

KIC 004044353

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})
004044353-01	OBS	No	0.535212	131.615424	5.9	3.442	10.0	1.9	4.05	8523	1.02	0.00
004044353-02	OBS	No	0.527705	131.942989	131.1	2.139	13.2	21.5	4.05	8523	5.39	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004044353-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
004044353-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

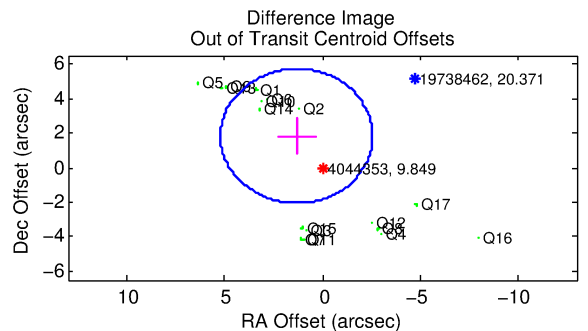
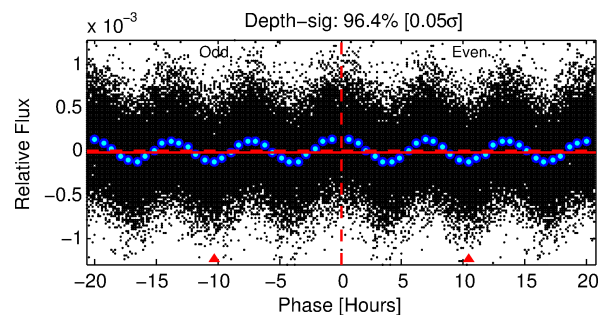
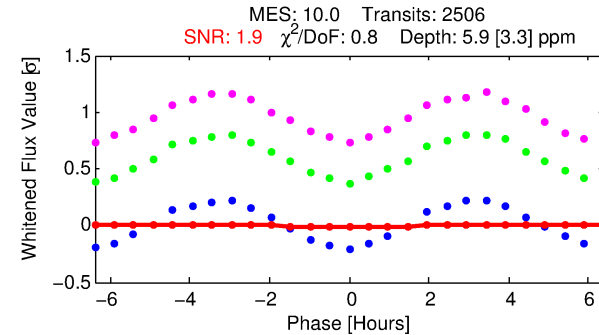
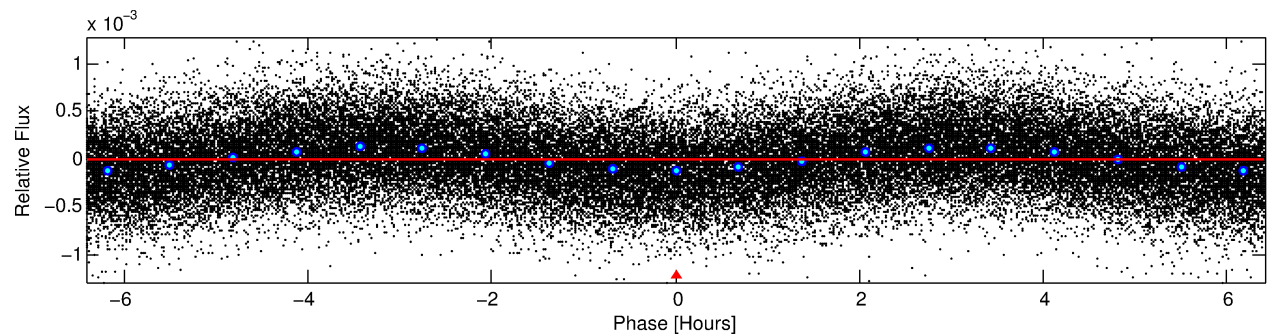
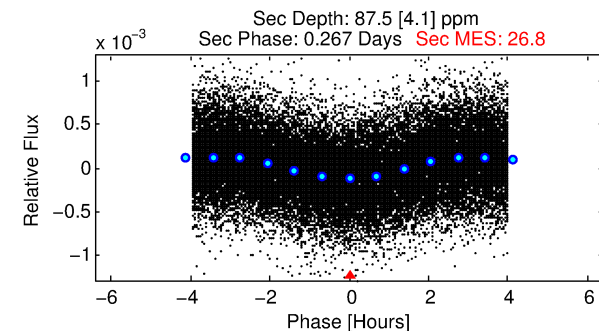
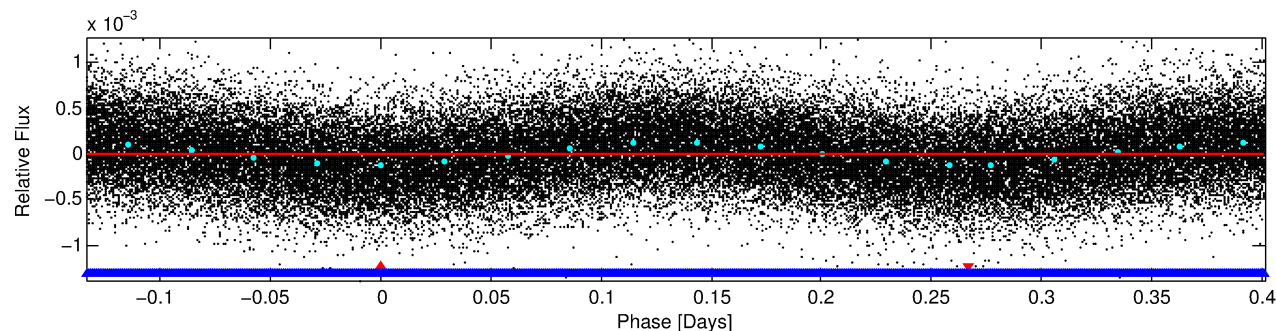
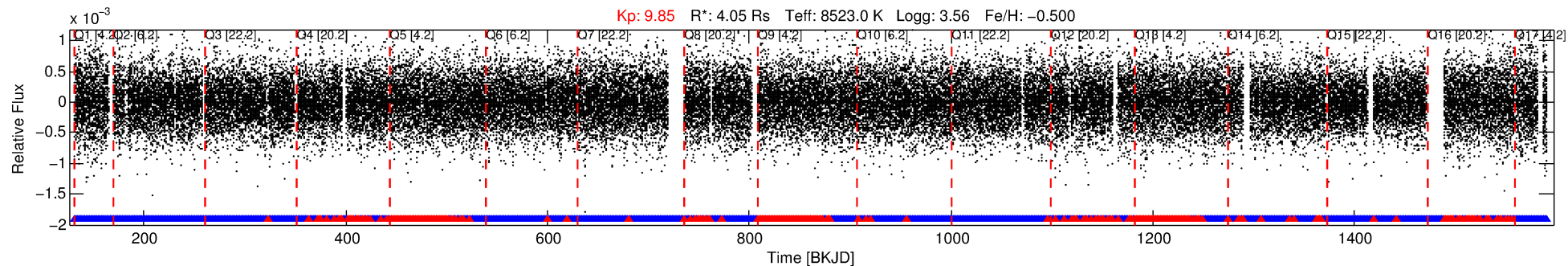
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004044353-01

No Significant Match Found

DV One-Page Summary

KIC: 4044353 Candidate: 1 of 2 Period: 0.535 d



DV Fit Results:

Period = 0.53521 [0.00006] d
Epoch = 131.6154 [0.0181] BKJD
Rp/R* = 0.0023 [0.0030]
a/R* = 1.26 [3.65]
b = 0.51 [11.20]
Seff = N/A
Teq = N/A
Rp = 1.02 [1.46] Re
a = N/A
Ag = N/A
Teffp = N/A

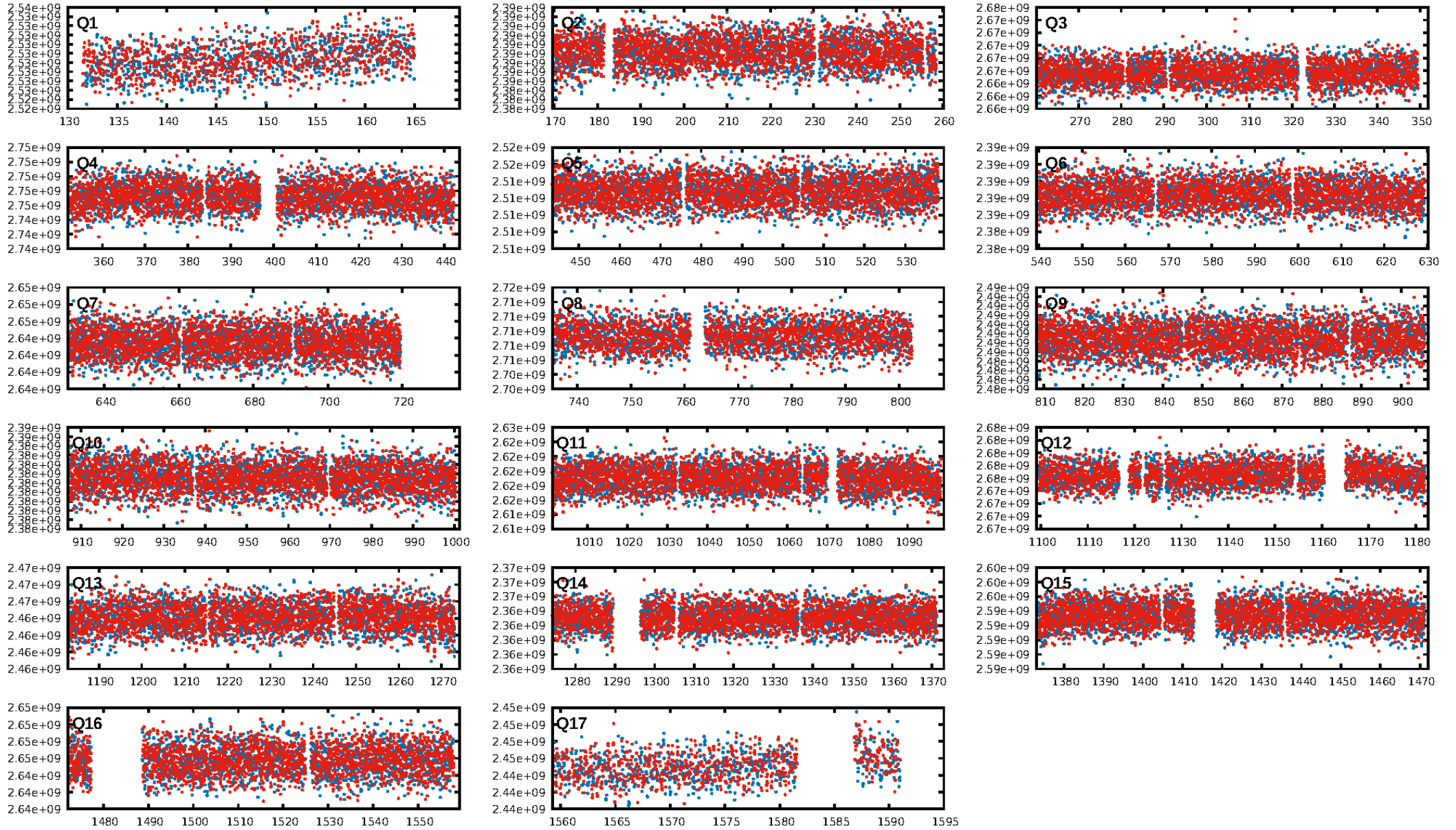
DV Diagnostic Results:

ShortPeriod-sig: 3.5% [0.04σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.83 [1978/2393]
GhostDiagnostic-chr: N/A
Centroid-sig: 22.2%
Centroid-so: 2.000 arcsec [1.14σ]
OotOffset-rm: 2.256 arcsec [1.74σ]
KicOffset-rm: 3.351 arcsec [2.46σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.41 [7/17]
DiffImageOverlap-fno: 0.00 [0/17]

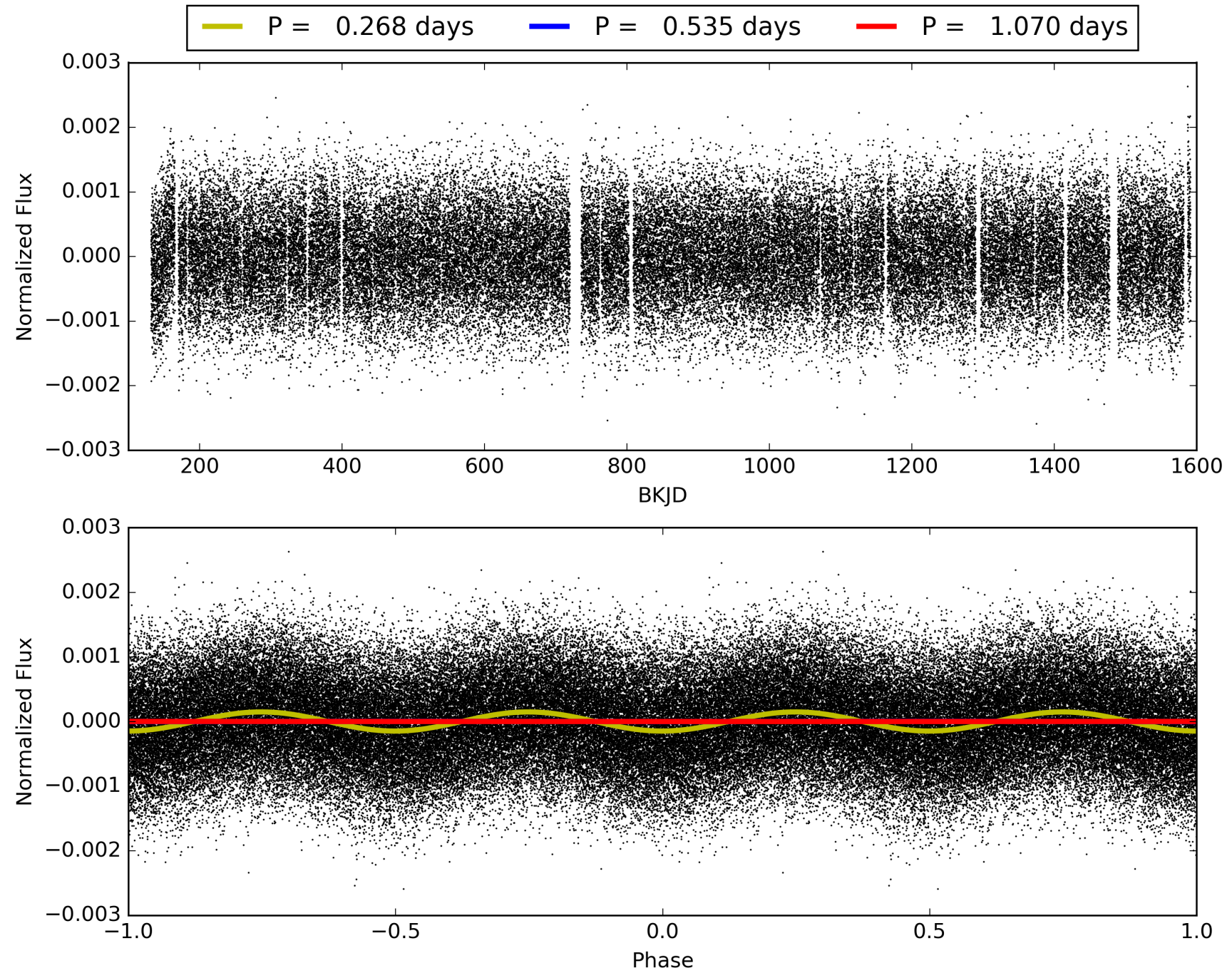
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:16:09 Z

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

TCE 004044353-01, PDC Light Curves

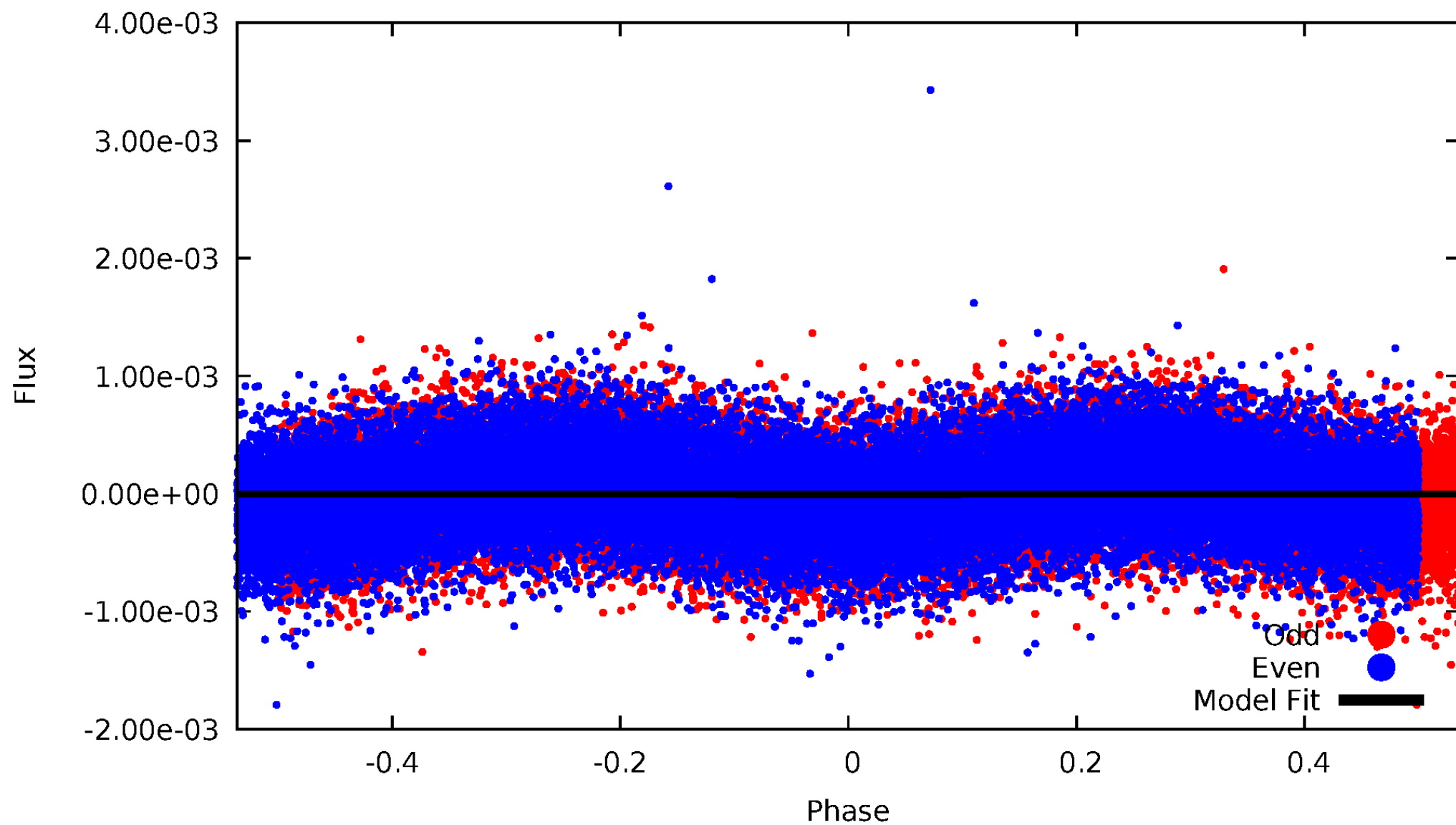


TCE 004044353-01



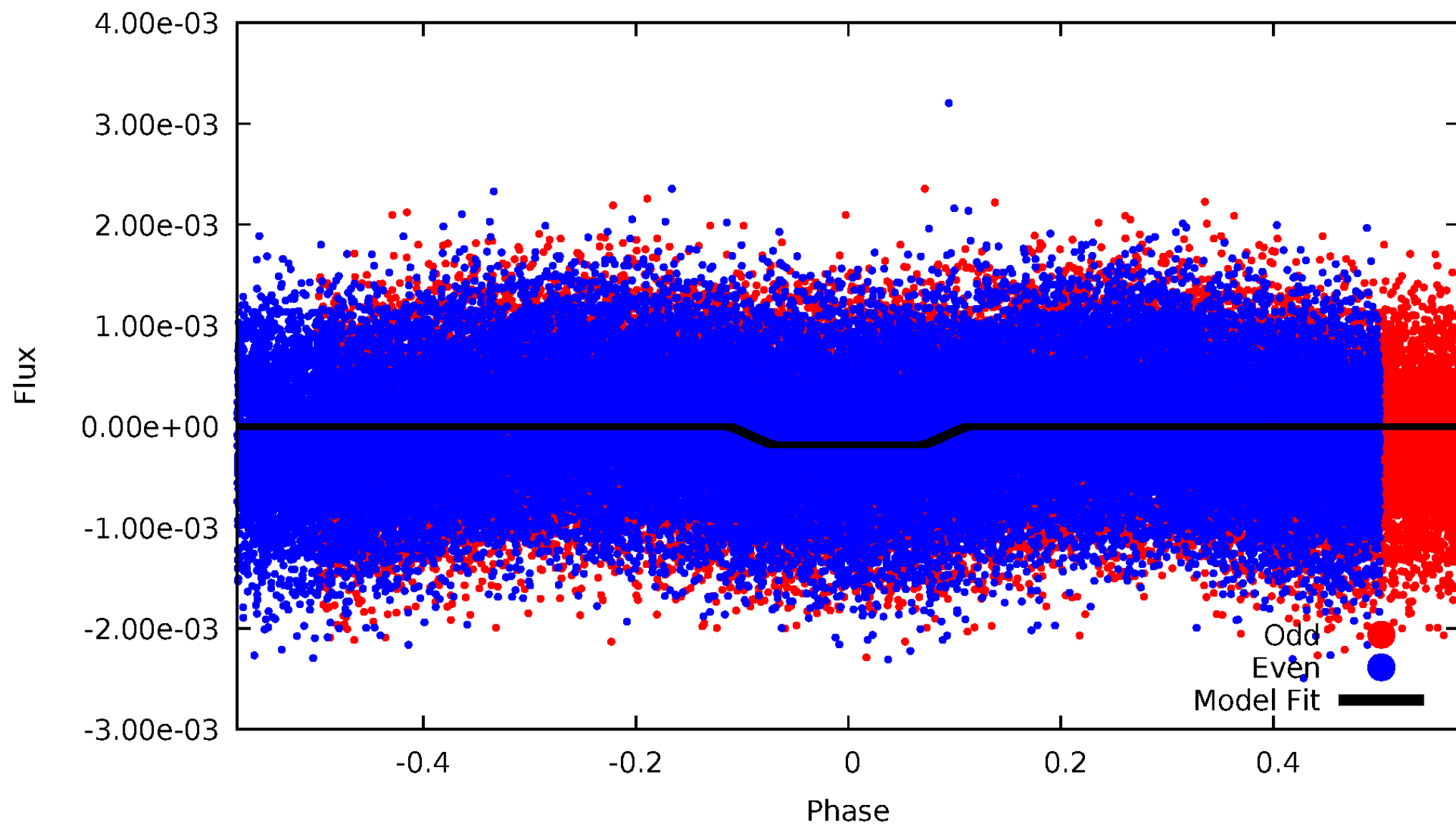
DV Odd/Even

TCE 004044353-01



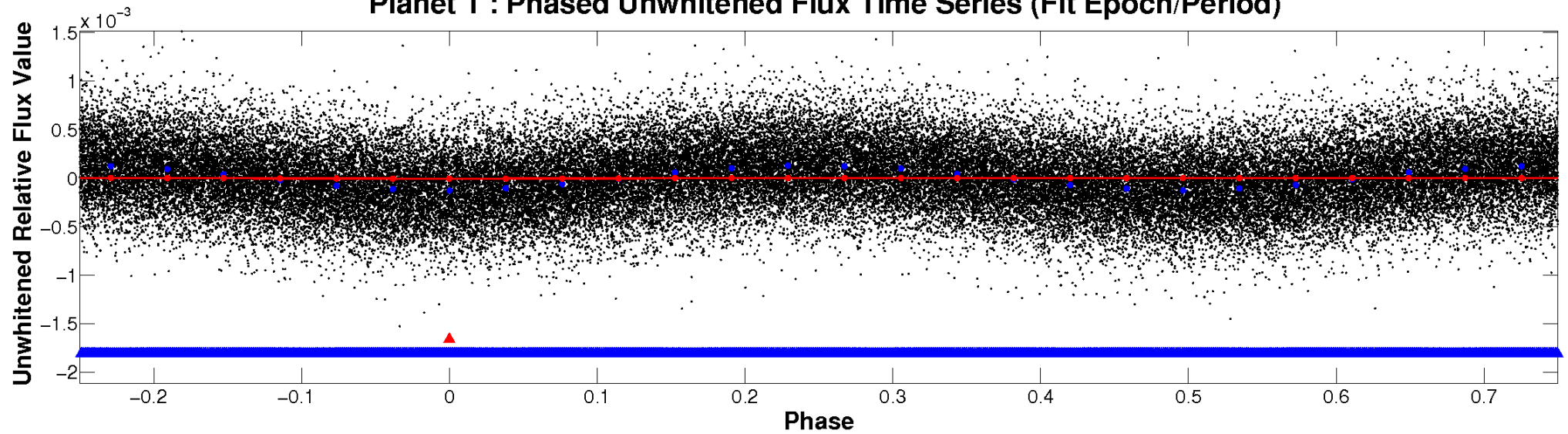
ALT Odd/Even

TCE 004044353-01

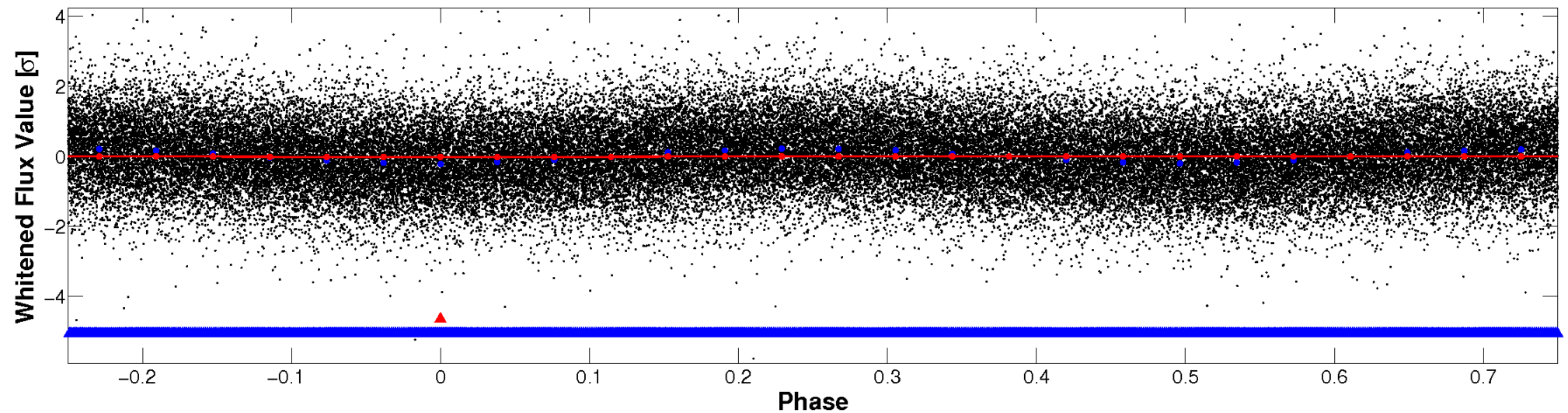


Non-Whitened Vs. Whitened Light Curve

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

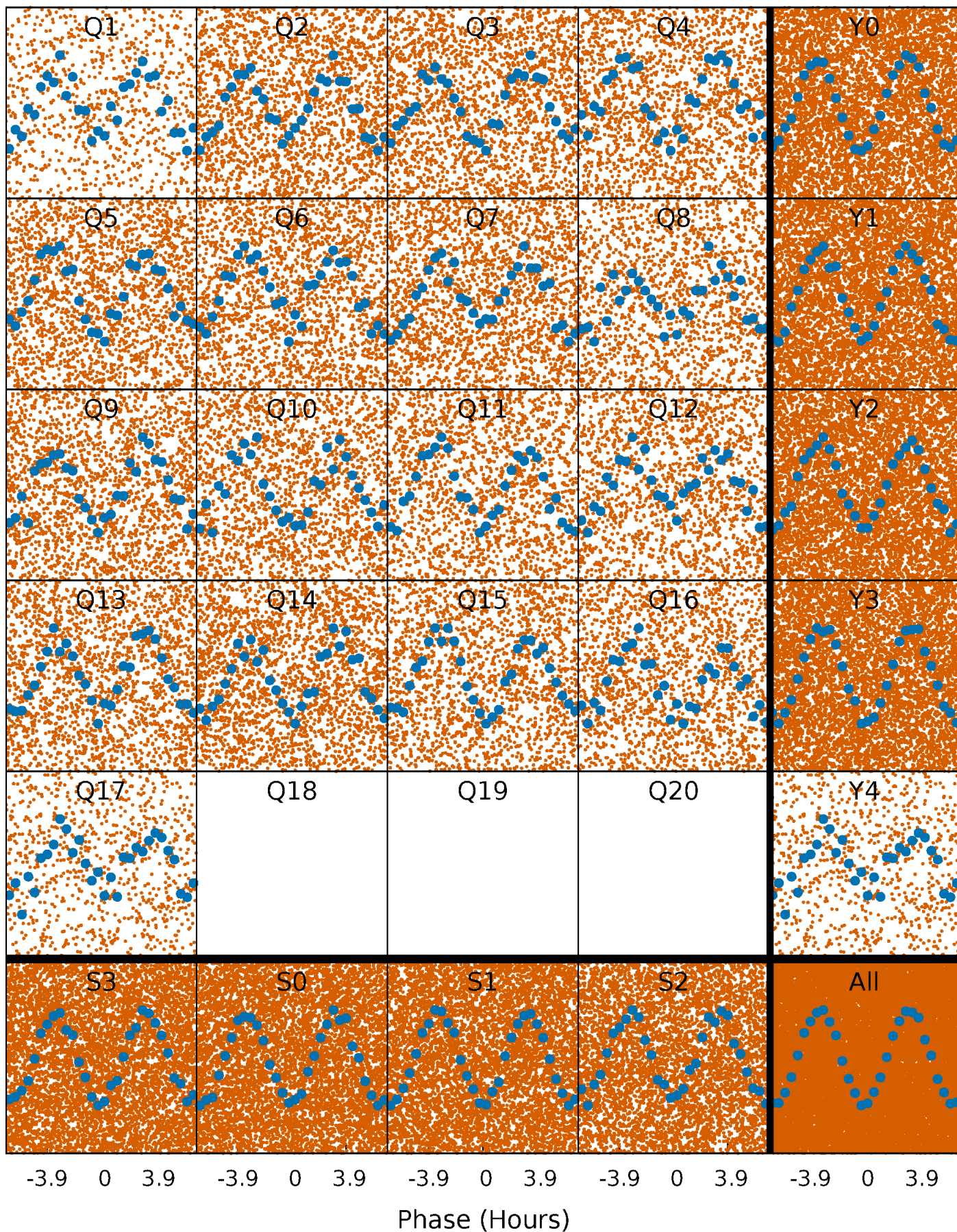


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



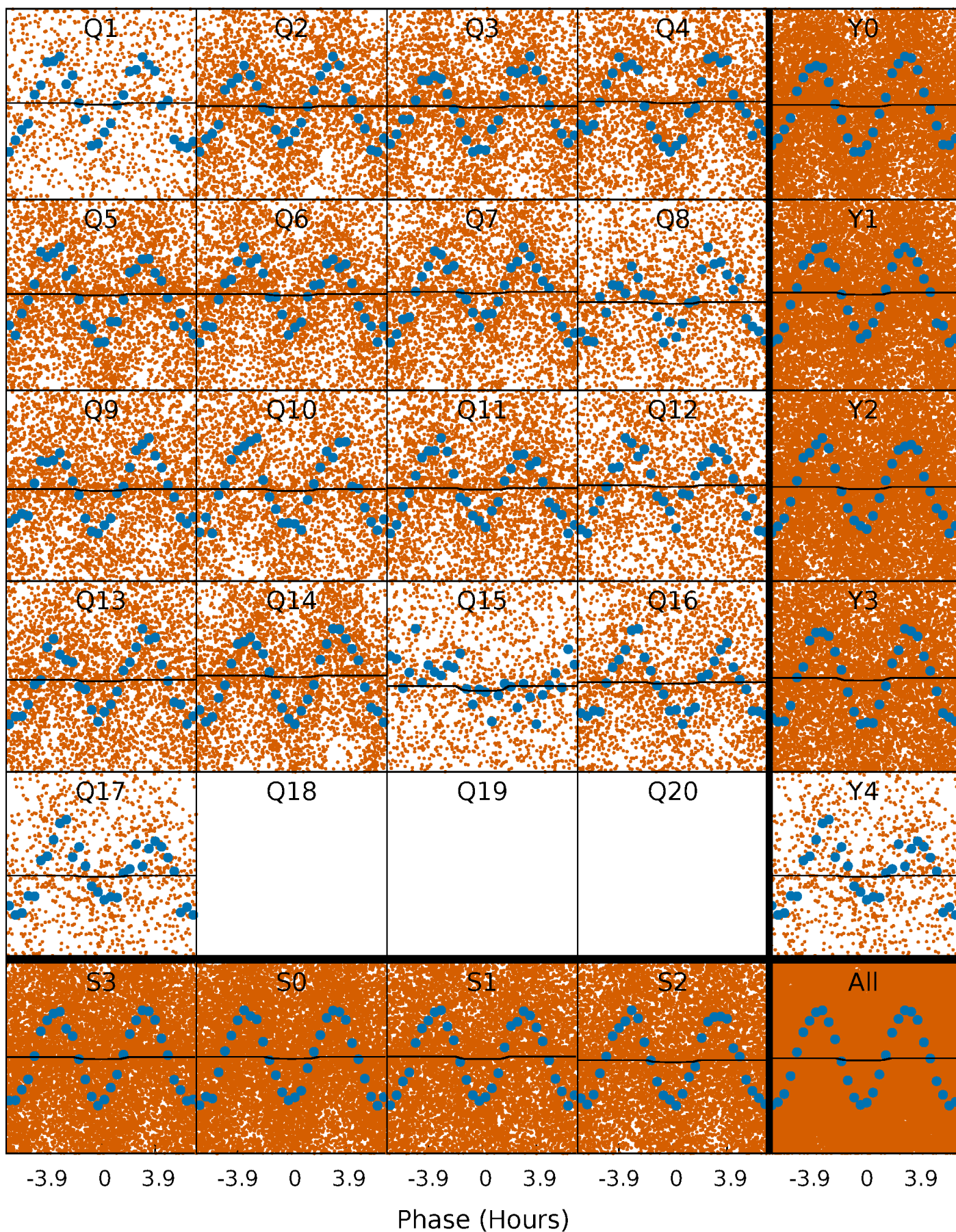
PDC Quarter-Phased Transit Curves

TCE 004044353-01 P= 0.535212 Days $T_0=131.615424$ (BKJD)



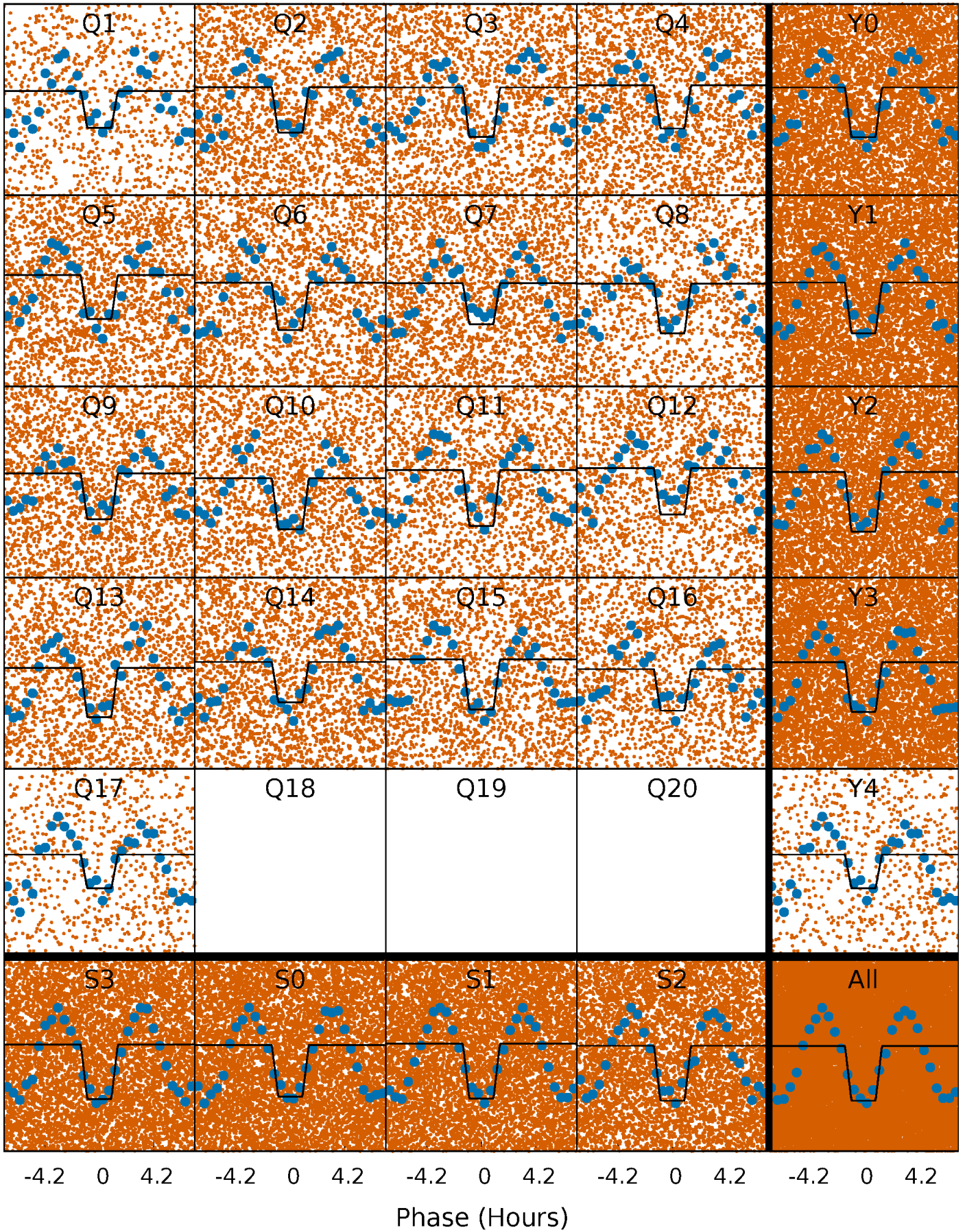
DV Quarter-Phased Transit Curves

TCE 004044353-01 P= 0.535212 Days $T_0=131.615424$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

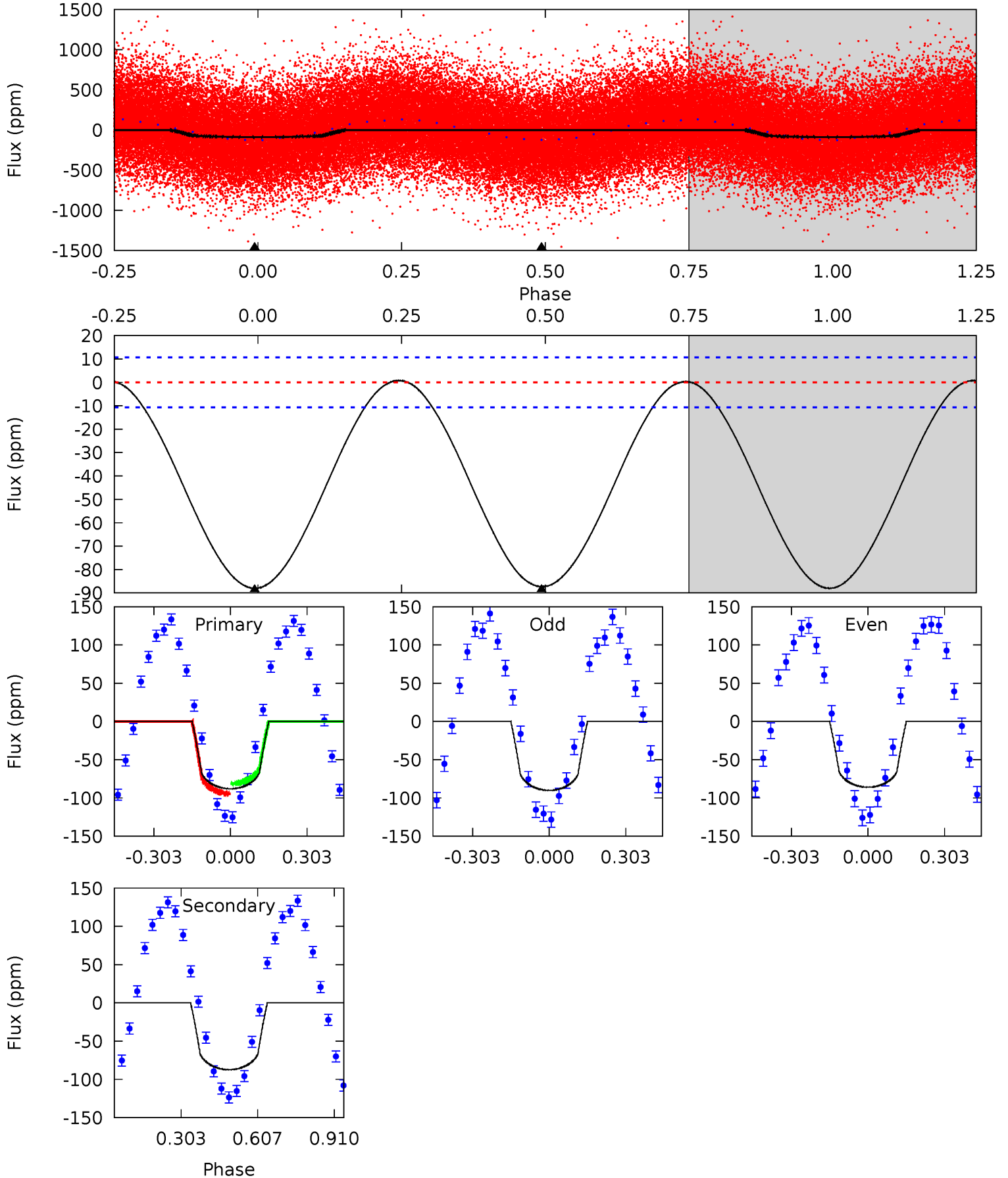
TCE 004044353-01 P= 0.535223 Days $T_0=131.599706$ (BKJD)



DV Model-Shift Uniqueness Test

004044353-01, P = 0.535212 Days, E = 131.080212 Days

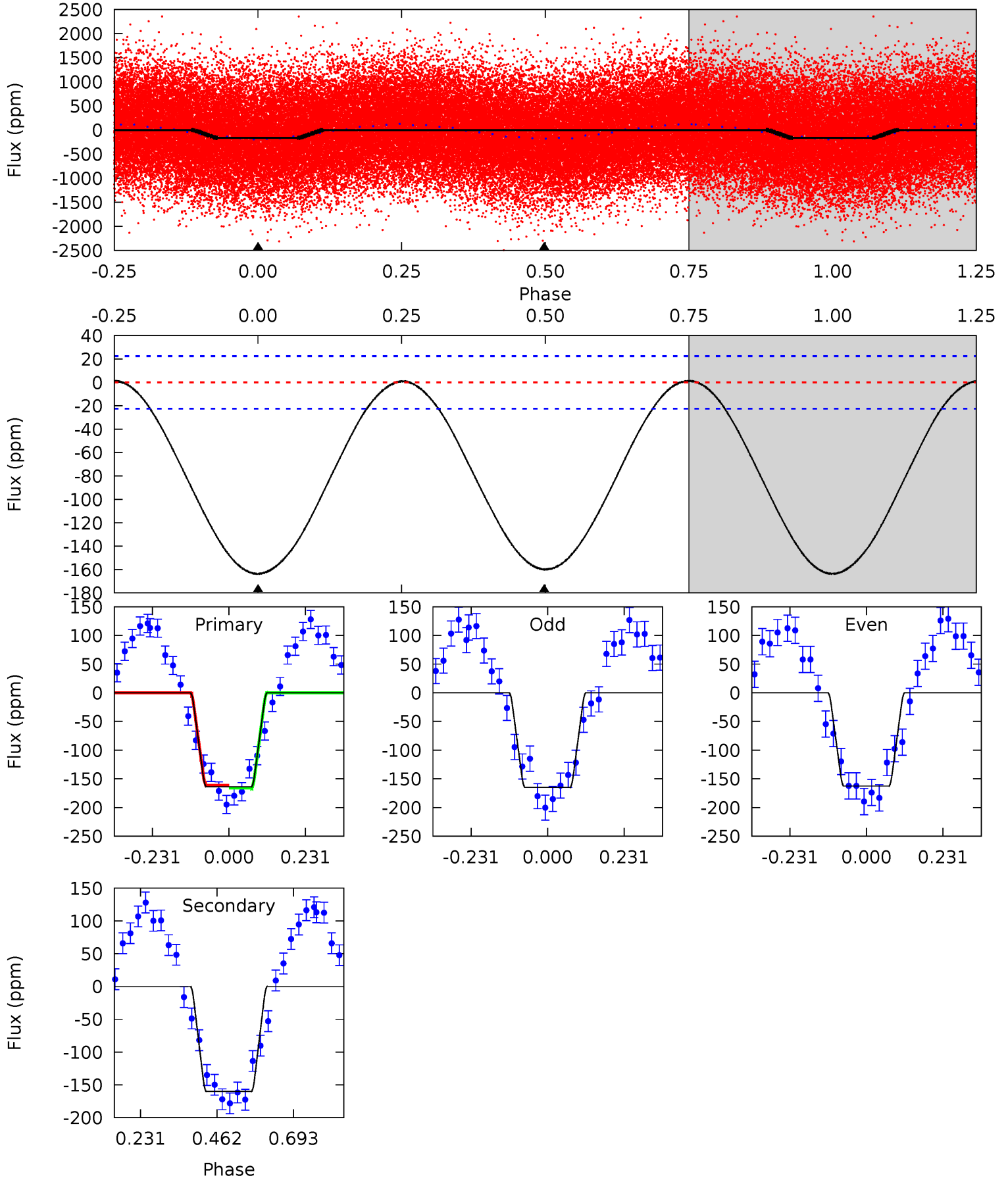
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.7	35.4	0	0	4.33	1.03	0.29	35.7	35.7	35.4	35.4	0.88	0.97	0.01	2.90



Alt Model-Shift Uniqueness Test

004044353-01, P = 0.535223 Days, E = 131.064483 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.0	31.2	0	0	4.39	1.20	0.26	32.0	32.0	31.2	31.2	0.21	1.08	0.01	0.48



Stellar Parameters For KIC 004044353

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8523^{+237}_{-356}	$3.559^{+0.629}_{-0.111}$	$-0.500^{+0.150}_{-0.350}$	$4.051^{+0.808}_{-2.423}$	$2.166^{+0.377}_{-0.700}$	$0.046^{+0.427}_{-0.015}$
	+3%/-4%	+18%/-3%	+30%/-70%	+20%/-60%	+17%/-32%	+929%/-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 004044353-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-87 ± 2	$1.13^{+1.22}_{-0.75}$	7887^{+642}_{-1202}	22751^{+98711}_{-11556}	10^{+80}_{-8}
Alt.	-160 ± 5	$5.30^{+1.94}_{-1.82}$	7823^{+691}_{-1165}	7129^{+1783}_{-1465}	$0.876^{+1.086}_{-0.393}$

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

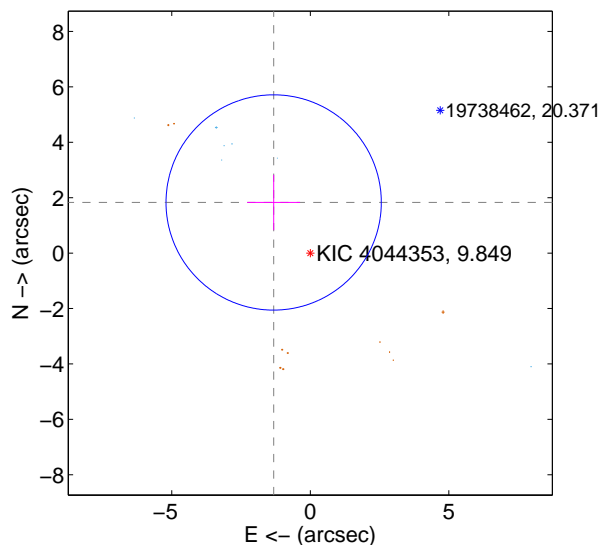
Supplemental centroid analysis for 004044353-01. **Kepler magnitude: 9.85.** Transit SNR 1.94

There are 7 quarters with good PRF difference image offsets

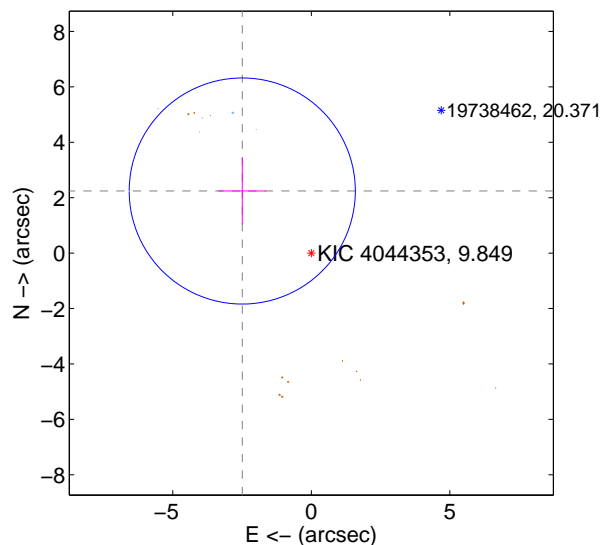
The direct PRF centroid is offset from the target star catalog position by about 0.77 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.256 ± 1.295	1.74	1.322 ± 0.953	1.828 ± 0.997
PRF-fit source offset from KIC position	3.351 ± 1.360	2.46	2.492 ± 0.866	2.241 ± 1.204
photometric centroid source offset	2.00 ± 1.76	1.14	1.52 ± 1.86	1.30 ± 1.61

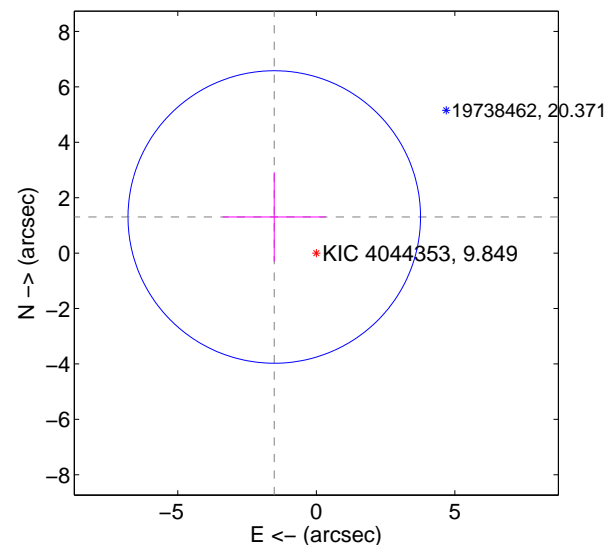
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

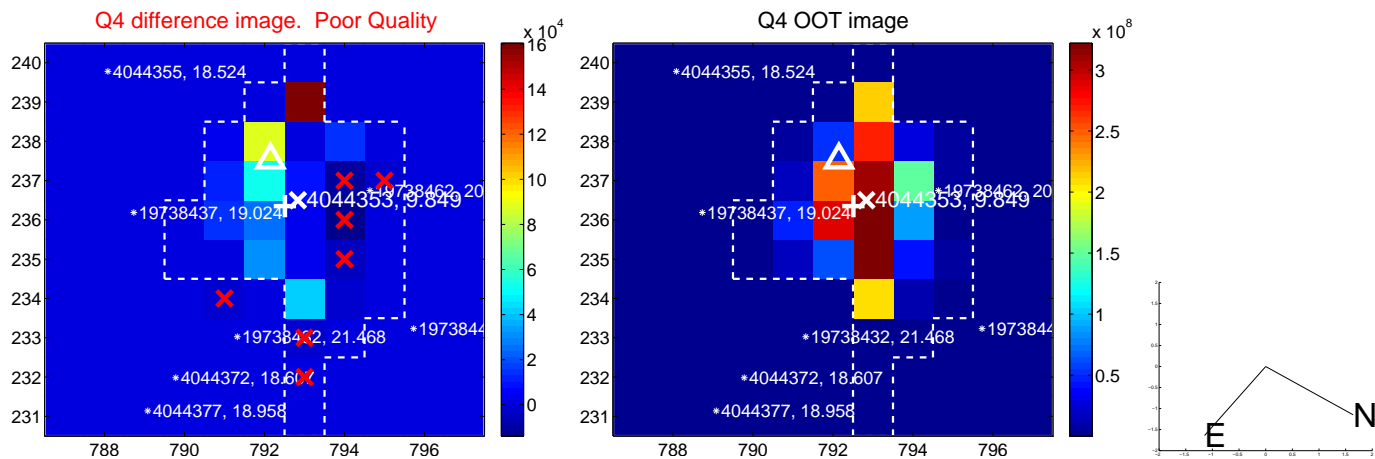
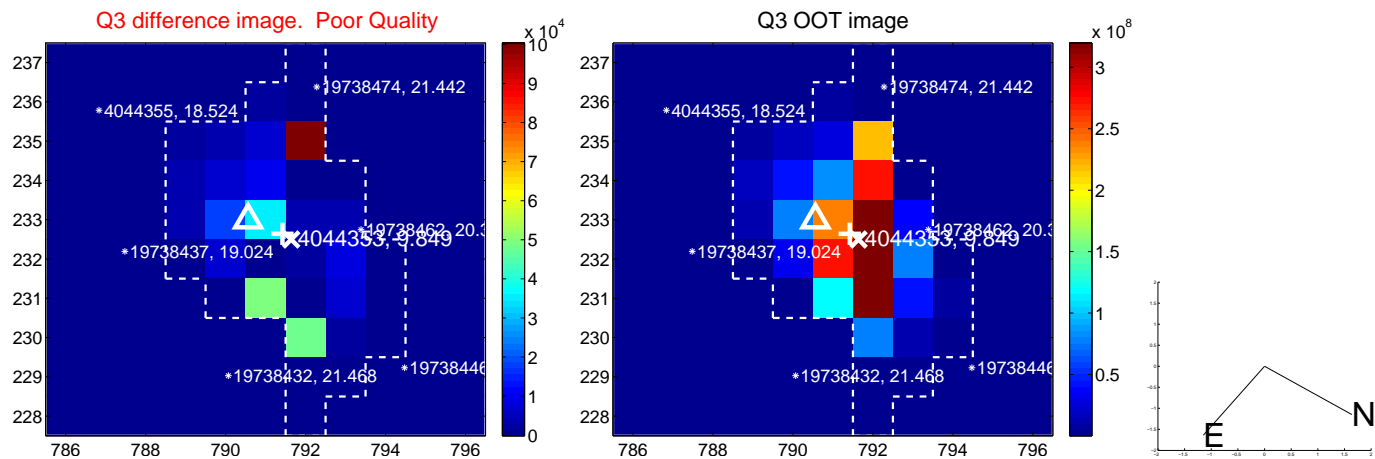
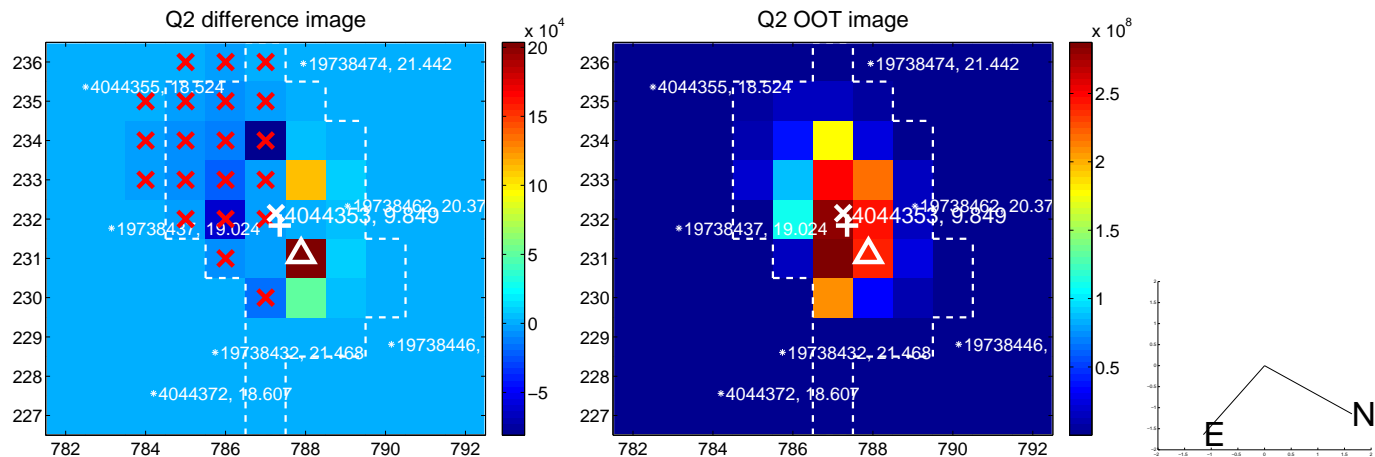
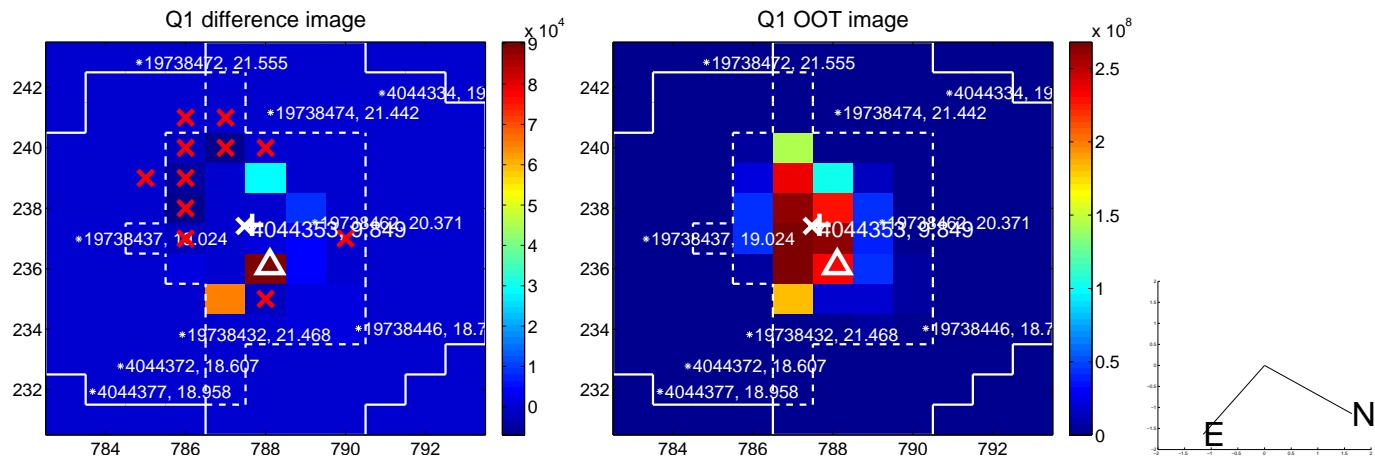


offset from photometric centroids

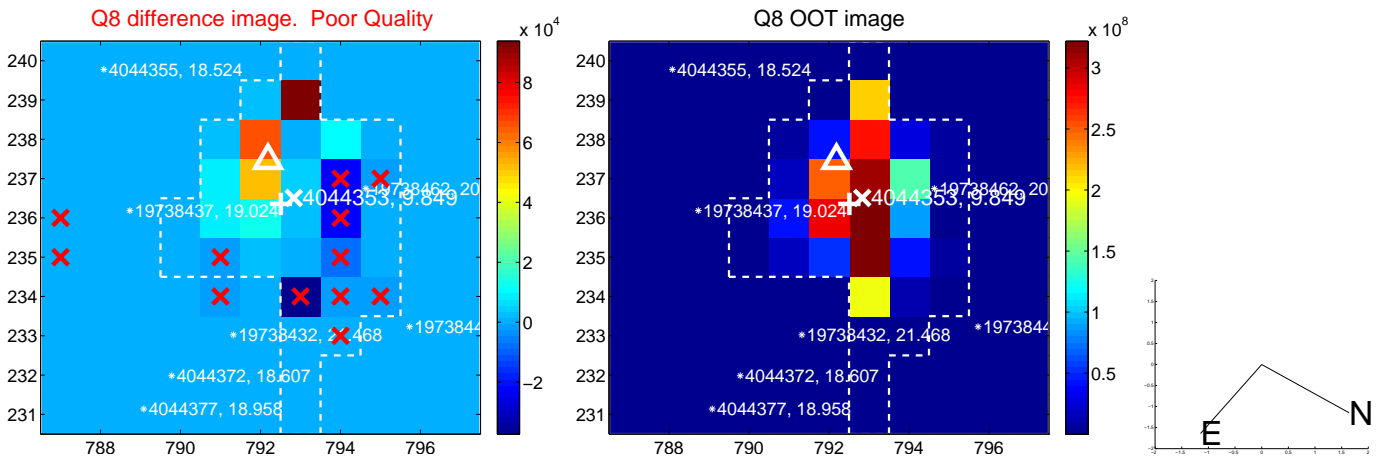
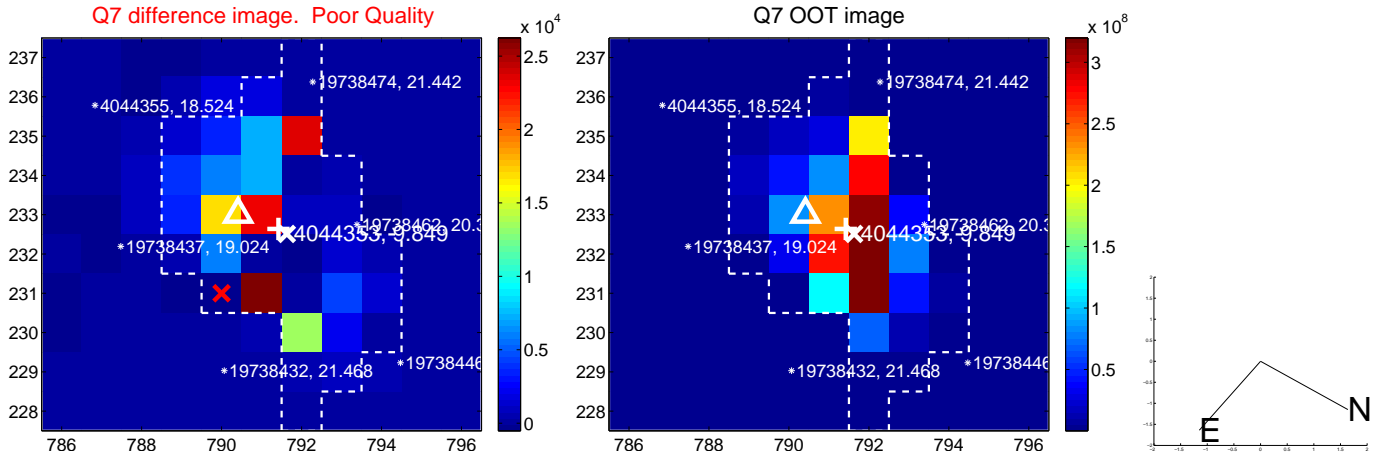
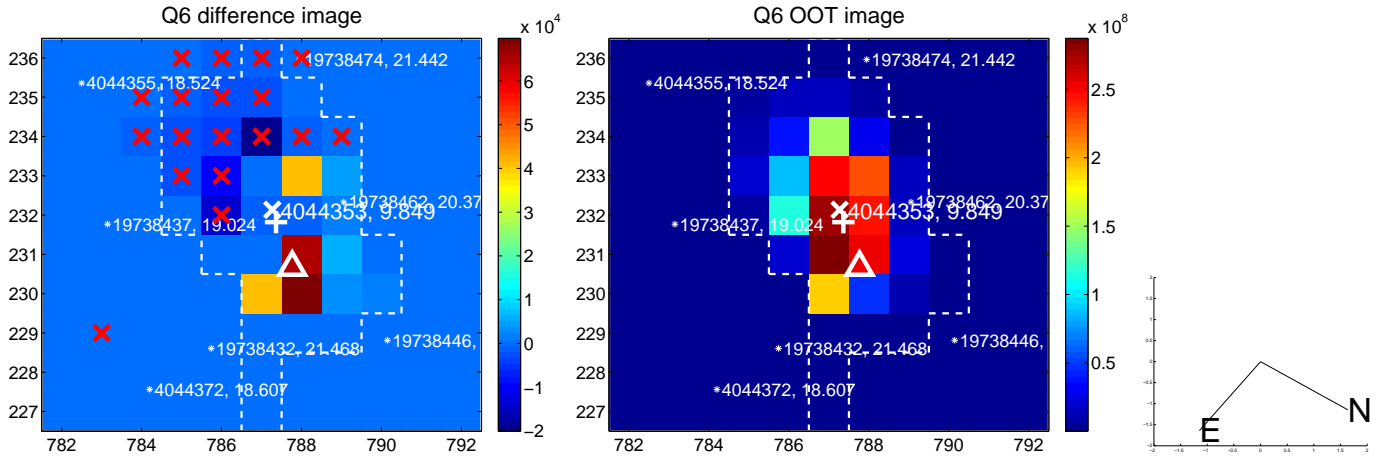
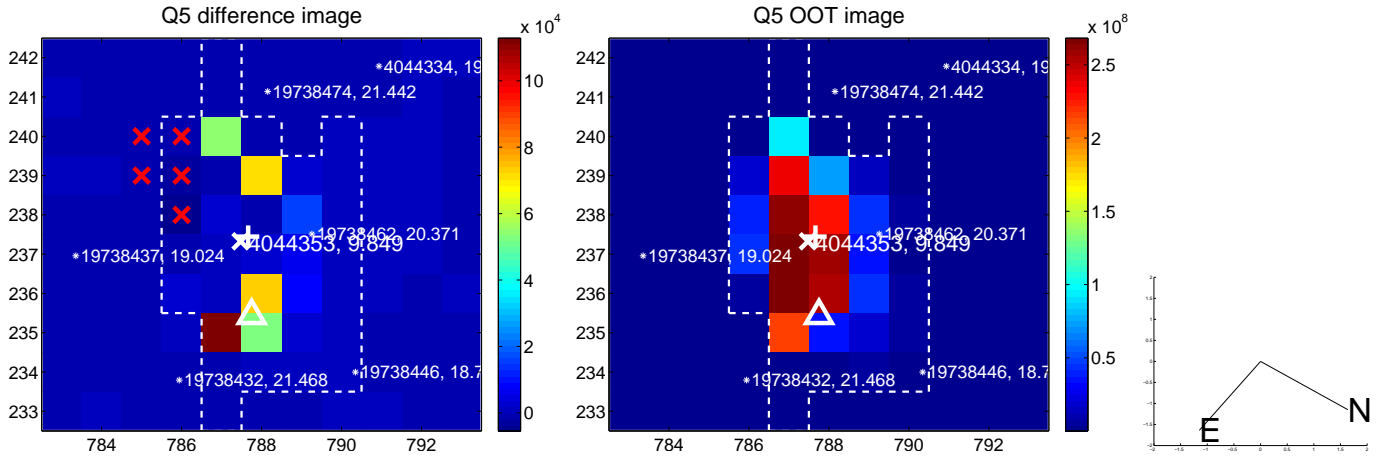


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

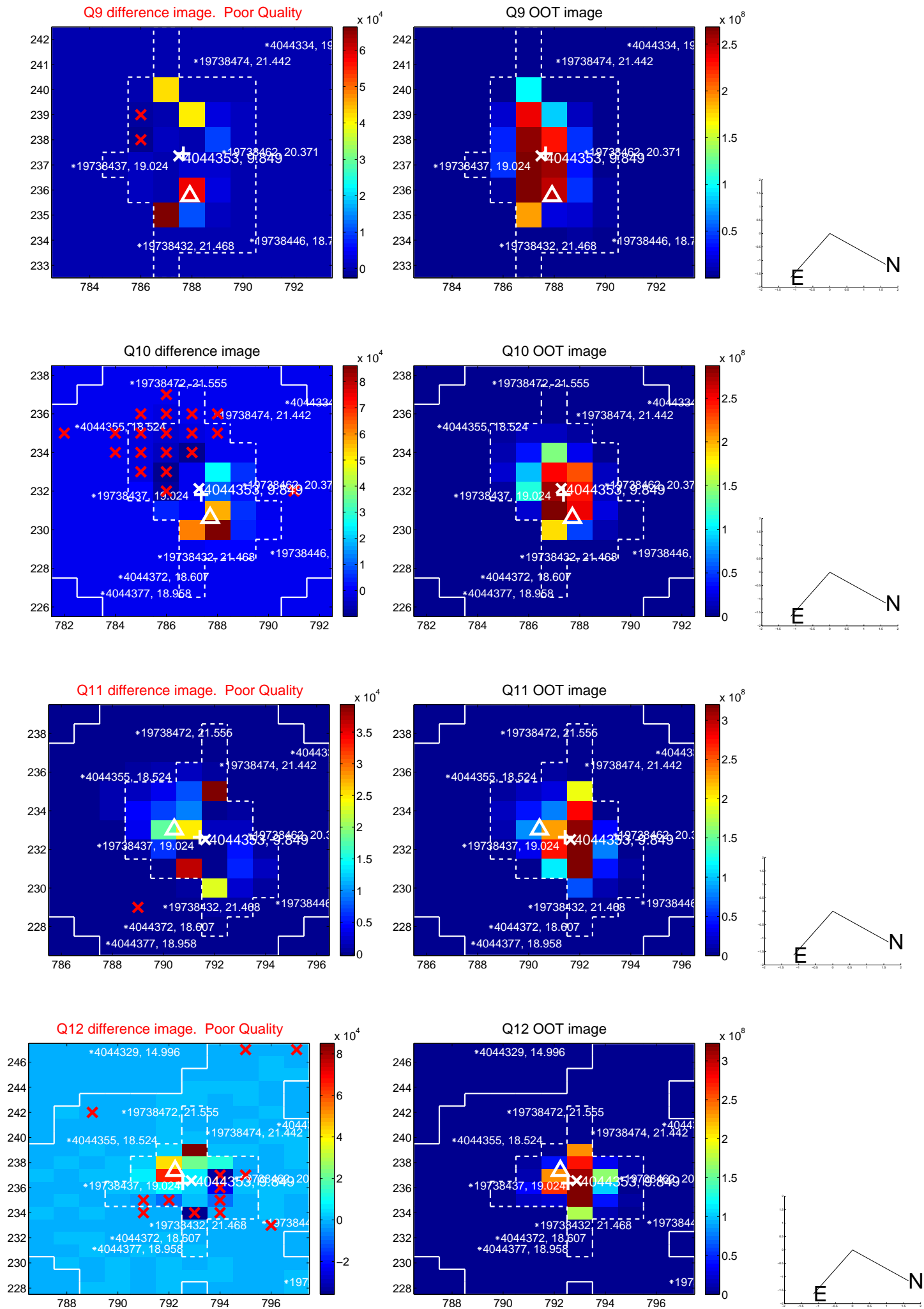
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



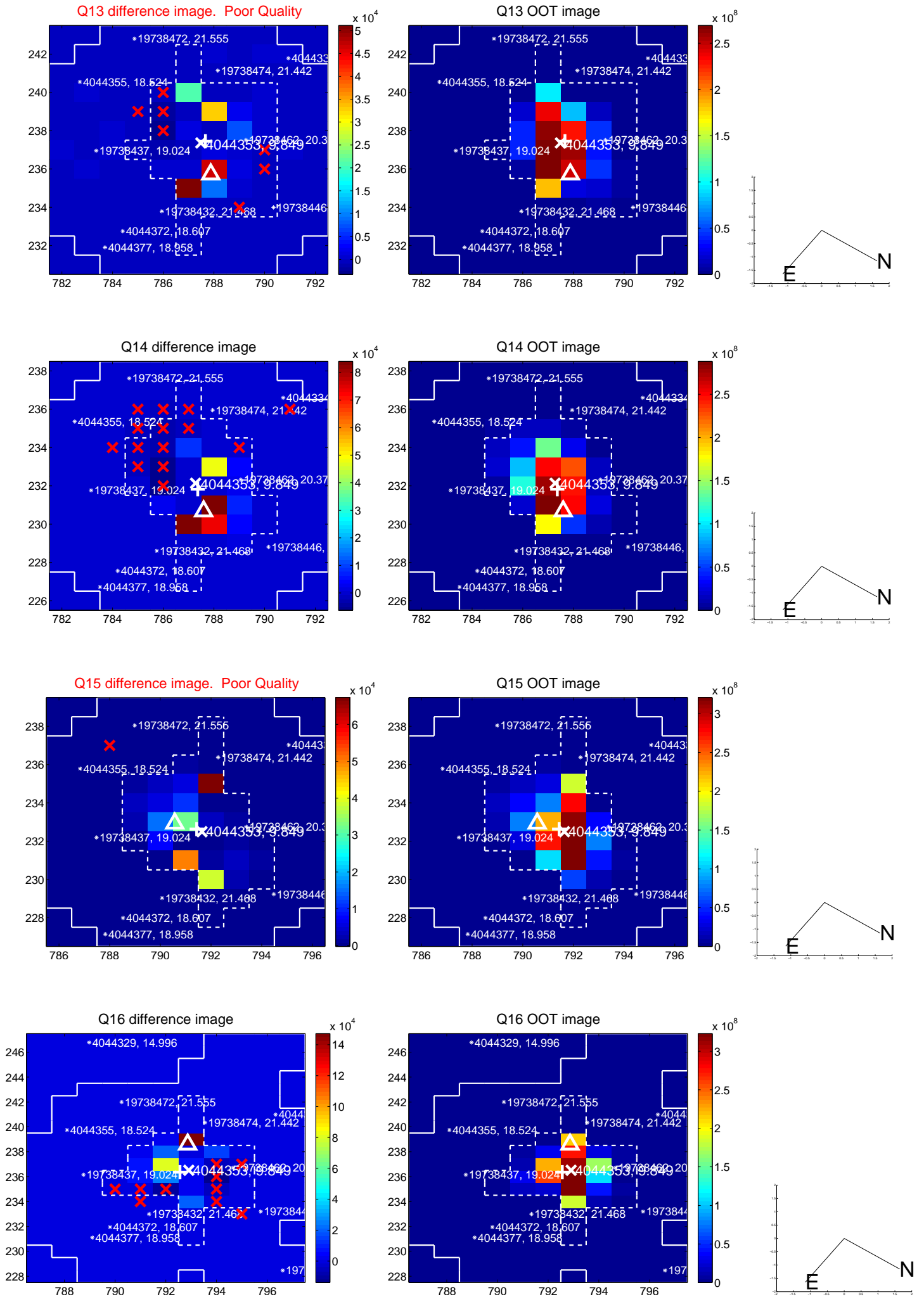
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



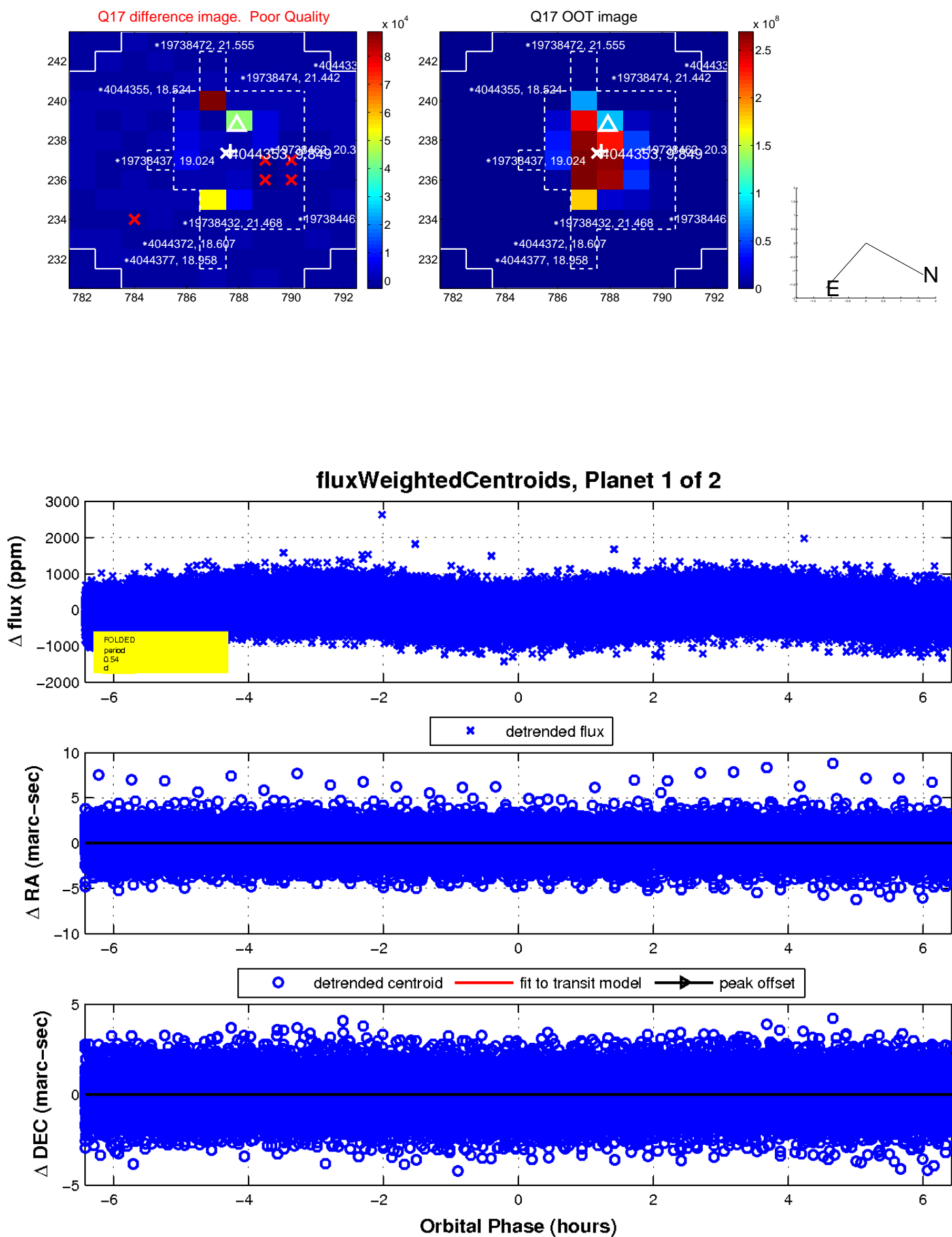
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



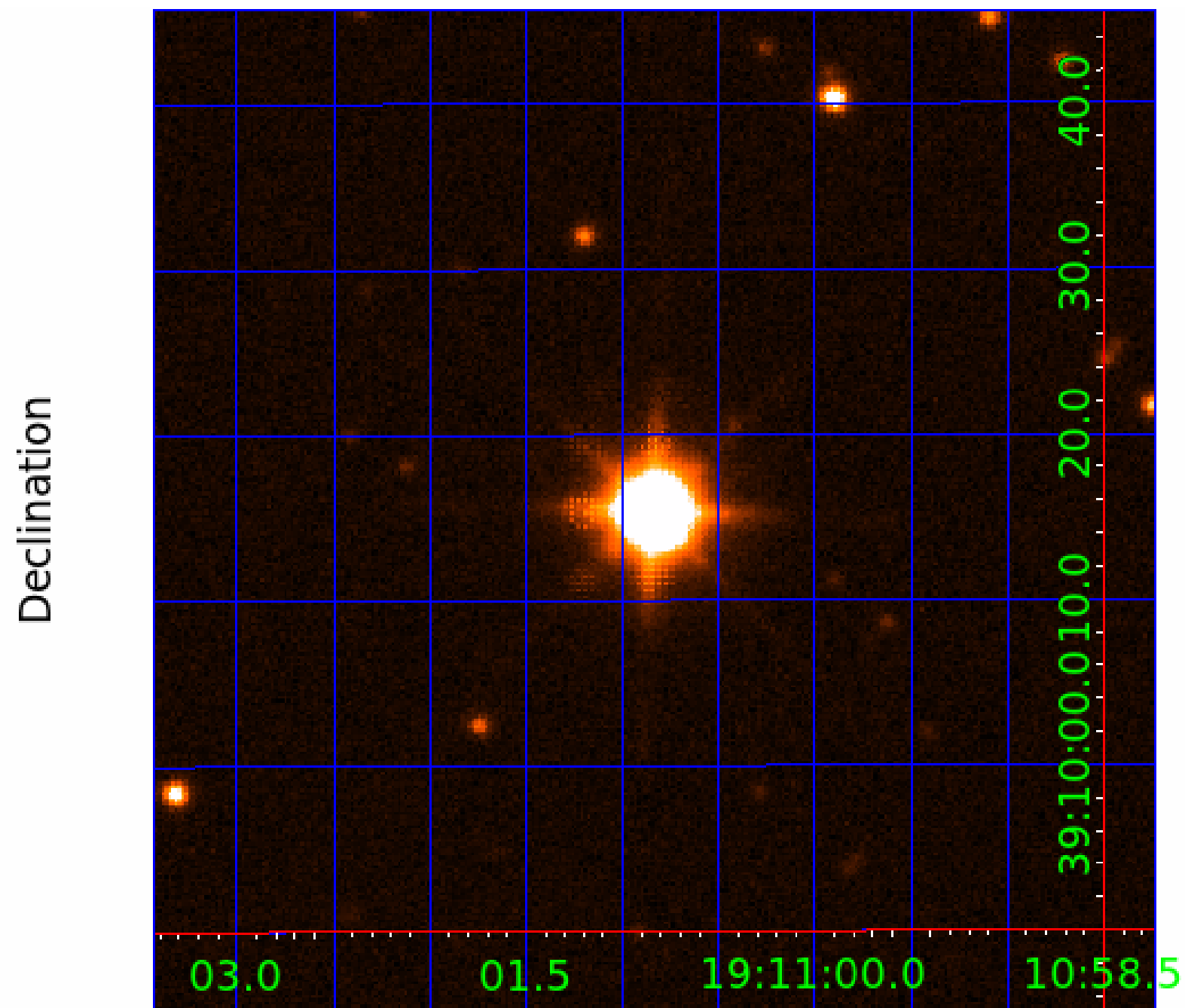
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004044353

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})
004044353-01	OBS	No	0.535212	131.615424	5.9	3.442	10.0	1.9	4.05	8523	1.02	0.00
004044353-02	OBS	No	0.527705	131.942989	131.1	2.139	13.2	21.5	4.05	8523	5.39	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004044353-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
004044353-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

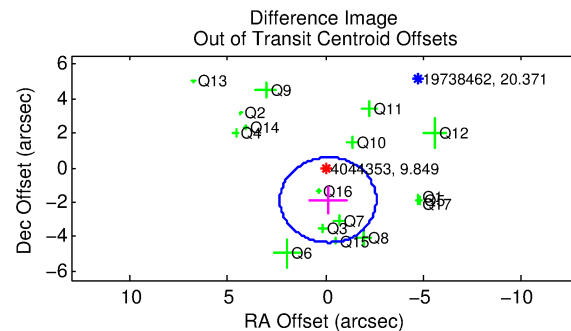
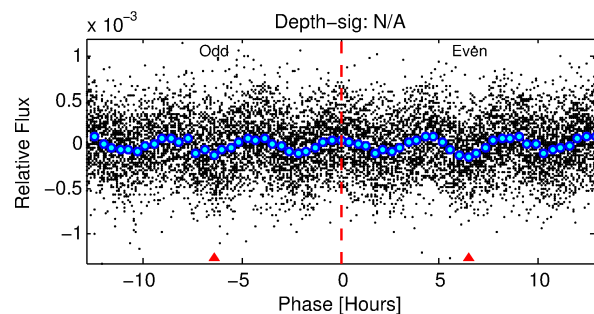
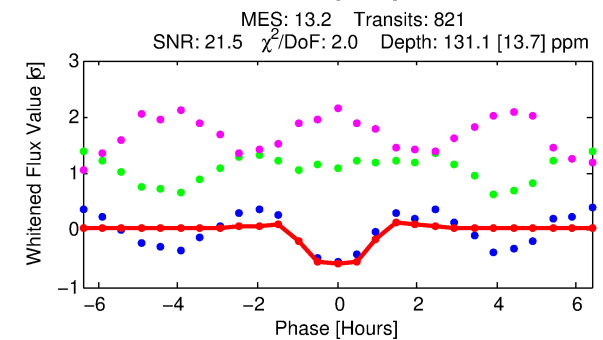
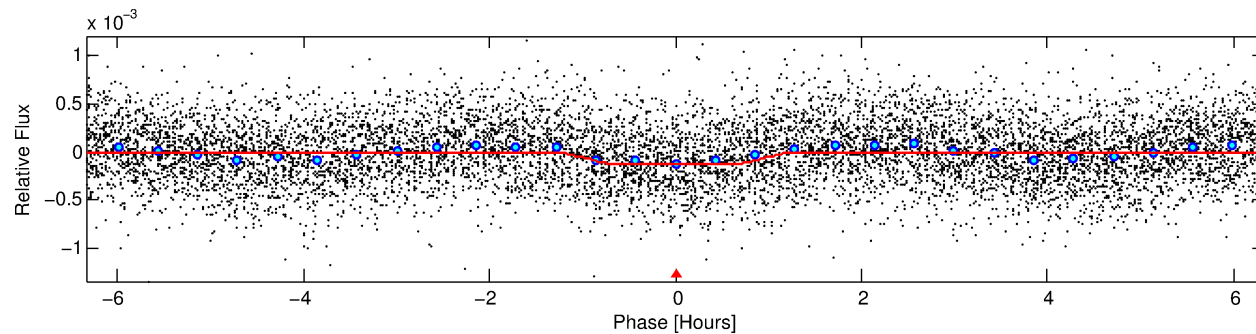
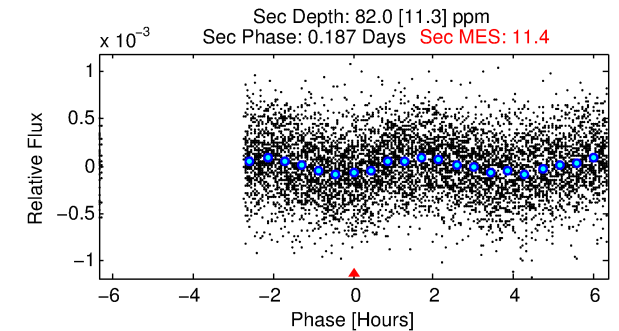
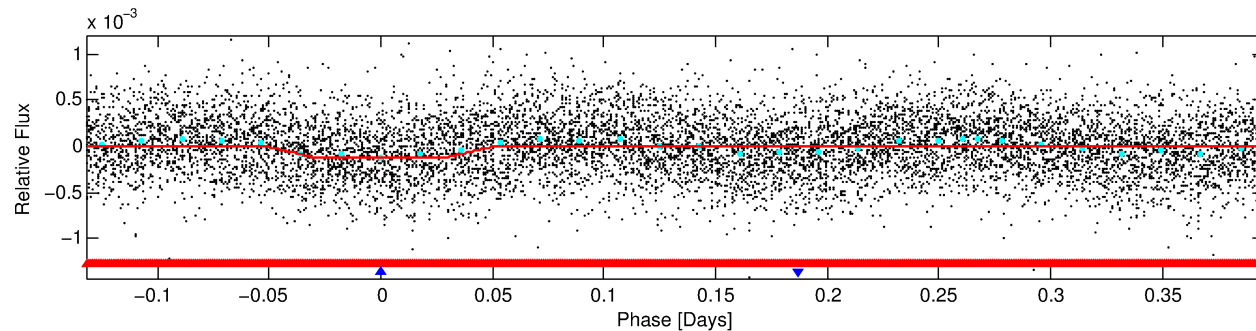
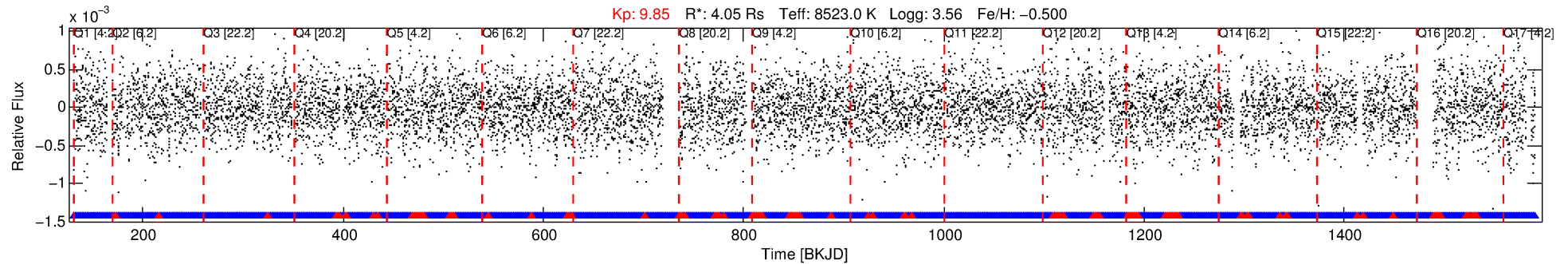
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004044353-02

No Significant Match Found

DV One-Page Summary

KIC: 4044353 Candidate: 2 of 2 Period: 0.528 d



DV Fit Results:

Period = 0.52771 [0.00001] d
Epoch = 131.9430 [0.0018] BKJD
Rp/R* = 0.0122 [0.0043]
a/R* = 1.28 [1.14]
b = 0.90 [0.48]
Seff = N/A
Teq = N/A
Rp = 5.39 [3.75] Re
a = N/A
Ag = N/A
Teffp = N/A

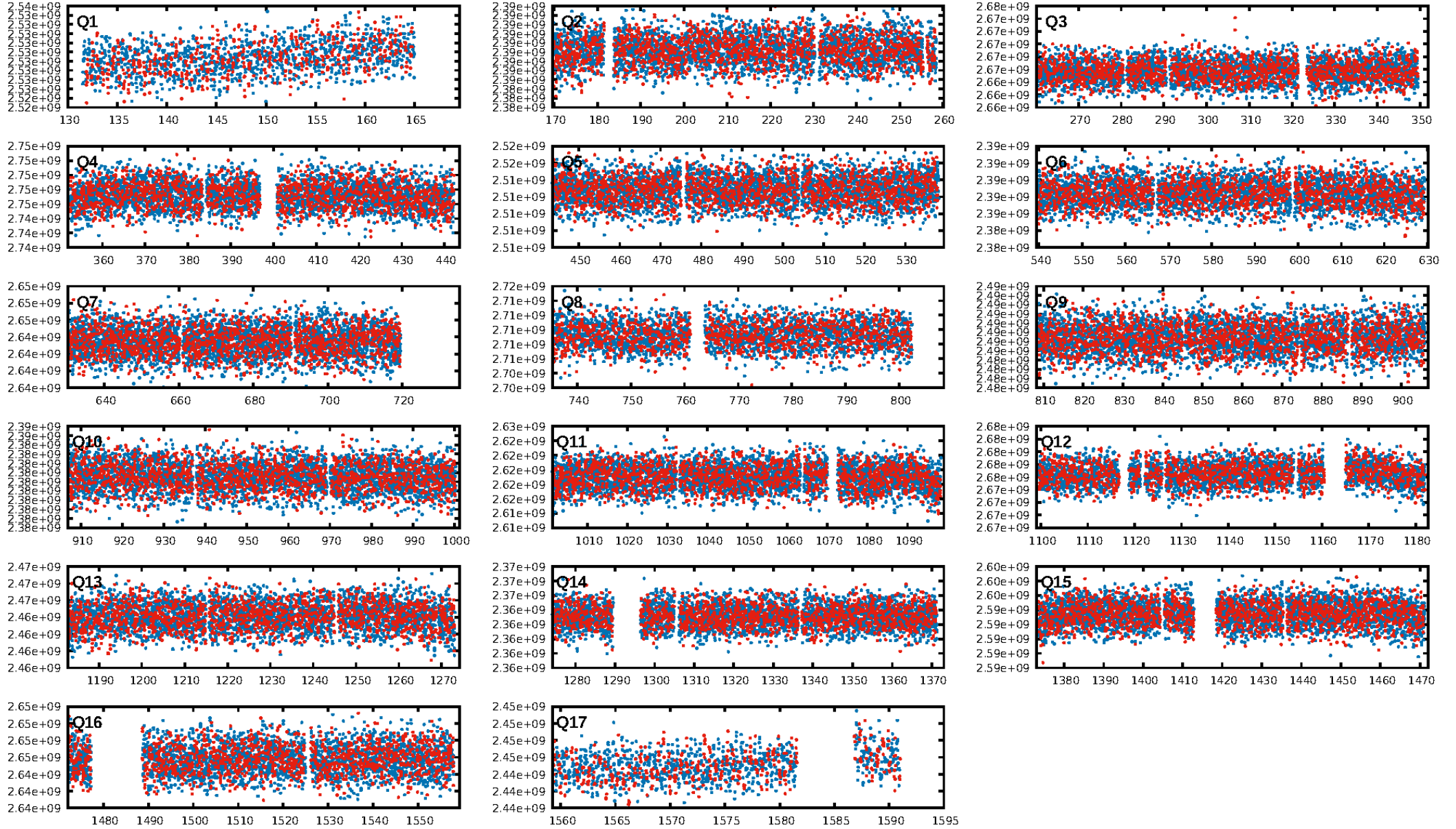
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 3.5% [0.04σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.75 [586/777]
GhostDiagnostic-chr: N/A
Centroid-sig: 52.6%
Centroid-so: 0.240 arcsec [2.64σ]
OotOffset-rm: 1.880 arcsec [2.29σ]
KicOffset-rm: 4.168 arcsec [5.35σ]
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]

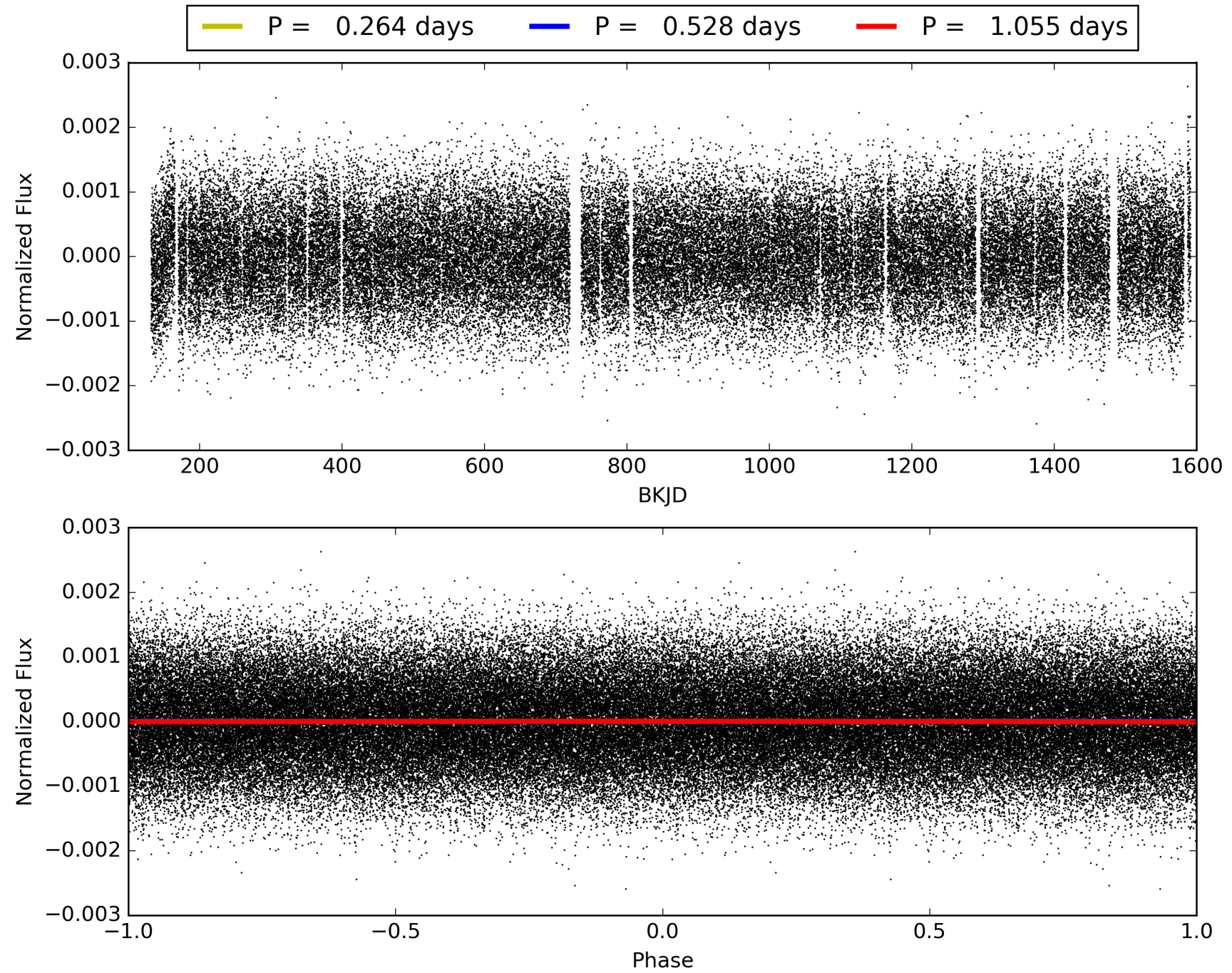
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:16:23 Z

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

TCE 004044353-02, PDC Light Curves

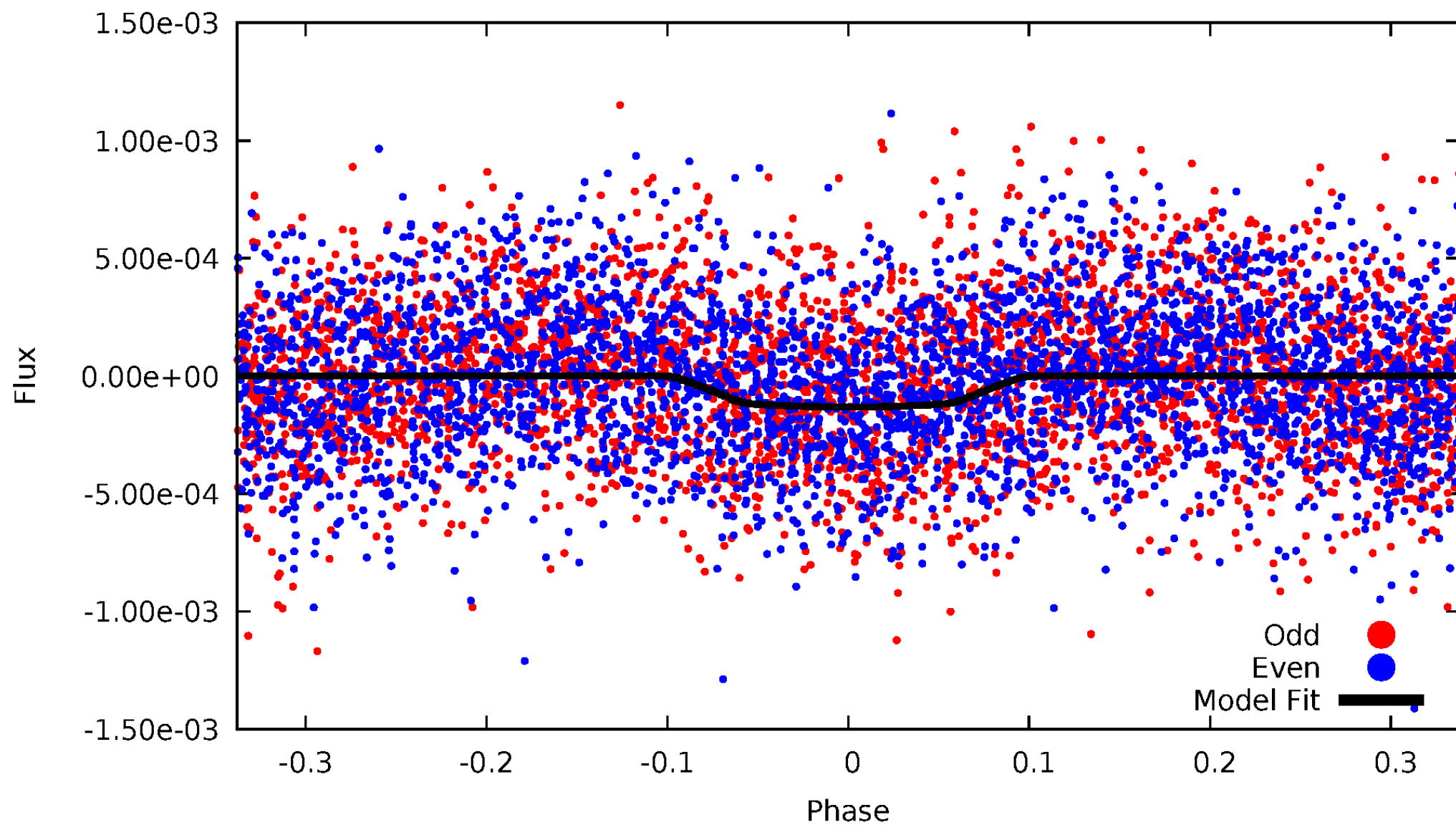


TCE 004044353-02



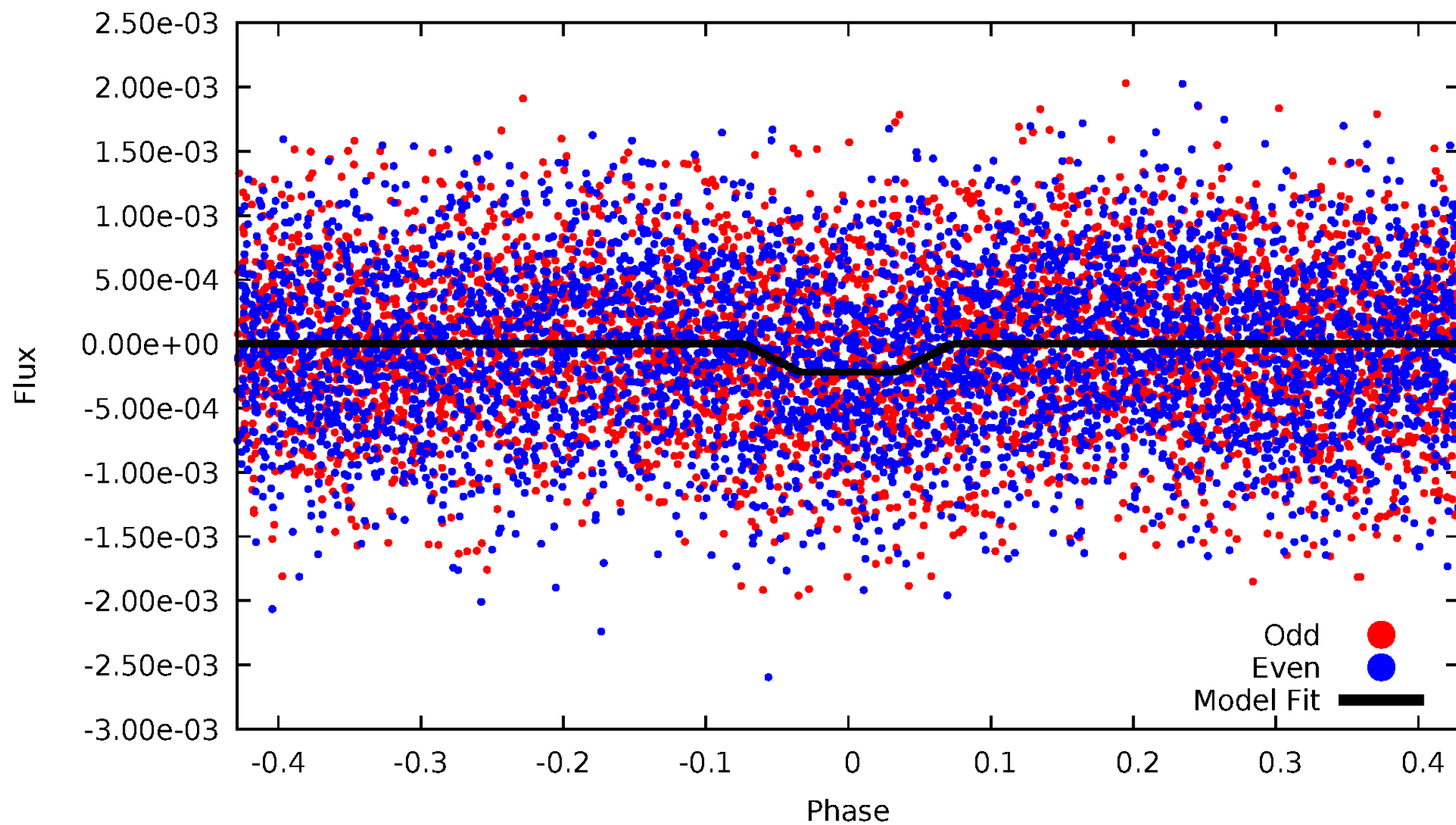
DV Odd/Even

TCE 004044353-02



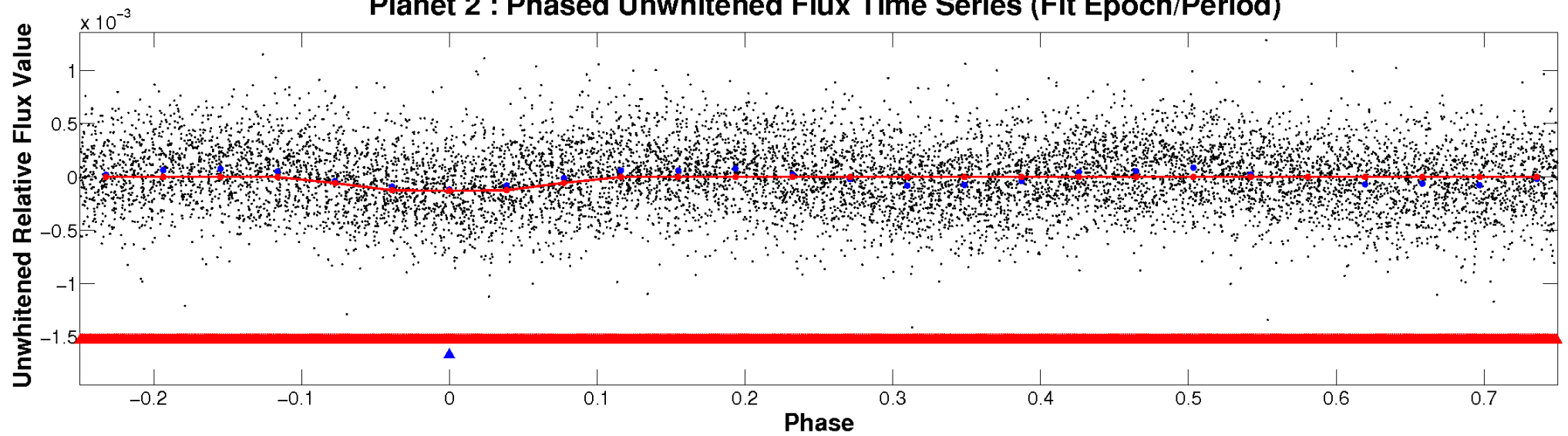
ALT Odd/Even

TCE 004044353-02

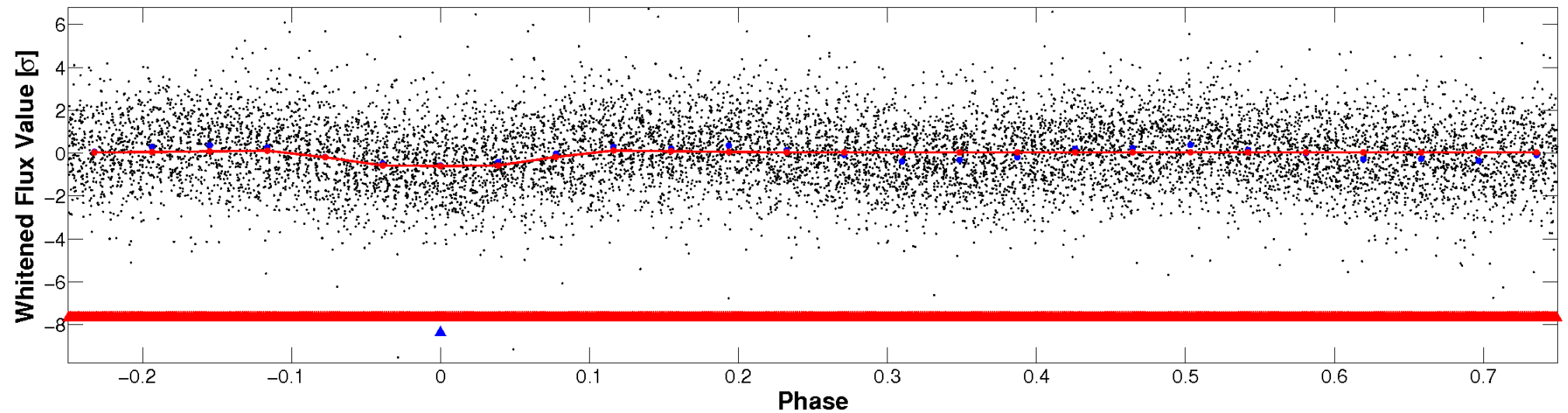


Non-Whitened Vs. Whitened Light Curve

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

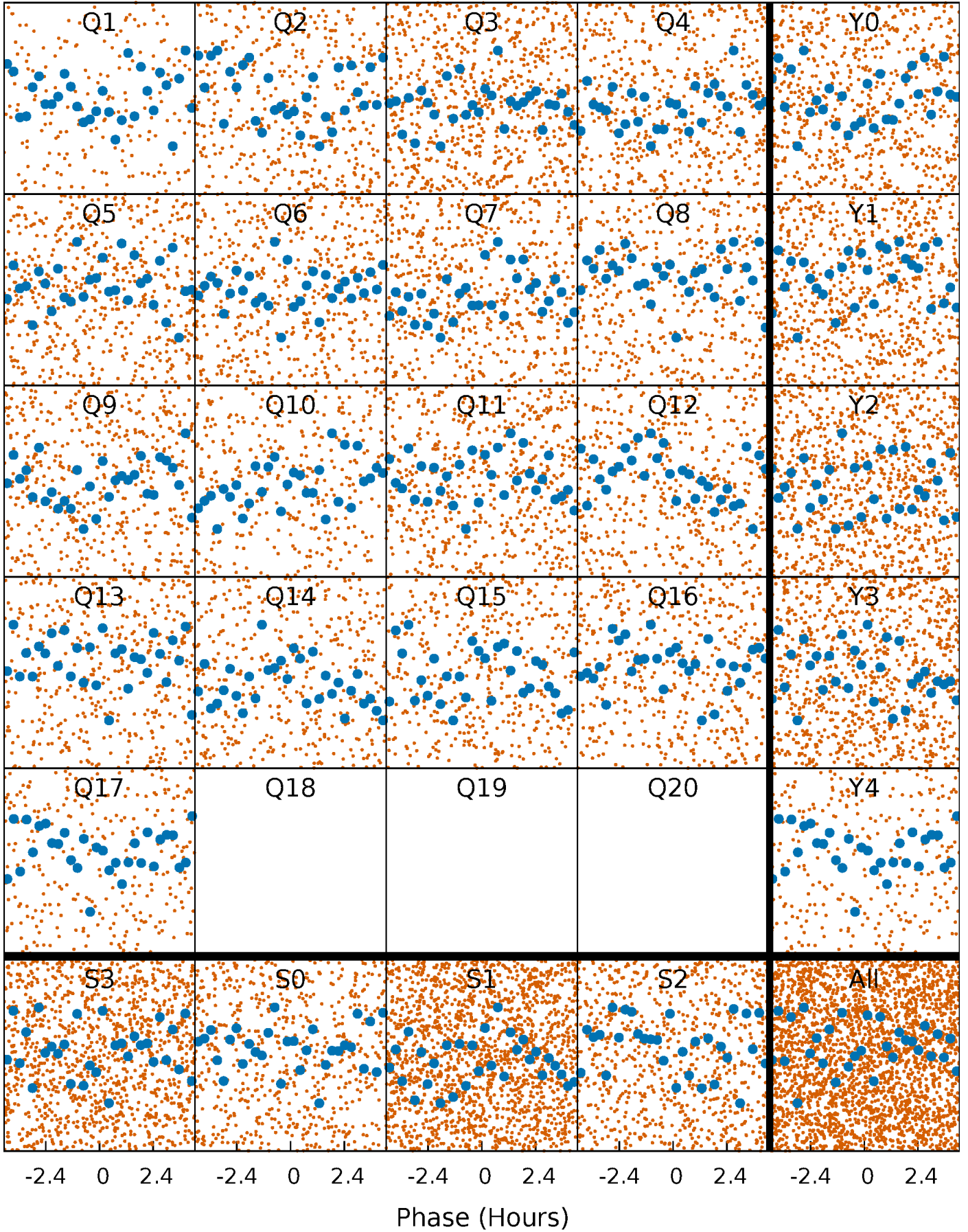


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



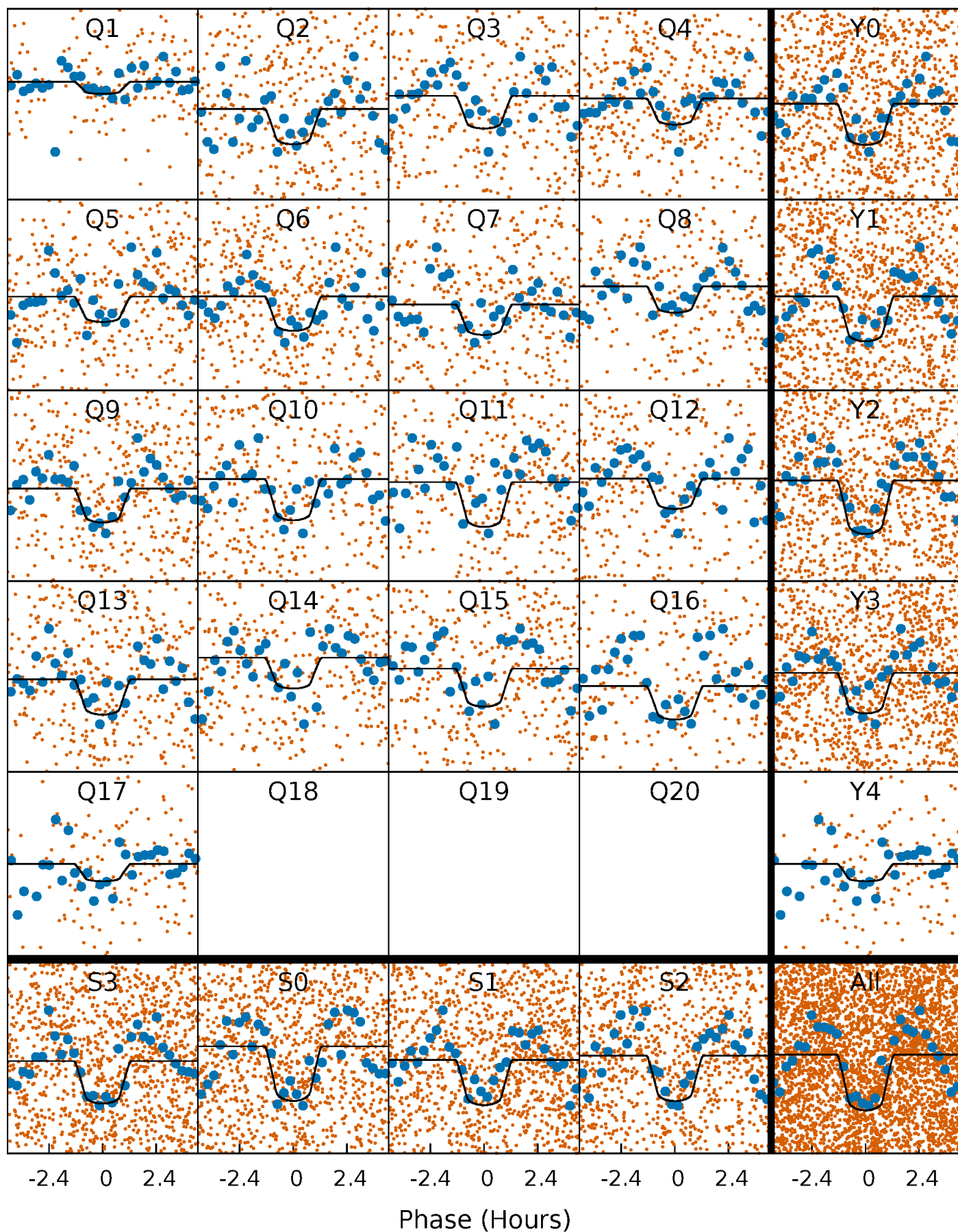
PDC Quarter-Phased Transit Curves

TCE 004044353-02 P= 0.527705 Days $T_0=131.942989$ (BKJD)



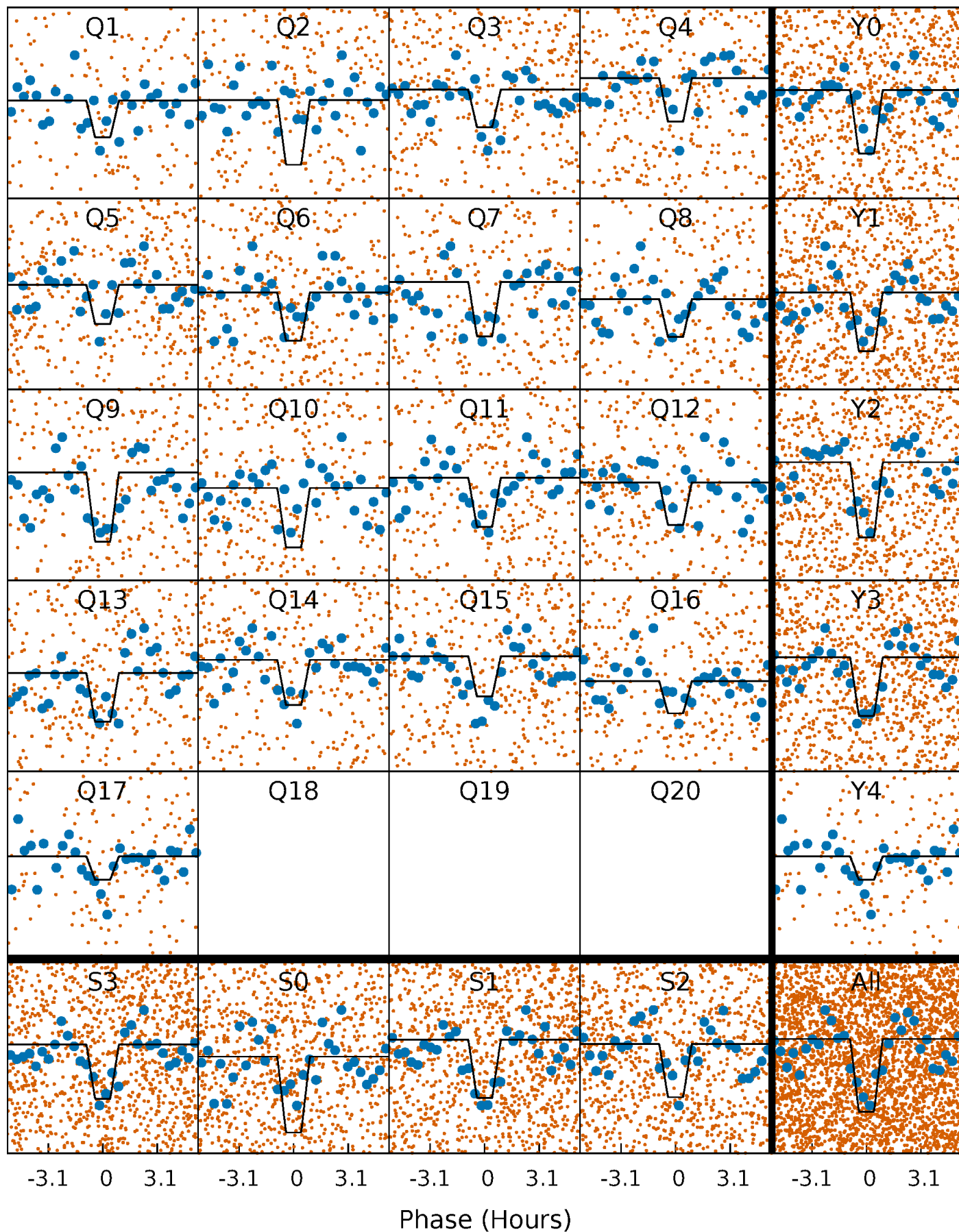
DV Quarter-Phased Transit Curves

TCE 004044353-02 P= 0.527705 Days $T_0=131.942989$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

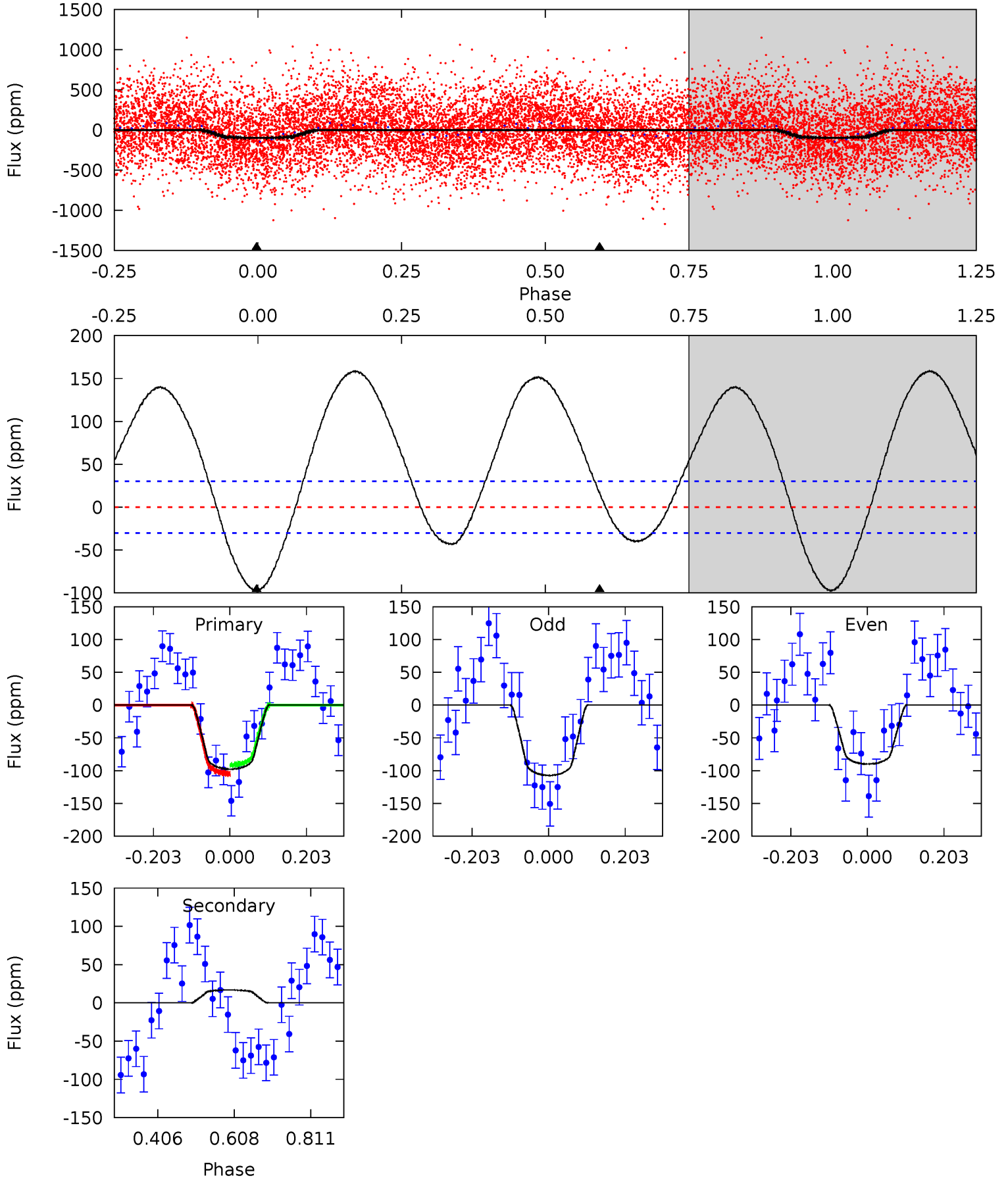
TCE 004044353-02 P= 0.527701 Days $T_0=131.947277$ (BKJD)



DV Model-Shift Uniqueness Test

004044353-02, P = 0.527705 Days, E = 131.415284 Days

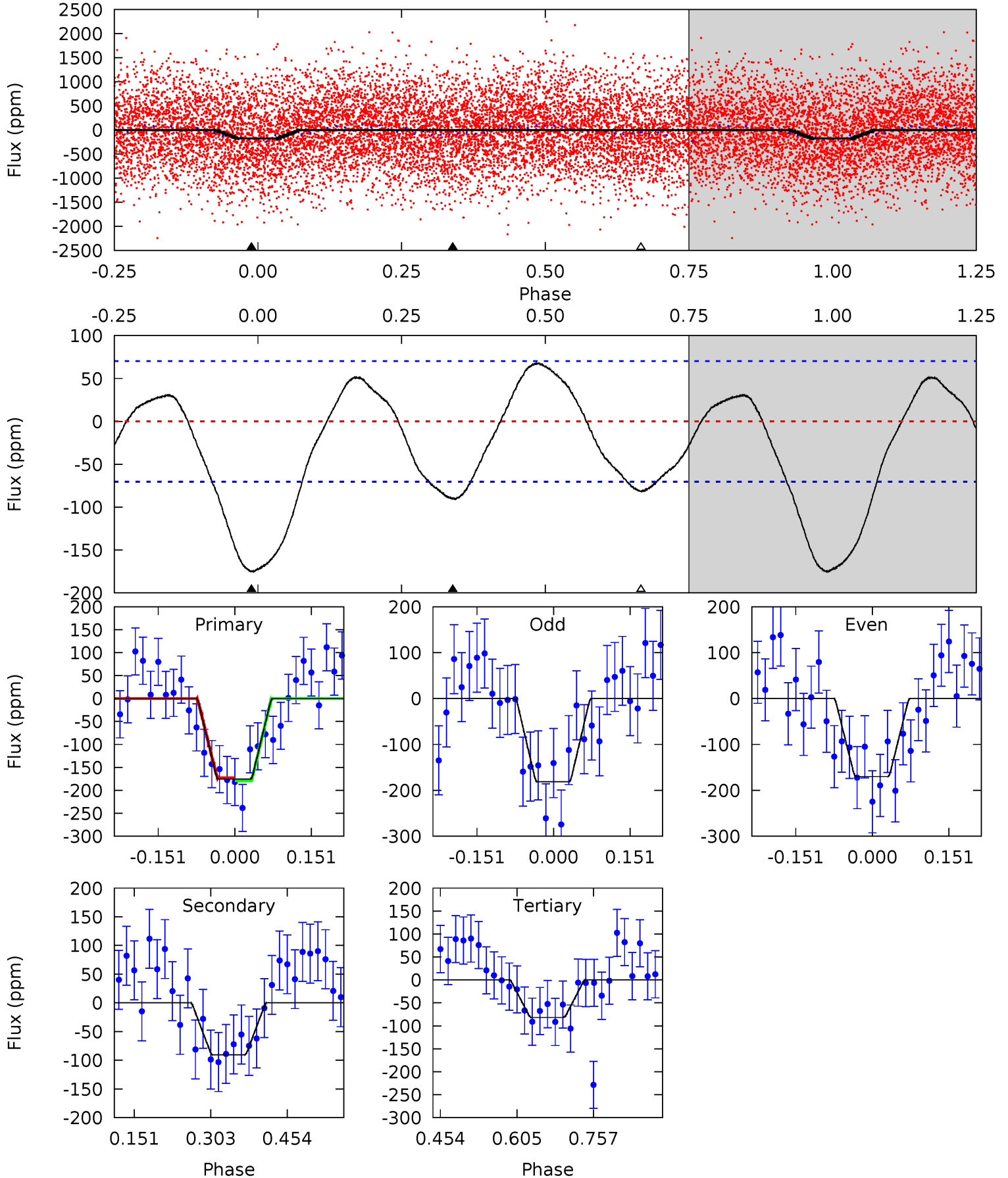
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	-2.46	0	0	4.41	1.27	8.32	14.3	14.3	-2.46	-2.46	1.30	0.89	0.62	1.03



Alt Model-Shift Uniqueness Test

004044353-02, P = 0.527701 Days, E = 131.419576 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	5.76	5.21	0	4.48	1.43	3.05	5.96	11.2	0.55	5.76	0.36	1.15	0.28	0.19



Stellar Parameters For KIC 004044353

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8523^{+237}_{-356}	$3.559^{+0.629}_{-0.111}$	$-0.500^{+0.150}_{-0.350}$	$4.051^{+0.808}_{-2.423}$	$2.166^{+0.377}_{-0.700}$	$0.046^{+0.427}_{-0.015}$
	+3%/-4%	+18%/-3%	+30%/-70%	+20%/-60%	+17%/-32%	+929%/-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 004044353-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	17 ± 7	$4.65^{+2.36}_{-2.12}$	7915^{+627}_{-1296}	-6814^{+855}_{-725}	$-0.114^{+0.071}_{-0.264}$
Alt.	-90 ± 16	$5.67^{+2.44}_{-2.13}$	7891^{+681}_{-1258}	4895^{+2088}_{-9866}	$0.415^{+0.656}_{-0.208}$

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

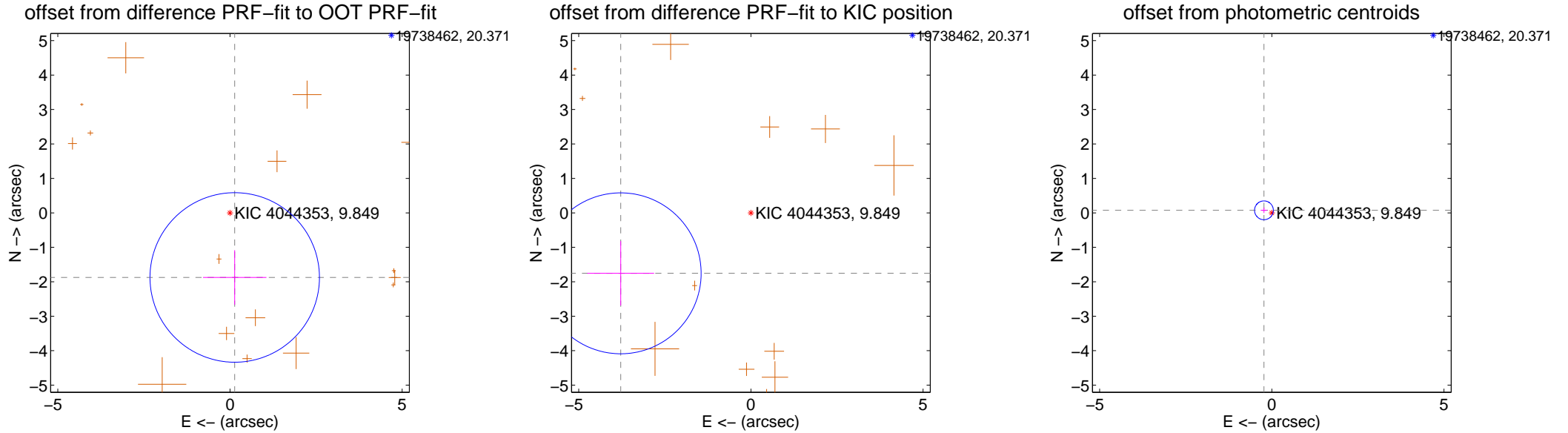
DV Centroid Data

Supplemental centroid analysis for 004044353-02. **Kepler magnitude: 9.85.** Transit SNR 21.46

There are 0 quarters with good PRF difference image offsets

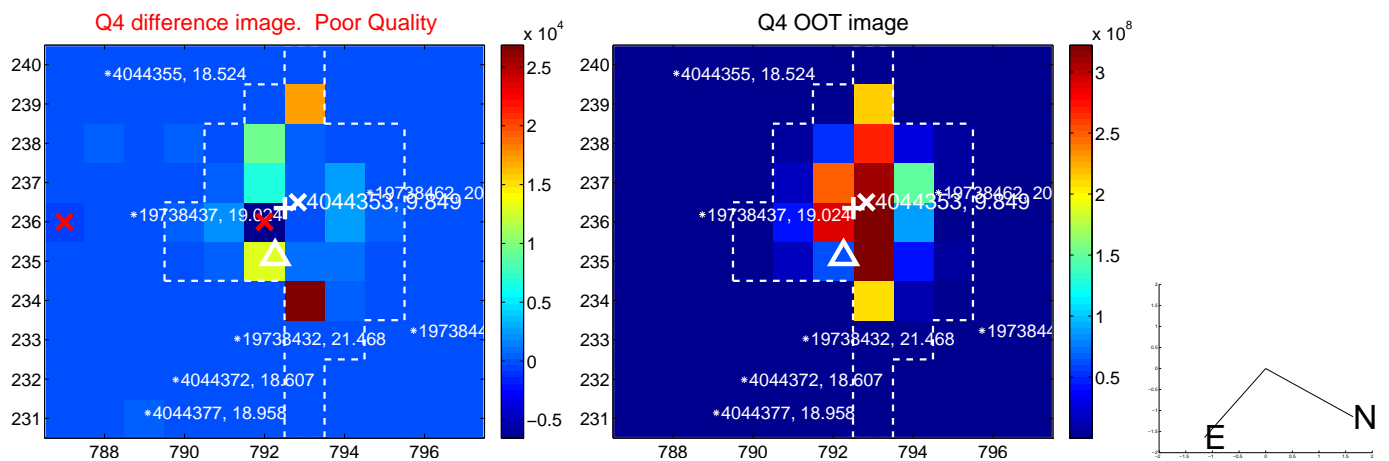
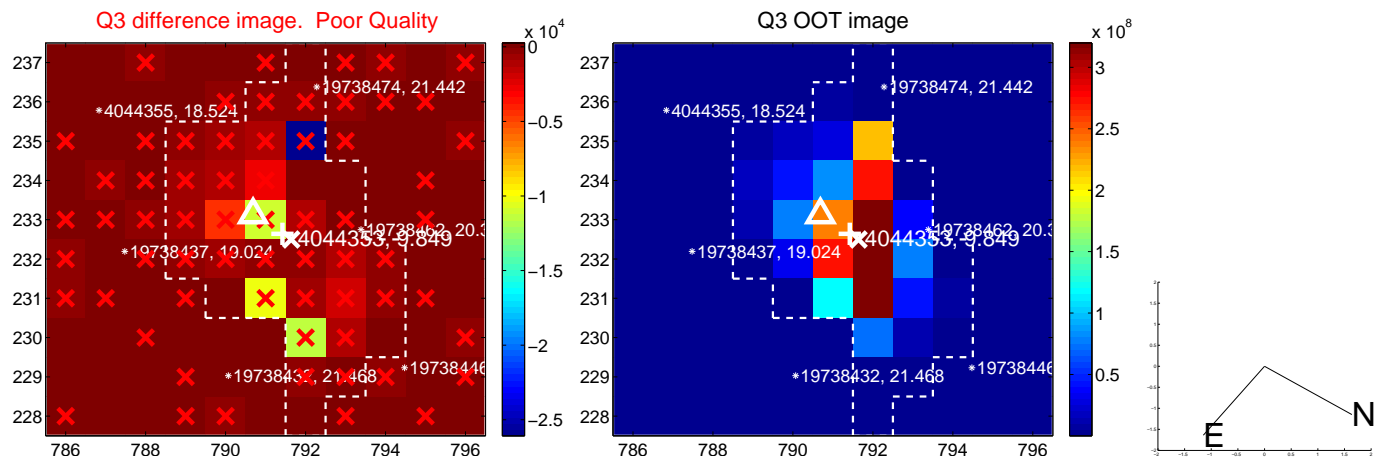
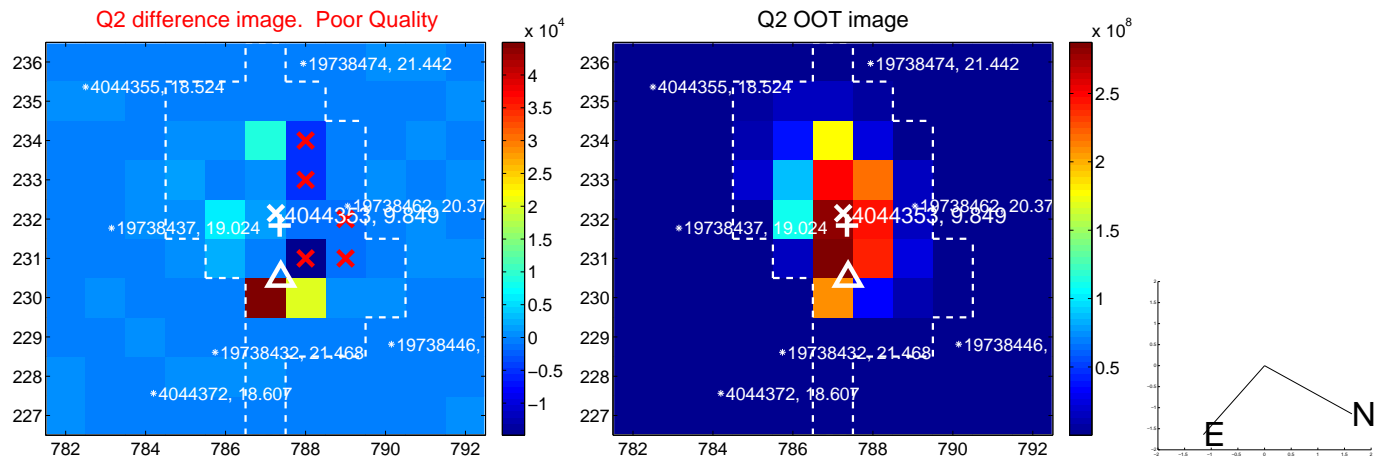
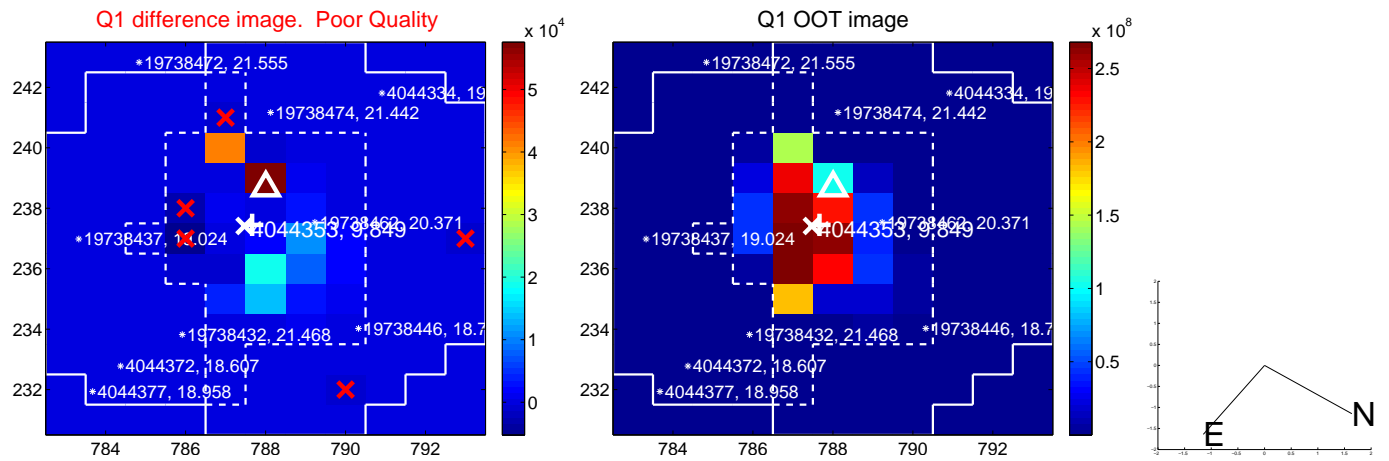
The direct PRF centroid is offset from the target star catalog position by about 0.77 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.880 ± 0.820	2.29	-0.138 ± 0.921	-1.875 ± 0.791
PRF-fit source offset from KIC position	4.168 ± 0.779	5.35	3.781 ± 0.970	-1.755 ± 0.934
photometric centroid source offset	0.24 ± 0.09	2.64	0.23 ± 0.09	0.07 ± 0.08

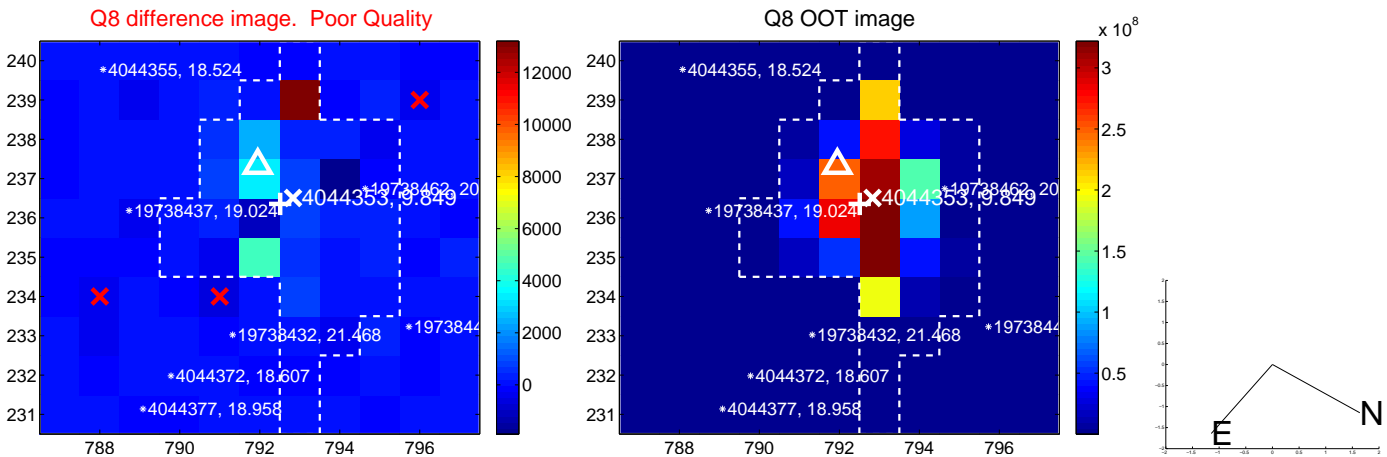
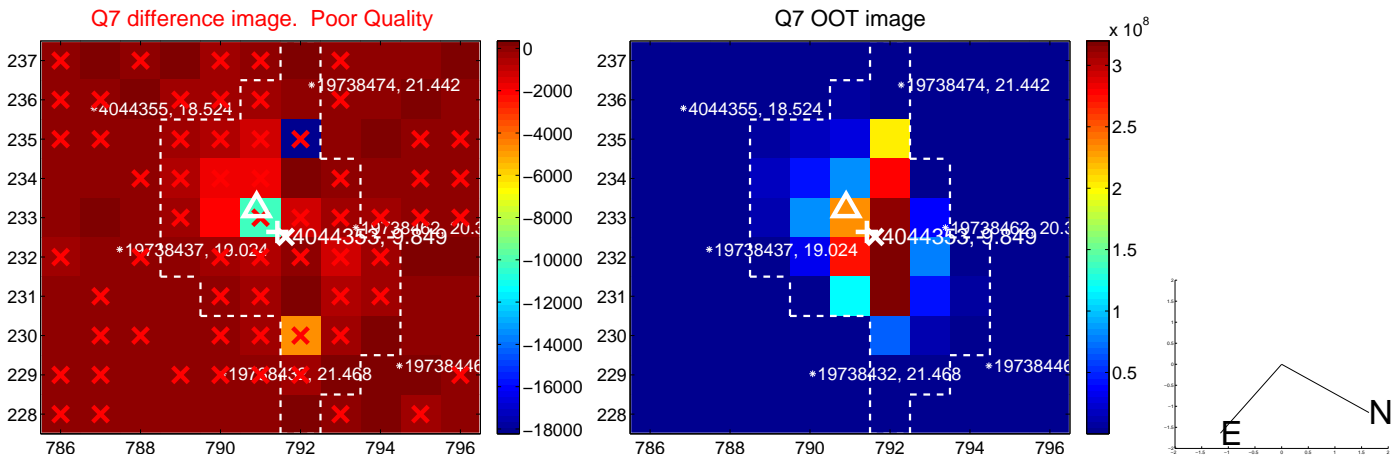
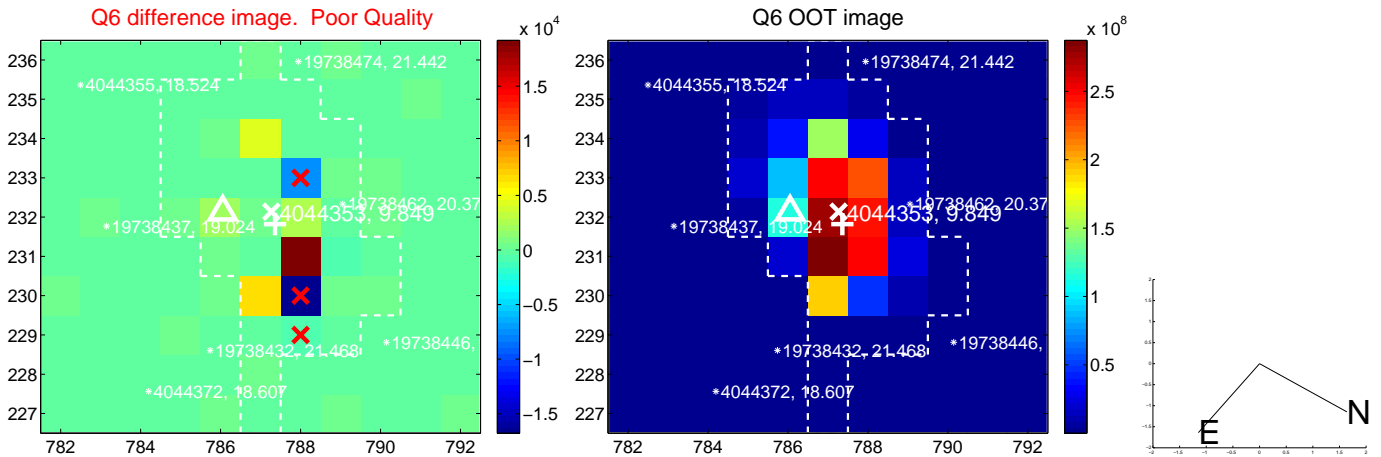
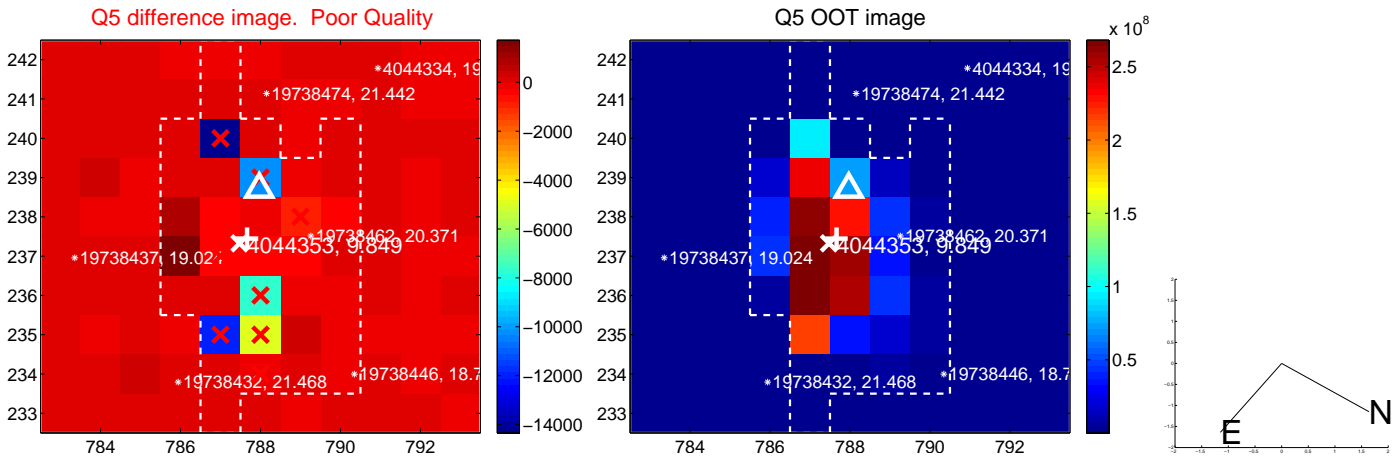


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

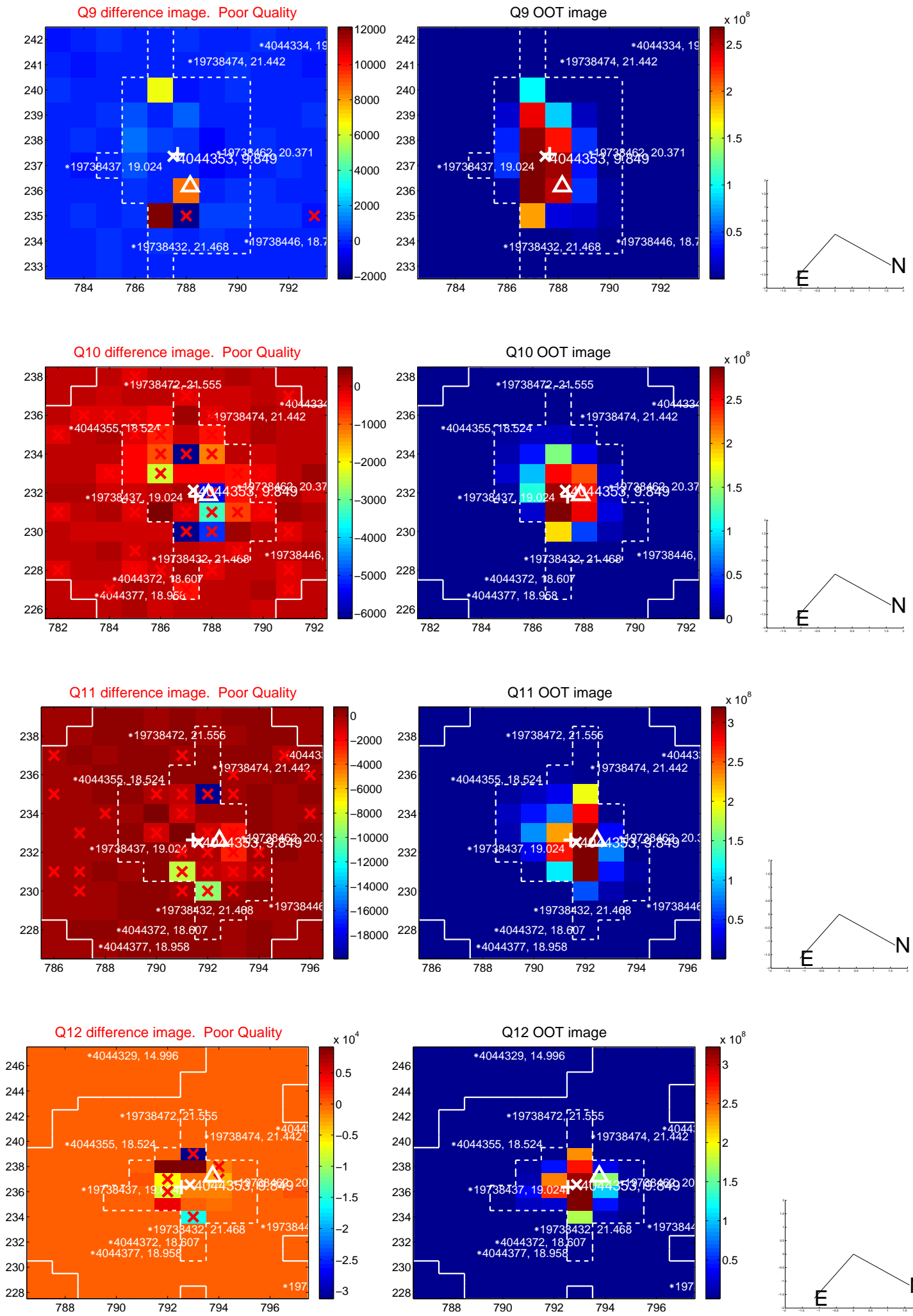
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



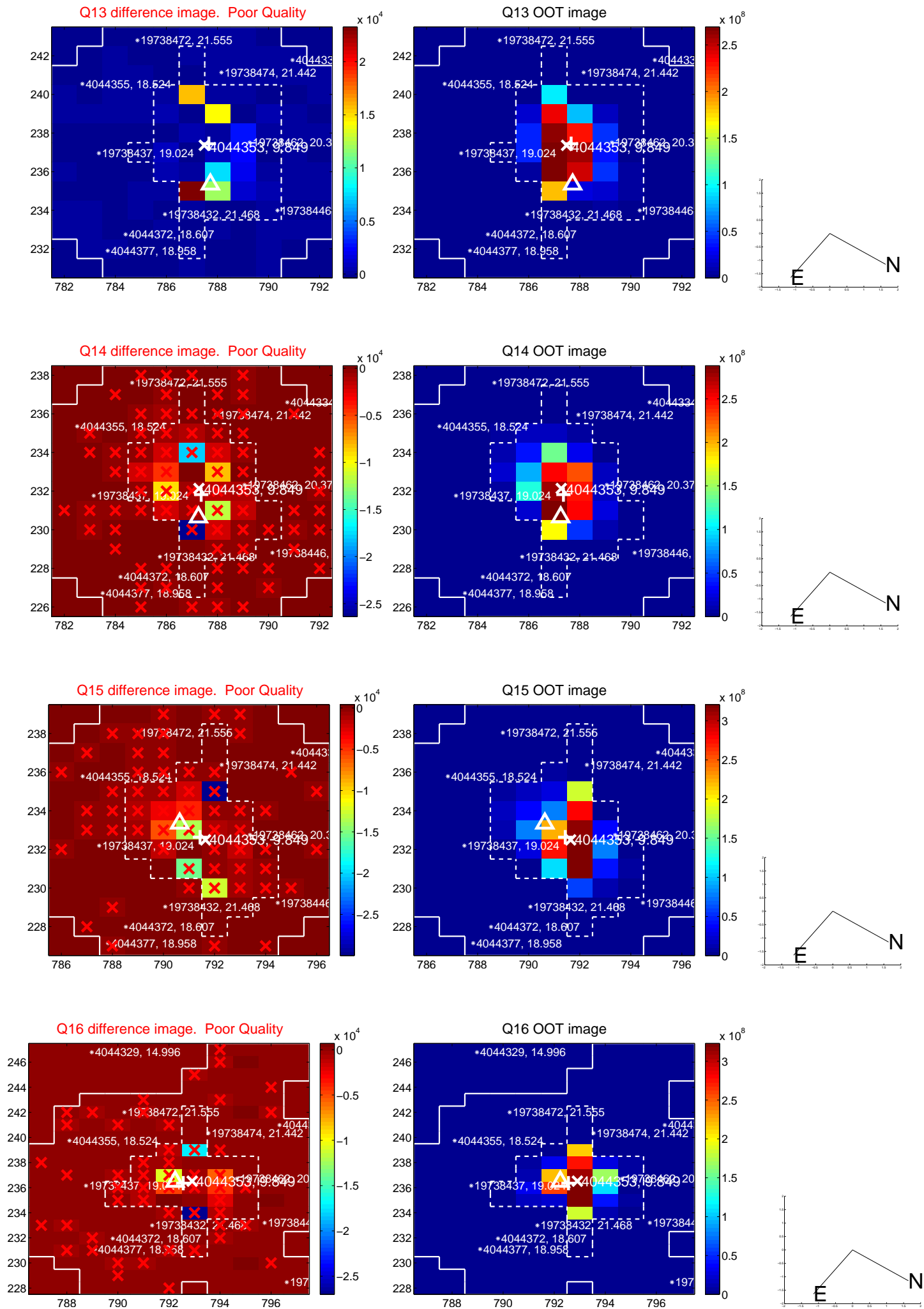
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



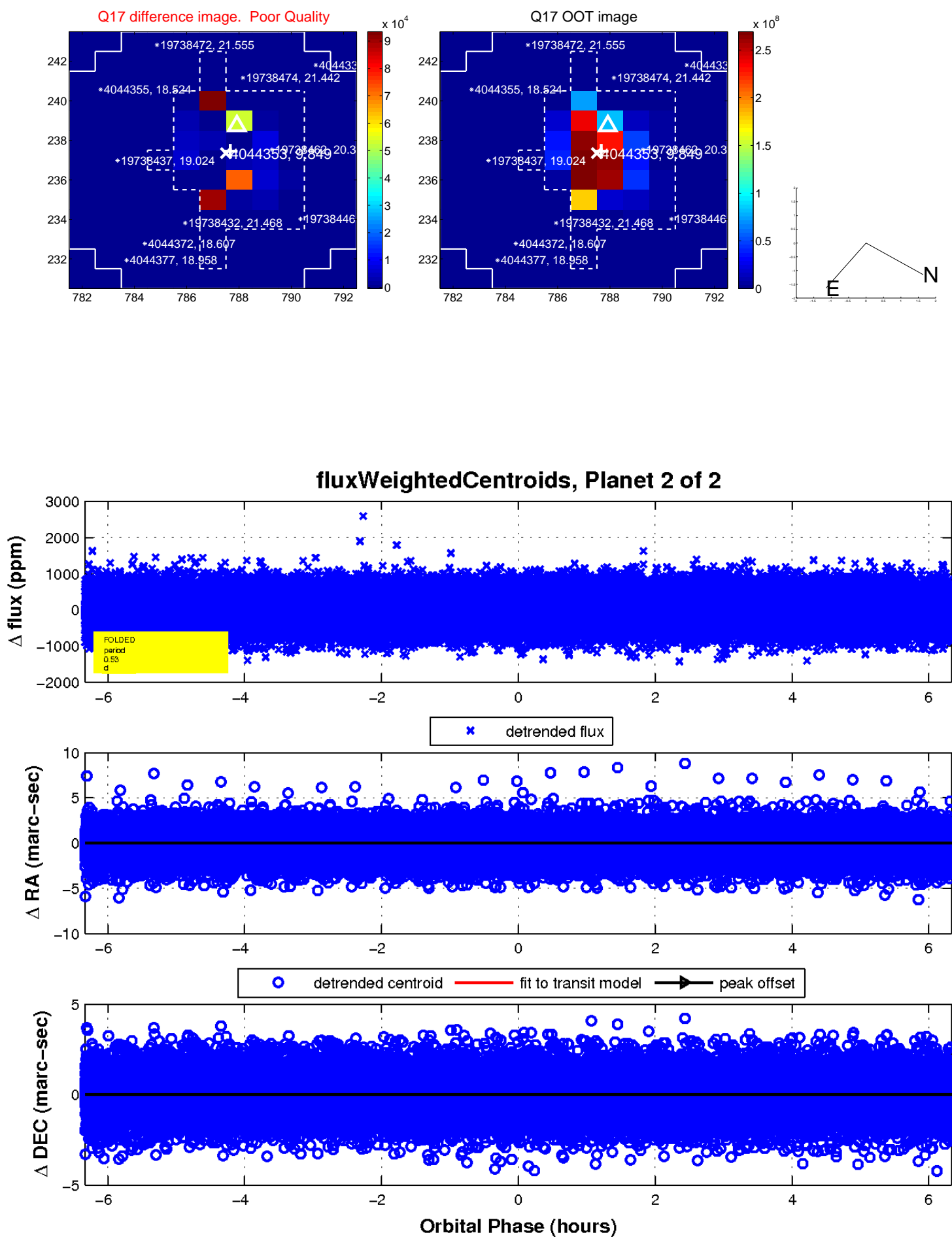
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

