

KIC 009471539

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})
009471539-01	OBS	No	1.248916	132.226603	13.6	3.608	16.0	15.9	2.78	7682	1.20	30090.05
009471539-02	OBS	No	3.747131	131.529142	18.4	6.163	15.1	15.7	2.78	7682	1.42	6953.48
009471539-03	OBS	No	0.749353	131.874175	9.5	3.314	8.8	9.7	2.78	7682	0.99	59459.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009471539-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009471539-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009471539-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNRESOLVED_OFFSET

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 009471539-01

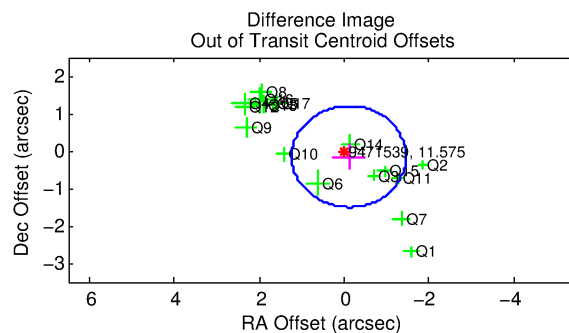
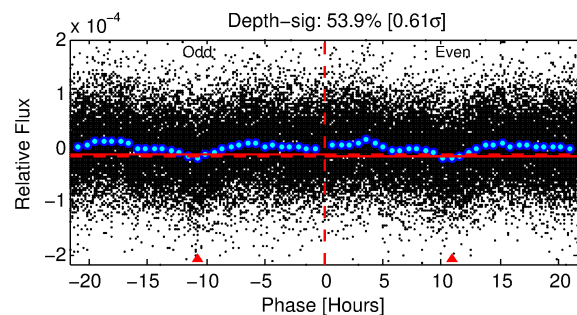
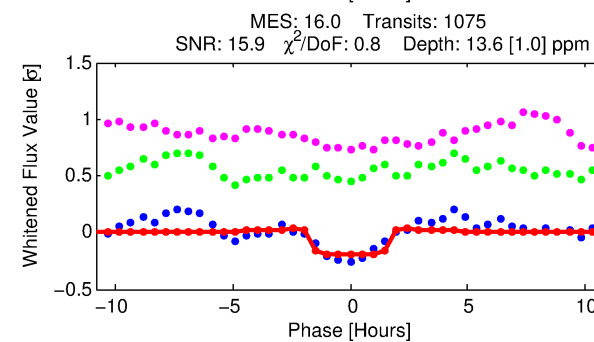
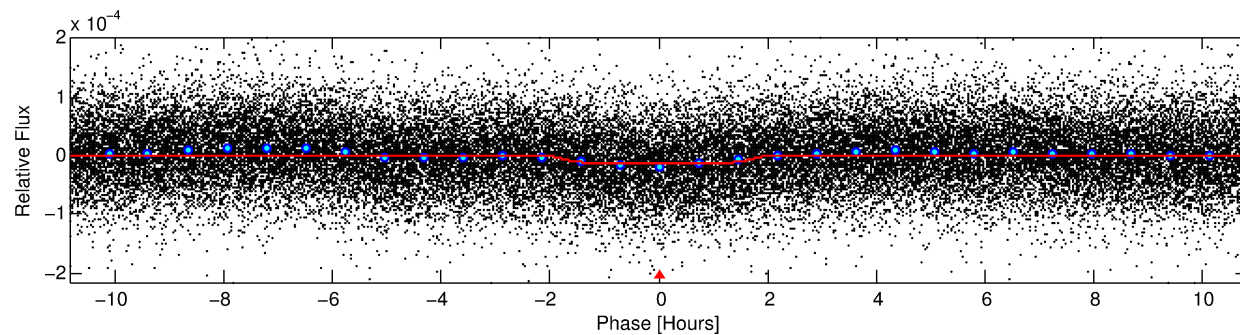
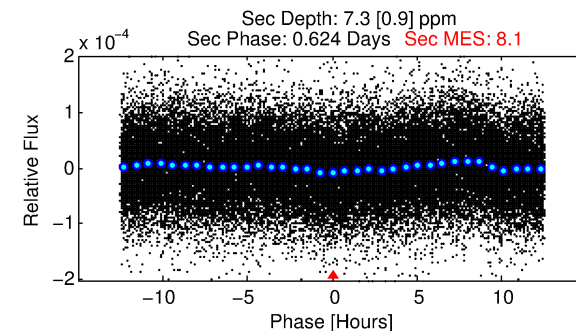
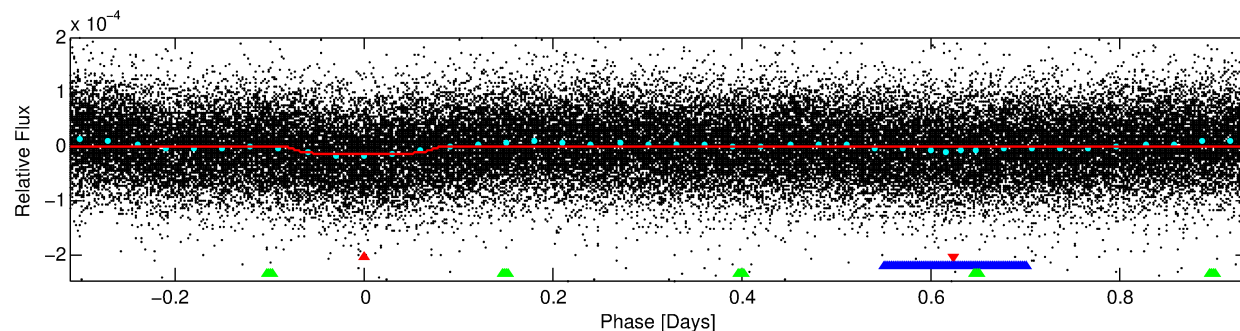
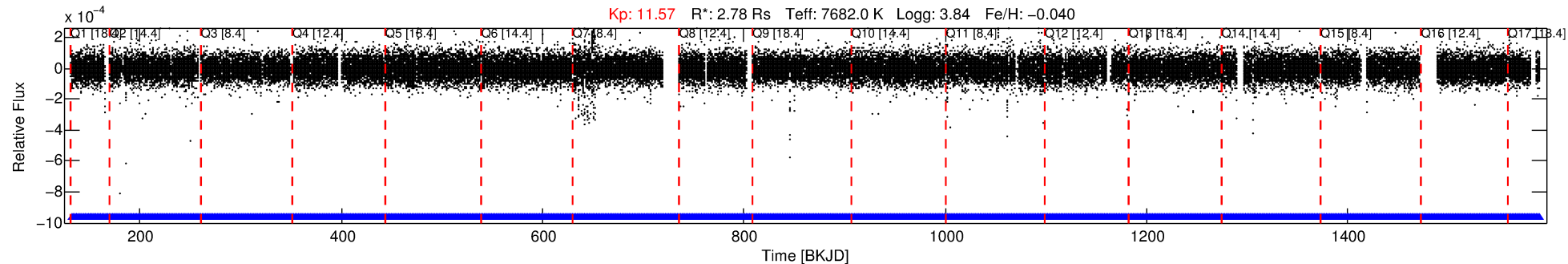
No Significant Match Found

DV One-Page Summary

KIC: 9471539 Candidate: 1 of 3 Period: 1.249 d

KOI: K03198 Corr: No Ephemeris Match

Kp: 11.57 R*: 2.78 Rs Teff: 7682.0 K Logg: 3.84 Fe/H: -0.040



DV Fit Results:

Period = 1.24892 [0.00001] d
Epoch = 132.2266 [0.0023] BKJD
Rp/R* = 0.0039 [0.0005]
a/R* = 1.48 [0.62]
b = 0.91 [0.15]
Seff = 30090.05 [17541.42]
Teq = 3358 [489] K
Rp = 1.20 [0.49] Re
a = 0.0283 [0.0102] AU
Ag = 2.26 [1.41] [0.89σ]
Teffp = 6367 [510] K [4.26σ]

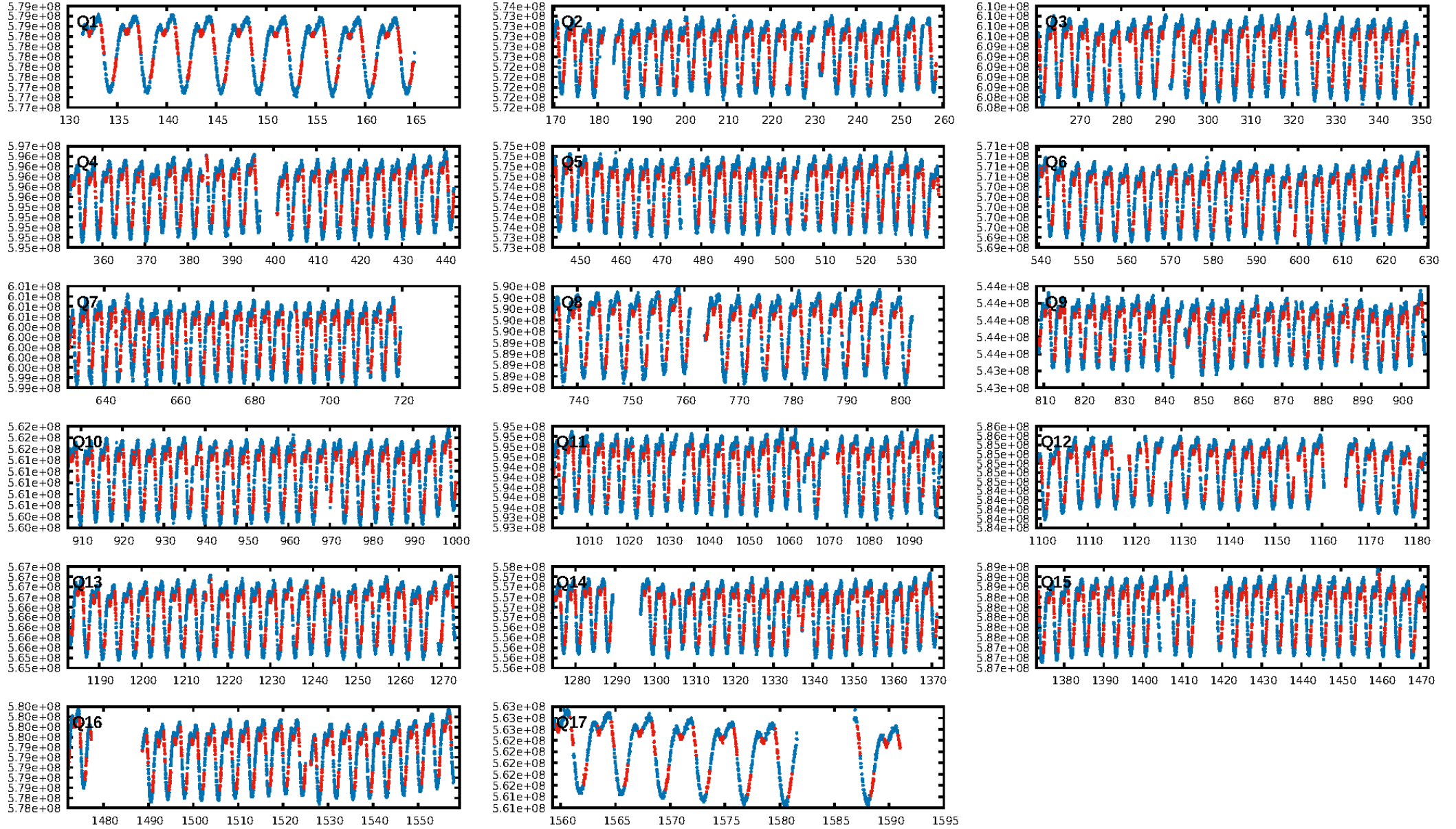
DV Diagnostic Results:

ShortPeriod-sig: 98.6% [2.45σ]
LongPeriod-sig: 100.0% [8.40σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 1.46e-29
RollingBand-fgt: 1.00 [1026/1026]
GhostDiagnostic-chr: 0.8125
Centroid-sig: 0.2%
Centroid-so: 2.062 arcsec [2.81σ]
OotOffset-rm: 0.192 arcsec [0.43σ]
KicOffset-rm: 0.205 arcsec [0.61σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 0.00 [0/17]

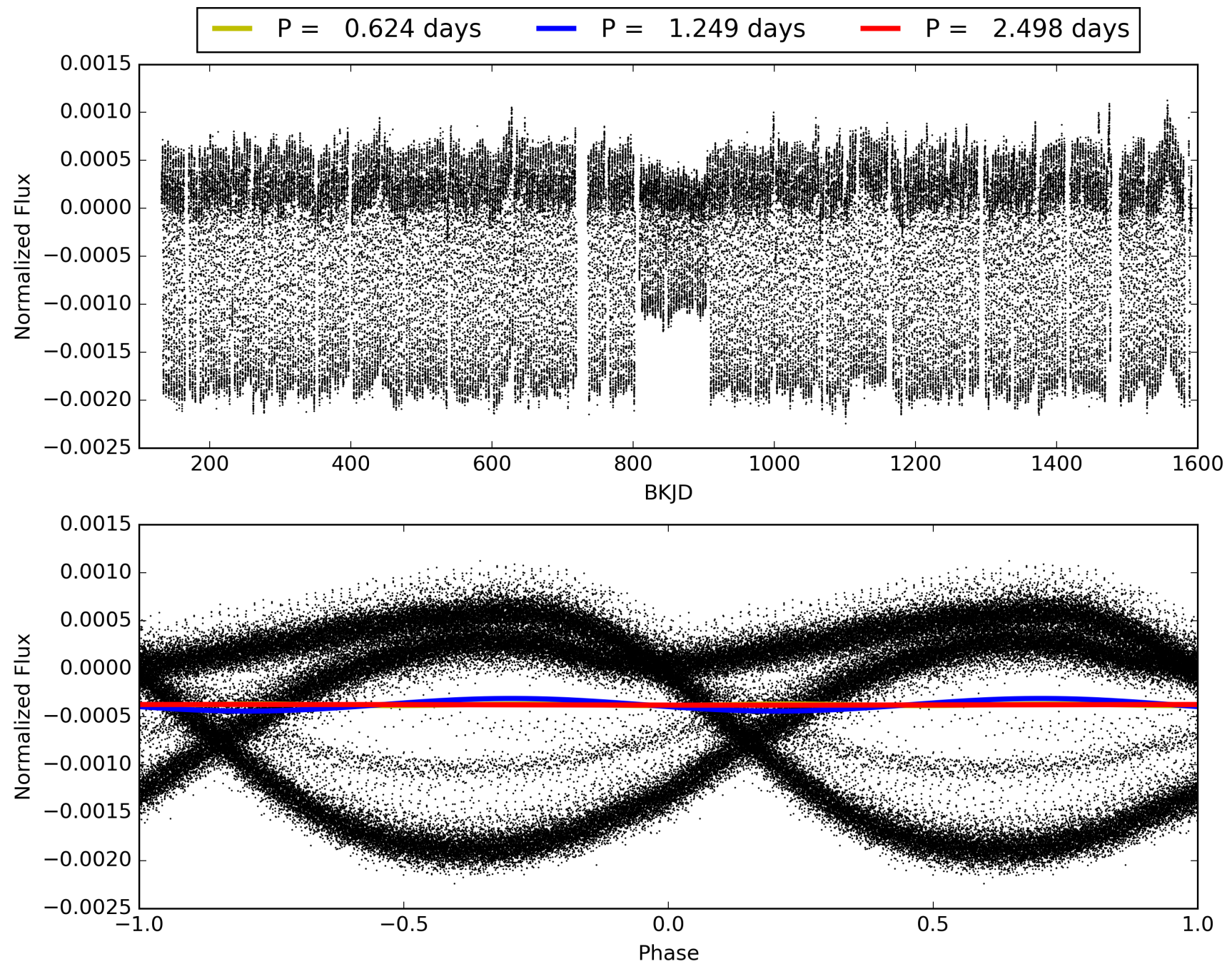
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 21:45:35 Z

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

TCE 009471539-01, PDC Light Curves

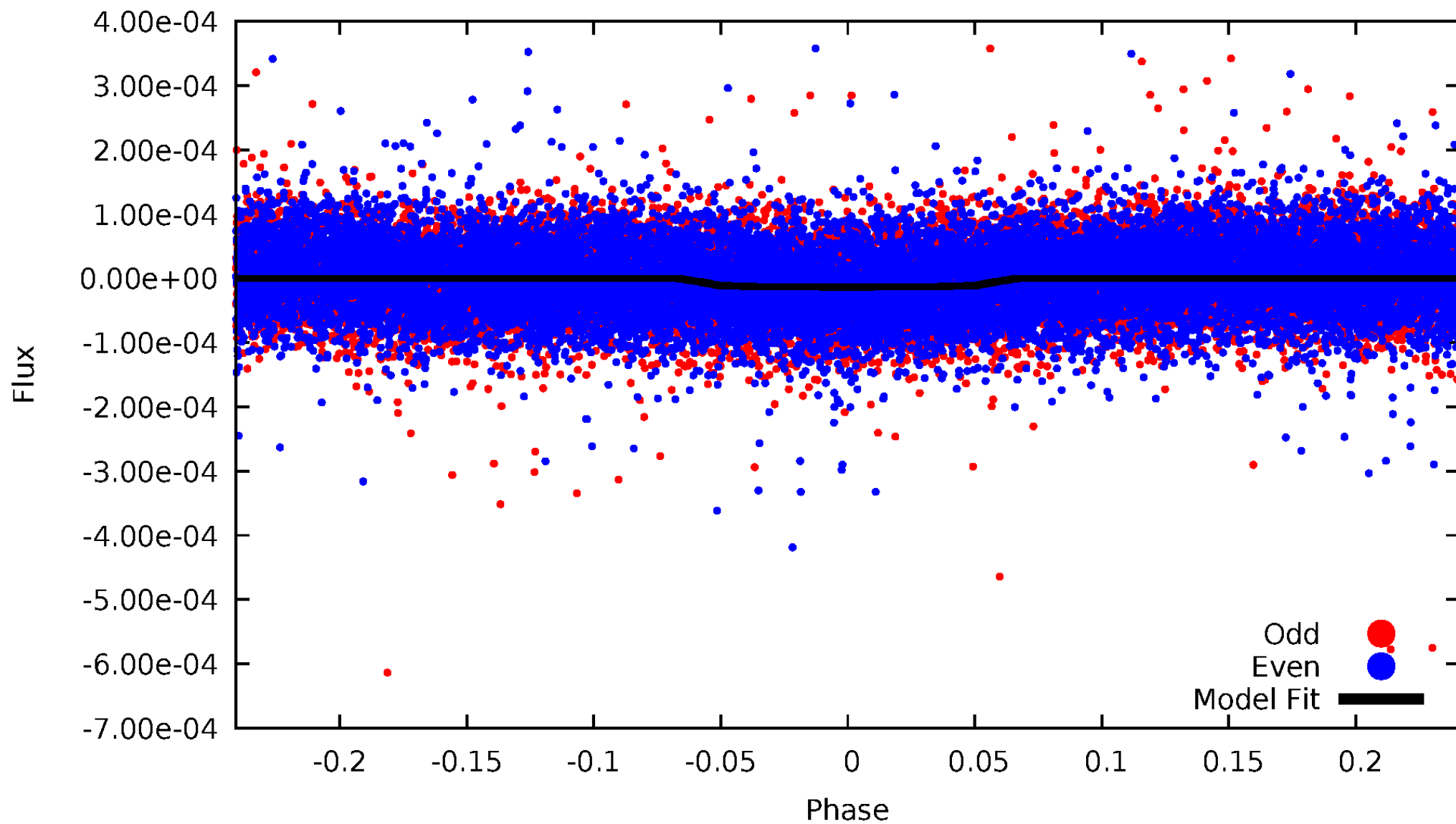


TCE 009471539-01



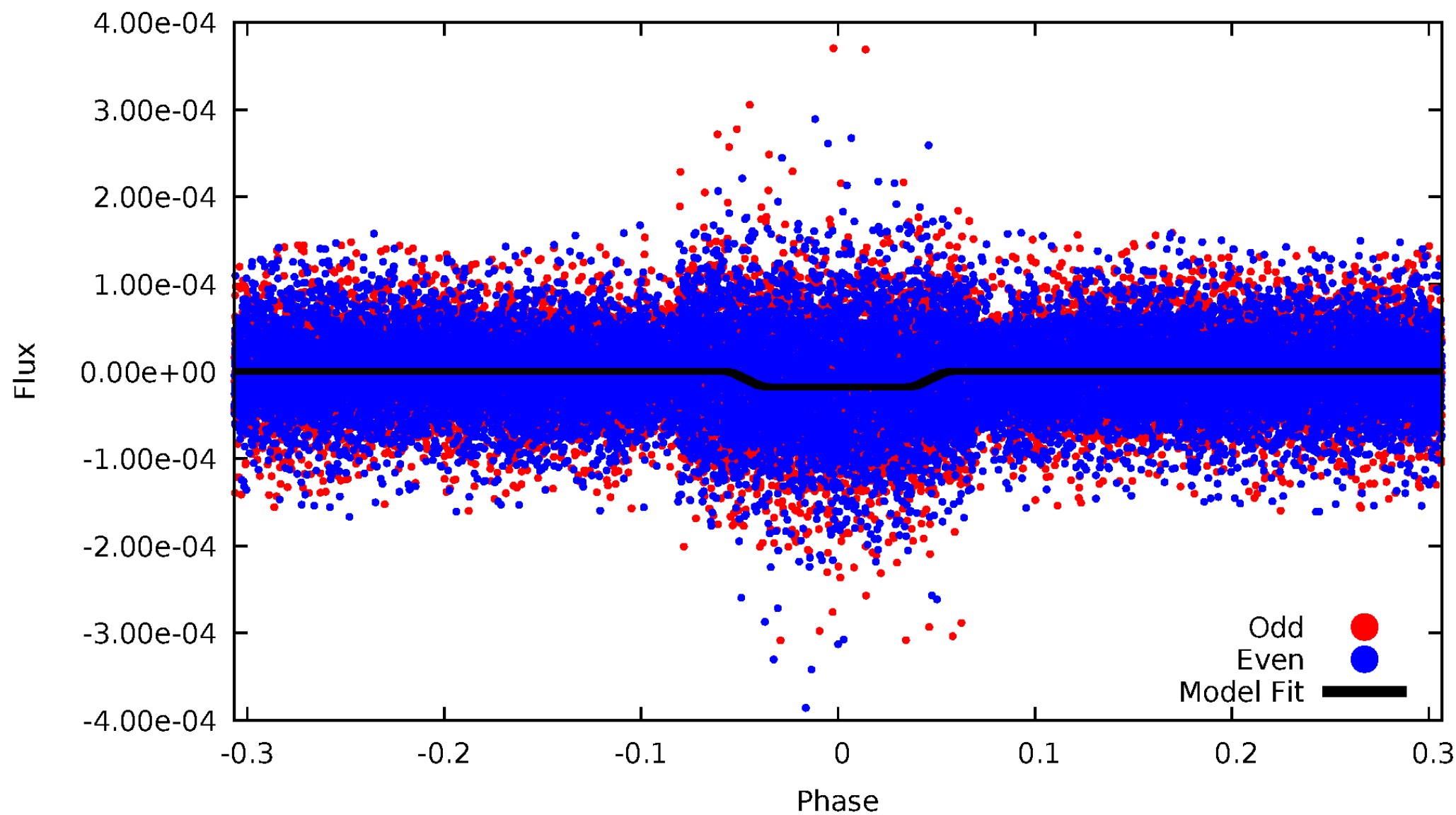
DV Odd/Even

TCE 009471539-01



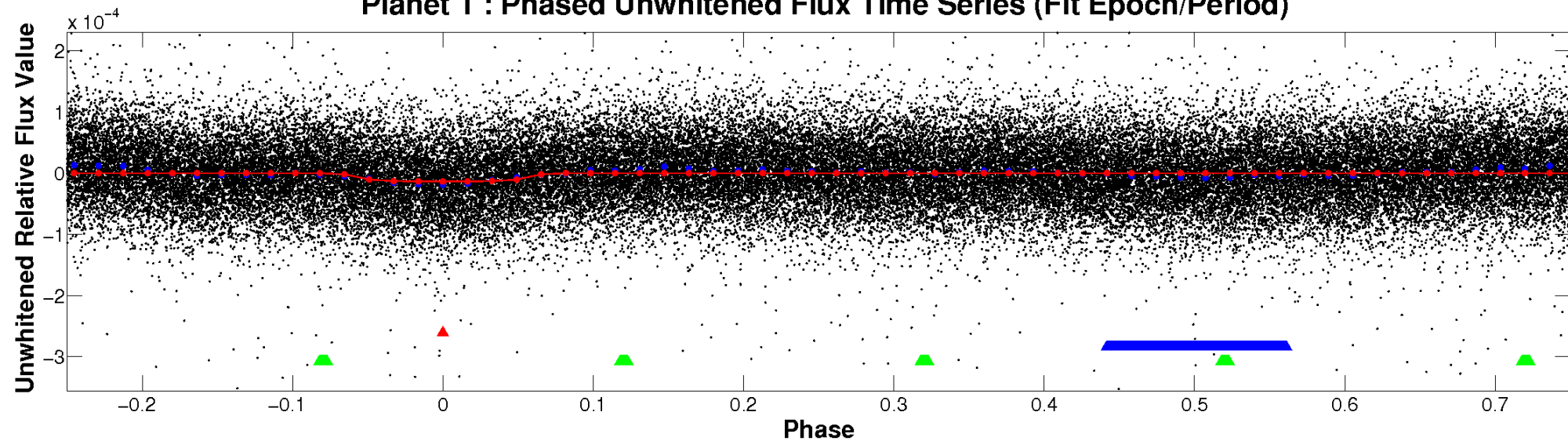
ALT Odd/Even

TCE 009471539-01

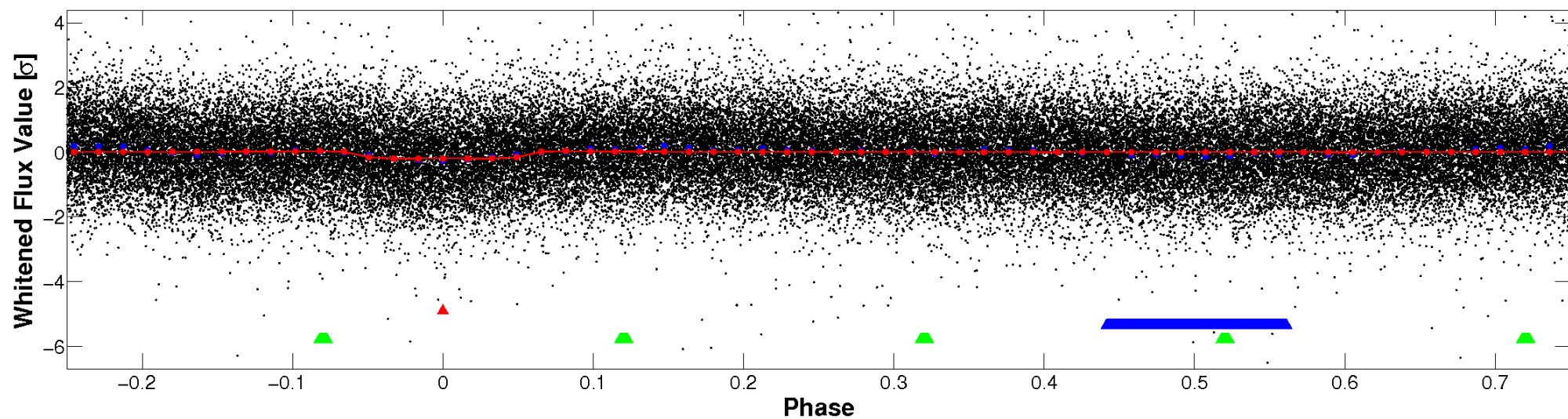


Non-Whitened Vs. Whitened Light Curve

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

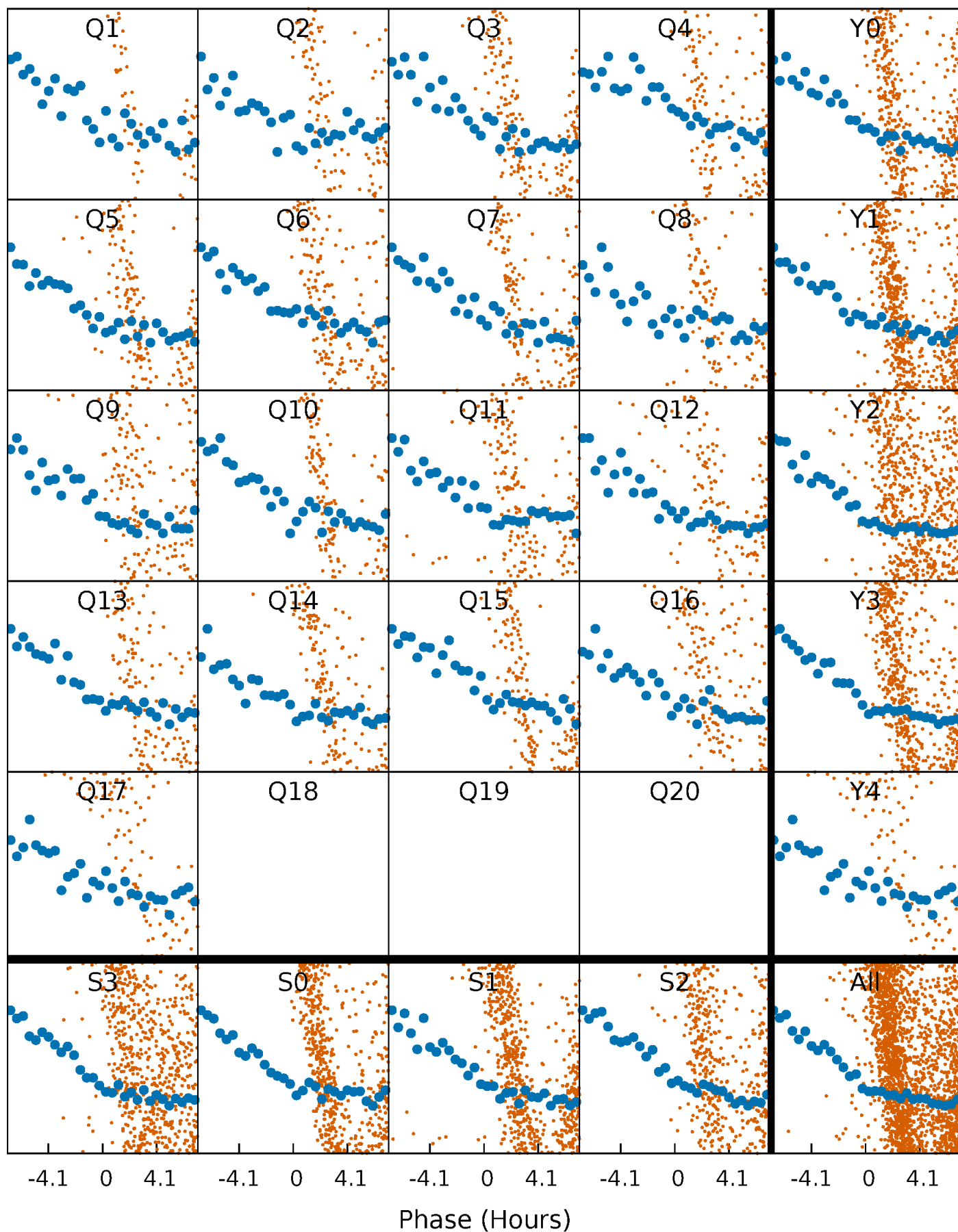


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



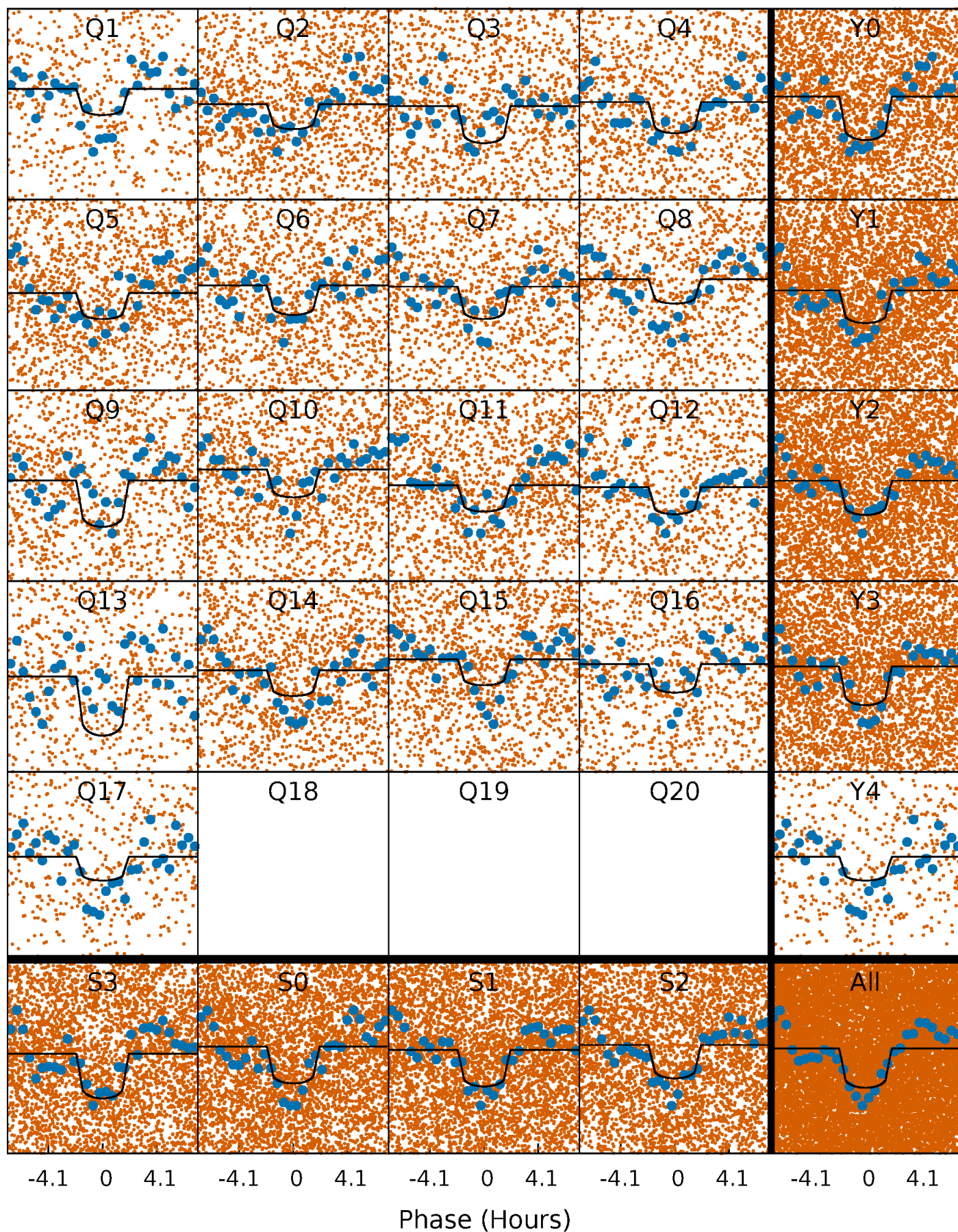
PDC Quarter-Phased Transit Curves

TCE 009471539-01 P= 1.248916 Days $T_0=132.226603$ (BKJD)



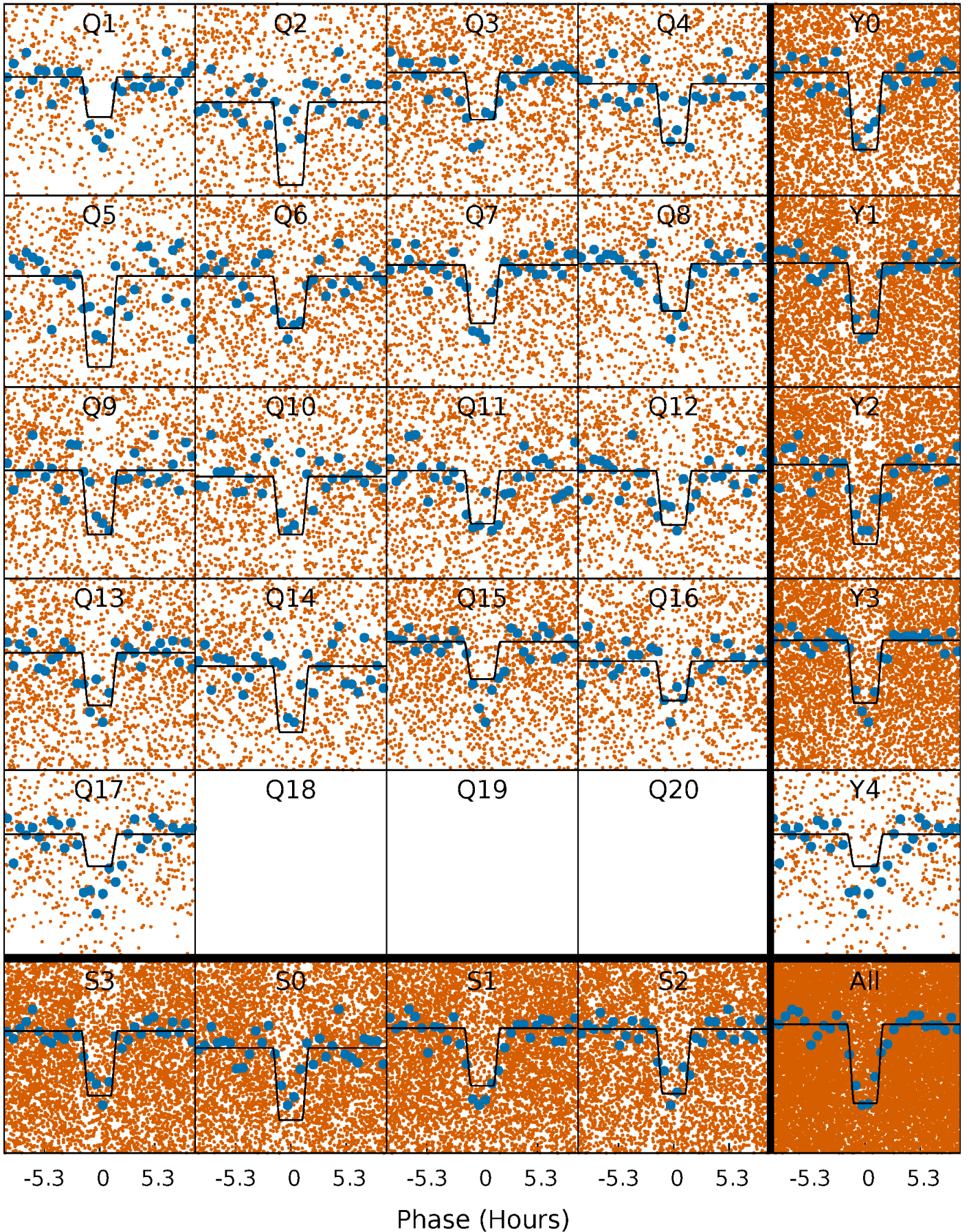
DV Quarter-Phased Transit Curves

TCE 009471539-01 P= 1.248916 Days $T_0=132.226603$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

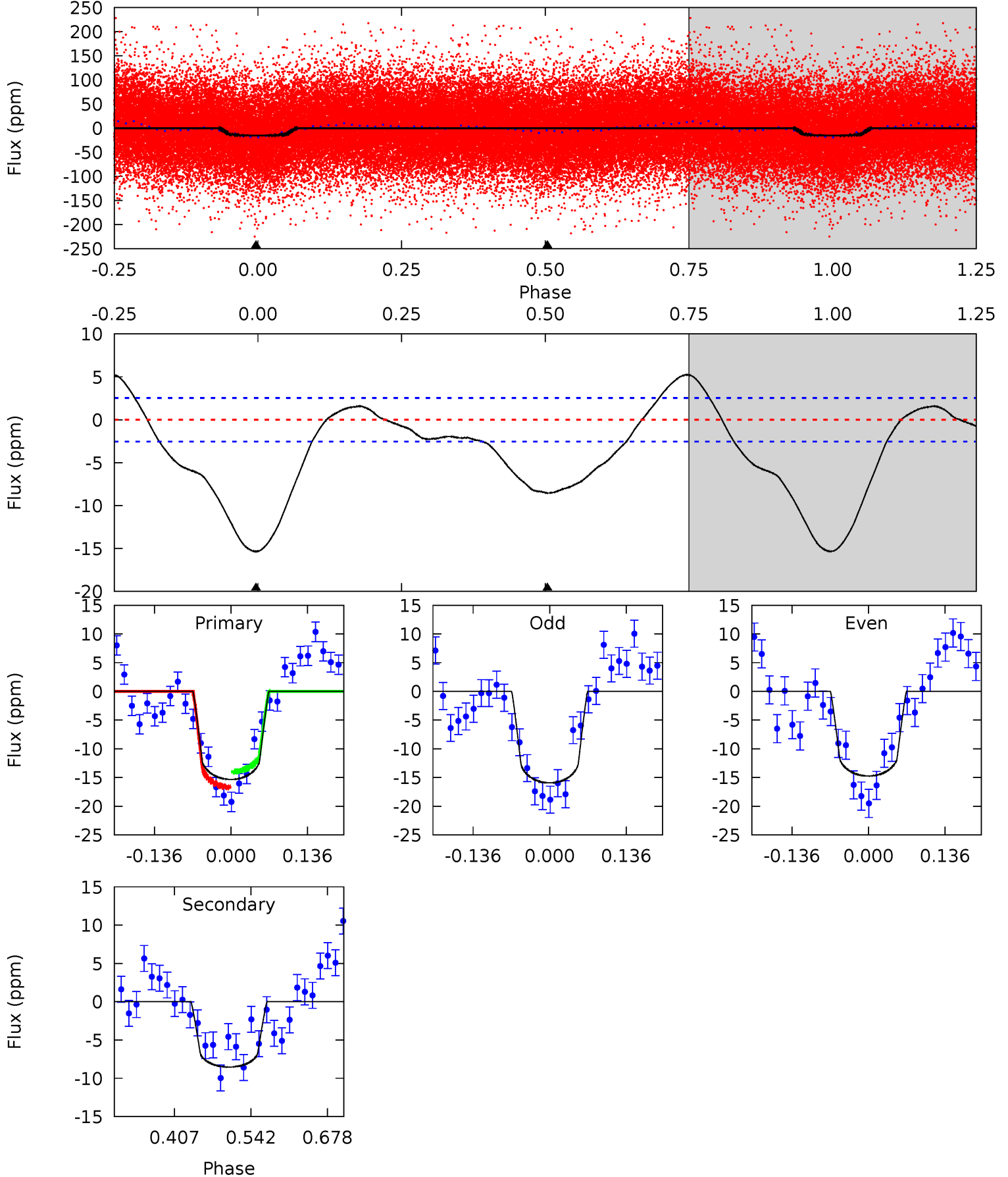
TCE 009471539-01 P= 1.248940 Days $T_0=132.213948$ (BKJD)



DV Model-Shift Uniqueness Test

009471539-01, P = 1.248916 Days, E = 130.977687 Days

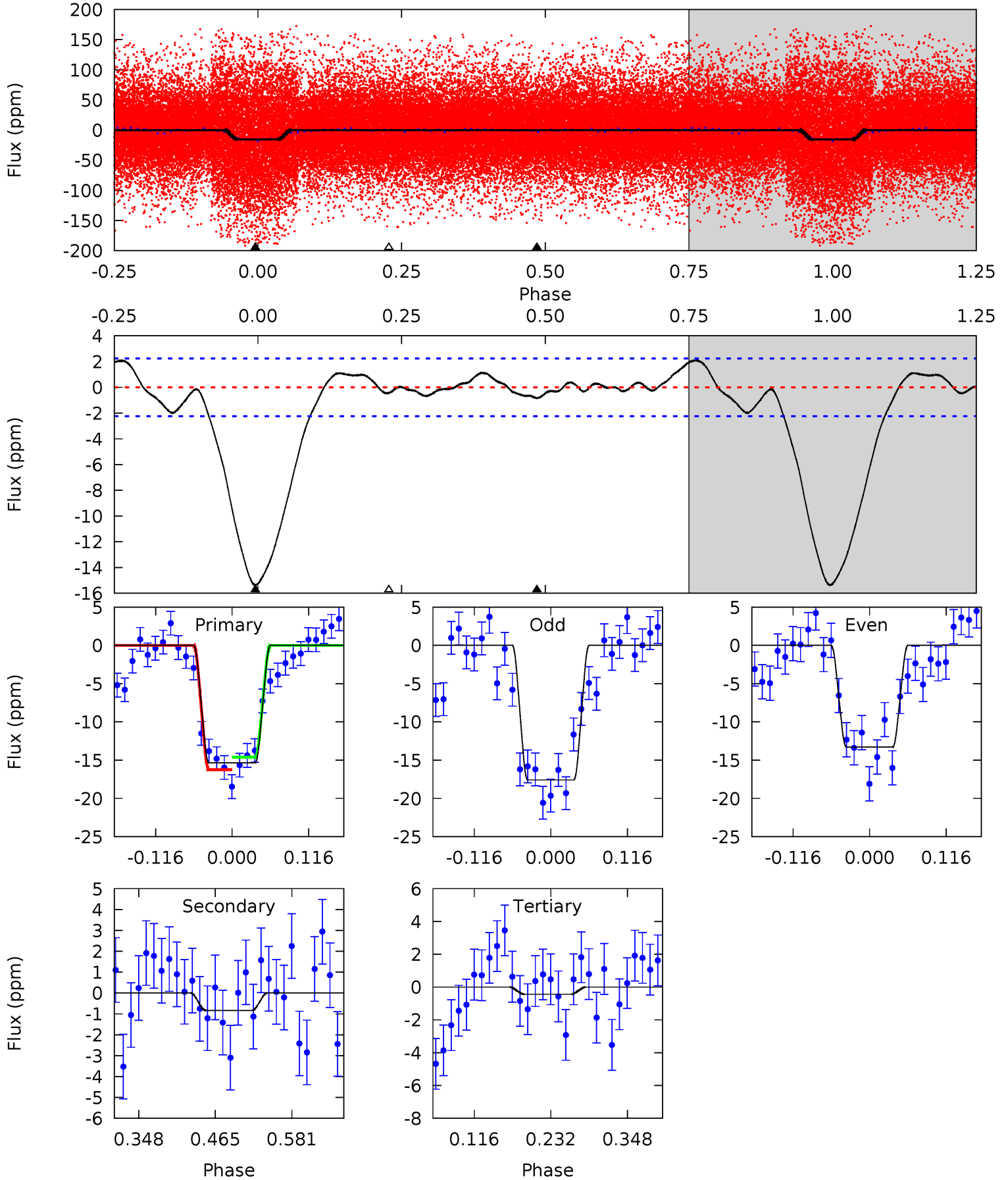
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.2	15.1	0	0	4.50	1.49	4.49	27.2	27.2	15.1	15.1	1.07	1.10	0.25	2.42



Alt Model-Shift Uniqueness Test

009471539-01, P = 1.248940 Days, E = 130.965008 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.0	1.69	0.89	0	4.53	1.57	1.77	30.2	31.0	0.80	1.69	4.32	1.11	0.12	1.64



Stellar Parameters For KIC 009471539

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7682^{+211}_{-316}	$3.838^{+0.323}_{-0.108}$	$-0.040^{+0.200}_{-0.350}$	$2.783^{+0.463}_{-1.080}$	$1.949^{+0.083}_{-0.471}$	$0.127^{+0.302}_{-0.043}$
	+3%/-4%	+8%/-3%	+500%/-875%	+17%/-39%	+4%/-24%	+237%/-33%
Source	KIC0	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 009471539-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-9 ± 1	$1.12^{+0.22}_{-0.25}$	4583^{+320}_{-470}	6322^{+523}_{-491}	$2.897^{+1.841}_{-0.861}$
Alt.	-1 ± 0	$1.22^{+0.22}_{-0.27}$	4589^{+296}_{-437}	-3033^{+6540}_{-790}	$0.246^{+0.220}_{-0.159}$

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

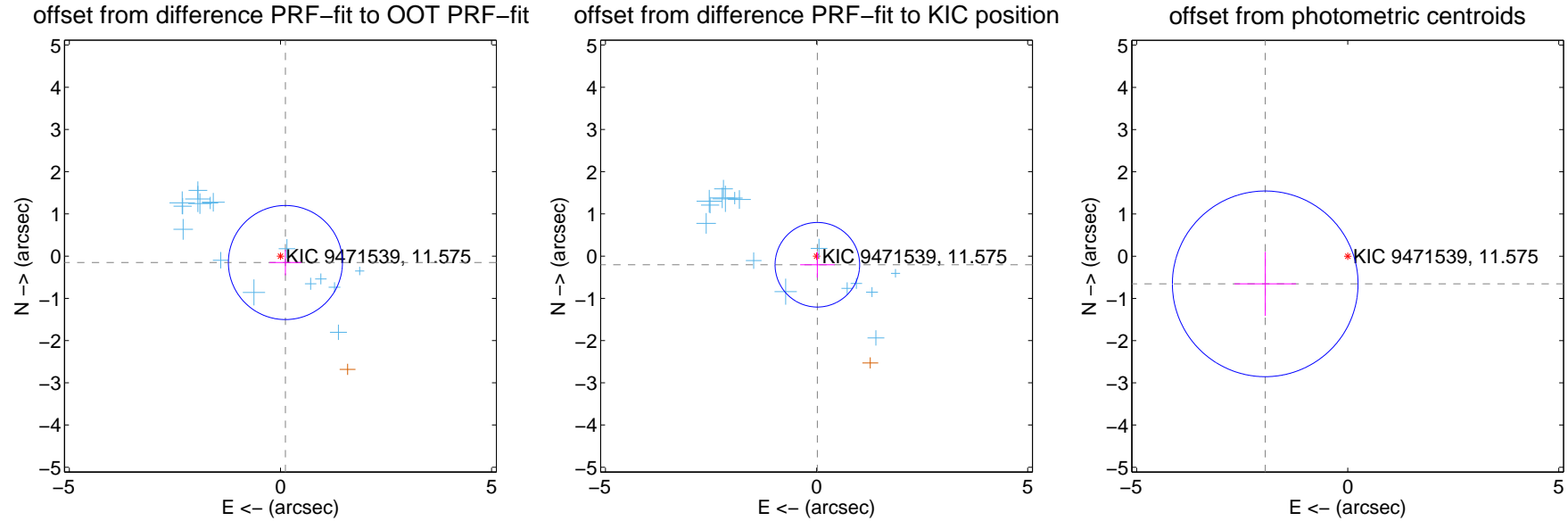
DV Centroid Data

Supplemental centroid analysis for 009471539-01. **Kepler magnitude: 11.57.** Transit SNR 15.89

There are 16 quarters with good PRF difference image offsets

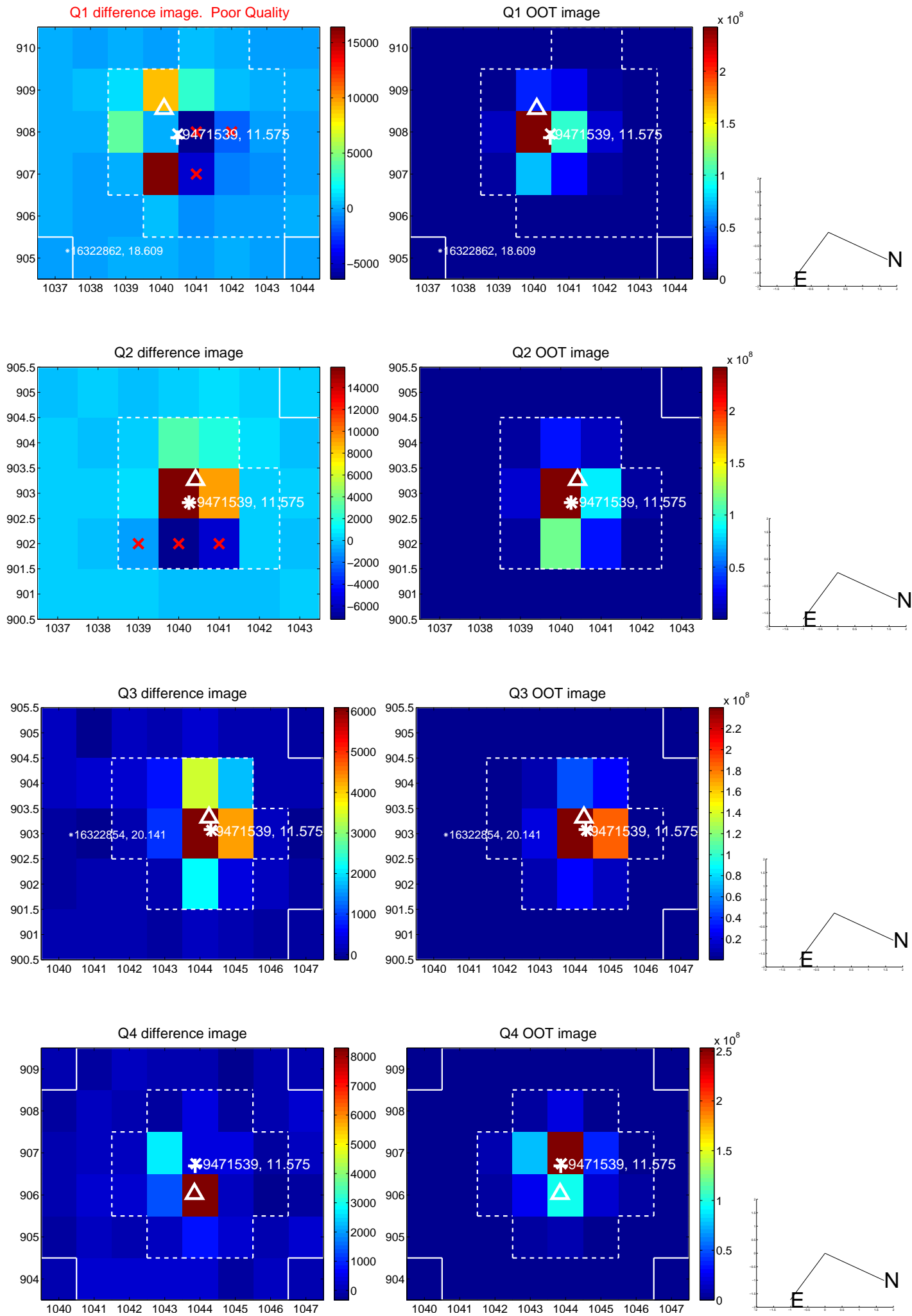
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.192 ± 0.450	0.43	-0.118 ± 0.378	-0.152 ± 0.303
PRF-fit source offset from KIC position	0.205 ± 0.334	0.61	-0.019 ± 0.408	-0.204 ± 0.304
photometric centroid source offset	2.06 ± 0.73	2.81	1.95 ± 0.73	-0.65 ± 0.76

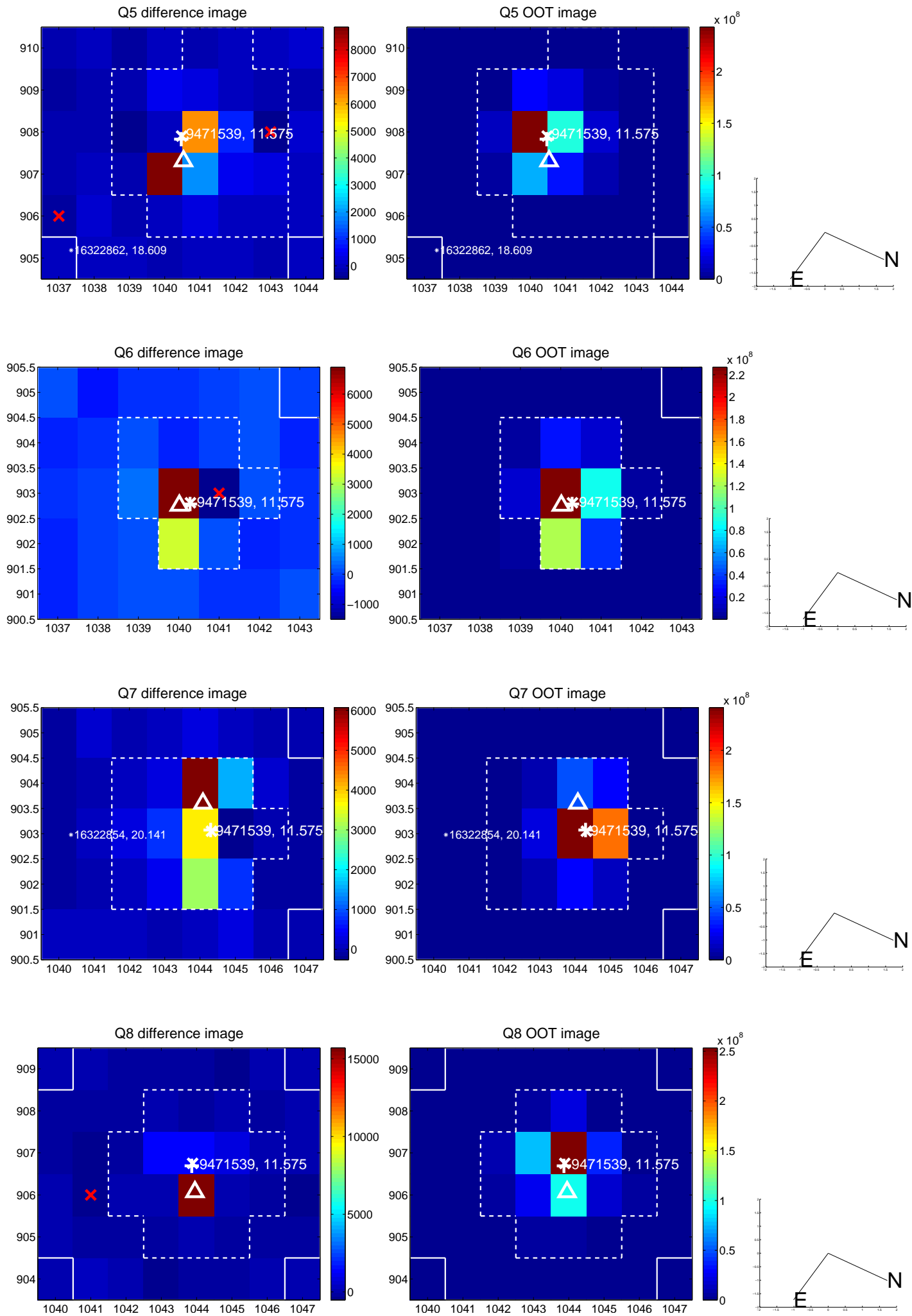


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

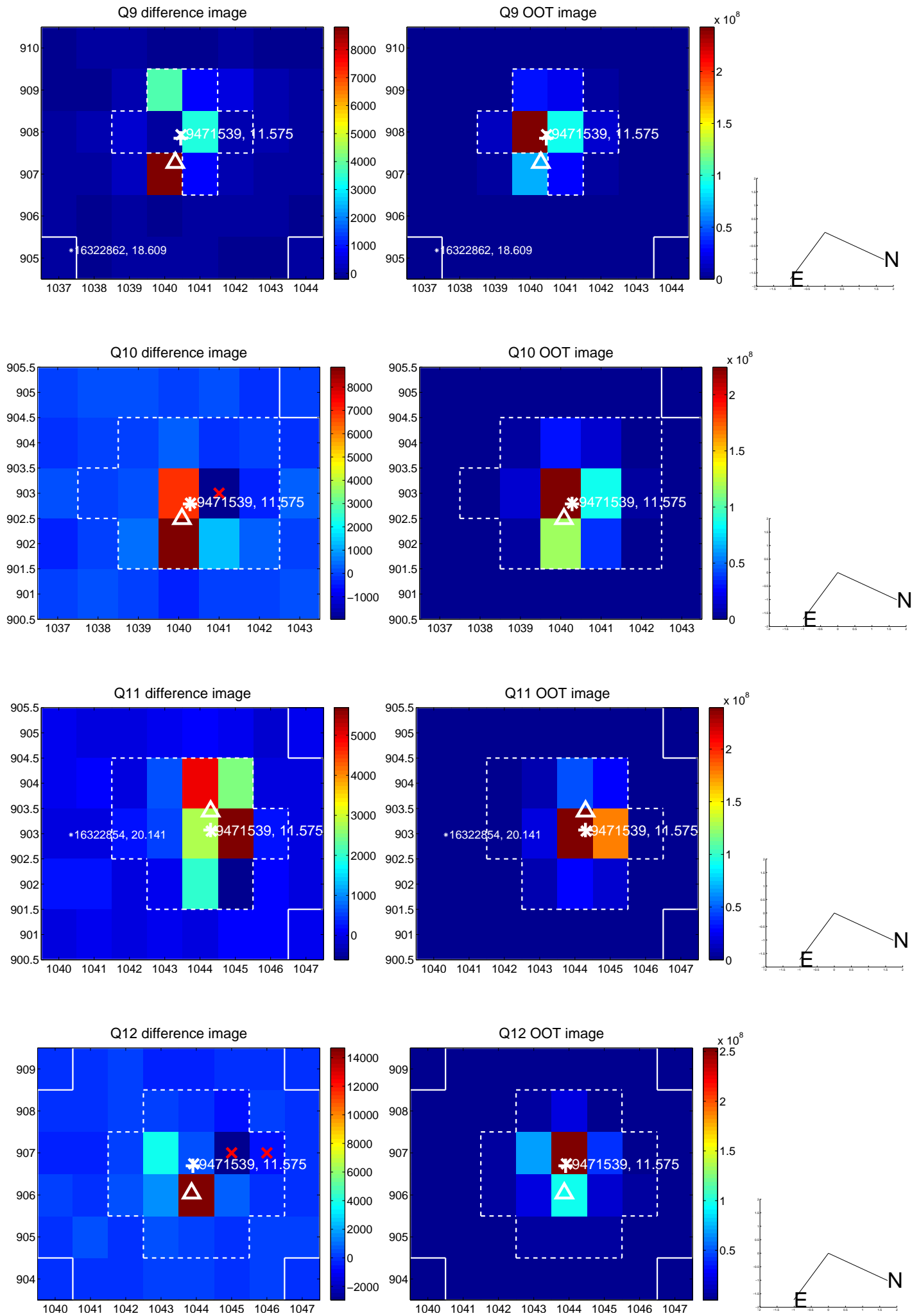
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



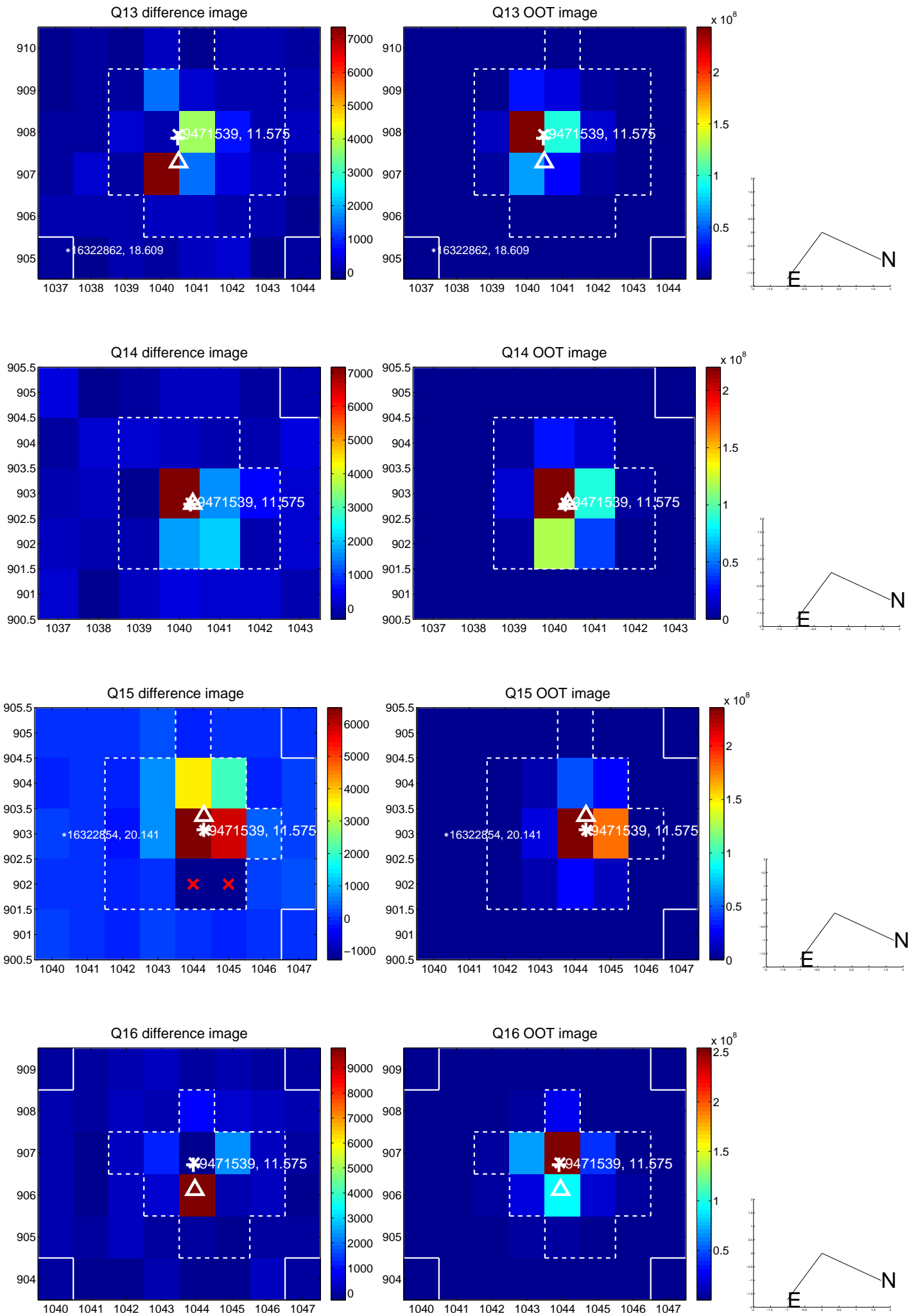
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



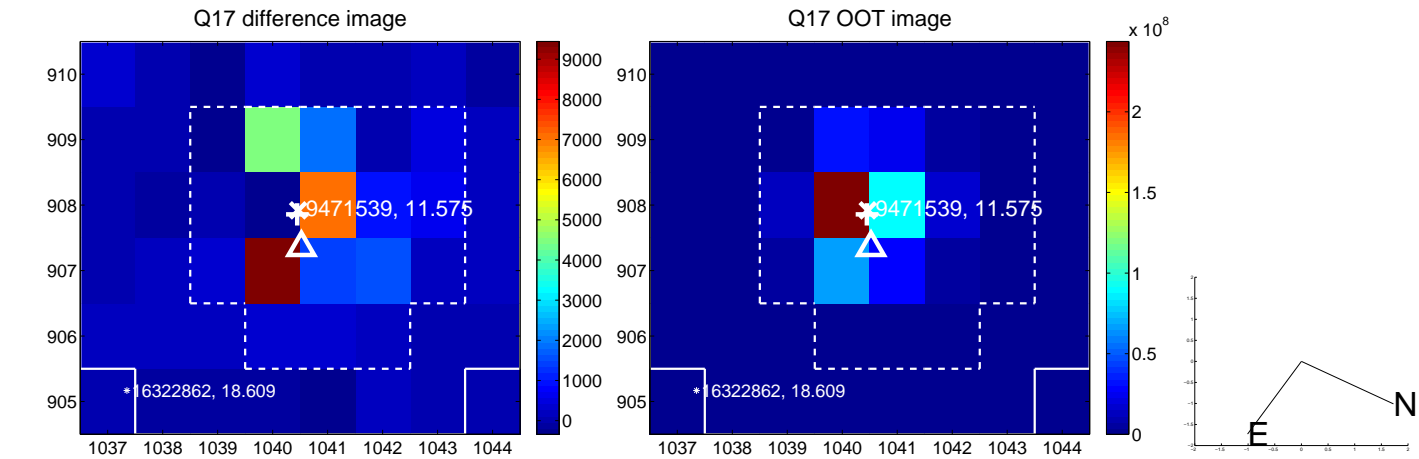
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



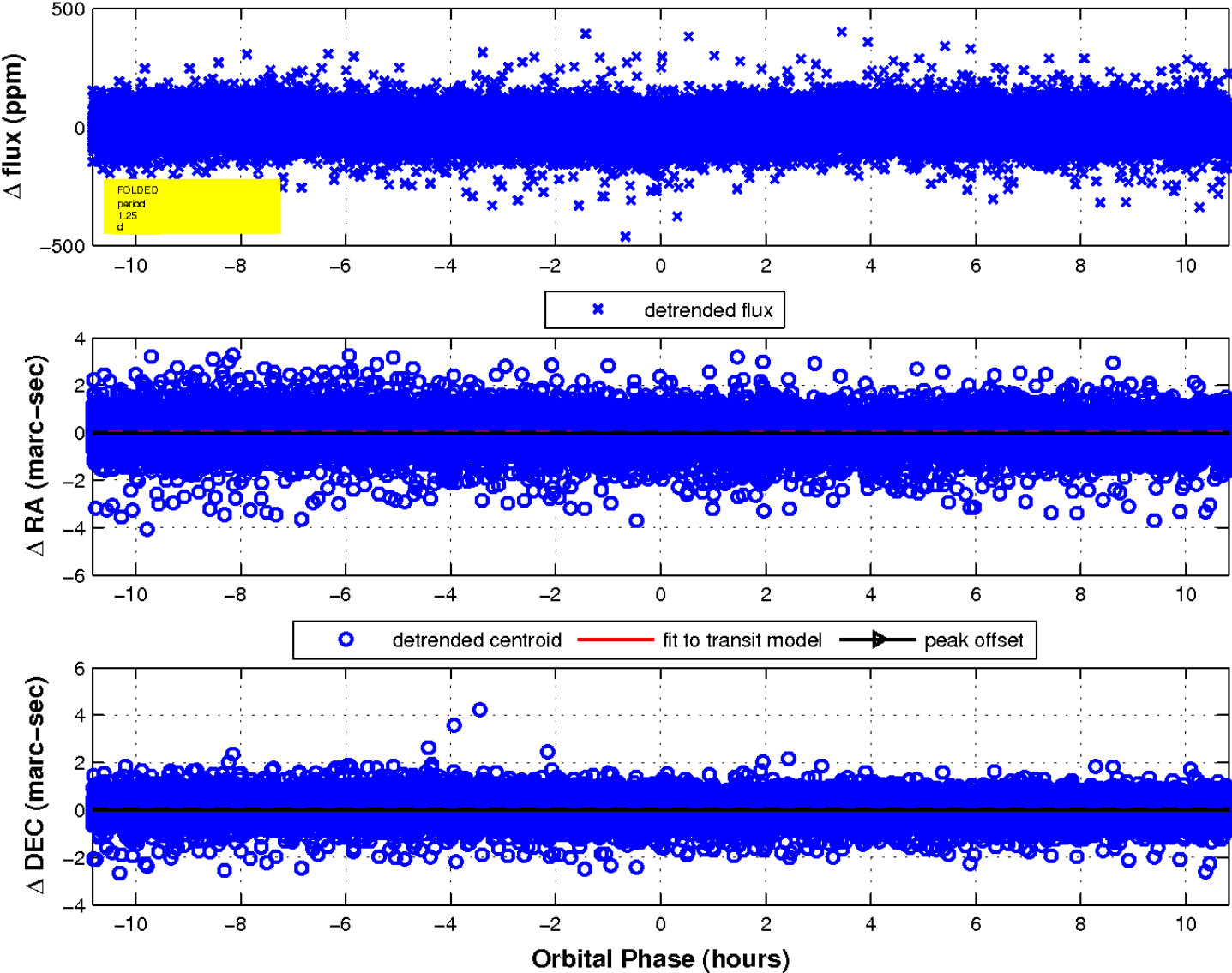
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

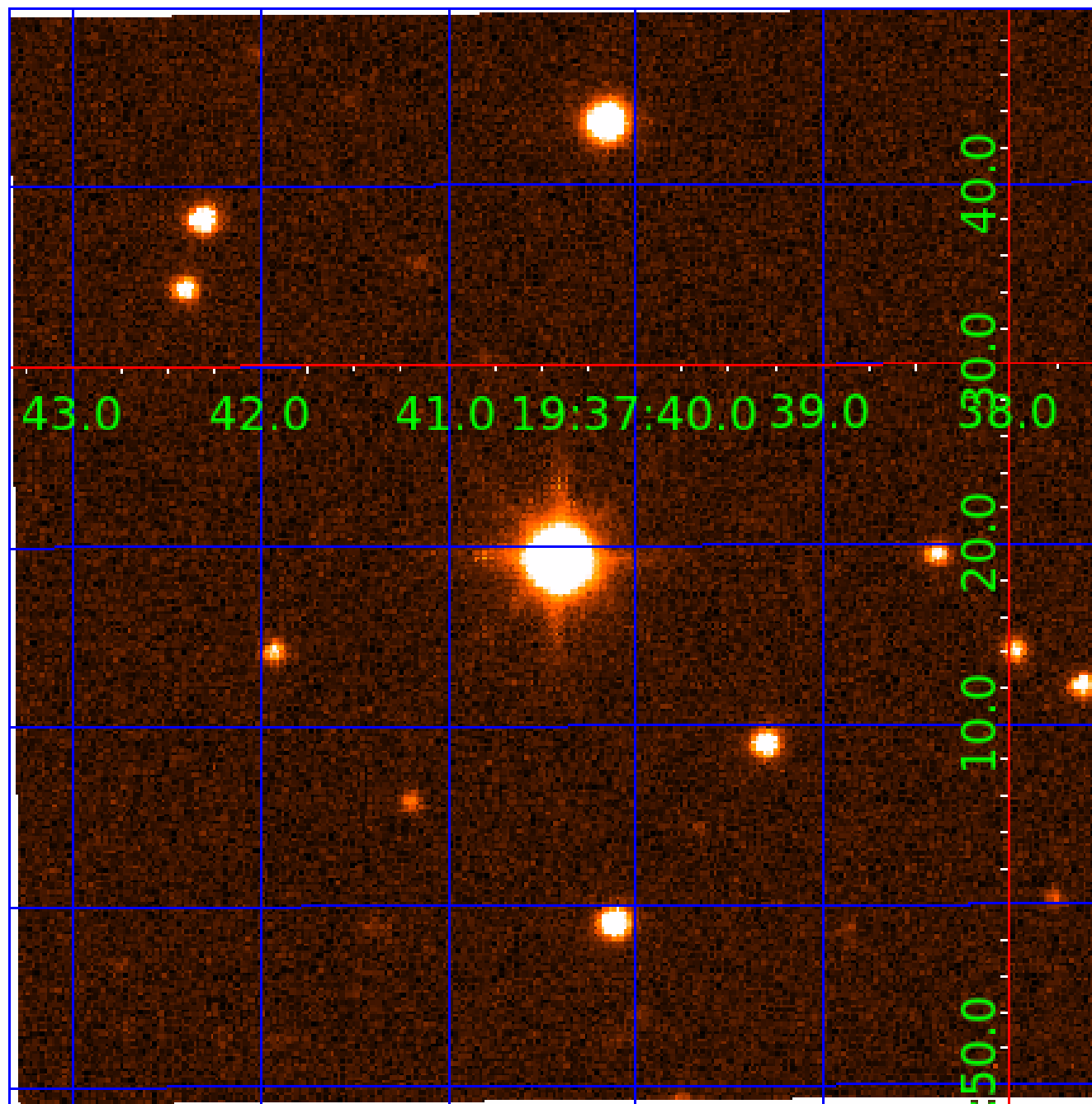


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 009471539

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})
009471539-01	OBS	No	1.248916	132.226603	13.6	3.608	16.0	15.9	2.78	7682	1.20	30090.05
009471539-02	OBS	No	3.747131	131.529142	18.4	6.163	15.1	15.7	2.78	7682	1.42	6953.48
009471539-03	OBS	No	0.749353	131.874175	9.5	3.314	8.8	9.7	2.78	7682	0.99	59459.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009471539-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009471539-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009471539-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNRESOLVED_OFFSET

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 009471539-02

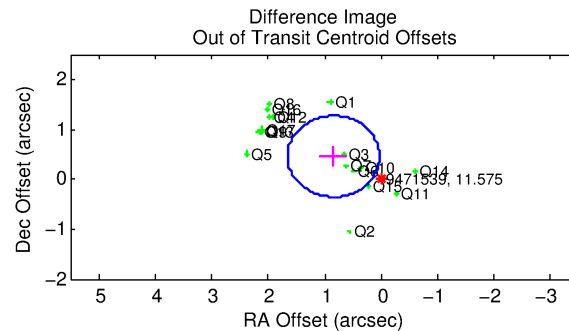
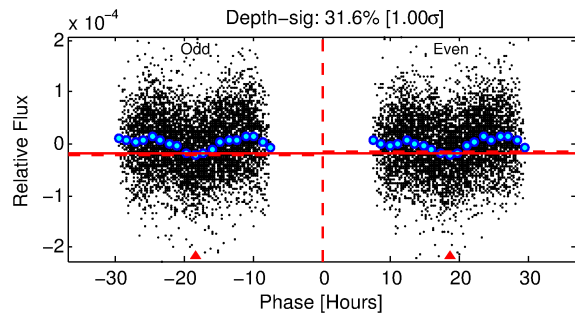
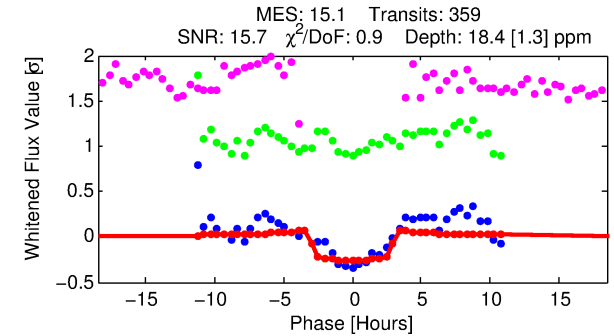
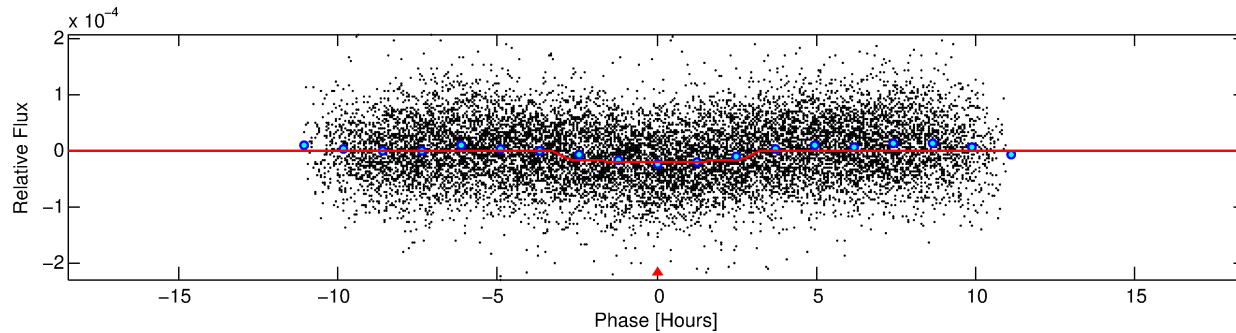
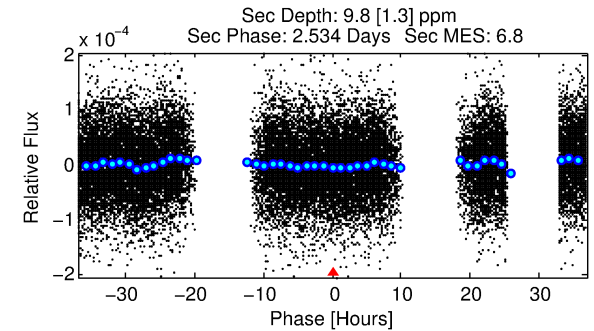
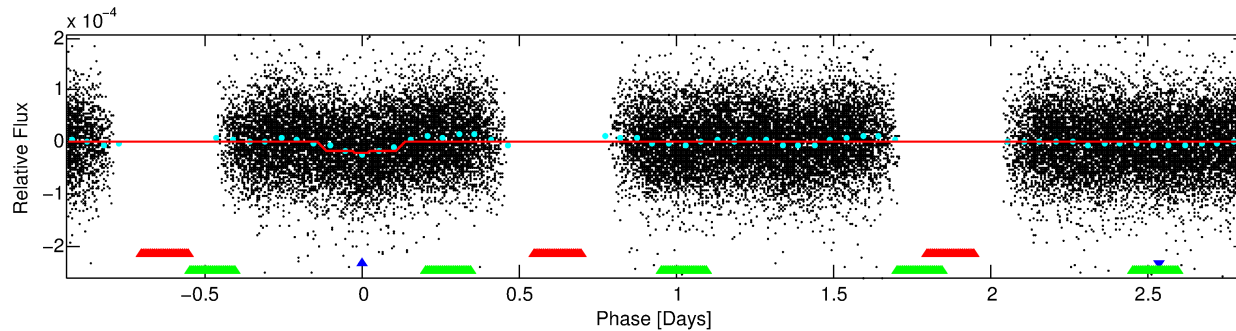
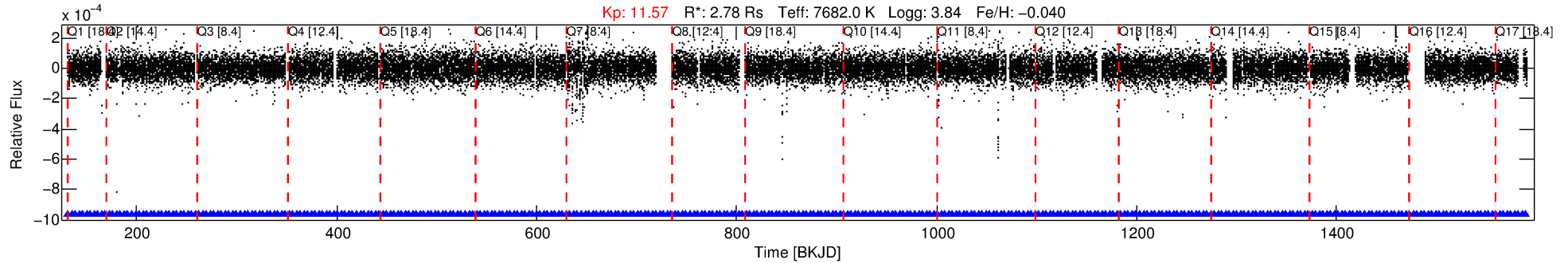
No Significant Match Found

DV One-Page Summary

KIC: 9471539 Candidate: 2 of 3 Period: 3.747 d

KOI: K03198 Corr: No Ephemeris Match

Kp: 11.57 R*: 2.78 Rs Teff: 7682.0 K Logg: 3.84 Fe/H: -0.040



DV Fit Results:

Period = 3.74713 [0.00002] d
Epoch = 131.5291 [0.0038] BKJD
Rp/R* = 0.0047 [0.0006]
a/R* = 2.04 [1.34]
b = 0.93 [0.13]
Seff = 6953.47 [4053.63]
Teq = 2329 [339] K
Rp = 1.42 [0.58] Re
a = 0.0590 [0.0211] AU
Ag = 9.37 [5.96] [1.40σ]
Teffp = 6299 [544] K [6.20σ]

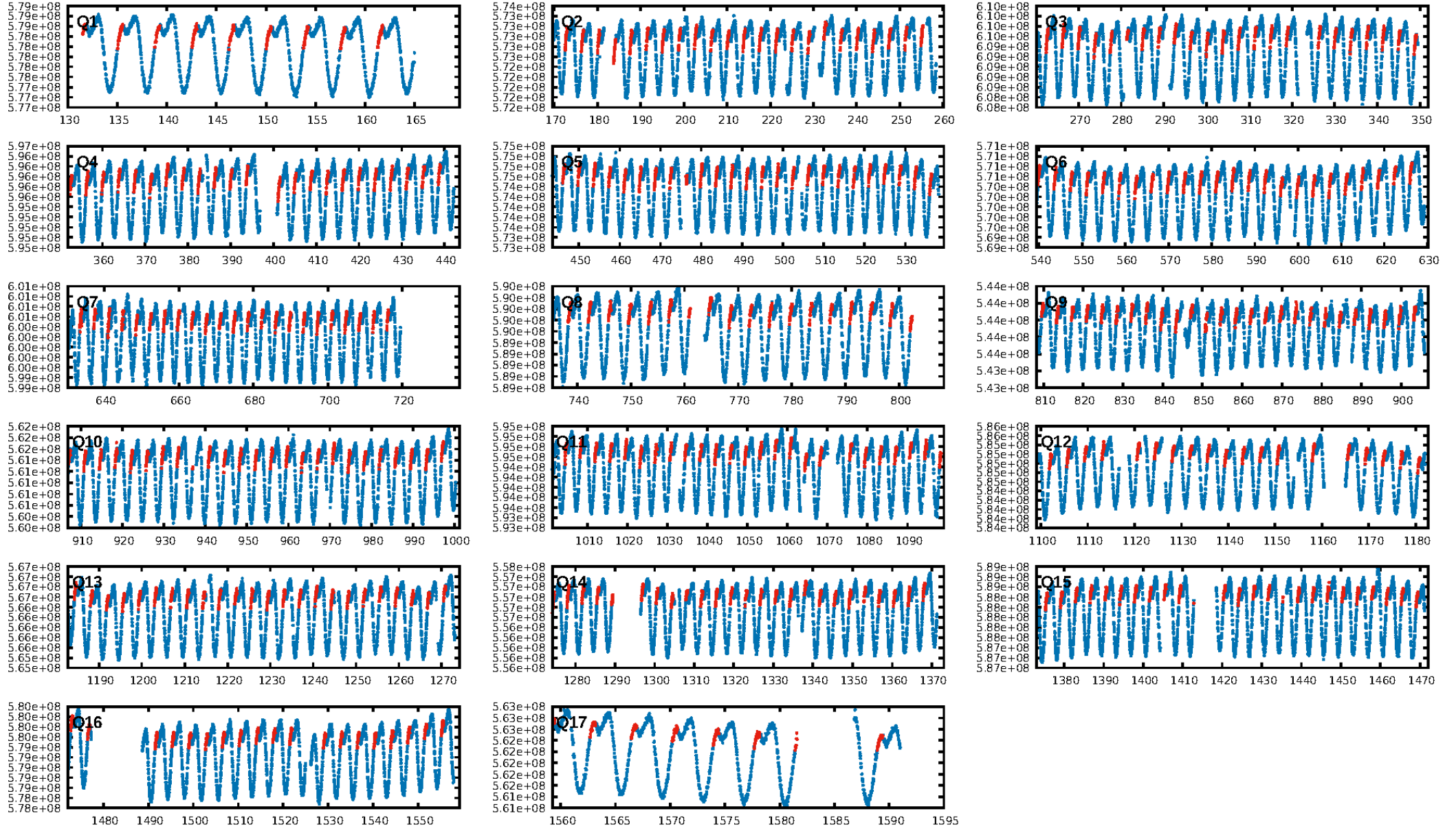
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [8.40σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.93e-26
RollingBand-fgt: 1.00 [342/342]
GhostDiagnostic-chr: -1.256
Centroid-sig: 0.0%
Centroid-so: 1.948 arcsec [2.25σ]
OotOffset-rm: 0.959 arcsec [3.54σ]
KicOffset-rm: 1.026 arcsec [3.41σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.00 [0/17]

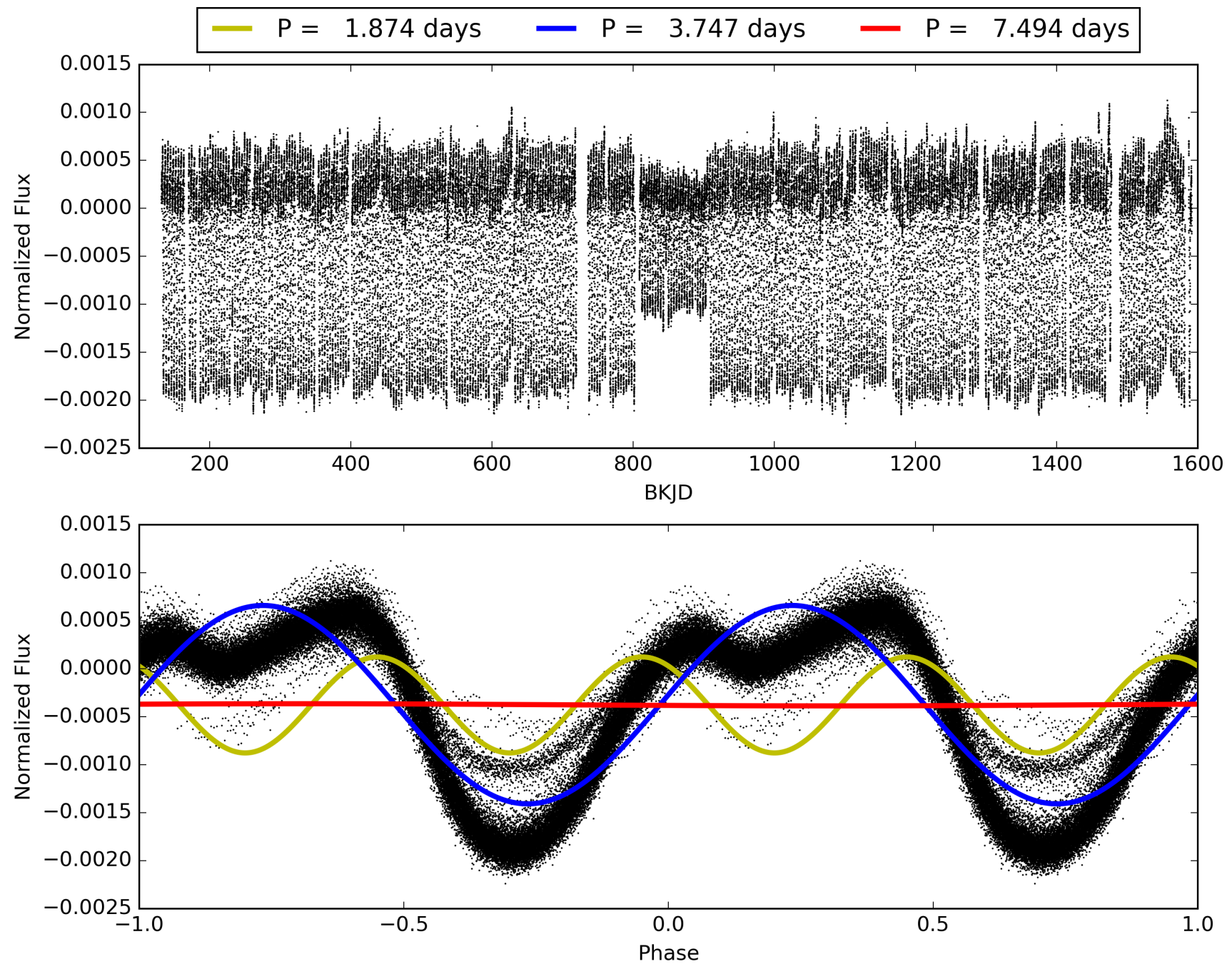
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 21:45:45 Z

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

TCE 009471539-02, PDC Light Curves

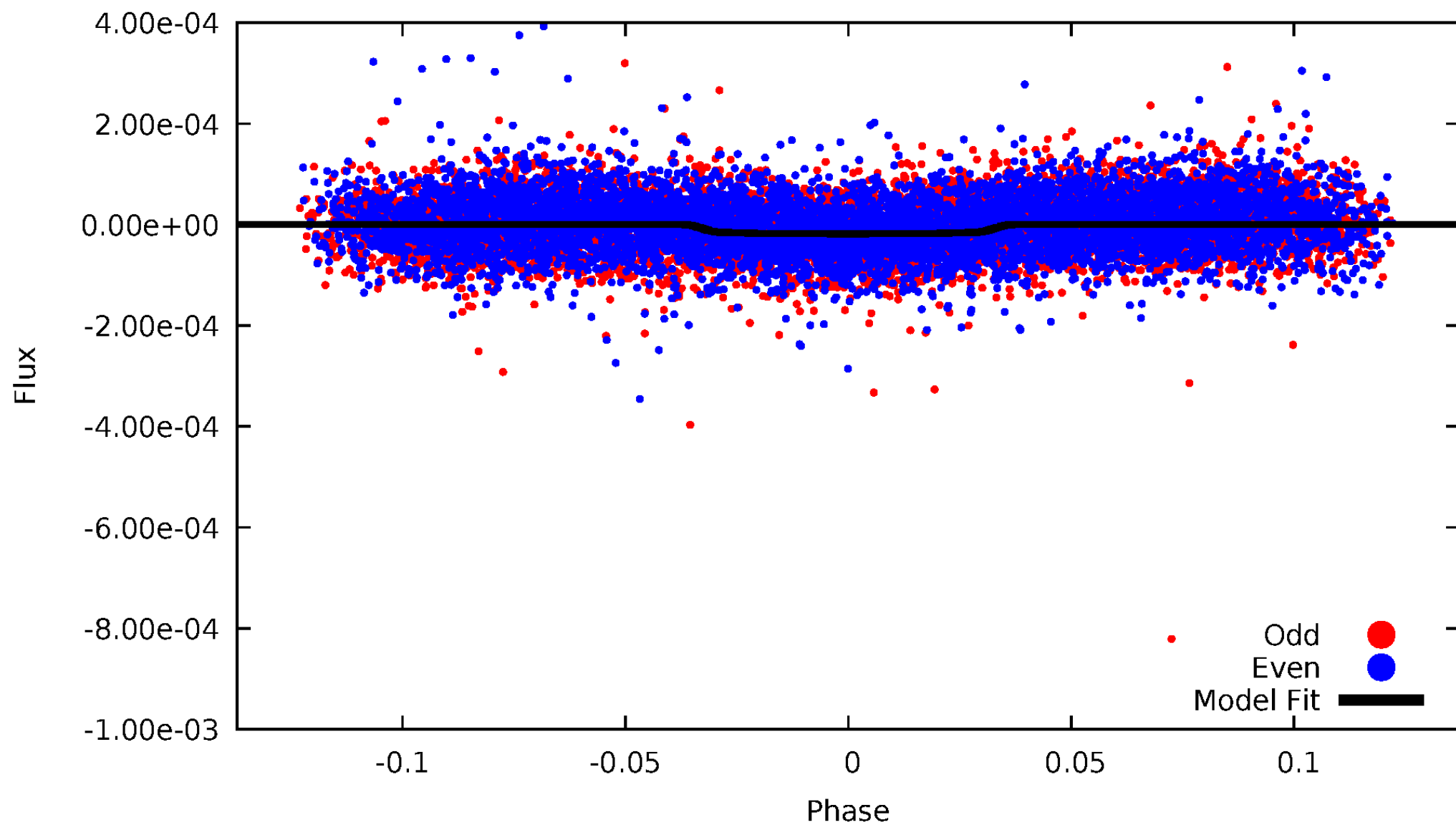


TCE 009471539-02



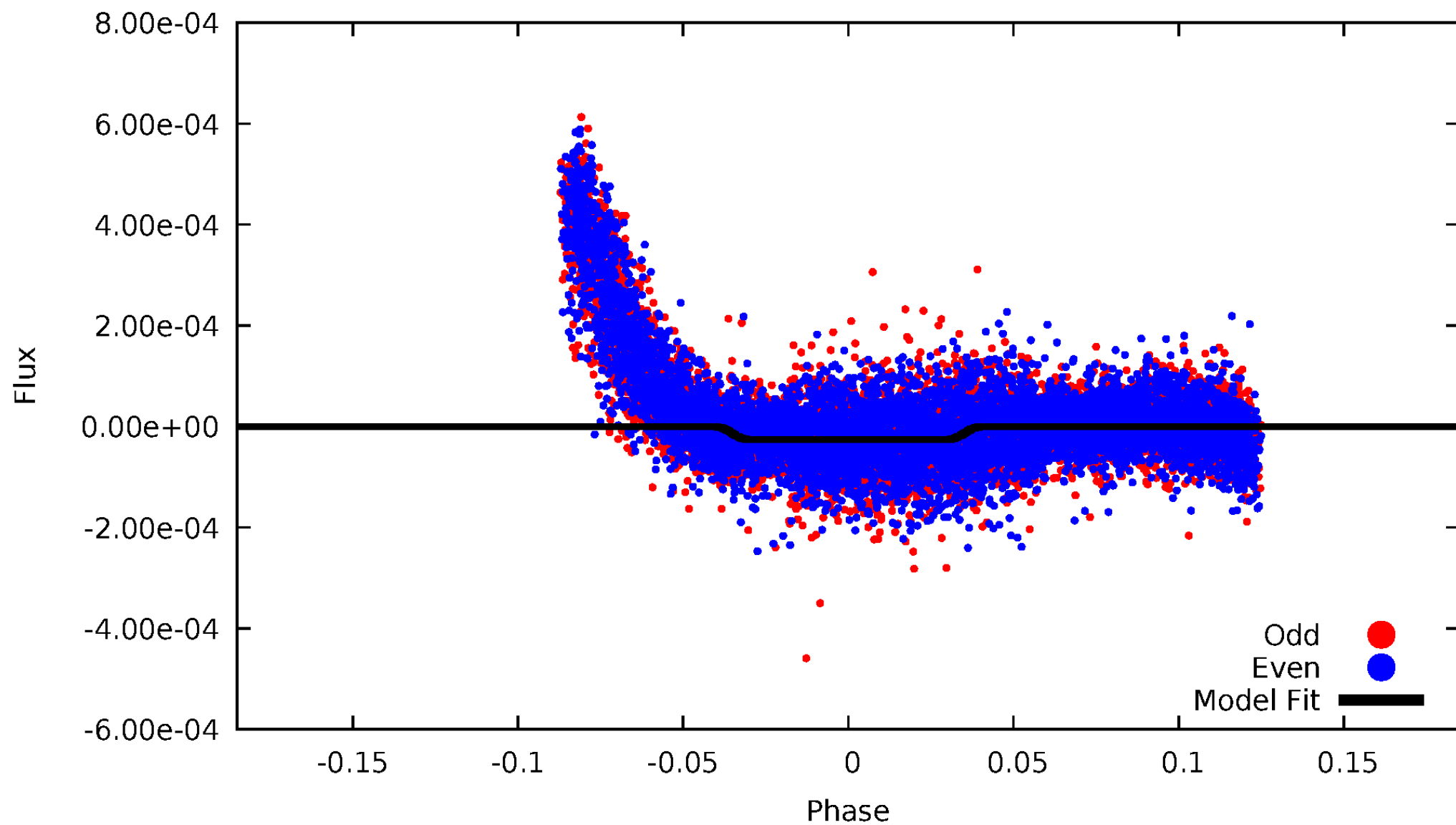
DV Odd/Even

TCE 009471539-02



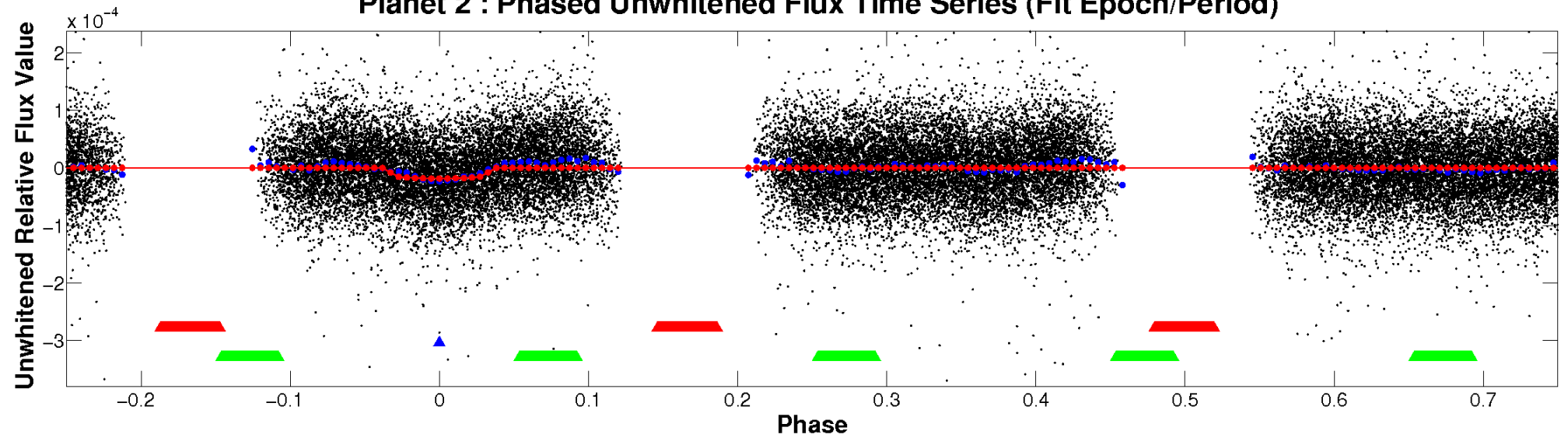
ALT Odd/Even

TCE 009471539-02

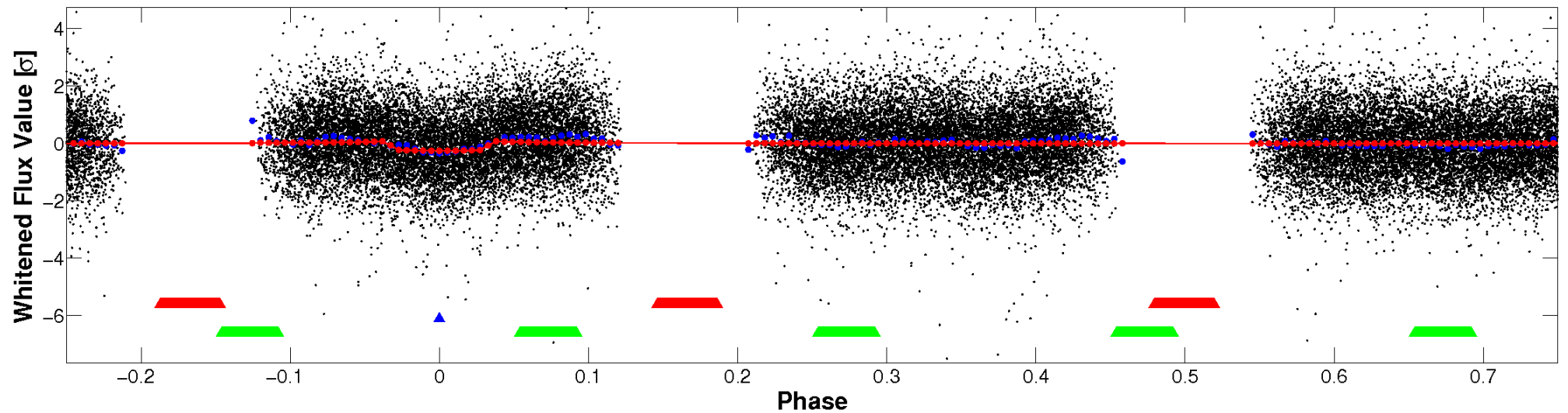


Non-Whitened Vs. Whitened Light Curve

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

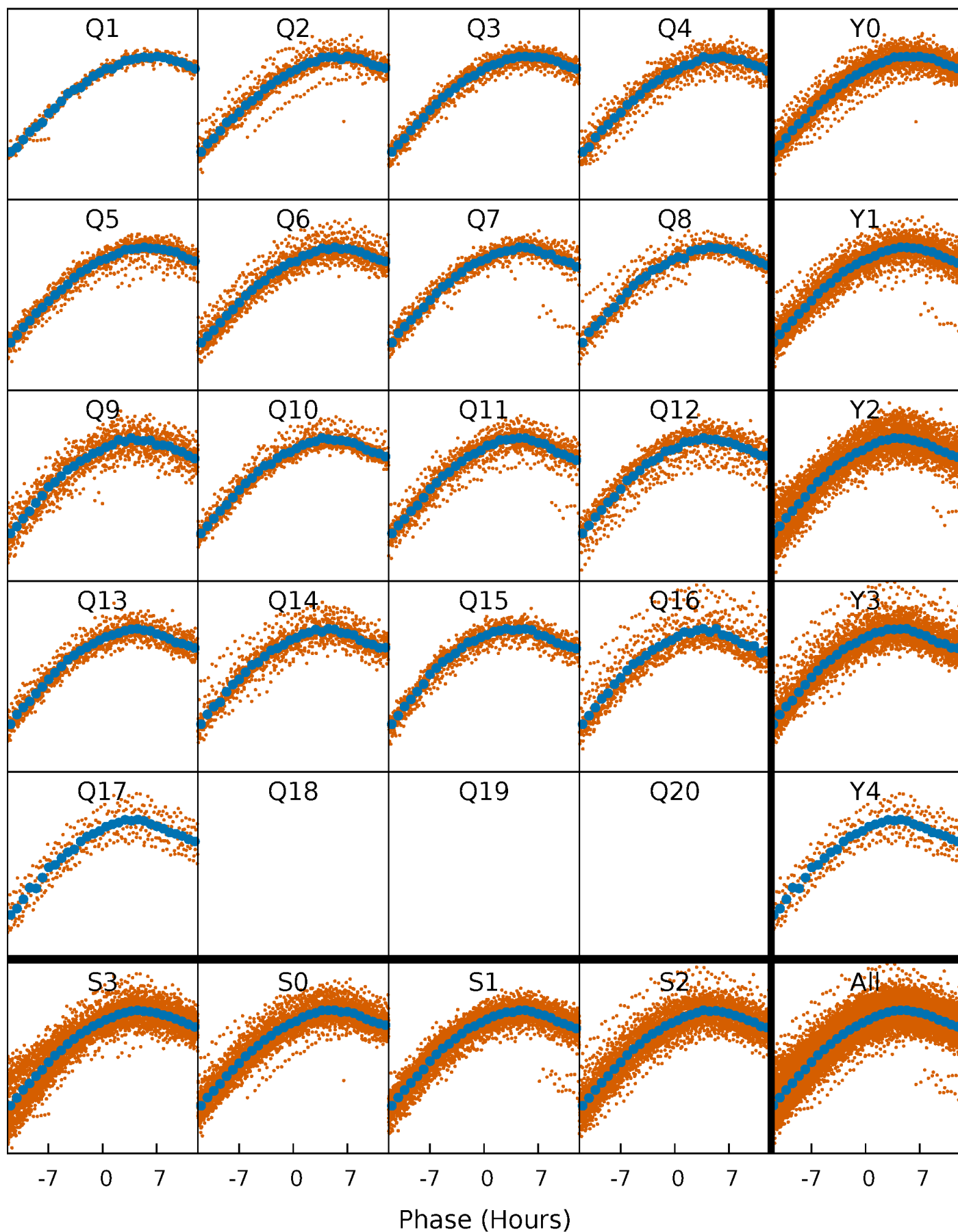


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



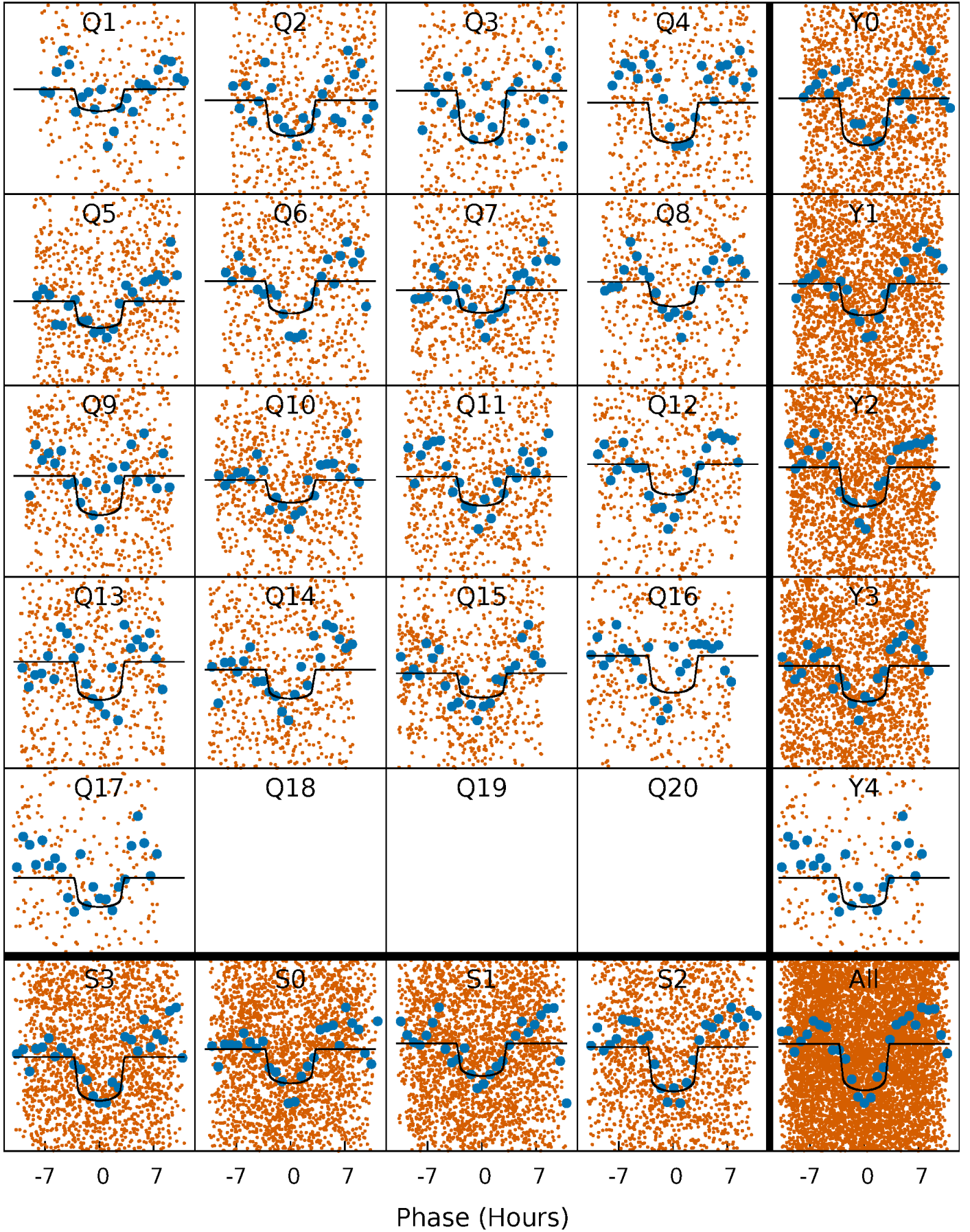
PDC Quarter-Phased Transit Curves

TCE 009471539-02 P= 3.747131 Days $T_0=131.529142$ (BKJD)



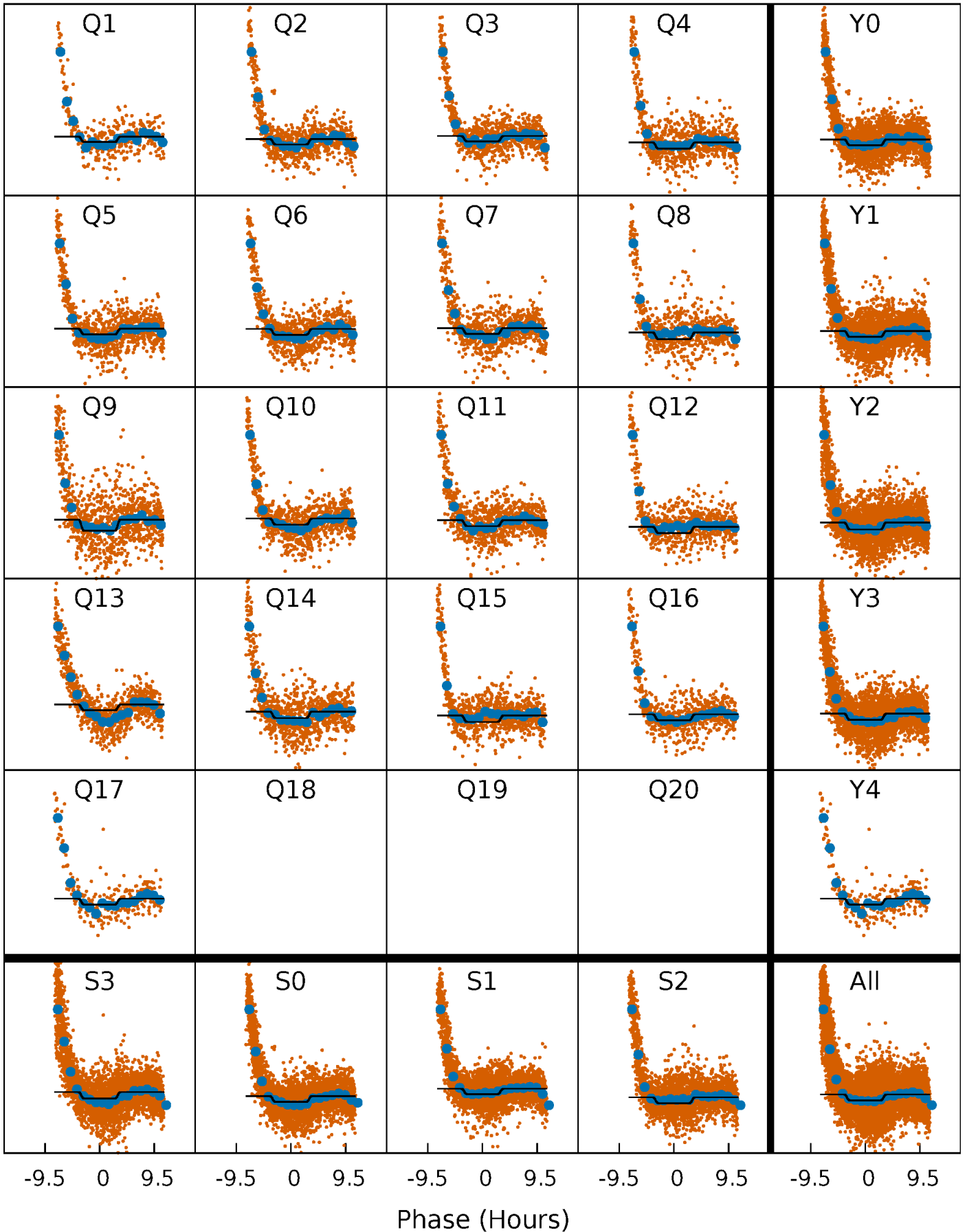
DV Quarter-Phased Transit Curves

TCE 009471539-02 P= 3.747131 Days $T_0=131.529142$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

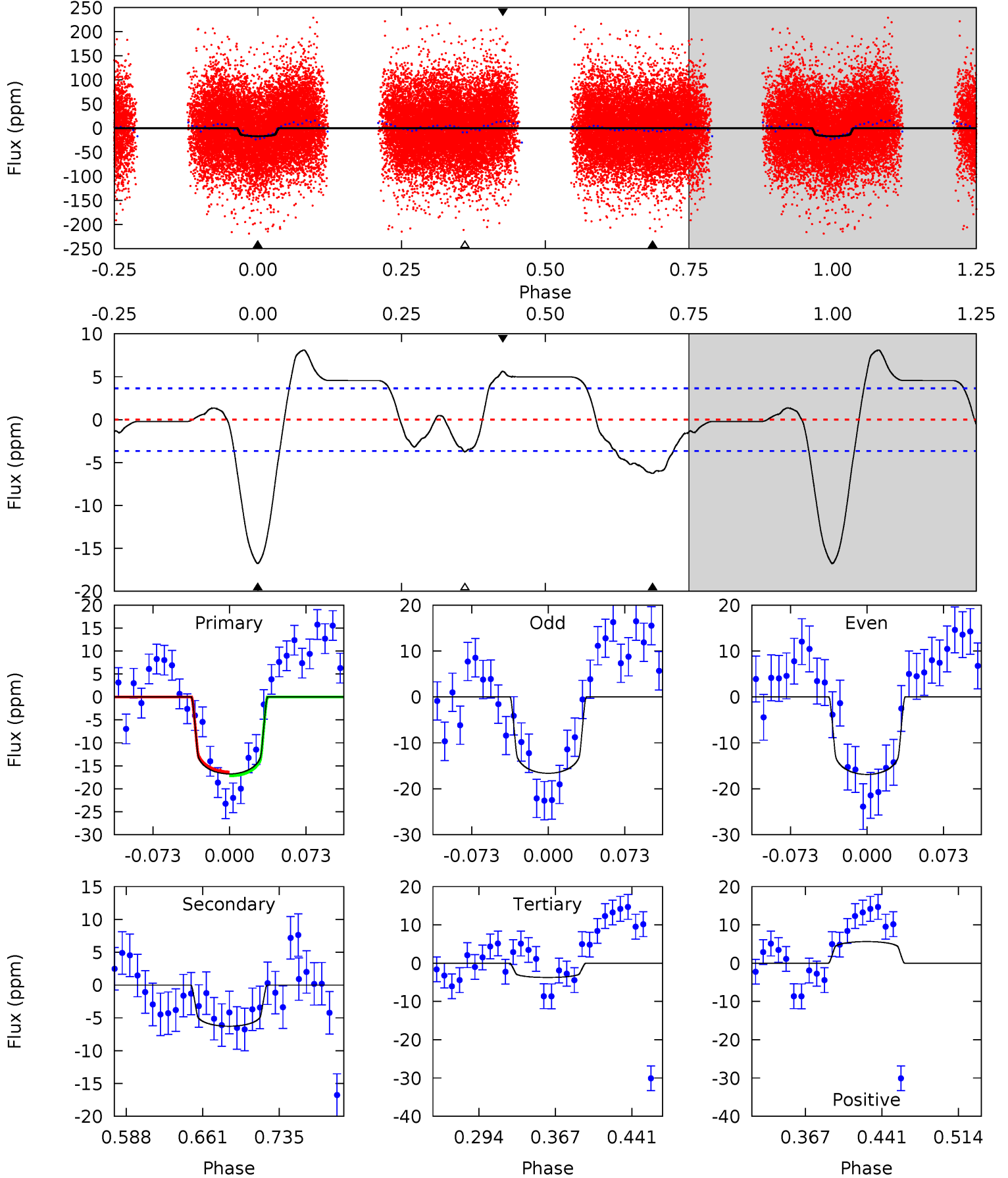
TCE 009471539-02 P= 3.746800 Days $T_0=131.521041$ (BKJD)



DV Model-Shift Uniqueness Test

009471539-02, P = 3.747131 Days, E = 127.782011 Days

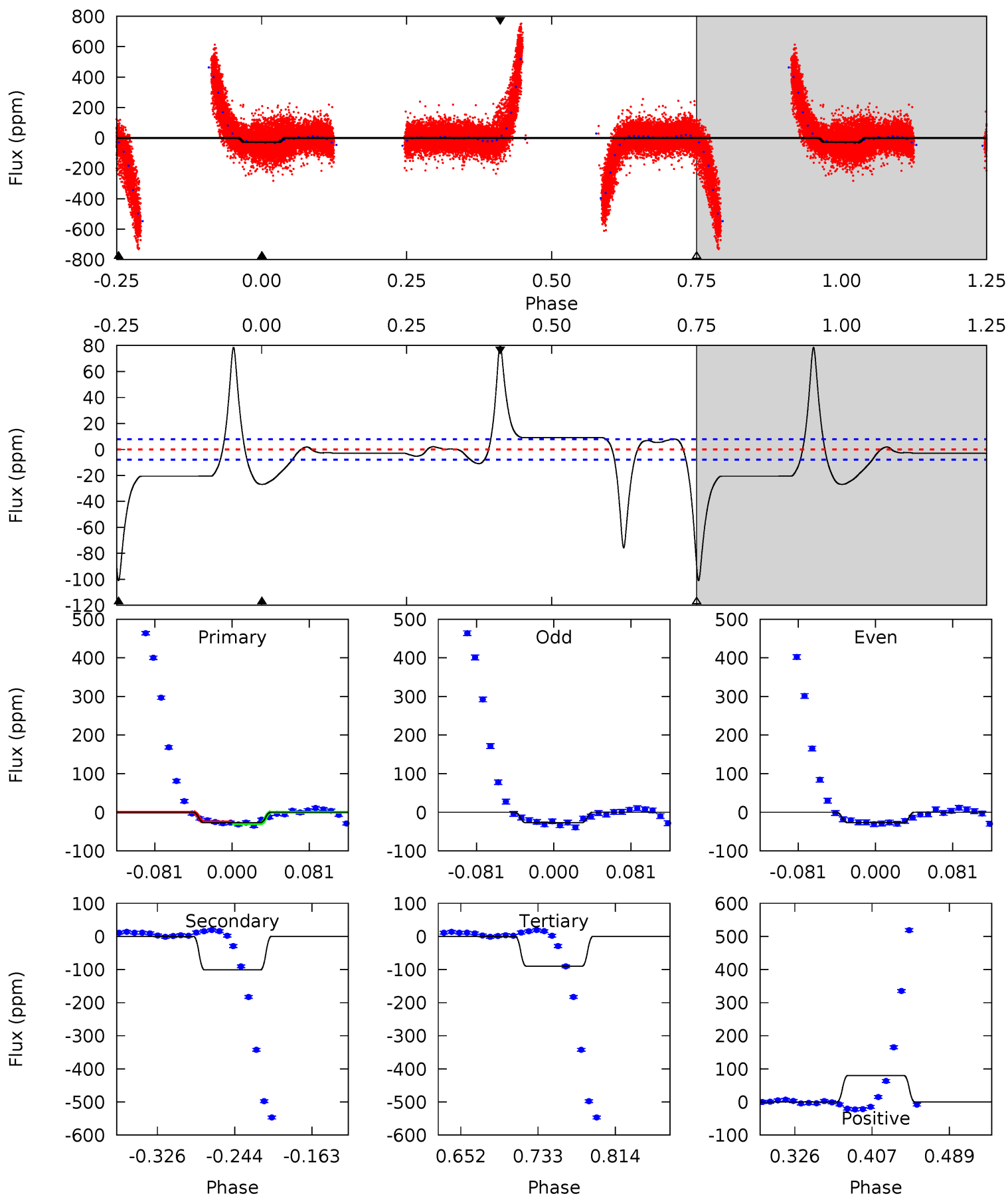
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.3	7.97	4.74	7.15	4.63	1.79	4.16	16.5	14.1	3.22	0.81	0.16	1.06	0.33	0.54



Alt Model-Shift Uniqueness Test

009471539-02, P = 3.746800 Days, E = 127.774241 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	59.2	52.7	46.9	4.61	1.74	13.4	-36.9	-31.1	6.53	12.4	0.03	1.04	0.44	1.73



Stellar Parameters For KIC 009471539

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7682^{+211}_{-316}	$3.838^{+0.323}_{-0.108}$	$-0.040^{+0.200}_{-0.350}$	$2.783^{+0.463}_{-1.080}$	$1.949^{+0.083}_{-0.471}$	$0.127^{+0.302}_{-0.043}$
	+3%/-4%	+8%/-3%	+500%/-875%	+17%/-39%	+4%/-24%	+237%/-33%
Source	KIC0	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 009471539-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-6 ± 1	$1.33^{+0.29}_{-0.31}$	3176^{+232}_{-309}	5478^{+473}_{-415}	$6.603^{+4.165}_{-2.178}$
Alt.	-101 ± 2	$1.44^{+0.27}_{-0.32}$	3177^{+222}_{-297}	12429^{+1651}_{-1260}	91^{+50}_{-27}

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

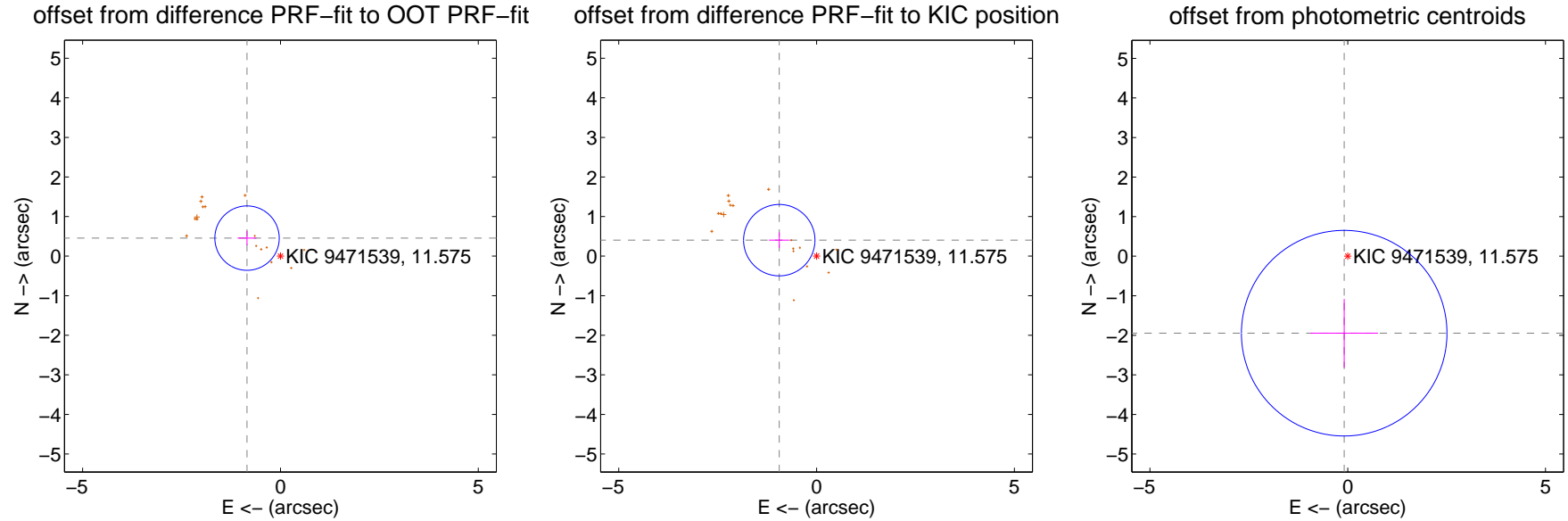
DV Centroid Data

Supplemental centroid analysis for 009471539-02. **Kepler magnitude: 11.57.** Transit SNR 15.70

There are 0 quarters with good PRF difference image offsets

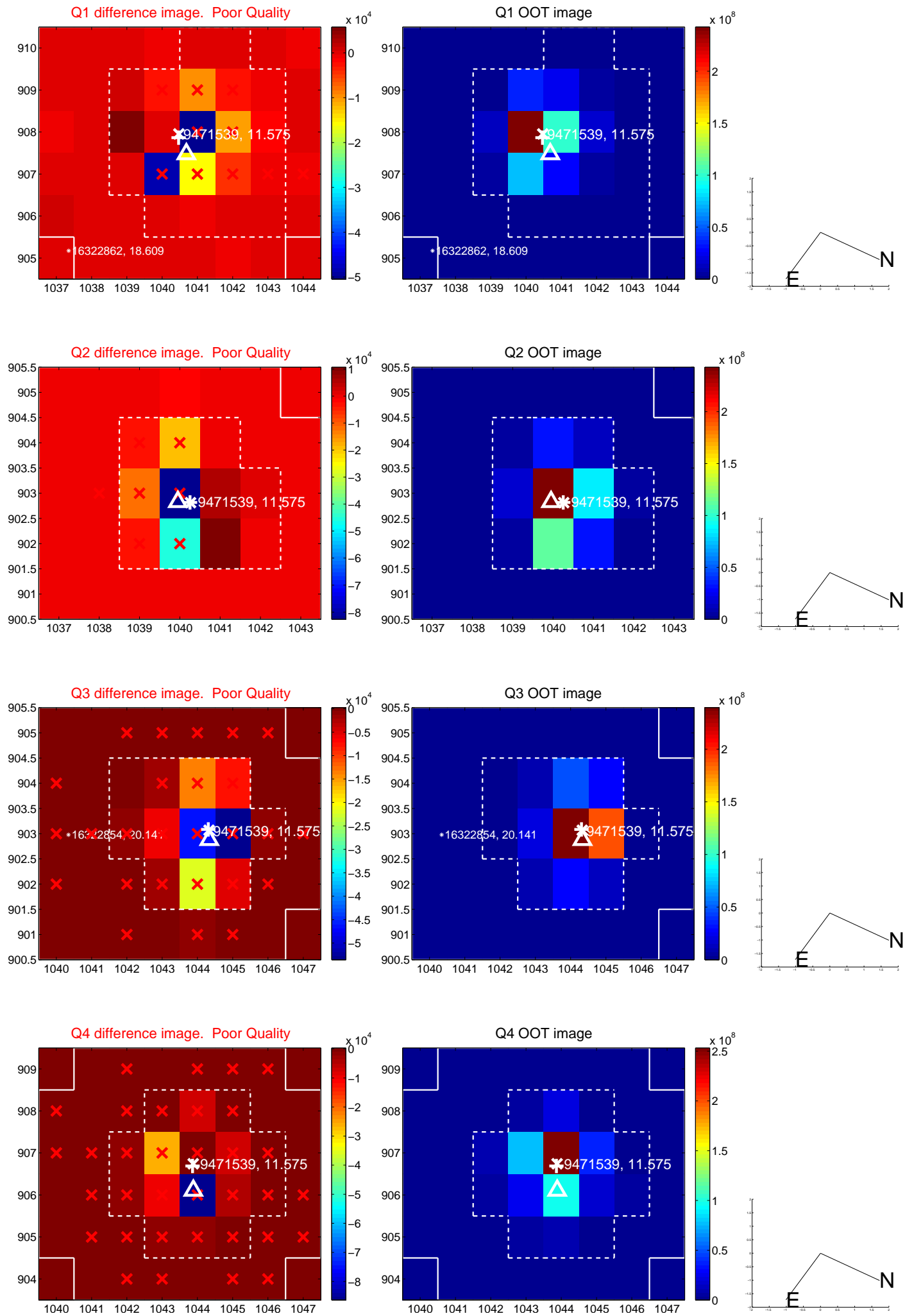
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.959 ± 0.271	3.54	0.845 ± 0.240	0.455 ± 0.181
PRF-fit source offset from KIC position	1.026 ± 0.301	3.41	0.943 ± 0.261	0.403 ± 0.199
photometric centroid source offset	1.95 ± 0.87	2.25	0.09 ± 0.86	-1.95 ± 0.87

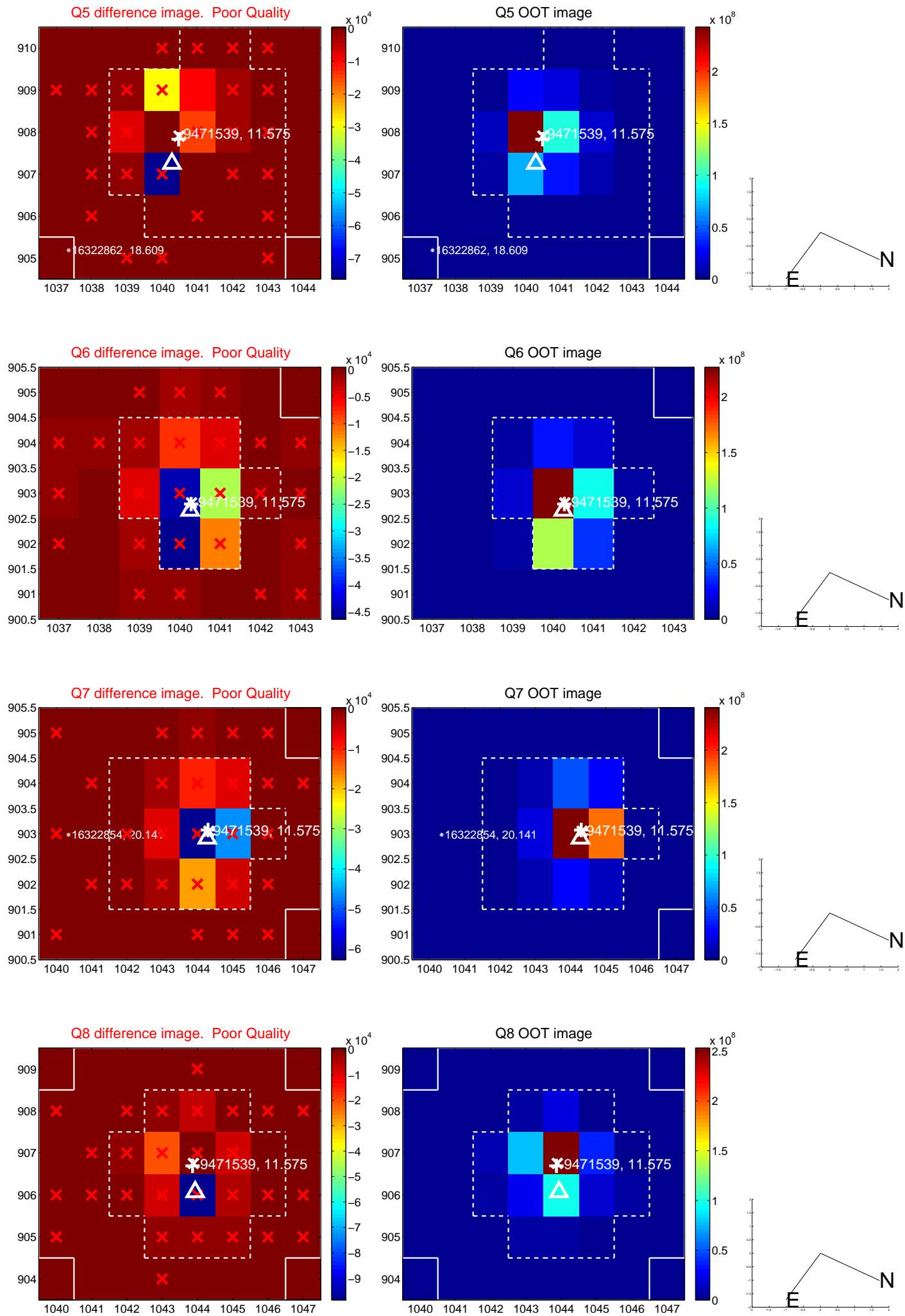


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

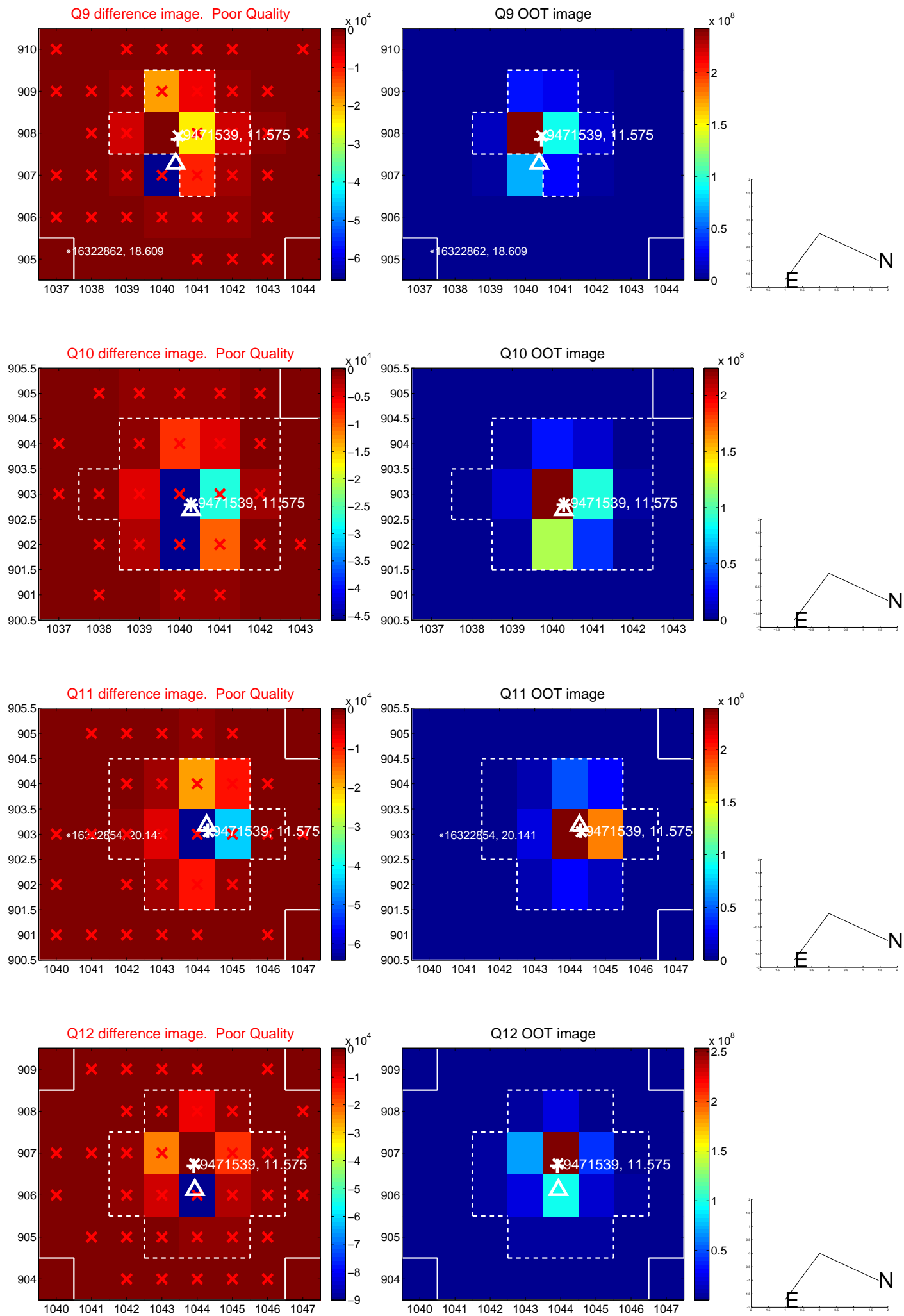
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



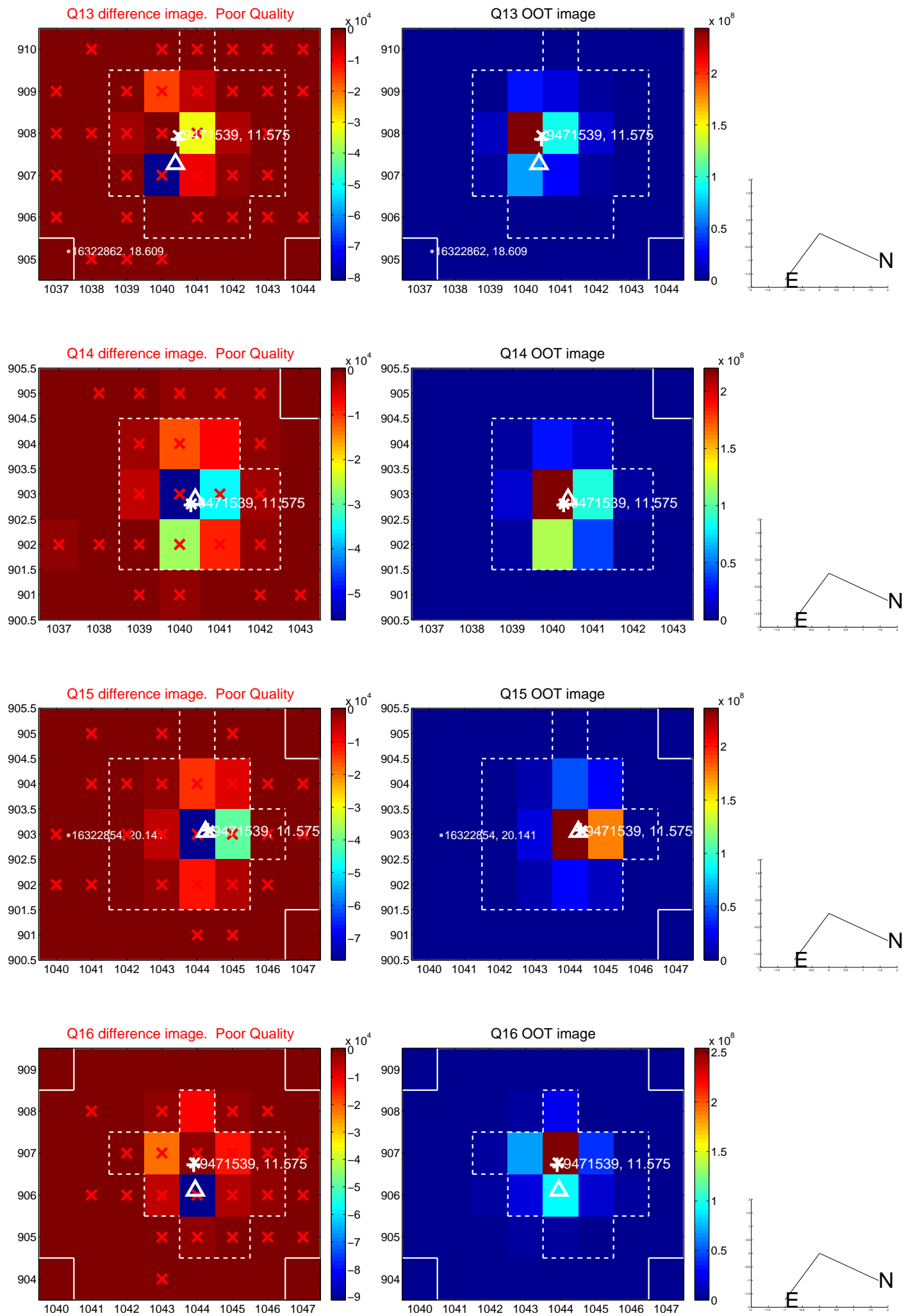
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



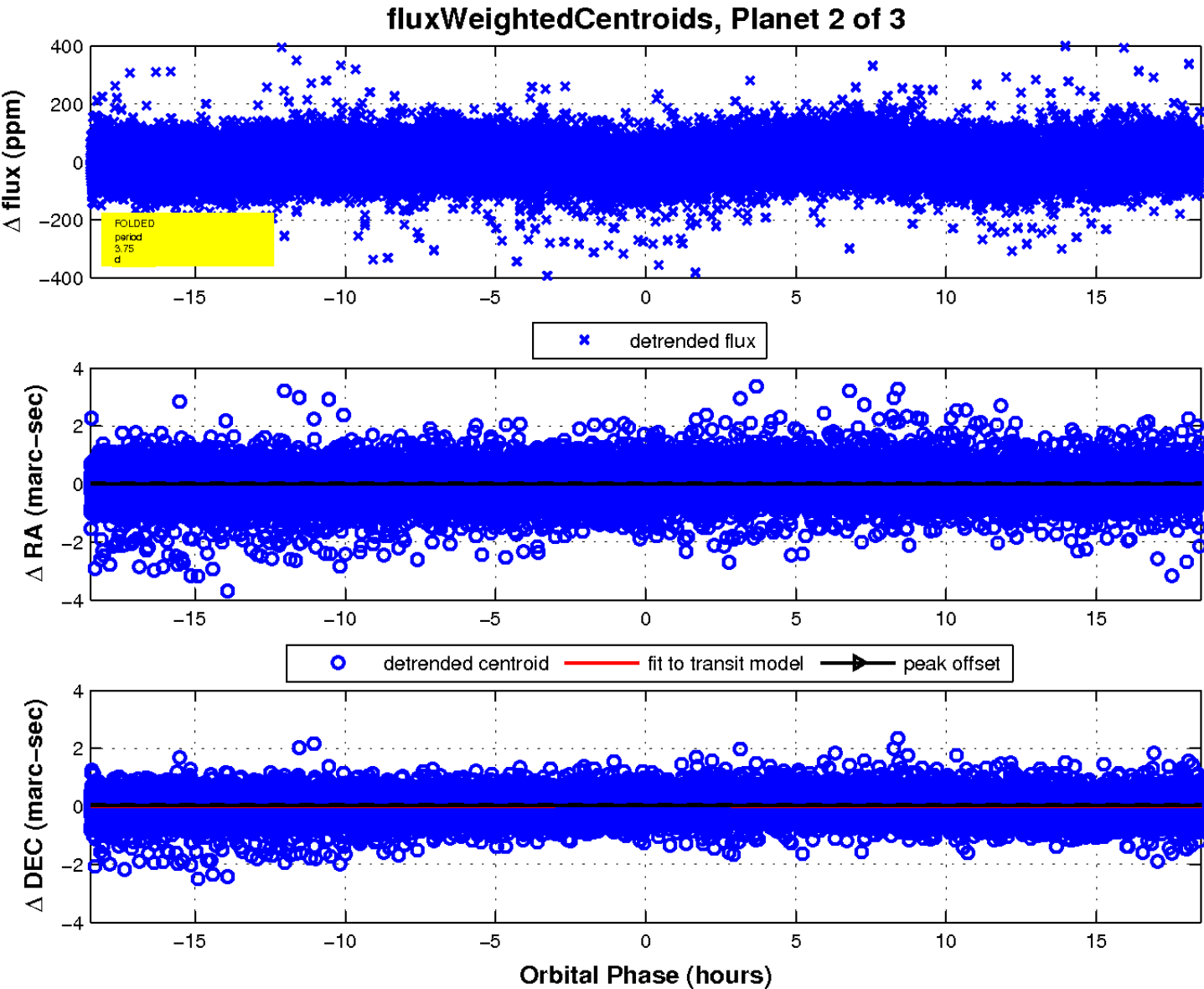
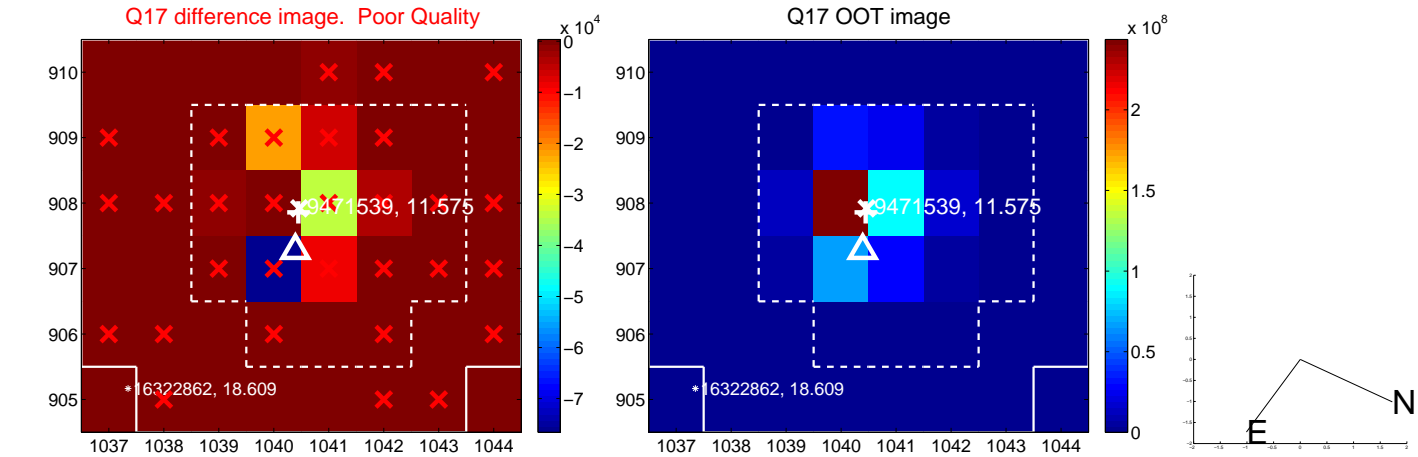
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

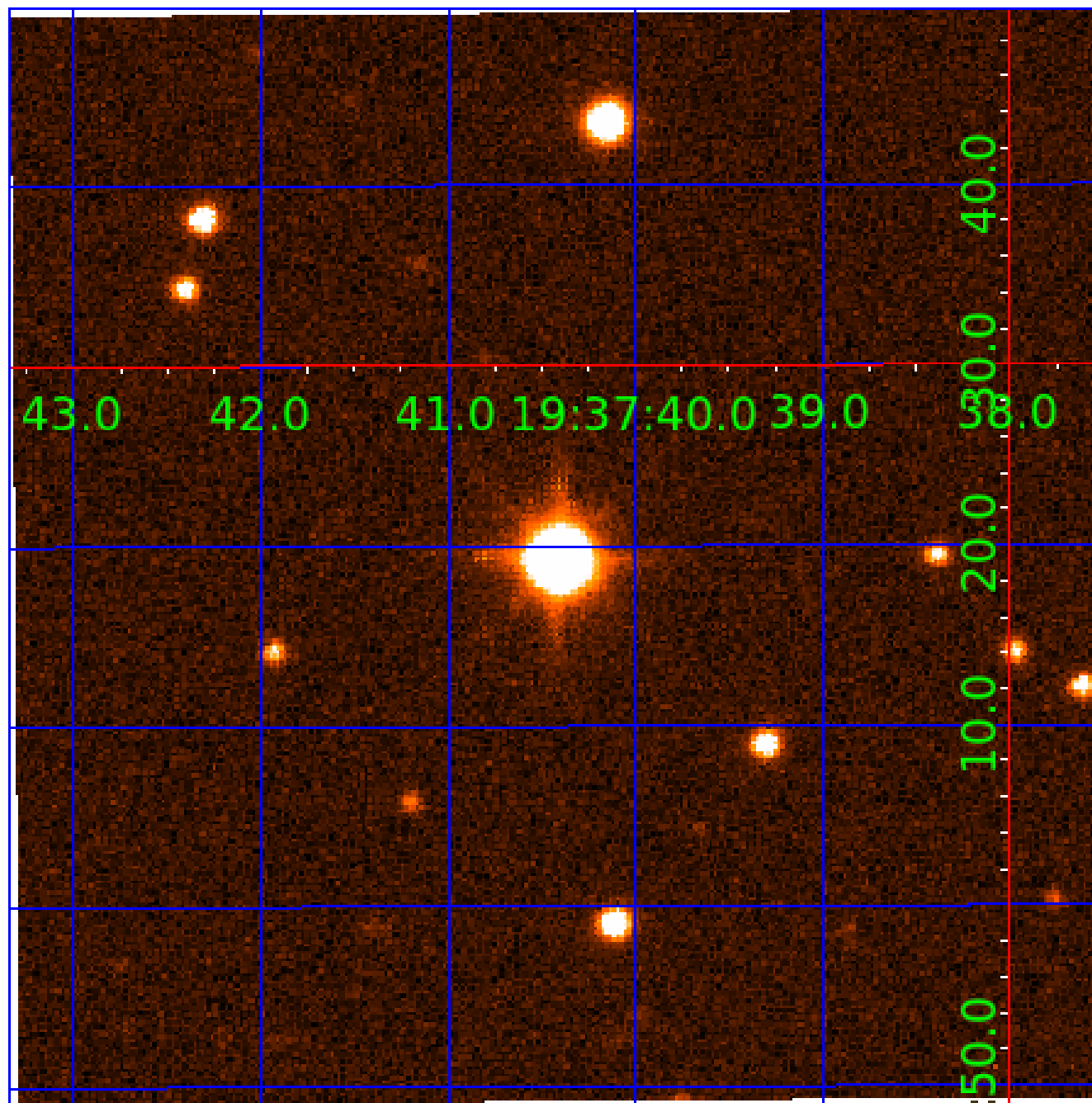


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009471539

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})
009471539-01	OBS	No	1.248916	132.226603	13.6	3.608	16.0	15.9	2.78	7682	1.20	30090.05
009471539-02	OBS	No	3.747131	131.529142	18.4	6.163	15.1	15.7	2.78	7682	1.42	6953.48
009471539-03	OBS	No	0.749353	131.874175	9.5	3.314	8.8	9.7	2.78	7682	0.99	59459.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009471539-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009471539-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
009471539-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNRESOLVED_OFFSET

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 009471539-03

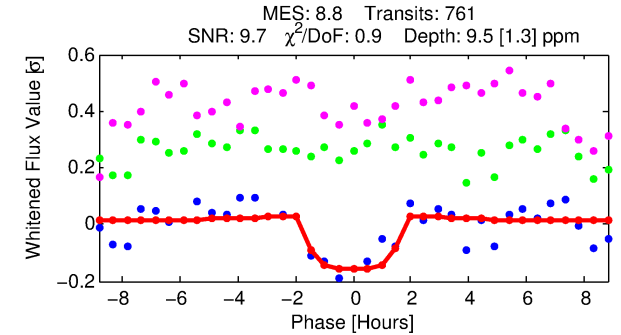
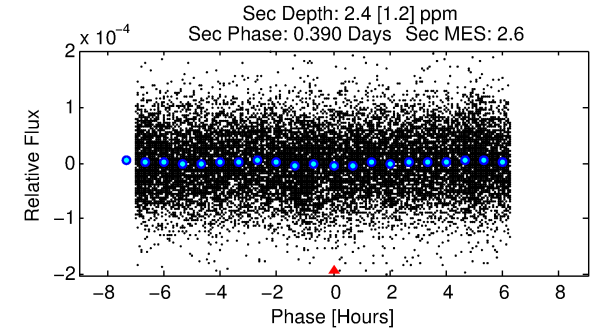
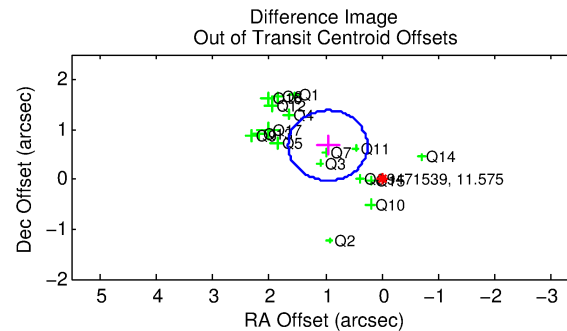
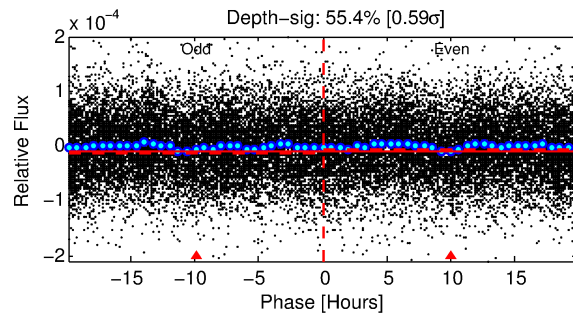
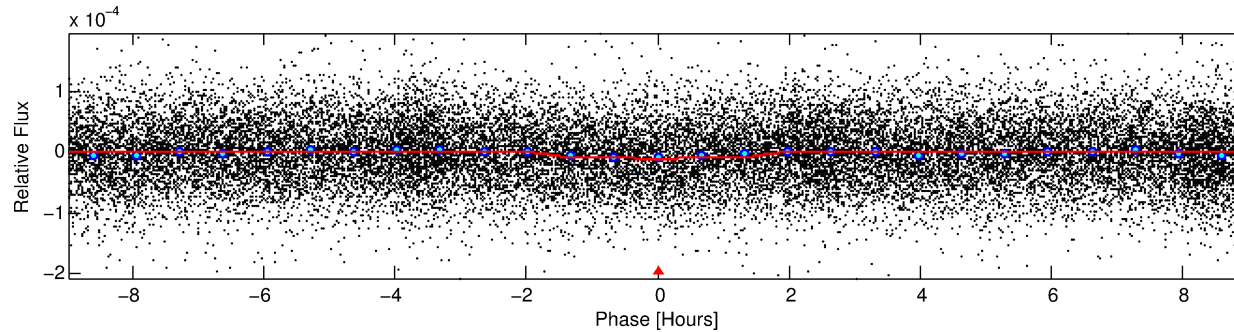
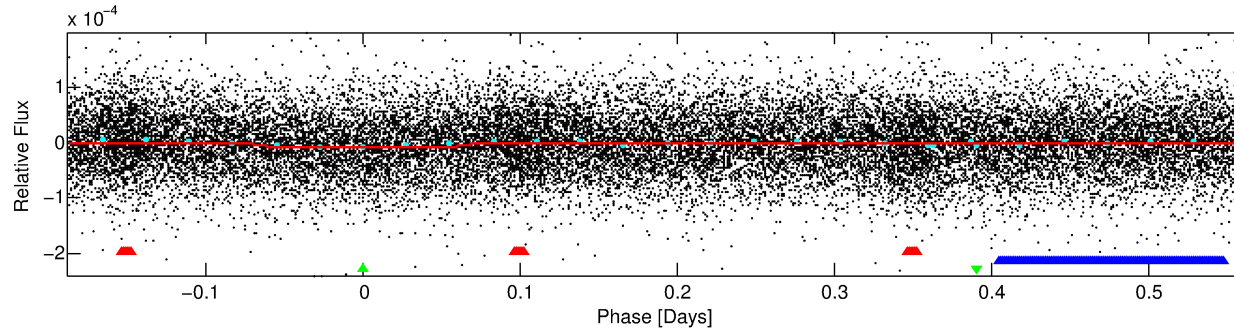
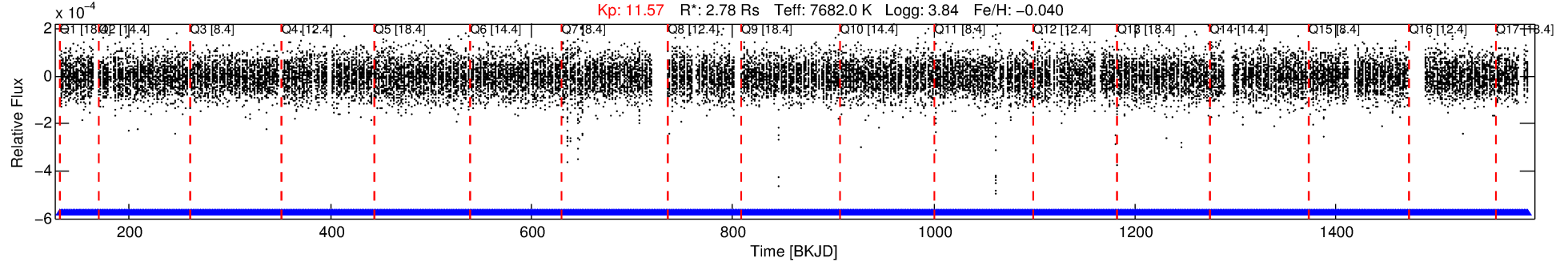
No Significant Match Found

DV One-Page Summary

KIC: 9471539 Candidate: 3 of 3 Period: 0.749 d

KOI: K03198 Corr: No Ephemeris Match

Kp: 11.57 R*: 2.78 Rs Teff: 7682.0 K Logg: 3.84 Fe/H: -0.040



DV Fit Results:

Period = 0.74935 [0.00001] d
Epoch = 131.8742 [0.0037] BKJD
Rp/R* = 0.0033 [0.0009]
a/R* = 1.23 [0.75]
b = 0.89 [0.43]
Seff = 59459.15 [34662.54]
Teq = 3982 [580] K
Rp = 0.99 [0.48] Re
a = 0.0202 [0.0072] AU
Ag = 0.55 [0.53] [-0.85σ]
Teffp = 5311 [1041] K [1.12σ]

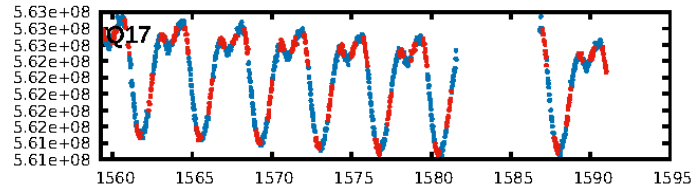
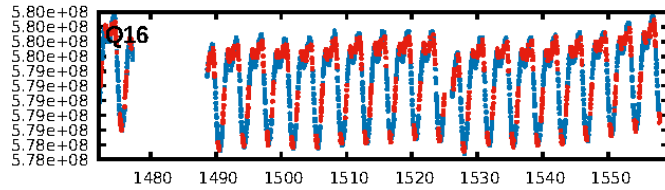
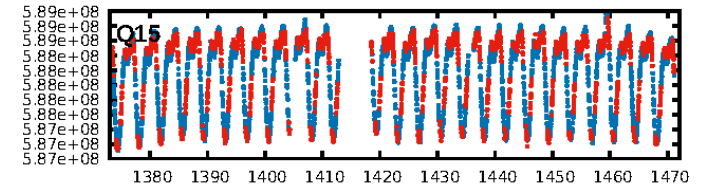
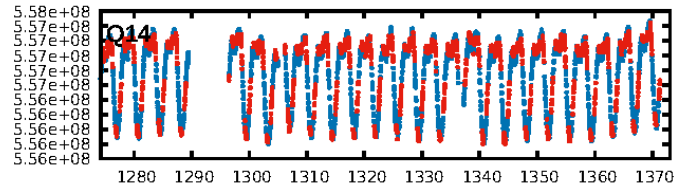
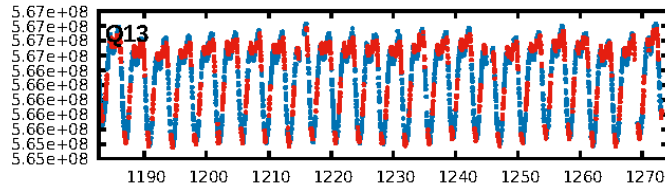
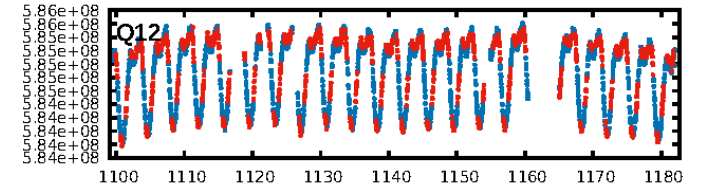
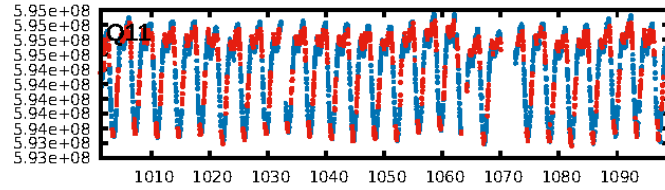
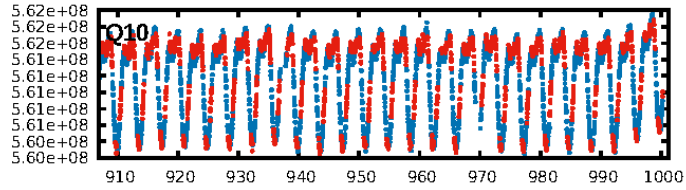
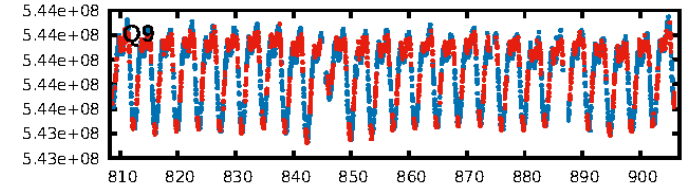
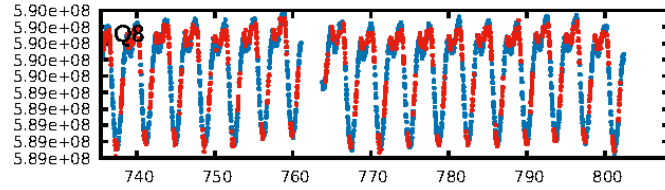
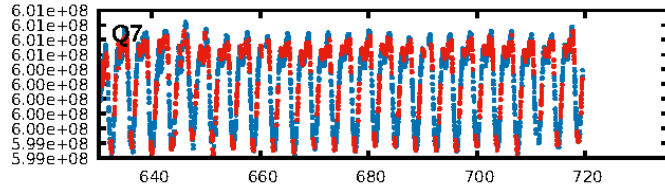
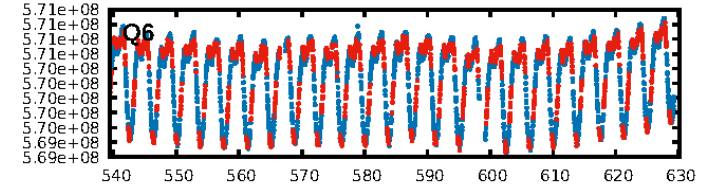
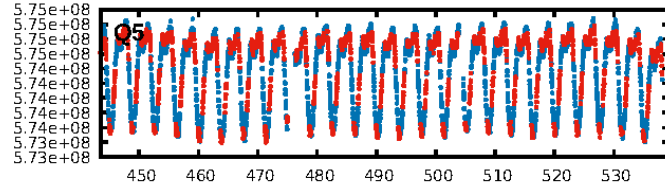
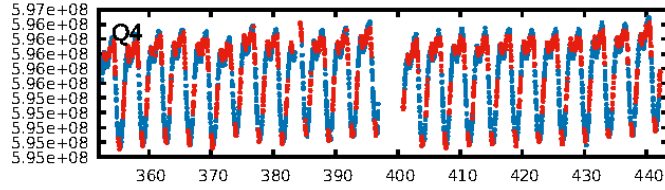
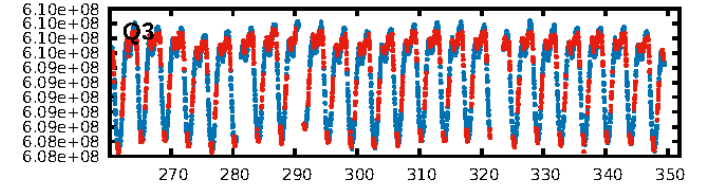
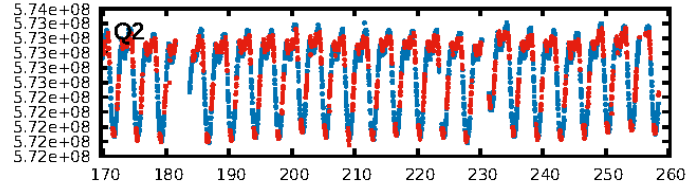
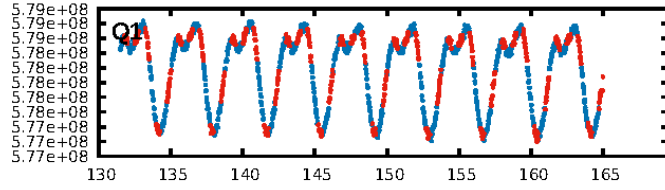
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 98.6% [2.45σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.38e-10
RollingBand-fgt: 1.00 [720/720]
GhostDiagnostic-chr: 1.219
Centroid-sig: 0.1%
Centroid-so: 1.743 arcsec [2.03σ]
OotOffset-rm: 1.174 arcsec [5.02σ]
KicOffset-rm: 1.208 arcsec [4.52σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

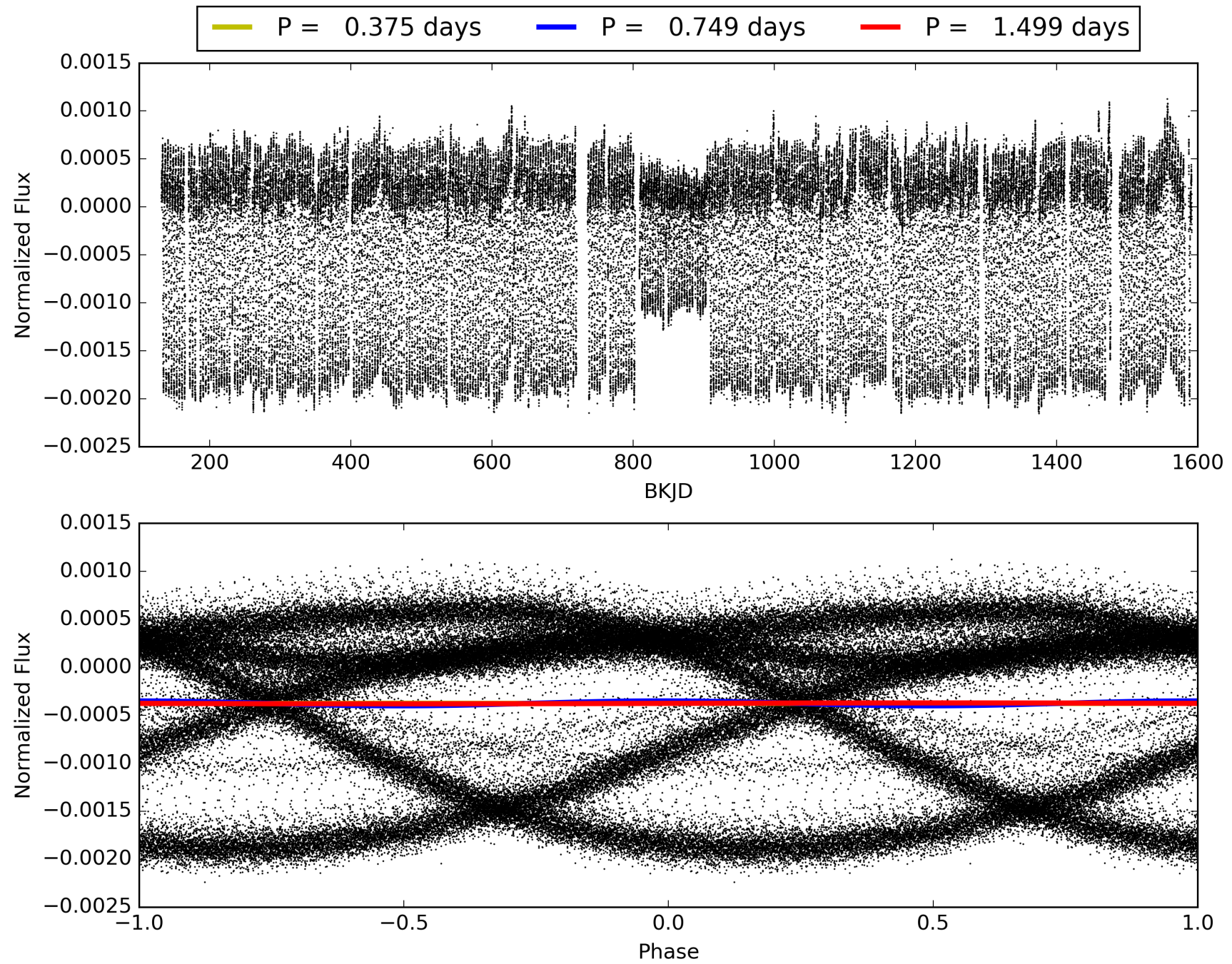
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 21:45:54 Z

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

TCE 009471539-03, PDC Light Curves

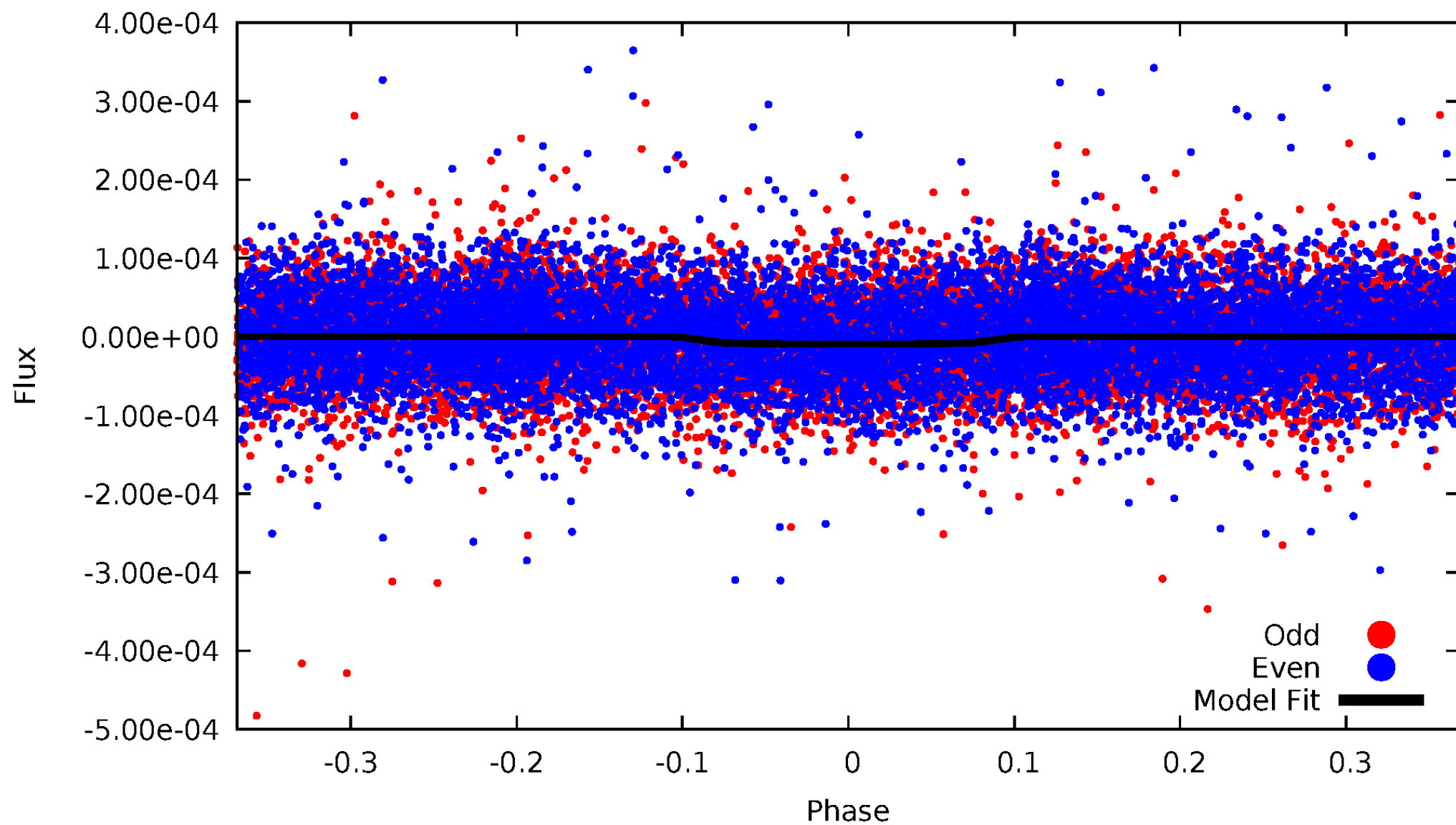


TCE 009471539-03



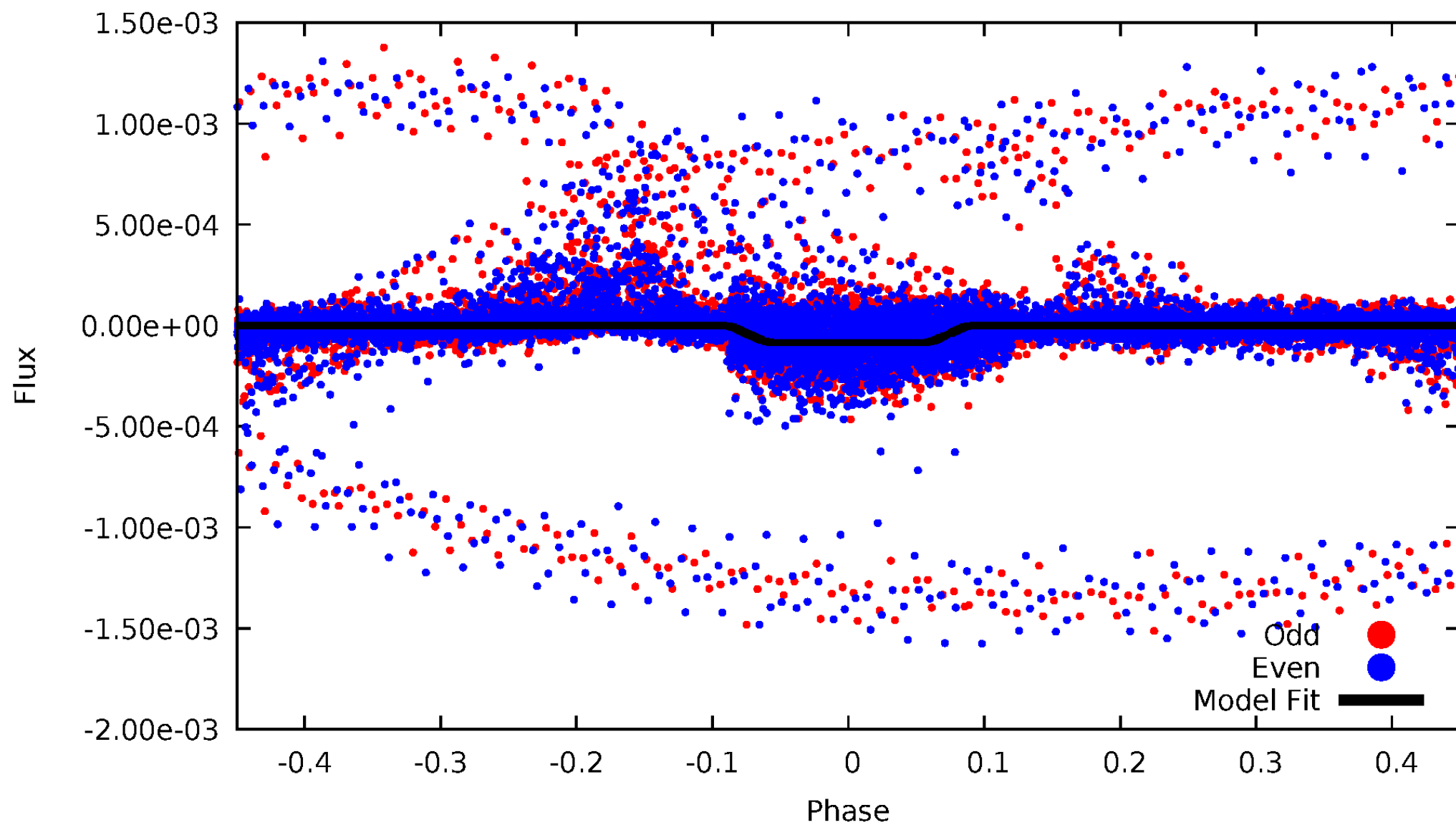
DV Odd/Even

TCE 009471539-03



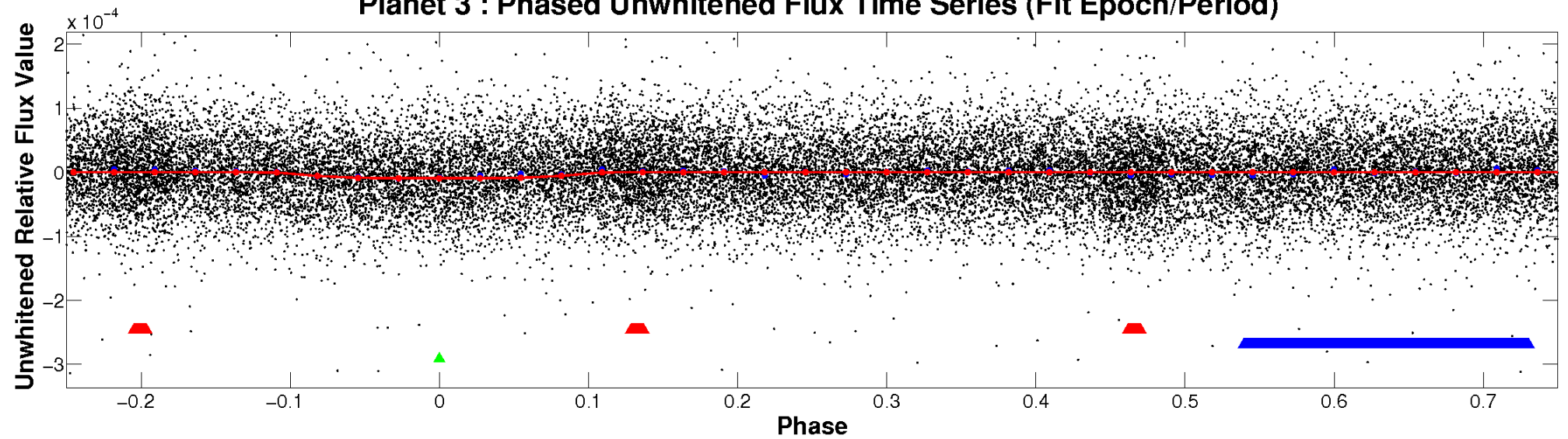
ALT Odd/Even

TCE 009471539-03

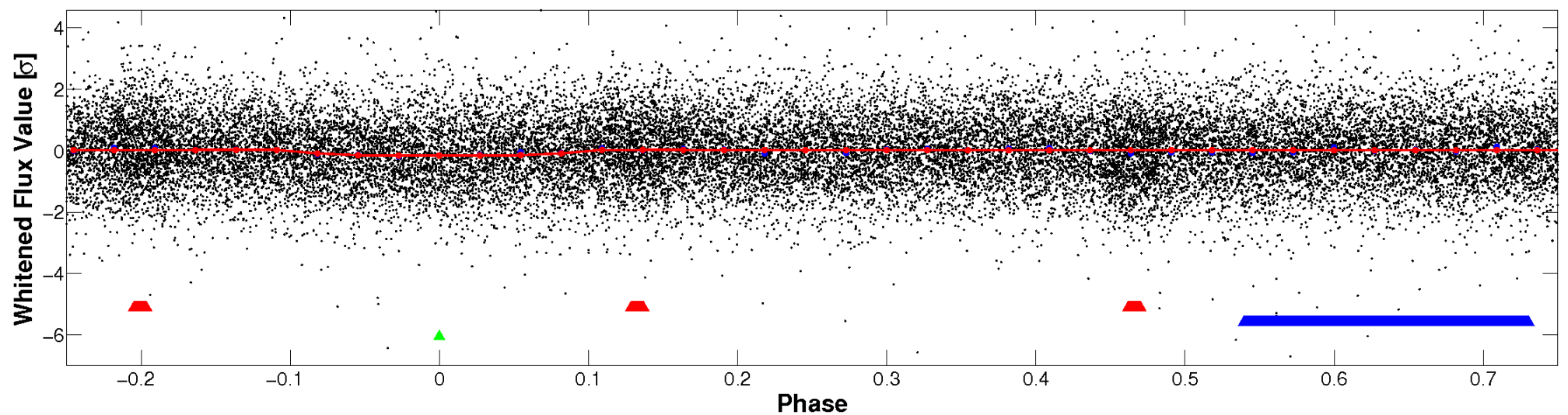


Non-Whitened Vs. Whitened Light Curve

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

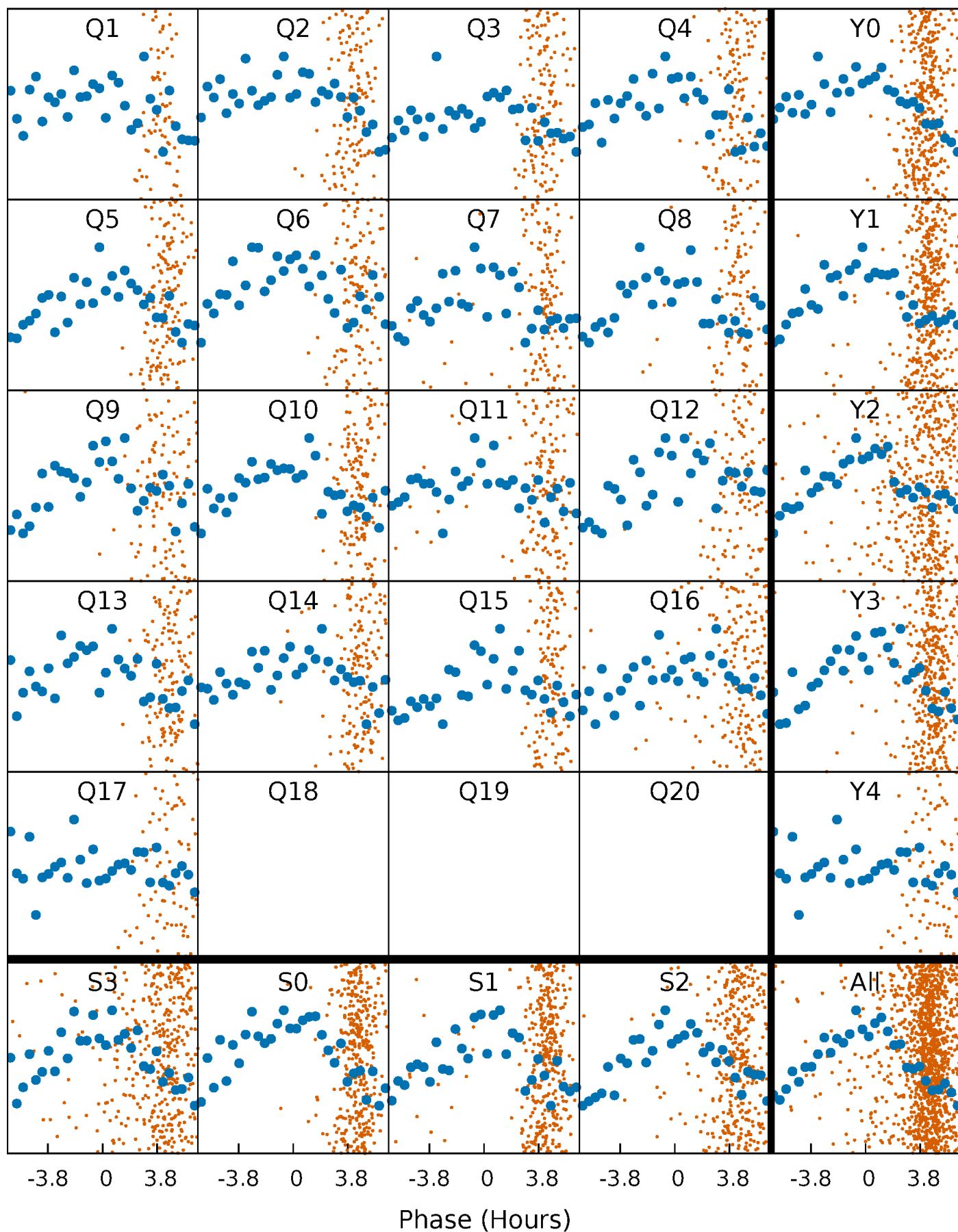


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



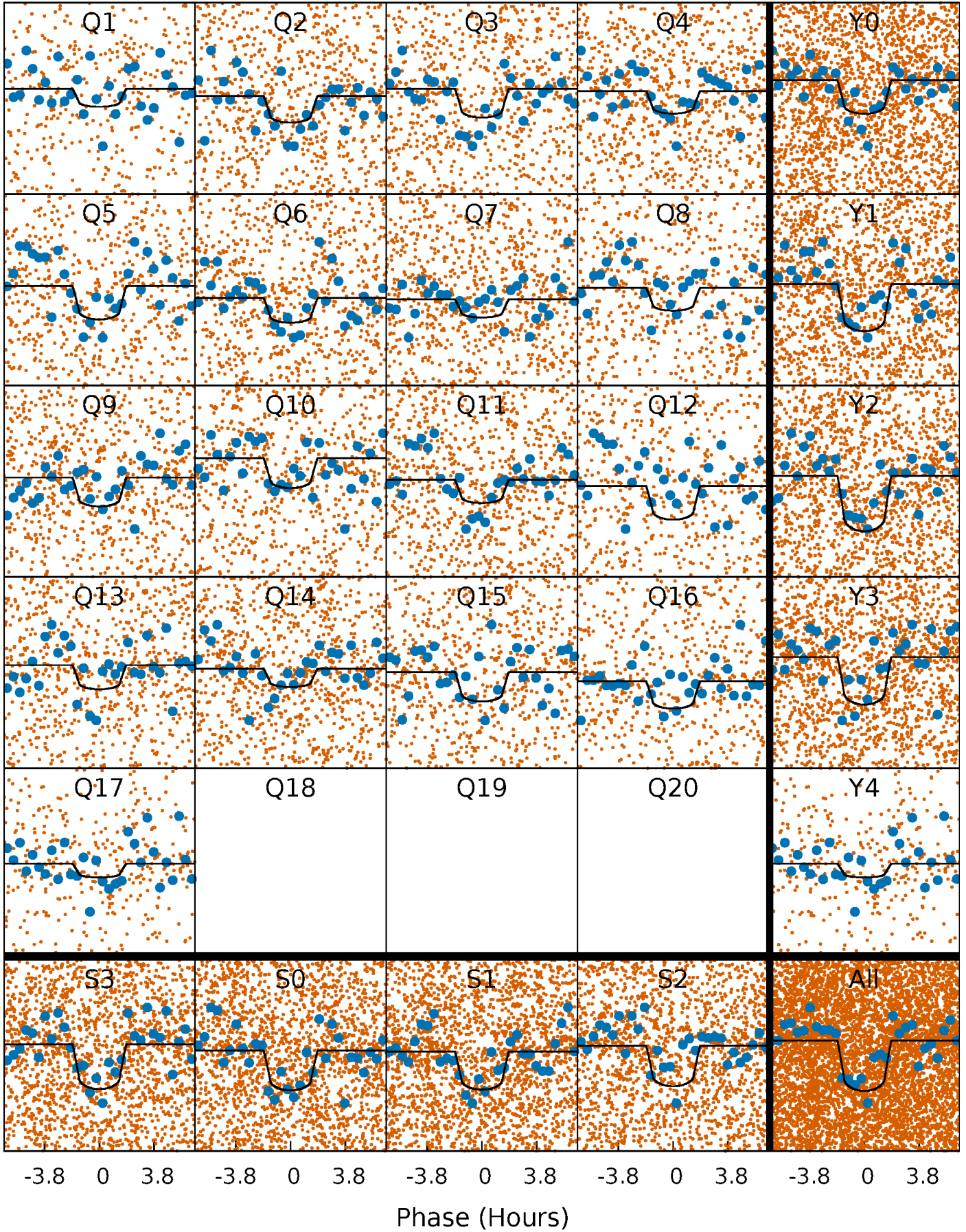
PDC Quarter-Phased Transit Curves

TCE 009471539-03 P= 0.749353 Days $T_0=131.874175$ (BKJD)



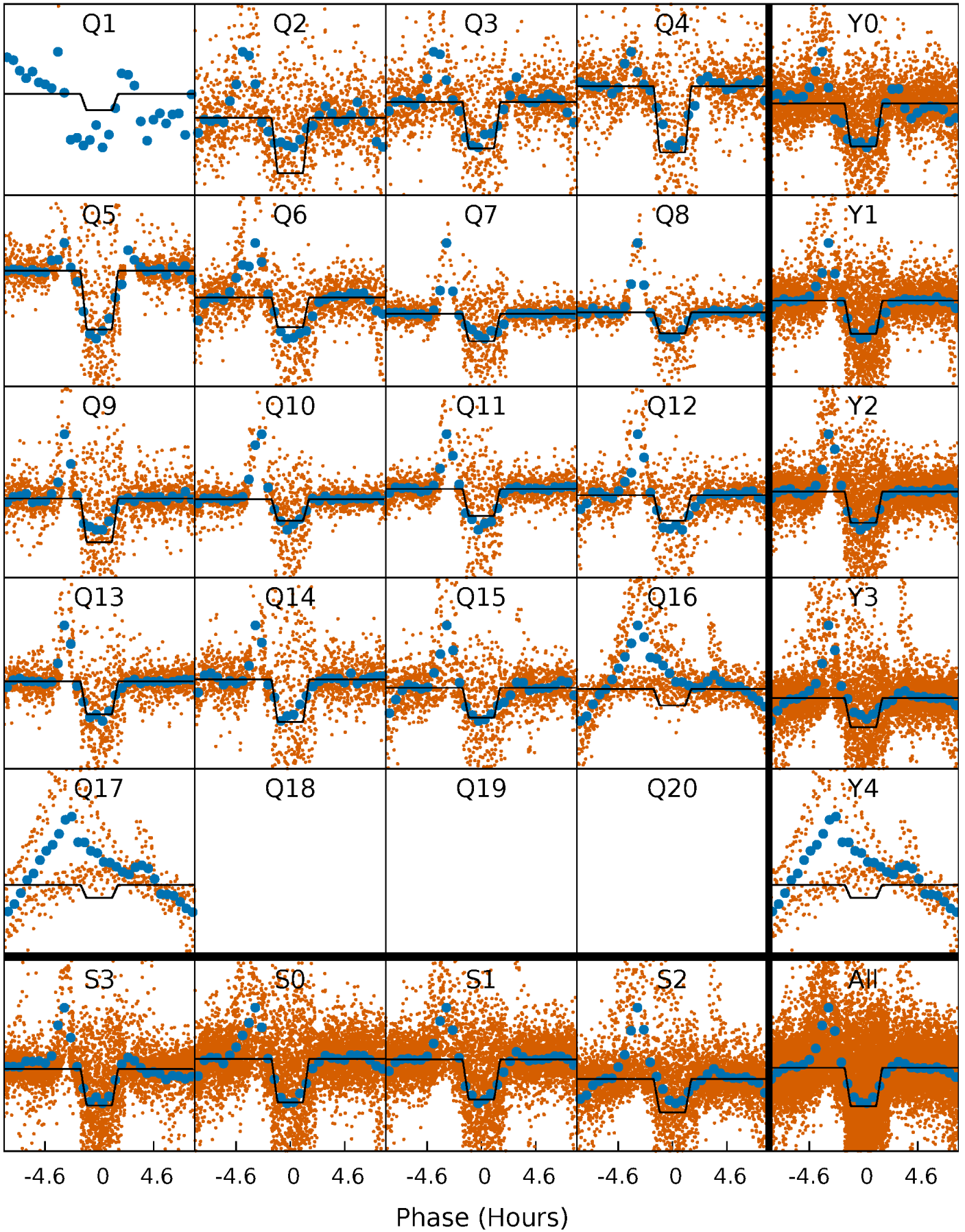
DV Quarter-Phased Transit Curves

TCE 009471539-03 P= 0.749353 Days $T_0=131.874175$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

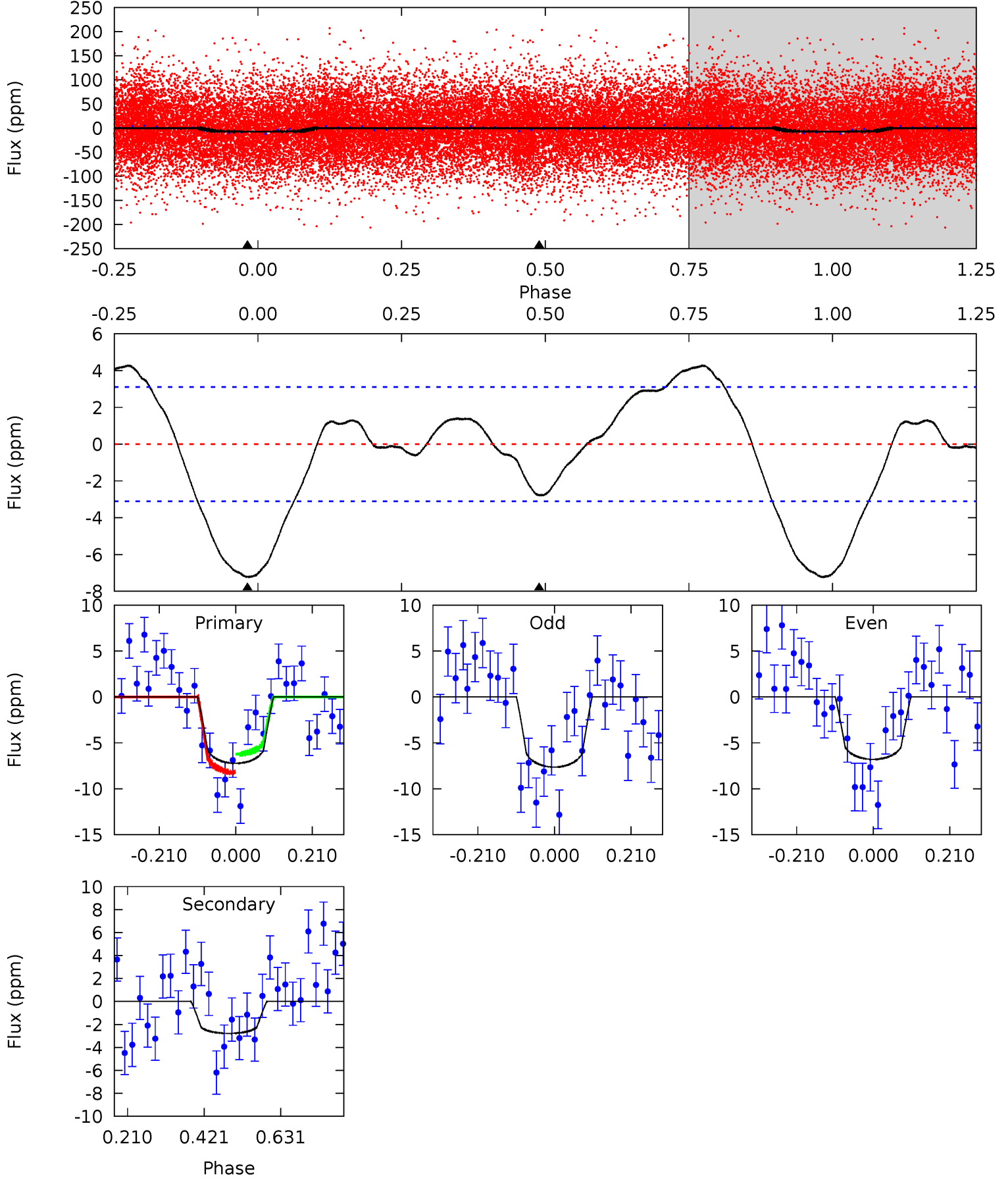
TCE 009471539-03 P= 0.749333 Days $T_0=131.867317$ (BKJD)



DV Model-Shift Uniqueness Test

009471539-03, P = 0.749353 Days, E = 131.874175 Days

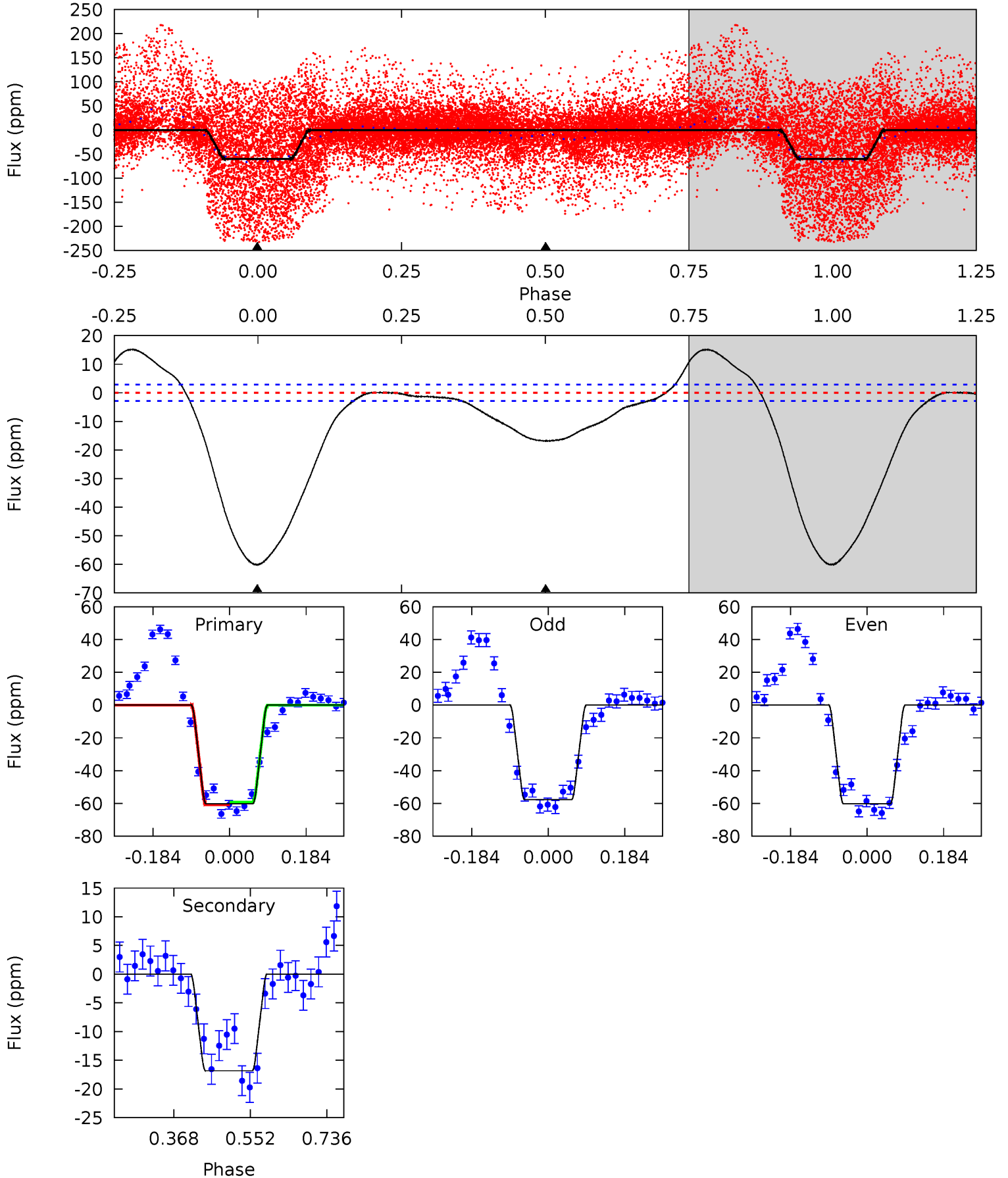
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	3.95	0	0	4.41	1.25	2.85	10.3	10.3	3.95	3.95	0.61	0.81	0.37	1.44



Alt Model-Shift Uniqueness Test

009471539-03, P = 0.749333 Days, E = 131.867317 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
93.0	26.0	0	0	4.44	1.33	9.14	93.0	93.0	26.0	26.0	1.98	1.21	0.20	1.15



Stellar Parameters For KIC 009471539

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7682^{+211}_{-316}	$3.838^{+0.323}_{-0.108}$	$-0.040^{+0.200}_{-0.350}$	$2.783^{+0.463}_{-1.080}$	$1.949^{+0.083}_{-0.471}$	$0.127^{+0.302}_{-0.043}$
	+3%/-4%	+8%/-3%	+500%/-875%	+17%/-39%	+4%/-24%	+237%/-33%
Source	KIC0	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 009471539-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3 ± 1	$0.90^{+0.31}_{-0.30}$	5440^{+369}_{-488}	4847^{+1213}_{-1177}	$0.754^{+0.888}_{-0.367}$
Alt.	-17 ± 1	$2.64^{+0.47}_{-0.56}$	5432^{+422}_{-560}	4321^{+451}_{-603}	$0.527^{+0.287}_{-0.145}$

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 $A_{obs} \gg 1.0$

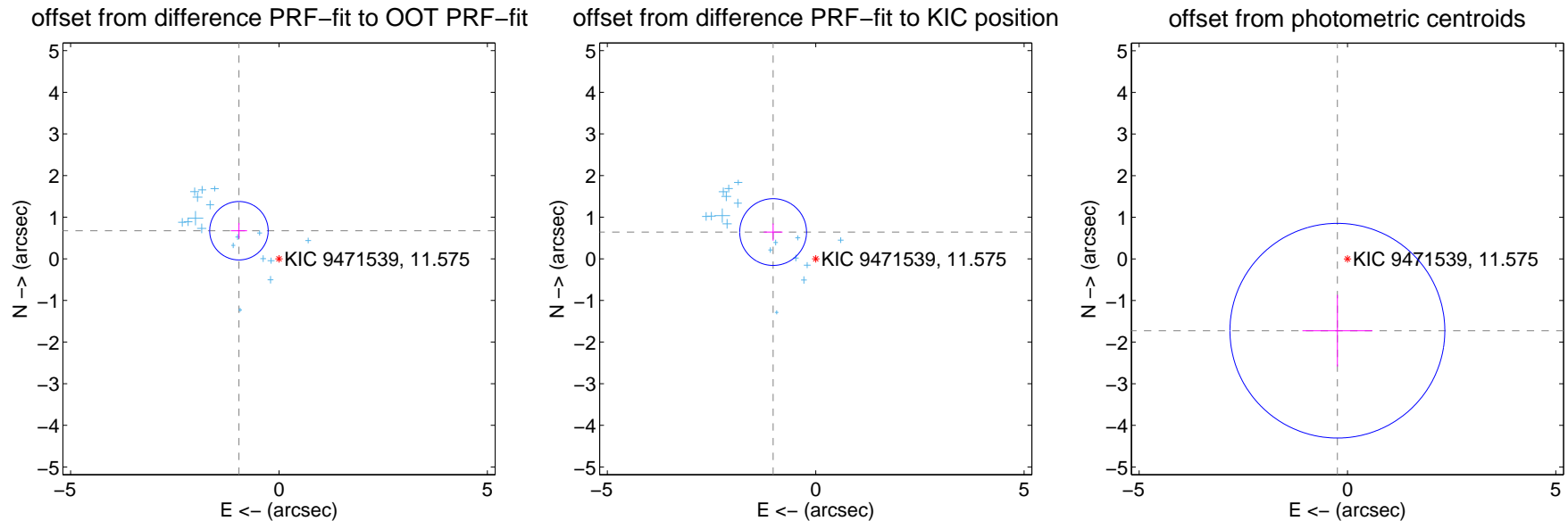
DV Centroid Data

Supplemental centroid analysis for 009471539-03. **Kepler magnitude: 11.57.** Transit SNR 9.75

There are 17 quarters with good PRF difference image offsets

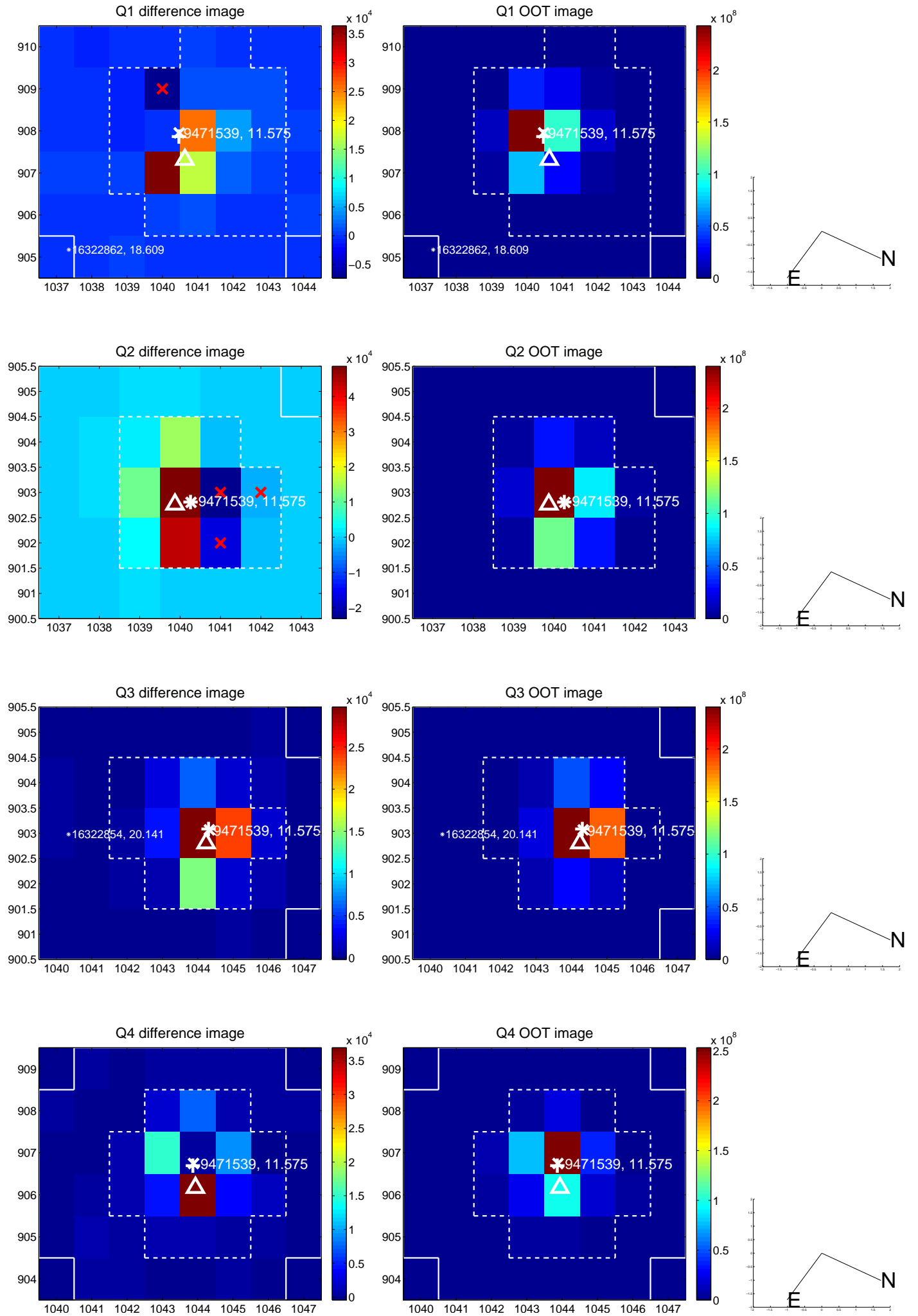
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.174 ± 0.234	5.02	0.961 ± 0.193	0.675 ± 0.186
PRF-fit source offset from KIC position	1.208 ± 0.267	4.52	1.022 ± 0.226	0.643 ± 0.206
photometric centroid source offset	1.74 ± 0.86	2.03	0.24 ± 0.84	-1.73 ± 0.86

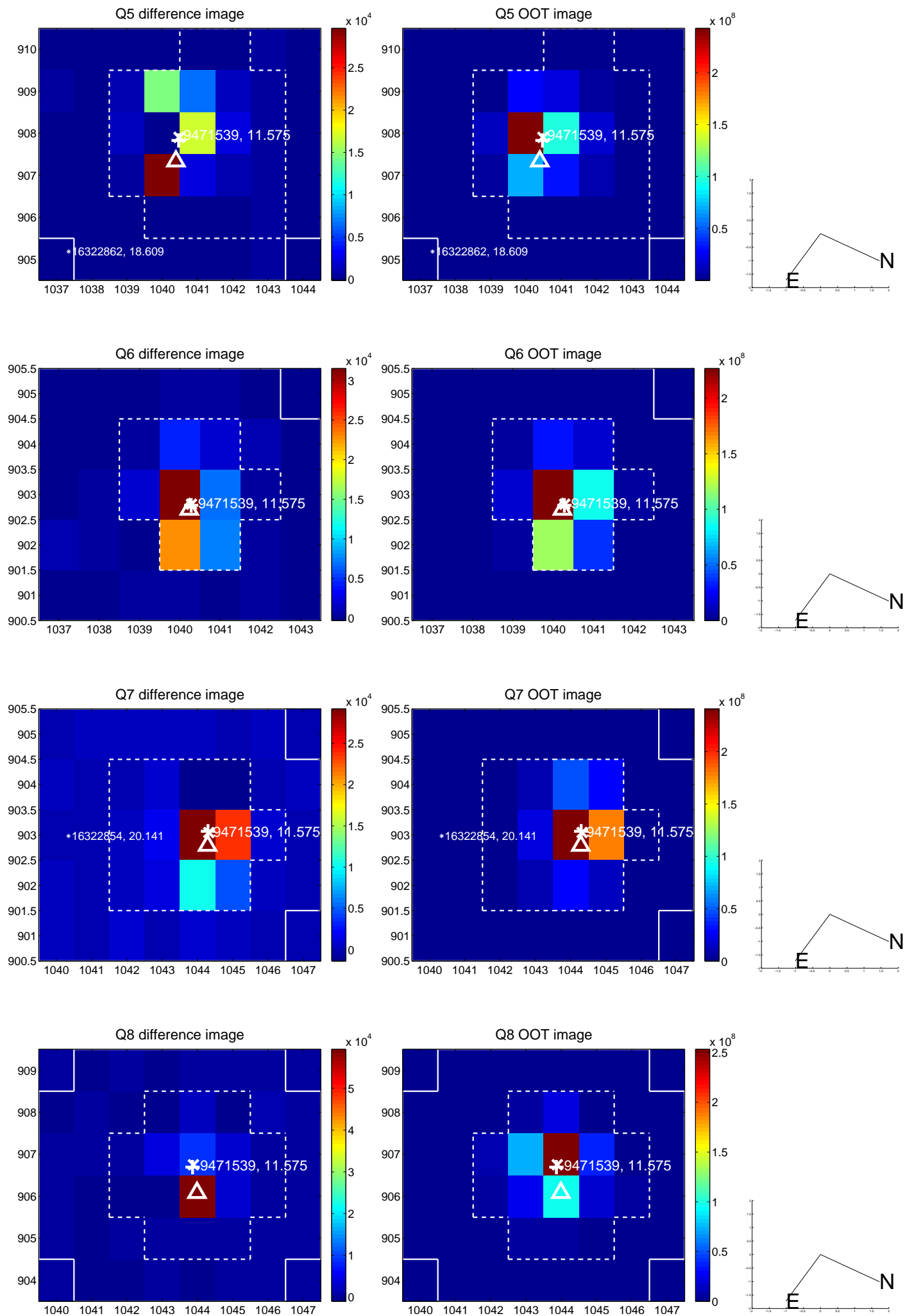


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

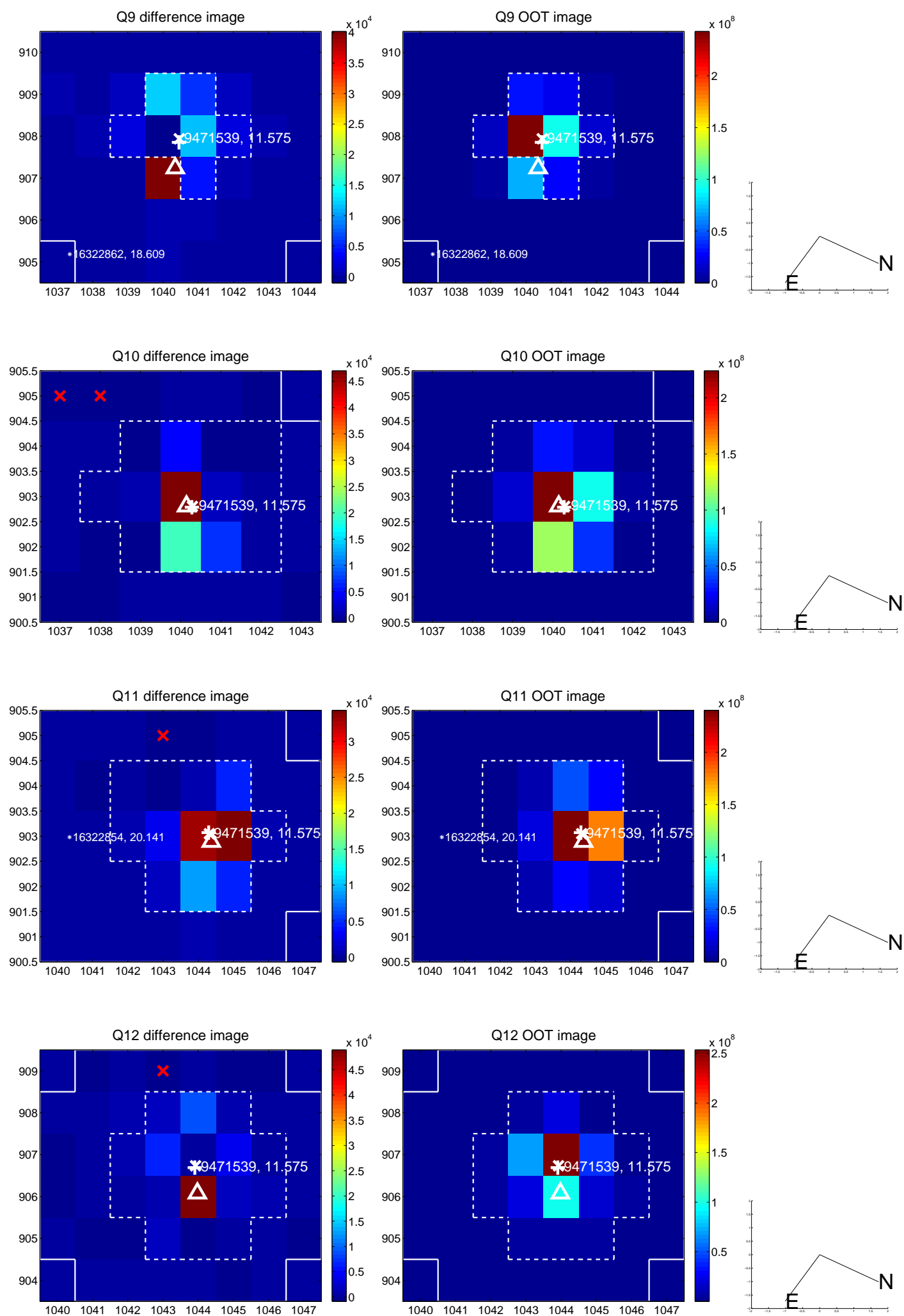
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



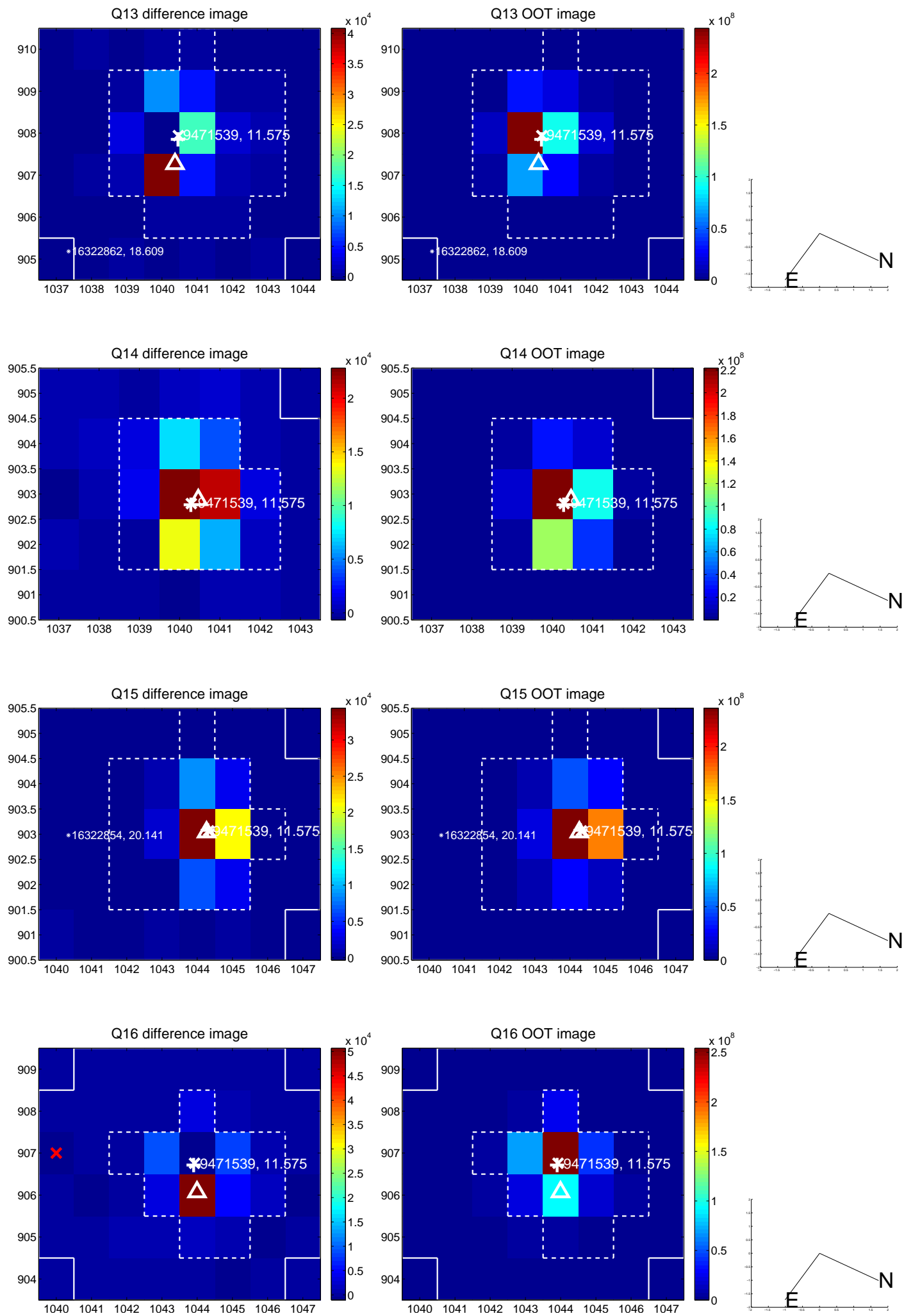
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



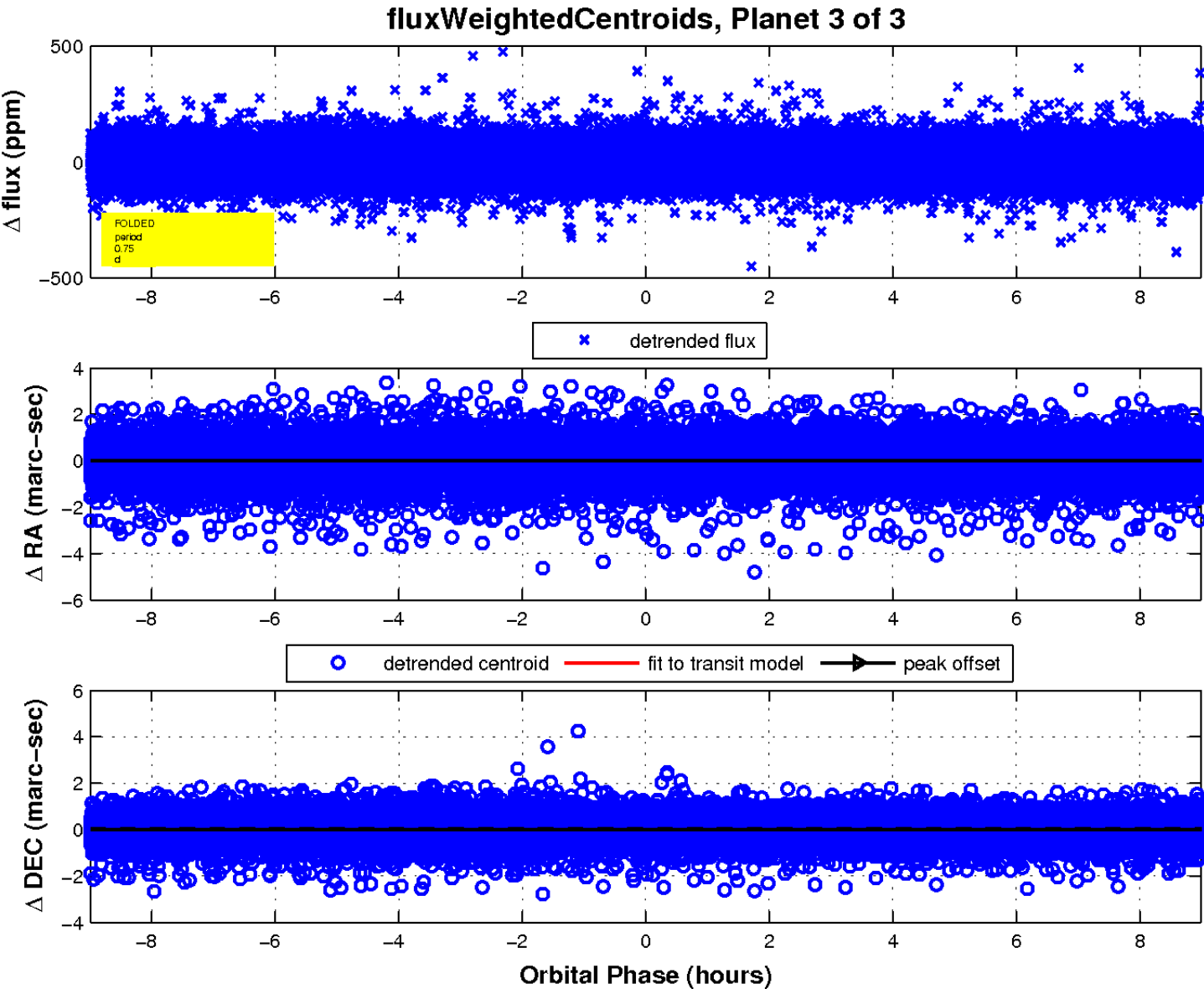
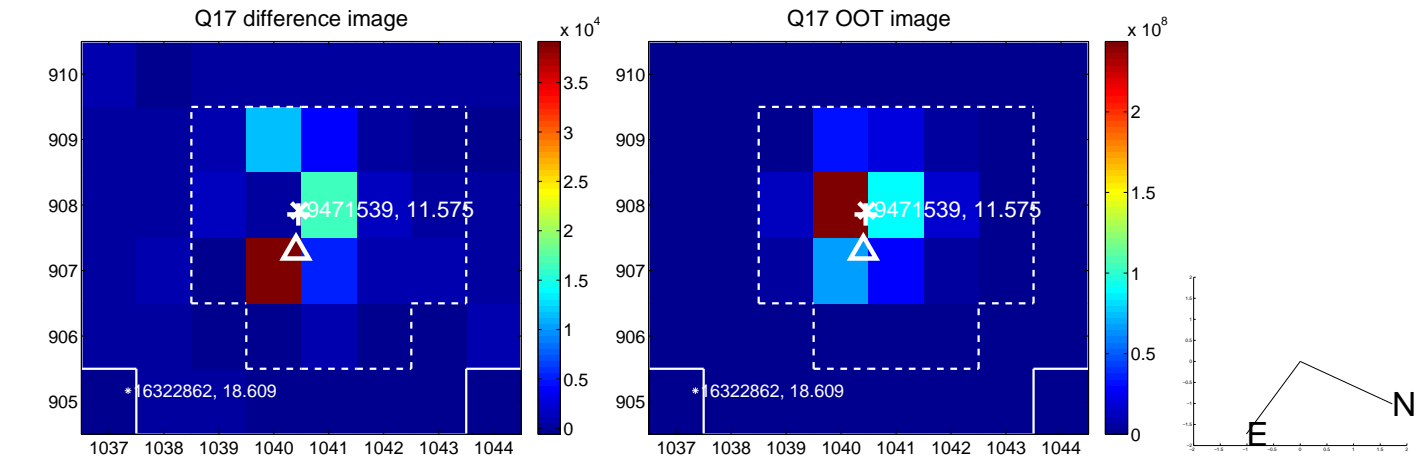
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

