

KIC 009691311

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})
009691311-01	OBS	No	0.871558	132.095733	17.5	4.547	8.9	9.0	2.52	5642	1.25	15577.52
009691311-02	OBS	No	185.759716	239.097795	147.7	6.244	9.3	4.4	2.52	5642	3.71	12.24
009691311-03	OBS	No	45.363334	172.069502	353.6	1.558	9.5	8.9	2.52	5642	5.44	80.16
009691311-04	OBS	No	223.176673	201.052407	204.1	10.835	8.7	5.9	2.52	5642	4.93	9.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009691311-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST
009691311-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
009691311-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
009691311-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

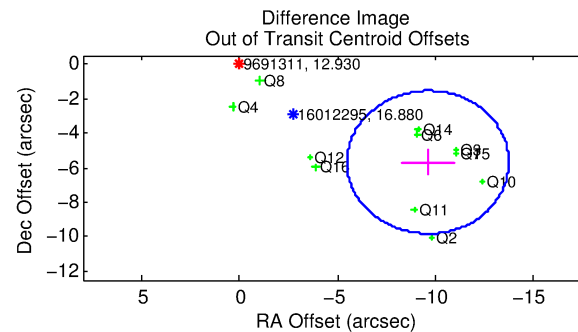
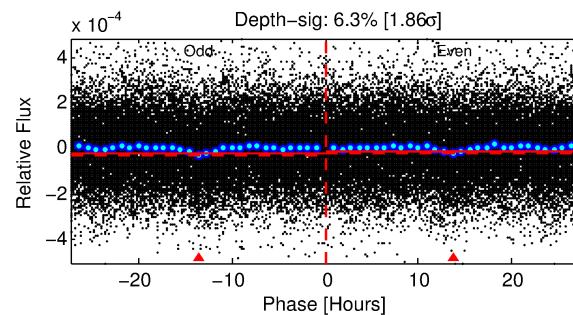
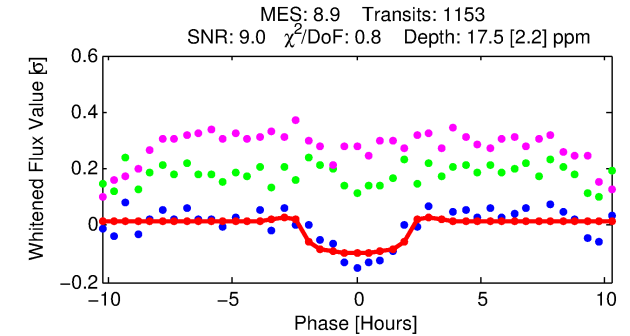
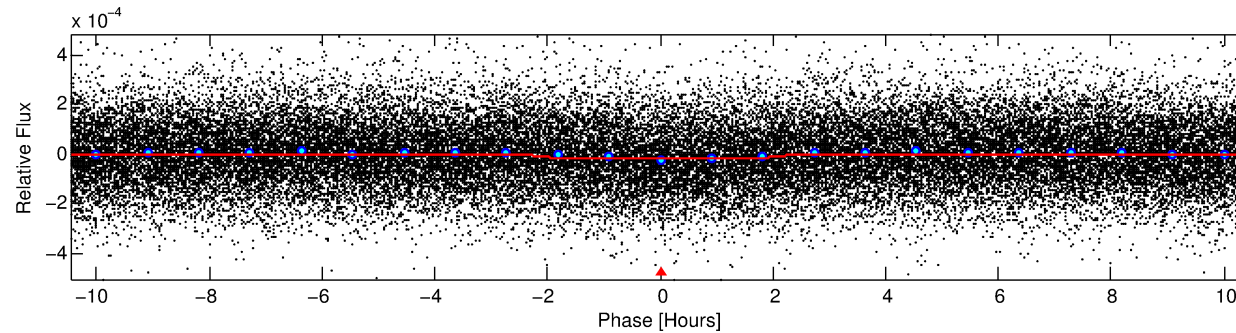
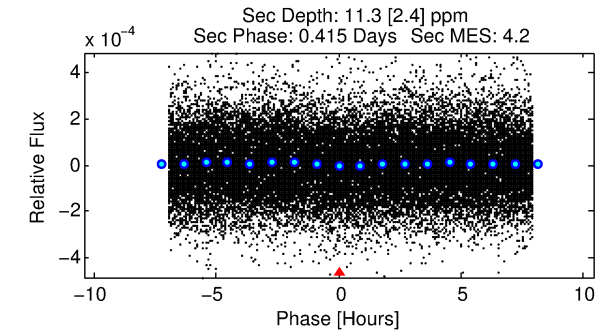
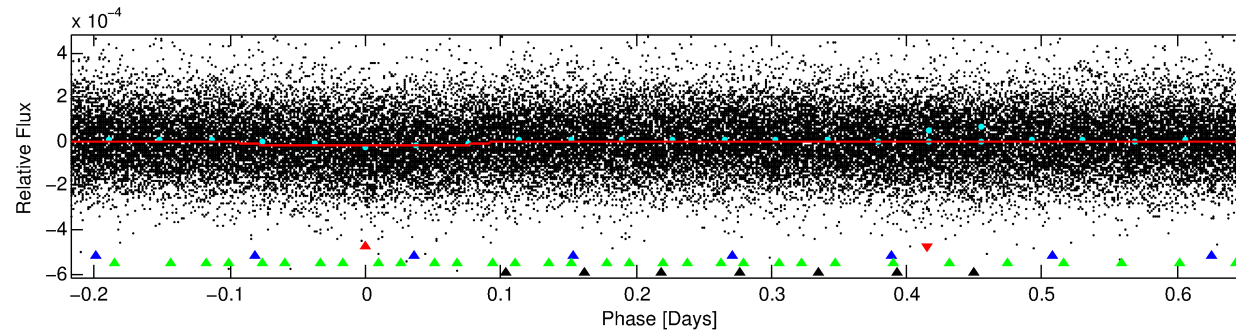
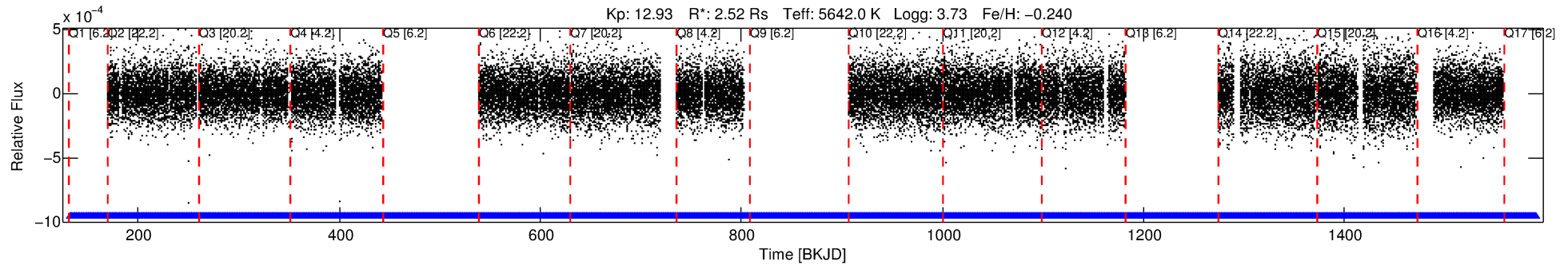
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009691311-01

No Significant Match Found

DV One-Page Summary

KIC: 9691311 Candidate: 1 of 4 Period: 0.872 d



DV Fit Results:

Period = 0.87156 [0.00001] d
Epoch = 132.0957 [0.0044] BKJD
Rp/R* = 0.0045 [0.0023]
a/R* = 1.15 [0.69]
b = 0.90 [0.55]
Seff = 15577.52 [8672.60]
Teq = 2849 [396] K
Rp = 1.25 [0.78] Re
a = 0.0192 [0.0067] AU
Ag = 1.48 [1.71] [0.28σ]
Teffp = 4854 [1255] K [1.52σ]

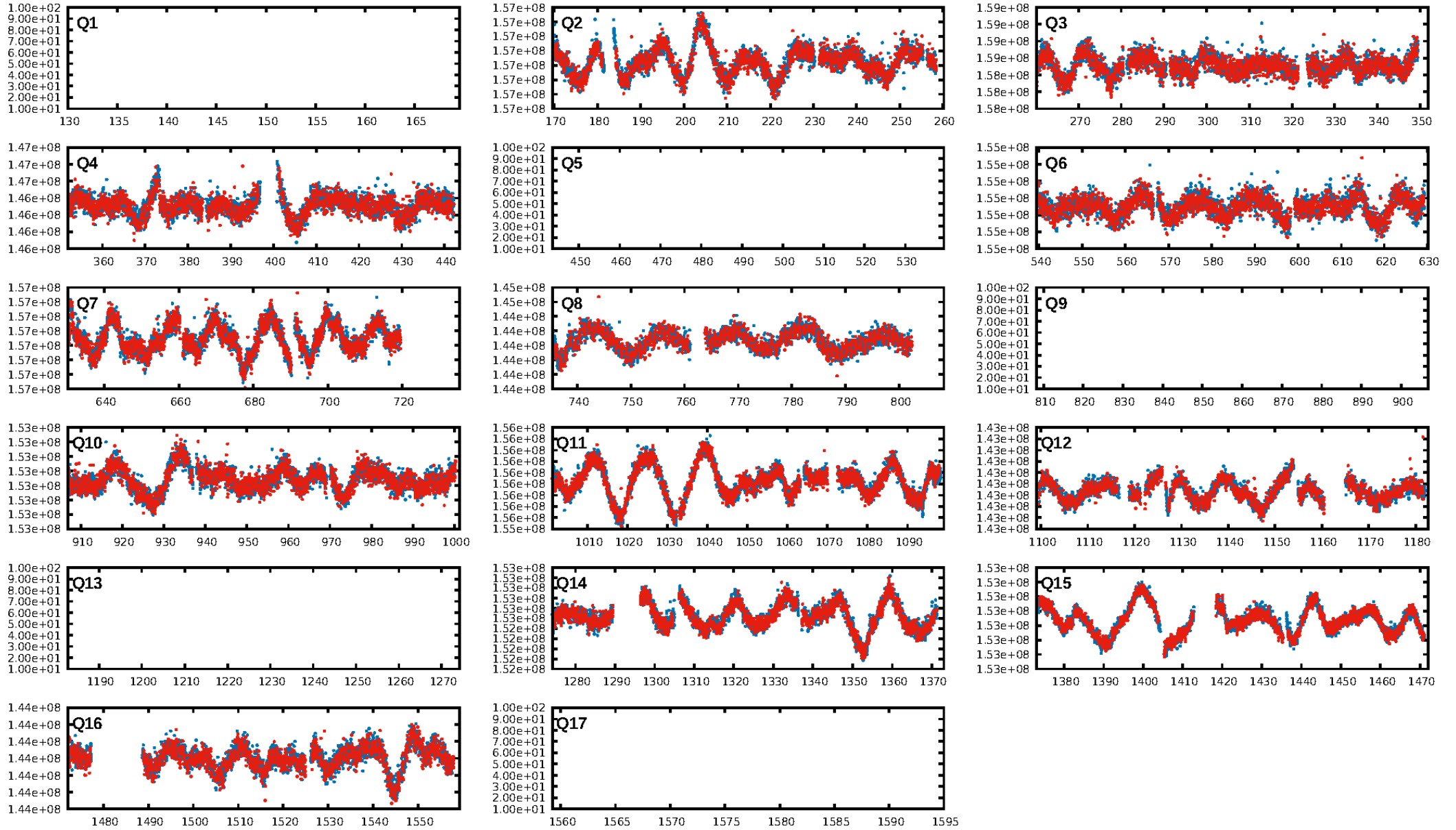
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [222.16σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.03e-12
RollingBand-fgt: 1.00 [1153/1153]
GhostDiagnostic-chr: -0.1709
Centroid-sig: 0.0%
Centroid-so: 7.896 arcsec [6.26σ]
OotOffset-rm: 11.174 arcsec [8.11σ]
KicOffset-rm: 11.131 arcsec [9.22σ]
OotOffset-st: 4/4/4/0 [12]
KicOffset-st: 4/4/4/0 [12]
DiffImageQuality-fgm: 0.00 [0/12]
DiffImageOverlap-fno: 1.00 [12/12]

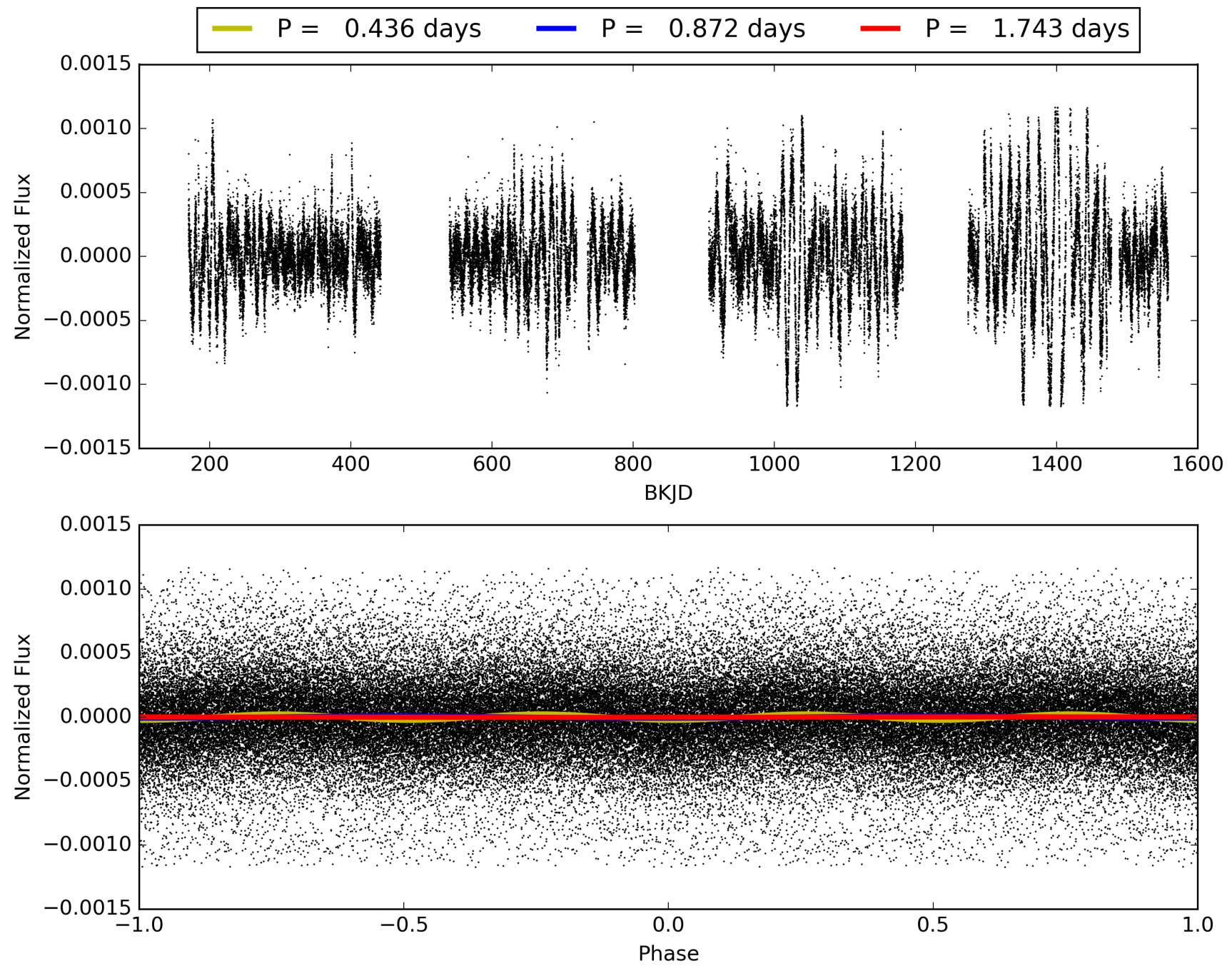
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:18:36 Z

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

TCE 009691311-01, PDC Light Curves

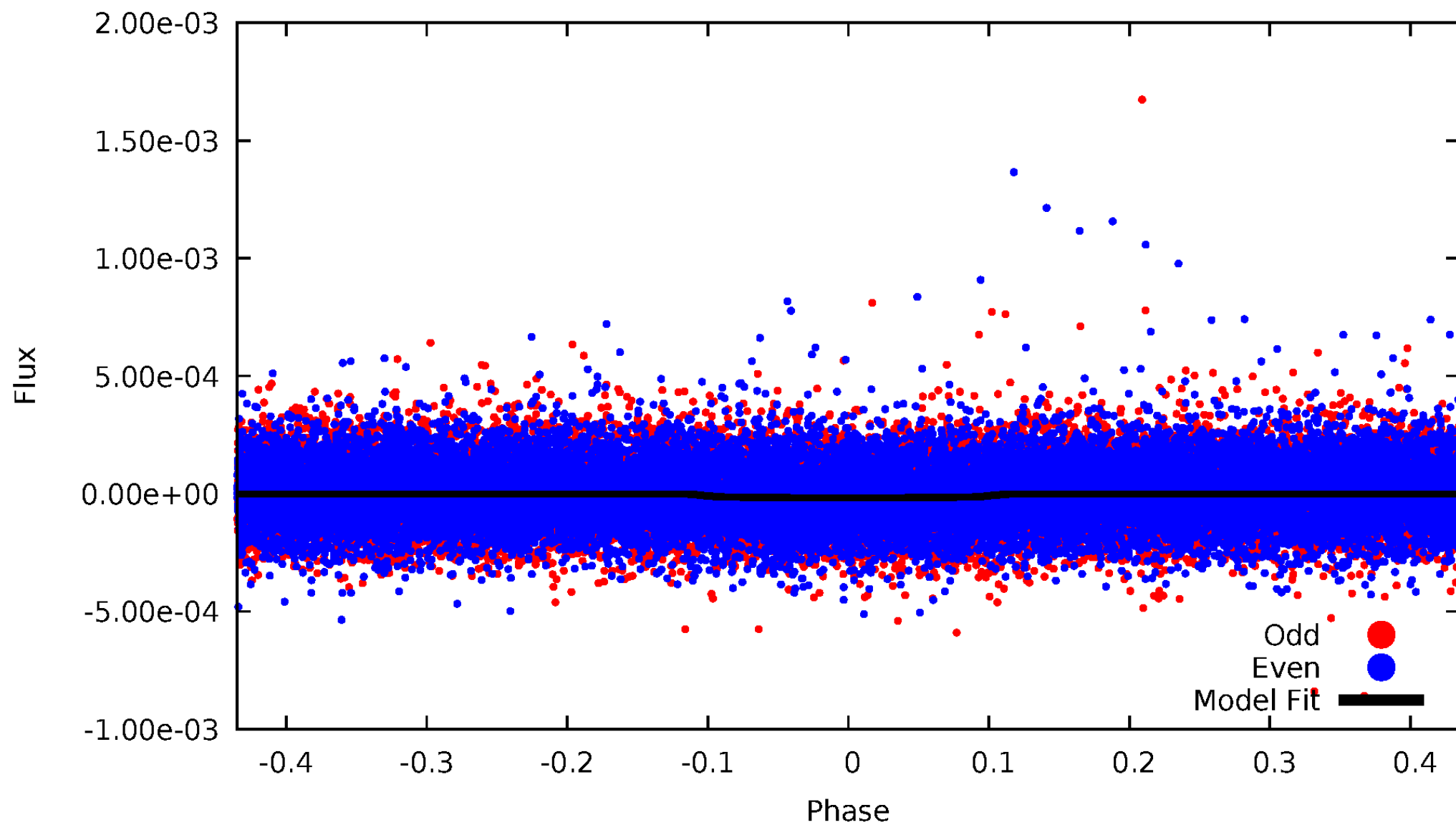


TCE 009691311-01



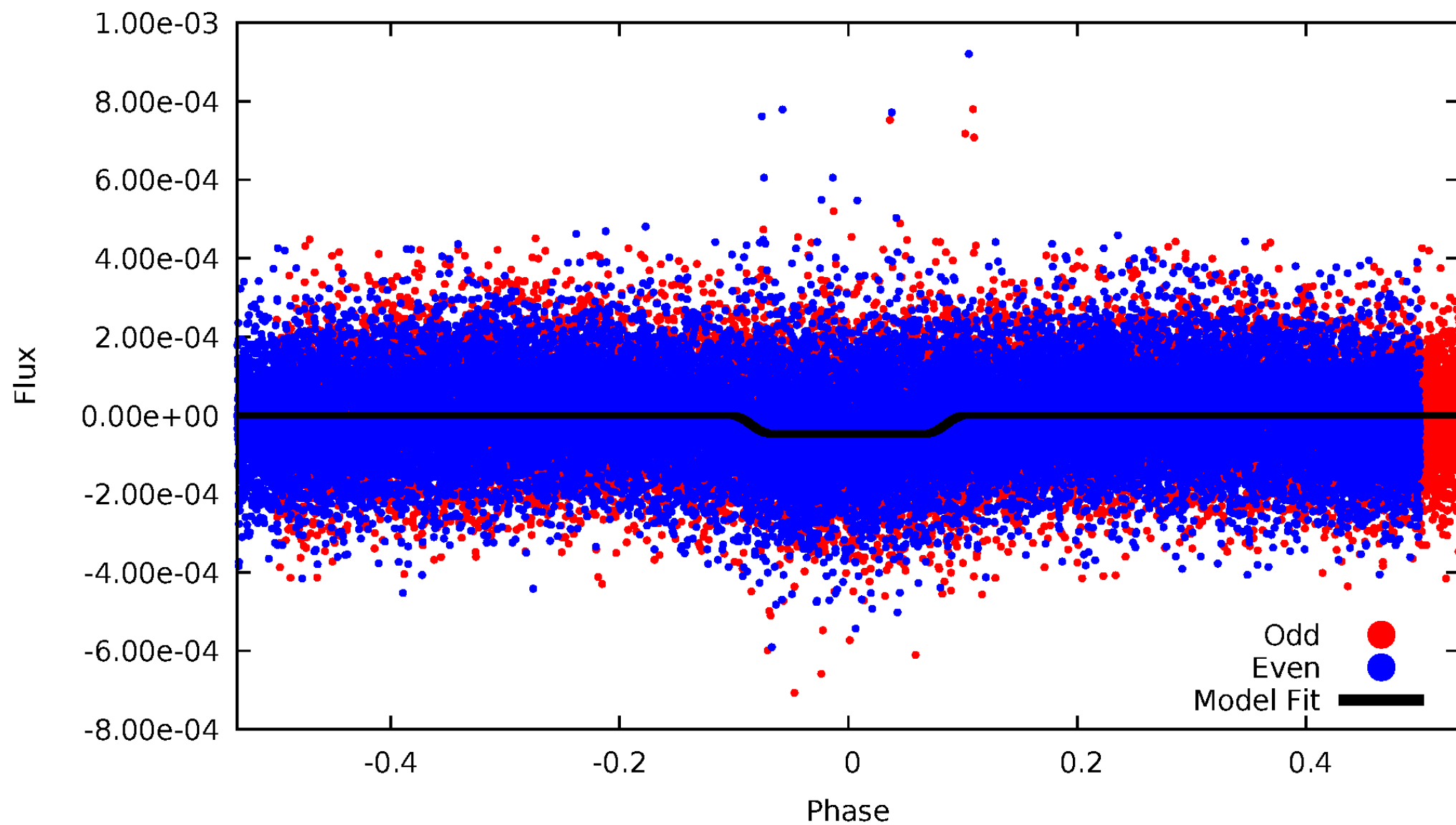
DV Odd/Even

TCE 009691311-01

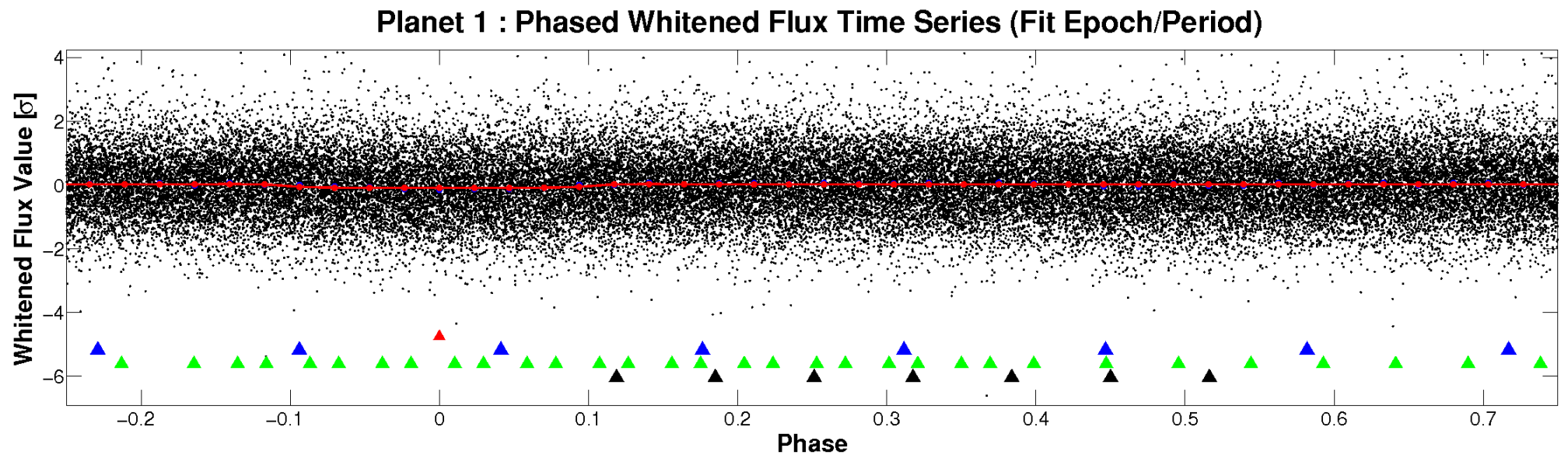
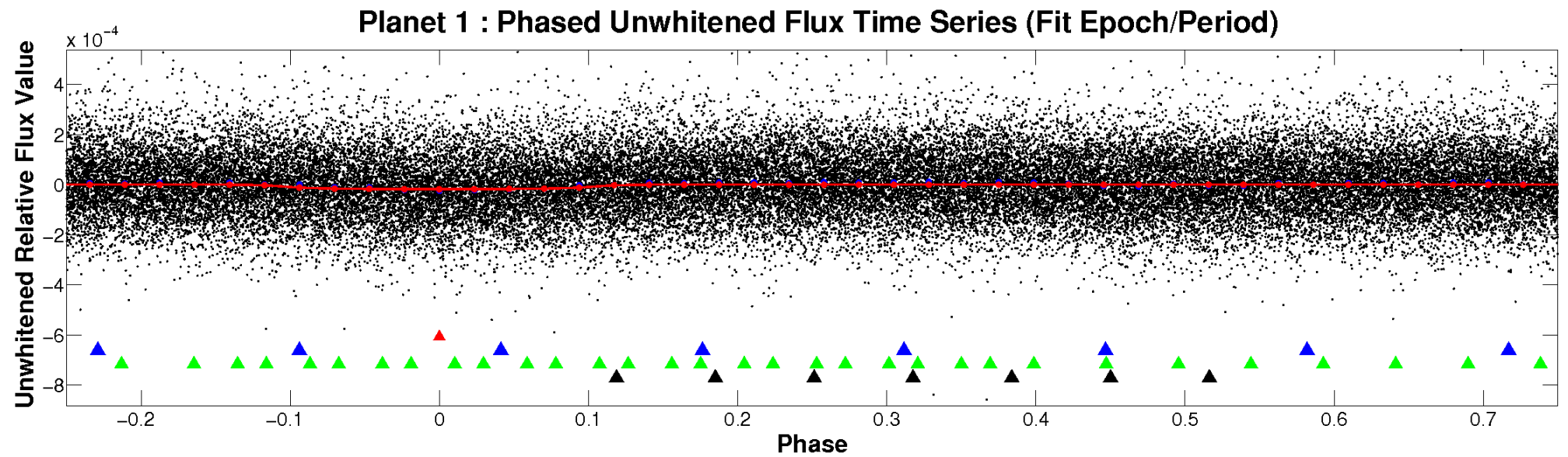


ALT Odd/Even

TCE 009691311-01

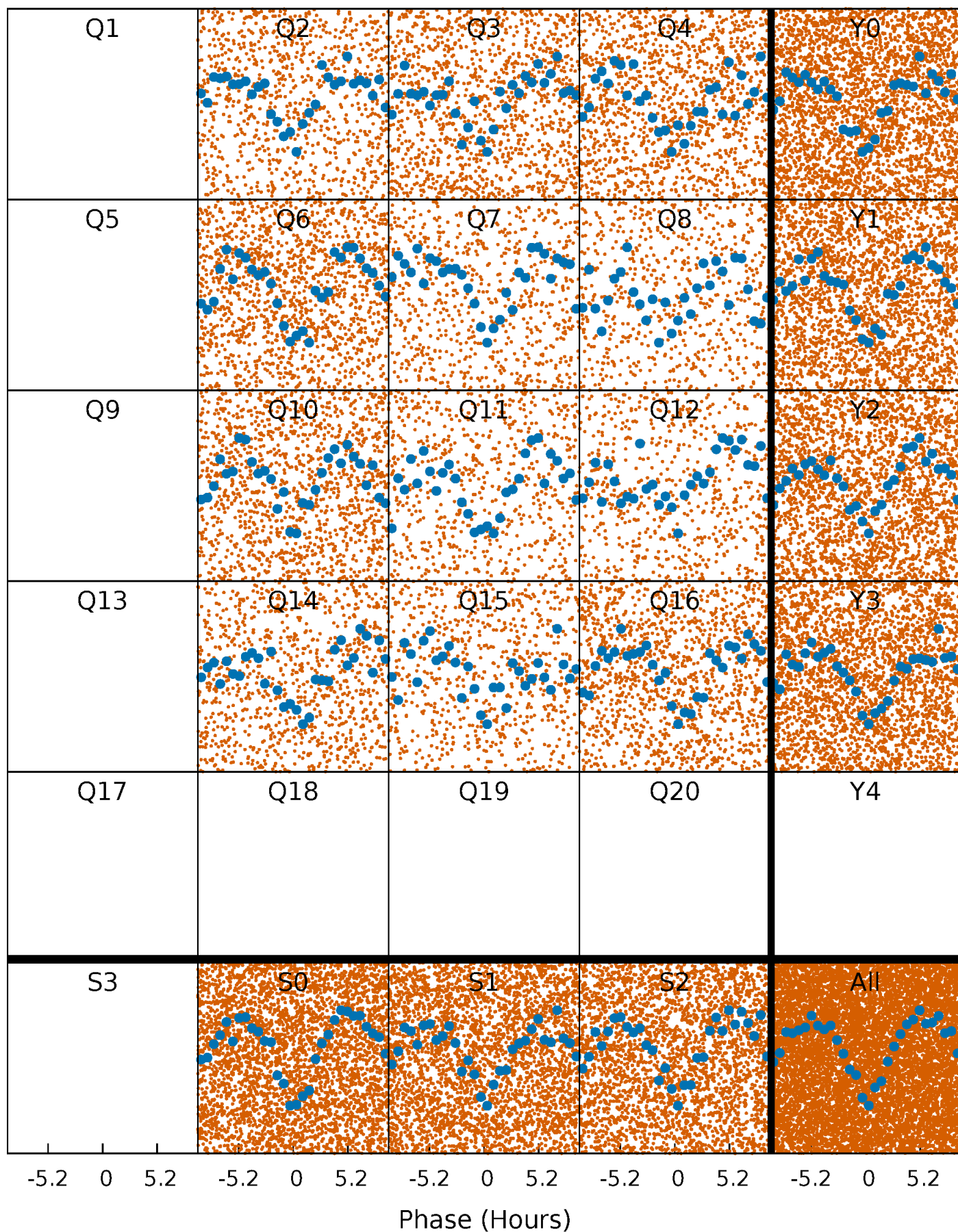


Non-Whitened Vs. Whitened Light Curve



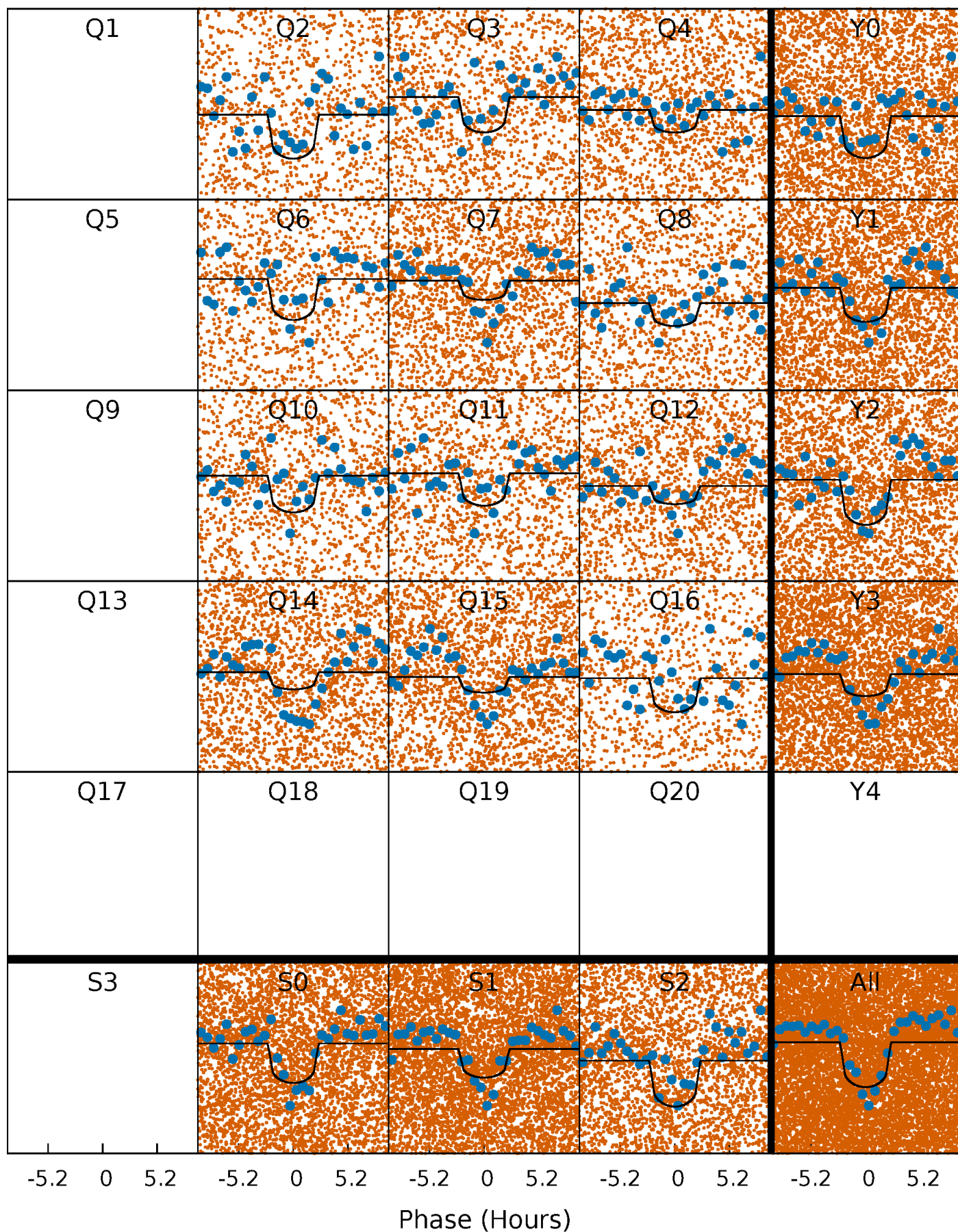
PDC Quarter-Phased Transit Curves

TCE 009691311-01 P= 0.871558 Days $T_0=132.095733$ (BKJD)



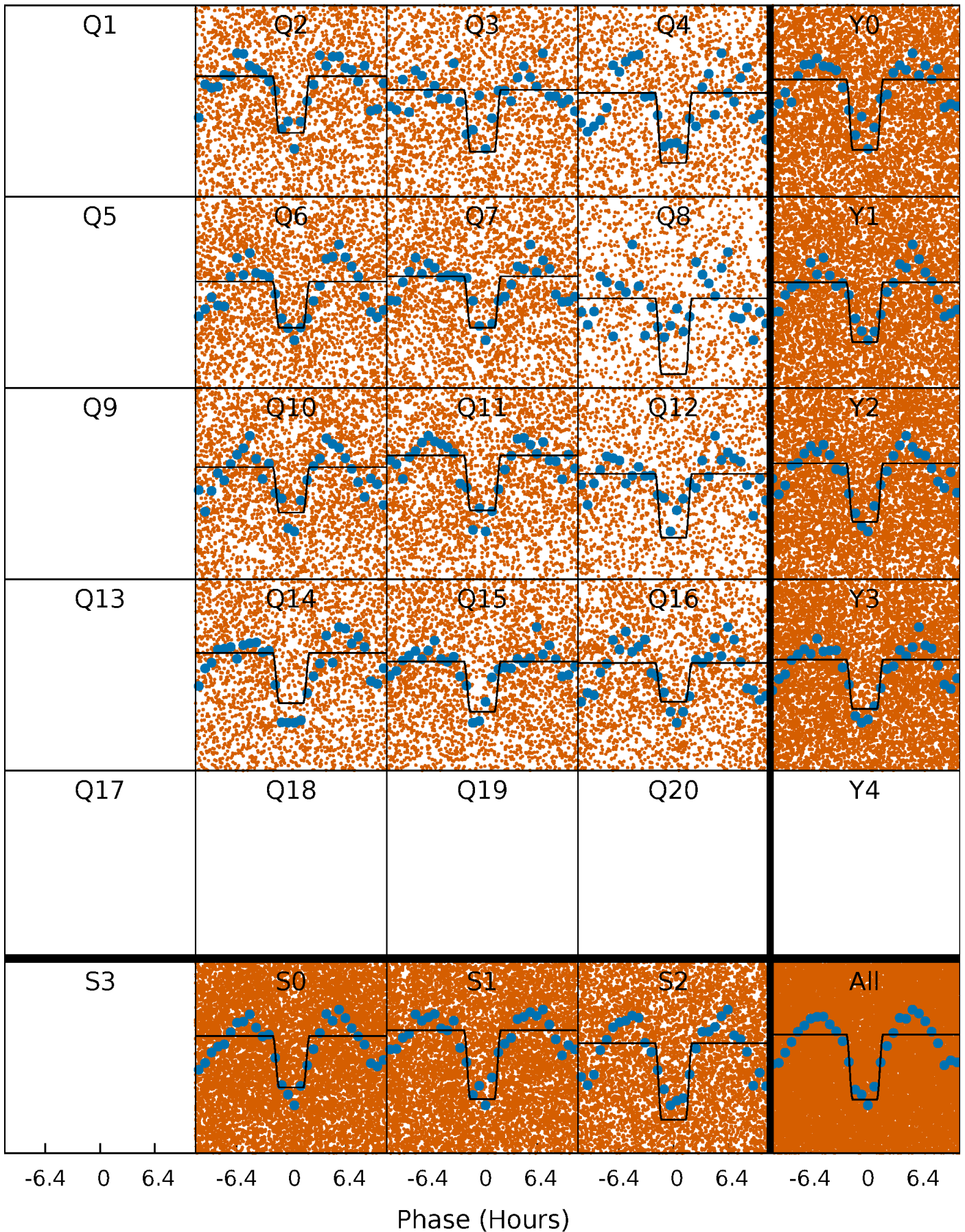
DV Quarter-Phased Transit Curves

TCE 009691311-01 P= 0.871558 Days $T_0=132.095733$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

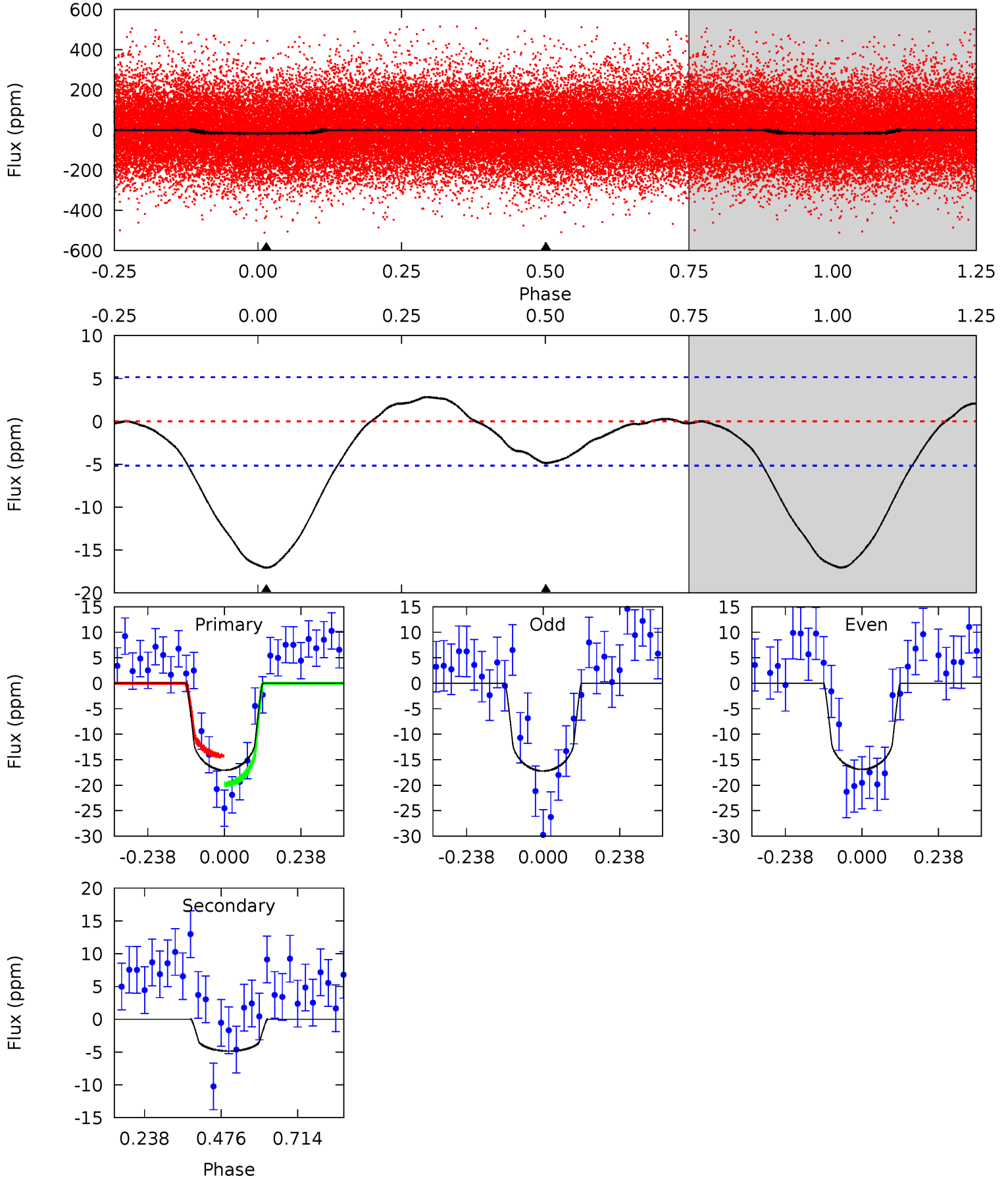
TCE 009691311-01 P= 0.871589 Days $T_0=132.076686$ (BKJD)



DV Model-Shift Uniqueness Test

009691311-01, P = 0.871558 Days, E = 132.095733 Days

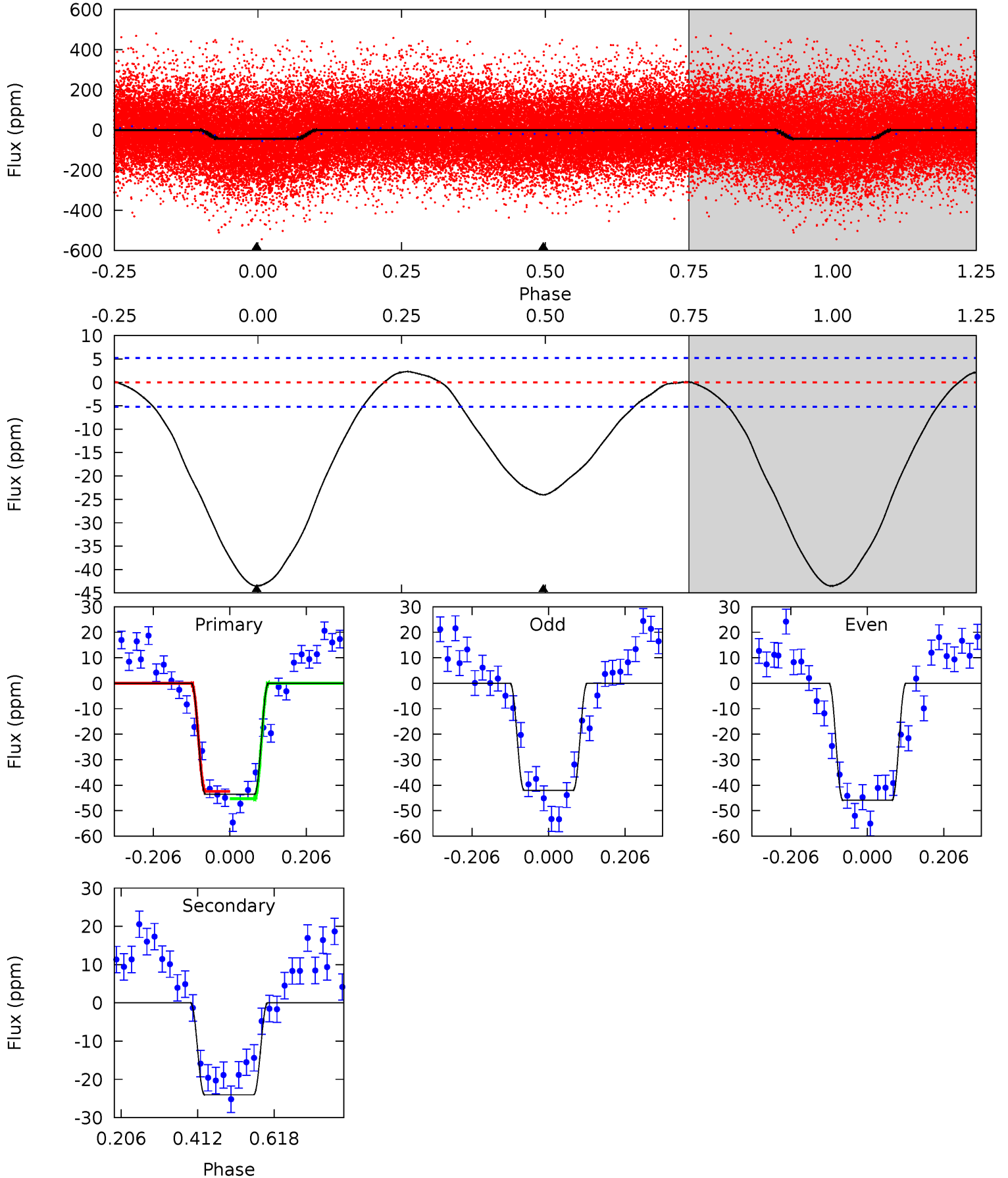
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	4.12	0	0	4.38	1.18	0.94	14.5	14.5	4.12	4.12	0.14	1.23	0.14	2.36



Alt Model-Shift Uniqueness Test

009691311-01, P = 0.871589 Days, E = 132.076686 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.8	20.3	0	0	4.41	1.26	1.09	36.8	36.8	20.3	20.3	1.67	1.06	0.05	1.20



Stellar Parameters For KIC 009691311

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5642^{+171}_{-154}	$3.732^{+0.315}_{-0.126}$	$-0.240^{+0.300}_{-0.250}$	$2.520^{+0.505}_{-0.937}$	$1.251^{+0.157}_{-0.314}$	$0.110^{+0.223}_{-0.041}$
	+3%/-3%	+8%/-3%	+125%/-104%	+20%/-37%	+13%/-25%	+203%/-38%
Source	PHO1	FLK73	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 009691311-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5 ± 1	$1.18^{+0.61}_{-0.60}$	3929^{+281}_{-360}	3730^{+1507}_{-6030}	$0.677^{+2.272}_{-0.386}$
Alt.	-24 ± 1	$1.78^{+0.69}_{-0.63}$	3929^{+276}_{-359}	4609^{+929}_{-632}	$1.483^{+2.025}_{-0.682}$

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

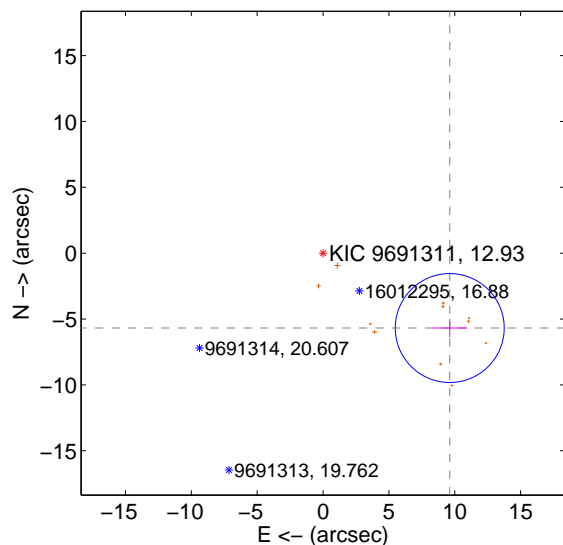
Supplemental centroid analysis for 009691311-01. Kepler magnitude: 12.93. Transit SNR 8.95

There are 0 quarters with good PRF difference image offsets

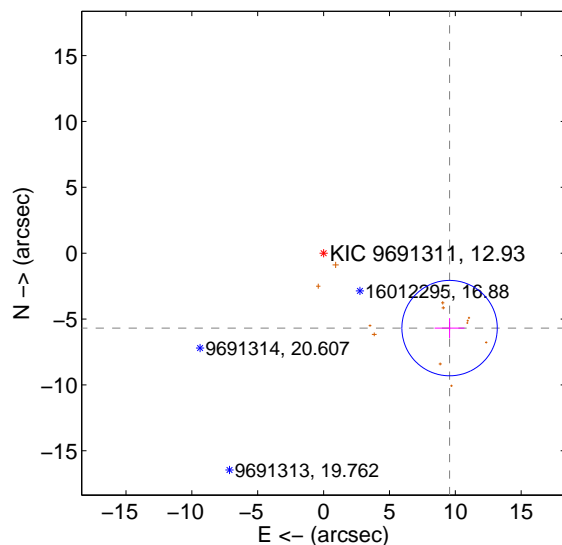
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.174 ± 1.378	8.11	-9.620 ± 1.321	-5.685 ± 0.680
PRF-fit source offset from KIC position	11.131 ± 1.207	9.22	-9.567 ± 1.134	-5.690 ± 0.759
photometric centroid source offset	7.90 ± 1.26	6.26	-4.88 ± 1.28	-6.21 ± 1.25

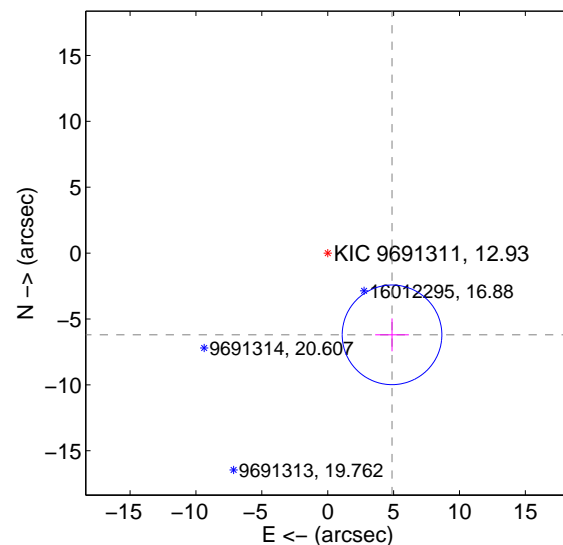
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

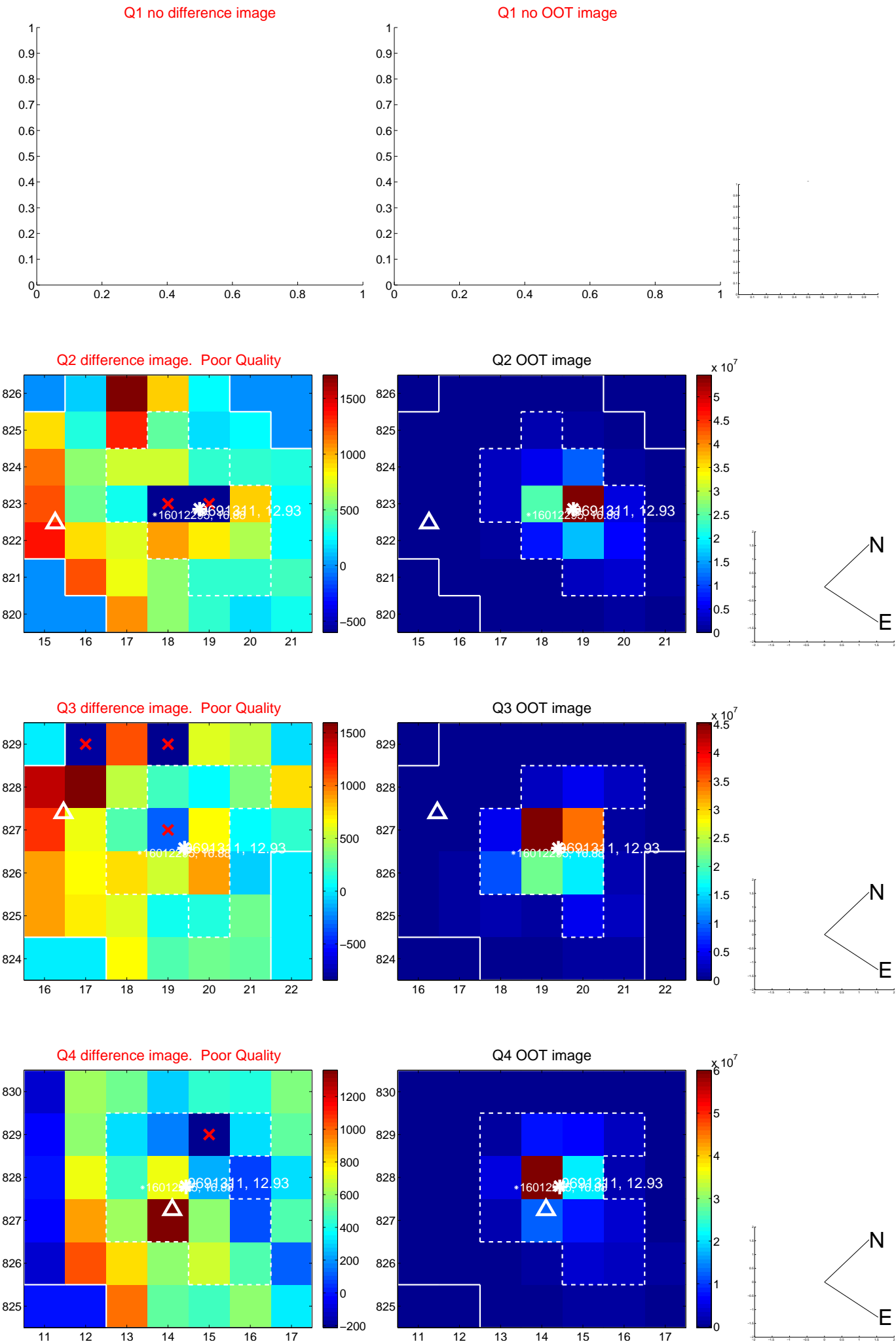


offset from photometric centroids

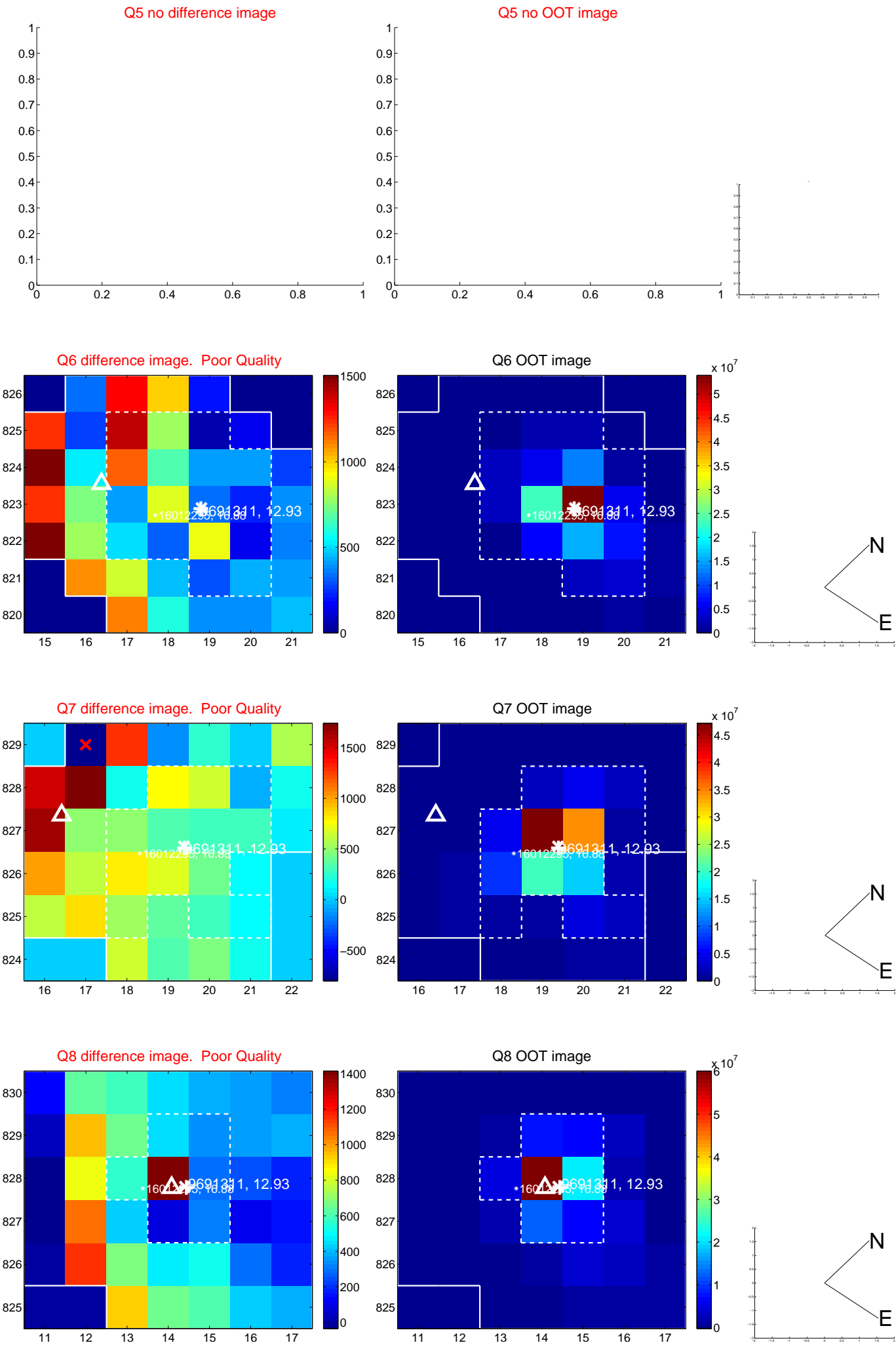


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

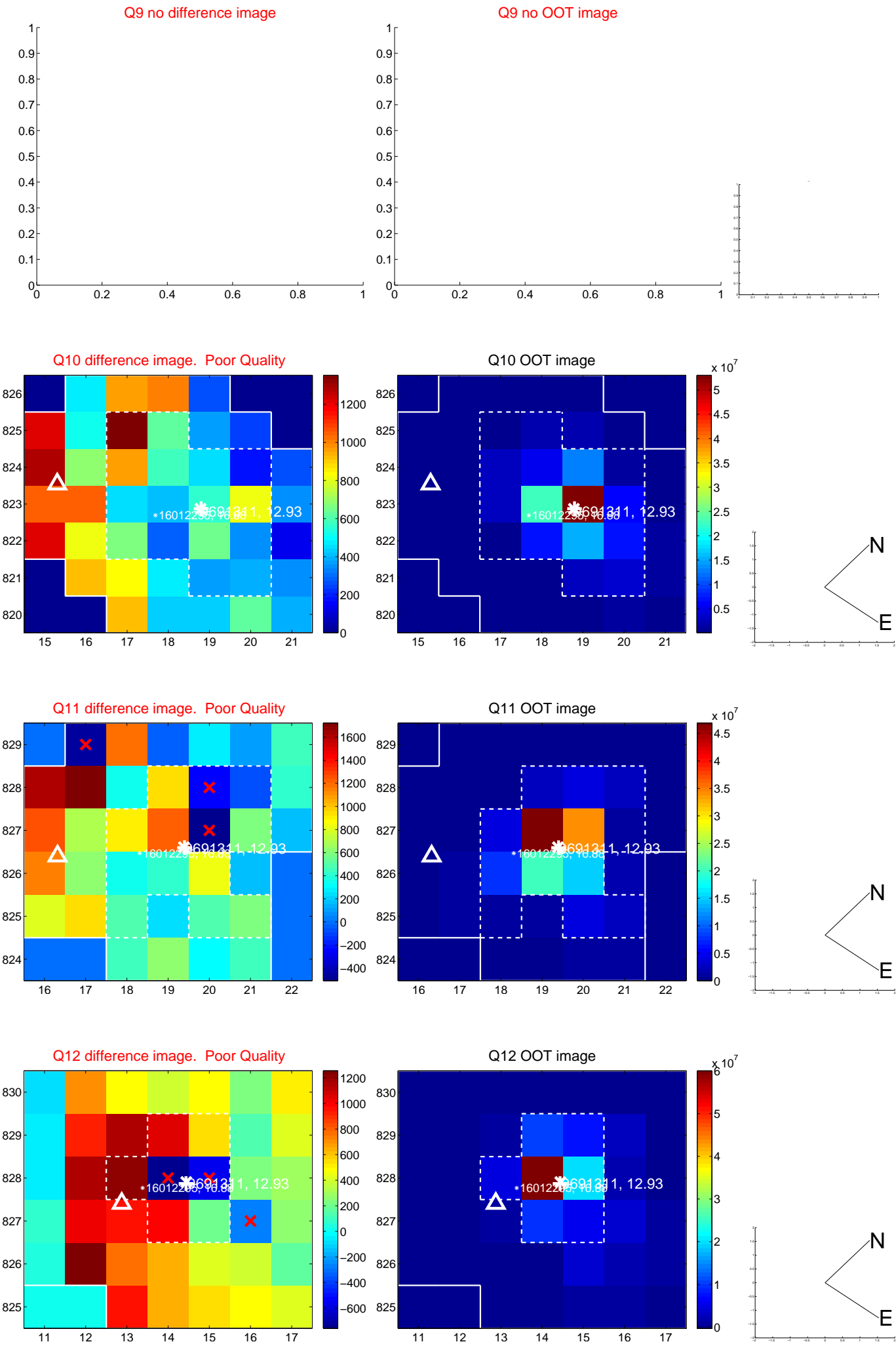
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



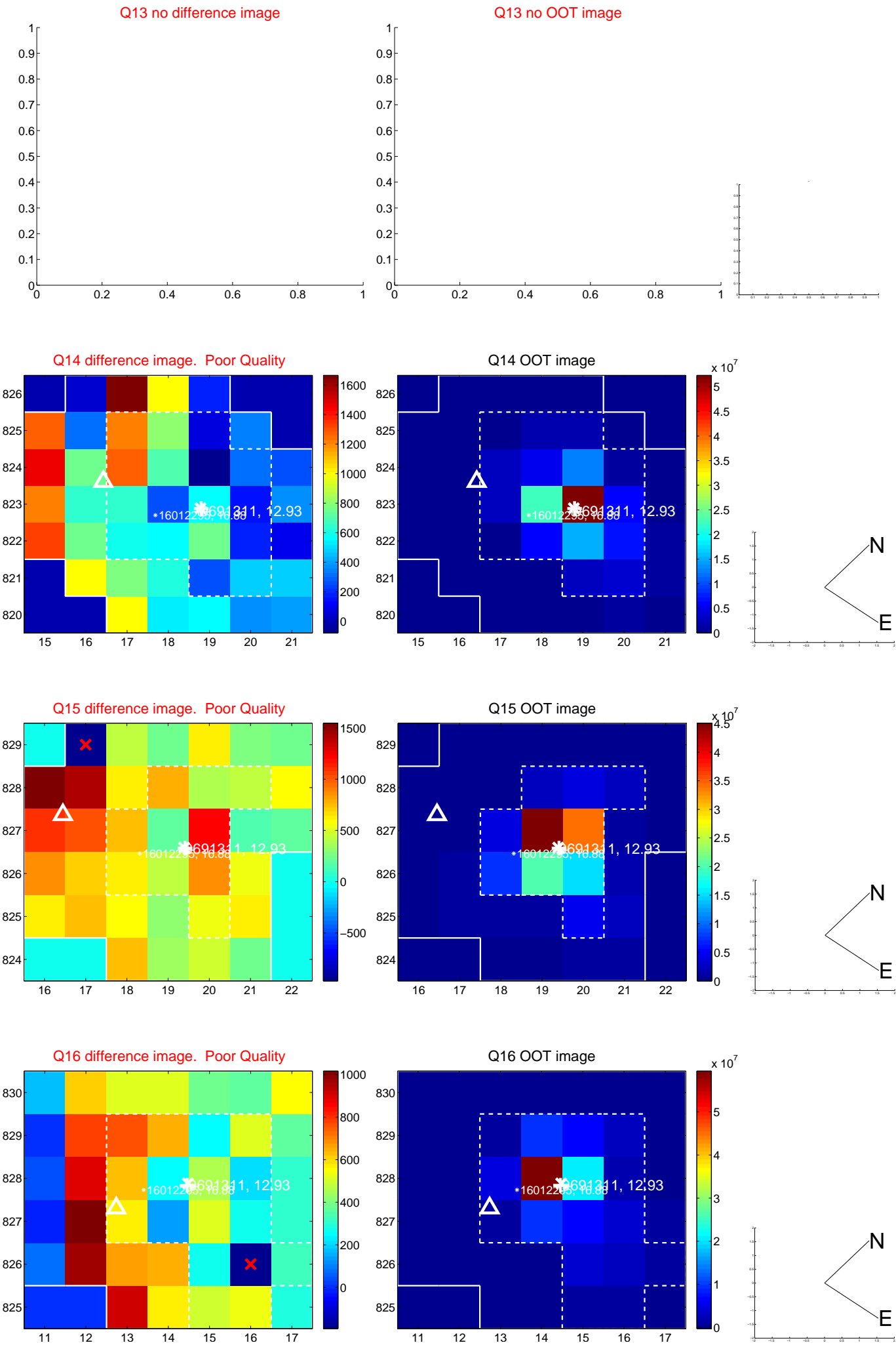
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



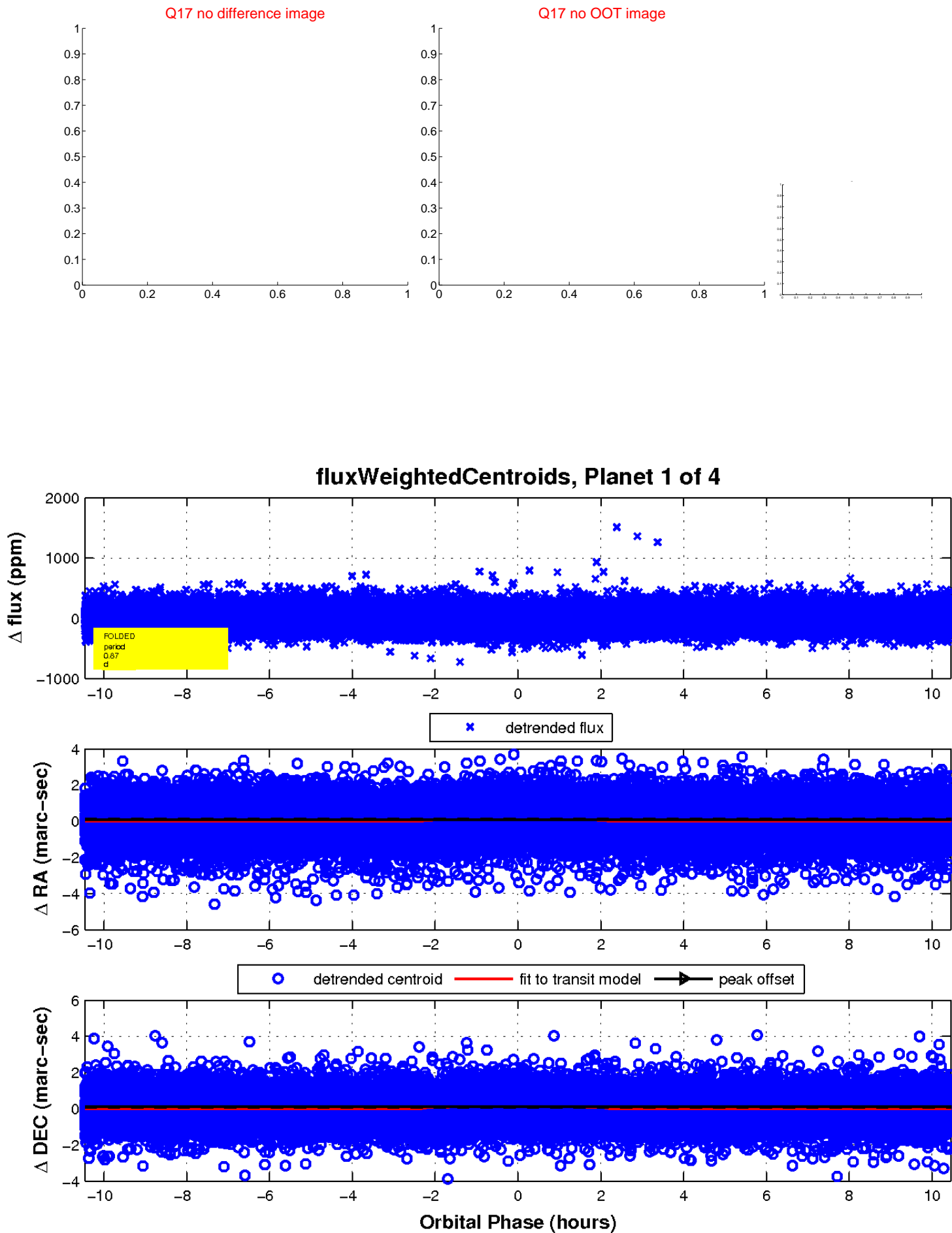
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

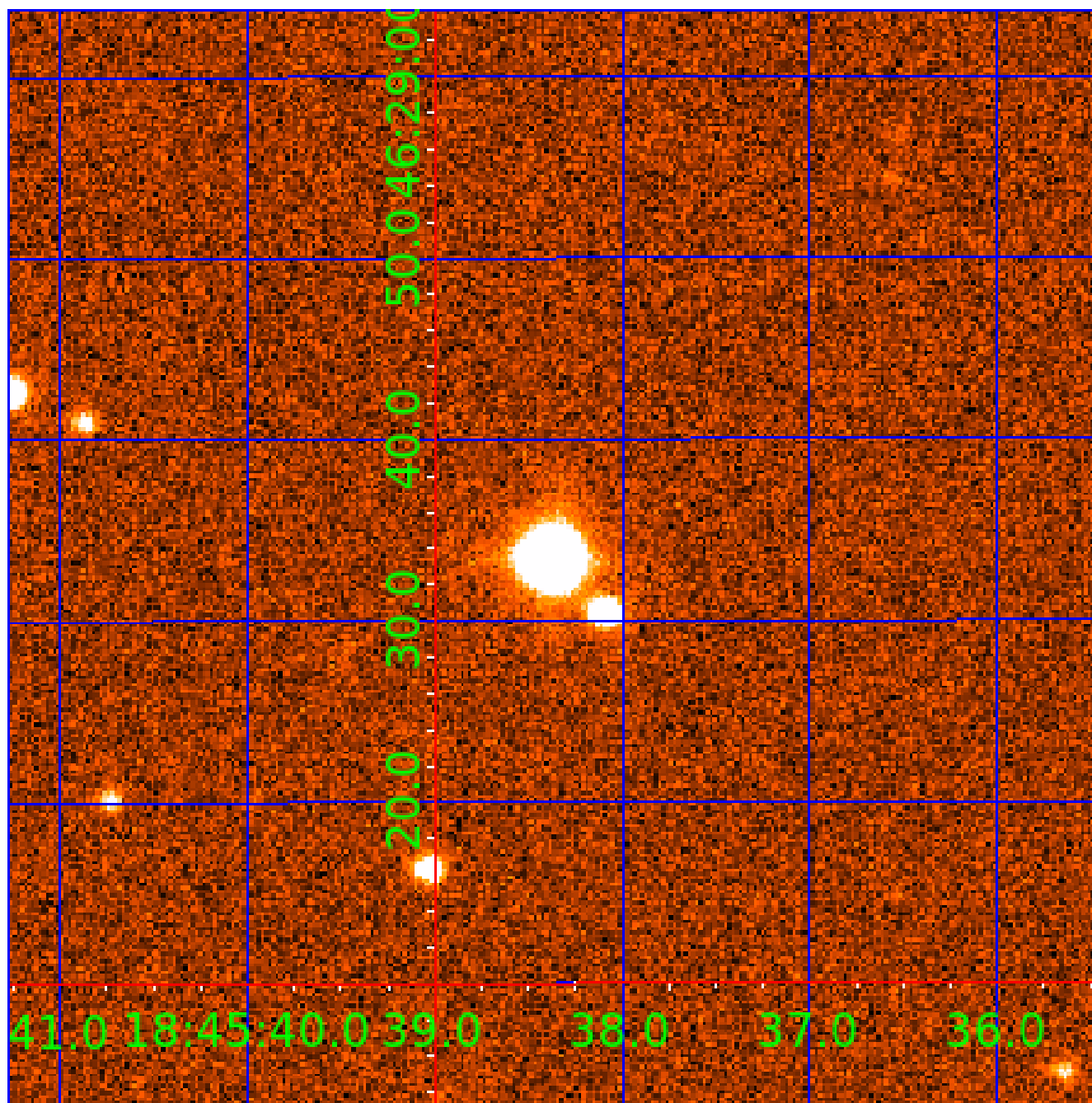


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009691311

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})
009691311-01	OBS	No	0.871558	132.095733	17.5	4.547	8.9	9.0	2.52	5642	1.25	15577.52
009691311-02	OBS	No	185.759716	239.097795	147.7	6.244	9.3	4.4	2.52	5642	3.71	12.24
009691311-03	OBS	No	45.363334	172.069502	353.6	1.558	9.5	8.9	2.52	5642	5.44	80.16
009691311-04	OBS	No	223.176673	201.052407	204.1	10.835	8.7	5.9	2.52	5642	4.93	9.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009691311-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST
009691311-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
009691311-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
009691311-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

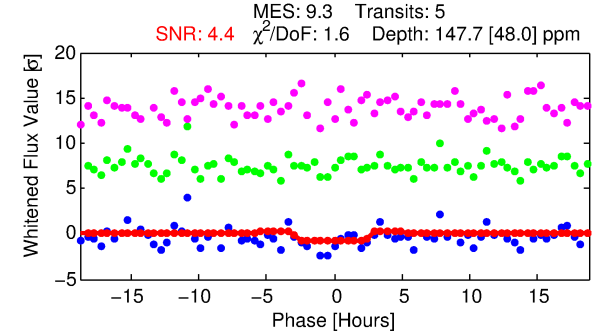
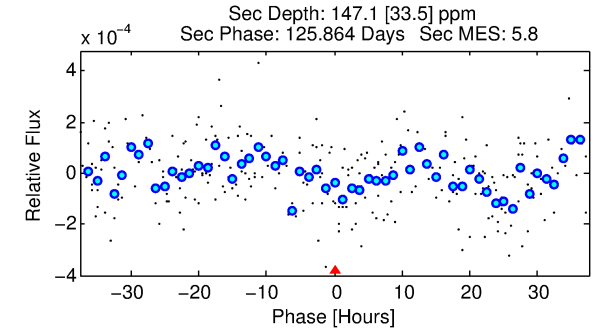
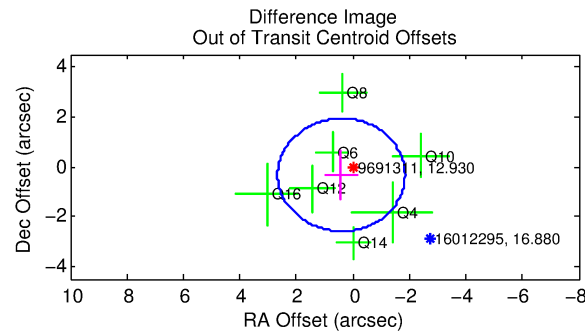
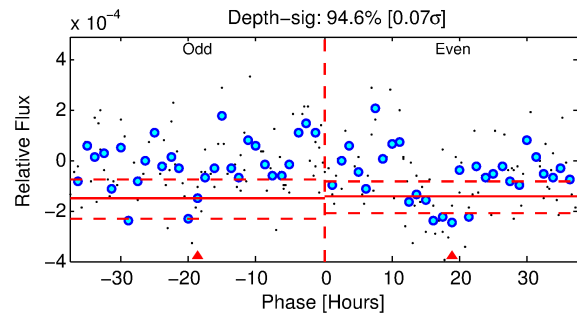
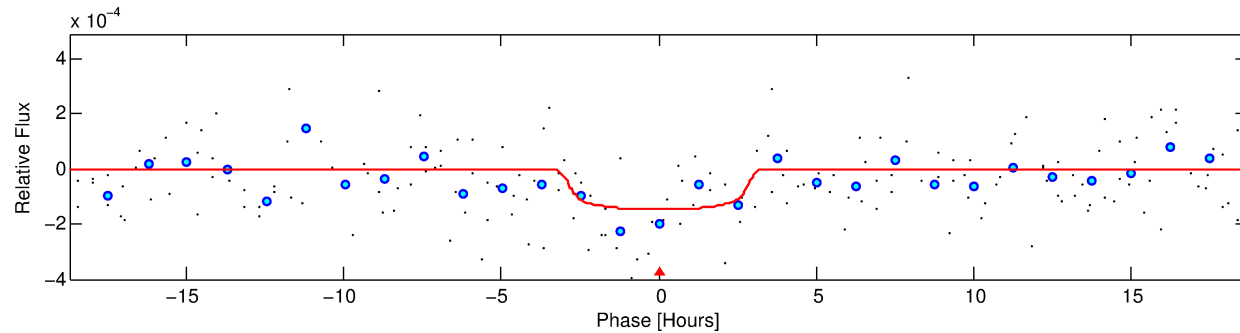
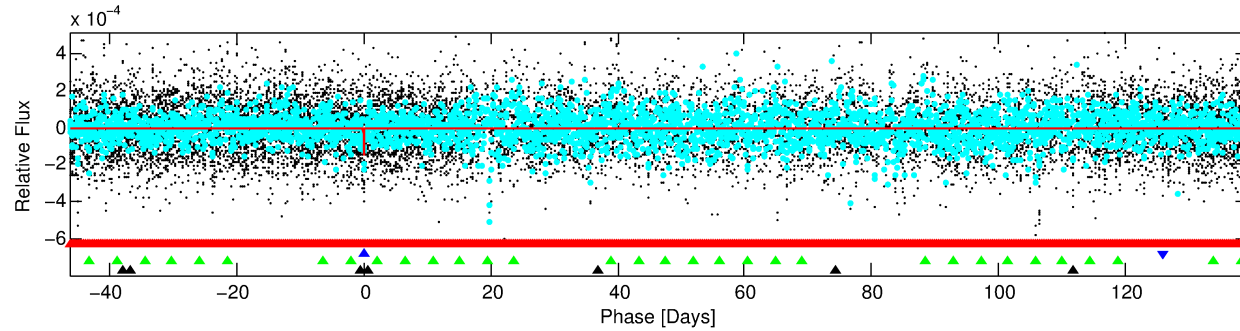
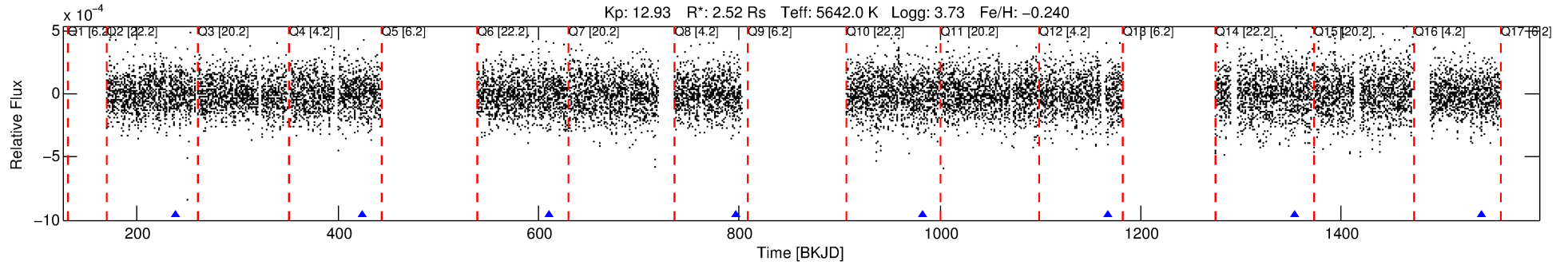
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009691311-02

No Significant Match Found

DV One-Page Summary

KIC: 9691311 Candidate: 2 of 4 Period: 185.760 d



DV Fit Results:

Period = 185.75972 [0.00620] d
Epoch = 239.0978 [0.0311] BKJD
Rp/R* = 0.0135 [0.0063]
a/R* = 97.62 [199.18]
b = 0.92 [0.36]
Seff = 12.24 [6.81]
Teq = 477 [66] K
Rp = 3.71 [2.22] Re
a = 0.6864 [0.2377] AU
Ag = 2774.33 [3072.31] [0.90 σ]
Teffp = 5351 [1301] K [3.74 σ]

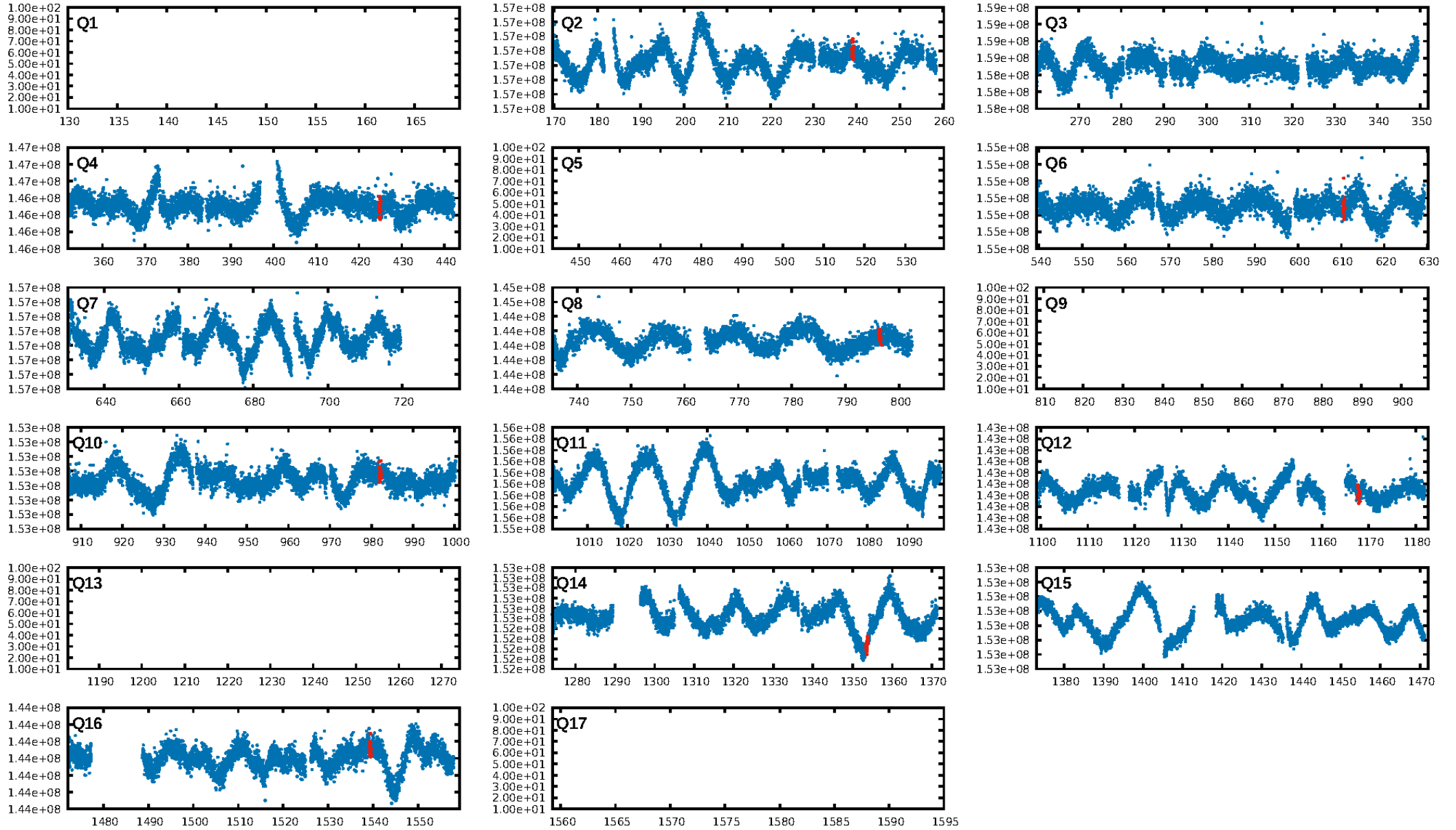
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [523.59 σ]
LongPeriod-sig: 100.0% [71.81 σ]
ModelChiSquare2-sig: 53.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.07e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -5.4
Centroid-sig: 8.4%
Centroid-so: 2.123 arcsec [1.40 σ]
OotOffset-rm: 0.524 arcsec [0.70 σ]
KicOffset-rm: 0.618 arcsec [0.77 σ]
OotOffset-st: 3/0/4/0 [7]
KicOffset-st: 3/0/4/0 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.00 [0/8]

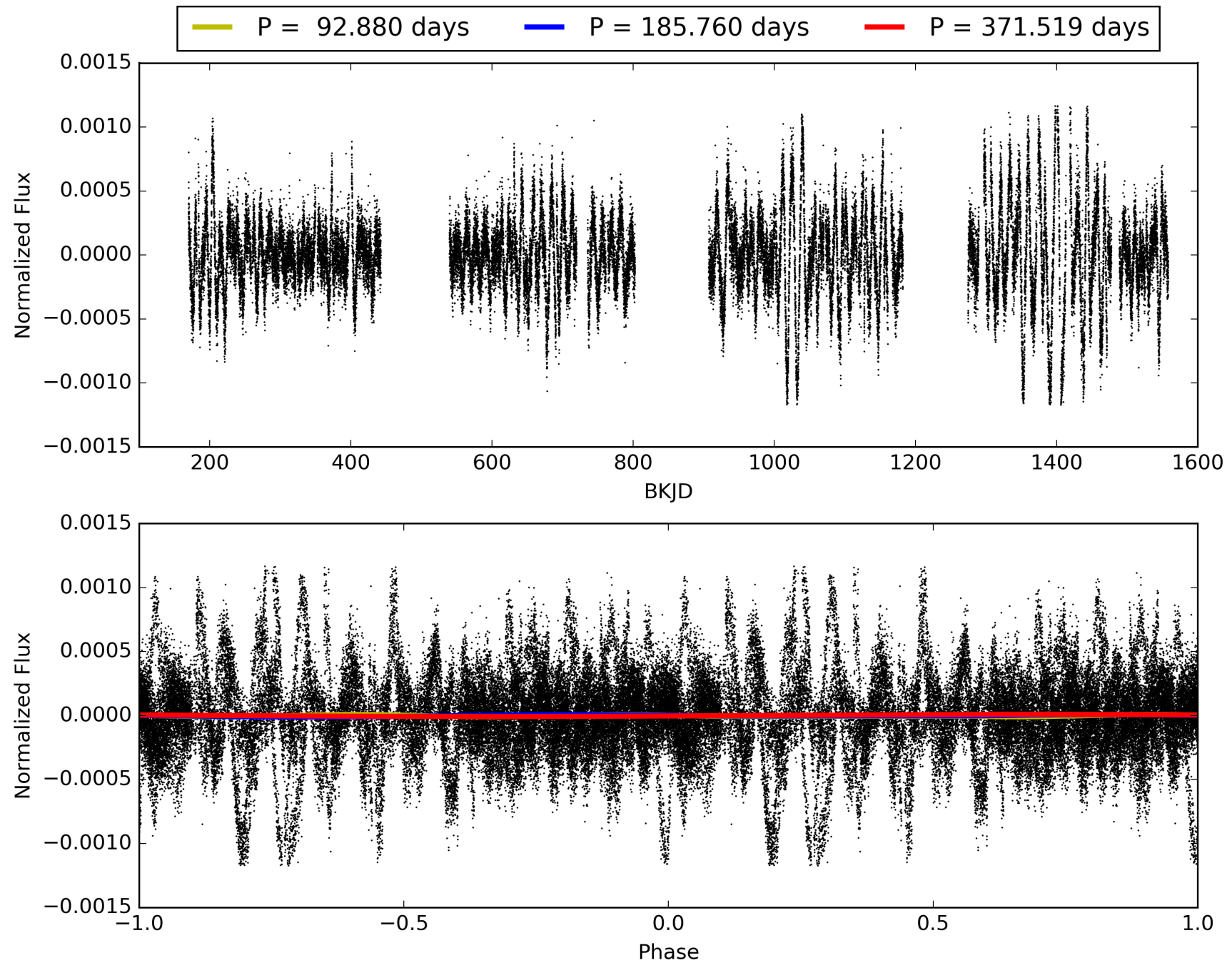
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:18:46 Z

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

TCE 009691311-02, PDC Light Curves

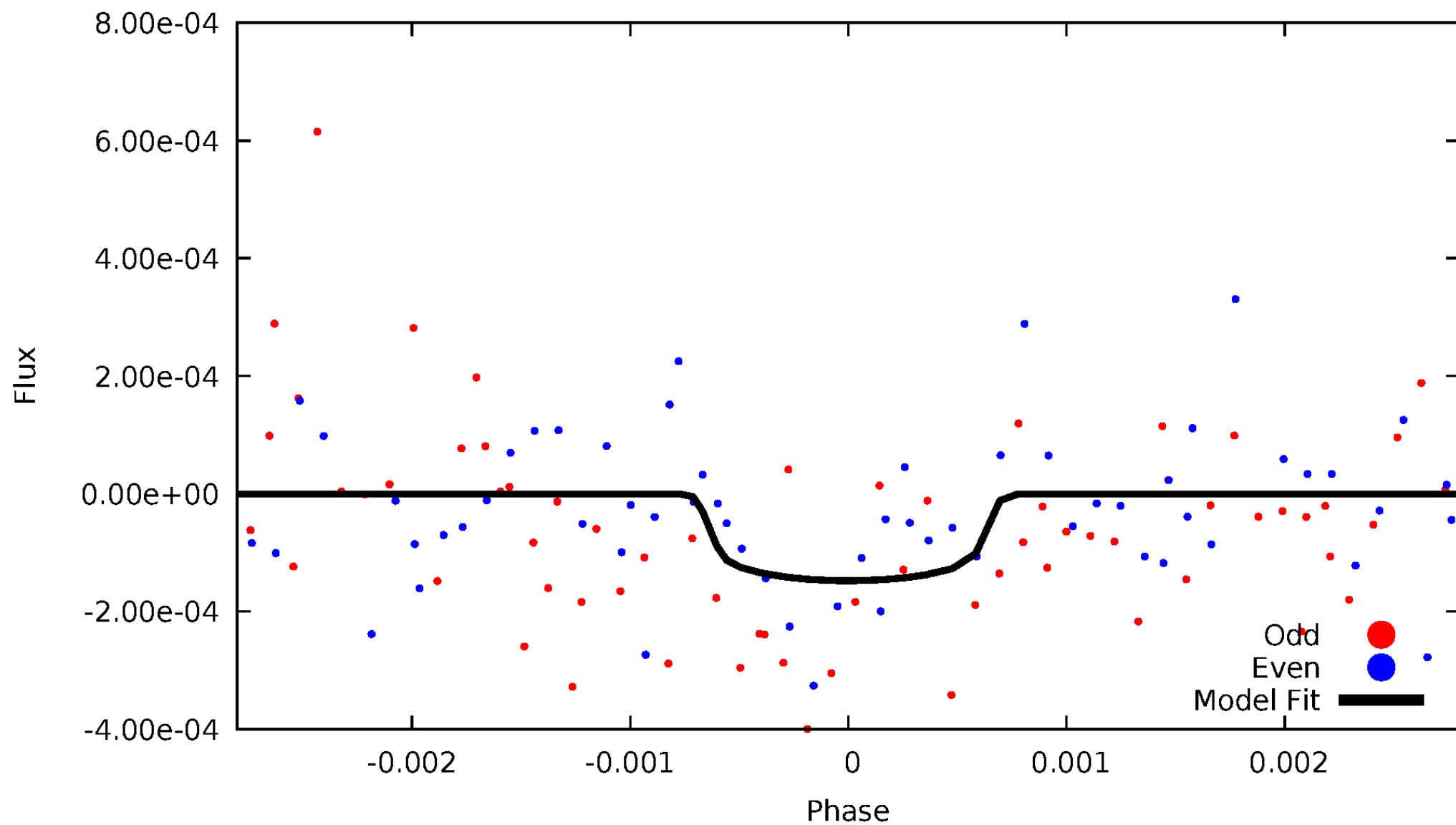


TCE 009691311-02



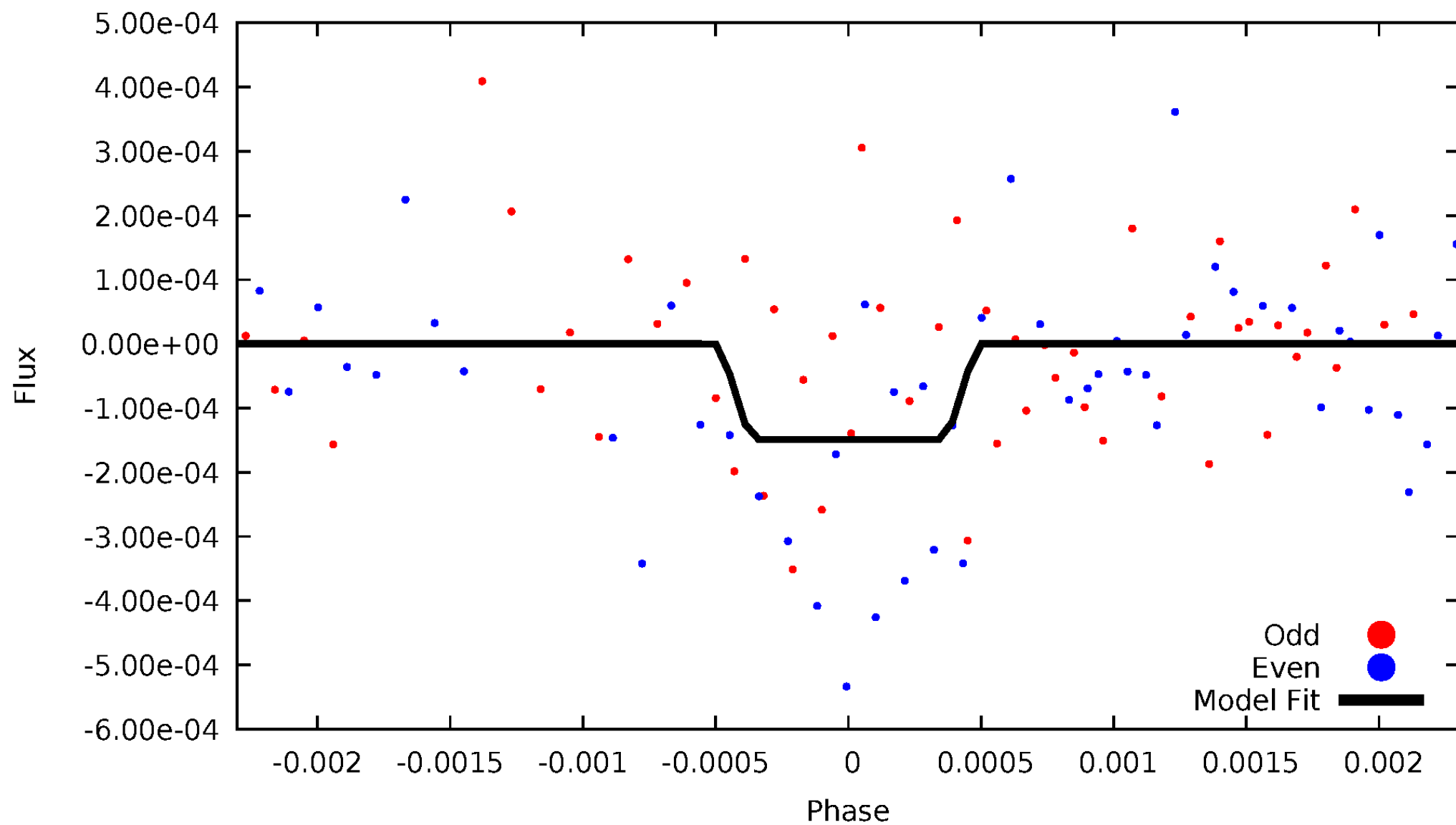
DV Odd/Even

TCE 009691311-02



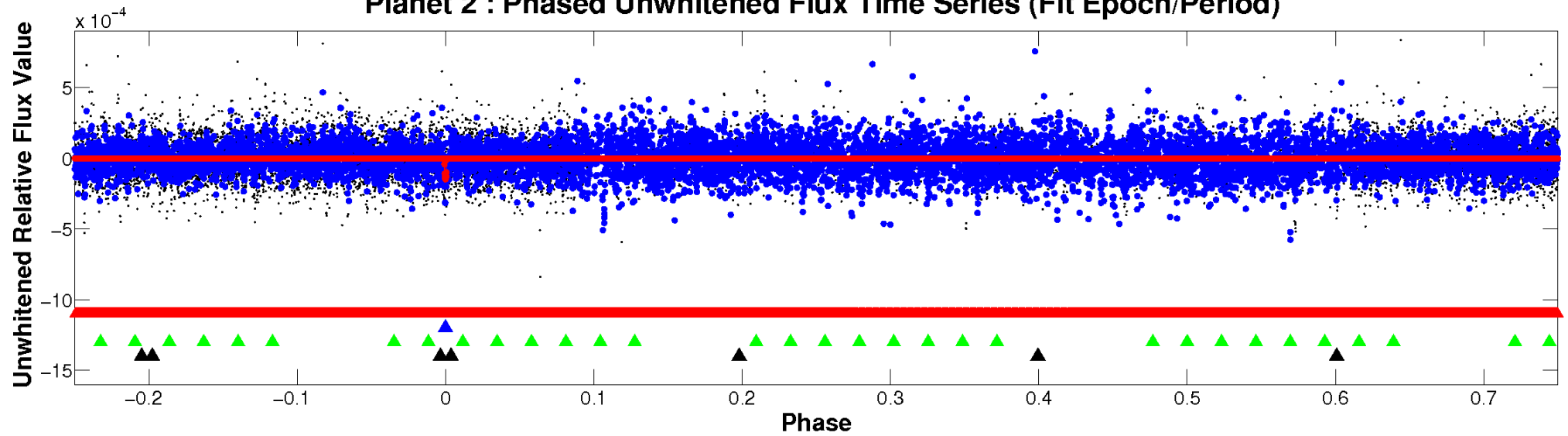
ALT Odd/Even

TCE 009691311-02

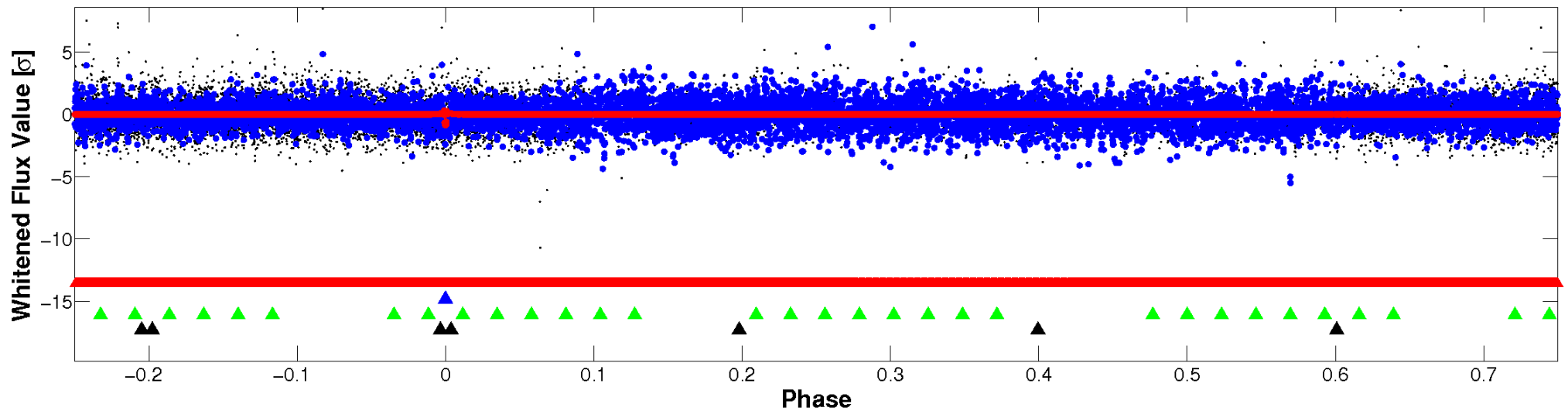


Non-Whitened Vs. Whitened Light Curve

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

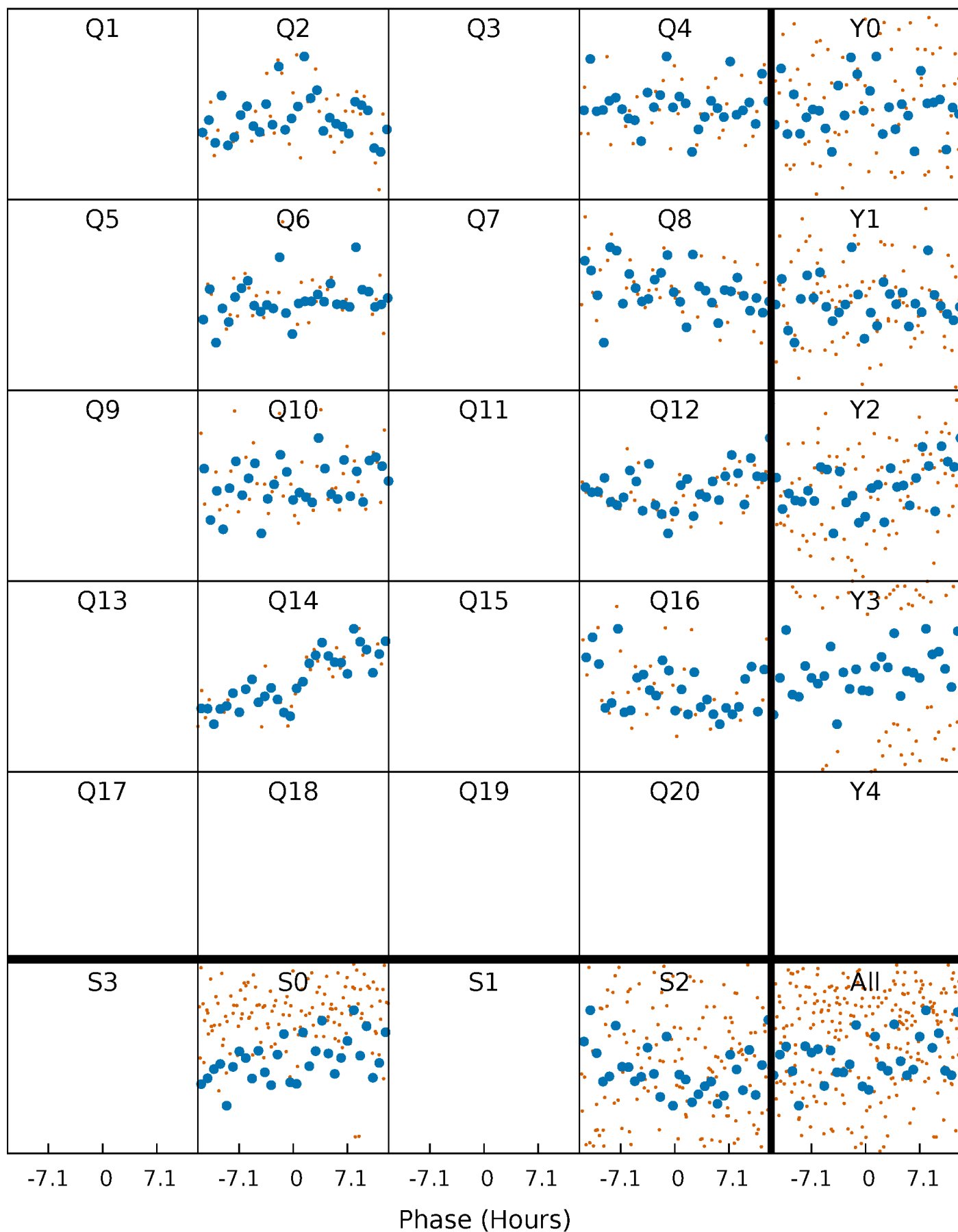


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



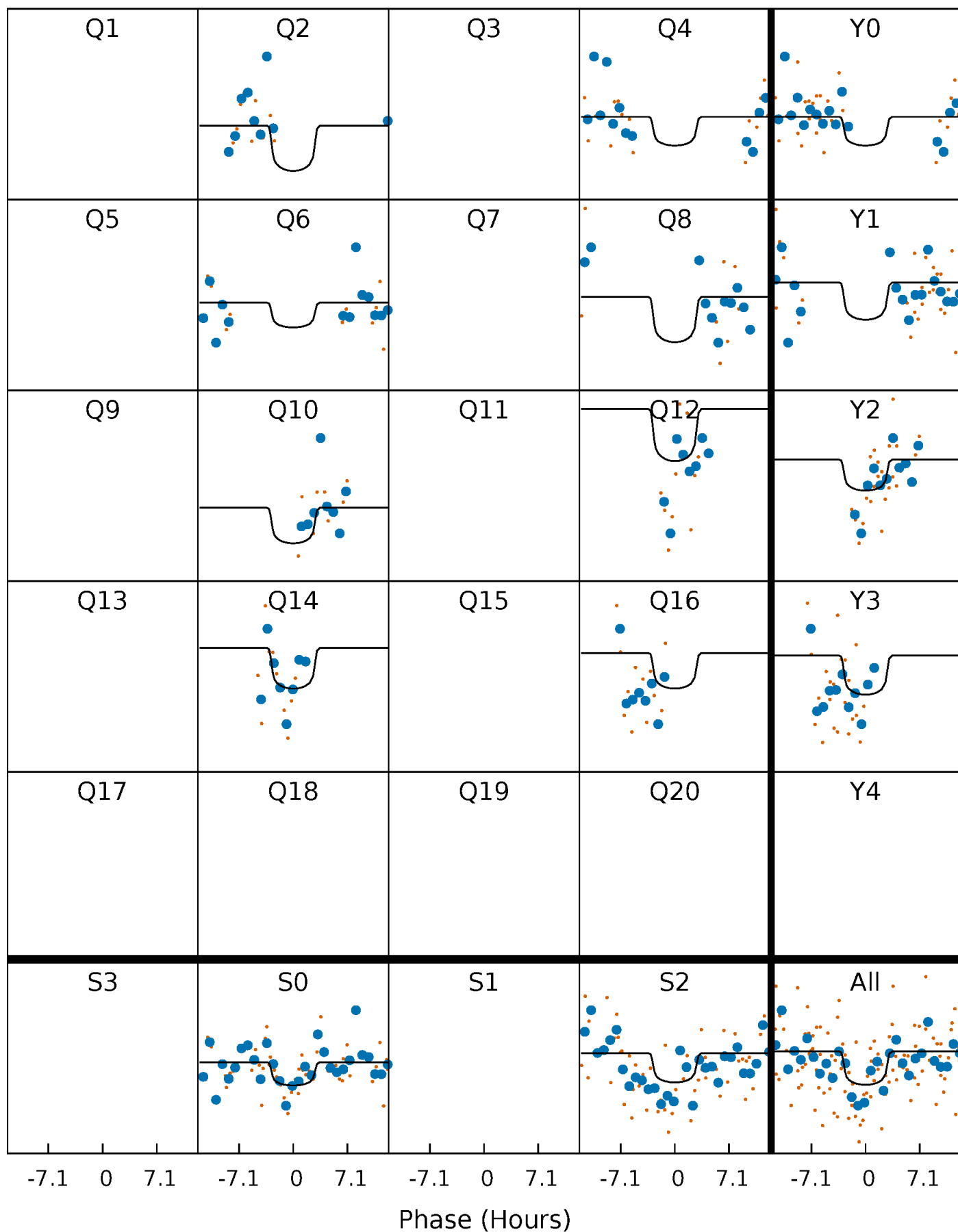
PDC Quarter-Phased Transit Curves

TCE 009691311-02 P=185.759716 Days $T_0=239.097795$ (BKJD)



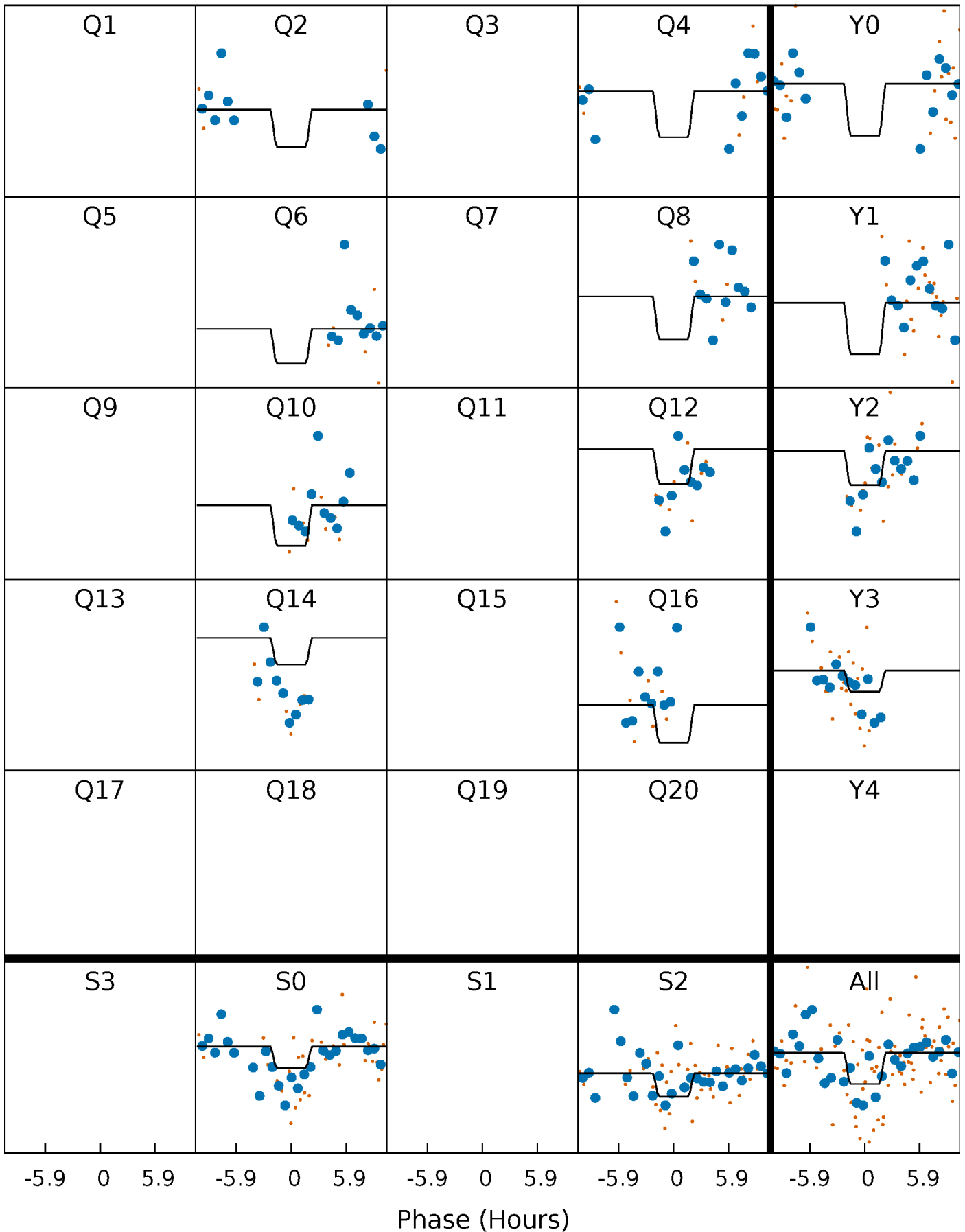
DV Quarter-Phased Transit Curves

TCE 009691311-02 P=185.759716 Days $T_0=239.097795$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

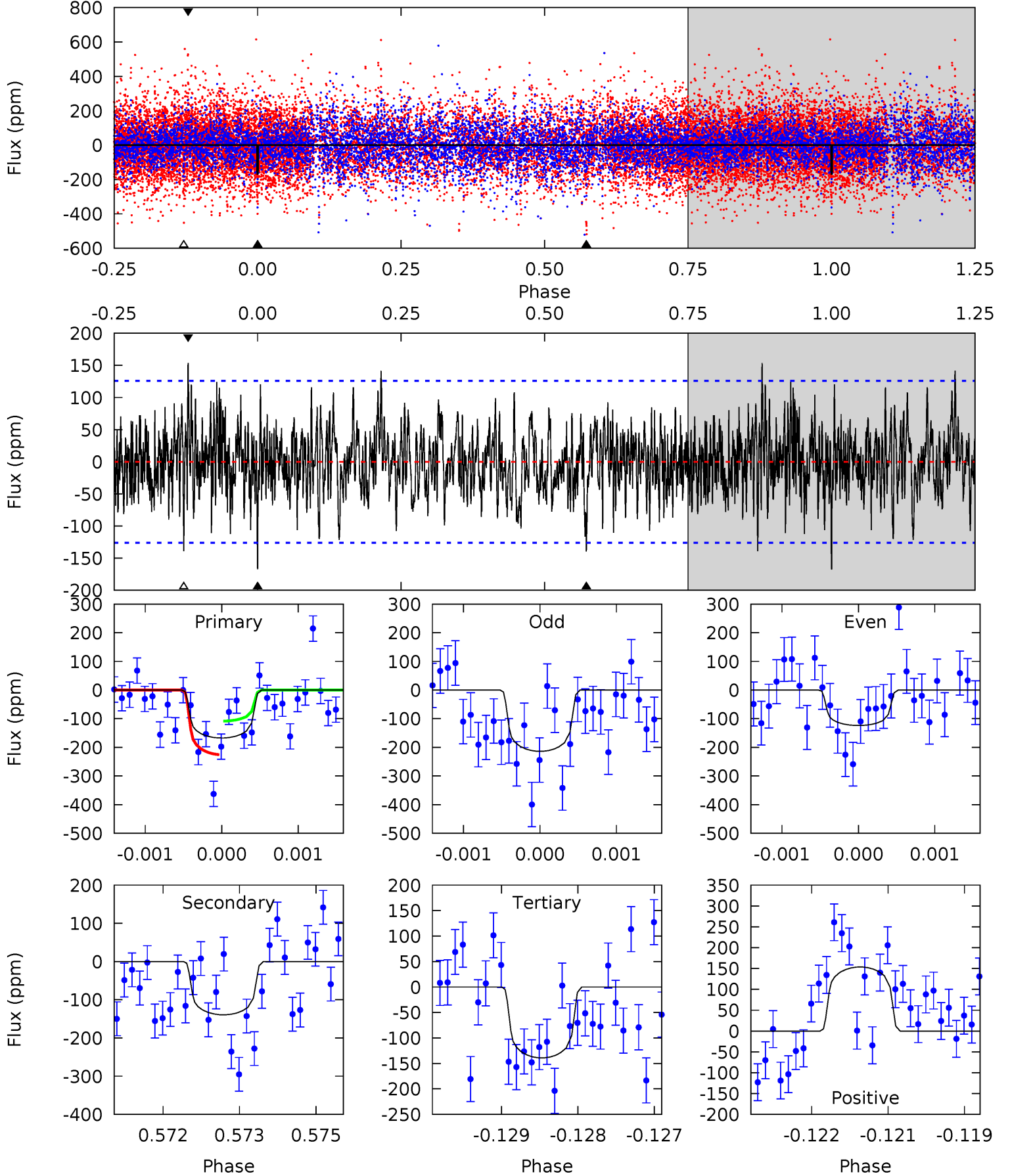
TCE 009691311-02 P=185.727438 Days $T_0=239.263258$ (BKJD)



DV Model-Shift Uniqueness Test

009691311-02, P = 185.759716 Days, E = 53.338079 Days

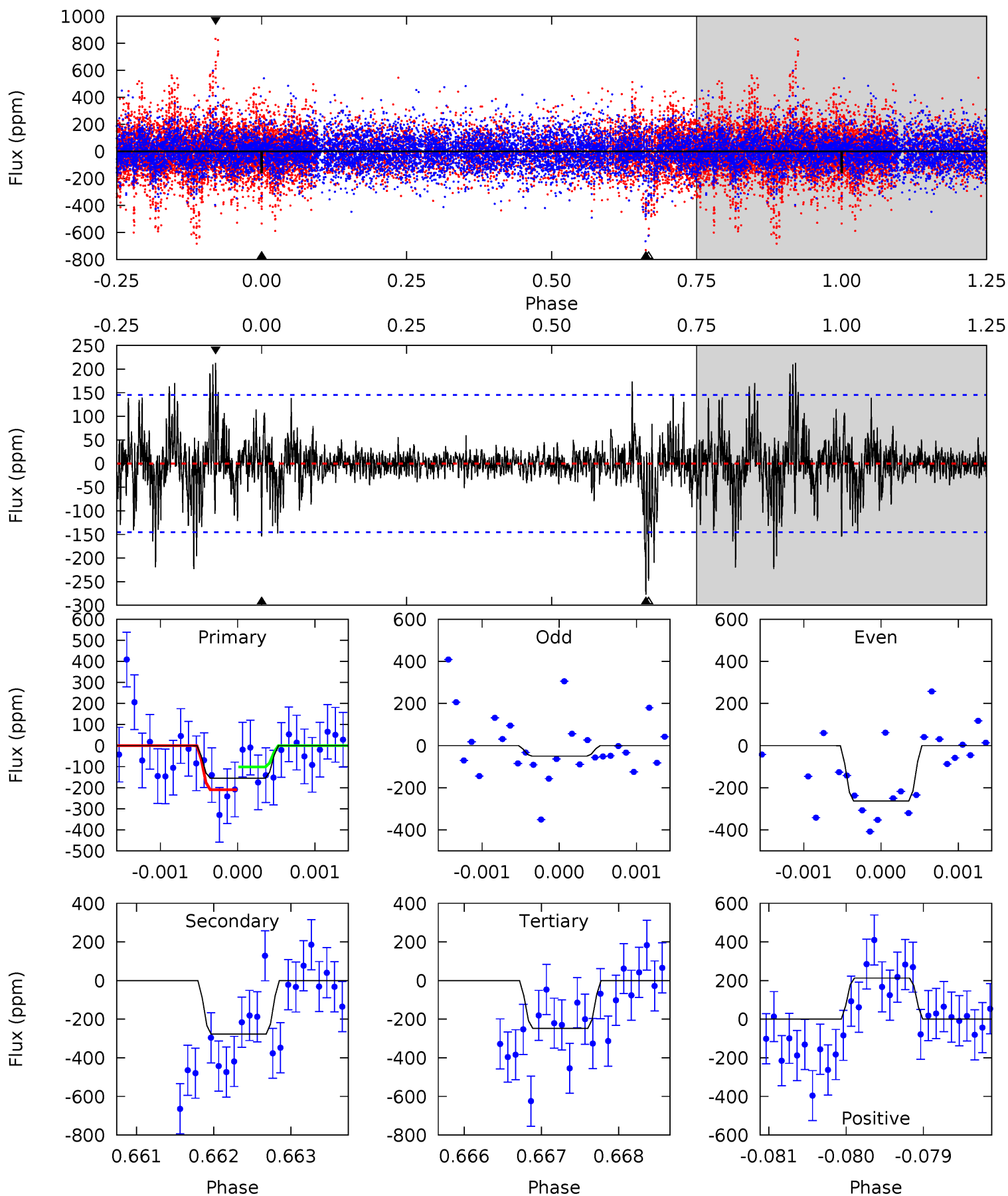
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.15	5.95	5.94	6.55	5.38	3.18	1.76	1.21	0.59	0.01	-0.61	1.93	0.94	0.48	2.50



Alt Model-Shift Uniqueness Test

009691311-02, $P = 185.727438$ Days, $E = 53.535820$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.81	10.4	9.30	8.00	5.46	3.30	1.75	-3.49	-2.19	1.12	2.42	3.80	1.12	0.43	2.07



Stellar Parameters For KIC 009691311

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5642^{+171}_{-154}	$3.732^{+0.315}_{-0.126}$	$-0.240^{+0.300}_{-0.250}$	$2.520^{+0.505}_{-0.937}$	$1.251^{+0.157}_{-0.314}$	$0.110^{+0.223}_{-0.041}$
	+3%/-3%	+8%/-3%	+125%/-104%	+20%/-37%	+13%/-25%	+203%/-38%
Source	PHO1	FLK73	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 009691311-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-139 ± 23	$3.36^{+1.87}_{-1.61}$	656^{+45}_{-64}	5361^{+1949}_{-829}	3104^{+8589}_{-1844}
Alt.	-277 ± 27	$3.17^{+1.95}_{-1.62}$	657^{+49}_{-62}	6513^{+3489}_{-1204}	7033^{+22788}_{-4338}

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

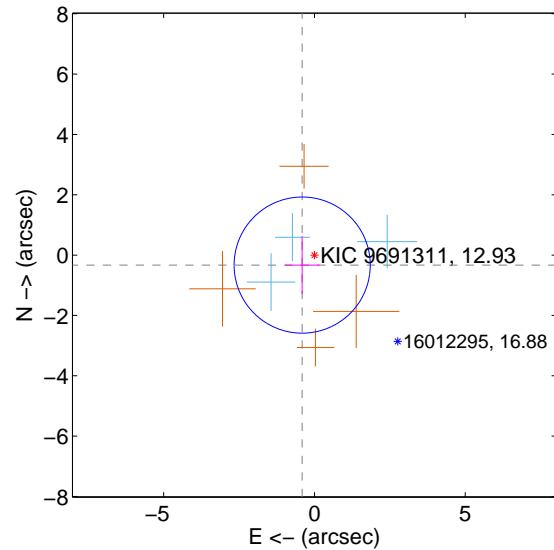
Supplemental centroid analysis for 009691311-02. Kepler magnitude: 12.93. Transit SNR 4.37

There are 3 quarters with good PRF difference image offsets

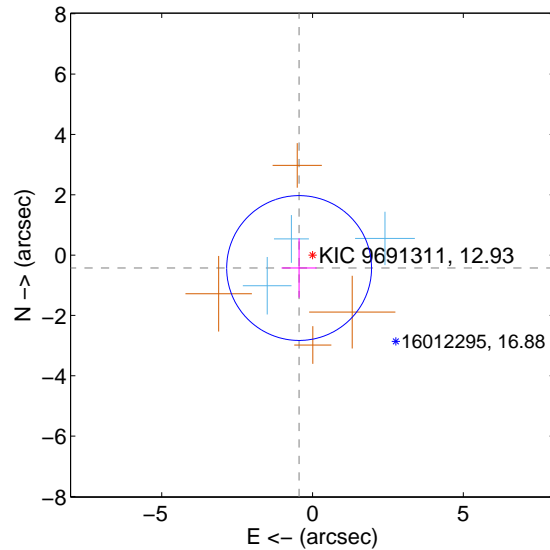
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.524 ± 0.752	0.70	0.406 ± 0.576	-0.331 ± 0.958
PRF-fit source offset from KIC position	0.618 ± 0.800	0.77	0.445 ± 0.580	-0.429 ± 0.983
photometric centroid source offset	2.12 ± 1.52	1.40	-1.62 ± 1.56	1.37 ± 1.46

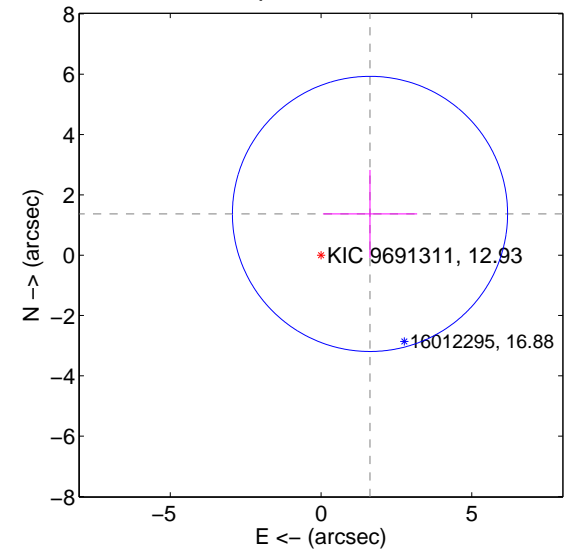
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

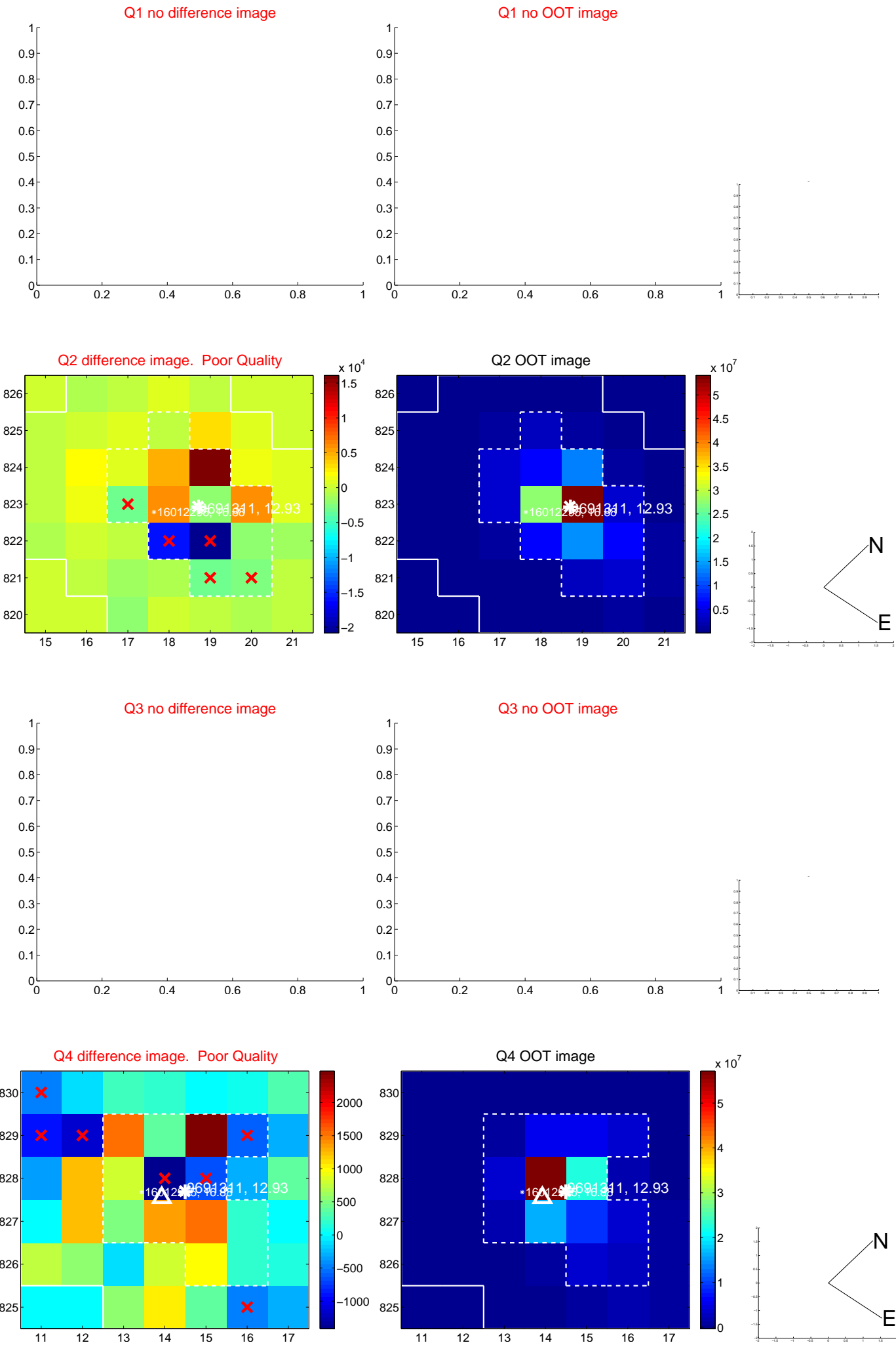


offset from photometric centroids

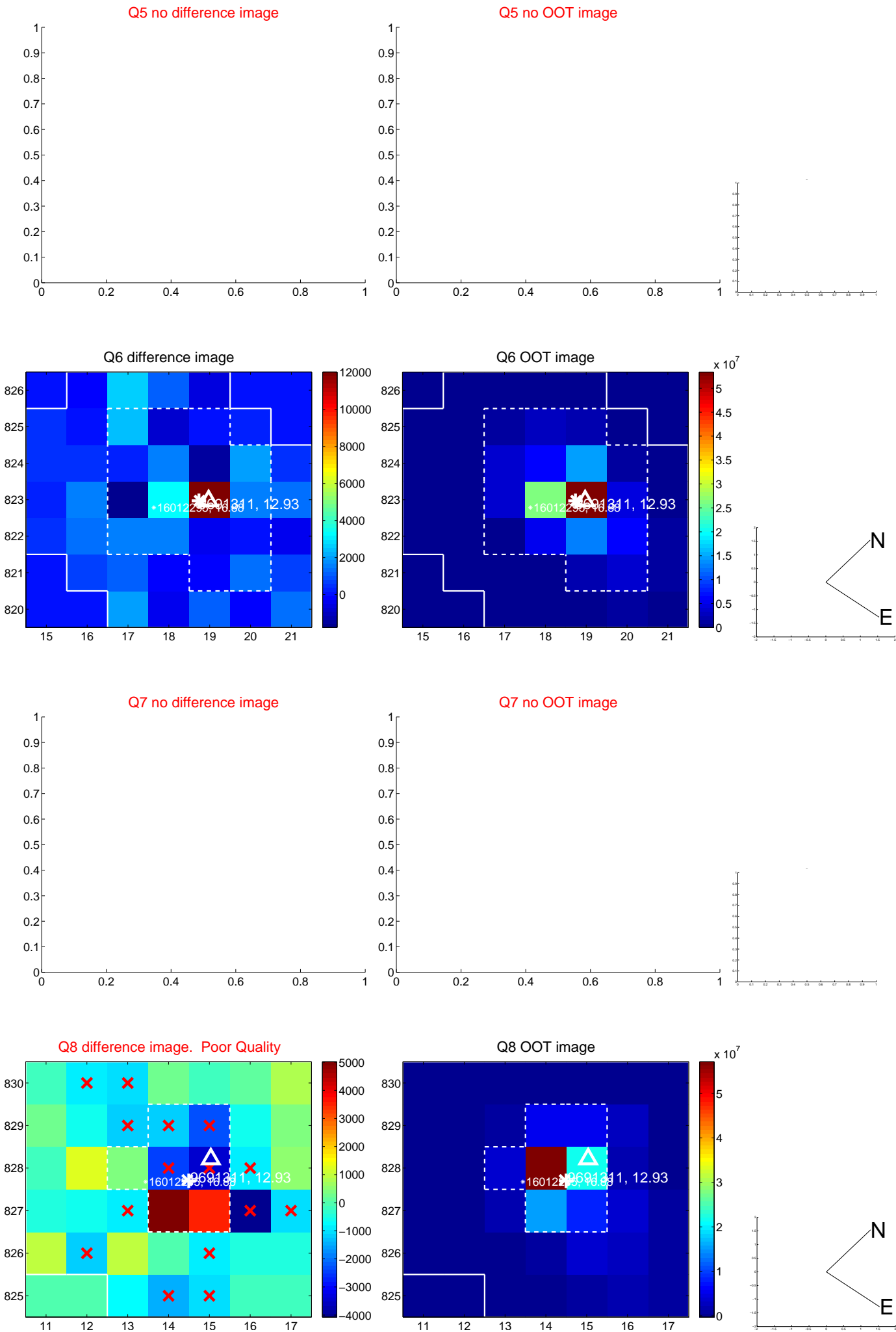


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

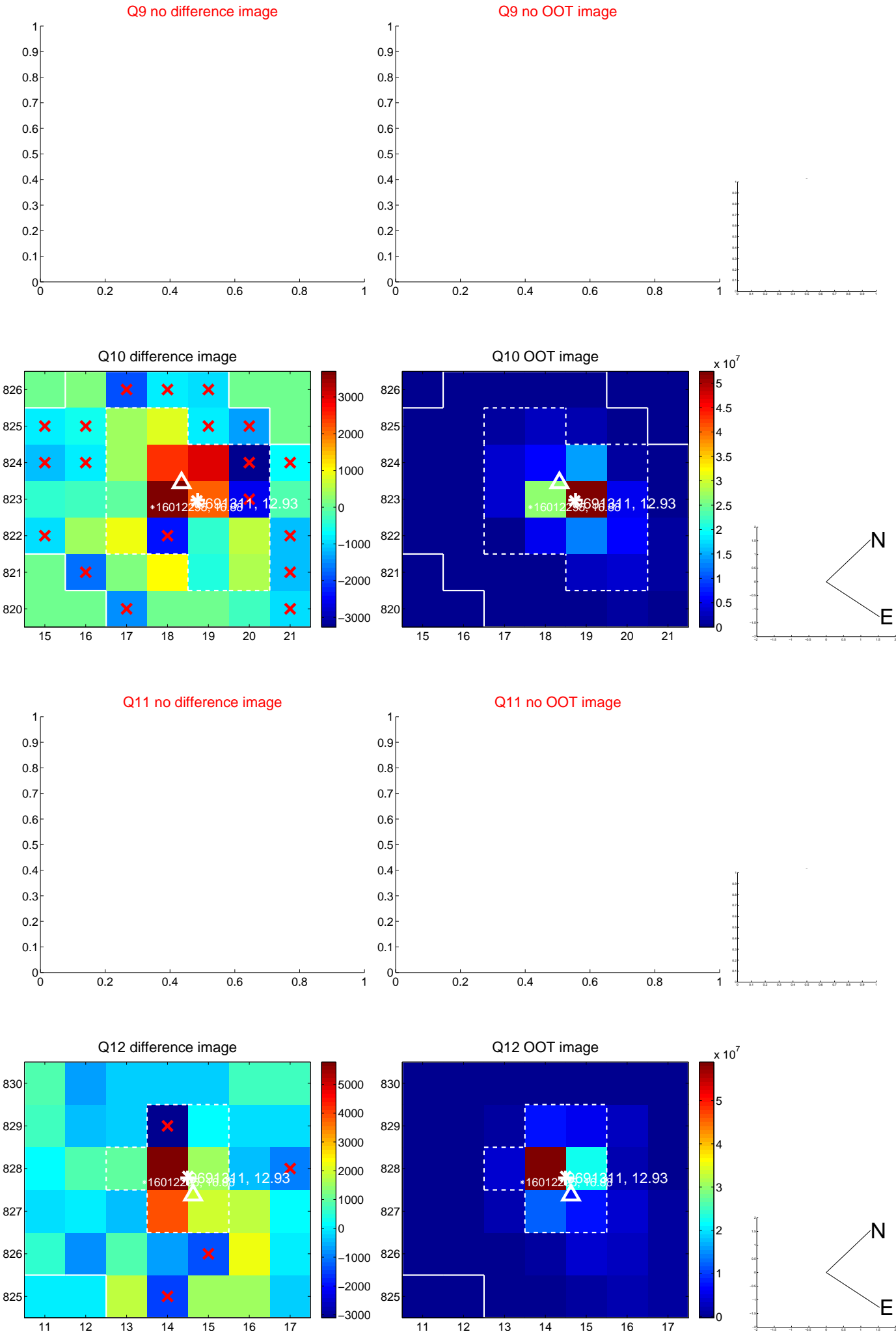
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



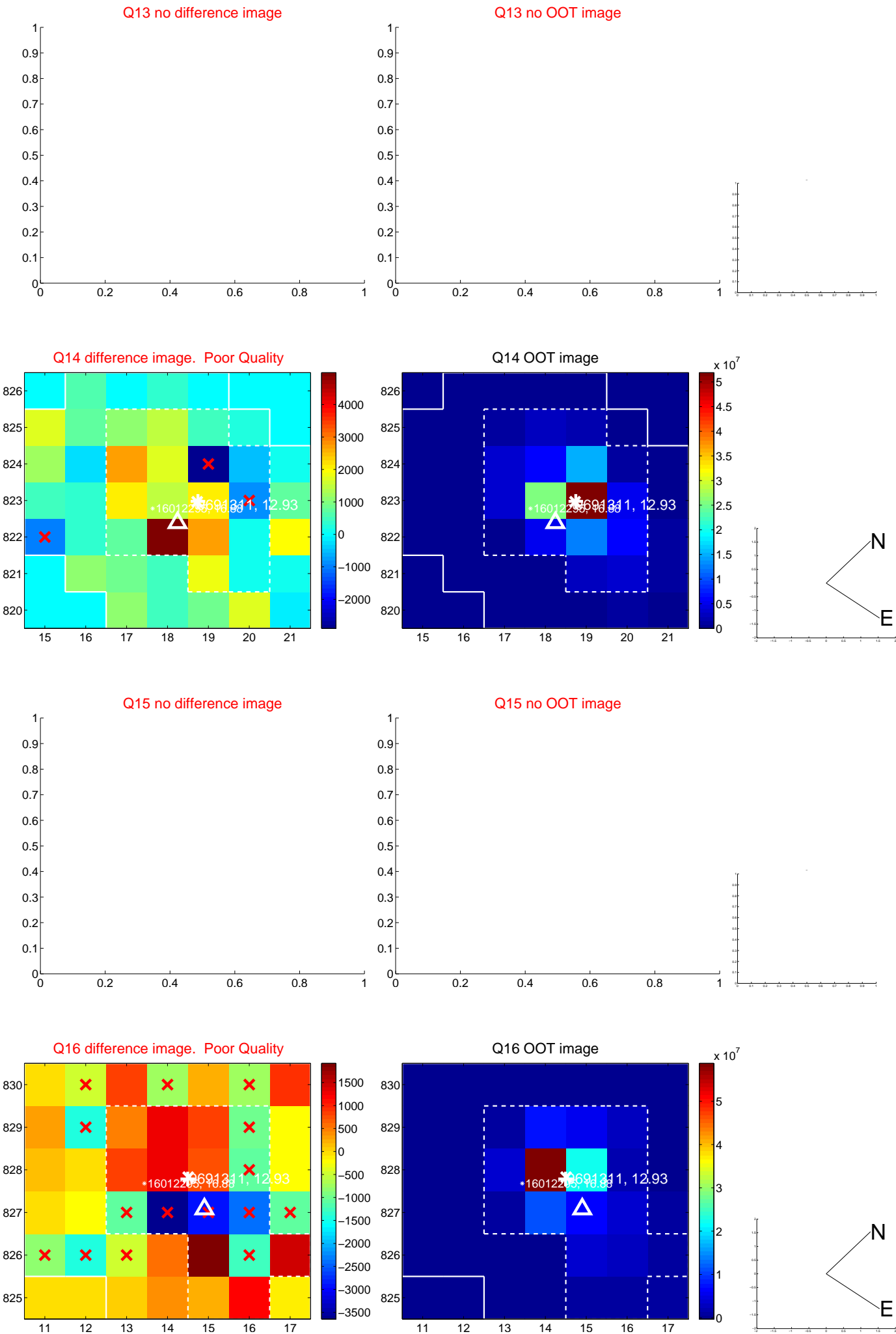
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



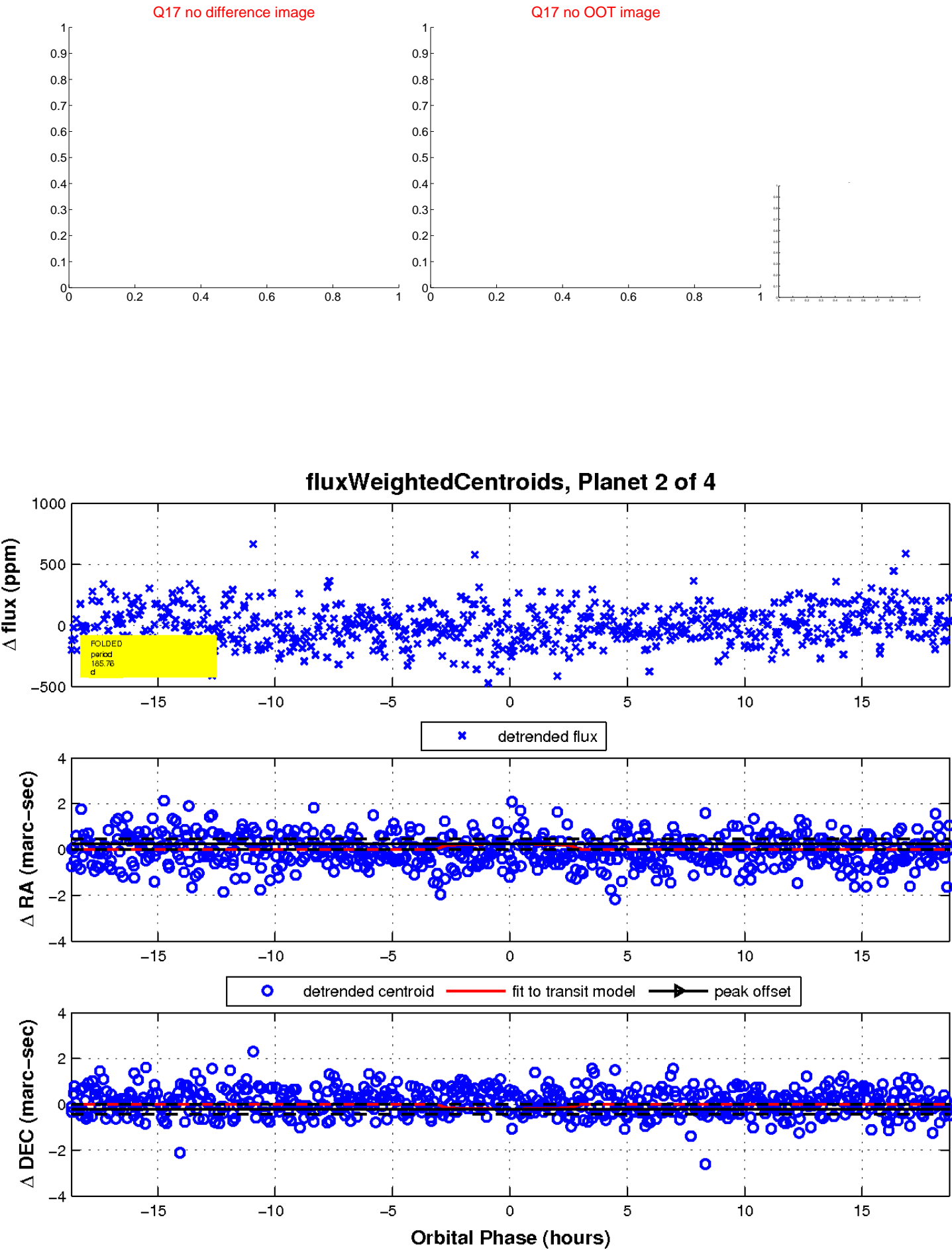
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

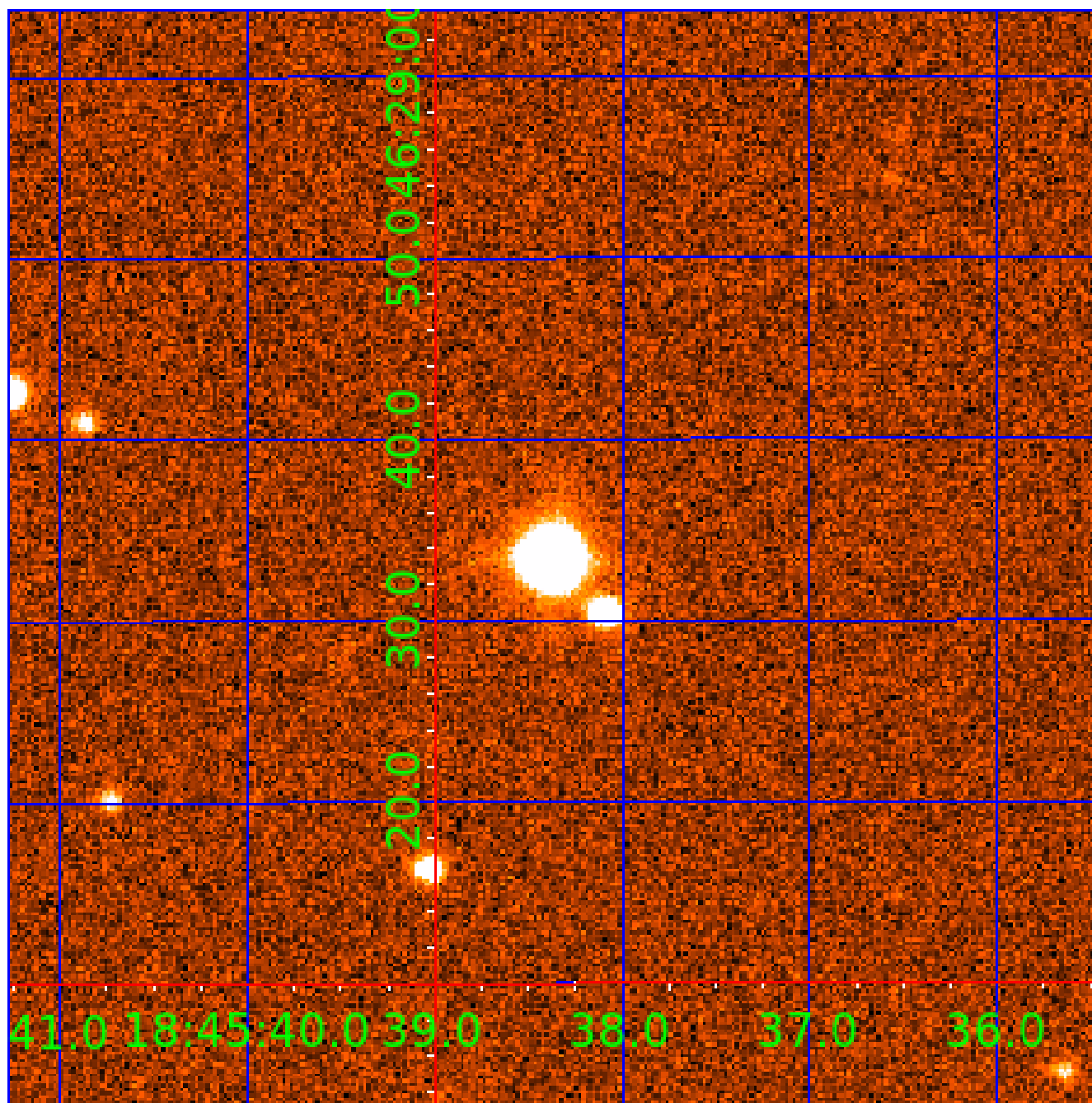


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009691311

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})
009691311-01	OBS	No	0.871558	132.095733	17.5	4.547	8.9	9.0	2.52	5642	1.25	15577.52
009691311-02	OBS	No	185.759716	239.097795	147.7	6.244	9.3	4.4	2.52	5642	3.71	12.24
009691311-03	OBS	No	45.363334	172.069502	353.6	1.558	9.5	8.9	2.52	5642	5.44	80.16
009691311-04	OBS	No	223.176673	201.052407	204.1	10.835	8.7	5.9	2.52	5642	4.93	9.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009691311-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST
009691311-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
009691311-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
009691311-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

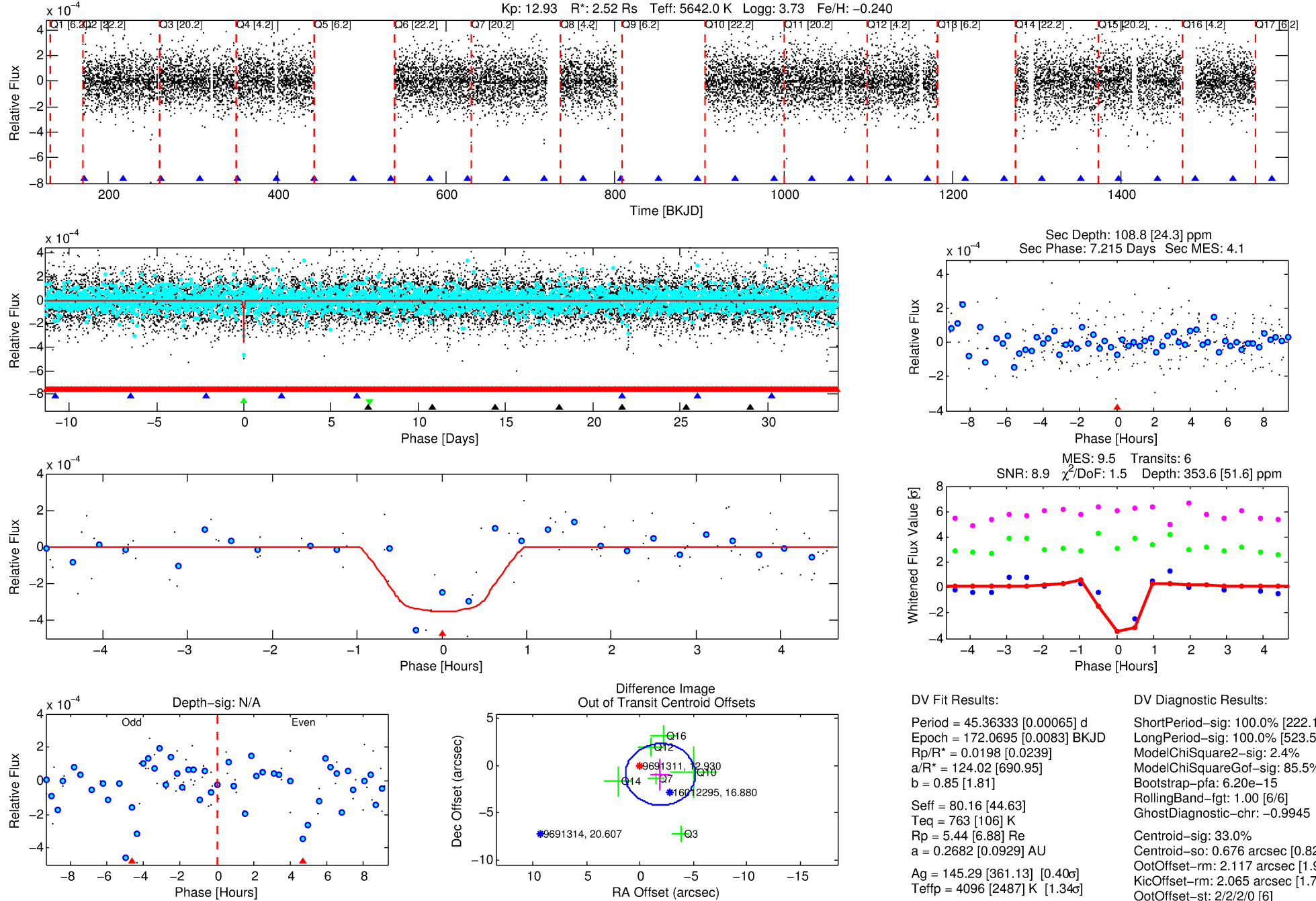
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009691311-03

No Significant Match Found

DV One-Page Summary

KIC: 9691311 Candidate: 3 of 4 Period: 45.363 d



DV Fit Results:

Period = 45.36333 [0.00065] d
Epoch = 172.0695 [0.0083] BKJD
Rp/R* = 0.0198 [0.0239]
a/R* = 124.02 [690.95]
b = 0.85 [1.81]
Seff = 80.16 [44.63]
Teff = 763 [106] K
Rp = 5.44 [6.88] Re
a = 0.2682 [0.0929] AU
Ag = 145.29 [361.13] [0.40σ]
Teffp = 4096 [2487] K [1.34σ]

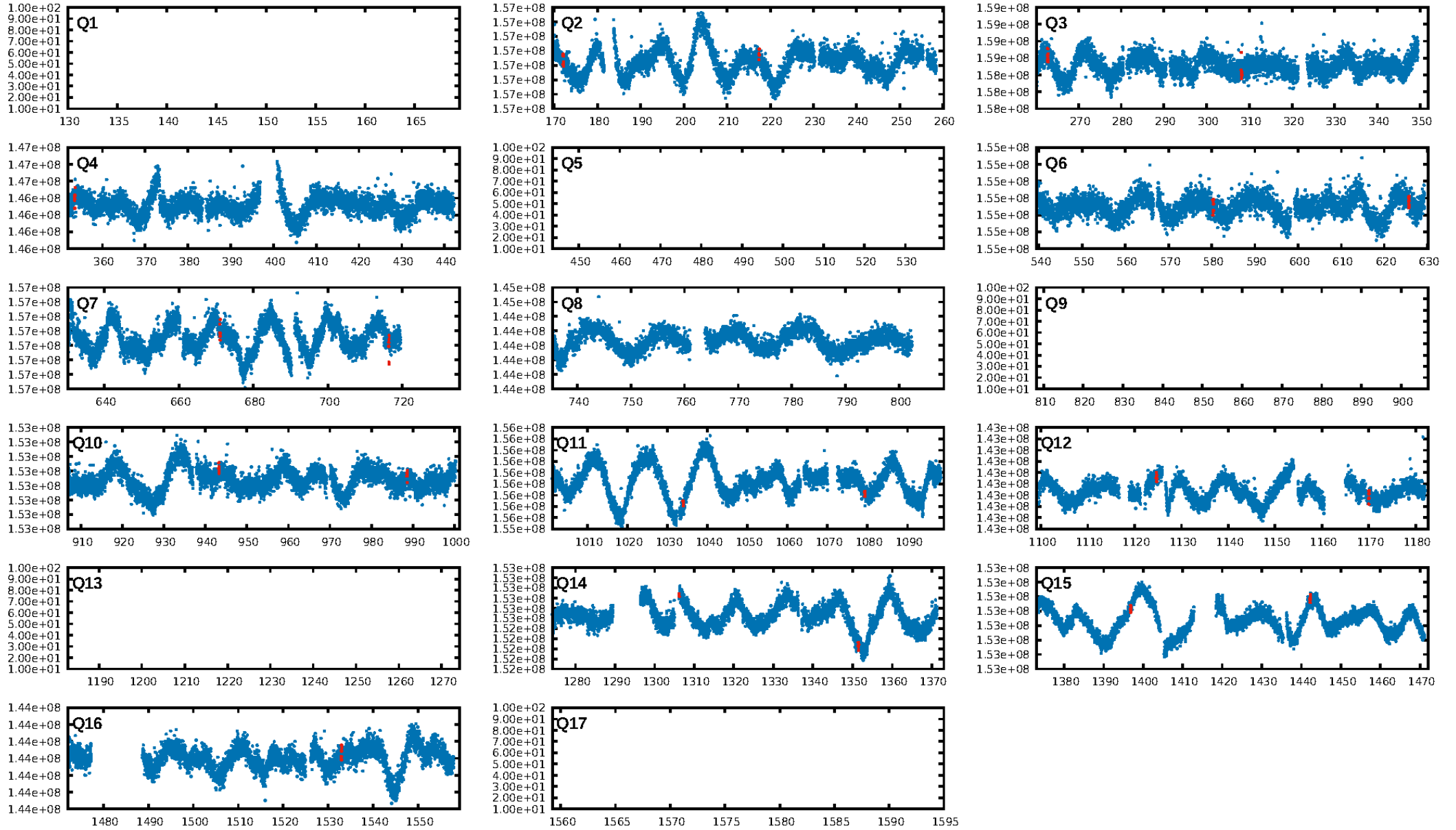
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [222.16σ]
LongPeriod-sig: 100.0% [523.59σ]
ModelChiSquare2-sig: 2.4%
ModelChiSquareGof-sig: 85.5%
Bootstrap-pfa: 6.20e-15
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.9945
Centroid-sig: 33.0%
Centroid-so: 0.676 arcsec [0.82σ]
OotOffset-rm: 2.117 arcsec [1.94σ]
KicOffset-rm: 2.065 arcsec [1.76σ]
OotOffset-st: 2/2/2/0 [6]
KicOffset-st: 2/2/2/0 [6]
DiffImageQuality-fgm: 0.17 [1/6]
DiffImageOverlap-fno: 0.10 [1/10]

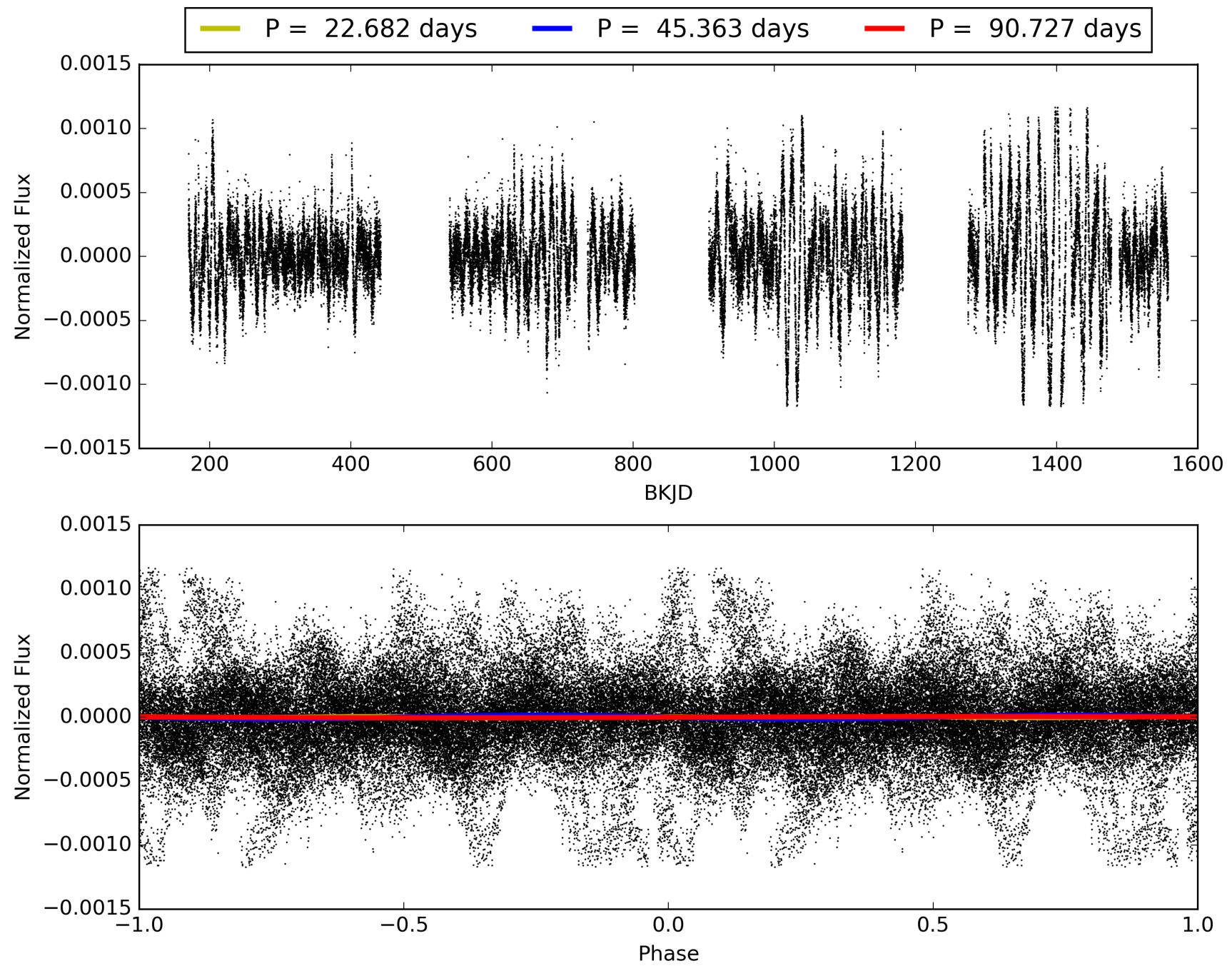
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:18:50 Z

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

TCE 009691311-03, PDC Light Curves

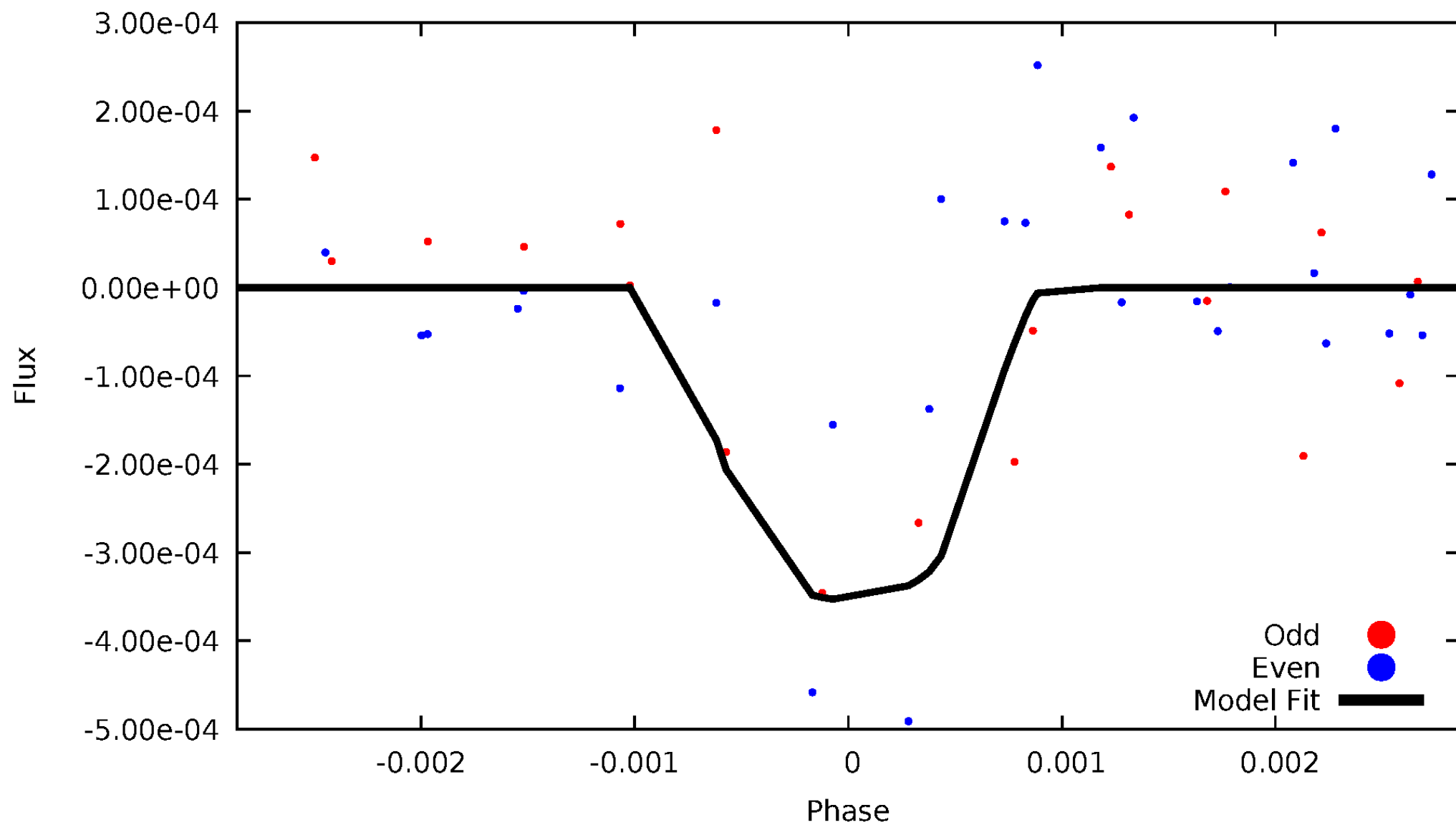


TCE 009691311-03



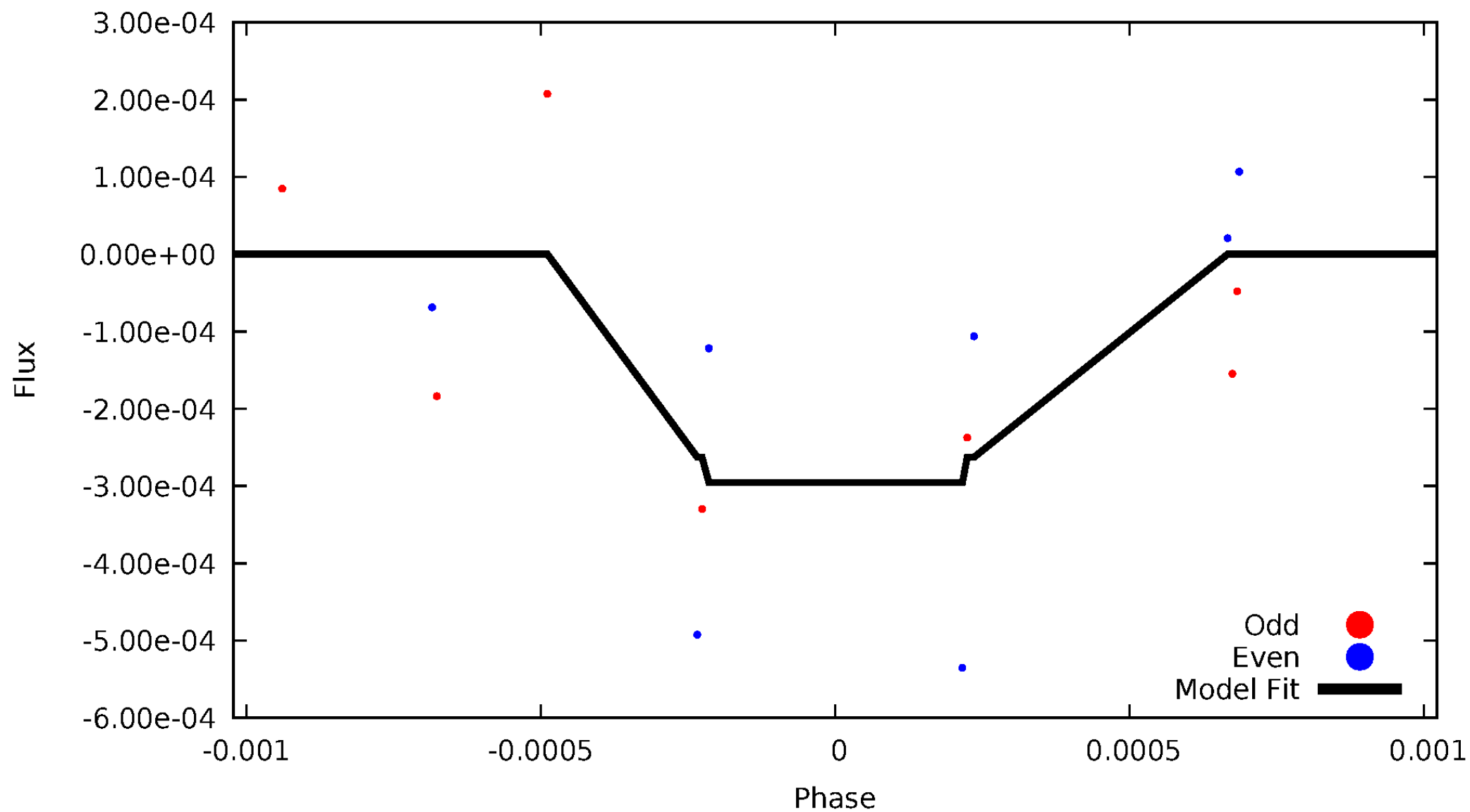
DV Odd/Even

TCE 009691311-03



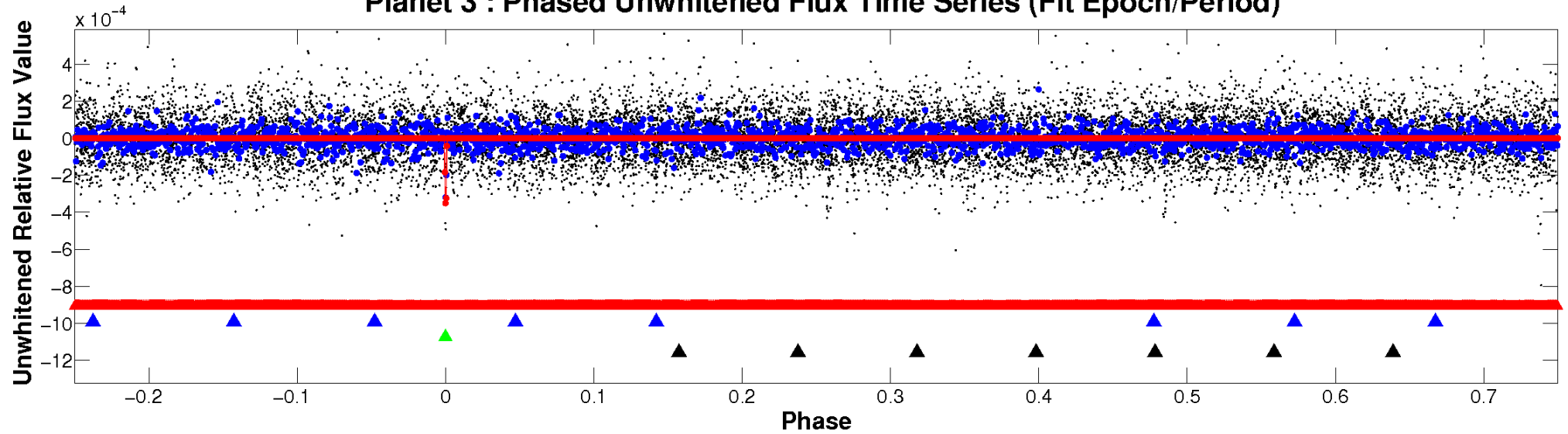
ALT Odd/Even

TCE 009691311-03

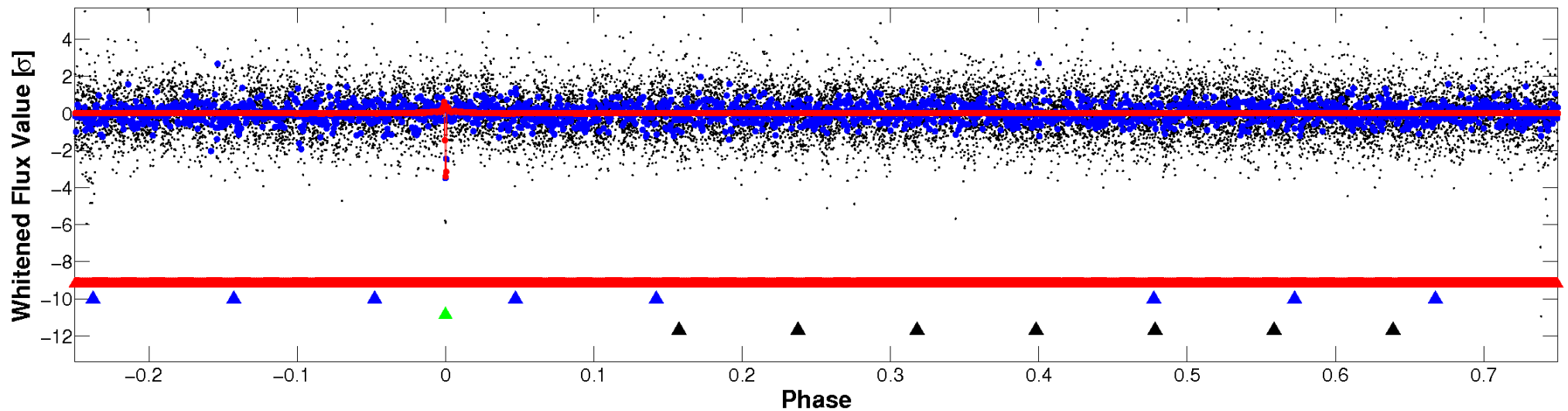


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

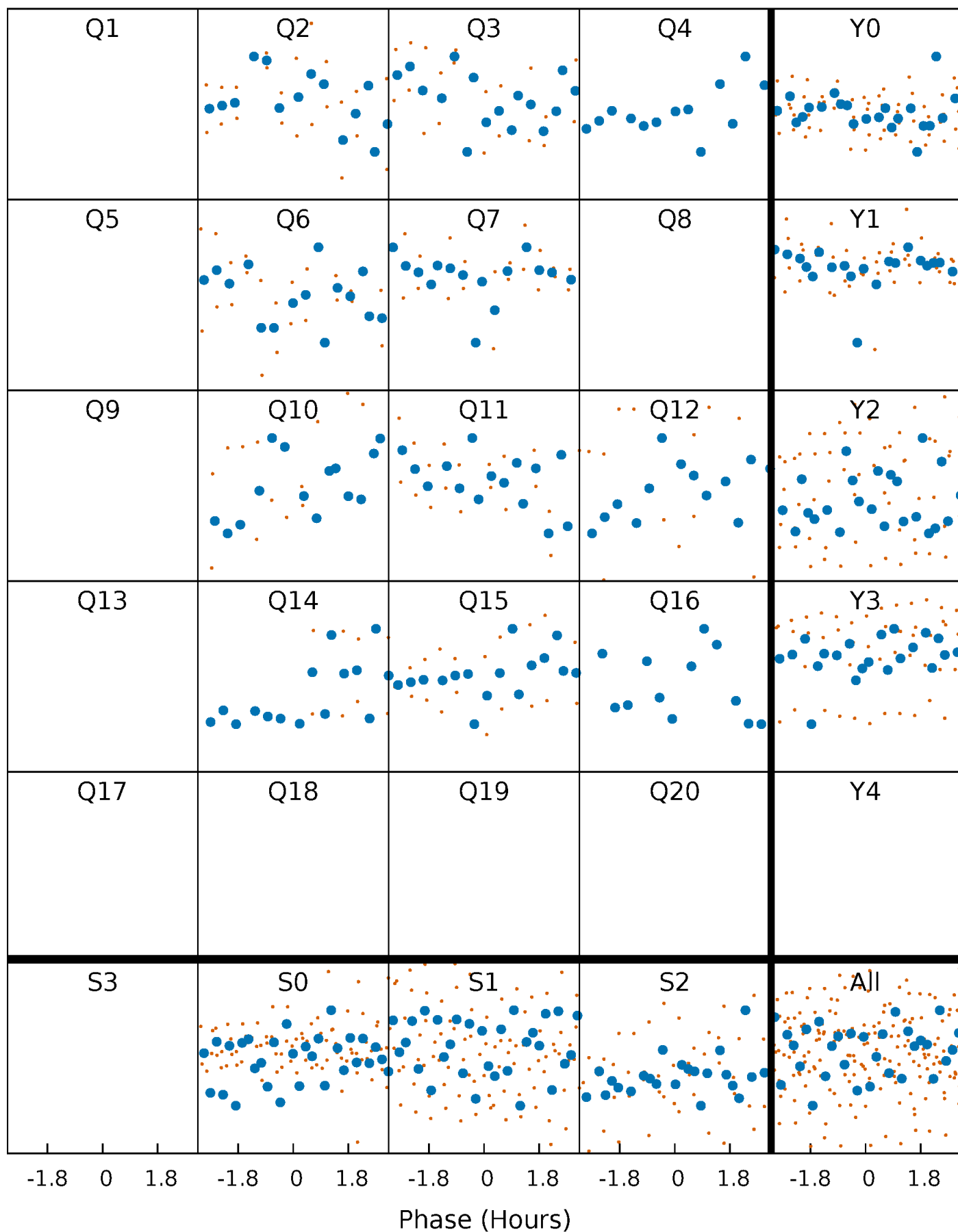


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



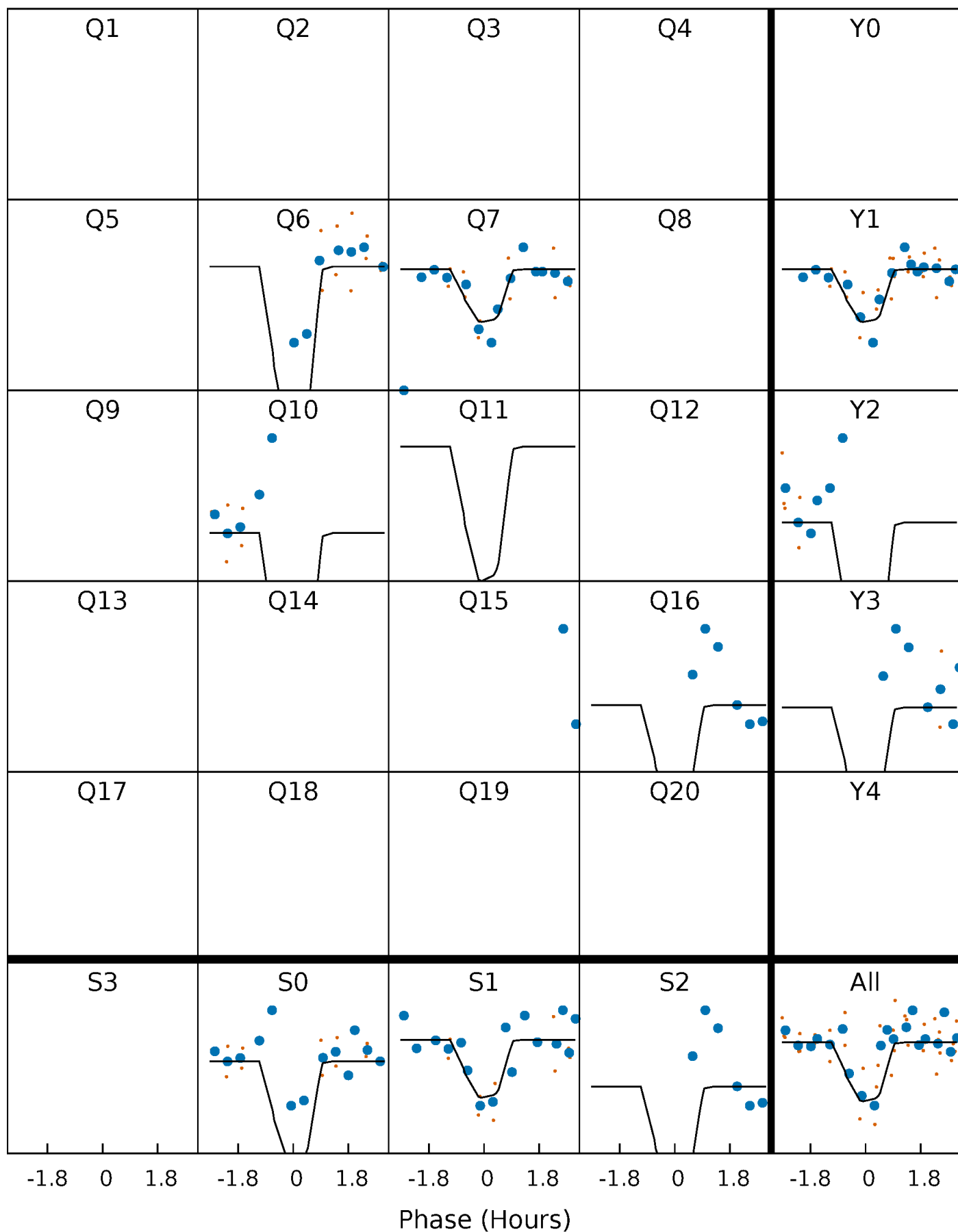
PDC Quarter-Phased Transit Curves

TCE 009691311-03 P= 45.363334 Days $T_0=172.069502$ (BKJD)



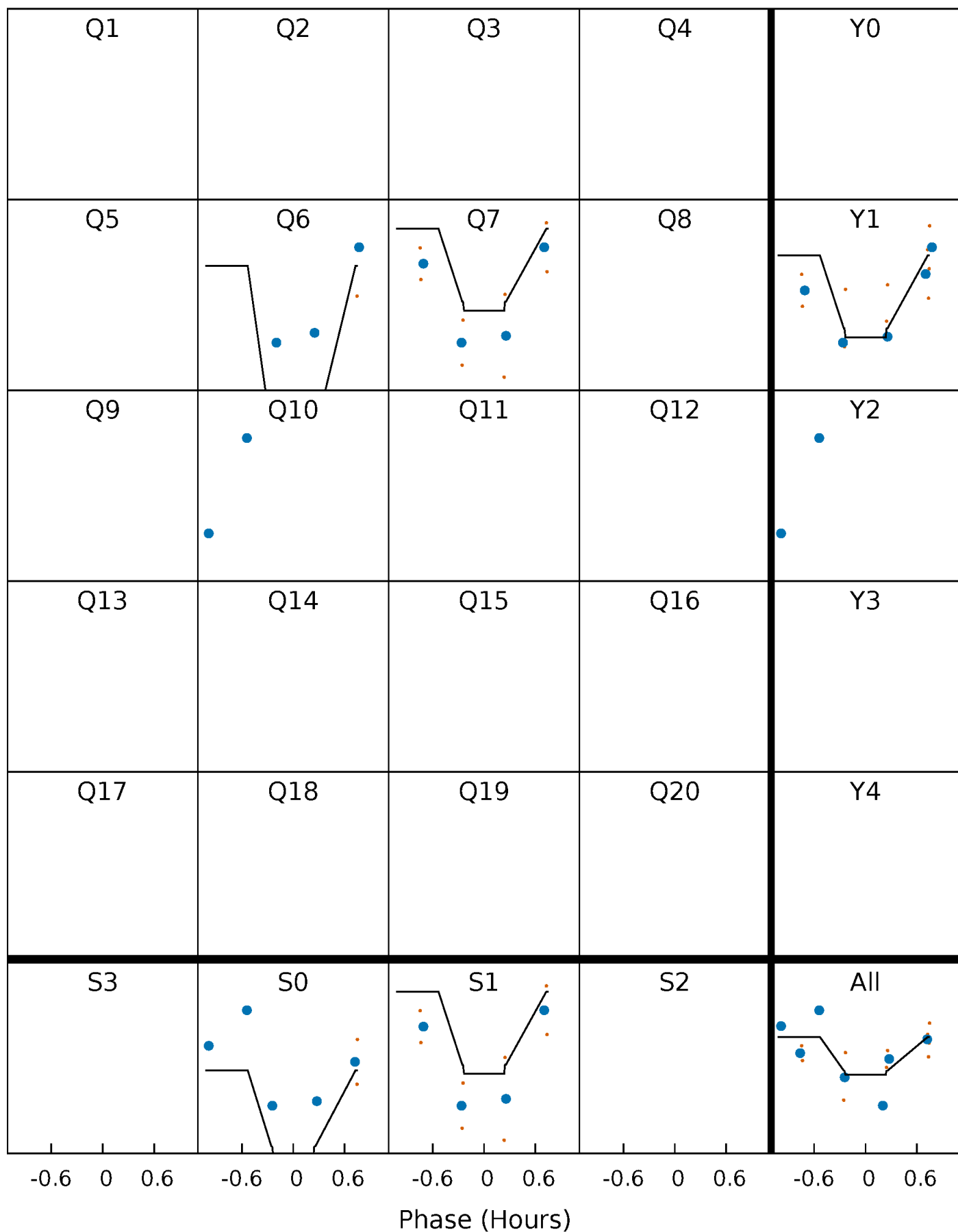
DV Quarter-Phased Transit Curves

TCE 009691311-03 P= 45.363334 Days $T_0=172.069502$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

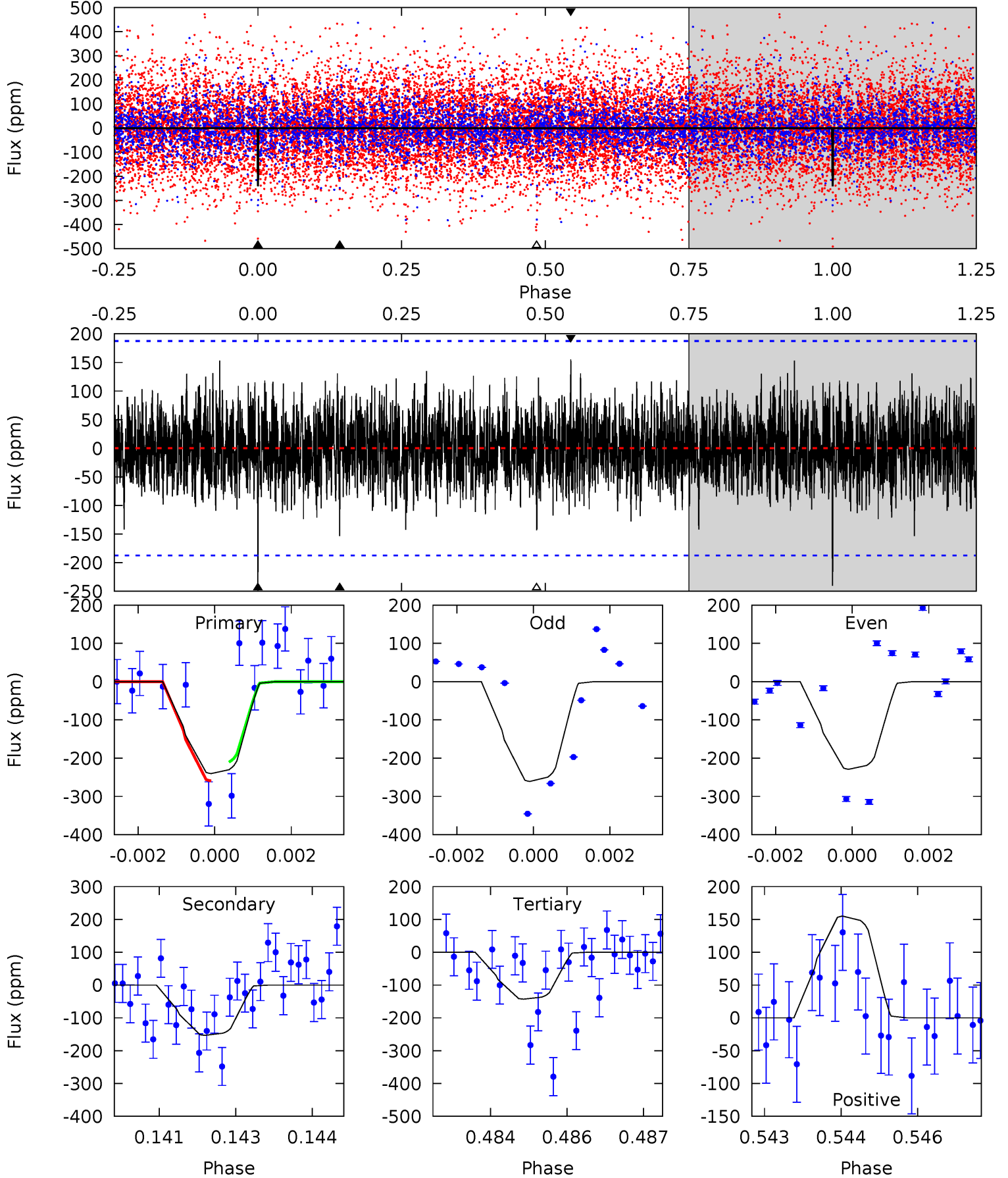
TCE 009691311-03 P= 45.361576 Days $T_0=172.093572$ (BKJD)



DV Model-Shift Uniqueness Test

009691311-03, P = 45.363334 Days, E = 126.706168 Days

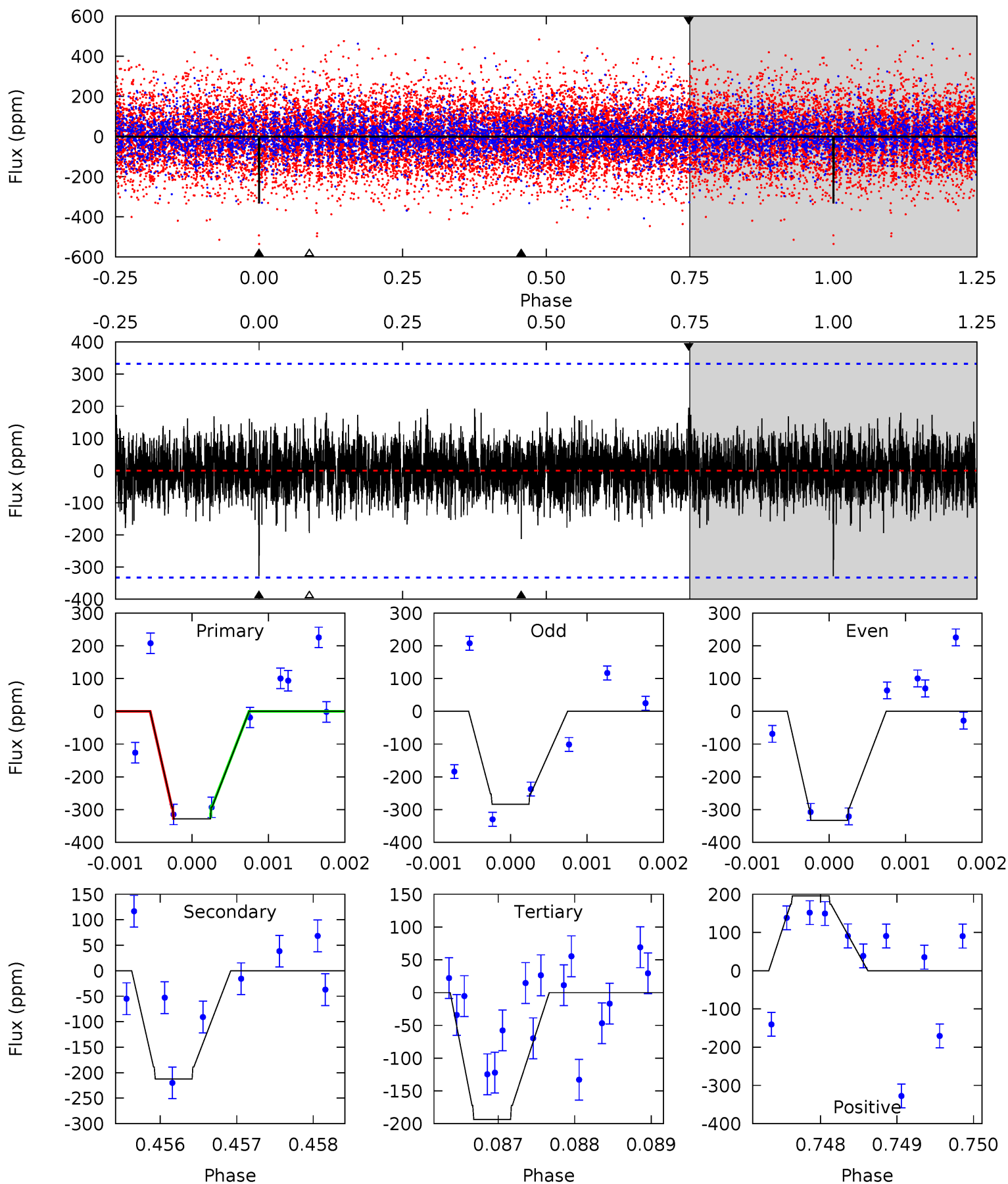
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.90	4.40	4.11	4.45	5.38	3.17	1.23	2.79	2.45	0.30	-0.05	0.45	0.81	0.39	0.66



Alt Model-Shift Uniqueness Test

009691311-03, P = 45.361576 Days, E = 126.731996 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.40	3.50	3.19	3.22	5.47	3.32	0.87	2.21	2.18	0.31	0.27	0.35	1.03	0.37	0.03



Stellar Parameters For KIC 009691311

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5642^{+171}_{-154}	$3.732^{+0.315}_{-0.126}$	$-0.240^{+0.300}_{-0.250}$	$2.520^{+0.505}_{-0.937}$	$1.251^{+0.157}_{-0.314}$	$0.110^{+0.223}_{-0.041}$
	+3%/-3%	+8%/-3%	+125%/-104%	+20%/-37%	+13%/-25%	+203%/-38%
Source	PHO1	FLK73	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 009691311-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-153 ± 35	$6.58^{+6.40}_{-4.29}$	1054^{+76}_{-98}	4143^{+2393}_{-791}	137^{+987}_{-104}
Alt.	-212 ± 61	$7.19^{+5.67}_{-4.66}$	1053^{+69}_{-96}	4355^{+2617}_{-906}	170^{+1139}_{-125}

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 $A_{\text{obs}} \gg 1.0$

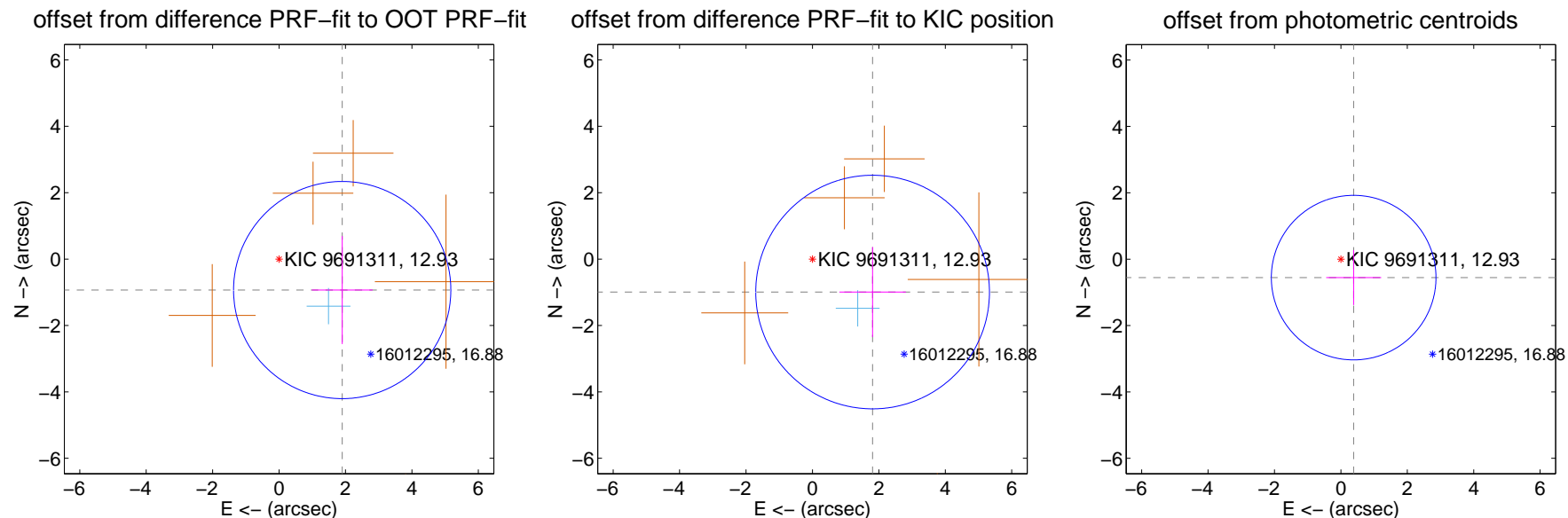
DV Centroid Data

Supplemental centroid analysis for 009691311-03. Kepler magnitude: 12.93. Transit SNR 8.93

There are 1 quarters with good PRF difference image offsets

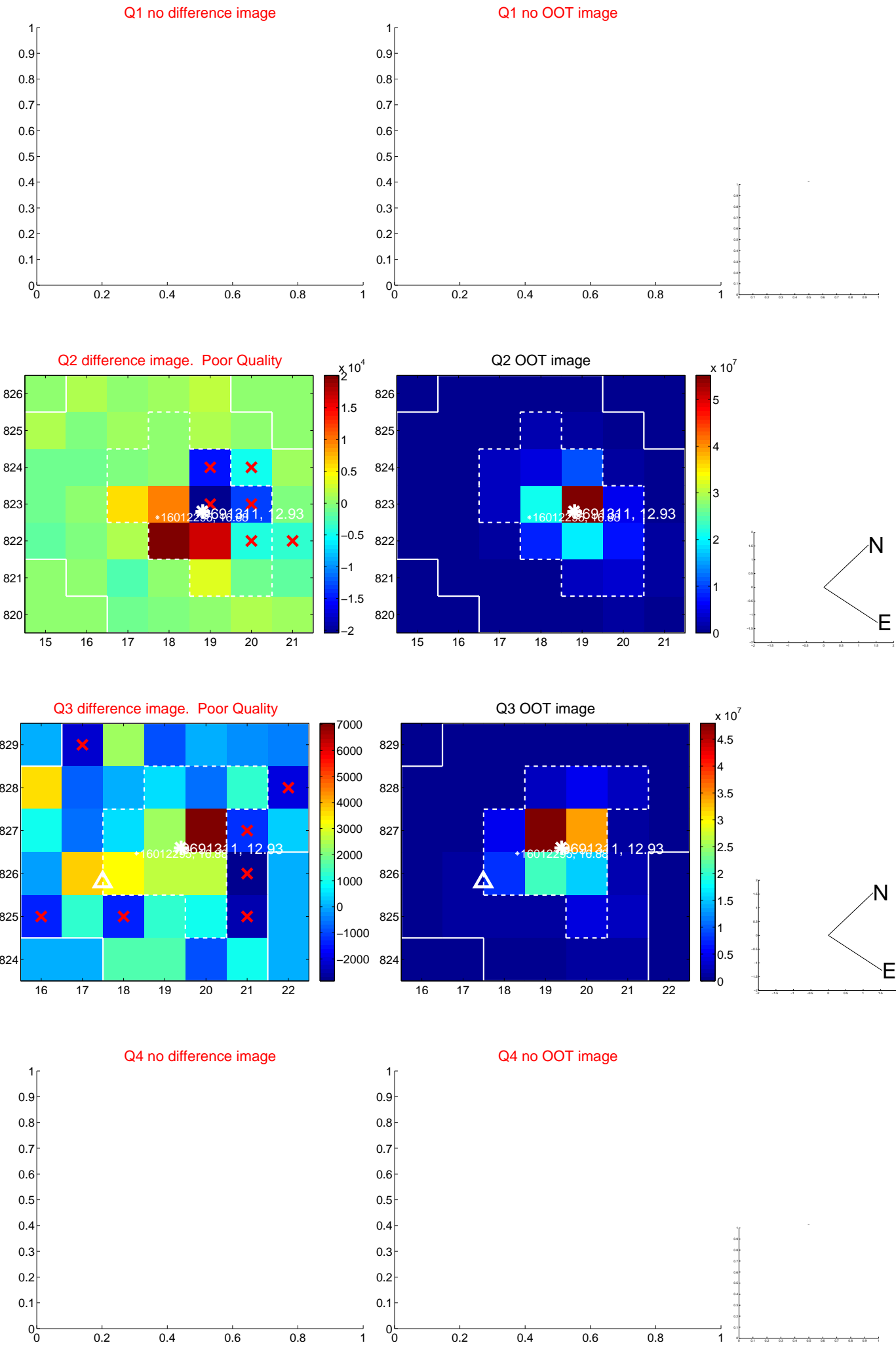
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.117 ± 1.090	1.94	-1.901 ± 0.915	-0.933 ± 1.627
PRF-fit source offset from KIC position	2.065 ± 1.173	1.76	-1.811 ± 1.002	-0.993 ± 1.354
photometric centroid source offset	0.68 ± 0.83	0.82	-0.38 ± 0.83	-0.56 ± 0.83

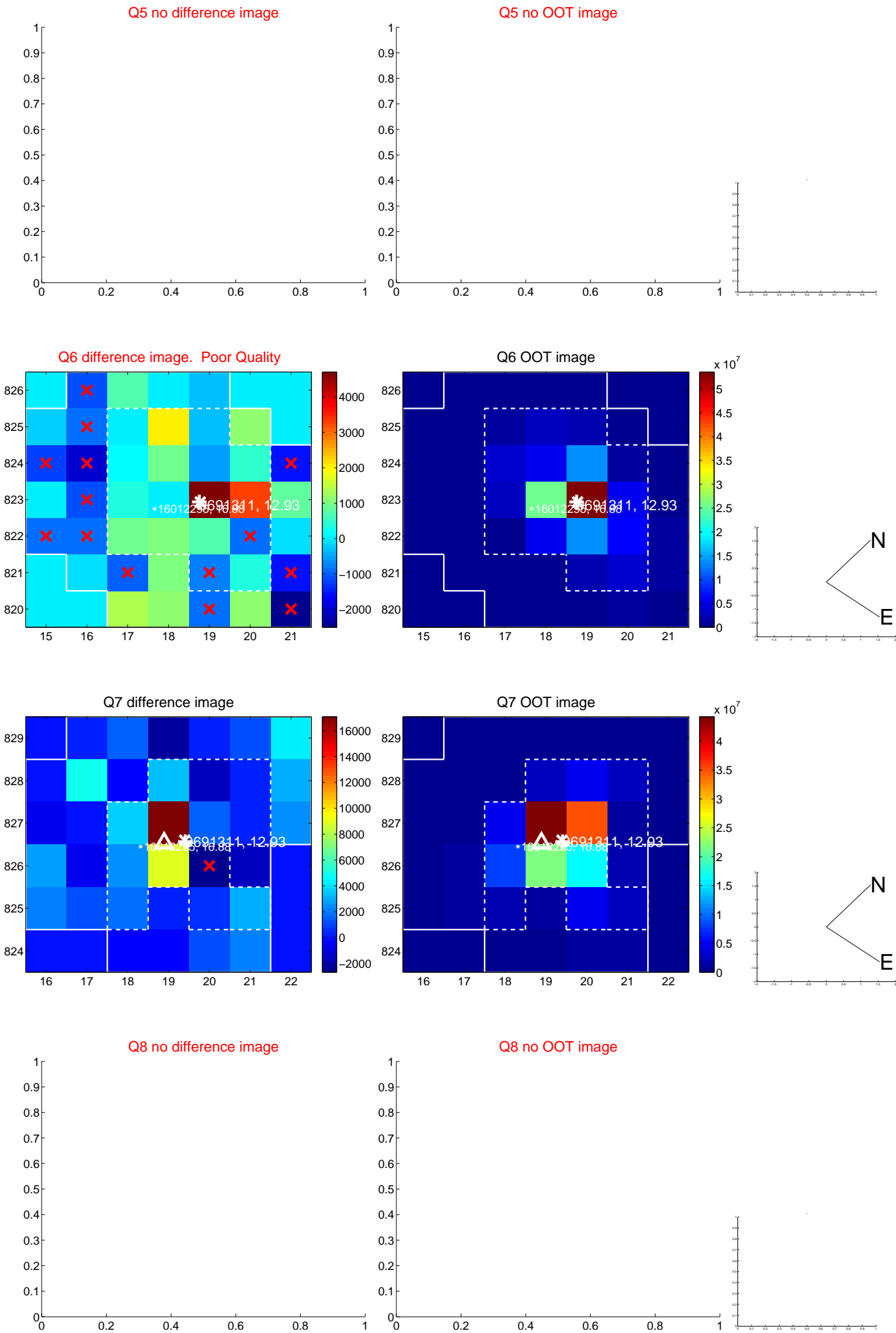


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

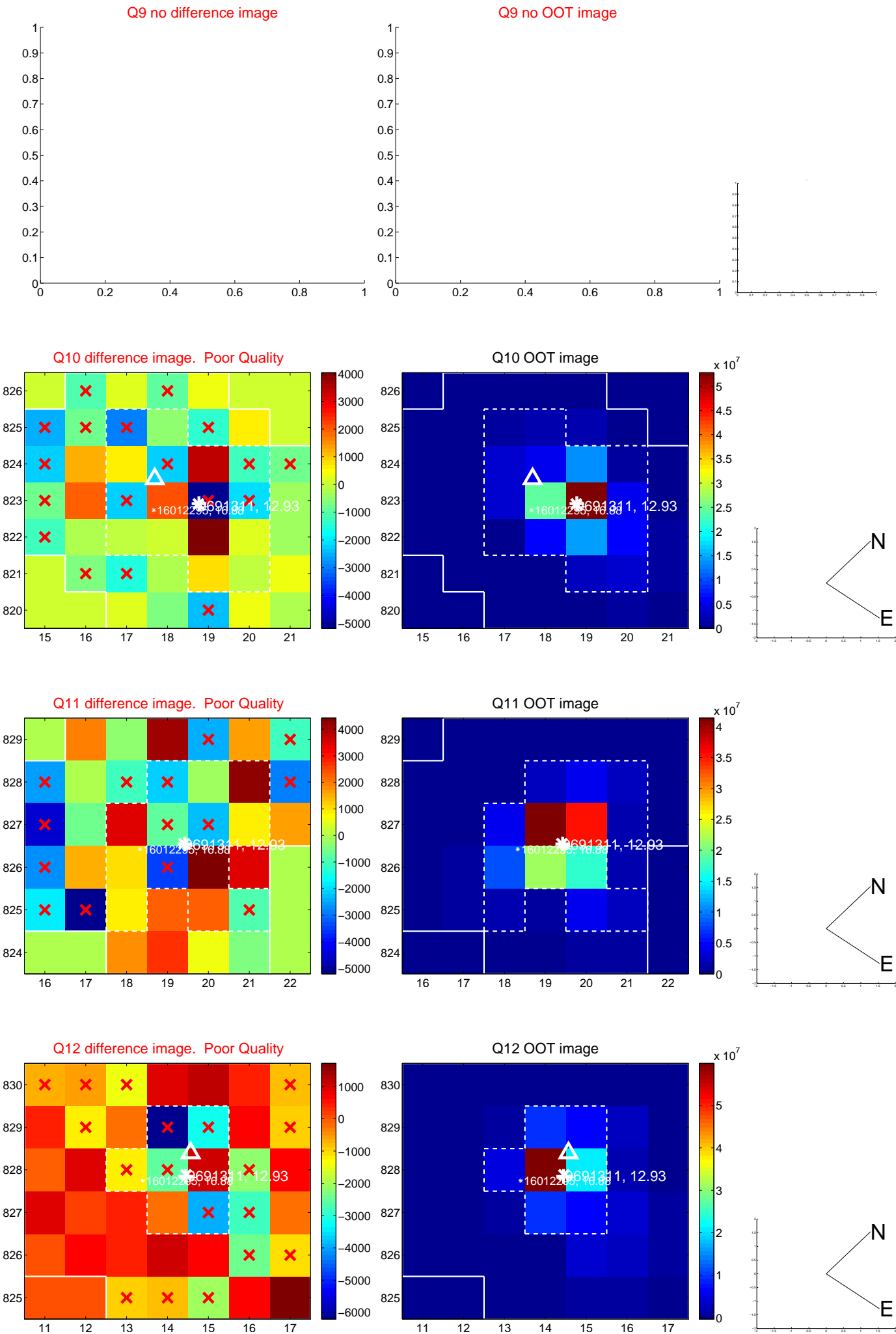
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



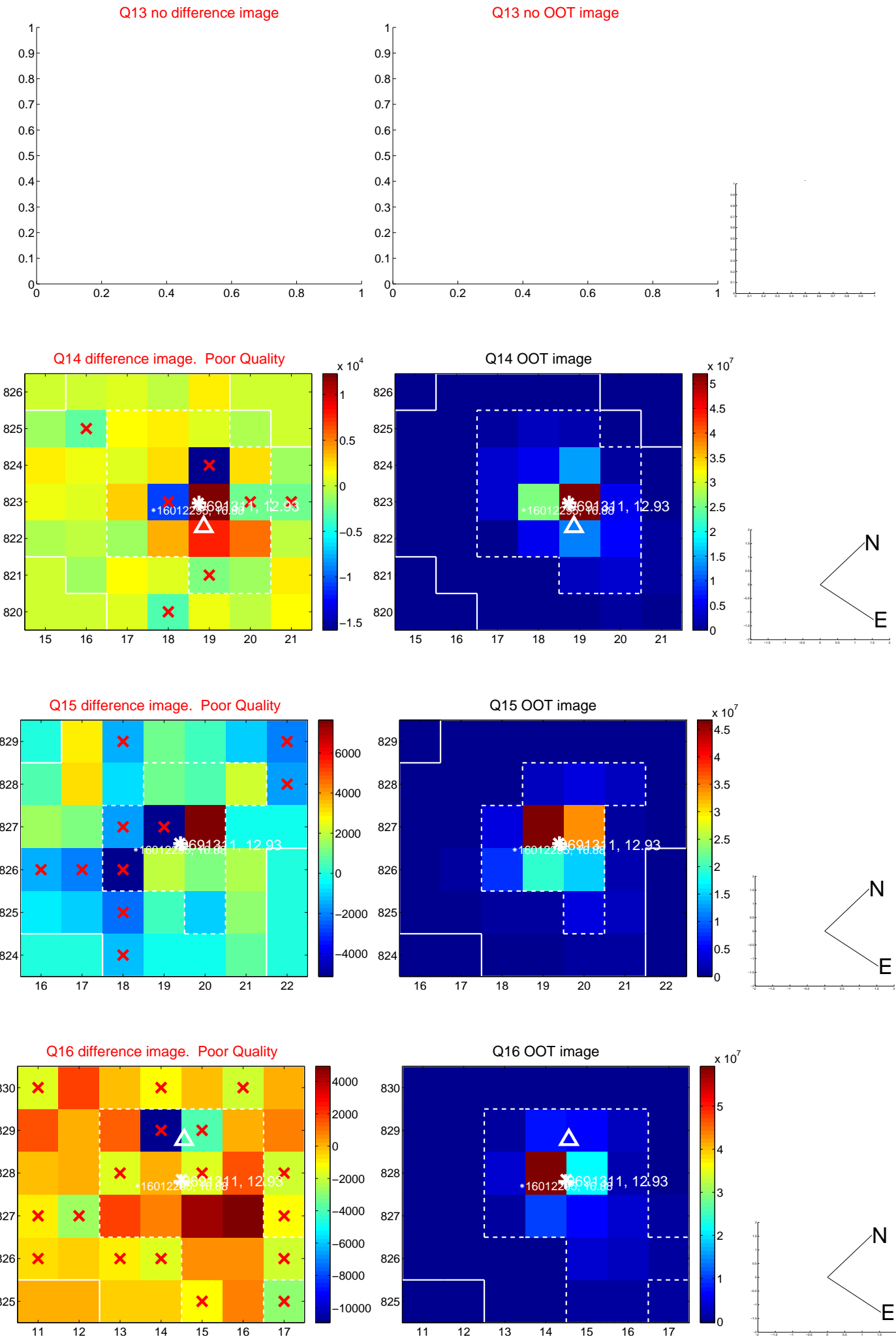
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



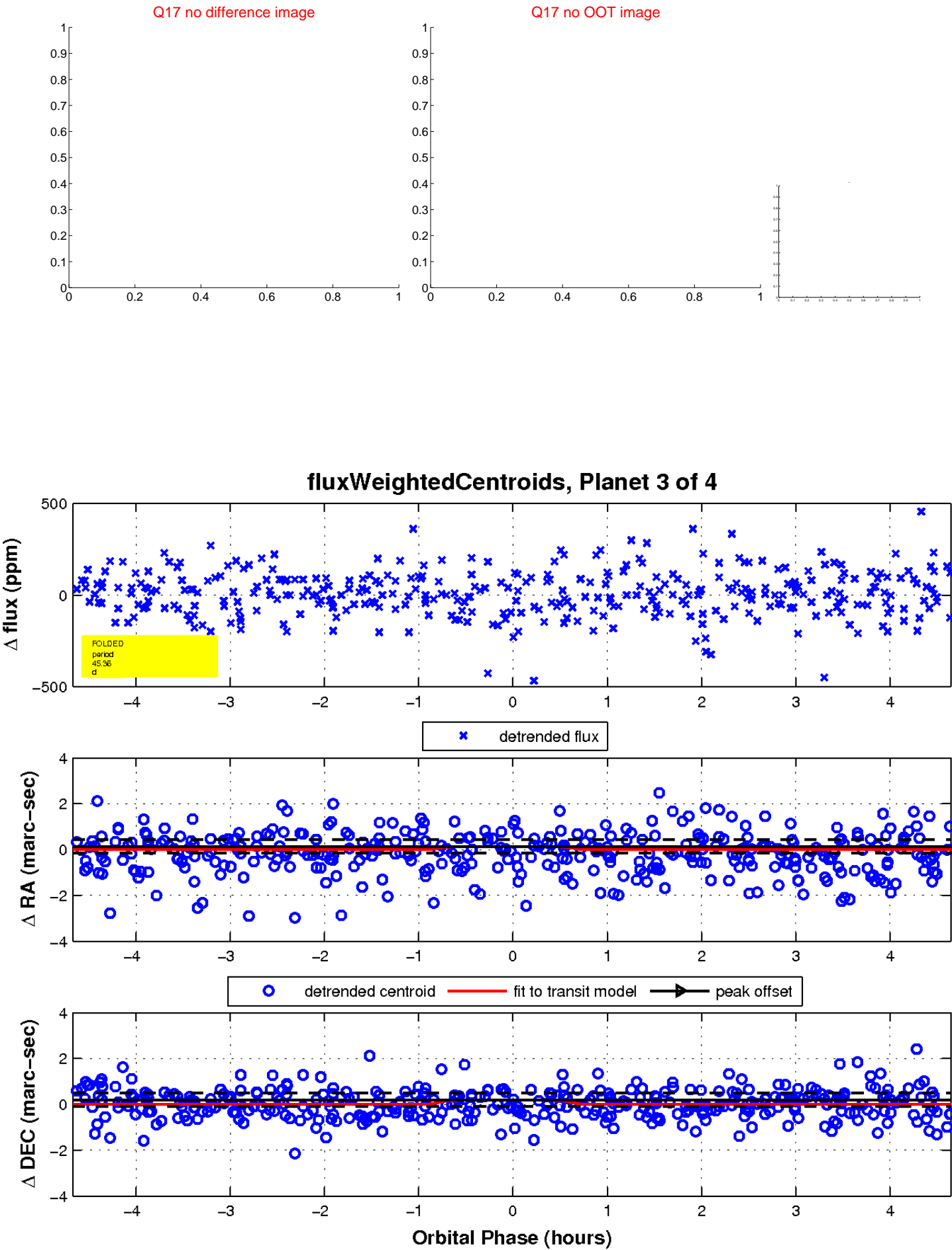
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

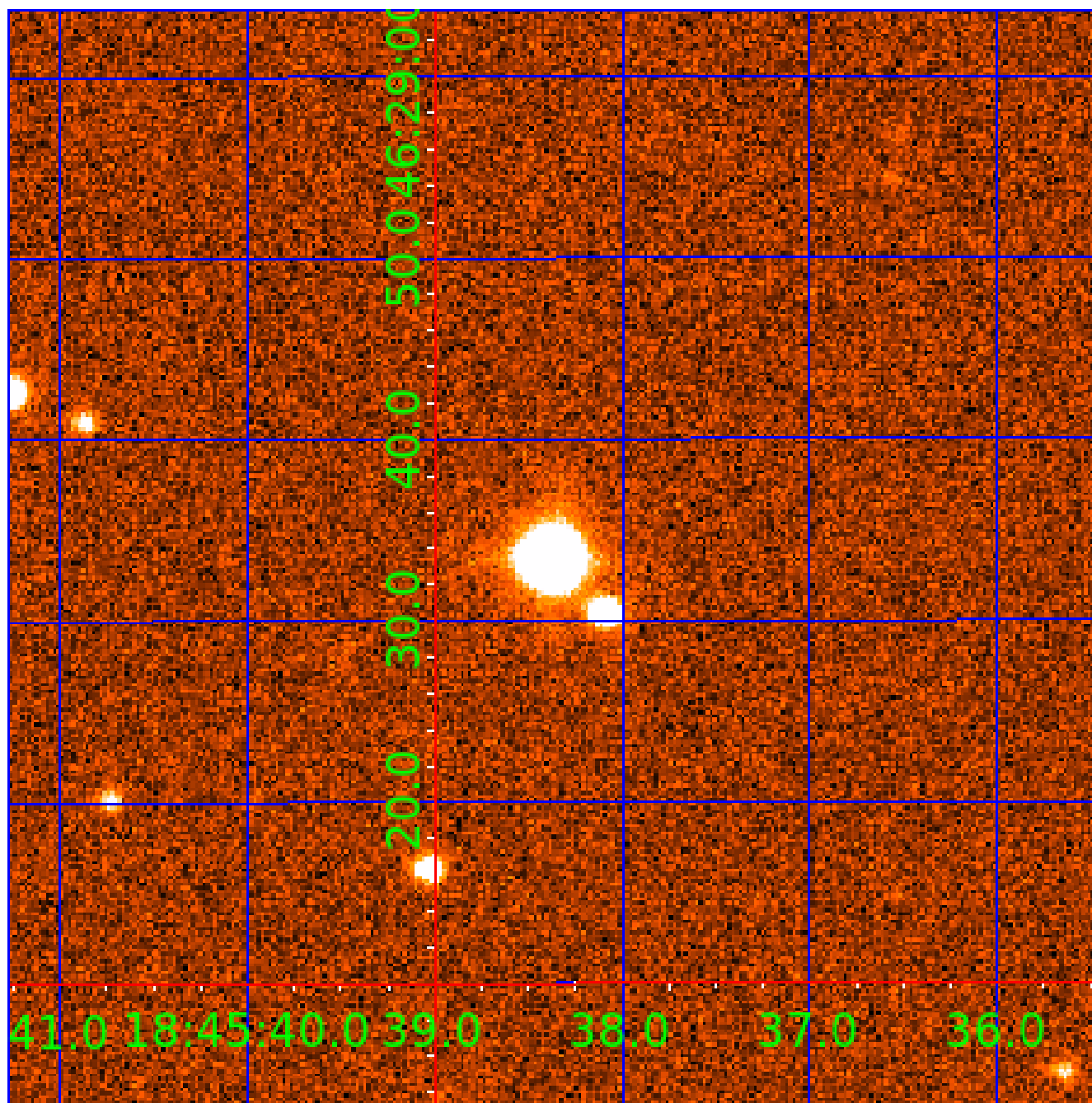


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009691311

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})
009691311-01	OBS	No	0.871558	132.095733	17.5	4.547	8.9	9.0	2.52	5642	1.25	15577.52
009691311-02	OBS	No	185.759716	239.097795	147.7	6.244	9.3	4.4	2.52	5642	3.71	12.24
009691311-03	OBS	No	45.363334	172.069502	353.6	1.558	9.5	8.9	2.52	5642	5.44	80.16
009691311-04	OBS	No	223.176673	201.052407	204.1	10.835	8.7	5.9	2.52	5642	4.93	9.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009691311-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST
009691311-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
009691311-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
009691311-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

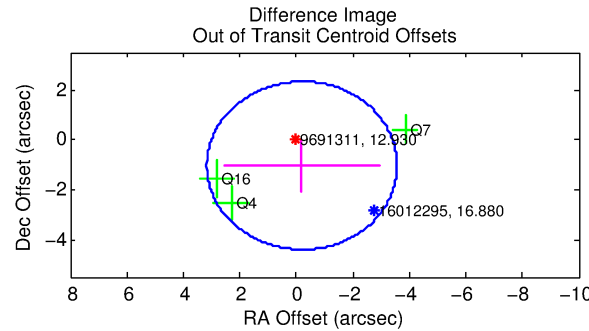
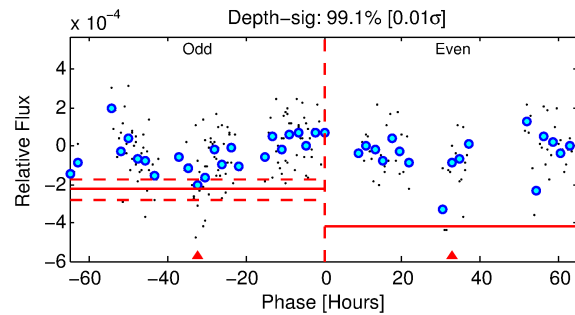
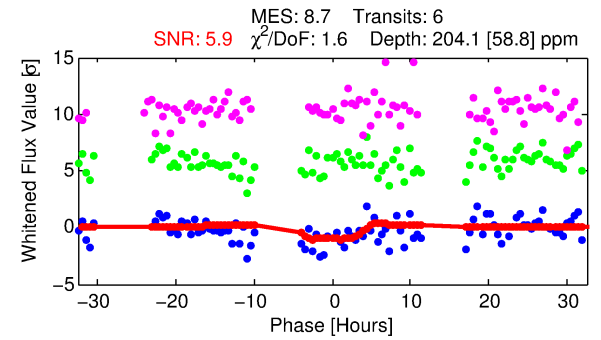
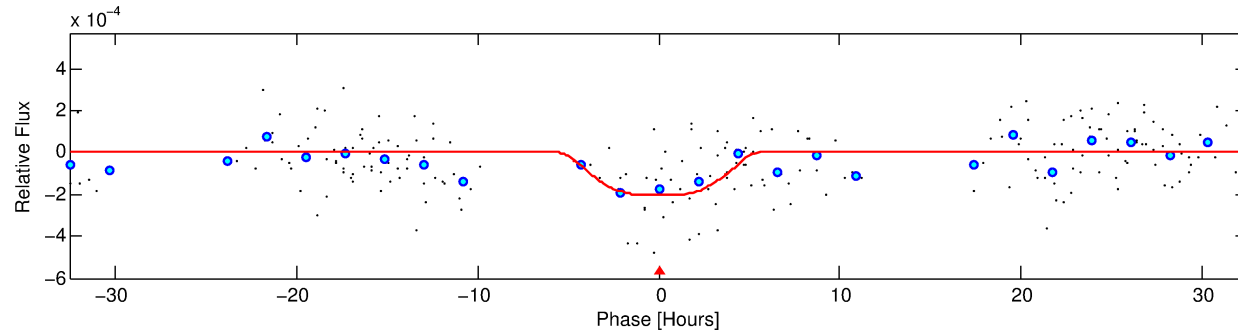
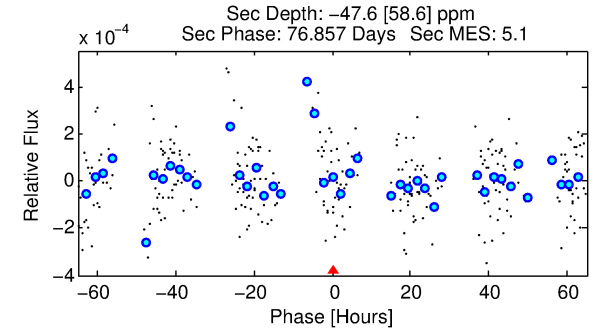
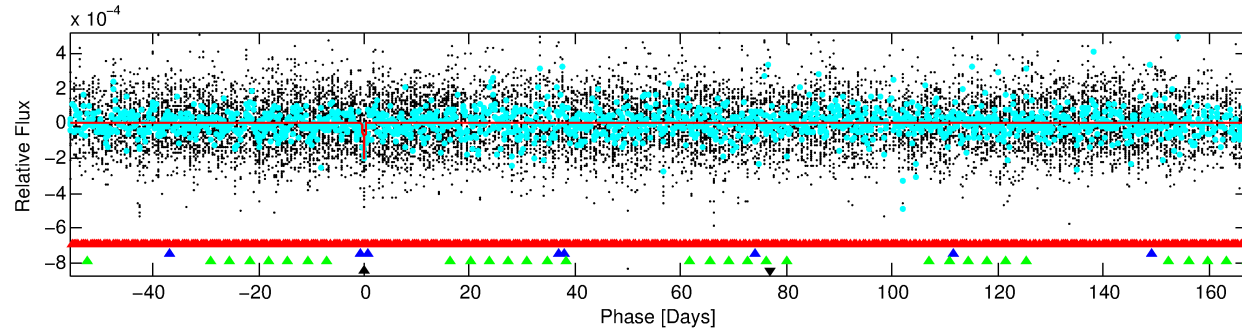
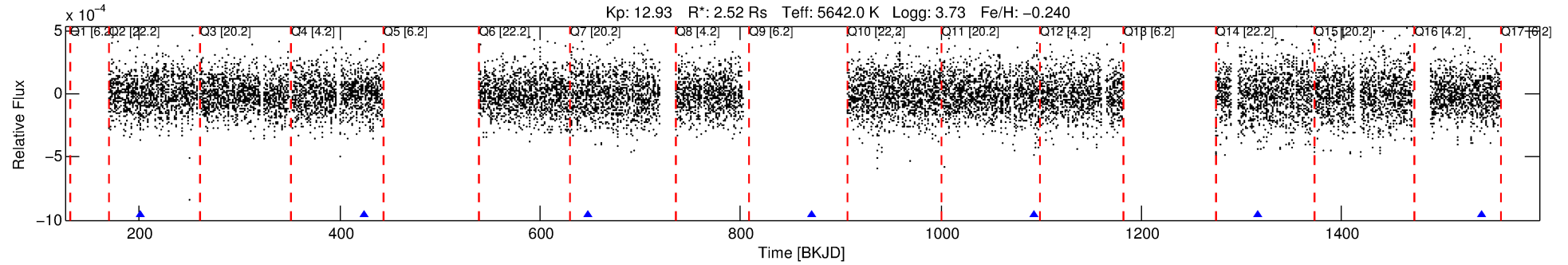
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009691311-04

No Significant Match Found

DV One-Page Summary

KIC: 9691311 Candidate: 4 of 4 Period: 223.177 d



DV Fit Results:

Period = 223.17667 [0.01610] d
Epoch = 201.0524 [0.0796] BKJD
Rp/R* = 0.0179 [0.0033]
a/R* = 44.02 [20.33]
b = 0.98 [0.02]
Seff = 9.58 [5.33]
Teq = 449 [62] K
Rp = 4.93 [2.05] Re
a = 0.7758 [0.2686] AU
Ag = N/A
Teffp = N/A

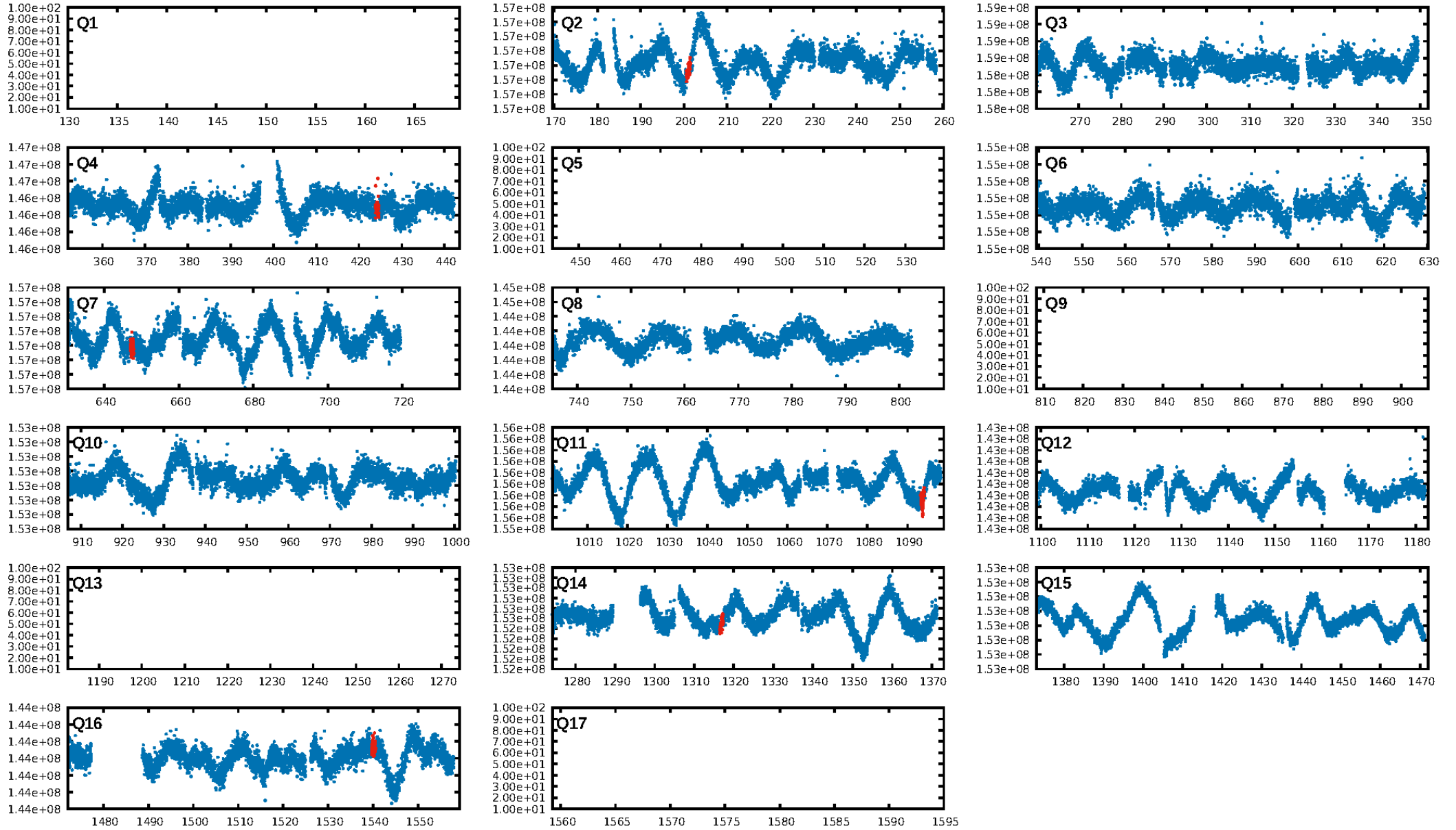
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [71.81σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 19.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.13e-10
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.1016
Centroid-sig: 17.1%
Centroid-so: 1.167 arcsec [0.86σ]
OotOffset-rm: 1.055 arcsec [0.94σ]
KicOffset-rm: 1.143 arcsec [1.11σ]
OotOffset-st: 0/1/2/0 [3]
KicOffset-st: 0/1/2/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.00 [0/4]

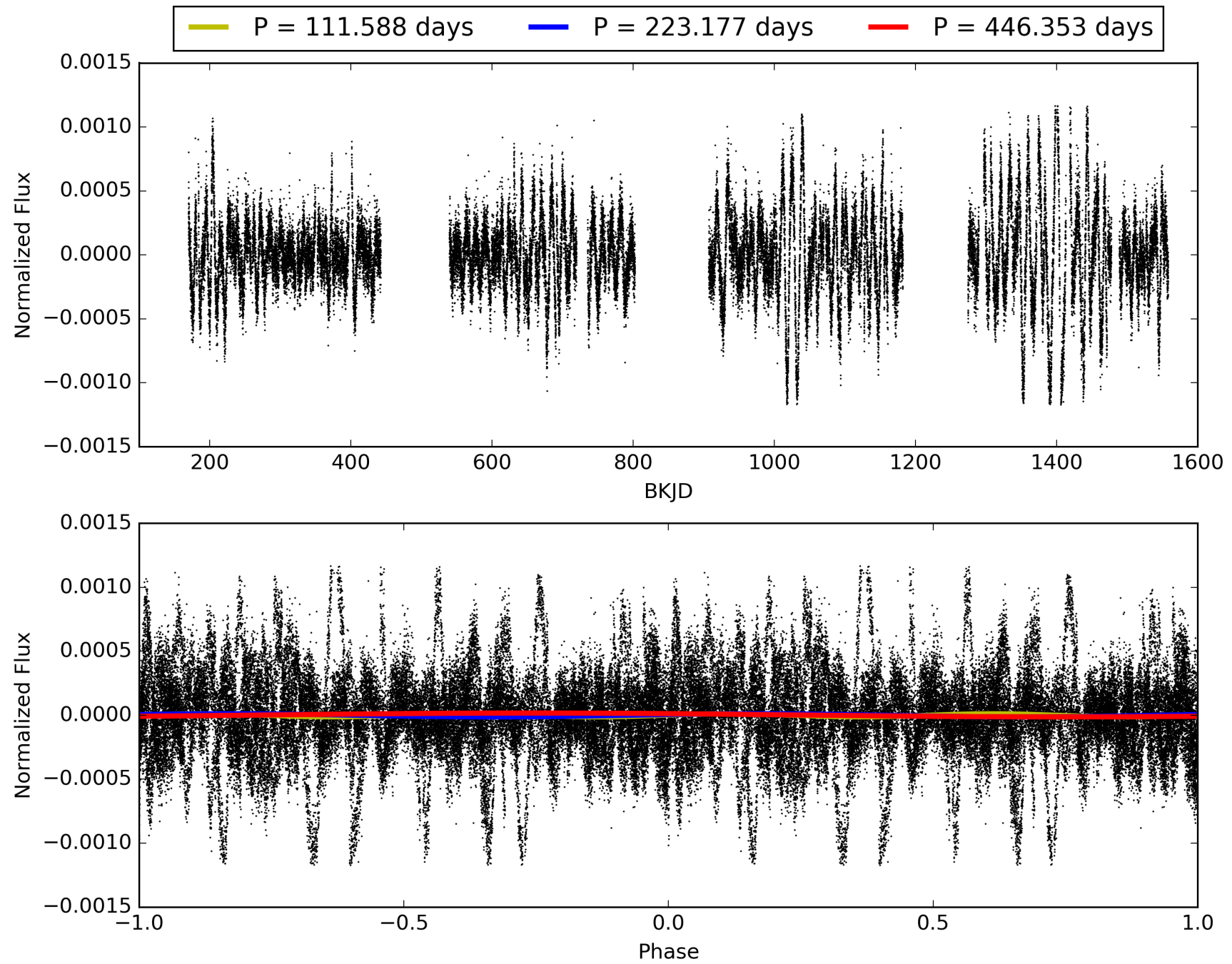
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:18:54 Z

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

TCE 009691311-04, PDC Light Curves

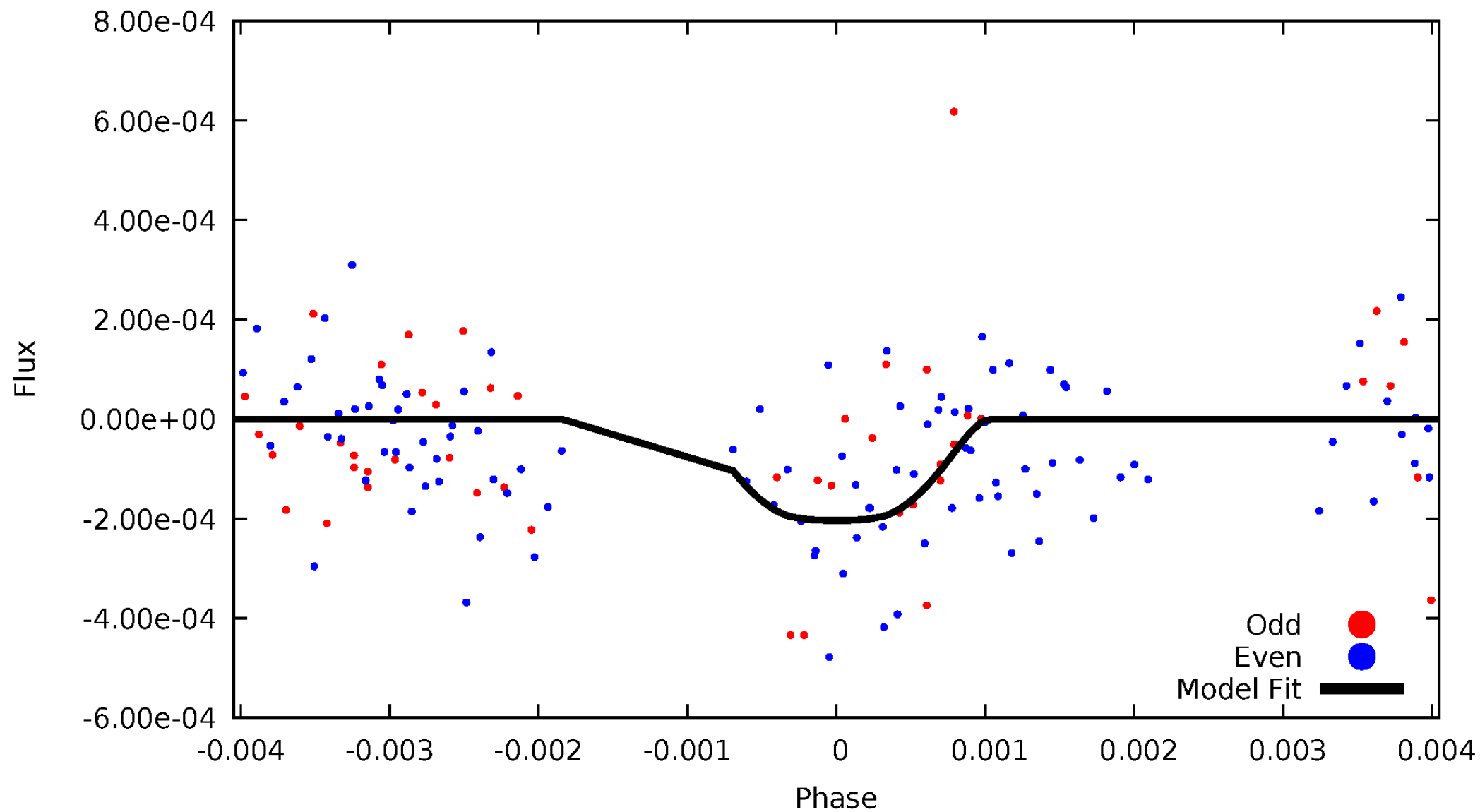


TCE 009691311-04



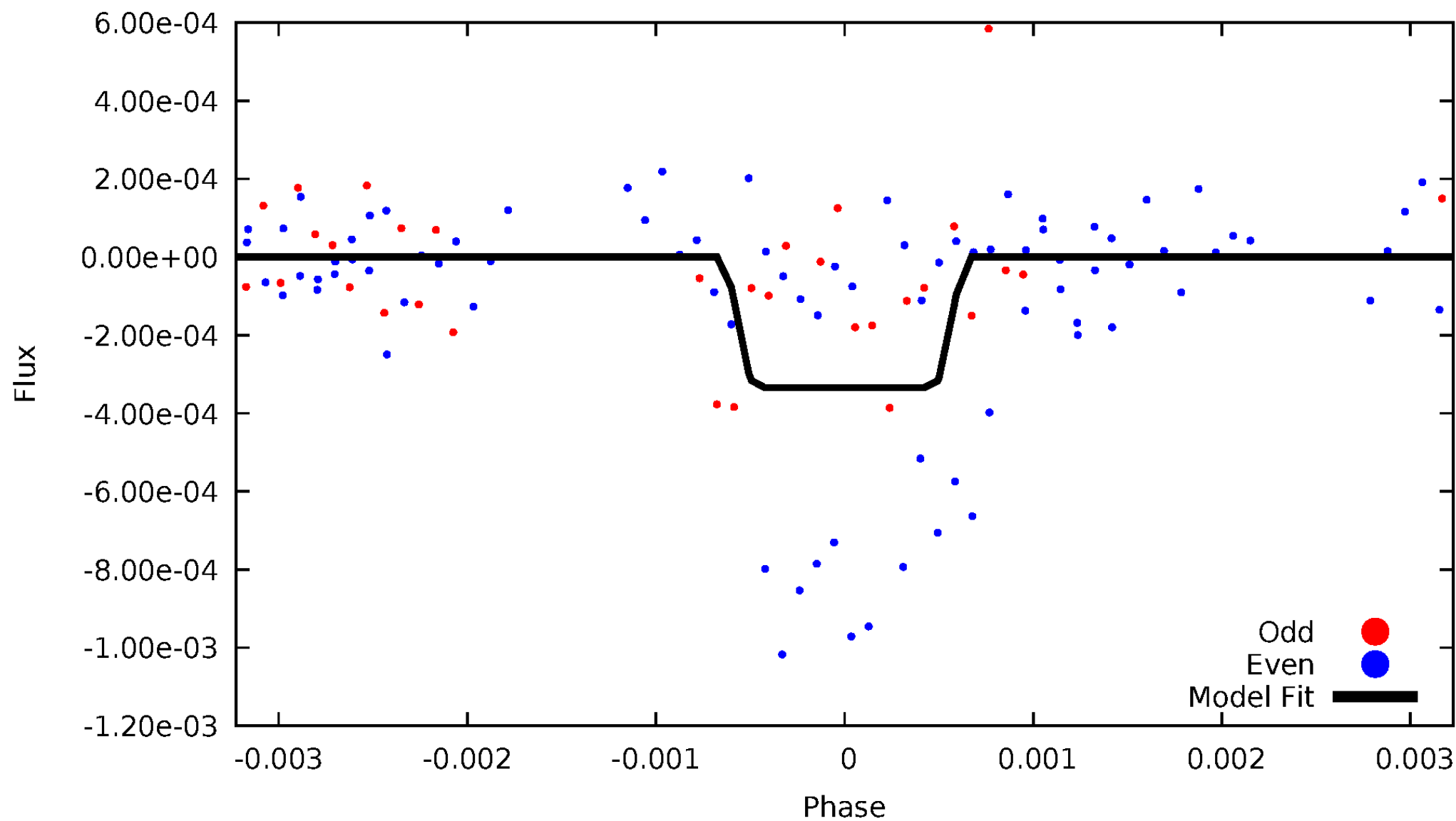
DV Odd/Even

TCE 009691311-04



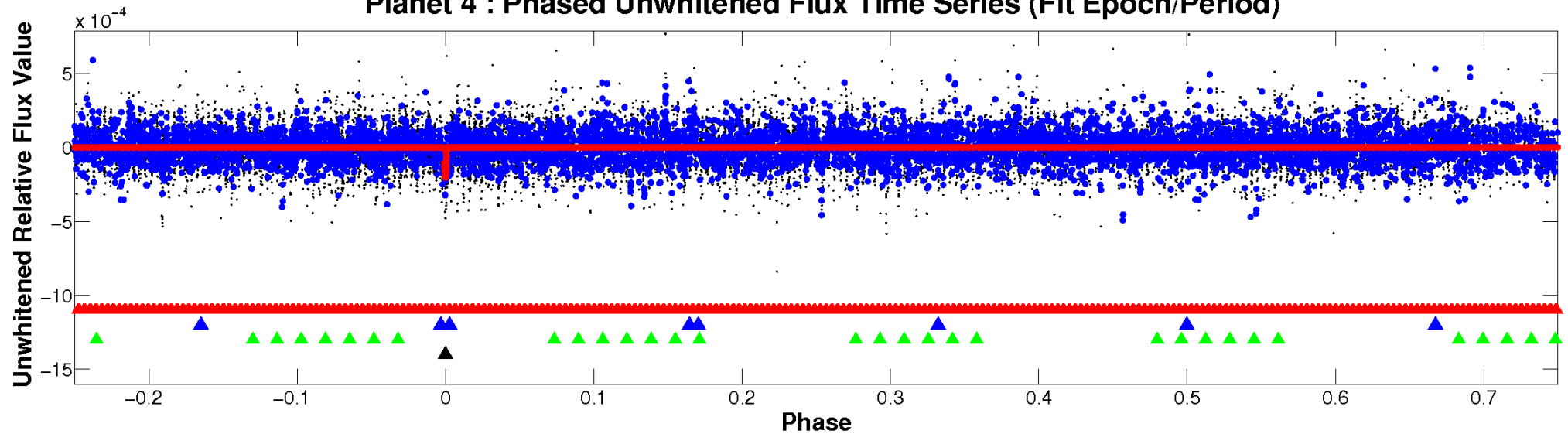
ALT Odd/Even

TCE 009691311-04

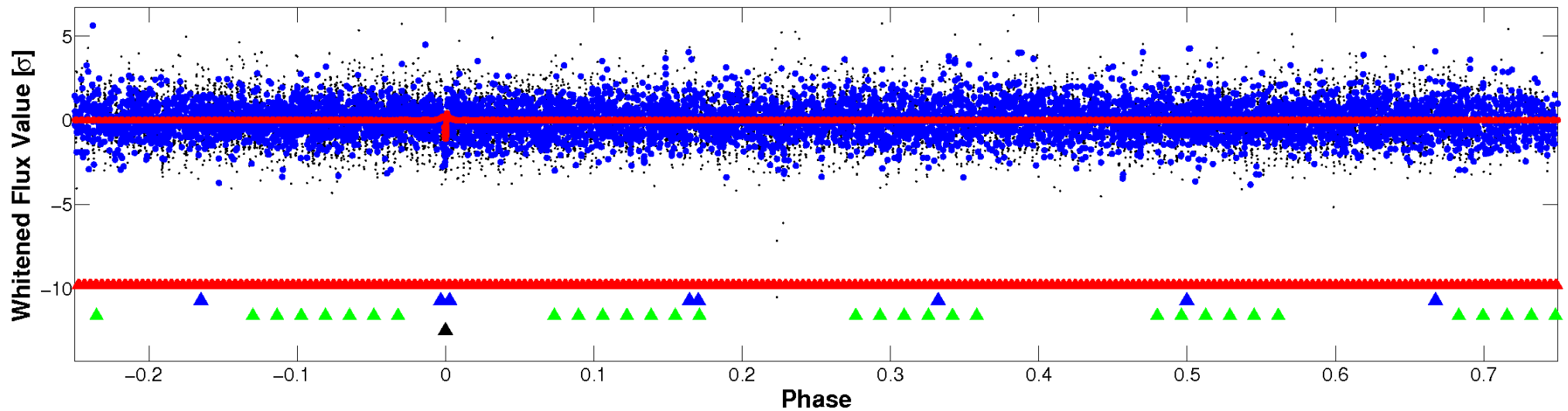


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

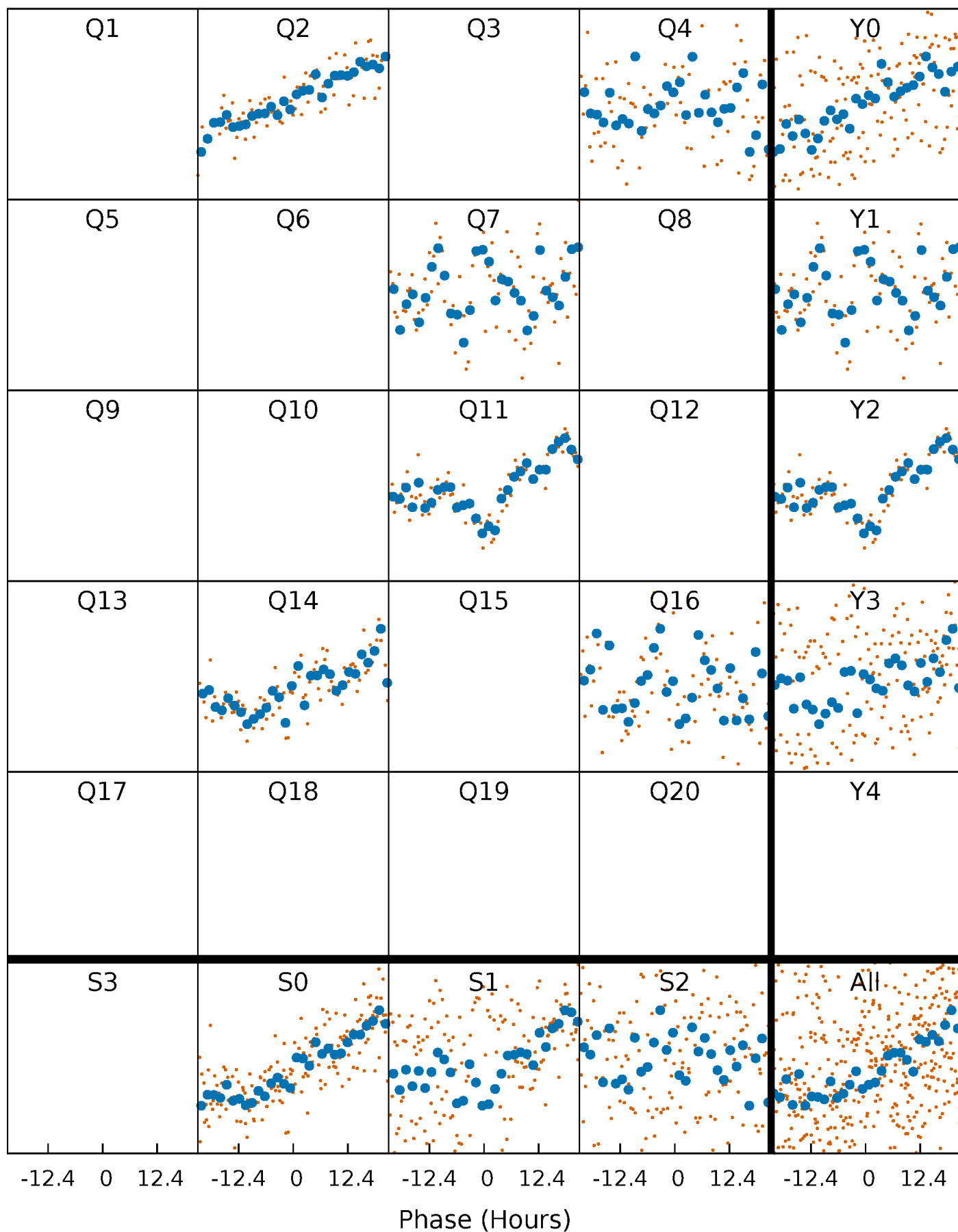


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



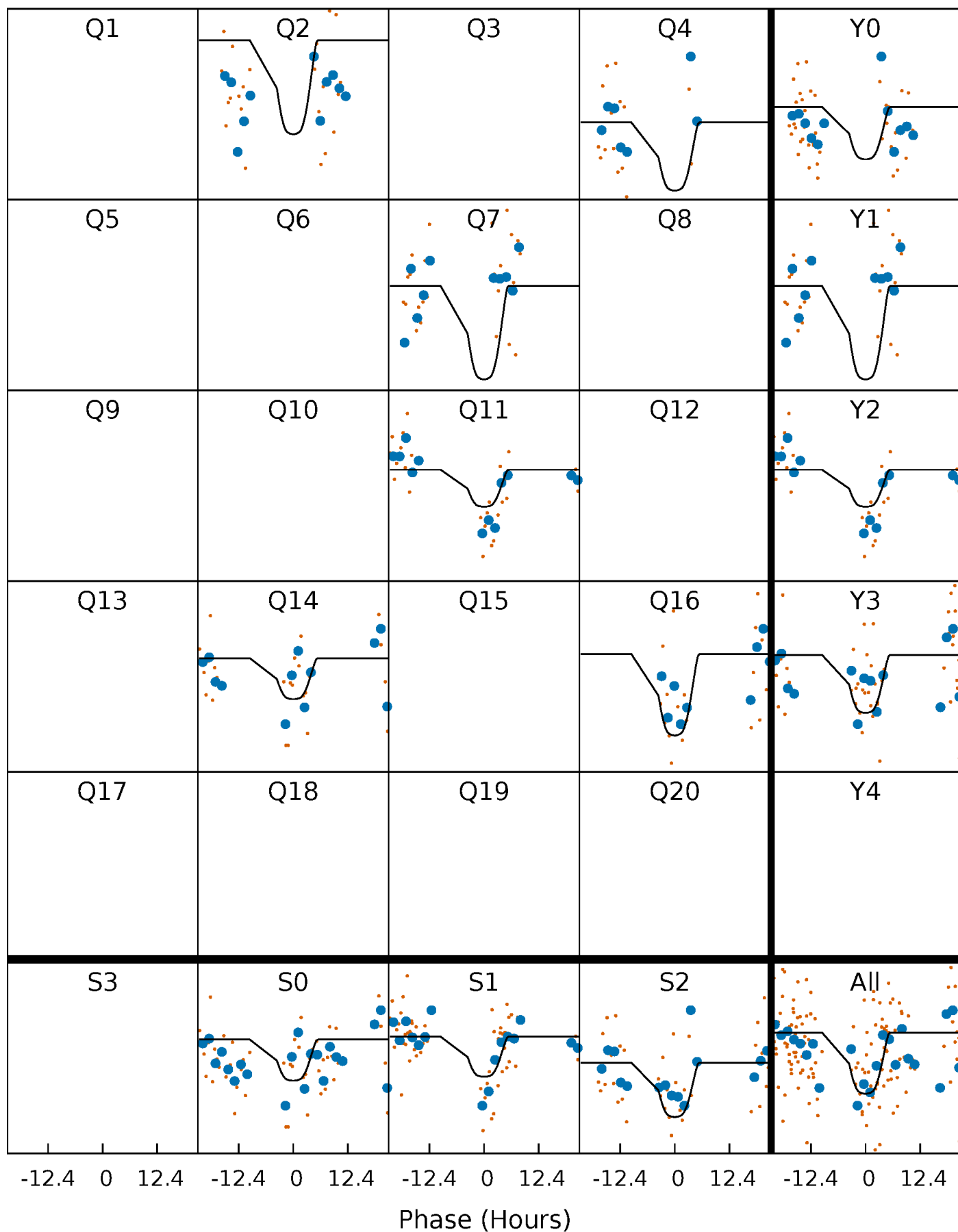
PDC Quarter-Phased Transit Curves

TCE 009691311-04 P=223.176673 Days $T_0=201.052407$ (BKJD)



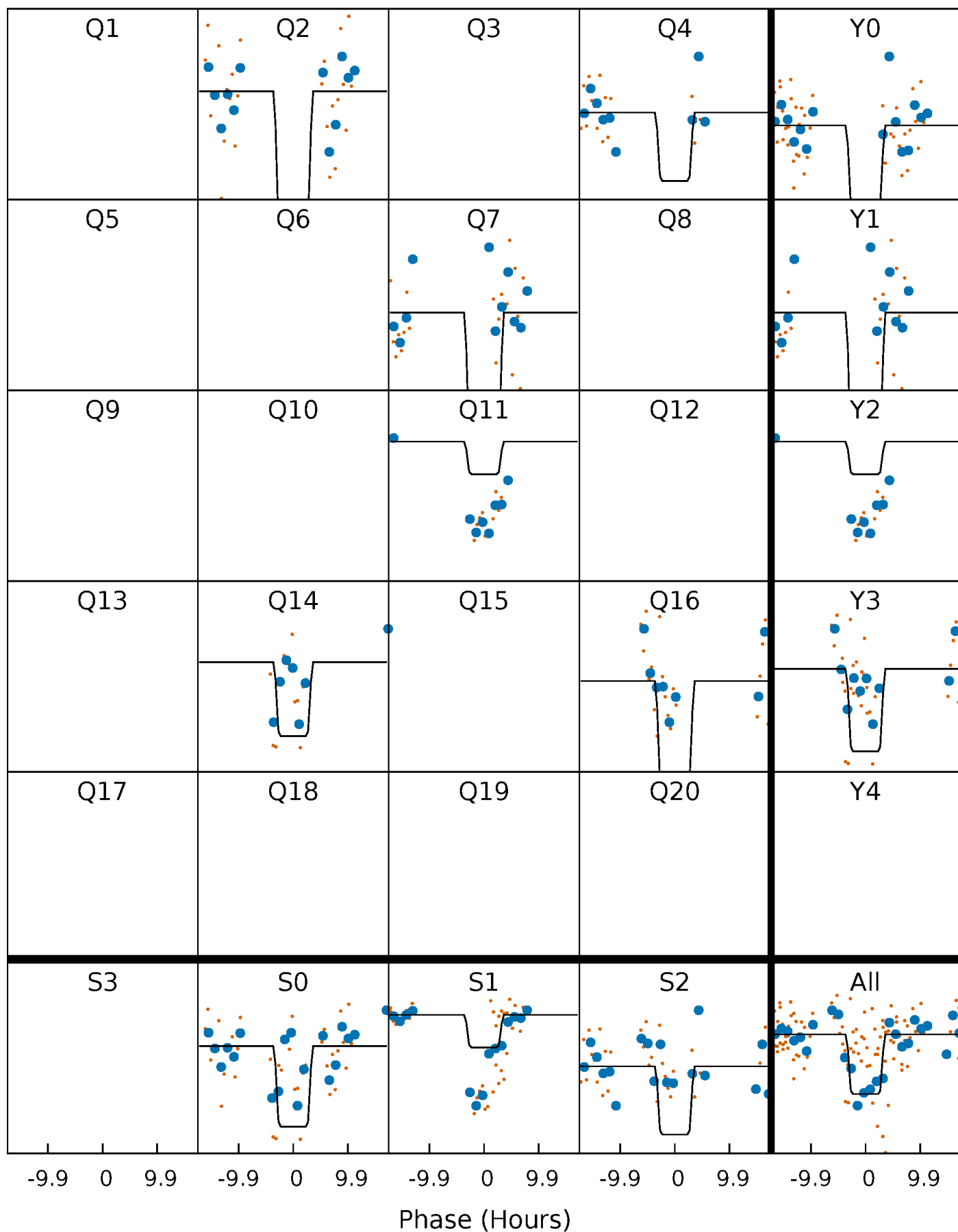
DV Quarter-Phased Transit Curves

TCE 009691311-04 P=223.176673 Days $T_0=201.052407$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

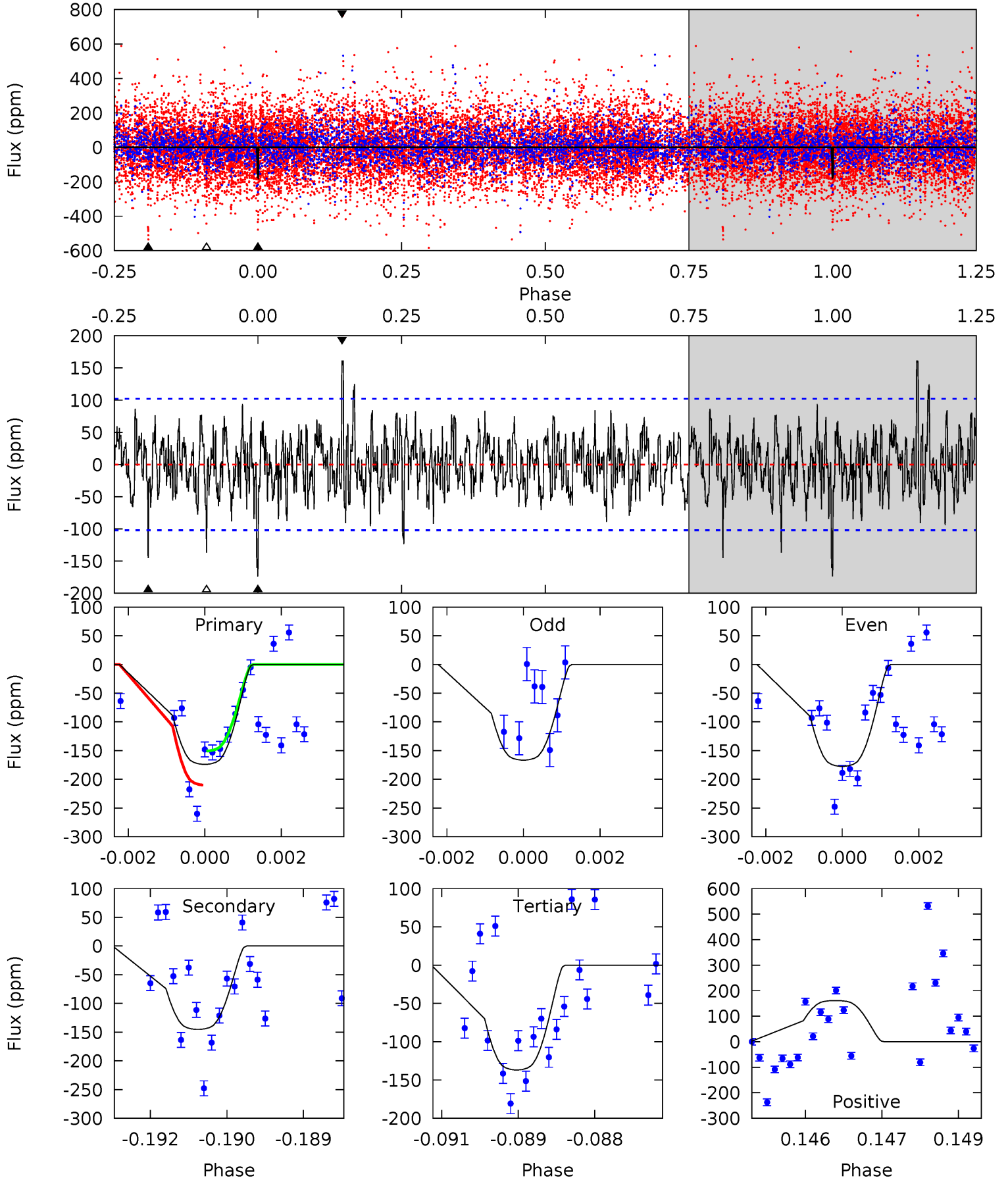
TCE 009691311-04 P=223.195776 Days $T_0=201.039223$ (BKJD)



DV Model-Shift Uniqueness Test

009691311-04, P = 223.176673 Days, E = 201.052407 Days

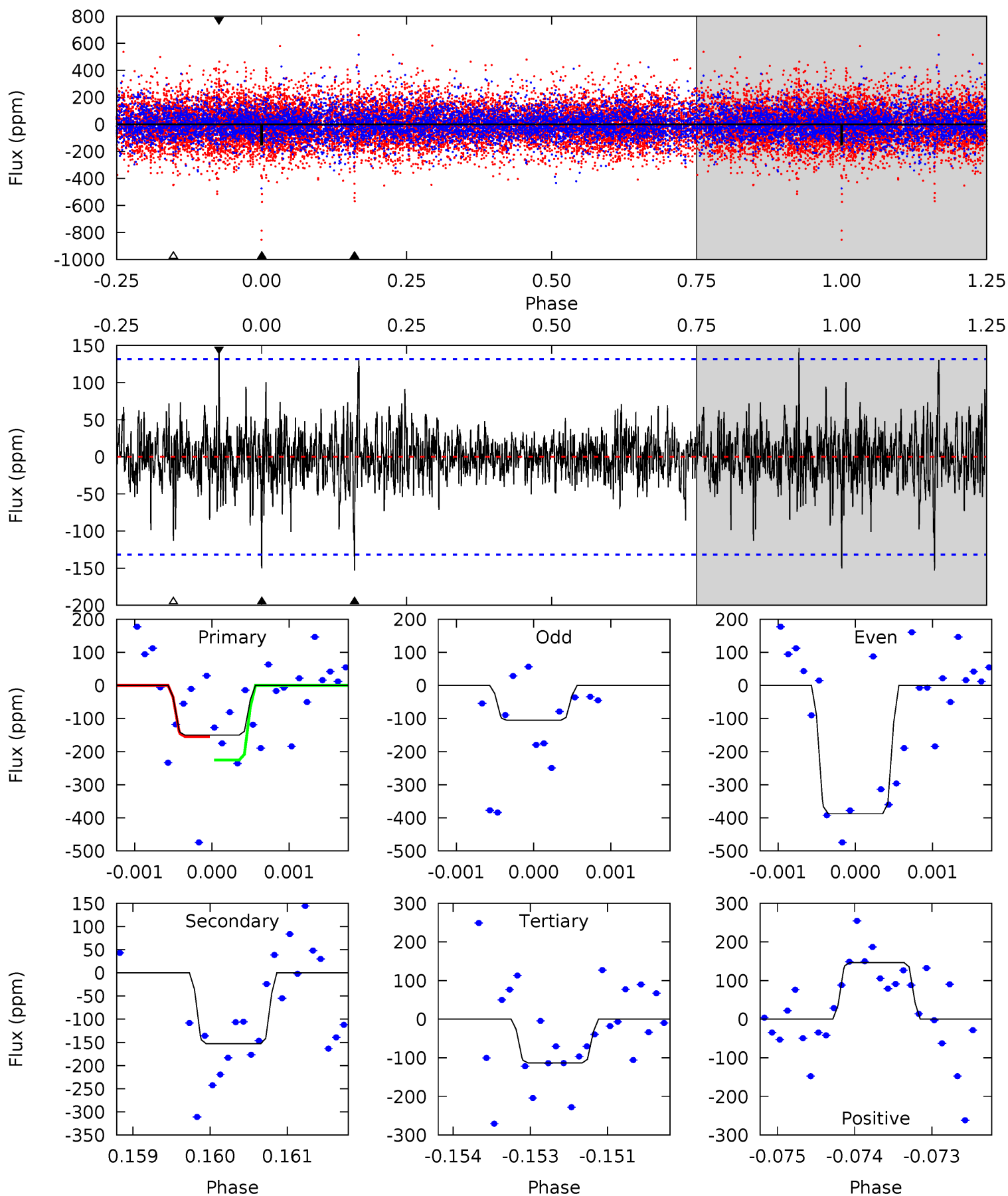
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.14	7.62	7.19	8.48	5.36	3.15	1.90	1.95	0.66	0.44	-0.85	0.26	0.90	0.48	1.37



Alt Model-Shift Uniqueness Test

009691311-04, P = 223.195776 Days, E = 201.039223 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.17	6.29	4.64	6.02	5.42	3.24	1.11	1.53	0.15	1.65	0.27	6.22	3.27	0.49	1.47



Stellar Parameters For KIC 009691311

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5642^{+171}_{-154}	$3.732^{+0.315}_{-0.126}$	$-0.240^{+0.300}_{-0.250}$	$2.520^{+0.505}_{-0.937}$	$1.251^{+0.157}_{-0.314}$	$0.110^{+0.223}_{-0.041}$
	+3%/-3%	+8%/-3%	+125%/-104%	+20%/-37%	+13%/-25%	+203%/-38%
Source	PHO1	FLK73	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 009691311-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-145 ± 19	$4.73^{+1.25}_{-1.27}$	618^{+43}_{-55}	4750^{+439}_{-367}	2147^{+1761}_{-847}
Alt.	-153 ± 24	$4.73^{+1.23}_{-1.17}$	619^{+41}_{-58}	4776^{+494}_{-406}	2175^{+1694}_{-806}

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 $A_{\text{obs}} \gg 1.0$

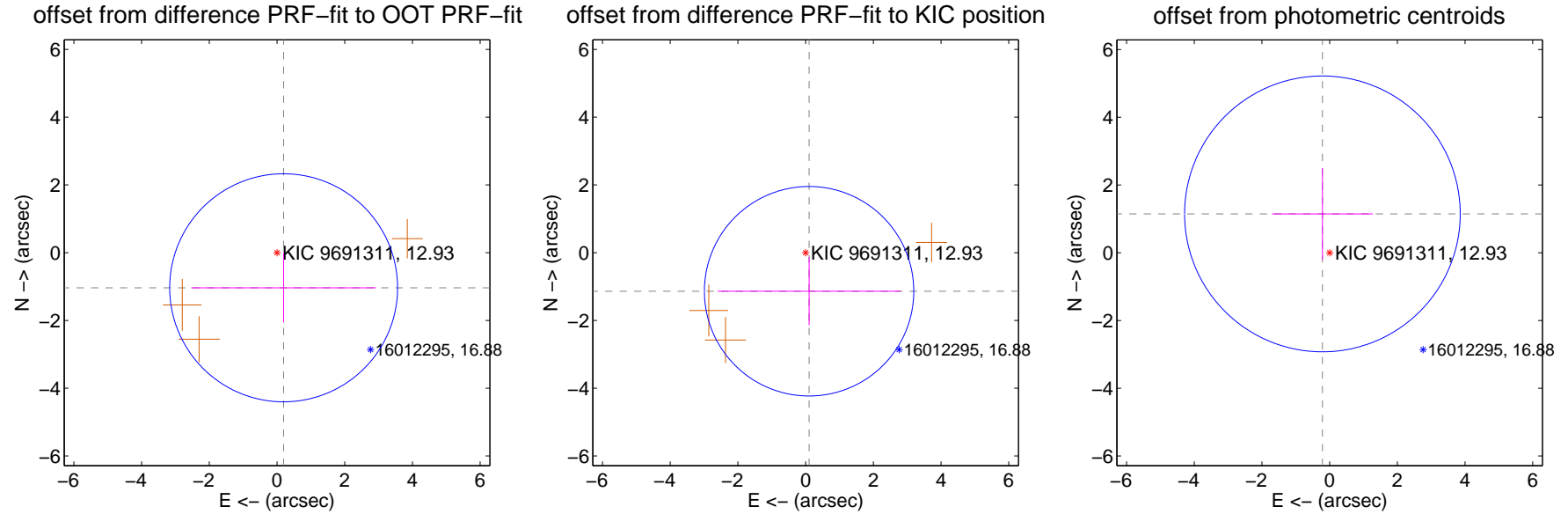
DV Centroid Data

Supplemental centroid analysis for 009691311-04. Kepler magnitude: 12.93. Transit SNR 5.89

There are 0 quarters with good PRF difference image offsets

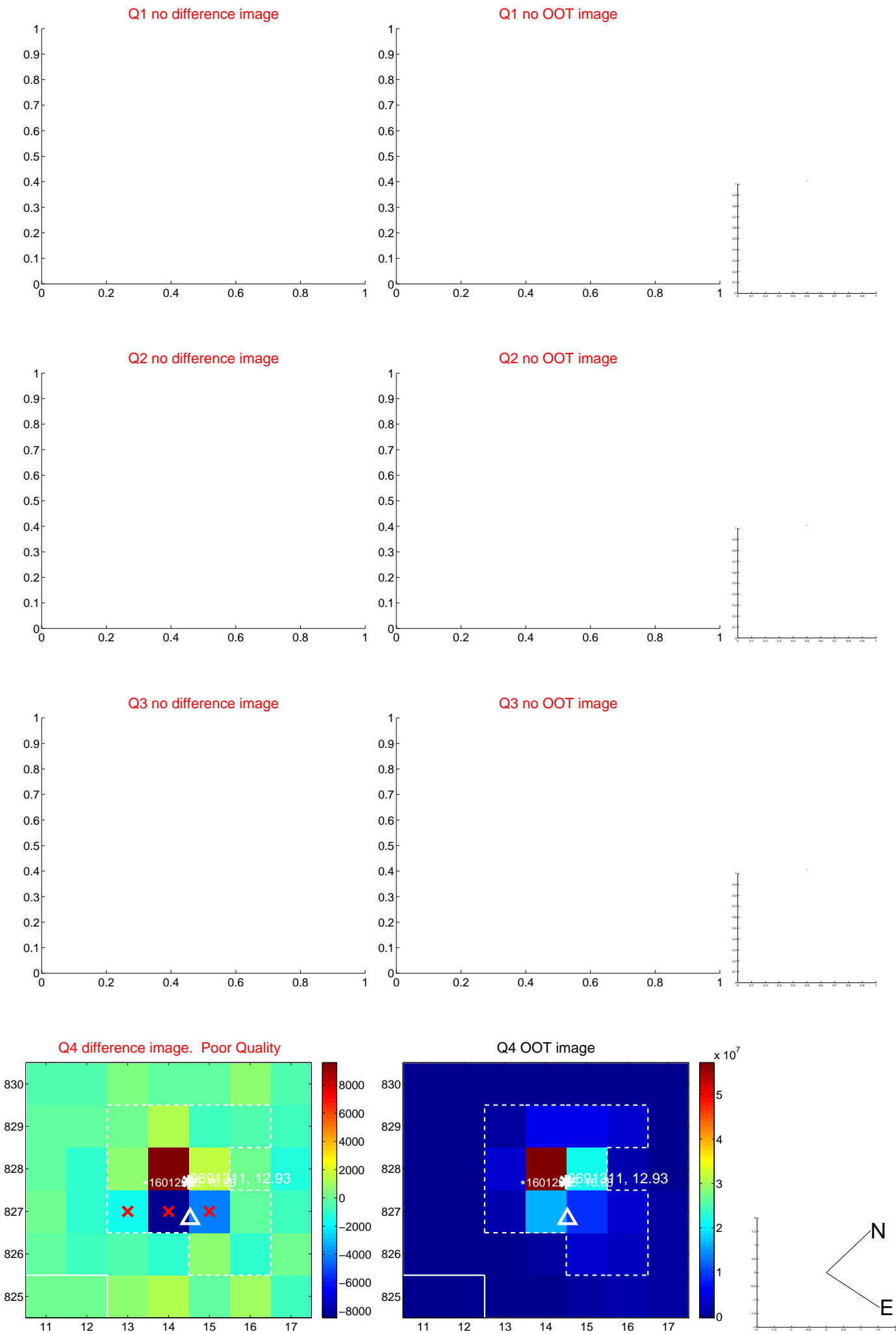
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.055 ± 1.122	0.94	-0.195 ± 2.728	-1.037 ± 1.020
PRF-fit source offset from KIC position	1.143 ± 1.031	1.11	-0.102 ± 2.701	-1.138 ± 1.006
photometric centroid source offset	1.17 ± 1.36	0.86	0.21 ± 1.49	1.15 ± 1.35



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.

Q5 no difference image



Q5 no OOT image



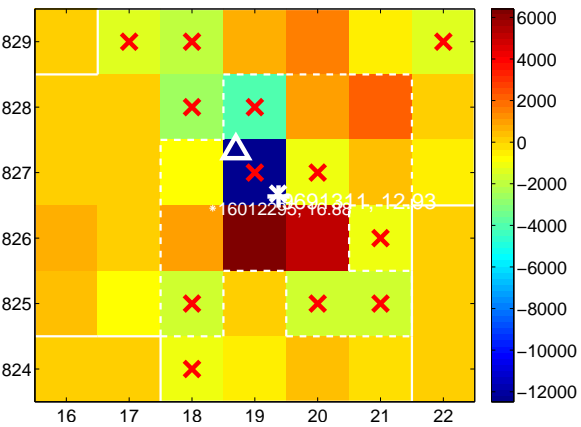
Q6 no difference image



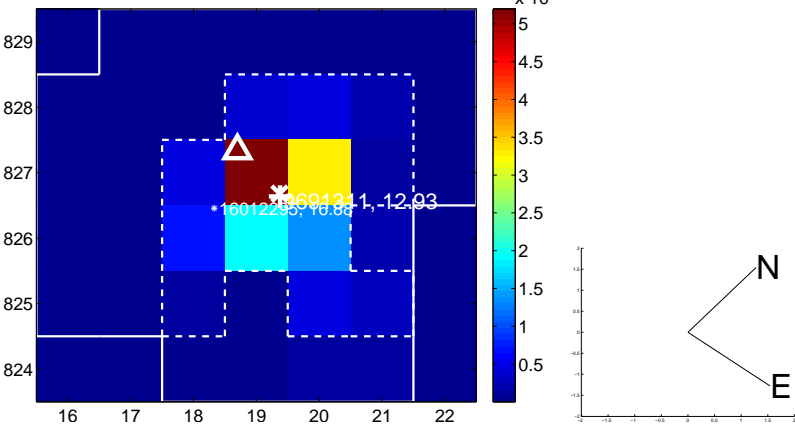
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image



Q8 no OOT image



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.

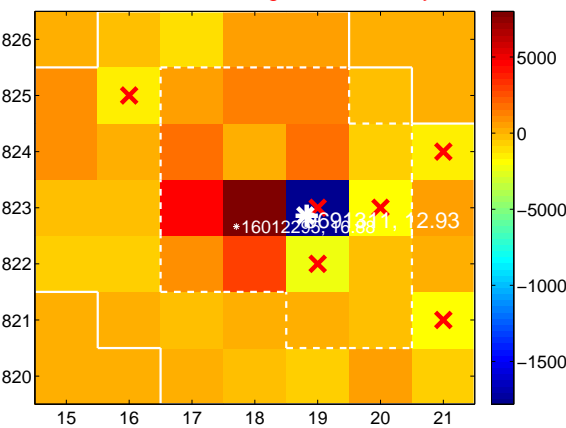
Q13 no difference image



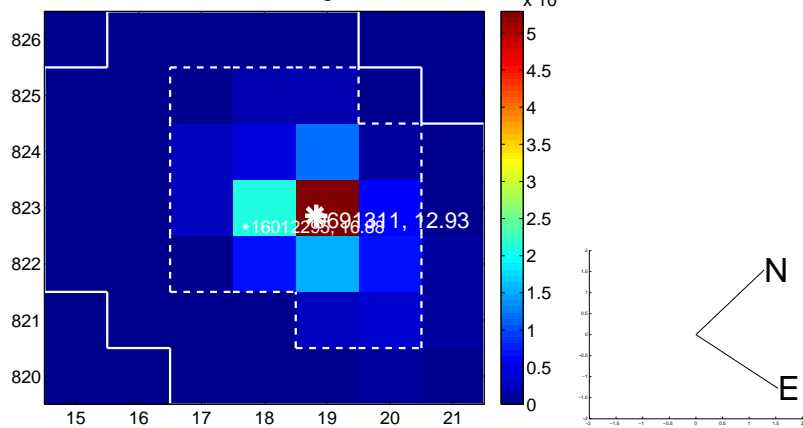
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



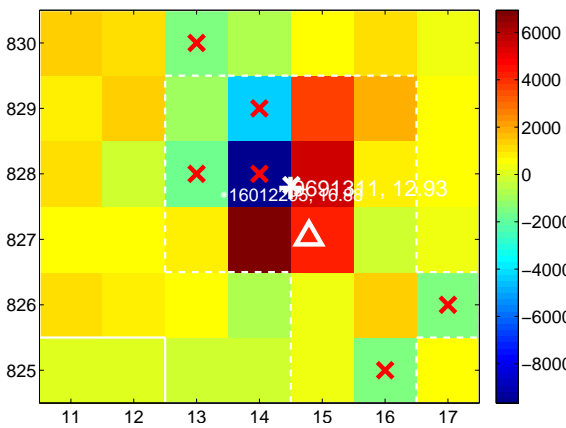
Q15 no difference image



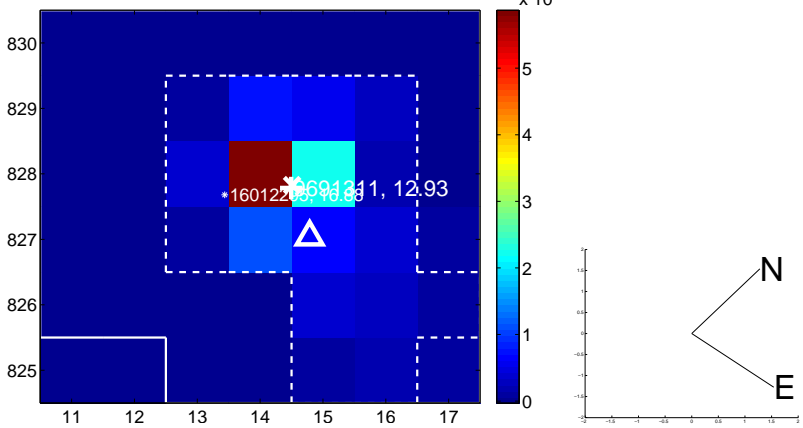
Q15 no OOT image



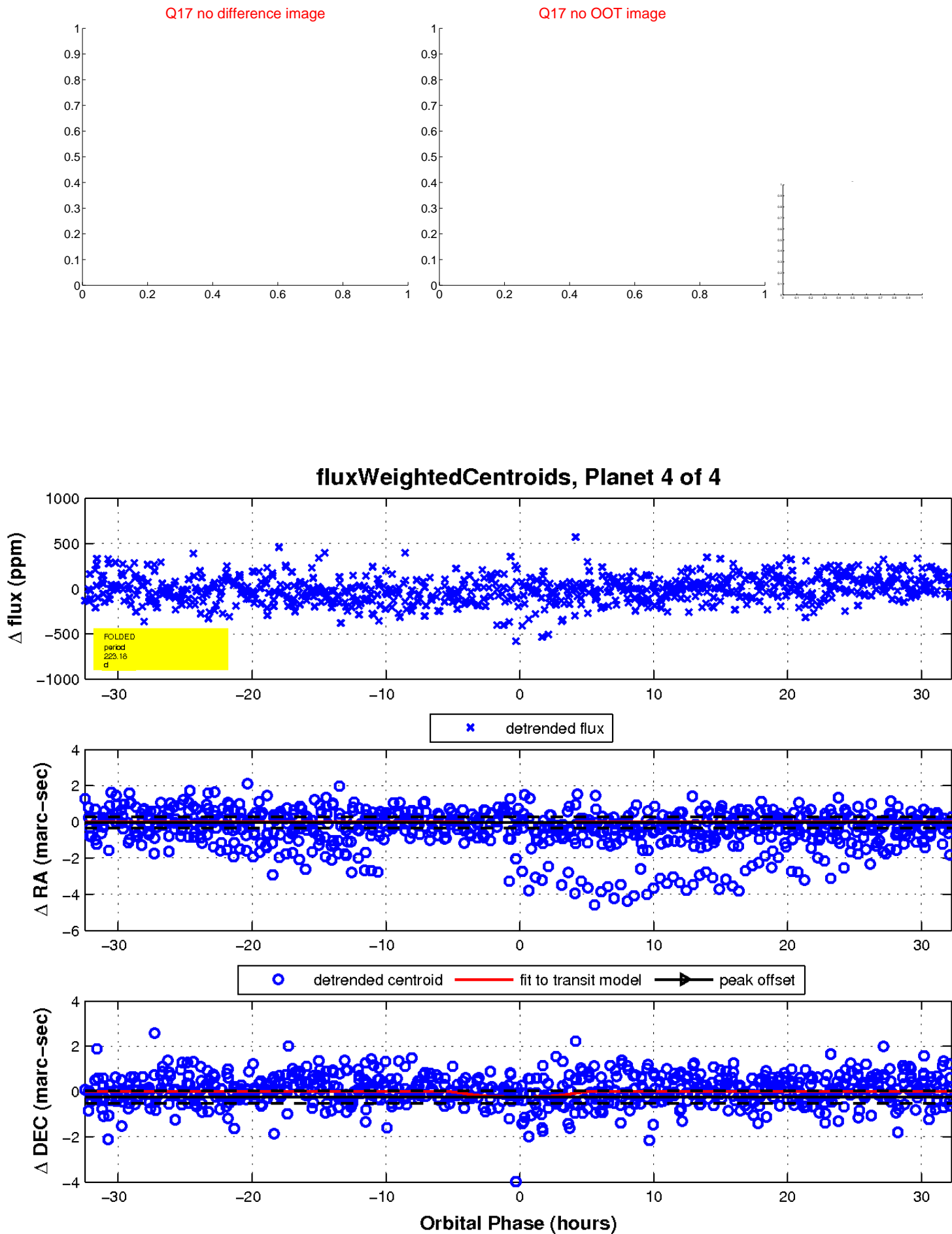
Q16 difference image. Poor Quality



Q16 OOT image



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



UKIRT Image

Declination

