

KIC 012121570

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})
012121570-01	OBS	2290.01	91.500972	165.670848	691.1	5.007	18.7	18.9	0.71	5051	2.03	2.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012121570-01	OBS	PC	0.97	0	0	0	0	CENT_KIC_POS

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

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

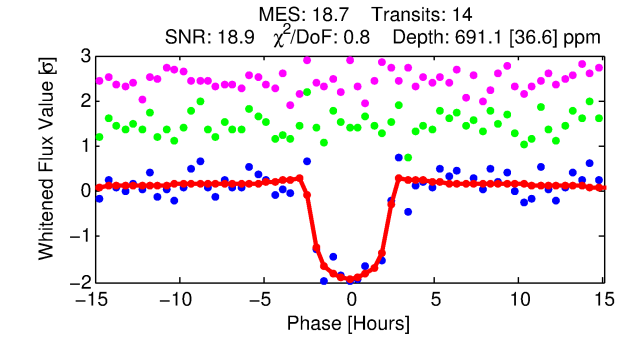
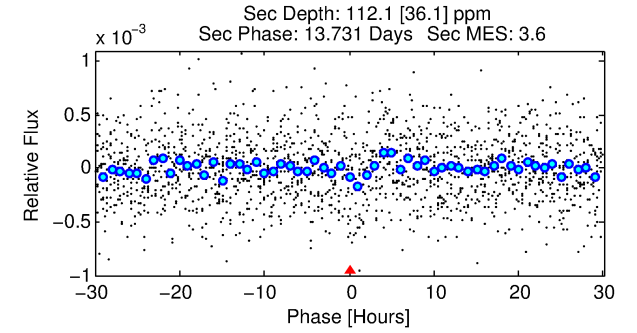
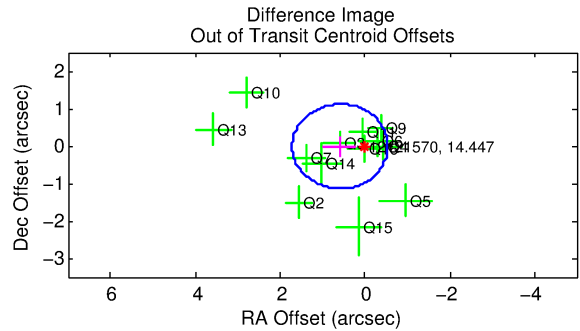
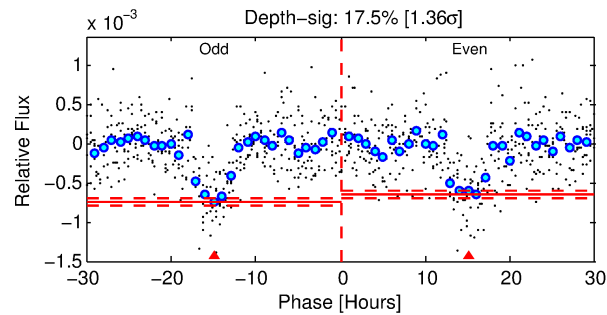
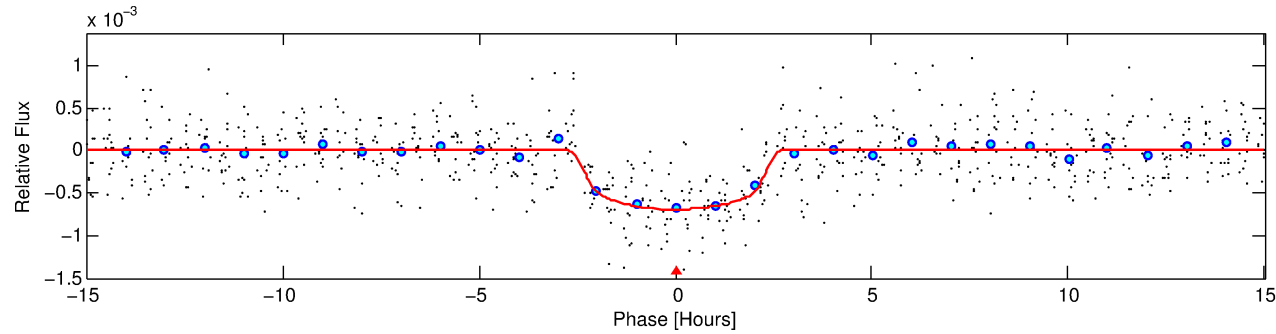
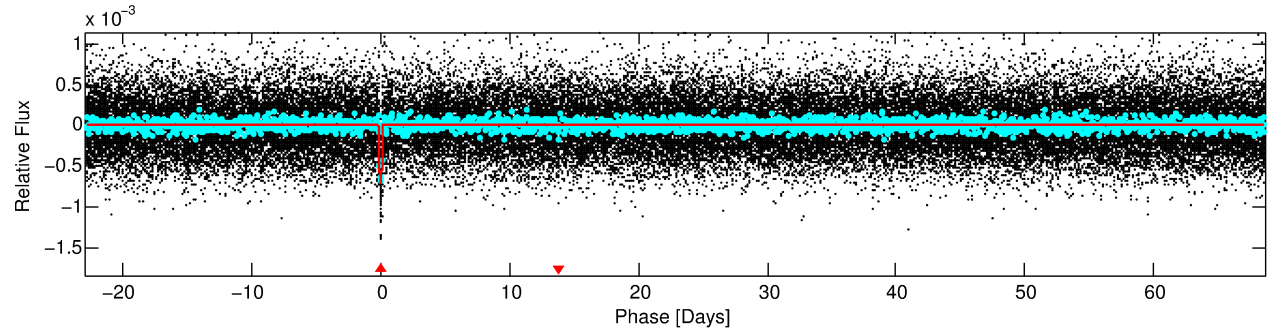
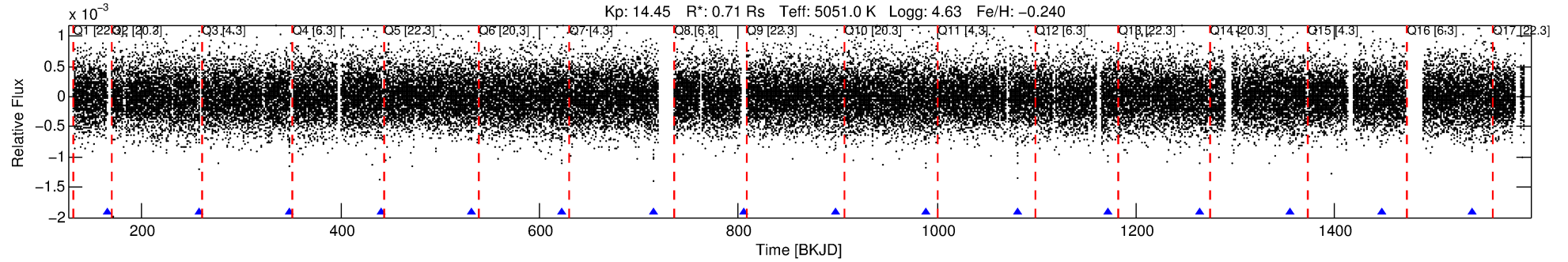
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012121570-01

No Significant Match Found

DV One-Page Summary

KIC: 12121570 Candidate: 1 of 1 Period: 91.501 d
KOI: K02290.01 Corr: 0.985



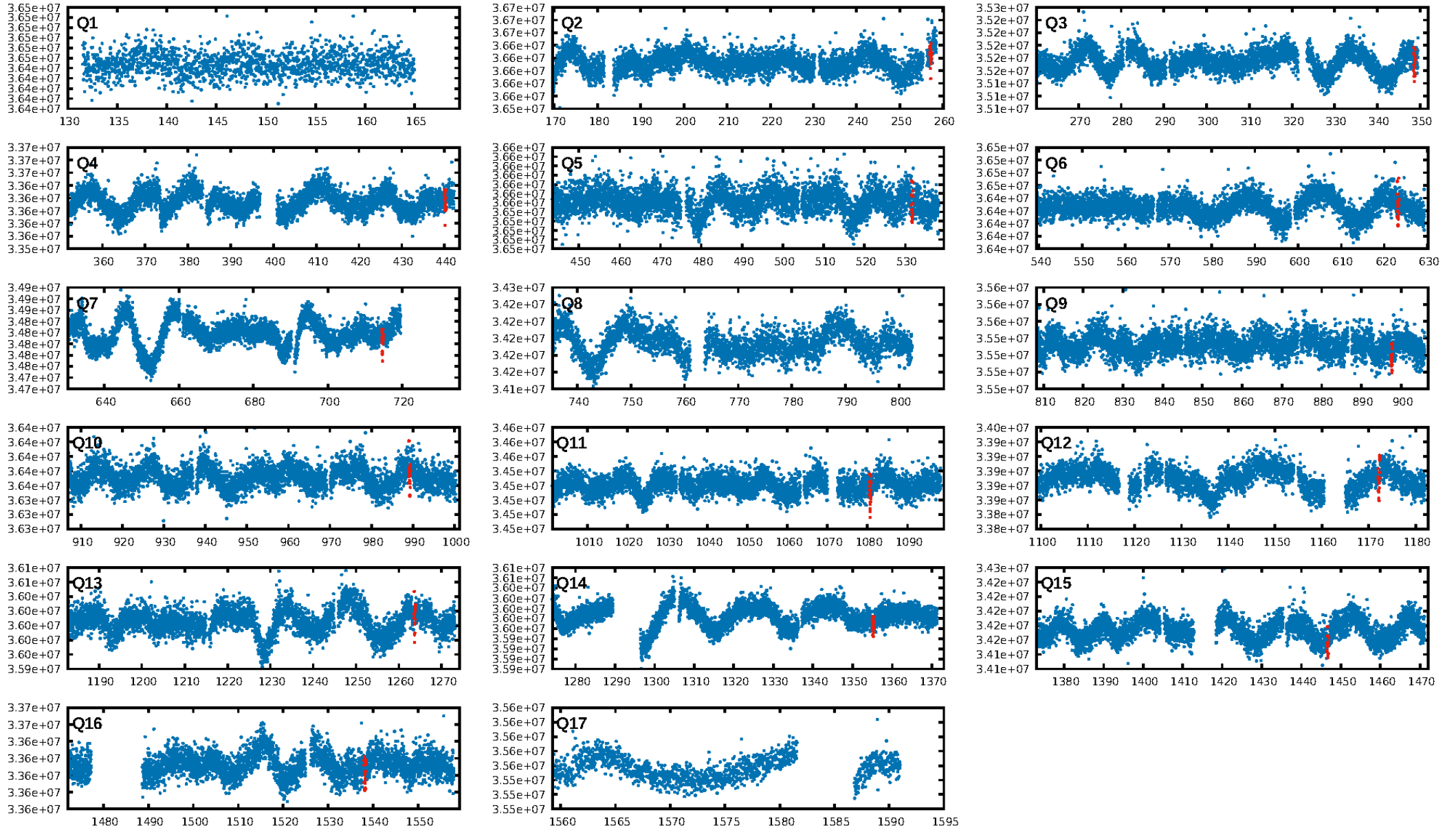
DV Fit Results:

Period = 91.50097 [0.00058] d
Epoch = 165.6708 [0.0054] BKJD
Rp/R* = 0.0264 [0.0091]
a/R* = 96.45 [122.45]
b = 0.76 [0.72]
Seff = 2.19 [0.28]
Teff = 310 [10] K
Rp = 2.03 [0.72] Re
a = 0.3646 [0.0218] AU
Ag = 1989.76 [1529.77] [1.30 σ]
Teffp = 3202 [615] K [4.70 σ]

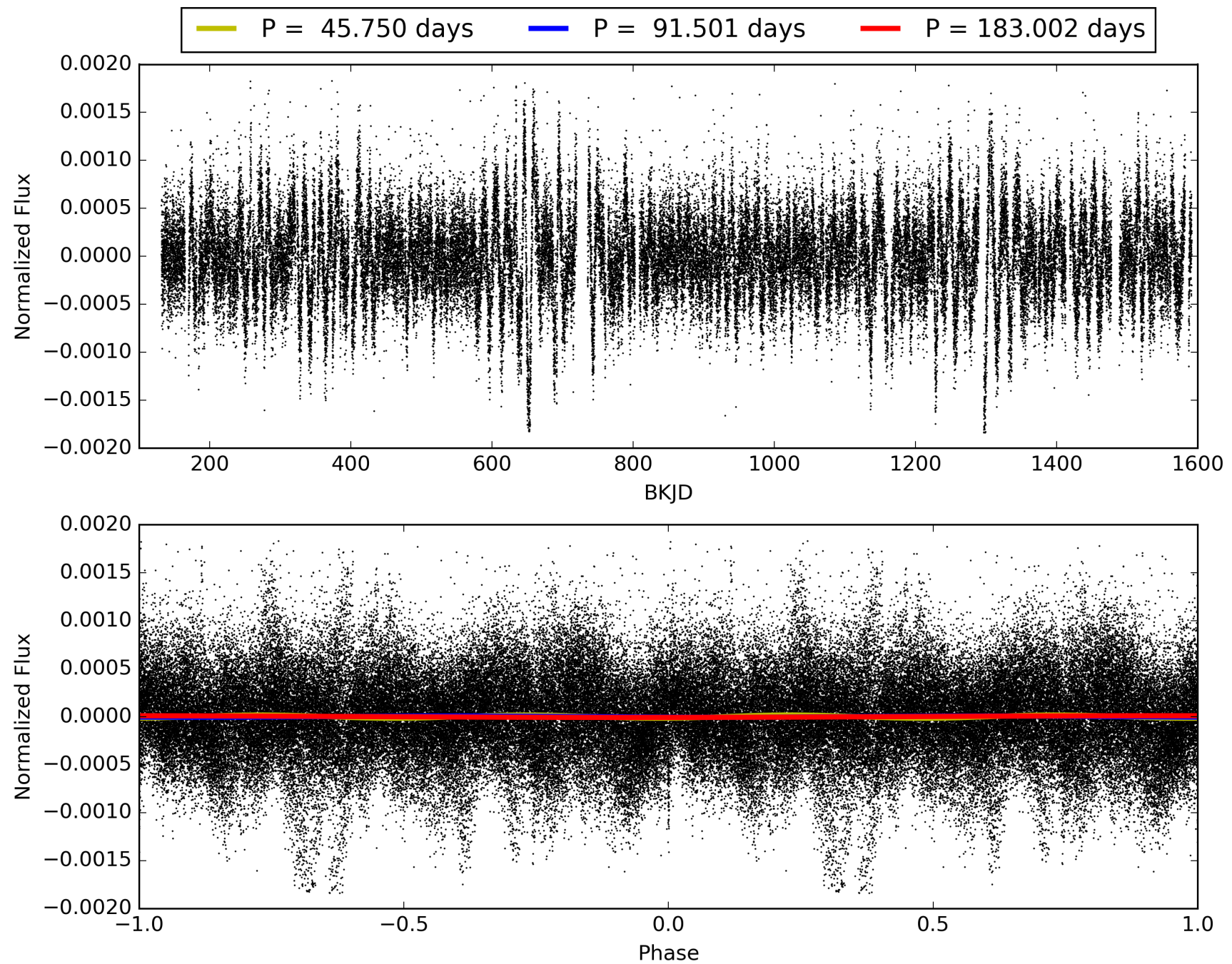
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 78.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.18e-76
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: 5.353
Centroid-sig: 13.9%
Centroid-so: 0.995 arcsec [1.63 σ]
OotOffset-rm: 0.585 arcsec [1.56 σ]
KicOffset-rm: 0.714 arcsec [2.16 σ]
OotOffset-st: 4/4/2/3 [13]
KicOffset-st: 4/4/2/3 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [13/13]

TCE 012121570-01, PDC Light Curves

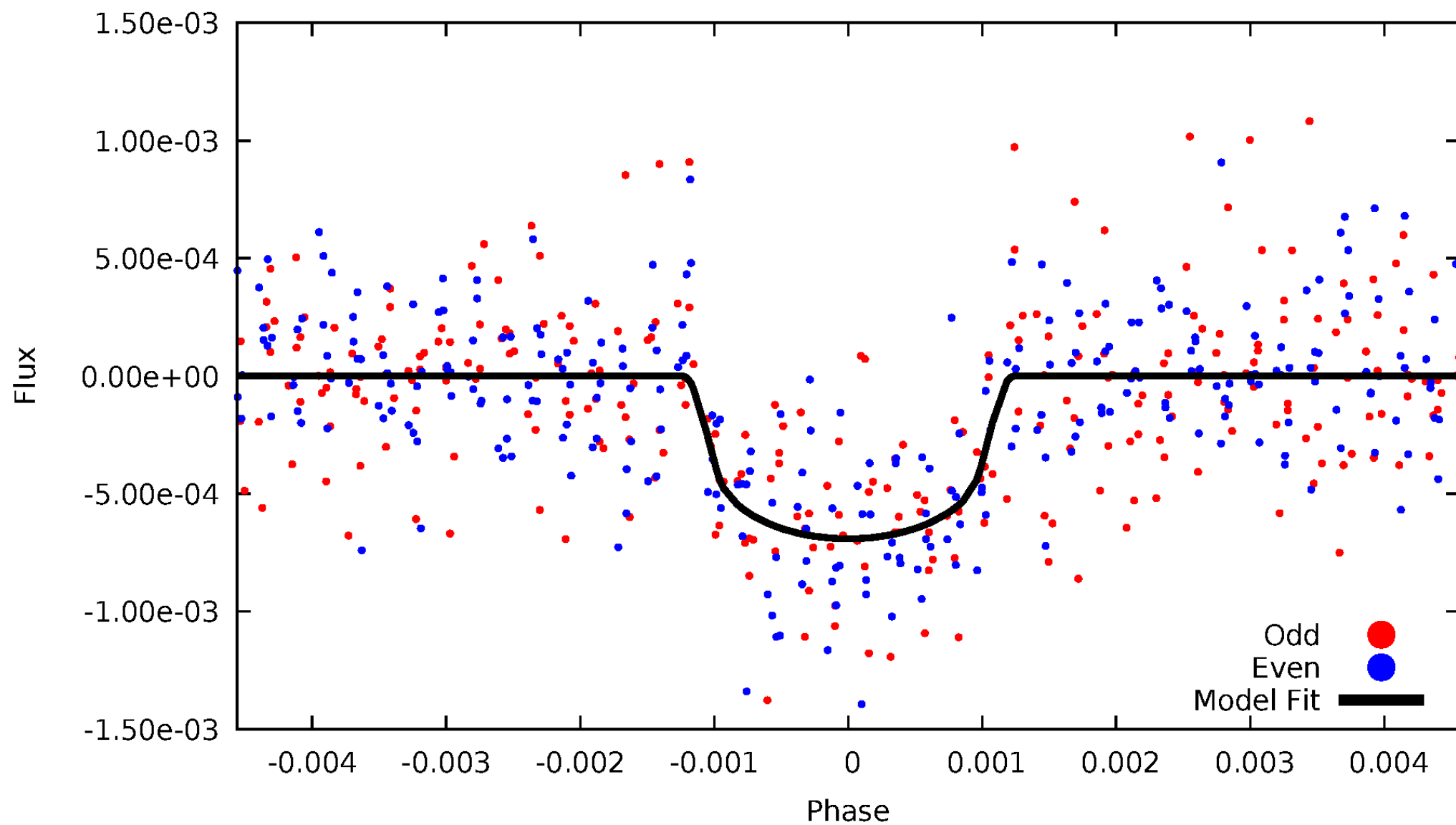


TCE 012121570-01



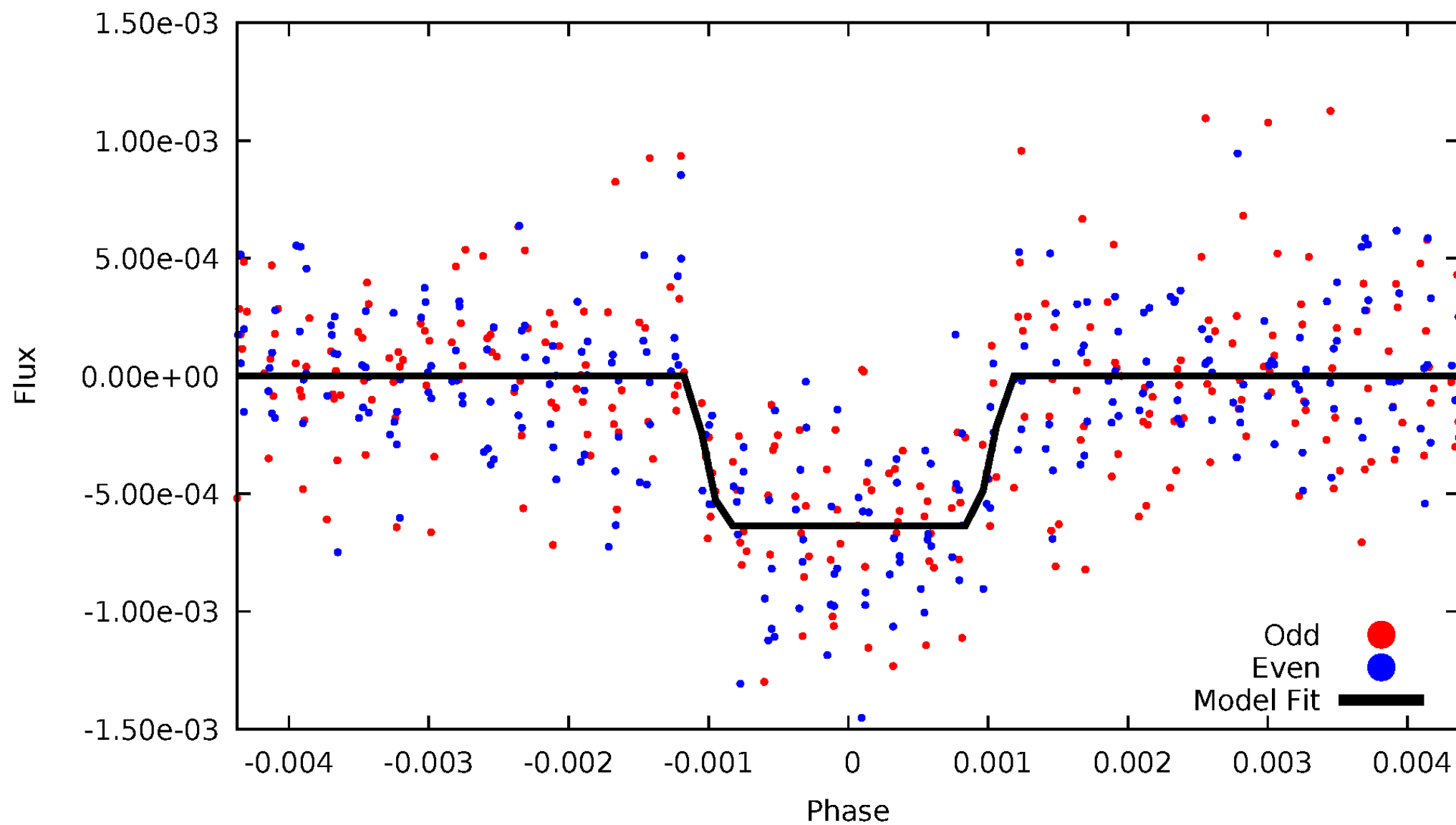
DV Odd/Even

TCE 012121570-01

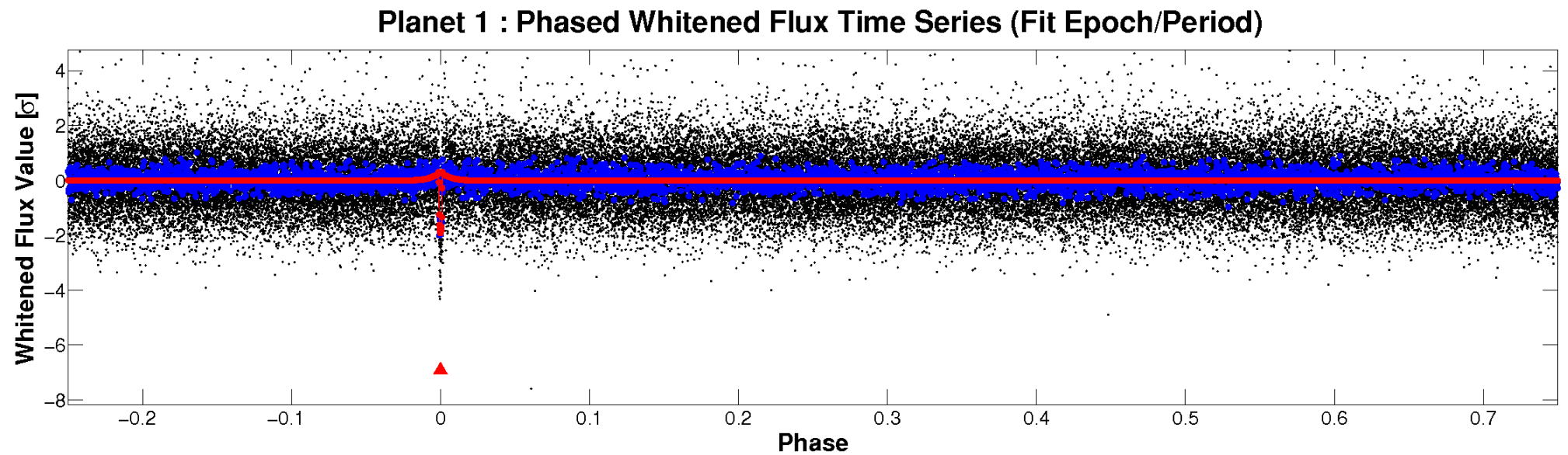
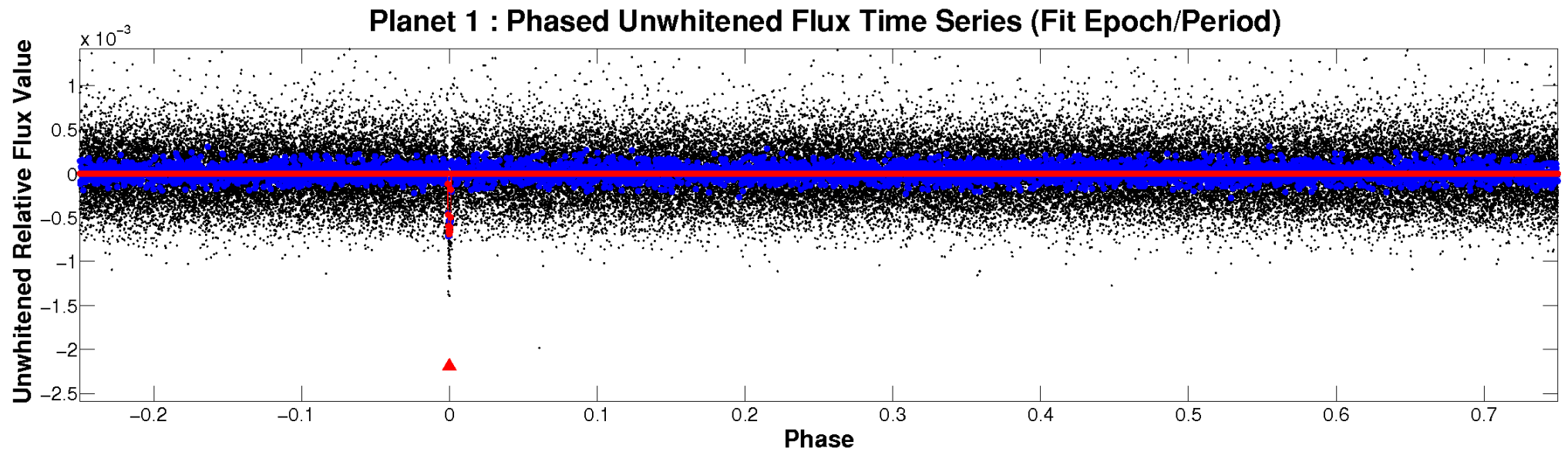


ALT Odd/Even

TCE 012121570-01

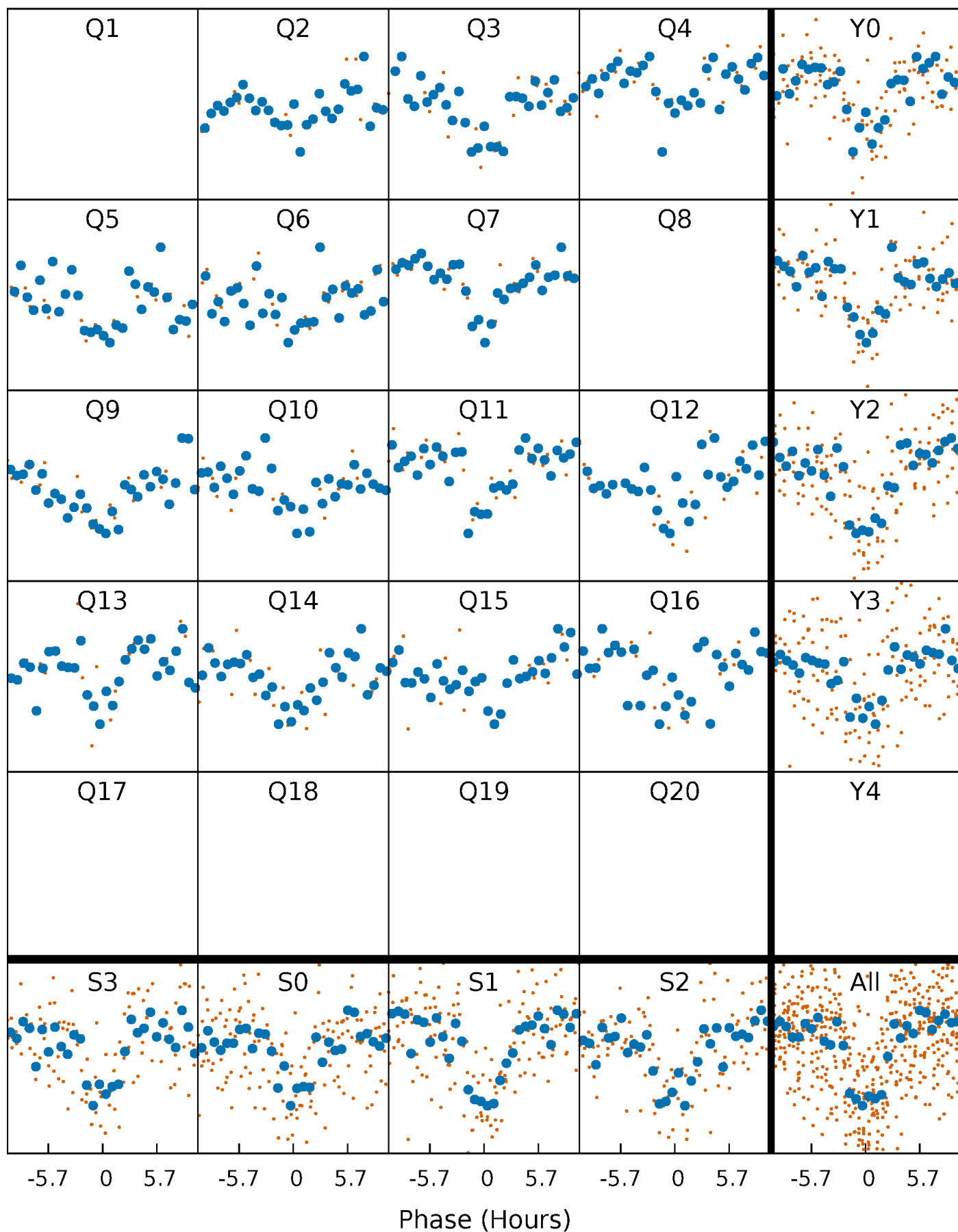


Non-Whitened Vs. Whitened Light Curve



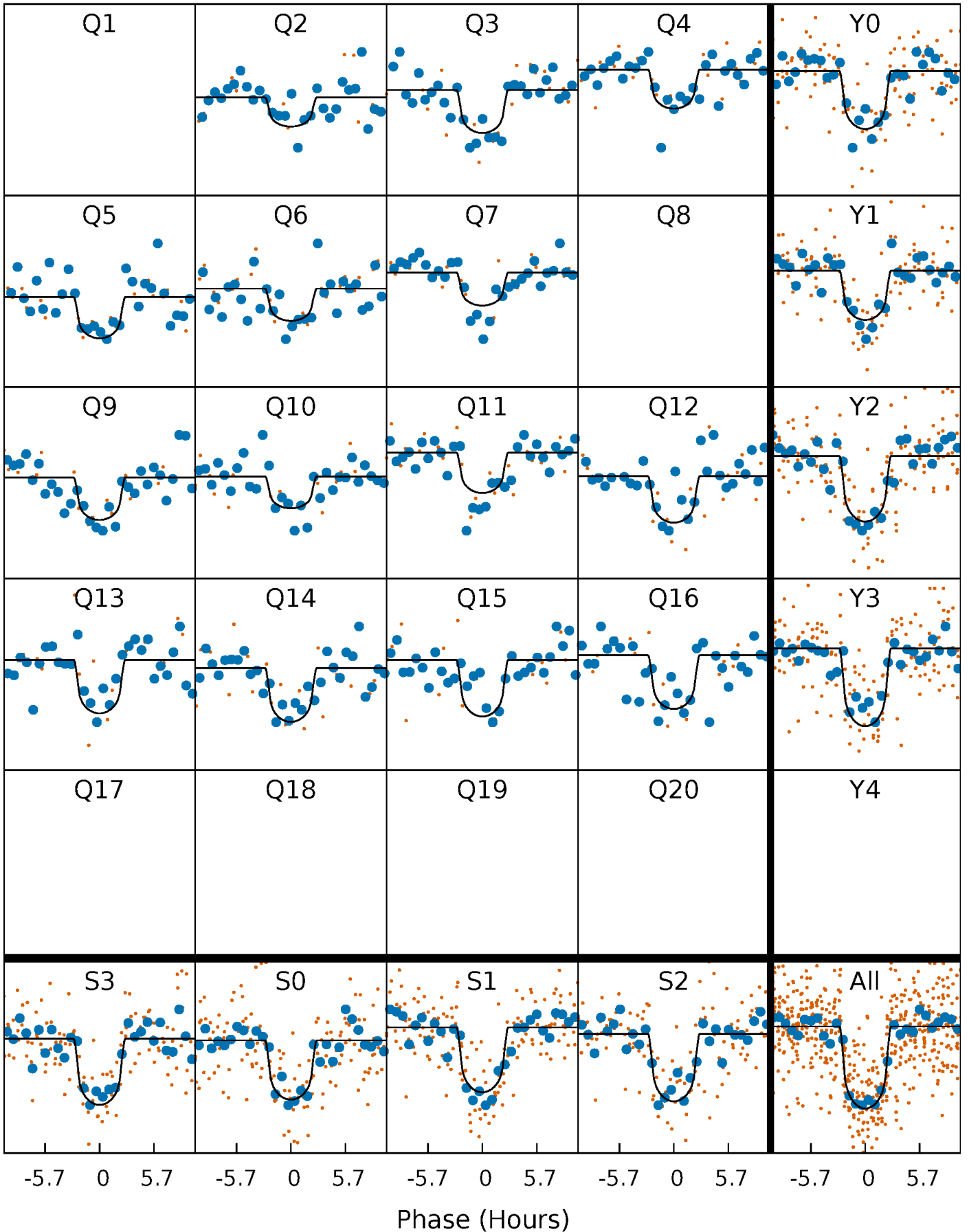
PDC Quarter-Phased Transit Curves

TCE 012121570-01 P= 91.500972 Days $T_0=165.670848$ (BKJD)



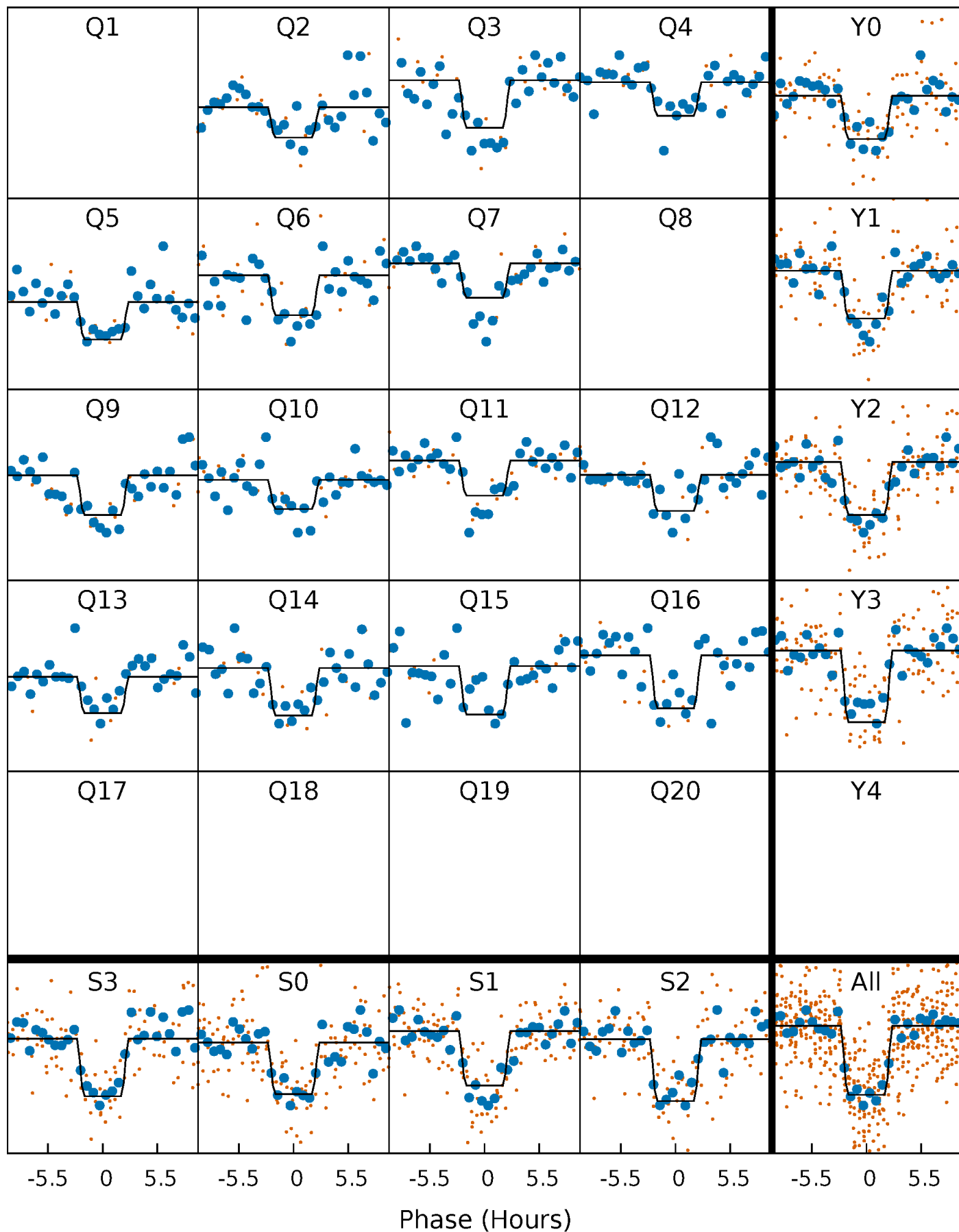
DV Quarter-Phased Transit Curves

TCE 012121570-01 P= 91.500972 Days $T_0=165.670848$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

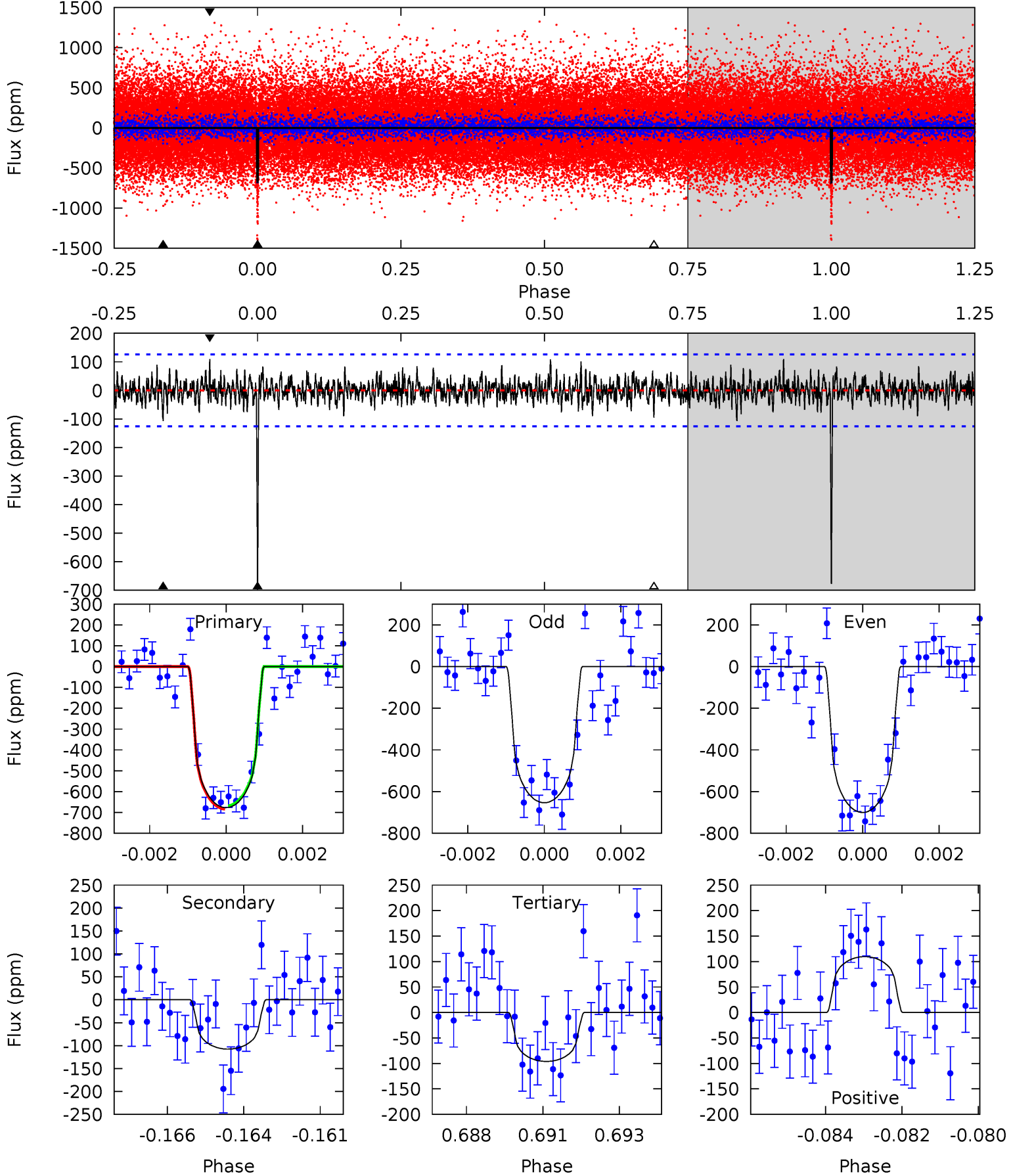
TCE 012121570-01 P= 91.501152 Days $T_0=165.670175$ (BKJD)



DV Model-Shift Uniqueness Test

012121570-01, P = 91.500972 Days, E = 74.169876 Days

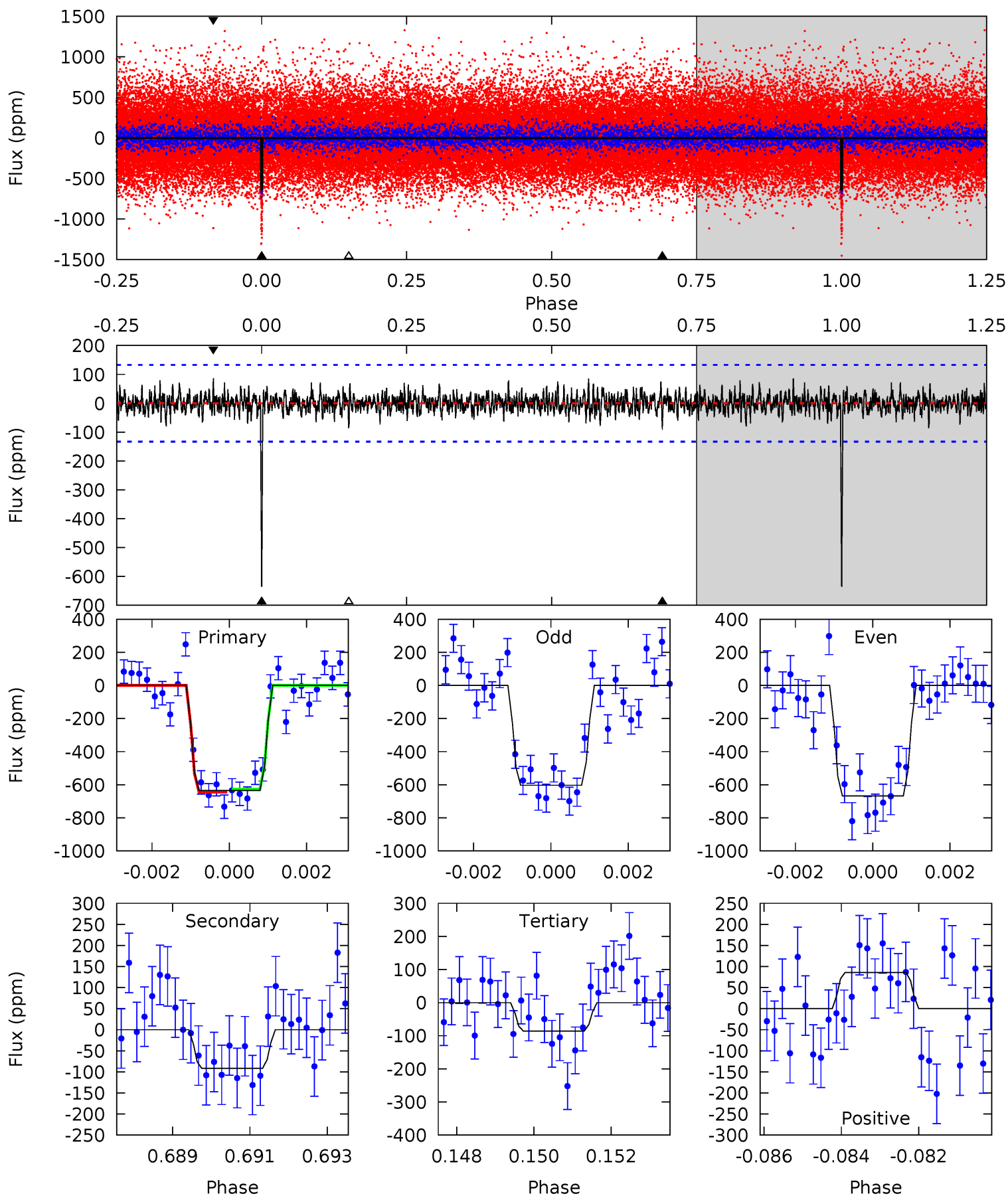
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.4	4.52	4.04	4.61	5.29	3.03	1.20	24.4	23.8	0.48	-0.09	0.99	1.01	0.14	0.33



Alt Model-Shift Uniqueness Test

012121570-01, P = 91.501152 Days, E = 74.169023 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.4	3.67	3.44	3.43	5.32	3.07	0.97	22.0	22.0	0.23	0.23	1.29	1.10	0.12	0.34



Stellar Parameters For KIC 012121570

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5051^{+111}_{-90}	$4.628^{+0.017}_{-0.052}$	$-0.240^{+0.150}_{-0.150}$	$0.706^{+0.047}_{-0.030}$	$0.786^{+0.033}_{-0.062}$	$3.145^{+0.250}_{-0.580}$
	+2%/-2%	+0%/-1%	+62%/-62%	+7%/-4%	+4%/-8%	+8%/-18%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 012121570-01 / KOI 2290.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-108 ± 24	$2.11^{+0.68}_{-0.74}$	437^{+12}_{-10}	3551^{+600}_{-309}	1737^{+2526}_{-764}
Alt.	-92 ± 25	$1.97^{+0.68}_{-0.77}$	437^{+11}_{-10}	3552^{+656}_{-366}	1761^{+2907}_{-898}

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

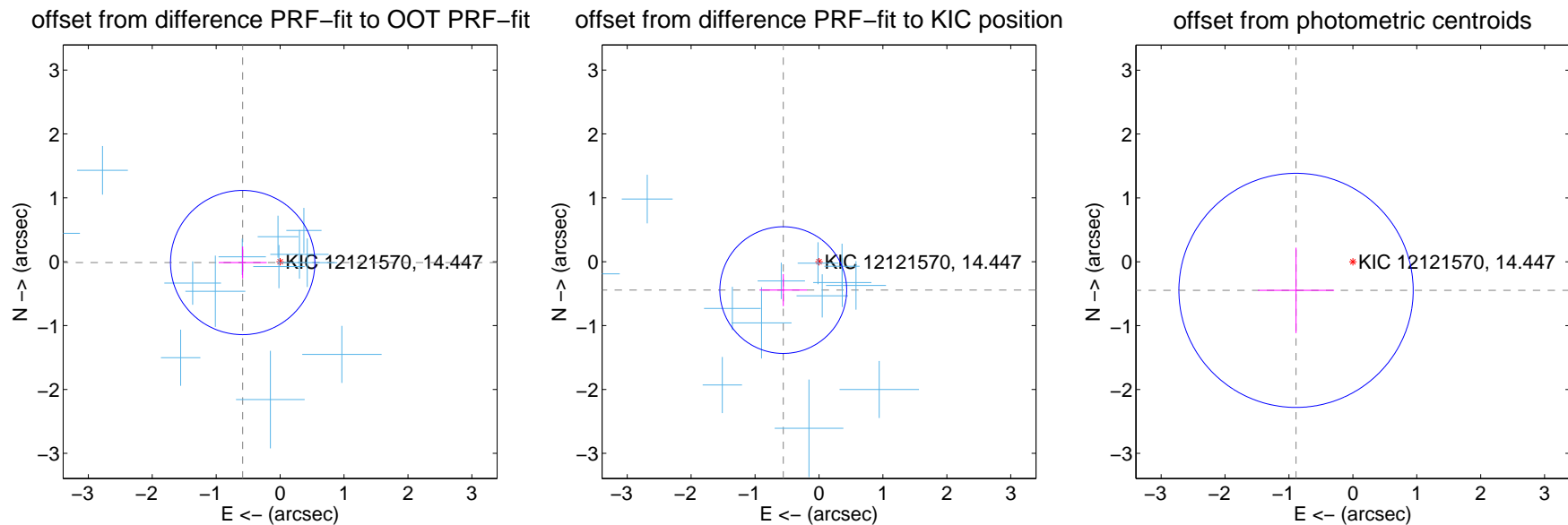
DV Centroid Data

Supplemental centroid analysis for 012121570-01. Kepler magnitude: 14.45. Transit SNR 18.86

There are 13 quarters with good PRF difference image offsets

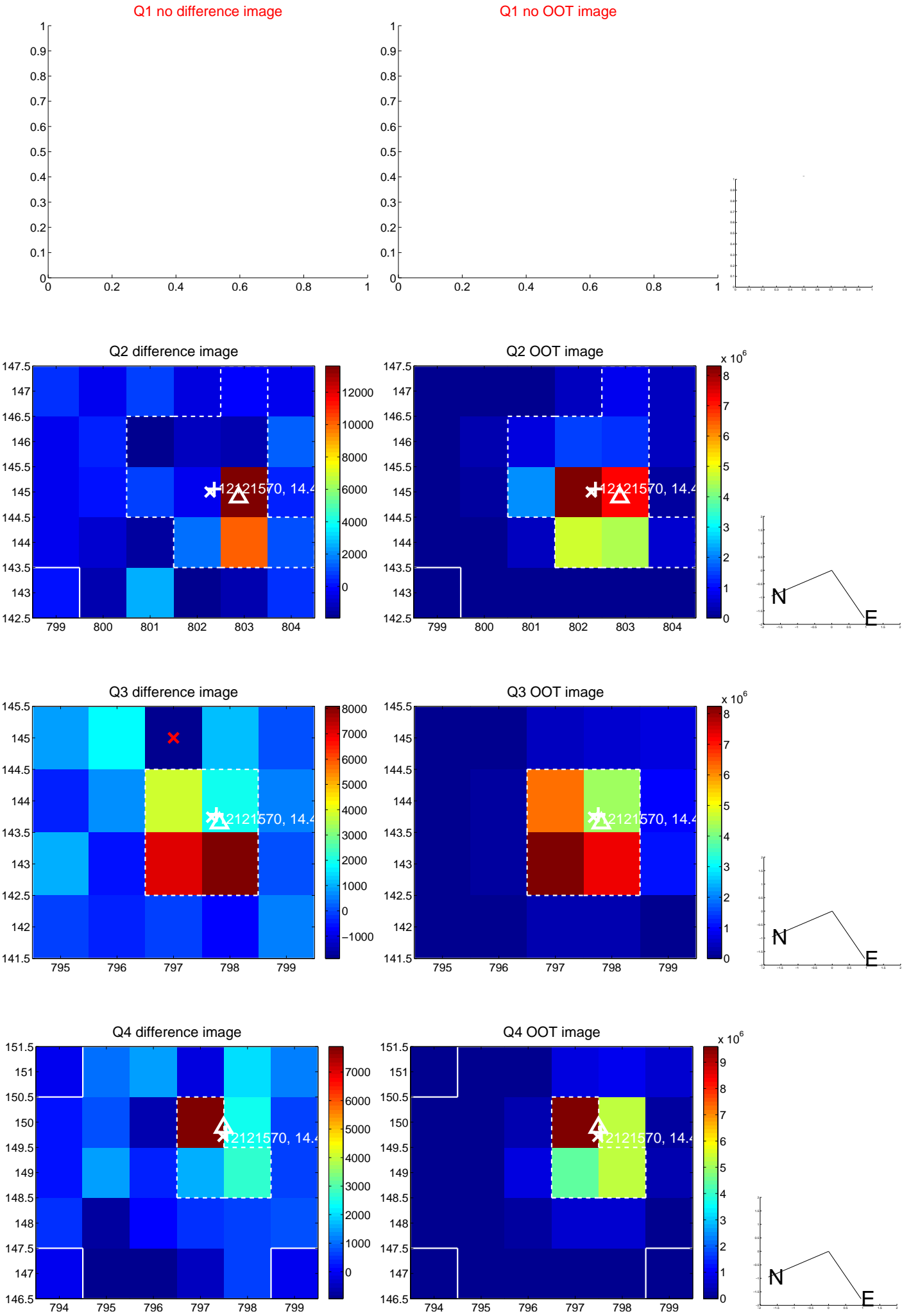
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.585 ± 0.376	1.56	0.585 ± 0.376	-0.013 ± 0.250
PRF-fit source offset from KIC position	0.714 ± 0.331	2.16	0.559 ± 0.372	-0.445 ± 0.251
photometric centroid source offset	1.00 ± 0.61	1.63	0.89 ± 0.60	-0.45 ± 0.67

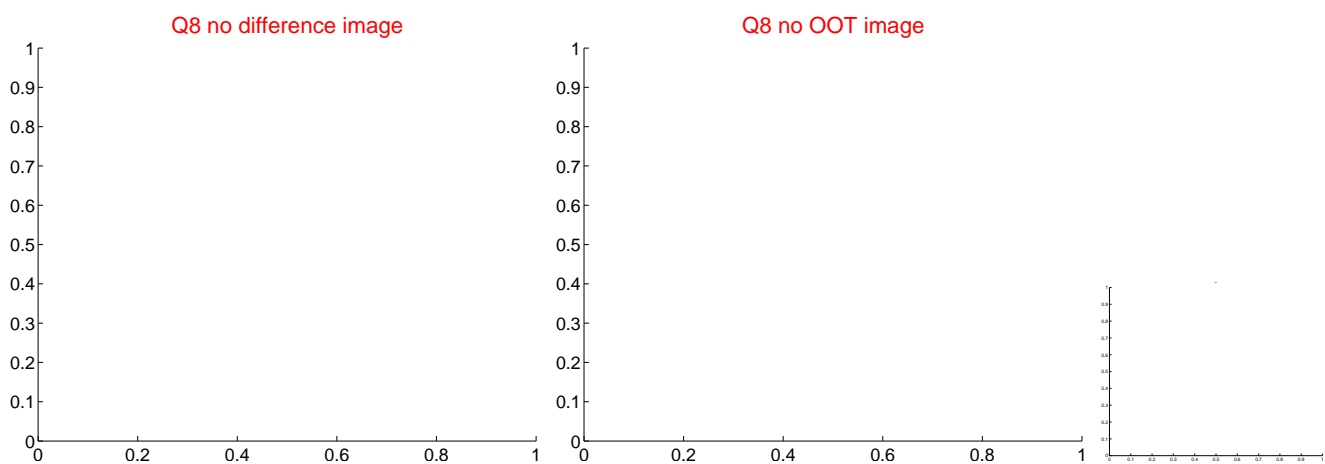
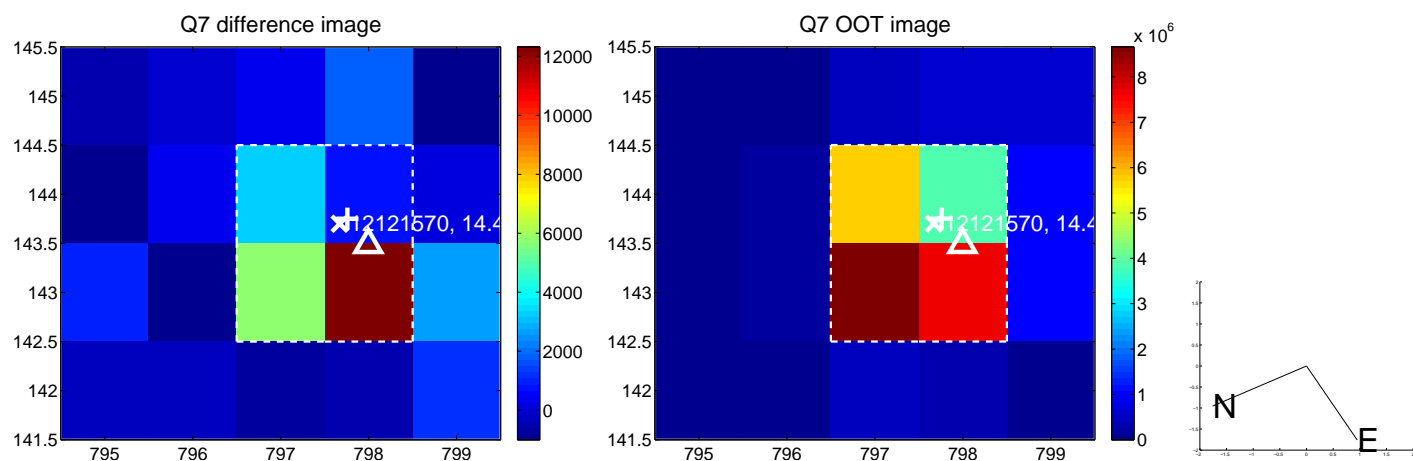
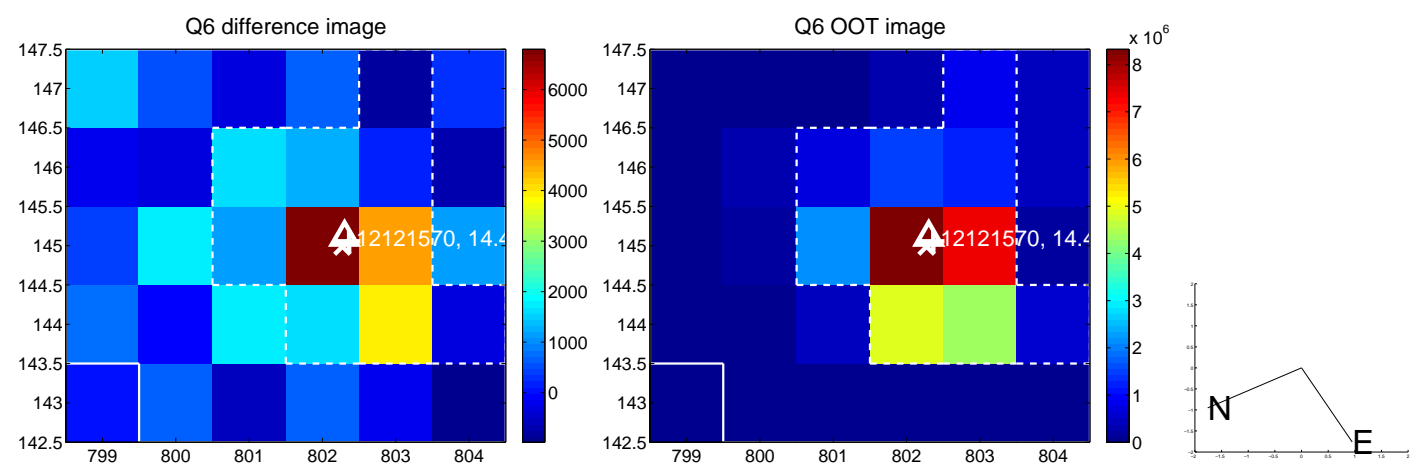
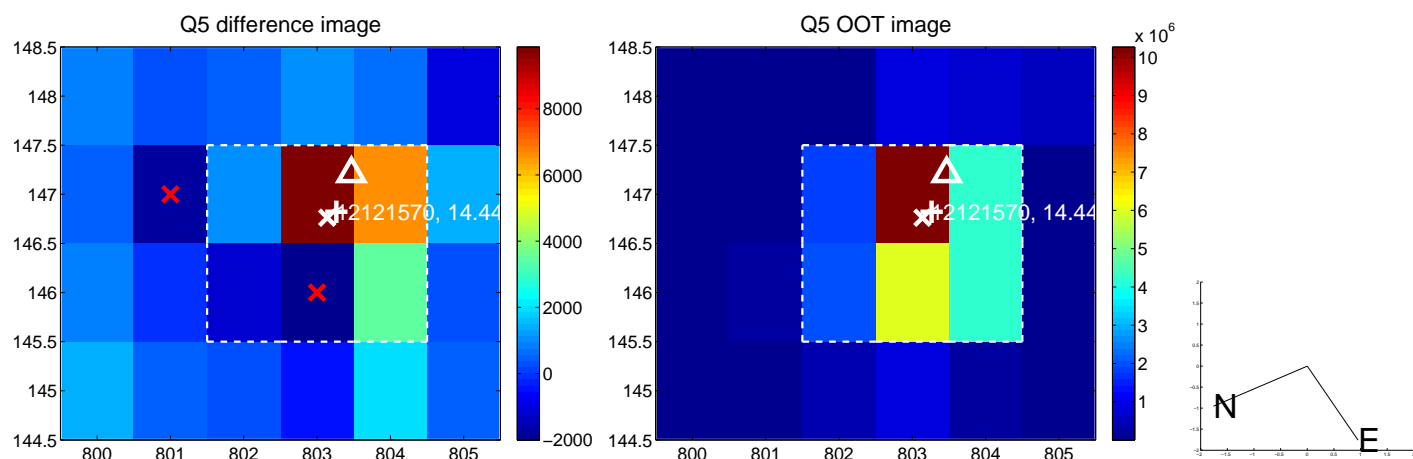


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

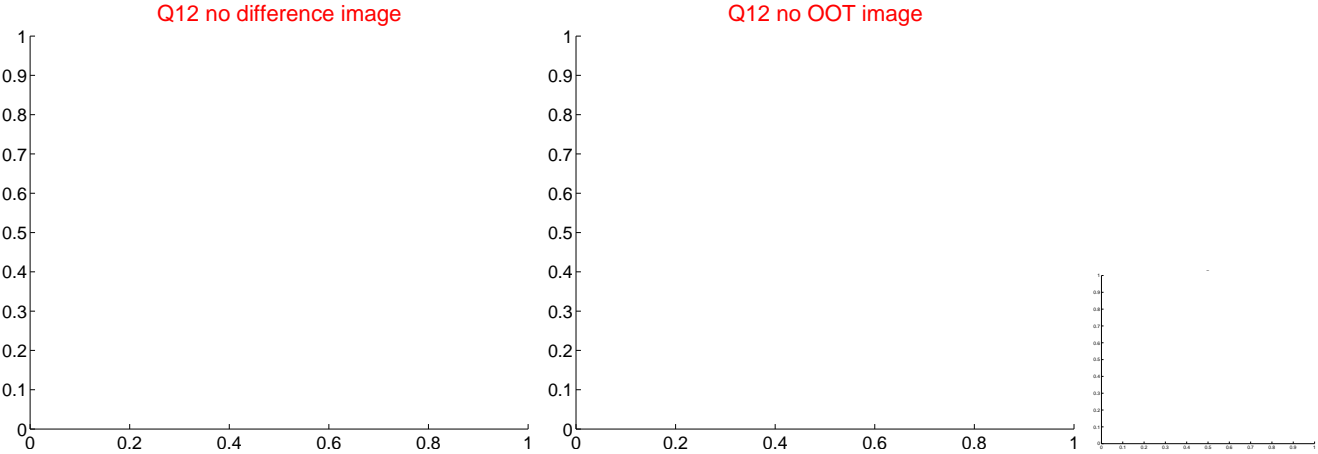
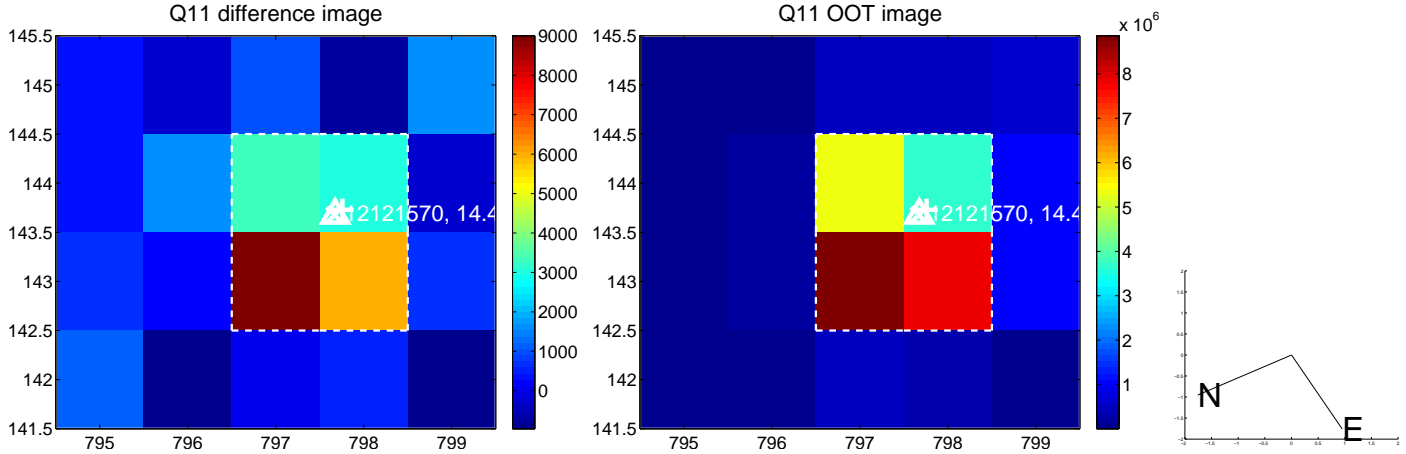
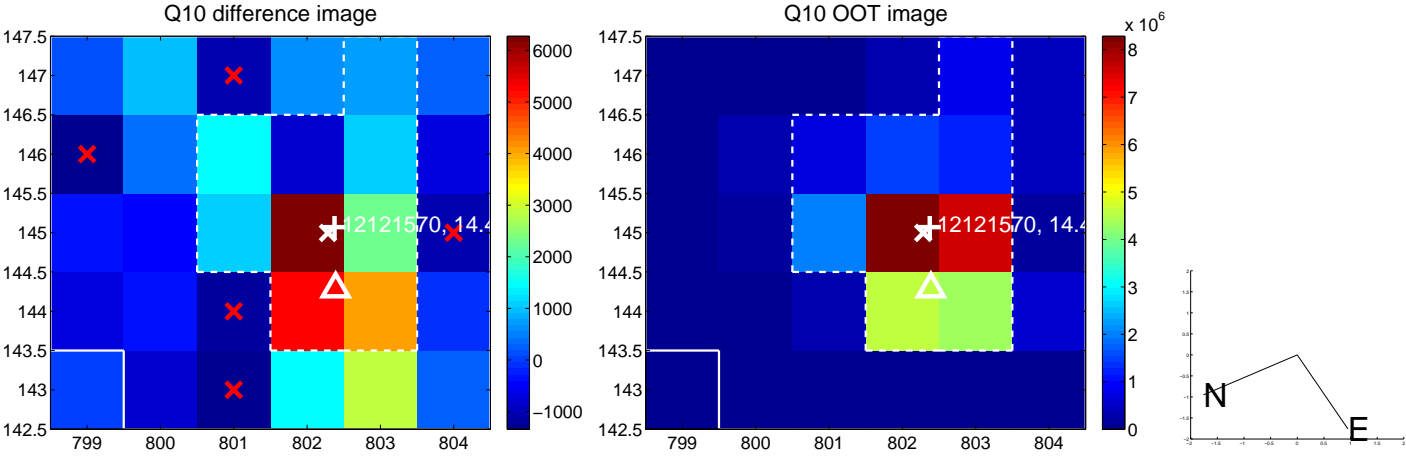
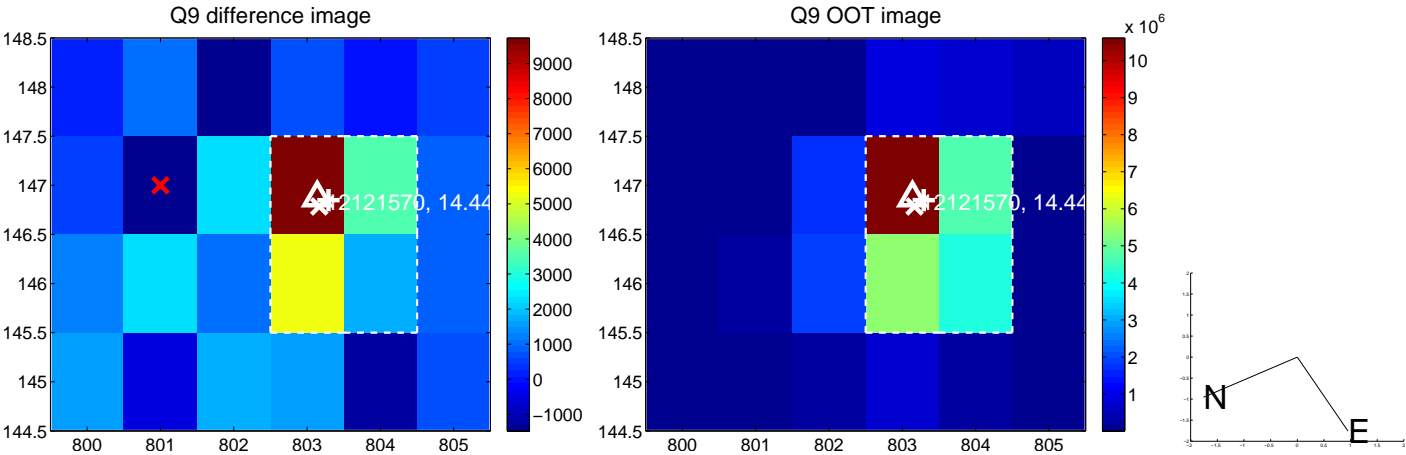
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



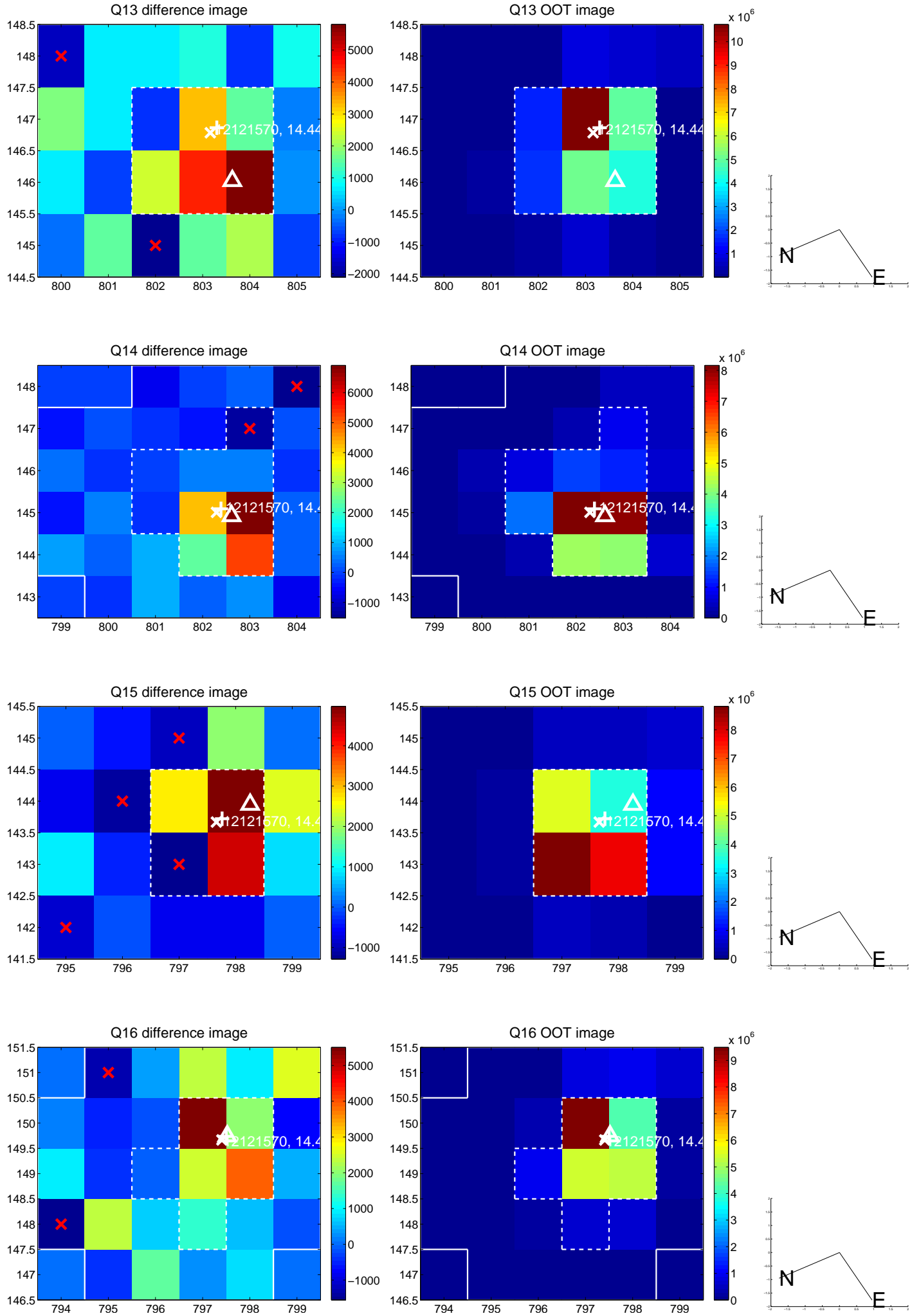
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



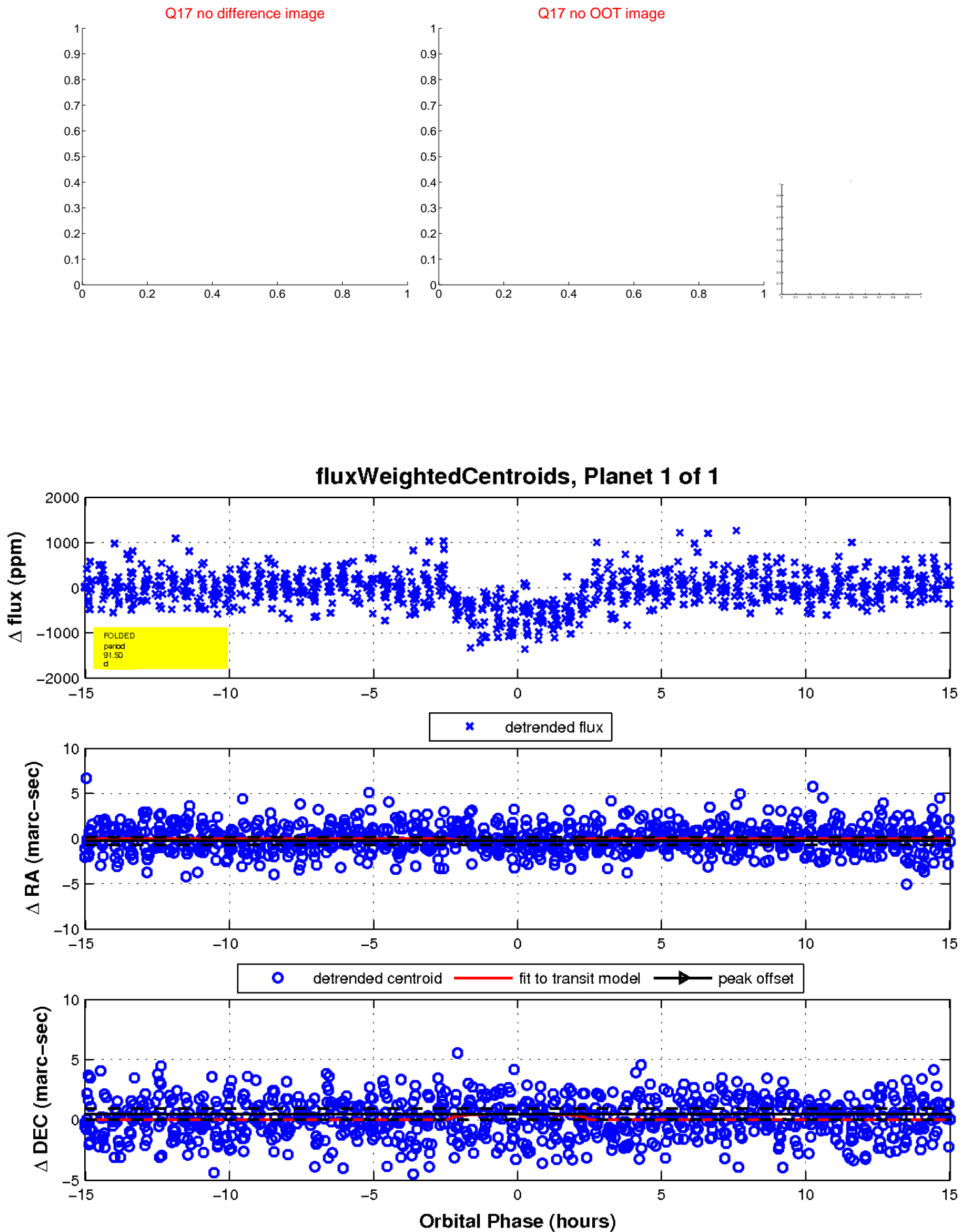
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UKIRT Image

