

KIC 008013439

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})
008013439-01	OBS	2352.02	5.629067	134.743507	36.8	3.865	23.3	25.1	2.19	6197	1.55	1460.17
008013439-02	OBS	2352.01	13.391555	133.056826	48.6	3.343	18.3	20.0	2.19	6197	1.79	459.77
008013439-03	OBS	2352.03	8.256297	137.925388	38.0	2.047	14.5	16.4	2.19	6197	1.58	876.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008013439-01	OBS	PC	1.00	0	0	0	0	CENT_SATURATED
008013439-02	OBS	PC	1.00	0	0	0	0	CENT_SATURATED
008013439-03	OBS	PC	1.00	0	0	0	0	CENT_SATURATED

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

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

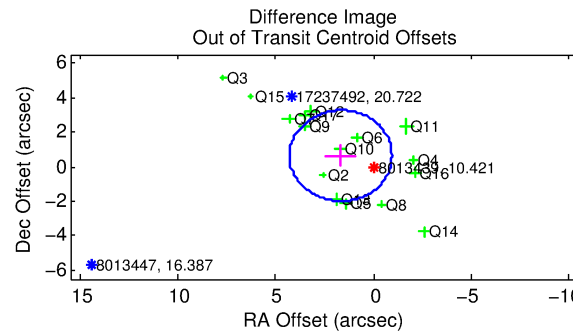
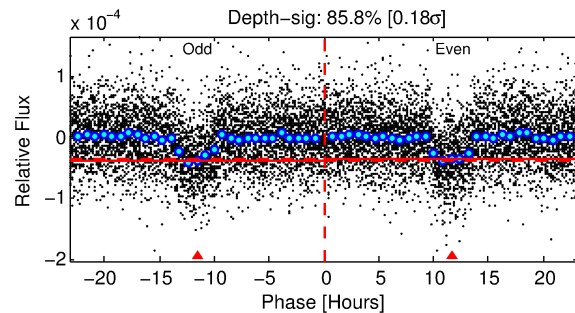
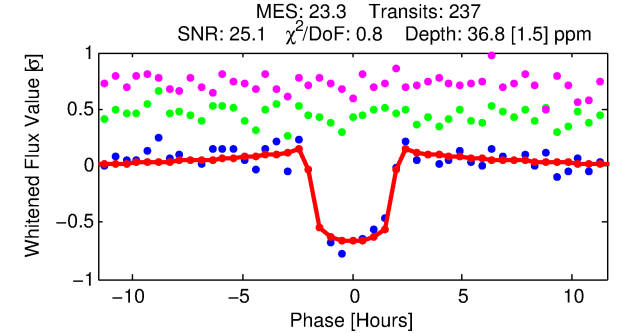
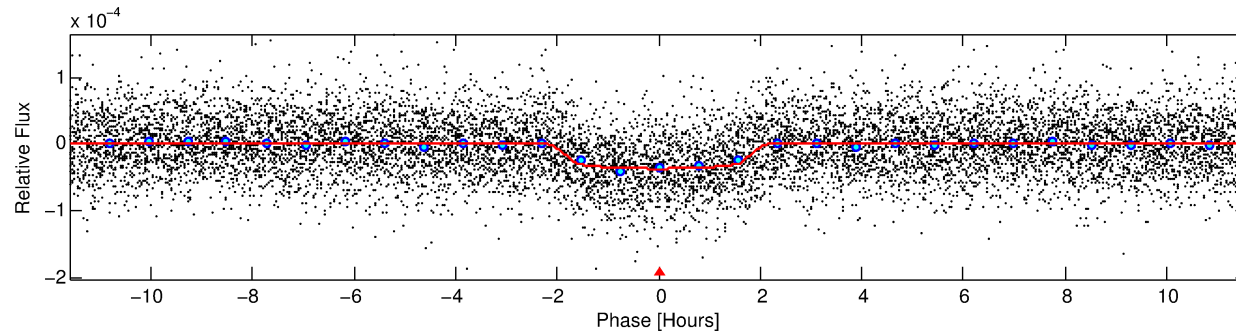
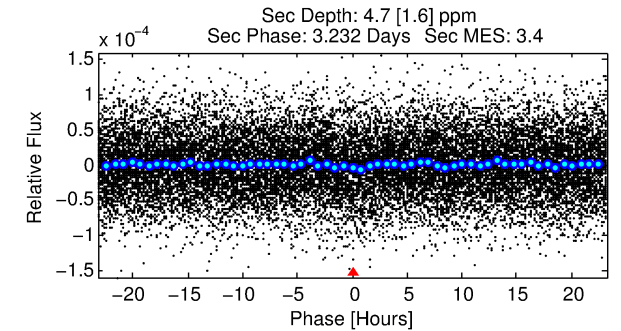
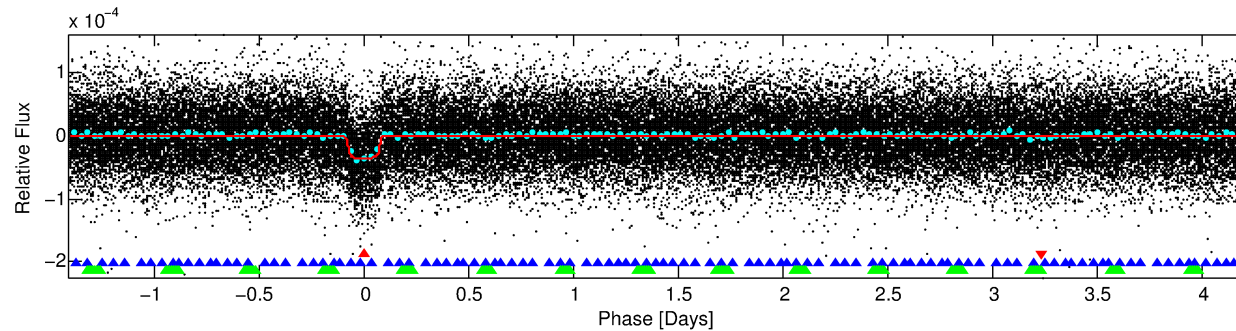
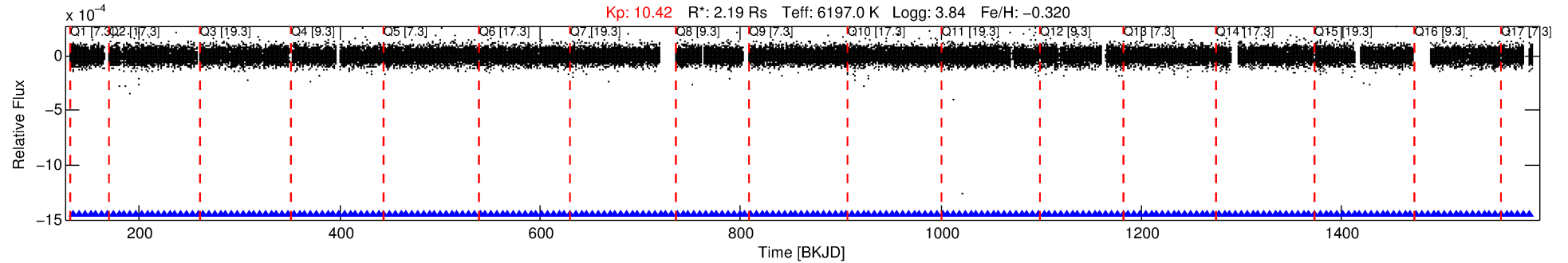
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008013439-01

No Significant Match Found

DV One-Page Summary

KIC: 8013439 Candidate: 1 of 3 Period: 5.629 d
KOI: K02352.02 Name: Kepler-381b Corr: 0.984



DV Fit Results:

Period = 5.62907 [0.00002] d
Epoch = 134.7435 [0.0020] BKJD
 R_p/R^* = 0.0065 [0.0008]
 a/R^* = 5.19 [3.52]
 b = 0.90 [0.16]
 Seff = 1460.17 [595.49]
 T_{eq} = 1576 [161] K
 R_p = 1.55 [0.45] R_e
 a = 0.0658 [0.0165] AU
 A_g = 4.70 [2.73] [1.36σ]
 T_{eff} = 3588 [387] K [4.80σ]

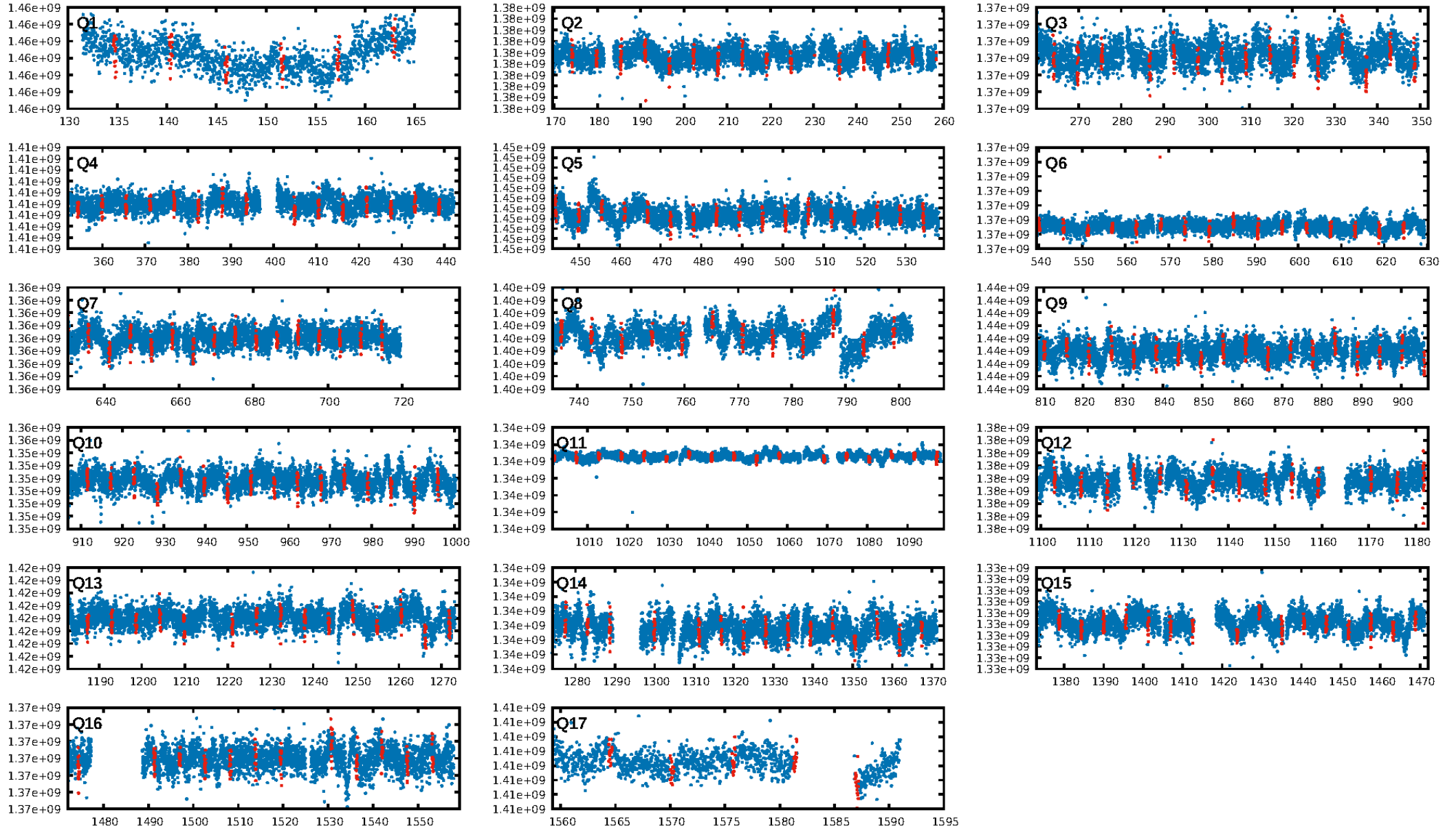
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [14.42σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.09e-111
RollingBand-fgt: 1.00 [226/226]
GhostDiagnostic-chr: 6.047
Centroid-sig: 1.8%
Centroid-so: 0.865 arcsec [1.77σ]
OotOffset-rm: 1.795 arcsec [2.05σ]
KicOffset-rm: 2.460 arcsec [2.84σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.50 [8/16]
DiffImageOverlap-fno: 1.00 [17/17]

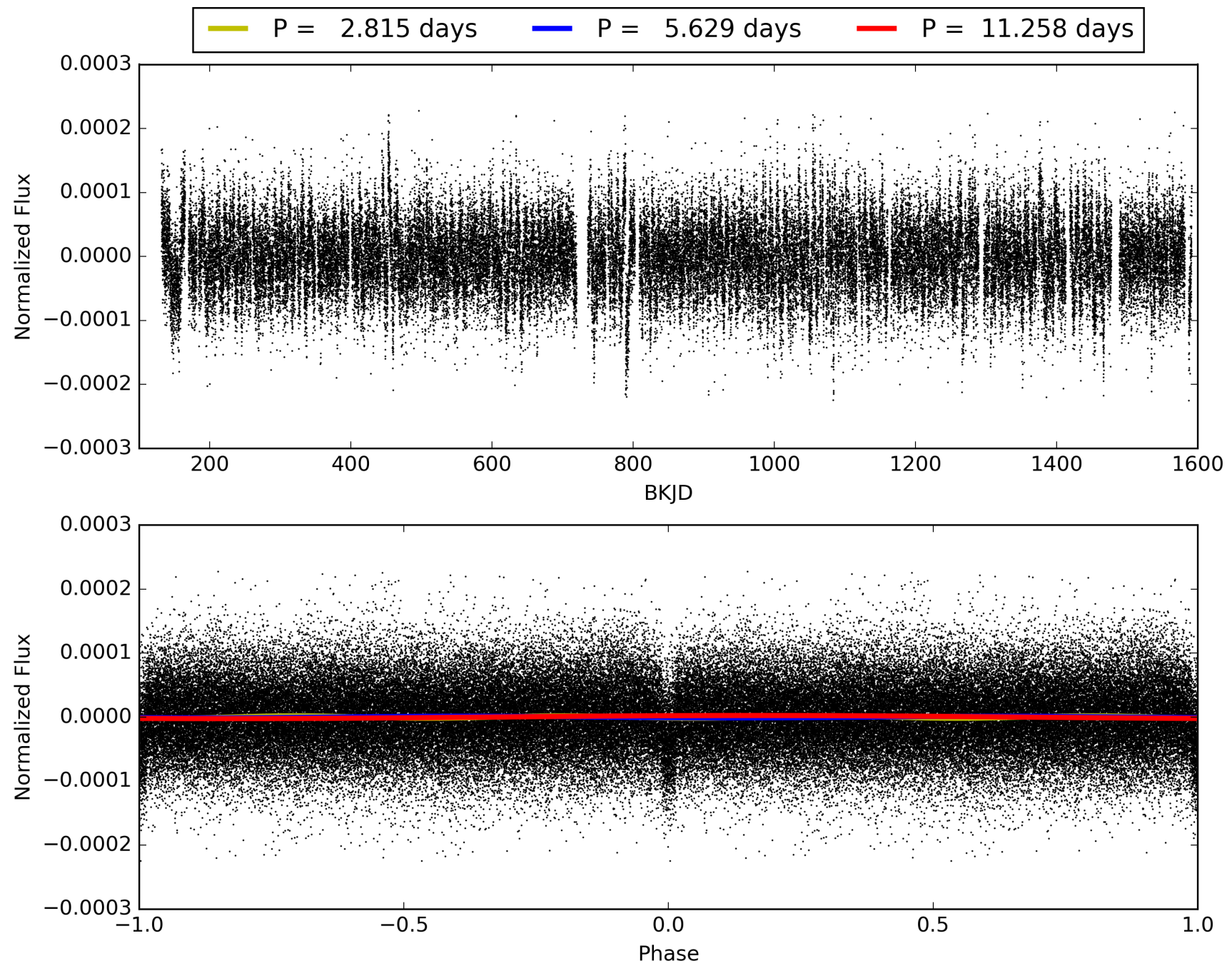
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:23:26 Z

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

TCE 008013439-01, PDC Light Curves

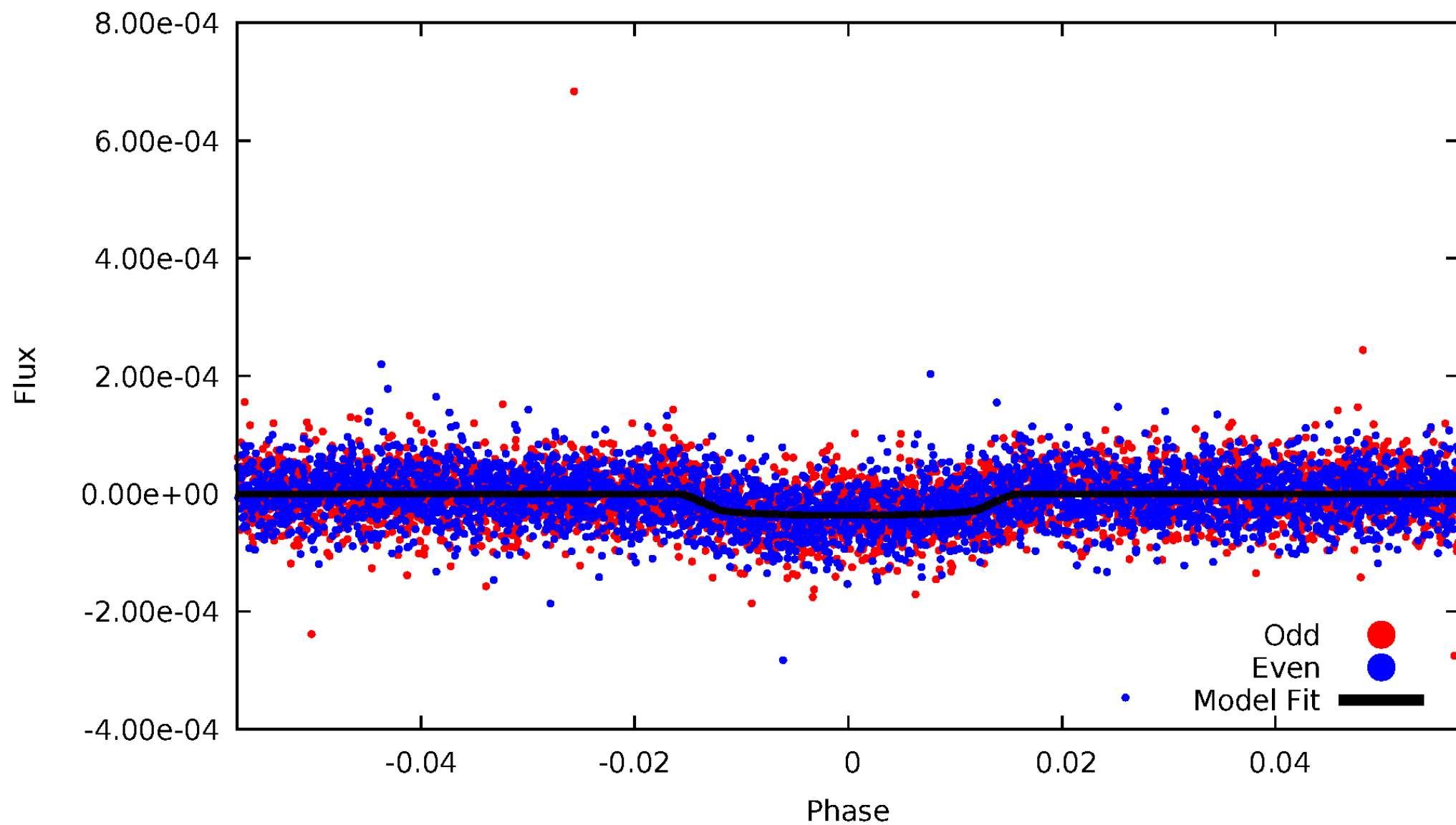


TCE 008013439-01



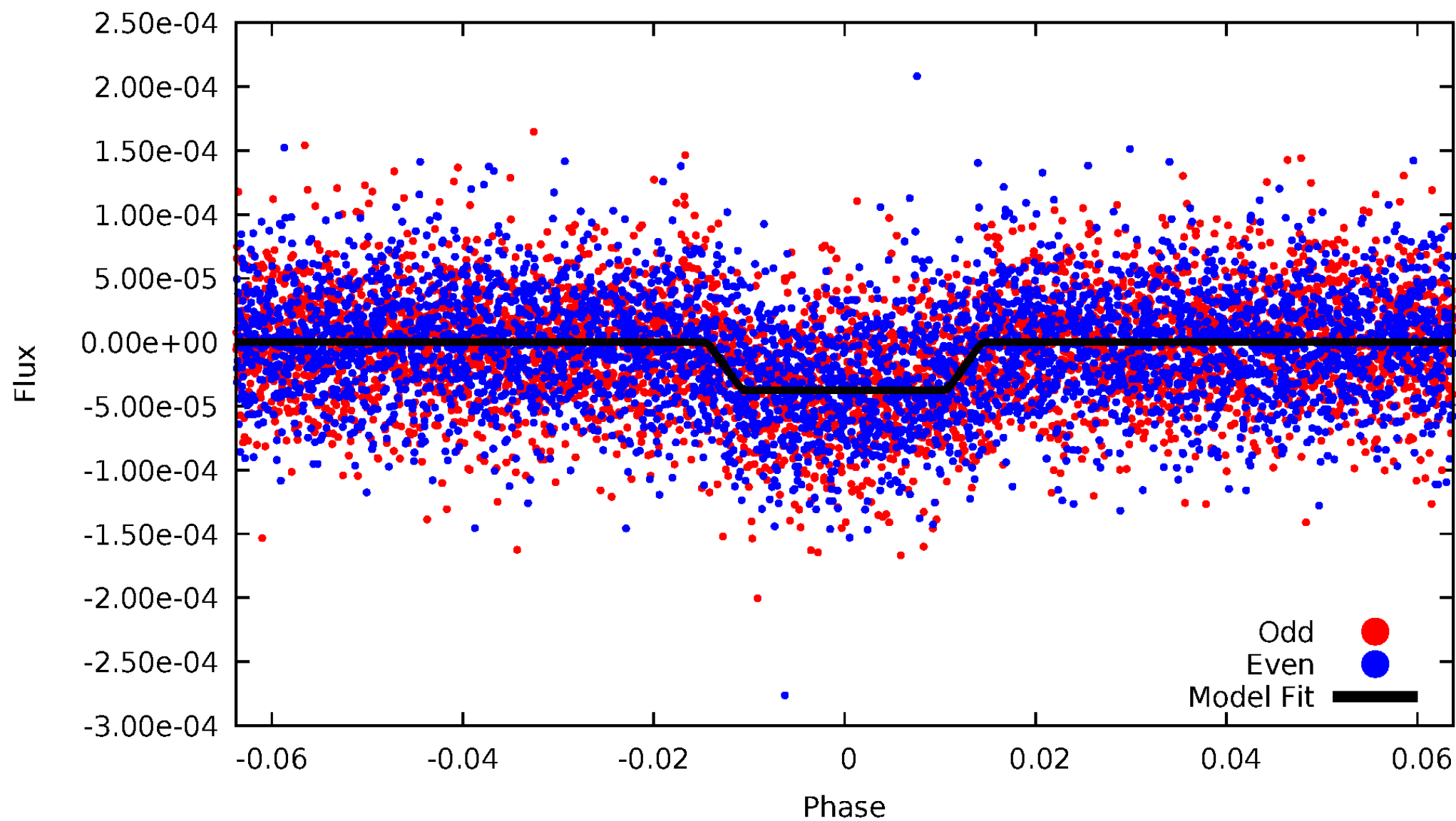
DV Odd/Even

TCE 008013439-01

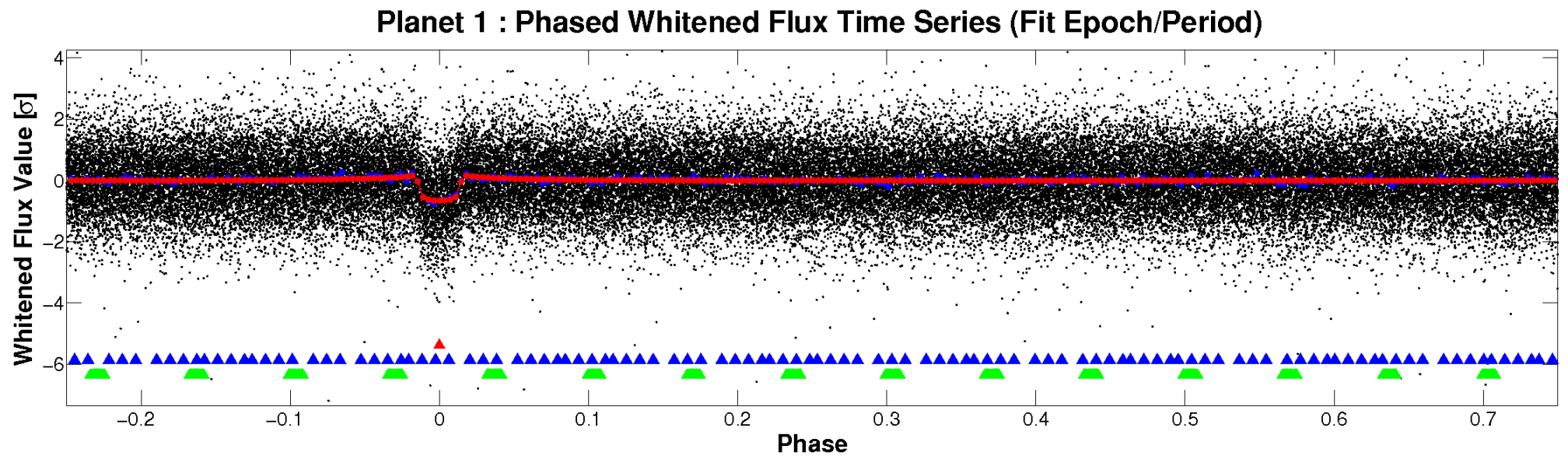
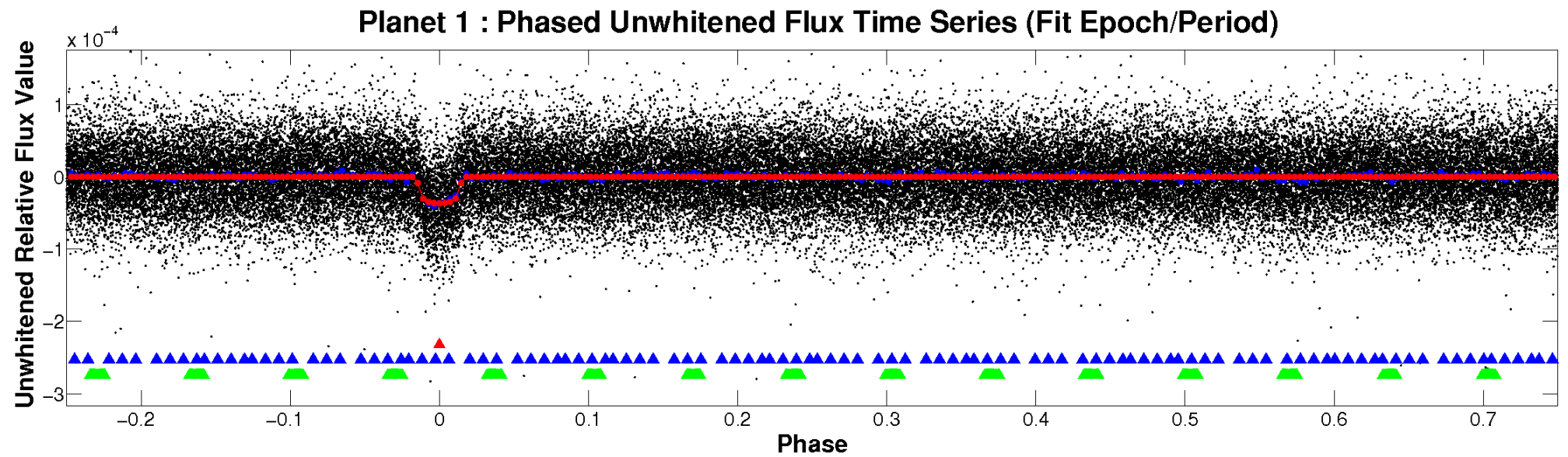


ALT Odd/Even

TCE 008013439-01

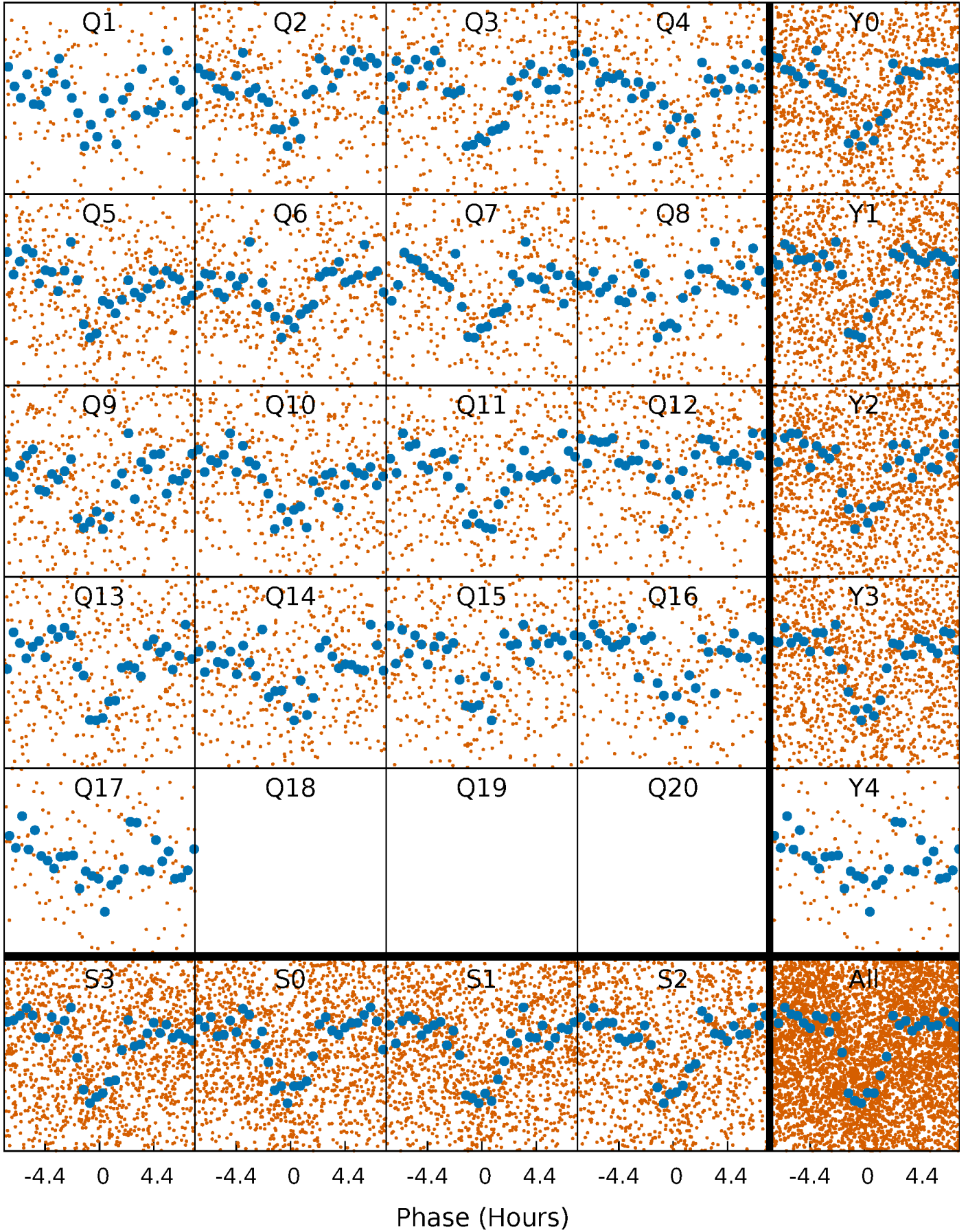


Non-Whitened Vs. Whitened Light Curve



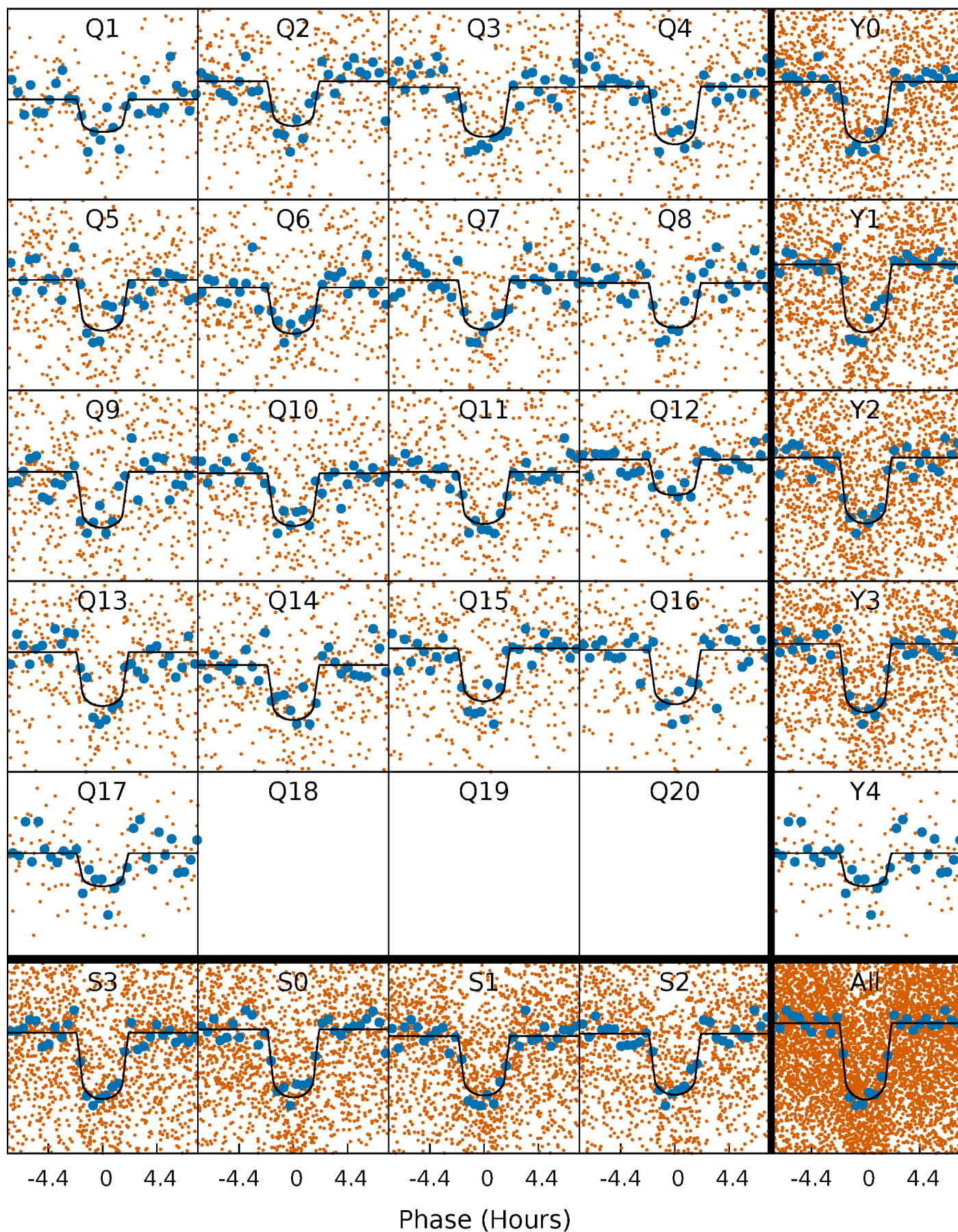
PDC Quarter-Phased Transit Curves

TCE 008013439-01 P= 5.629067 Days $T_0=134.743507$ (BKJD)



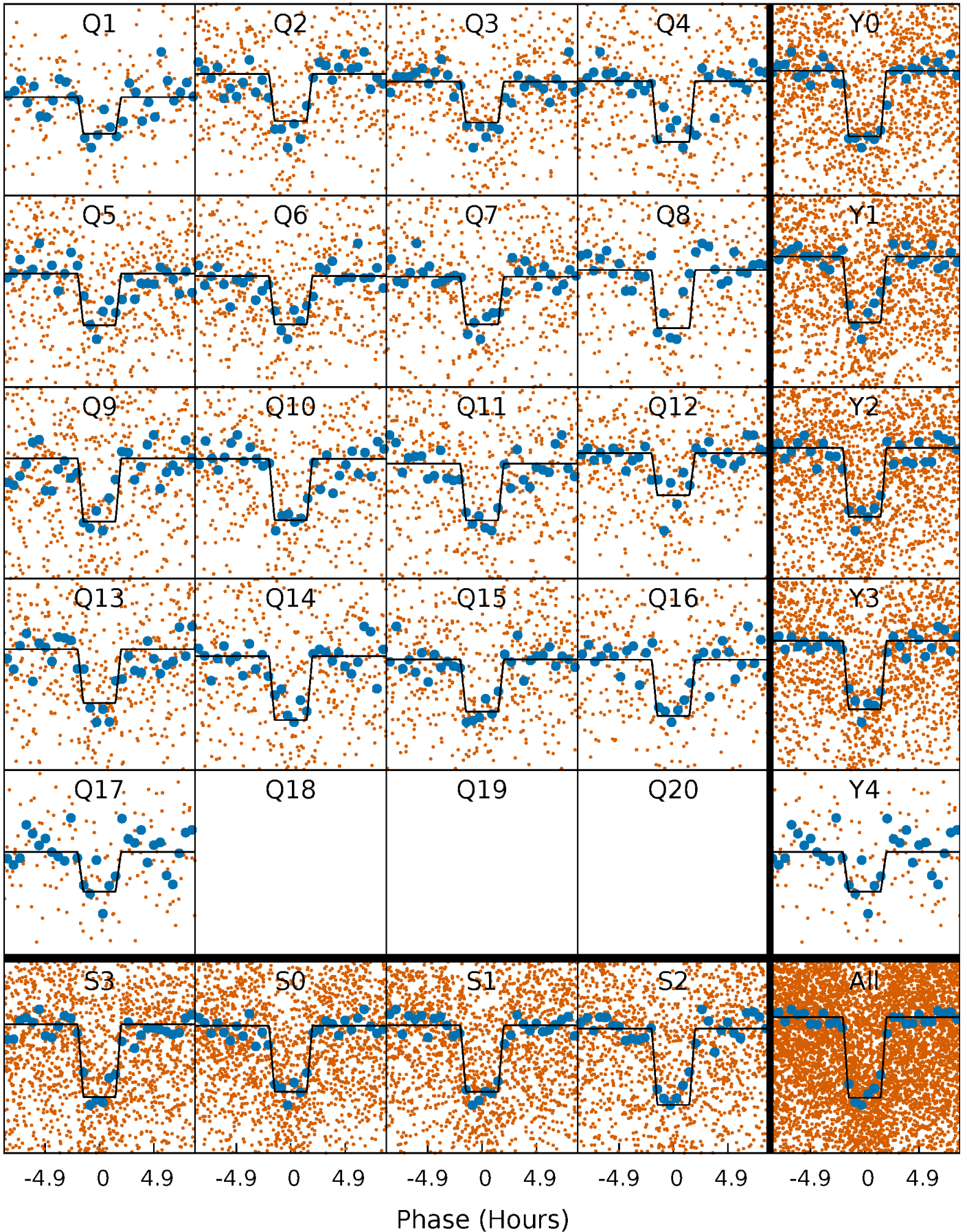
DV Quarter-Phased Transit Curves

TCE 008013439-01 P= 5.629067 Days $T_0=134.743507$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

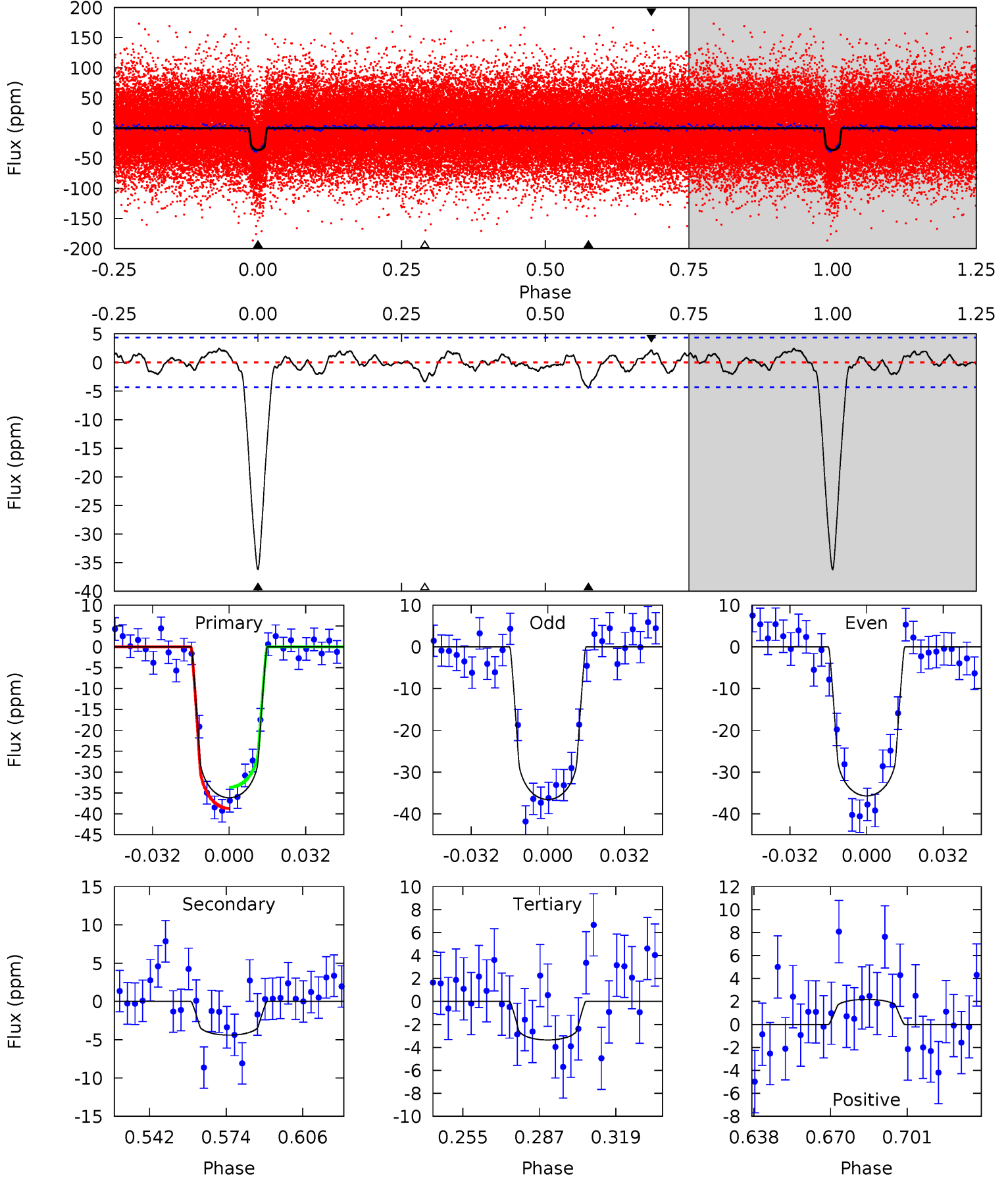
TCE 008013439-01 P= 5.629100 Days $T_0=134.738069$ (BKJD)



DV Model-Shift Uniqueness Test

008013439-01, P = 5.629067 Days, E = 129.114440 Days

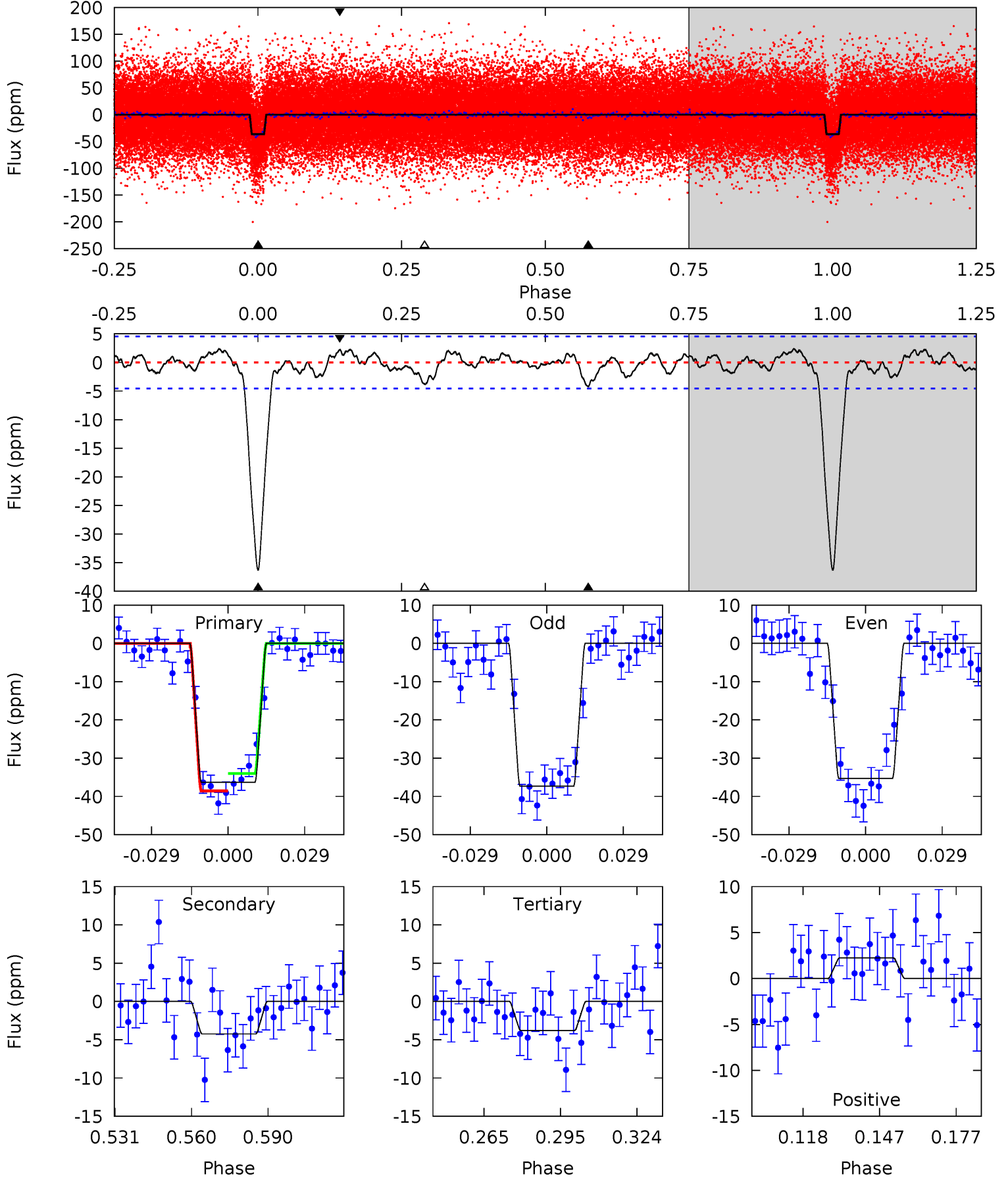
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.9	4.85	3.70	2.40	4.80	2.15	1.24	36.2	37.5	1.15	2.44	0.48	0.99	0.06	2.79



Alt Model-Shift Uniqueness Test

008013439-01, P = 5.629100 Days, E = 129.108969 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.4	4.49	4.02	2.38	4.81	2.18	1.31	34.4	36.0	0.46	2.11	1.07	0.99	0.06	2.38



Stellar Parameters For KIC 008013439

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6197^{+135}_{-111}	$3.837^{+0.233}_{-0.093}$	$-0.320^{+0.150}_{-0.150}$	$2.188^{+0.336}_{-0.576}$	$1.198^{+0.144}_{-0.159}$	$0.161^{+0.208}_{-0.049}$
	+2%/-2%	+6%/-2%	+47%/-47%	+15%/-26%	+12%/-13%	+129%/-30%
Source	SPE59	SPE59	SPE59	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008013439-01 / KOI 2352.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-4 ± 1	$1.49^{+0.28}_{-0.25}$	2181^{+108}_{-134}	3853^{+231}_{-235}	$4.656^{+2.292}_{-1.487}$
Alt.	-4 ± 1	$1.41^{+0.27}_{-0.26}$	2179^{+108}_{-155}	3899^{+281}_{-250}	$5.138^{+2.706}_{-1.715}$

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

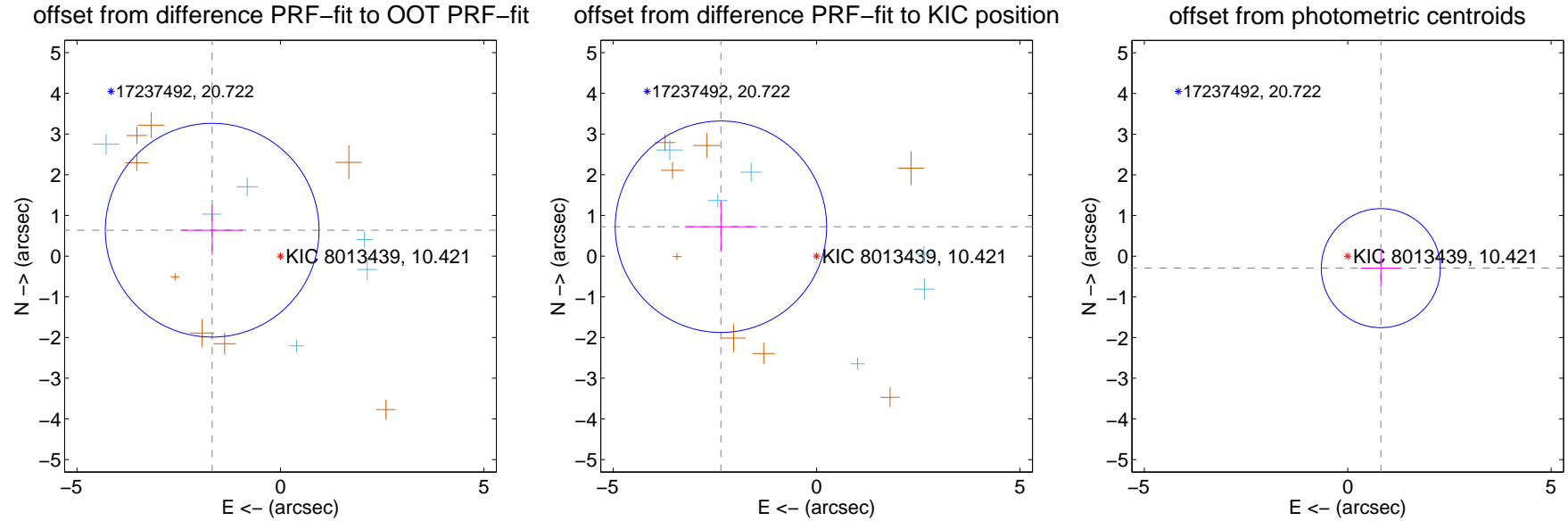
DV Centroid Data

Supplemental centroid analysis for 008013439-01. **Kepler magnitude: 10.42.** Transit SNR 25.14

There are 8 quarters with good PRF difference image offsets

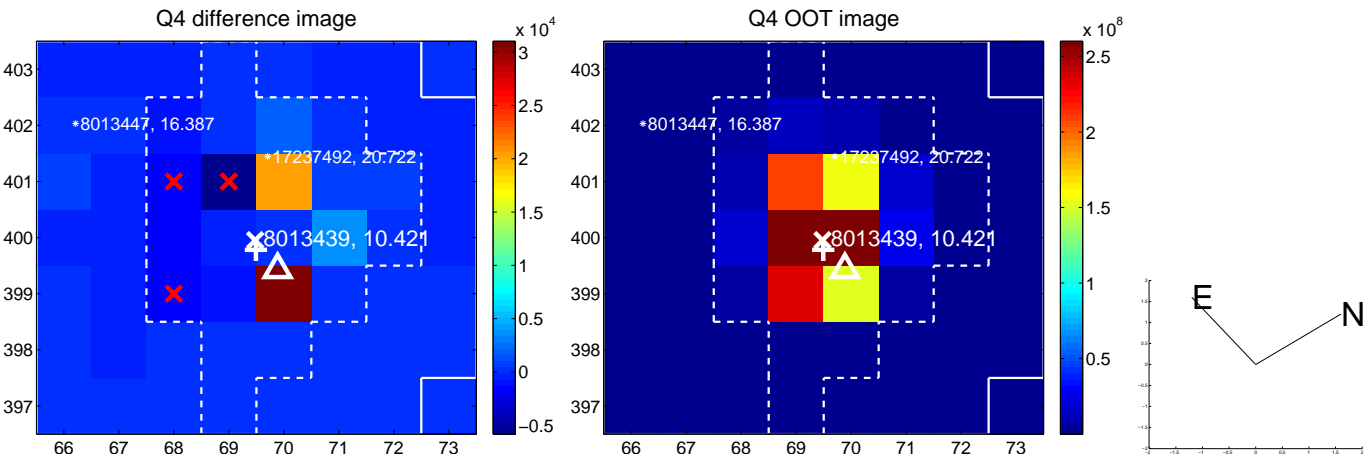
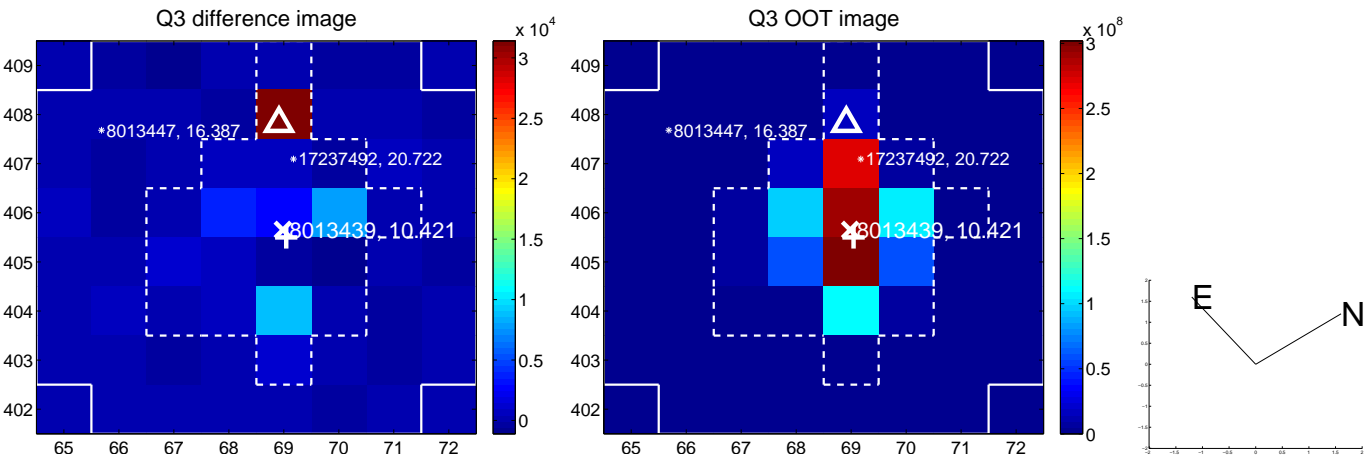
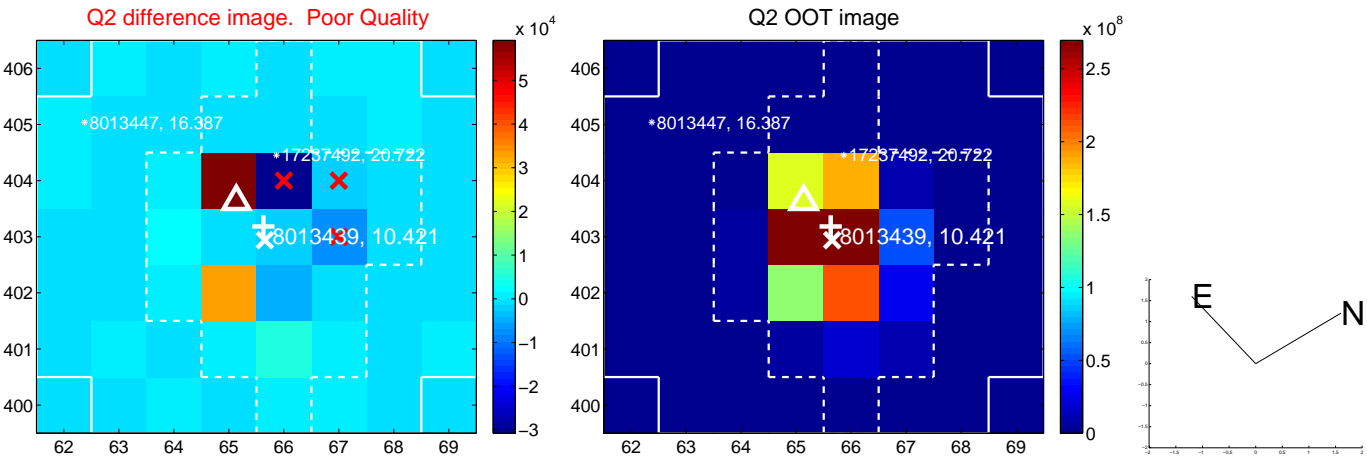
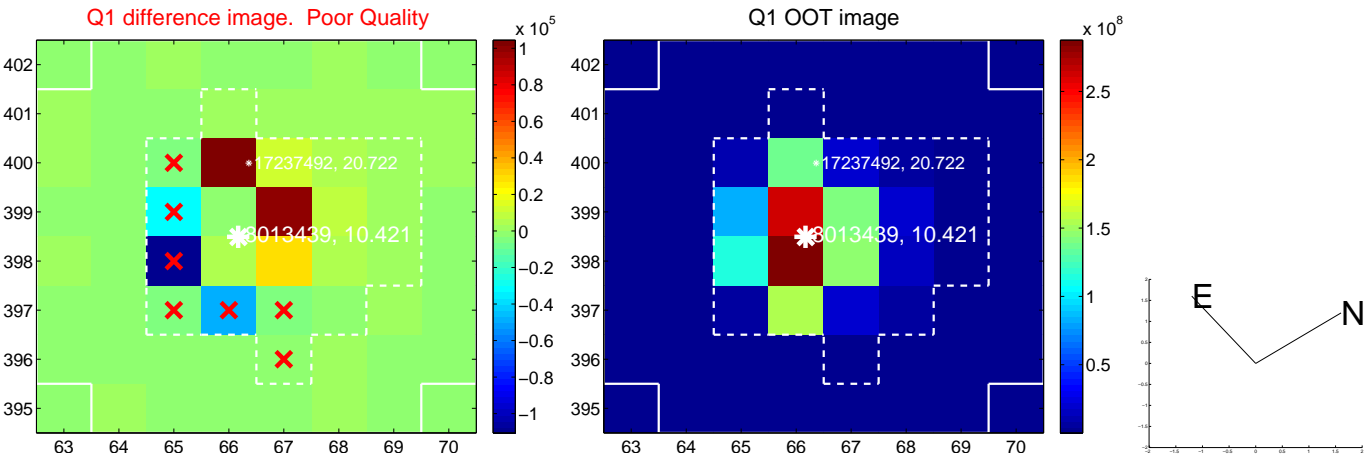
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.795 ± 0.875	2.05	1.678 ± 0.753	0.637 ± 0.615
PRF-fit source offset from KIC position	2.460 ± 0.866	2.84	2.351 ± 0.886	0.722 ± 0.618
photometric centroid source offset	0.87 ± 0.49	1.77	-0.81 ± 0.49	-0.29 ± 0.47

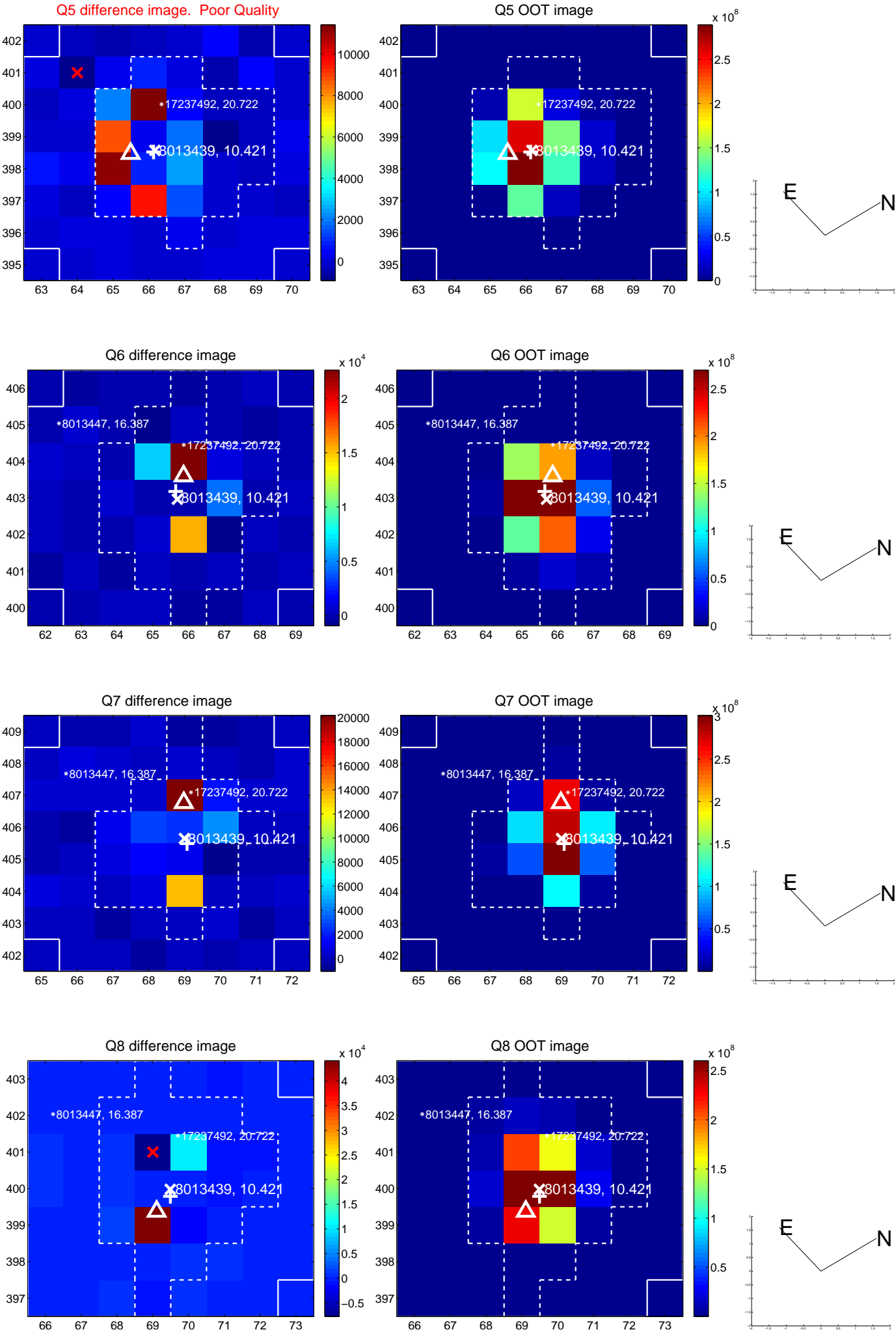


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

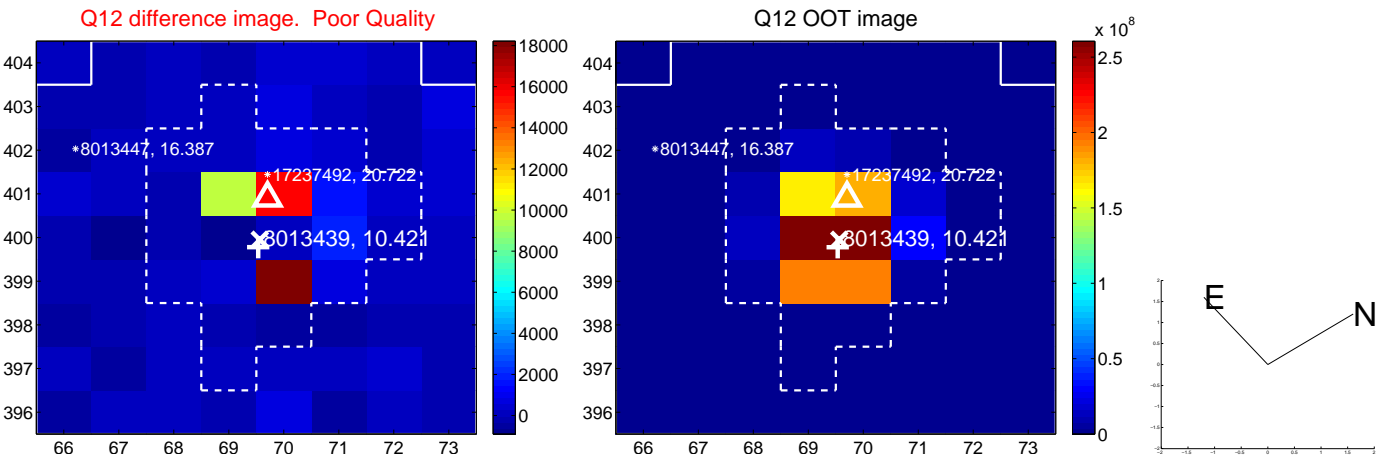
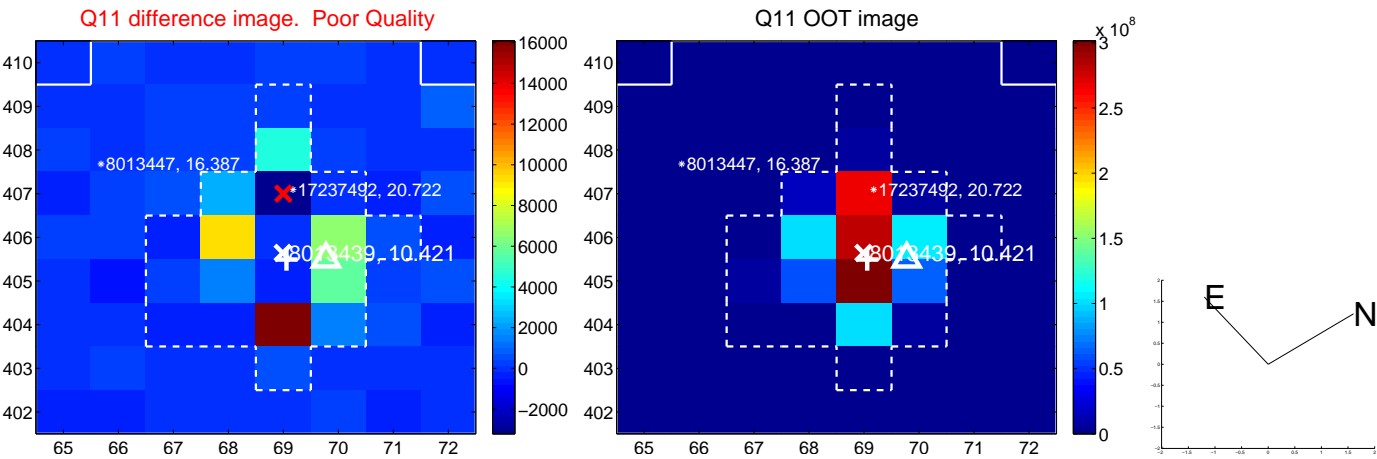
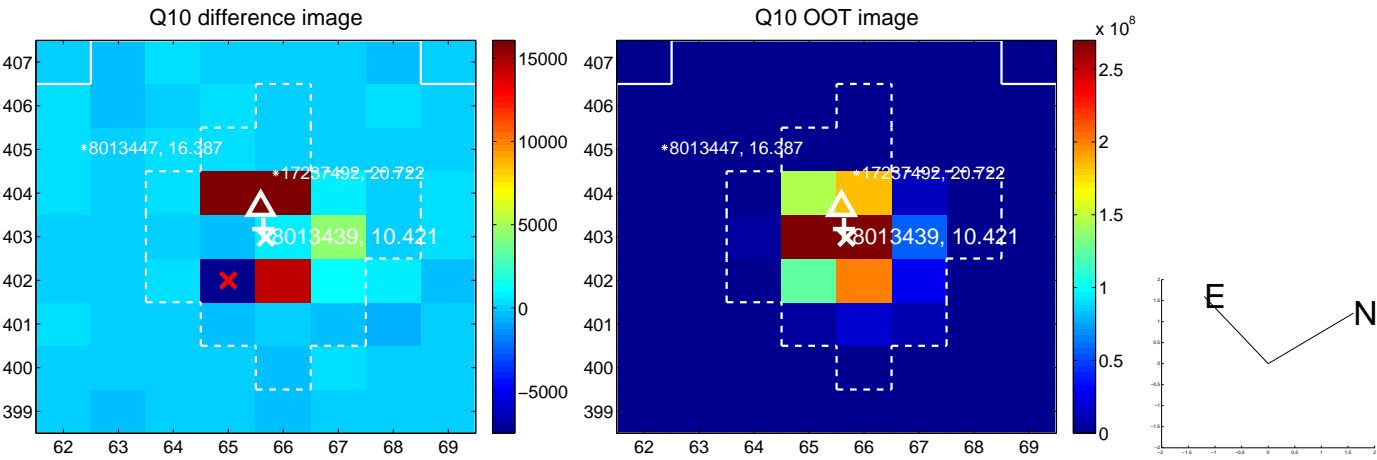
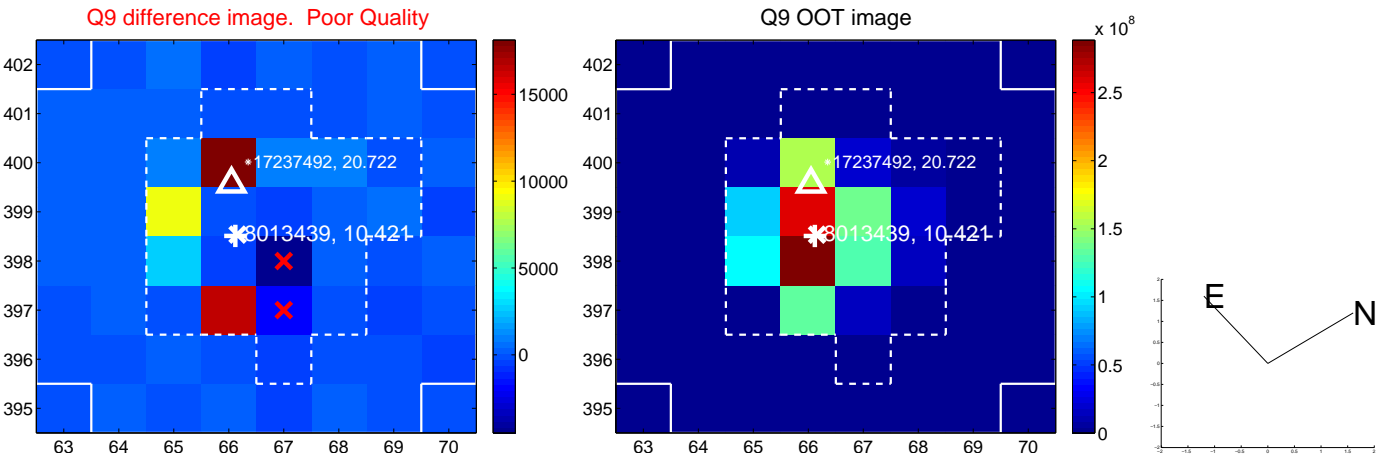
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



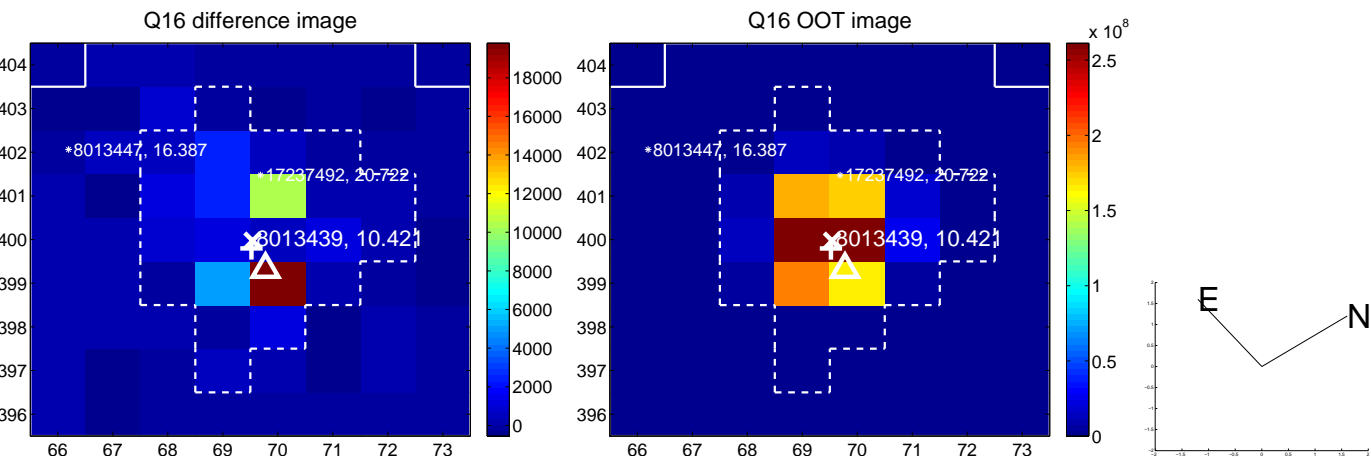
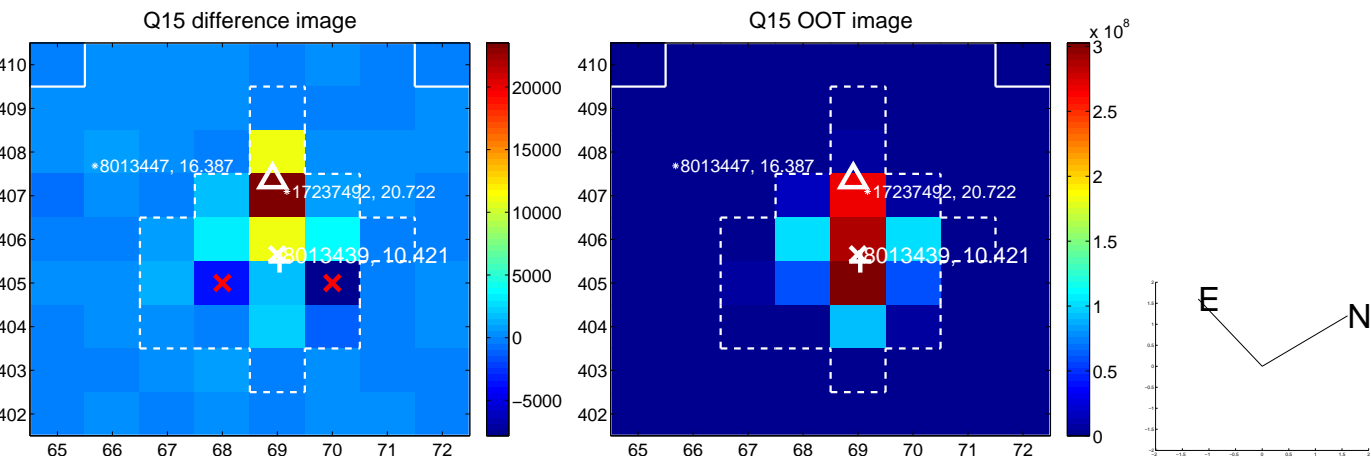
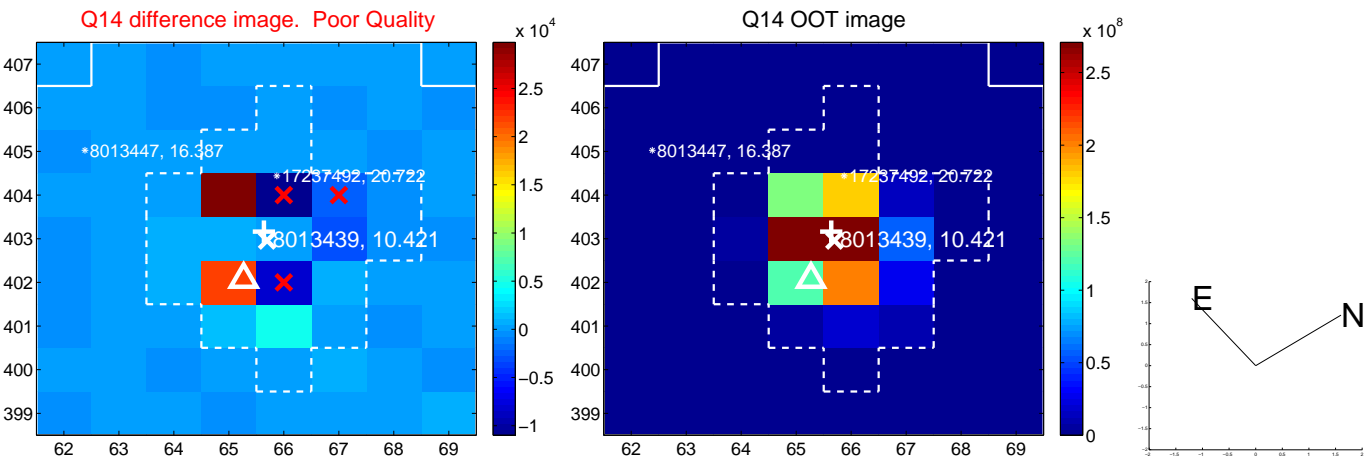
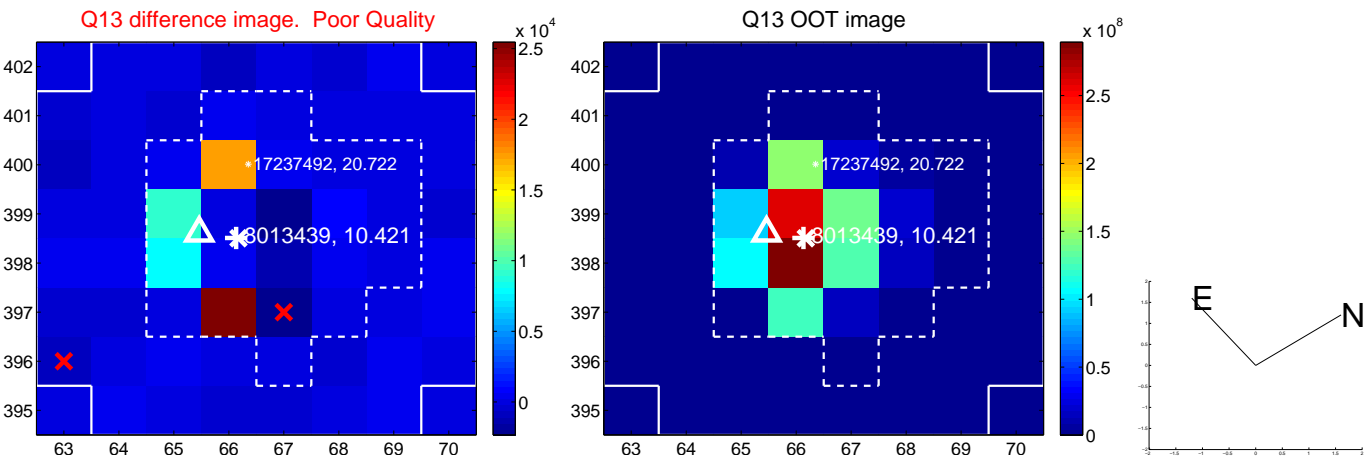
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



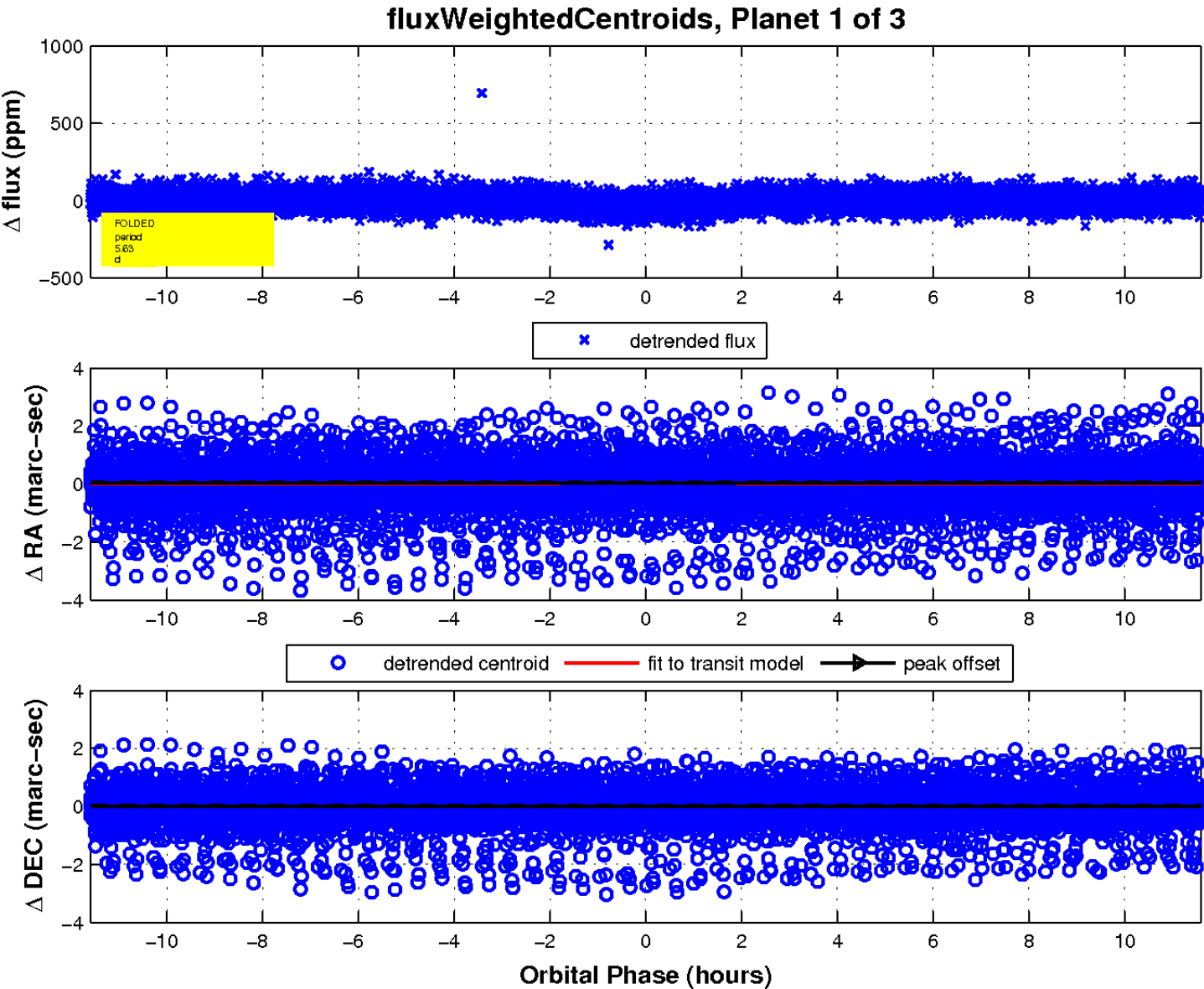
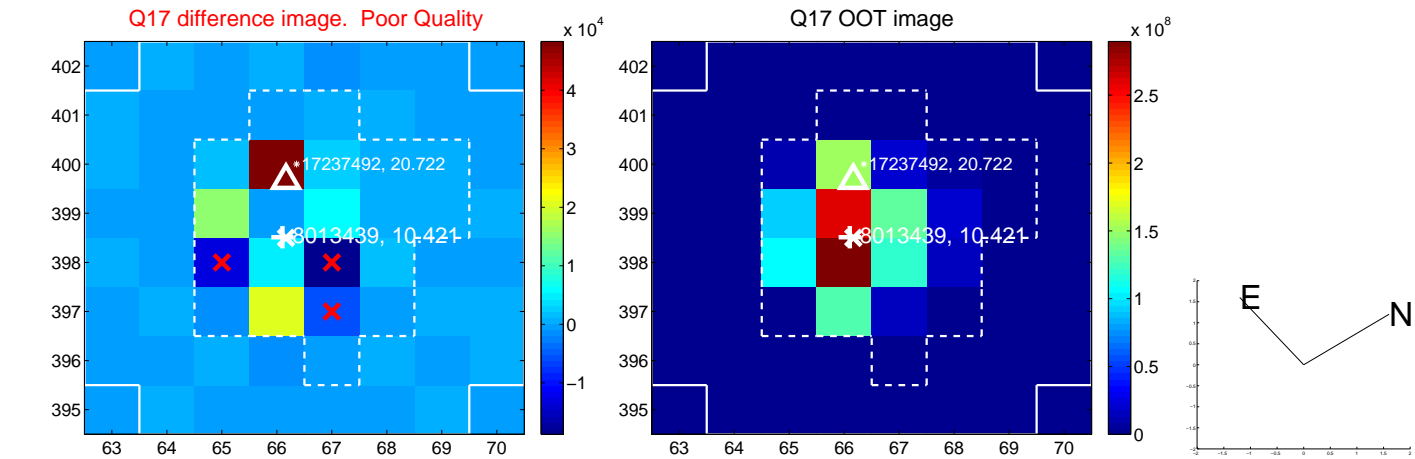
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

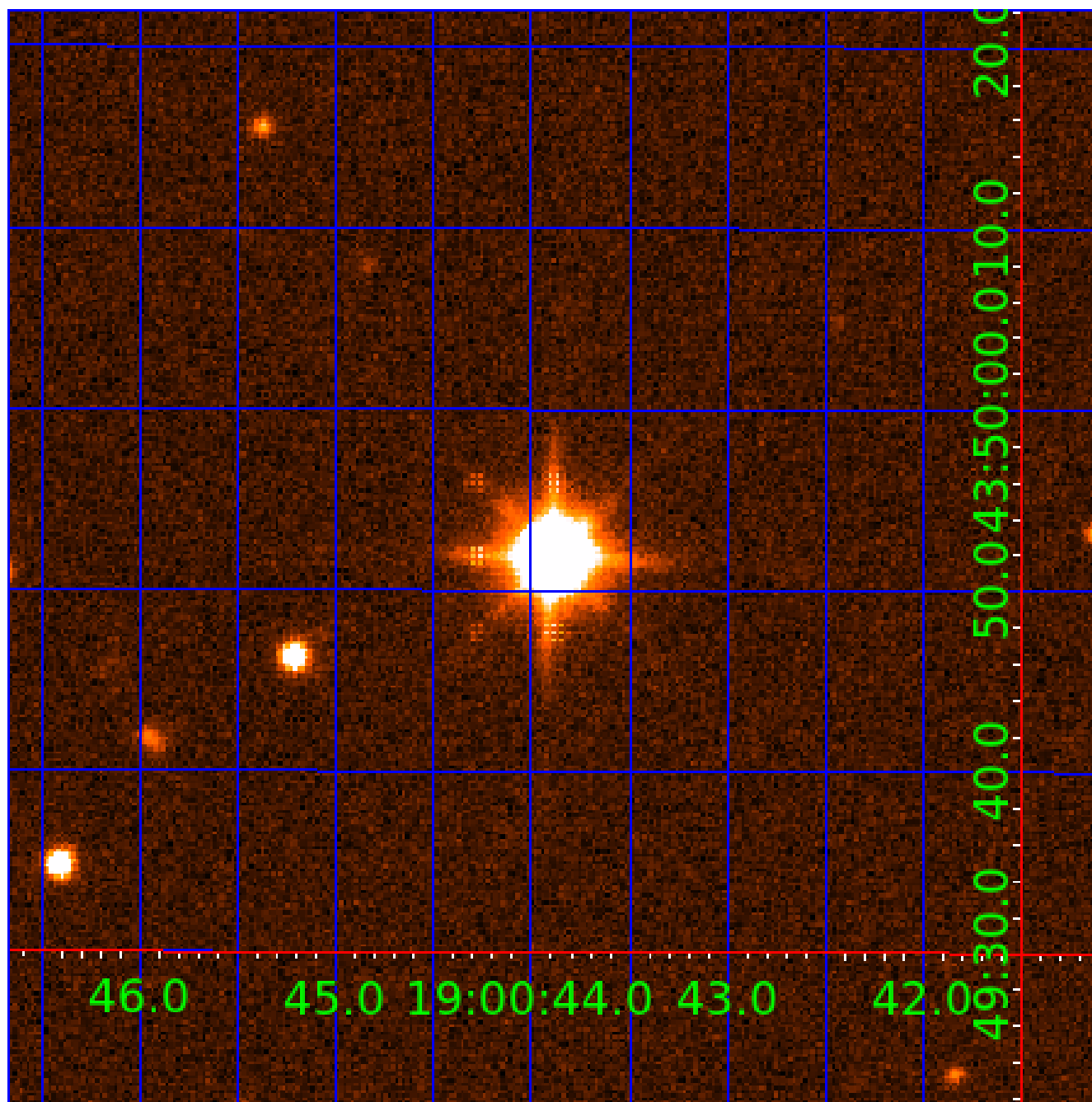


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008013439

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})
008013439-01	OBS	2352.02	5.629067	134.743507	36.8	3.865	23.3	25.1	2.19	6197	1.55	1460.17
008013439-02	OBS	2352.01	13.391555	133.056826	48.6	3.343	18.3	20.0	2.19	6197	1.79	459.77
008013439-03	OBS	2352.03	8.256297	137.925388	38.0	2.047	14.5	16.4	2.19	6197	1.58	876.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008013439-01	OBS	PC	1.00	0	0	0	0	CENT_SATURATED
008013439-02	OBS	PC	1.00	0	0	0	0	CENT_SATURATED
008013439-03	OBS	PC	1.00	0	0	0	0	CENT_SATURATED

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.

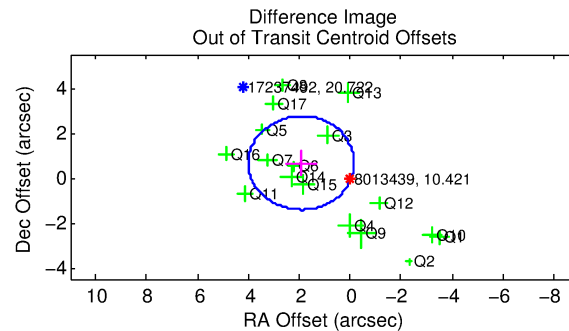
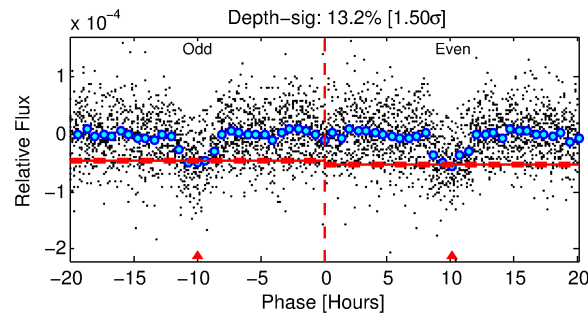
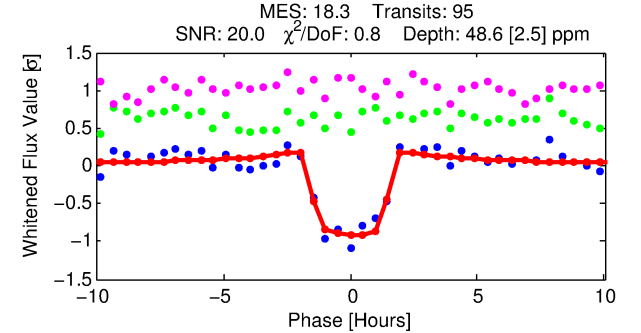
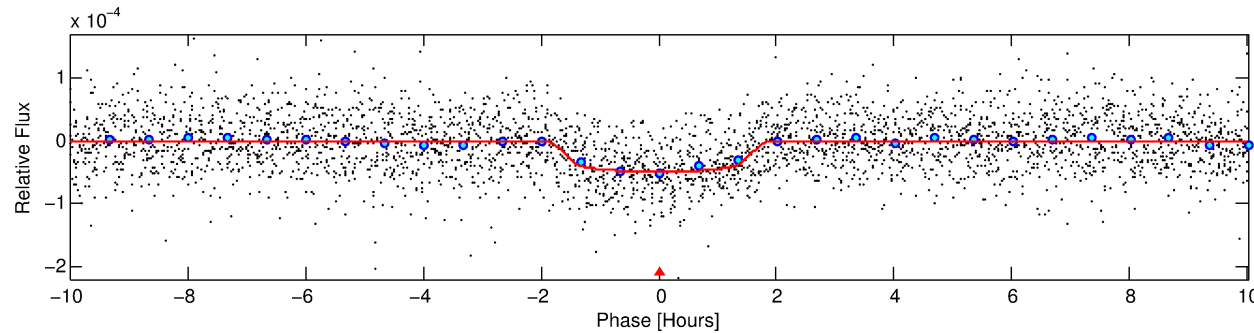
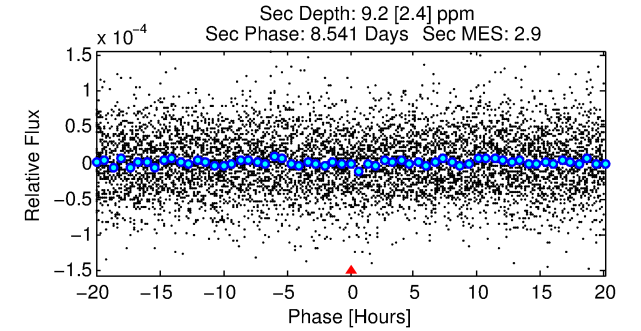
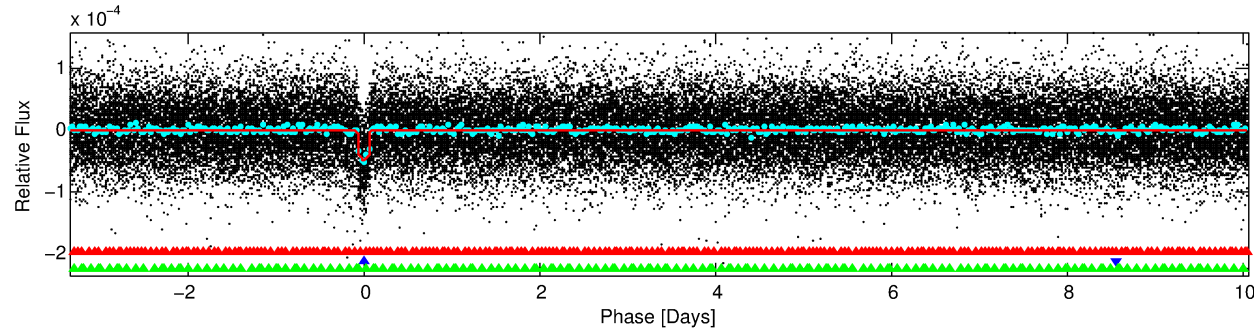
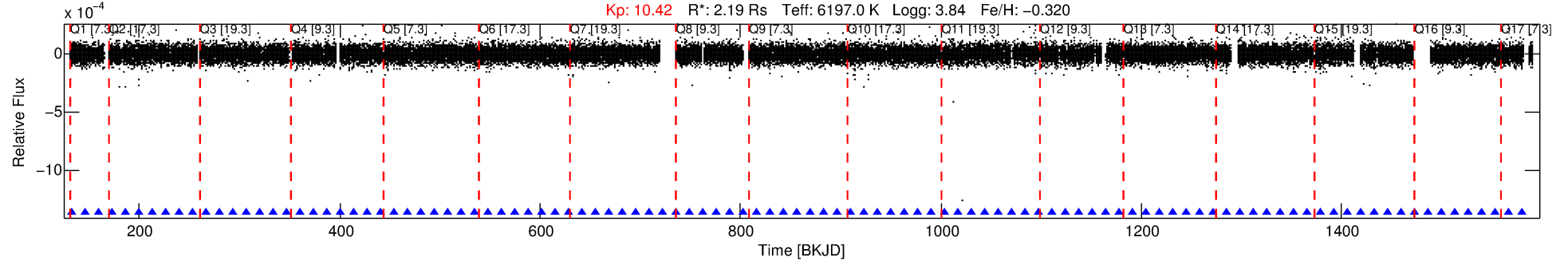
Ephemeris Match Information For 008013439-02

No Significant Match Found

DV One-Page Summary

KIC: 8013439 Candidate: 2 of 3 Period: 13.392 d
KOI: K02352.01 Name: Kepler-381c Corr: 0.982

Kp: 10.42 R*: 2.19 Rs Teff: 6197.0 K Logg: 3.84 Fe/H: -0.320



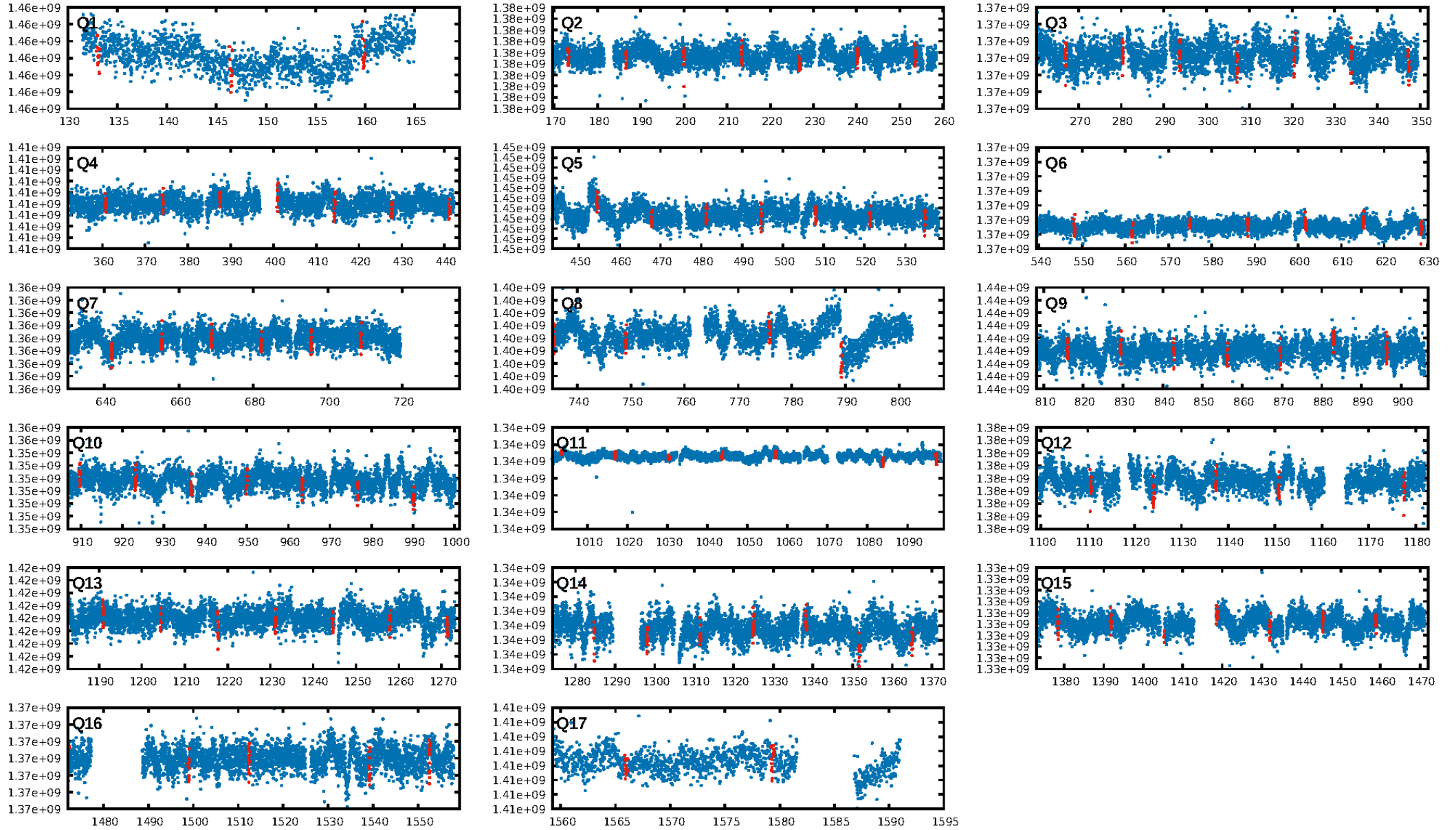
DV Fit Results:

Period = 13.39155 [0.00005] d
Epoch = 133.0568 [0.0030] BKJD
Rp/R* = 0.0075 [0.0014]
a/R* = 13.74 [14.59]
b = 0.90 [0.22]
Seff = 459.77 [187.51]
Teq = 1181 [120] K
Rp = 1.79 [0.58] Re
a = 0.1173 [0.0294] AU
Ag = 21.75 [13.34] [1.56σ]
Teffp = 3942 [468] K [5.72σ]

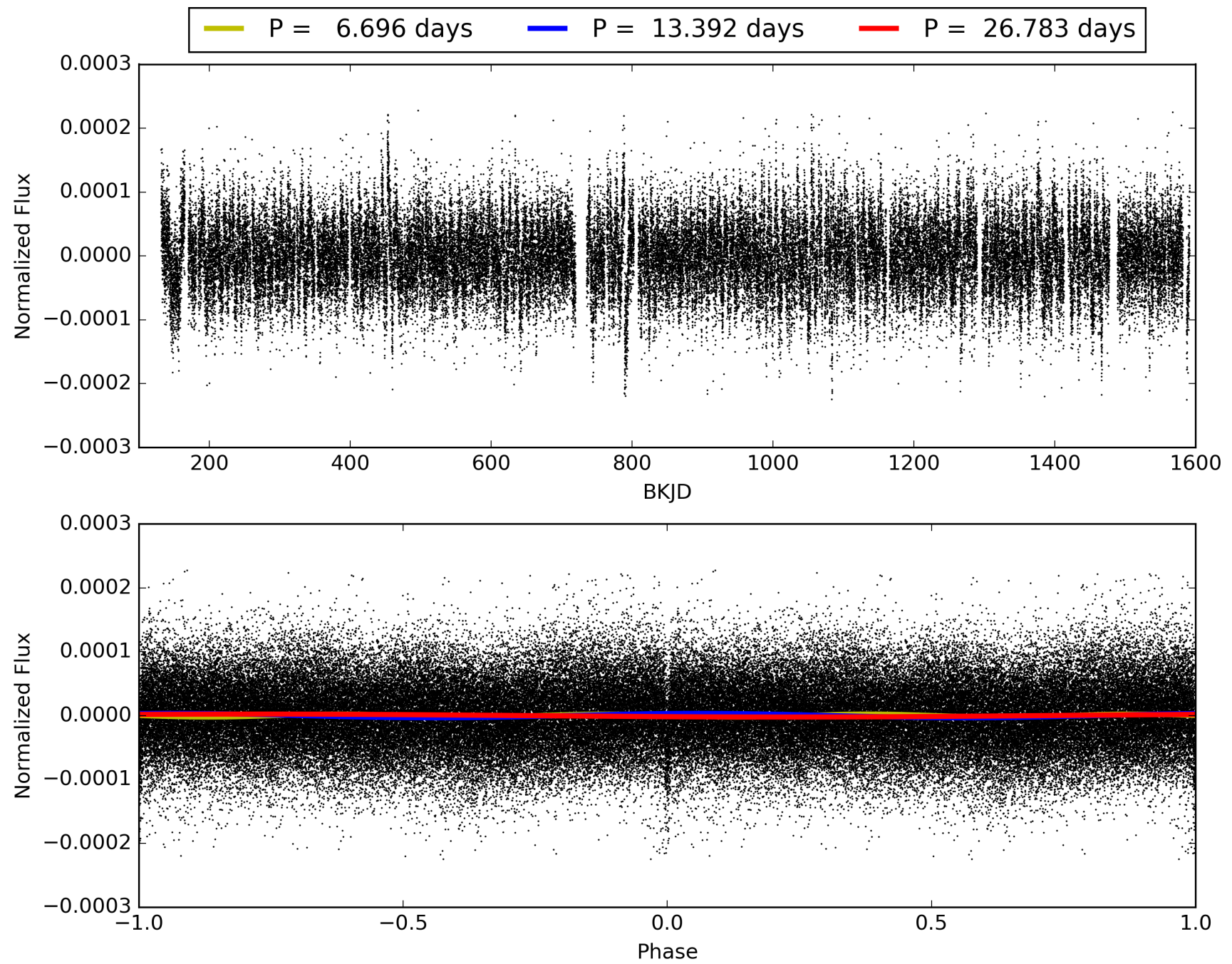
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [31.44σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 78.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.79e-69
RollingBand-fgt: 1.00 [90/90]
GhostDiagnostic-chr: 6.488
Centroid-sig: 43.3%
Centroid-so: 0.677 arcsec [1.15σ]
OotOffset-rm: 2.035 arcsec [2.93σ]
KicOffset-rm: 0.980 arcsec [1.58σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.47 [8/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008013439-02, PDC Light Curves

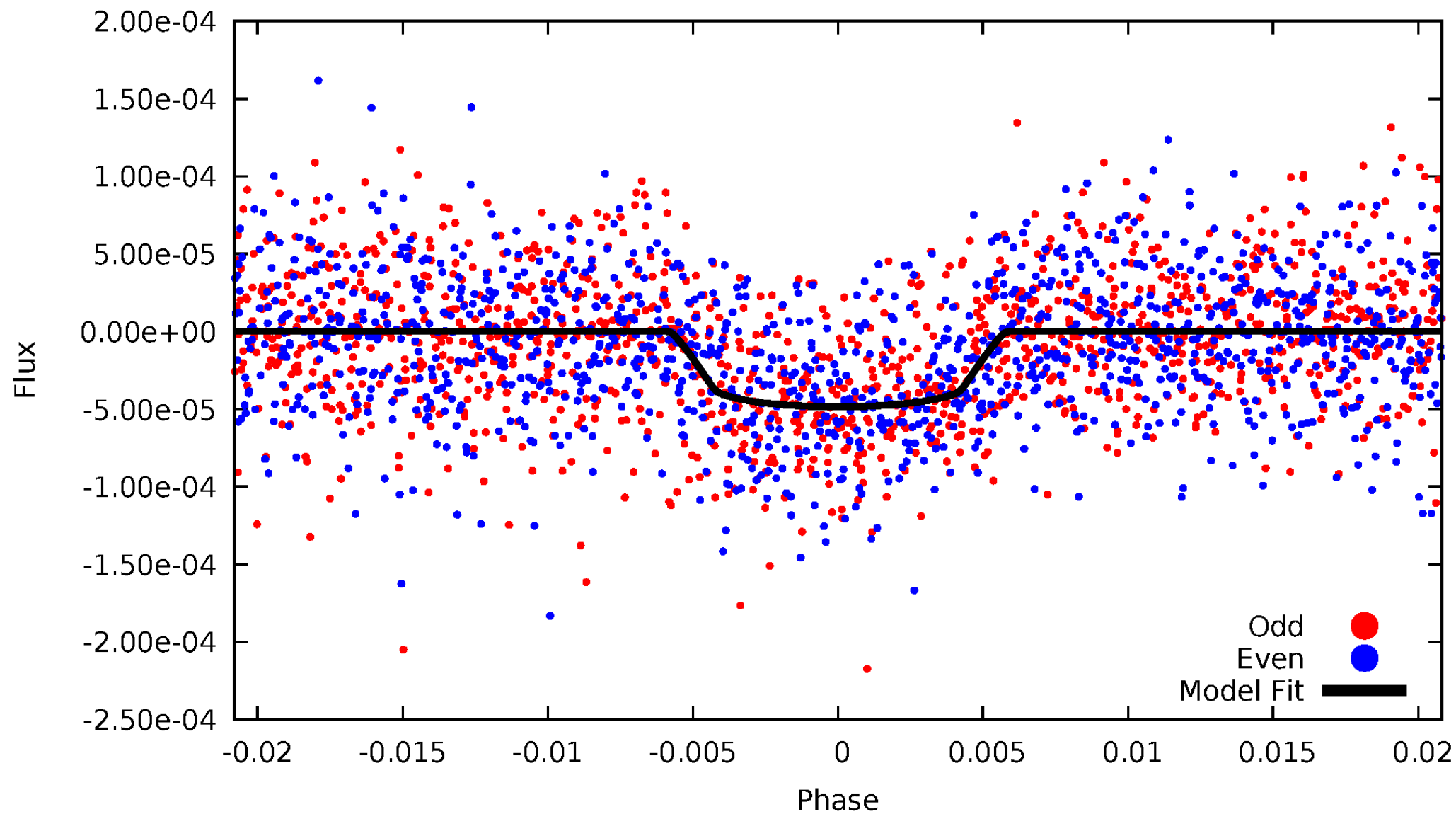


TCE 008013439-02



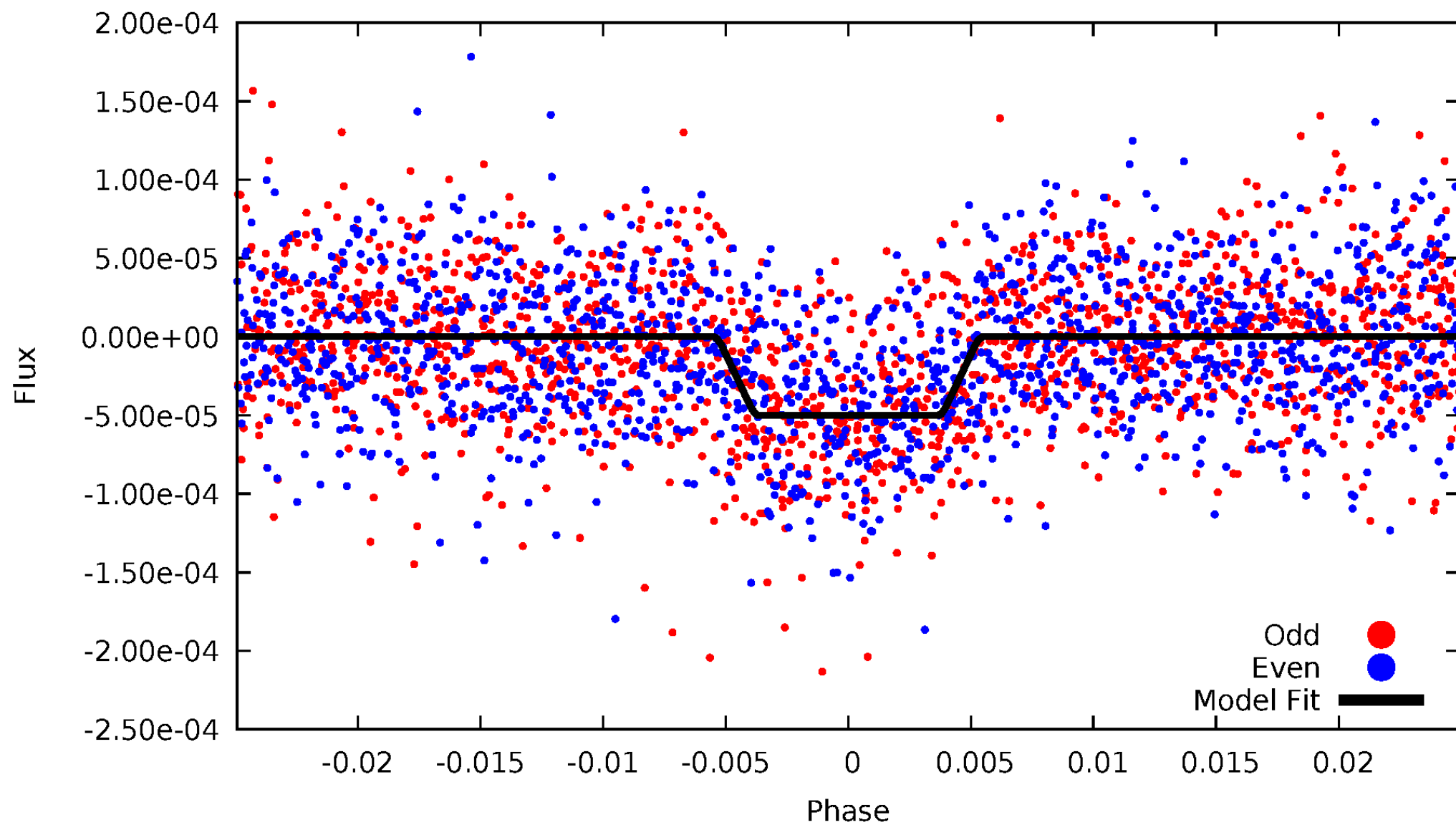
DV Odd/Even

TCE 008013439-02



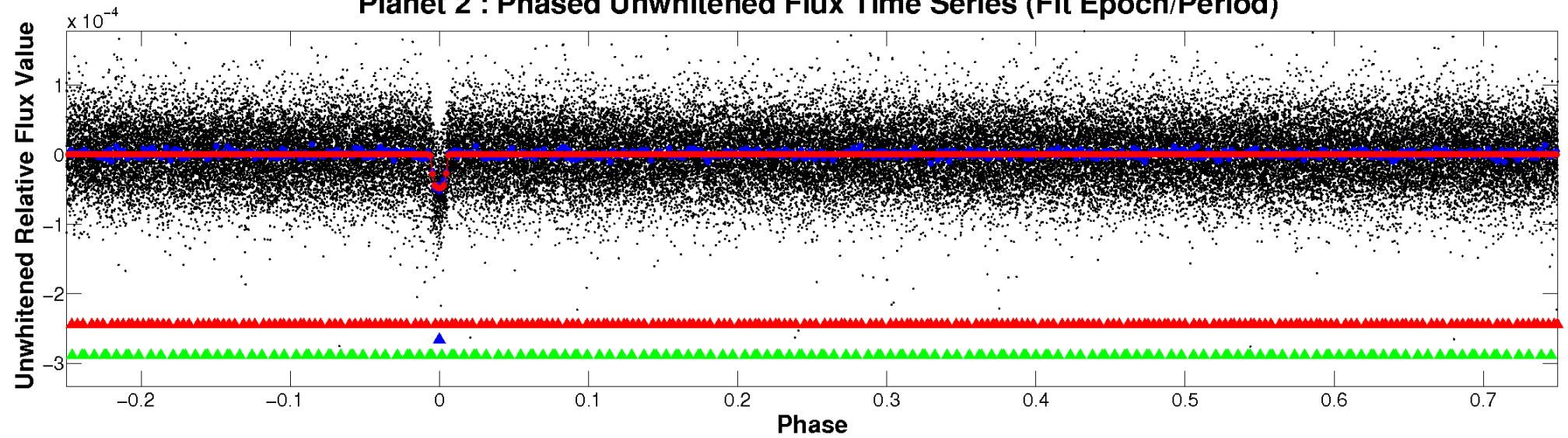
ALT Odd/Even

TCE 008013439-02

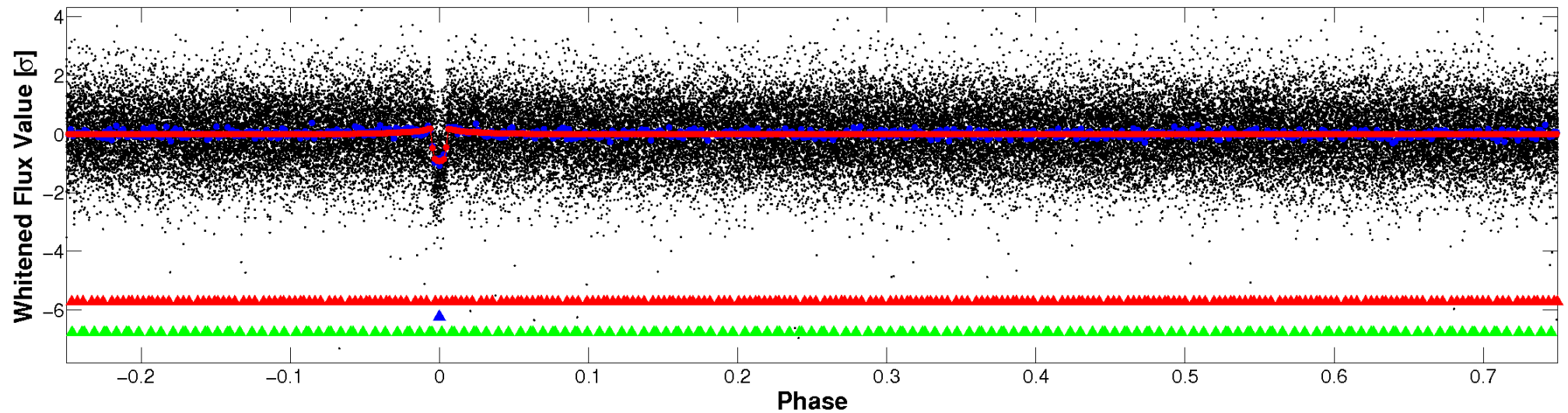


Non-Whitened Vs. Whitened Light Curve

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

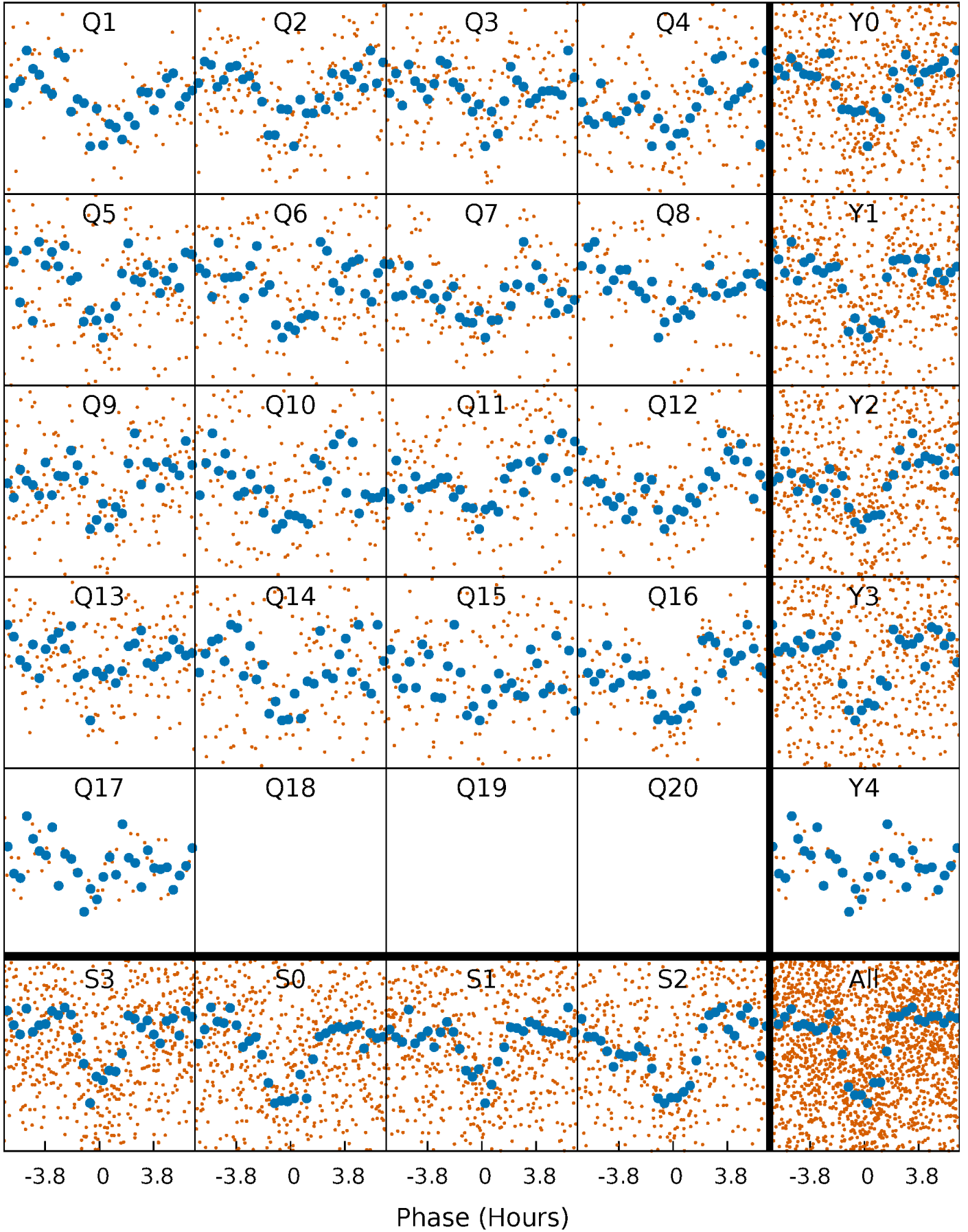


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



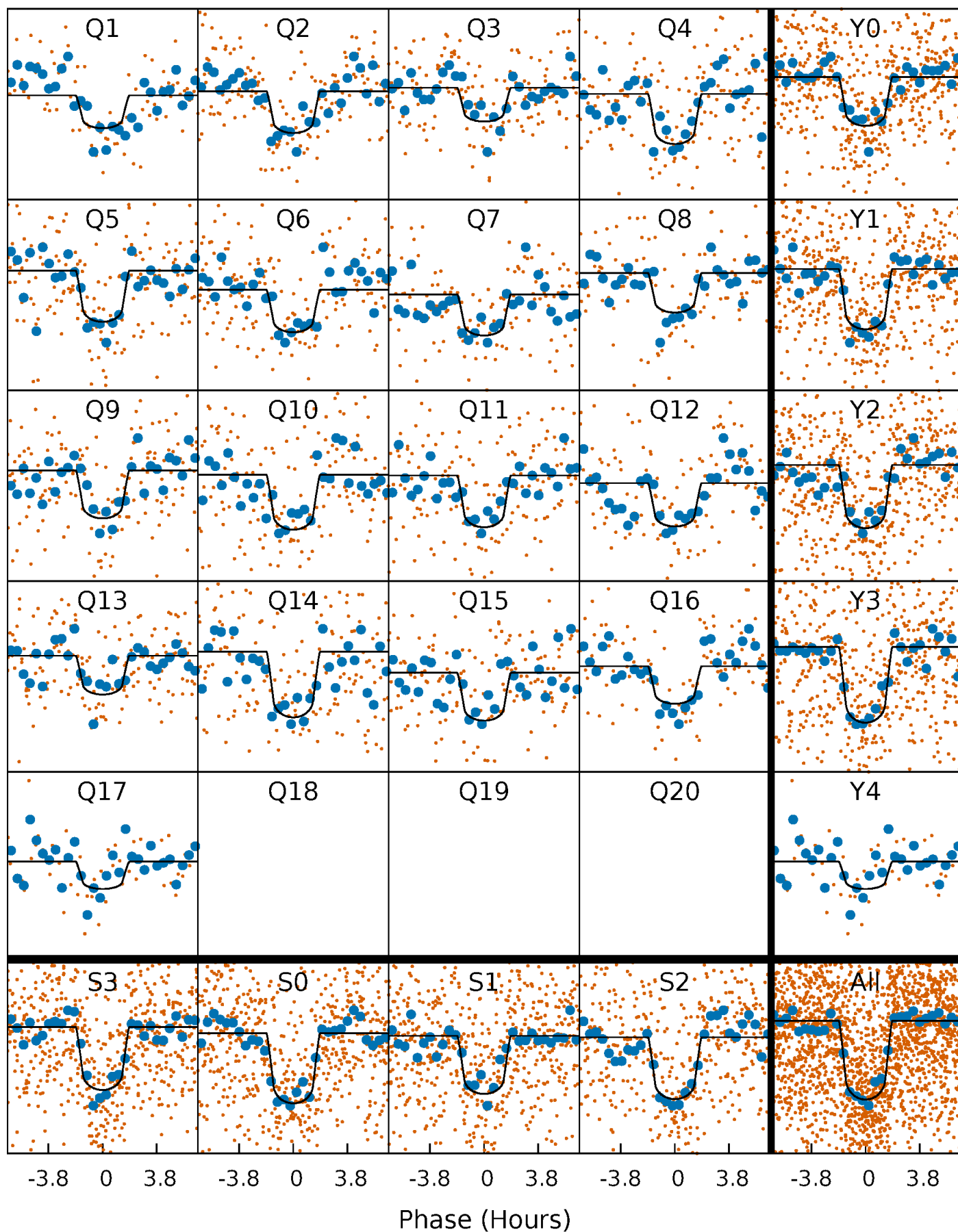
PDC Quarter-Phased Transit Curves

TCE 008013439-02 P= 13.391555 Days $T_0=133.056826$ (BKJD)



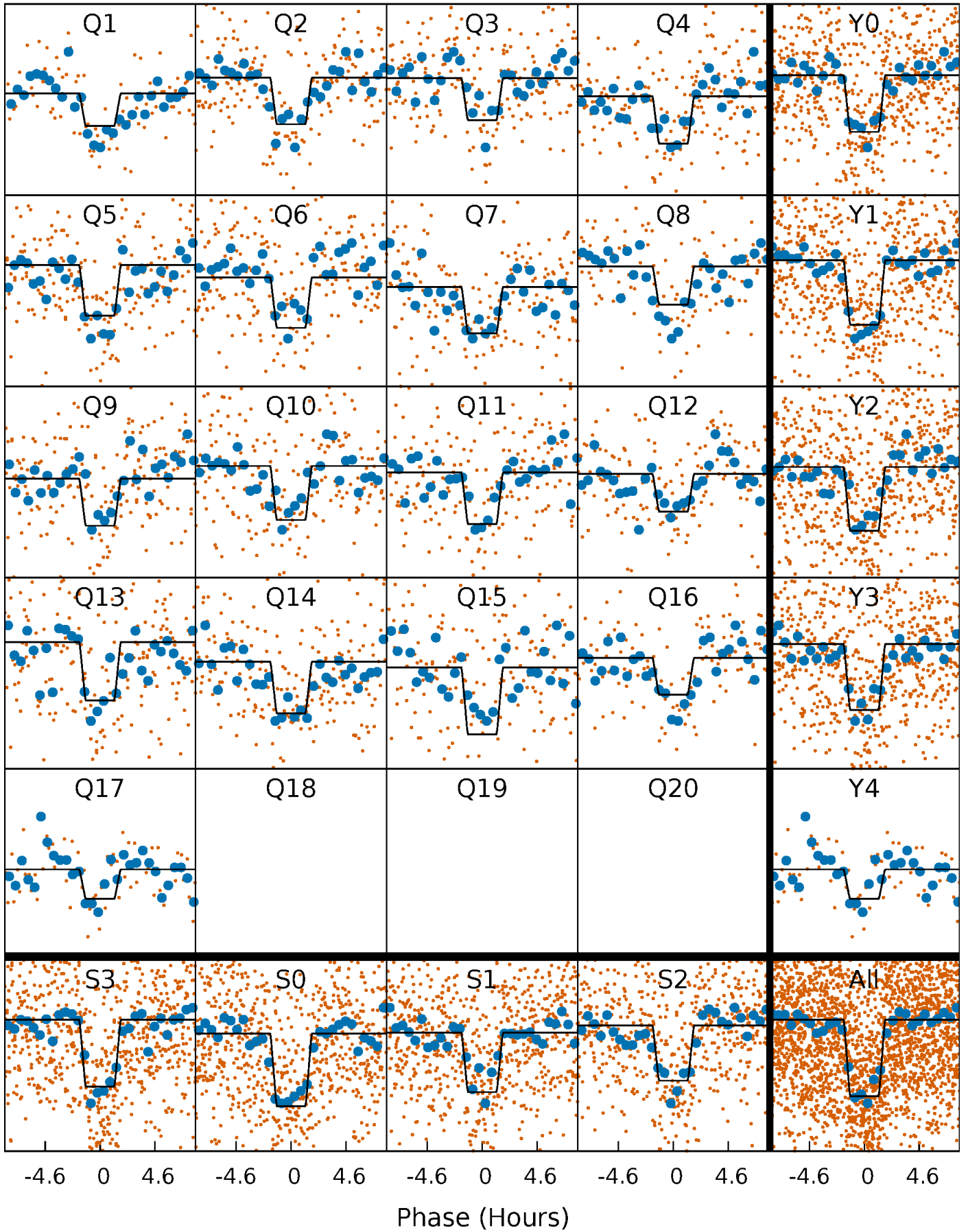
DV Quarter-Phased Transit Curves

TCE 008013439-02 P= 13.391555 Days $T_0=133.056826$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

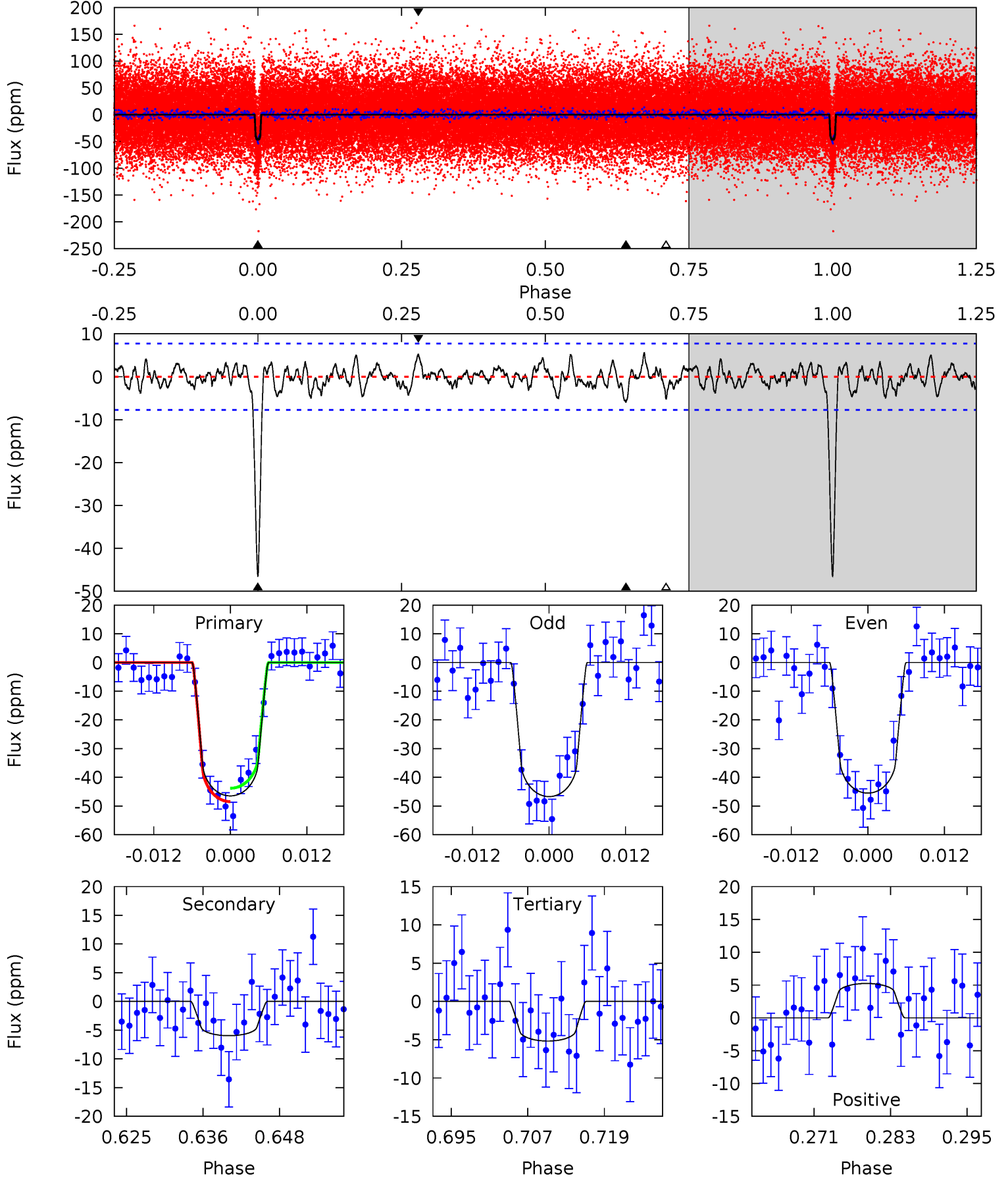
TCE 008013439-02 P= 13.391437 Days $T_0=133.060266$ (BKJD)



DV Model-Shift Uniqueness Test

008013439-02, P = 13.391555 Days, E = 119.665271 Days

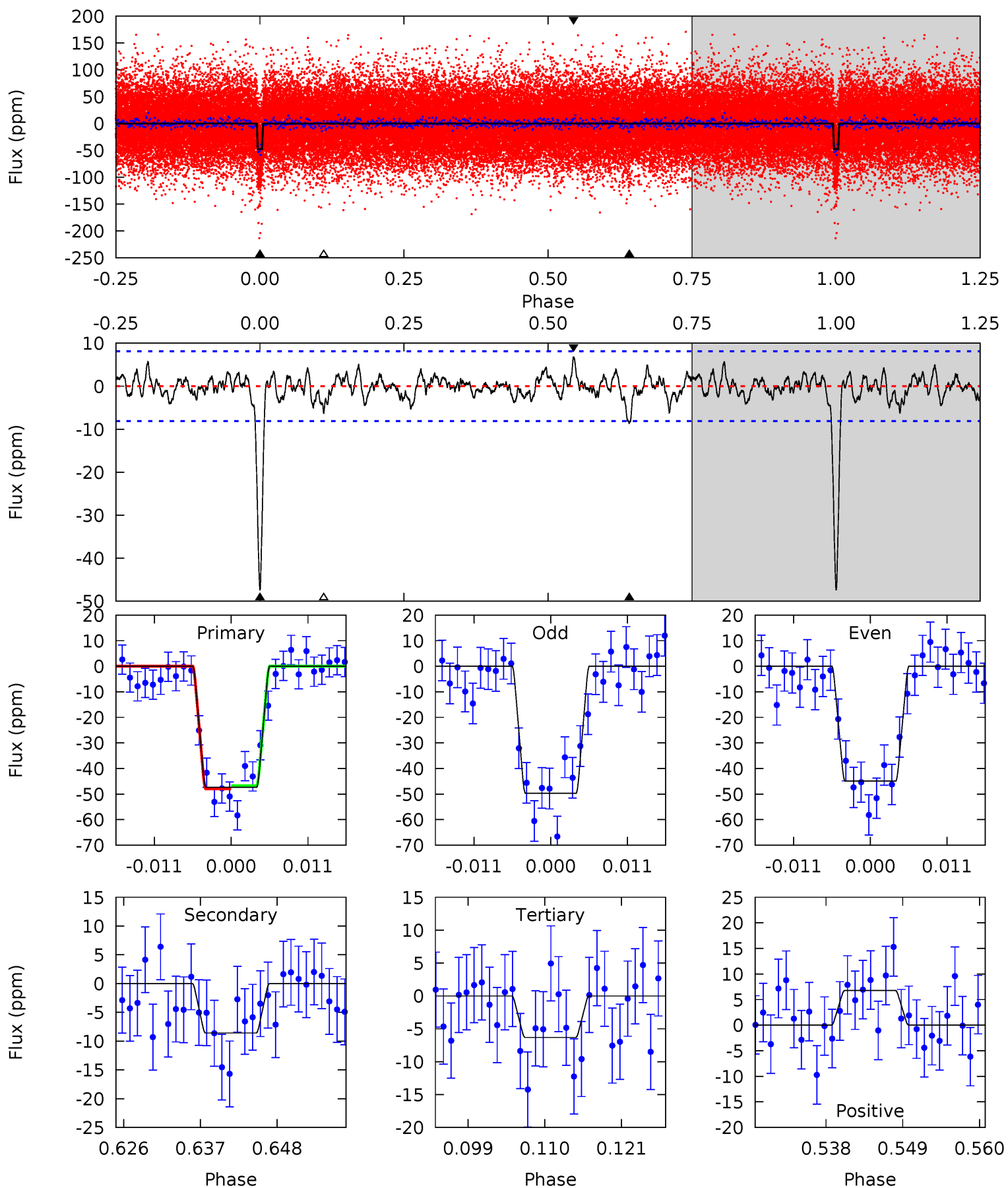
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.1	3.86	3.35	3.39	4.99	2.52	1.24	26.7	26.7	0.51	0.47	0.39	0.99	0.11	1.51



Alt Model-Shift Uniqueness Test

008013439-02, P = 13.391437 Days, E = 119.668829 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.2	5.30	3.90	4.19	5.01	2.54	1.26	25.3	25.1	1.40	1.12	1.47	1.00	0.13	0.40



Stellar Parameters For KIC 008013439

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6197^{+135}_{-111}	$3.837^{+0.233}_{-0.093}$	$-0.320^{+0.150}_{-0.150}$	$2.188^{+0.336}_{-0.576}$	$1.198^{+0.144}_{-0.159}$	$0.161^{+0.208}_{-0.049}$
	+2%/-2%	+6%/-2%	+47%/-47%	+15%/-26%	+12%/-13%	+129%/-30%
Source	SPE59	SPE59	SPE59	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008013439-02 / KOI 2352.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 2	$1.74^{+0.38}_{-0.40}$	1634^{+78}_{-117}	3866^{+350}_{-278}	15^{+11}_{-6}
Alt.	-9 ± 2	$1.65^{+0.40}_{-0.39}$	1634^{+82}_{-102}	4202^{+424}_{-290}	24^{+18}_{-9}

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 $A_{obs} \gg 1.0$

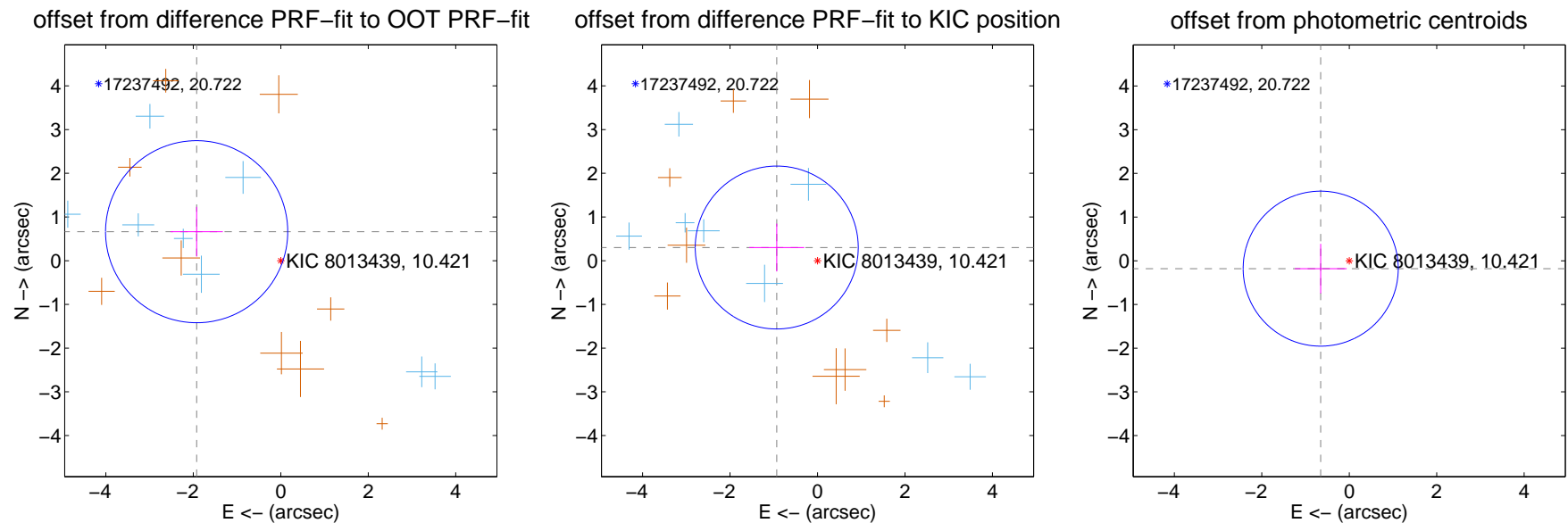
DV Centroid Data

Supplemental centroid analysis for 008013439-02. **Kepler magnitude: 10.42.** Transit SNR 20.00

There are 8 quarters with good PRF difference image offsets

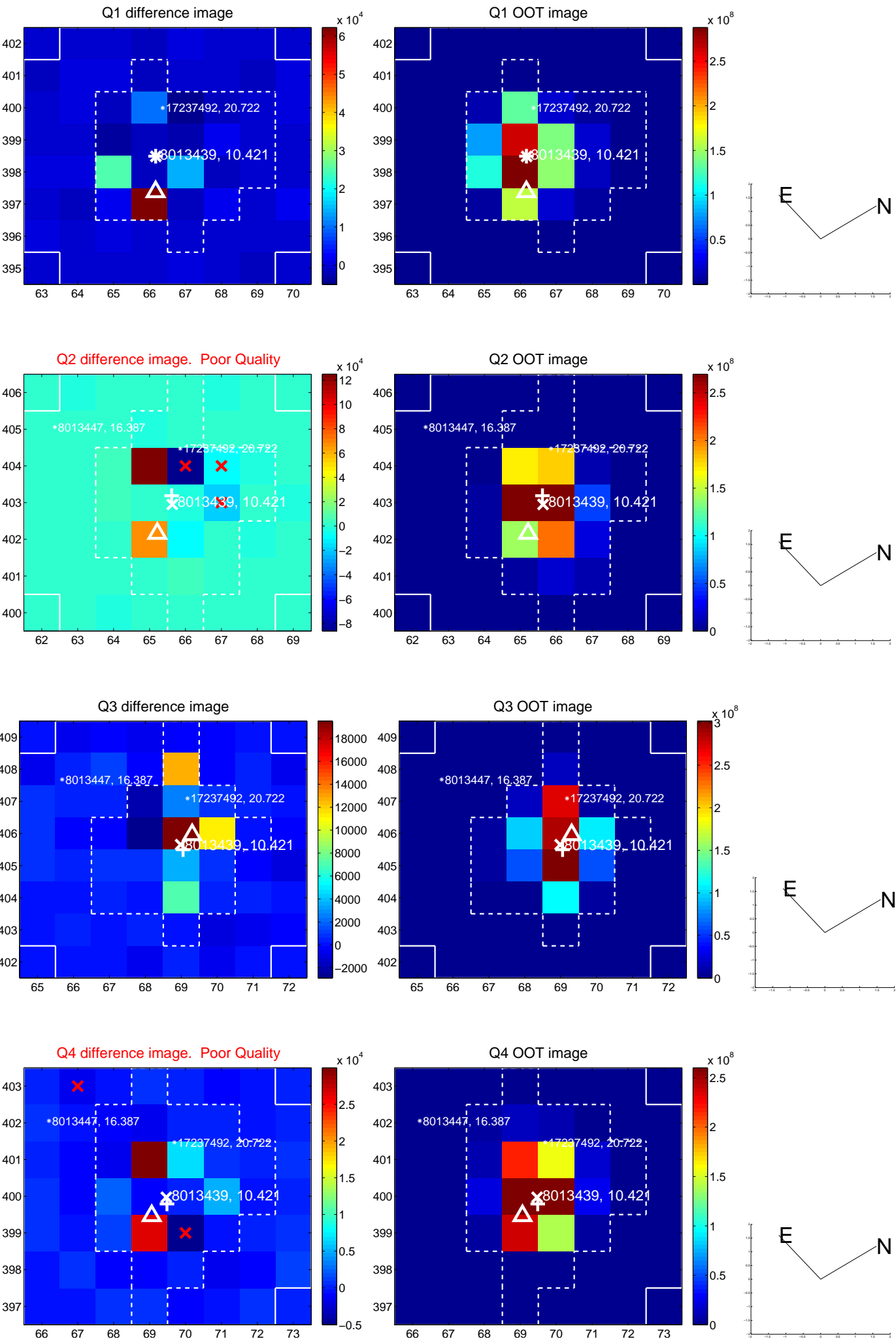
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.035 ± 0.694	2.93	1.924 ± 0.598	0.663 ± 0.569
PRF-fit source offset from KIC position	0.980 ± 0.621	1.58	0.932 ± 0.628	0.302 ± 0.547
photometric centroid source offset	0.68 ± 0.59	1.15	0.65 ± 0.59	-0.18 ± 0.57

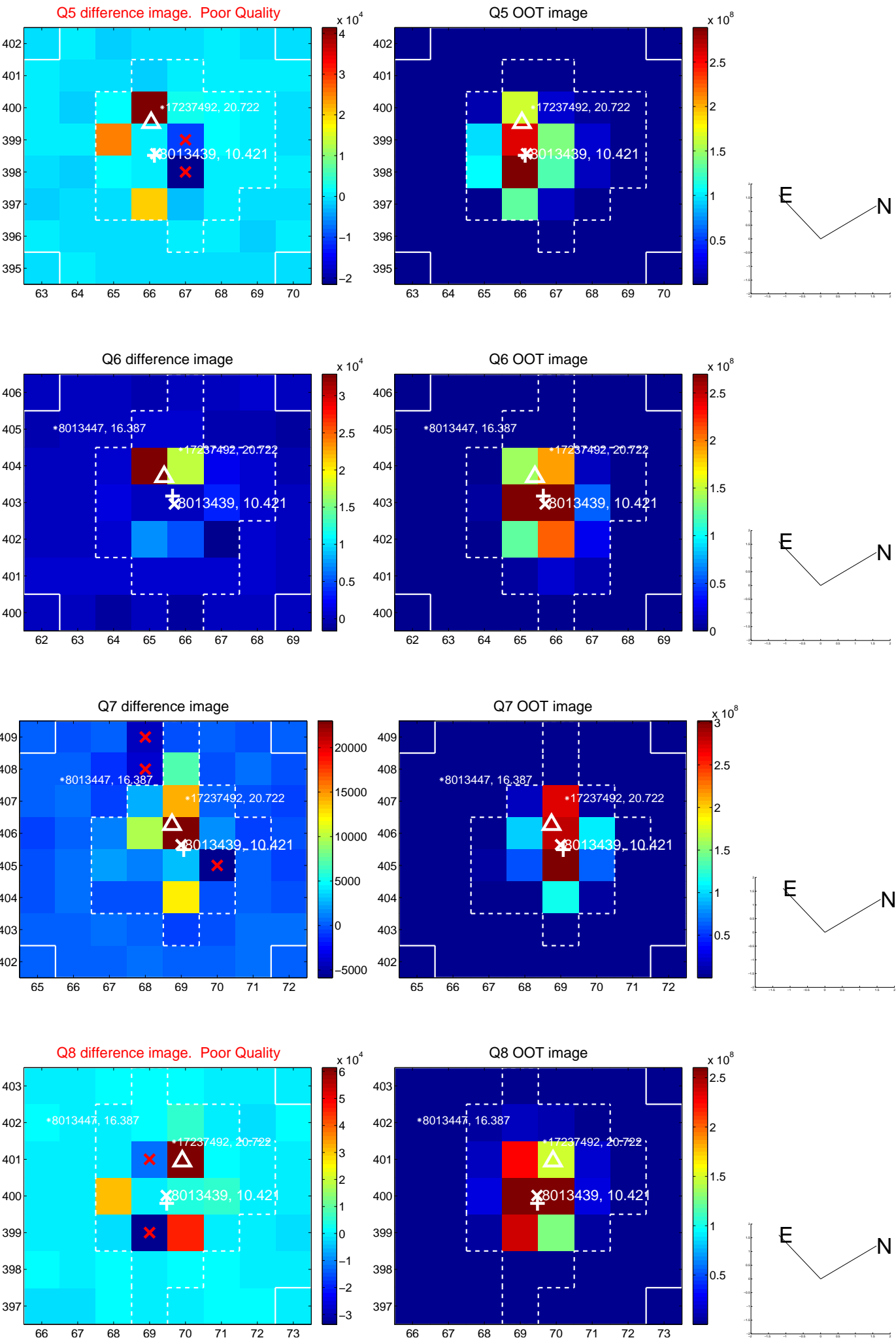


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

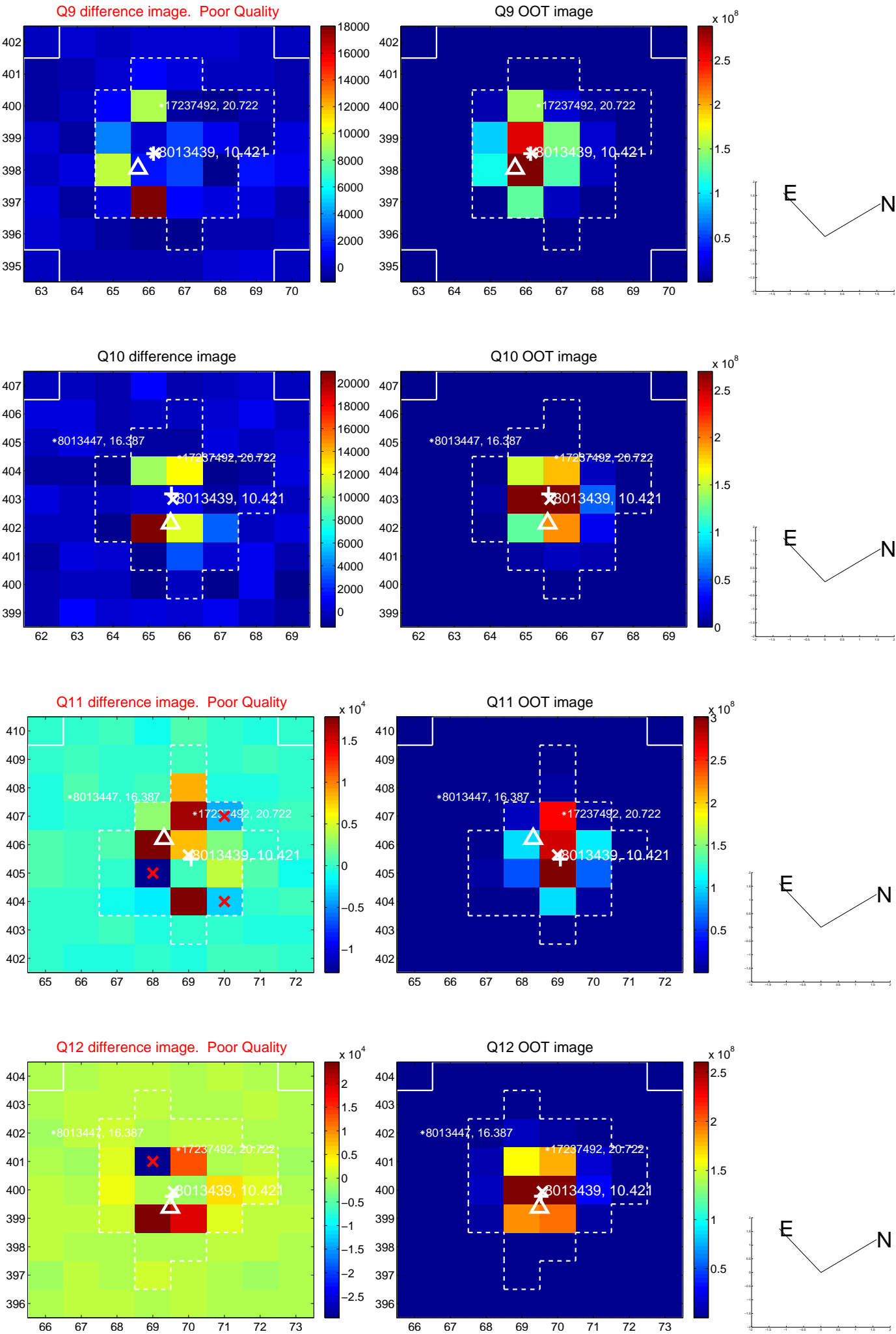
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



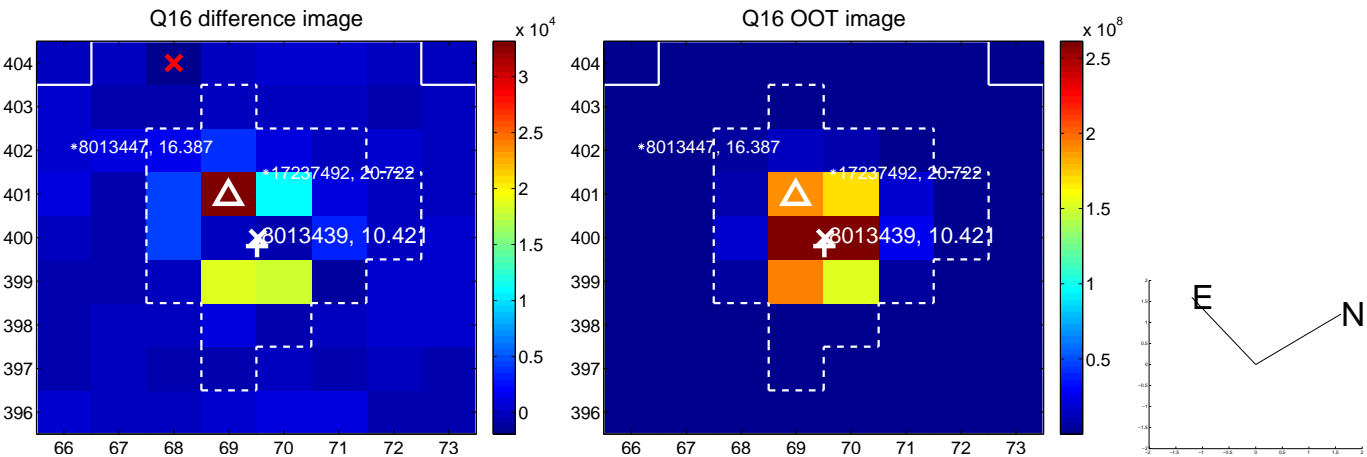
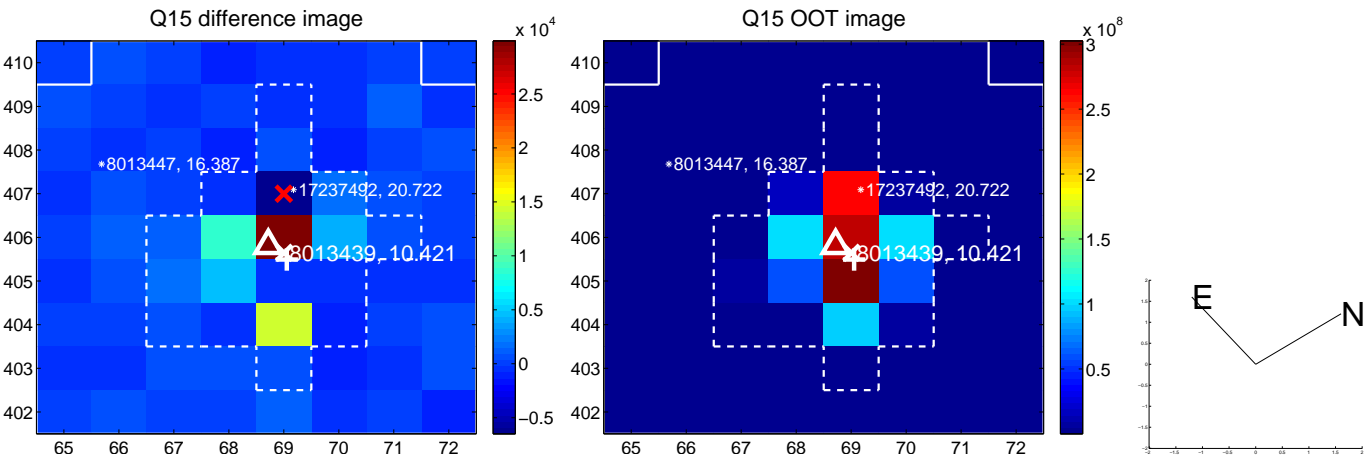
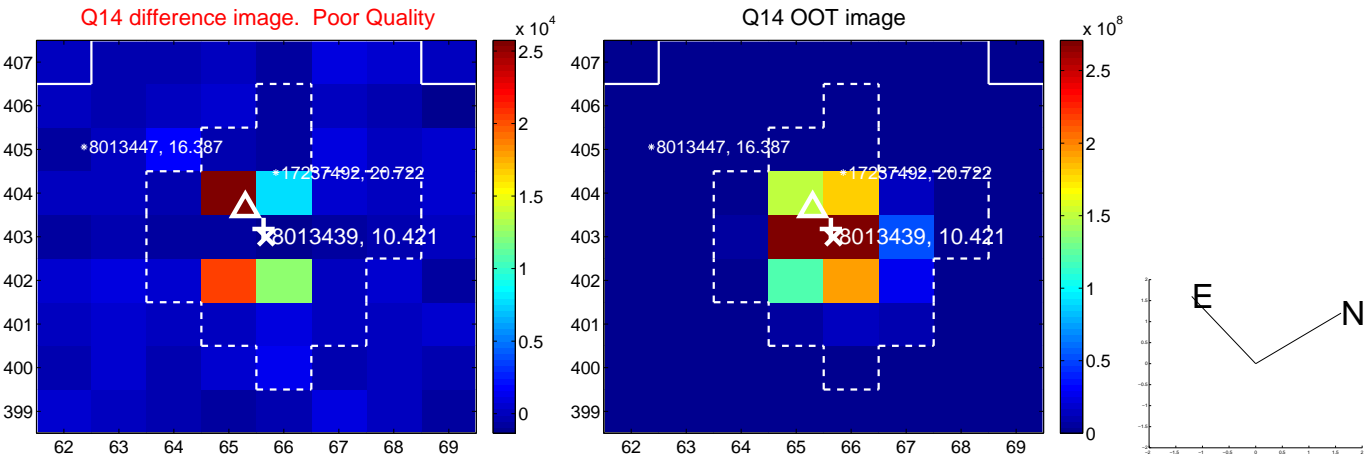
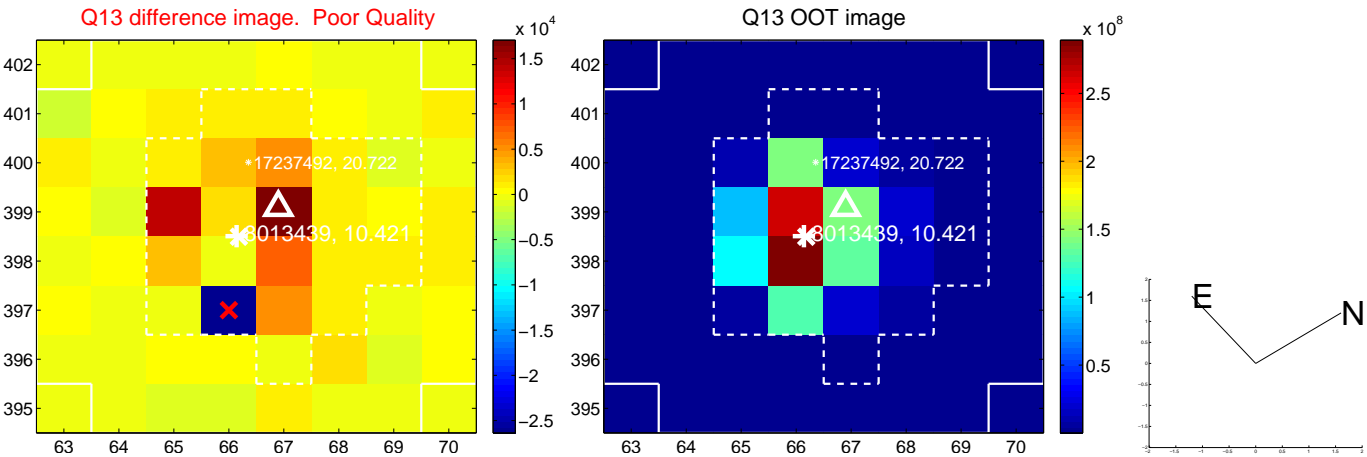
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



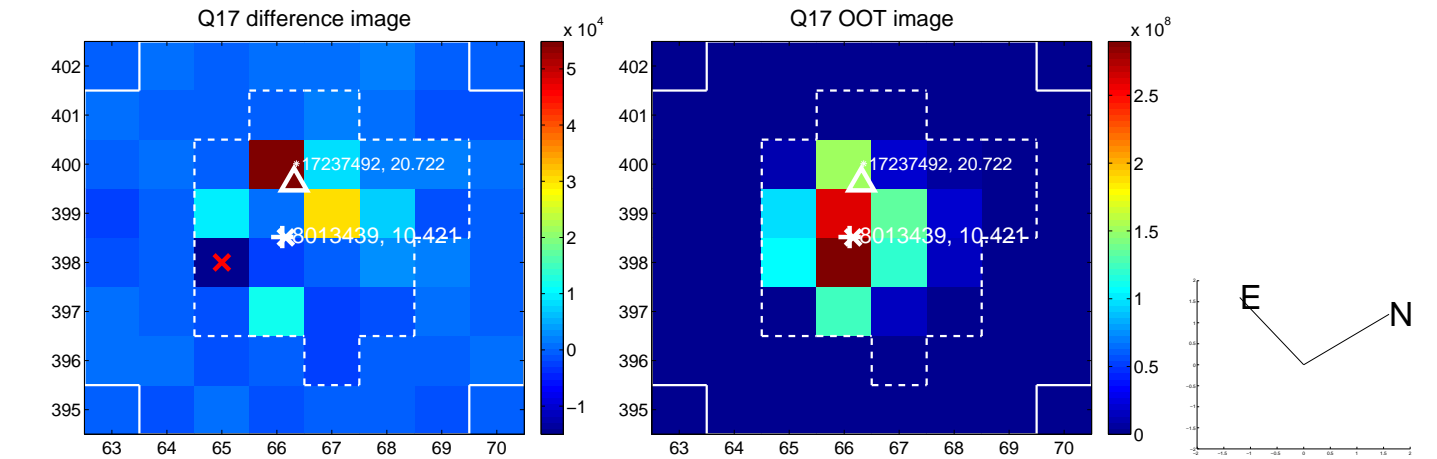
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



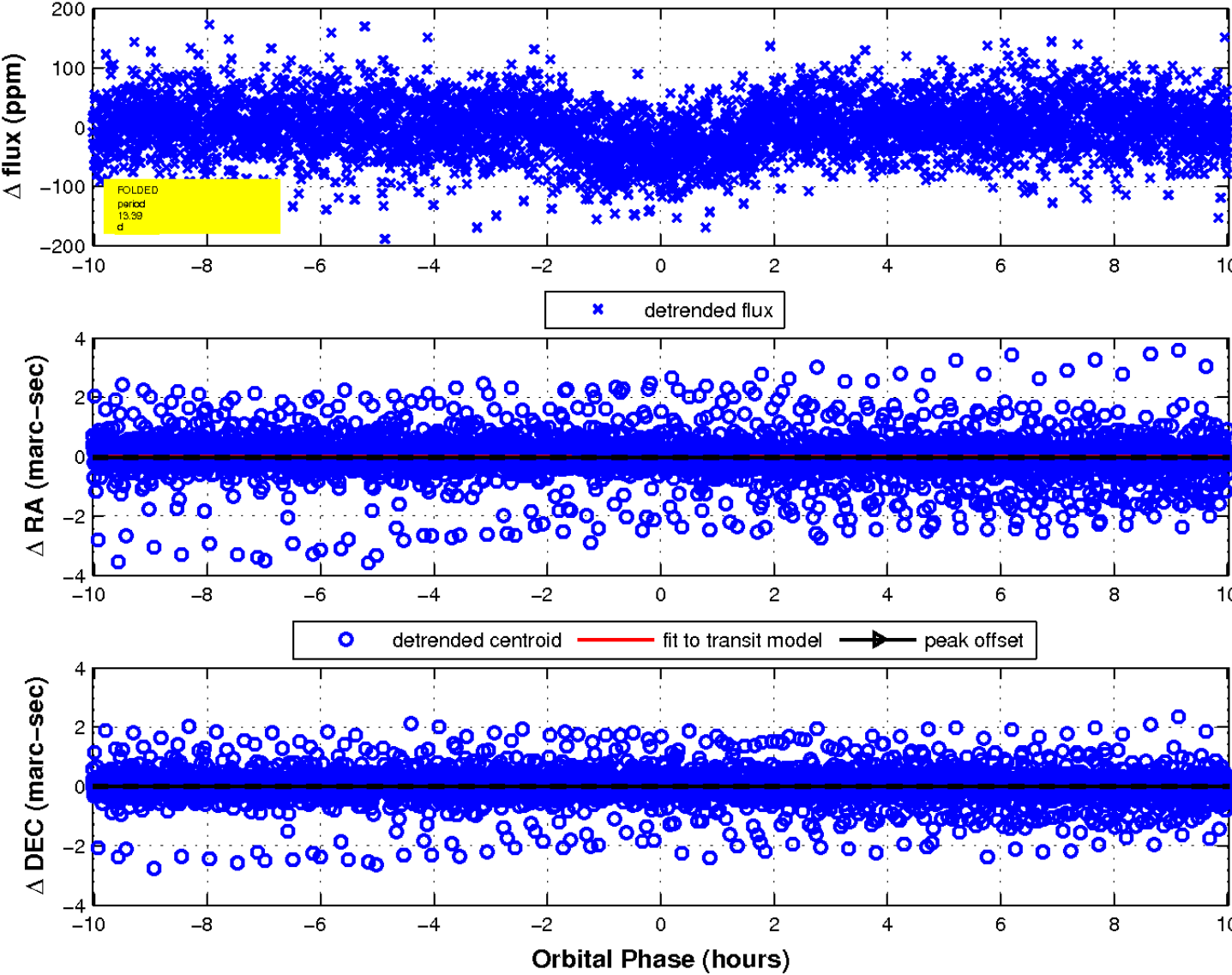
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

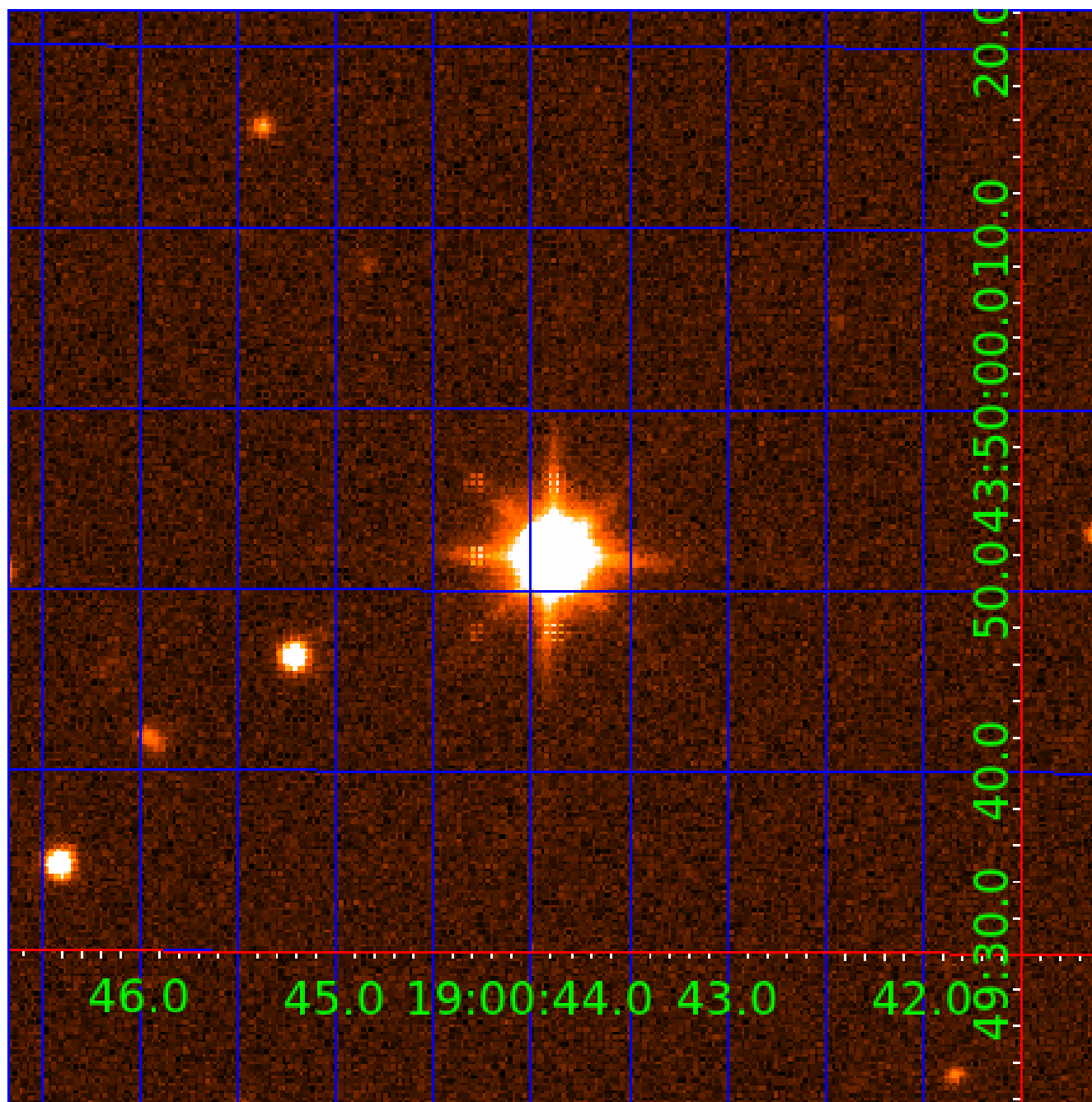


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 008013439

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})
008013439-01	OBS	2352.02	5.629067	134.743507	36.8	3.865	23.3	25.1	2.19	6197	1.55	1460.17
008013439-02	OBS	2352.01	13.391555	133.056826	48.6	3.343	18.3	20.0	2.19	6197	1.79	459.77
008013439-03	OBS	2352.03	8.256297	137.925388	38.0	2.047	14.5	16.4	2.19	6197	1.58	876.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008013439-01	OBS	PC	1.00	0	0	0	0	CENT_SATURATED
008013439-02	OBS	PC	1.00	0	0	0	0	CENT_SATURATED
008013439-03	OBS	PC	1.00	0	0	0	0	CENT_SATURATED

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

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

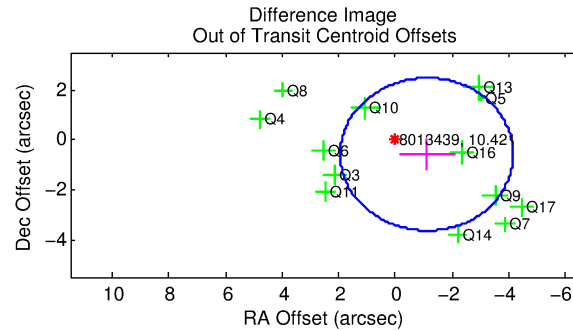
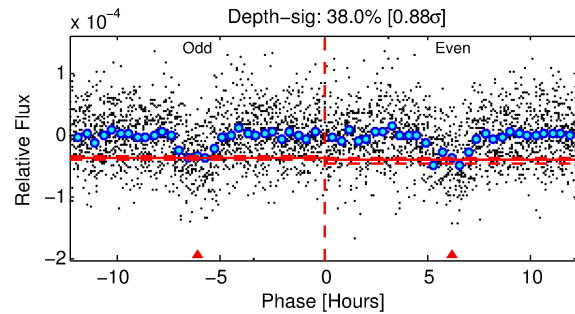
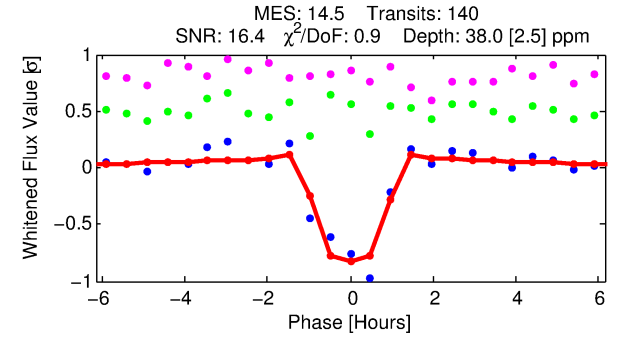
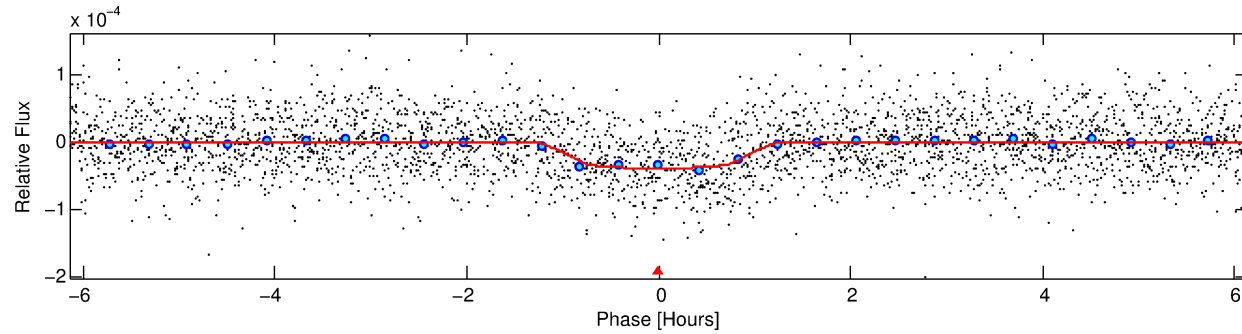
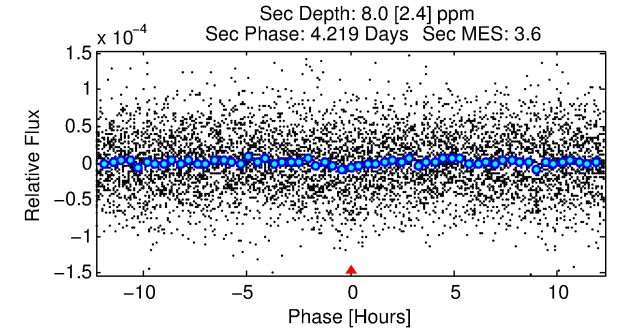
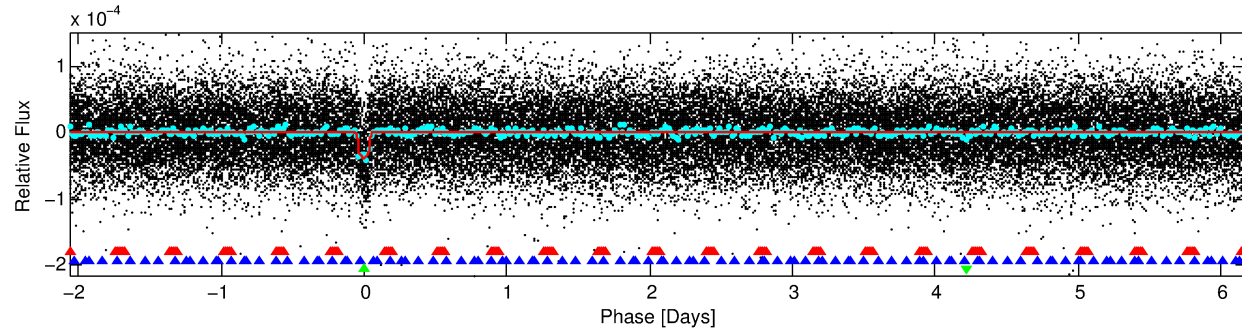
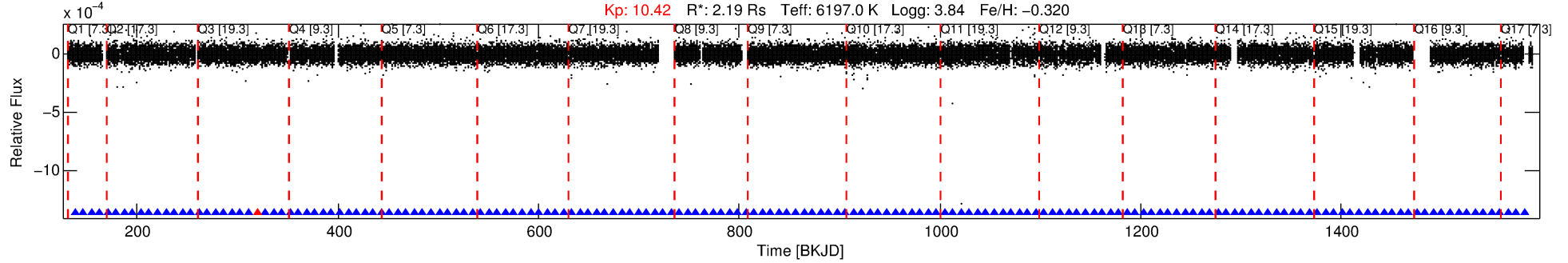
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008013439-03

No Significant Match Found

DV One-Page Summary

KIC: 8013439 Candidate: 3 of 3 Period: 8.256 d
KOI: K02352.03 Corr: 0.986



DV Fit Results:

Period = 8.25630 [0.00003] d
Epoch = 137.9254 [0.0026] BKJD
Rp/R* = 0.0066 [0.0016]
a/R* = 14.12 [19.18]
b = 0.90 [0.30]
Seff = 876.20 [357.34]
Teq = 1387 [141] K
Rp = 1.58 [0.57] Re
a = 0.0850 [0.0213] AU
Ag = 12.71 [8.90] [1.32σ]
Teff = 4050 [590] K [4.39σ]

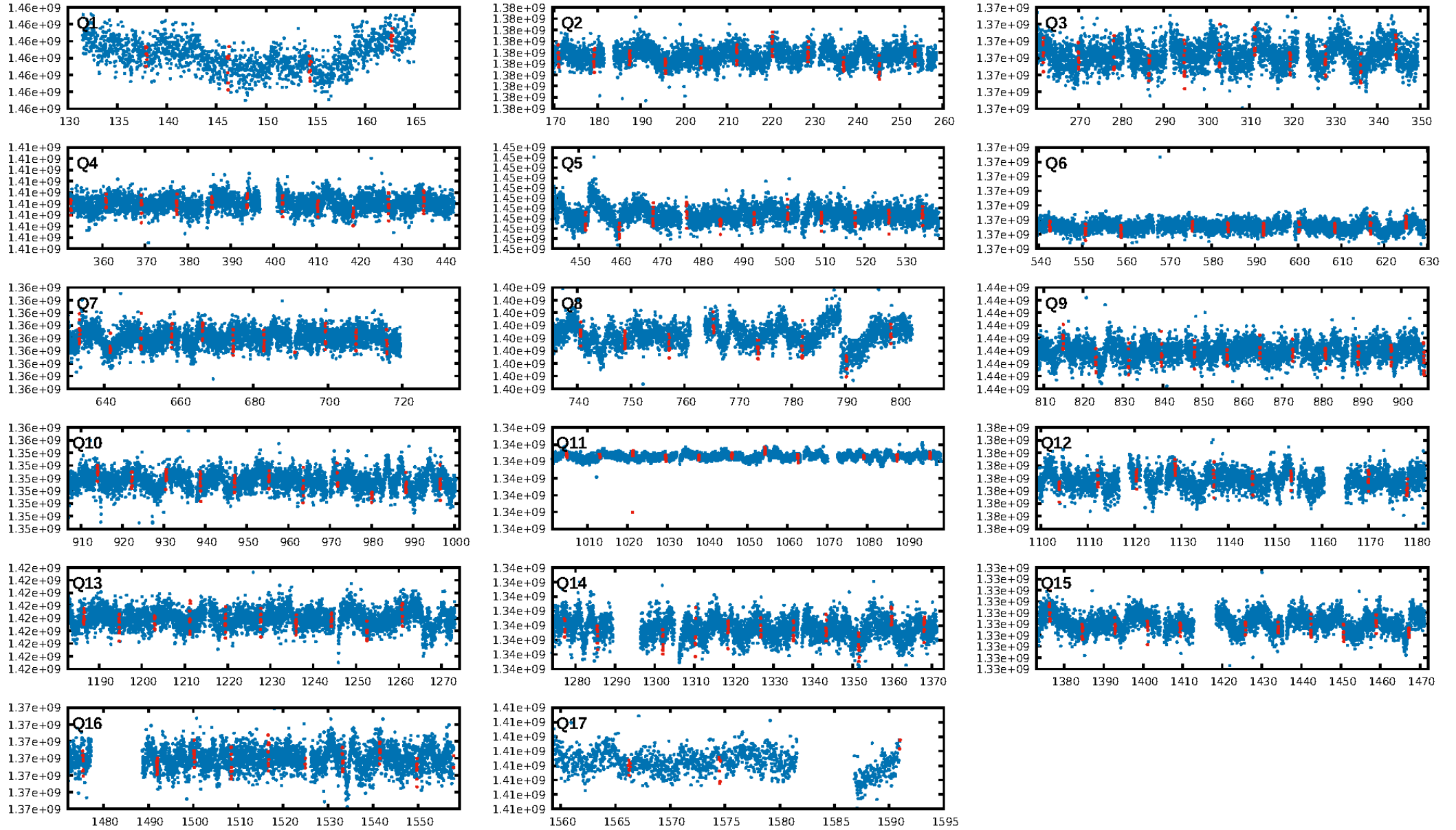
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.42σ]
LongPeriod-sig: 100.0% [31.44σ]
ModelChiSquare2-sig: 98.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.59e-45
RollingBand-fgt: 0.99 [134/135]
GhostDiagnostic-chr: -68.6
Centroid-sig: 76.2%
Centroid-so: 0.274 arcsec [0.41σ]
OotOffset-rm: 1.256 arcsec [1.23σ]
KicOffset-rm: 1.319 arcsec [1.41σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 0.31 [4/13]
DiffImageOverlap-fno: 1.00 [17/17]

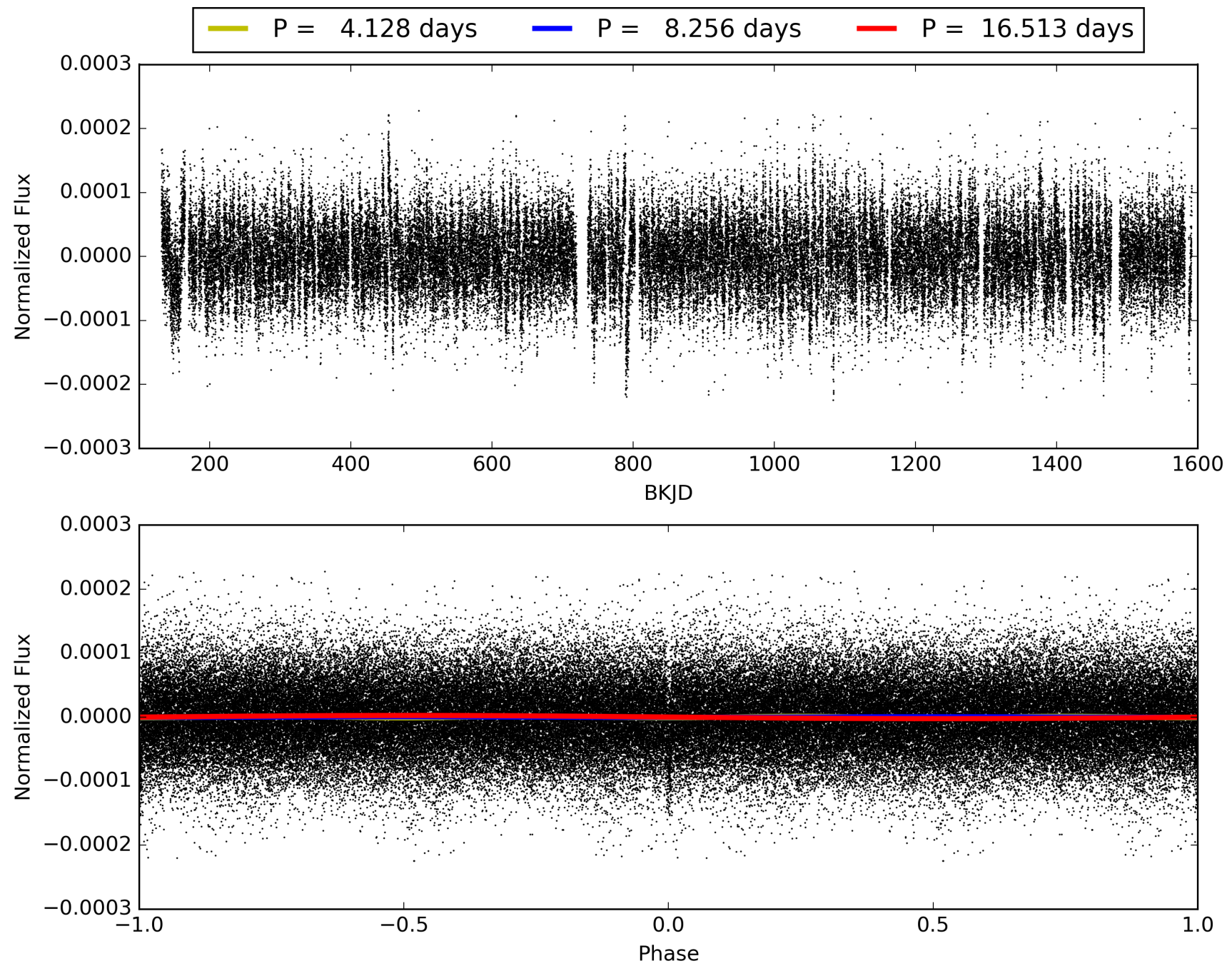
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:23:39 Z

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

TCE 008013439-03, PDC Light Curves

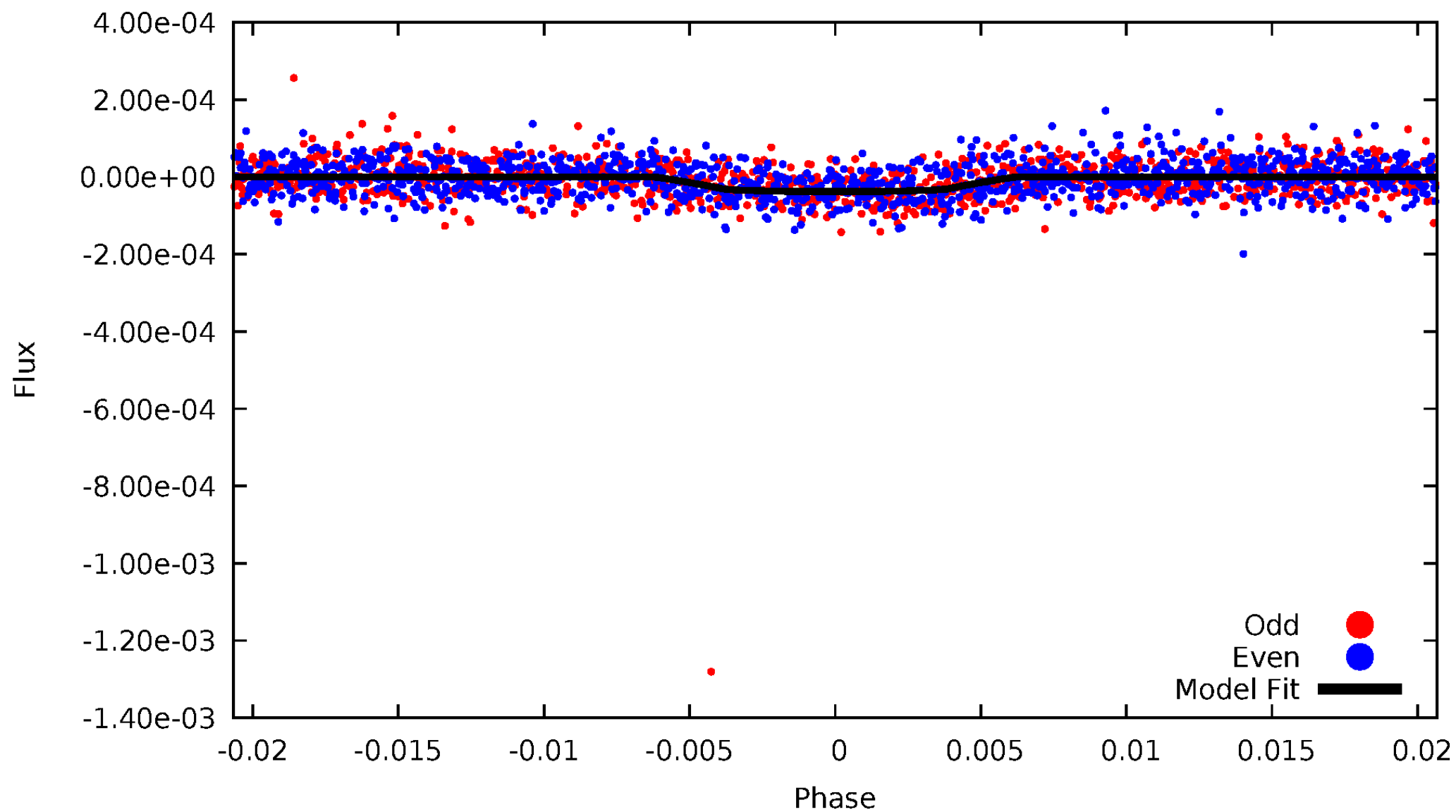


TCE 008013439-03



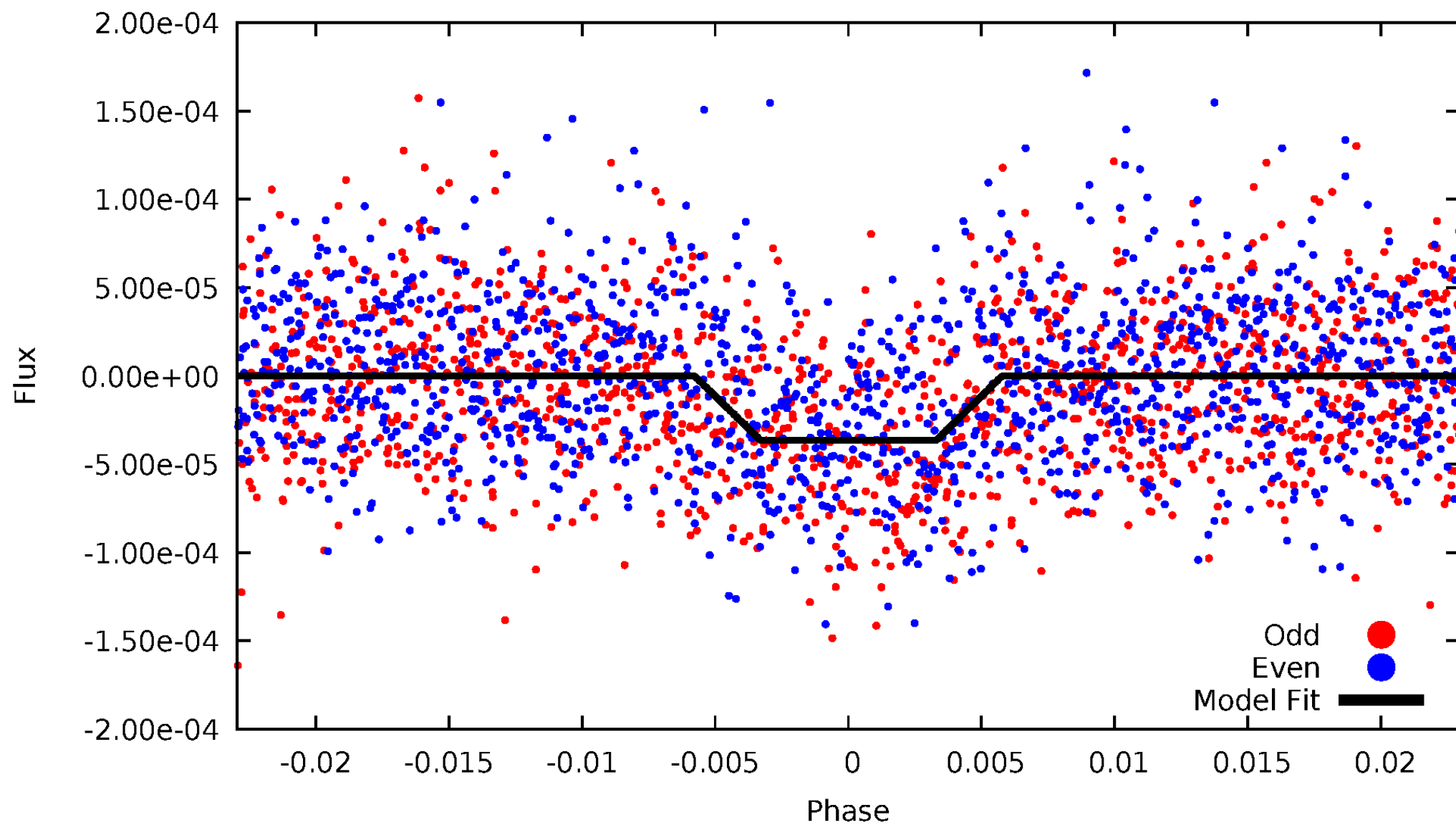
DV Odd/Even

TCE 008013439-03

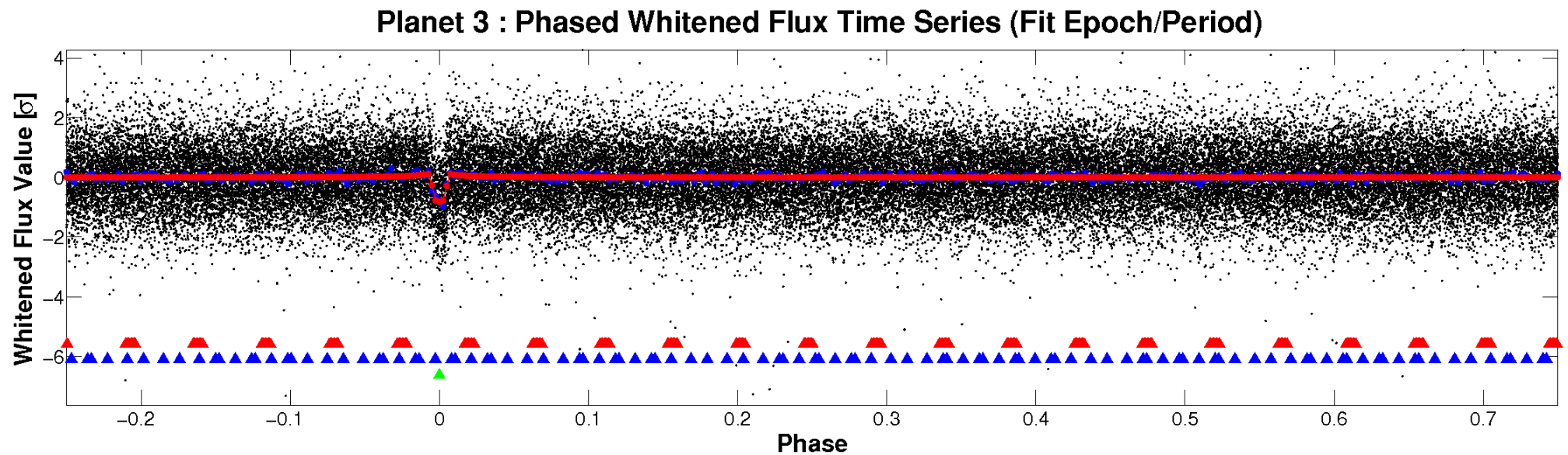
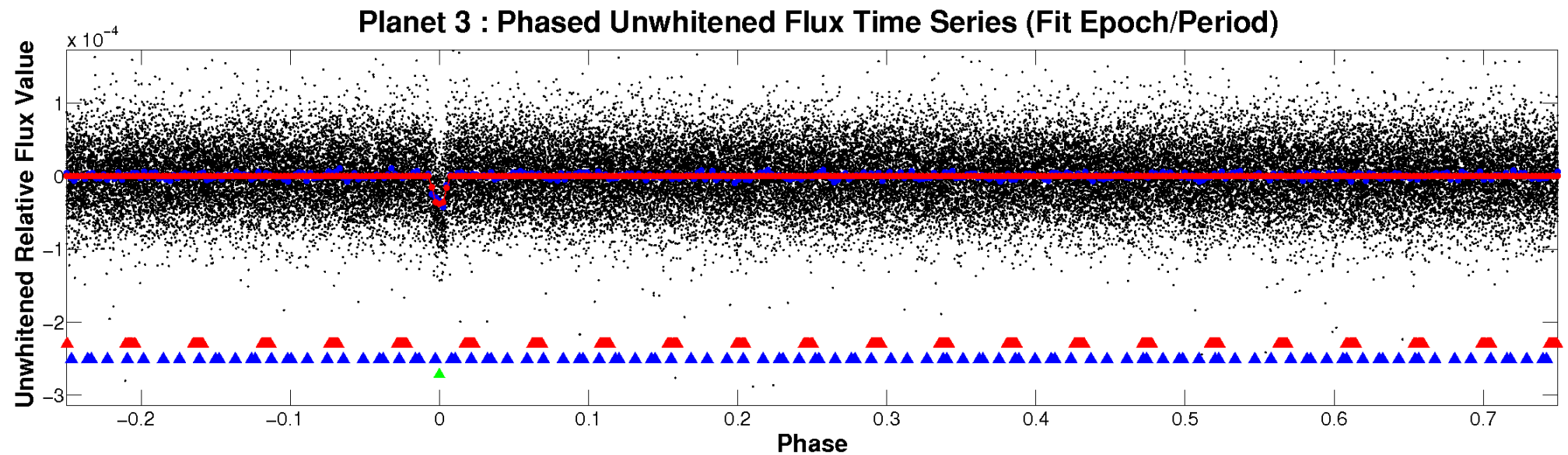


ALT Odd/Even

TCE 008013439-03

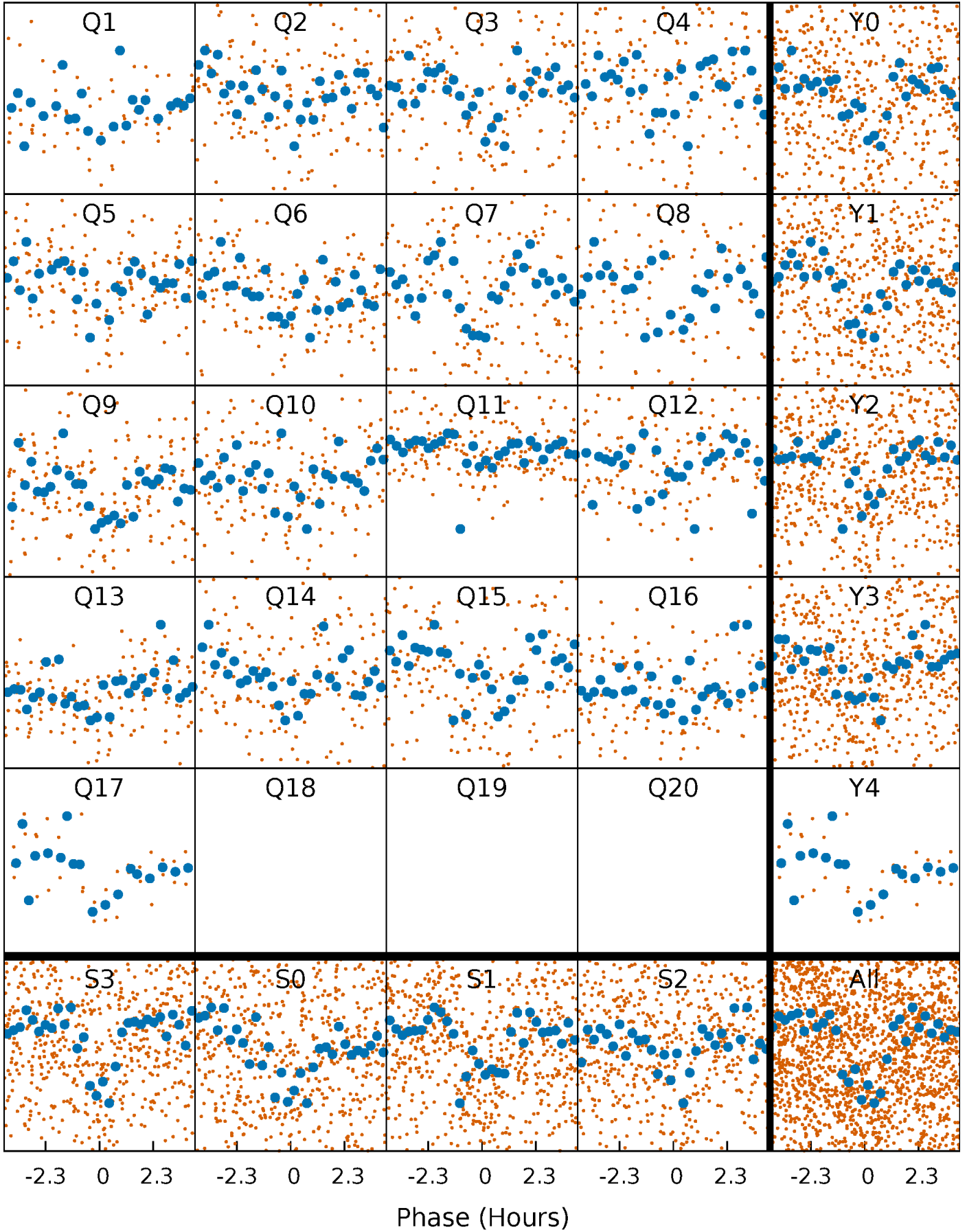


Non-Whitened Vs. Whitened Light Curve



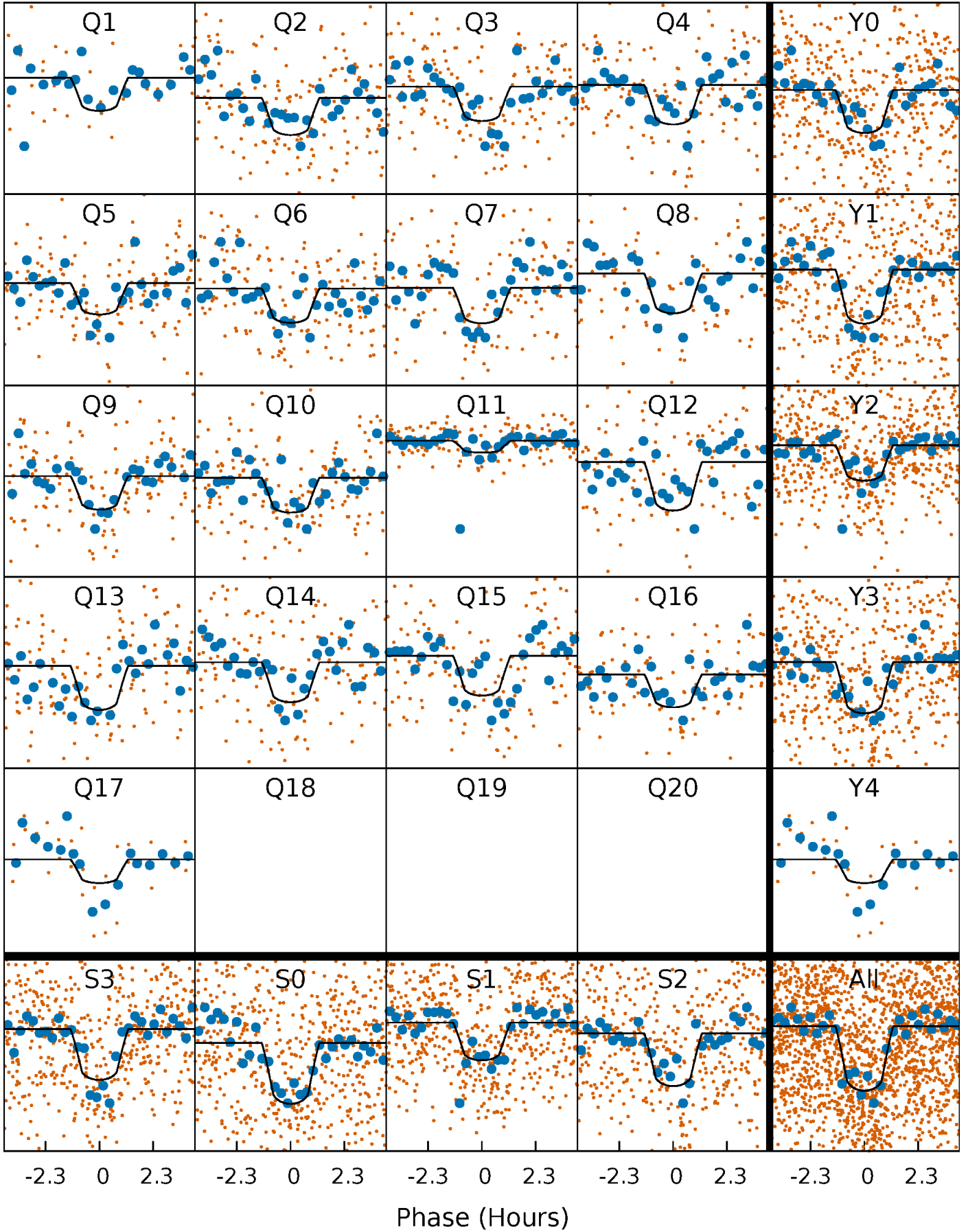
PDC Quarter-Phased Transit Curves

TCE 008013439-03 P= 8.256297 Days $T_0=137.925388$ (BKJD)



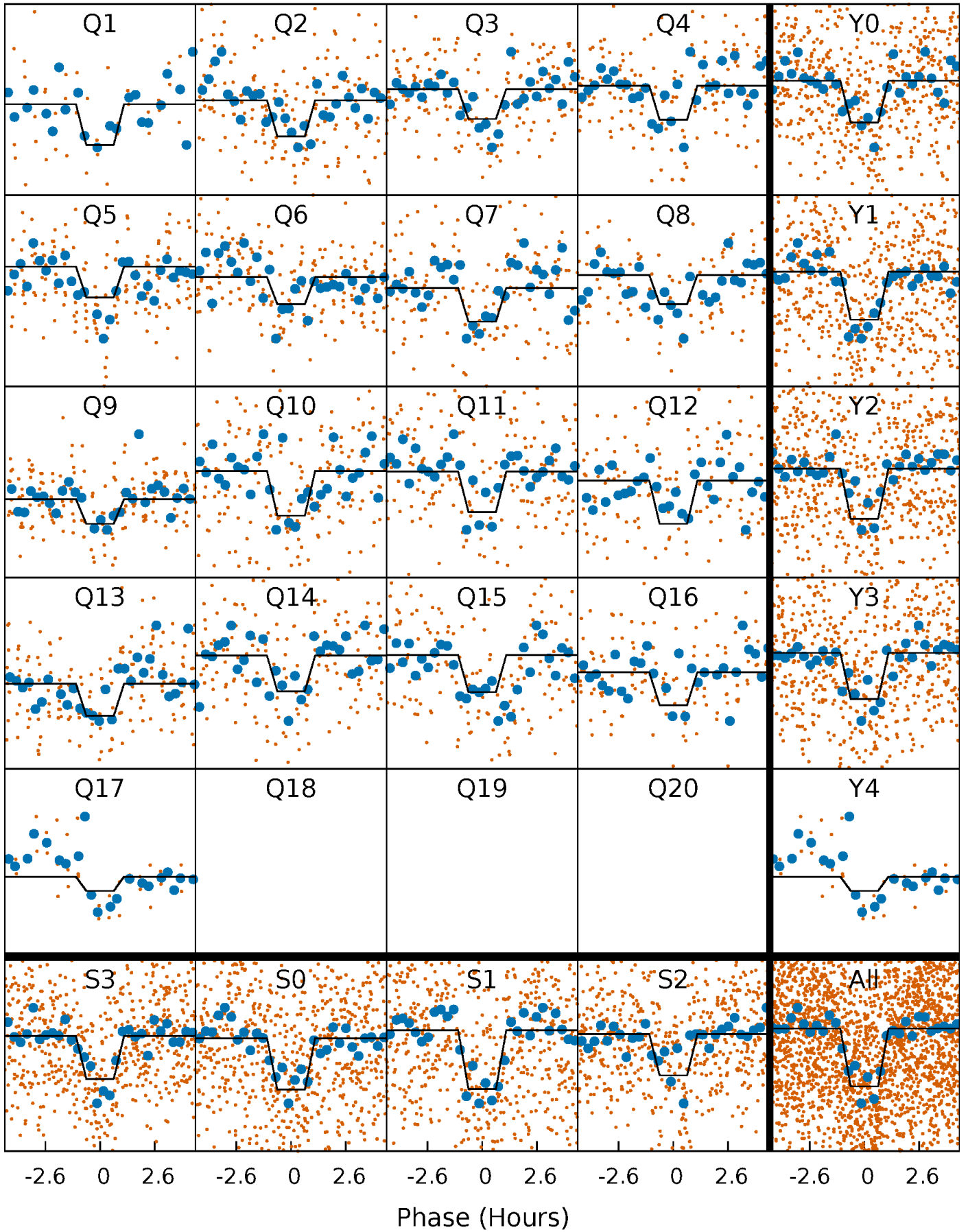
DV Quarter-Phased Transit Curves

TCE 008013439-03 P= 8.256297 Days $T_0=137.925388$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

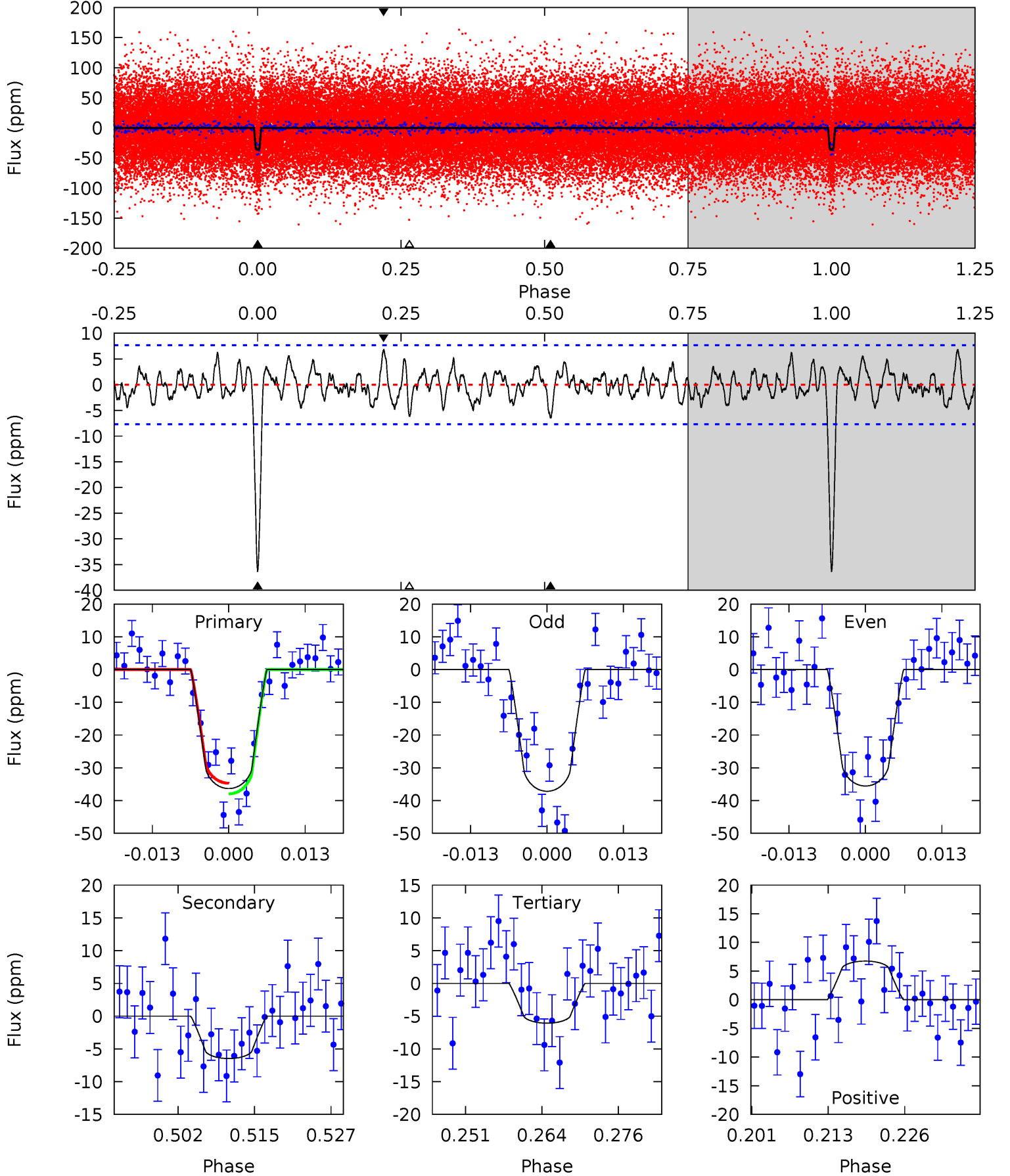
TCE 008013439-03 P= 8.256207 Days $T_0=137.933765$ (BKJD)



DV Model-Shift Uniqueness Test

008013439-03, P = 8.256297 Days, E = 129.669091 Days

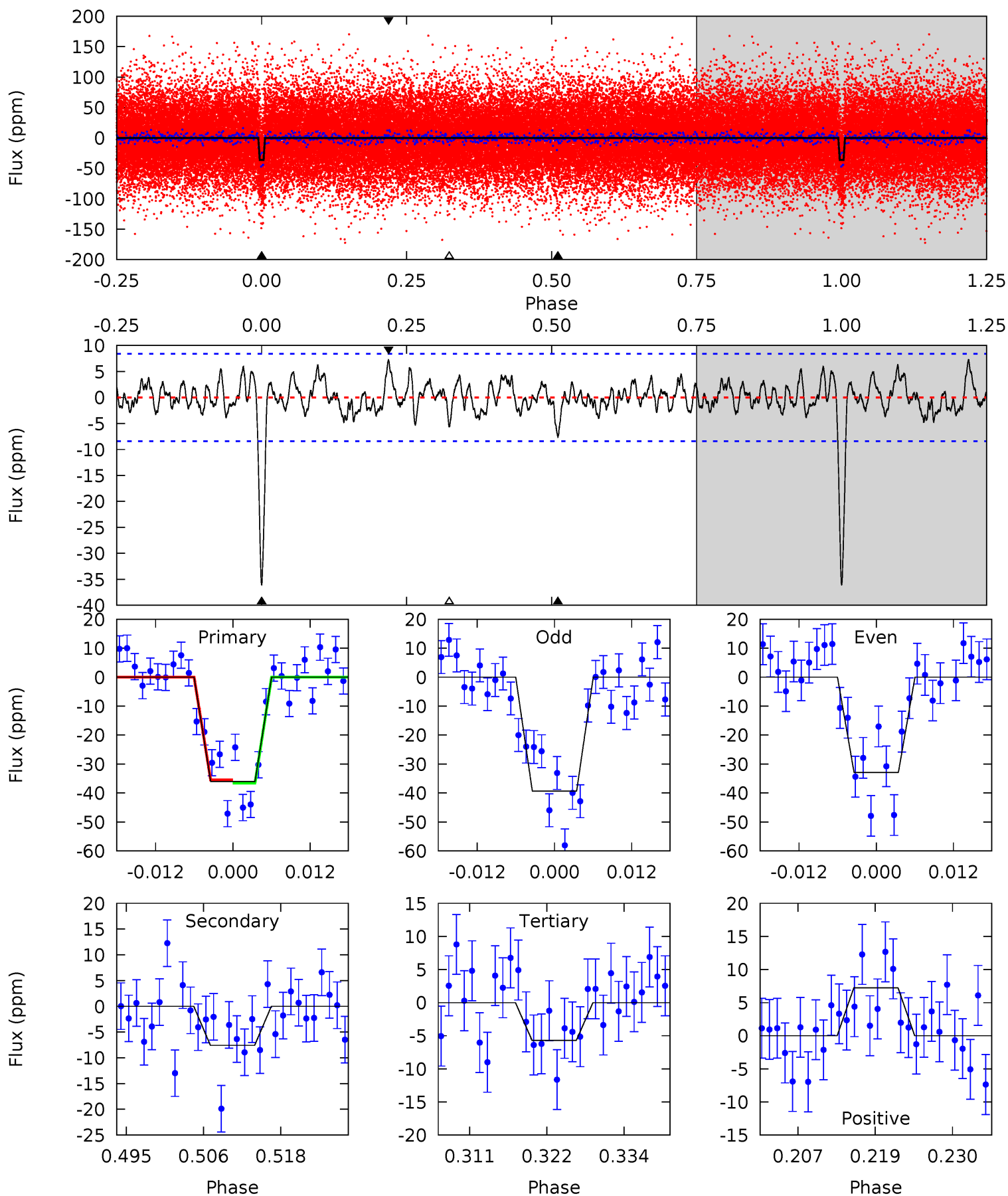
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.5	4.19	3.93	4.37	4.98	2.50	1.45	19.6	19.2	0.26	-0.18	0.52	1.07	0.16	1.06



Alt Model-Shift Uniqueness Test

008013439-03, P = 8.256207 Days, E = 129.677558 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.4	4.50	3.39	4.29	5.00	2.53	1.35	18.0	17.1	1.12	0.21	1.91	1.01	0.17	0.34



Stellar Parameters For KIC 008013439

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6197^{+135}_{-111}	$3.837^{+0.233}_{-0.093}$	$-0.320^{+0.150}_{-0.150}$	$2.188^{+0.336}_{-0.576}$	$1.198^{+0.144}_{-0.159}$	$0.161^{+0.208}_{-0.049}$
	+2%/-2%	+6%/-2%	+47%/-47%	+15%/-26%	+12%/-13%	+129%/-30%
Source	SPE59	SPE59	SPE59	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008013439-03 / KOI 2352.03

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 2	$1.49^{+0.49}_{-0.41}$	1916^{+97}_{-131}	4087^{+553}_{-338}	11^{+12}_{-5}
Alt.	-8 ± 2	$1.36^{+0.44}_{-0.41}$	1918^{+97}_{-132}	4387^{+678}_{-405}	16^{+16}_{-7}

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

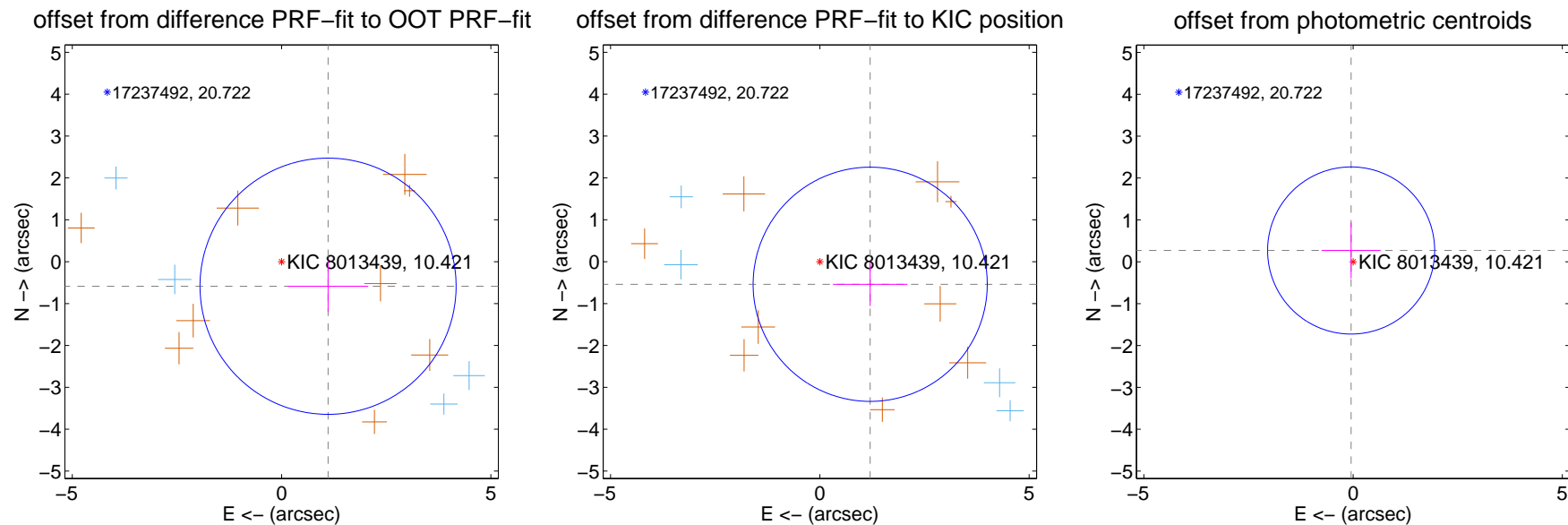
DV Centroid Data

Supplemental centroid analysis for 008013439-03. **Kepler magnitude: 10.42.** Transit SNR 16.45

There are 4 quarters with good PRF difference image offsets

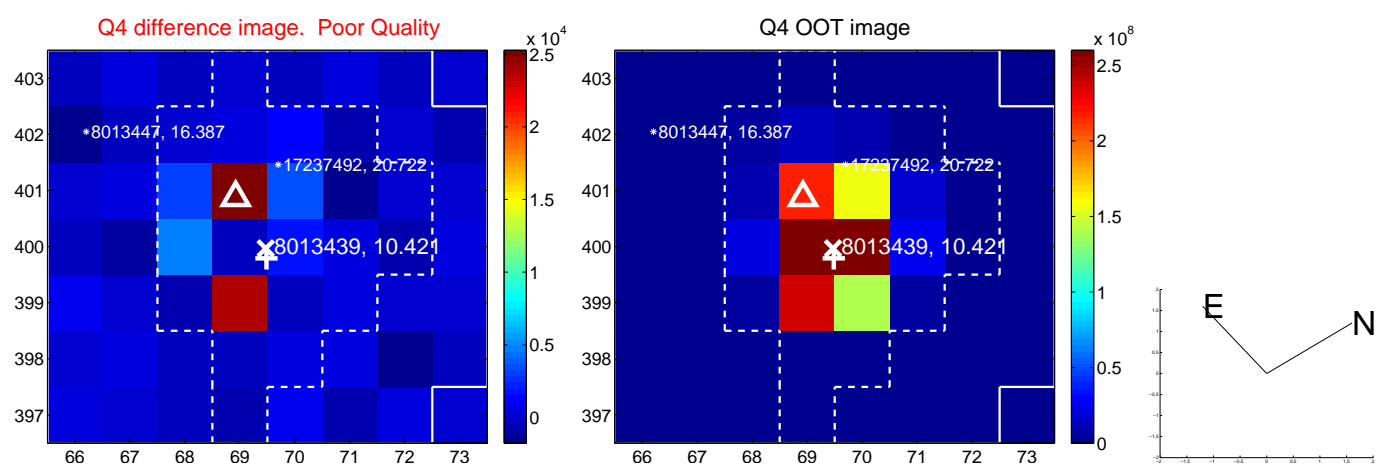
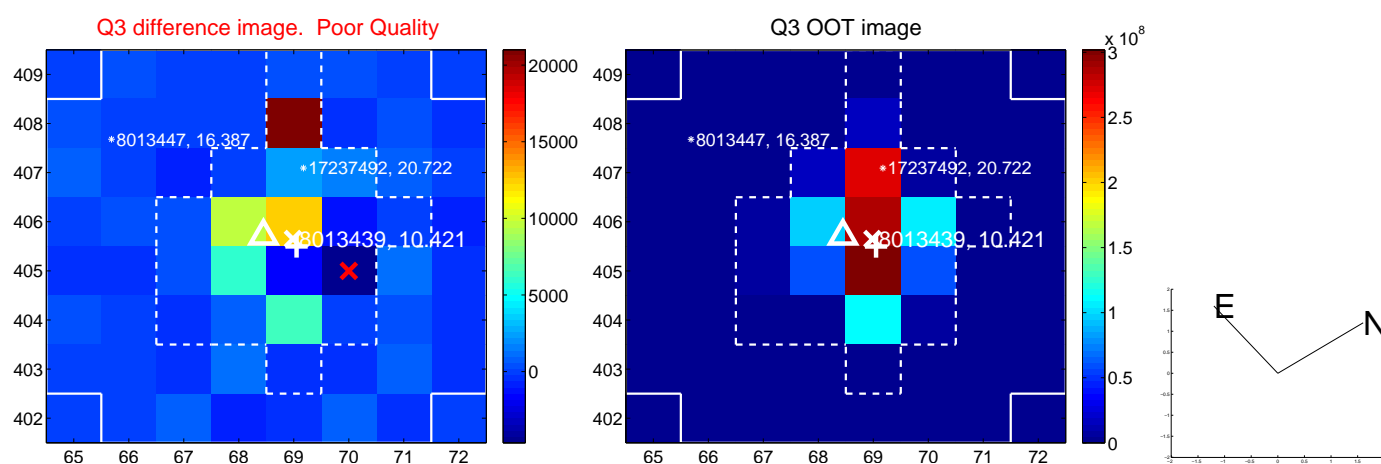
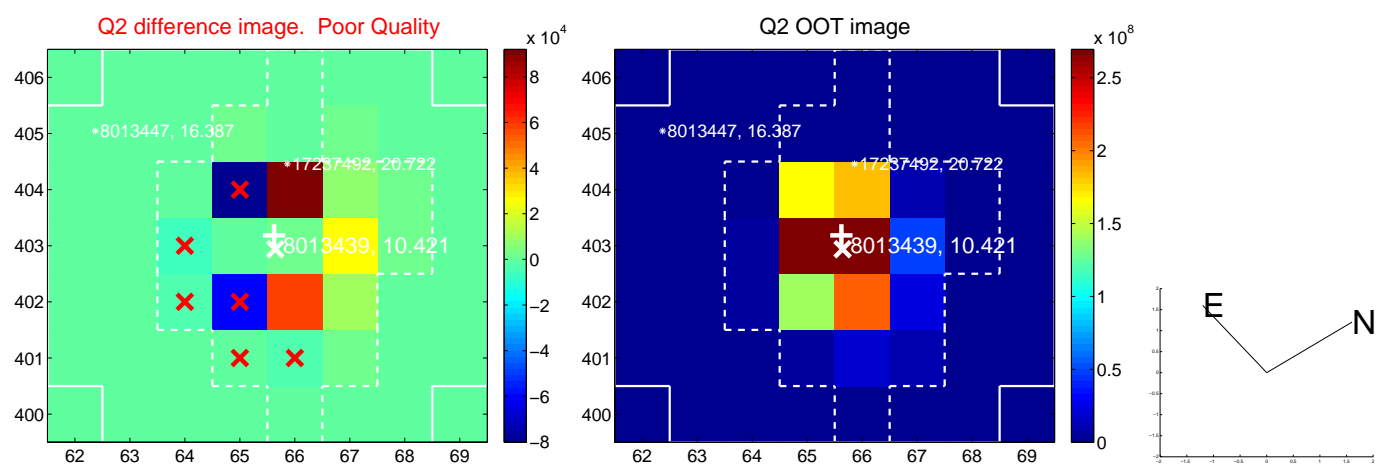
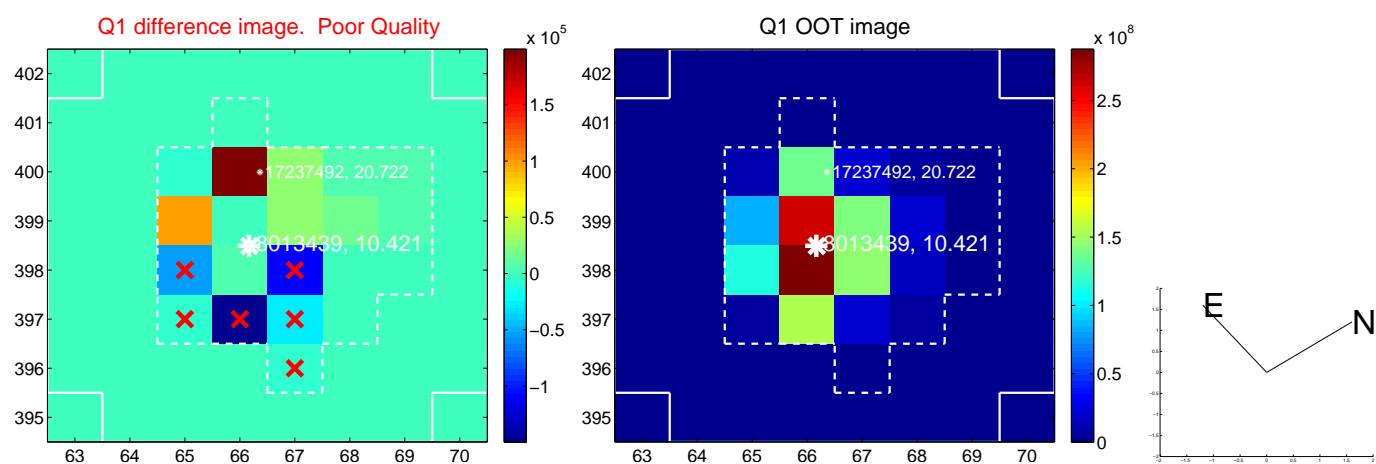
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.256 ± 1.020	1.23	-1.111 ± 0.962	-0.586 ± 0.606
PRF-fit source offset from KIC position	1.319 ± 0.932	1.41	-1.203 ± 0.891	-0.540 ± 0.520
photometric centroid source offset	0.27 ± 0.67	0.41	0.05 ± 0.70	0.27 ± 0.66

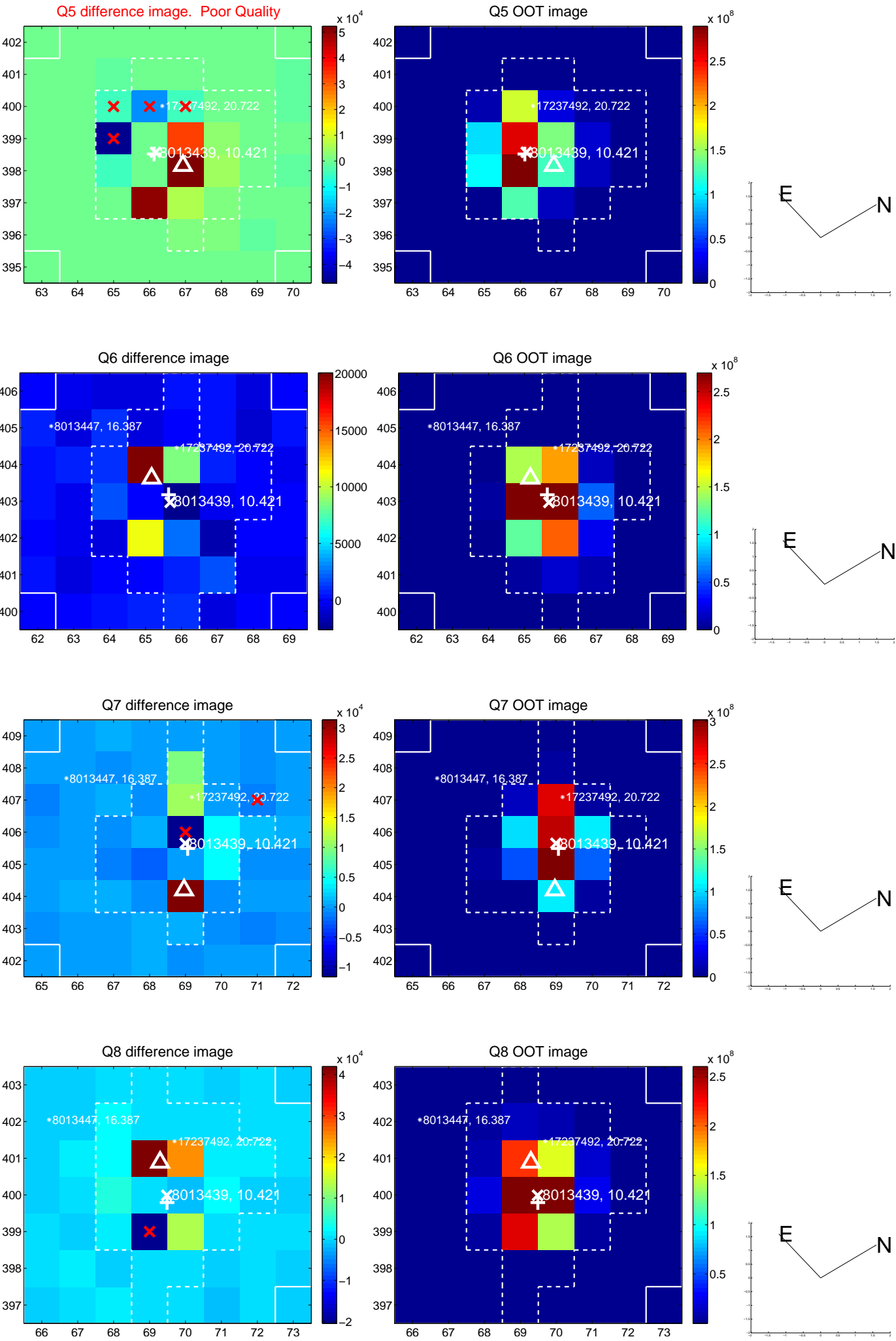


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

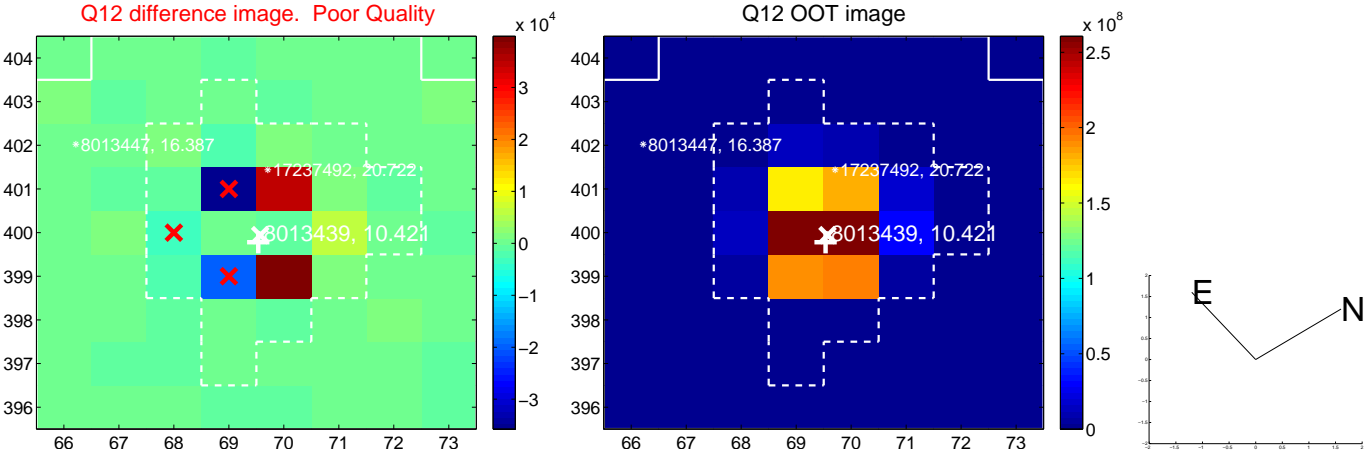
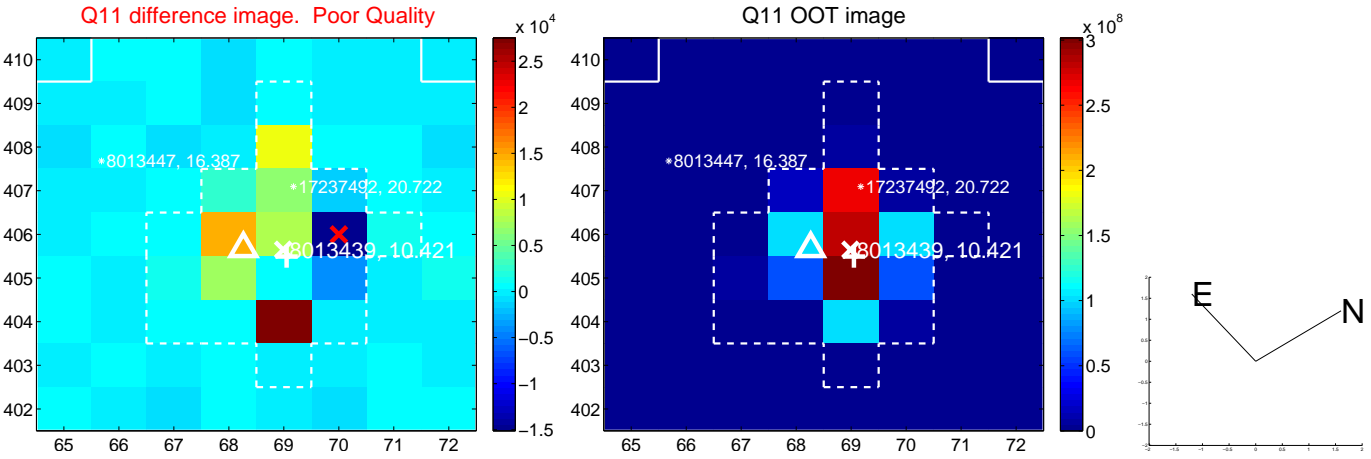
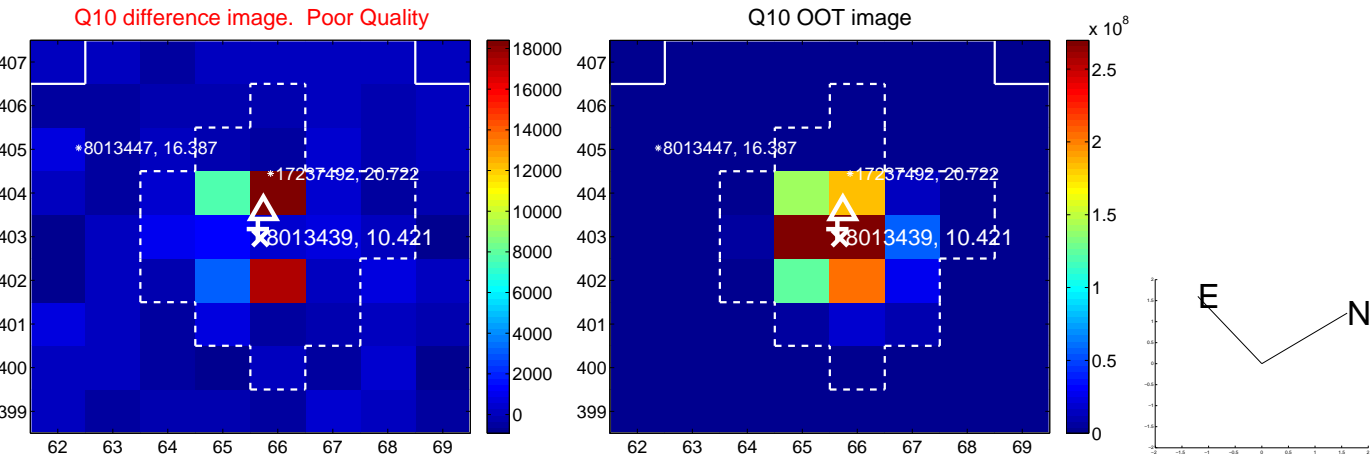
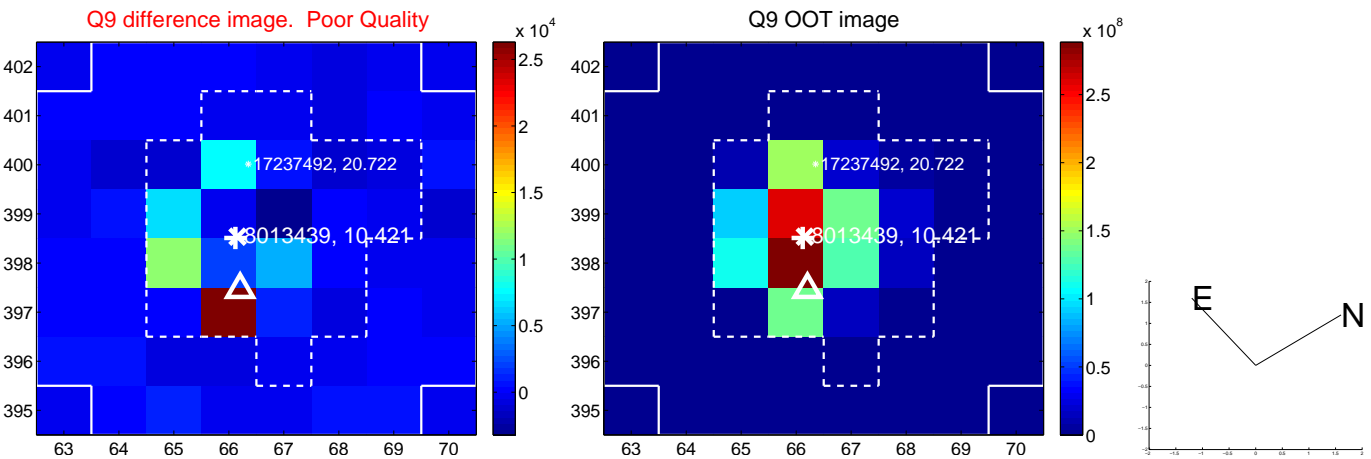
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



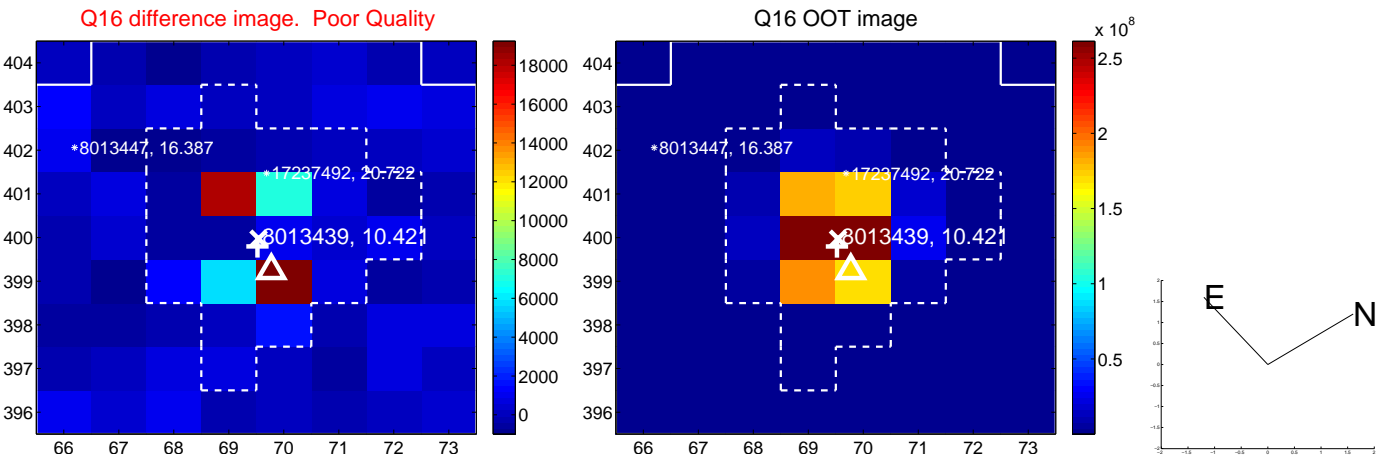
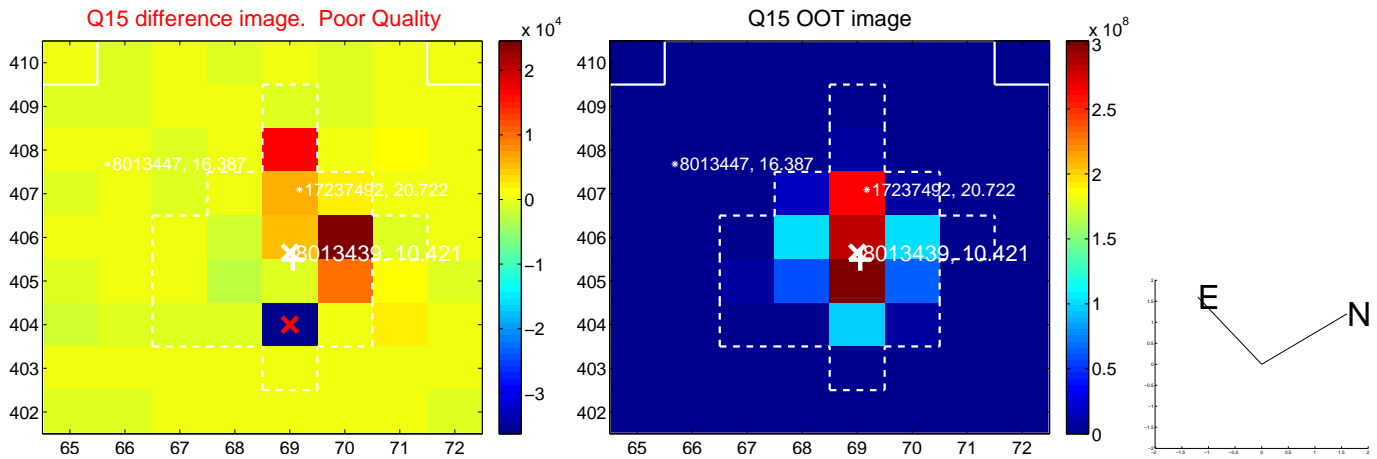
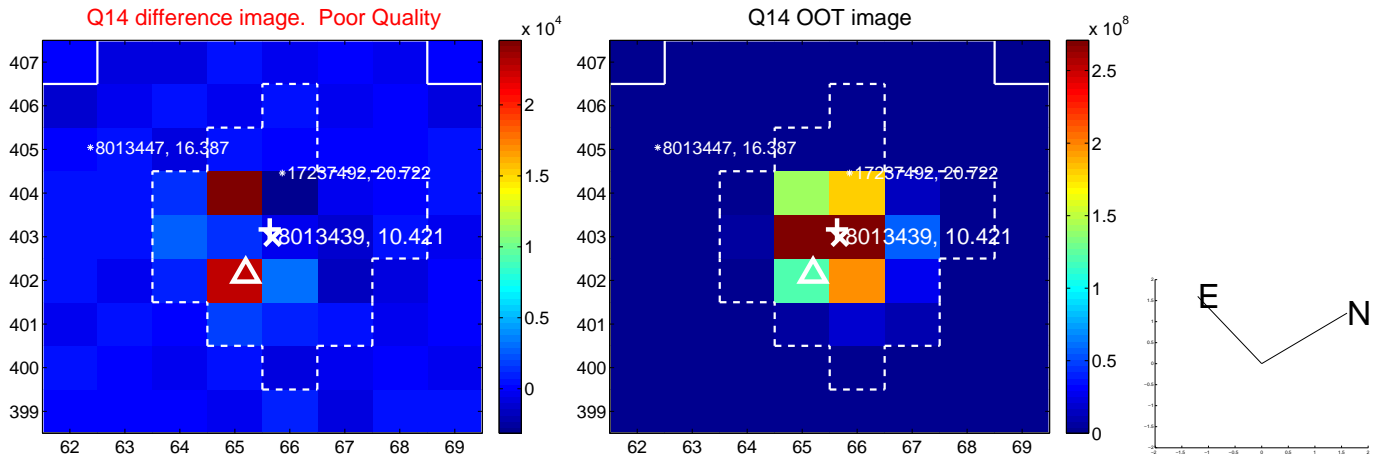
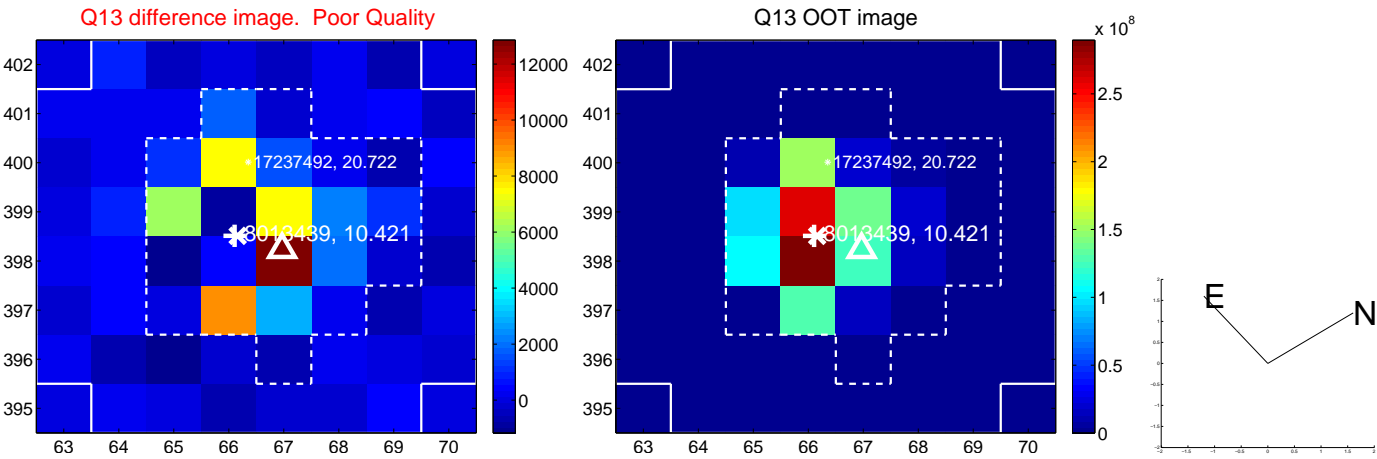
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



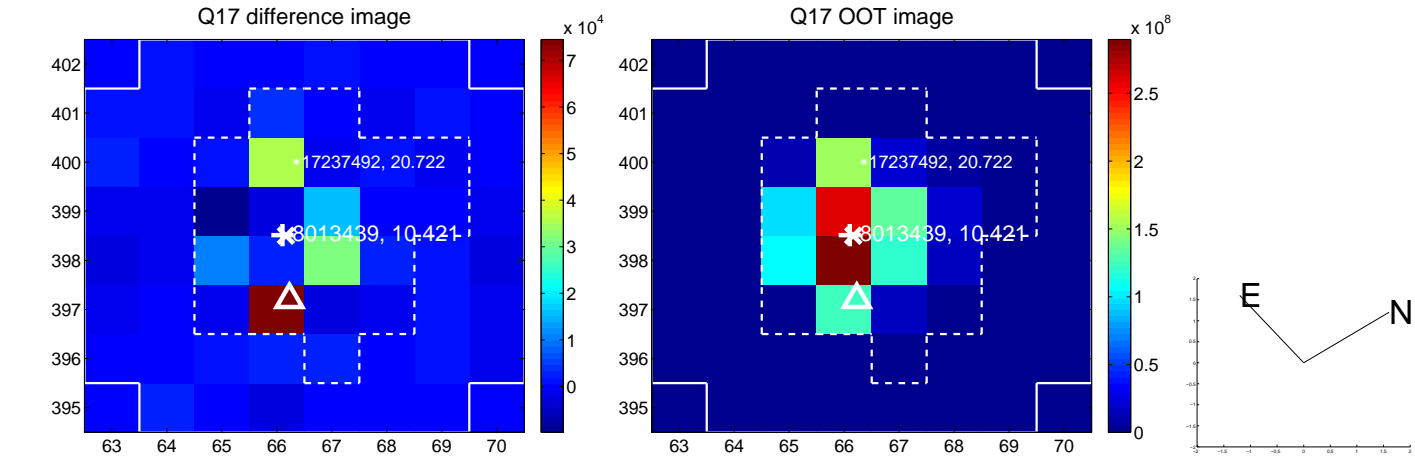
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



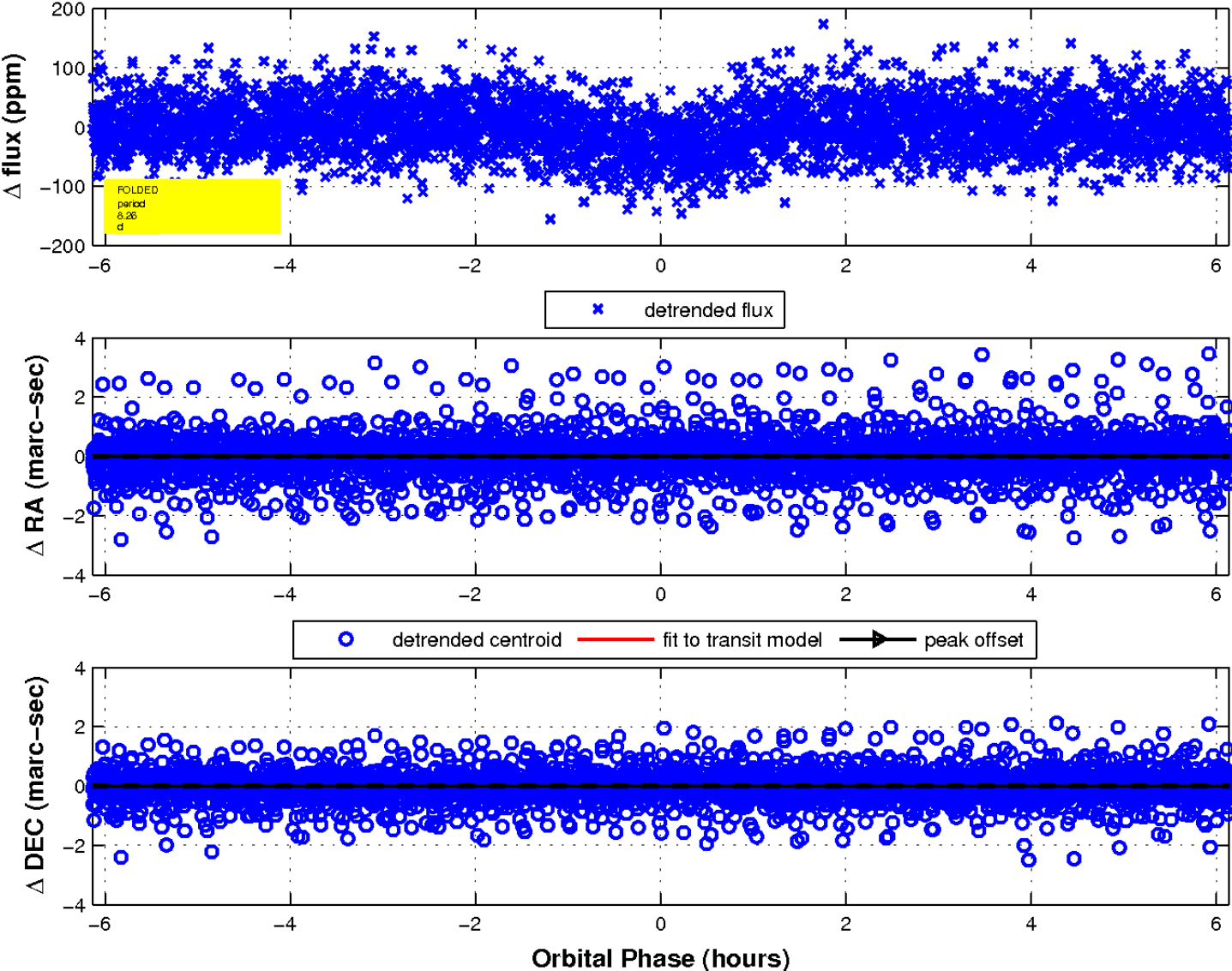
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

