

KIC 004139254

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})
004139254-01	OBS	No	9.377400	131.680941	19.8	20.003	9.1	9.8	1.38	5571	0.66	236.37
004139254-02	OBS	No	4.688441	135.052247	16.7	22.358	10.9	11.7	1.38	5571	0.65	595.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004139254-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS
004139254-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—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.

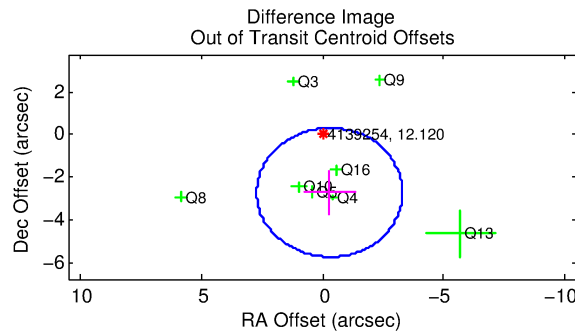
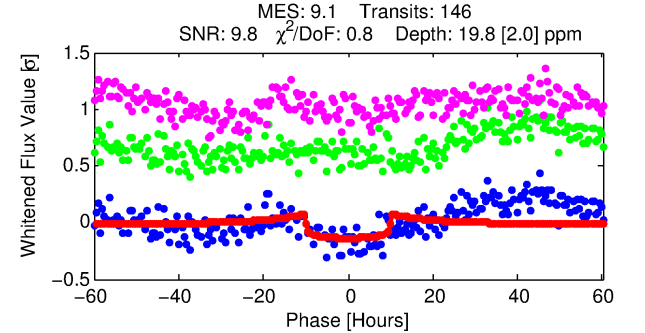
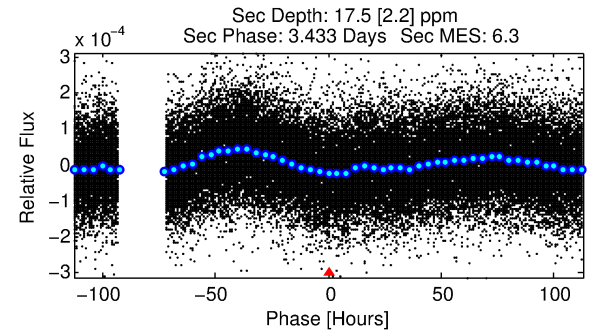
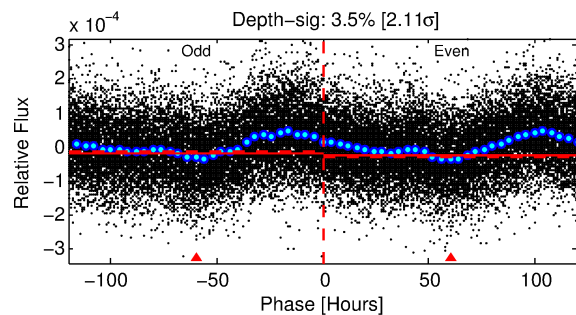
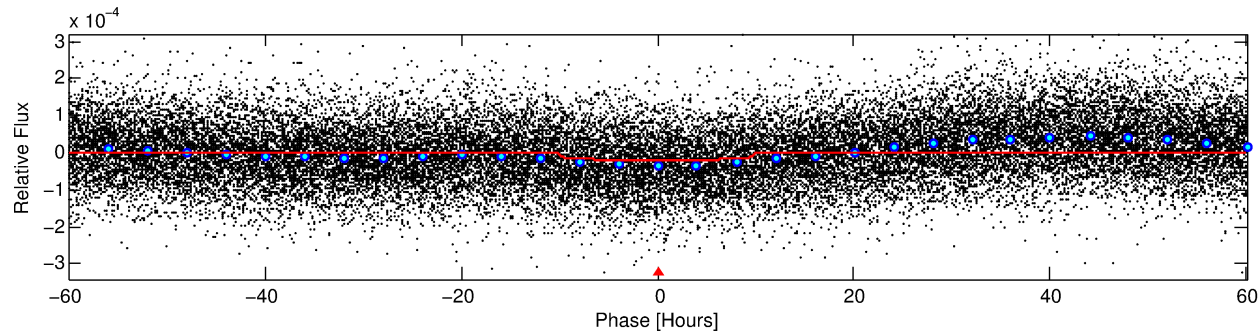
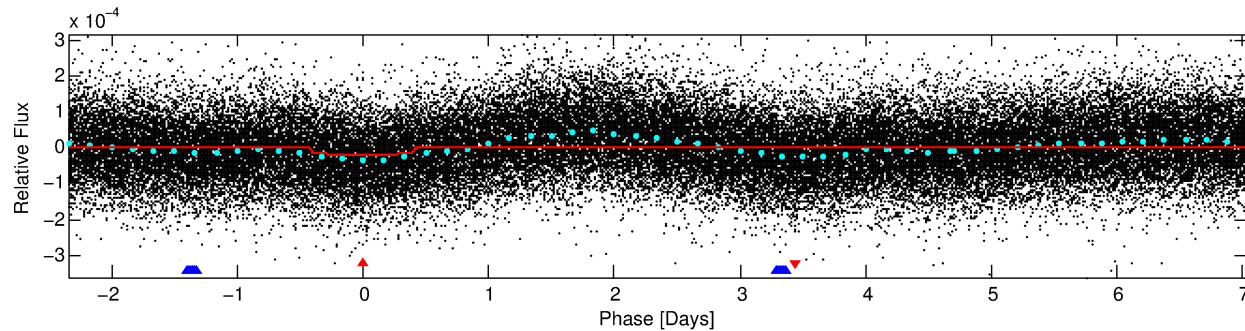
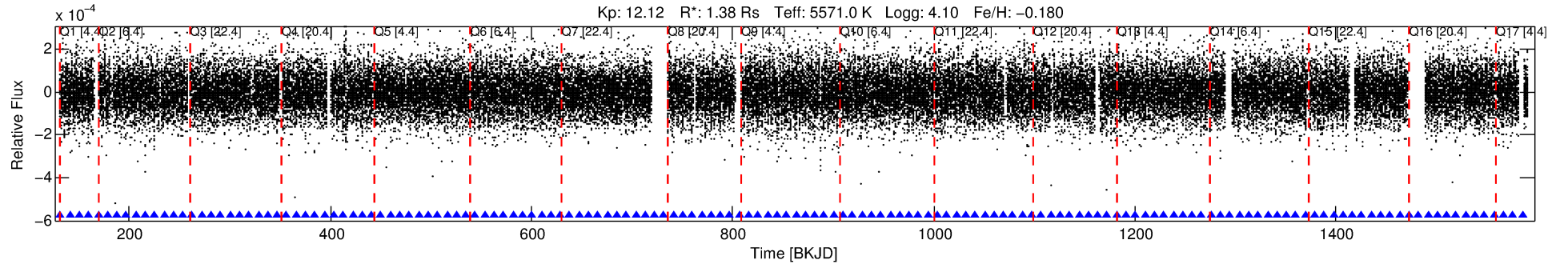
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004139254-01

No Significant Match Found

DV One-Page Summary

KIC: 4139254 Candidate: 1 of 2 Period: 9.377 d
KOI: K06108 Corr: No Ephemeris Match



DV Fit Results:

Period = 9.37740 [0.00019] d
Epoch = 131.6809 [0.0159] BKJD
Rp/R* = 0.0044 [0.0009]
a/R* = 2.67 [1.96]
b = 0.71 [0.60]
Seff = 236.37 [137.49]
Teq = 1000 [145] K
Rp = 0.66 [0.25] Re
a = 0.0831 [0.0286] AU
Ag = 154.97 [110.35] [1.40 σ]
Teffp = 5454 [599] K [7.23 σ]

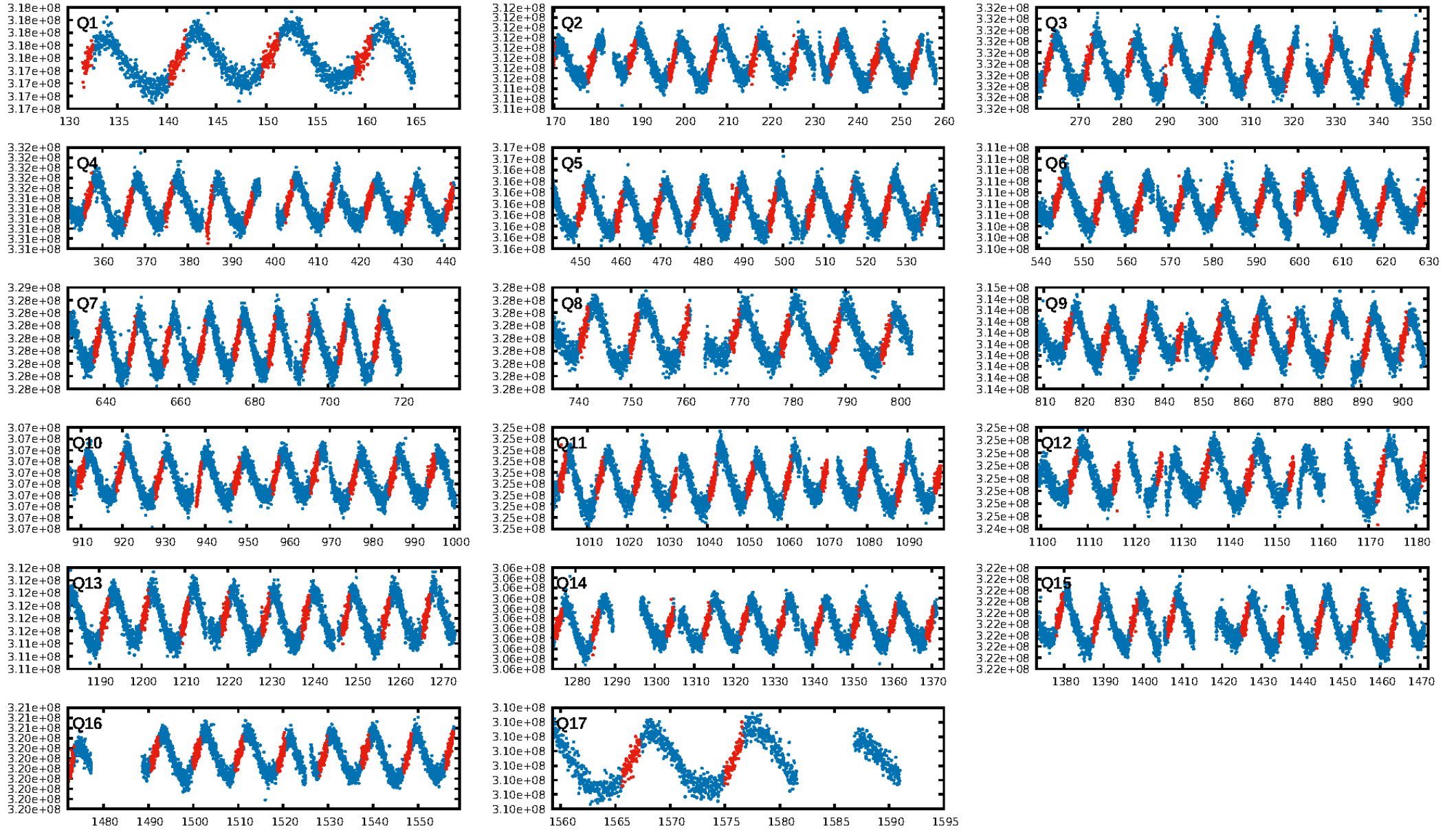
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.75 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.52e-25
RollingBand-fgt: 1.00 [140/140]
GhostDiagnostic-chr: 2.769
Centroid-sig: N/A
Centroid-so: 1.144 arcsec [0.92 σ]
OotOffset-rm: 2.725 arcsec [2.71 σ]
KicOffset-rm: 2.572 arcsec [2.83 σ]
OotOffset-st: 1/1/3/3 [8]
KicOffset-st: 1/1/3/3 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 0.00 [0/17]

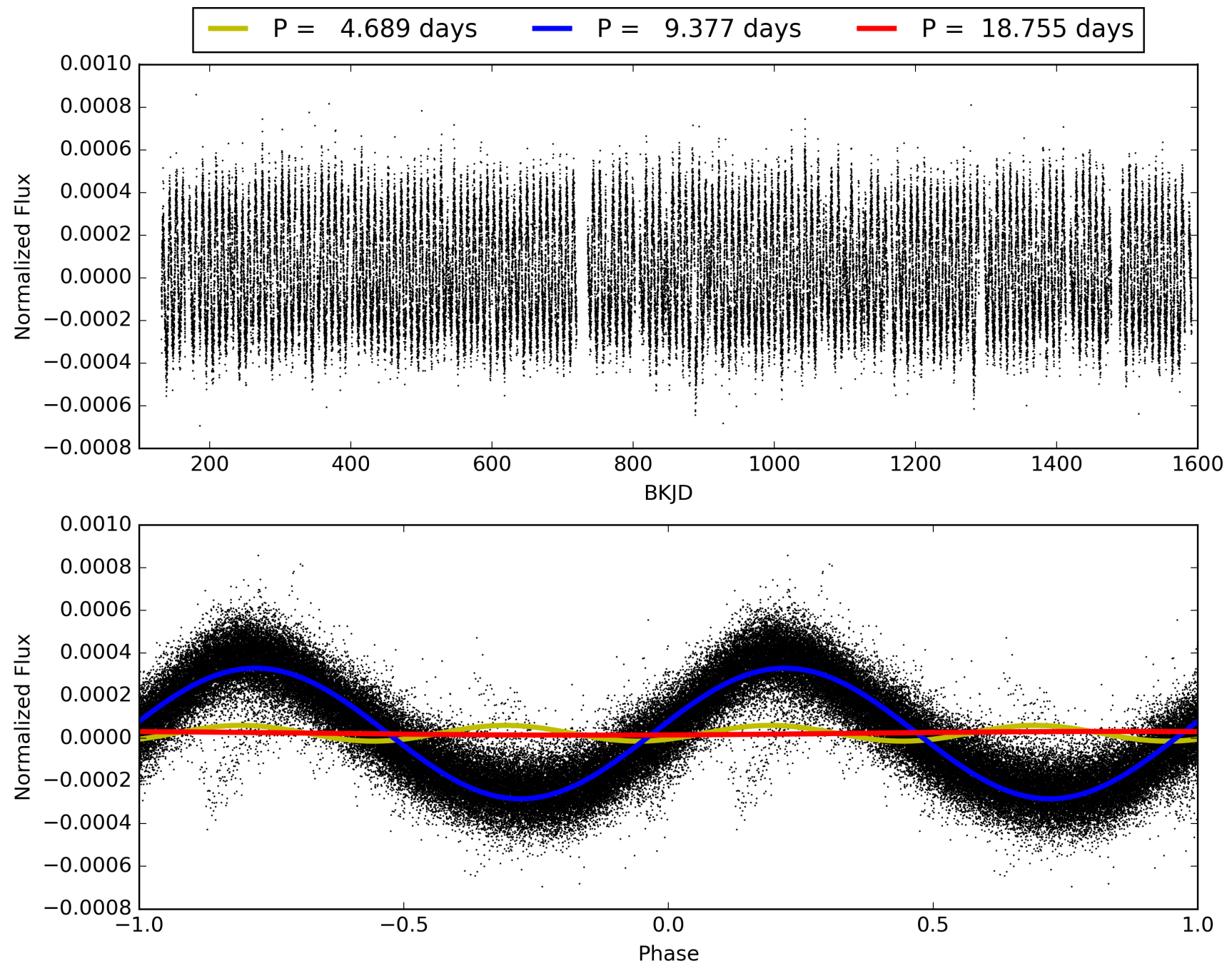
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:54:22 Z

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

TCE 004139254-01, PDC Light Curves

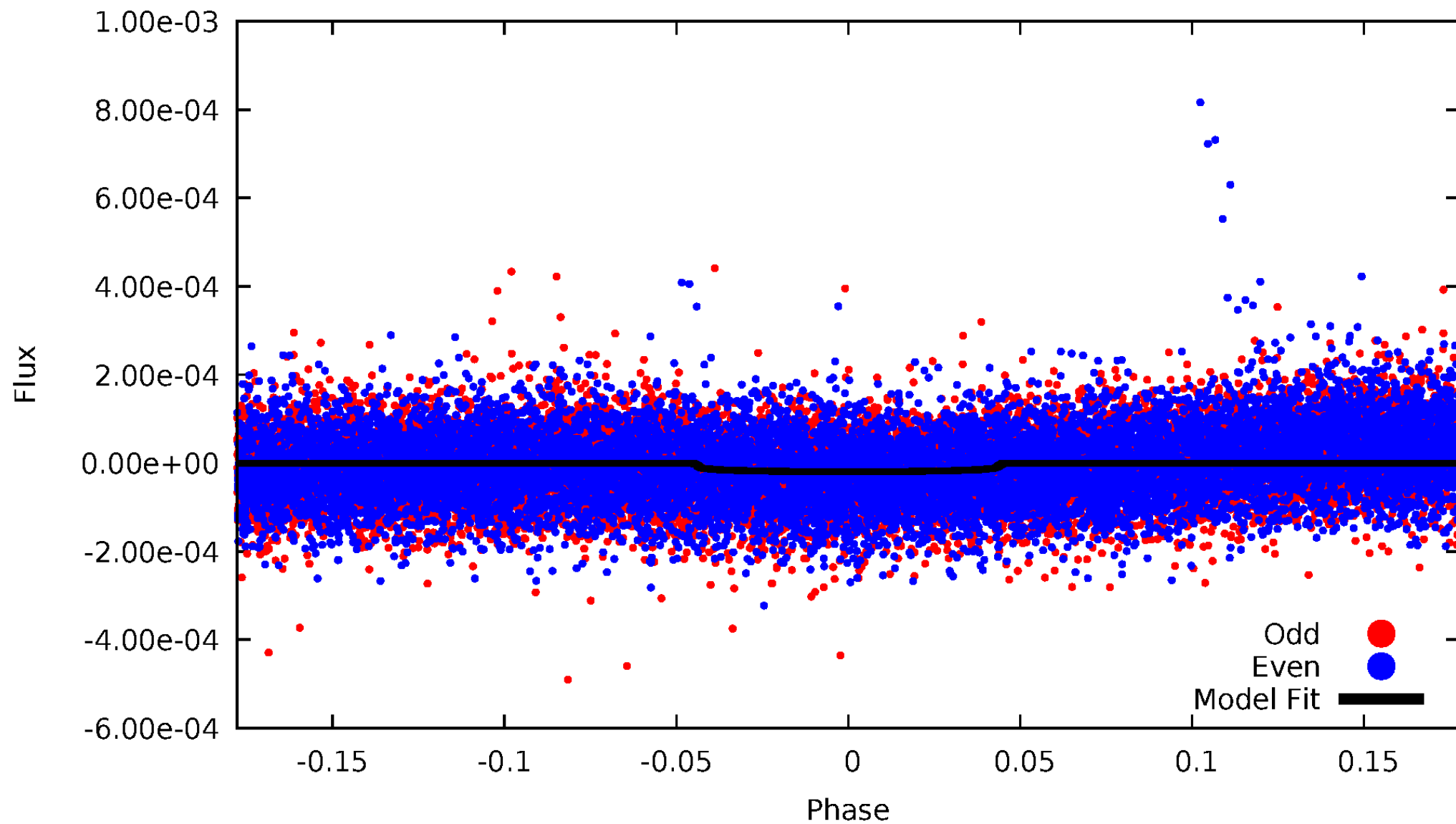


TCE 004139254-01



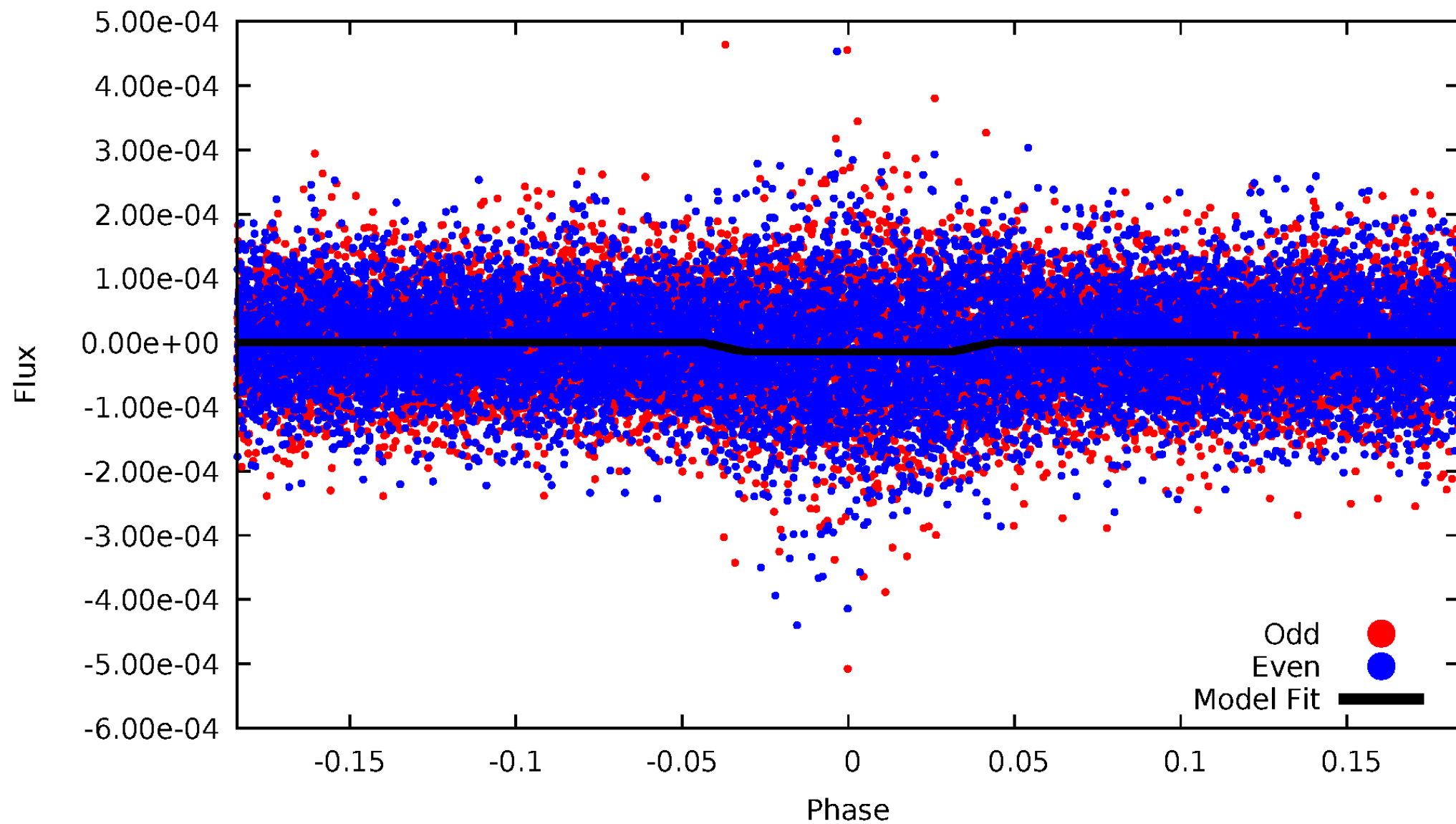
DV Odd/Even

TCE 004139254-01



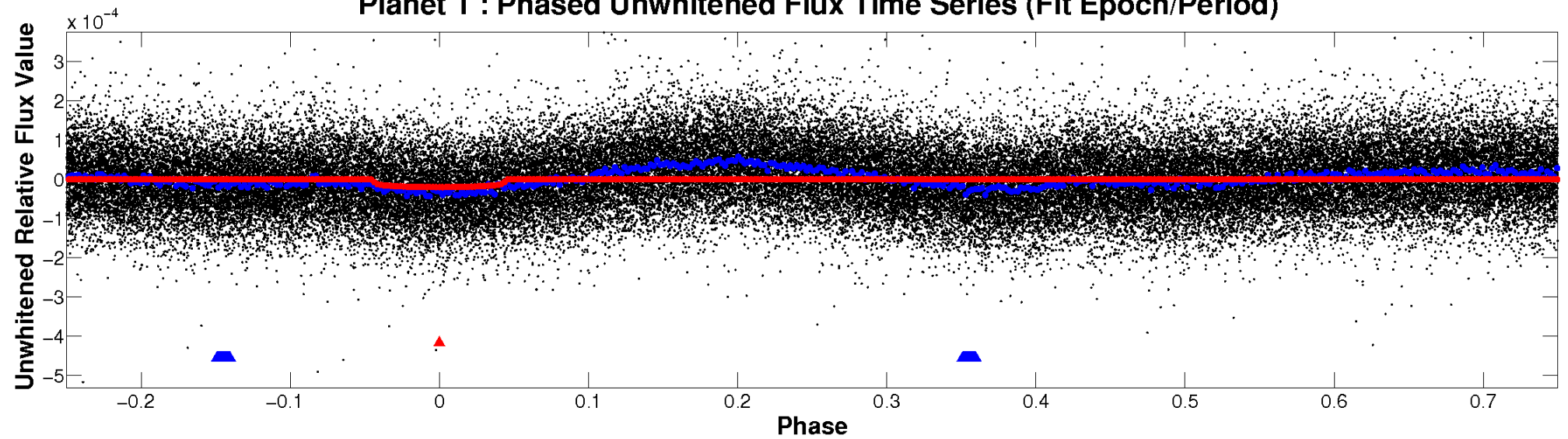
ALT Odd/Even

TCE 004139254-01

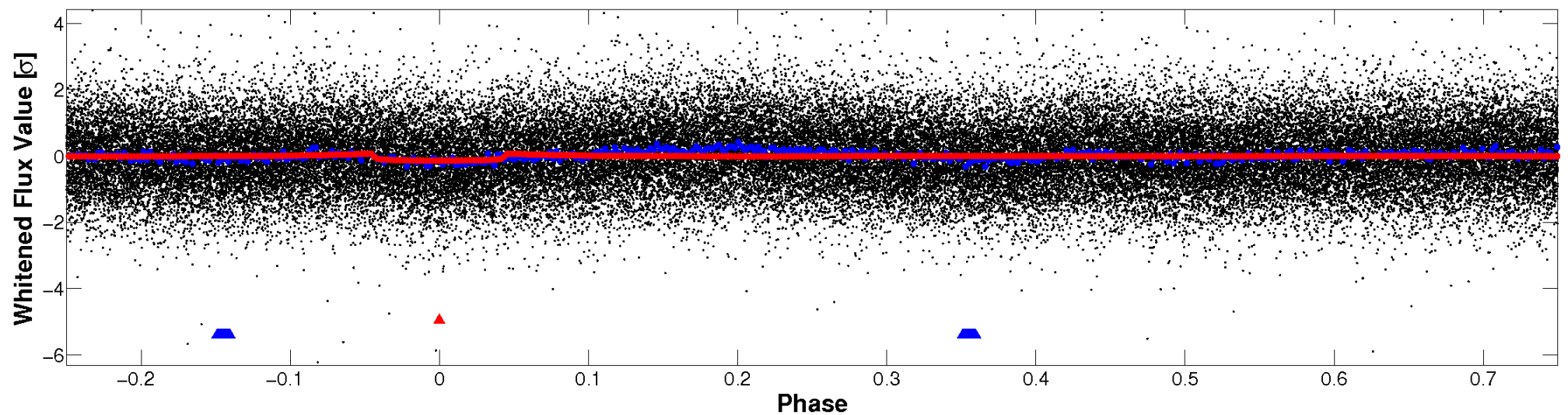


Non-Whitened Vs. Whitened Light Curve

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

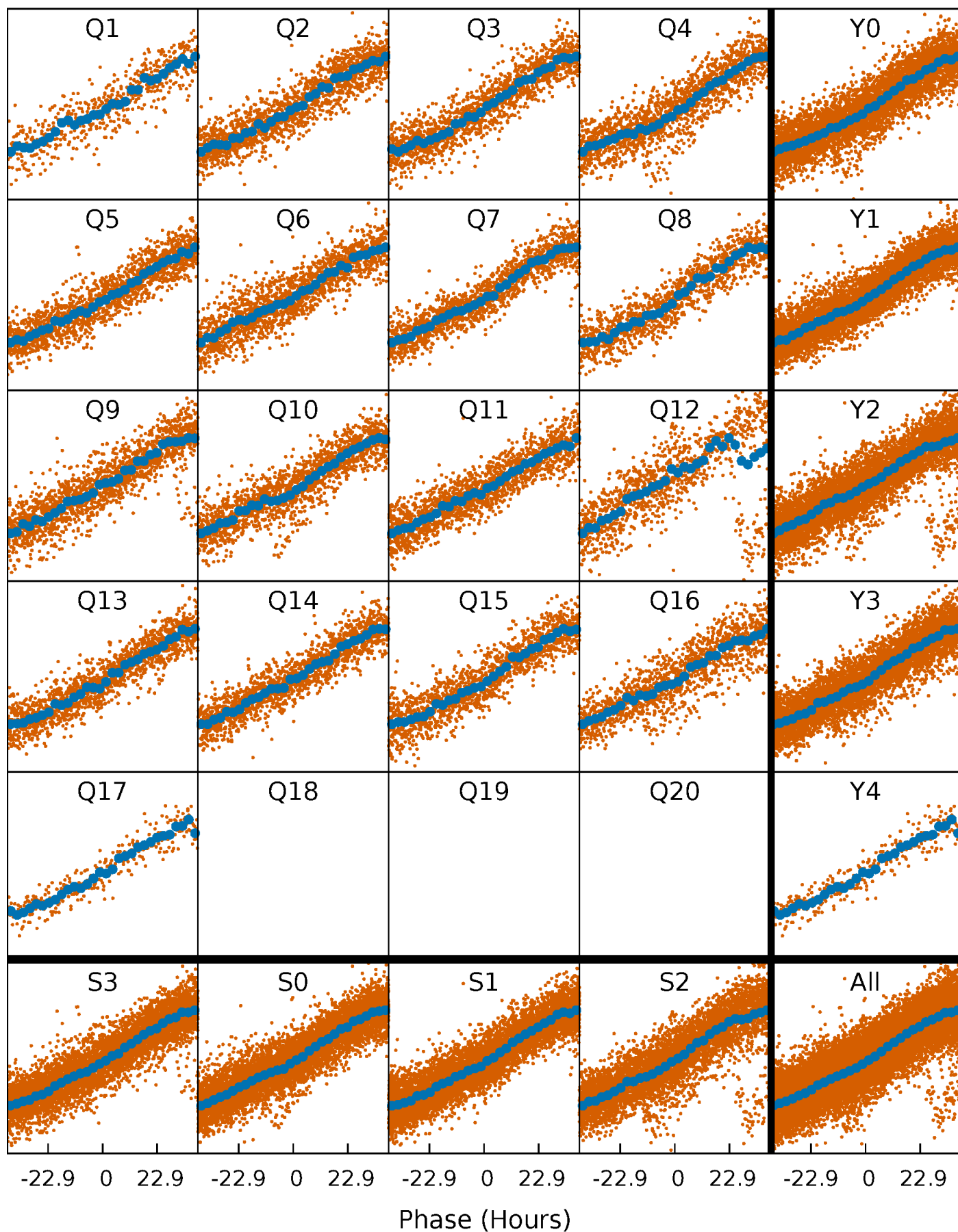


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



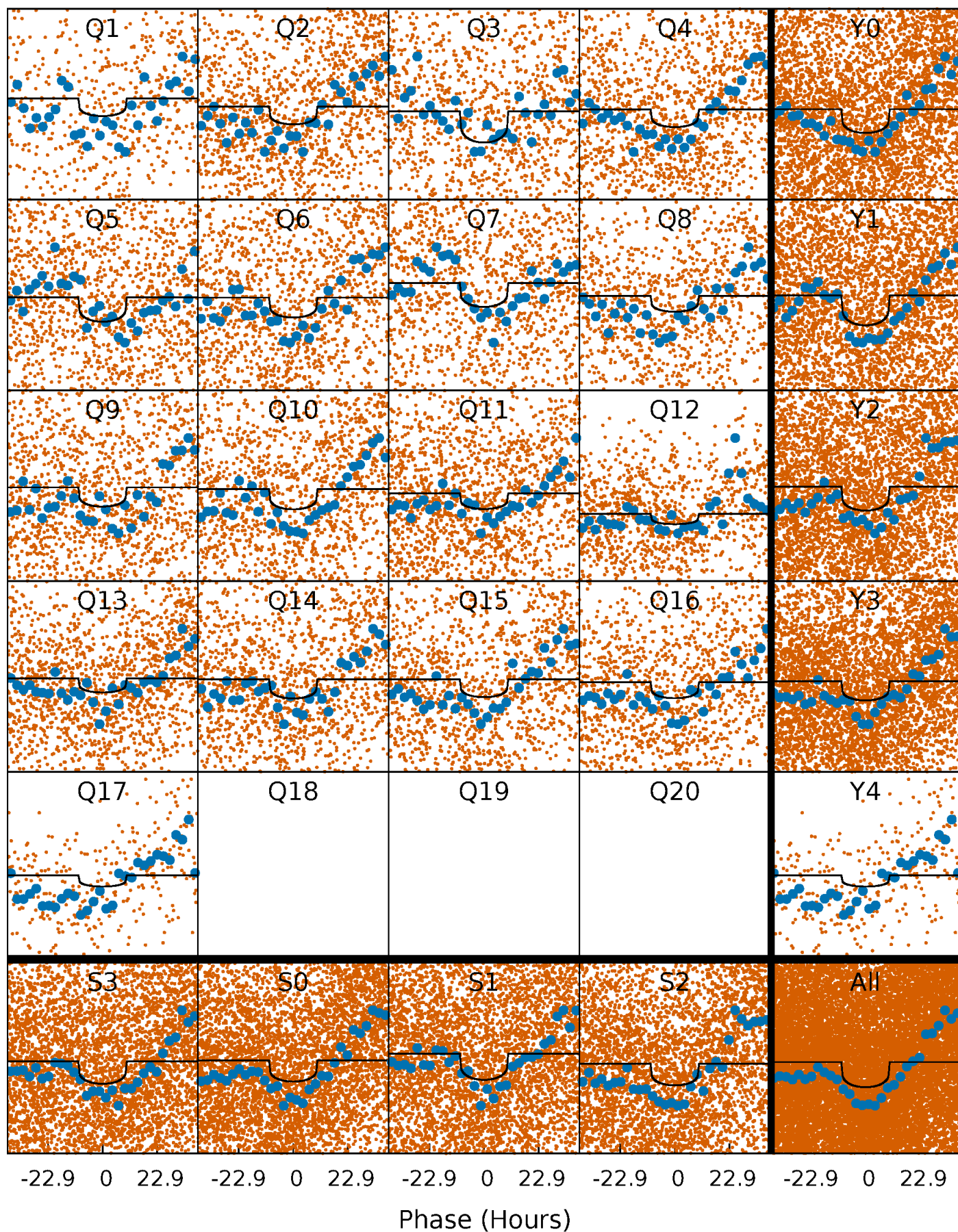
PDC Quarter-Phased Transit Curves

TCE 004139254-01 P= 9.377400 Days $T_0=131.680941$ (BKJD)



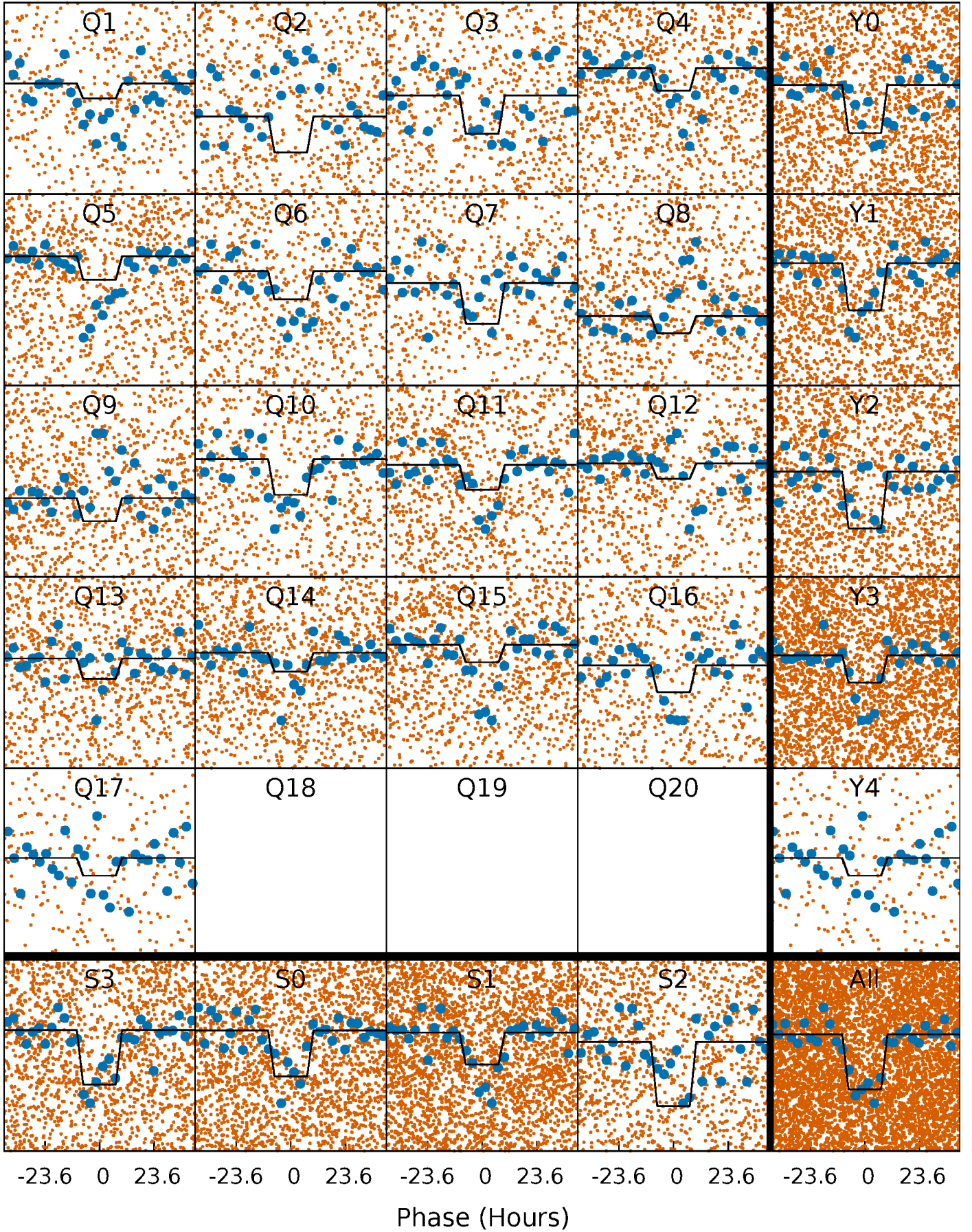
DV Quarter-Phased Transit Curves

TCE 004139254-01 P= 9.377400 Days $T_0=131.680941$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

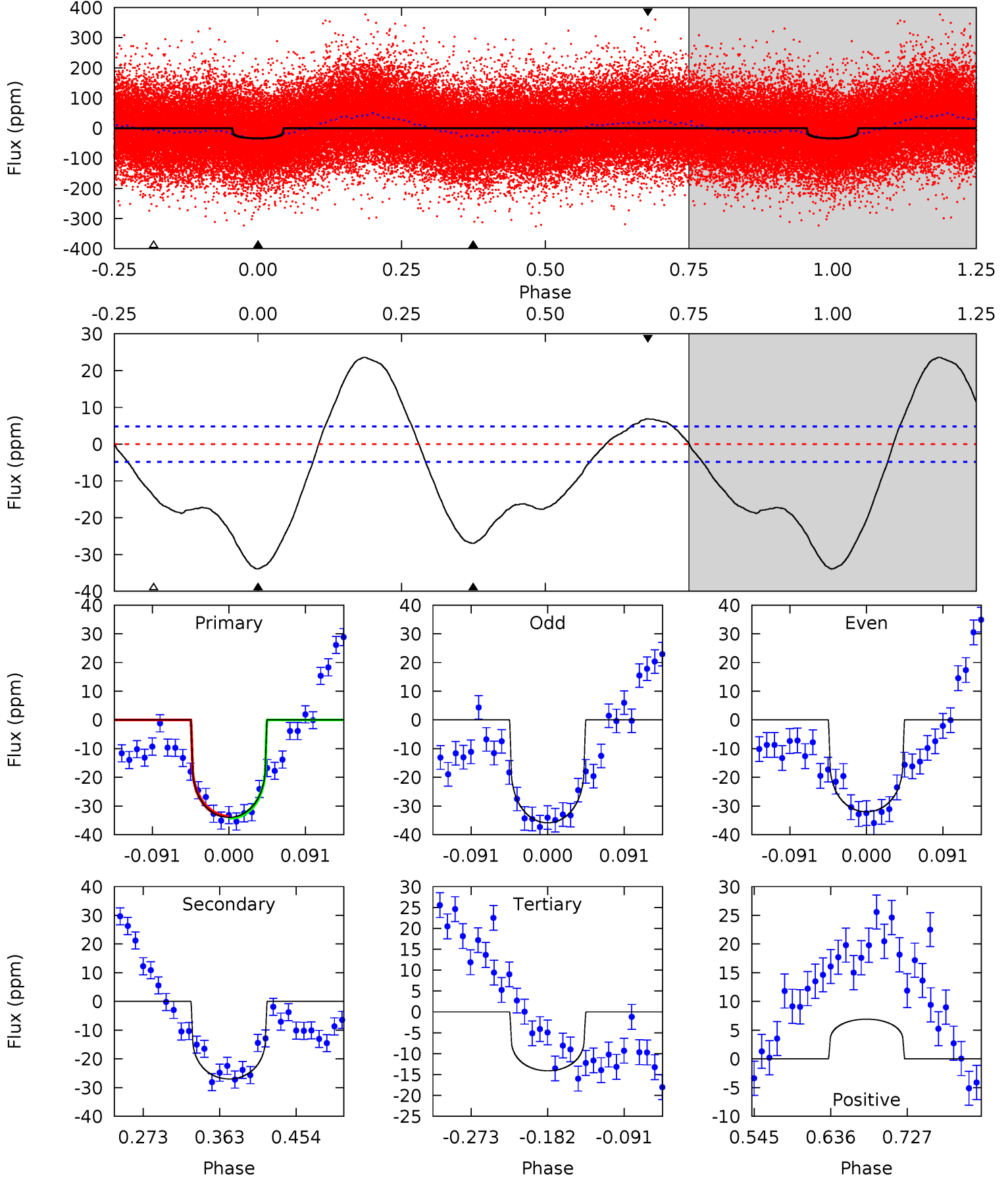
TCE 004139254-01 P= 9.377146 Days $T_0=131.687513$ (BKJD)



DV Model-Shift Uniqueness Test

004139254-01, P = 9.377400 Days, E = 122.303541 Days

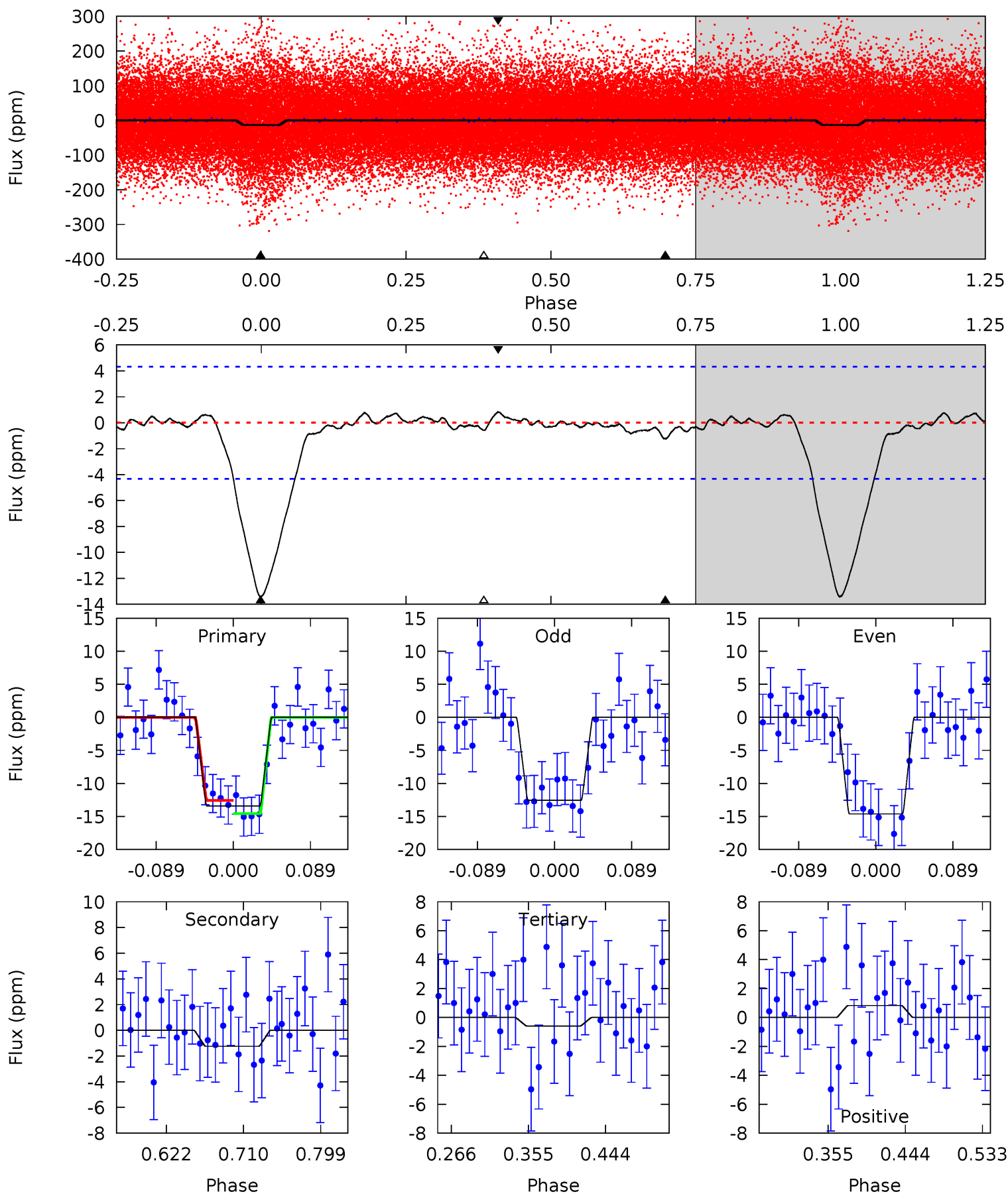
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.4	25.7	13.4	6.59	4.58	1.69	12.4	18.9	25.8	12.3	19.1	1.83	1.01	0.41	0.32



Alt Model-Shift Uniqueness Test

004139254-01, P = 9.377146 Days, E = 122.310367 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	1.32	0.63	0.88	4.59	1.70	0.36	13.6	13.3	0.69	0.43	1.10	1.28	0.06	1.06



Stellar Parameters For KIC 004139254

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5571^{+153}_{-125}	$4.101^{+0.343}_{-0.147}$	$-0.180^{+0.300}_{-0.250}$	$1.376^{+0.305}_{-0.457}$	$0.871^{+0.109}_{-0.067}$	$0.471^{+1.101}_{-0.190}$
	+3%/-2%	+8%/-4%	+167%/-139%	+22%/-33%	+13%/-8%	+234%/-40%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004139254-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-27 ± 1	$0.64^{+0.18}_{-0.15}$	1384^{+96}_{-134}	6005^{+719}_{-507}	254^{+176}_{-98}
Alt.	-1 ± 1	$0.55^{+0.16}_{-0.16}$	1381^{+98}_{-134}	3459^{+501}_{-704}	15^{+20}_{-12}

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

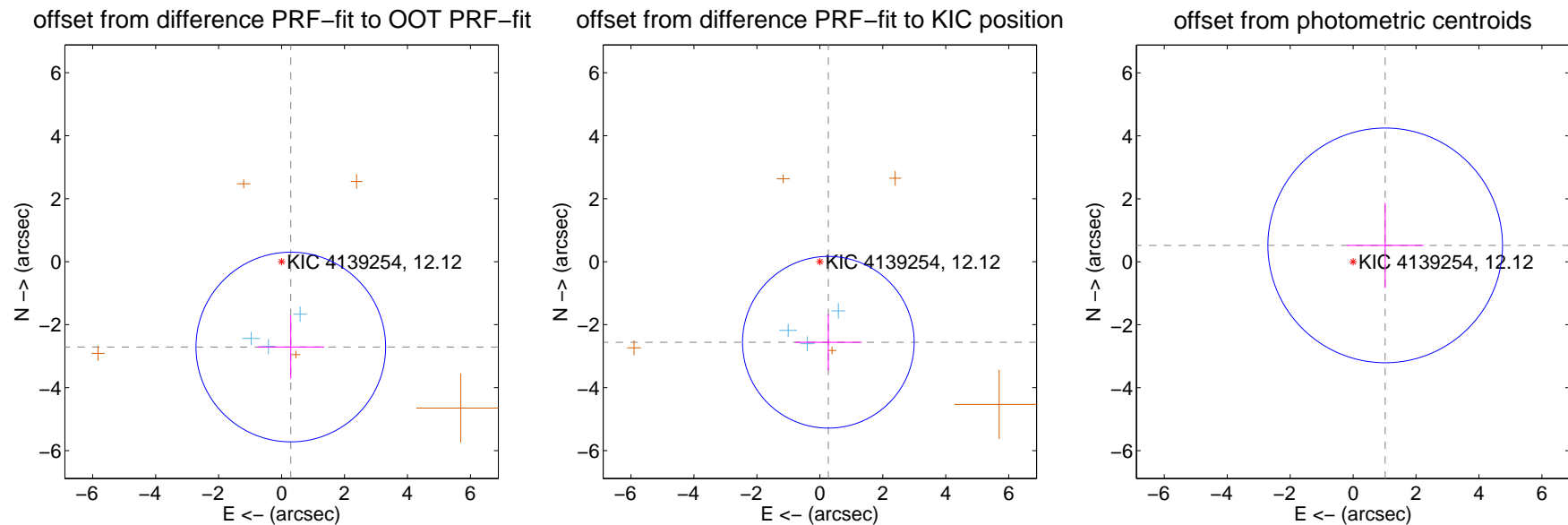
DV Centroid Data

Supplemental centroid analysis for 004139254-01. Kepler magnitude: 12.12. Transit SNR 9.79

There are 3 quarters with good PRF difference image offsets

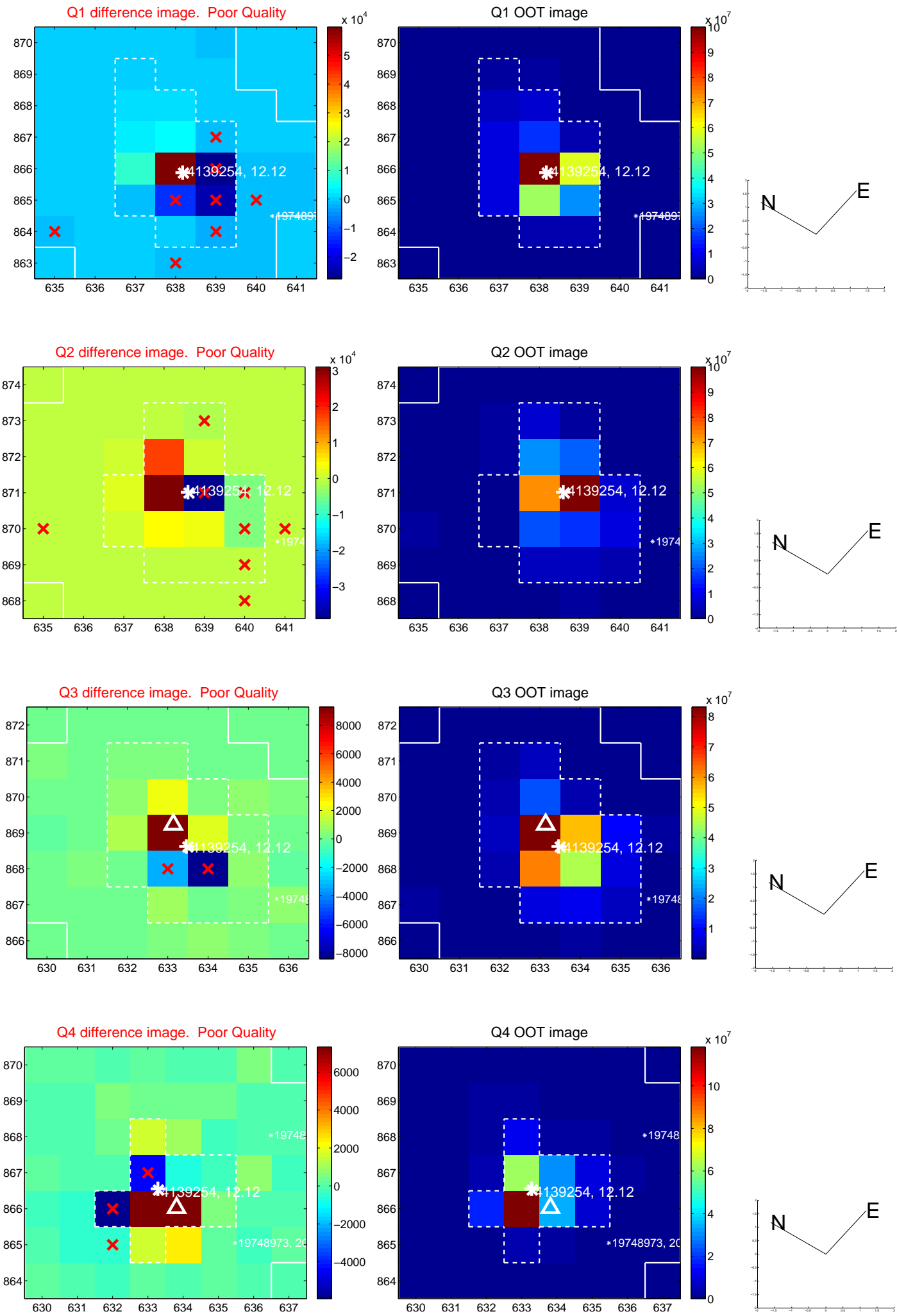
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.725 ± 1.004	2.71	-0.293 ± 1.057	-2.709 ± 1.003
PRF-fit source offset from KIC position	2.572 ± 0.908	2.83	-0.270 ± 1.061	-2.558 ± 0.895
photometric centroid source offset	1.14 ± 1.24	0.92	-1.02 ± 1.21	0.52 ± 1.35

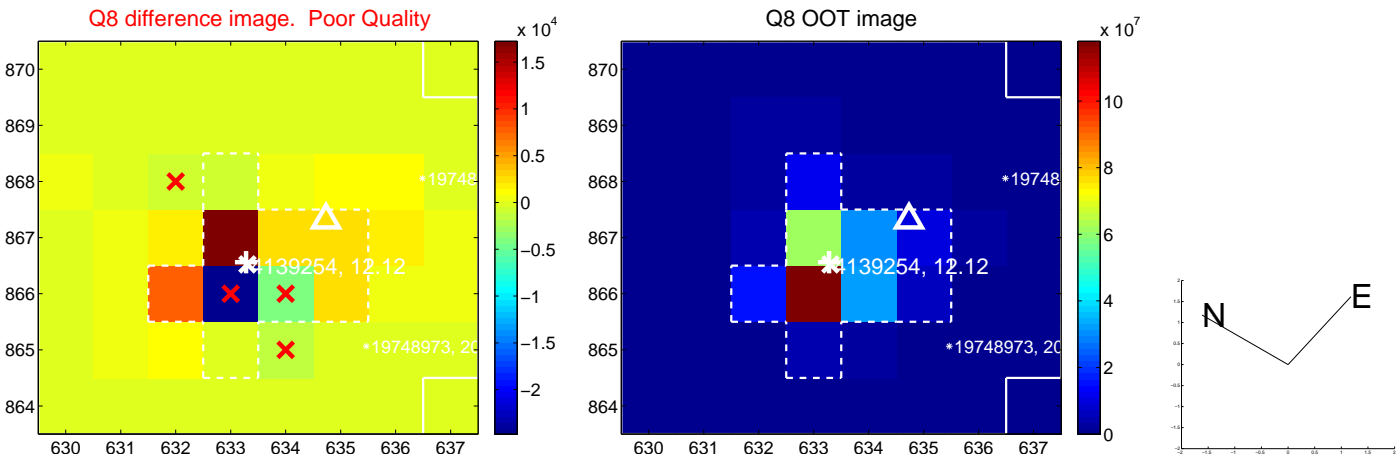
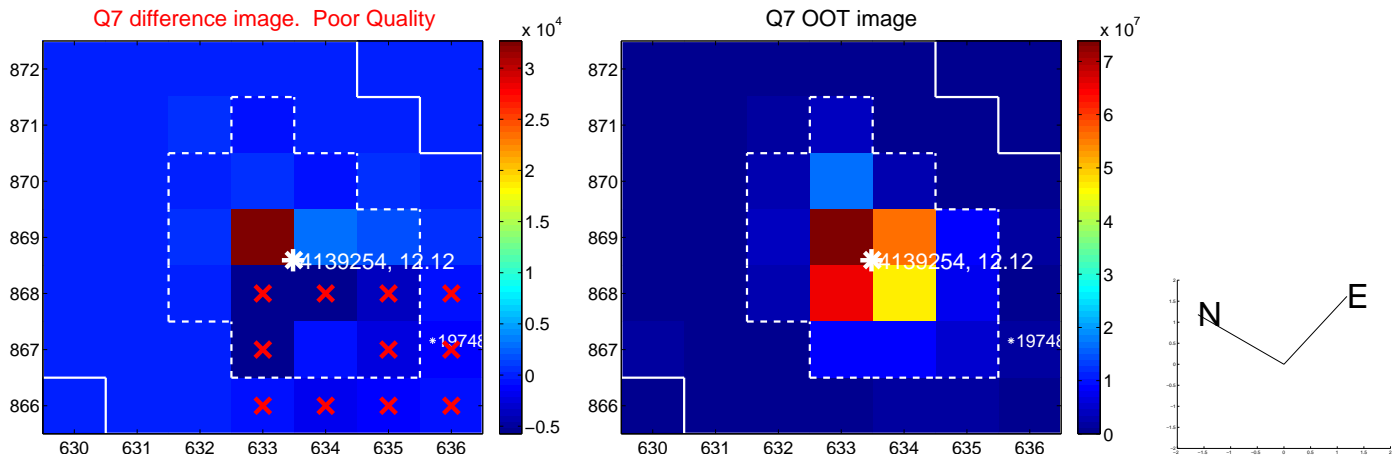
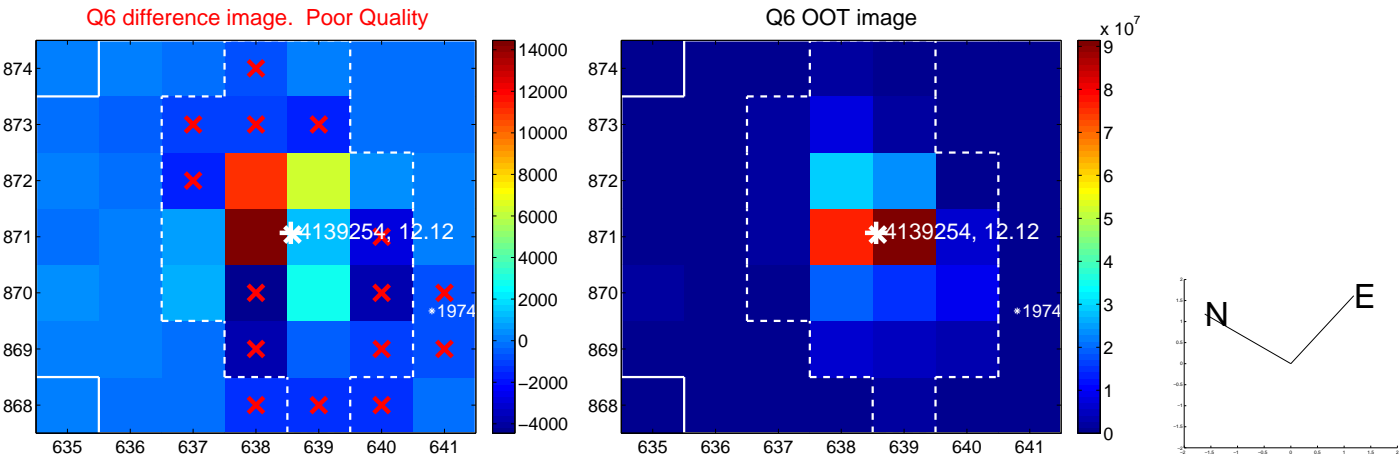
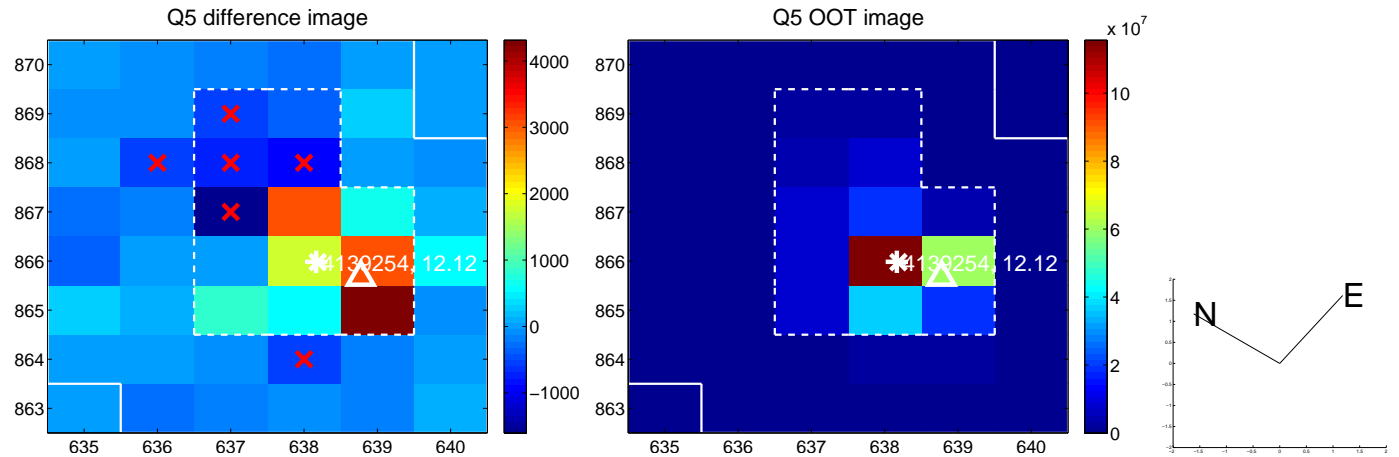


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

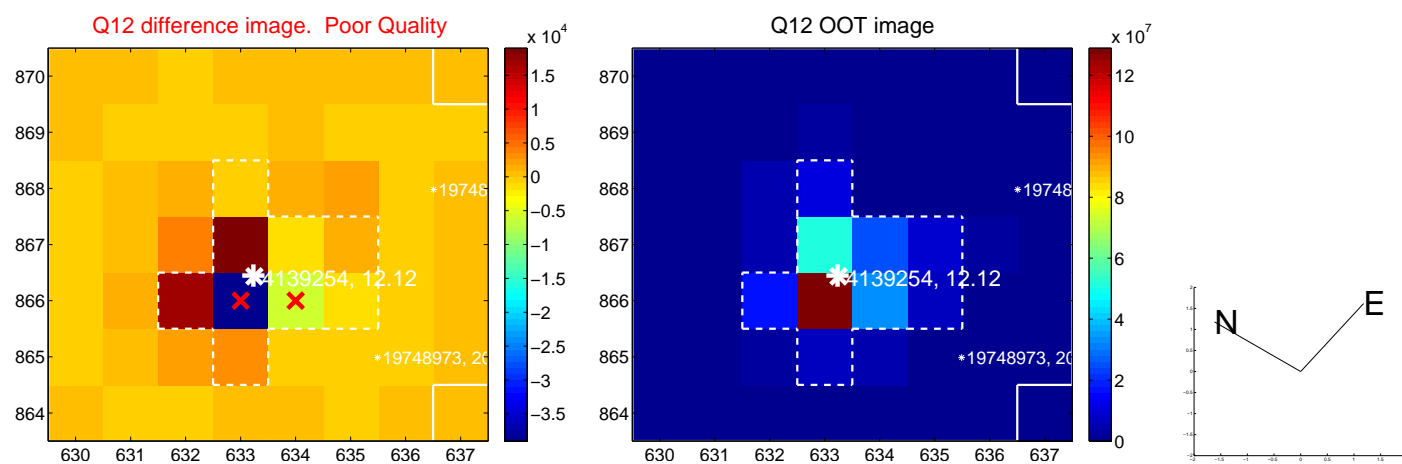
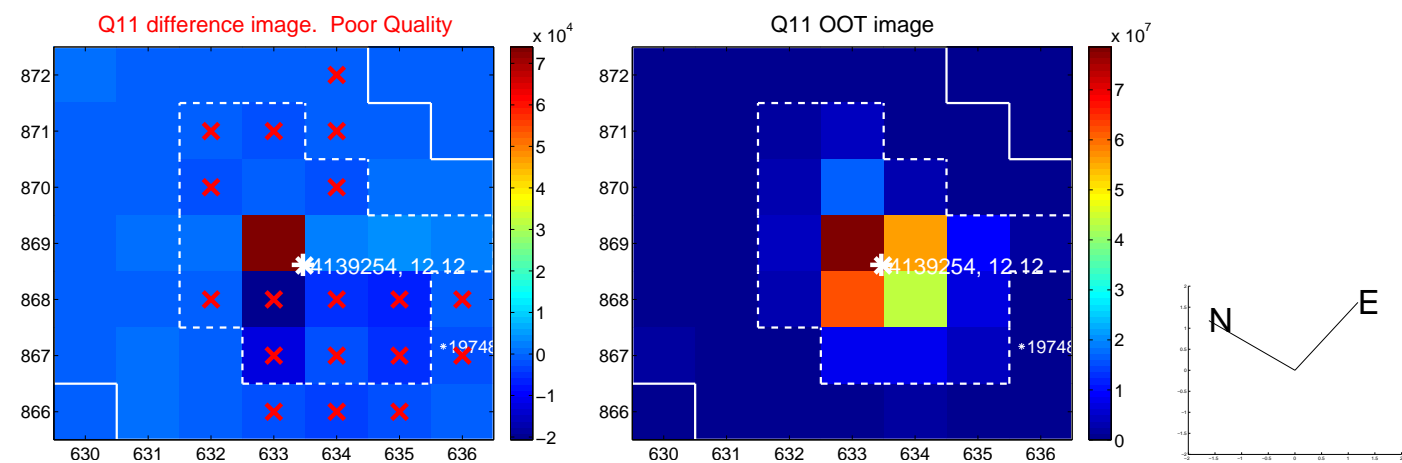
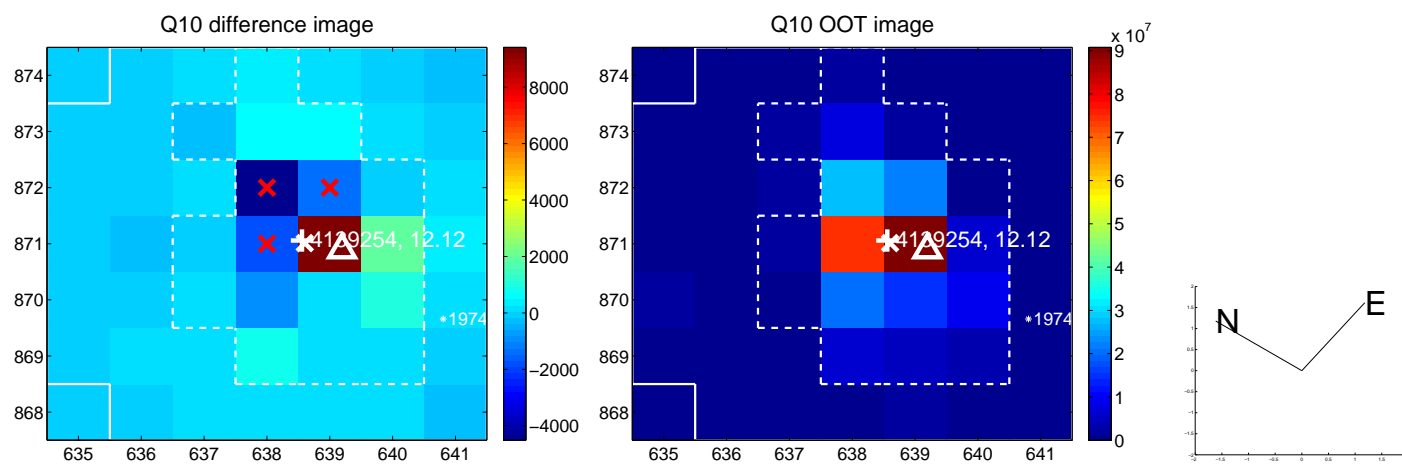
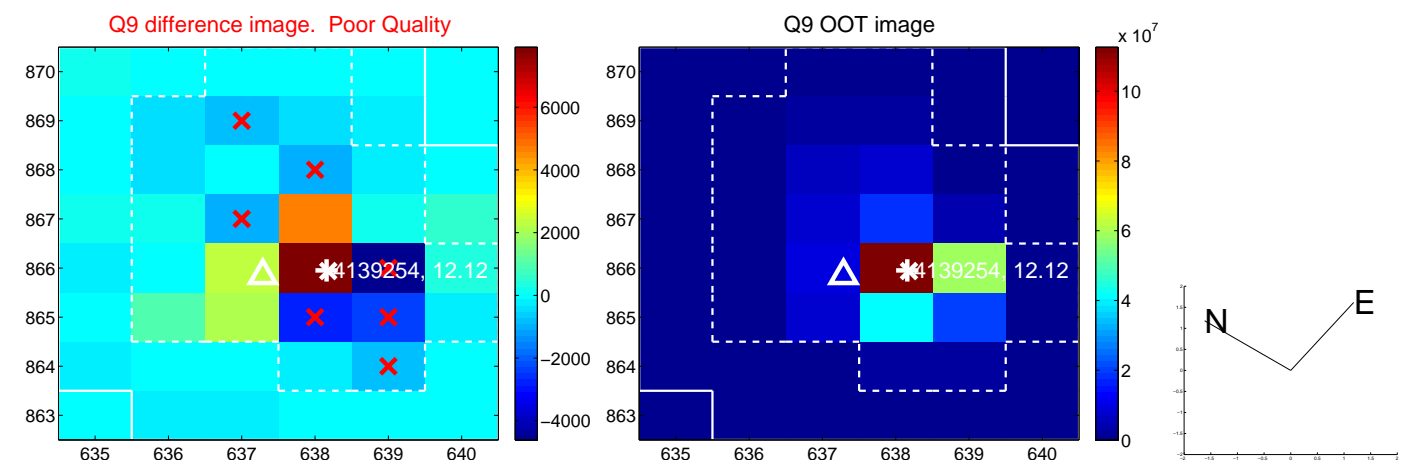
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



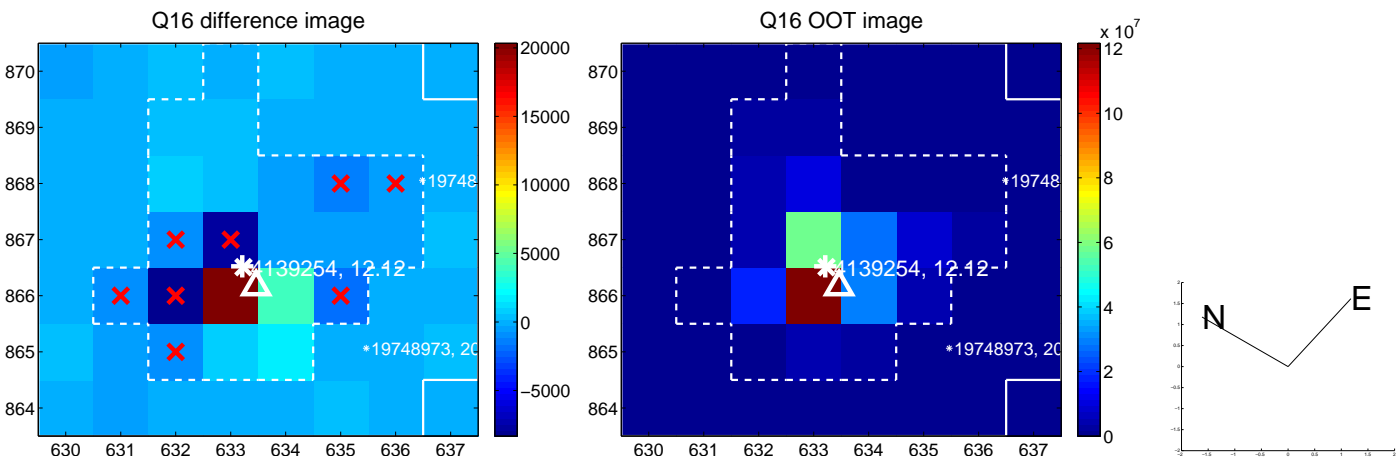
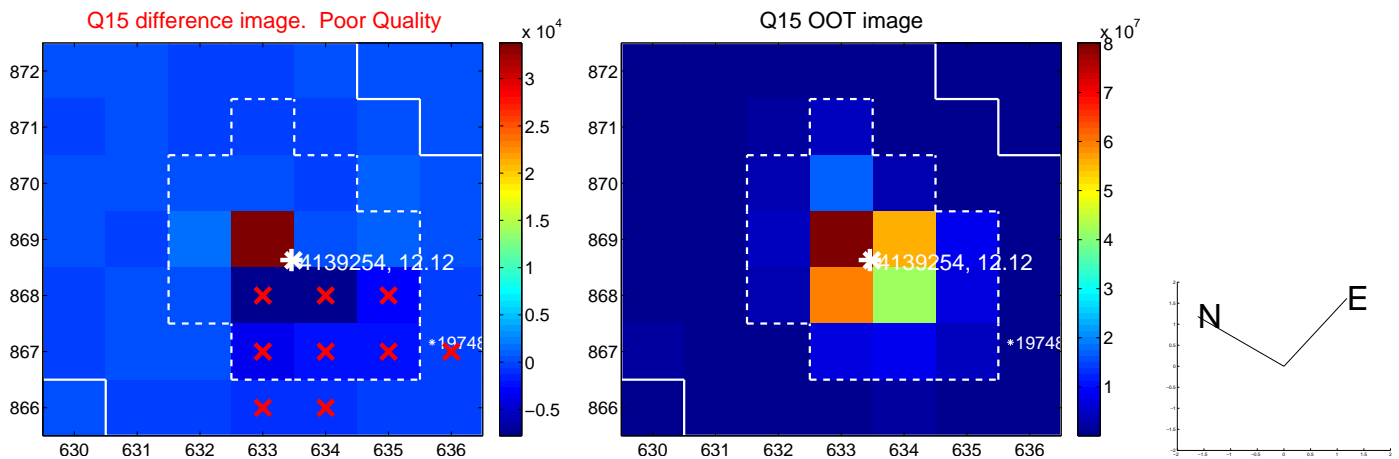
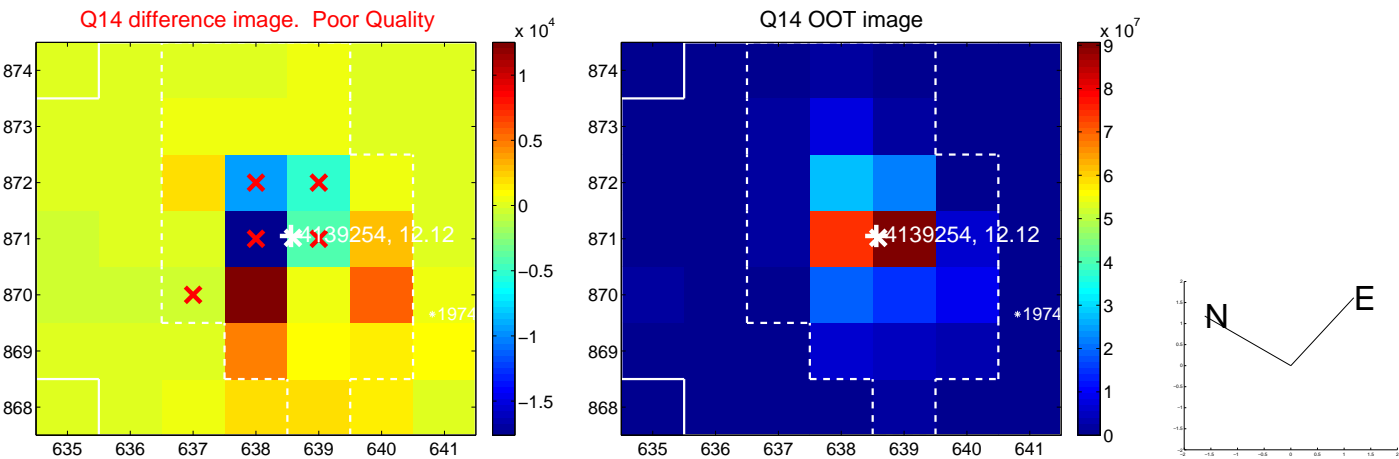
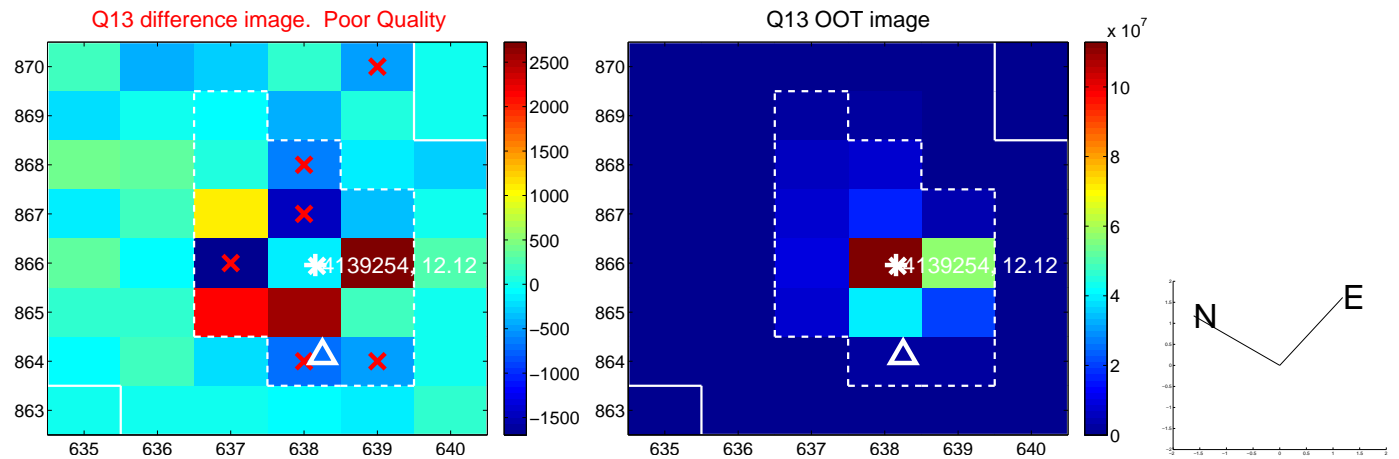
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



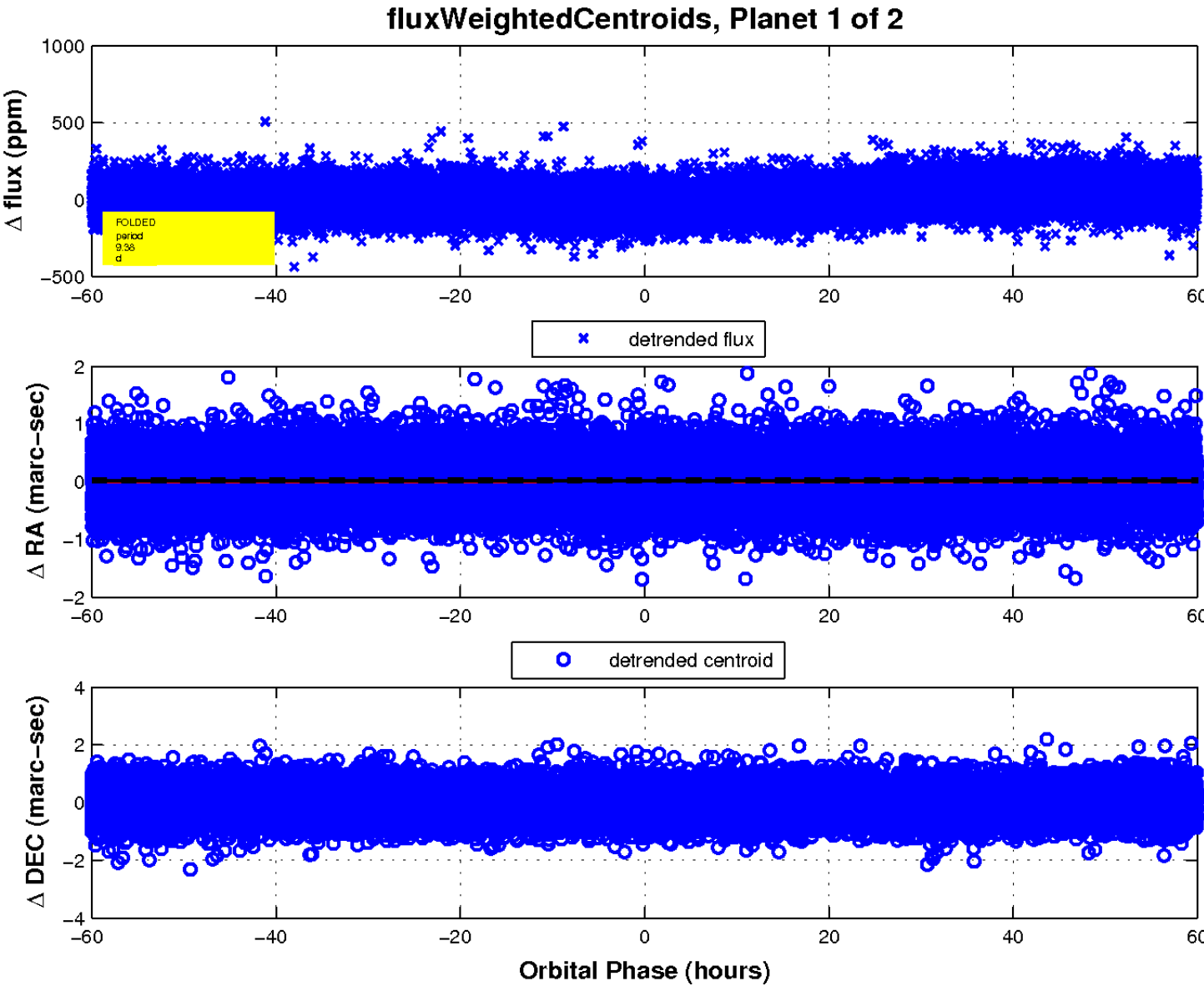
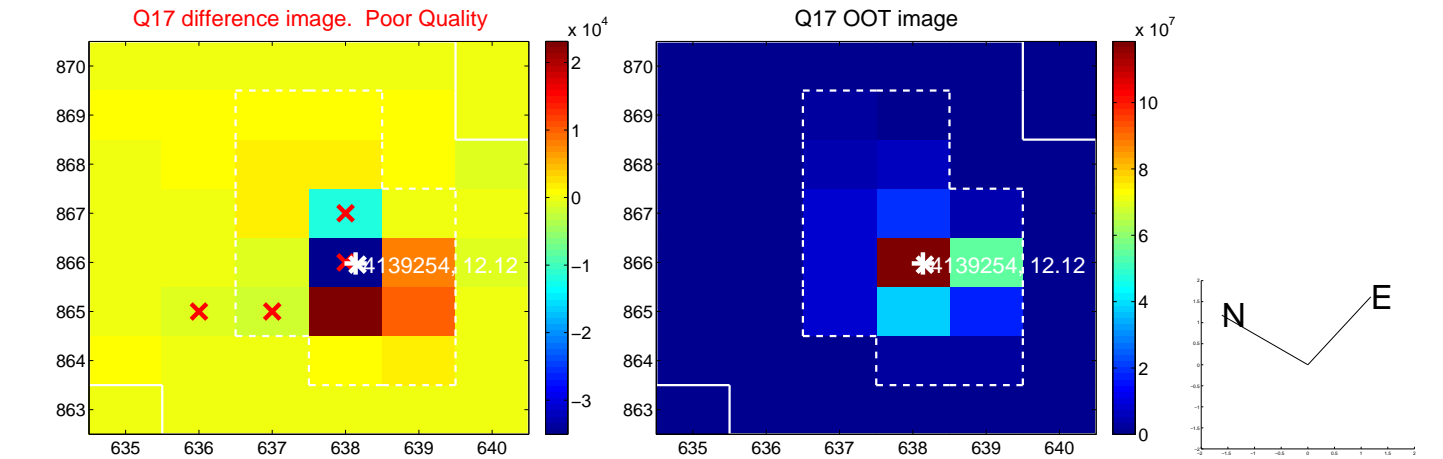
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

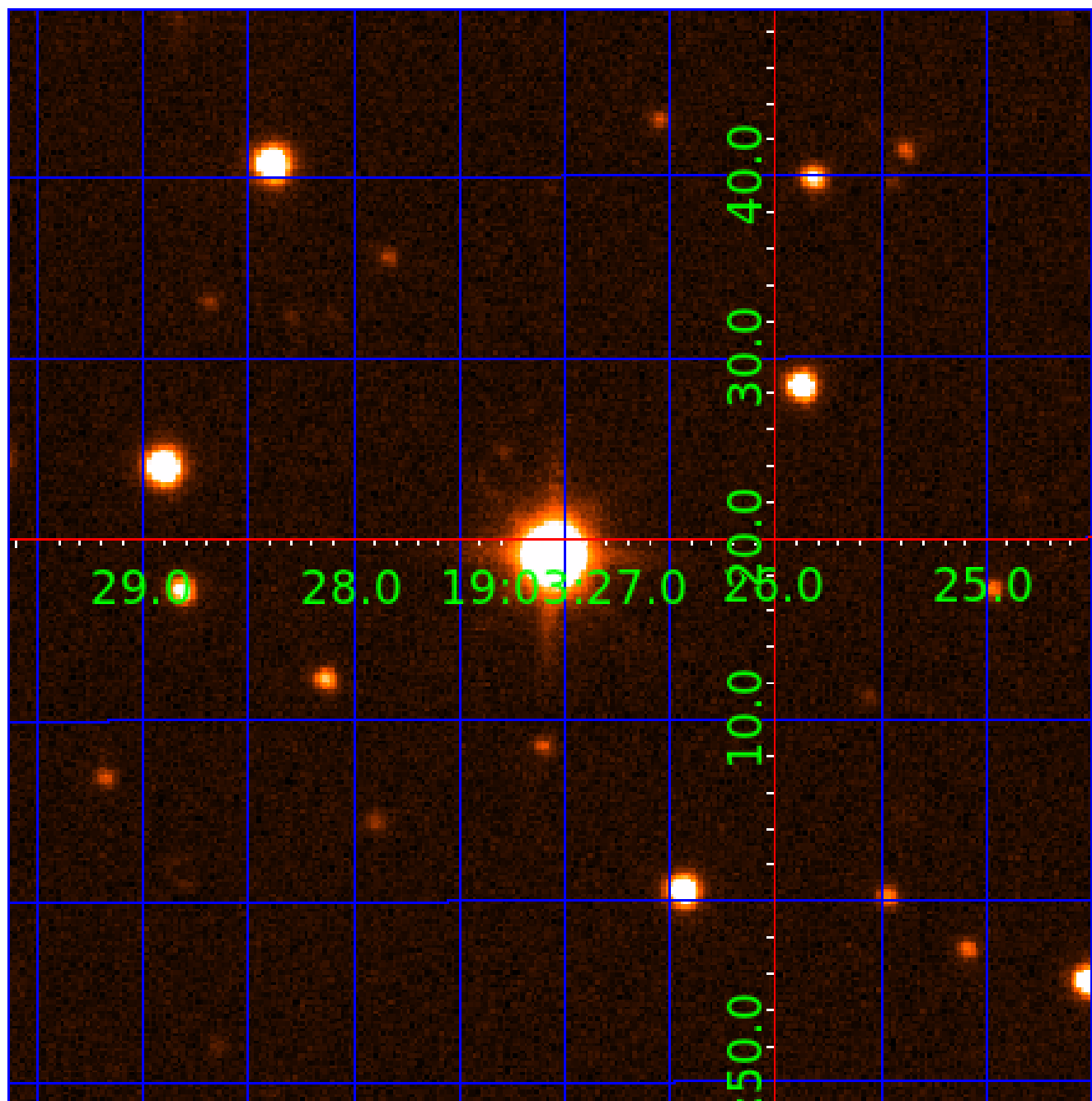


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004139254

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})
004139254-01	OBS	No	9.377400	131.680941	19.8	20.003	9.1	9.8	1.38	5571	0.66	236.37
004139254-02	OBS	No	4.688441	135.052247	16.7	22.358	10.9	11.7	1.38	5571	0.65	595.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004139254-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS
004139254-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—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.

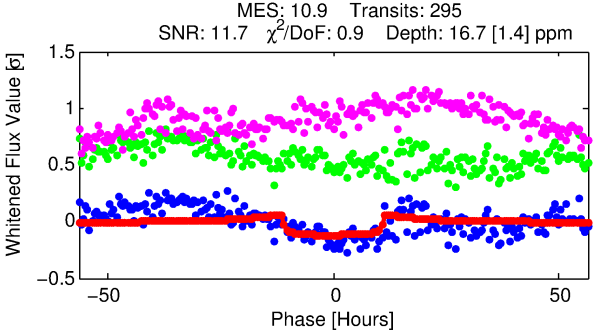
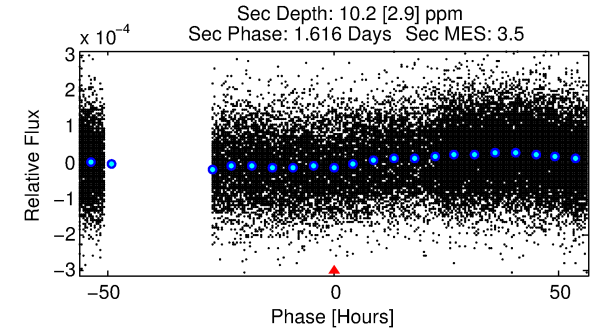
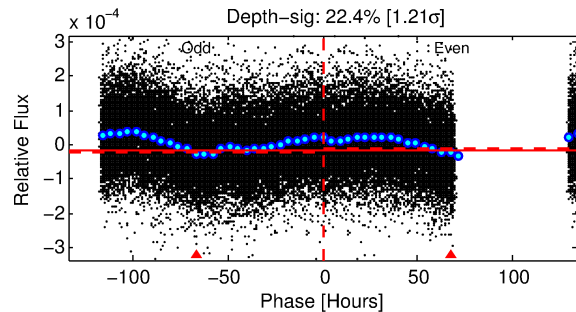
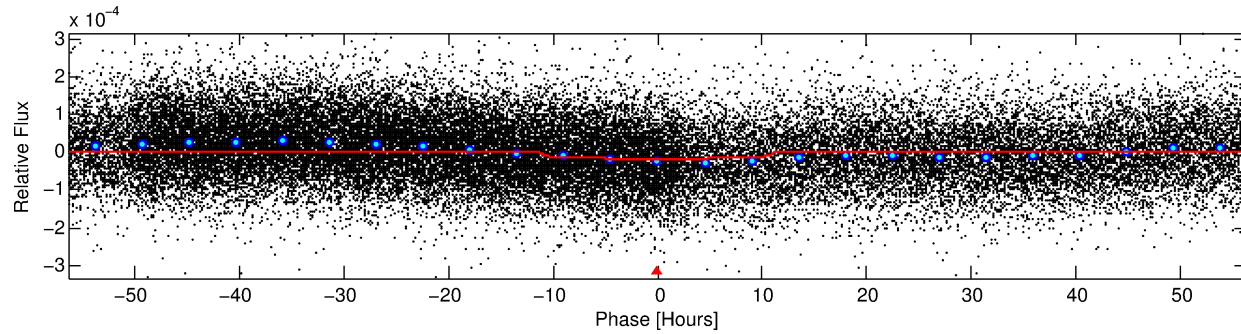
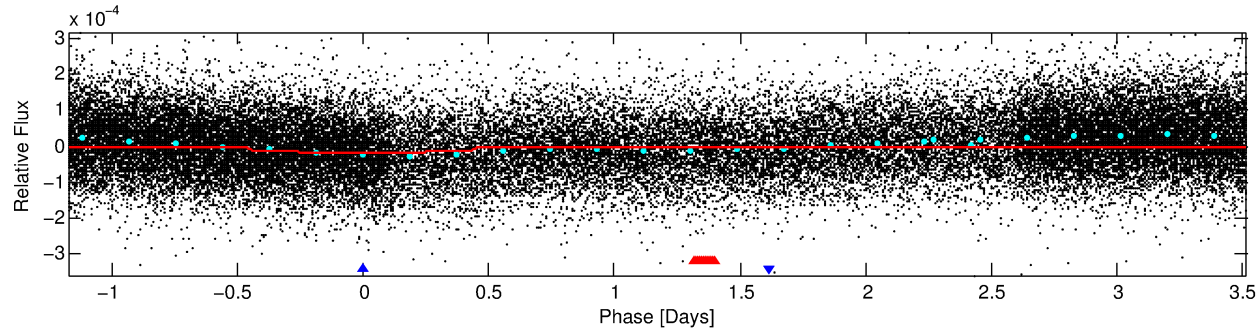
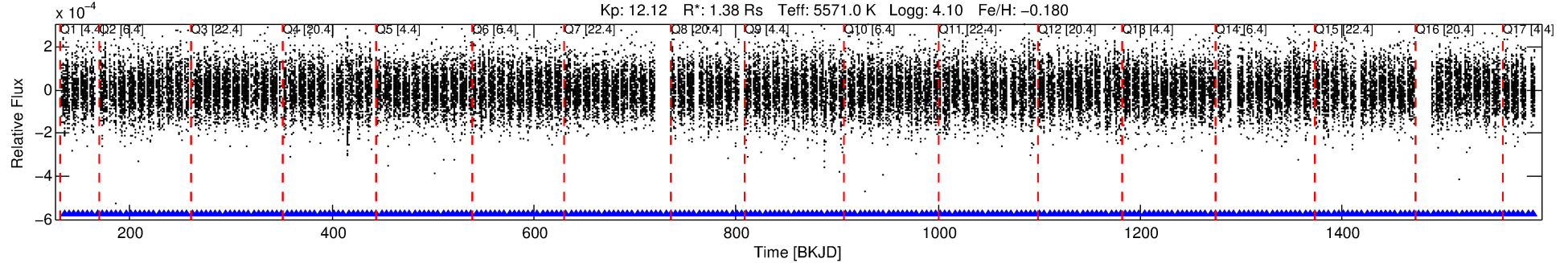
Ephemeris Match Information For 004139254-02

No Significant Match Found

DV One-Page Summary

KIC: 4139254 Candidate: 2 of 2 Period: 4.688 d
KOI: K06108 Corr: No Ephemeris Match

Kp: 12.12 R*: 1.38 Rs Teff: 5571.0 K Logg: 4.10 Fe/H: -0.180



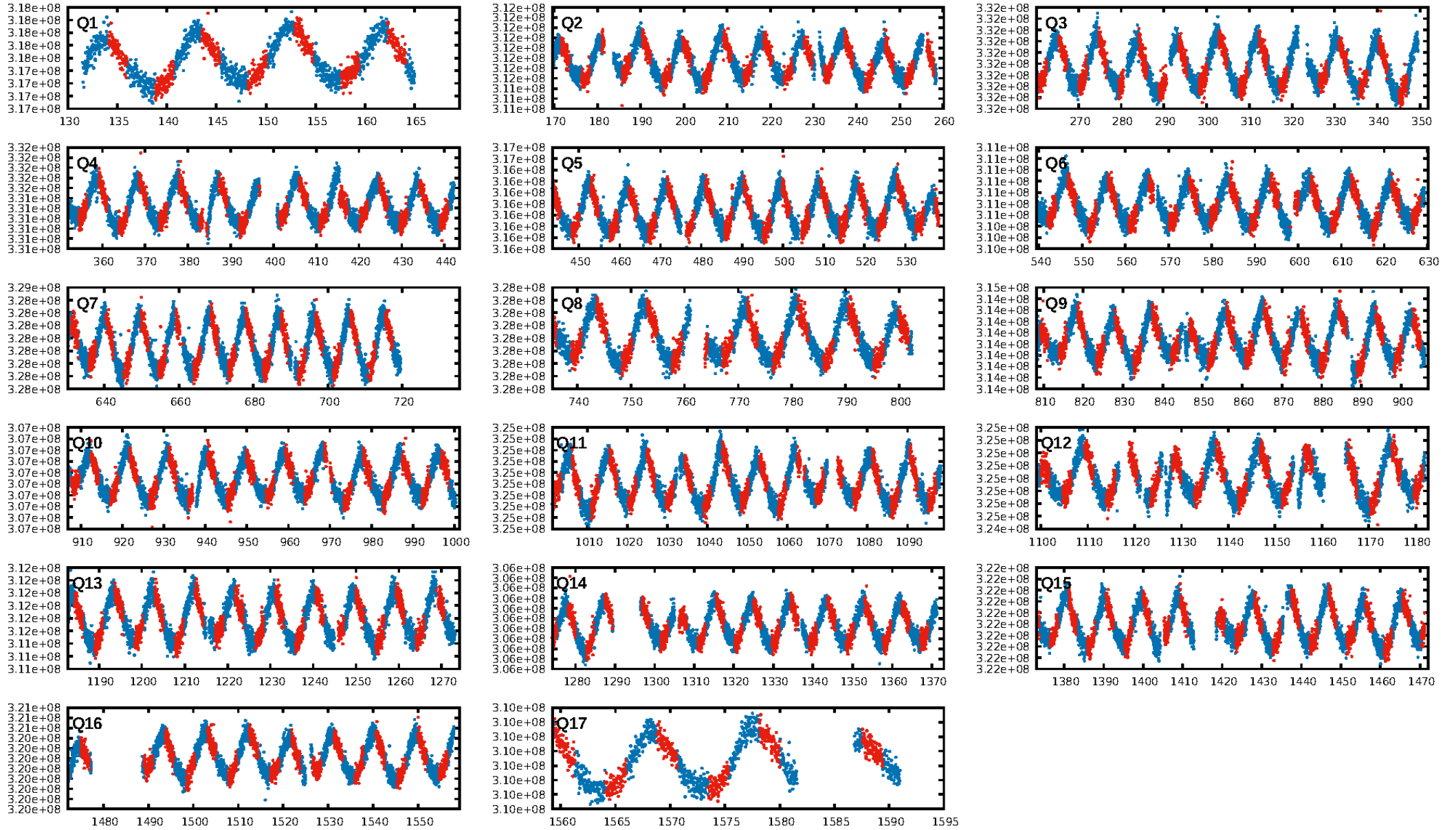
DV Fit Results:

Period = 4.68844 [0.00009] d
Epoch = 135.0522 [0.0138] BKJD
Rp/R* = 0.0043 [0.0007]
a/R* = 1.23 [0.32]
b = 0.86 [0.23]
Seff = 595.66 [346.47]
Teq = 1260 [183] K
Rp = 0.65 [0.24] Re
a = 0.0524 [0.0180] AU
Ag = 36.40 [26.32] [1.34σ]
Teffp = 4784 [546] K [6.12σ]

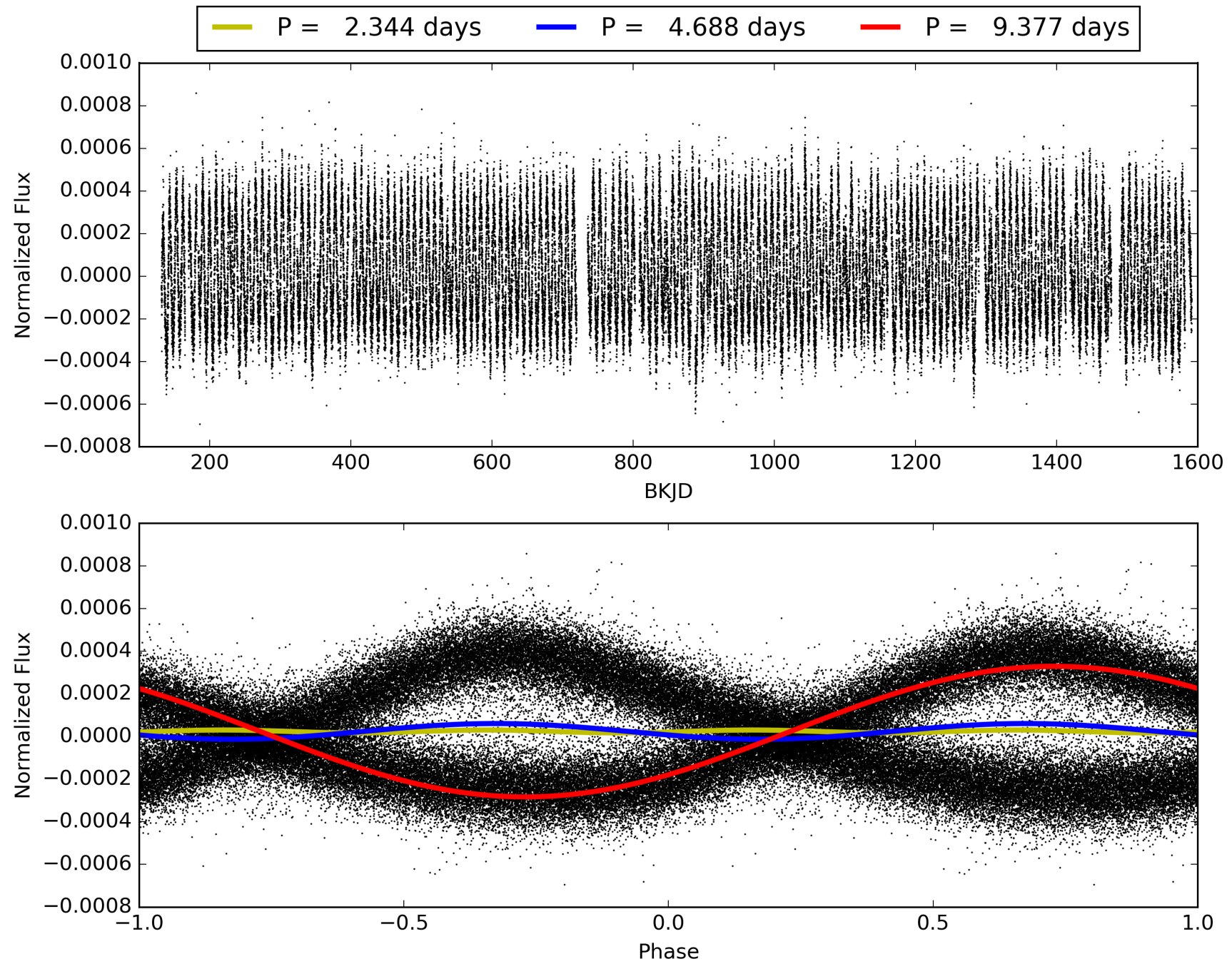
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [3.75σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.76e-36
RollingBand-fgt: 1.00 [282/282]
GhostDiagnostic-chr: 1.176
Centroid-sig: N/A
Centroid-so: 1.521 arcsec [1.51σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [17/17]

TCE 004139254-02, PDC Light Curves

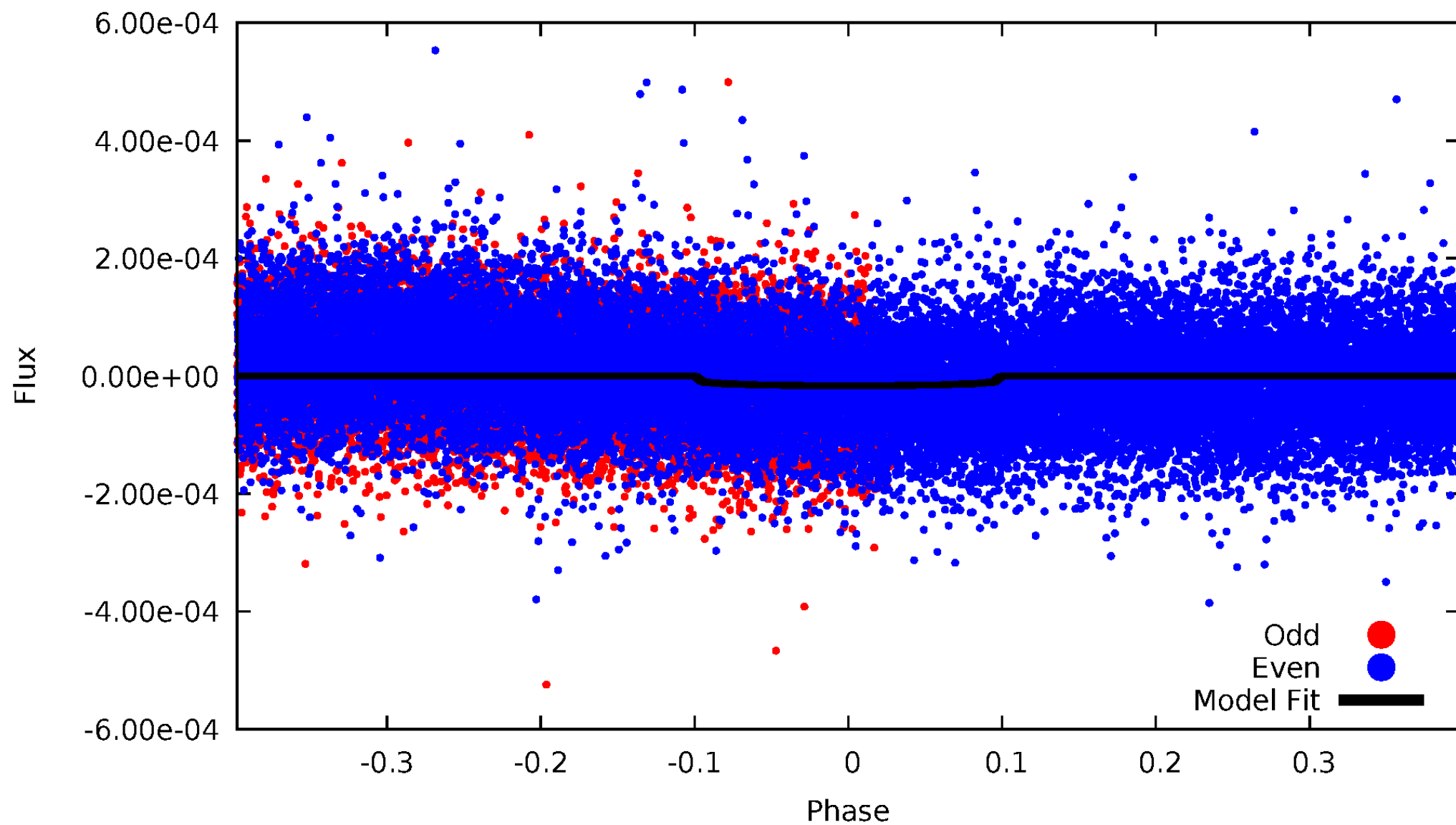


TCE 004139254-02



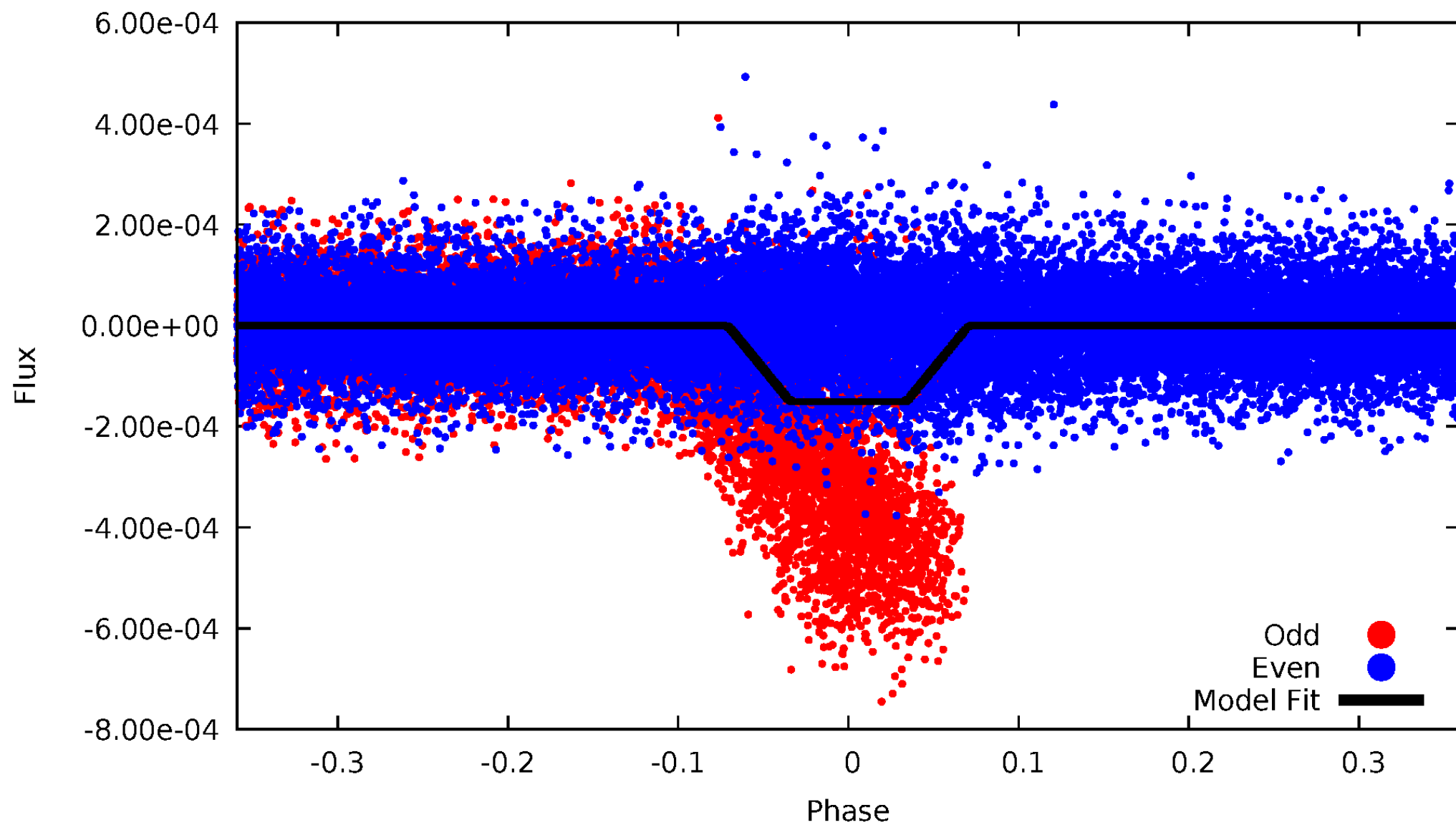
DV Odd/Even

TCE 004139254-02



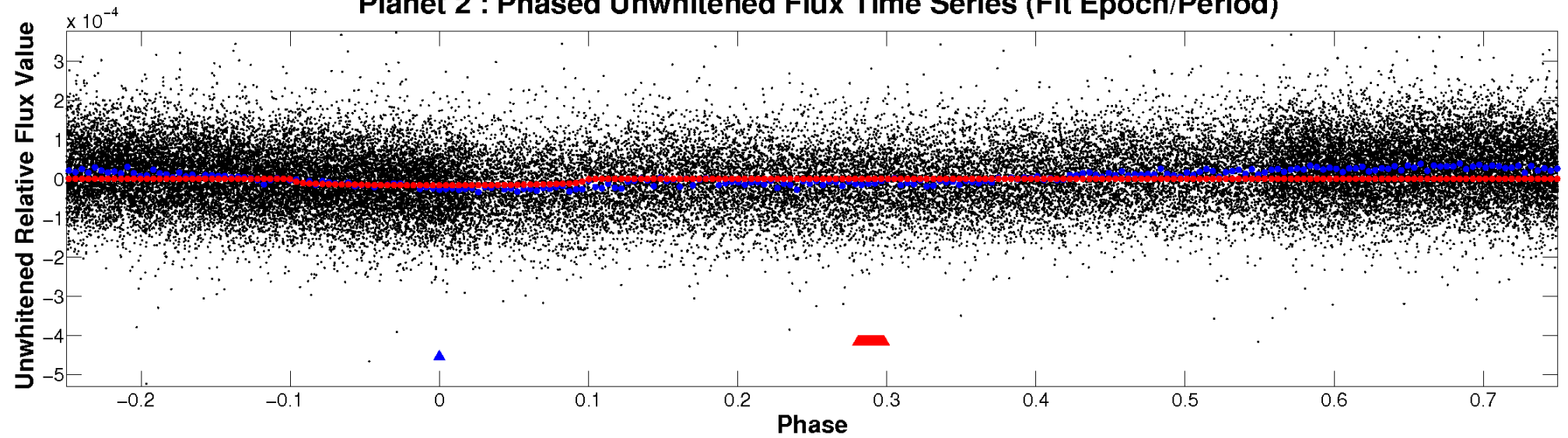
ALT Odd/Even

TCE 004139254-02

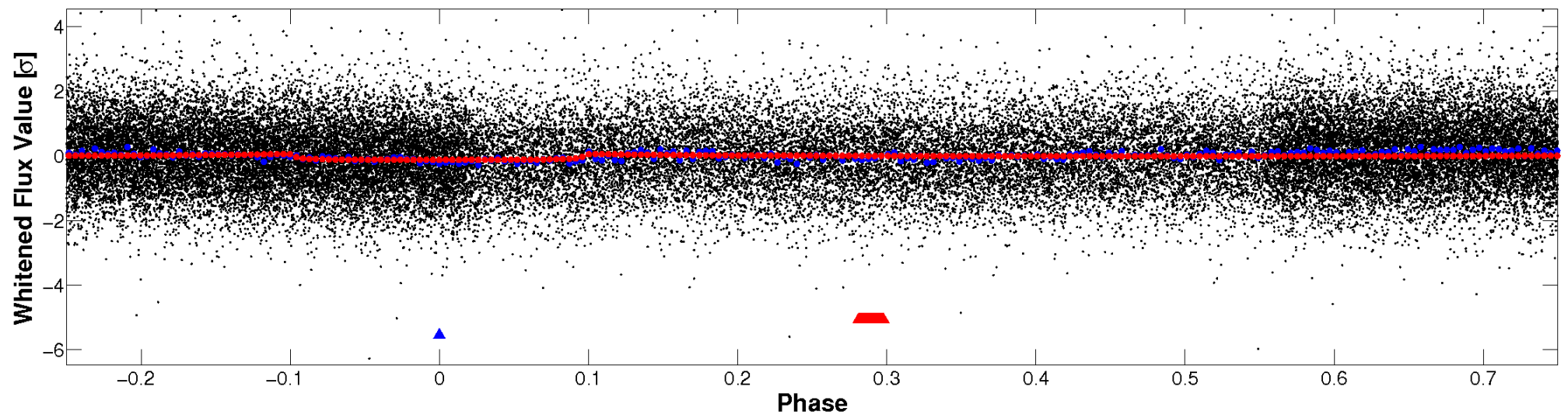


Non-Whitened Vs. Whitened Light Curve

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

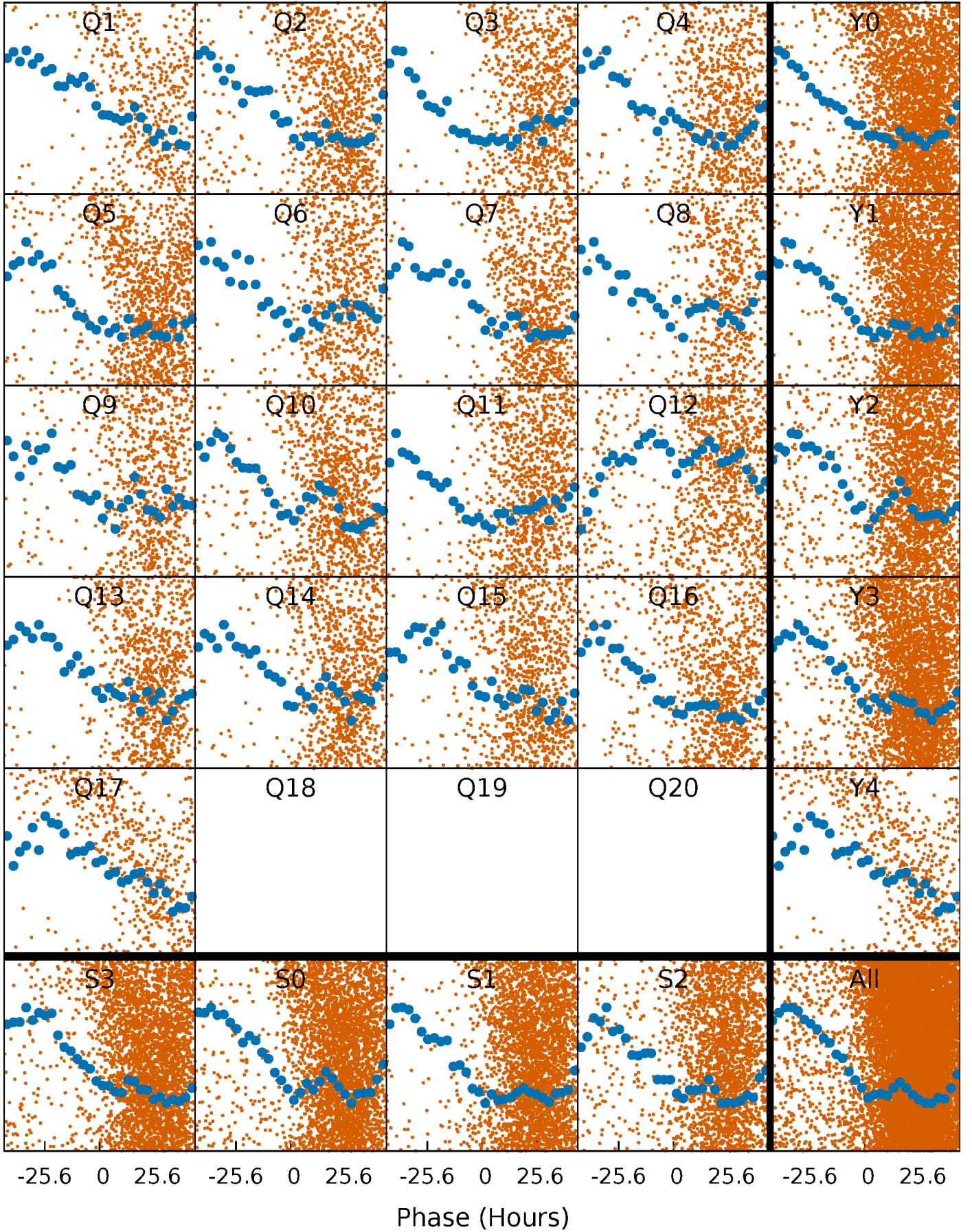


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



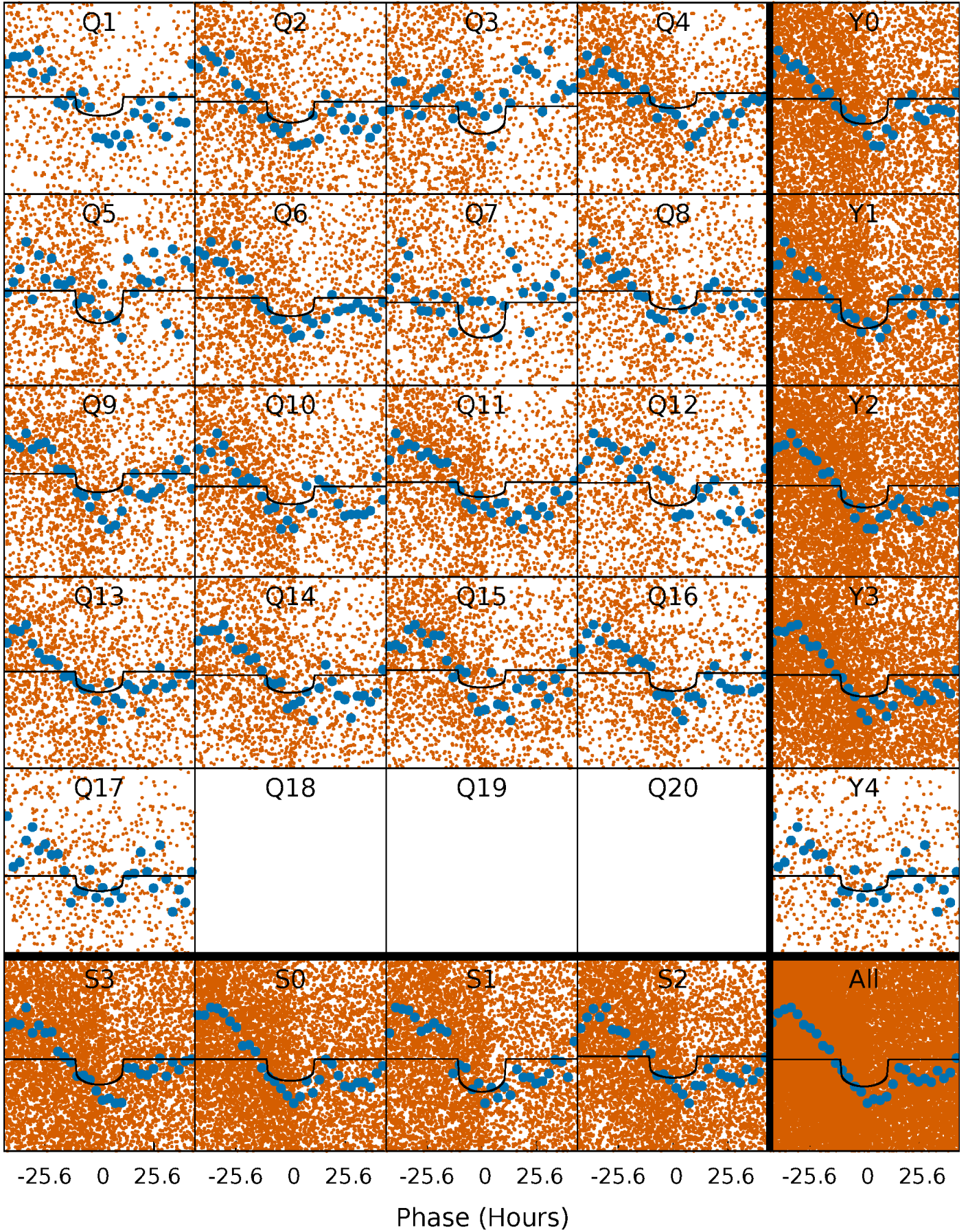
PDC Quarter-Phased Transit Curves

TCE 004139254-02 P= 4.688441 Days $T_0=135.052247$ (BKJD)



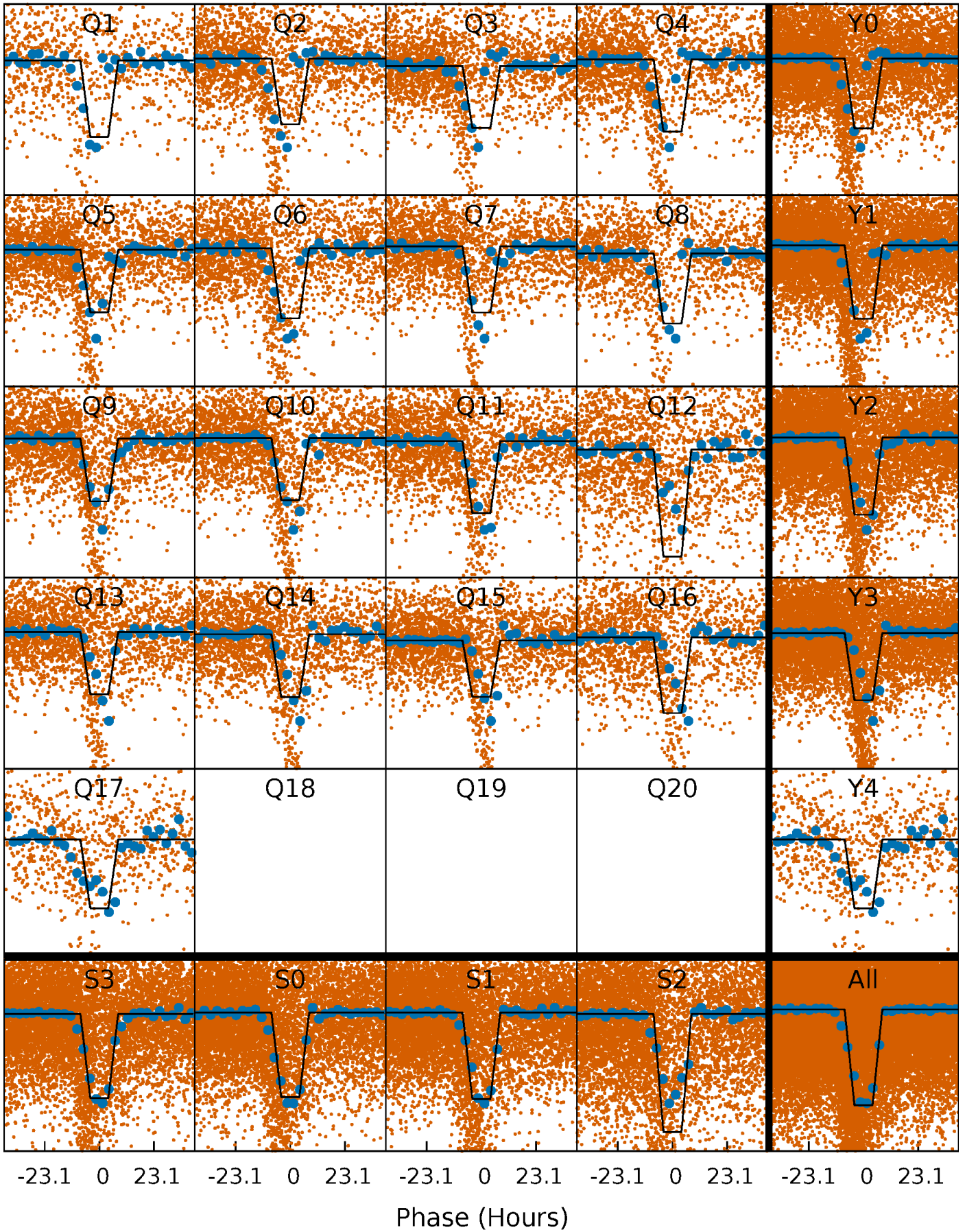
DV Quarter-Phased Transit Curves

TCE 004139254-02 P= 4.688441 Days $T_0=135.052247$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

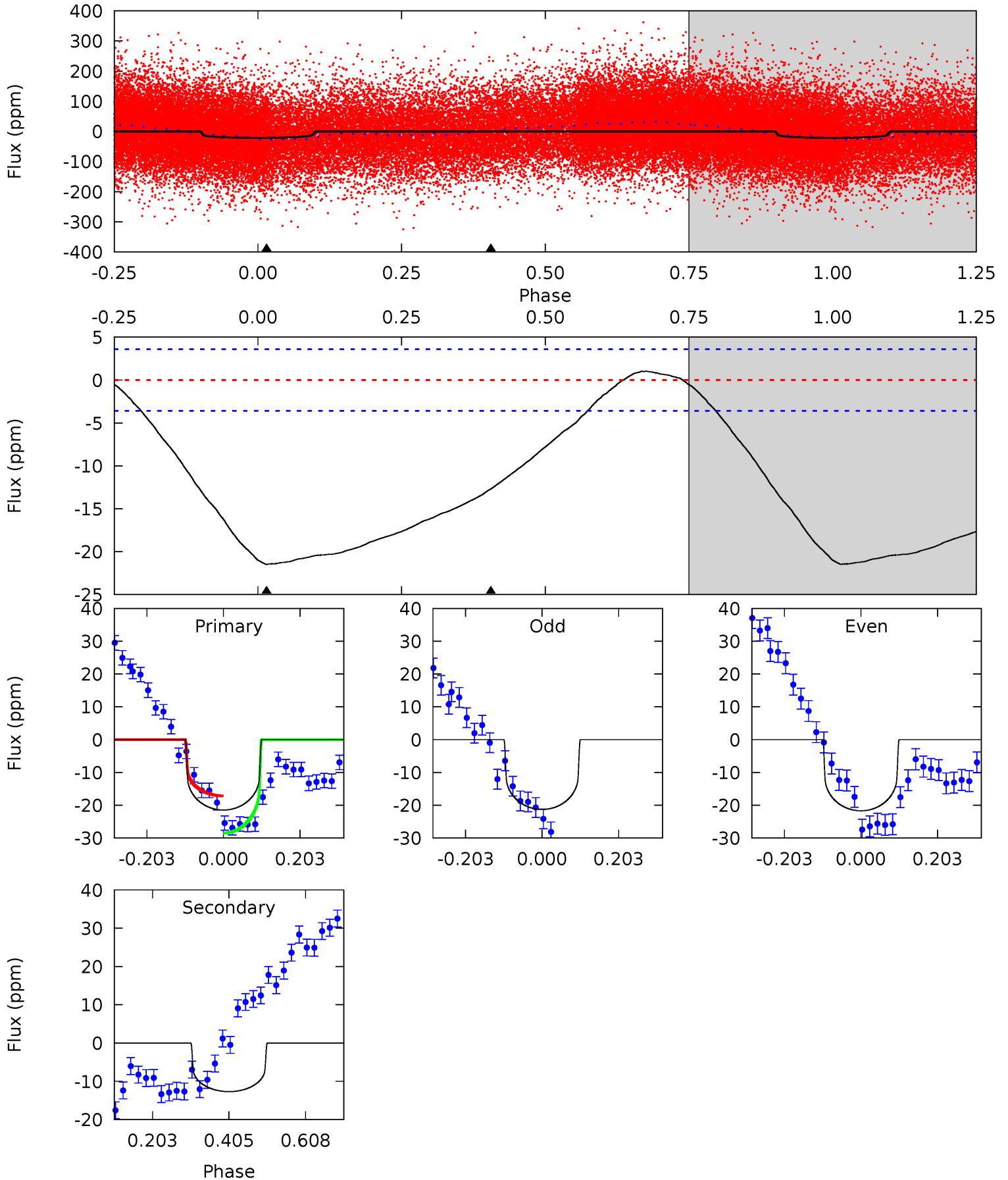
TCE 004139254-02 P= 4.687491 Days $T_0=135.149758$ (BKJD)



DV Model-Shift Uniqueness Test

004139254-02, P = 4.688441 Days, E = 130.363806 Days

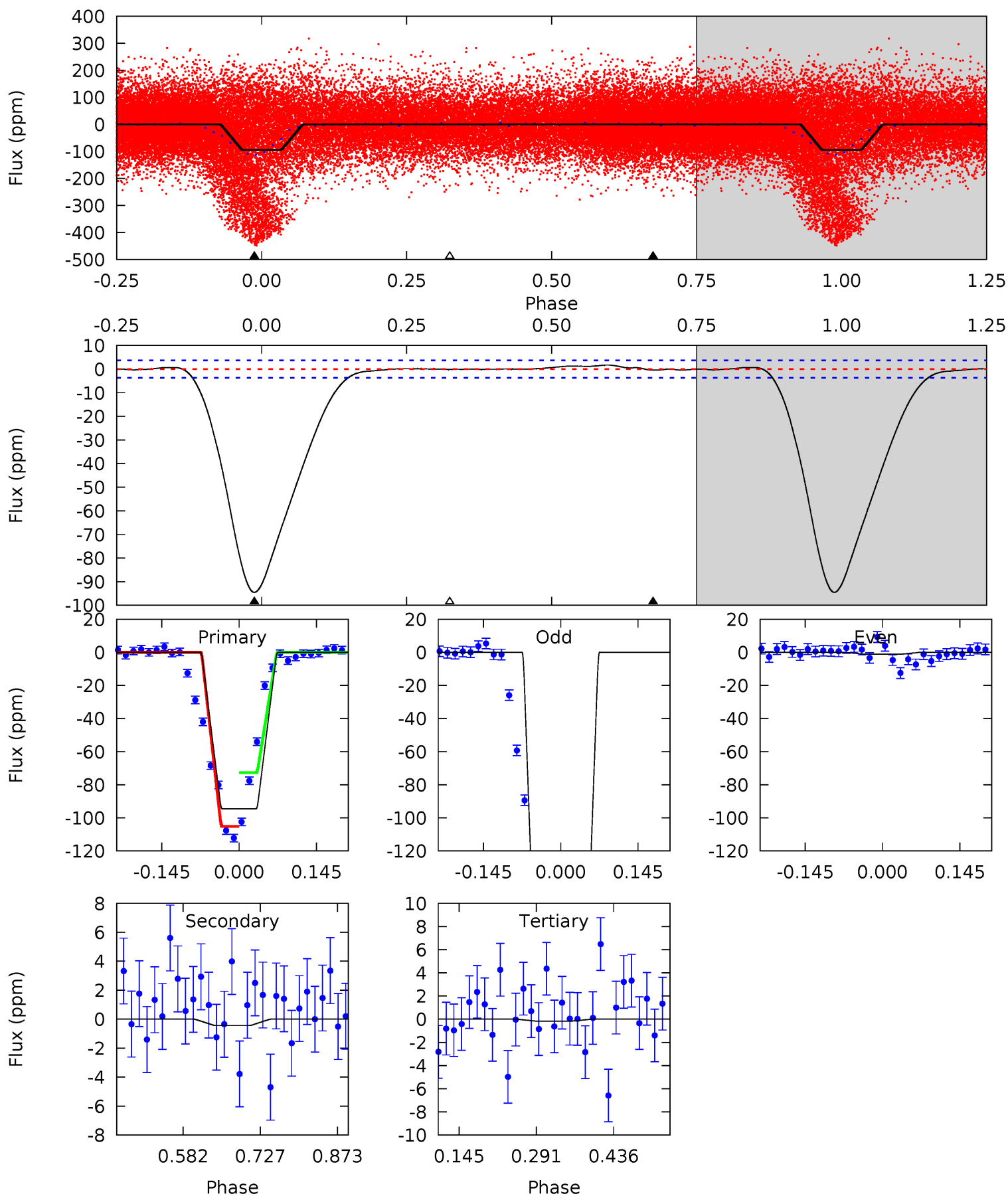
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.4	15.6	0	0	4.41	1.27	1.95	26.4	26.4	15.6	15.6	0.25	1.02	0.05	7.00



Alt Model-Shift Uniqueness Test

004139254-02, P = 4.687491 Days, E = 130.462267 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
114.3	0.53	0.20	0	4.49	1.46	1.50	114.1	114.3	0.33	0.53	200.8	1.46	0.02	19.1



Stellar Parameters For KIC 004139254

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5571^{+153}_{-125}	$4.101^{+0.343}_{-0.147}$	$-0.180^{+0.300}_{-0.250}$	$1.376^{+0.305}_{-0.457}$	$0.871^{+0.109}_{-0.067}$	$0.471^{+1.101}_{-0.190}$
	+3%/-2%	+8%/-4%	+167%/-139%	+22%/-33%	+13%/-8%	+234%/-40%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004139254-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-13 ± 1	$0.61^{+0.17}_{-0.14}$	1733^{+129}_{-162}	5128^{+485}_{-361}	52^{+36}_{-21}
Alt.	-0 ± 1	$1.83^{+0.28}_{-0.34}$	1748^{+123}_{-175}	-2058^{+4400}_{-410}	$0.212^{+0.431}_{-0.398}$

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

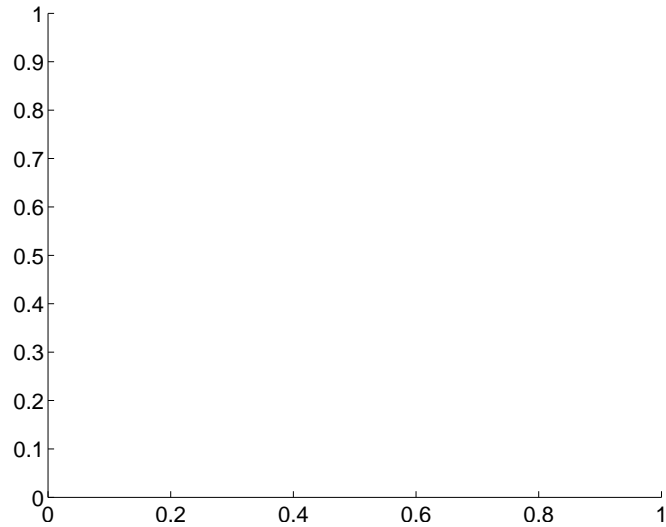
Supplemental centroid analysis for 004139254-02. Kepler magnitude: 12.12. Transit SNR 11.71

There are 0 quarters with good PRF difference image offsets

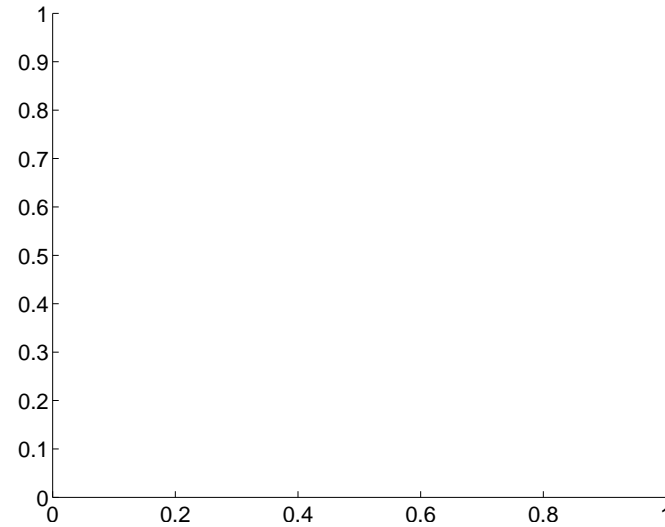
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	1.52 ± 1.01	1.51	0.10 ± 0.92	-1.52 ± 1.01

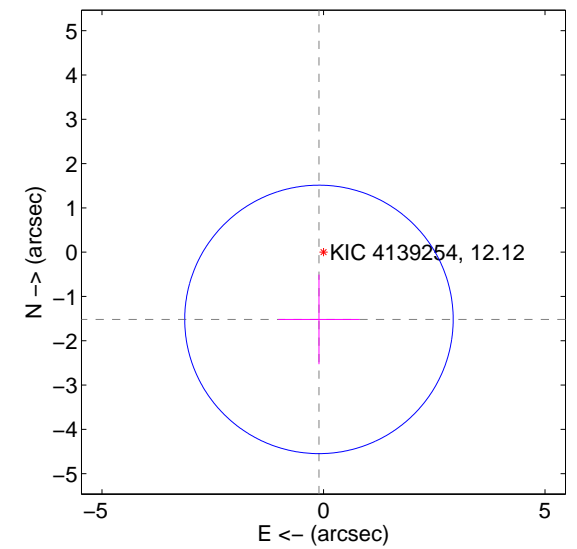
There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC

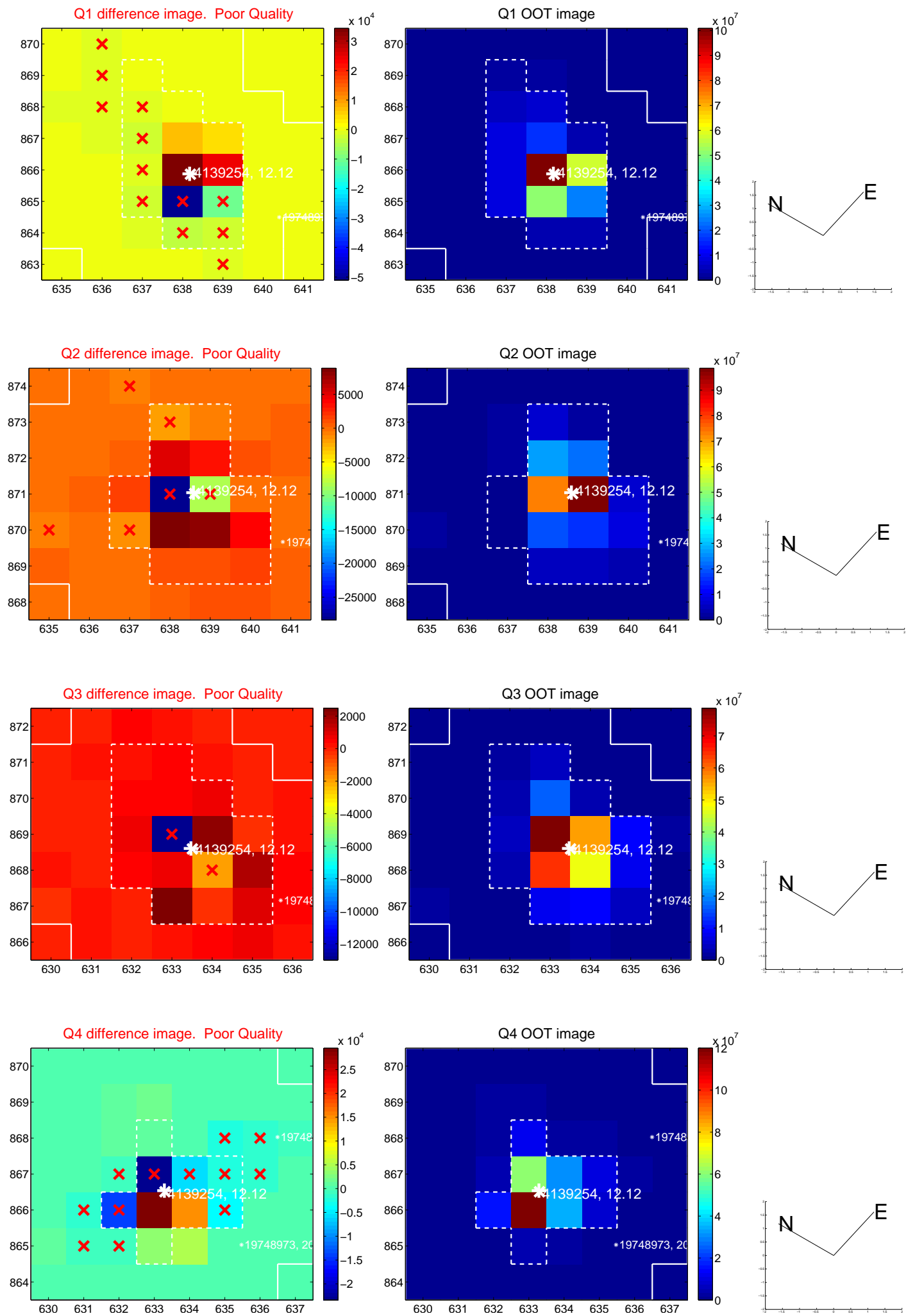


offset from photometric centroids

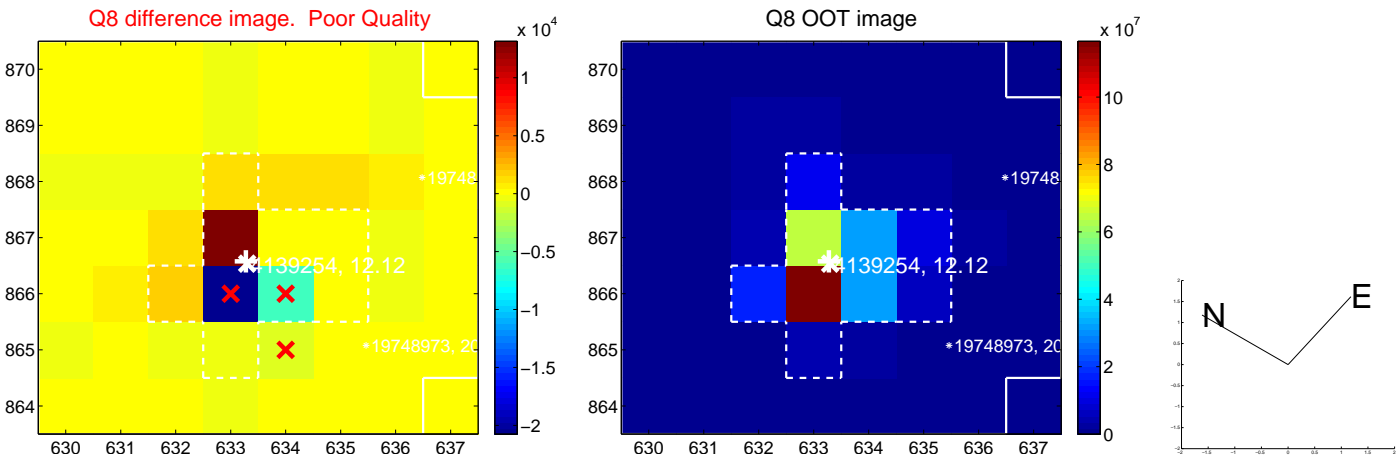
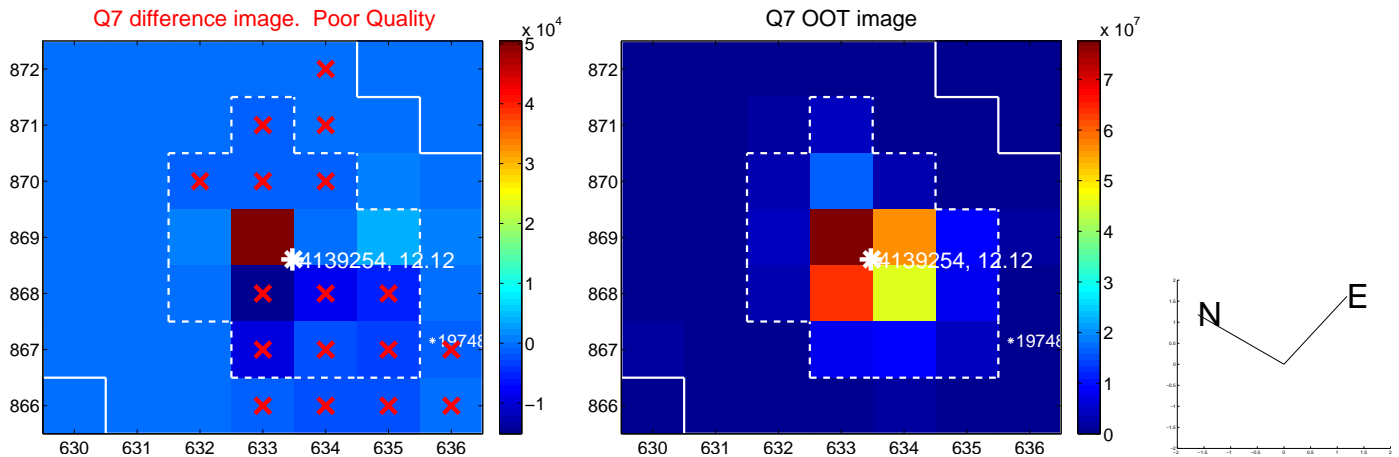
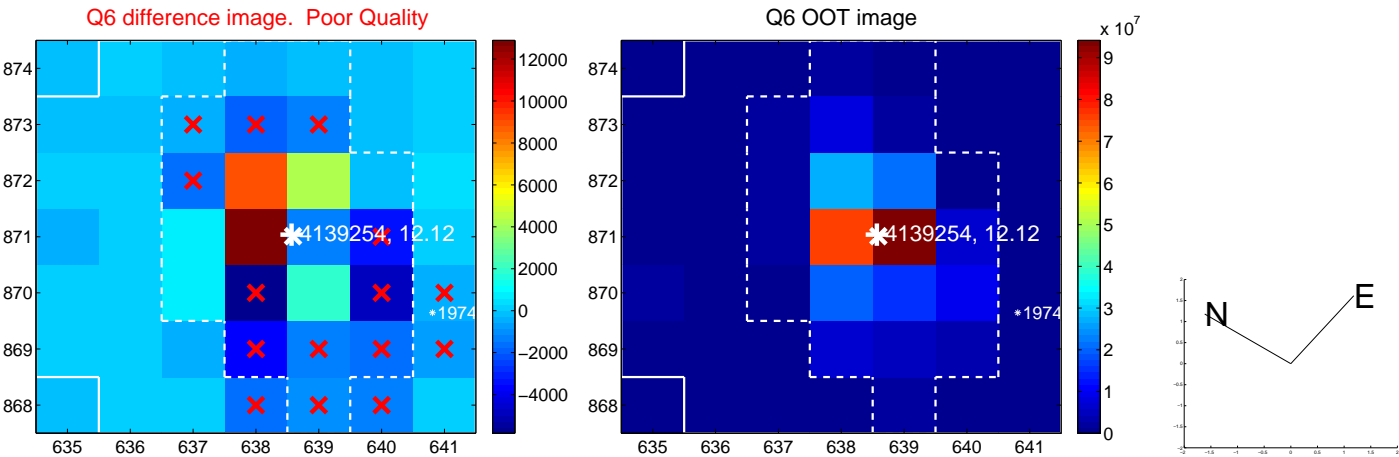
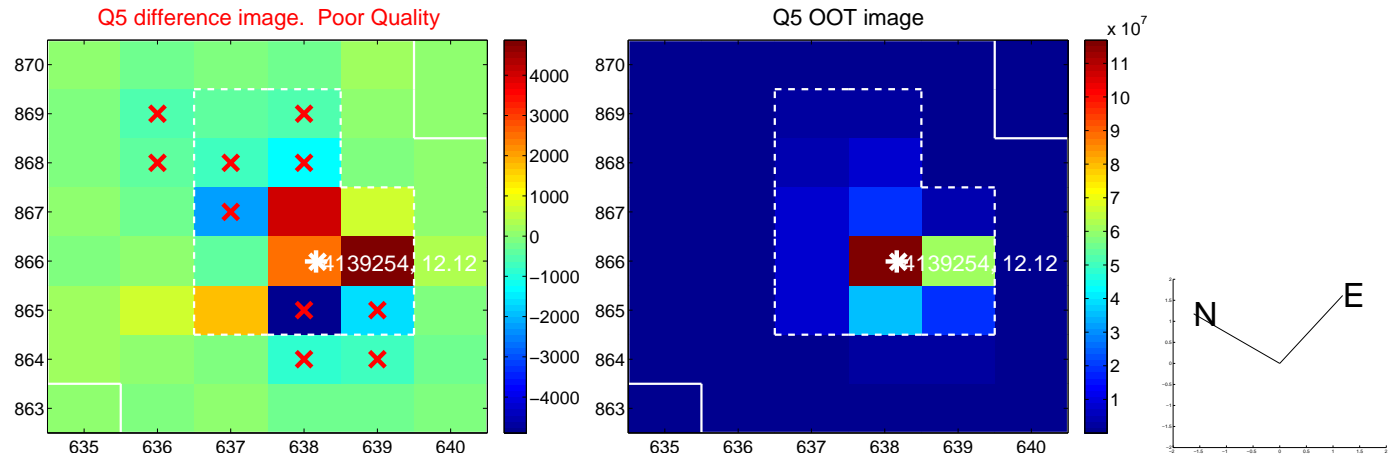


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

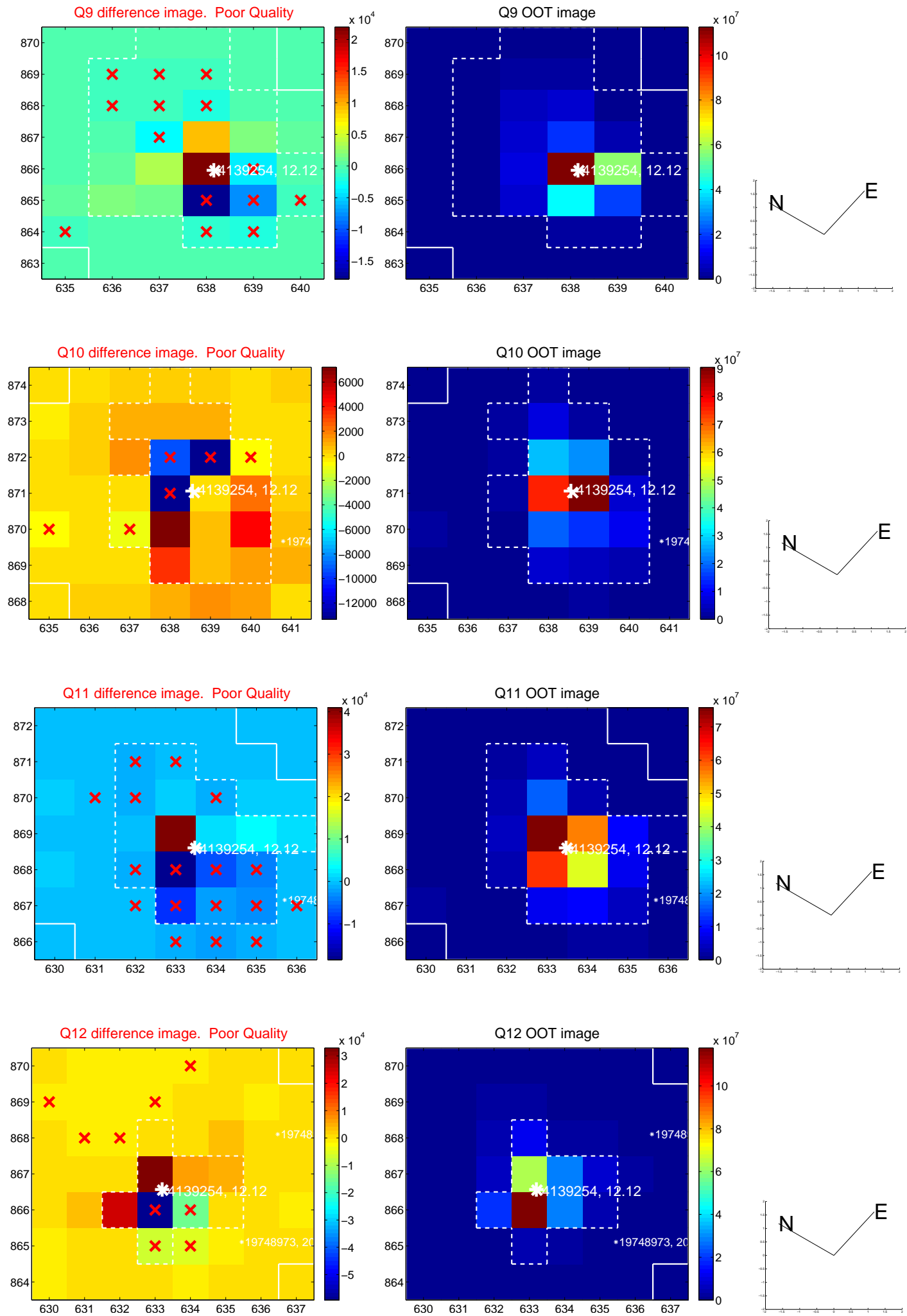
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



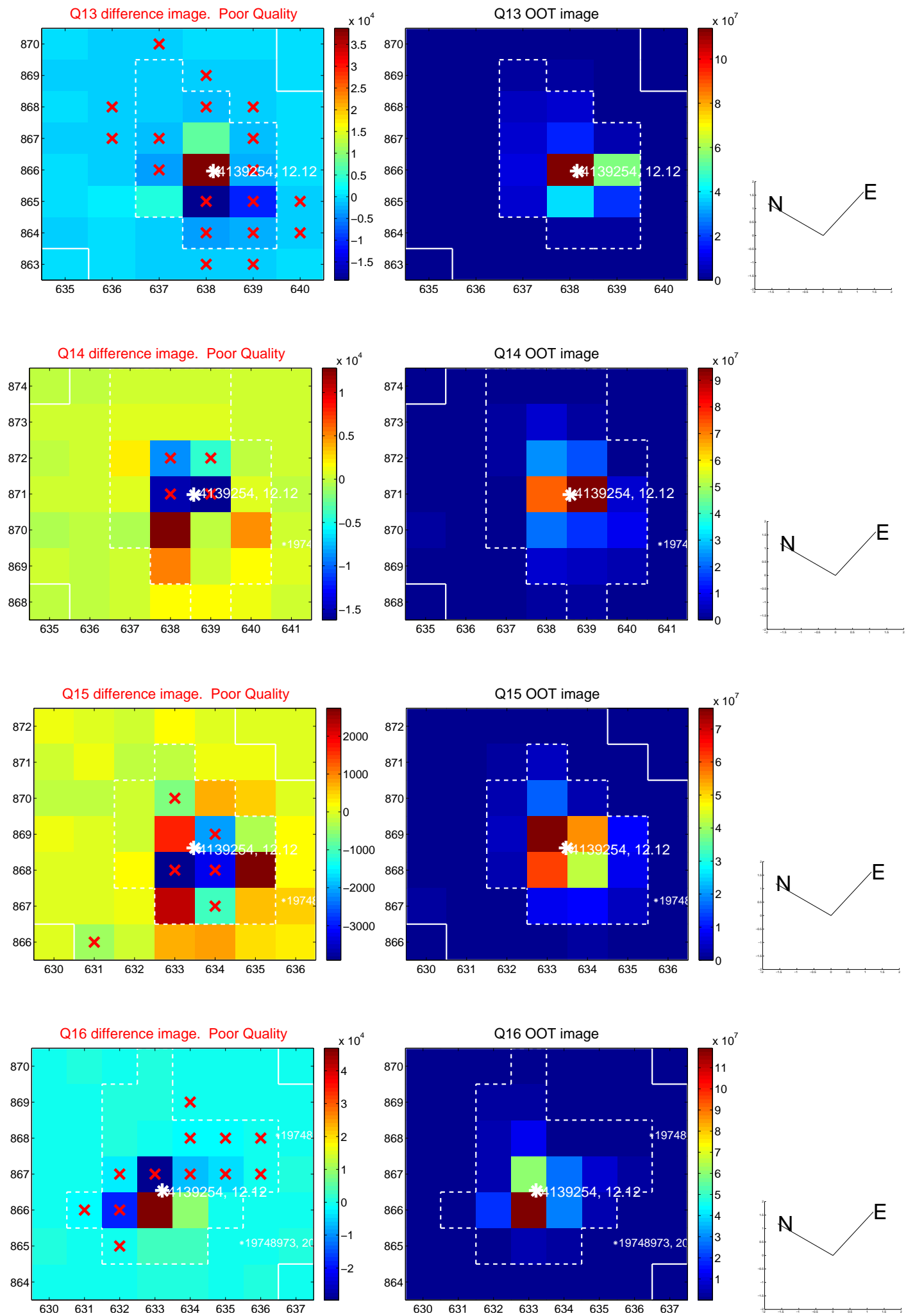
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



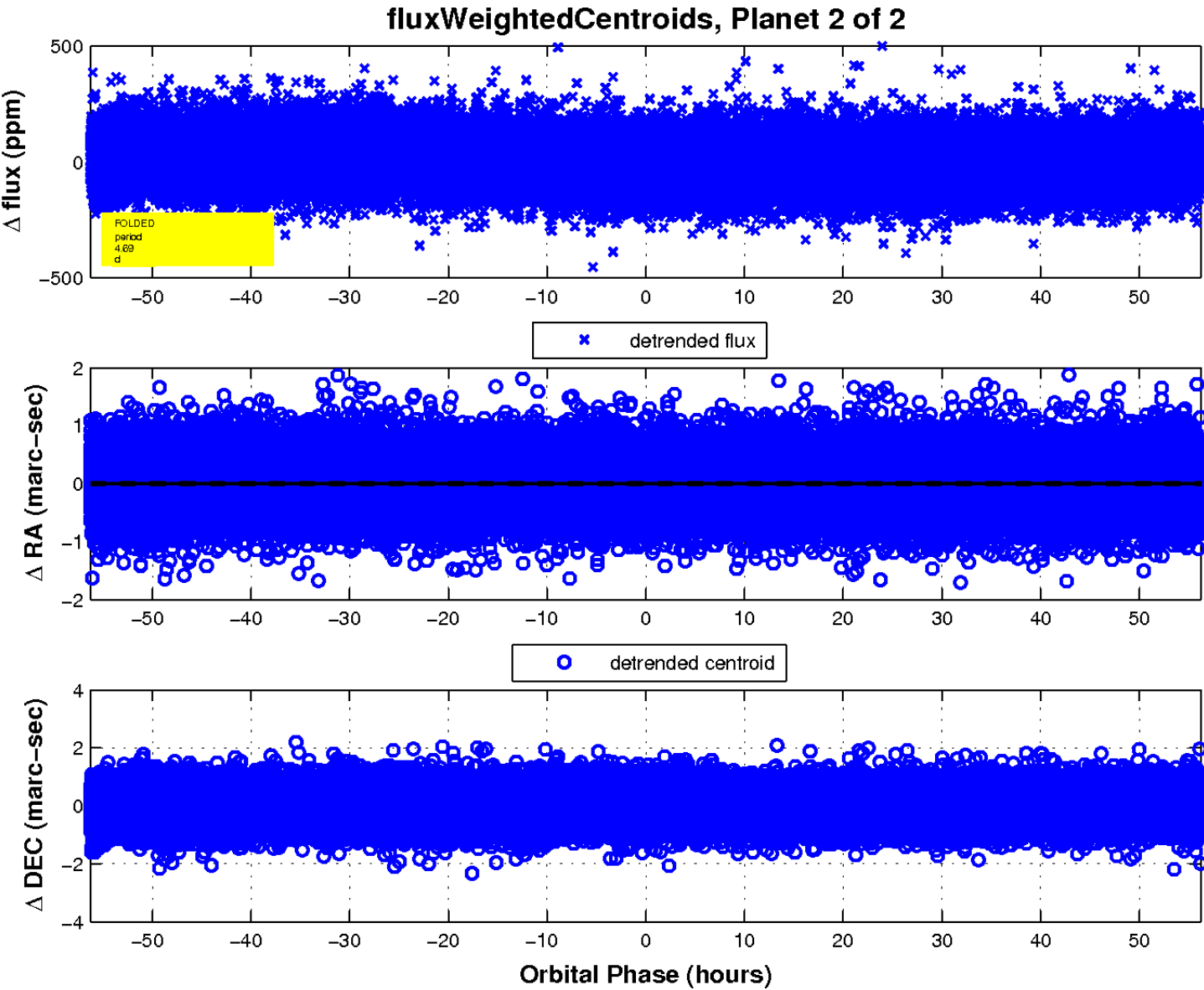
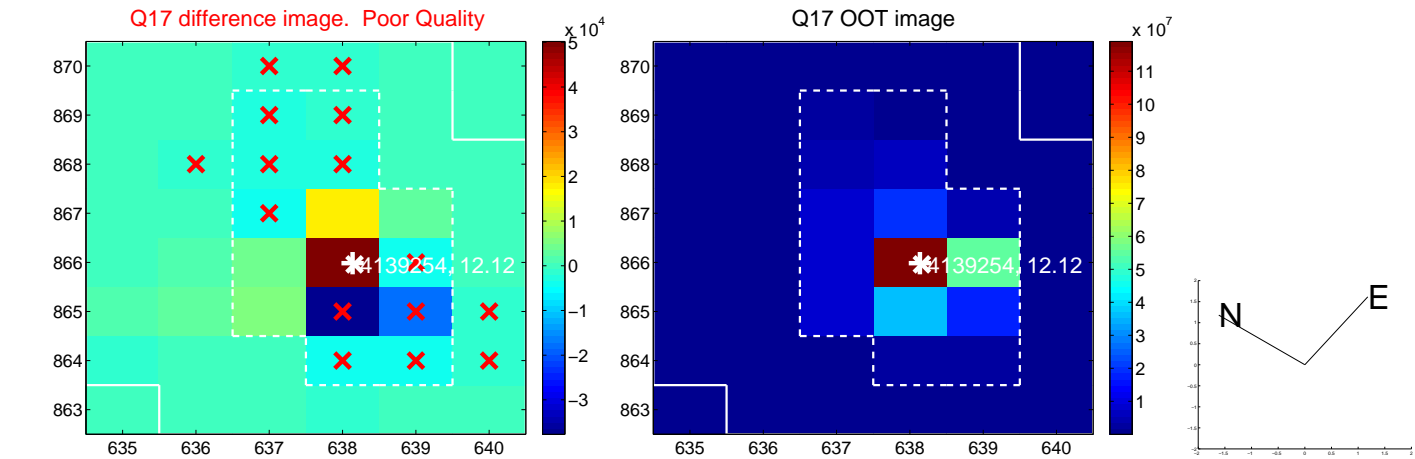
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

