

KIC 009406990

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})
009406990-01	OBS	0937.01	20.834242	134.918074	984.7	4.195	38.2	42.4	0.88	5537	3.03	29.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009406990-01	OBS	PC	1.00	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.

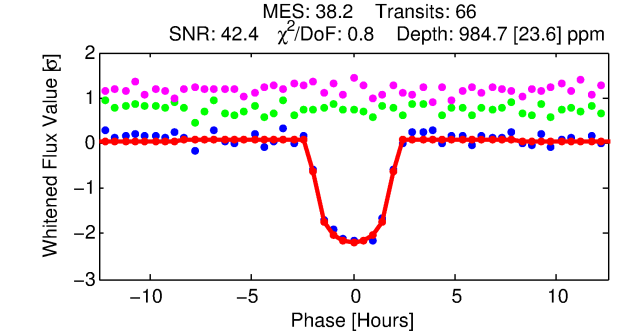
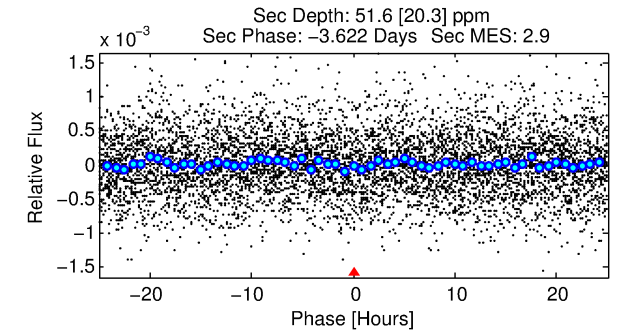
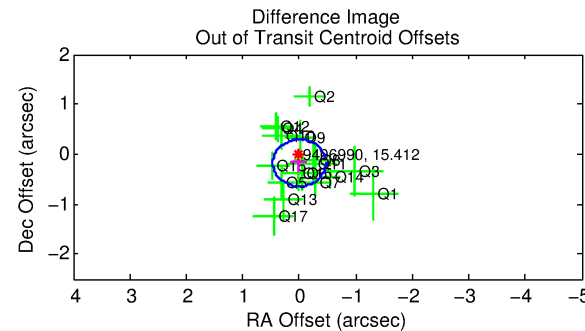
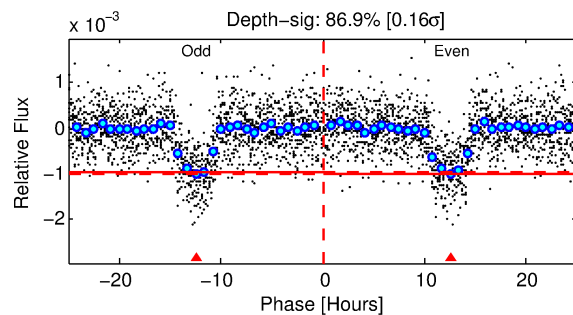
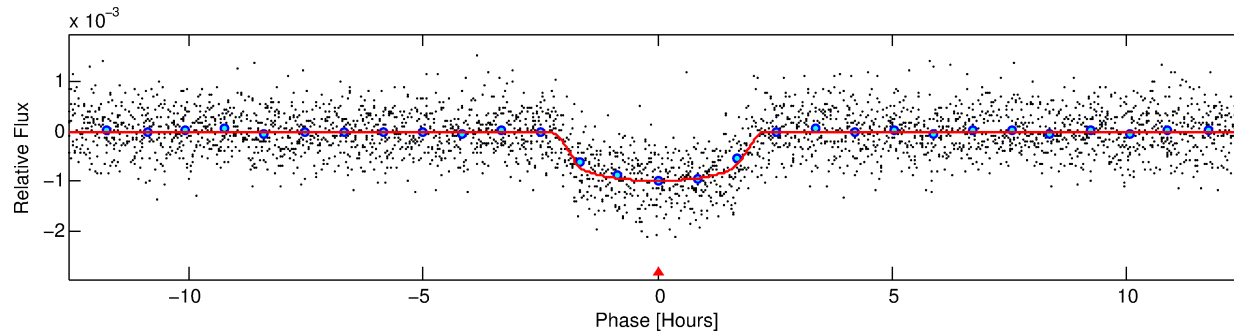
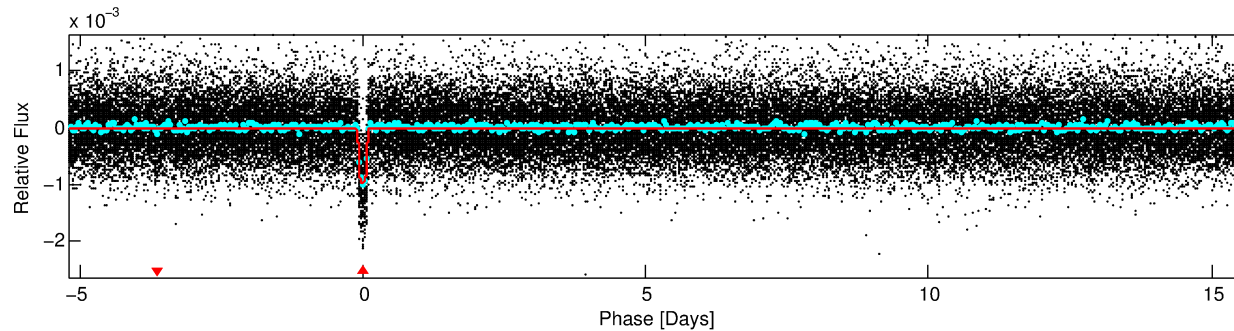
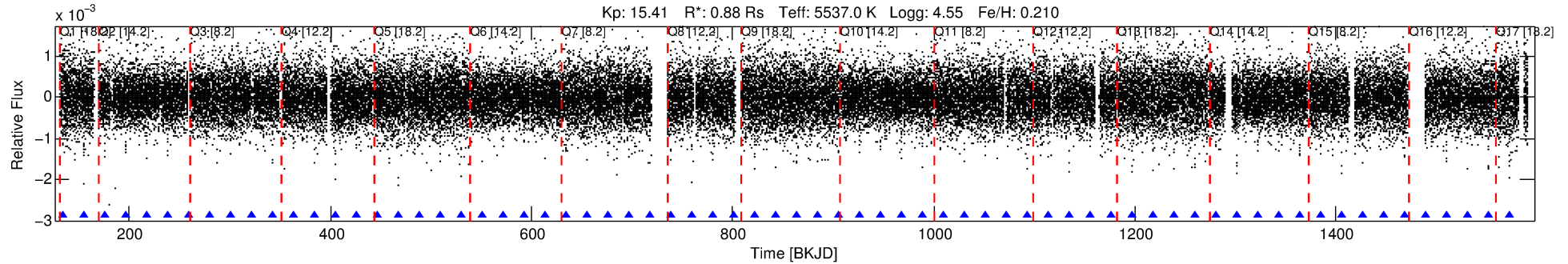
Ephemeris Match Information For 009406990-01

No Significant Match Found

DV One-Page Summary

KIC: 9406990 Candidate: 1 of 1 Period: 20.834 d

KOI: K00937.01 Corr: 0.985



DV Fit Results:

Period = 20.83424 [0.00006] d
Epoch = 134.9181 [0.0024] BKJD
Rp/R* = 0.0315 [0.0052]
a/R* = 26.16 [17.12]
b = 0.77 [0.36]
Seff = 29.69 [9.87]
Teq = 595 [49] K
Rp = 3.03 [0.91] Re
a = 0.1482 [0.0315] AU
Ag = 68.05 [40.82] [1.64 σ]
Teffp = 2643 [348] K [5.82 σ]

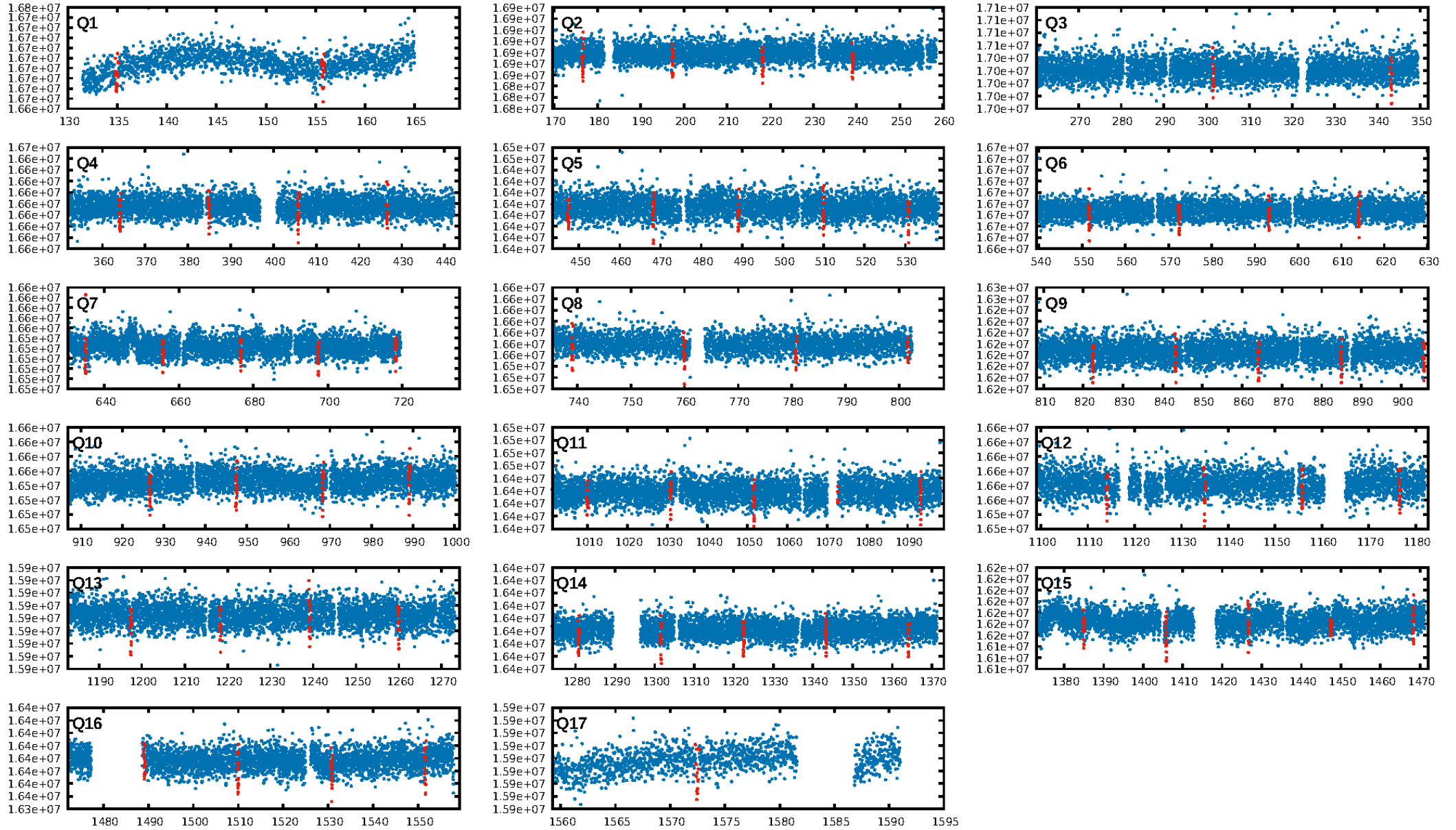
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 77.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [63/63]
GhostDiagnostic-chr: 3.744
Centroid-sig: 10.6%
Centroid-so: 0.620 arcsec [1.83 σ]
OotOffset-rm: 0.175 arcsec [1.12 σ]
KicOffset-rm: 0.124 arcsec [0.96 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

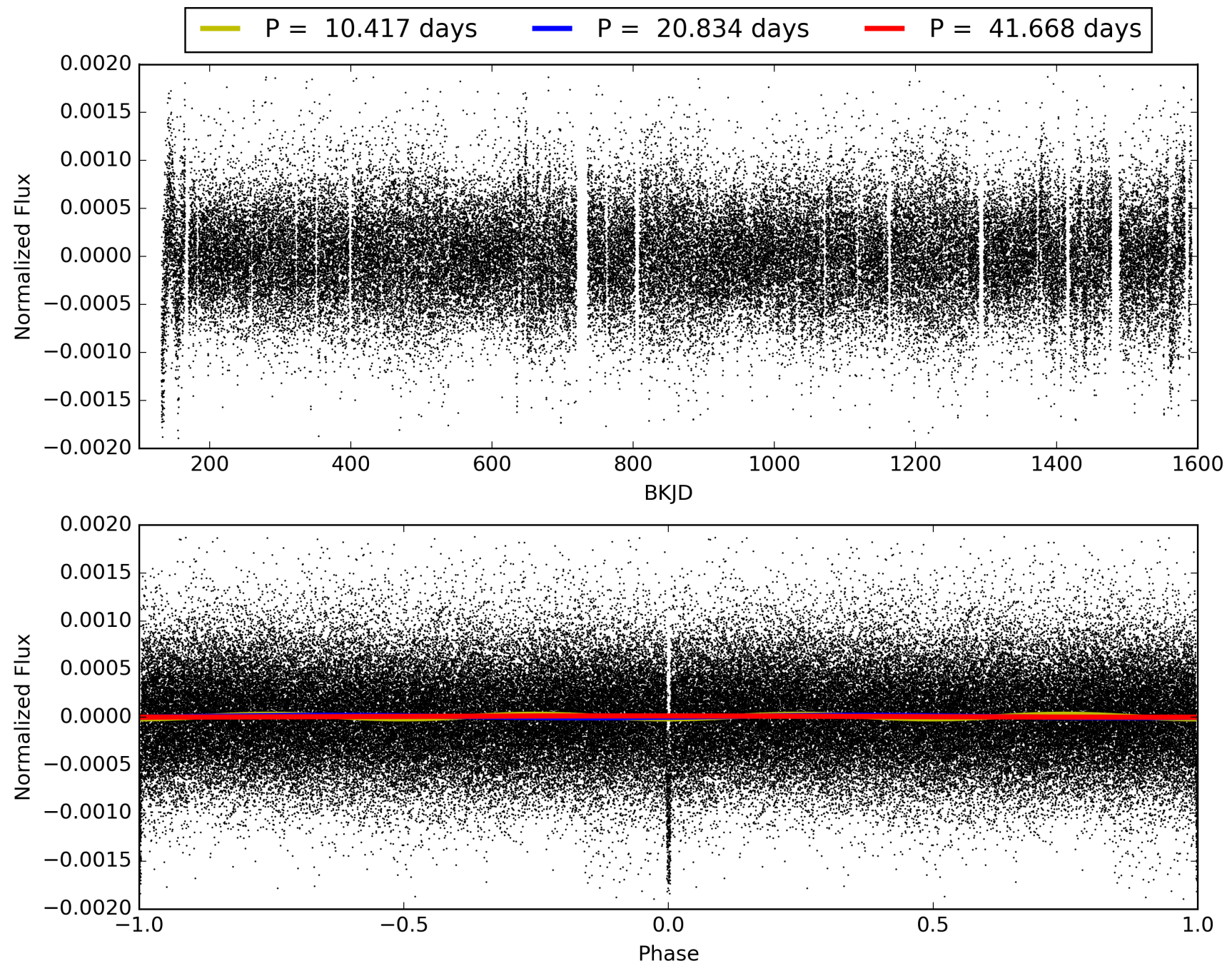
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:55:40 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009406990-01, PDC Light Curves

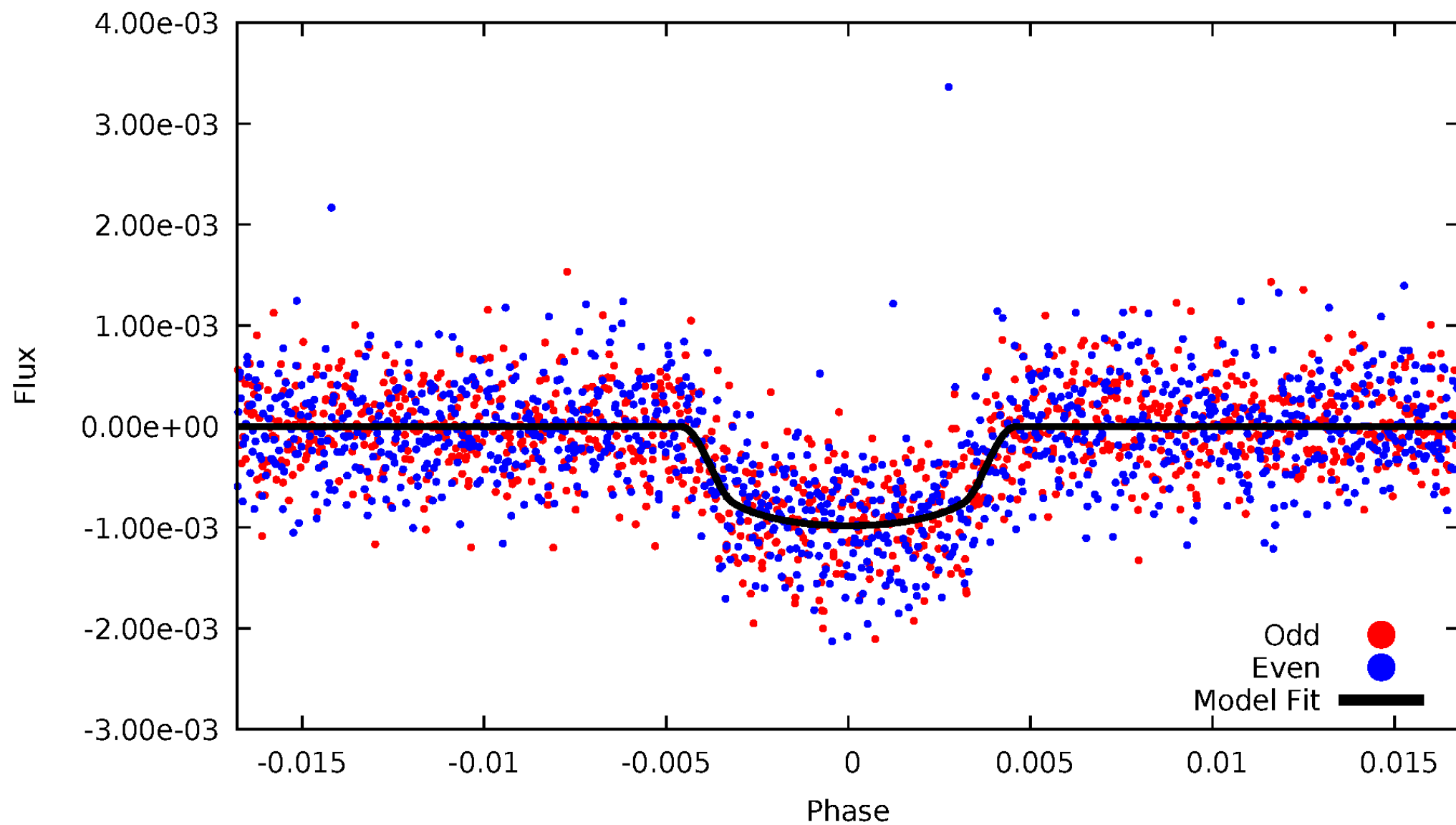


TCE 009406990-01



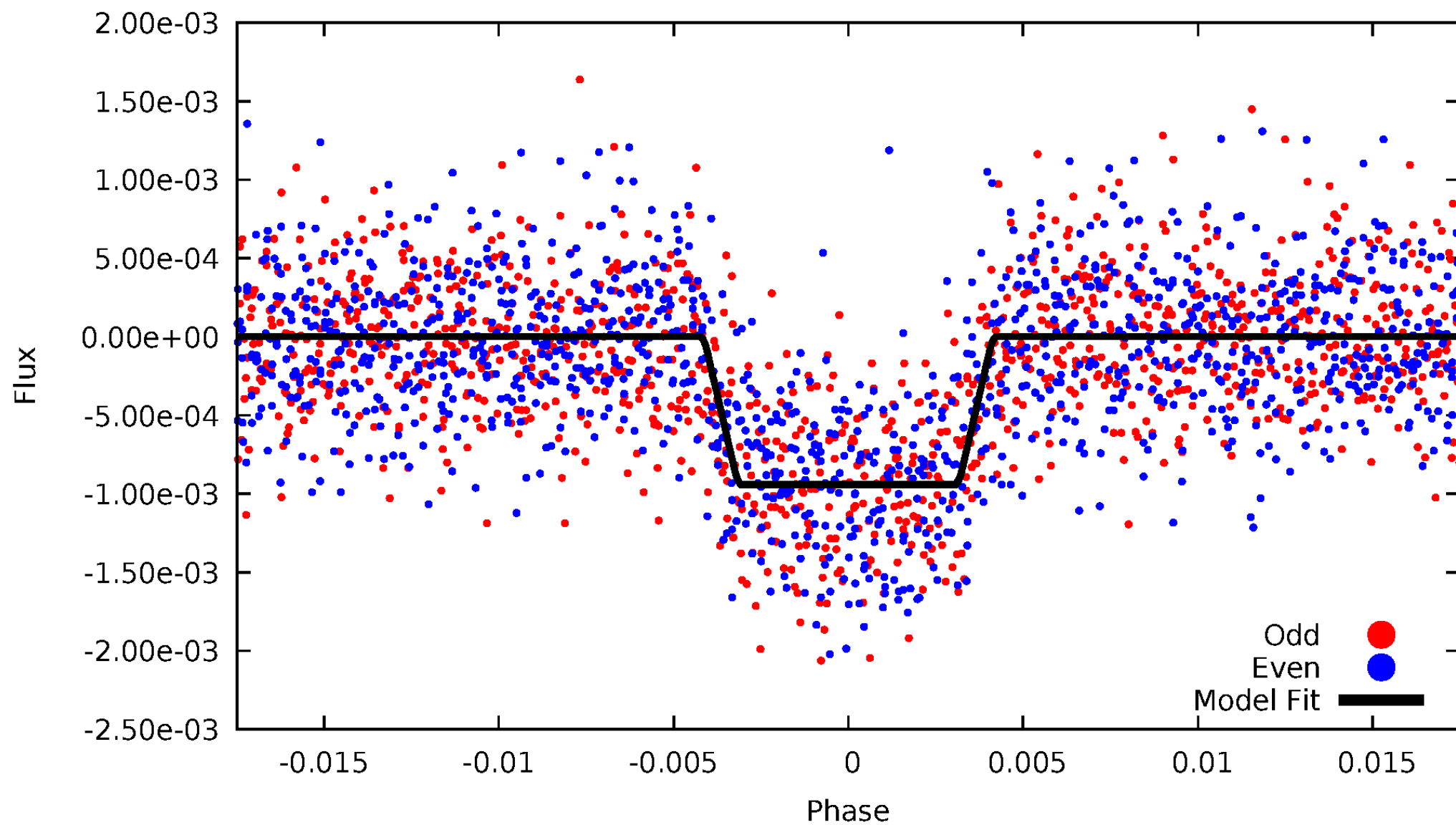
DV Odd/Even

TCE 009406990-01



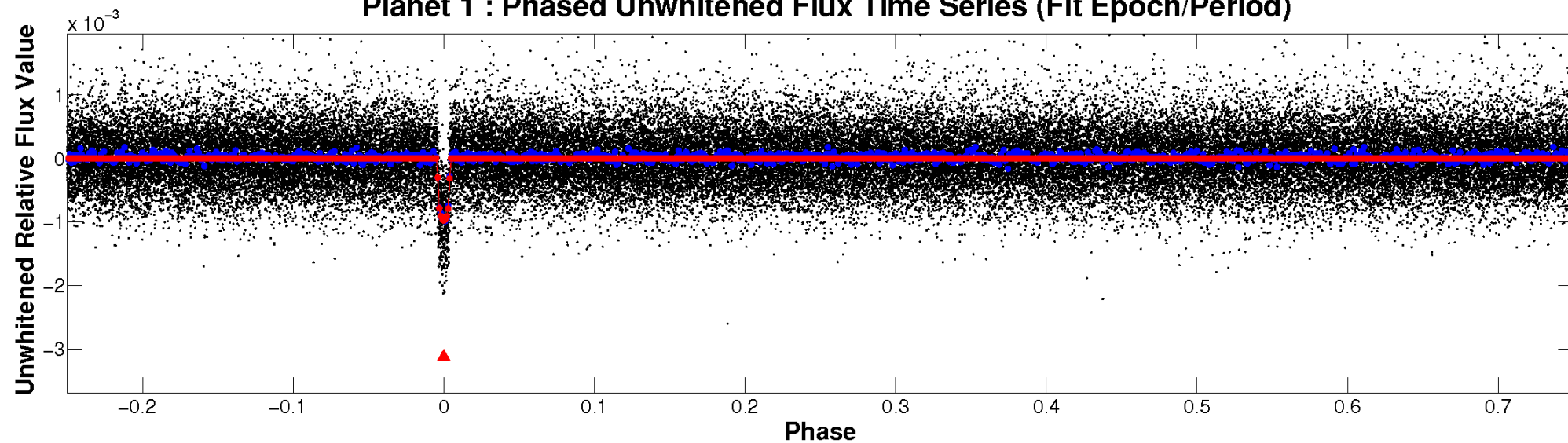
ALT Odd/Even

TCE 009406990-01

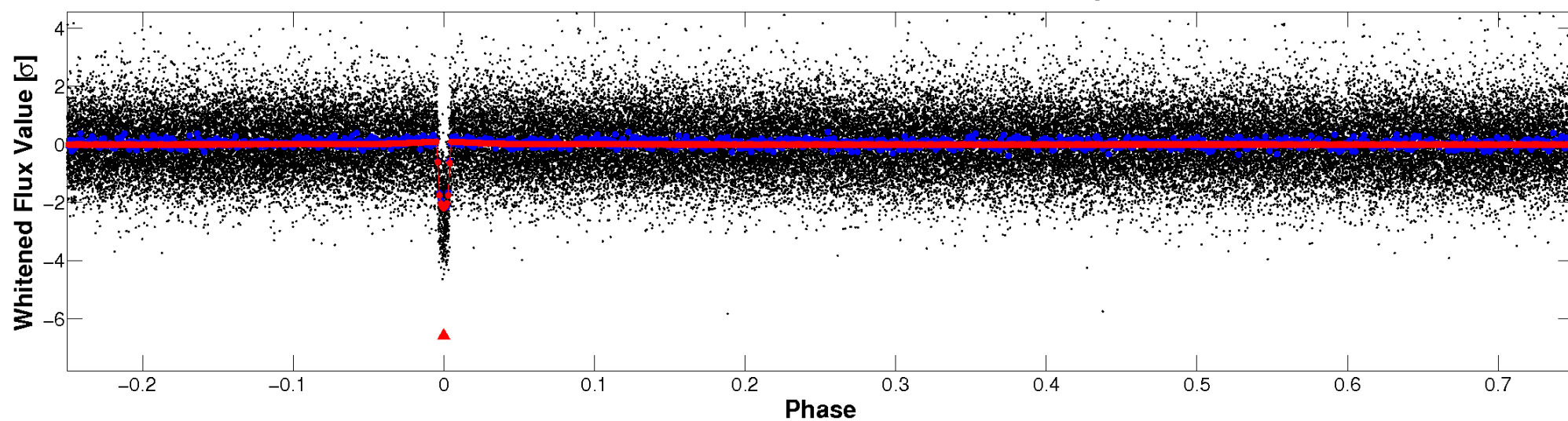


Non-Whitened Vs. Whitened Light Curve

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

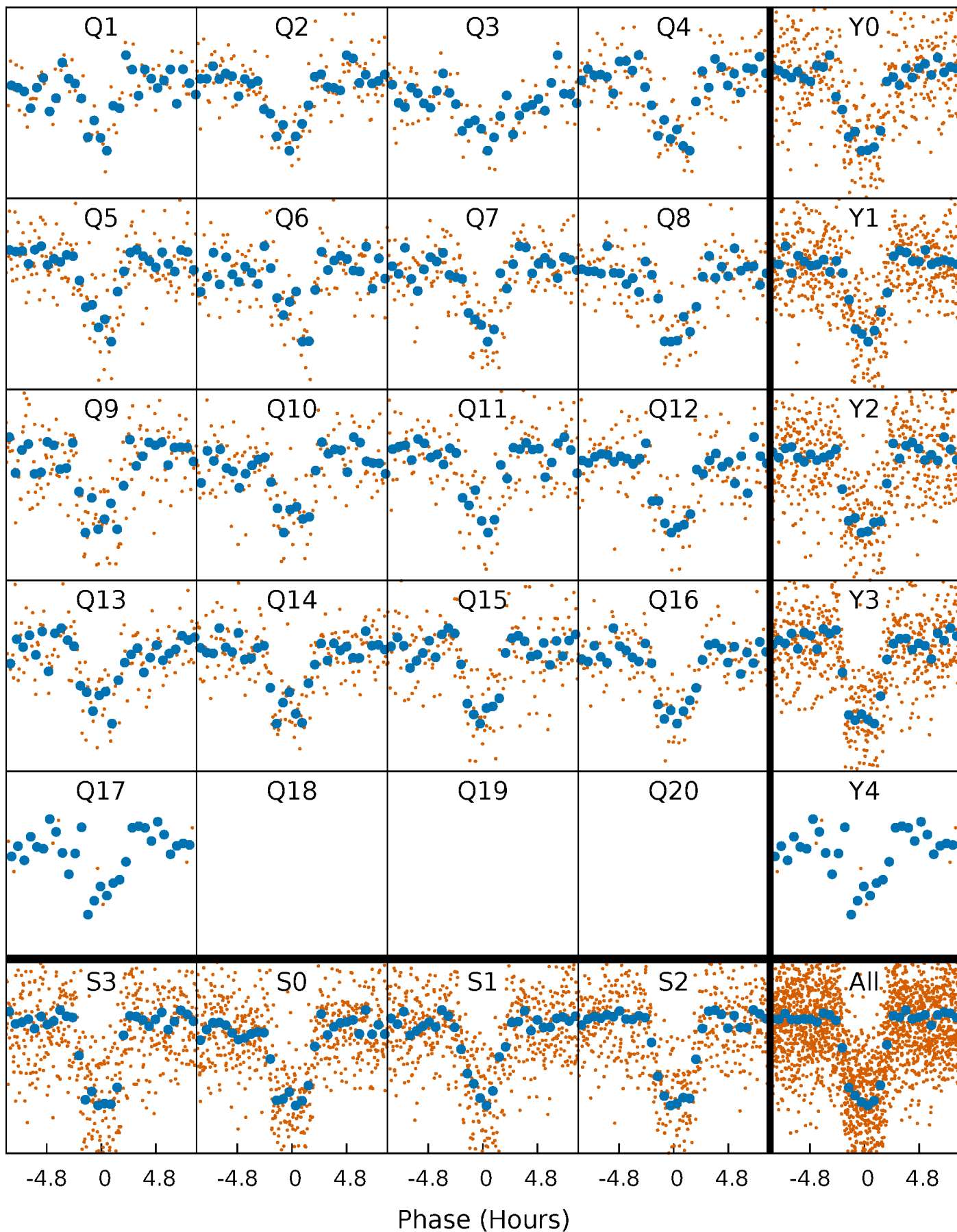


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



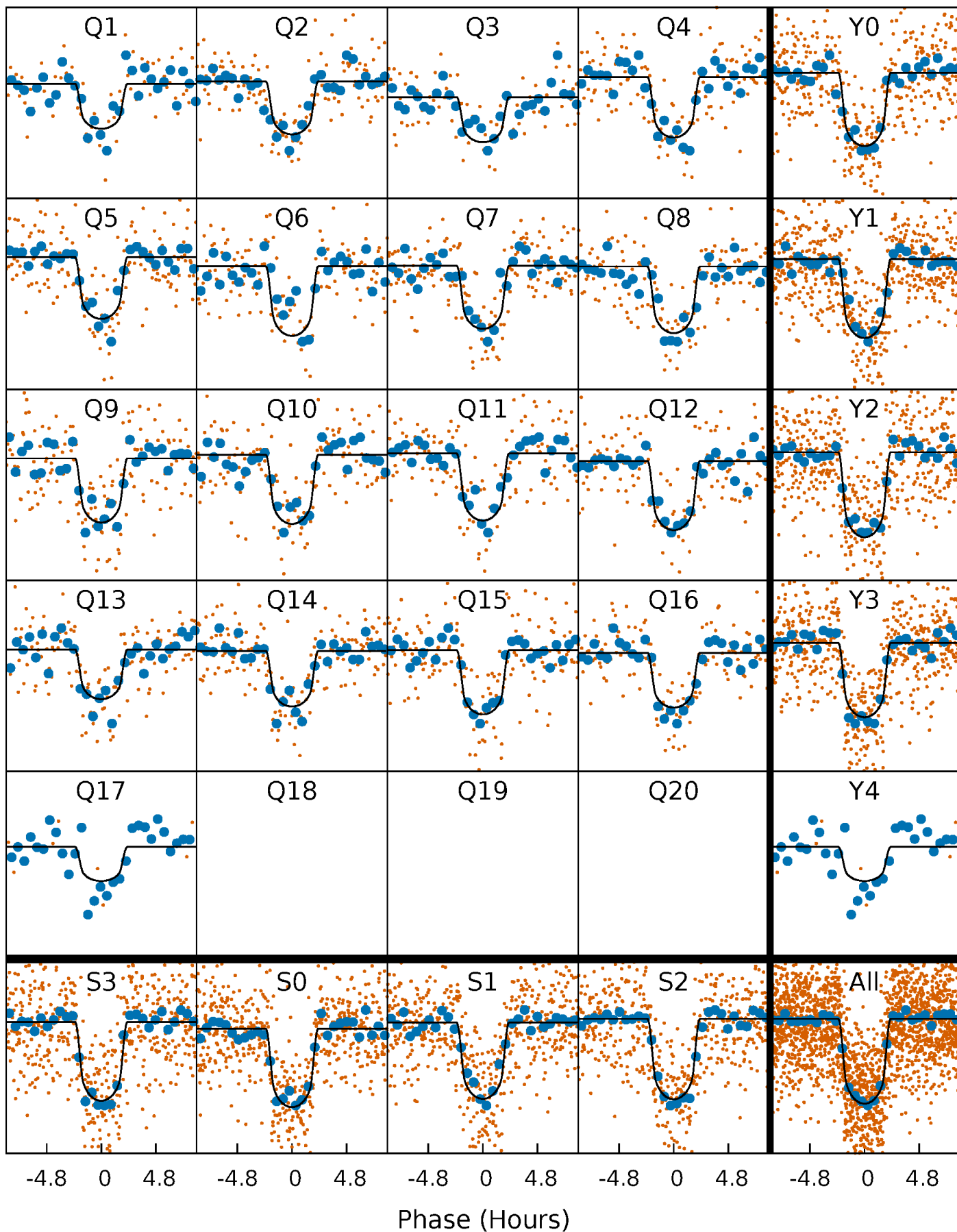
PDC Quarter-Phased Transit Curves

TCE 009406990-01 P= 20.834242 Days $T_0=134.918074$ (BKJD)



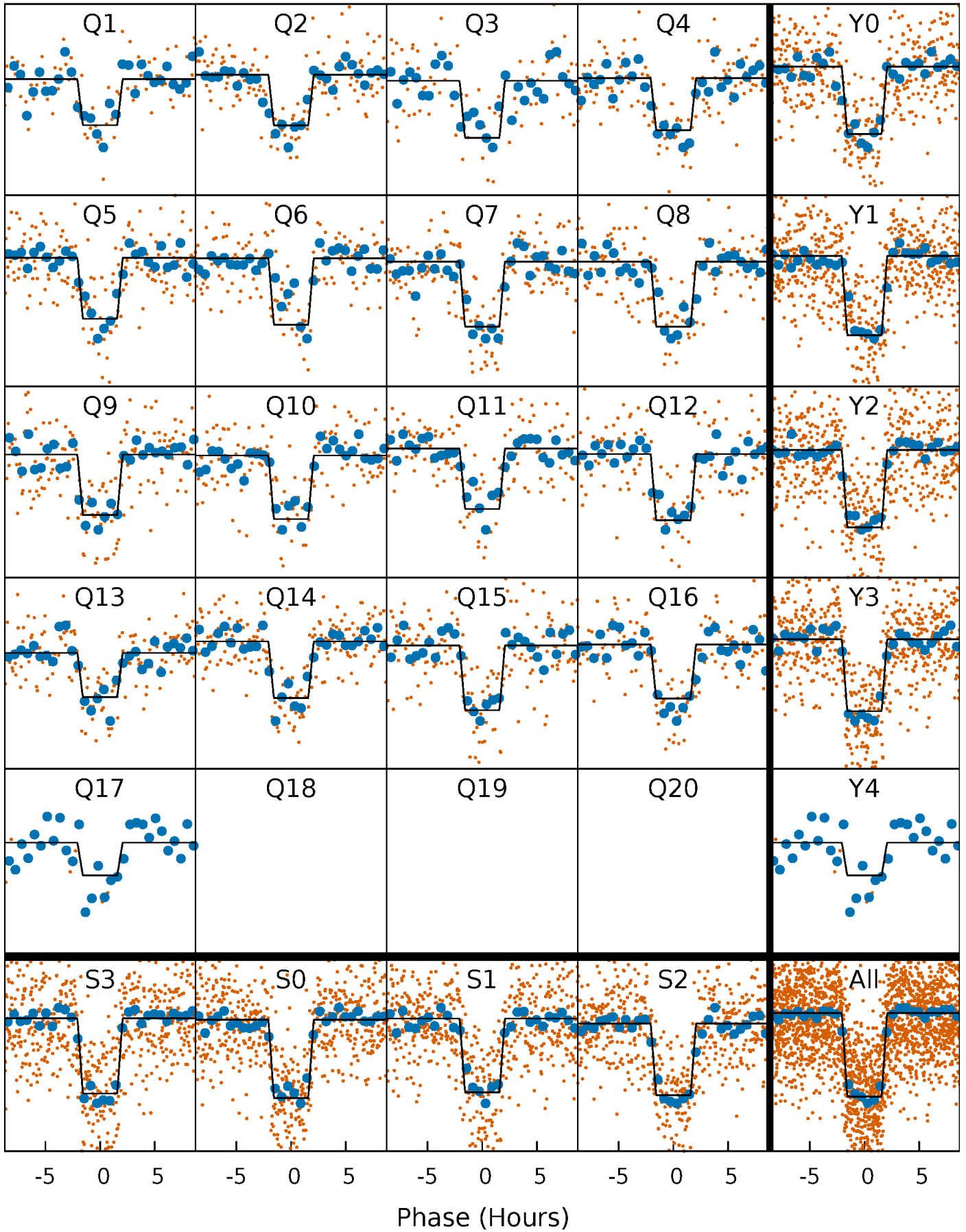
DV Quarter-Phased Transit Curves

TCE 009406990-01 P= 20.834242 Days $T_0=134.918074$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

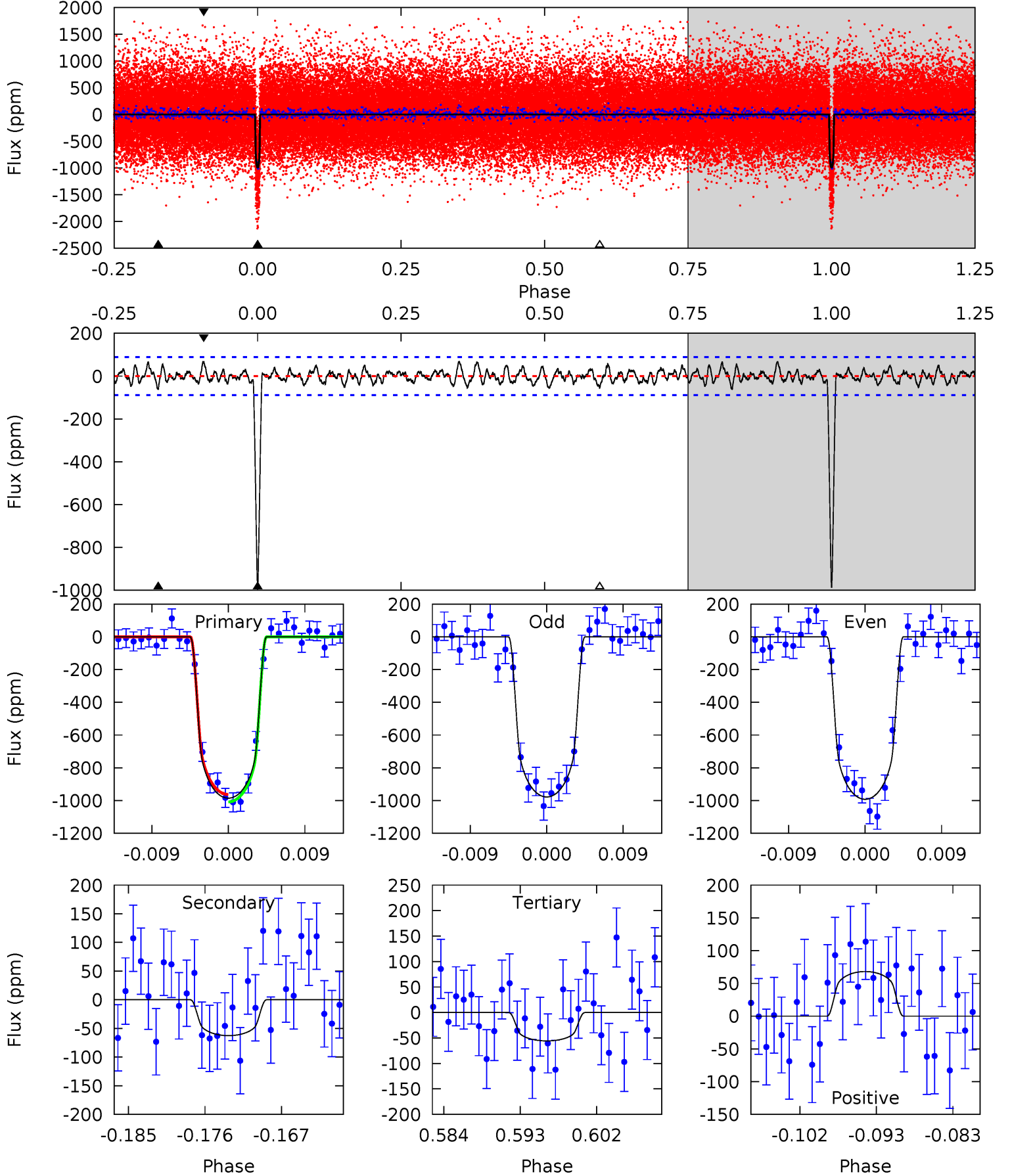
TCE 009406990-01 $P = 20.834176$ Days $T_0 = 134.920684$ (BKJD)



DV Model-Shift Uniqueness Test

009406990-01, P = 20.834242 Days, E = 114.083832 Days

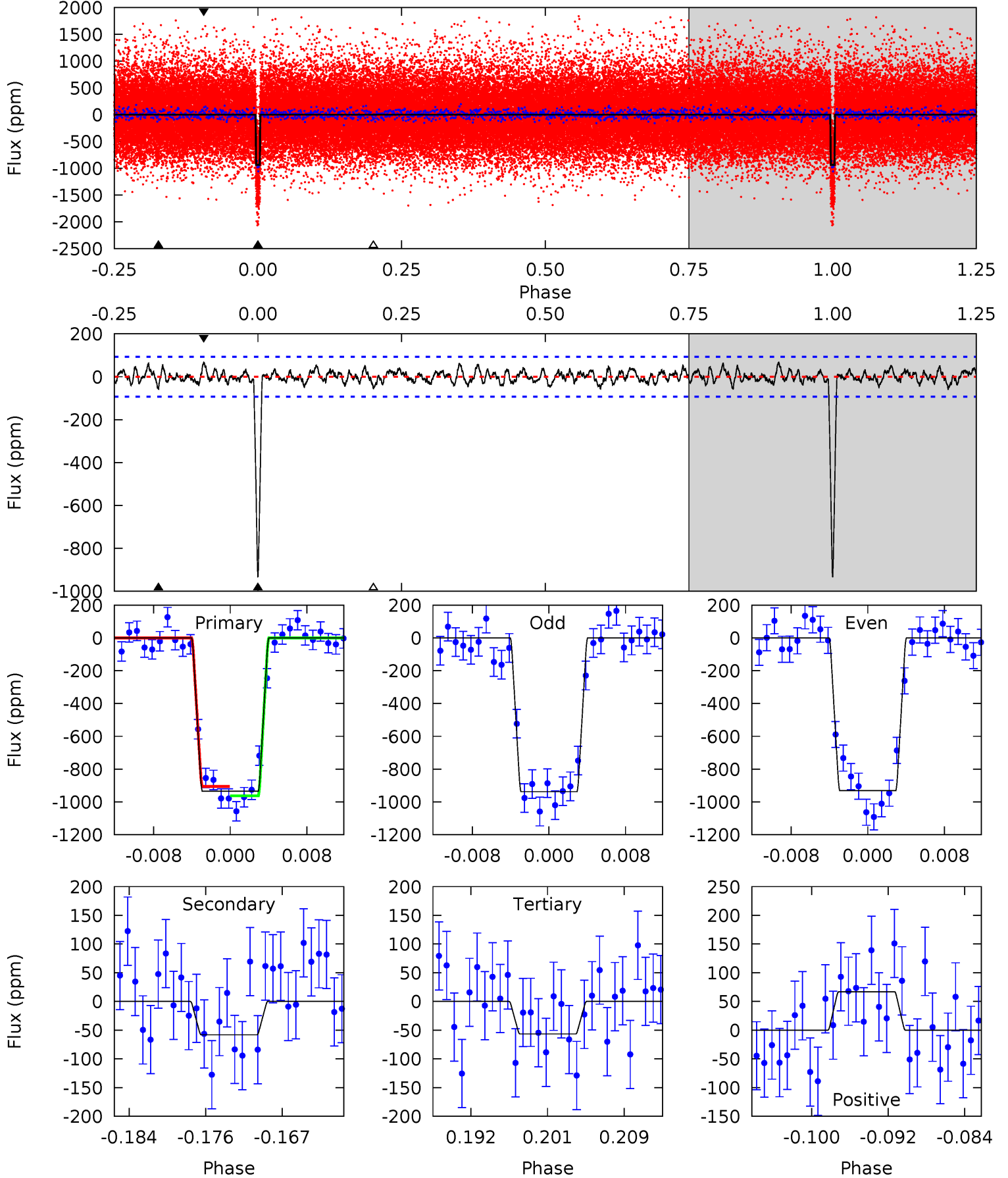
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.1	3.56	3.18	3.88	5.04	2.60	1.32	53.0	52.3	0.39	-0.31	0.40	0.98	0.06	1.29



Alt Model-Shift Uniqueness Test

009406990-01, $P = 20.834176$ Days, $E = 114.086508$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.7	3.15	3.07	3.63	5.06	2.64	1.19	47.6	47.1	0.08	-0.48	0.18	1.01	0.07	1.55



Stellar Parameters For KIC 009406990

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5537^{+166}_{-166}	$4.549^{+0.030}_{-0.170}$	$0.210^{+0.200}_{-0.300}$	$0.880^{+0.221}_{-0.069}$	$0.999^{+0.067}_{-0.117}$	$2.066^{+0.334}_{-0.928}$
	+3%/-3%	+1%/-4%	+95%/-143%	+25%/-8%	+7%/-12%	+16%/-45%
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 009406990-01 / KOI 0937.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-63 ± 18	$3.10^{+0.66}_{-0.49}$	849^{+51}_{-37}	3311^{+240}_{-226}	74^{+43}_{-29}
Alt.	-58 ± 18	$3.07^{+0.63}_{-0.58}$	850^{+54}_{-34}	3283^{+269}_{-223}	70^{+45}_{-27}

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 $A_{obs} \gg 1.0$

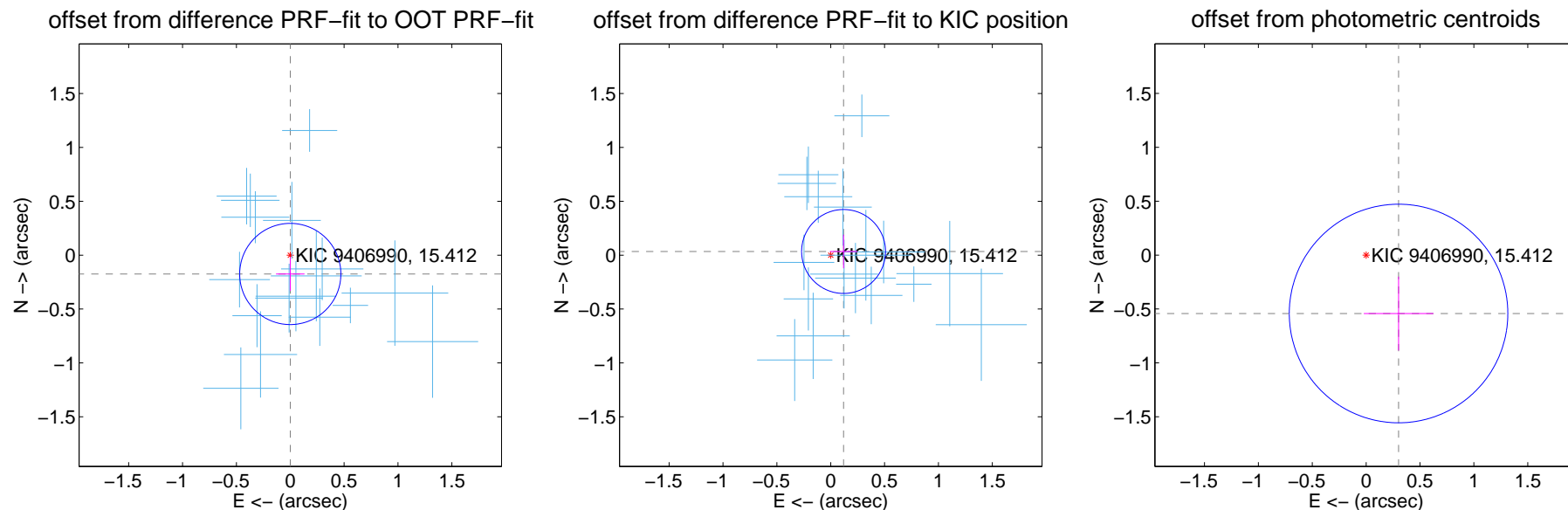
DV Centroid Data

Supplemental centroid analysis for 009406990-01. Kepler magnitude: 15.41. Transit SNR 42.38

There are 17 quarters with good PRF difference image offsets

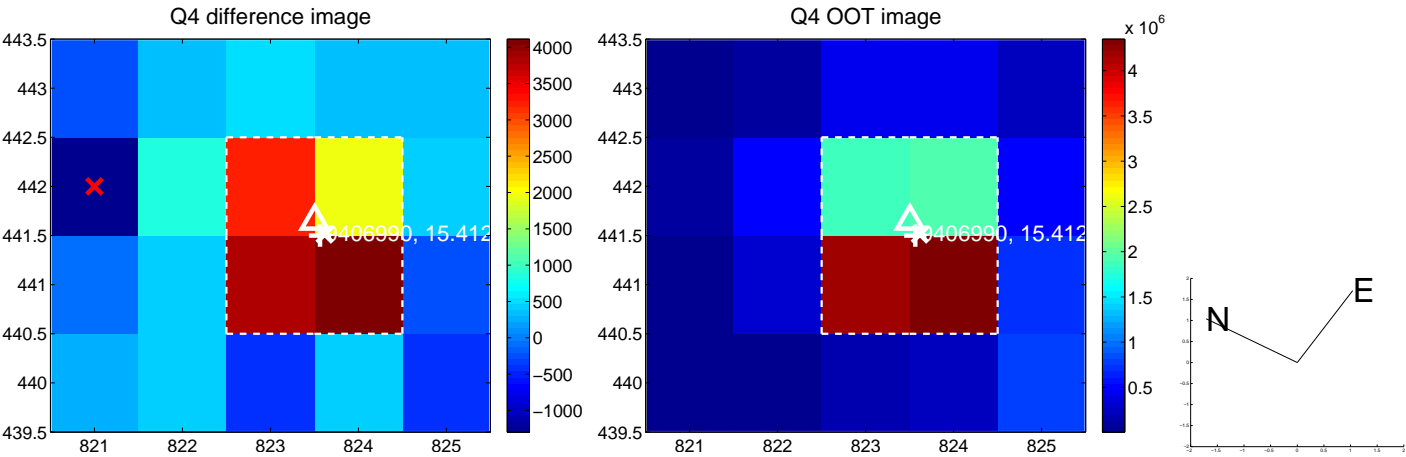
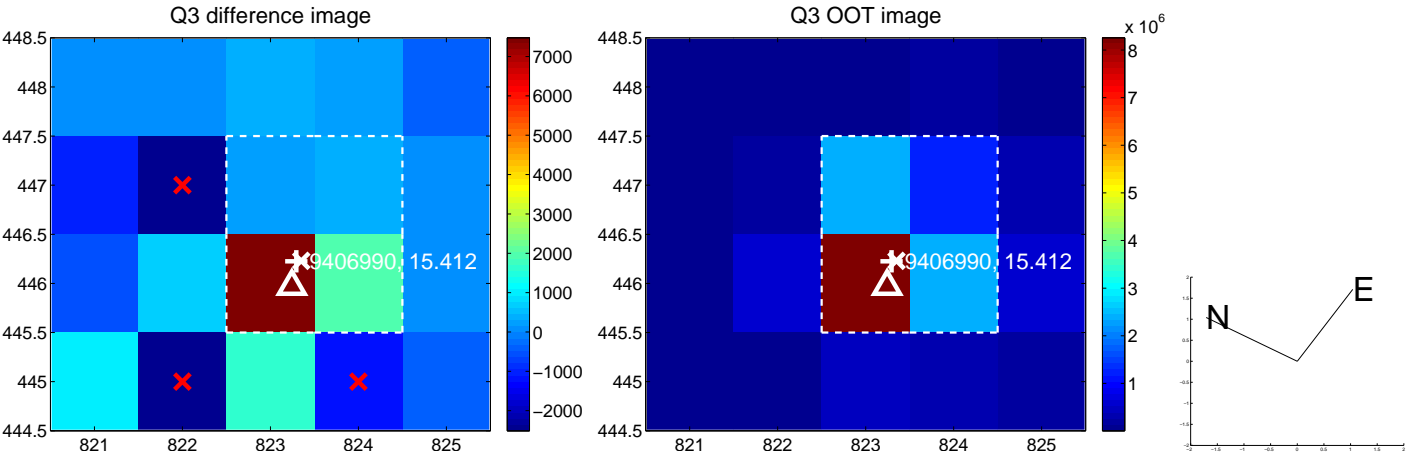
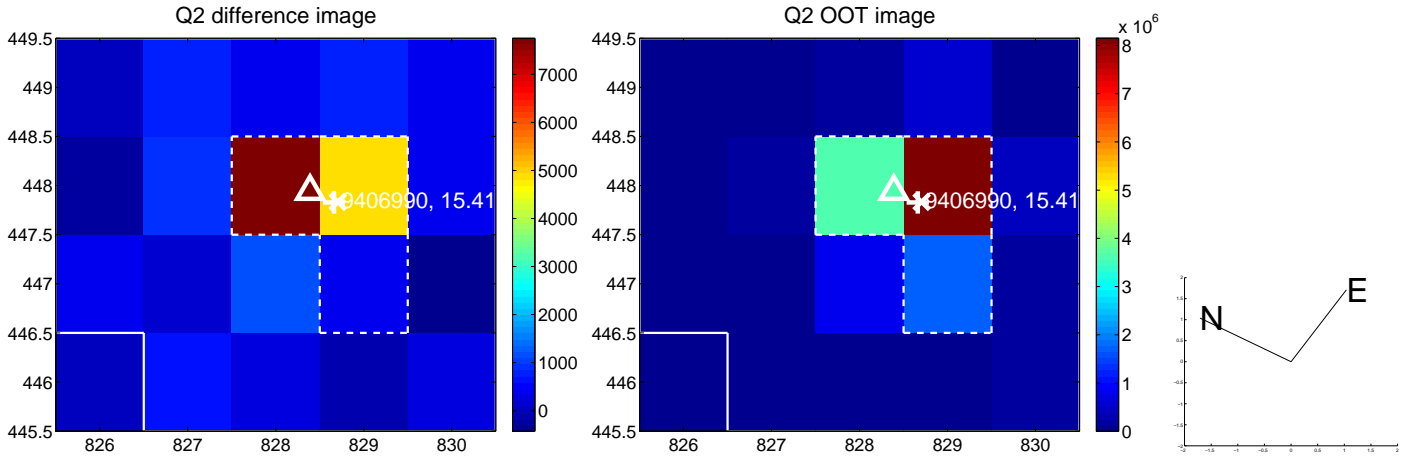
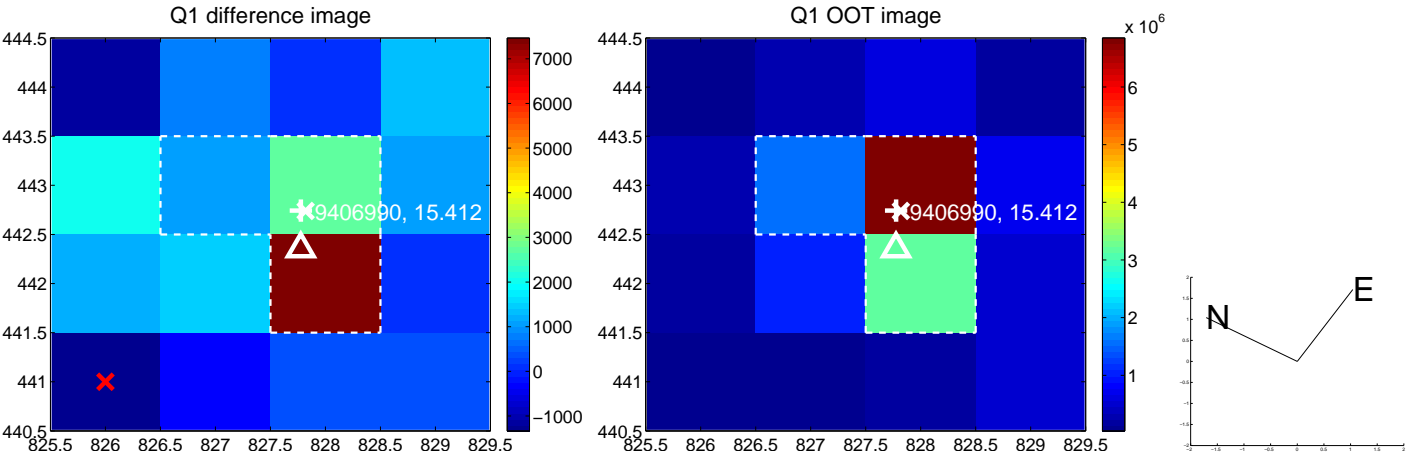
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.175 ± 0.157	1.12	-0.000 ± 0.133	-0.175 ± 0.157
PRF-fit source offset from KIC position	0.124 ± 0.130	0.96	-0.119 ± 0.127	0.034 ± 0.156
photometric centroid source offset	0.62 ± 0.34	1.83	-0.30 ± 0.32	-0.54 ± 0.34

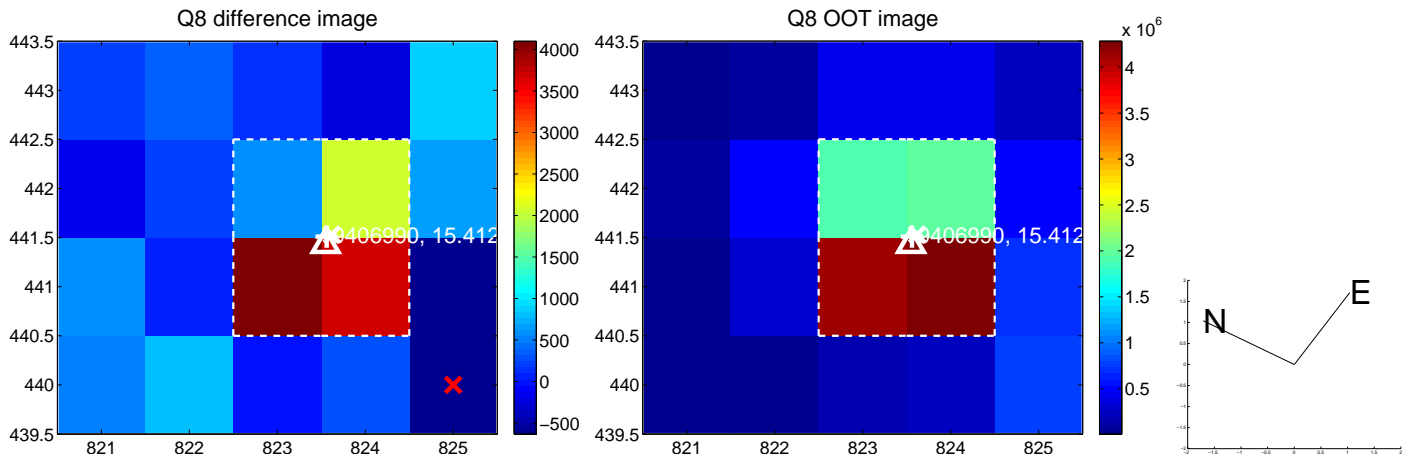
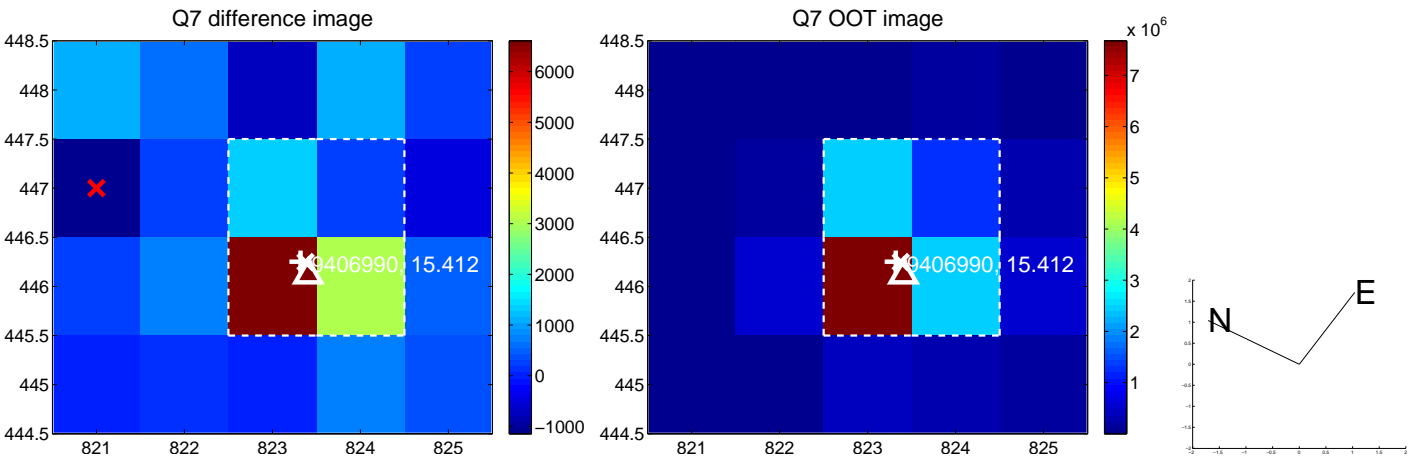
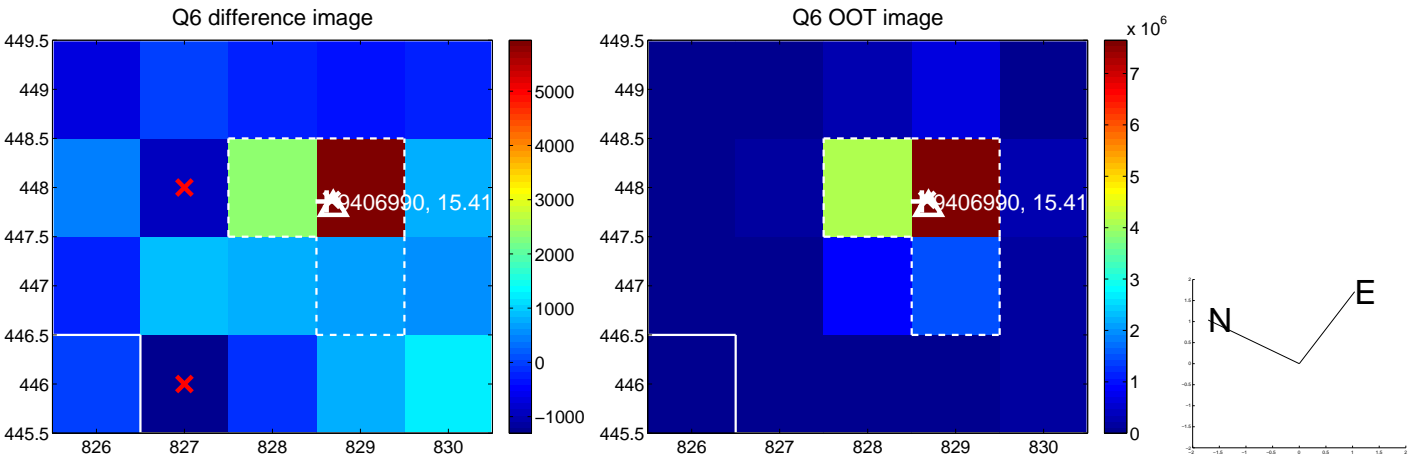
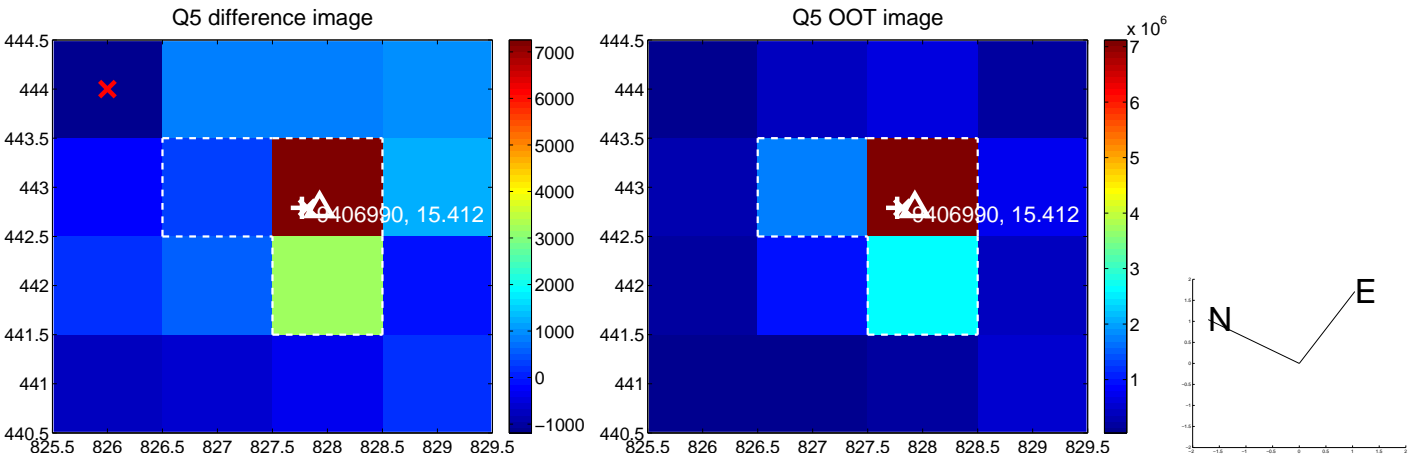


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

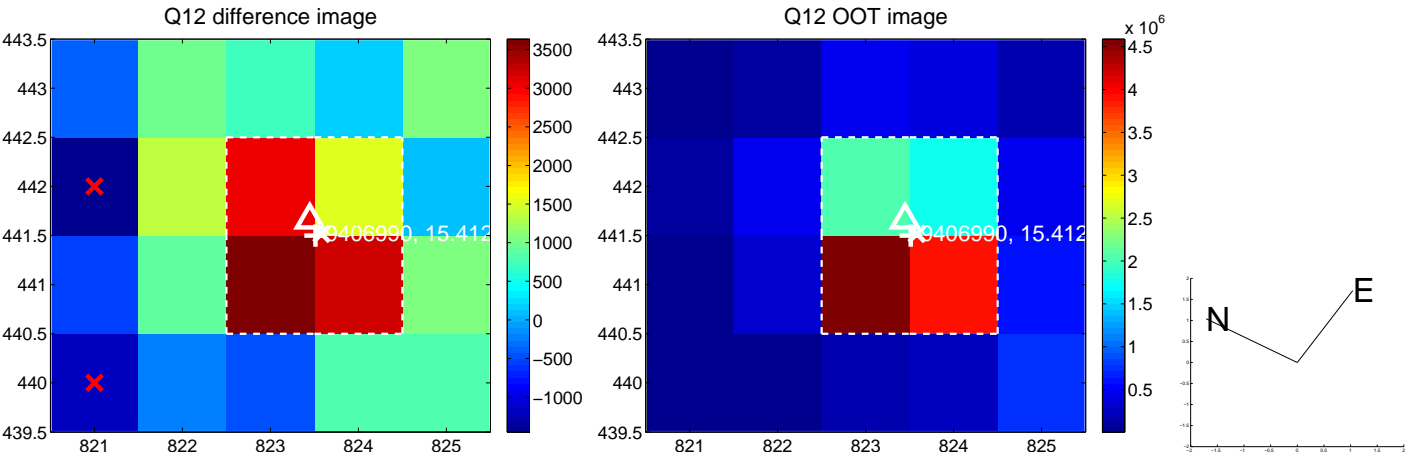
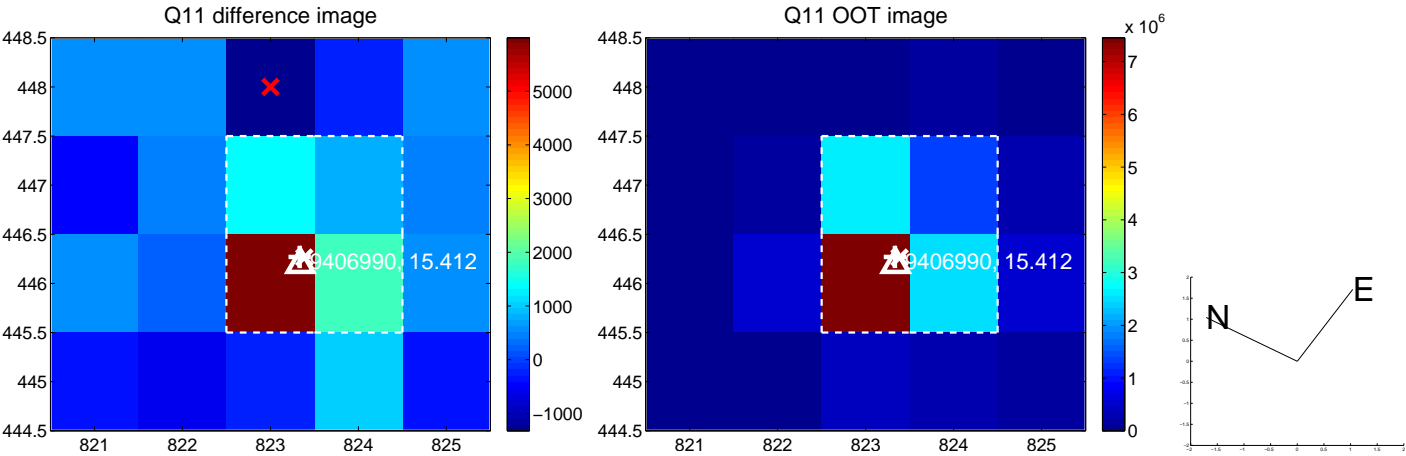
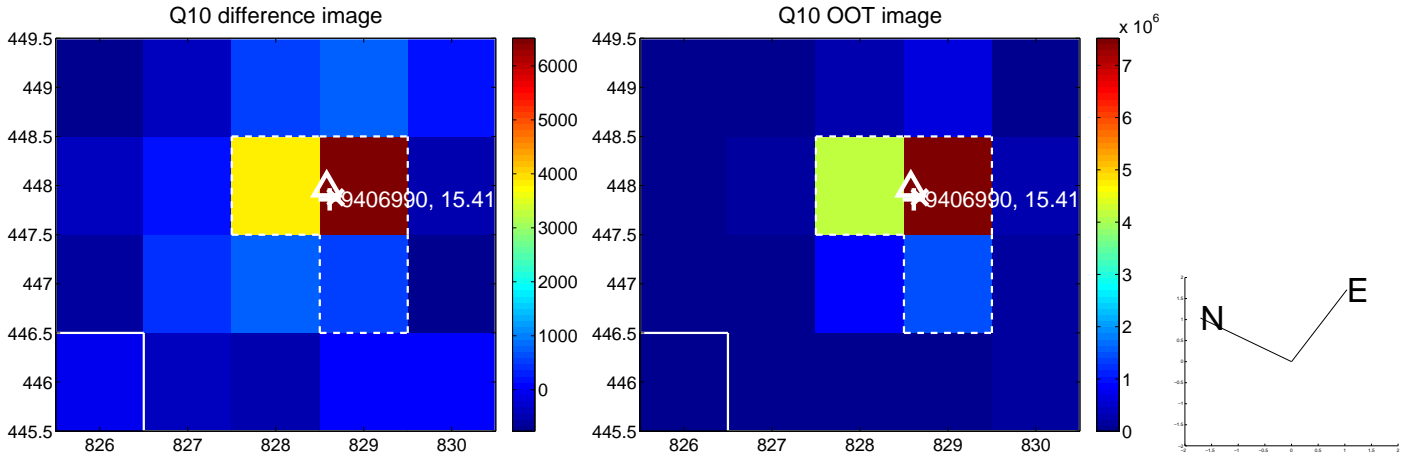
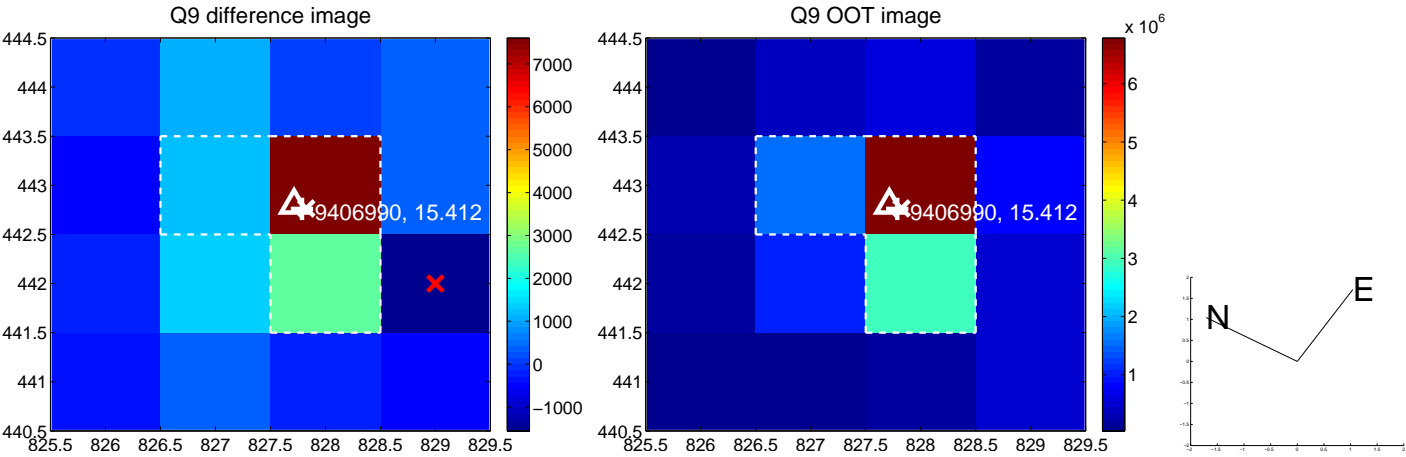
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



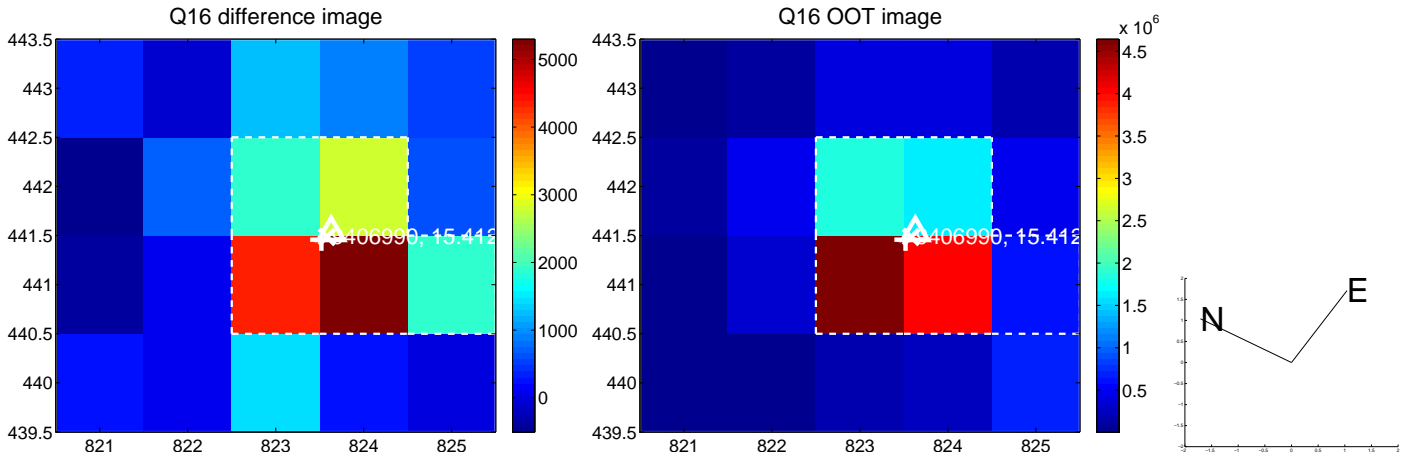
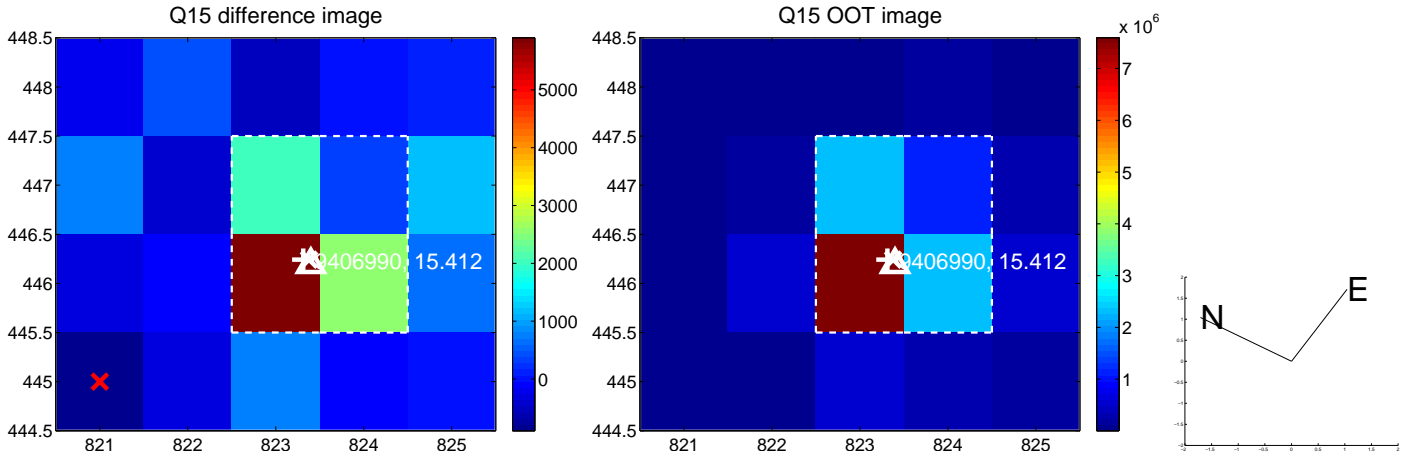
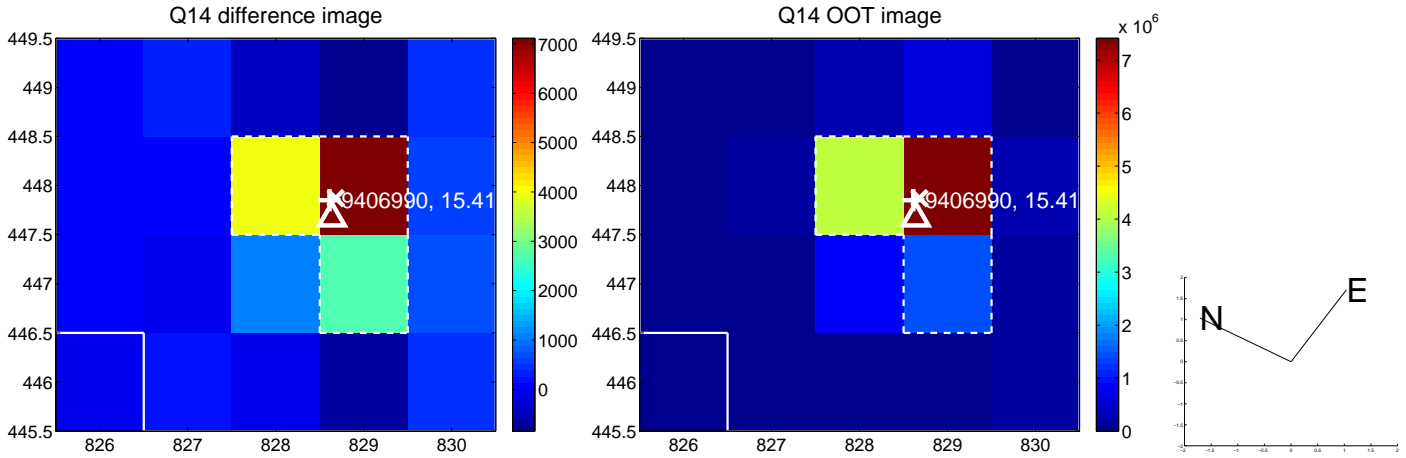
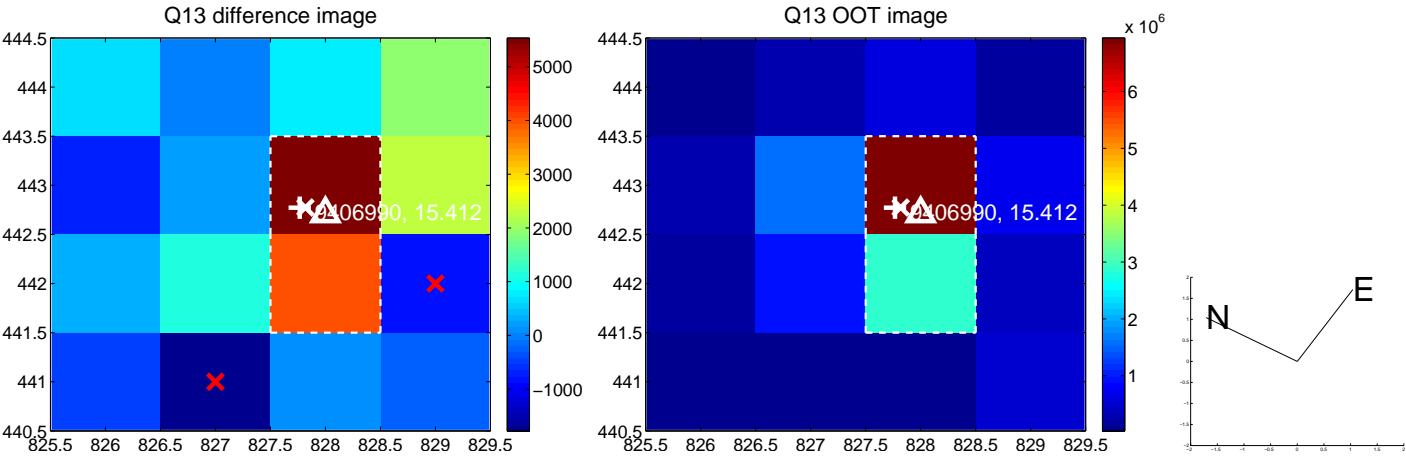
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



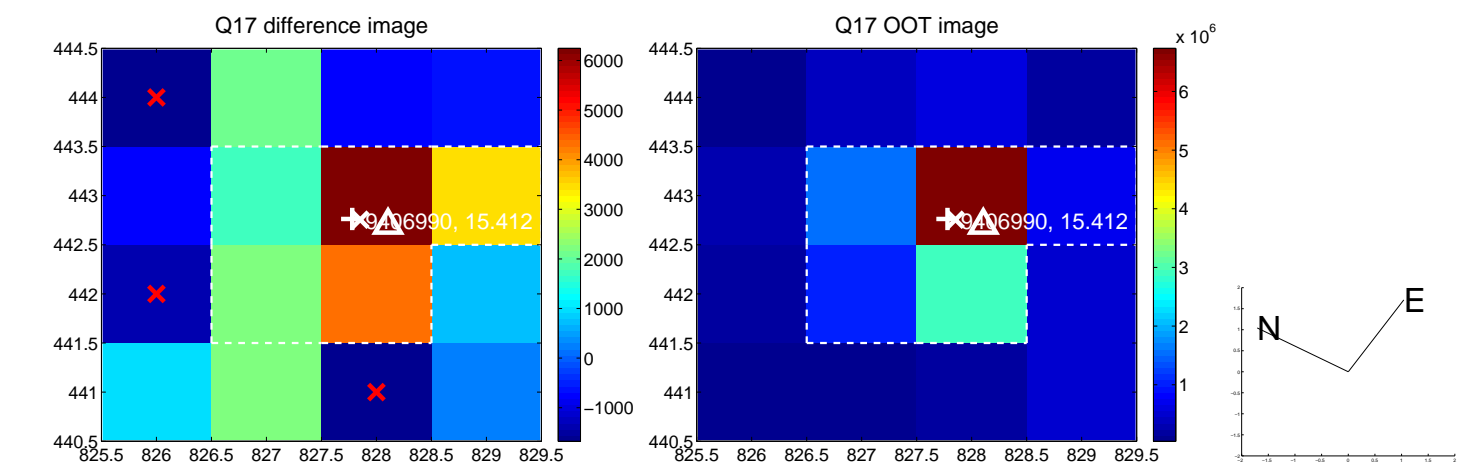
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



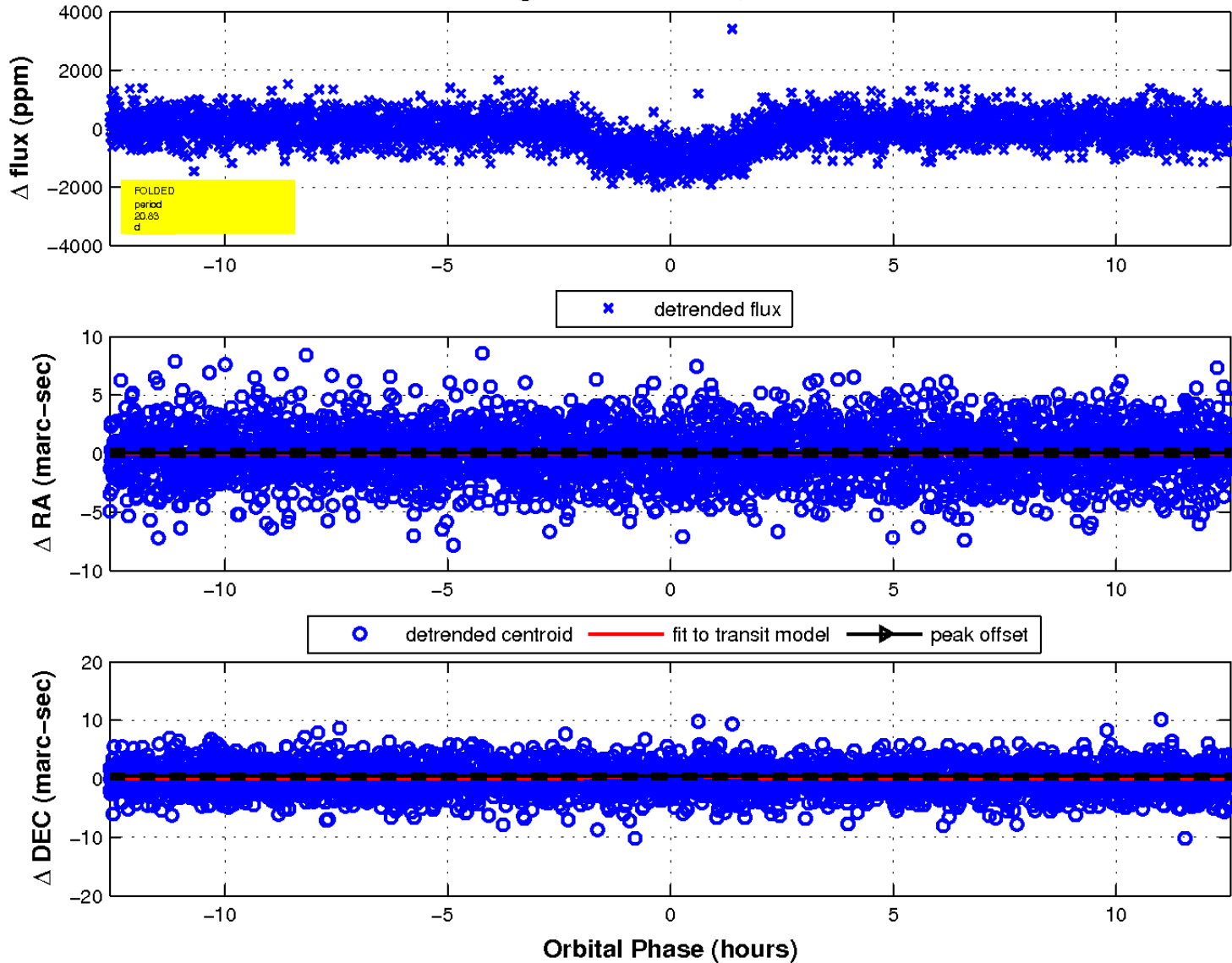
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fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

