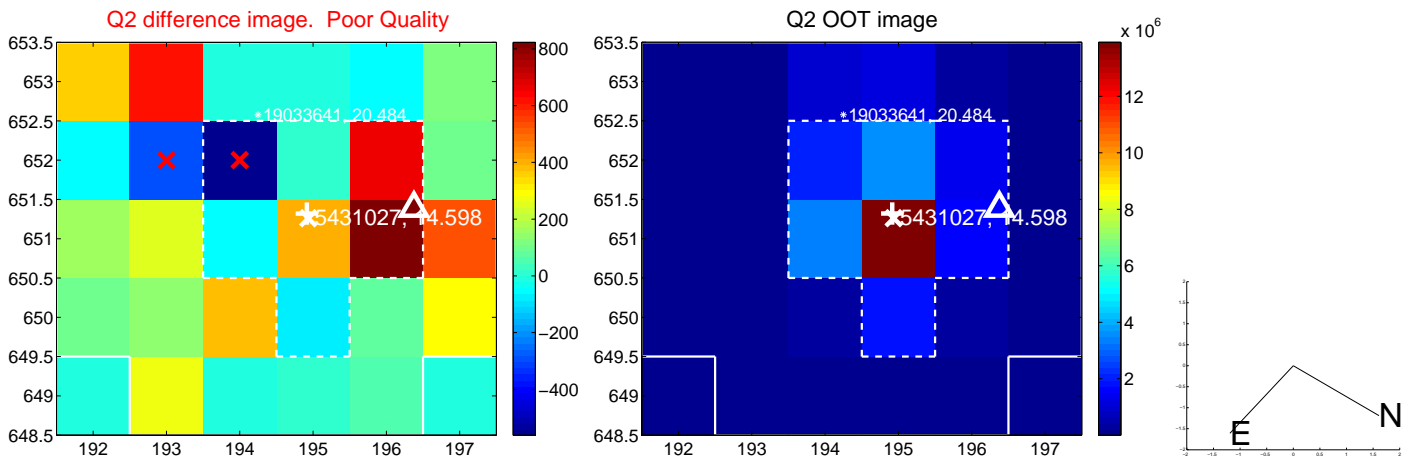
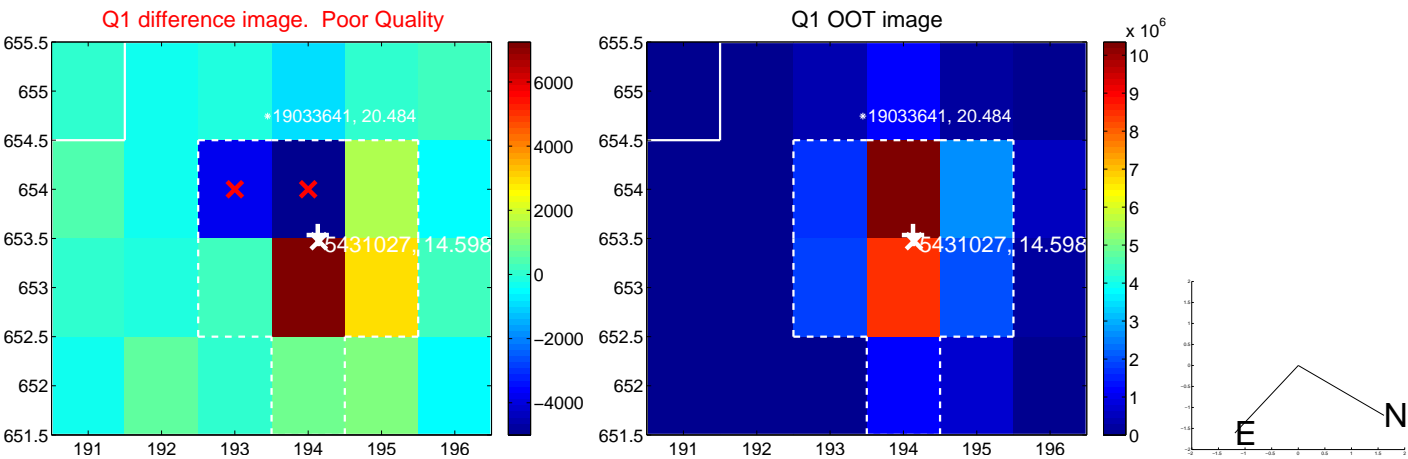
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.228 ± 0.571	2.15	-0.943 ± 0.488	-0.785 ± 0.672
PRF-fit source offset from KIC position	1.506 ± 0.571	2.64	-1.160 ± 0.486	-0.959 ± 0.676
photometric centroid source offset	3.77 ± 1.39	2.72	1.50 ± 1.32	3.46 ± 1.40

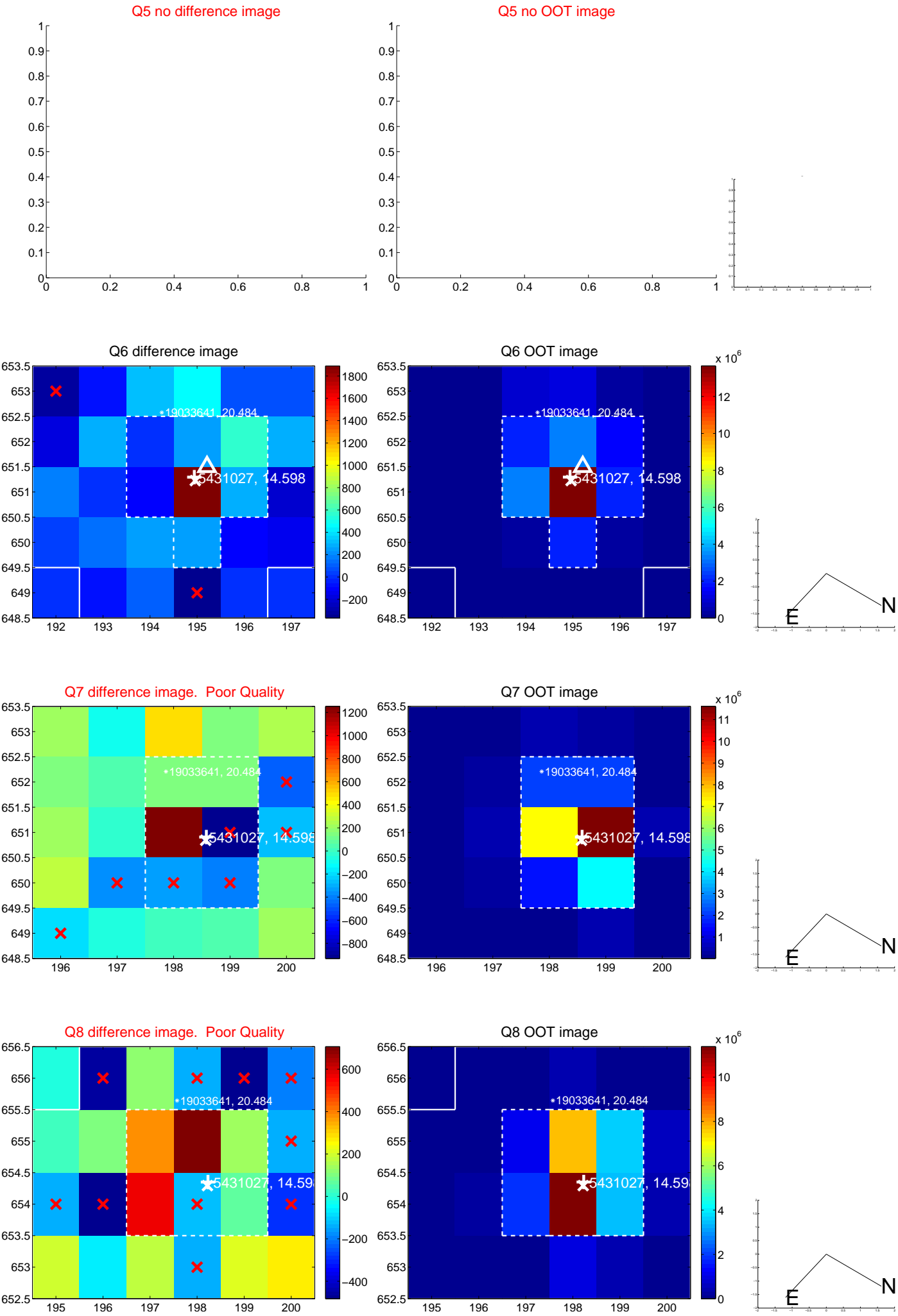


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

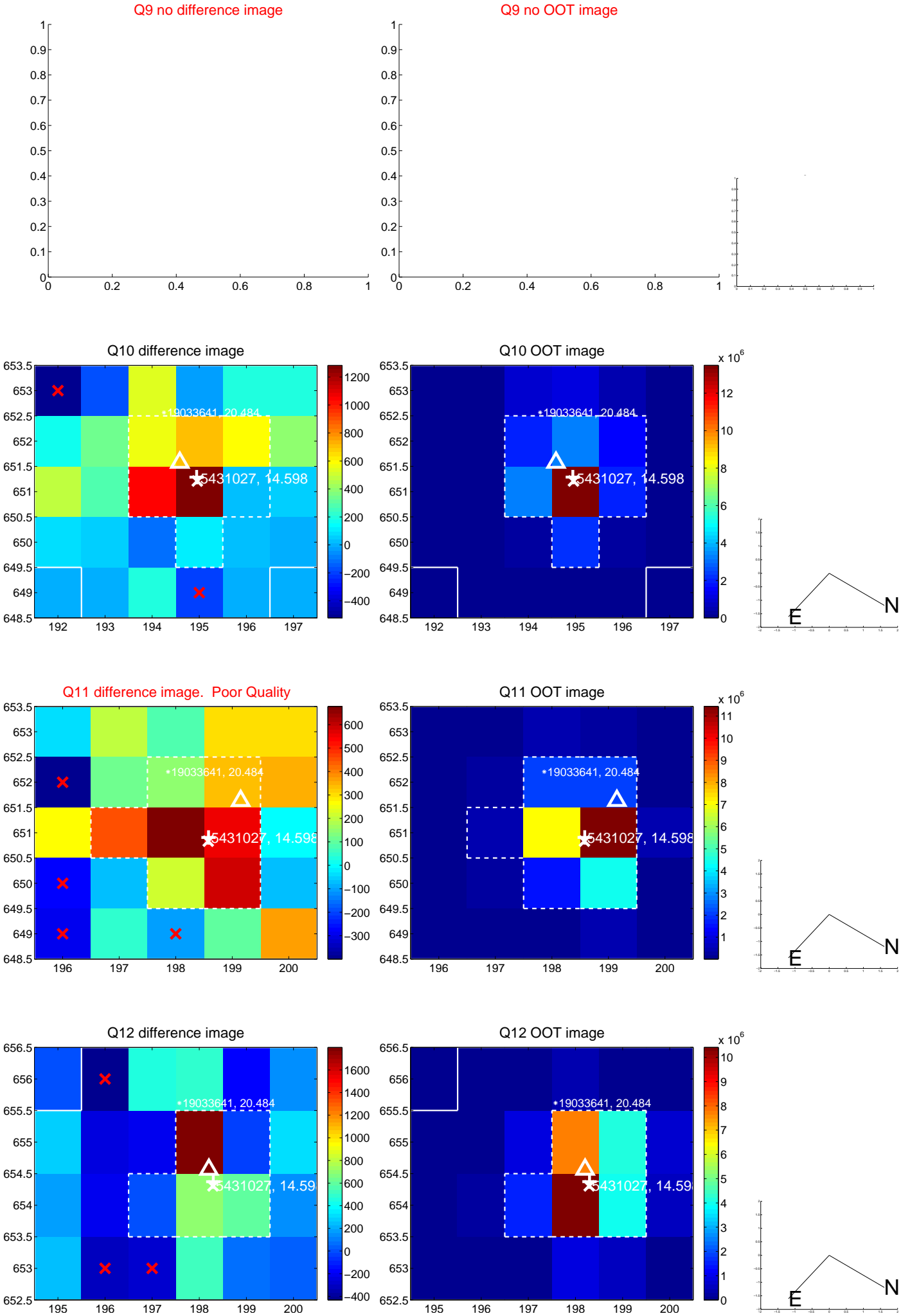
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



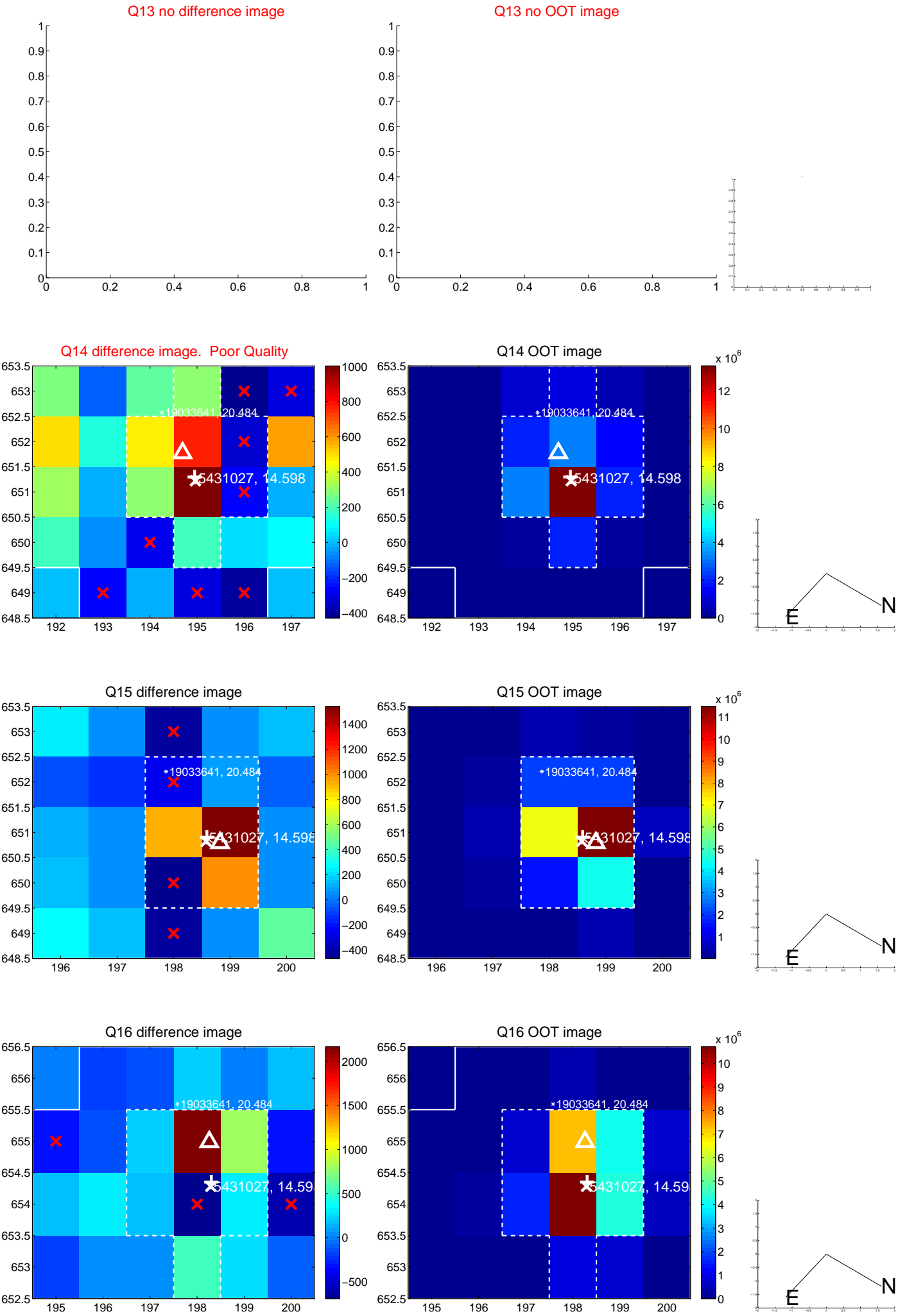
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



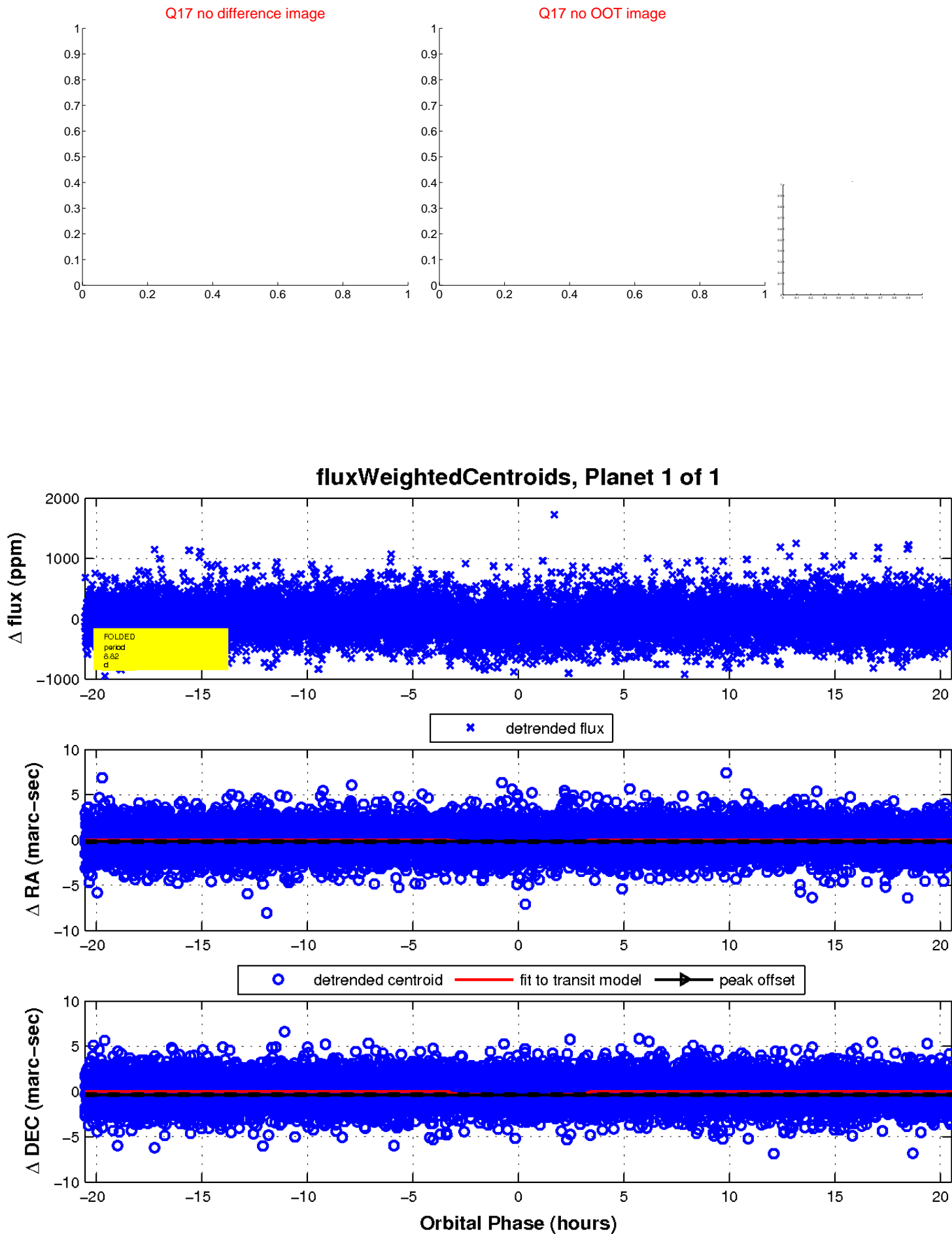
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

