

KIC 002443753

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})
002443753-01	OBS	No	0.864091	131.606741	30.6	6.179	7.8	11.4	0.91	6139	0.56	3382.22
002443753-02	OBS	No	28.983578	155.204412	571.6	2.009	11.2	11.9	0.91	6139	2.21	31.27
002443753-03	OBS	No	30.726973	132.039181	302.8	3.946	9.6	9.4	0.91	6139	1.83	28.92
002443753-04	OBS	No	53.379556	161.644097	642.9	3.251	10.3	11.3	0.91	6139	2.97	13.85
002443753-05	OBS	No	33.430499	141.248398	711.7	1.251	10.3	10.6	0.91	6139	2.45	25.85
002443753-06	OBS	No	19.028481	134.527844	276.4	2.842	10.1	9.6	0.91	6139	1.76	54.80
002443753-07	OBS	No	18.323714	143.898506	468.7	1.573	10.7	11.8	0.91	6139	2.27	57.62
002443753-08	OBS	No	43.482829	143.242586	672.9	1.581	11.9	11.1	0.91	6139	2.79	18.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002443753-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS
002443753-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
002443753-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
002443753-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN—HALO_GHOST
002443753-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
002443753-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

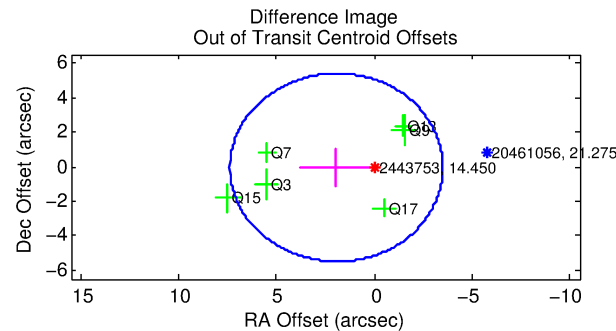
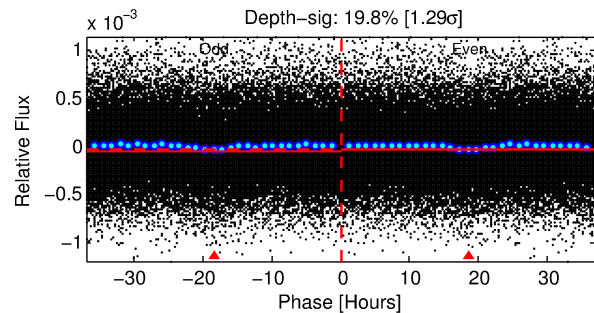
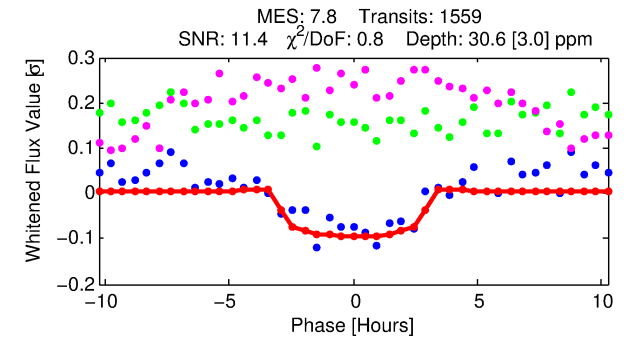
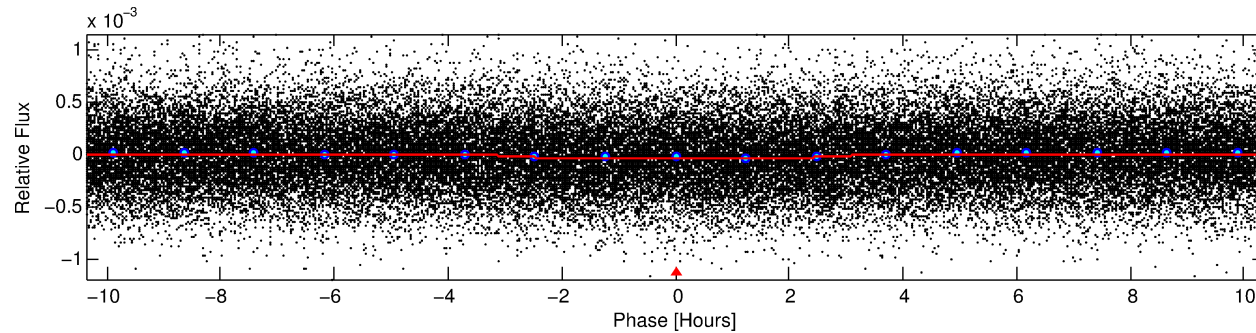
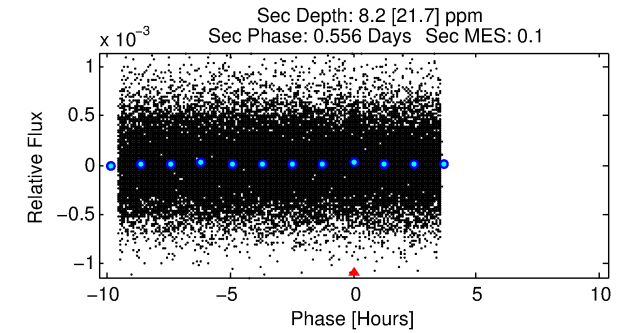
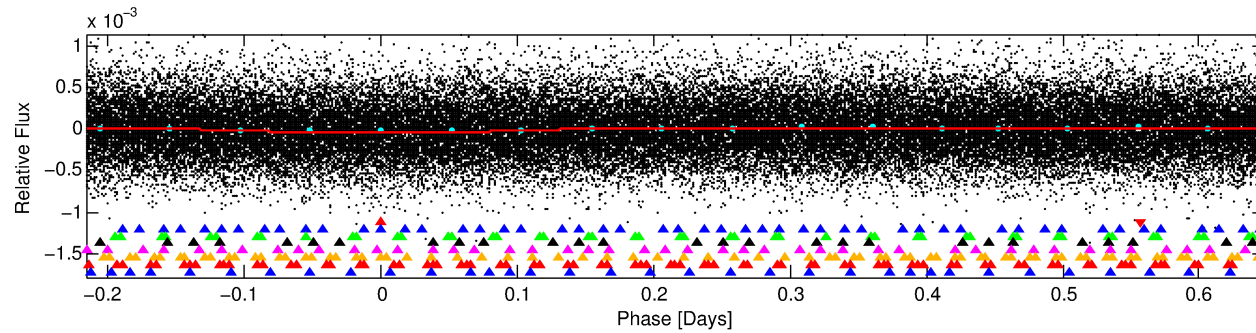
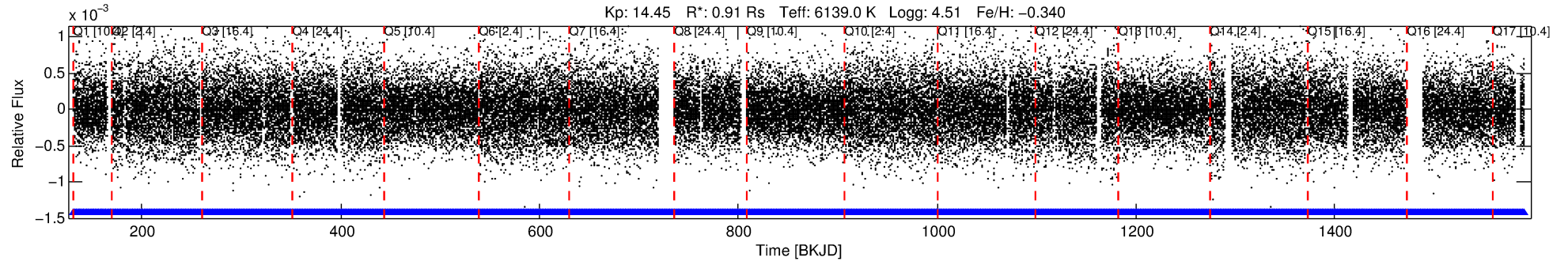
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002443753-01

No Significant Match Found

DV One-Page Summary

KIC: 2443753 Candidate: 1 of 8 Period: 0.864 d



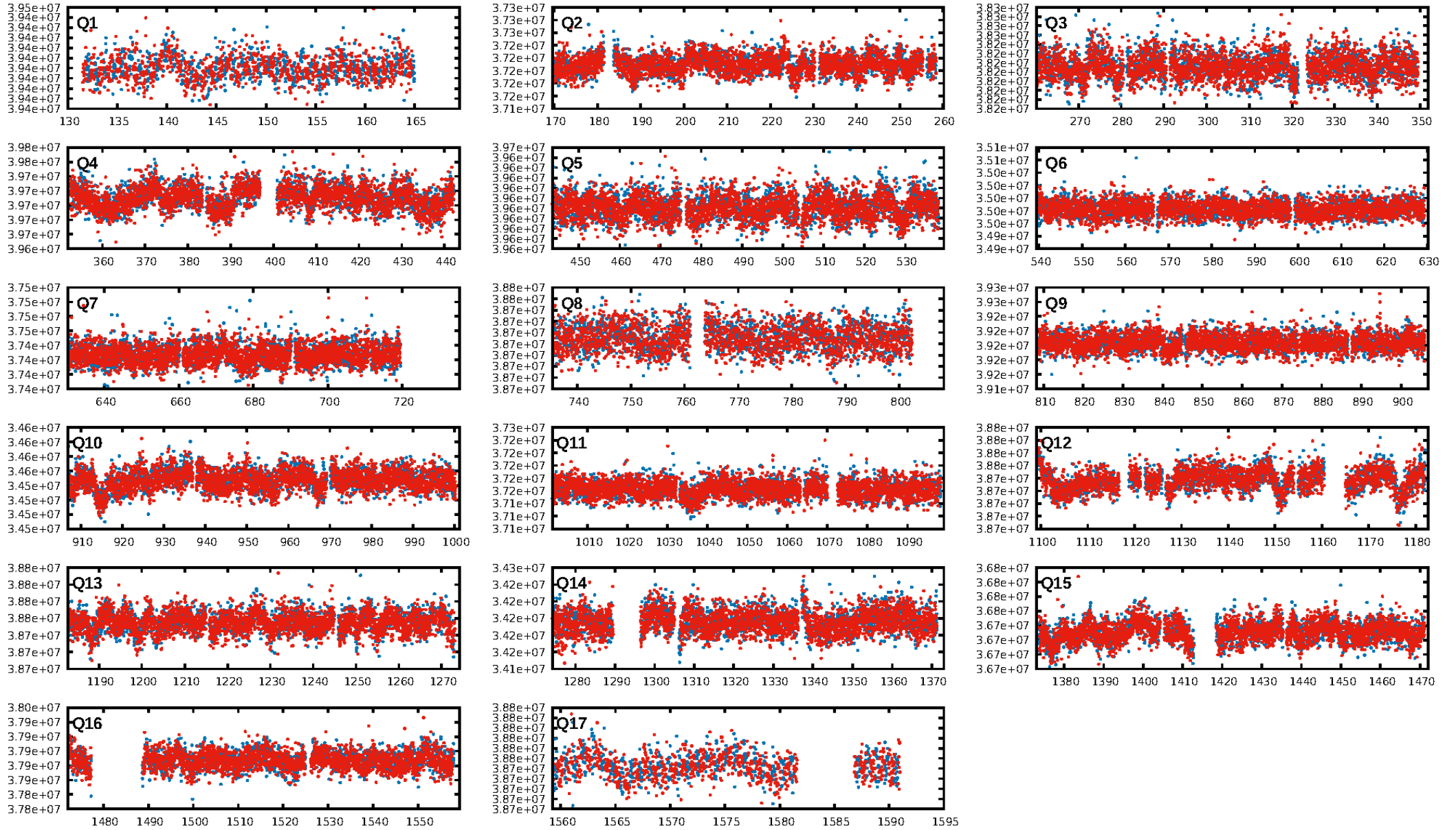
DV Fit Results:

Period = 0.86409 [0.00001] d
Epoch = 131.6067 [0.0056] BKJD
Rp/R* = 0.0056 [0.0044]
a/R* = 1.10 [0.81]
b = 0.80 [1.93]
Seff = 3382.22 [1256.83]
Teff = 1945 [181] K
Rp = 0.56 [0.46] Re
a = 0.0177 [0.0042] AU
Ag = 4.56 [14.07] [0.25 σ]
Teffp = 4392 [3374] K [0.72 σ]

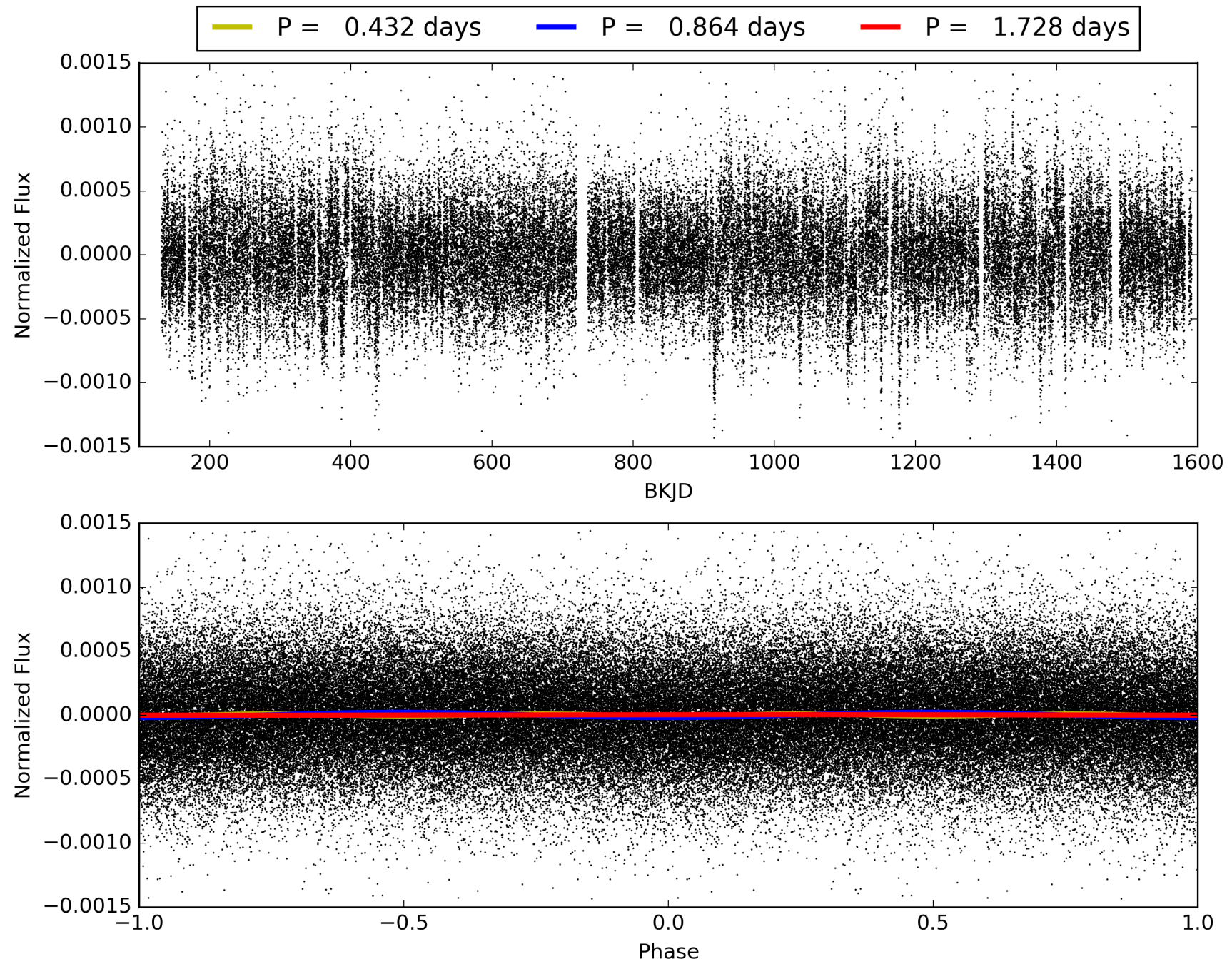
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [65.72 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1488/1488]
GhostDiagnostic-chr: 1.687
Centroid-sig: 95.9%
Centroid-so: 0.750 arcsec [0.64 σ]
OotOffset-rm: 1.937 arcsec [1.07 σ]
KicOffset-rm: 1.903 arcsec [1.04 σ]
OotOffset-st: 0/3/0/3 [6]
KicOffset-st: 0/3/0/3 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 002443753-01, PDC Light Curves

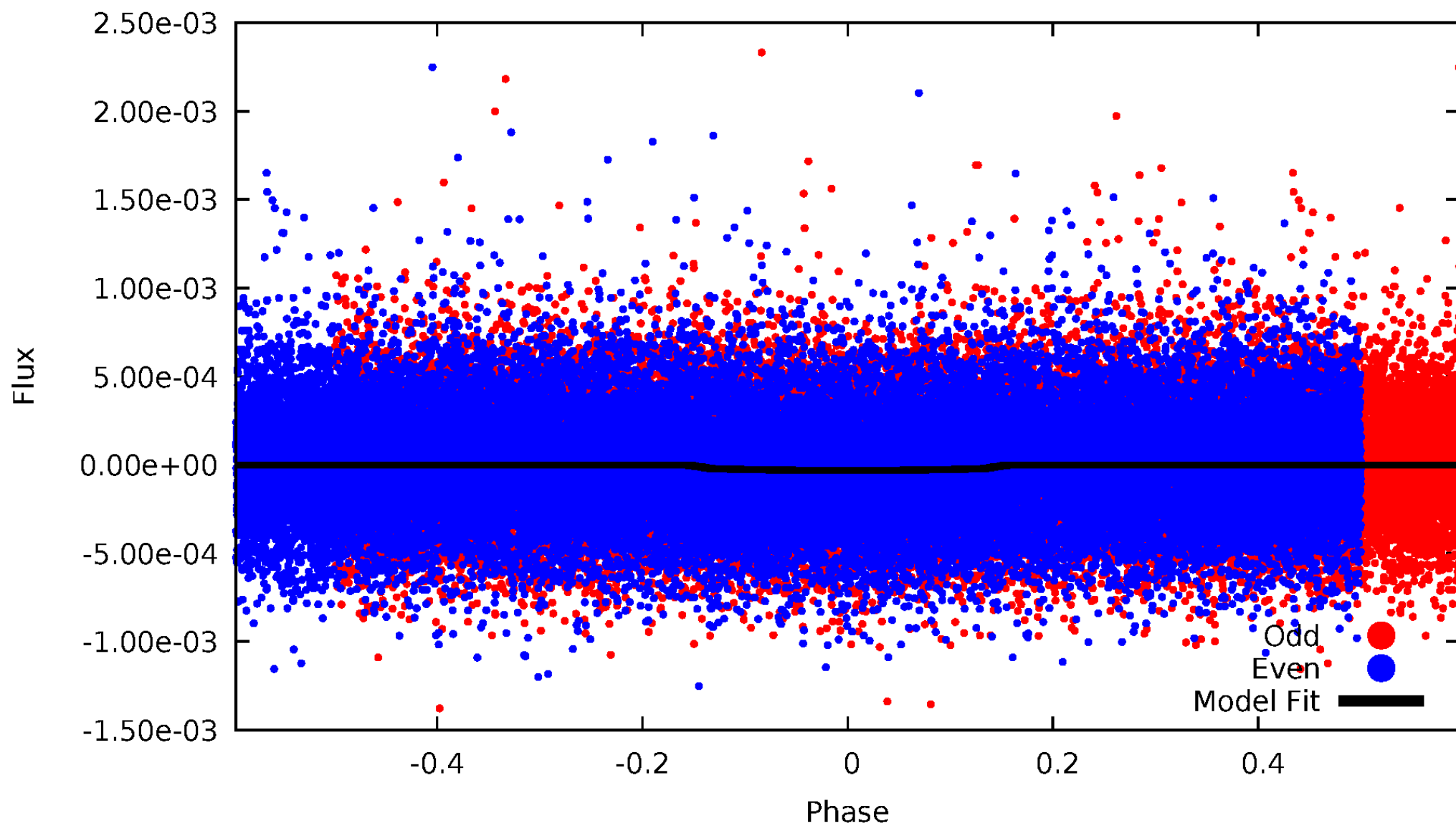


TCE 002443753-01



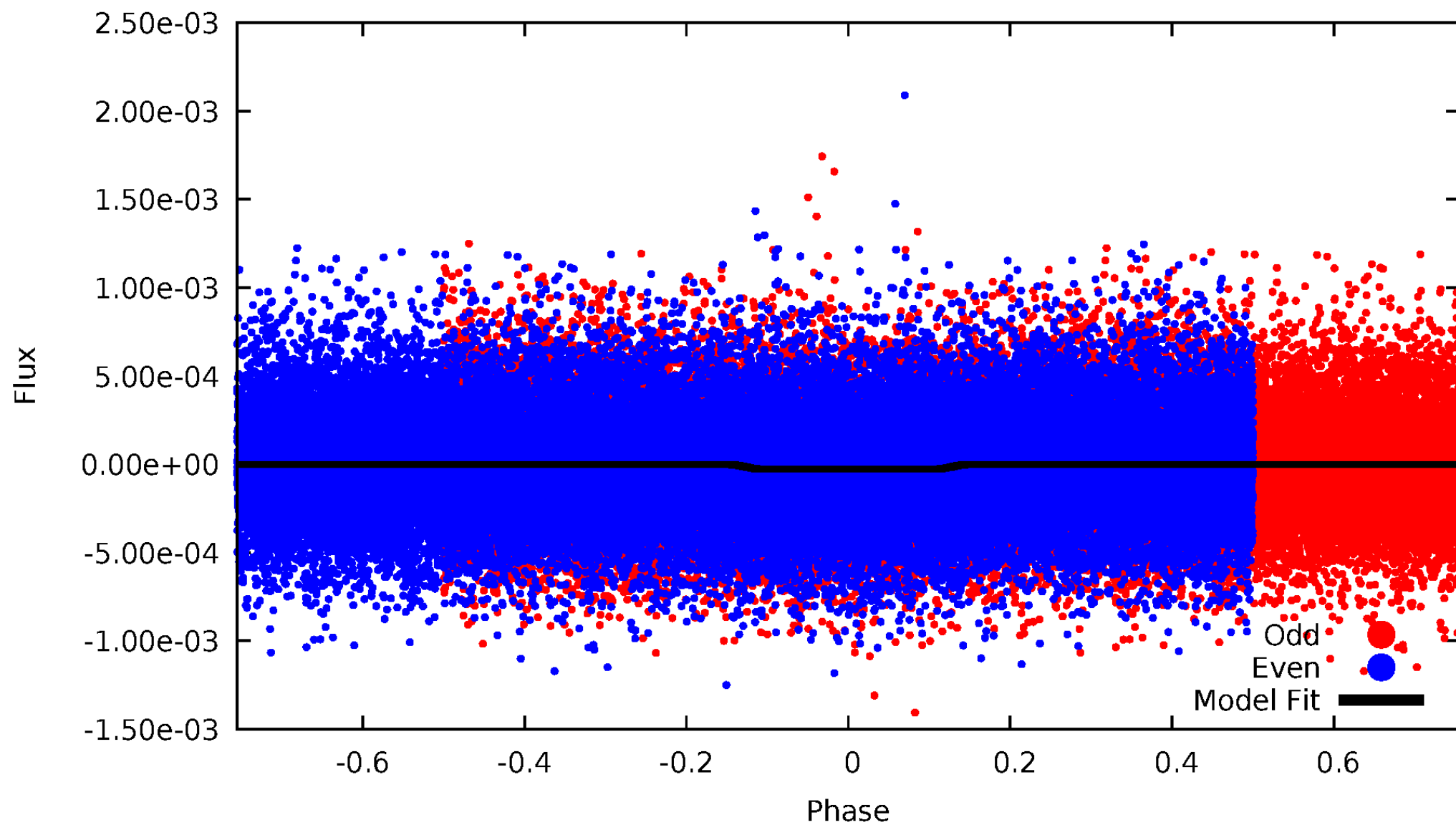
DV Odd/Even

TCE 002443753-01



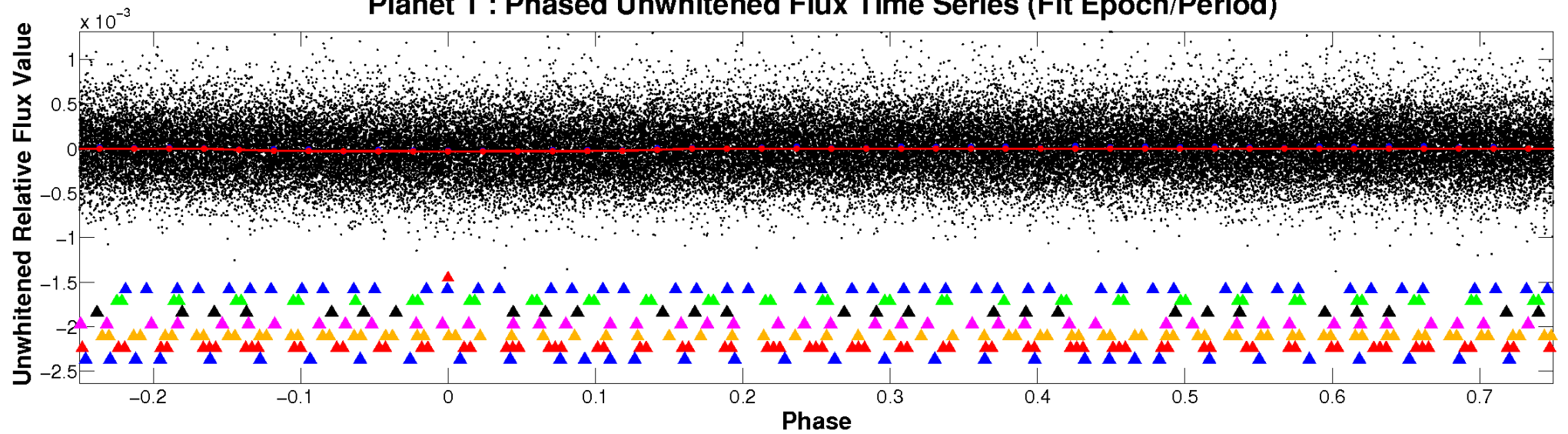
ALT Odd/Even

TCE 002443753-01

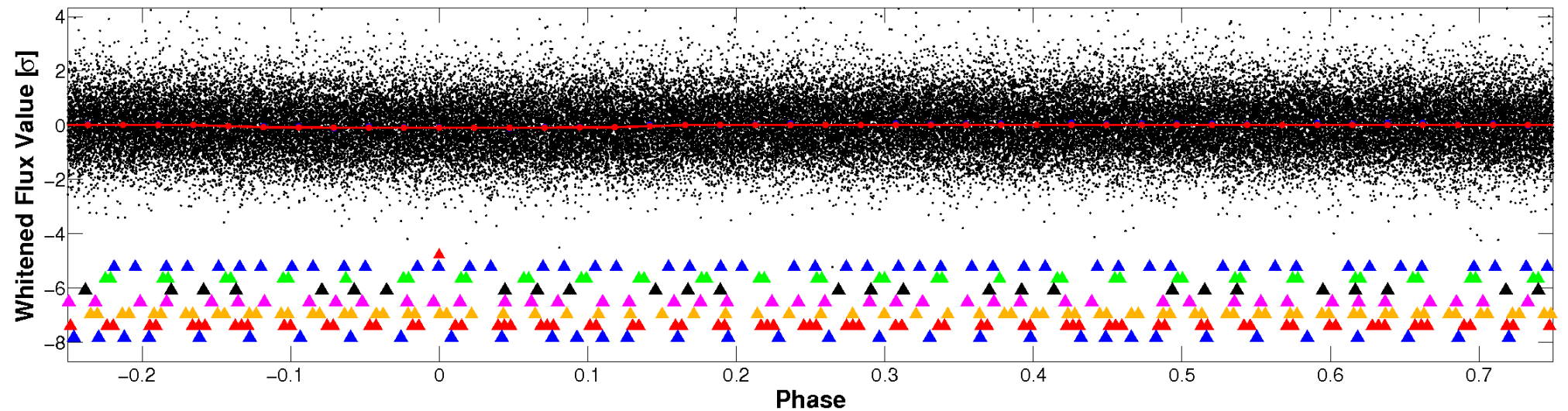


Non-Whitened Vs. Whitened Light Curve

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

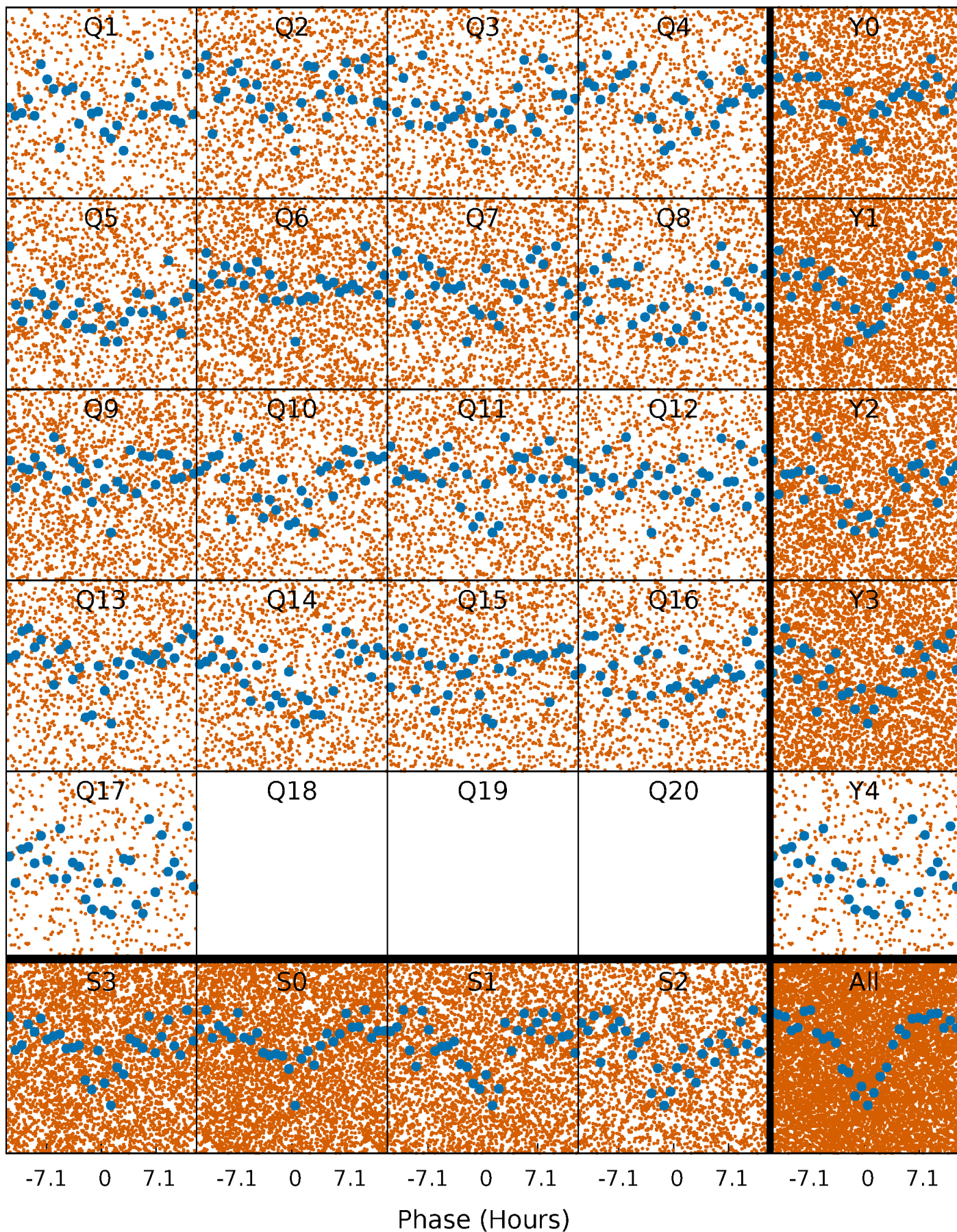


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



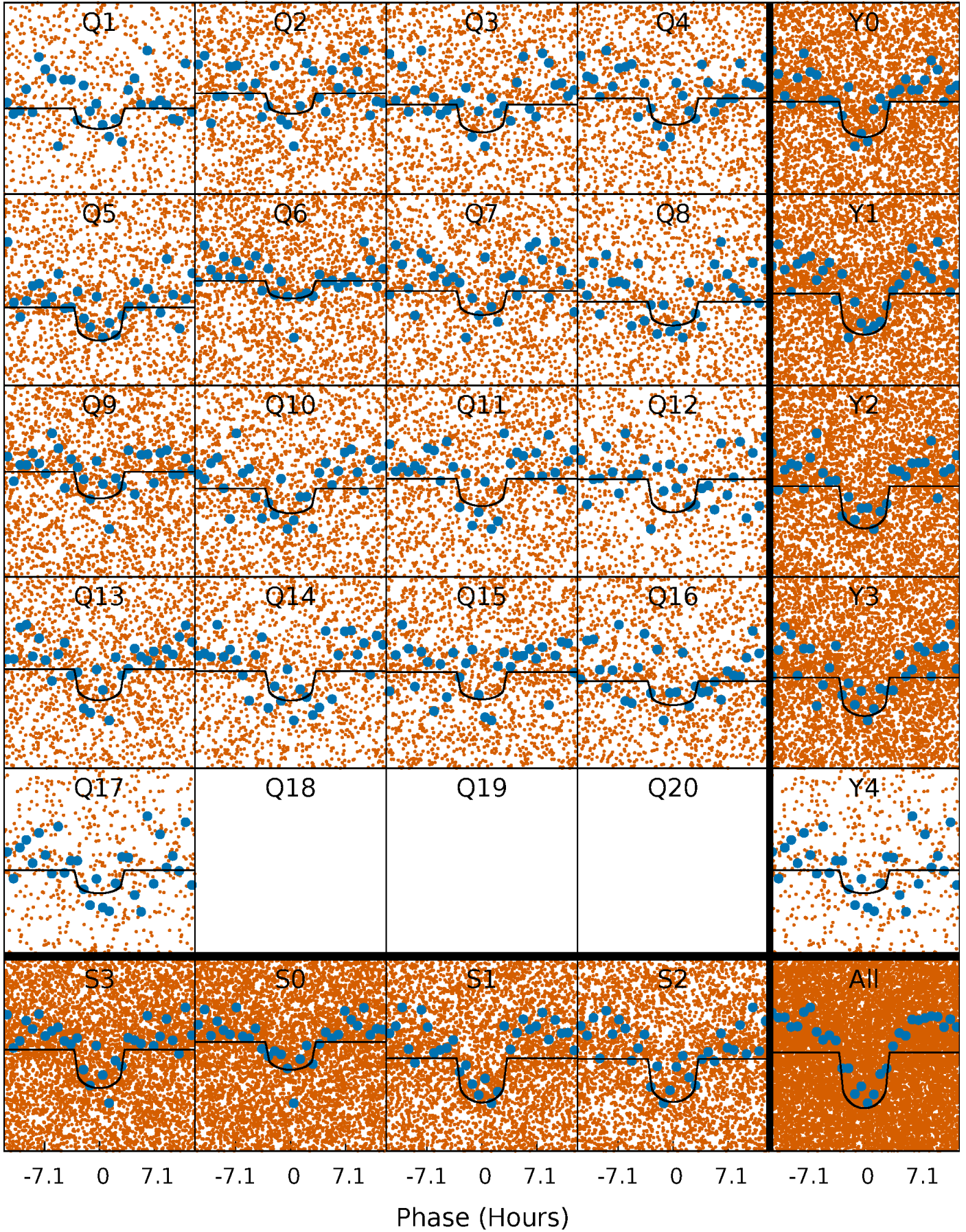
PDC Quarter-Phased Transit Curves

TCE 002443753-01 P= 0.864091 Days $T_0=131.606741$ (BKJD)



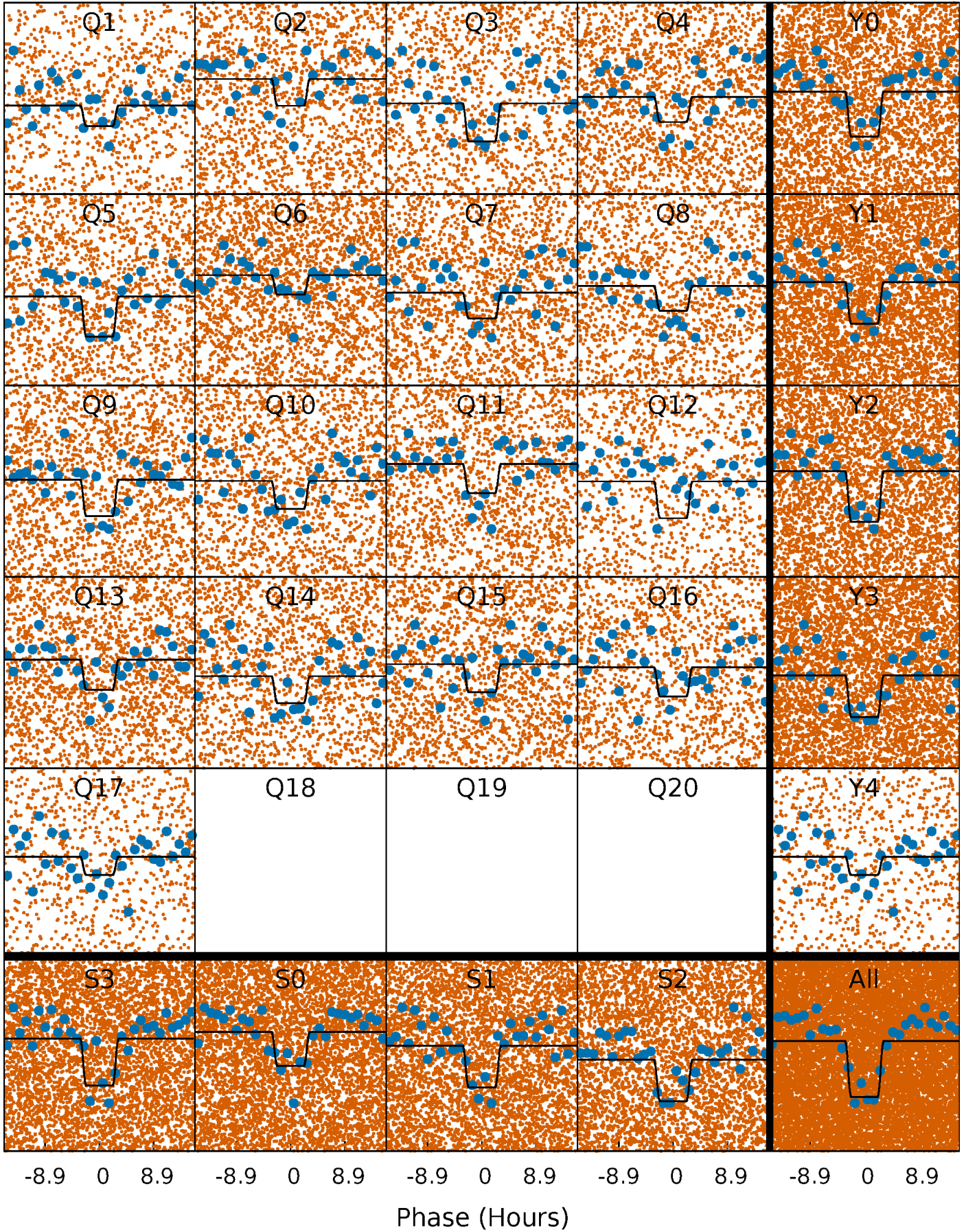
DV Quarter-Phased Transit Curves

TCE 002443753-01 P= 0.864091 Days $T_0=131.606741$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

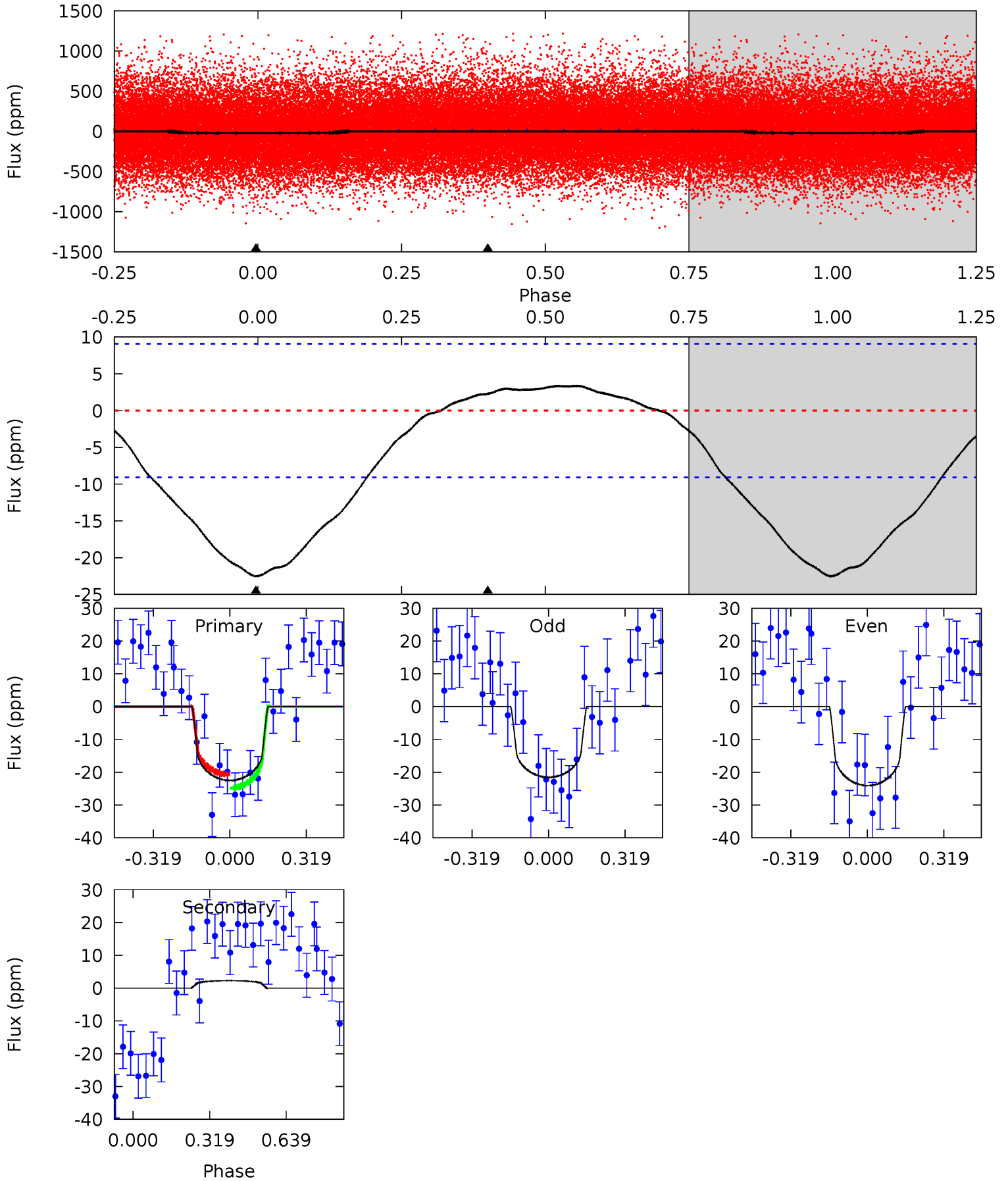
TCE 002443753-01 P= 0.864099 Days $T_0=131.601287$ (BKJD)



DV Model-Shift Uniqueness Test

002443753-01, P = 0.864091 Days, E = 130.742650 Days

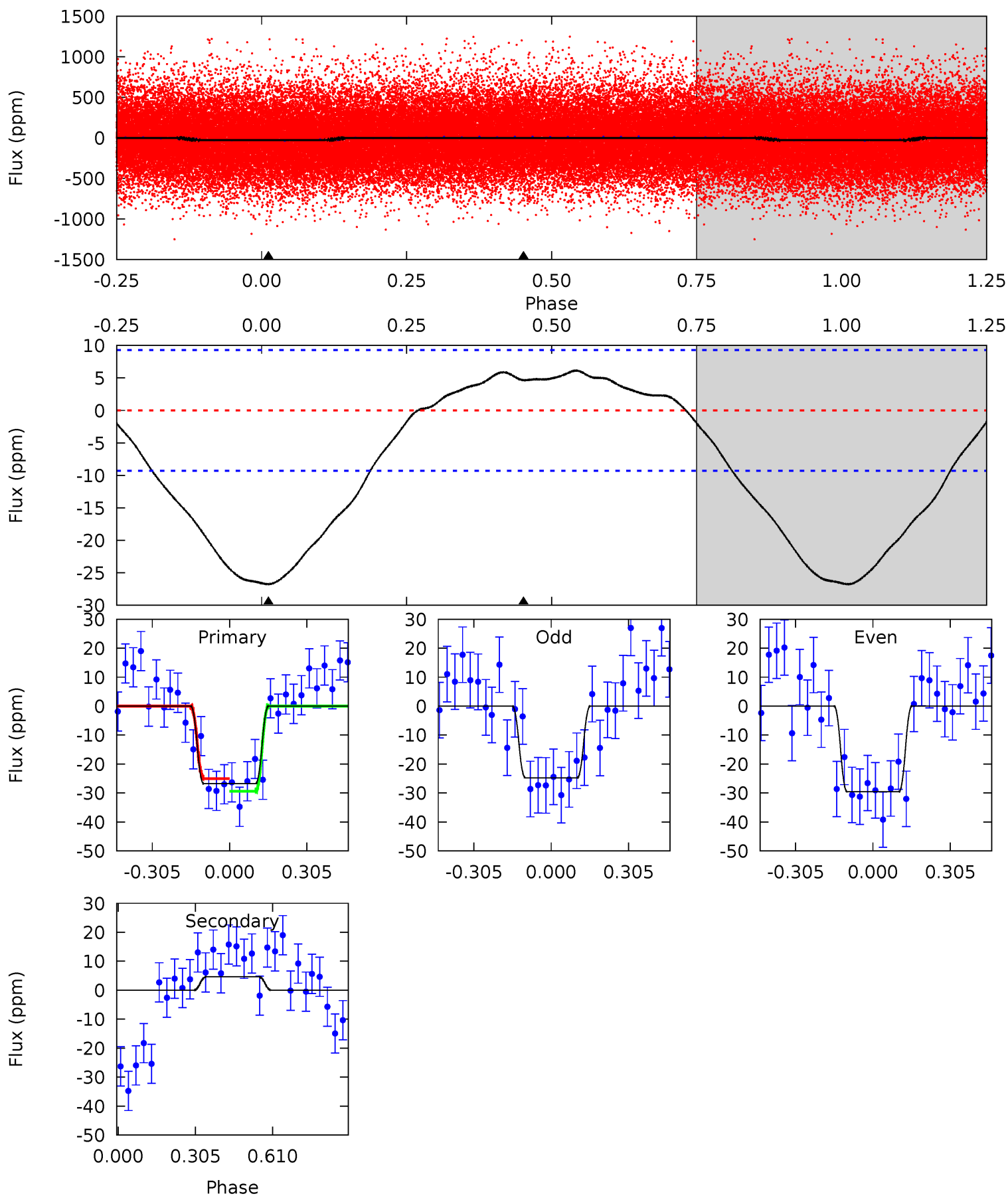
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	-1.08	0	0	4.31	1.00	0.54	10.7	10.7	-1.08	-1.08	0.61	0.99	0.13	0.99



Alt Model-Shift Uniqueness Test

002443753-01, P = 0.864099 Days, E = 130.737188 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	-2.17	0	0	4.32	1.03	1.17	12.5	12.5	-2.17	-2.17	1.11	0.97	0.19	1.03



Stellar Parameters For KIC 002443753

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6139^{+171}_{-192}	$4.513^{+0.048}_{-0.192}$	$-0.340^{+0.300}_{-0.350}$	$0.912^{+0.258}_{-0.086}$	$0.991^{+0.117}_{-0.129}$	$1.837^{+0.456}_{-0.938}$
	+3%/-3%	+1%/-4%	+88%/-103%	+28%/-9%	+12%/-13%	+25%/-51%
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 002443753-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	2 ± 2	$0.65^{+0.41}_{-0.38}$	2772^{+183}_{-127}	-3599^{+604}_{-1221}	$-0.762^{+0.748}_{-4.363}$
Alt.	5 ± 2	$0.61^{+0.49}_{-0.36}$	2767^{+175}_{-125}	-4083^{+637}_{-1703}	$-1.921^{+1.413}_{-10.237}$

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

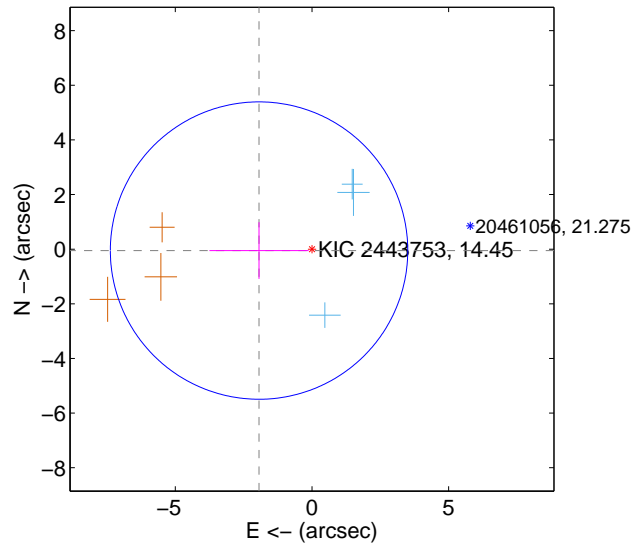
Supplemental centroid analysis for 002443753-01. Kepler magnitude: 14.45. Transit SNR 11.41

There are 3 quarters with good PRF difference image offsets

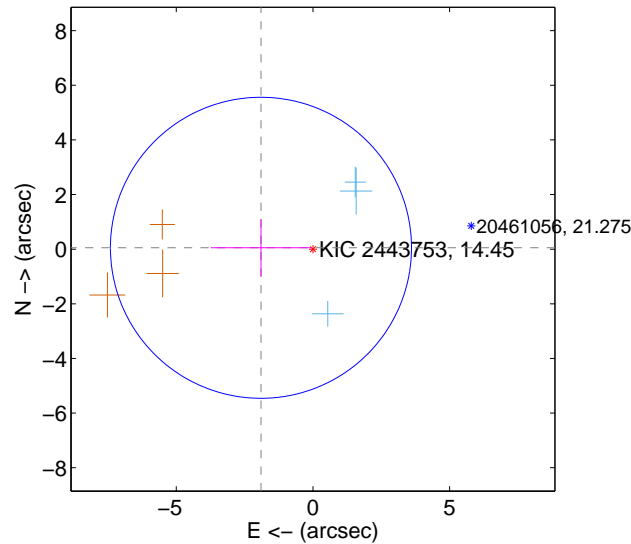
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.937 ± 1.814	1.07	1.937 ± 1.815	-0.051 ± 1.038
PRF-fit source offset from KIC position	1.903 ± 1.836	1.04	1.903 ± 1.837	0.050 ± 1.044
photometric centroid source offset	0.75 ± 1.18	0.64	0.27 ± 1.15	-0.70 ± 1.18

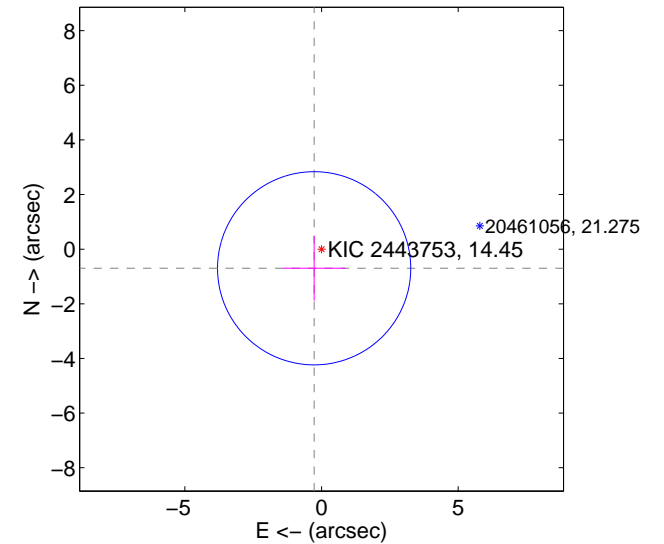
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

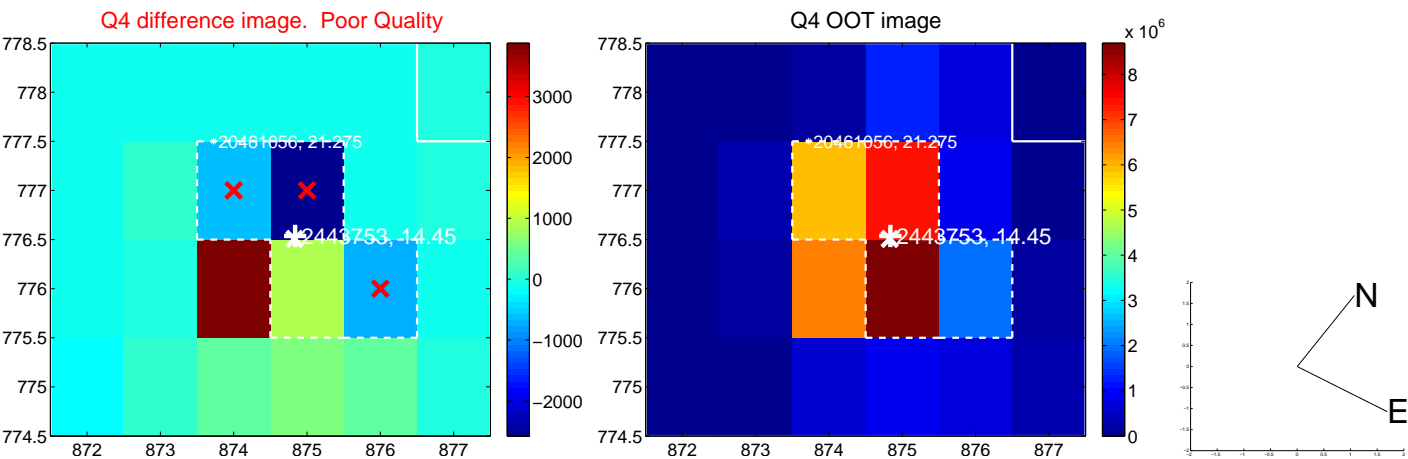
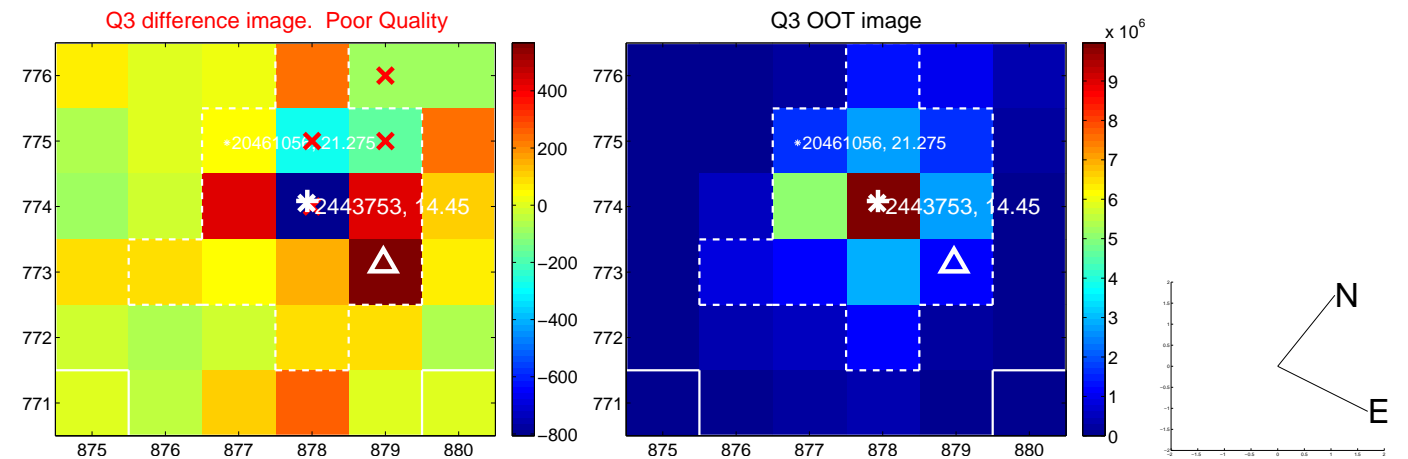
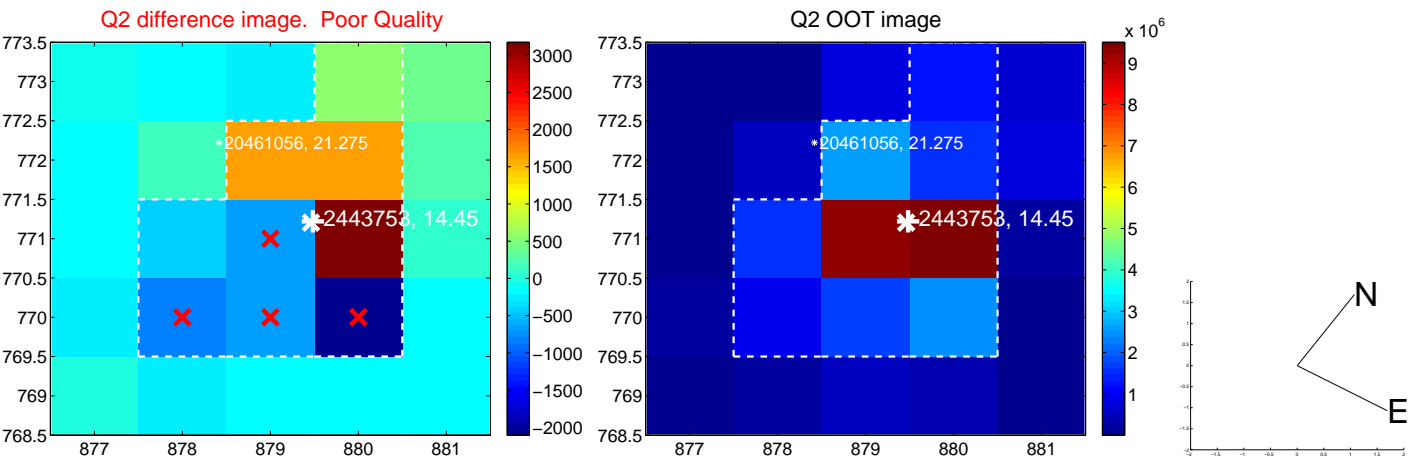
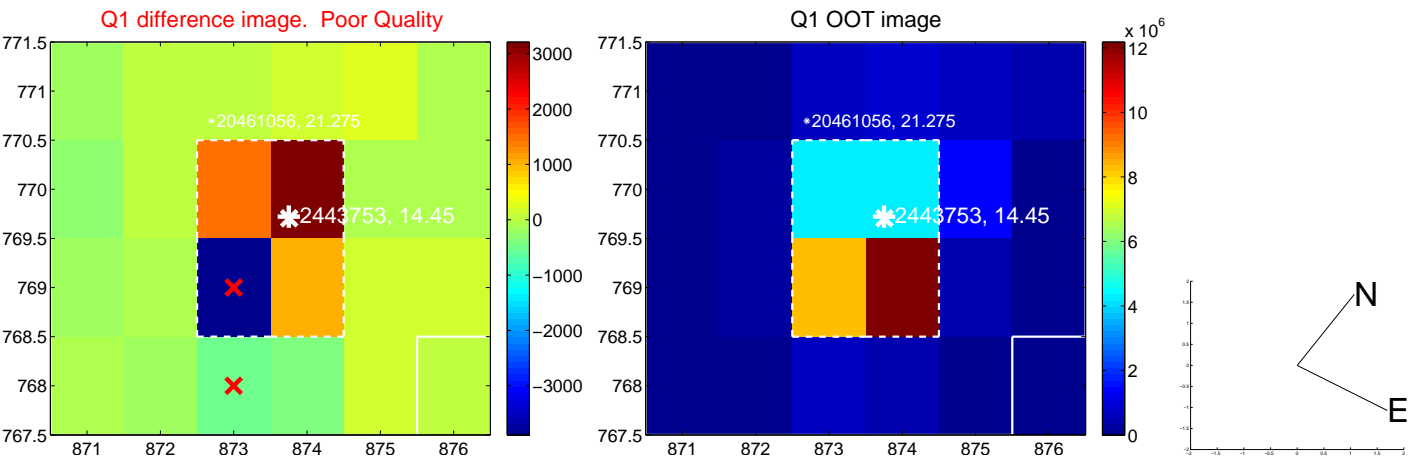


offset from photometric centroids

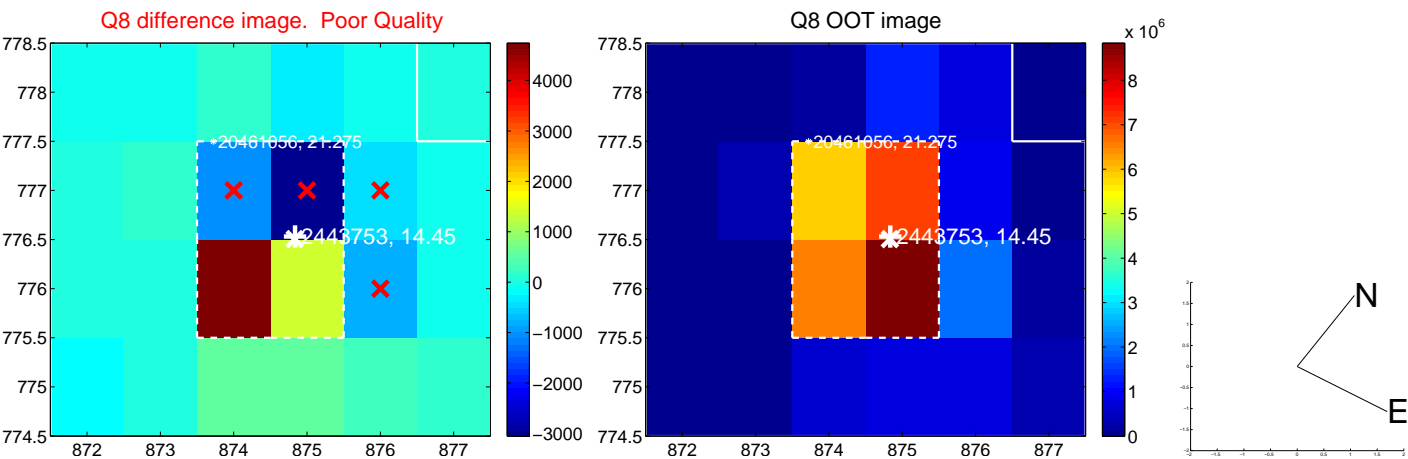
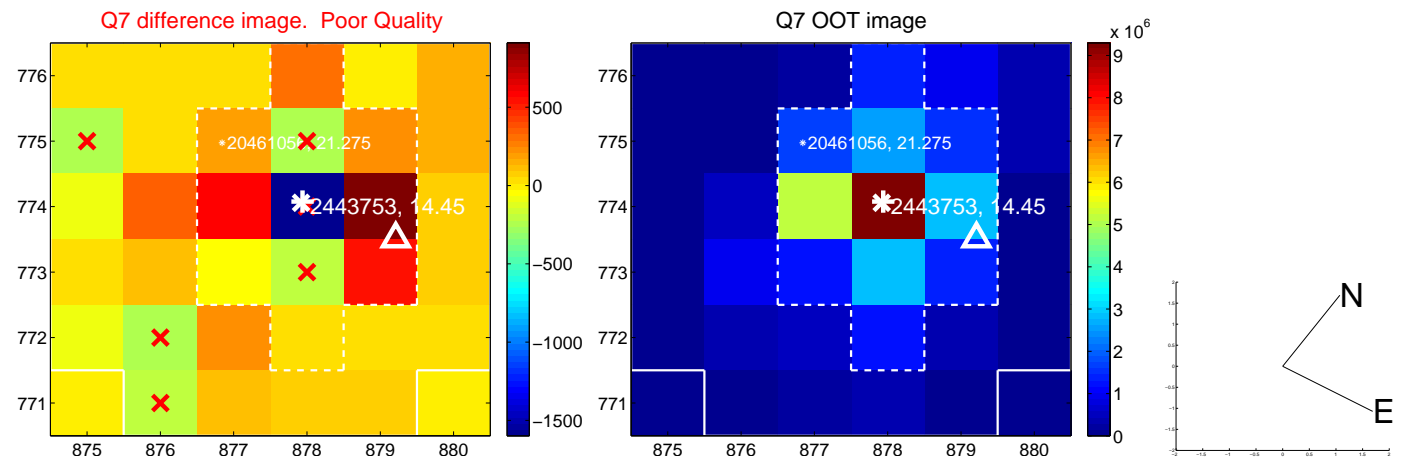
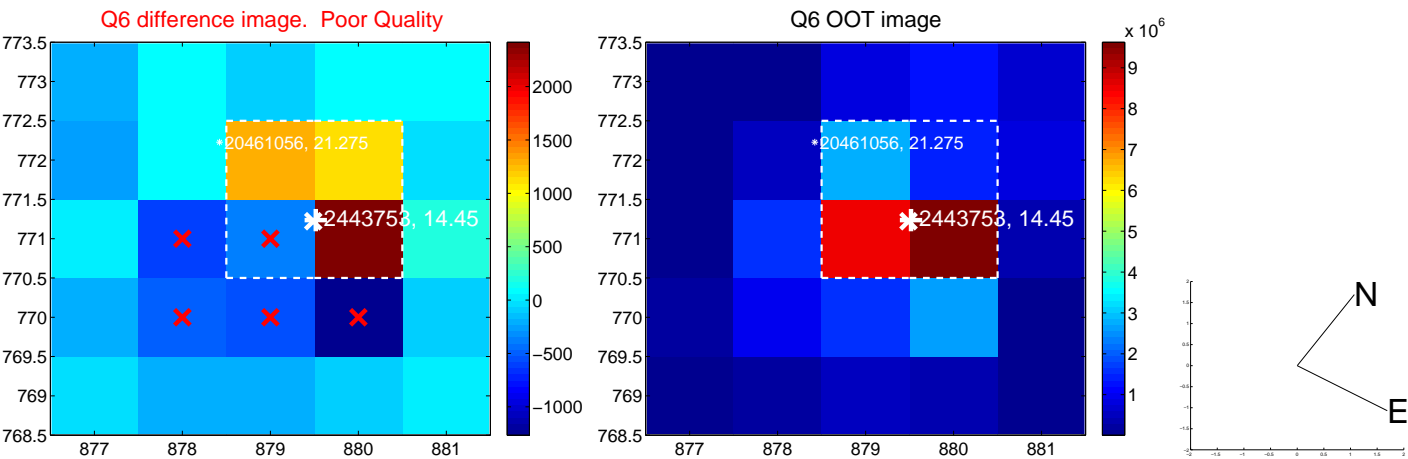
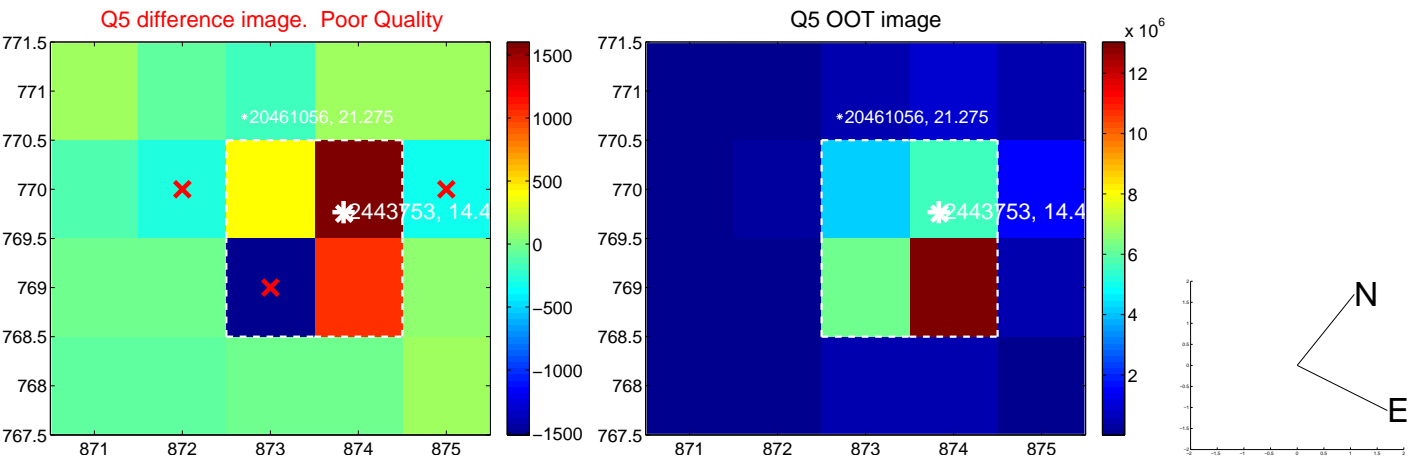


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

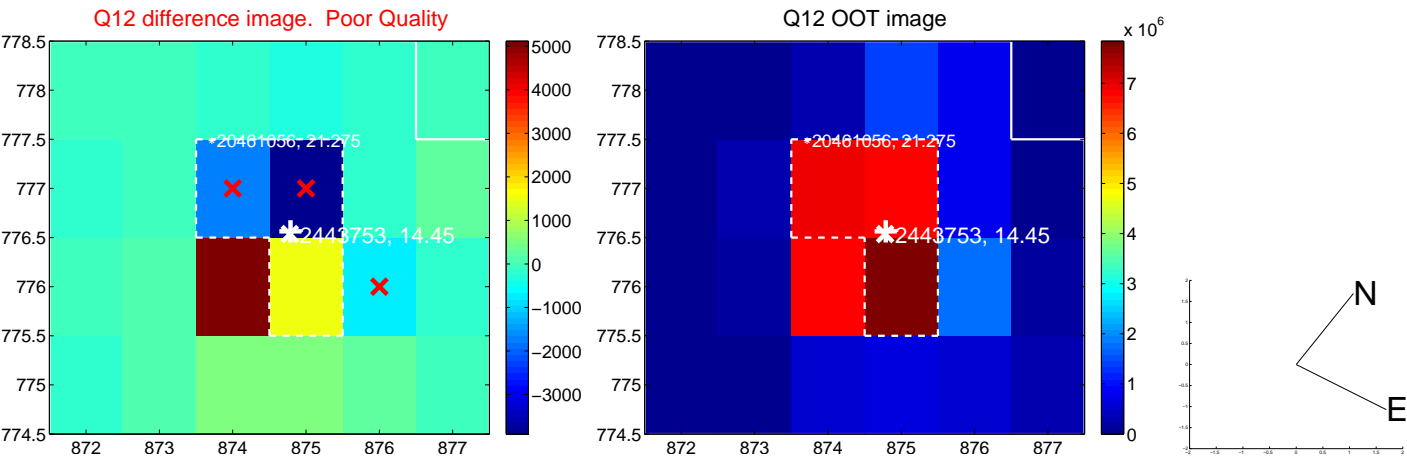
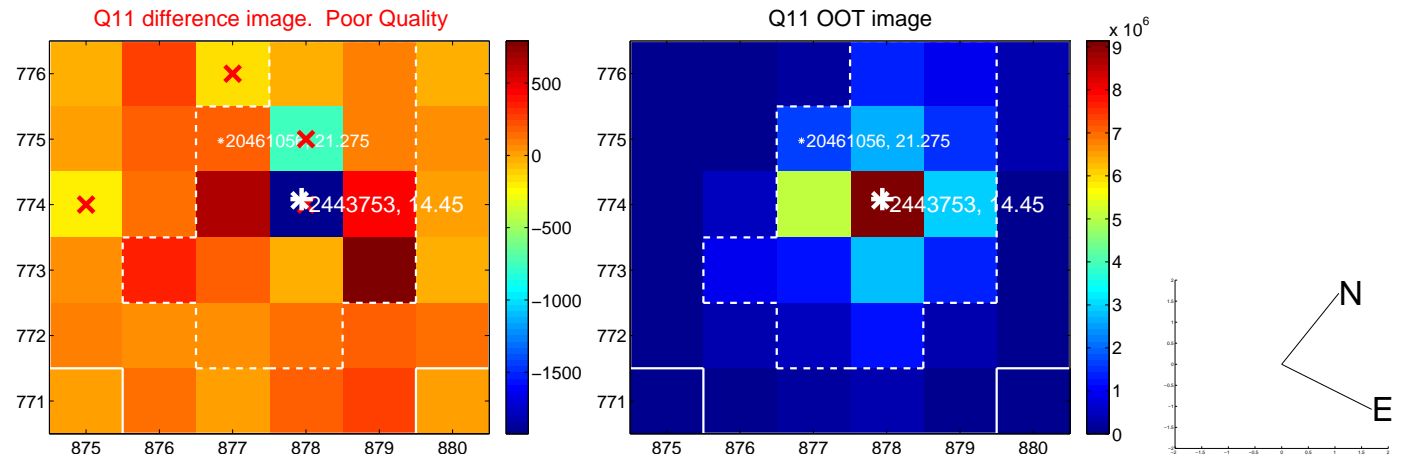
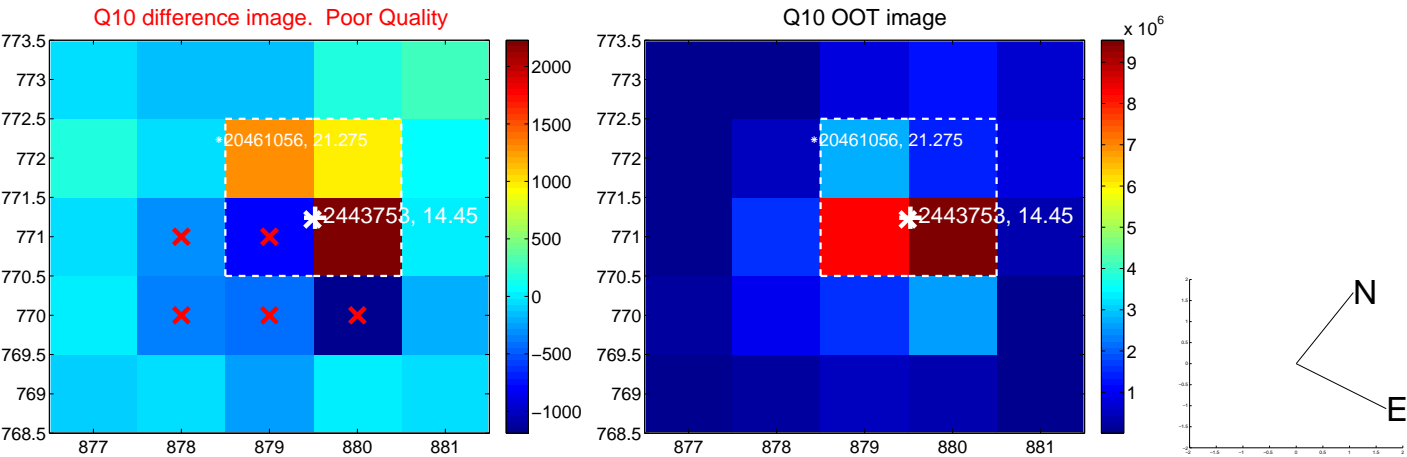
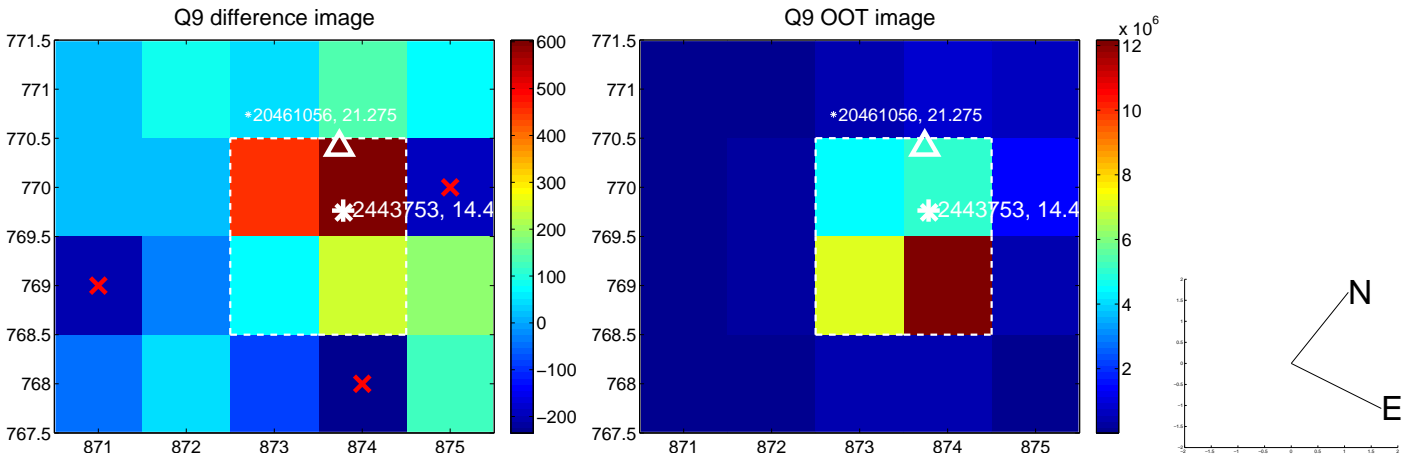
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



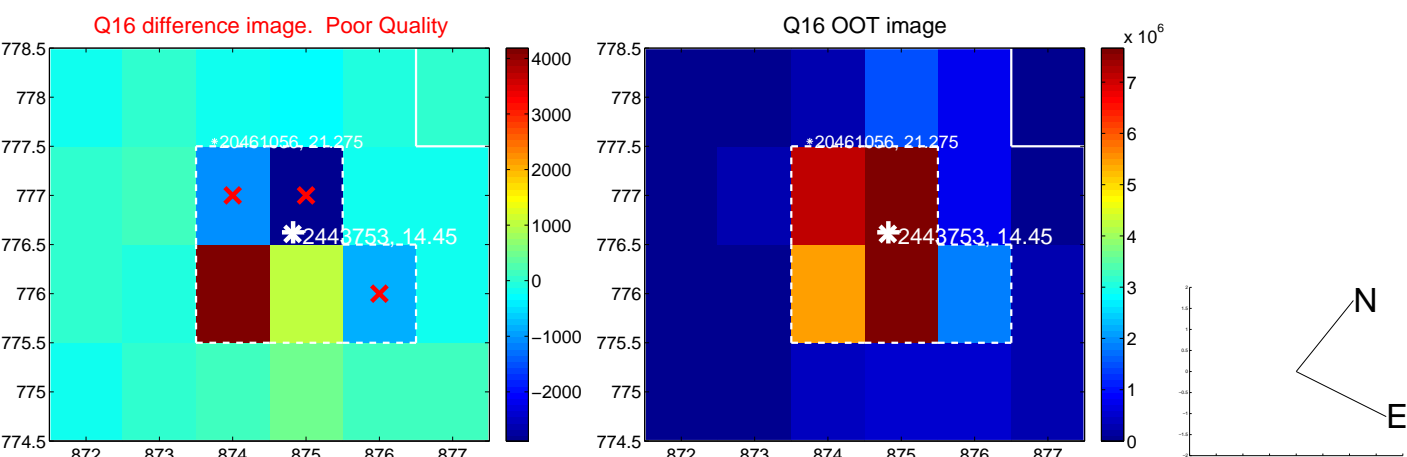
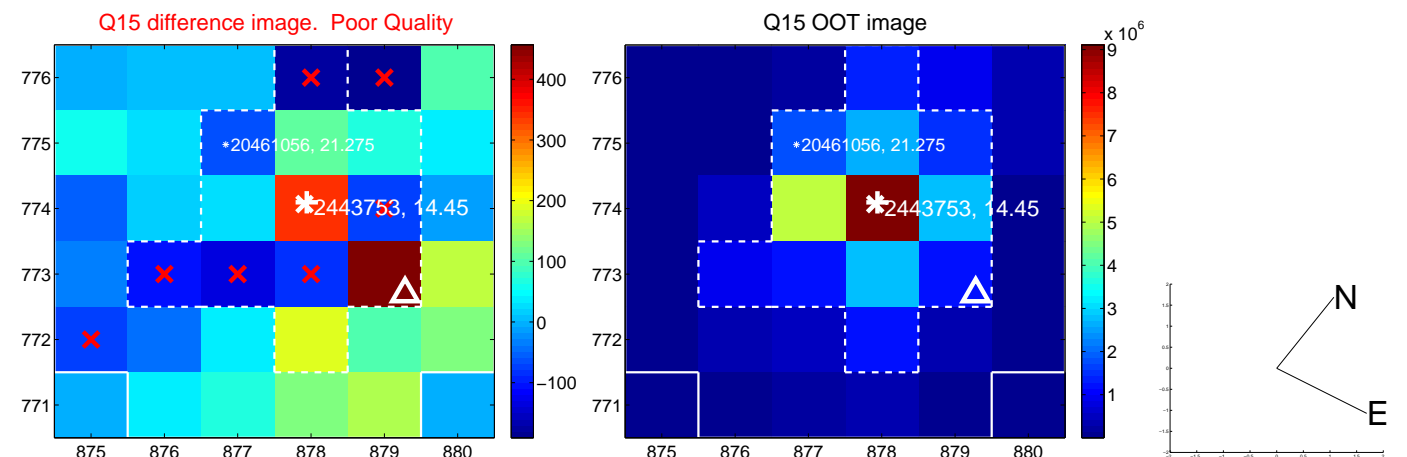
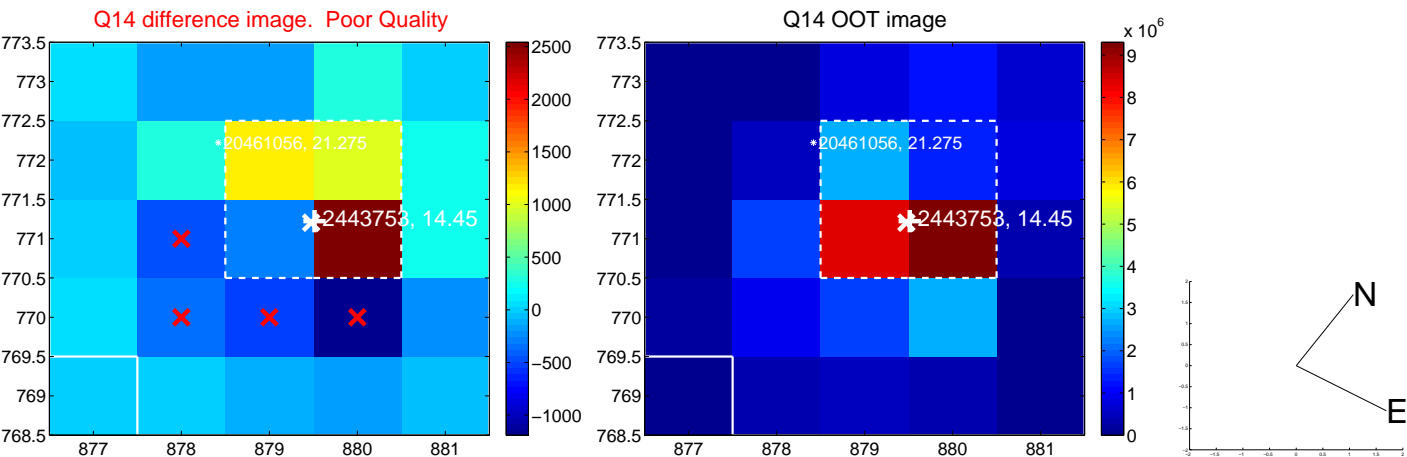
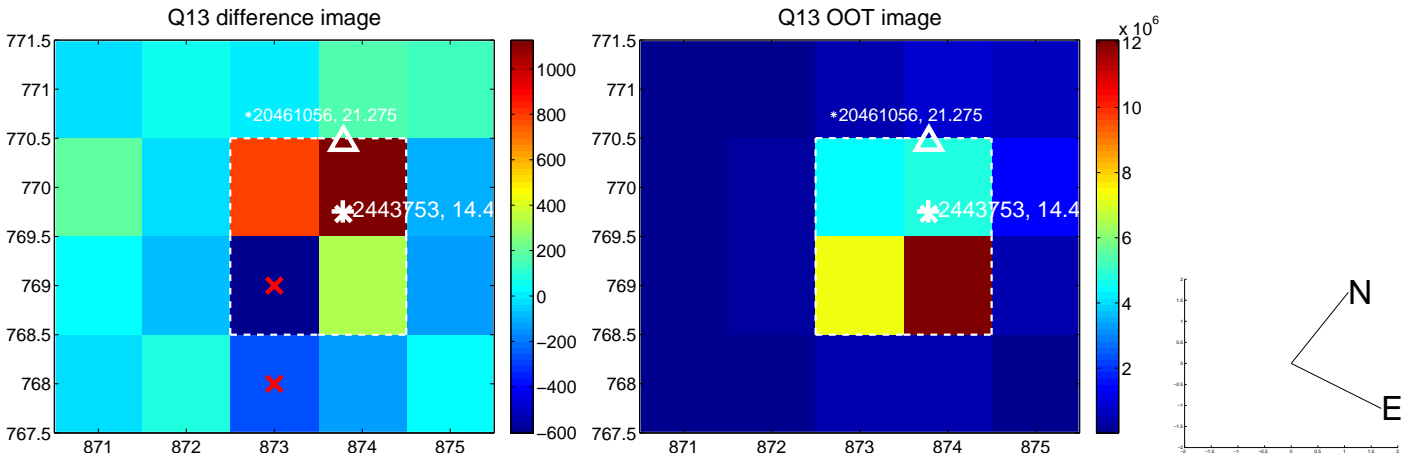
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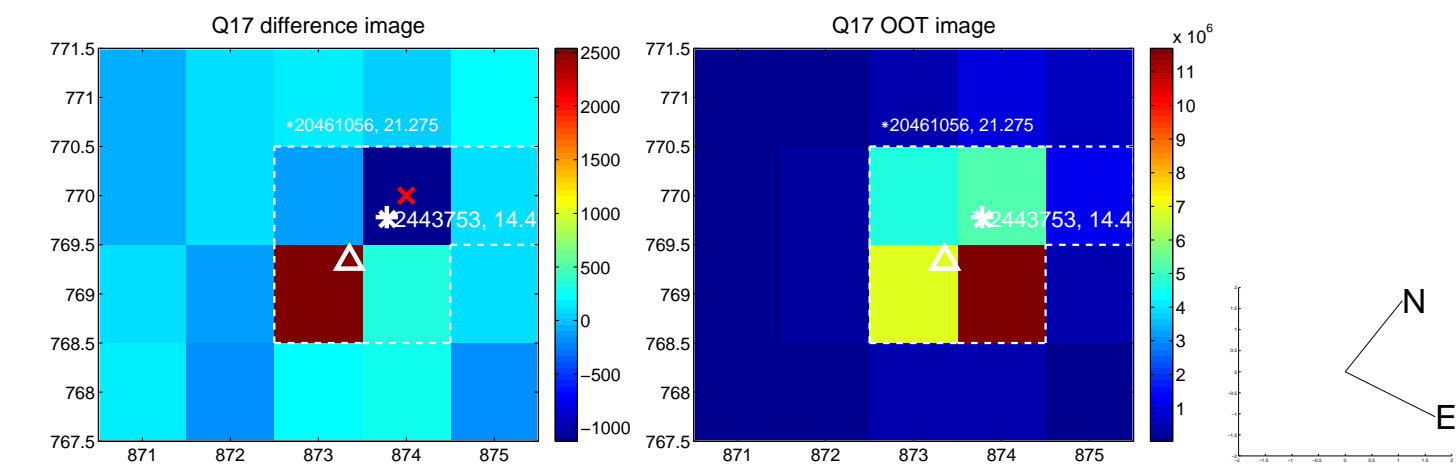
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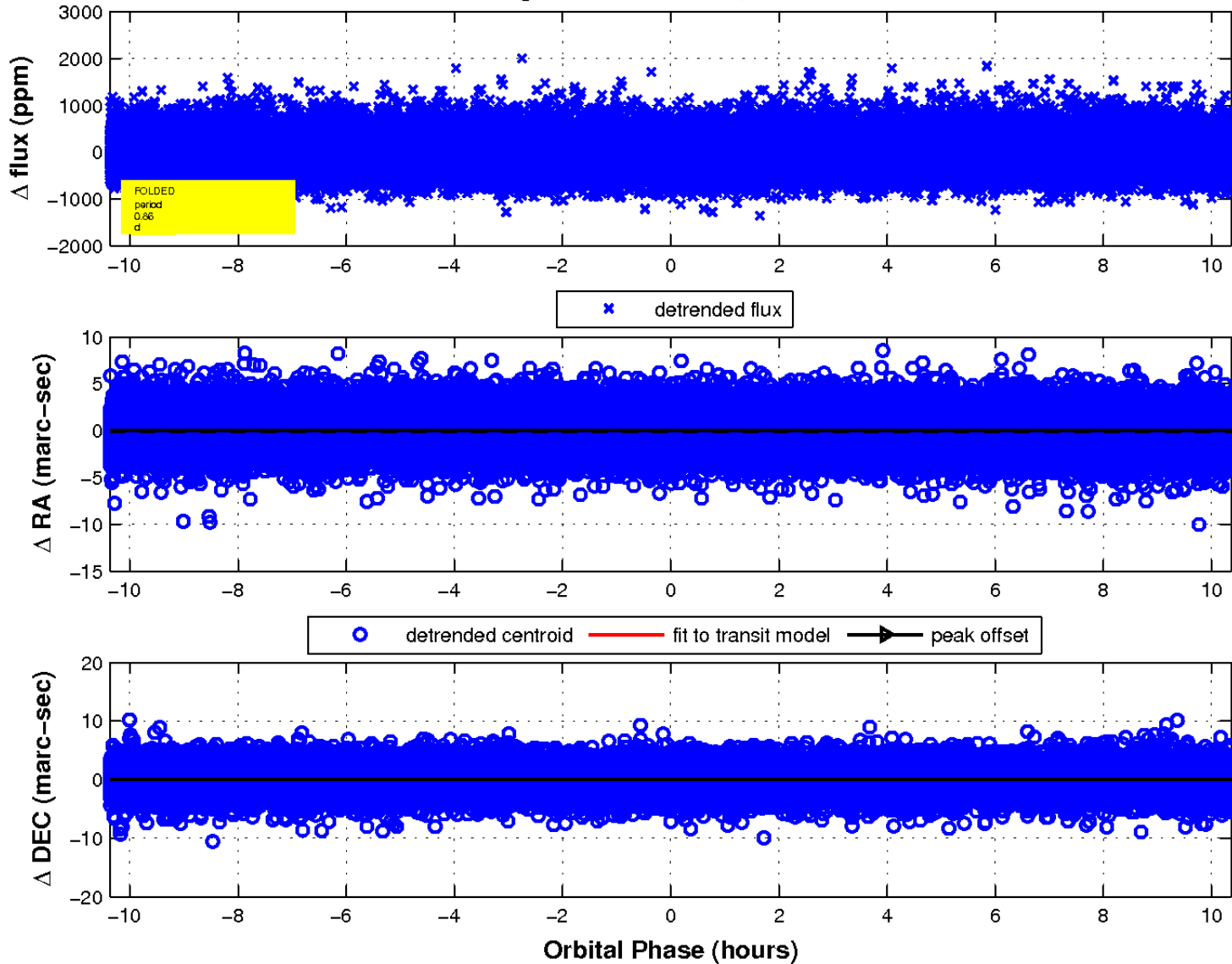
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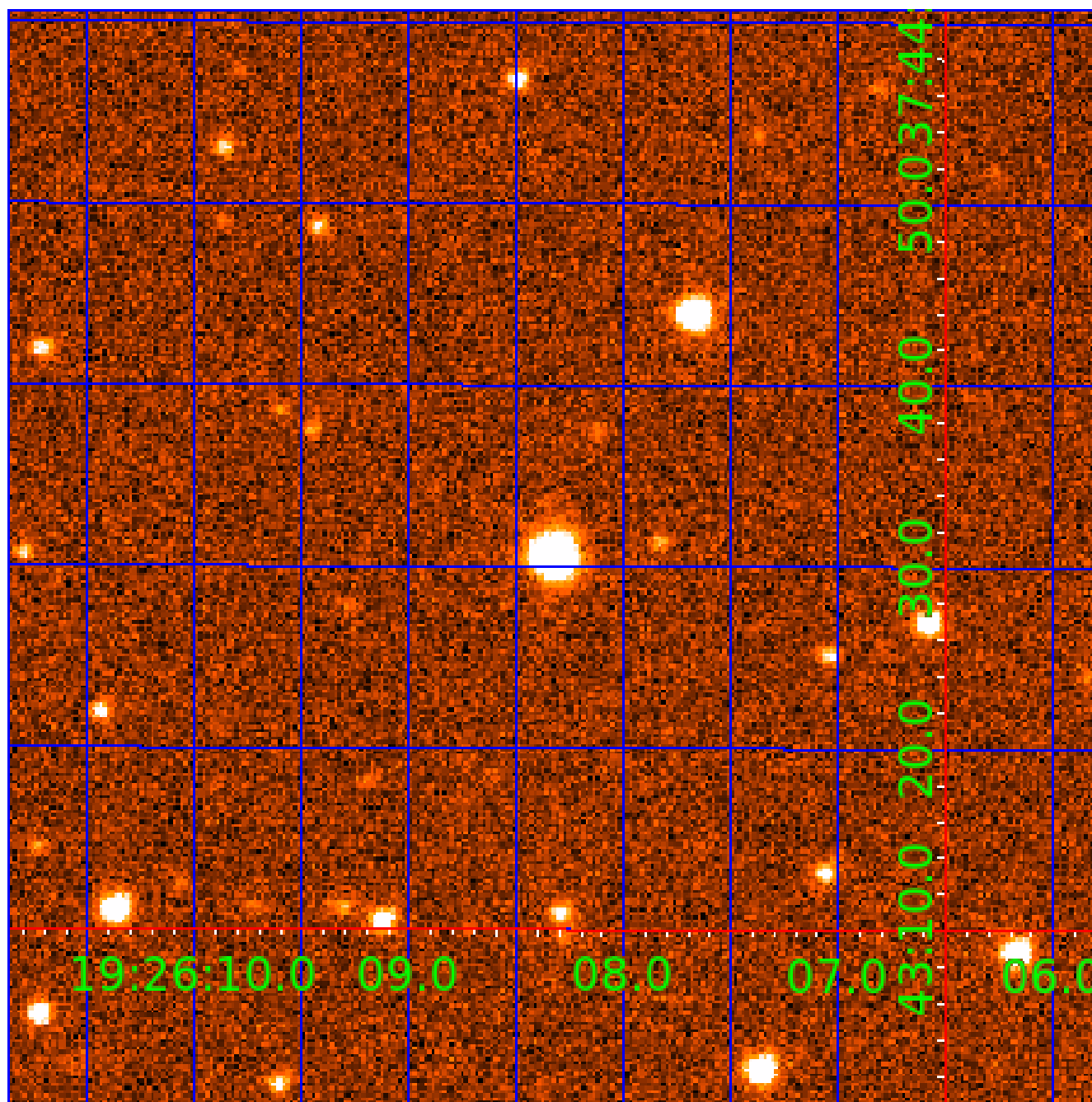


fluxWeightedCentroids, Planet 1 of 8



UKIRT Image

Declination



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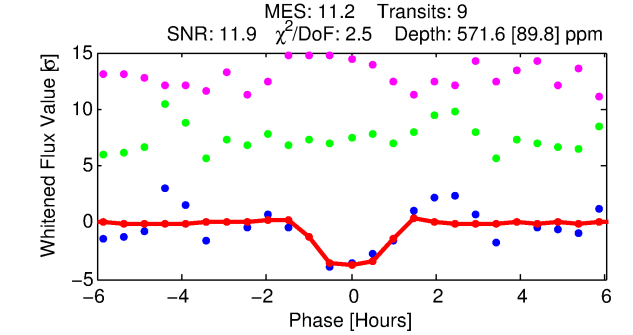
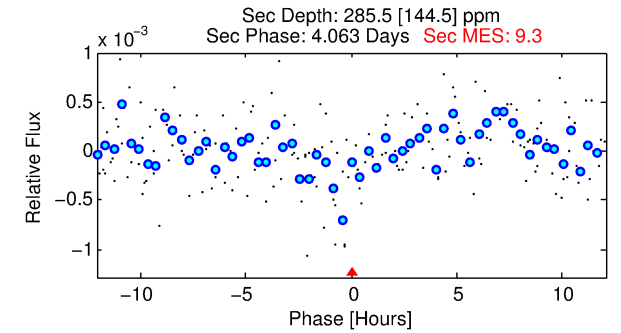
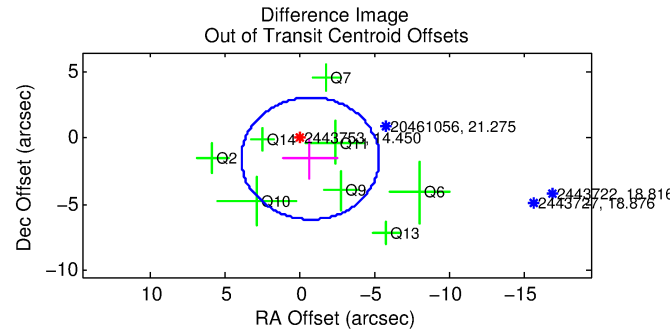
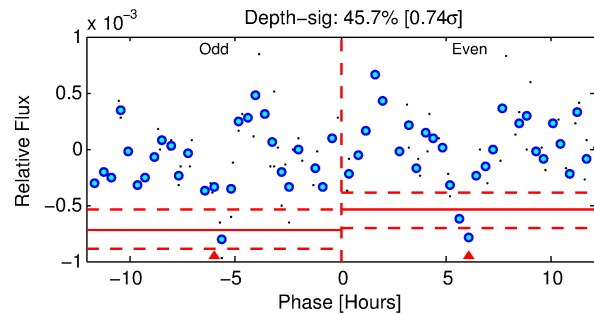
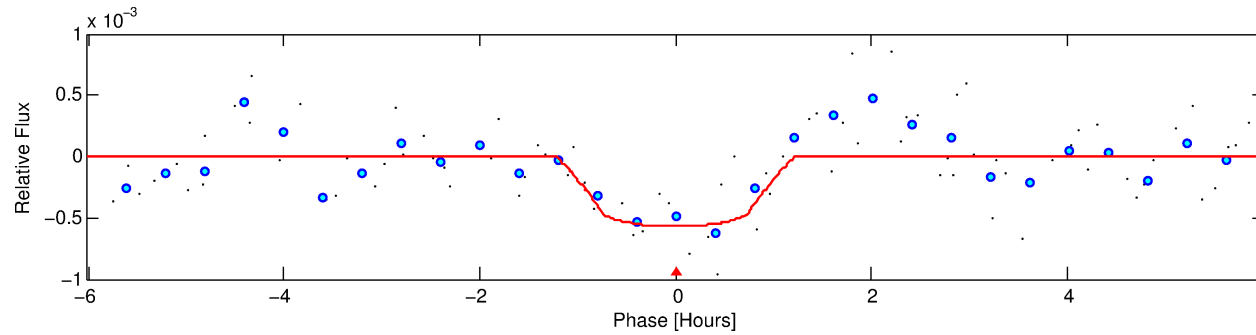
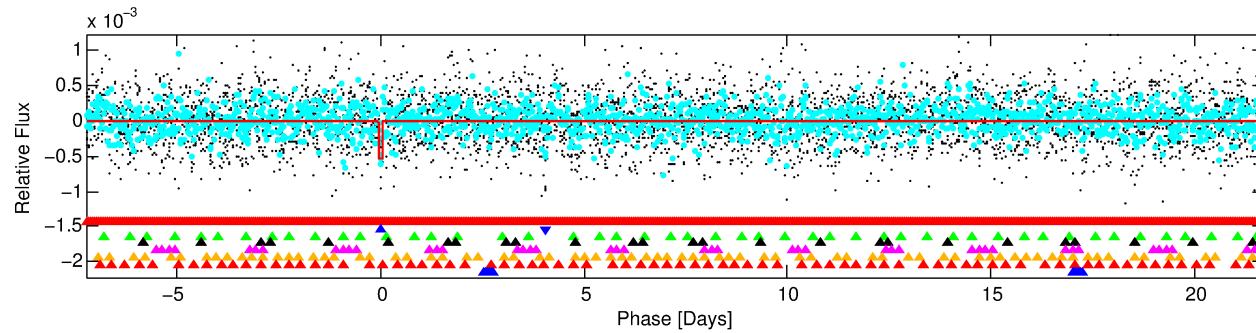
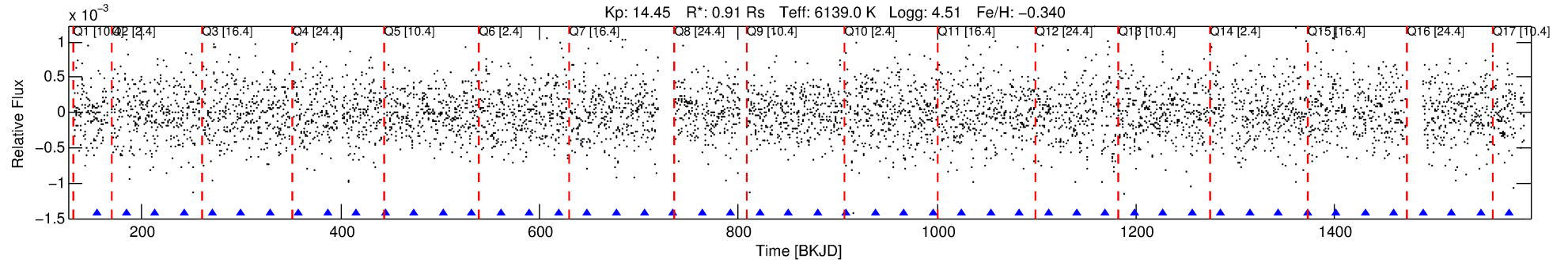
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002443753-02

No Significant Match Found

DV One-Page Summary

KIC: 2443753 Candidate: 2 of 8 Period: 28.984 d



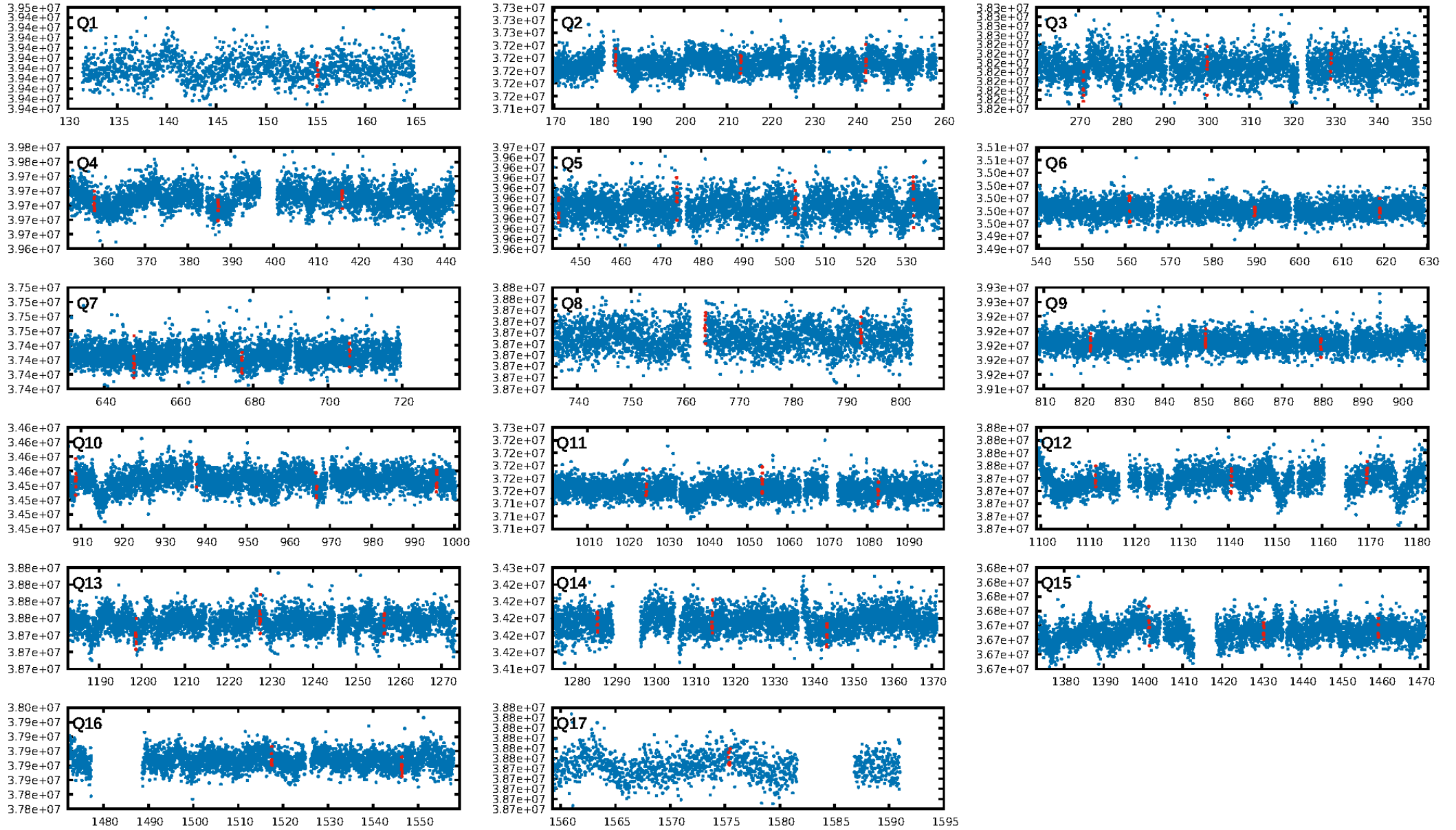
DV Fit Results:

Period = 28.98358 [0.00039] d
Epoch = 155.2044 [0.0106] BKJD
Rp/R* = 0.0222 [0.0519]
a/R* = 108.37 [1283.05]
b = 0.28 [38.86]
Seff = 31.27 [11.62]
Teff = 603 [56] K
Rp = 2.20 [5.20] Re
a = 0.1840 [0.0440] AU
Ag = 1093.91 [5167.02] [0.21 σ]
Teffp = 5361 [6316] K [0.75 σ]

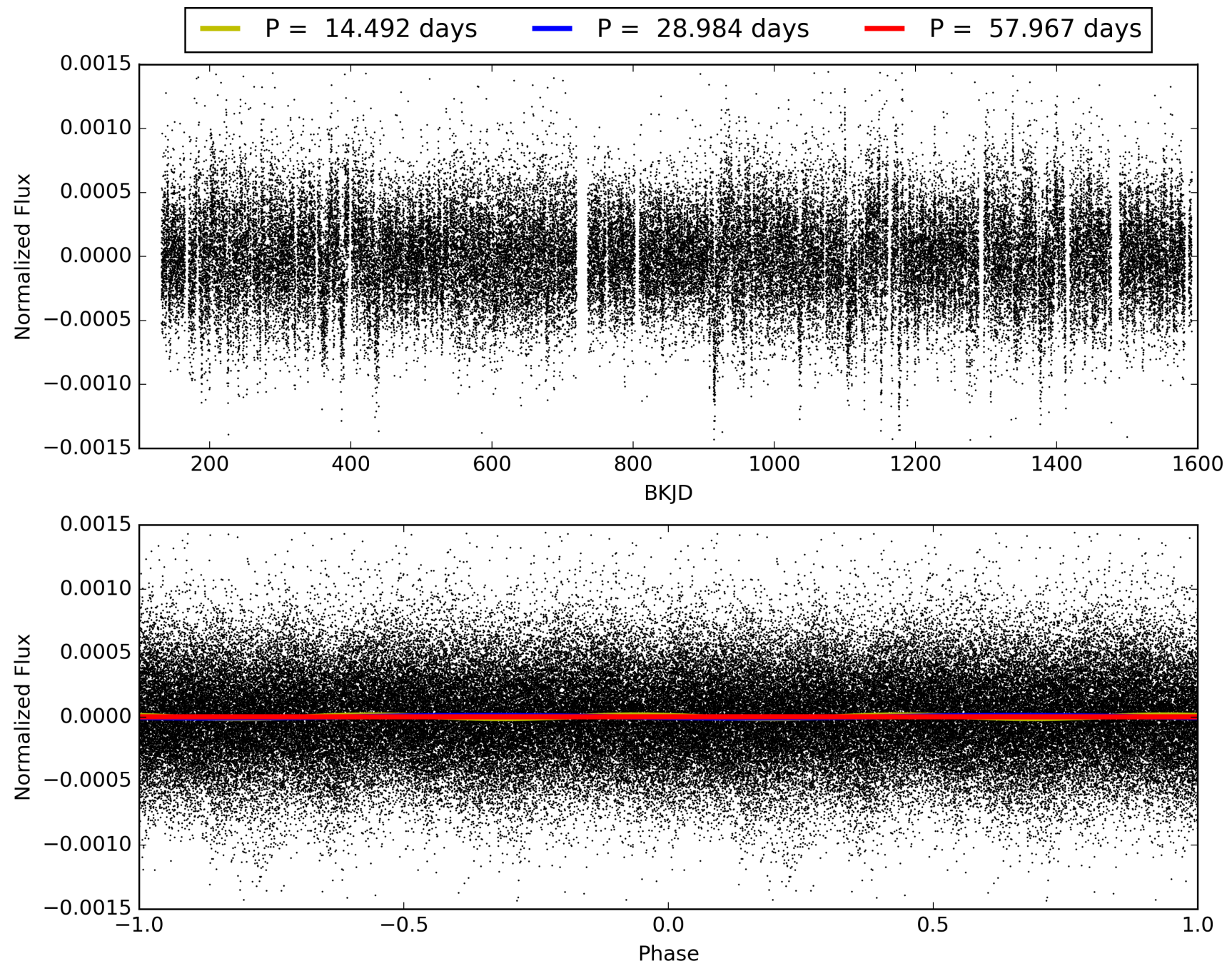
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [68.65 σ]
LongPeriod-sig: 100.0% [9.45 σ]
ModelChiSquare2-sig: 7.8%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 0.5449
Centroid-sig: 5.2%
Centroid-so: 0.786 arcsec [1.25 σ]
OotOffset-rm: 1.709 arcsec [1.11 σ]
OotOffset-st: 4/2/0/2 [8]
KicOffset-rm: 1.579 arcsec [1.01 σ]
KicOffset-st: 4/2/0/2 [8]
DiffImageQuality-fgm: 0.00 [0/8]
DiffImageOverlap-fno: 0.24 [4/17]

TCE 002443753-02, PDC Light Curves

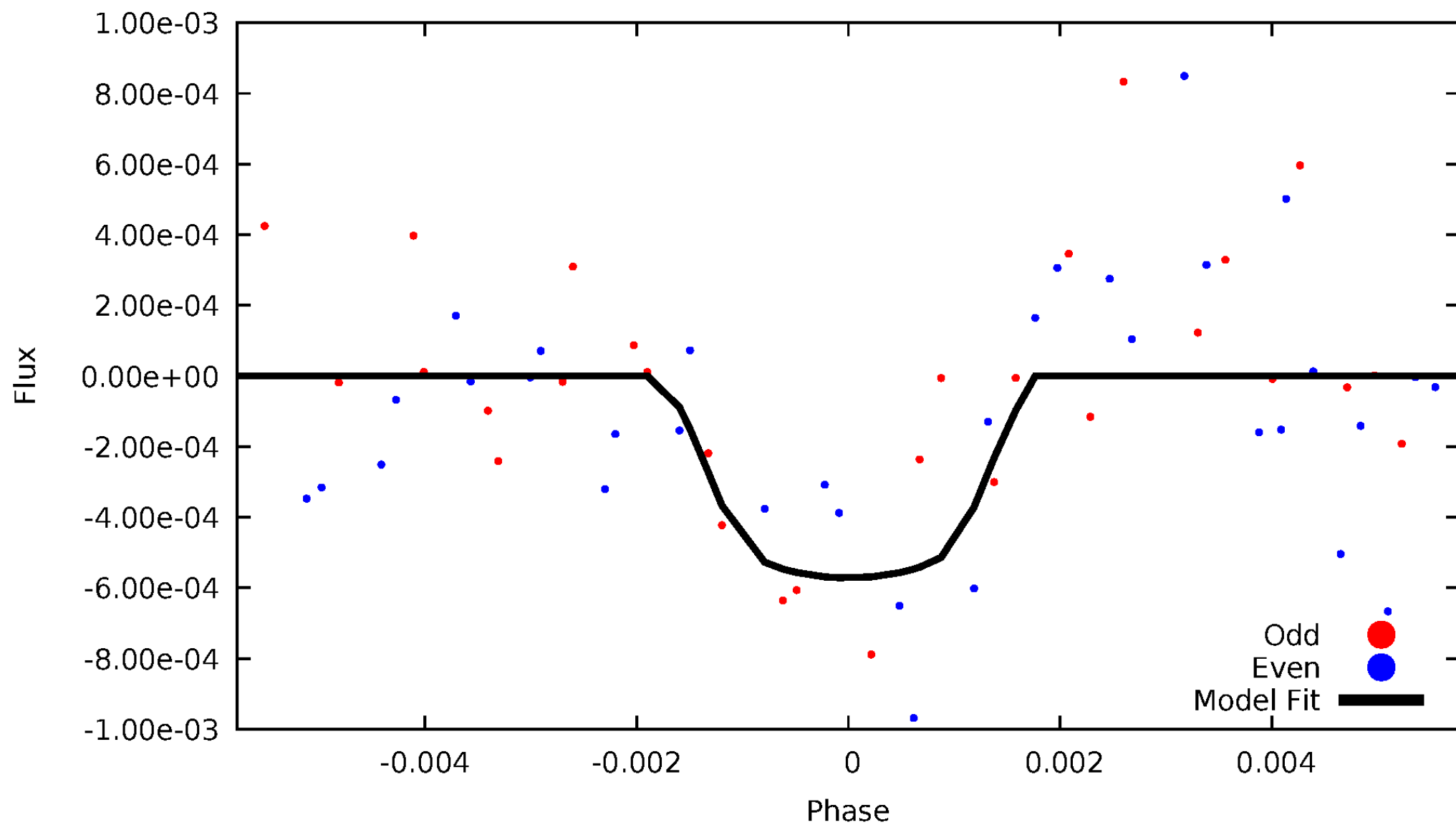


TCE 002443753-02



DV Odd/Even

TCE 002443753-02

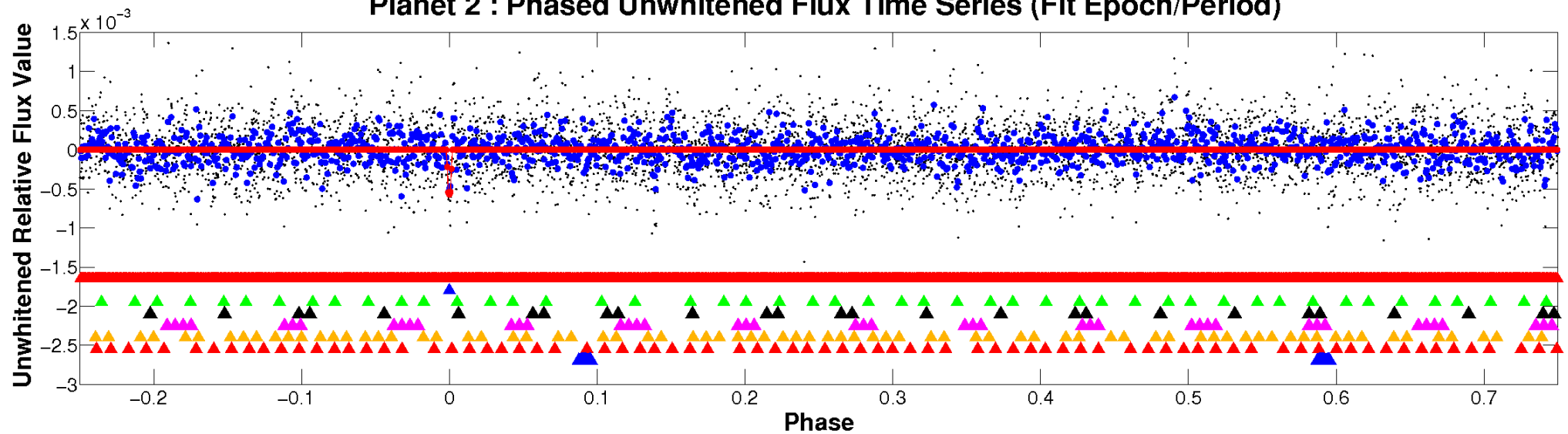


ALT Odd/Even

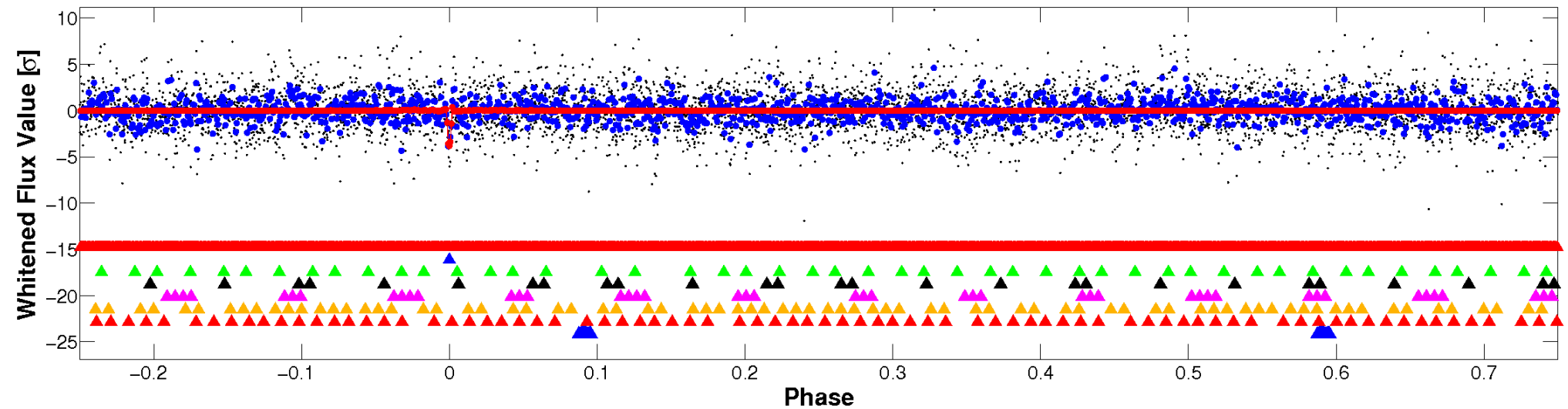
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

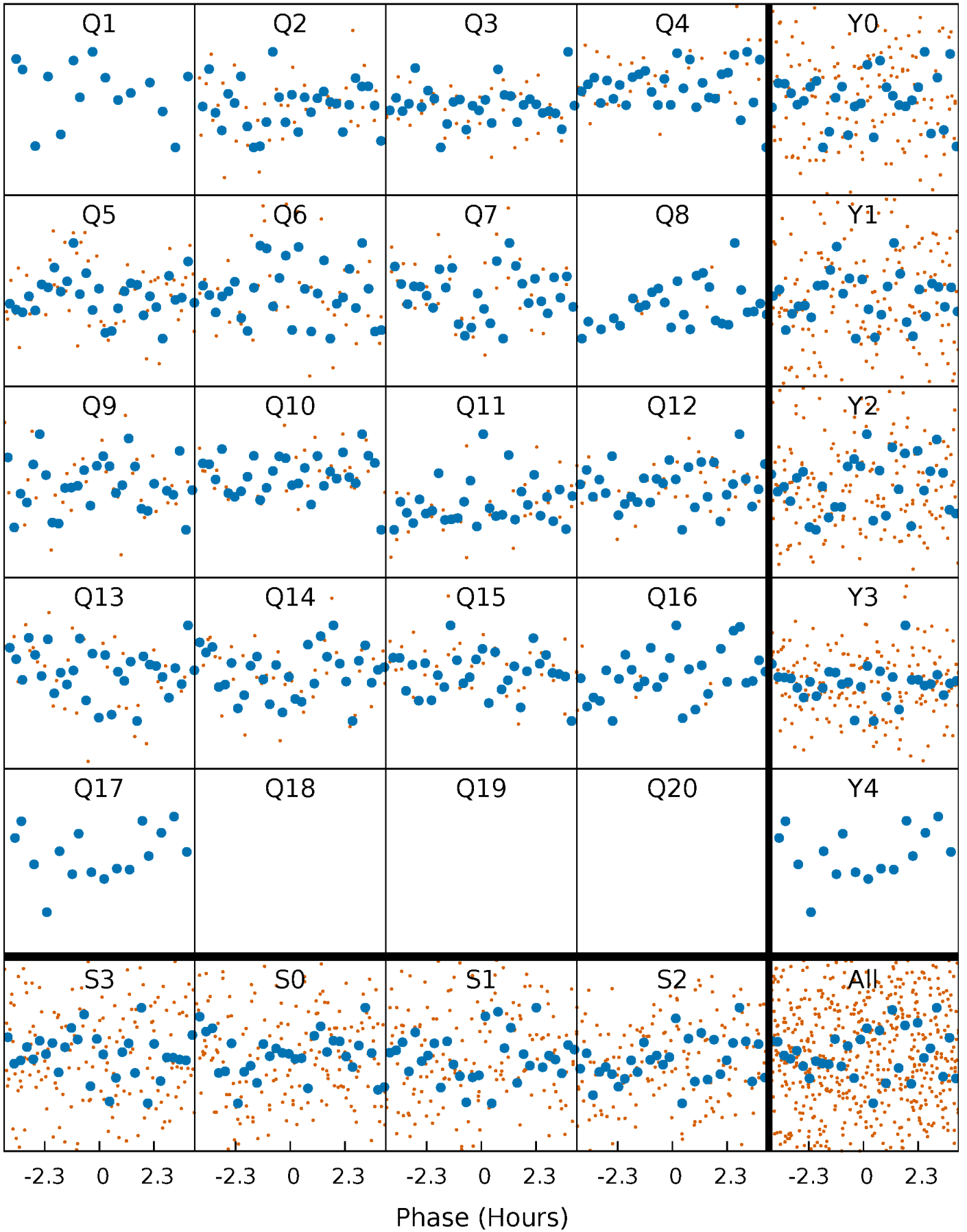


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



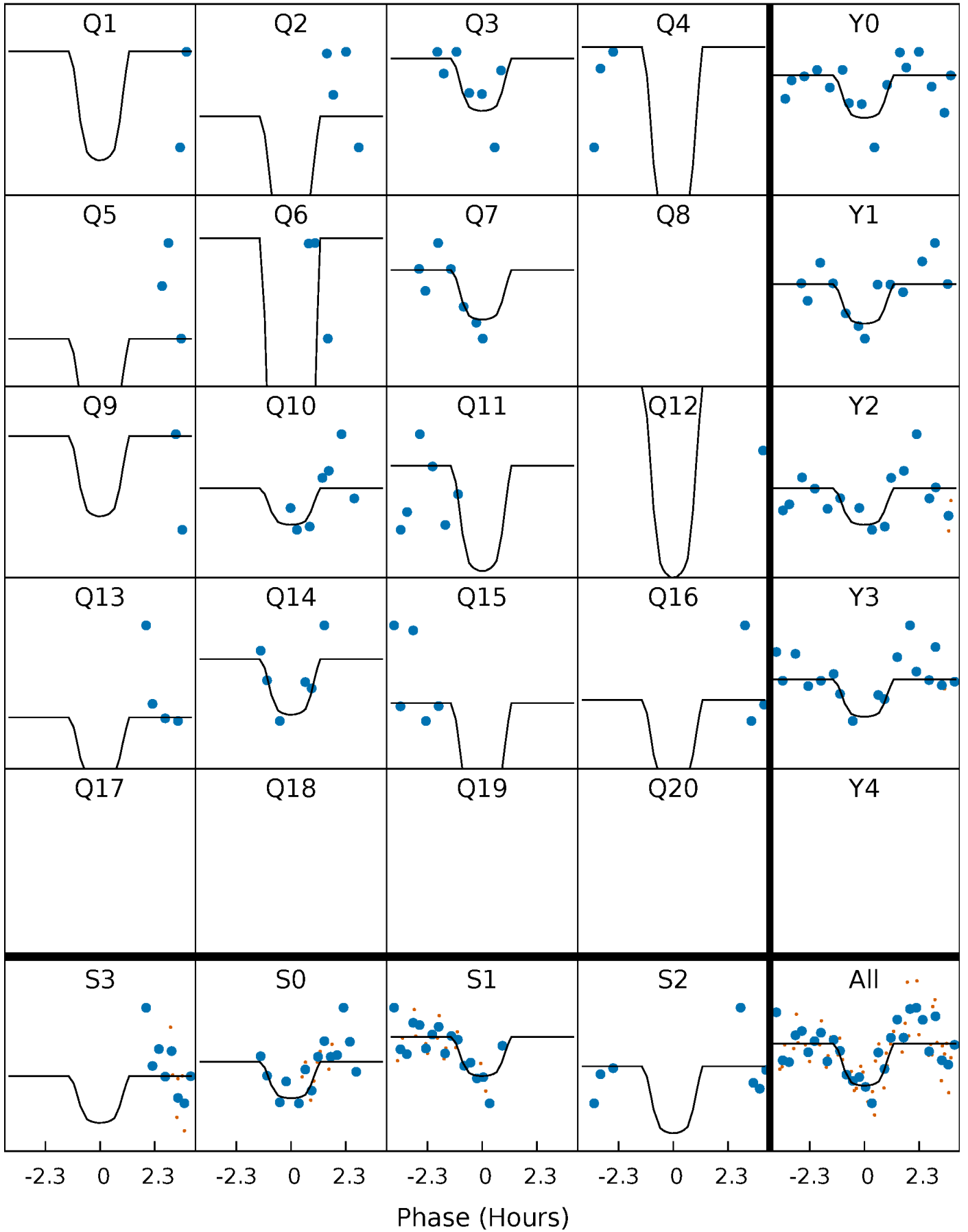
PDC Quarter-Phased Transit Curves

TCE 002443753-02 P= 28.983578 Days $T_0=155.204412$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 002443753-02 P= 28.983578 Days $T_0=155.204412$ (BKJD)

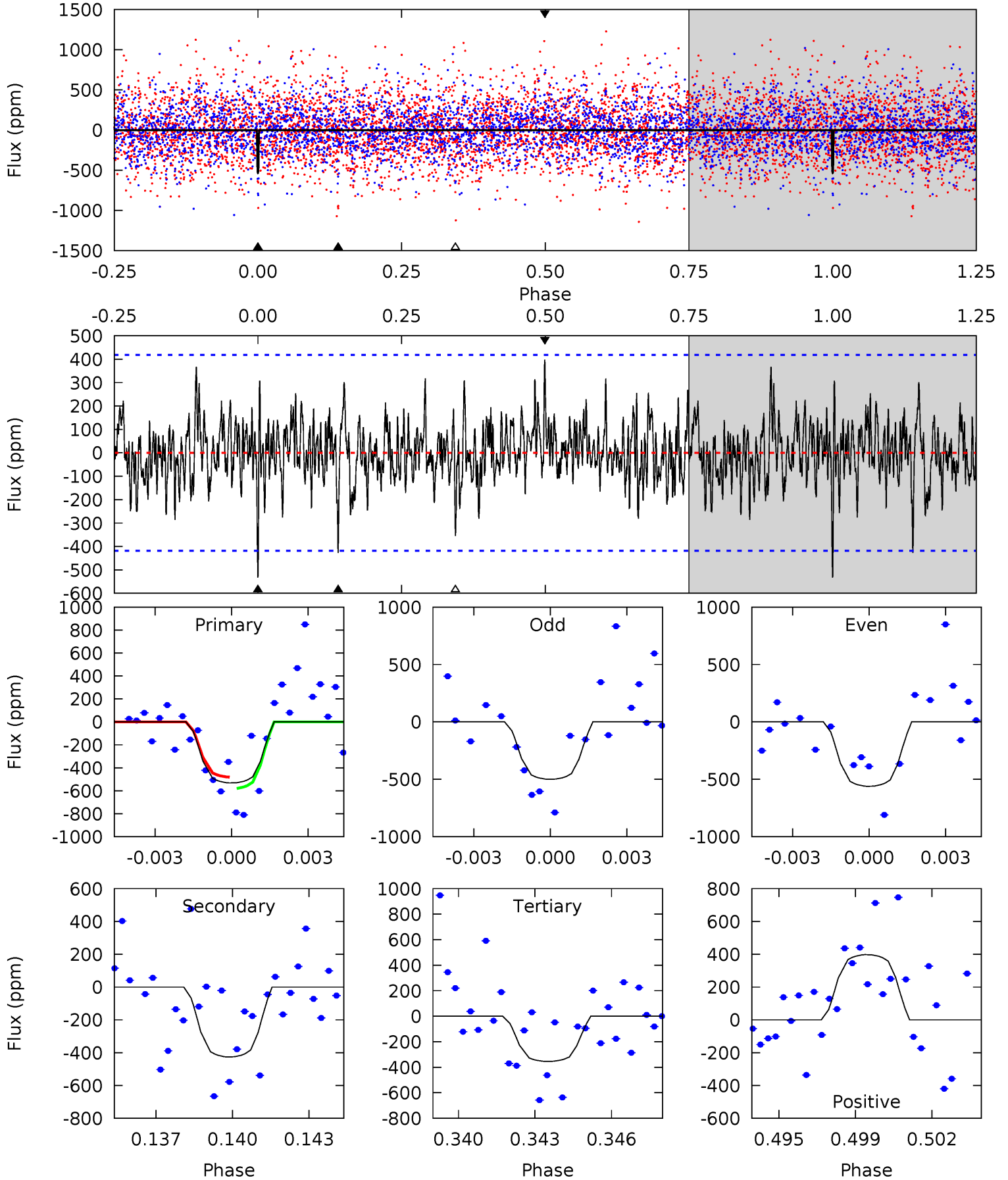


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

002443753-02, P = 28.983578 Days, E = 126.220834 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.67	5.34	4.44	4.98	5.24	2.95	1.33	2.23	1.68	0.90	0.36	0.38	0.82	0.43	0.62



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 002443753

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6139^{+171}_{-192}	$4.513^{+0.048}_{-0.192}$	$-0.340^{+0.300}_{-0.350}$	$0.912^{+0.258}_{-0.086}$	$0.991^{+0.117}_{-0.129}$	$1.837^{+0.456}_{-0.938}$
	+3%/-3%	+1%/-4%	+88%/-103%	+28%/-9%	+12%/-13%	+25%/-51%
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 002443753-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-427 ± 80	$4.37^{+4.74}_{-3.04}$	861^{+59}_{-41}	4482^{+3726}_{-1007}	407^{+4074}_{-314}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

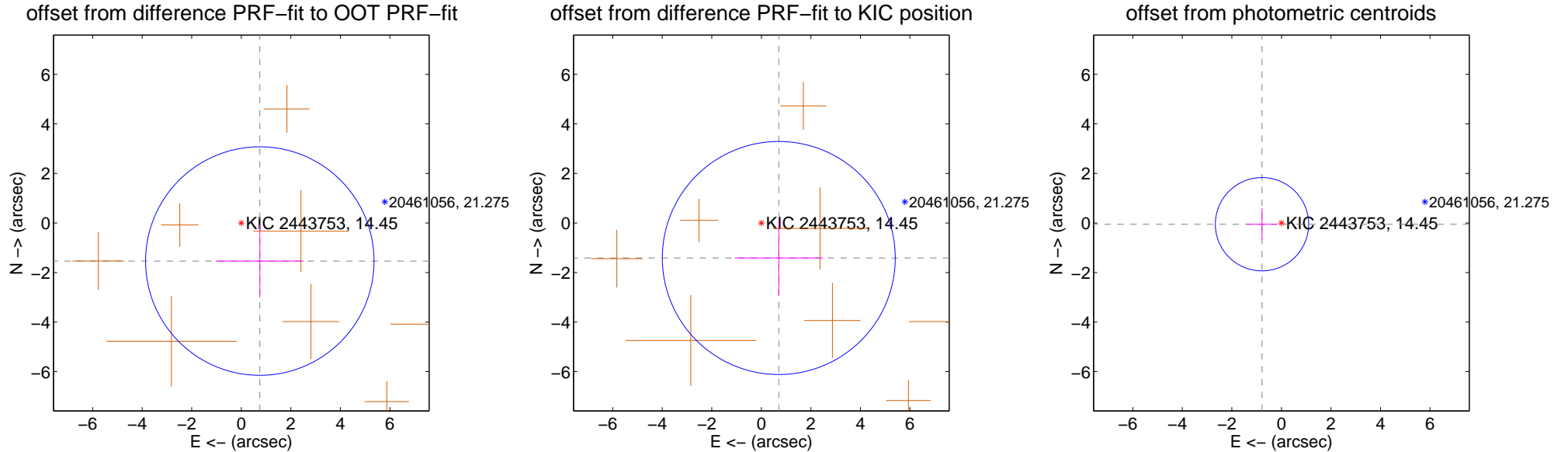
DV Centroid Data

Supplemental centroid analysis for 002443753-02. Kepler magnitude: 14.45. Transit SNR 11.93

There are 0 quarters with good PRF difference image offsets

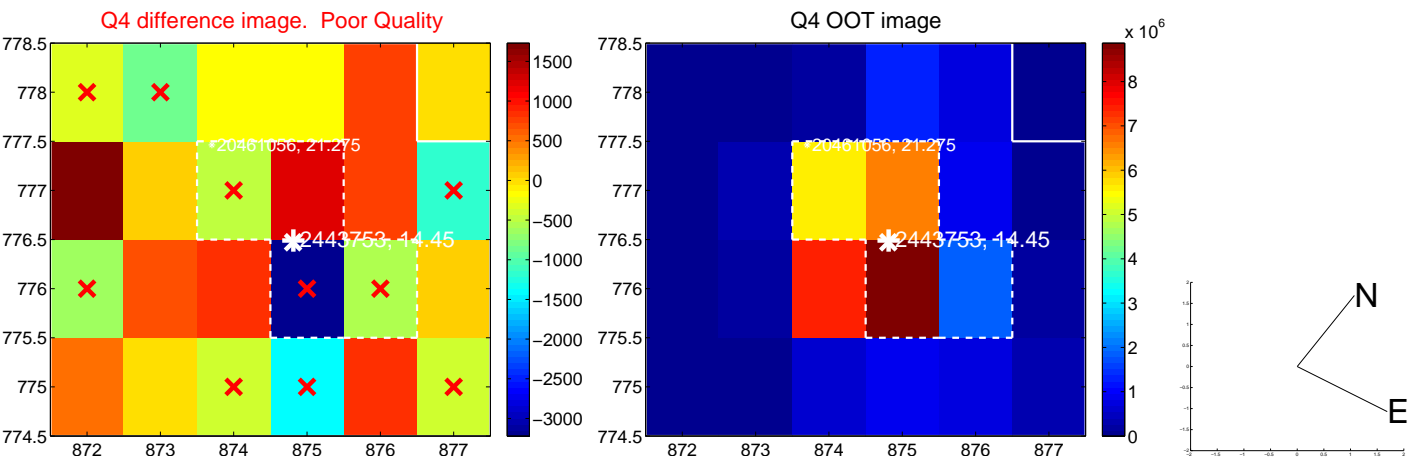
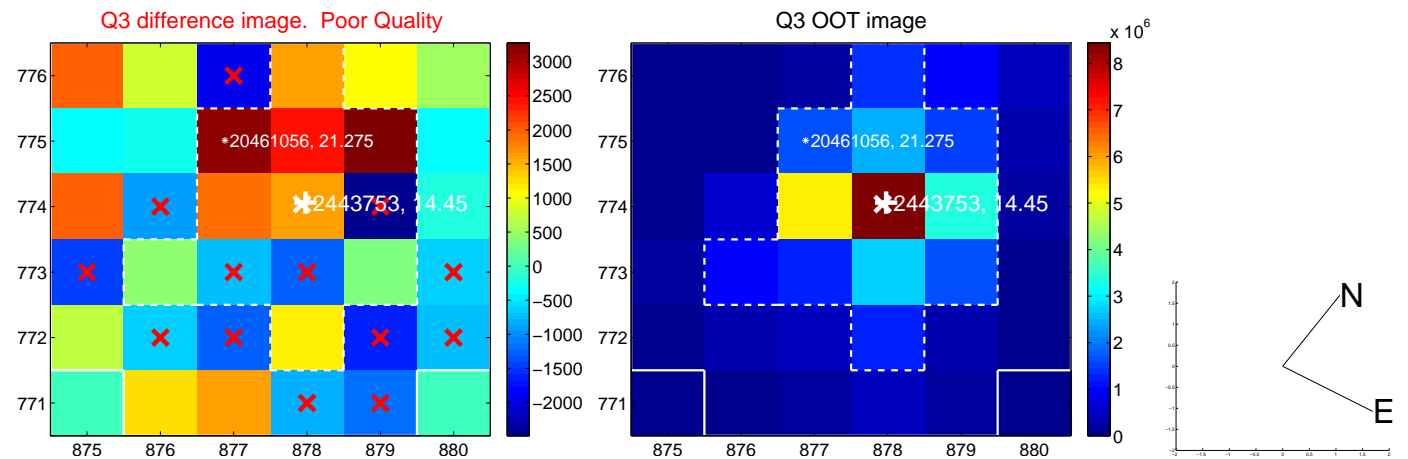
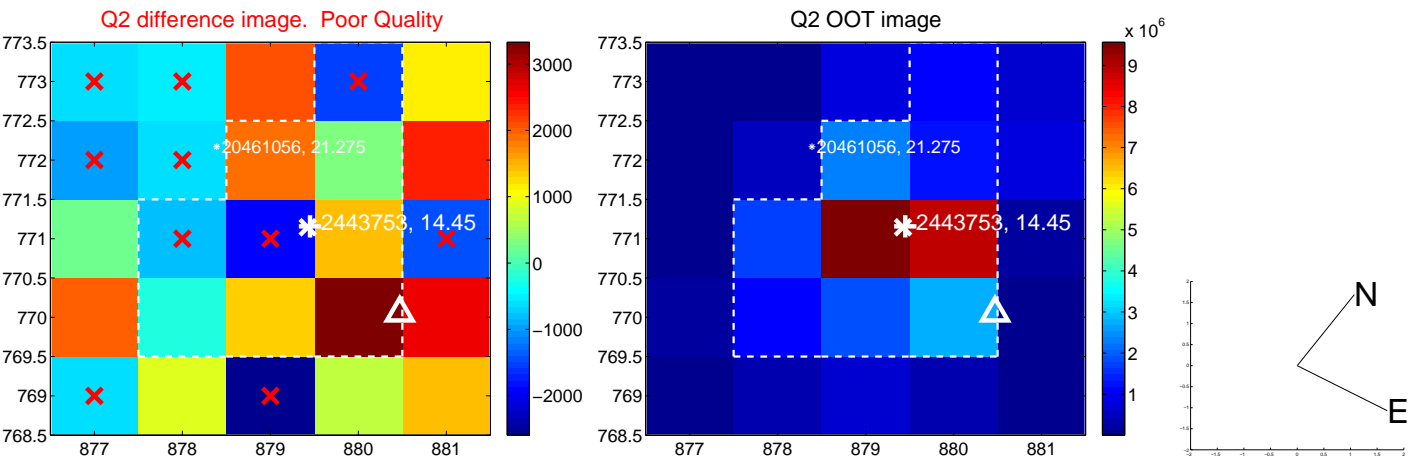
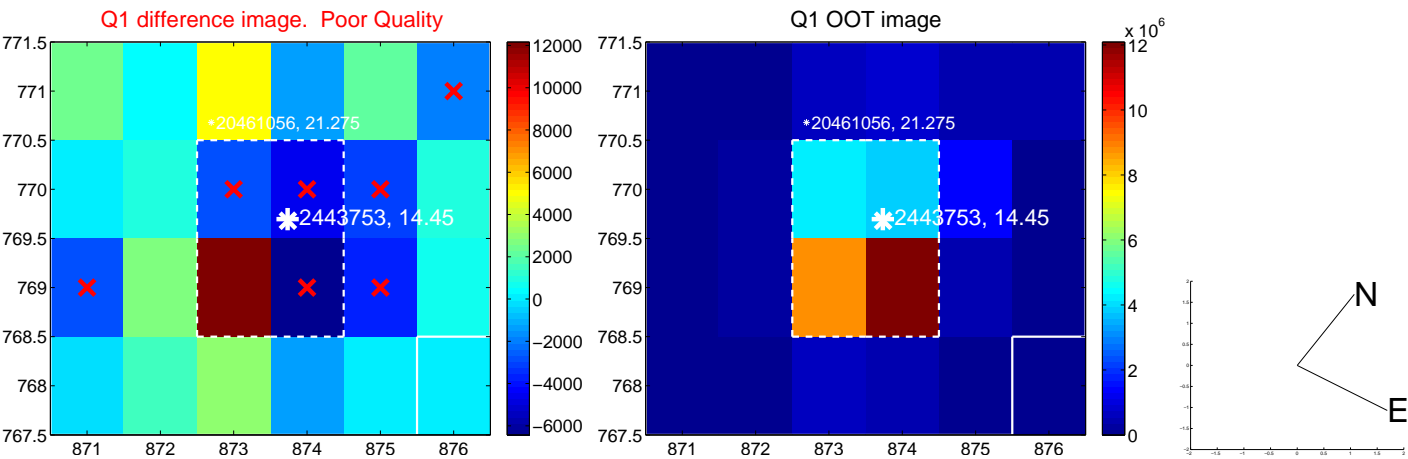
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.709 ± 1.537	1.11	-0.748 ± 1.776	-1.537 ± 1.475
PRF-fit source offset from KIC position	1.579 ± 1.567	1.01	-0.704 ± 1.781	-1.414 ± 1.510
photometric centroid source offset	0.79 ± 0.63	1.25	0.78 ± 0.63	-0.05 ± 0.64

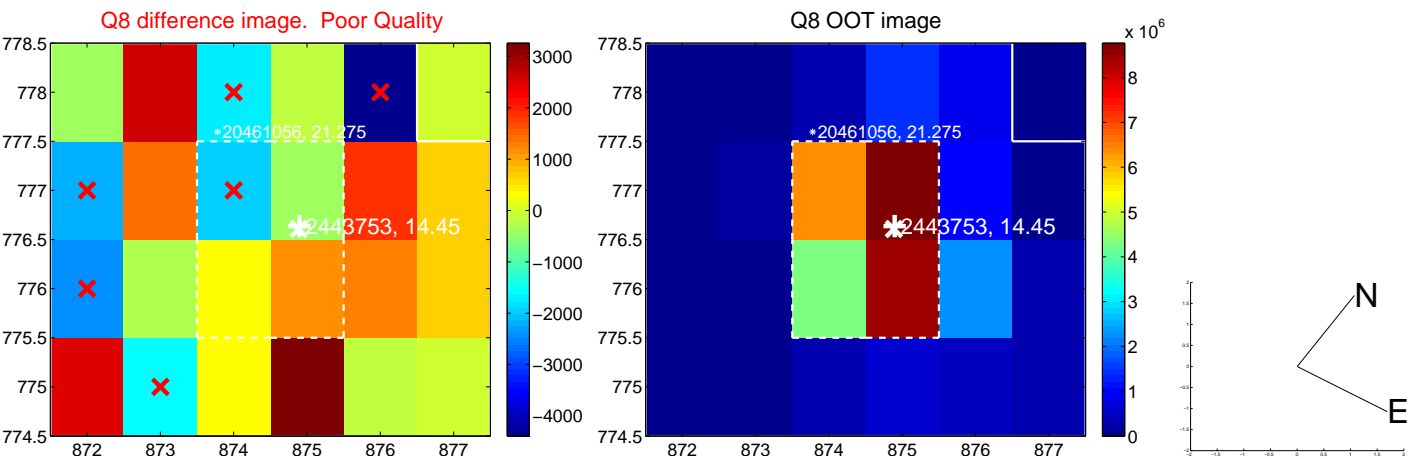
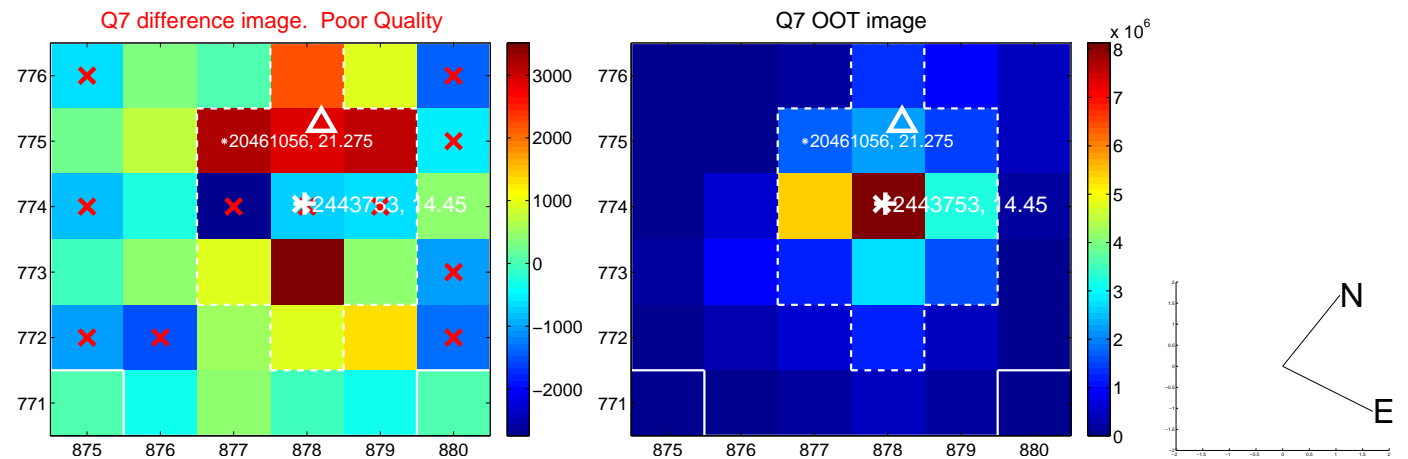
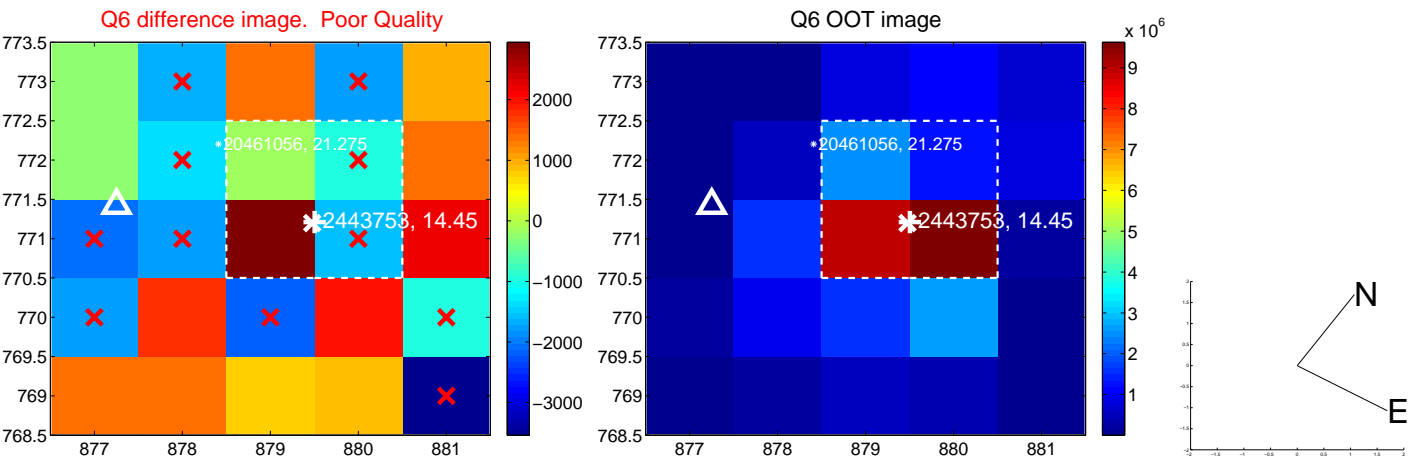
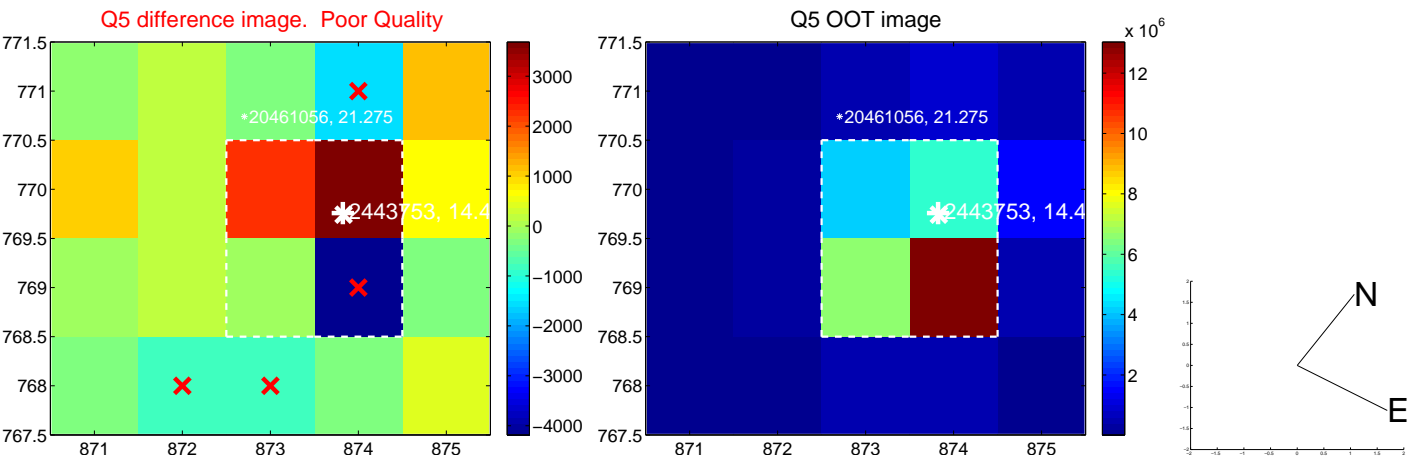


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

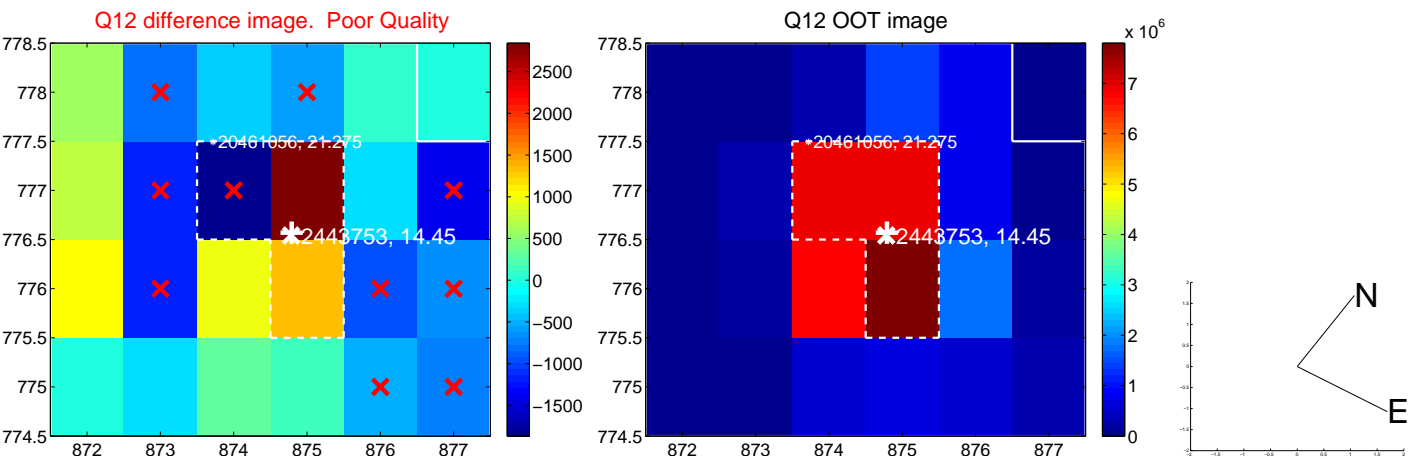
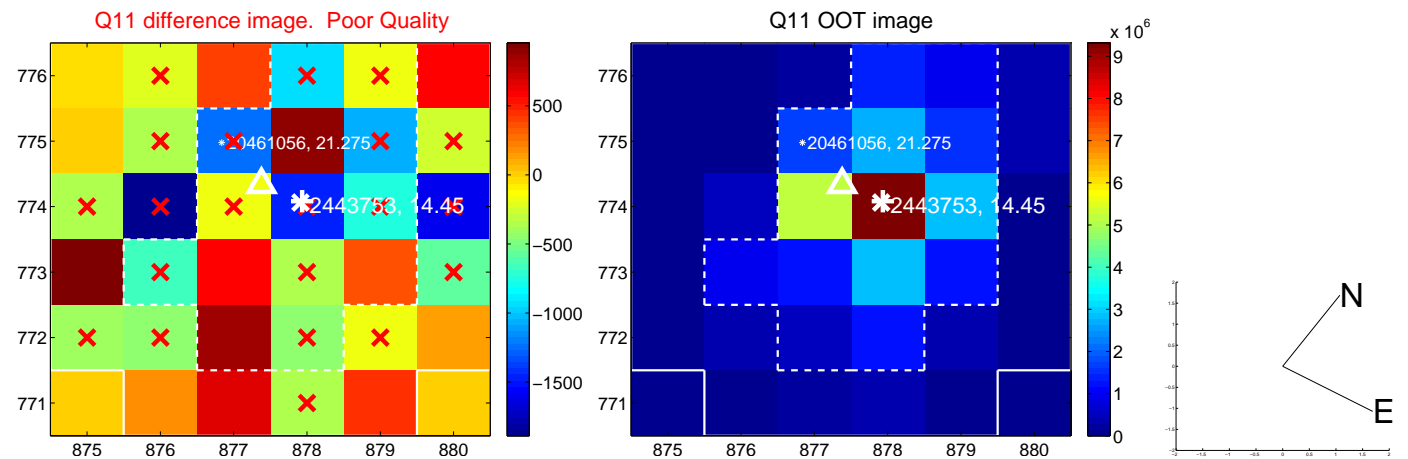
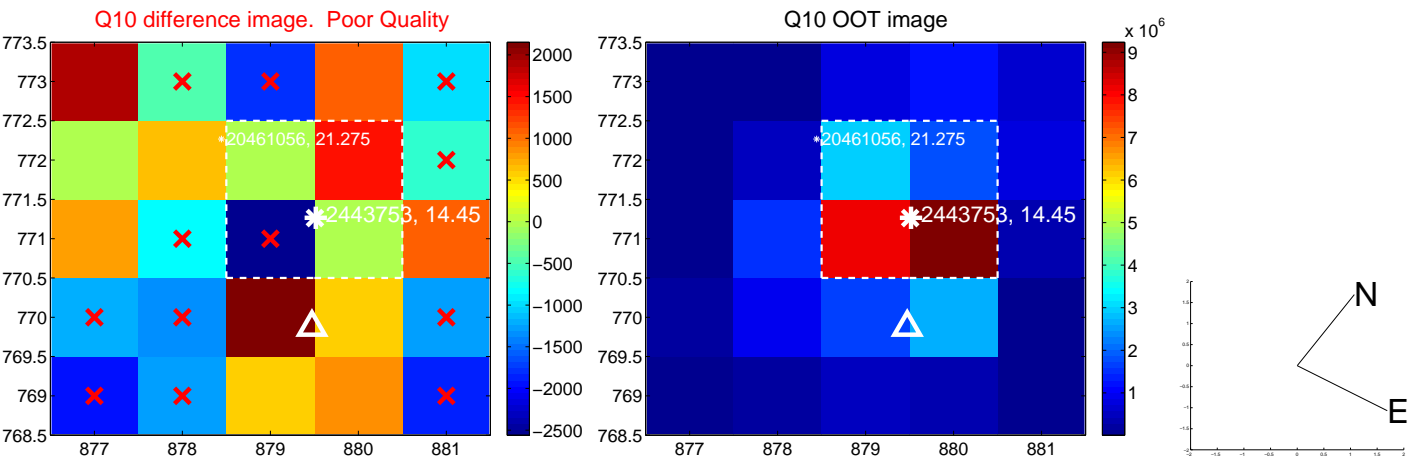
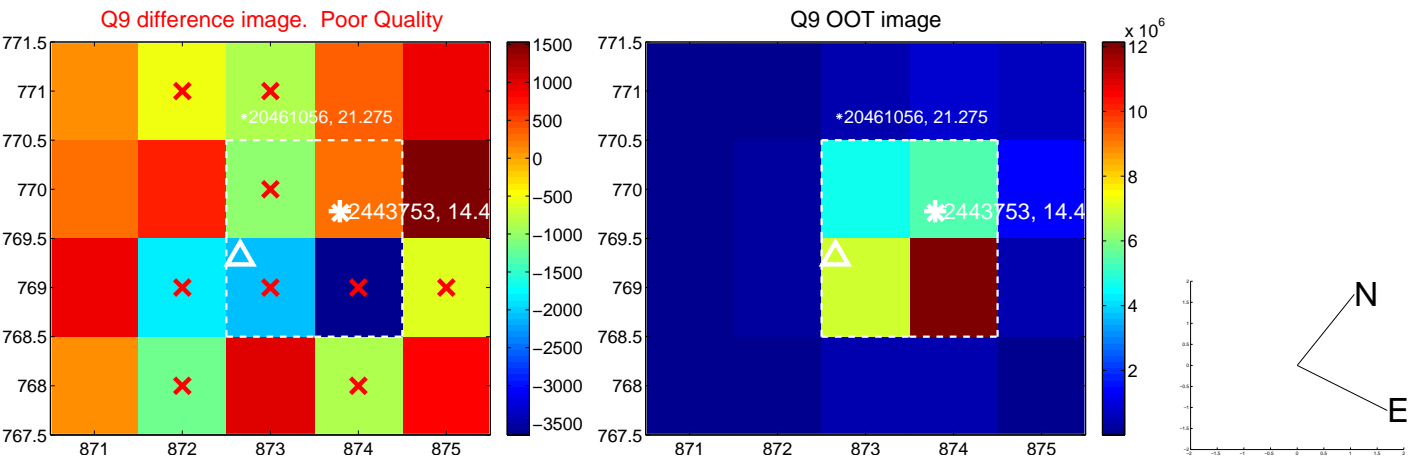
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



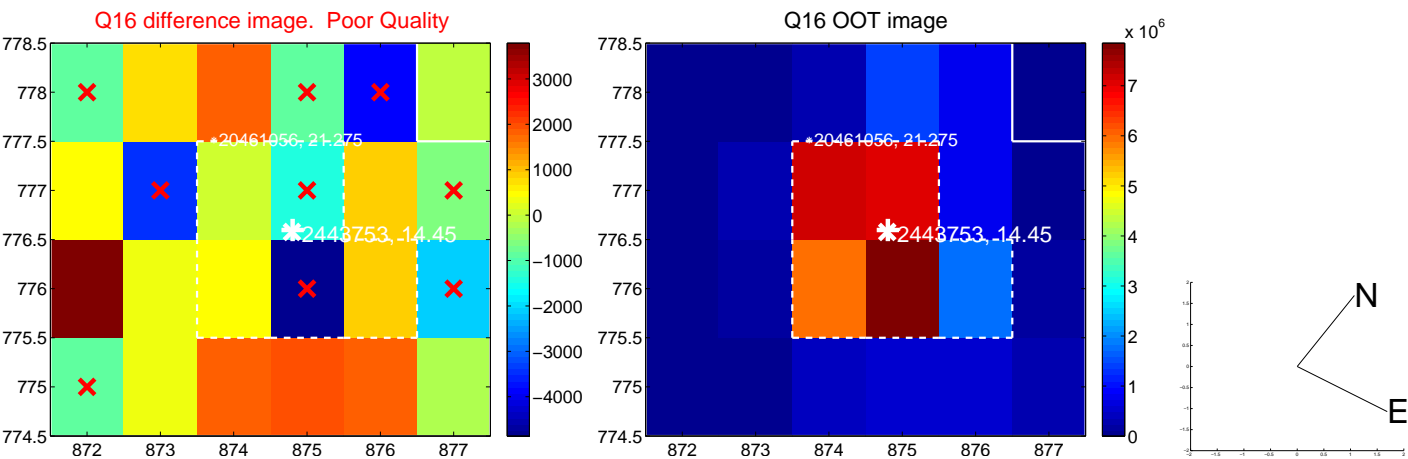
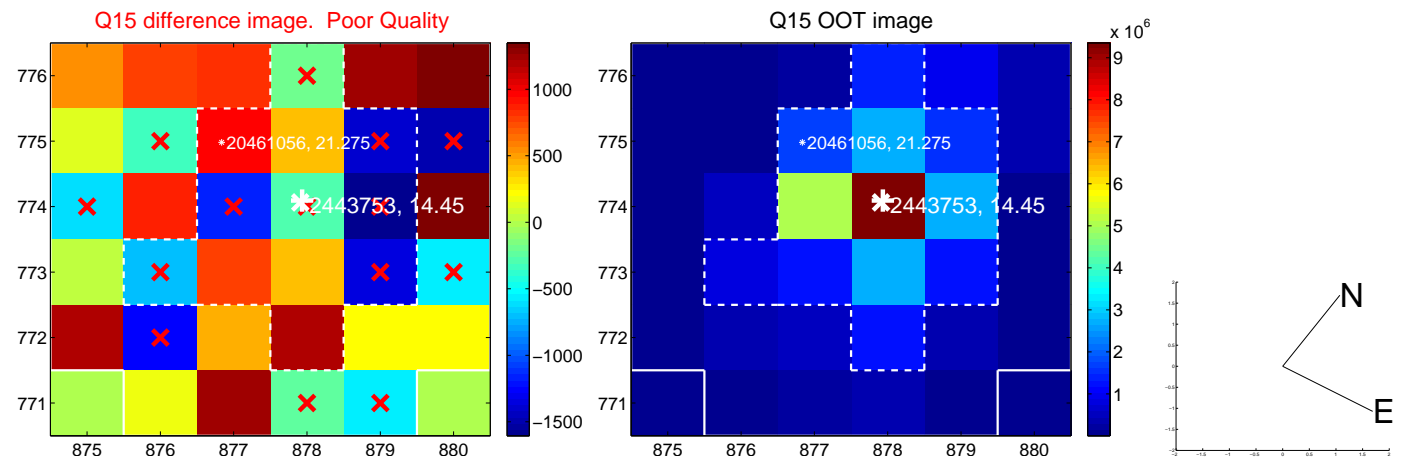
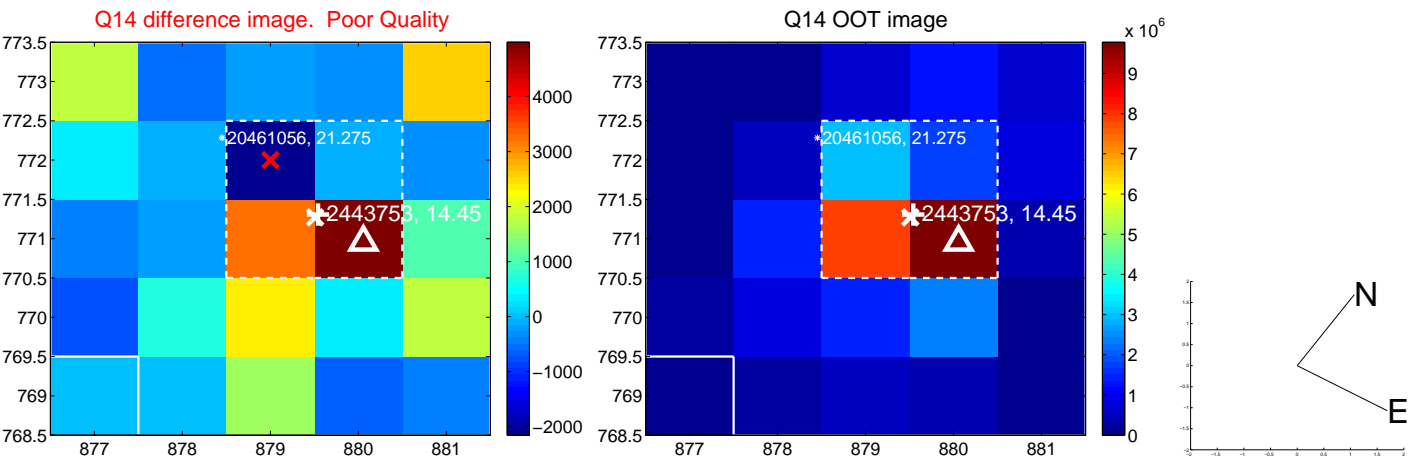
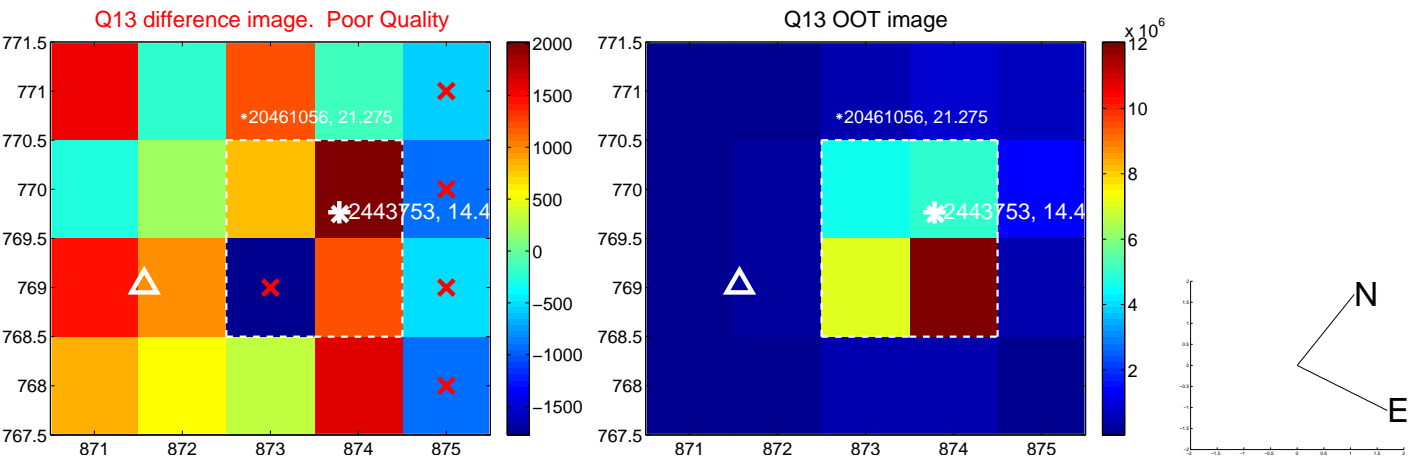
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



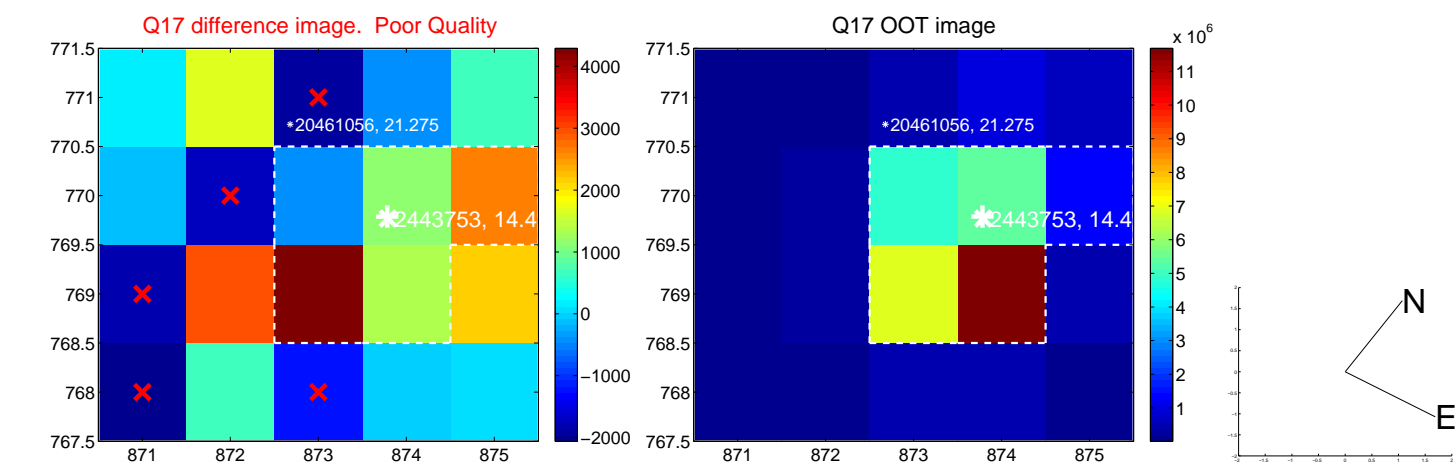
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



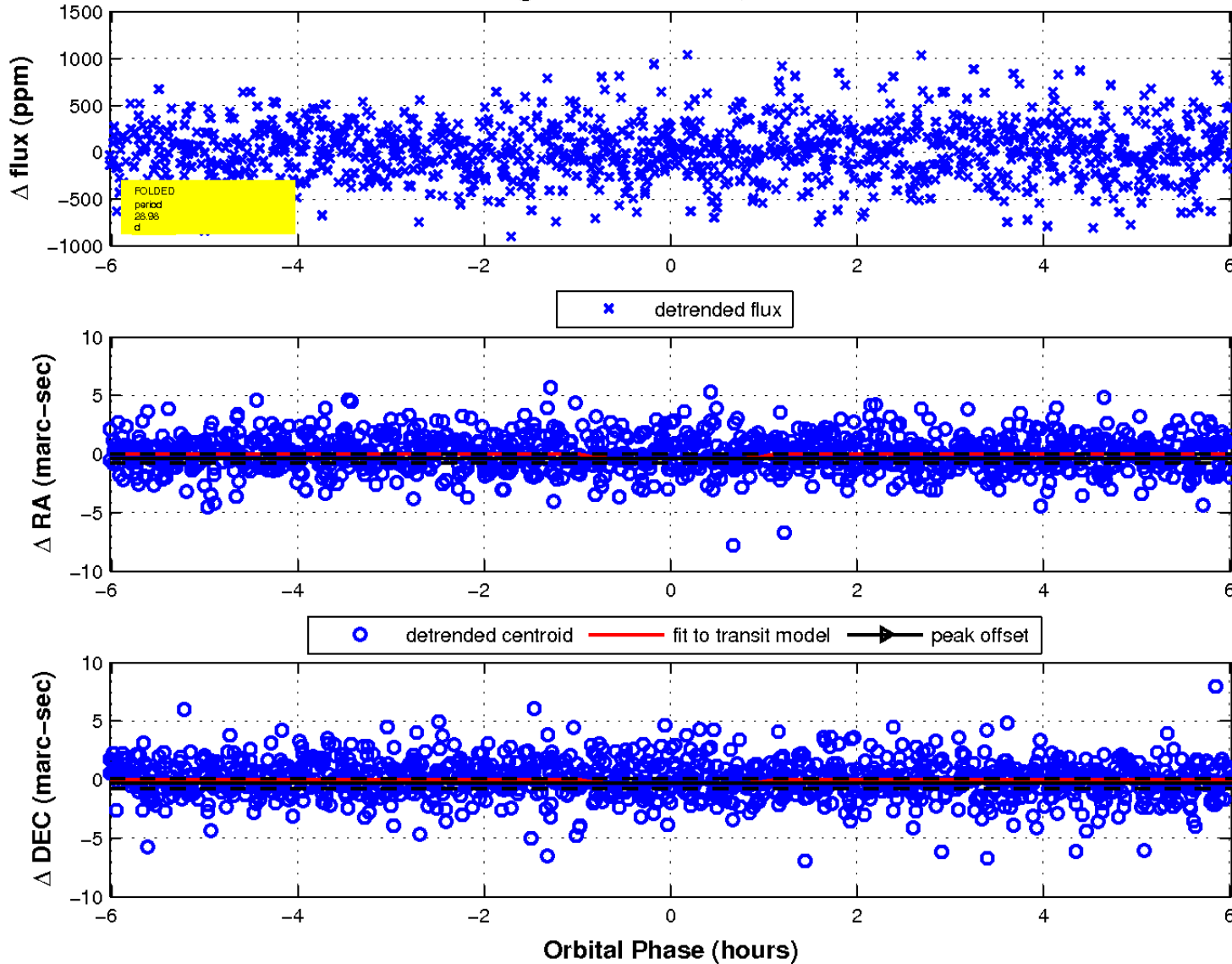
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

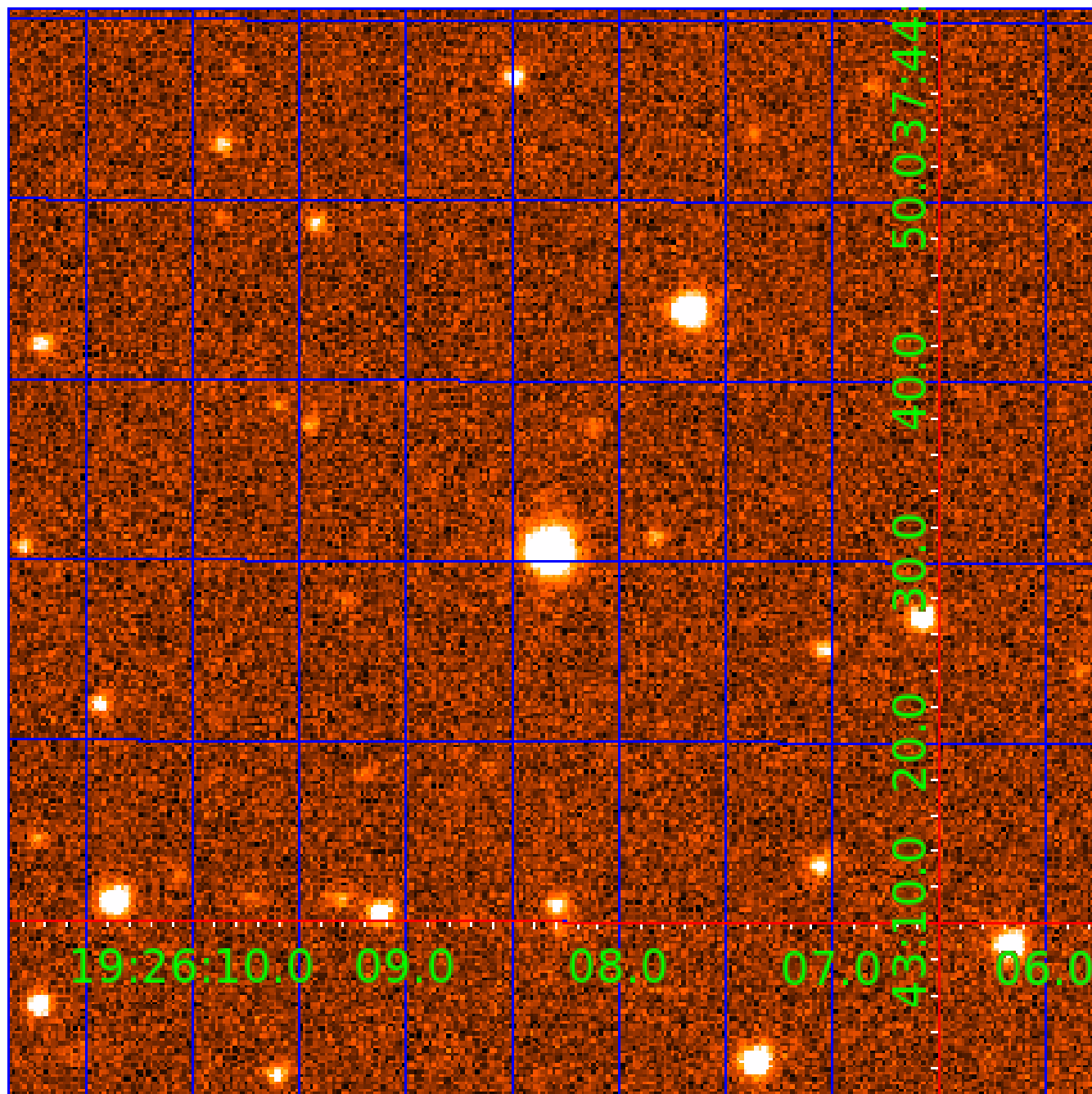


fluxWeightedCentroids, Planet 2 of 8



UKIRT Image

Declination



KIC 002443753

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})
002443753-01	OBS	No	0.864091	131.606741	30.6	6.179	7.8	11.4	0.91	6139	0.56	3382.22
002443753-02	OBS	No	28.983578	155.204412	571.6	2.009	11.2	11.9	0.91	6139	2.21	31.27
002443753-03	OBS	No	30.726973	132.039181	302.8	3.946	9.6	9.4	0.91	6139	1.83	28.92
002443753-04	OBS	No	53.379556	161.644097	642.9	3.251	10.3	11.3	0.91	6139	2.97	13.85
002443753-05	OBS	No	33.430499	141.248398	711.7	1.251	10.3	10.6	0.91	6139	2.45	25.85
002443753-06	OBS	No	19.028481	134.527844	276.4	2.842	10.1	9.6	0.91	6139	1.76	54.80
002443753-07	OBS	No	18.323714	143.898506	468.7	1.573	10.7	11.8	0.91	6139	2.27	57.62
002443753-08	OBS	No	43.482829	143.242586	672.9	1.581	11.9	11.1	0.91	6139	2.79	18.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002443753-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS
002443753-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
002443753-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
002443753-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN—HALO_GHOST
002443753-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
002443753-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

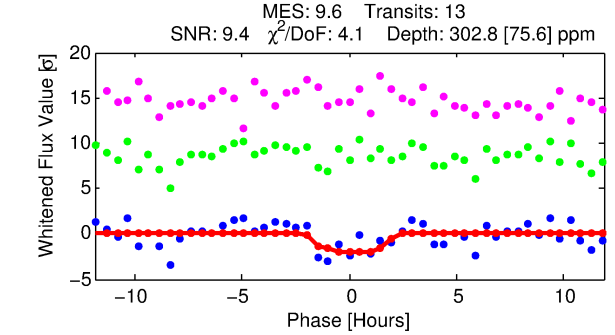
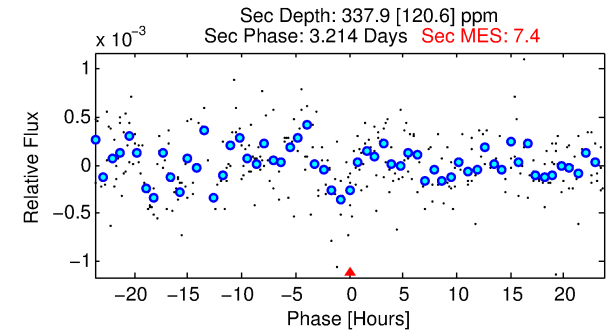
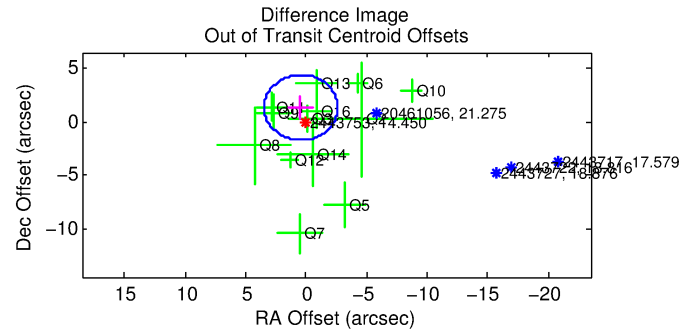
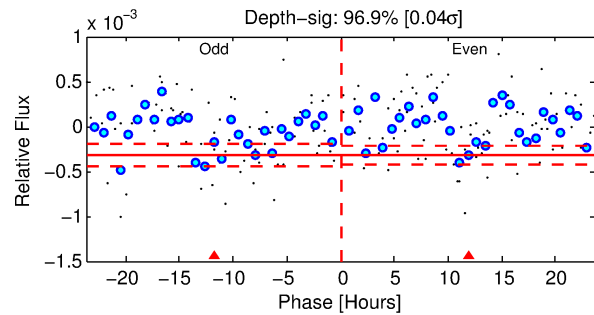
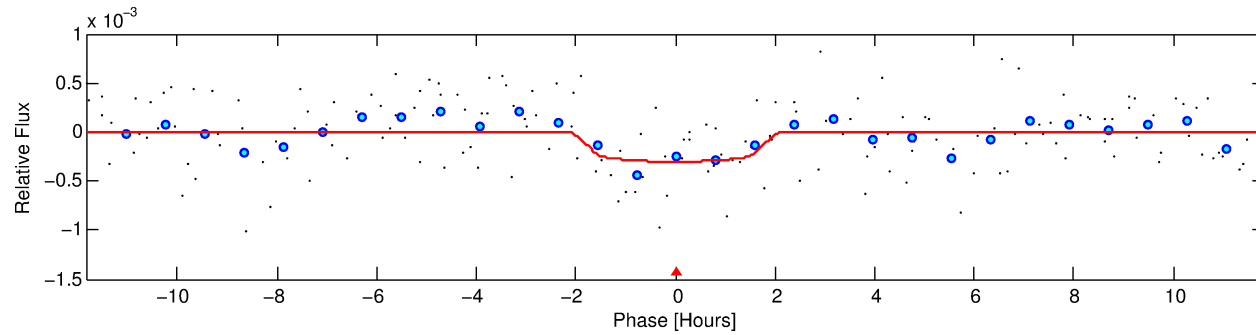
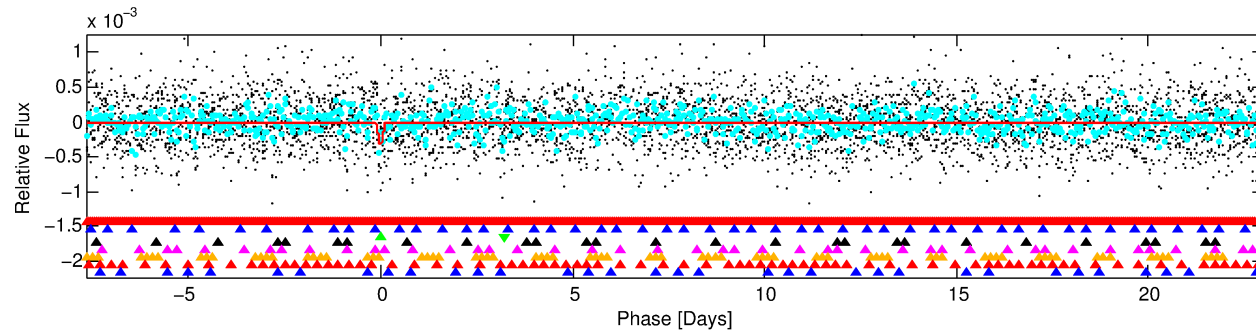
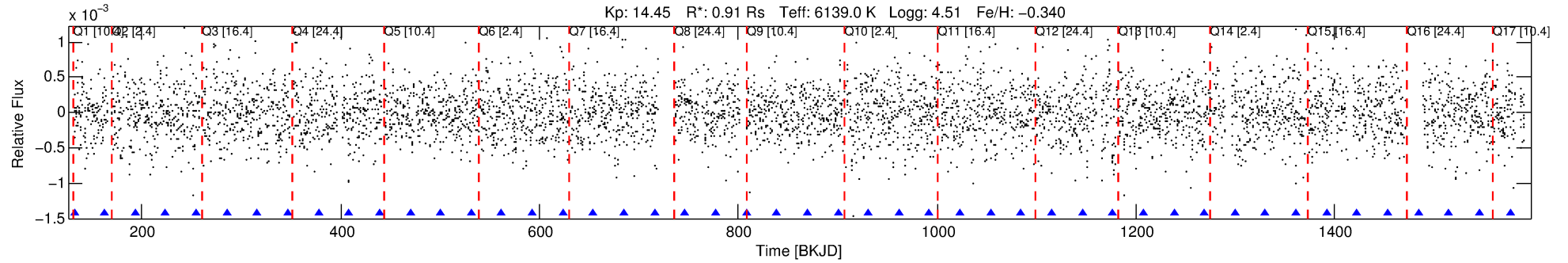
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002443753-03

No Significant Match Found

DV One-Page Summary

KIC: 2443753 Candidate: 3 of 8 Period: 30.727 d



DV Fit Results:

Period = 30.72697 [0.00089] d
Epoch = 132.0392 [0.0253] BKJD
Rp/R* = 0.0184 [0.0203]
a/R* = 30.50 [177.00]
b = 0.88 [1.52]
Seff = 28.92 [10.75]
Teff = 591 [55] K
Rp = 1.83 [2.09] Re
a = 0.1913 [0.0458] AU
Ag = 2023.44 [4577.43] [0.44σ]
Teffp = 6132 [3432] K [1.61σ]

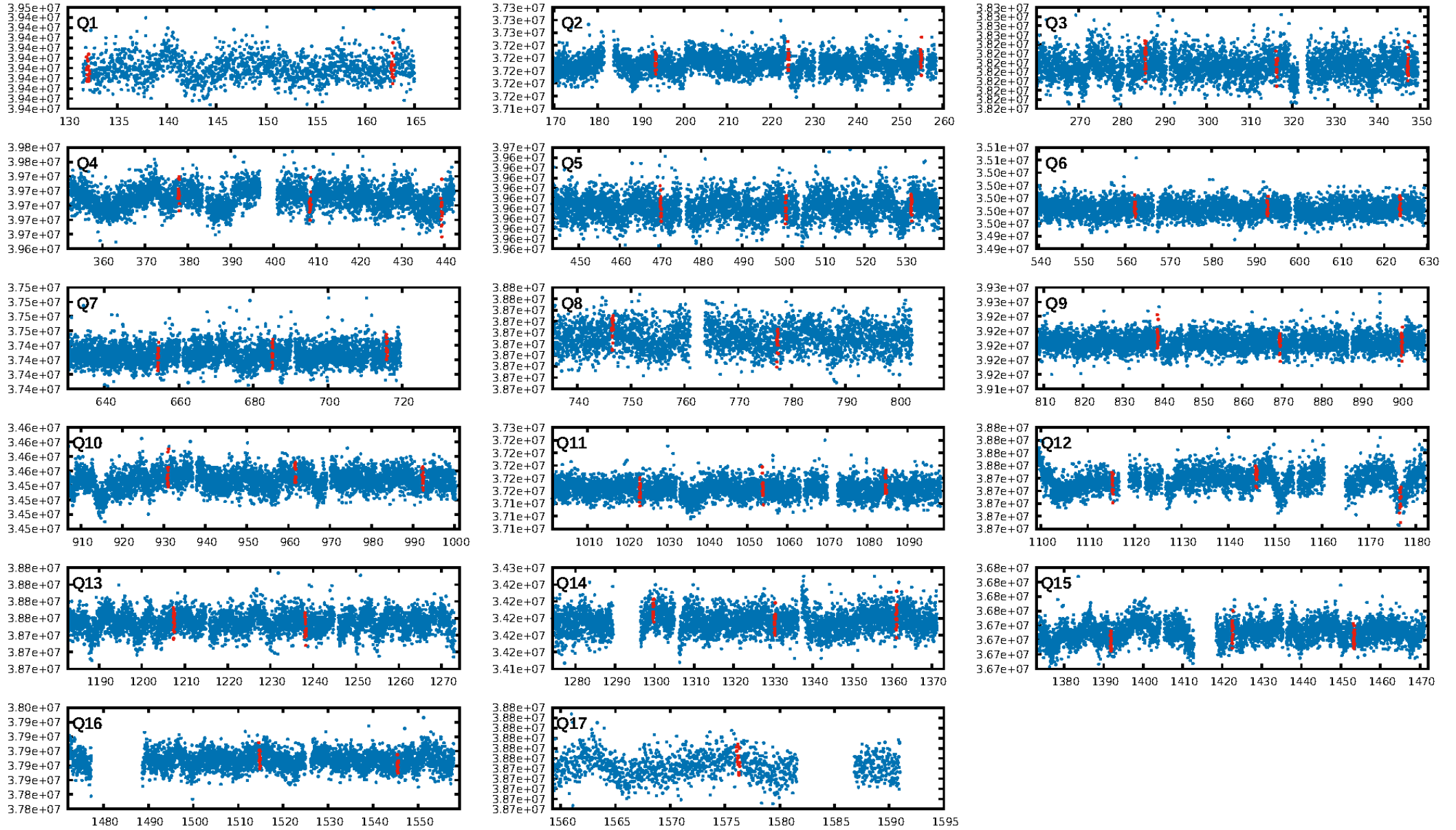
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.45σ]
LongPeriod-sig: 100.0% [15.68σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 95.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: -0.4444
Centroid-sig: 77.6%
Centroid-so: 0.956 arcsec [1.07σ]
OotOffset-rm: 1.411 arcsec [1.39σ]
KicOffset-rm: 1.470 arcsec [1.30σ]
OotOffset-st: 4/3/3/3 [13]
KicOffset-st: 4/3/3/3 [13]
DiffImageQuality-fgm: 0.00 [0/13]
DiffImageOverlap-fno: 0.00 [0/17]

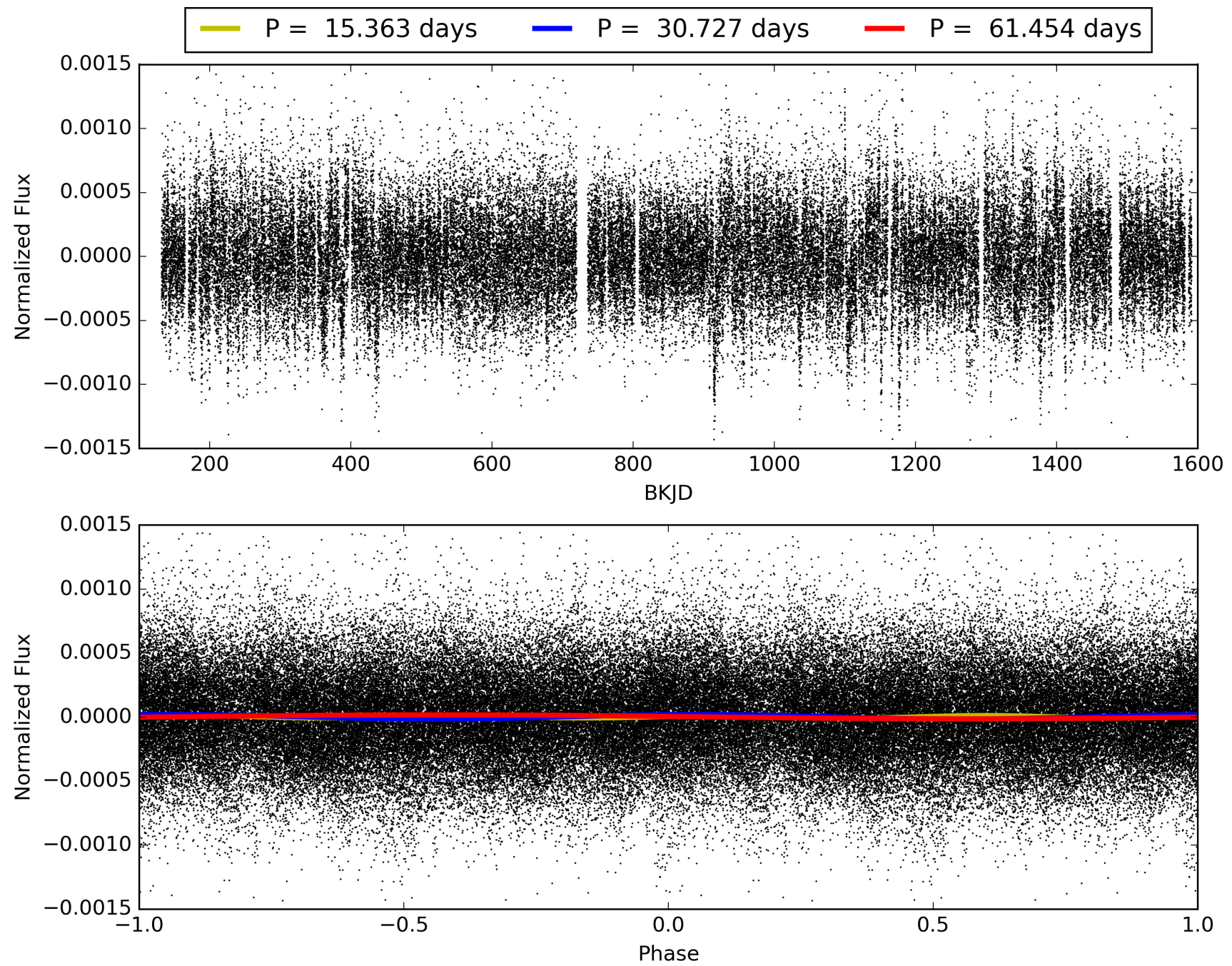
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:25:48 Z

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

TCE 002443753-03, PDC Light Curves

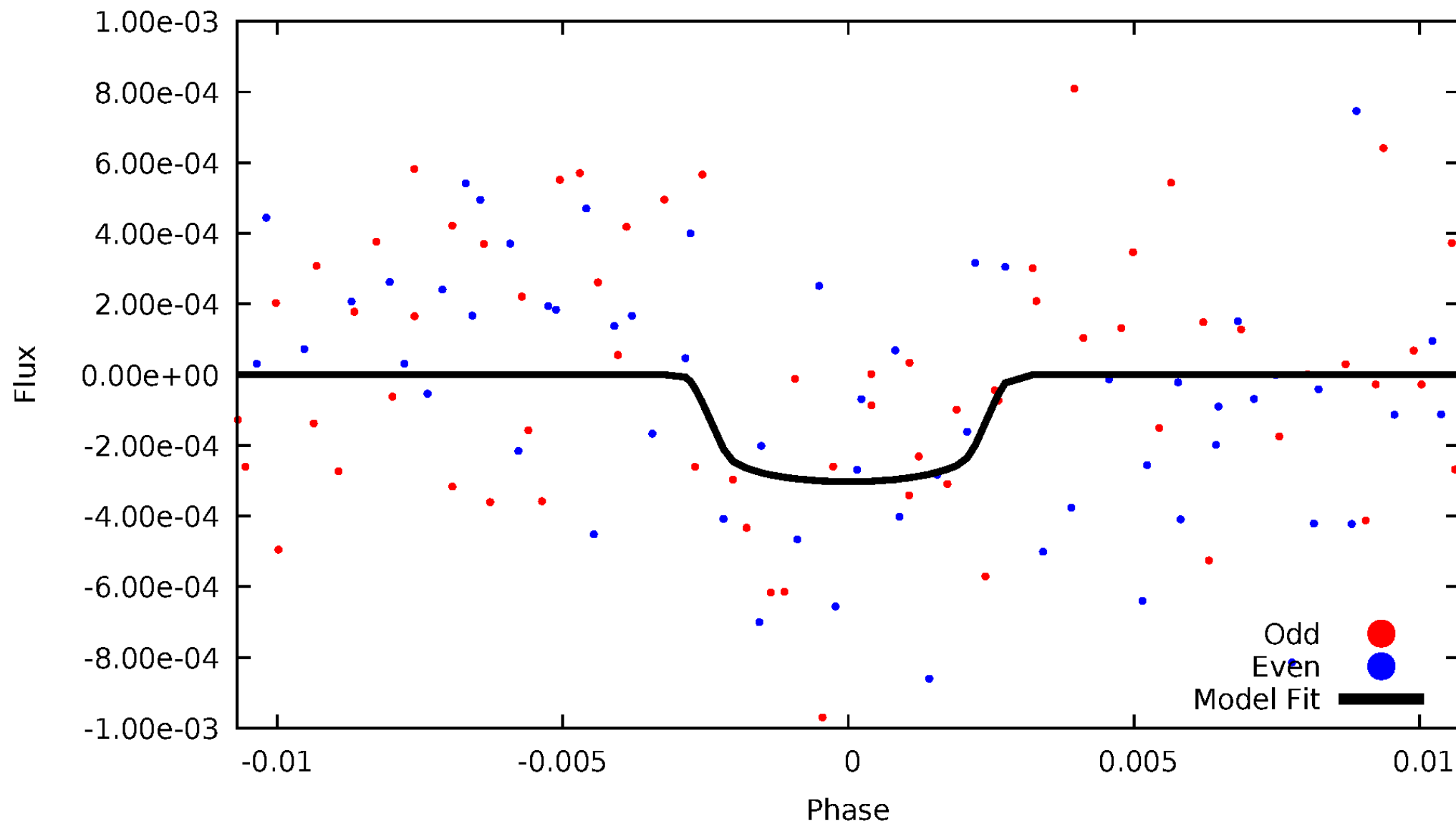


TCE 002443753-03



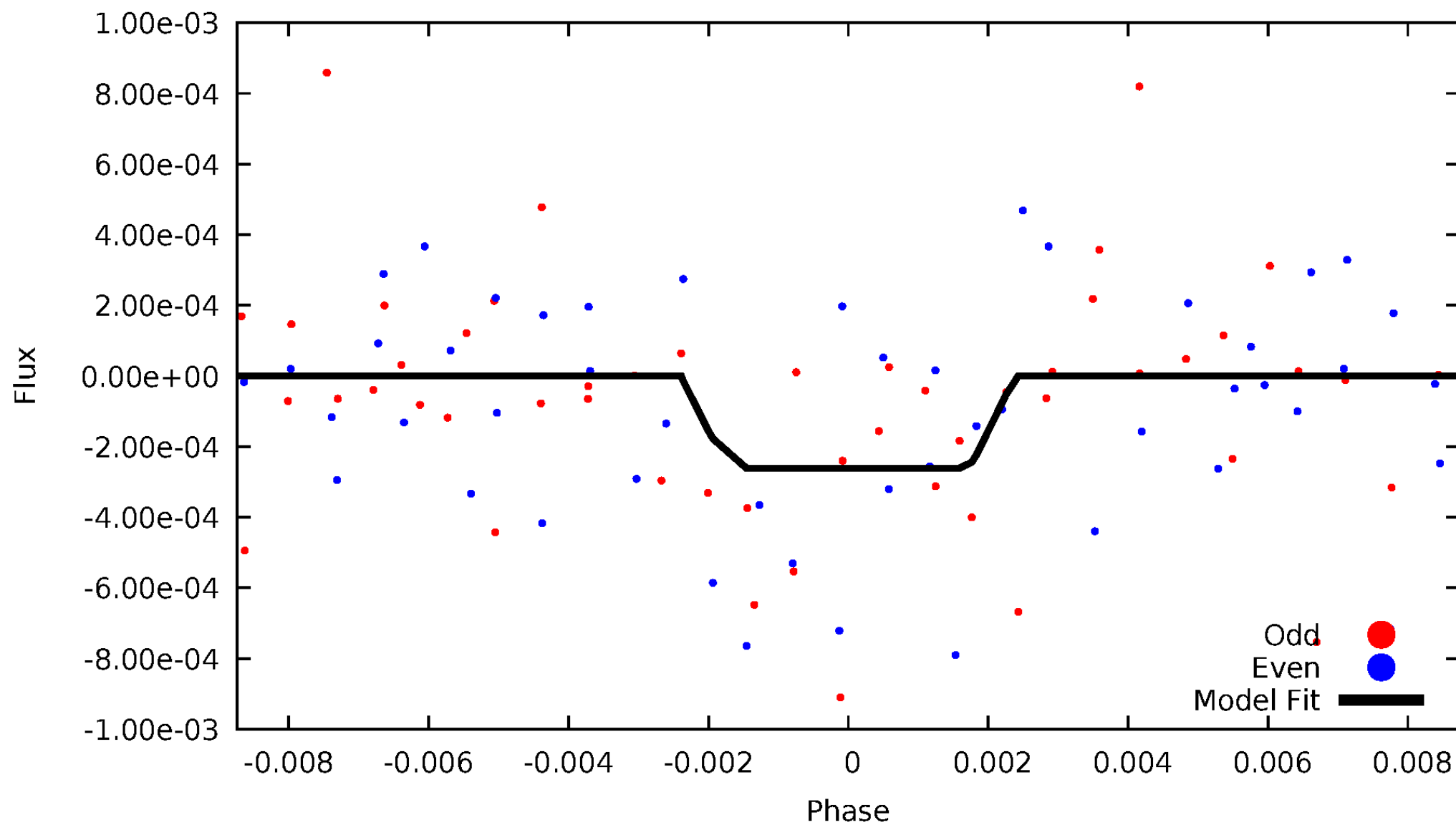
DV Odd/Even

TCE 002443753-03



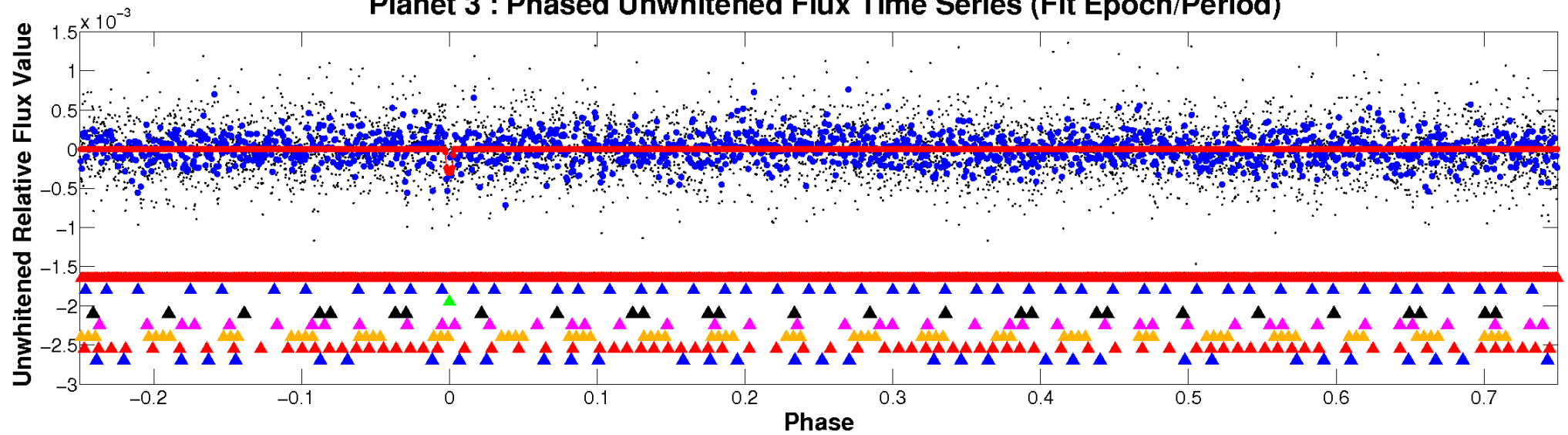
ALT Odd/Even

TCE 002443753-03

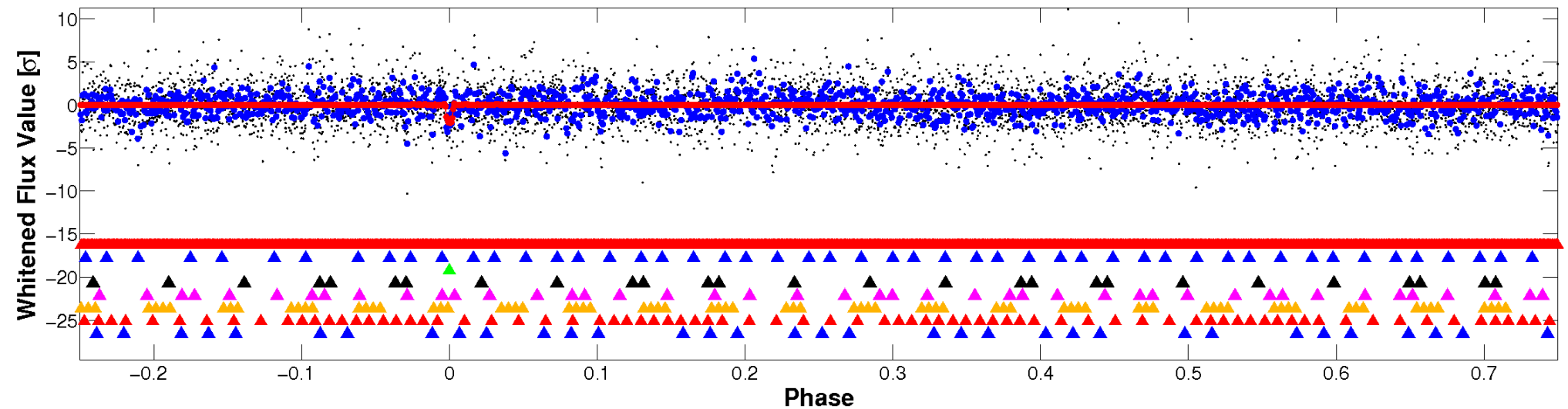


Non-Whitened Vs. Whitened Light Curve

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

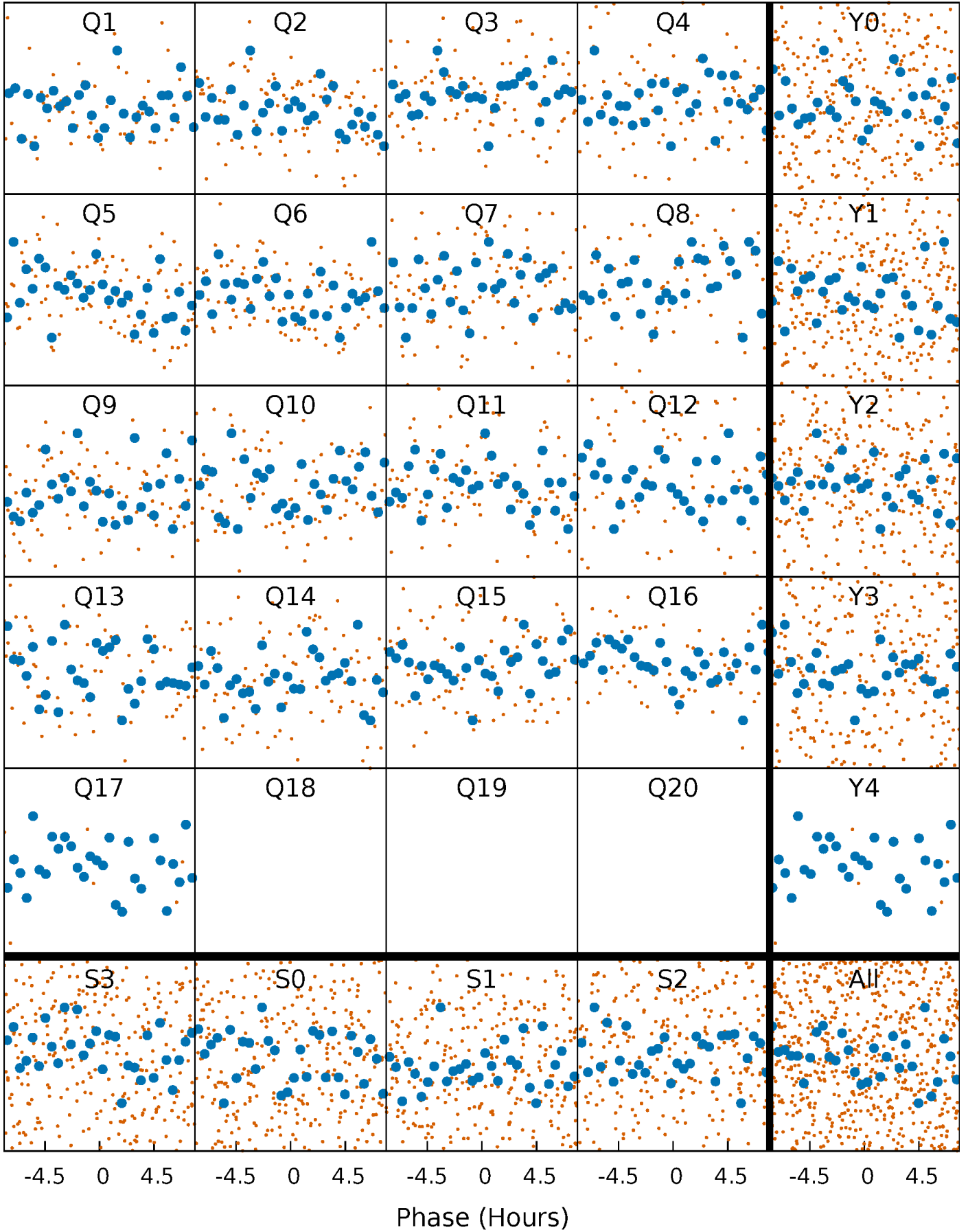


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



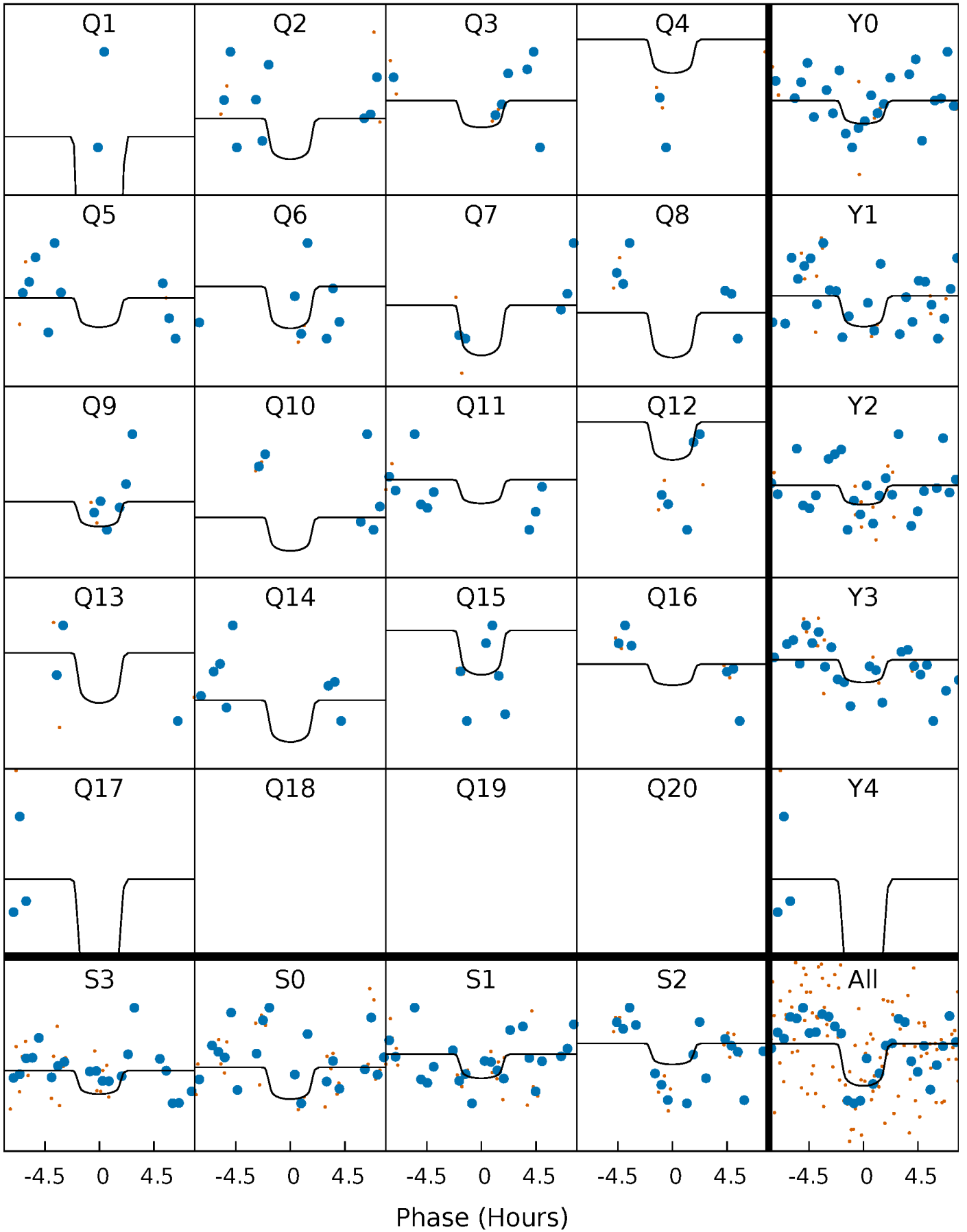
PDC Quarter-Phased Transit Curves

TCE 002443753-03 P= 30.726973 Days $T_0=132.039181$ (BKJD)



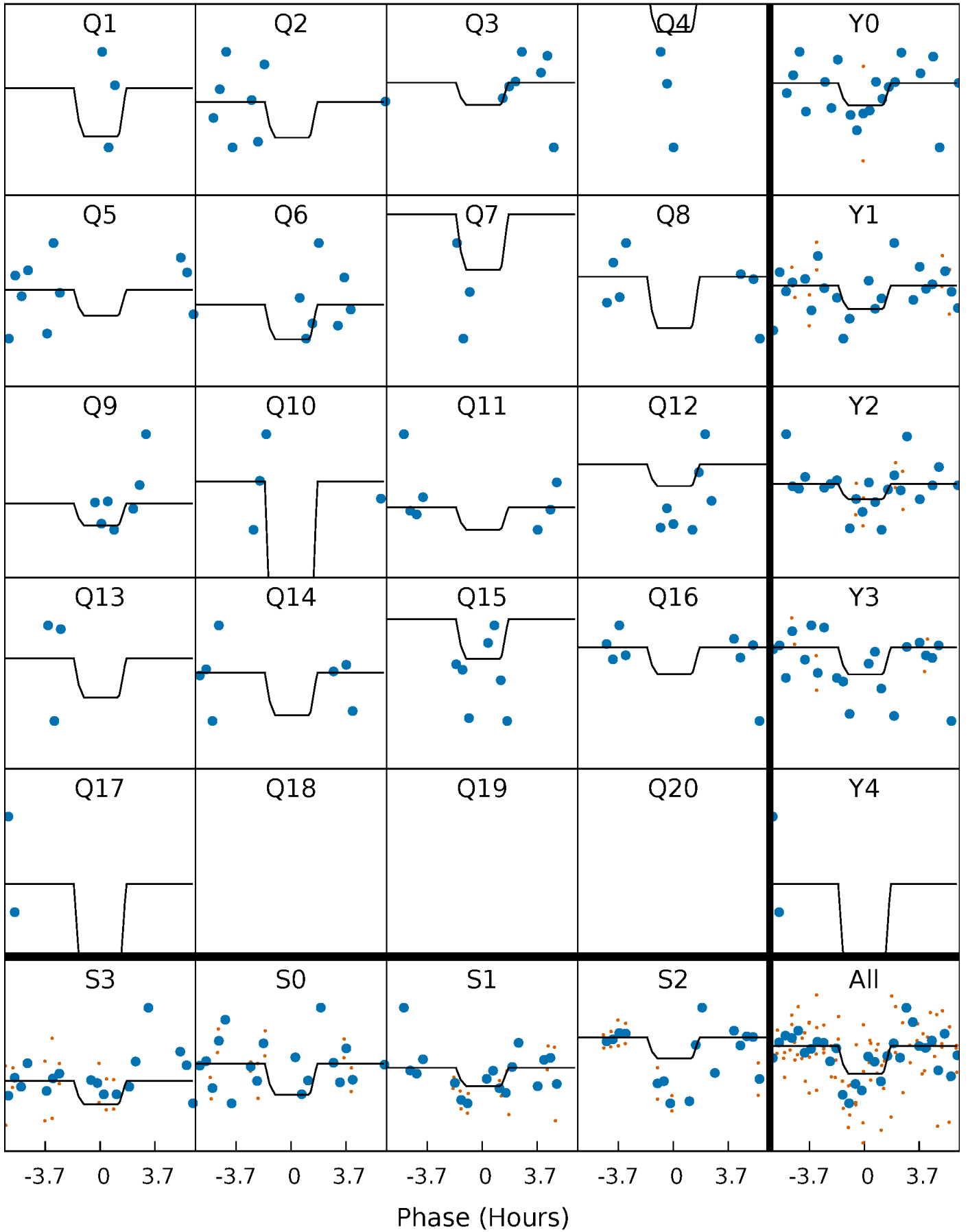
DV Quarter-Phased Transit Curves

TCE 002443753-03 P= 30.726973 Days $T_0=132.039181$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

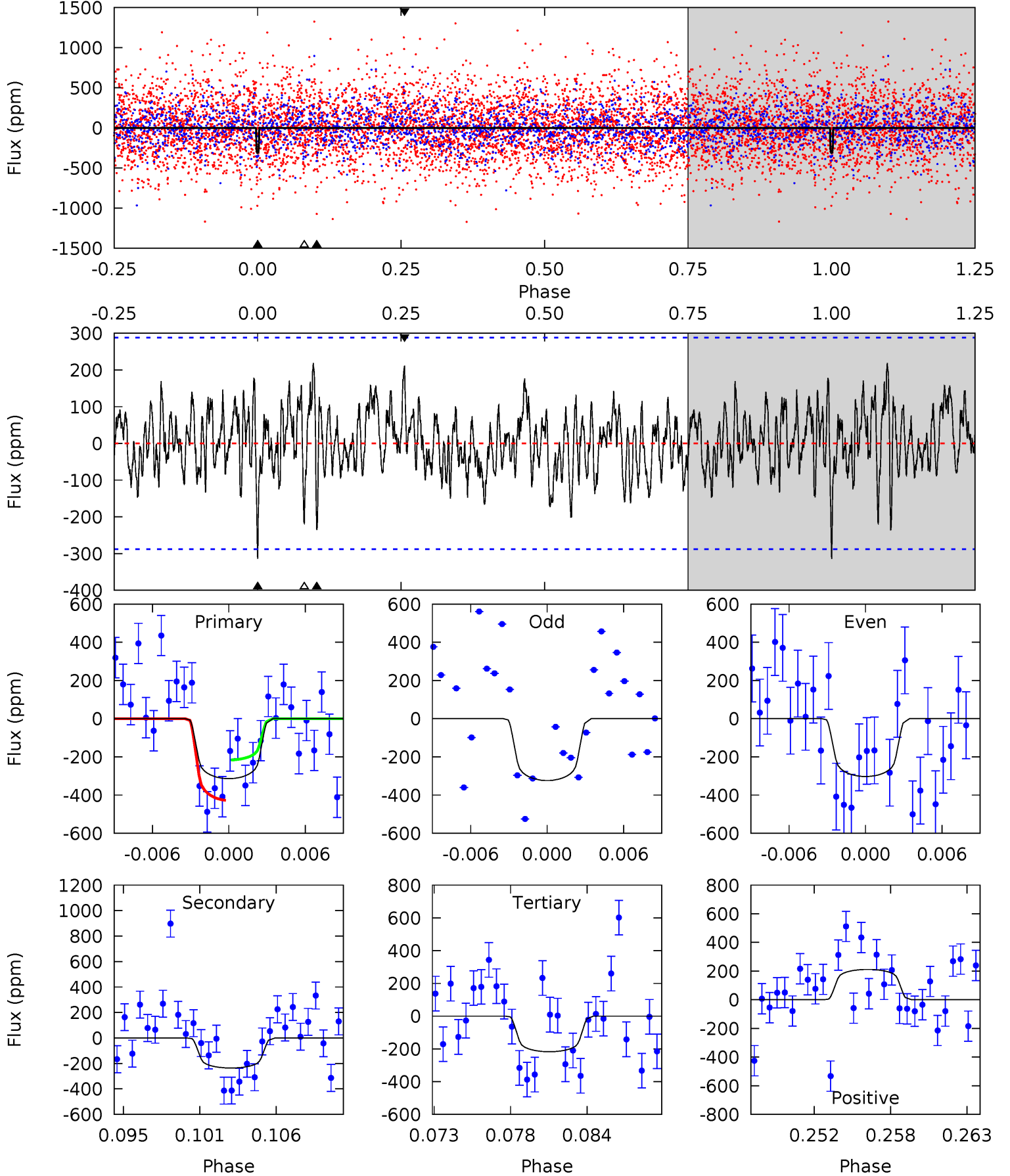
TCE 002443753-03 P= 30.727269 Days $T_0=132.026127$ (BKJD)



DV Model-Shift Uniqueness Test

002443753-03, $P = 30.726973$ Days, $E = 101.312208$ Days

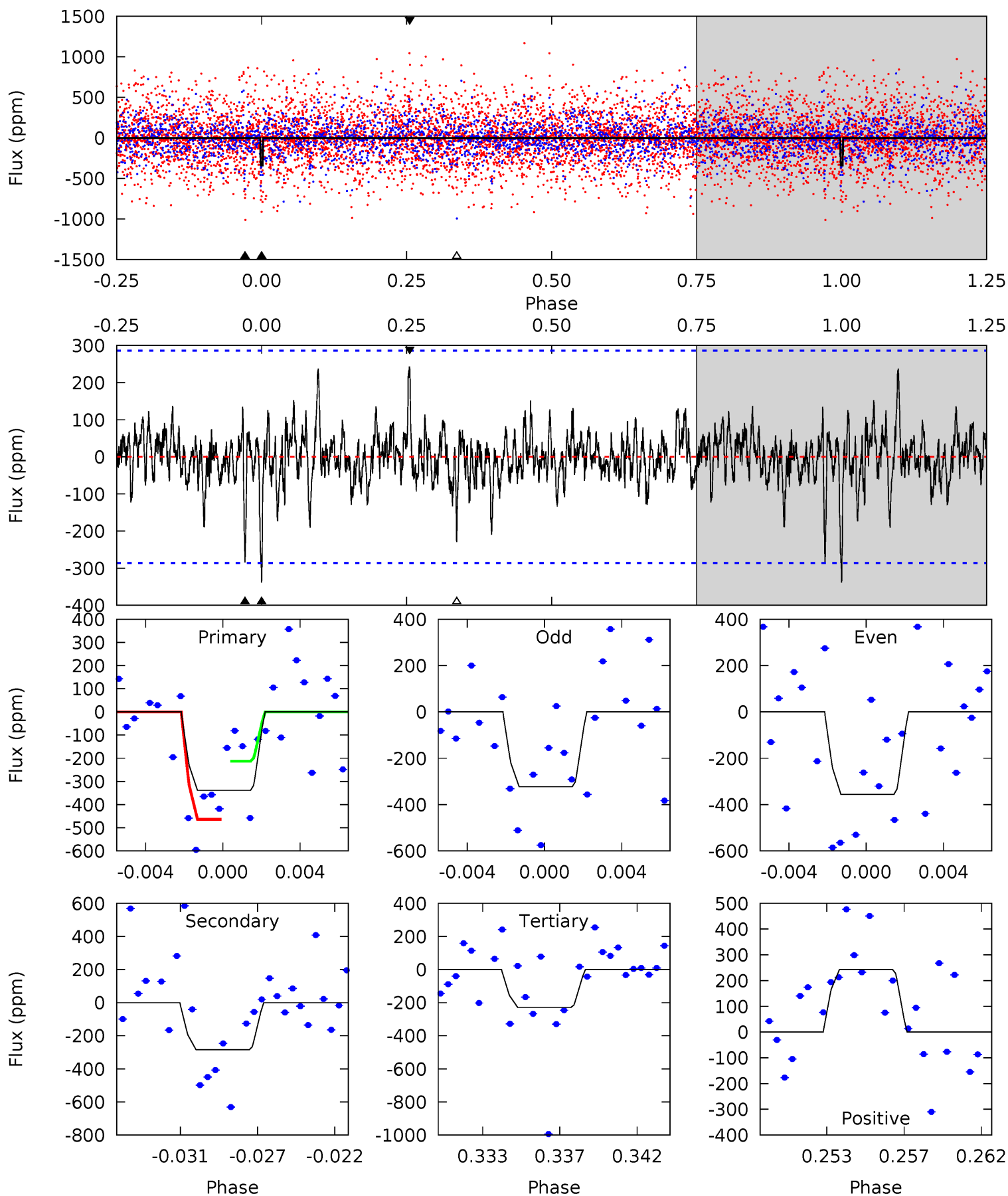
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.60	4.21	3.88	3.77	5.14	2.77	1.31	1.72	1.82	0.33	0.43	0.19	1.28	0.41	1.89



Alt Model-Shift Uniqueness Test

002443753-03, P = 30.727269 Days, E = 101.298858 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.13	5.15	4.15	4.40	5.18	2.85	1.04	1.98	1.73	1.00	0.75	0.30	1.07	0.42	2.29



Stellar Parameters For KIC 002443753

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6139^{+171}_{-192}	$4.513^{+0.048}_{-0.192}$	$-0.340^{+0.300}_{-0.350}$	$0.912^{+0.258}_{-0.086}$	$0.991^{+0.117}_{-0.129}$	$1.837^{+0.456}_{-0.938}$
	+3%/-3%	+1%/-4%	+88%/-103%	+28%/-9%	+12%/-13%	+25%/-51%
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 002443753-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-236 ± 56	$2.51^{+1.83}_{-1.58}$	841^{+64}_{-39}	5002^{+3438}_{-1024}	720^{+4887}_{-490}
Alt.	-285 ± 55	$2.30^{+1.94}_{-1.49}$	842^{+57}_{-38}	5428^{+4528}_{-1219}	1106^{+8170}_{-793}

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

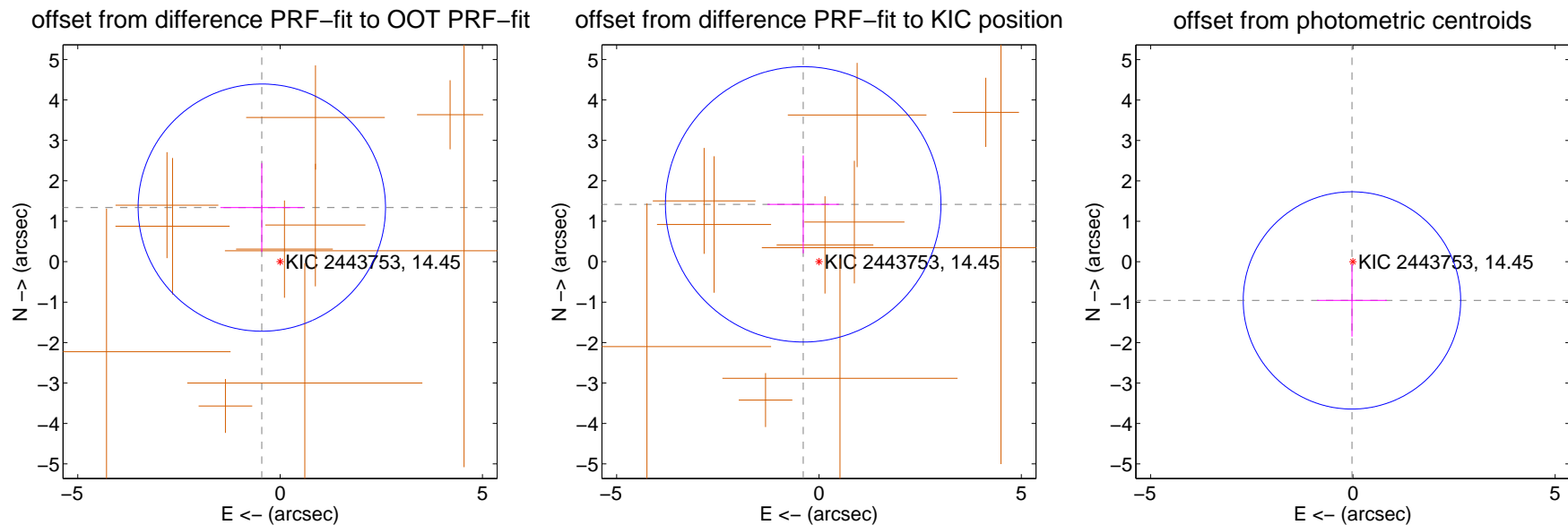
DV Centroid Data

Supplemental centroid analysis for 002443753-03. Kepler magnitude: 14.45. Transit SNR 9.41

There are 0 quarters with good PRF difference image offsets

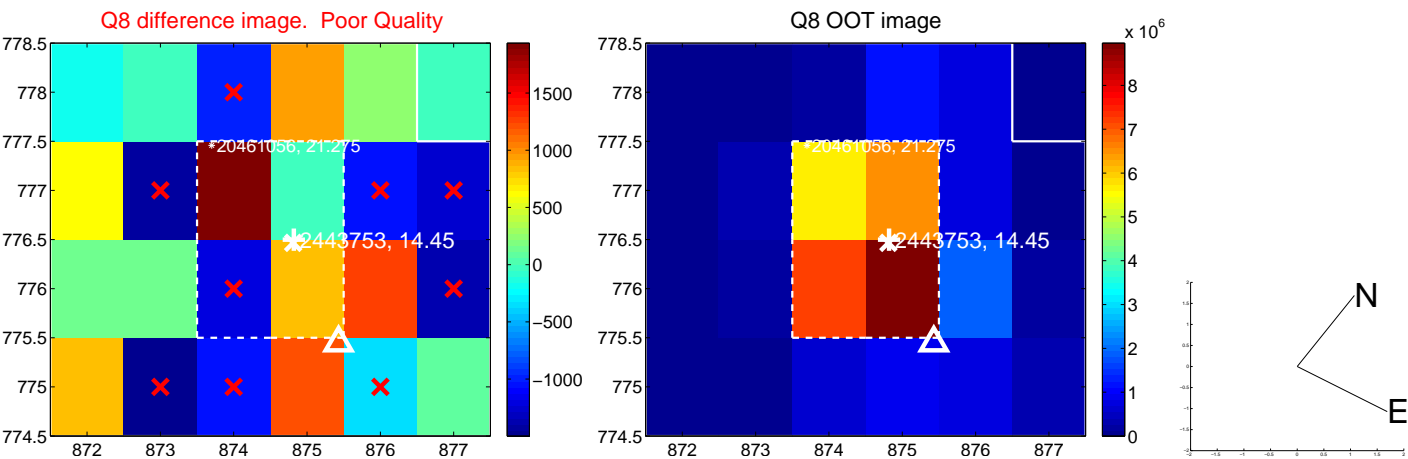
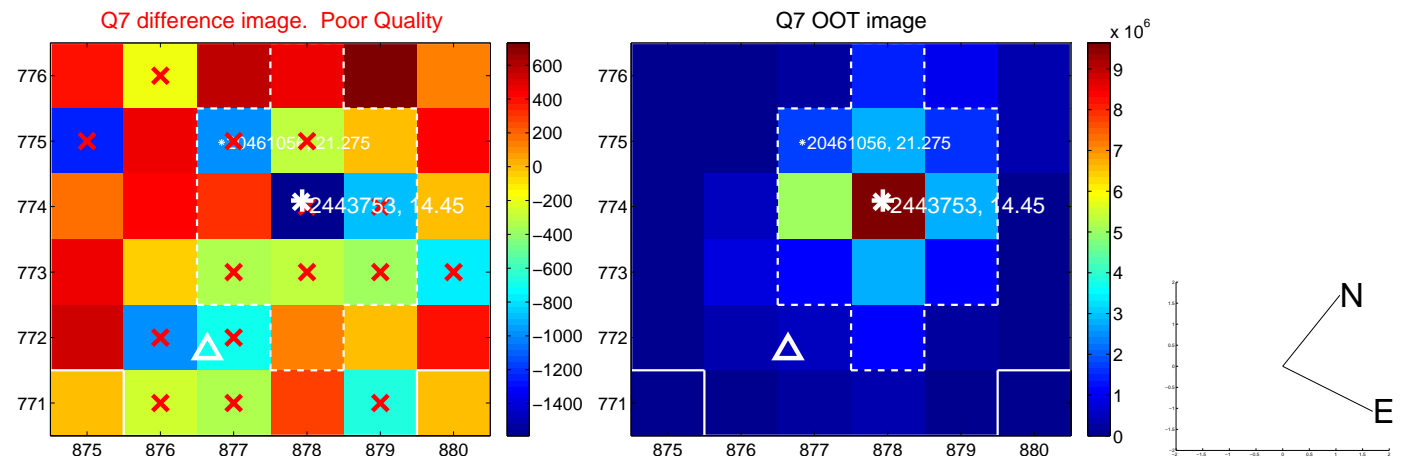
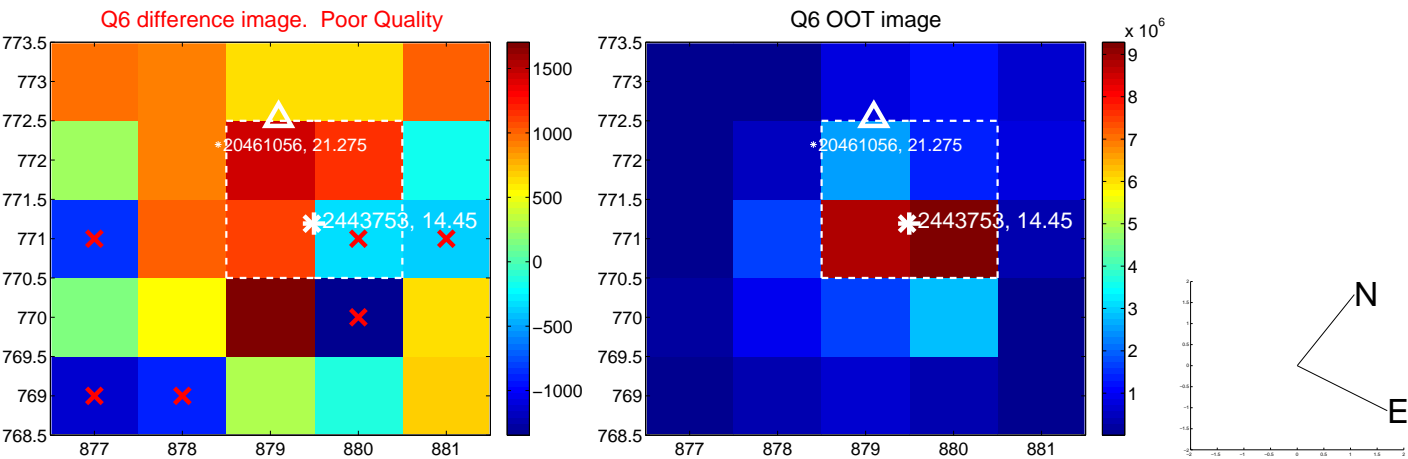
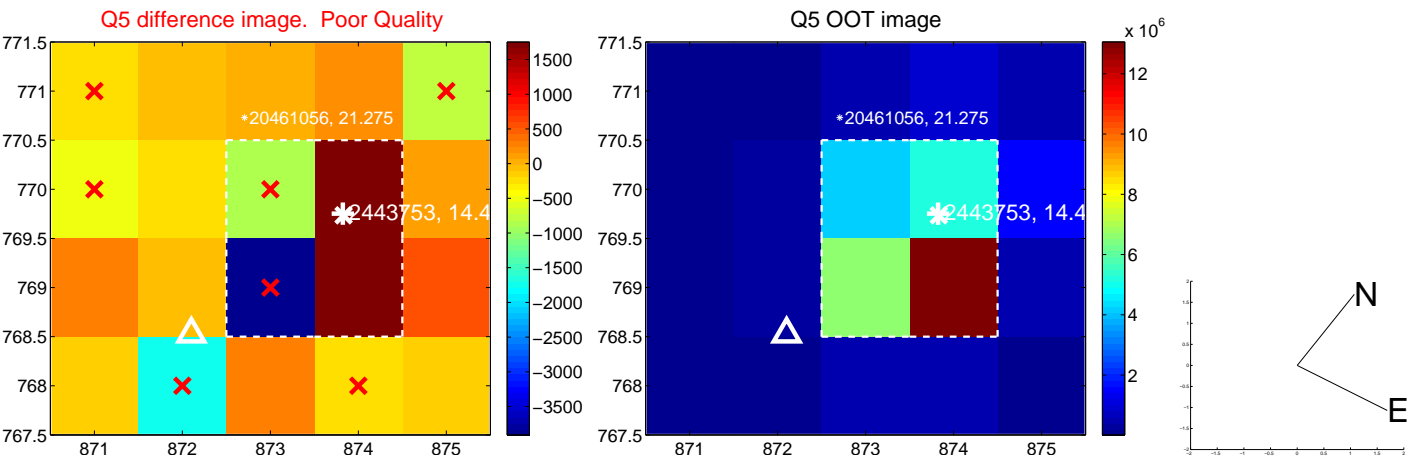
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.411 ± 1.019	1.39	0.452 ± 1.023	1.337 ± 1.098
PRF-fit source offset from KIC position	1.470 ± 1.135	1.30	0.390 ± 0.886	1.418 ± 1.210
photometric centroid source offset	0.96 ± 0.90	1.07	0.02 ± 0.86	-0.96 ± 0.90

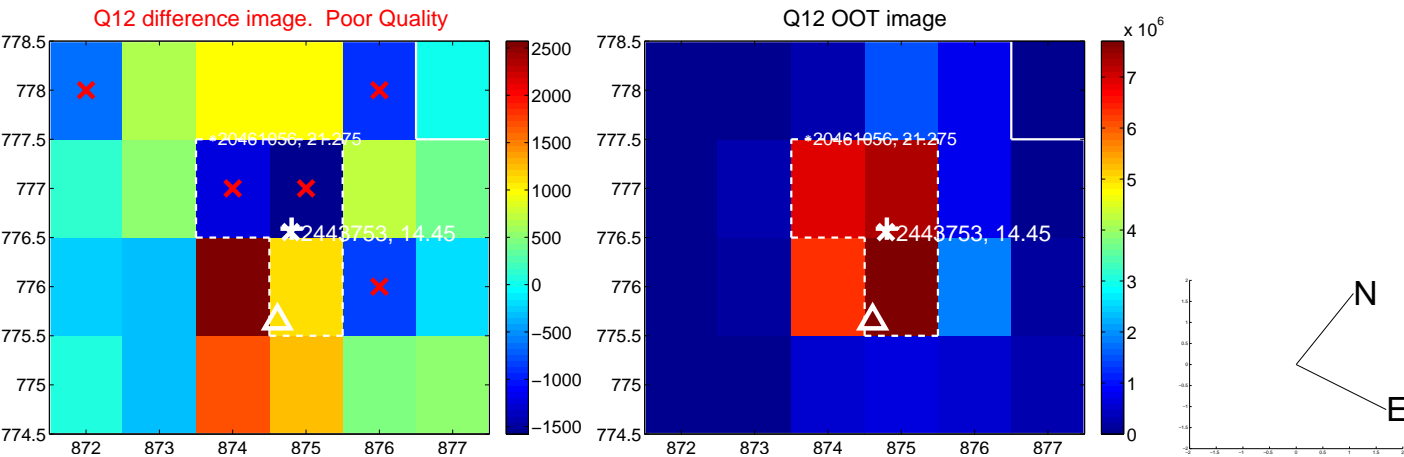
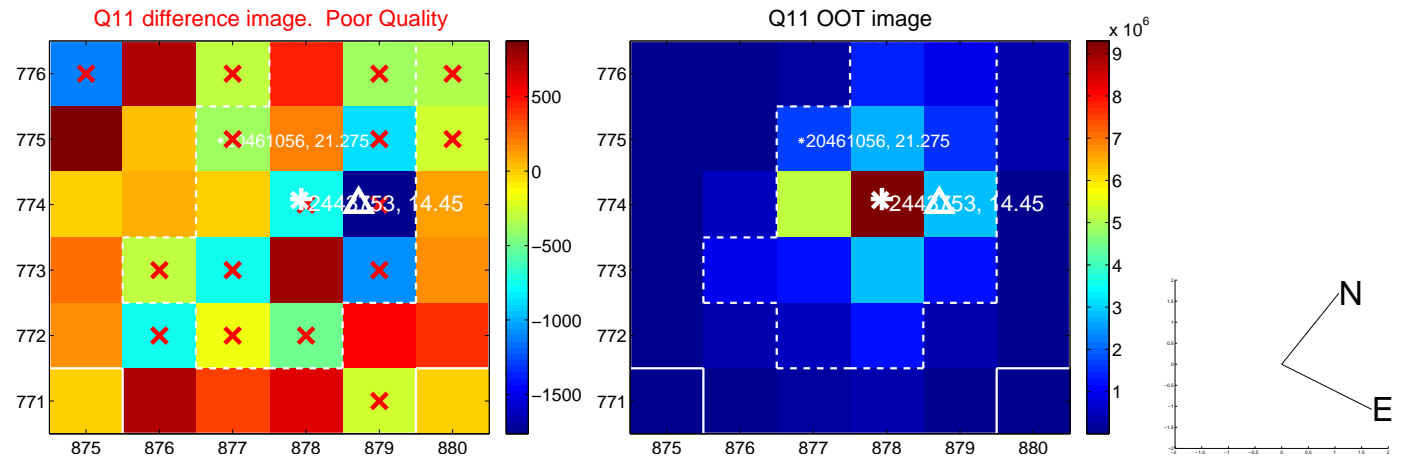
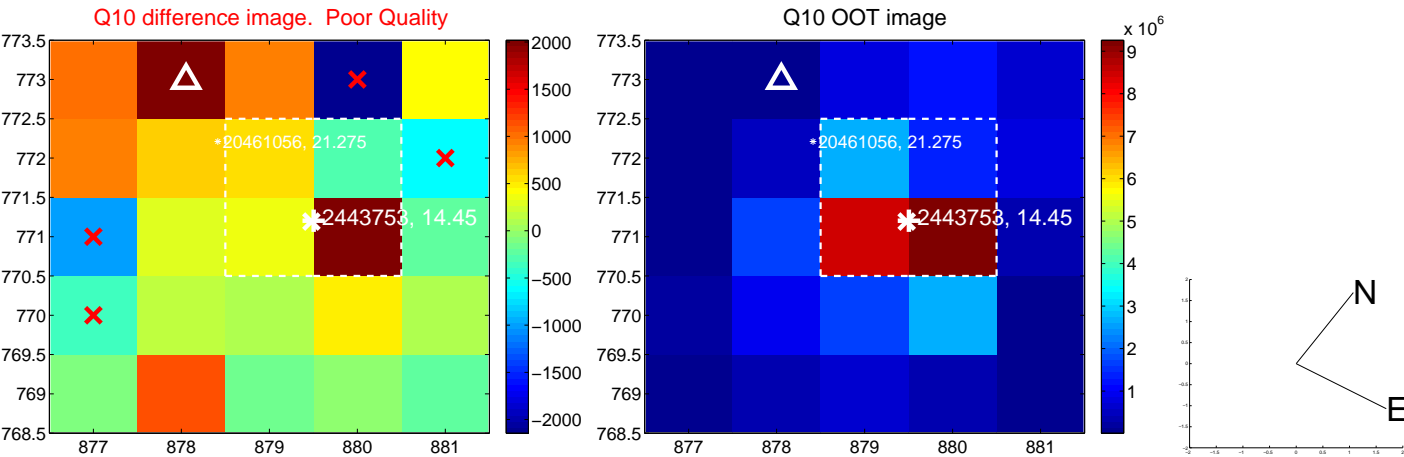
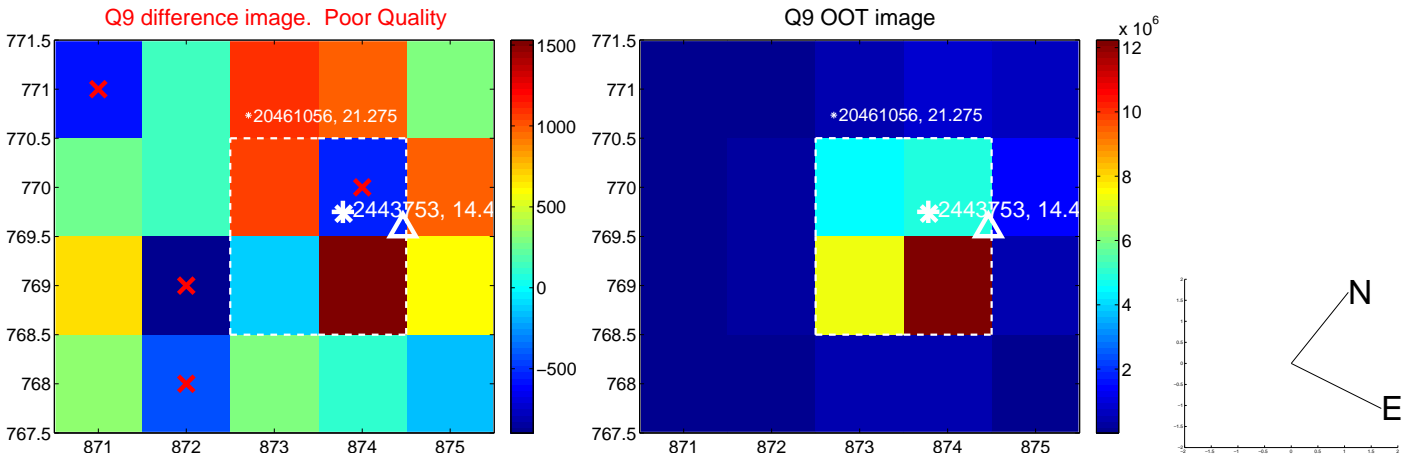


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

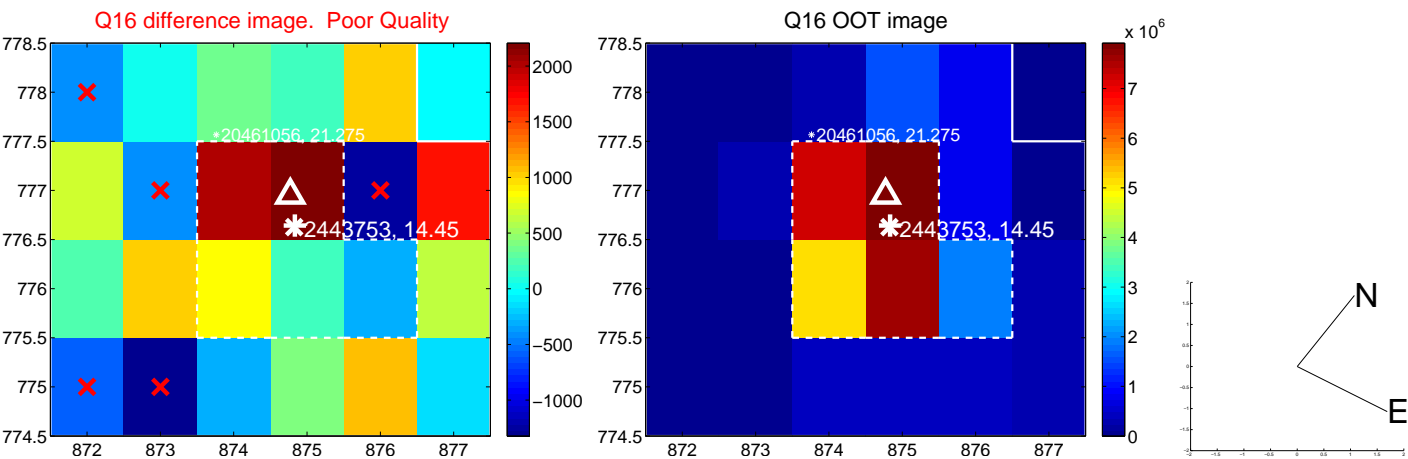
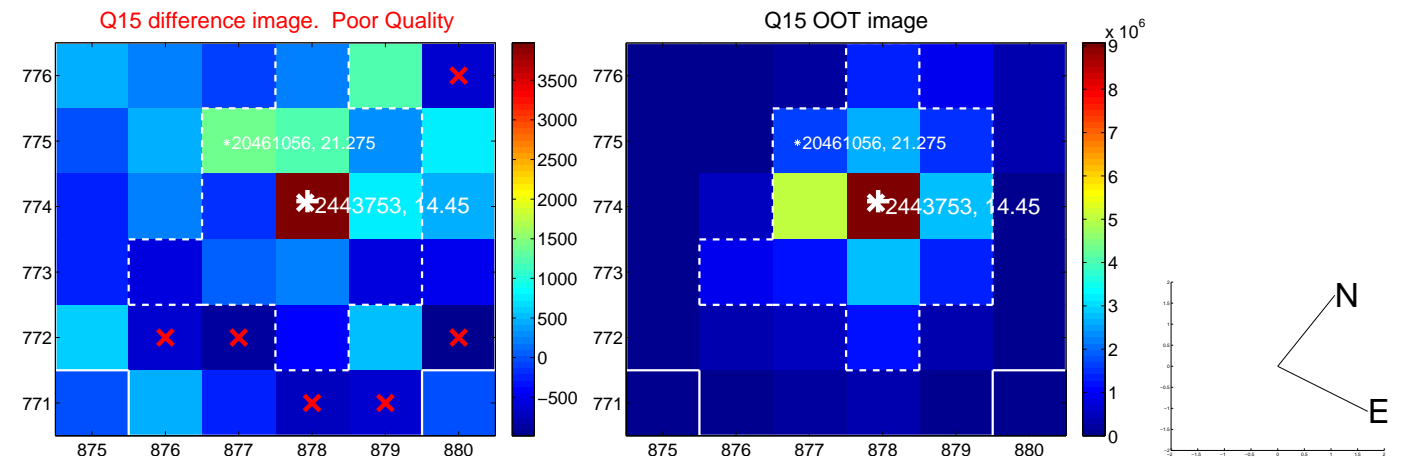
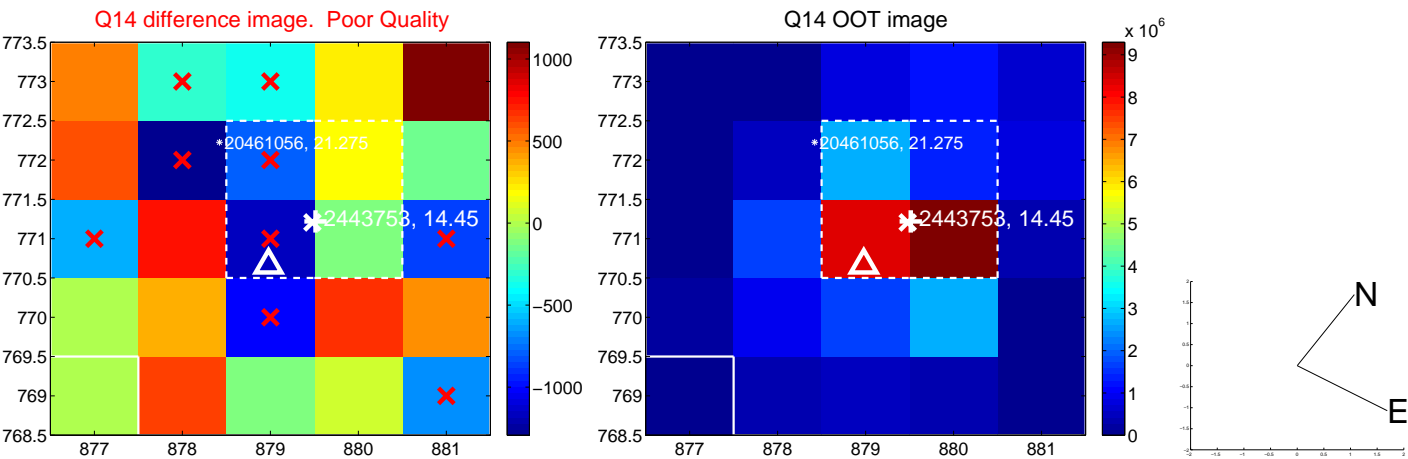
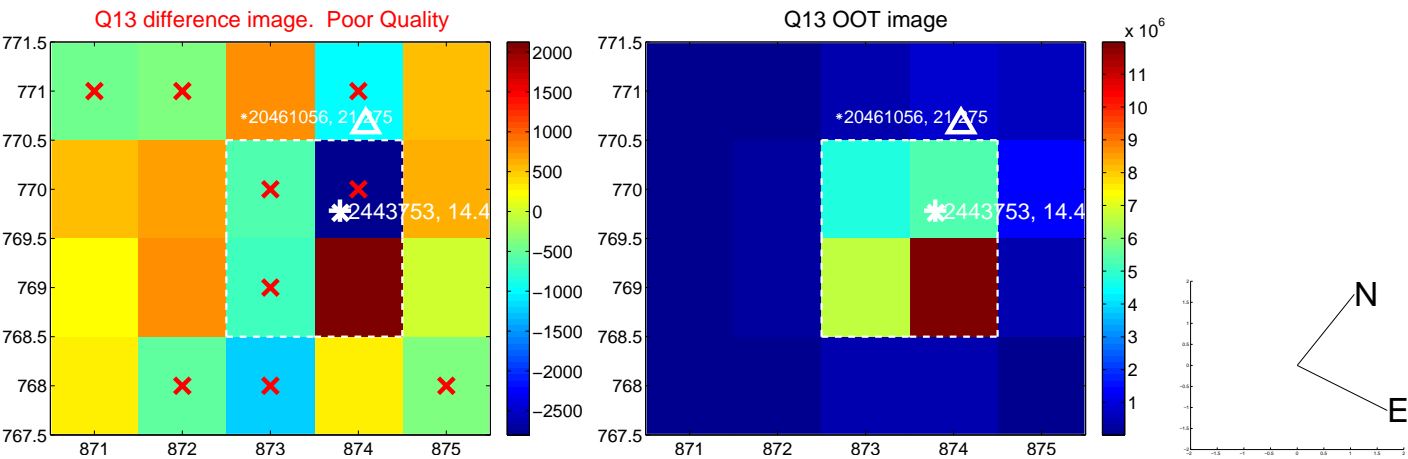
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



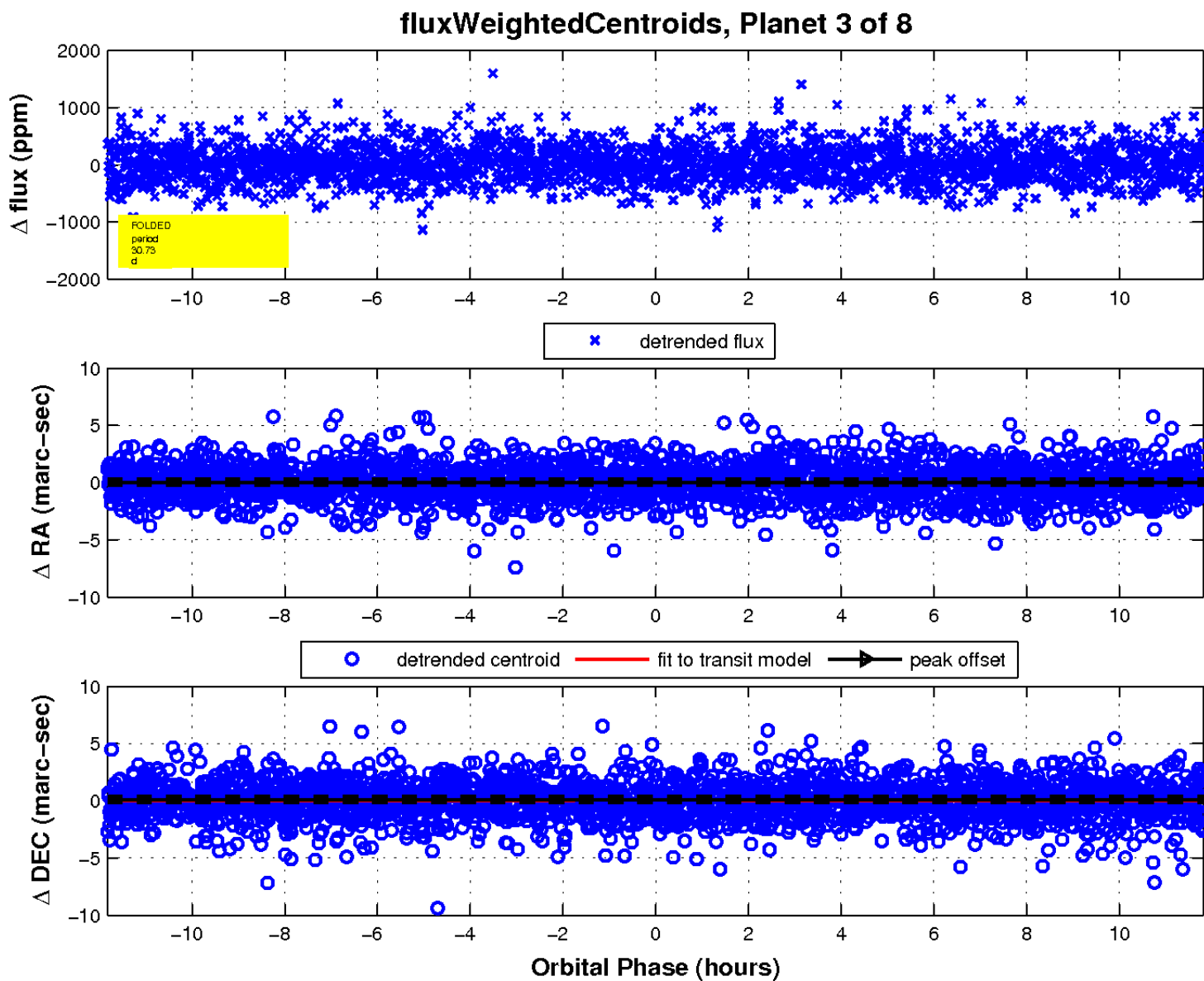
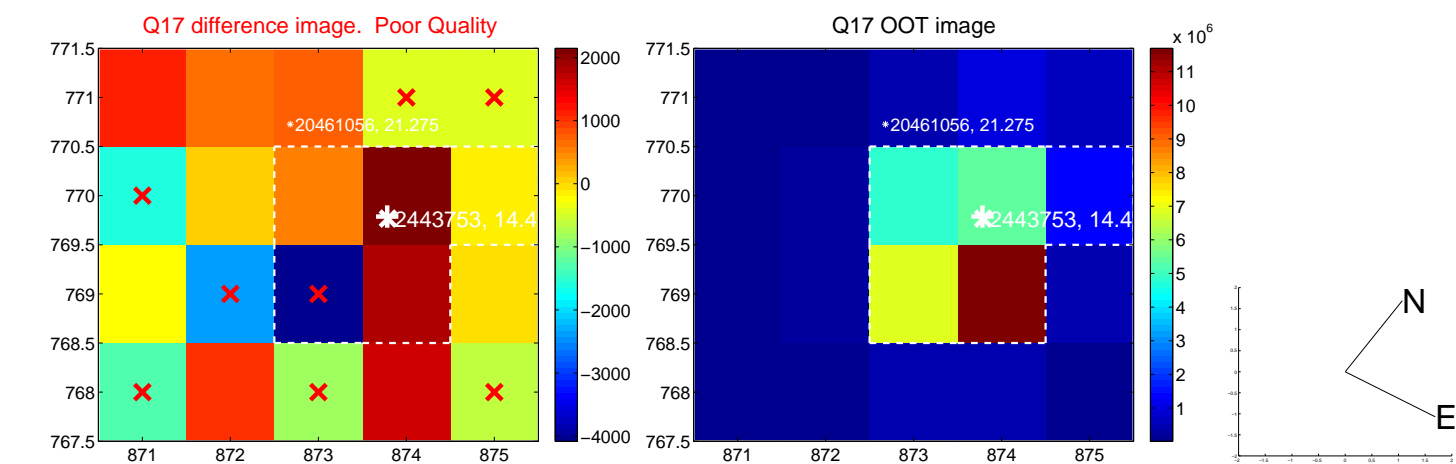
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

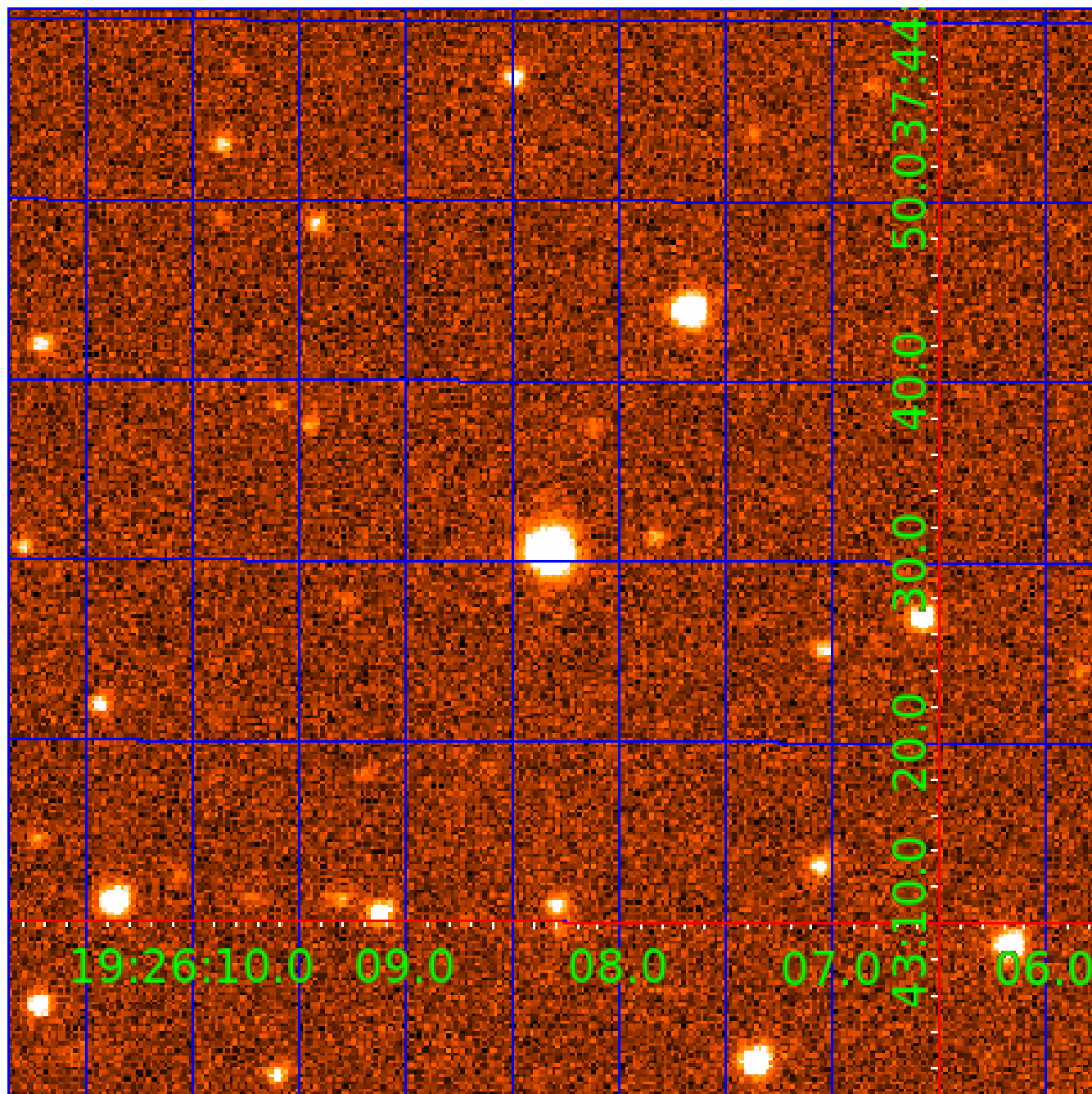


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002443753

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})
002443753-01	OBS	No	0.864091	131.606741	30.6	6.179	7.8	11.4	0.91	6139	0.56	3382.22
002443753-02	OBS	No	28.983578	155.204412	571.6	2.009	11.2	11.9	0.91	6139	2.21	31.27
002443753-03	OBS	No	30.726973	132.039181	302.8	3.946	9.6	9.4	0.91	6139	1.83	28.92
002443753-04	OBS	No	53.379556	161.644097	642.9	3.251	10.3	11.3	0.91	6139	2.97	13.85
002443753-05	OBS	No	33.430499	141.248398	711.7	1.251	10.3	10.6	0.91	6139	2.45	25.85
002443753-06	OBS	No	19.028481	134.527844	276.4	2.842	10.1	9.6	0.91	6139	1.76	54.80
002443753-07	OBS	No	18.323714	143.898506	468.7	1.573	10.7	11.8	0.91	6139	2.27	57.62
002443753-08	OBS	No	43.482829	143.242586	672.9	1.581	11.9	11.1	0.91	6139	2.79	18.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002443753-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS
002443753-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
002443753-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
002443753-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN—HALO_GHOST
002443753-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
002443753-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

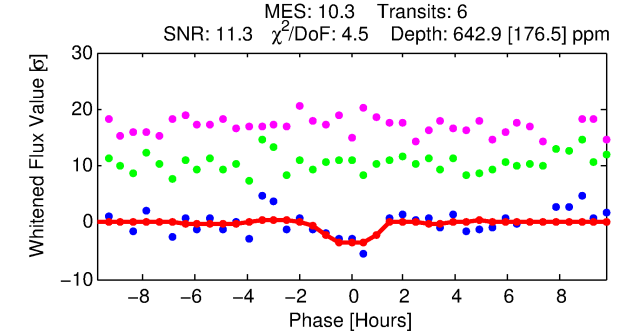
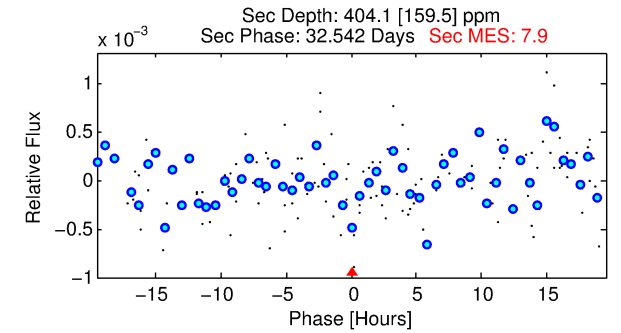
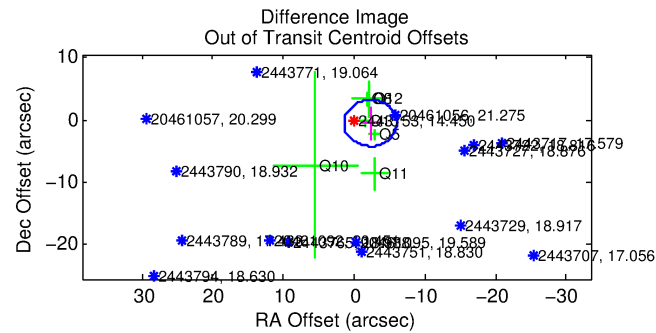
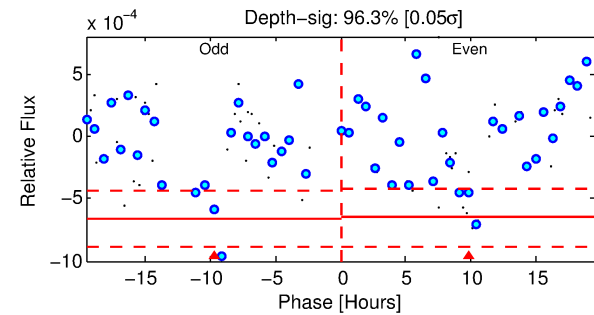
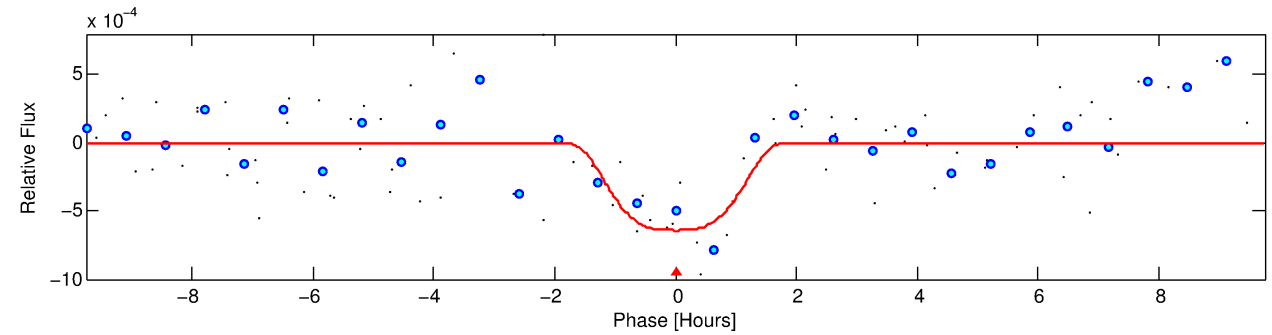
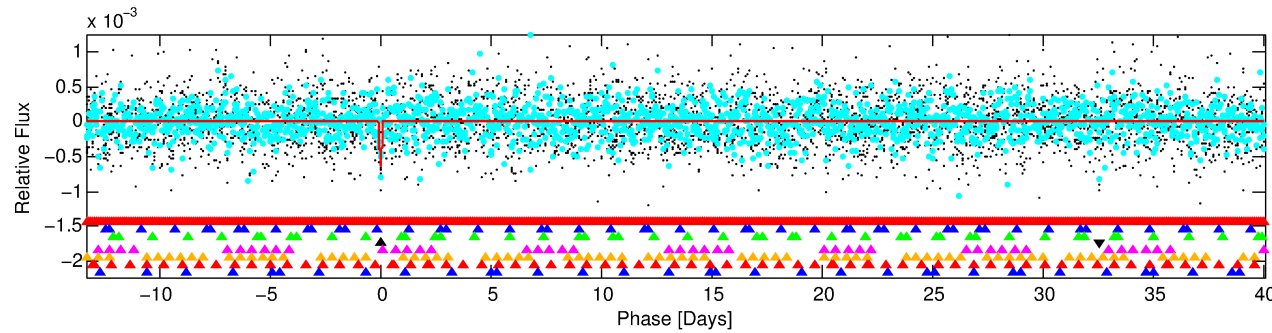
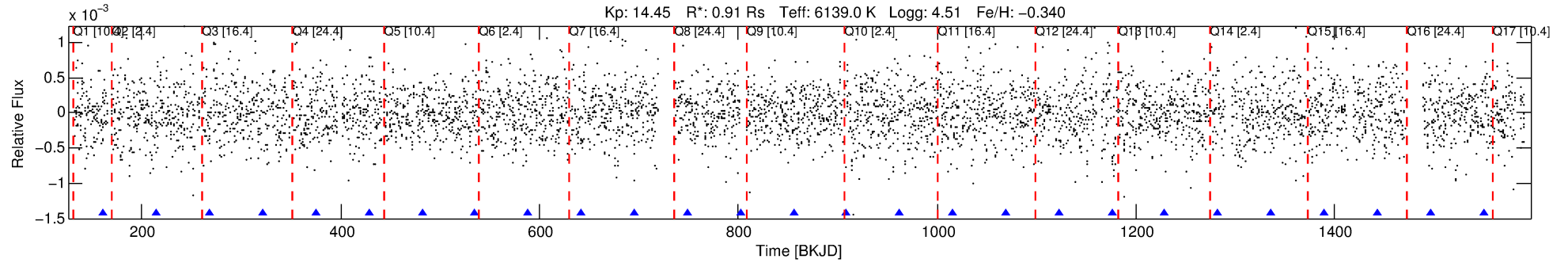
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002443753-04

No Significant Match Found

DV One-Page Summary

KIC: 2443753 Candidate: 4 of 8 Period: 53.380 d



DV Fit Results:

Period = 53.37956 [0.00125] d
Epoch = 161.6441 [0.0159] BKJD
Rp/R* = 0.0298 [0.0070]
a/R* = 45.60 [32.31]
b = 0.96 [0.06]
Seff = 13.85 [5.15]
Teq = 492 [46] K
Rp = 2.97 [1.09] Re
a = 0.2764 [0.0662] AU
Ag = 1928.05 [1361.65] [1.42σ]
Teffp = 5040 [789] K [5.76σ]

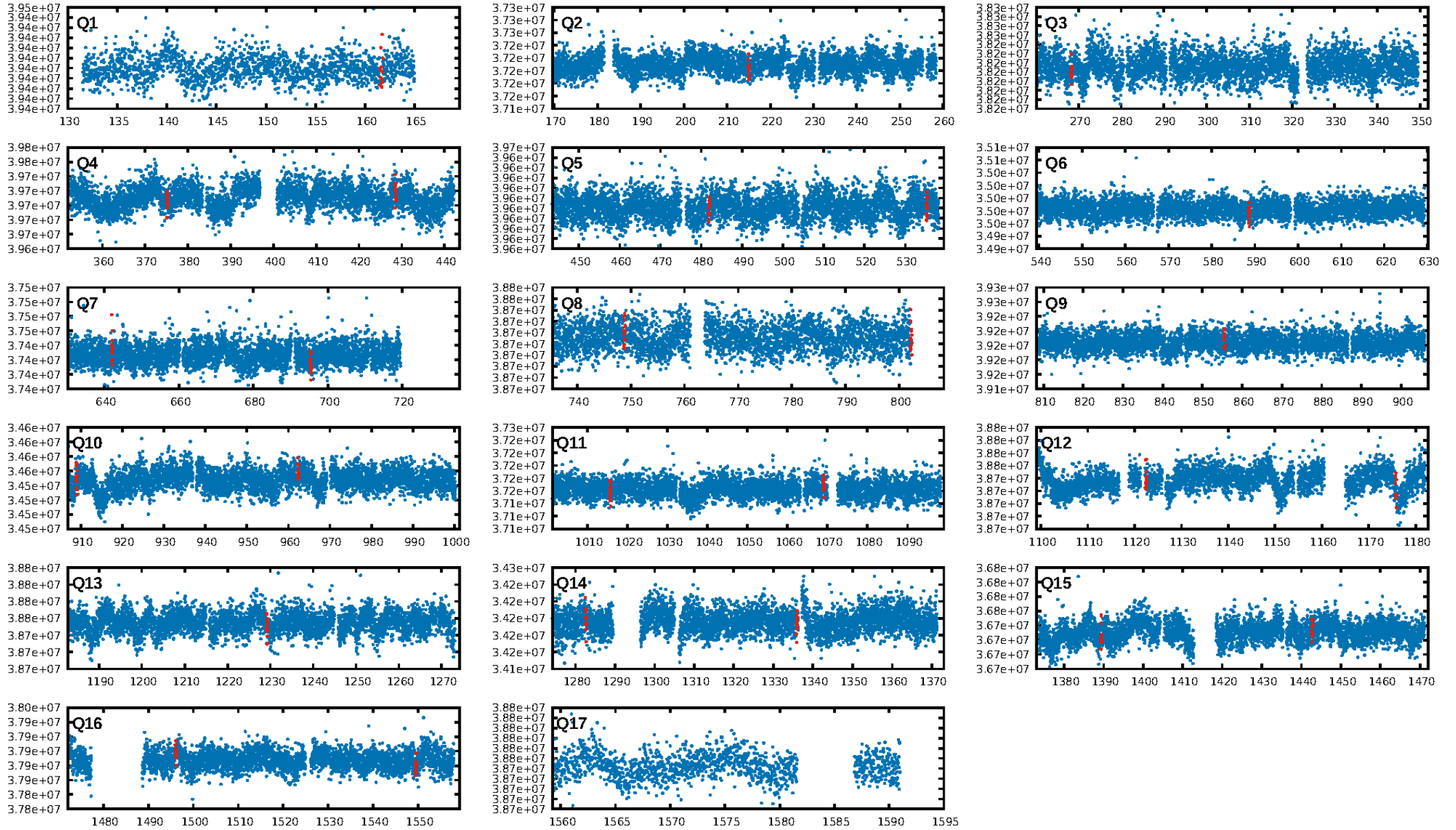
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [65.71σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 30.1%
ModelChiSquareGof-sig: 99.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -2.579
Centroid-sig: 0.5%
Centroid-so: 1.746 arcsec [2.48σ]
OotOffset-rm: 2.353 arcsec [1.89σ]
OotOffset-st: 1/2/2/1 [6]
KicOffset-rm: 2.353 arcsec [1.95σ]
KicOffset-st: 1/2/2/1 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.00 [0/16]

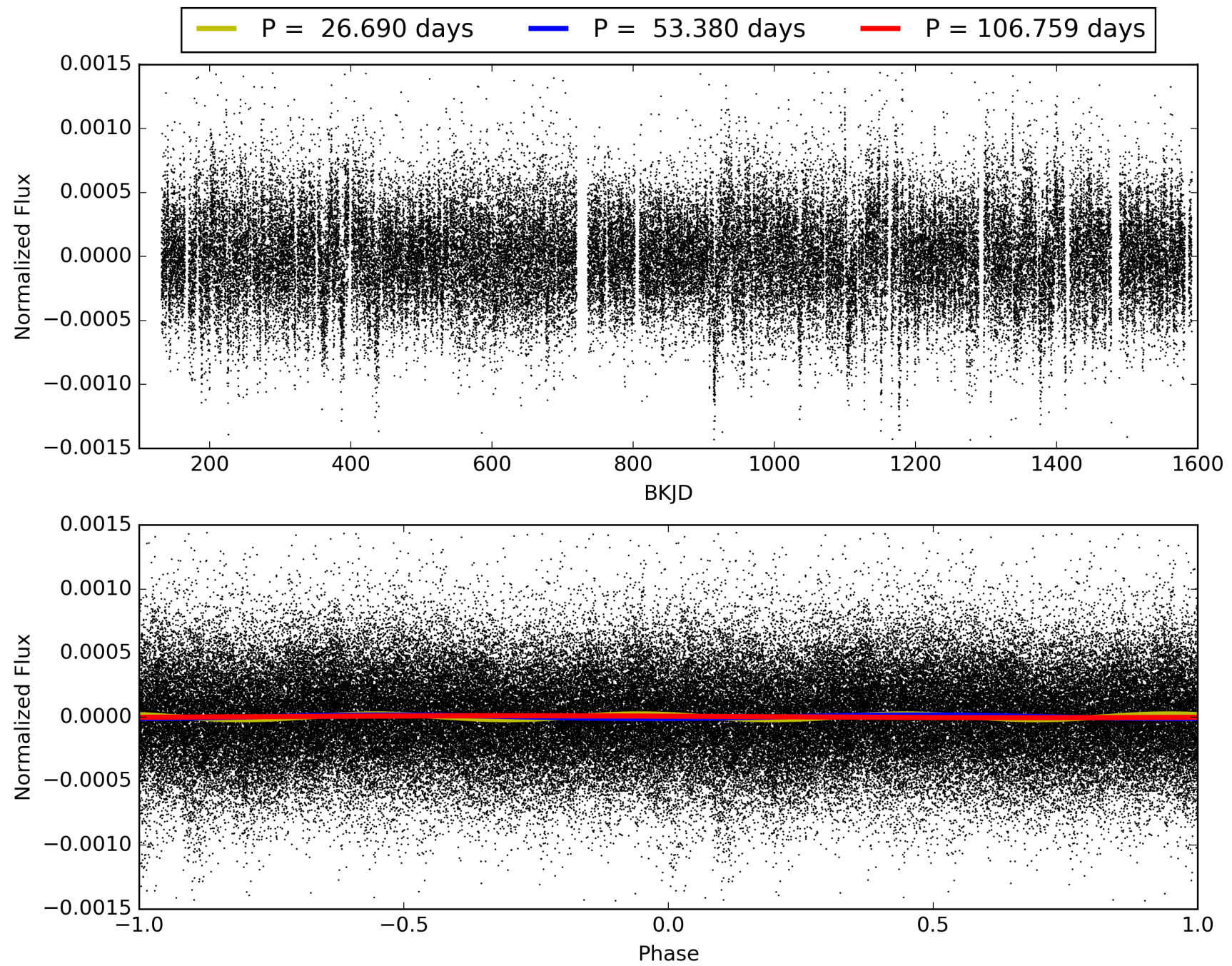
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:25:51 Z

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

TCE 002443753-04, PDC Light Curves

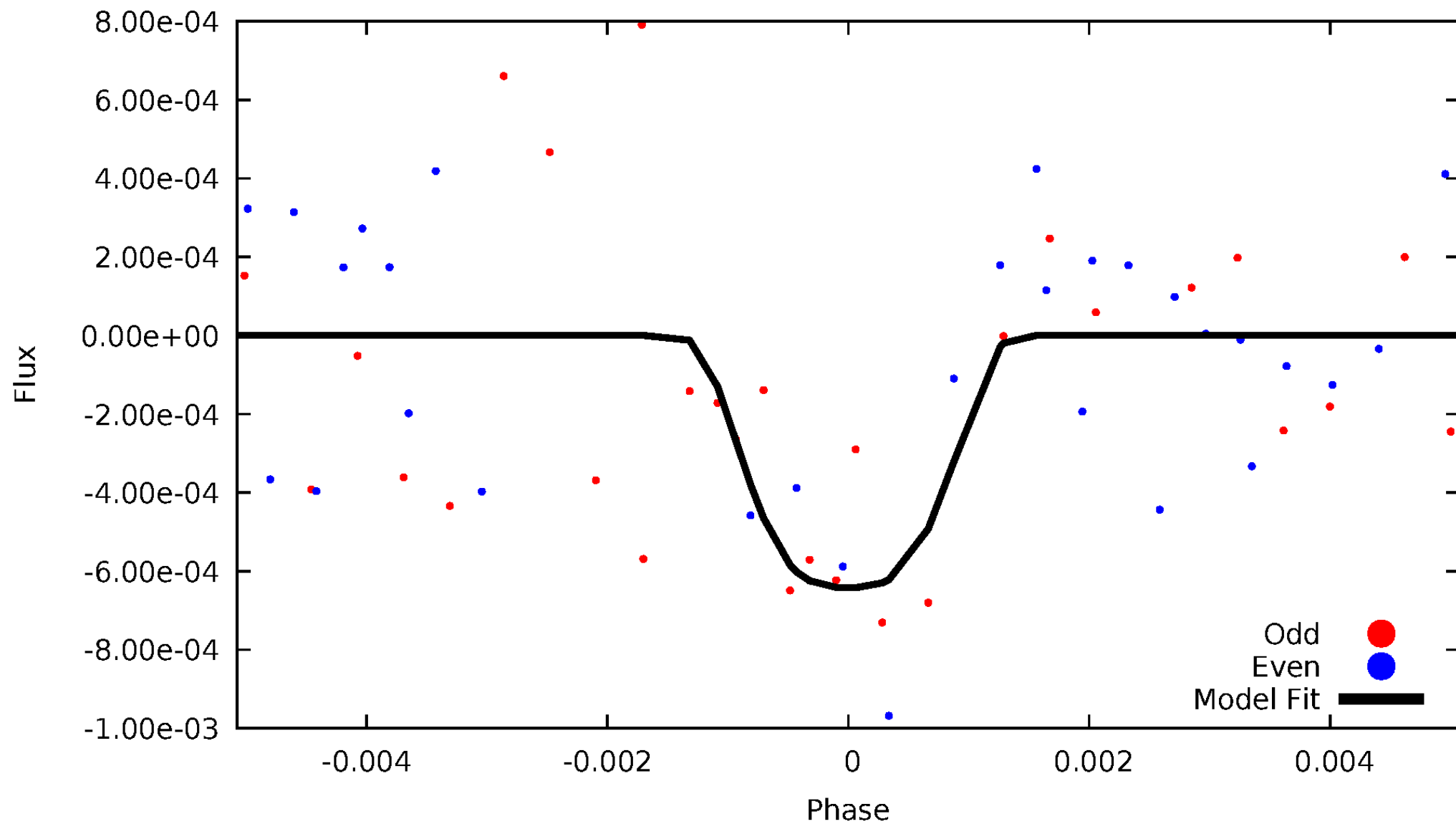


TCE 002443753-04



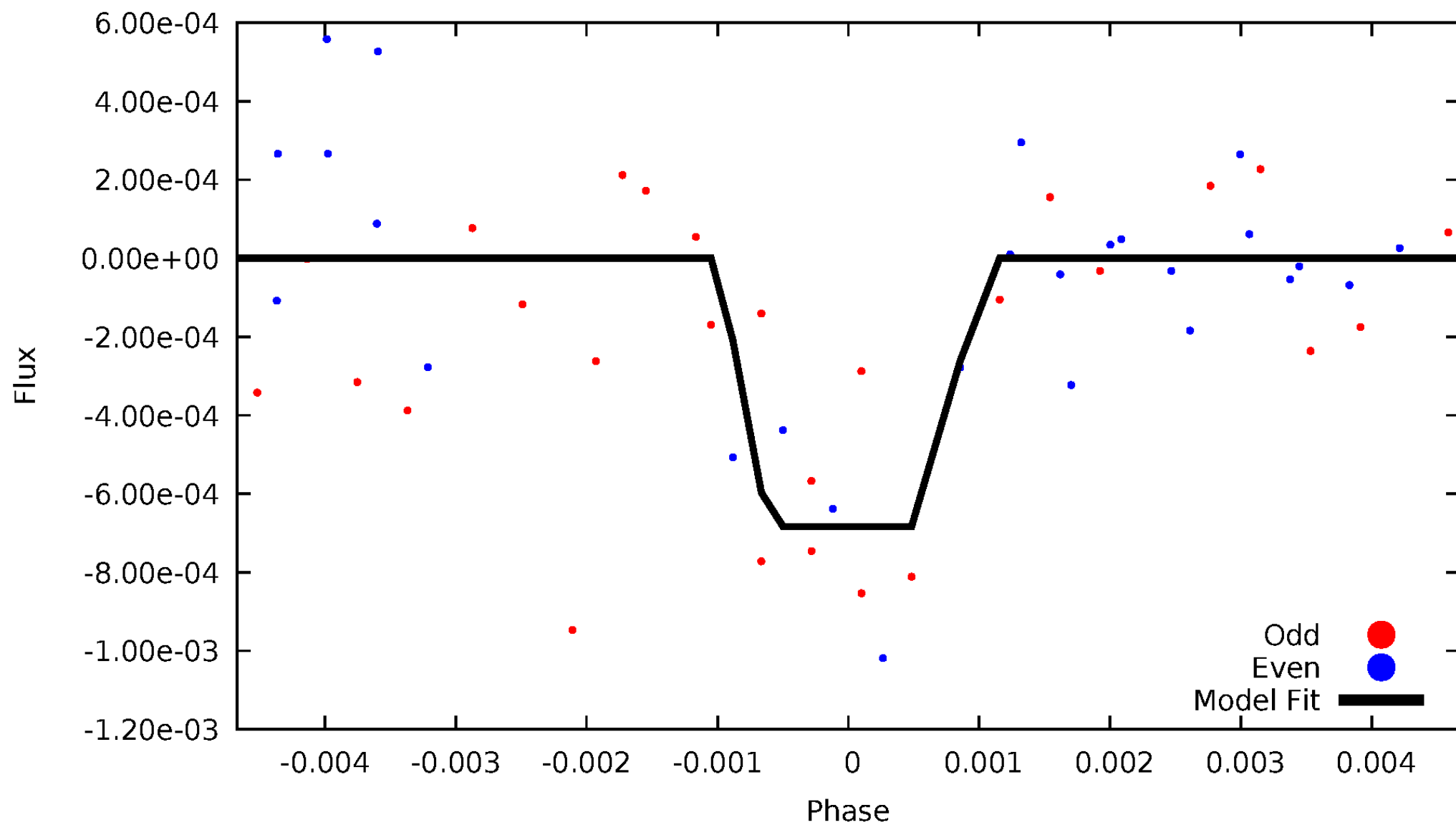
DV Odd/Even

TCE 002443753-04



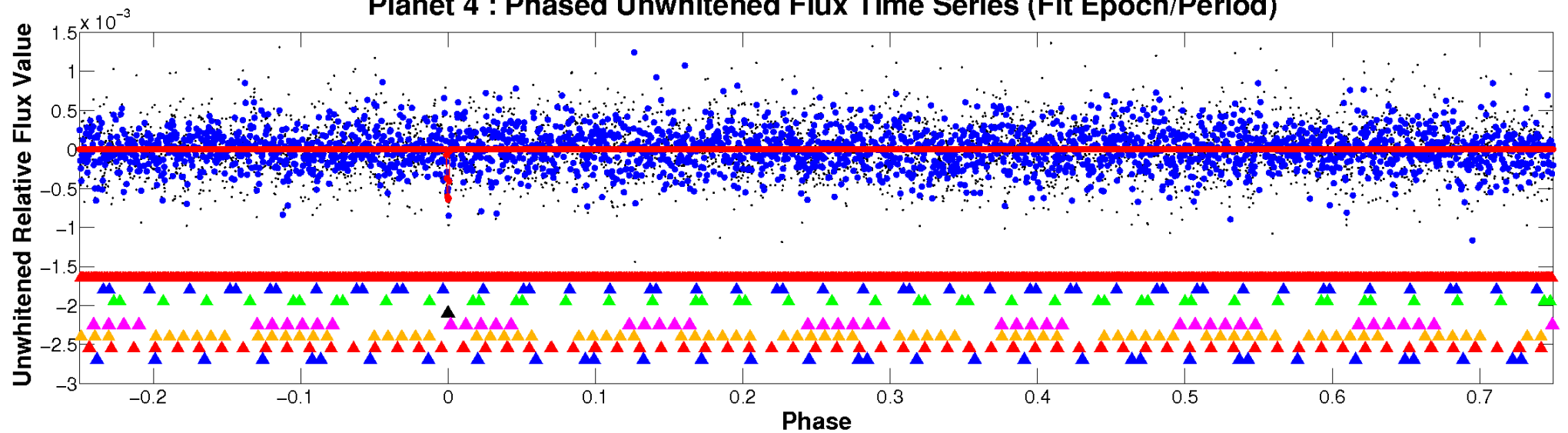
ALT Odd/Even

TCE 002443753-04

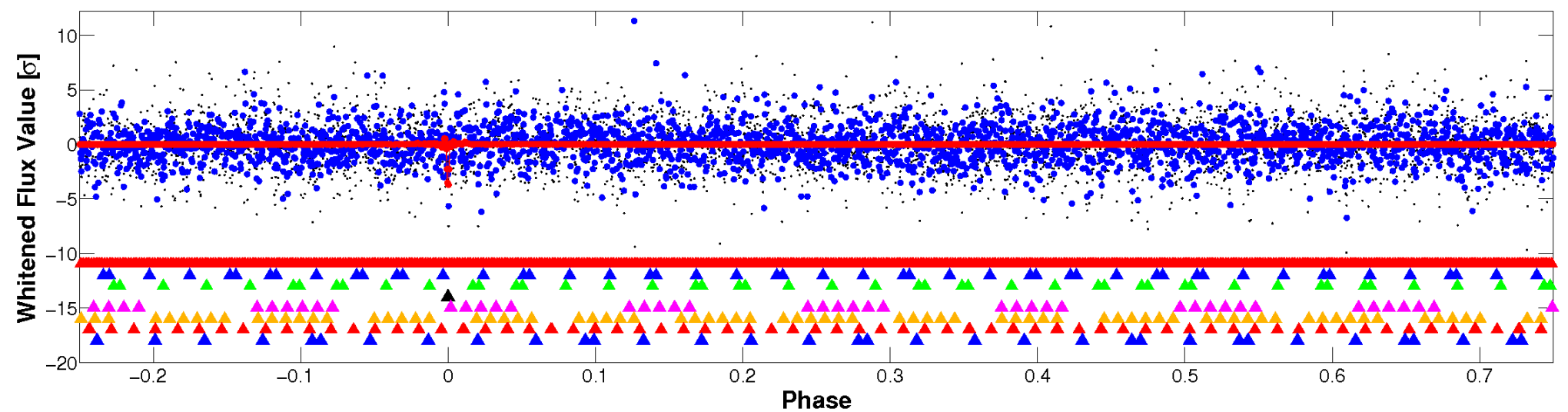


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

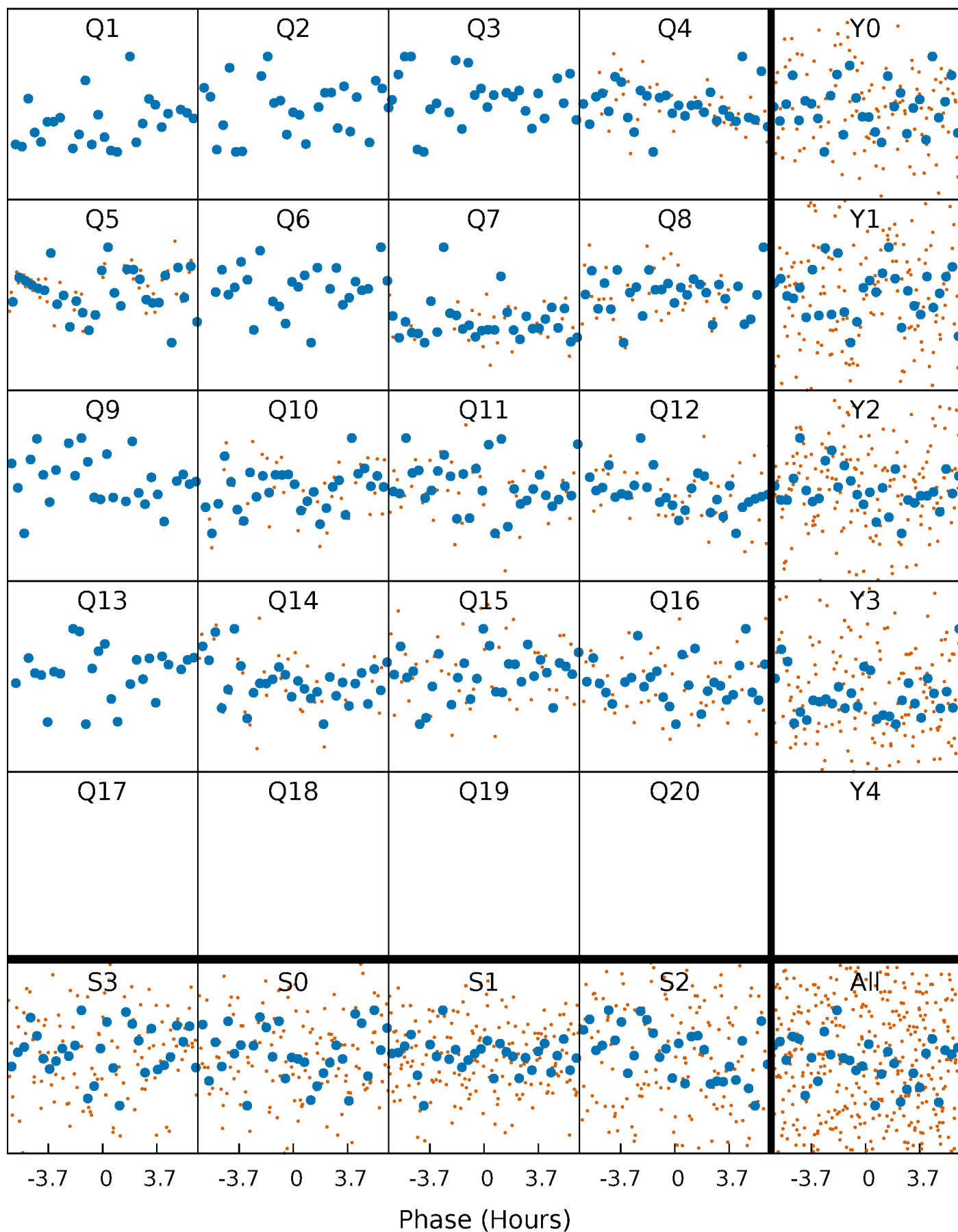


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



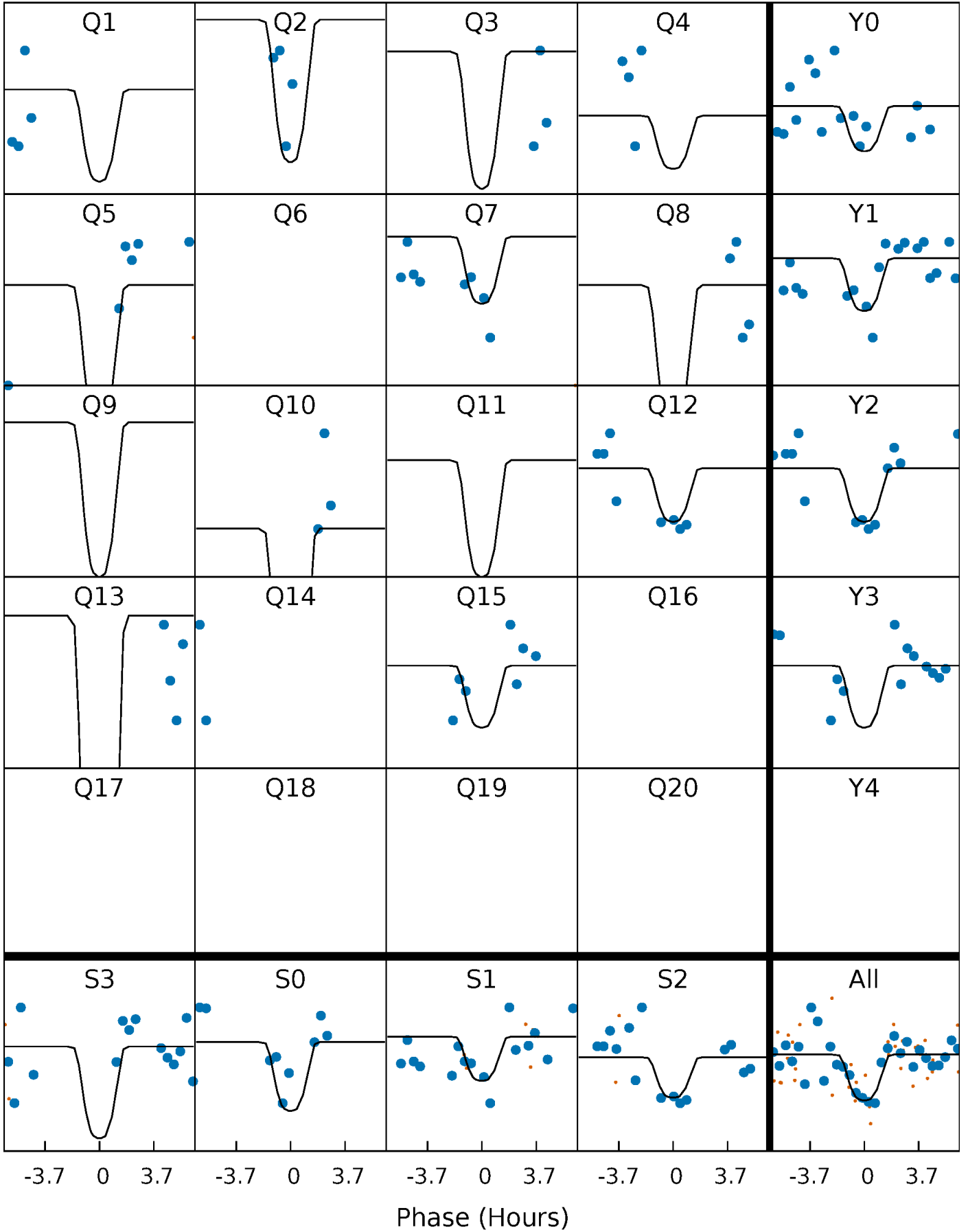
PDC Quarter-Phased Transit Curves

TCE 002443753-04 P= 53.379556 Days $T_0=161.644097$ (BKJD)



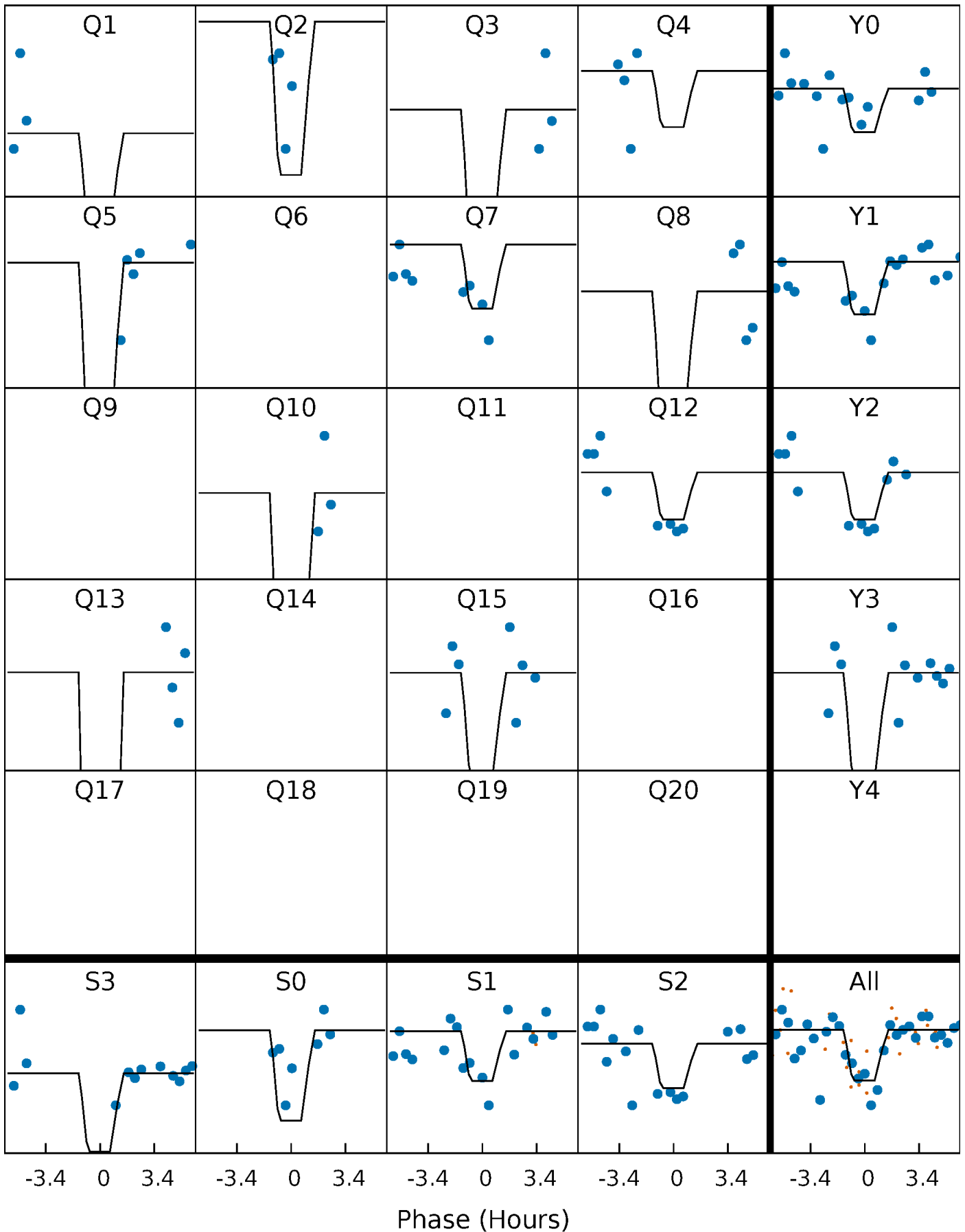
DV Quarter-Phased Transit Curves

TCE 002443753-04 P= 53.379556 Days $T_0=161.644097$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

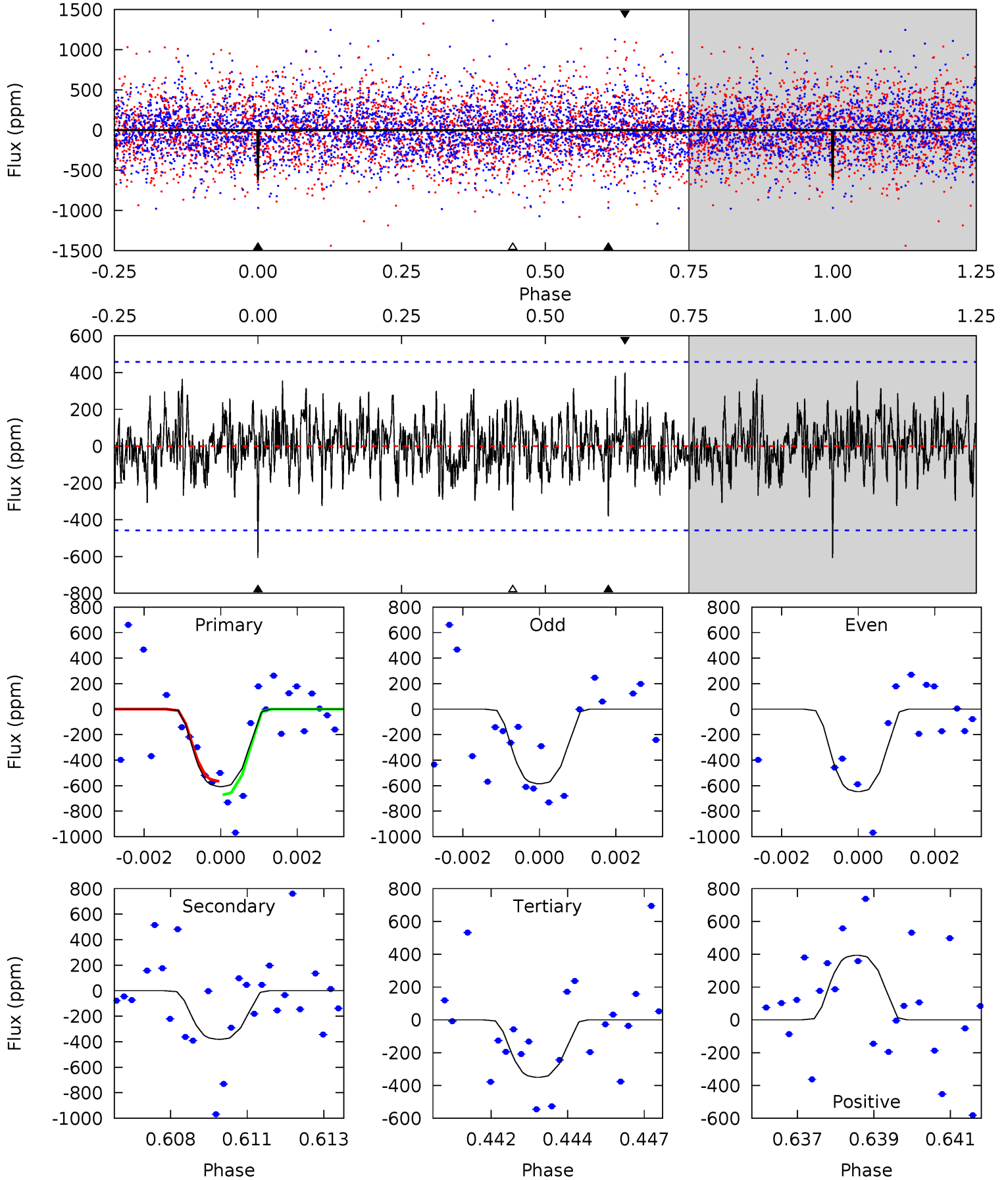
TCE 002443753-04 P= 53.380201 Days $T_0=161.641443$ (BKJD)



DV Model-Shift Uniqueness Test

002443753-04, P = 53.379556 Days, E = 108.264541 Days

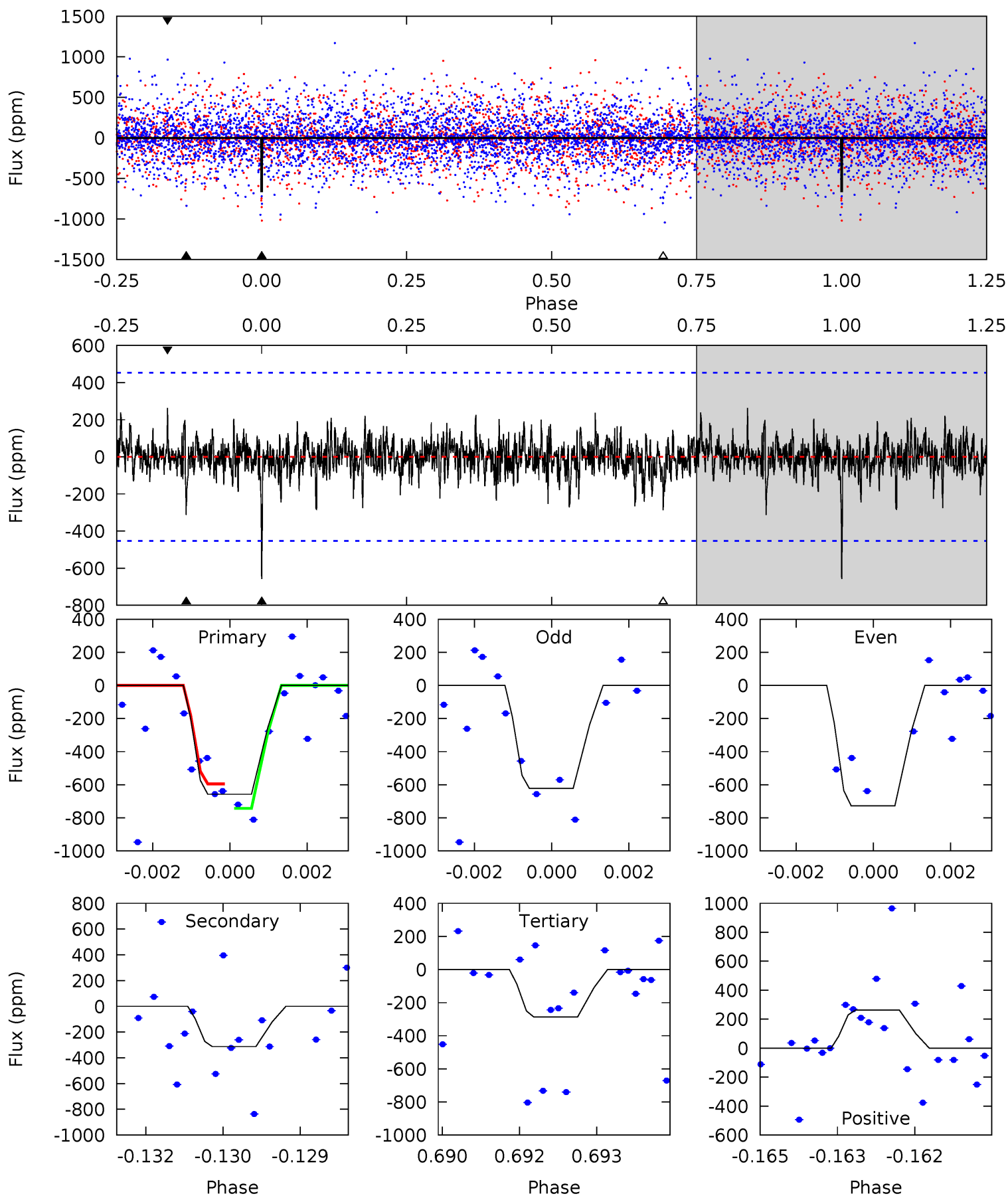
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.02	4.40	4.05	4.55	5.30	3.04	1.32	2.97	2.47	0.35	-0.15	0.35	0.81	0.39	0.61



Alt Model-Shift Uniqueness Test

002443753-04, P = 53.380201 Days, E = 108.261242 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.77	3.69	3.39	3.11	5.35	3.13	0.86	4.38	4.66	0.31	0.58	0.66	0.87	0.29	0.86



Stellar Parameters For KIC 002443753

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6139^{+171}_{-192}	$4.513^{+0.048}_{-0.192}$	$-0.340^{+0.300}_{-0.350}$	$0.912^{+0.258}_{-0.086}$	$0.991^{+0.117}_{-0.129}$	$1.837^{+0.456}_{-0.938}$
	+3%/-3%	+1%/-4%	+88%/-103%	+28%/-9%	+12%/-13%	+25%/-51%
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 002443753-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-381 ± 87	$3.14^{+0.81}_{-0.83}$	699^{+46}_{-30}	5008^{+676}_{-472}	1575^{+1348}_{-630}
Alt.	-313 ± 85	$2.76^{+0.90}_{-0.75}$	701^{+45}_{-32}	5017^{+820}_{-503}	1603^{+1594}_{-670}

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

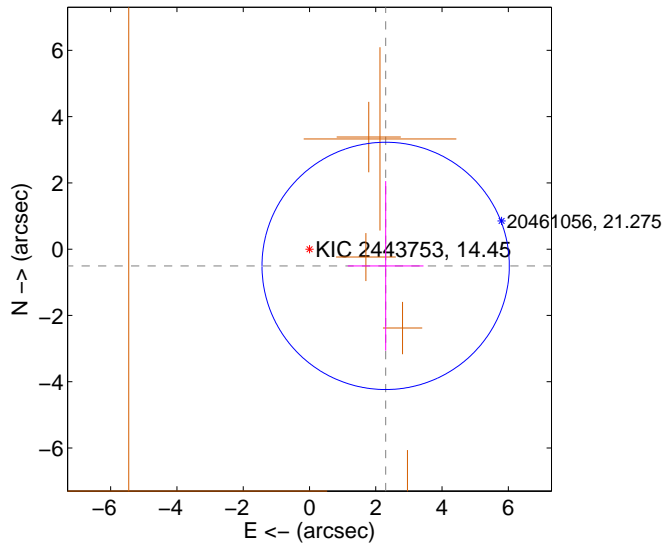
Supplemental centroid analysis for 002443753-04. Kepler magnitude: 14.45. Transit SNR 11.34

There are 0 quarters with good PRF difference image offsets

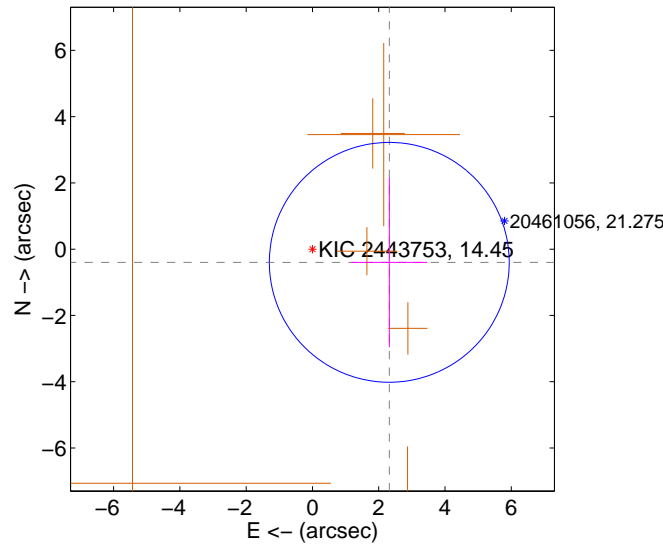
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.353 ± 1.244	1.89	-2.298 ± 1.142	-0.505 ± 2.560
PRF-fit source offset from KIC position	2.353 ± 1.206	1.95	-2.319 ± 1.142	-0.397 ± 2.560
photometric centroid source offset	1.75 ± 0.70	2.48	-0.78 ± 0.68	-1.56 ± 0.71

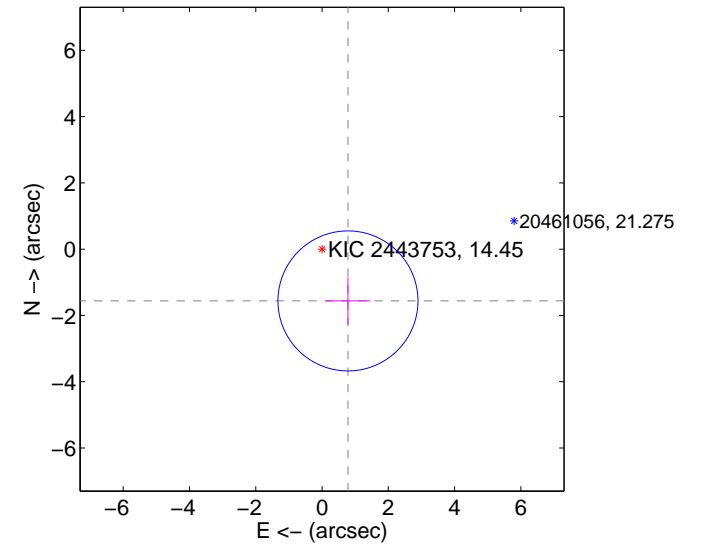
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

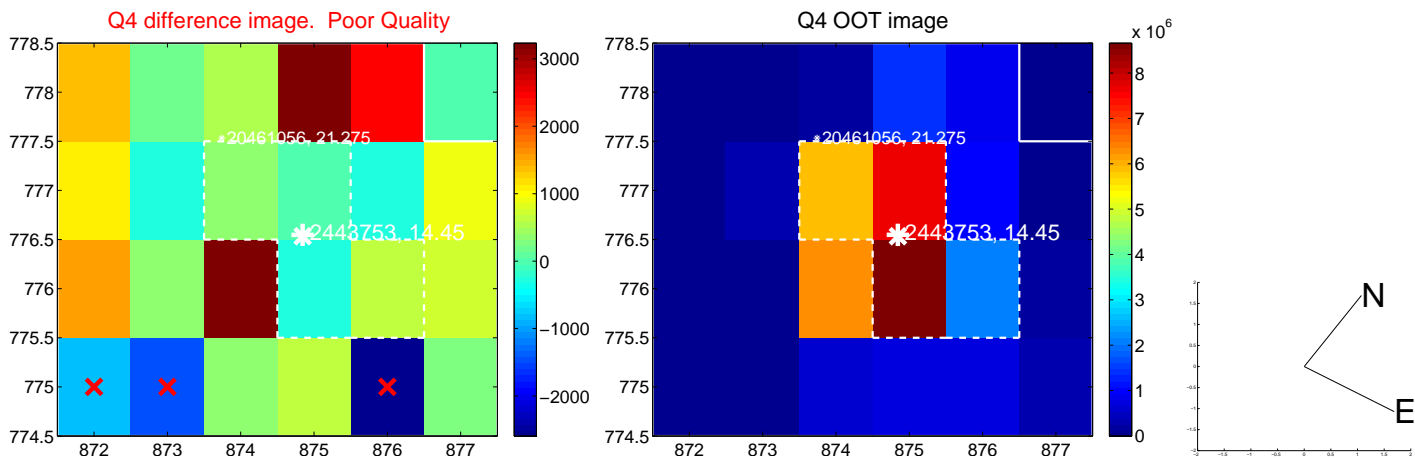
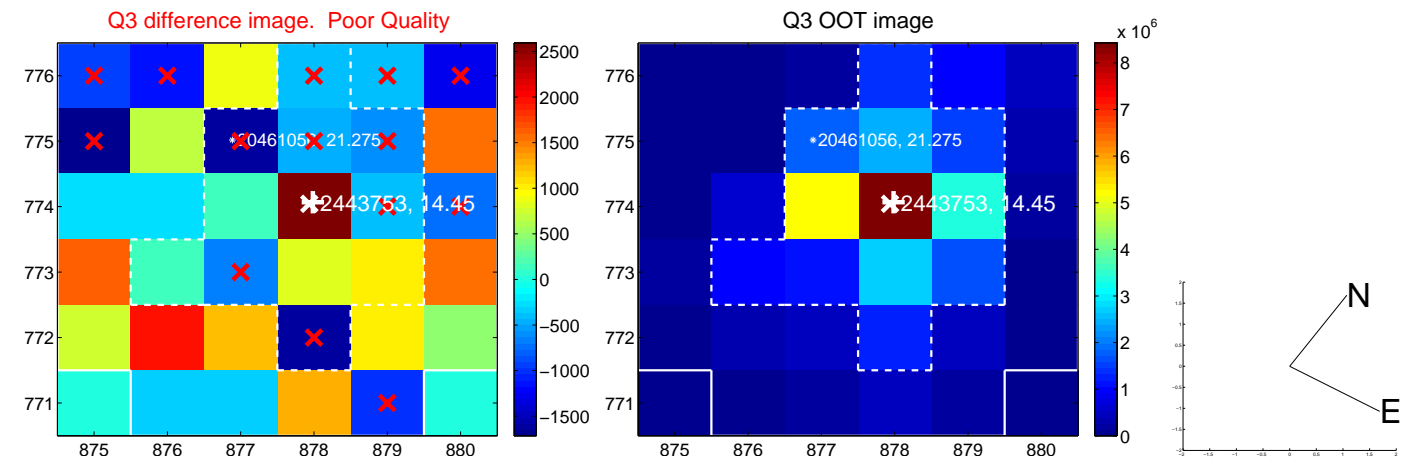
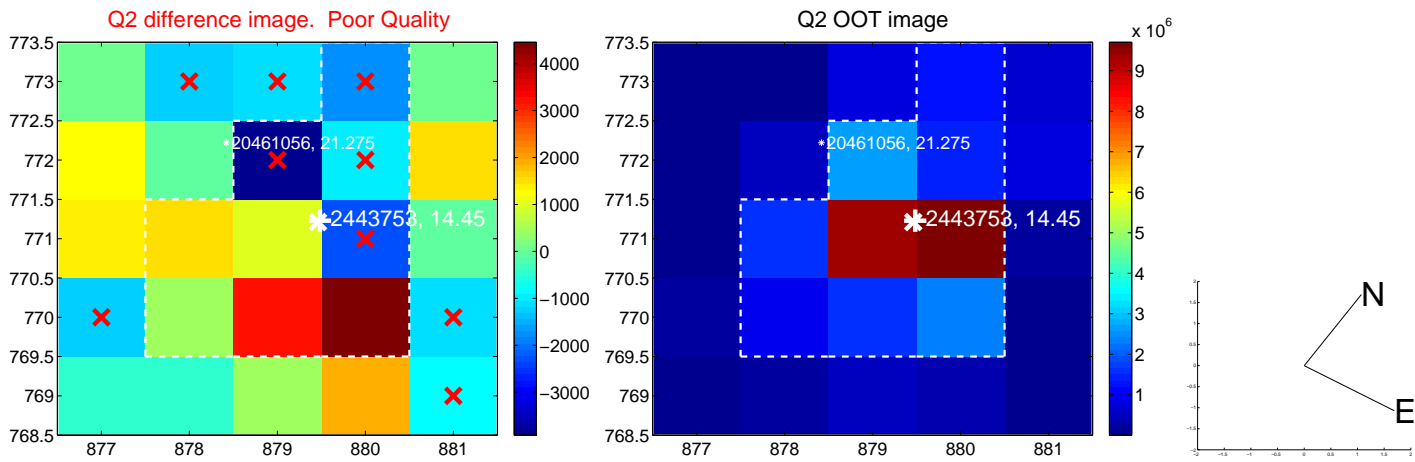
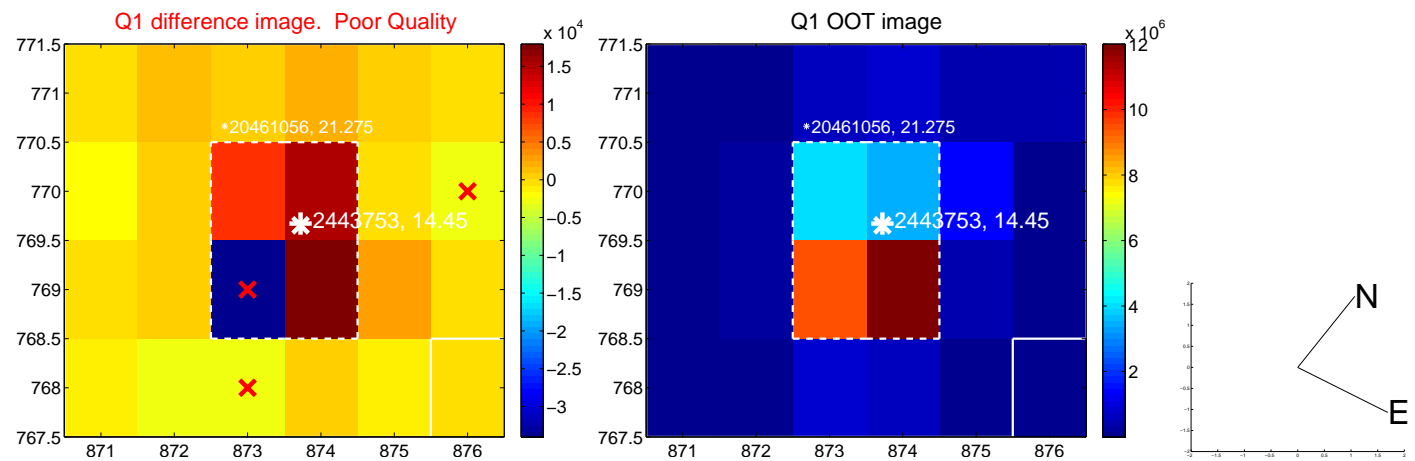


offset from photometric centroids

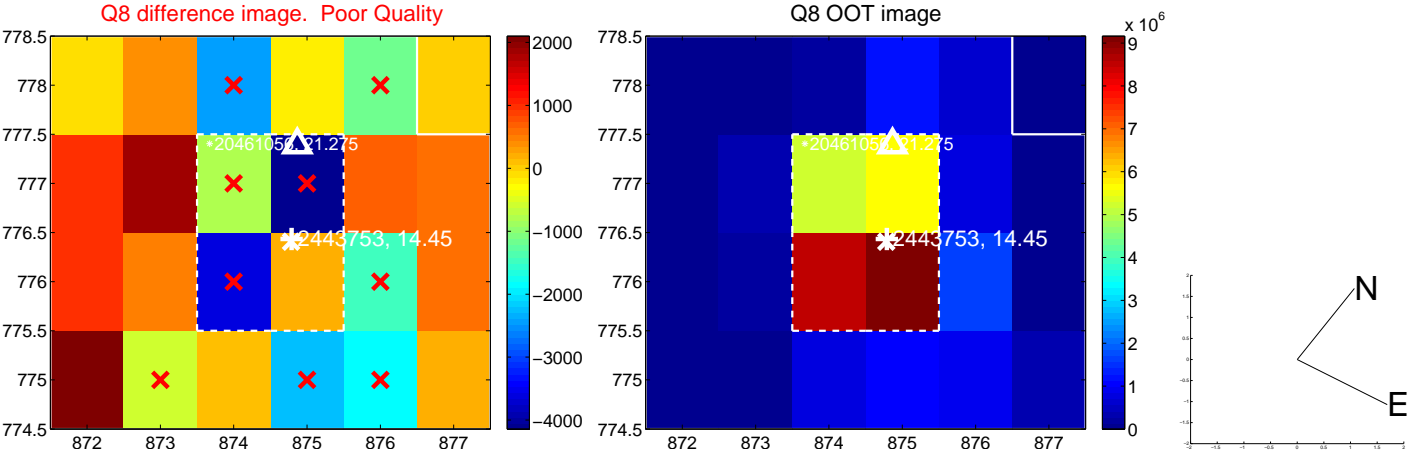
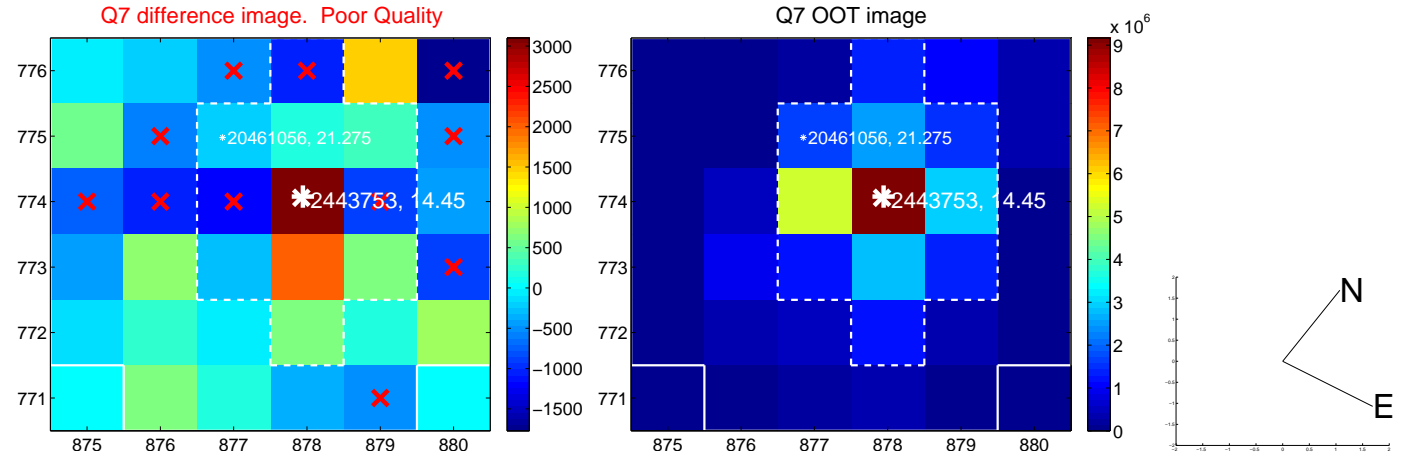
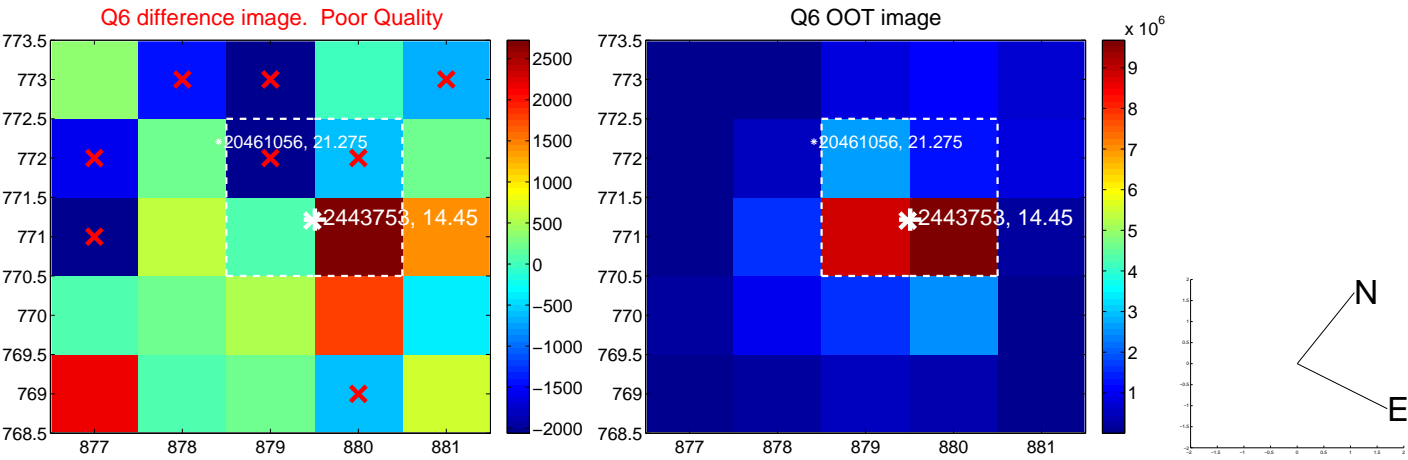
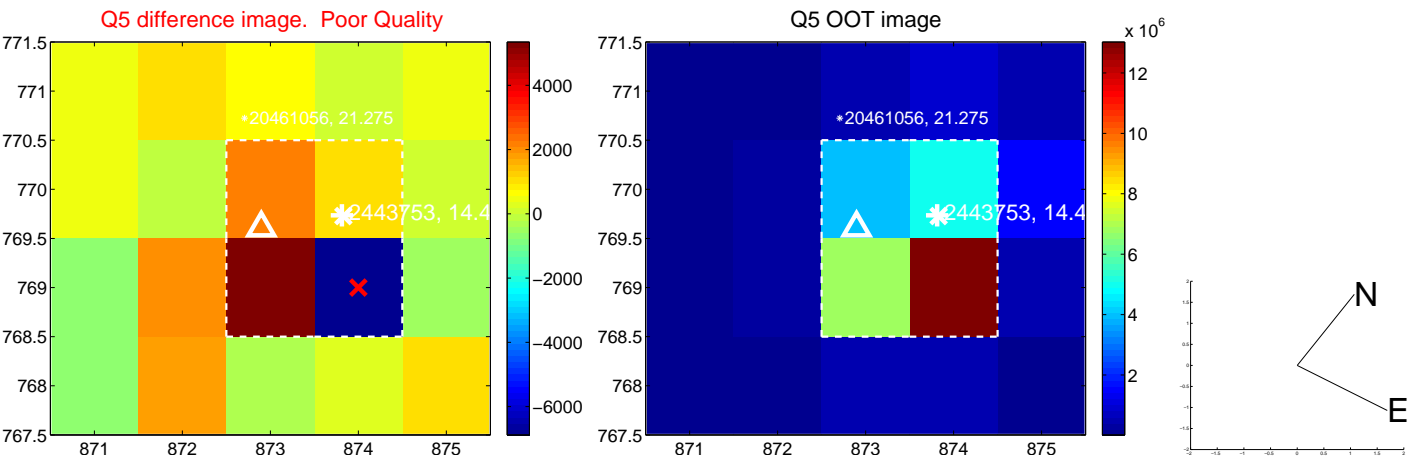


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

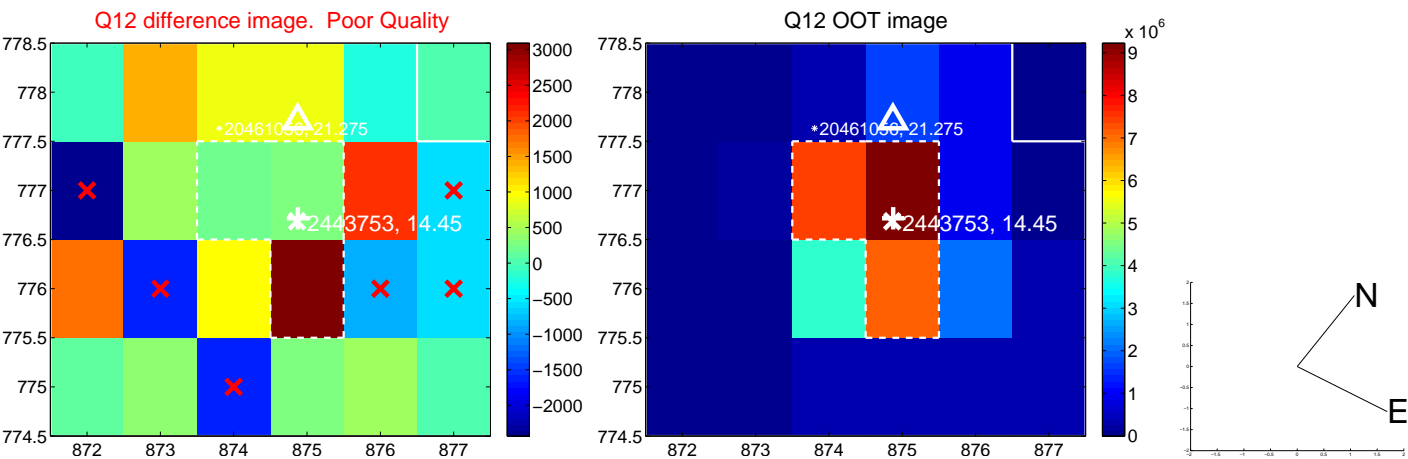
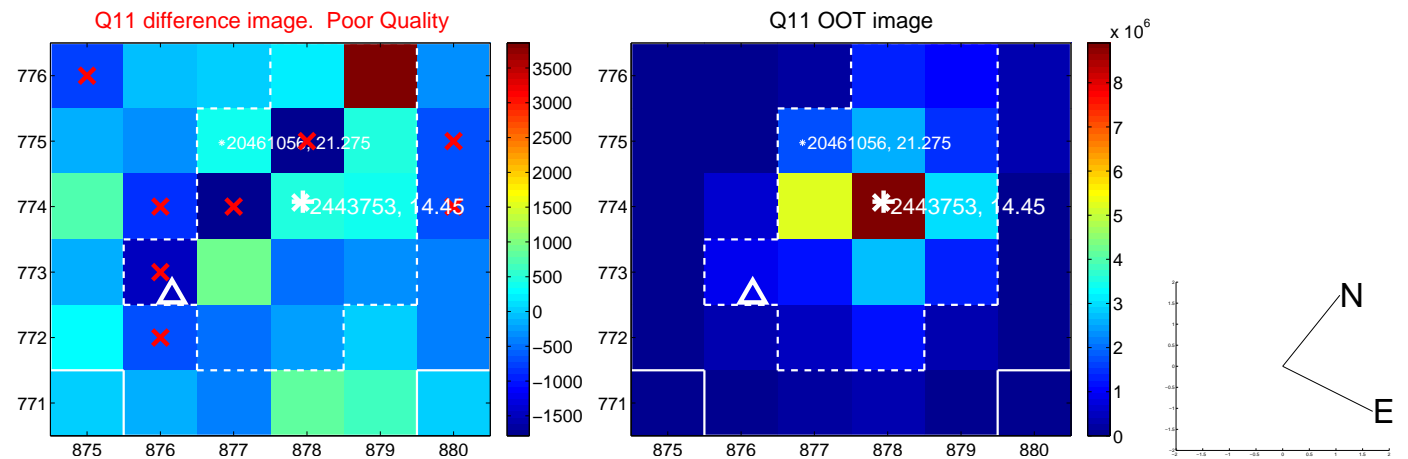
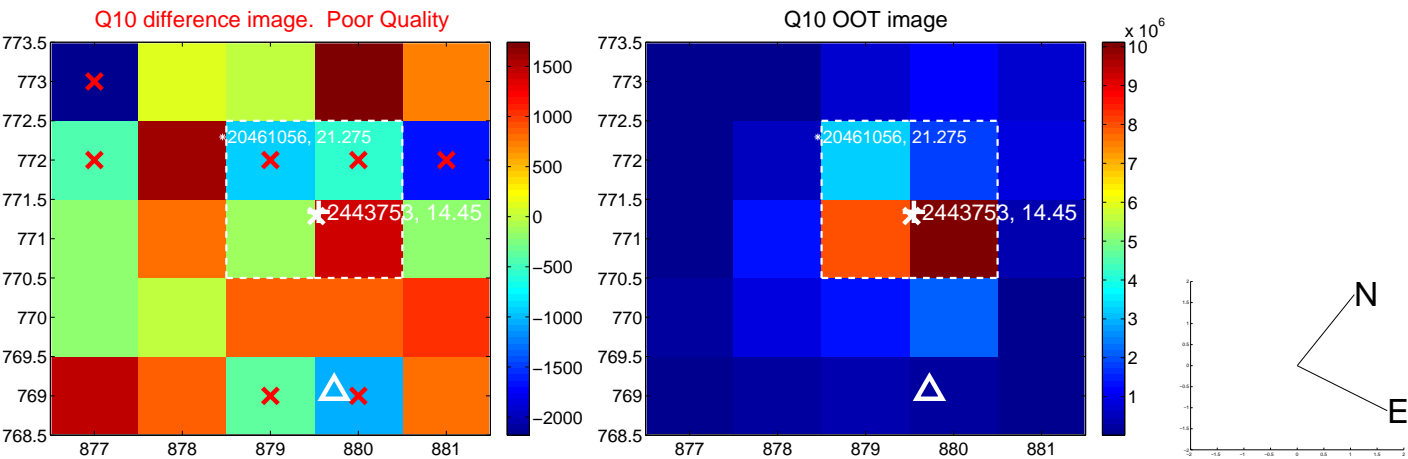
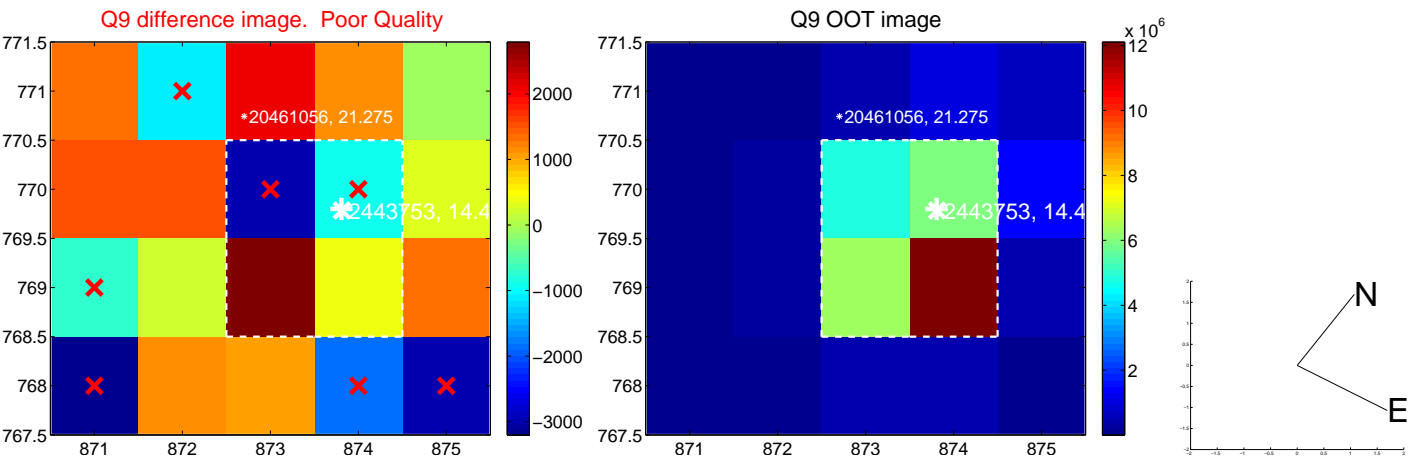
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



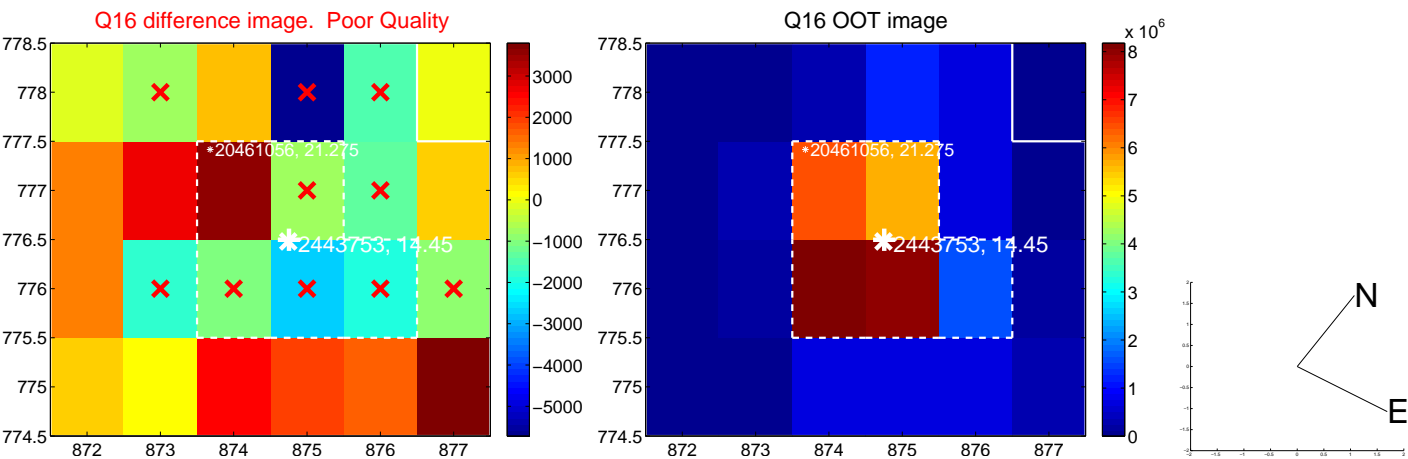
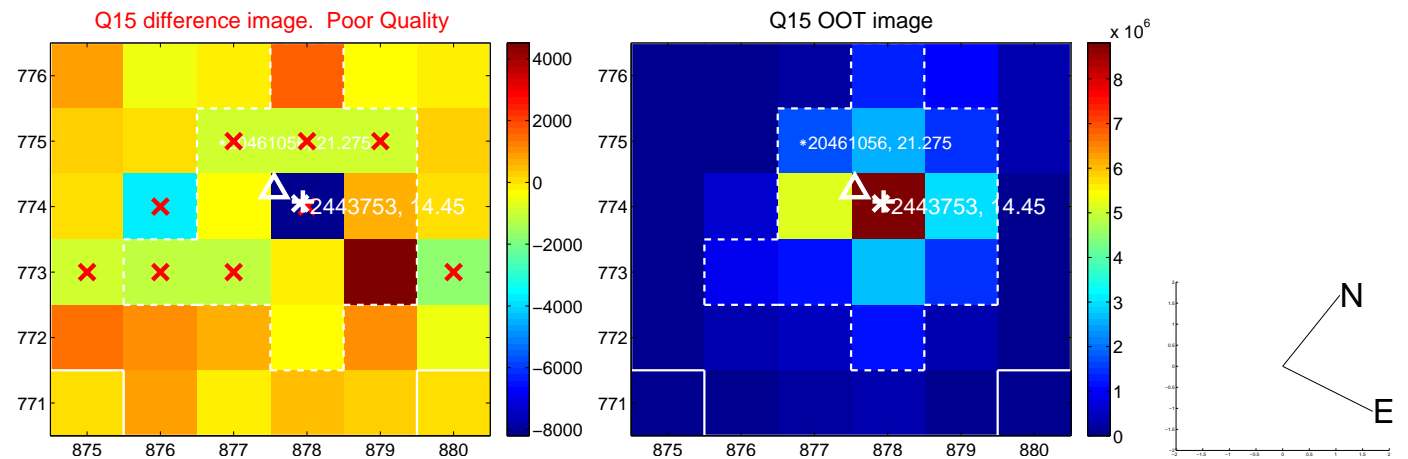
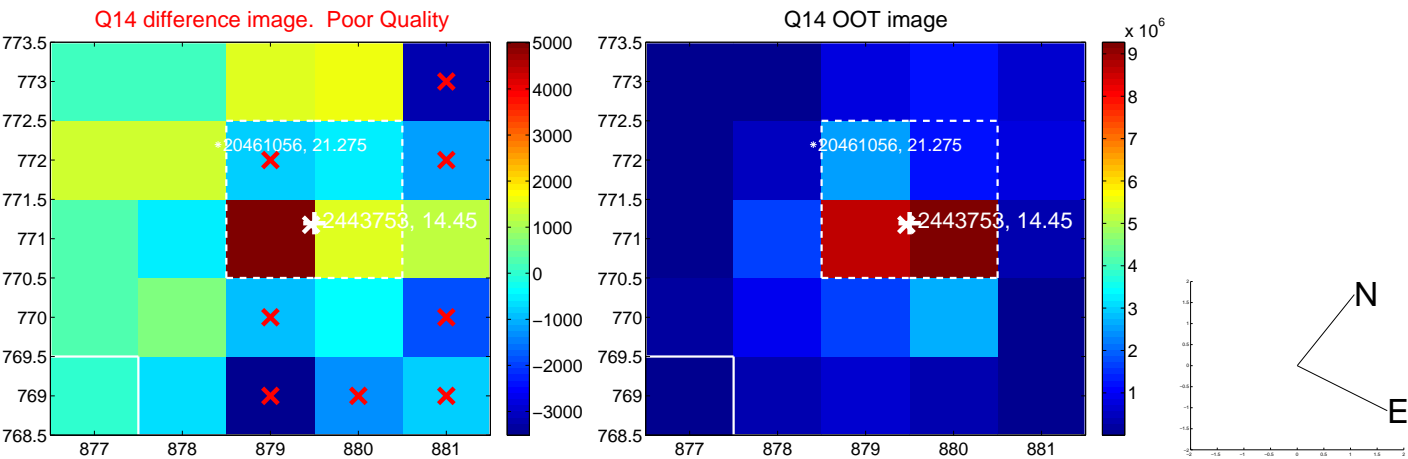
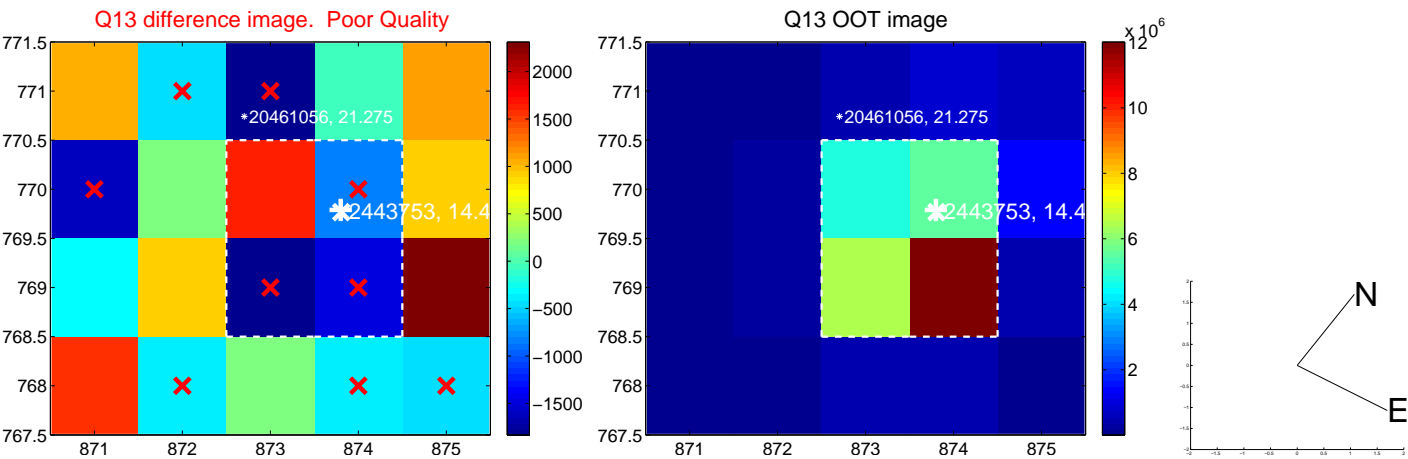
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



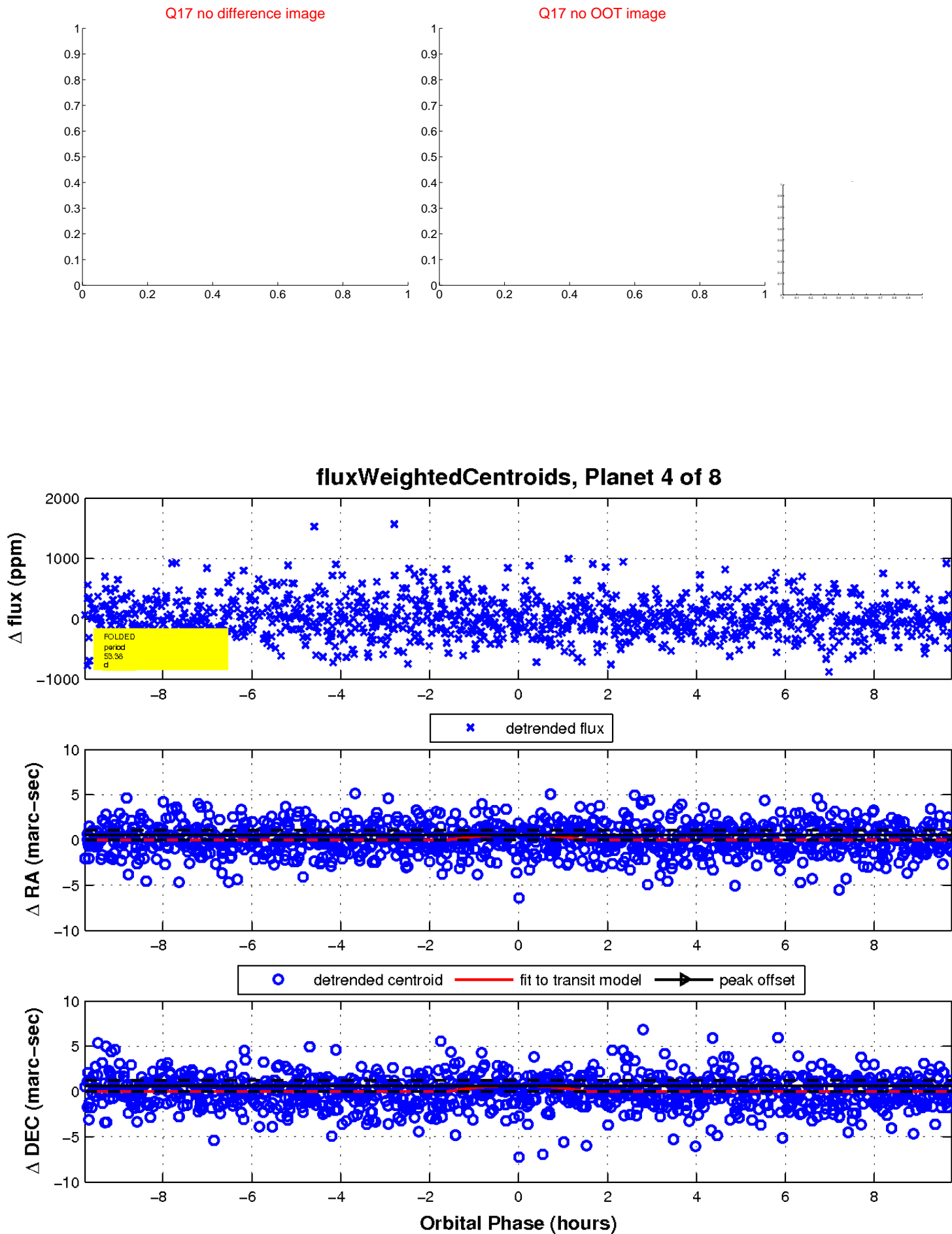
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

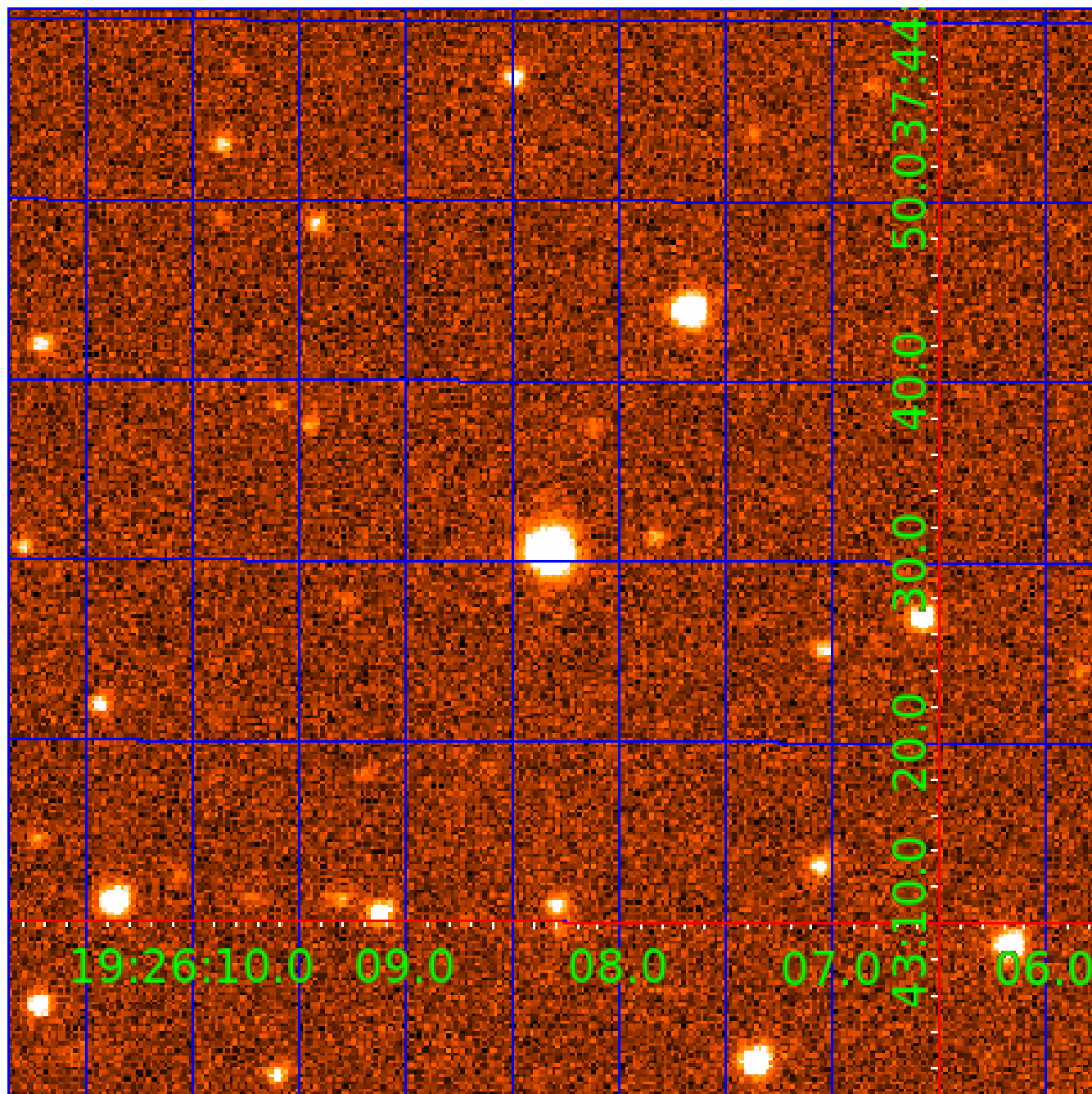


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002443753

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})
002443753-01	OBS	No	0.864091	131.606741	30.6	6.179	7.8	11.4	0.91	6139	0.56	3382.22
002443753-02	OBS	No	28.983578	155.204412	571.6	2.009	11.2	11.9	0.91	6139	2.21	31.27
002443753-03	OBS	No	30.726973	132.039181	302.8	3.946	9.6	9.4	0.91	6139	1.83	28.92
002443753-04	OBS	No	53.379556	161.644097	642.9	3.251	10.3	11.3	0.91	6139	2.97	13.85
002443753-05	OBS	No	33.430499	141.248398	711.7	1.251	10.3	10.6	0.91	6139	2.45	25.85
002443753-06	OBS	No	19.028481	134.527844	276.4	2.842	10.1	9.6	0.91	6139	1.76	54.80
002443753-07	OBS	No	18.323714	143.898506	468.7	1.573	10.7	11.8	0.91	6139	2.27	57.62
002443753-08	OBS	No	43.482829	143.242586	672.9	1.581	11.9	11.1	0.91	6139	2.79	18.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002443753-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS
002443753-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
002443753-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
002443753-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN—HALO_GHOST
002443753-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
002443753-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

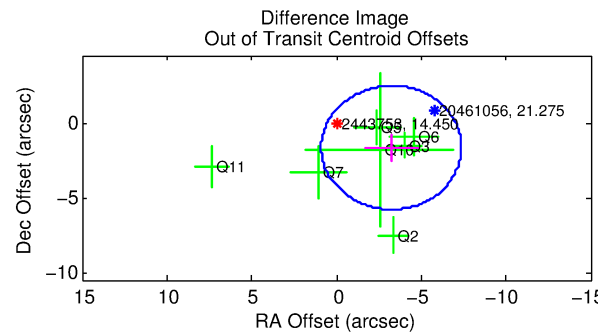
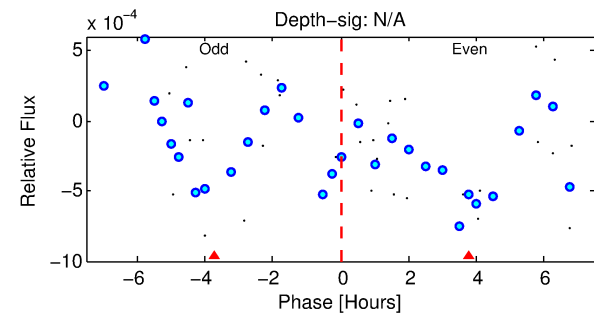
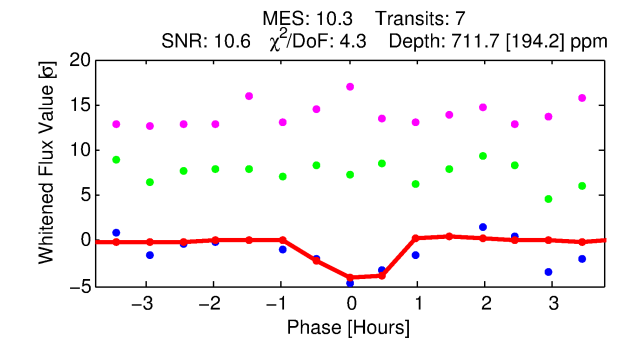
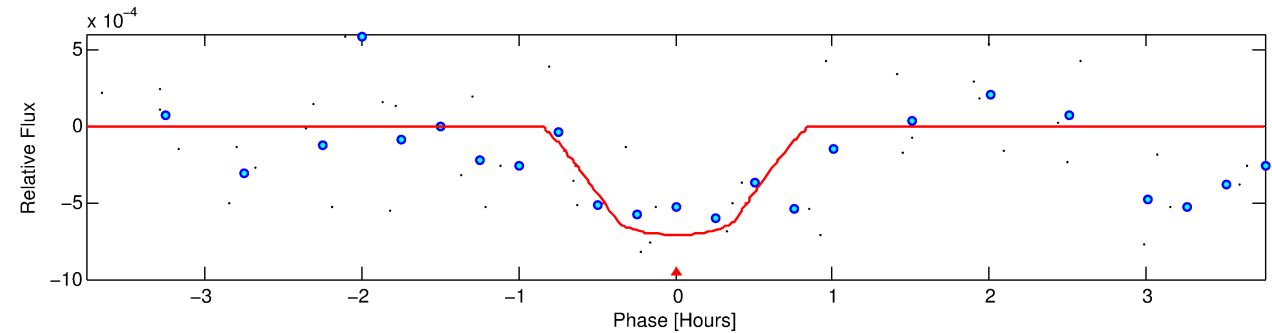
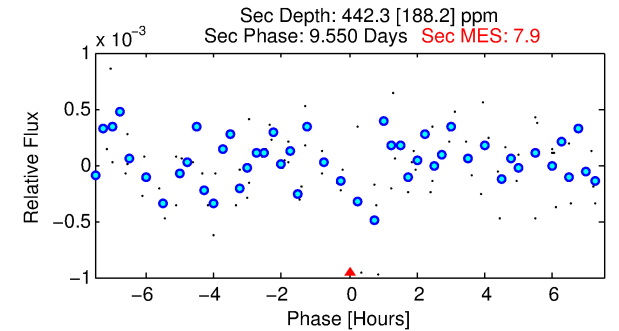
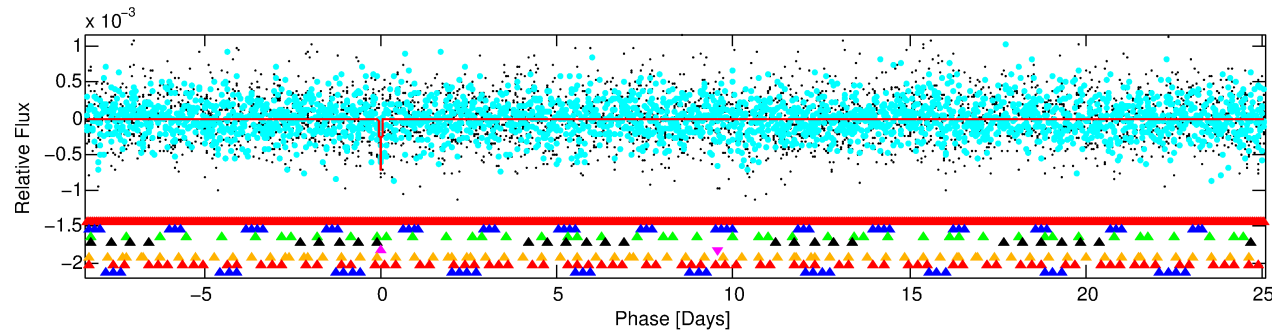
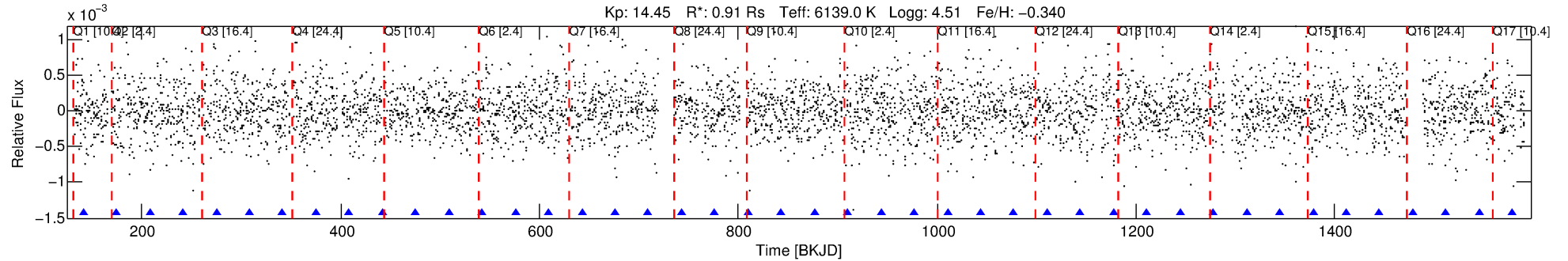
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002443753-05

No Significant Match Found

DV One-Page Summary

KIC: 2443753 Candidate: 5 of 8 Period: 33.430 d



DV Fit Results:

Period = 33.43050 [0.00045] d
Epoch = 141.2484 [0.0111] BKJD
Rp/R* = 0.0246 [0.1152]
a/R* = 207.89 [4868.79]
b = 0.12 [199.81]
Seff = 25.85 [9.61]
Teff = 575 [53] K
Rp = 2.45 [11.48] Re
a = 0.2024 [0.0484] AU
Ag = 1657.49 [15523.99] [0.11] σ
Teffp = 5672 [13273] K [0.38] σ

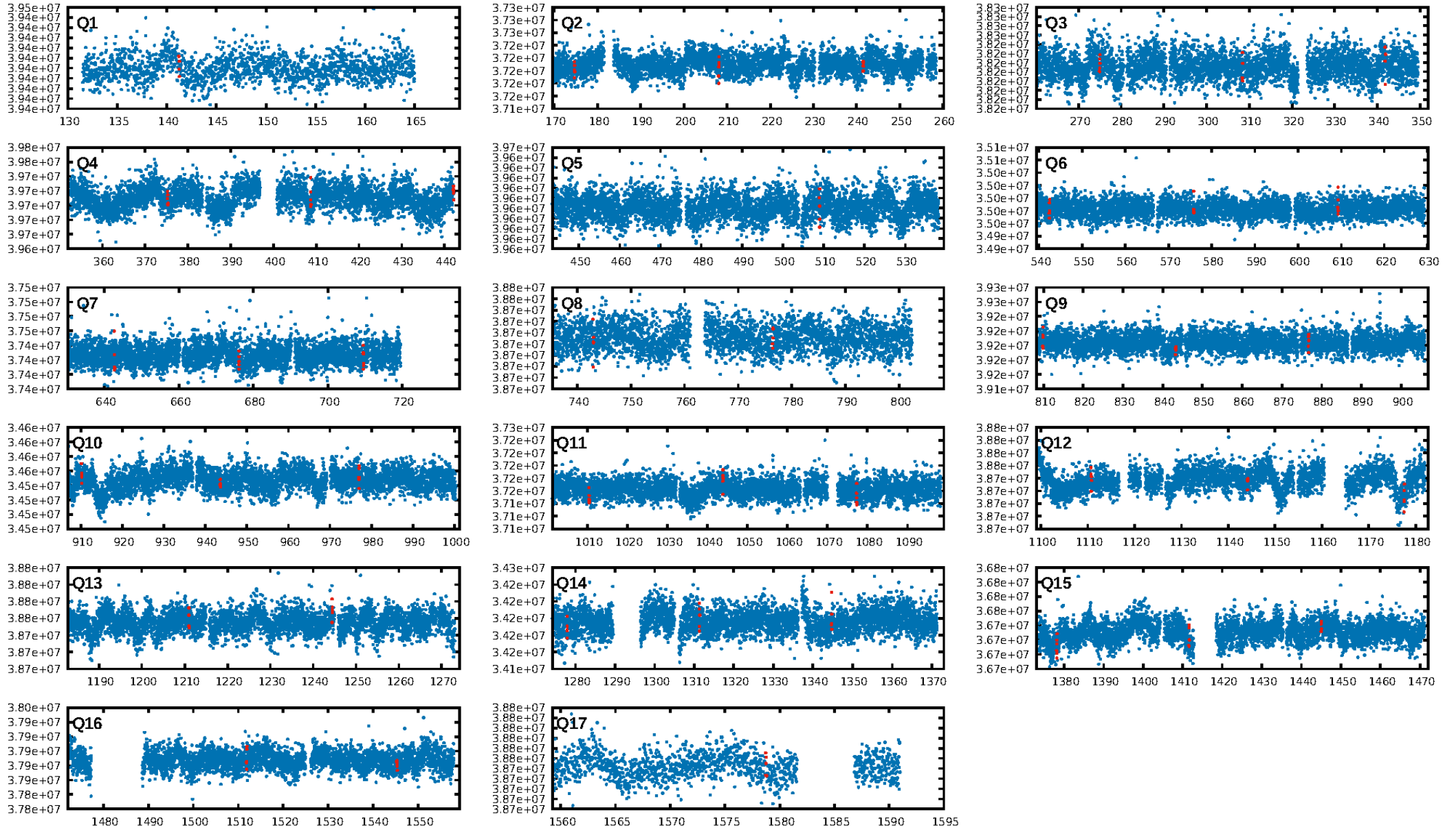
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.68] σ
LongPeriod-sig: 100.0% [119.67] σ
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 78.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 0.1223
Centroid-sig: 0.4%
Centroid-so: 1.659 arcsec [2.43] σ
OotOffset-rm: 3.637 arcsec [2.64] σ
KicOffset-rm: 3.566 arcsec [2.53] σ
OotOffset-st: 3/3/0/1 [7]
KicOffset-st: 3/3/0/1 [7]
DiffImageQuality-fgm: 0.14 [1/7]
DiffImageOverlap-fno: 0.29 [5/17]

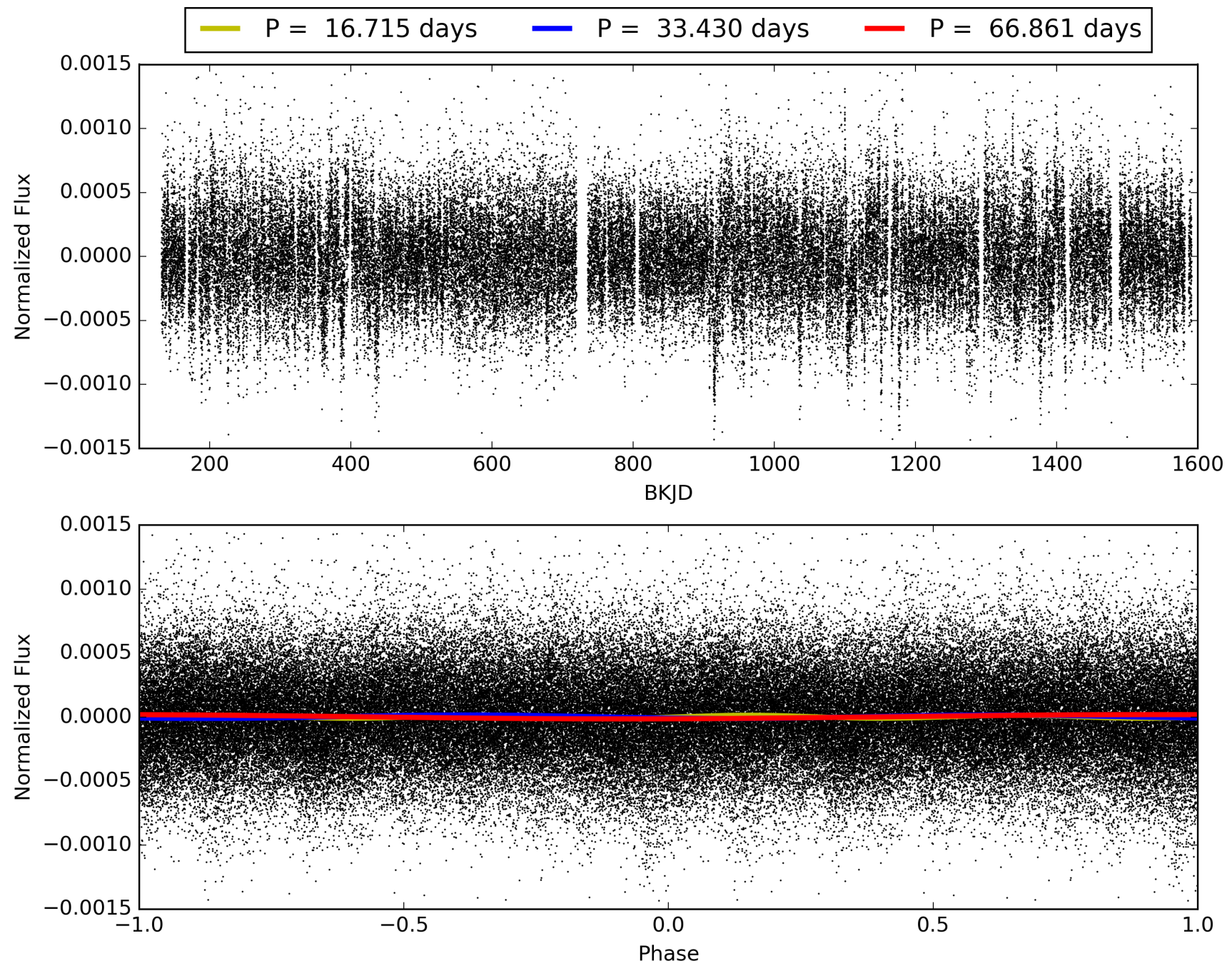
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:25:55 Z

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

TCE 002443753-05, PDC Light Curves

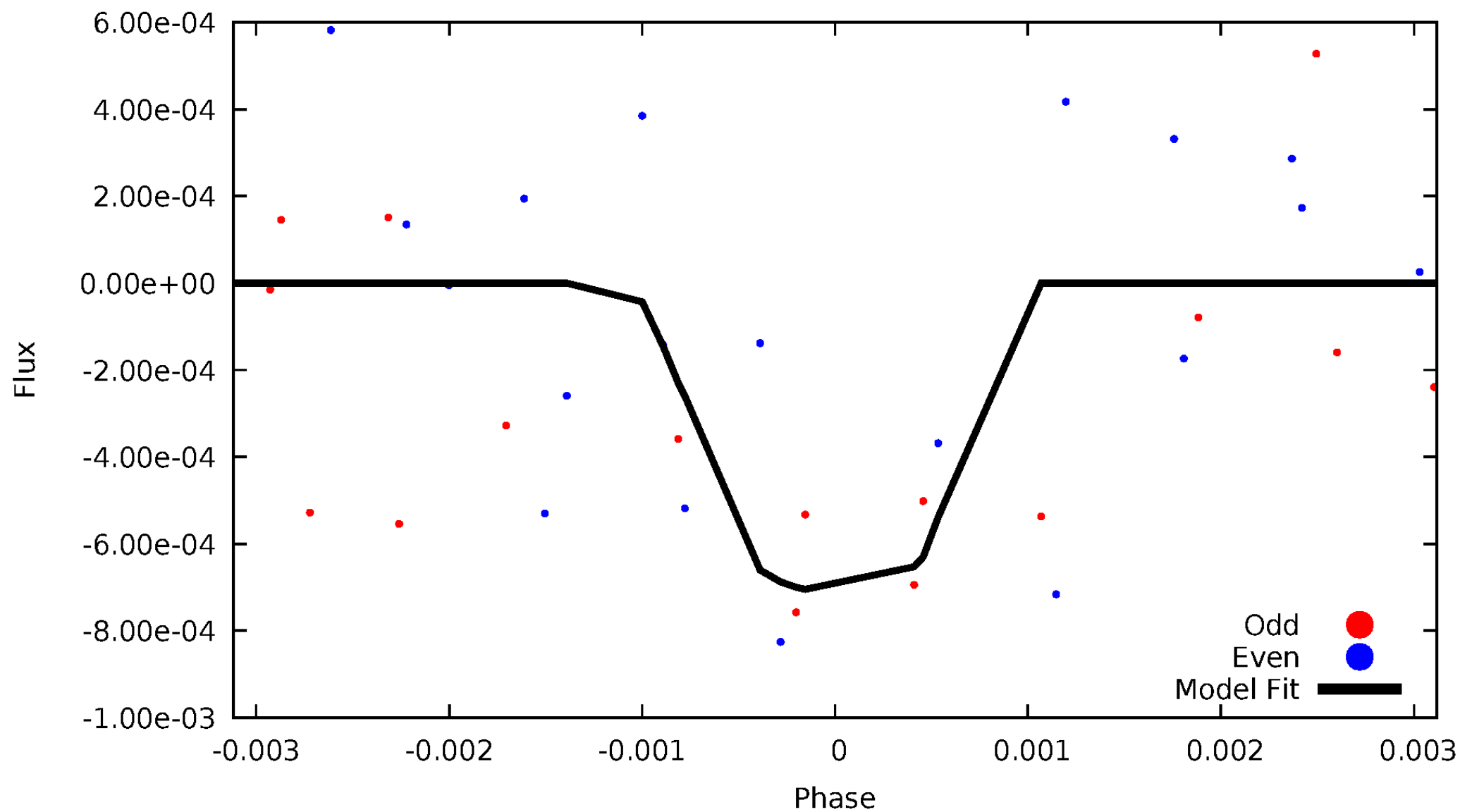


TCE 002443753-05



DV Odd/Even

TCE 002443753-05

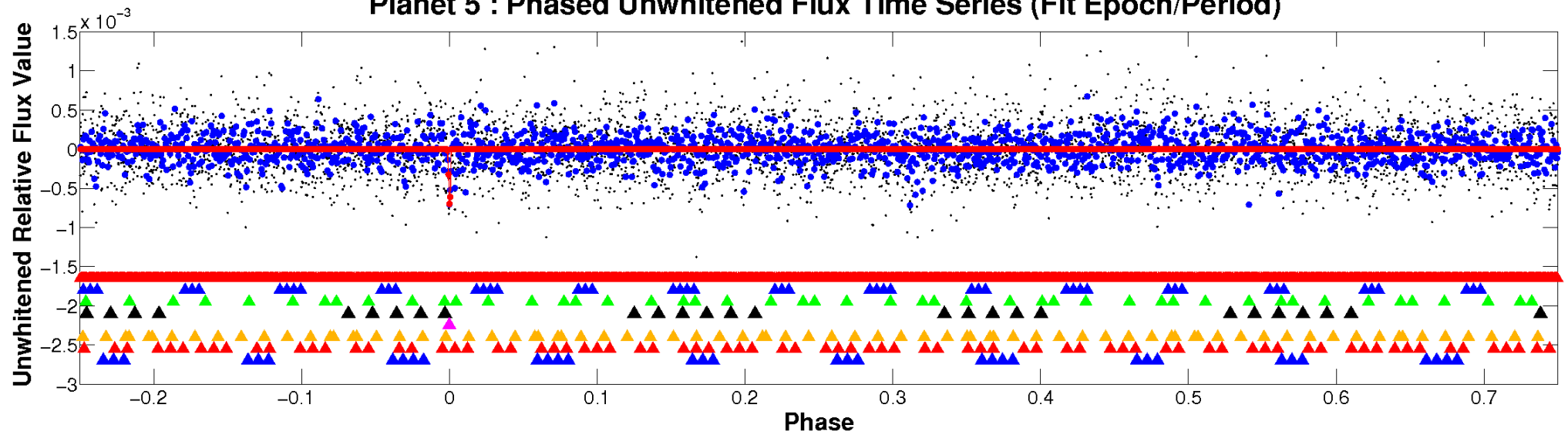


ALT Odd/Even

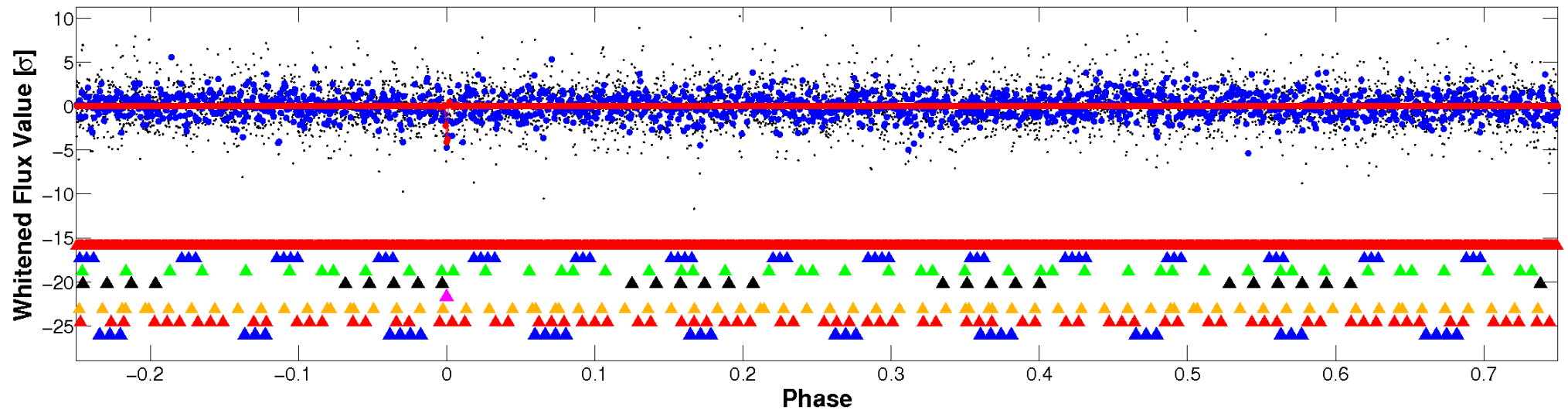
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

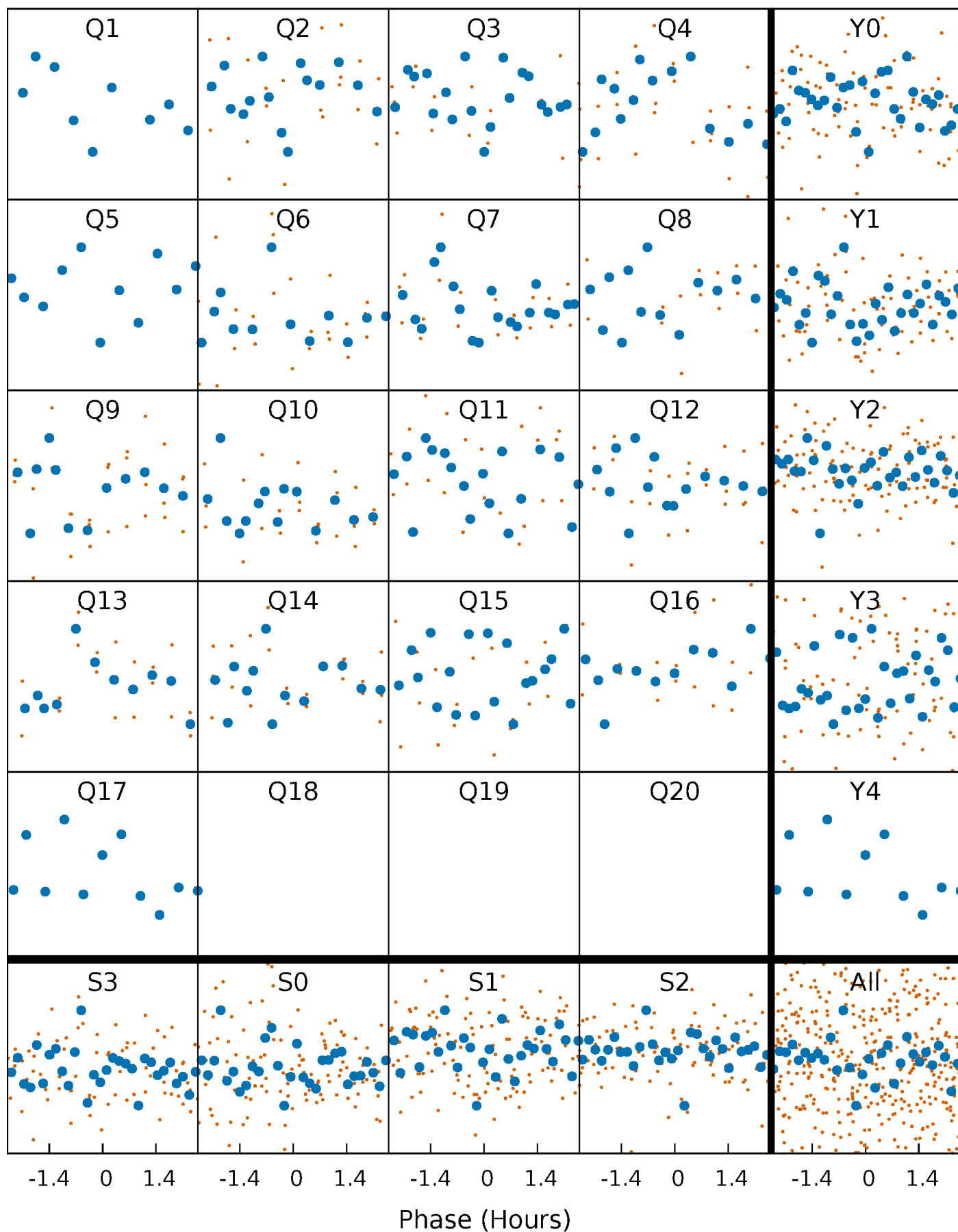


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



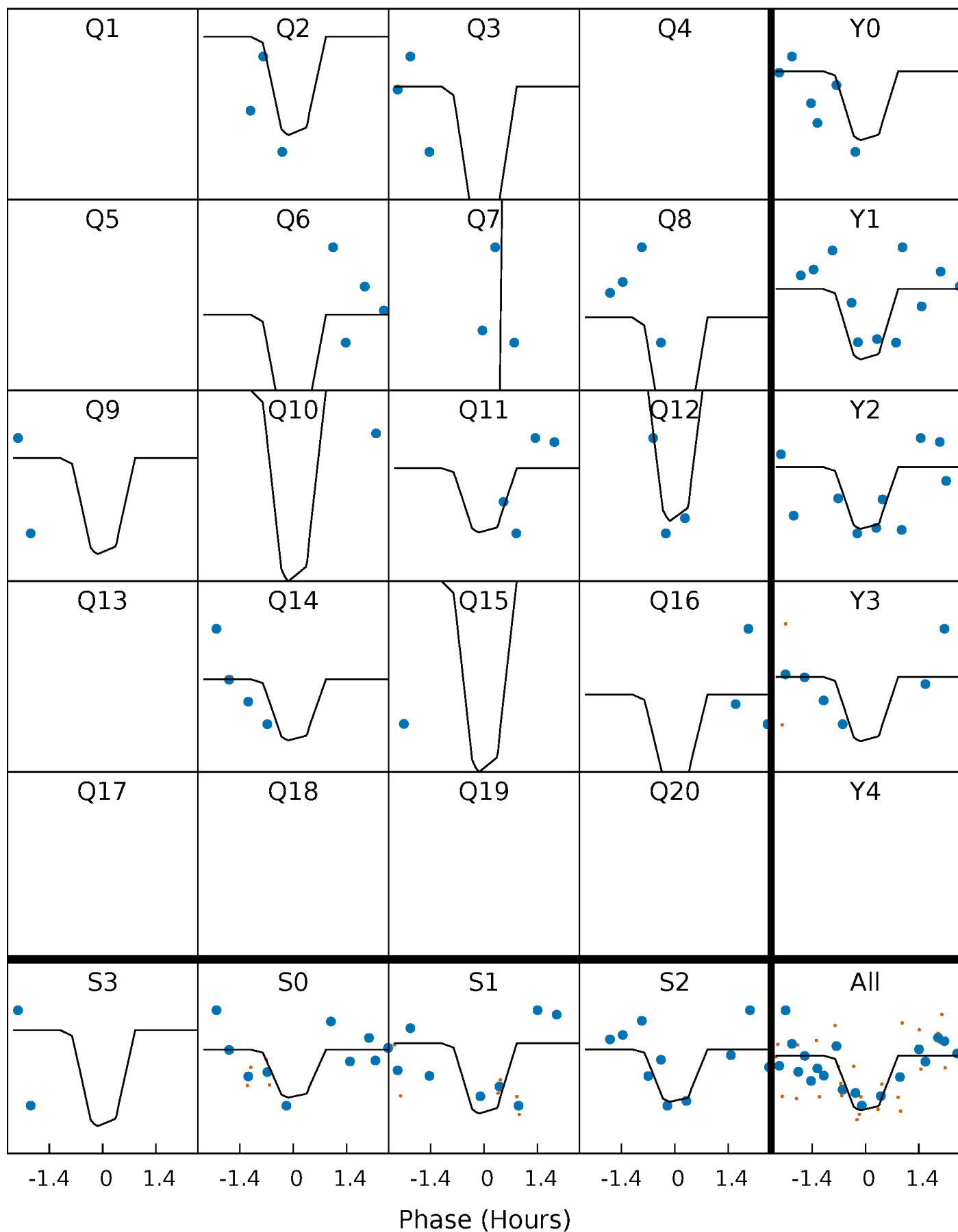
PDC Quarter-Phased Transit Curves

TCE 002443753-05 P= 33.430499 Days $T_0=141.248398$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 002443753-05 P= 33.430499 Days $T_0=141.248398$ (BKJD)

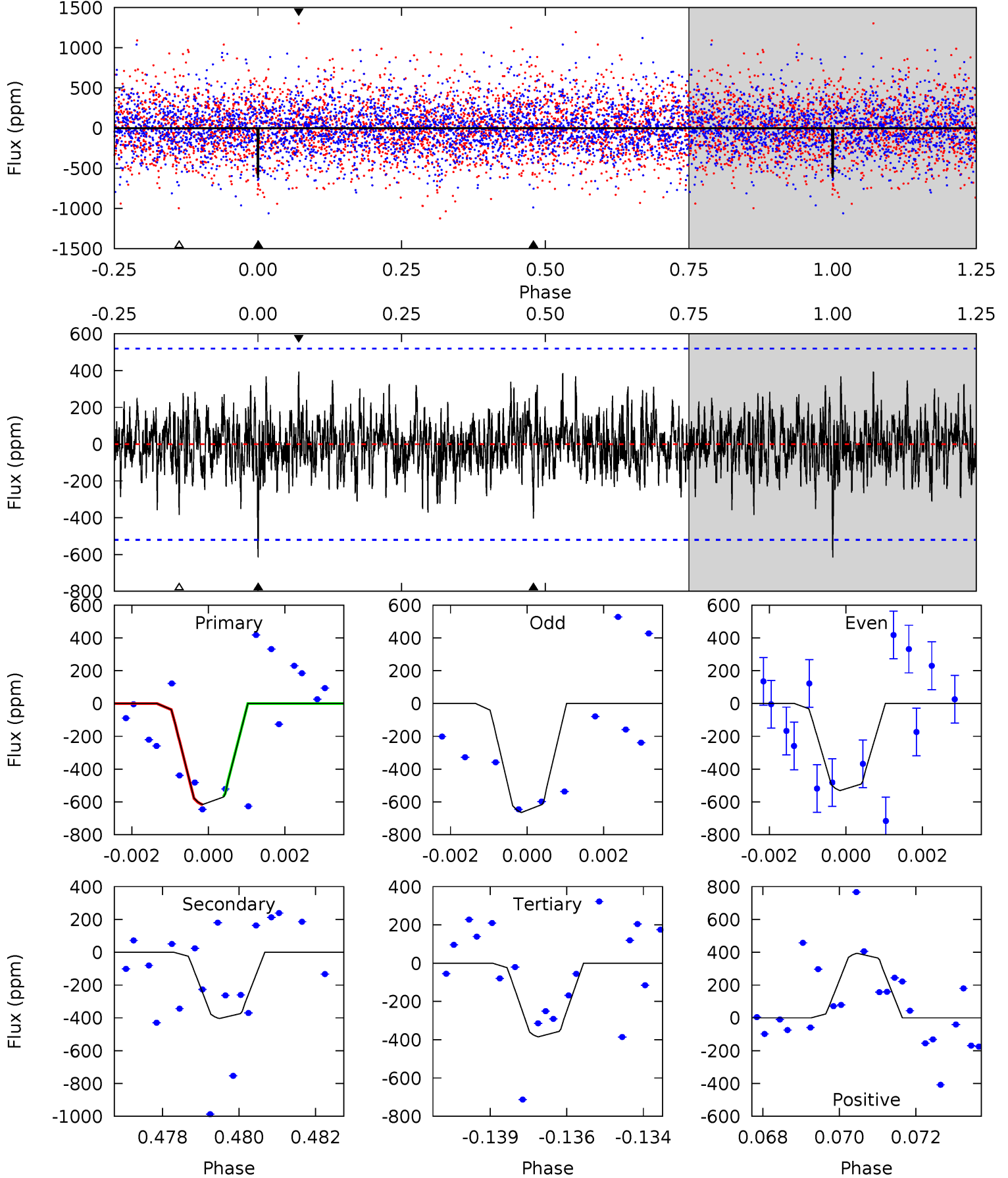


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

002443753-05, P = 33.430499 Days, E = 107.817899 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.30	4.13	3.94	4.03	5.32	3.08	1.18	2.36	2.27	0.20	0.10	0.72	0.86	0.39	0.24



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 002443753

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6139^{+171}_{-192}	$4.513^{+0.048}_{-0.192}$	$-0.340^{+0.300}_{-0.350}$	$0.912^{+0.258}_{-0.086}$	$0.991^{+0.117}_{-0.129}$	$1.837^{+0.456}_{-0.938}$
	+3%/-3%	+1%/-4%	+88%/-103%	+28%/-9%	+12%/-13%	+25%/-51%
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 002443753-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-404 ± 98	$8.80^{+9.57}_{-6.05}$	819^{+53}_{-36}	3506^{+1796}_{-716}	115^{+991}_{-91}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

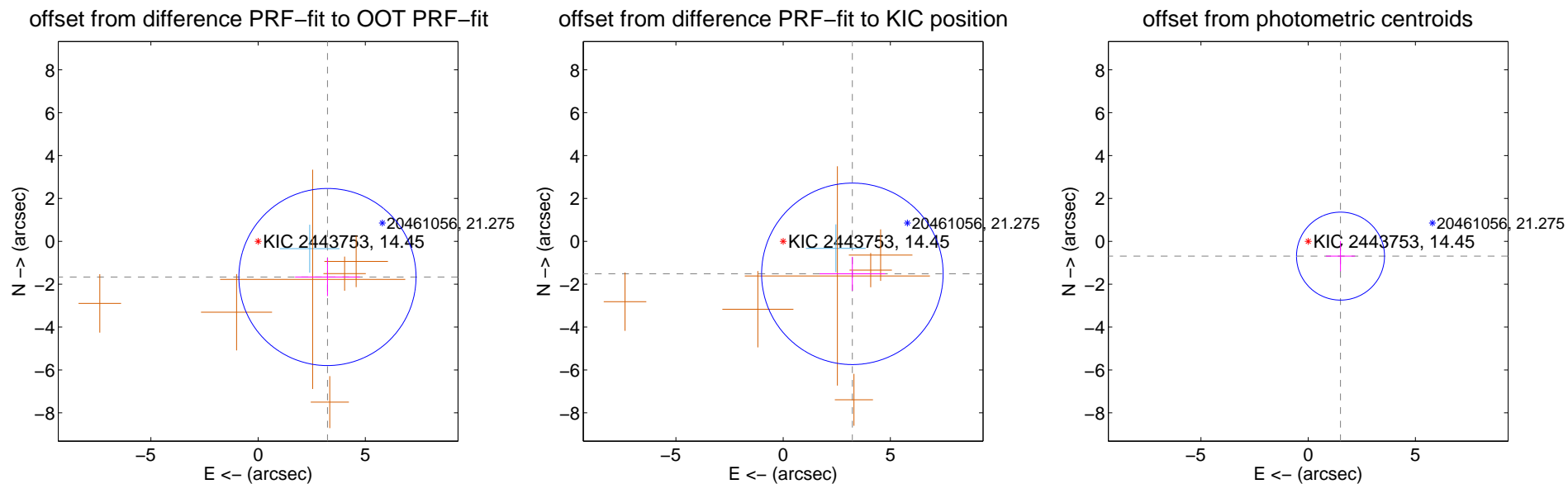
DV Centroid Data

Supplemental centroid analysis for 002443753-05. Kepler magnitude: 14.45. Transit SNR 10.63

There are 1 quarters with good PRF difference image offsets

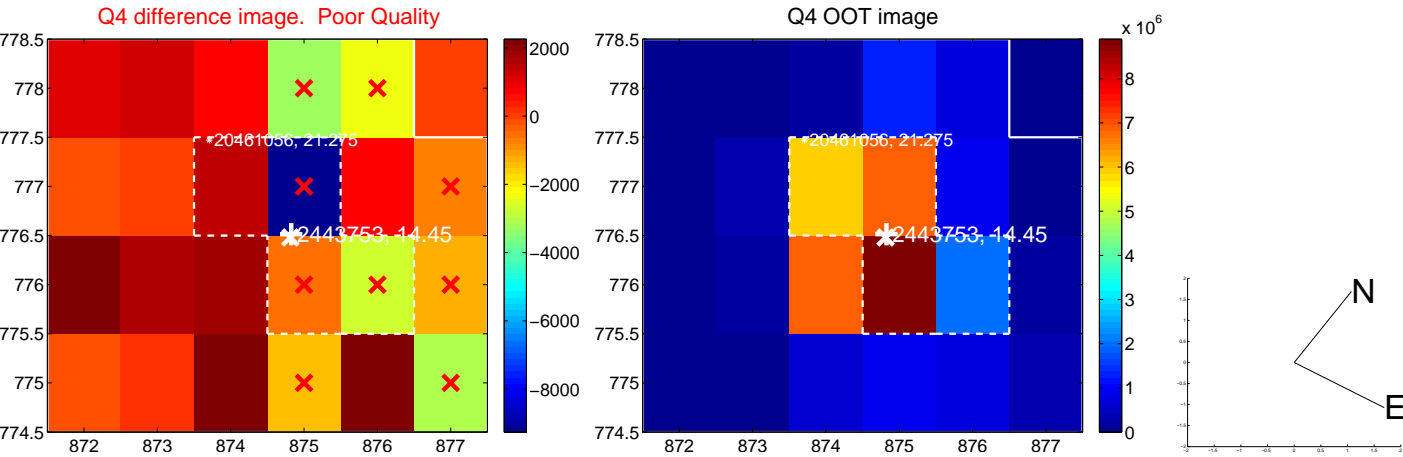
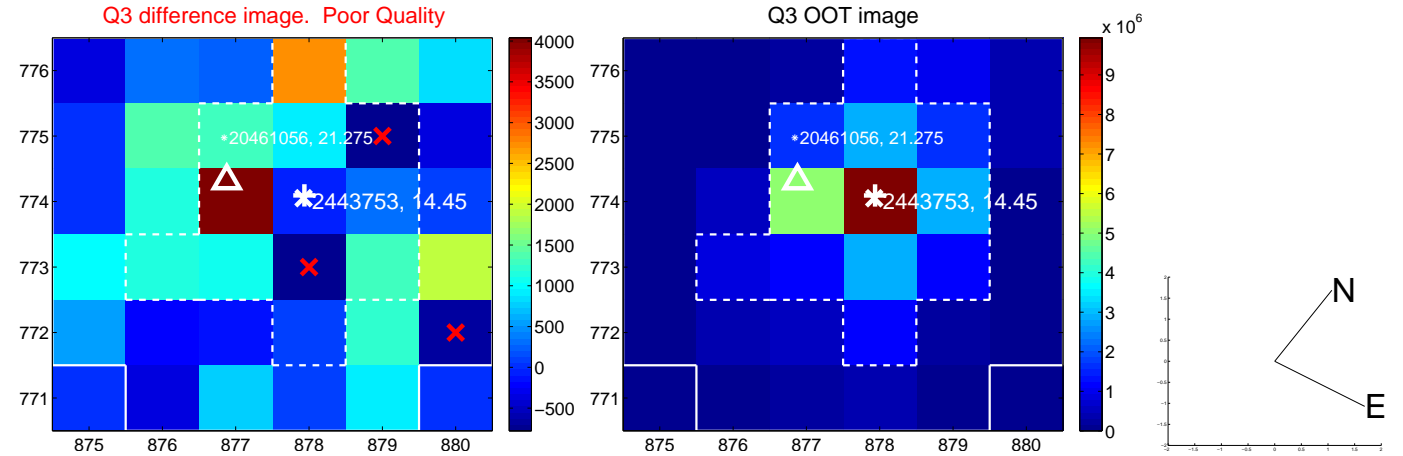
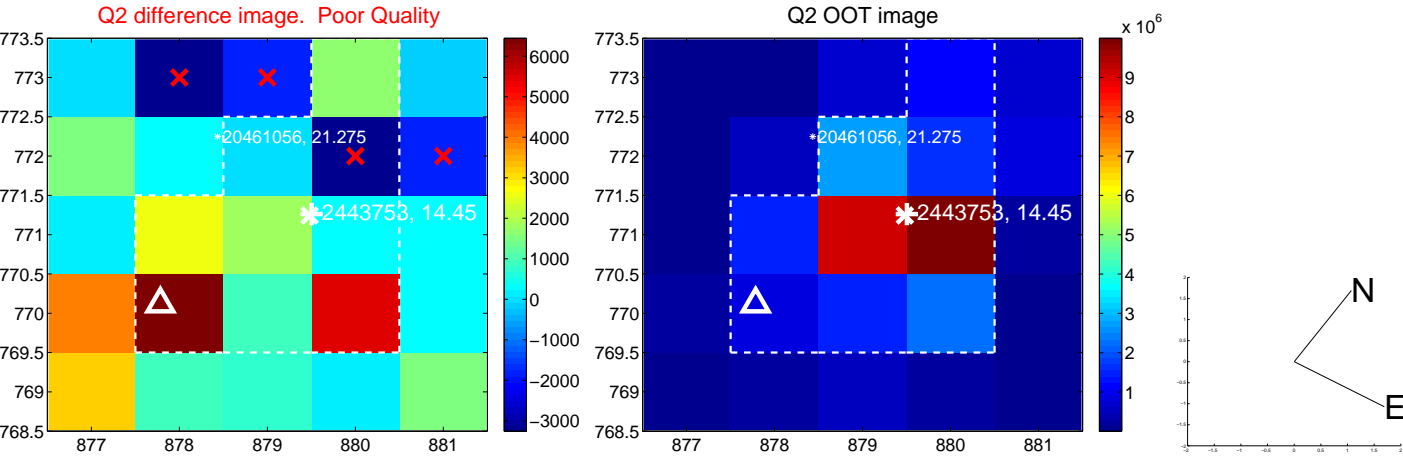
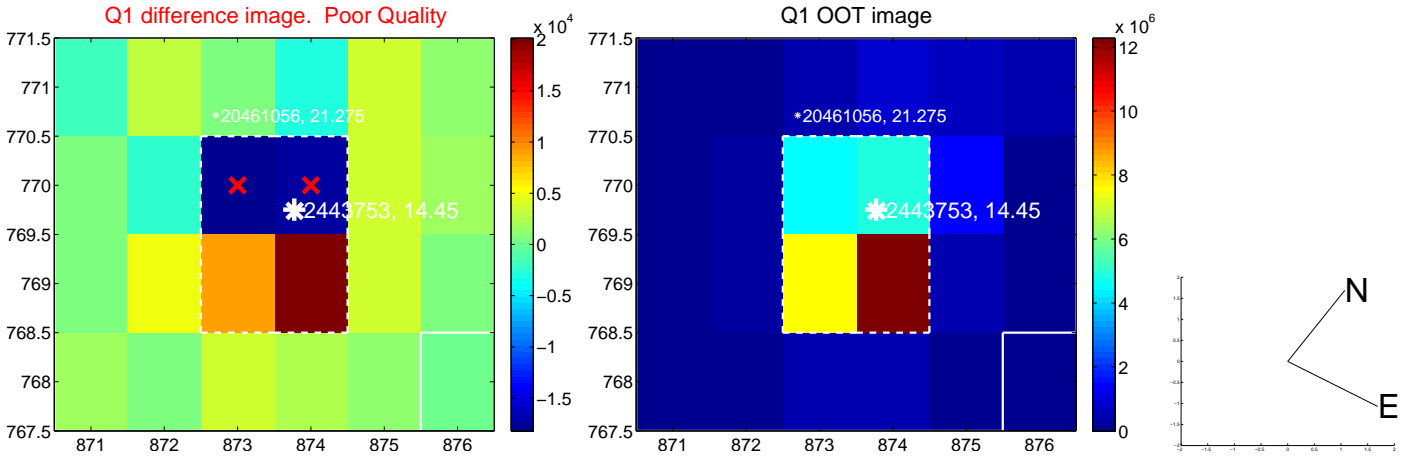
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.637 ± 1.377	2.64	-3.234 ± 1.511	-1.665 ± 0.889
PRF-fit source offset from KIC position	3.566 ± 1.411	2.53	-3.228 ± 1.531	-1.516 ± 0.790
photometric centroid source offset	1.66 ± 0.68	2.43	-1.51 ± 0.68	-0.69 ± 0.71

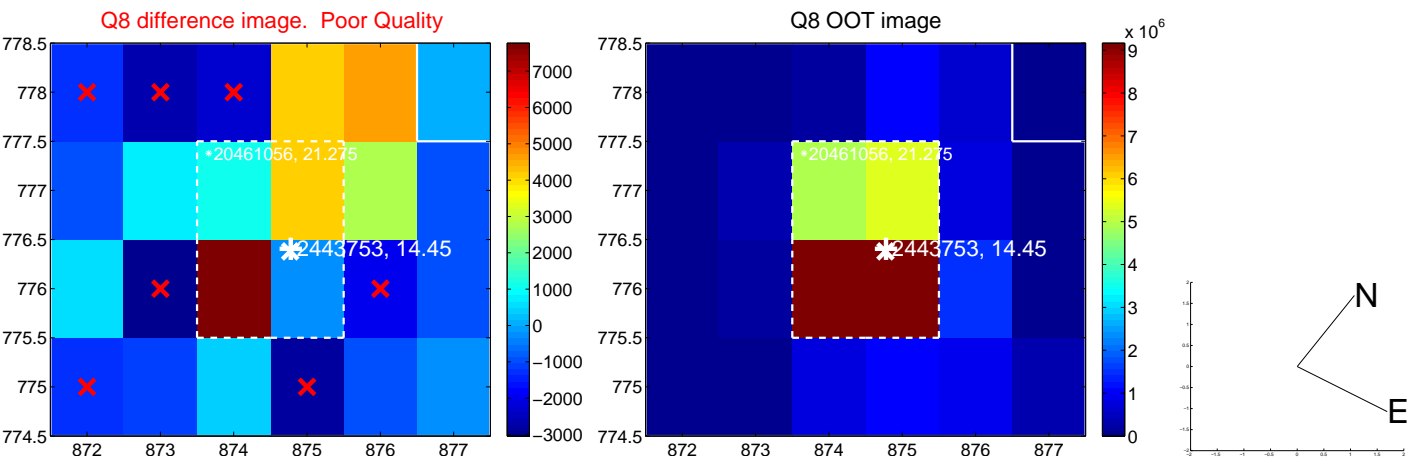
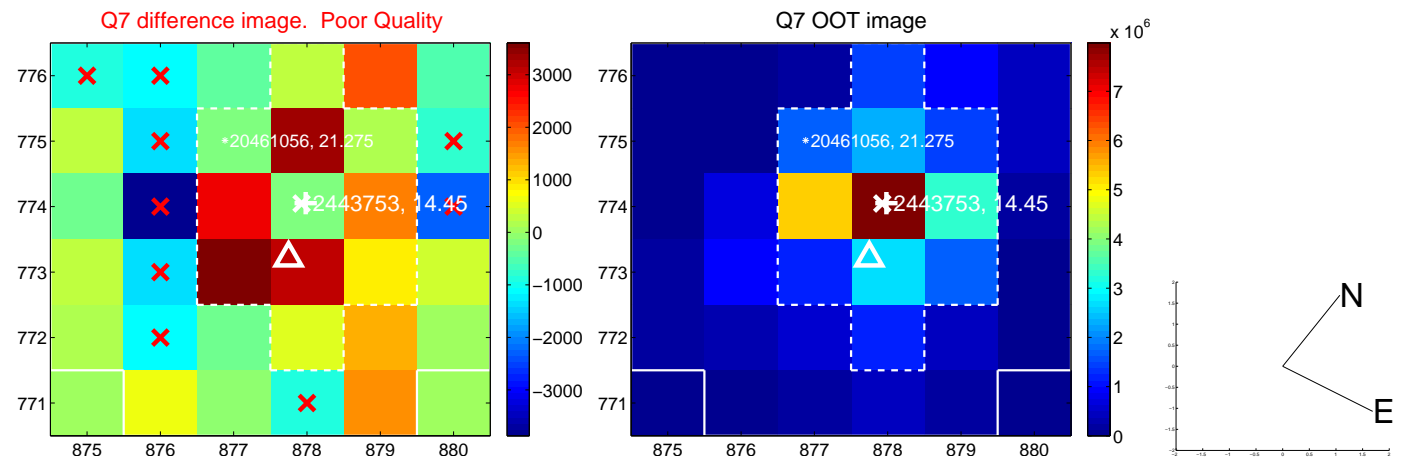
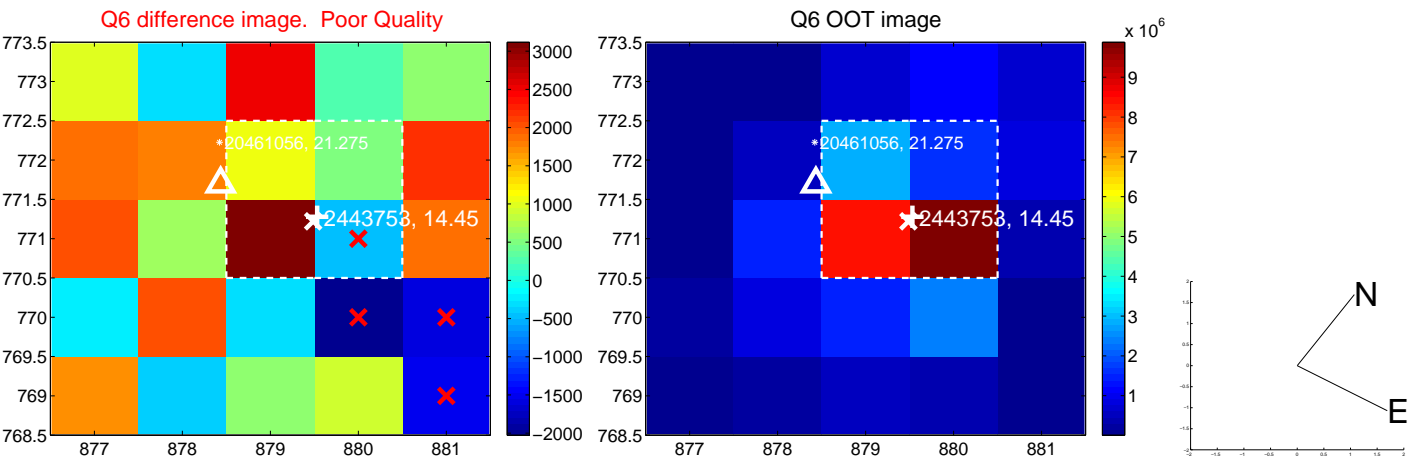
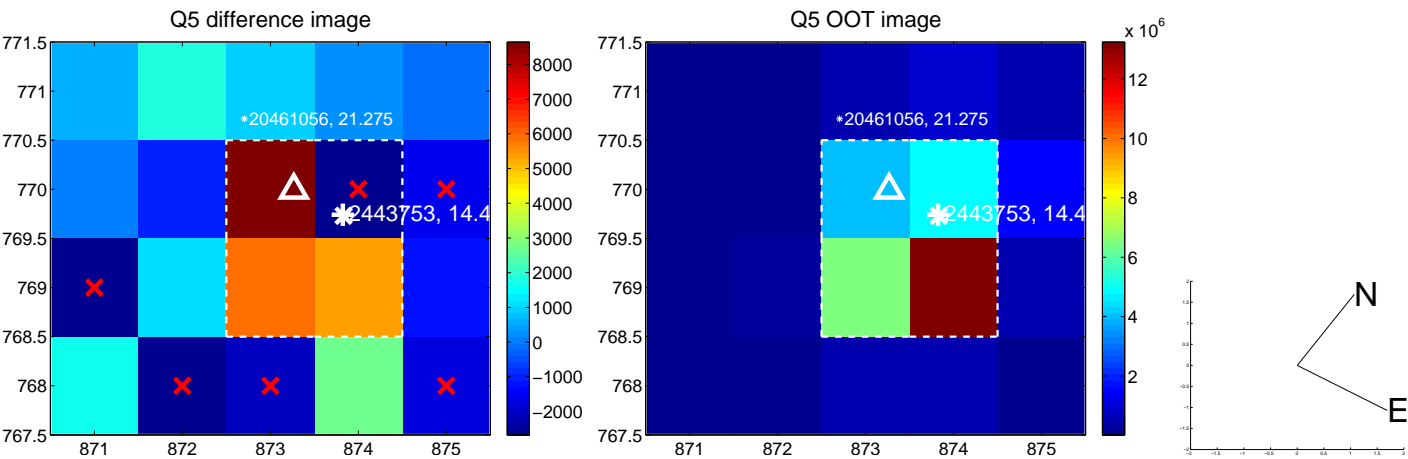


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

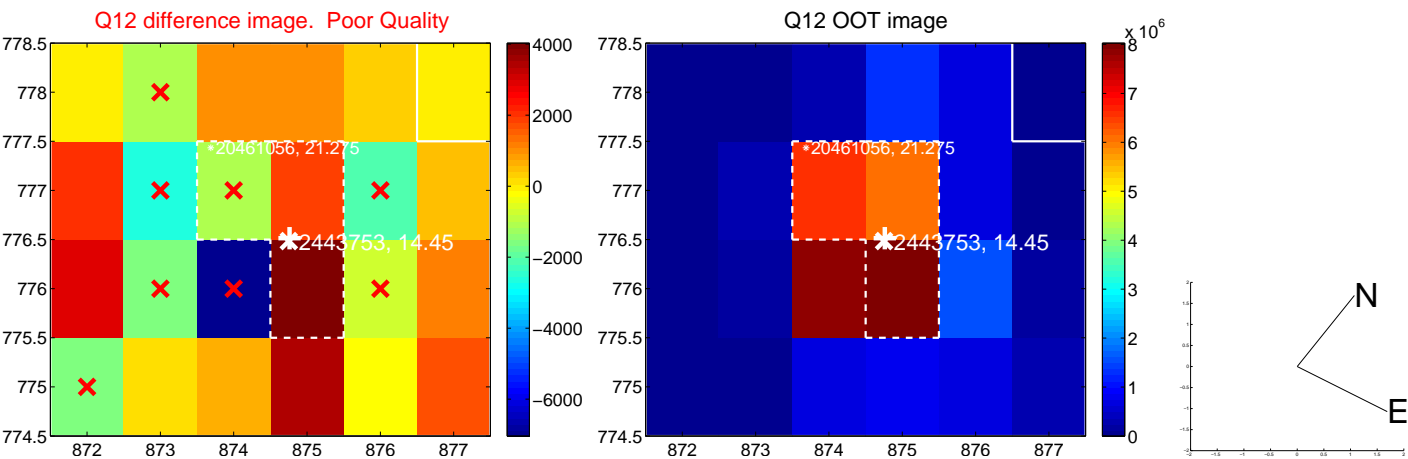
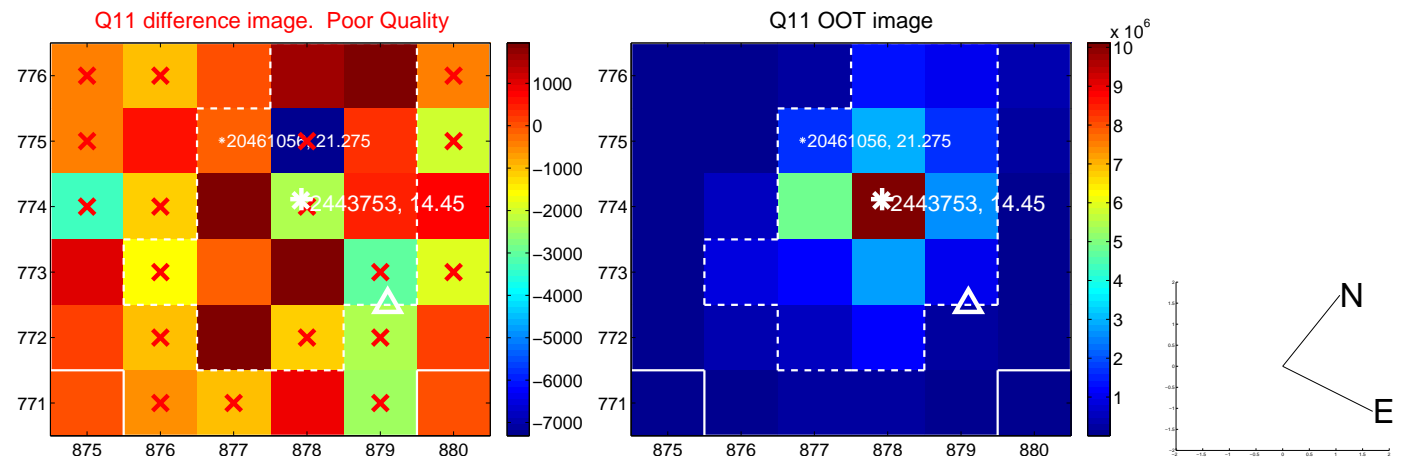
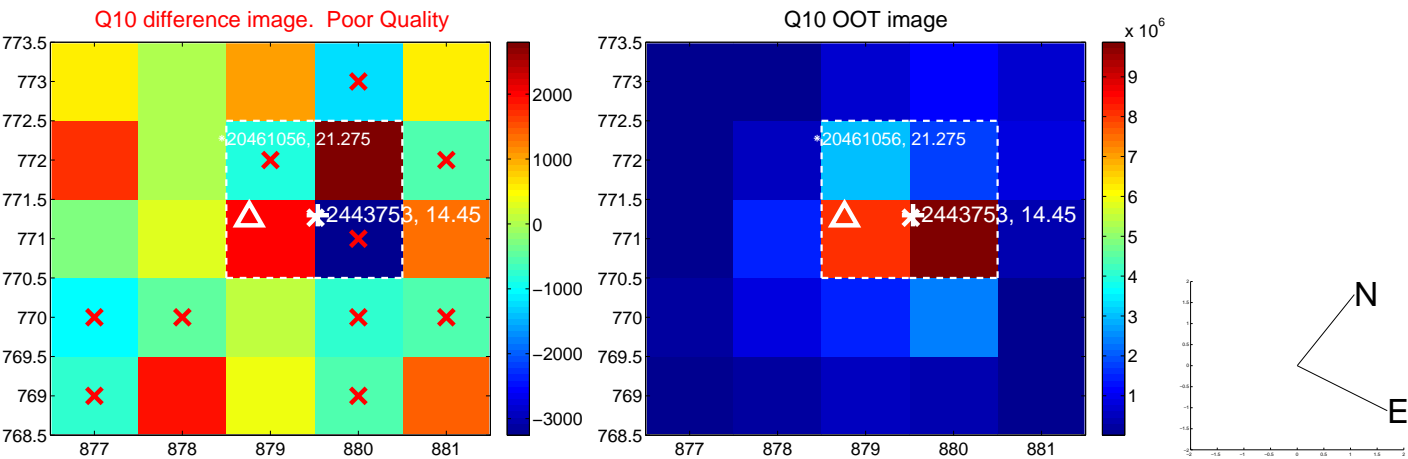
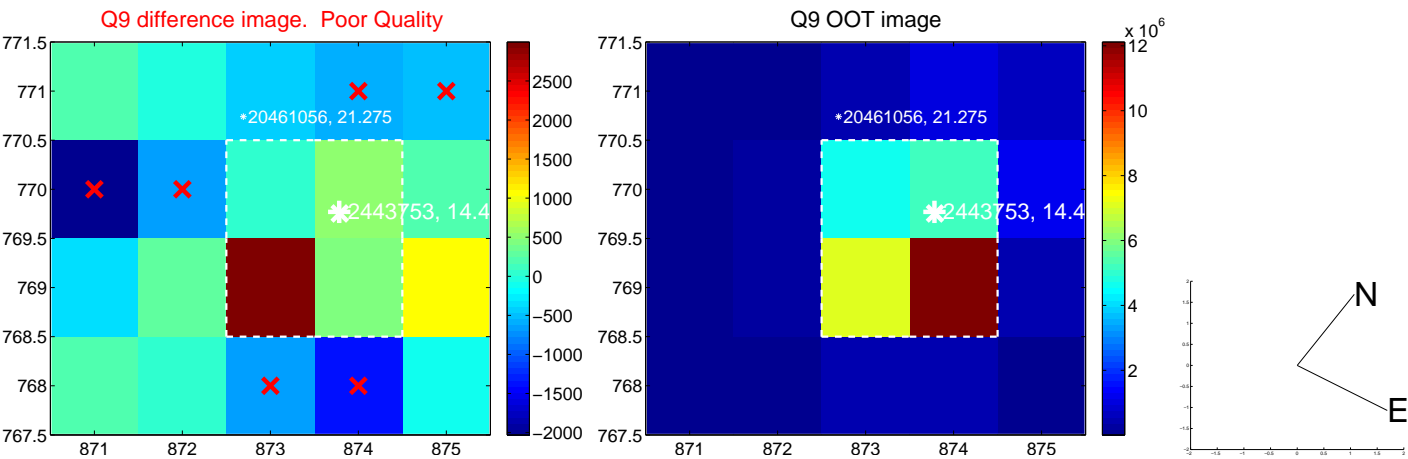
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



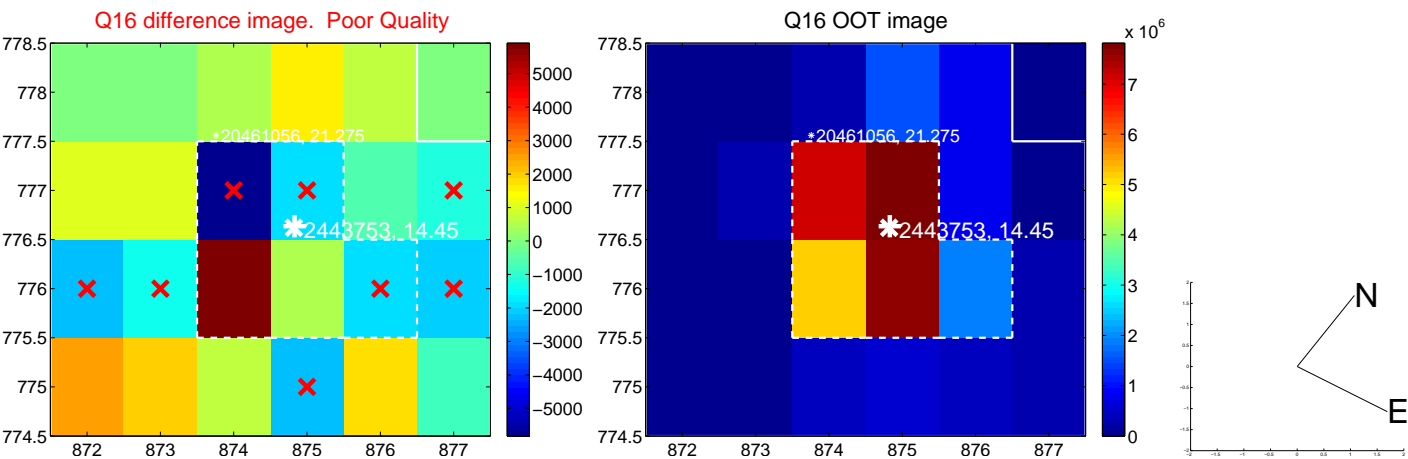
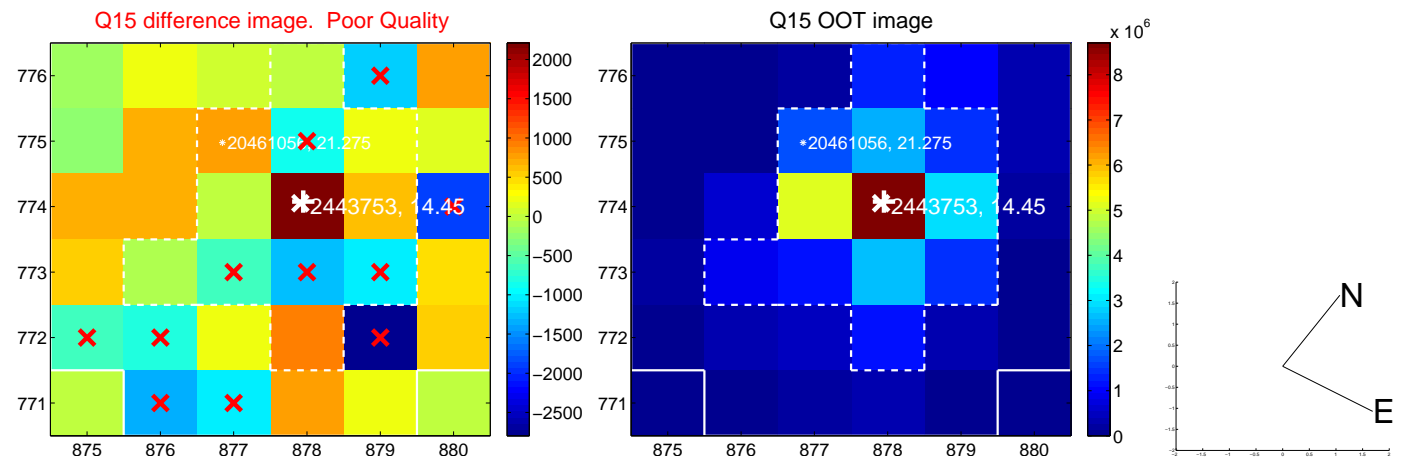
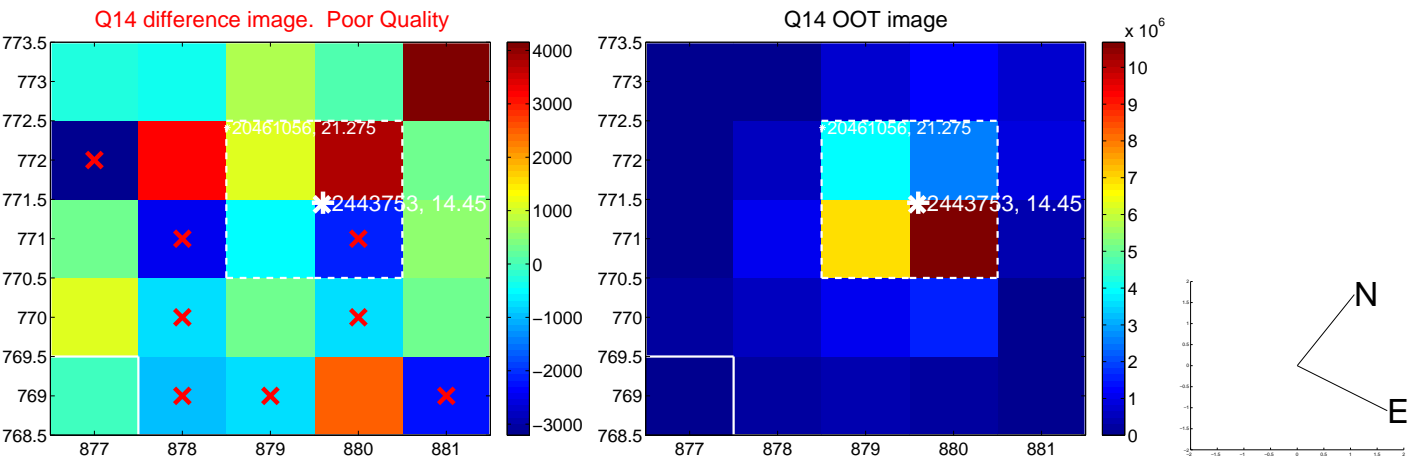
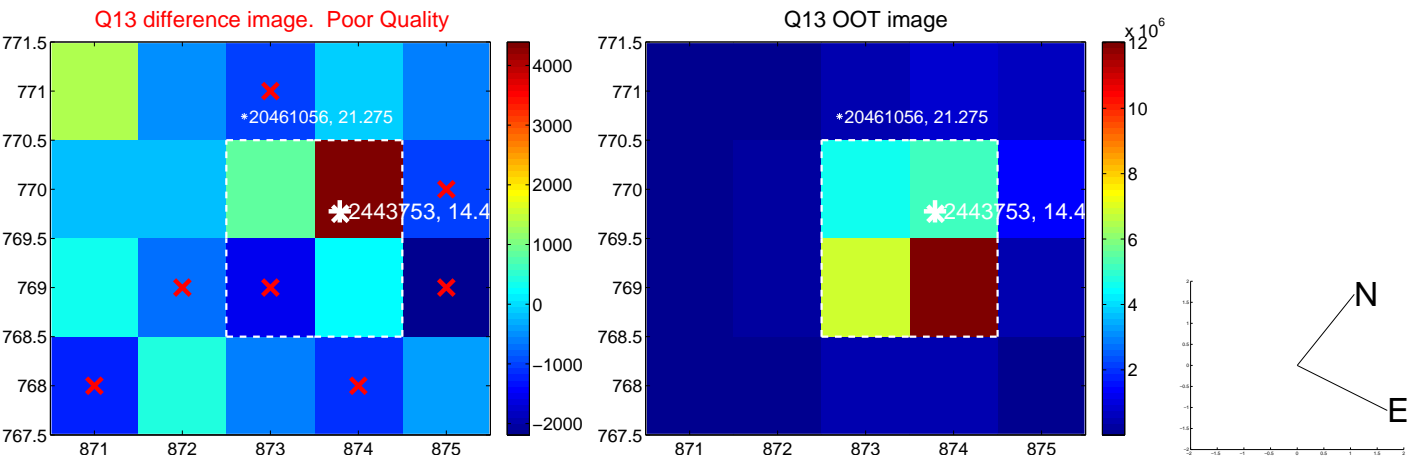
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

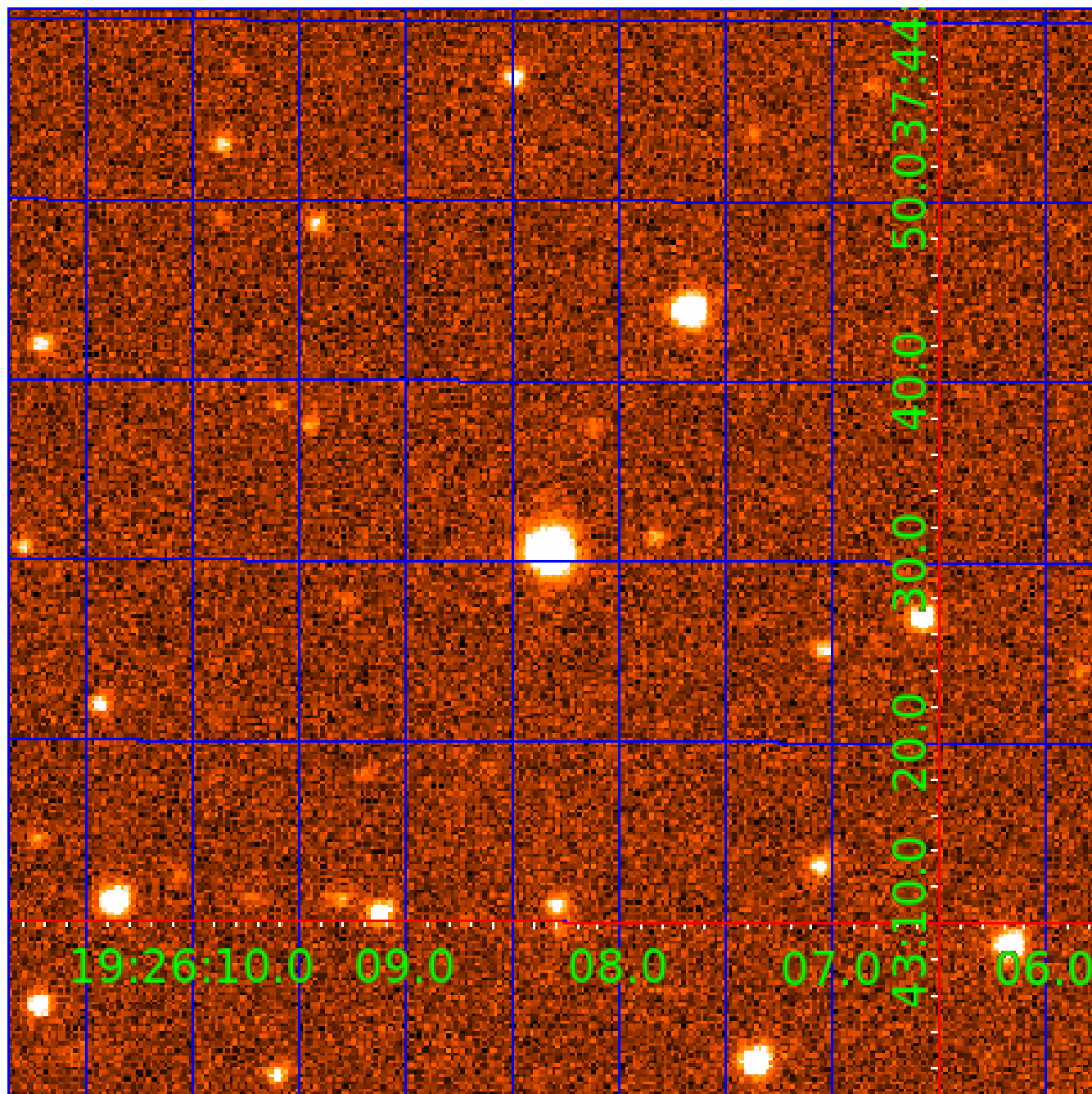


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002443753

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})
002443753-01	OBS	No	0.864091	131.606741	30.6	6.179	7.8	11.4	0.91	6139	0.56	3382.22
002443753-02	OBS	No	28.983578	155.204412	571.6	2.009	11.2	11.9	0.91	6139	2.21	31.27
002443753-03	OBS	No	30.726973	132.039181	302.8	3.946	9.6	9.4	0.91	6139	1.83	28.92
002443753-04	OBS	No	53.379556	161.644097	642.9	3.251	10.3	11.3	0.91	6139	2.97	13.85
002443753-05	OBS	No	33.430499	141.248398	711.7	1.251	10.3	10.6	0.91	6139	2.45	25.85
002443753-06	OBS	No	19.028481	134.527844	276.4	2.842	10.1	9.6	0.91	6139	1.76	54.80
002443753-07	OBS	No	18.323714	143.898506	468.7	1.573	10.7	11.8	0.91	6139	2.27	57.62
002443753-08	OBS	No	43.482829	143.242586	672.9	1.581	11.9	11.1	0.91	6139	2.79	18.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002443753-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS
002443753-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
002443753-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
002443753-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN—HALO_GHOST
002443753-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
002443753-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

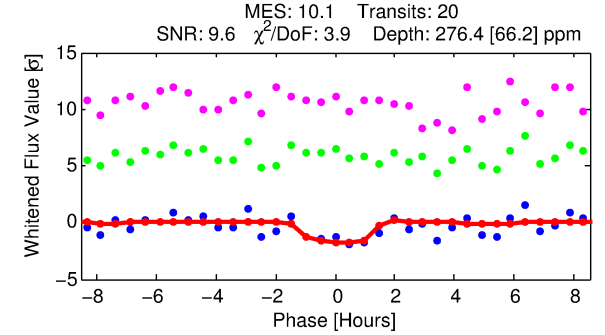
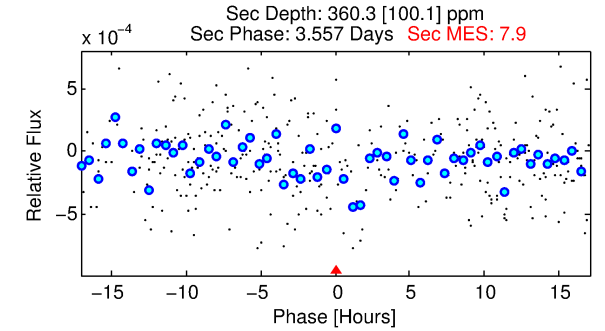
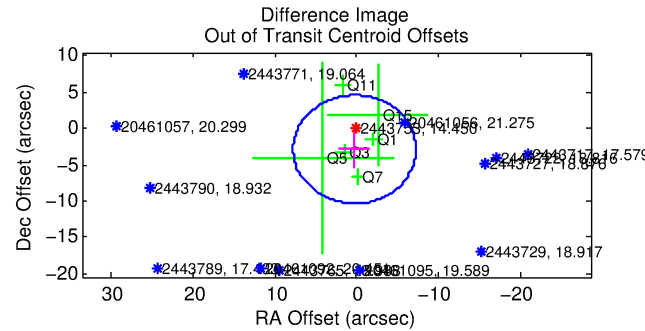
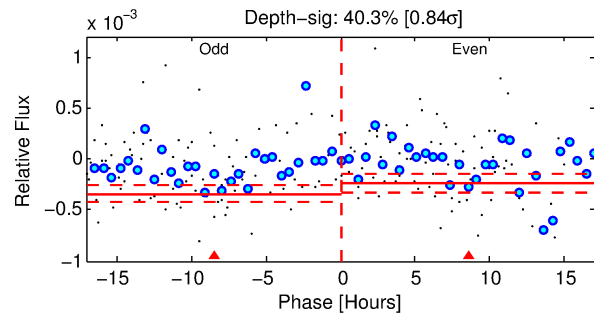
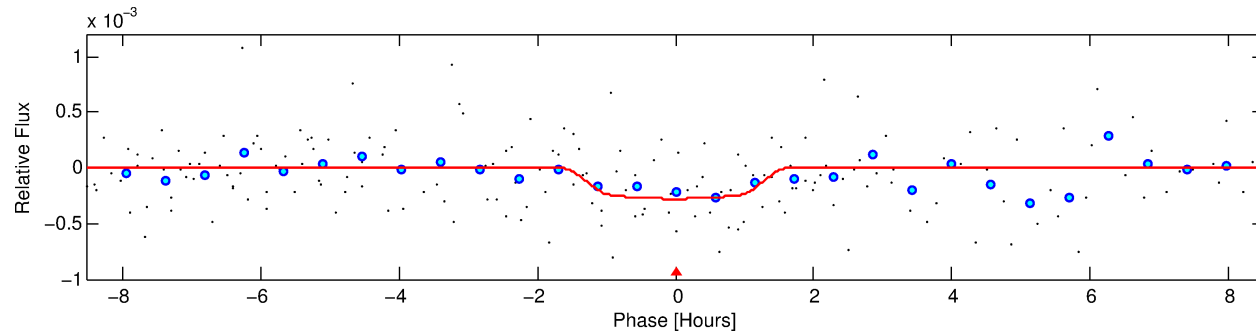
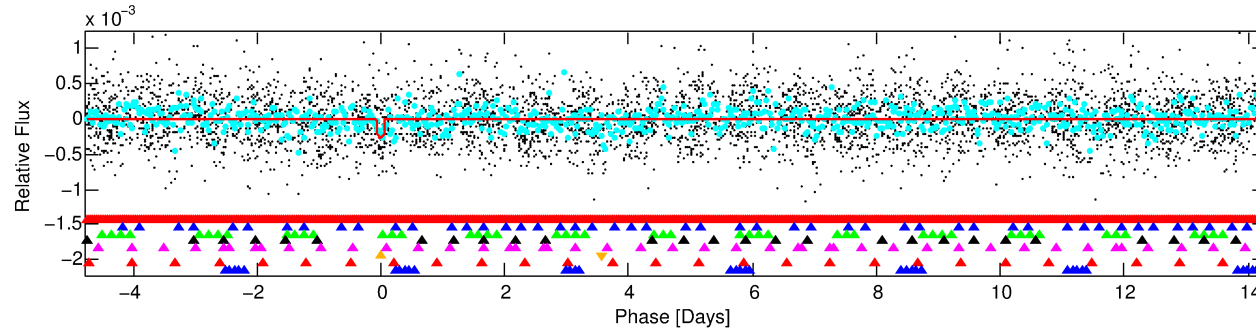
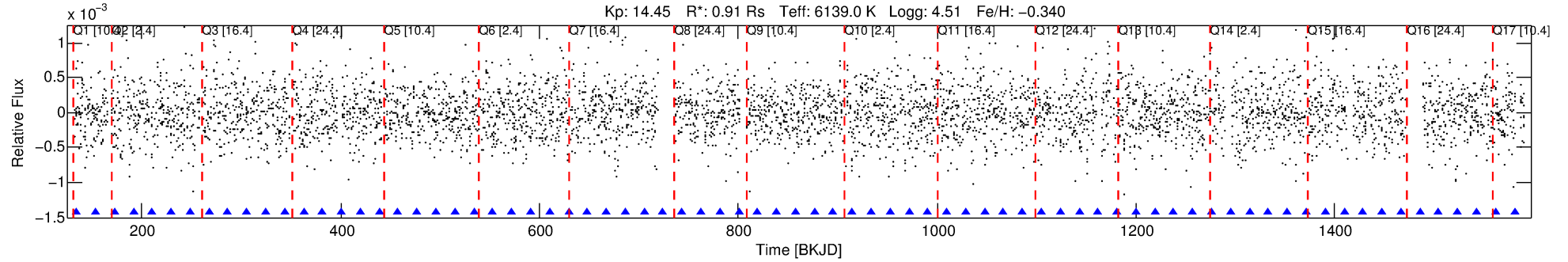
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002443753-06

No Significant Match Found

DV One-Page Summary

KIC: 2443753 Candidate: 6 of 8 Period: 19.028 d



DV Fit Results:

Period = 19.02848 [0.00032] d
Epoch = 134.5278 [0.0130] BKJD
Rp/R* = 0.0176 [0.0198]
a/R* = 25.94 [155.05]
b = 0.88 [1.52]
Seff = 54.80 [20.36]
Teq = 694 [64] K
Rp = 1.76 [2.03] Re
a = 0.1390 [0.0333] AU
Ag = 1242.17 [2839.28] [0.44 σ]
Teff = 6368 [3601] K [1.58 σ]

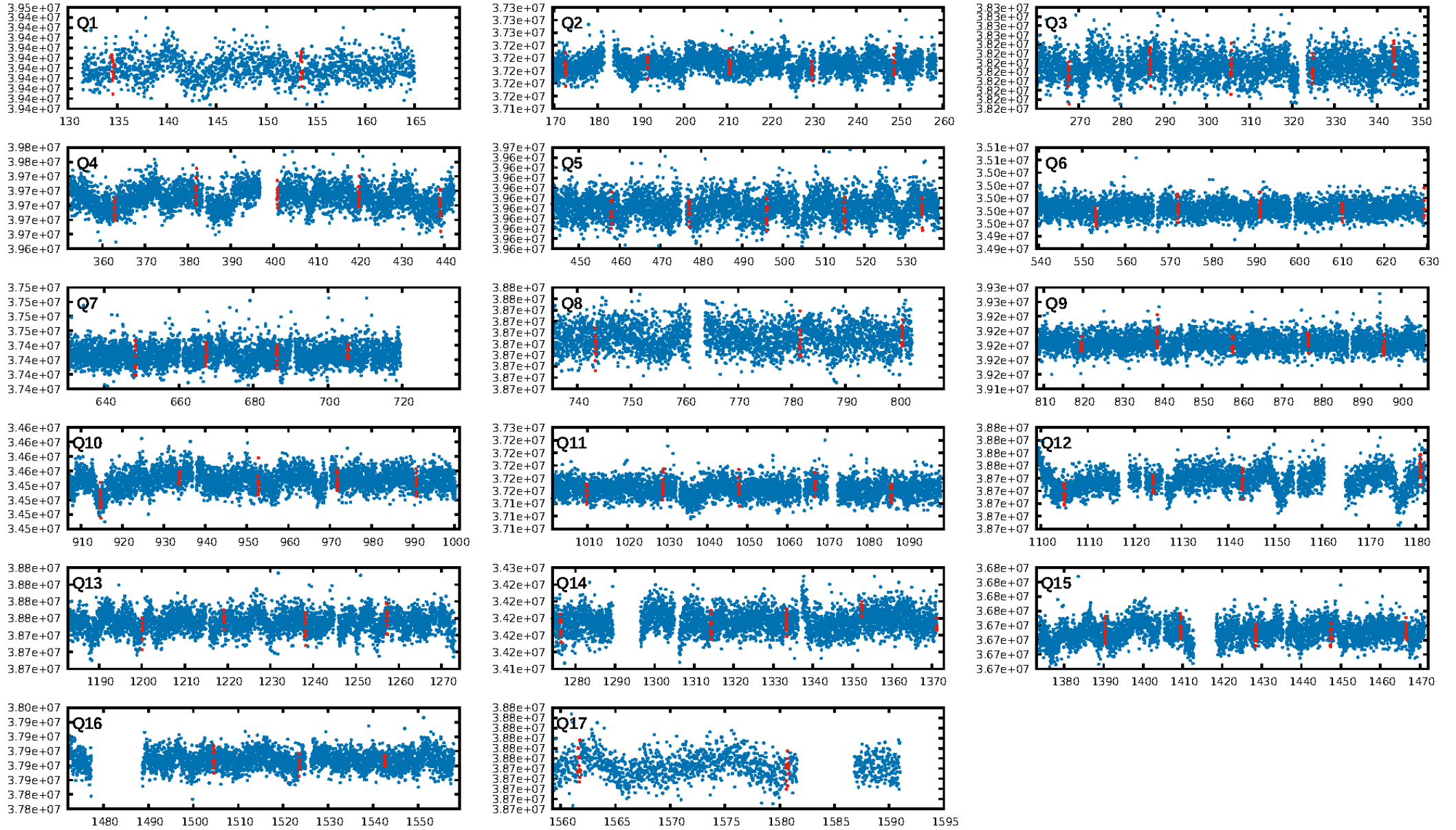
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.21 σ]
LongPeriod-sig: 100.0% [68.65 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 65.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [19/19]
GhostDiagnostic-chr: 2.544
Centroid-sig: 93.7%
Centroid-so: 0.616 arcsec [0.67 σ]
OotOffset-rm: 2.907 arcsec [1.17 σ]
OotOffset-st: 0/4/0/2 [6]
KicOffset-rm: 2.856 arcsec [1.15 σ]
KicOffset-st: 0/4/0/2 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.00 [0/17]

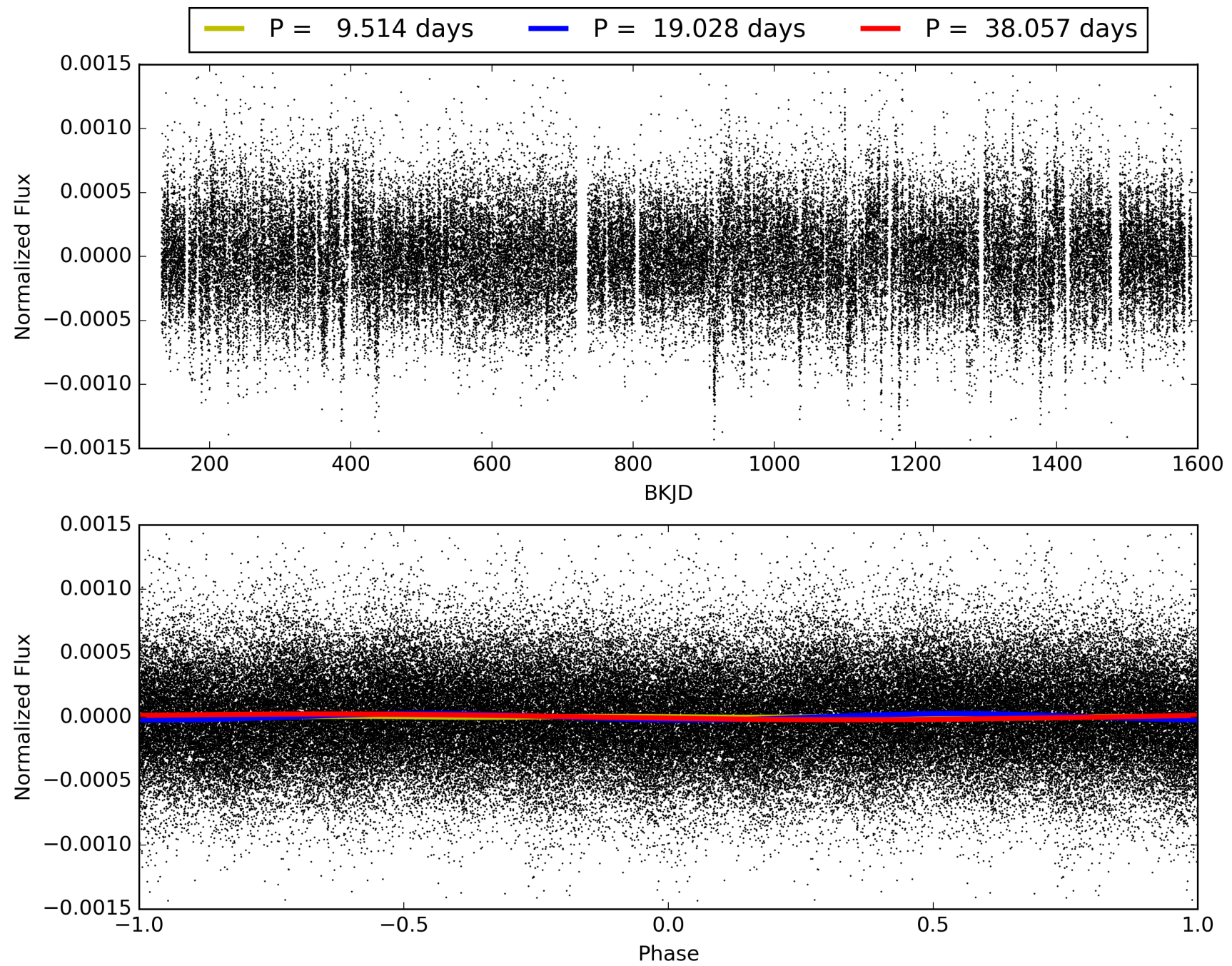
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:25:58 Z

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

TCE 002443753-06, PDC Light Curves

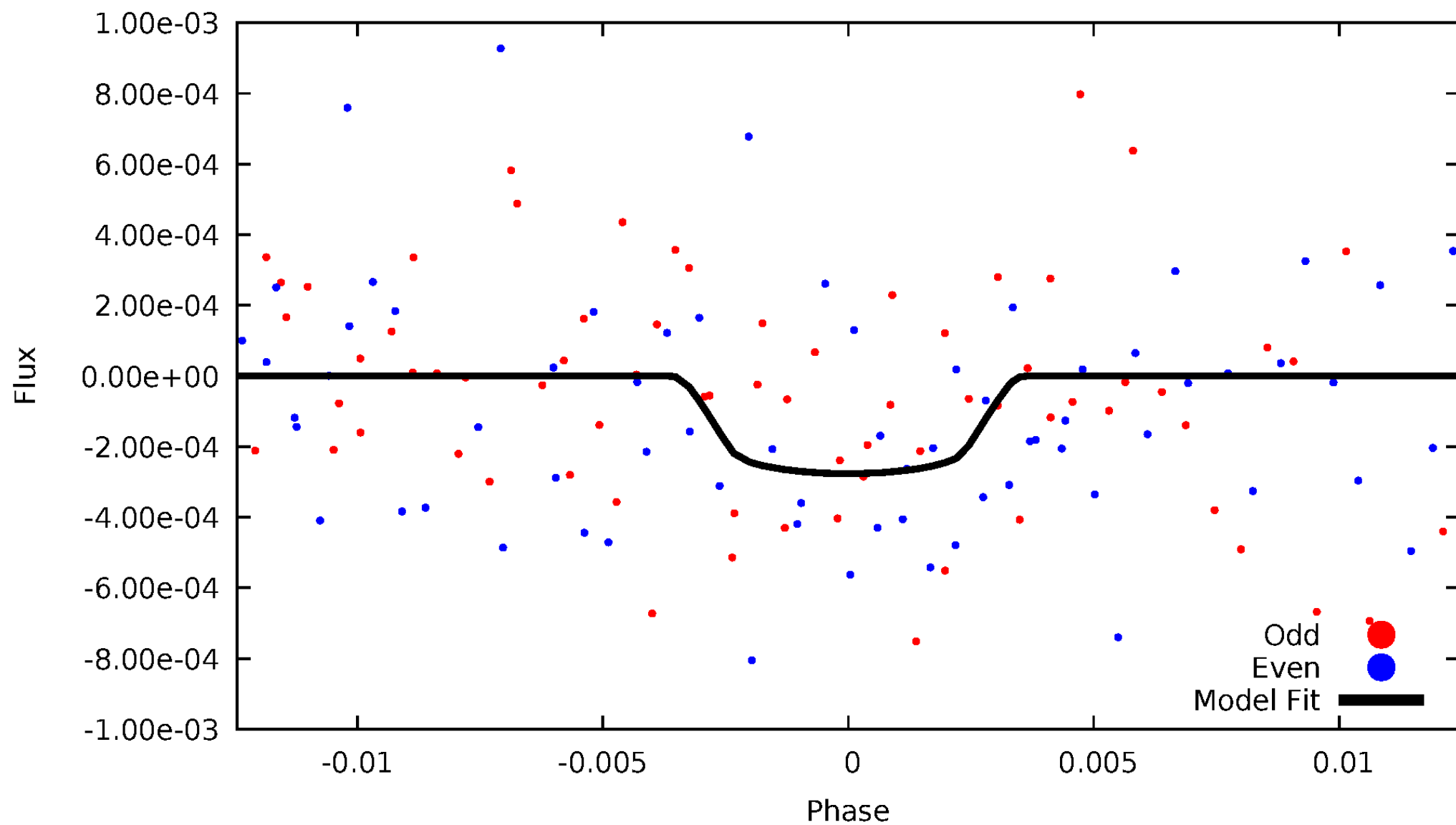


TCE 002443753-06



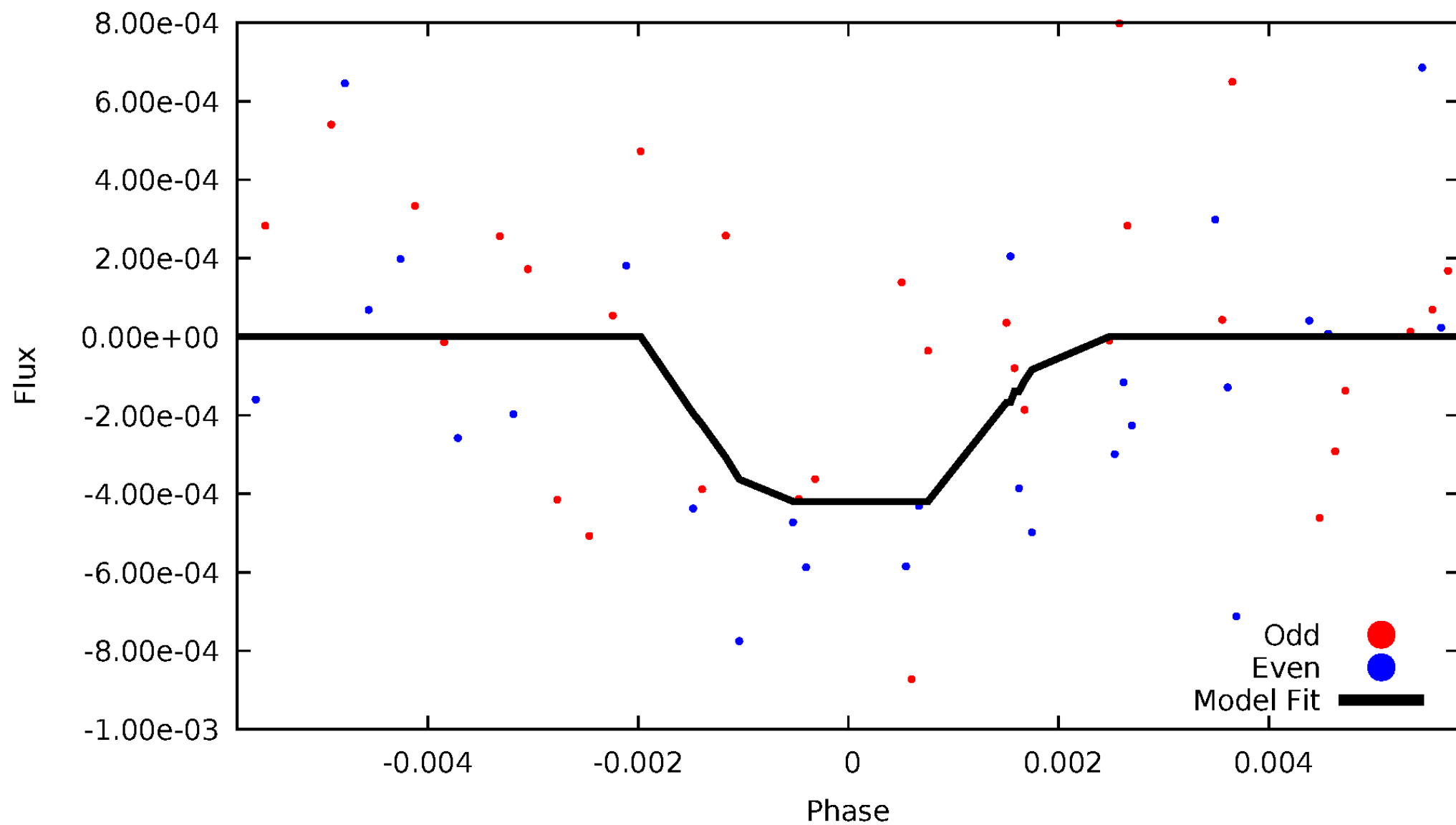
DV Odd/Even

TCE 002443753-06



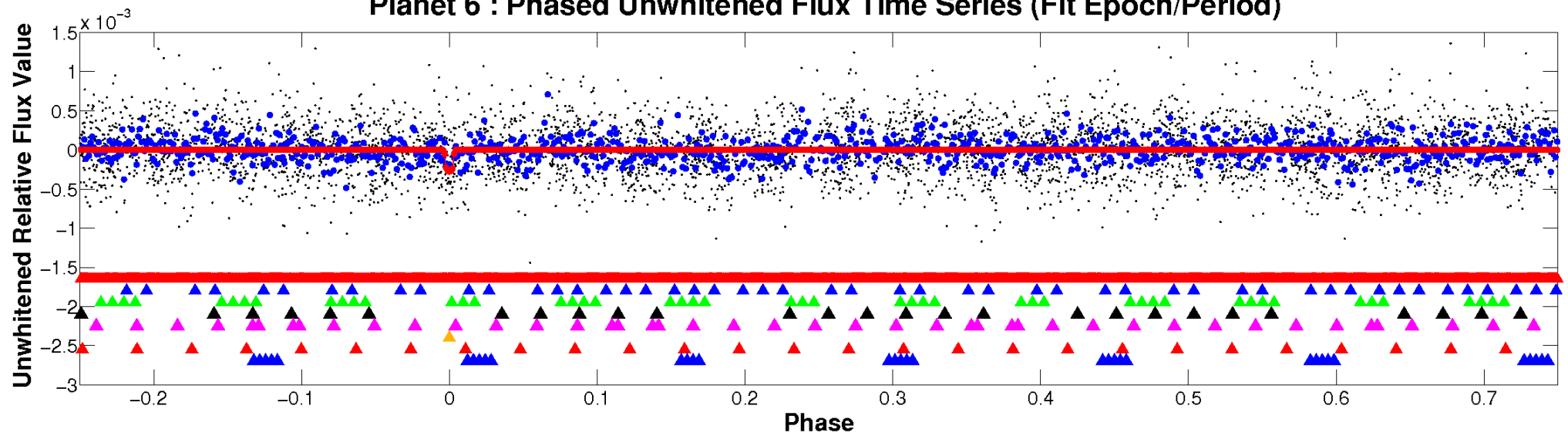
ALT Odd/Even

TCE 002443753-06

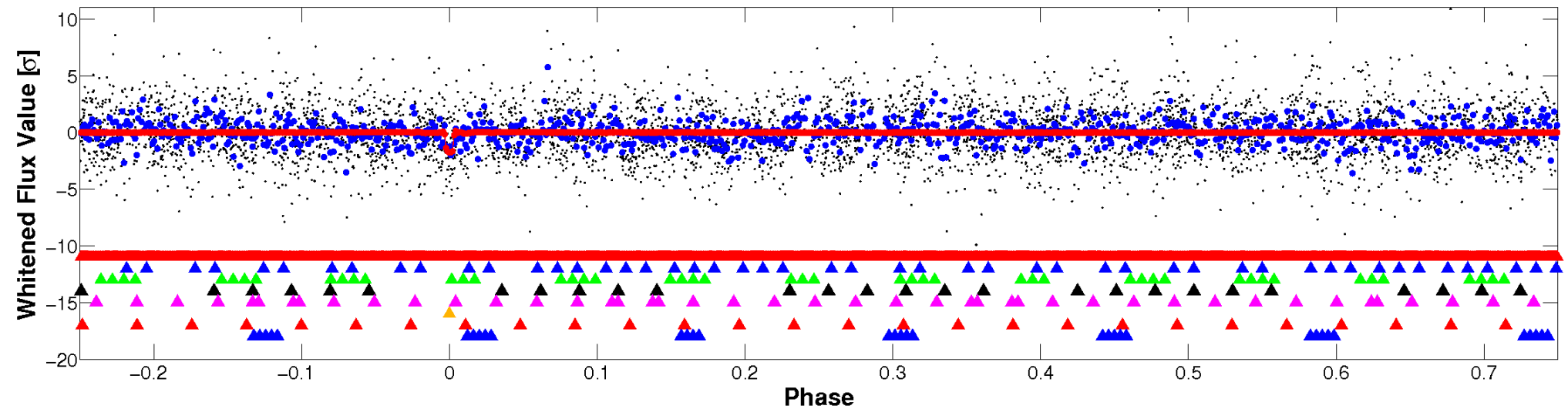


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

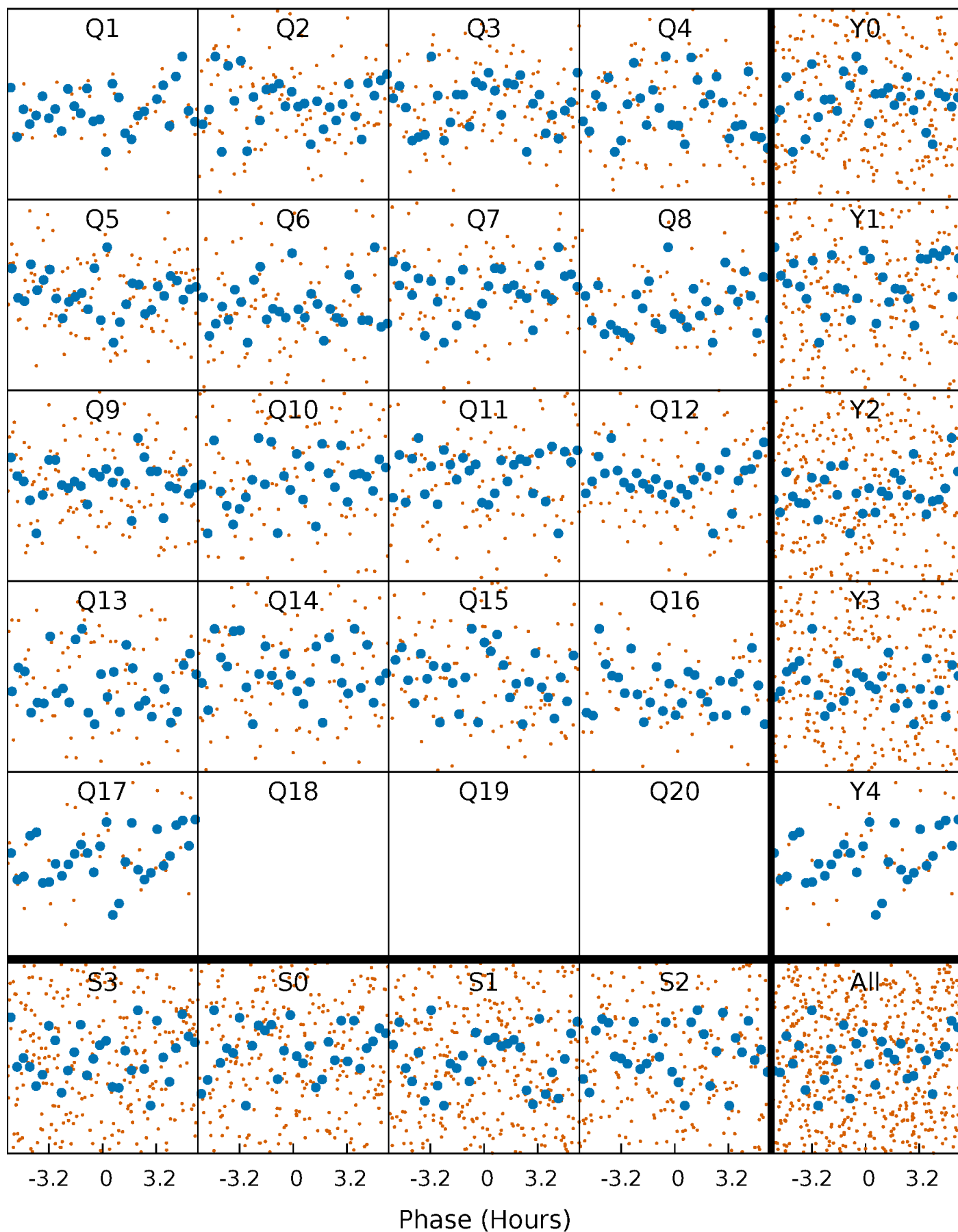


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



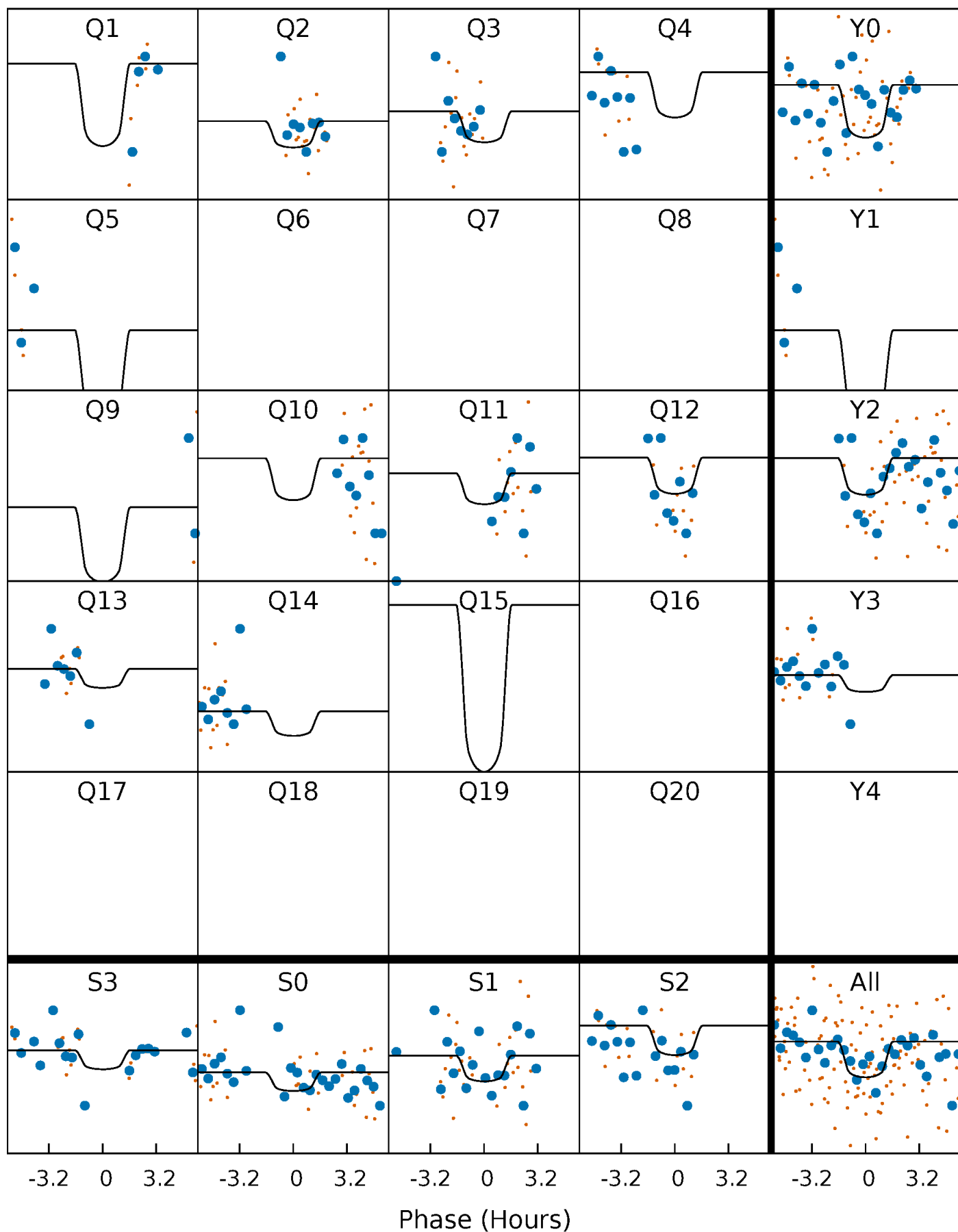
PDC Quarter-Phased Transit Curves

TCE 002443753-06 P= 19.028481 Days $T_0=134.527844$ (BKJD)



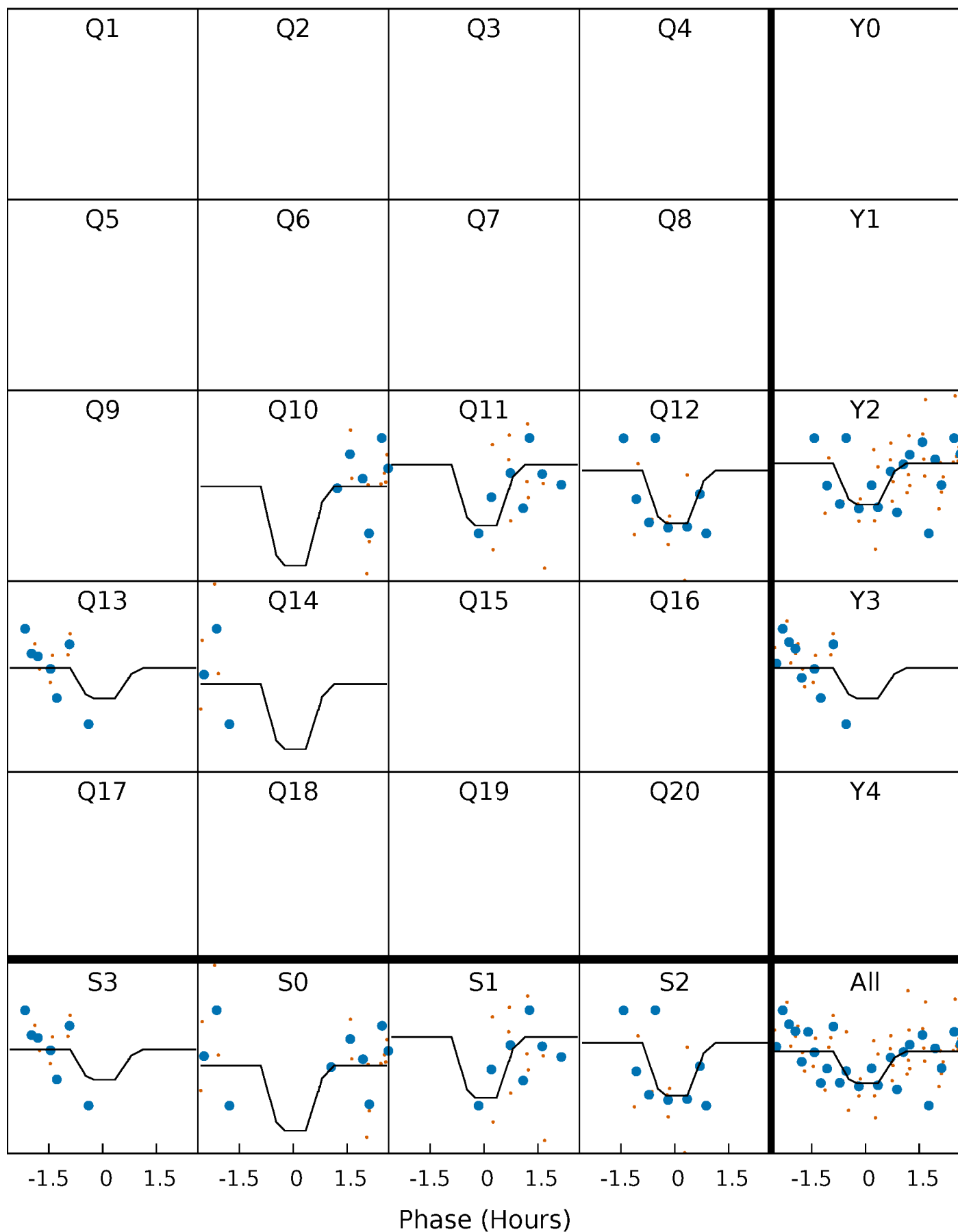
DV Quarter-Phased Transit Curves

TCE 002443753-06 P= 19.028481 Days $T_0=134.527844$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

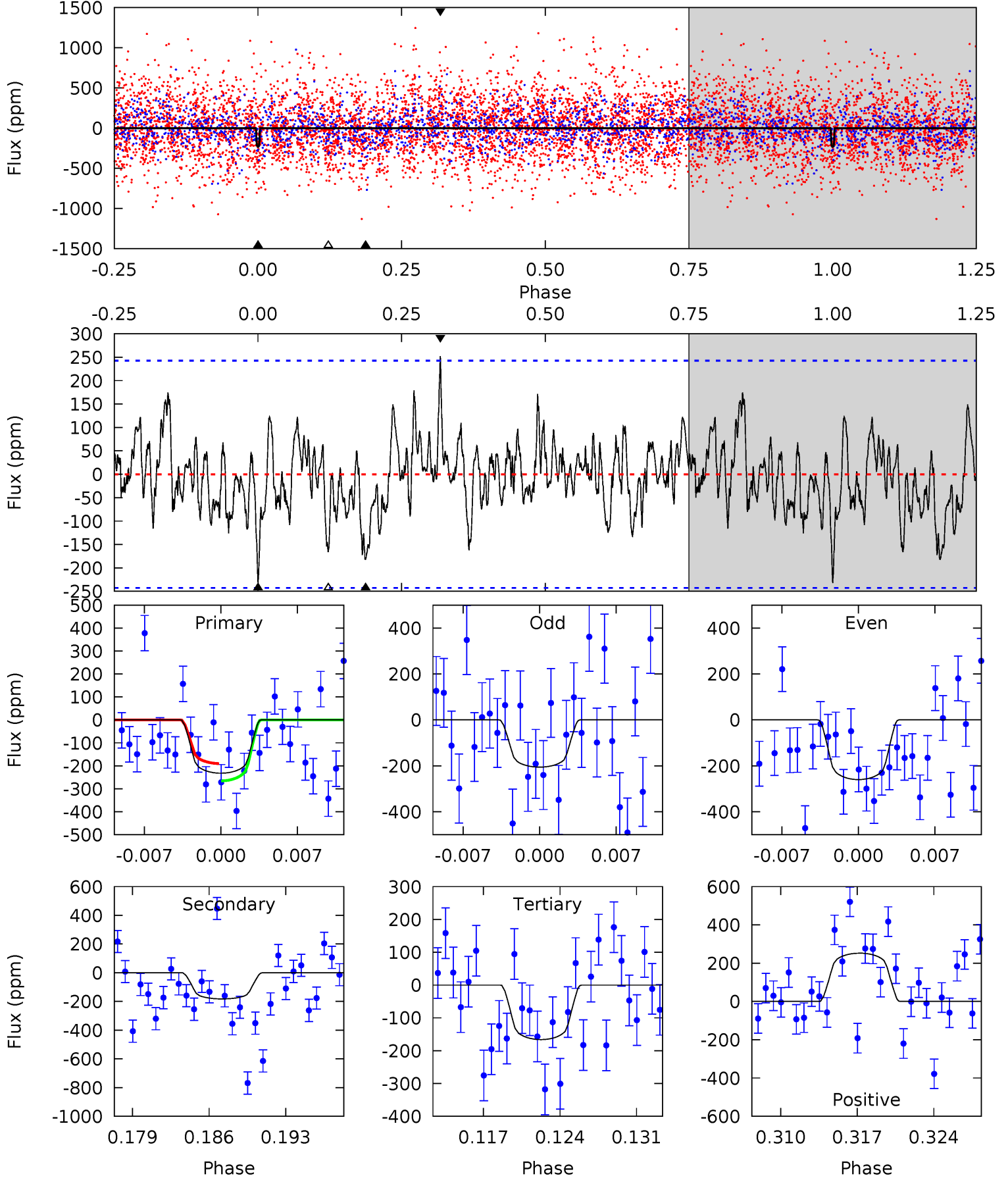
TCE 002443753-06 P= 19.021979 Days $T_0=134.874312$ (BKJD)



DV Model-Shift Uniqueness Test

002443753-06, P = 19.028481 Days, E = 115.499363 Days

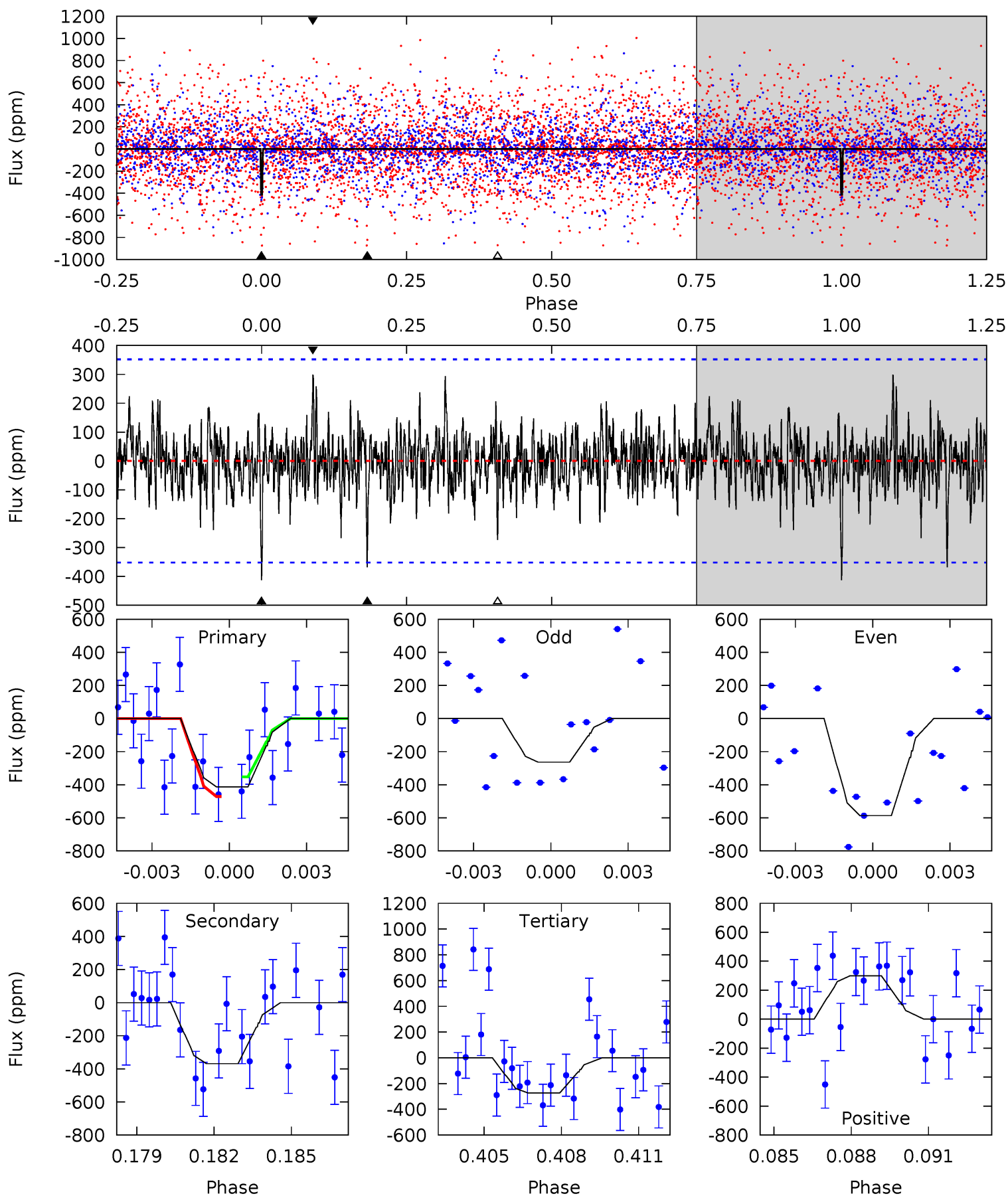
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.88	3.83	3.49	5.30	5.10	2.70	1.33	1.39	-0.42	0.34	-1.46	0.57	1.82	0.52	0.79



Alt Model-Shift Uniqueness Test

002443753-06, P = 19.021979 Days, E = 115.852333 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.15	5.49	4.07	4.45	5.24	2.95	1.15	2.08	1.70	1.41	1.04	2.42	0.70	0.42	0.86



Stellar Parameters For KIC 002443753

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6139^{+171}_{-192}	$4.513^{+0.048}_{-0.192}$	$-0.340^{+0.300}_{-0.350}$	$0.912^{+0.258}_{-0.086}$	$0.991^{+0.117}_{-0.129}$	$1.837^{+0.456}_{-0.938}$
	+3%/-3%	+1%/-4%	+88%/-103%	+28%/-9%	+12%/-13%	+25%/-51%
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 002443753-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-182 ± 48	$2.25^{+1.99}_{-1.30}$	984^{+68}_{-44}	4946^{+2559}_{-1111}	362^{+1625}_{-259}
Alt.	-368 ± 67	$2.47^{+1.99}_{-1.46}$	989^{+63}_{-46}	5518^{+3497}_{-1239}	627^{+3002}_{-440}

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

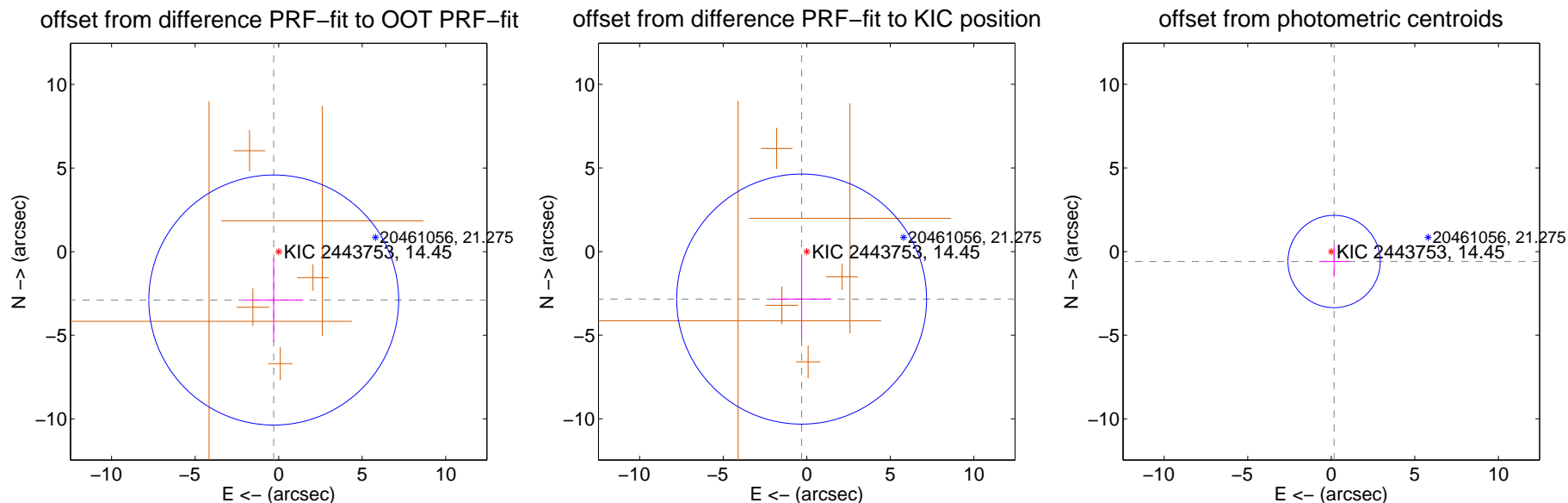
DV Centroid Data

Supplemental centroid analysis for 002443753-06. Kepler magnitude: 14.45. Transit SNR 9.60

There are 0 quarters with good PRF difference image offsets

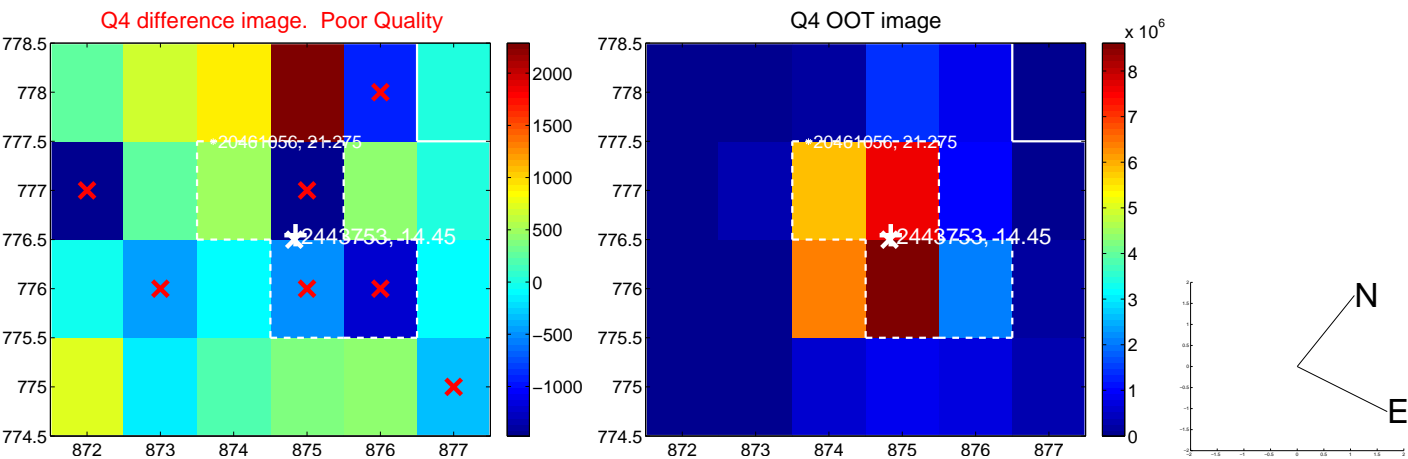
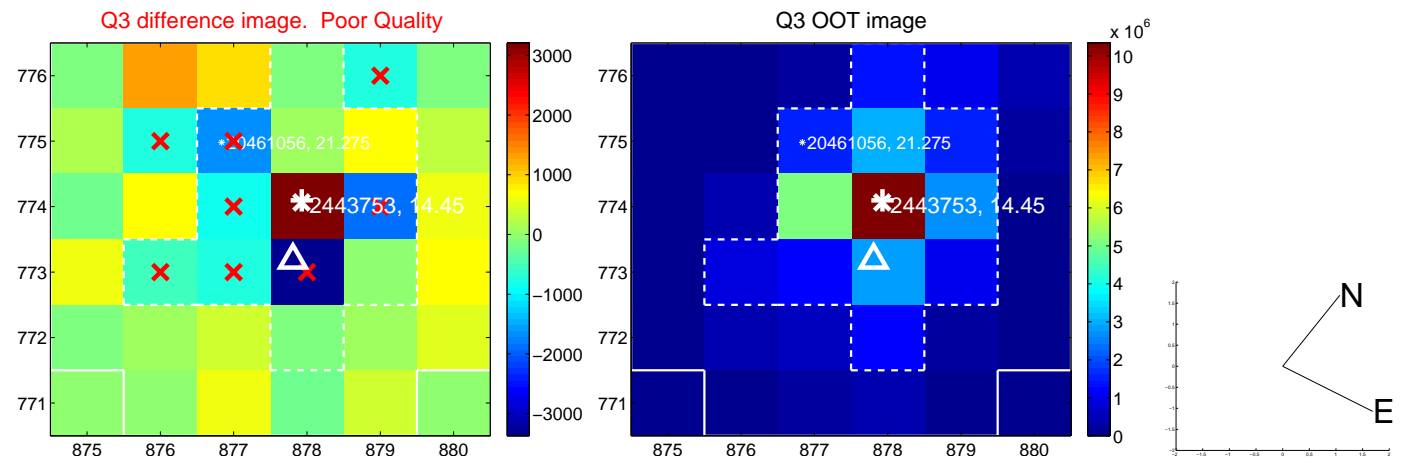
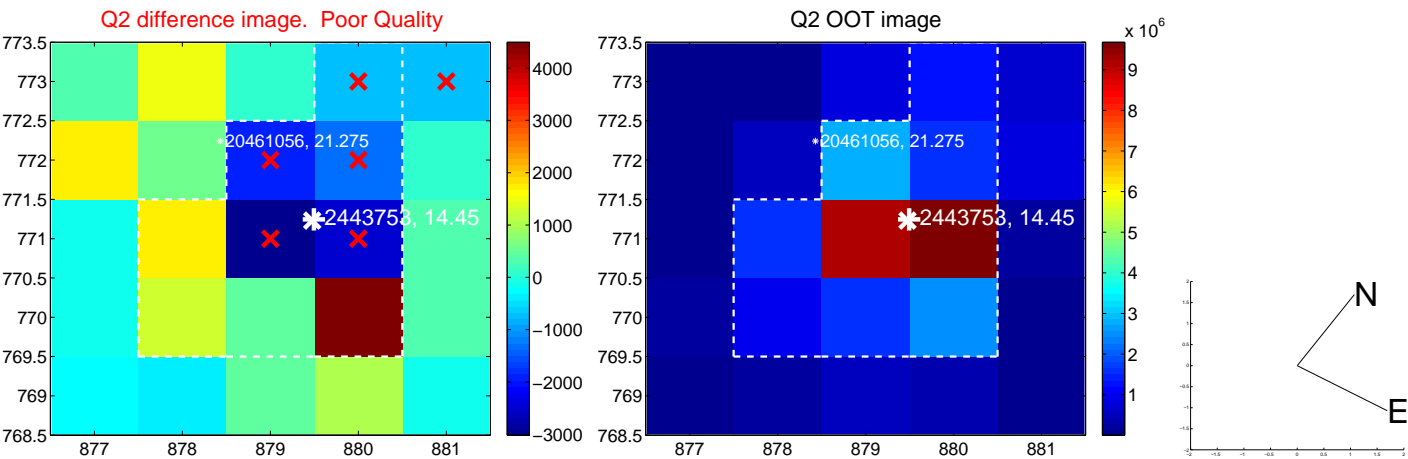
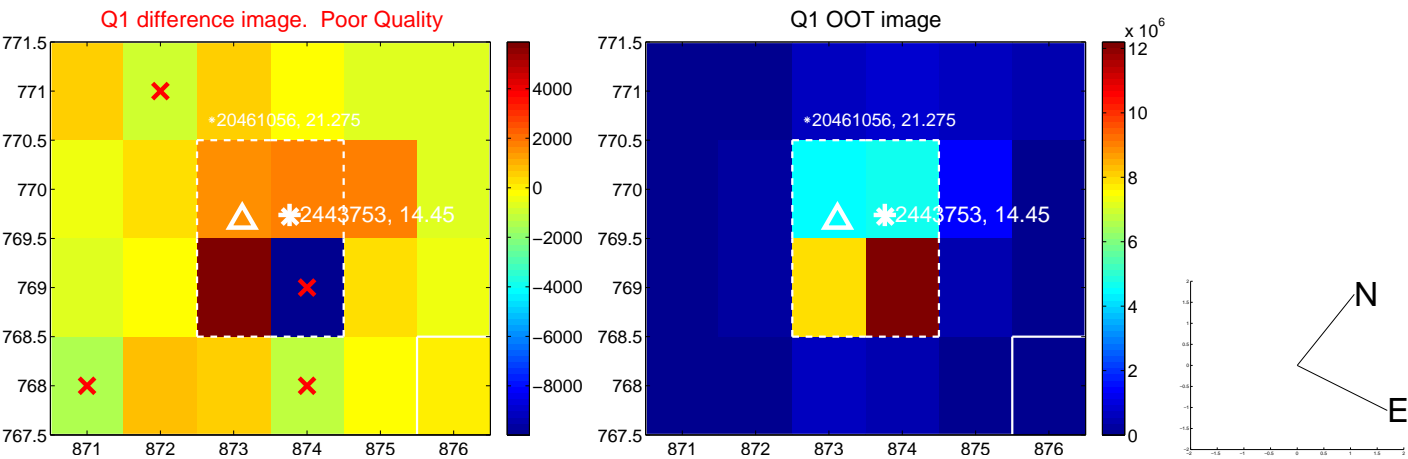
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.907 ± 2.492	1.17	0.295 ± 1.772	-2.892 ± 2.498
PRF-fit source offset from KIC position	2.856 ± 2.491	1.15	0.306 ± 1.772	-2.840 ± 2.498
photometric centroid source offset	0.62 ± 0.92	0.67	-0.17 ± 0.89	-0.59 ± 0.92

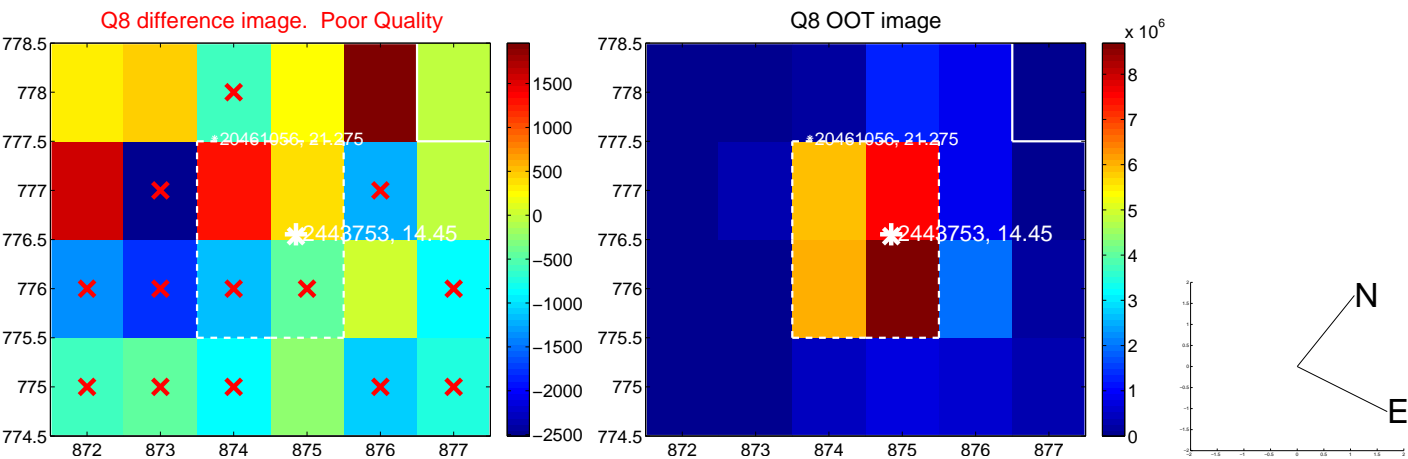
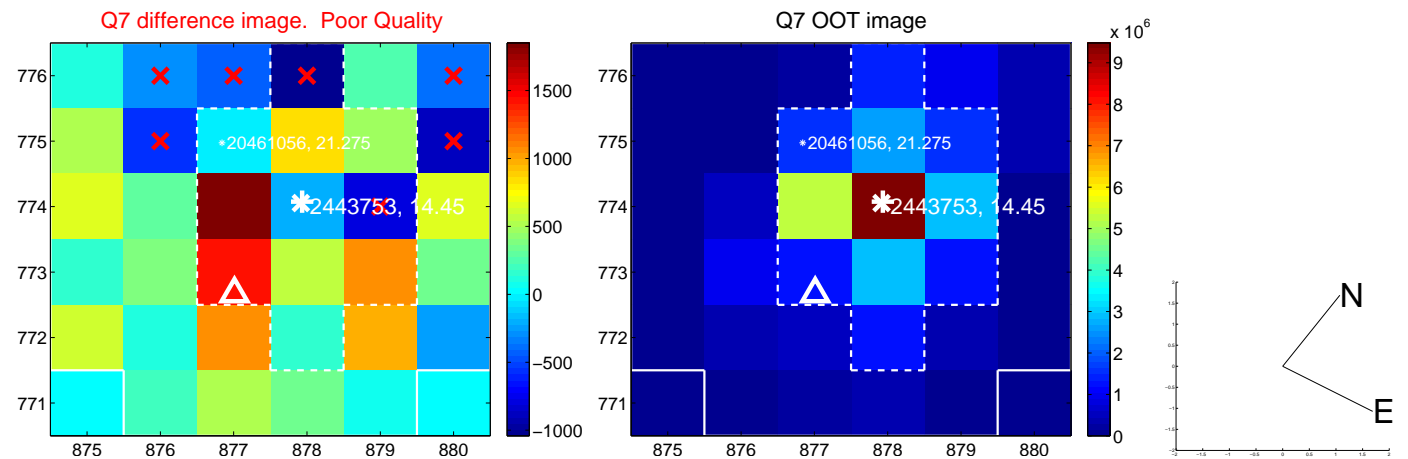
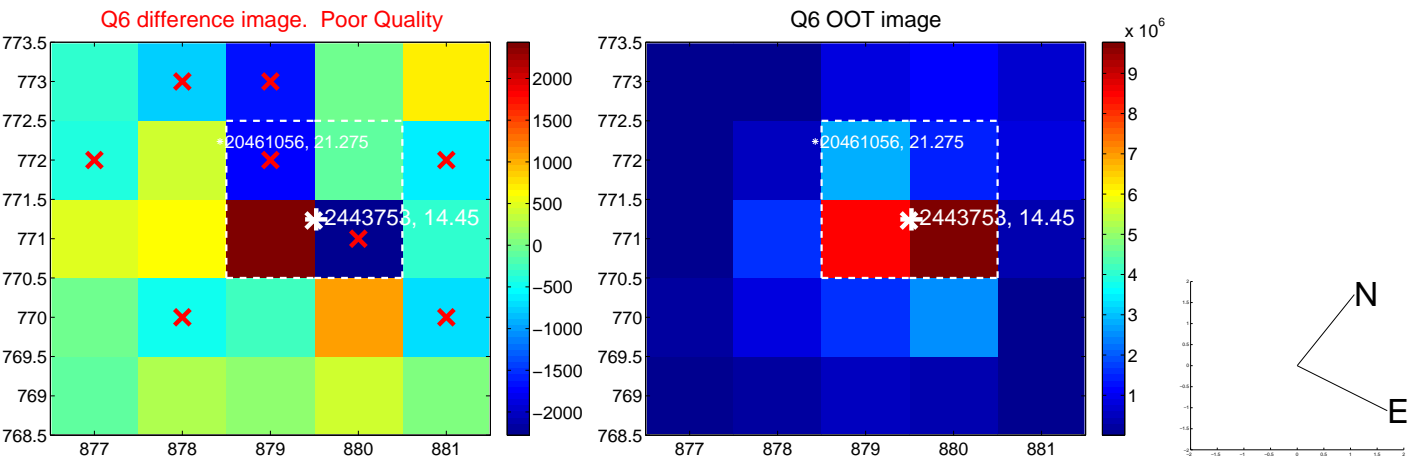
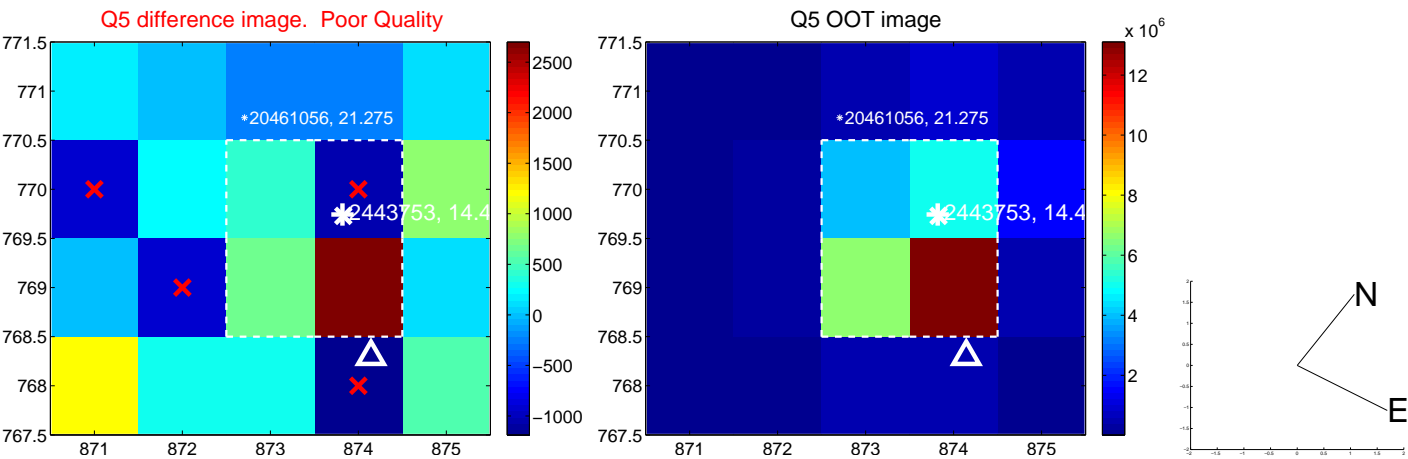


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

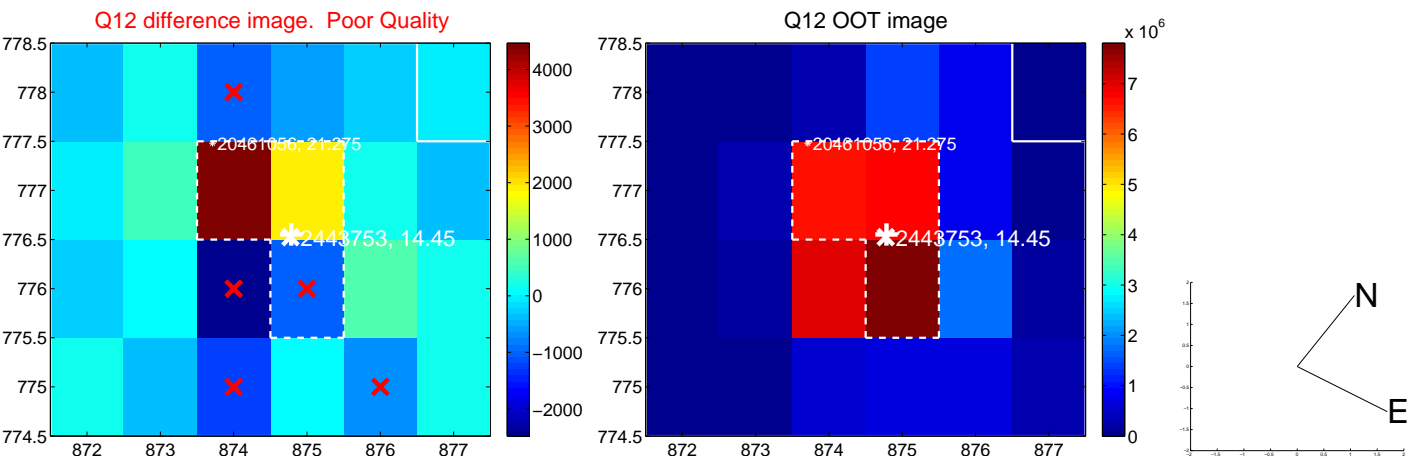
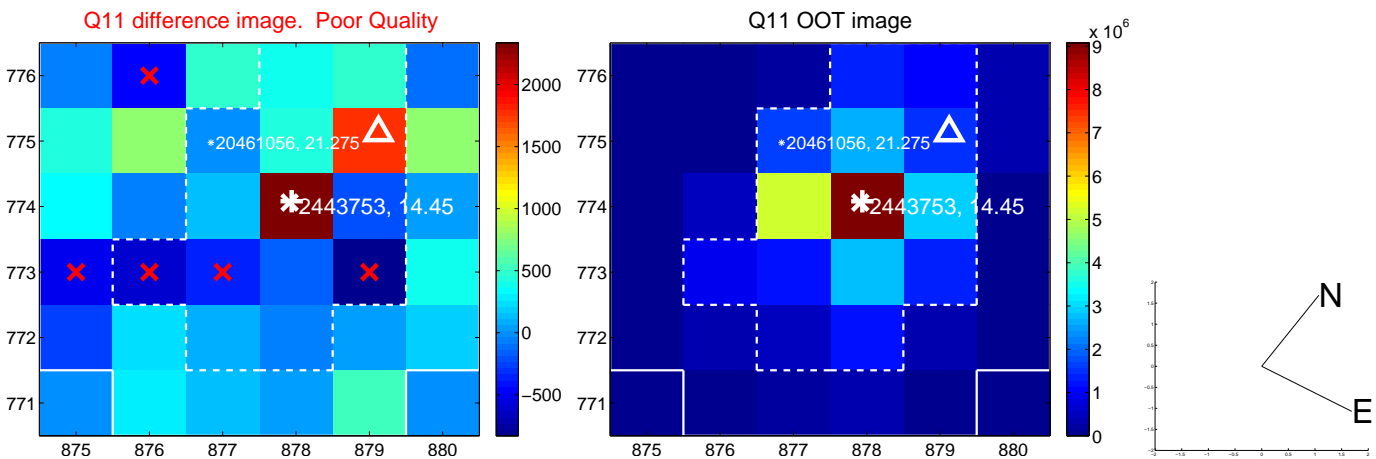
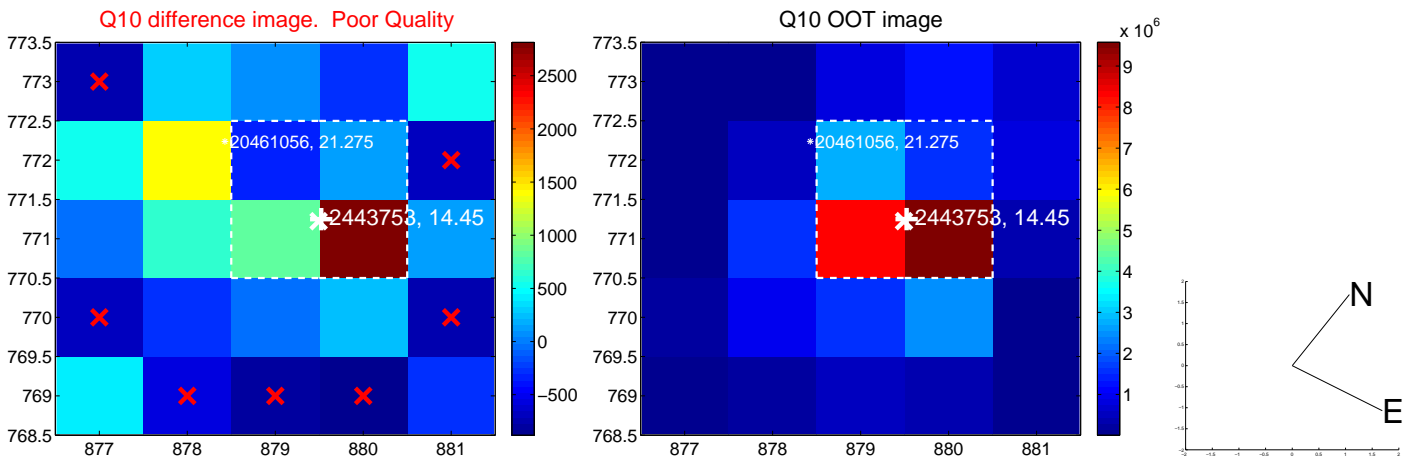
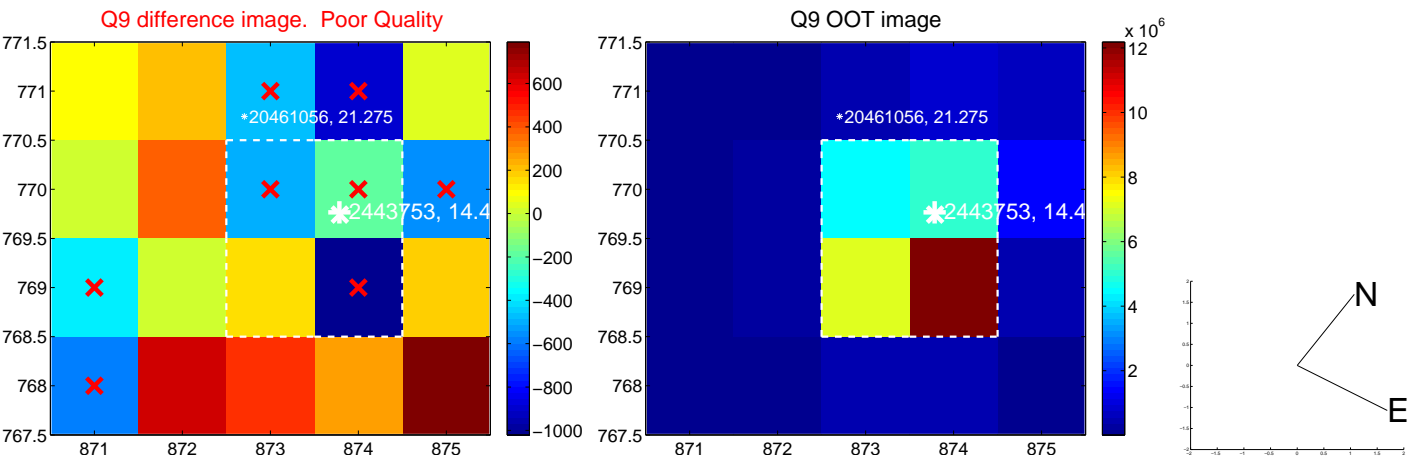
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



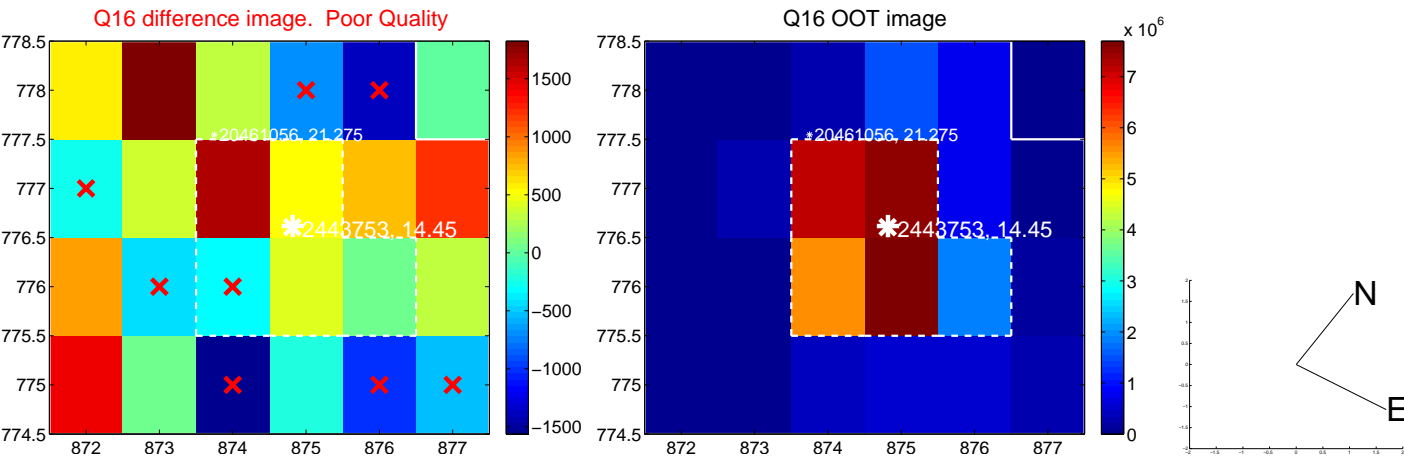
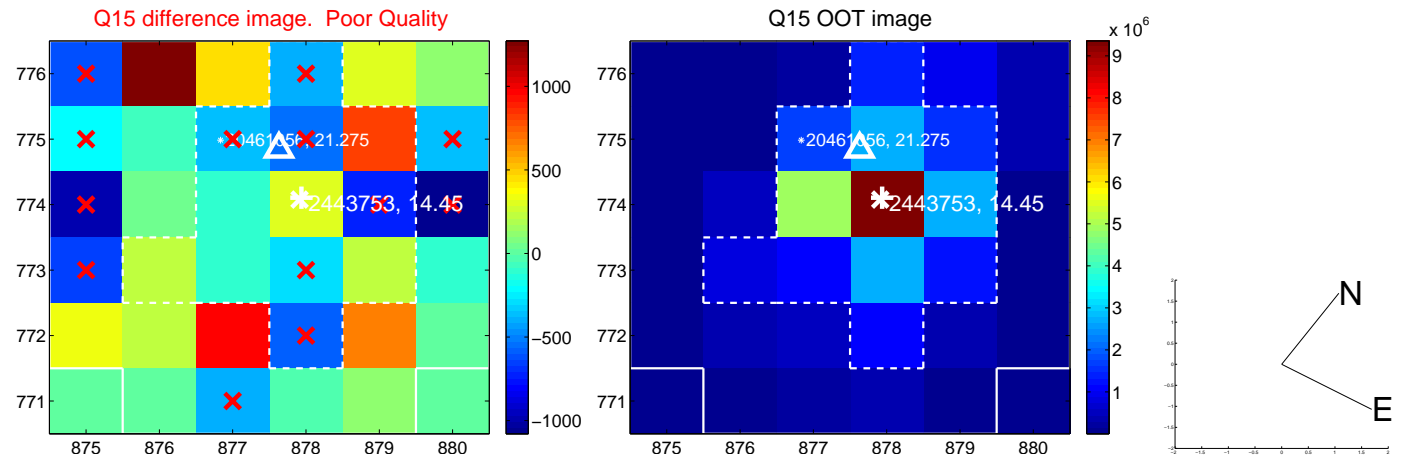
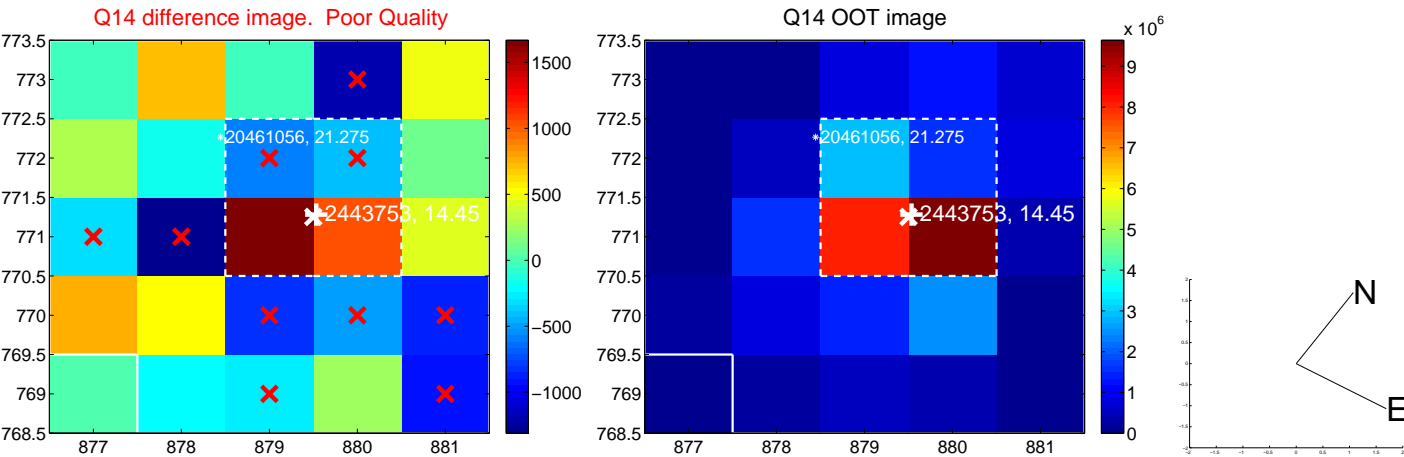
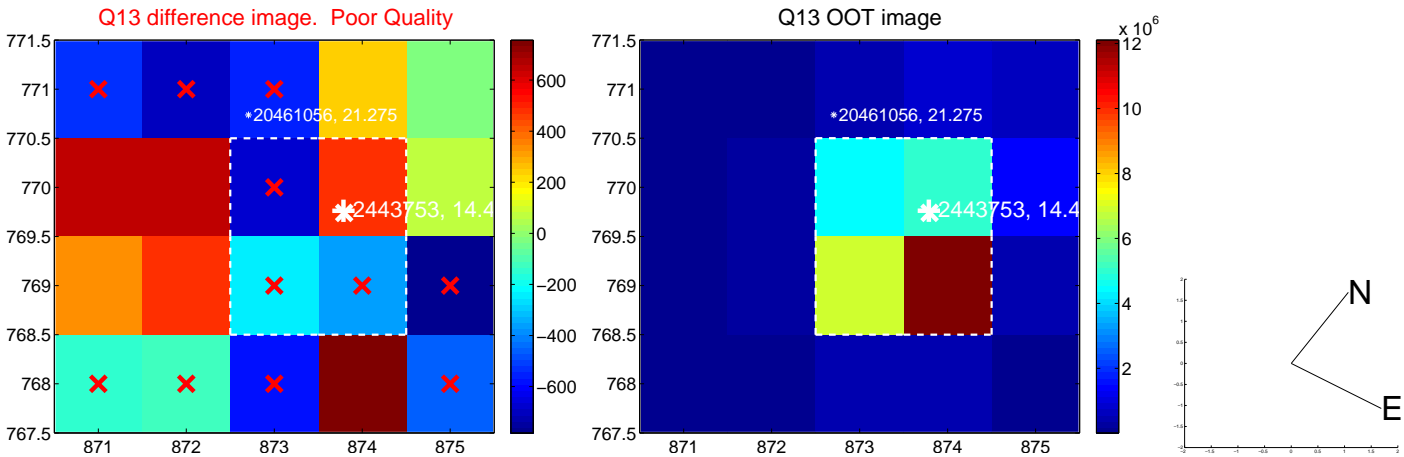
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



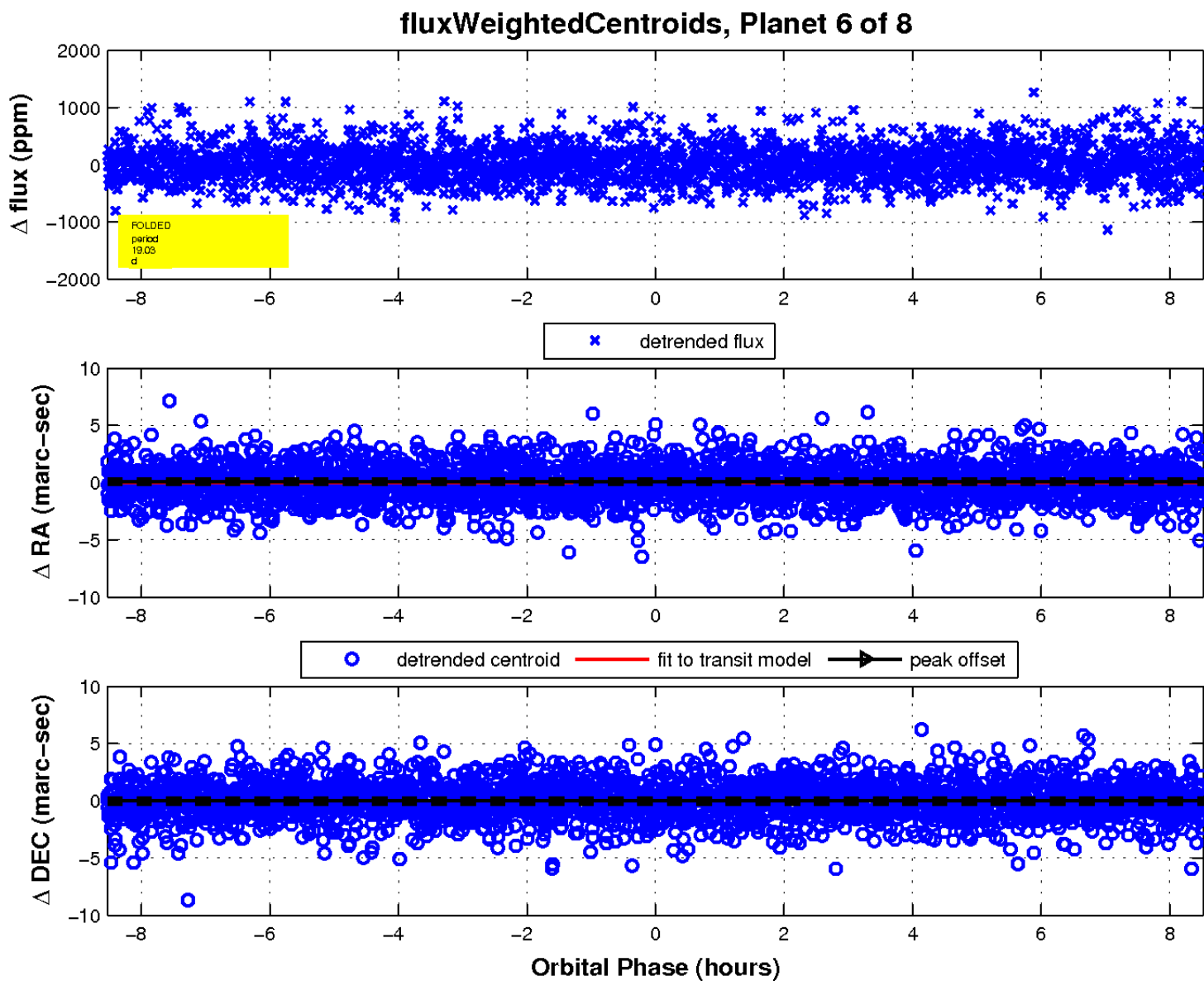
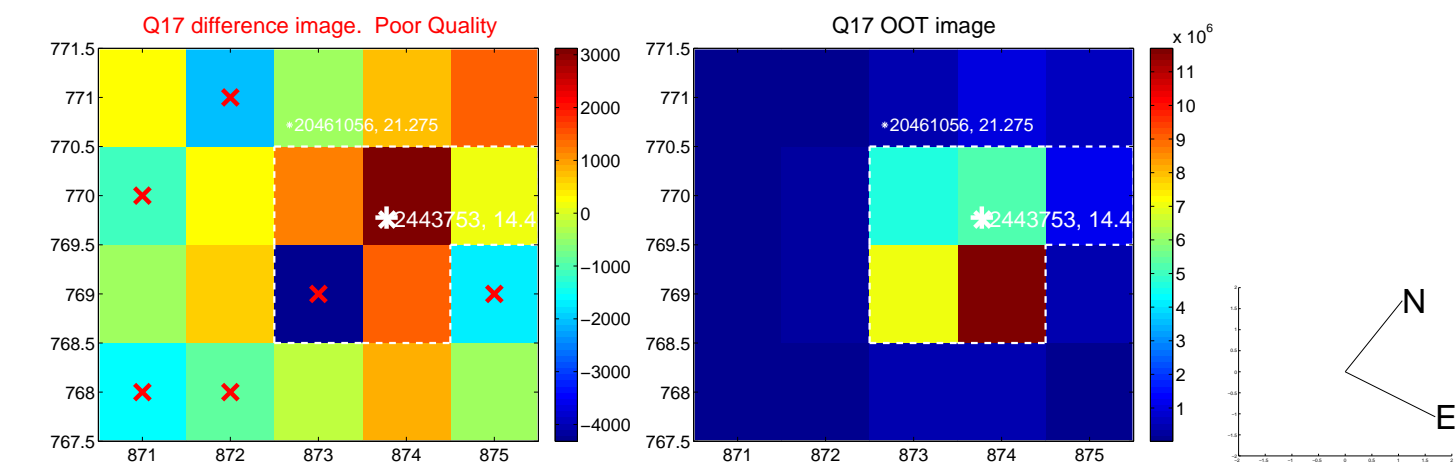
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

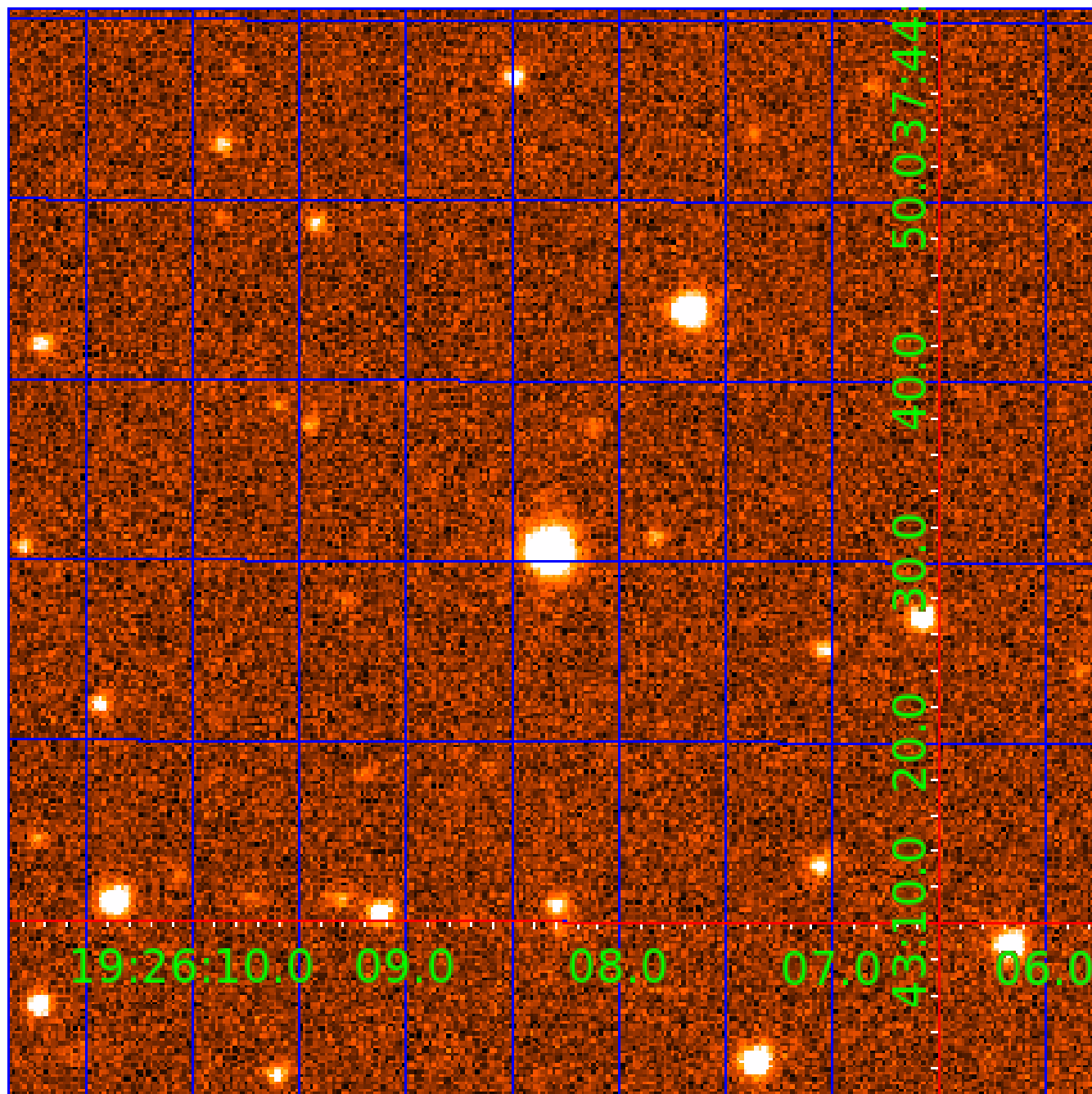


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002443753

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})
002443753-01	OBS	No	0.864091	131.606741	30.6	6.179	7.8	11.4	0.91	6139	0.56	3382.22
002443753-02	OBS	No	28.983578	155.204412	571.6	2.009	11.2	11.9	0.91	6139	2.21	31.27
002443753-03	OBS	No	30.726973	132.039181	302.8	3.946	9.6	9.4	0.91	6139	1.83	28.92
002443753-04	OBS	No	53.379556	161.644097	642.9	3.251	10.3	11.3	0.91	6139	2.97	13.85
002443753-05	OBS	No	33.430499	141.248398	711.7	1.251	10.3	10.6	0.91	6139	2.45	25.85
002443753-06	OBS	No	19.028481	134.527844	276.4	2.842	10.1	9.6	0.91	6139	1.76	54.80
002443753-07	OBS	No	18.323714	143.898506	468.7	1.573	10.7	11.8	0.91	6139	2.27	57.62
002443753-08	OBS	No	43.482829	143.242586	672.9	1.581	11.9	11.1	0.91	6139	2.79	18.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002443753-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS
002443753-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
002443753-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
002443753-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN—HALO_GHOST
002443753-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
002443753-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

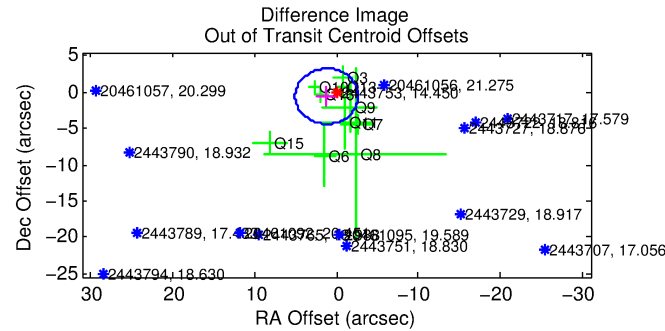
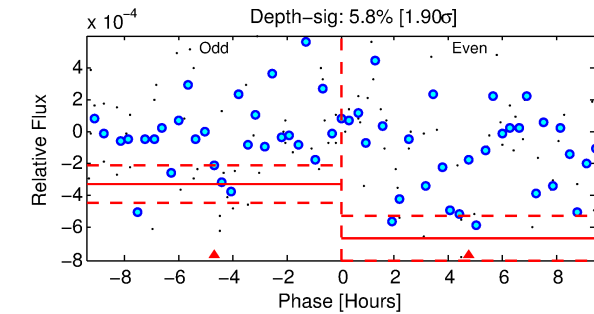
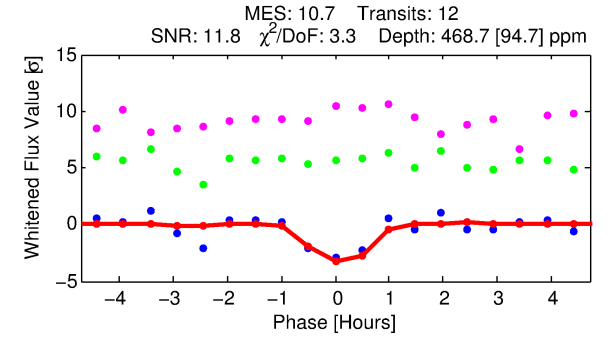
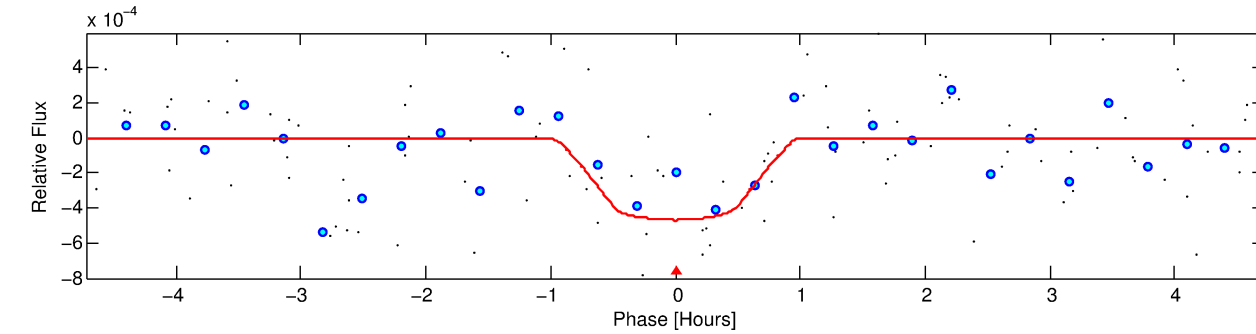
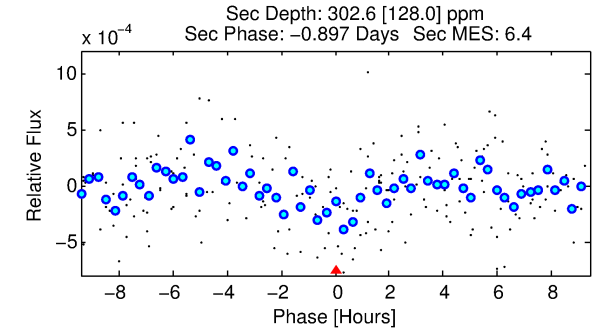
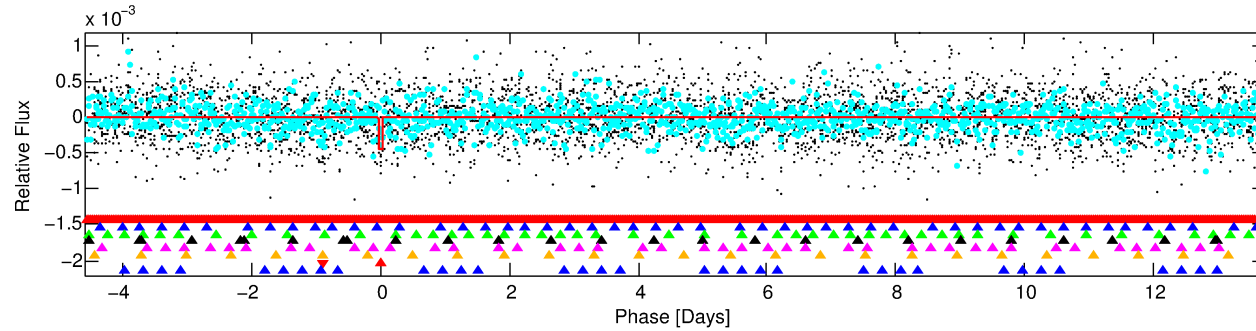
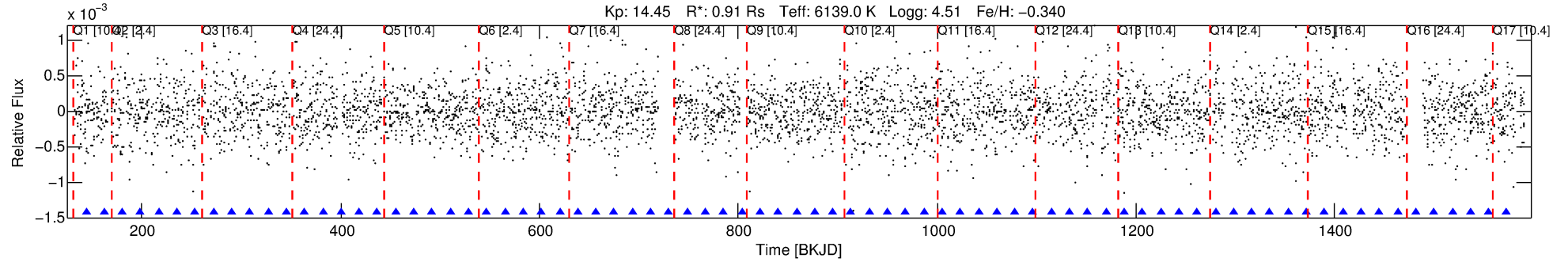
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002443753-07

No Significant Match Found

DV One-Page Summary

KIC: 2443753 Candidate: 7 of 8 Period: 18.324 d



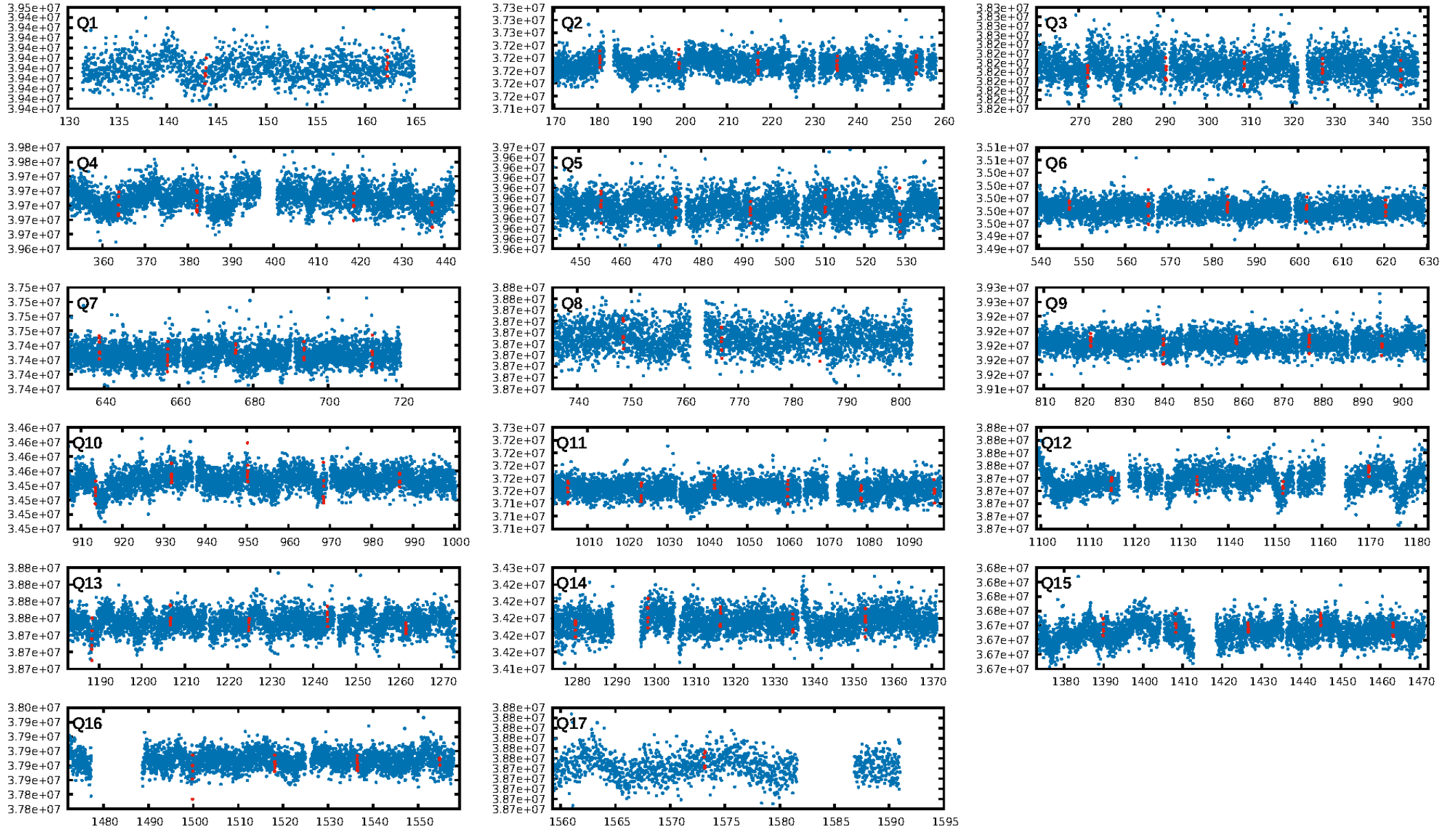
DV Fit Results:

Period = 18.32371 [0.00025] d
Epoch = 143.8985 [0.0102] BKJD
Rp/R* = 0.0228 [0.0718]
a/R* = 48.14 [817.50]
b = 0.87 [4.87]
Seff = 57.62 [21.41]
Teq = 703 [65] K
Rp = 2.27 [7.18] Re
a = 0.1355 [0.0324] AU
Ag = 593.55 [3752.83] [0.16 σ]
Teff = 5361 [8463] K [0.55 σ]

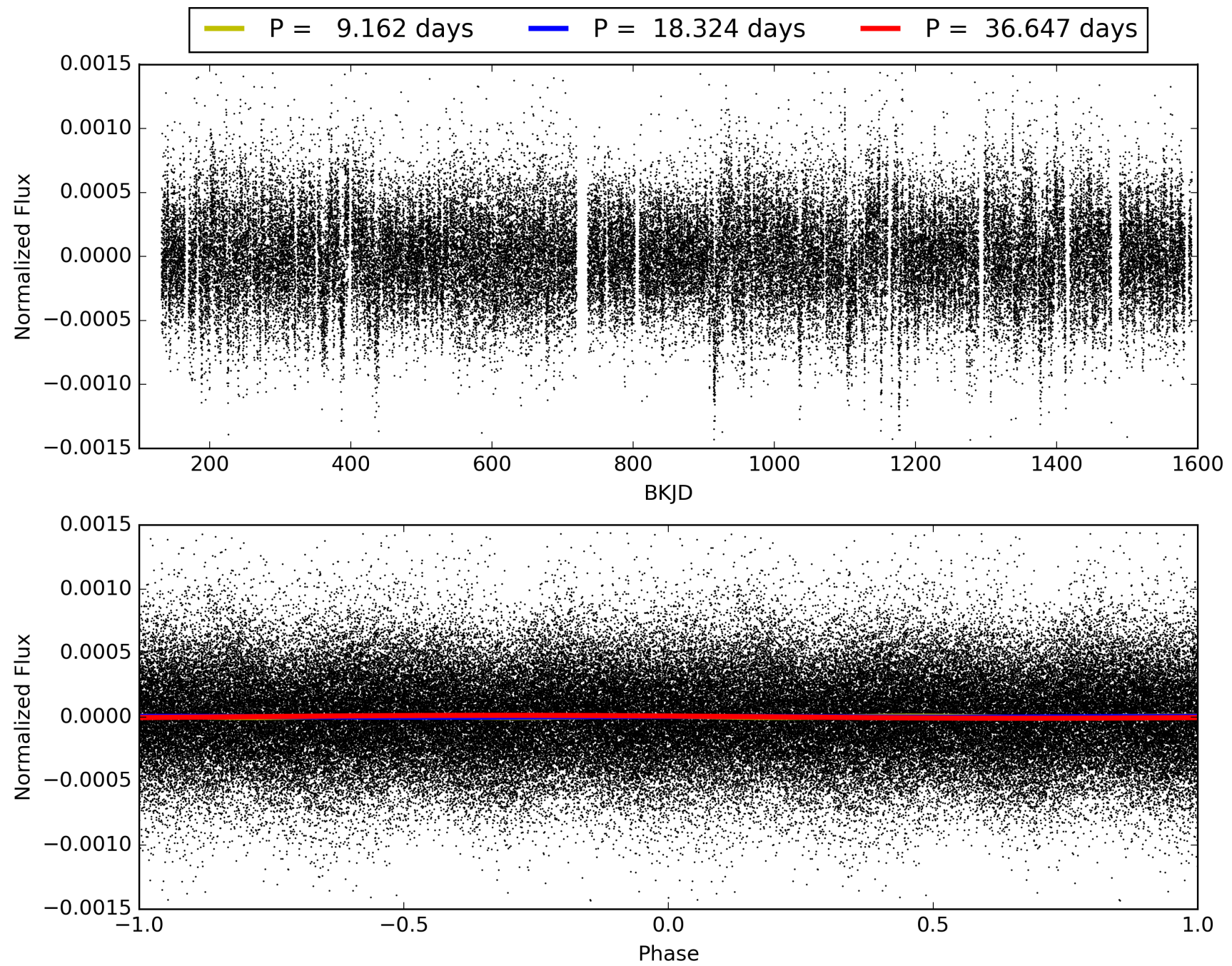
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [65.72 σ]
LongPeriod-sig: 100.0% [5.21 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 43.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: -0.6372
Centroid-sig: 3.9%
Centroid-so: 1.579 arcsec [2.17 σ]
OotOffset-rm: 1.346 arcsec [1.06 σ]
KicOffset-rm: 1.325 arcsec [1.05 σ]
OotOffset-st: 2/4/2/2 [10]
KicOffset-st: 2/4/2/2 [10]
DiffImageQuality-fgm: 0.10 [1/10]
DiffImageOverlap-fno: 0.76 [13/17]

TCE 002443753-07, PDC Light Curves

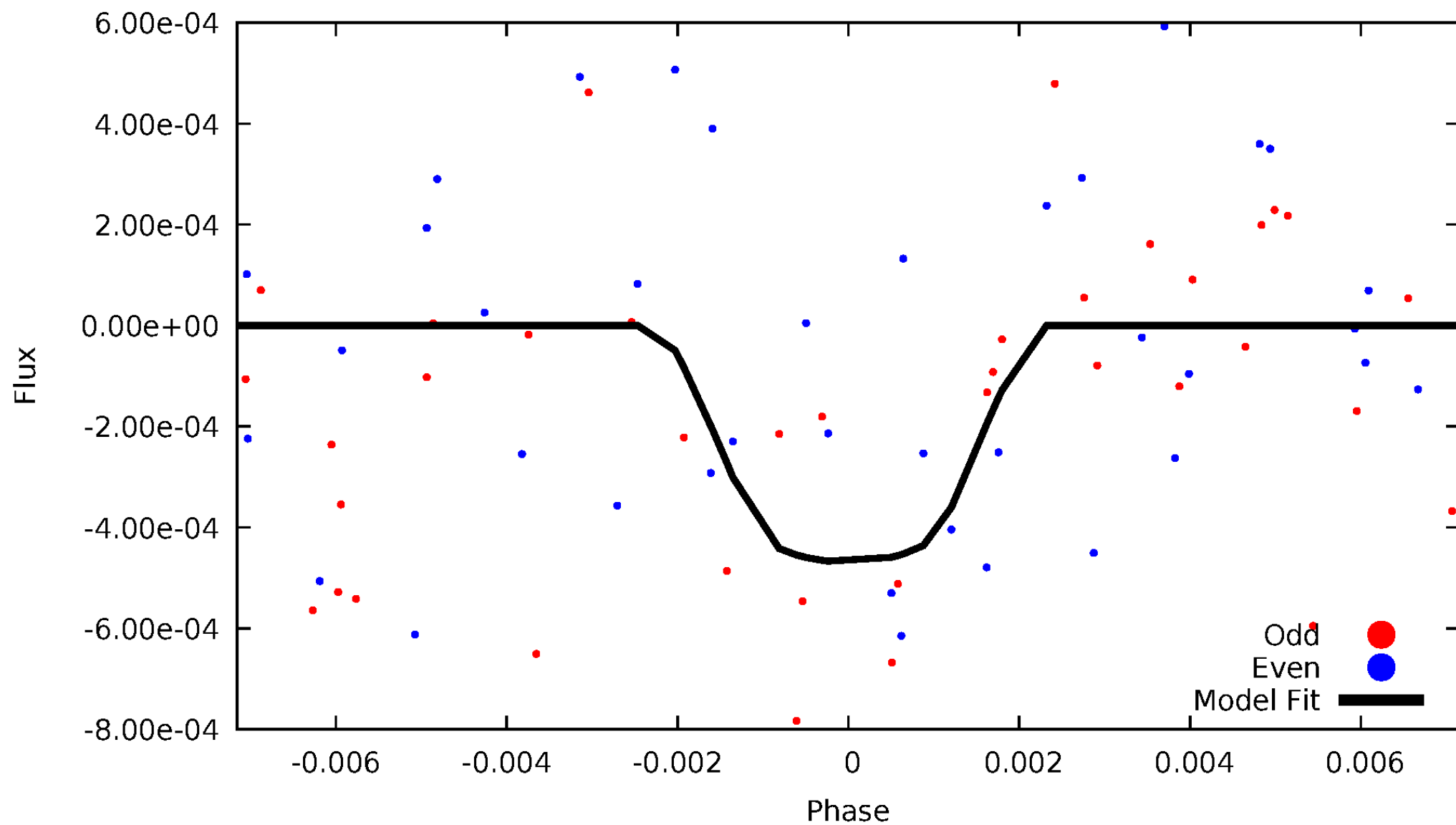


TCE 002443753-07



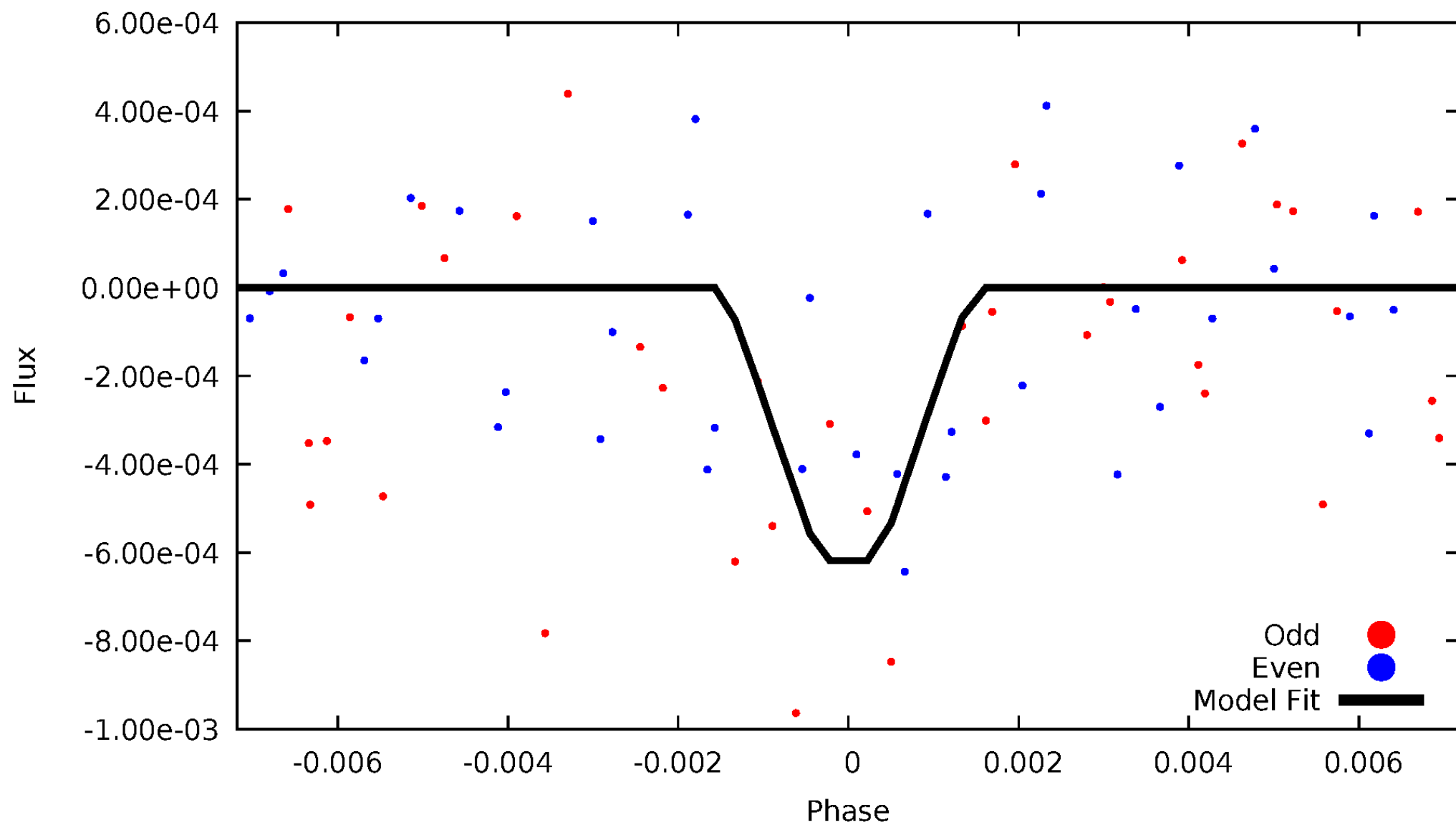
DV Odd/Even

TCE 002443753-07



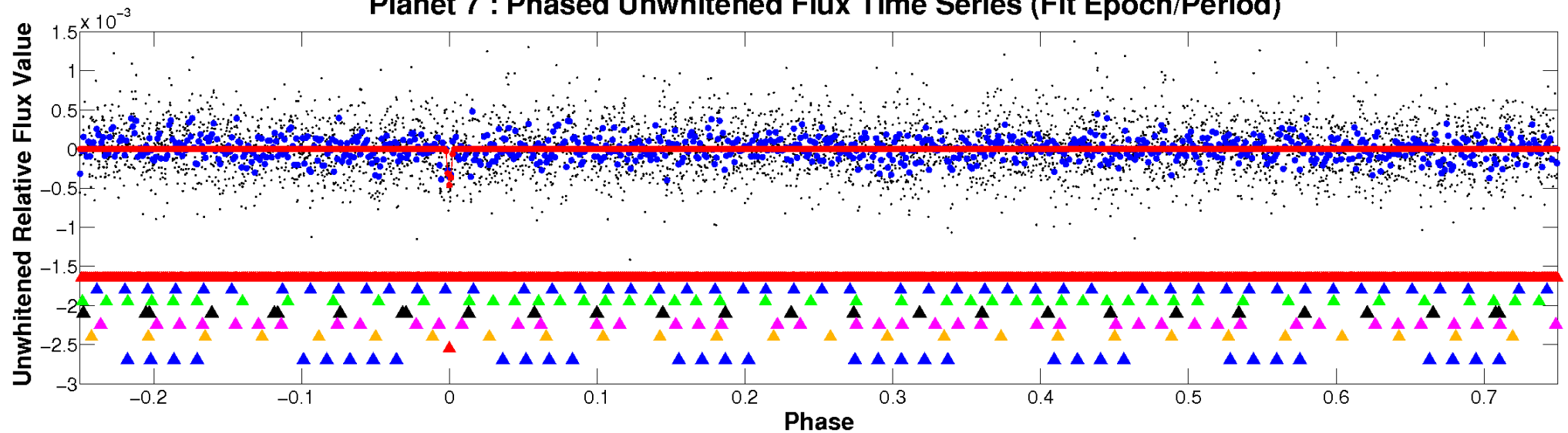
ALT Odd/Even

TCE 002443753-07

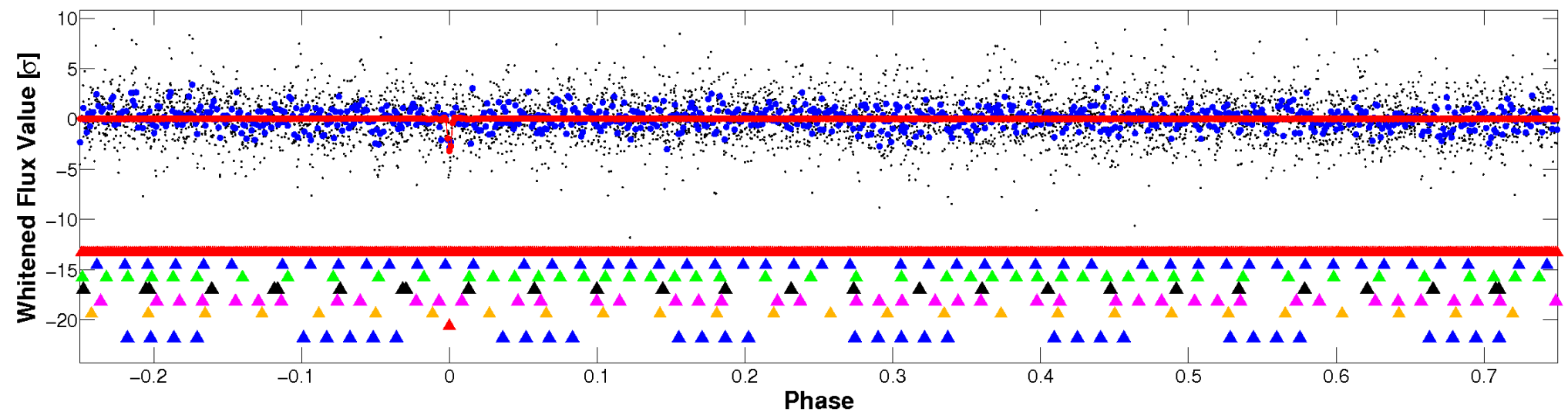


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



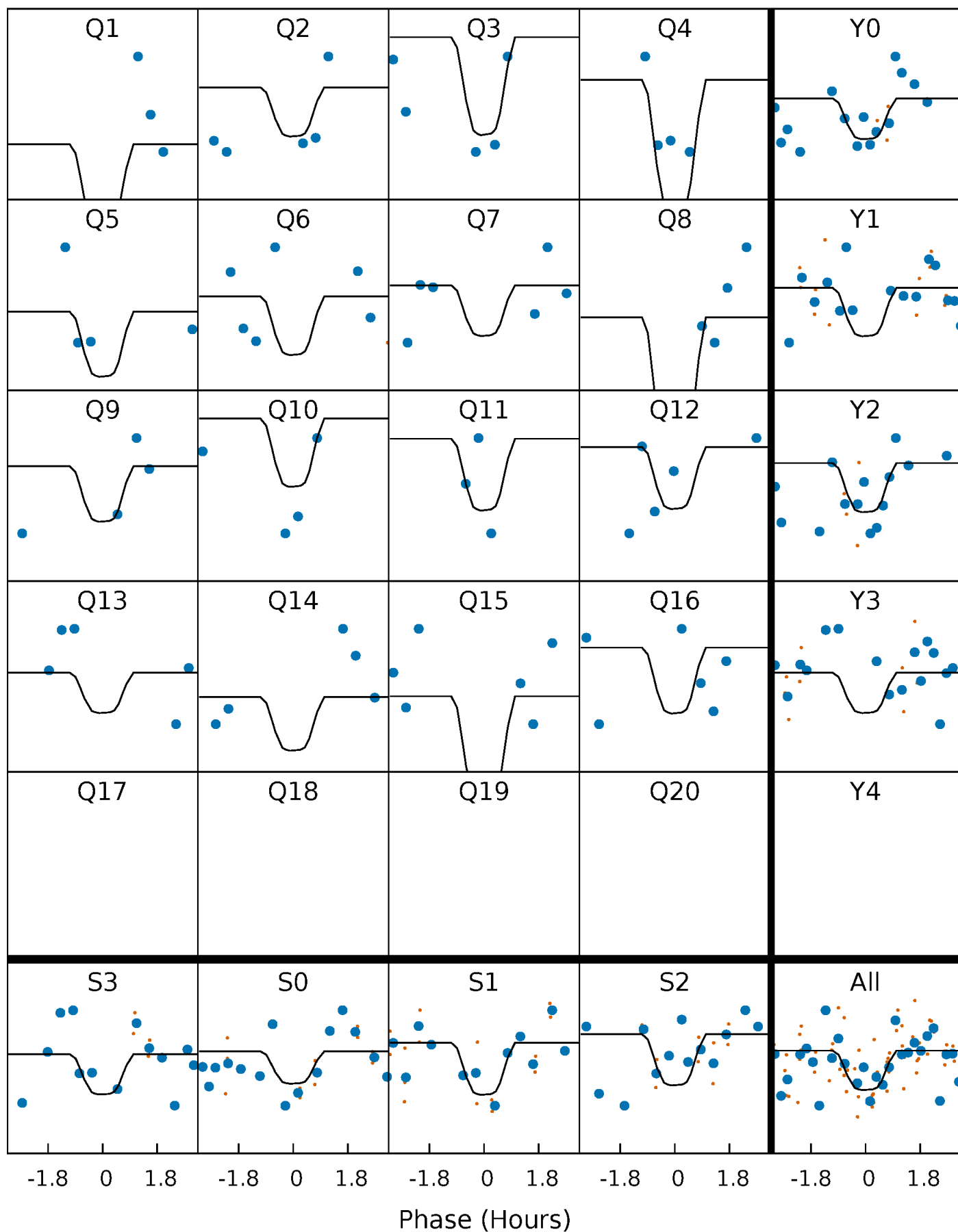
PDC Quarter-Phased Transit Curves

TCE 002443753-07 P= 18.323714 Days $T_0=143.898506$ (BKJD)



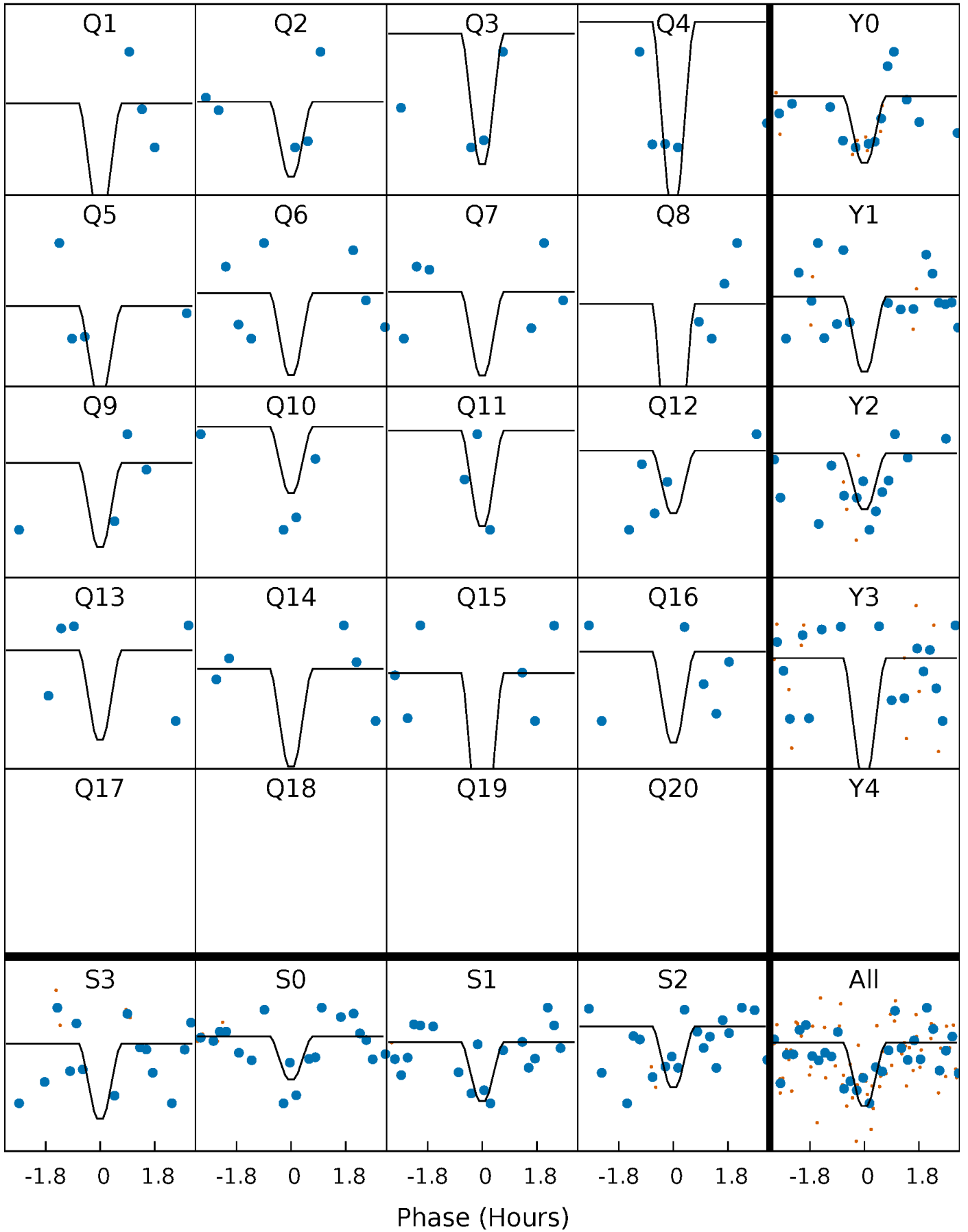
DV Quarter-Phased Transit Curves

TCE 002443753-07 P= 18.323714 Days $T_0=143.898506$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

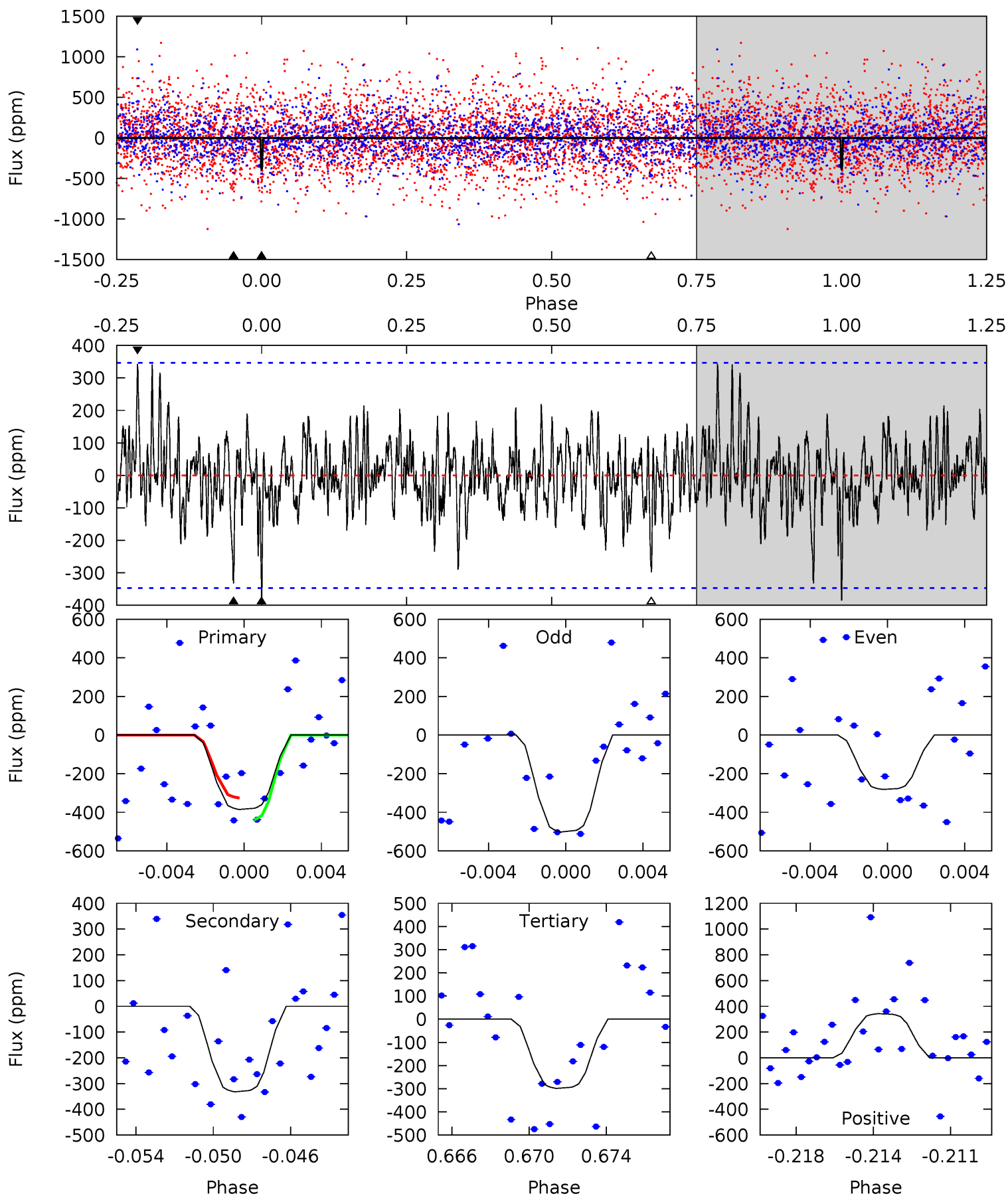
TCE 002443753-07 P= 18.323527 Days $T_0=143.907090$ (BKJD)



DV Model-Shift Uniqueness Test

002443753-07, P = 18.323714 Days, E = 125.574792 Days

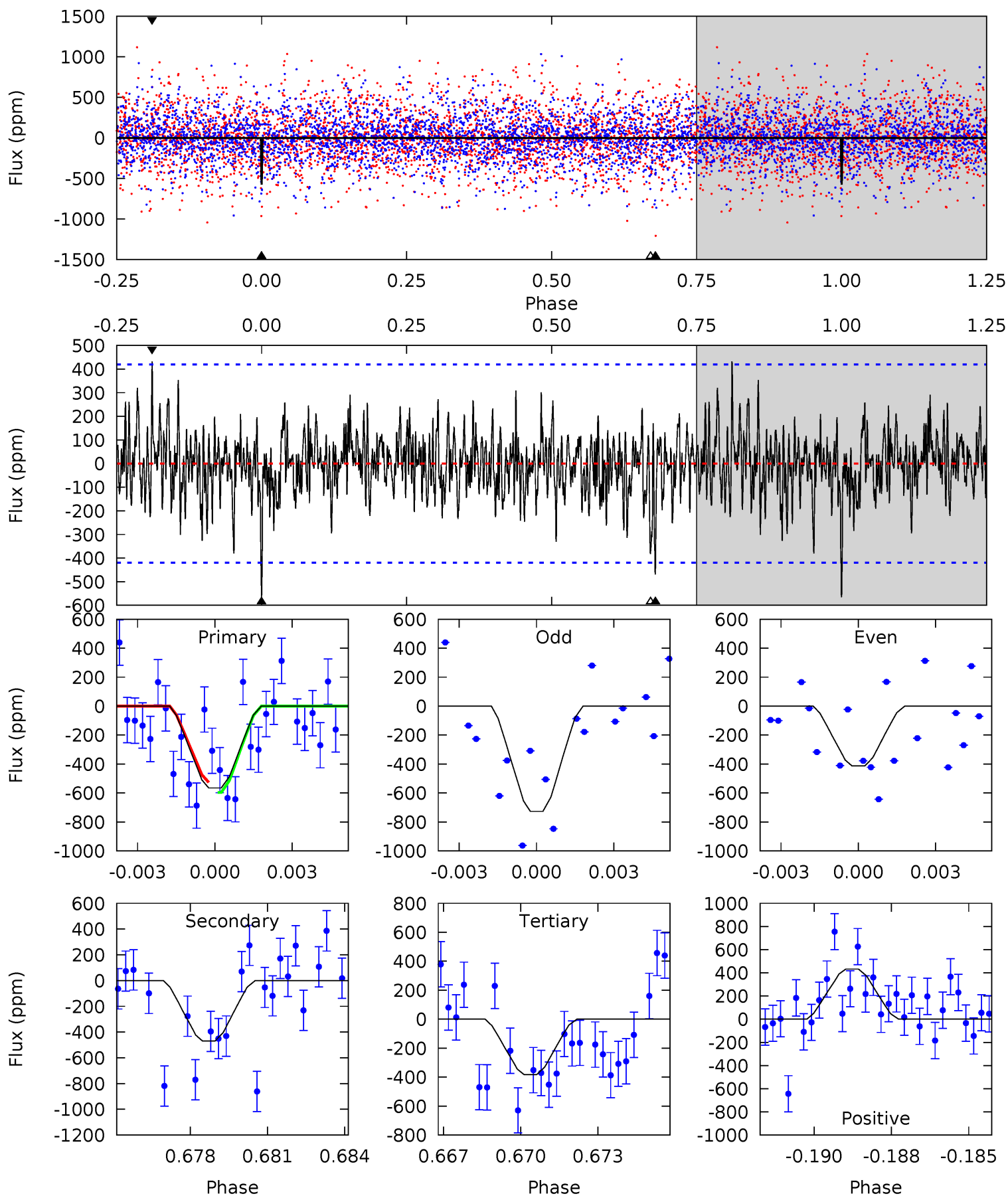
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.79	4.99	4.49	5.15	5.21	2.89	1.33	1.30	0.64	0.50	-0.16	1.68	1.10	0.47	0.85



Alt Model-Shift Uniqueness Test

002443753-07, P = 18.323527 Days, E = 125.583563 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.10	5.89	4.81	5.43	5.27	3.00	1.41	2.30	1.67	1.09	0.46	1.96	1.21	0.43	0.42



Stellar Parameters For KIC 002443753

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6139^{+171}_{-192}	$4.513^{+0.048}_{-0.192}$	$-0.340^{+0.300}_{-0.350}$	$0.912^{+0.258}_{-0.086}$	$0.991^{+0.117}_{-0.129}$	$1.837^{+0.456}_{-0.938}$
	+3%/-3%	+1%/-4%	+88%/-103%	+28%/-9%	+12%/-13%	+25%/-51%
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 002443753-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-332 ± 67	$6.22^{+5.79}_{-4.11}$	1002^{+60}_{-47}	3778^{+2029}_{-746}	84^{+637}_{-62}
Alt.	-469 ± 80	$6.21^{+6.36}_{-4.33}$	1000^{+64}_{-46}	3998^{+2762}_{-785}	116^{+1181}_{-85}

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

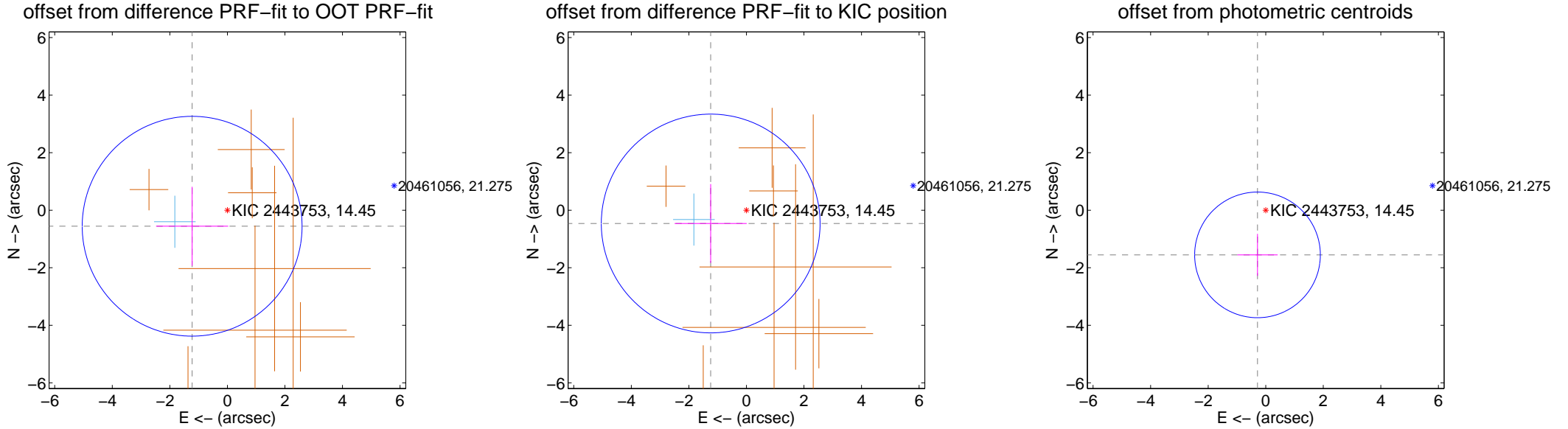
DV Centroid Data

Supplemental centroid analysis for 002443753-07. Kepler magnitude: 14.45. Transit SNR 11.84

There are 1 quarters with good PRF difference image offsets

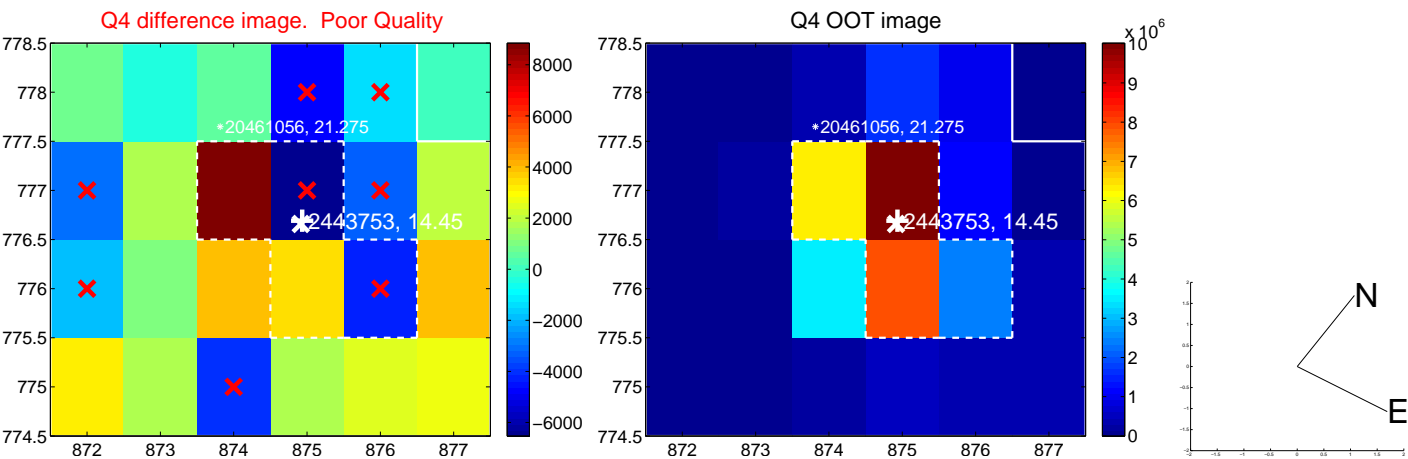
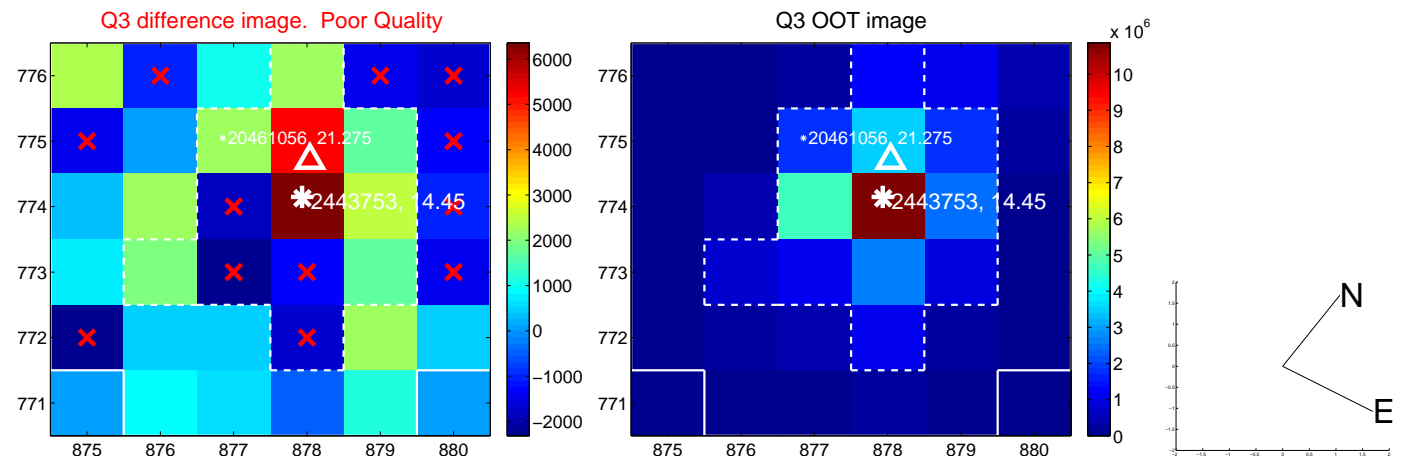
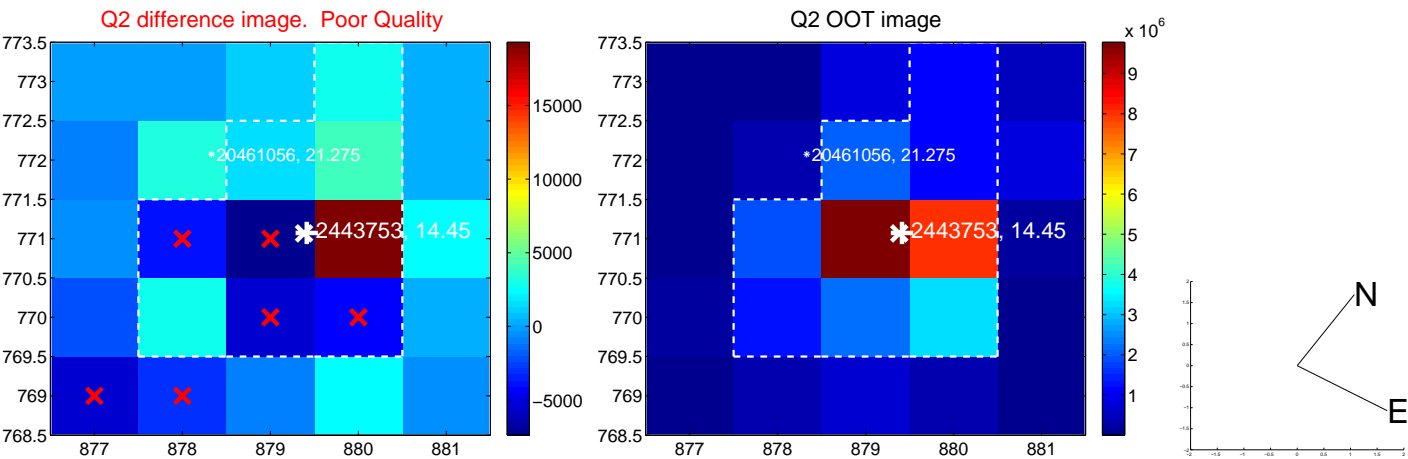
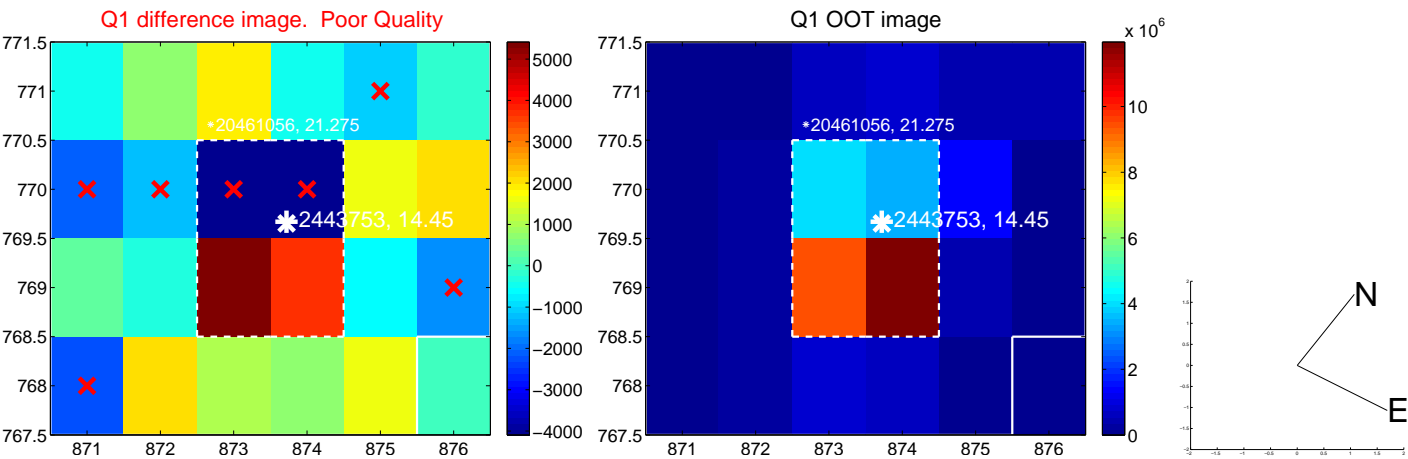
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.346 ± 1.273	1.06	1.225 ± 1.252	-0.557 ± 1.371
PRF-fit source offset from KIC position	1.325 ± 1.267	1.05	1.242 ± 1.252	-0.462 ± 1.371
photometric centroid source offset	1.58 ± 0.73	2.17	0.29 ± 0.70	-1.55 ± 0.73

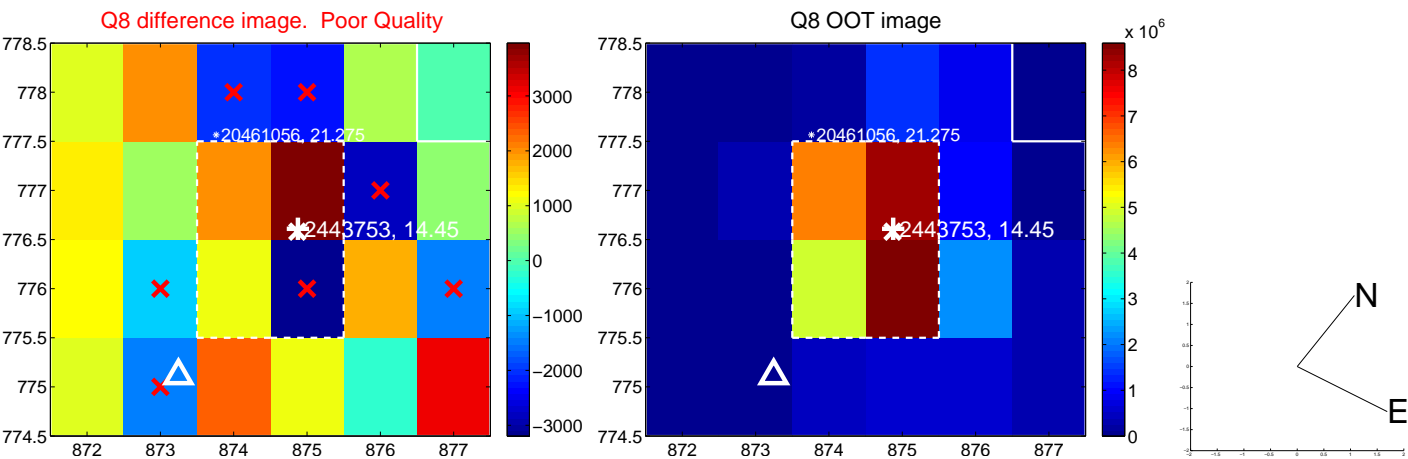
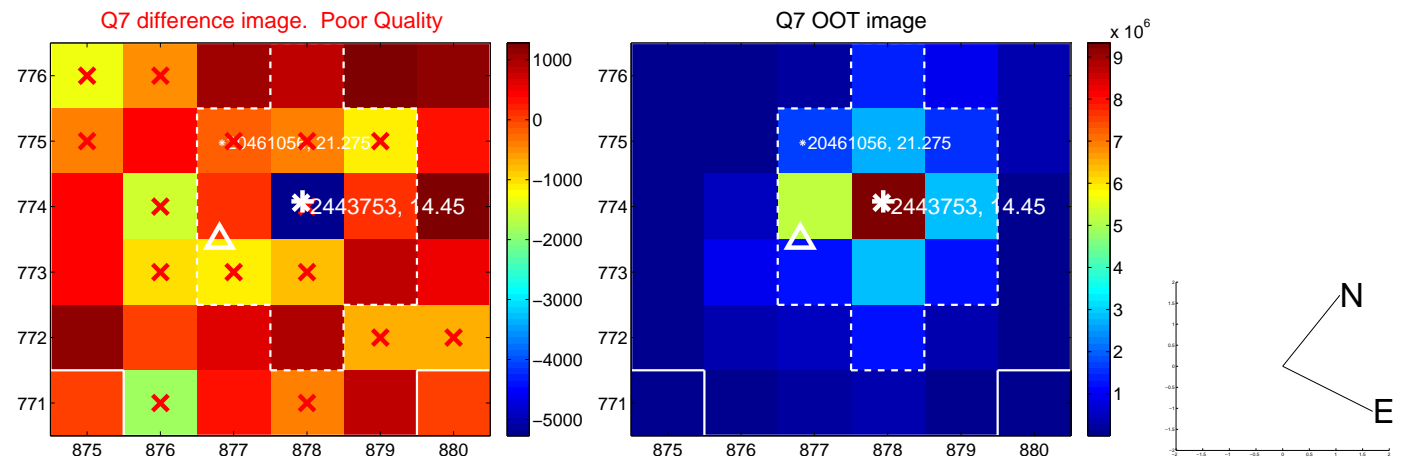
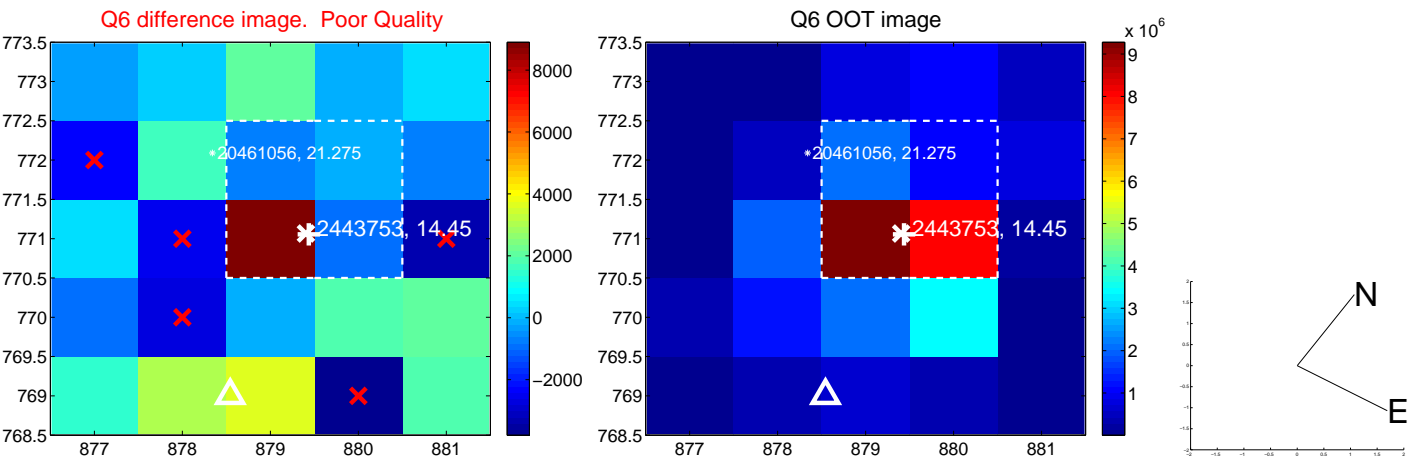
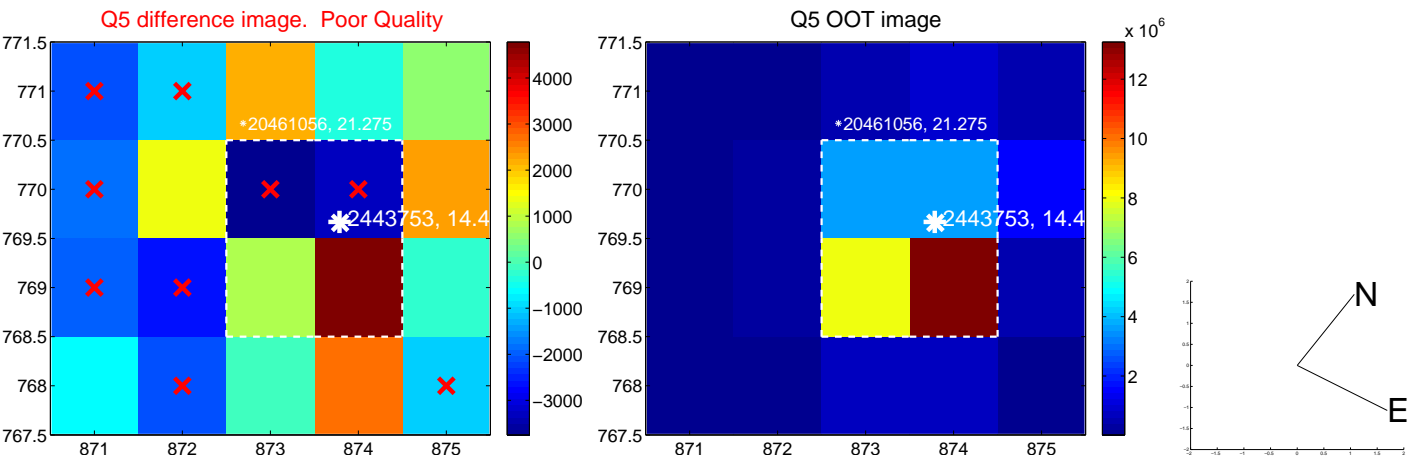


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

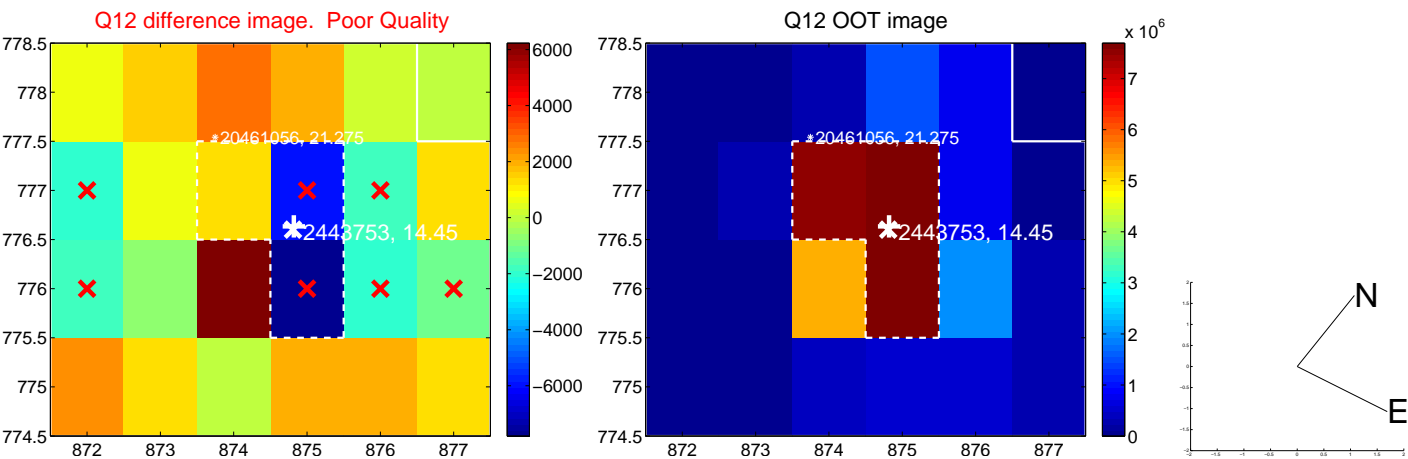
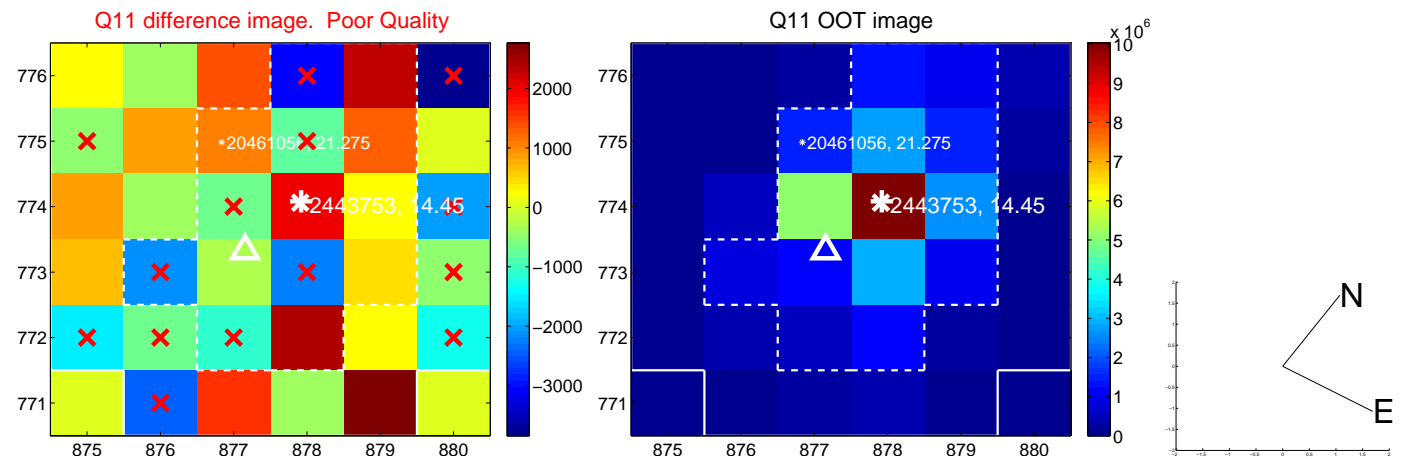
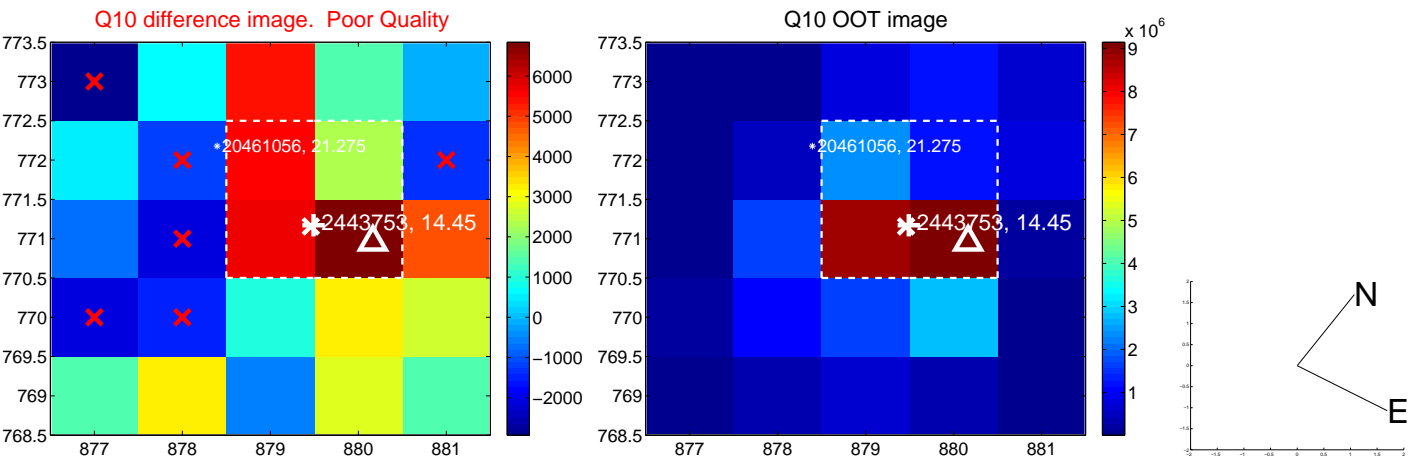
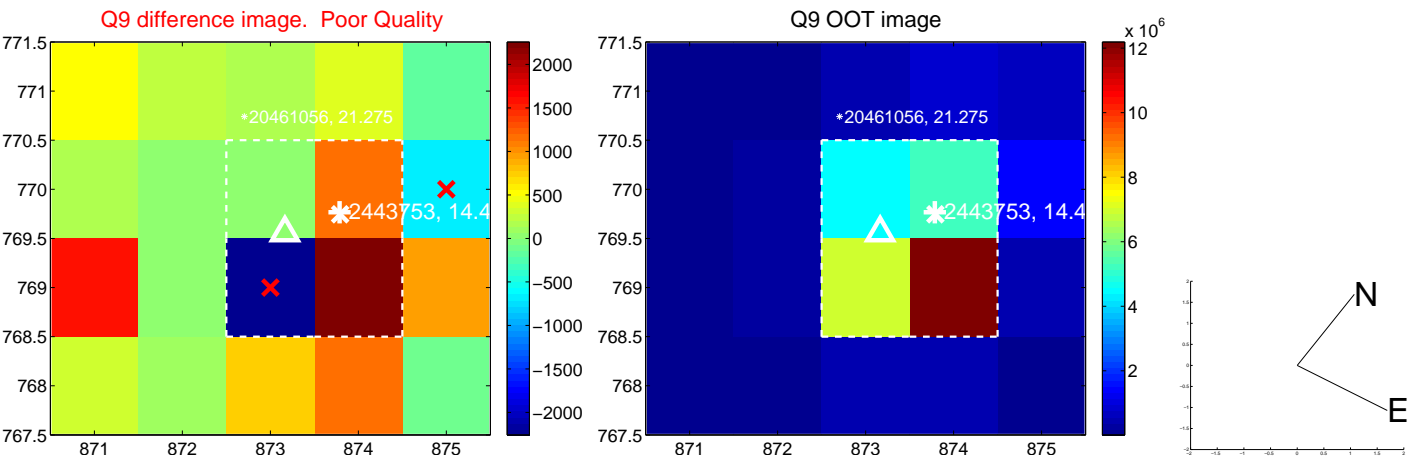
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



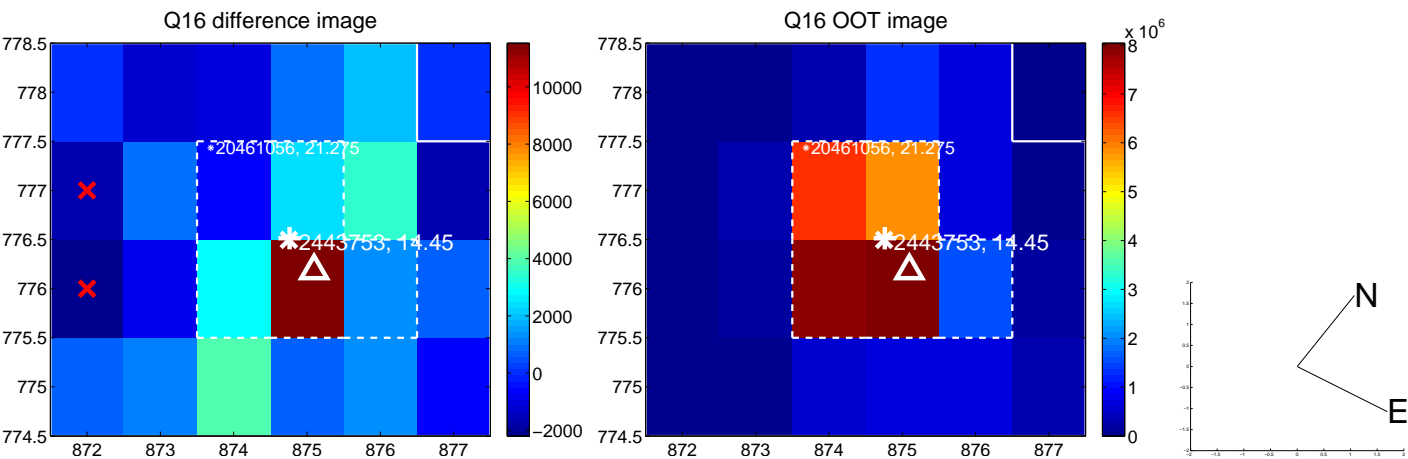
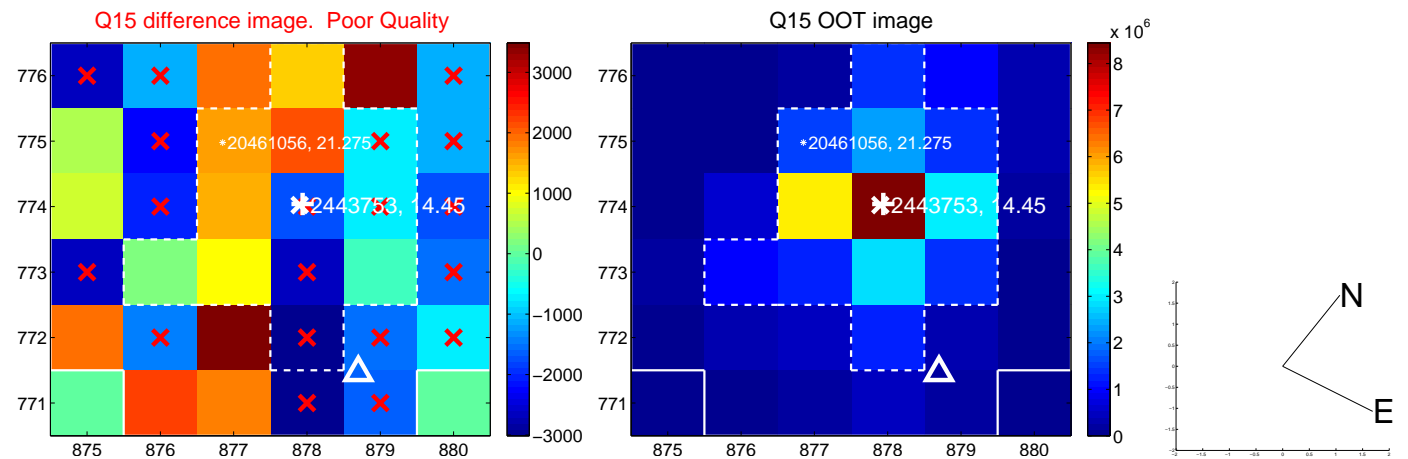
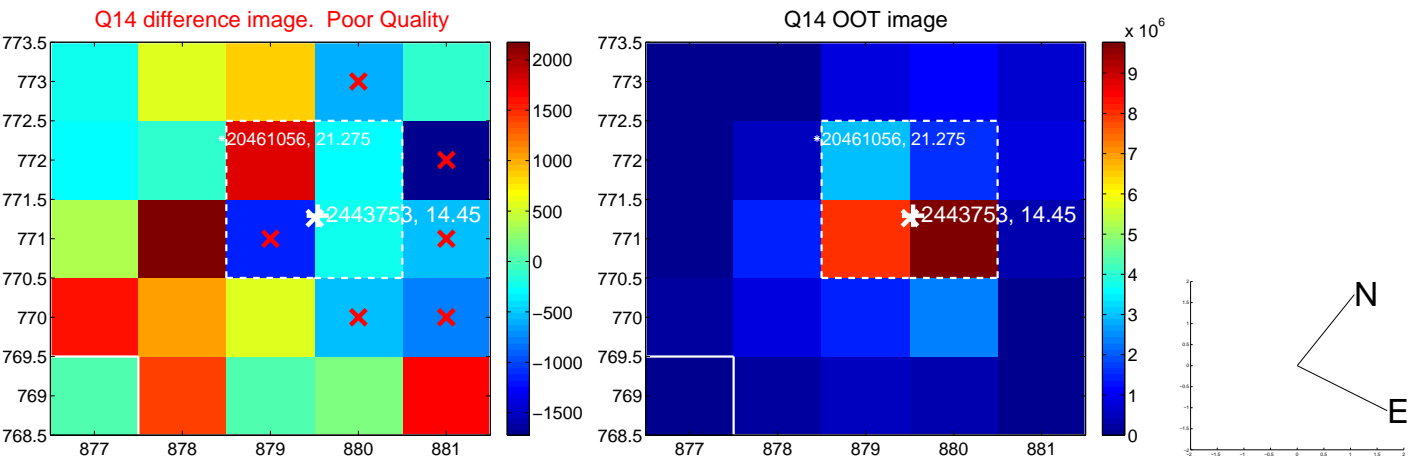
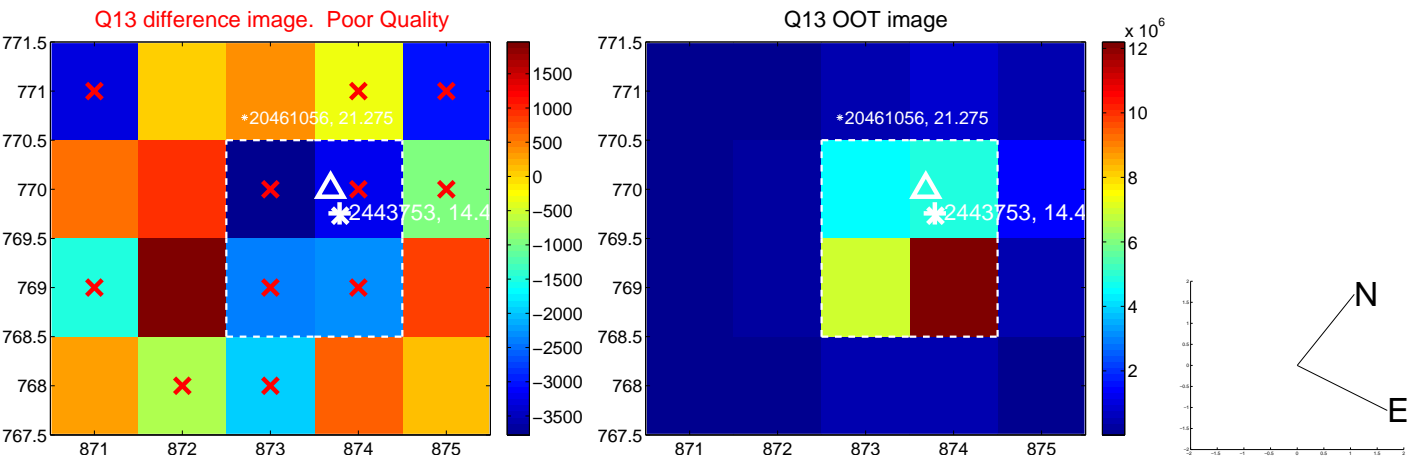
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



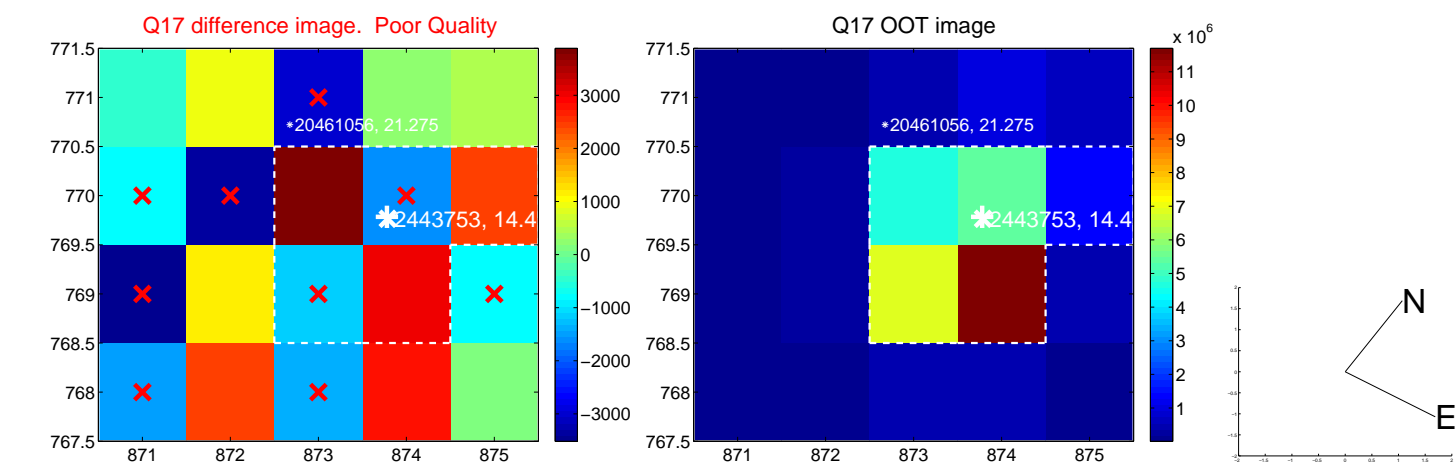
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



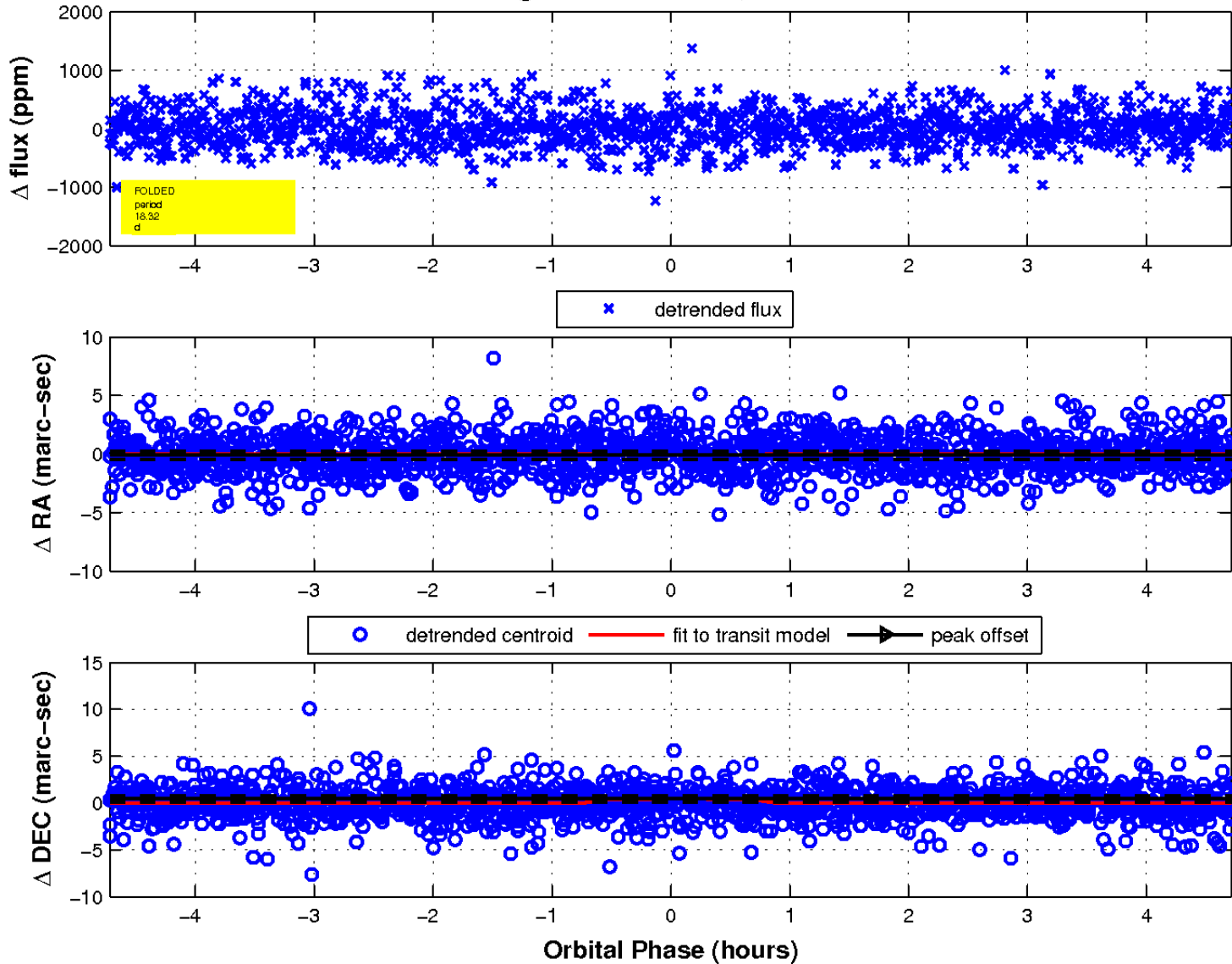
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

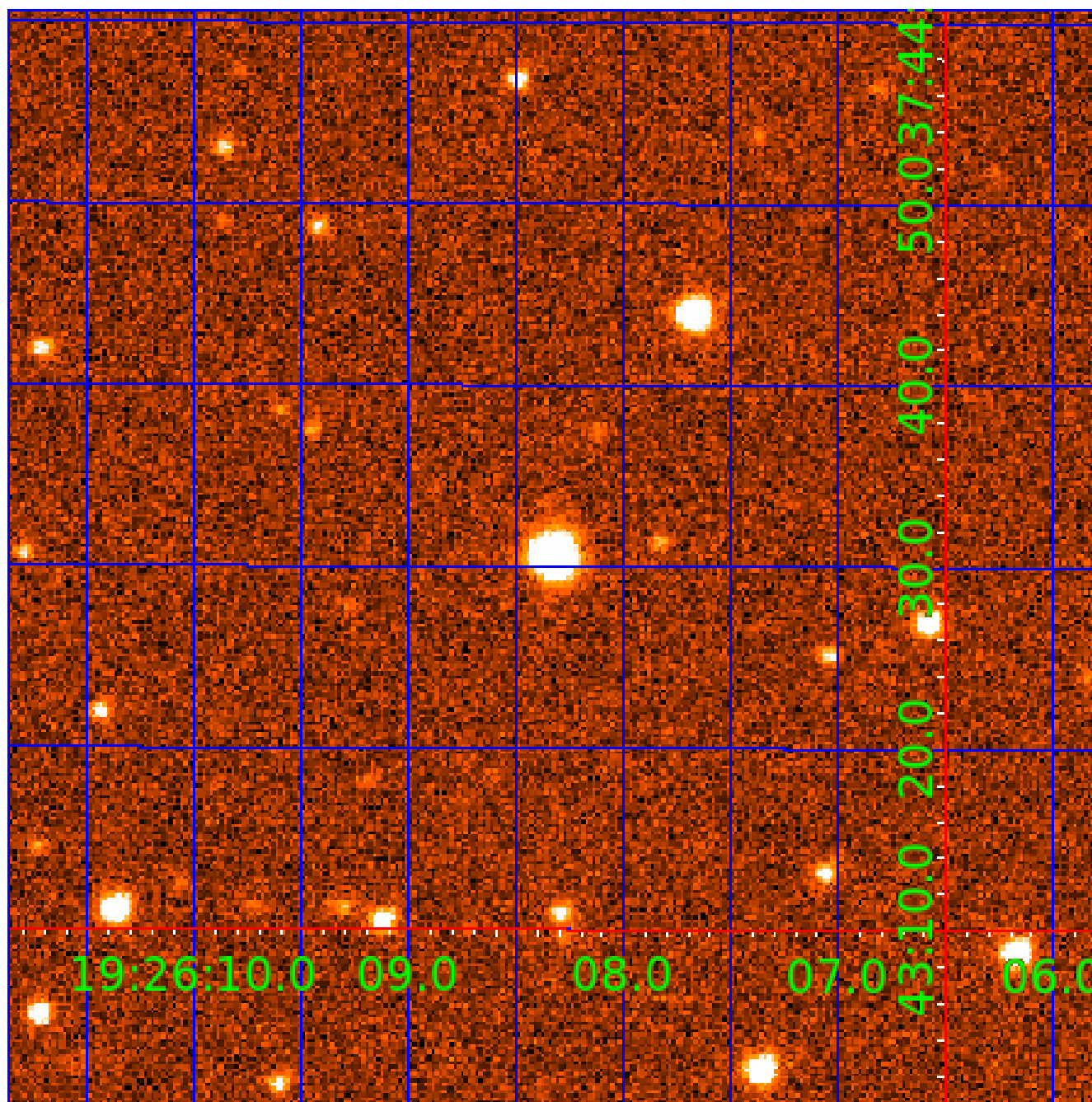


fluxWeightedCentroids, Planet 7 of 8



UKIRT Image

Declination



KIC 002443753

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})
002443753-01	OBS	No	0.864091	131.606741	30.6	6.179	7.8	11.4	0.91	6139	0.56	3382.22
002443753-02	OBS	No	28.983578	155.204412	571.6	2.009	11.2	11.9	0.91	6139	2.21	31.27
002443753-03	OBS	No	30.726973	132.039181	302.8	3.946	9.6	9.4	0.91	6139	1.83	28.92
002443753-04	OBS	No	53.379556	161.644097	642.9	3.251	10.3	11.3	0.91	6139	2.97	13.85
002443753-05	OBS	No	33.430499	141.248398	711.7	1.251	10.3	10.6	0.91	6139	2.45	25.85
002443753-06	OBS	No	19.028481	134.527844	276.4	2.842	10.1	9.6	0.91	6139	1.76	54.80
002443753-07	OBS	No	18.323714	143.898506	468.7	1.573	10.7	11.8	0.91	6139	2.27	57.62
002443753-08	OBS	No	43.482829	143.242586	672.9	1.581	11.9	11.1	0.91	6139	2.79	18.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002443753-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS
002443753-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
002443753-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
002443753-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN—HALO_GHOST
002443753-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
002443753-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
002443753-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

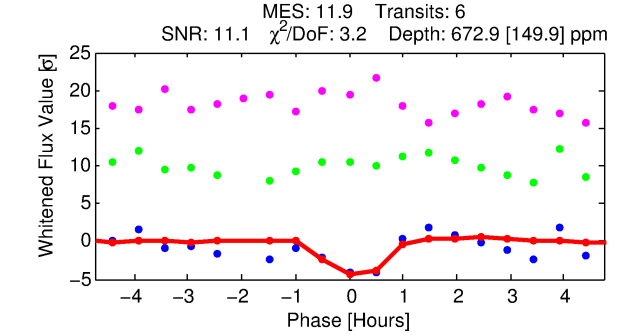
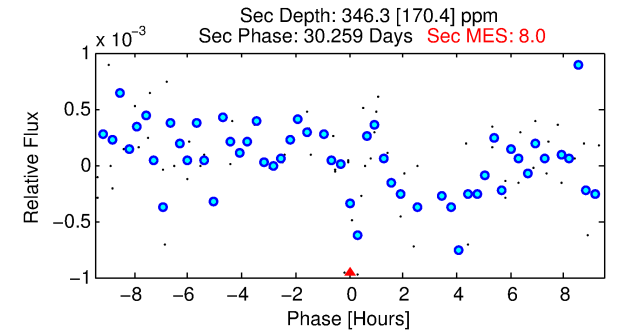
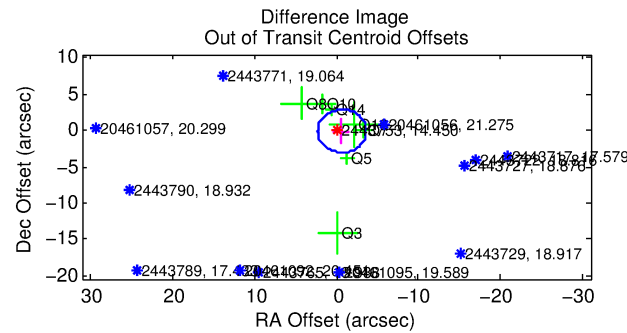
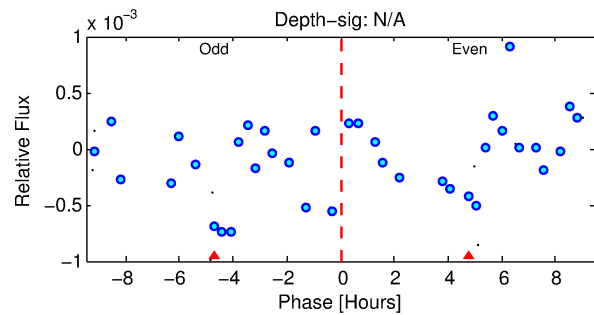
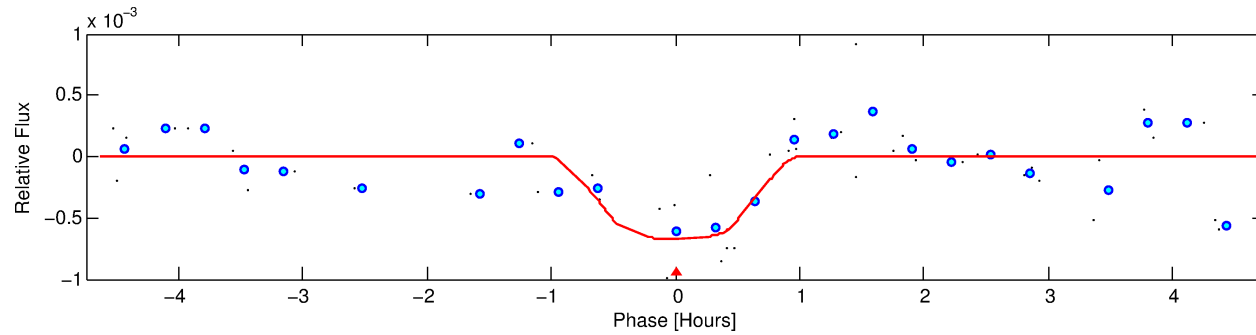
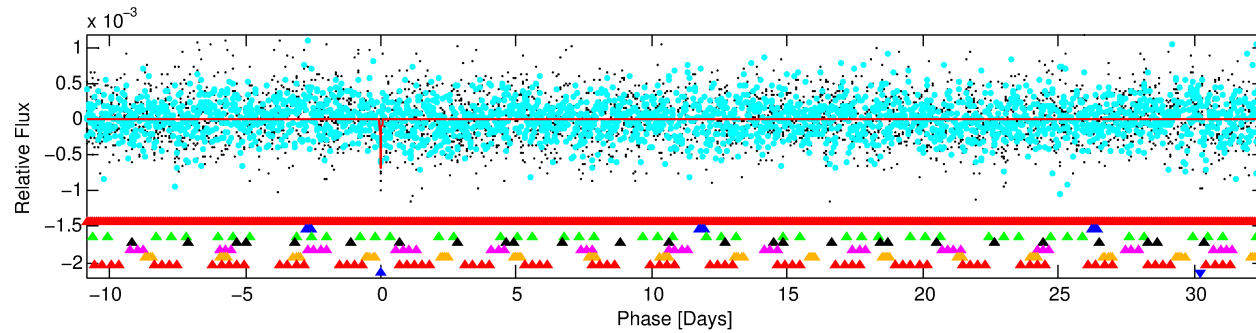
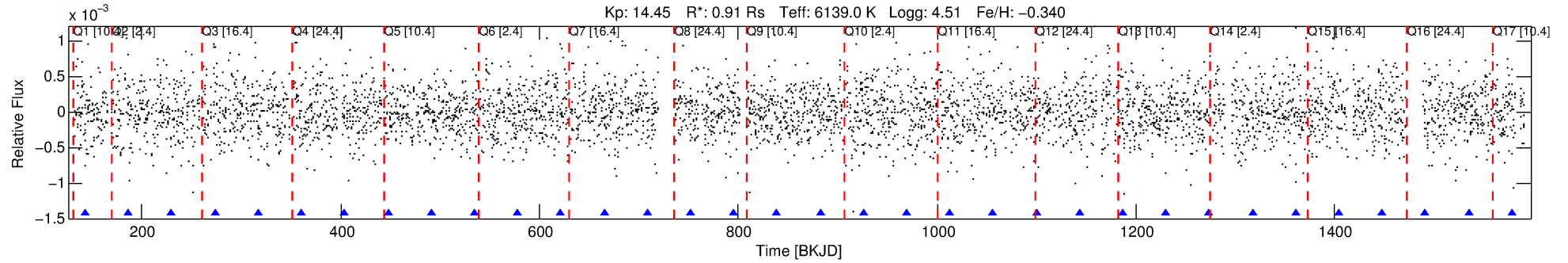
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002443753-08

No Significant Match Found

DV One-Page Summary

KIC: 2443753 Candidate: 8 of 8 Period: 43.483 d



DV Fit Results:

Period = 43.48283 [0.00050] d
Epoch = 143.2426 [0.0126] BKJD
Rp/R* = 0.0280 [0.0201]
a/R* = 104.45 [378.28]
b = 0.90 [0.78]
Seff = 18.21 [6.76]
Teff = 527 [49] K
Rp = 2.79 [2.15] Re
a = 0.2411 [0.0577] AU
Ag = 1426.45 [2221.05] [0.64] σ
Teffp = 5005 [1905] K [2.35] σ

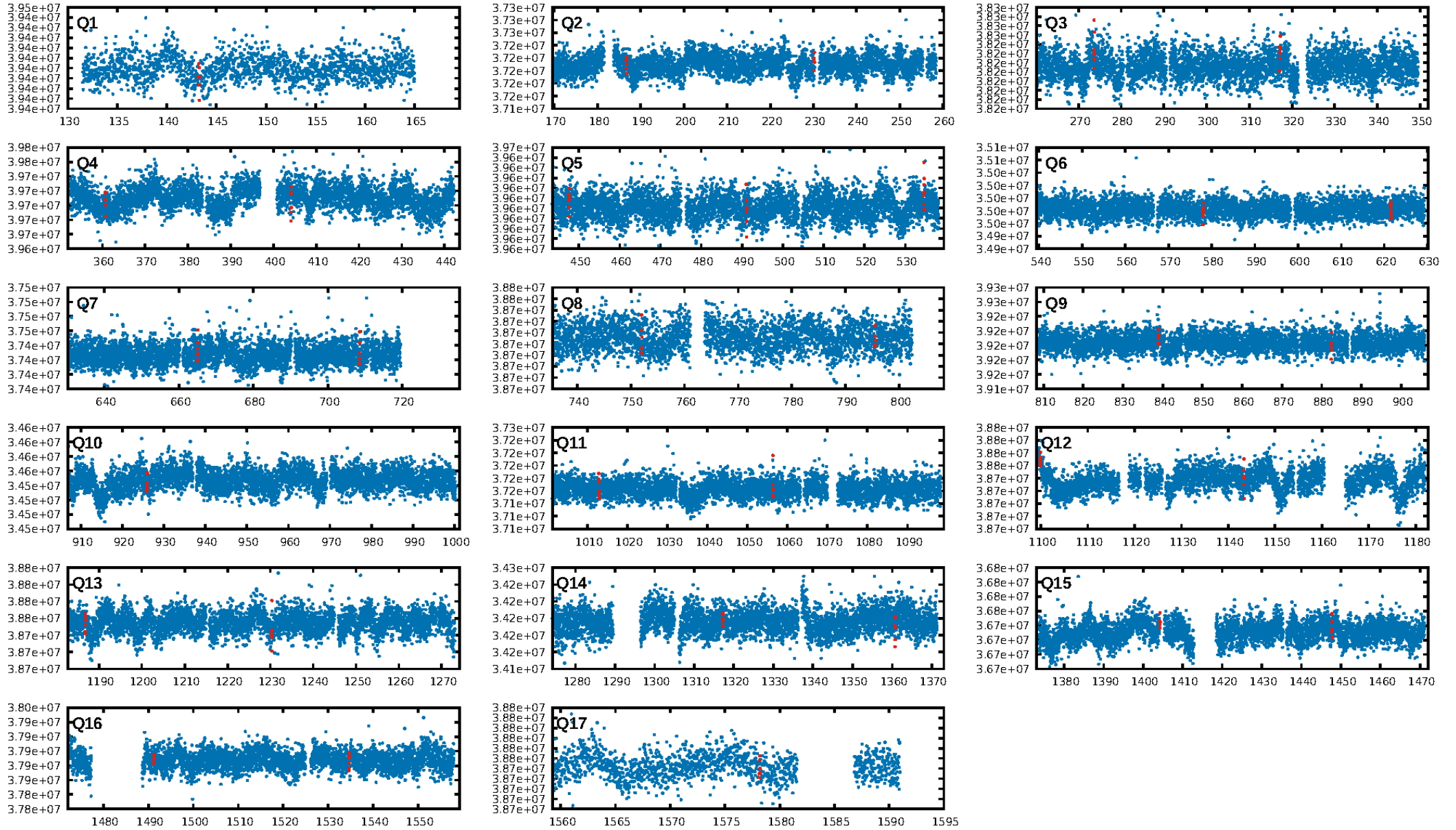
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [119.67] σ
LongPeriod-sig: 100.0% [65.71] σ
ModelChiSquare2-sig: 0.7%
ModelChiSquareGof-sig: 66.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.1474
Centroid-sig: 44.6%
Centroid-so: 1.099 arcsec [1.42] σ
OotOffset-rm: 0.676 arcsec [0.69] σ
OotOffset-st: 2/2/2/1 [7]
KicOffset-rm: 0.640 arcsec [0.78] σ
KicOffset-st: 2/2/2/1 [7]
DiffImageQuality-fgm: 0.00 [0/7]
DiffImageOverlap-fno: 0.29 [5/17]

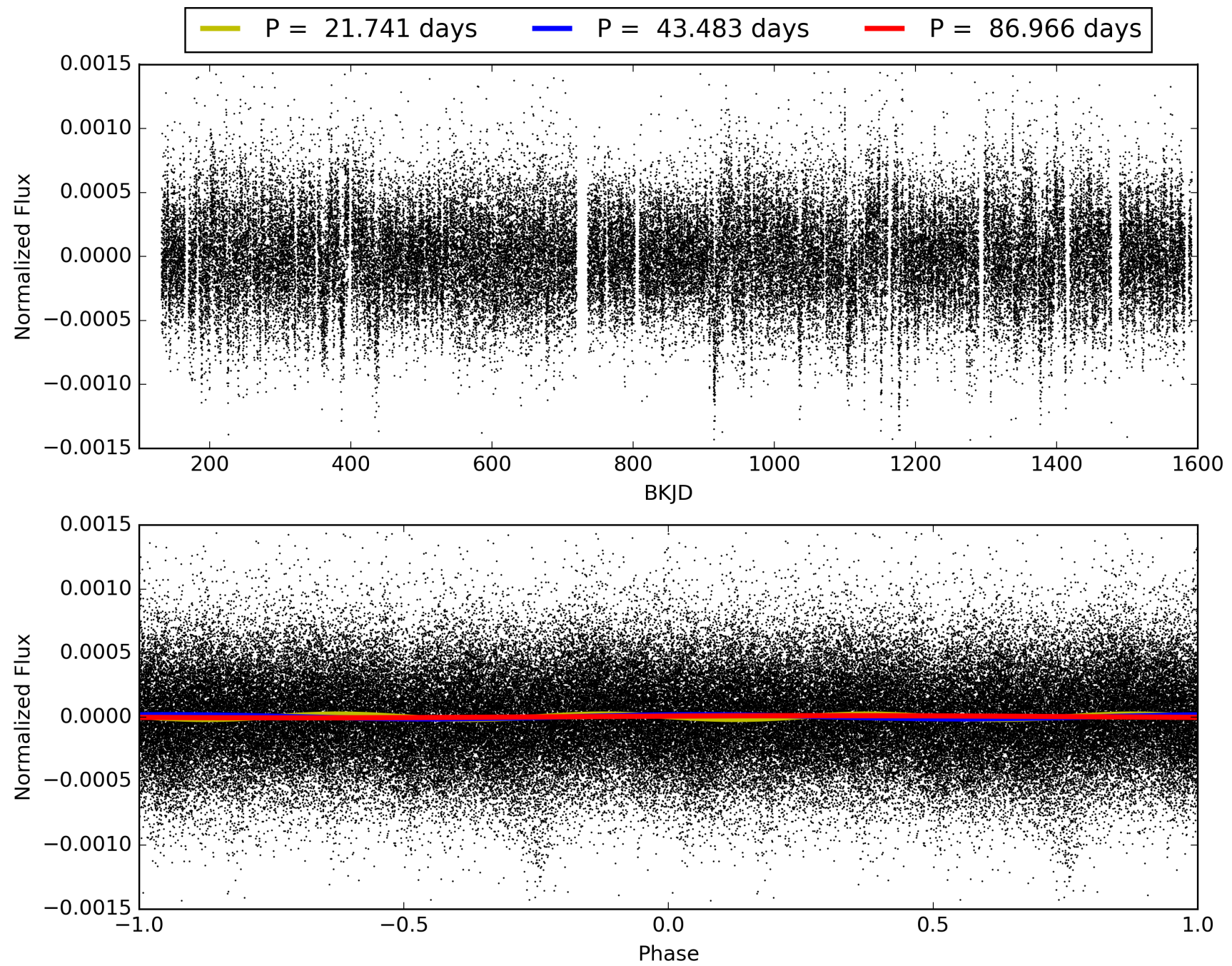
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:26:05 Z

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

TCE 002443753-08, PDC Light Curves

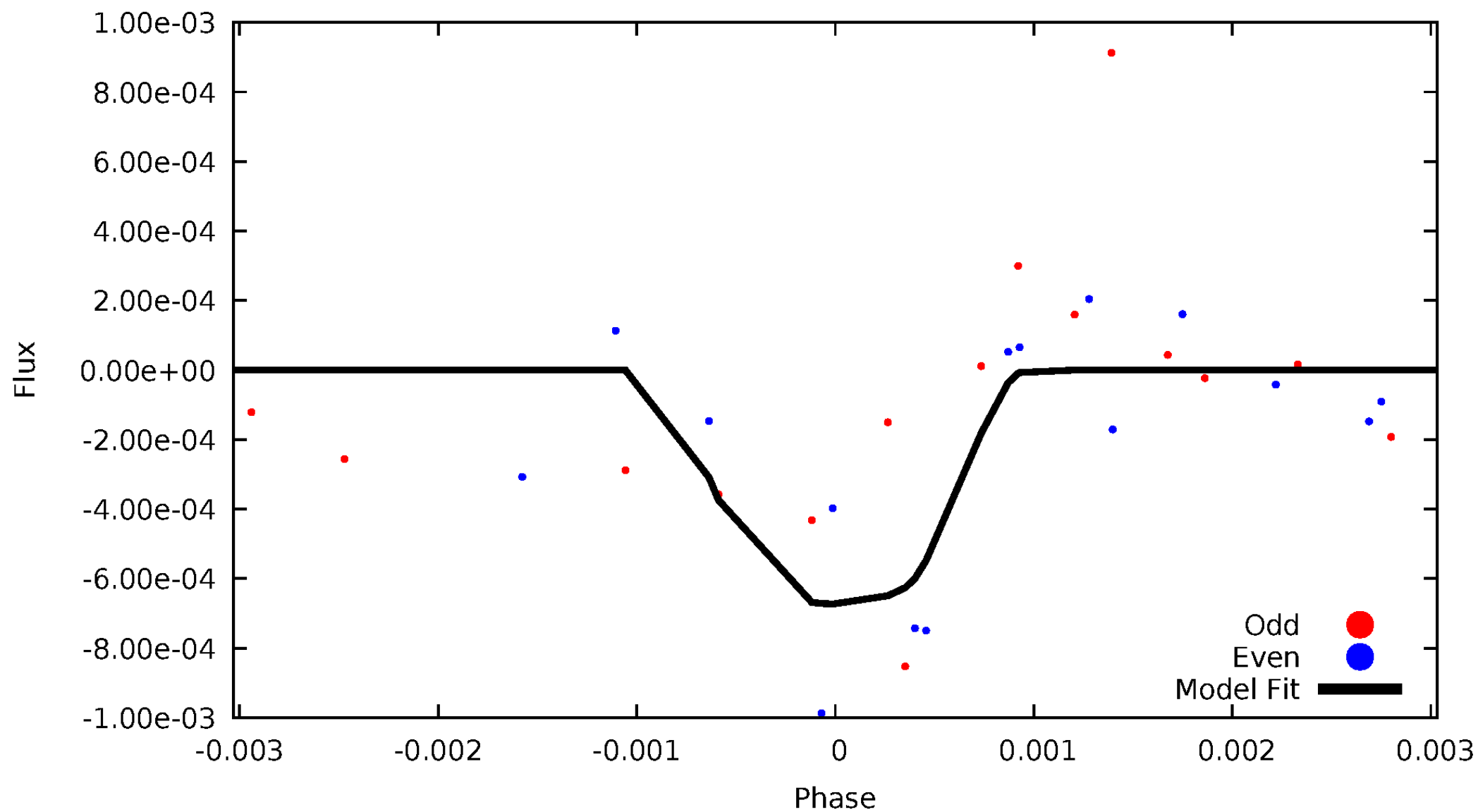


TCE 002443753-08



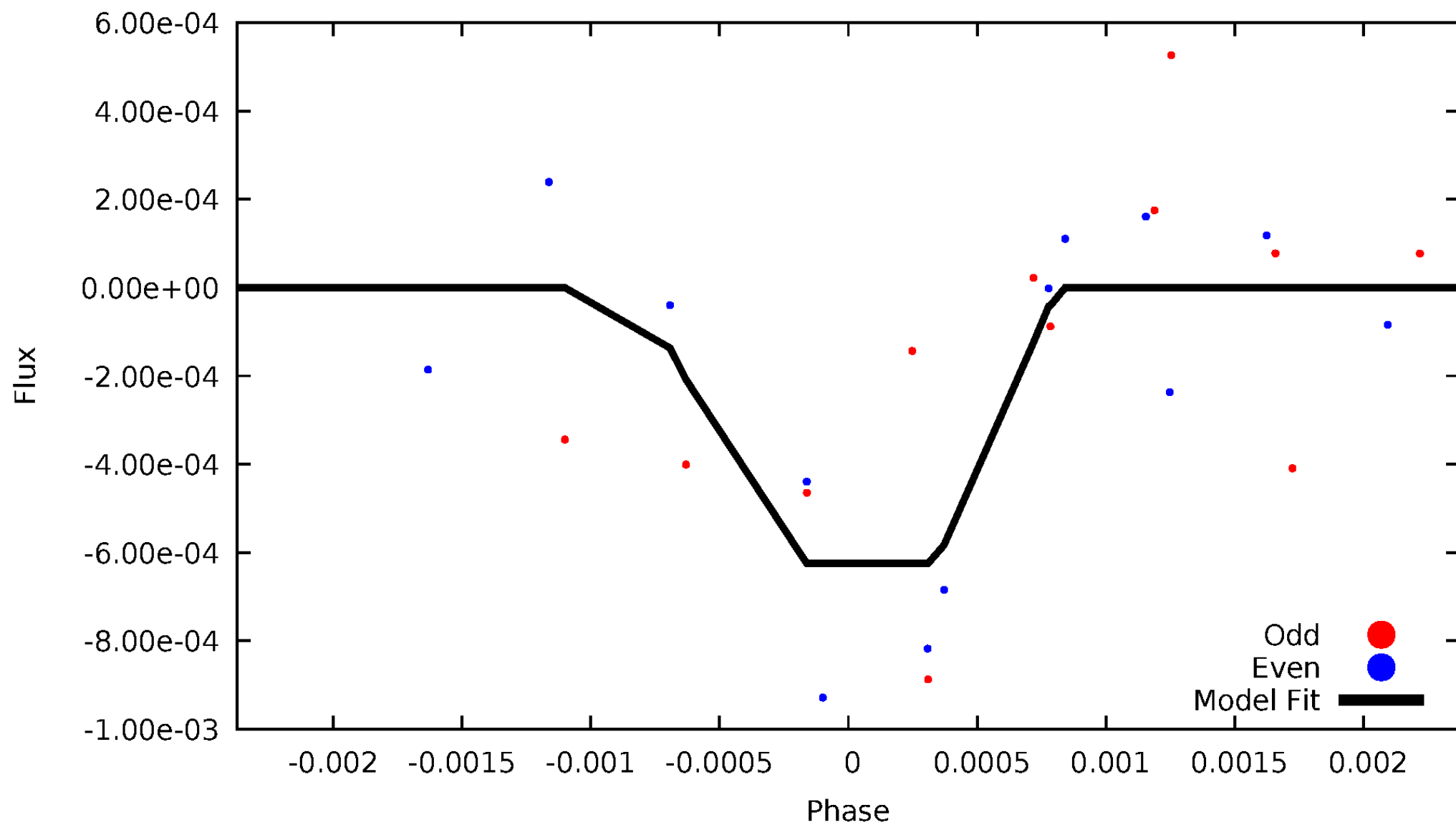
DV Odd/Even

TCE 002443753-08



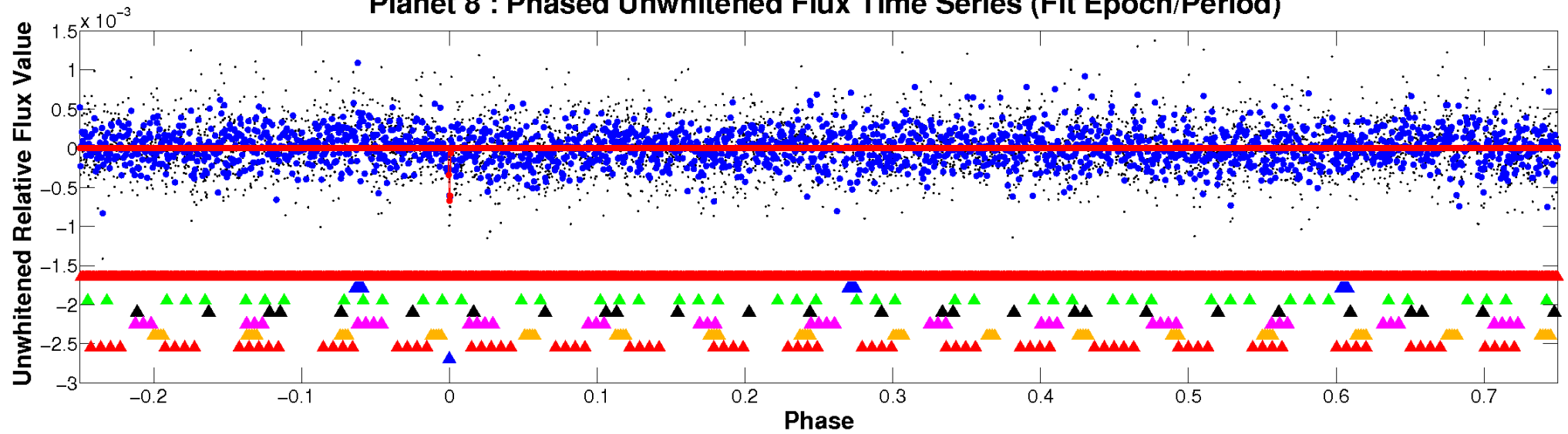
ALT Odd/Even

TCE 002443753-08

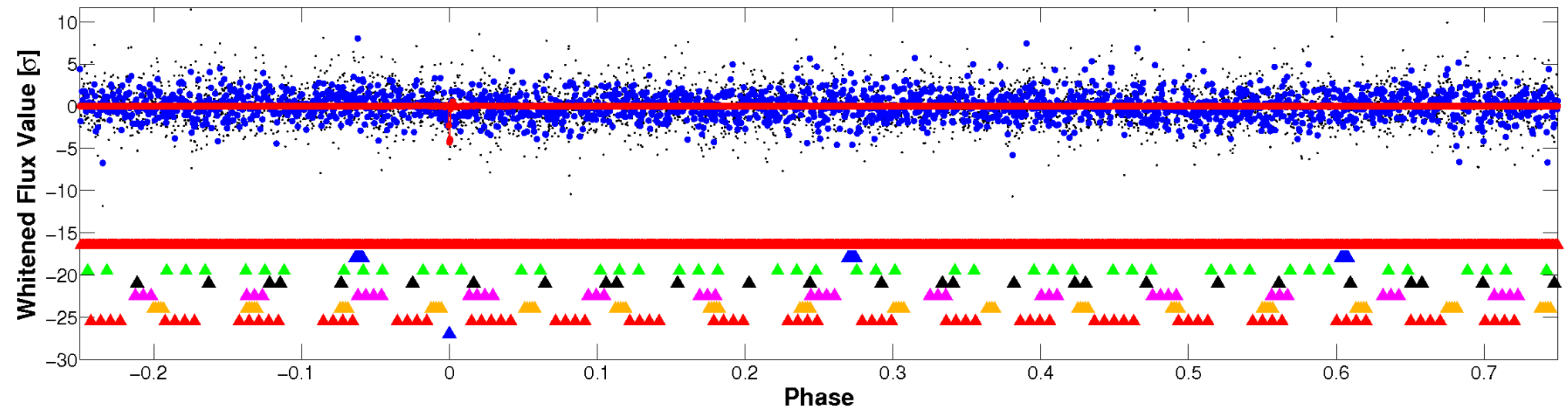


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

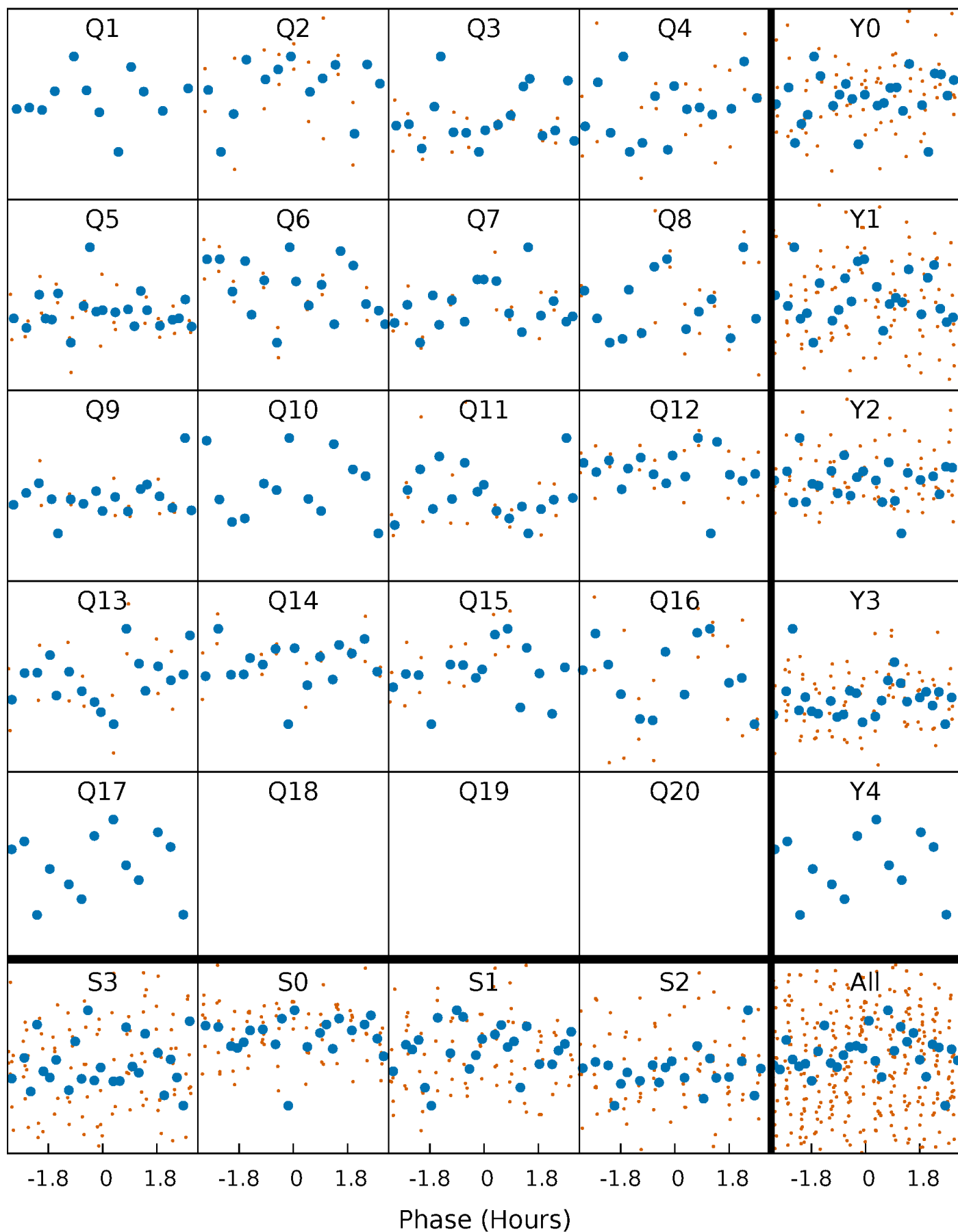


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



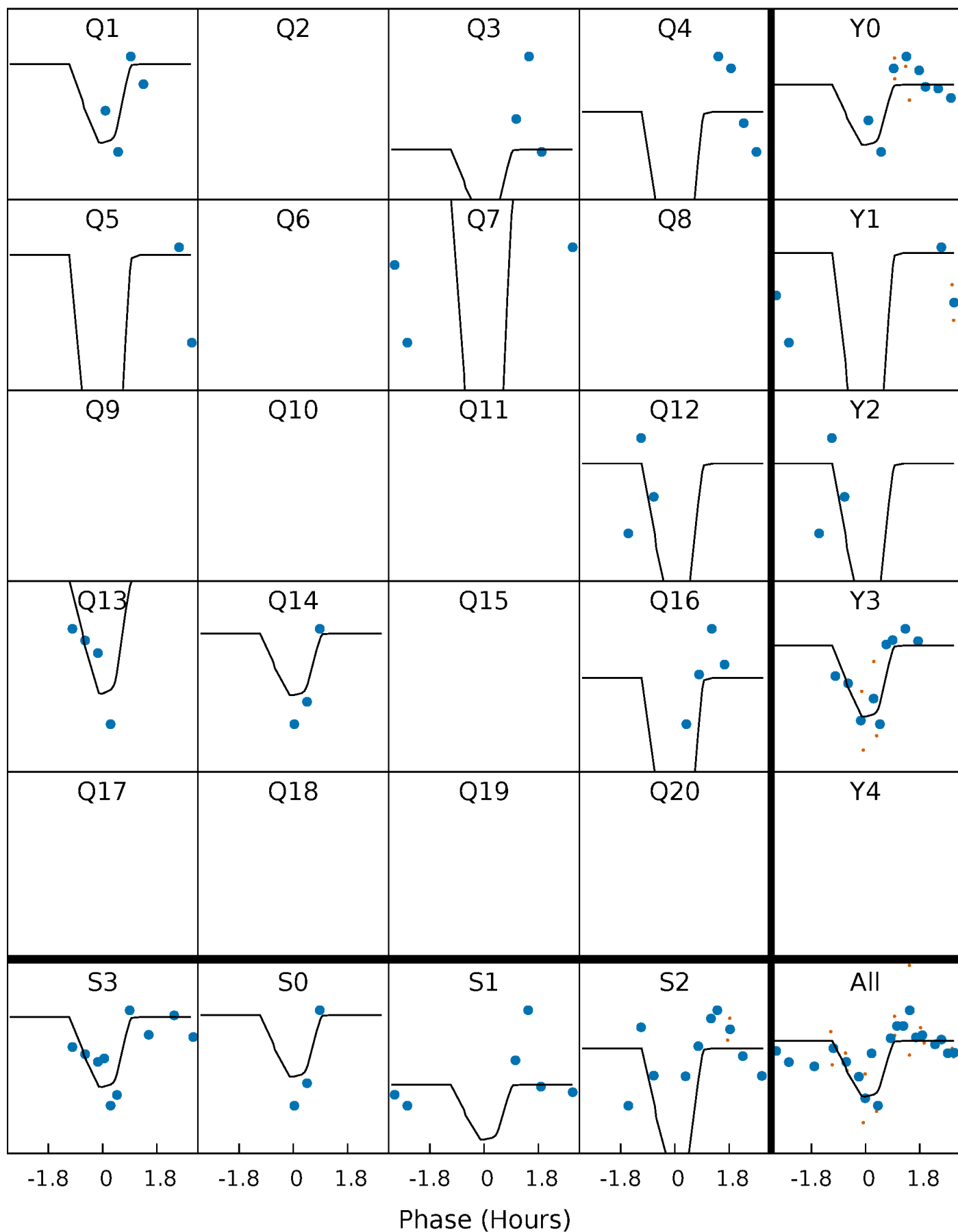
PDC Quarter-Phased Transit Curves

TCE 002443753-08 P= 43.482829 Days $T_0=143.242586$ (BKJD)



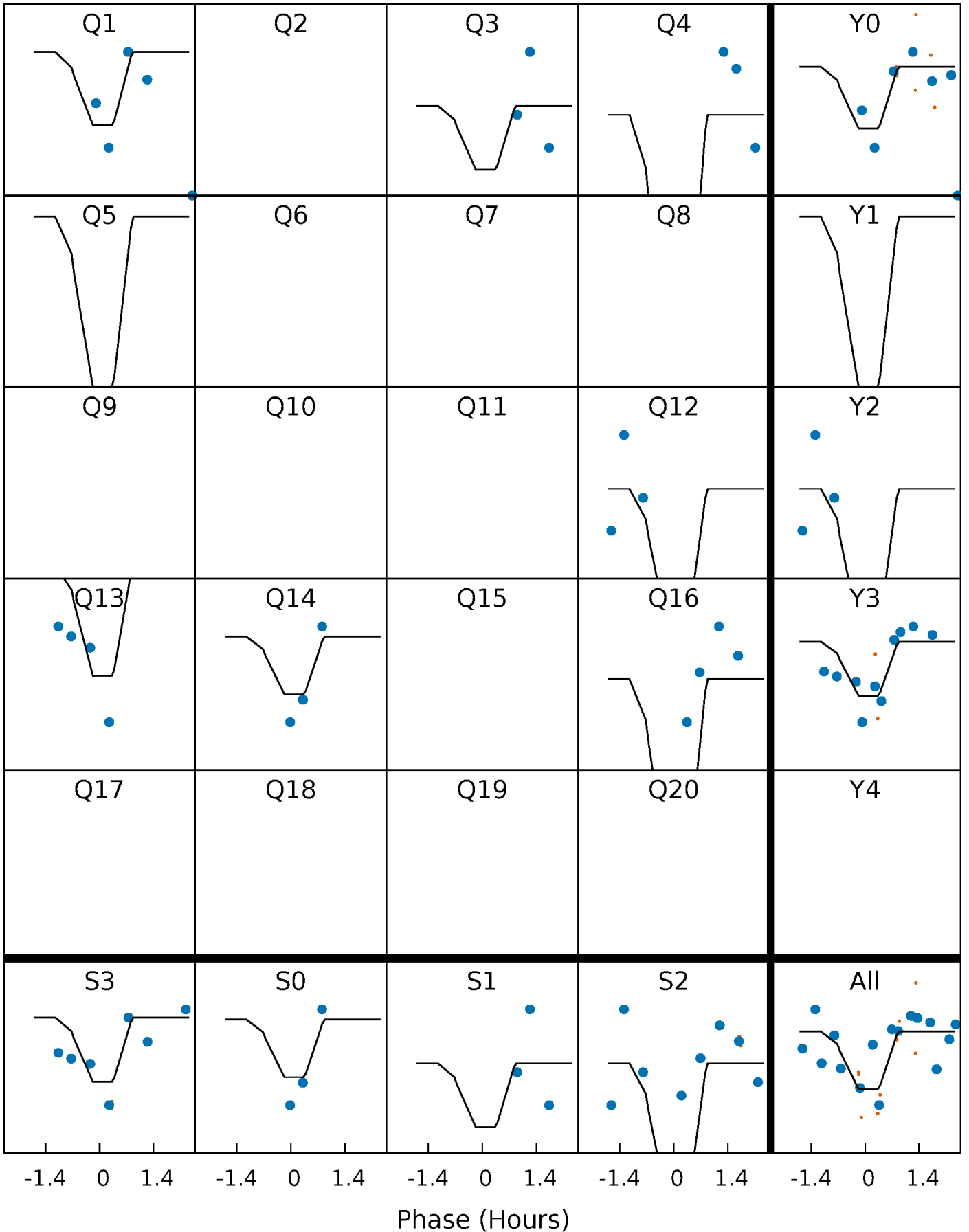
DV Quarter-Phased Transit Curves

TCE 002443753-08 P= 43.482829 Days $T_0=143.242586$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

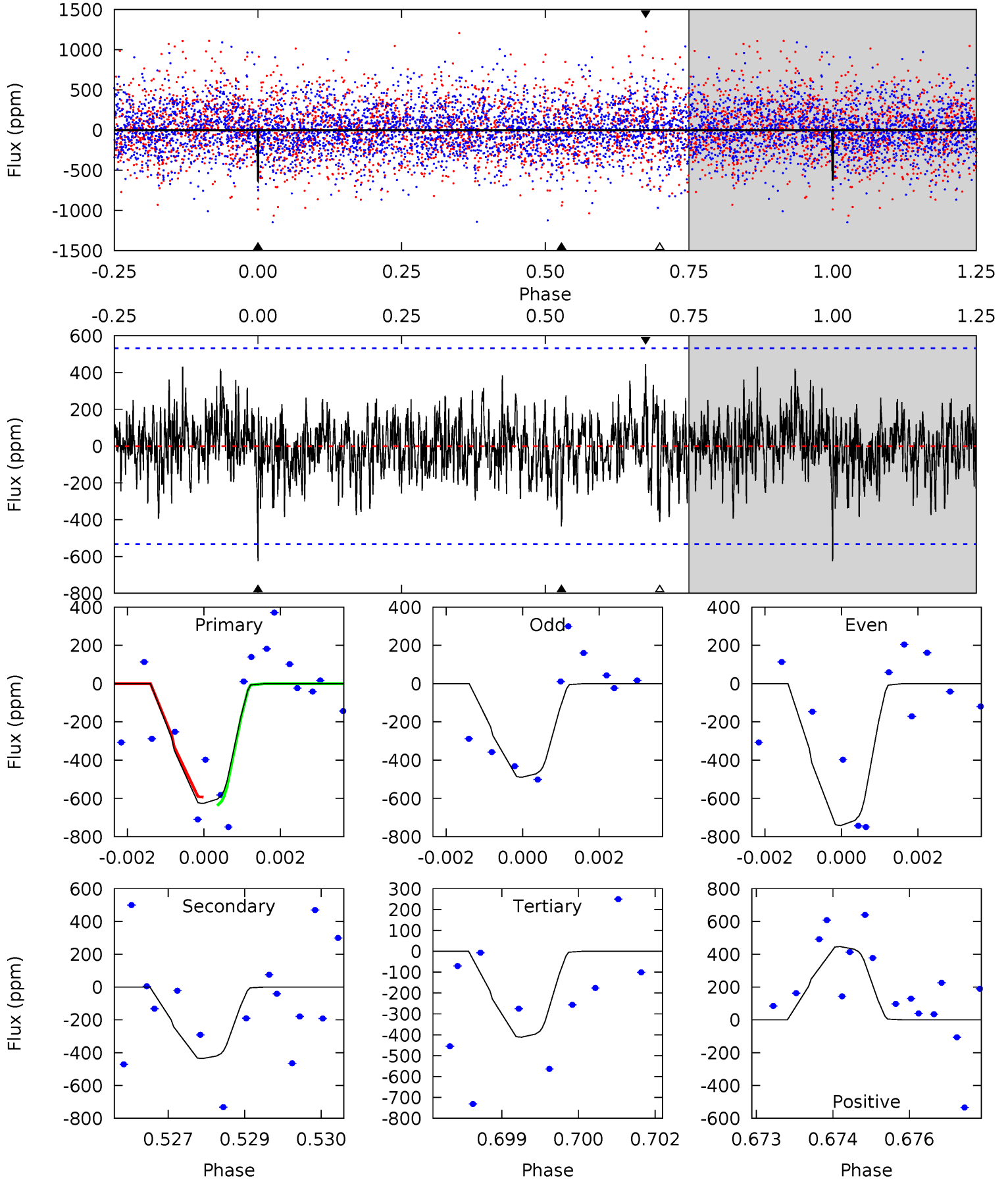
TCE 002443753-08 P= 43.482642 Days $T_0=143.249105$ (BKJD)



DV Model-Shift Uniqueness Test

002443753-08, P = 43.482829 Days, E = 99.759757 Days

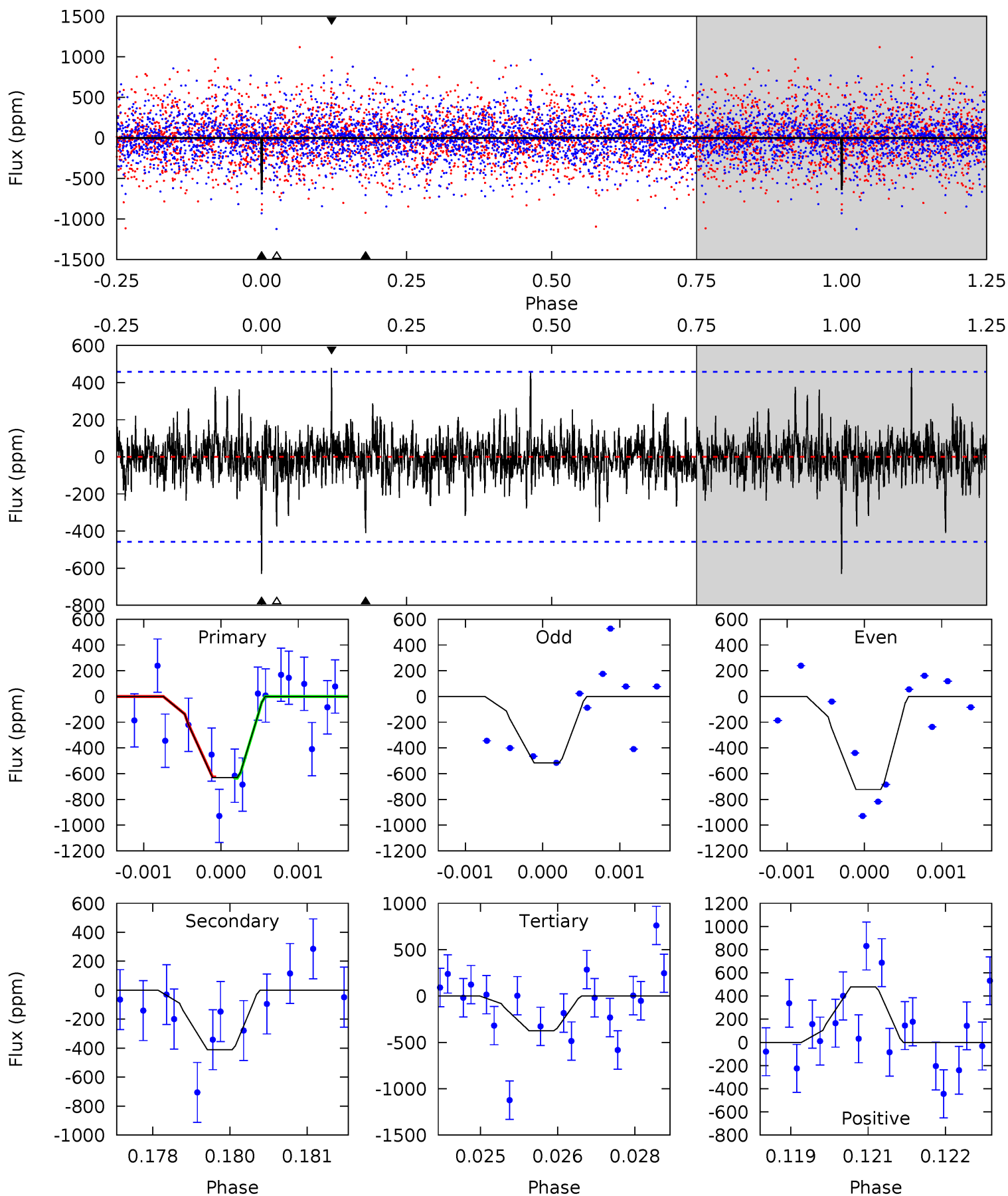
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.32	4.40	4.16	4.51	5.38	3.17	1.30	2.17	1.81	0.24	-0.11	1.28	0.92	0.42	0.20



Alt Model-Shift Uniqueness Test

002443753-08, P = 43.482642 Days, E = 99.766463 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.40	4.82	4.40	5.62	5.38	3.18	1.07	3.01	1.78	0.43	-0.80	1.22	0.86	0.43	0.05



Stellar Parameters For KIC 002443753

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6139^{+171}_{-192}	$4.513^{+0.048}_{-0.192}$	$-0.340^{+0.300}_{-0.350}$	$0.912^{+0.258}_{-0.086}$	$0.991^{+0.117}_{-0.129}$	$1.837^{+0.456}_{-0.938}$
	+3%/-3%	+1%/-4%	+88%/-103%	+28%/-9%	+12%/-13%	+25%/-51%
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 002443753-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-436 ± 99	$3.34^{+1.89}_{-1.99}$	749^{+55}_{-32}	5054^{+2718}_{-859}	1249^{+5805}_{-750}
Alt.	-411 ± 85	$2.90^{+2.09}_{-1.66}$	755^{+48}_{-38}	5255^{+3208}_{-1018}	1517^{+7239}_{-1022}

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

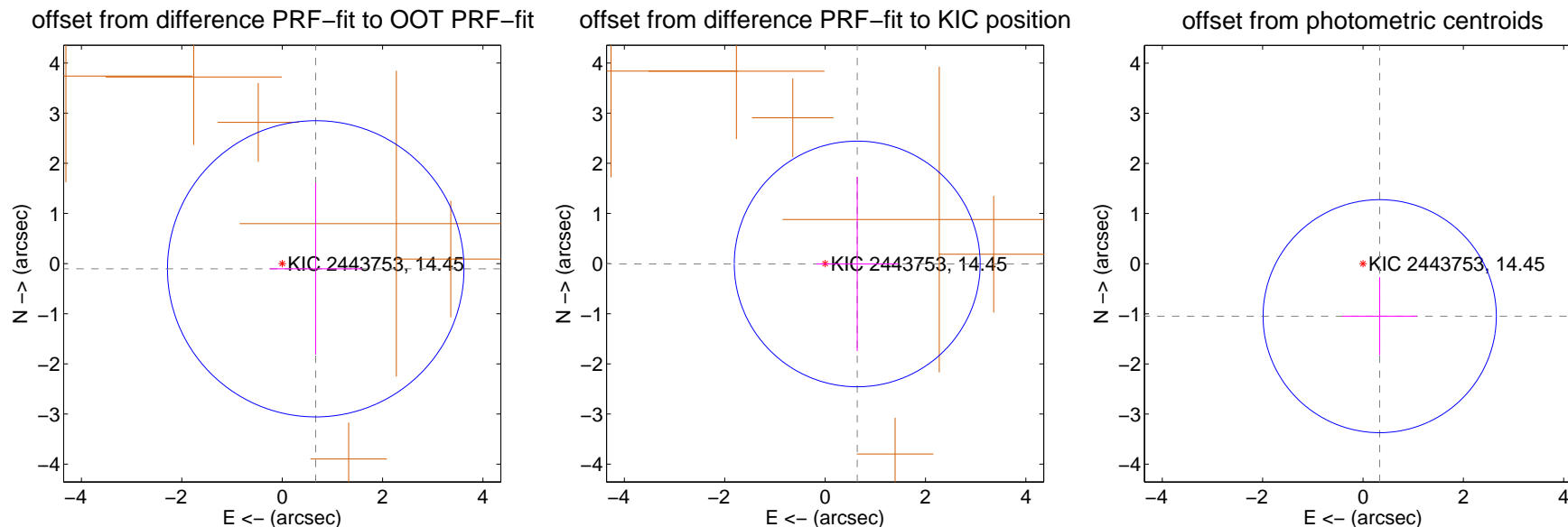
DV Centroid Data

Supplemental centroid analysis for 002443753-08. Kepler magnitude: 14.45. Transit SNR 11.14

There are 0 quarters with good PRF difference image offsets

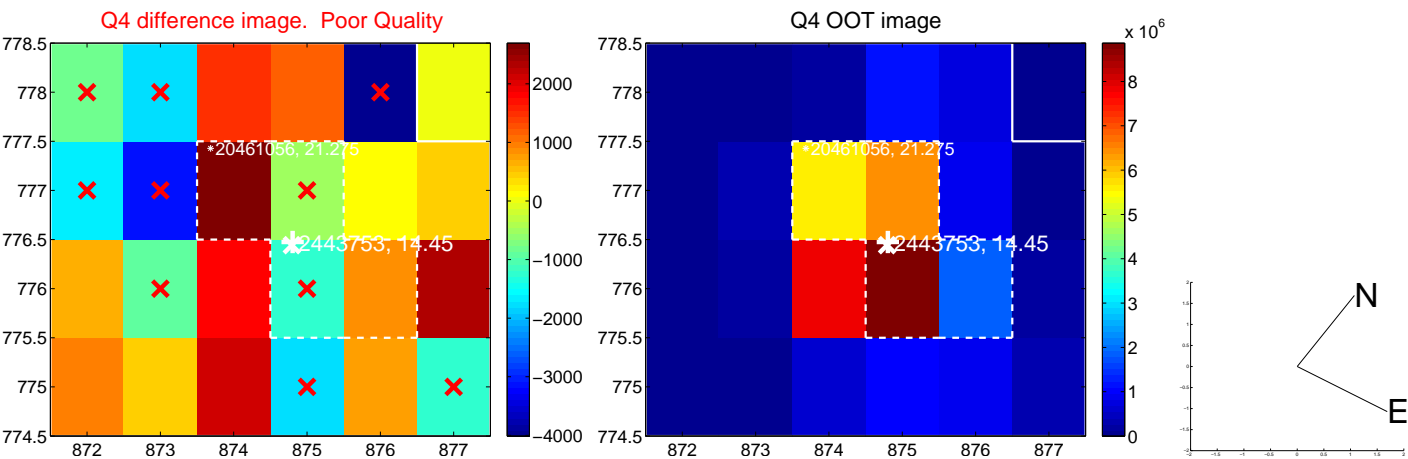
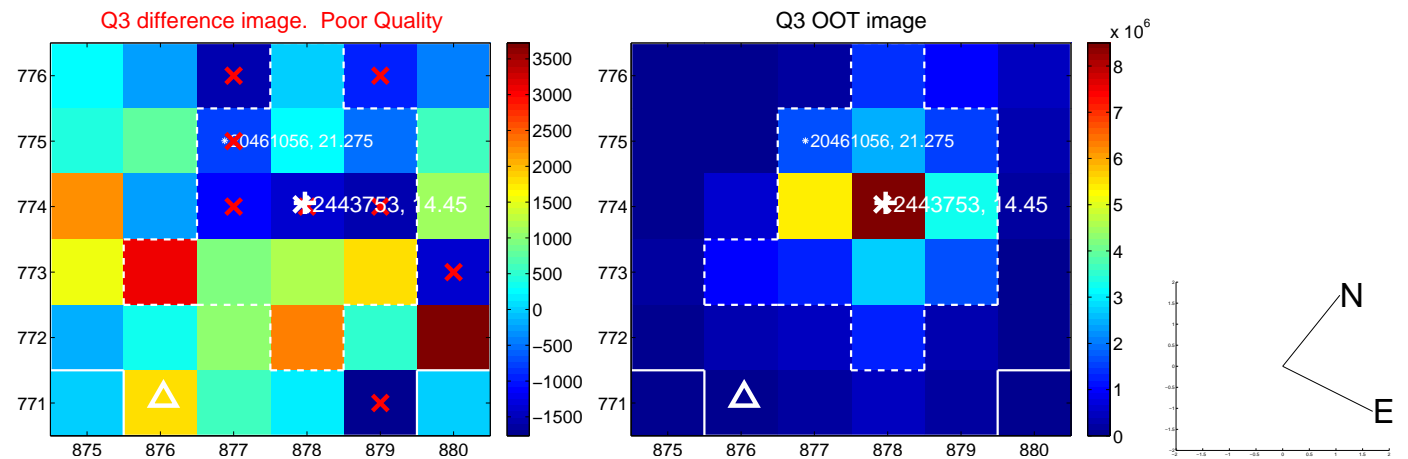
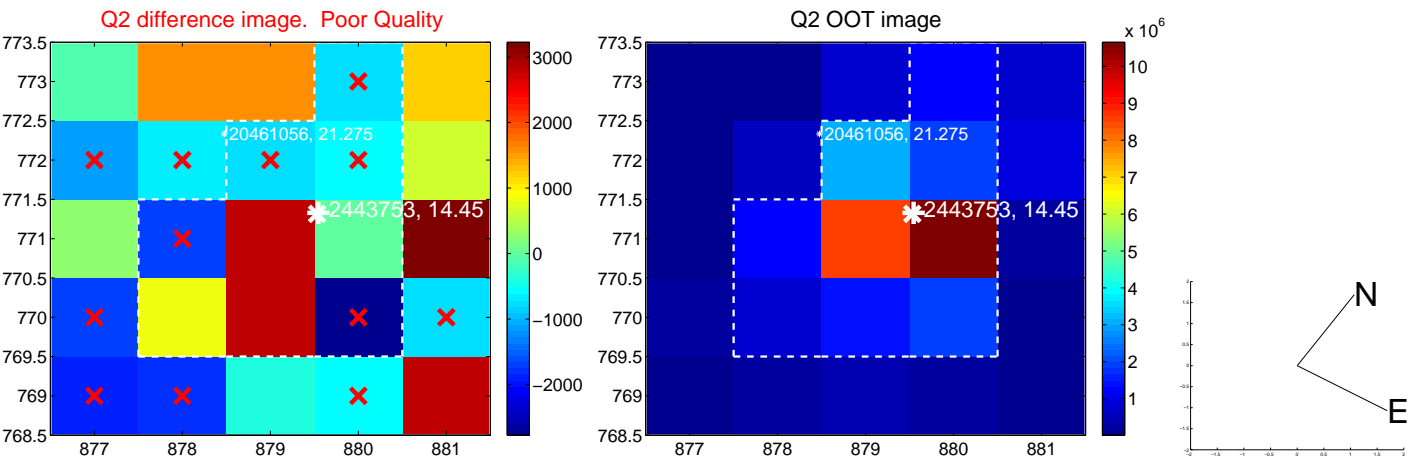
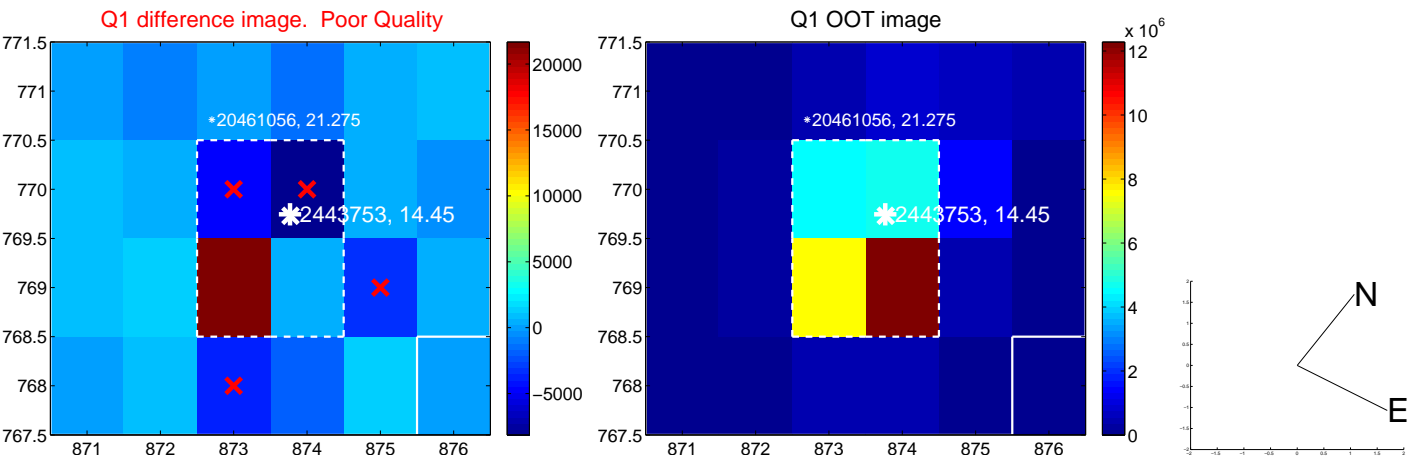
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.676 ± 0.985	0.69	-0.668 ± 0.923	-0.104 ± 1.712
PRF-fit source offset from KIC position	0.640 ± 0.817	0.78	-0.640 ± 0.816	-0.007 ± 1.738
photometric centroid source offset	1.10 ± 0.77	1.42	-0.33 ± 0.74	-1.05 ± 0.78

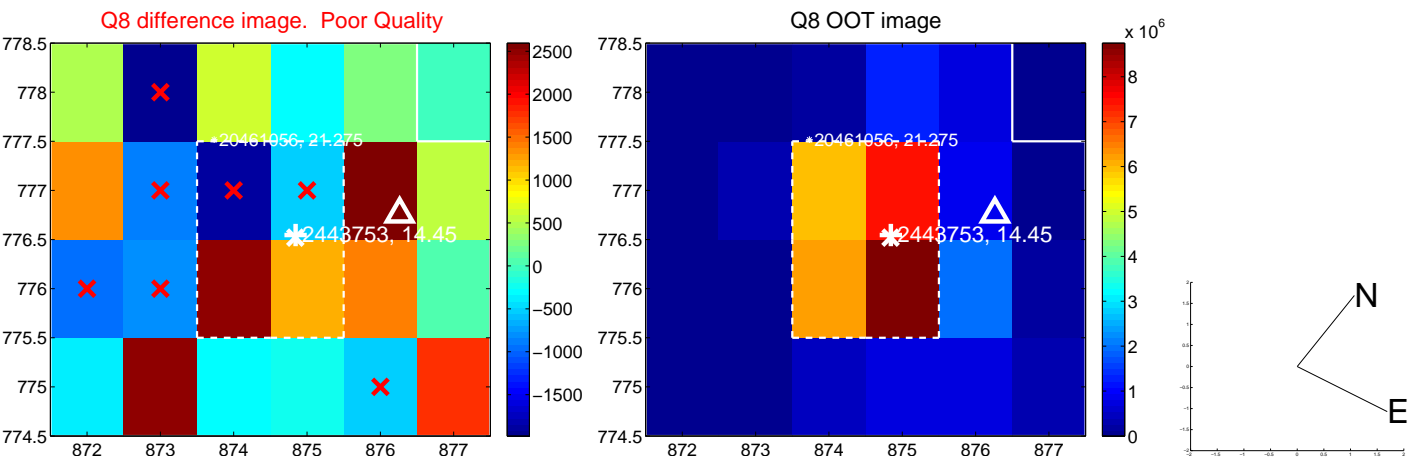
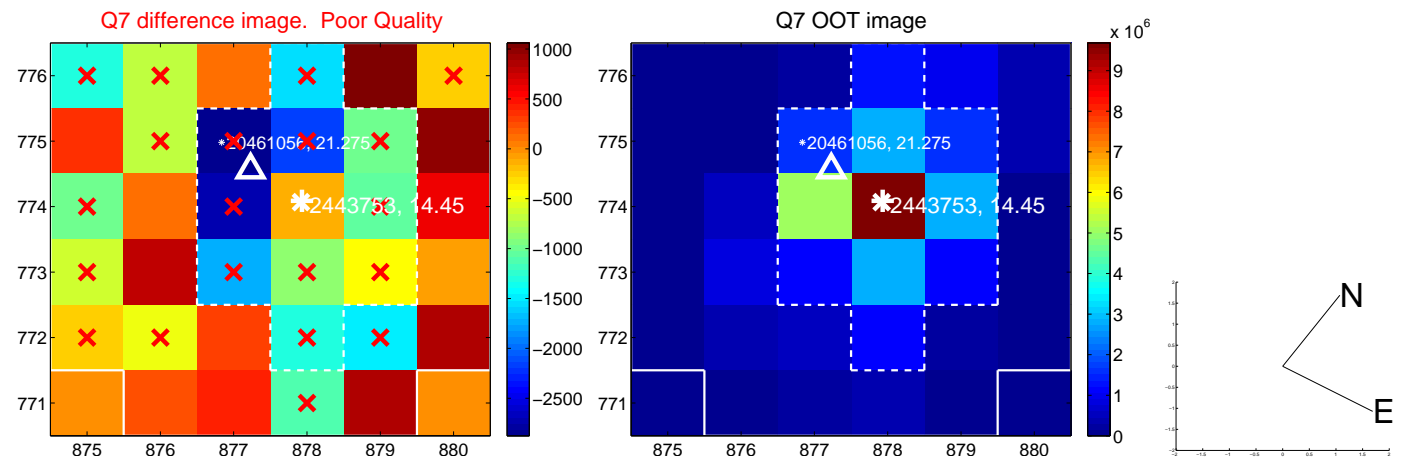
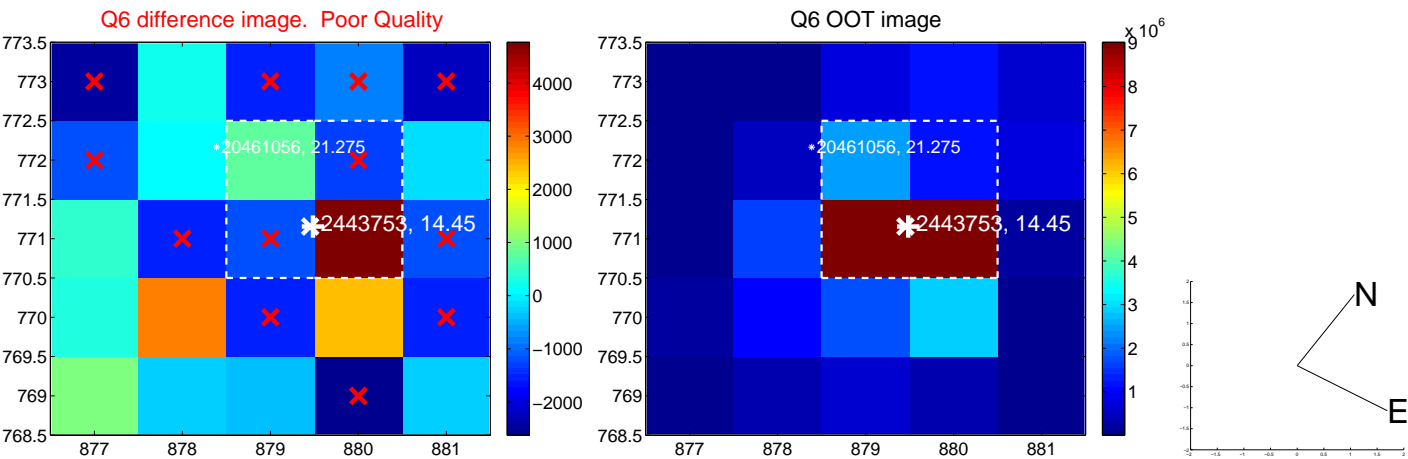
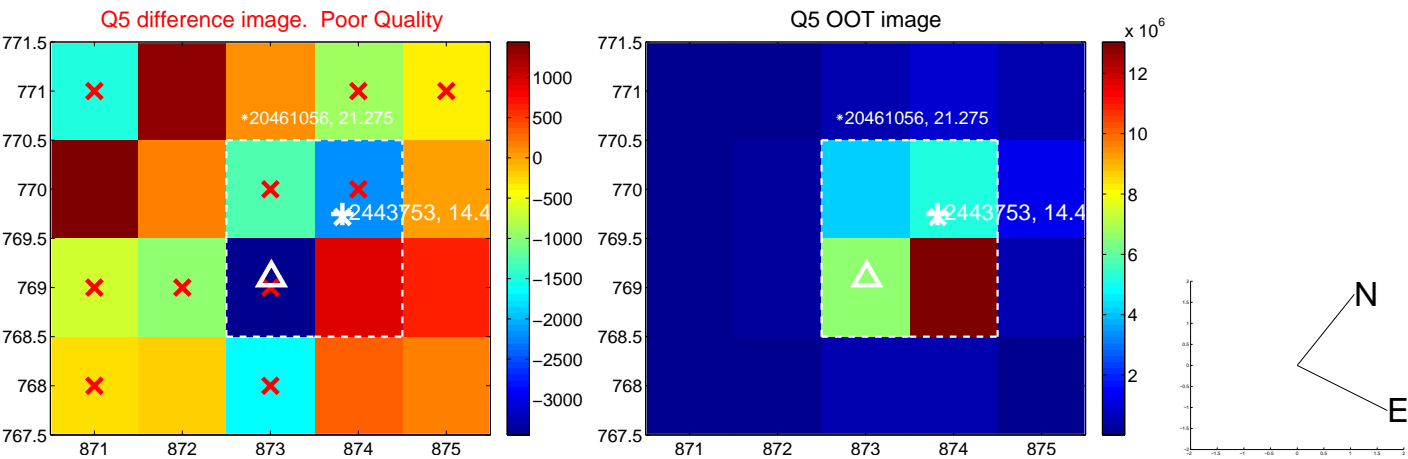


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

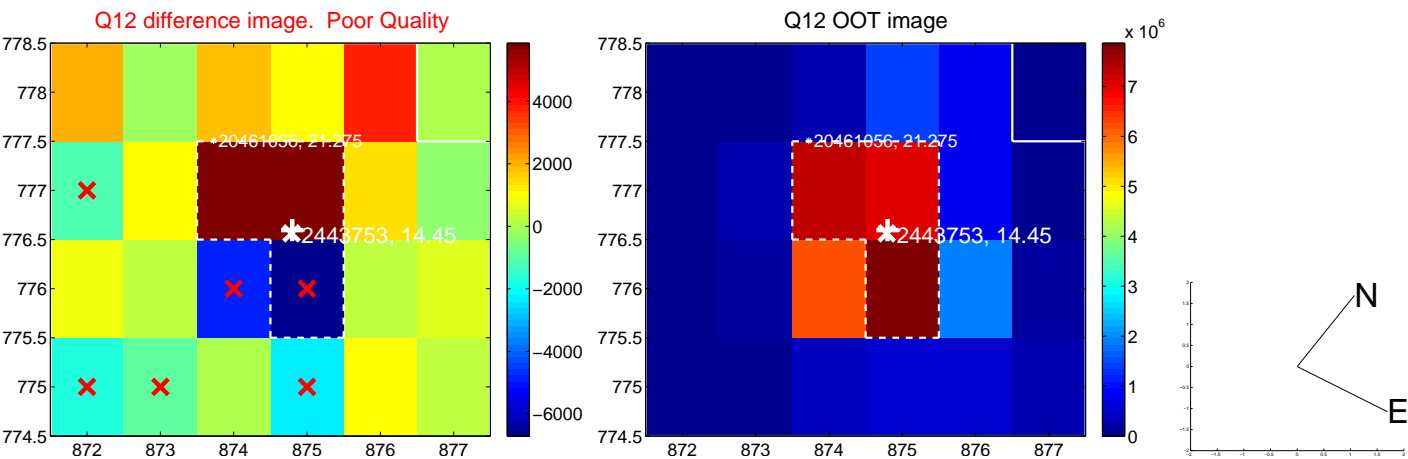
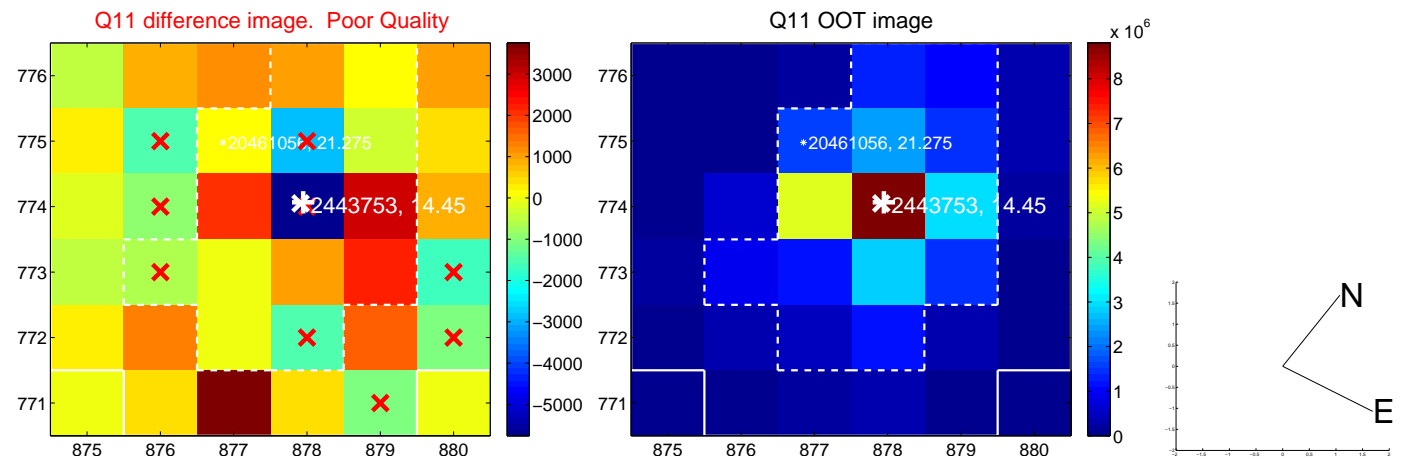
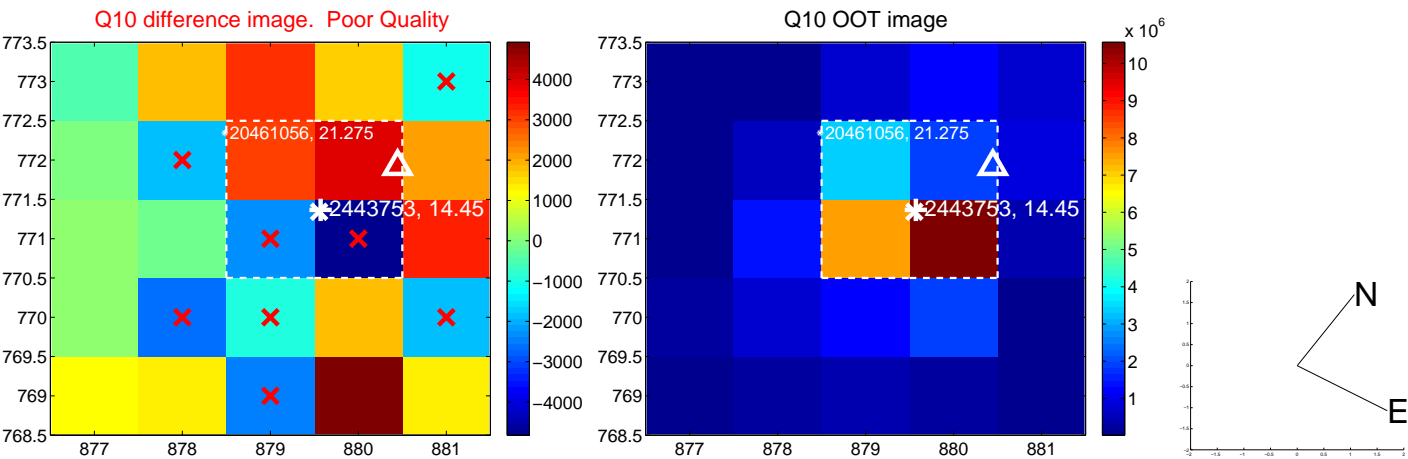
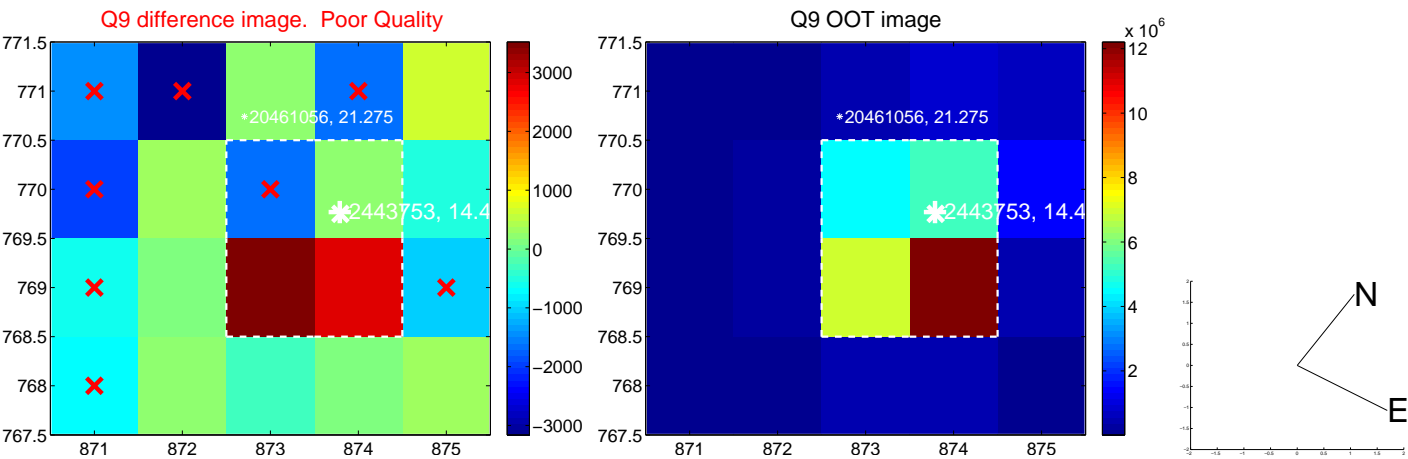
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



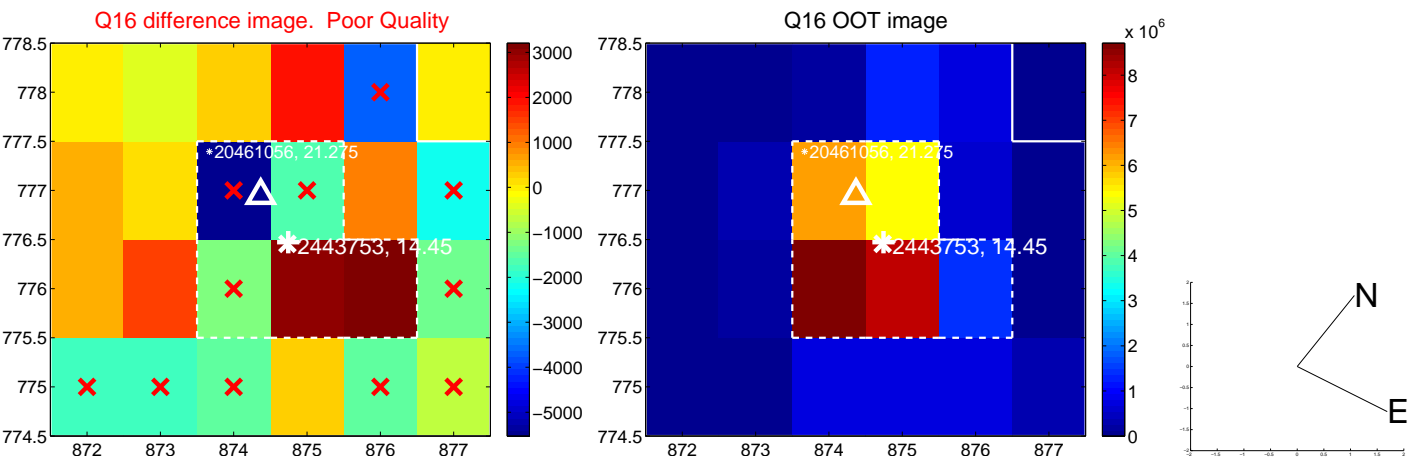
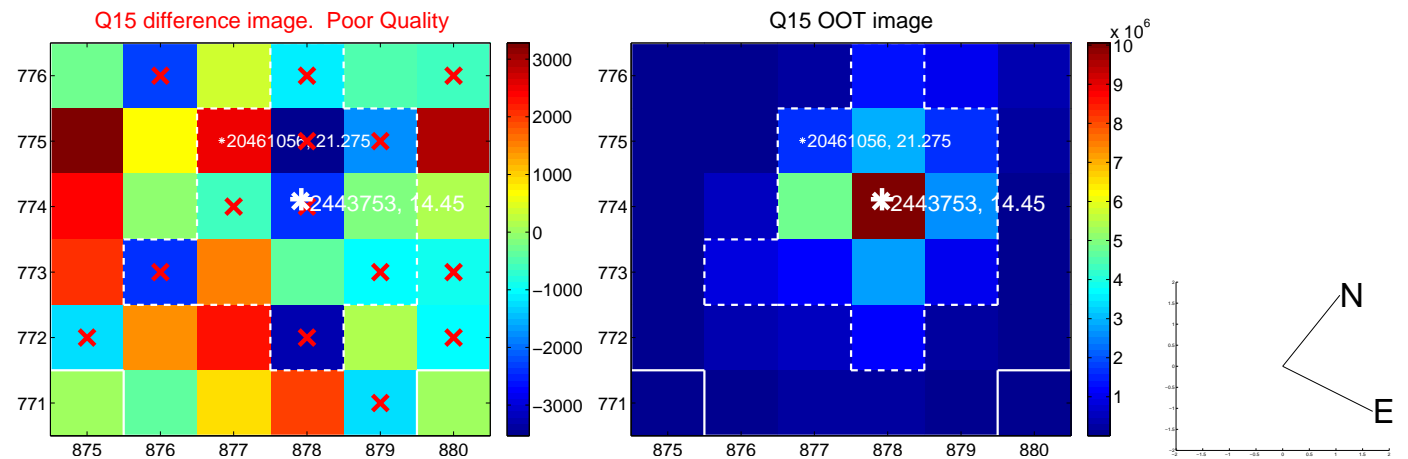
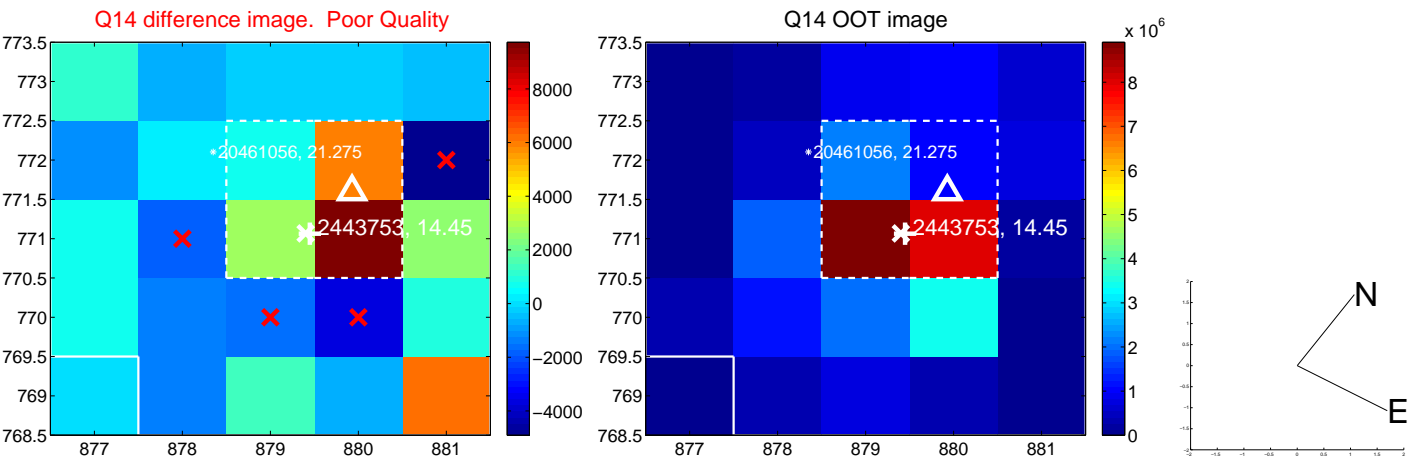
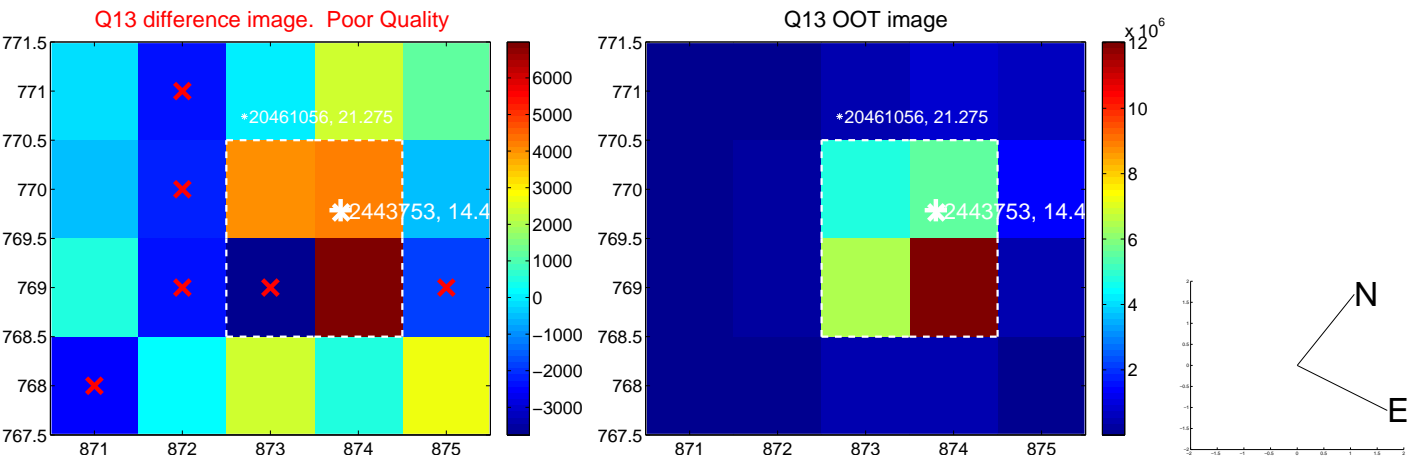
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



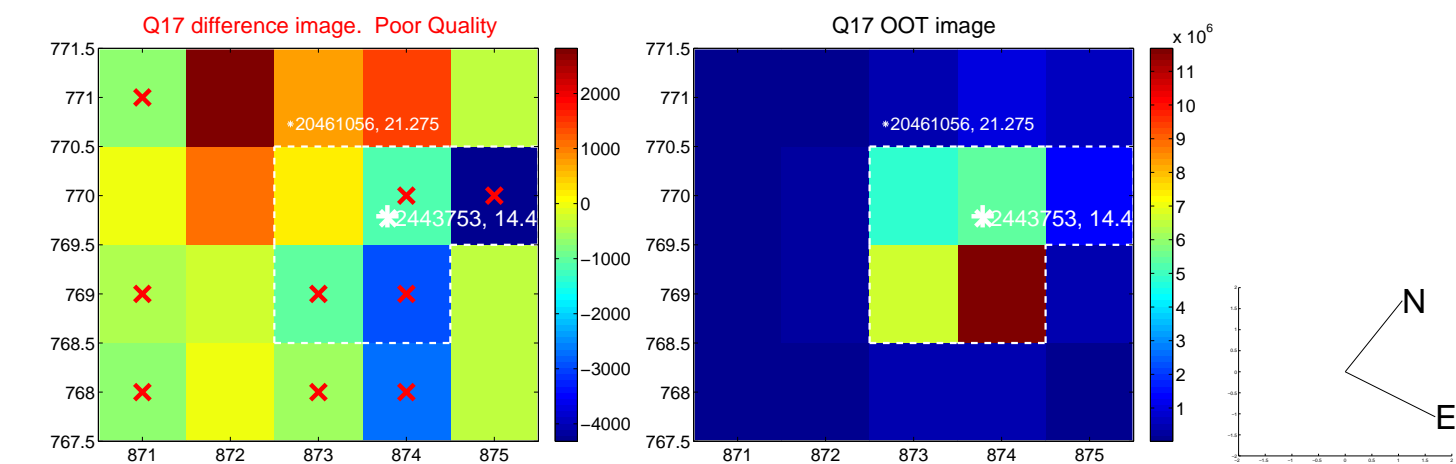
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



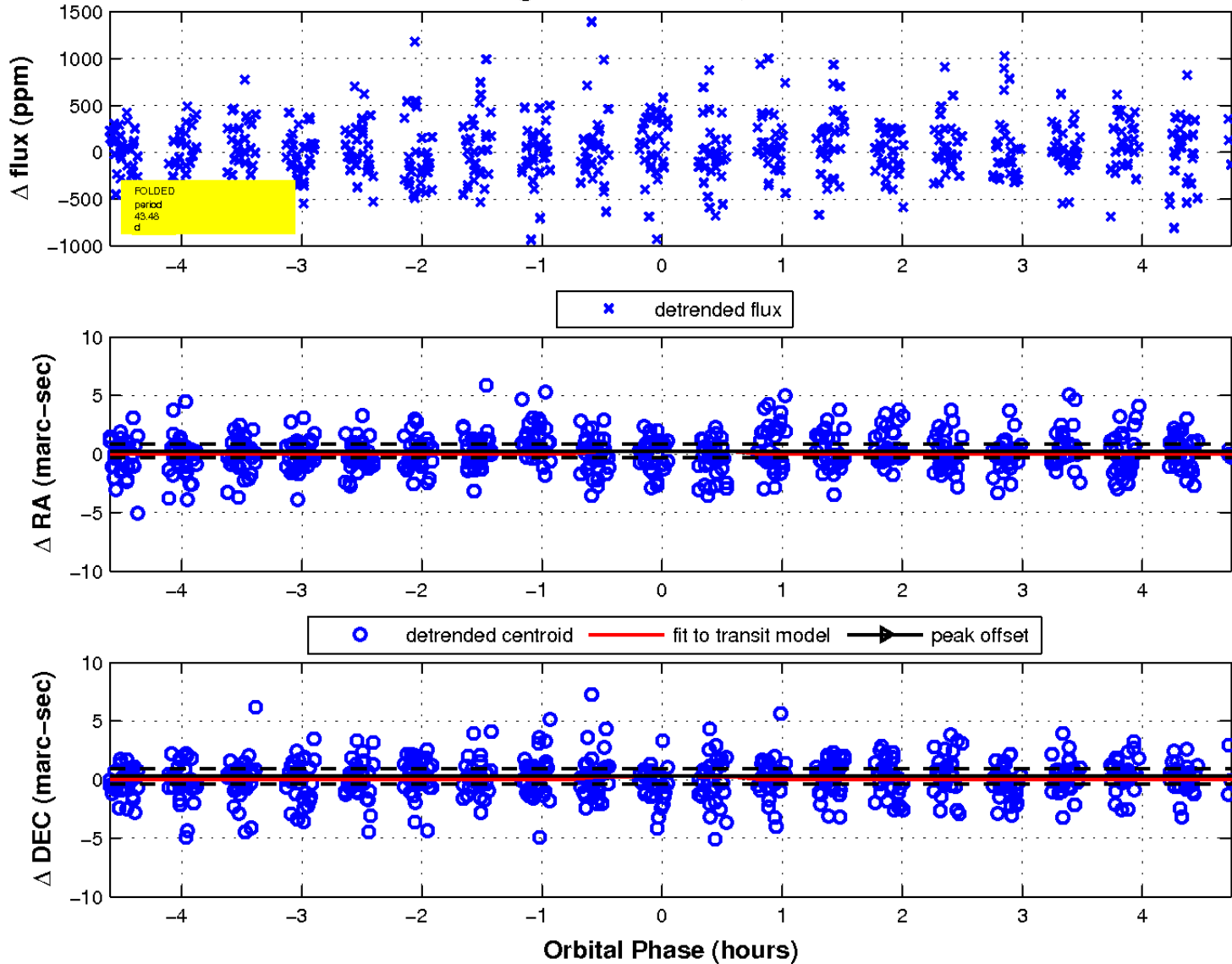
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 8 of 8



UKIRT Image

Declination

