

KIC 005393589

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})
005393589-01	OBS	No	0.556278	131.874049	79.4	1.604	12.6	11.3	1.75	7041	1.62	29962.06
005393589-02	OBS	No	0.556273	131.705254	69.1	1.868	11.4	10.2	1.75	7041	1.70	29962.39
005393589-03	OBS	No	0.953343	131.763008	267.0	3.500	10.6	-1.0	1.75	7041	2.89	14609.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005393589-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005393589-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005393589-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_NOFITS

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

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

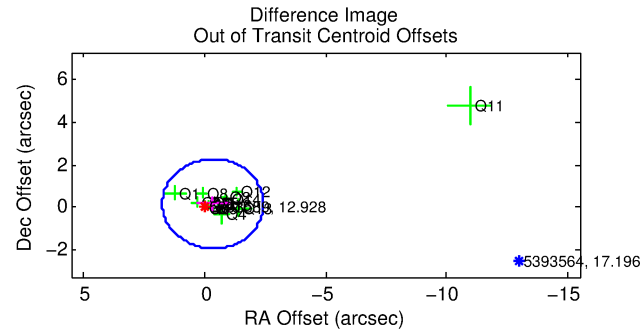
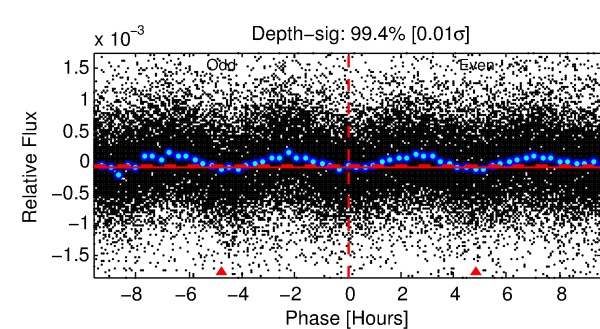
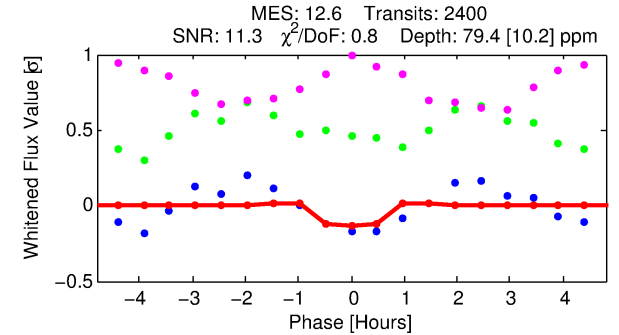
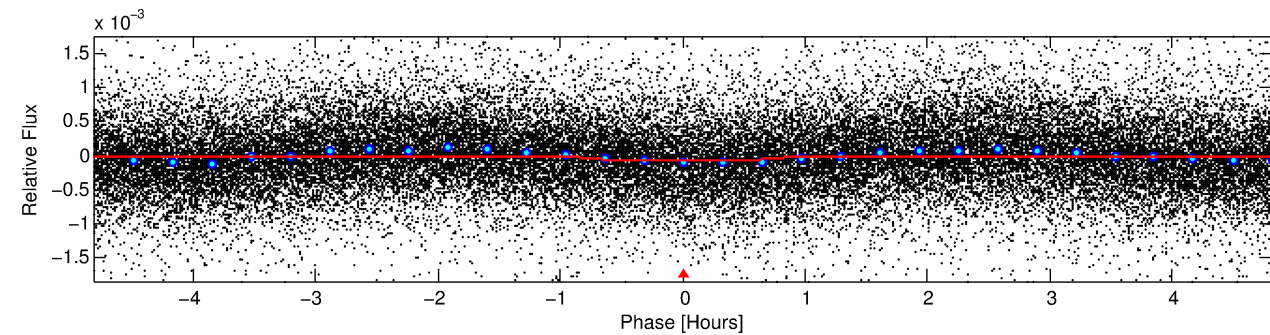
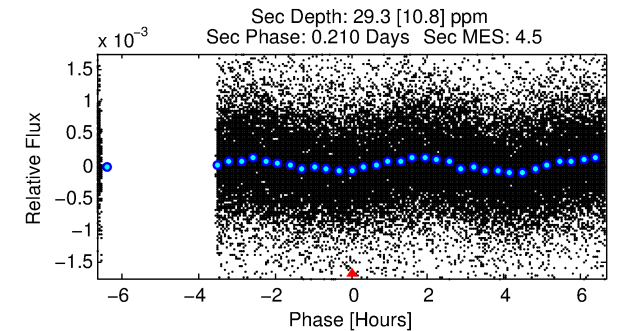
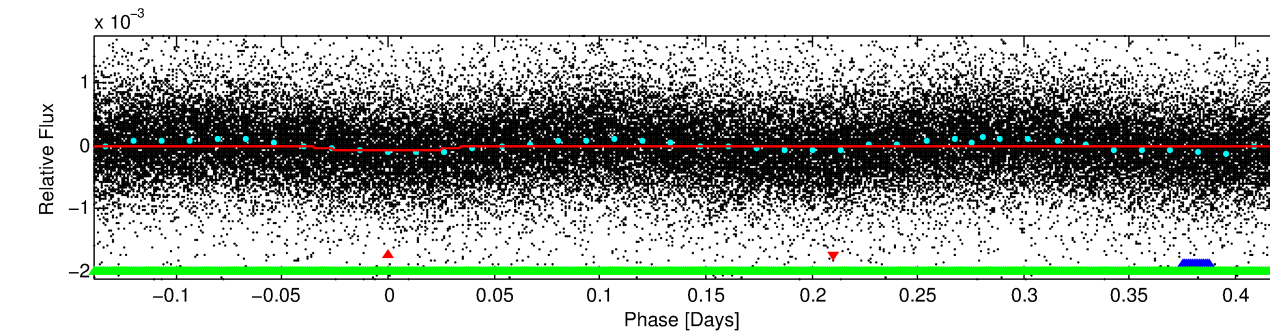
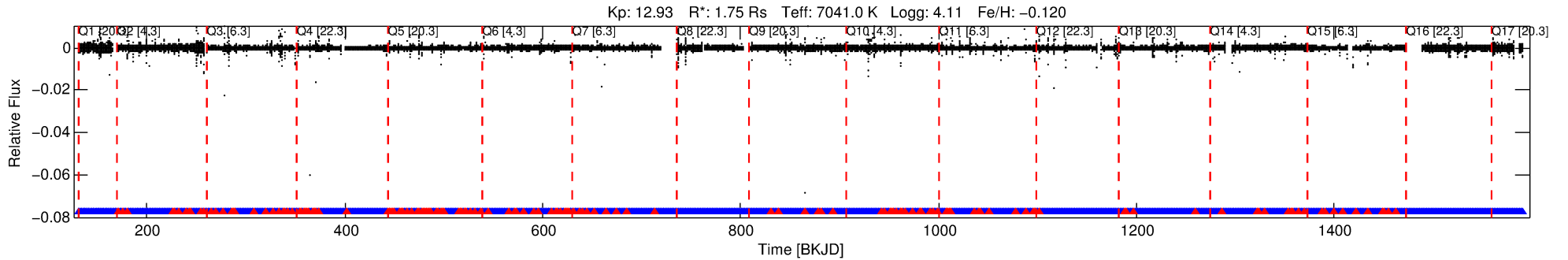
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005393589-01

No Significant Match Found

DV One-Page Summary

KIC: 5393589 Candidate: 1 of 3 Period: 0.556 d



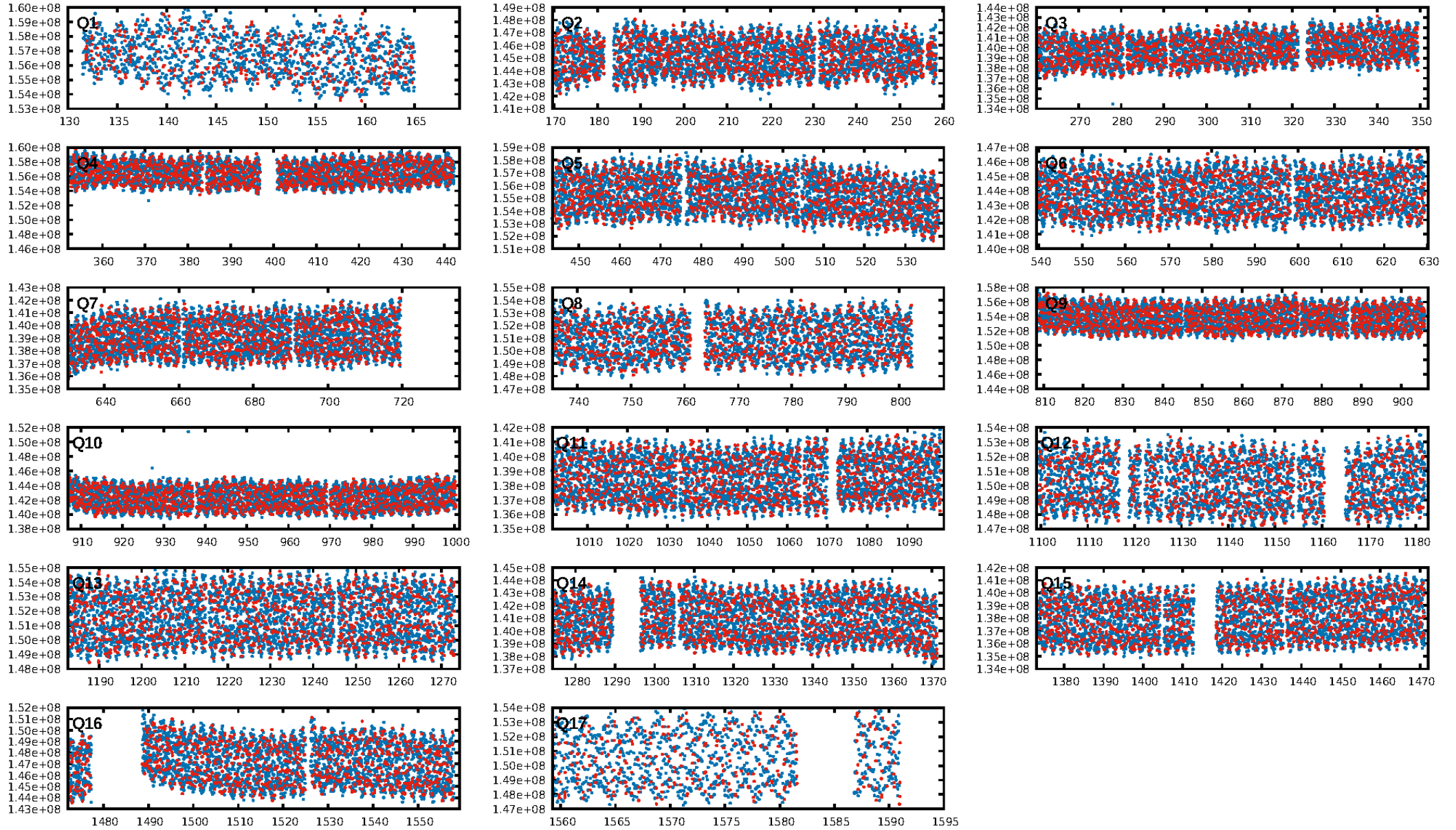
DV Fit Results:

Period = 0.55628 [0.00001] d
Epoch = 131.8740 [0.0014] BKJD
Rp/R* = 0.0085 [0.0022]
a/R* = 2.43 [2.94]
b = 0.50 [2.20]
Seff = 29962.06 [11754.77]
Teq = 3355 [329] K
Rp = 1.62 [0.63] Re
a = 0.0150 [0.0037] AU
Ag = 1.38 [1.00] [0.38σ]
Teffp = 5624 [921] K [2.32σ]

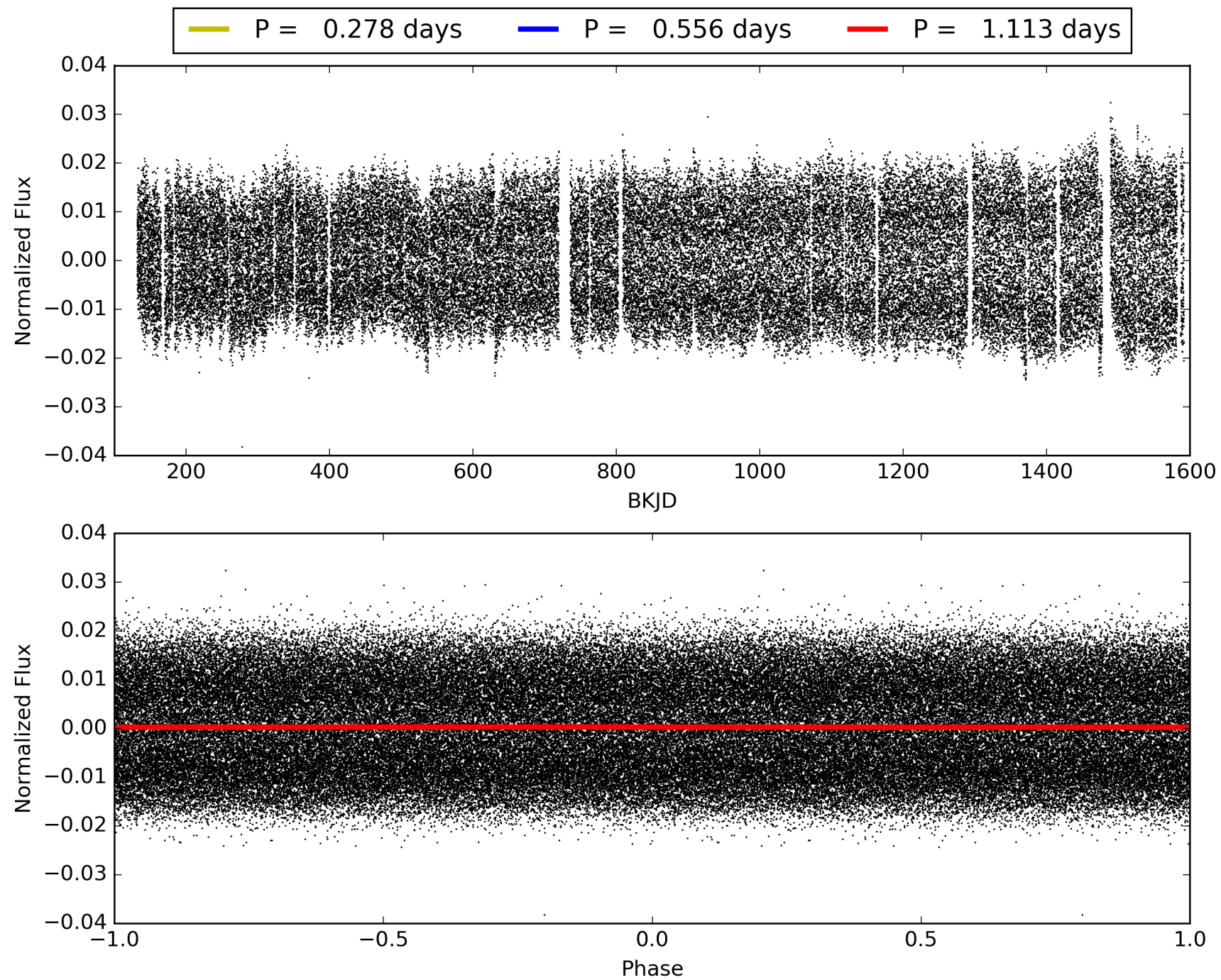
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 98.7% [2.48σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.92 [2116/2291]
GhostDiagnostic-chr: 1.259
Centroid-sig: 0.0%
Centroid-so: 1.214 arcsec [2.88σ]
OotOffset-rm: 0.390 arcsec [0.56σ]
KicOffset-rm: 0.381 arcsec [0.55σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.76 [13/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 005393589-01, PDC Light Curves

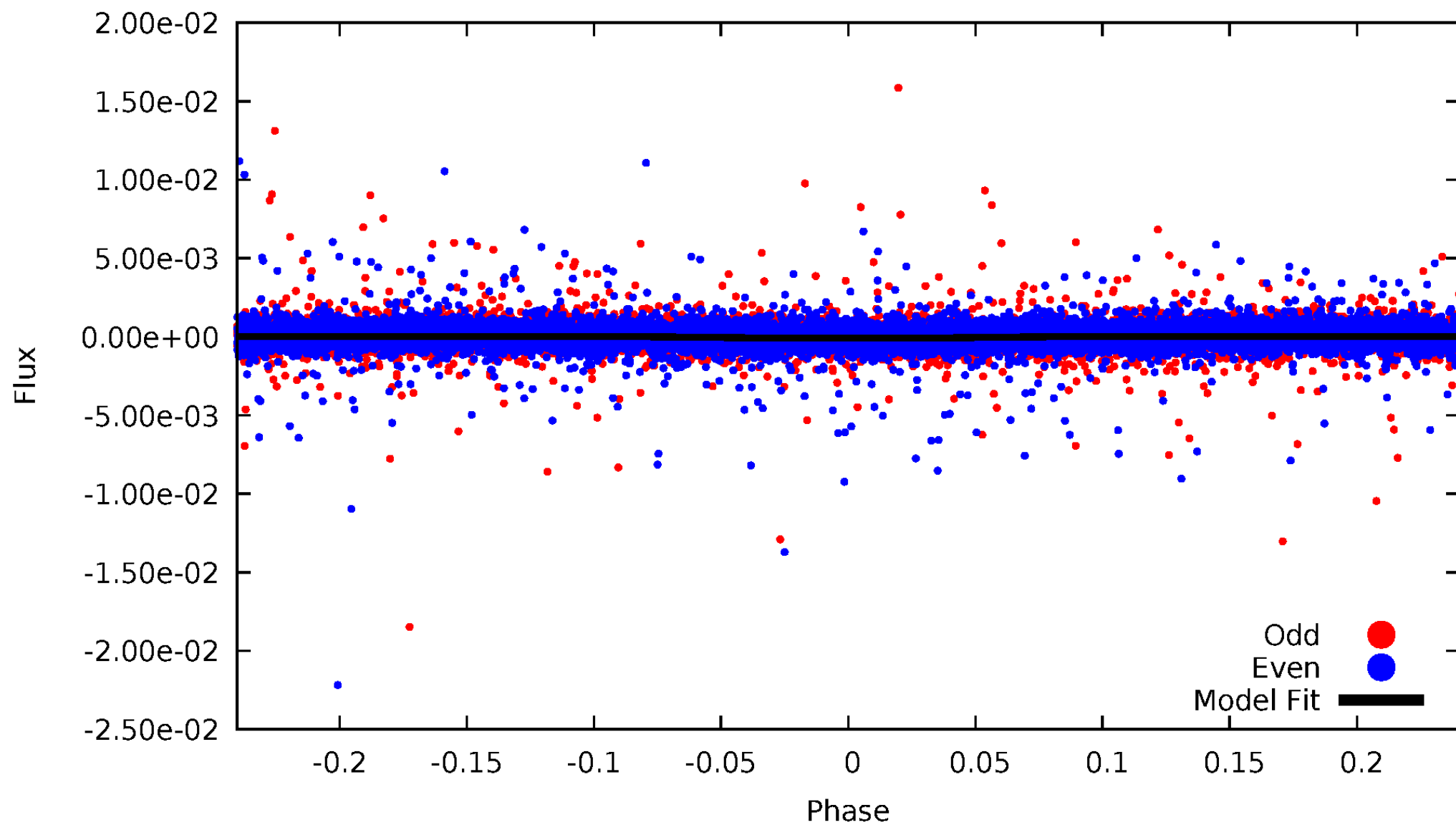


TCE 005393589-01



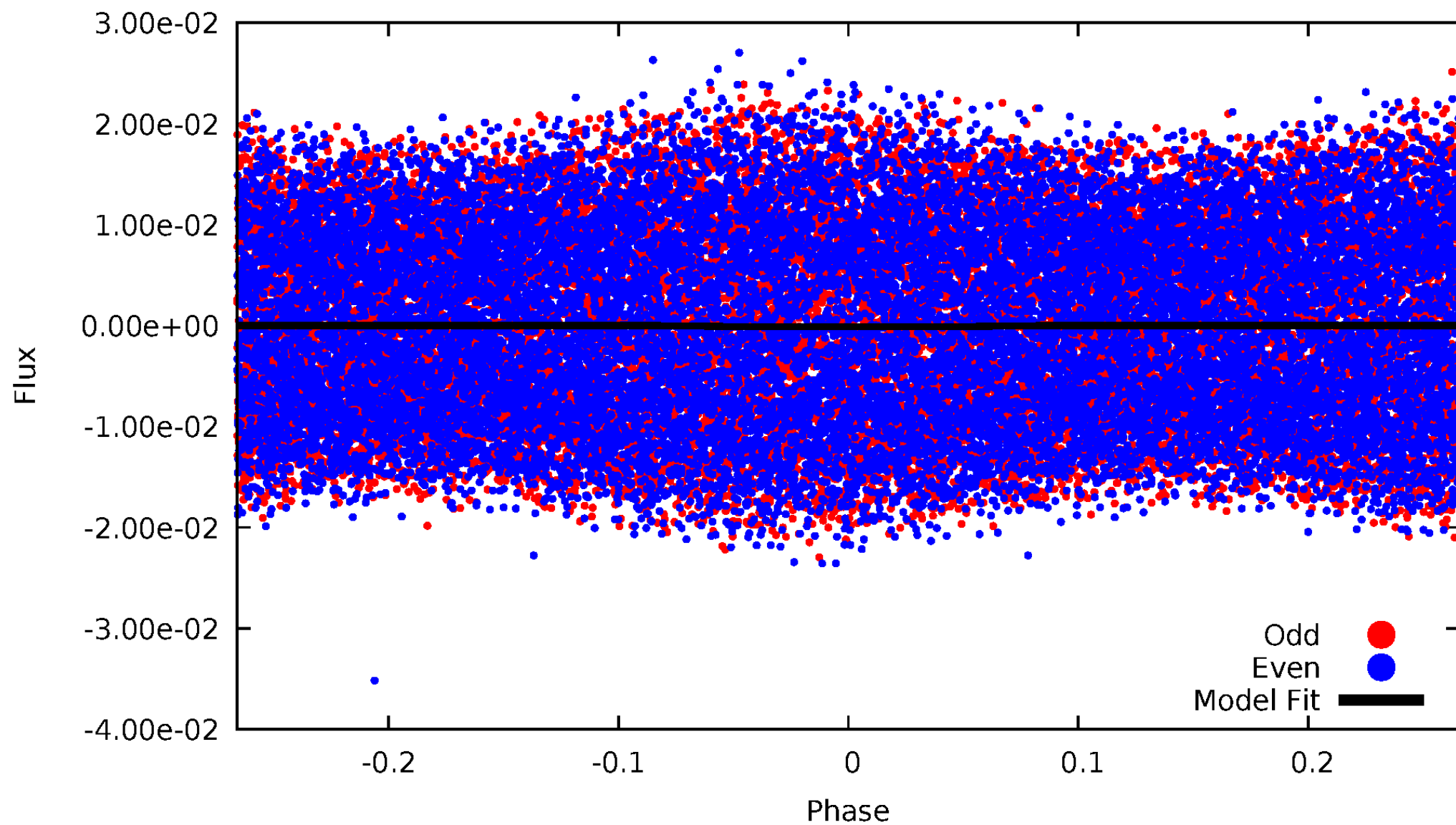
DV Odd/Even

TCE 005393589-01



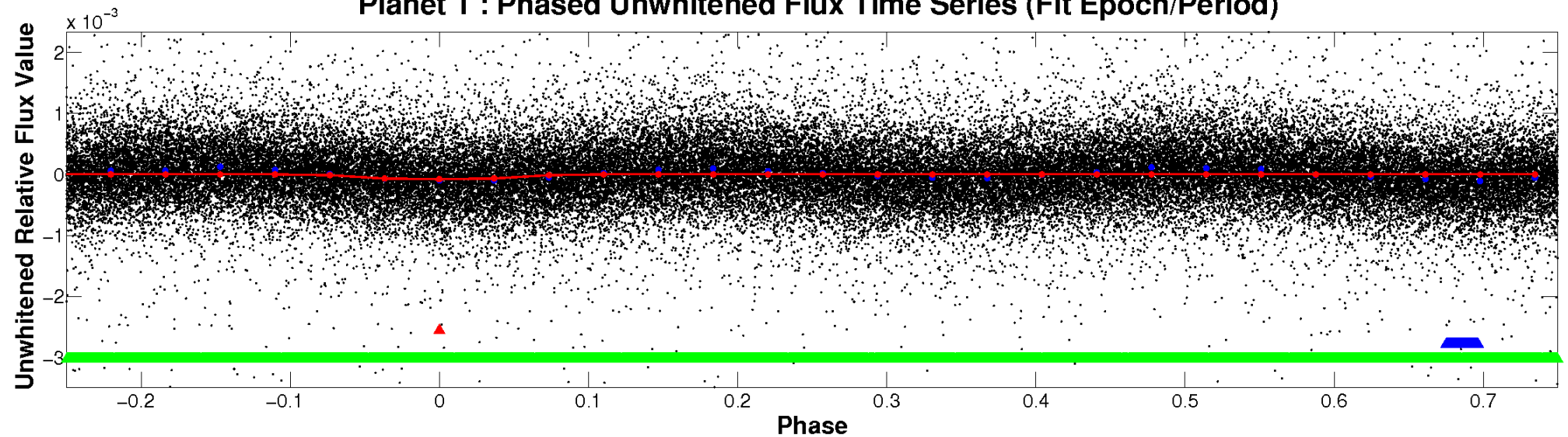
ALT Odd/Even

TCE 005393589-01

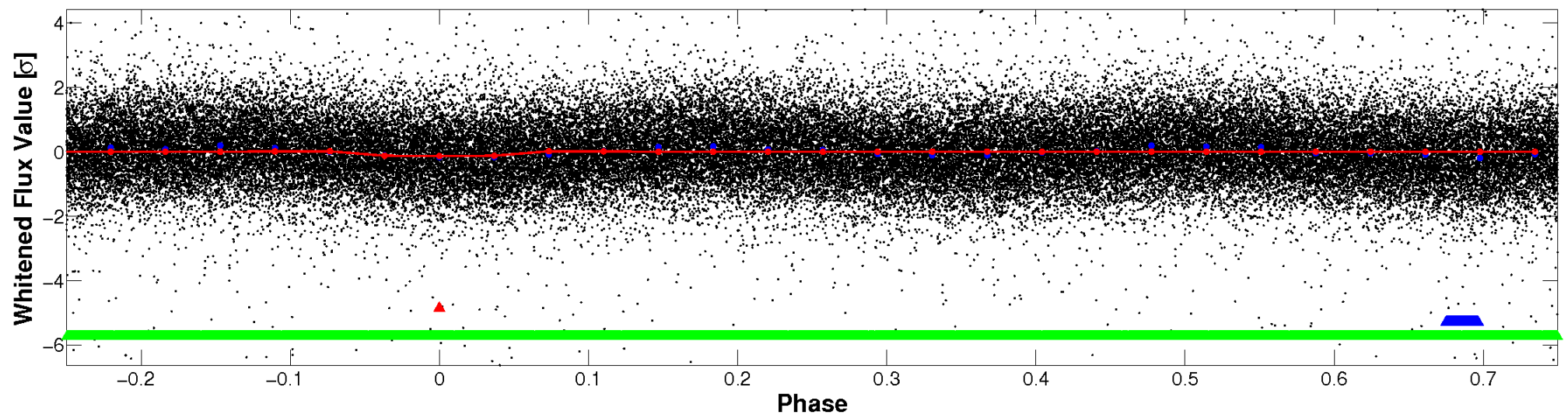


Non-Whitened Vs. Whitened Light Curve

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

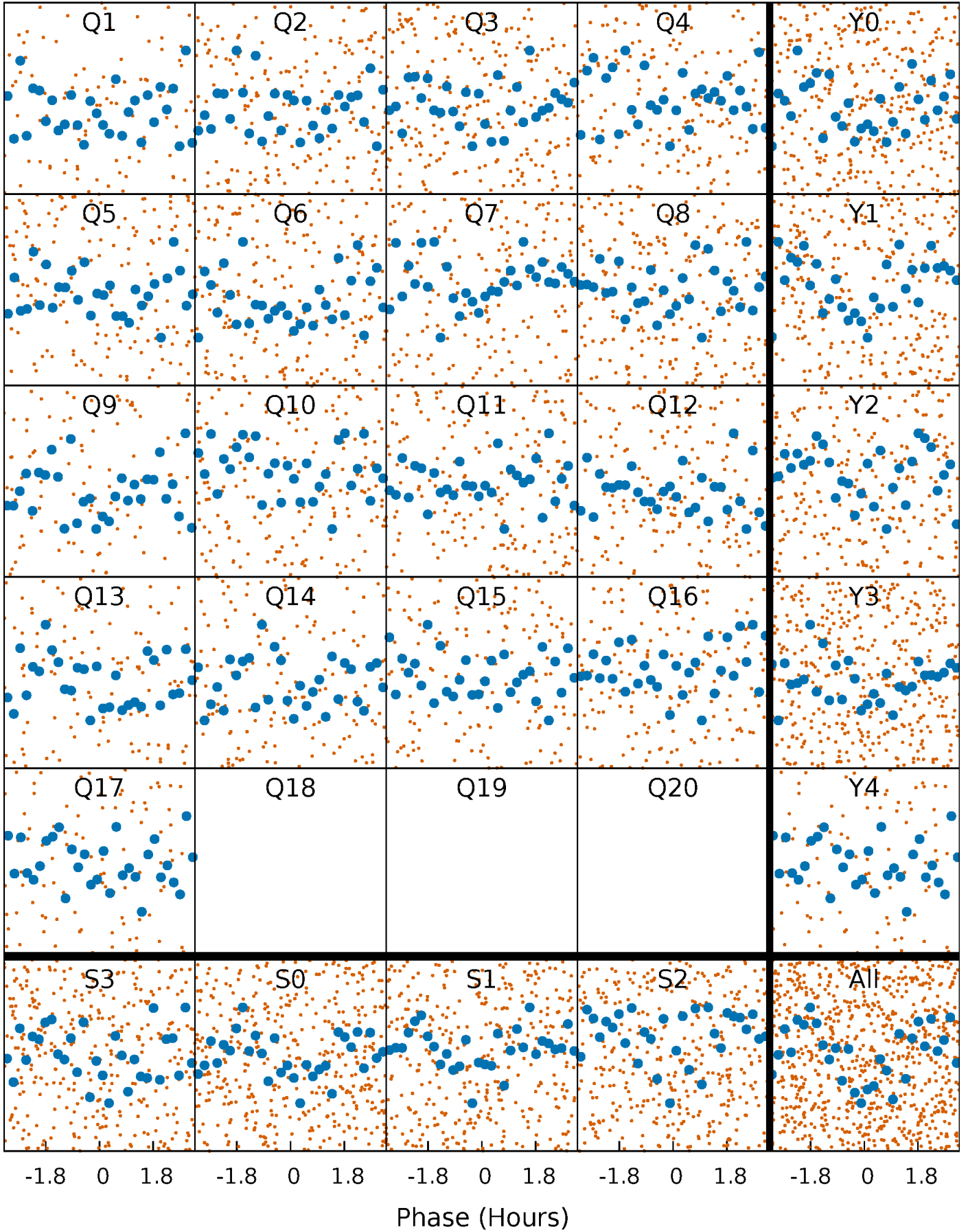


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



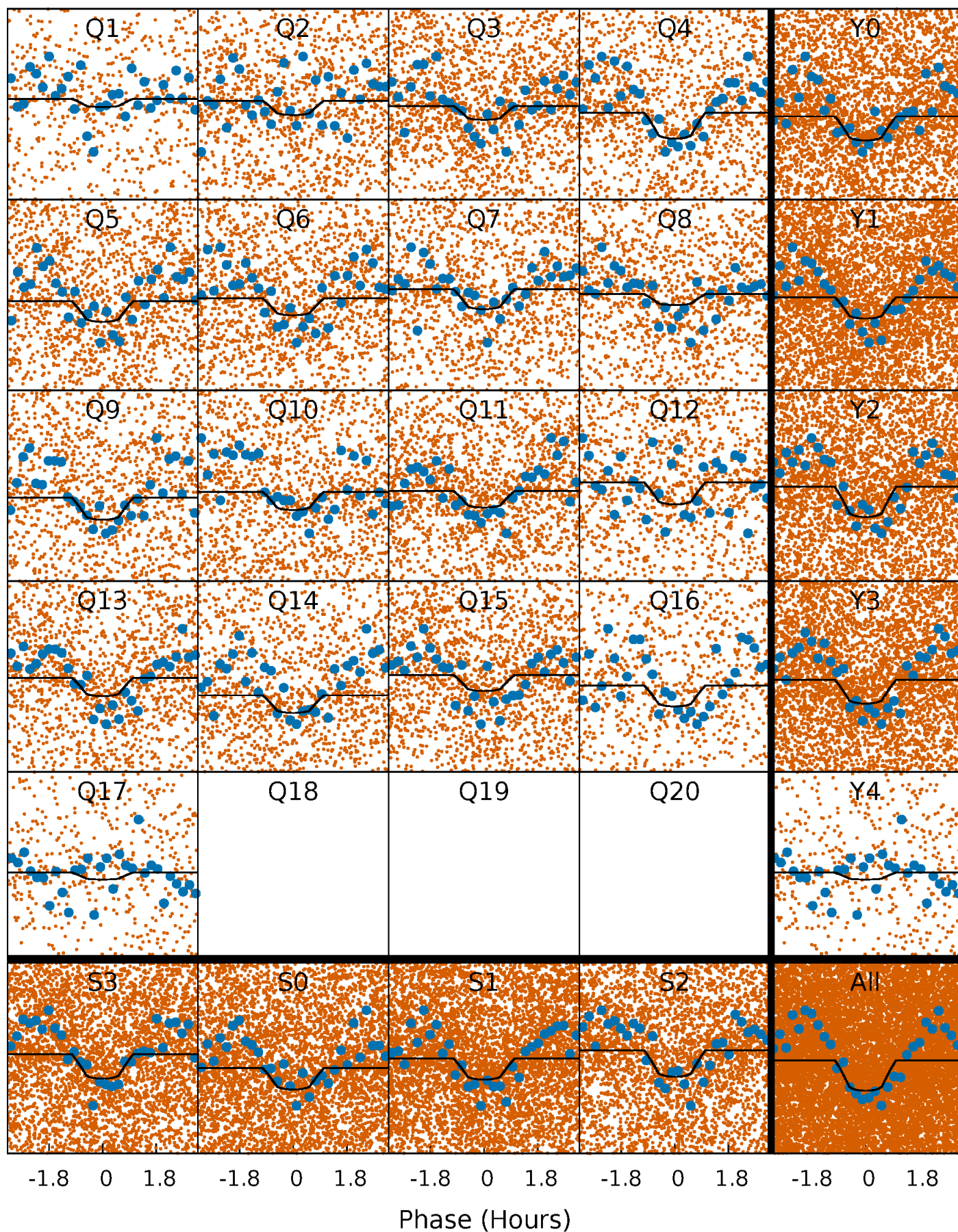
PDC Quarter-Phased Transit Curves

TCE 005393589-01 P= 0.556278 Days $T_0=131.874049$ (BKJD)



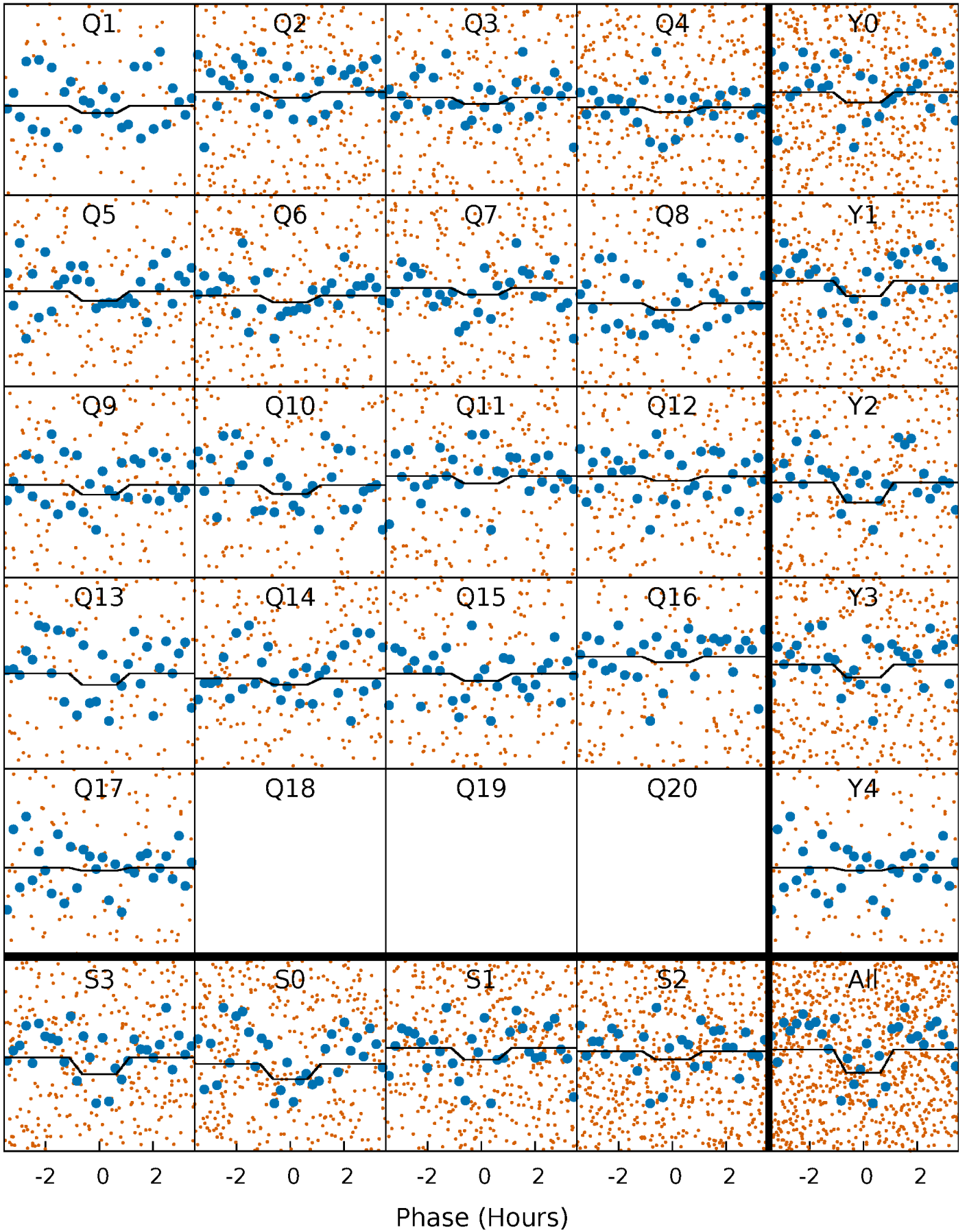
DV Quarter-Phased Transit Curves

TCE 005393589-01 P= 0.556278 Days $T_0=131.874049$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

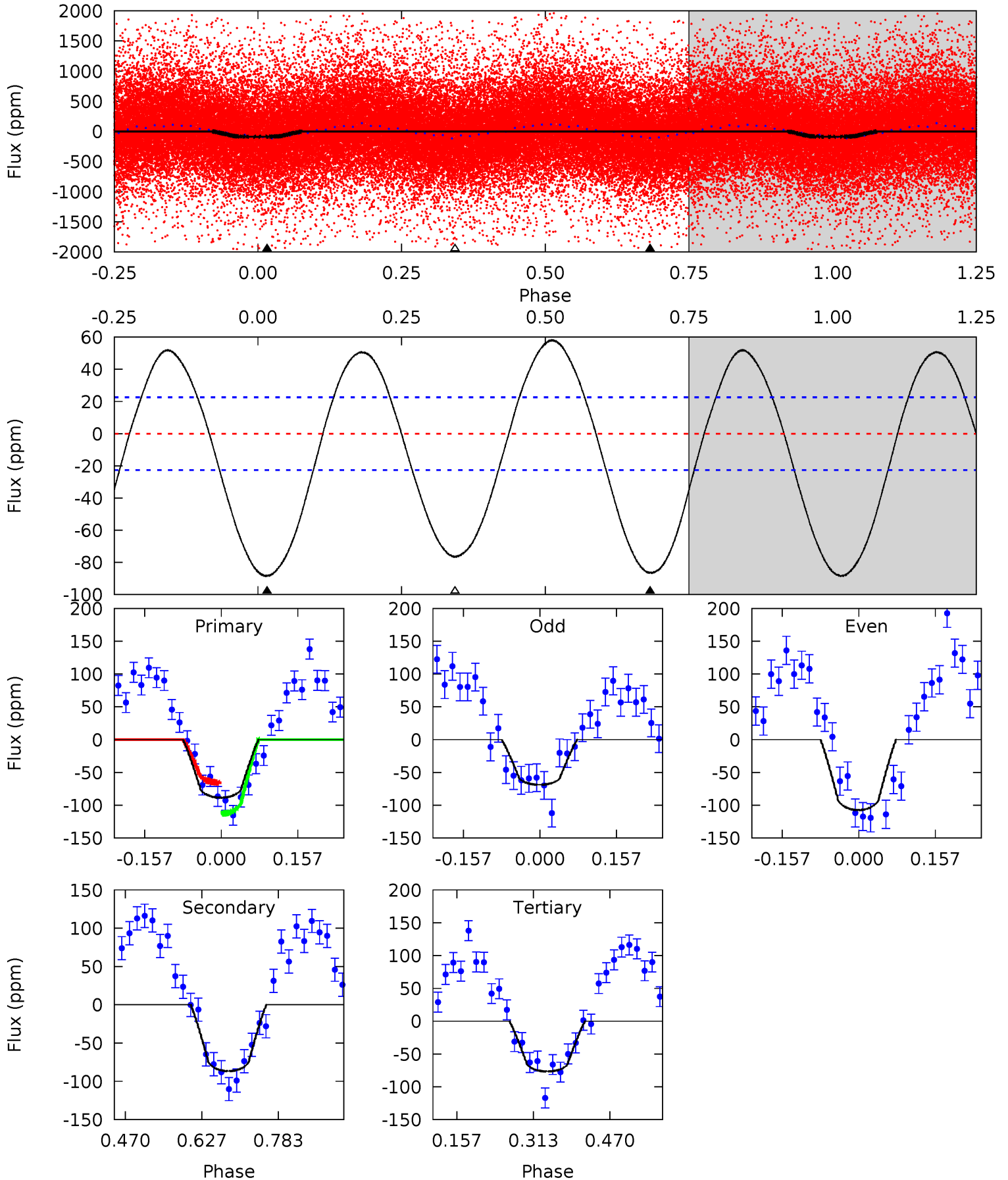
TCE 005393589-01 P= 0.556287 Days $T_0=131.874532$ (BKJD)



DV Model-Shift Uniqueness Test

005393589-01, P = 0.556278 Days, E = 131.317771 Days

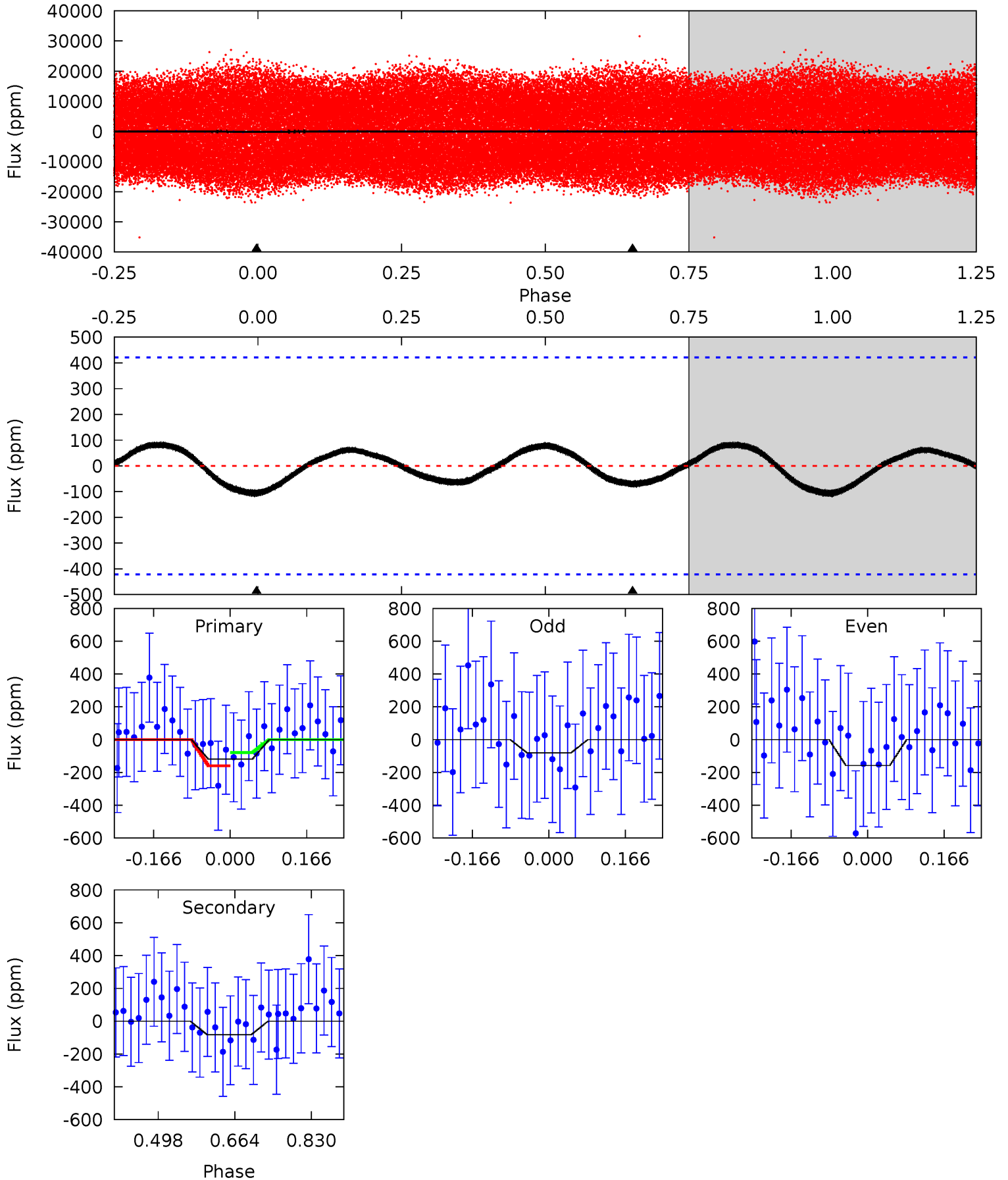
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	17.1	15.2	0	4.47	1.42	9.54	2.36	17.5	1.99	17.1	3.85	1.15	0.40	4.74



Alt Model-Shift Uniqueness Test

005393589-01, P = 0.556287 Days, E = 131.318245 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.26	0.88	0	0	4.46	1.38	0.50	1.26	1.26	0.88	0.88	0.41	0.55	0.44	0.45



Stellar Parameters For KIC 005393589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7041^{+197}_{-296}	$4.114^{+0.157}_{-0.192}$	$-0.120^{+0.250}_{-0.350}$	$1.747^{+0.516}_{-0.422}$	$1.448^{+0.208}_{-0.255}$	$0.382^{+0.360}_{-0.184}$
	+3%/-4%	+4%/-5%	+208%/-292%	+30%/-24%	+14%/-18%	+94%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005393589-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-87 ± 5	$1.61^{+0.53}_{-0.48}$	4706^{+361}_{-358}	7312^{+1514}_{-1001}	$4.107^{+4.004}_{-1.751}$
Alt.	-83 ± 94	$2.07^{+0.53}_{-0.52}$	4706^{+354}_{-335}	6155^{+2010}_{-10532}	$2.261^{+3.673}_{-2.432}$

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 $A_{obs} \gg 1.0$

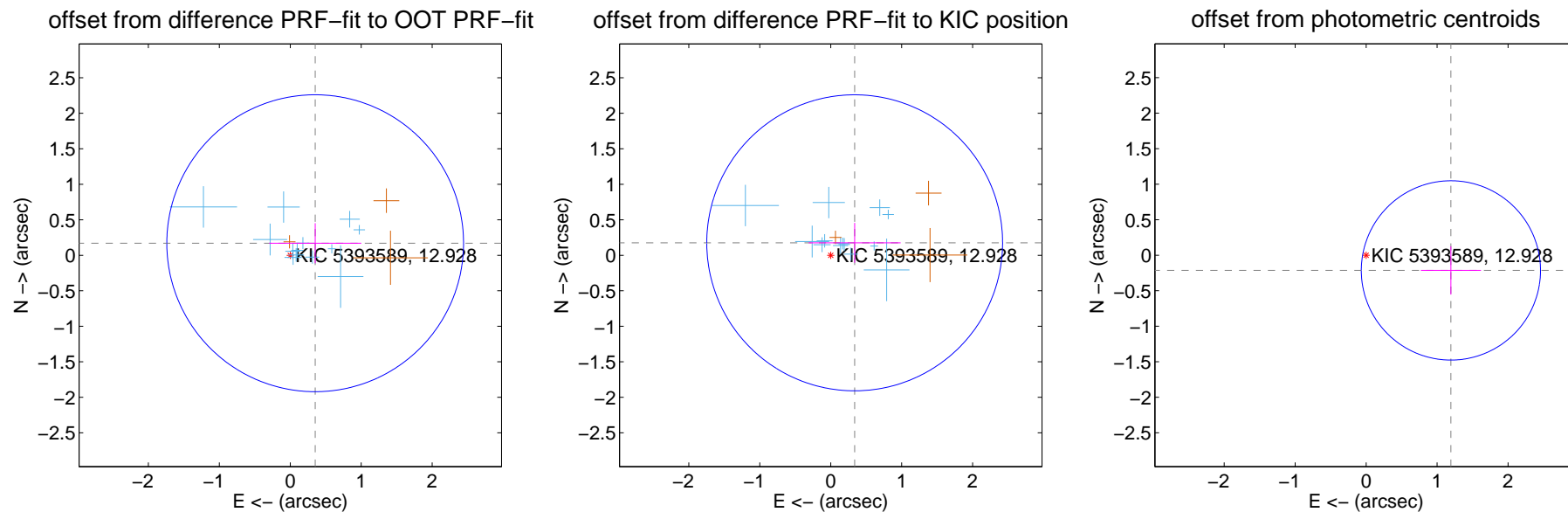
DV Centroid Data

Supplemental centroid analysis for 005393589-01. Kepler magnitude: 12.93. Transit SNR 11.28

There are 13 quarters with good PRF difference image offsets

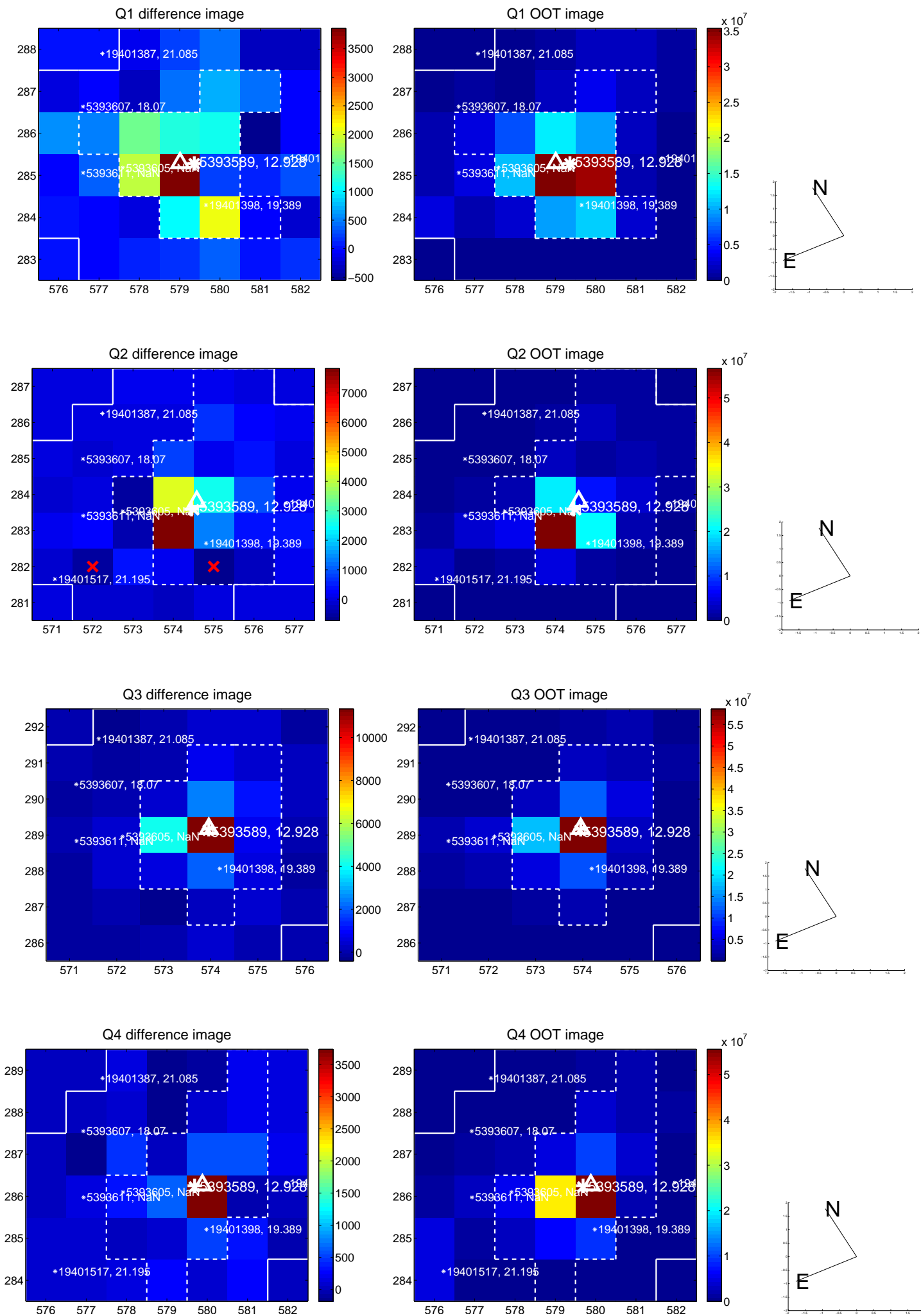
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.390 ± 0.697	0.56	-0.351 ± 0.650	0.170 ± 0.281
PRF-fit source offset from KIC position	0.381 ± 0.695	0.55	-0.338 ± 0.649	0.176 ± 0.281
photometric centroid source offset	1.21 ± 0.42	2.88	-1.19 ± 0.42	-0.21 ± 0.34

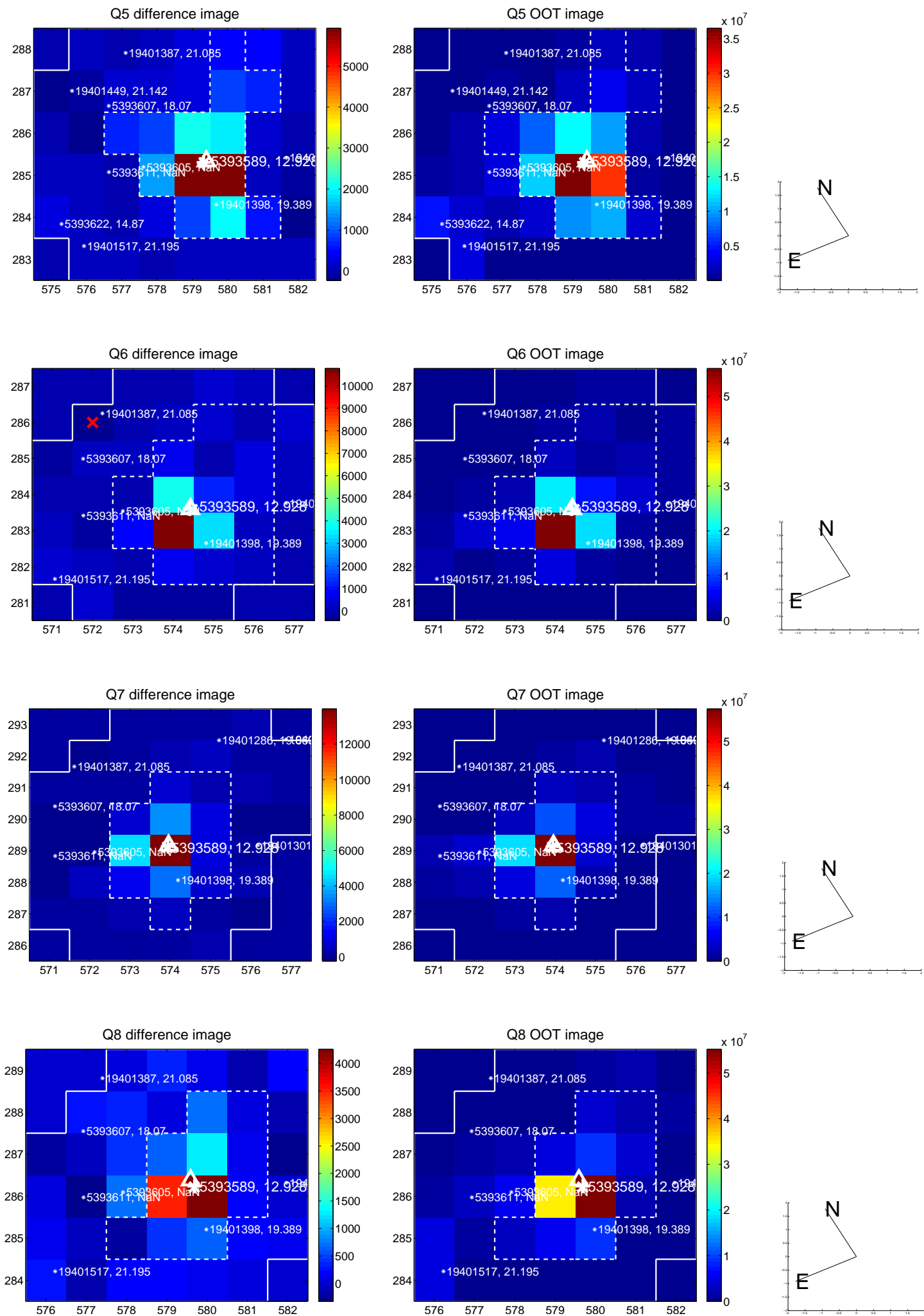


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

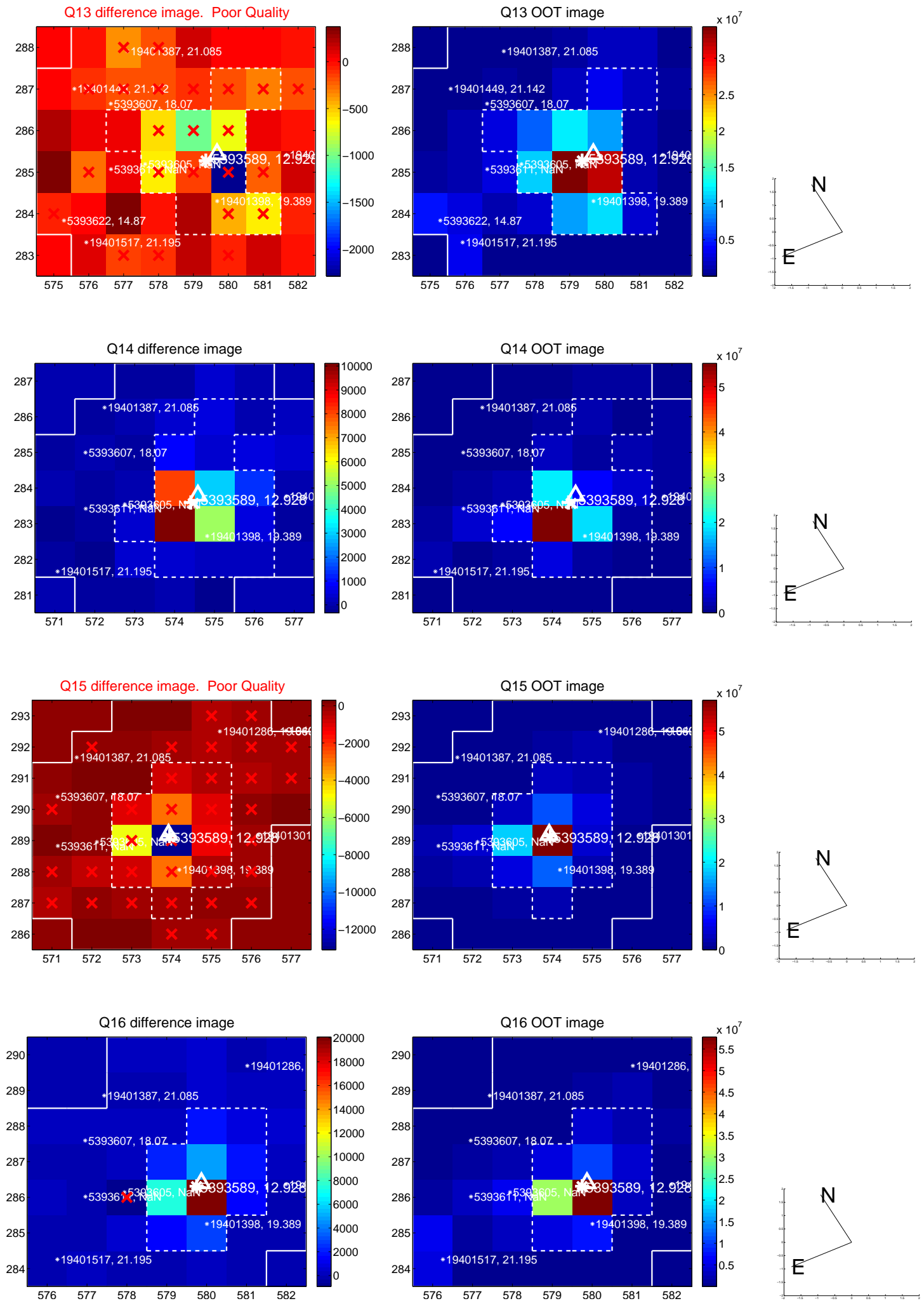
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



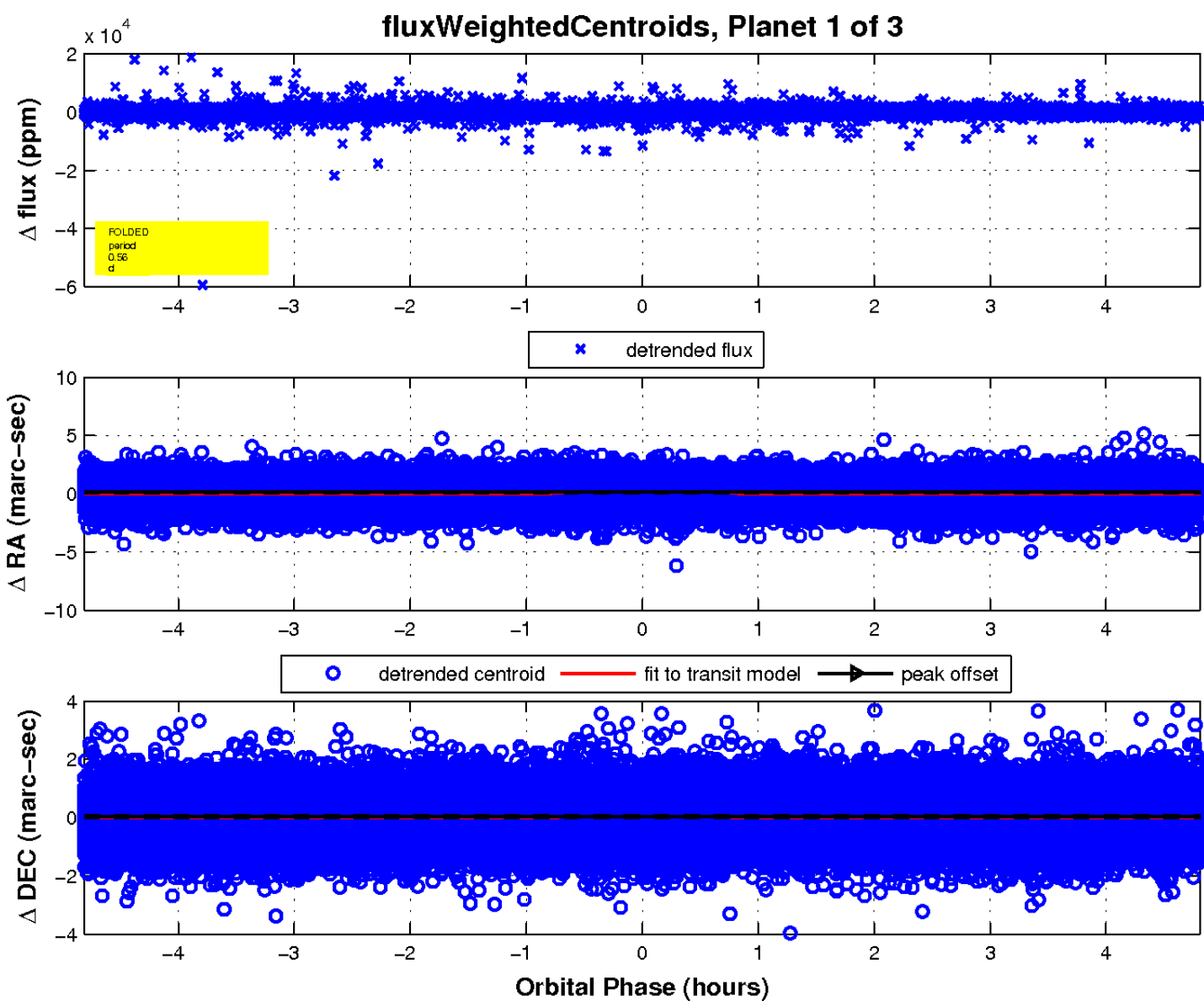
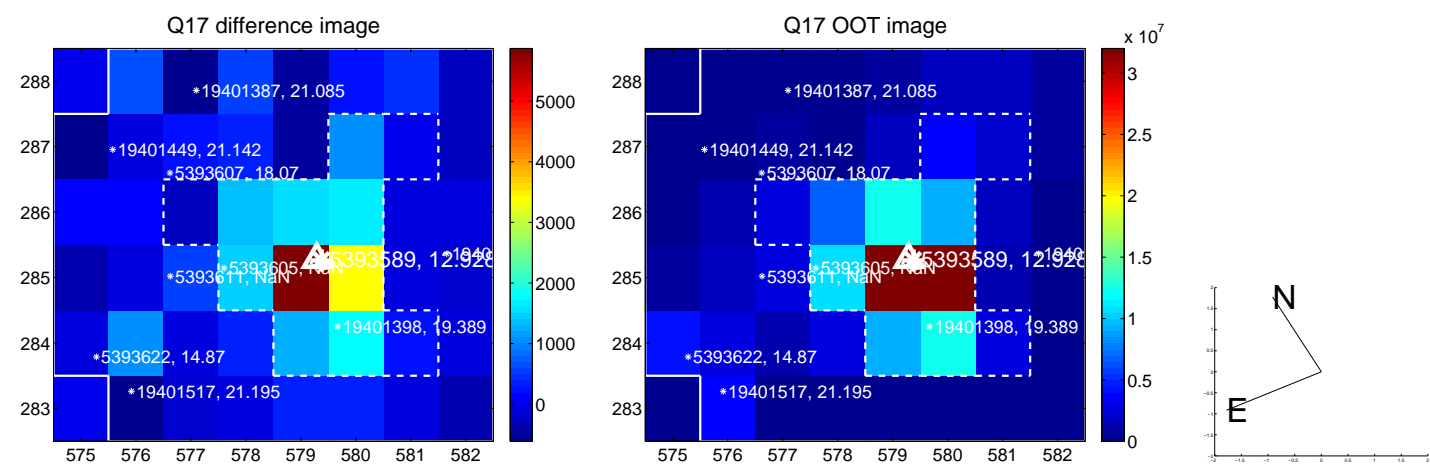
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

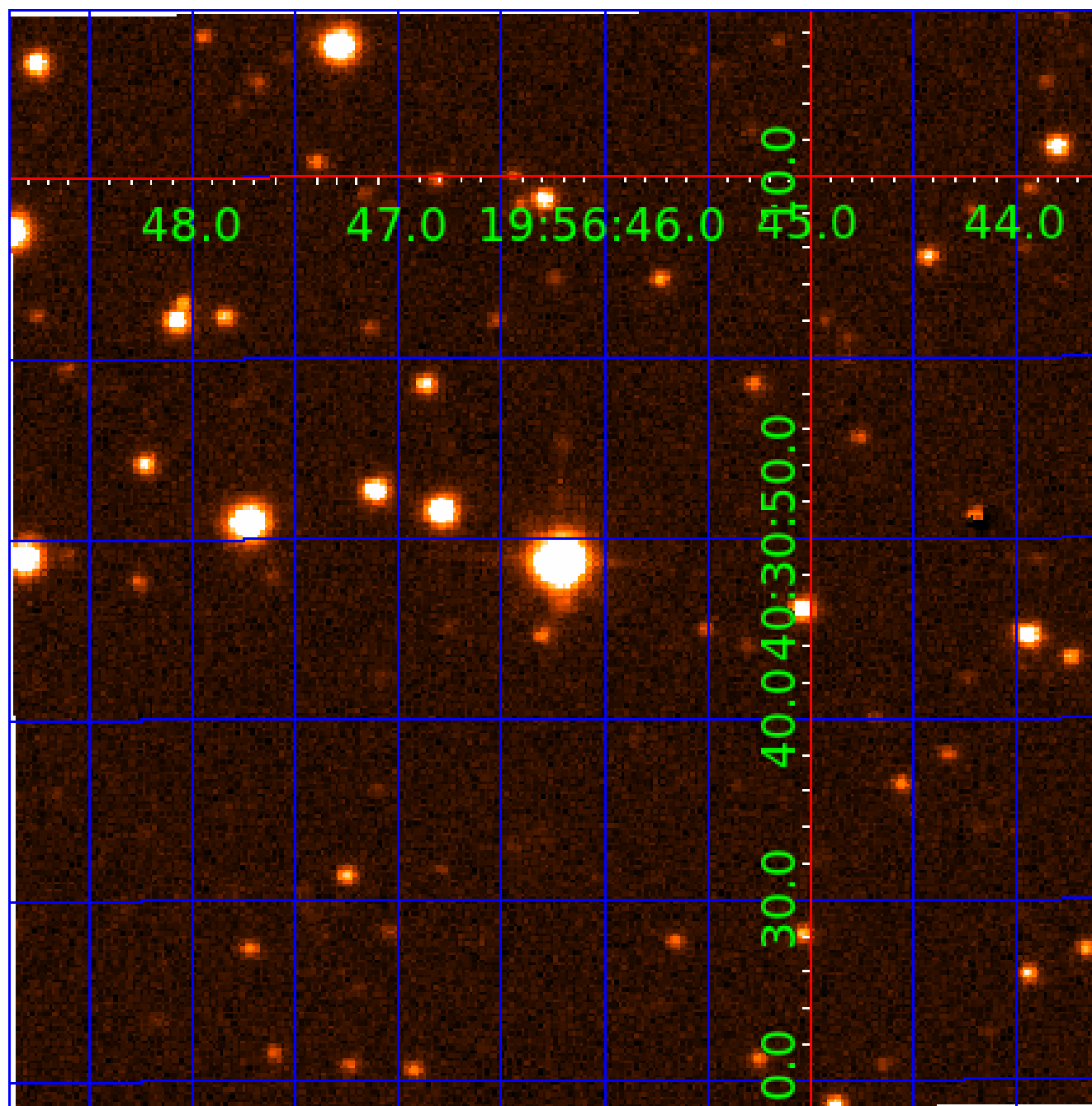


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005393589

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})
005393589-01	OBS	No	0.556278	131.874049	79.4	1.604	12.6	11.3	1.75	7041	1.62	29962.06
005393589-02	OBS	No	0.556273	131.705254	69.1	1.868	11.4	10.2	1.75	7041	1.70	29962.39
005393589-03	OBS	No	0.953343	131.763008	267.0	3.500	10.6	-1.0	1.75	7041	2.89	14609.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005393589-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005393589-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005393589-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_NOFITS

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

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

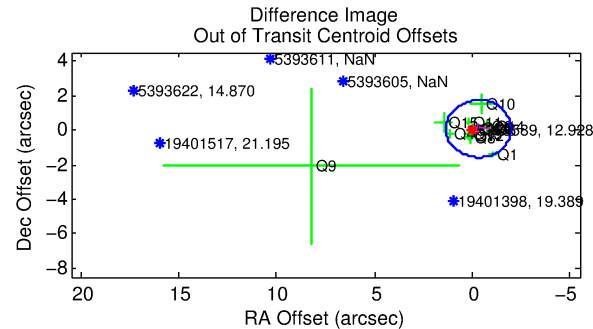
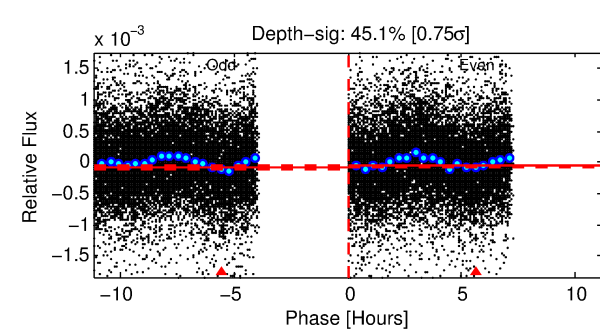
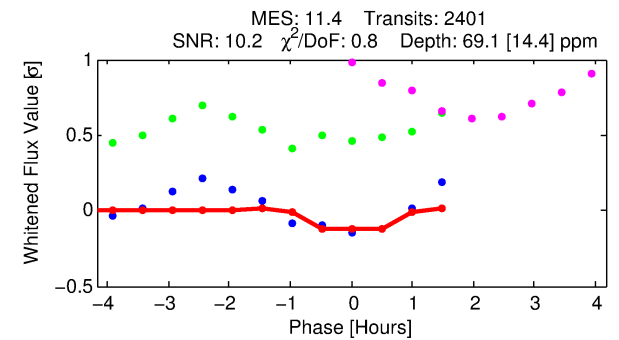
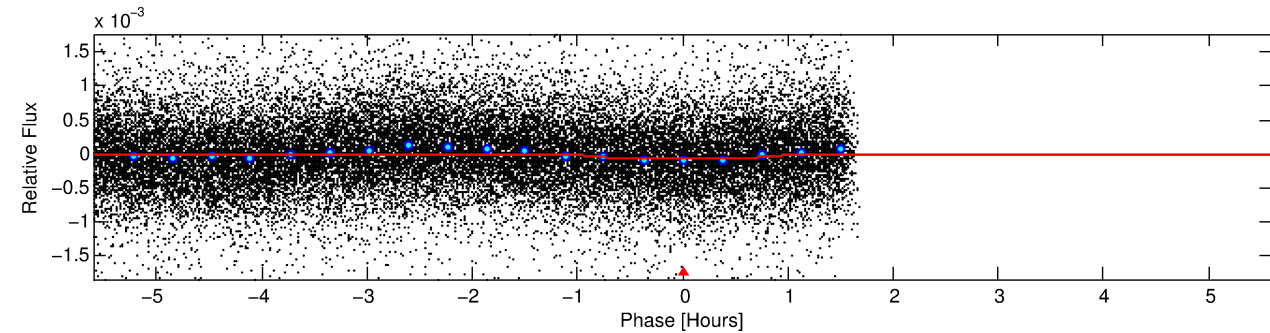
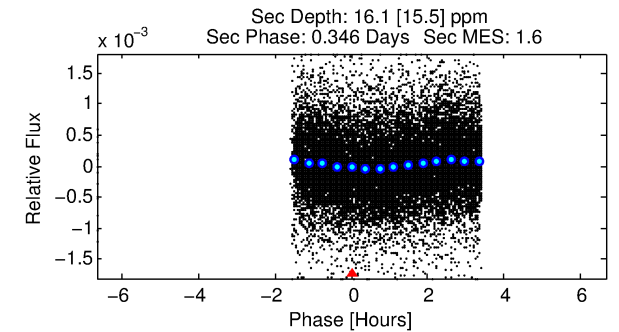
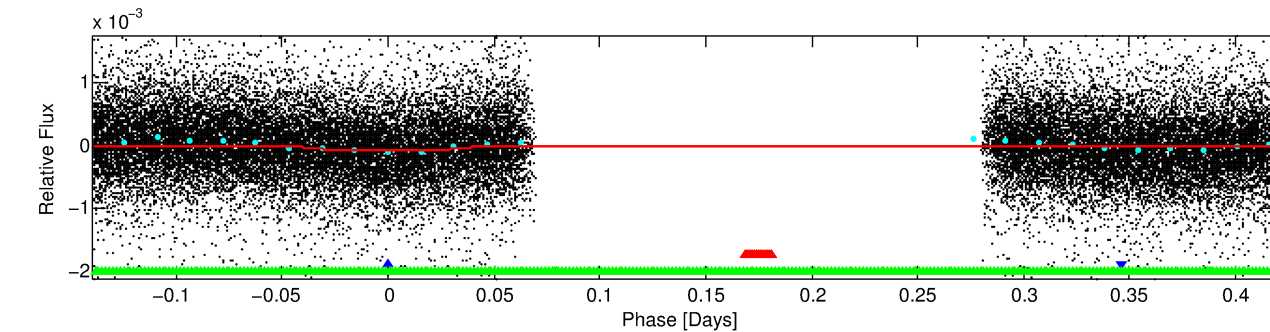
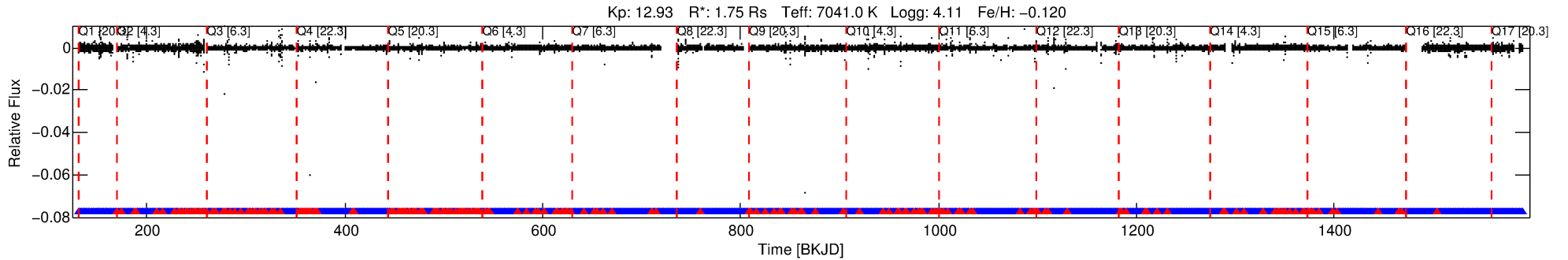
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005393589-02

No Significant Match Found

DV One-Page Summary

KIC: 5393589 Candidate: 2 of 3 Period: 0.556 d



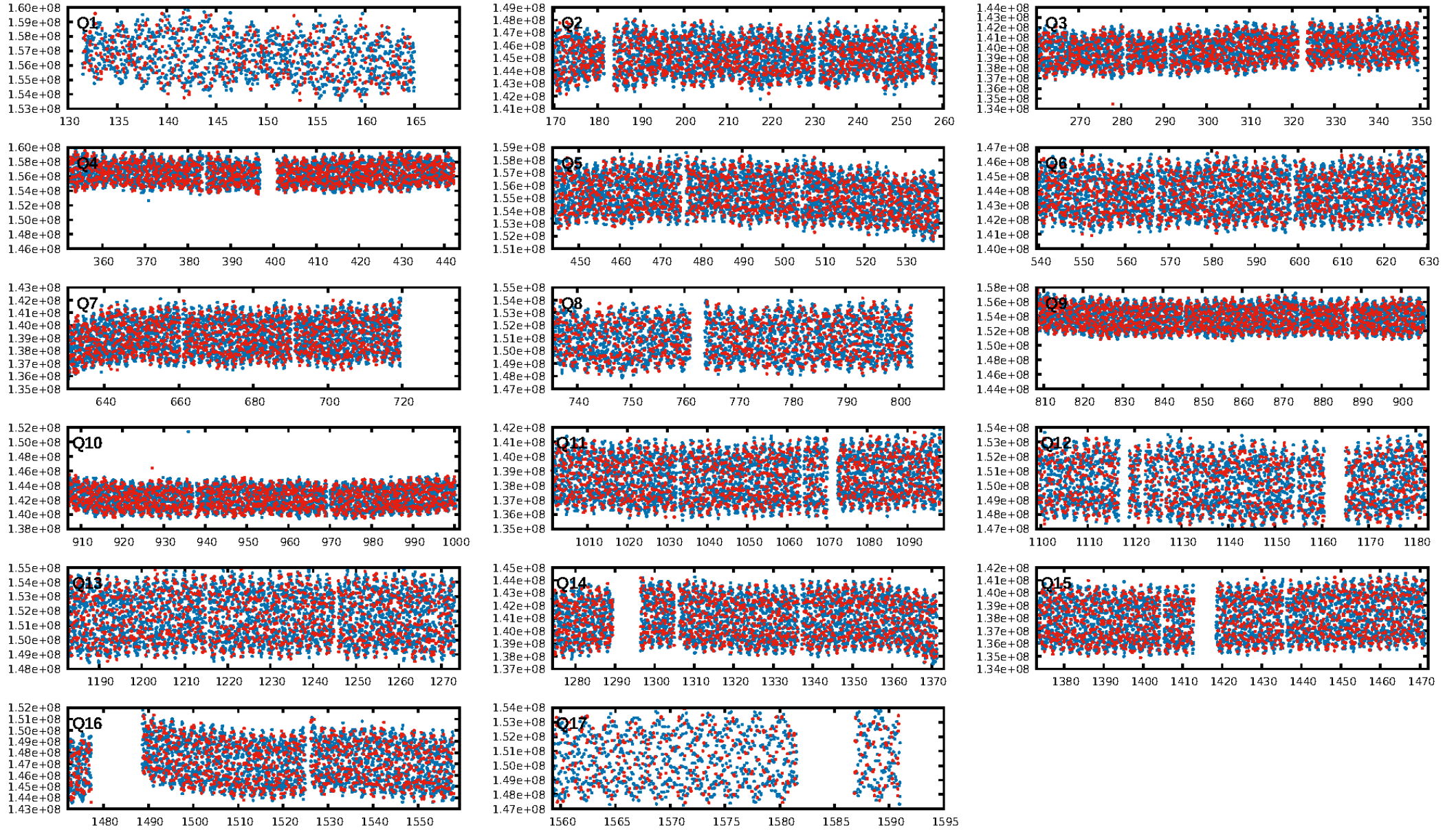
DV Fit Results:

Period = 0.55627 [0.00002] d
Epoch = 131.7053 [0.0020] BKJD
Rp/R* = 0.0089 [0.0033]
a/R* = 1.38 [1.49]
b = 0.91 [0.45]
Seff = 29962.39 [11754.90]
Teff = 3355 [329] K
Rp = 1.70 [0.81] Re
a = 0.0150 [0.0037] AU
Ag = 0.69 [0.88] [-0.35σ]
Teffp = 4727 [1459] K [0.92σ]

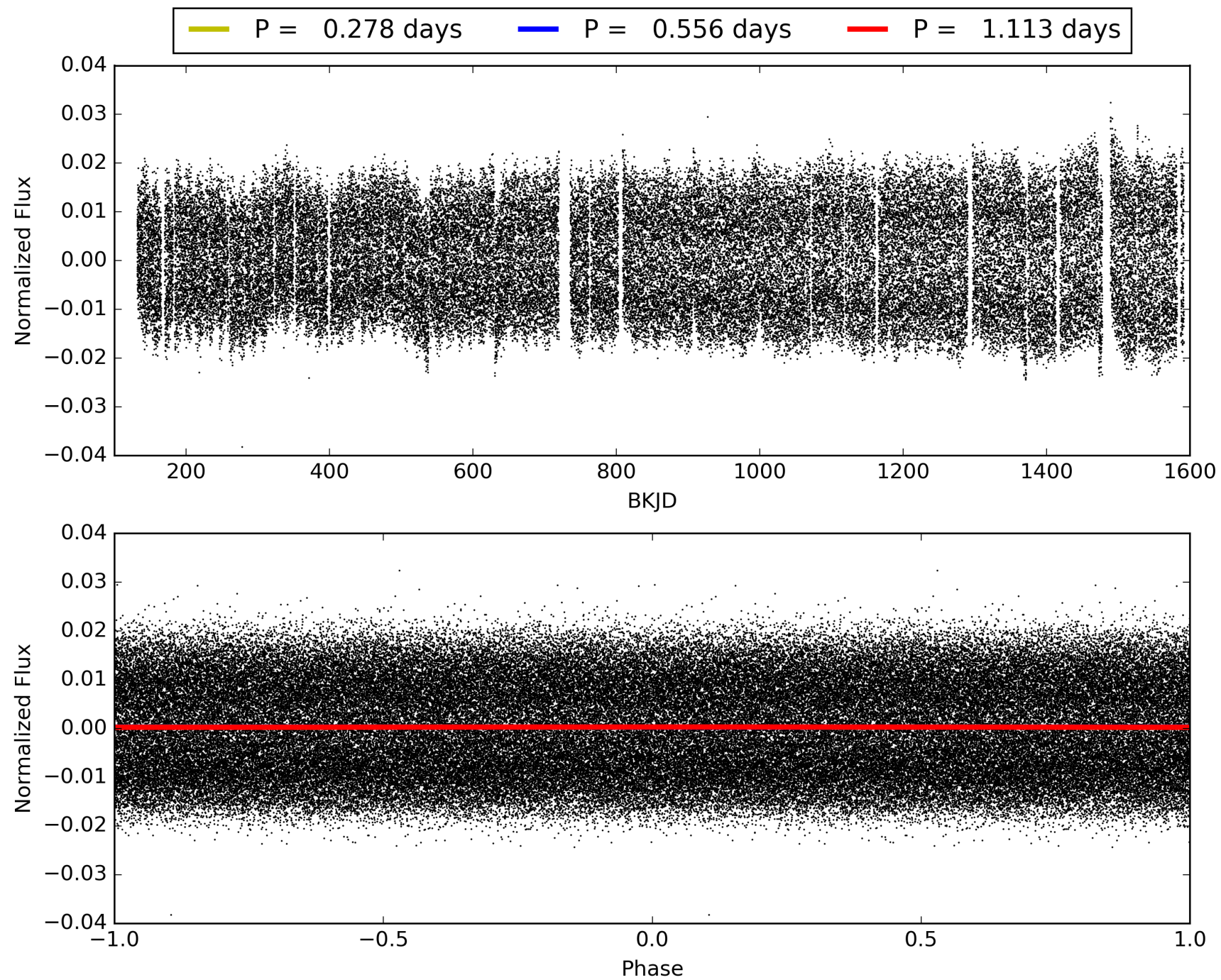
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.90 [2068/2293]
GhostDiagnostic-chr: 1.4
Centroid-sig: 0.0%
Centroid-so: 0.705 arcsec [1.87σ]
OotOffset-rm: 0.323 arcsec [0.58σ]
KicOffset-rm: 0.362 arcsec [0.76σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.69 [11/16]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 005393589-02, PDC Light Curves

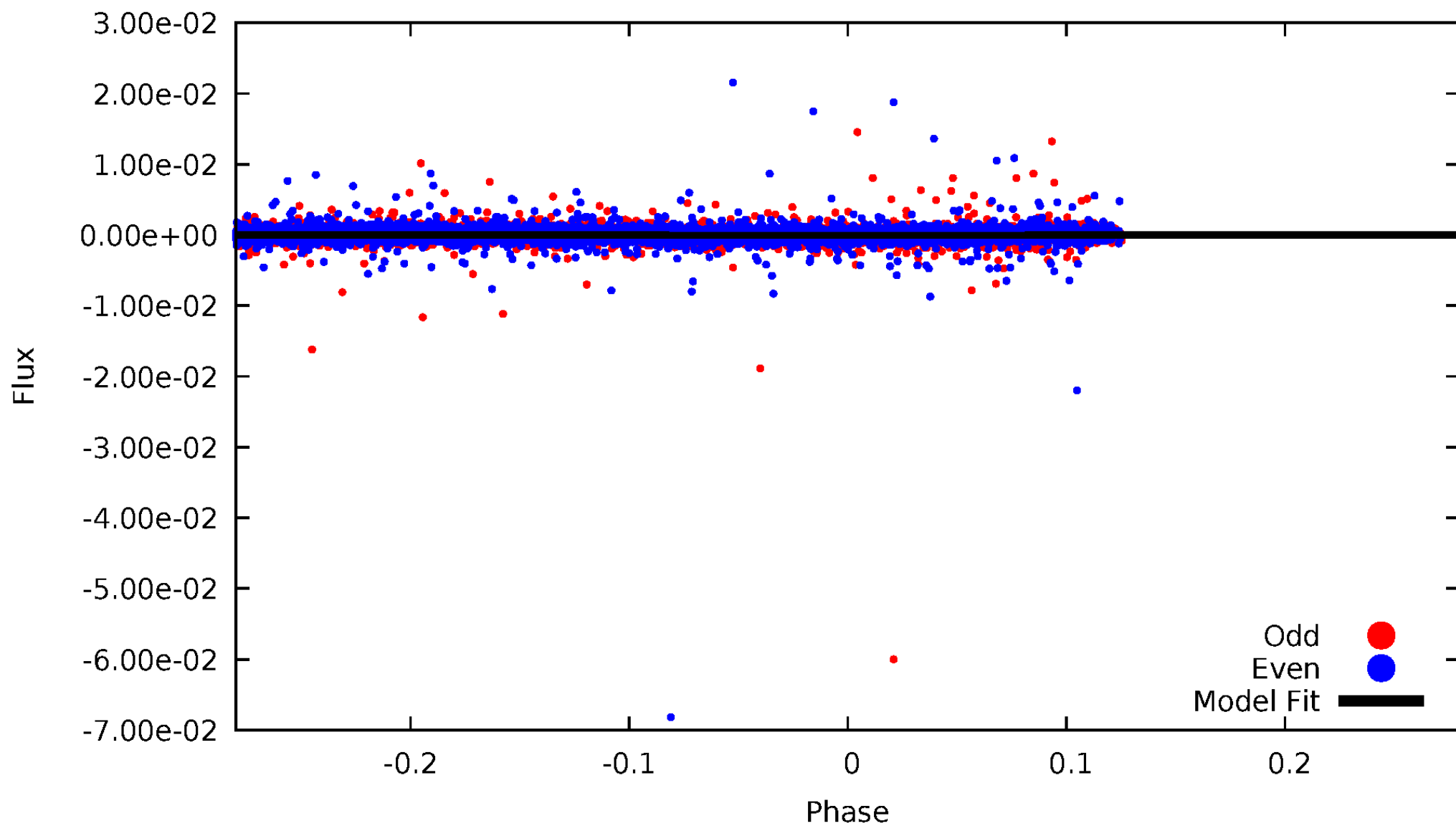


TCE 005393589-02



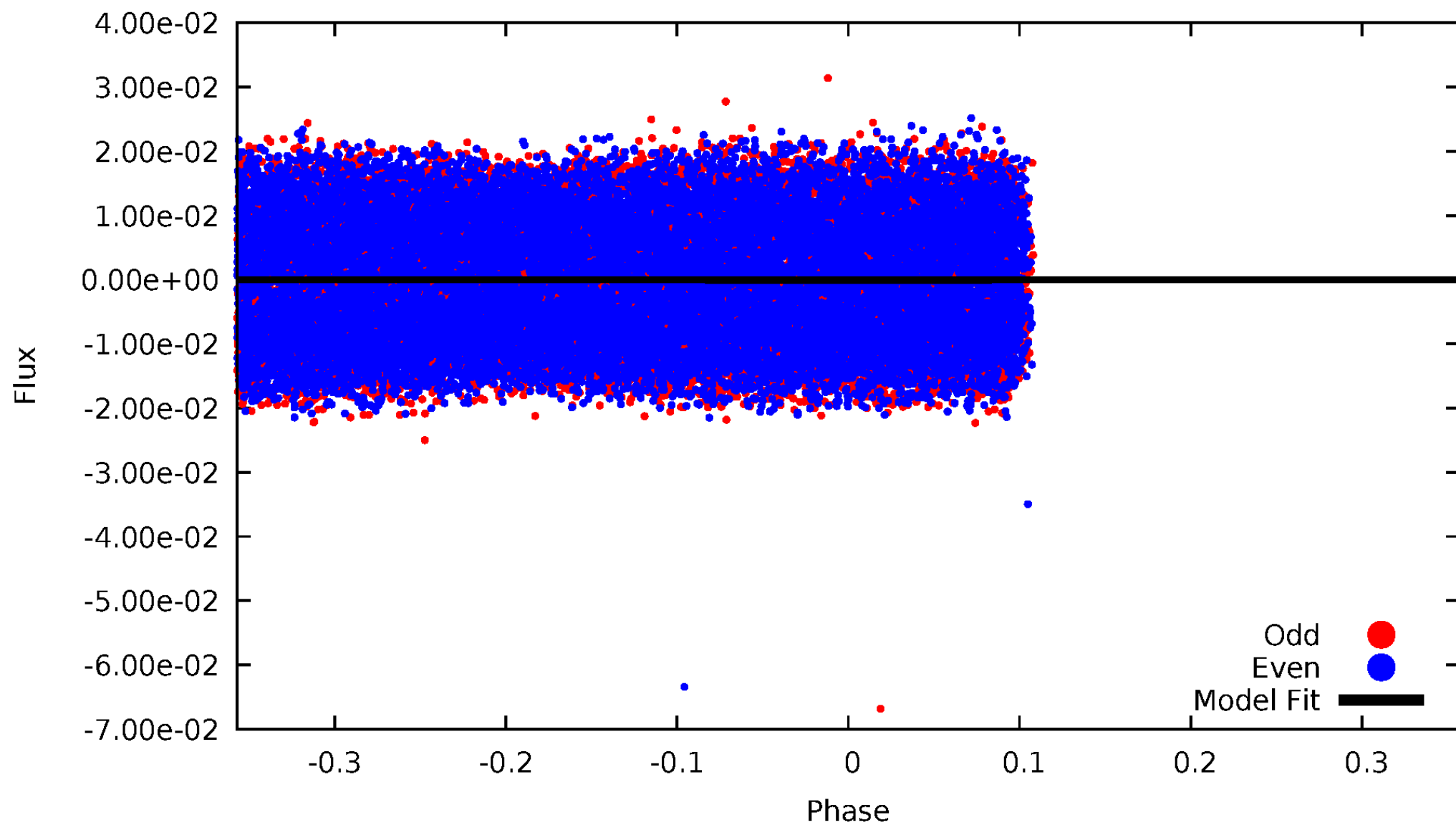
DV Odd/Even

TCE 005393589-02



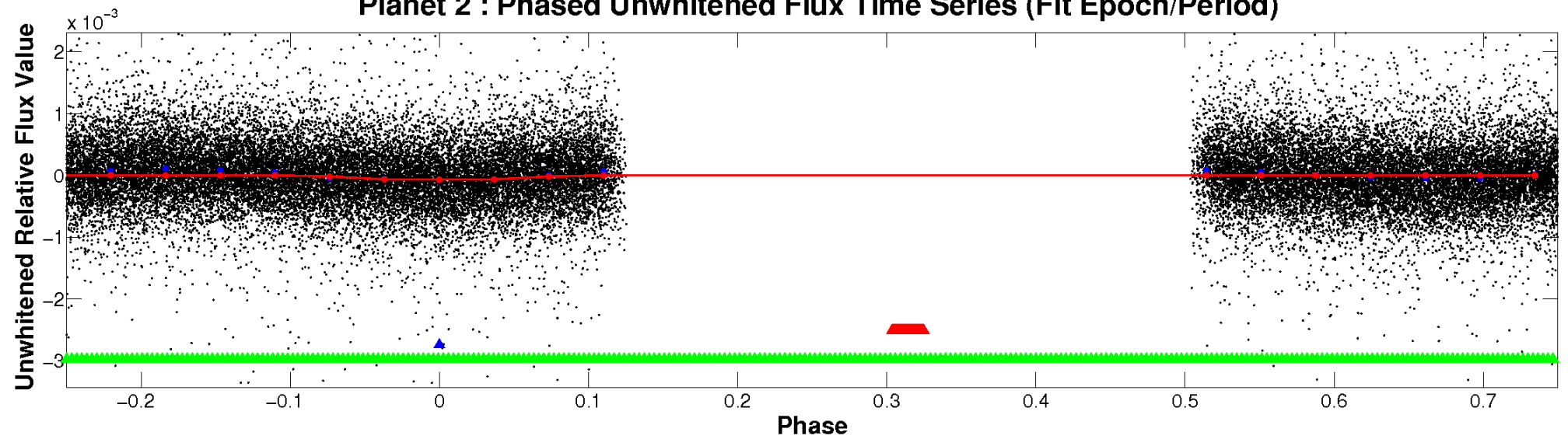
ALT Odd/Even

TCE 005393589-02

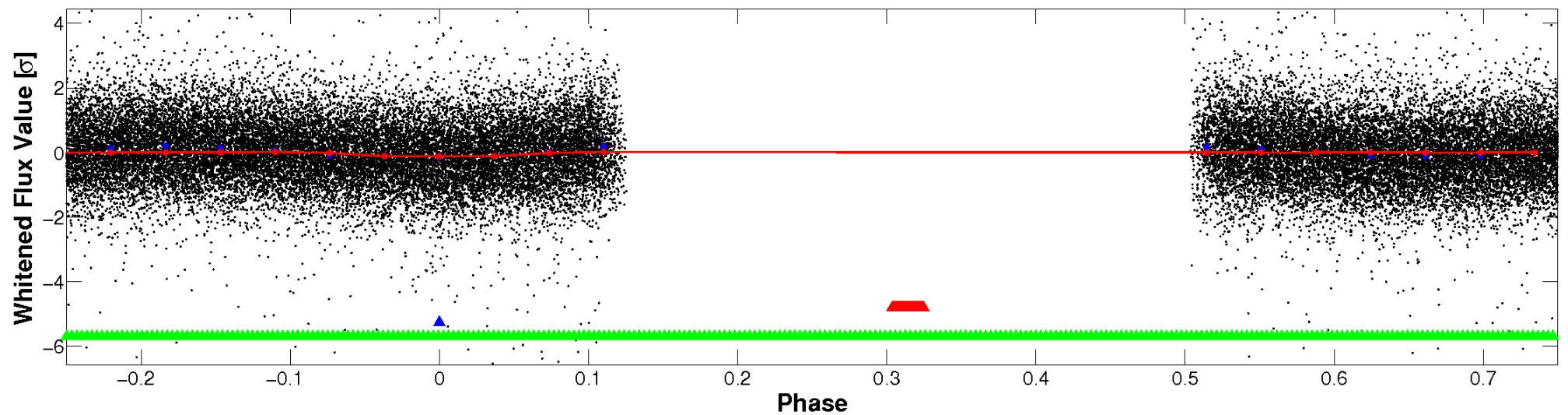


Non-Whitened Vs. Whitened Light Curve

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

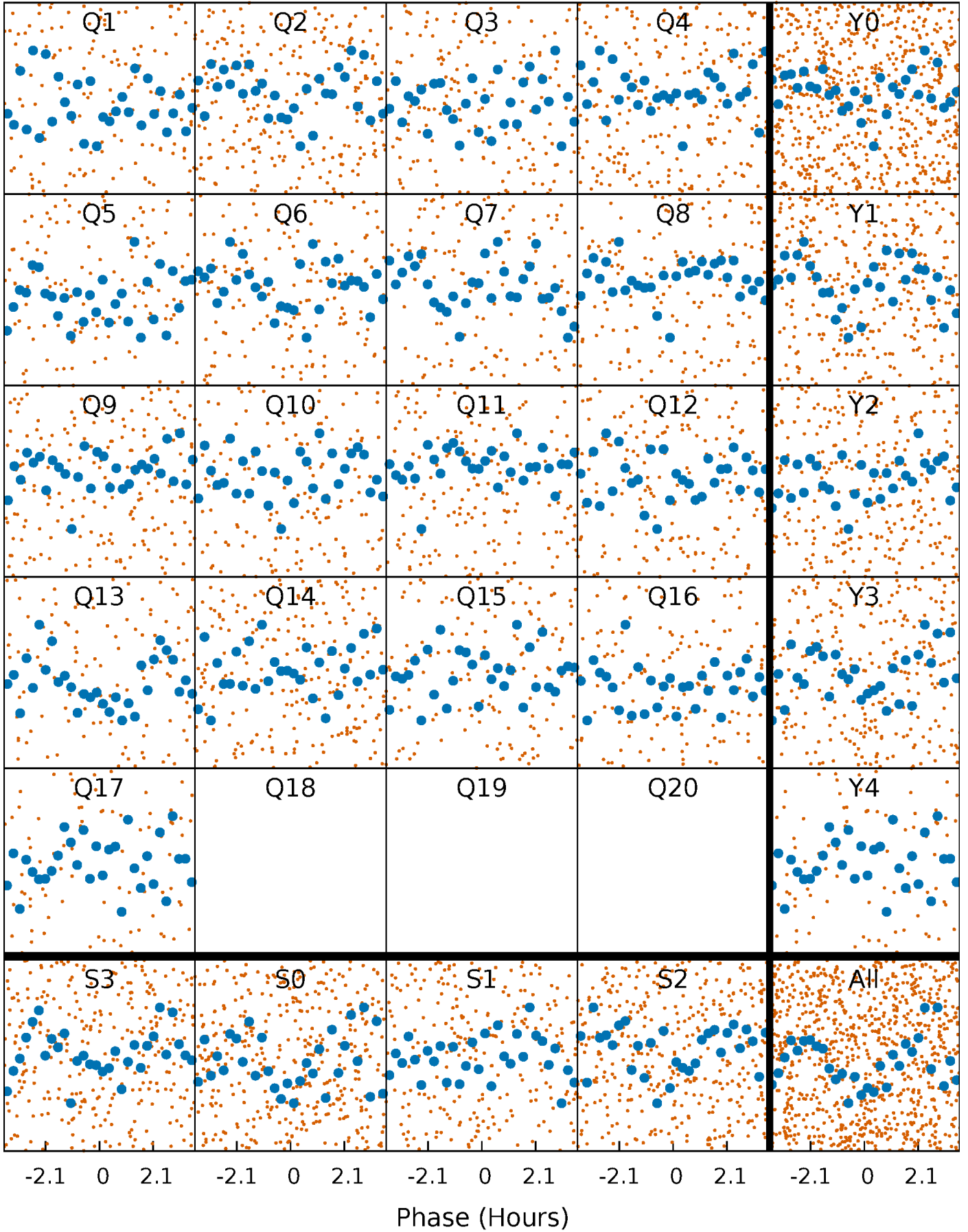


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



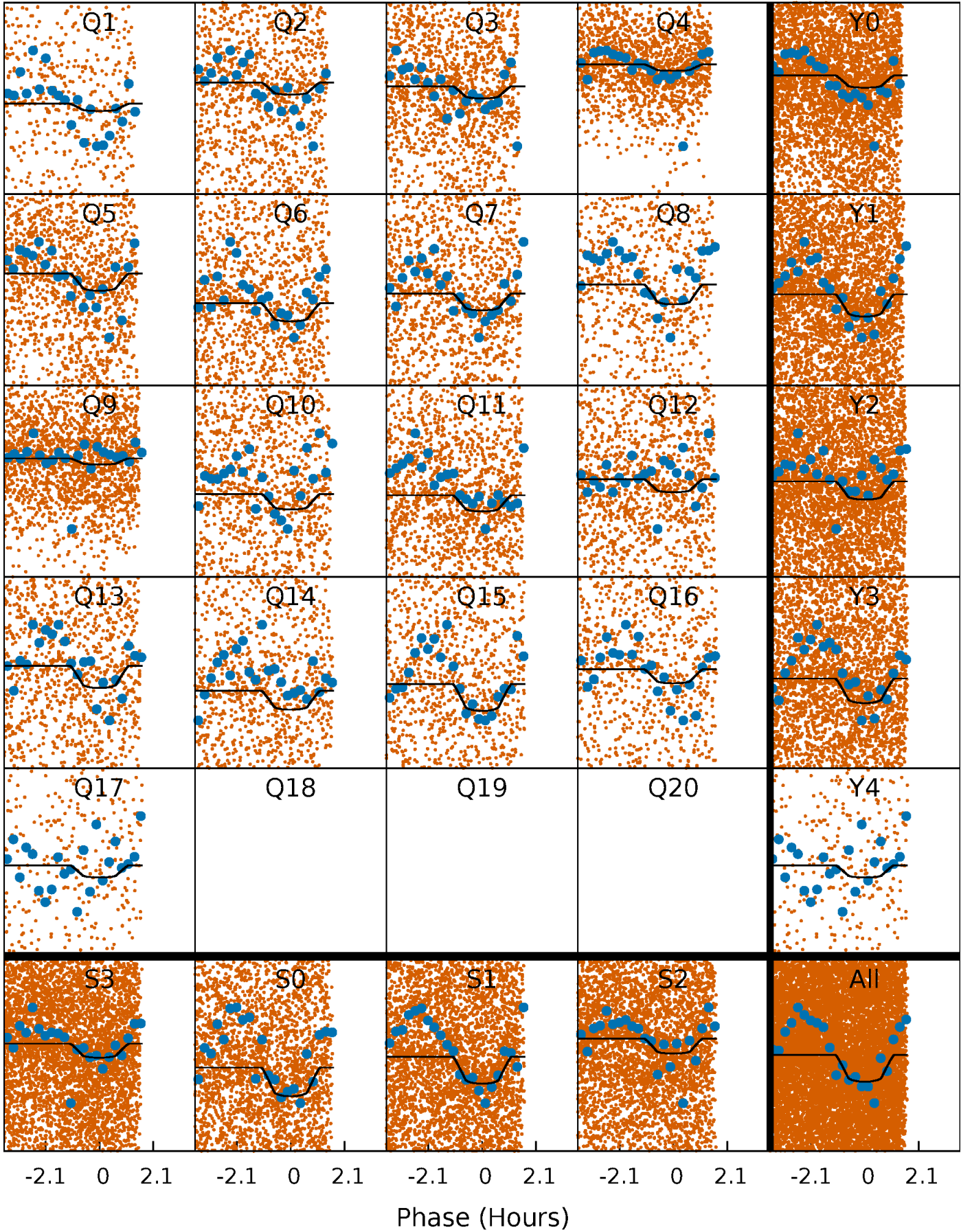
PDC Quarter-Phased Transit Curves

TCE 005393589-02 P= 0.556273 Days $T_0=131.705254$ (BKJD)



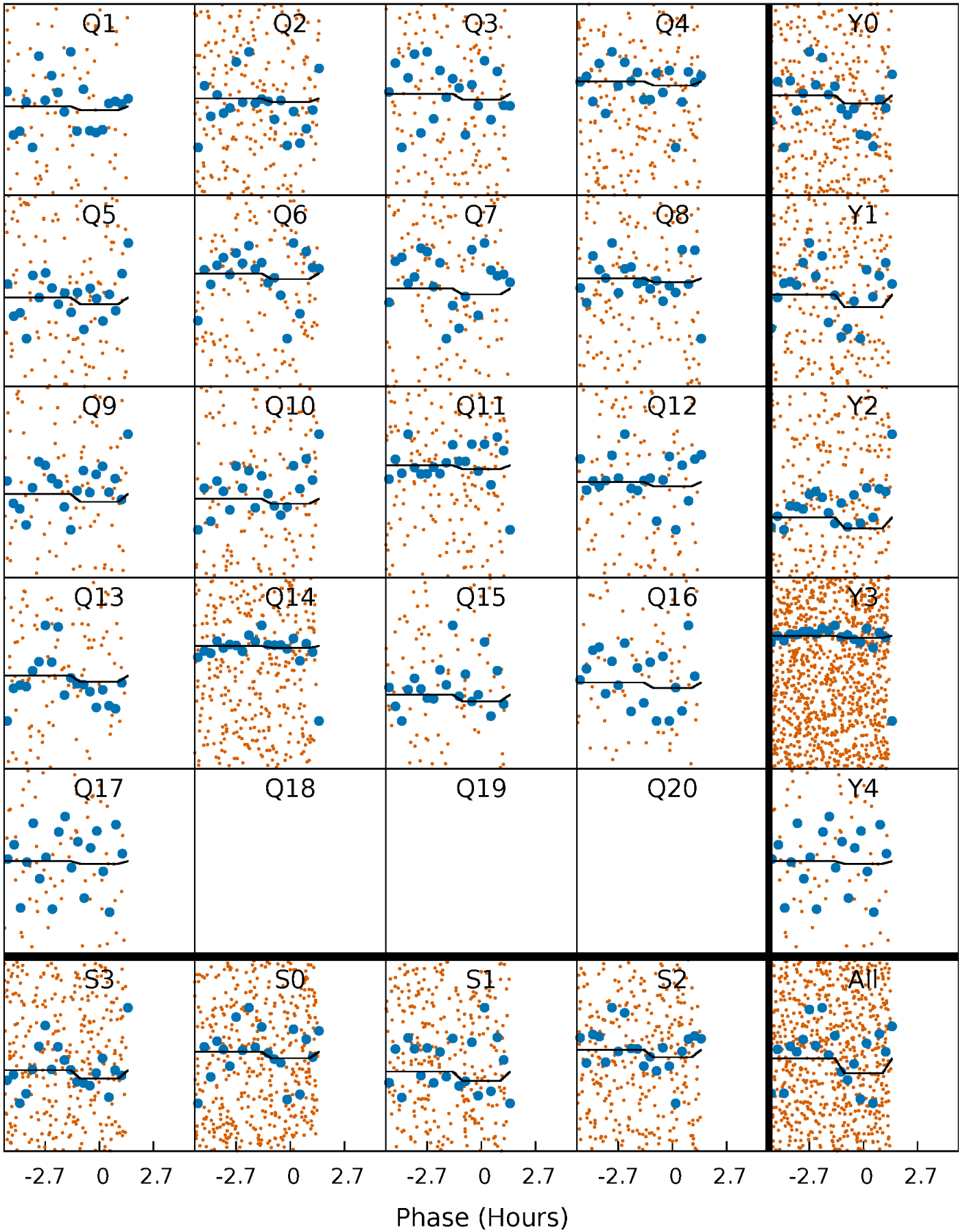
DV Quarter-Phased Transit Curves

TCE 005393589-02 P= 0.556273 Days $T_0=131.705254$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

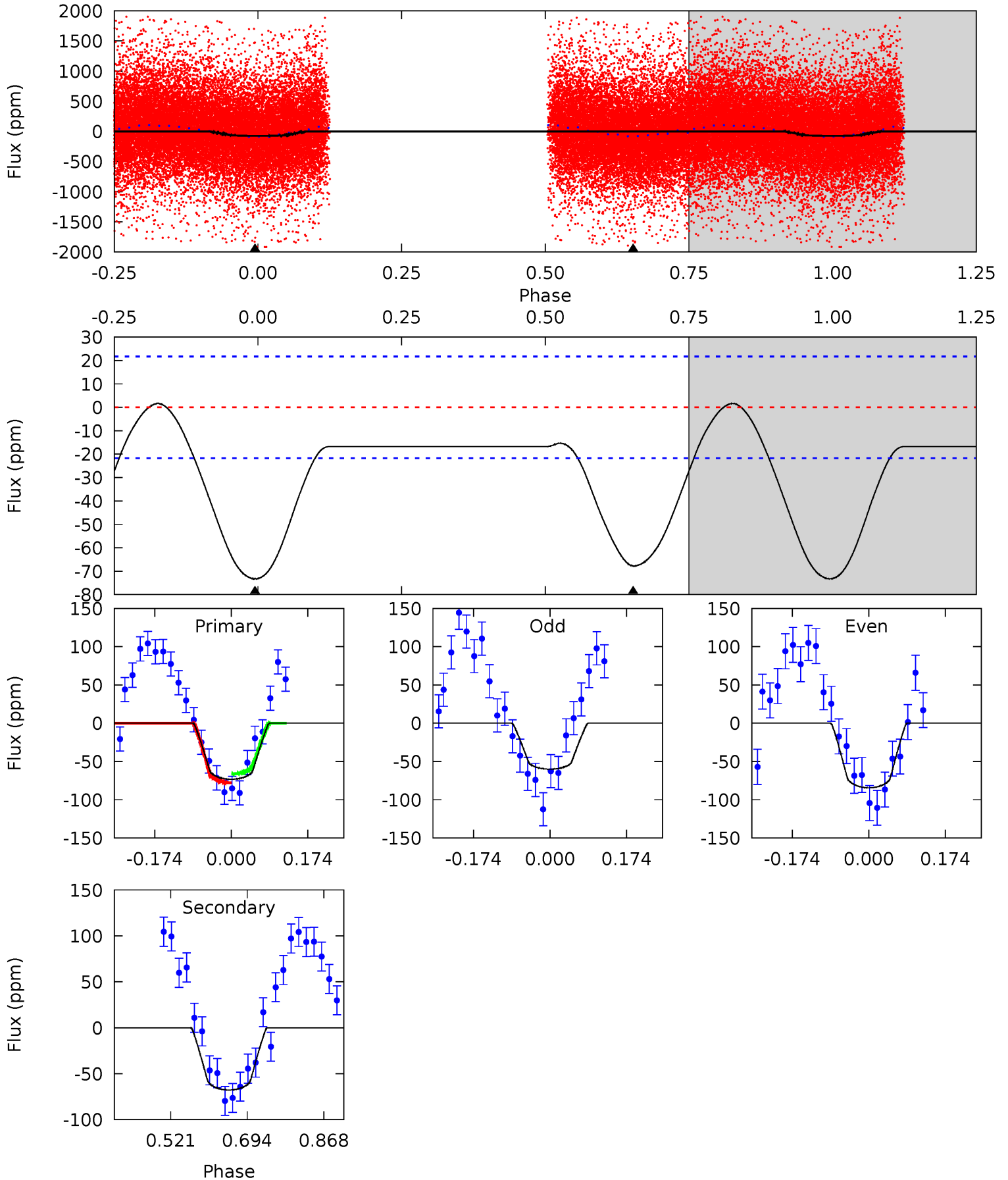
TCE 005393589-02 P= 0.556281 Days $T_0=131.703197$ (BKJD)



DV Model-Shift Uniqueness Test

005393589-02, P = 0.556273 Days, E = 131.148981 Days

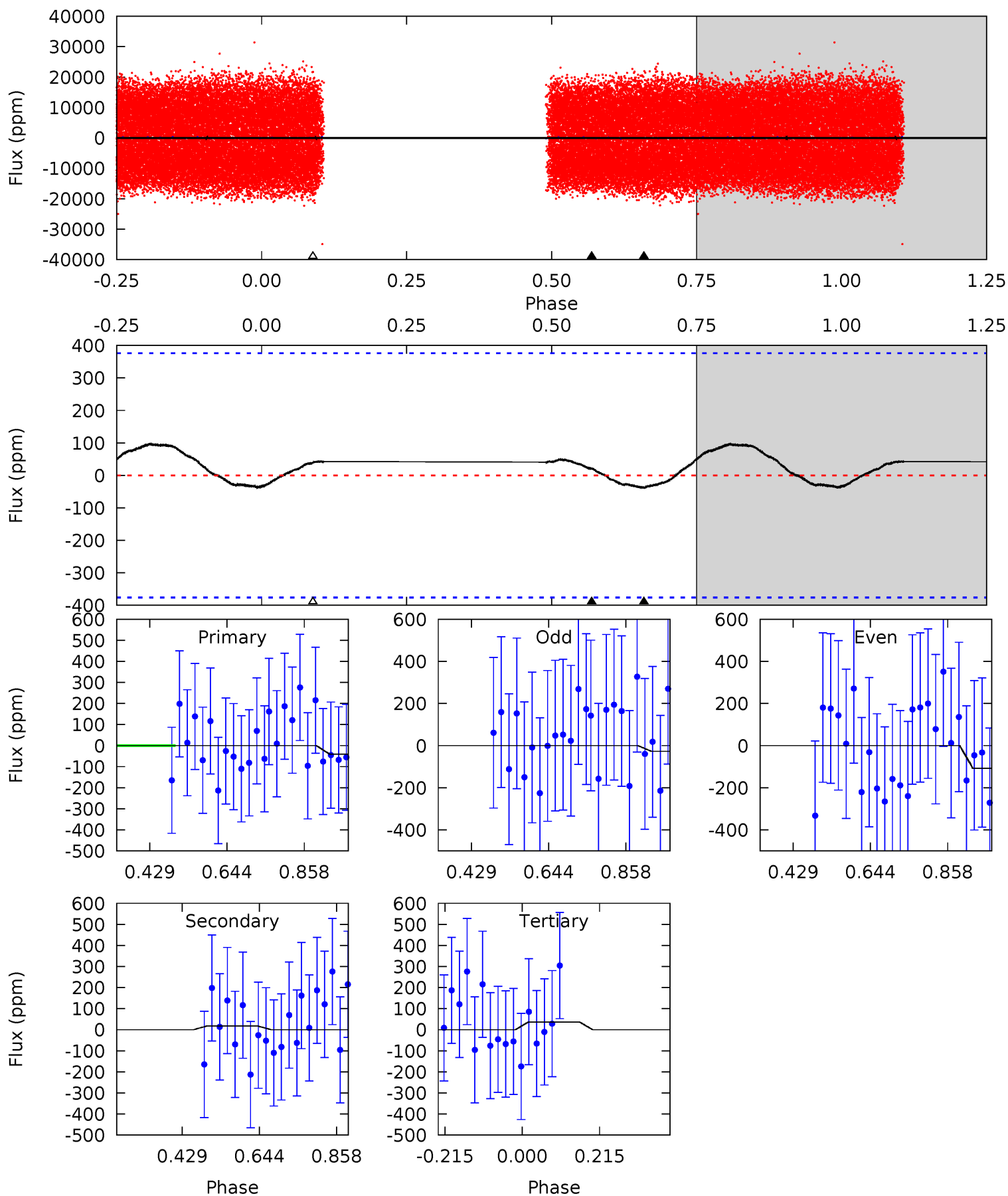
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	13.9	0	0	4.45	1.36	0.69	15.0	15.0	13.9	13.9	2.63	1.17	0.02	1.30



Alt Model-Shift Uniqueness Test

005393589-02, P = 0.556281 Days, E = 131.146916 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.48	-0.21	-0.43	0	4.40	1.24	0.33	0.91	0.48	0.22	-0.21	0.48	0.55	0.71	0.47



Stellar Parameters For KIC 005393589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7041^{+197}_{-296}	$4.114^{+0.157}_{-0.192}$	$-0.120^{+0.250}_{-0.350}$	$1.747^{+0.516}_{-0.422}$	$1.448^{+0.208}_{-0.255}$	$0.382^{+0.360}_{-0.184}$
	+3%/-4%	+4%/-5%	+208%/-292%	+30%/-24%	+14%/-18%	+94%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005393589-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-68 ± 5	$1.76^{+0.69}_{-0.69}$	4709^{+354}_{-341}	6437^{+2154}_{-1031}	$2.710^{+4.359}_{-1.334}$
Alt.	18 ± 85	$1.55^{+0.76}_{-0.70}$	4715^{+360}_{-328}	-5280^{+12489}_{-3880}	$-0.677^{+4.793}_{-6.477}$

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

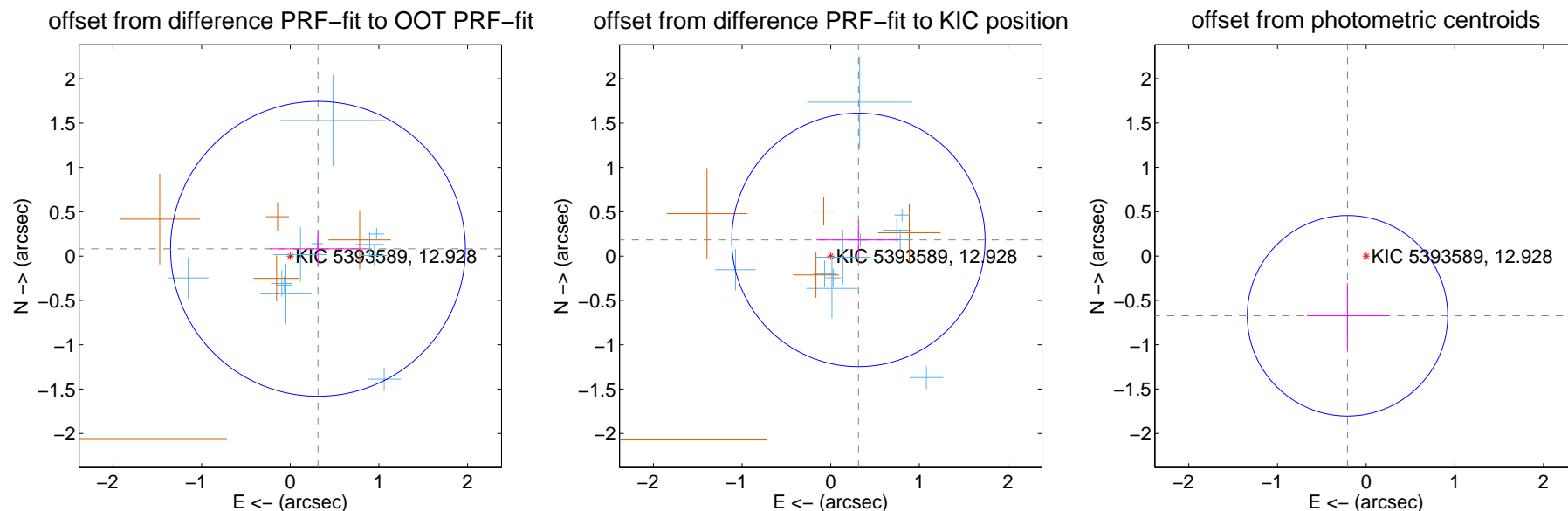
DV Centroid Data

Supplemental centroid analysis for 005393589-02. Kepler magnitude: 12.93. Transit SNR 10.22

There are 11 quarters with good PRF difference image offsets

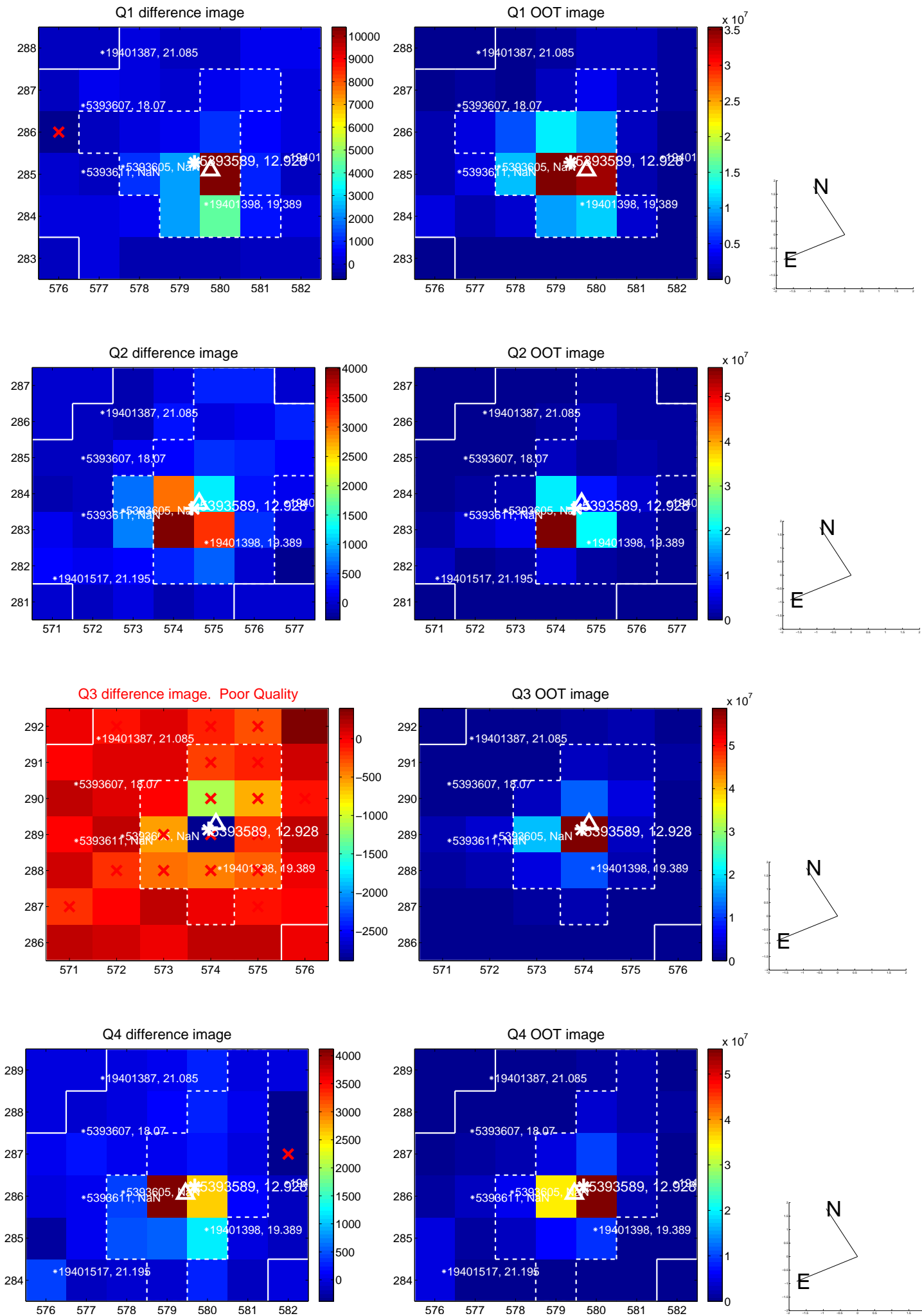
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.323 ± 0.554	0.58	-0.313 ± 0.541	0.082 ± 0.203
PRF-fit source offset from KIC position	0.362 ± 0.476	0.76	-0.313 ± 0.473	0.182 ± 0.214
photometric centroid source offset	0.71 ± 0.38	1.87	0.21 ± 0.46	-0.67 ± 0.37

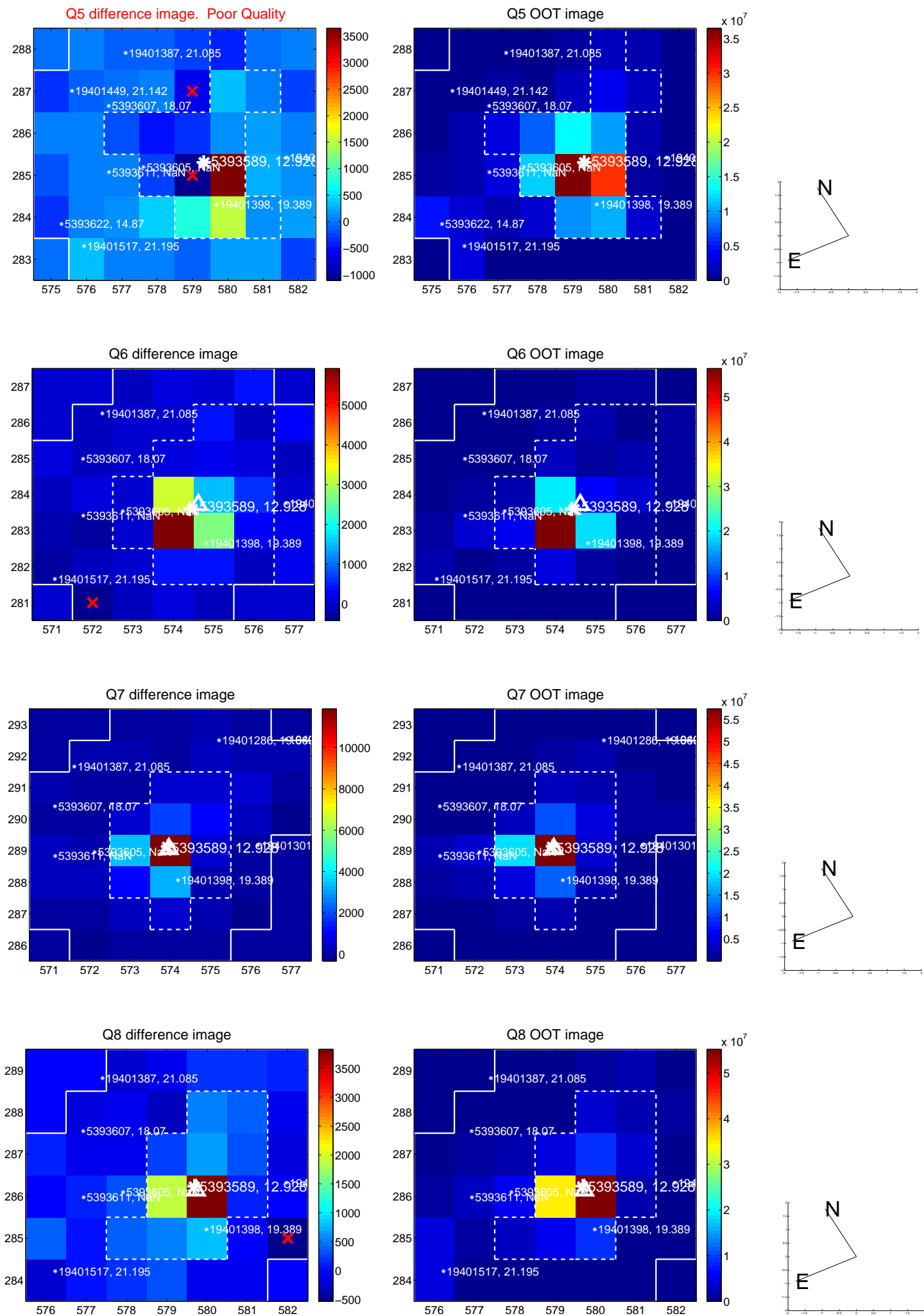


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

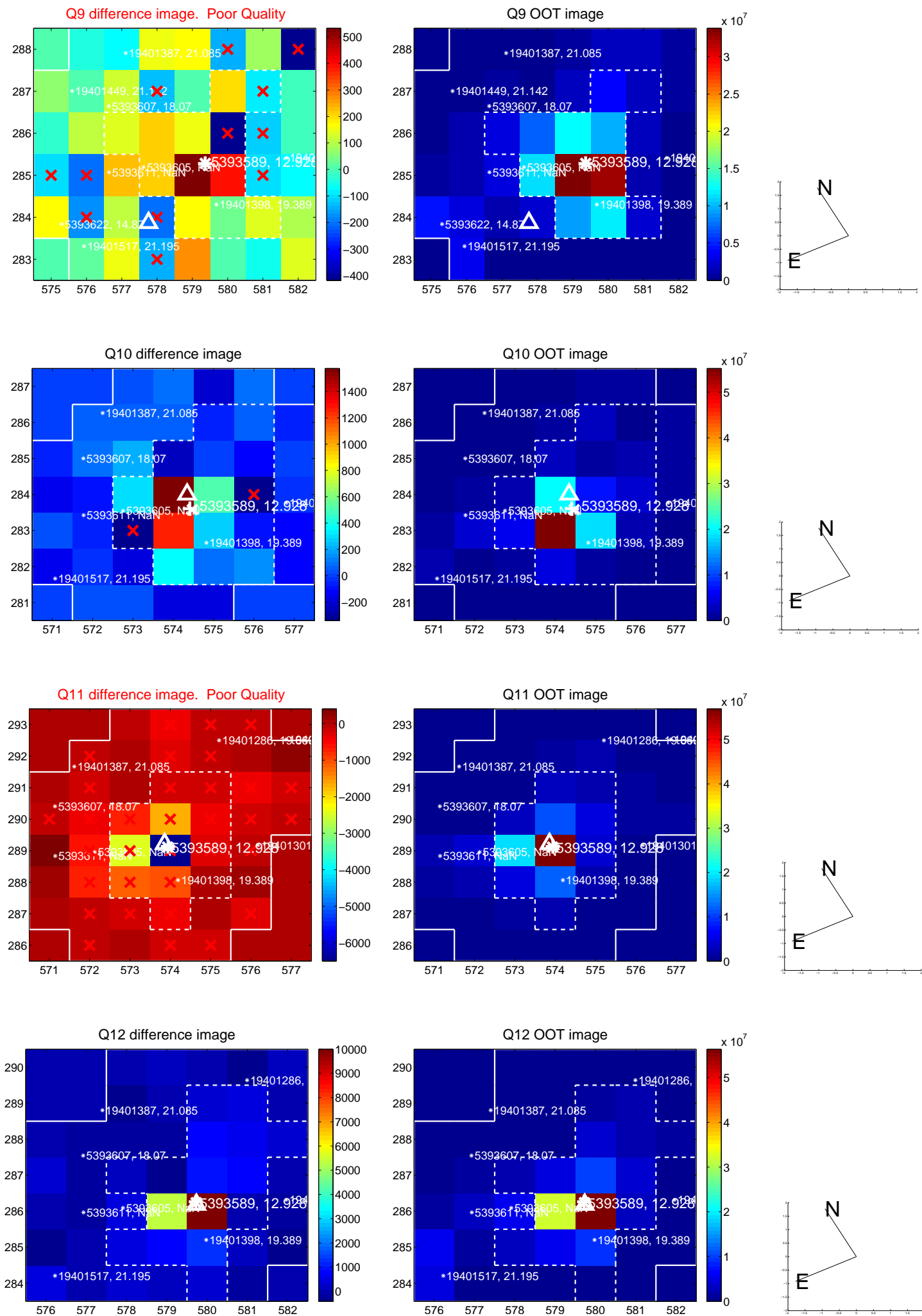
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



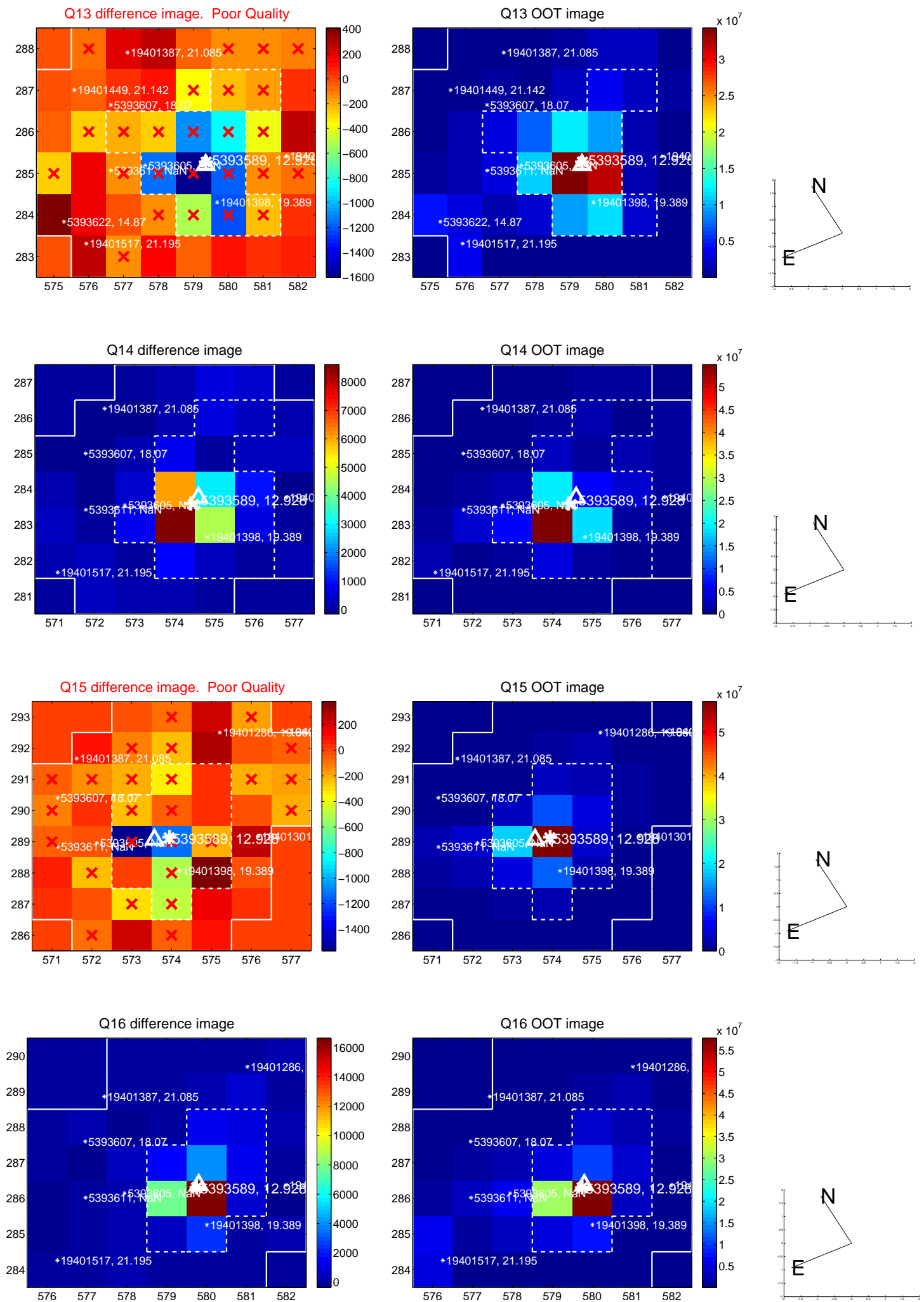
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



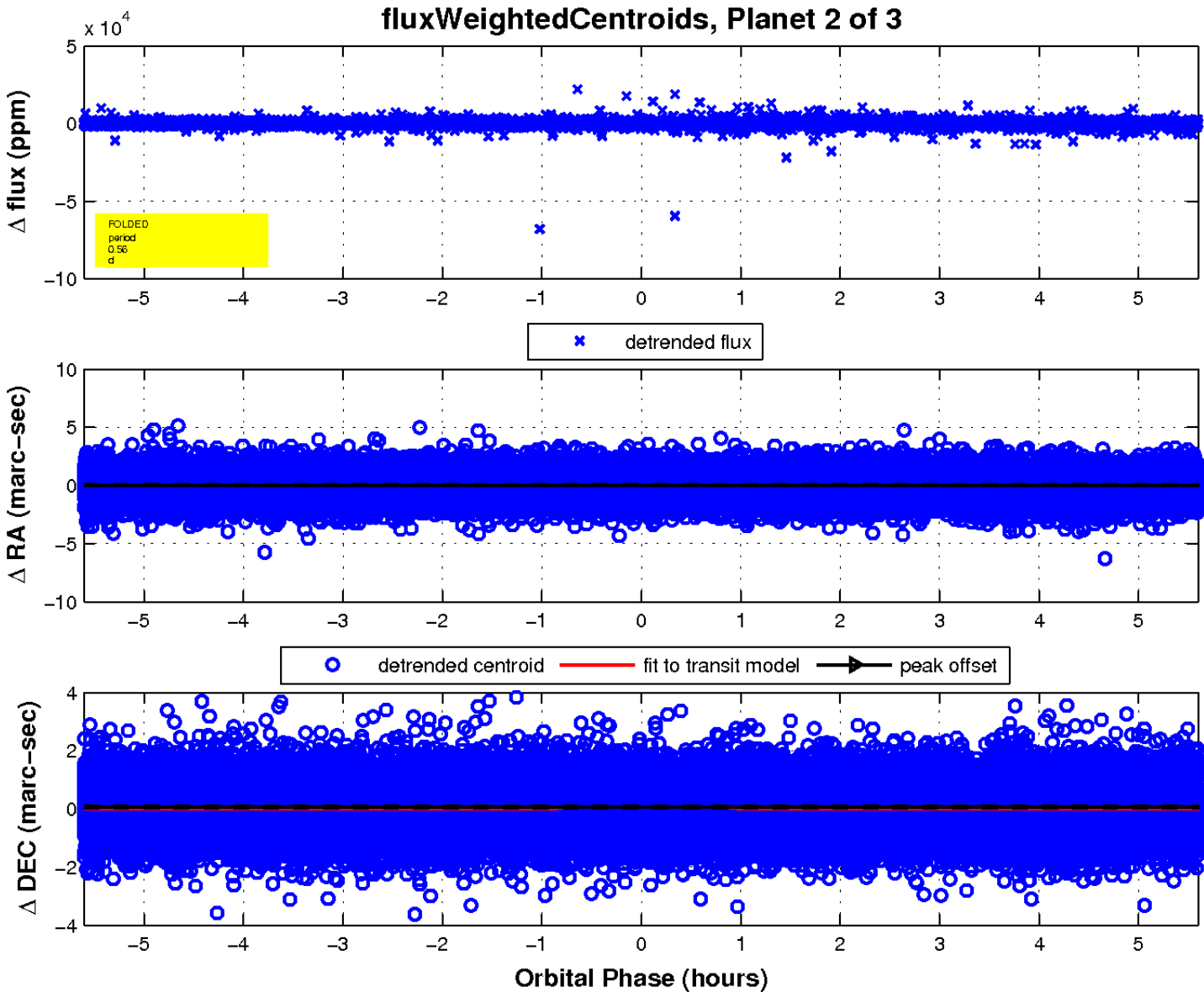
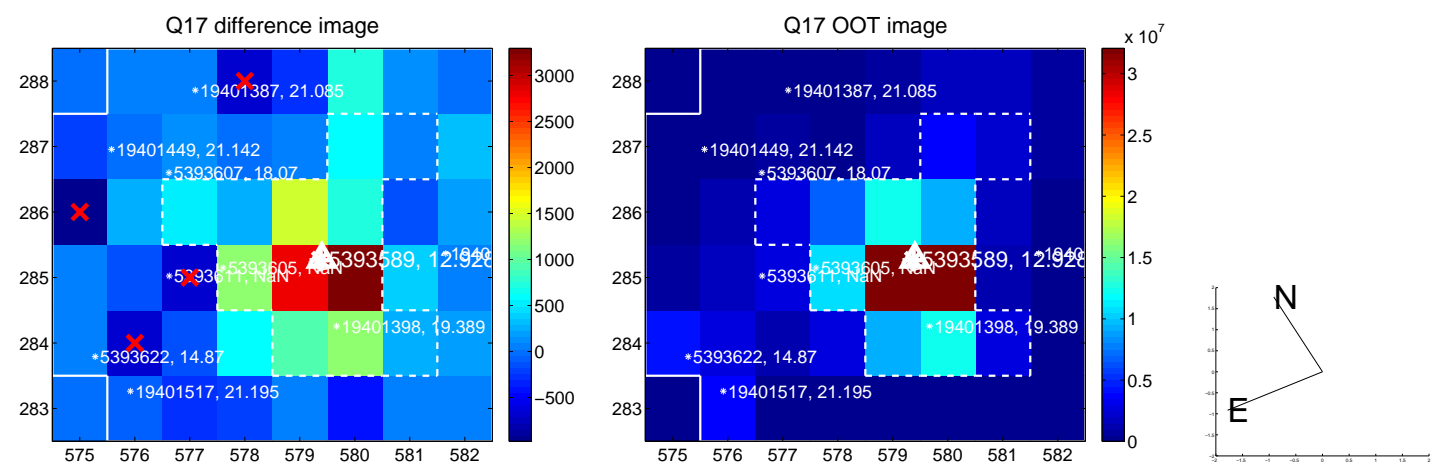
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

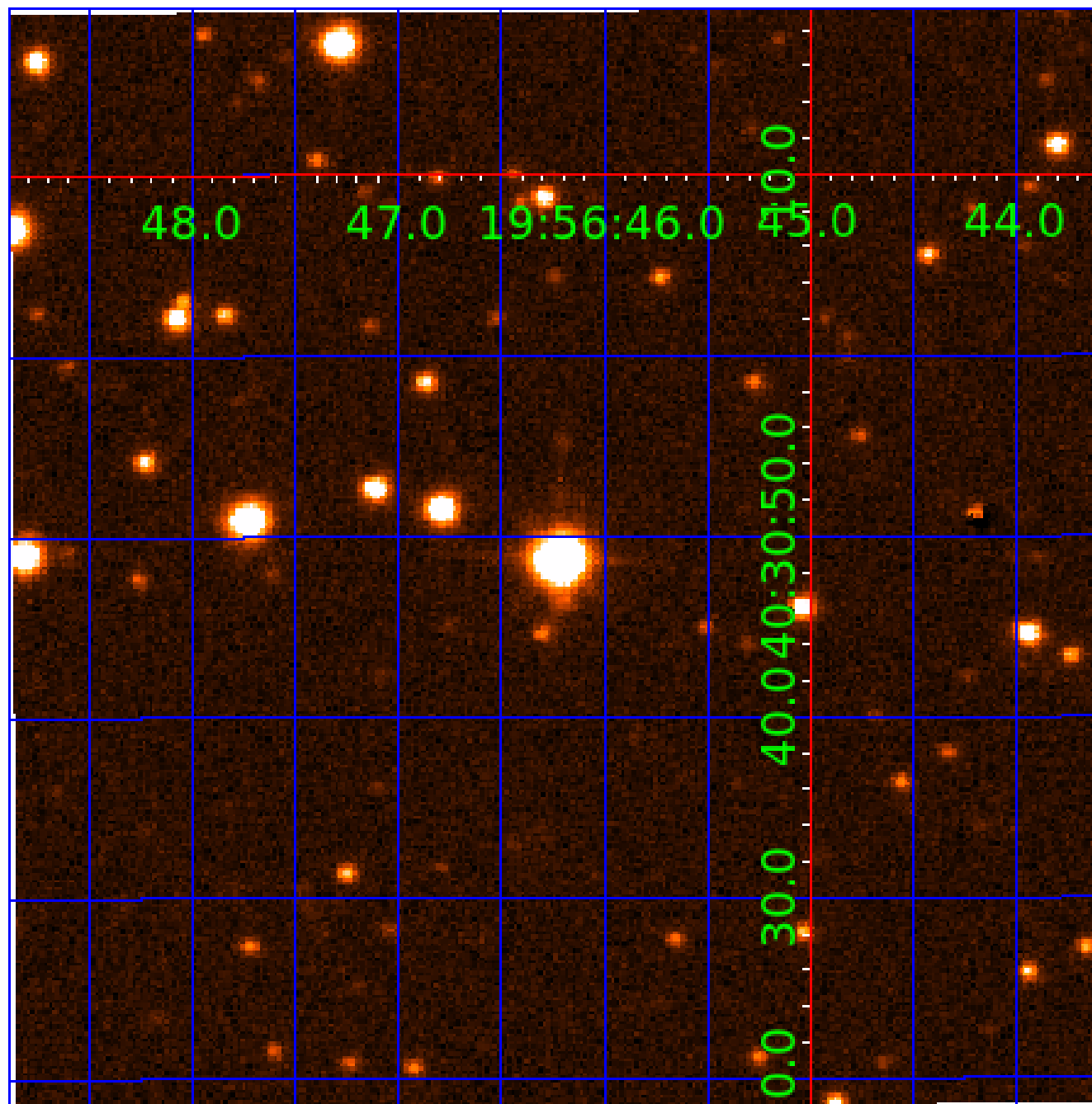


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005393589

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})
005393589-01	OBS	No	0.556278	131.874049	79.4	1.604	12.6	11.3	1.75	7041	1.62	29962.06
005393589-02	OBS	No	0.556273	131.705254	69.1	1.868	11.4	10.2	1.75	7041	1.70	29962.39
005393589-03	OBS	No	0.953343	131.763008	267.0	3.500	10.6	-1.0	1.75	7041	2.89	14609.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005393589-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005393589-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005393589-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_NOFITS

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

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

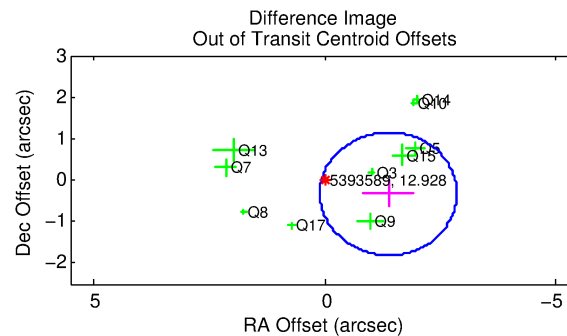
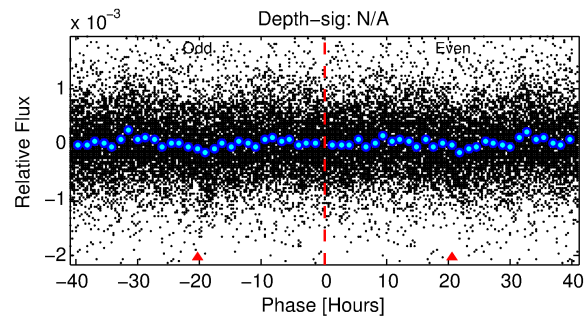
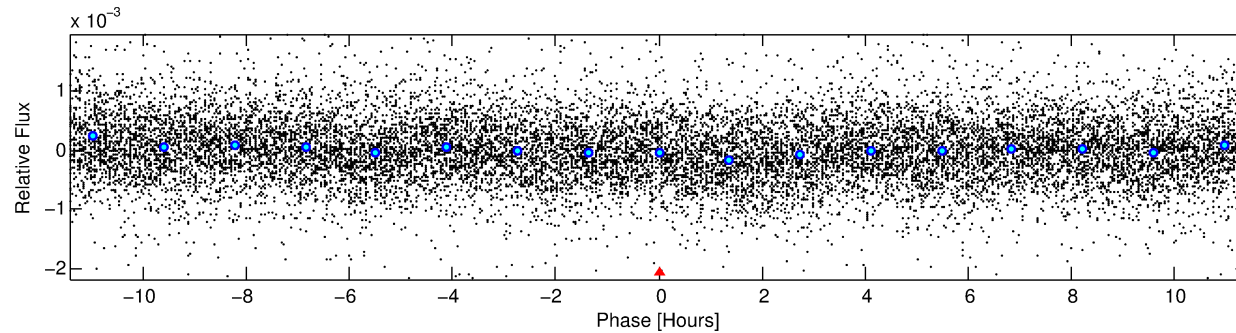
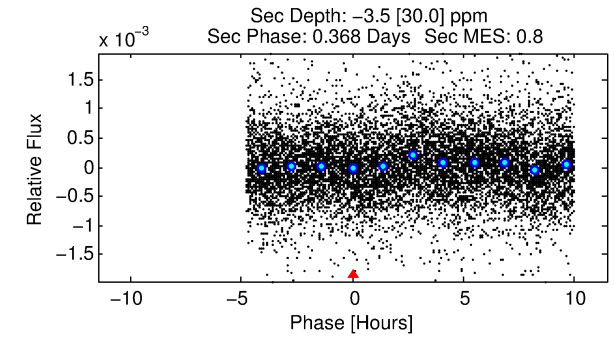
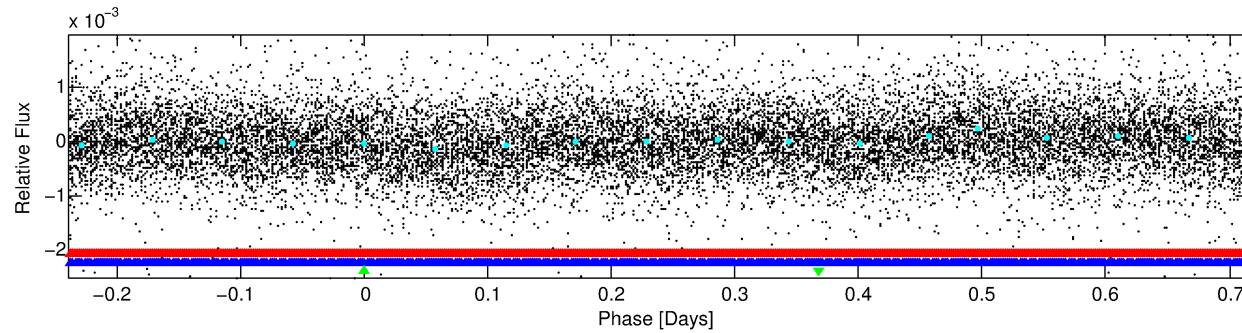
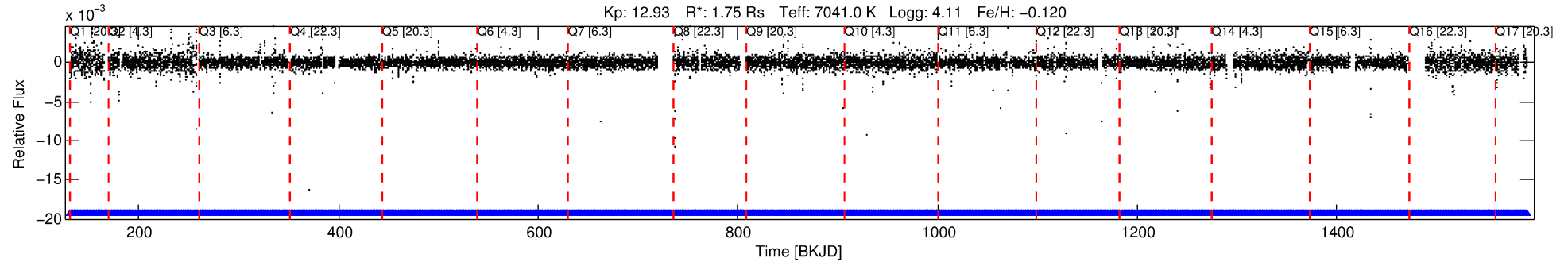
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005393589-03

No Significant Match Found

DV One-Page Summary

KIC: 5393589 Candidate: 3 of 3 Period: 0.953 d



TPS TCE Results:

Period = 0.95334 d
Epoch = 131.7630 BKJD

DV fit results are unavailable

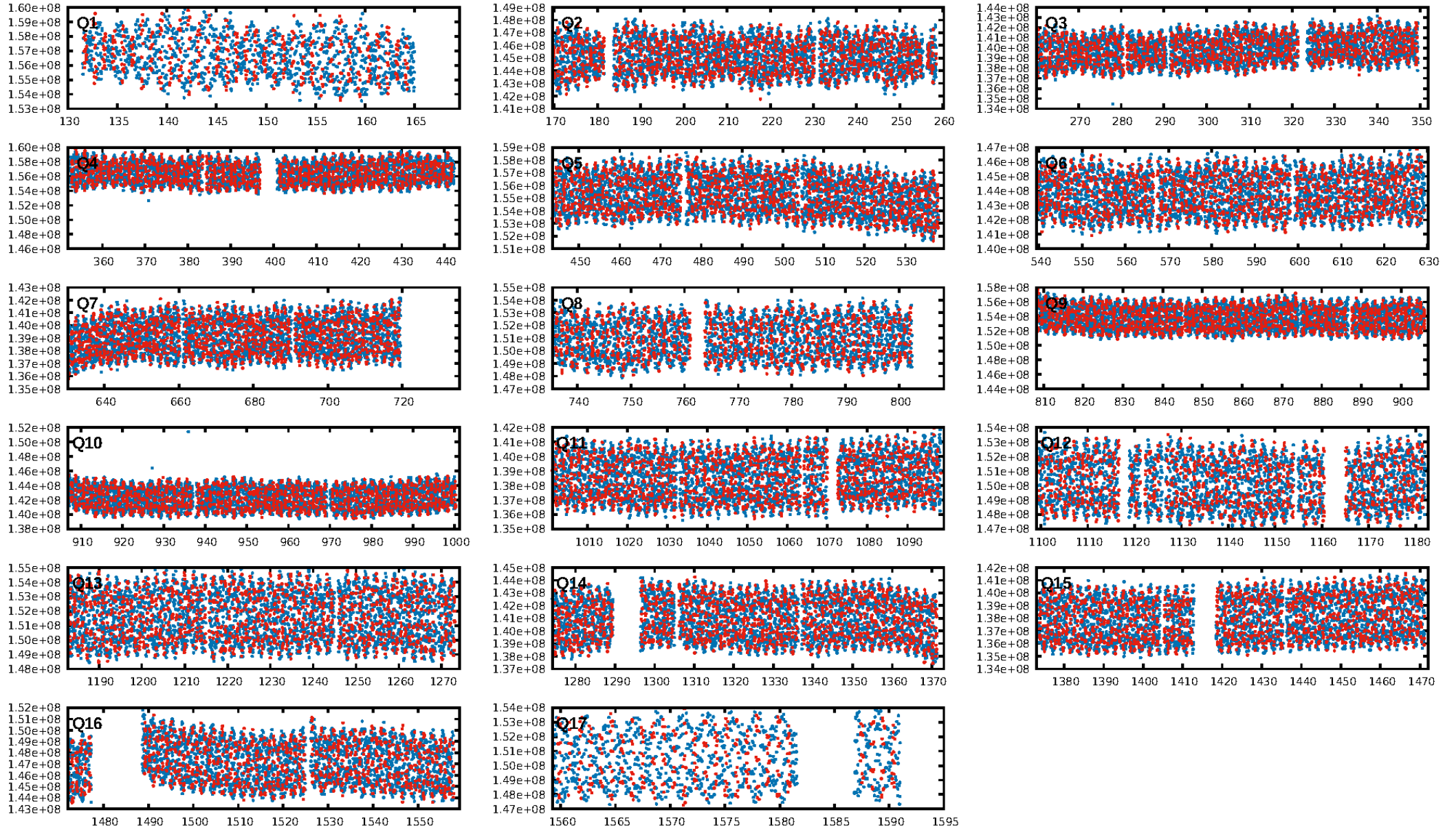
DV Diagnostic Results:

ShortPeriod-sig: 98.7% [2.48 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1039/1039]
GhostDiagnostic-chr: -20.07
Centroid-sig: 2.3%
Centroid-so: 0.341 arcsec [3.61 σ]
OotOffset-rm: 1.416 arcsec [2.87 σ]
KicOffset-rm: 1.390 arcsec [2.98 σ]
OotOffset-st: 2/3/1/4 [10]
KicOffset-st: 2/3/1/4 [10]
DiffImageQuality-fgm: 0.60 [6/10]
DiffImageOverlap-fno: 0.00 [0/17]

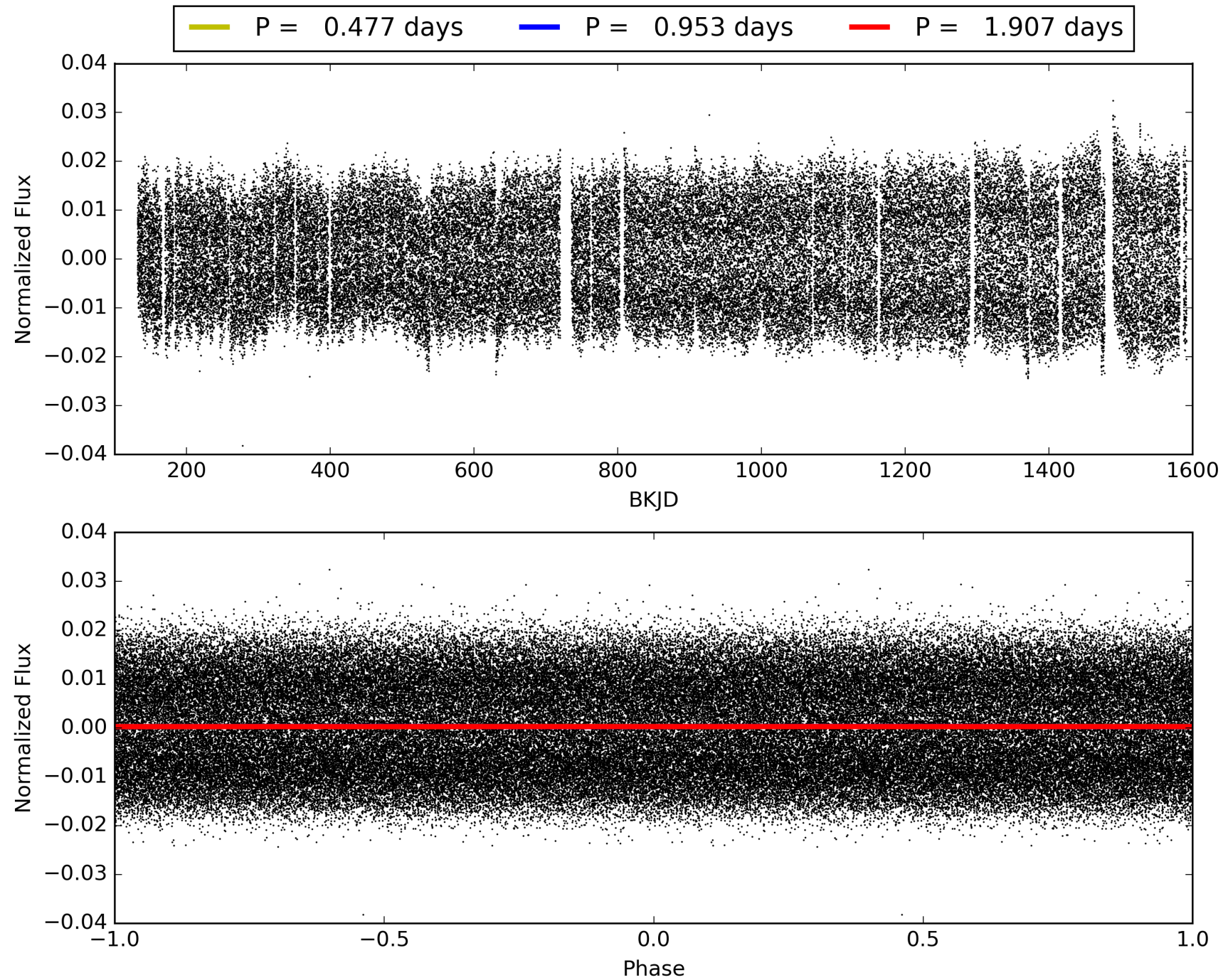
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:26:44 Z

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

TCE 005393589-03, PDC Light Curves

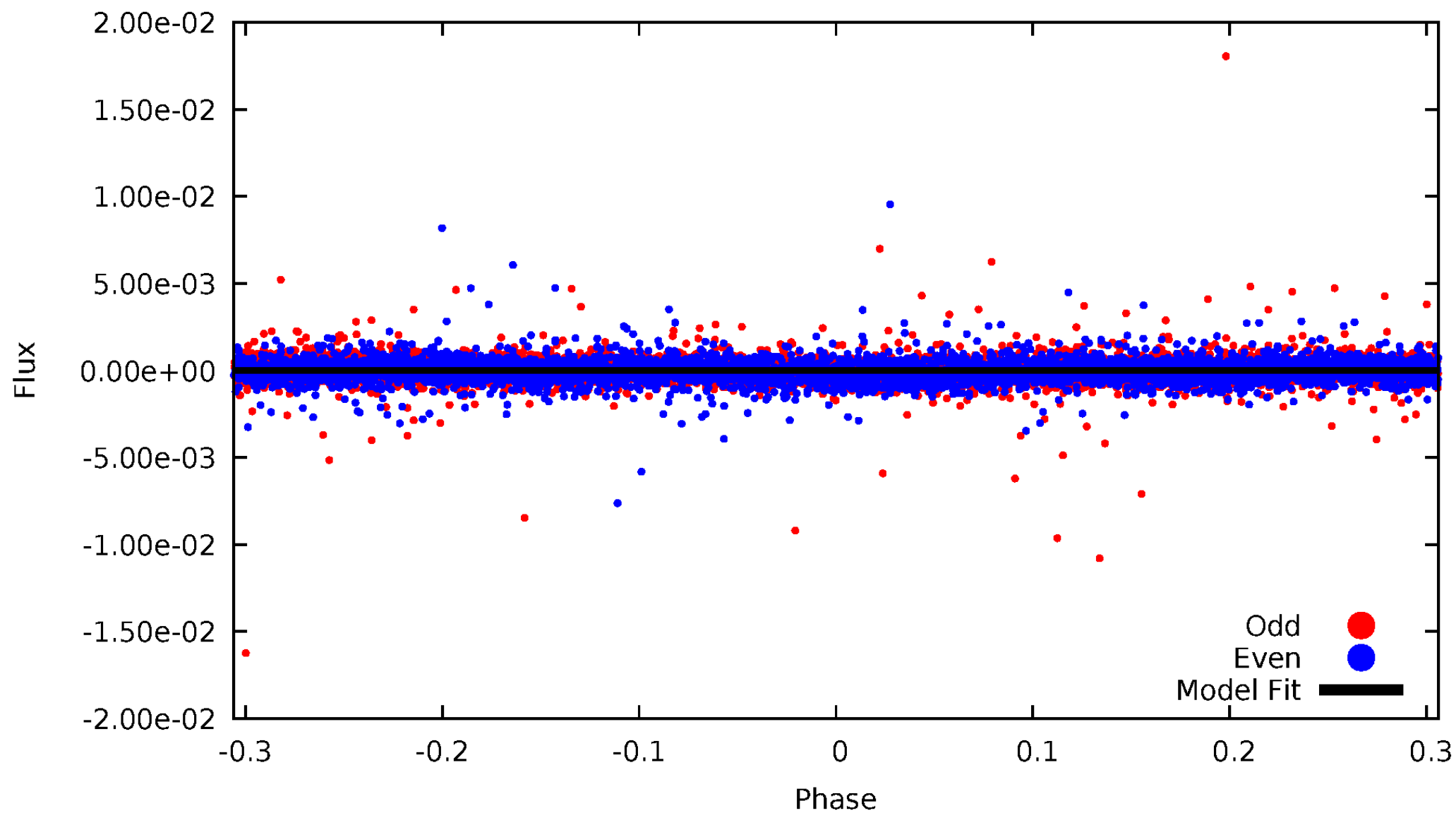


TCE 005393589-03



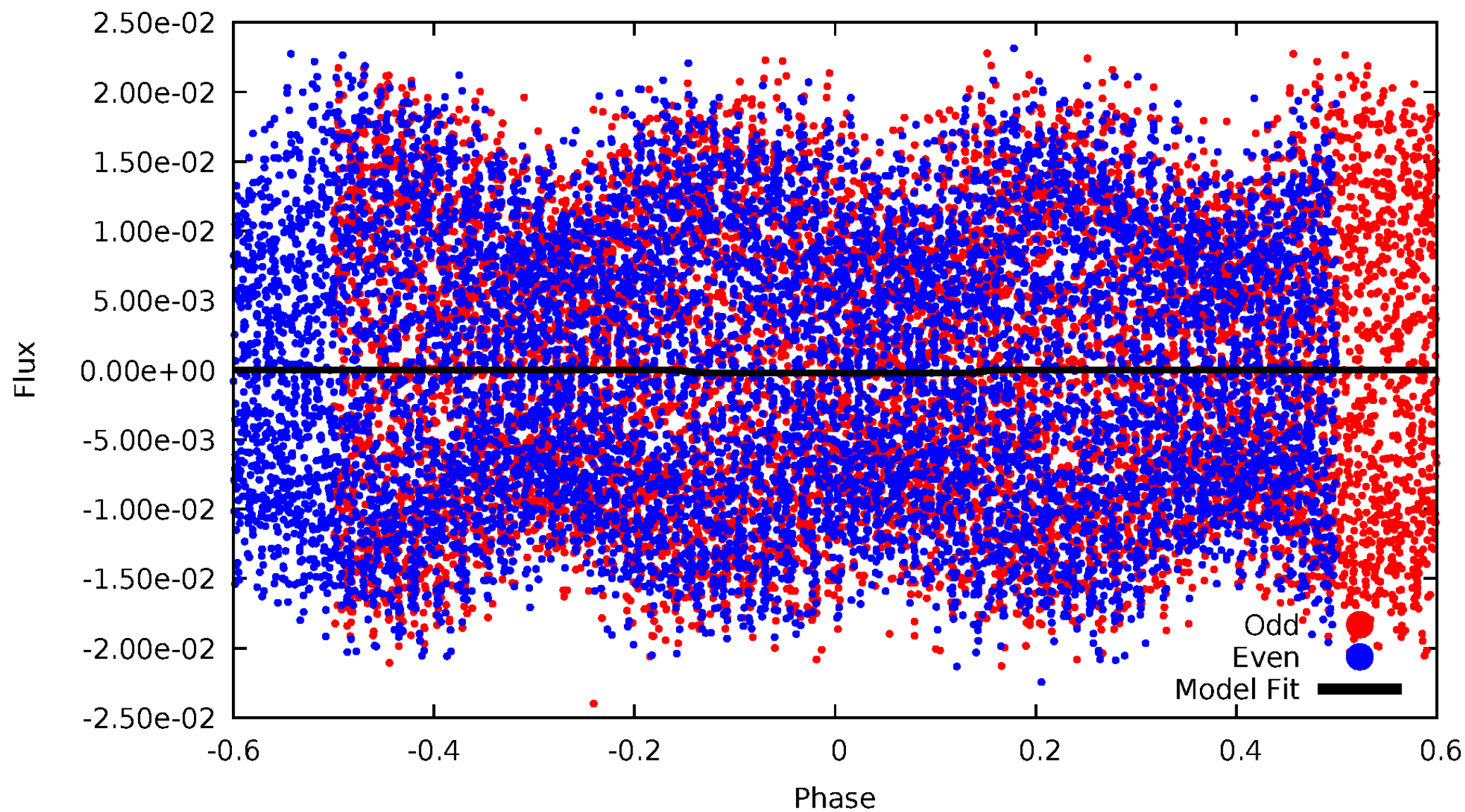
DV Odd/Even

TCE 005393589-03



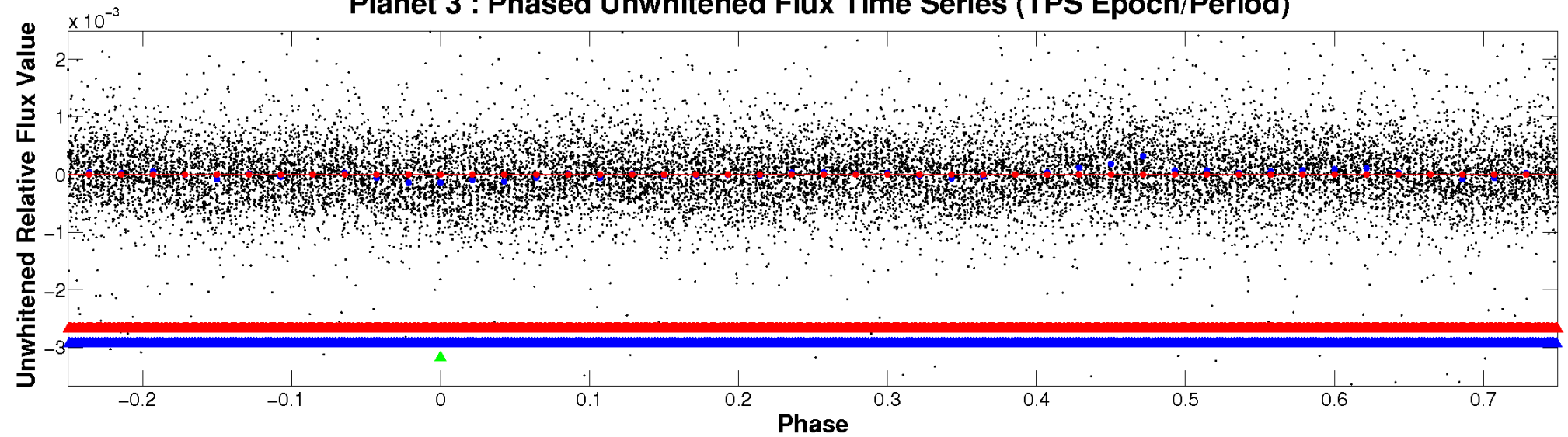
ALT Odd/Even

TCE 005393589-03

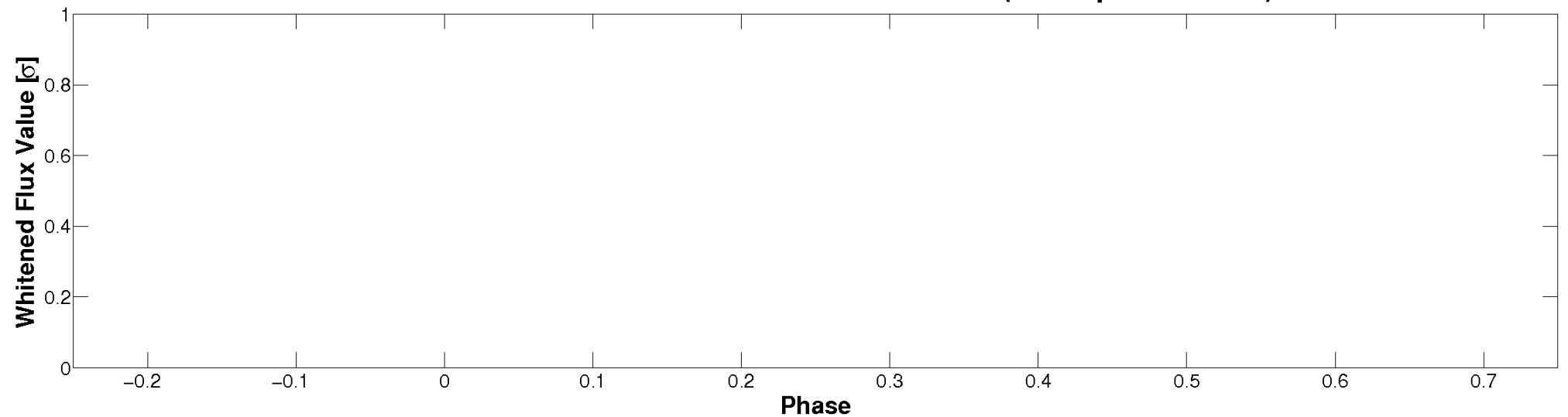


Non-Whitened Vs. Whitened Light Curve

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

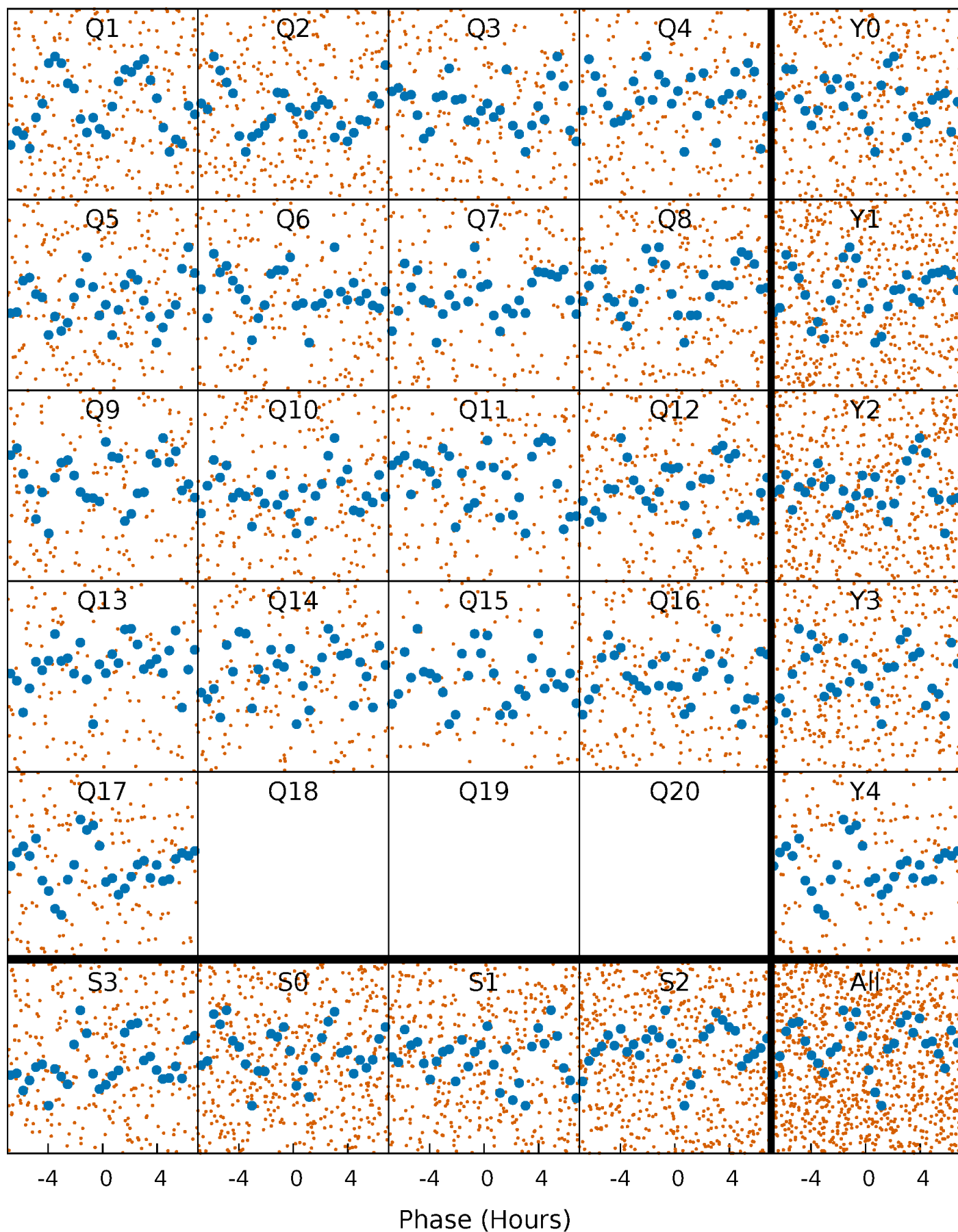


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



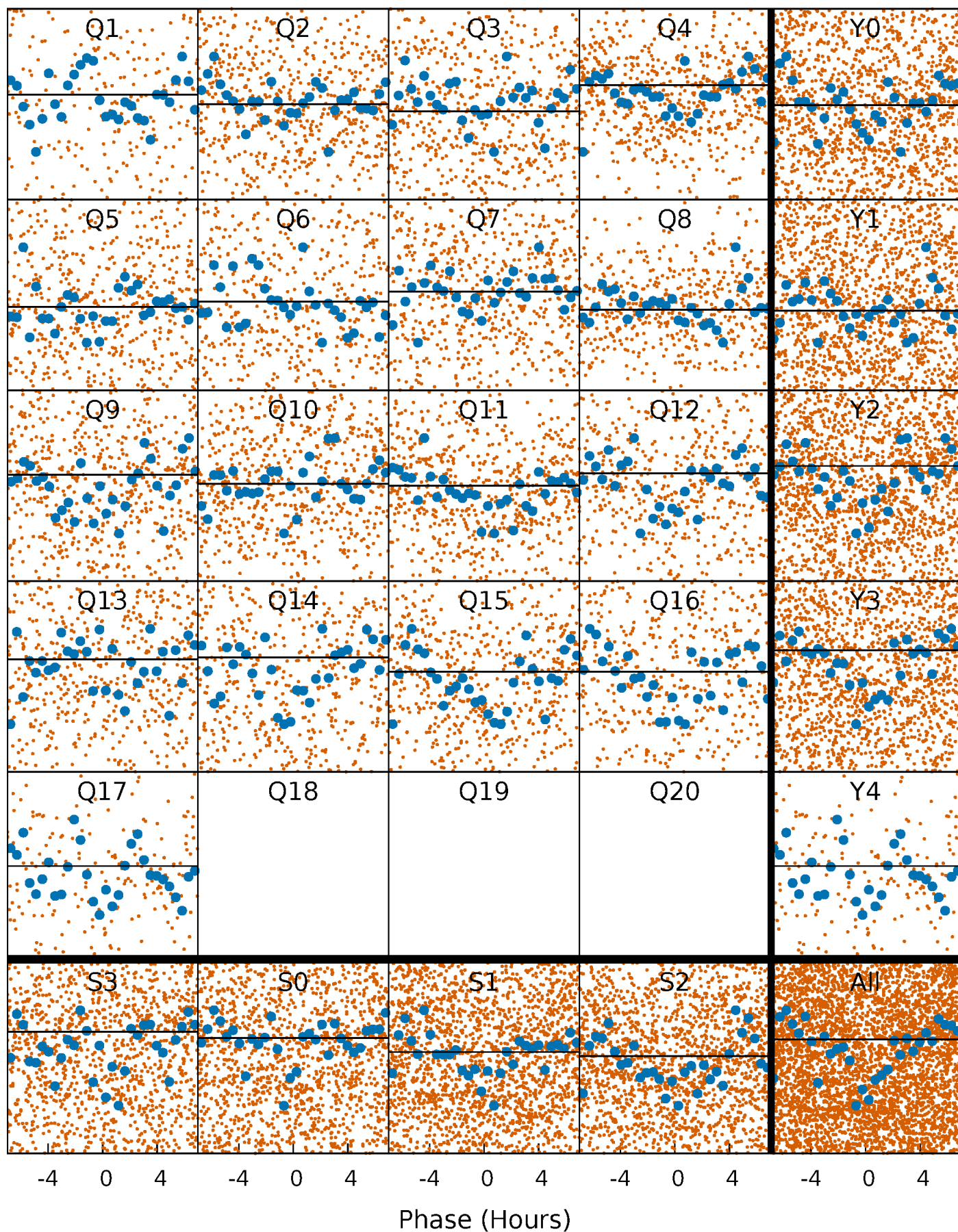
PDC Quarter-Phased Transit Curves

TCE 005393589-03 P= 0.953343 Days $T_0=131.763008$ (BKJD)



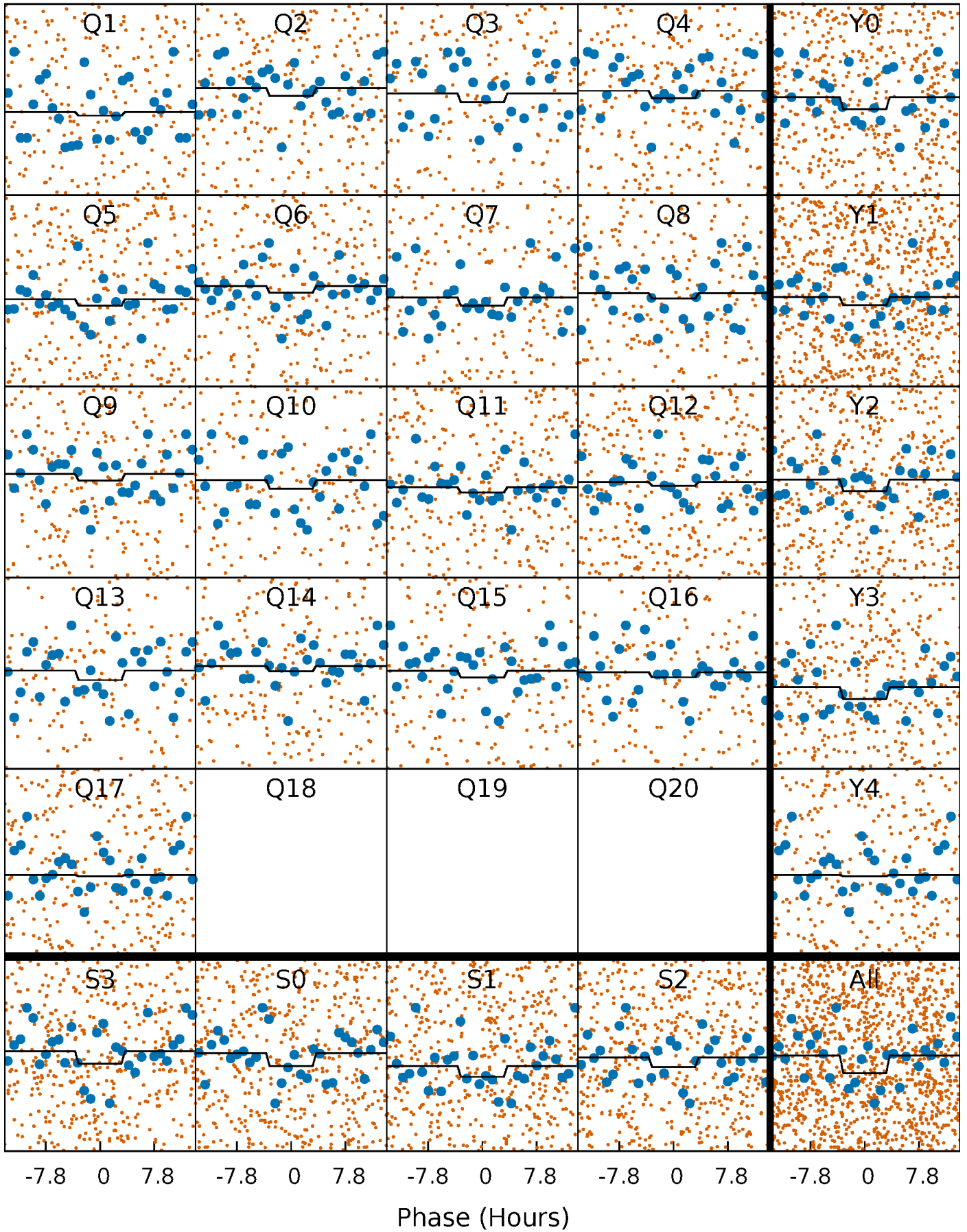
DV Quarter-Phased Transit Curves

TCE 005393589-03 P= 0.953343 Days $T_0=131.763008$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

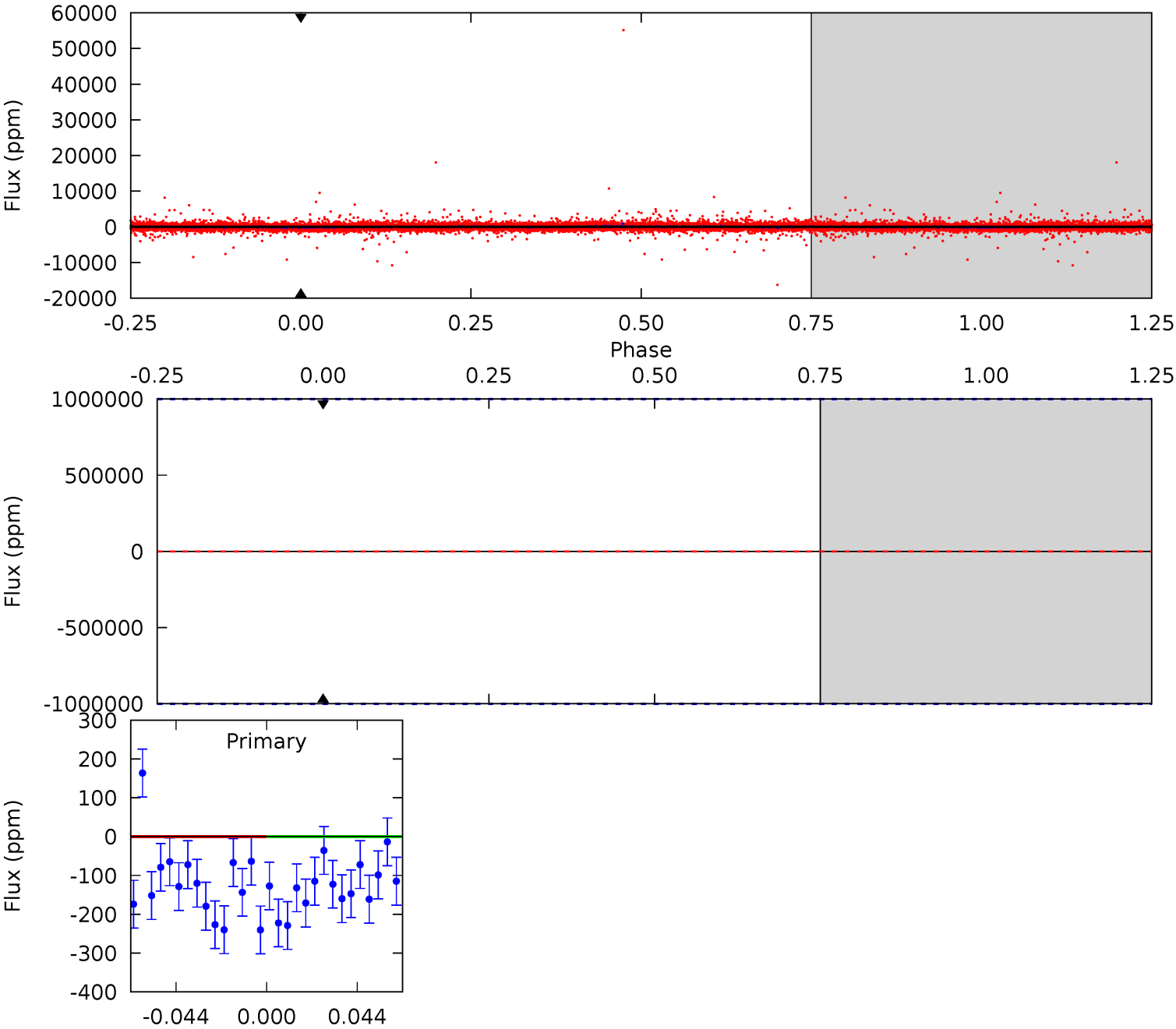
TCE 005393589-03 P= 0.953343 Days $T_0=131.706611$ (BKJD)



DV Model-Shift Uniqueness Test

005393589-03, P = 0.953343 Days, E = 130.809665 Days

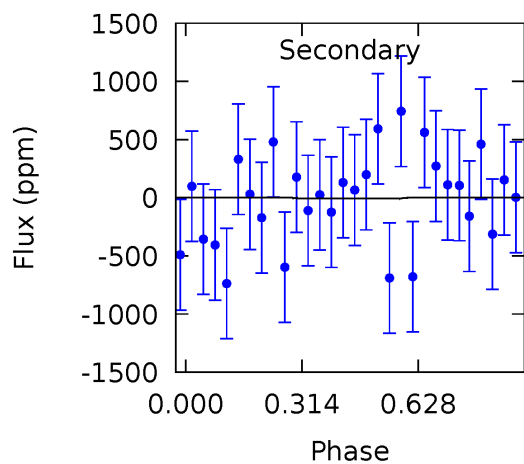
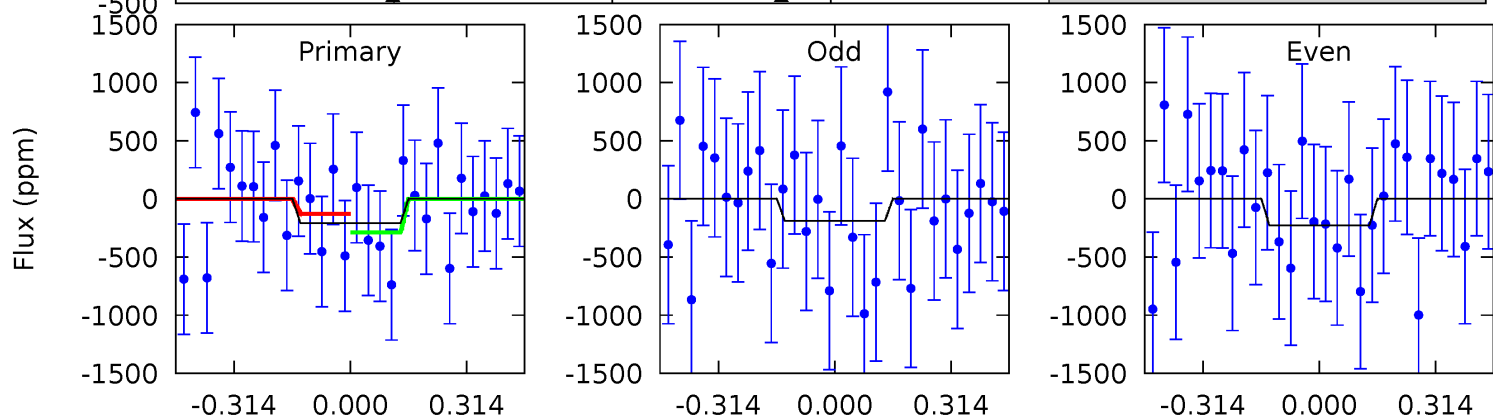
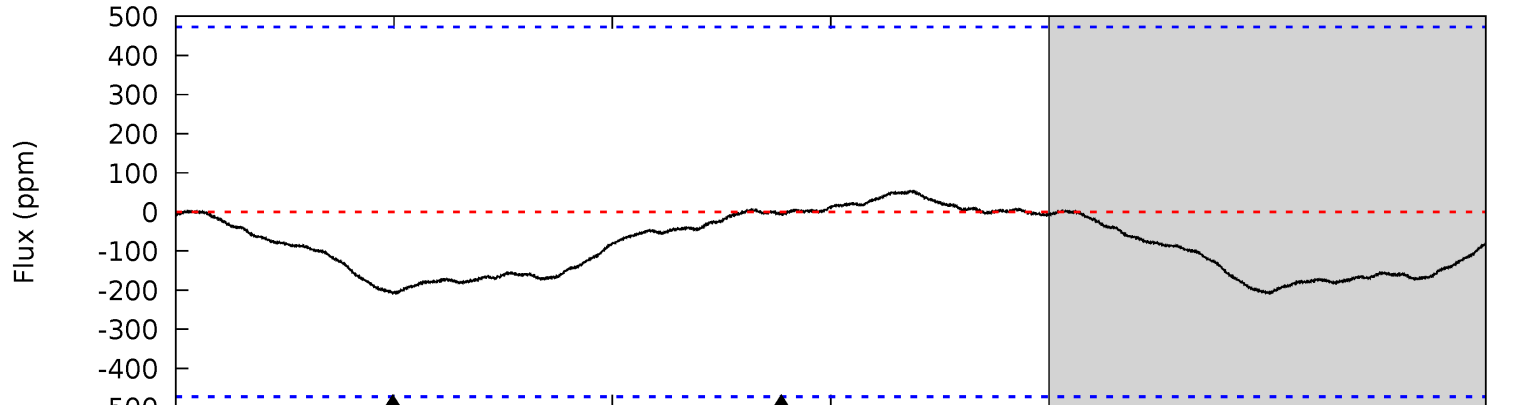
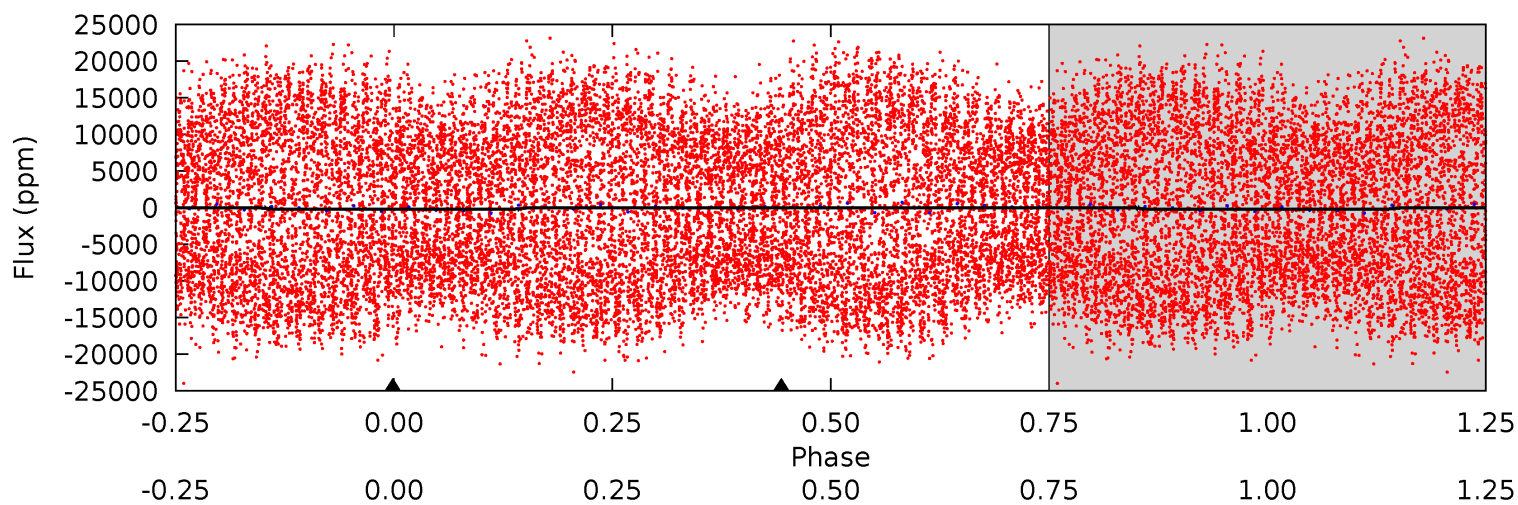
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005393589-03, P = 0.953343 Days, E = 130.753268 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.90	0.06	0	0	4.32	1.01	0.03	1.90	1.90	0.06	0.06	0.16	0.95	0.20	0.68



Stellar Parameters For KIC 005393589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7041^{+197}_{-296}	$4.114^{+0.157}_{-0.192}$	$-0.120^{+0.250}_{-0.350}$	$1.747^{+0.516}_{-0.422}$	$1.448^{+0.208}_{-0.255}$	$0.382^{+0.360}_{-0.184}$
	+3%/-4%	+4%/-5%	+208%/-292%	+30%/-24%	+14%/-18%	+94%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005393589-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$14.95^{+14.94}_{-10.48}$	3909^{+329}_{-250}	-5833^{+34455}_{-29238}	$-2.805^{+164.624}_{-218.025}$
Alt.	-6 ± 109	$13.78^{+15.82}_{-9.43}$	3934^{+323}_{-305}	-3665^{+878}_{-435}	$-0.002^{+0.246}_{-0.285}$

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

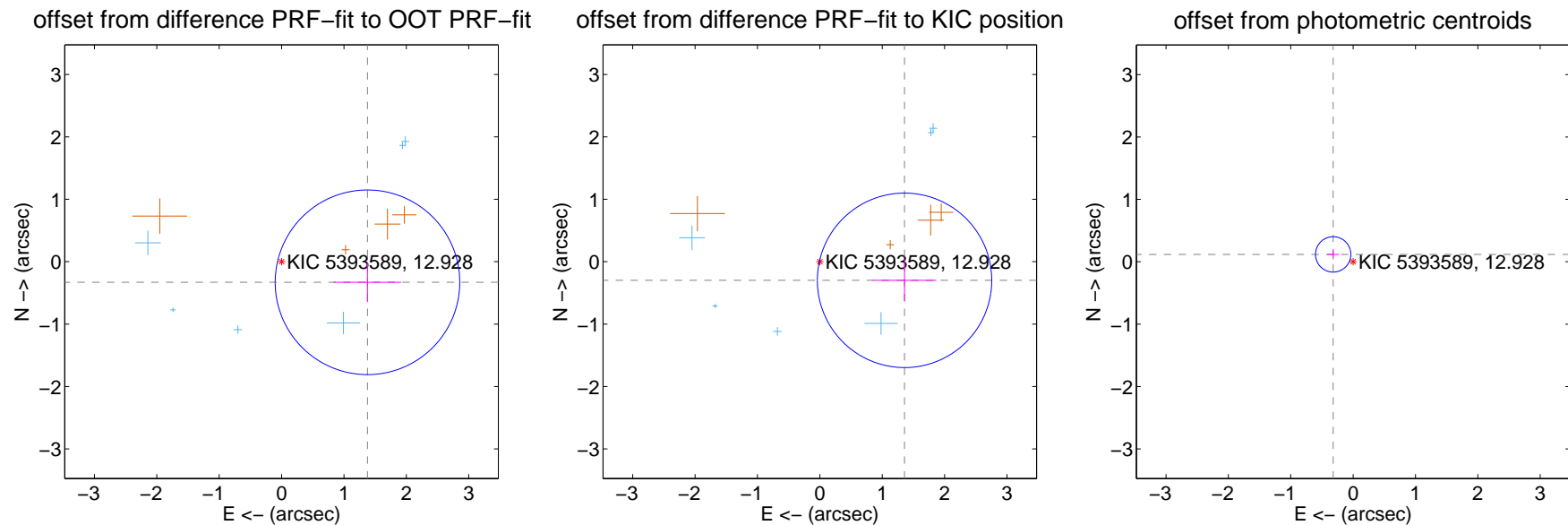
DV Centroid Data

Supplemental centroid analysis for 005393589-03. Kepler magnitude: 12.93. Transit SNR -1.00

There are 6 quarters with good PRF difference image offsets

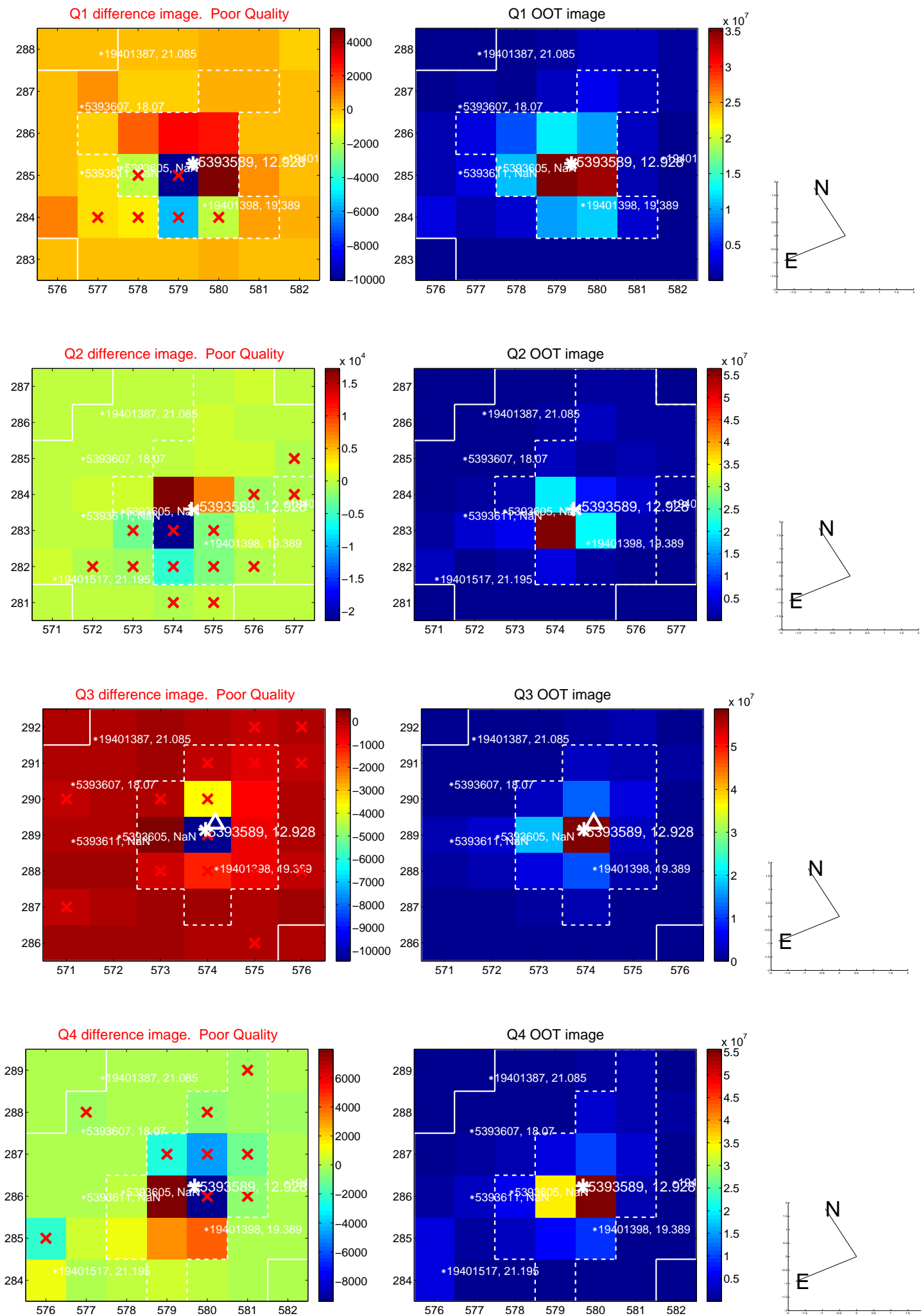
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.416 ± 0.493	2.87	-1.377 ± 0.543	-0.330 ± 0.316
PRF-fit source offset from KIC position	1.390 ± 0.466	2.98	-1.358 ± 0.511	-0.299 ± 0.336
photometric centroid source offset	0.34 ± 0.09	3.61	0.32 ± 0.10	0.12 ± 0.08

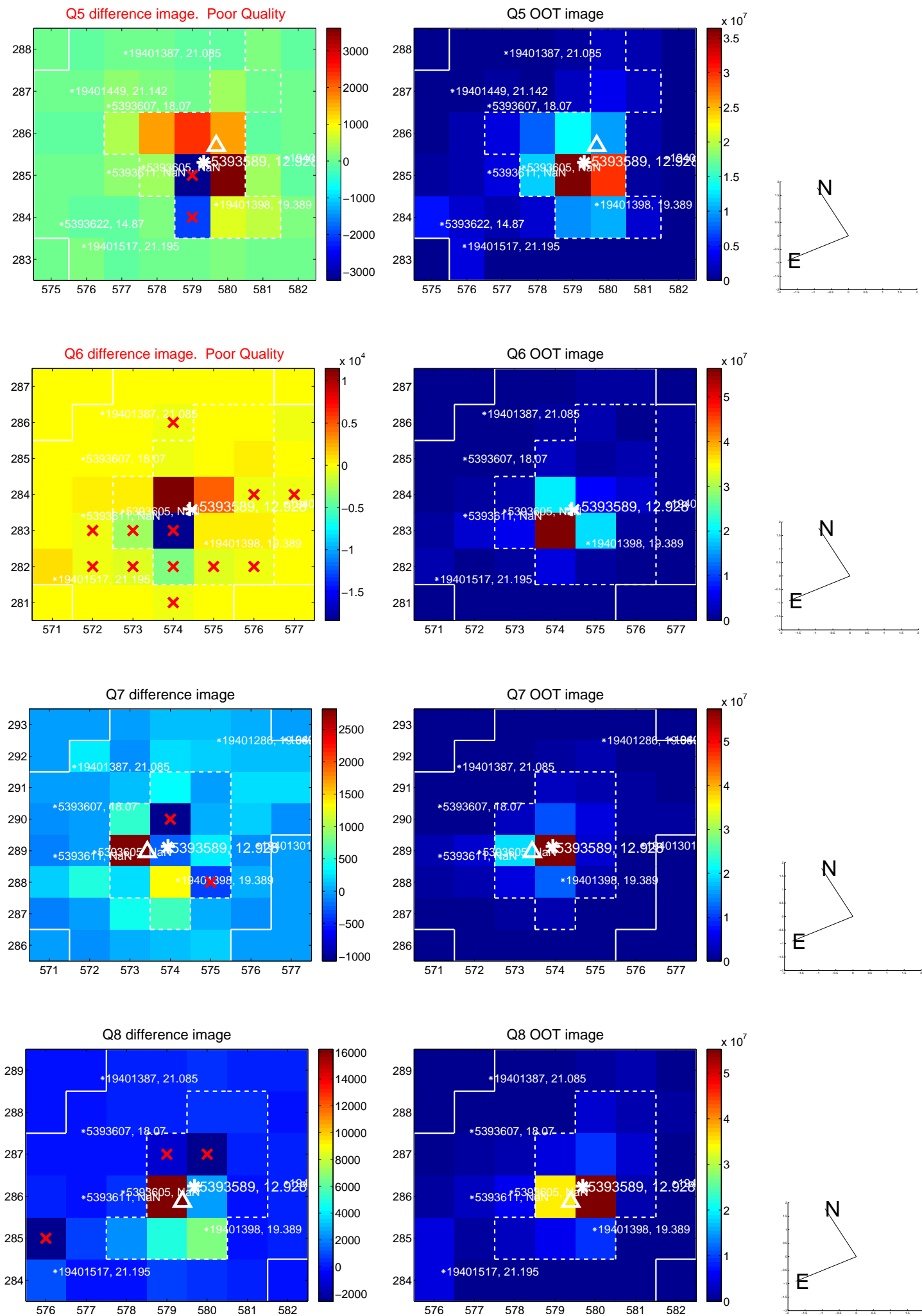


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

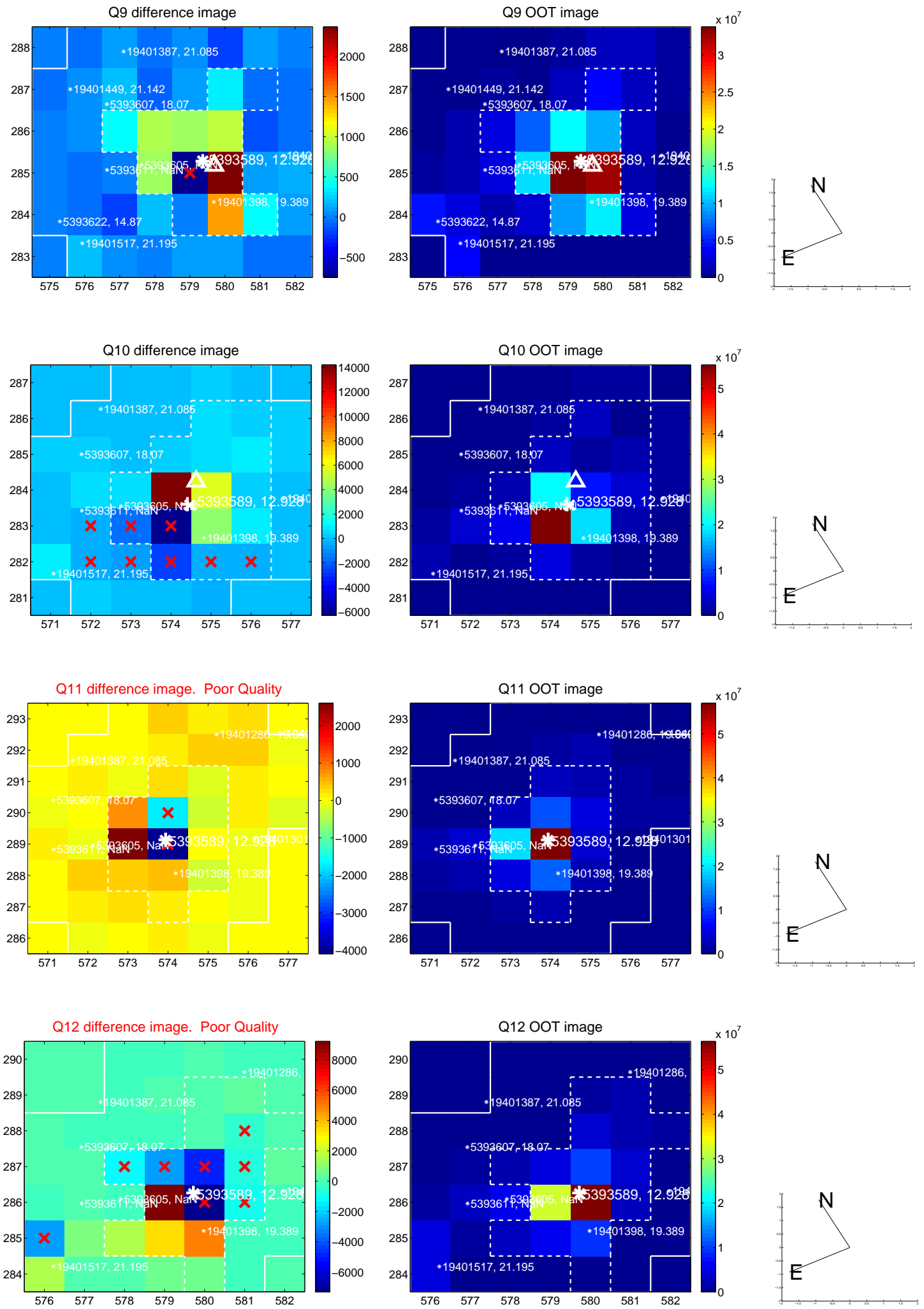
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



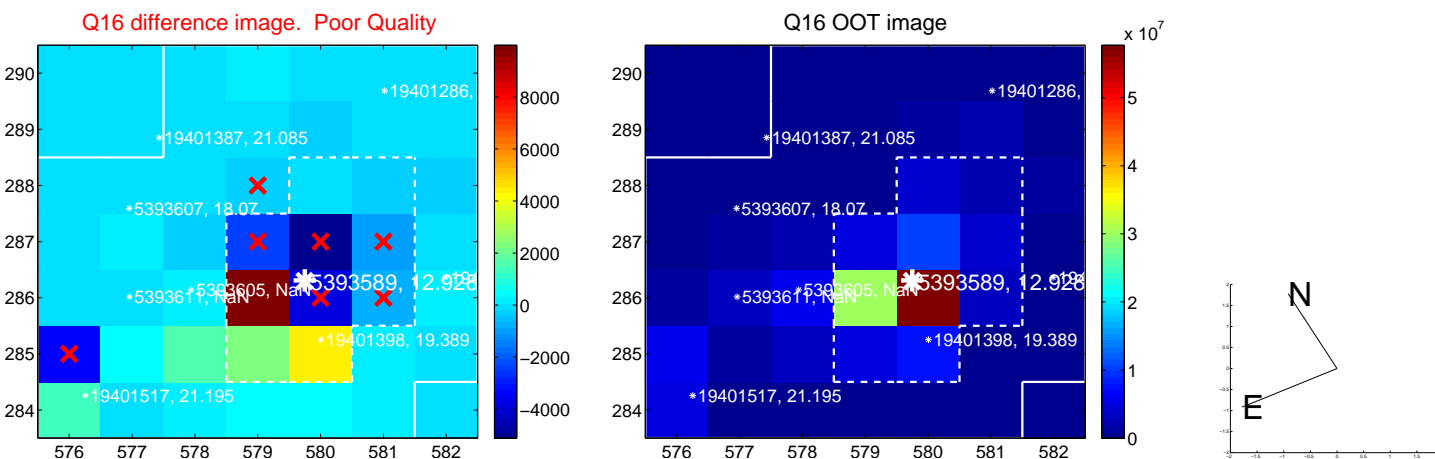
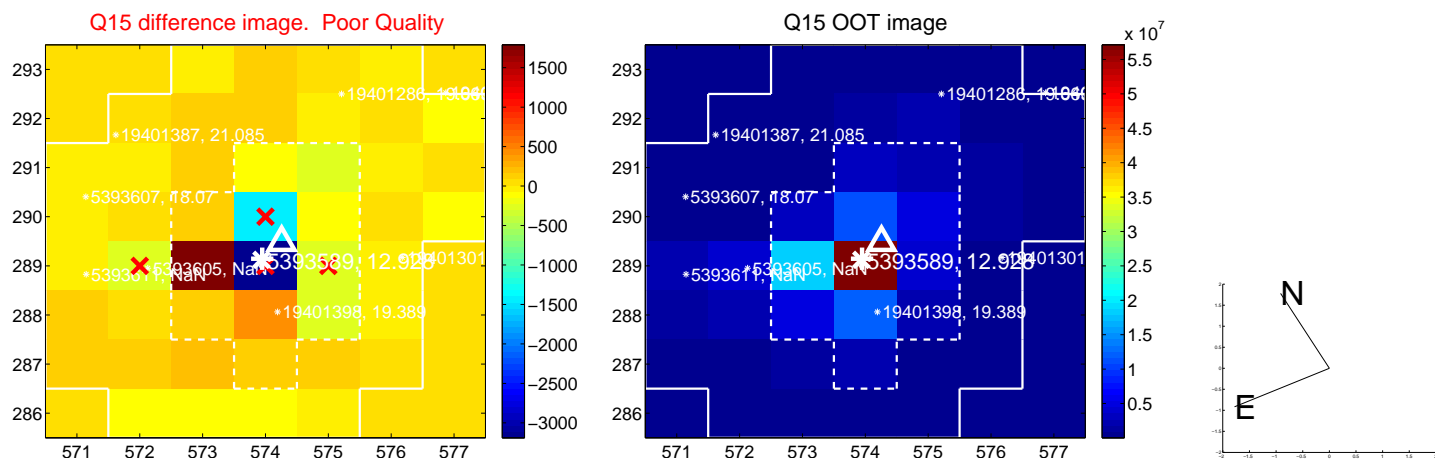
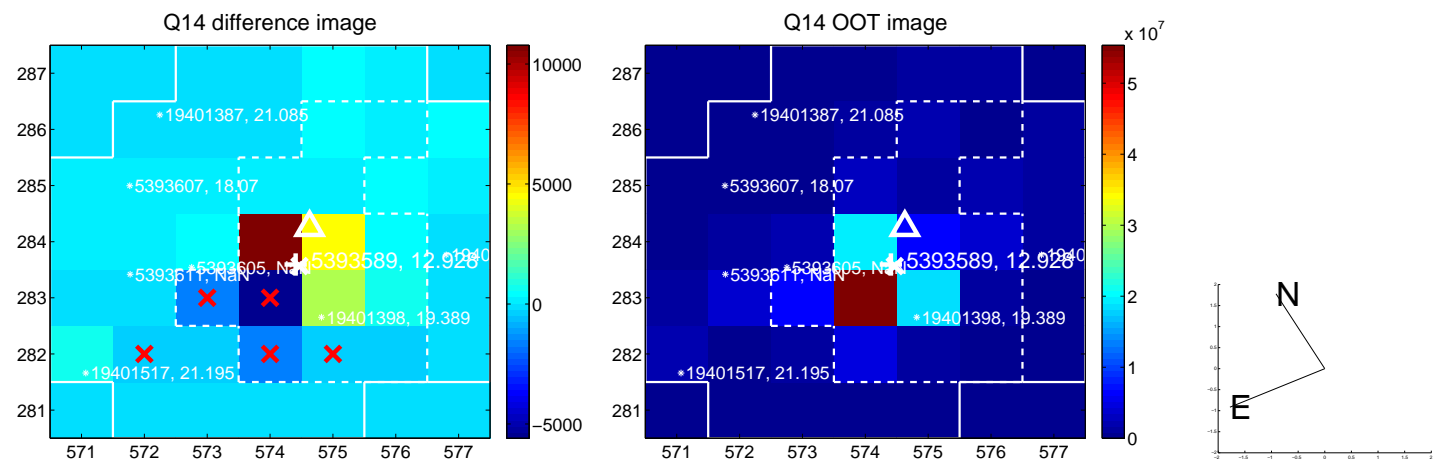
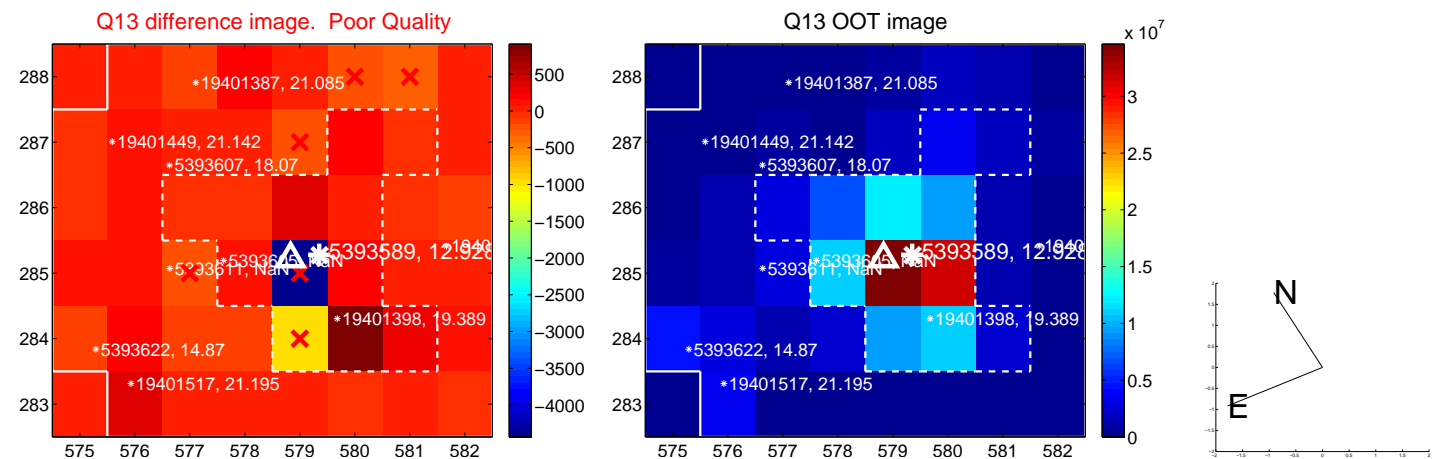
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



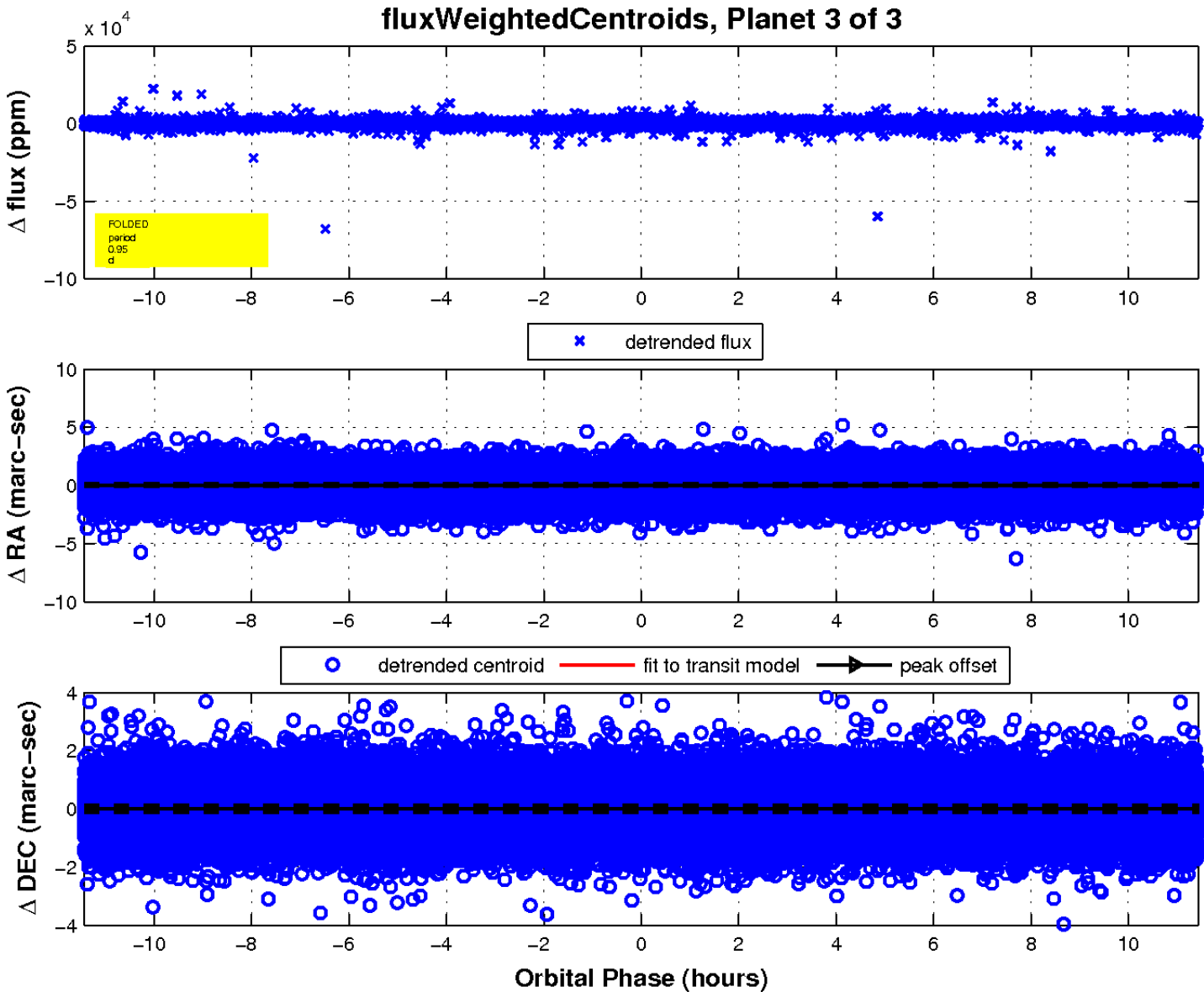
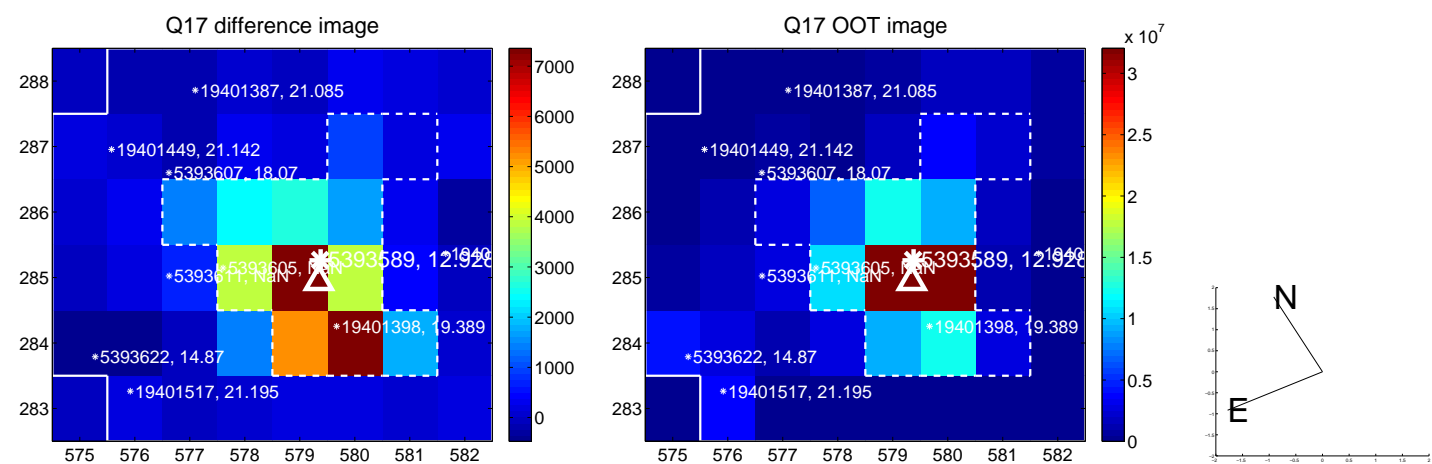
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Declination

