

KIC 005439000

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})
005439000-01	OBS	No	372.616705	240.518457	285.1	15.051	8.3	9.2	1.00	6283	1.84	1.33
005439000-02	OBS	No	360.366246	241.801682	356.7	4.612	8.7	9.2	1.00	6283	2.10	1.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005439000-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—CENT_FEW_DIFFS
005439000-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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 005439000-01

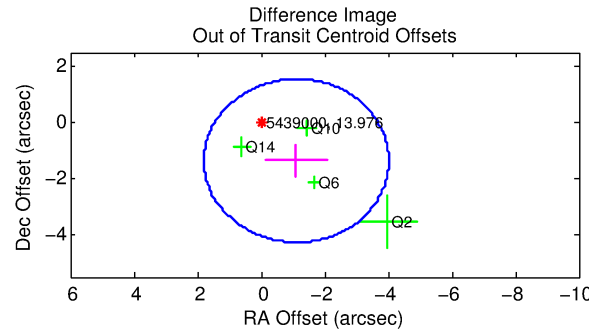
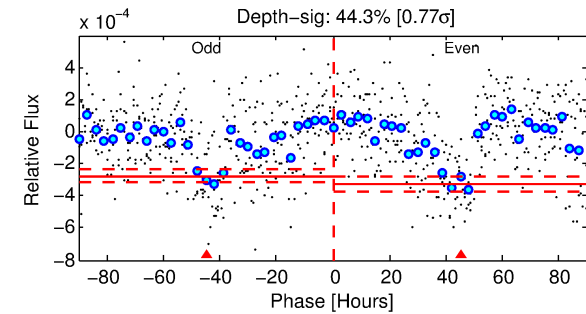
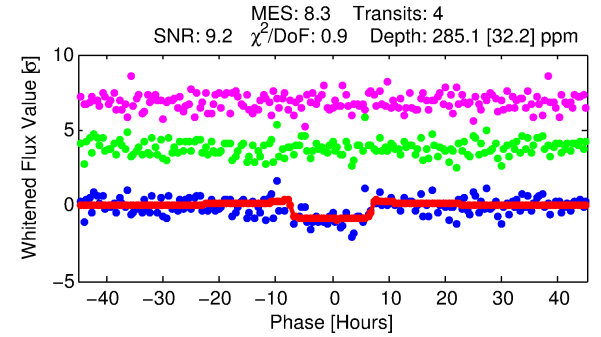
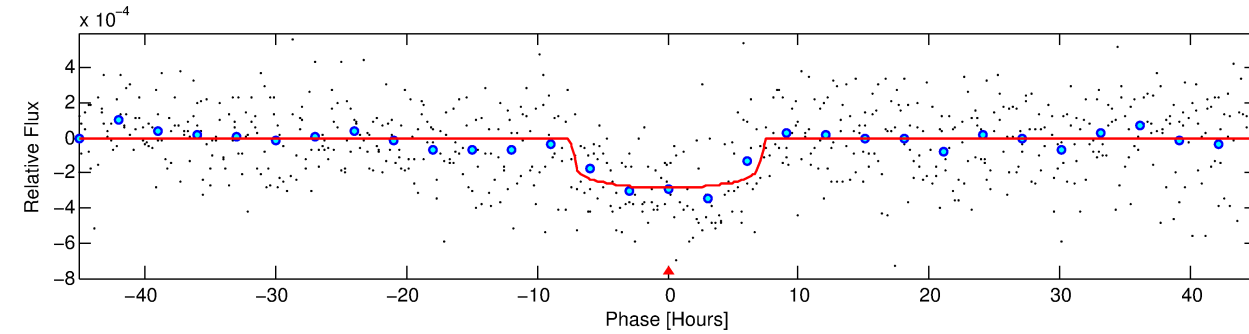
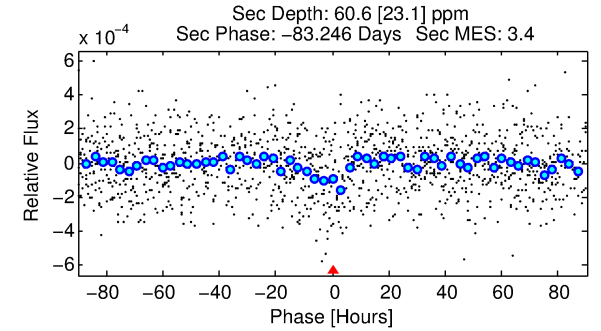
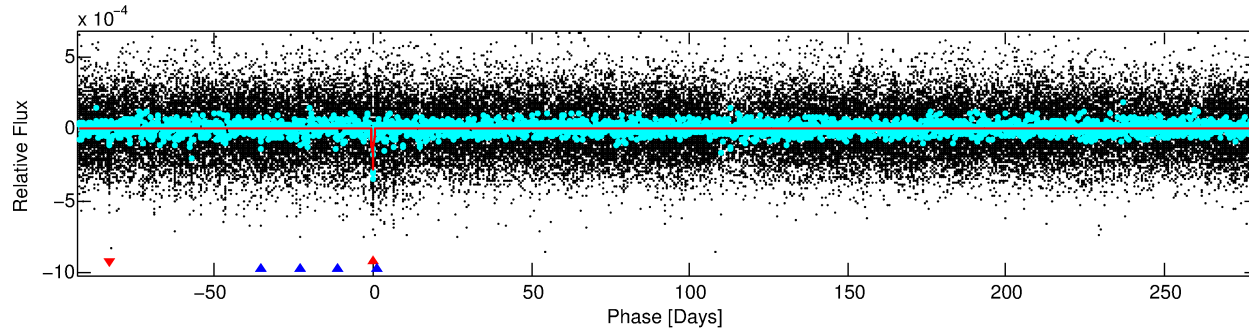
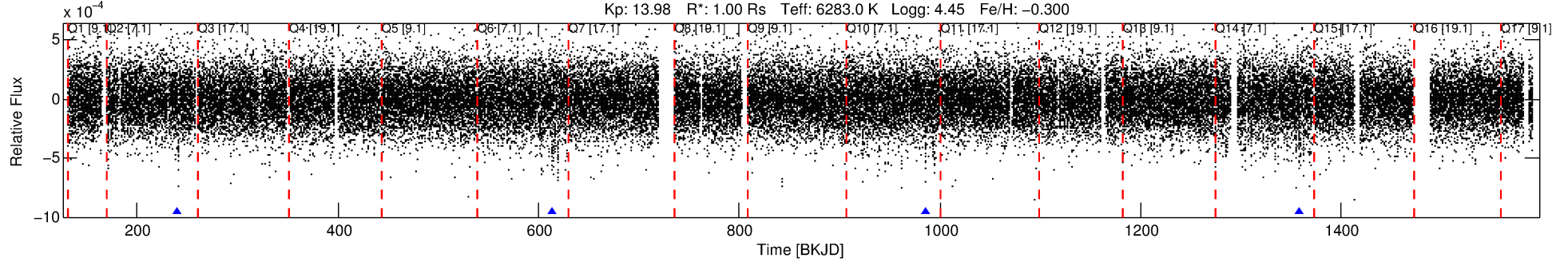
No Significant Match Found

DV One-Page Summary

KIC: 5439000 Candidate: 1 of 2 Period: 372.617 d

KOI: K05165 Corr: No Ephemeris Match

Kp: 13.98 R*: 1.00 Rs Teff: 6283.0 K Logg: 4.45 Fe/H: -0.300



DV Fit Results:

Period = 372.61670 [0.00798] d
Epoch = 240.5185 [0.0146] BKJD
Rp/R* = 0.0169 [0.0031]
a/R* = 126.45 [117.01]
b = 0.77 [0.50]
Seff = 1.33 [0.55]
Teq = 274 [28] K
Rp = 1.84 [0.70] Re
a = 1.0247 [0.2818] AU
Ag = 10340.69 [6825.63] [1.51σ]
Teffp = 4267 [584] K [6.83σ]

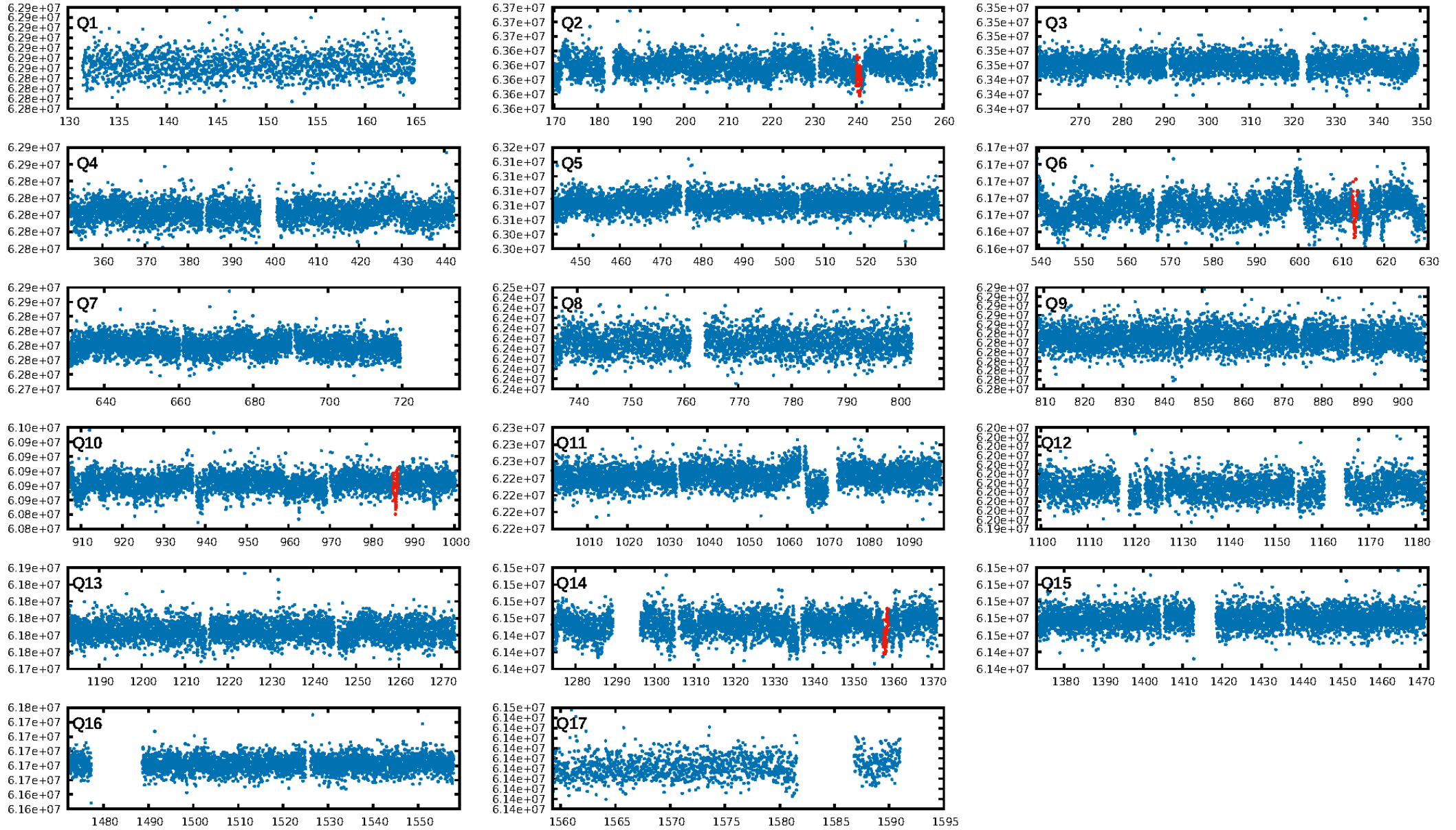
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.68σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 9.1%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 2.05e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -47.74
Centroid-sig: 93.1%
Centroid-so: 0.239 arcsec [0.23σ]
OotOffset-rm: 1.755 arcsec [1.81σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-rm: 1.701 arcsec [2.44σ]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

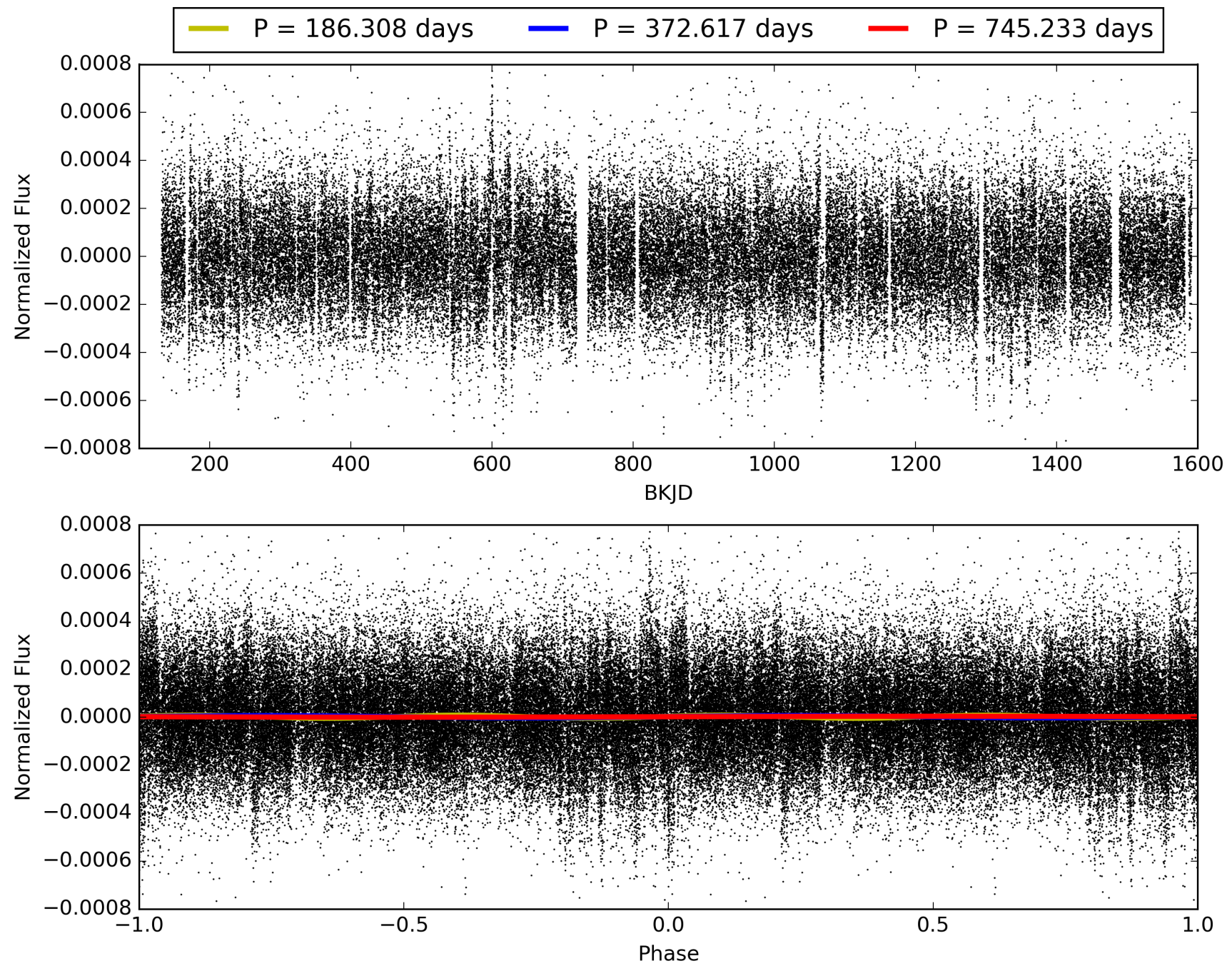
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:58:40 Z

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

TCE 005439000-01, PDC Light Curves

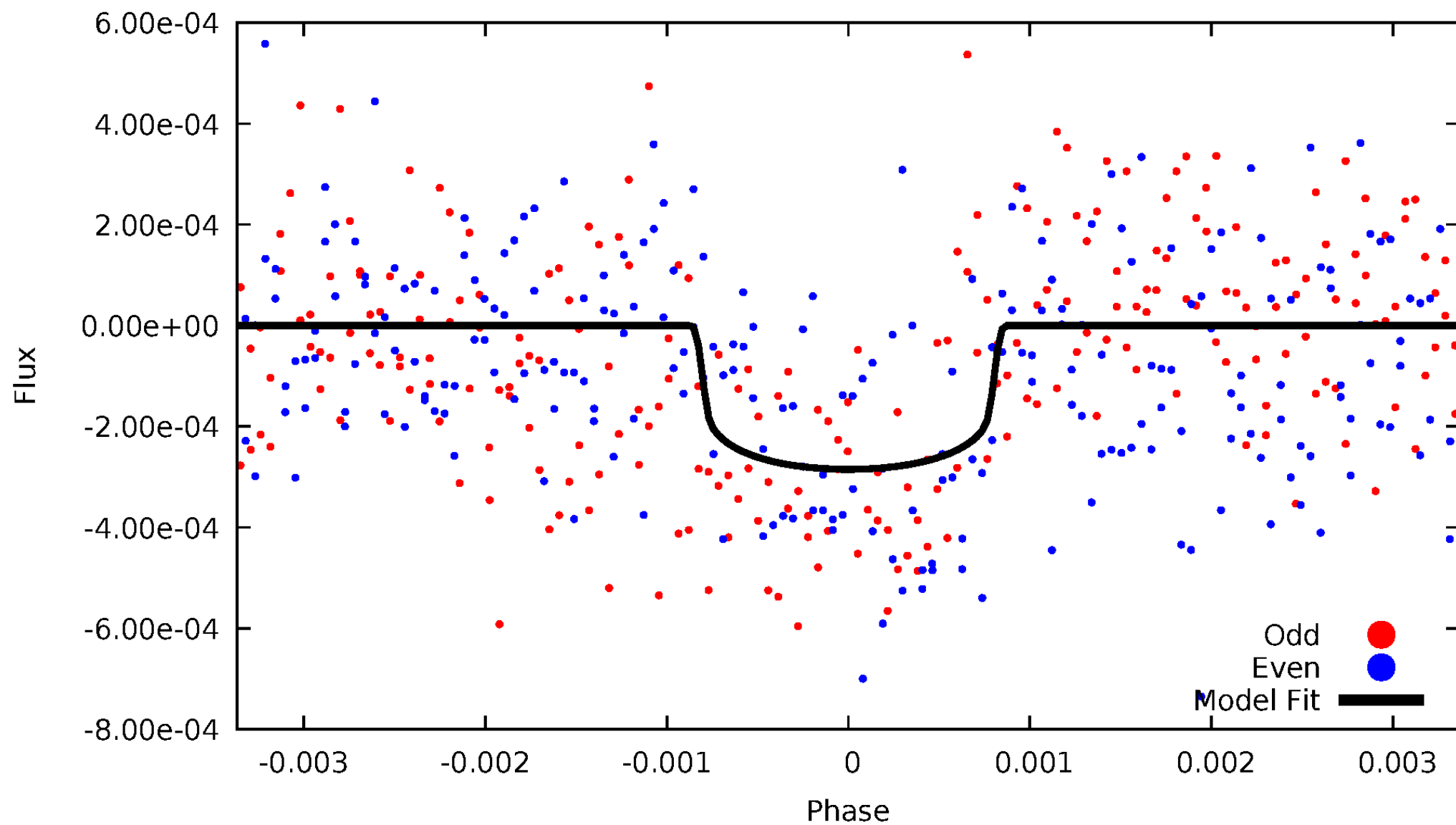


TCE 005439000-01



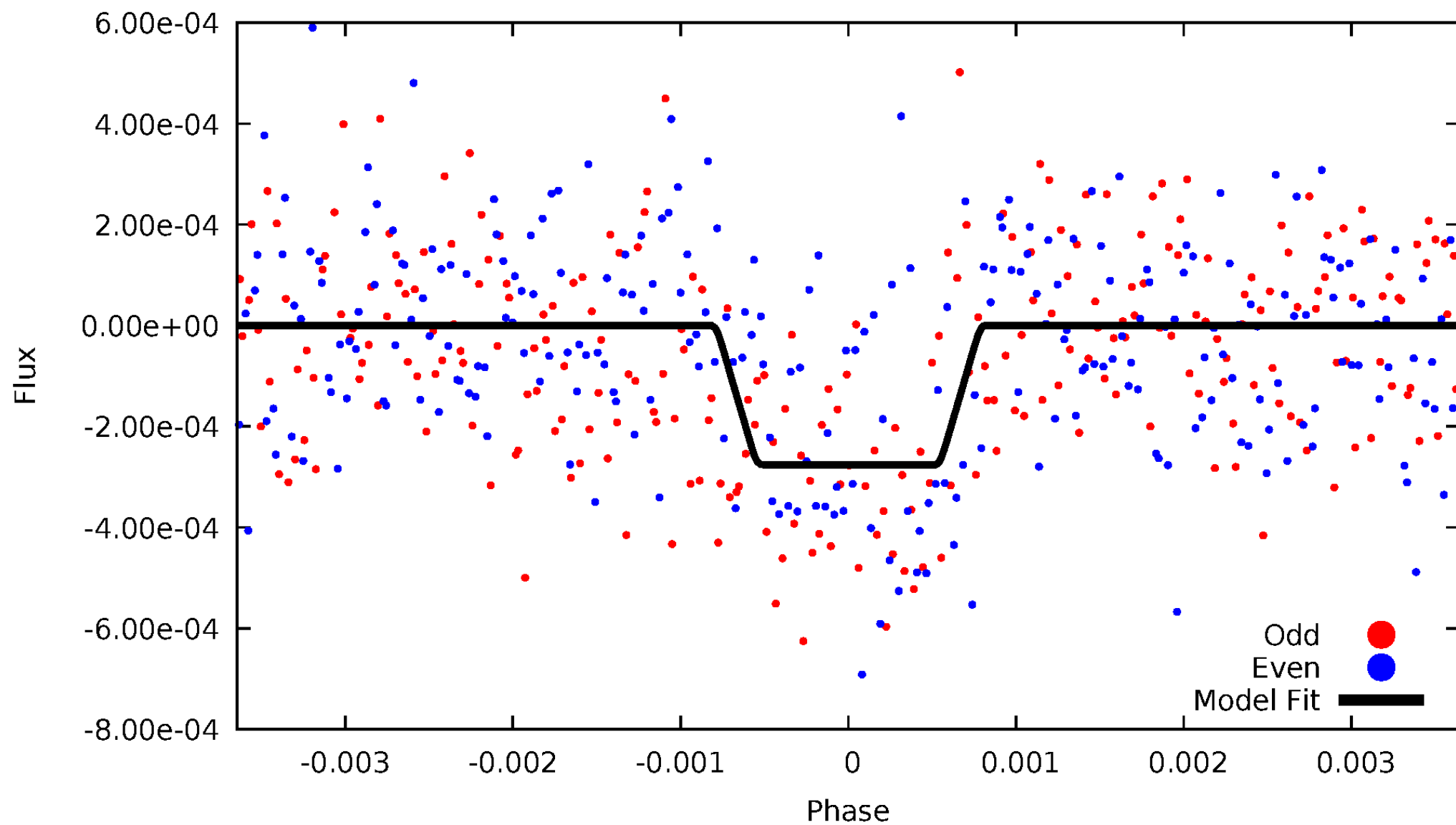
DV Odd/Even

TCE 005439000-01

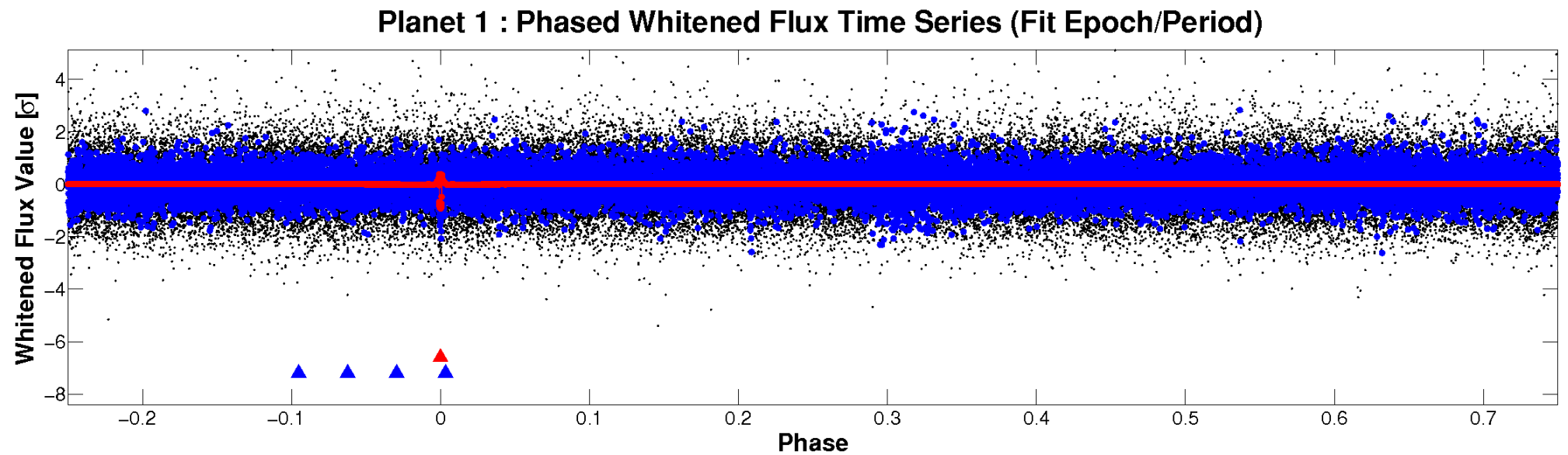
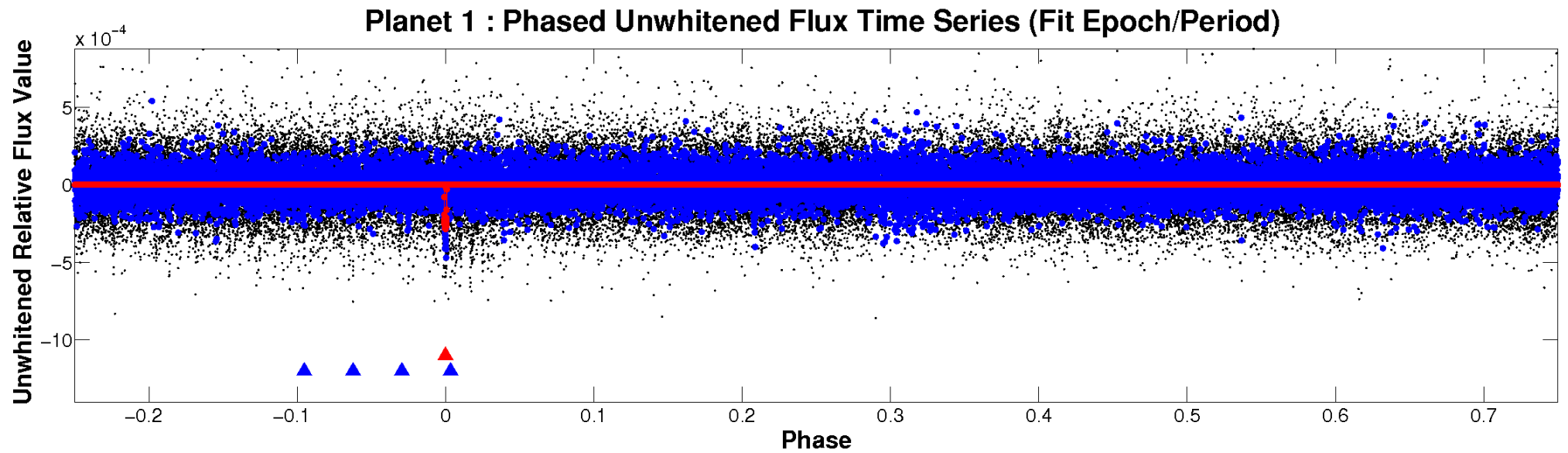


ALT Odd/Even

TCE 005439000-01

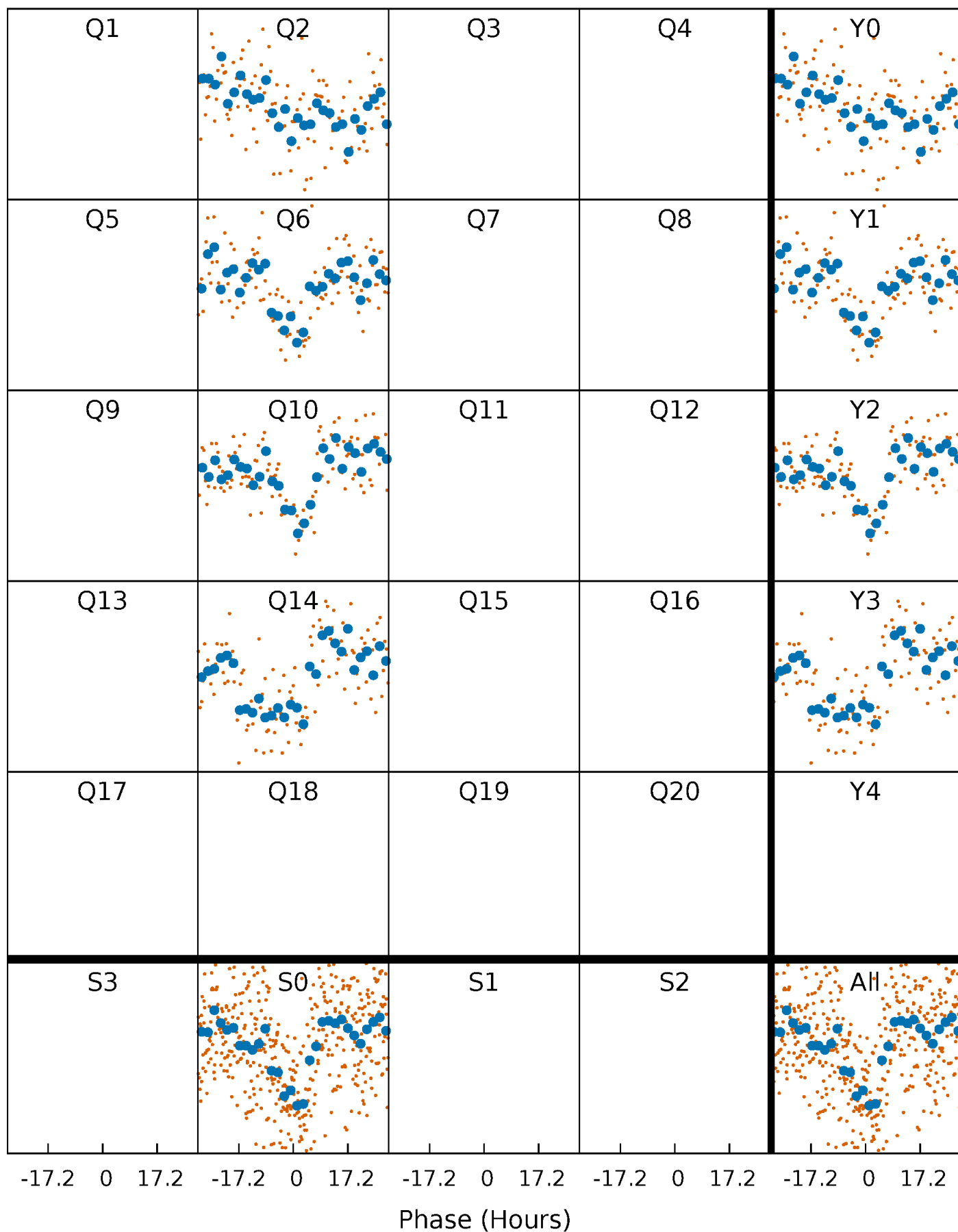


Non-Whitened Vs. Whitened Light Curve



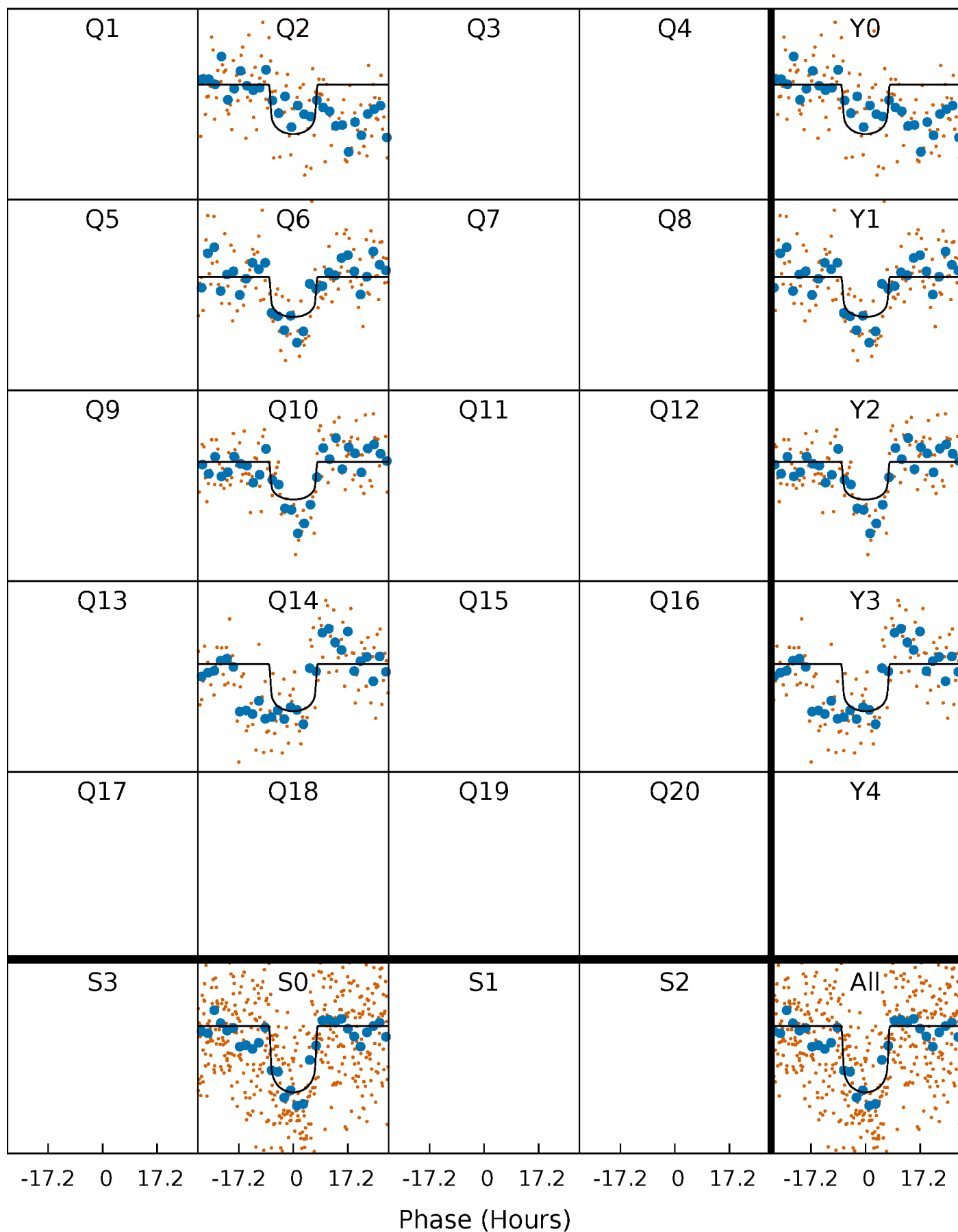
PDC Quarter-Phased Transit Curves

TCE 005439000-01 P=372.616705 Days $T_0=240.518457$ (BKJD)



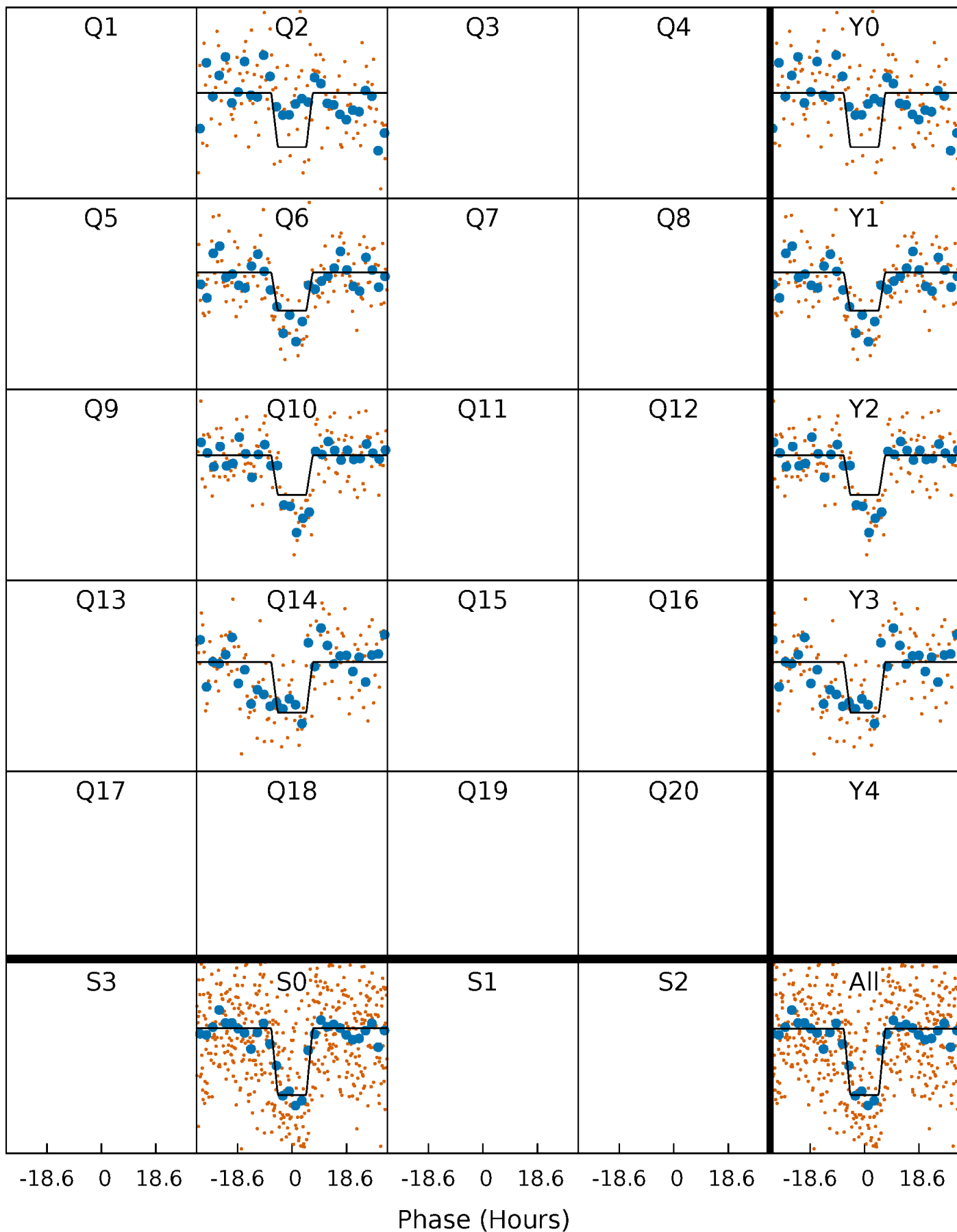
DV Quarter-Phased Transit Curves

TCE 005439000-01 P=372.616705 Days $T_0=240.518457$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

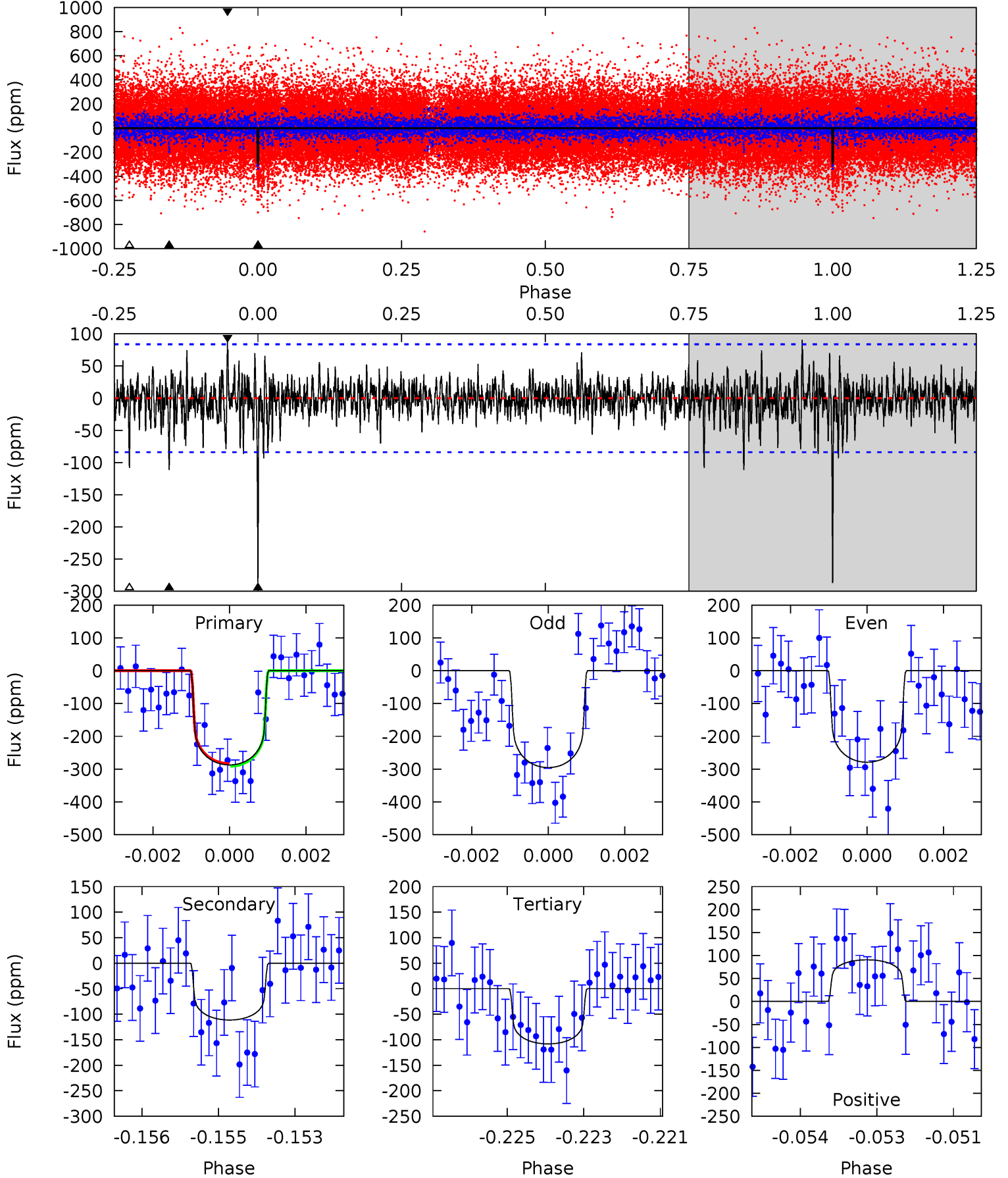
TCE 005439000-01 P=372.619589 Days $T_0=240.512214$ (BKJD)



DV Model-Shift Uniqueness Test

005439000-01, $P = 372.616705$ Days, $E = 240.518457$ Days

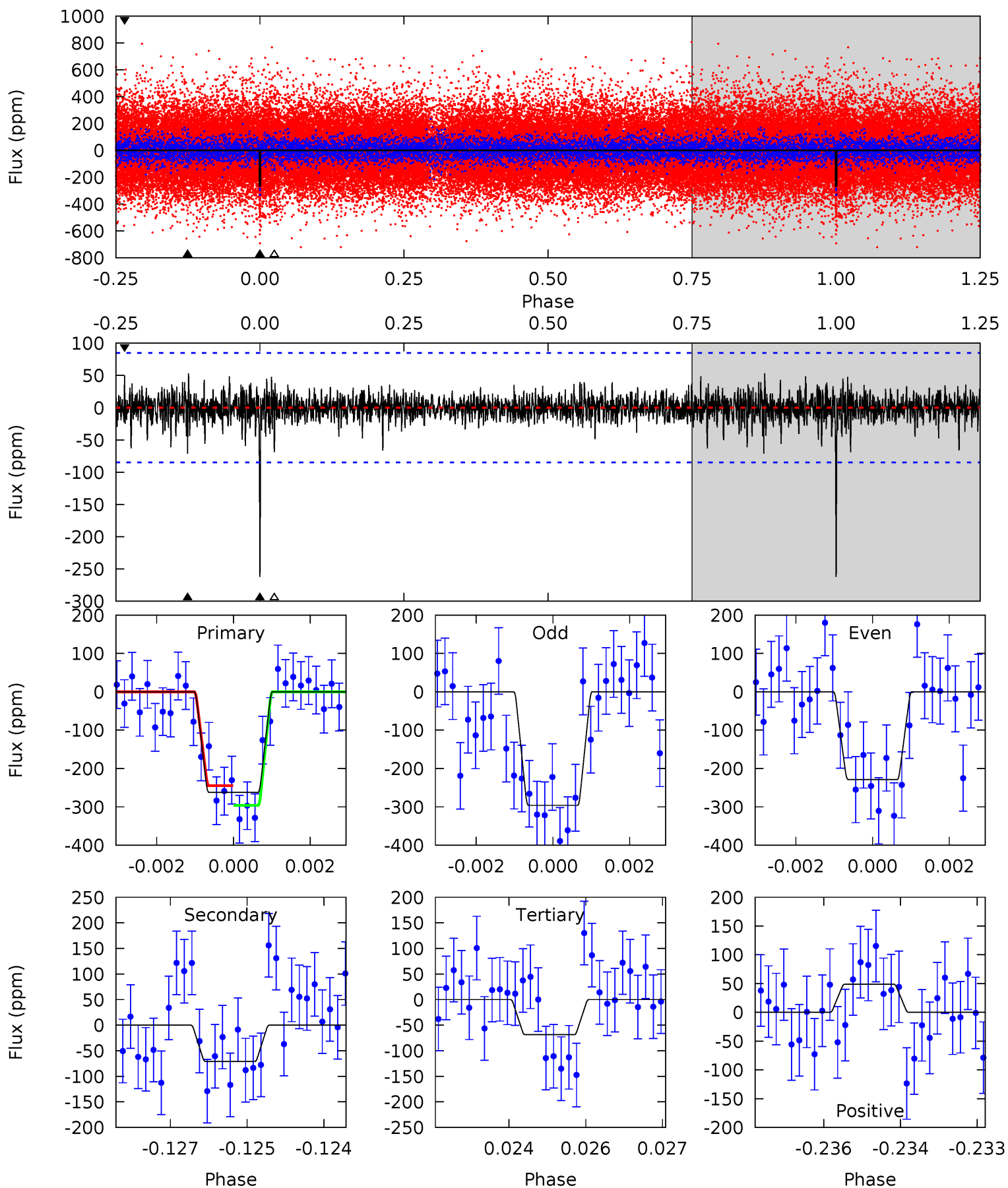
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	7.12	6.92	5.80	5.36	3.14	1.35	11.4	12.6	0.21	1.33	0.52	0.97	0.24	0.26



Alt Model-Shift Uniqueness Test

005439000-01, P = 372.619589 Days, E = 240.512214 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	4.49	4.35	3.09	5.37	3.16	0.91	12.3	13.5	0.14	1.41	2.15	0.88	0.17	1.60



Stellar Parameters For KIC 005439000

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6283^{+169}_{-207}	$4.453^{+0.056}_{-0.210}$	$-0.300^{+0.250}_{-0.350}$	$0.999^{+0.334}_{-0.111}$	$1.025^{+0.146}_{-0.120}$	$1.450^{+0.424}_{-0.782}$
	+3%/-3%	+1%/-5%	+83%/-117%	+33%/-11%	+14%/-12%	+29%/-54%
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 005439000-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-111 ± 16	$1.93^{+0.48}_{-0.39}$	390^{+28}_{-20}	5028^{+467}_{-406}	16990^{+9593}_{-6254}
Alt.	-71 ± 16	$1.90^{+0.45}_{-0.39}$	392^{+28}_{-21}	4639^{+469}_{-396}	11055^{+7355}_{-4294}

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

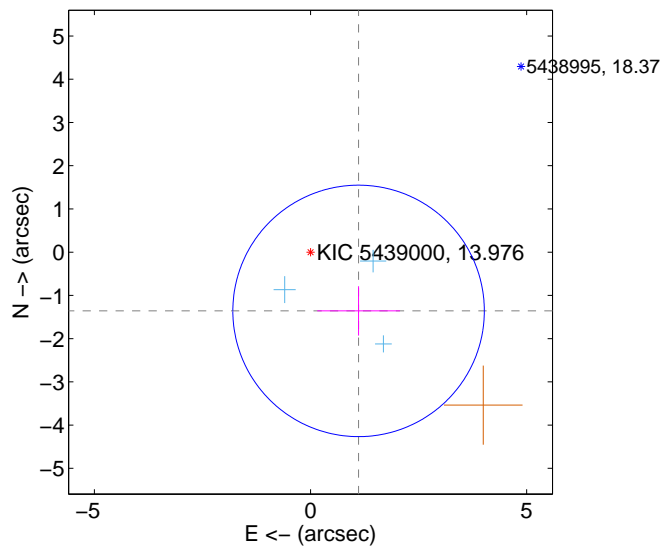
Supplemental centroid analysis for 005439000-01. Kepler magnitude: 13.98. Transit SNR 9.23

There are 3 quarters with good PRF difference image offsets

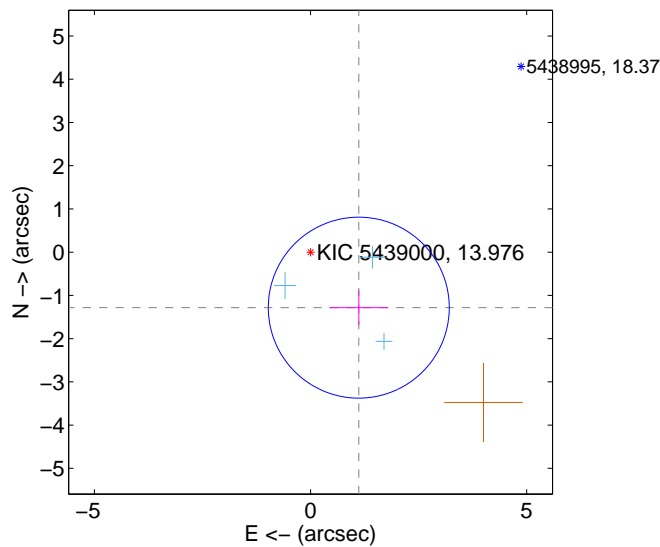
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.755 ± 0.969	1.81	-1.112 ± 0.957	-1.358 ± 0.570
PRF-fit source offset from KIC position	1.701 ± 0.698	2.44	-1.116 ± 0.681	-1.284 ± 0.399
photometric centroid source offset	0.24 ± 1.03	0.23	0.22 ± 1.04	0.09 ± 0.94

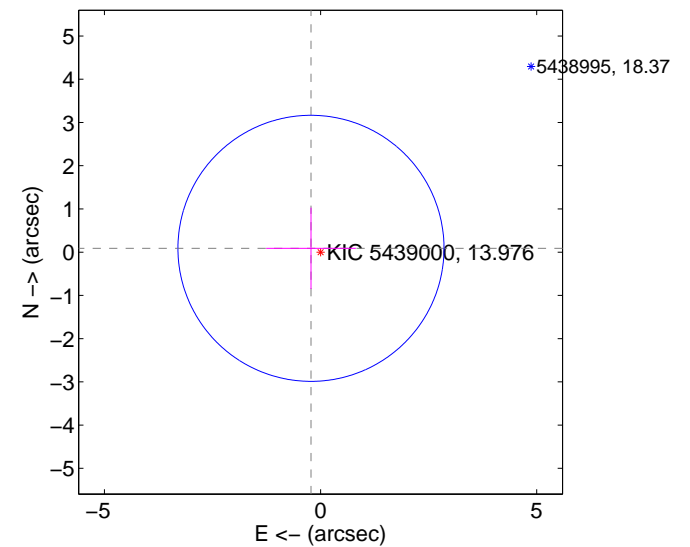
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

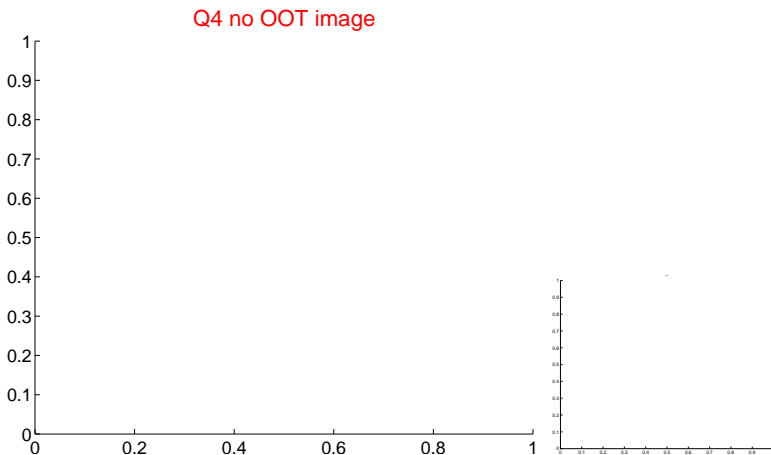
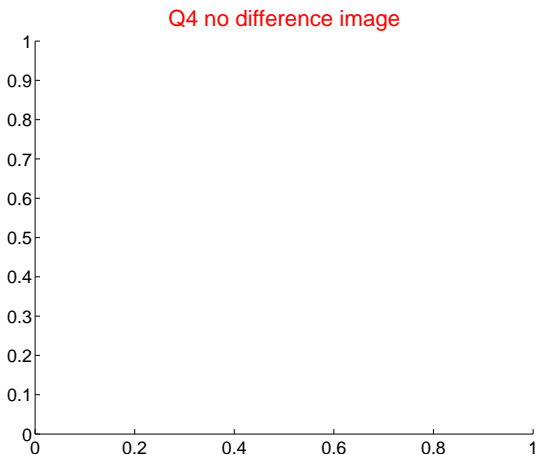
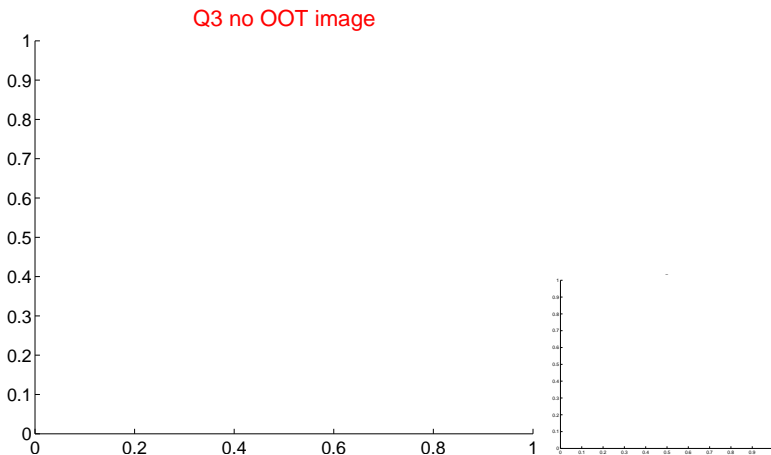
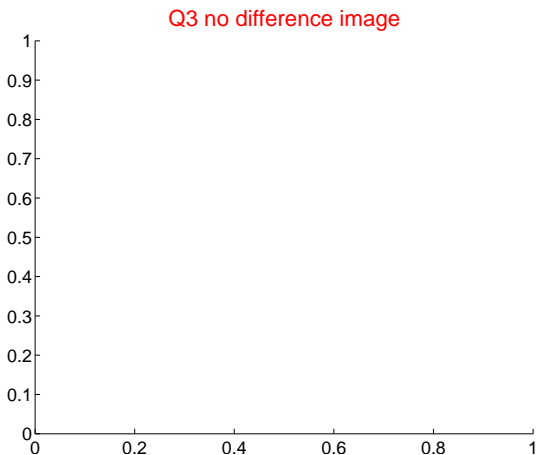
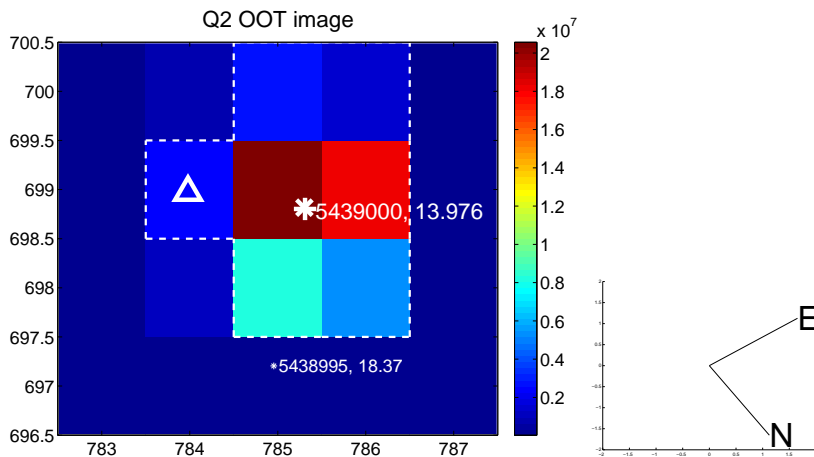
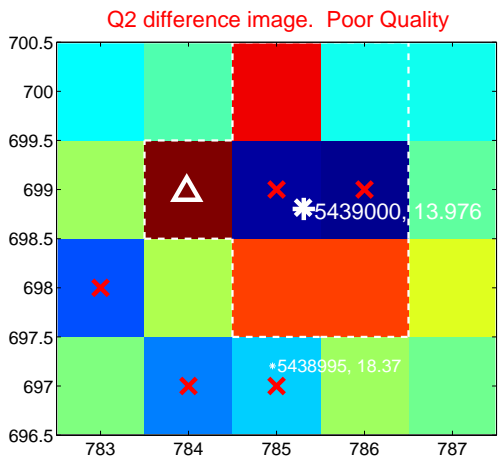
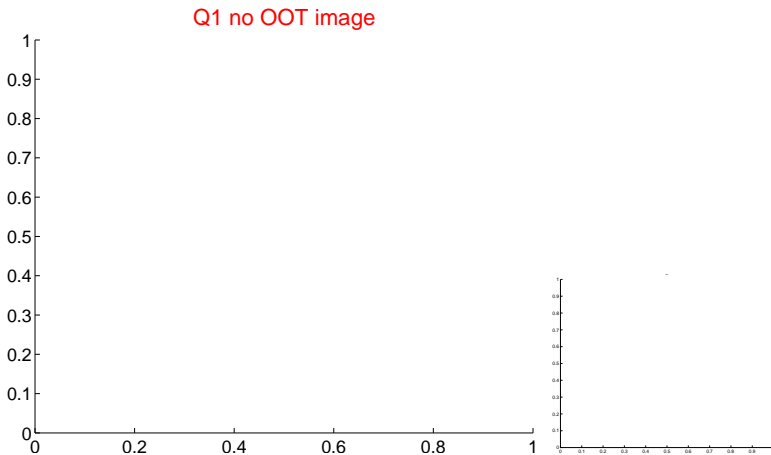
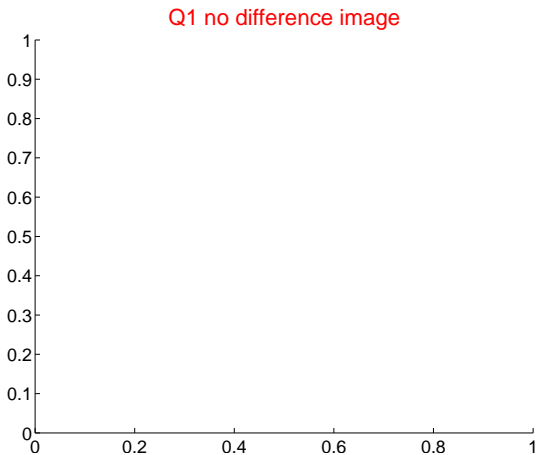


offset from photometric centroids

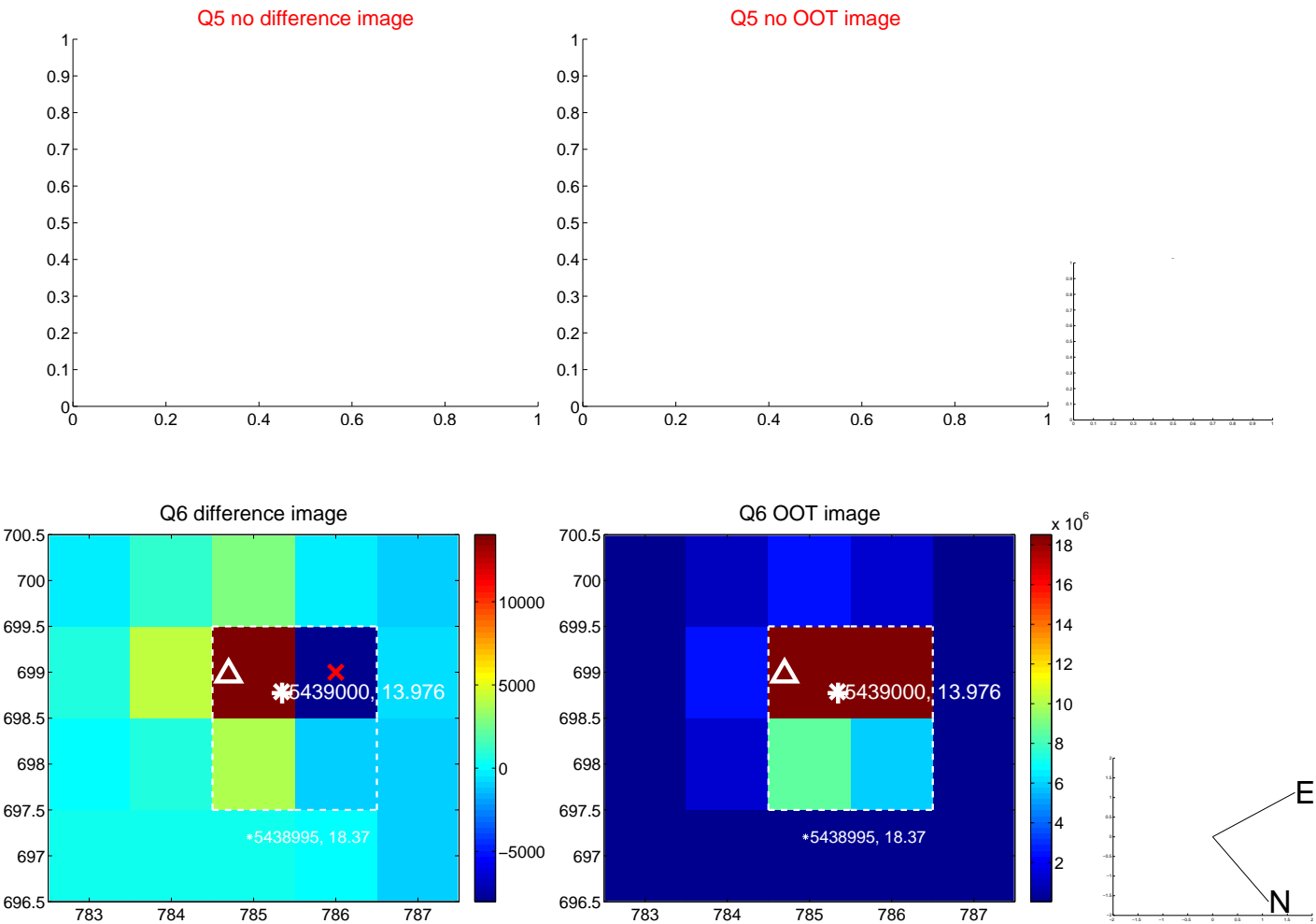


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000 are from the UKIRT catalog.

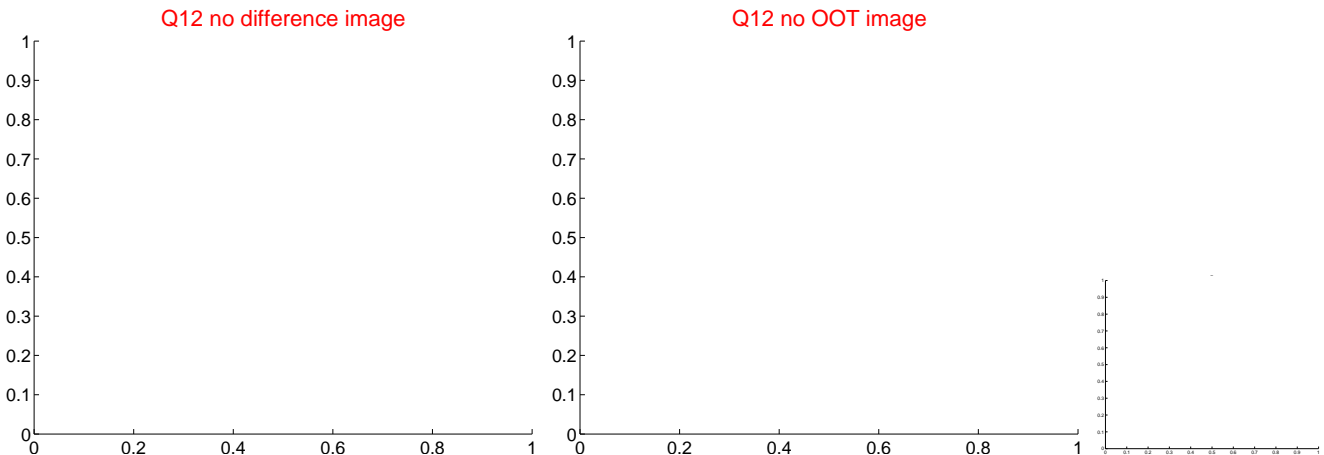
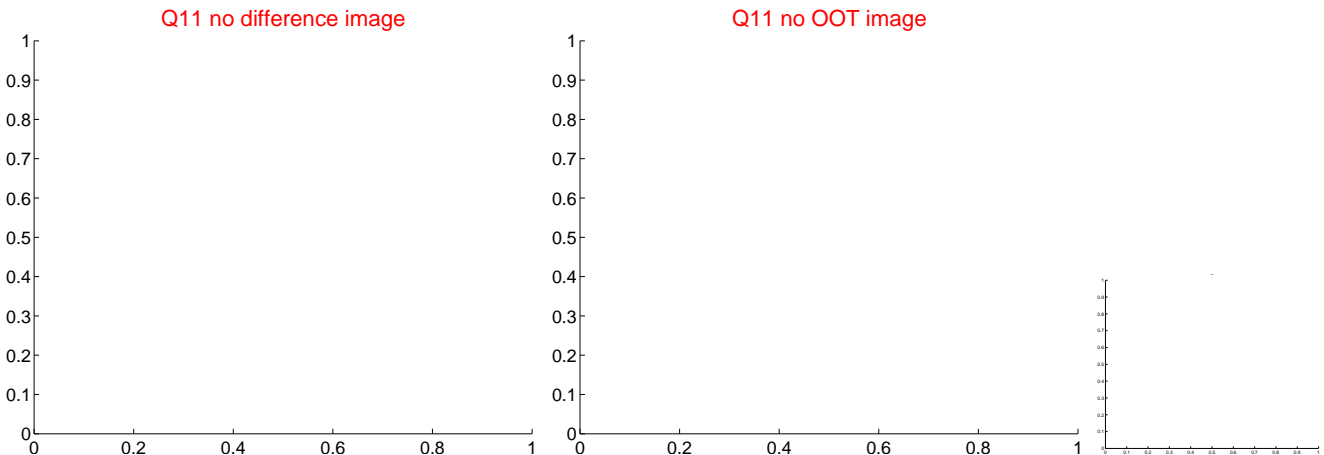
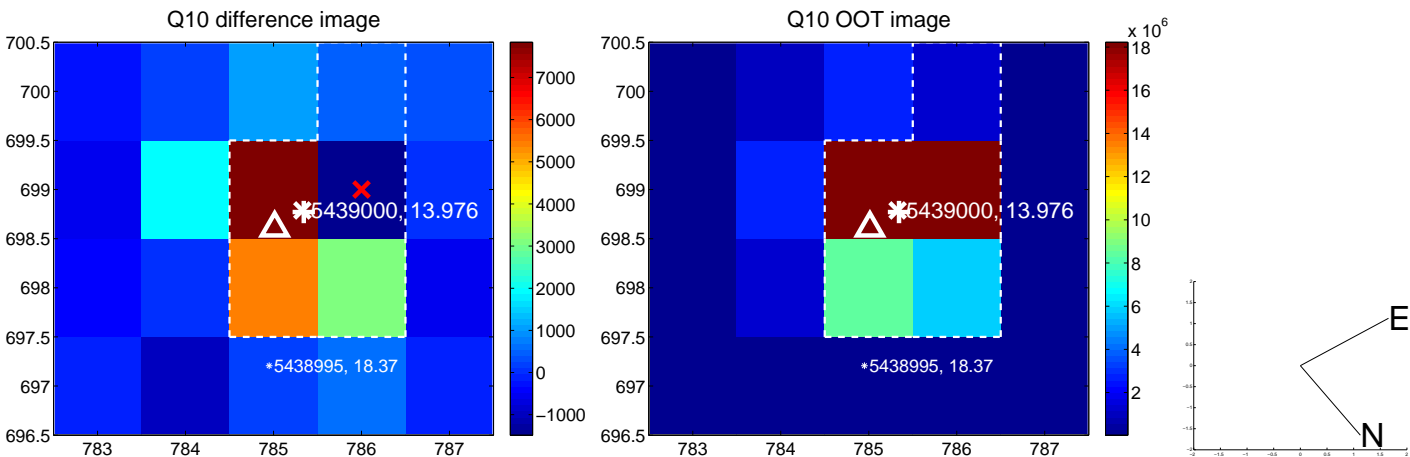
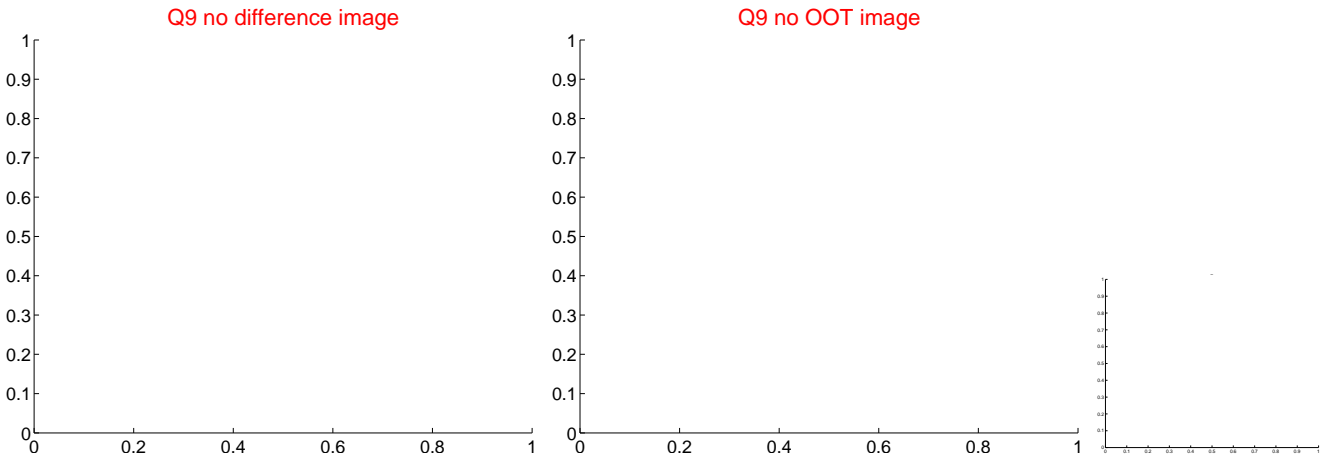
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



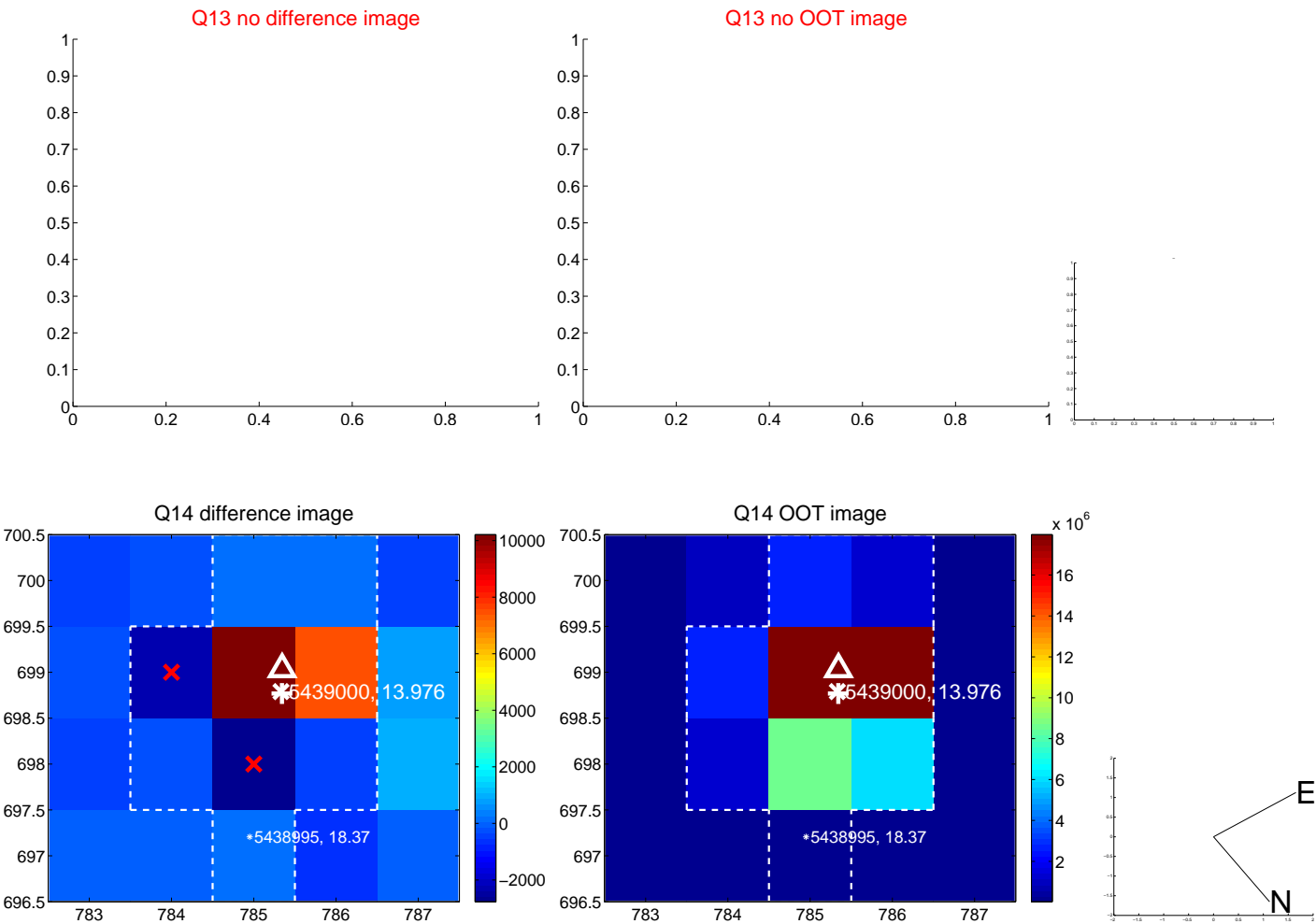
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



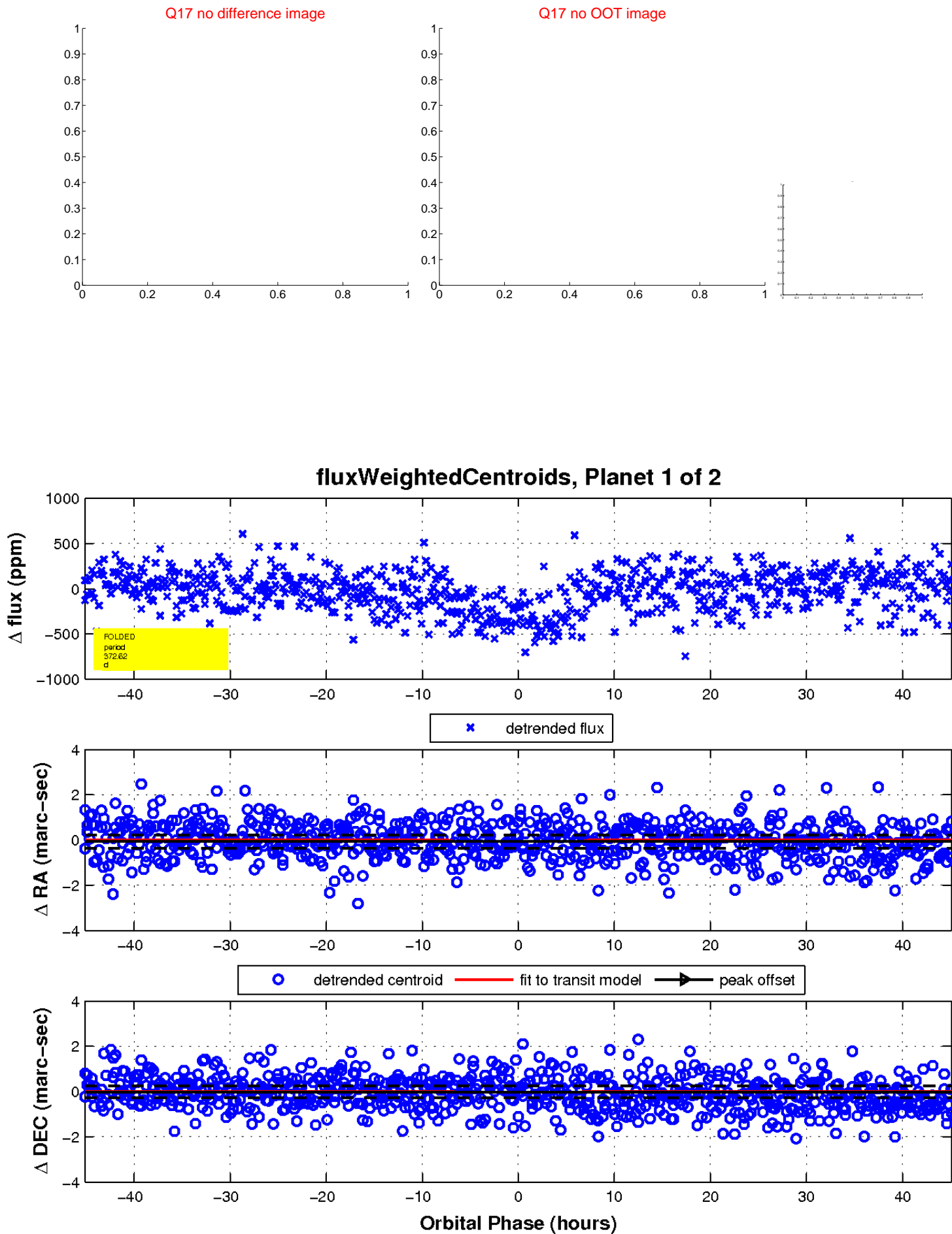
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

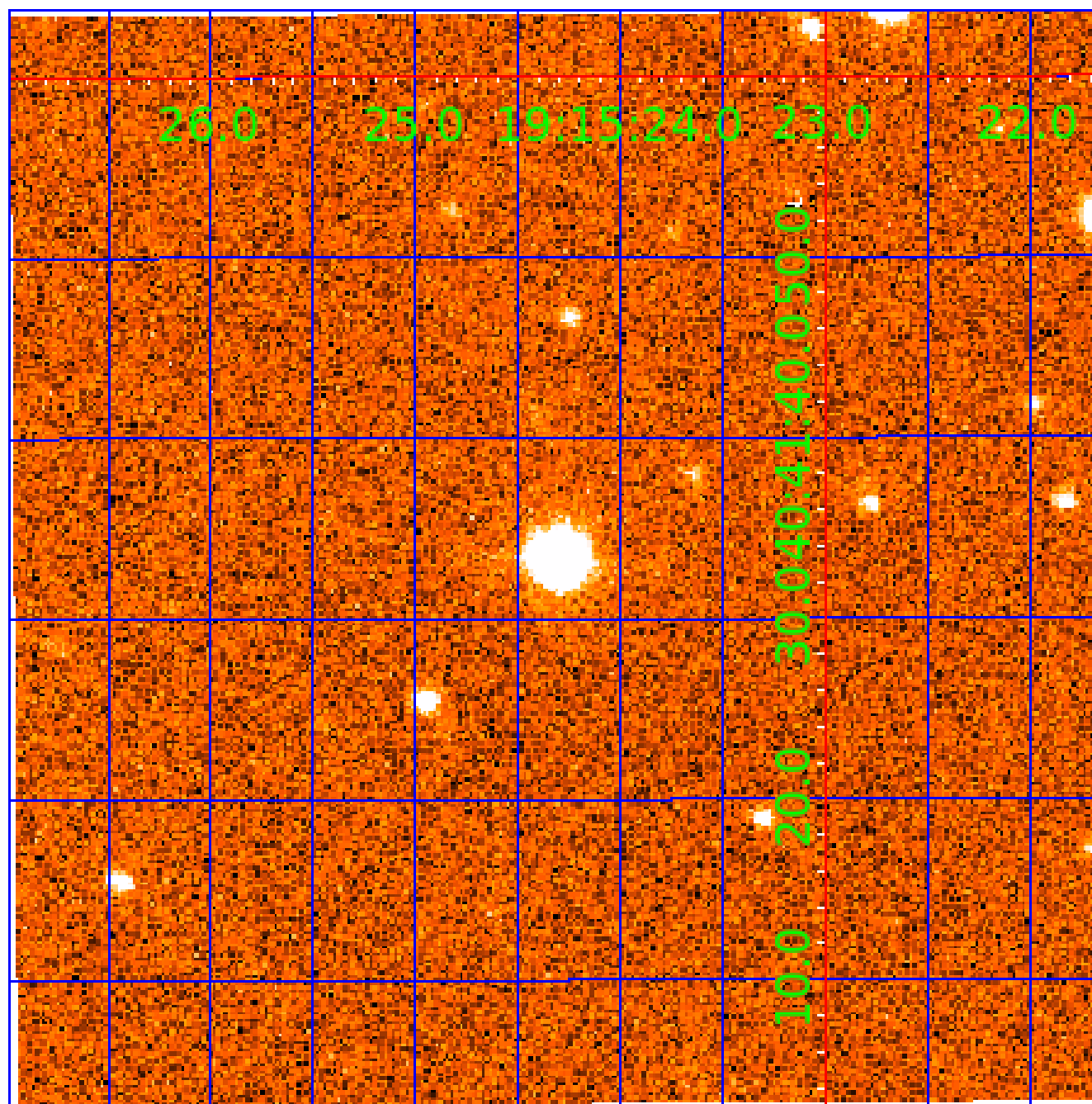


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005439000

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})
005439000-01	OBS	No	372.616705	240.518457	285.1	15.051	8.3	9.2	1.00	6283	1.84	1.33
005439000-02	OBS	No	360.366246	241.801682	356.7	4.612	8.7	9.2	1.00	6283	2.10	1.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005439000-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—CENT_FEW_DIFFS
005439000-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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 005439000-02

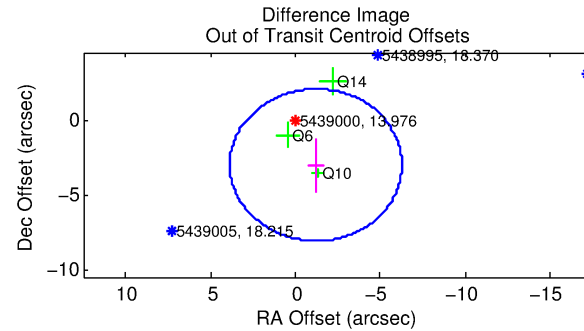
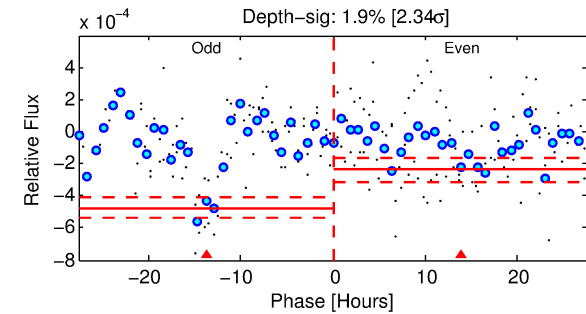
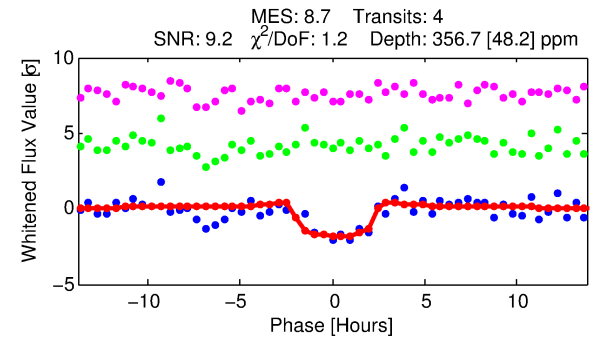
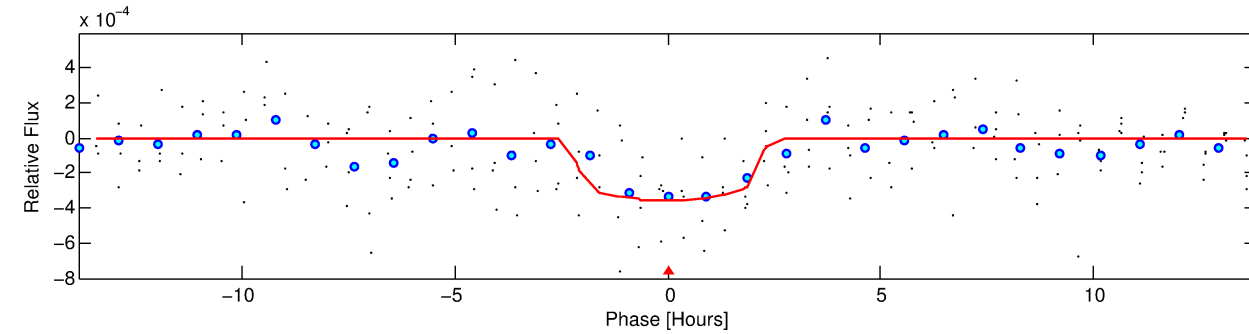
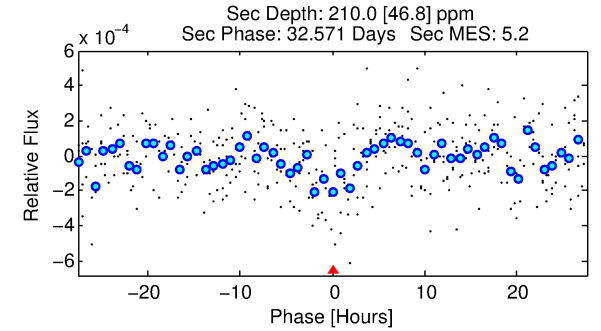
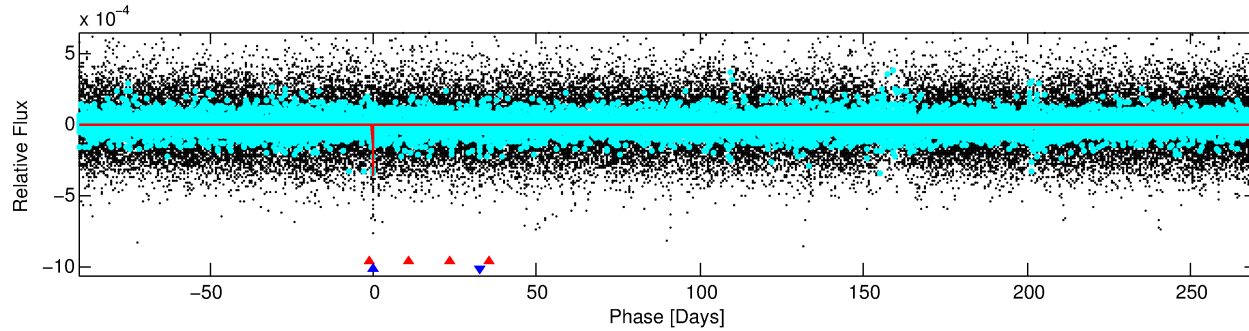
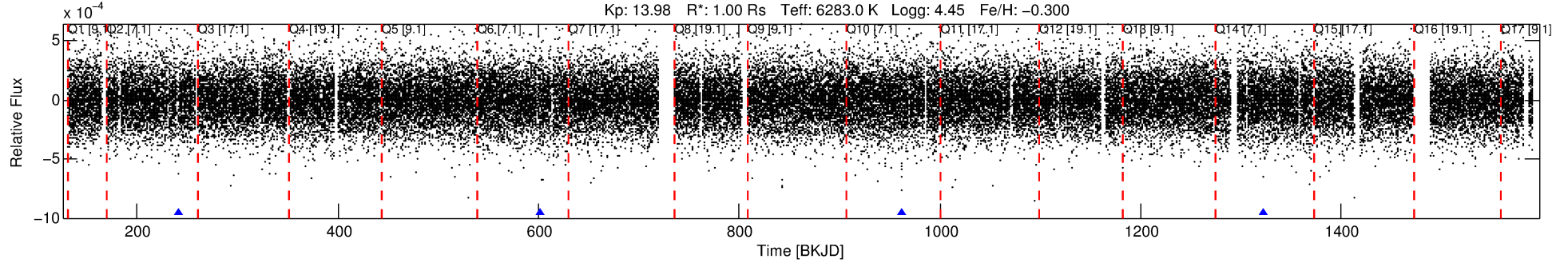
No Significant Match Found

DV One-Page Summary

KIC: 5439000 Candidate: 2 of 2 Period: 360.366 d

KOI: K05165 Corr: No Ephemeris Match

Kp: 13.98 R*: 1.00 Rs Teff: 6283.0 K Logg: 4.45 Fe/H: -0.300



DV Fit Results:

Period = 360.36625 [0.00481] d
Epoch = 241.8017 [0.0089] BKJD
Rp/R* = 0.0193 [0.0304]
a/R* = 364.92 [3093.97]
b = 0.82 [3.53]
Seff = 1.39 [0.57]
Teq = 277 [29] K
Rp = 2.10 [3.39] Re
a = 1.0021 [0.2756] AU
Ag = 26310.06 [83866.27] [0.31σ]
Teffp = 5450 [4314] K [1.20σ]

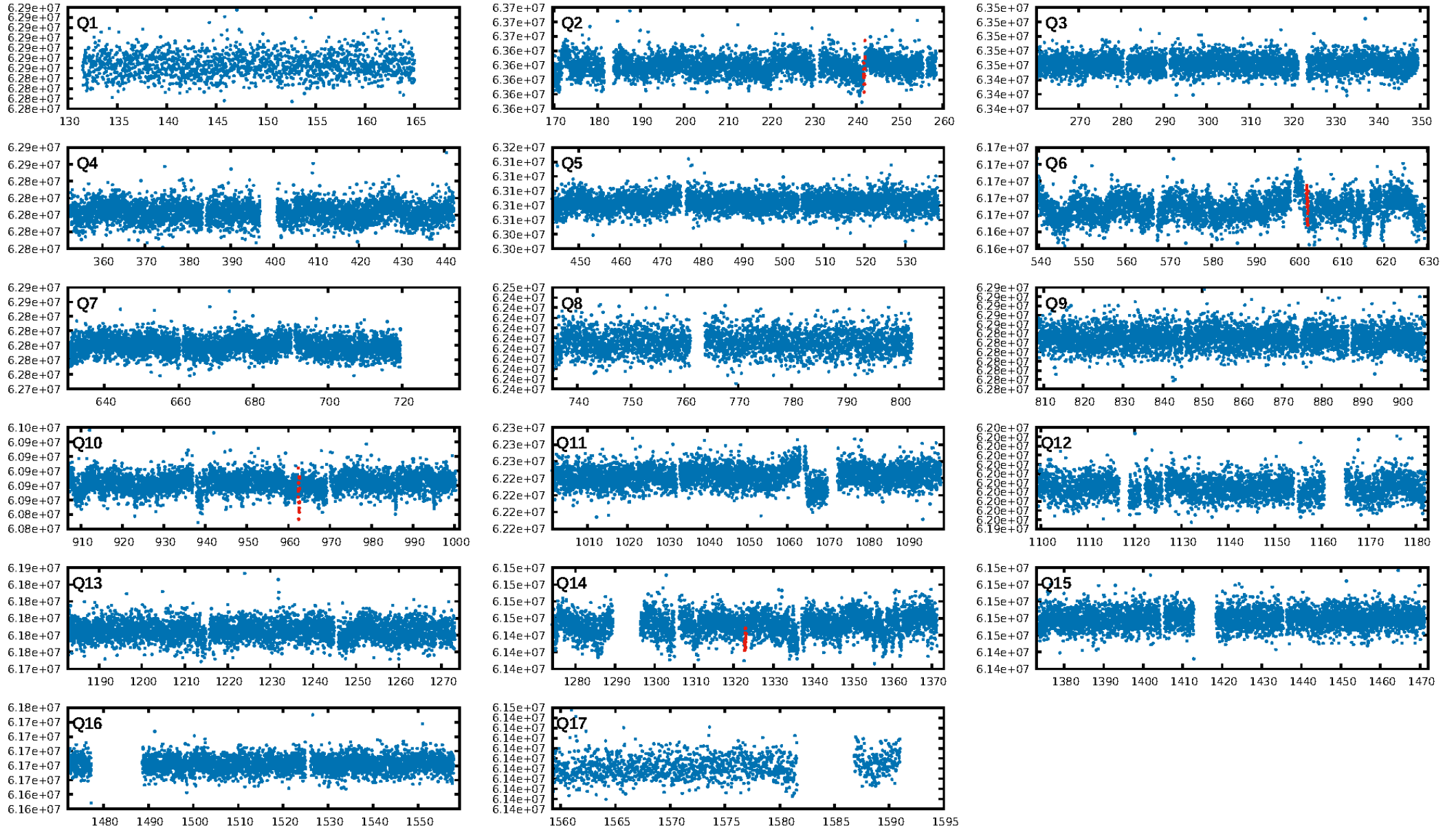
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [18.68σ]
ModelChiSquare2-sig: 5.7%
ModelChiSquareGoF-sig: 77.4%
Bootstrap-pfa: 6.55e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -11.39
Centroid-sig: 72.9%
Centroid-so: 0.481 arcsec [0.40σ]
OotOffset-rm: 3.259 arcsec [1.93σ]
KicOffset-rm: 3.192 arcsec [2.80σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [4/4]

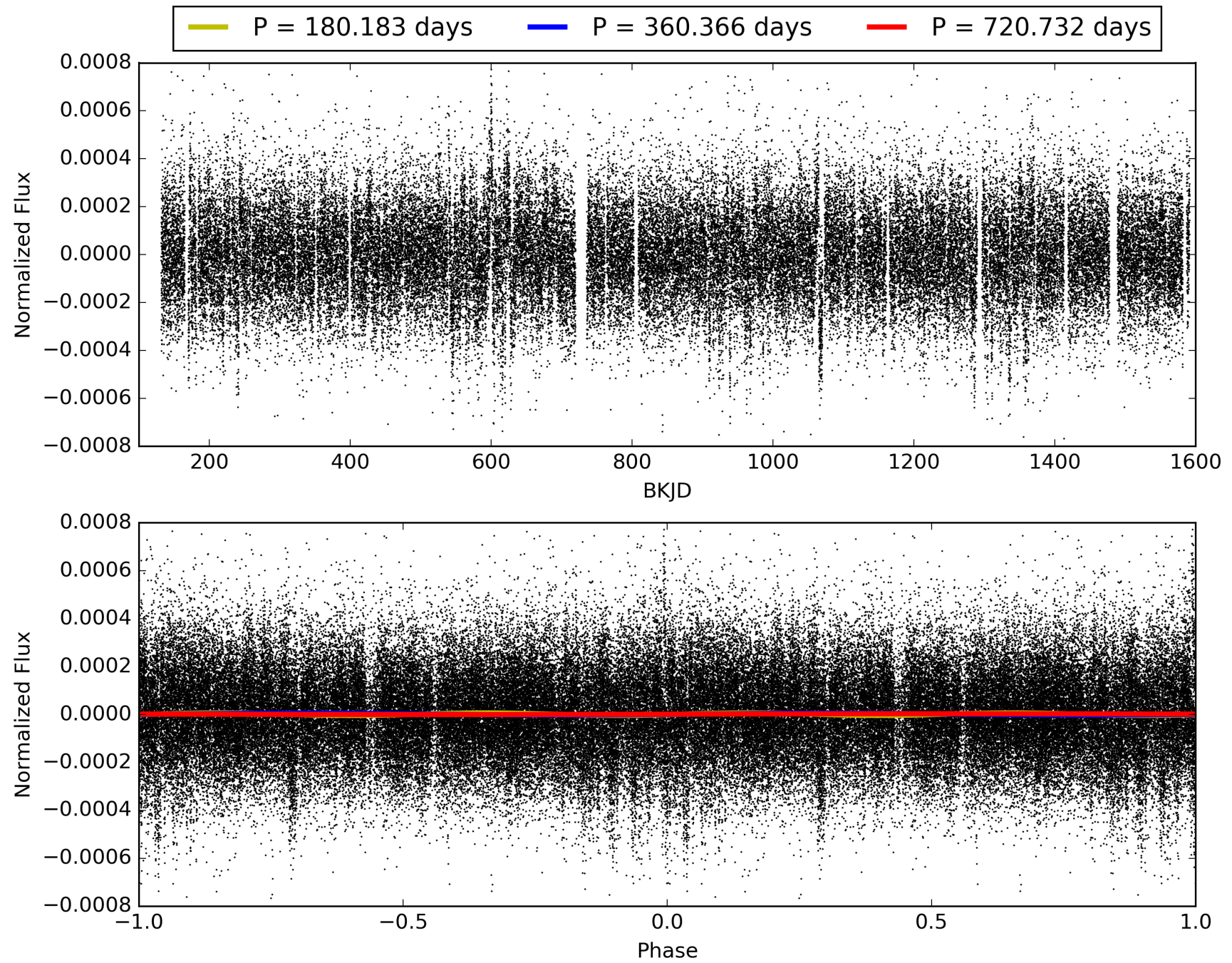
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:58:54 Z

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

TCE 005439000-02, PDC Light Curves

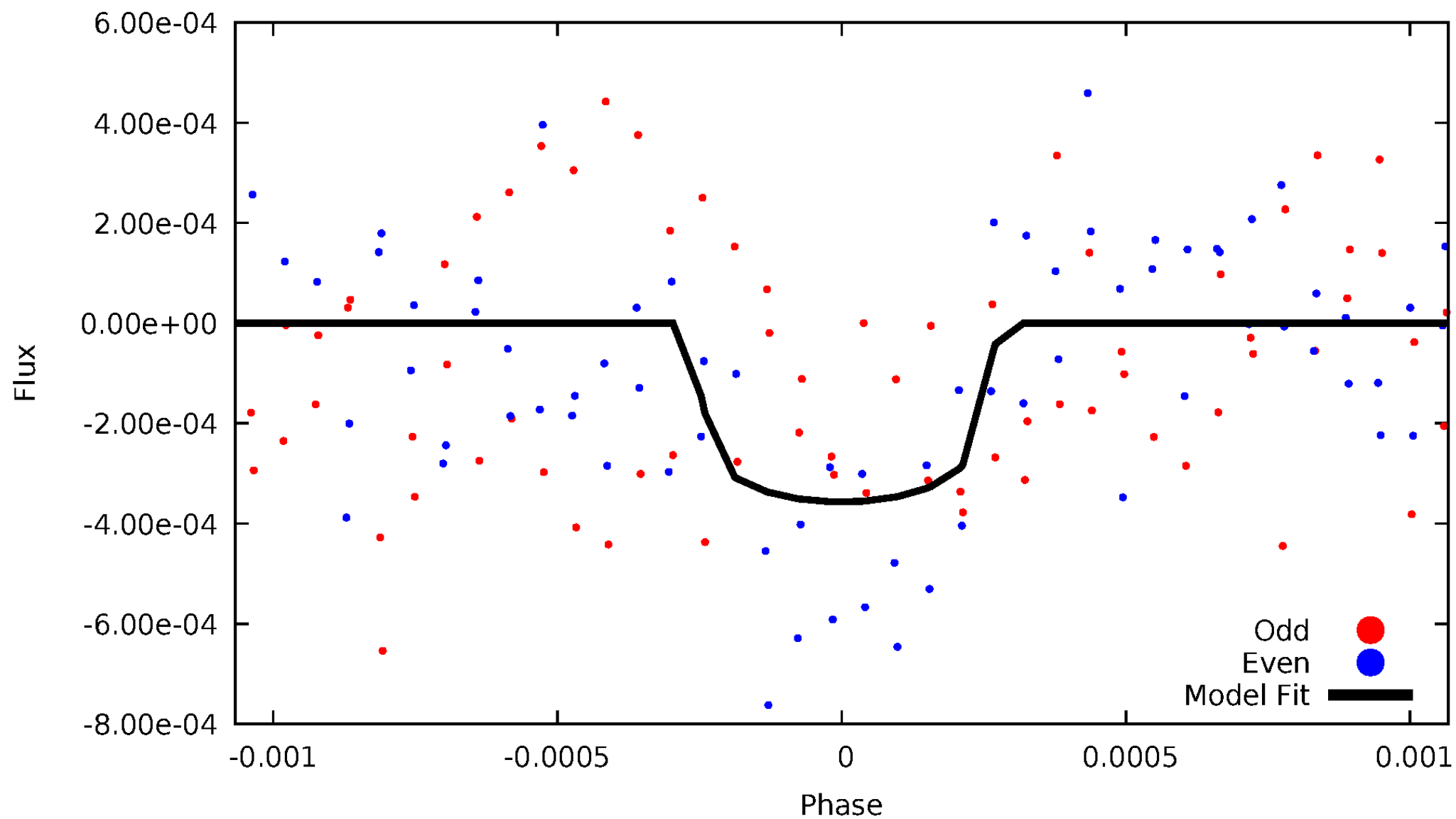


TCE 005439000-02



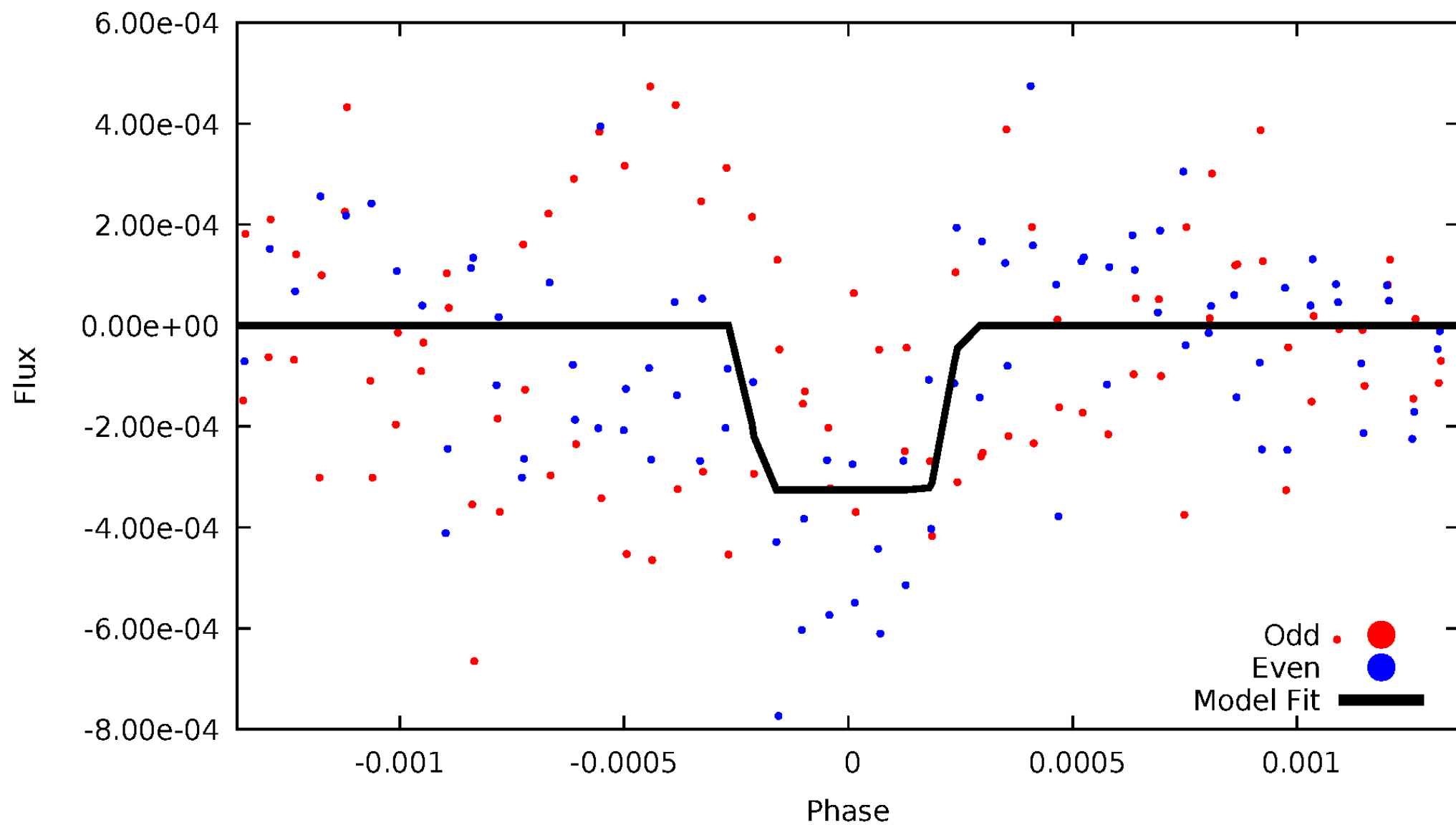
DV Odd/Even

TCE 005439000-02



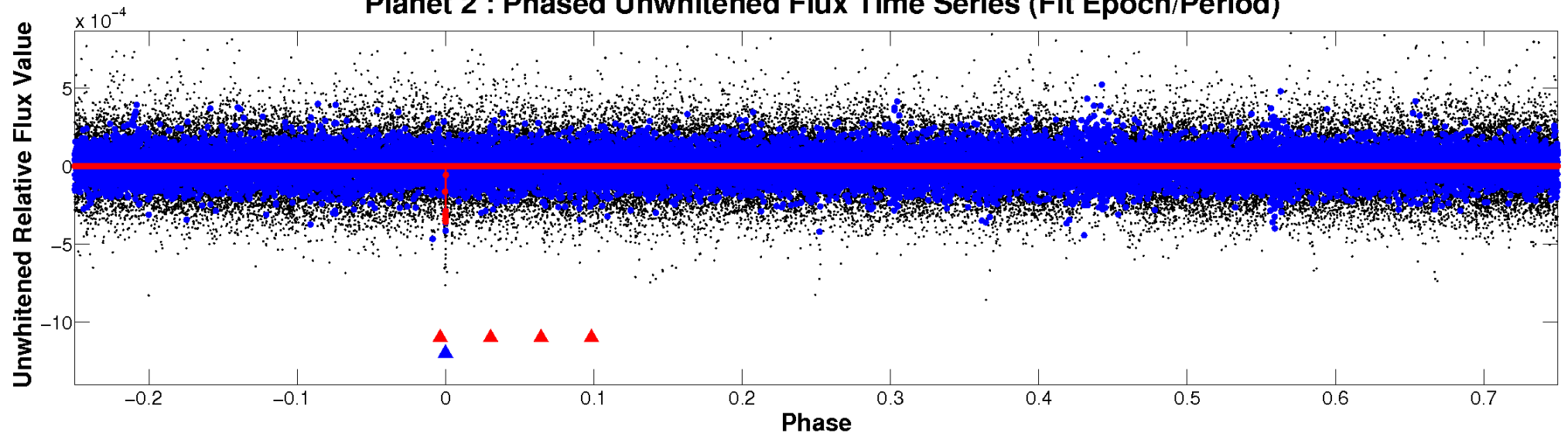
ALT Odd/Even

TCE 005439000-02

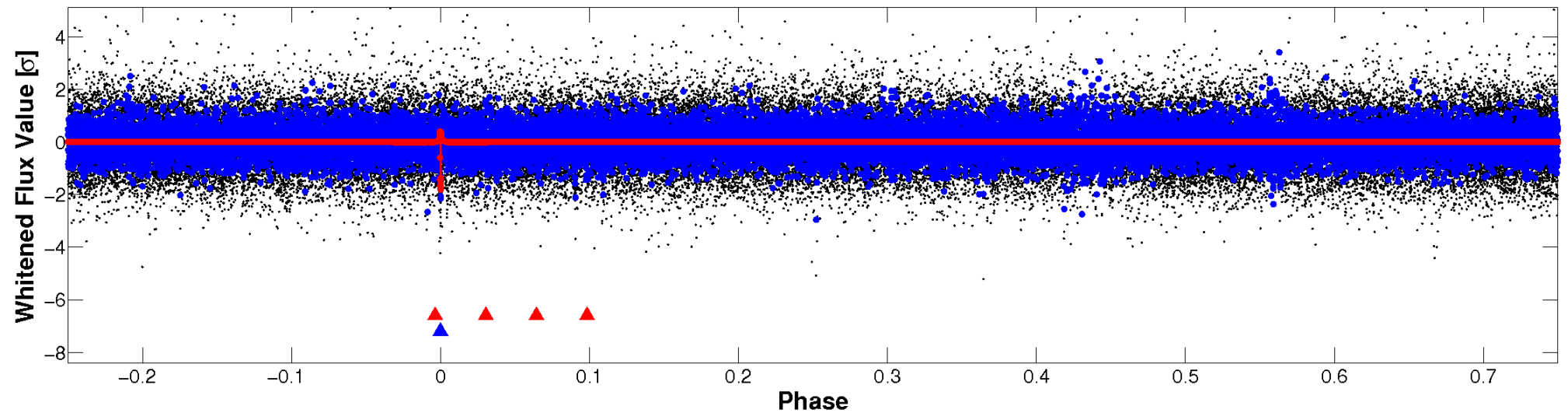


Non-Whitened Vs. Whitened Light Curve

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

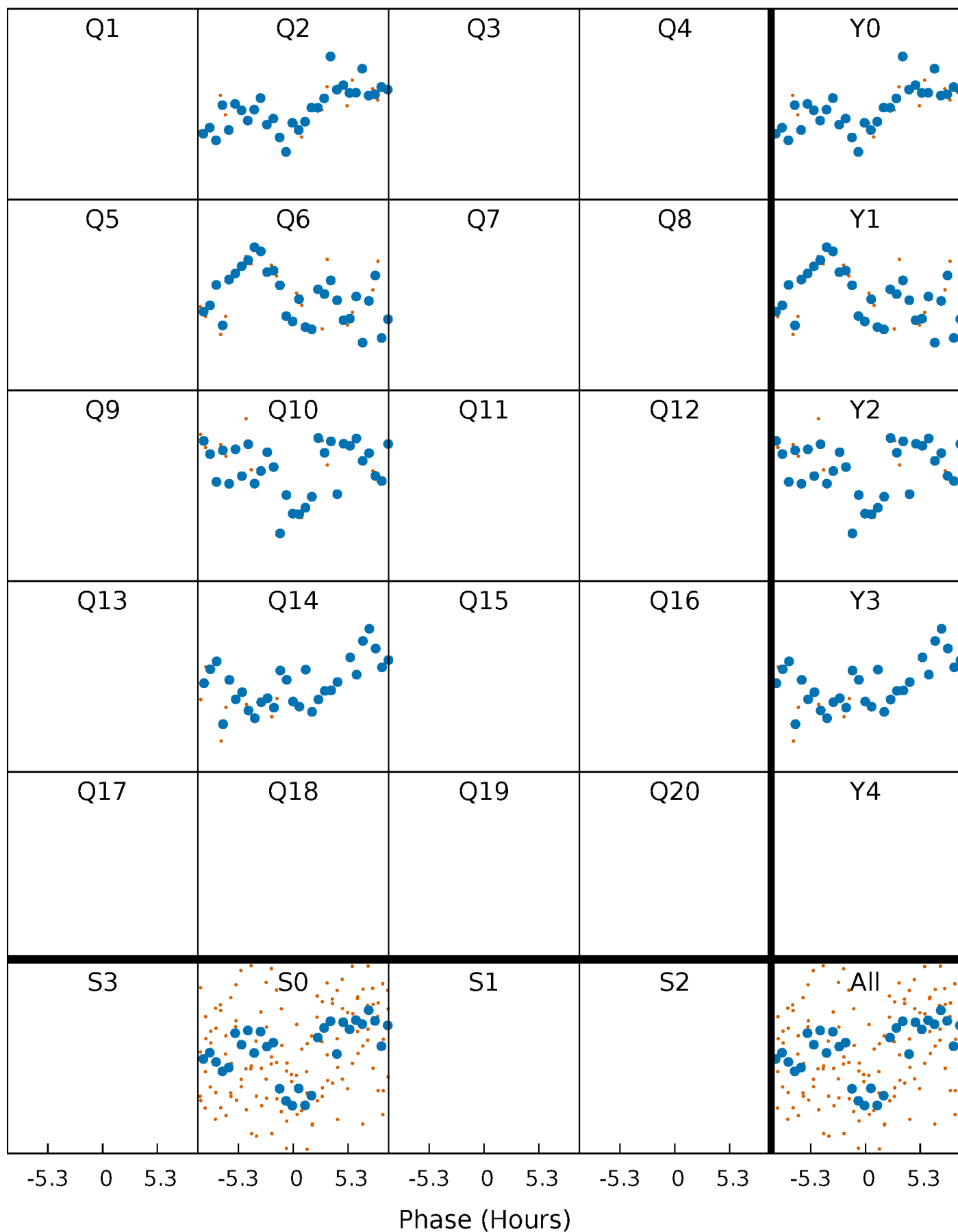


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



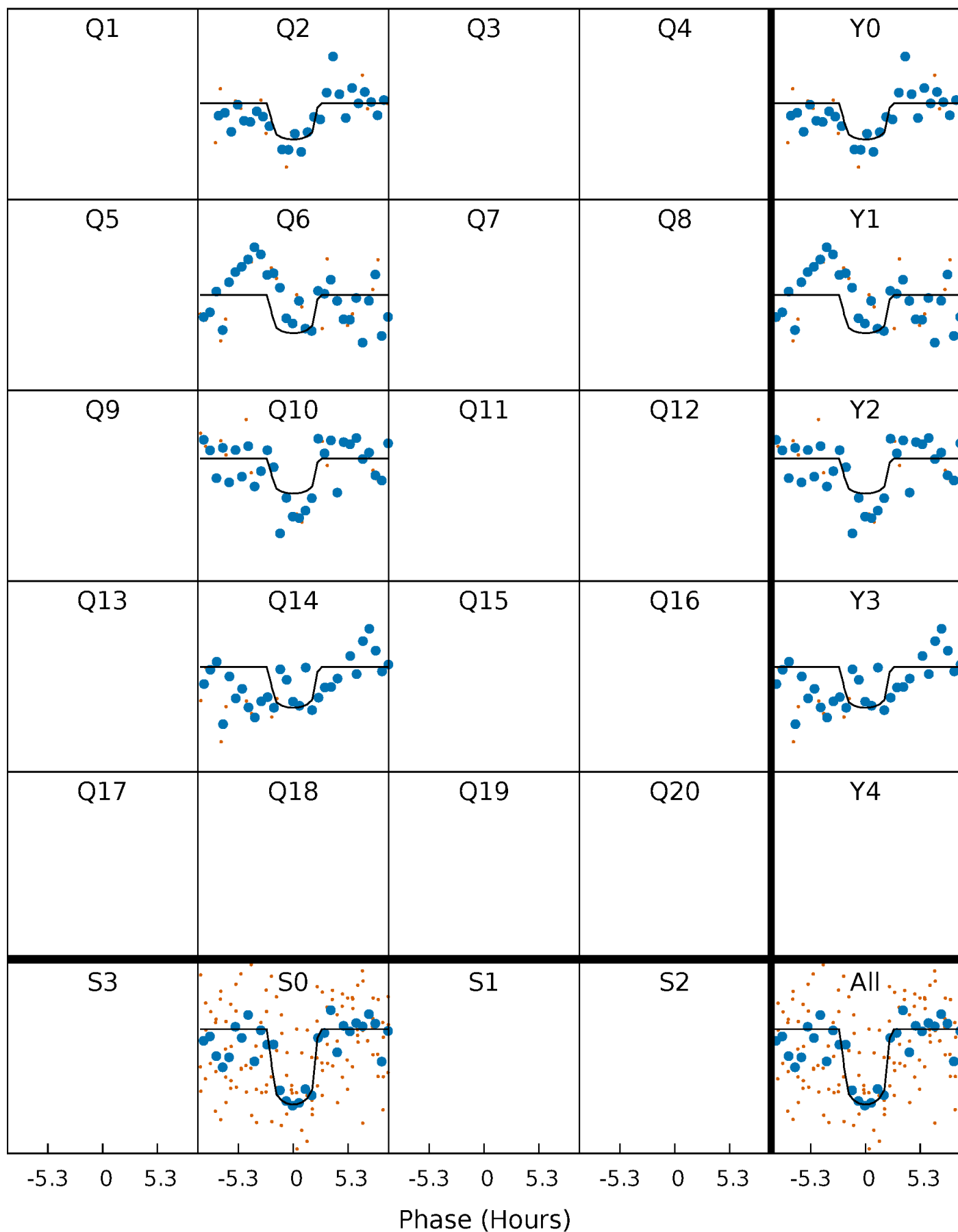
PDC Quarter-Phased Transit Curves

TCE 005439000-02 $P=360.366246$ Days $T_0=241.801682$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 005439000-02 $P=360.366246$ Days $T_0=241.801682$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

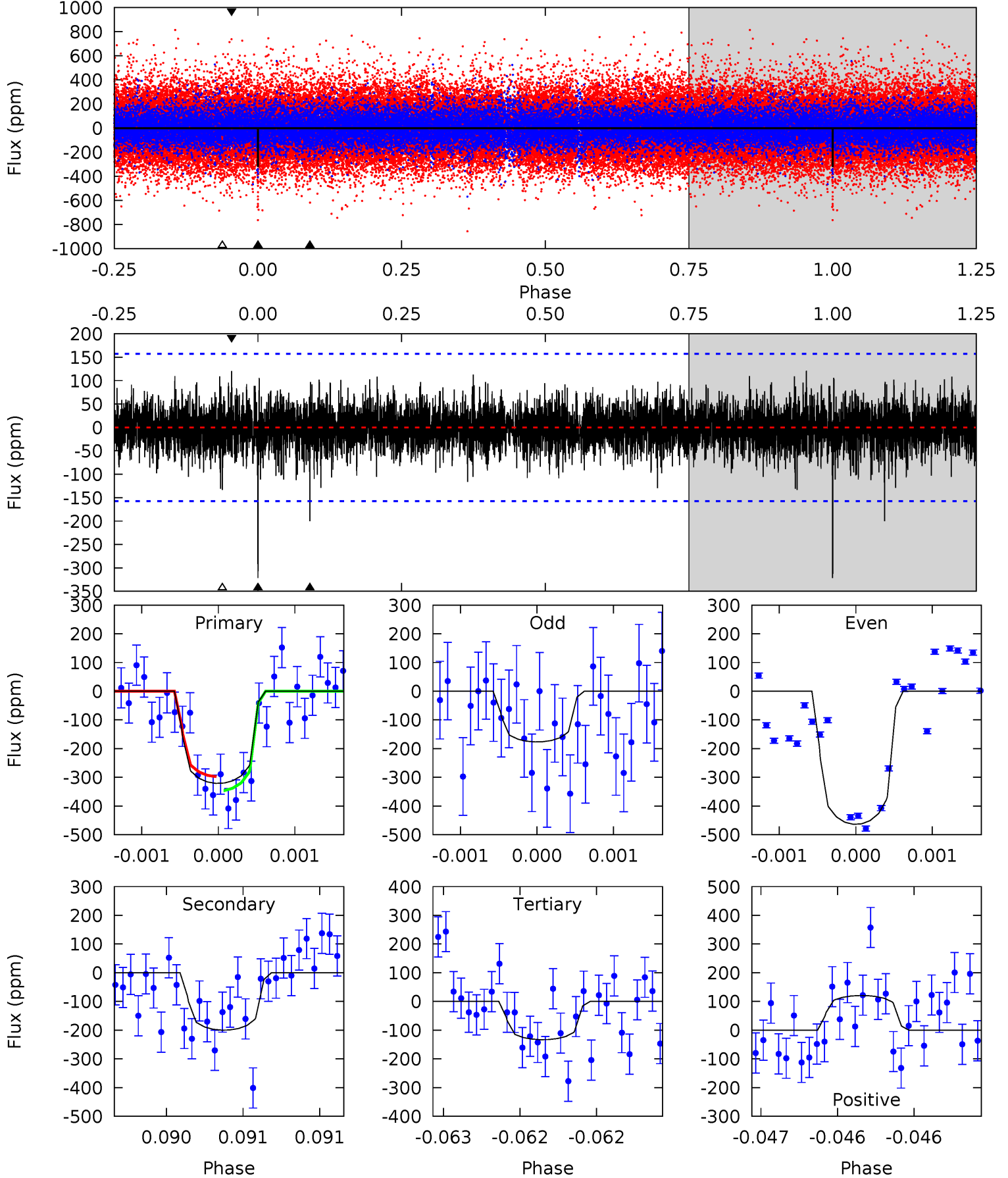
TCE 005439000-02 $P=360.366264$ Days $T_0=241.811232$ (BKJD)



DV Model-Shift Uniqueness Test

005439000-02, P = 360.366246 Days, E = 241.801682 Days

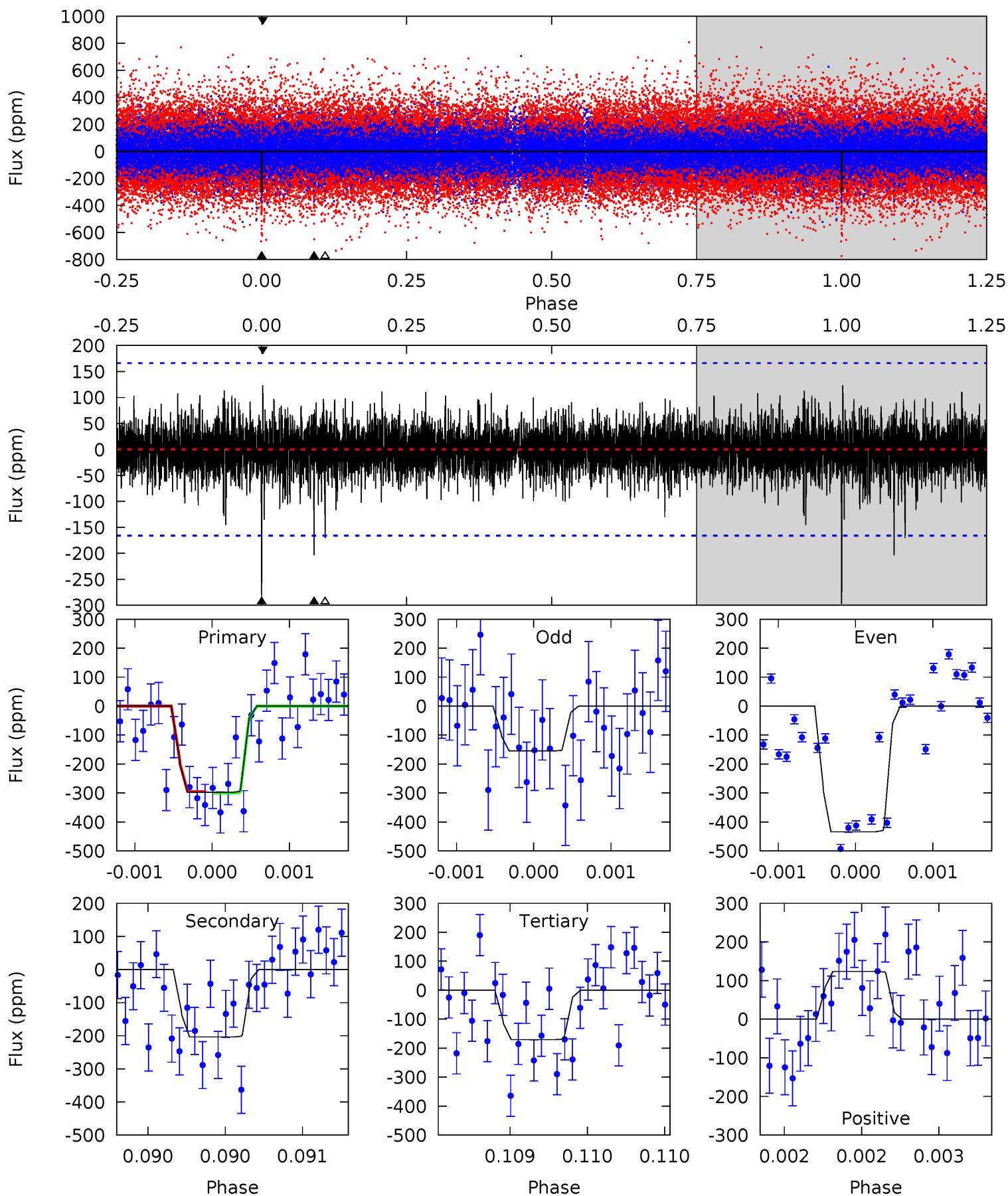
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	7.08	4.71	4.27	5.57	3.47	1.13	6.66	7.10	2.37	2.81	5.09	1.00	0.27	0.87



Alt Model-Shift Uniqueness Test

005439000-02, P = 360.366264 Days, E = 241.811232 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.99	6.83	5.72	4.14	5.57	3.48	1.06	4.26	5.84	1.11	2.69	4.69	1.01	0.29	0.09



Stellar Parameters For KIC 005439000

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6283^{+169}_{-207}	$4.453^{+0.056}_{-0.210}$	$-0.300^{+0.250}_{-0.350}$	$0.999^{+0.334}_{-0.111}$	$1.025^{+0.146}_{-0.120}$	$1.450^{+0.424}_{-0.782}$
	+3%/-3%	+1%/-5%	+83%/-117%	+33%/-11%	+14%/-12%	+29%/-54%
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 005439000-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-200 ± 28	$3.37^{+3.03}_{-2.29}$	394^{+31}_{-18}	4498^{+3480}_{-910}	9251^{+91415}_{-6673}
Alt.	-204 ± 30	$3.49^{+2.99}_{-2.33}$	395^{+28}_{-20}	4477^{+3261}_{-870}	8835^{+76929}_{-6145}

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

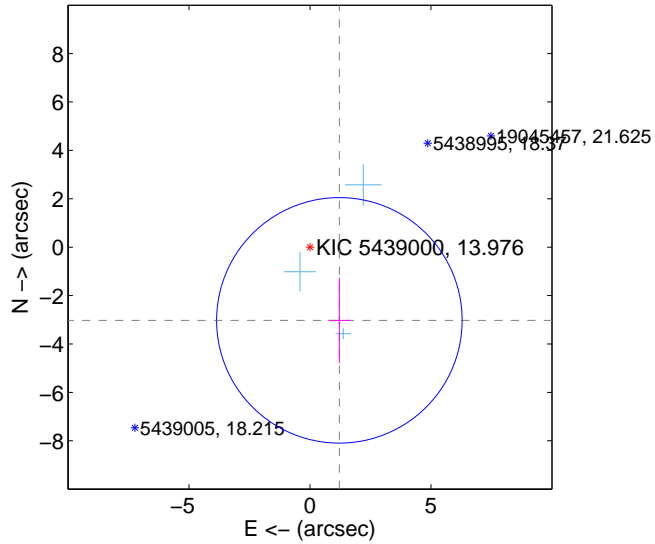
Supplemental centroid analysis for 005439000-02. Kepler magnitude: 13.98. Transit SNR 9.21

There are 3 quarters with good PRF difference image offsets

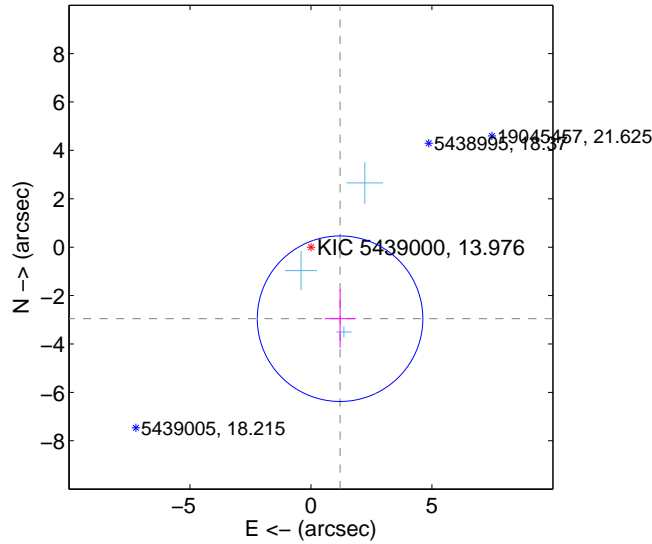
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.259 ± 1.691	1.93	-1.215 ± 0.453	-3.024 ± 1.770
PRF-fit source offset from KIC position	3.192 ± 1.140	2.80	-1.204 ± 0.644	-2.956 ± 1.203
photometric centroid source offset	0.48 ± 1.20	0.40	0.34 ± 1.24	-0.34 ± 1.16

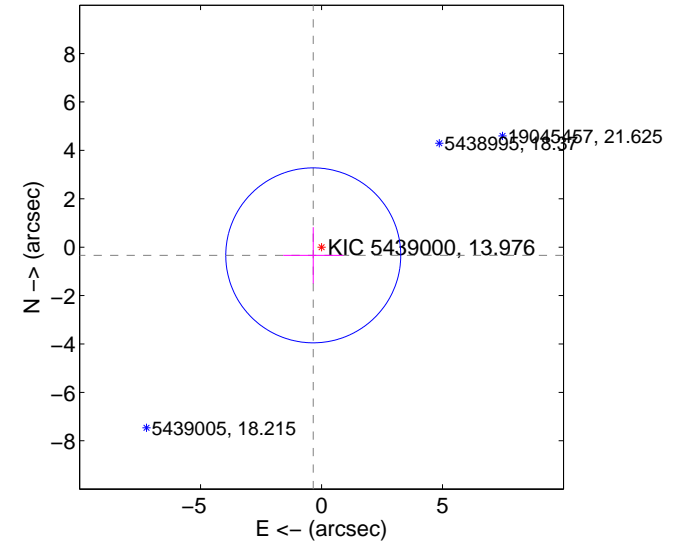
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

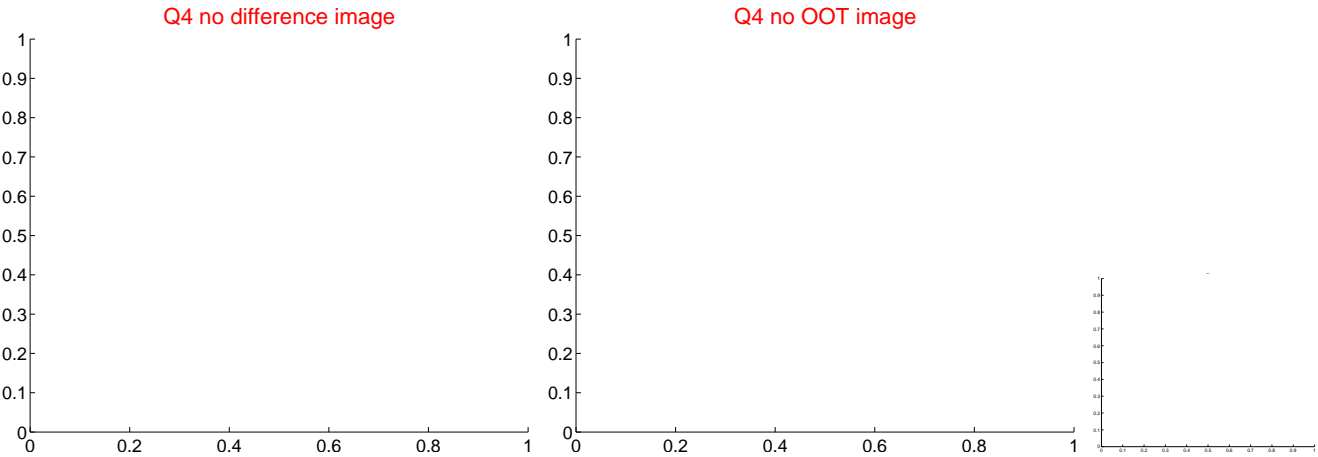
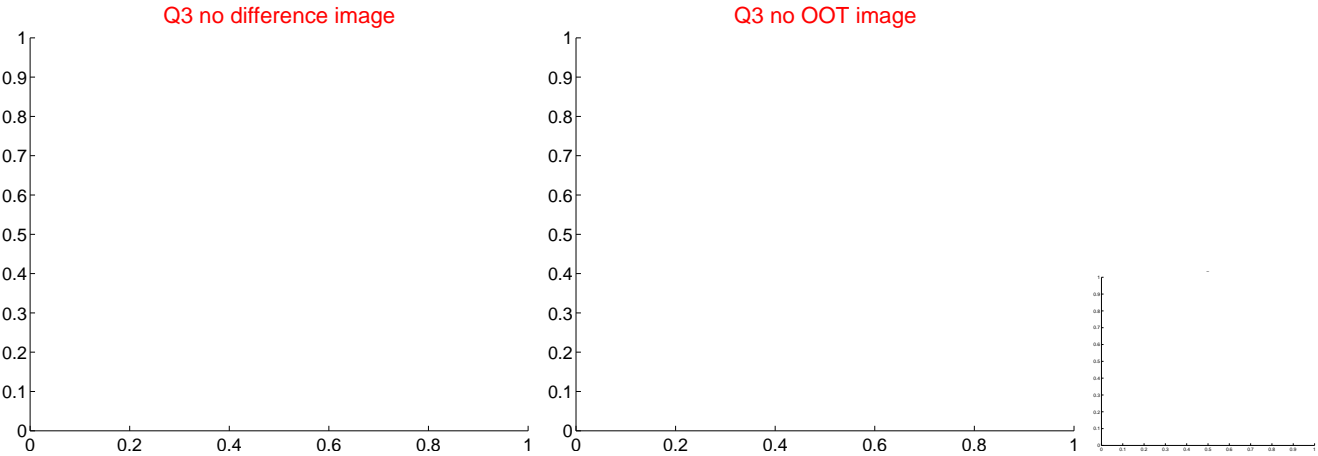
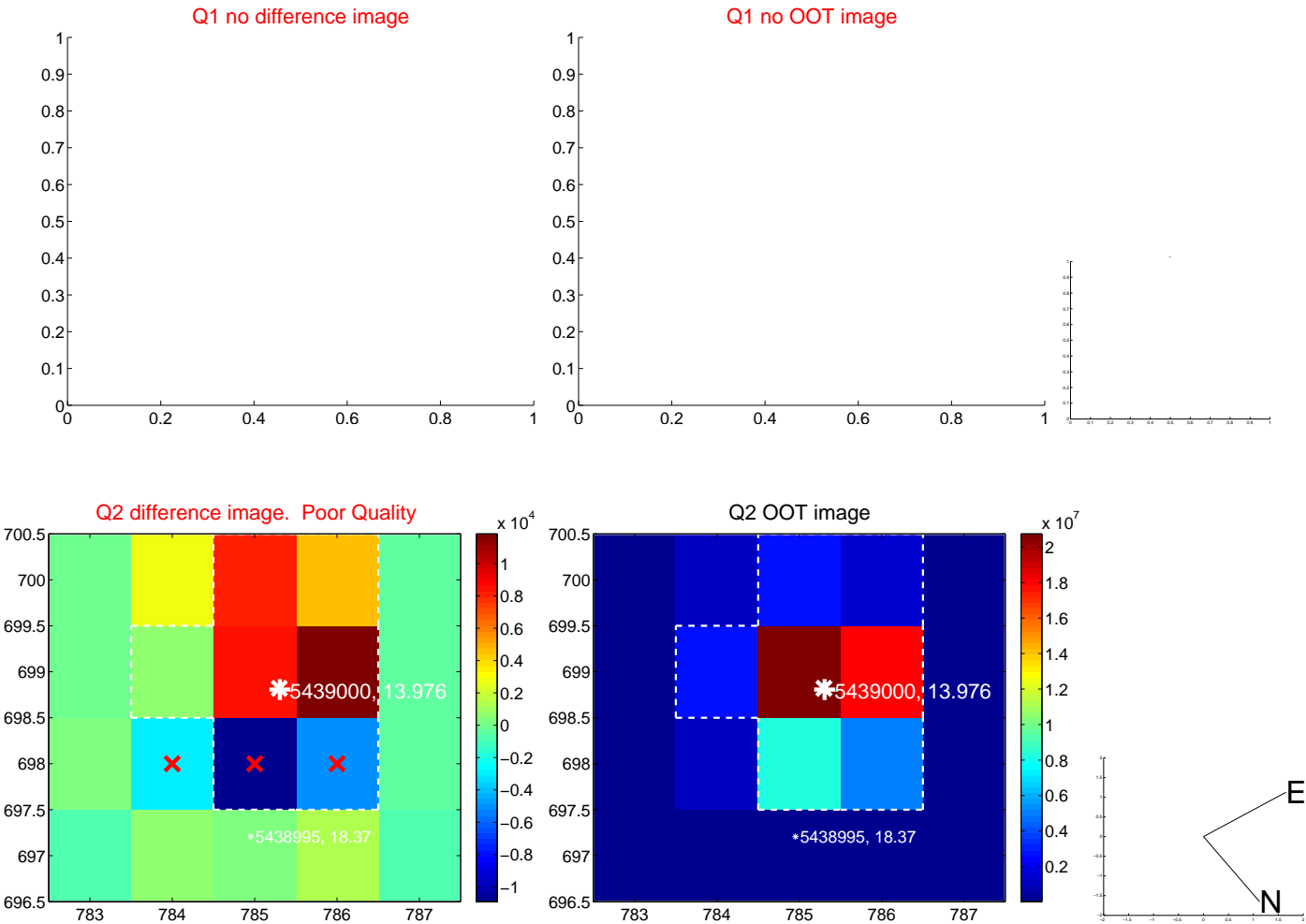


offset from photometric centroids

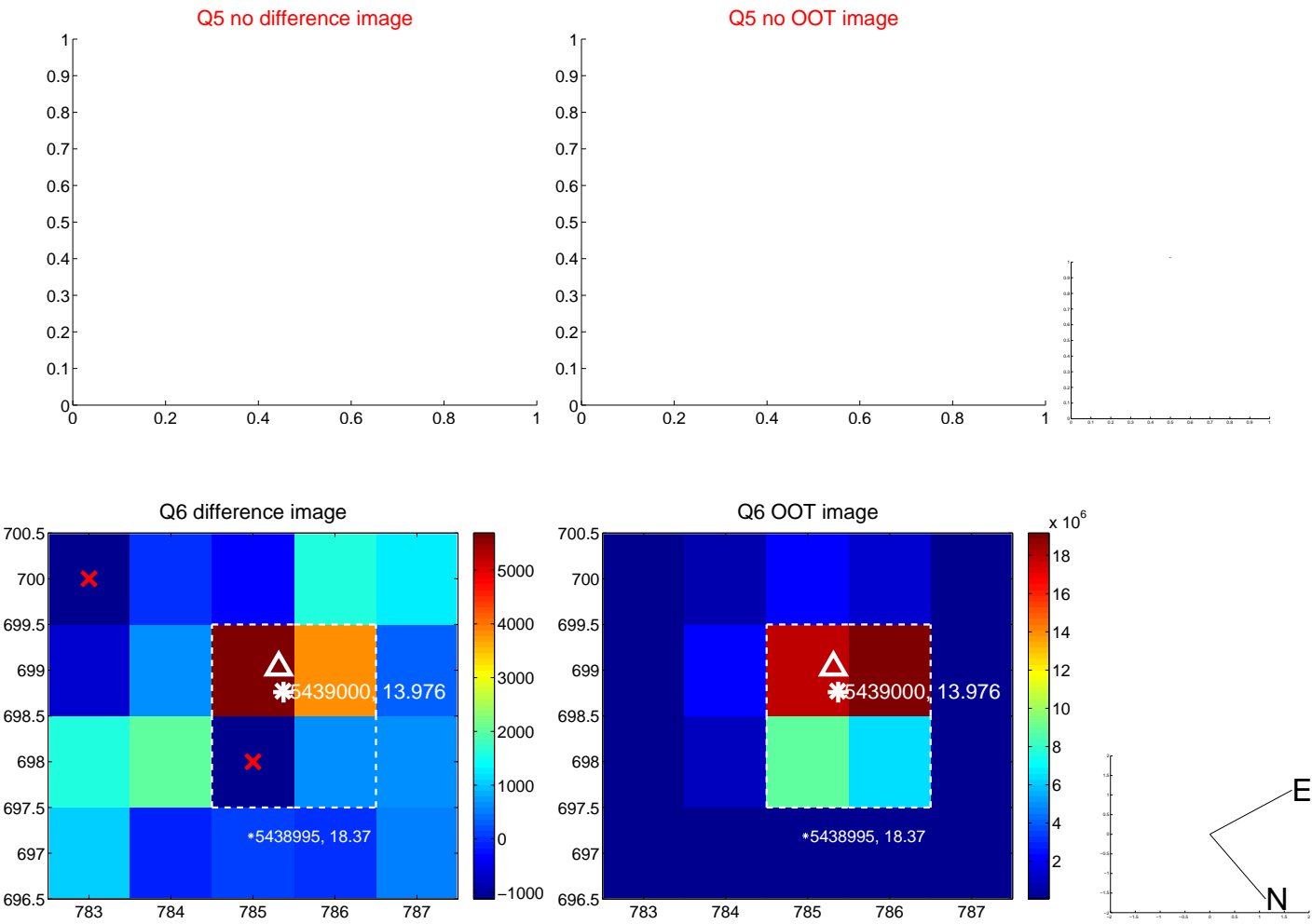


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

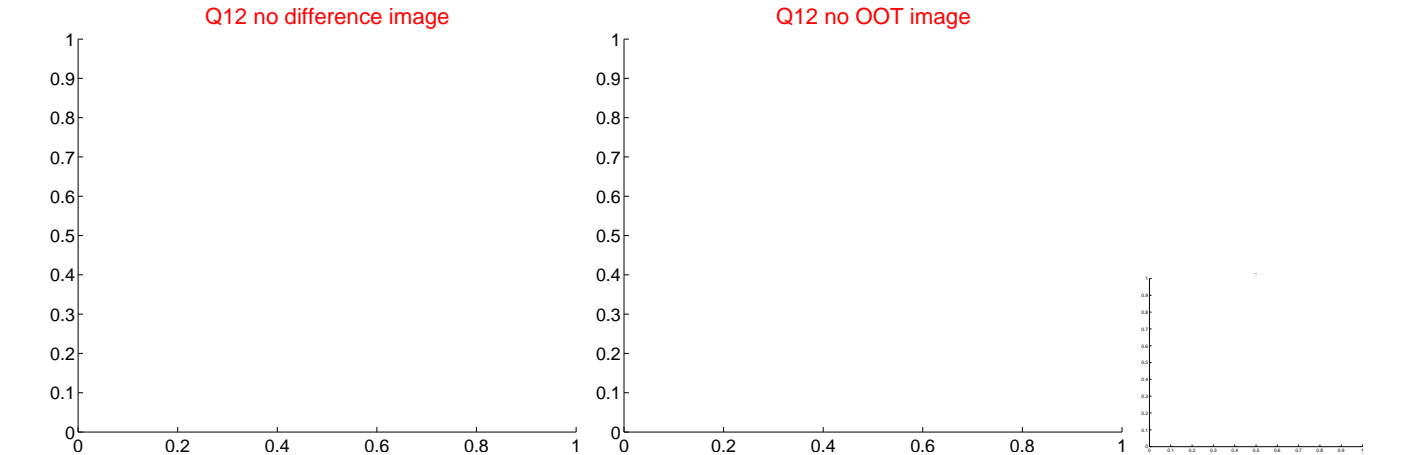
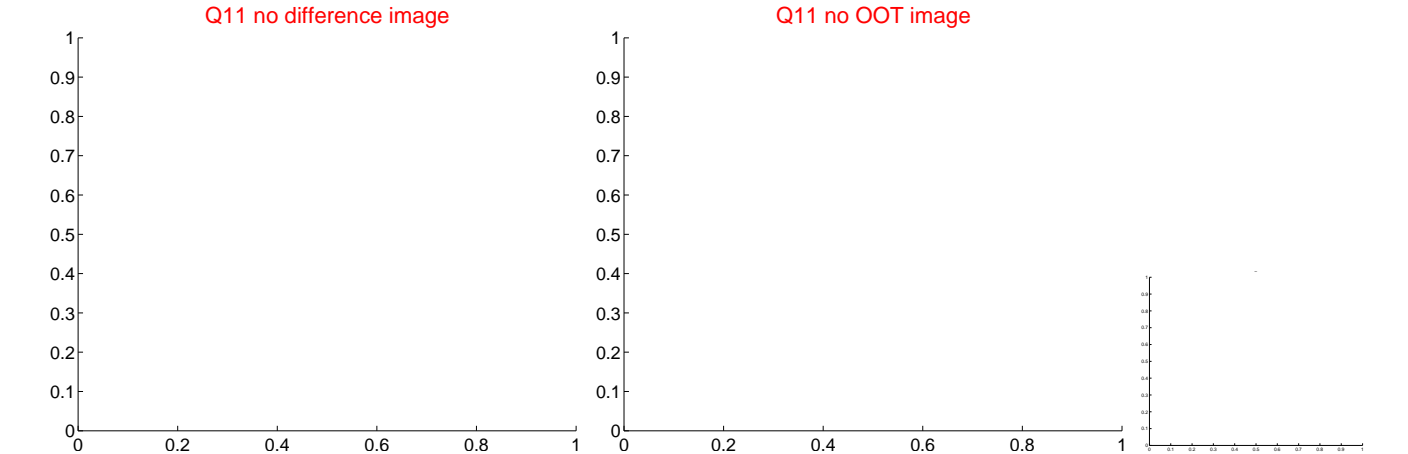
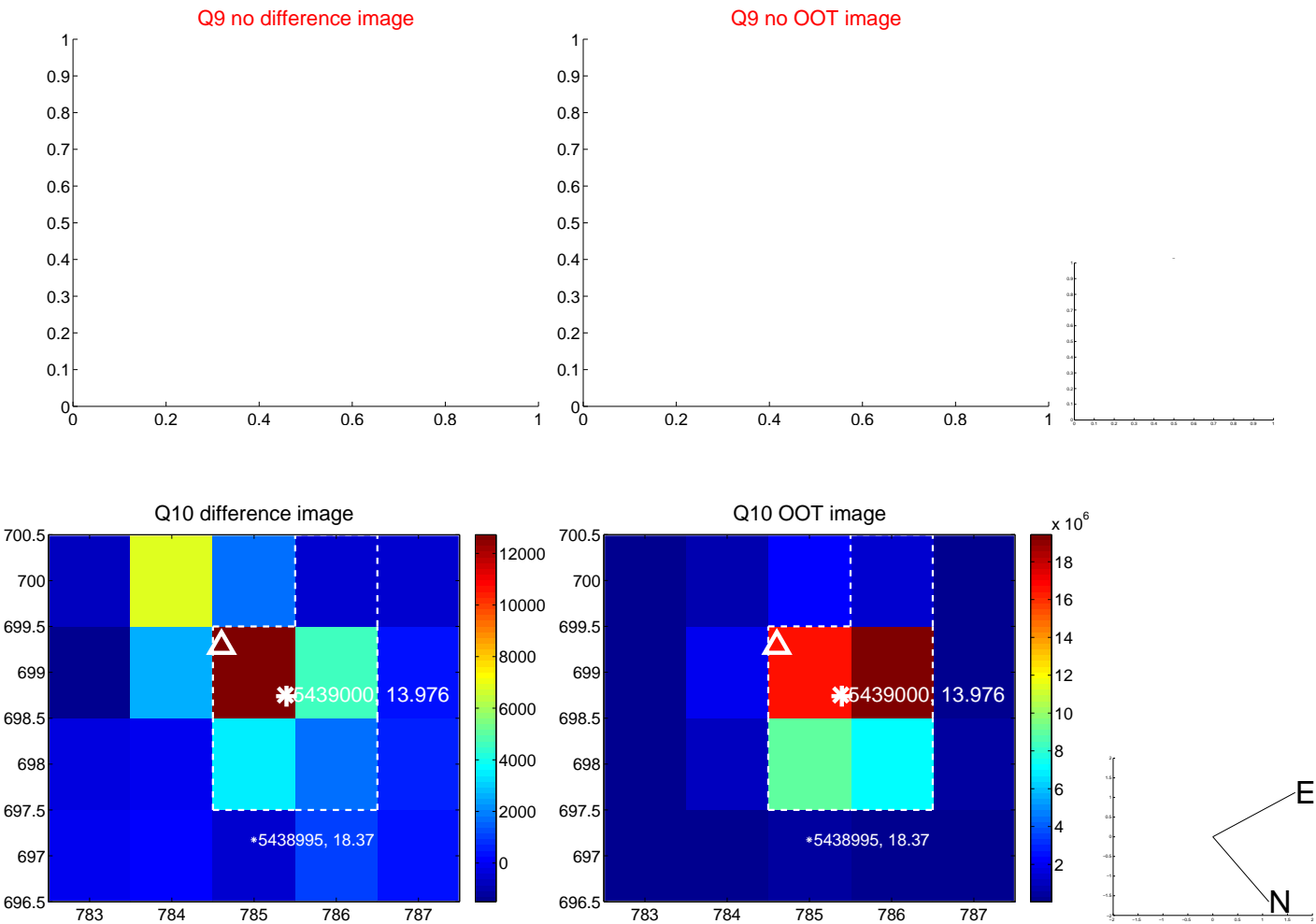
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



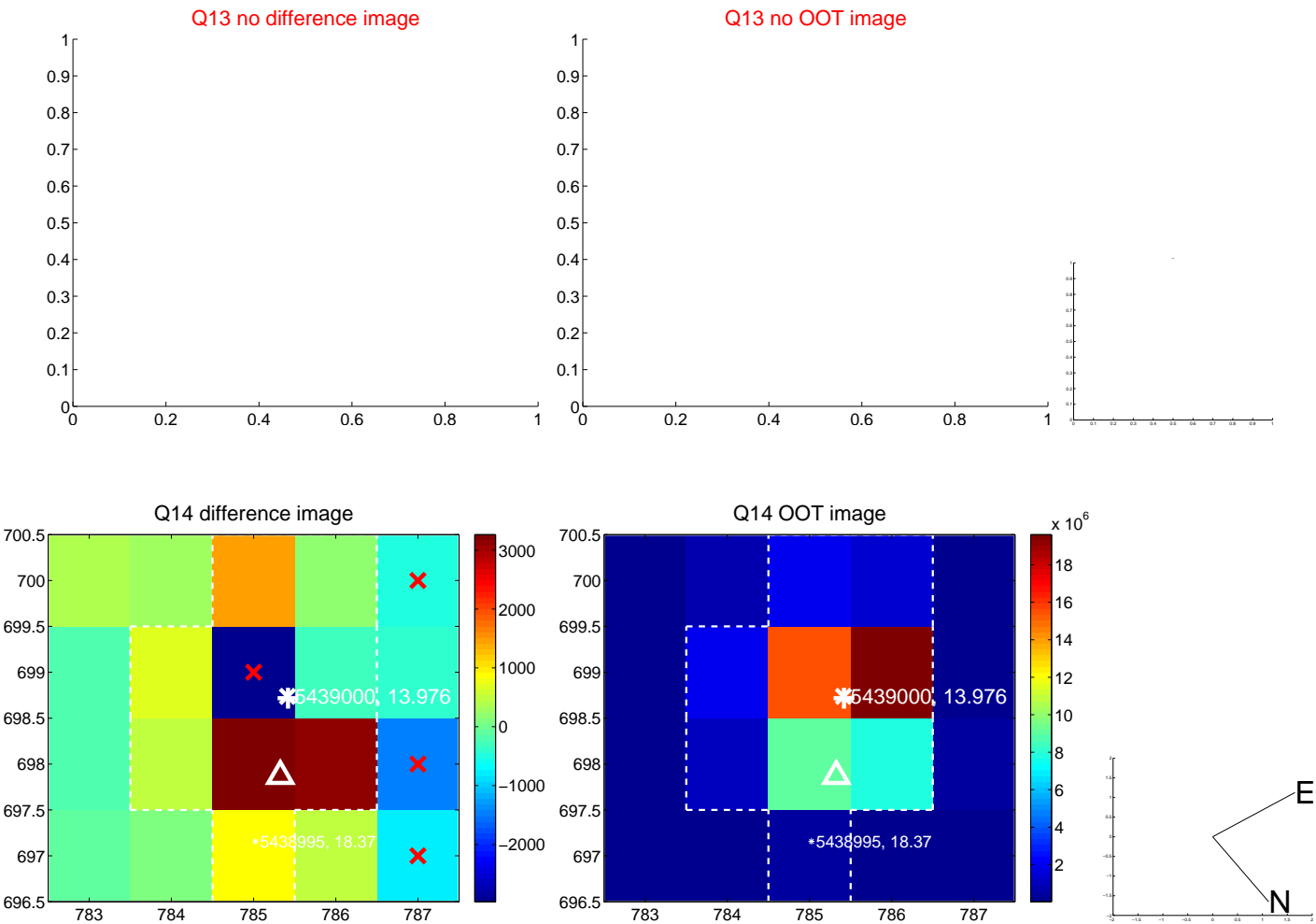
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



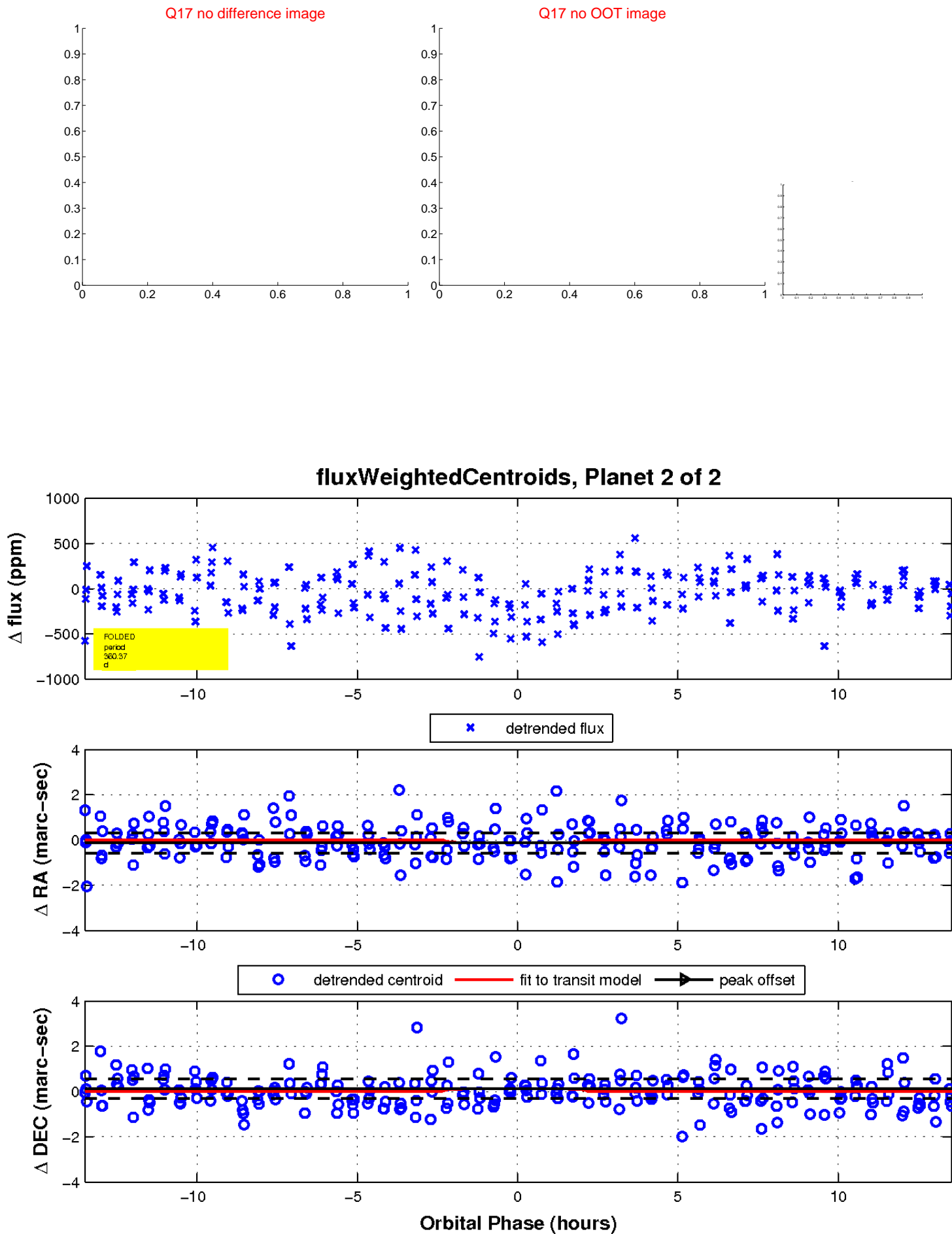
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

