

KIC 002422820

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})
002422820-01	OBS	6267.01	13.891225	137.347198	211.0	5.185	8.8	9.7	0.79	5472	1.31	48.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002422820-01	OBS	PC	1.00	0	0	0	0	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.

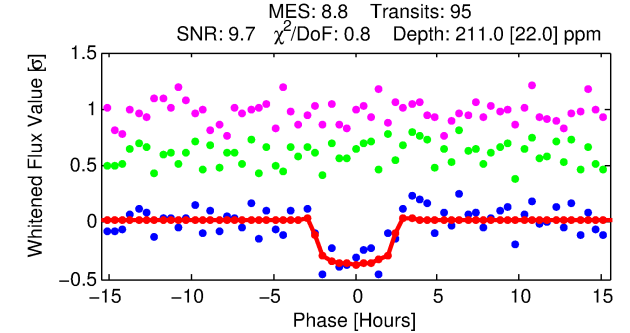
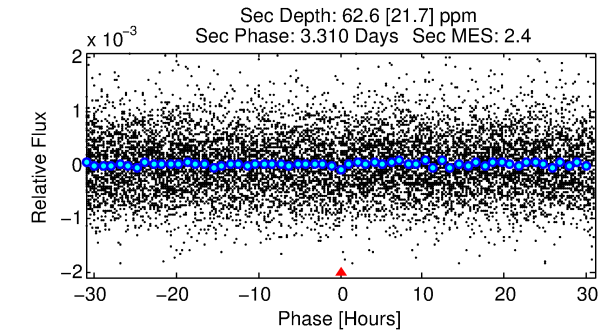
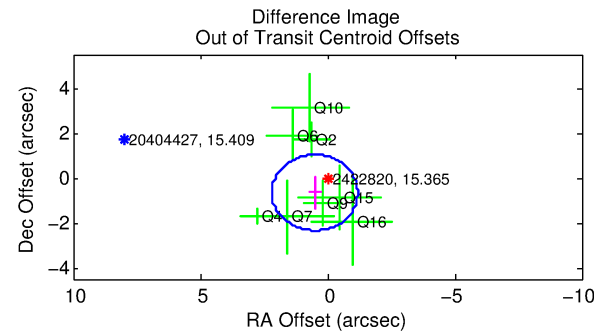
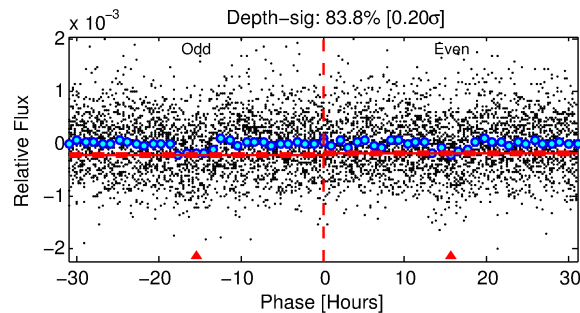
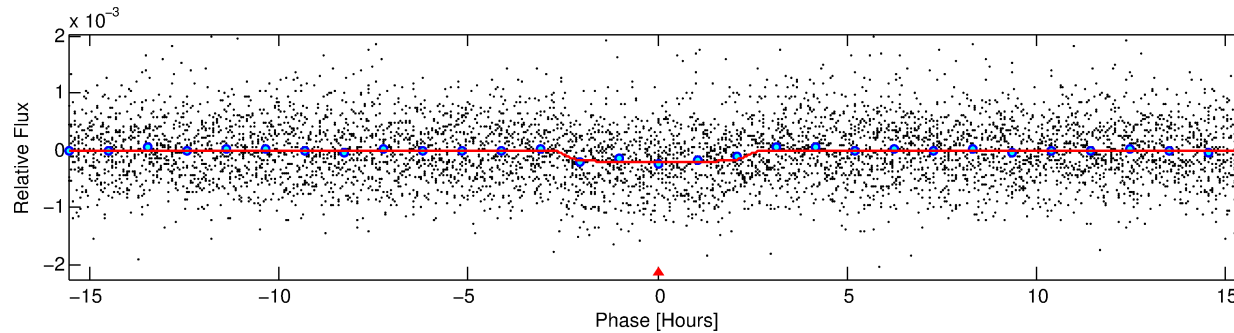
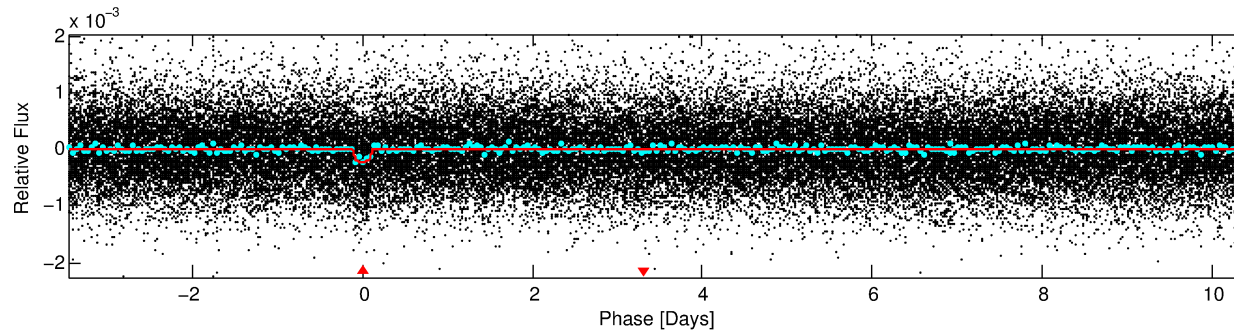
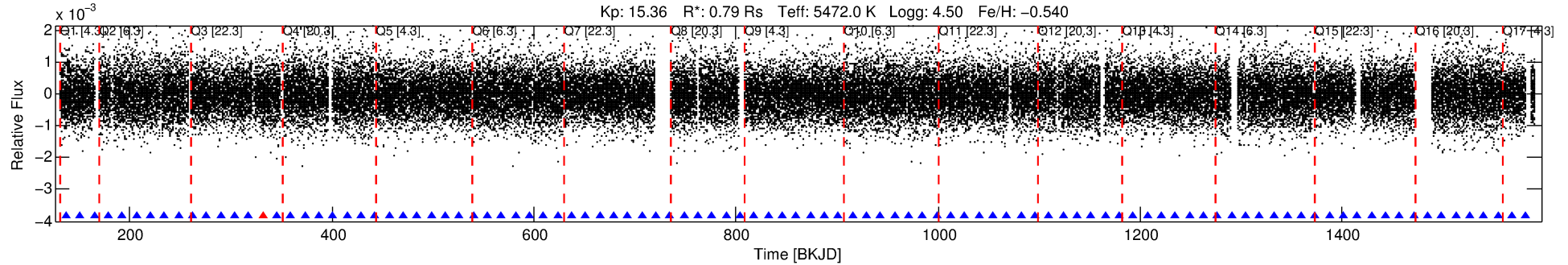
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002422820-01

No Significant Match Found

DV One-Page Summary

KIC: 2422820 Candidate: 1 of 1 Period: 13.891 d
KOI: K06267.01 Corr: 0.931



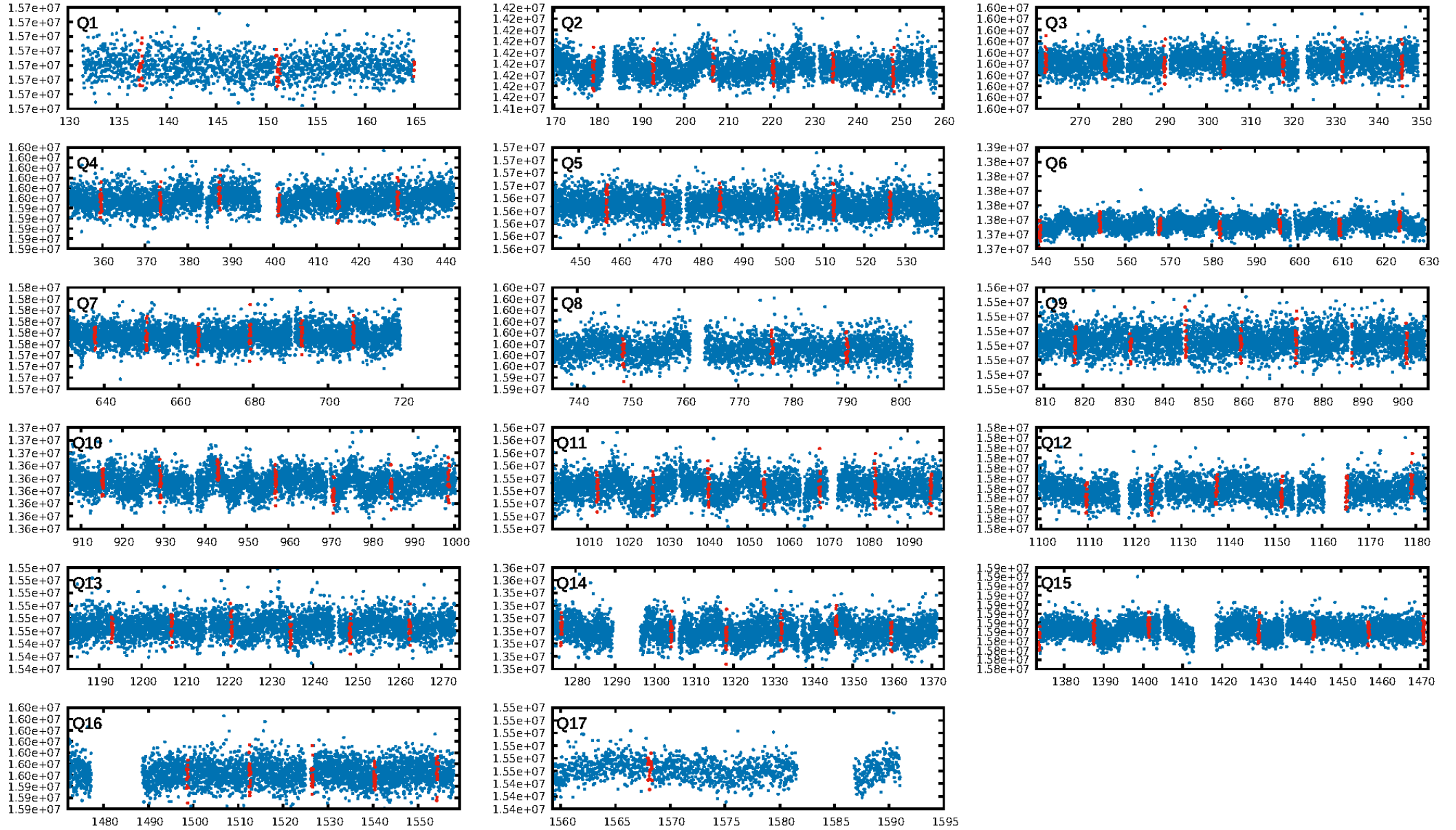
DV Fit Results:

Period = 13.89123 [0.00018] d
Epoch = 137.3472 [0.0107] BKJD
Rp/R* = 0.0152 [0.0090]
a/R* = 11.52 [30.86]
b = 0.85 [0.92]
Seff = 48.86 [11.89]
Teq = 674 [41] K
Rp = 1.31 [0.80] Re
a = 0.1013 [0.0139] AU
Ag = 206.92 [258.87] [0.80 σ]
Teff = 3953 [1226] K [2.67 σ]

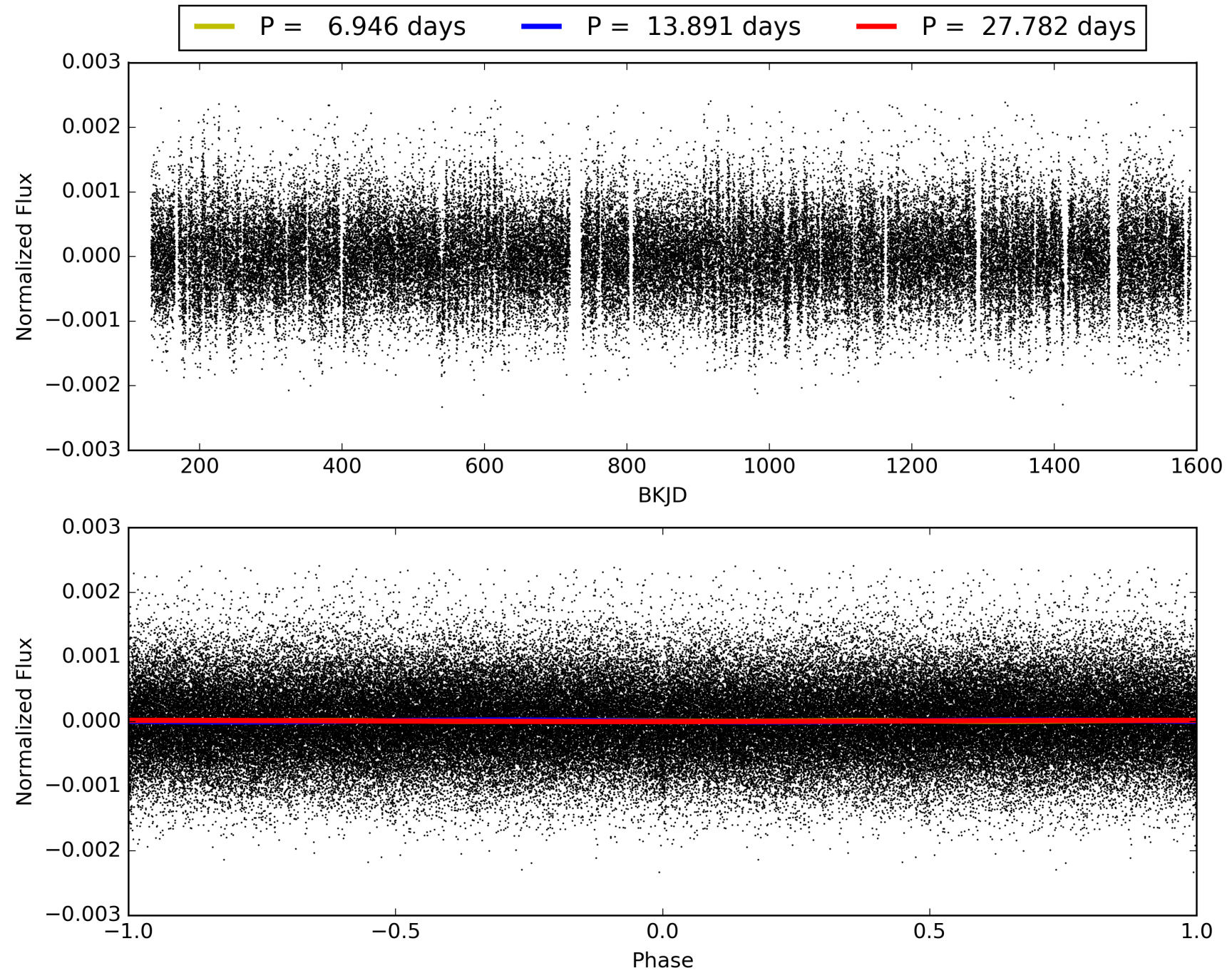
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.36e-18
RollingBand-fgt: 0.99 [91/92]
GhostDiagnostic-chr: 0.6418
Centroid-sig: 61.0%
Centroid-so: 1.798 arcsec [1.39 σ]
OotOffset-rm: 0.825 arcsec [1.47 σ]
OotOffset-st: 3/2/2/1 [8]
KicOffset-rm: 0.869 arcsec [1.54 σ]
KicOffset-st: 3/2/2/1 [8]
DiffImageQuality-fgm: 0.50 [4/8]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 002422820-01, PDC Light Curves

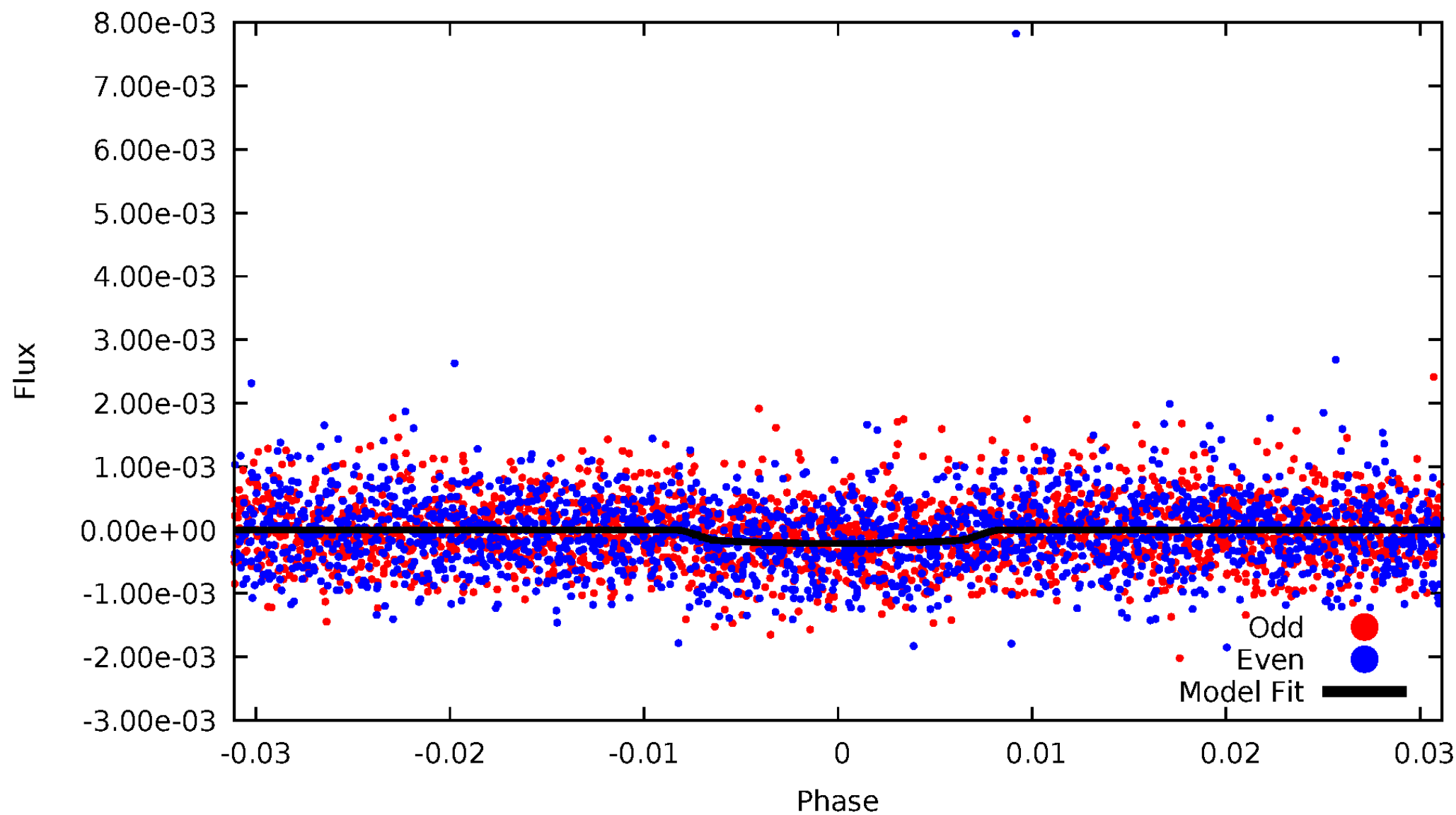


TCE 002422820-01



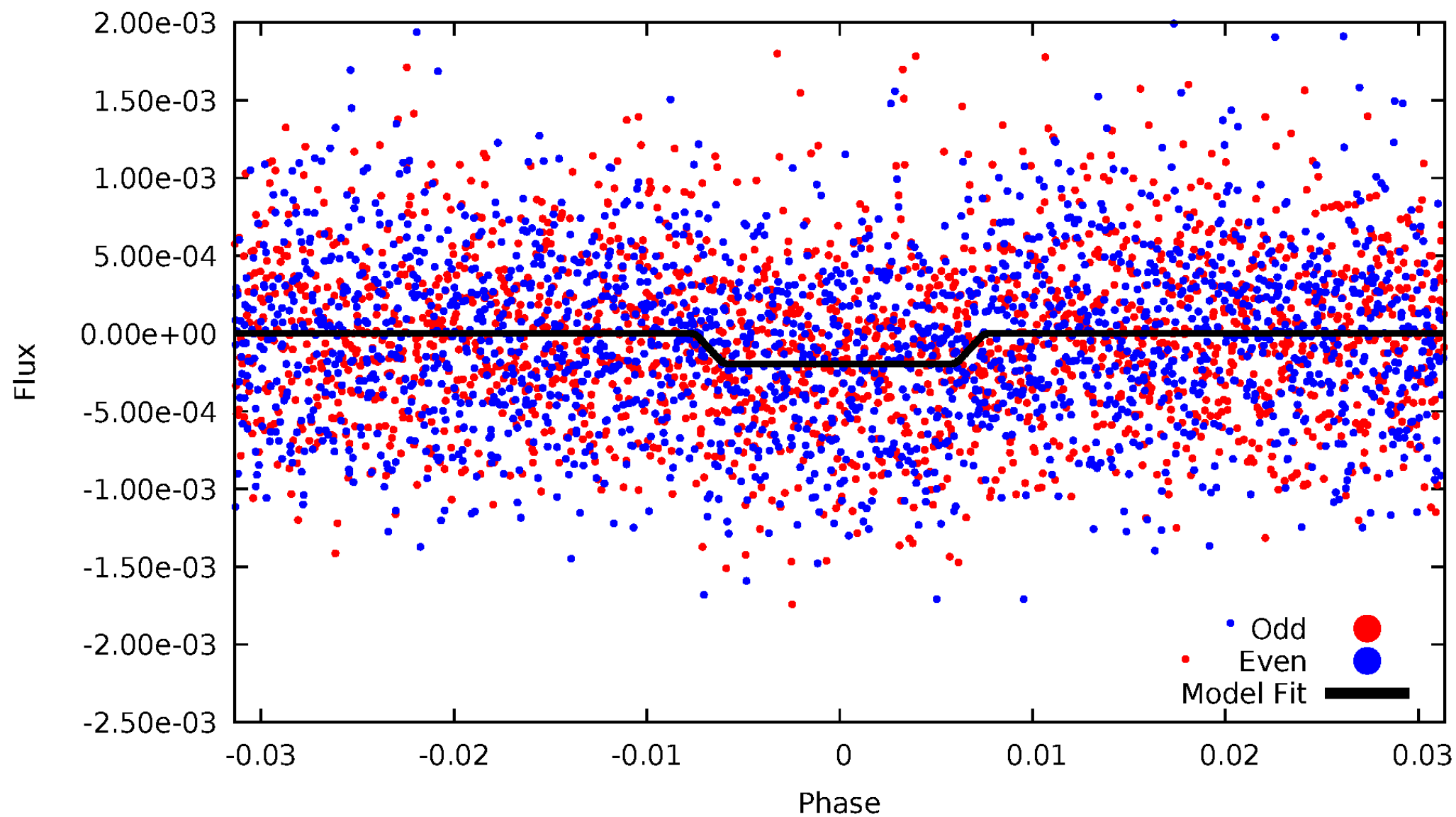
DV Odd/Even

TCE 002422820-01



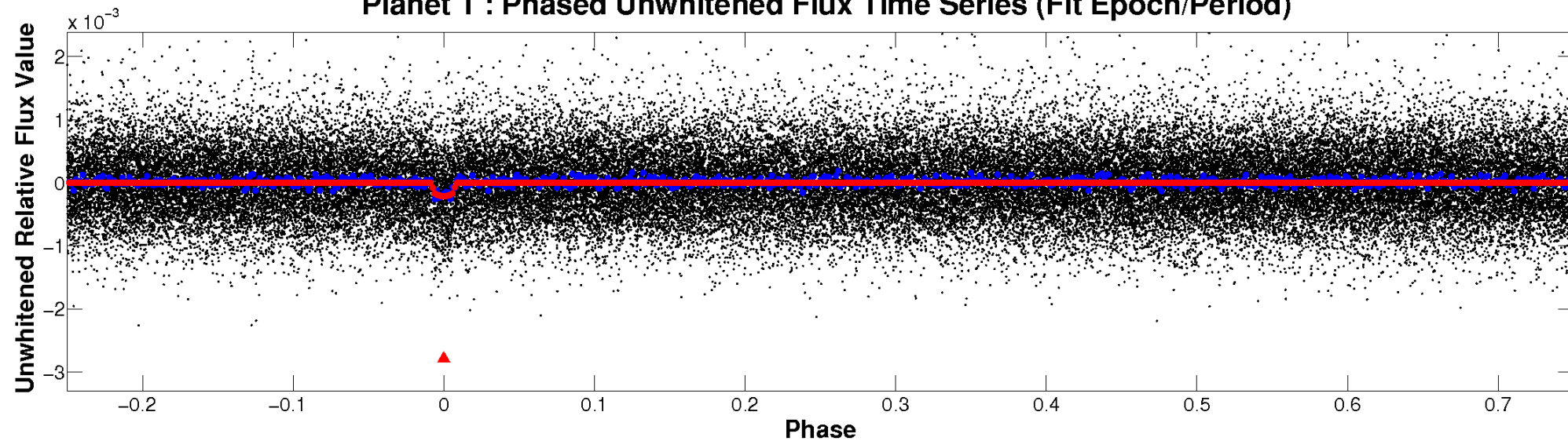
ALT Odd/Even

TCE 002422820-01

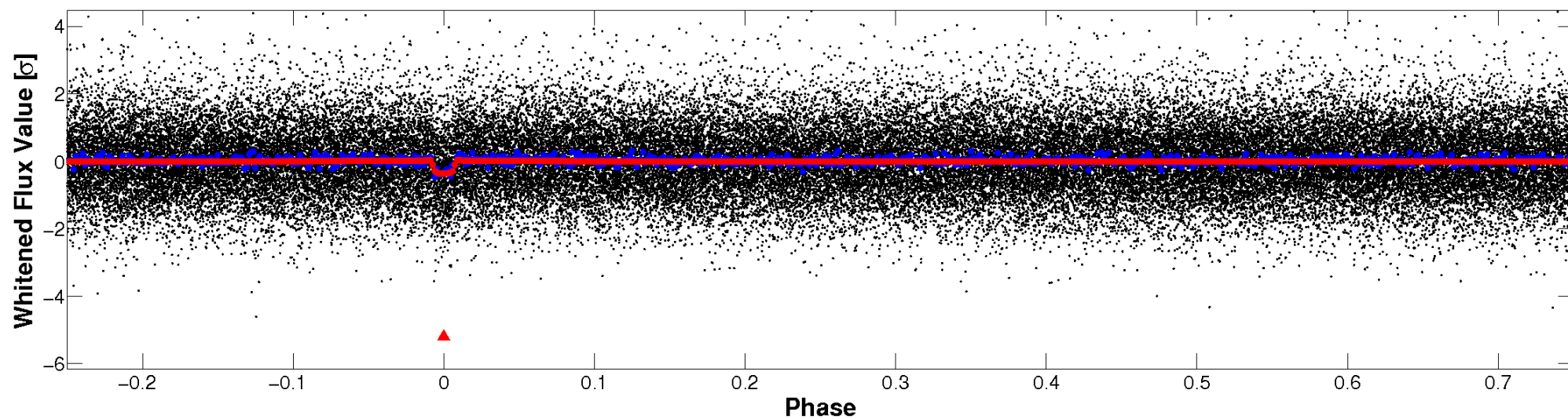


Non-Whitened Vs. Whitened Light Curve

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

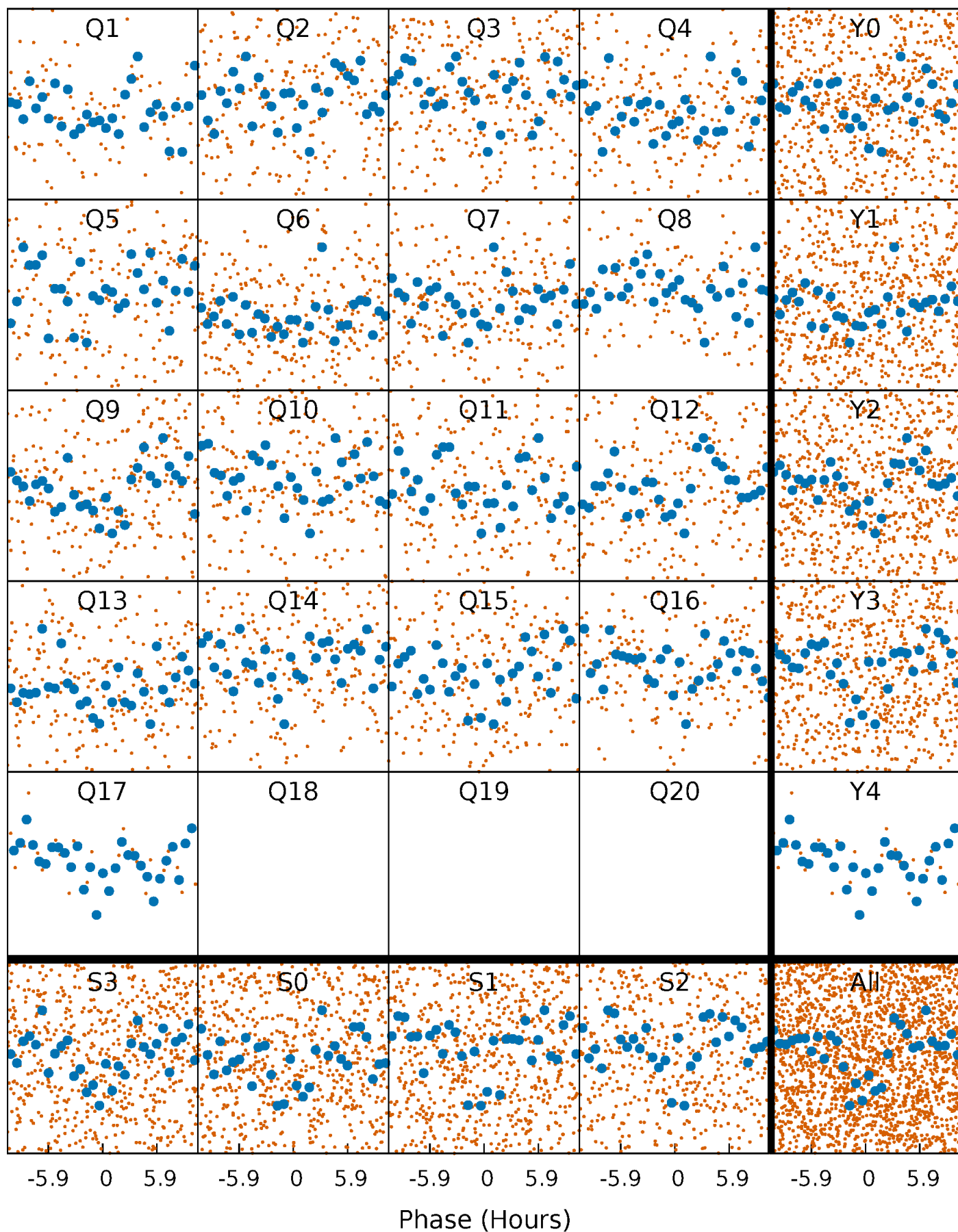


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



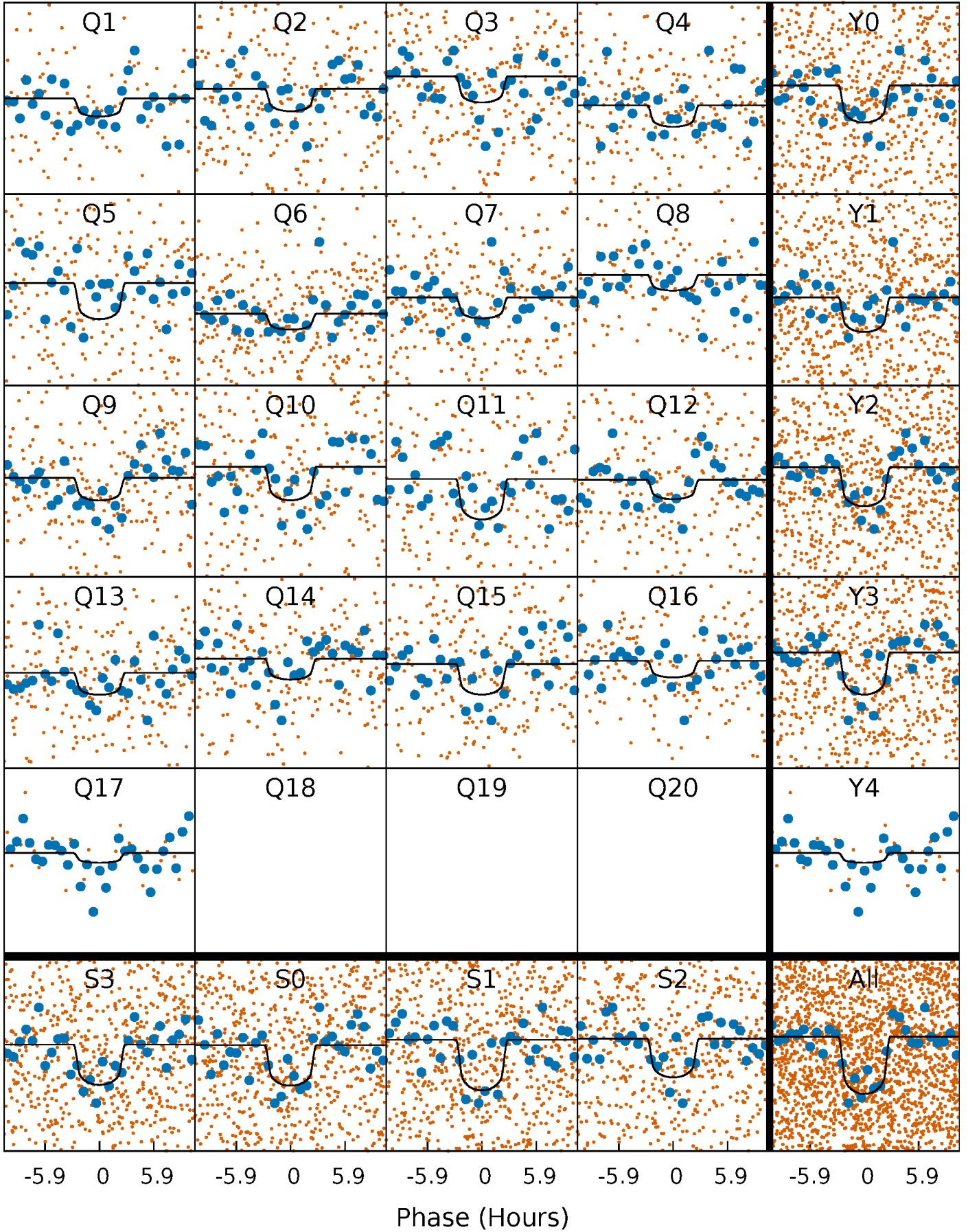
PDC Quarter-Phased Transit Curves

TCE 002422820-01 P= 13.891225 Days $T_0=137.347198$ (BKJD)



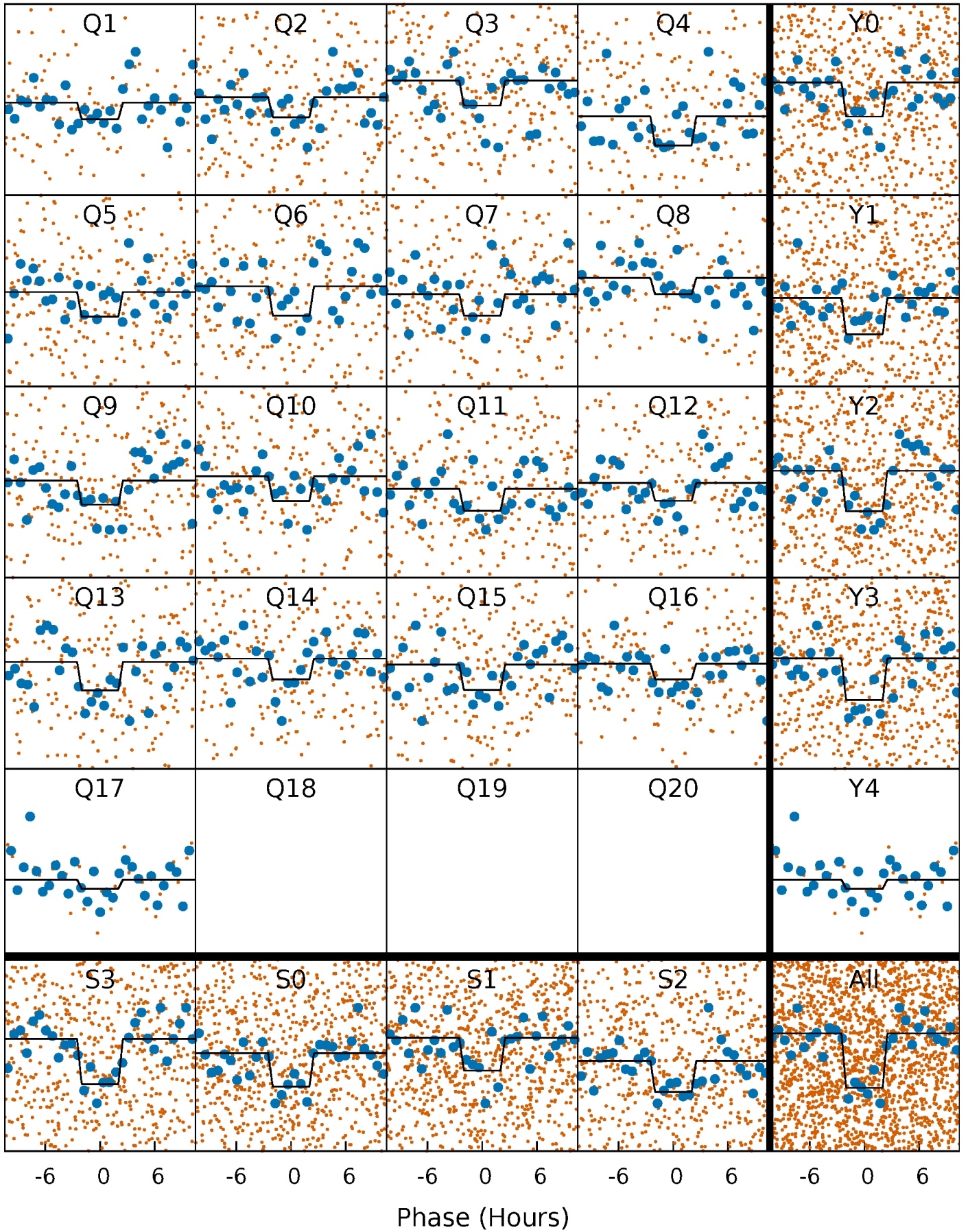
DV Quarter-Phased Transit Curves

TCE 002422820-01 P= 13.891225 Days $T_0=137.347198$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

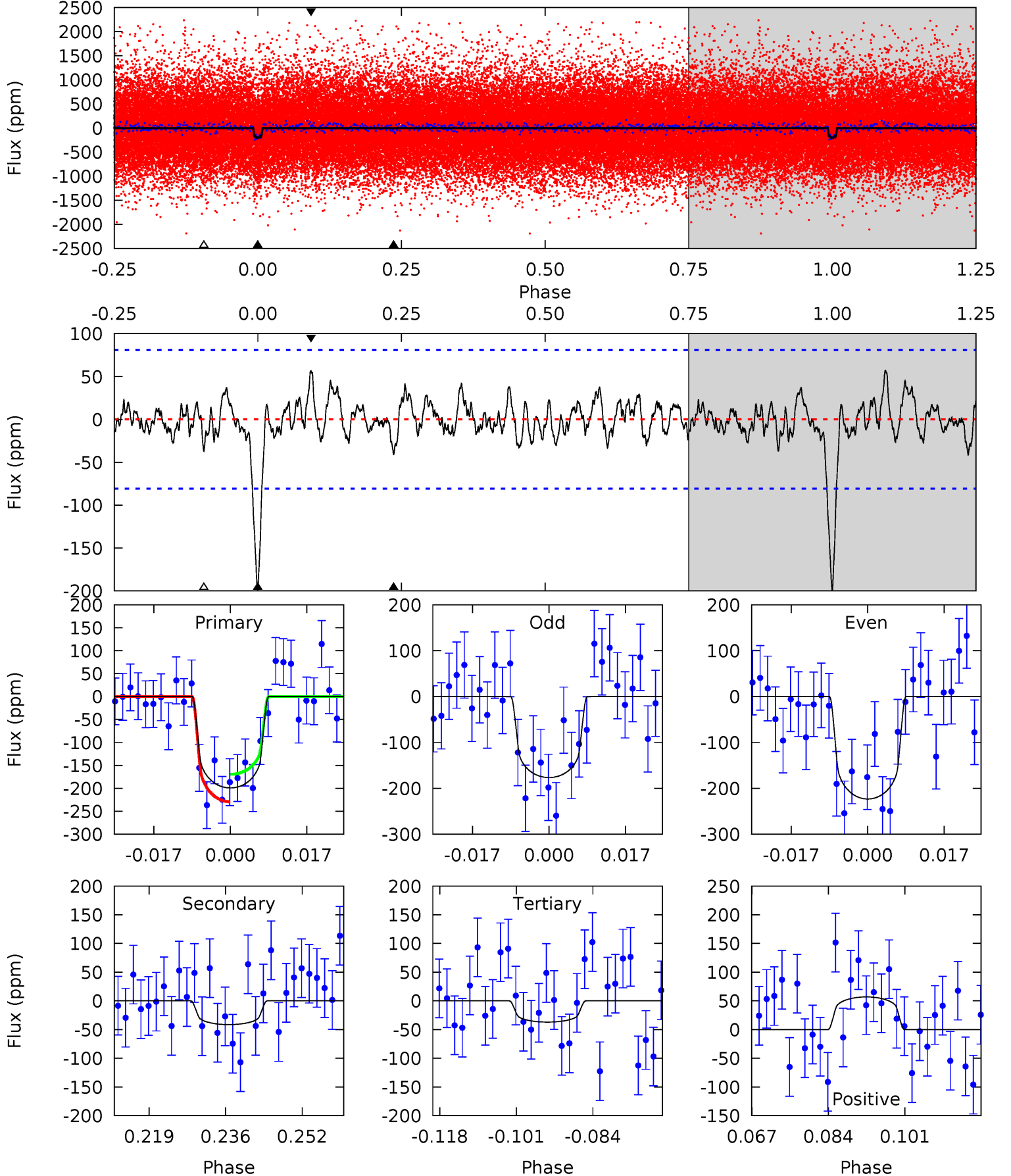
TCE 002422820-01 P= 13.891087 Days $T_0=137.344837$ (BKJD)



DV Model-Shift Uniqueness Test

002422820-01, P = 13.891225 Days, E = 123.455973 Days

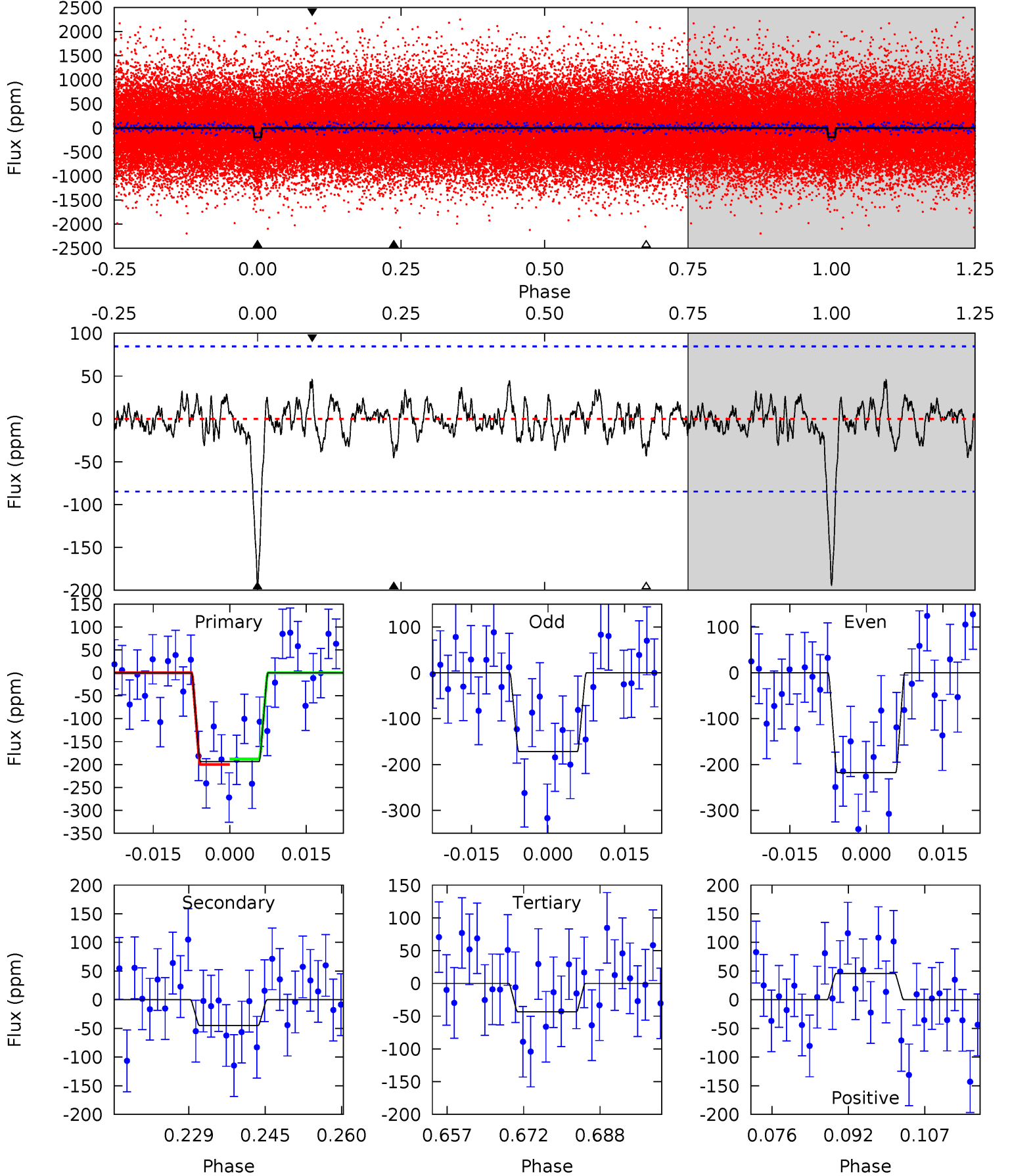
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	2.52	2.25	3.46	4.93	2.39	1.00	9.88	8.67	0.27	-0.94	1.43	1.01	0.22	1.83



Alt Model-Shift Uniqueness Test

002422820-01, $P = 13.891087$ Days, $E = 123.453750$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	2.62	2.53	2.67	4.94	2.43	0.88	8.78	8.63	0.09	-0.06	1.33	0.97	0.19	0.35



Stellar Parameters For KIC 002422820

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5472^{+179}_{-163}	$4.499^{+0.115}_{-0.115}$	$-0.540^{+0.300}_{-0.300}$	$0.790^{+0.124}_{-0.101}$	$0.718^{+0.111}_{-0.037}$	$2.052^{+0.969}_{-0.655}$
	+3%/-3%	+3%/-3%	+56%/-56%	+16%/-13%	+15%/-5%	+47%/-32%
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 002422820-01 / KOI 6267.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-41 ± 16	$1.34^{+0.84}_{-0.70}$	942^{+50}_{-48}	3834^{+1306}_{-610}	127^{+468}_{-84}
Alt.	-45 ± 17	$1.30^{+0.77}_{-0.70}$	941^{+47}_{-49}	3947^{+1398}_{-616}	149^{+562}_{-96}

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 $A_{obs} \gg 1.0$

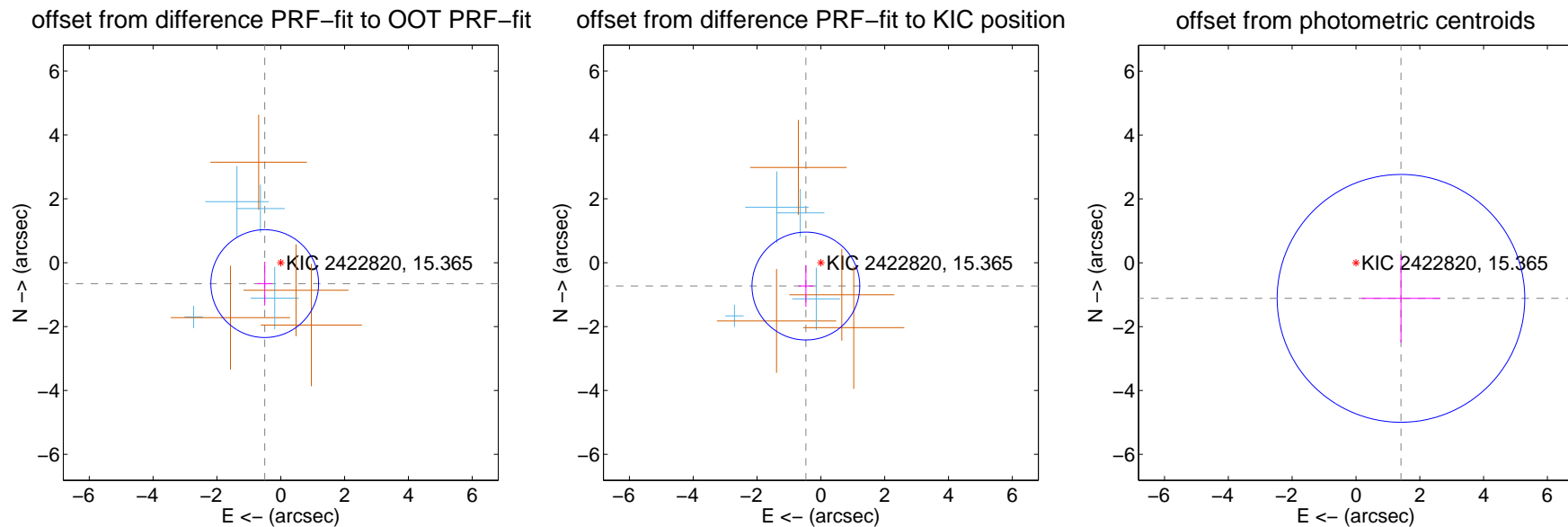
DV Centroid Data

Supplemental centroid analysis for 002422820-01. Kepler magnitude: 15.37. Transit SNR 9.66

There are 4 quarters with good PRF difference image offsets

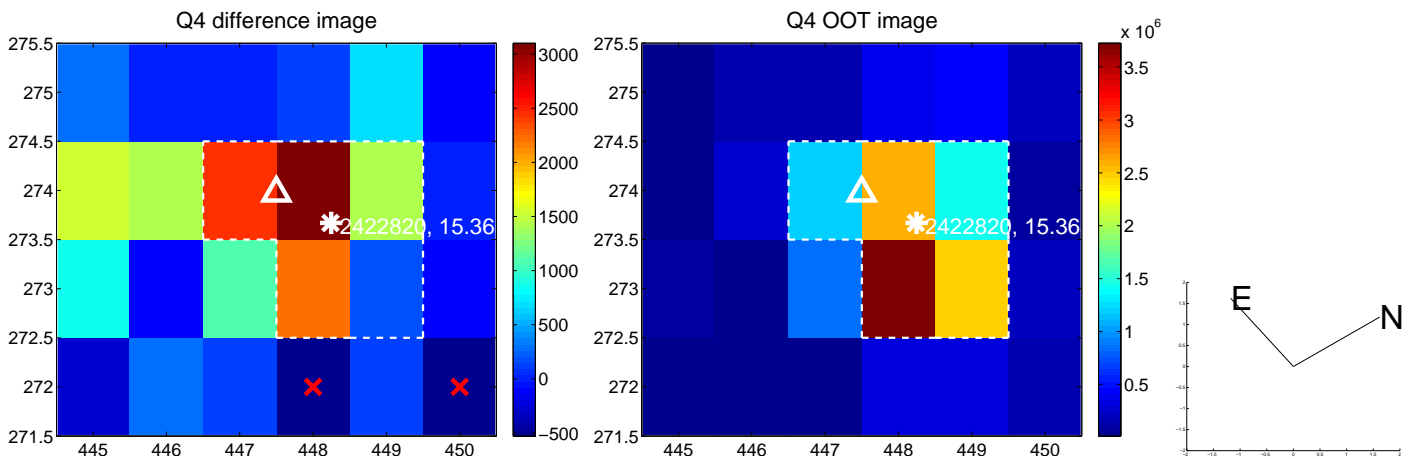
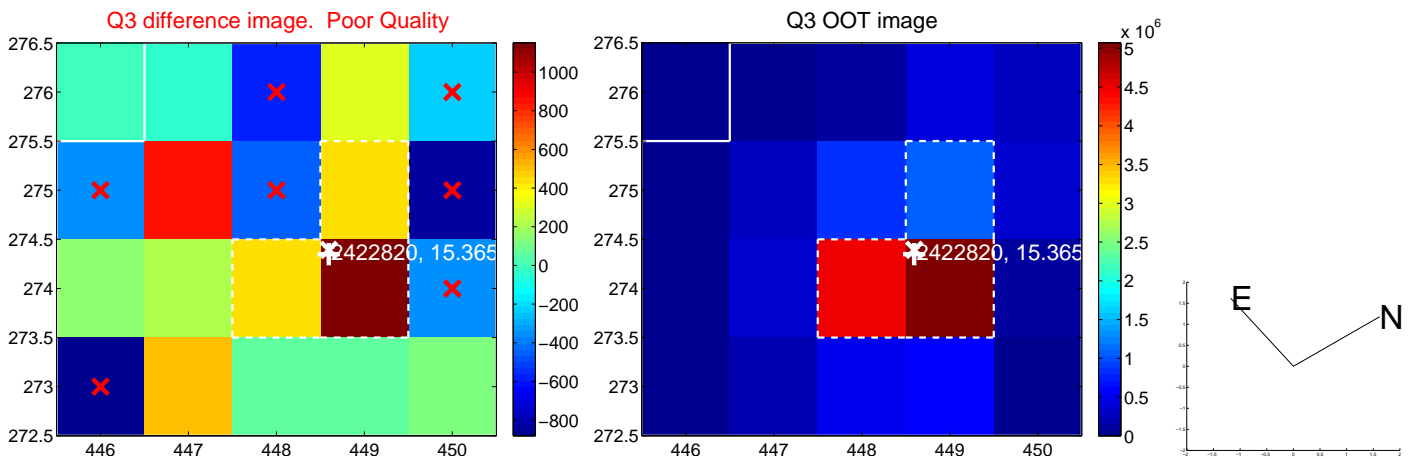
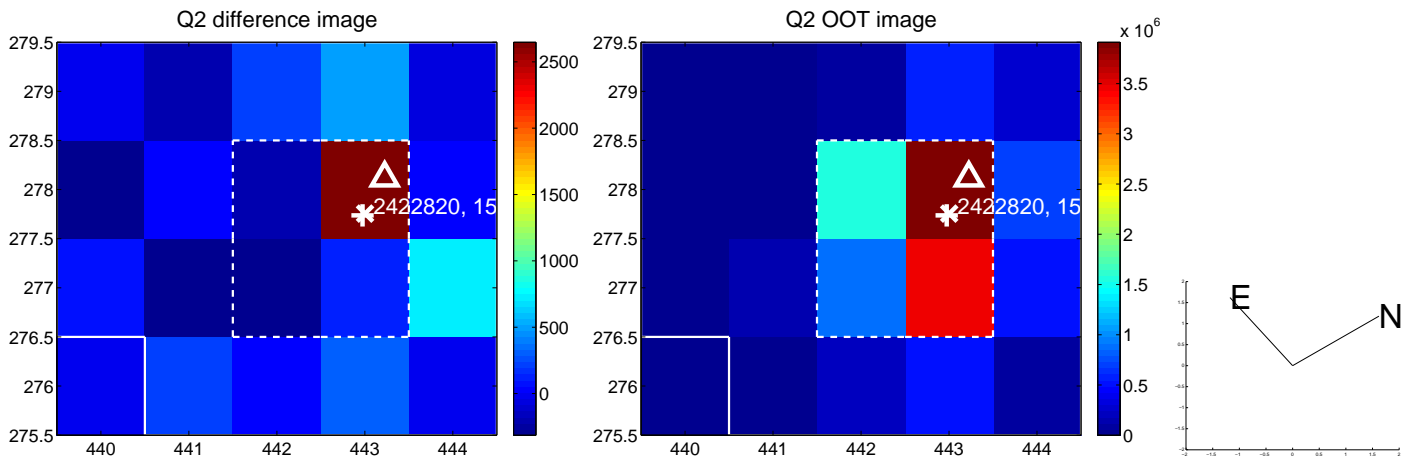
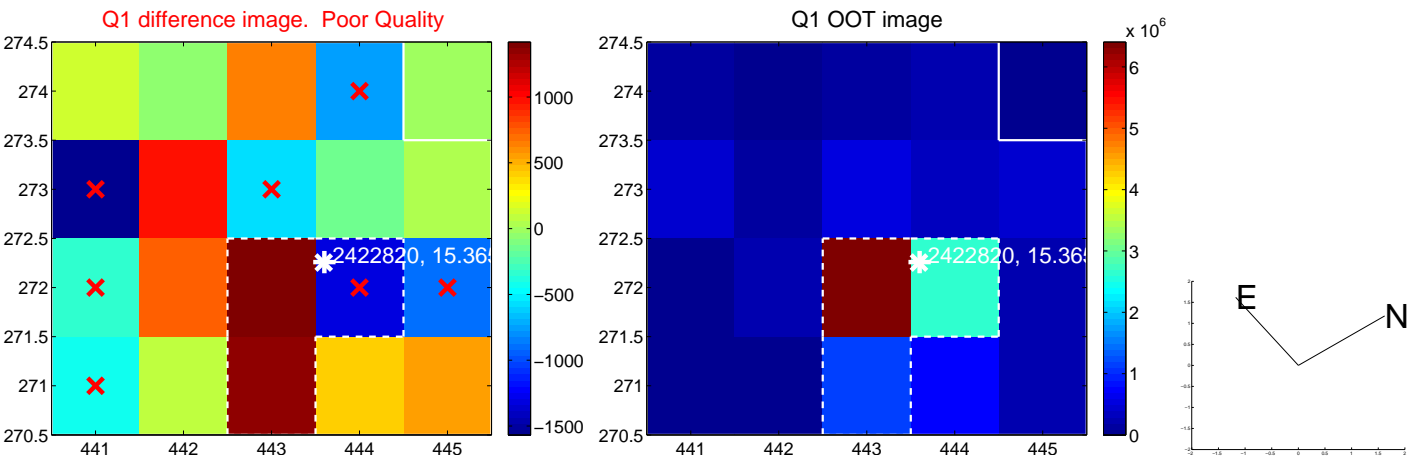
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.825 ± 0.563	1.47	0.502 ± 0.228	-0.655 ± 0.687
PRF-fit source offset from KIC position	0.869 ± 0.563	1.54	0.470 ± 0.234	-0.731 ± 0.652
photometric centroid source offset	1.80 ± 1.29	1.39	-1.41 ± 1.23	-1.11 ± 1.38

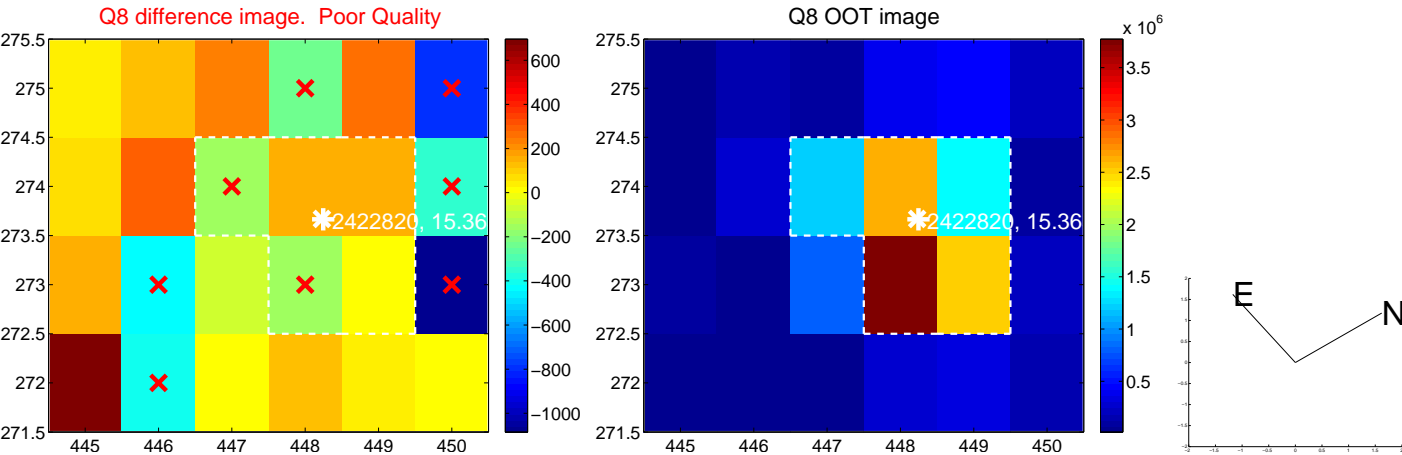
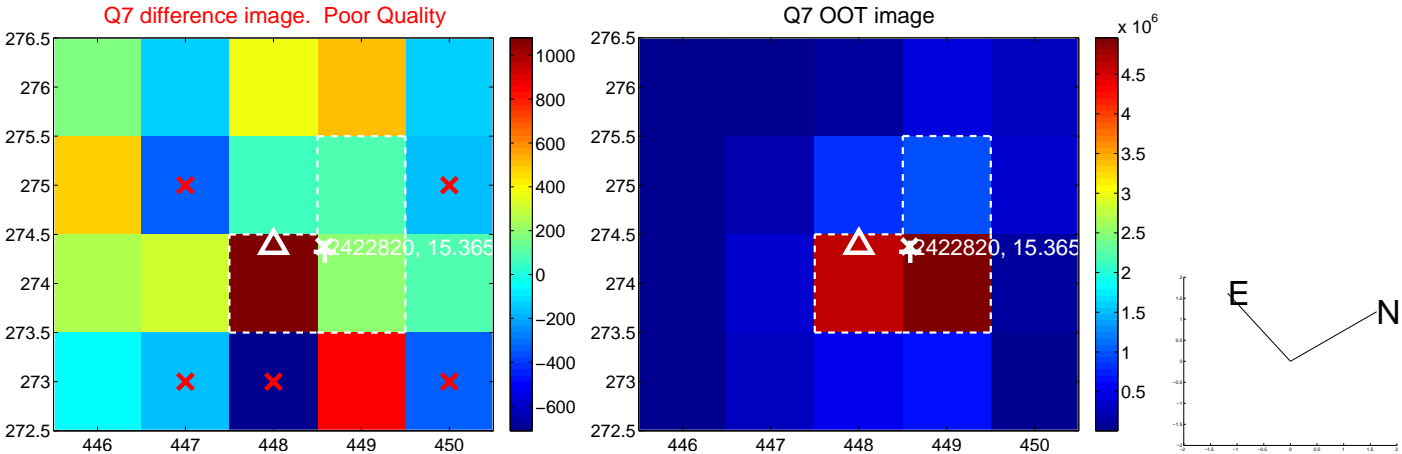
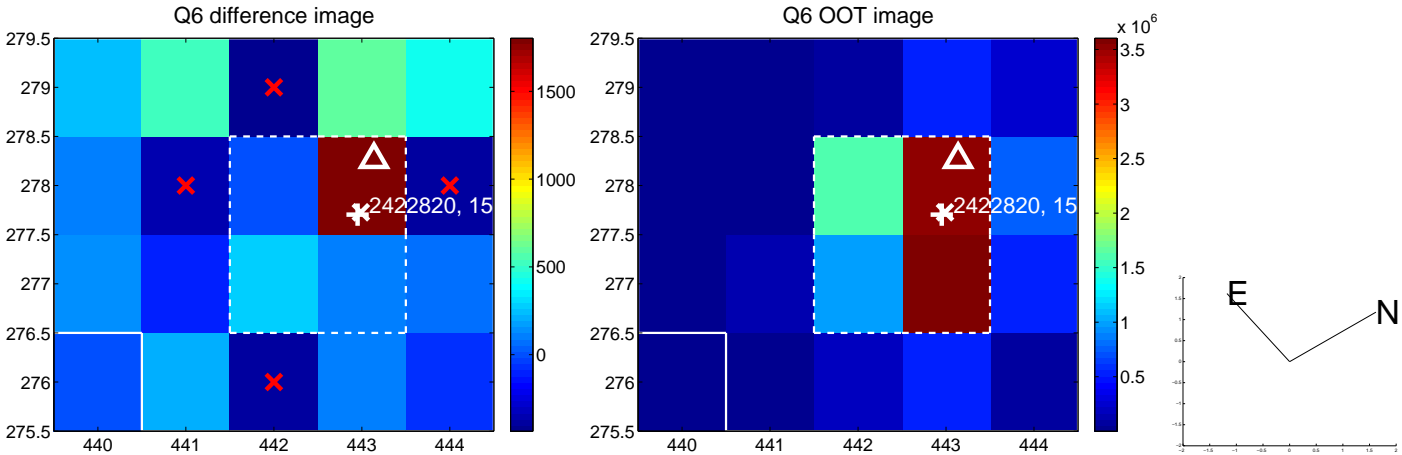
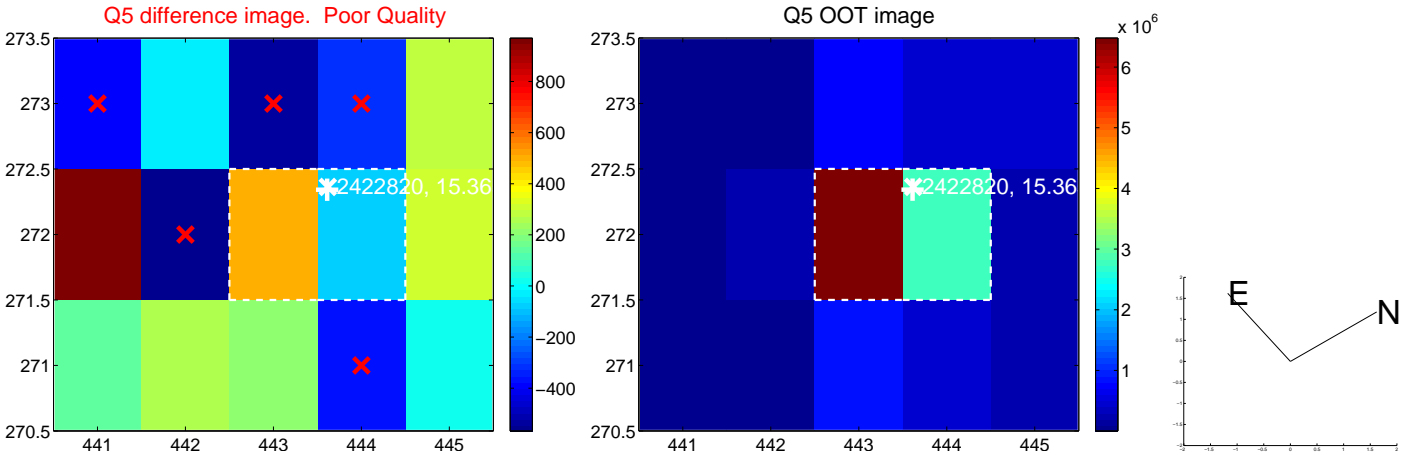


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

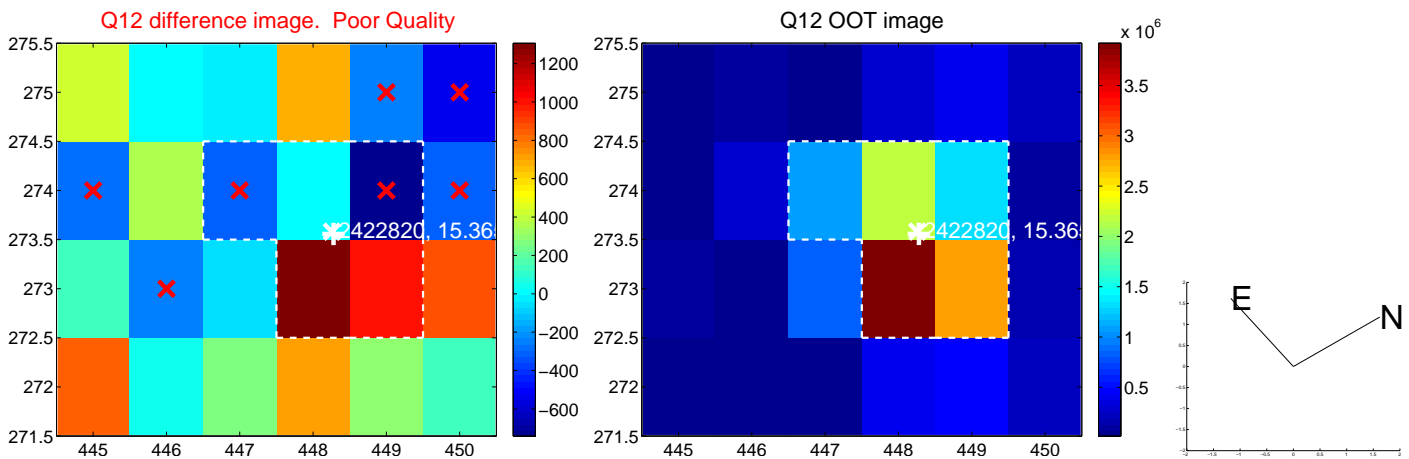
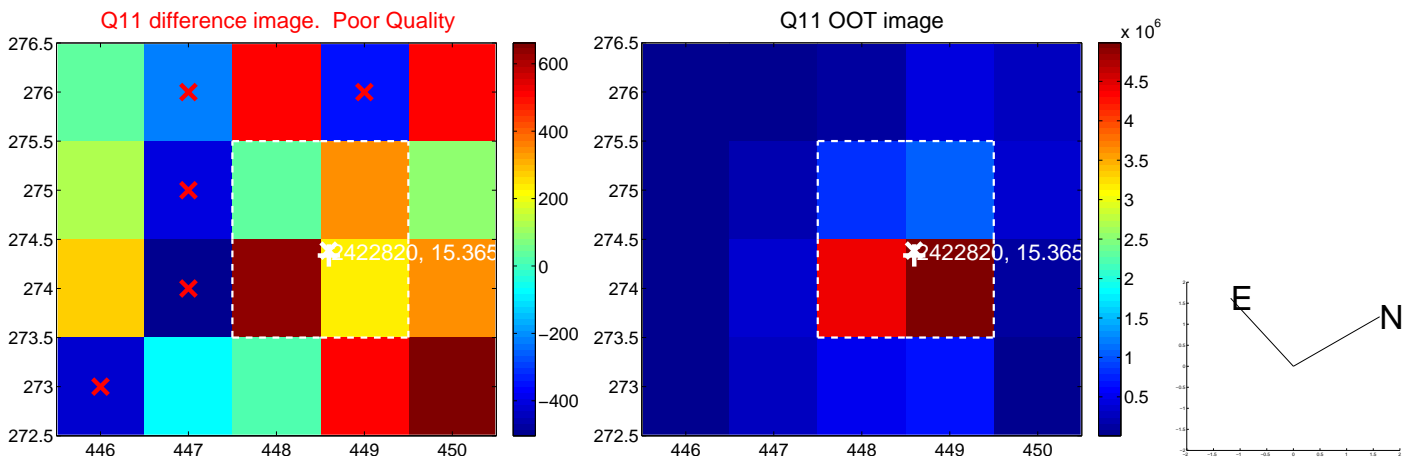
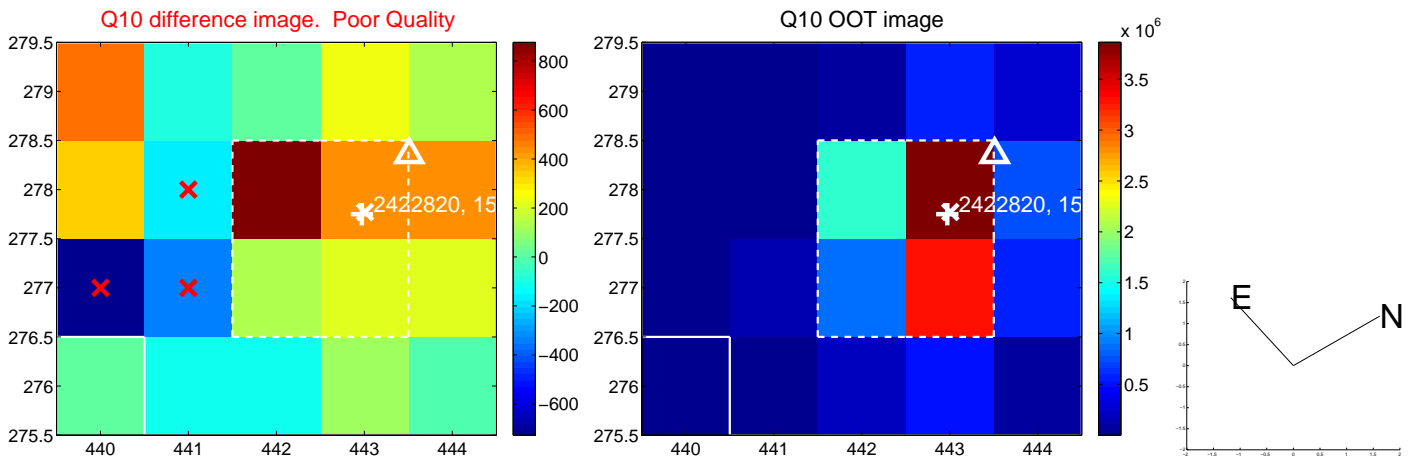
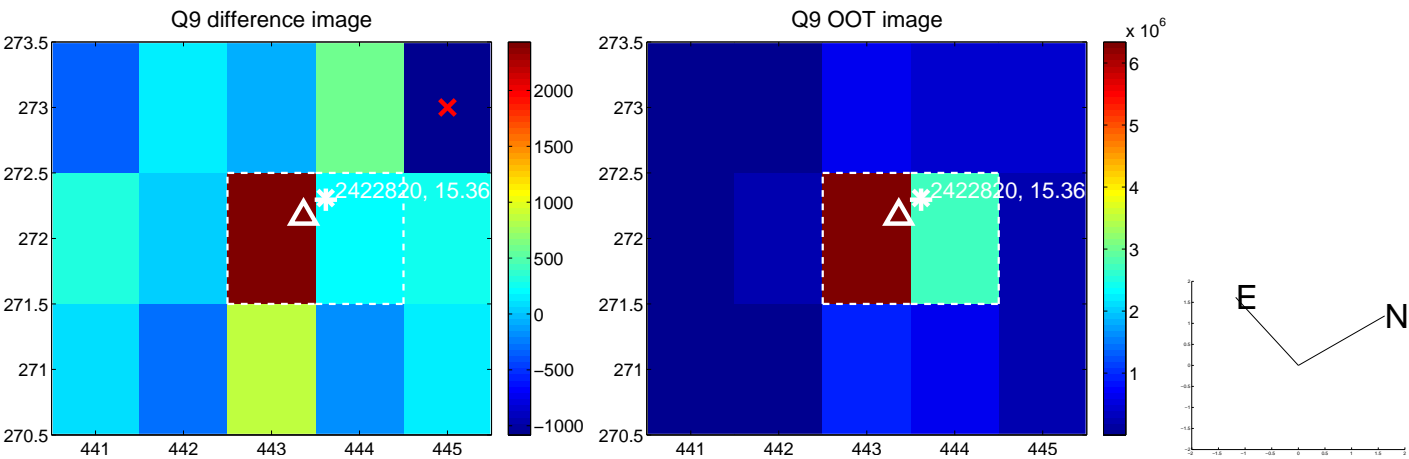
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



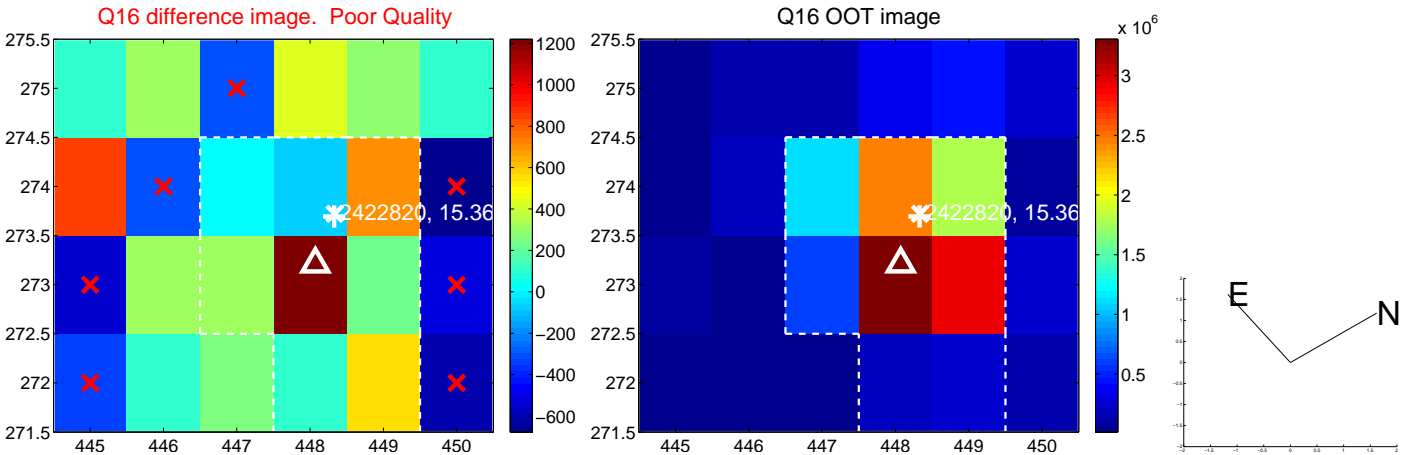
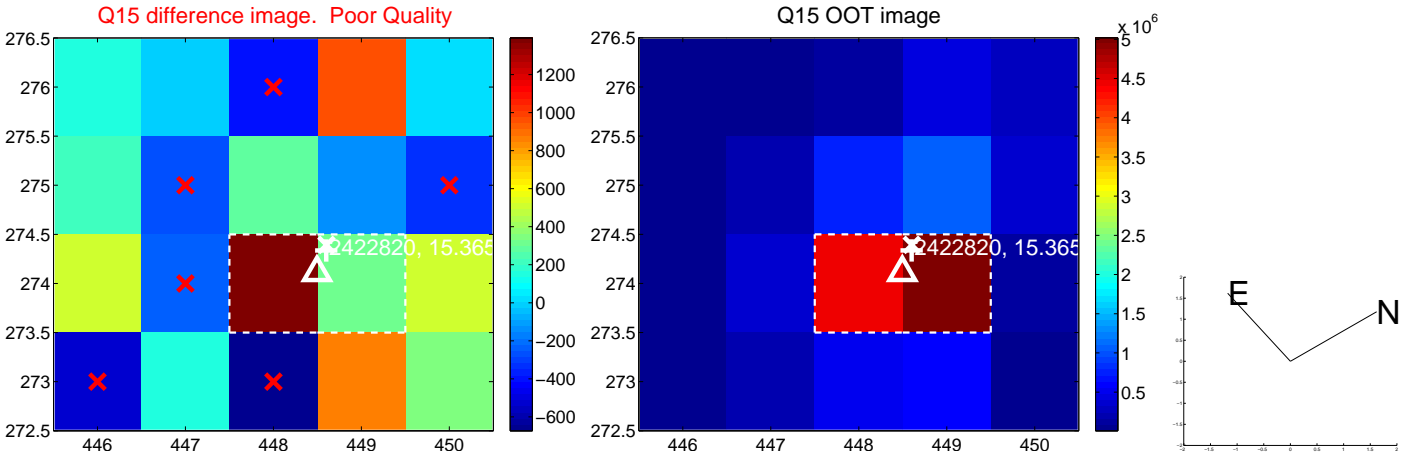
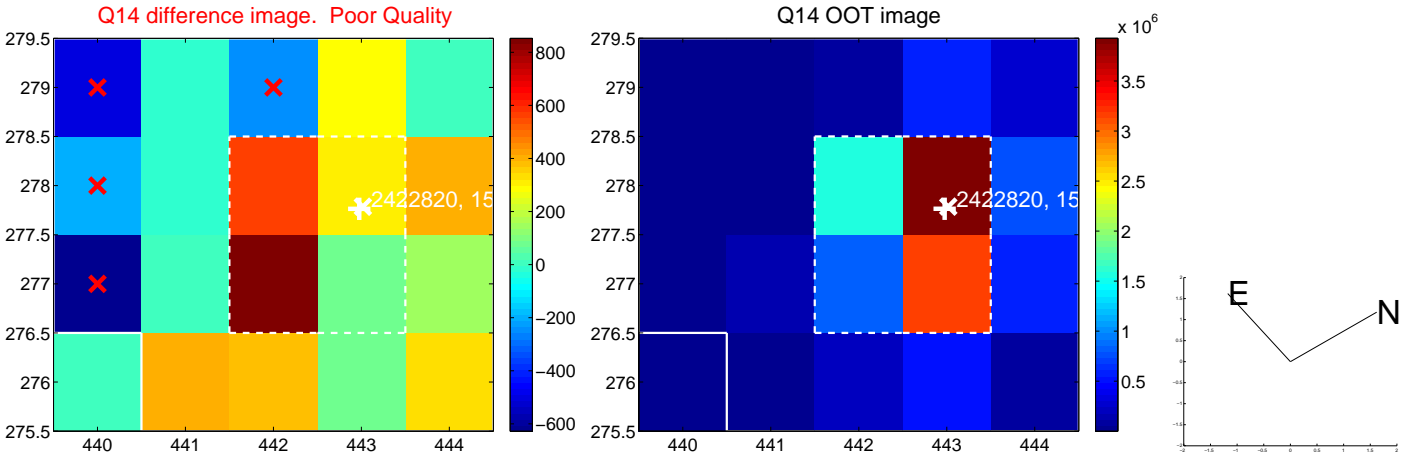
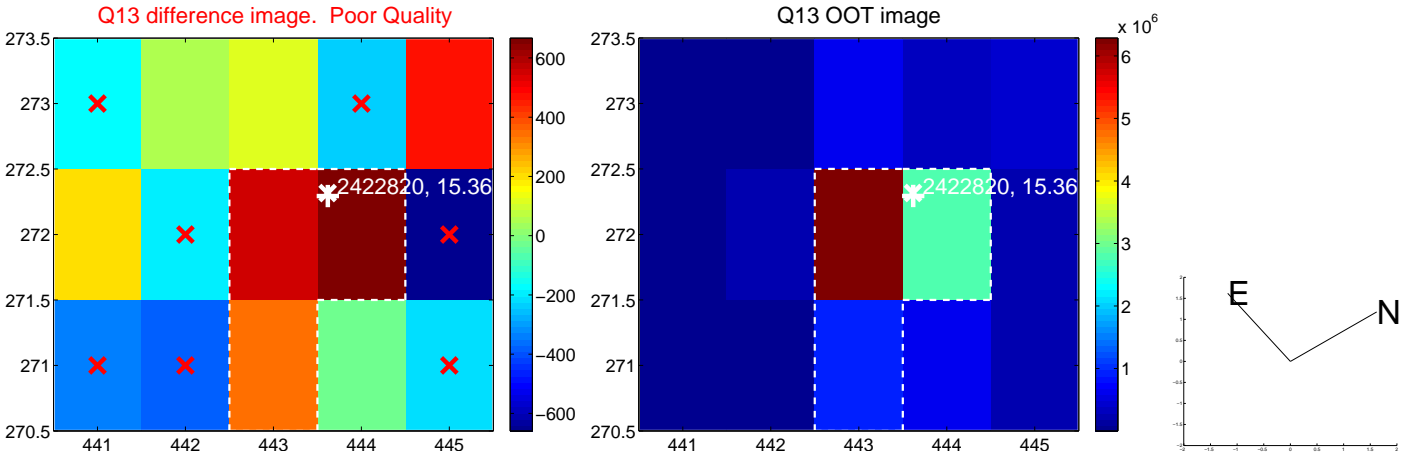
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



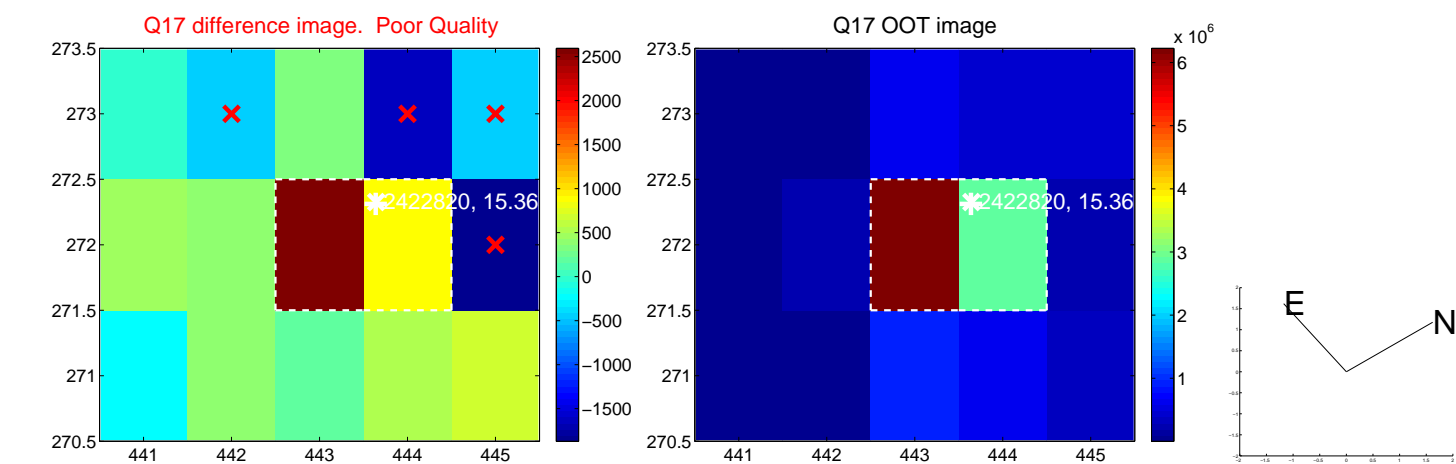
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



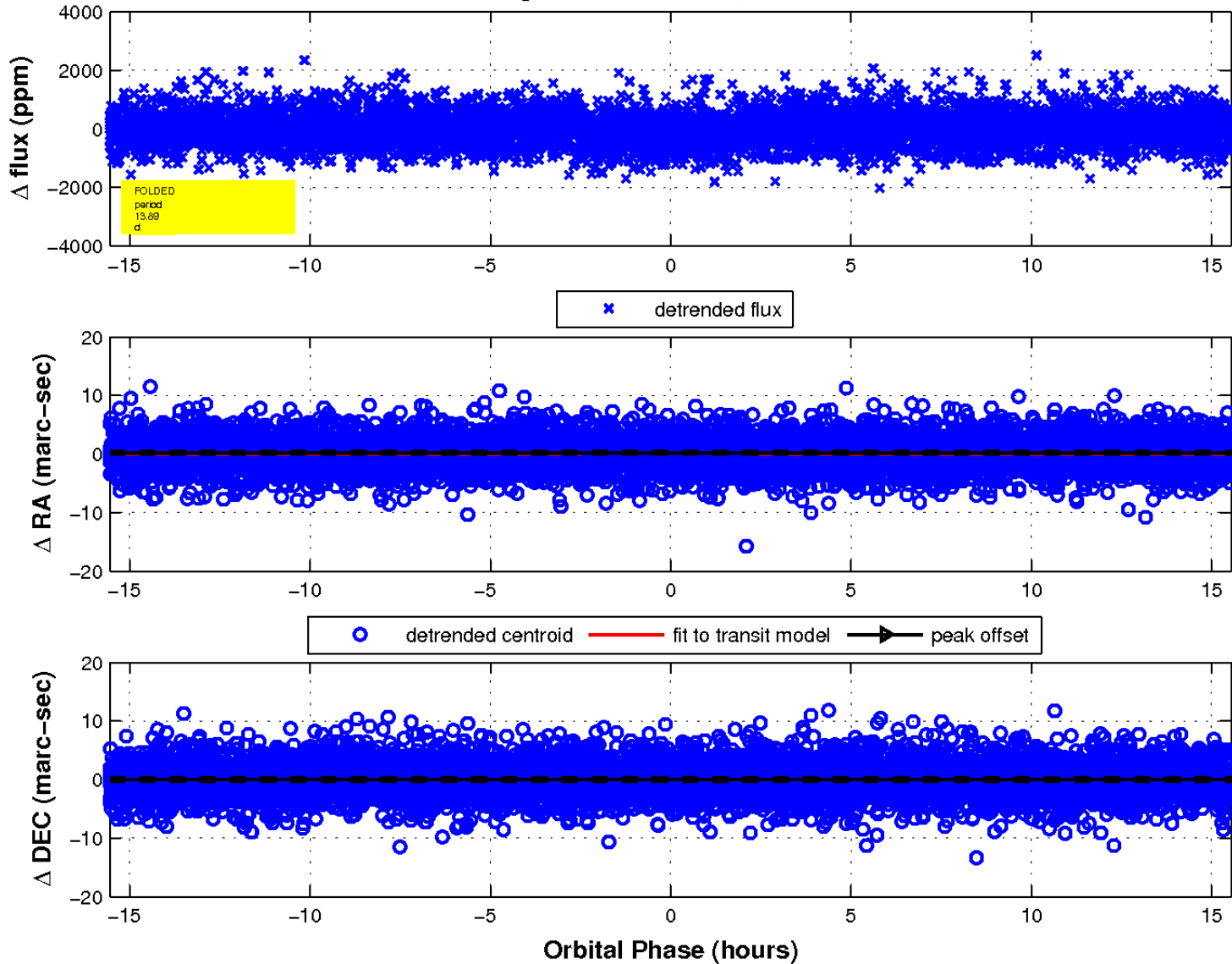
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

