

KIC 009899280

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})
009899280-01	OBS	1559.01	1.332513	132.075536	165.2	2.934	24.5	24.6	0.61	4489	0.96	329.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899280-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_ALT—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH

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.

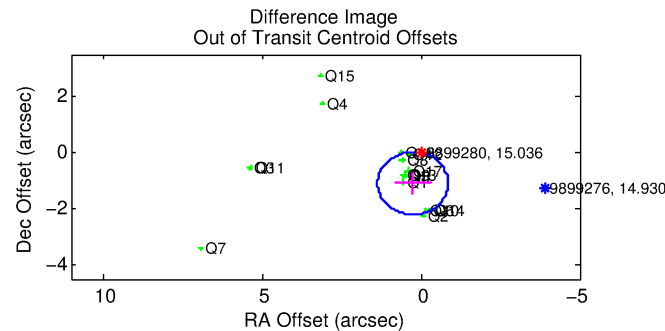
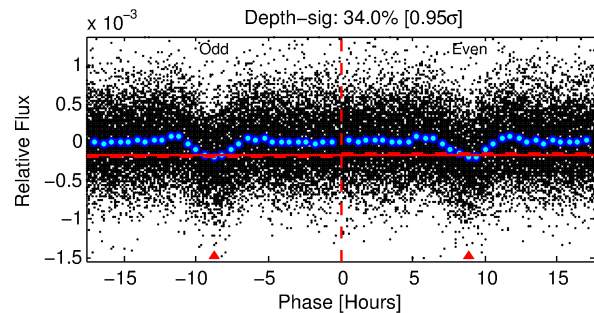
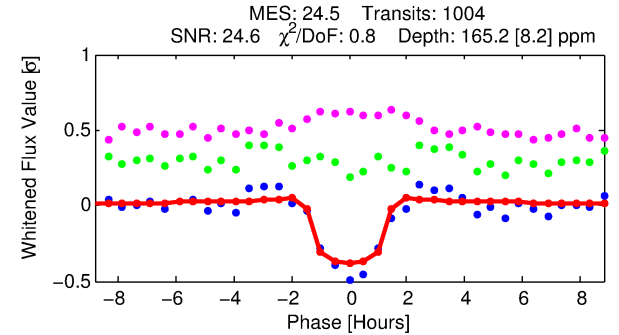
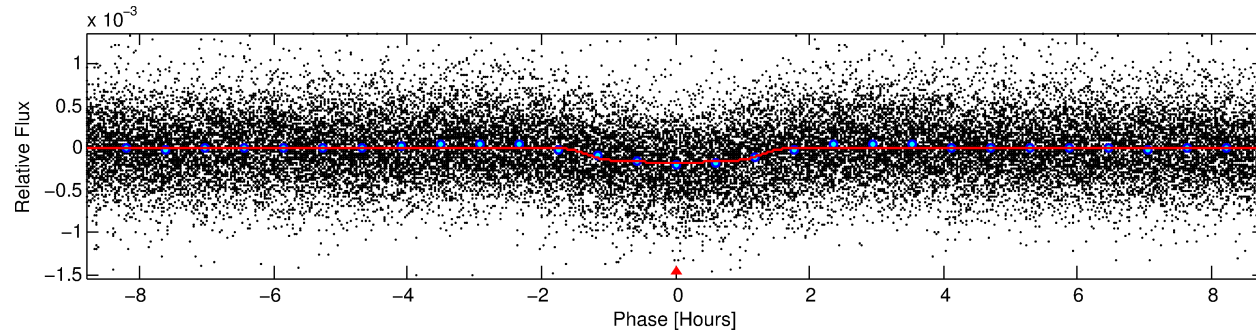
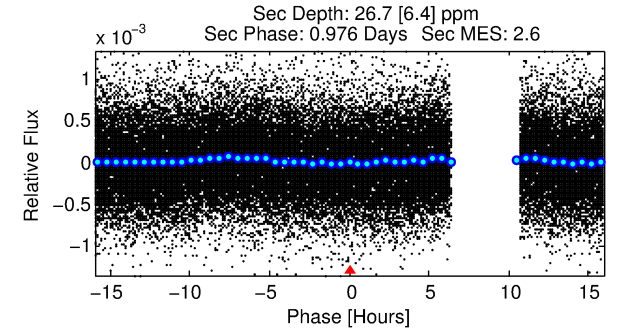
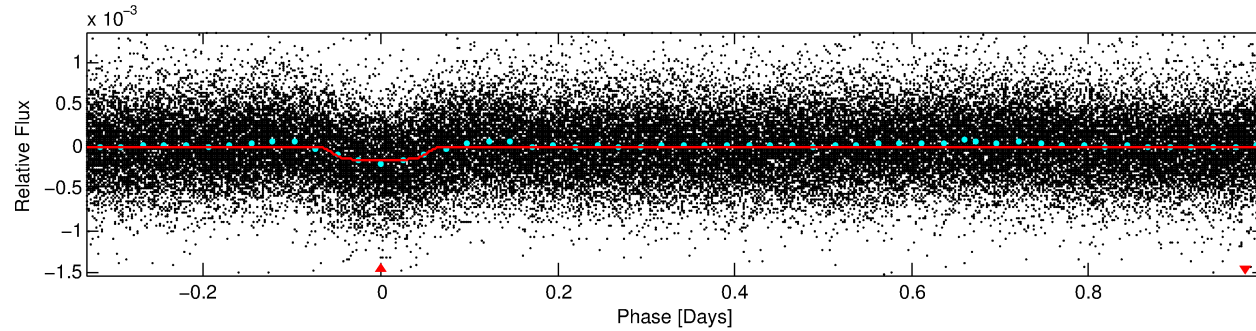
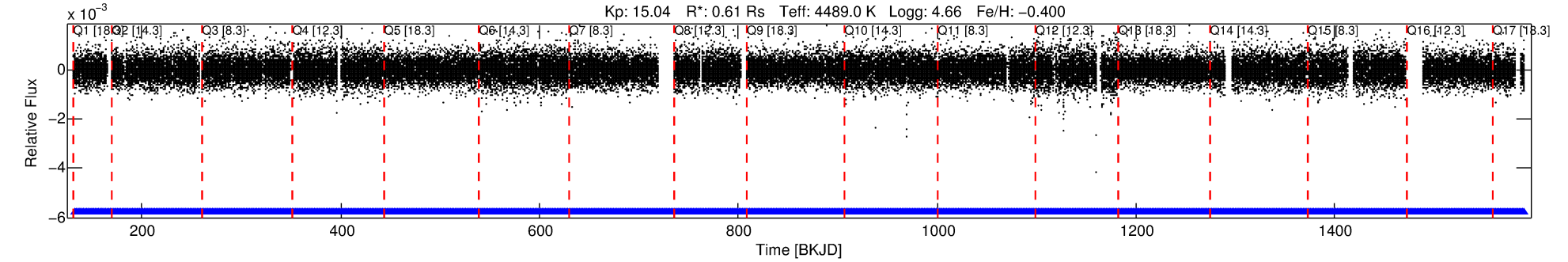
Ephemeris Match Information For 009899280-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009899280-01	9899280	BR-Cyg-pri	9899416	1:1	104.9	22	-15	10.03	15.04	4053.80	Direct-PRF	0	3.15	1.85

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 9899280 Candidate: 1 of 1 Period: 1.333 d
KOI: K01559.01 Corr: 0.834



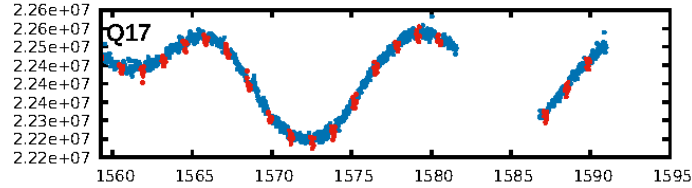
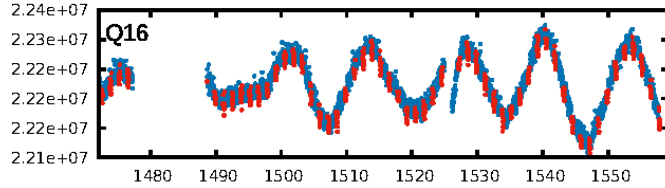
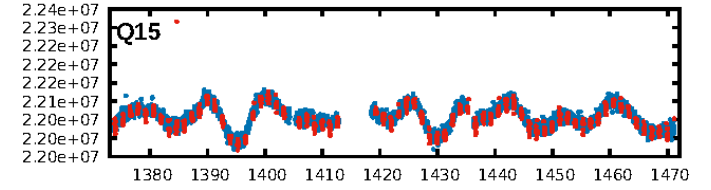
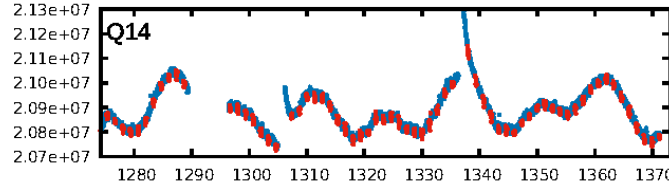
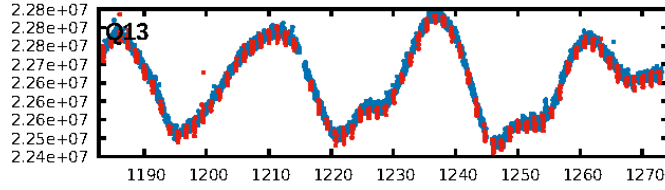
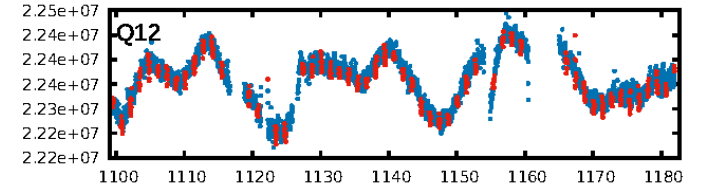
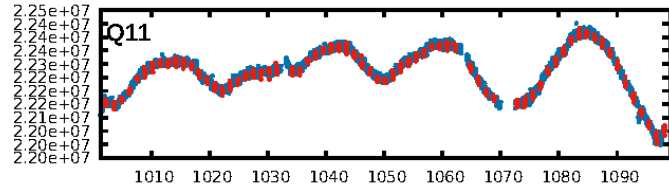
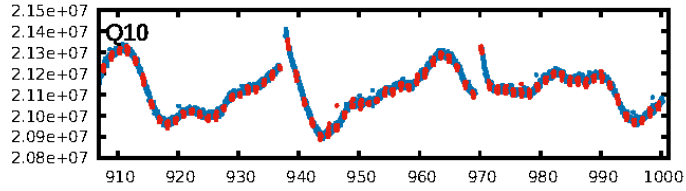
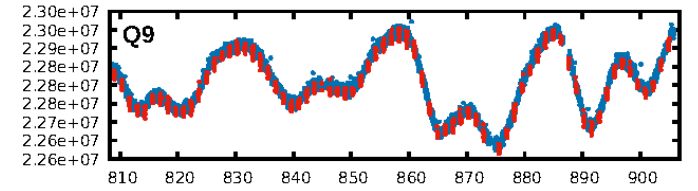
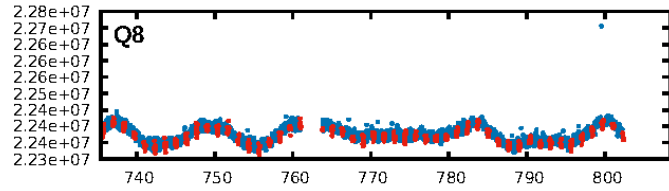
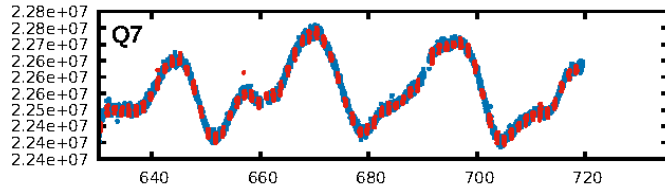
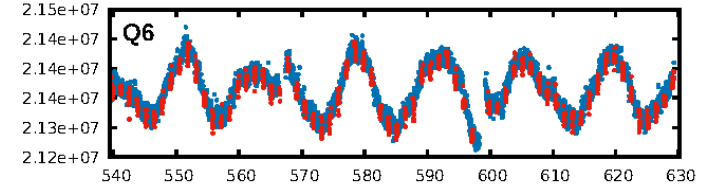
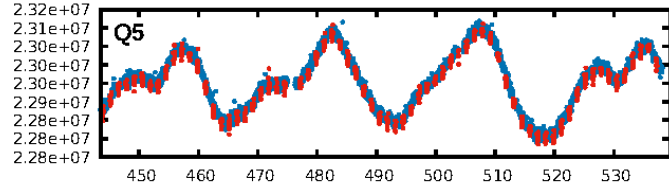
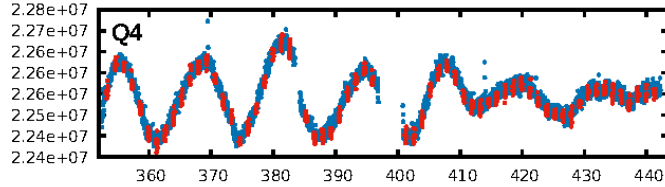
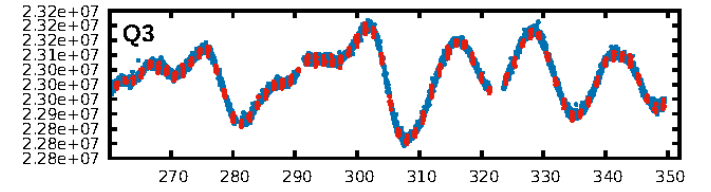
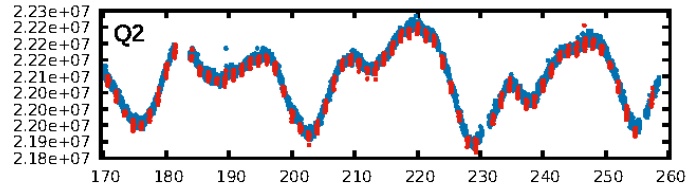
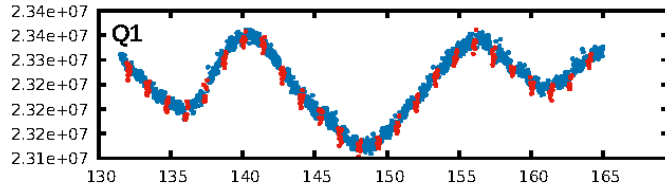
DV Fit Results:

Period = 1.33251 [0.00000] d
Epoch = 132.0755 [0.0014] BKJD
Rp/R* = 0.0145 [0.0039]
a/R* = 1.87 [1.38]
b = 0.90 [0.22]
Seff = 329.87 [48.84]
Teff = 1087 [40] K
Rp = 0.96 [0.27] Re
a = 0.0202 [0.0014] AU
Ag = 6.50 [3.85] [1.43σ]
Teffp = 2683 [401] K [3.96σ]

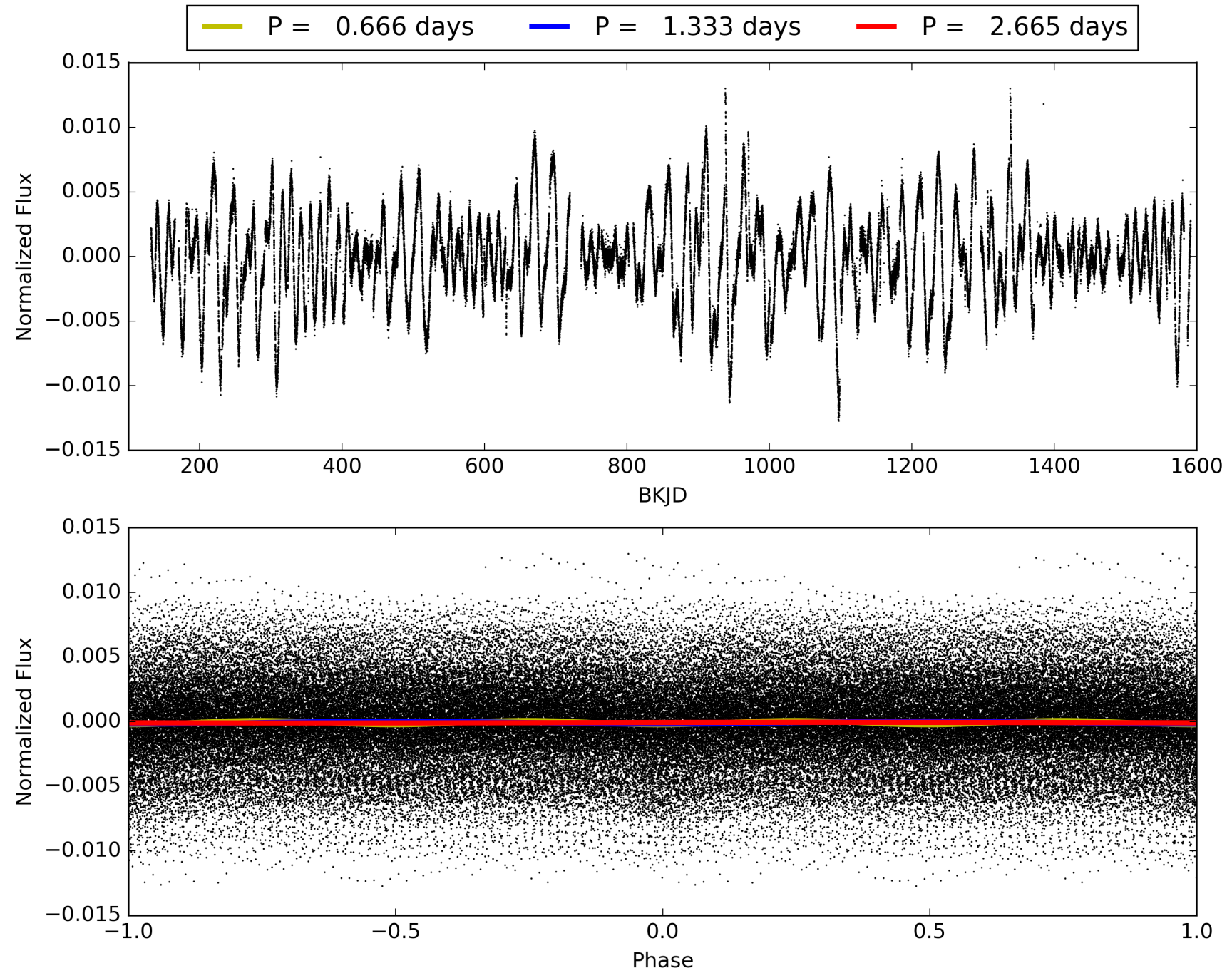
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.09e-117
RollingBand-fgt: 1.00 [959/959]
GhostDiagnostic-chr: -0.03761
Centroid-sig: 0.0%
Centroid-so: 3.836 arcsec [9.26σ]
OotOffset-rm: 1.122 arcsec [3.02σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.957 arcsec [2.73σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.06 [1/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009899280-01, PDC Light Curves

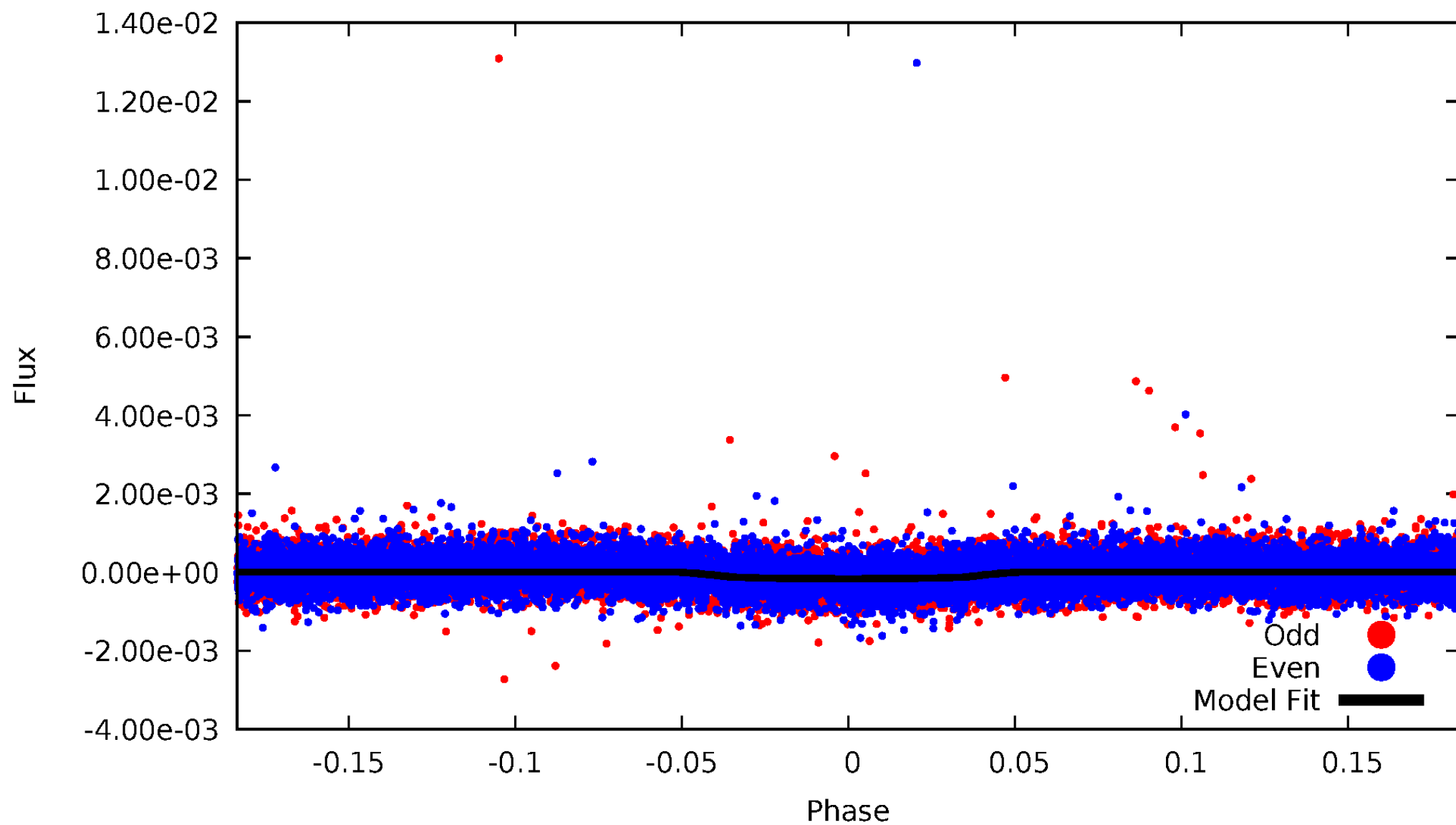


TCE 009899280-01



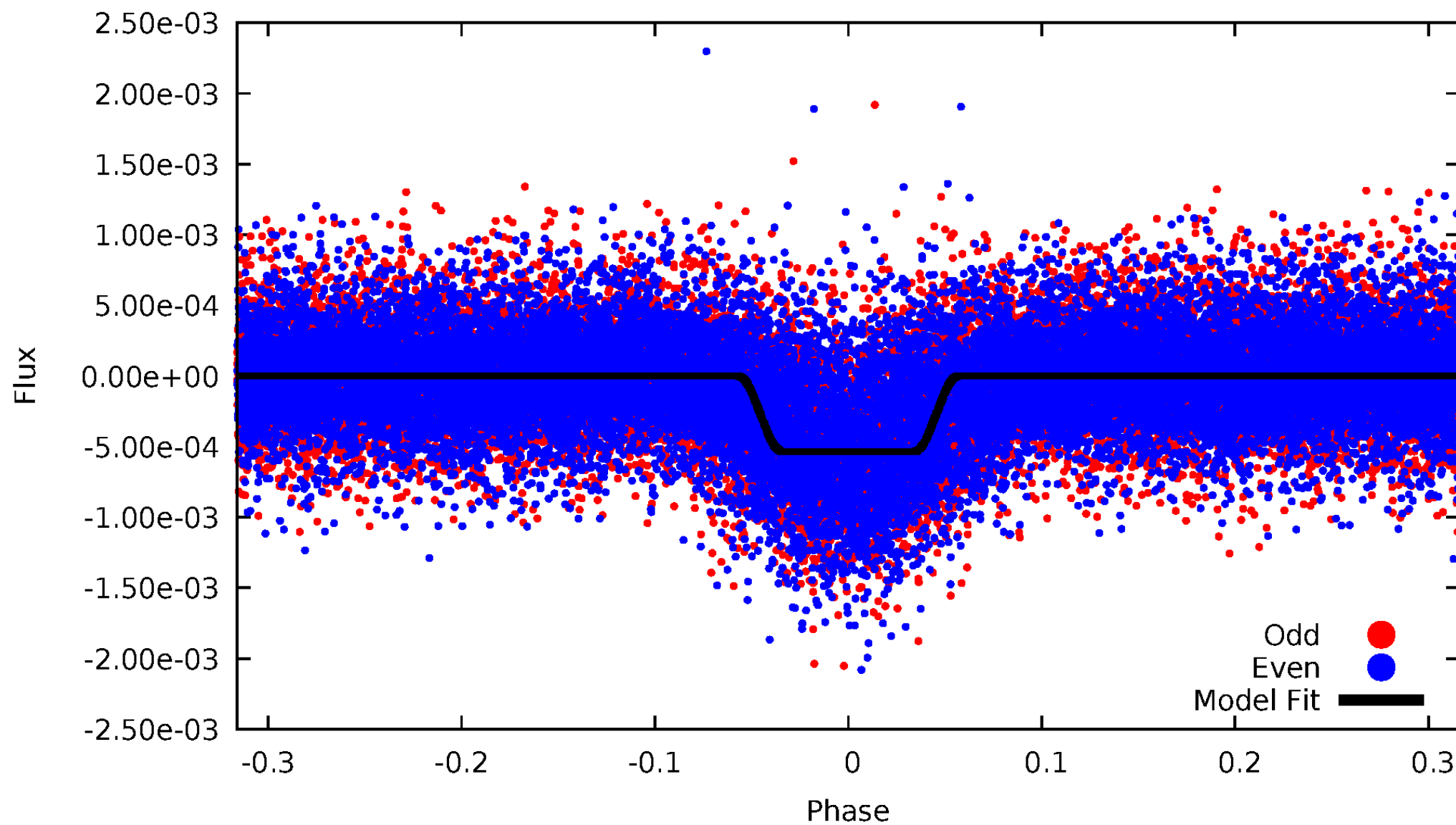
DV Odd/Even

TCE 009899280-01



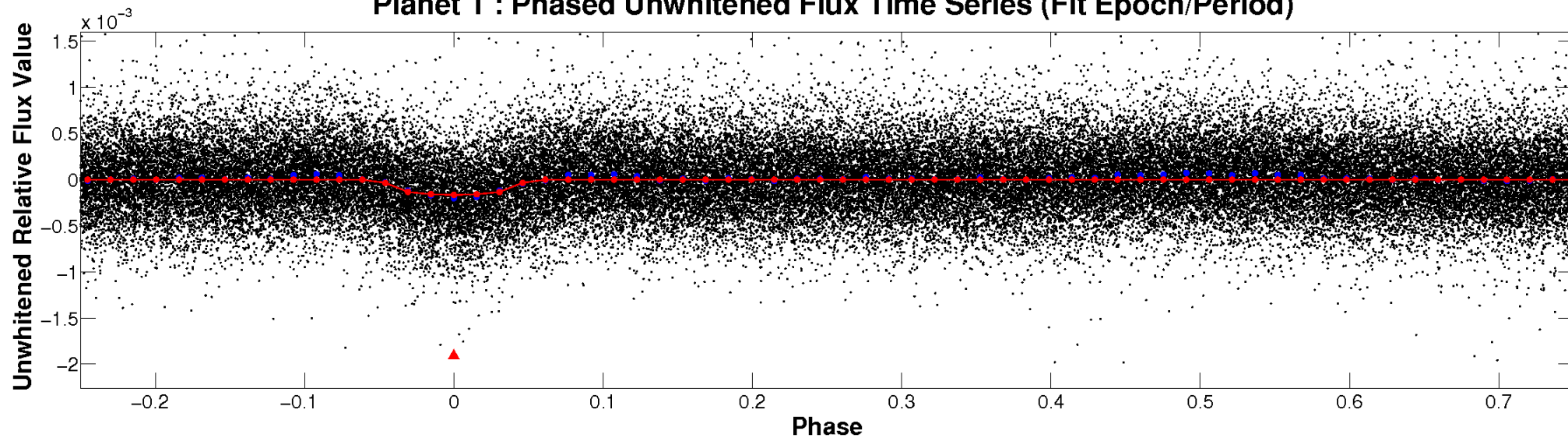
ALT Odd/Even

TCE 009899280-01

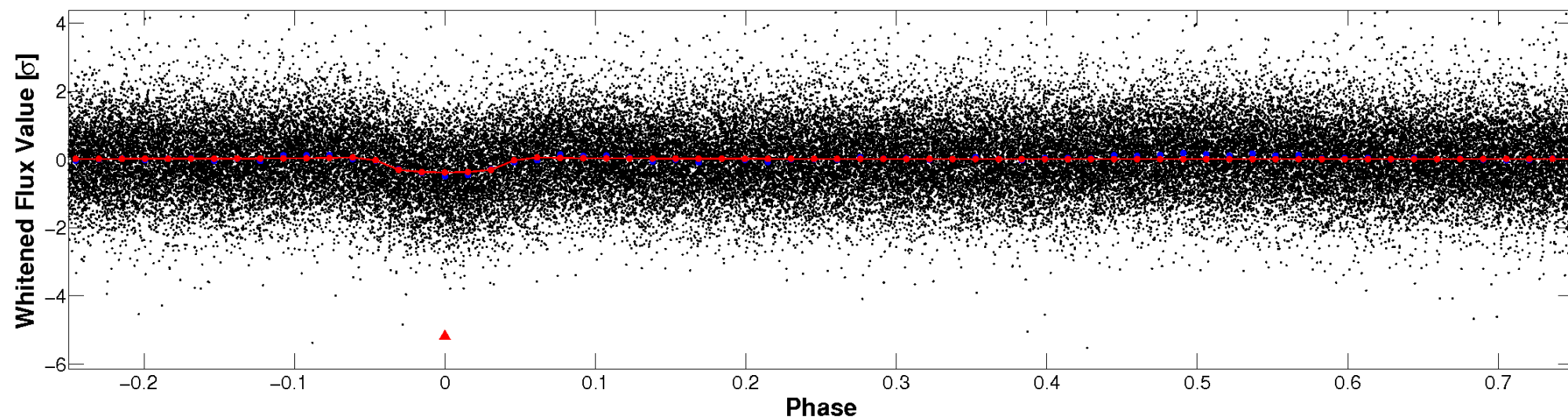


Non-Whitened Vs. Whitened Light Curve

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

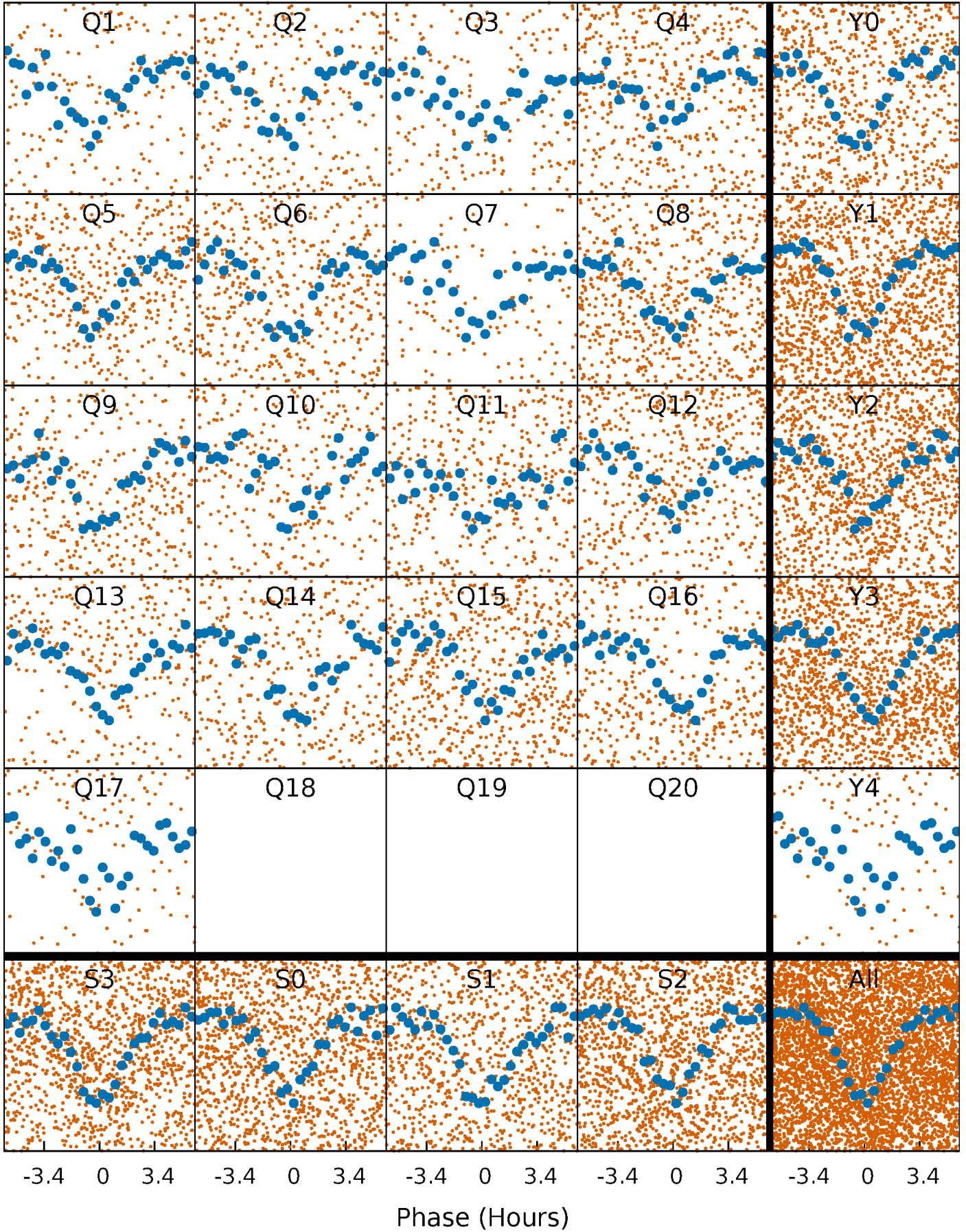


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



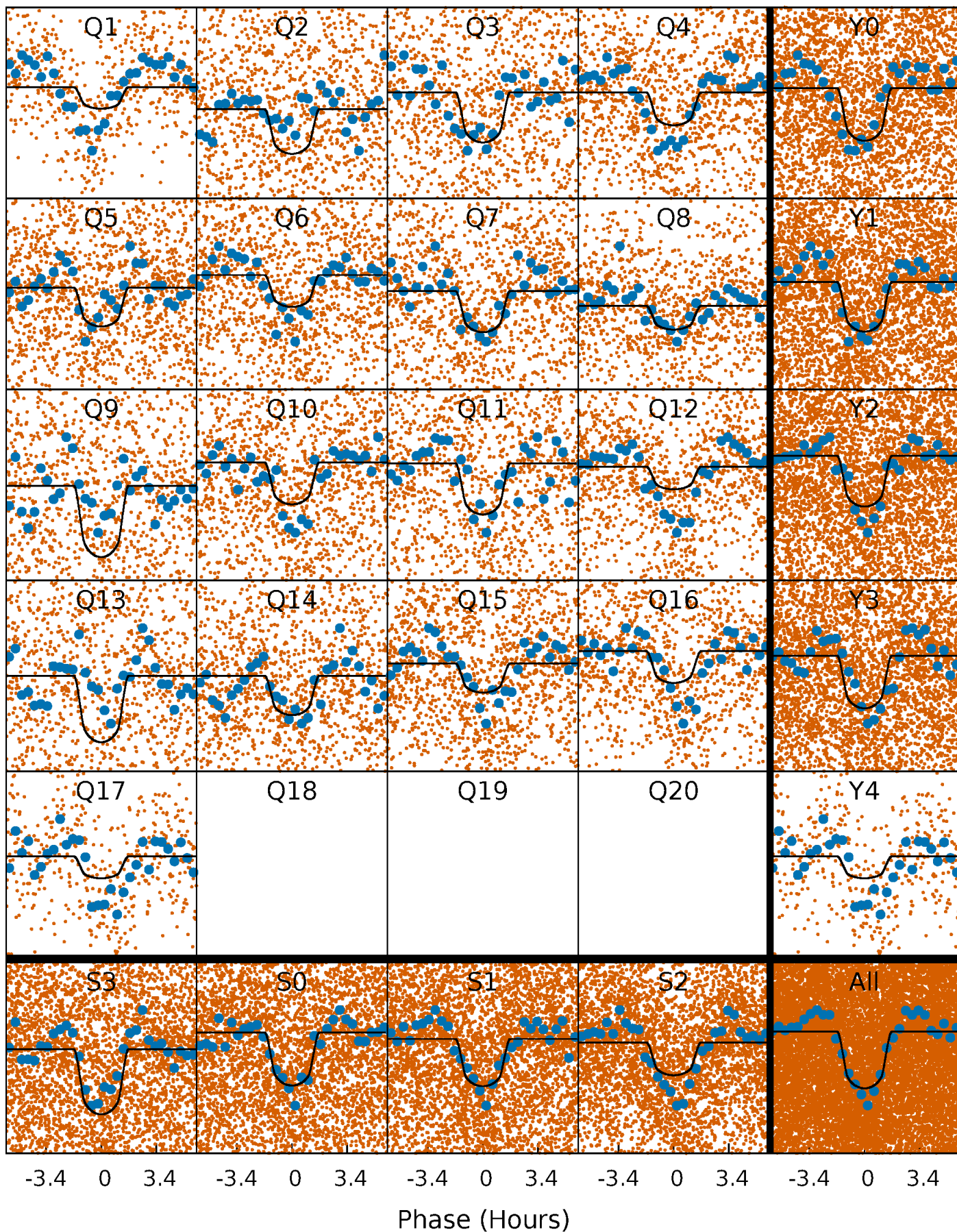
PDC Quarter-Phased Transit Curves

TCE 009899280-01 P= 1.332513 Days $T_0=132.075536$ (BKJD)



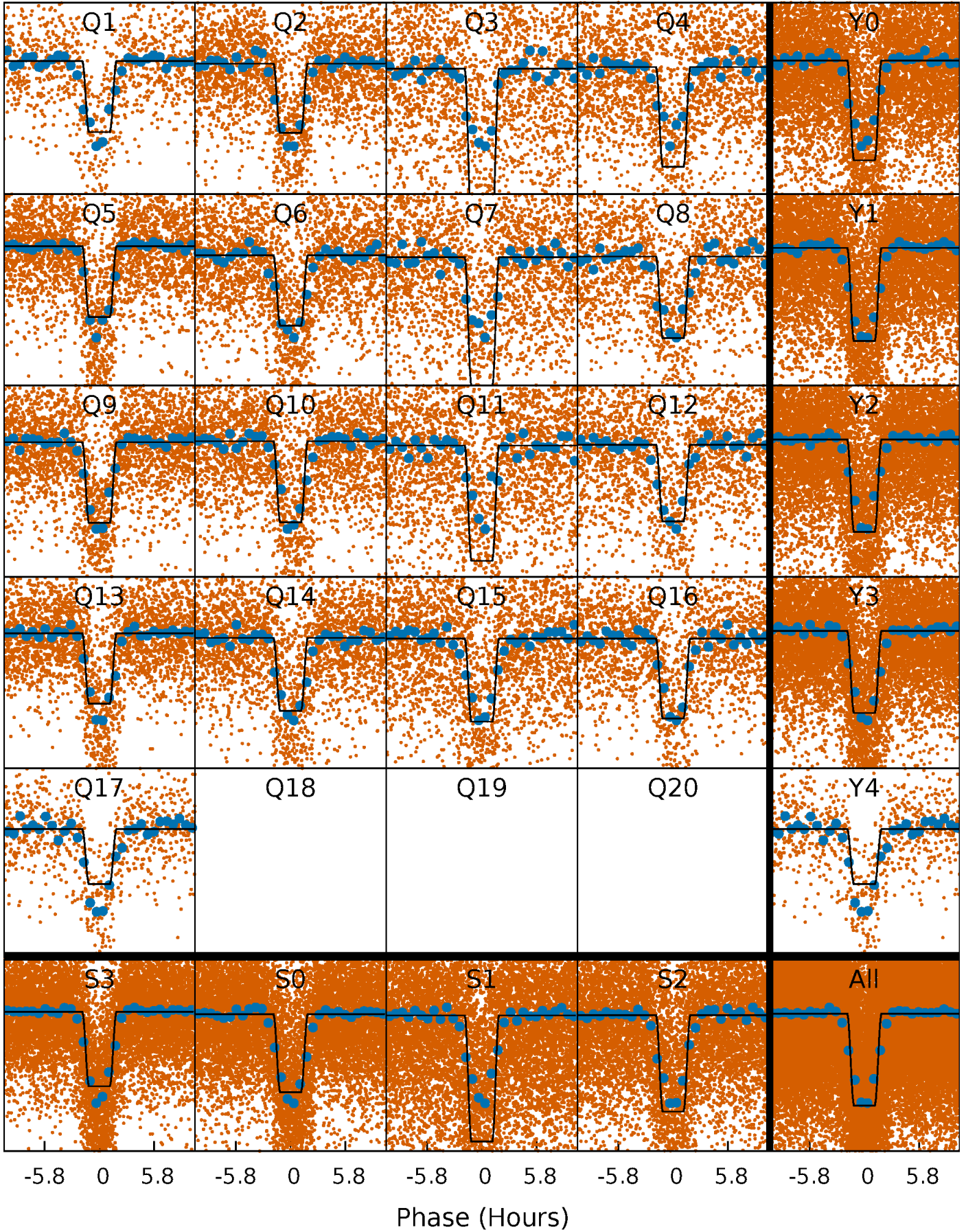
DV Quarter-Phased Transit Curves

TCE 009899280-01 P= 1.332513 Days $T_0=132.075536$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

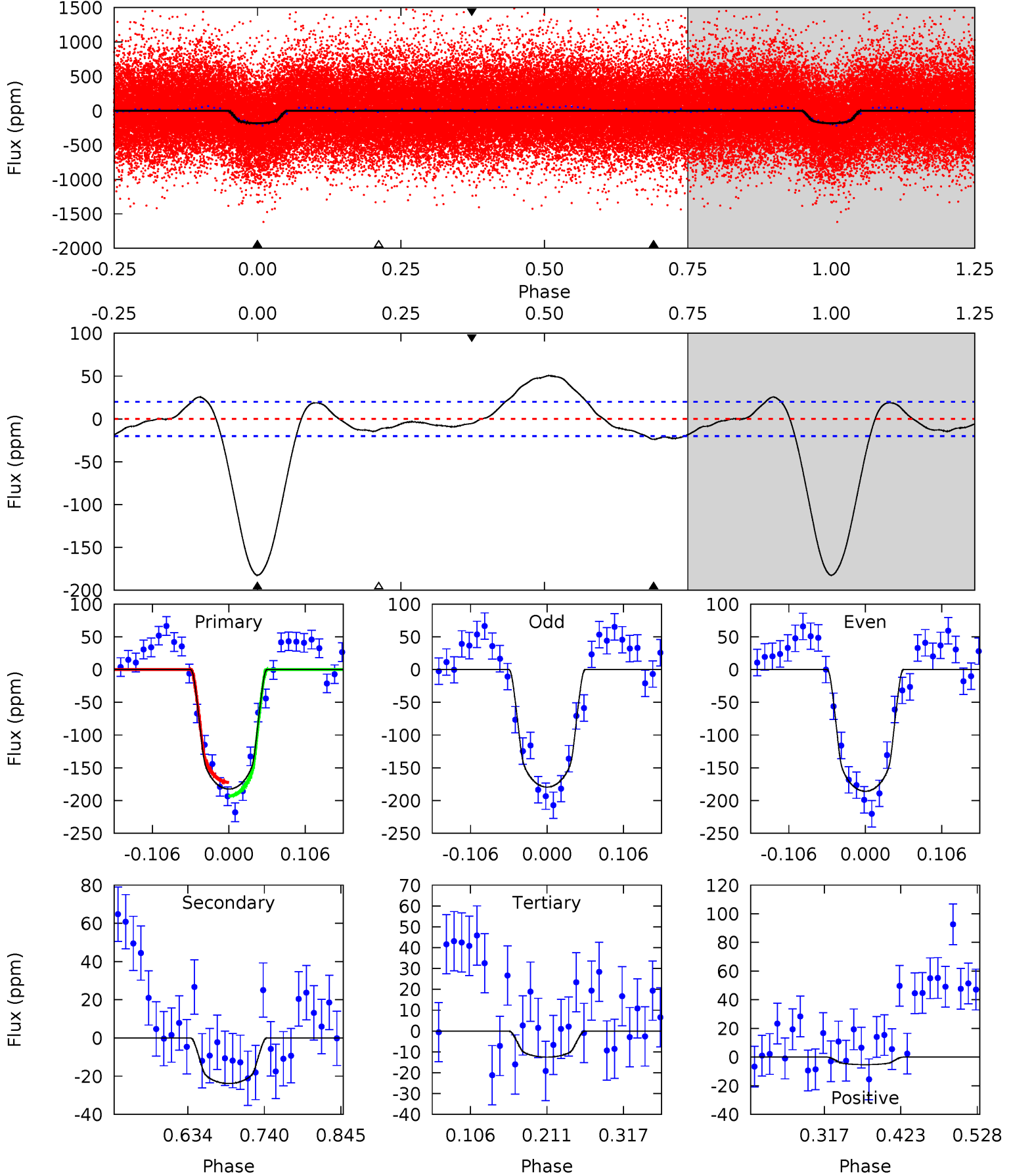
TCE 009899280-01 P= 1.332556 Days $T_0=132.053079$ (BKJD)



DV Model-Shift Uniqueness Test

009899280-01, P = 1.332513 Days, E = 130.743023 Days

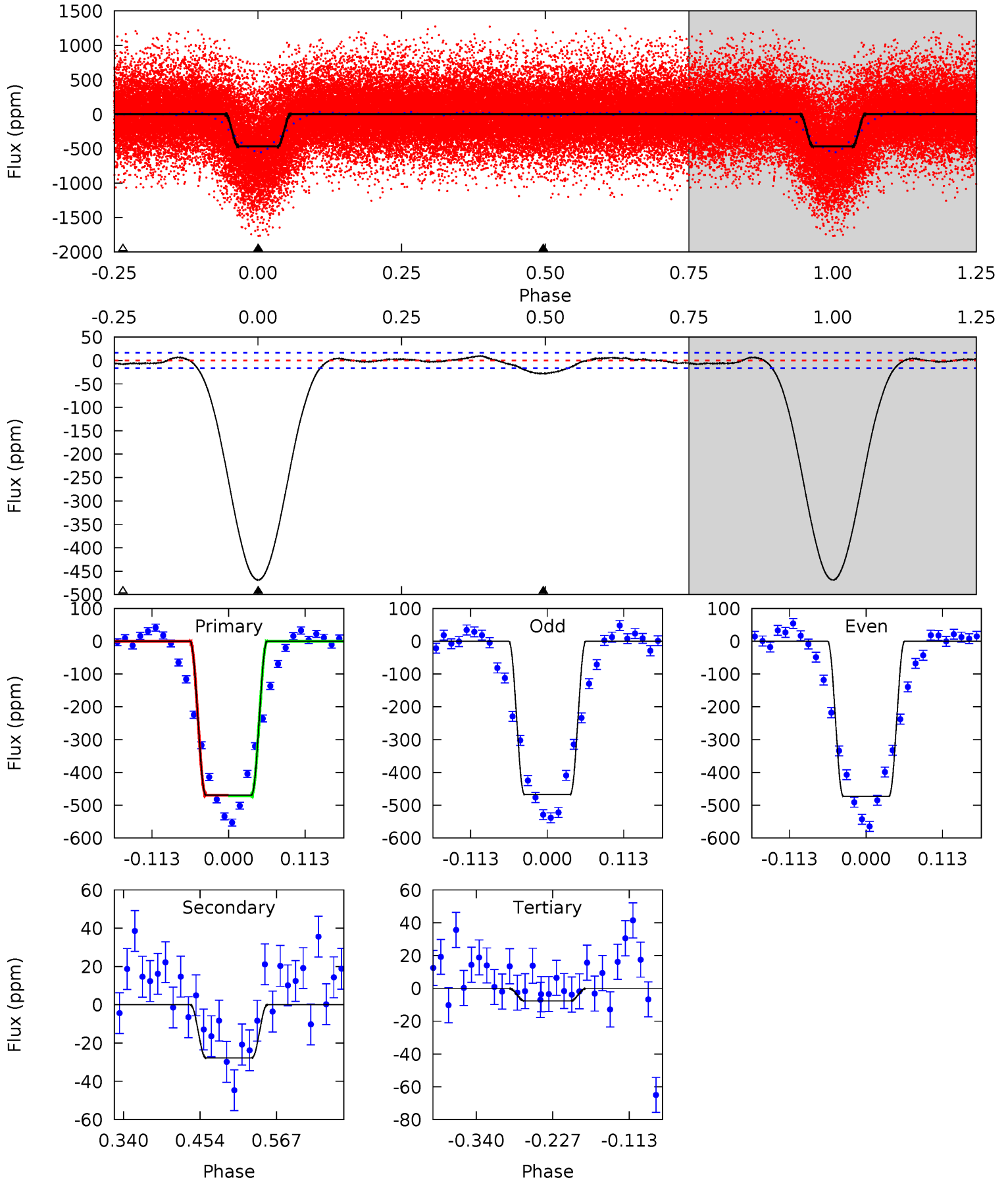
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.4	5.41	2.84	-1.20	4.55	1.62	4.52	38.6	42.6	2.57	6.61	0.72	1.06	0.22	2.38



Alt Model-Shift Uniqueness Test

009899280-01, P = 1.332556 Days, E = 130.720523 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
128.5	7.62	2.10	0	4.54	1.58	1.09	126.3	128.5	5.52	7.62	0.70	0.98	0.02	0.27



Stellar Parameters For KIC 009899280

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4489^{+134}_{-134}	$4.662^{+0.040}_{-0.036}$	$-0.400^{+0.300}_{-0.300}$	$0.609^{+0.057}_{-0.047}$	$0.621^{+0.066}_{-0.049}$	$3.875^{+0.746}_{-0.573}$
	+3%/-3%	+1%/-1%	+75%/-75%	+9%/-8%	+11%/-8%	+19%/-15%
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 009899280-01 / KOI 1559.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-24 ± 4	$0.97^{+0.25}_{-0.26}$	1517^{+55}_{-52}	3093^{+322}_{-232}	$5.793^{+4.889}_{-2.296}$
Alt.	-28 ± 4	$1.53^{+0.28}_{-0.25}$	1512^{+54}_{-47}	2755^{+163}_{-136}	$2.689^{+1.140}_{-0.780}$

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 $A_{\text{obs}} \gg 1.0$

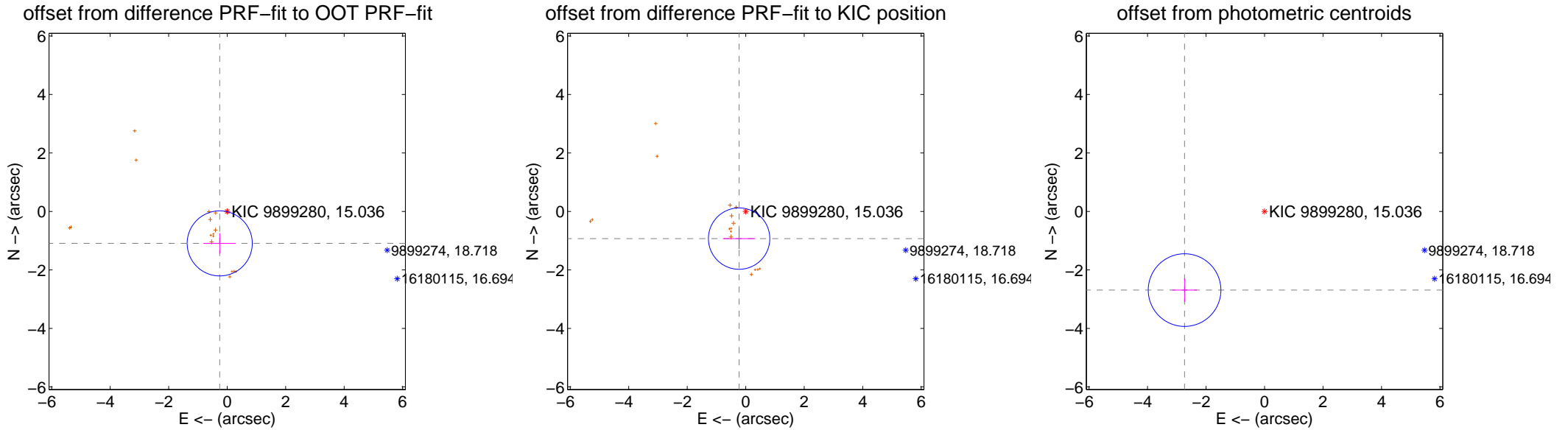
DV Centroid Data

Supplemental centroid analysis for 009899280-01. Kepler magnitude: 15.04. Transit SNR 24.56

There are 1 quarters with good PRF difference image offsets

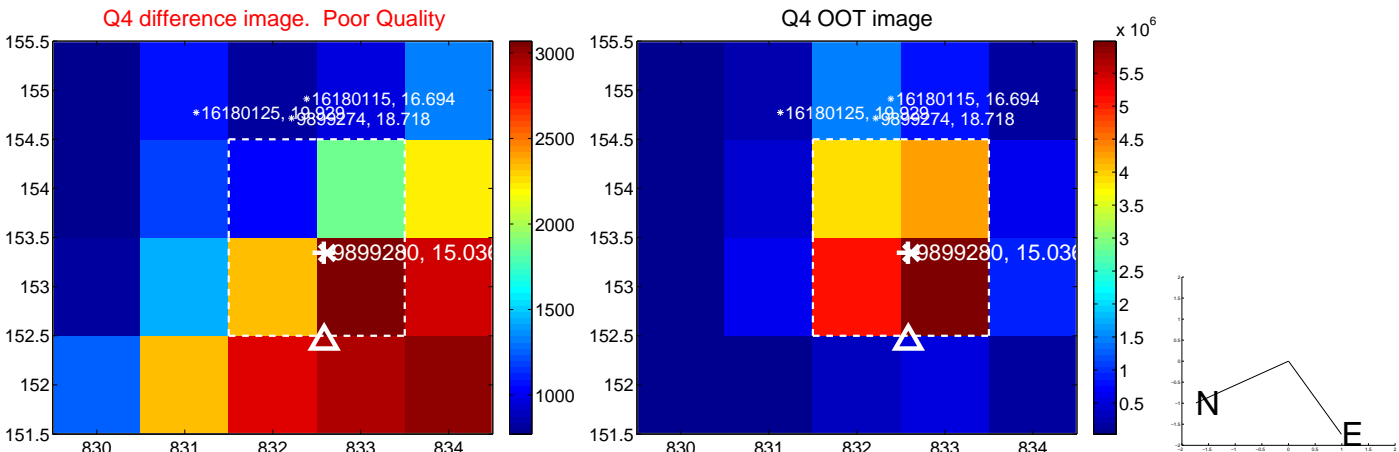
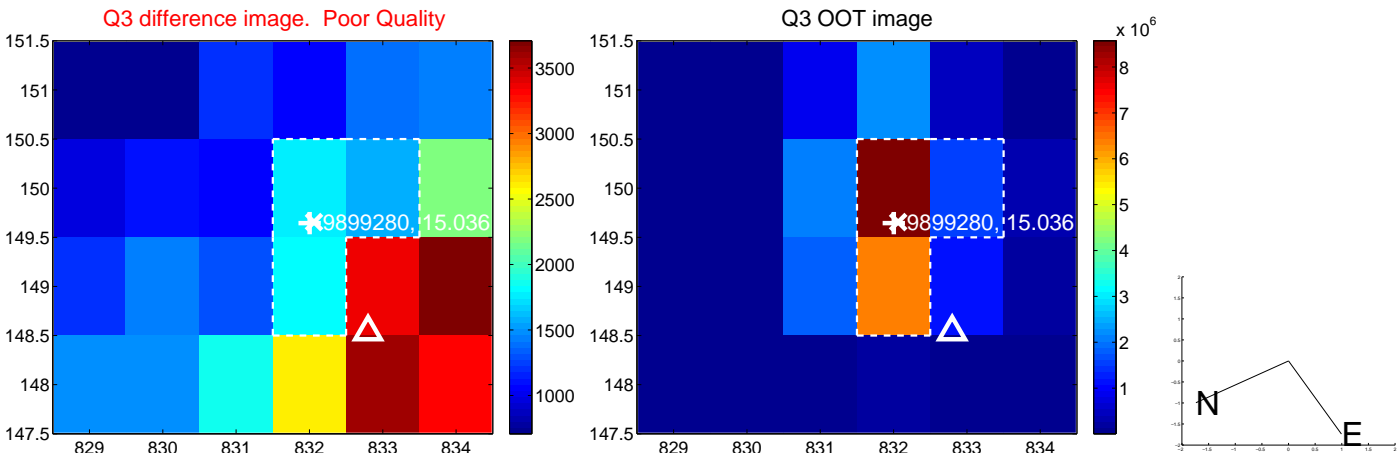
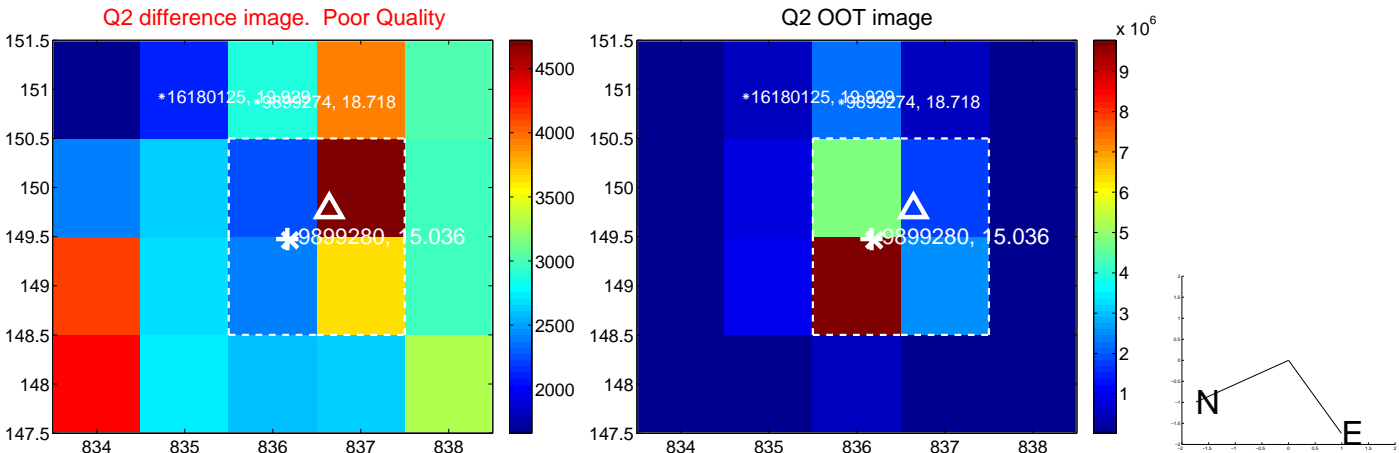
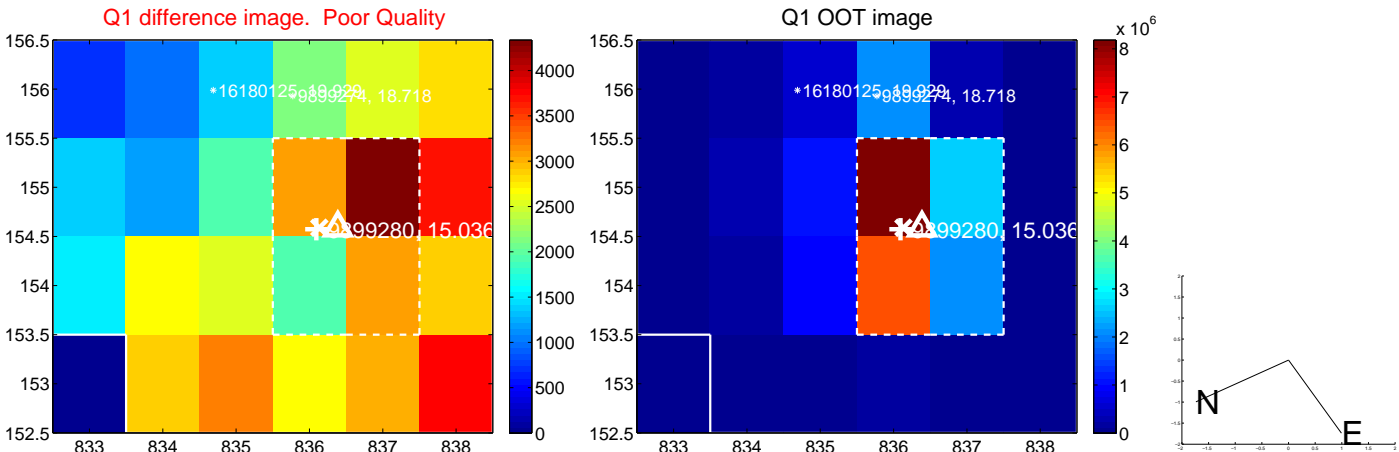
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.122 ± 0.371	3.02	0.254 ± 0.554	-1.093 ± 0.352
PRF-fit source offset from KIC position	0.957 ± 0.350	2.73	0.226 ± 0.554	-0.929 ± 0.351
photometric centroid source offset	3.84 ± 0.41	9.26	2.73 ± 0.43	-2.69 ± 0.40

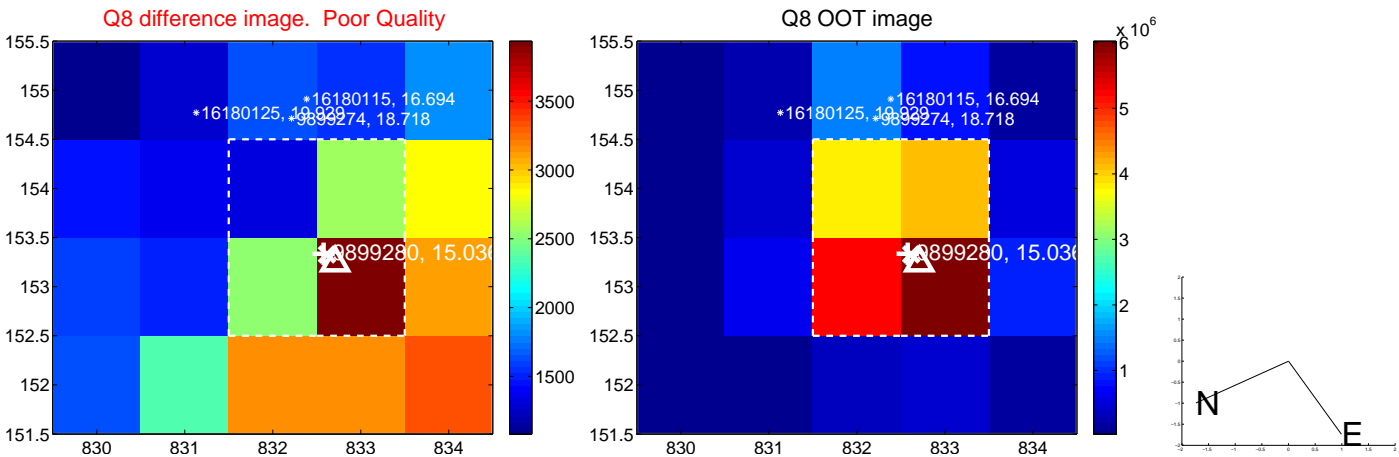
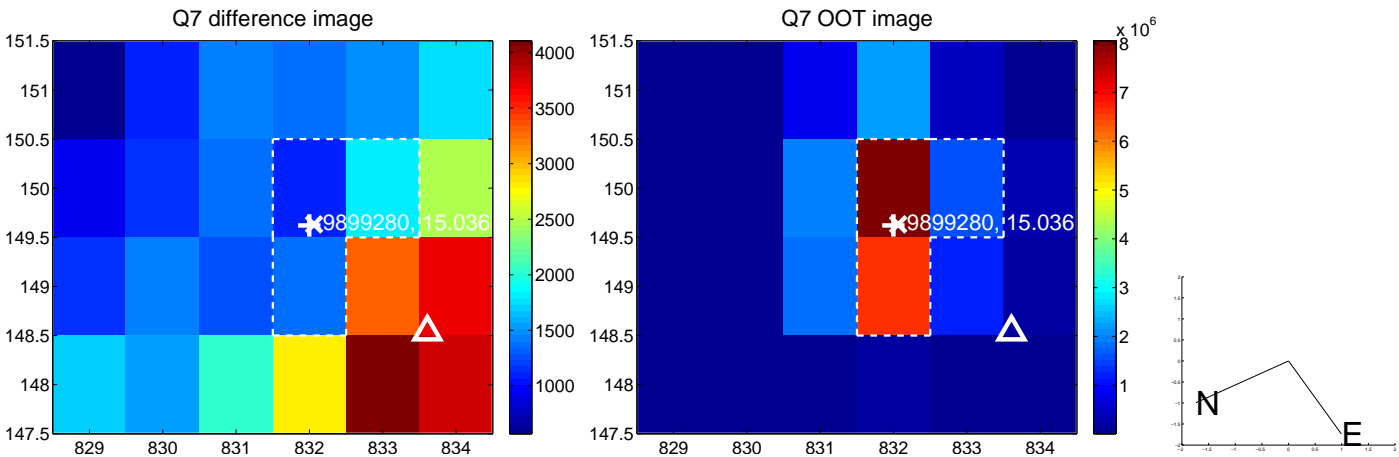
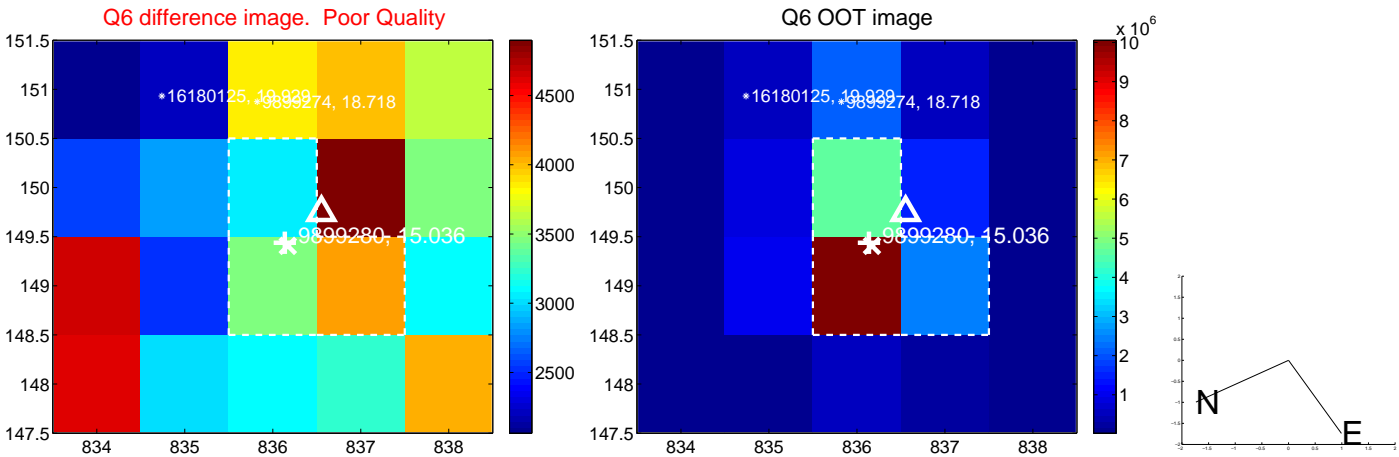
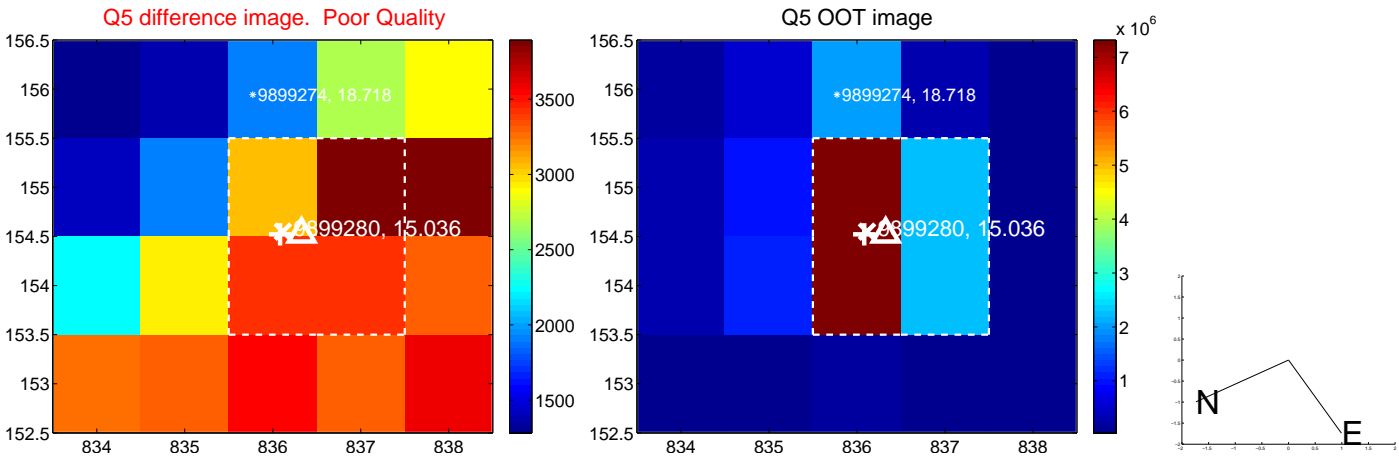


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

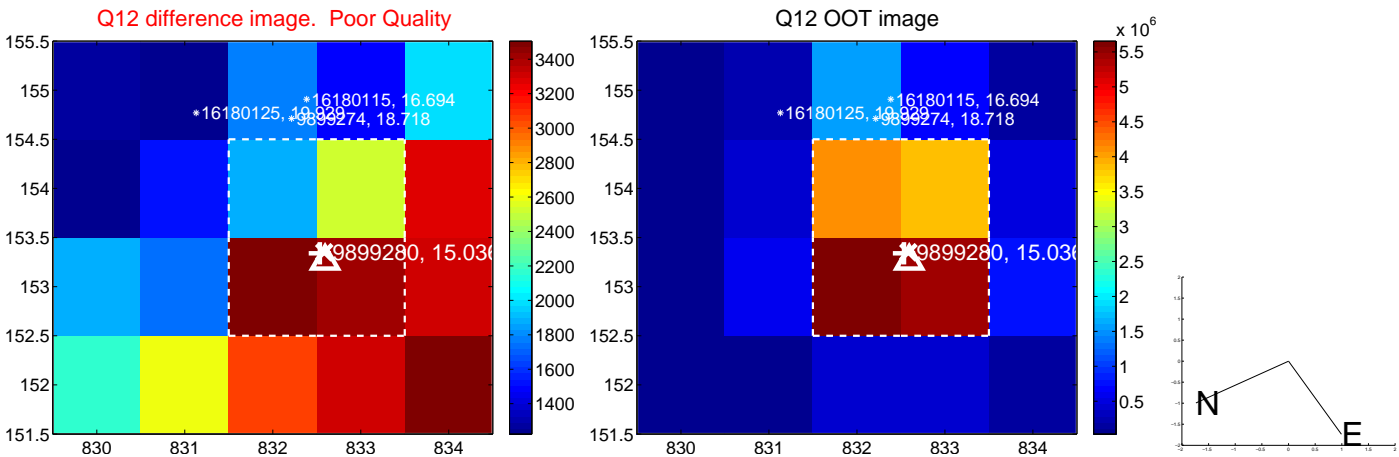
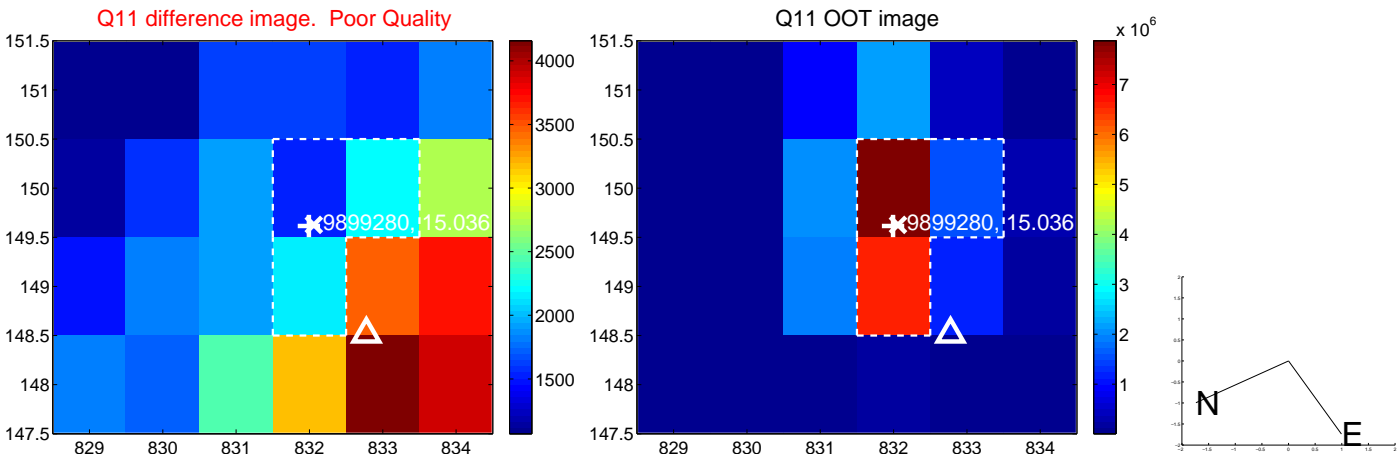
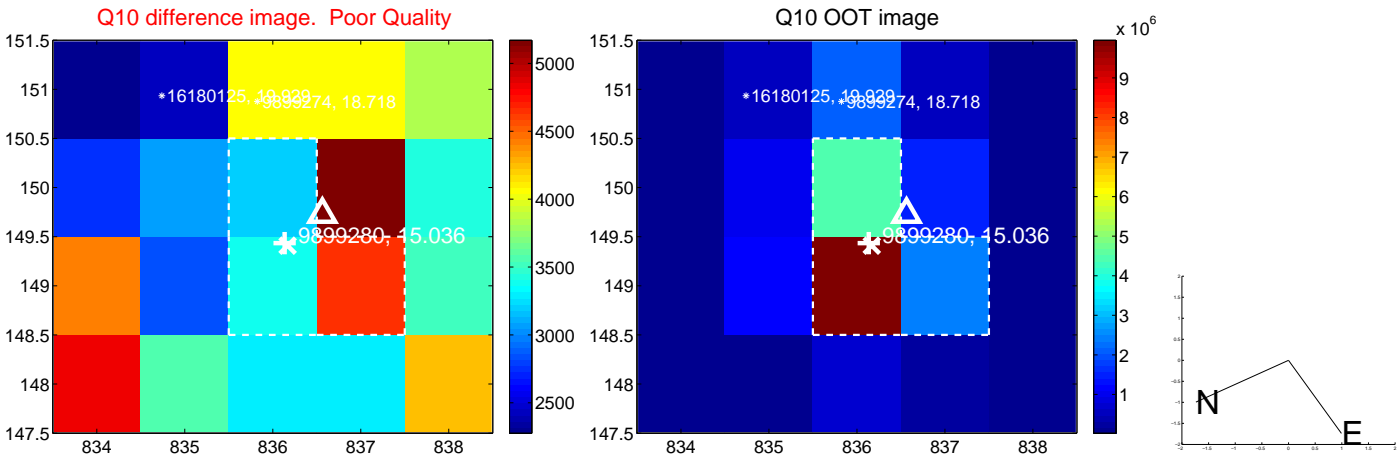
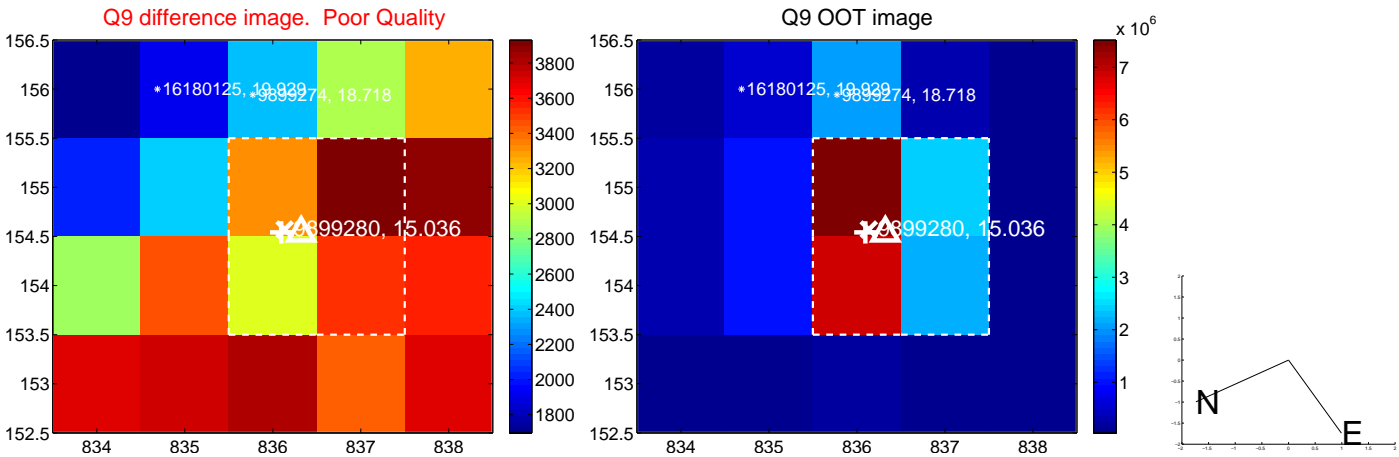
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



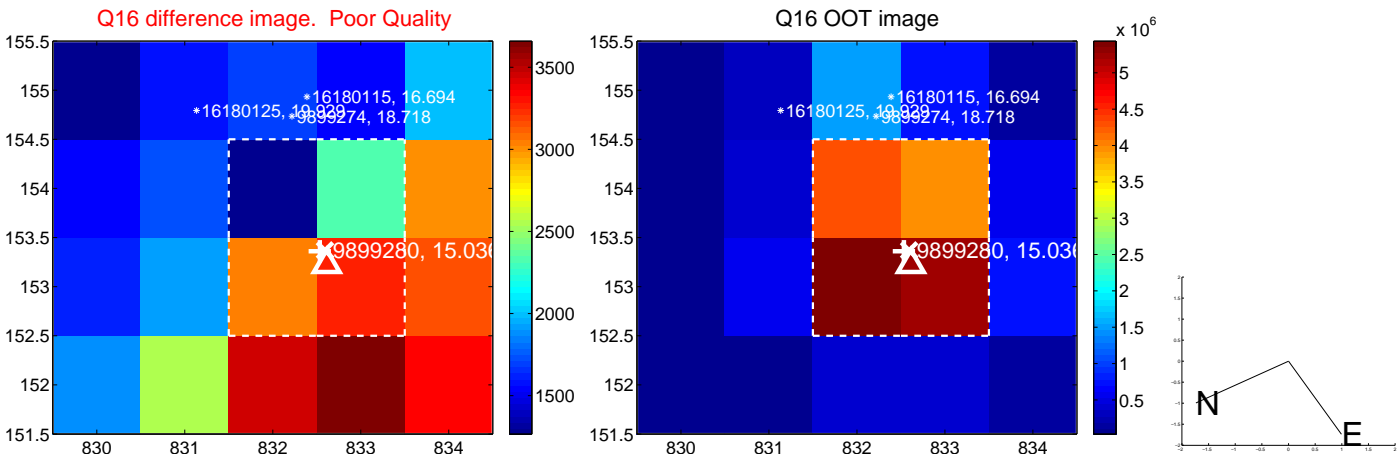
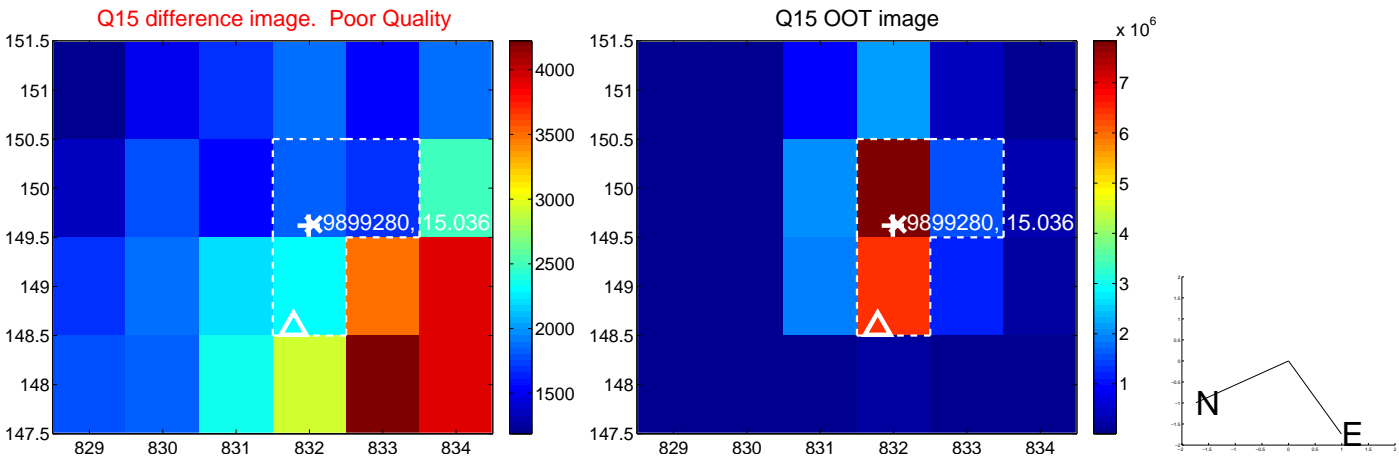
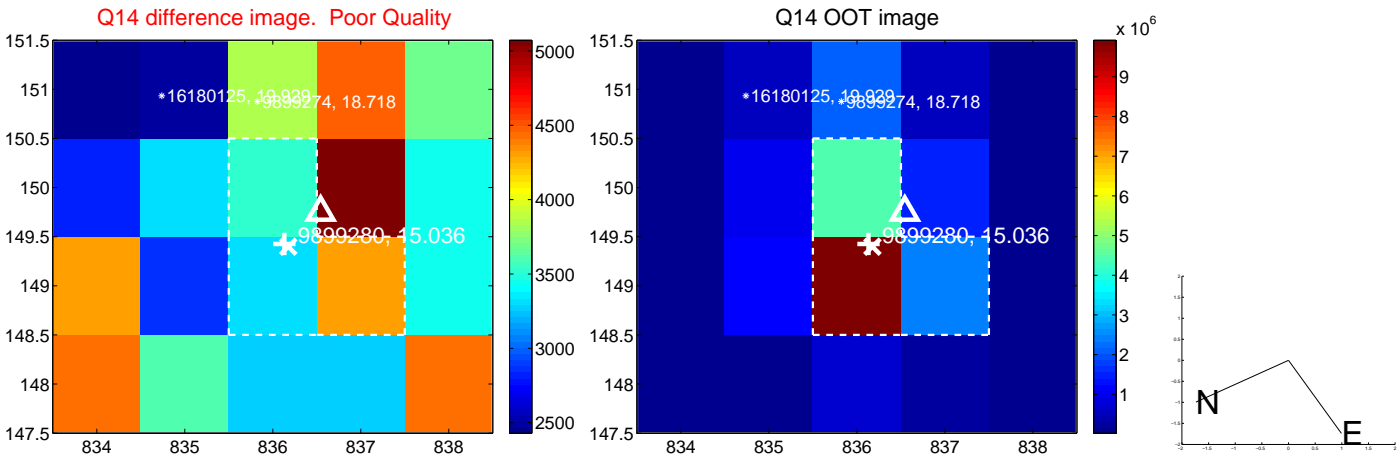
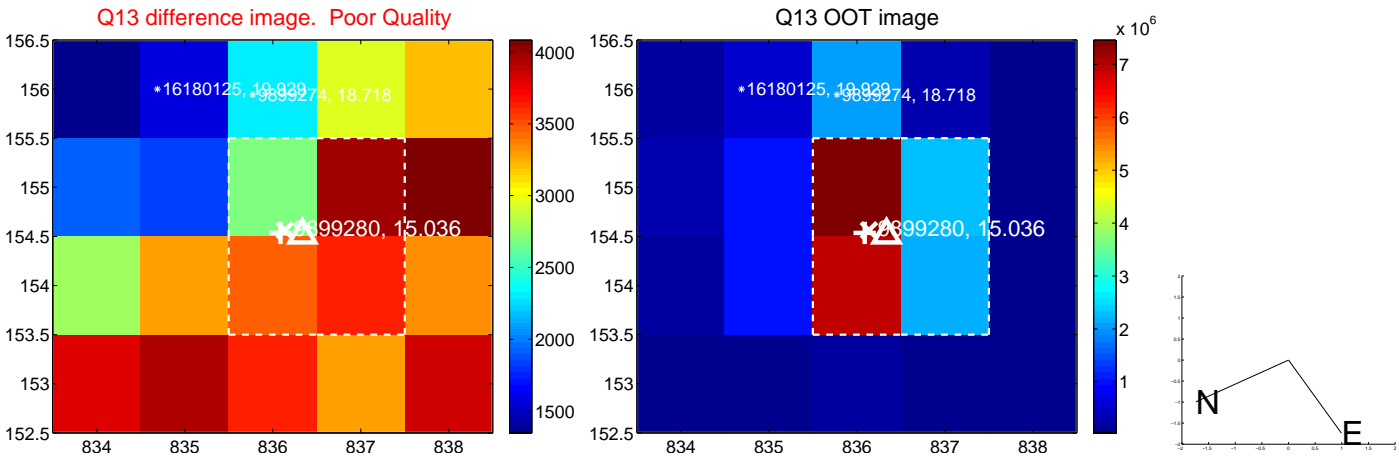
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



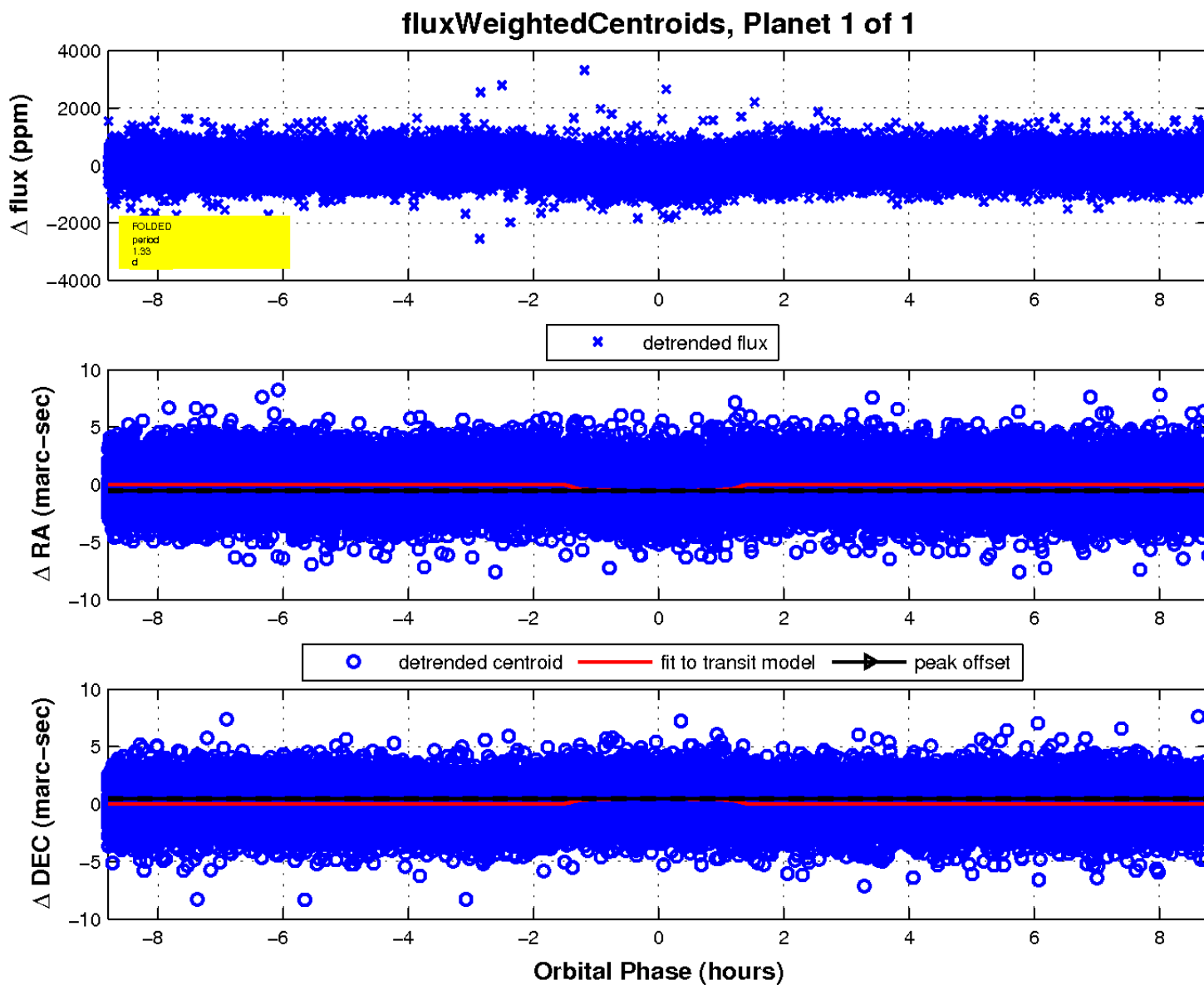
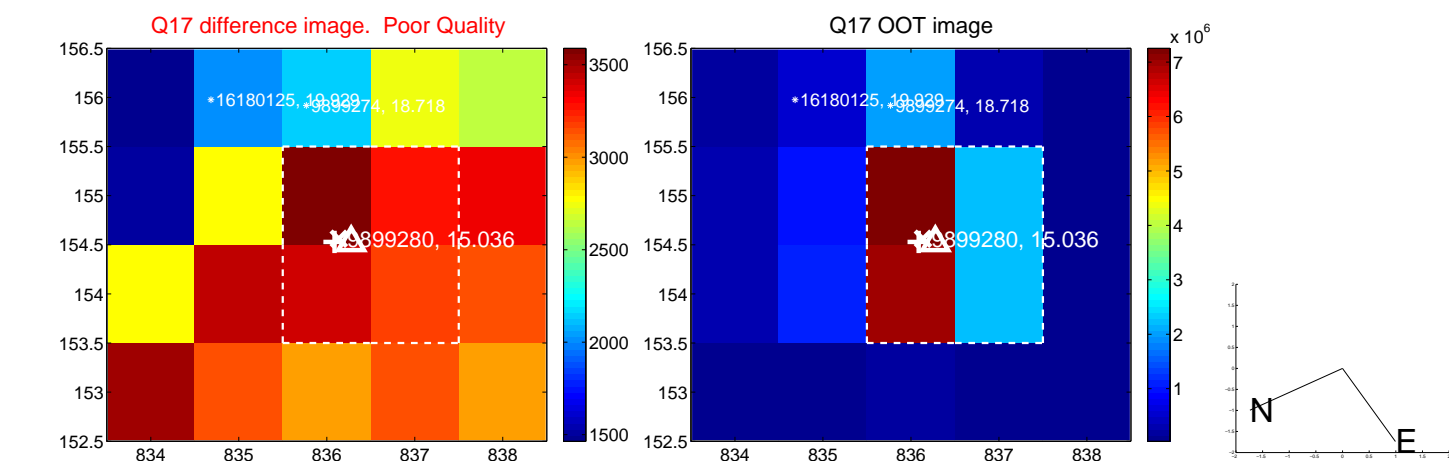
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

