

KIC 008420490

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})
008420490-01	OBS	No	14.038435	141.524618	38.5	23.390	7.6	8.8	1.47	6180	0.97	226.93

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008420490-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—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.

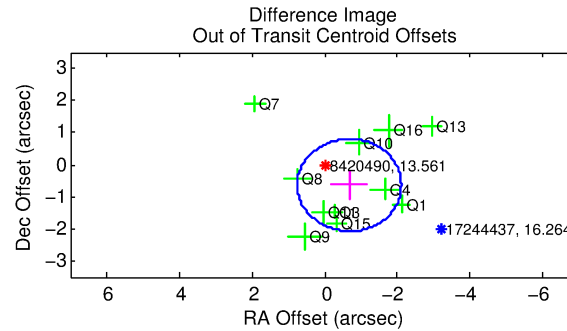
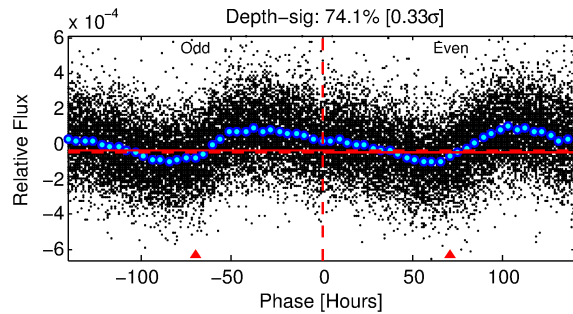
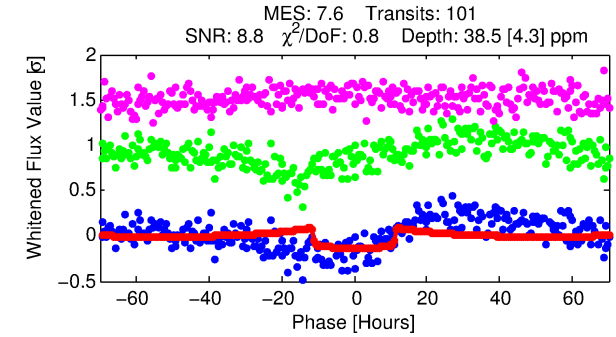
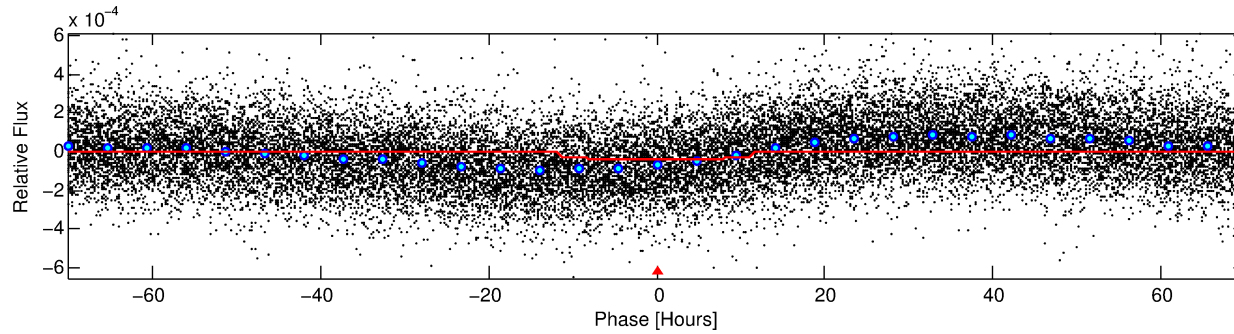
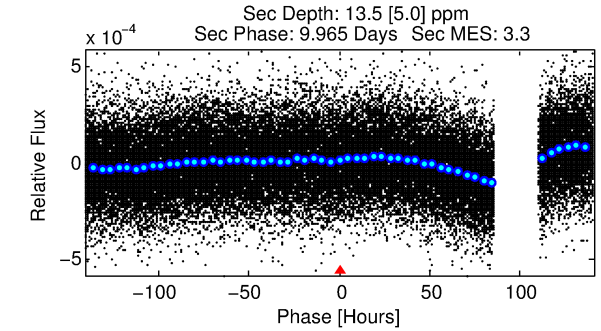
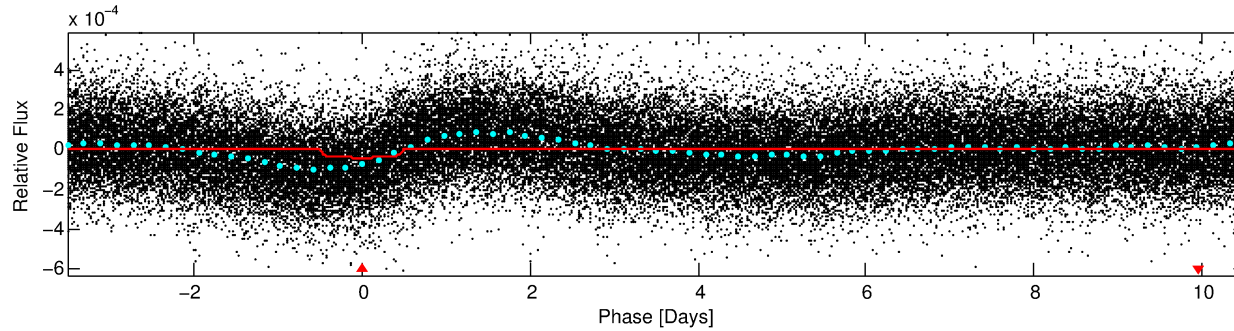
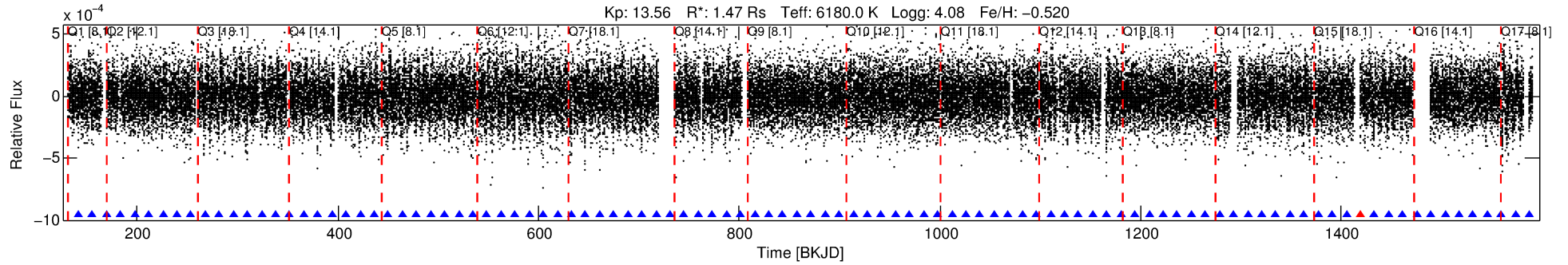
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008420490-01

No Significant Match Found

DV One-Page Summary

KIC: 8420490 Candidate: 1 of 1 Period: 14.038 d



DV Fit Results:

Period = 14.03844 [0.00033] d
Epoch = 141.5246 [0.0191] BKJD
Rp/R* = 0.0060 [0.0014]
a/R* = 3.62 [3.96]
b = 0.65 [1.07]
Seff = 226.93 [137.65]
Teq = 990 [150] K
Rp = 0.97 [0.40] Re
a = 0.1118 [0.0400] AU
Ag = 99.78 [83.57] [1.18σ]
Teffp = 4836 [728] K [5.18σ]

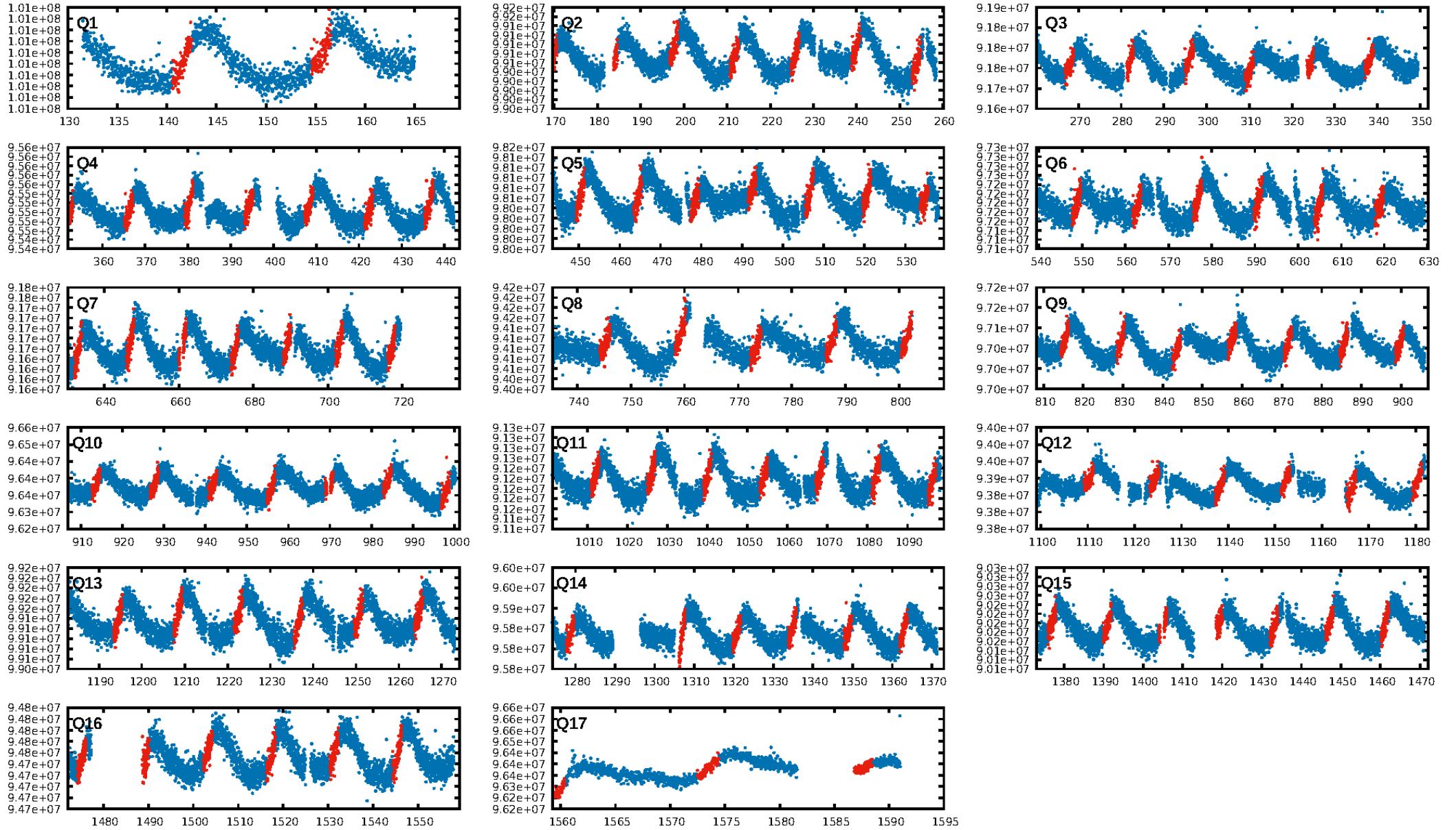
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.74e-15
RollingBand-fgt: 0.99 [95/96]
GhostDiagnostic-chr: 1.678
Centroid-sig: 79.3%
Centroid-so: 0.589 arcsec [0.68σ]
OotOffset-rm: 0.930 arcsec [1.94σ]
OotOffset-st: 1/4/3/3 [11]
KicOffset-rm: 1.490 arcsec [3.25σ]
KicOffset-st: 1/4/3/3 [11]
DiffImageQuality-fgm: 0.91 [10/11]
DiffImageOverlap-fno: 1.00 [17/17]

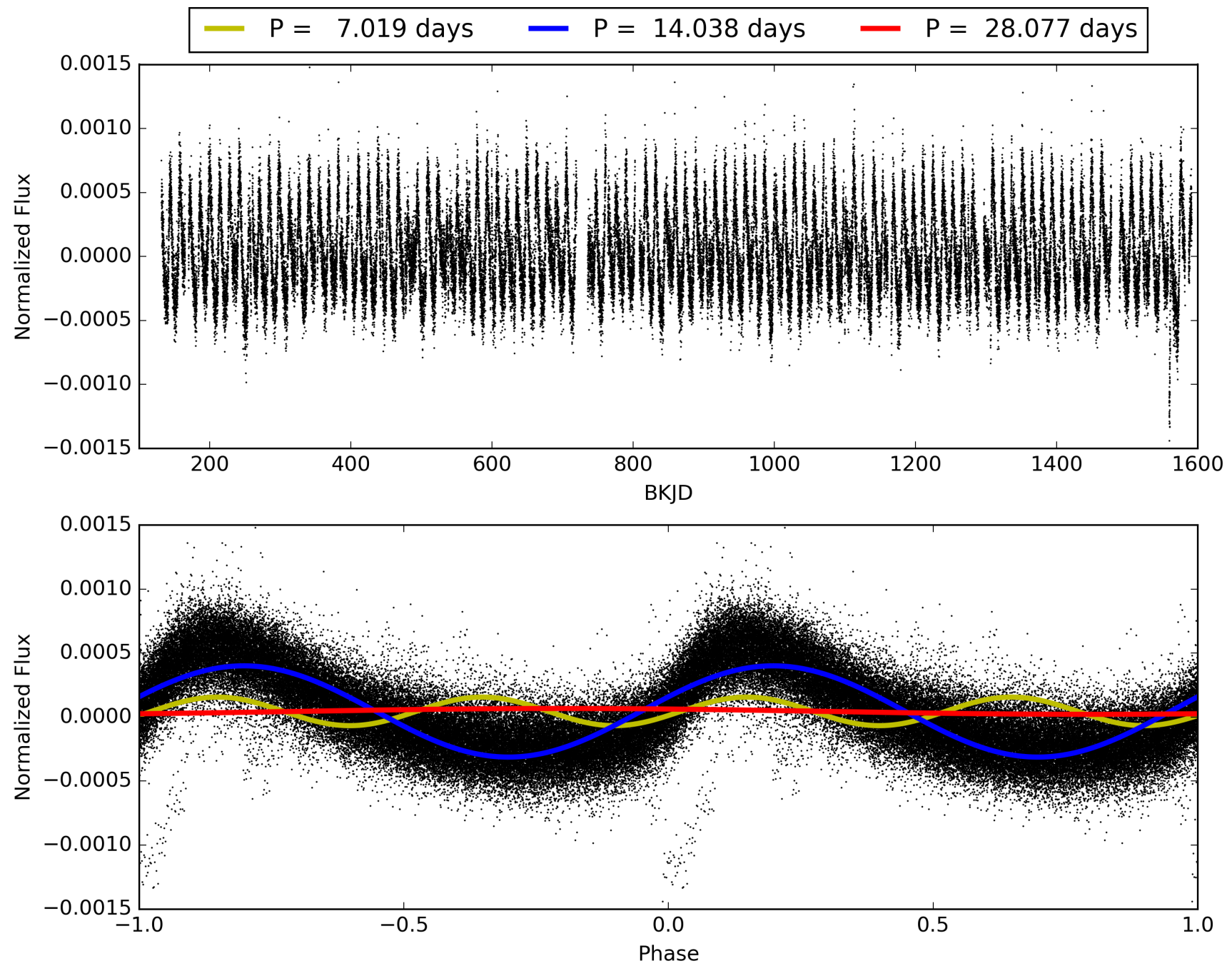
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:20:40 Z

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

TCE 008420490-01, PDC Light Curves

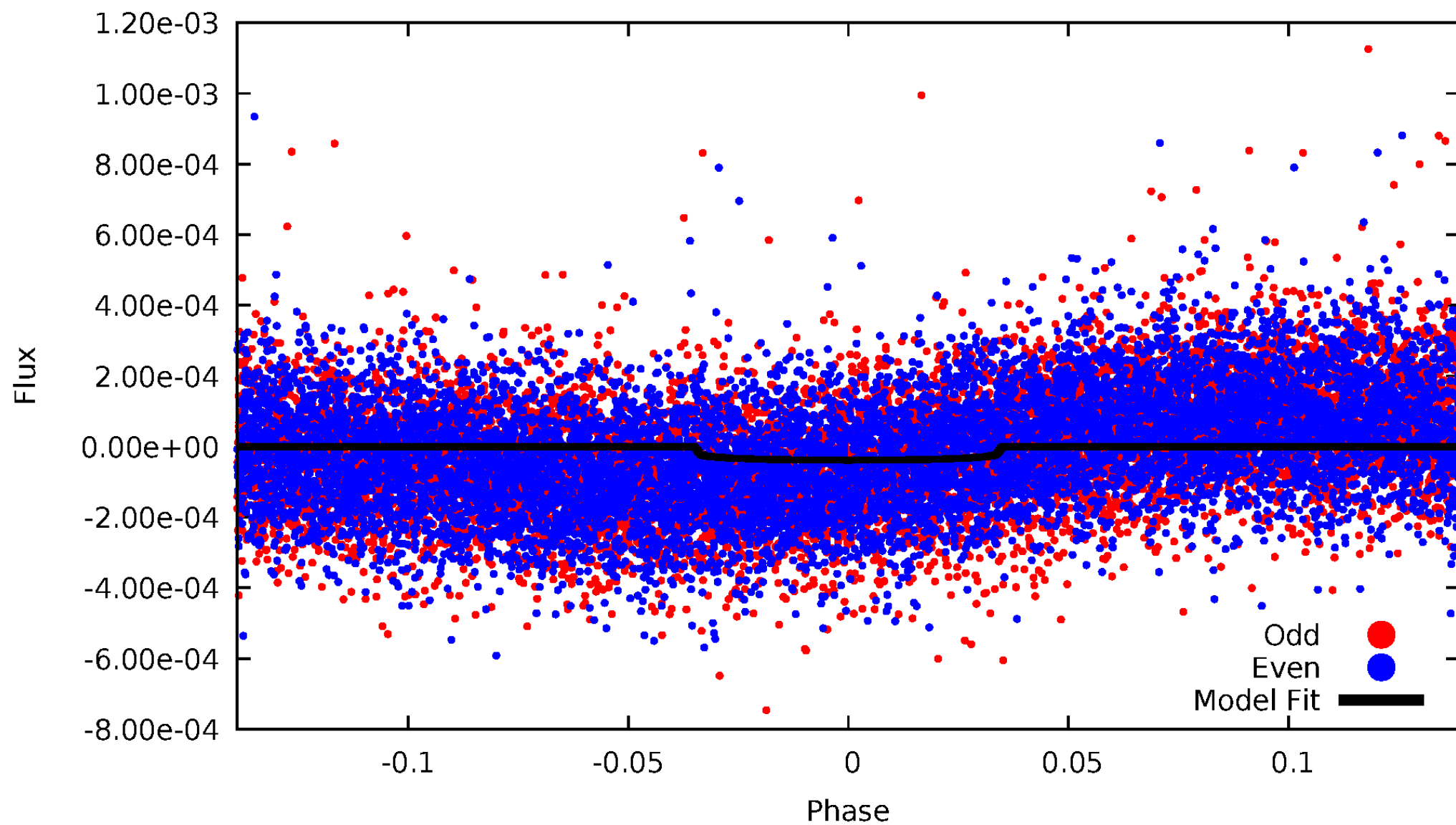


TCE 008420490-01



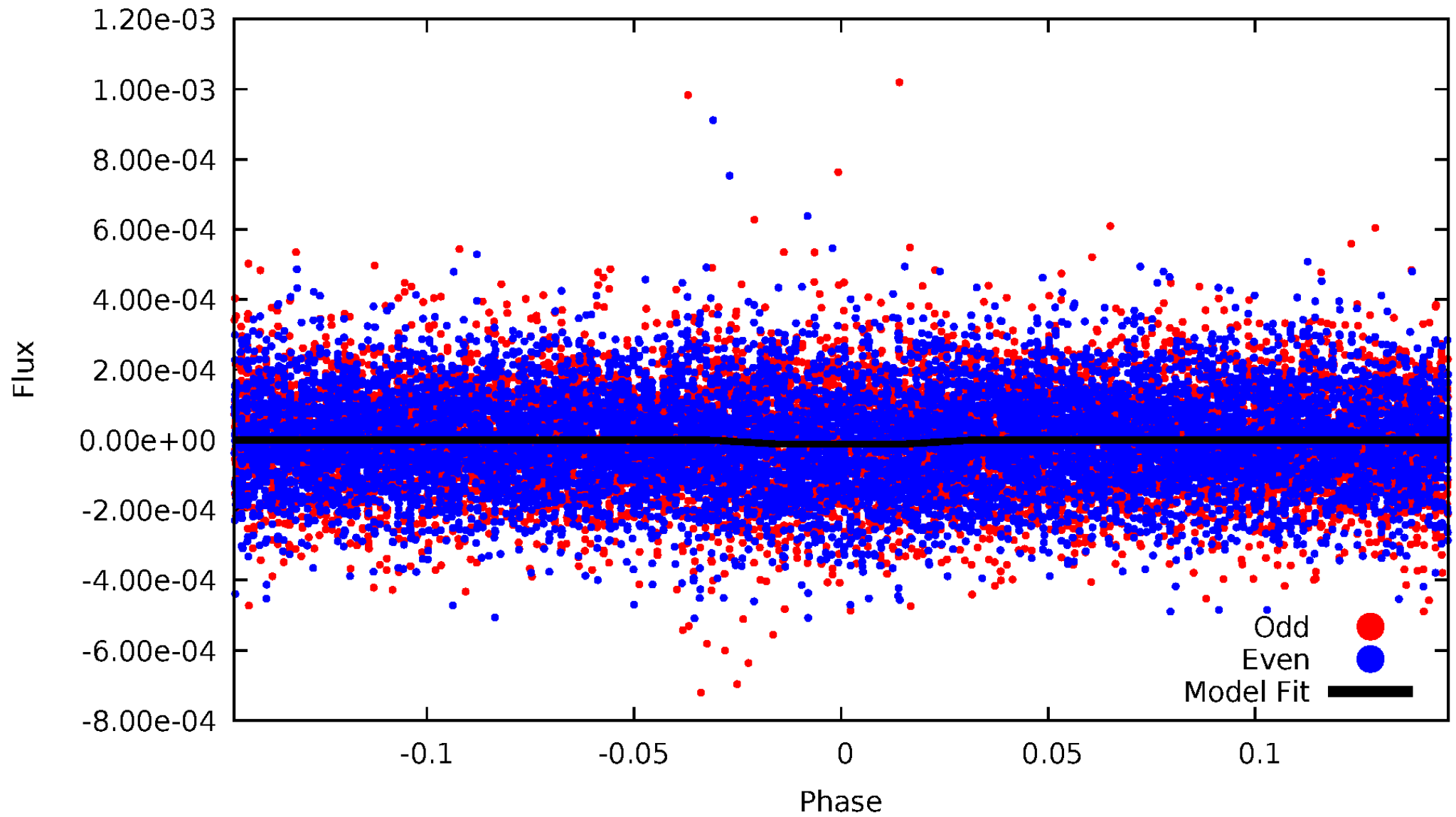
DV Odd/Even

TCE 008420490-01



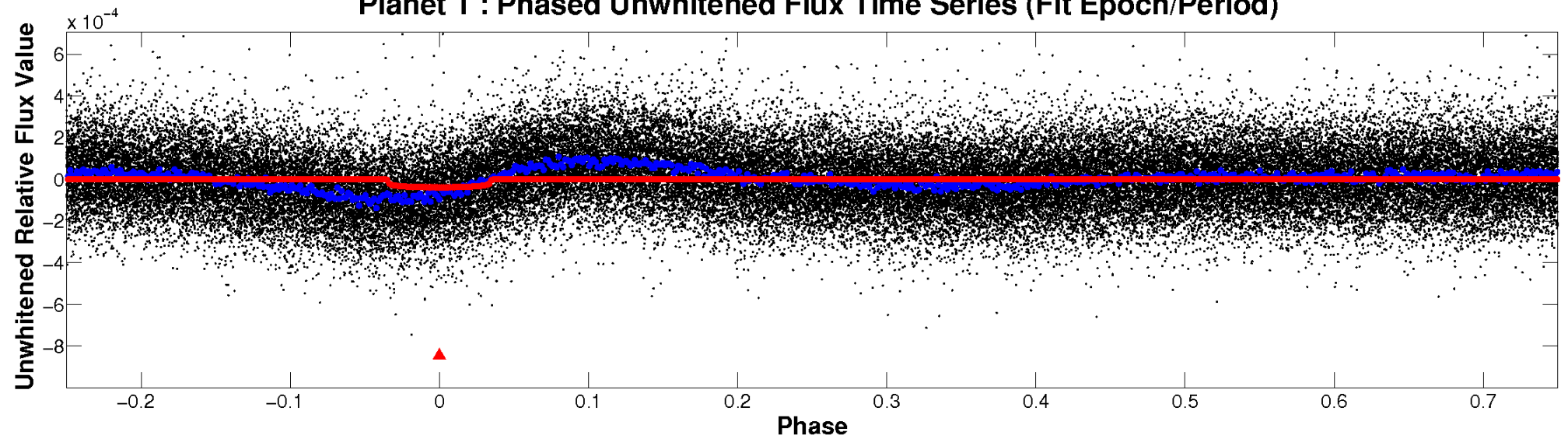
ALT Odd/Even

TCE 008420490-01

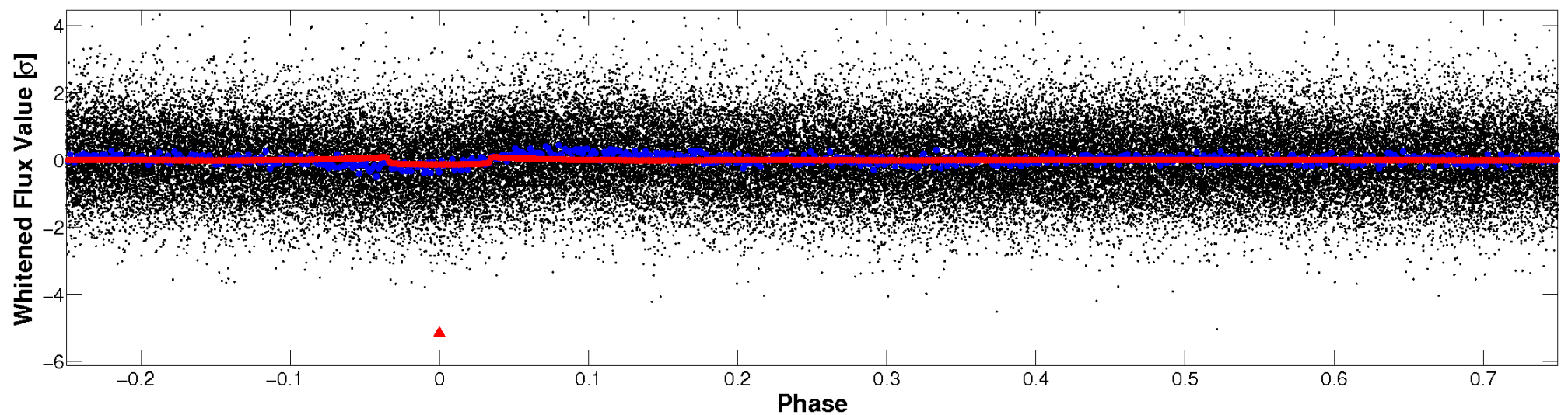


Non-Whitened Vs. Whitened Light Curve

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

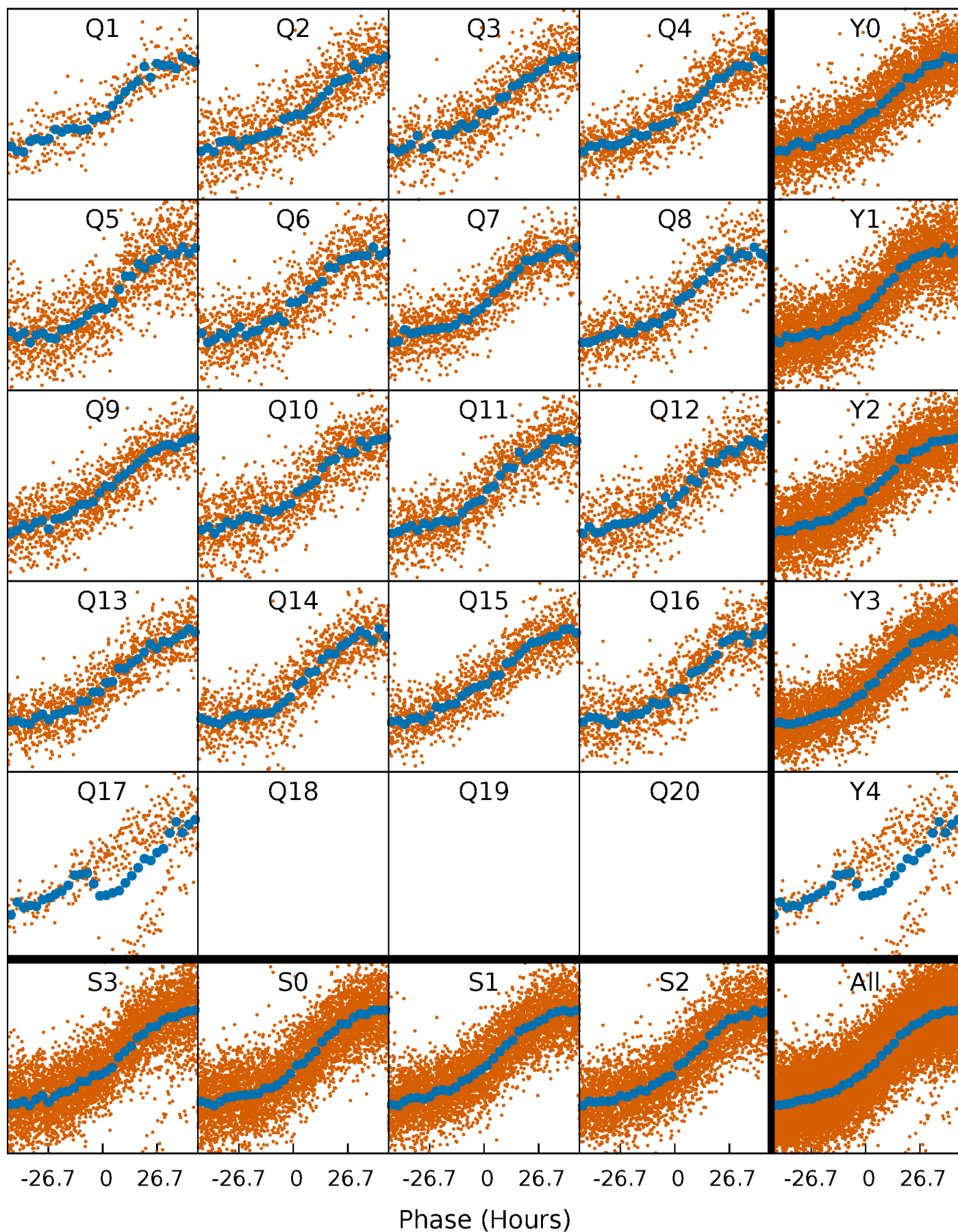


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



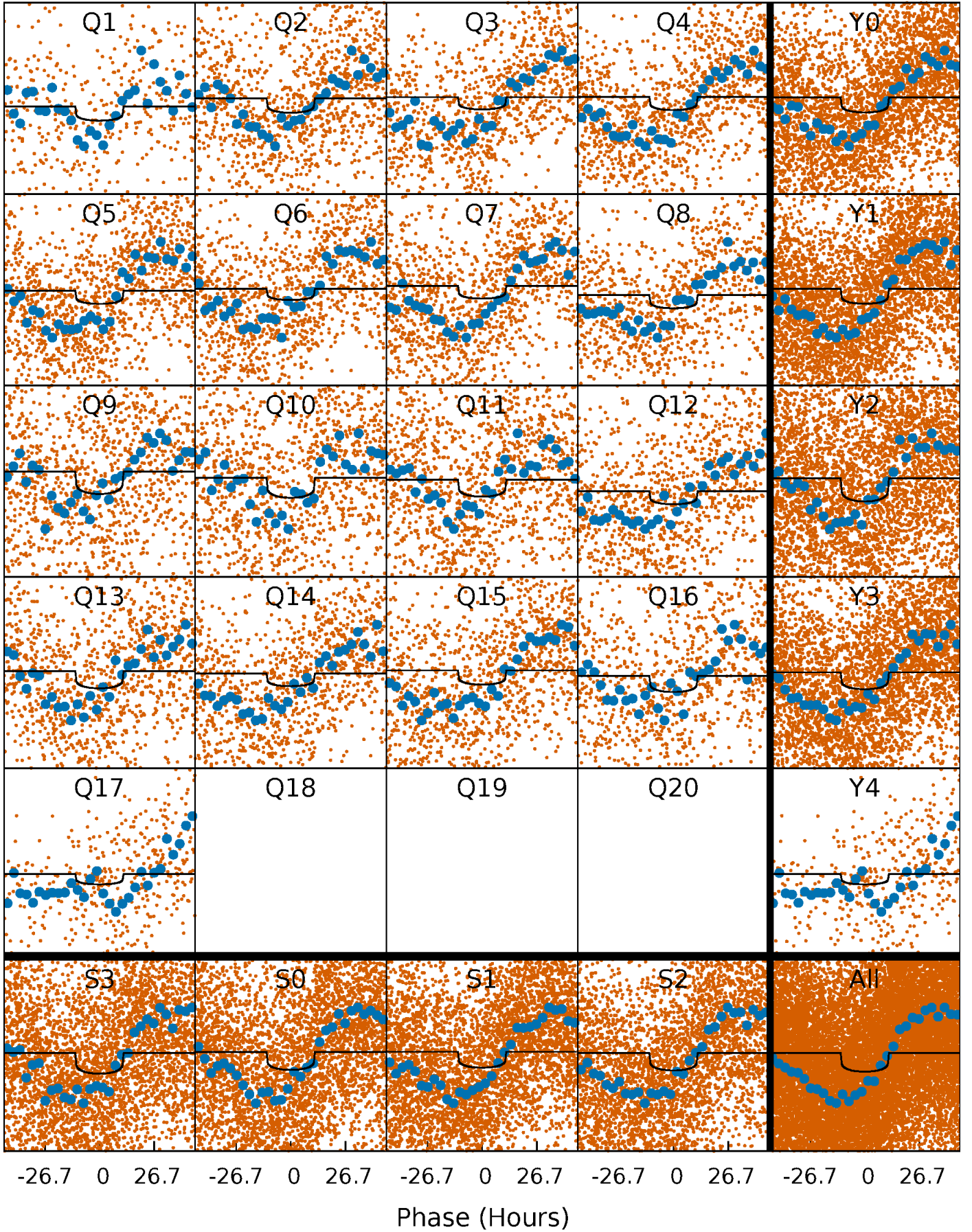
PDC Quarter-Phased Transit Curves

TCE 008420490-01 P= 14.038435 Days $T_0=141.524618$ (BKJD)



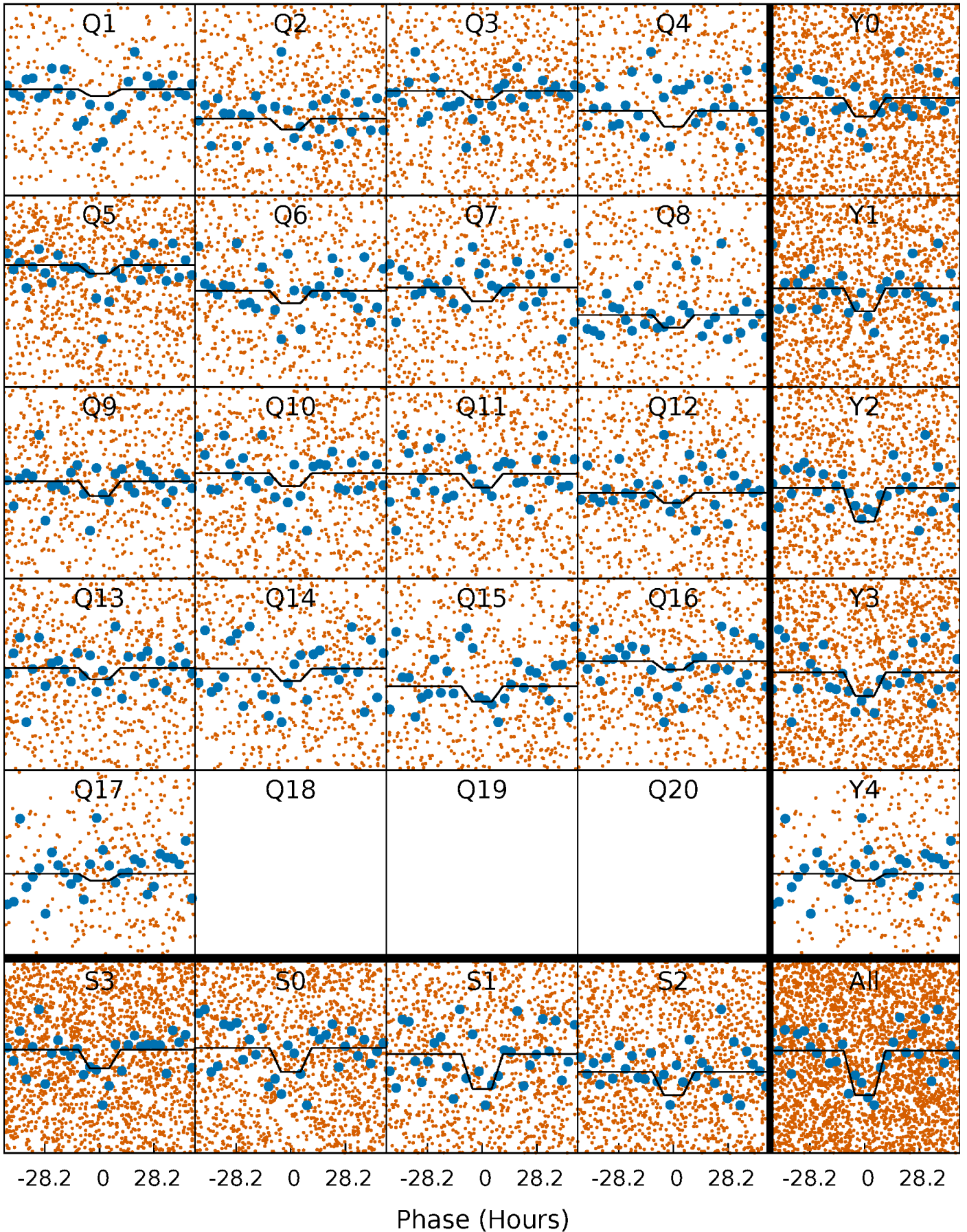
DV Quarter-Phased Transit Curves

TCE 008420490-01 P= 14.038435 Days $T_0=141.524618$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

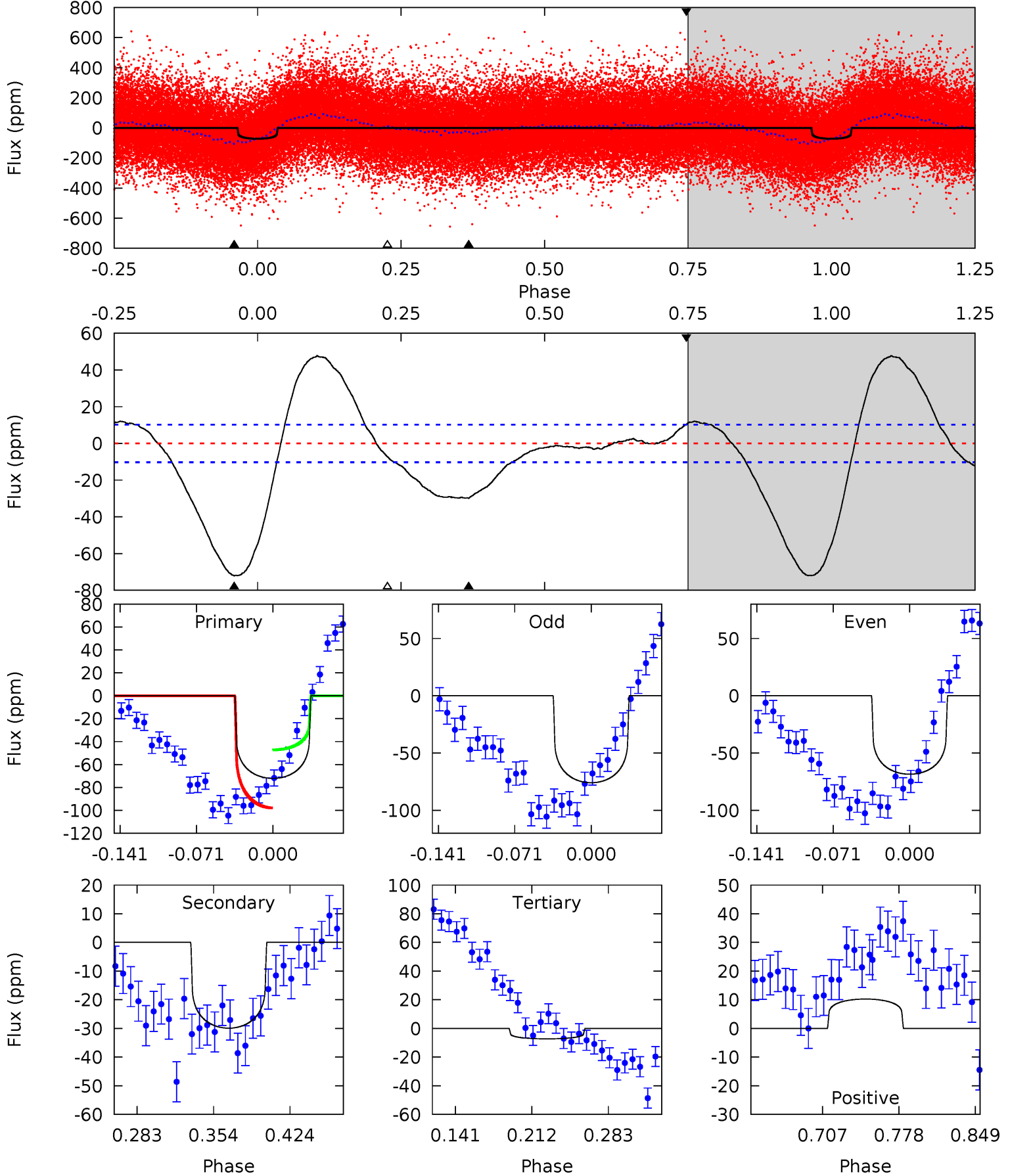
TCE 008420490-01 P= 14.037837 Days $T_0=141.596664$ (BKJD)



DV Model-Shift Uniqueness Test

008420490-01, P = 14.038435 Days, E = 127.486183 Days

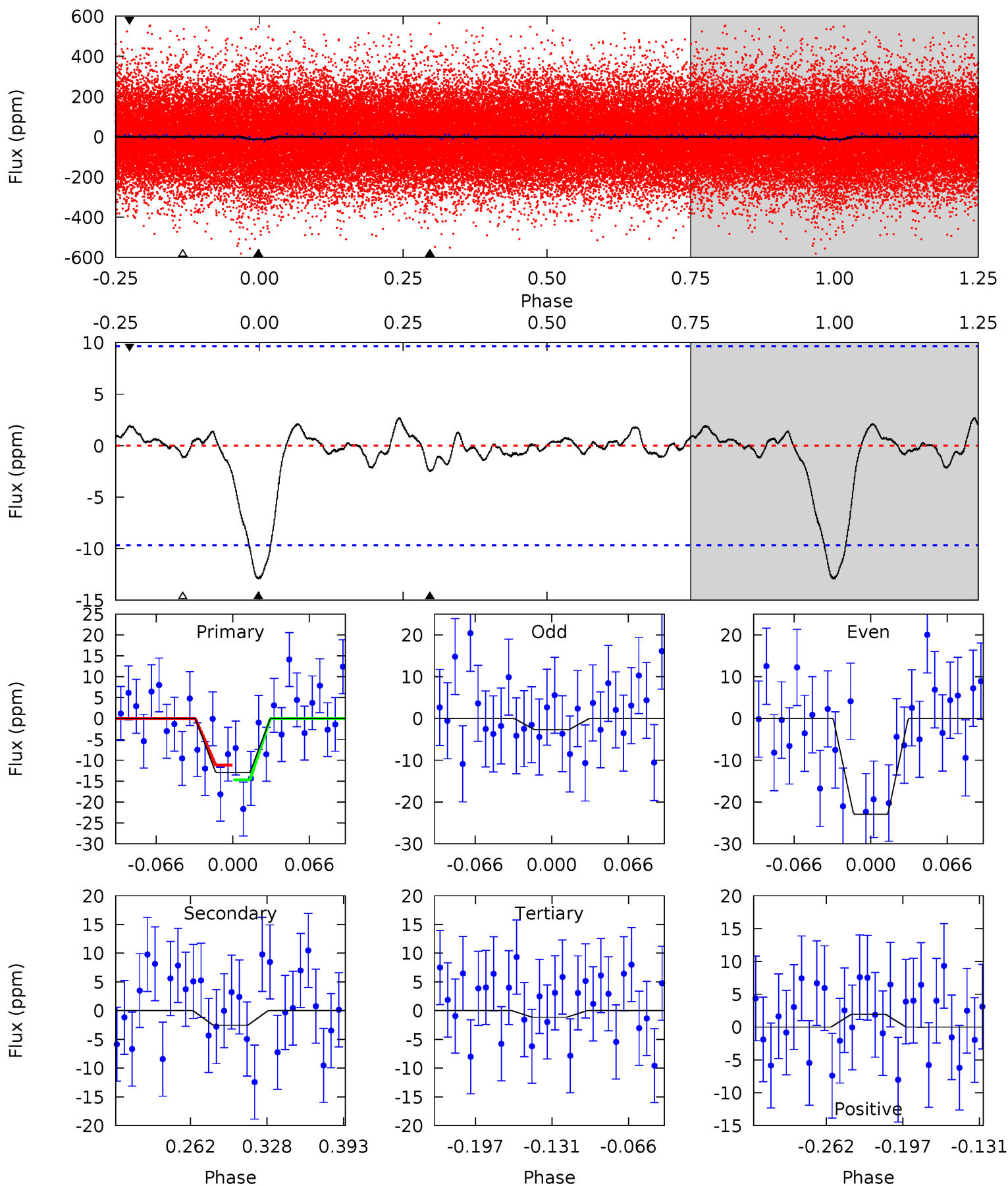
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.8	13.6	3.31	4.66	4.64	1.81	8.04	29.5	28.1	10.3	8.94	1.69	1.06	0.40	11.4



Alt Model-Shift Uniqueness Test

008420490-01, $P = 14.037837$ Days, $E = 127.558827$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.23	1.23	0.55	0.94	4.65	1.84	0.38	5.68	5.29	0.68	0.29	4.87	1.43	0.17	0.85



Stellar Parameters For KIC 008420490

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6180^{+185}_{-185}	$4.077^{+0.357}_{-0.153}$	$-0.520^{+0.300}_{-0.300}$	$1.473^{+0.371}_{-0.510}$	$0.945^{+0.137}_{-0.112}$	$0.416^{+1.099}_{-0.175}$
	+3%/-3%	+9%/-4%	+58%/-58%	+25%/-35%	+14%/-12%	+264%/-42%
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 008420490-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-30 ± 2	$0.92^{+0.29}_{-0.28}$	1359^{+109}_{-129}	5917^{+959}_{-601}	245^{+254}_{-101}
Alt.	-3 ± 2	$0.53^{+0.26}_{-0.22}$	1365^{+107}_{-144}	4264^{+1238}_{-887}	54^{+131}_{-42}

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

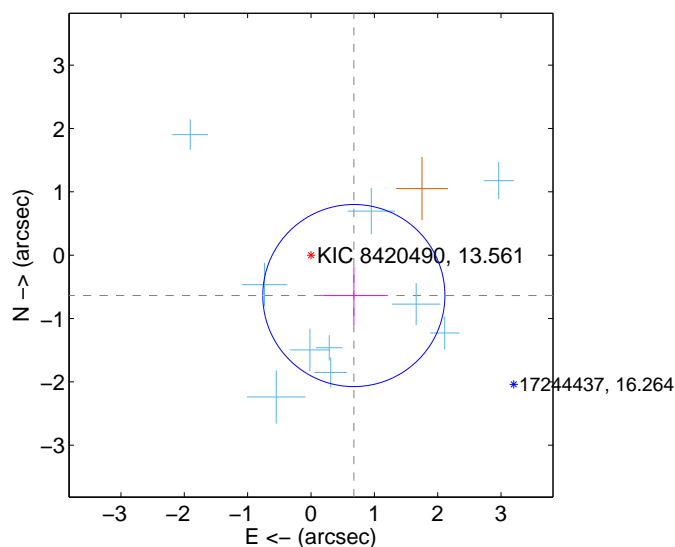
Supplemental centroid analysis for 008420490-01. Kepler magnitude: 13.56. Transit SNR 8.84

There are 10 quarters with good PRF difference image offsets

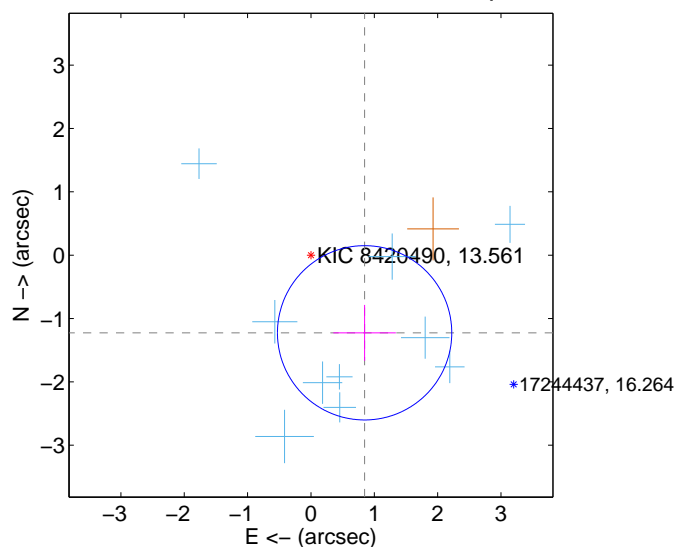
The direct PRF centroid is offset from the target star catalog position by about 0.66 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.930 ± 0.479	1.94	-0.676 ± 0.497	-0.638 ± 0.458
PRF-fit source offset from KIC position	1.490 ± 0.459	3.25	-0.847 ± 0.494	-1.226 ± 0.441
photometric centroid source offset	0.59 ± 0.86	0.68	0.35 ± 0.95	-0.48 ± 0.82

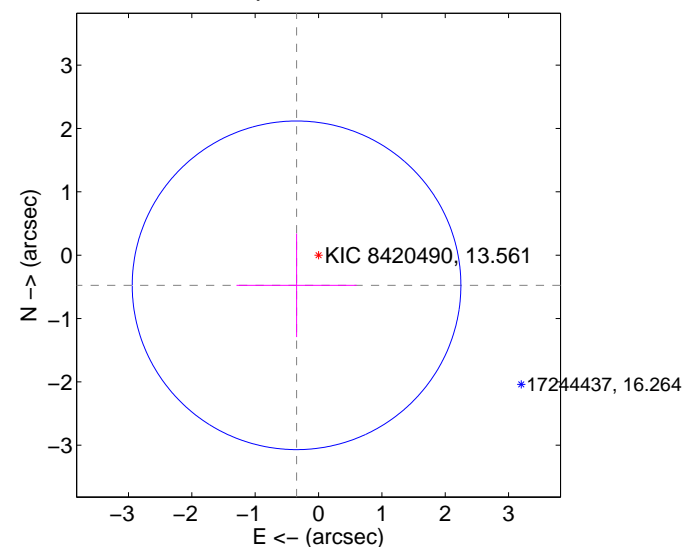
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

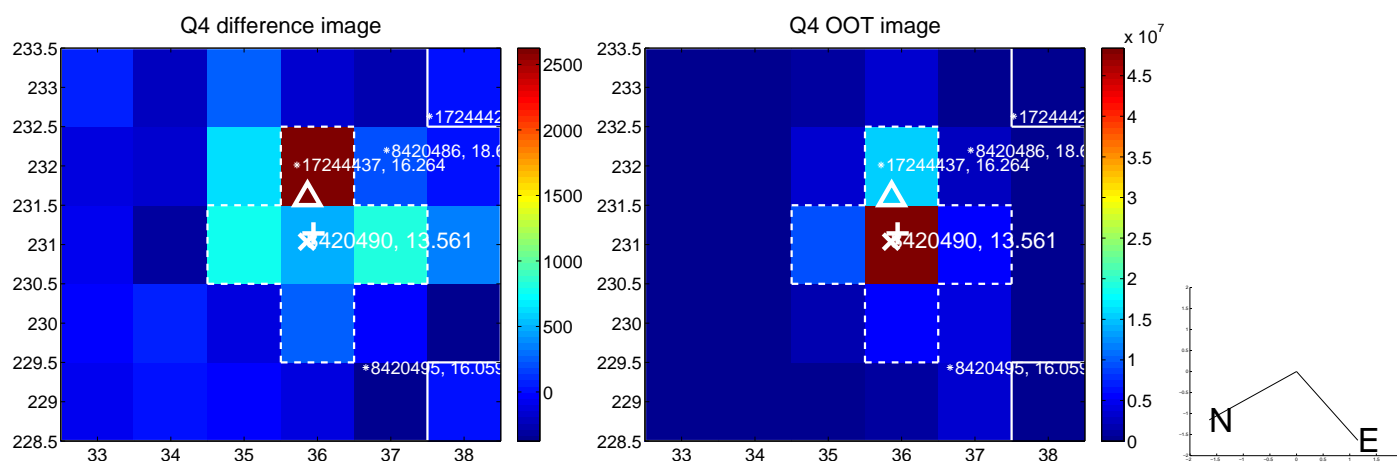
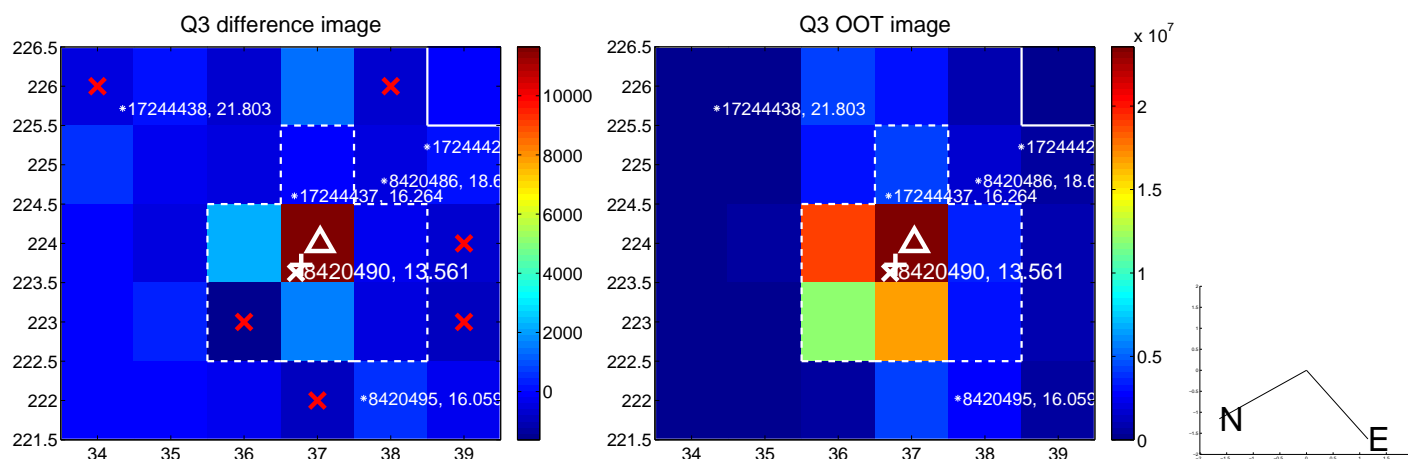
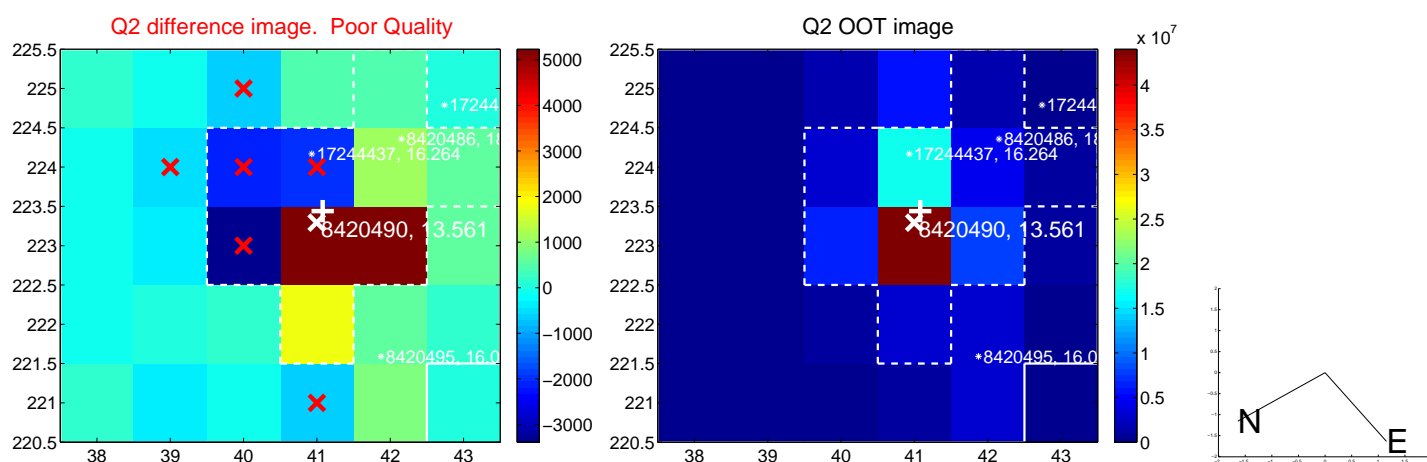
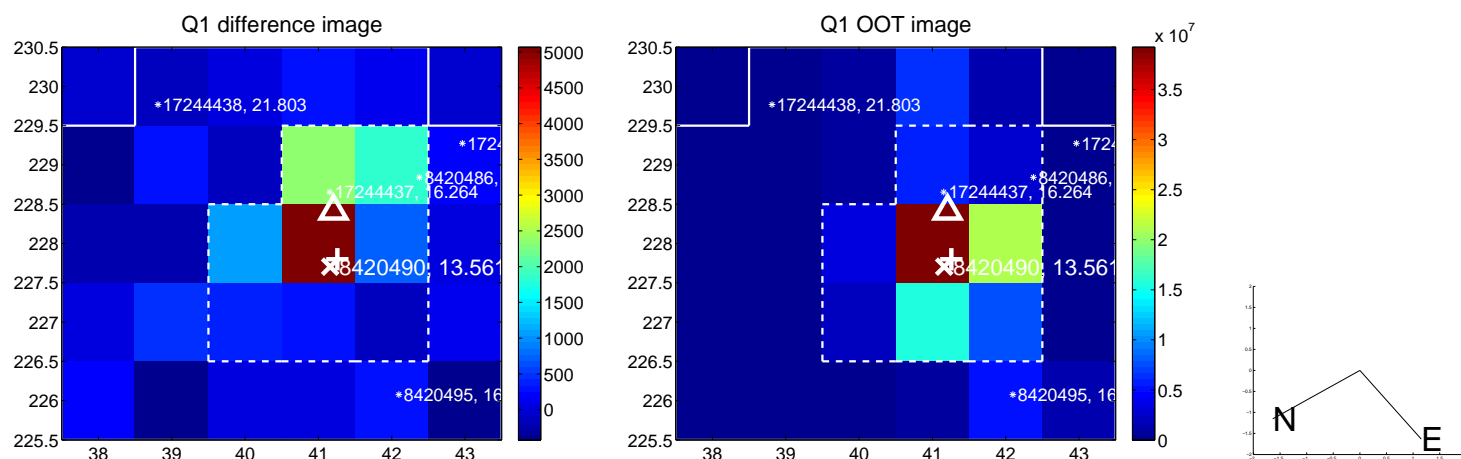


offset from photometric centroids

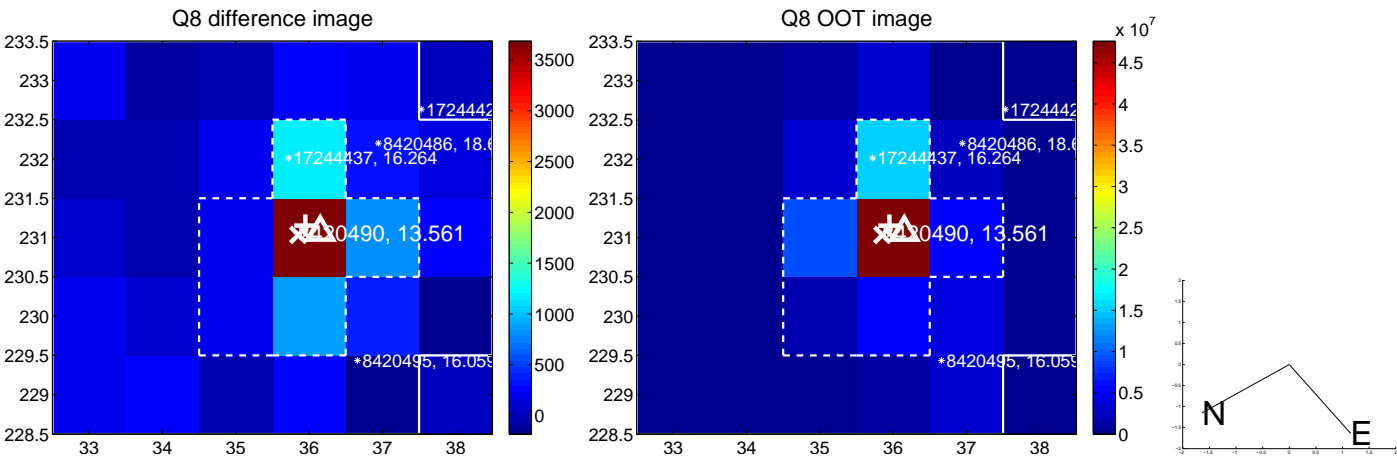
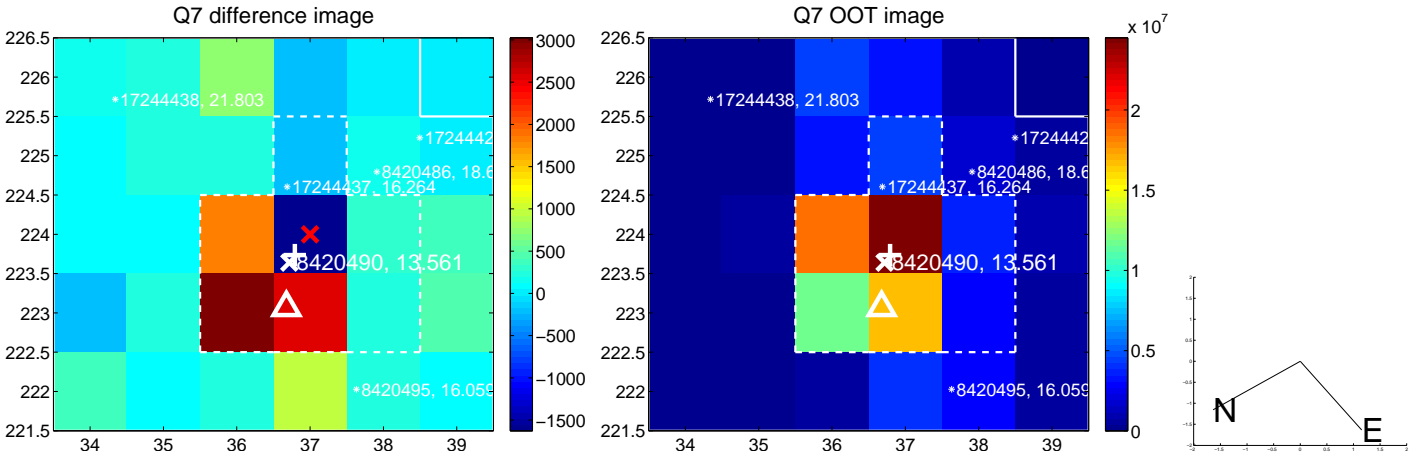
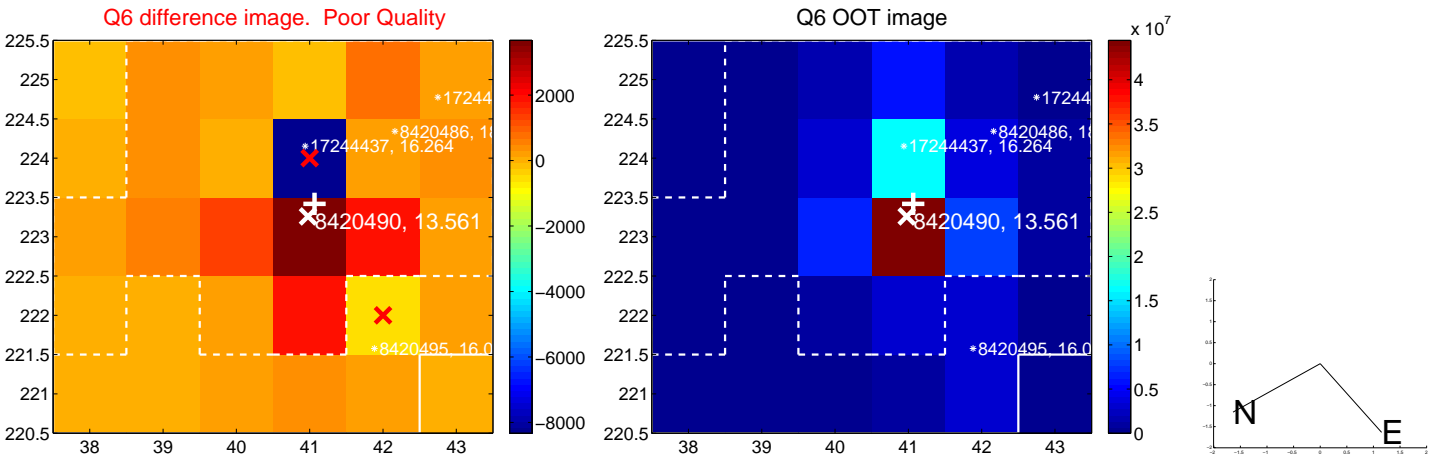
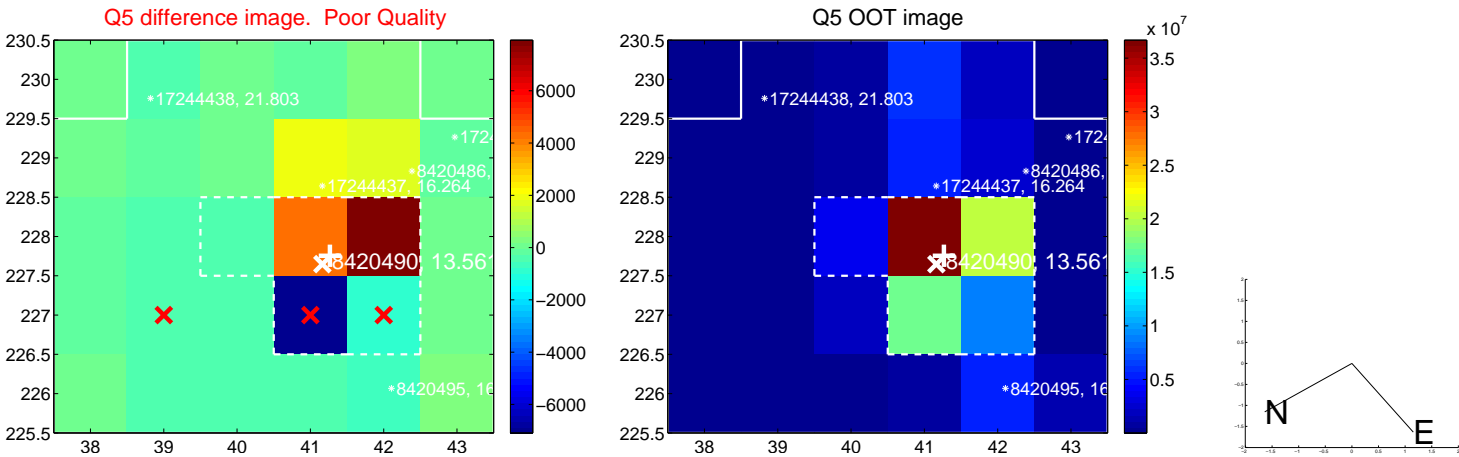


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

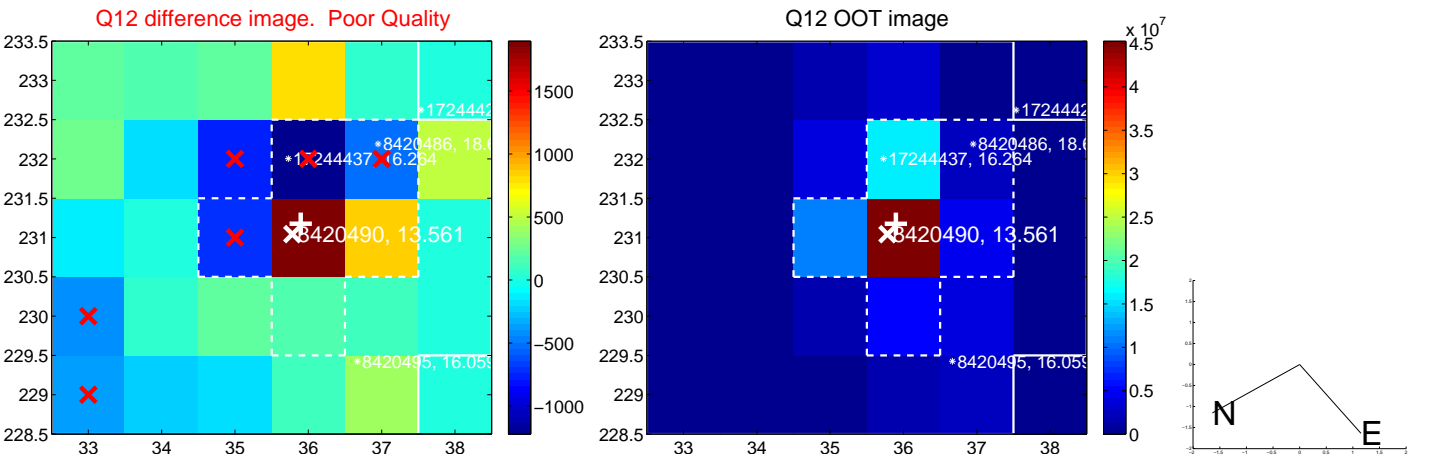
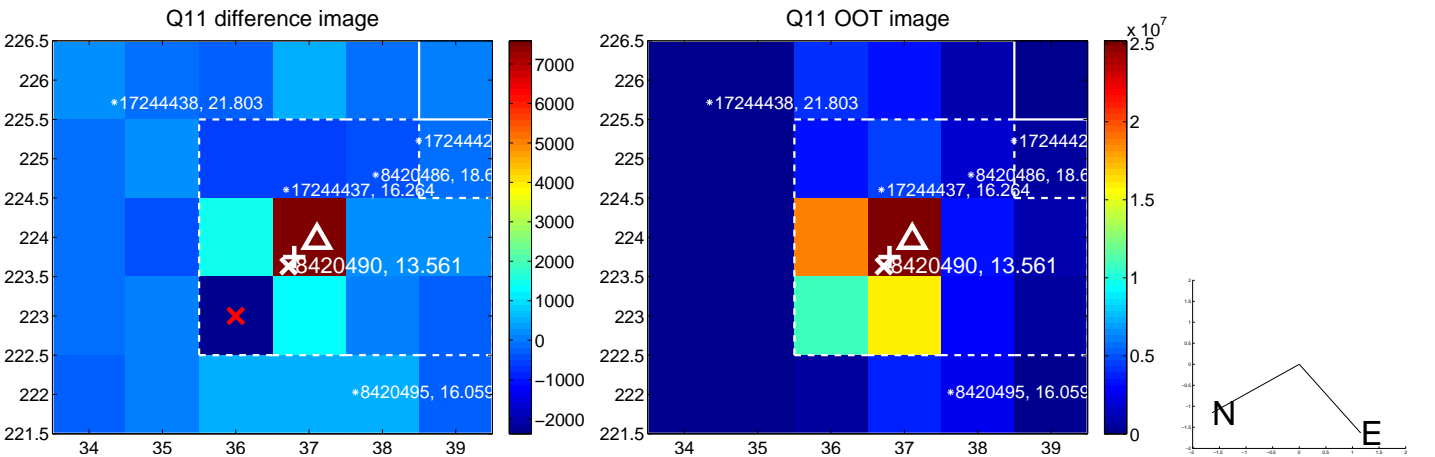
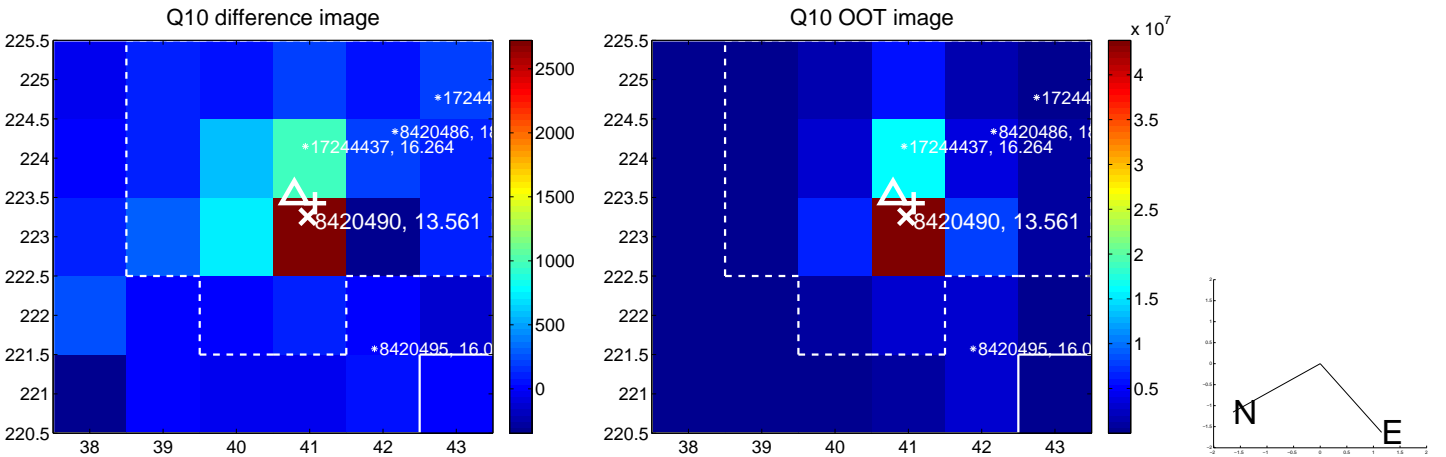
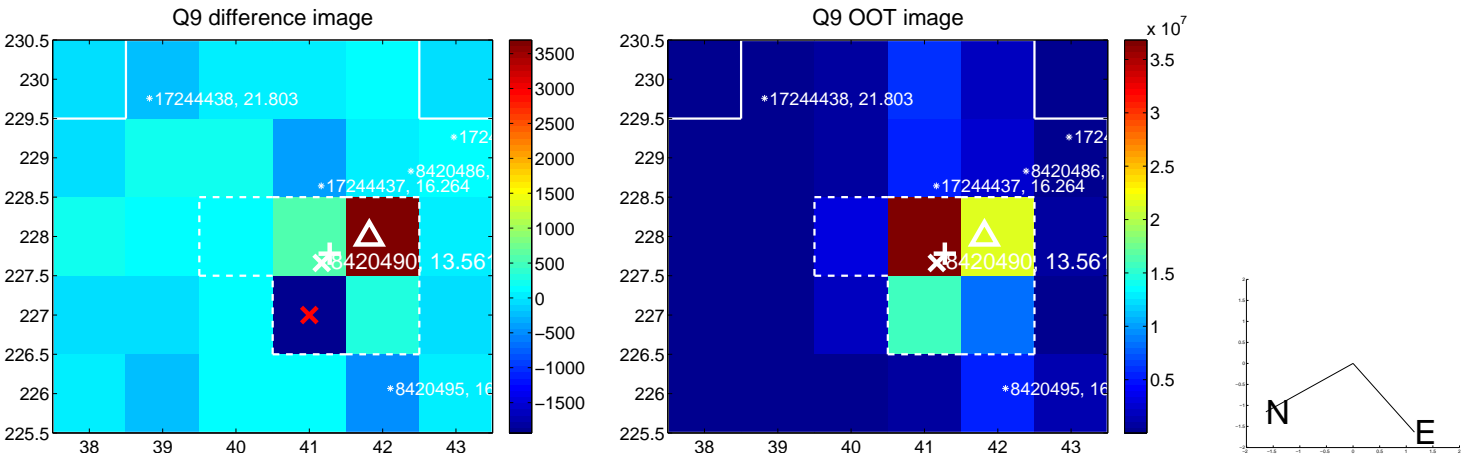
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



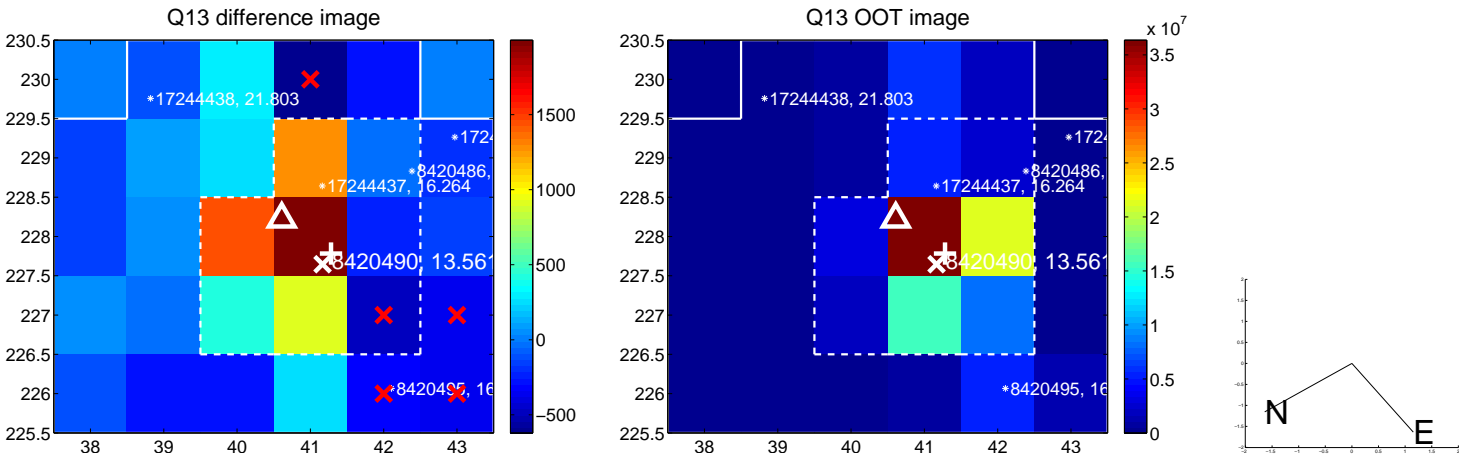
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



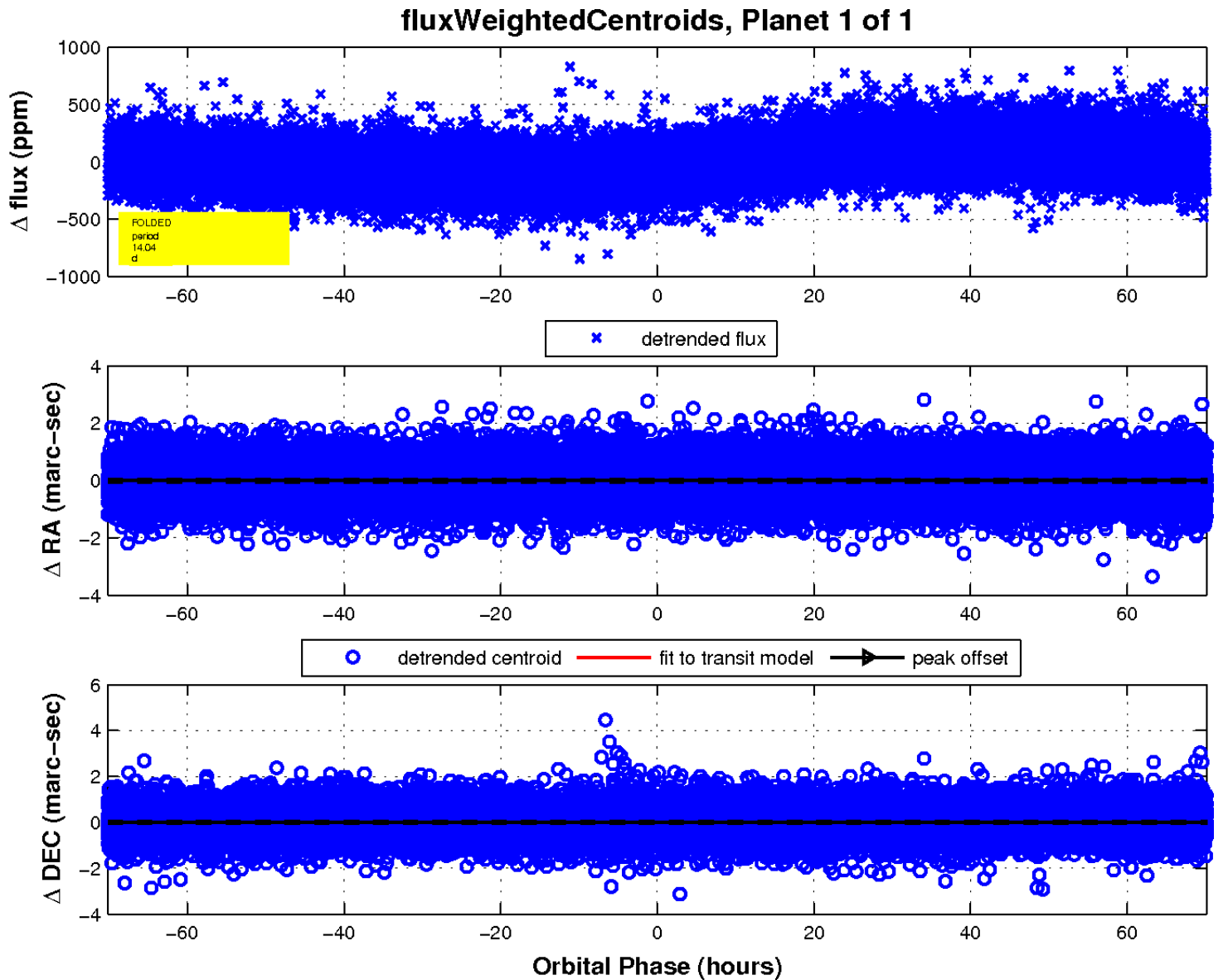
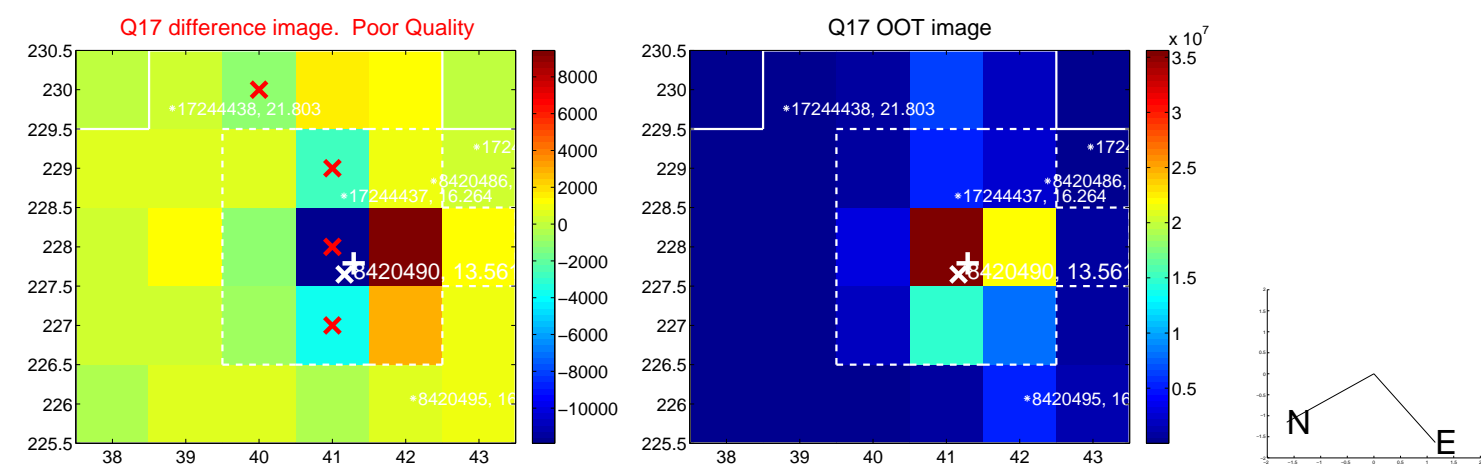
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

