

KIC 010449437

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})
010449437-01	OBS	No	315.286847	219.022210	425.4	7.709	9.6	7.8	1.79	5406	4.41	3.21
010449437-02	OBS	No	275.869419	172.742278	387.5	3.720	8.7	7.2	1.79	5406	4.01	3.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010449437-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010449437-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—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.

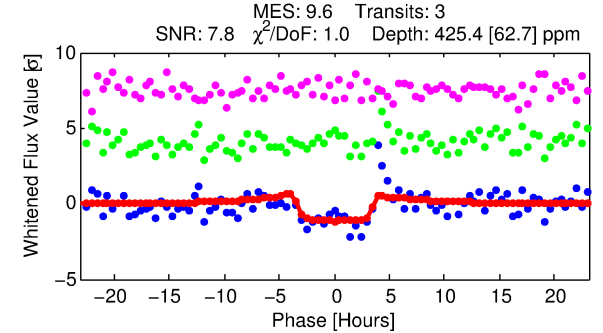
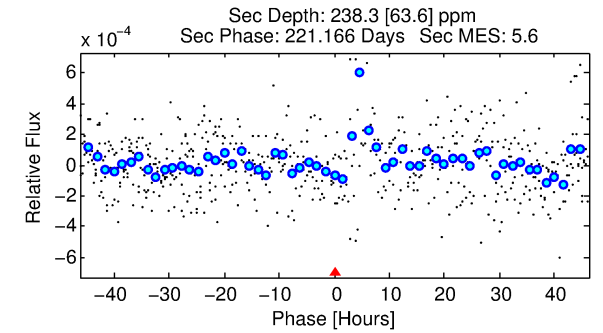
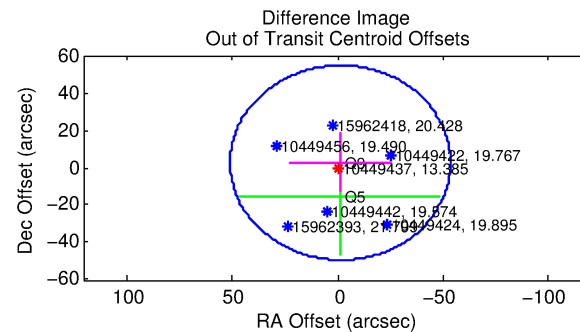
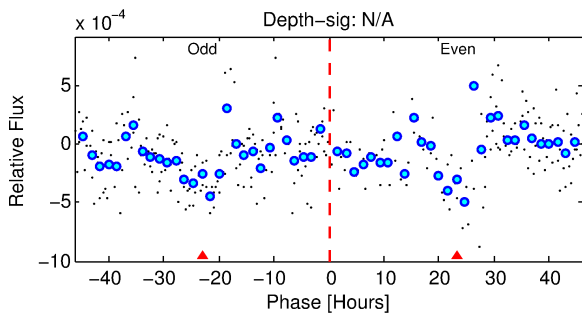
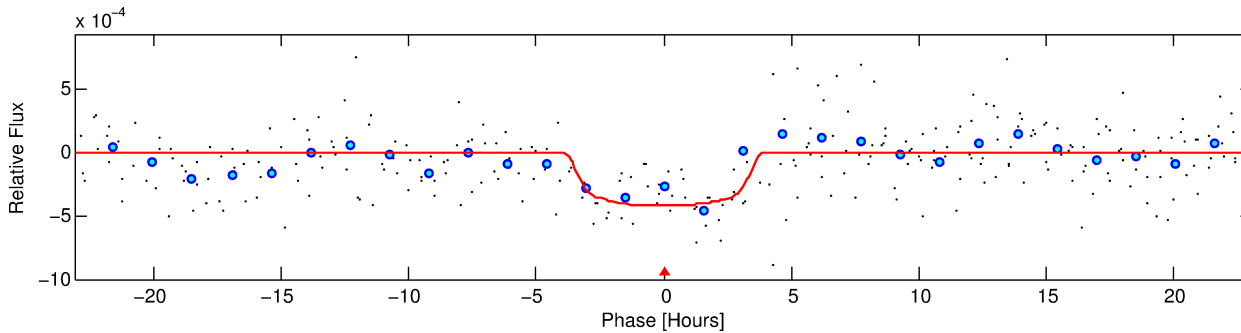
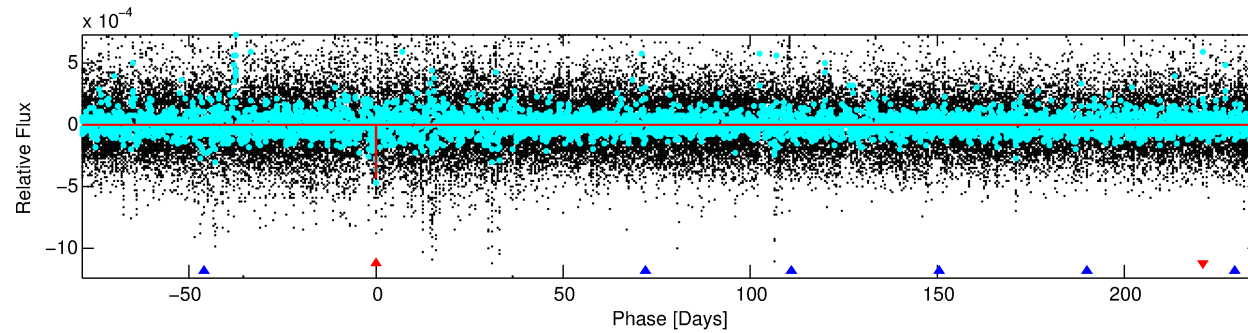
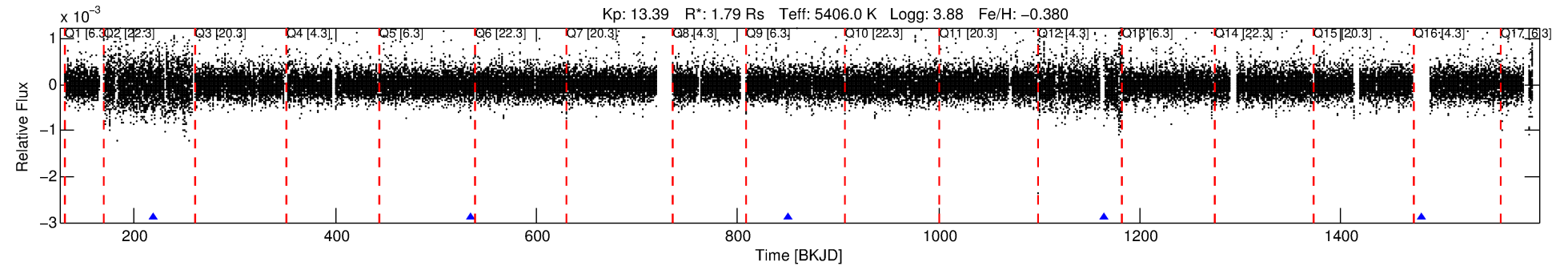
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010449437-01

No Significant Match Found

DV One-Page Summary

KIC: 10449437 Candidate: 1 of 2 Period: 315.287 d



DV Fit Results:

Period = 315.28685 [0.01118] d
Epoch = 219.0222 [0.0155] BKJD
Rp/R* = 0.0226 [0.0036]
a/R* = 151.17 [91.53]
b = 0.90 [0.13]
Seff = 3.21 [3.61]
Teq = 341 [96] K
Rp = 4.41 [2.56] Re
a = 0.8725 [0.5623] AU
Ag = 5136.62 [6122.40] [0.84σ]
Teffp = 4469 [488] K [8.30σ]

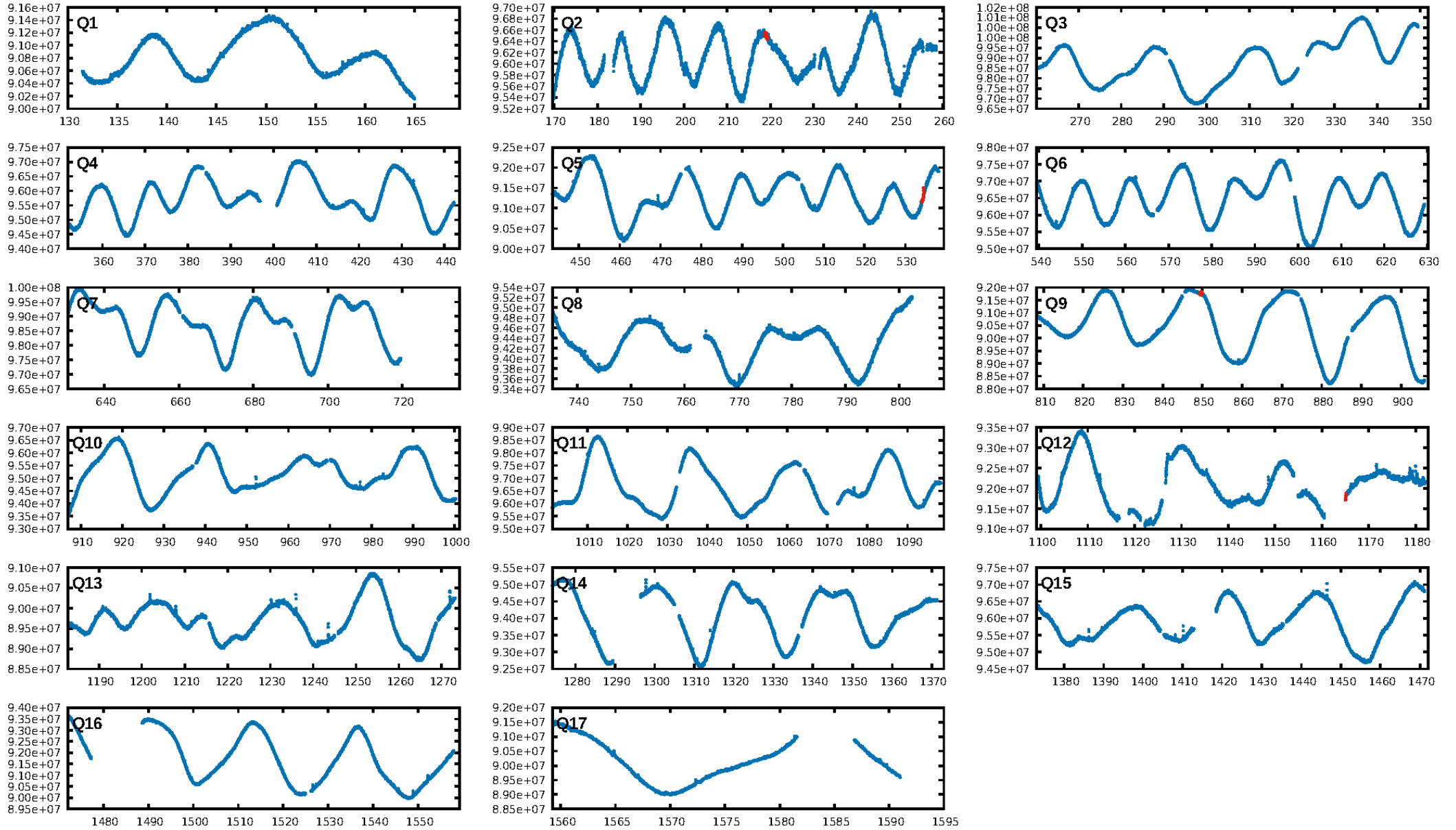
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [110.52σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 60.0%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.52e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.5195
Centroid-sig: 4.1%
Centroid-so: 1.867 arcsec [1.54σ]
OotOffset-rm: 2.953 arcsec [0.17σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-rm: 2.904 arcsec [0.17σ]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

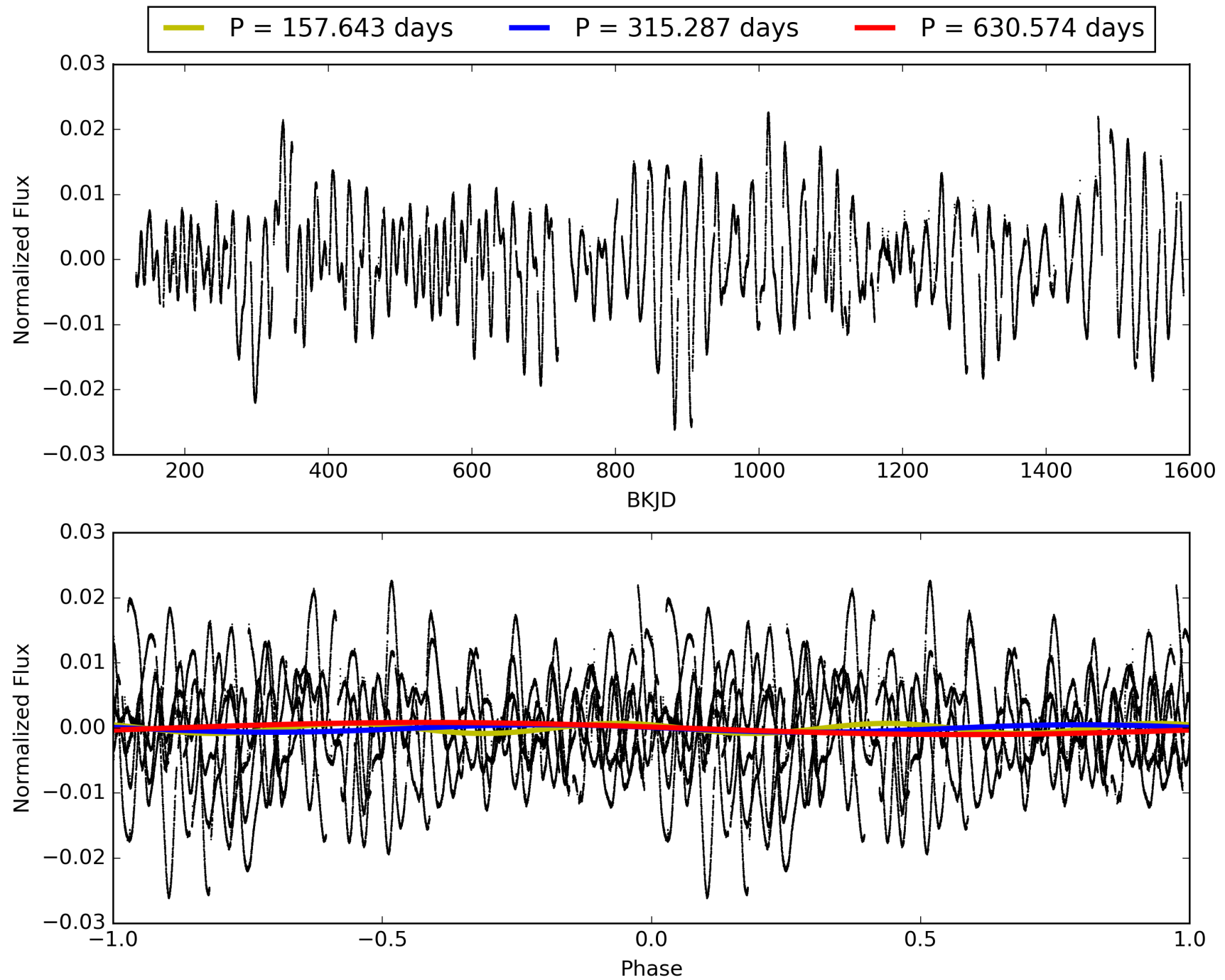
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 21:37:47 Z

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

TCE 010449437-01, PDC Light Curves

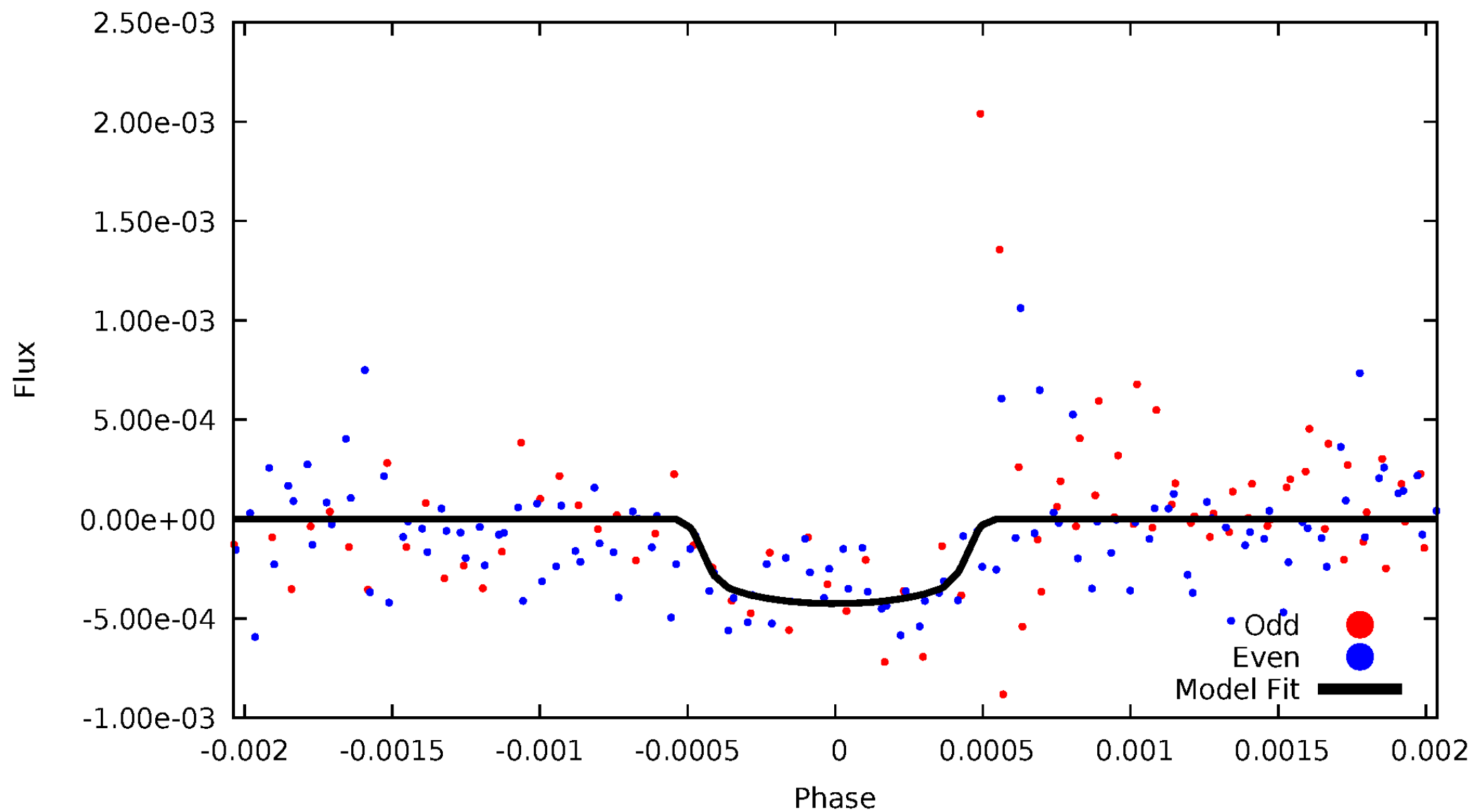


TCE 010449437-01



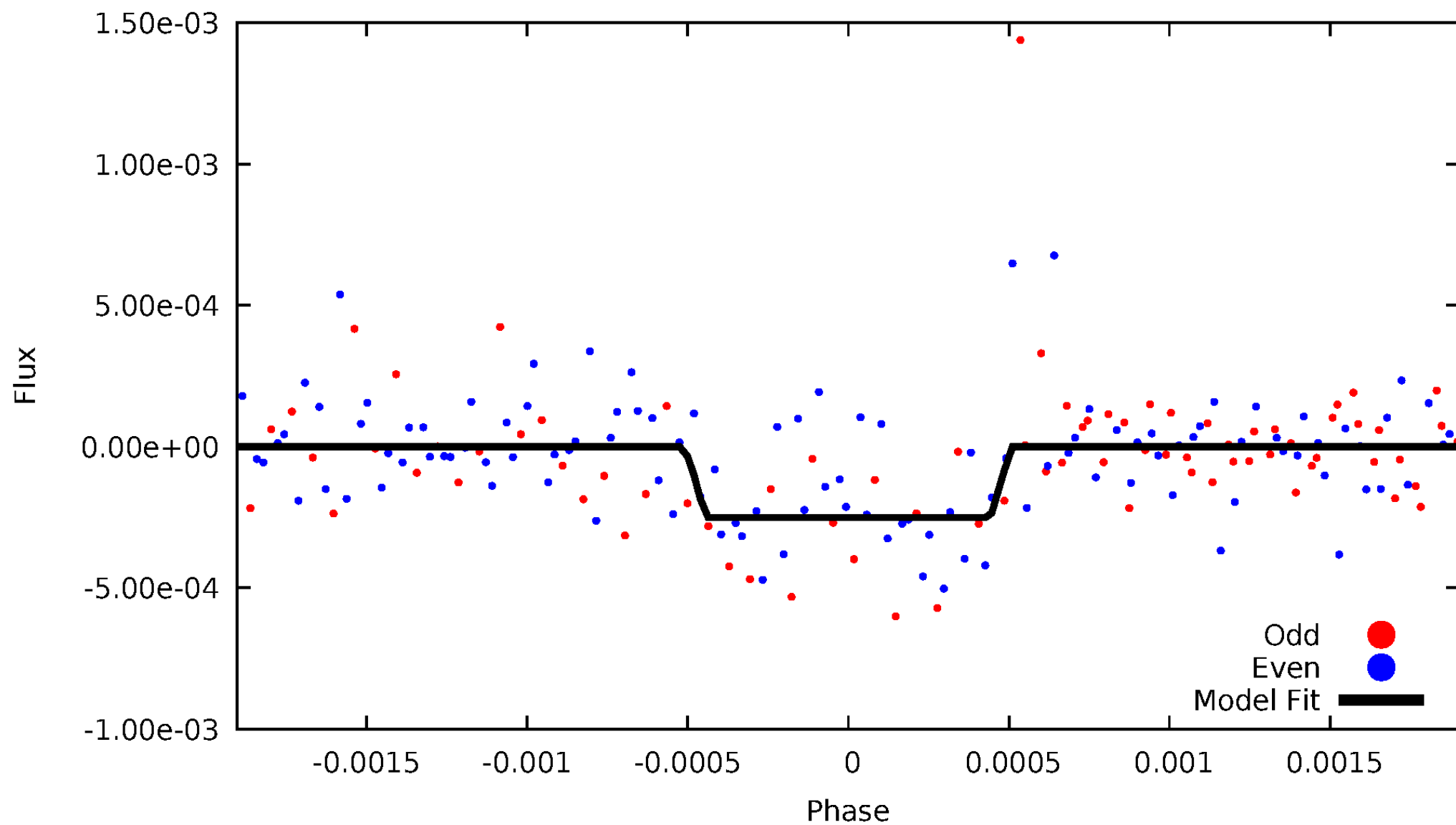
DV Odd/Even

TCE 010449437-01

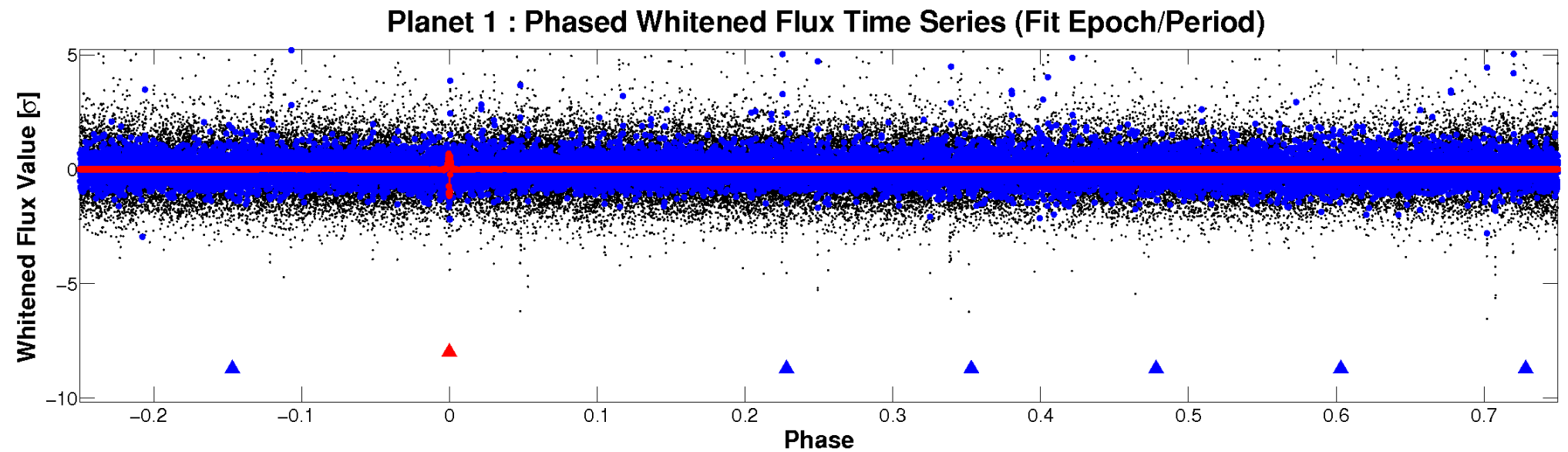
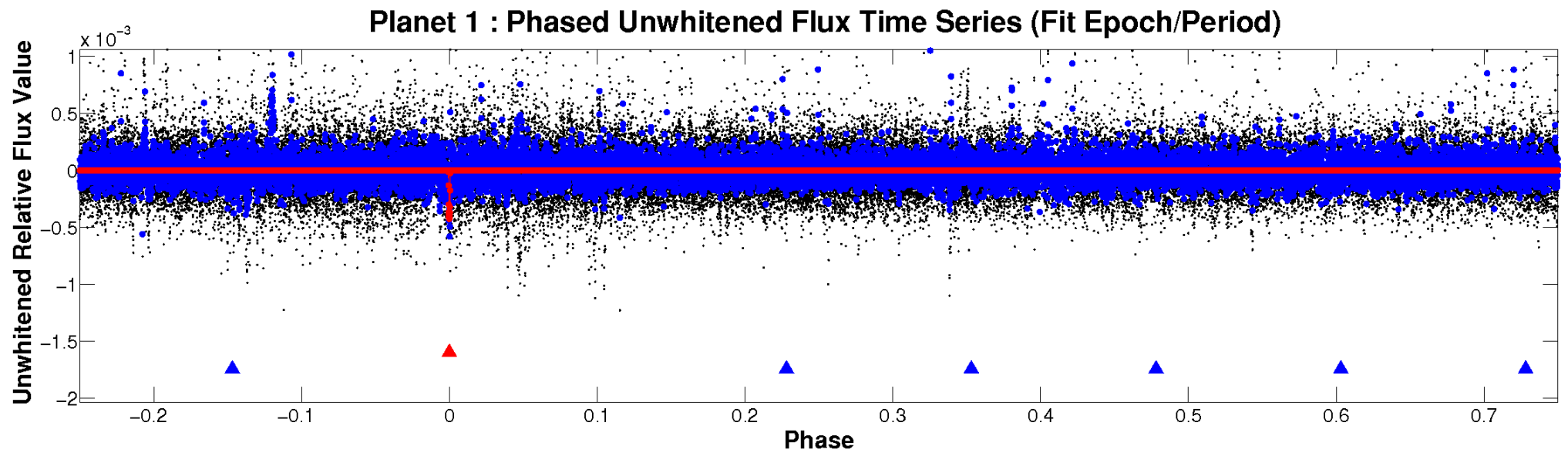


ALT Odd/Even

TCE 010449437-01

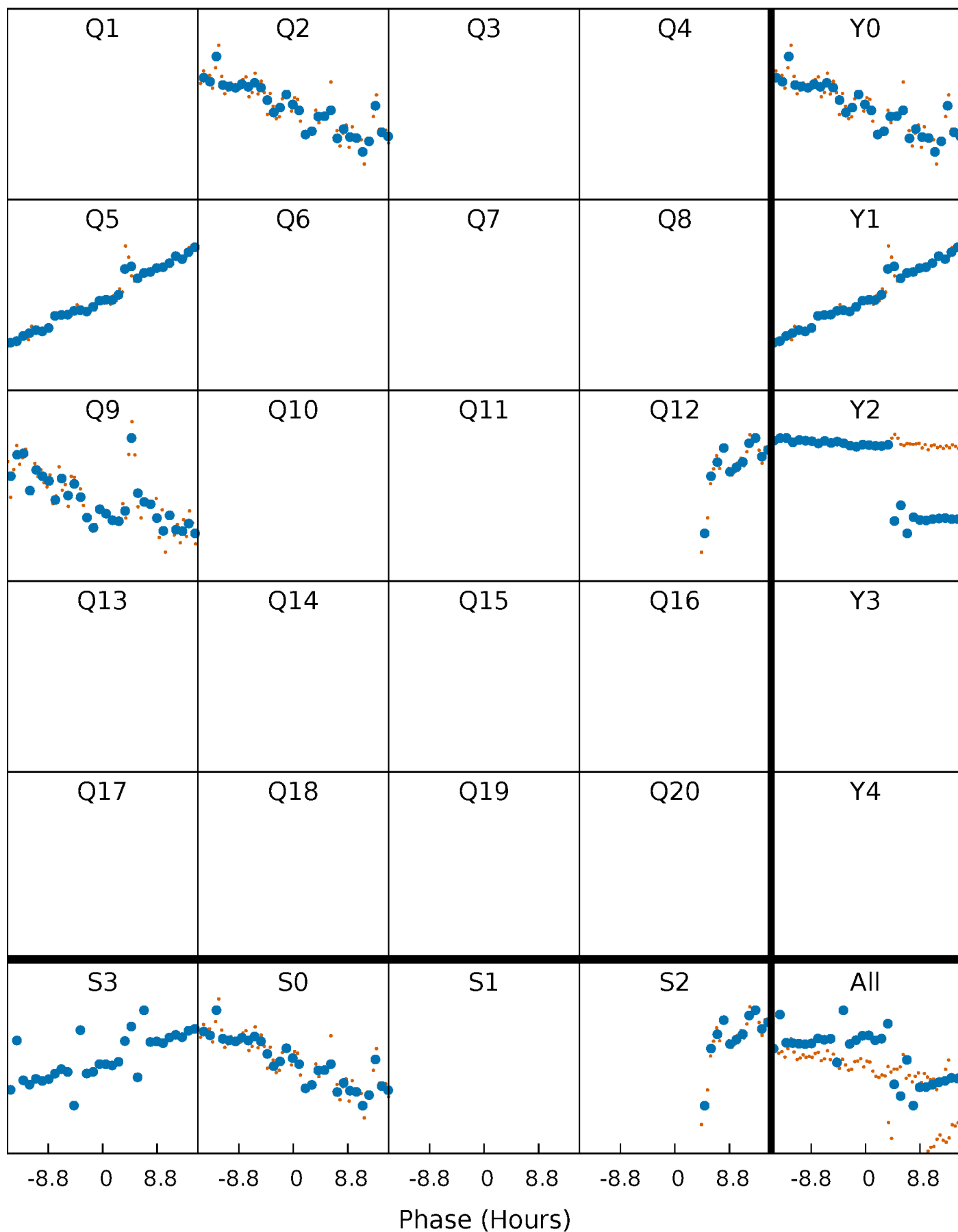


Non-Whitened Vs. Whitened Light Curve



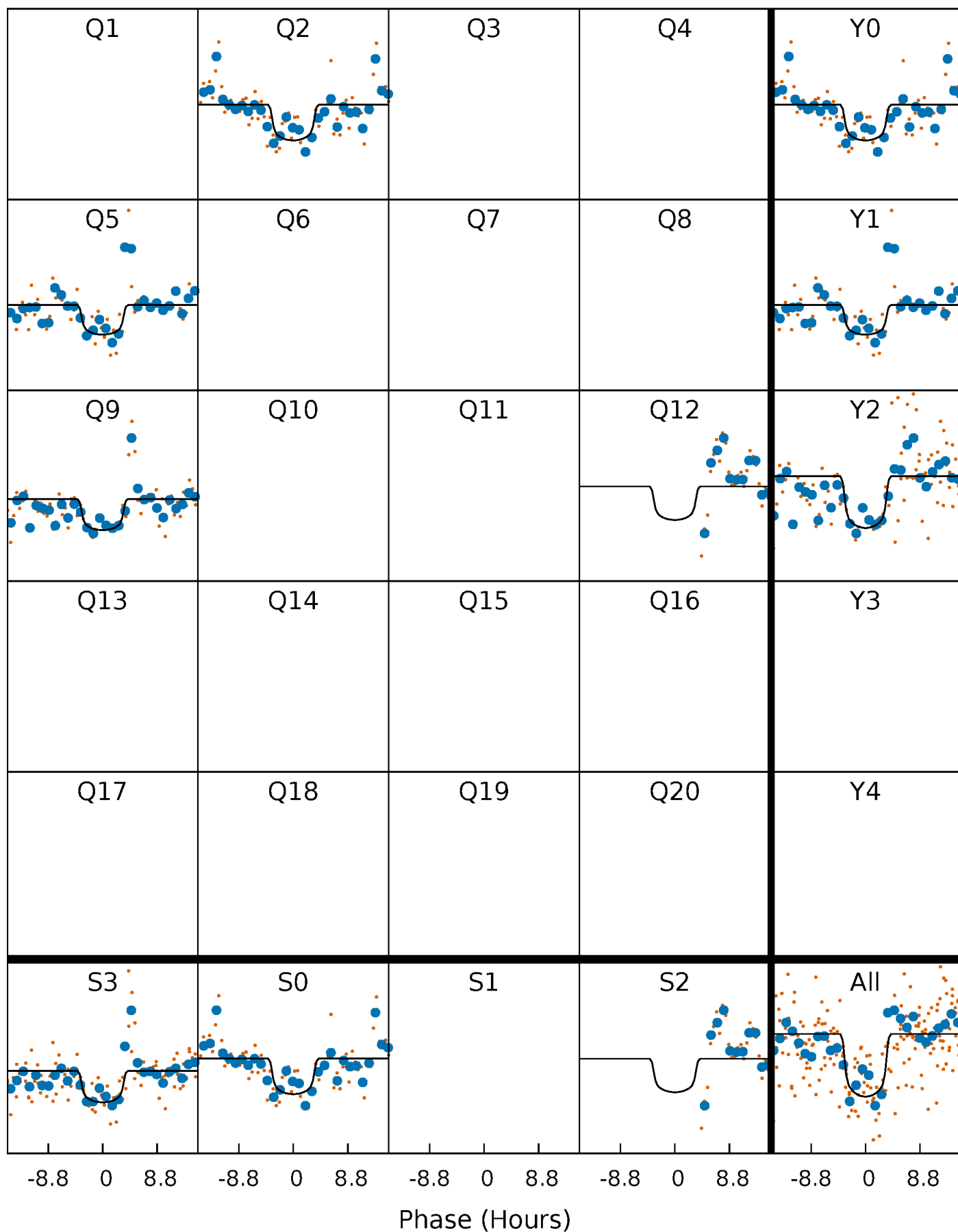
PDC Quarter-Phased Transit Curves

TCE 010449437-01 P=315.286847 Days $T_0=219.022210$ (BKJD)



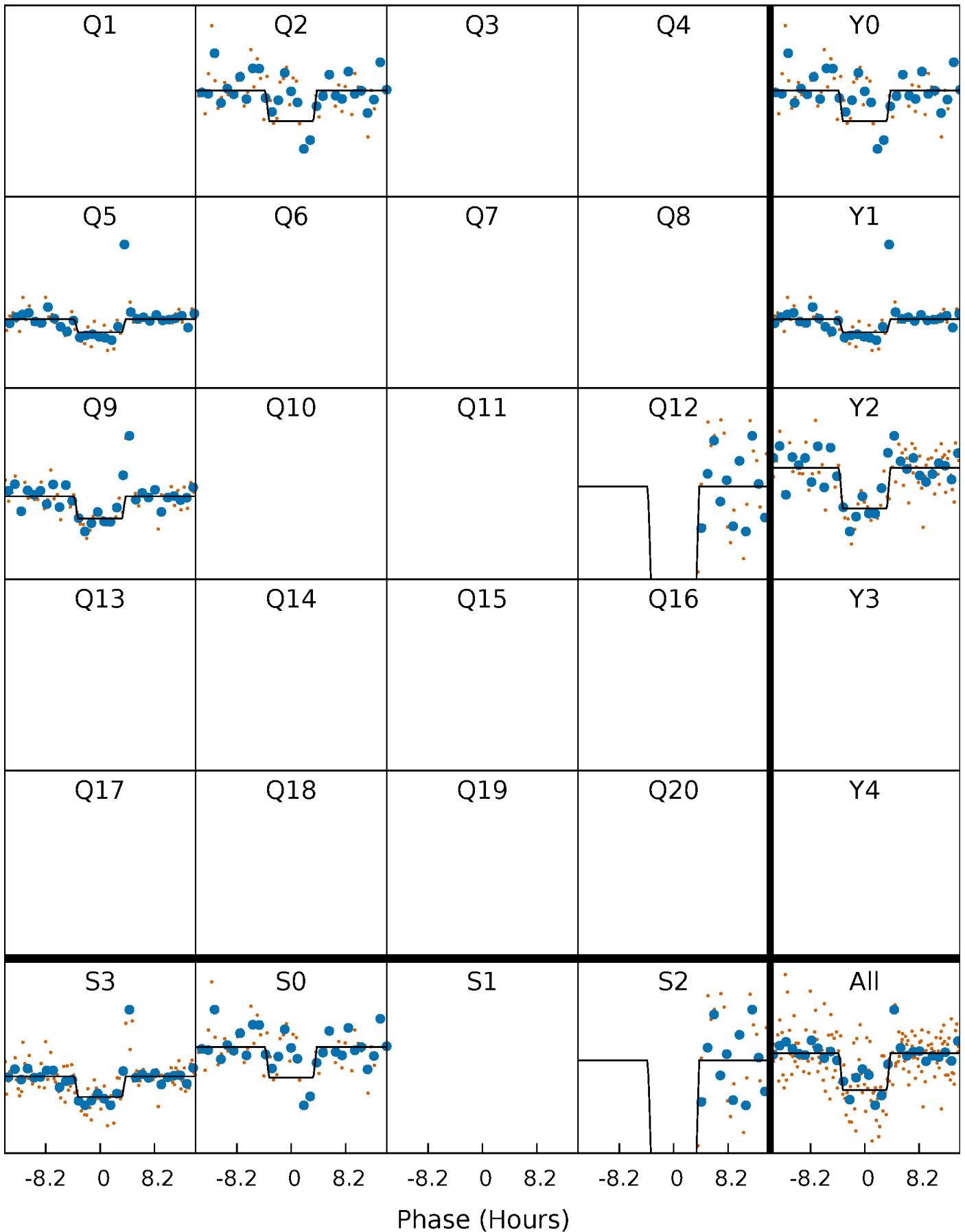
DV Quarter-Phased Transit Curves

TCE 010449437-01 P=315.286847 Days $T_0=219.022210$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

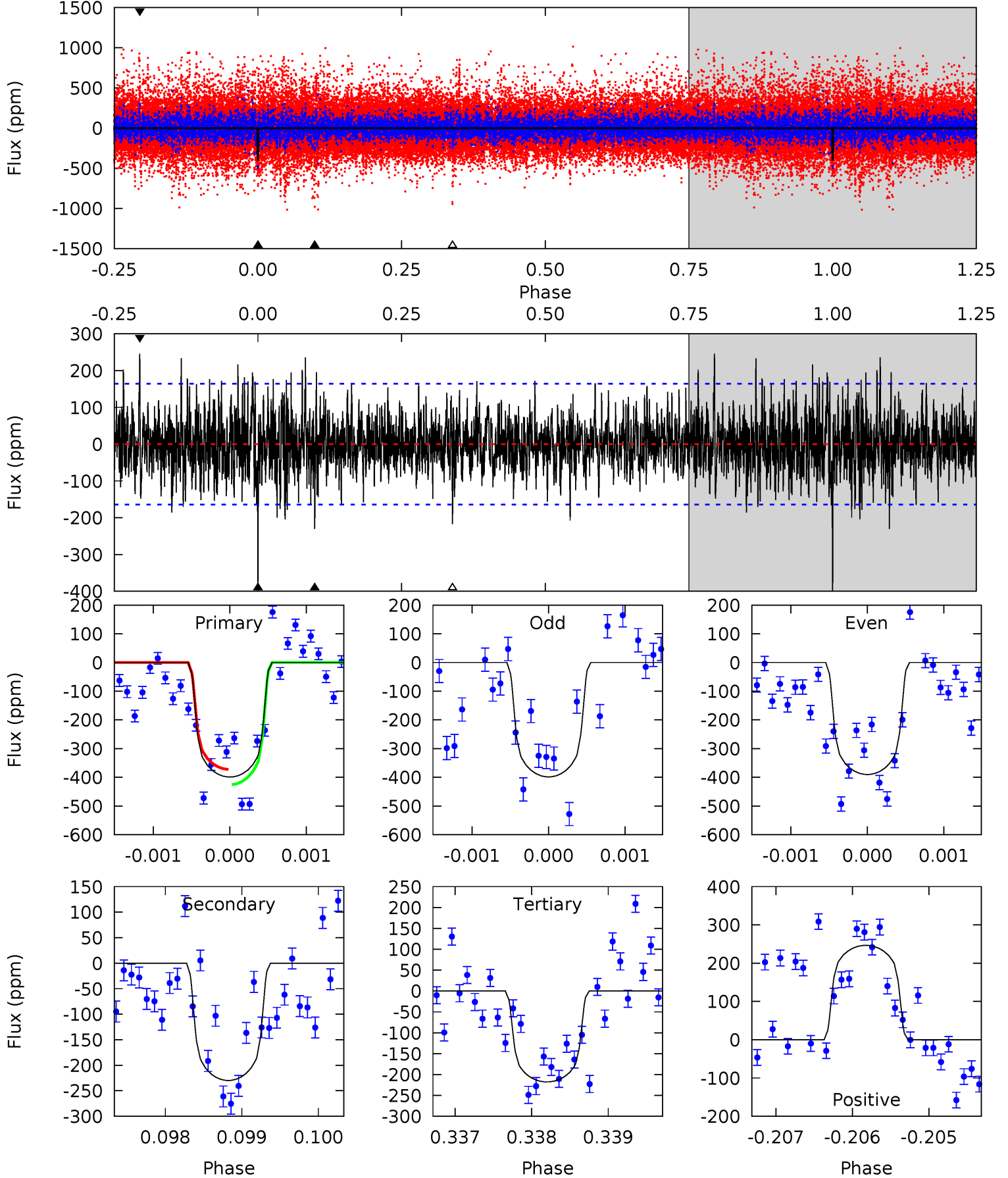
TCE 010449437-01 P=315.296642 Days $T_0=219.018873$ (BKJD)



DV Model-Shift Uniqueness Test

010449437-01, $P = 315.286847$ Days, $E = 219.022210$ Days

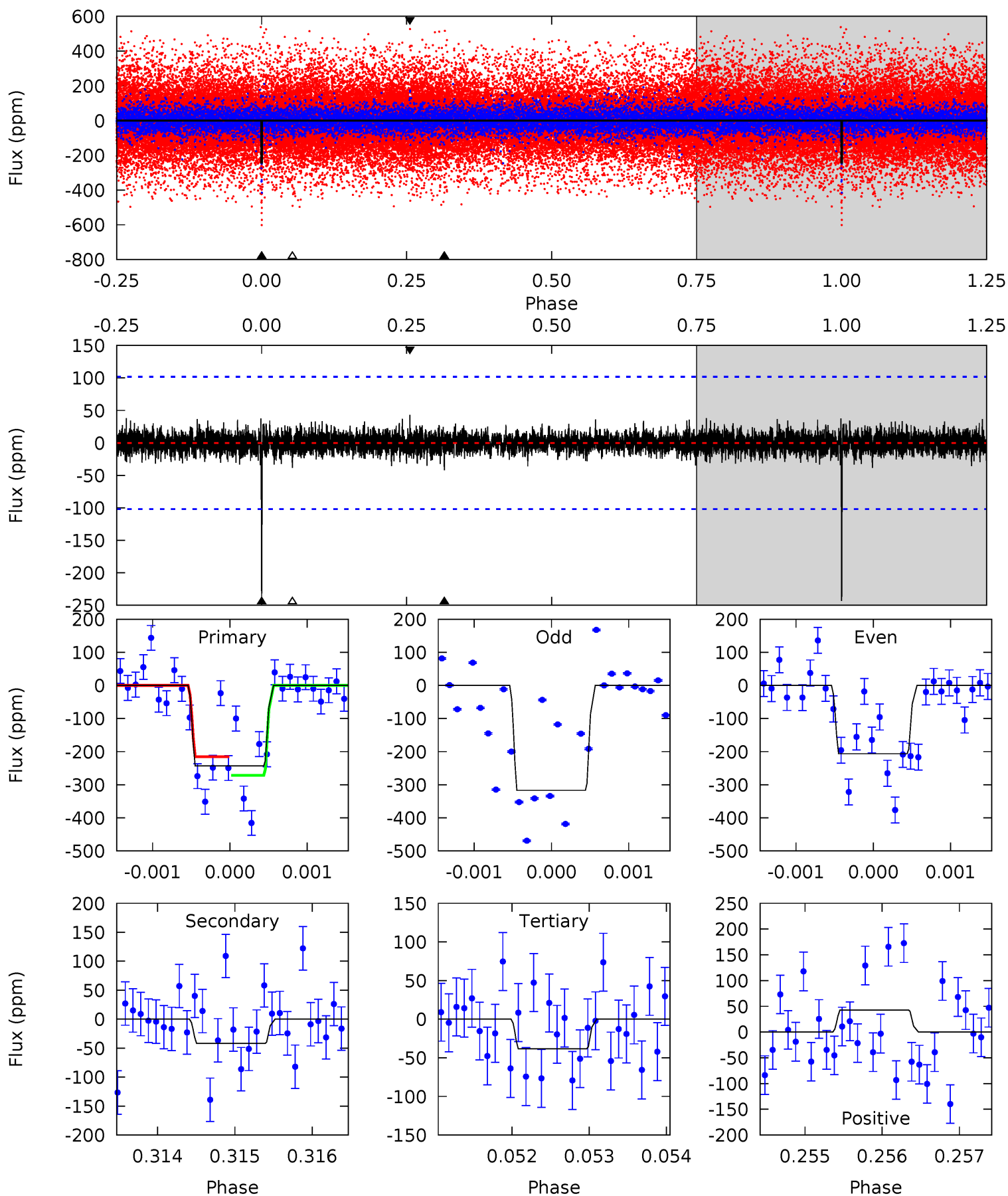
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	7.63	7.22	8.18	5.45	3.29	1.95	6.02	5.06	0.40	-0.56	0.13	1.00	0.38	0.88



Alt Model-Shift Uniqueness Test

010449437-01, P = 315.296642 Days, E = 219.018873 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	2.25	2.05	2.30	5.46	3.30	0.49	11.0	10.7	0.20	-0.05	2.83	0.93	0.15	1.51



Stellar Parameters For KIC 010449437

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5406^{+177}_{-160}	$3.883^{+0.686}_{-0.294}$	$-0.380^{+0.350}_{-0.250}$	$1.788^{+0.997}_{-0.997}$	$0.891^{+0.151}_{-0.138}$	$0.220^{+2.240}_{-0.136}$
	+3%/-3%	+18%/-8%	+92%/-66%	+56%/-56%	+17%/-15%	+1020%/-62%
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 010449437-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-230 ± 30	$4.04^{+1.49}_{-1.26}$	465^{+67}_{-76}	4599^{+356}_{-306}	5887^{+7010}_{-2796}
Alt.	-42 ± 19	$2.84^{+1.16}_{-1.00}$	463^{+67}_{-67}	3778^{+494}_{-405}	2016^{+3104}_{-1306}

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 $A_{obs} \gg 1.0$

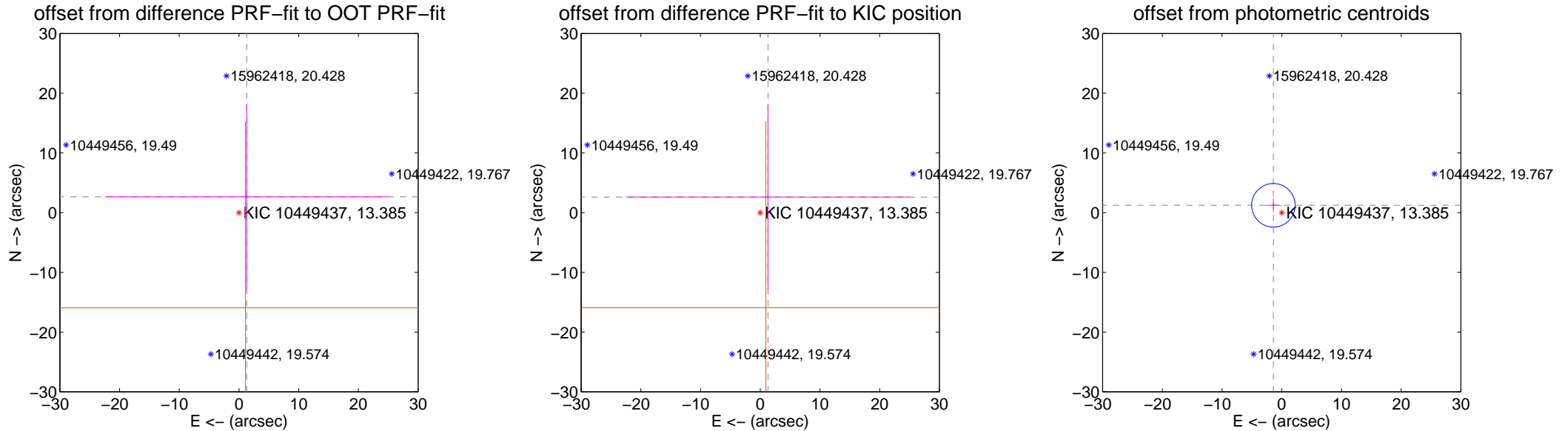
DV Centroid Data

Supplemental centroid analysis for 010449437-01. Kepler magnitude: 13.38. Transit SNR 7.75

There are 1 quarters with good PRF difference image offsets

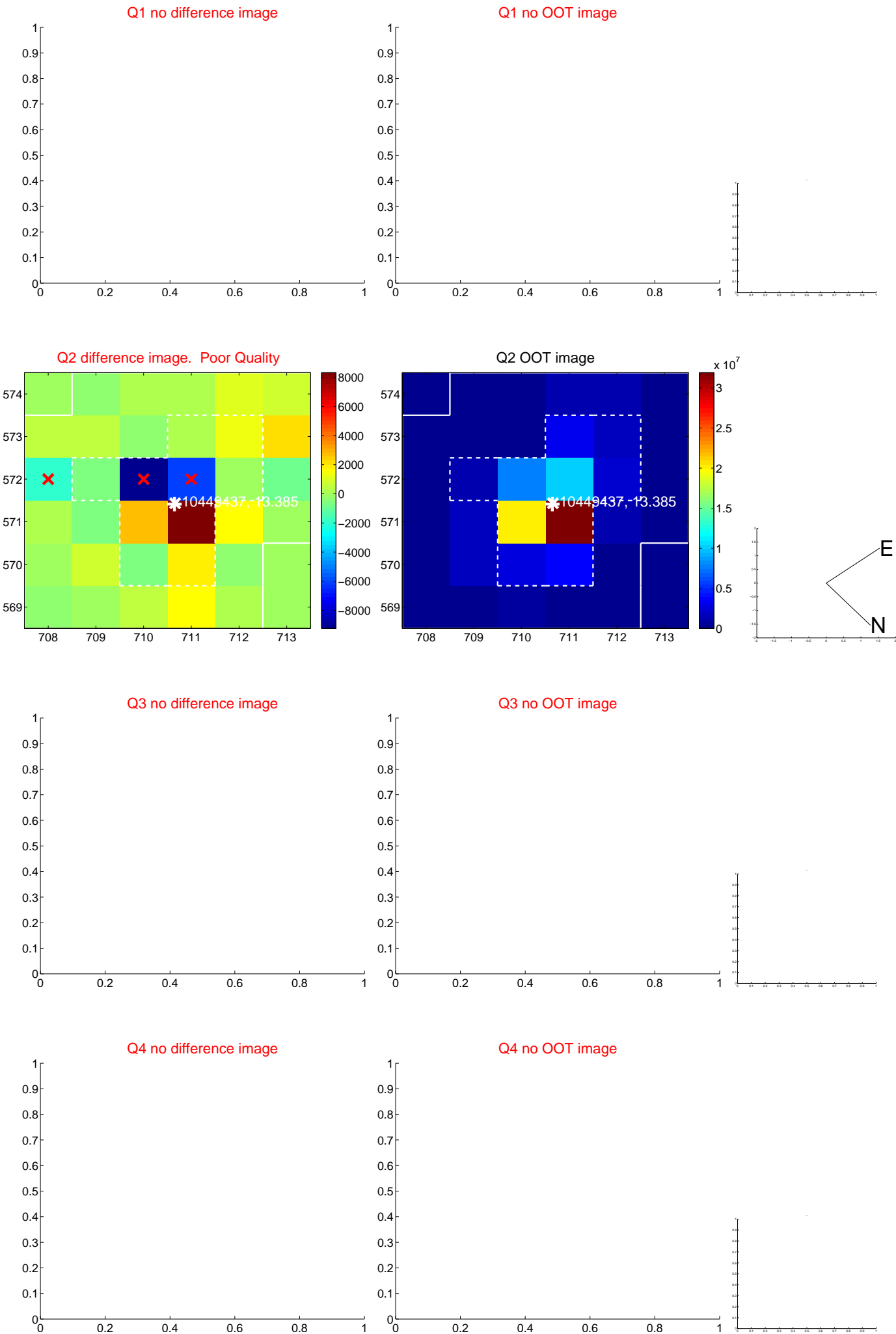
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.953 ± 17.469	0.17	-1.297 ± 23.741	2.652 ± 15.599
PRF-fit source offset from KIC position	2.904 ± 17.521	0.17	-1.295 ± 23.741	2.600 ± 15.599
photometric centroid source offset	1.87 ± 1.22	1.54	1.40 ± 1.29	1.24 ± 1.11

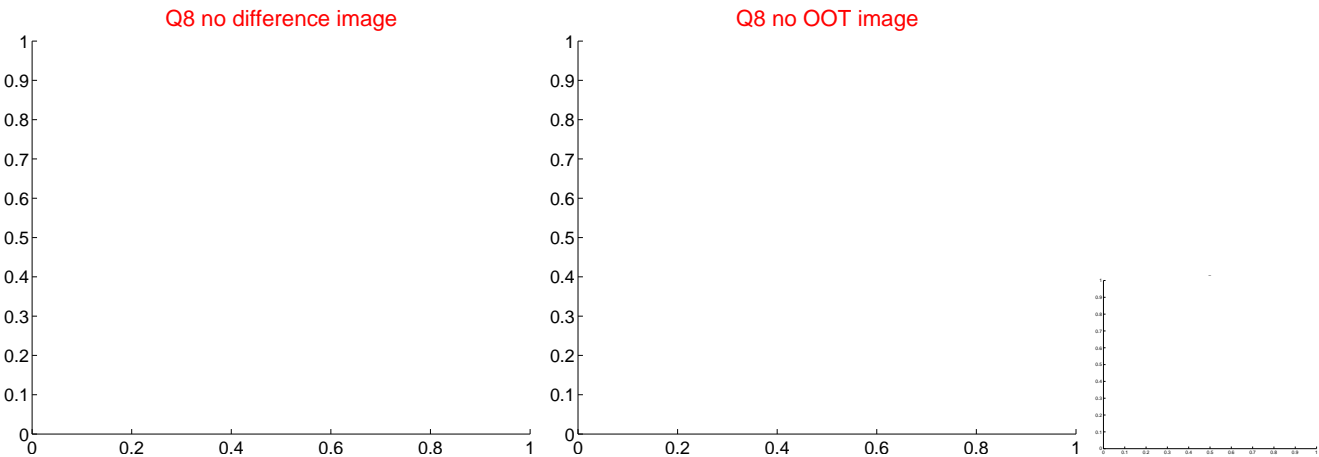
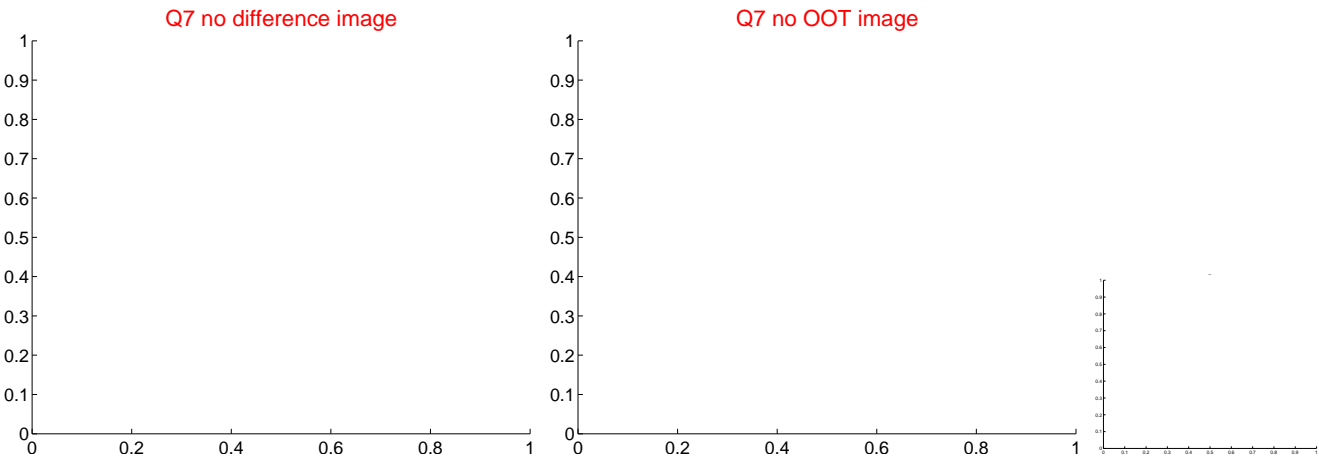
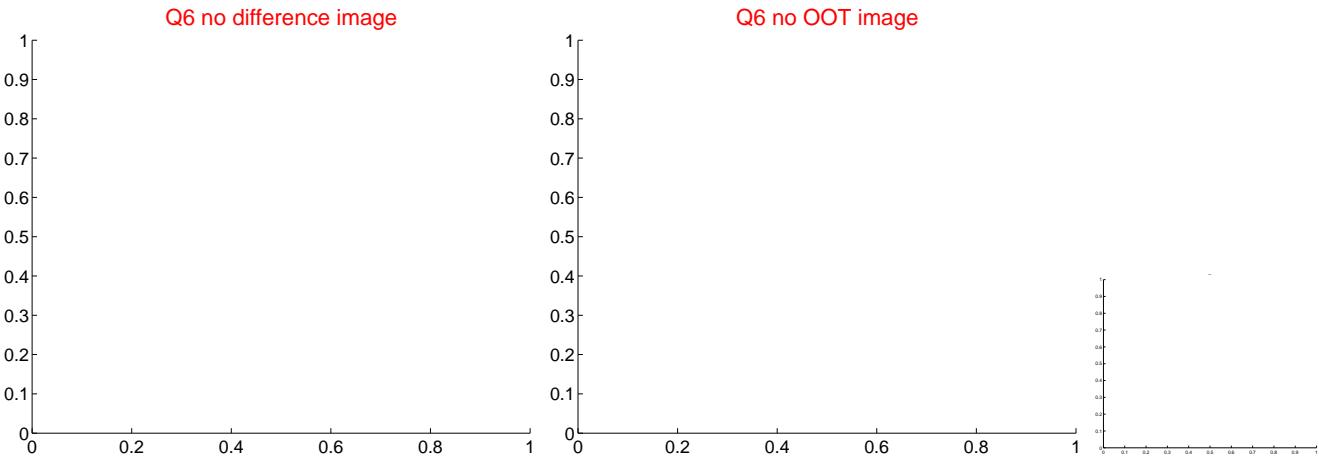
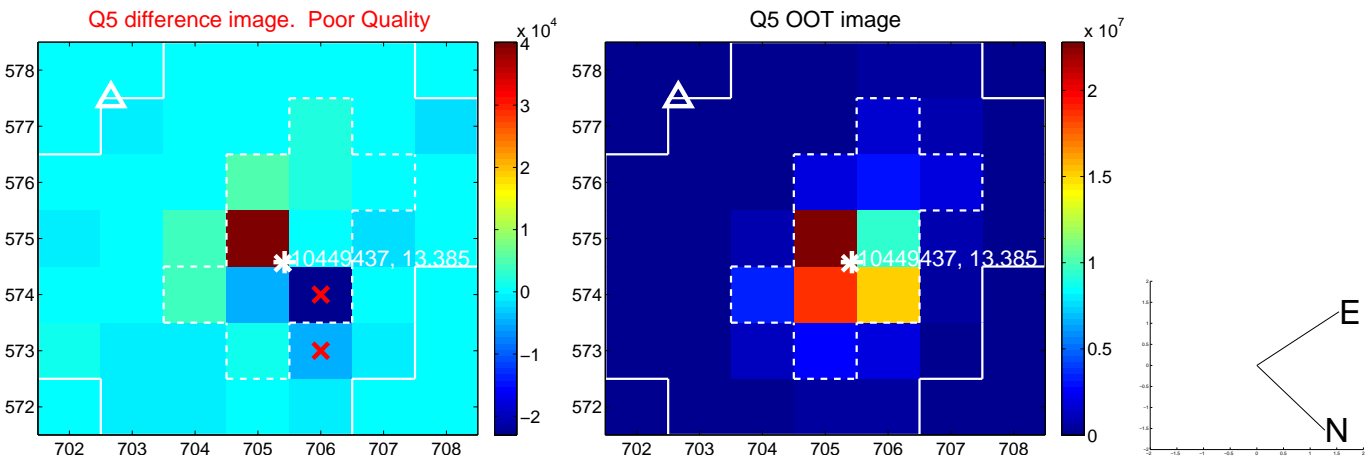


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

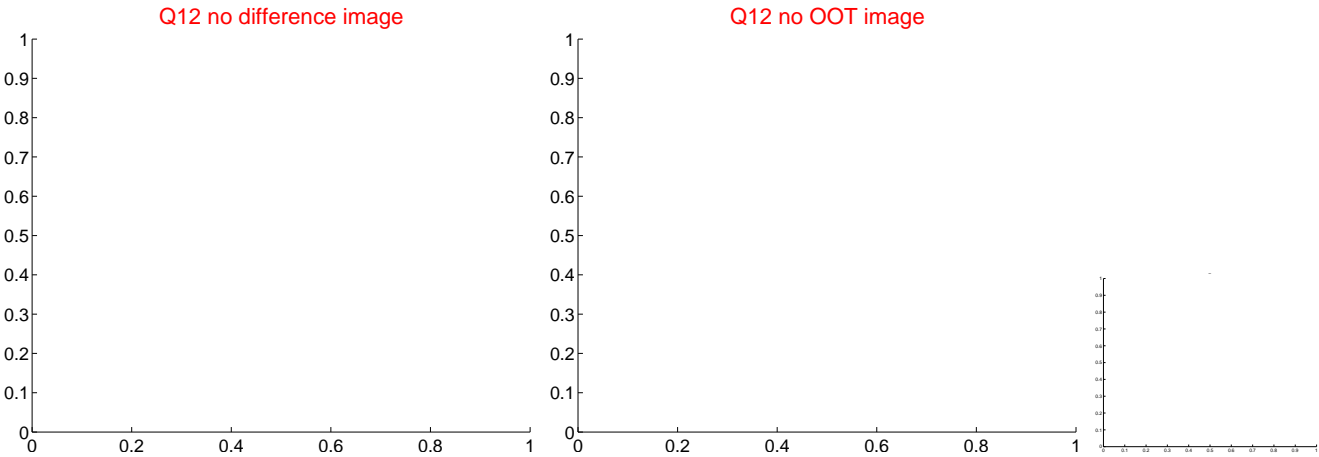
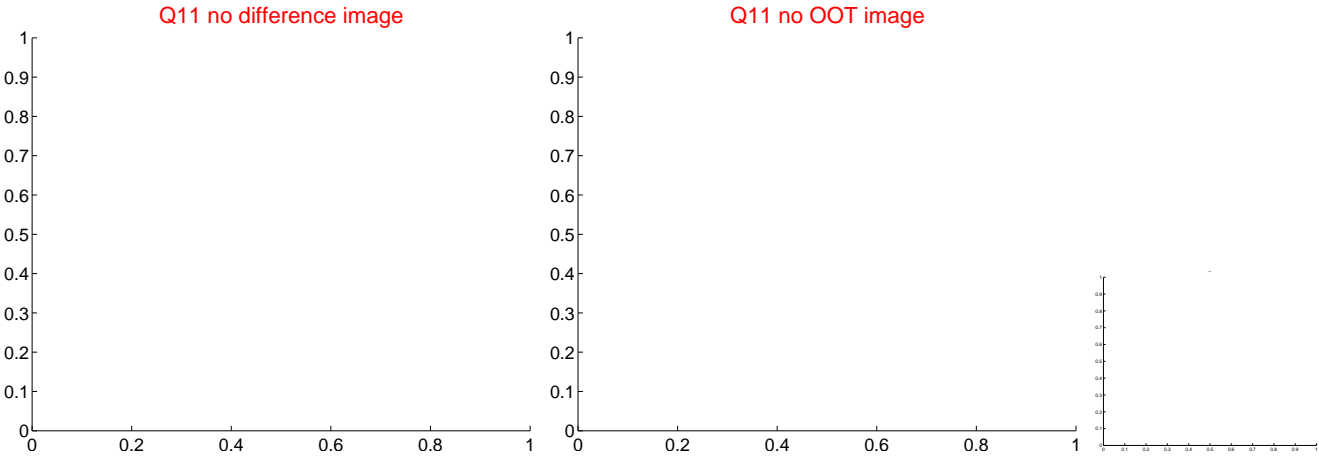
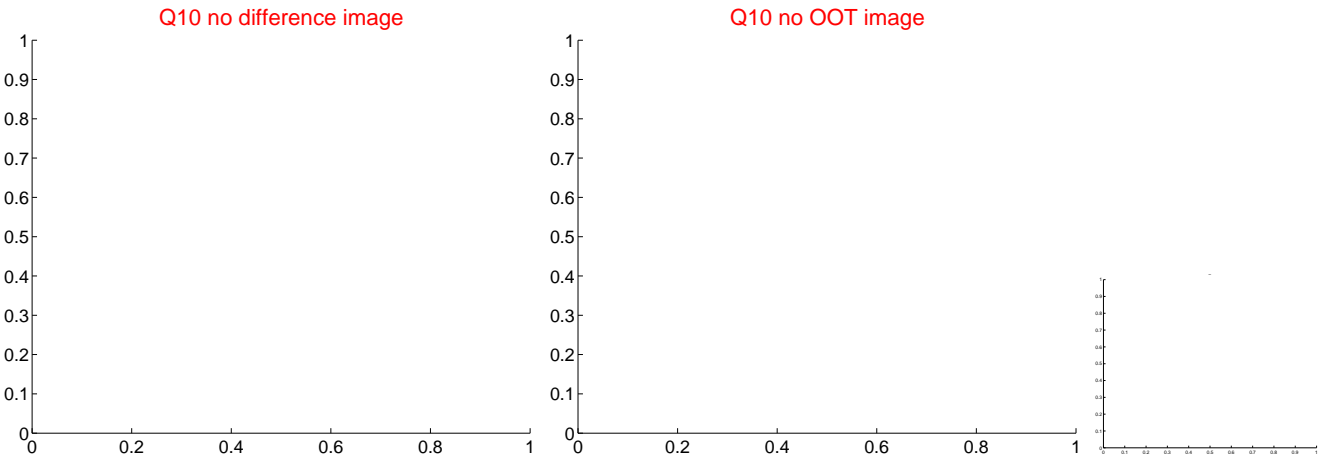
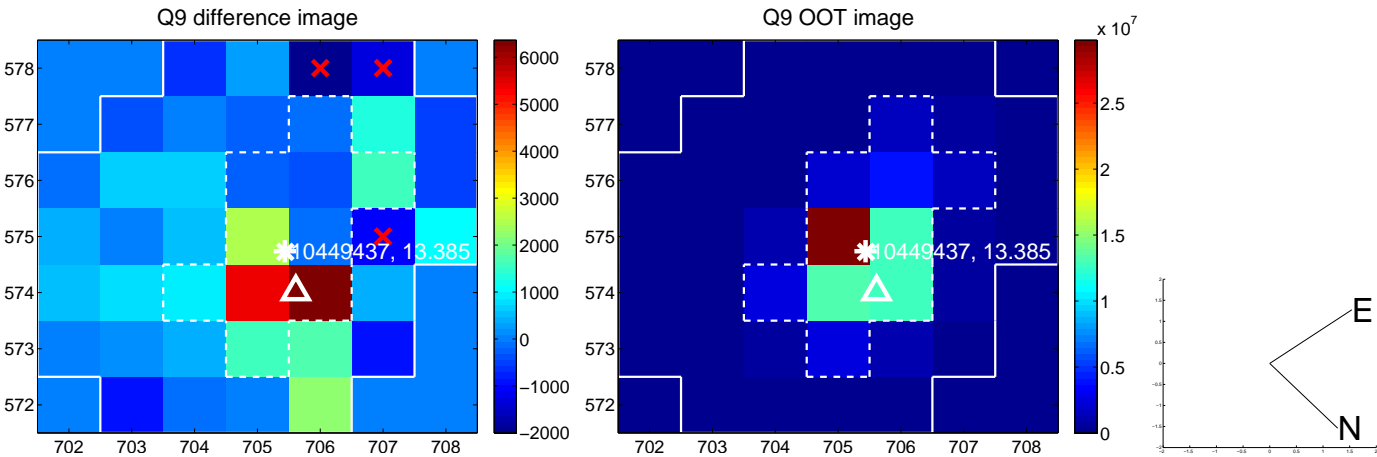
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



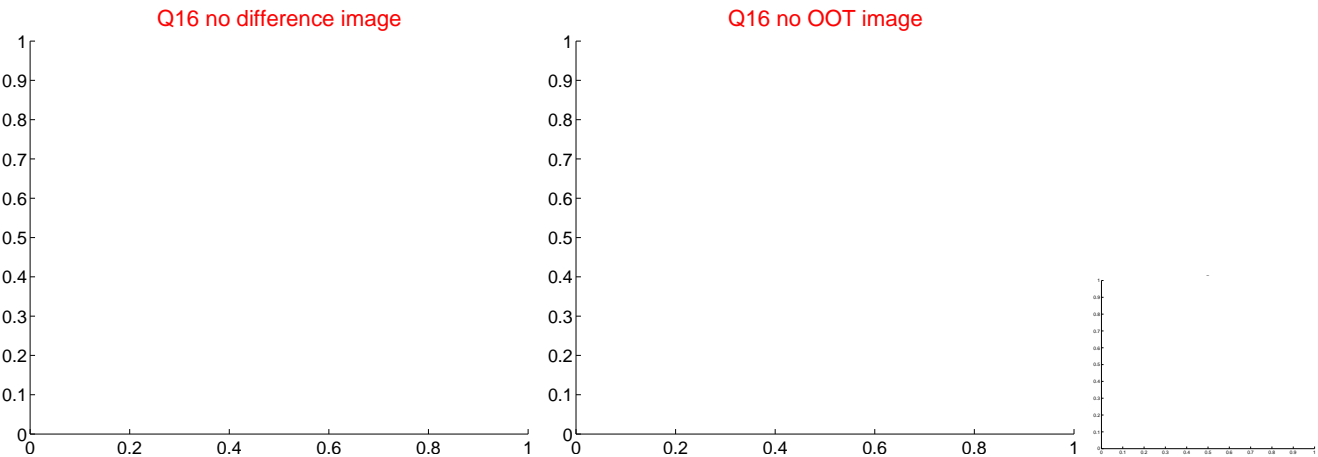
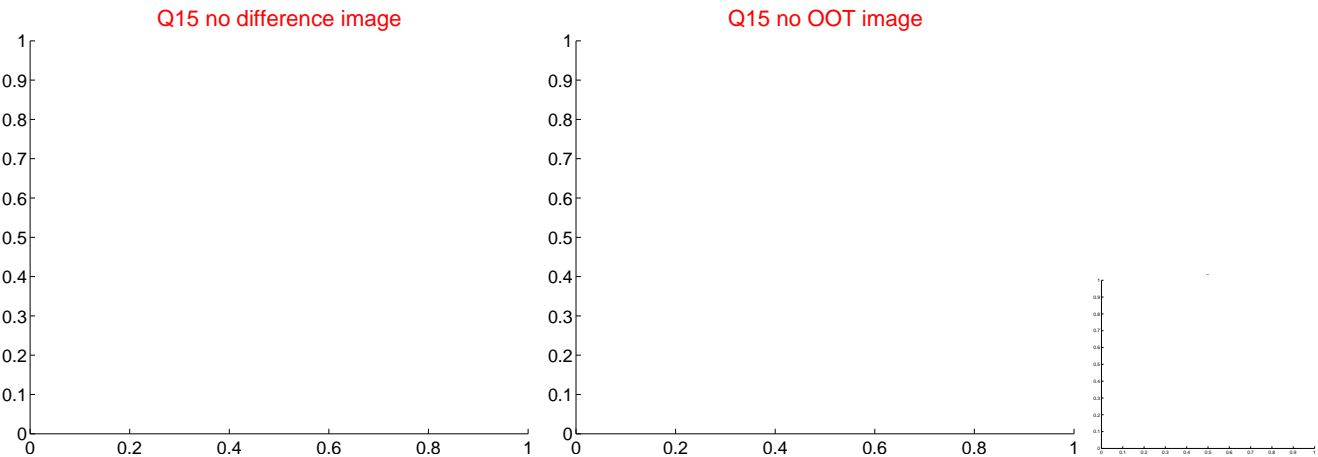
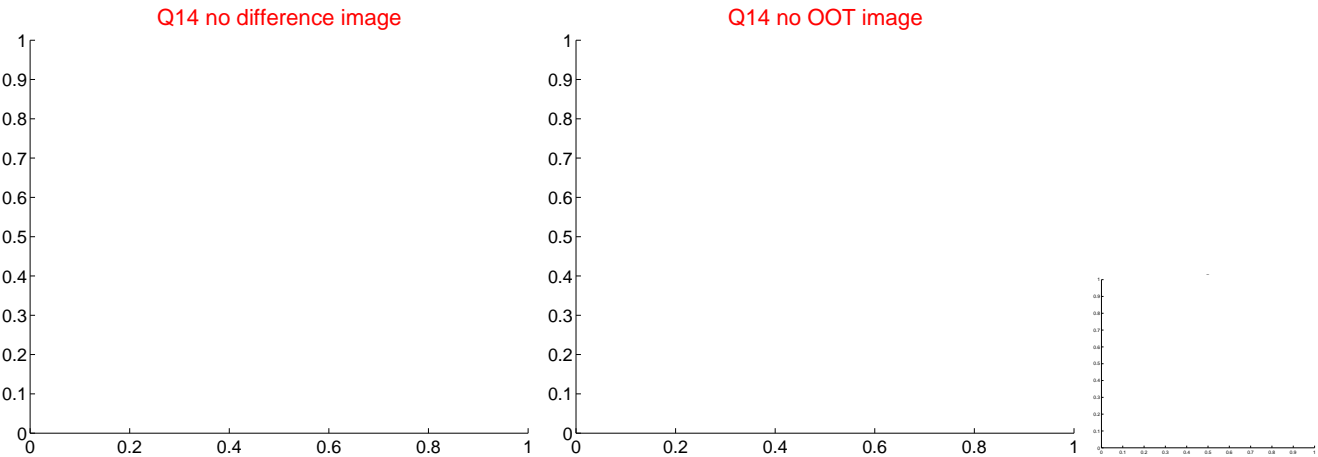
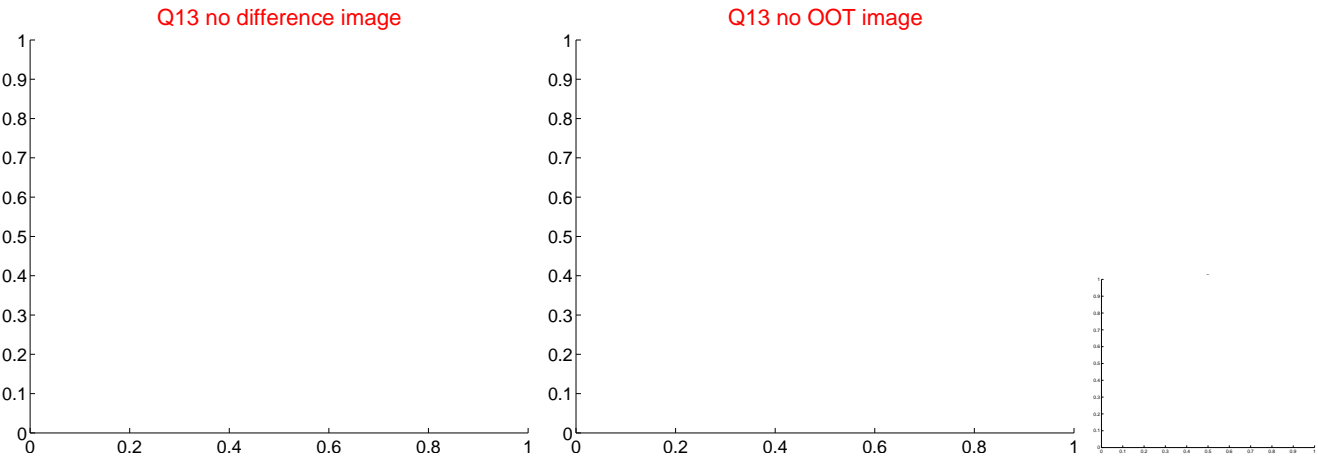
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



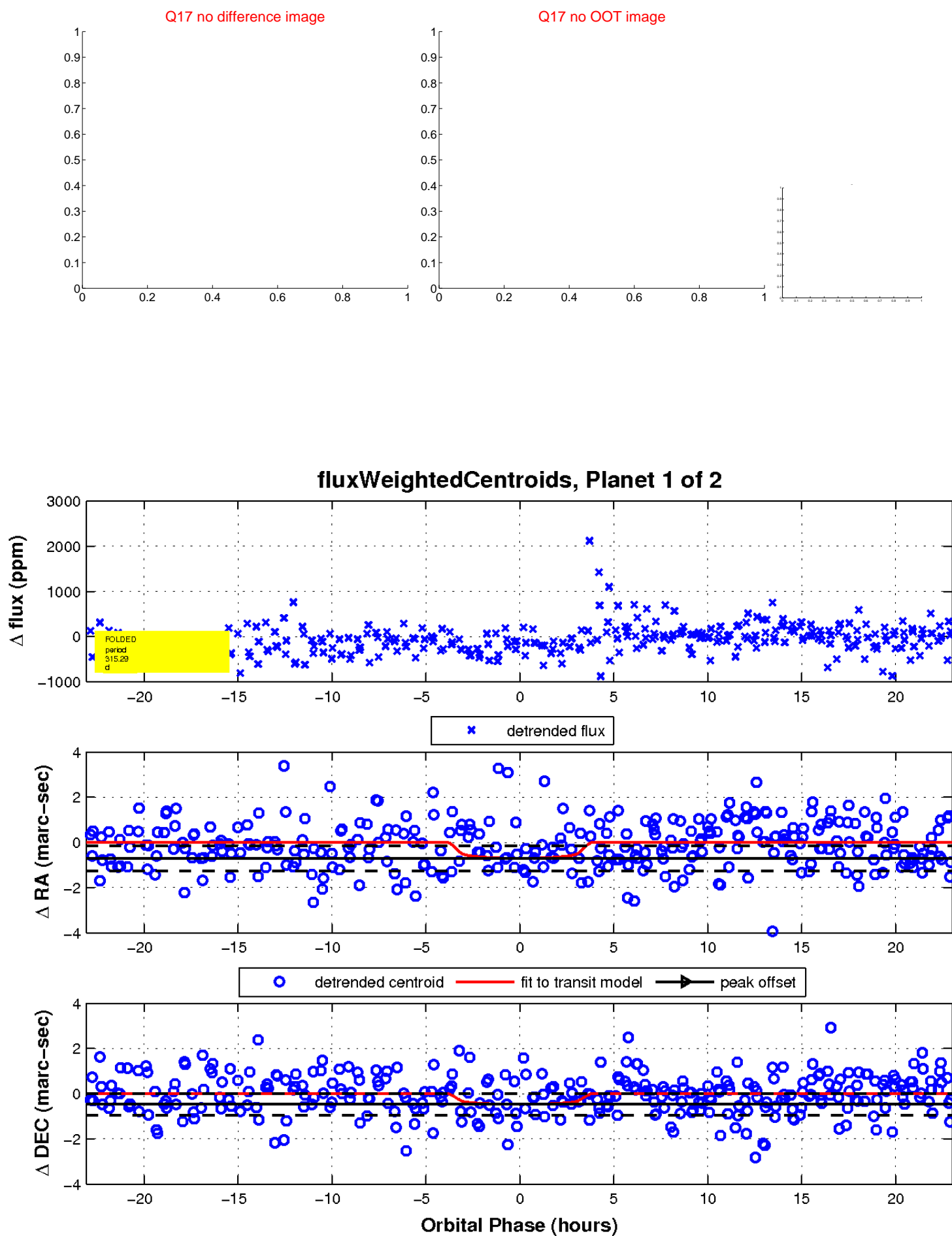
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

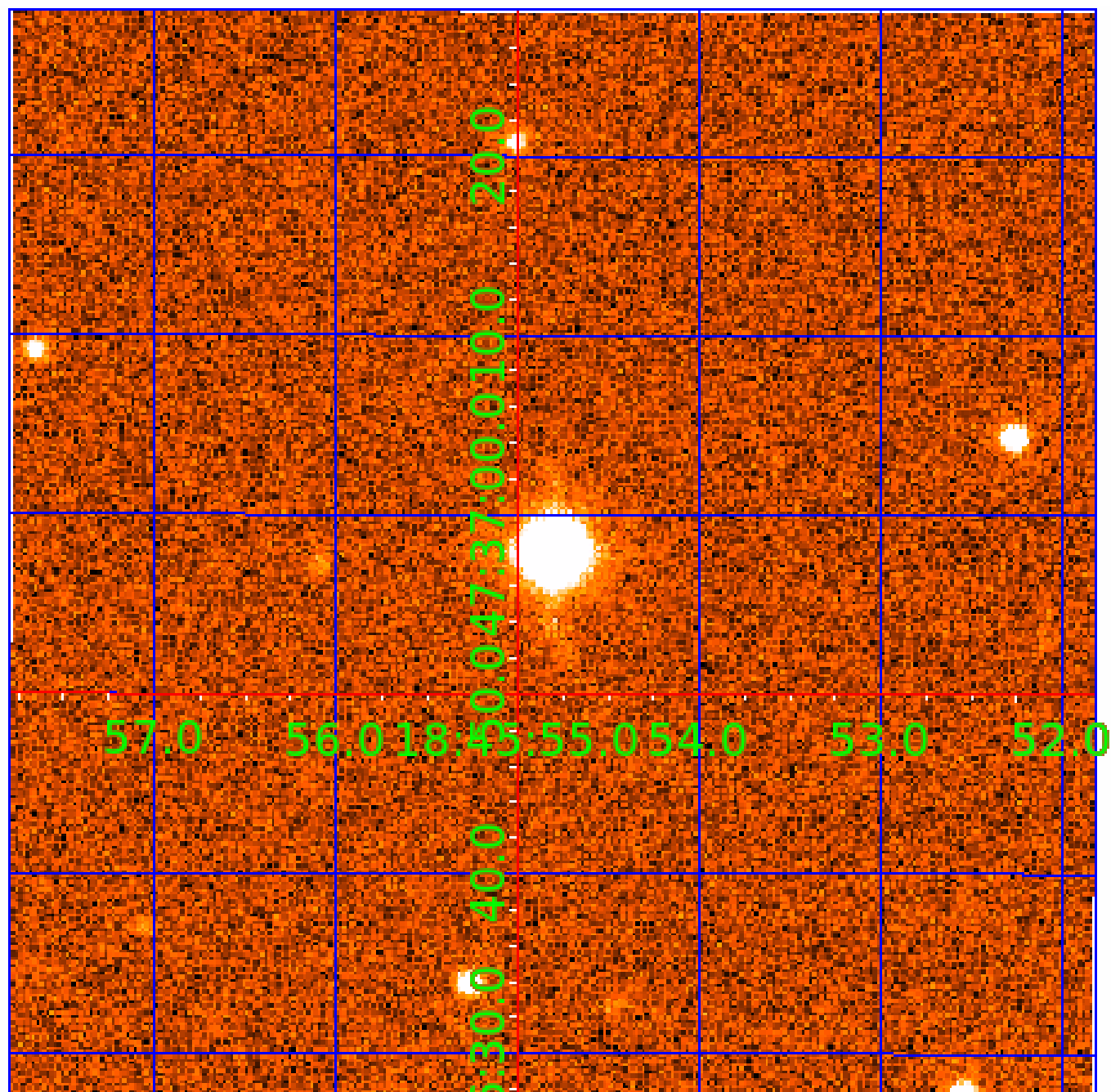


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010449437

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})
010449437-01	OBS	No	315.286847	219.022210	425.4	7.709	9.6	7.8	1.79	5406	4.41	3.21
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010449437-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010449437-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—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.

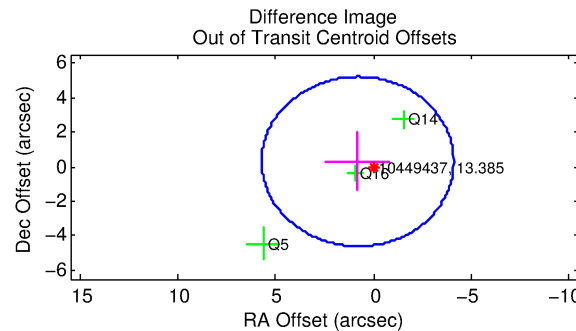
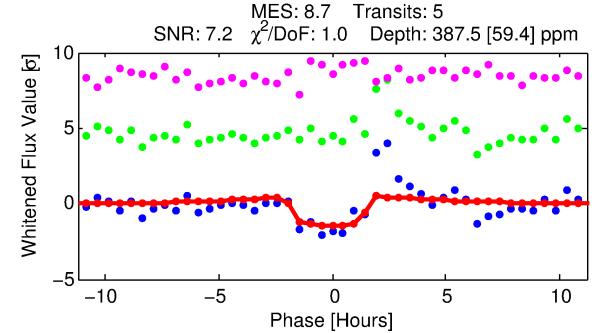
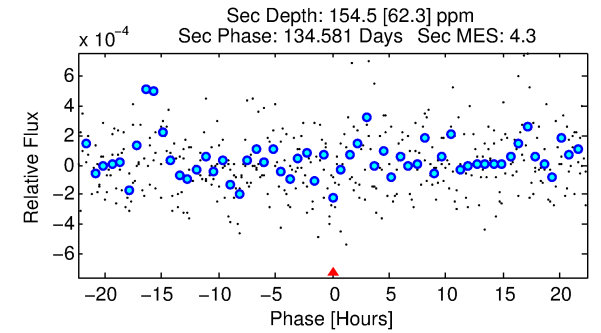
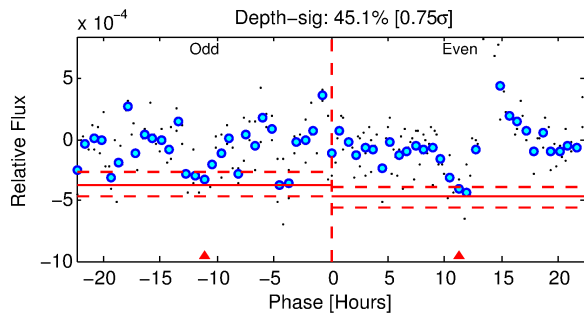
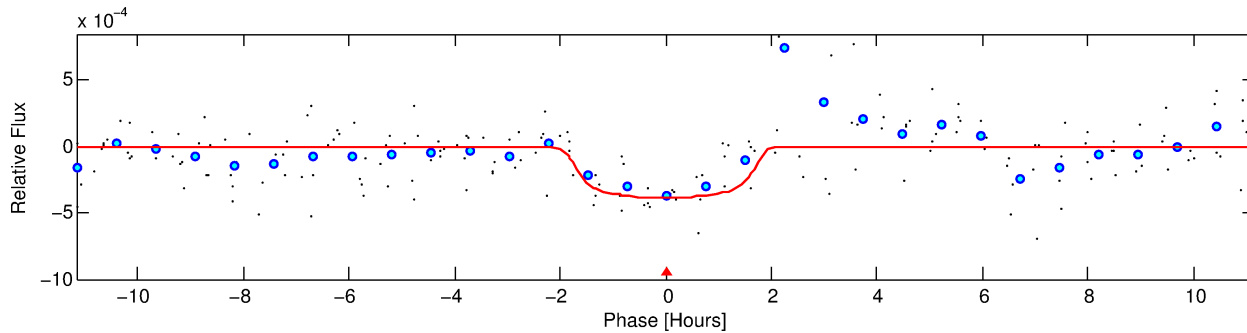
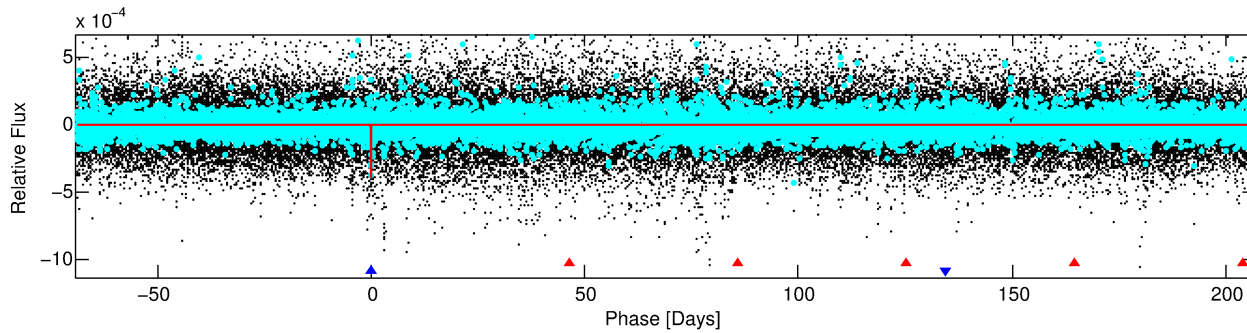
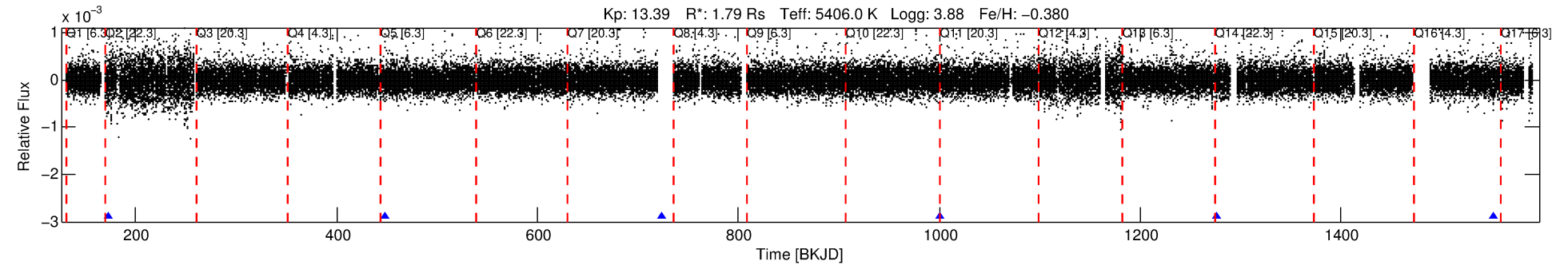
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010449437-02

No Significant Match Found

DV One-Page Summary

KIC: 10449437 Candidate: 2 of 2 Period: 275.869 d



DV Fit Results:

Period = 275.86942 [0.00242] d
Epoch = 172.7423 [0.0087] BKJD
Rp/R* = 0.0205 [0.0197]
a/R* = 327.57 [1376.47]
b = 0.84 [1.49]
Seff = 3.84 [4.32]
Teq = 357 [100] K
Rp = 4.01 [4.45] Re
a = 0.7981 [0.5144] AU
Ag = 3371.65 [7609.89] [0.44 σ]
Teffp = 4206 [2067] K [1.86 σ]

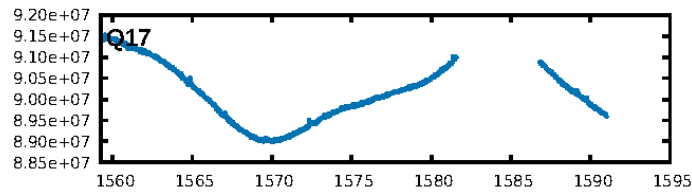
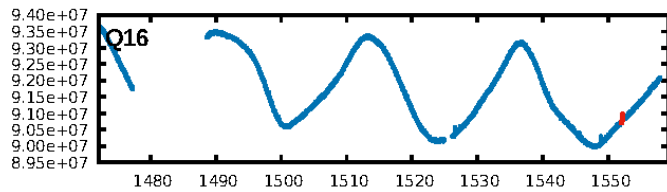
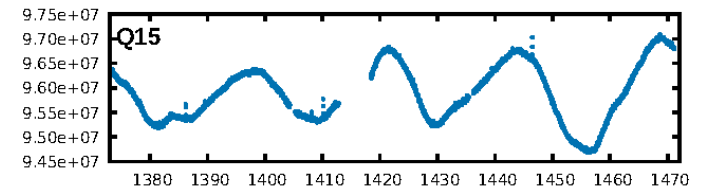
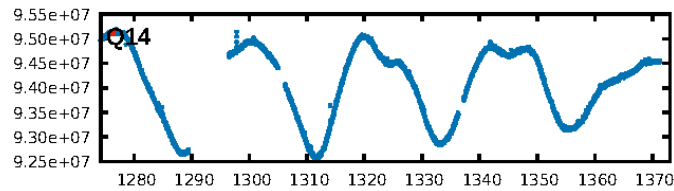
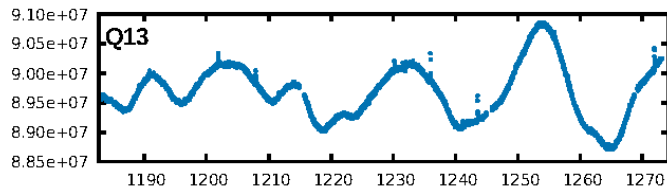
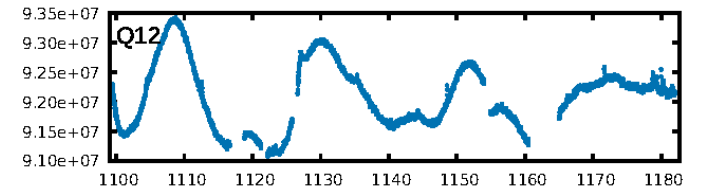
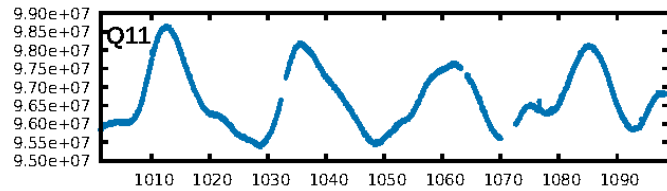
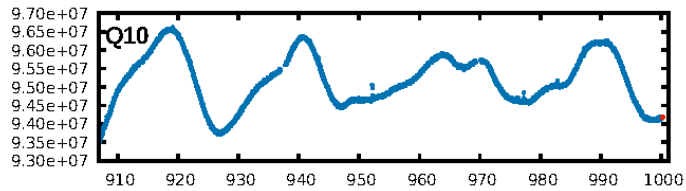
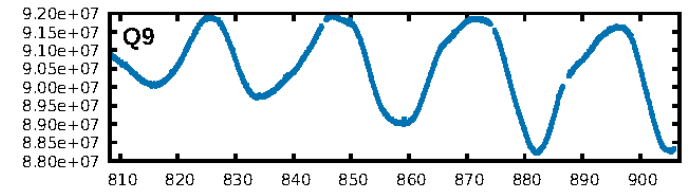
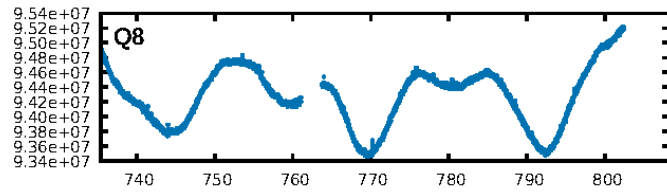
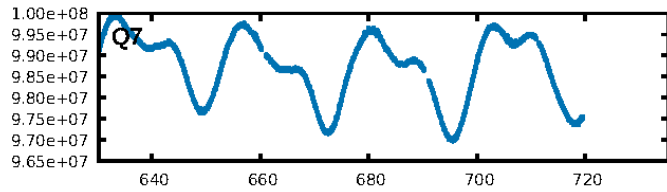
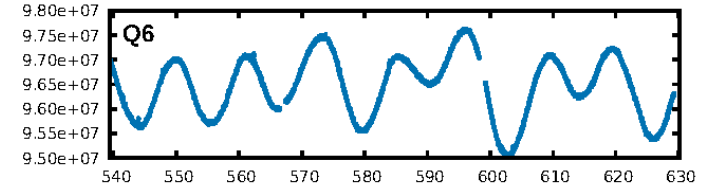
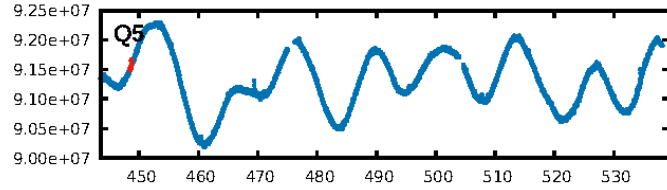
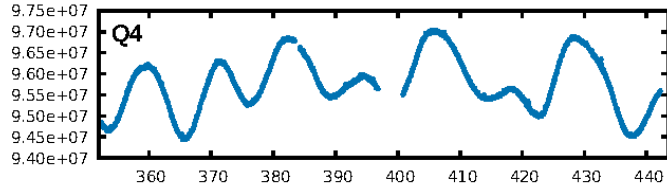
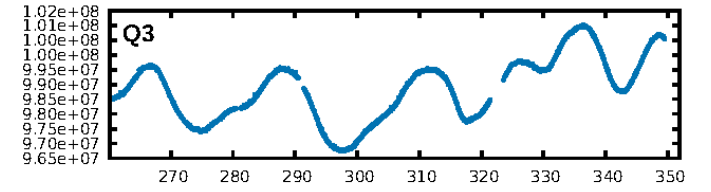
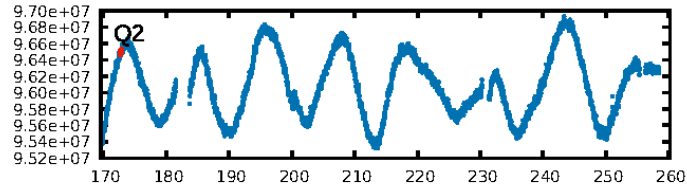
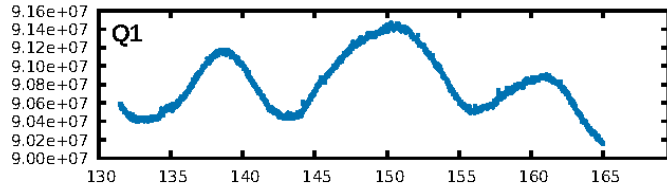
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [110.52 σ]
ModelChiSquare2-sig: 11.5%
ModelChiSquareGof-sig: 99.5%
Bootstrap-pfa: 1.81e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 4.667
Centroid-sig: 41.8%
Centroid-so: 0.993 arcsec [0.74 σ]
OotOffset-rm: 0.858 arcsec [0.52 σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-rm: 0.854 arcsec [0.51 σ]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [4/4]

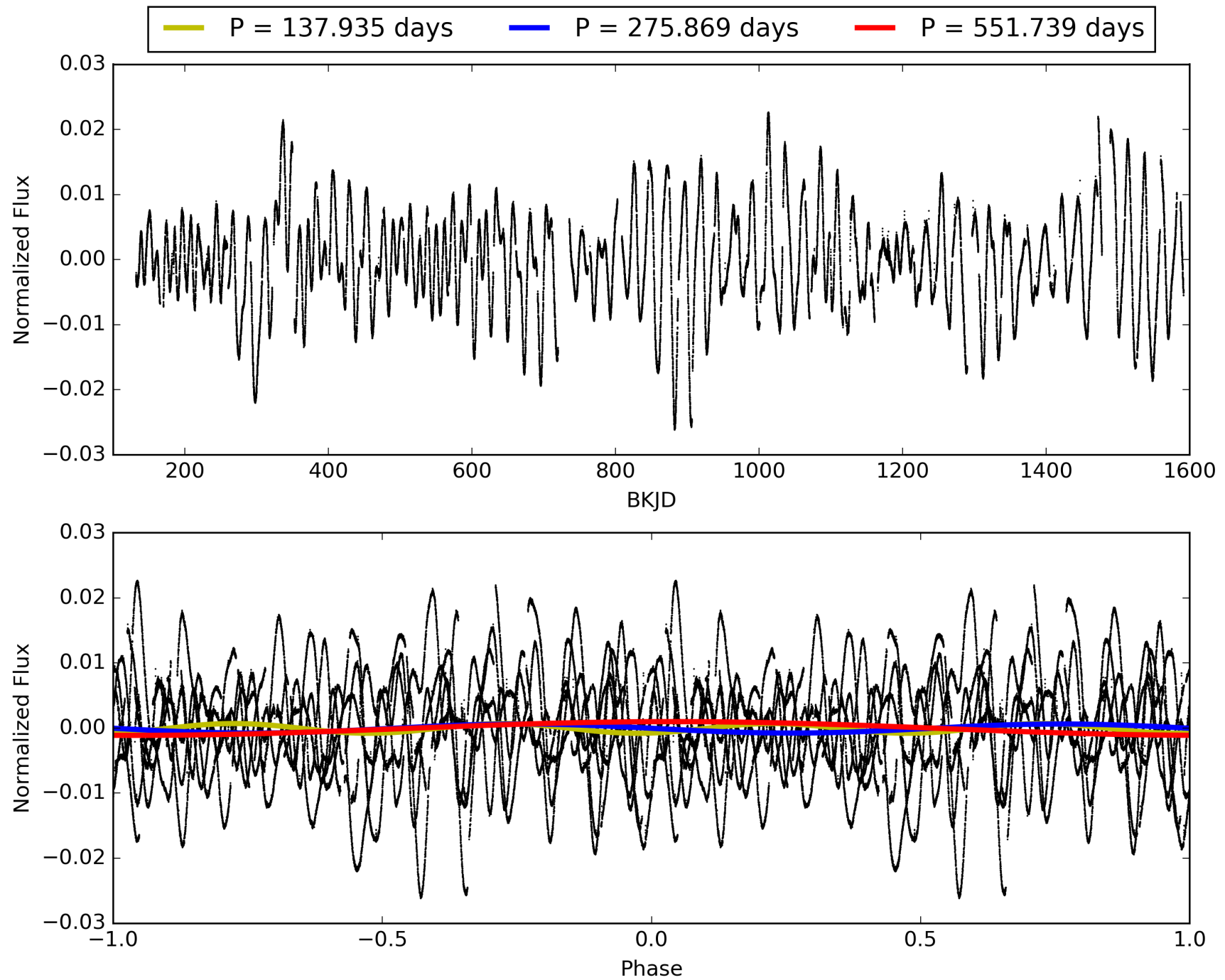
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 21:38:10 Z

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

TCE 010449437-02, PDC Light Curves

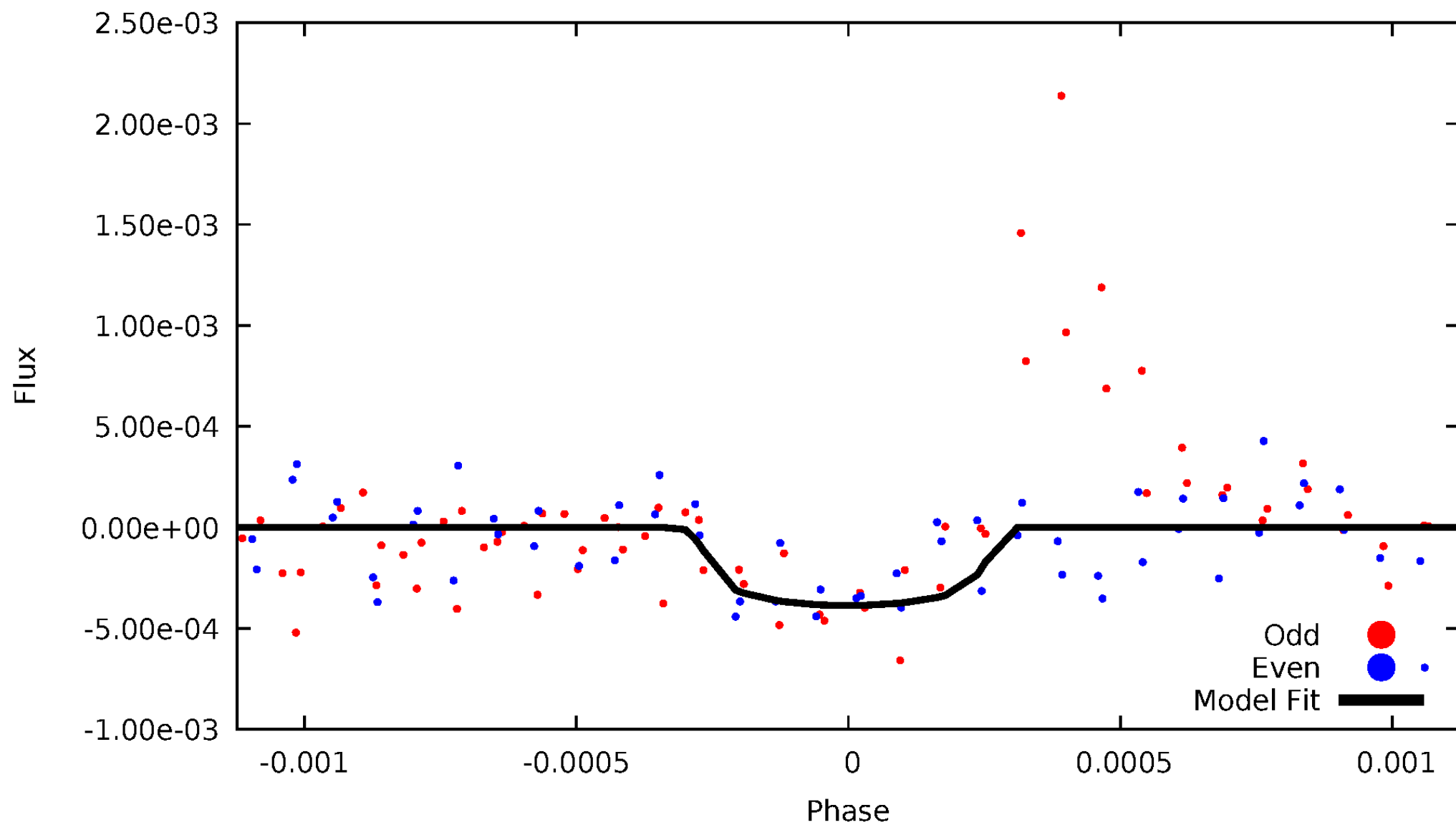


TCE 010449437-02



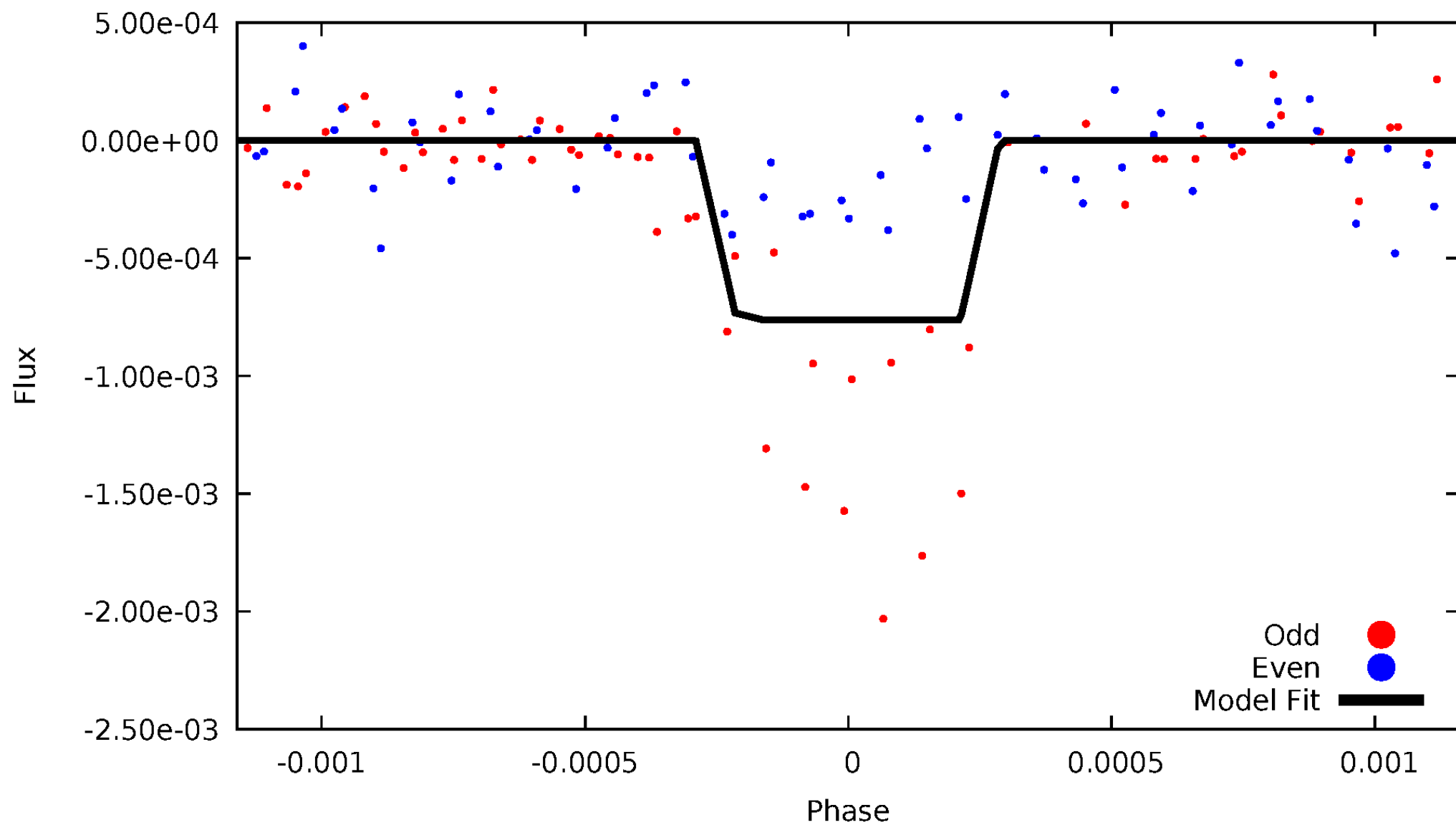
DV Odd/Even

TCE 010449437-02



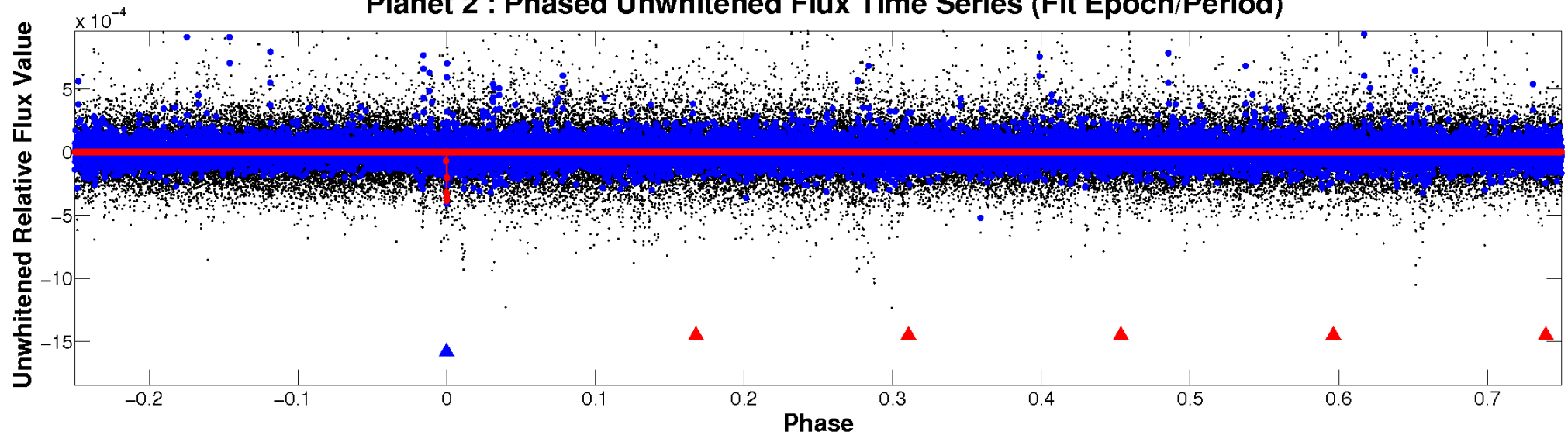
ALT Odd/Even

TCE 010449437-02

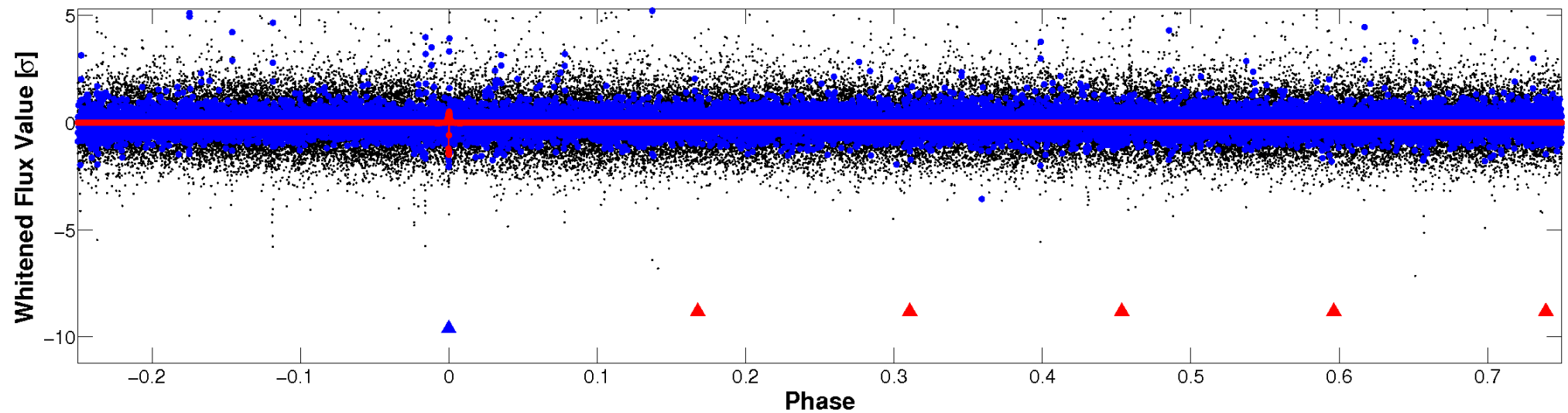


Non-Whitened Vs. Whitened Light Curve

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

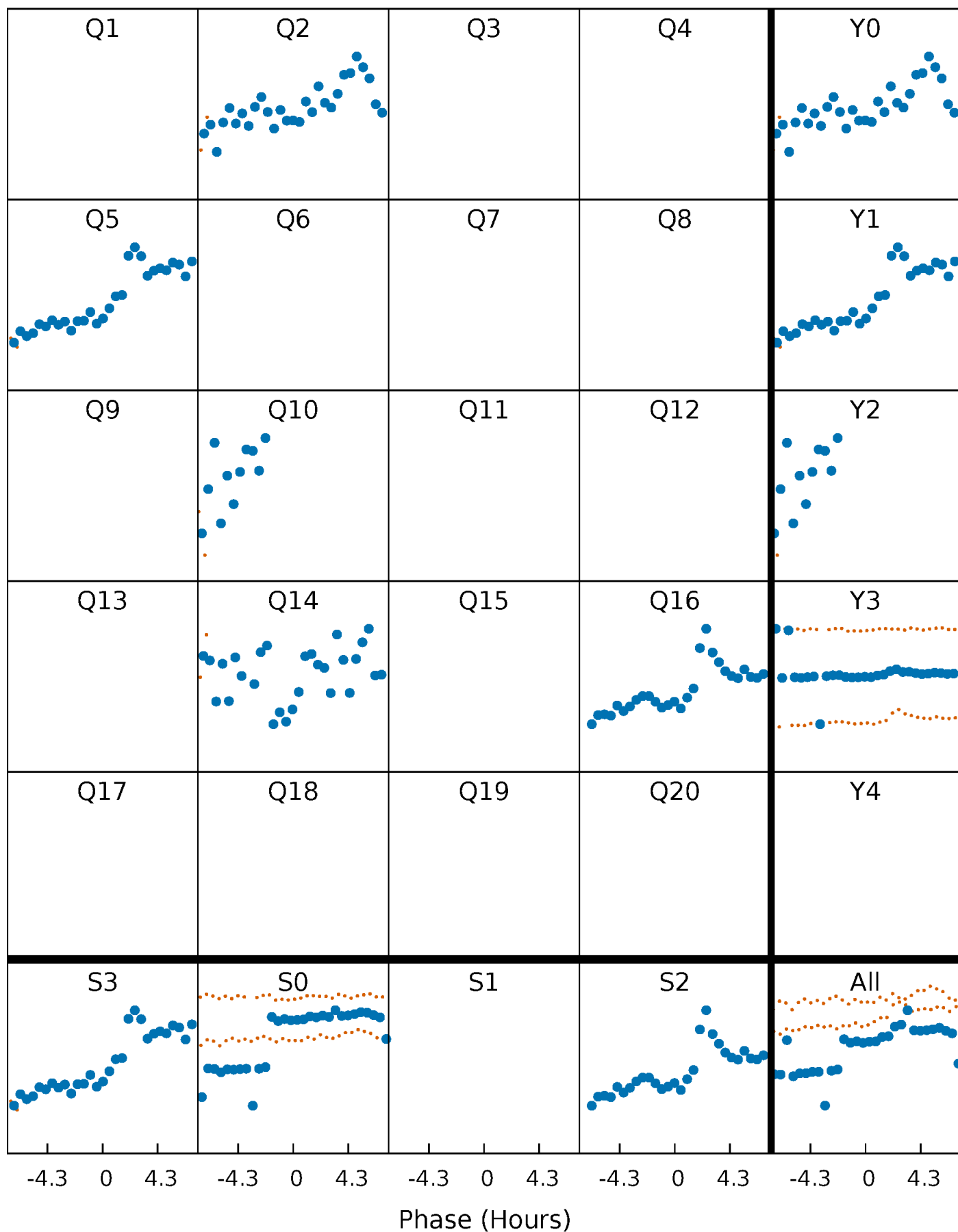


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



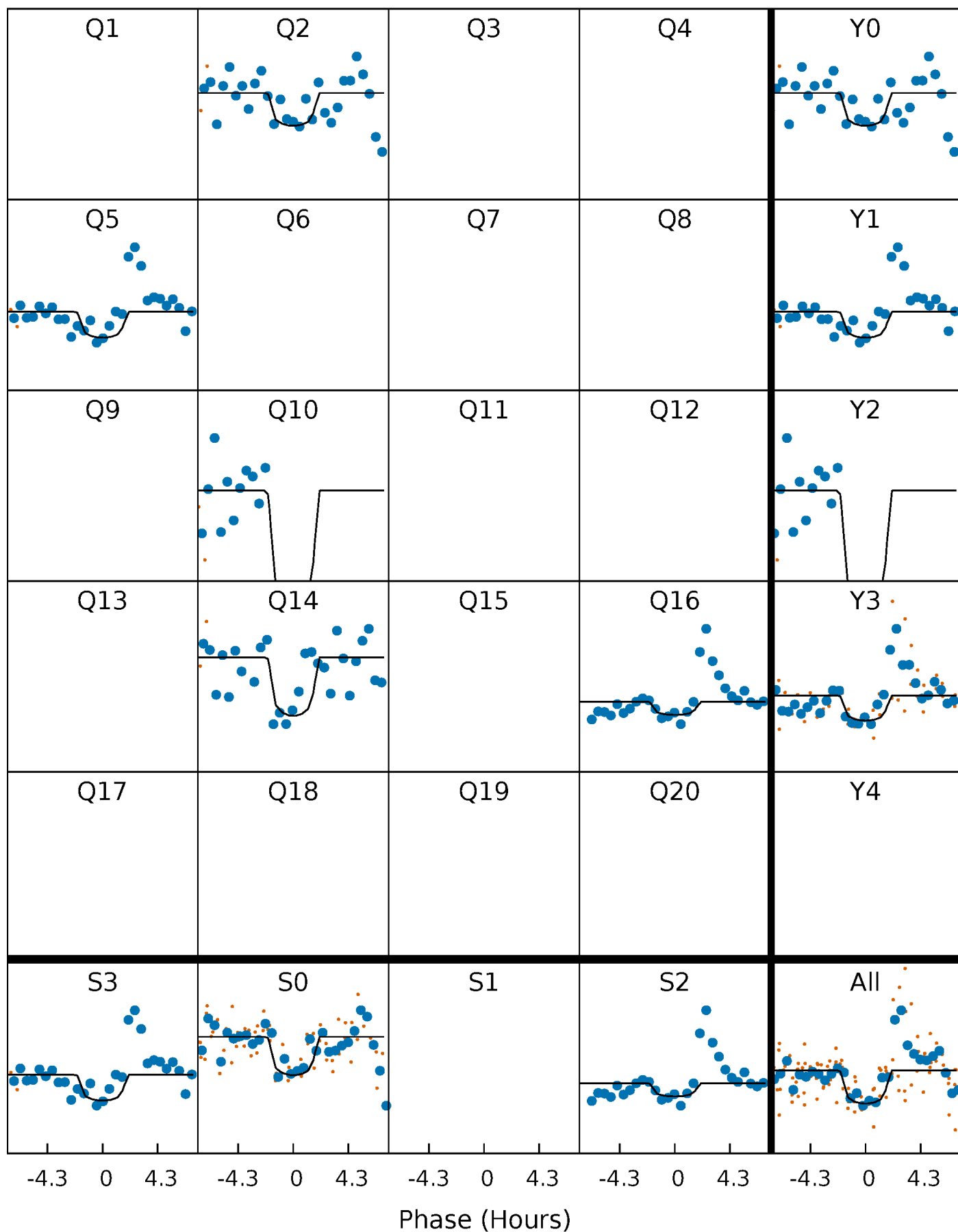
PDC Quarter-Phased Transit Curves

TCE 010449437-02 P=275.869419 Days $T_0=172.742278$ (BKJD)



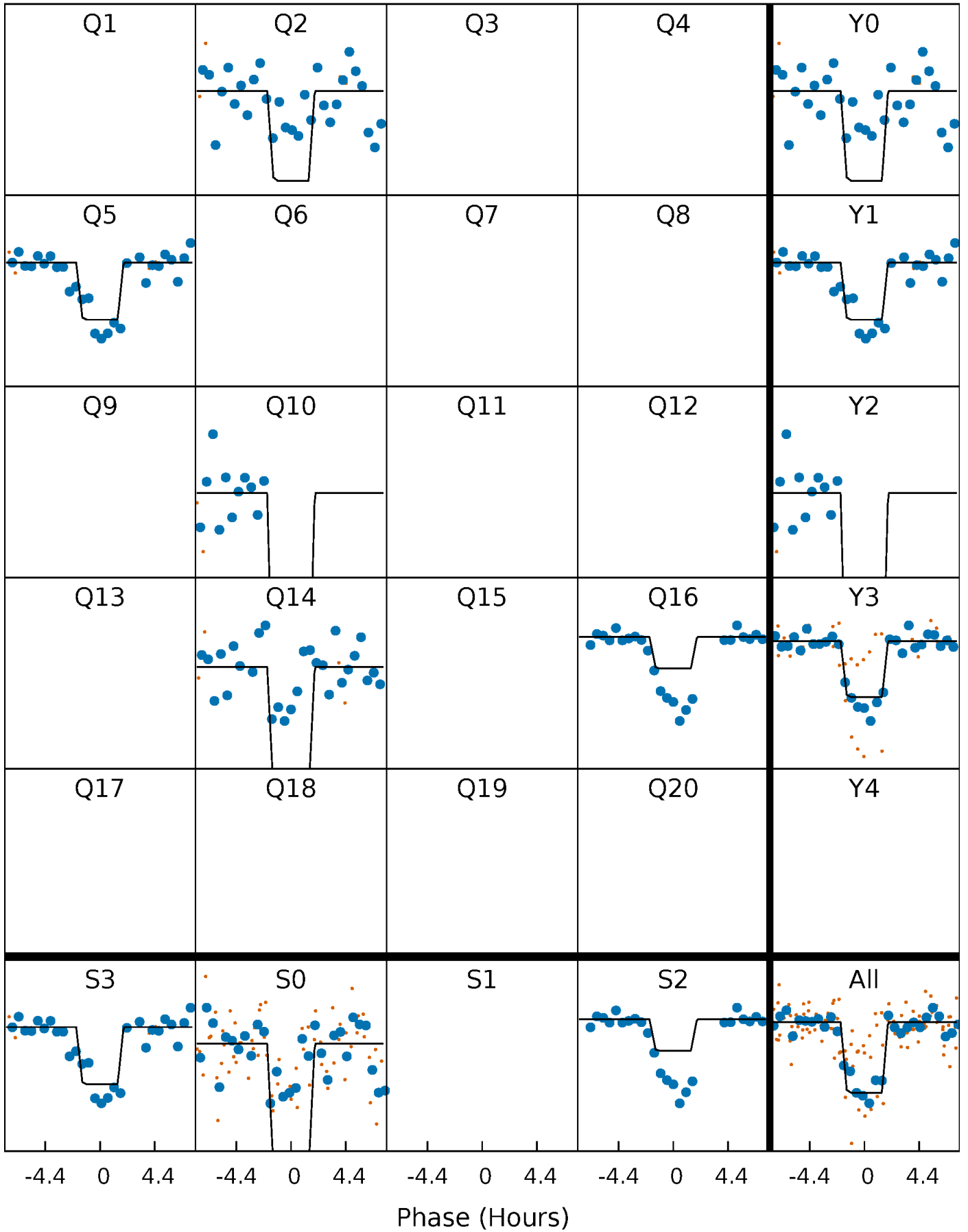
DV Quarter-Phased Transit Curves

TCE 010449437-02 P=275.869419 Days $T_0=172.742278$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

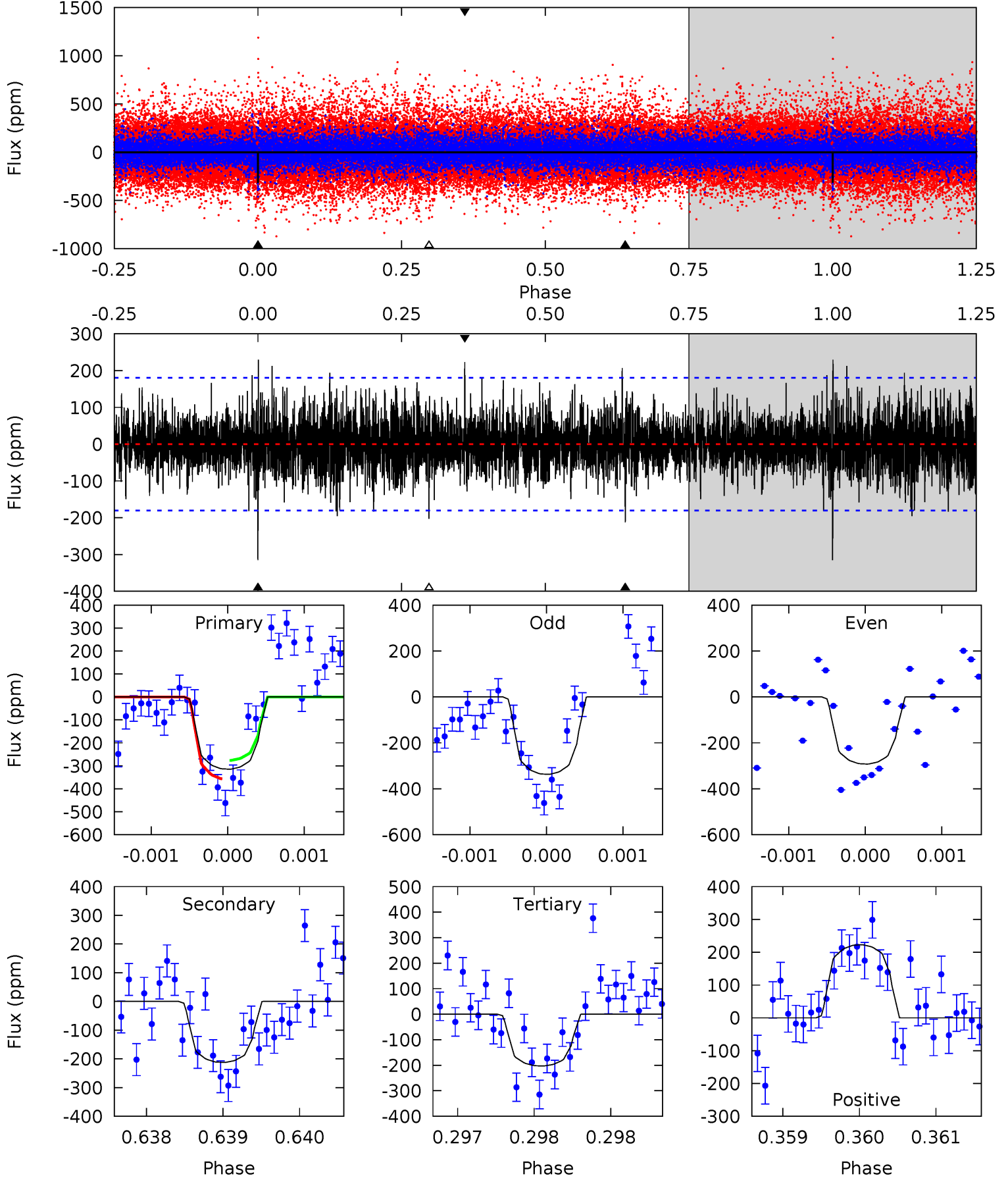
TCE 010449437-02 P=275.869832 Days $T_0=172.748250$ (BKJD)



DV Model-Shift Uniqueness Test

010449437-02, P = 275.869419 Days, E = 172.742278 Days

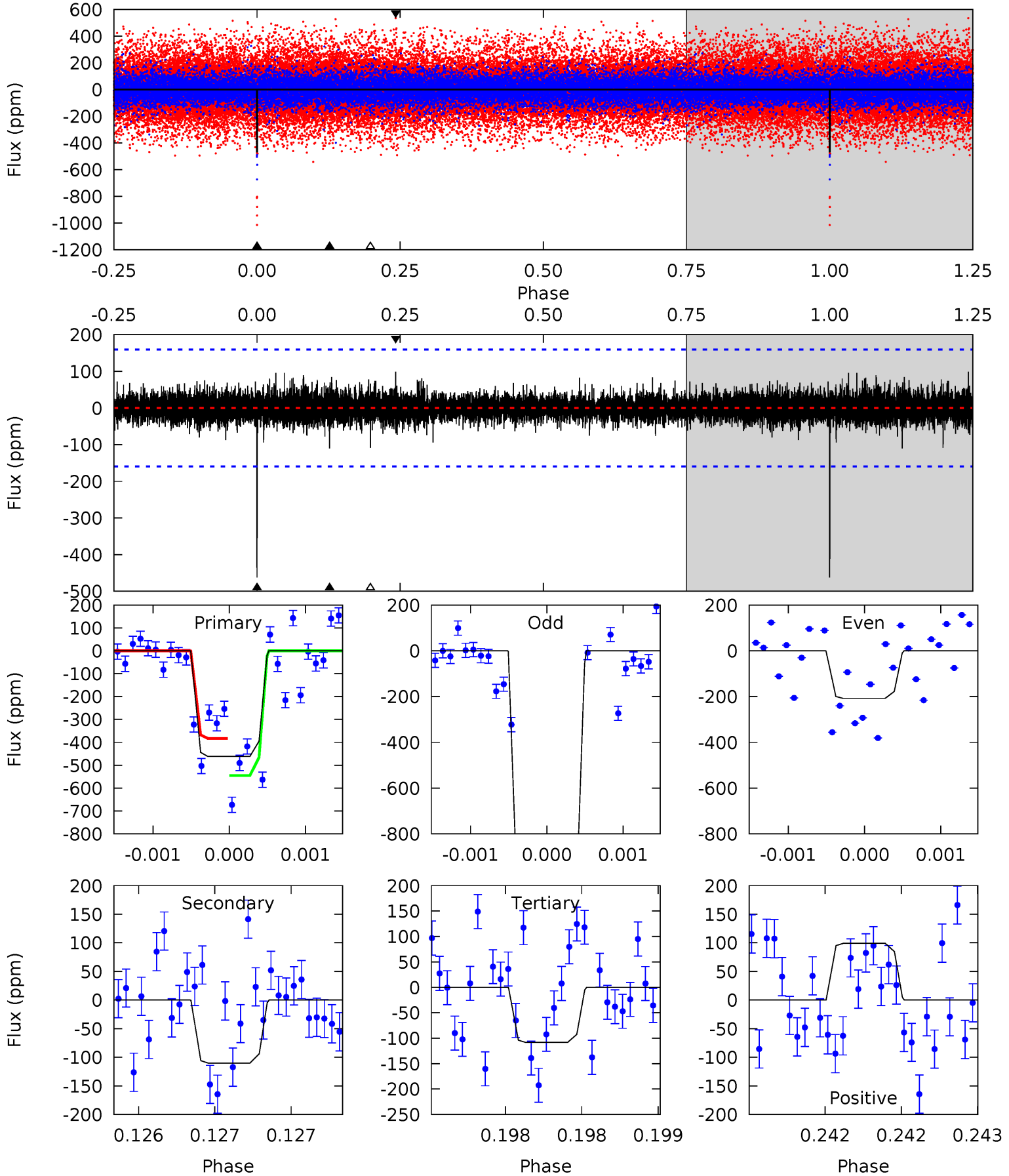
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.67	6.52	6.23	6.85	5.54	3.43	1.55	3.44	2.82	0.29	-0.32	0.67	1.08	0.42	1.24



Alt Model-Shift Uniqueness Test

010449437-02, P = 275.869832 Days, E = 172.748250 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.1	3.84	3.77	3.45	5.55	3.44	0.71	12.3	12.6	0.07	0.39	20.6	1.29	0.18	0



Stellar Parameters For KIC 010449437

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5406^{+177}_{-160}	$3.883^{+0.686}_{-0.294}$	$-0.380^{+0.350}_{-0.250}$	$1.788^{+0.997}_{-0.997}$	$0.891^{+0.151}_{-0.138}$	$0.220^{+2.240}_{-0.136}$
	+3%/-3%	+18%/-8%	+92%/-66%	+56%/-56%	+17%/-15%	+1020%/-62%
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 010449437-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-212 ± 33	$4.27^{+3.86}_{-2.79}$	489^{+64}_{-85}	4418^{+2438}_{-835}	4020^{+30170}_{-2910}
Alt.	-110 ± 29	$5.29^{+4.21}_{-3.15}$	491^{+70}_{-75}	3641^{+1340}_{-512}	1415^{+6384}_{-1011}

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

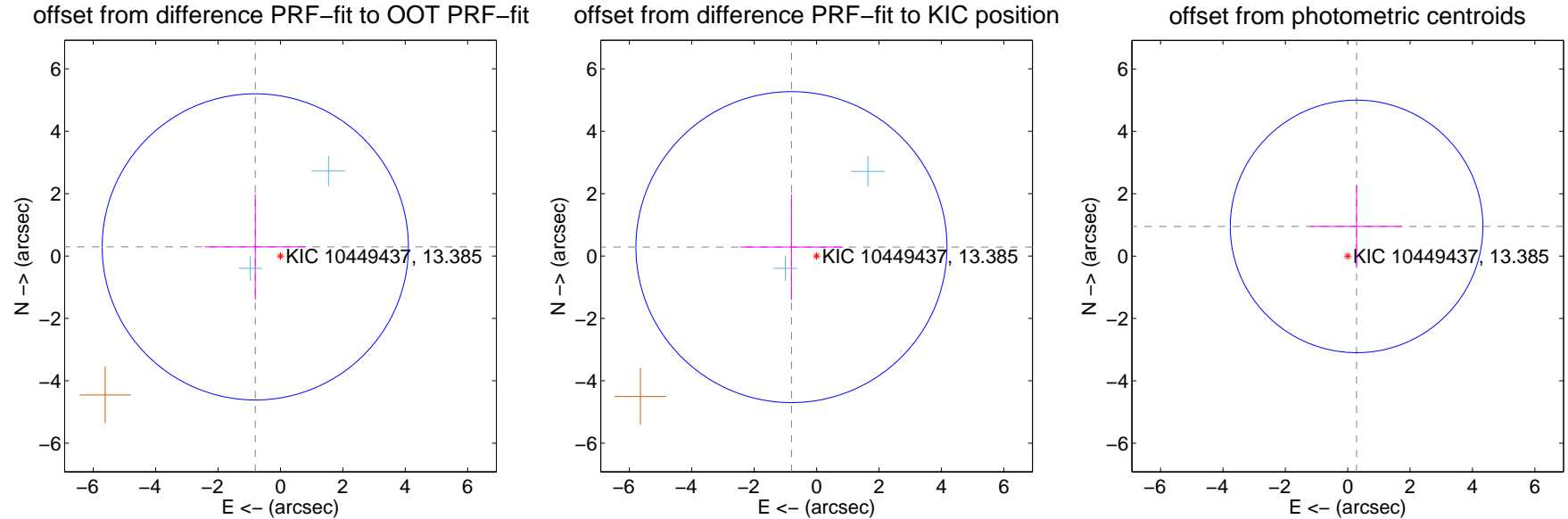
DV Centroid Data

Supplemental centroid analysis for 010449437-02. Kepler magnitude: 13.38. Transit SNR 7.25

There are 2 quarters with good PRF difference image offsets

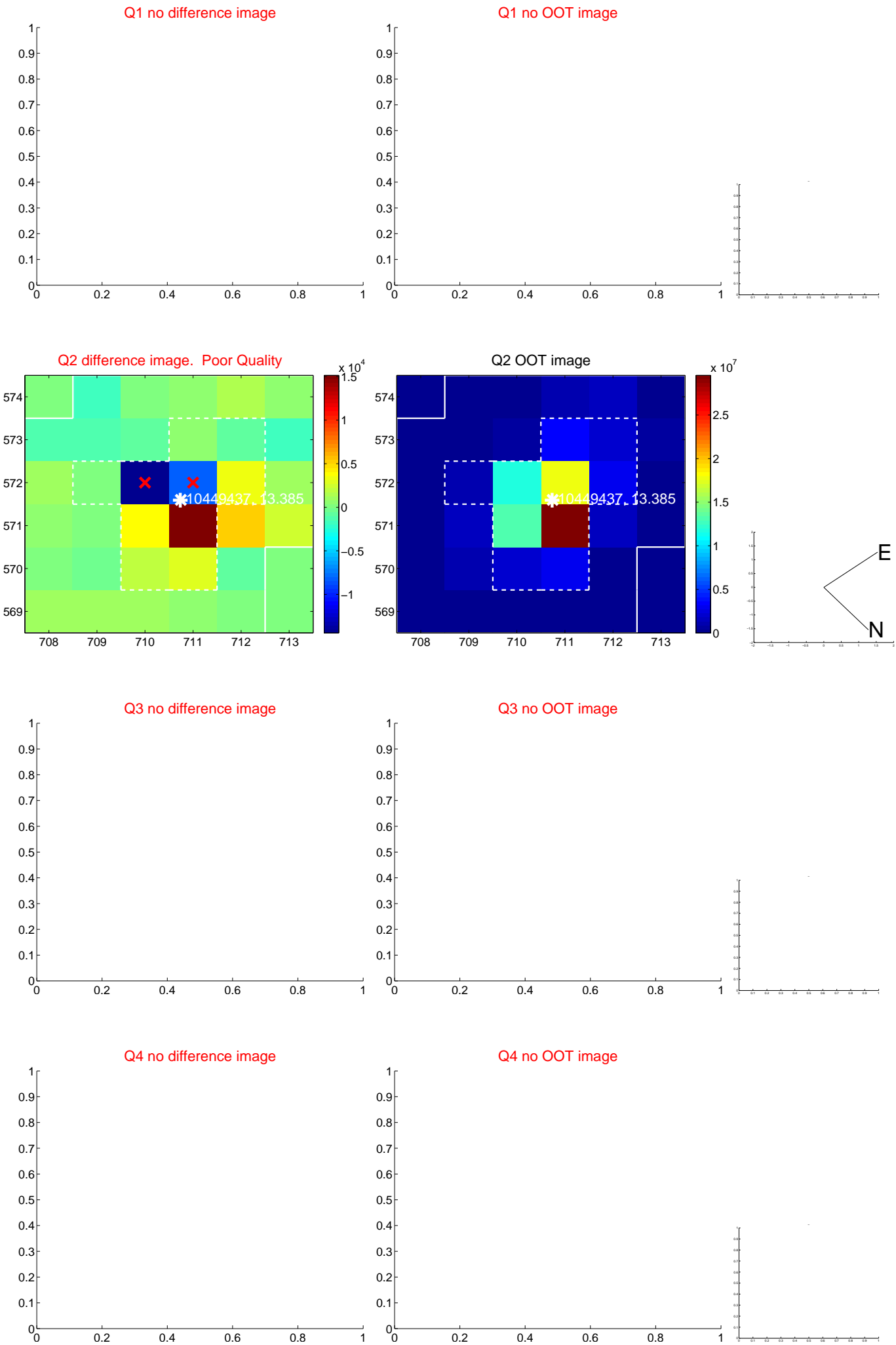
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.858 ± 1.636	0.52	0.806 ± 1.628	0.293 ± 1.698
PRF-fit source offset from KIC position	0.854 ± 1.662	0.51	0.805 ± 1.657	0.285 ± 1.700
photometric centroid source offset	0.99 ± 1.35	0.74	-0.28 ± 1.47	0.95 ± 1.34

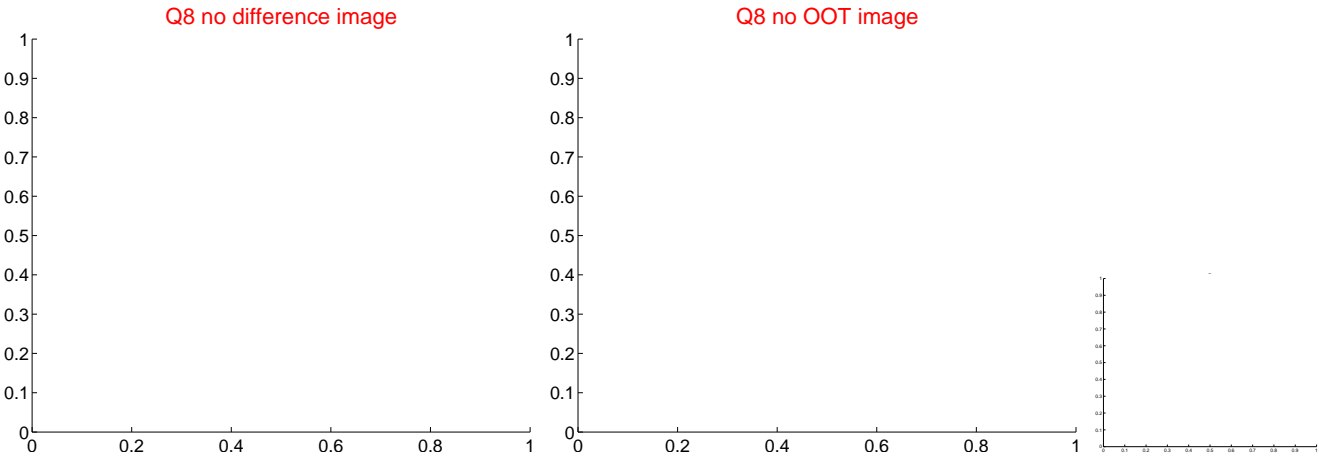
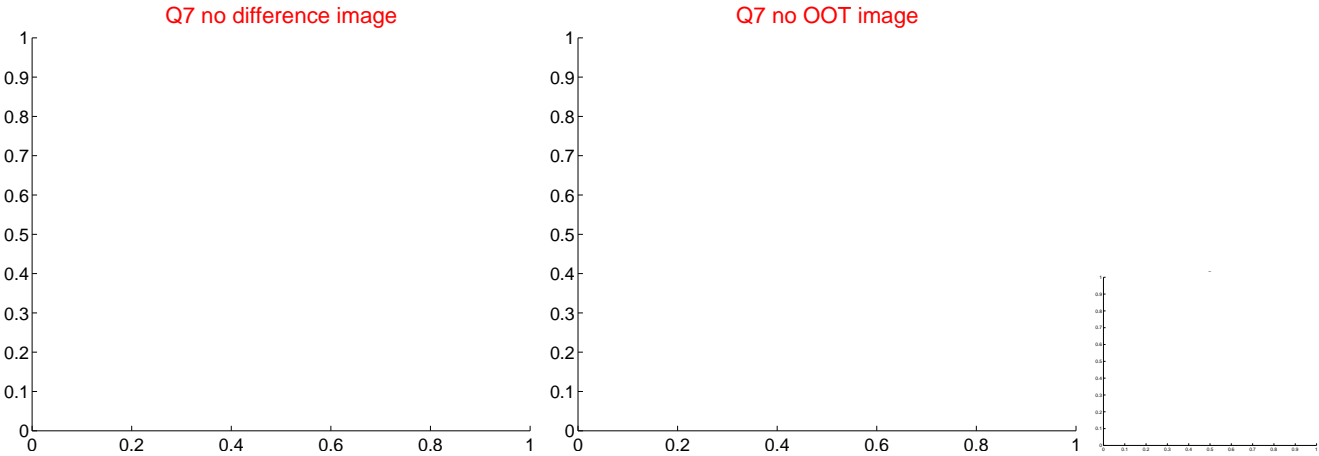
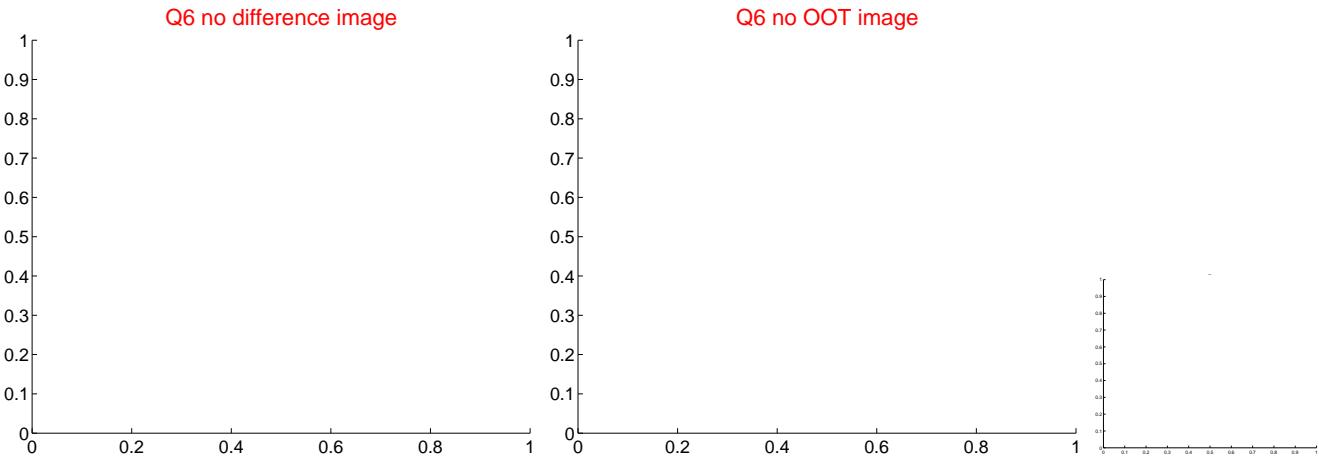
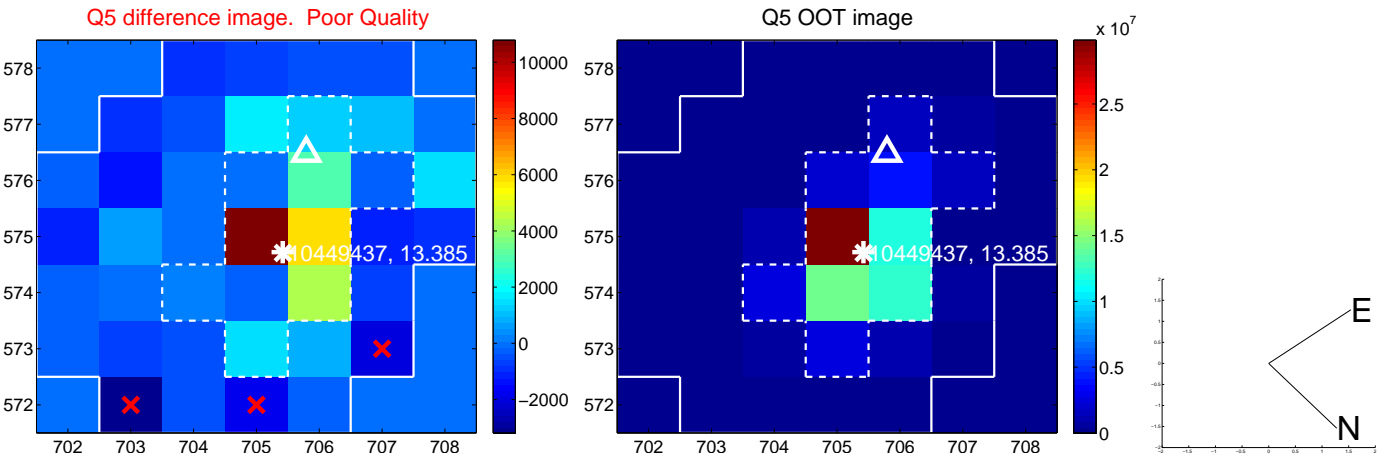


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

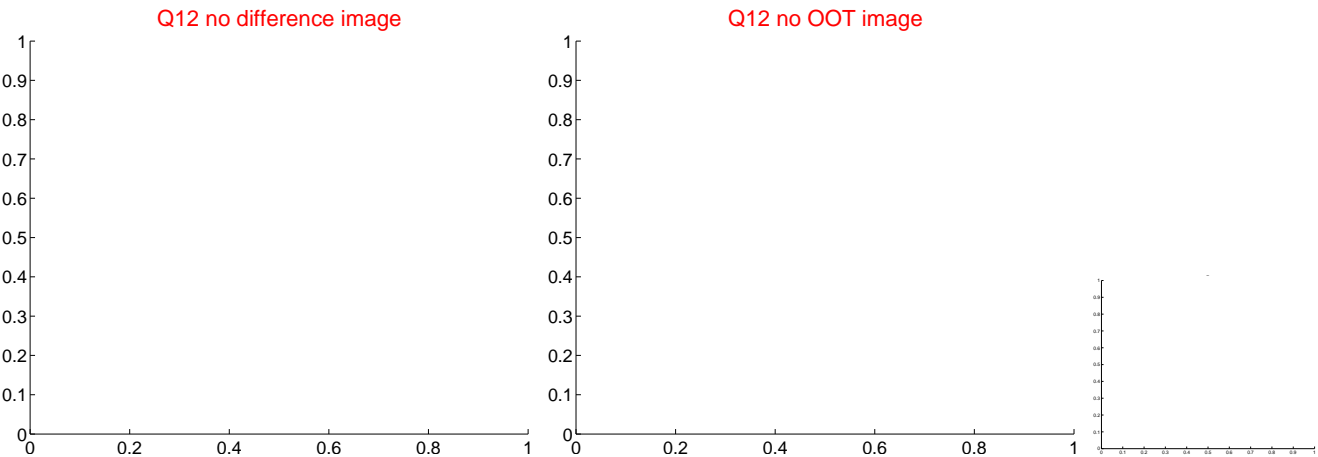
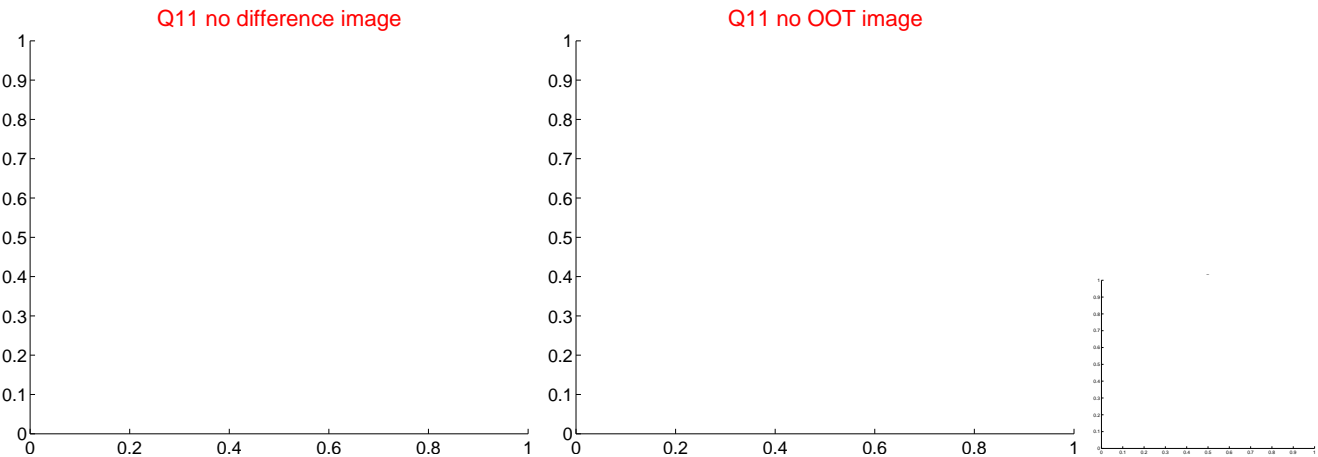
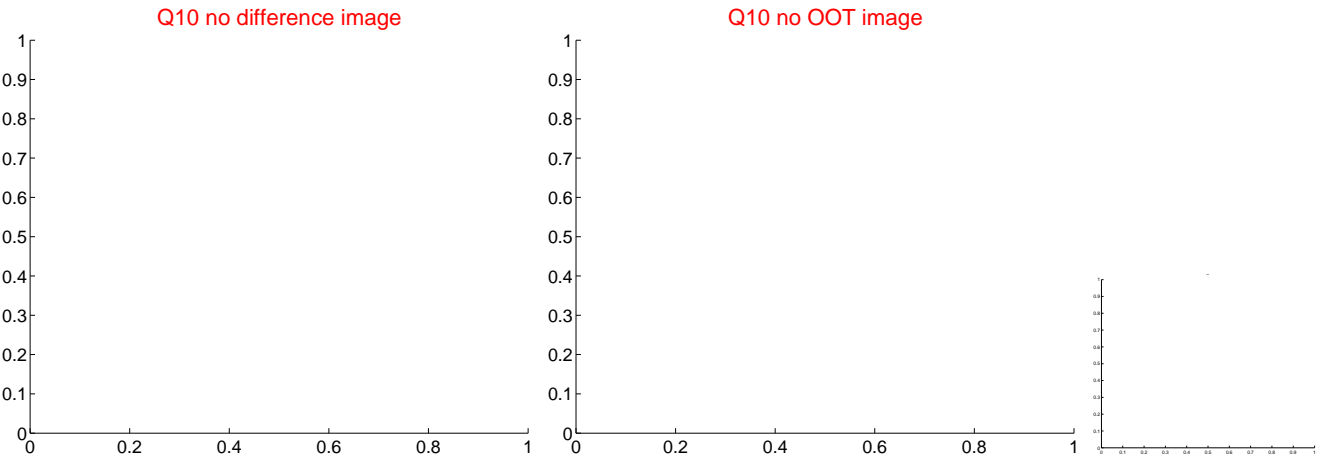
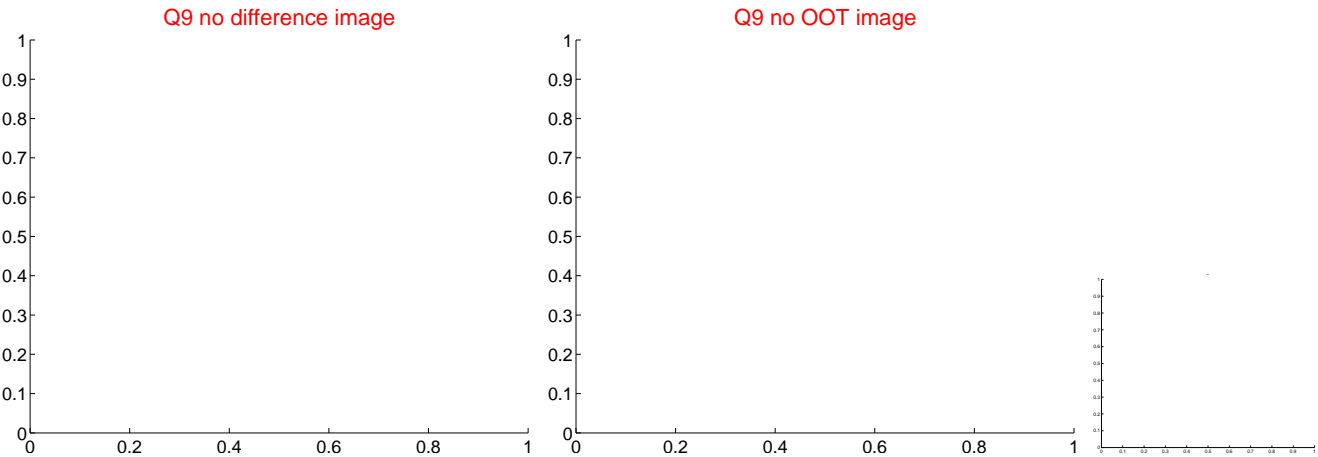
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

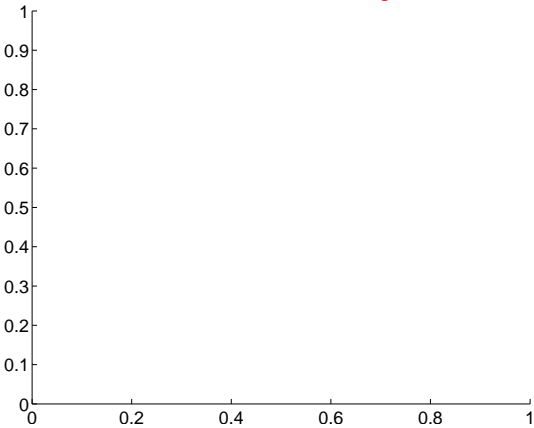


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

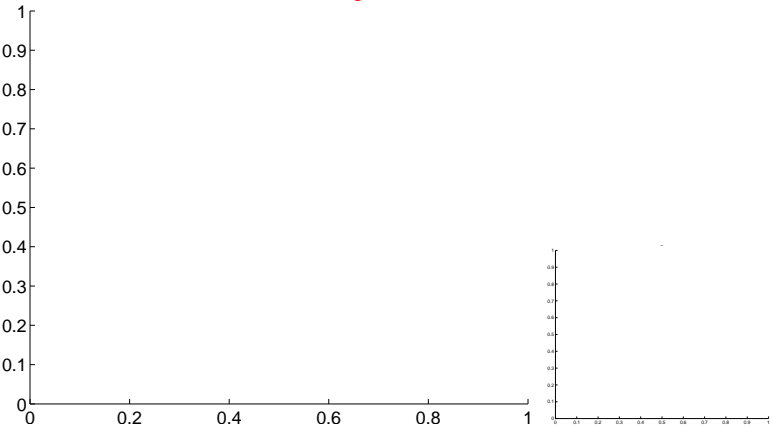


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

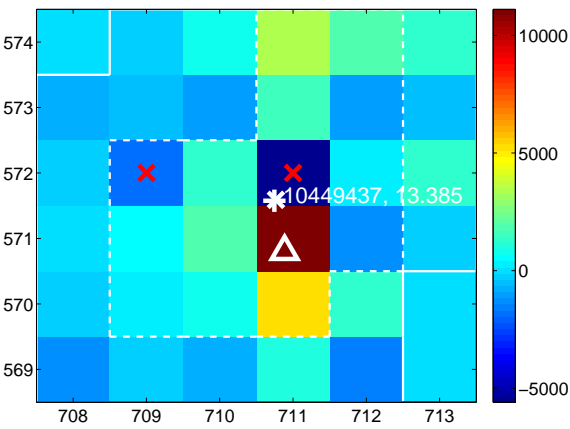
Q13 no difference image



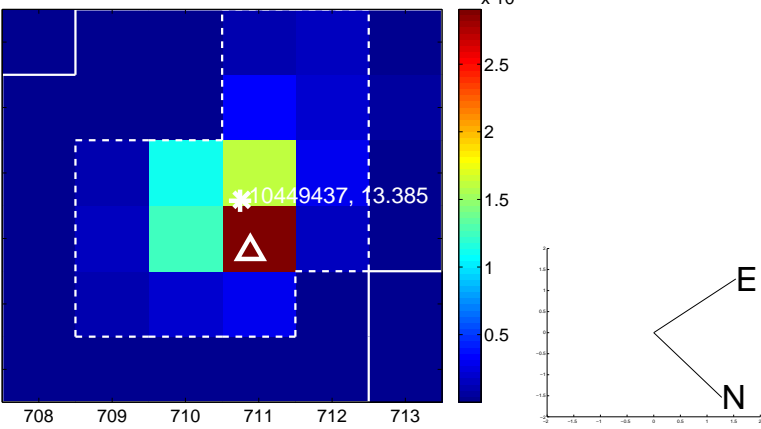
Q13 no OOT image



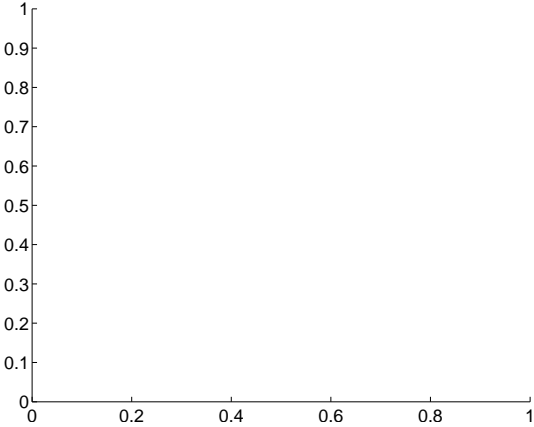
Q14 difference image



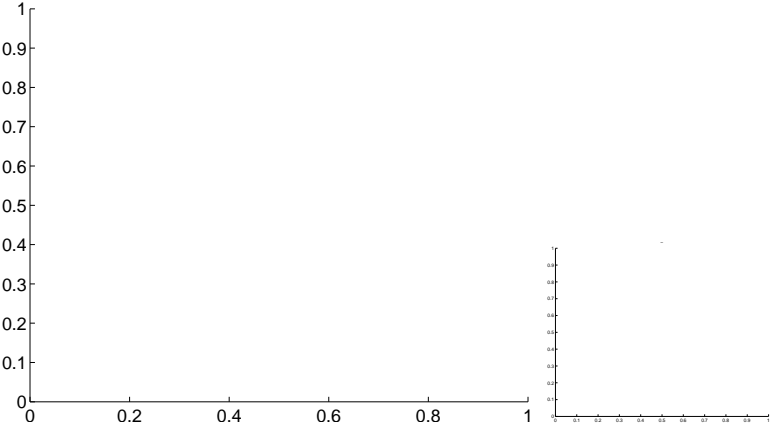
Q14 OOT image



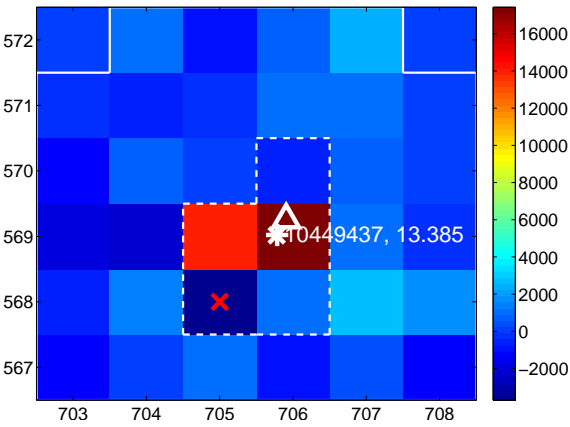
Q15 no difference image



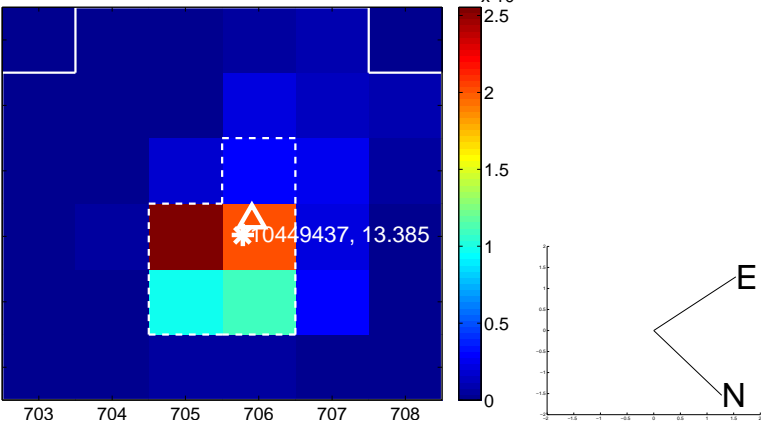
Q15 no OOT image



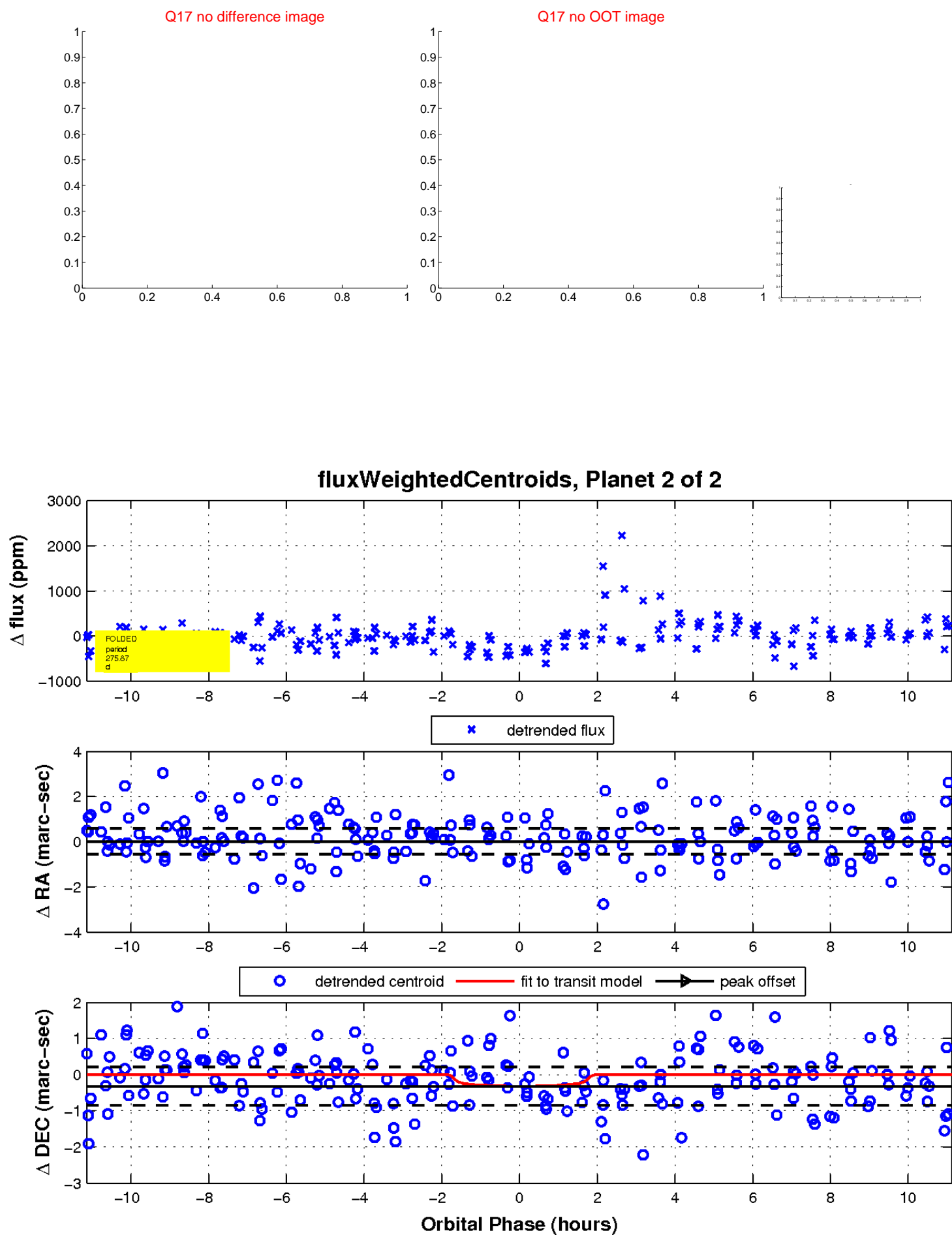
Q16 difference image



Q16 OOT image



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



UKIRT Image

Declination

