

KIC 009226439

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})
009226439-01	OBS	No	2.433091	131.584319	19.6	16.247	8.0	5.8	0.88	6078	0.39	783.48
009226439-02	OBS	No	86.972820	146.910788	382.8	5.083	9.8	10.2	0.88	6078	1.96	6.65
009226439-03	OBS	No	43.274924	149.555806	702.7	1.534	8.8	8.9	0.88	6078	2.37	16.88
009226439-04	OBS	No	62.934416	141.956605	354.3	4.808	8.0	8.2	0.88	6078	1.86	10.24
009226439-05	OBS	No	14.877608	133.590700	285.4	1.860	8.1	8.8	0.88	6078	1.84	70.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009226439-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST
009226439-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
009226439-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
009226439-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
009226439-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_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.

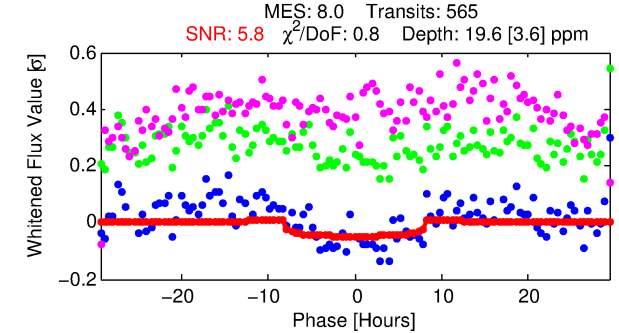
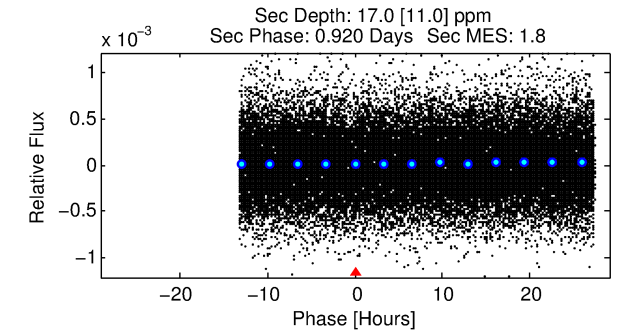
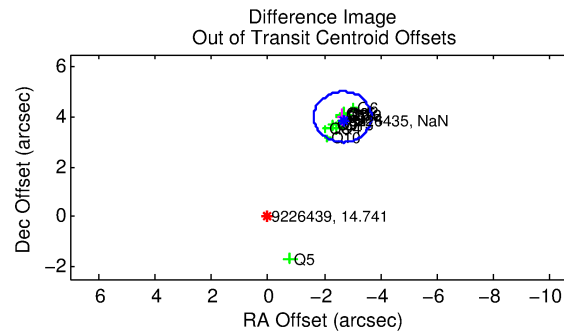
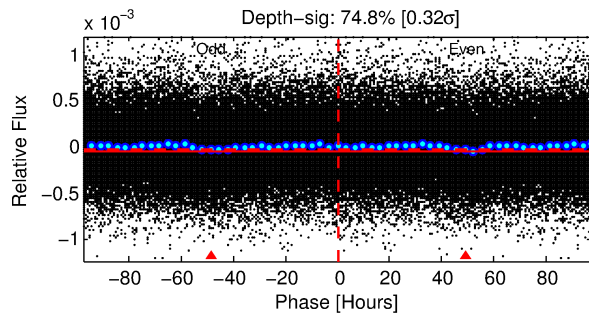
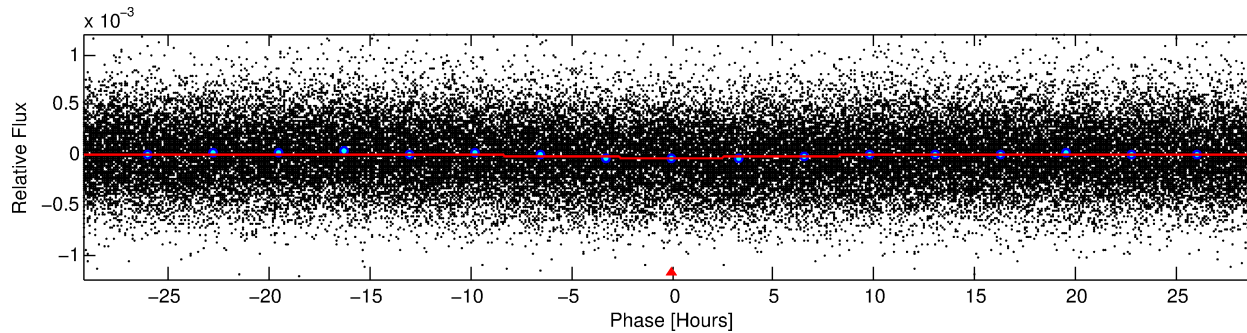
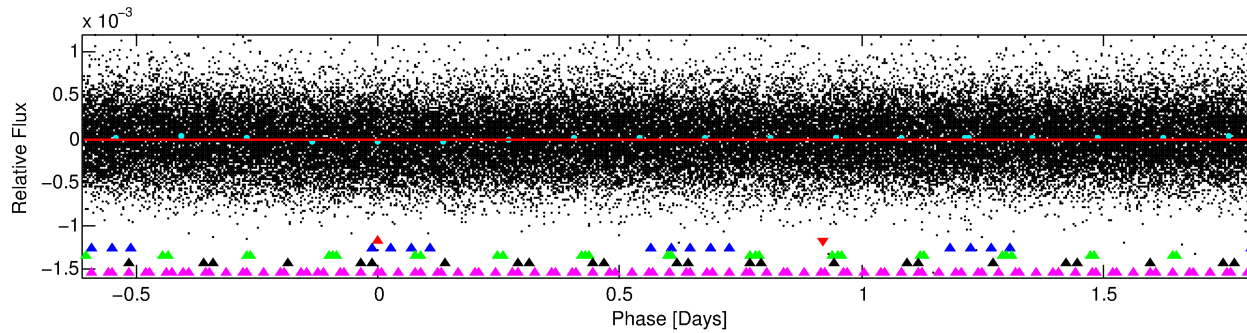
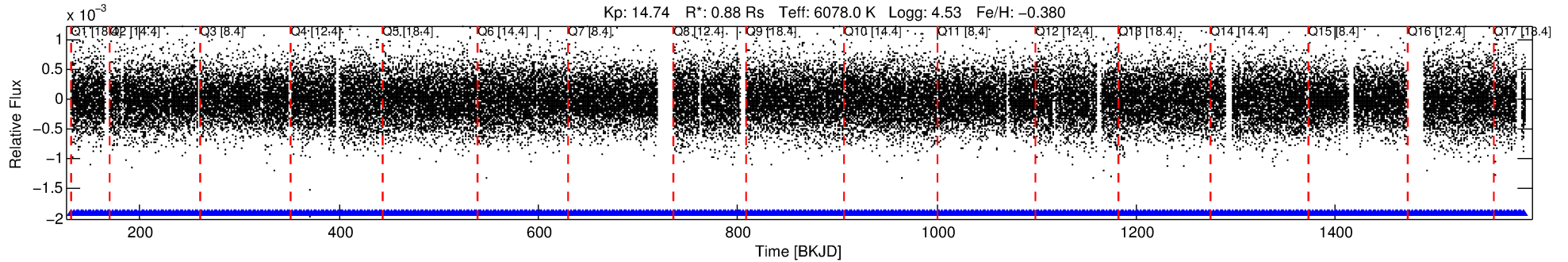
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009226439-01

No Significant Match Found

DV One-Page Summary

KIC: 9226439 Candidate: 1 of 5 Period: 2.433 d



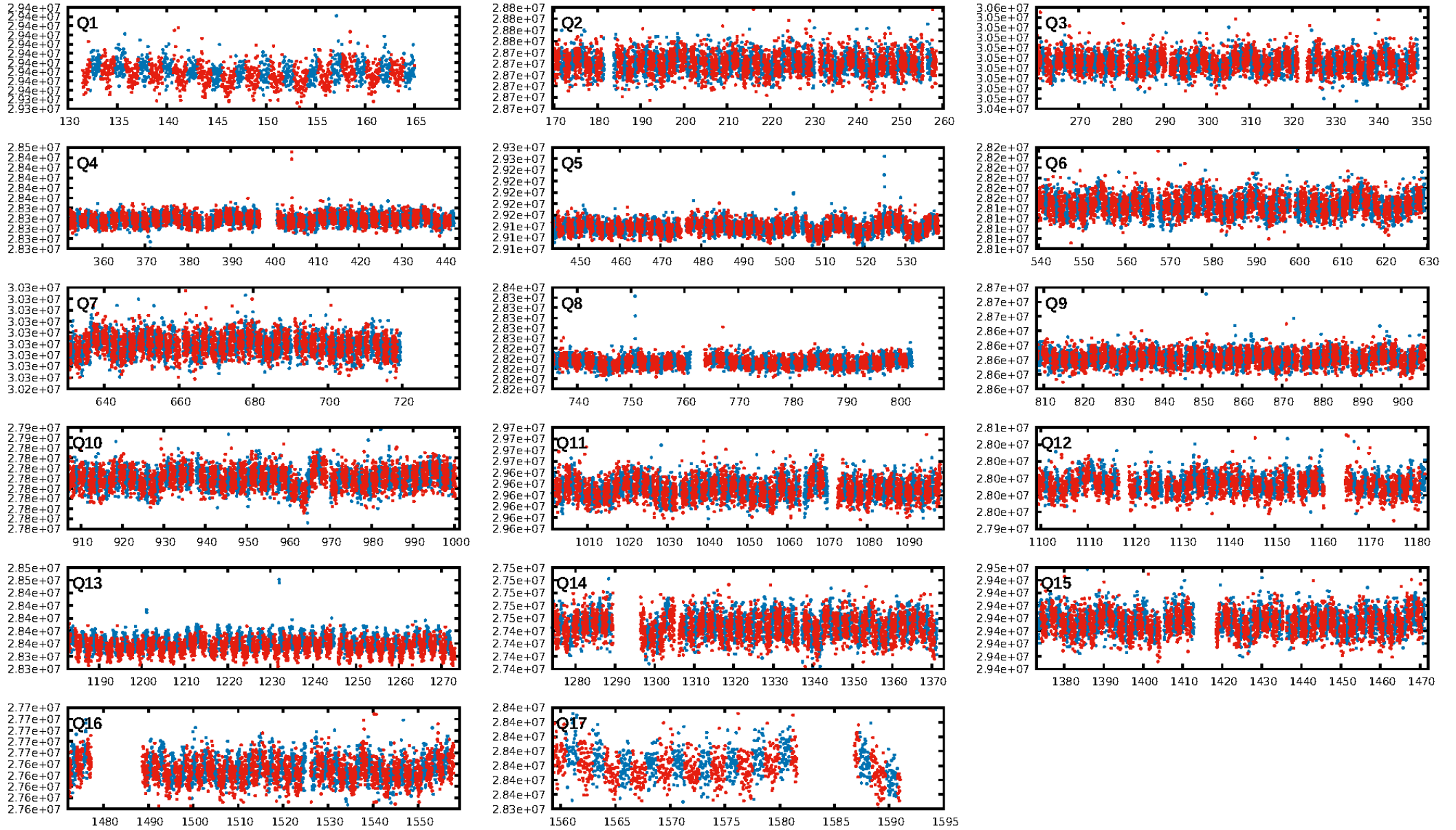
DV Fit Results:

Period = 2.43309 [0.00009] d
Epoch = 131.5843 [0.0212] BKJD
Rp/R* = 0.0041 [0.0080]
a/R* = 1.31 [5.39]
b = 0.01 [1505.31]
Seff = 783.48 [315.18]
Teq = 1349 [136] K
Rp = 0.39 [0.78] Re
a = 0.0349 [0.0091] AU
Ag = 74.37 [297.28] [0.25σ]
Teffp = 6125 [6097] K [0.78σ]

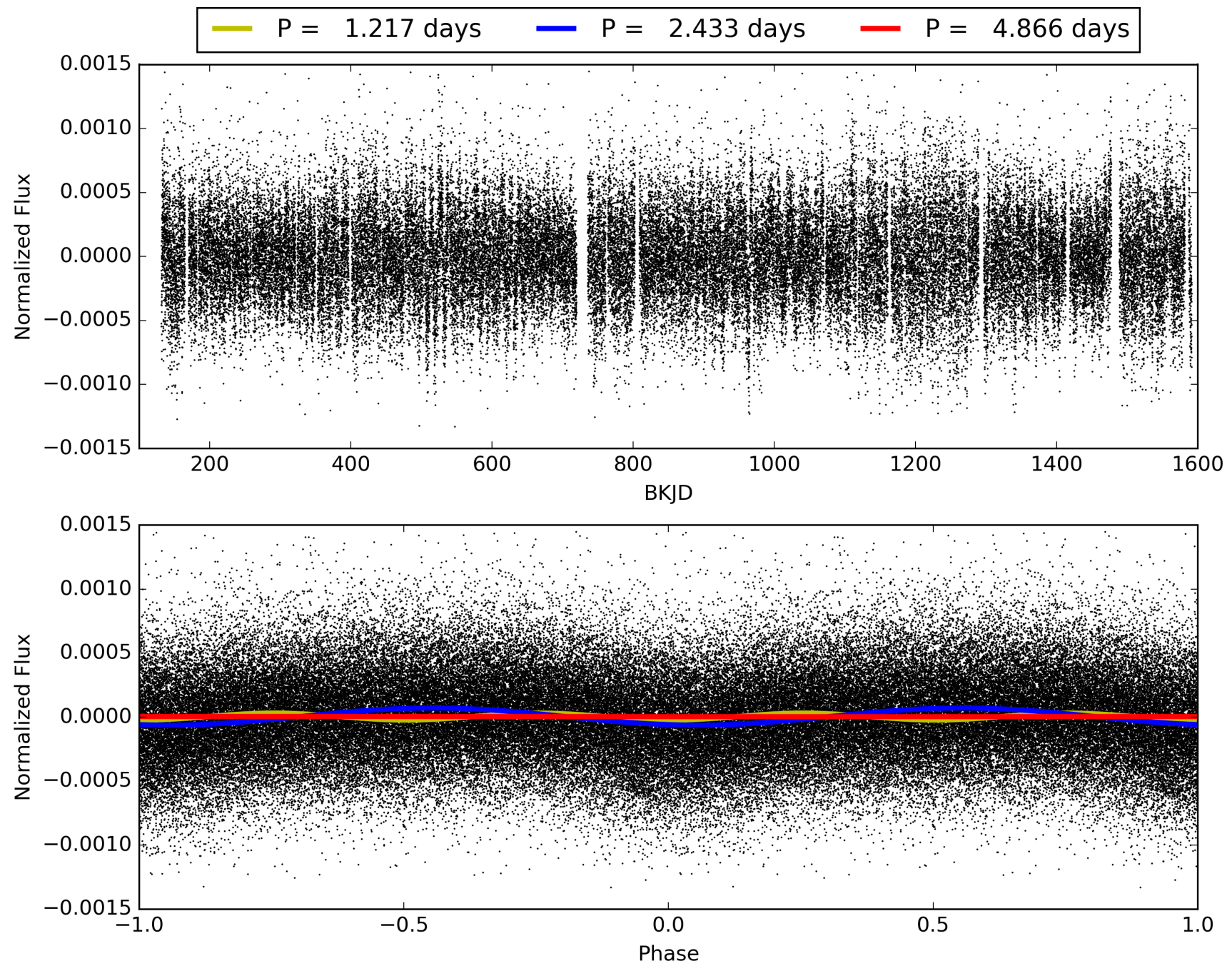
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [18.26σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.36e-09
RollingBand-fgt: 1.00 [539/539]
GhostDiagnostic-chr: -0.0963
Centroid-sig: 0.0%
Centroid-so: 14.847 arcsec [7.37σ]
OotOffset-rm: 4.793 arcsec [14.13σ]
KicOffset-rm: 4.707 arcsec [12.95σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009226439-01, PDC Light Curves

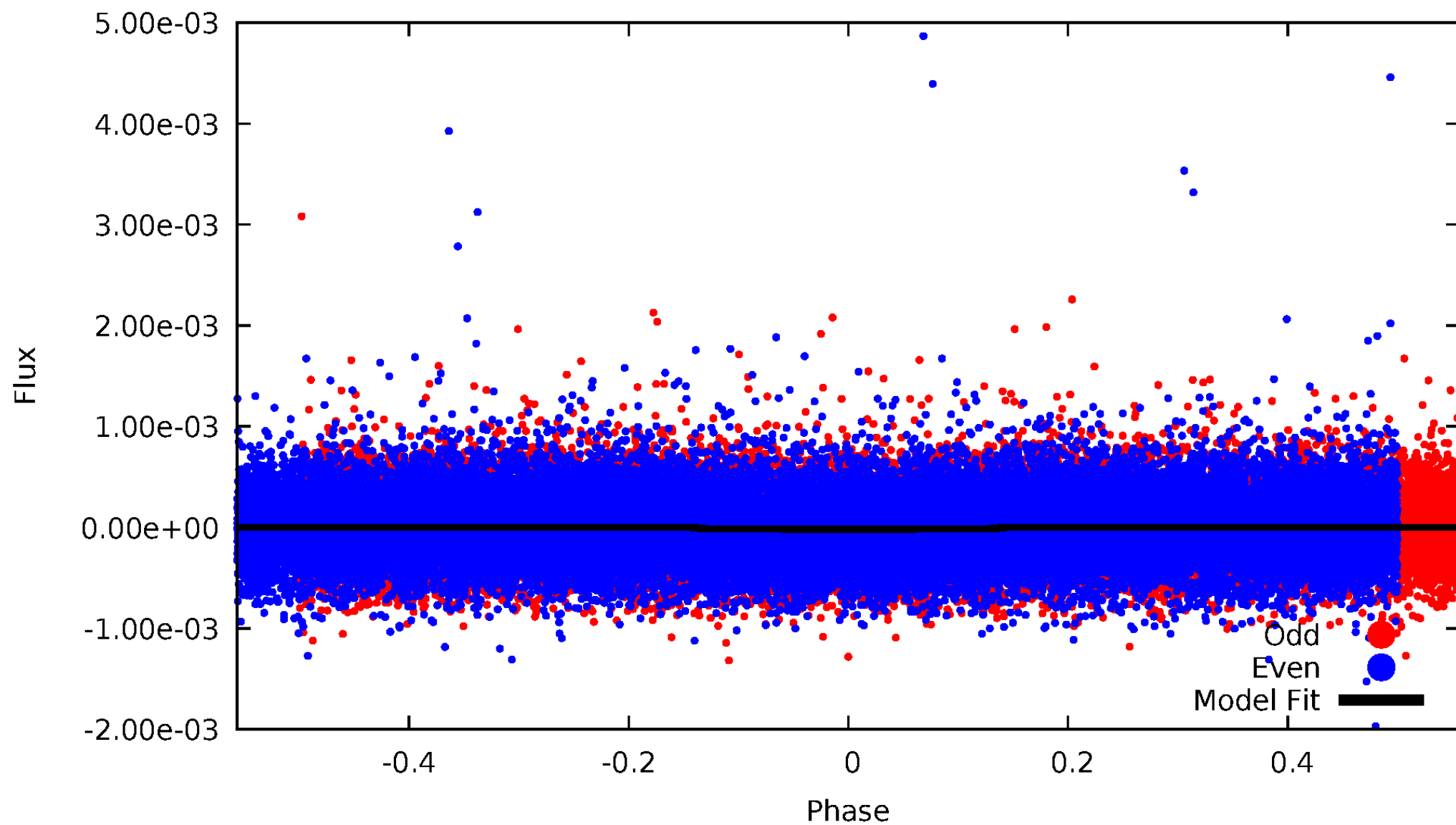


TCE 009226439-01



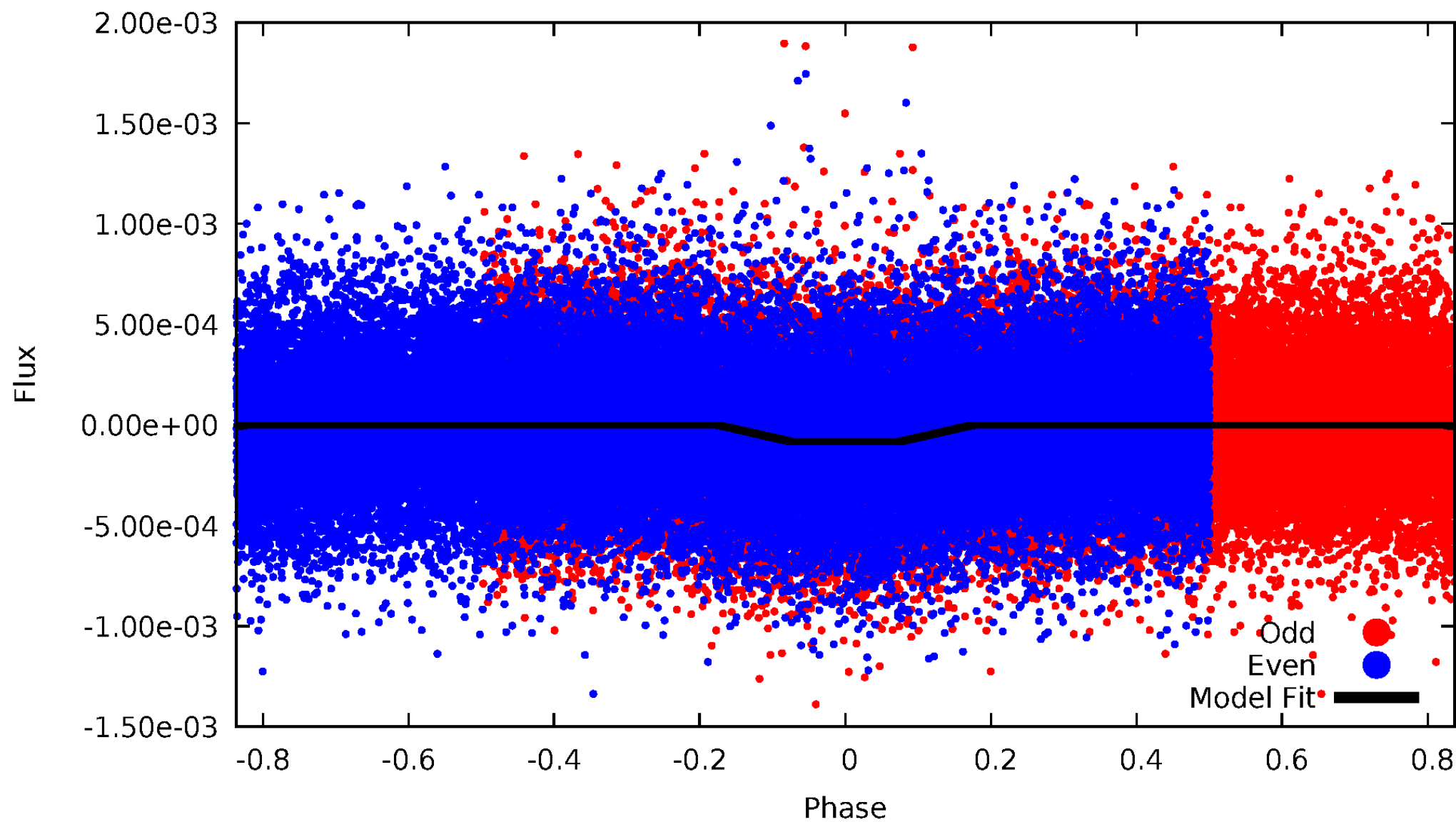
DV Odd/Even

TCE 009226439-01



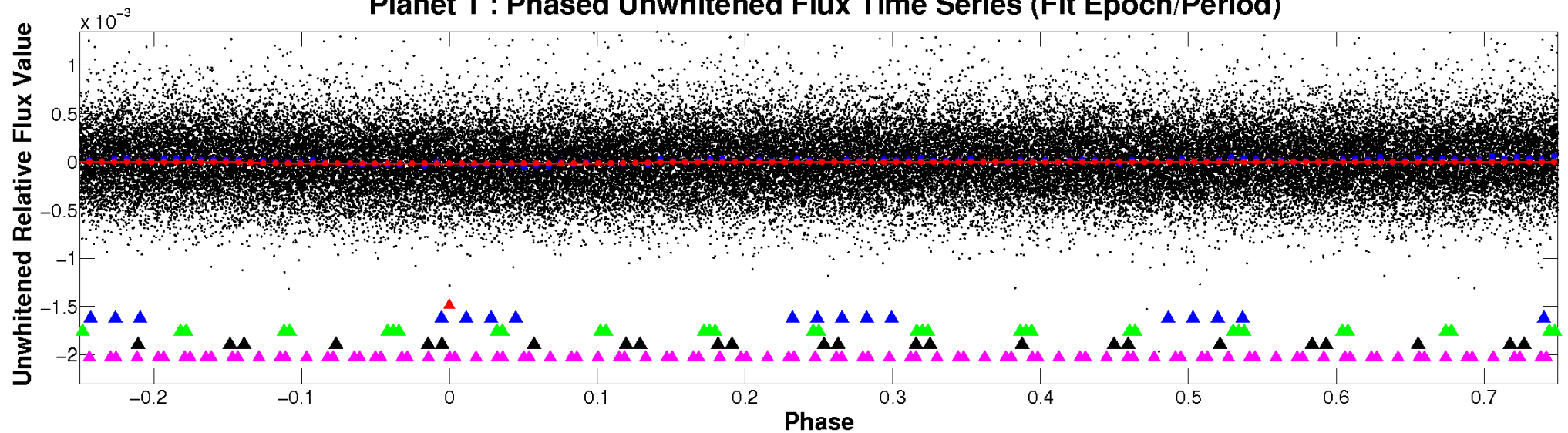
ALT Odd/Even

TCE 009226439-01

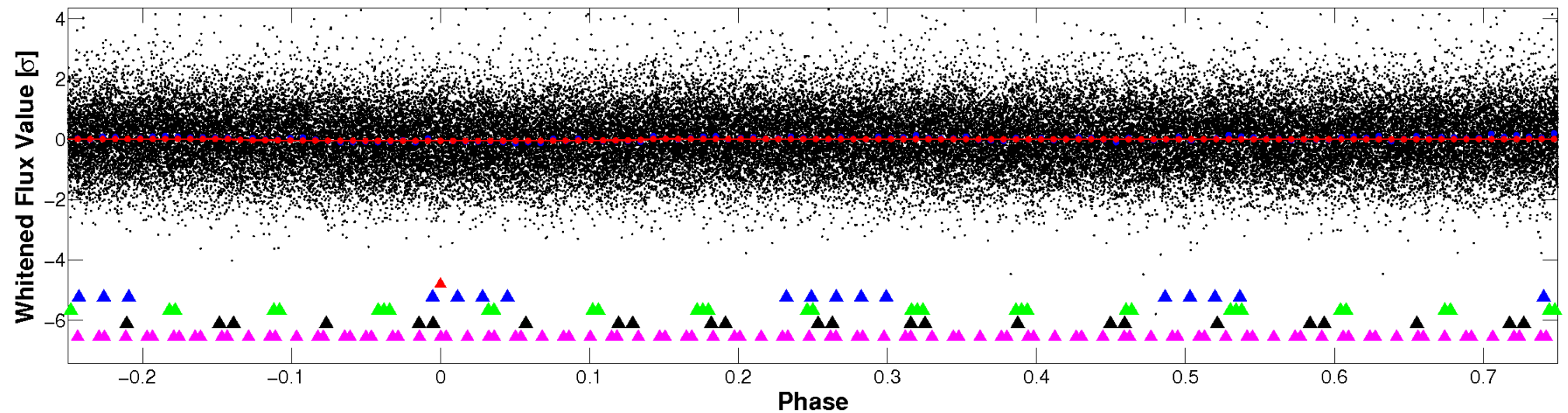


Non-Whitened Vs. Whitened Light Curve

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

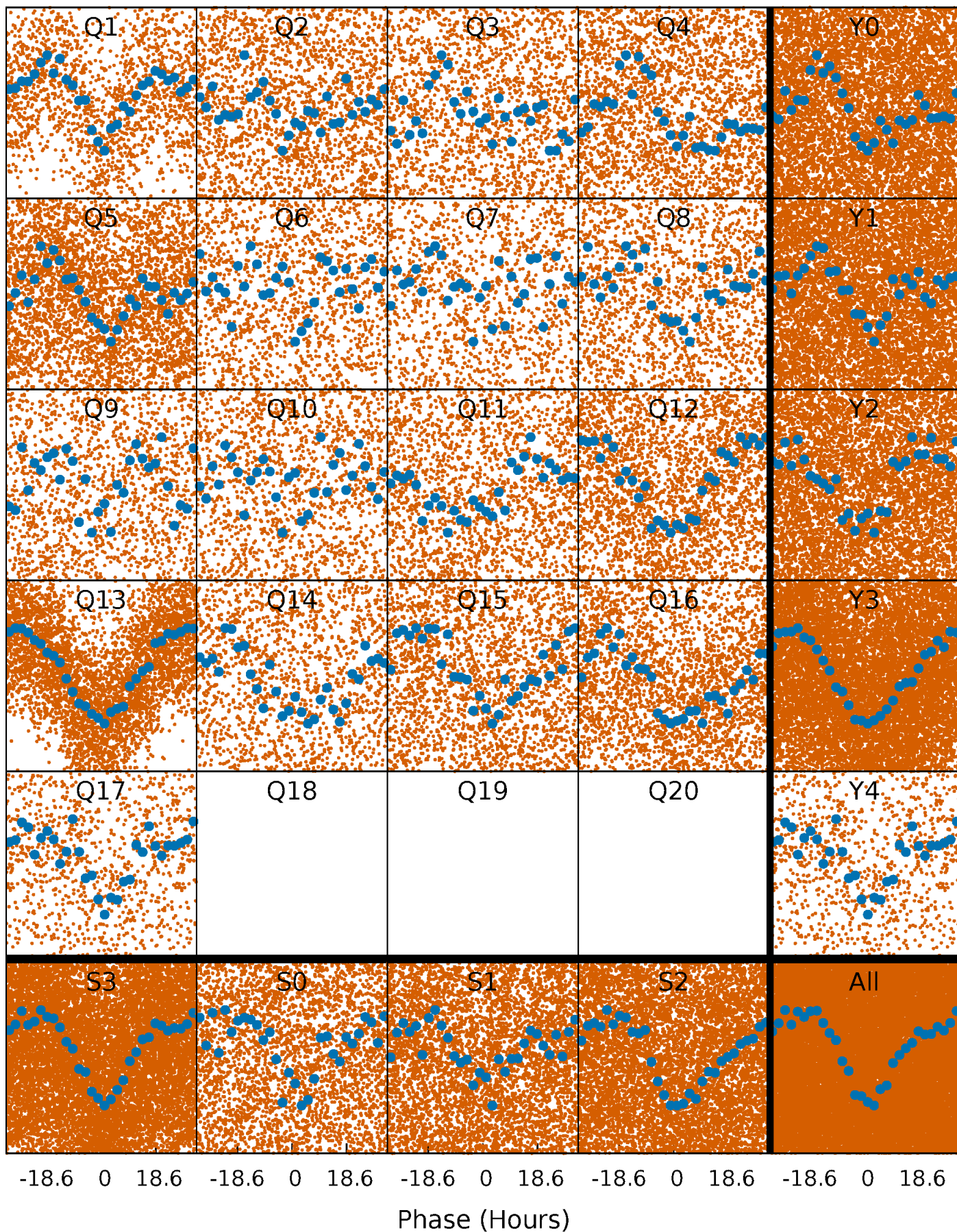


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



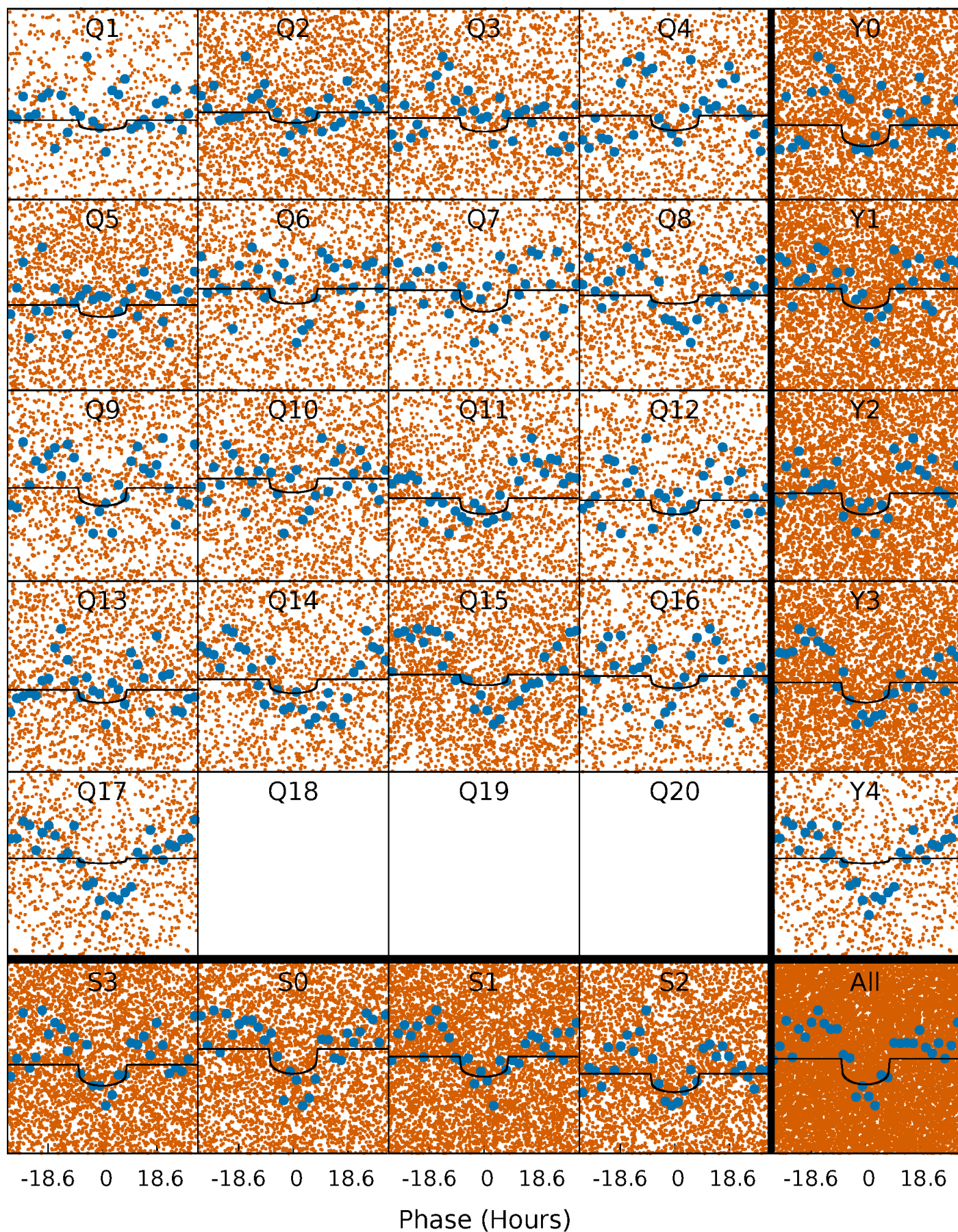
PDC Quarter-Phased Transit Curves

TCE 009226439-01 P= 2.433091 Days $T_0=131.584319$ (BKJD)



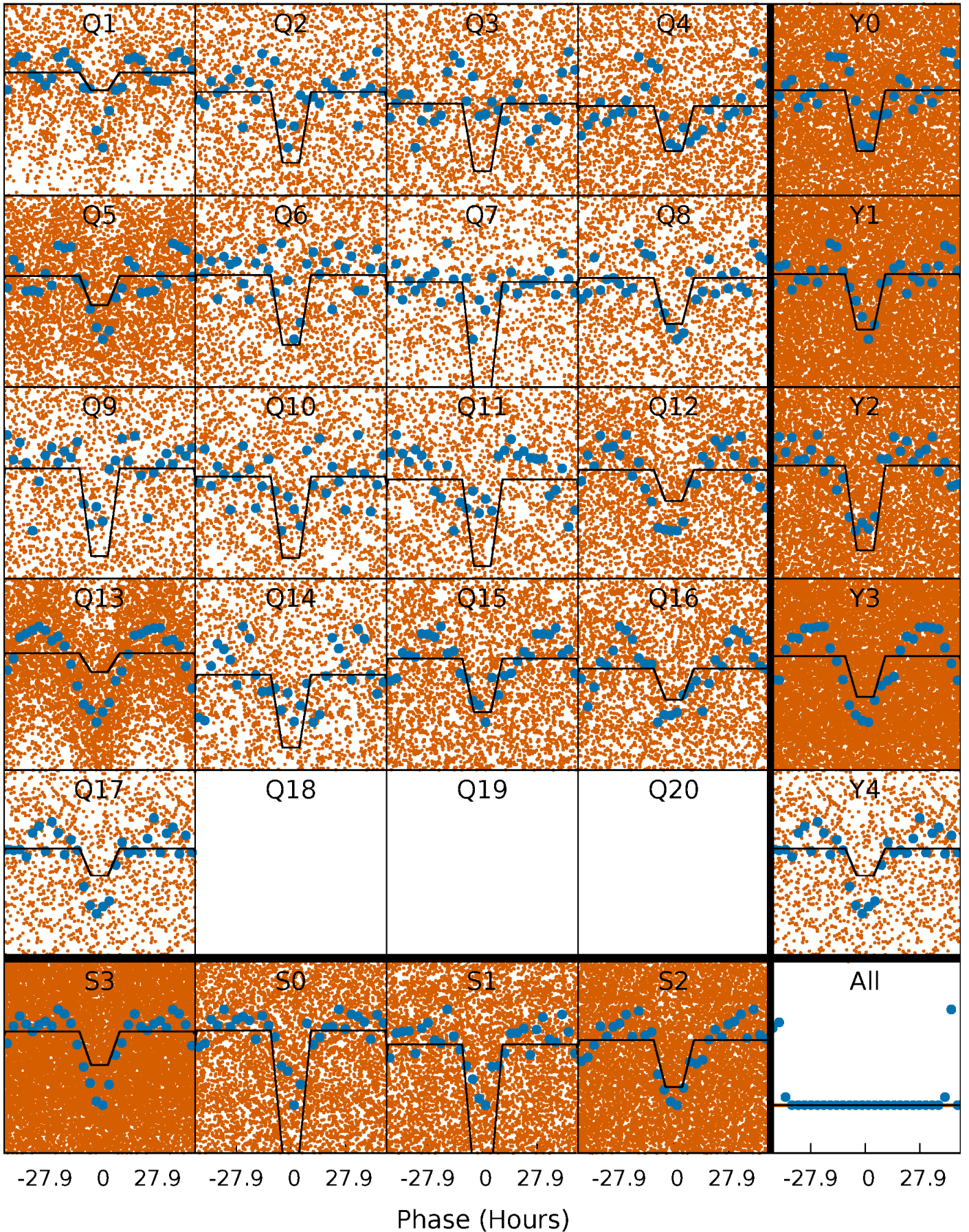
DV Quarter-Phased Transit Curves

TCE 009226439-01 P= 2.433091 Days $T_0=131.584319$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

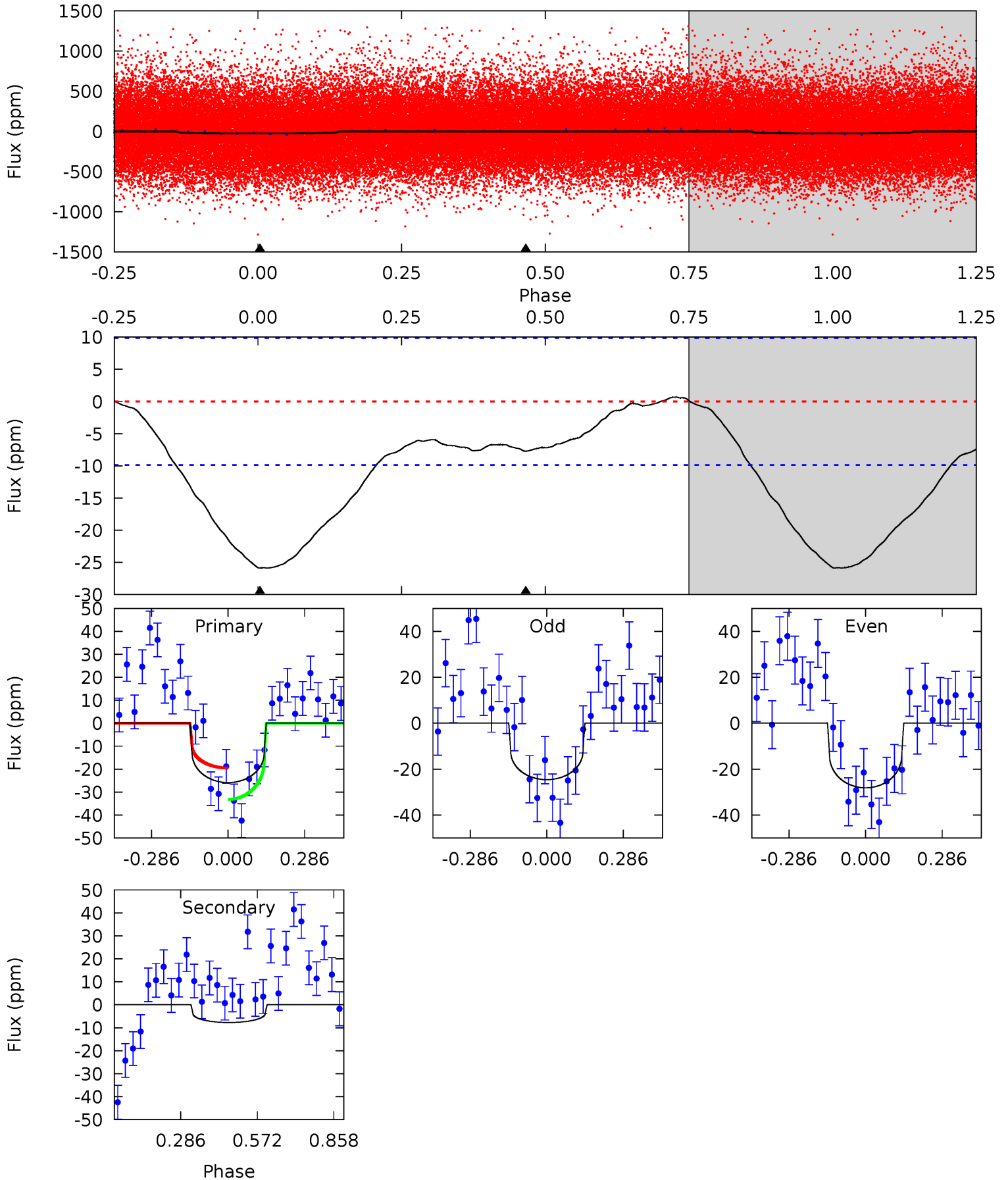
TCE 009226439-01 P= 2.433388 Days $T_0=131.556245$ (BKJD)



DV Model-Shift Uniqueness Test

009226439-01, P = 2.433091 Days, E = 129.151228 Days

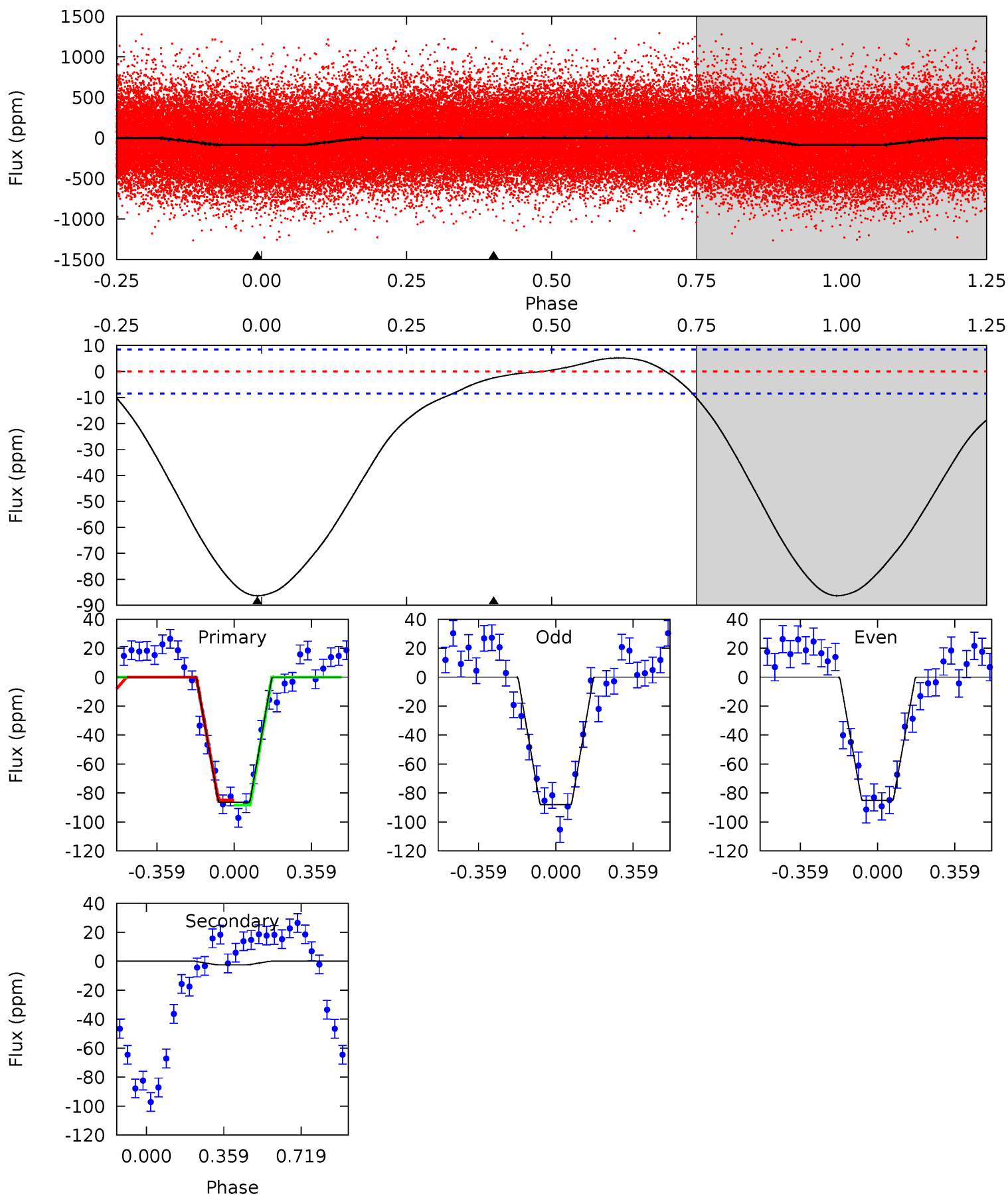
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	3.40	0	0	4.34	1.07	1.23	11.4	11.4	3.40	3.40	0.78	0.89	0.03	3.02



Alt Model-Shift Uniqueness Test

009226439-01, P = 2.433388 Days, E = 129.122857 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
43.5	1.25	0	0	4.29	0.92	2.07	43.5	43.5	1.25	1.25	0.72	1.19	0.06	0.85



Stellar Parameters For KIC 009226439

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6078^{+164}_{-201}	$4.527^{+0.052}_{-0.208}$	$-0.380^{+0.300}_{-0.300}$	$0.884^{+0.273}_{-0.091}$	$0.959^{+0.118}_{-0.118}$	$1.955^{+0.408}_{-0.987}$
	+3%/-3%	+1%/-5%	+79%/-79%	+31%/-10%	+12%/-12%	+21%/-50%
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 009226439-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-8 ± 2	$0.73^{+0.67}_{-0.50}$	1921^{+144}_{-87}	4019^{+2358}_{-821}	$9.435^{+76.510}_{-7.056}$
Alt.	-2 ± 2	$1.05^{+0.82}_{-0.57}$	1921^{+141}_{-100}	2813^{+1040}_{-5136}	$1.183^{+6.070}_{-1.063}$

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 $A_{obs} \gg 1.0$

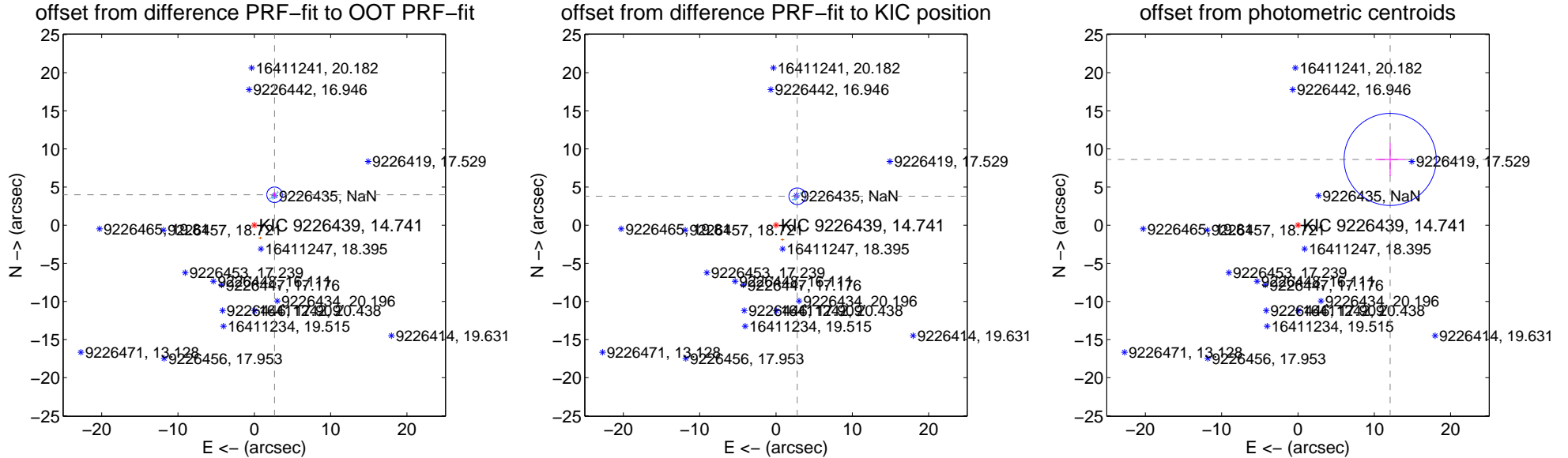
DV Centroid Data

Supplemental centroid analysis for 009226439-01. Kepler magnitude: 14.74. Transit SNR 5.78

There are 16 quarters with good PRF difference image offsets

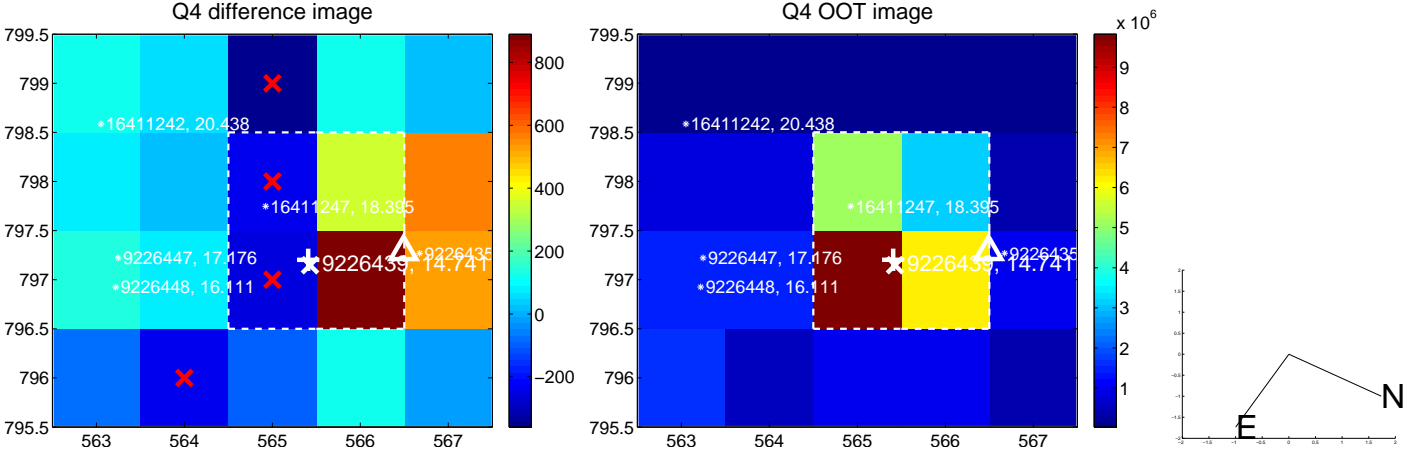
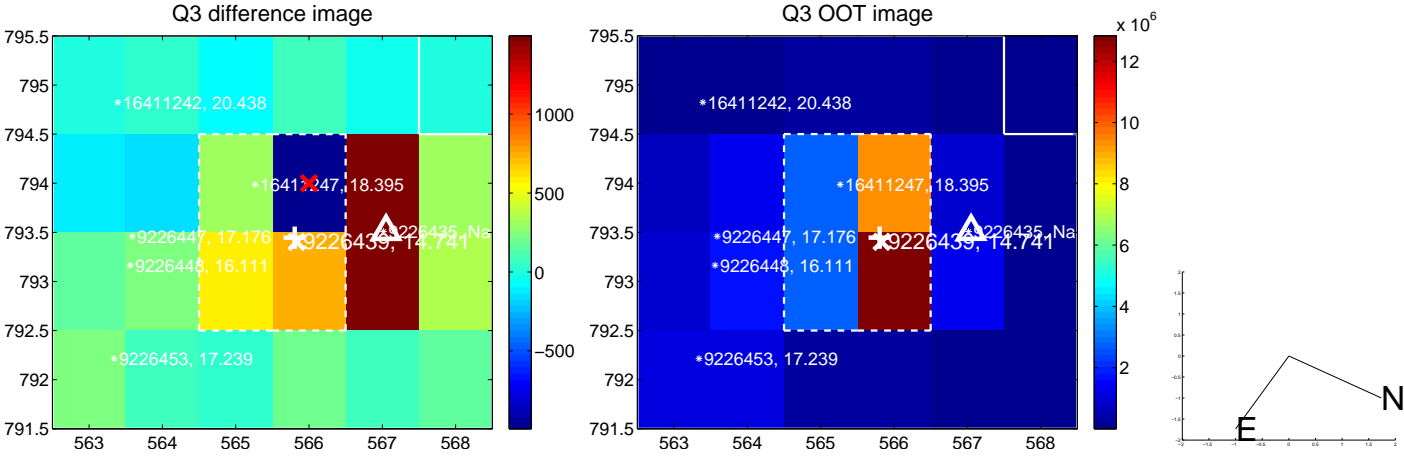
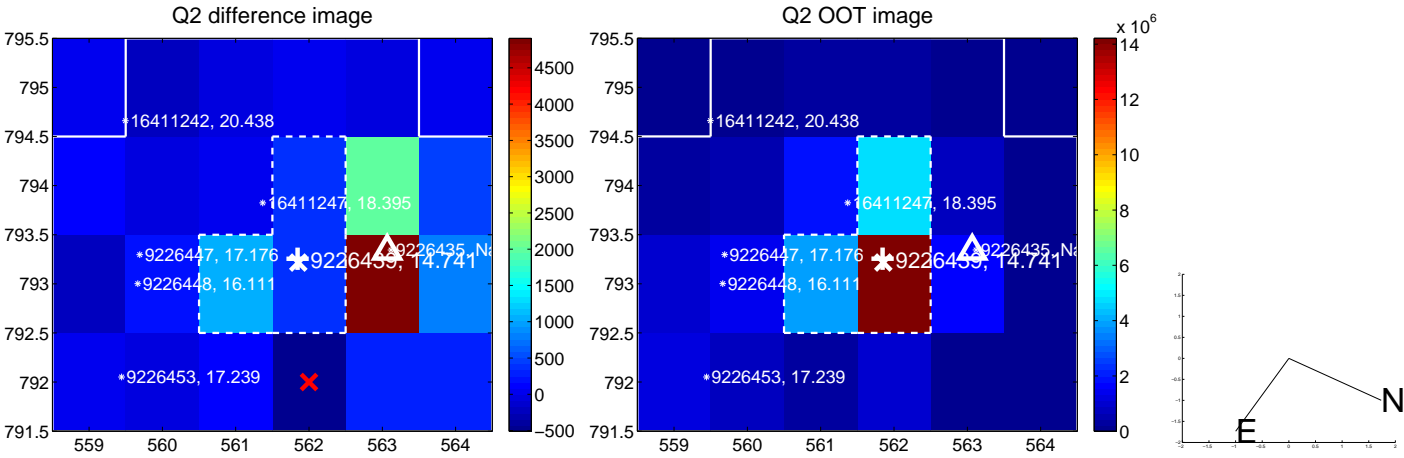
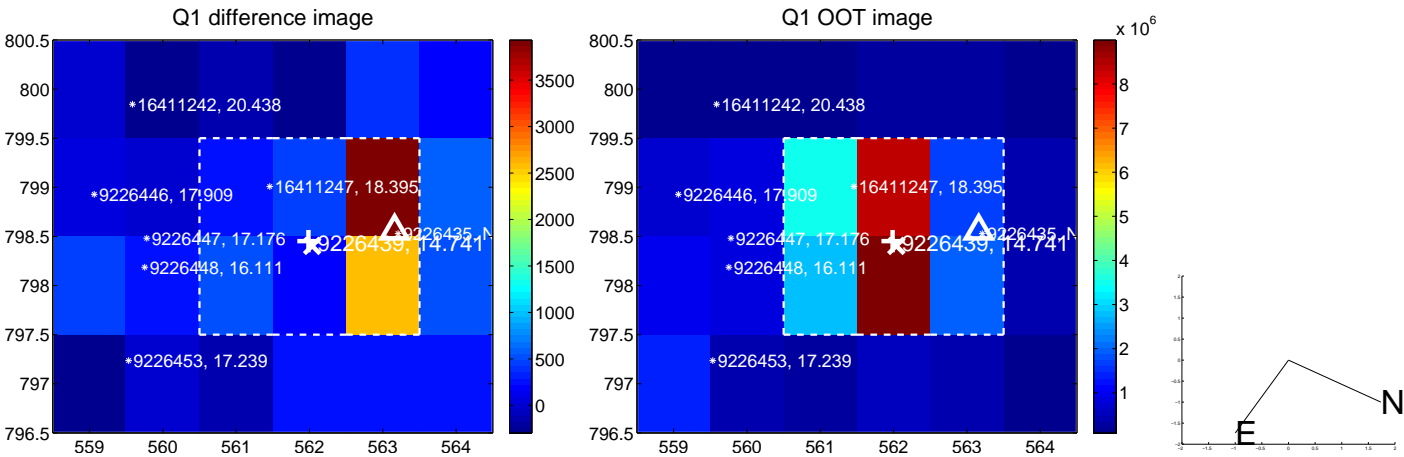
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.793 \pm 0.339	14.13	-2.653 \pm 0.140	3.992 \pm 0.329
PRF-fit source offset from KIC position	4.707 \pm 0.364	12.95	-2.783 \pm 0.146	3.796 \pm 0.359
photometric centroid source offset	14.85 \pm 2.01	7.37	-12.08 \pm 1.93	8.63 \pm 2.17

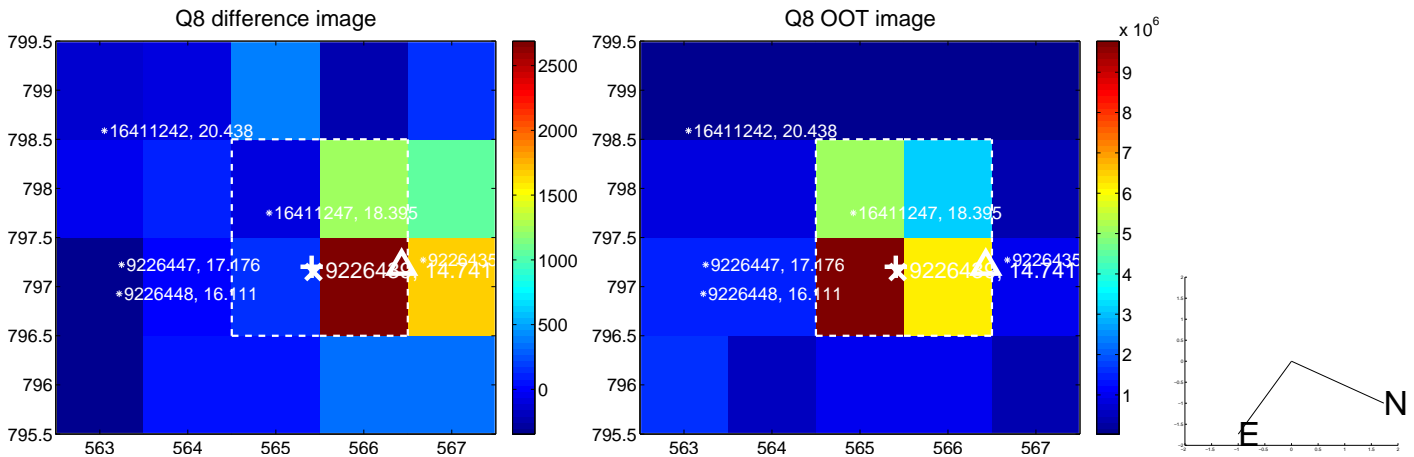
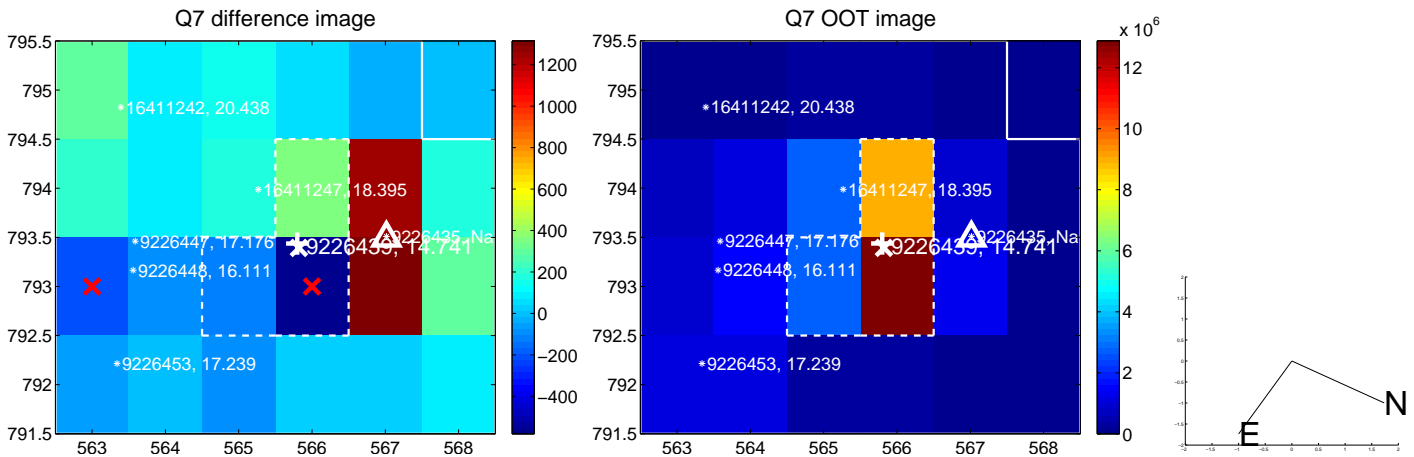
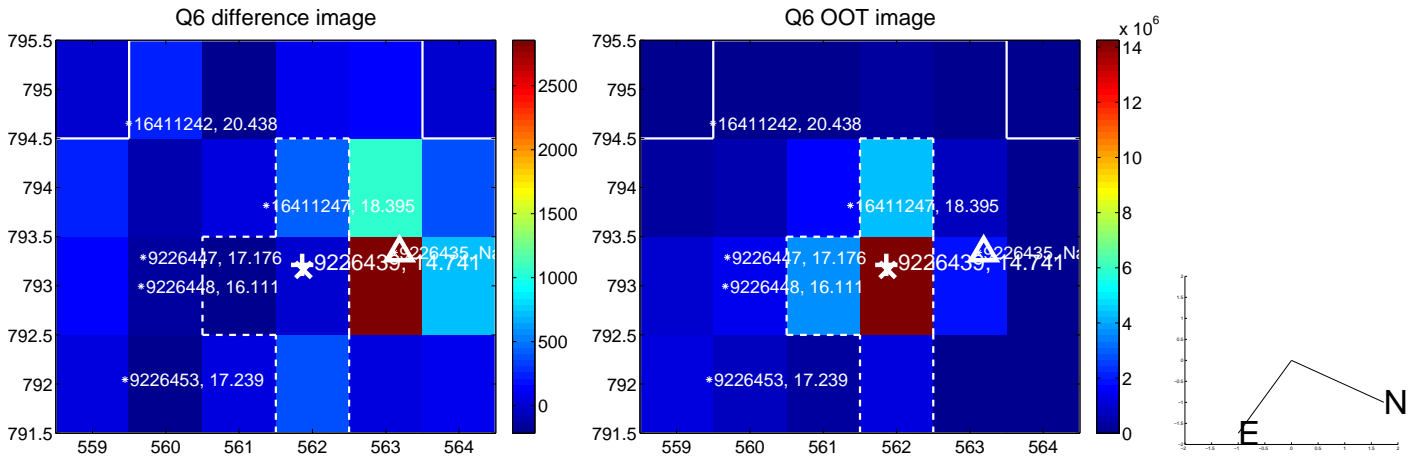
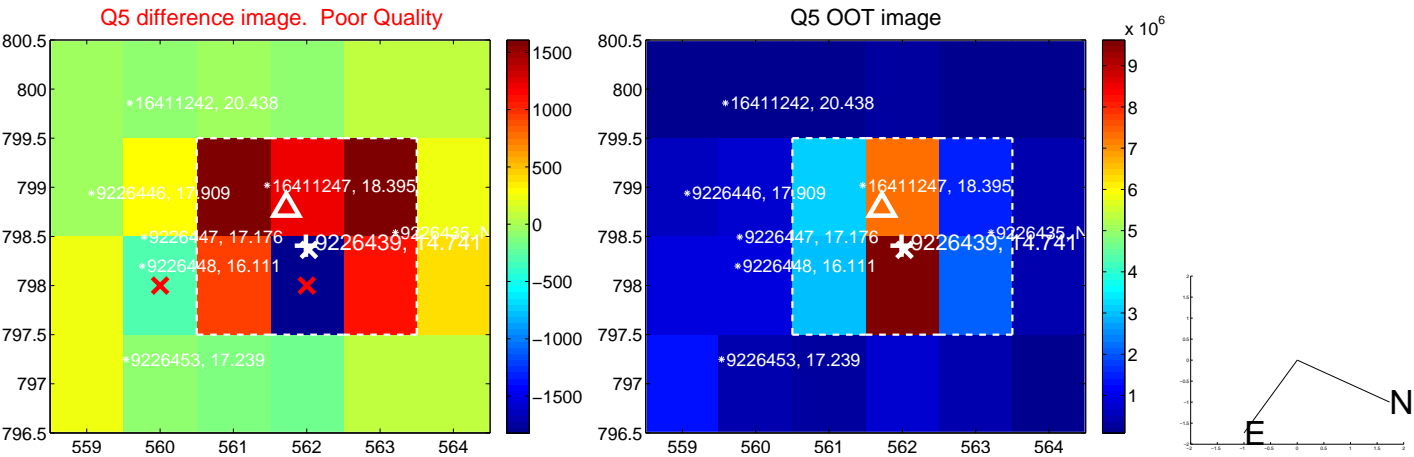


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

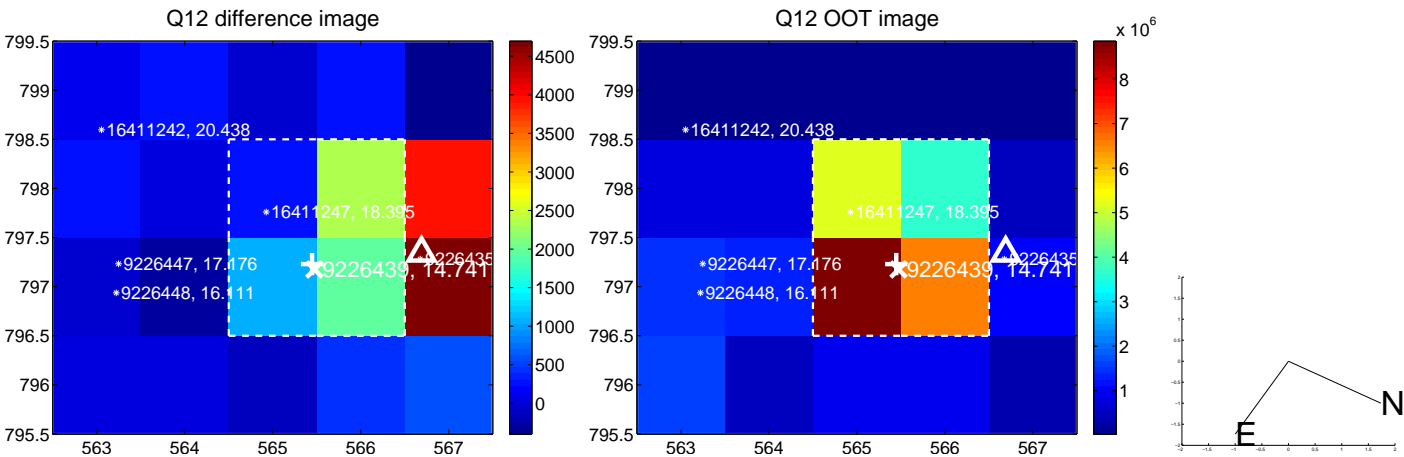
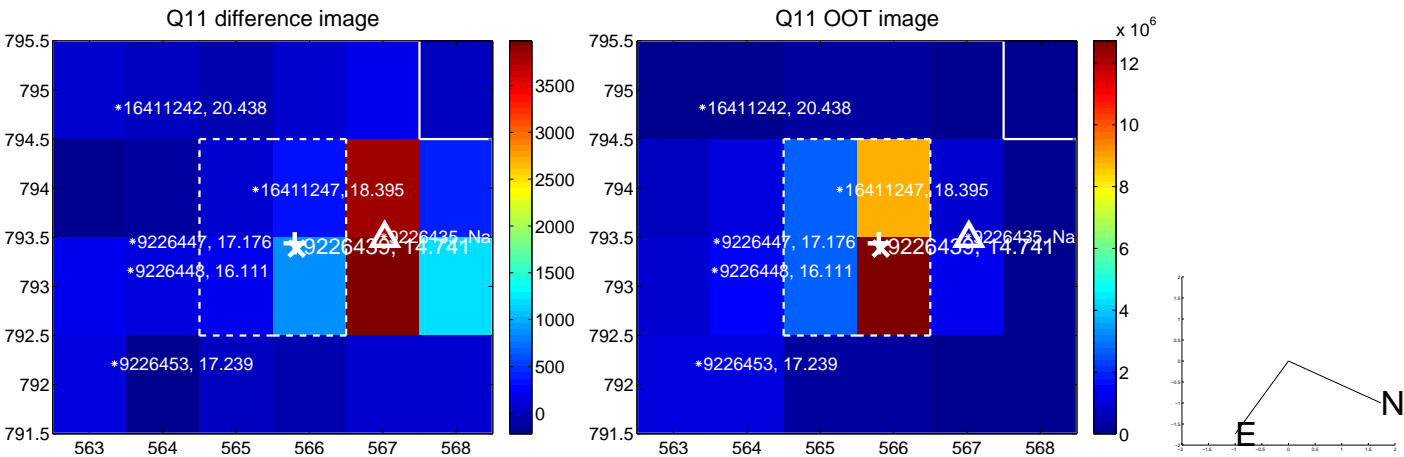
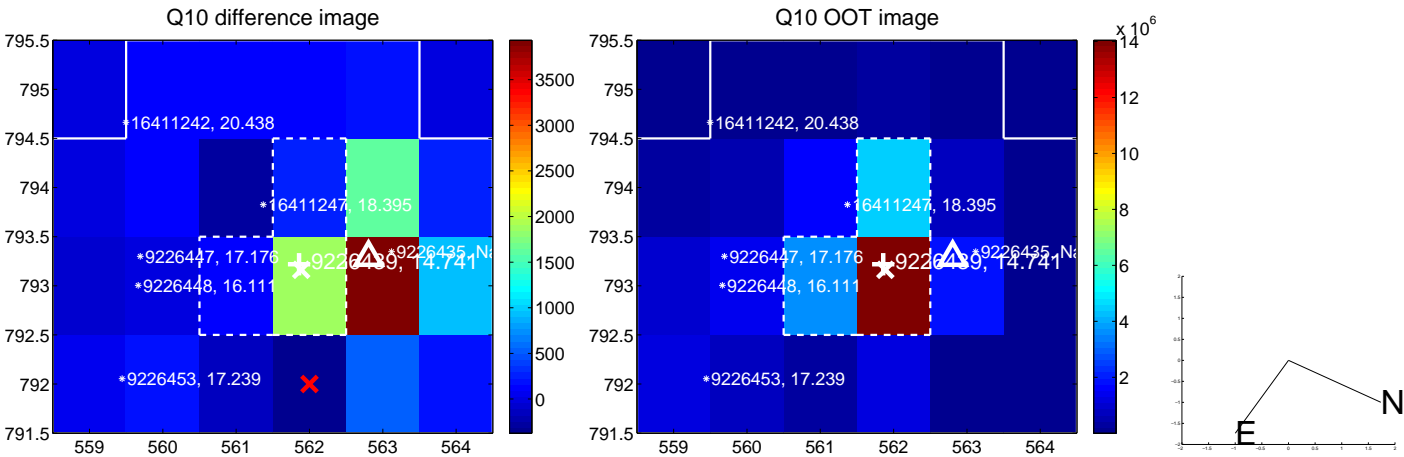
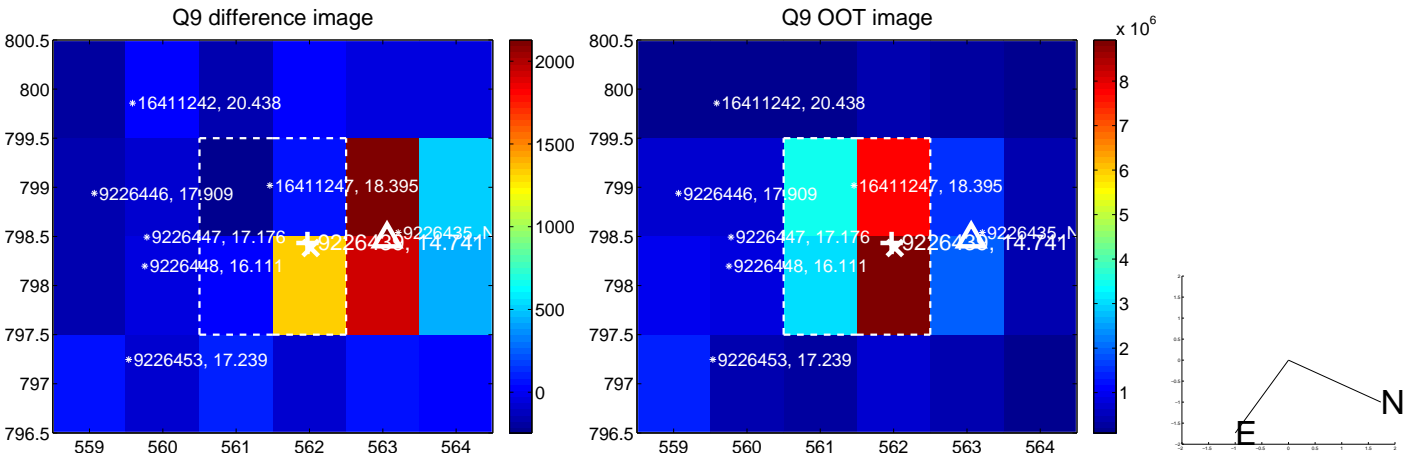
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



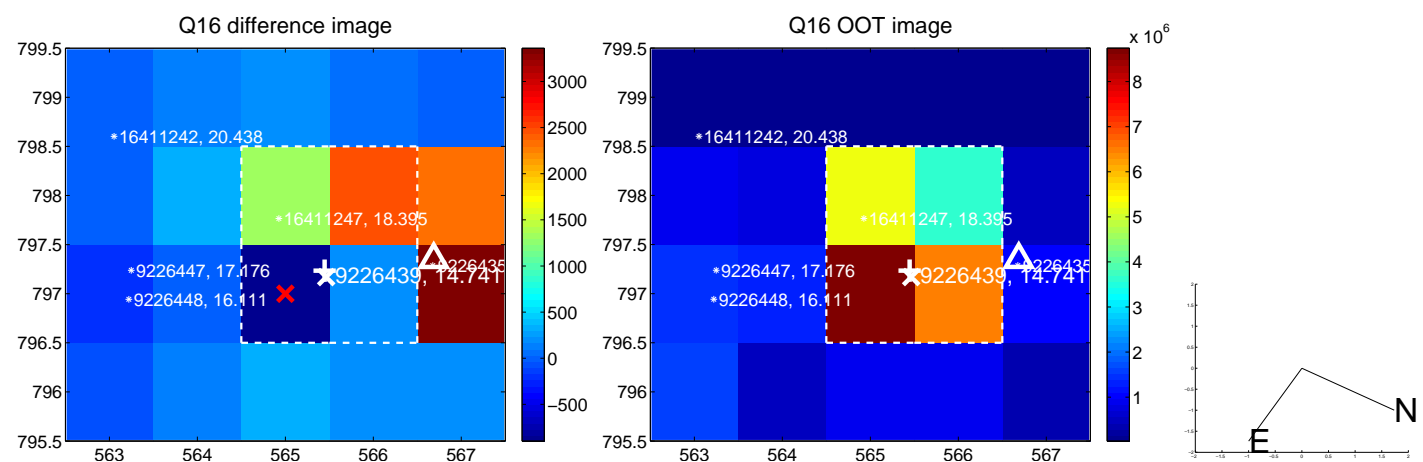
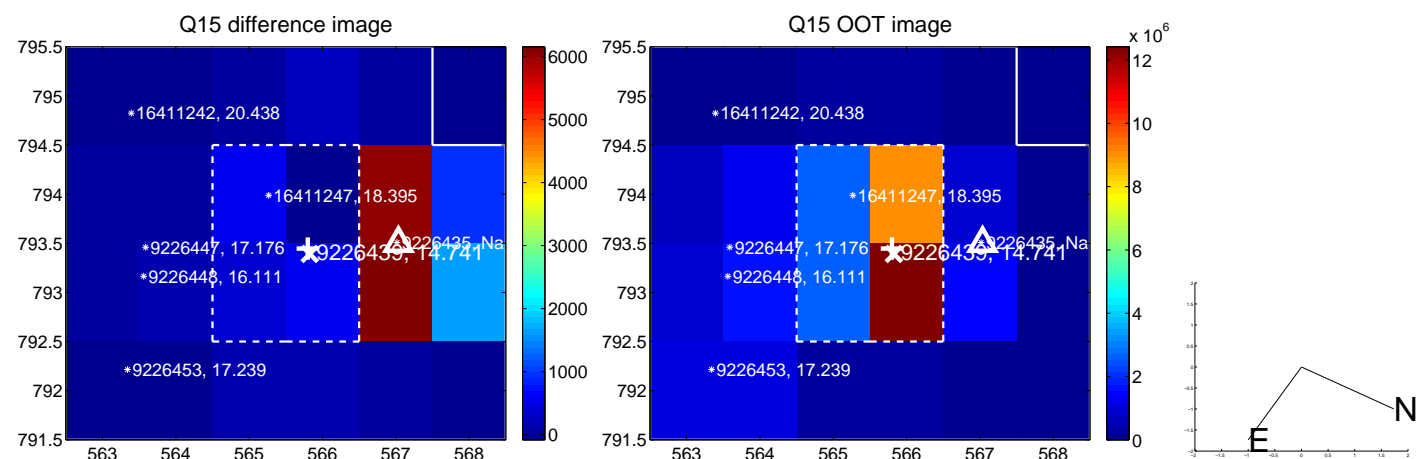
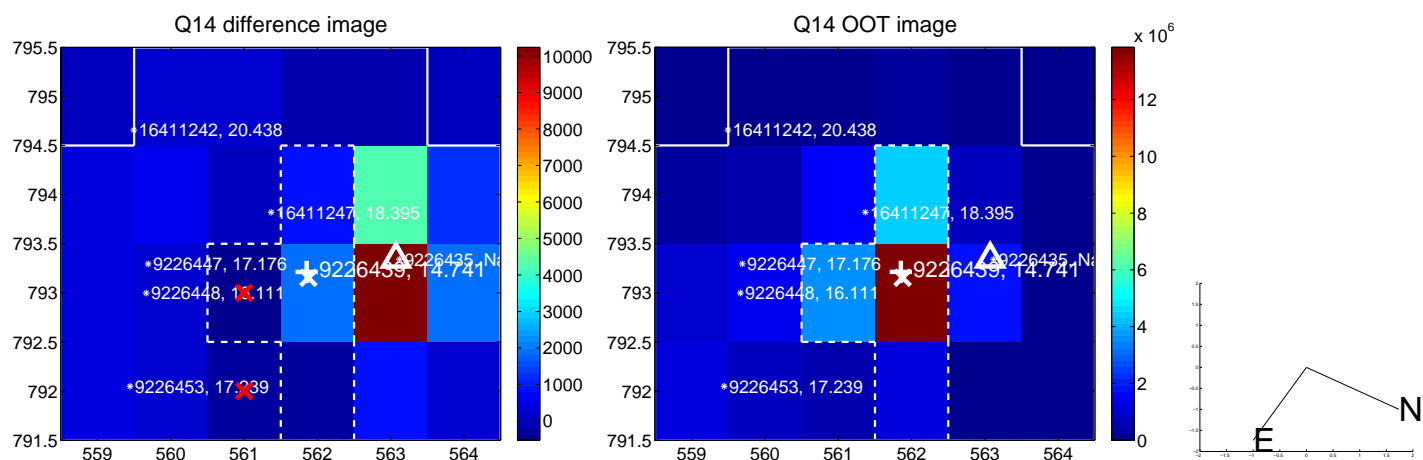
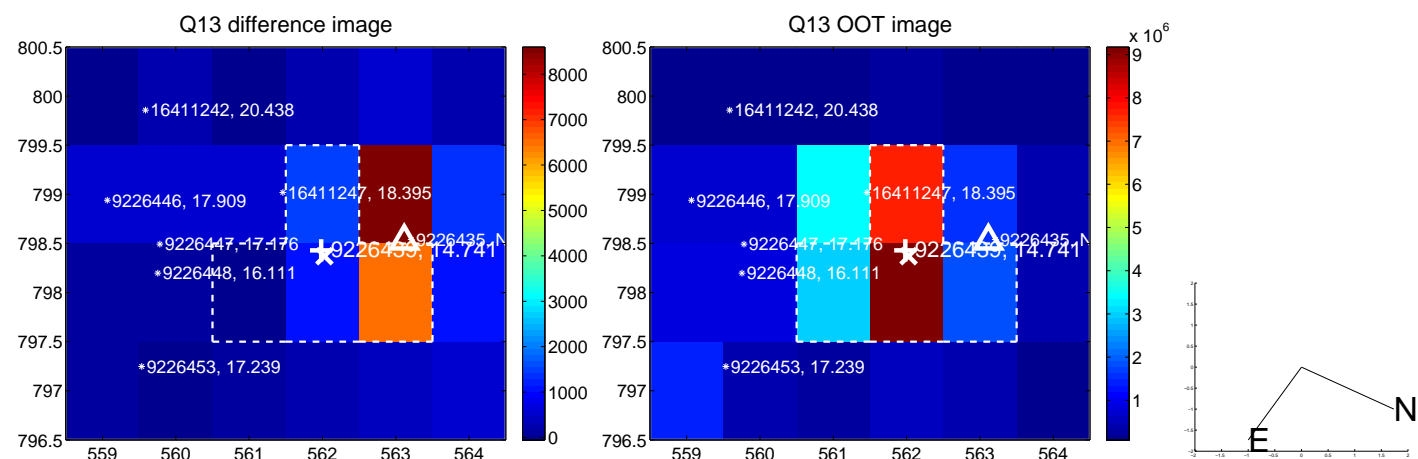
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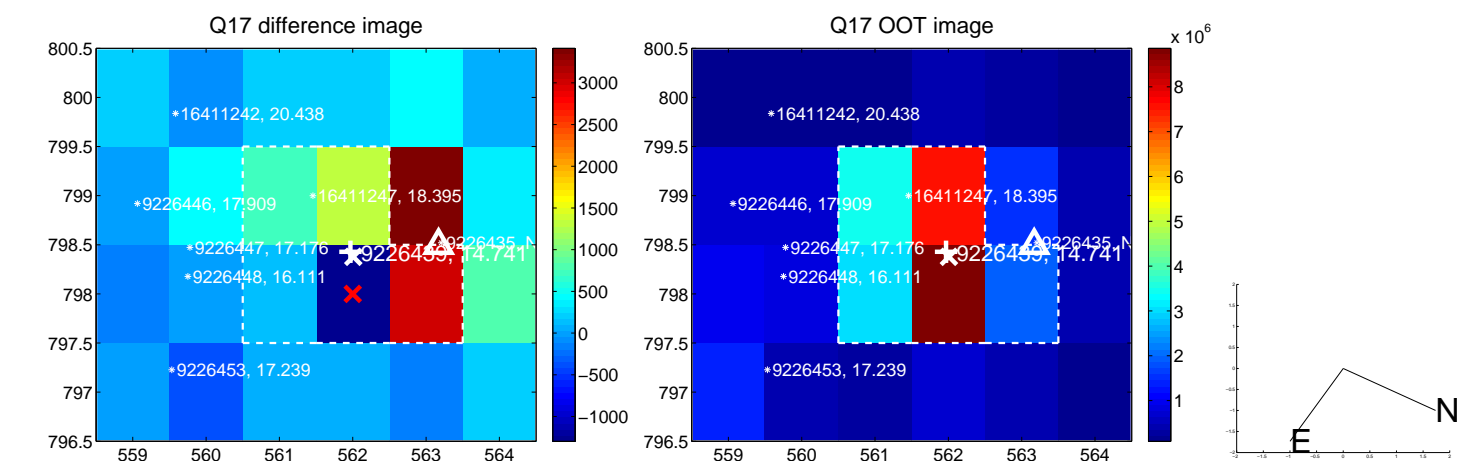
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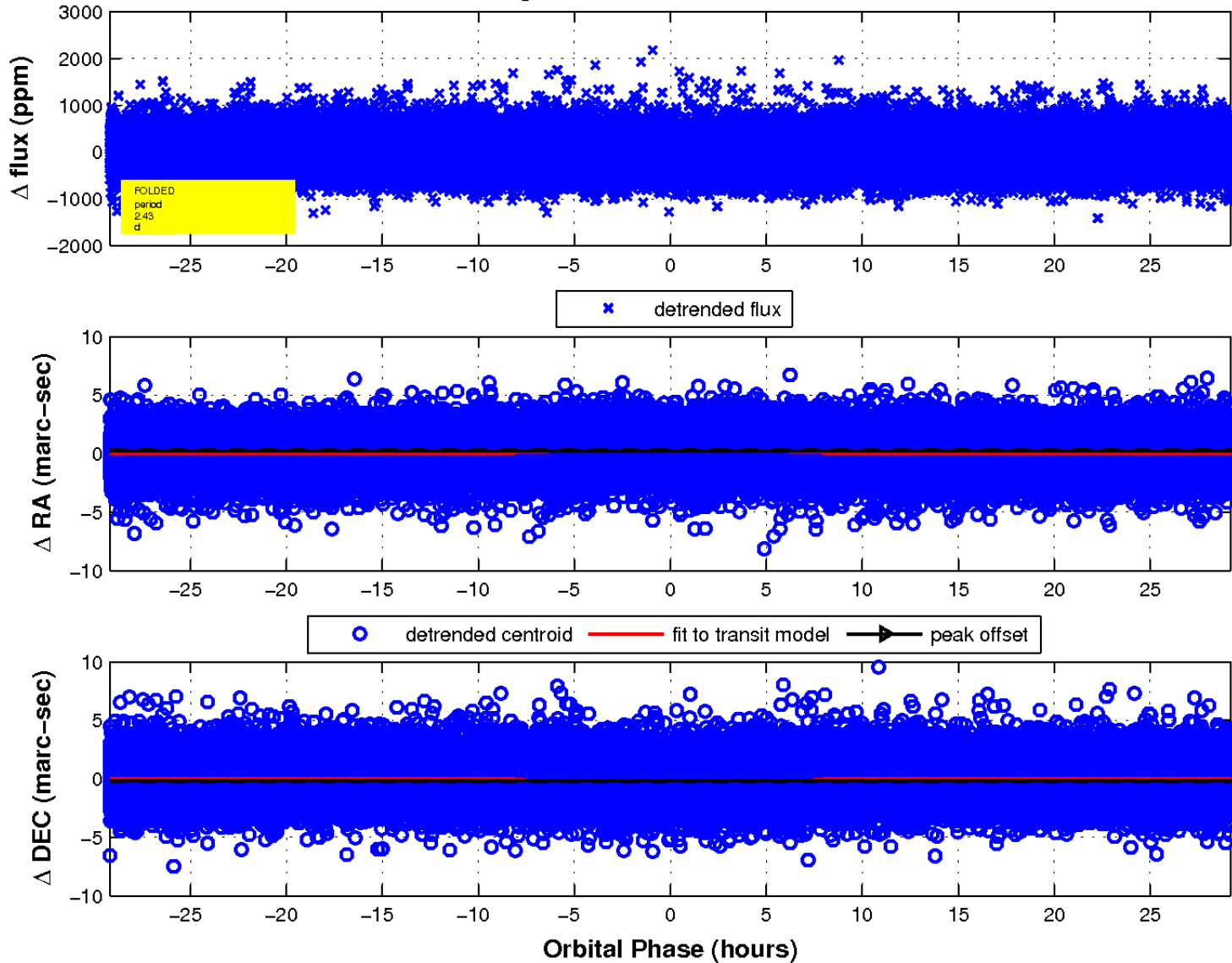
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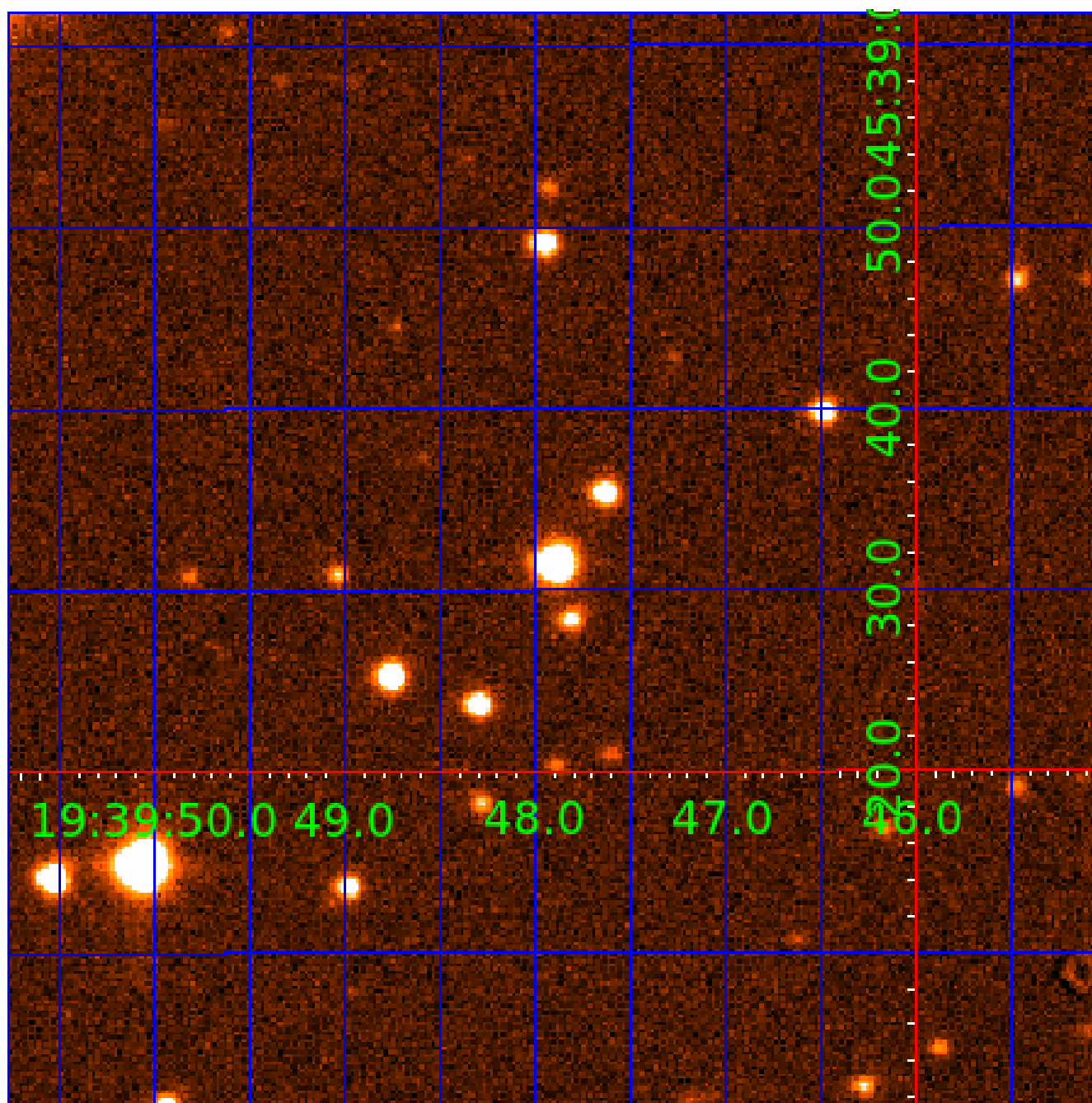


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination



KIC 009226439

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})
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009226439-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
009226439-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
009226439-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_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.

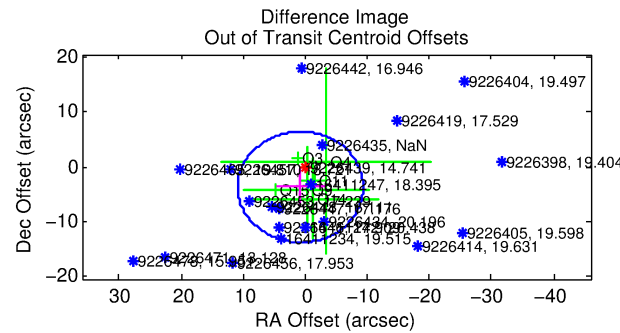
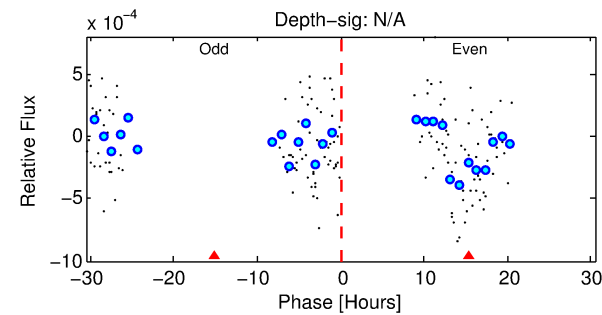
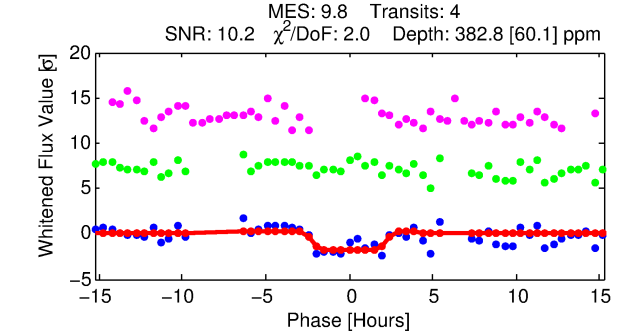
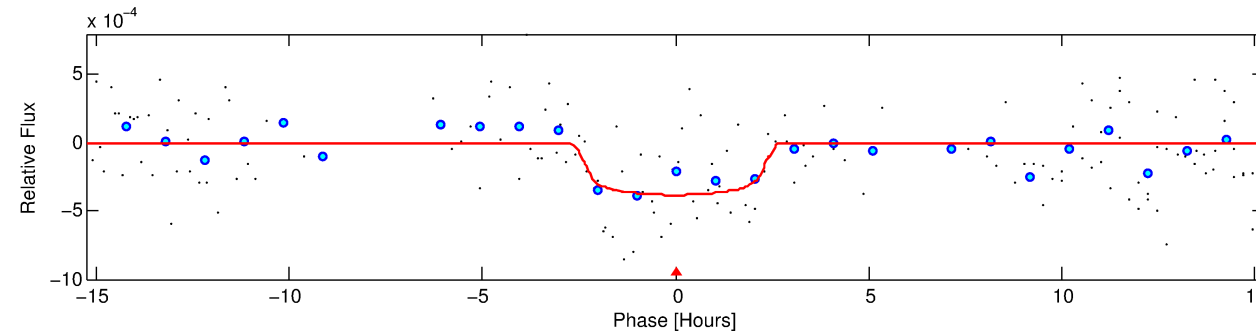
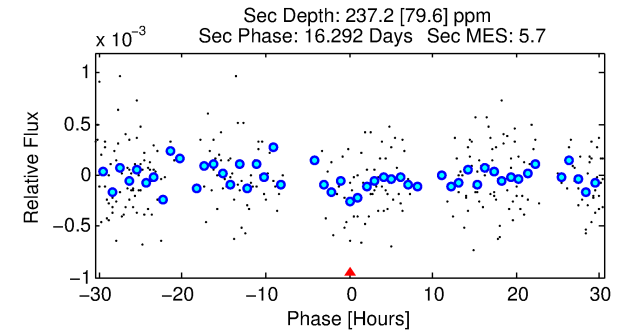
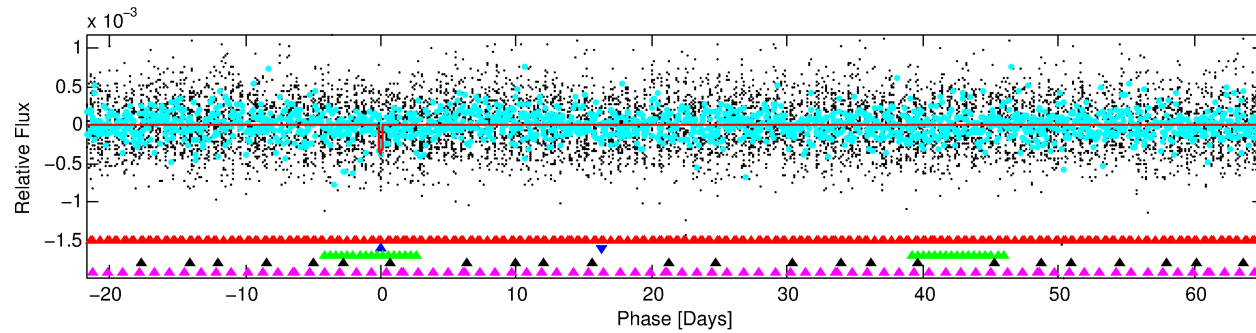
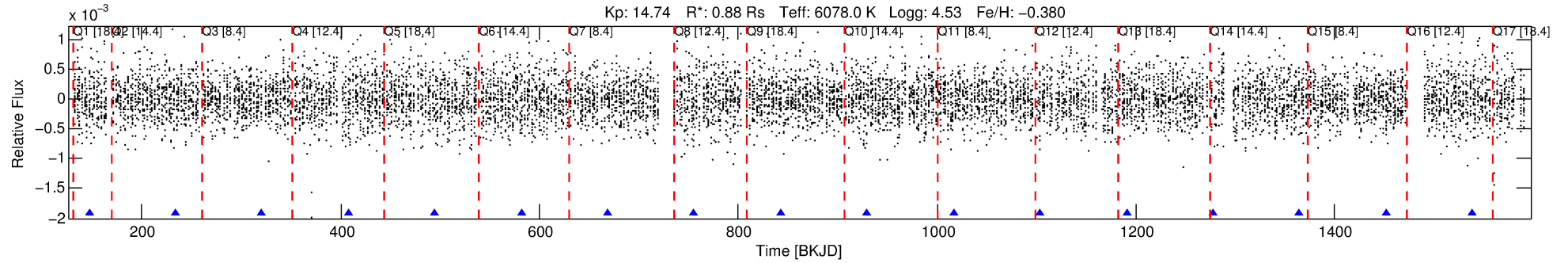
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009226439-02

No Significant Match Found

DV One-Page Summary

KIC: 9226439 Candidate: 2 of 5 Period: 86.973 d



DV Fit Results:

Period = 86.97282 [0.00187] d
Epoch = 146.9108 [0.0214] BKJD
Rp/R* = 0.0203 [0.0144]
a/R* = 74.64 [272.25]
b = 0.85 [1.25]
Seff = 6.65 [2.68]
Teq = 410 [41] K
Rp = 1.96 [1.51] Re
a = 0.3790 [0.0987] AU
Ag = 4900.22 [7372.17] [0.66σ]
Teffp = 5298 [1936] K [2.52σ]

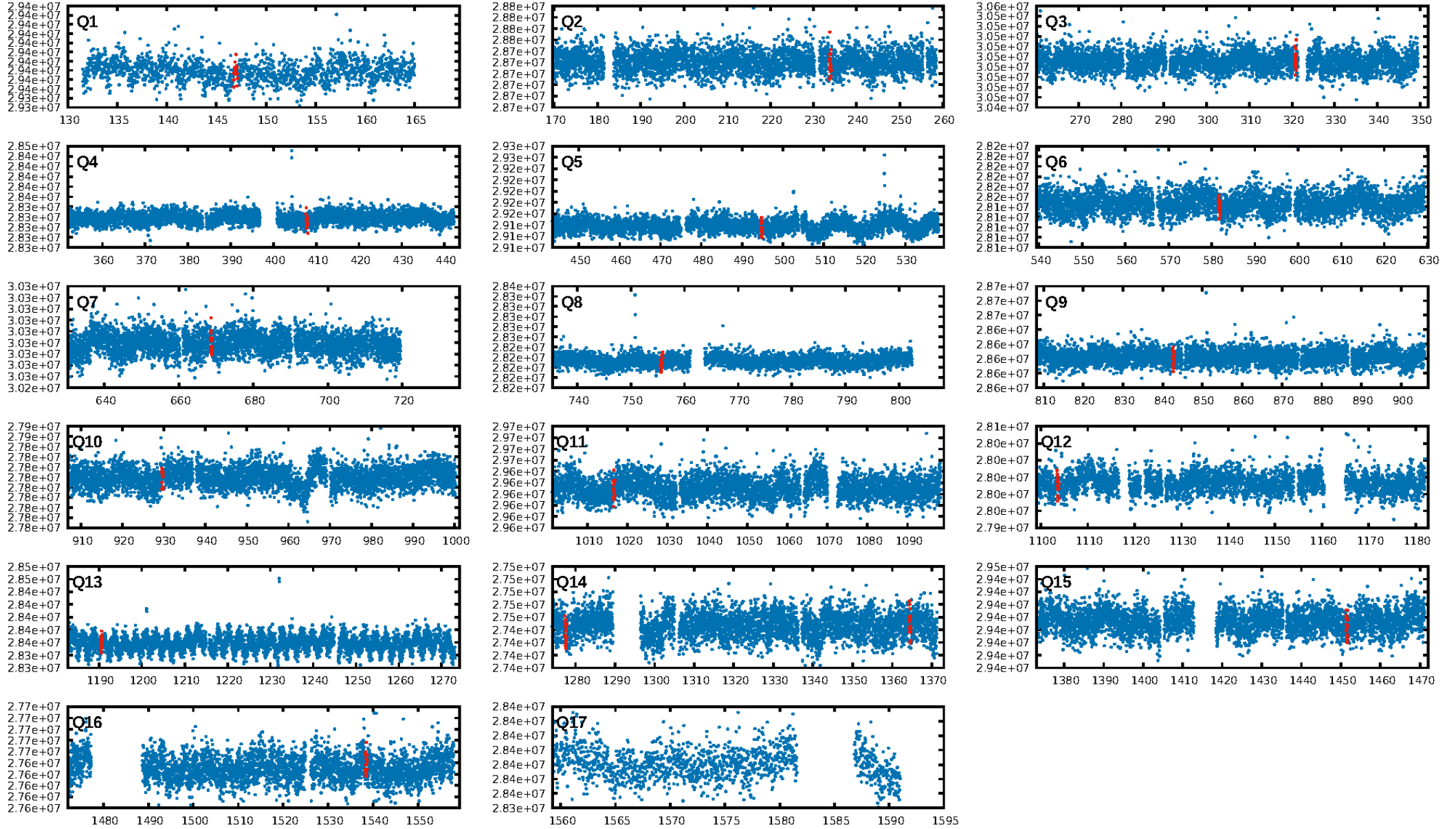
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [82.46σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.7%
ModelChiSquareGof-sig: 12.9%
Bootstrap-pfa: 4.39e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.11
Centroid-sig: 34.6%
Centroid-so: 1.031 arcsec [1.03σ]
OotOffset-rm: 3.814 arcsec [1.13σ]
KicOffset-rm: 3.989 arcsec [1.19σ]
OotOffset-st: 1/3/1/1 [6]
KicOffset-st: 1/3/1/1 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.20 [3/15]

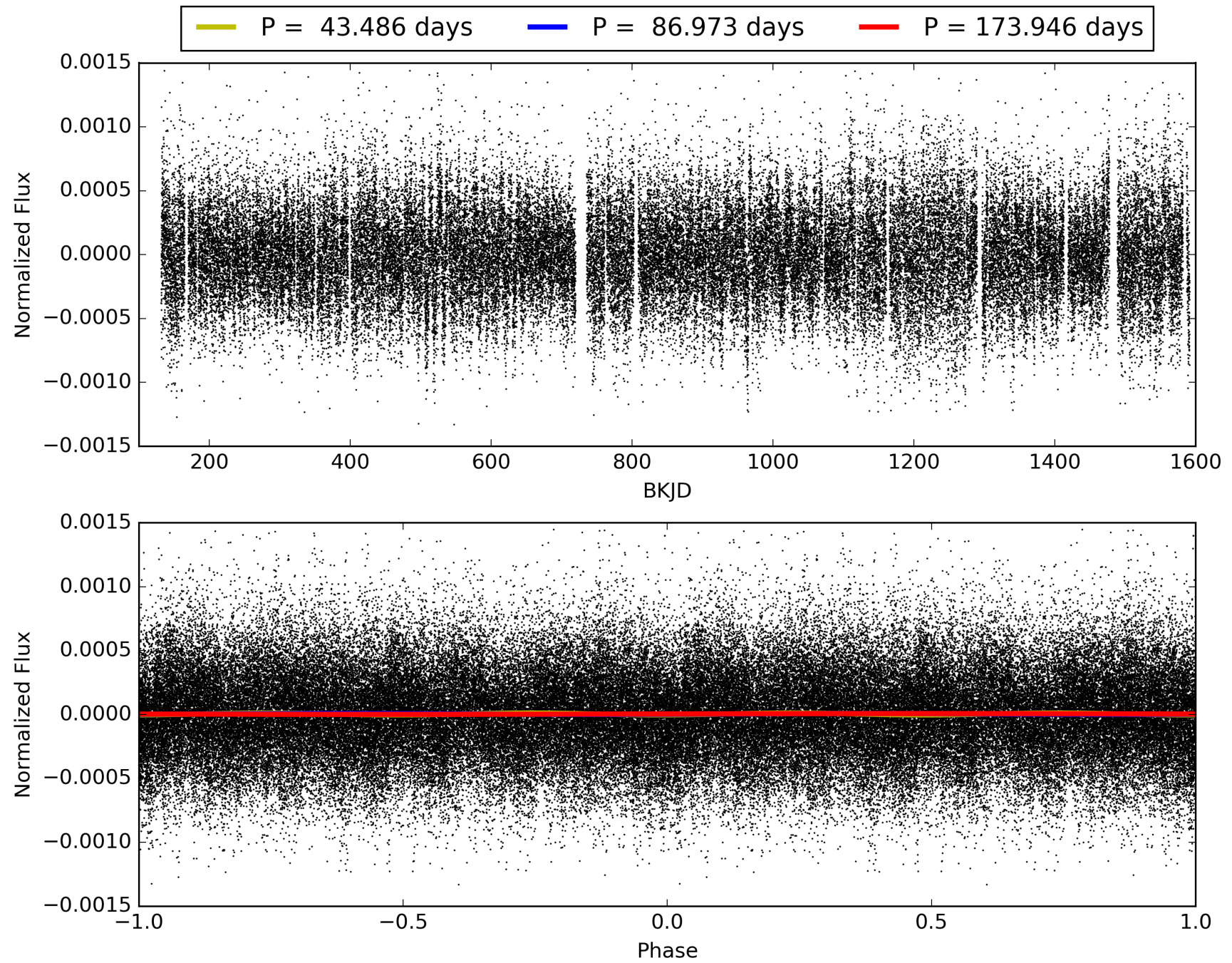
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009226439-02, PDC Light Curves

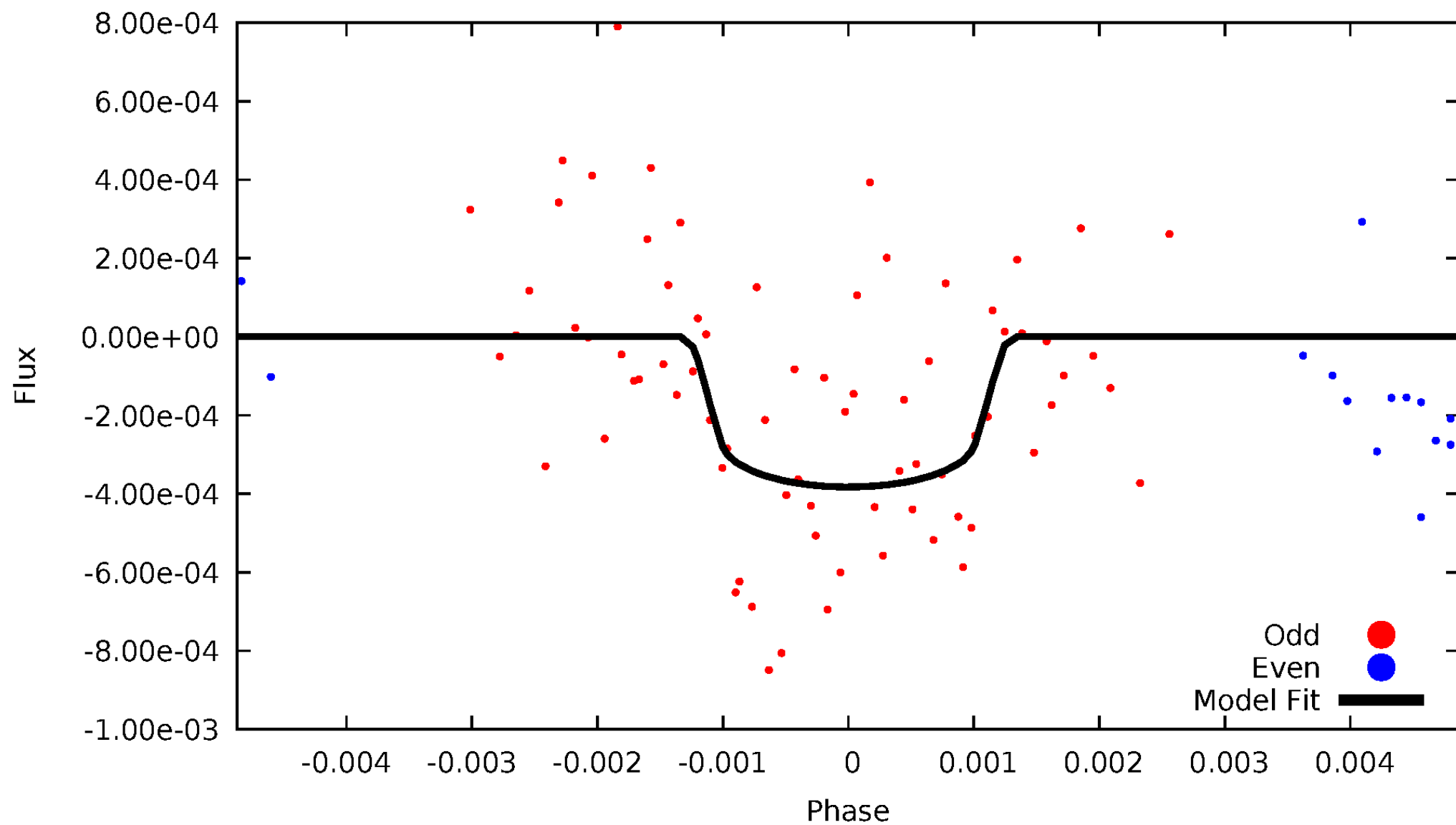


TCE 009226439-02



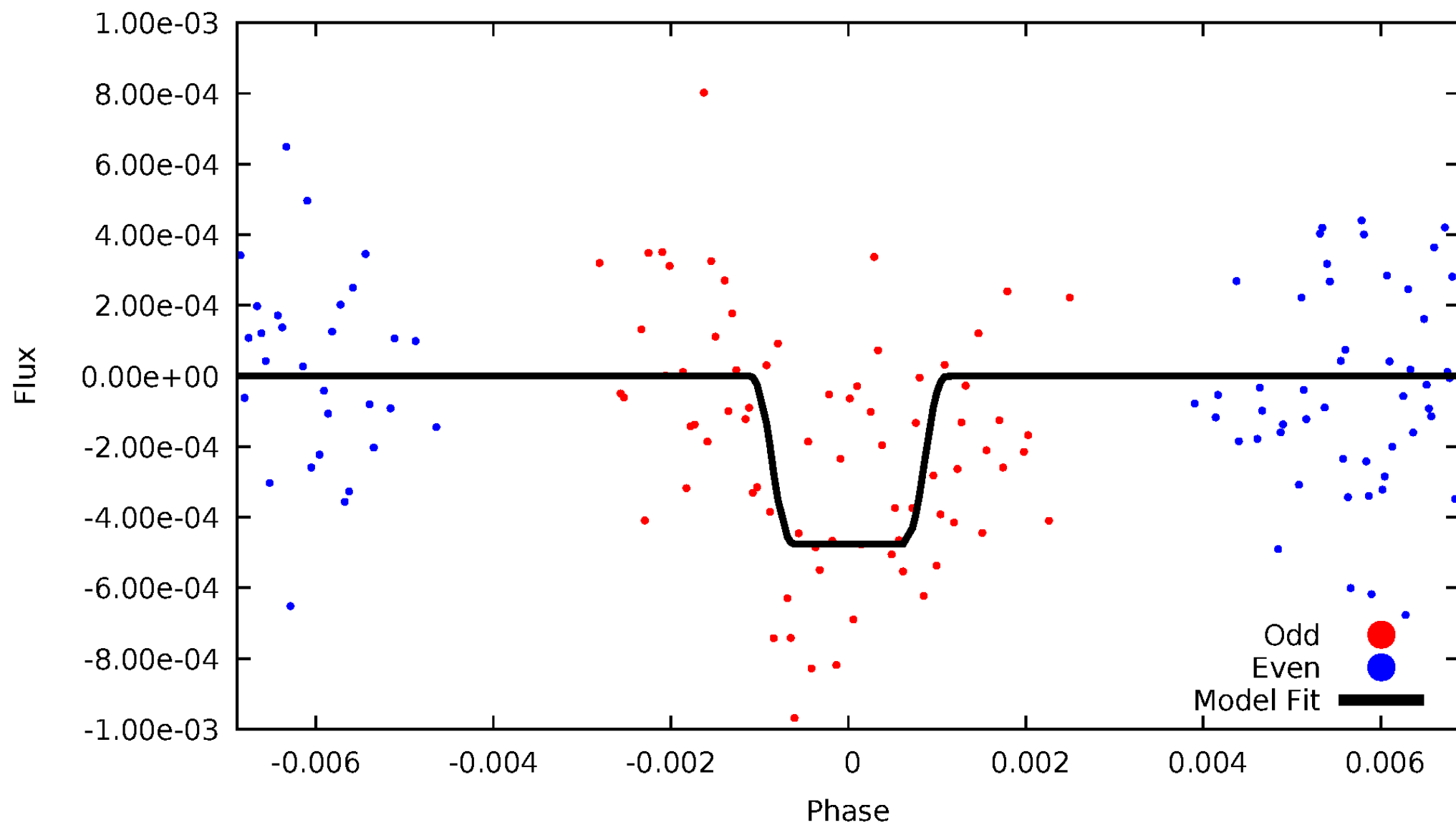
DV Odd/Even

TCE 009226439-02



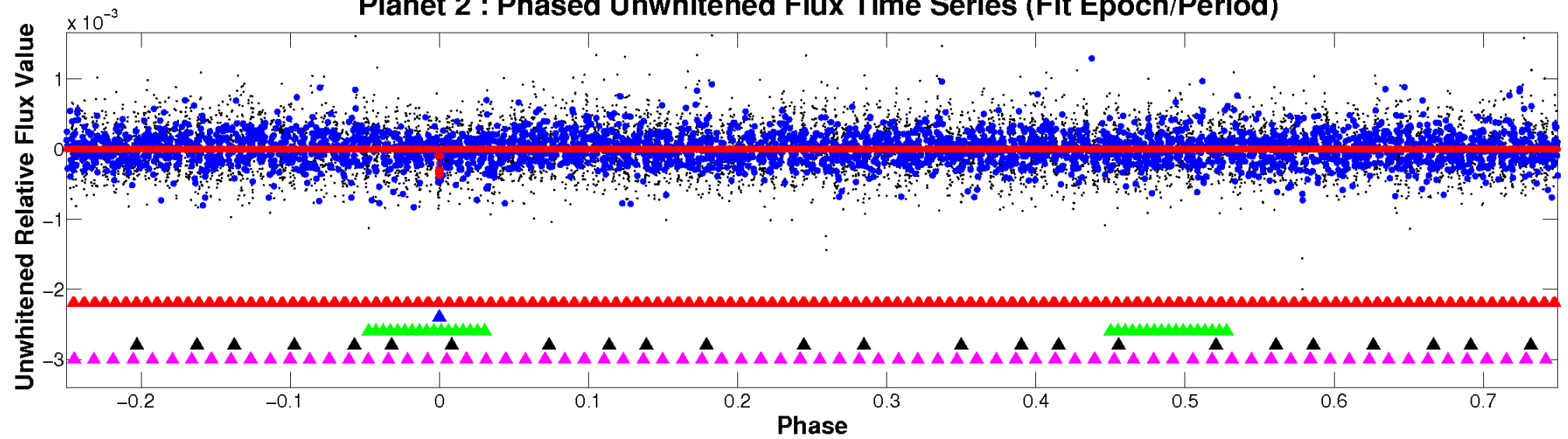
ALT Odd/Even

TCE 009226439-02

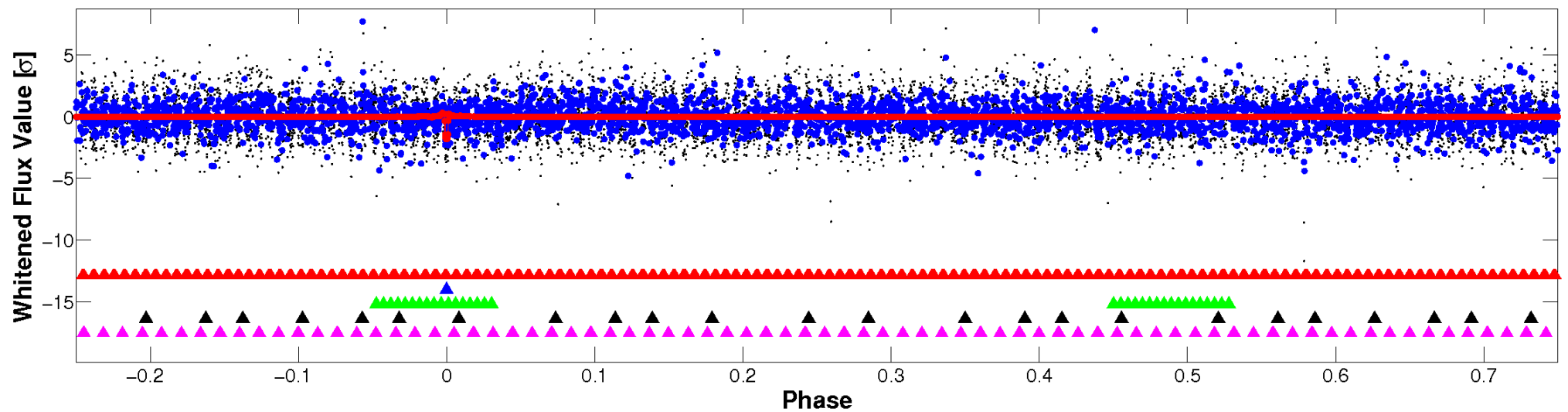


Non-Whitened Vs. Whitened Light Curve

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

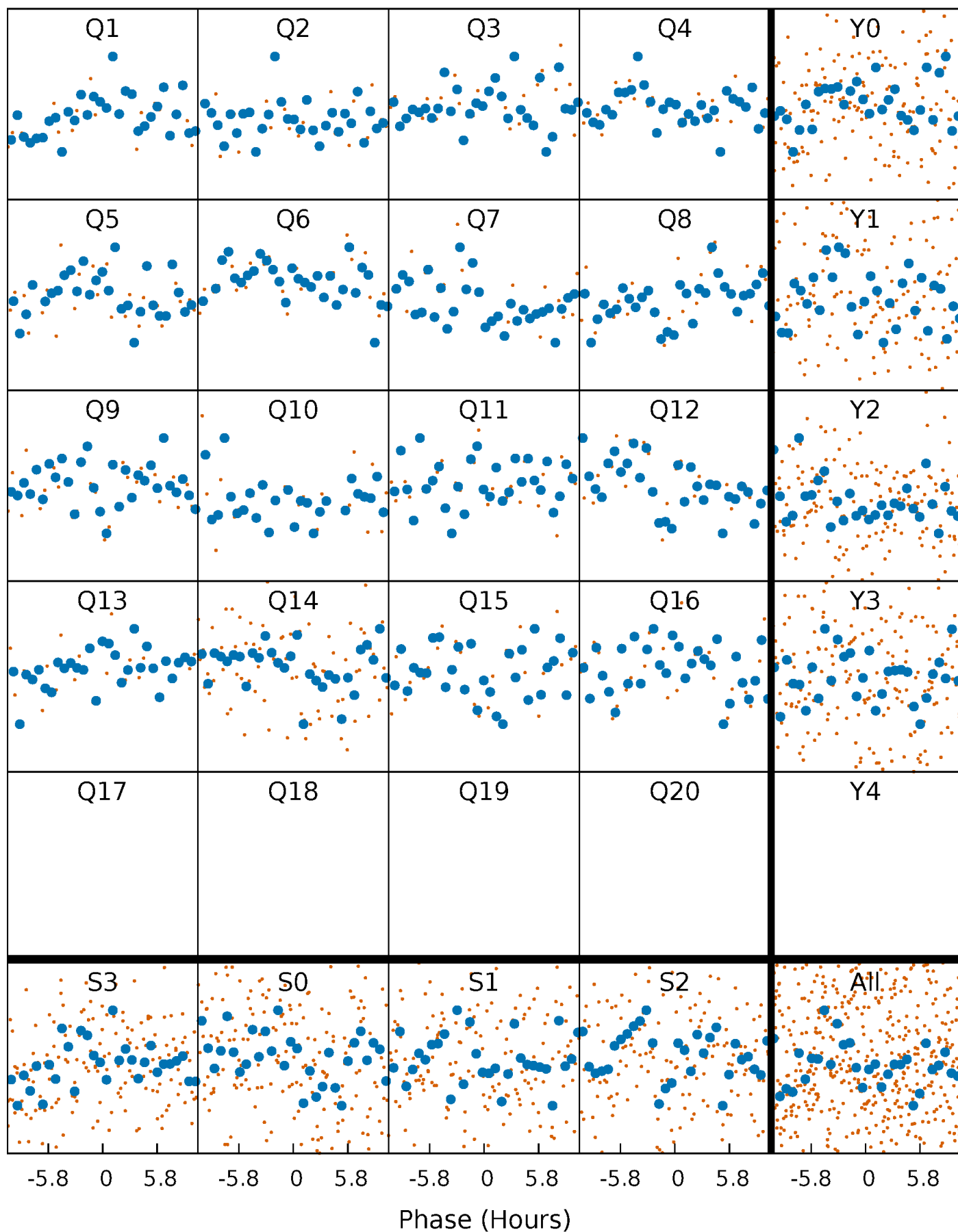


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



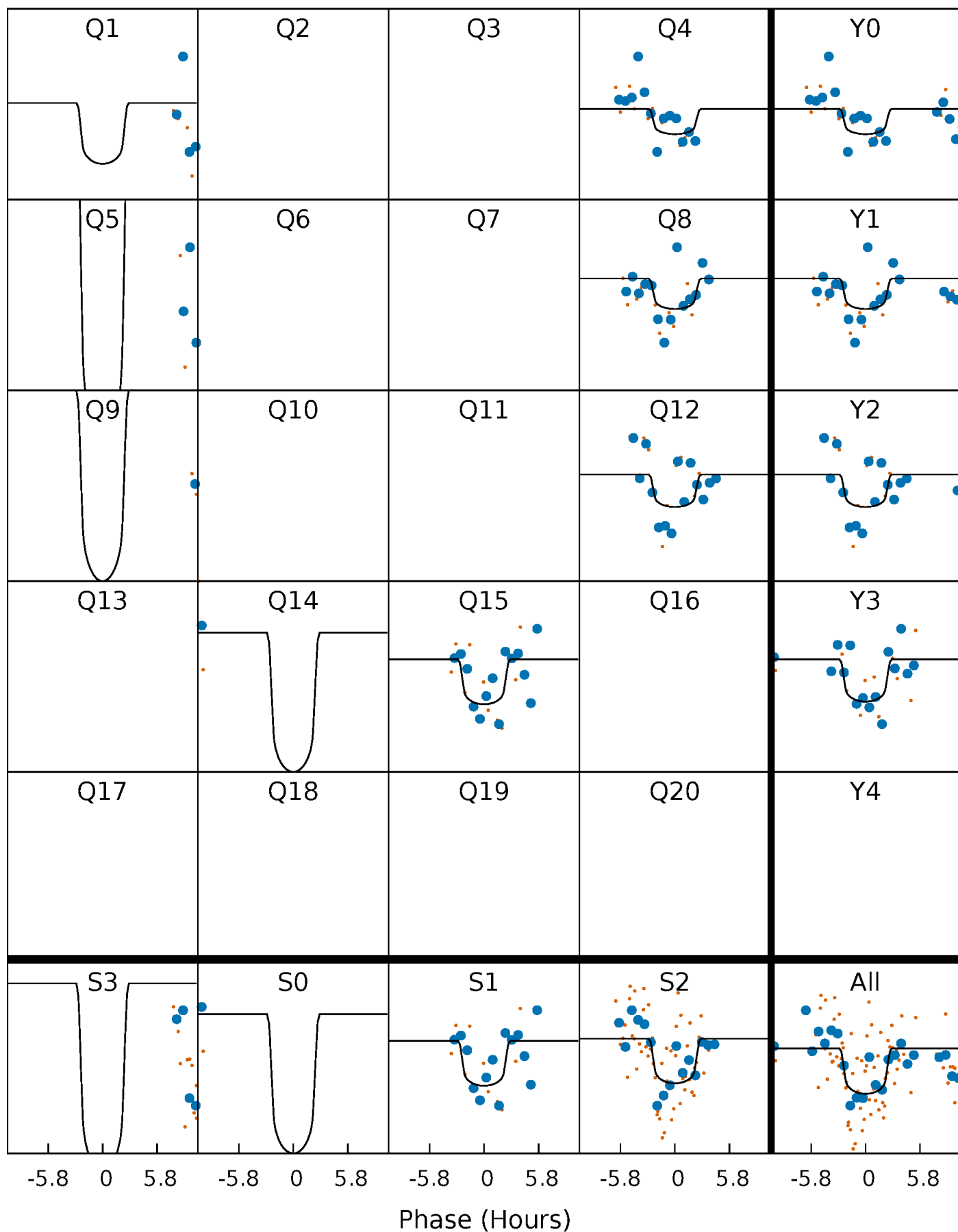
PDC Quarter-Phased Transit Curves

TCE 009226439-02 P= 86.972820 Days $T_0=146.910788$ (BKJD)



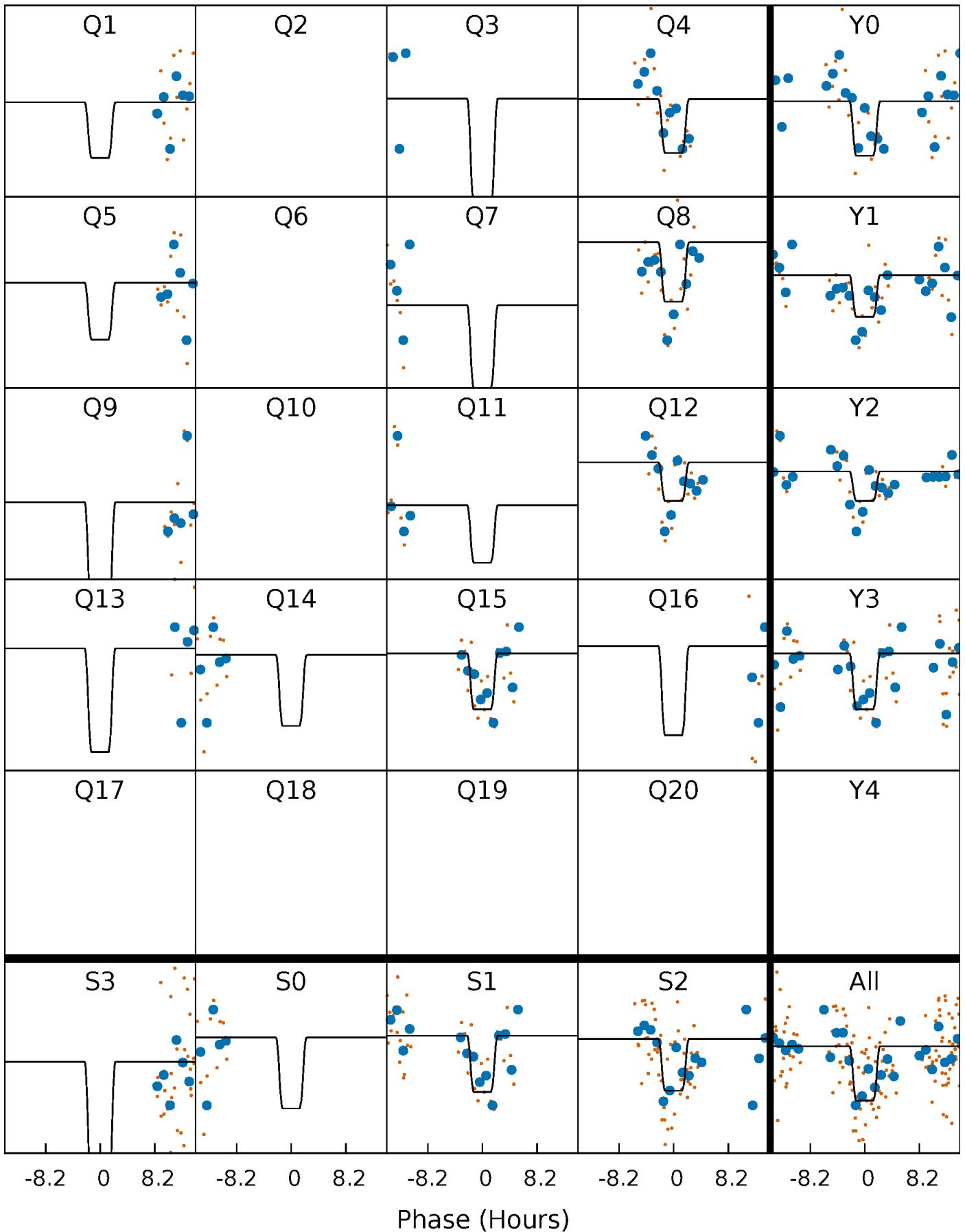
DV Quarter-Phased Transit Curves

TCE 009226439-02 P= 86.972820 Days $T_0=146.910788$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

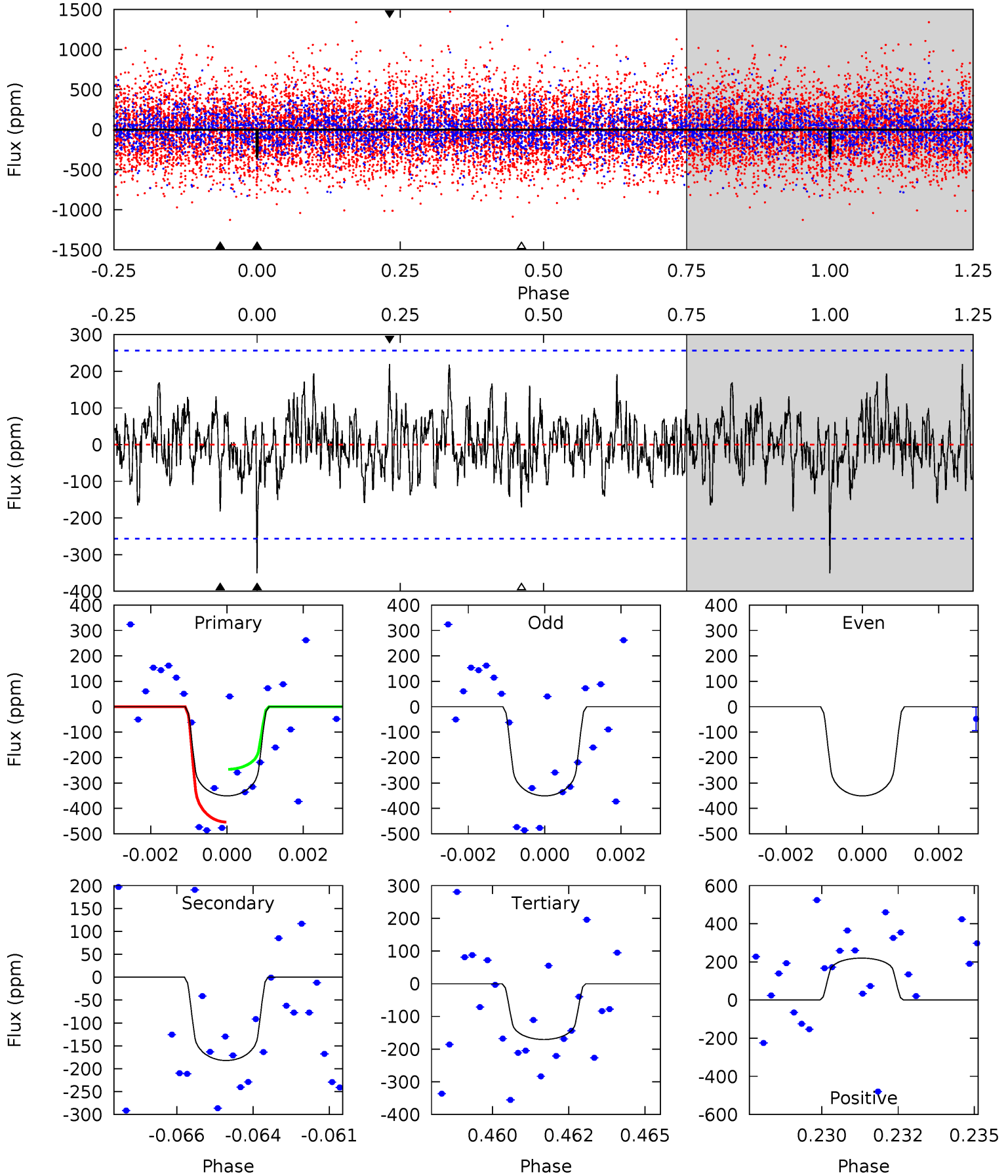
TCE 009226439-02 P= 86.974803 Days $T_0=146.886528$ (BKJD)



DV Model-Shift Uniqueness Test

009226439-02, P = 86.972820 Days, E = 59.937968 Days

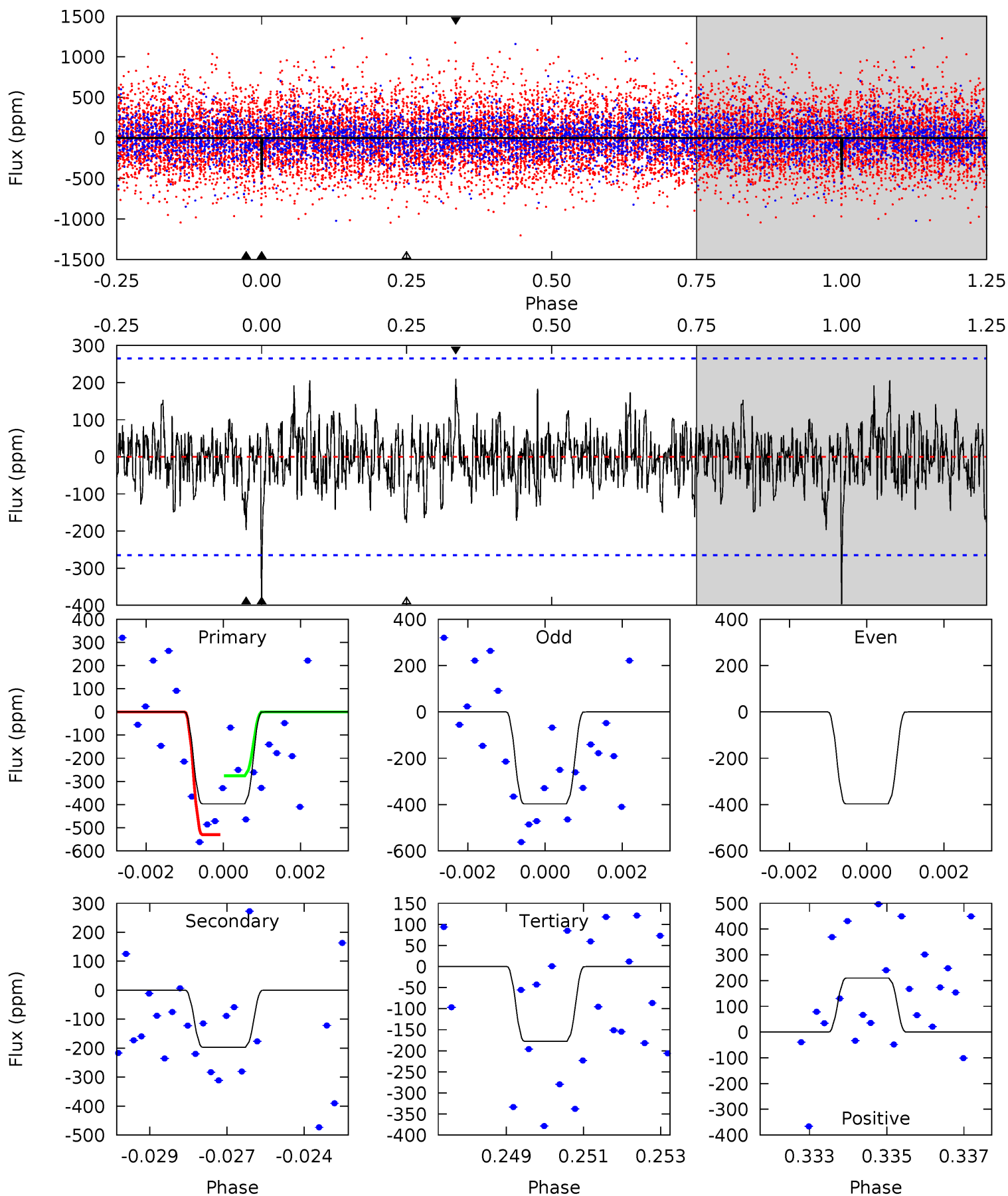
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.23	3.75	3.52	4.53	5.29	3.03	1.26	3.71	2.70	0.24	-0.78	0	1.02	0.39	2.15



Alt Model-Shift Uniqueness Test

009226439-02, P = 86.974803 Days, E = 59.911725 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.95	3.95	3.56	4.20	5.31	3.06	1.14	4.39	3.75	0.40	-0.25	0	0.93	0.35	2.54



Stellar Parameters For KIC 009226439

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6078^{+164}_{-201}	$4.527^{+0.052}_{-0.208}$	$-0.380^{+0.300}_{-0.300}$	$0.884^{+0.273}_{-0.091}$	$0.959^{+0.118}_{-0.118}$	$1.955^{+0.408}_{-0.987}$
	+3%/-3%	+1%/-5%	+79%/-79%	+31%/-10%	+12%/-12%	+21%/-50%
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 009226439-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-182 ± 49	$2.23^{+1.40}_{-1.24}$	583^{+45}_{-28}	4865^{+2358}_{-872}	2815^{+11212}_{-1830}
Alt.	-197 ± 50	$2.29^{+1.29}_{-1.30}$	585^{+42}_{-29}	4872^{+2310}_{-813}	2812^{+11725}_{-1725}

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

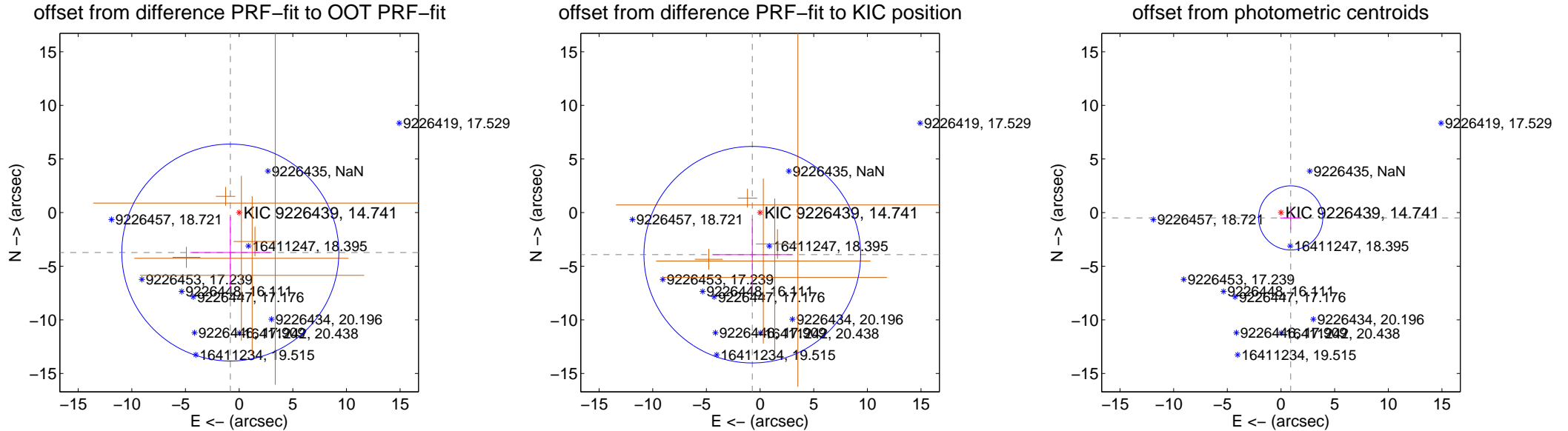
DV Centroid Data

Supplemental centroid analysis for 009226439-02. Kepler magnitude: 14.74. Transit SNR 10.16

There are 0 quarters with good PRF difference image offsets

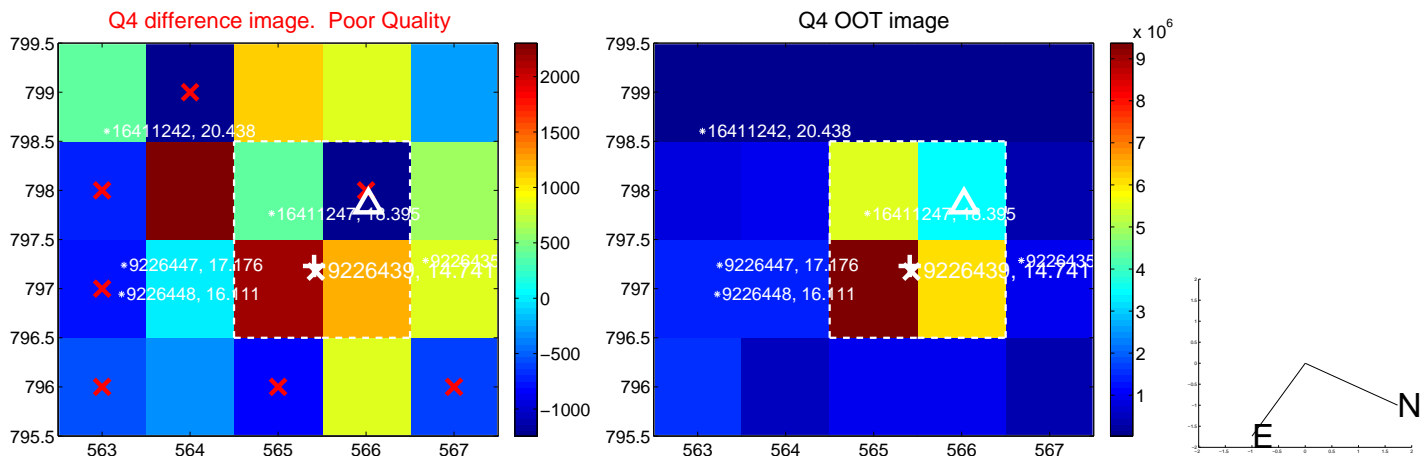
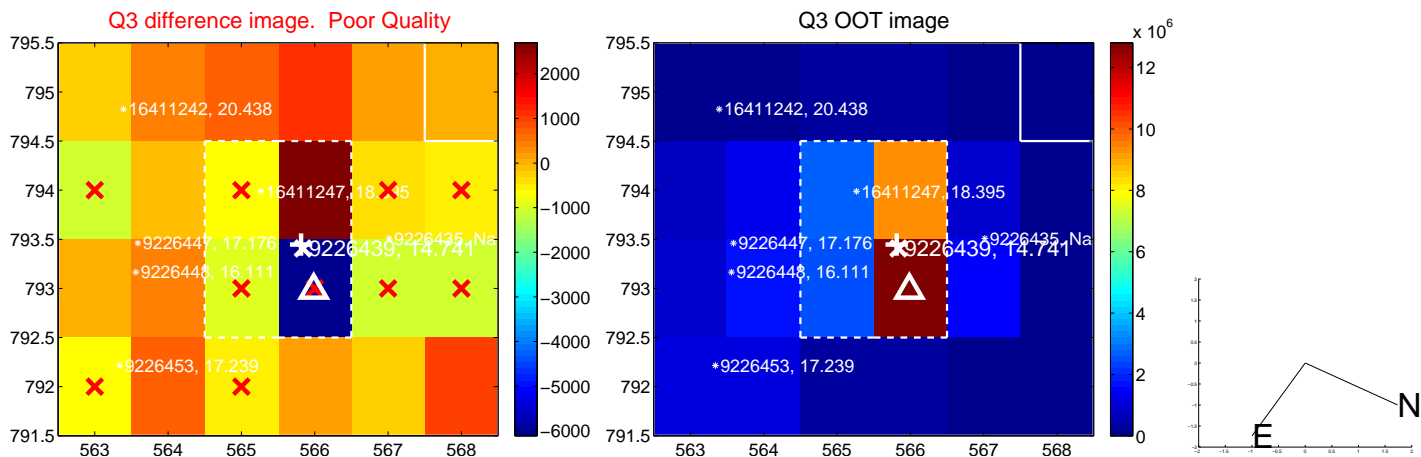
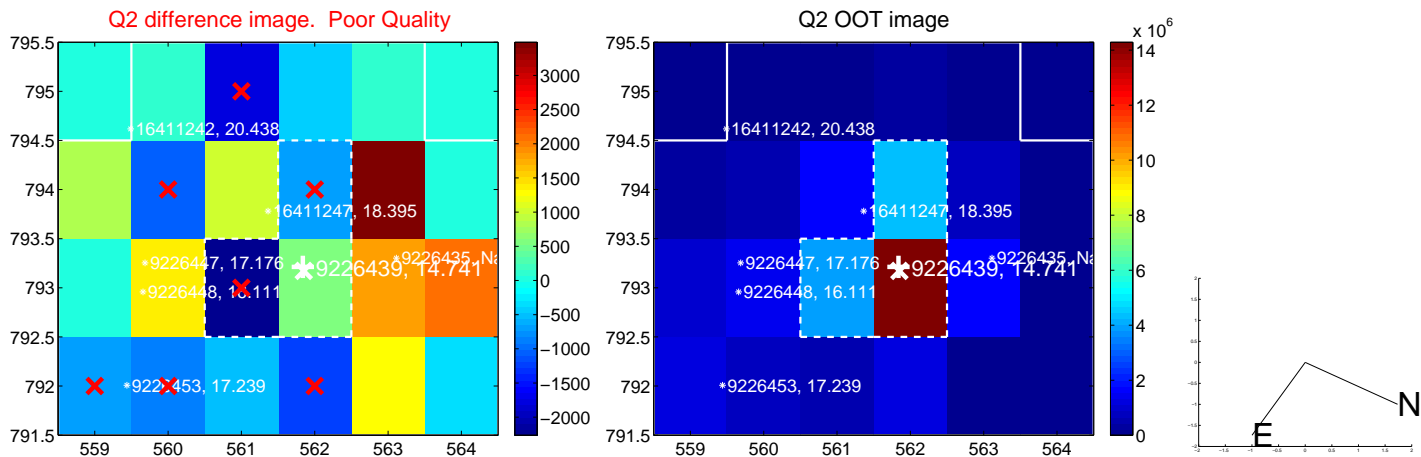
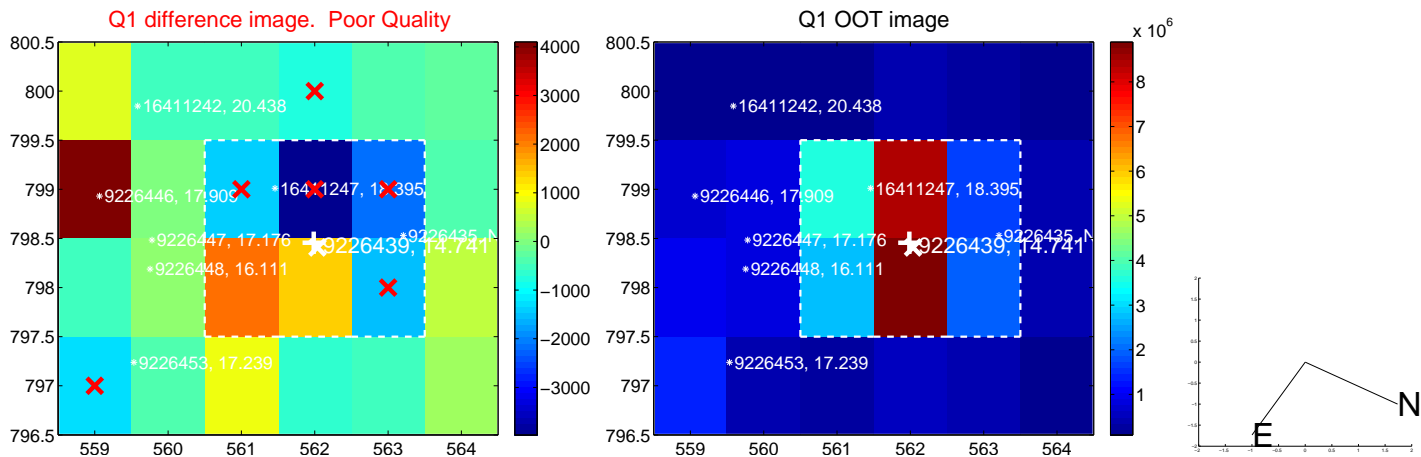
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.814 ± 3.371	1.13	0.822 ± 3.738	-3.725 ± 3.352
PRF-fit source offset from KIC position	3.989 ± 3.366	1.19	0.725 ± 3.738	-3.923 ± 3.352
photometric centroid source offset	1.03 ± 1.00	1.03	-0.91 ± 0.97	-0.49 ± 1.08

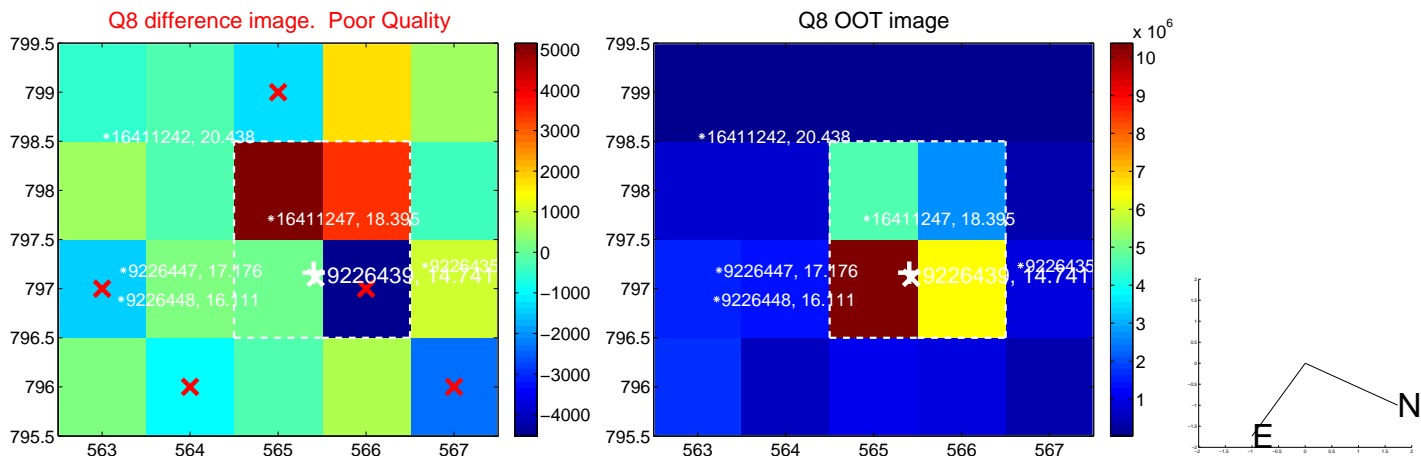
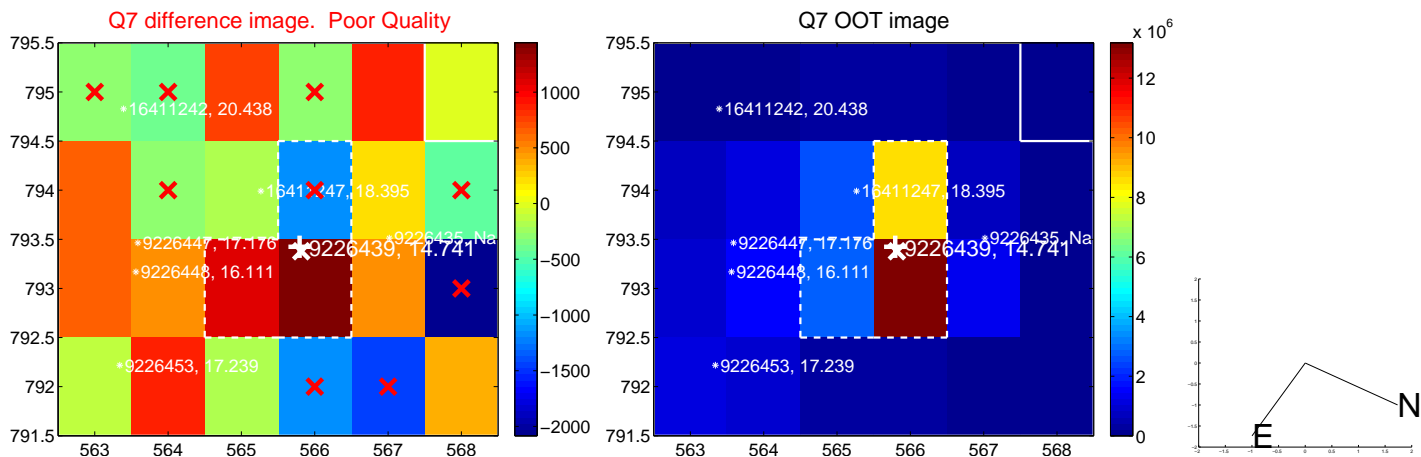
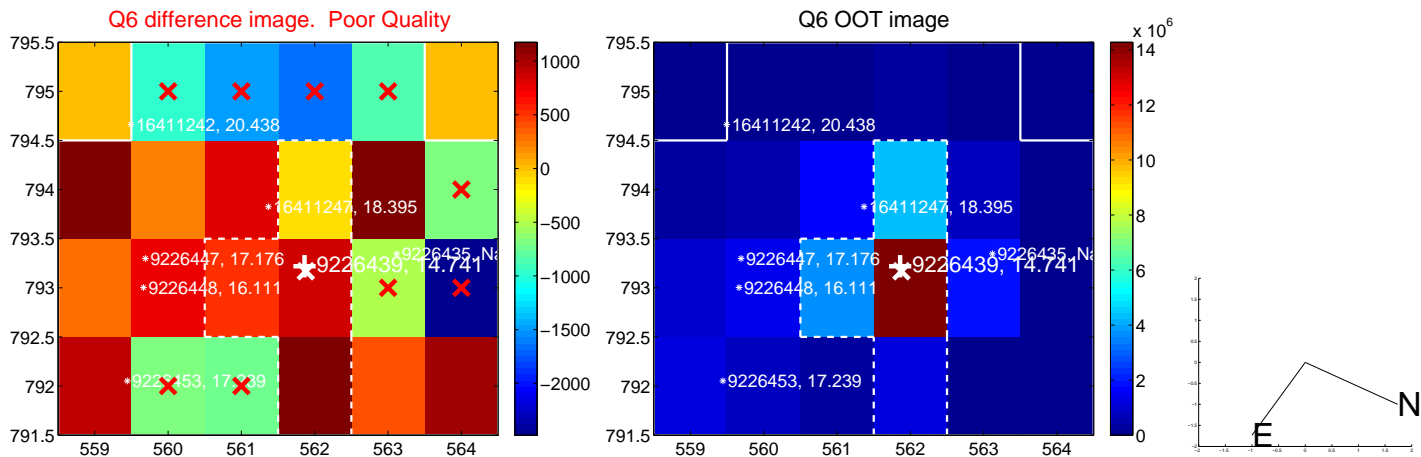
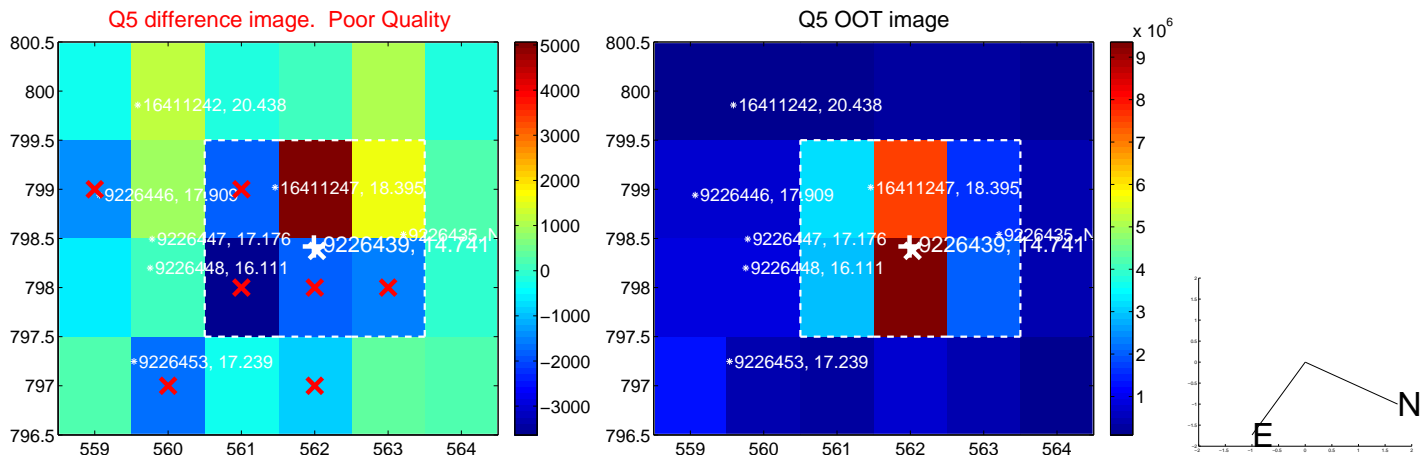


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

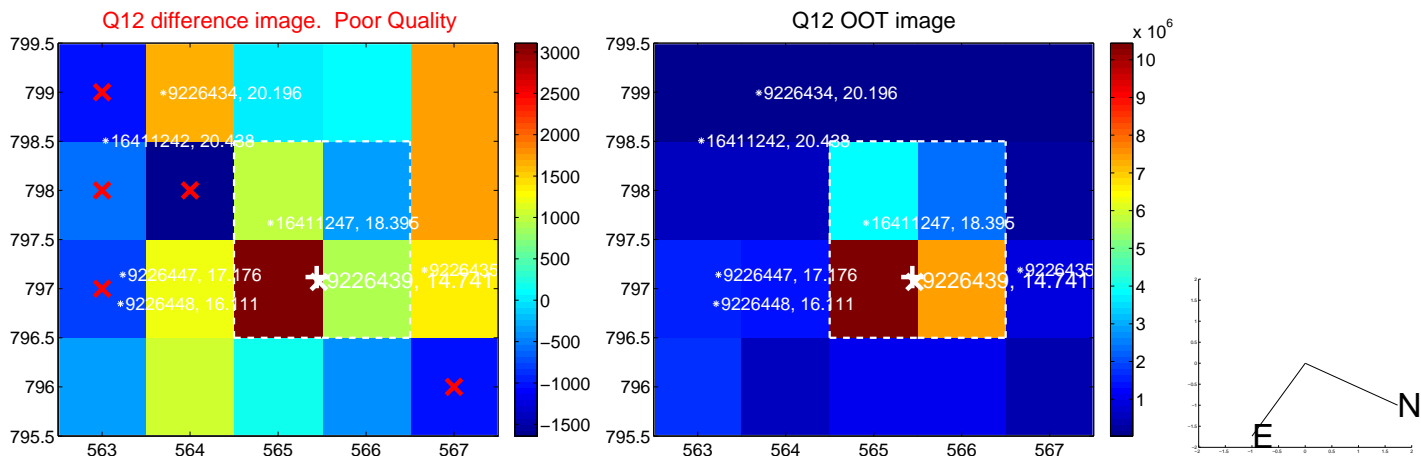
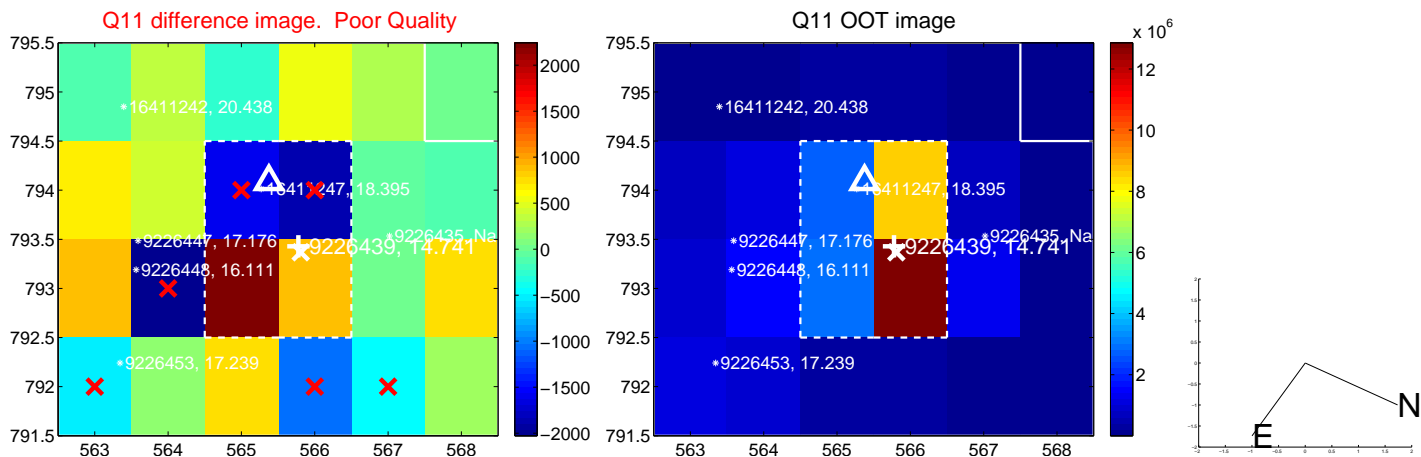
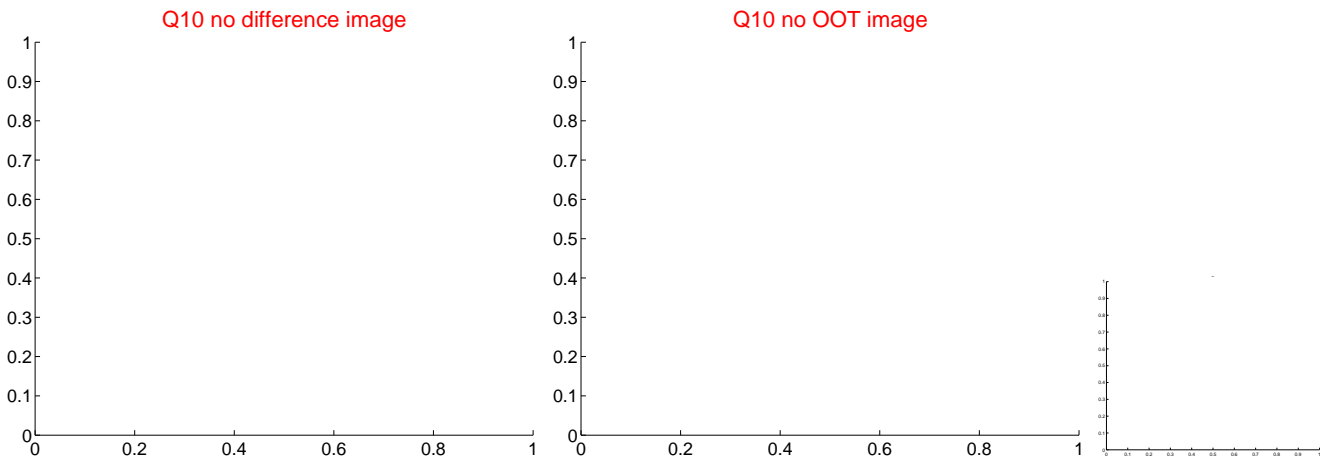
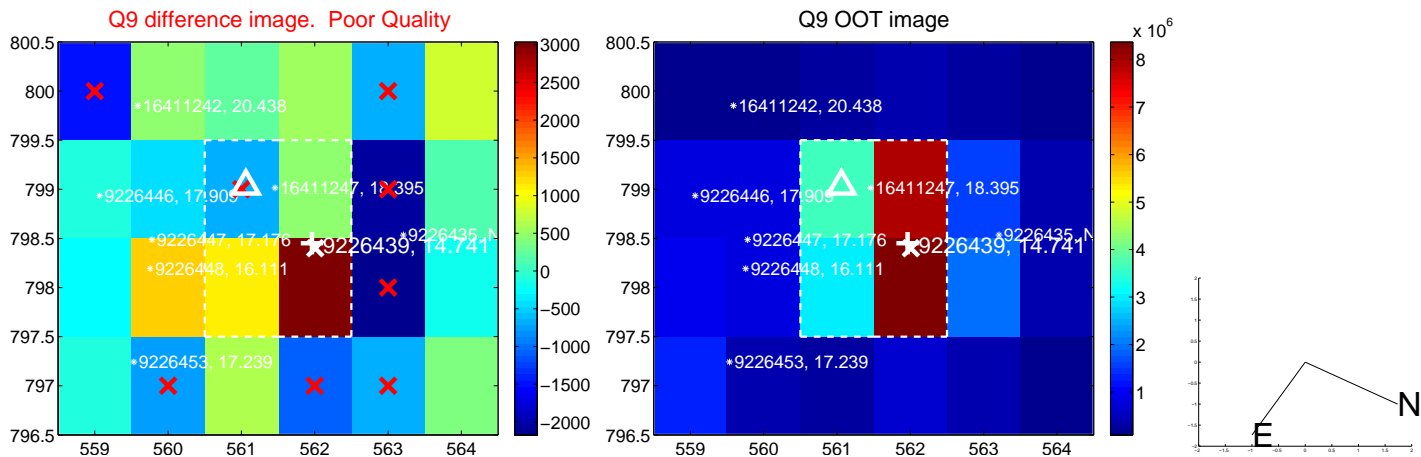
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



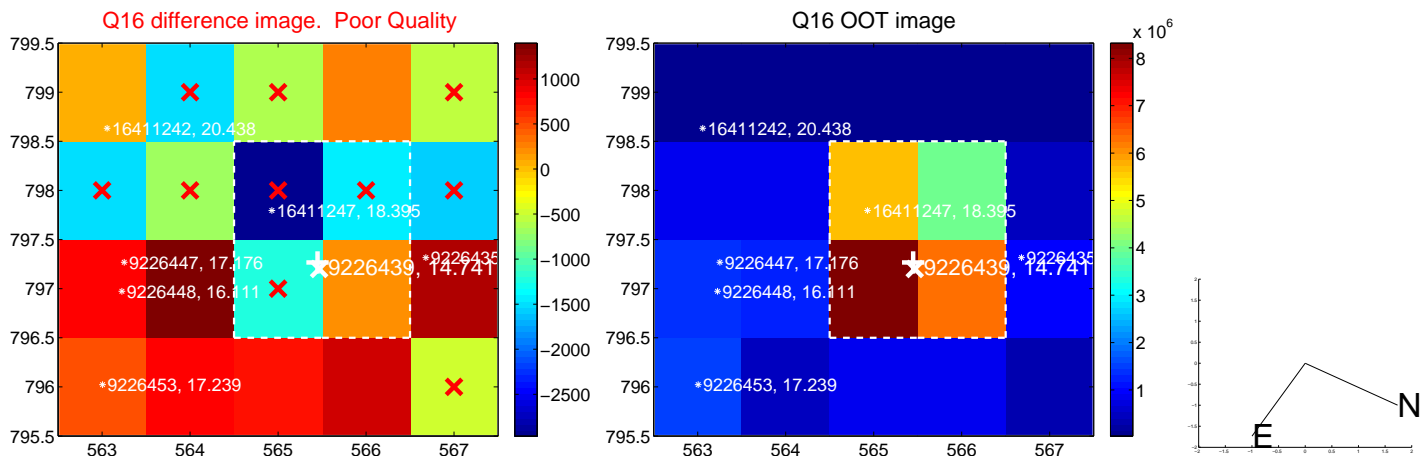
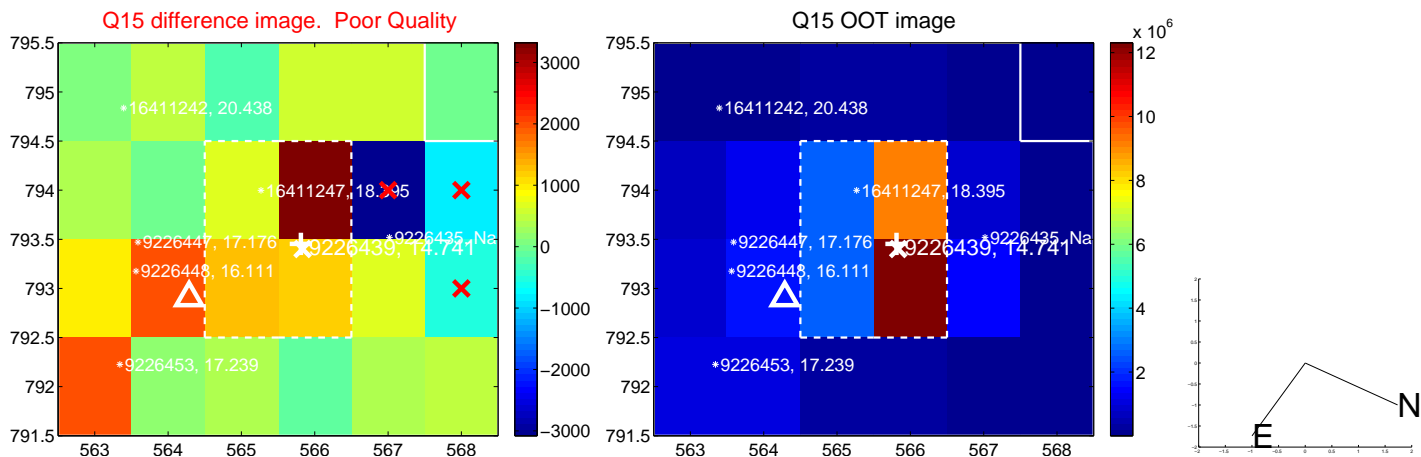
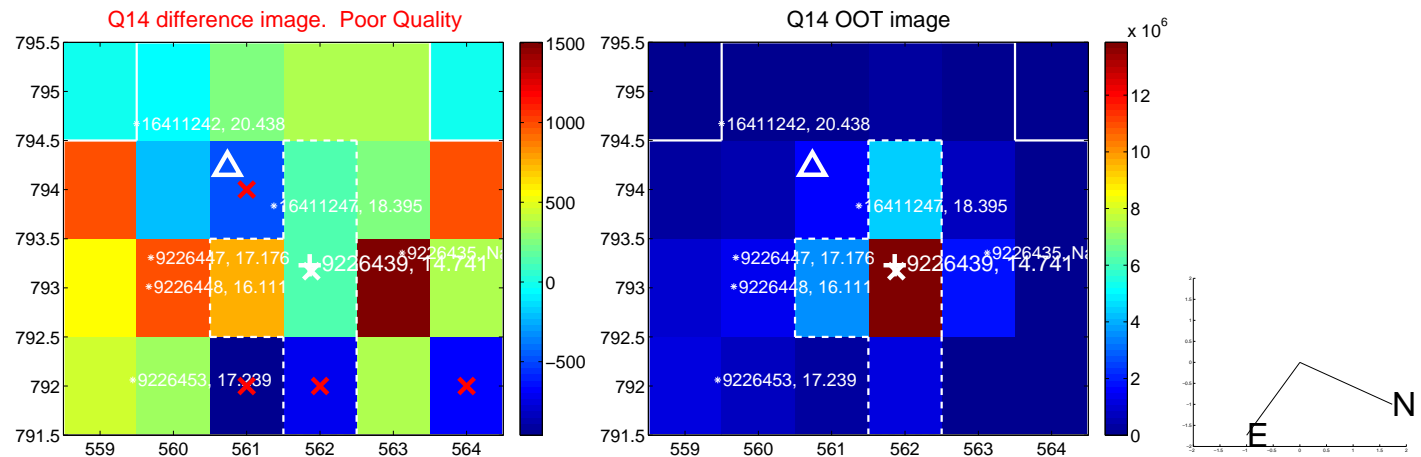
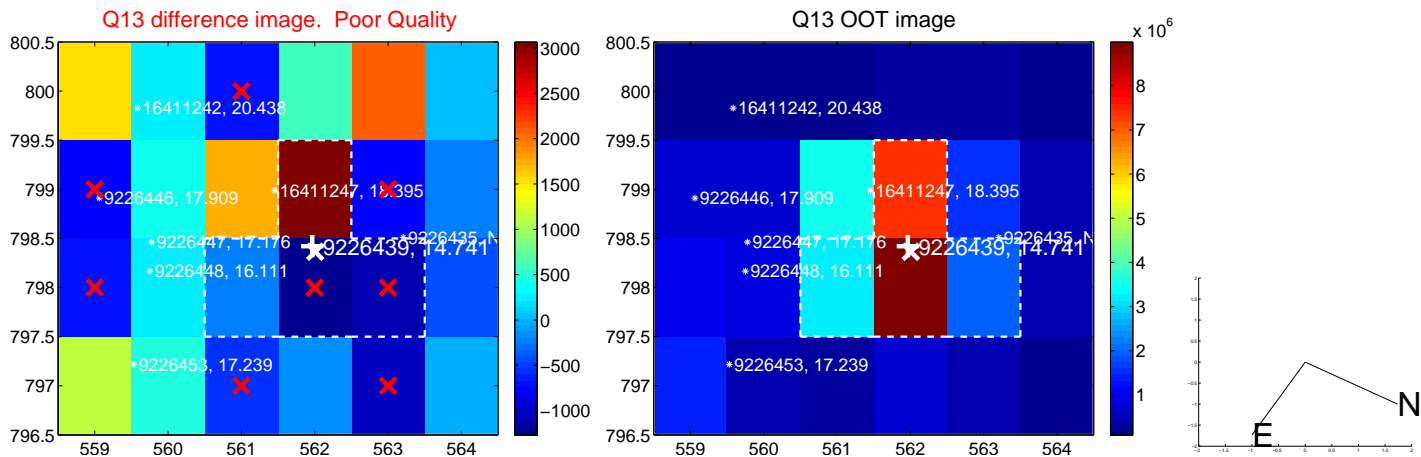
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



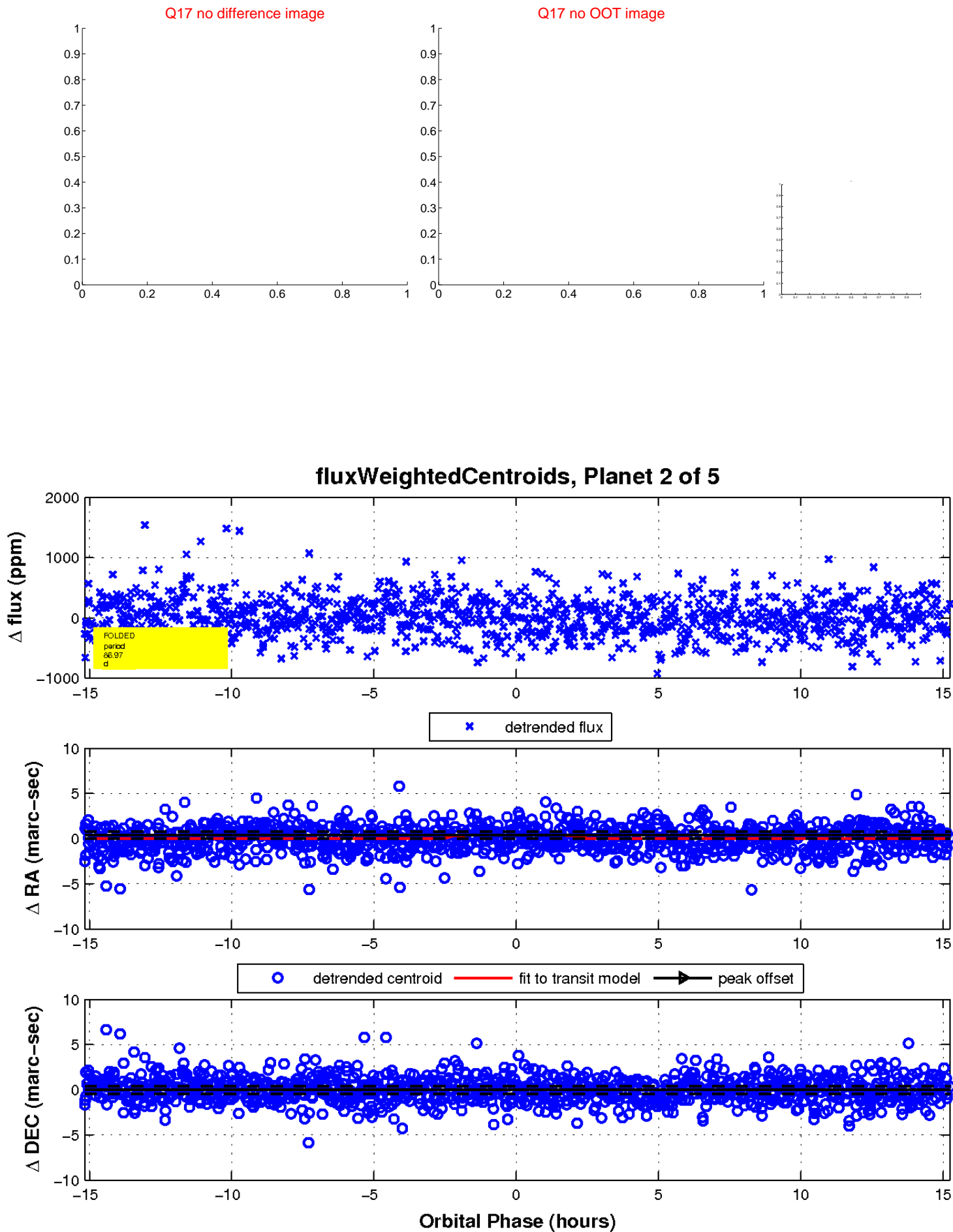
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

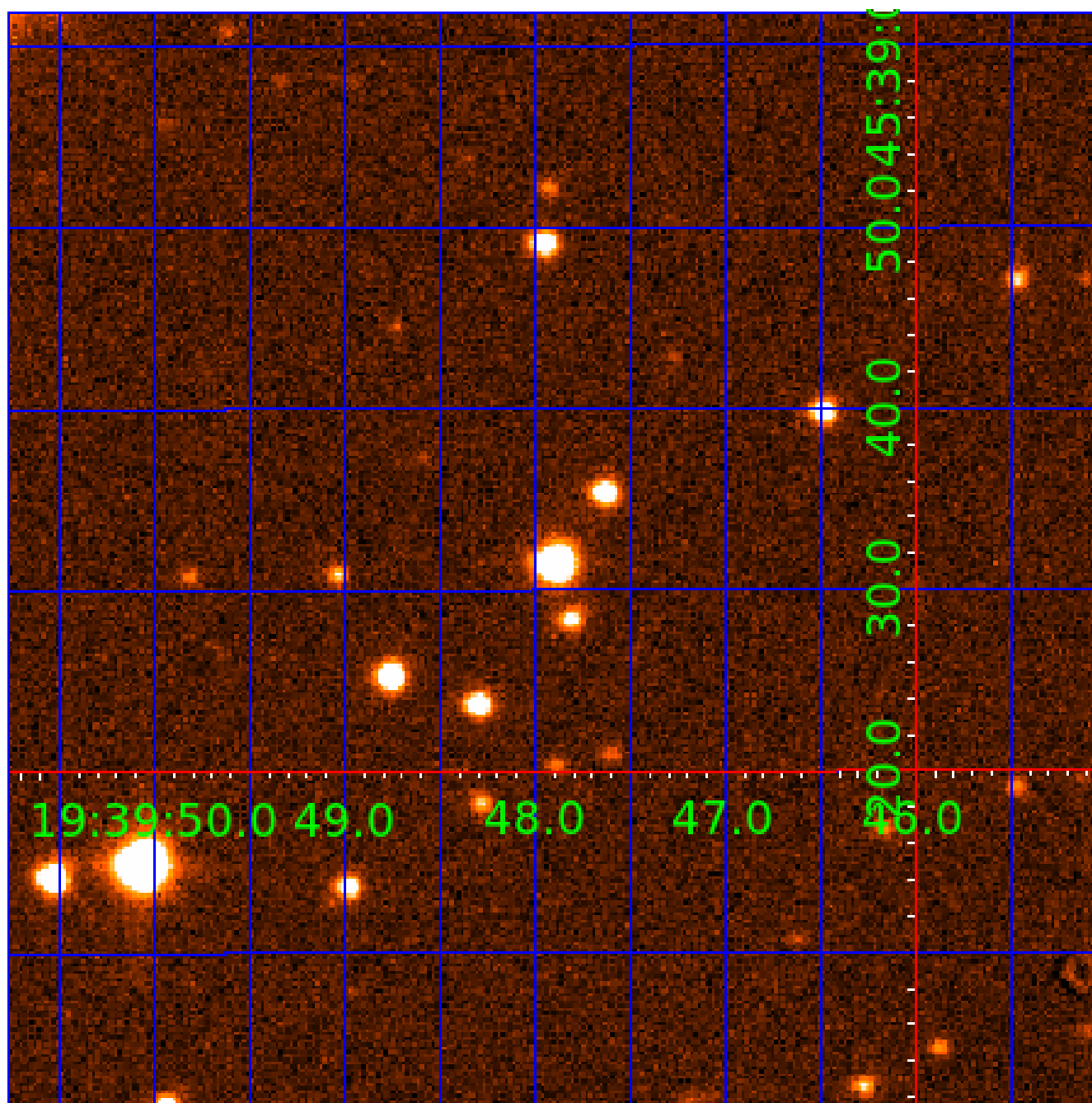


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009226439

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})
009226439-01	OBS	No	2.433091	131.584319	19.6	16.247	8.0	5.8	0.88	6078	0.39	783.48
009226439-02	OBS	No	86.972820	146.910788	382.8	5.083	9.8	10.2	0.88	6078	1.96	6.65
009226439-03	OBS	No	43.274924	149.555806	702.7	1.534	8.8	8.9	0.88	6078	2.37	16.88
009226439-04	OBS	No	62.934416	141.956605	354.3	4.808	8.0	8.2	0.88	6078	1.86	10.24
009226439-05	OBS	No	14.877608	133.590700	285.4	1.860	8.1	8.8	0.88	6078	1.84	70.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009226439-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST
009226439-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
009226439-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
009226439-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
009226439-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_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.

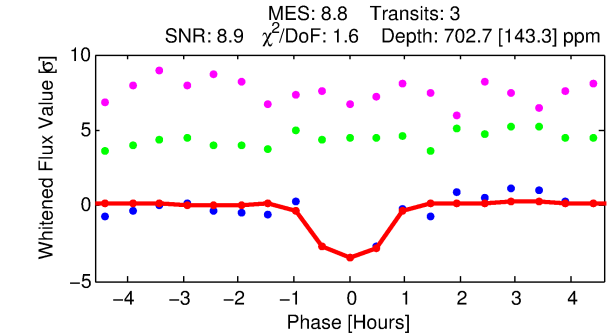
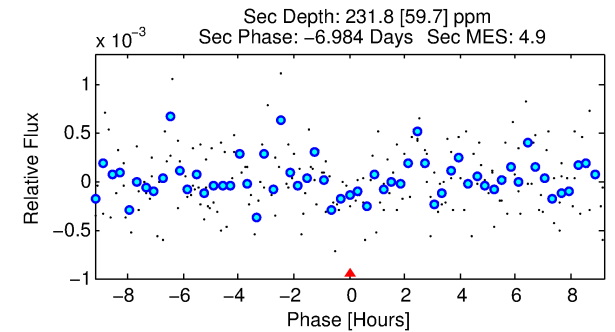
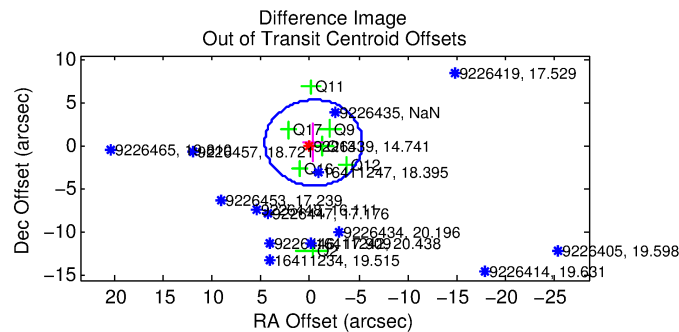
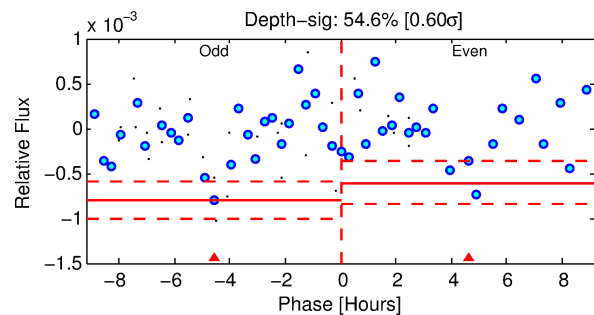
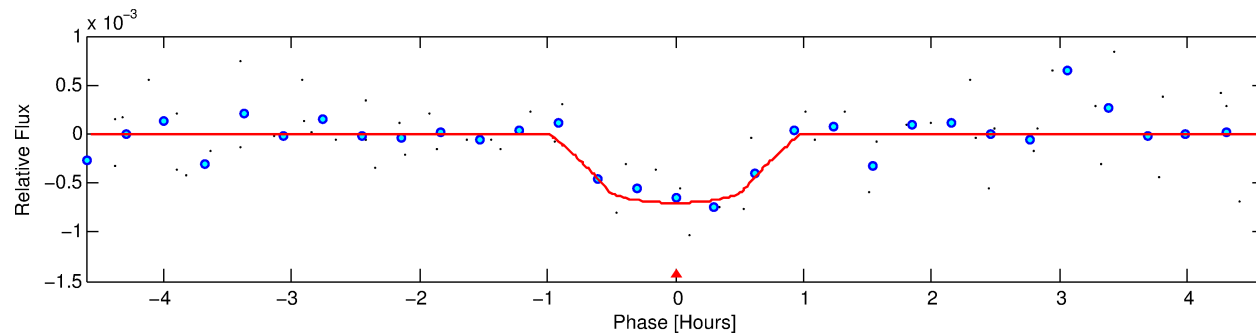
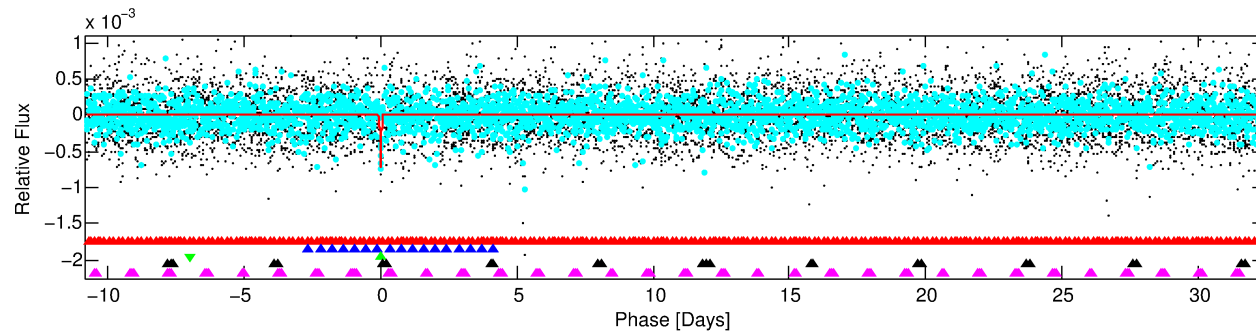
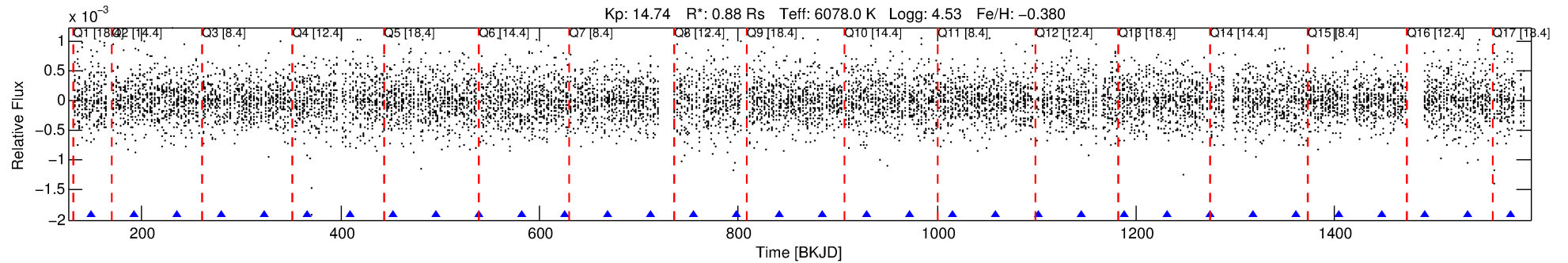
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009226439-03

No Significant Match Found

DV One-Page Summary

KIC: 9226439 Candidate: 3 of 5 Period: 43.275 d



DV Fit Results:

Period = 43.27492 [0.00060] d
Epoch = 149.5558 [0.0154] BKJD
Rp/R* = 0.0246 [0.0596]
a/R* = 211.20 [2571.62]
b = 0.30 [36.98]
Seff = 16.88 [6.79]
Teq = 517 [52] K
Rp = 2.37 [5.80] Re
a = 0.2380 [0.0620] AU
Ag = 1280.94 [6232.96] [0.21 σ]
Teff = 4780 [5800] K [0.74 σ]

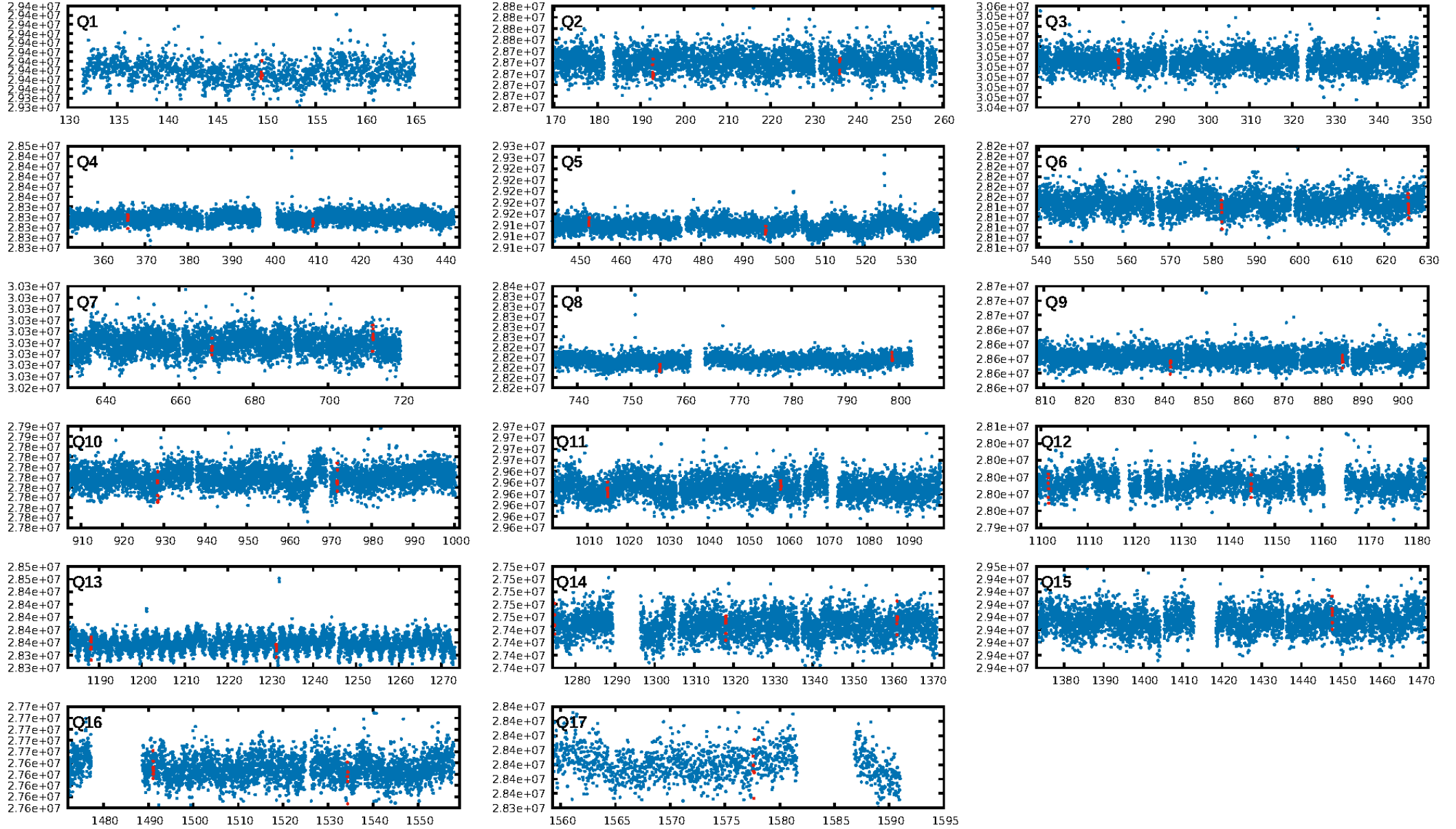
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [282.71 σ]
LongPeriod-sig: 100.0% [93.50 σ]
ModelChiSquare2-sig: 71.9%
ModelChiSquareGof-sig: 77.7%
Bootstrap-pfa: 2.18e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -4.251
Centroid-sig: 34.0%
Centroid-so: 1.239 arcsec [1.73 σ]
OotOffset-rm: 0.527 arcsec [0.32 σ]
KicOffset-rm: 0.526 arcsec [0.49 σ]
OotOffset-st: 1/1/2/3 [7]
KicOffset-st: 1/1/2/3 [7]
DiffImageQuality-fgm: 0.00 [0/7]
DiffImageOverlap-fno: 0.71 [12/17]

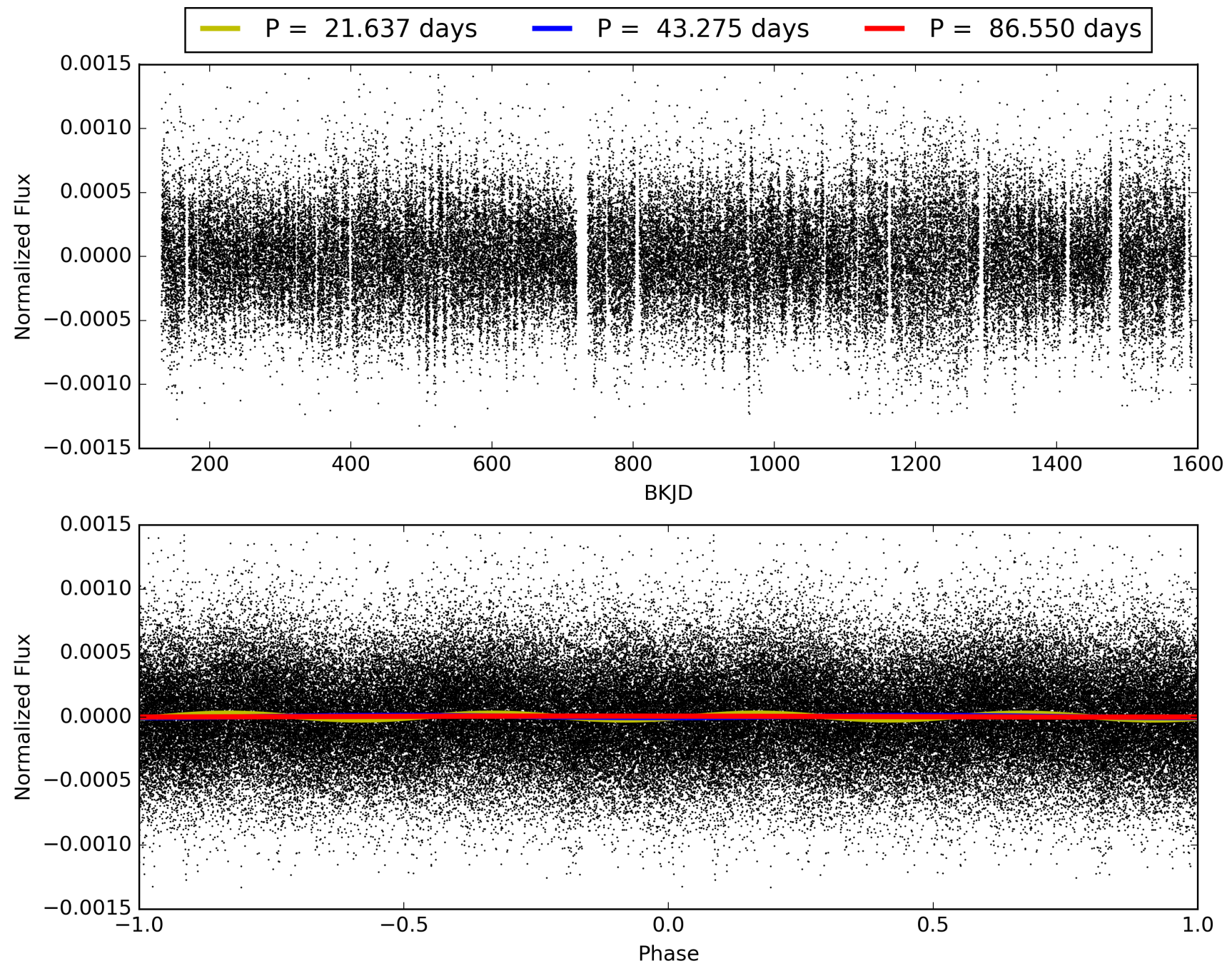
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 23:14:44 Z

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

TCE 009226439-03, PDC Light Curves

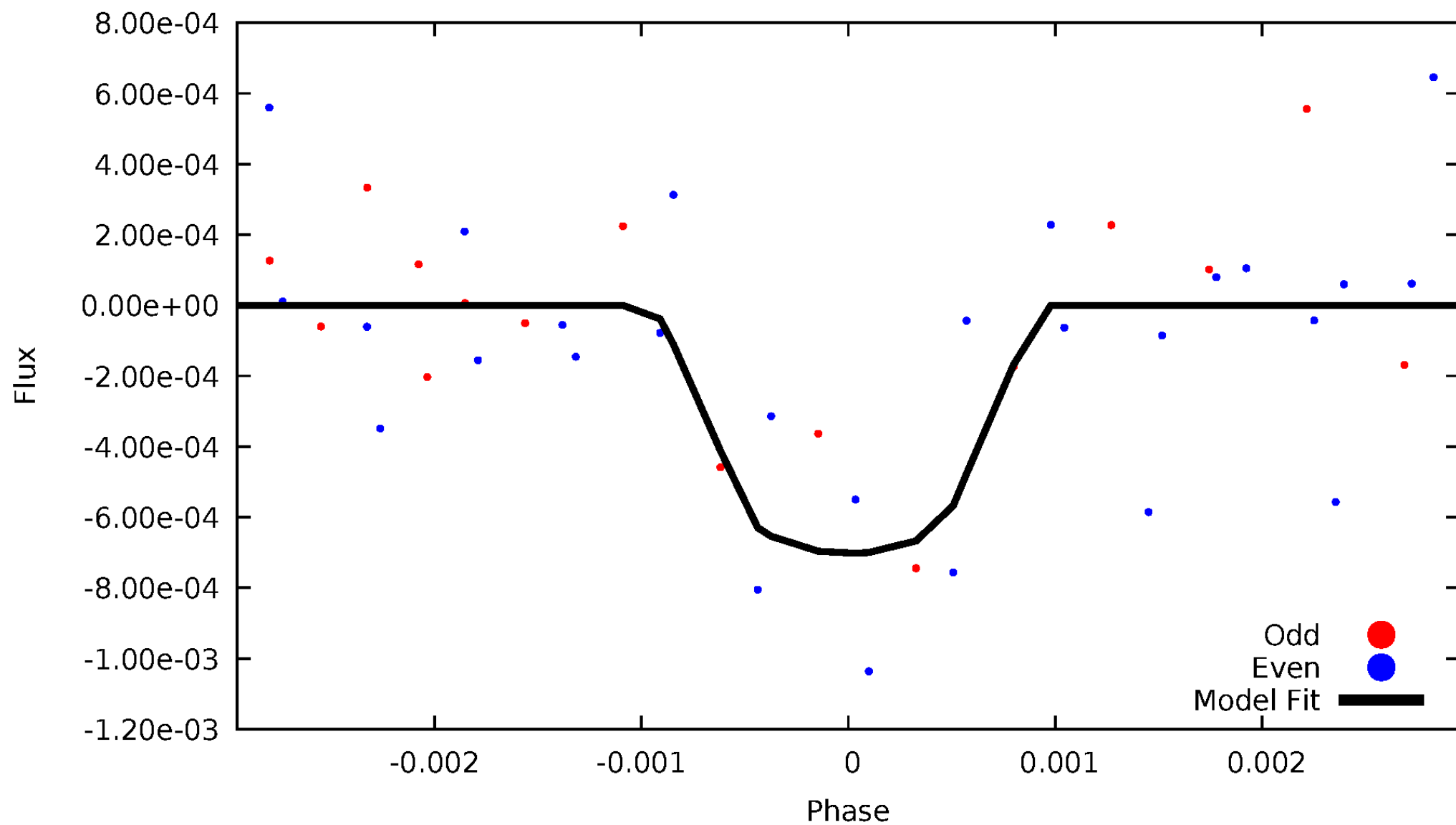


TCE 009226439-03



DV Odd/Even

TCE 009226439-03

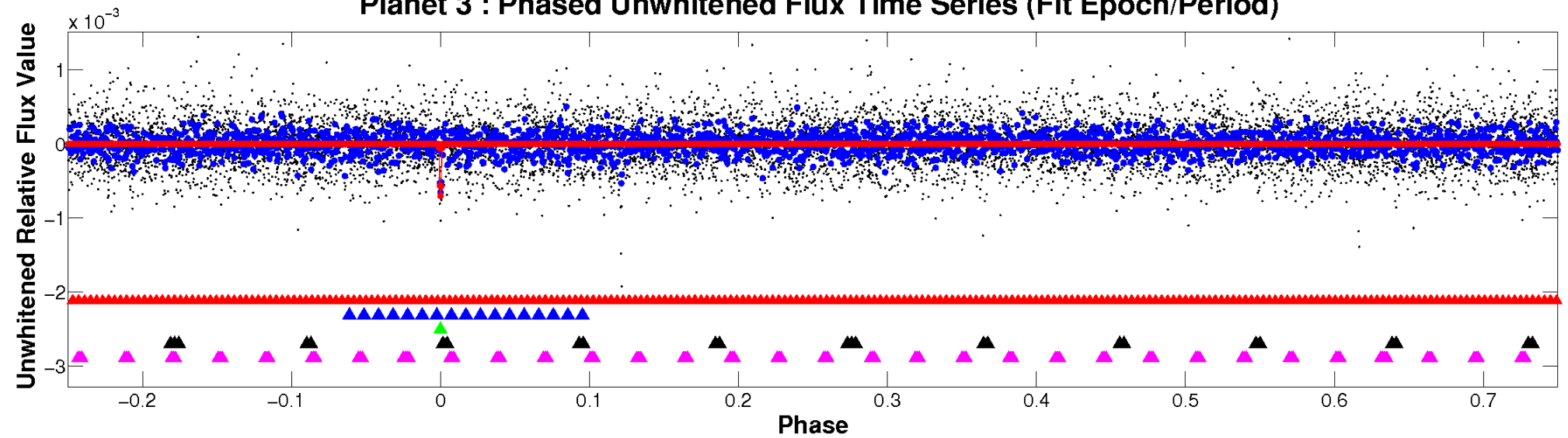


ALT Odd/Even

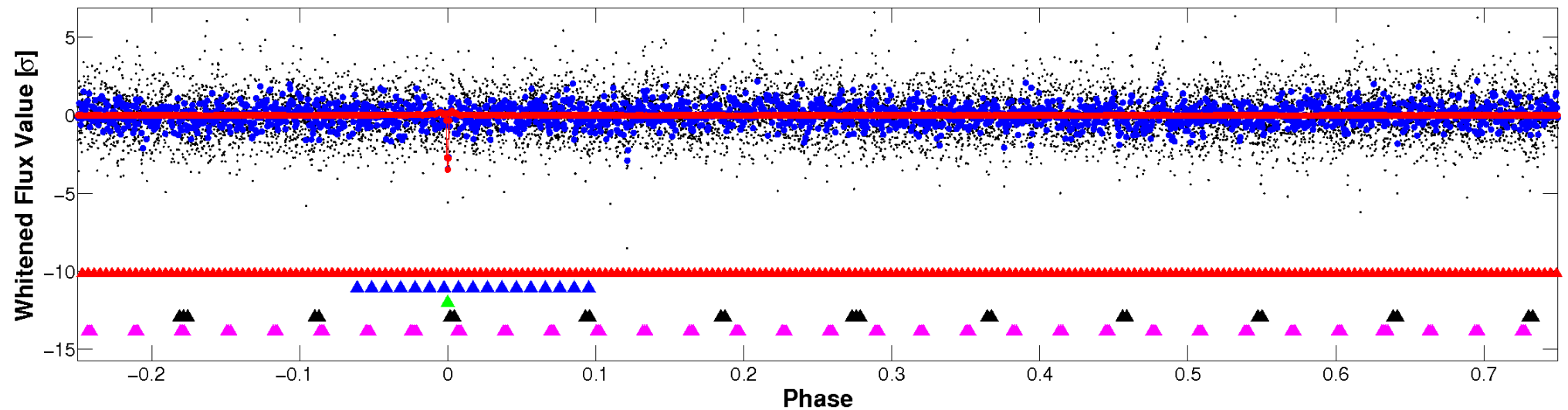
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

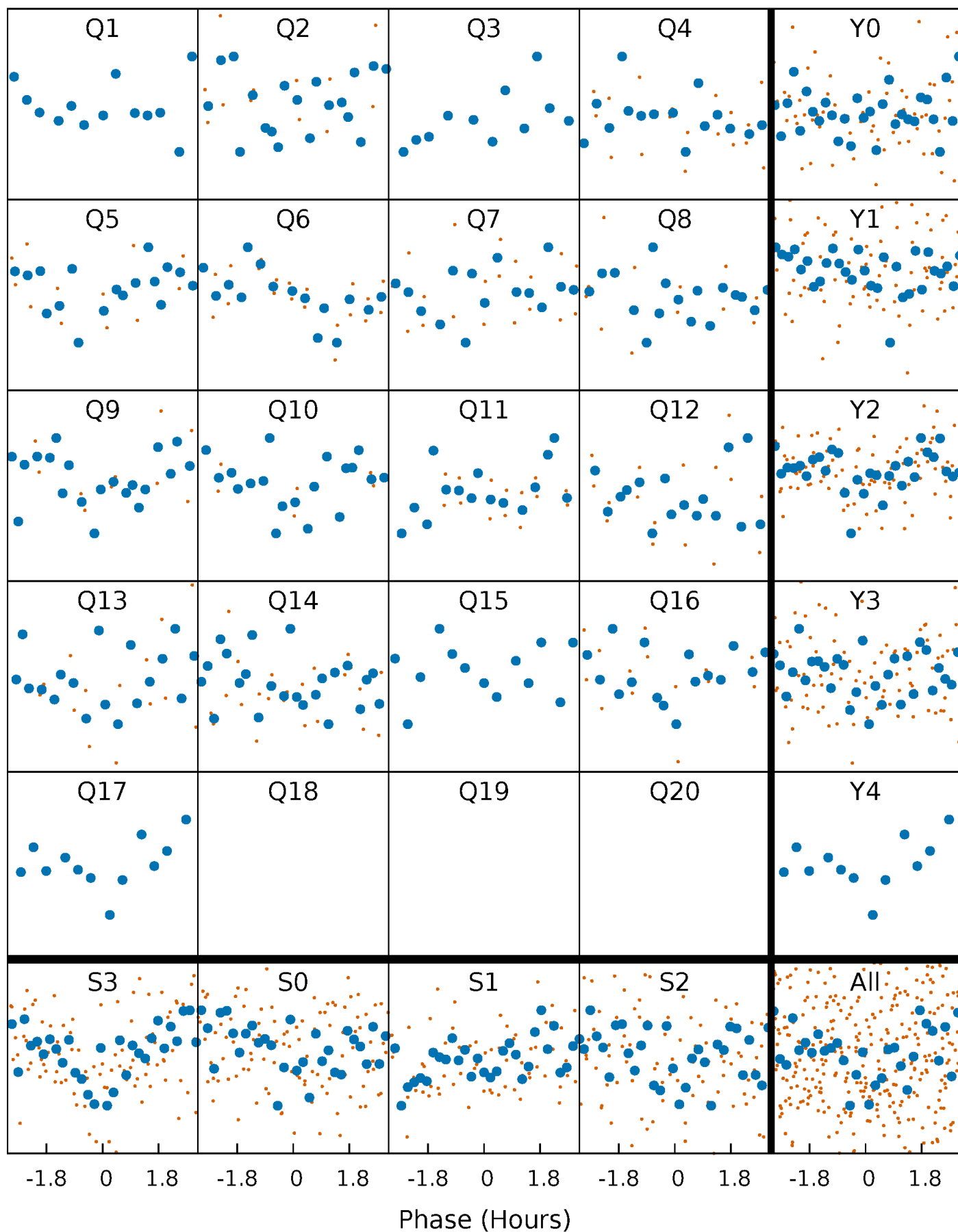


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



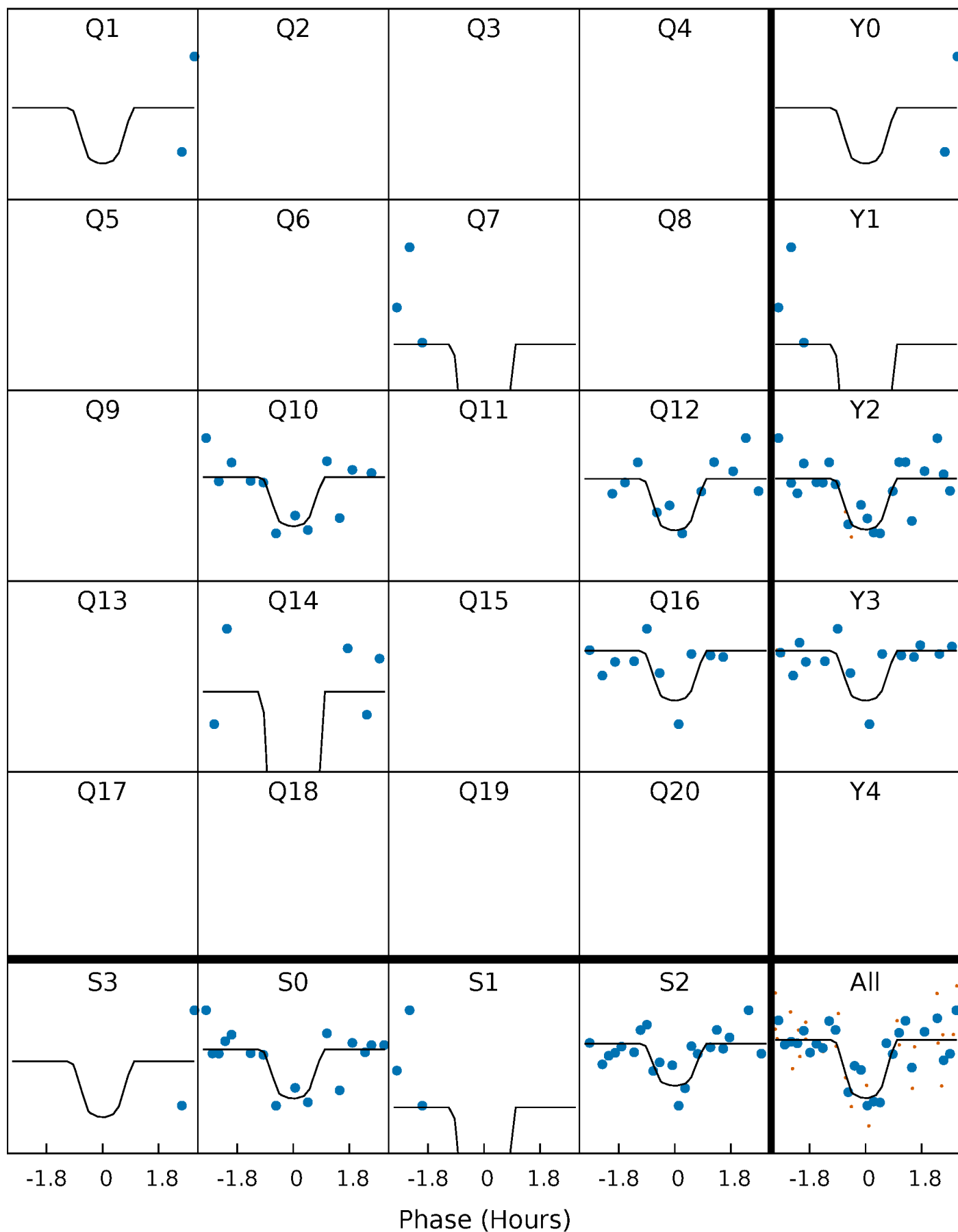
PDC Quarter-Phased Transit Curves

TCE 009226439-03 P= 43.274924 Days $T_0=149.555806$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009226439-03 P= 43.274924 Days $T_0=149.555806$ (BKJD)

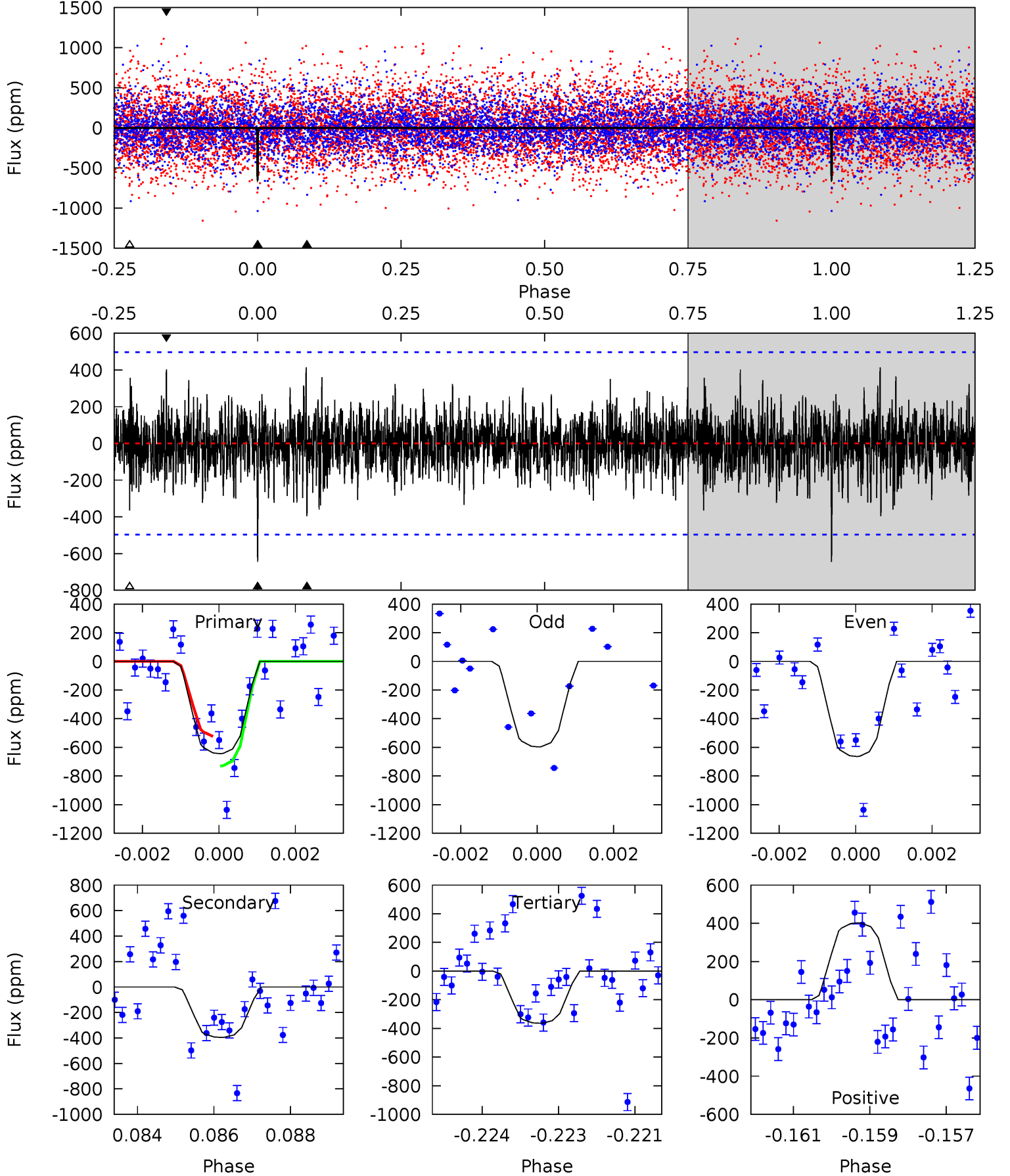


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

009226439-03, P = 43.274924 Days, E = 106.280882 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.93	4.26	3.92	4.33	5.34	3.12	1.15	3.01	2.60	0.34	-0.07	0.36	1.07	0.39	1.09



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 009226439

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6078^{+164}_{-201}	$4.527^{+0.052}_{-0.208}$	$-0.380^{+0.300}_{-0.300}$	$0.884^{+0.273}_{-0.091}$	$0.959^{+0.118}_{-0.118}$	$1.955^{+0.408}_{-0.987}$
	+3%/-3%	+1%/-5%	+79%/-79%	+31%/-10%	+12%/-12%	+21%/-50%
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 009226439-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-396 ± 93	$5.01^{+4.67}_{-3.58}$	737^{+54}_{-36}	4120^{+3218}_{-828}	511^{+5305}_{-387}
Alt.	N/A	N/A	N/A	N/A	N/A

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

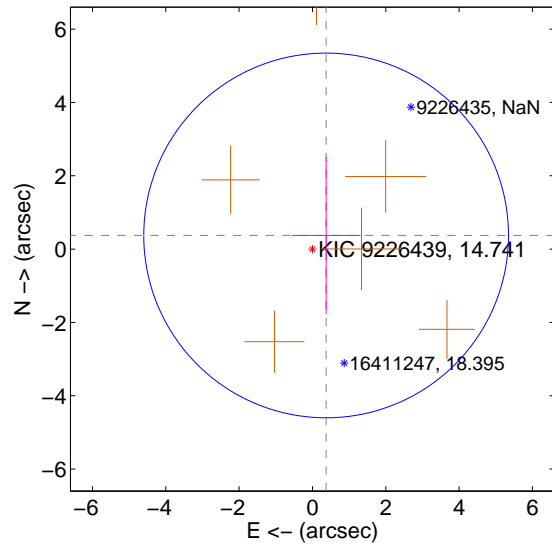
Supplemental centroid analysis for 009226439-03. Kepler magnitude: 14.74. Transit SNR 8.91

There are 0 quarters with good PRF difference image offsets

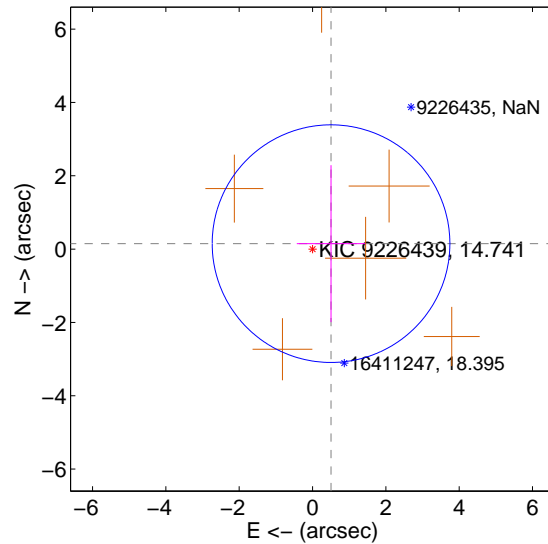
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.527 ± 1.658	0.32	-0.373 ± 0.940	0.372 ± 2.150
PRF-fit source offset from KIC position	0.526 ± 1.081	0.49	-0.505 ± 0.934	0.149 ± 2.141
photometric centroid source offset	1.24 ± 0.72	1.73	0.84 ± 0.69	-0.91 ± 0.74

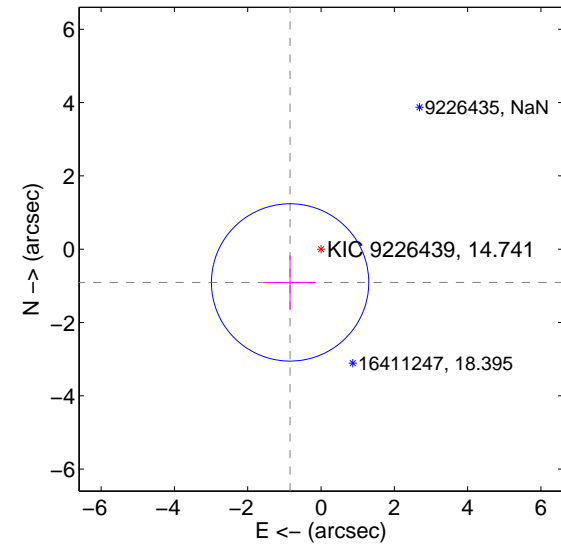
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

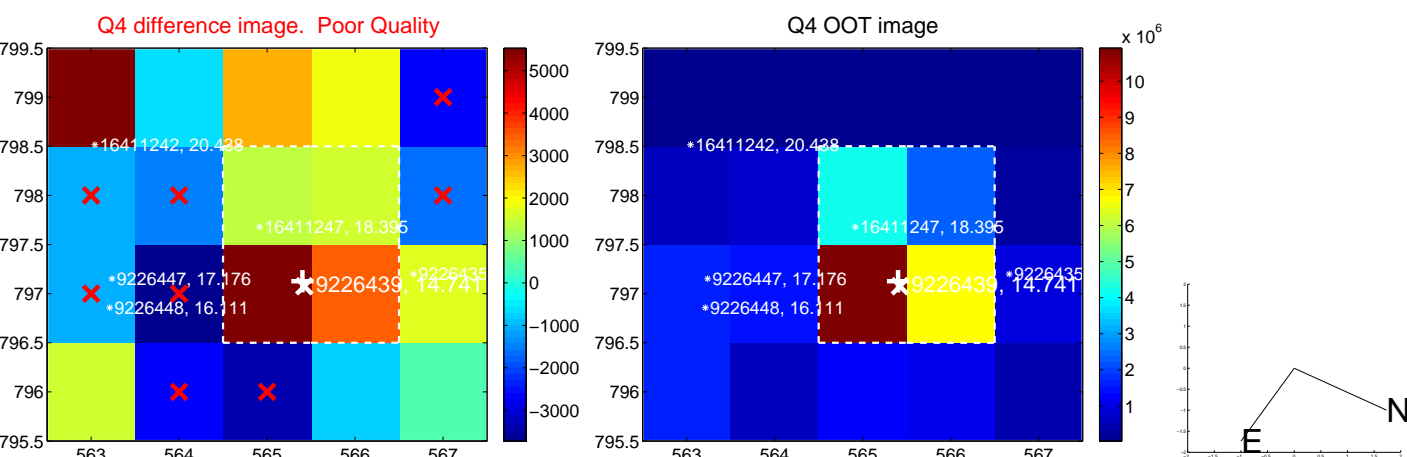
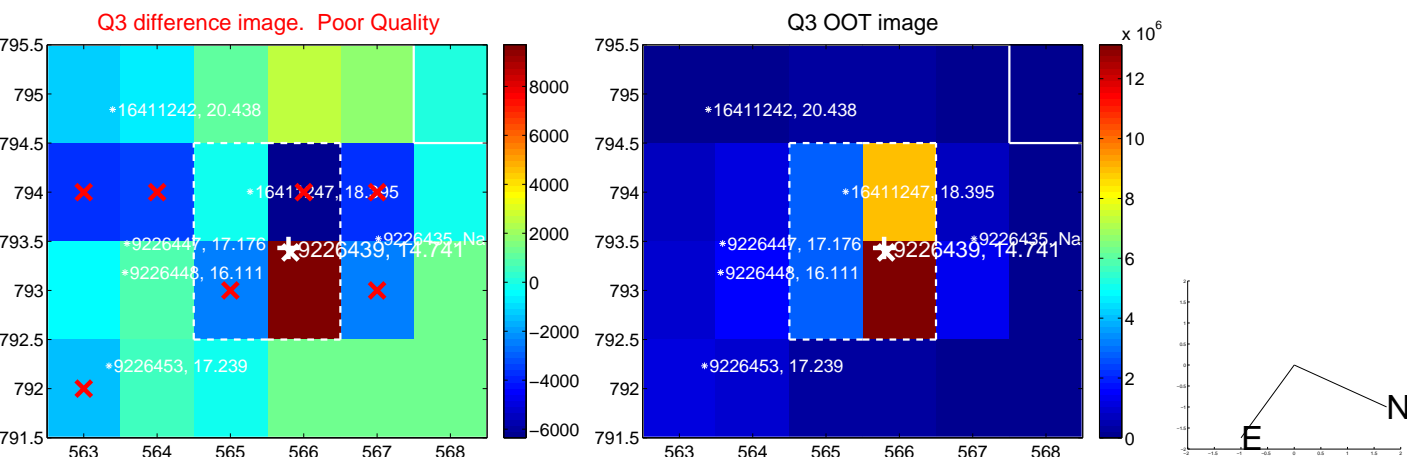
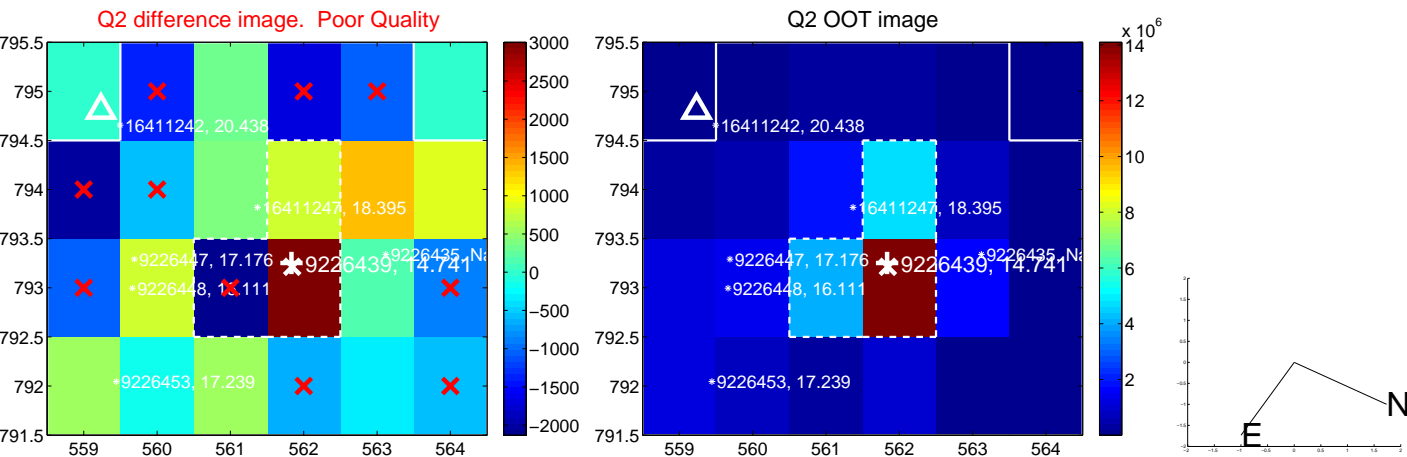
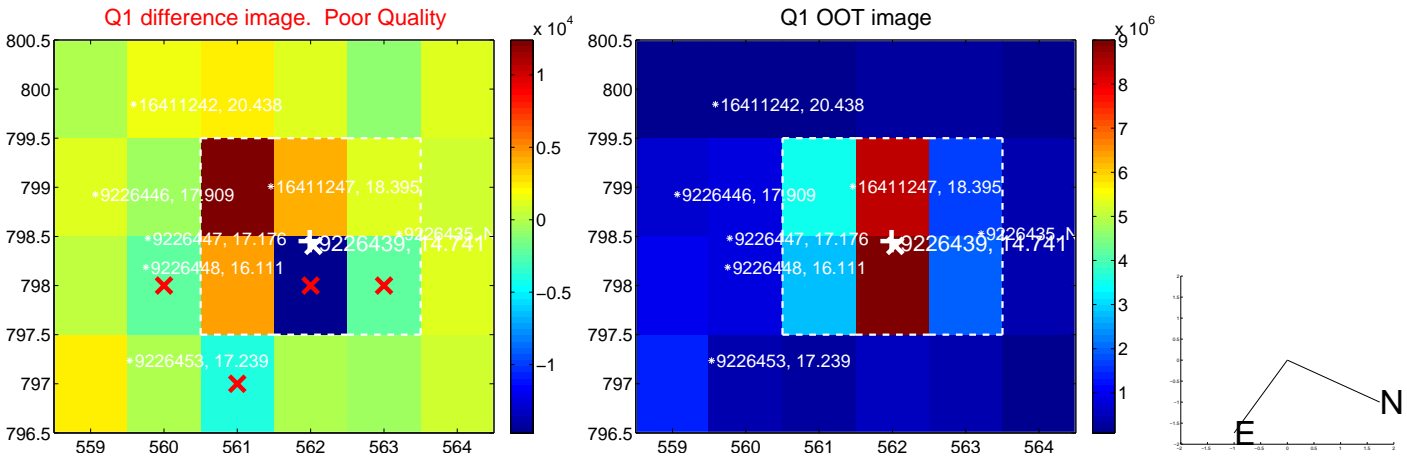


offset from photometric centroids

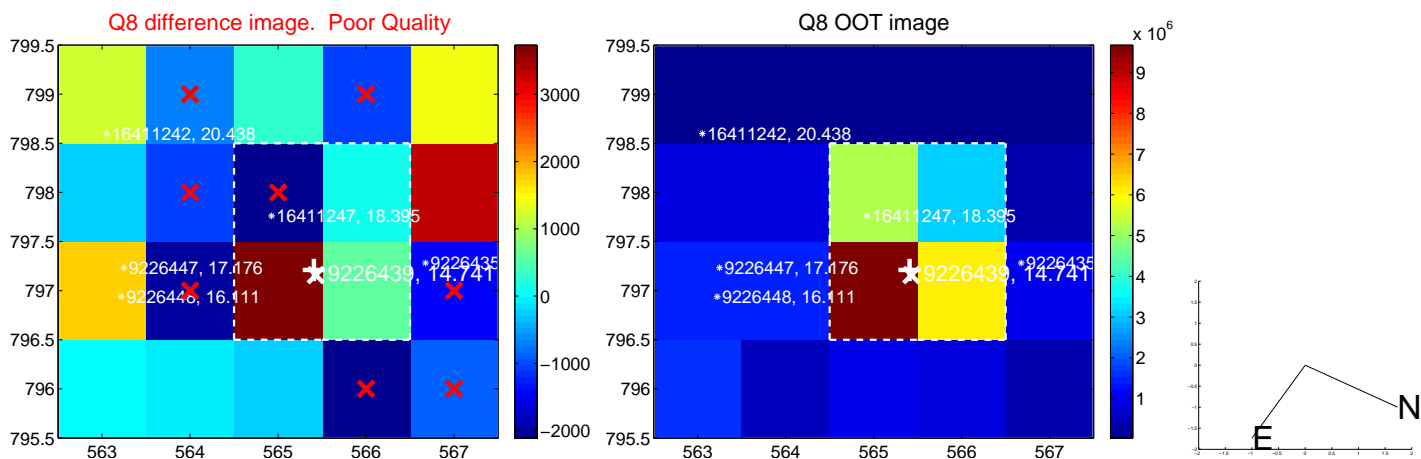
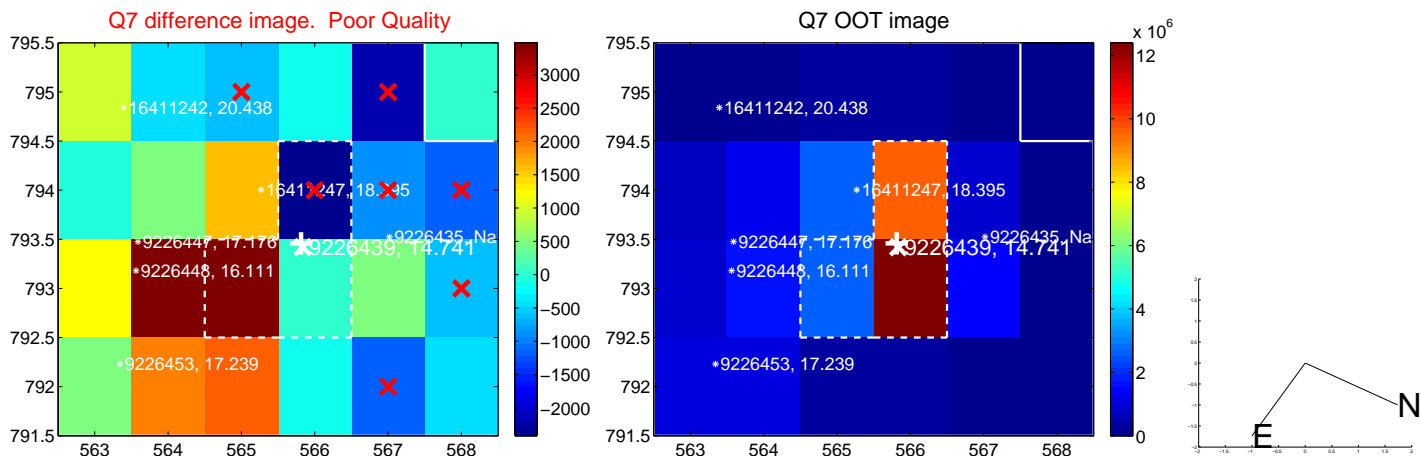
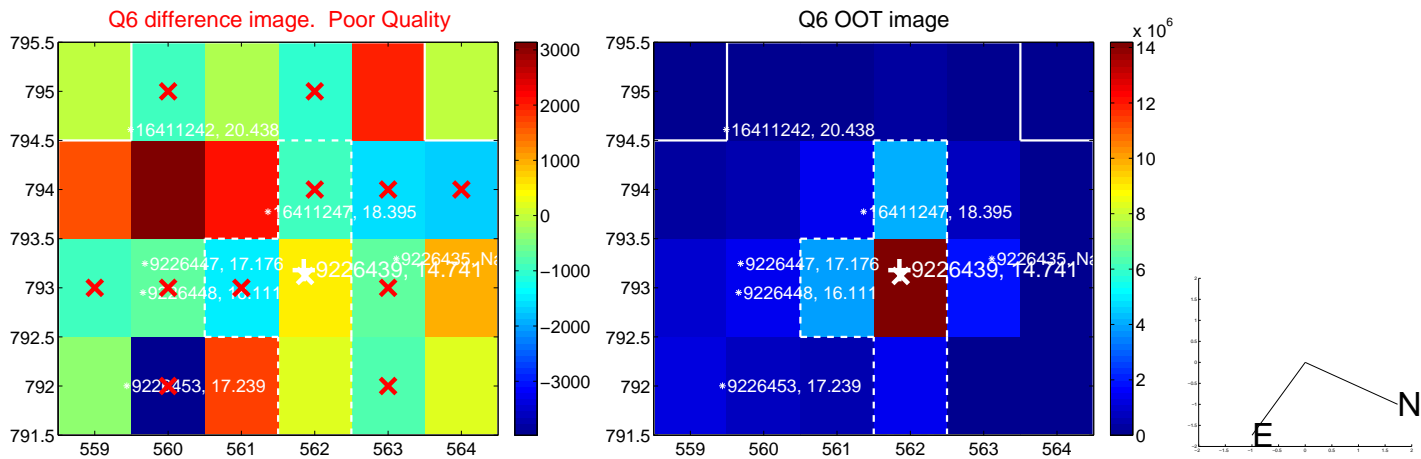
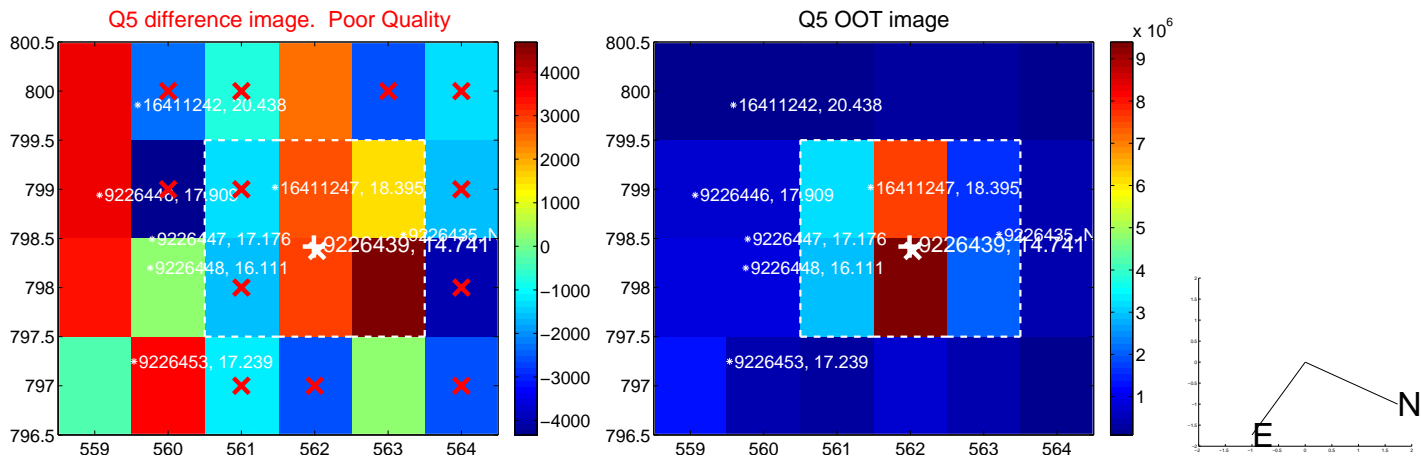


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

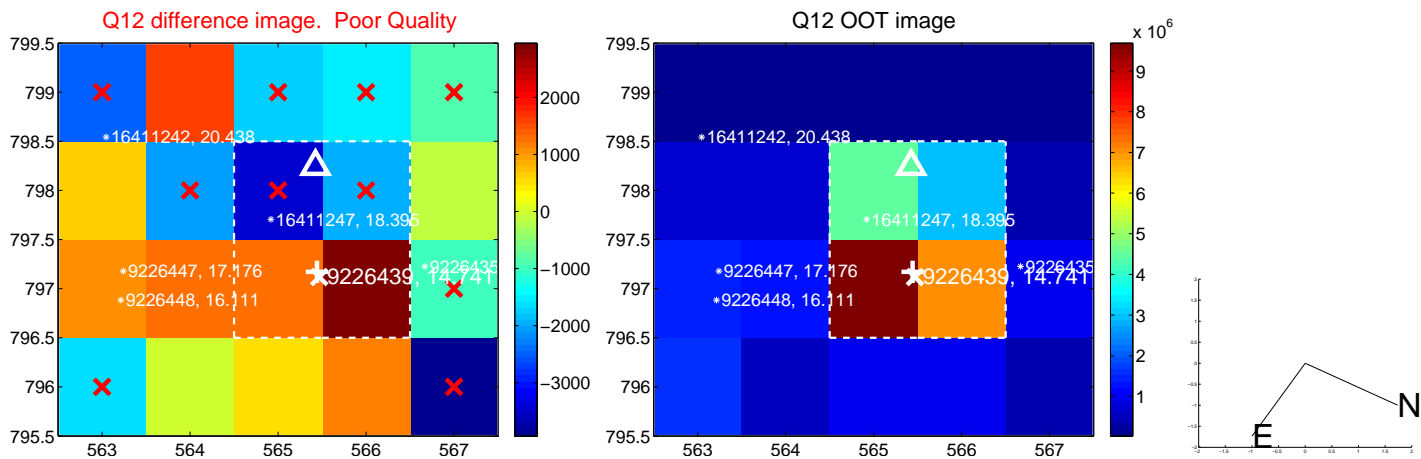
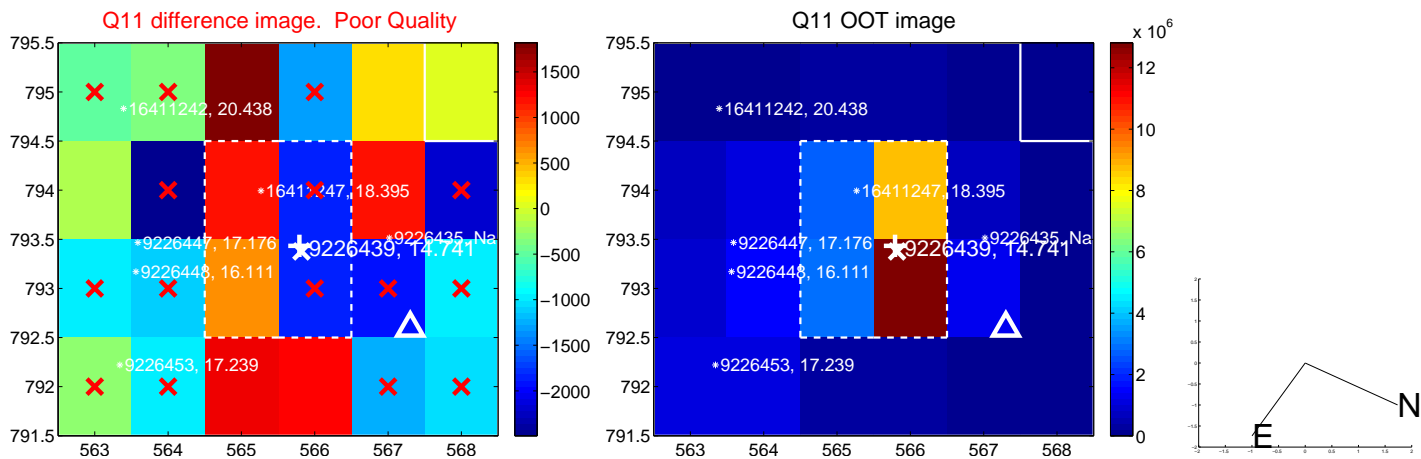
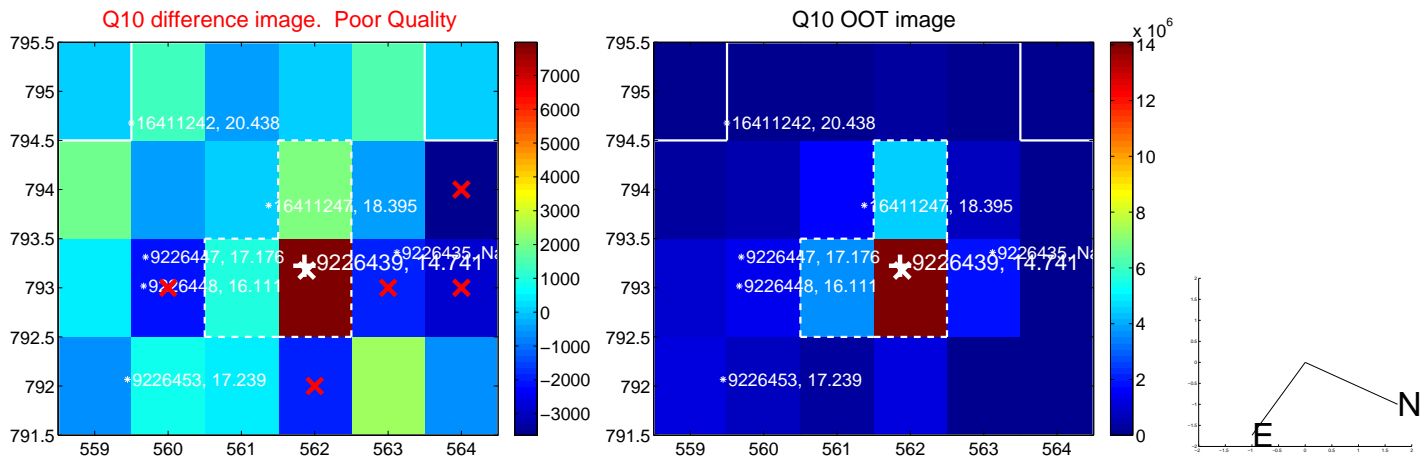
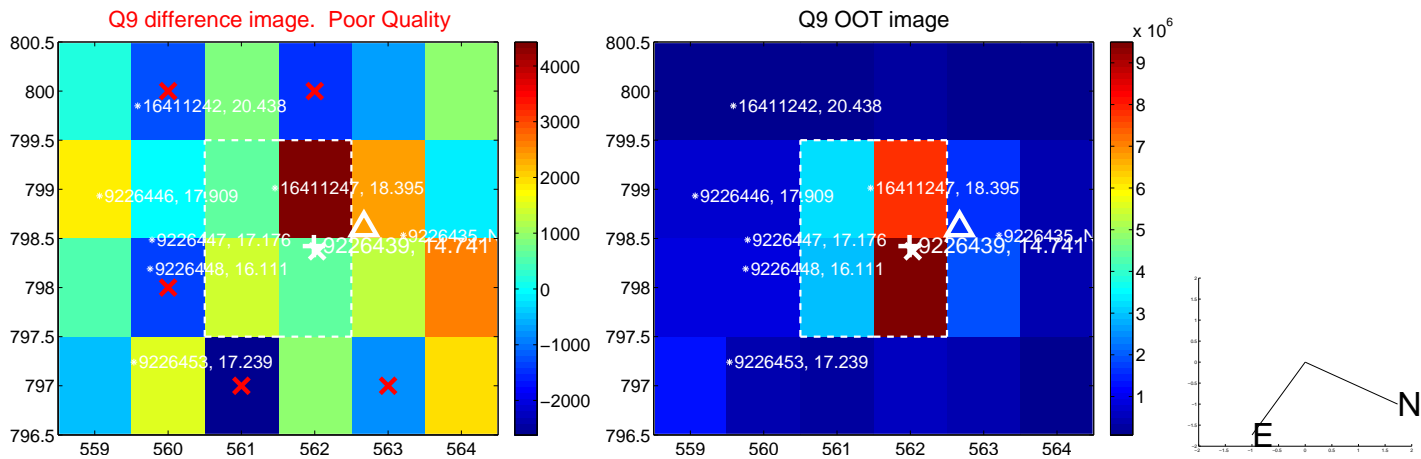
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



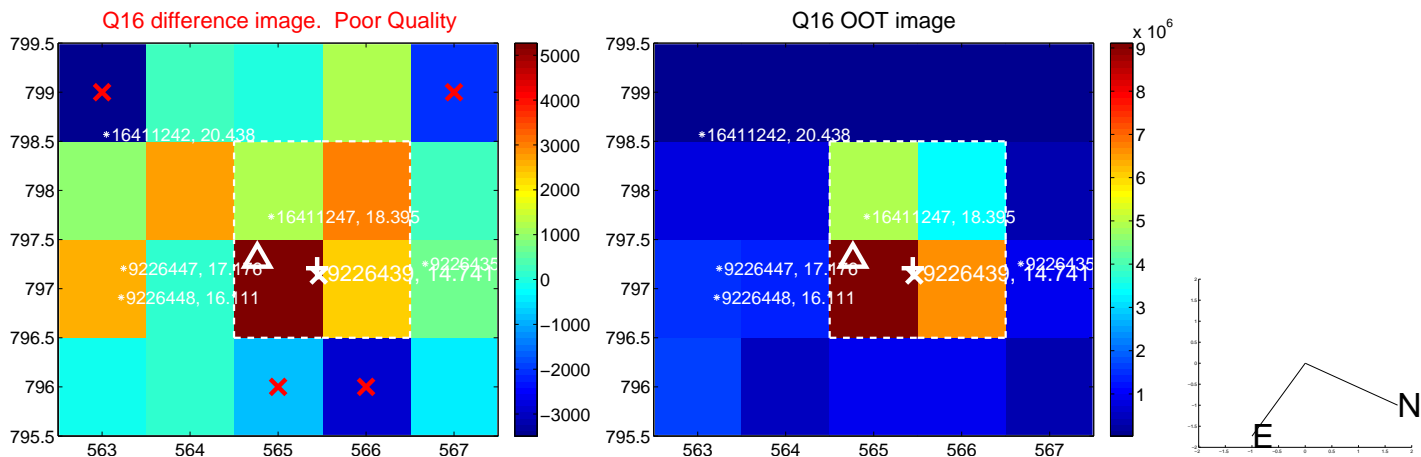
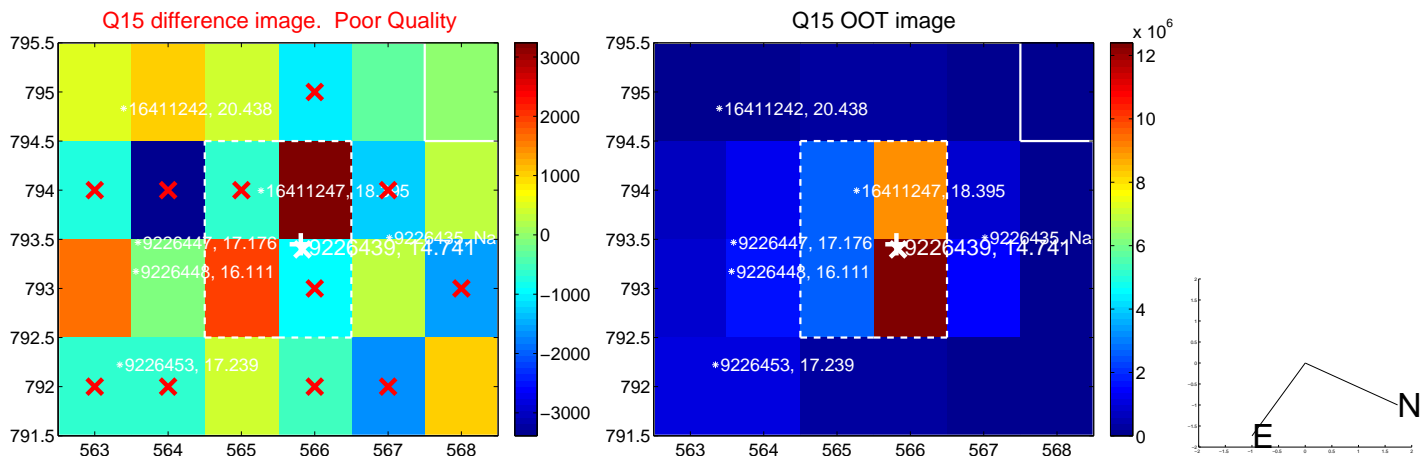
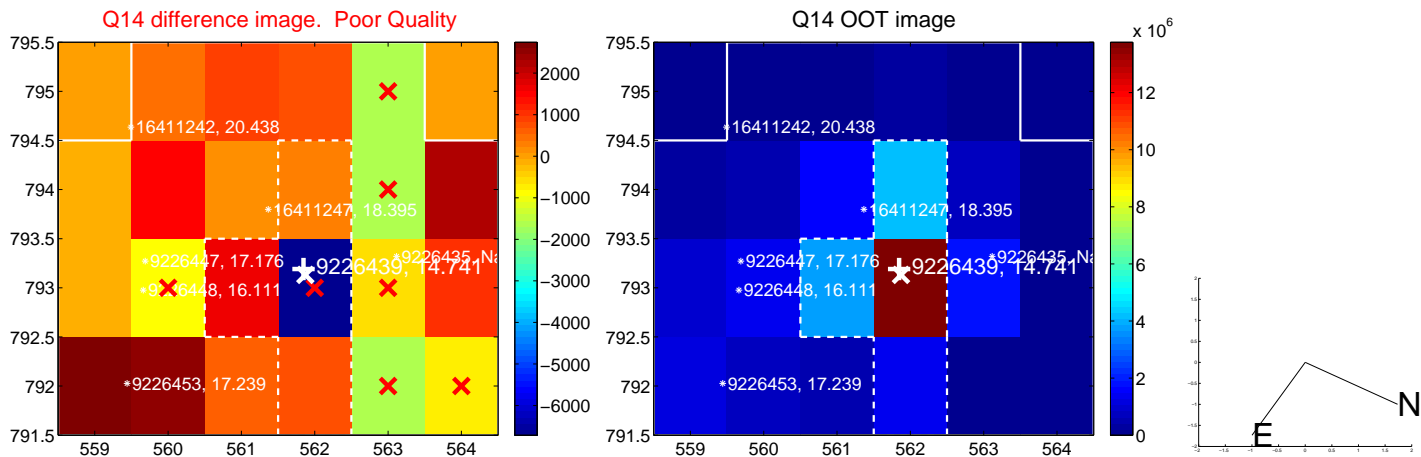
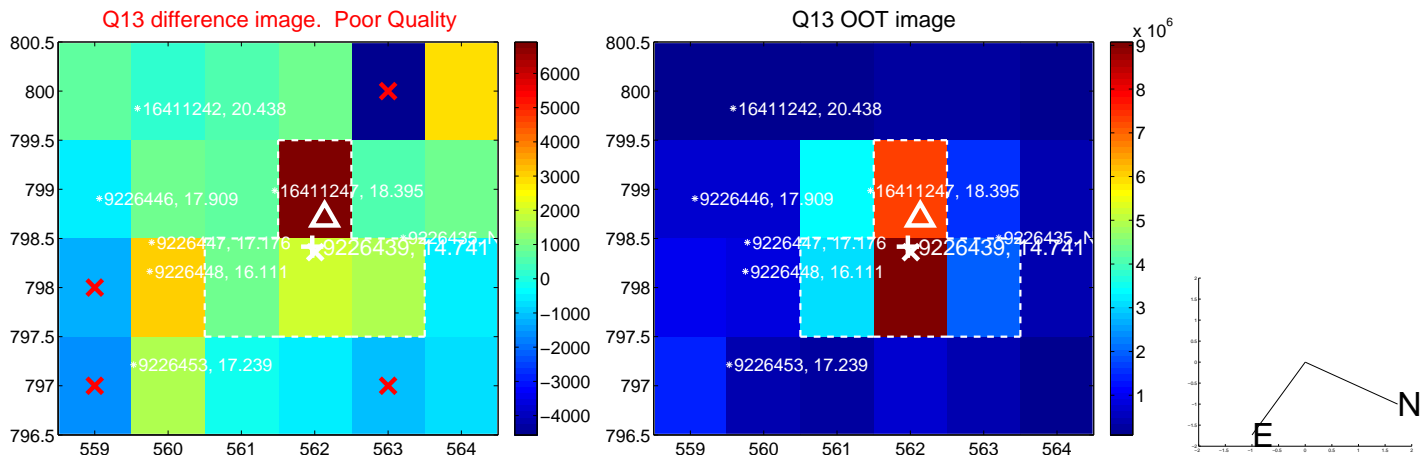
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



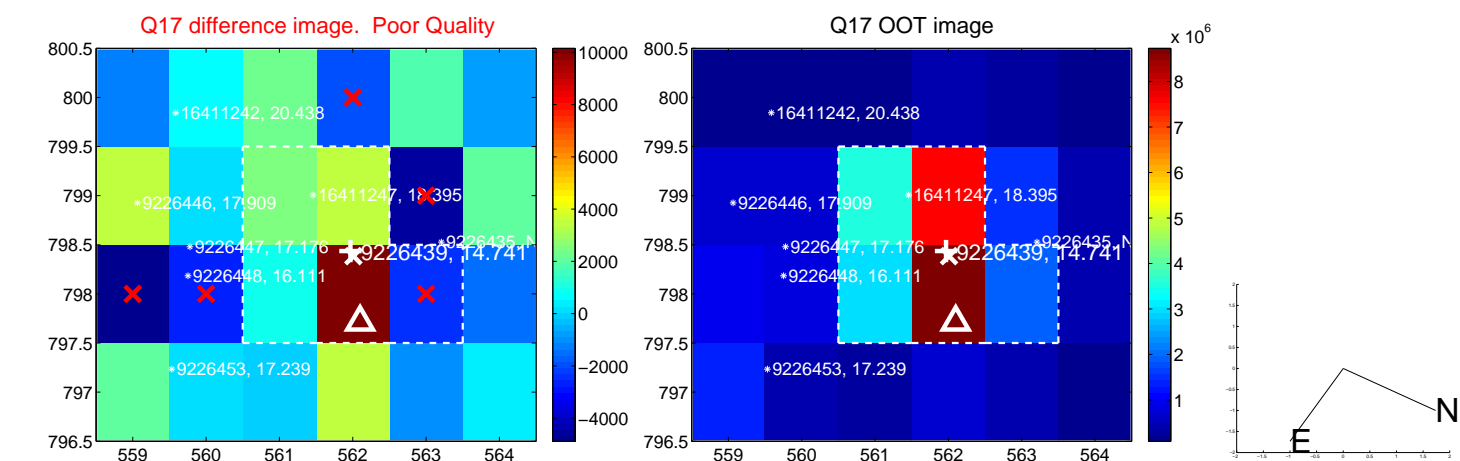
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



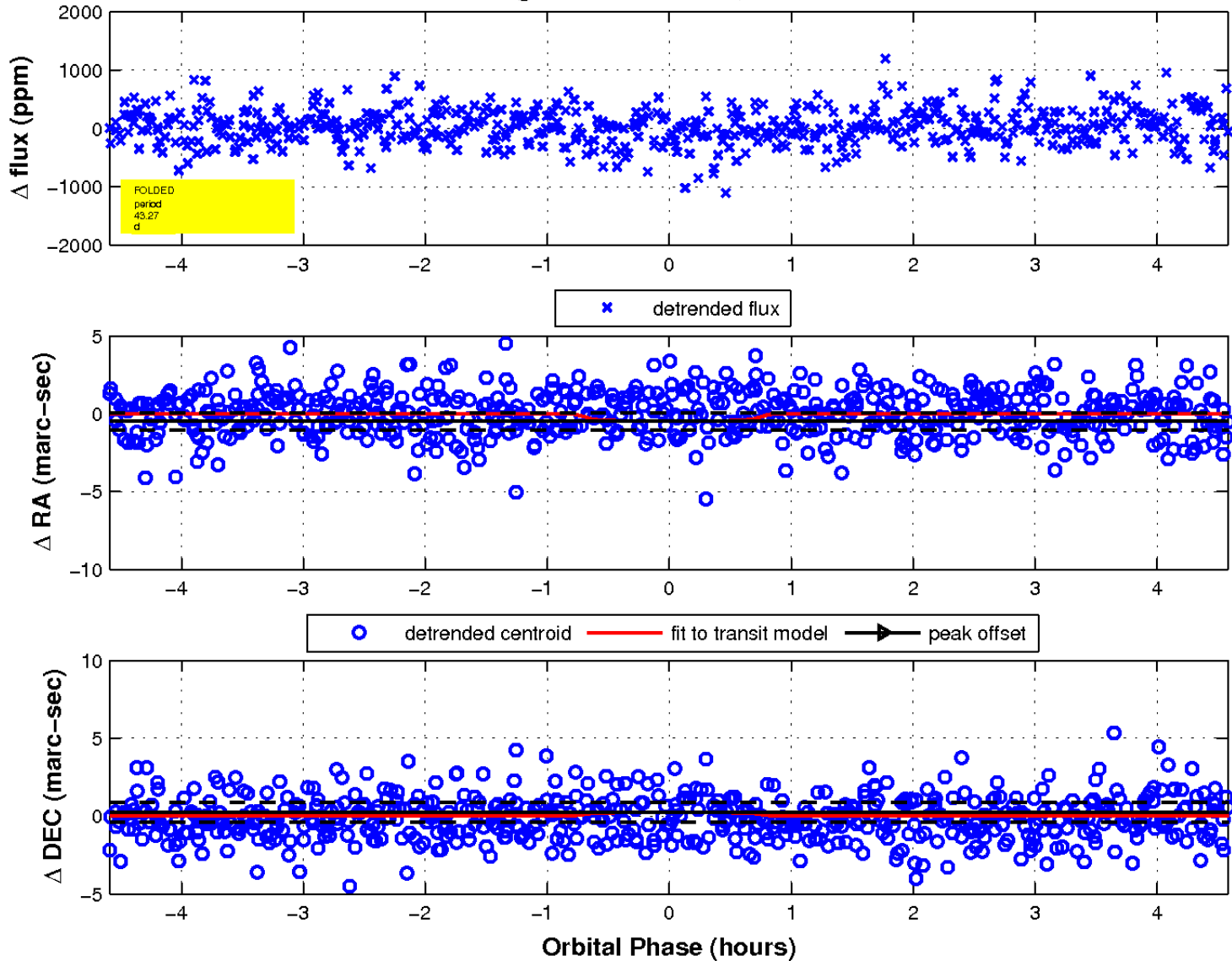
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

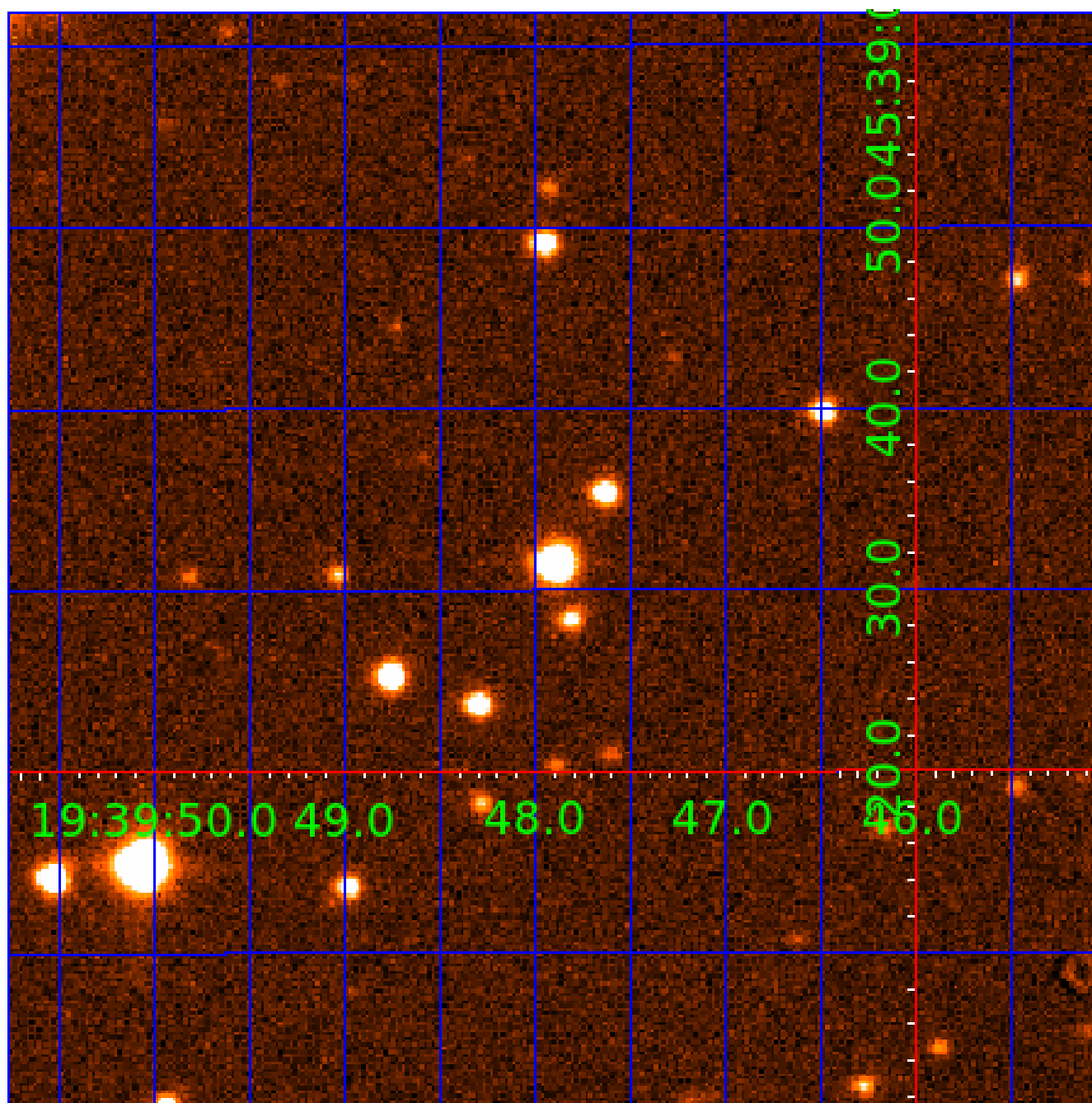


fluxWeightedCentroids, Planet 3 of 5



UKIRT Image

Declination



KIC 009226439

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})
009226439-01	OBS	No	2.433091	131.584319	19.6	16.247	8.0	5.8	0.88	6078	0.39	783.48
009226439-02	OBS	No	86.972820	146.910788	382.8	5.083	9.8	10.2	0.88	6078	1.96	6.65
009226439-03	OBS	No	43.274924	149.555806	702.7	1.534	8.8	8.9	0.88	6078	2.37	16.88
009226439-04	OBS	No	62.934416	141.956605	354.3	4.808	8.0	8.2	0.88	6078	1.86	10.24
009226439-05	OBS	No	14.877608	133.590700	285.4	1.860	8.1	8.8	0.88	6078	1.84	70.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009226439-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST
009226439-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
009226439-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
009226439-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
009226439-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_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.

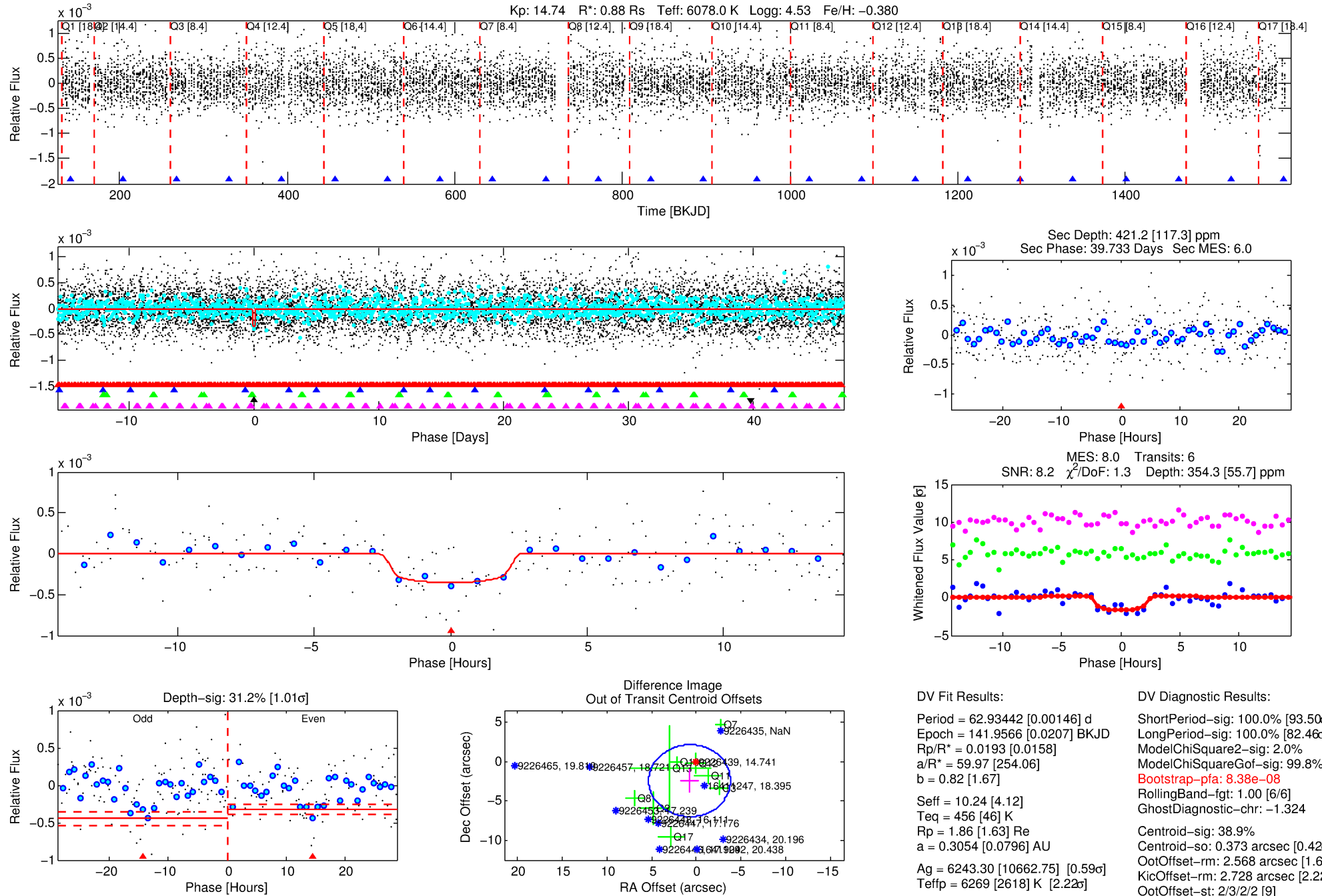
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009226439-04

No Significant Match Found

DV One-Page Summary

KIC: 9226439 Candidate: 4 of 5 Period: 62.934 d



DV Fit Results:

Period = 62.93442 [0.00146] d
Epoch = 141.9566 [0.0207] BKJD
Rp/R* = 0.0193 [0.0158]
a/R* = 59.97 [254.06]
b = 0.82 [1.67]
Seff = 10.24 [4.12]
Teq = 456 [46] K
Rp = 1.86 [1.63] Re
a = 0.3054 [0.0796] AU
Ag = 6243.30 [10662.75] [0.59σ]
Teff = 6269 [2618] K [2.22σ]

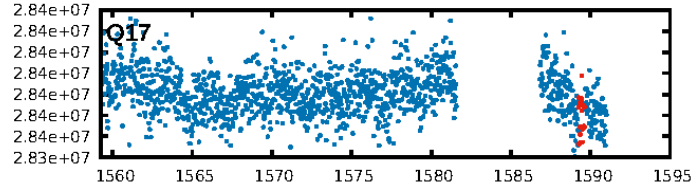
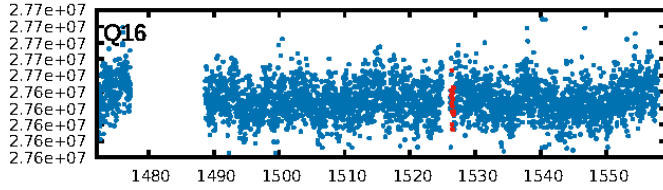
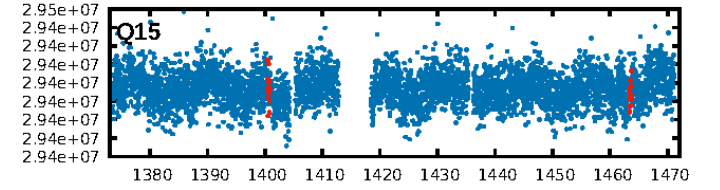
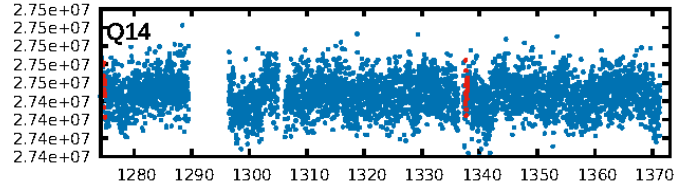
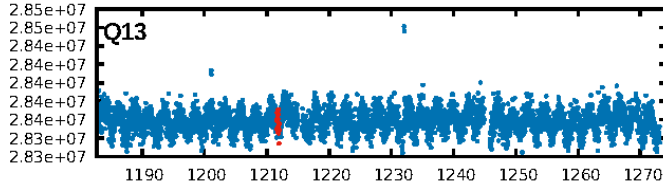
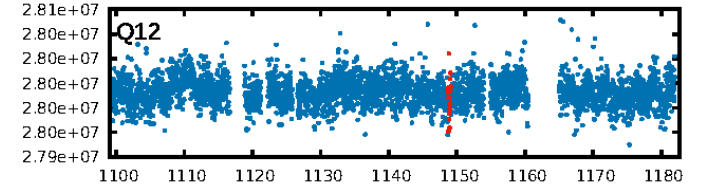
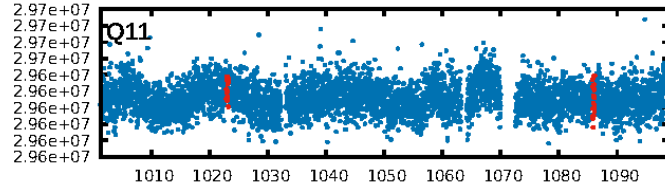
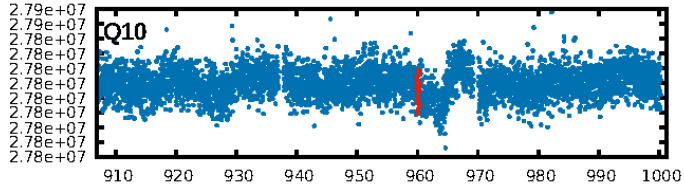
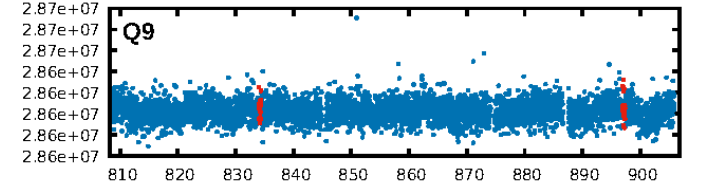
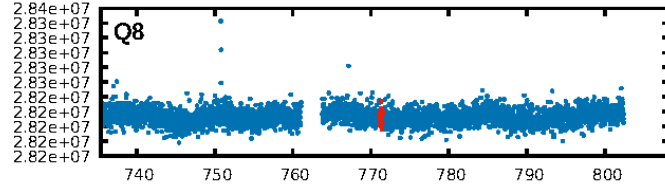
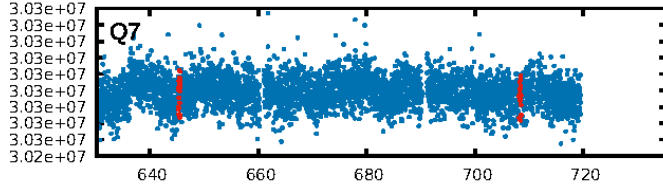
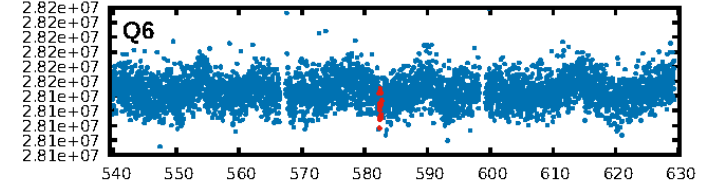
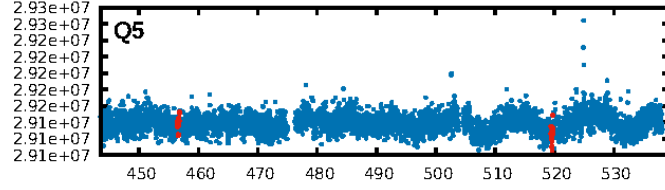
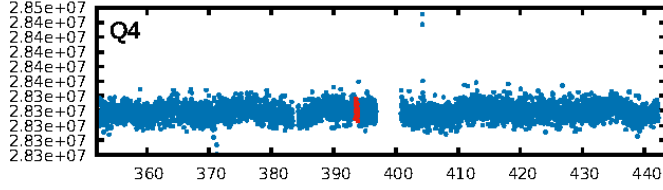
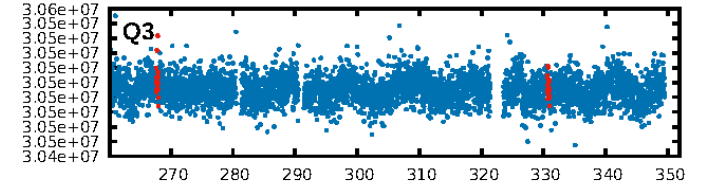
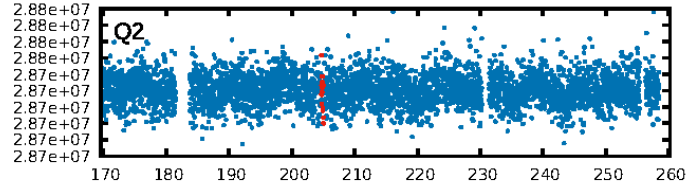
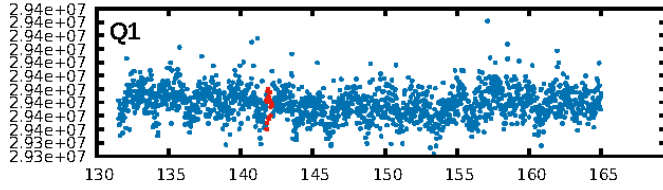
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [93.50σ]
LongPeriod-sig: 100.0% [82.46σ]
ModelChiSquare2-sig: 2.0%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 8.38e-08
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -1.324
Centroid-sig: 38.9%
Centroid-so: 0.373 arcsec [0.42σ]
OotOffset-rm: 2.568 arcsec [1.69σ]
OotOffset-st: 2/3/2/2 [9]
KicOffset-rm: 2.728 arcsec [2.22σ]
KicOffset-st: 2/3/2/2 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 0.33 [5/15]

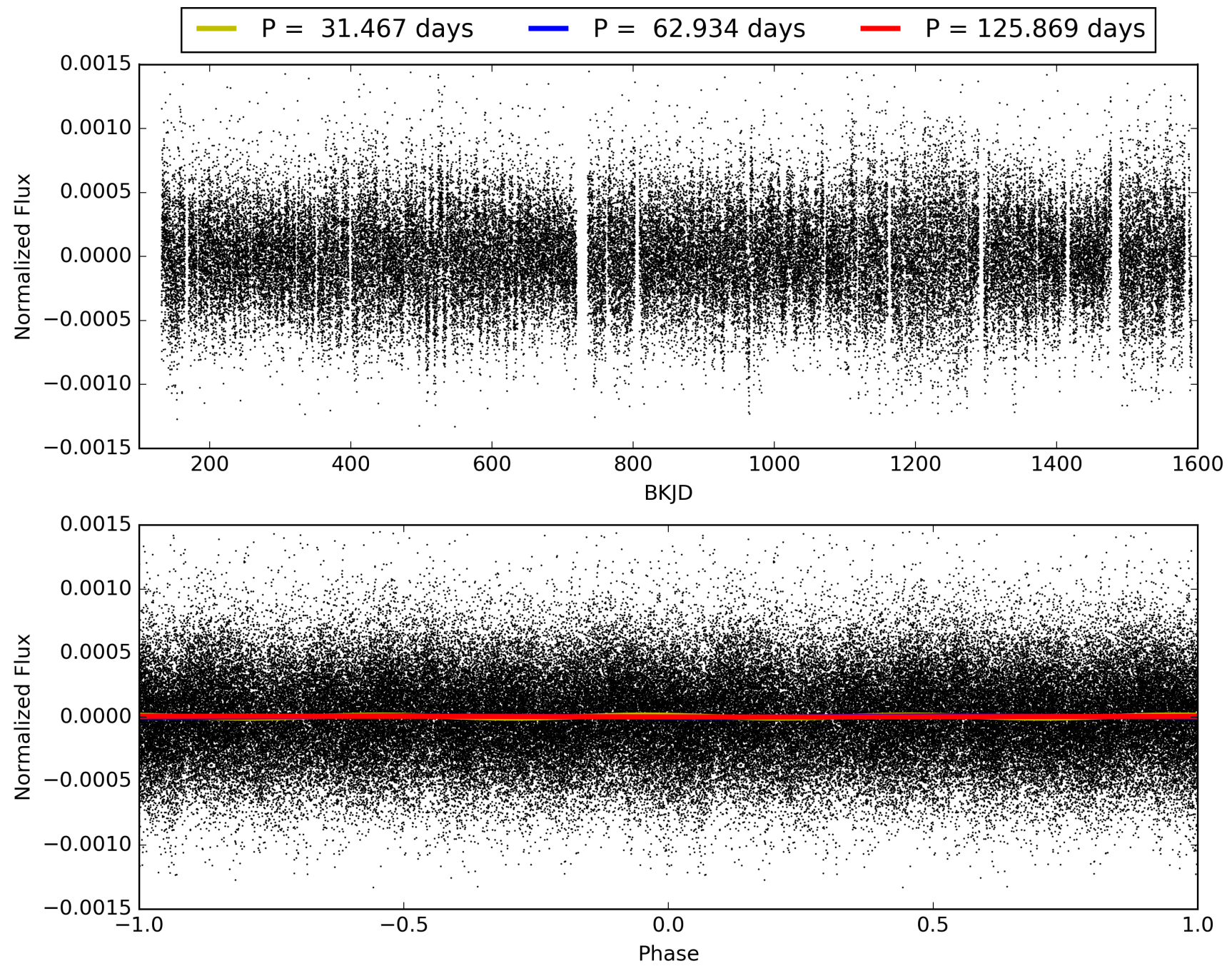
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 23:14:47 Z

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

TCE 009226439-04, PDC Light Curves

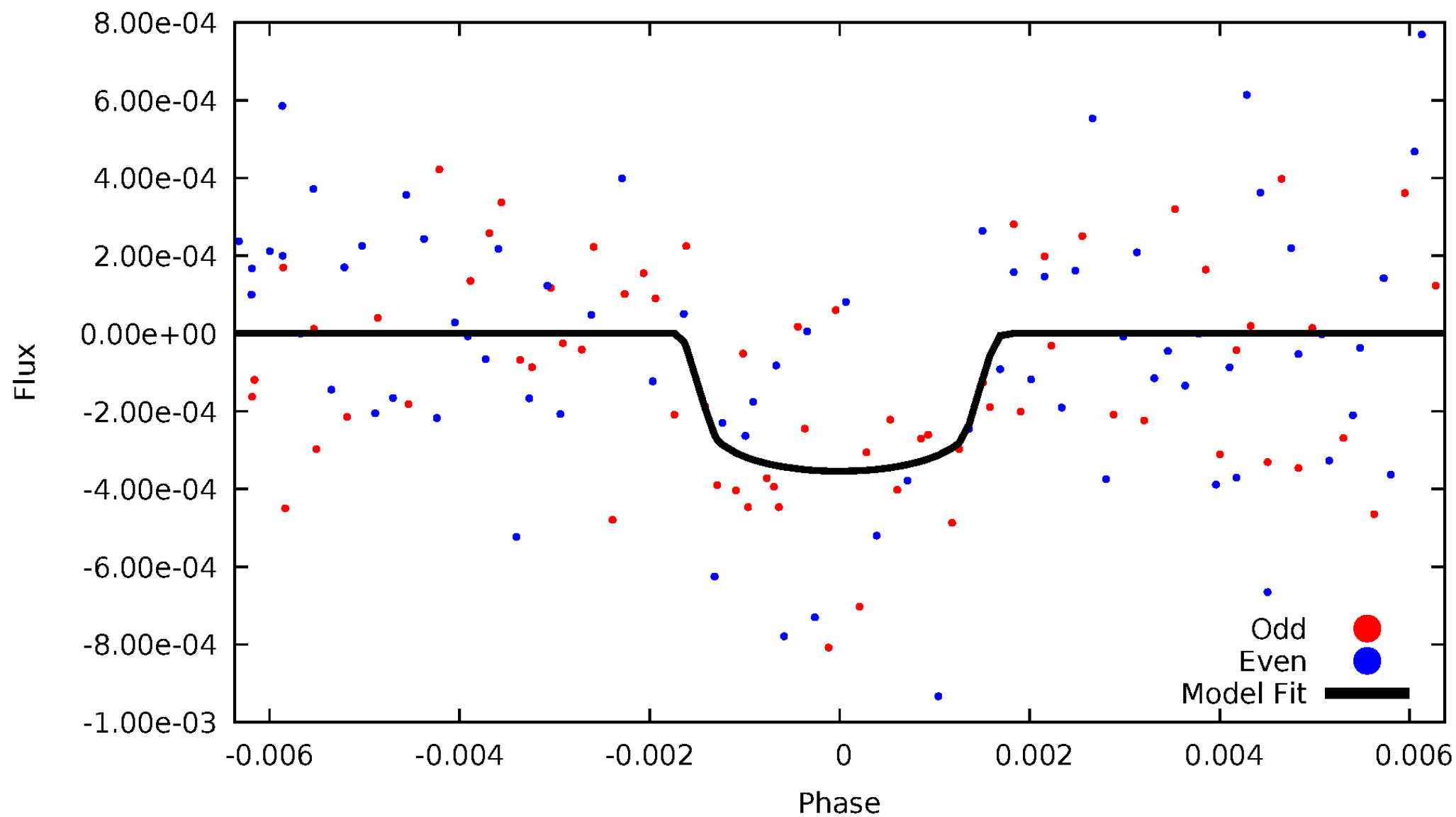


TCE 009226439-04



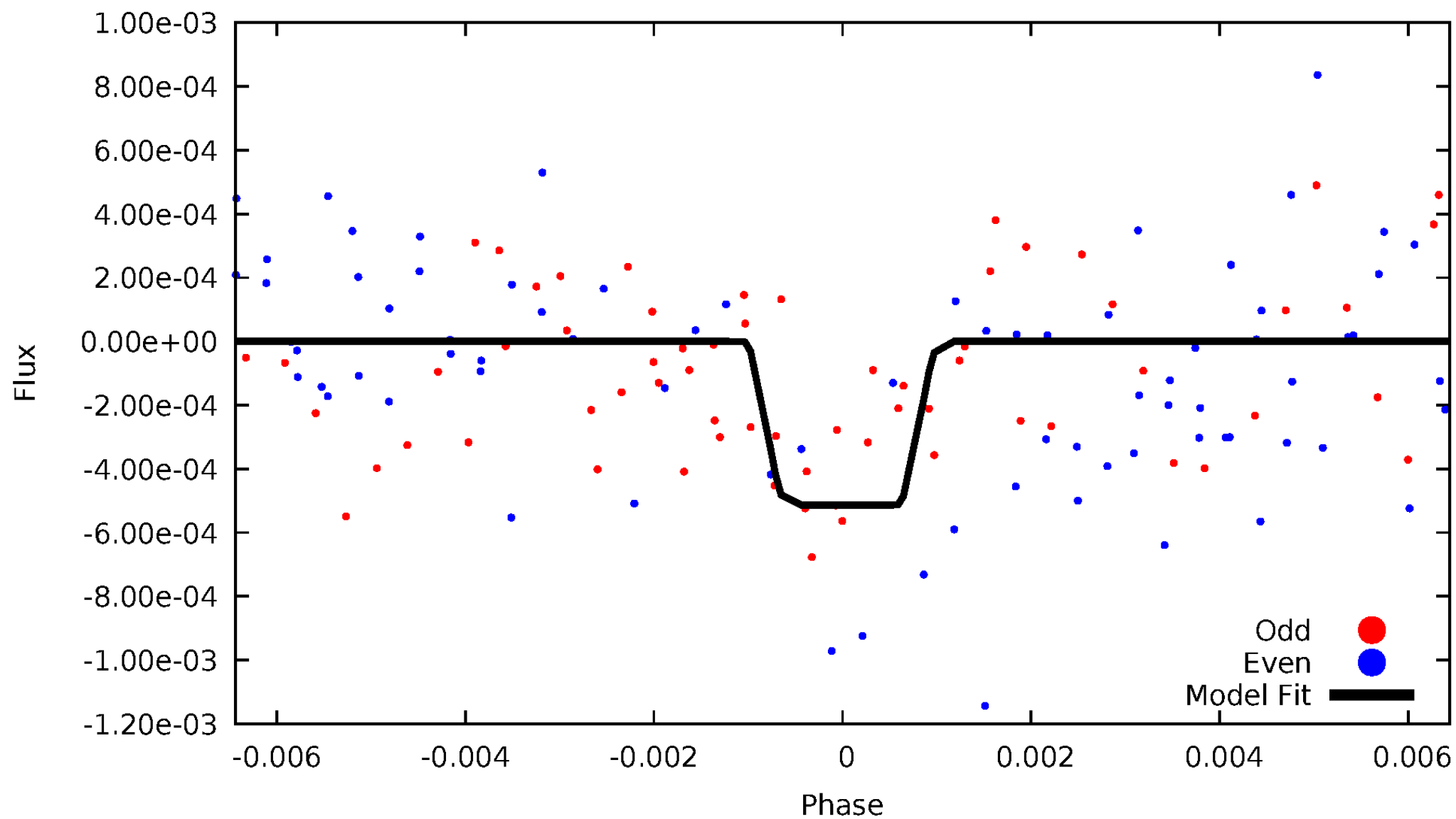
DV Odd/Even

TCE 009226439-04



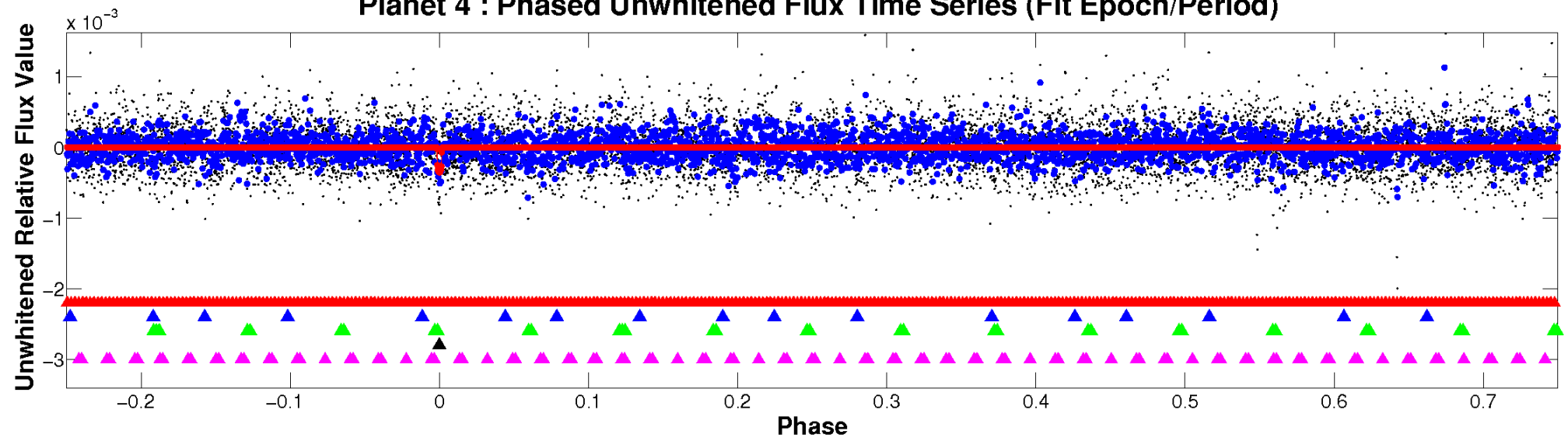
ALT Odd/Even

TCE 009226439-04

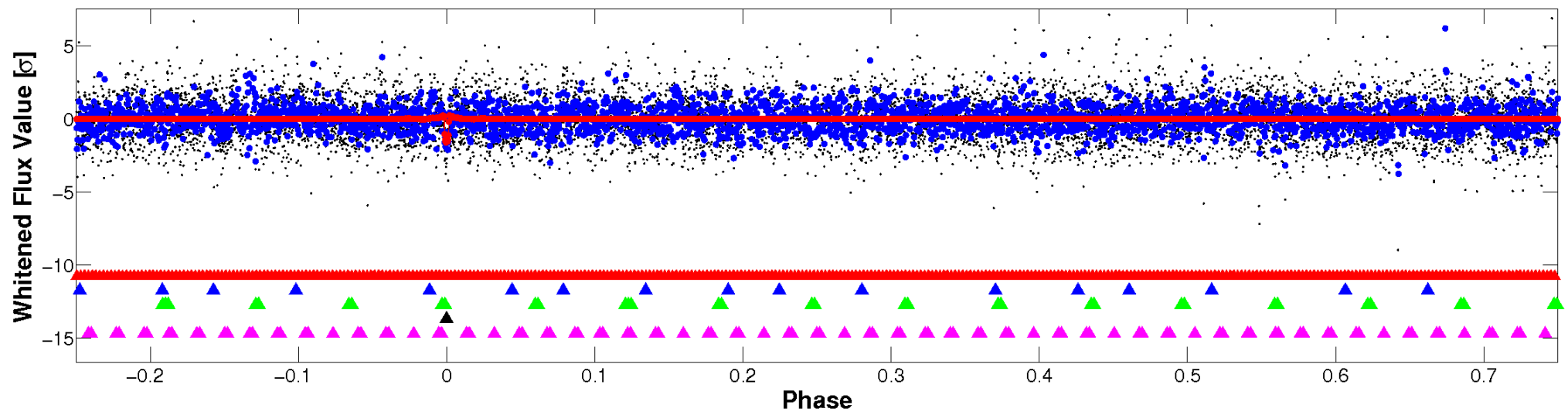


Non-Whitened Vs. Whitened Light Curve

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

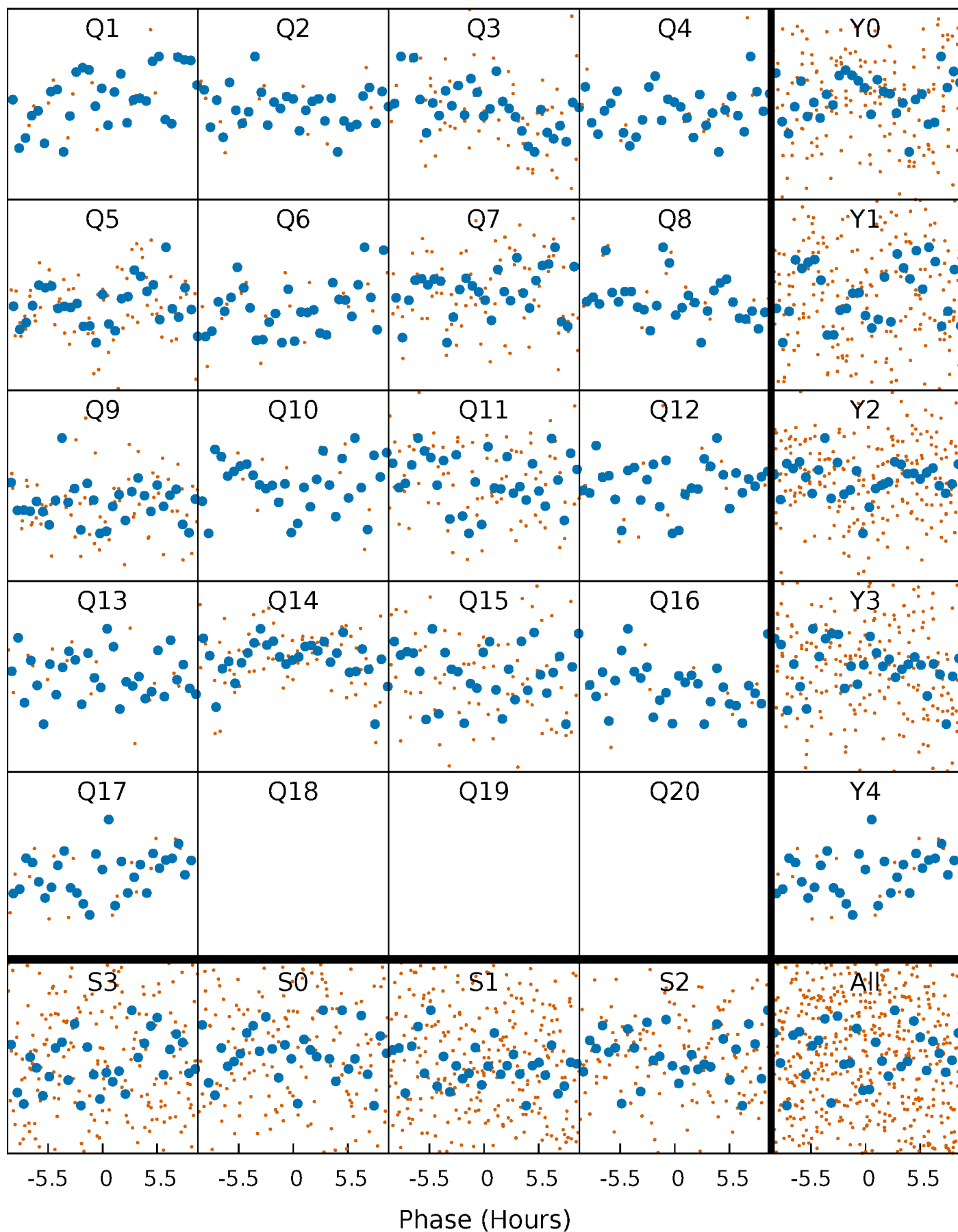


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



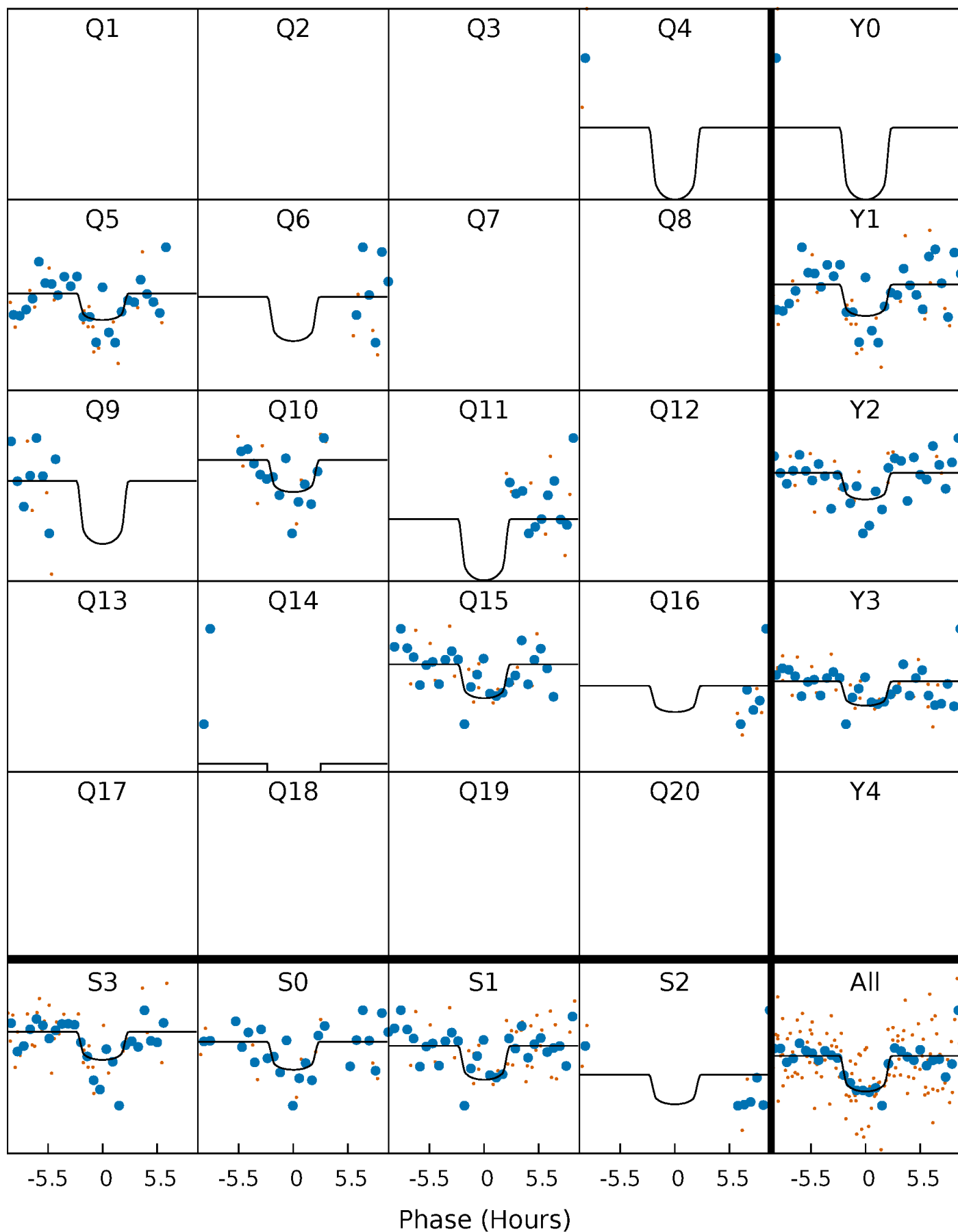
PDC Quarter-Phased Transit Curves

TCE 009226439-04 P= 62.934416 Days $T_0=141.956605$ (BKJD)



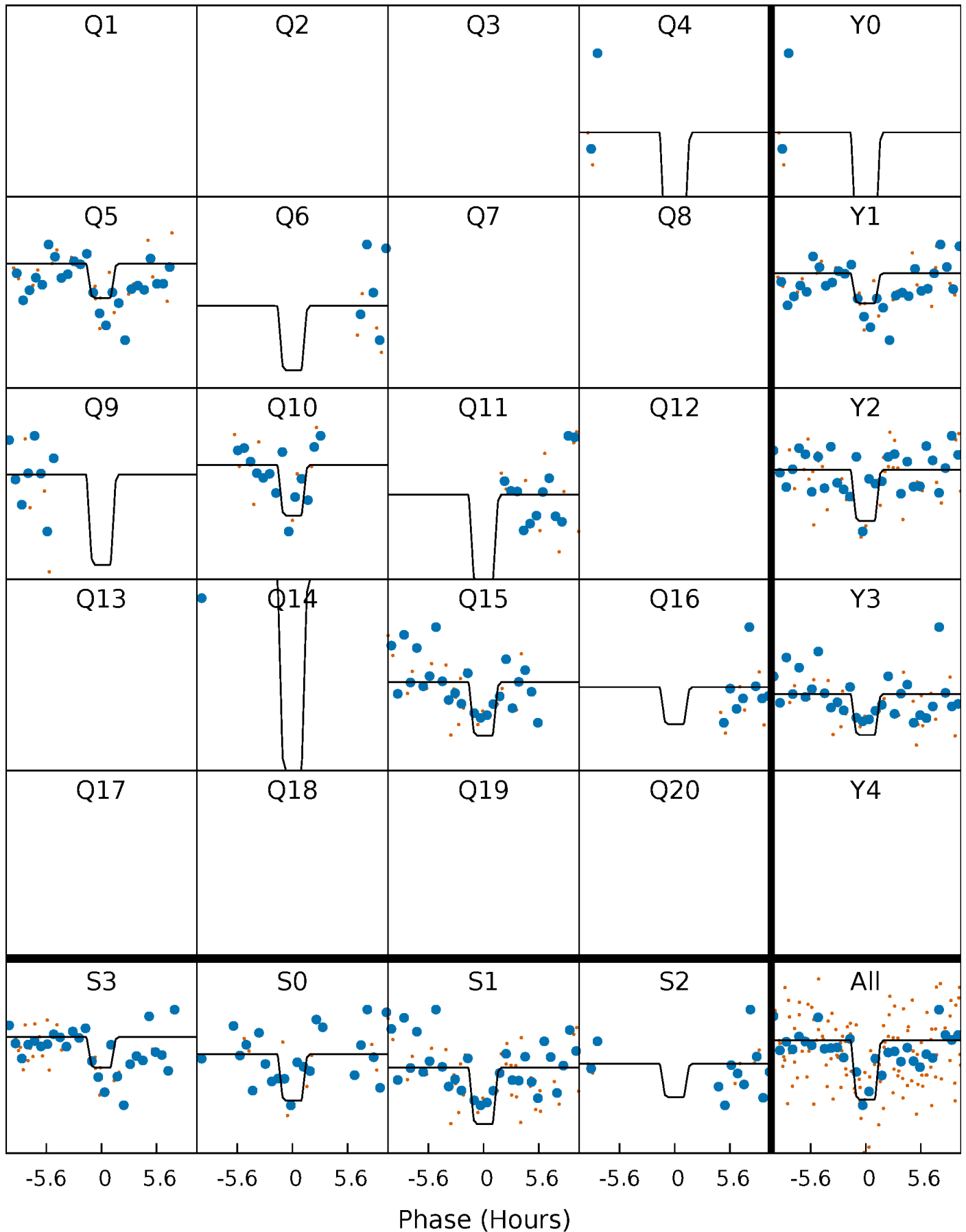
DV Quarter-Phased Transit Curves

TCE 009226439-04 P= 62.934416 Days $T_0=141.956605$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

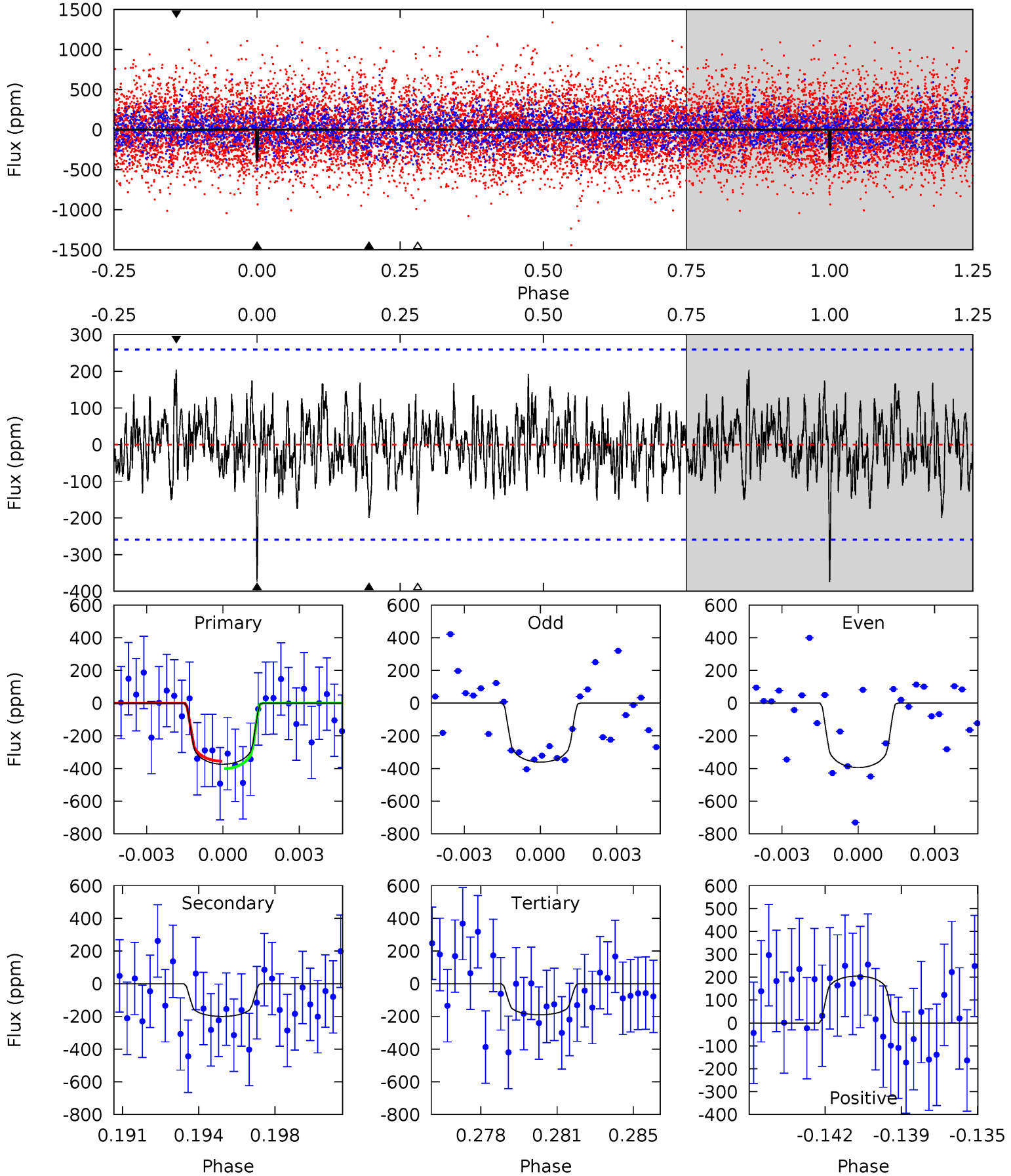
TCE 009226439-04 P= 62.940547 Days $T_0=141.890110$ (BKJD)



DV Model-Shift Uniqueness Test

009226439-04, P = 62.934416 Days, E = 79.022189 Days

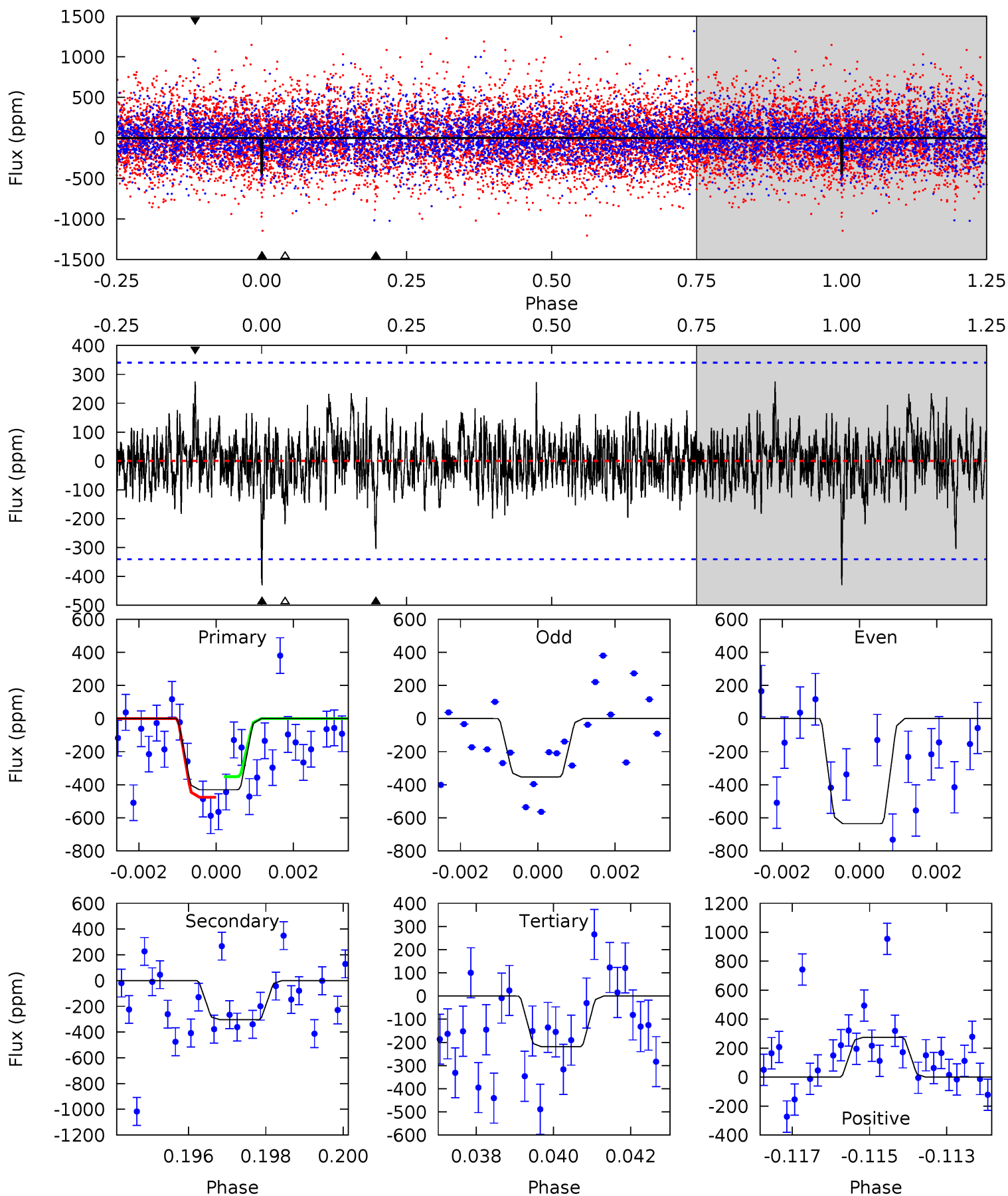
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.54	4.03	3.83	4.12	5.23	2.92	1.29	3.71	3.42	0.20	-0.09	0.32	0.88	0.35	0.46



Alt Model-Shift Uniqueness Test

009226439-04, P = 62.940547 Days, E = 78.949563 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.73	4.75	3.43	4.30	5.33	3.09	1.11	3.30	2.43	1.33	0.46	1.95	1.04	0.39	0.93



Stellar Parameters For KIC 009226439

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6078^{+164}_{-201}	$4.527^{+0.052}_{-0.208}$	$-0.380^{+0.300}_{-0.300}$	$0.884^{+0.273}_{-0.091}$	$0.959^{+0.118}_{-0.118}$	$1.955^{+0.408}_{-0.987}$
	+3%/-3%	+1%/-5%	+79%/-79%	+31%/-10%	+12%/-12%	+21%/-50%
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 009226439-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-200 ± 50	$2.16^{+1.72}_{-1.29}$	652^{+50}_{-33}	5010^{+3224}_{-1018}	2115^{+12423}_{-1491}
Alt.	-304 ± 64	$2.44^{+1.63}_{-1.33}$	651^{+42}_{-34}	5174^{+2664}_{-946}	2471^{+10052}_{-1573}

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

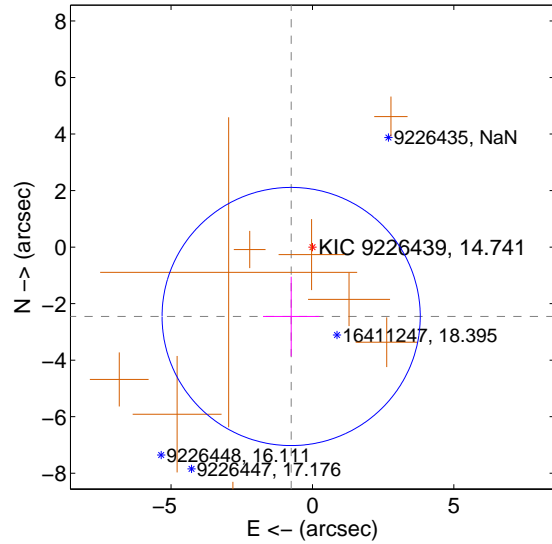
Supplemental centroid analysis for 009226439-04. Kepler magnitude: 14.74. Transit SNR 8.19

There are 0 quarters with good PRF difference image offsets

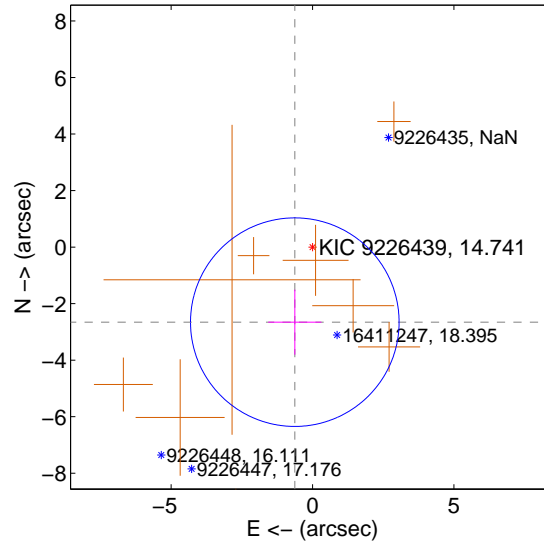
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.568 ± 1.522	1.69	0.753 ± 0.996	-2.455 ± 1.409
PRF-fit source offset from KIC position	2.728 ± 1.230	2.22	0.627 ± 0.940	-2.655 ± 1.152
photometric centroid source offset	0.37 ± 0.89	0.42	0.34 ± 0.87	0.15 ± 0.99

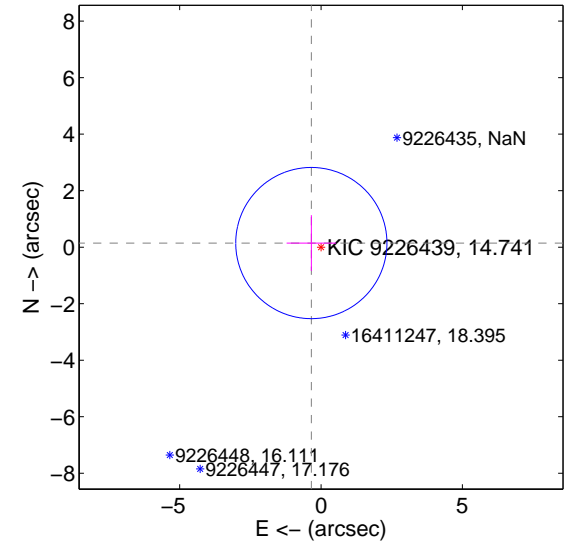
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

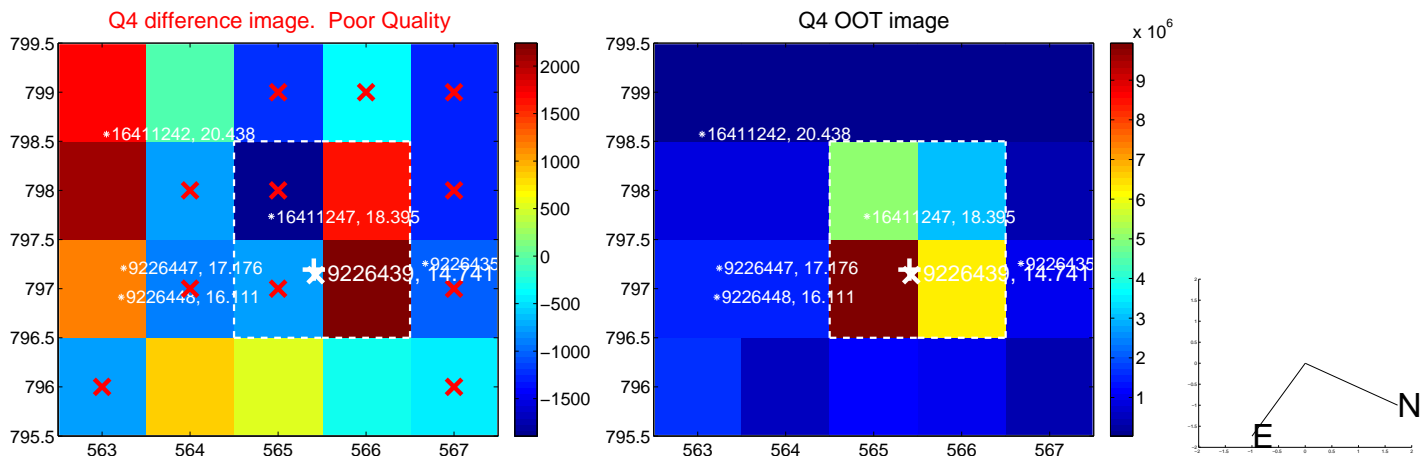
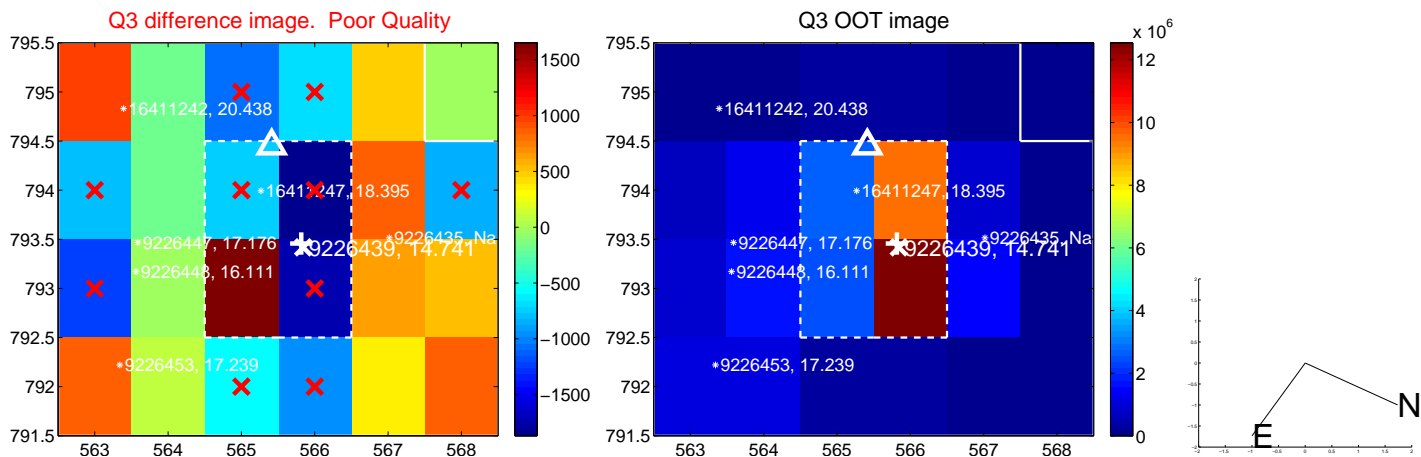
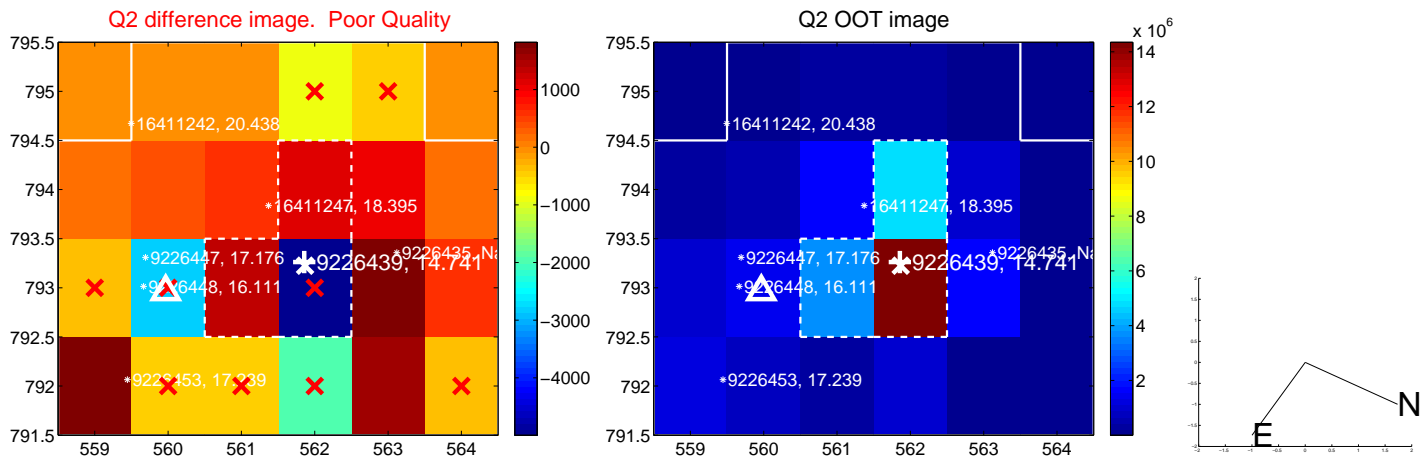
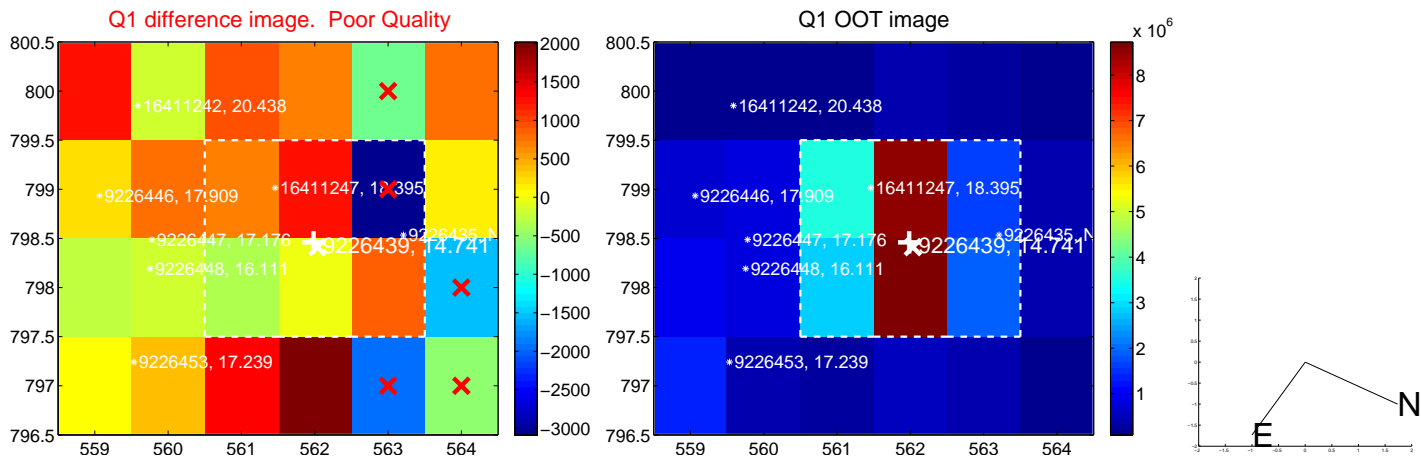


offset from photometric centroids

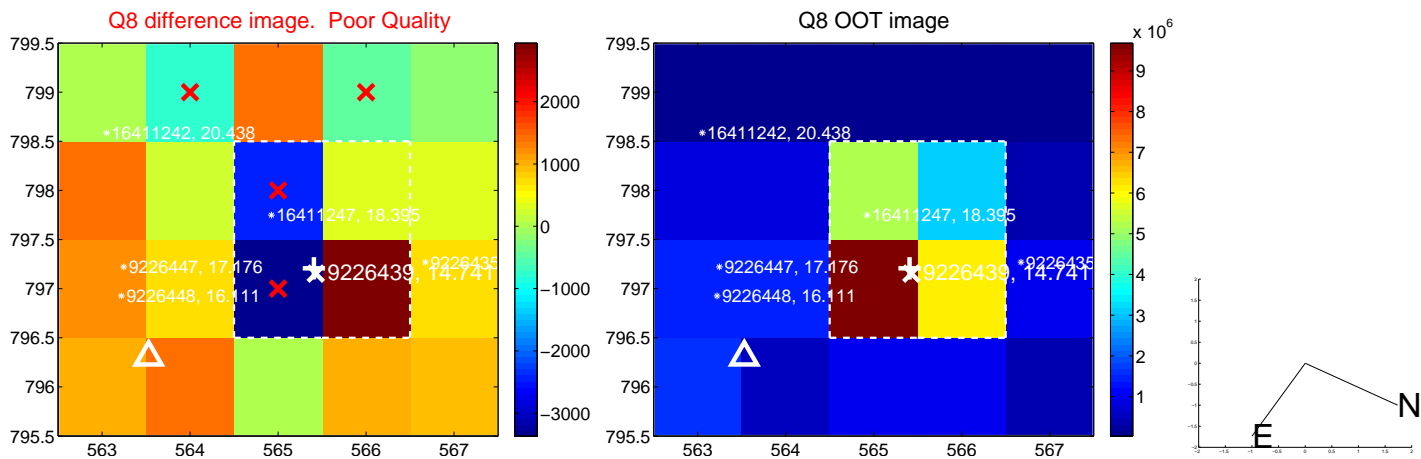
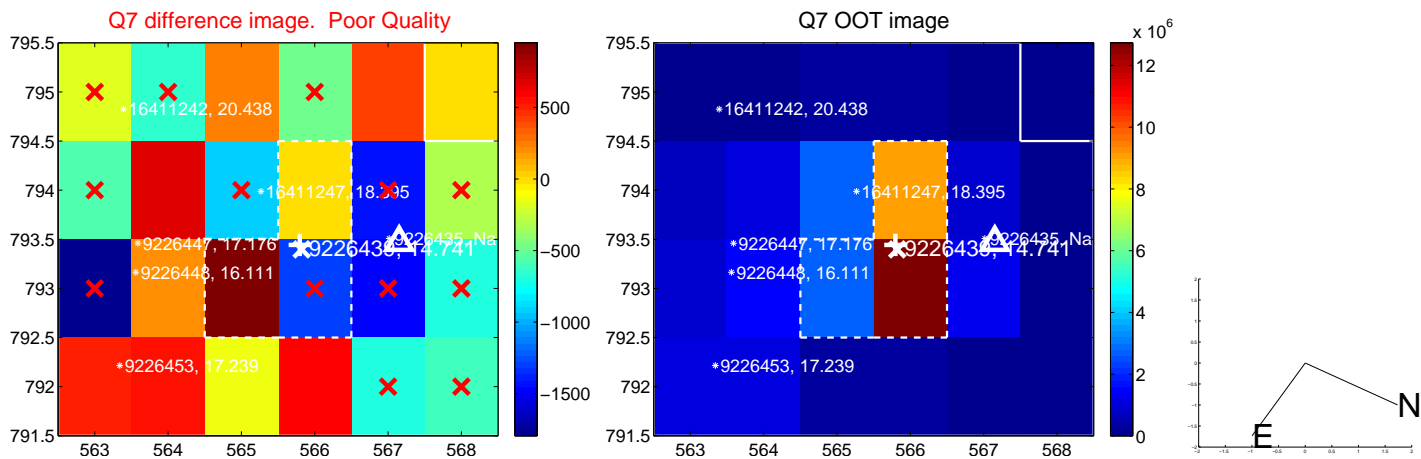
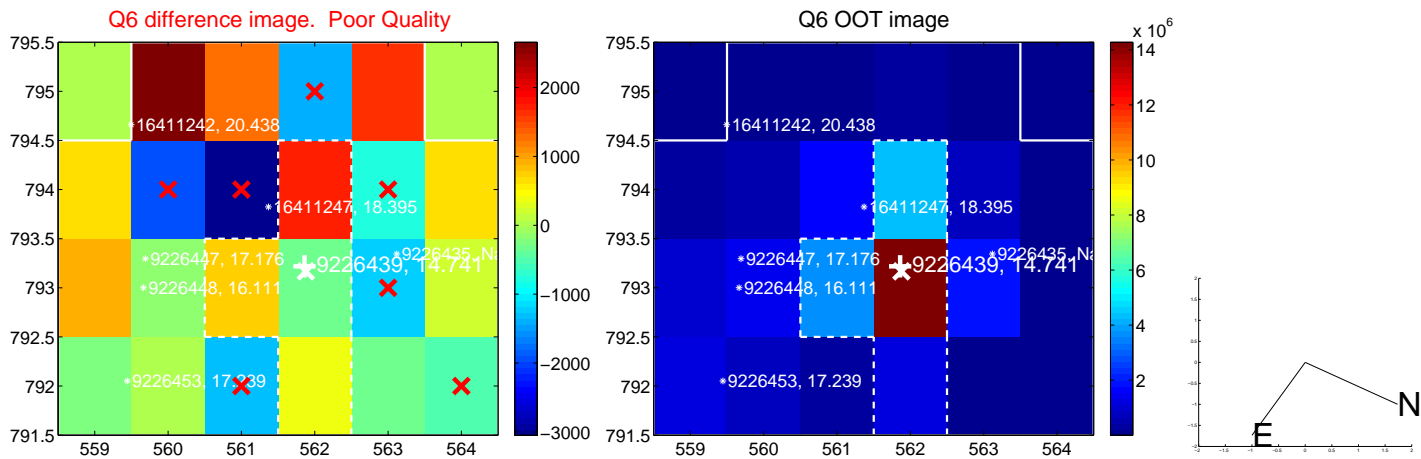
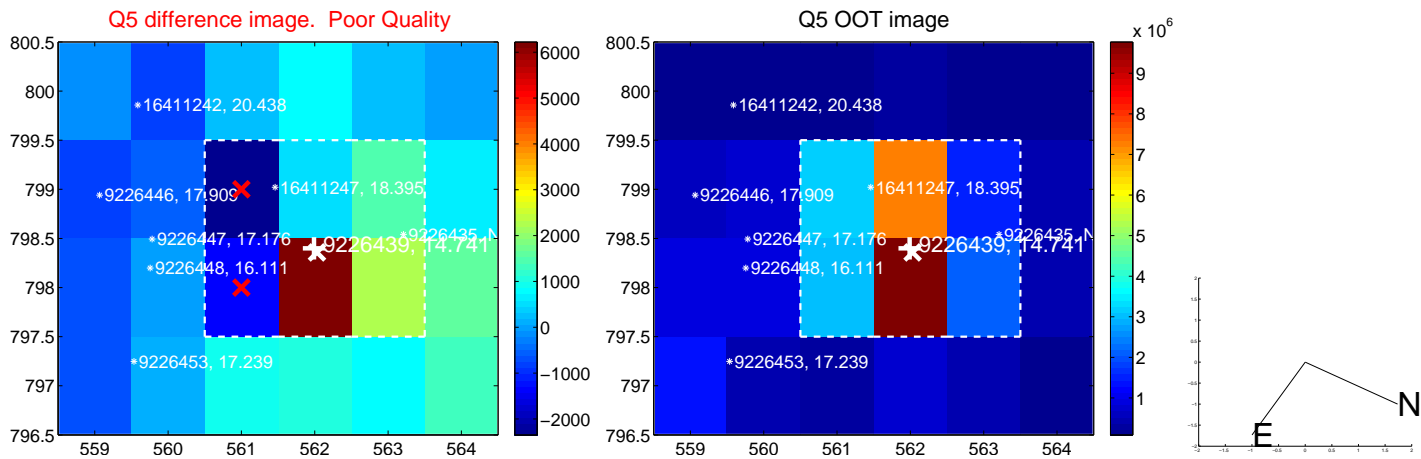


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

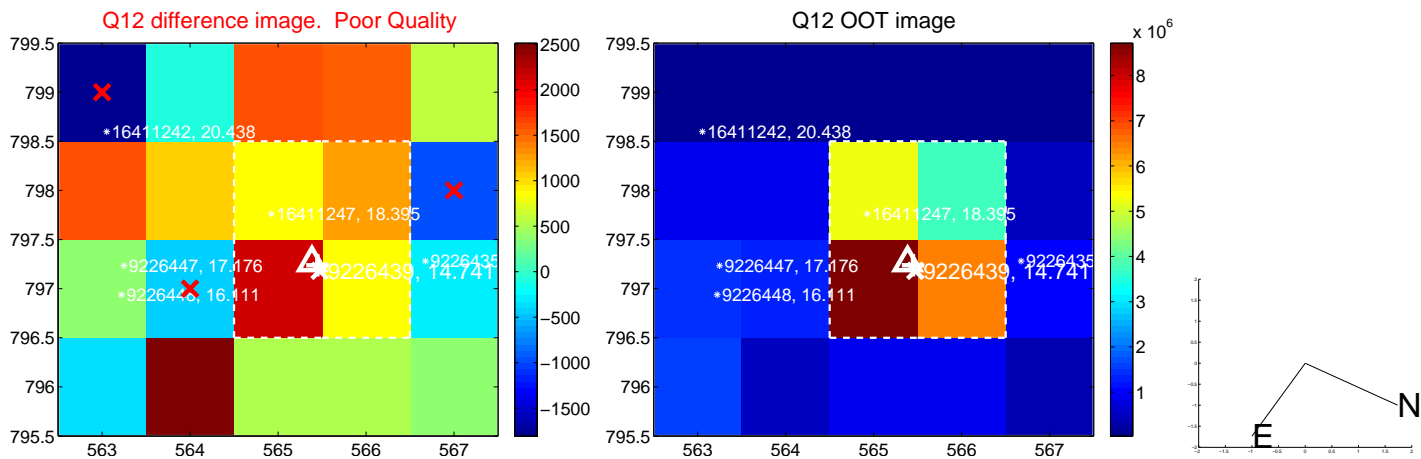
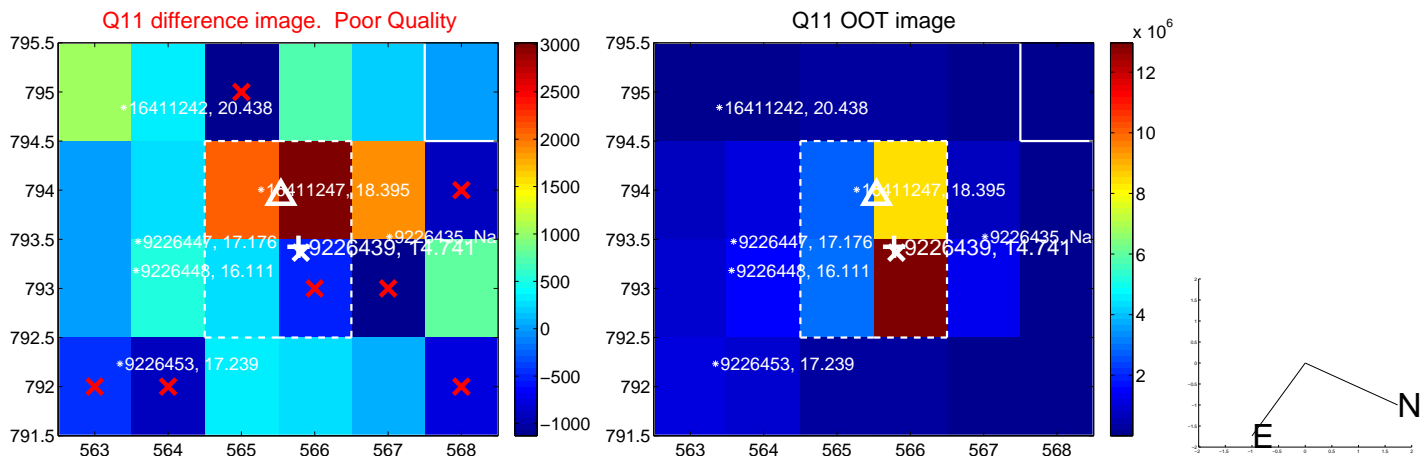
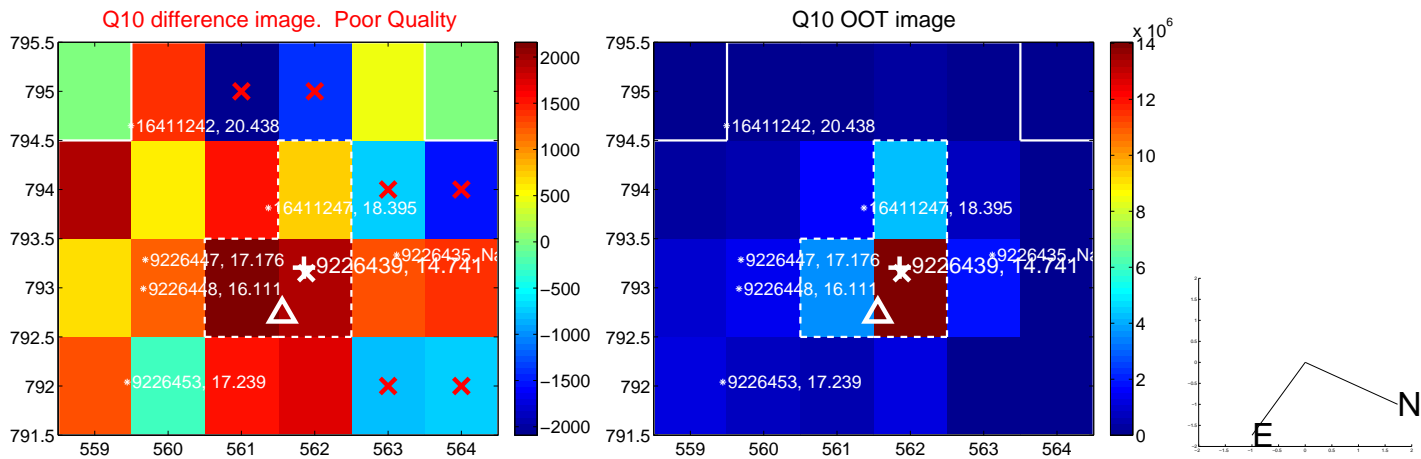
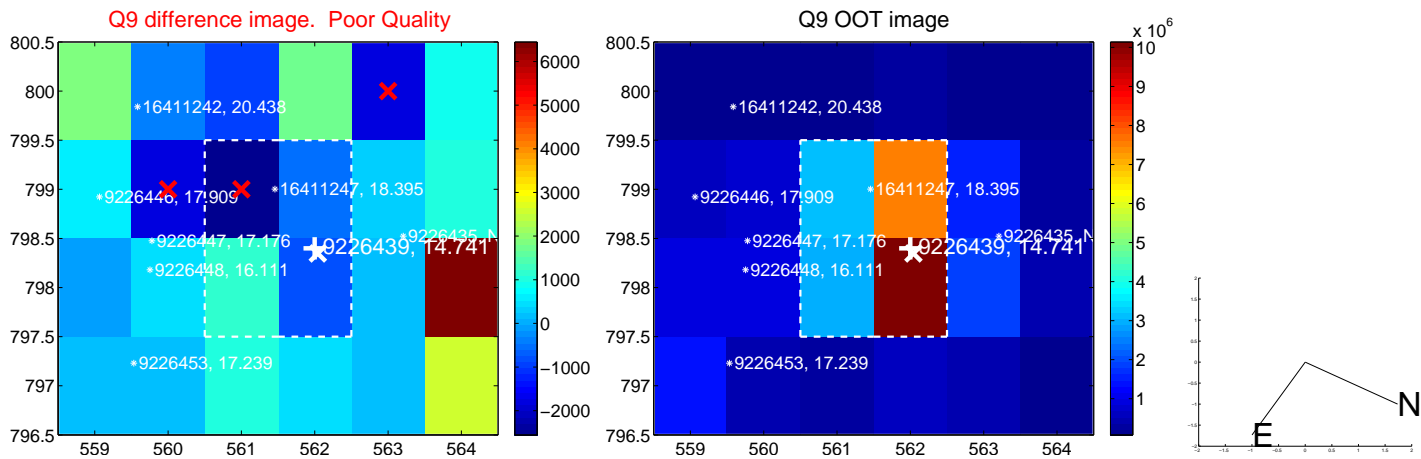
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



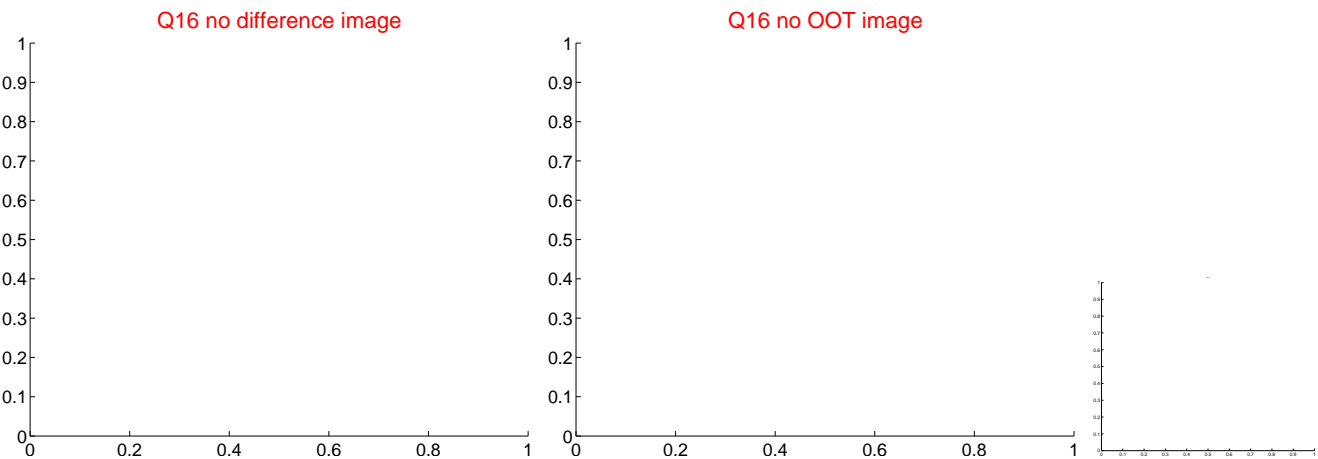
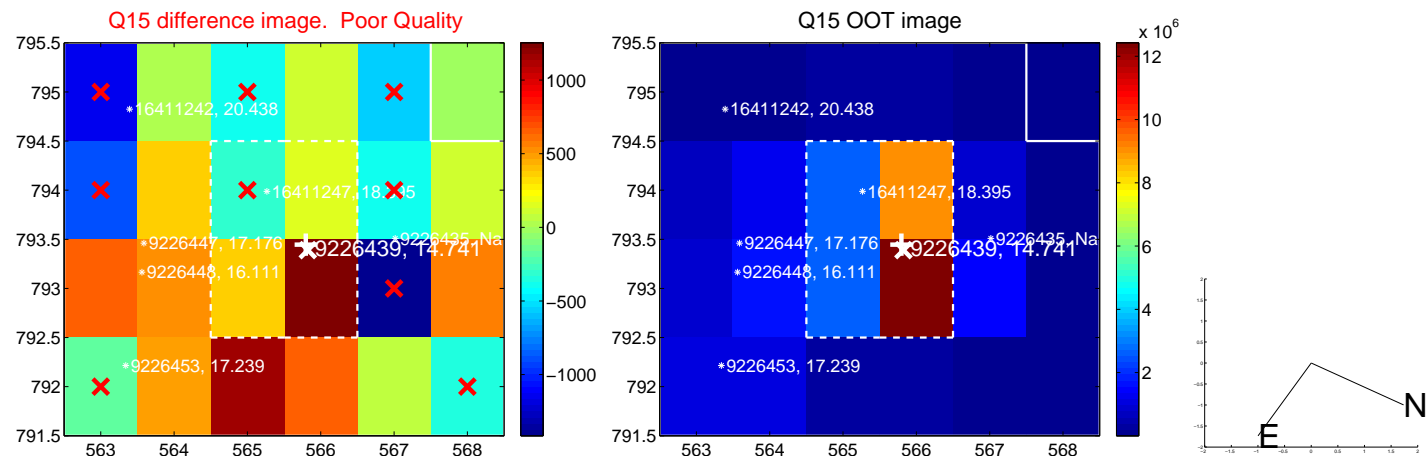
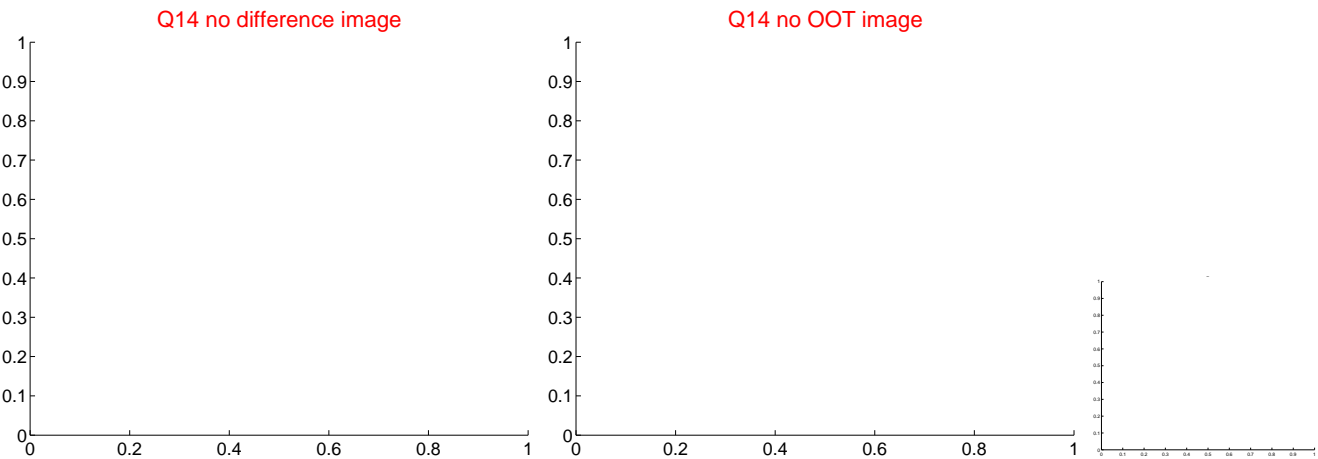
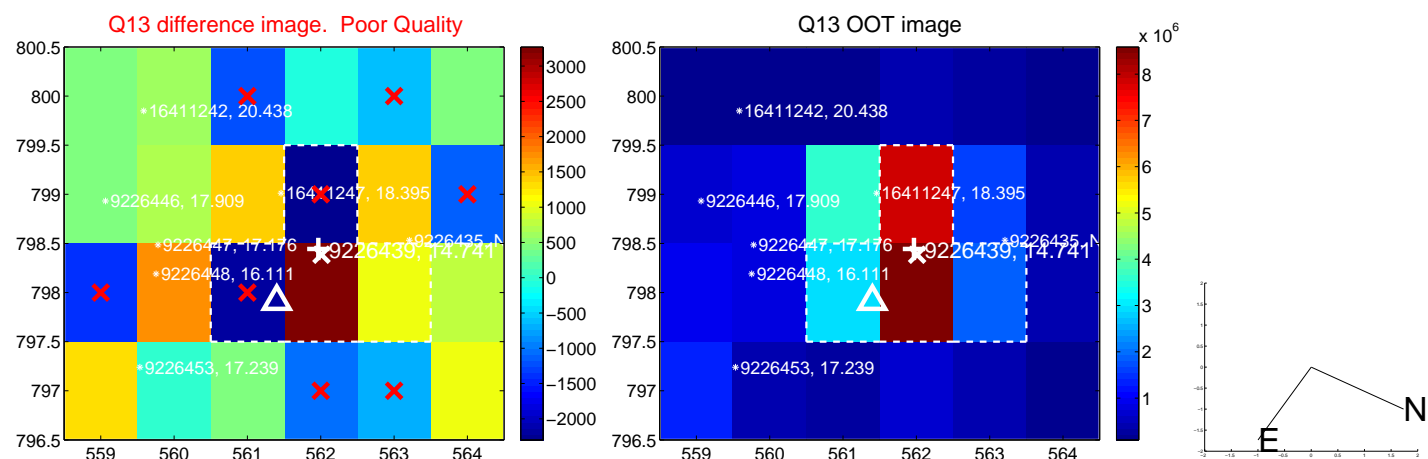
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



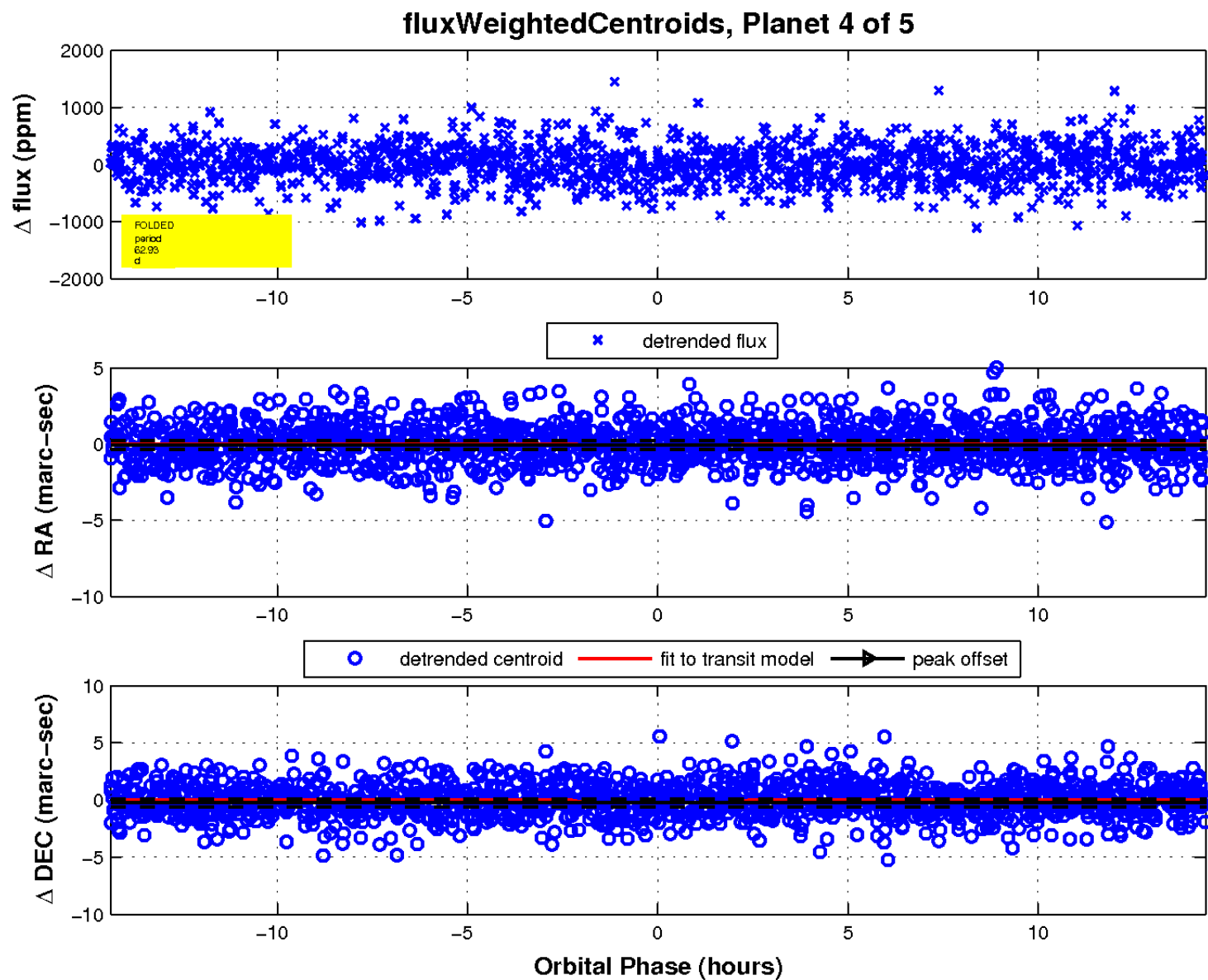
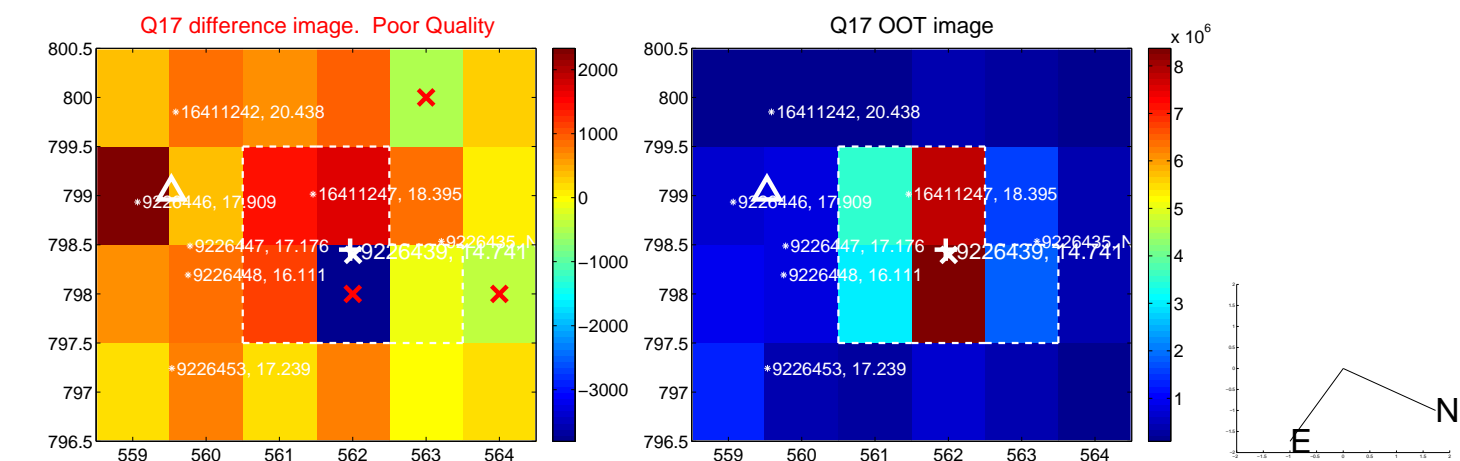
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

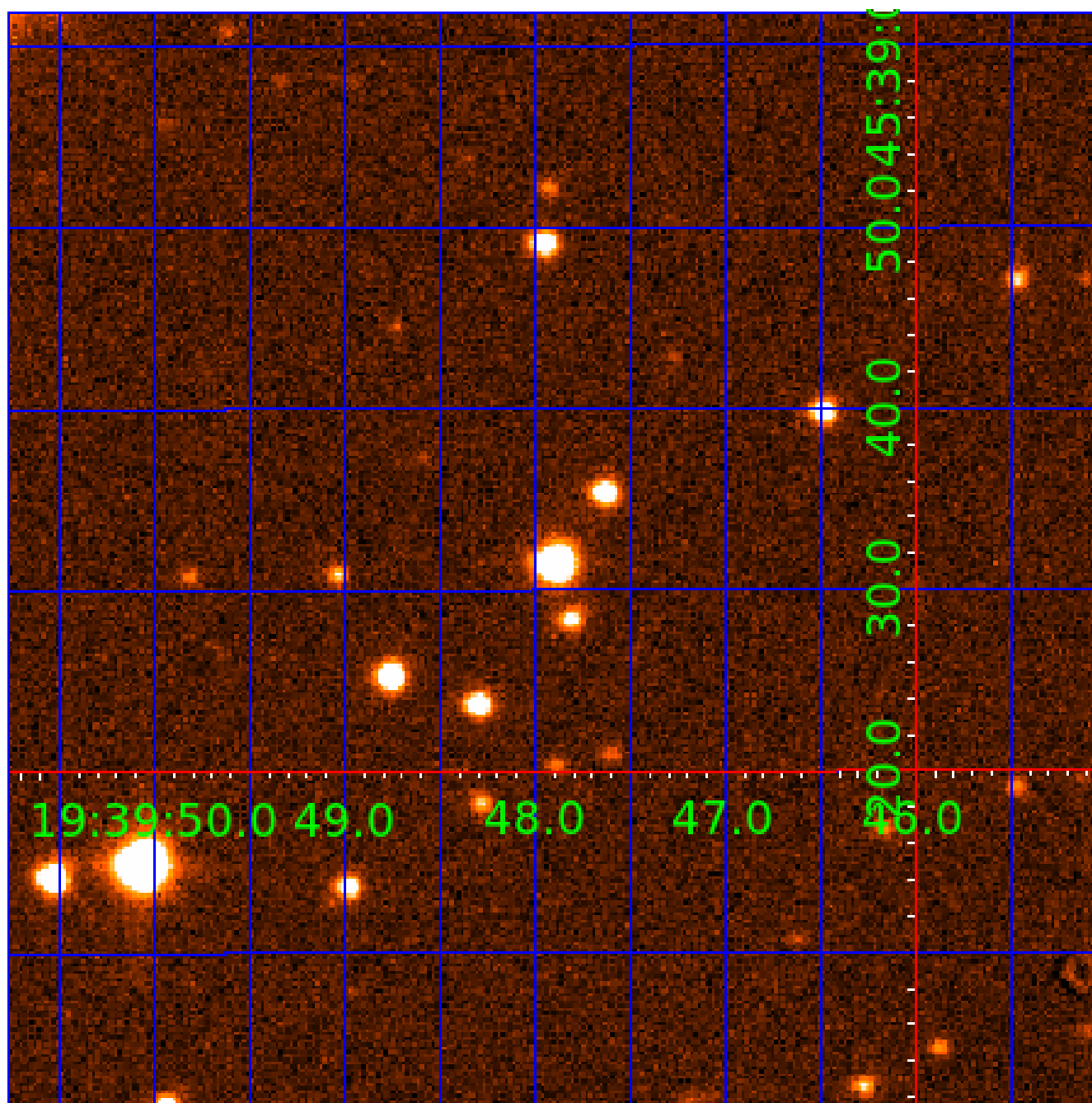


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009226439

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})
009226439-01	OBS	No	2.433091	131.584319	19.6	16.247	8.0	5.8	0.88	6078	0.39	783.48
009226439-02	OBS	No	86.972820	146.910788	382.8	5.083	9.8	10.2	0.88	6078	1.96	6.65
009226439-03	OBS	No	43.274924	149.555806	702.7	1.534	8.8	8.9	0.88	6078	2.37	16.88
009226439-04	OBS	No	62.934416	141.956605	354.3	4.808	8.0	8.2	0.88	6078	1.86	10.24
009226439-05	OBS	No	14.877608	133.590700	285.4	1.860	8.1	8.8	0.88	6078	1.84	70.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009226439-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST
009226439-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
009226439-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
009226439-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
009226439-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_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.

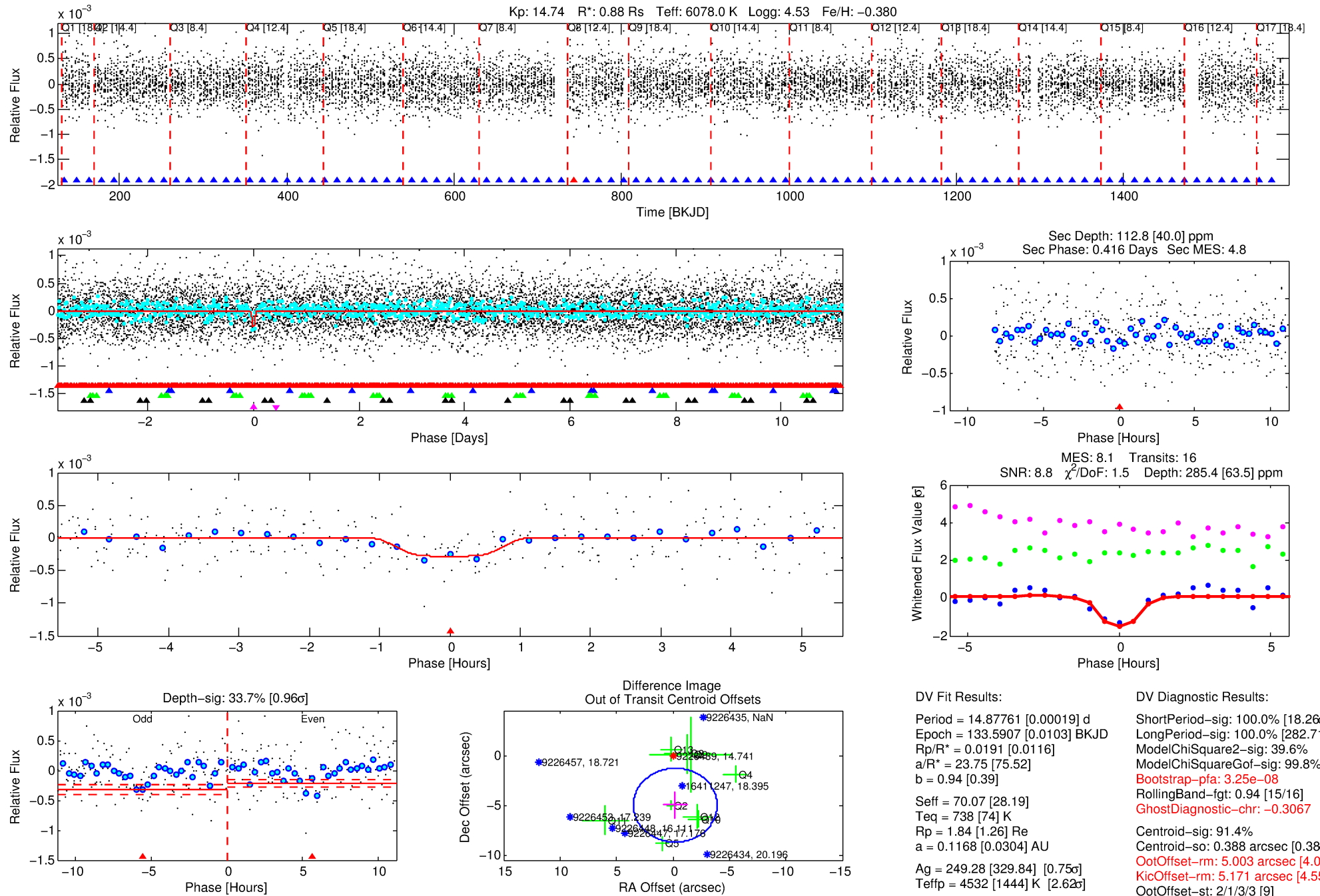
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009226439-05

No Significant Match Found

DV One-Page Summary

KIC: 9226439 Candidate: 5 of 5 Period: 14.878 d



DV Fit Results:

Period = 14.87761 [0.00019] d
Epoch = 133.5907 [0.0103] BKJD
Rp/R* = 0.0191 [0.0116]
a/R* = 23.75 [75.52]
b = 0.94 [0.39]
Seff = 70.07 [28.19]
Teff = 738 [74] K
Rp = 1.84 [1.26] Re
a = 0.1168 [0.0304] AU
Ag = 249.28 [329.84] [0.75 σ]
Teffp = 4532 [1444] K [2.62 σ]

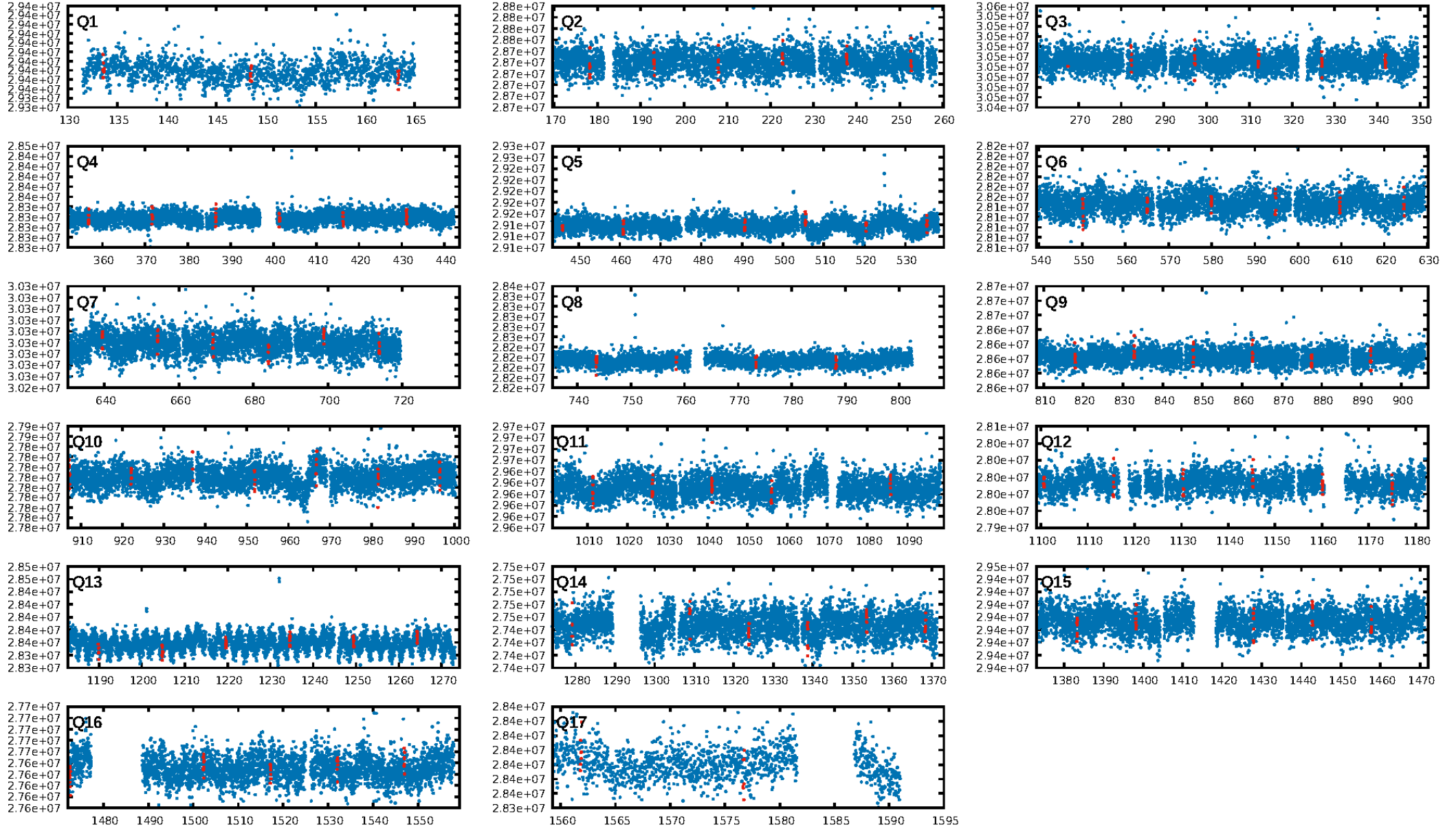
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.26 σ]
LongPeriod-sig: 100.0% [282.71 σ]
ModelChiSquare2-sig: 39.6%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 3.25e-08
RollingBand-fgt: 0.94 [15/16]
GhostDiagnostic-chr: -0.3067
Centroid-sig: 91.4%
Centroid-so: 0.388 arcsec [0.38 σ]
OotOffset-rm: 5.003 arcsec [4.05 σ]
KicOffset-rm: 5.171 arcsec [4.55 σ]
OotOffset-st: 2/1/3/3 [9]
KicOffset-st: 2/1/3/3 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 0.88 [15/17]

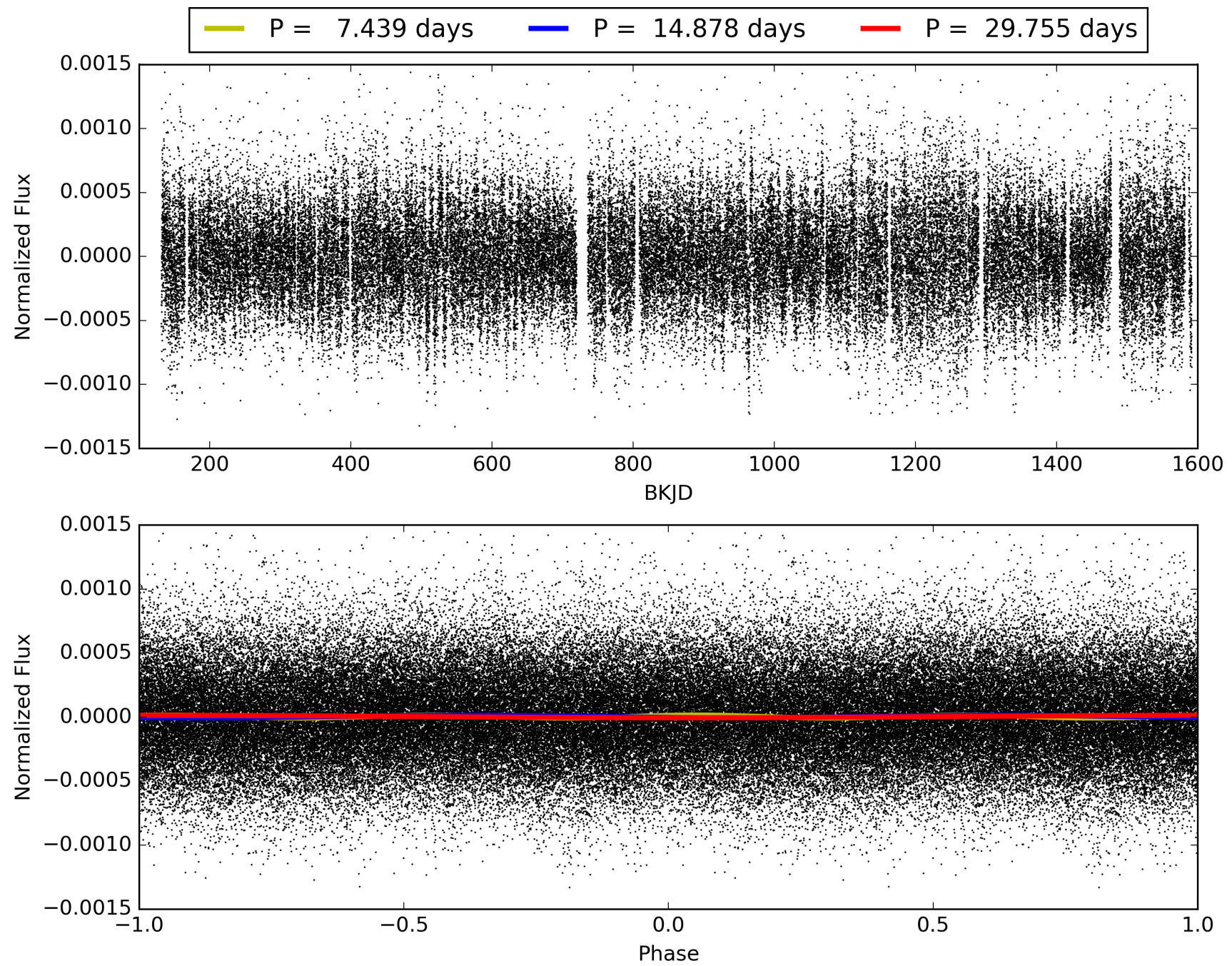
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 23:14:51 Z

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

TCE 009226439-05, PDC Light Curves

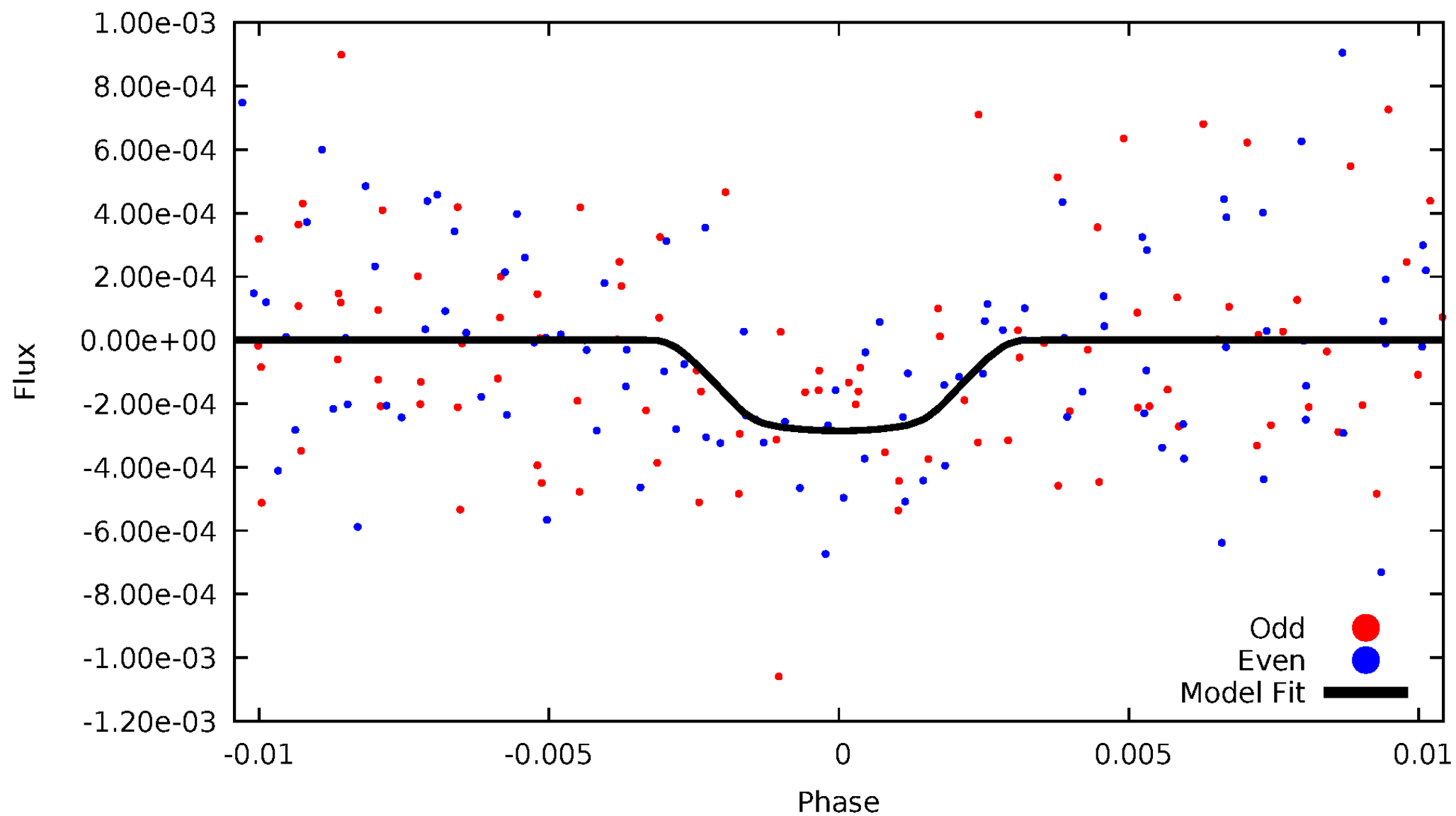


TCE 009226439-05



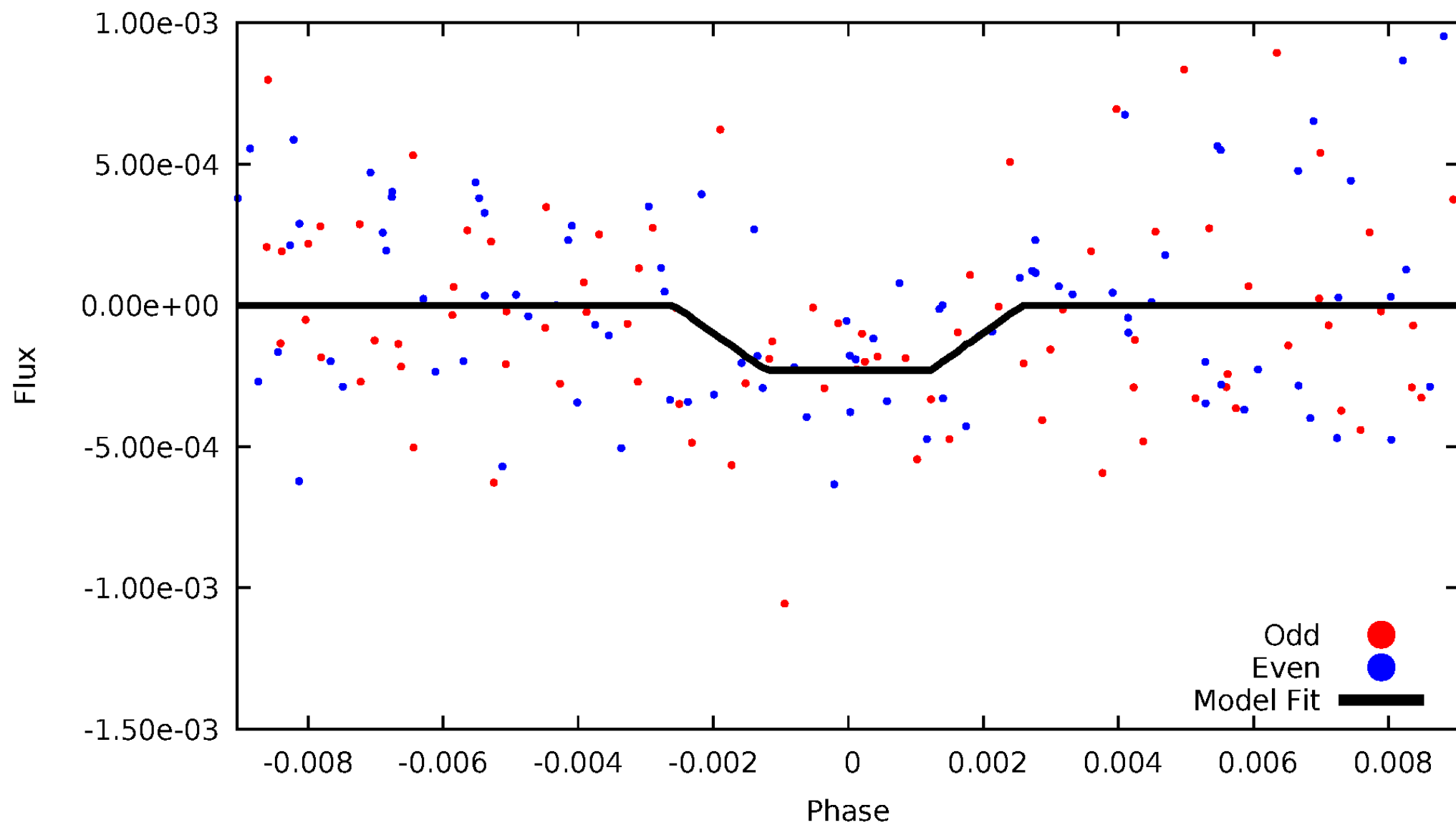
DV Odd/Even

TCE 009226439-05



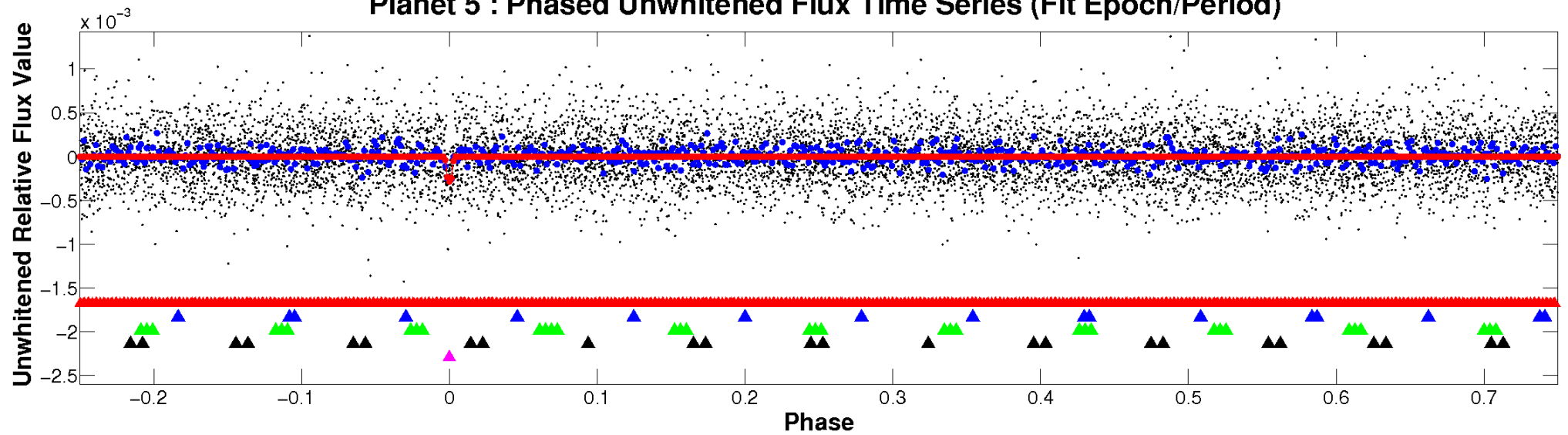
ALT Odd/Even

TCE 009226439-05

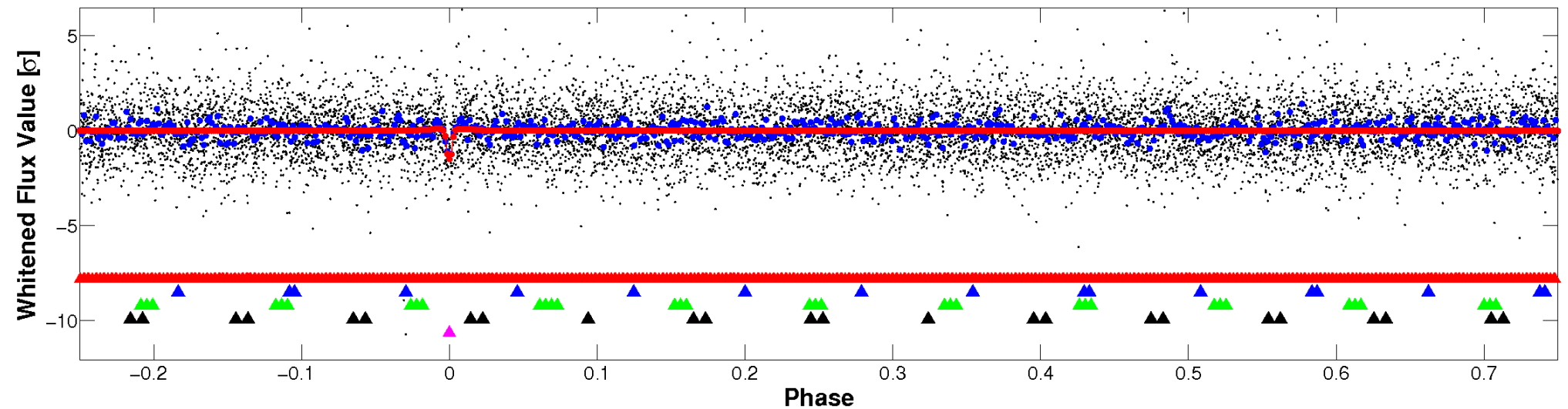


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

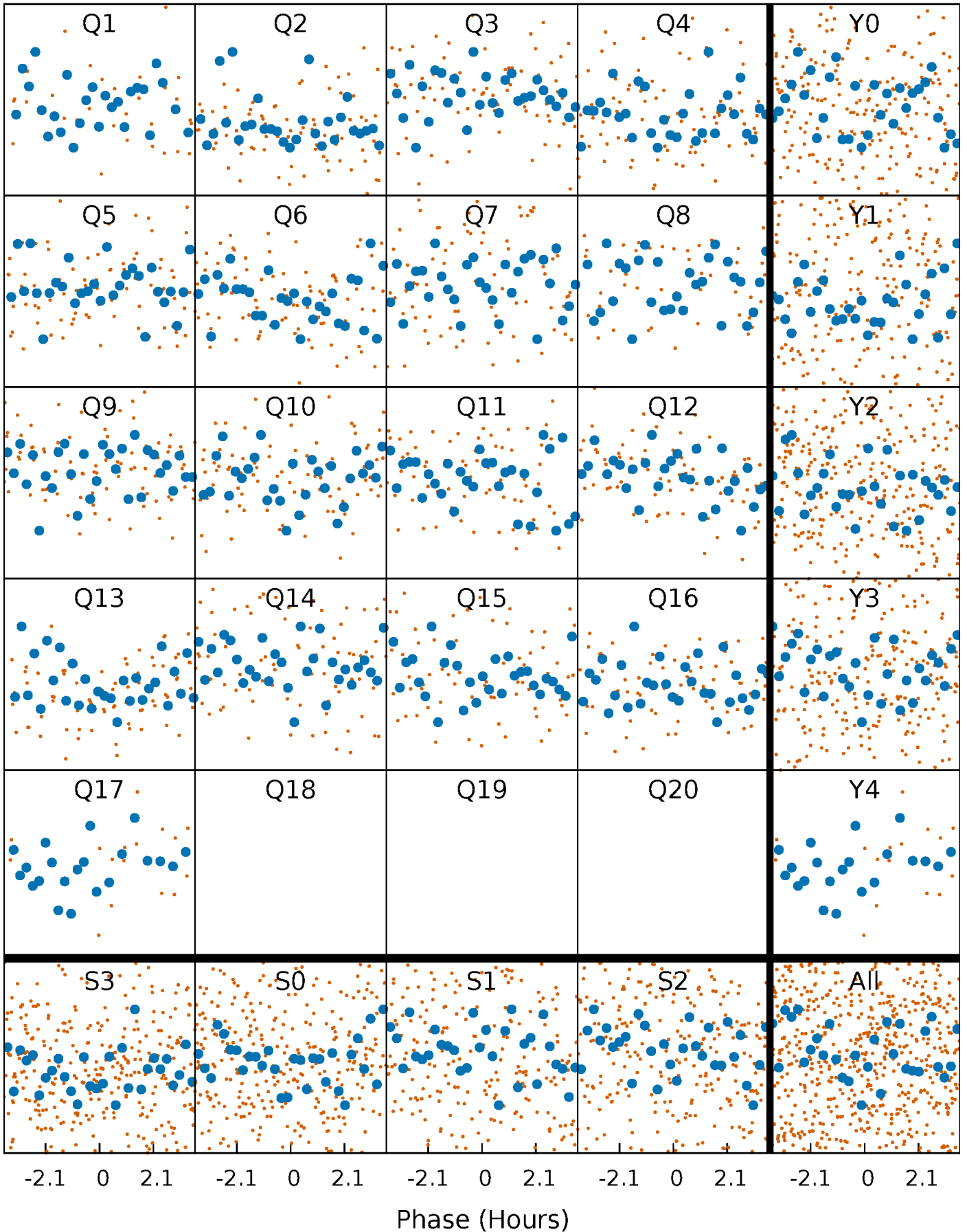


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



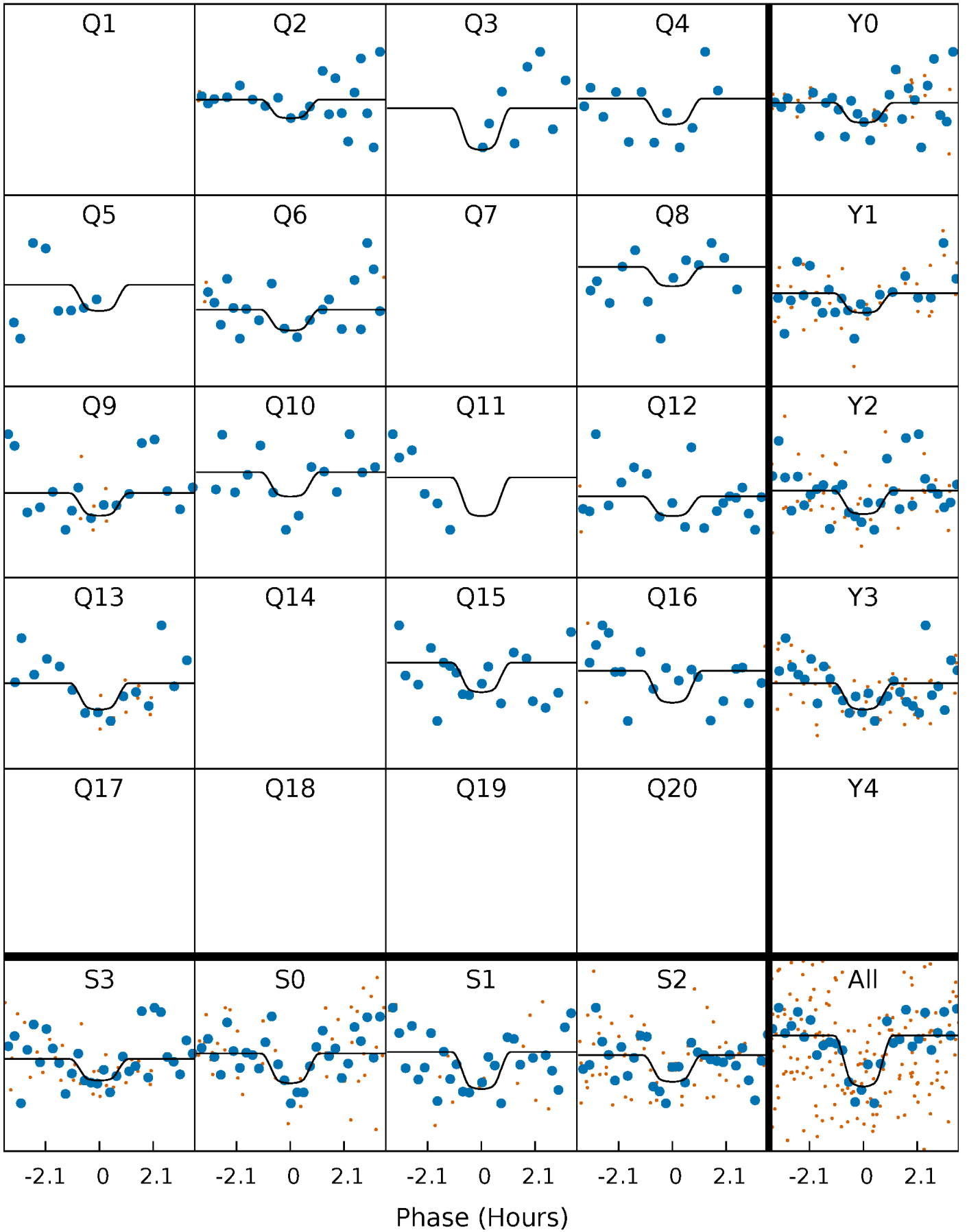
PDC Quarter-Phased Transit Curves

TCE 009226439-05 P= 14.877608 Days $T_0=133.590700$ (BKJD)



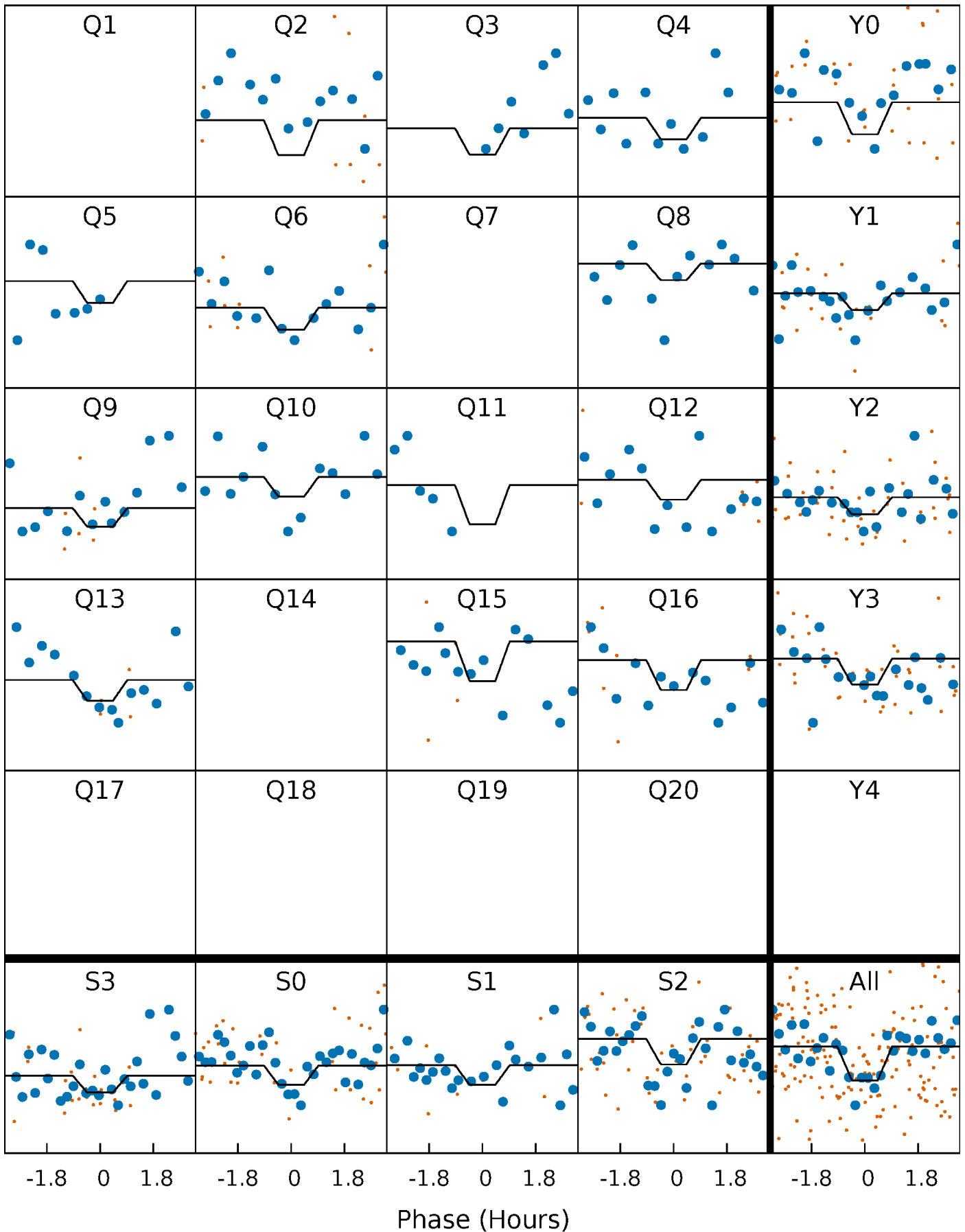
DV Quarter-Phased Transit Curves

TCE 009226439-05 P= 14.877608 Days $T_0=133.590700$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

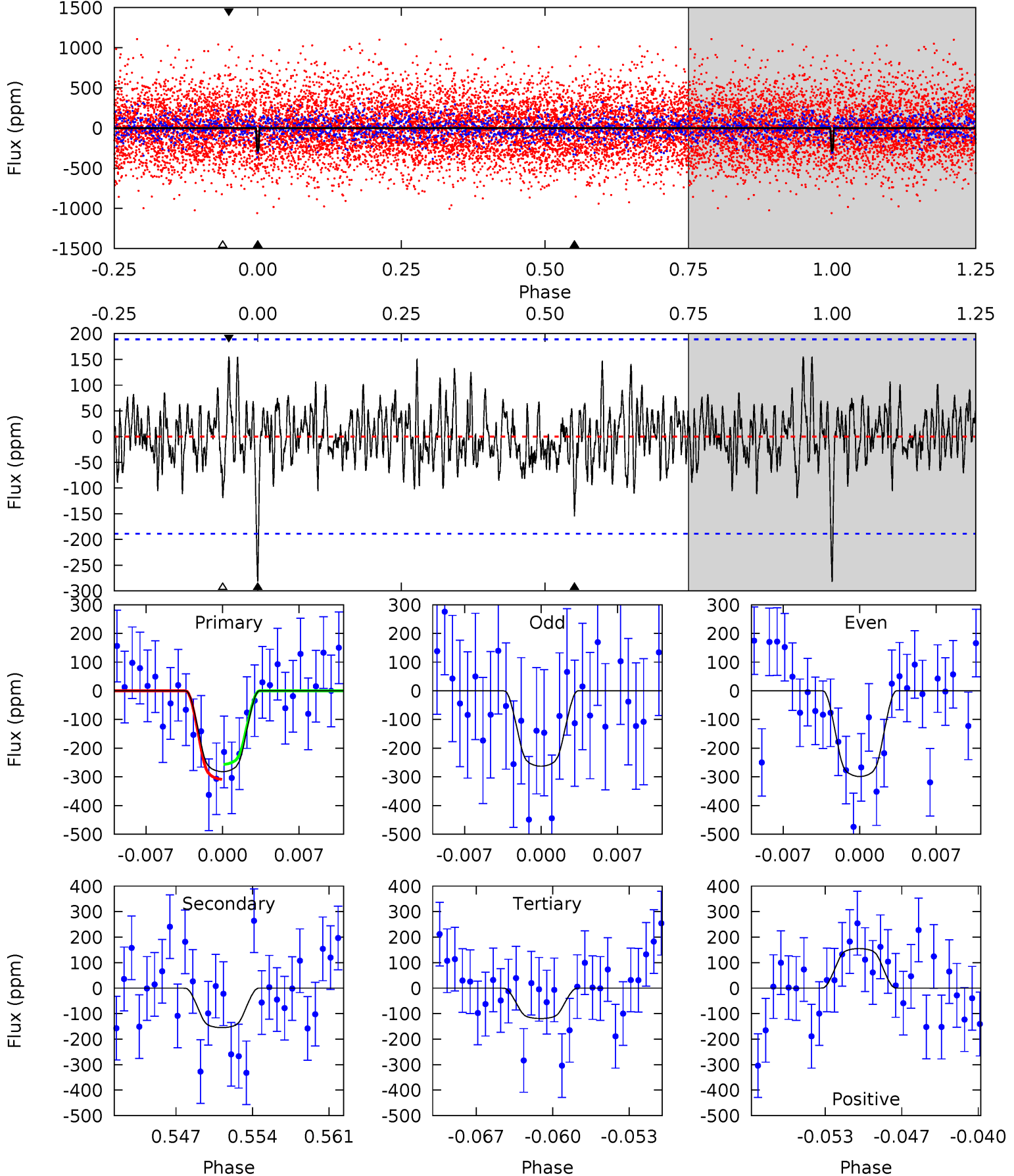
TCE 009226439-05 P= 14.877671 Days $T_0=133.586784$ (BKJD)



DV Model-Shift Uniqueness Test

009226439-05, P = 14.877608 Days, E = 118.713092 Days

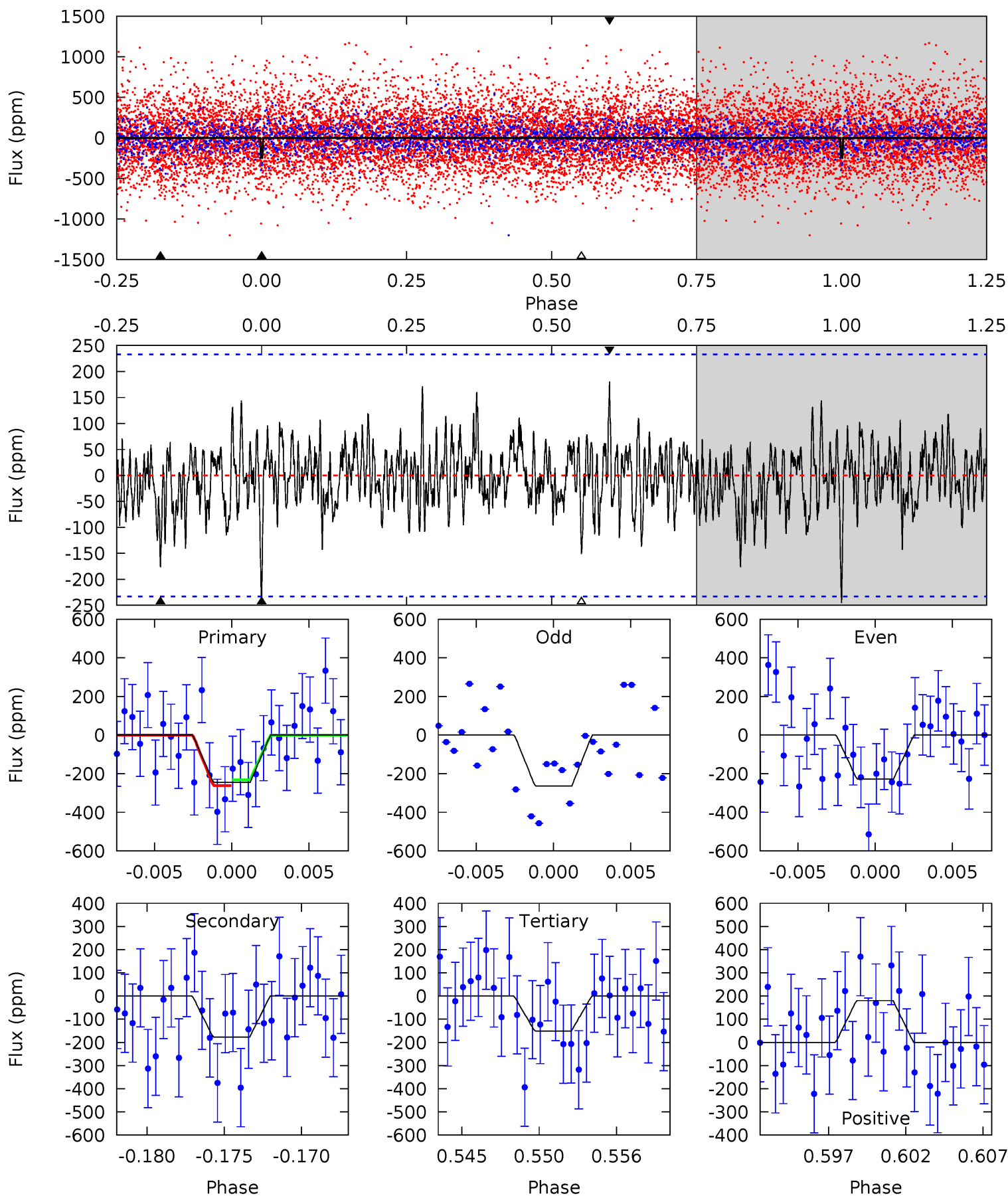
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.61	4.18	3.22	4.19	5.10	2.71	1.22	4.39	3.43	0.96	-0.00	0.49	1.08	0.35	0.70



Alt Model-Shift Uniqueness Test

009226439-05, P = 14.877671 Days, E = 118.709113 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.42	3.92	3.35	3.99	5.15	2.80	1.12	2.08	1.44	0.57	-0.07	0.40	1.05	0.42	0.33



Stellar Parameters For KIC 009226439

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6078^{+164}_{-201}	$4.527^{+0.052}_{-0.208}$	$-0.380^{+0.300}_{-0.300}$	$0.884^{+0.273}_{-0.091}$	$0.959^{+0.118}_{-0.118}$	$1.955^{+0.408}_{-0.987}$
	+3%/-3%	+1%/-5%	+79%/-79%	+31%/-10%	+12%/-12%	+21%/-50%
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 009226439-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-155 ± 37	$1.96^{+1.27}_{-1.09}$	1055^{+79}_{-52}	4978^{+2367}_{-903}	308^{+1187}_{-206}
Alt.	-177 ± 45	$1.74^{+1.03}_{-1.08}$	1054^{+78}_{-51}	5411^{+3478}_{-1057}	416^{+2316}_{-264}

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

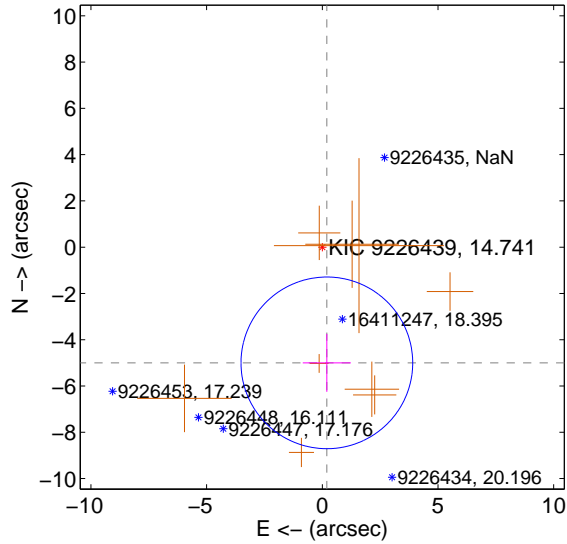
Supplemental centroid analysis for 009226439-05. Kepler magnitude: 14.74. Transit SNR 8.84

There are 0 quarters with good PRF difference image offsets

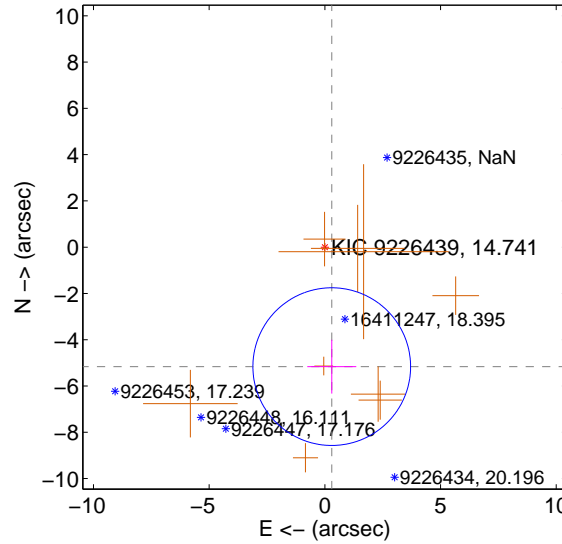
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.003 ± 1.237	4.05	-0.197 ± 1.039	-5.000 ± 1.253
PRF-fit source offset from KIC position	5.171 ± 1.136	4.55	-0.298 ± 1.058	-5.162 ± 1.164
photometric centroid source offset	0.39 ± 1.03	0.38	-0.03 ± 0.96	-0.39 ± 1.03

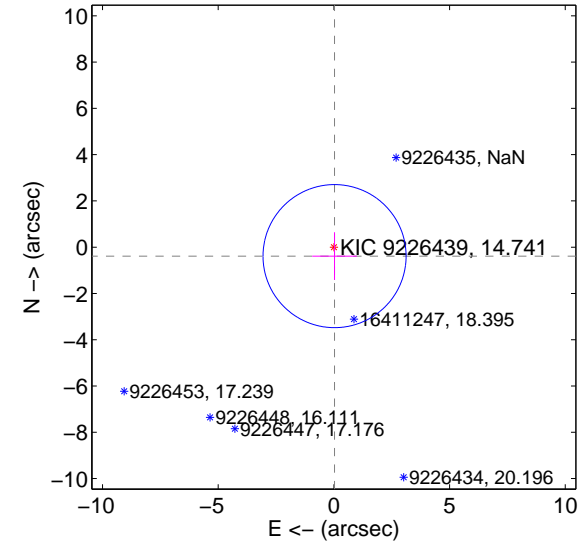
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

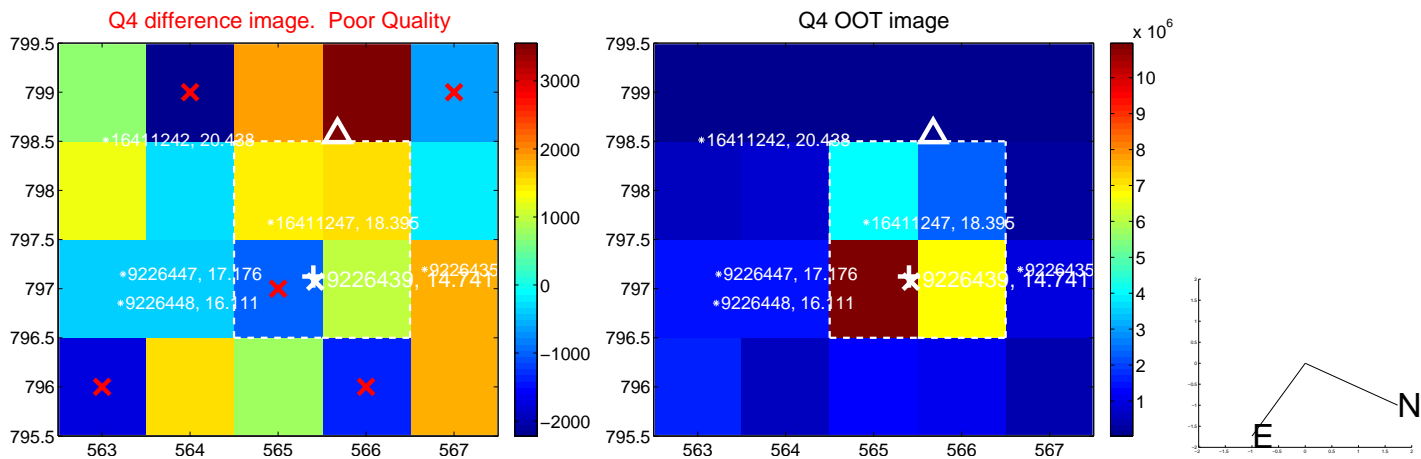
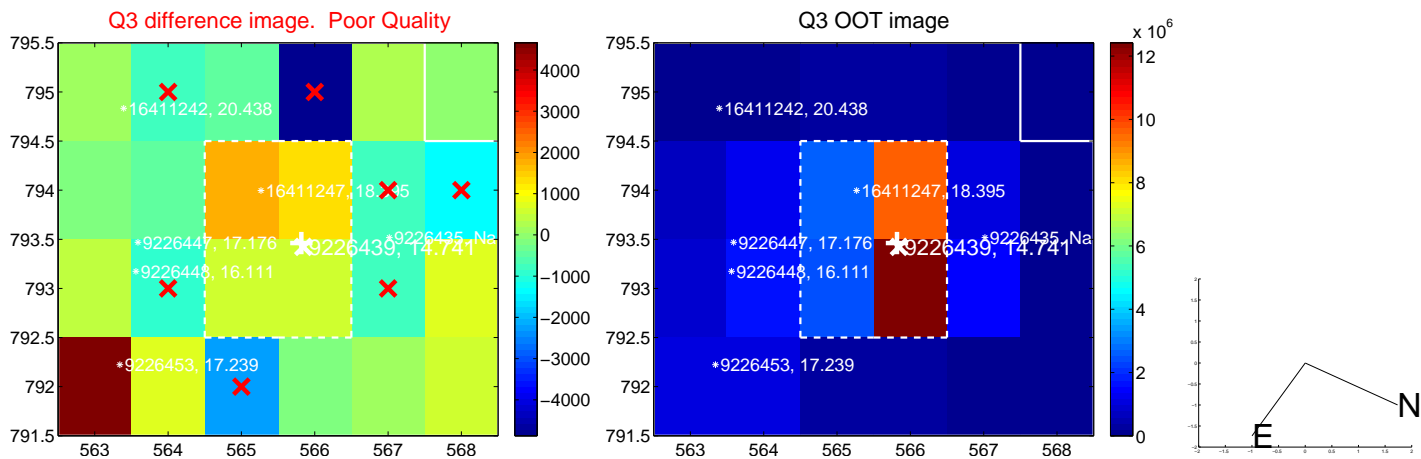
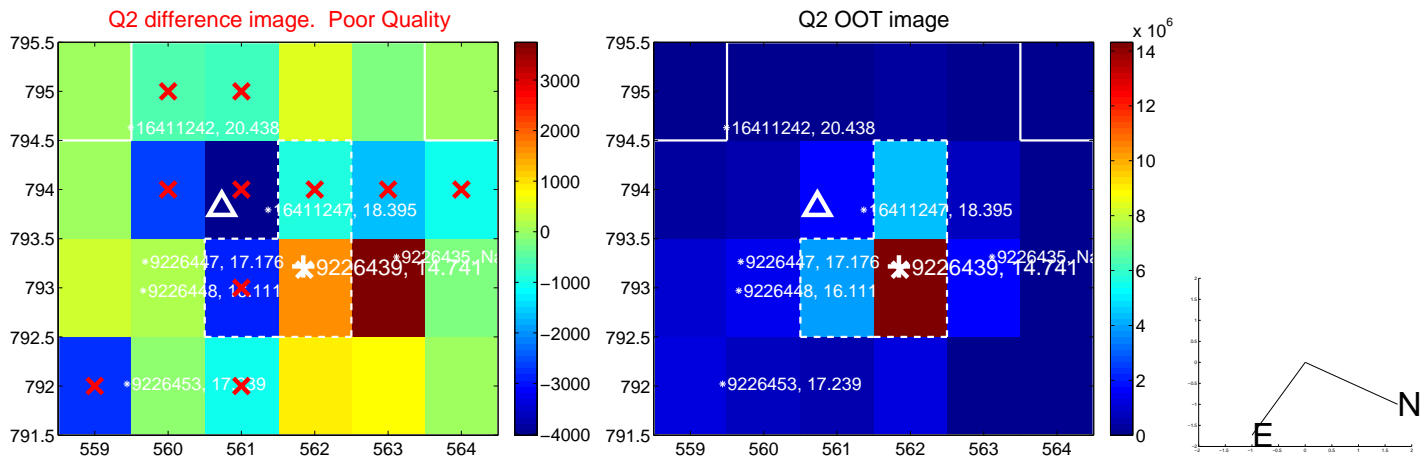
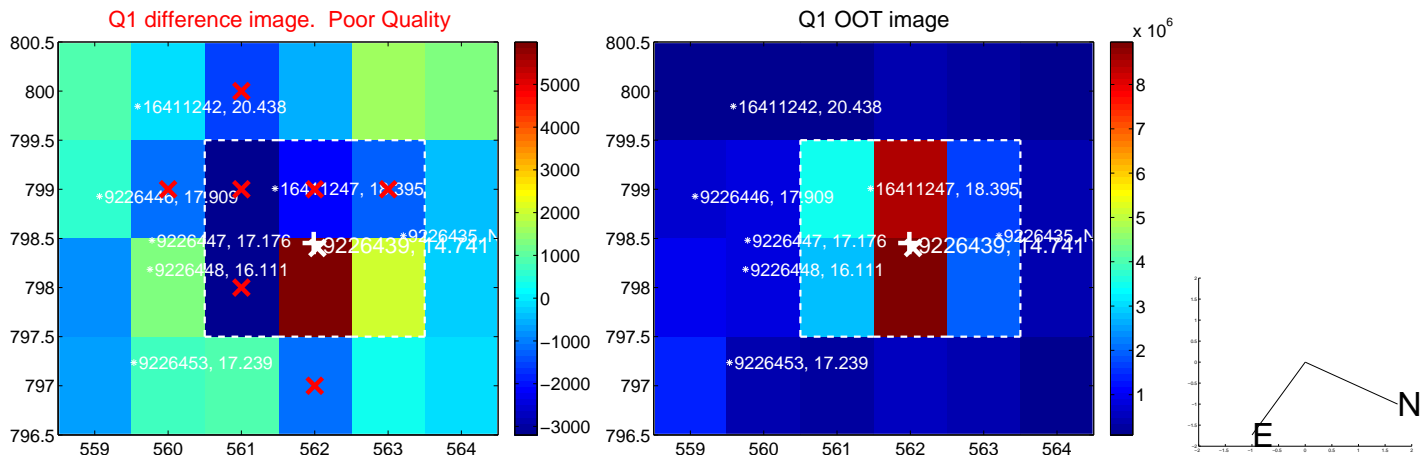


offset from photometric centroids

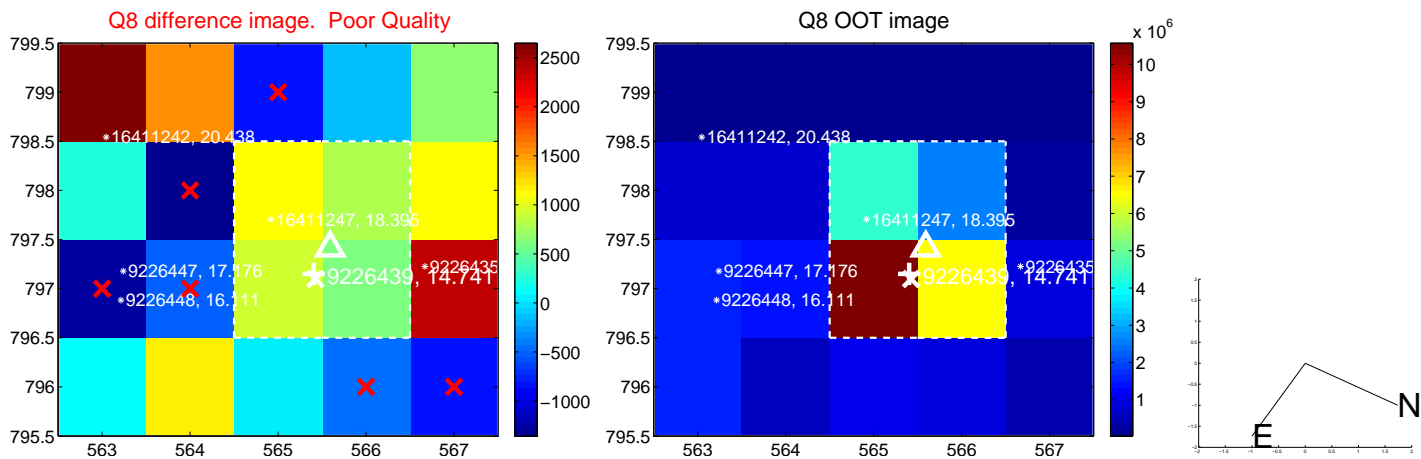
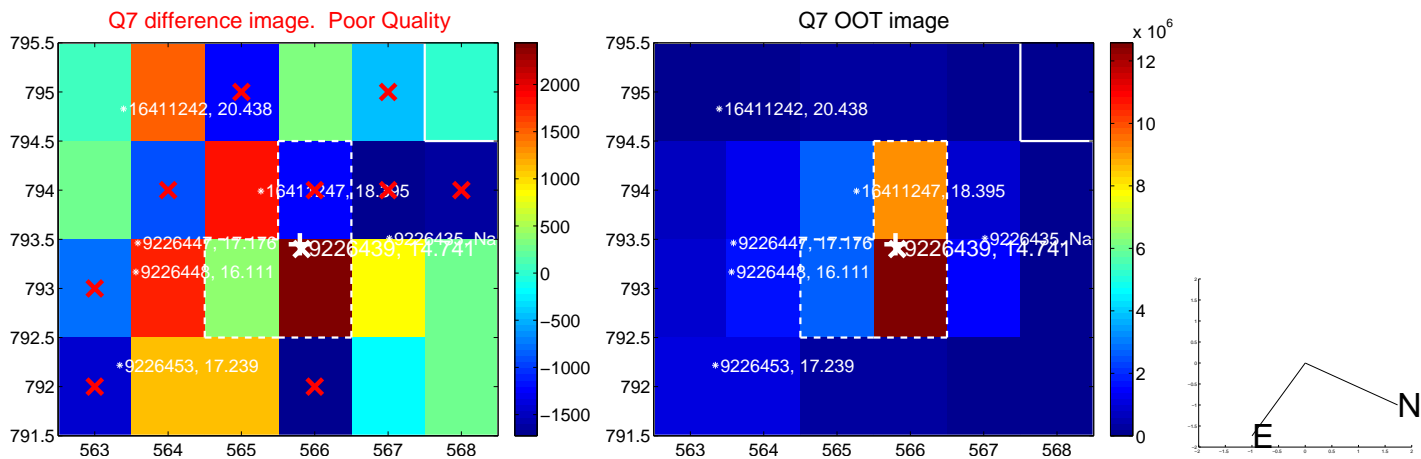
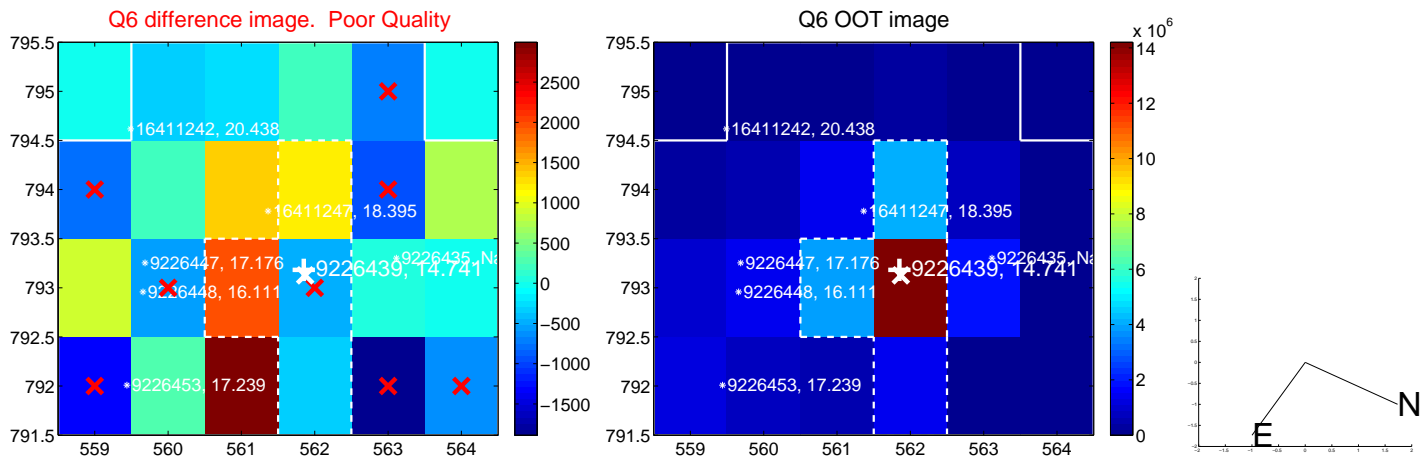
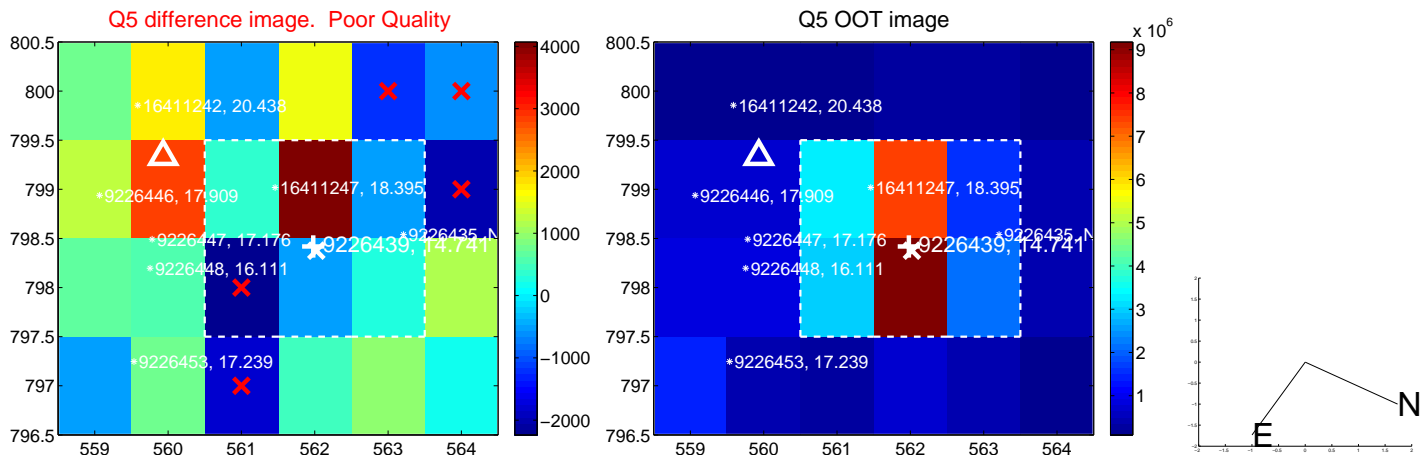


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

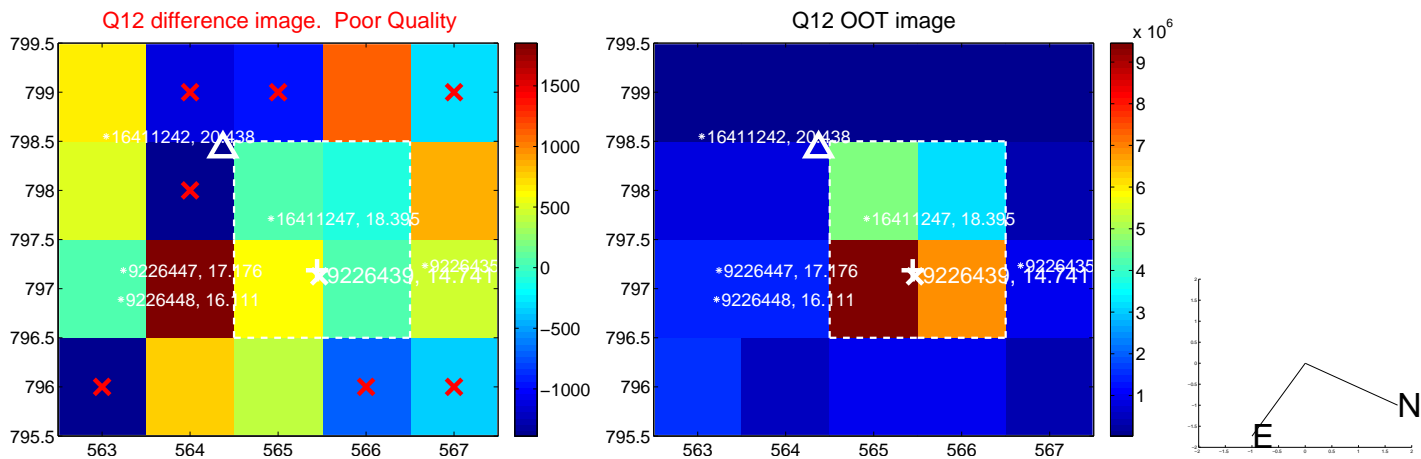
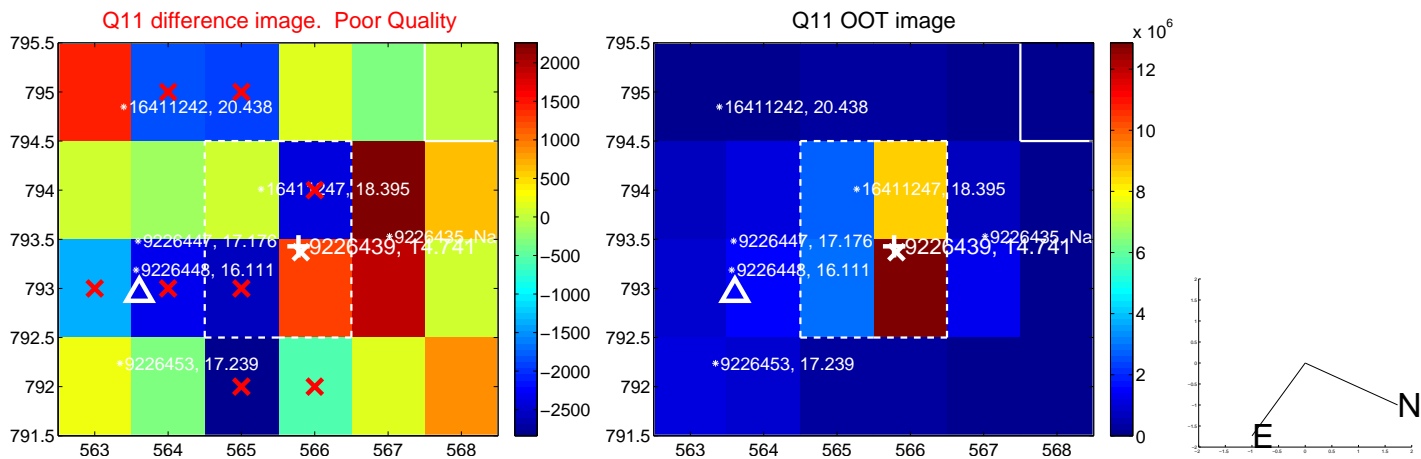
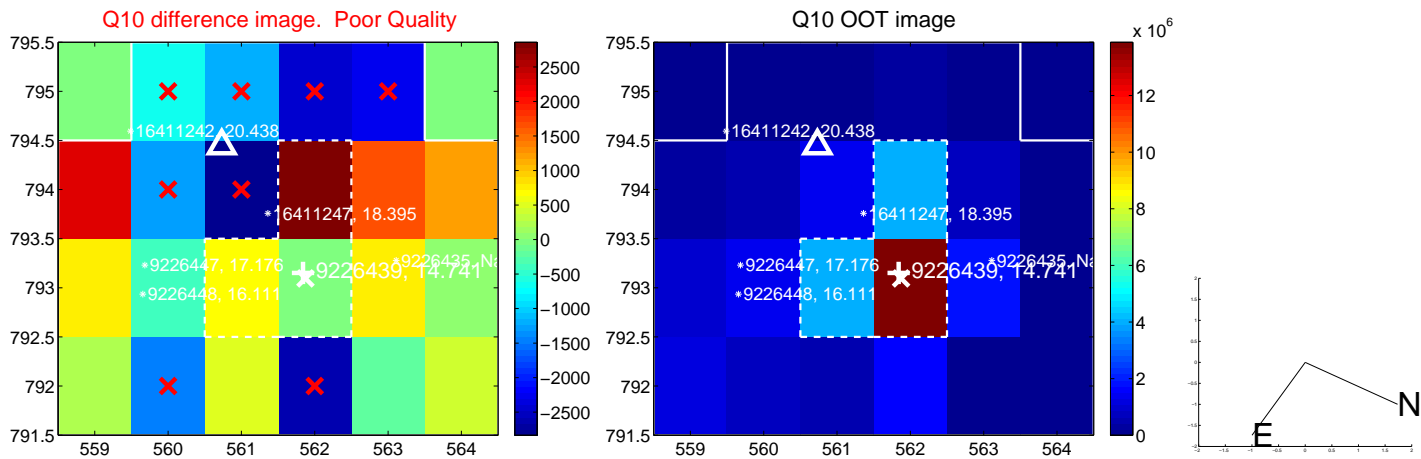
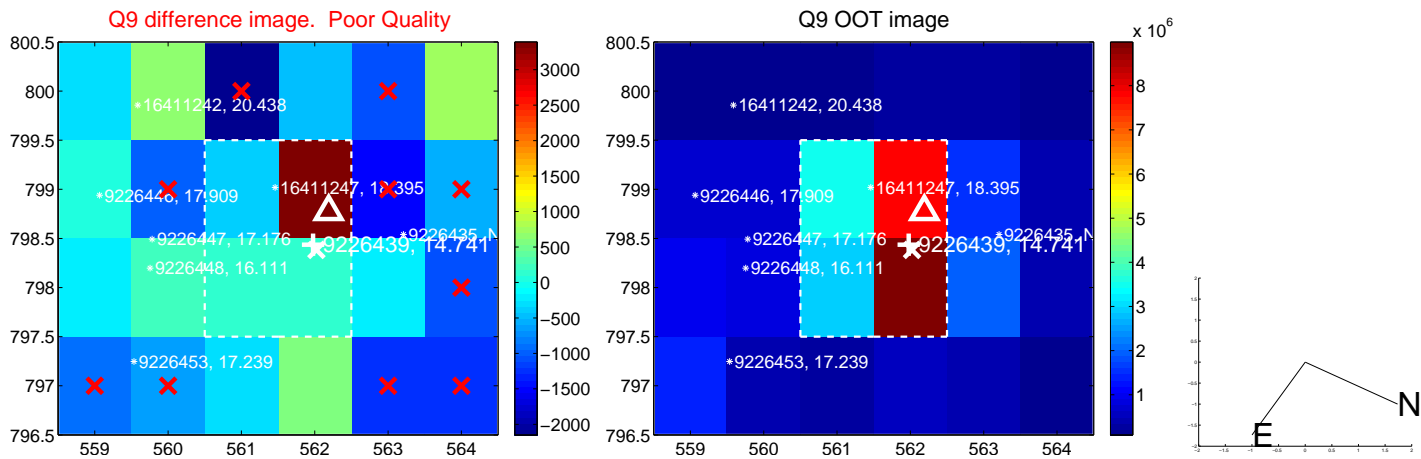
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



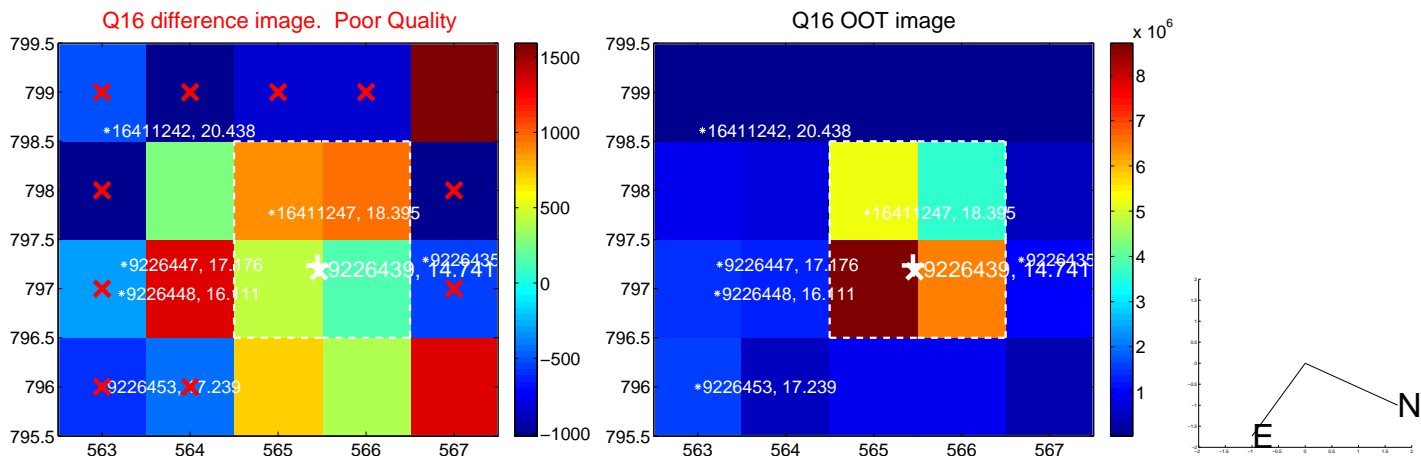
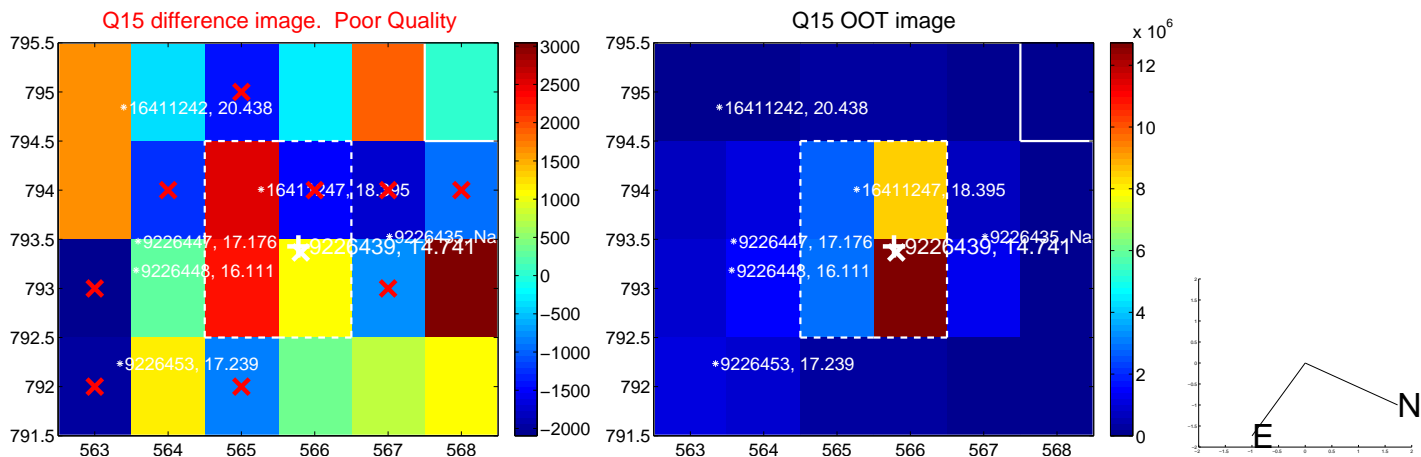
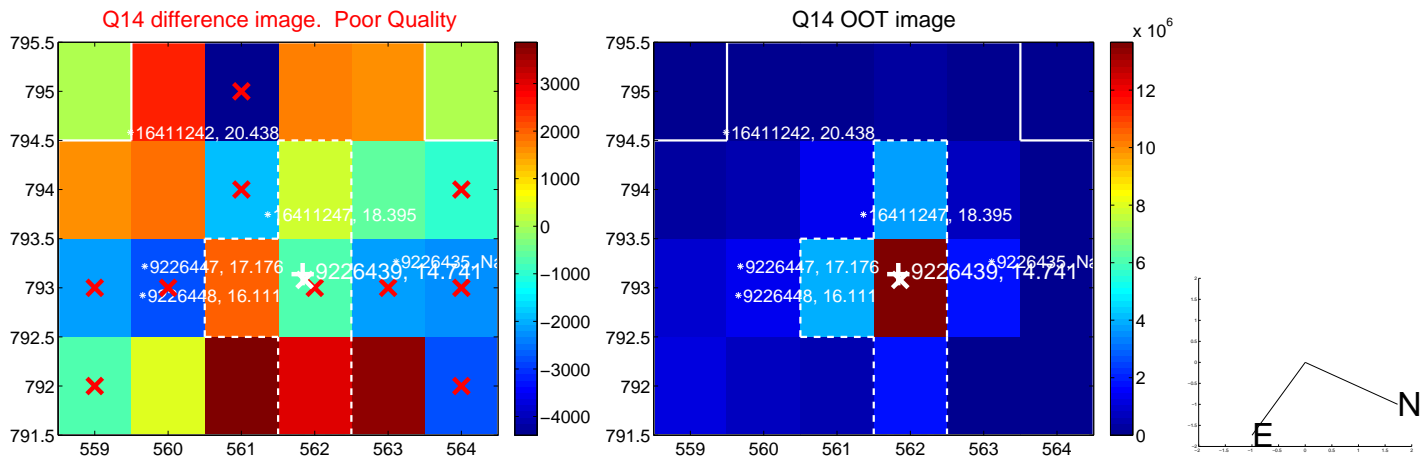
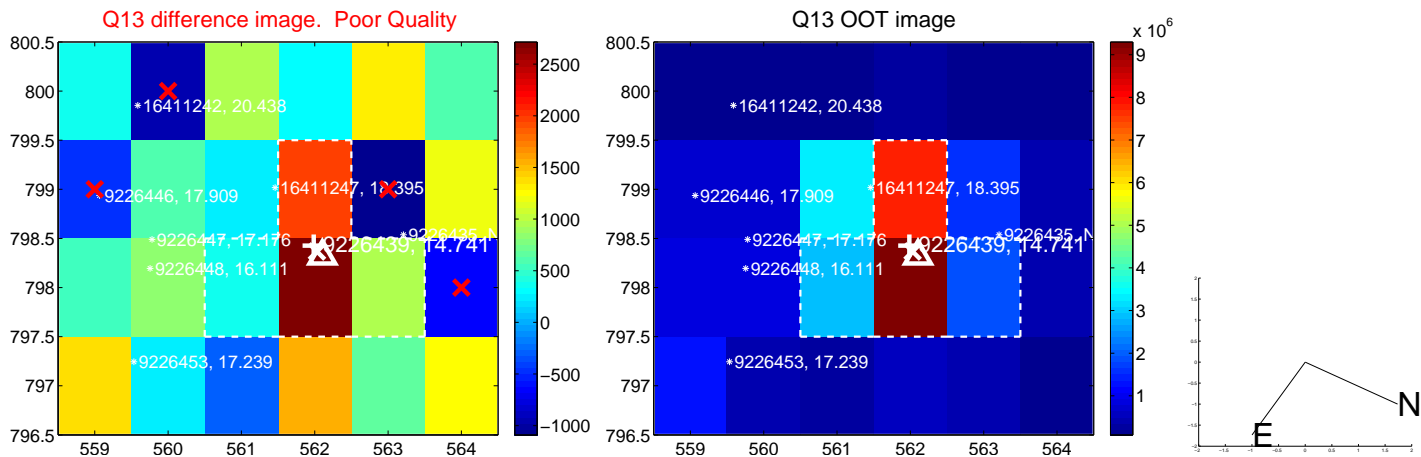
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



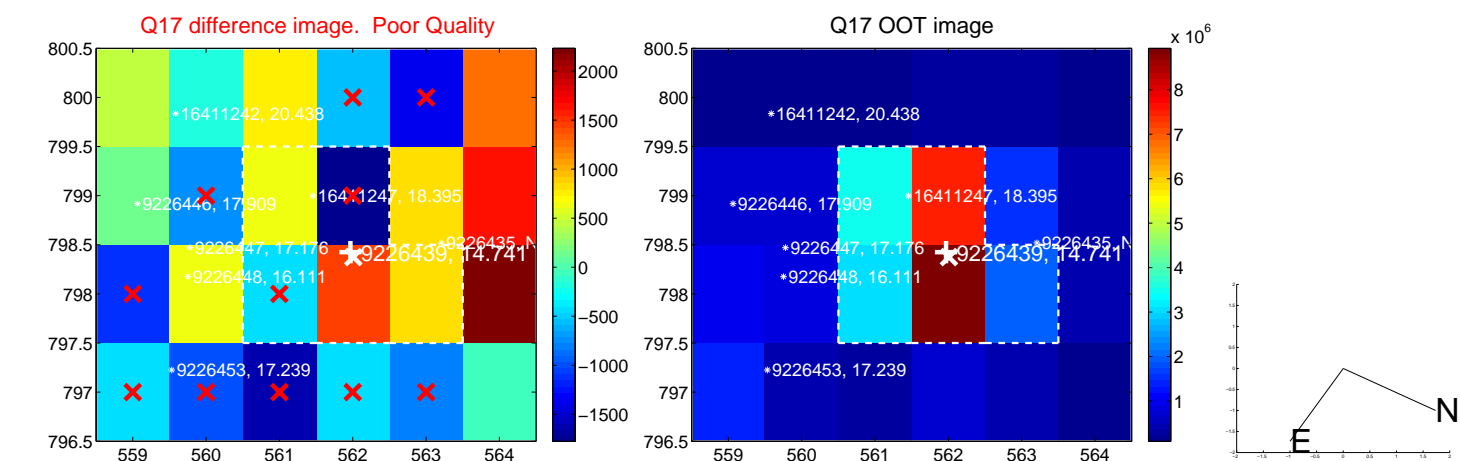
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



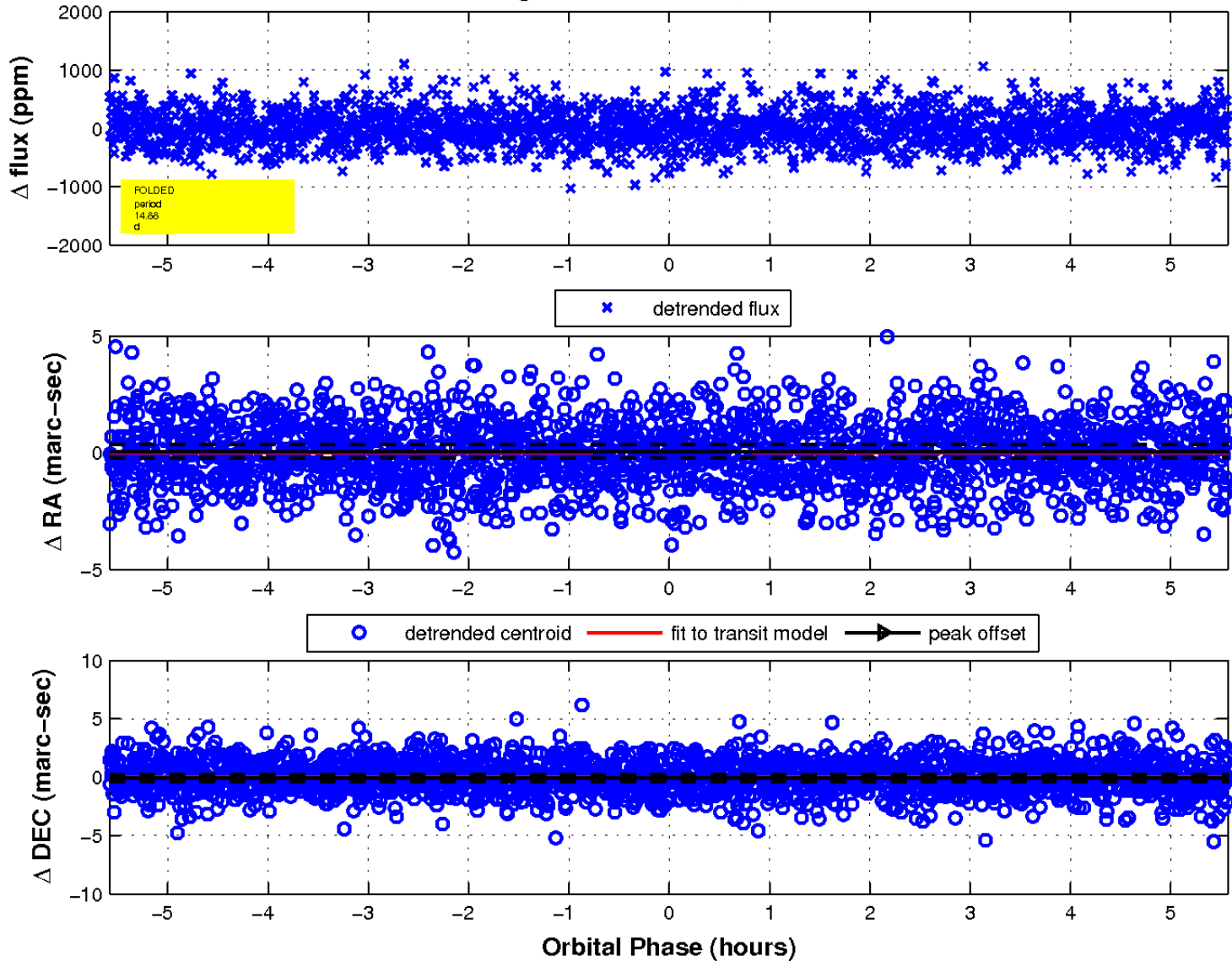
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

Declination

