

KIC 004665991

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})
004665991-01	OBS	4870.01	1.124028	131.630380	40.2	3.815	8.5	9.0	0.91	5941	0.68	2068.43

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004665991-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—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 004665991-01

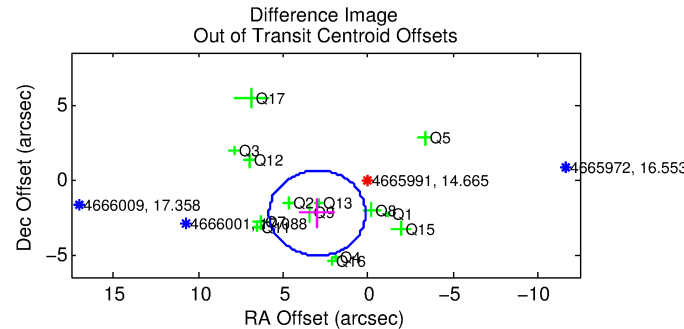
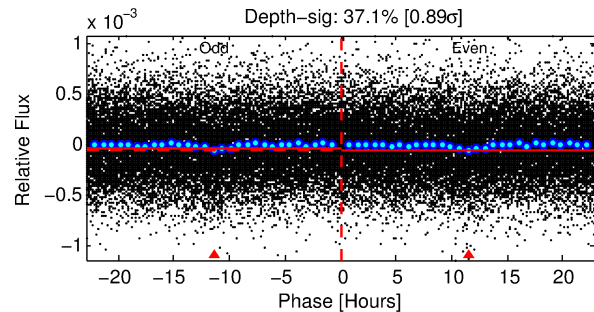
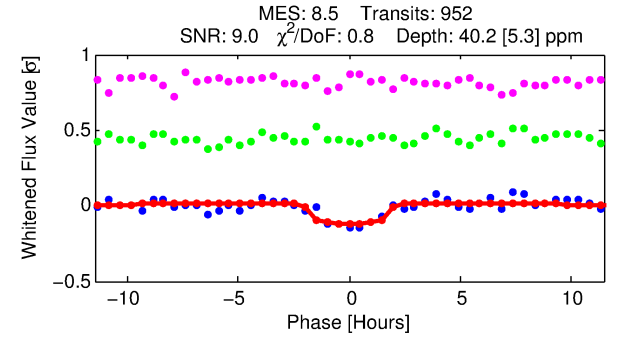
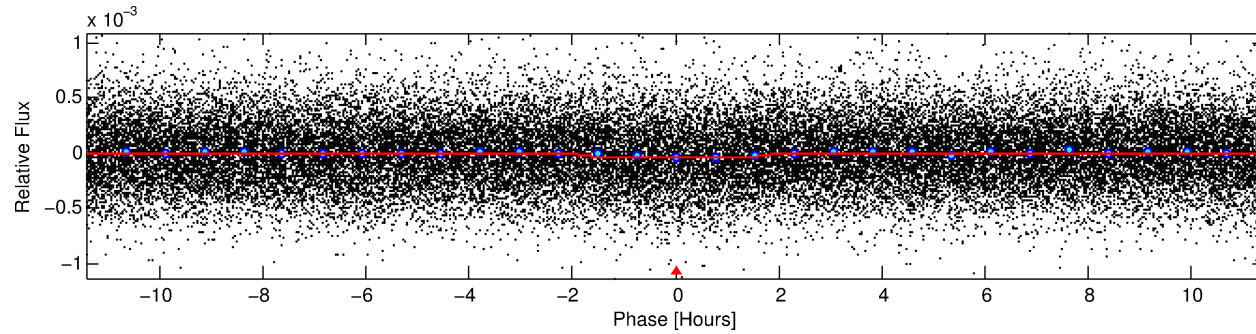
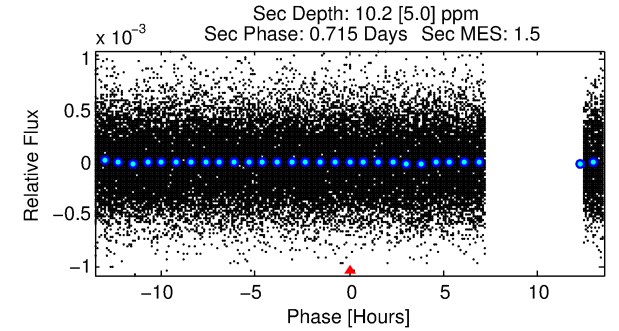
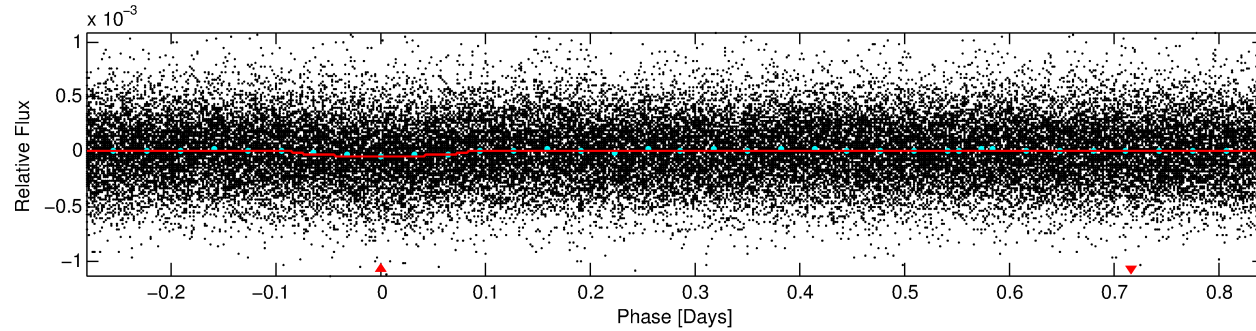
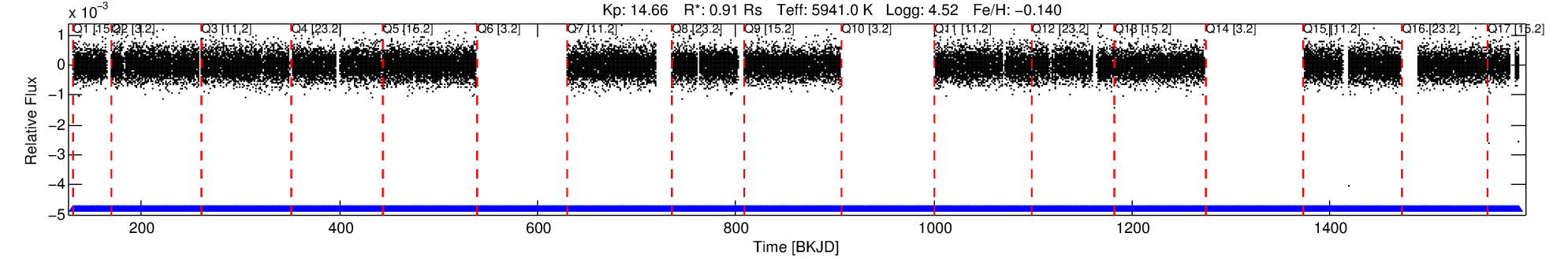
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
004665991-01	4665991	004665989-pri	4665989	1:2	35.6	-8	-4	13.02	14.67	7202.50	Direct-PRF	0	0.83	0.17

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: 4665991 Candidate: 1 of 1 Period: 1.124 d

KOI: K04870.01 Corr: 0.883



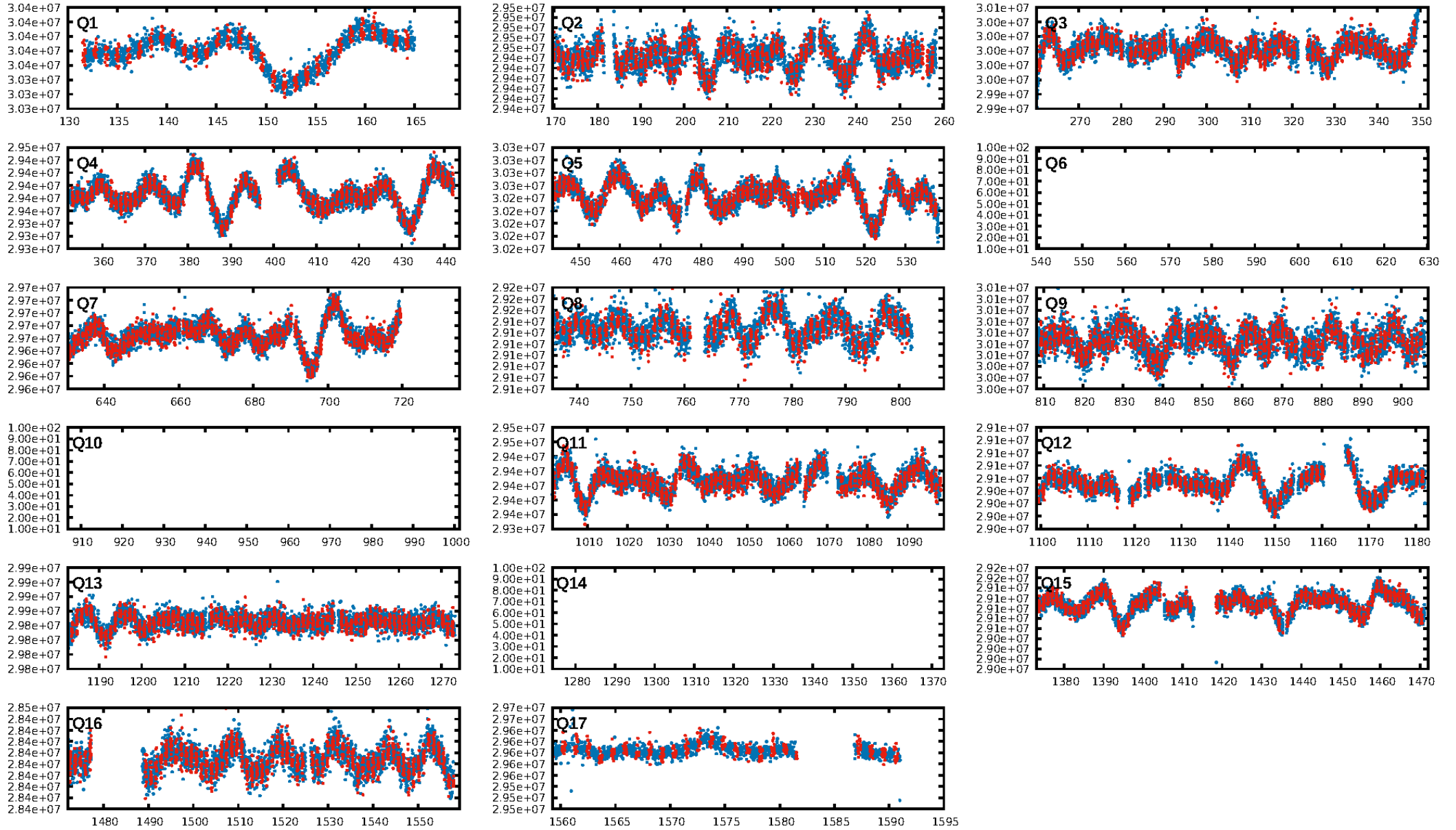
DV Fit Results:

Period = 1.12403 [0.00001] d
Epoch = 131.6304 [0.0048] BKJD
Rp/R* = 0.0069 [0.0043]
a/R* = 1.39 [2.13]
b = 0.90 [0.70]
Seff = 2068.43 [801.95]
Teq = 1720 [167] K
Rp = 0.68 [0.47] Re
a = 0.0212 [0.0053] AU
Ag = 5.40 [7.53] [0.59σ]
Teffp = 4054 [1366] K [1.70σ]

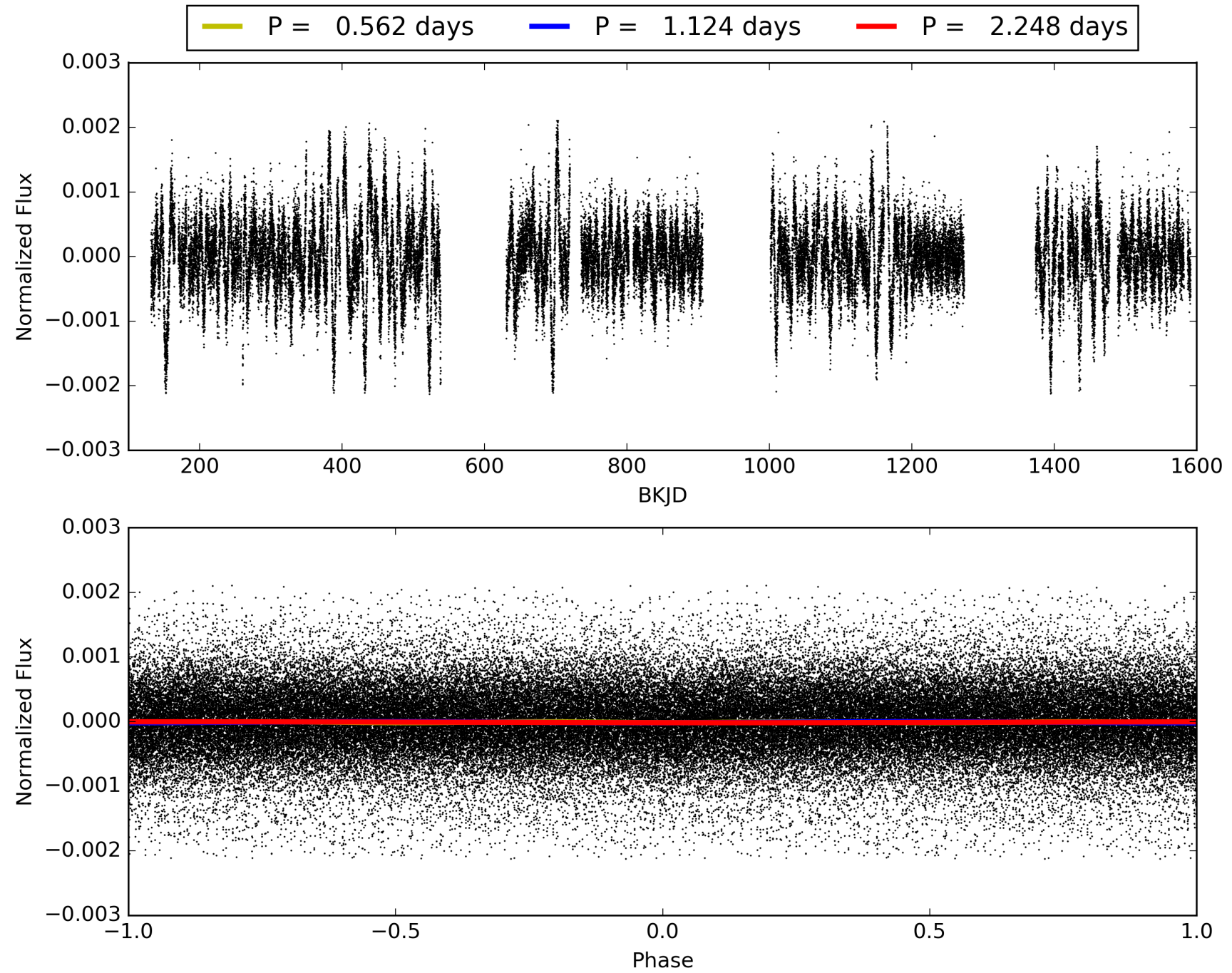
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.30e-16
RollingBand-fgt: 1.00 [898/898]
GhostDiagnostic-chr: -0.006162
Centroid-sig: 0.0%
Centroid-so: 6.977 arcsec [5.49σ]
OotOffset-rm: 3.724 arcsec [3.93σ]
KicOffset-rm: 3.660 arcsec [3.89σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.21 [3/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004665991-01, PDC Light Curves

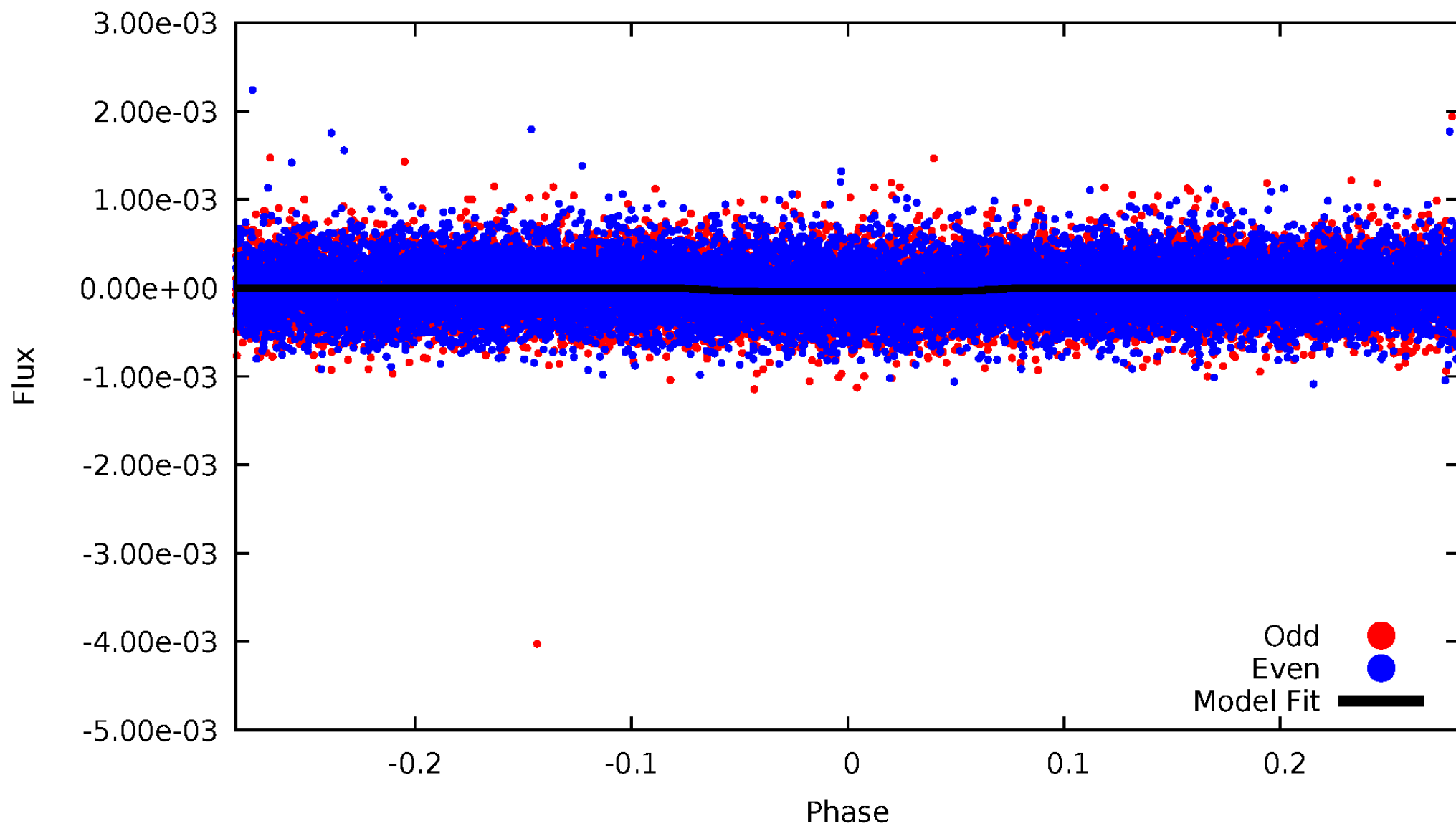


TCE 004665991-01



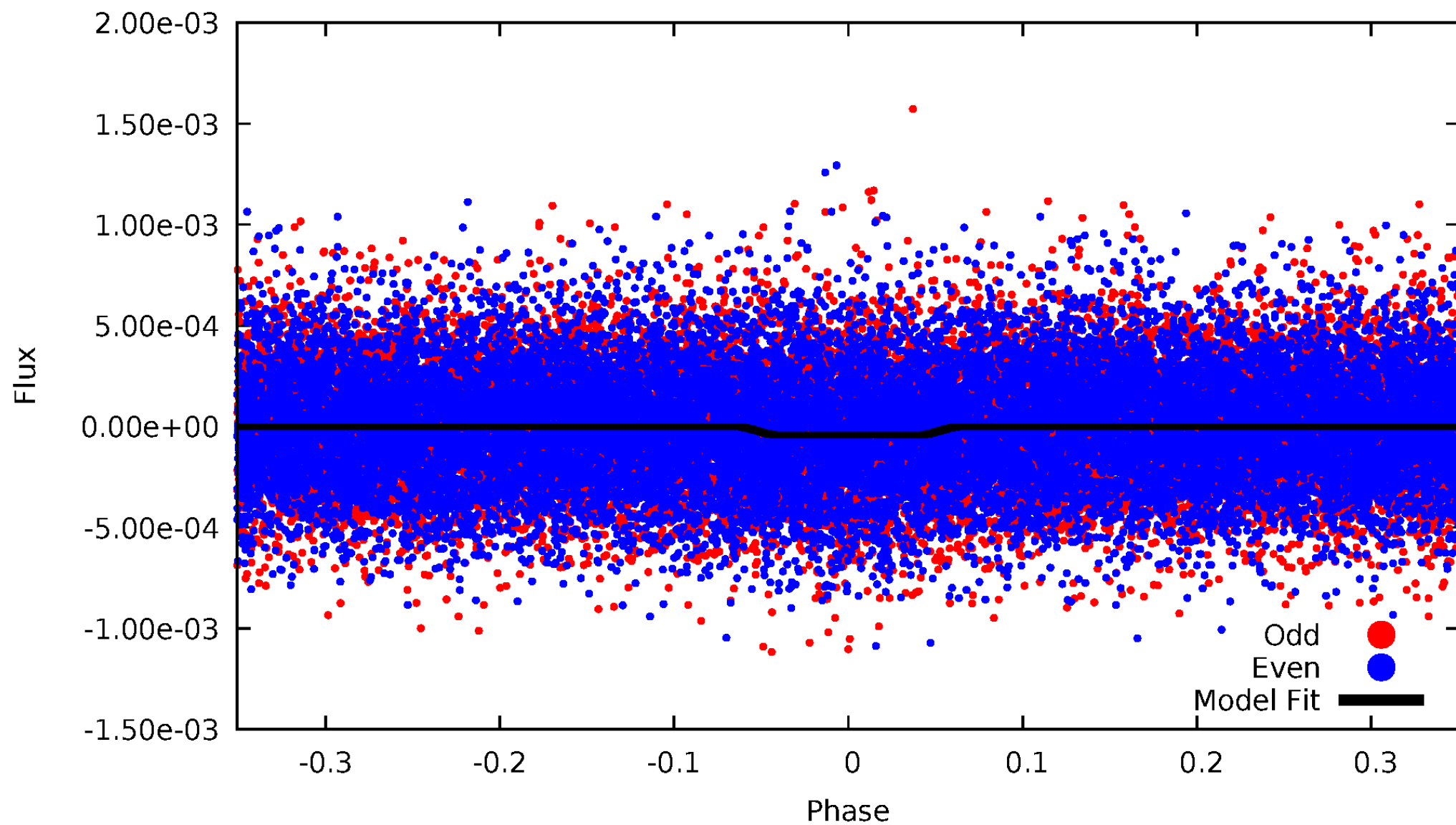
DV Odd/Even

TCE 004665991-01



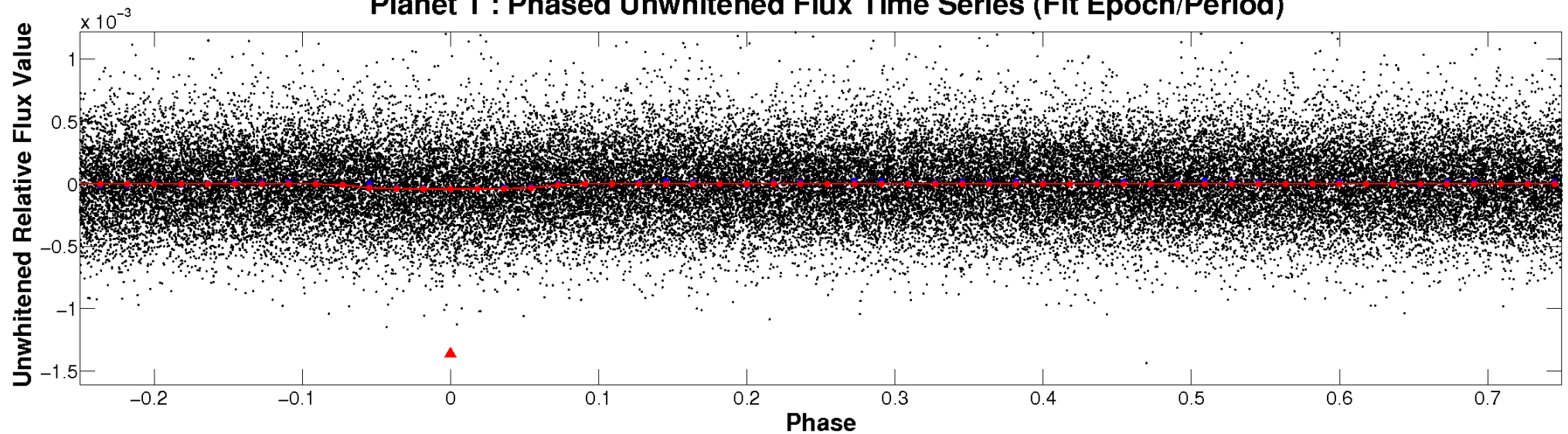
ALT Odd/Even

TCE 004665991-01

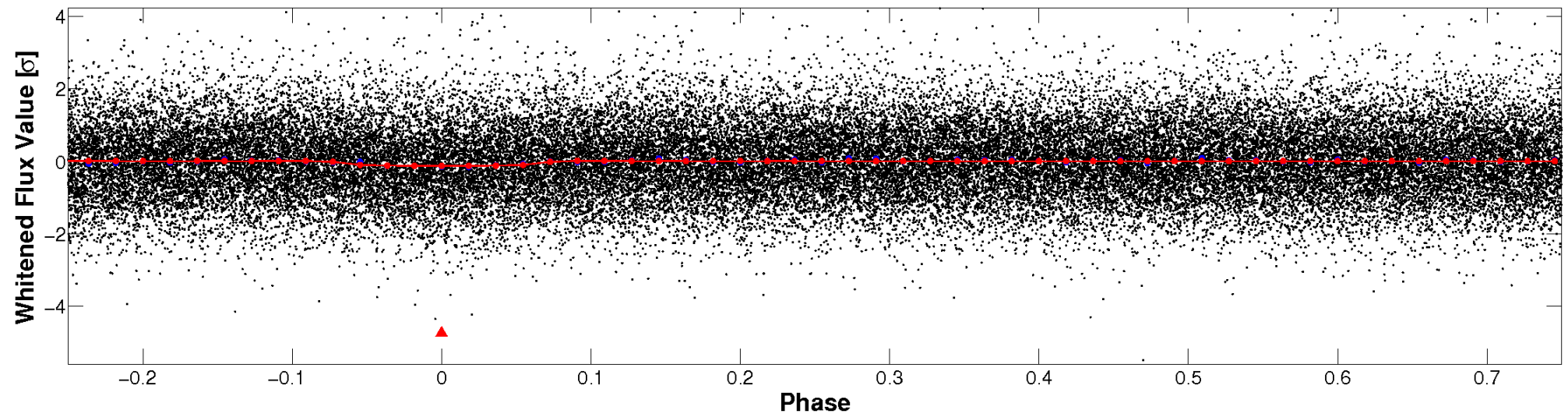


Non-Whitened Vs. Whitened Light Curve

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

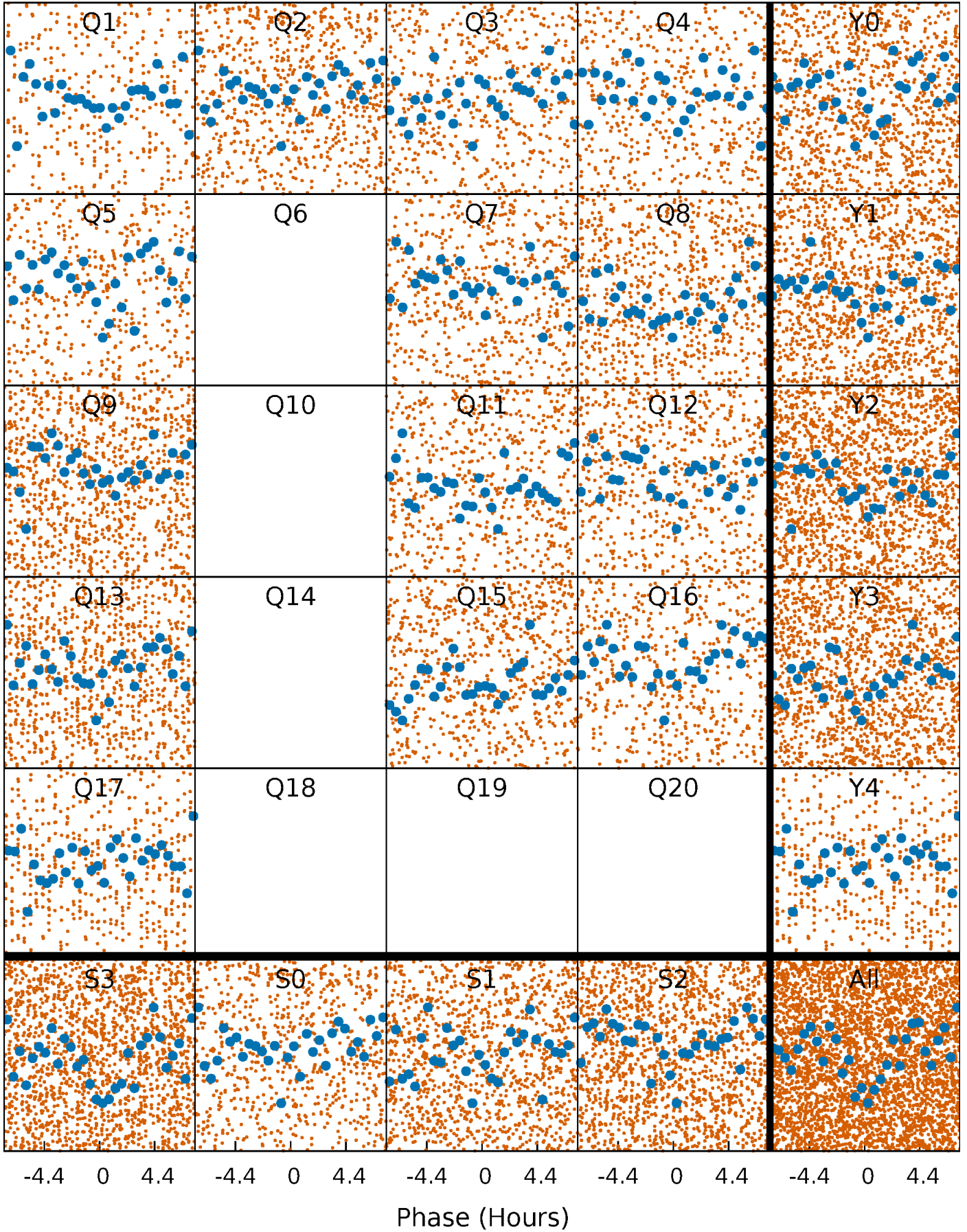


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



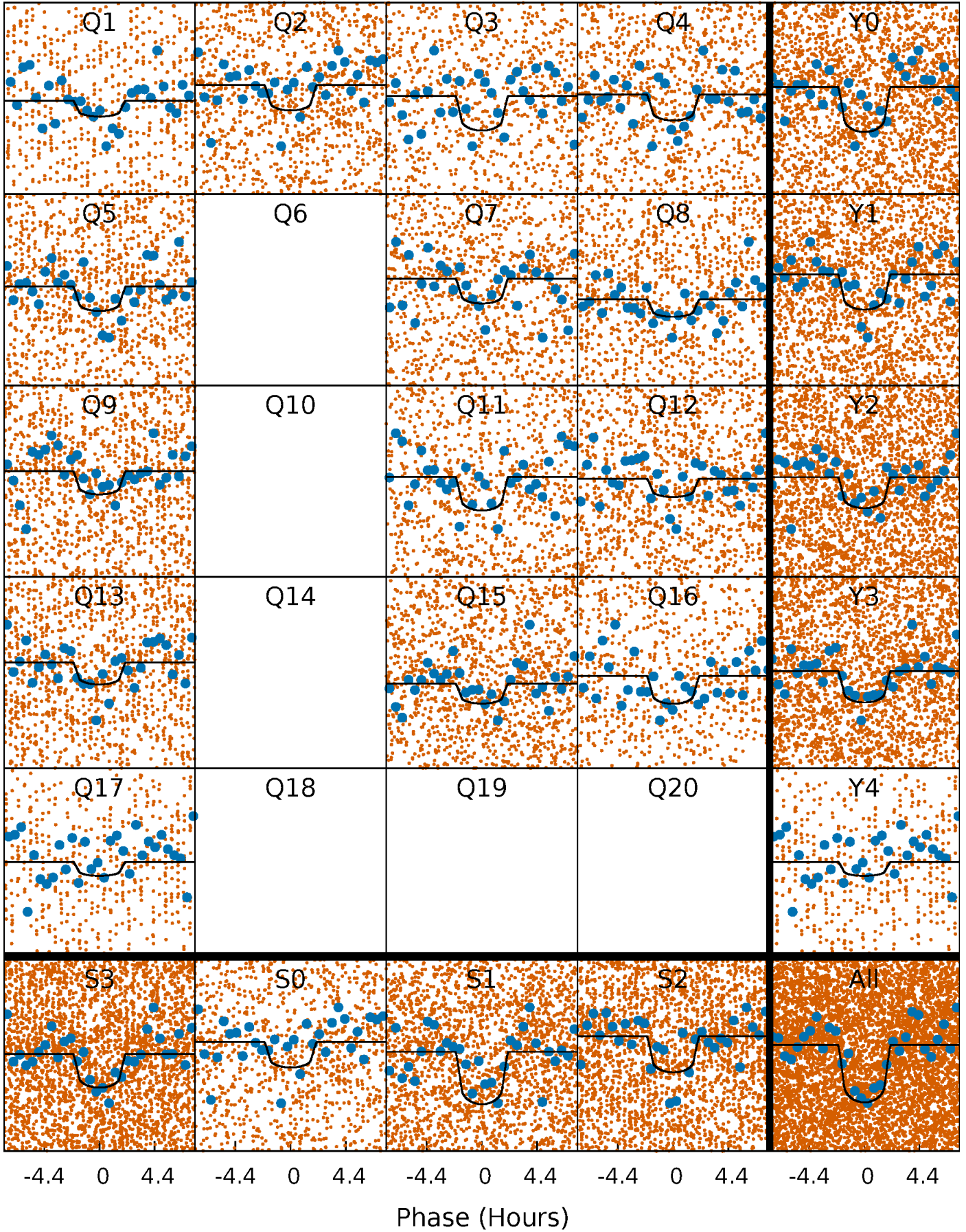
PDC Quarter-Phased Transit Curves

TCE 004665991-01 P= 1.124028 Days $T_0=131.630380$ (BKJD)



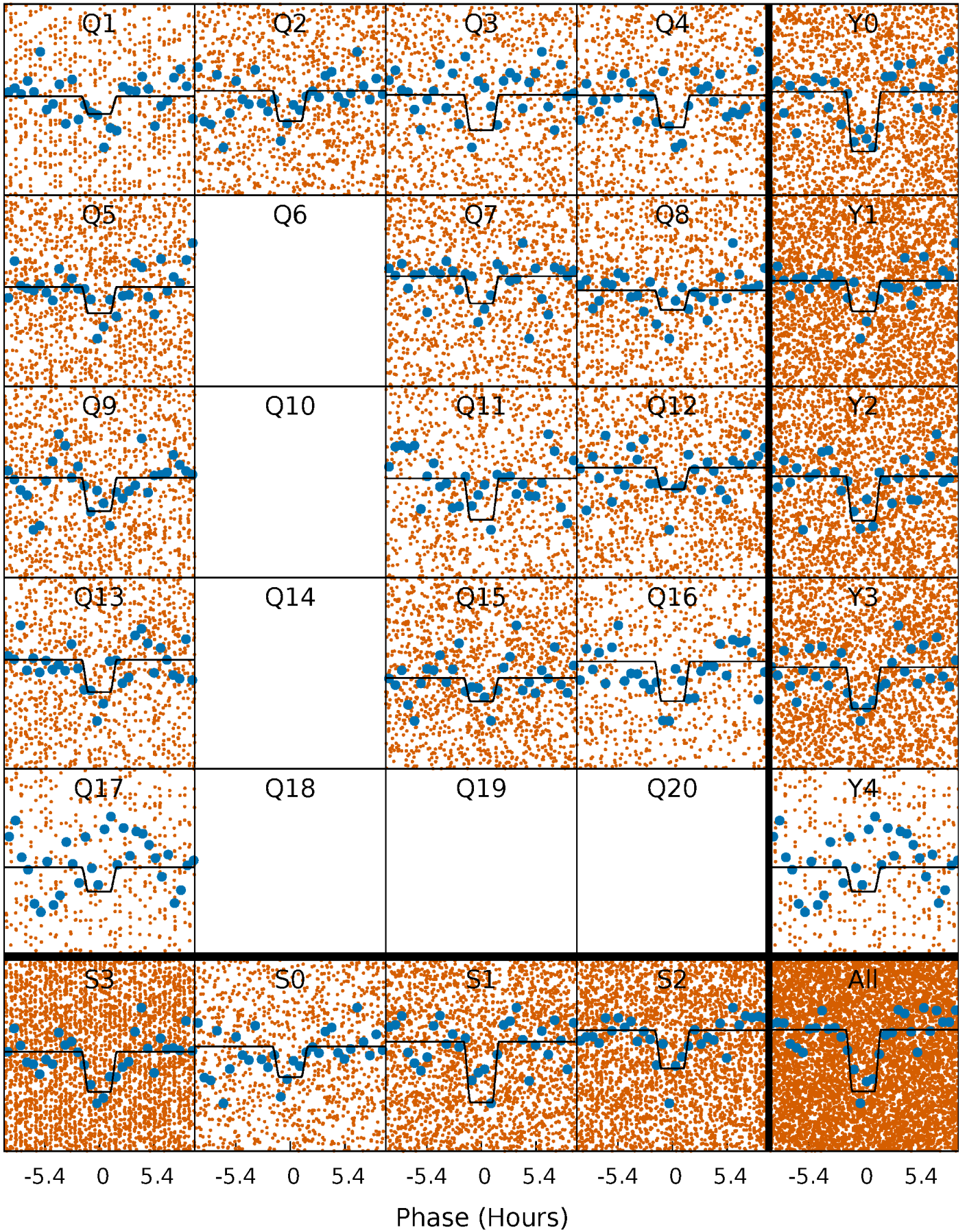
DV Quarter-Phased Transit Curves

TCE 004665991-01 P= 1.124028 Days $T_0=131.630380$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

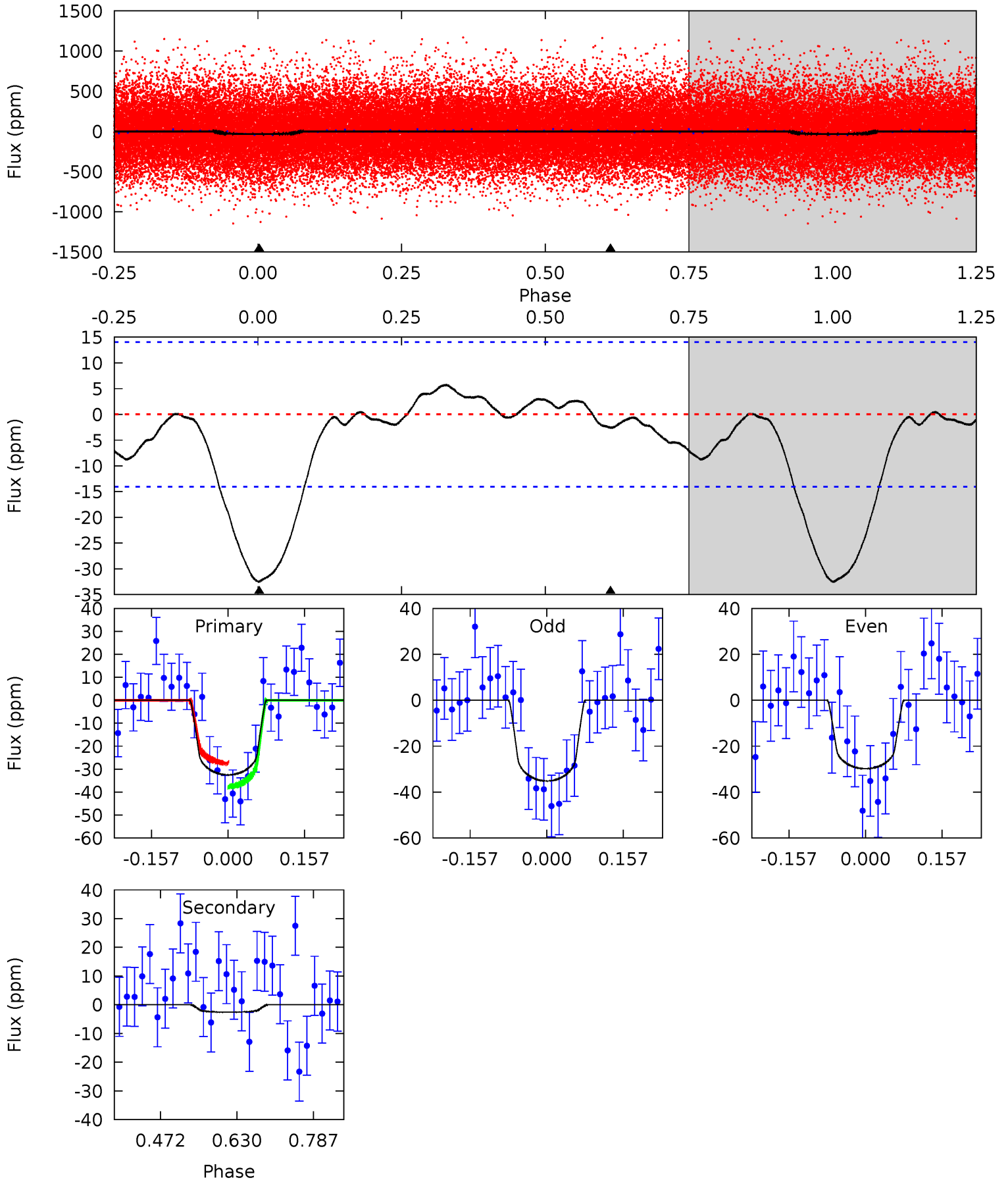
TCE 004665991-01 P= 1.124037 Days $T_0=131.630410$ (BKJD)



DV Model-Shift Uniqueness Test

004665991-01, P = 1.124028 Days, E = 130.506352 Days

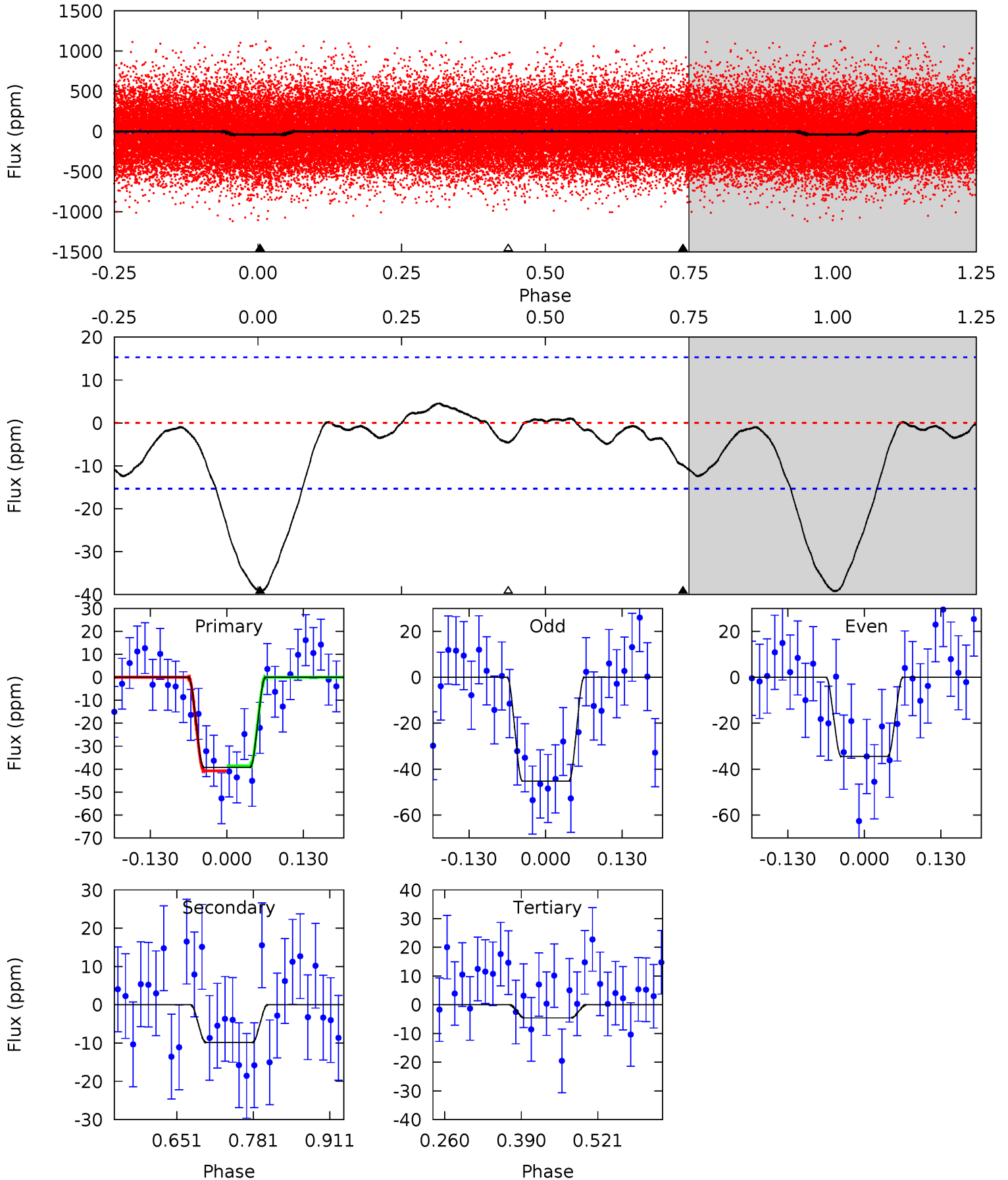
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	0.83	0	0	4.47	1.41	1.13	10.3	10.3	0.83	0.83	0.85	1.03	0.15	1.61



Alt Model-Shift Uniqueness Test

004665991-01, P = 1.124037 Days, E = 130.506373 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	2.90	1.35	0	4.51	1.51	0.70	10.2	11.6	1.55	2.90	1.58	0.92	0.10	0.31



Stellar Parameters For KIC 004665991

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5941^{+160}_{-178}	$4.519^{+0.036}_{-0.204}$	$-0.140^{+0.300}_{-0.300}$	$0.911^{+0.266}_{-0.089}$	$1.001^{+0.119}_{-0.132}$	$1.865^{+0.372}_{-0.959}$
	+3%/-3%	+1%/-5%	+214%/-214%	+29%/-10%	+12%/-13%	+20%/-51%
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 004665991-01 / KOI 4870.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3 ± 3	$0.75^{+0.47}_{-0.40}$	2473^{+165}_{-113}	3097^{+1273}_{-6077}	$0.960^{+4.640}_{-1.120}$
Alt.	-10 ± 3	$0.73^{+0.47}_{-0.38}$	2471^{+162}_{-113}	4159^{+1530}_{-757}	$4.437^{+14.586}_{-2.899}$

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 $A_{obs} \gg 1.0$

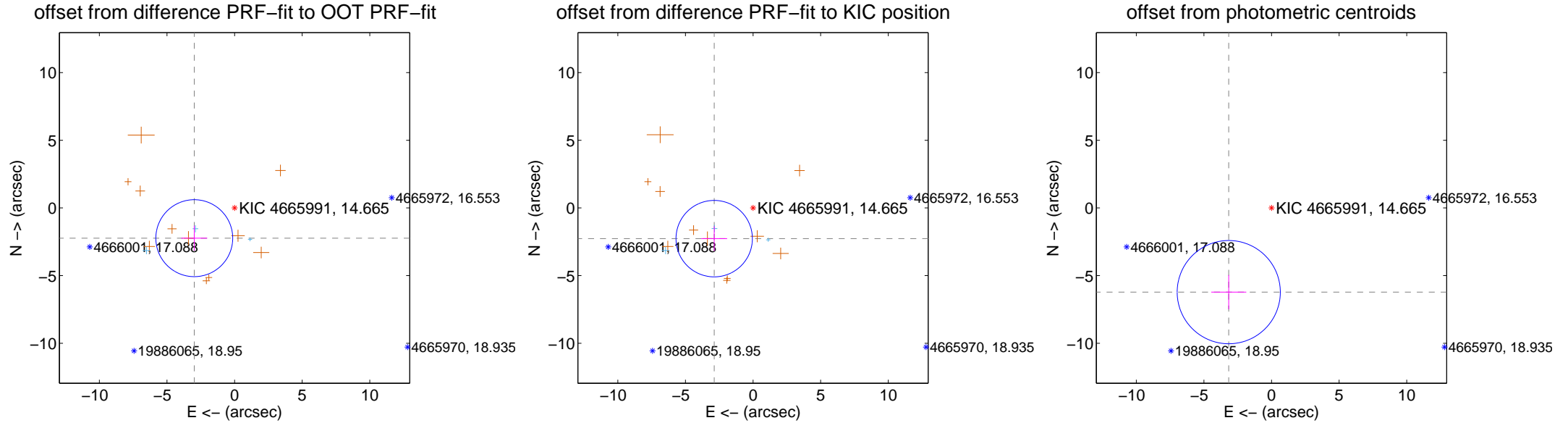
DV Centroid Data

Supplemental centroid analysis for 004665991-01. Kepler magnitude: 14.66. Transit SNR 8.97

There are 3 quarters with good PRF difference image offsets

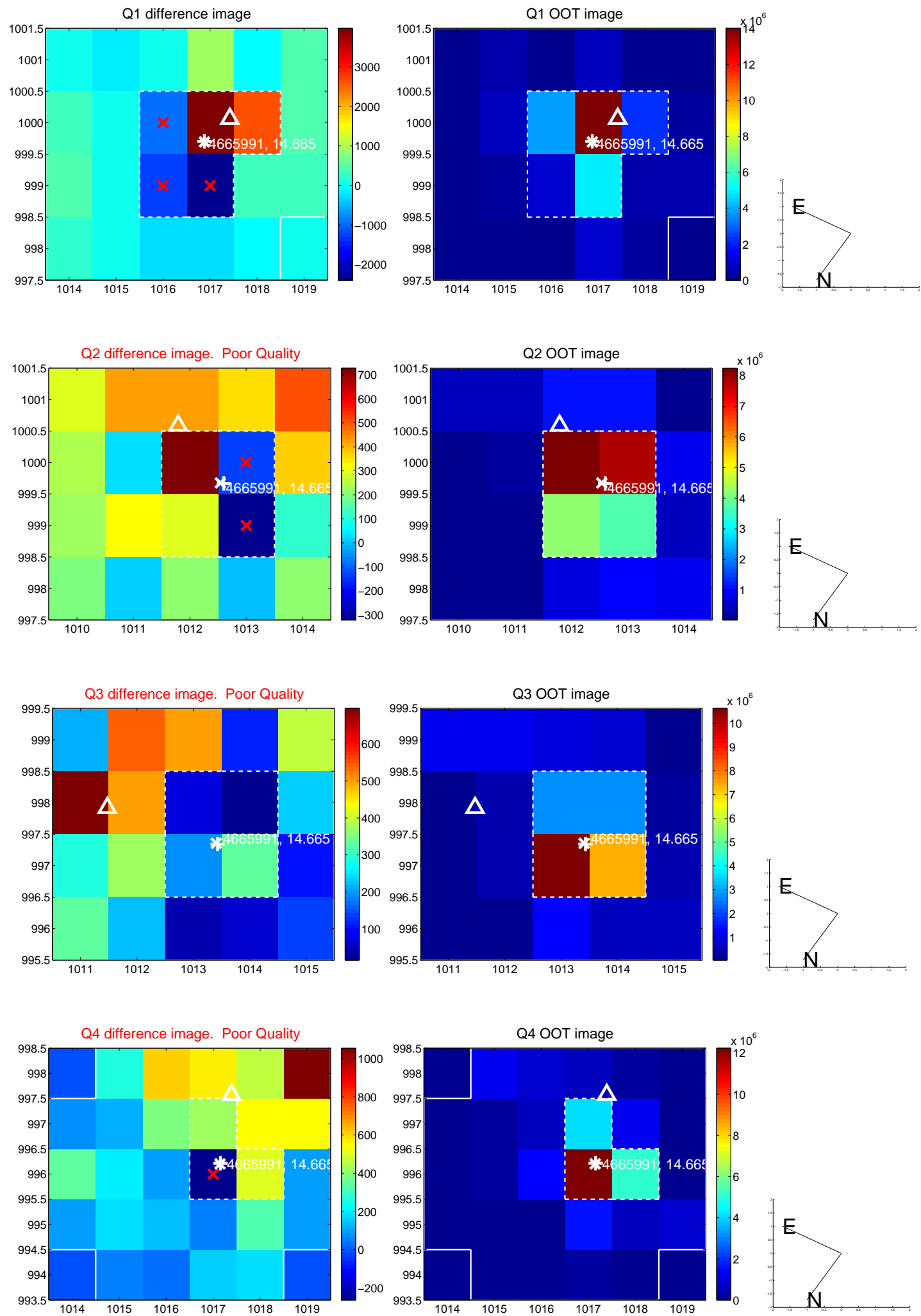
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.724 ± 0.947	3.93	2.980 ± 0.963	-2.233 ± 0.920
PRF-fit source offset from KIC position	3.660 ± 0.941	3.89	2.873 ± 0.959	-2.267 ± 0.913
photometric centroid source offset	6.98 ± 1.27	5.49	3.16 ± 1.30	-6.22 ± 1.26

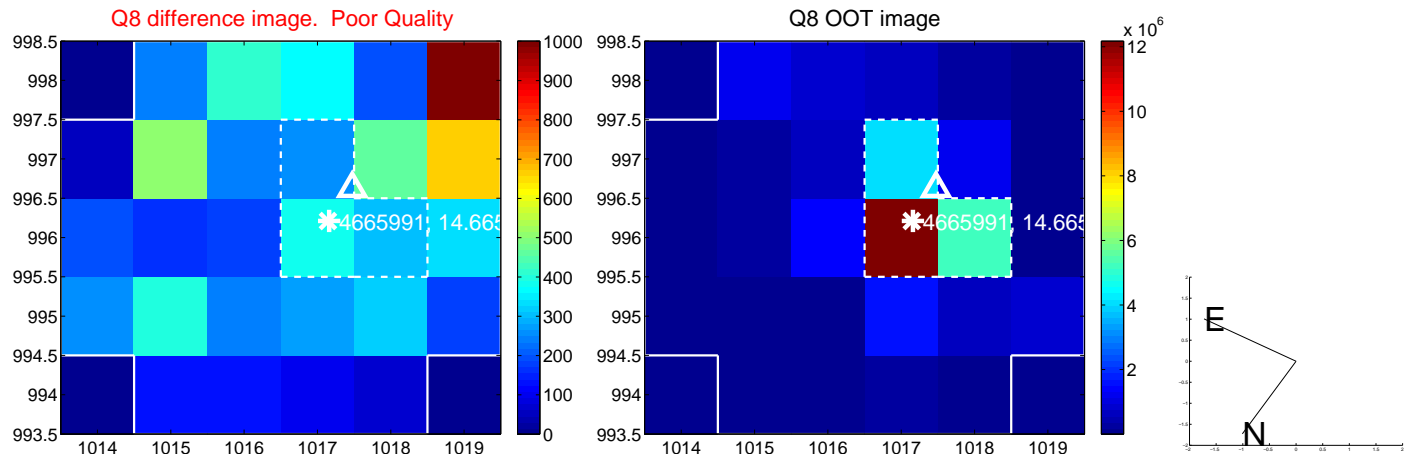
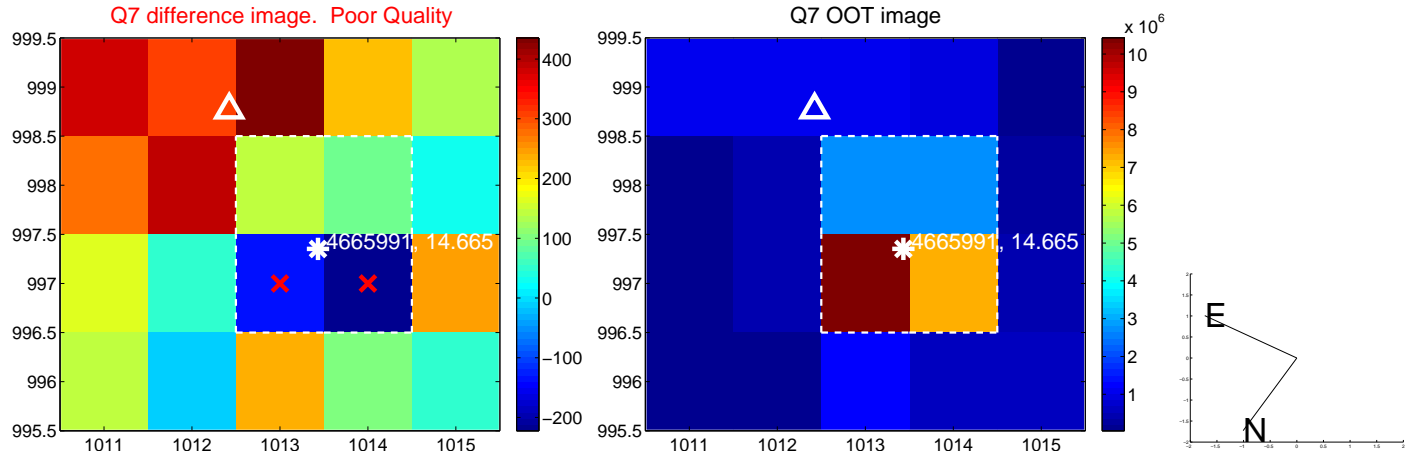
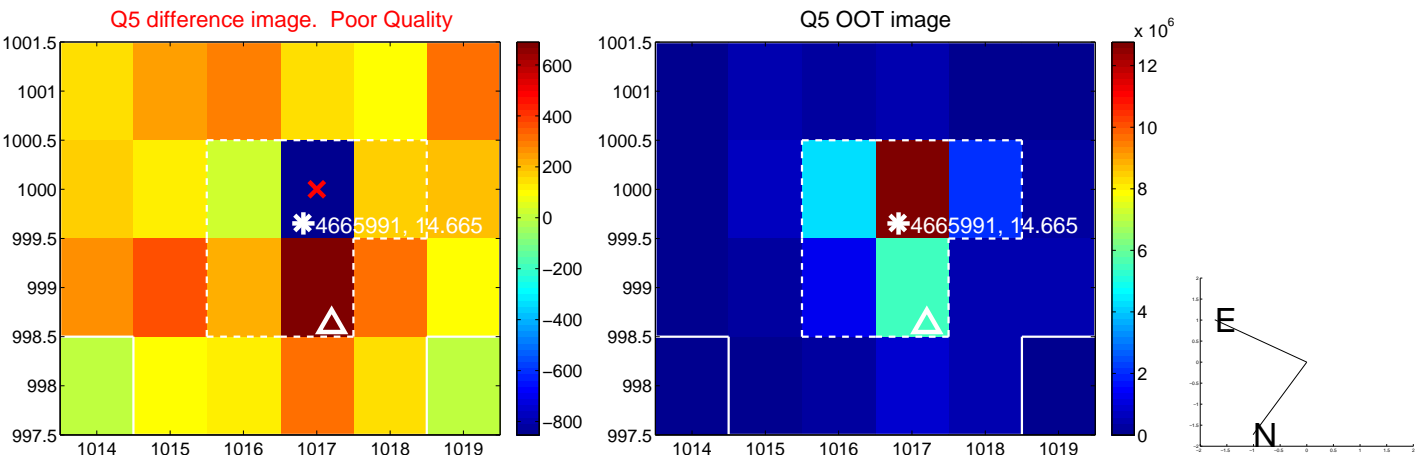


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

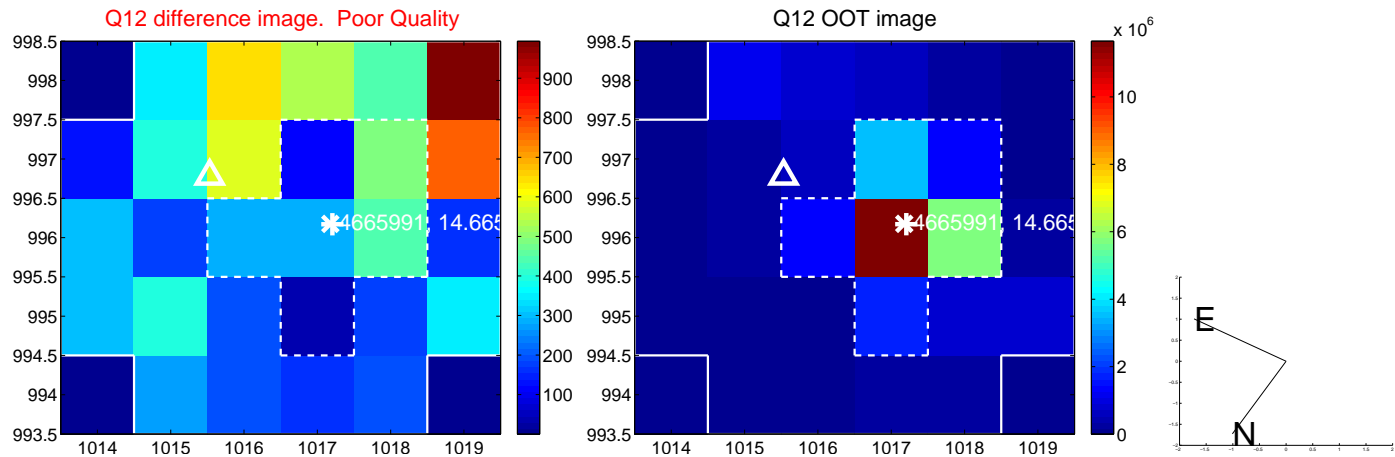
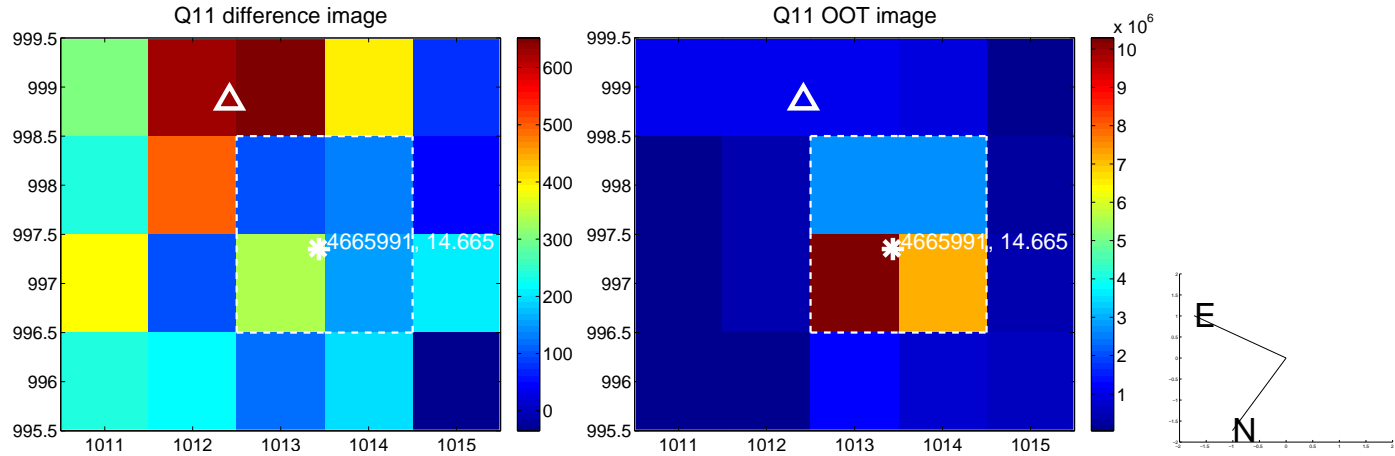
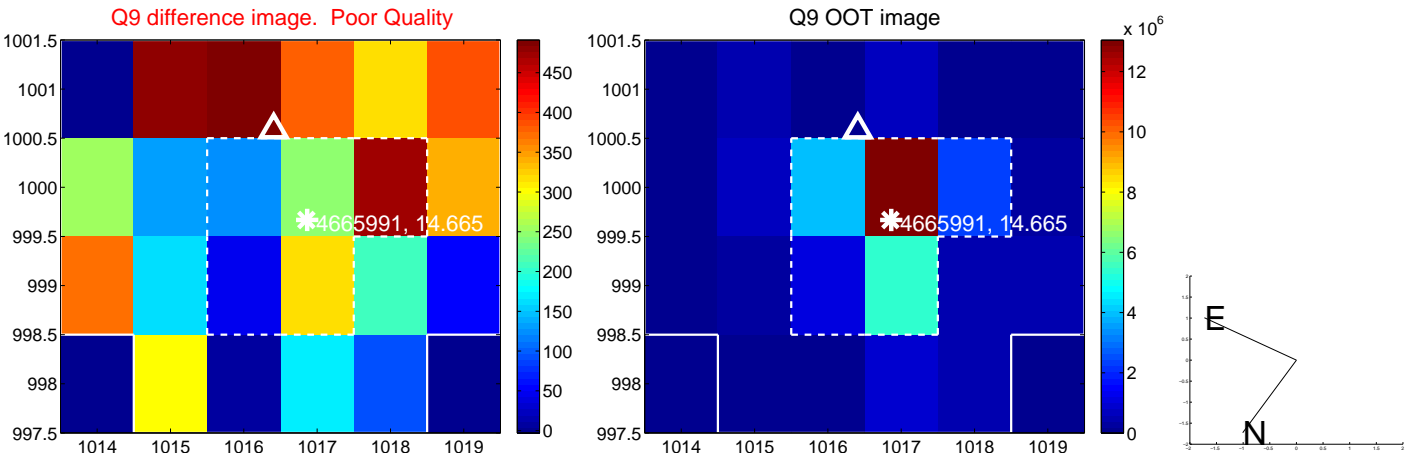
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



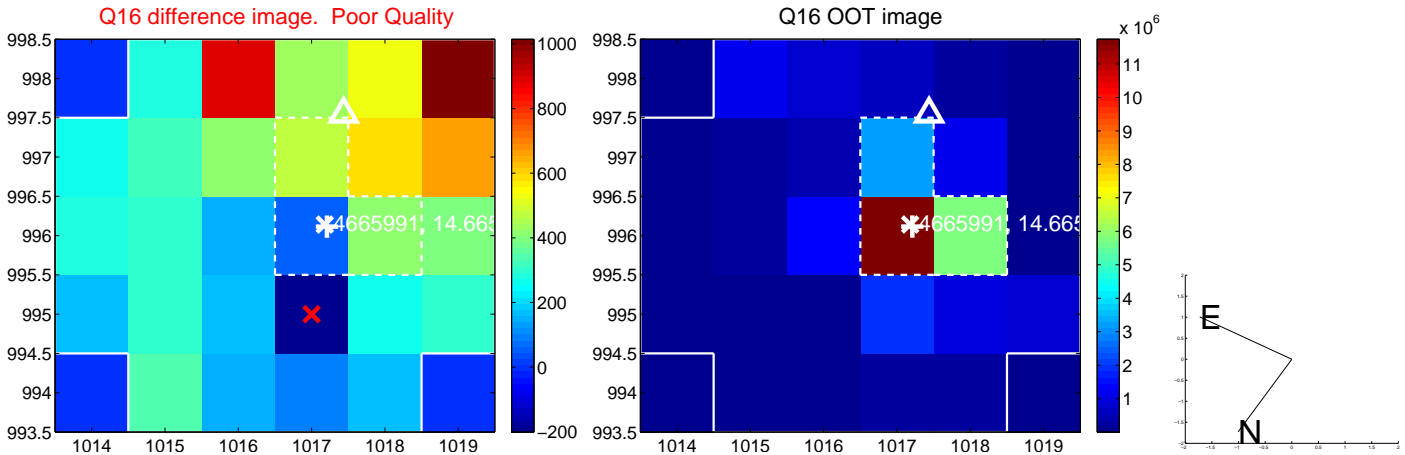
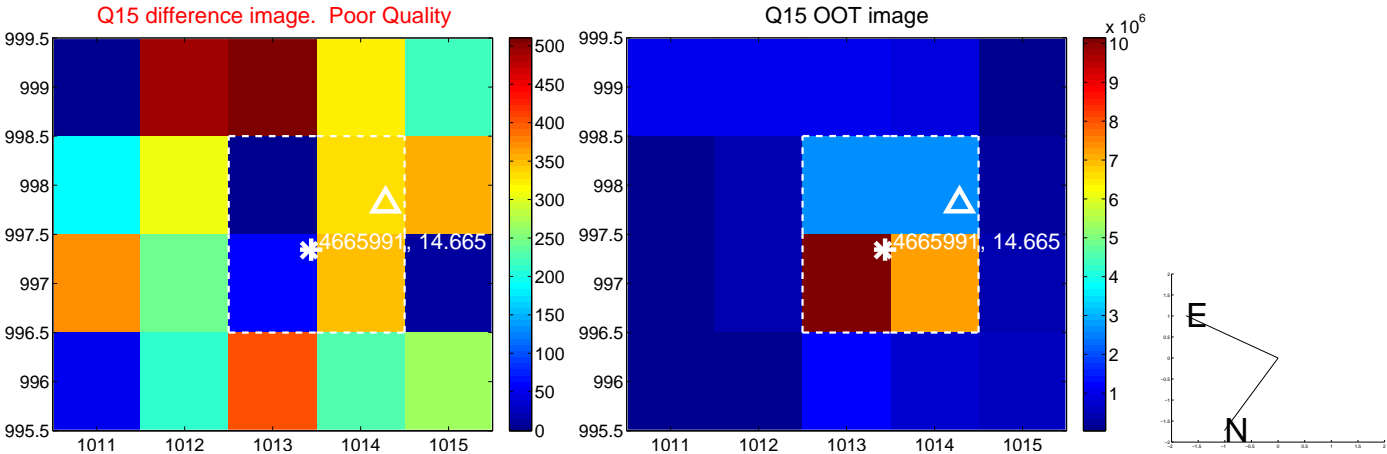
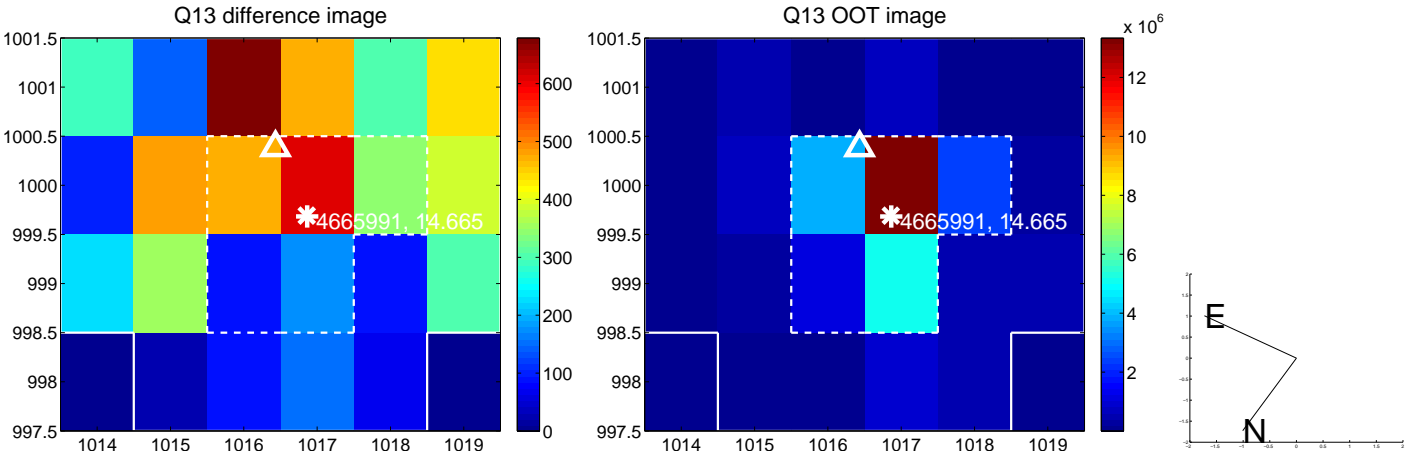
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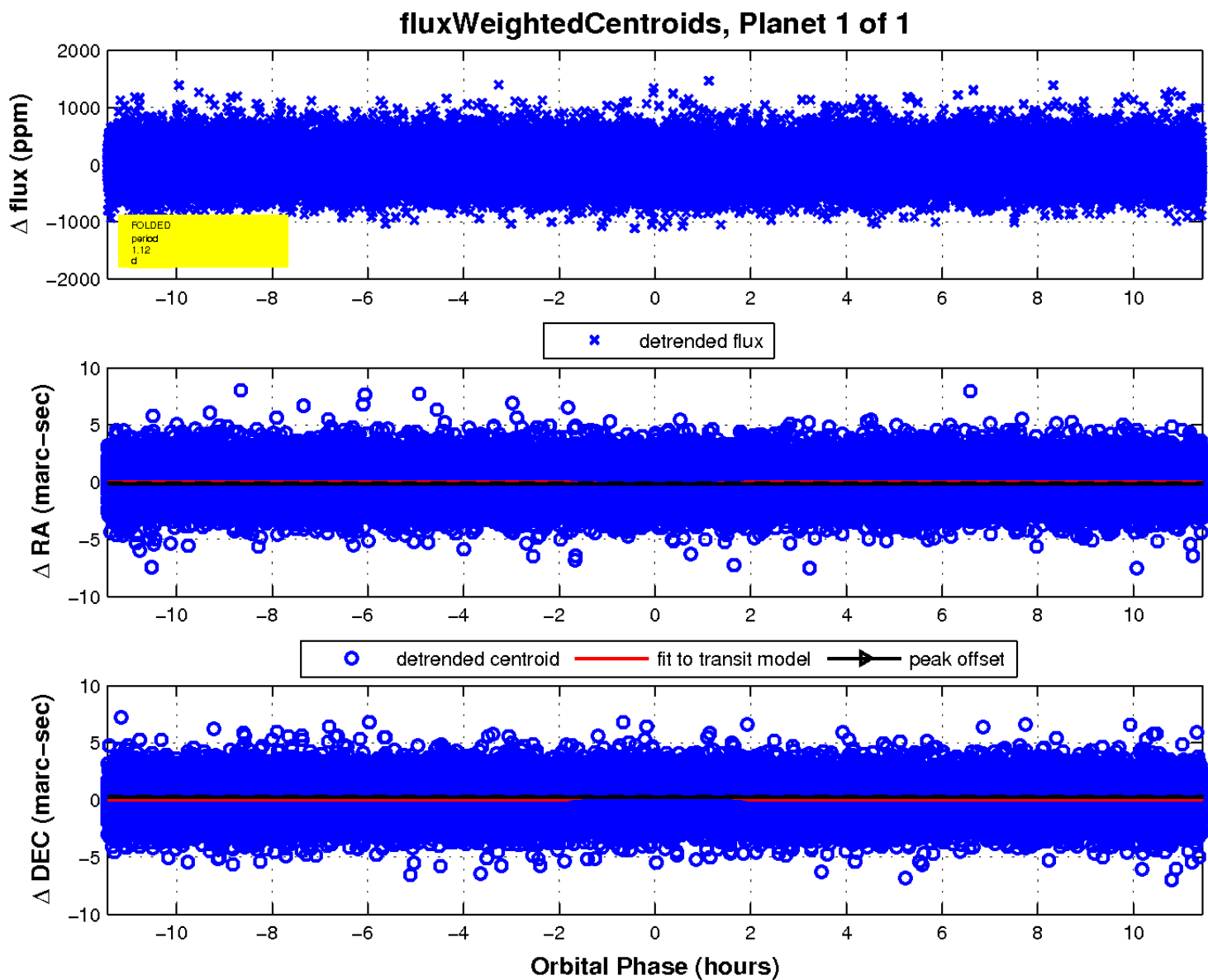
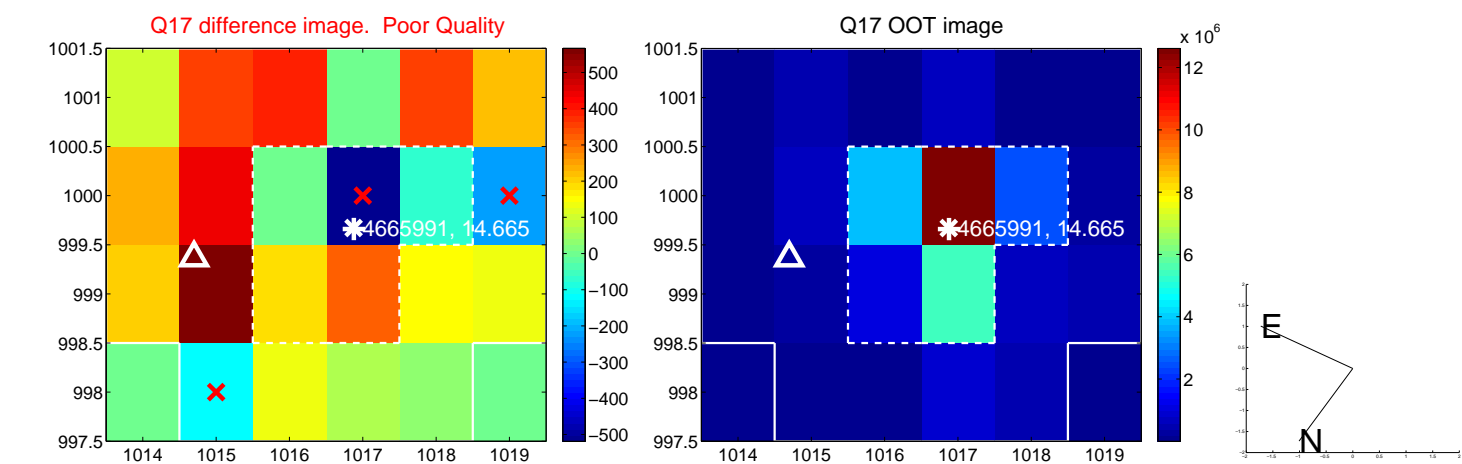
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UKIRT Image

Declination

