

KIC 003122450

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})
003122450-01	OBS	No	441.795736	439.303884	832.2	8.423	14.6	6.4	4.13	5146	12.00	5.95
003122450-02	OBS	No	432.770515	149.308602	684.9	4.342	12.5	6.3	4.13	5146	11.13	6.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003122450-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003122450-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

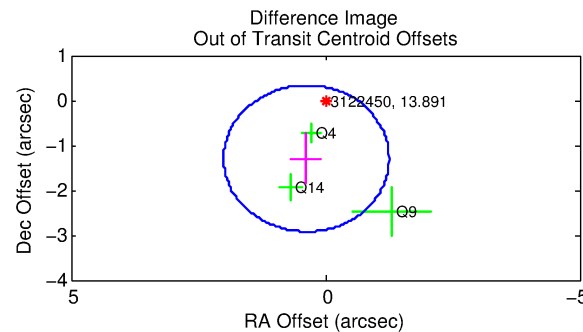
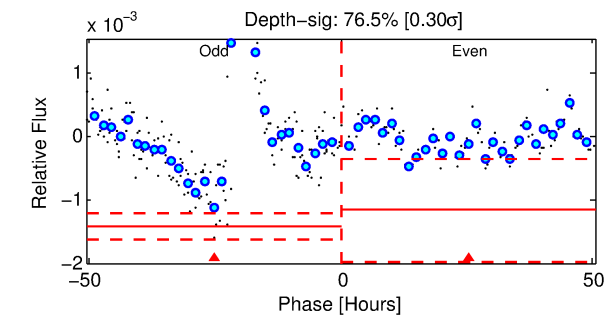
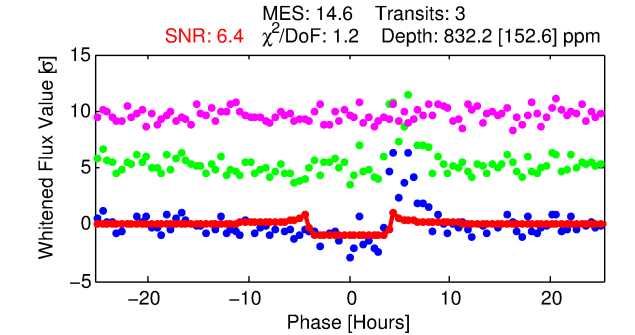
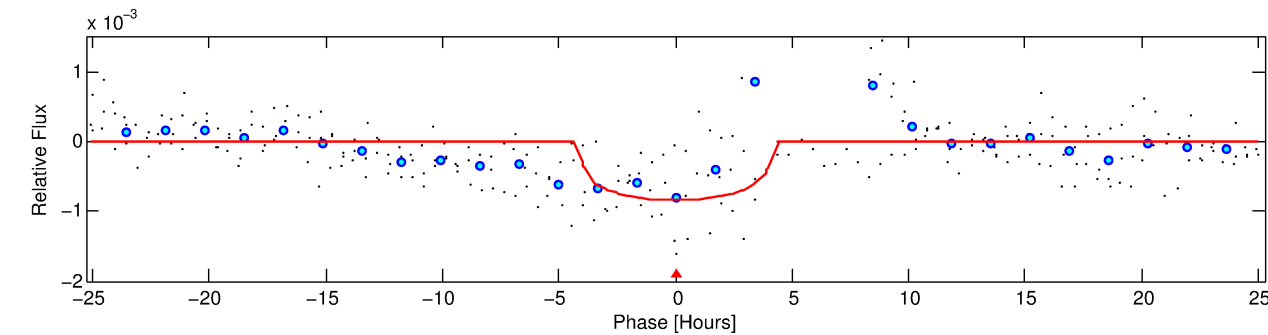
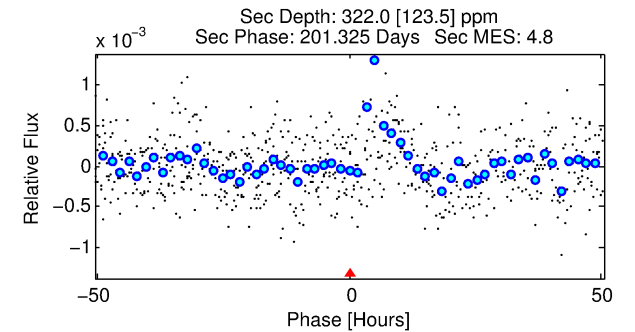
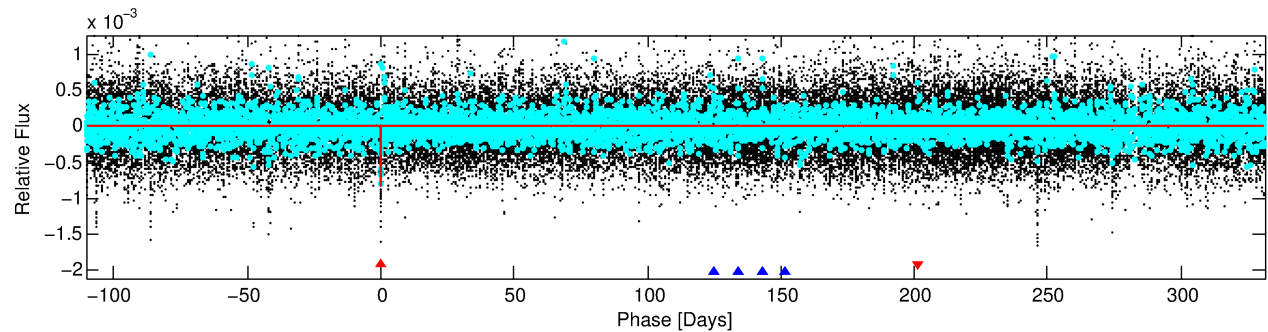
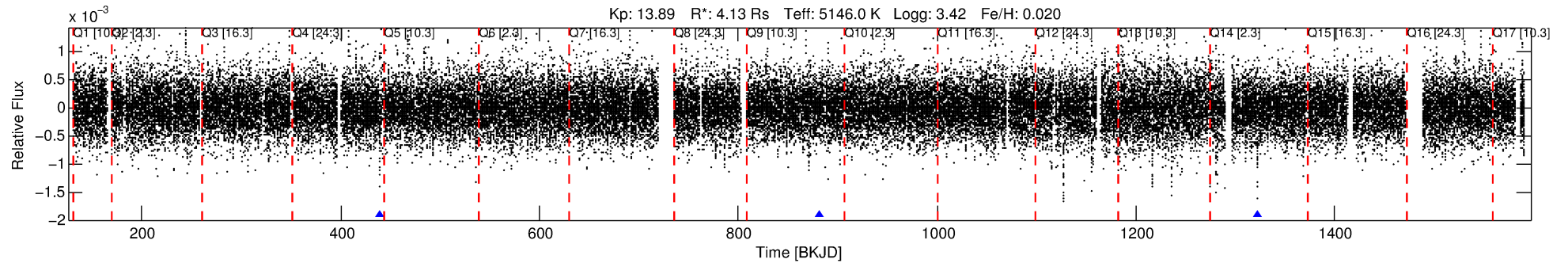
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003122450-01

No Significant Match Found

DV One-Page Summary

KIC: 3122450 Candidate: 1 of 2 Period: 441.796 d



DV Fit Results:

Period = 441.79574 [0.00763] d
Epoch = 439.3039 [0.0105] BKJD
Rp/R* = 0.0266 [0.0243]
a/R* = 365.63 [1203.65]
b = 0.47 [5.48]
Seff = 5.95 [5.26]
Teq = 398 [88] K
Rp = 12.00 [12.75] Re
a = 1.3430 [0.7203] AU
Ag = 2219.30 [4581.18] [0.48 σ]
Teffp = 4227 [1982] K [1.93 σ]

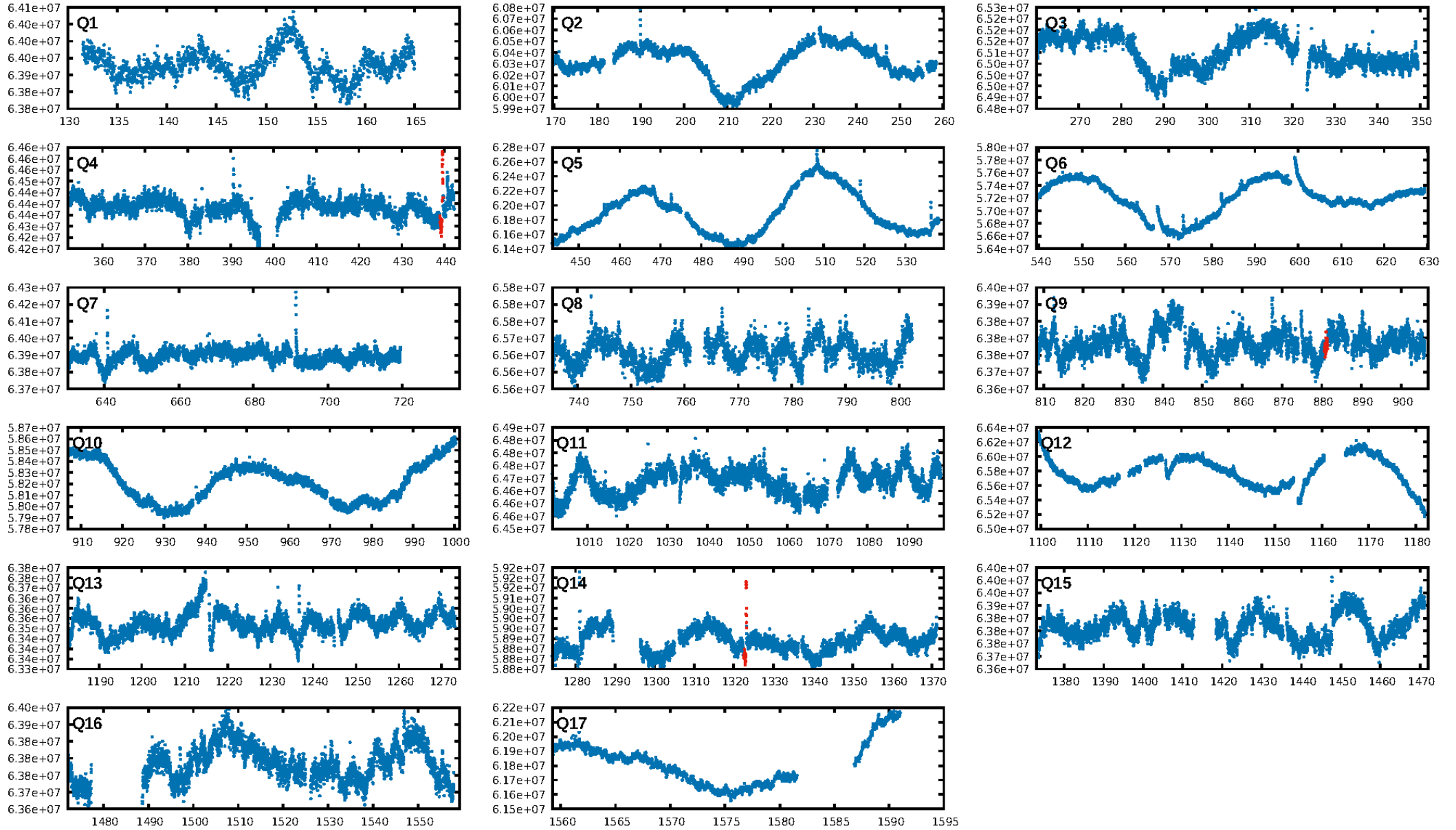
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.86 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 78.5%
Bootstrap-pfa: 1.24e-20
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 4.487
Centroid-sig: 94.5%
Centroid-so: 0.299 arcsec [0.41 σ]
OotOffset-rm: 1.349 arcsec [2.49 σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-rm: 1.413 arcsec [2.65 σ]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

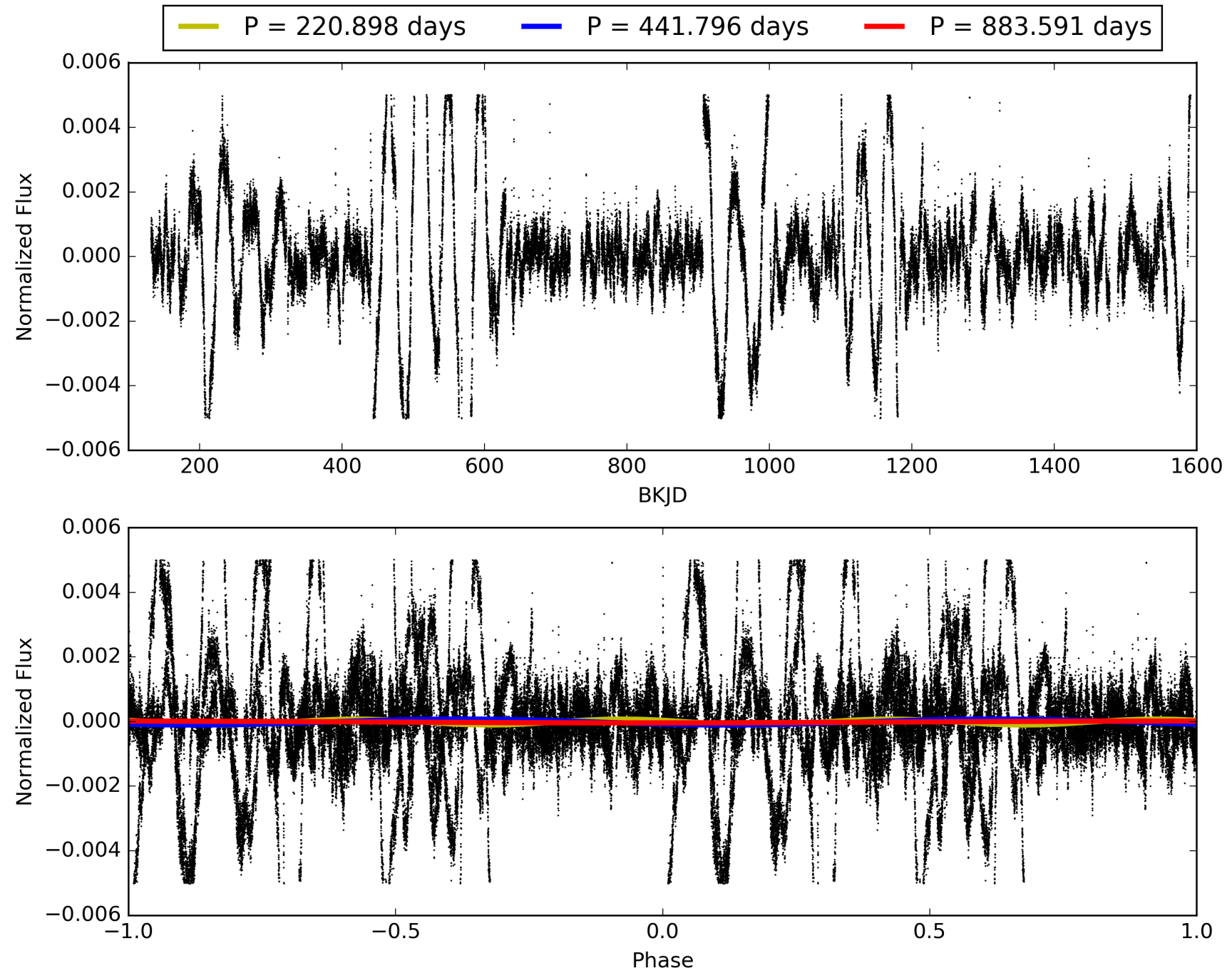
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:17:41 Z

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

TCE 003122450-01, PDC Light Curves

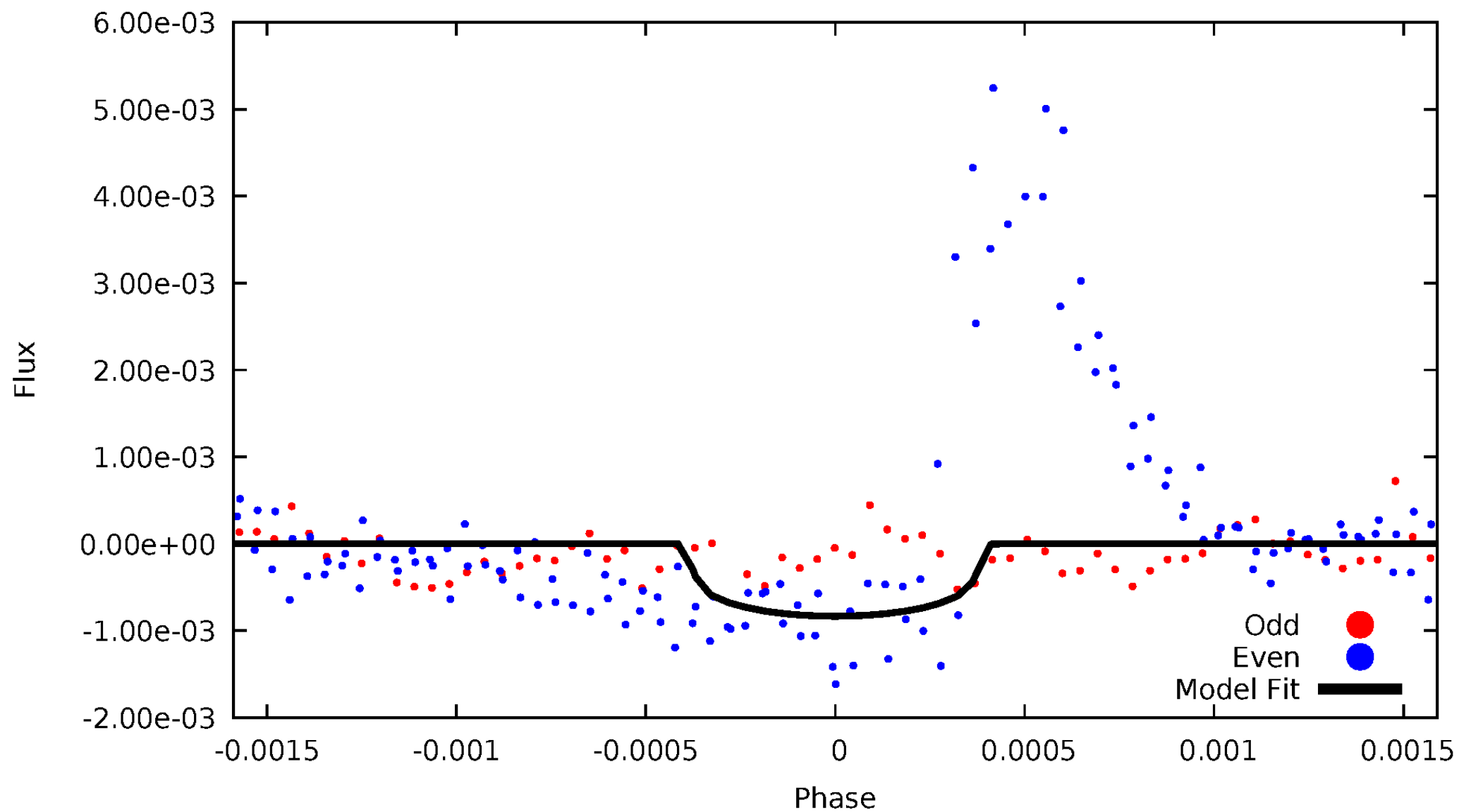


TCE 003122450-01



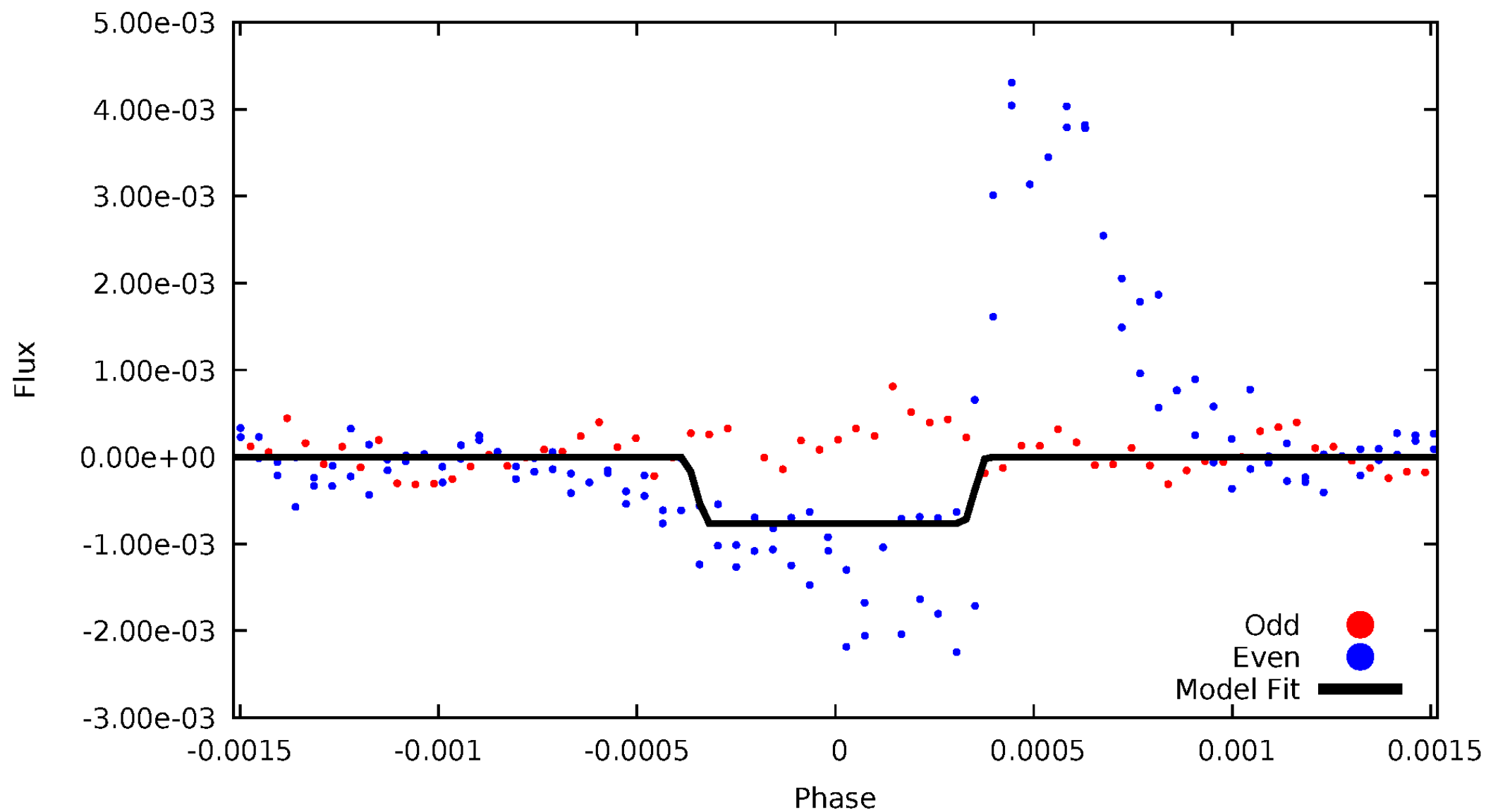
DV Odd/Even

TCE 003122450-01



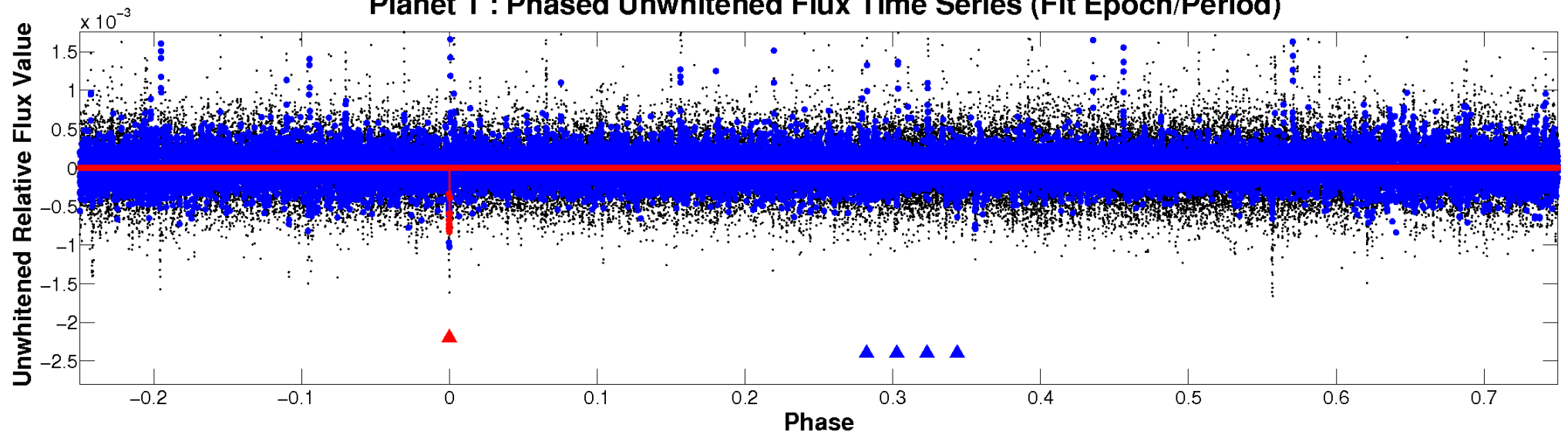
ALT Odd/Even

TCE 003122450-01

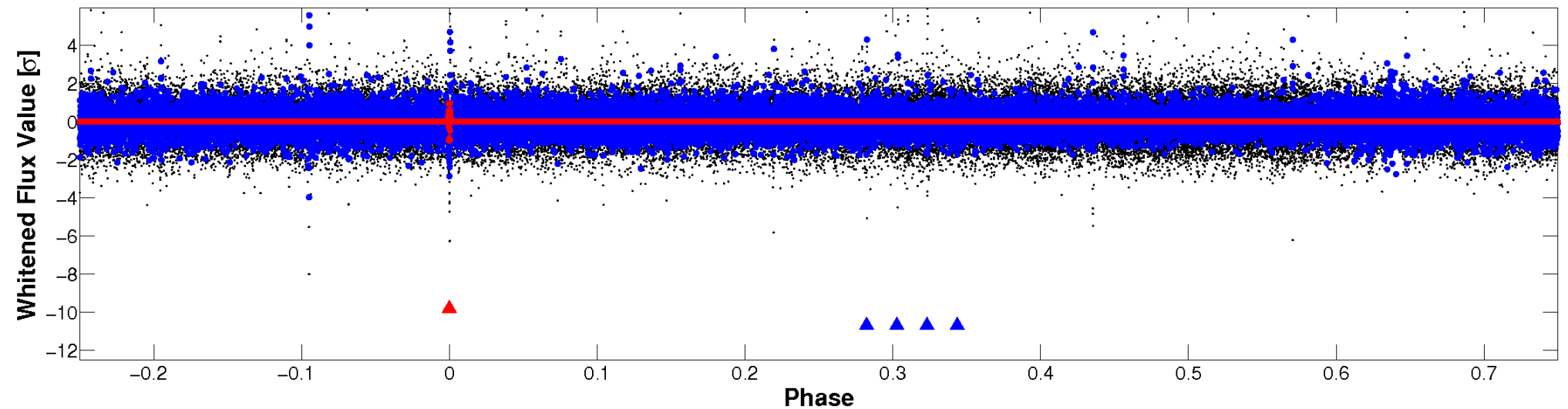


Non-Whitened Vs. Whitened Light Curve

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

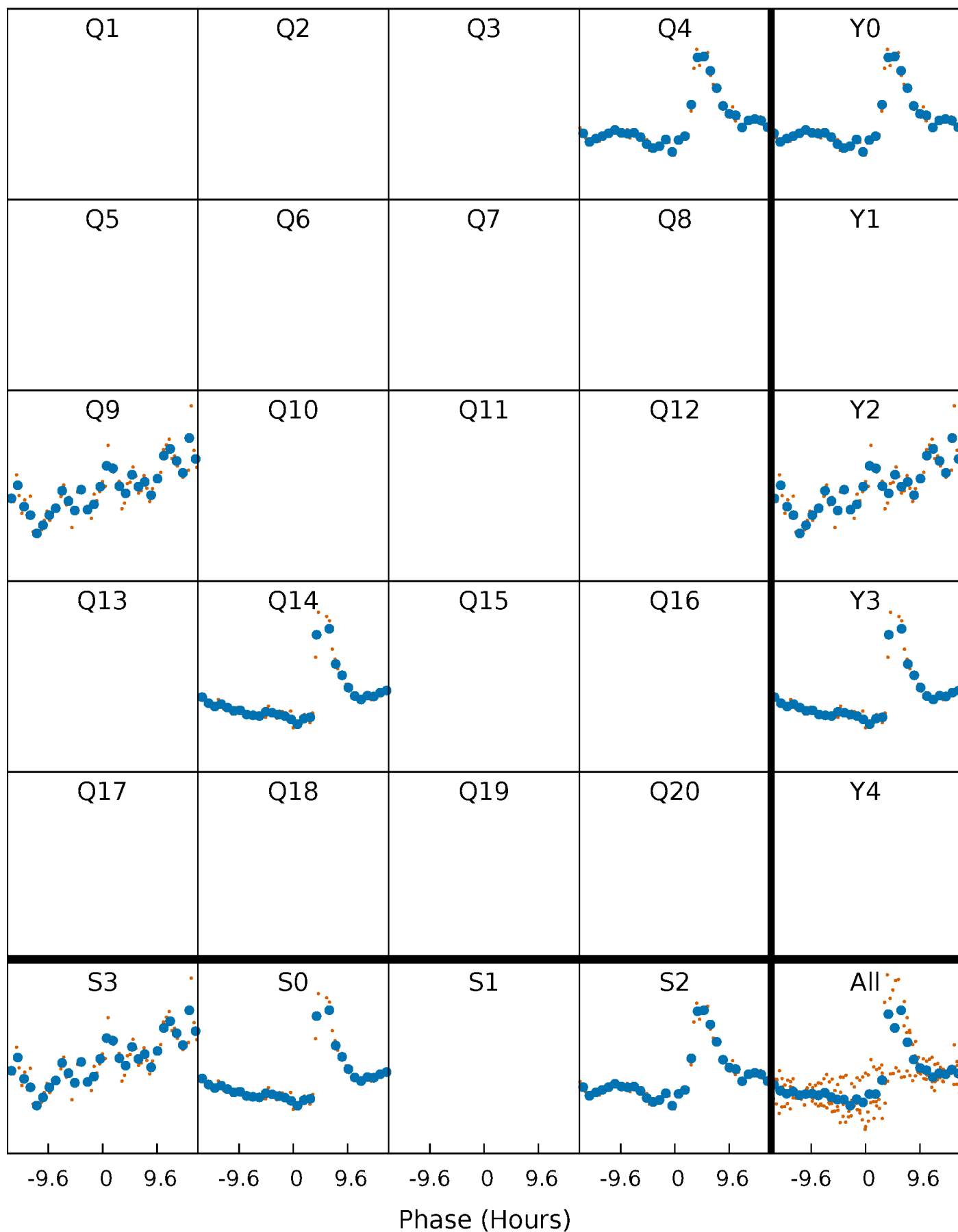


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



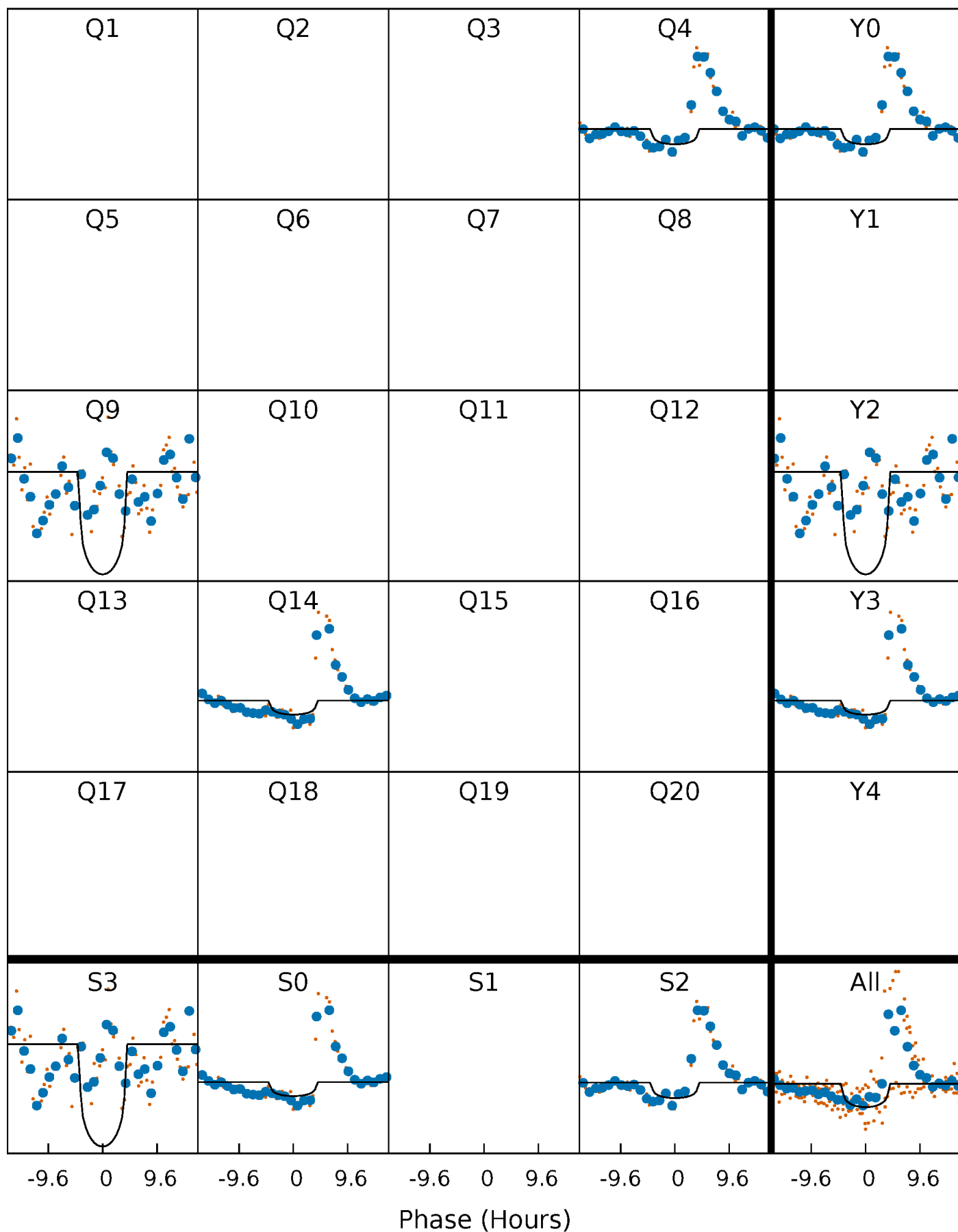
PDC Quarter-Phased Transit Curves

TCE 003122450-01 P=441.795736 Days $T_0=439.303884$ (BKJD)



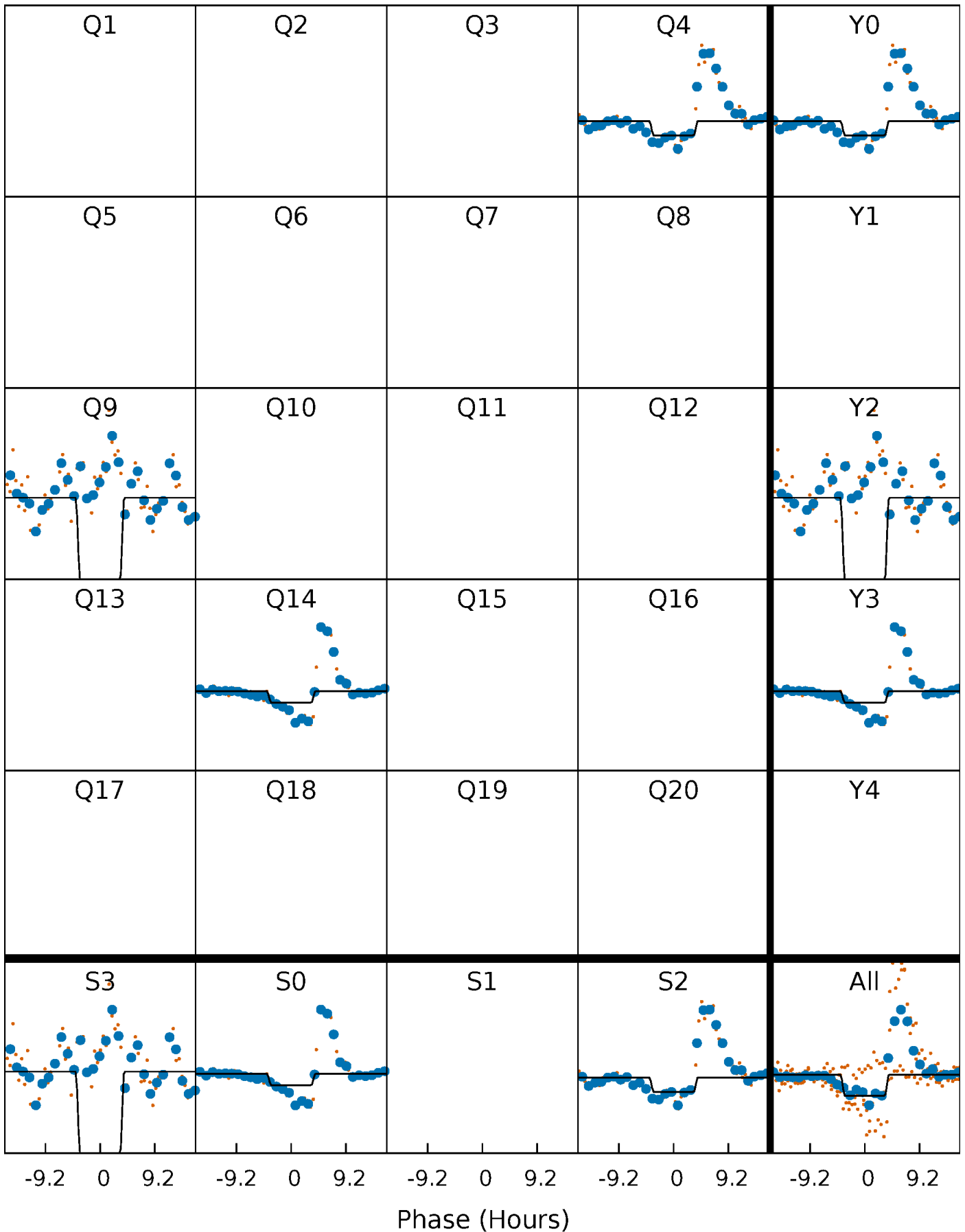
DV Quarter-Phased Transit Curves

TCE 003122450-01 P=441.795736 Days $T_0=439.303884$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

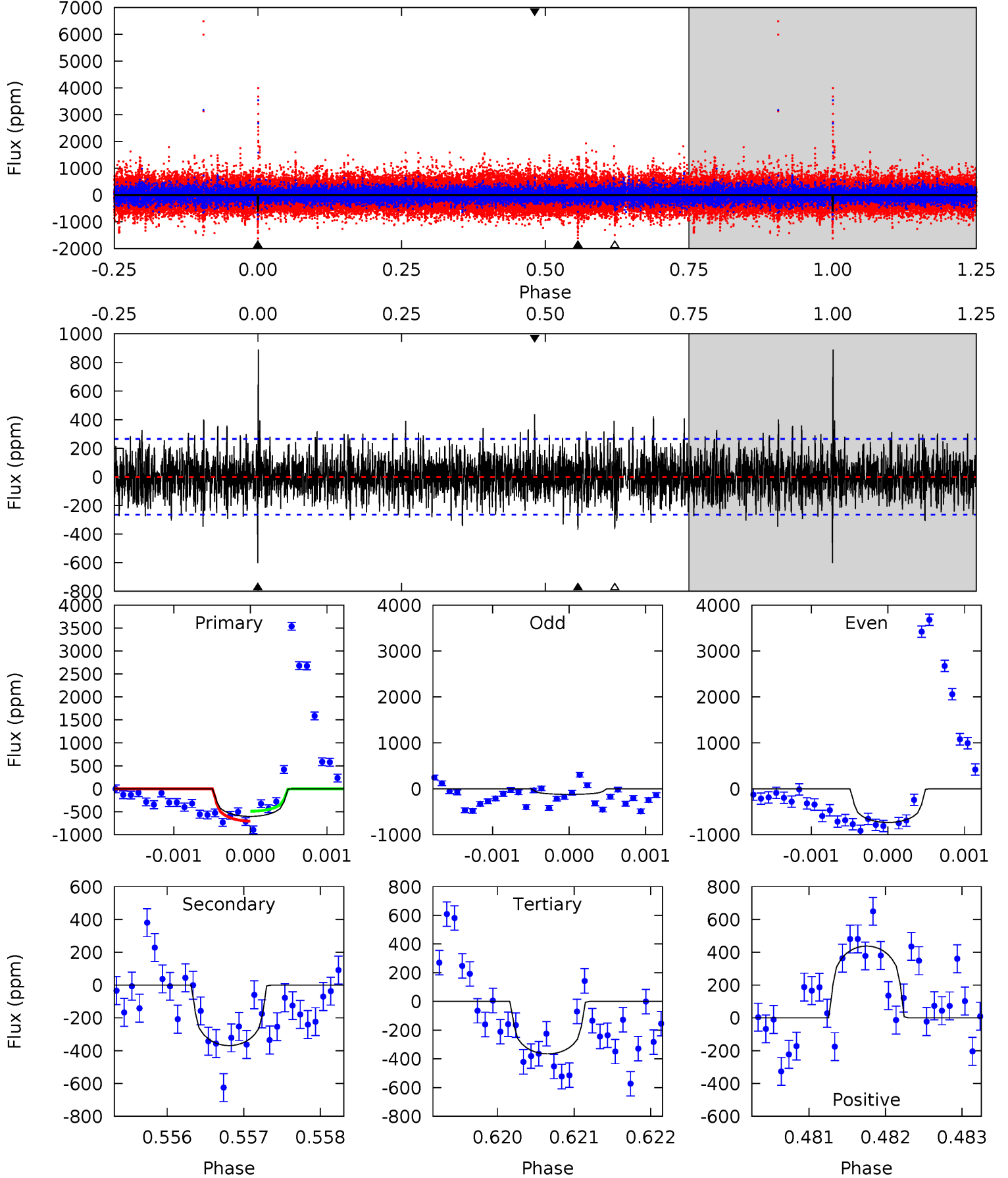
TCE 003122450-01 P=441.807623 Days $T_0=439.268301$ (BKJD)



DV Model-Shift Uniqueness Test

003122450-01, P = 441.795736 Days, E = 439.303884 Days

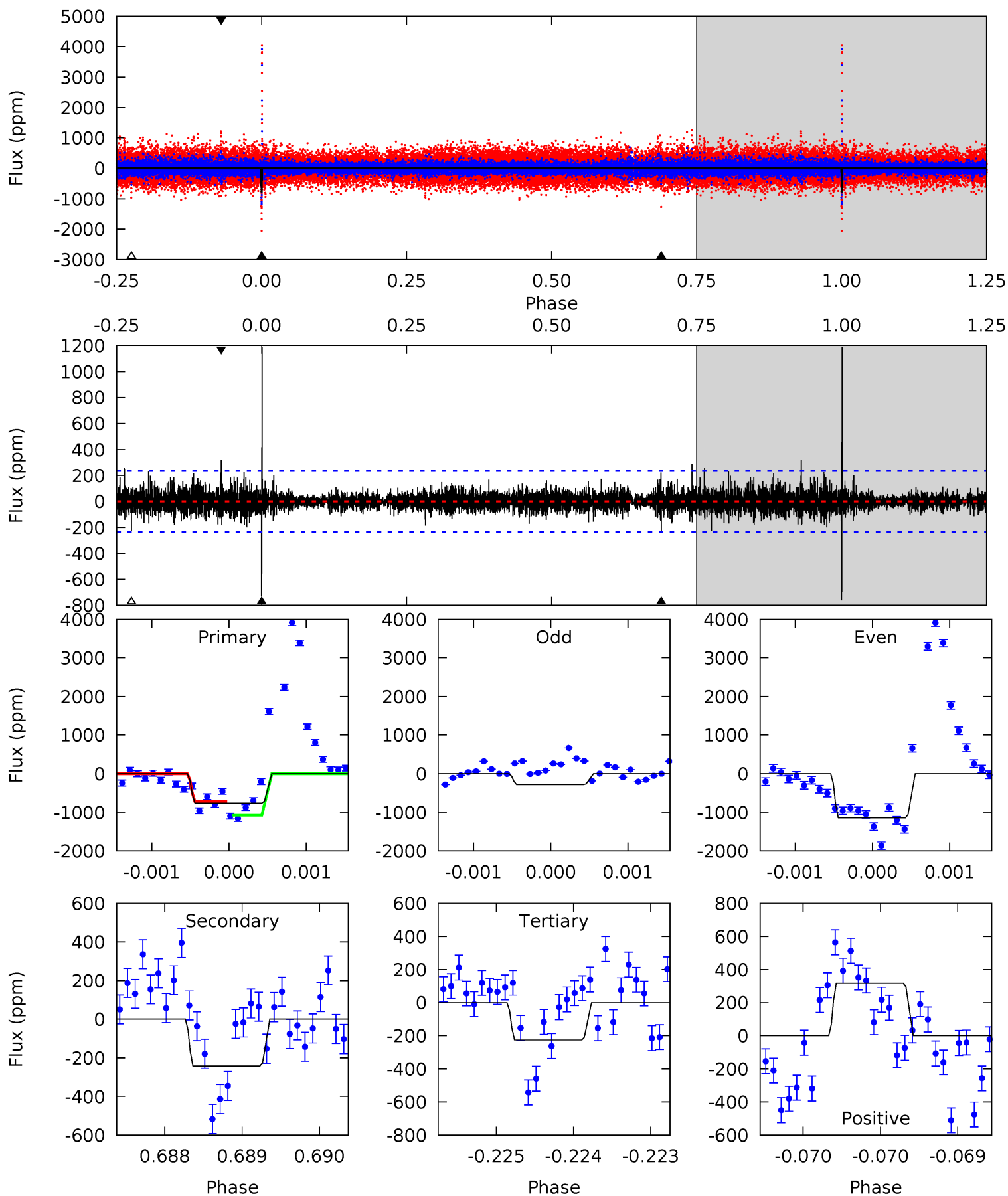
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	7.64	7.57	9.07	5.48	3.34	2.29	4.90	3.40	0.08	-1.43	6.02	1.58	0.60	2.24



Alt Model-Shift Uniqueness Test

003122450-01, P = 441.807623 Days, E = 439.268301 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	5.66	5.28	7.41	5.51	3.38	1.20	12.5	10.4	0.37	-1.75	11.0	0.75	0.61	4.05



Stellar Parameters For KIC 003122450

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5146^{+161}_{-179}	$3.424^{+0.518}_{-0.222}$	$0.020^{+0.250}_{-0.300}$	$4.134^{+1.202}_{-2.232}$	$1.654^{+0.226}_{-0.678}$	$0.033^{+0.185}_{-0.019}$
	+3%/-3%	+15%/-6%	+1250%/-1500%	+29%/-54%	+14%/-41%	+562%/-56%
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 003122450-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-369 ± 48	$13.18^{+10.55}_{-8.28}$	551^{+52}_{-86}	4202^{+1962}_{-745}	2060^{+11687}_{-1442}
Alt.	-241 ± 43	$12.39^{+11.34}_{-7.63}$	550^{+58}_{-74}	3942^{+1906}_{-661}	1496^{+8837}_{-1090}

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 $A_{obs} \gg 1.0$

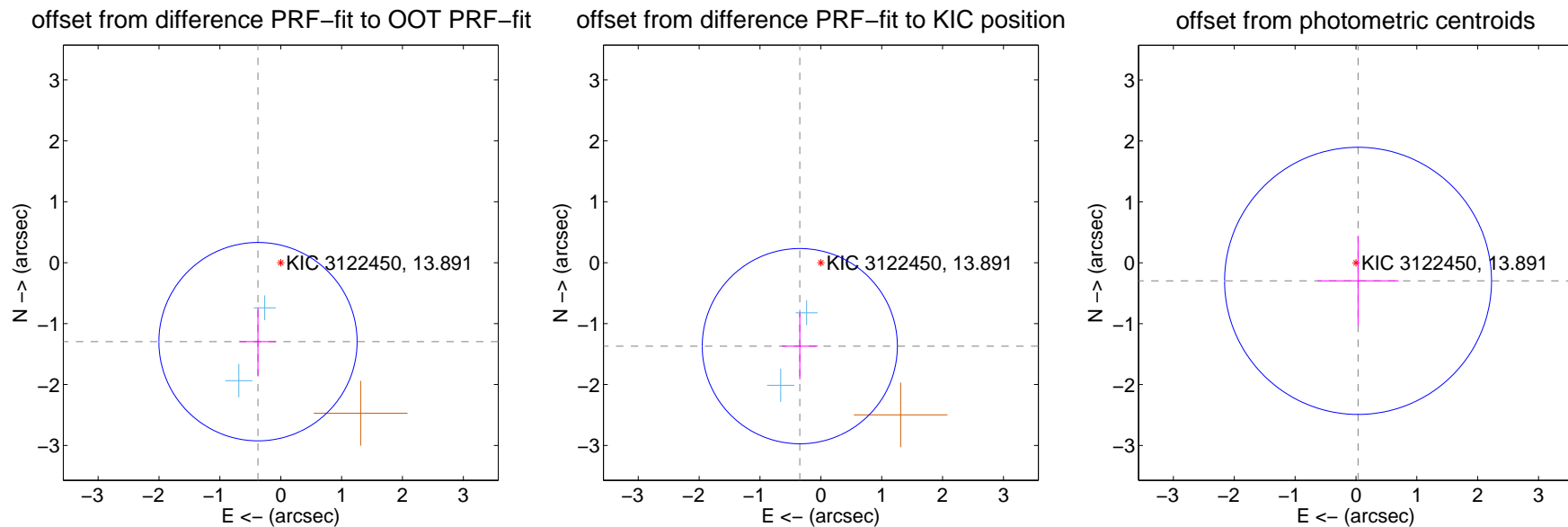
DV Centroid Data

Supplemental centroid analysis for 003122450-01. Kepler magnitude: 13.89. Transit SNR 6.38

There are 2 quarters with good PRF difference image offsets

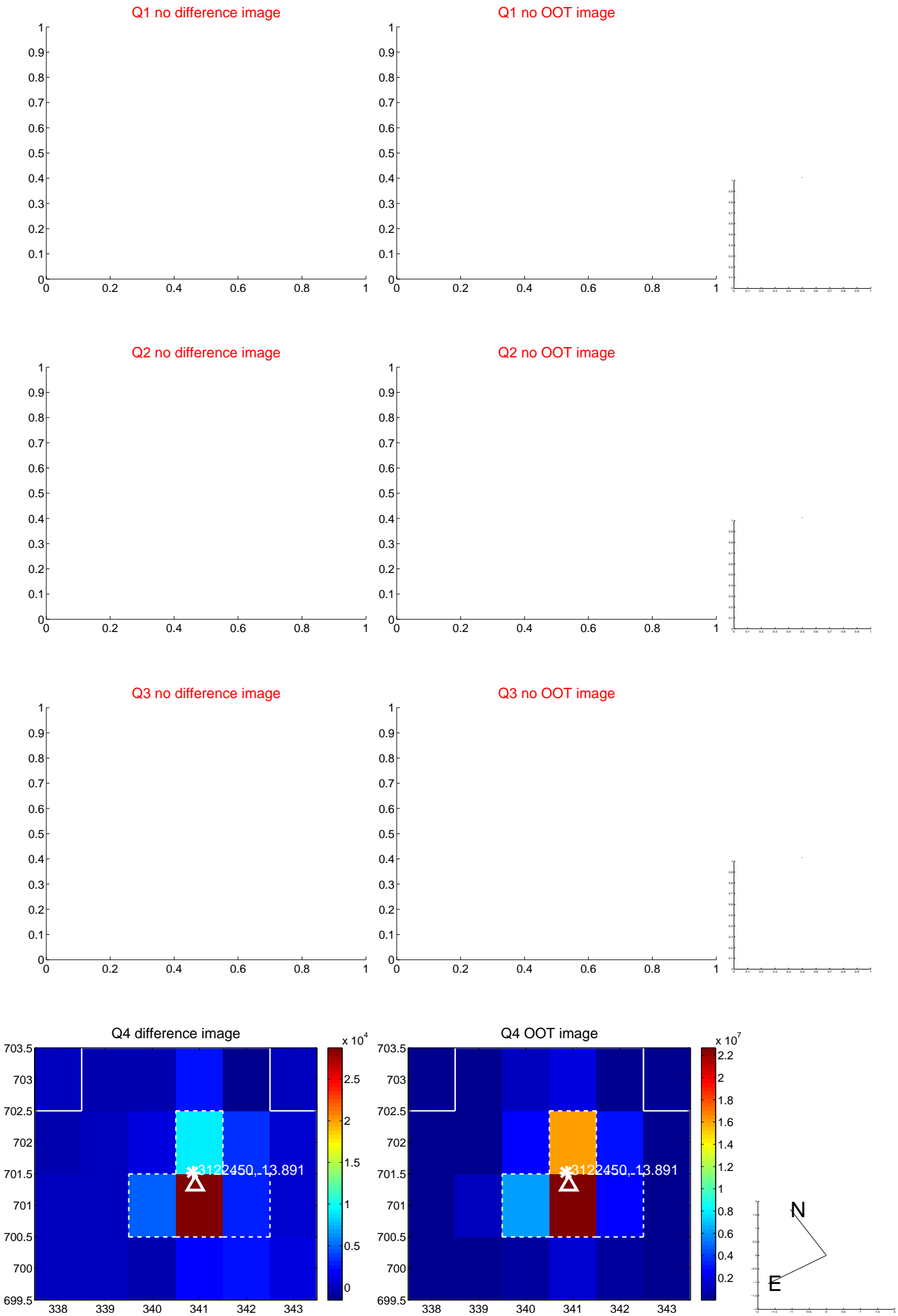
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.349 ± 0.543	2.49	0.374 ± 0.299	-1.296 ± 0.558
PRF-fit source offset from KIC position	1.413 ± 0.534	2.65	0.346 ± 0.296	-1.370 ± 0.546
photometric centroid source offset	0.30 ± 0.73	0.41	-0.03 ± 0.67	-0.30 ± 0.73



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.

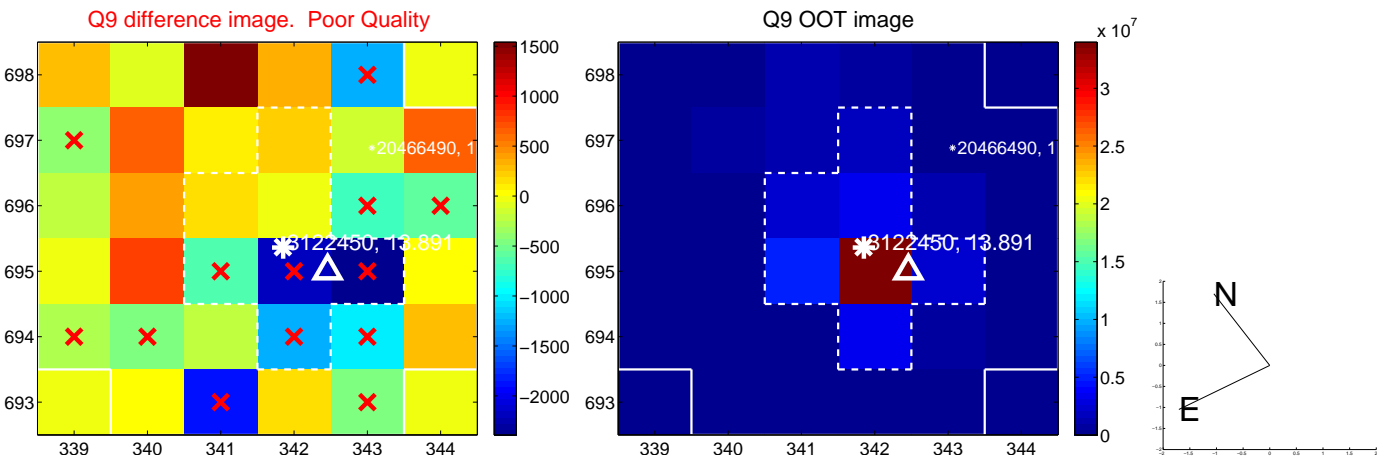
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



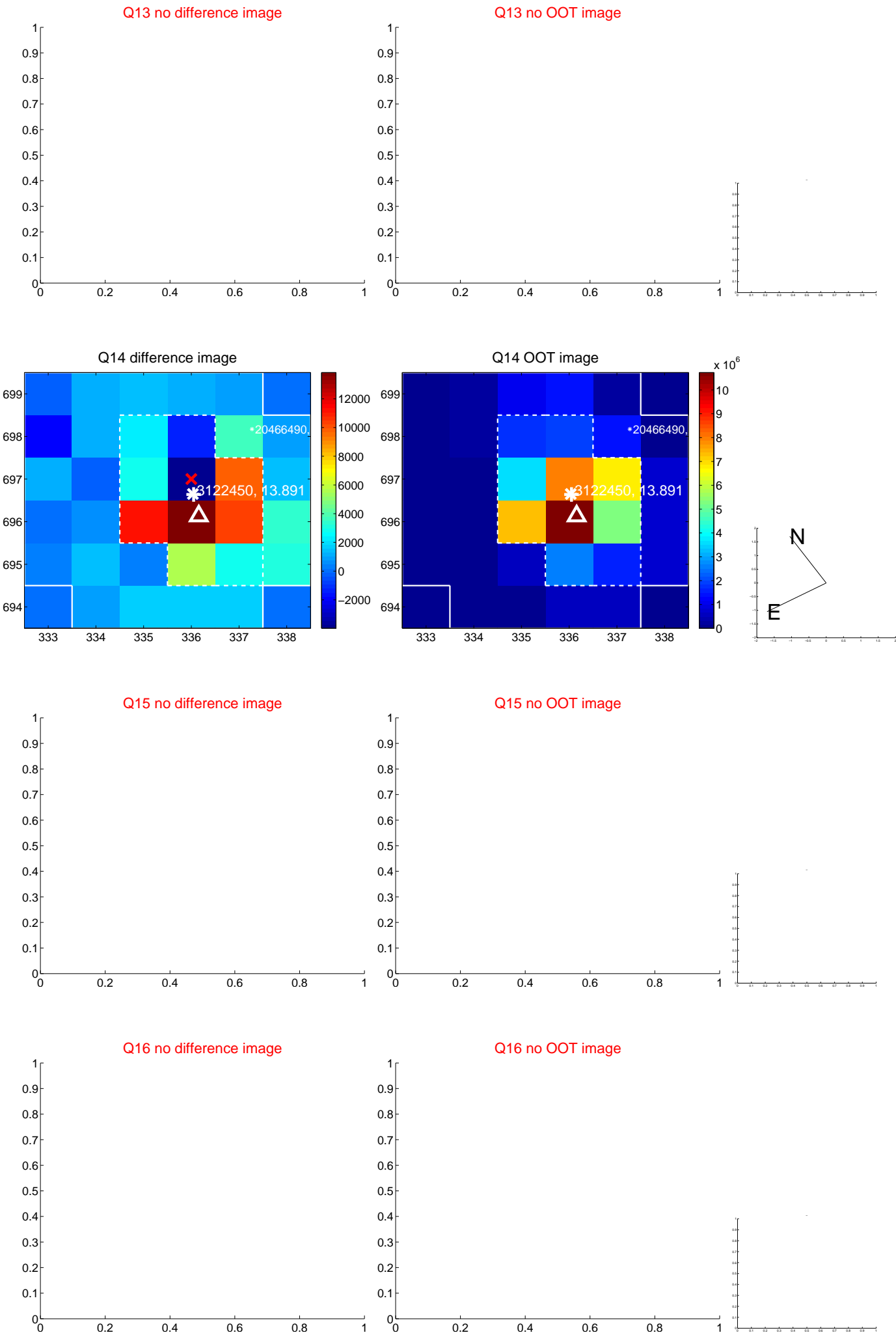
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



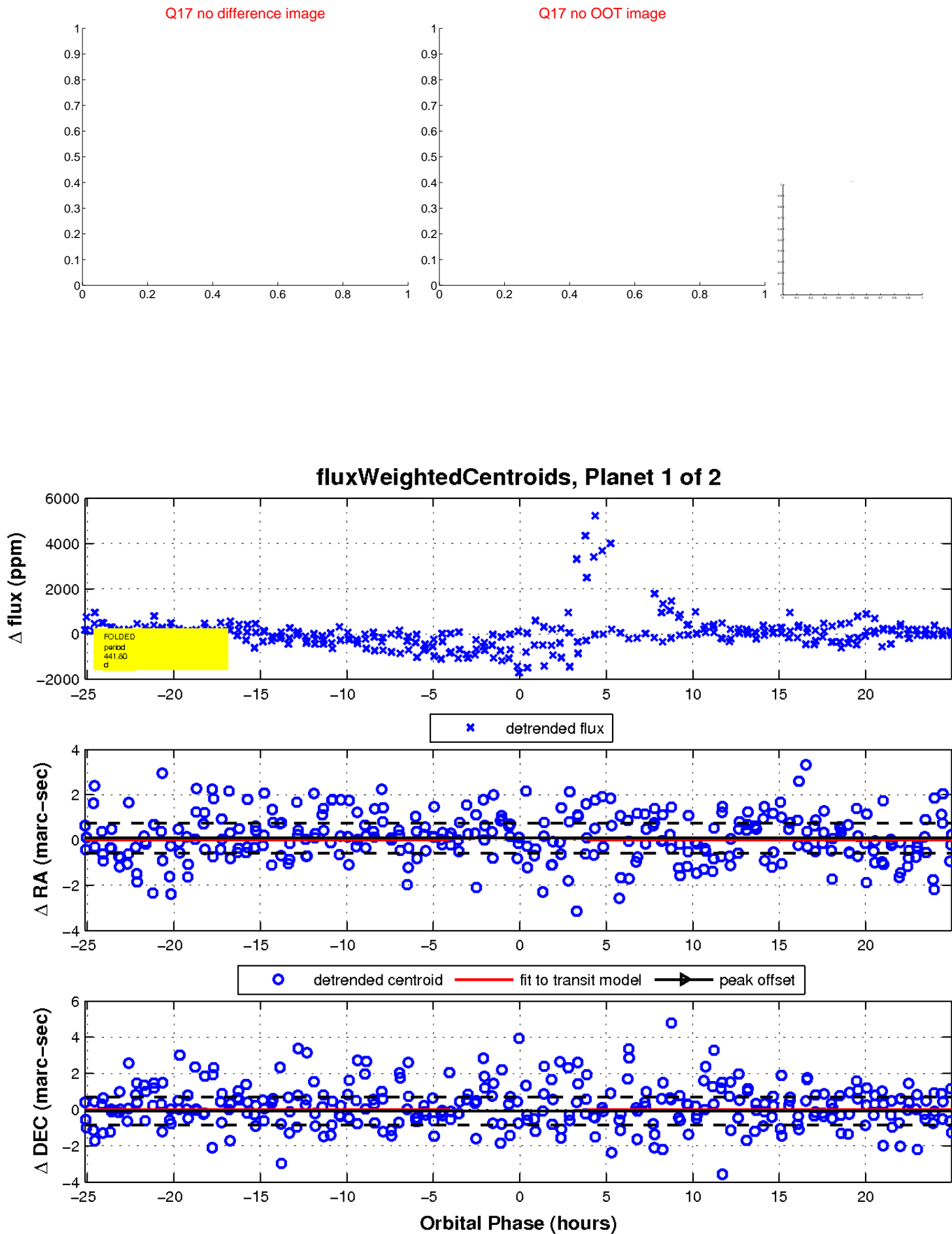
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

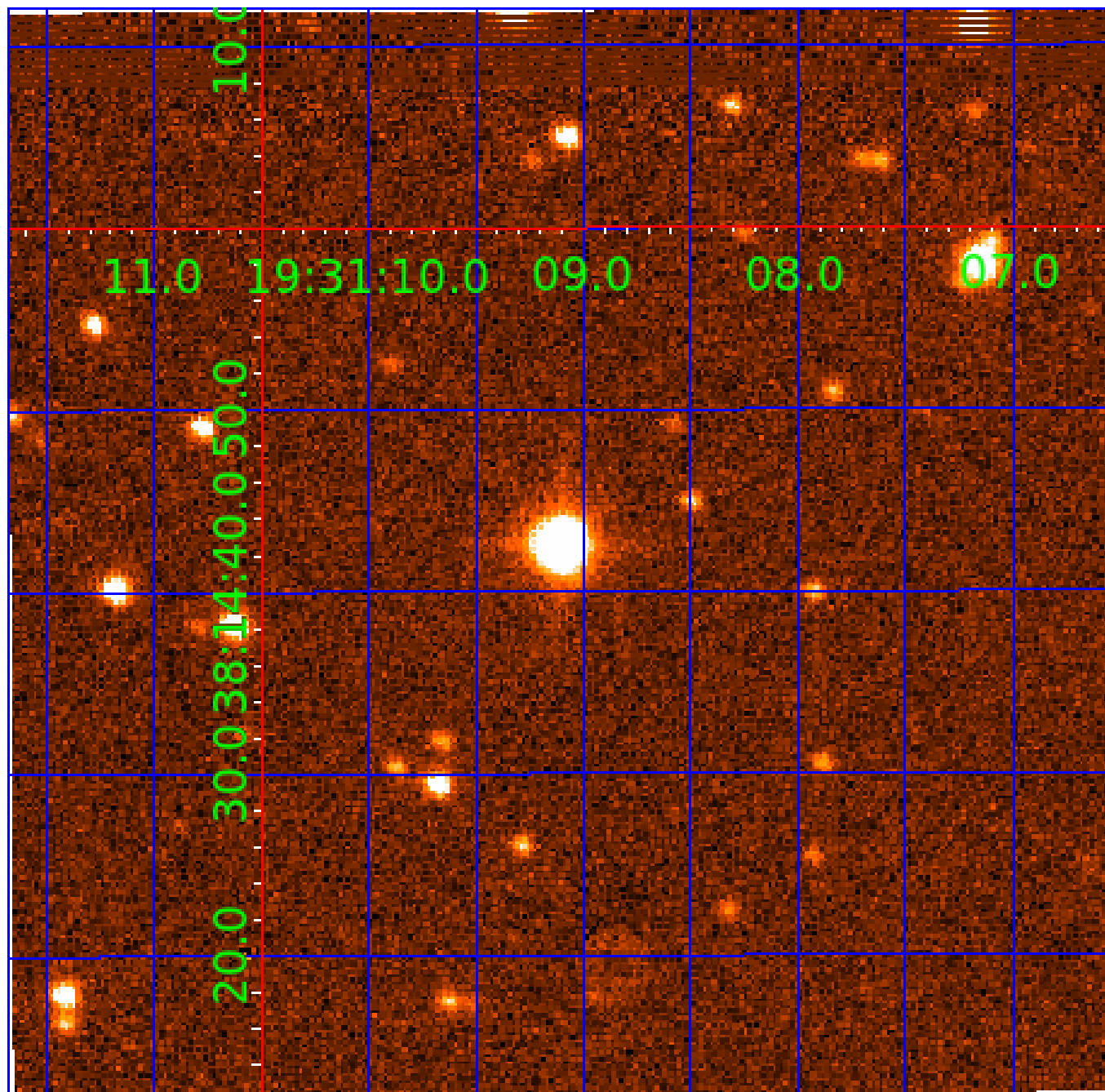


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003122450

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})
003122450-01	OBS	No	441.795736	439.303884	832.2	8.423	14.6	6.4	4.13	5146	12.00	5.95
003122450-02	OBS	No	432.770515	149.308602	684.9	4.342	12.5	6.3	4.13	5146	11.13	6.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003122450-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003122450-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

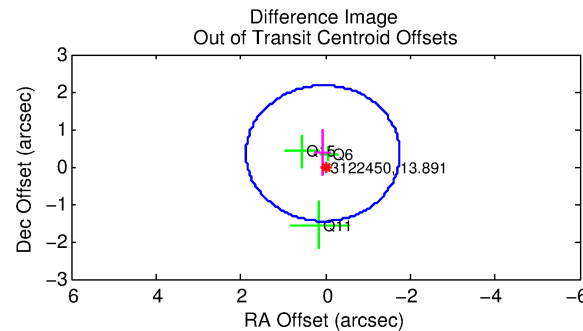
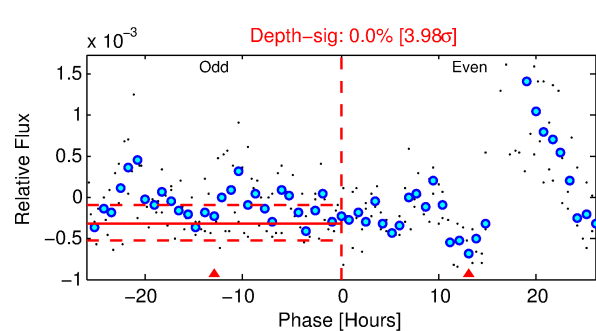
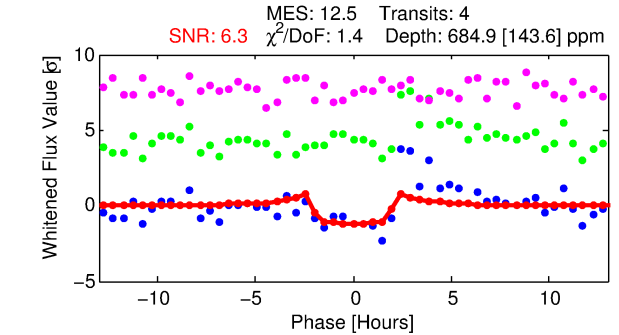
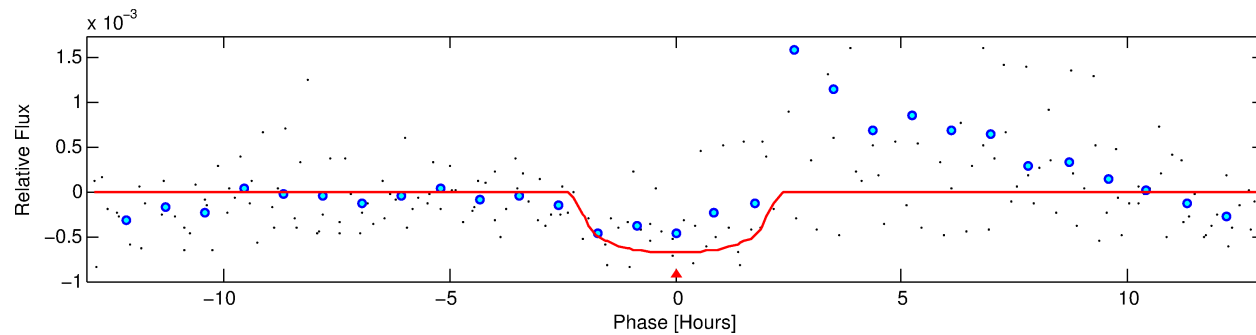
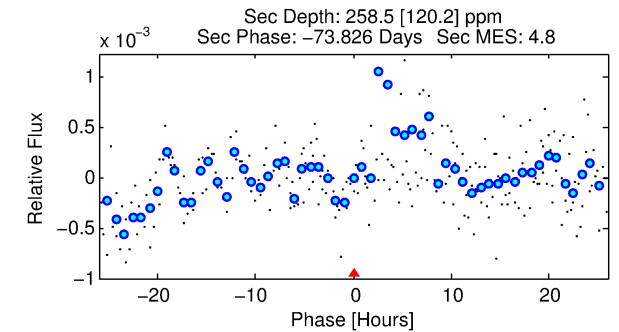
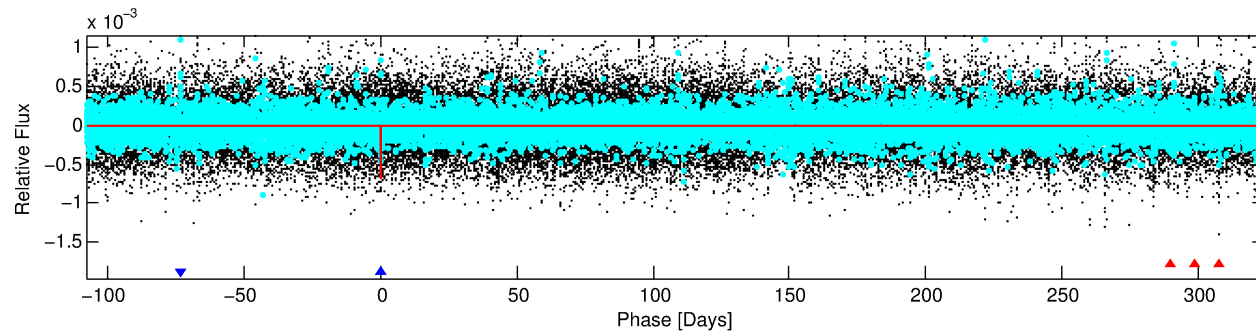
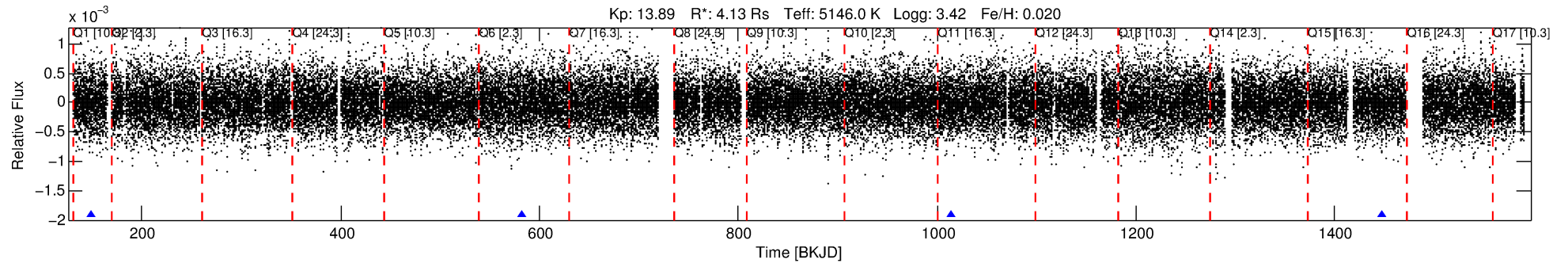
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003122450-02

No Significant Match Found

DV One-Page Summary

KIC: 3122450 Candidate: 2 of 2 Period: 432.771 d



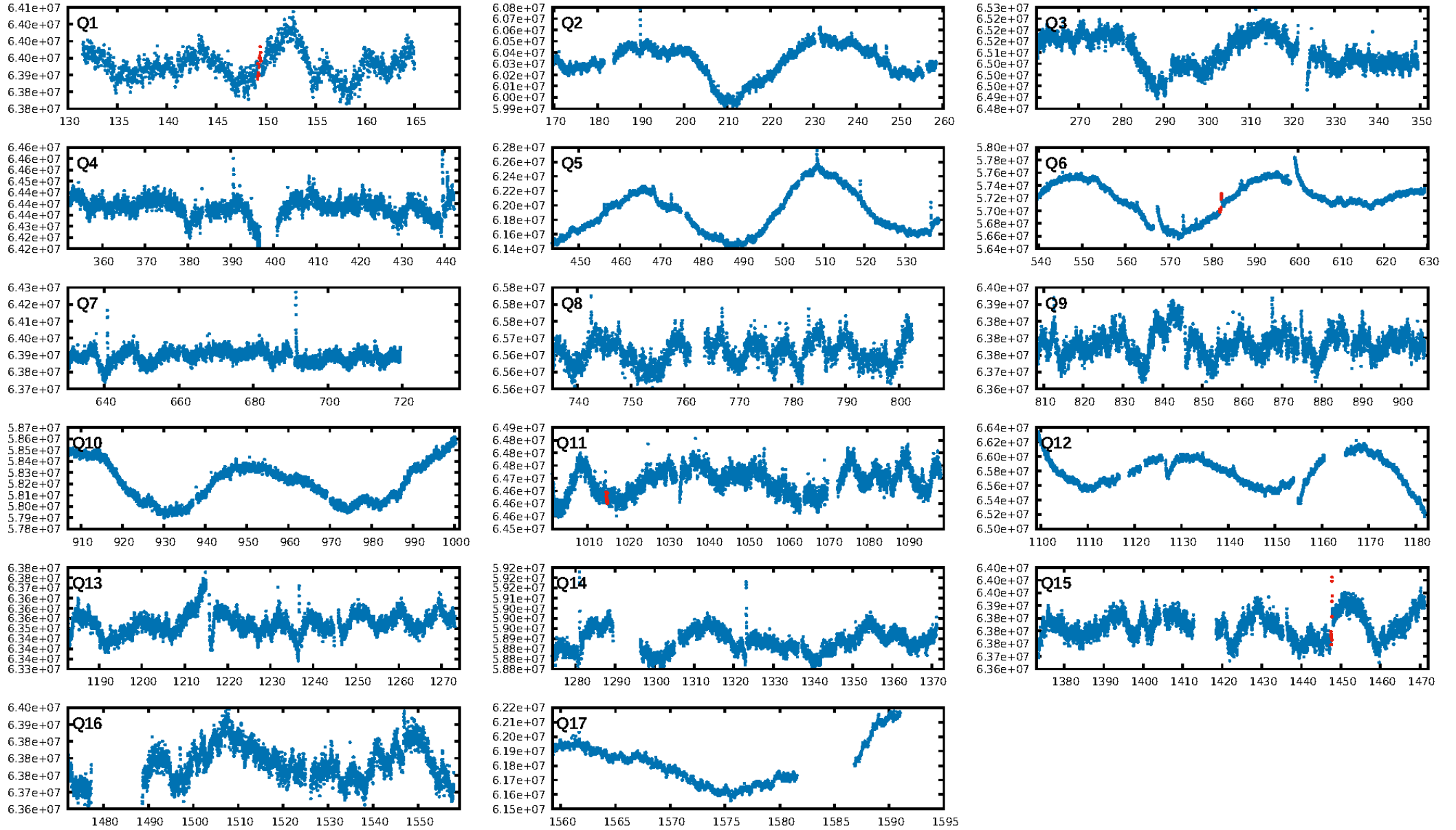
DV Fit Results:

Period = 432.77052 [0.00405] d
Epoch = 149.3086 [0.0091] BKJD
Rp/R* = 0.0247 [0.0505]
a/R* = 643.26 [4772.69]
b = 0.58 [8.64]
Seff = 6.12 [5.41]
Teq = 401 [89] K
Rp = 11.13 [23.57] Re
a = 1.3247 [0.7104] AU
Ag = 2013.05 [8477.40] [0.24 σ]
Teffp = 4153 [4280] K [0.88 σ]

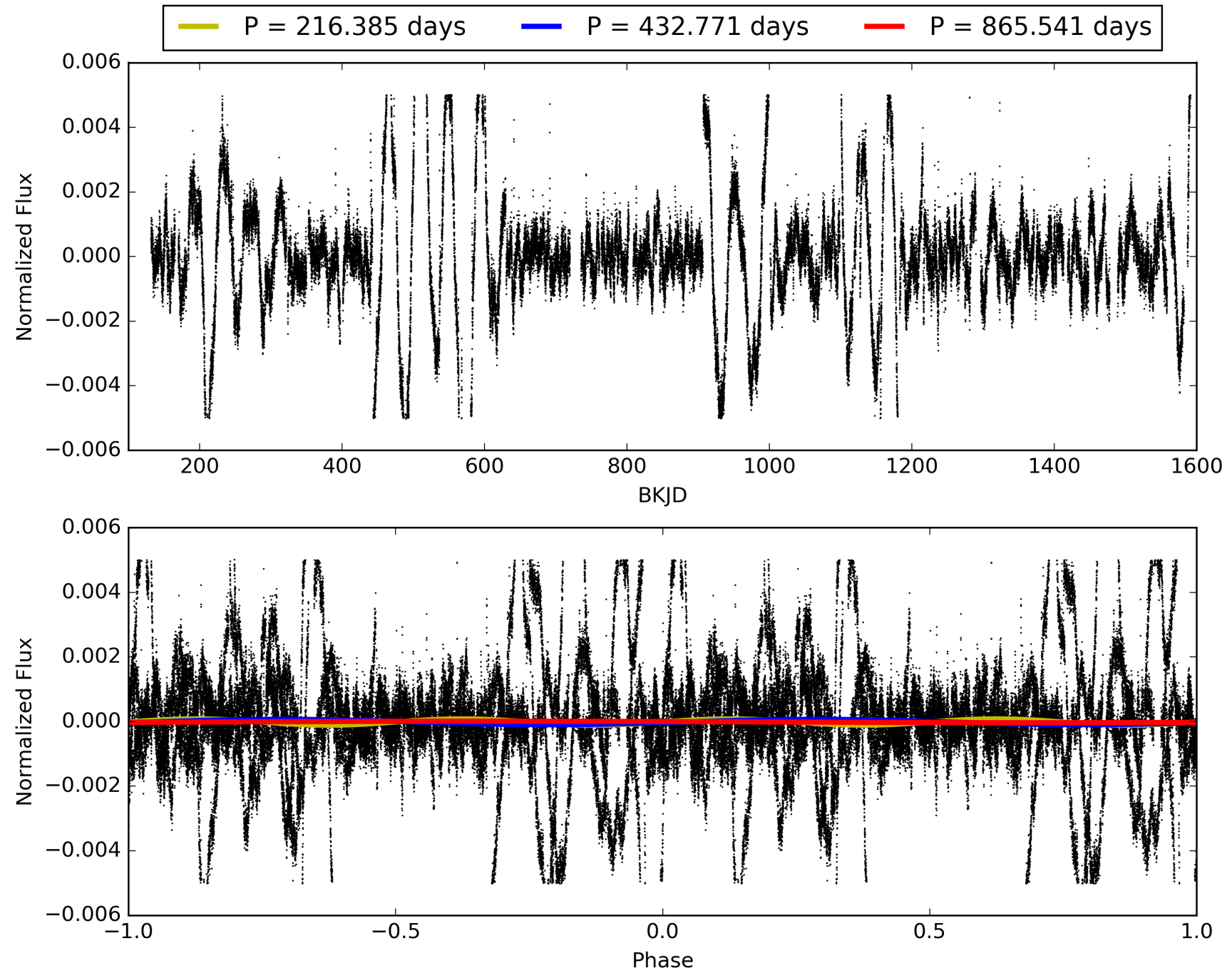
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [22.86 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 38.0%
Bootstrap-pfa: 3.80e-18
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 6.006
Centroid-sig: 32.6%
Centroid-so: 1.051 arcsec [1.18 σ]
OotOffset-rm: 0.362 arcsec [0.60 σ]
KicOffset-rm: 0.194 arcsec [0.44 σ]
OotOffset-st: 1/2/0/0 [3]
KicOffset-st: 1/2/0/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 003122450-02, PDC Light Curves

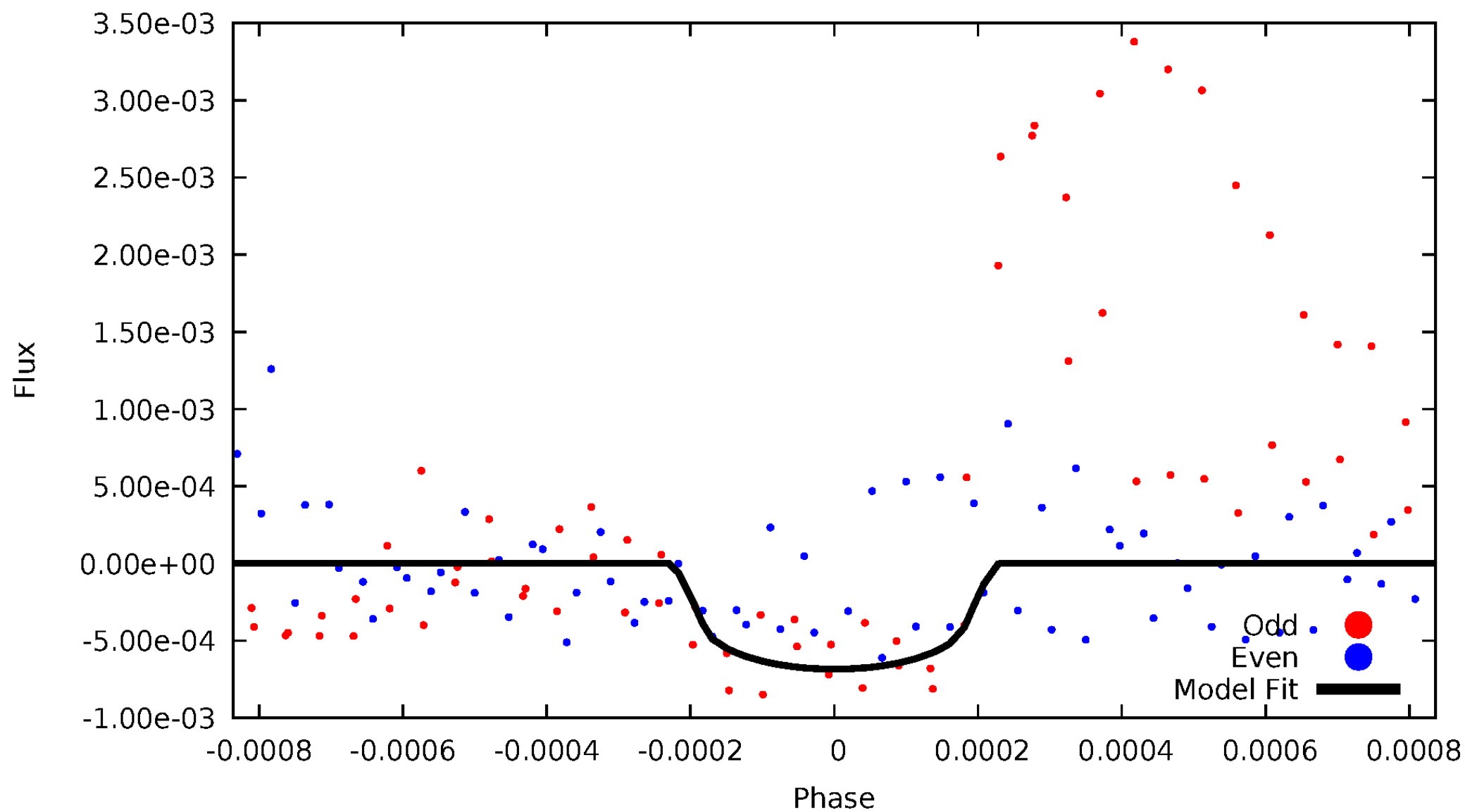


TCE 003122450-02



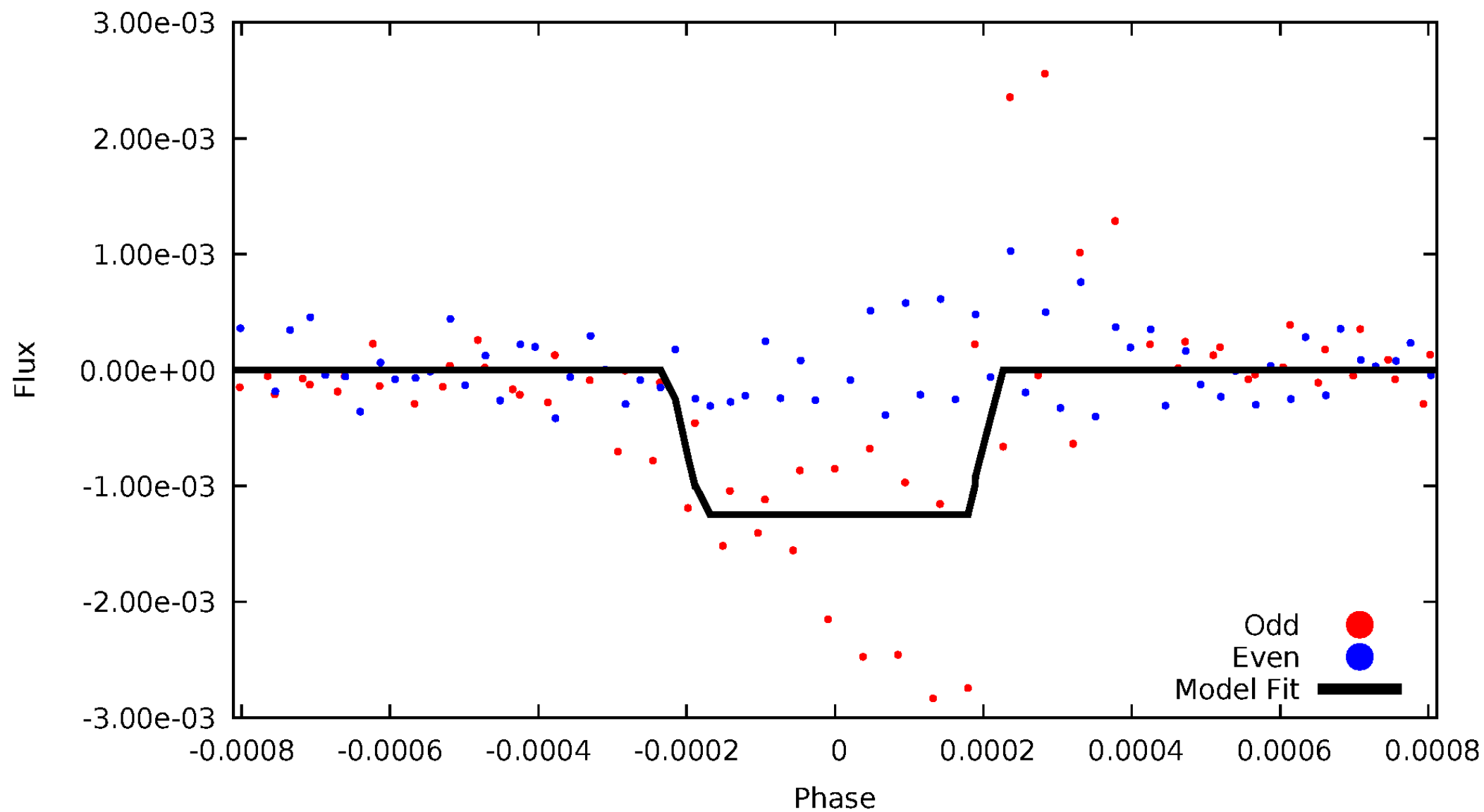
DV Odd/Even

TCE 003122450-02



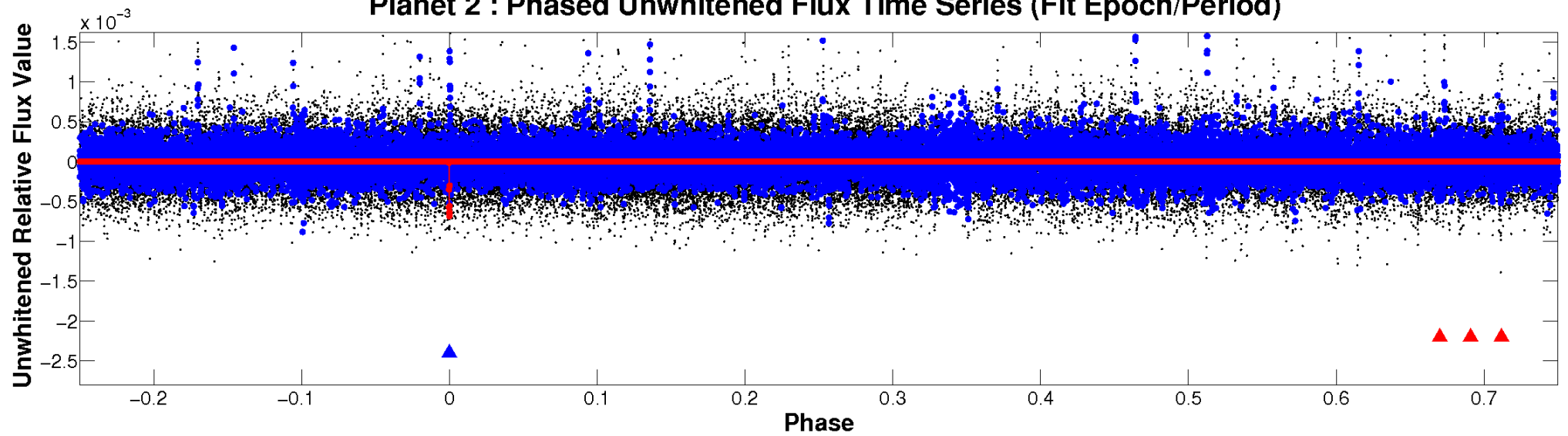
ALT Odd/Even

TCE 003122450-02

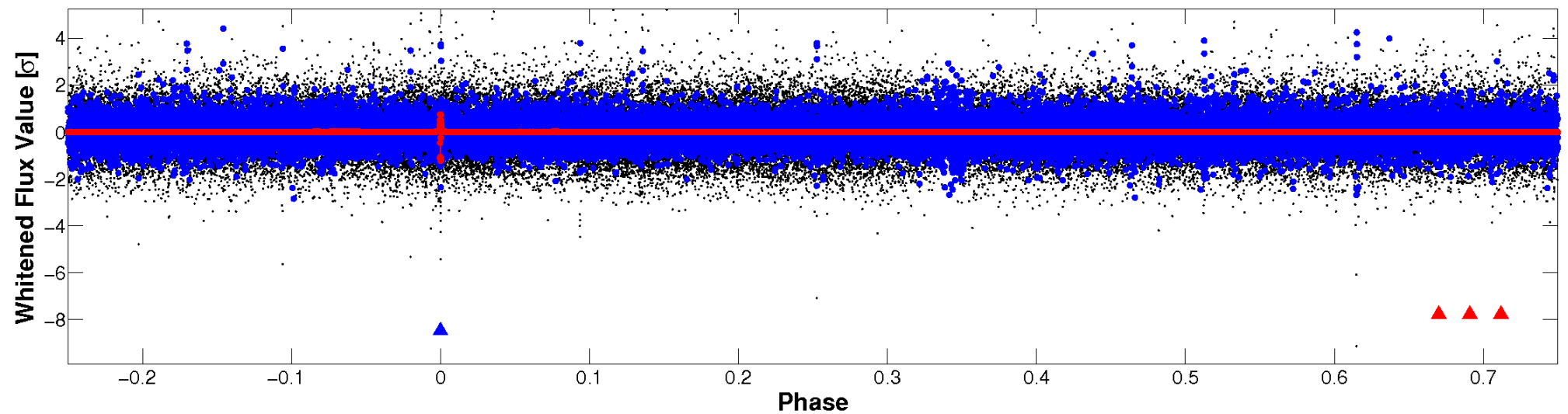


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

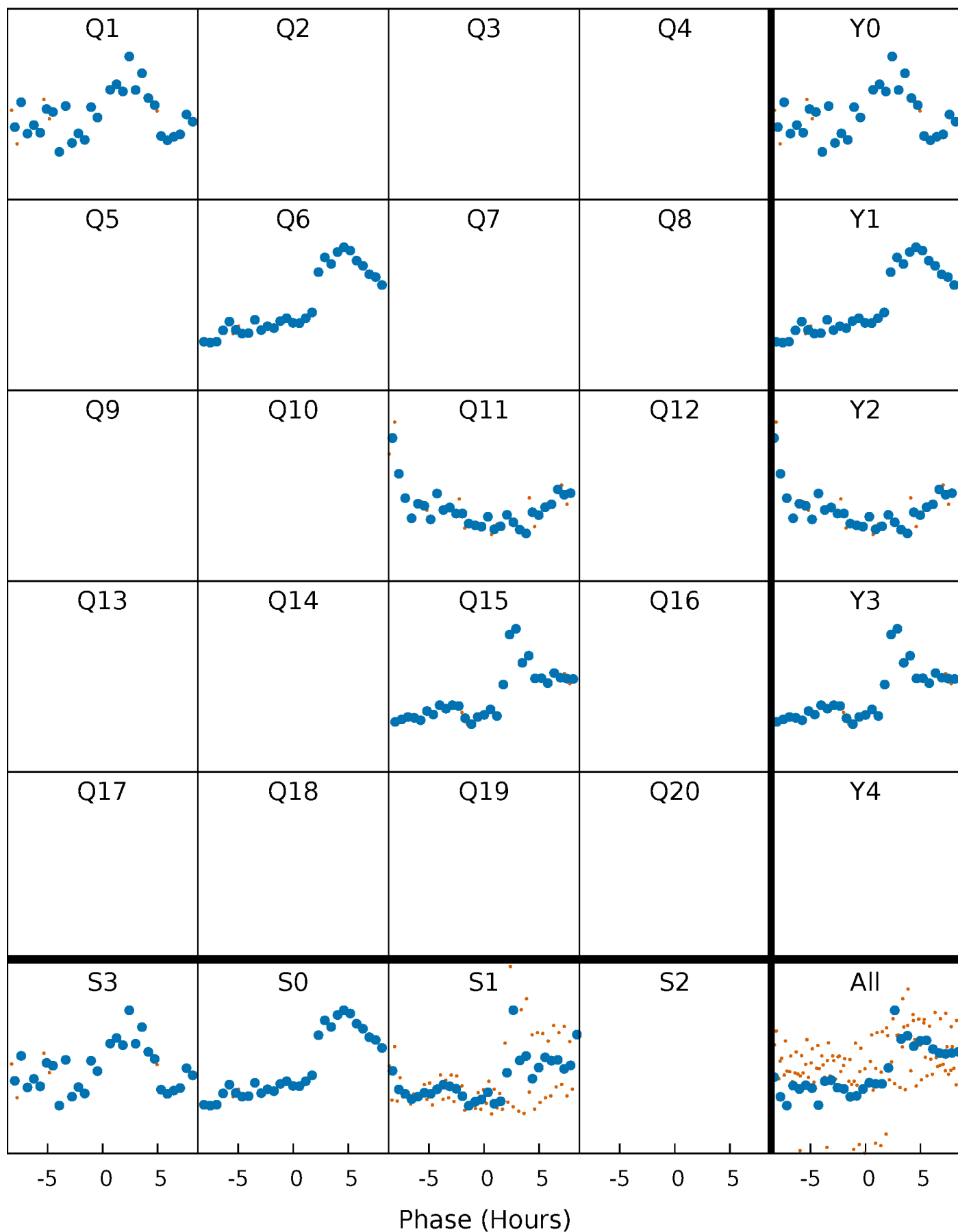


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



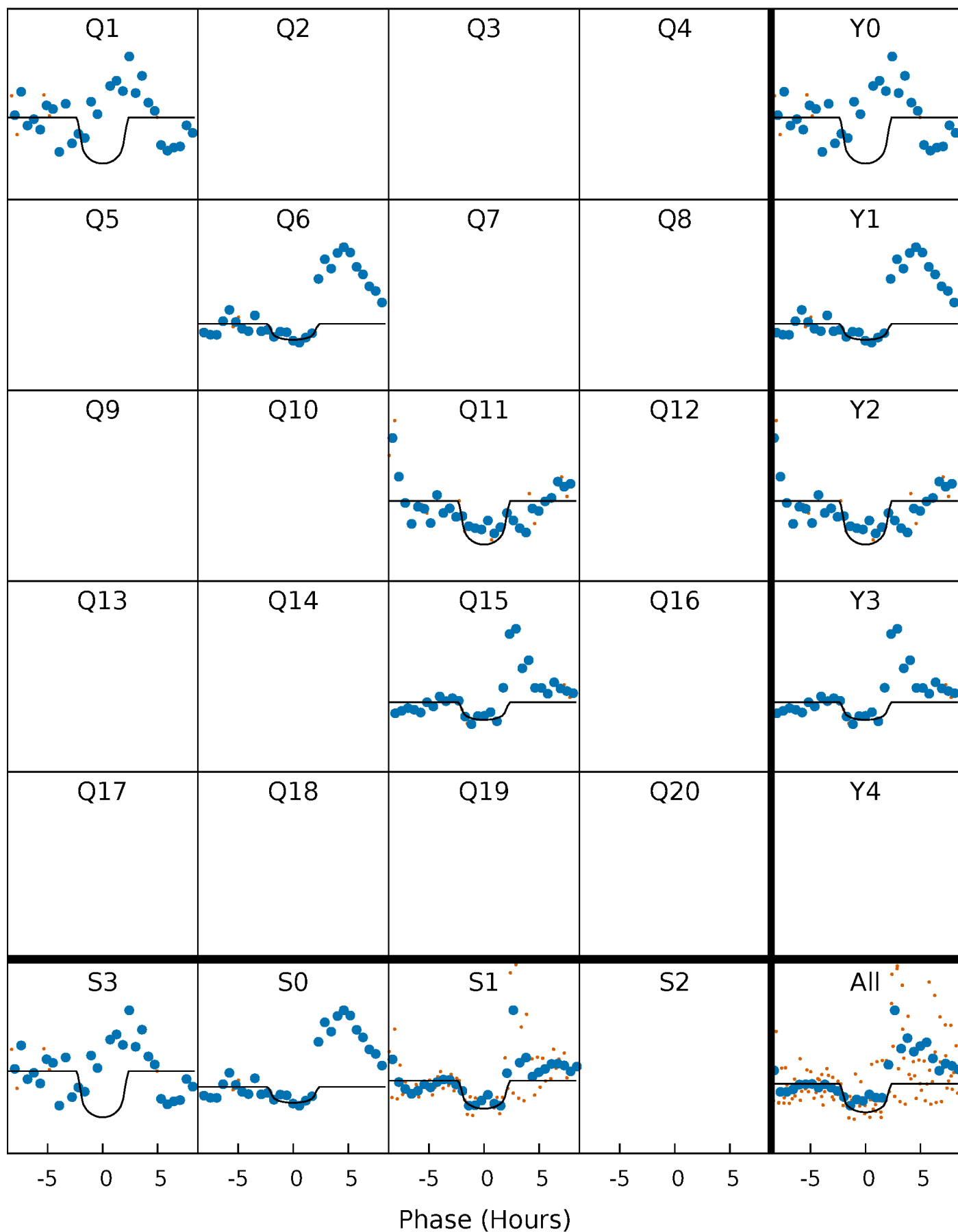
PDC Quarter-Phased Transit Curves

TCE 003122450-02 $P=432.770515$ Days $T_0=149.308602$ (BKJD)



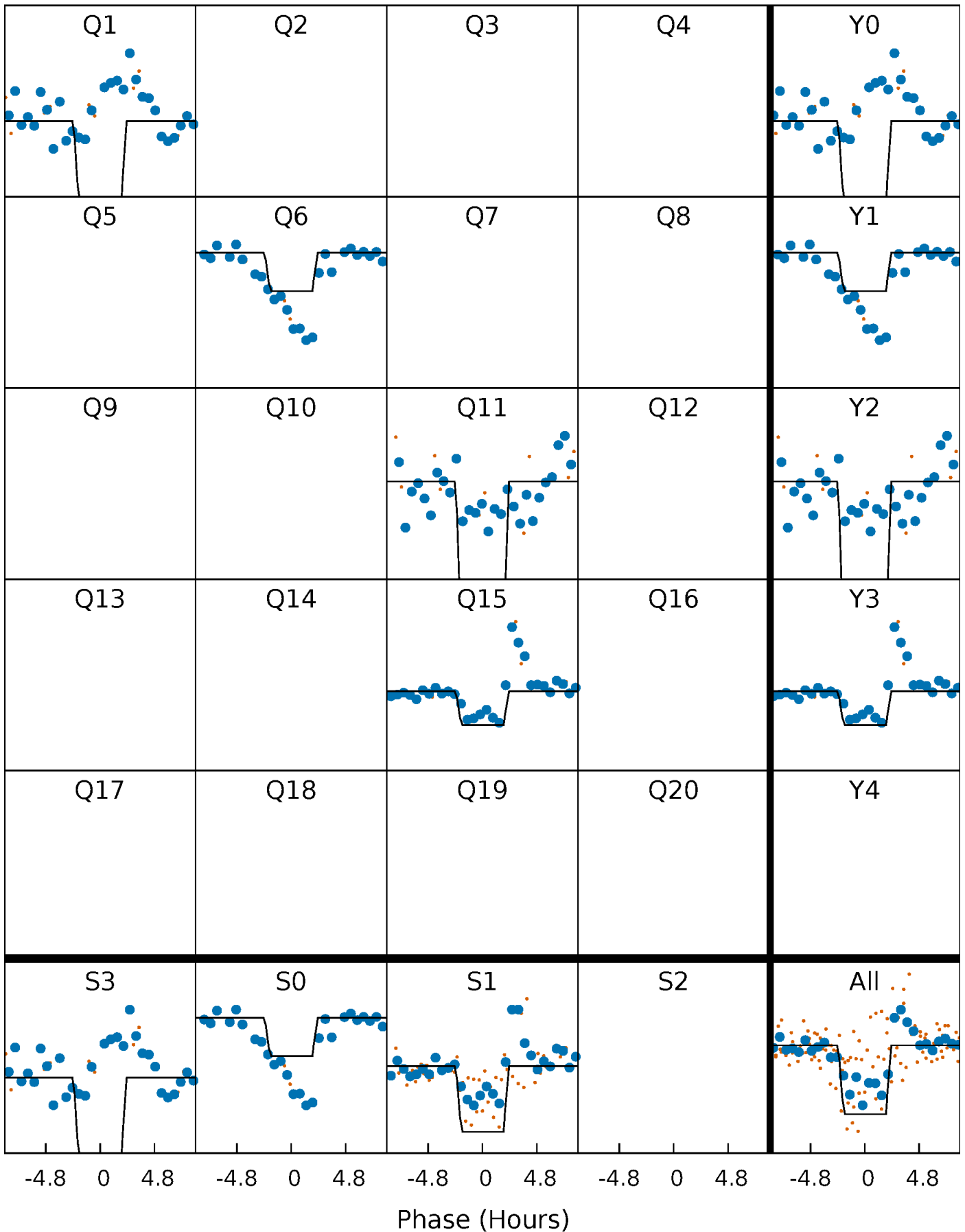
DV Quarter-Phased Transit Curves

TCE 003122450-02 P=432.770515 Days $T_0=149.308602$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

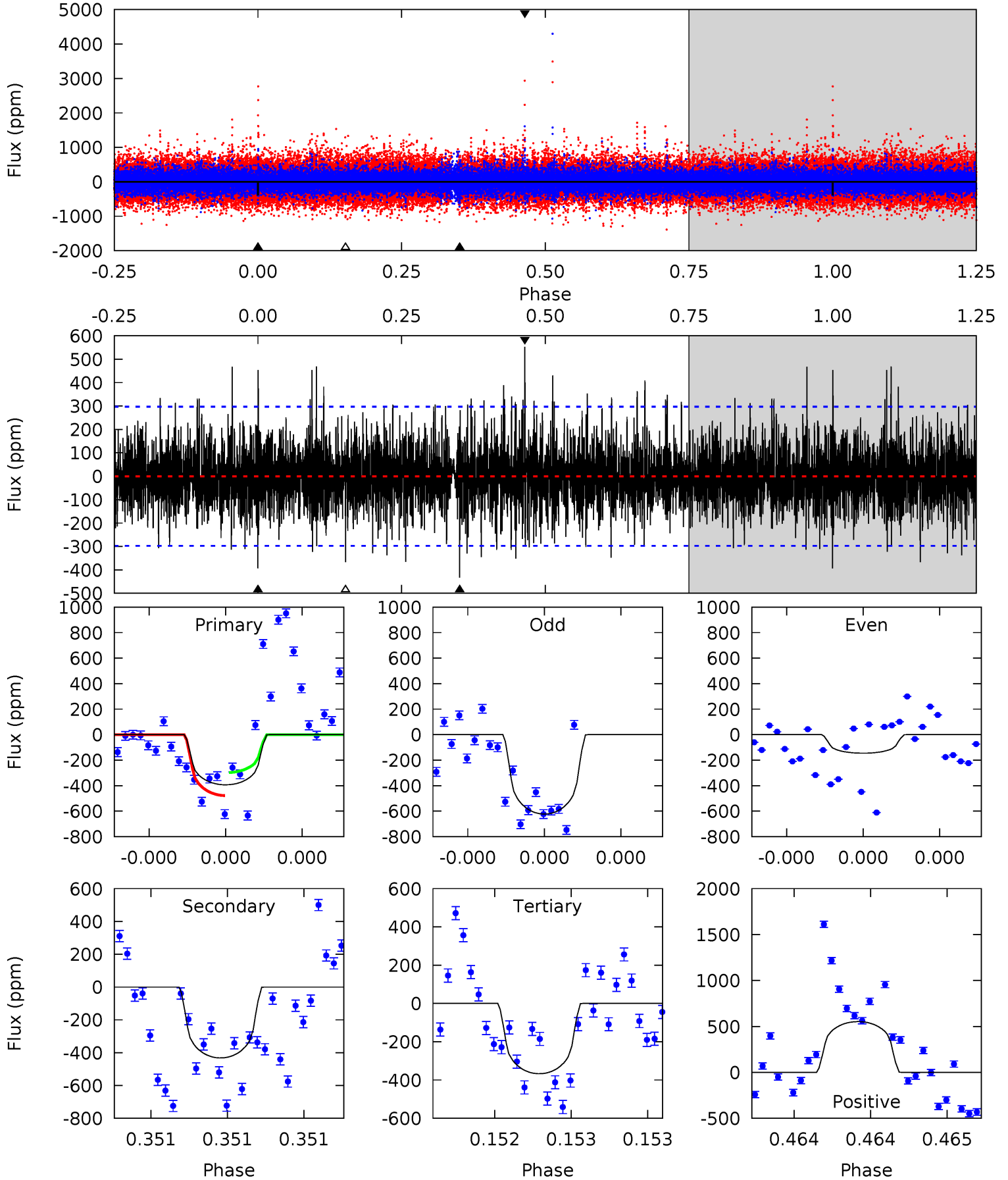
TCE 003122450-02 P=432.769178 Days $T_0=149.310659$ (BKJD)



DV Model-Shift Uniqueness Test

003122450-02, P = 432.770515 Days, E = 149.308602 Days

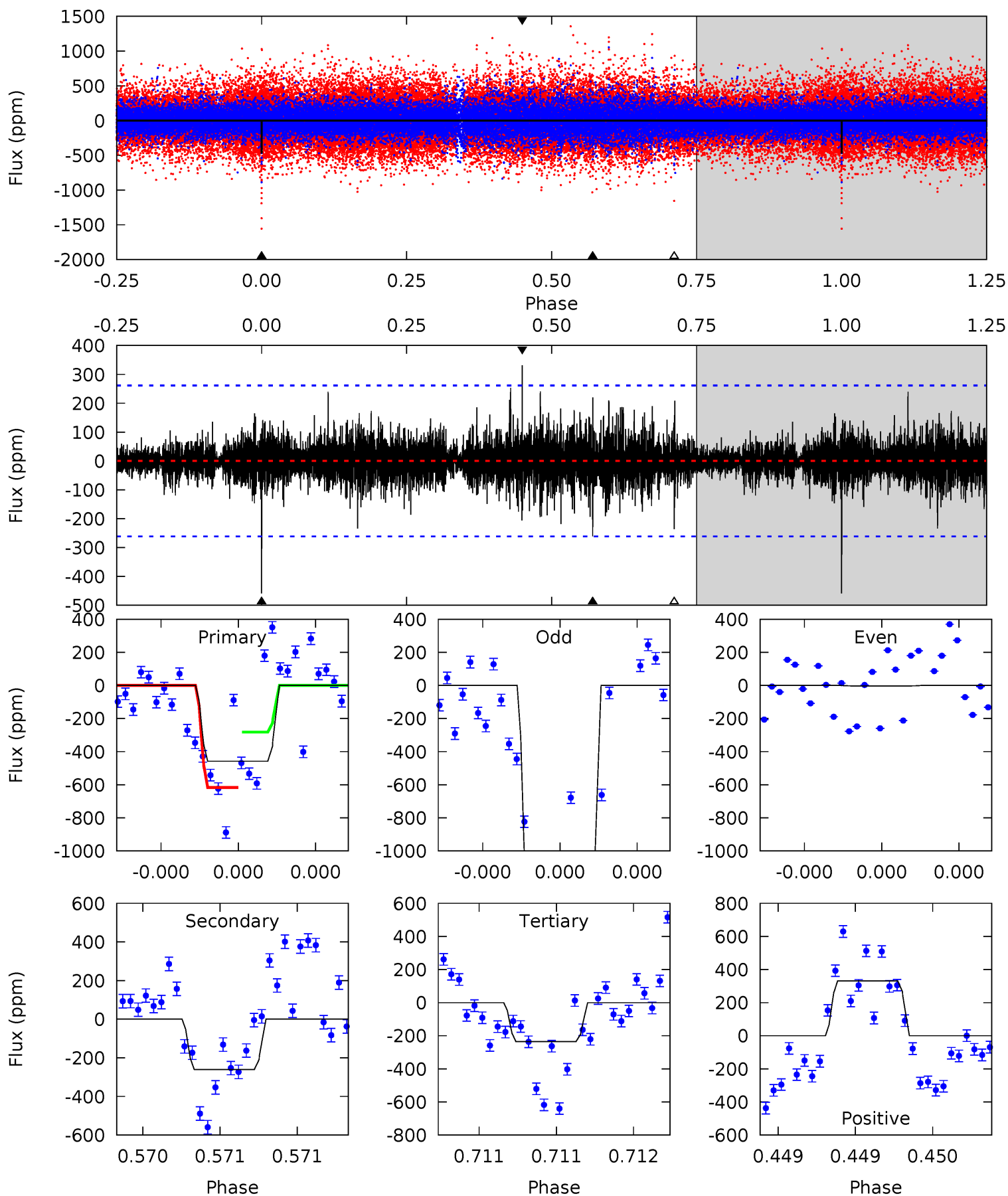
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.42	8.15	6.92	10.4	5.60	3.52	1.99	0.50	-3.00	1.23	-2.27	4.37	0.67	0.56	1.70



Alt Model-Shift Uniqueness Test

003122450-02, P = 432.769178 Days, E = 149.310659 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.83	5.58	5.06	7.10	5.60	3.52	1.06	4.77	2.72	0.53	-1.52	19.0	1.37	0.42	3.61



Stellar Parameters For KIC 003122450

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5146^{+161}_{-179}	$3.424^{+0.518}_{-0.222}$	$0.020^{+0.250}_{-0.300}$	$4.134^{+1.202}_{-2.232}$	$1.654^{+0.226}_{-0.678}$	$0.033^{+0.185}_{-0.019}$
	+3%/-3%	+15%/-6%	+1250%/-1500%	+29%/-54%	+14%/-41%	+562%/-56%
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 003122450-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-432 ± 53	$17.35^{+18.61}_{-12.24}$	552^{+58}_{-82}	3831^{+2386}_{-705}	1278^{+13564}_{-981}
Alt.	-260 ± 47	$20.57^{+19.73}_{-13.25}$	553^{+55}_{-80}	3373^{+1428}_{-558}	545^{+3572}_{-400}

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 $A_{obs} \gg 1.0$

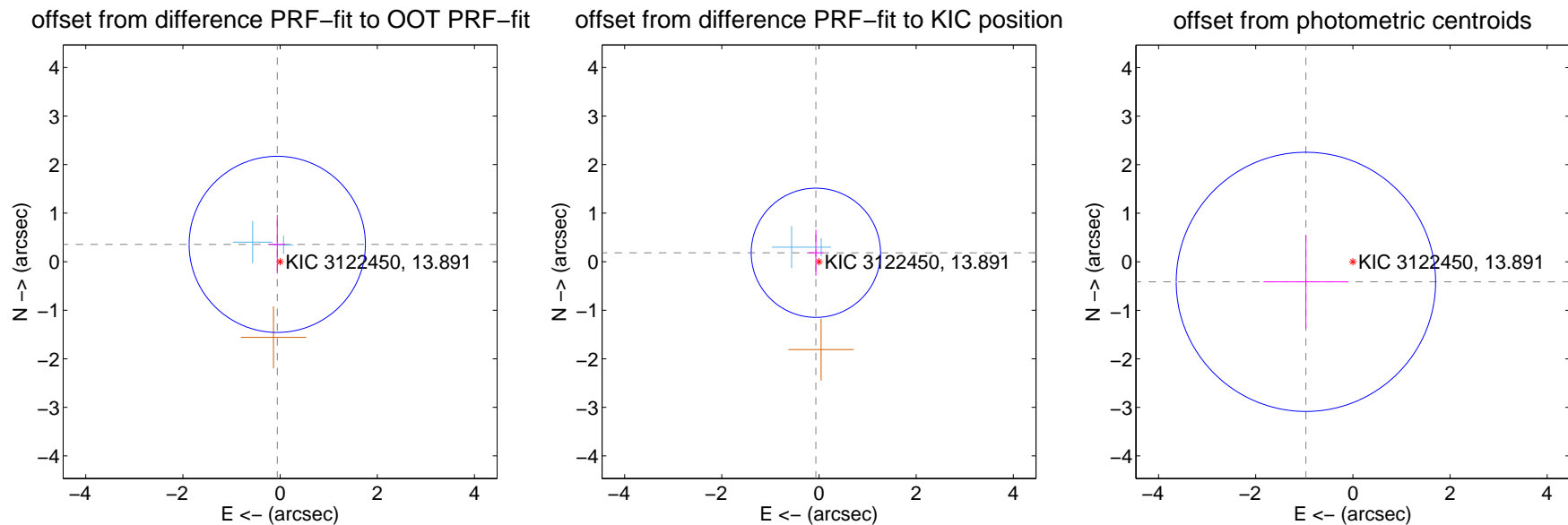
DV Centroid Data

Supplemental centroid analysis for 003122450-02. Kepler magnitude: 13.89. Transit SNR 6.34

There are 2 quarters with good PRF difference image offsets

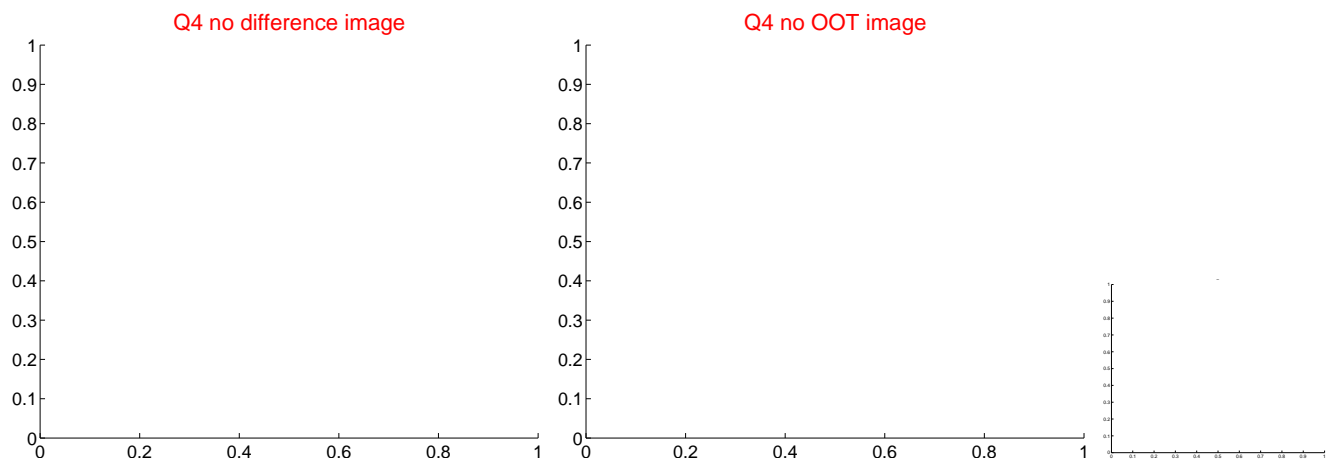
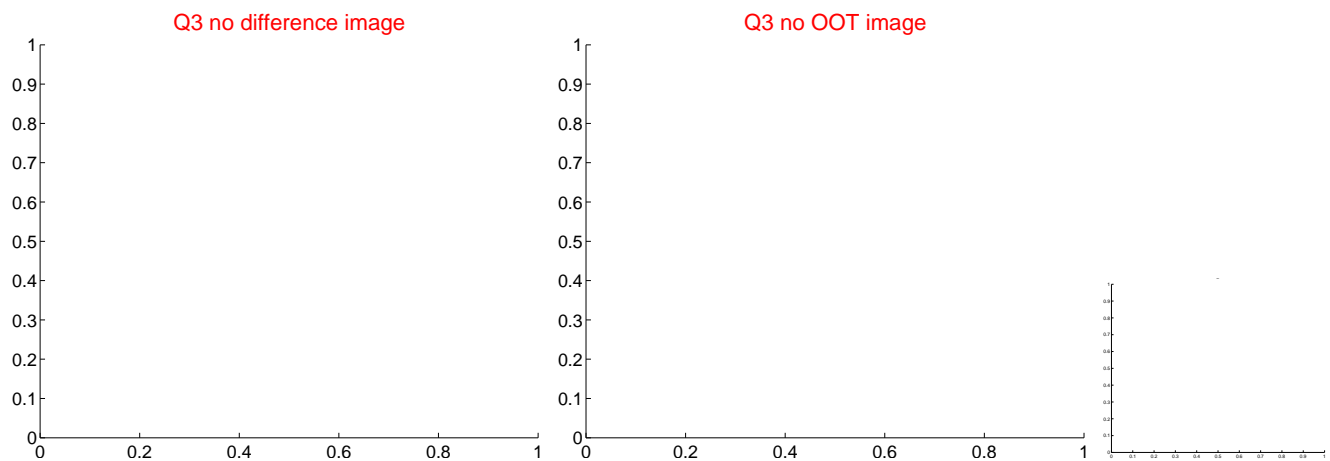
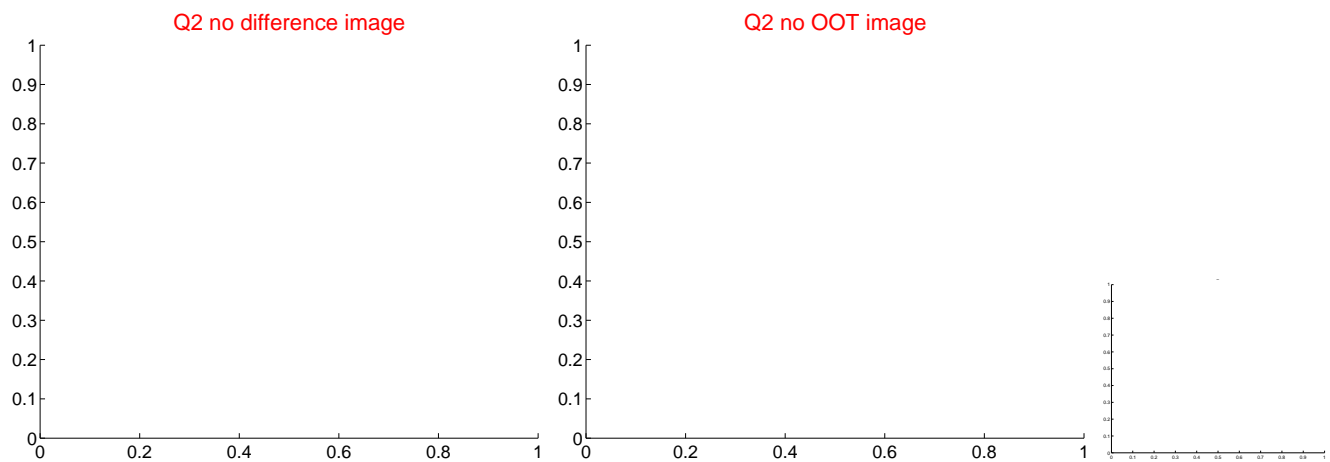
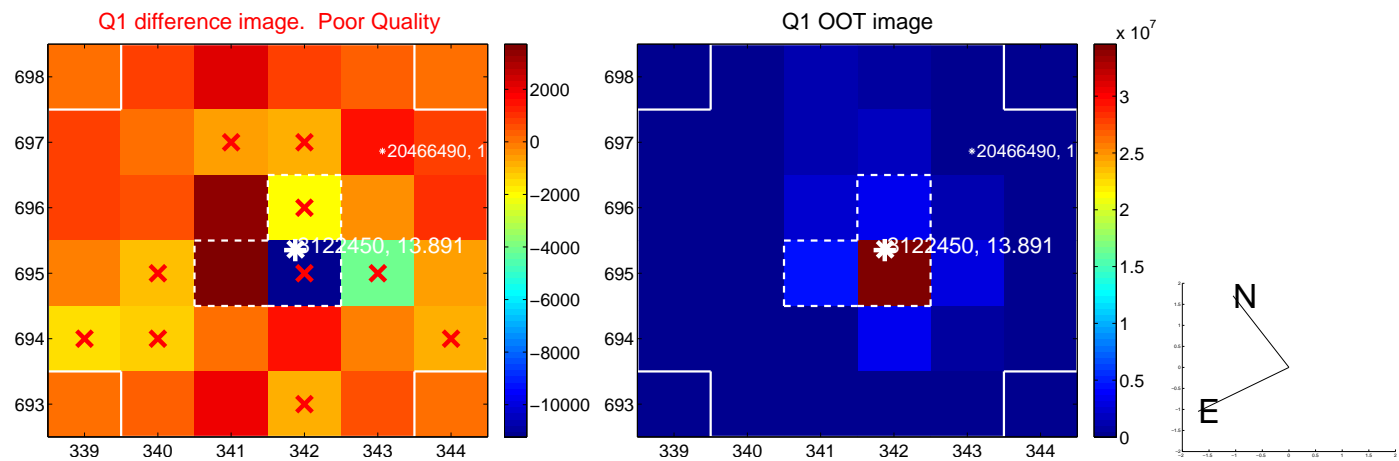
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.362 ± 0.605	0.60	0.059 ± 0.166	0.357 ± 0.604
PRF-fit source offset from KIC position	0.194 ± 0.444	0.44	0.064 ± 0.151	0.184 ± 0.473
photometric centroid source offset	1.05 ± 0.89	1.18	0.97 ± 0.88	-0.41 ± 0.96

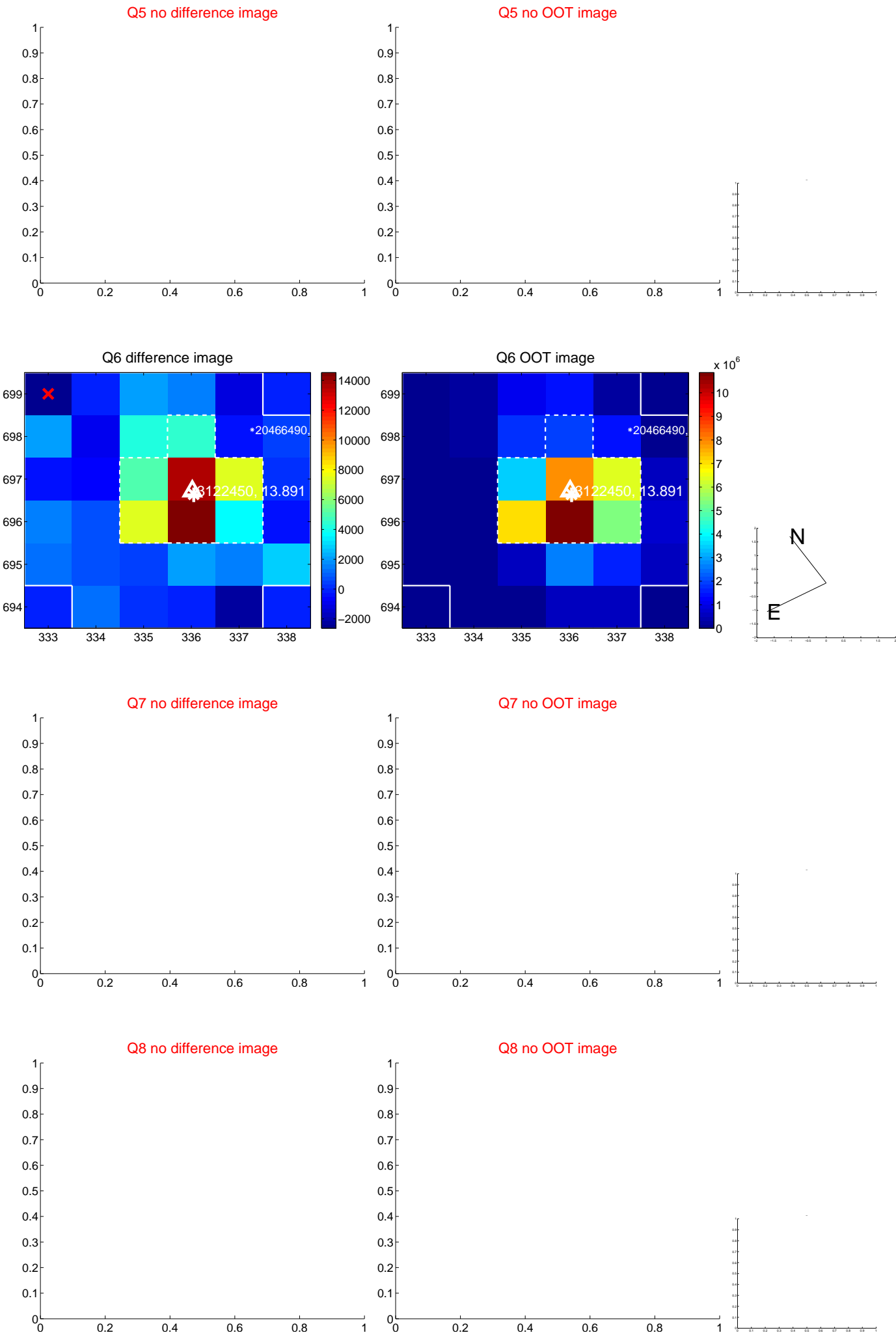


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

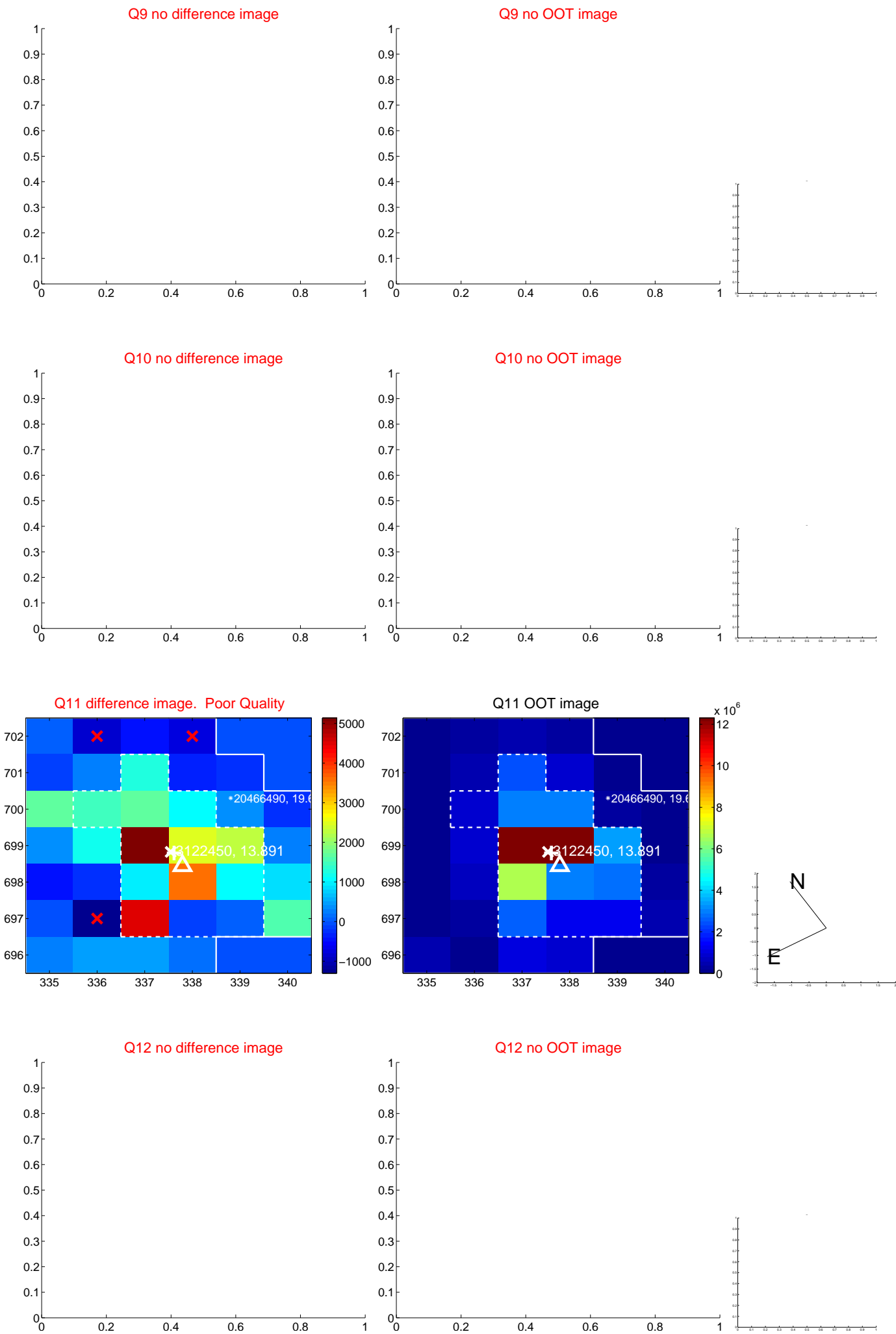
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



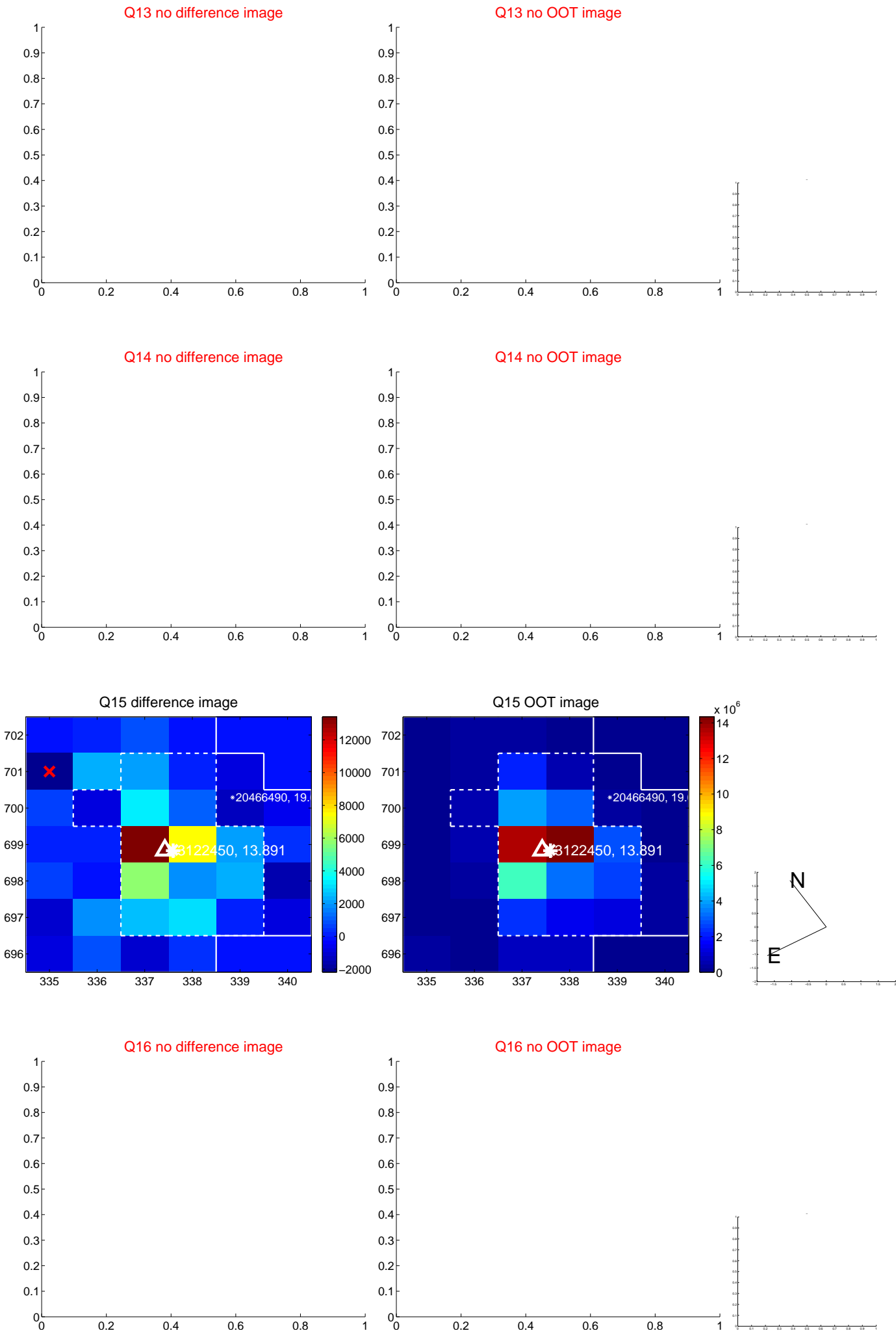
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



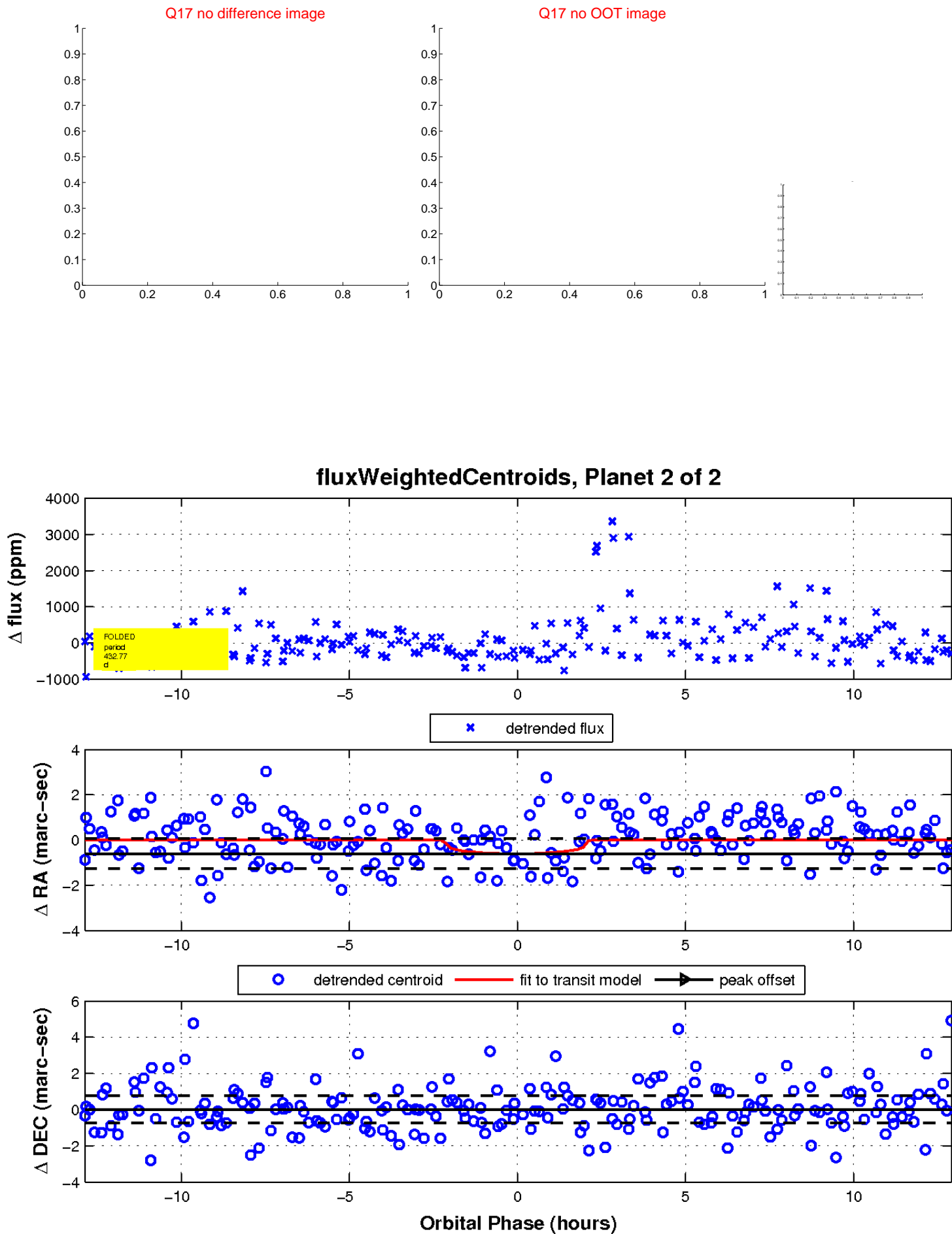
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



UKIRT Image

Declination

