

KIC 009475552

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})
009475552-01	OBS	2694.01	0.843376	131.969388	251.5	1.585	42.9	41.6	0.86	4818	1.68	1334.49
009475552-02	OBS	2694.02	6.566059	134.497256	423.7	1.863	19.8	23.3	0.86	4818	2.14	86.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009475552-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009475552-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

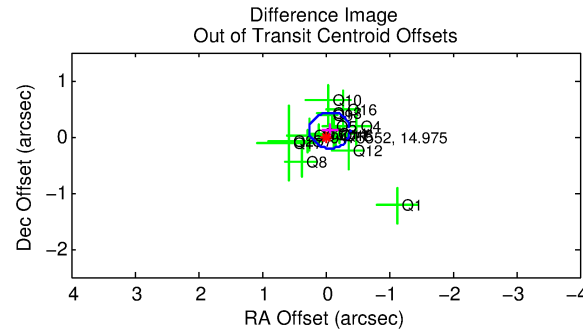
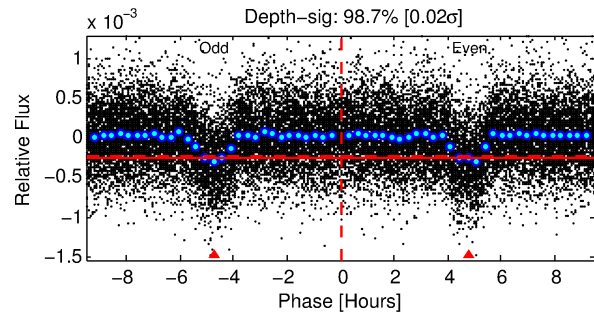
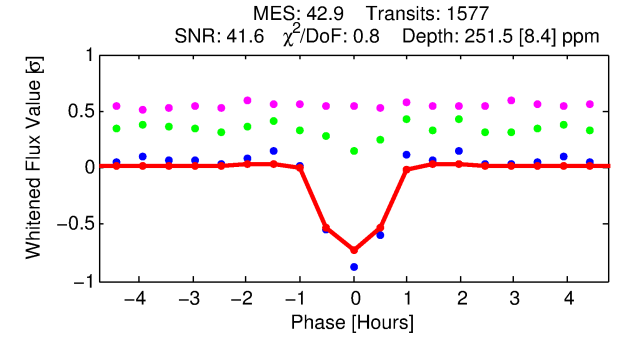
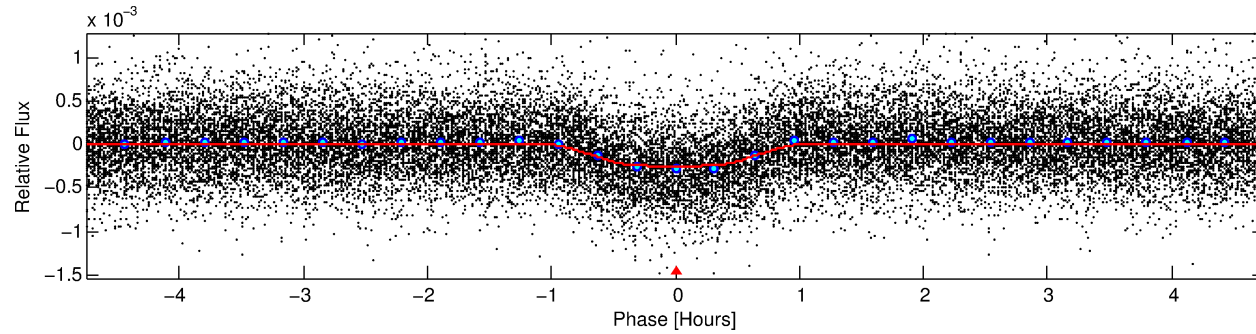
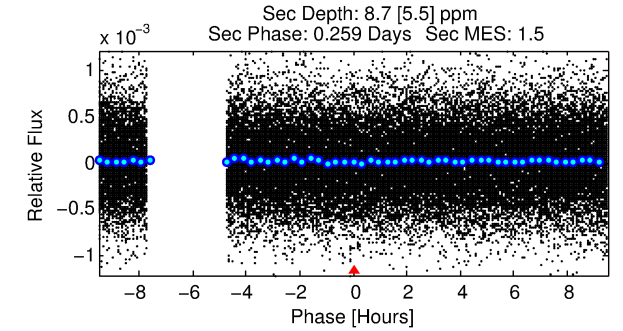
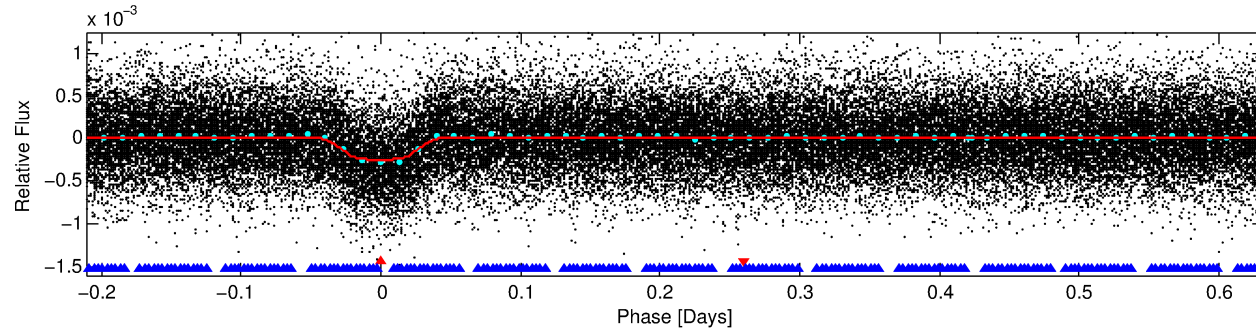
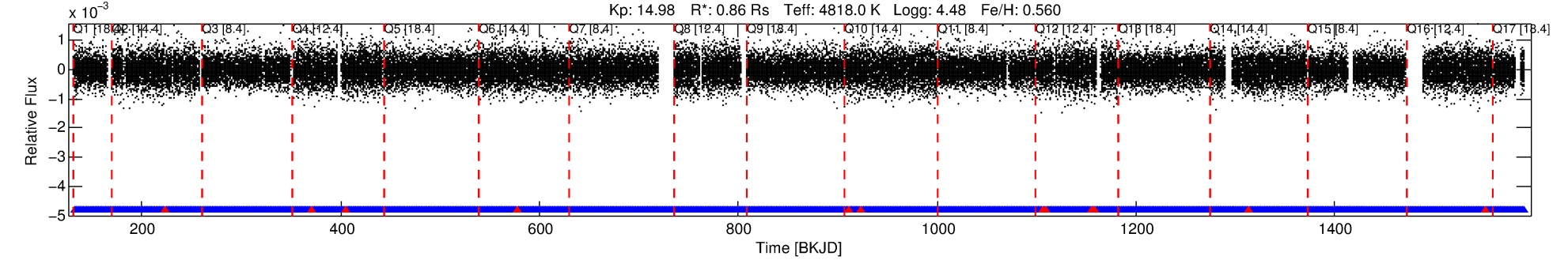
Ephemeris Match Information For 009475552-01

No Significant Match Found

DV One-Page Summary

KIC: 9475552 Candidate: 1 of 2 Period: 0.843 d

KOI: K02694.01 Corr: 0.951



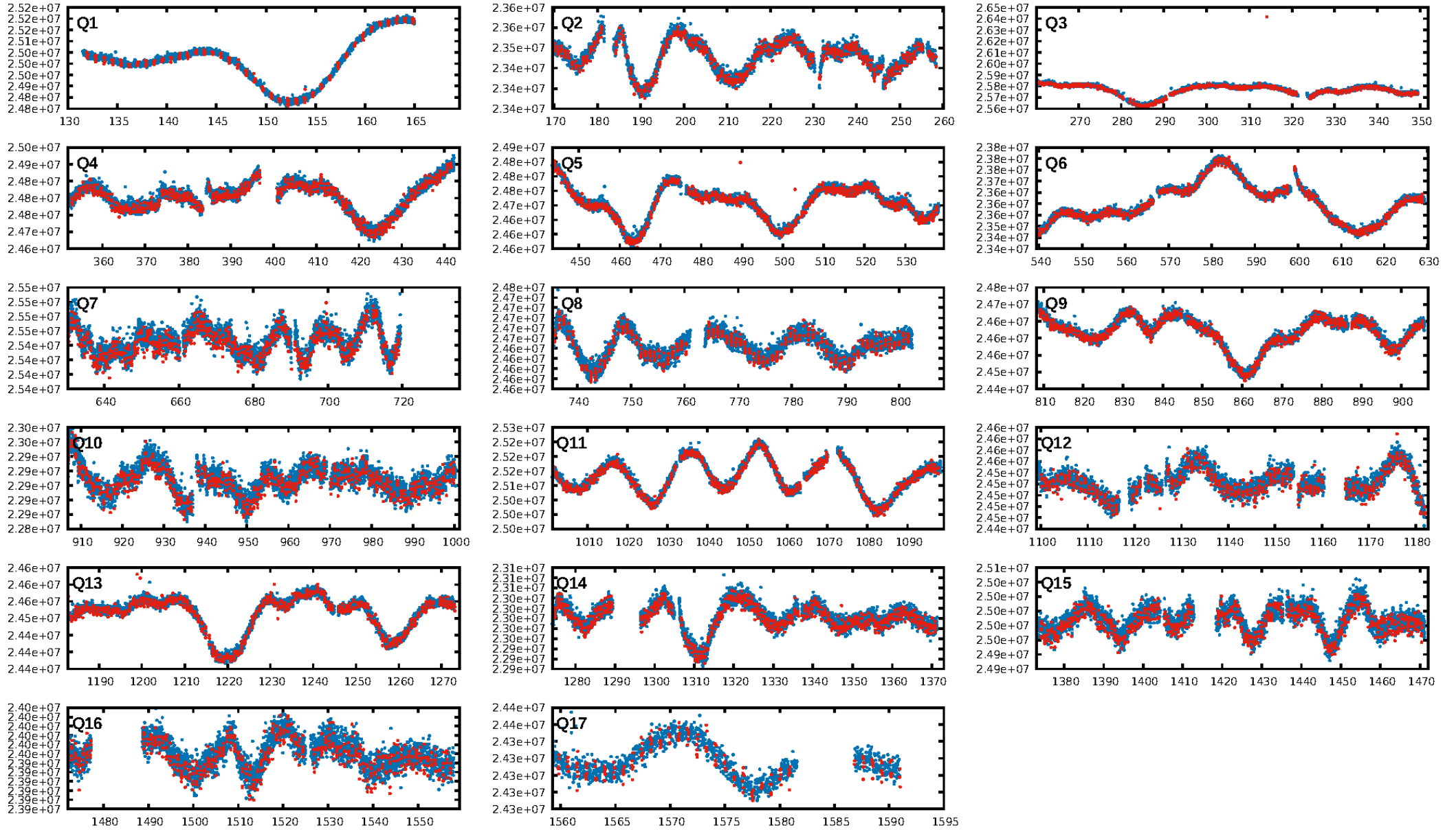
DV Fit Results:

Period = 0.84338 [0.00000] d
Epoch = 131.9694 [0.0005] BKJD
Rp/R* = 0.0180 [0.0044]
a/R* = 2.15 [1.52]
b = 0.90 [0.20]
Seff = 1334.49 [1212.35]
Teff = 1541 [350] K
Rp = 1.68 [0.45] Re
a = 0.0163 [0.0074] AU
Ag = 0.45 [0.54] [-1.02σ]
Teffp = 1950 [396] K [0.77σ]

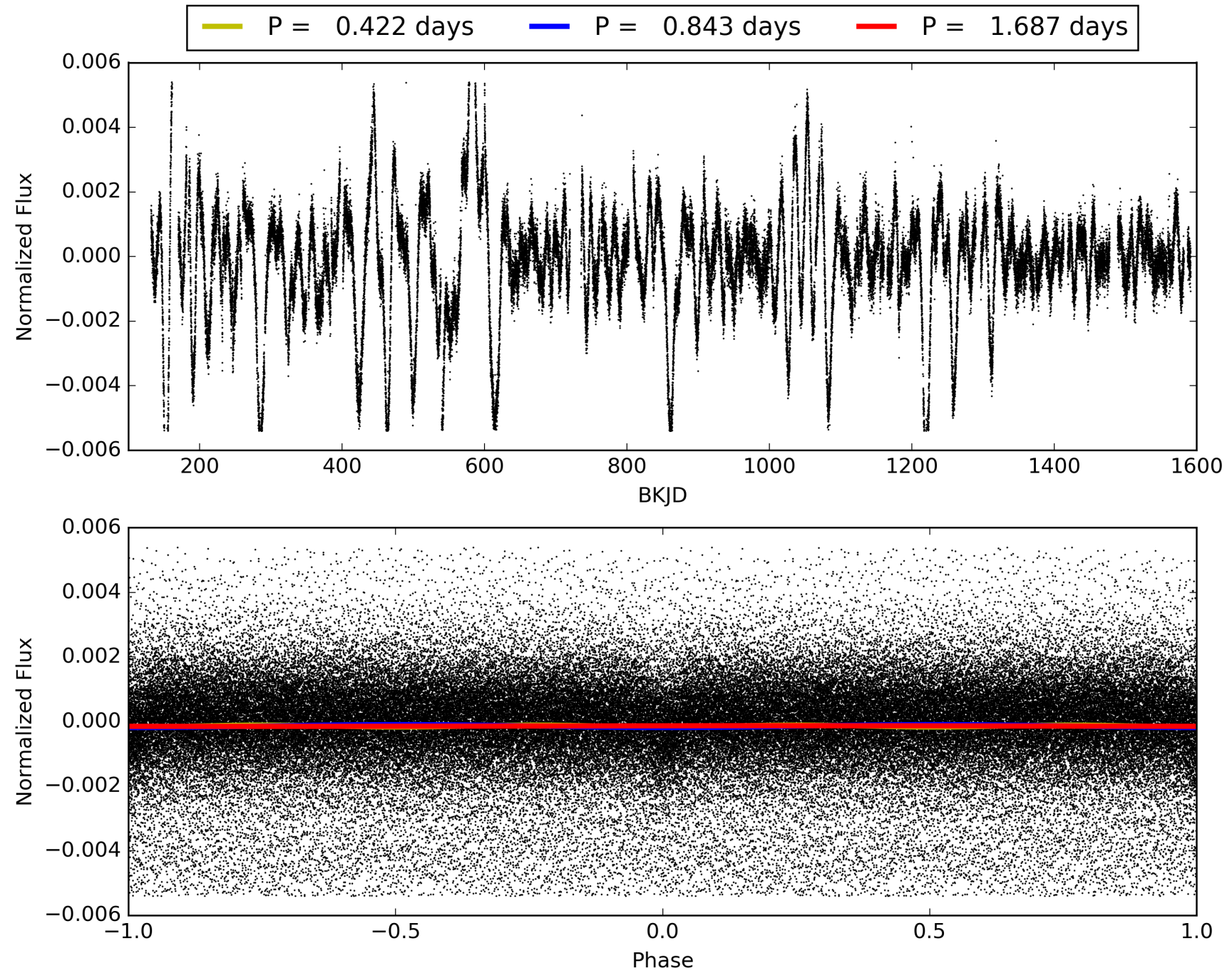
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [56.16σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [1493/1505]
GhostDiagnostic-chr: 4.754
Centroid-sig: 0.0%
Centroid-so: 0.320 arcsec [0.99σ]
OotOffset-rm: 0.130 arcsec [1.22σ]
KicOffset-rm: 0.330 arcsec [2.54σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009475552-01, PDC Light Curves

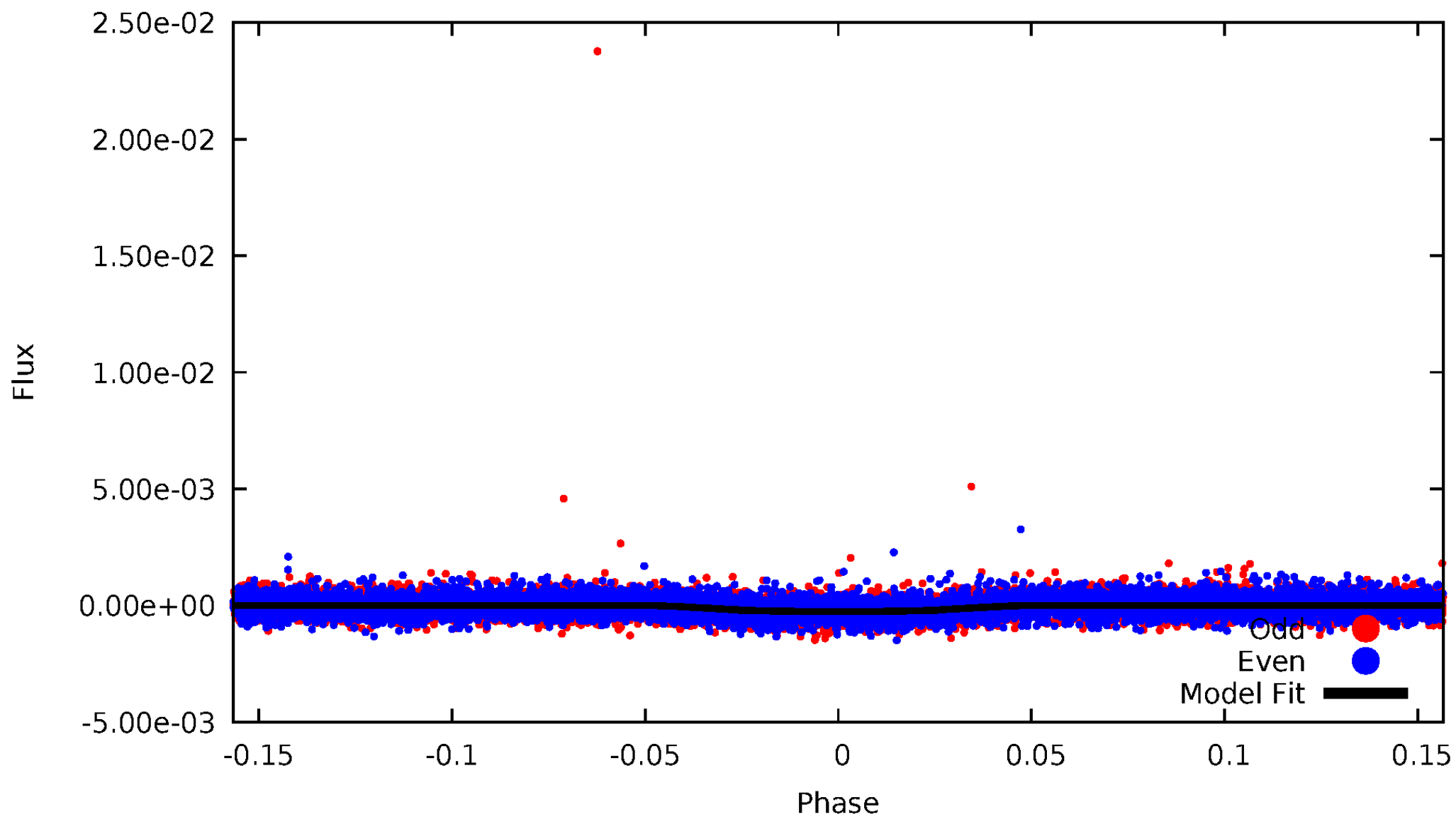


TCE 009475552-01



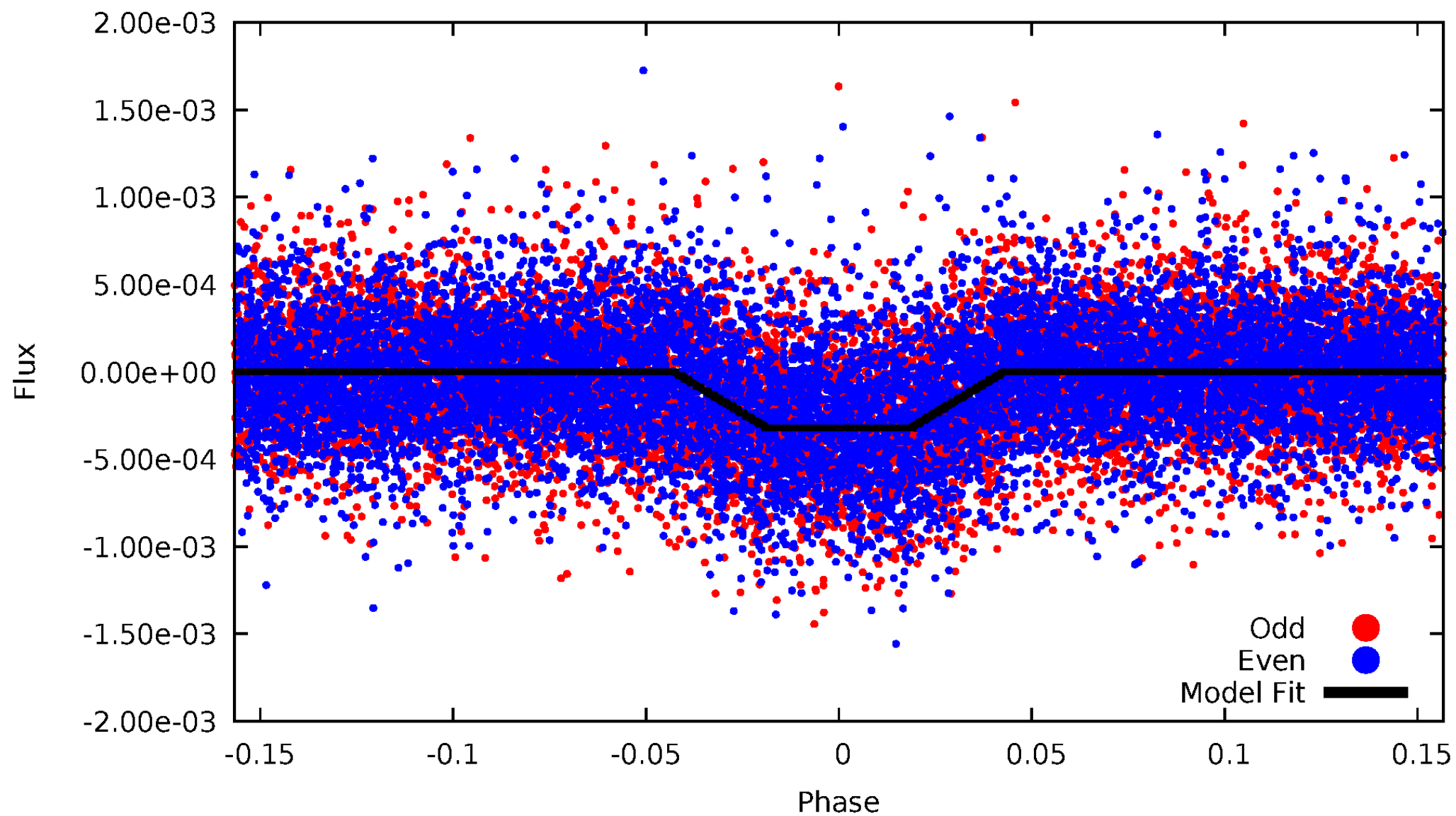
DV Odd/Even

TCE 009475552-01



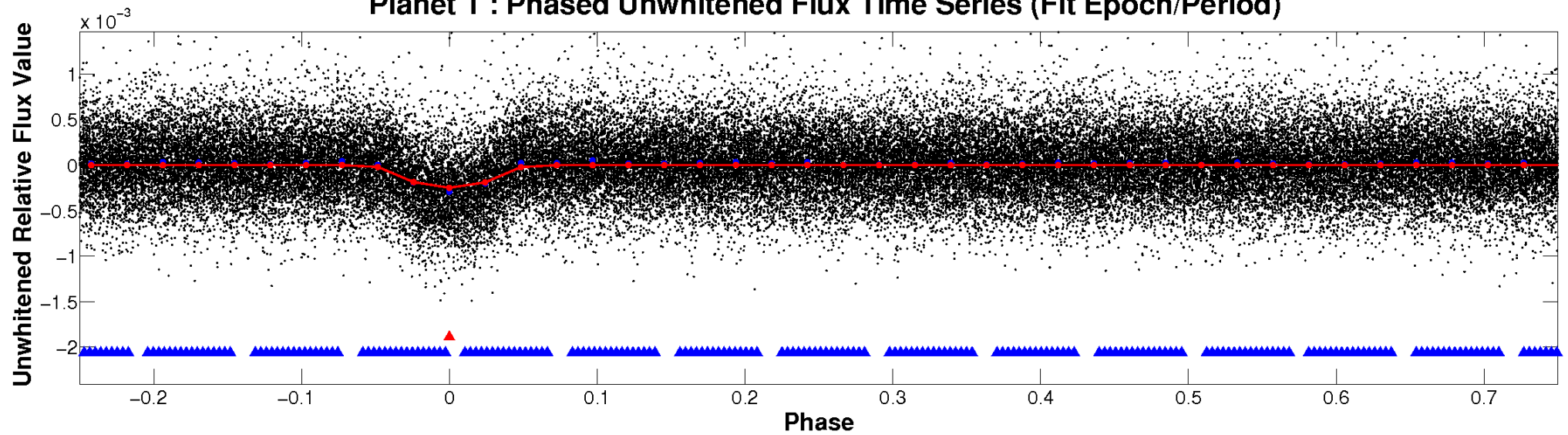
ALT Odd/Even

TCE 009475552-01

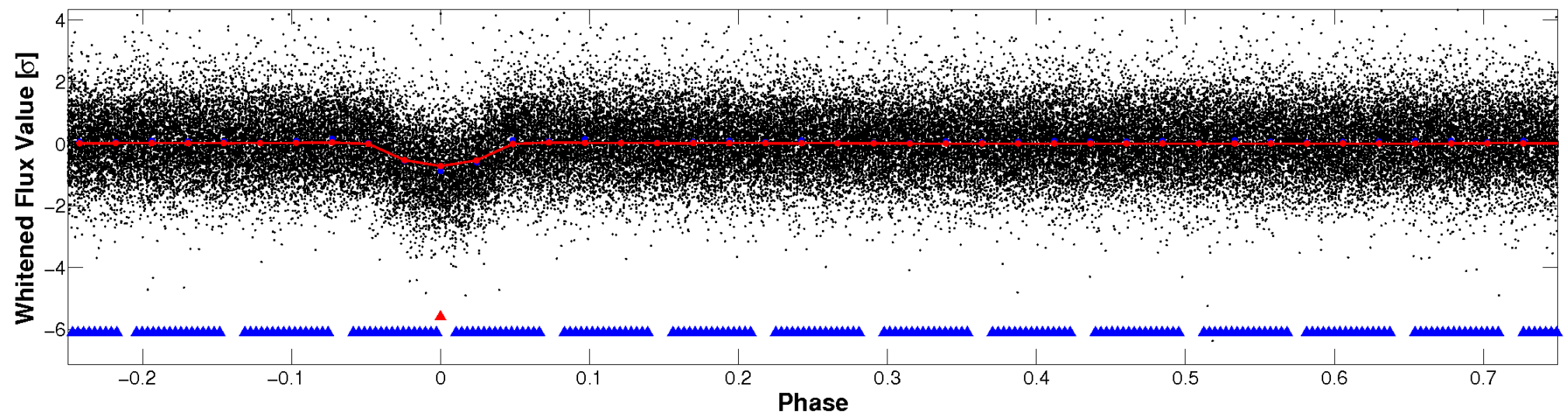


Non-Whitened Vs. Whitened Light Curve

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

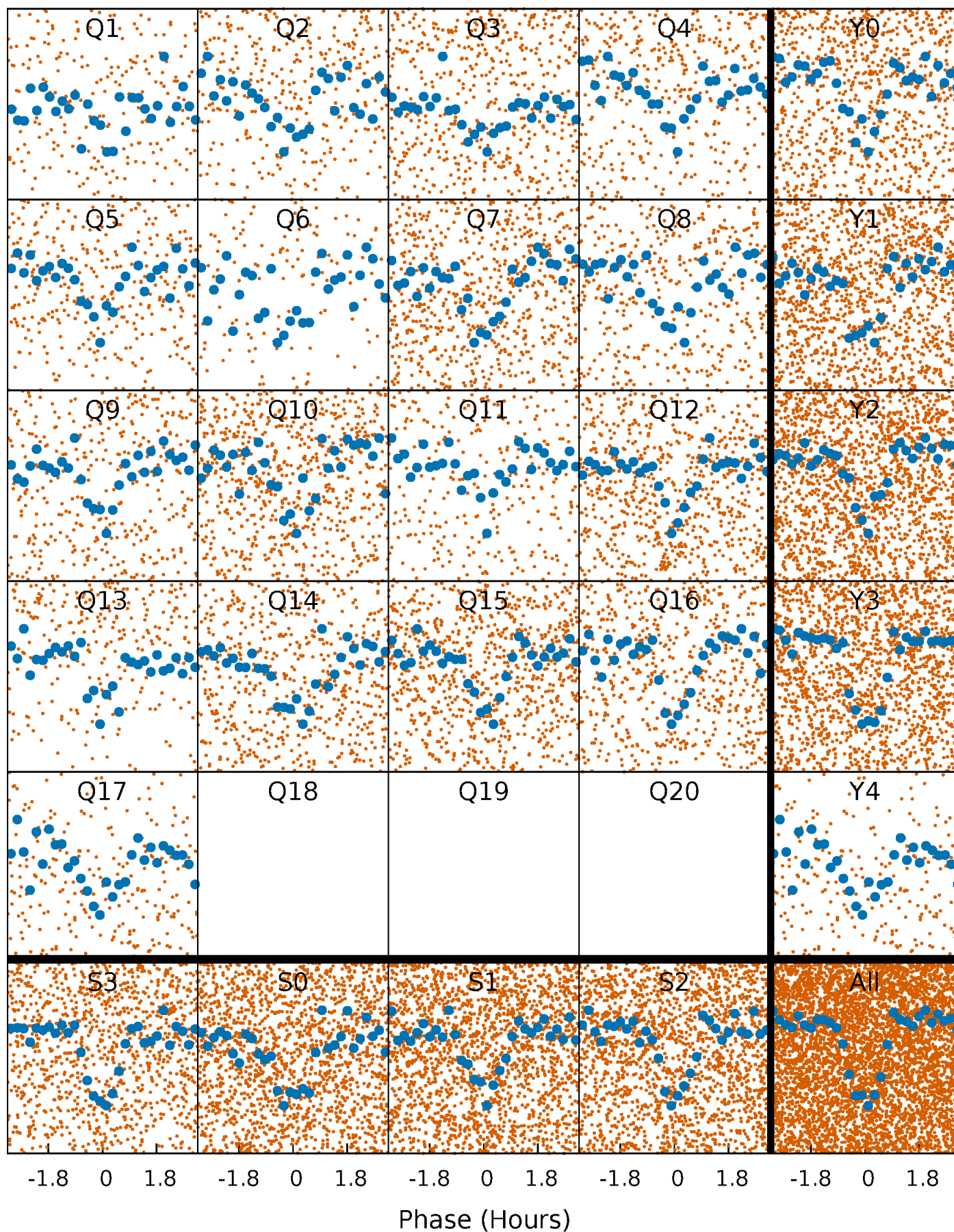


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



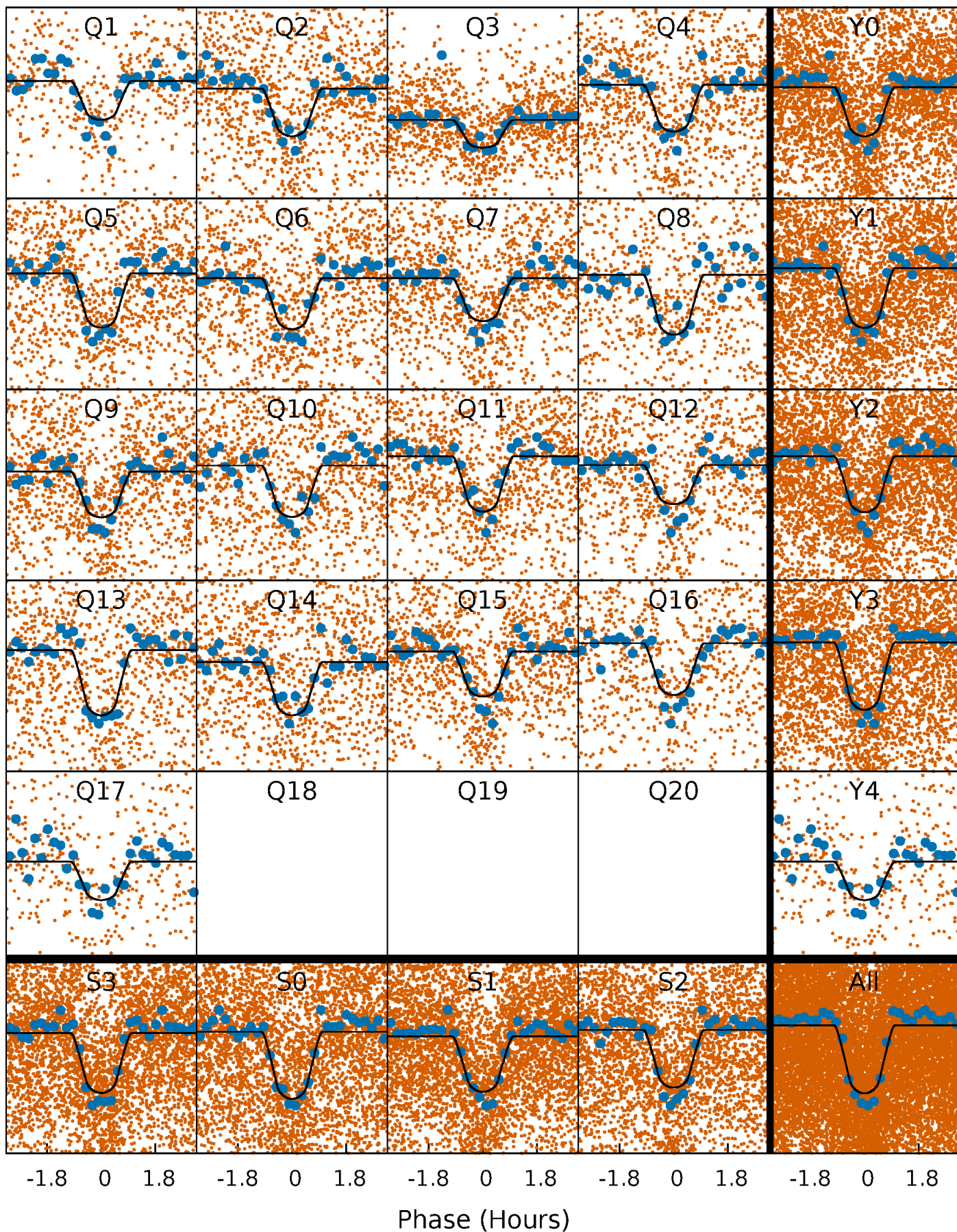
PDC Quarter-Phased Transit Curves

TCE 009475552-01 P= 0.843376 Days $T_0=131.969388$ (BKJD)



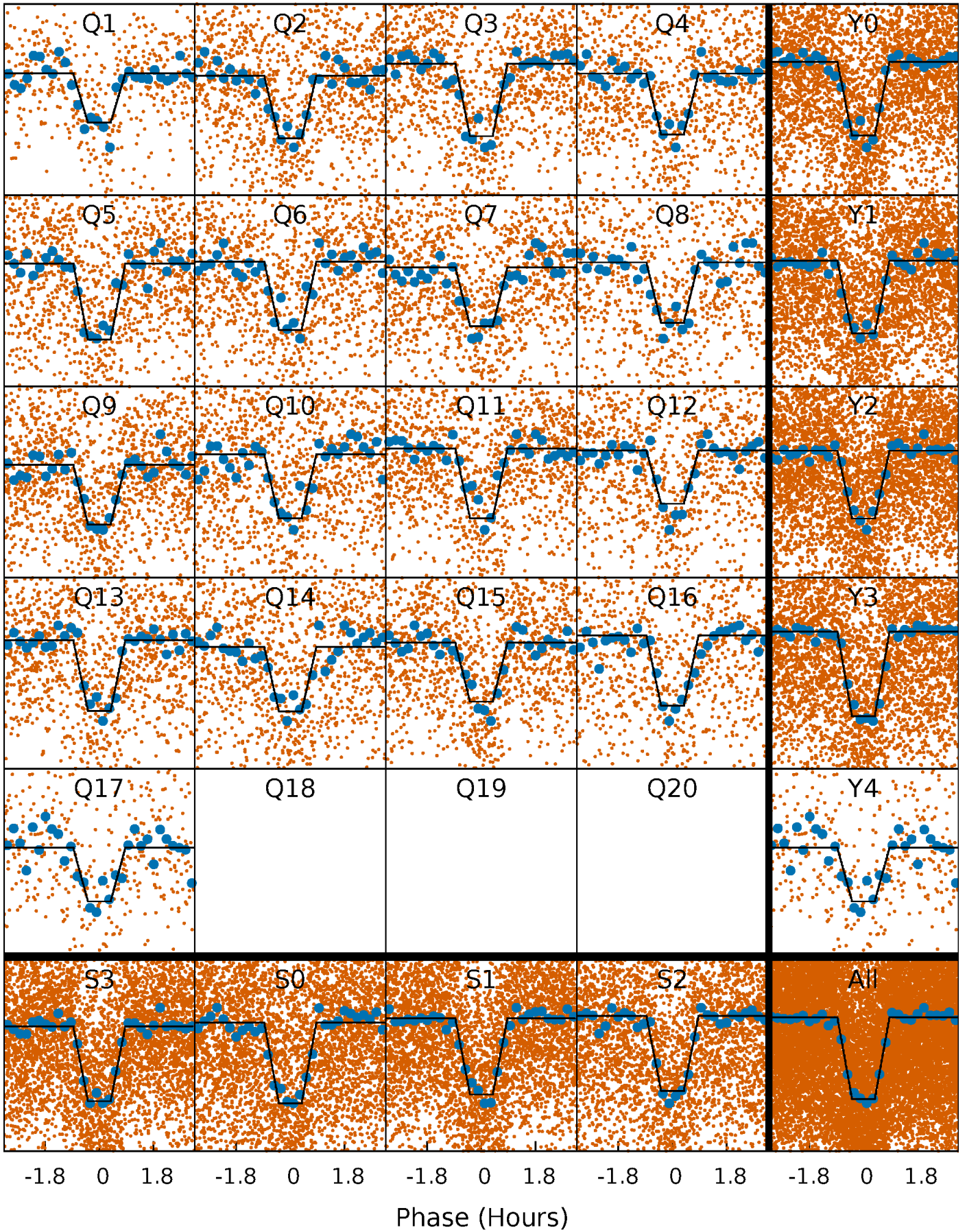
DV Quarter-Phased Transit Curves

TCE 009475552-01 P= 0.843376 Days $T_0=131.969388$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

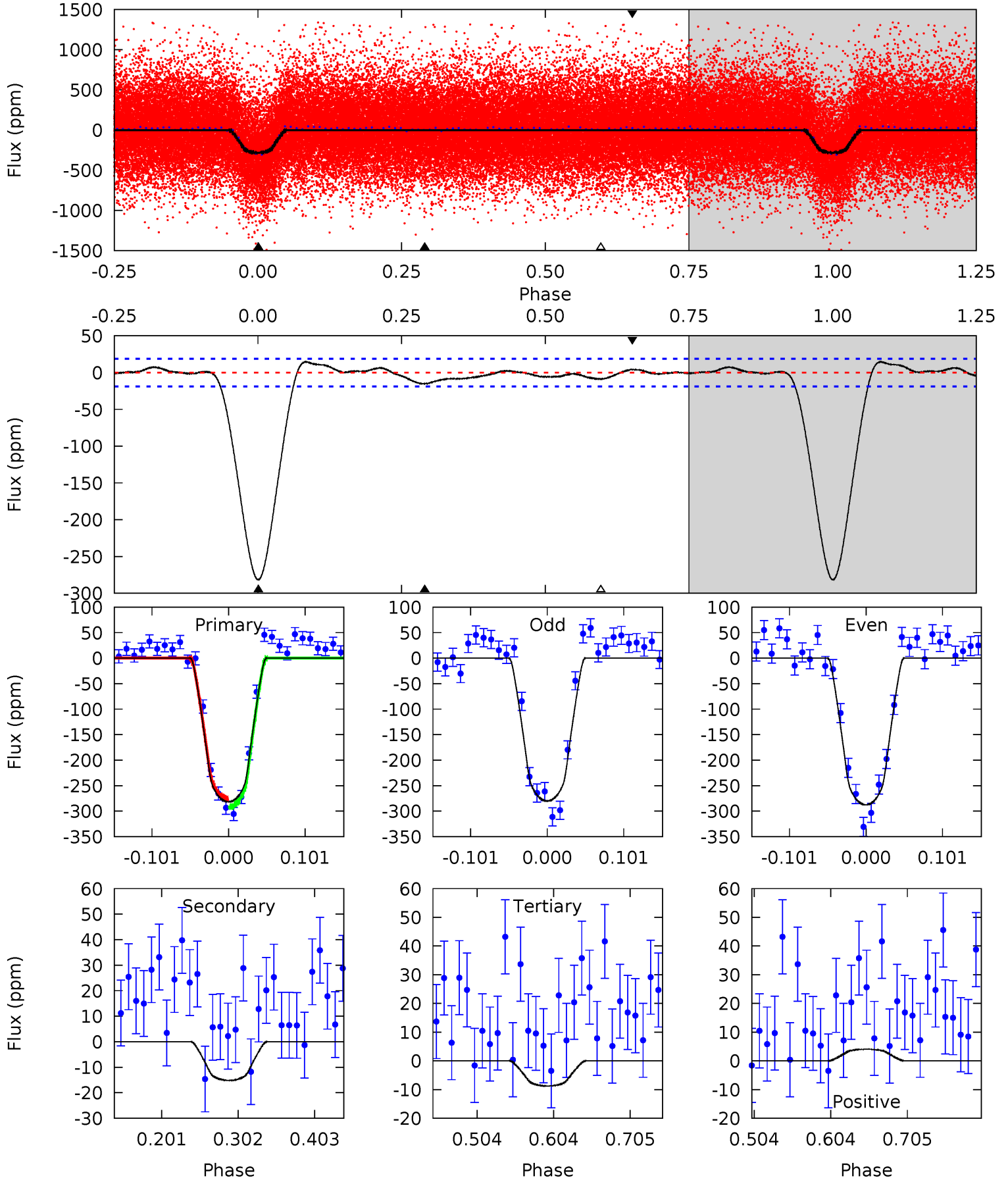
TCE 009475552-01 P= 0.843376 Days $T_0=131.969397$ (BKJD)



DV Model-Shift Uniqueness Test

009475552-01, P = 0.843376 Days, E = 131.126012 Days

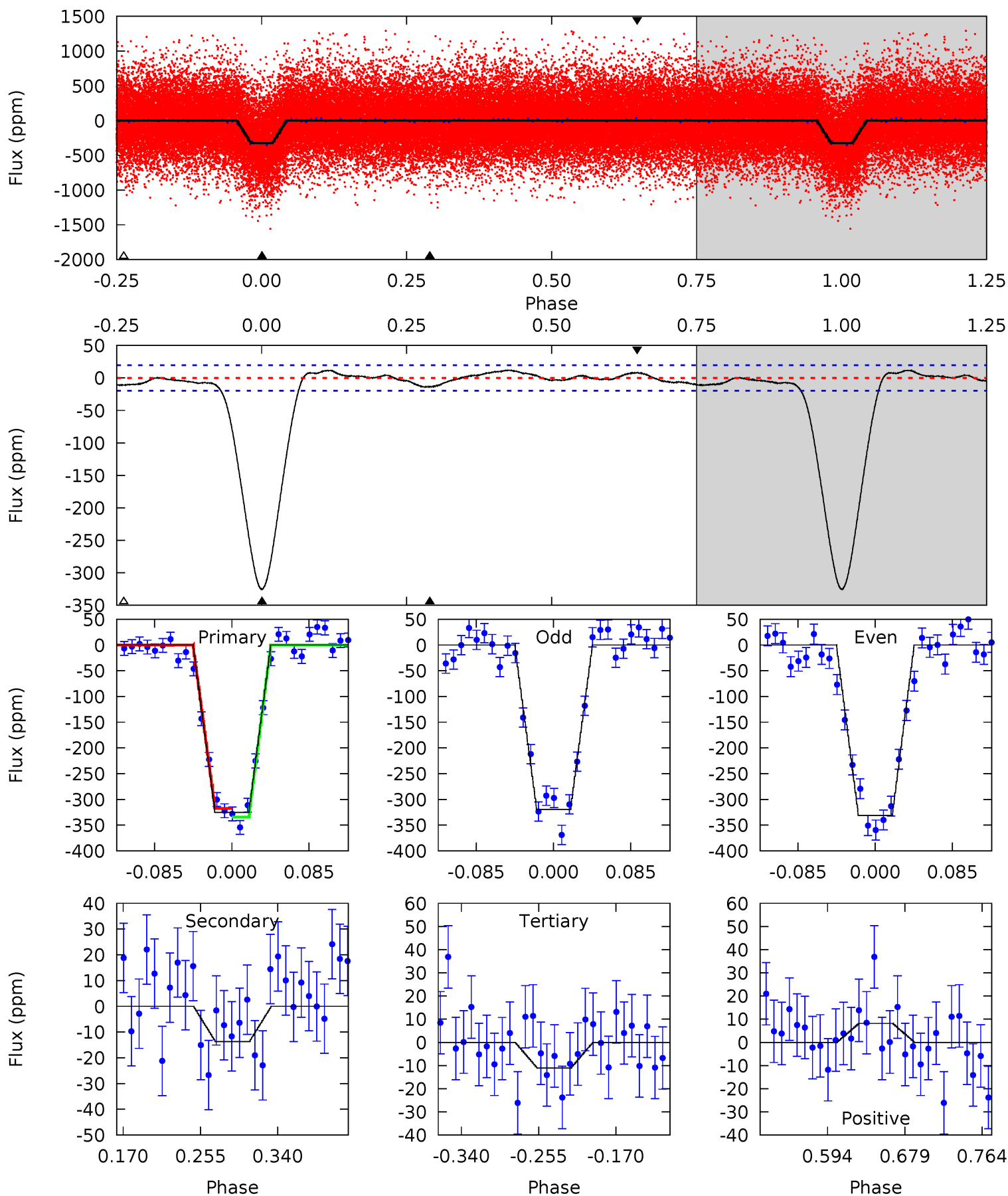
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
68.1	3.67	2.11	0.98	4.56	1.64	0.98	66.0	67.1	1.56	2.69	0.90	0.97	0.05	2.05



Alt Model-Shift Uniqueness Test

009475552-01, P = 0.843376 Days, E = 131.126021 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
75.9	3.21	2.58	1.90	4.60	1.72	1.46	73.3	74.0	0.63	1.30	1.42	0.98	0.04	1.98



Stellar Parameters For KIC 009475552

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4818^{+143}_{-129}	$4.481^{+0.078}_{-0.585}$	$0.560^{+0.050}_{-0.300}$	$0.856^{+0.089}_{-0.089}$	$0.809^{+0.047}_{-0.042}$	$1.818^{+0.874}_{-1.578}$
	+3%/-3%	+2%/-13%	+9%/-54%	+10%/-10%	+6%/-5%	+48%/-87%
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 009475552-01 / KOI 2694.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-15 ± 4	$1.72^{+0.45}_{-0.45}$	2188^{+110}_{-88}	2706^{+384}_{-372}	$0.750^{+0.709}_{-0.324}$
Alt.	-14 ± 4	$1.73^{+0.46}_{-0.42}$	2200^{+97}_{-105}	2622^{+376}_{-536}	$0.645^{+0.617}_{-0.297}$

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 $A_{obs} \gg 1.0$

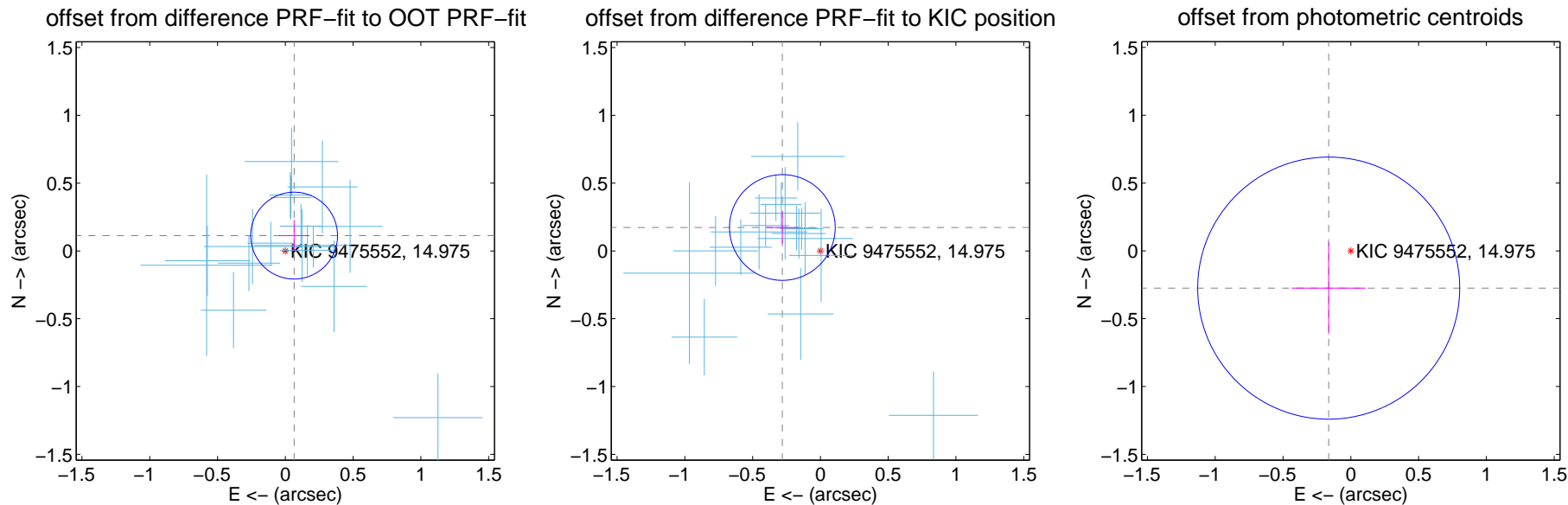
DV Centroid Data

Supplemental centroid analysis for 009475552-01. Kepler magnitude: 14.97. Transit SNR 41.58

There are 17 quarters with good PRF difference image offsets

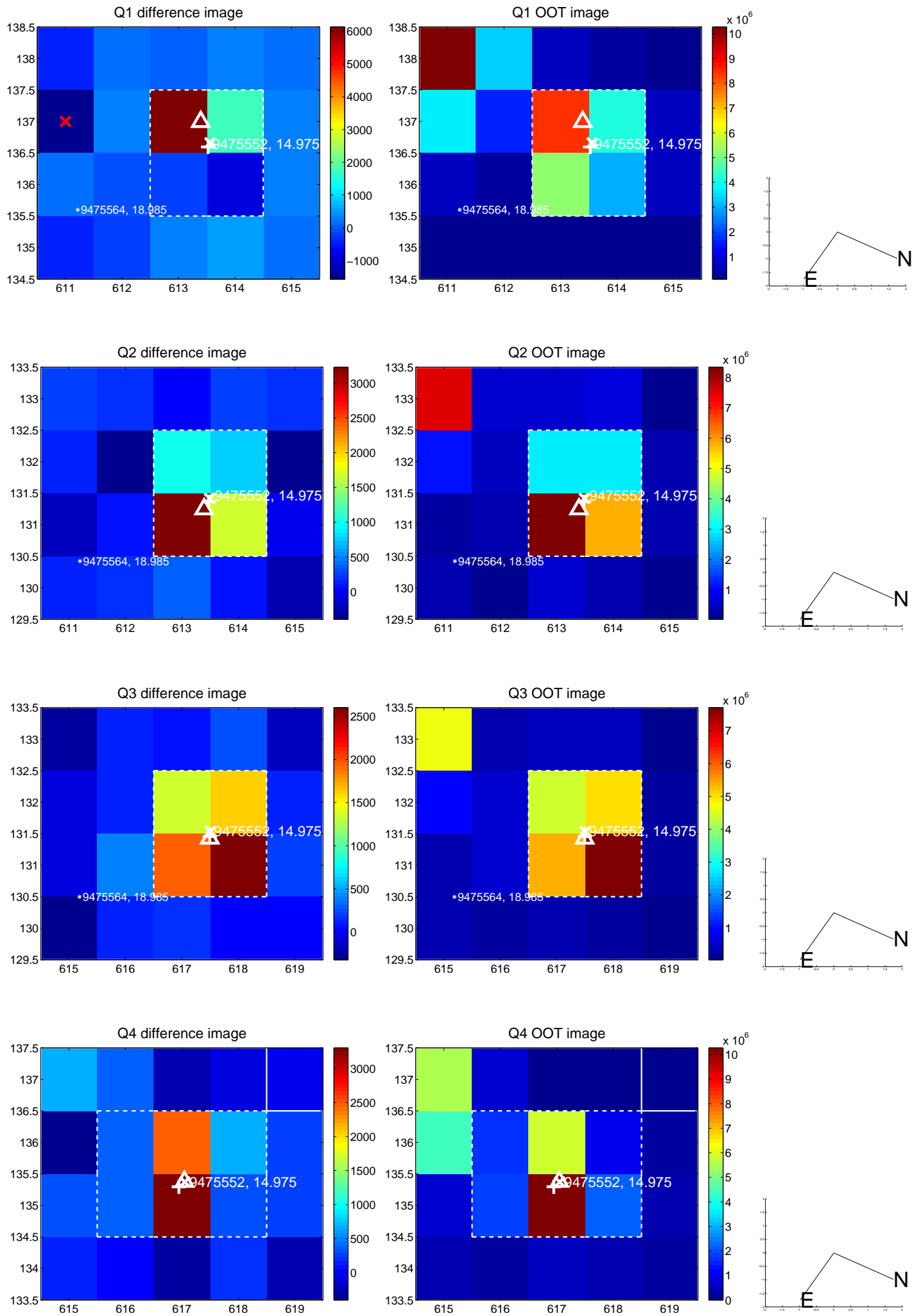
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.130 ± 0.107	1.22	-0.065 ± 0.115	0.113 ± 0.114
PRF-fit source offset from KIC position	0.330 ± 0.130	2.54	0.281 ± 0.118	0.173 ± 0.117
photometric centroid source offset	0.32 ± 0.32	0.99	0.16 ± 0.27	-0.27 ± 0.34

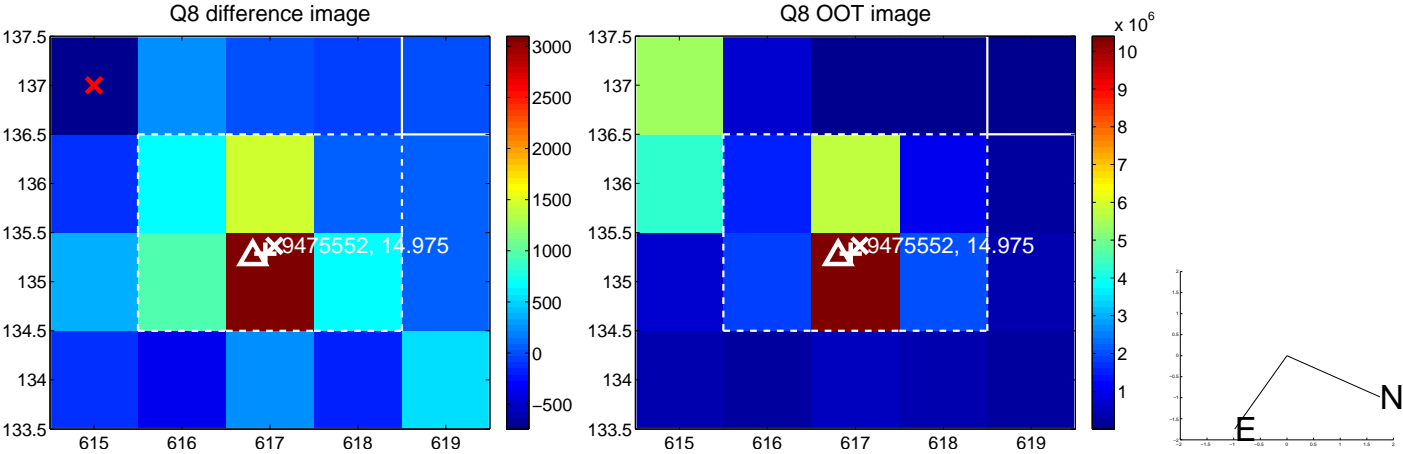
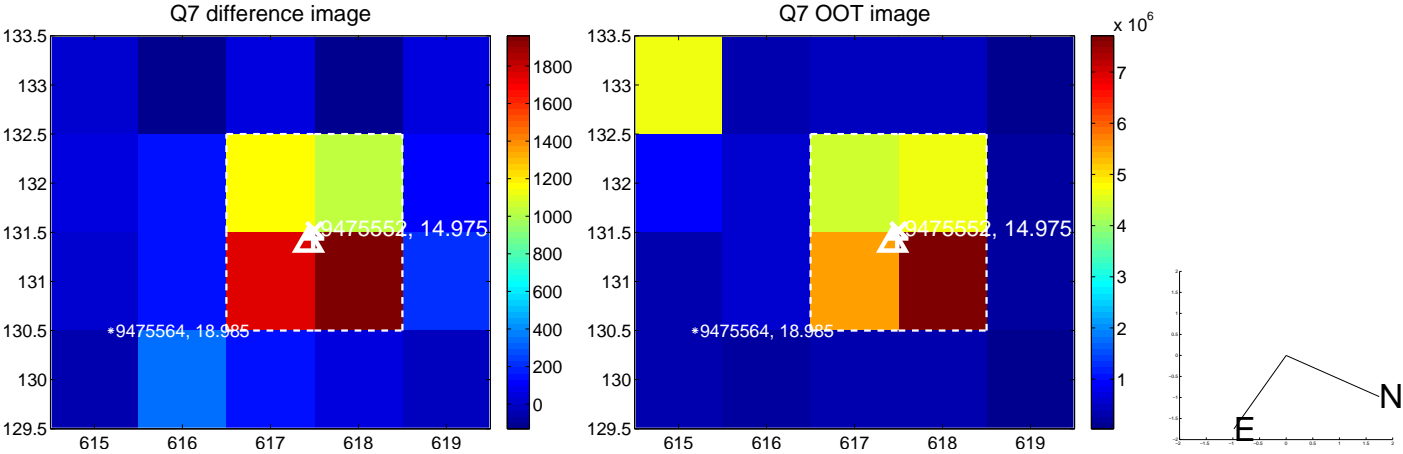
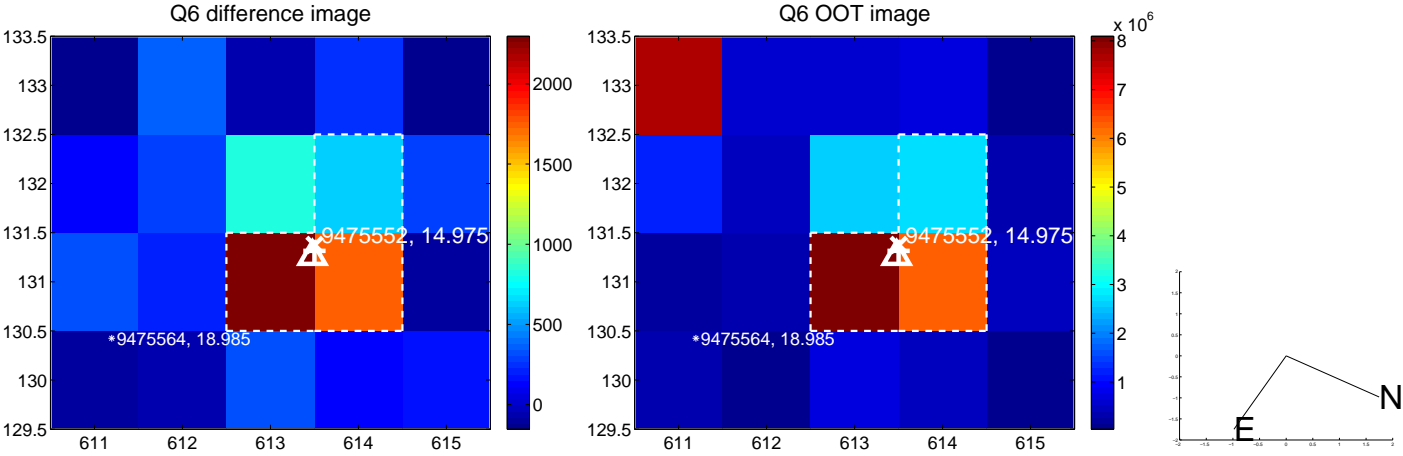
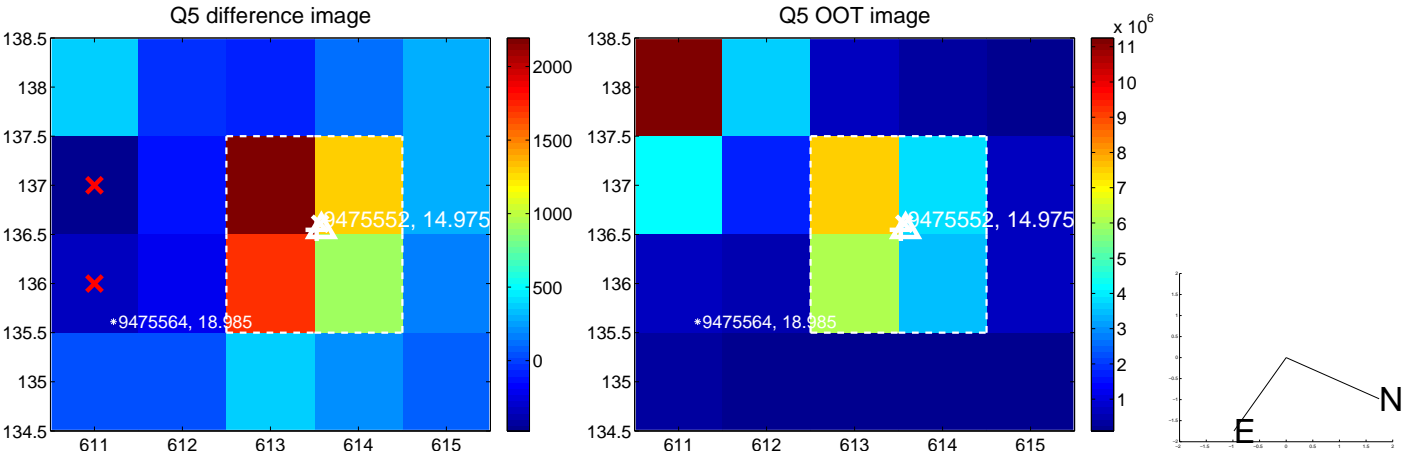


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

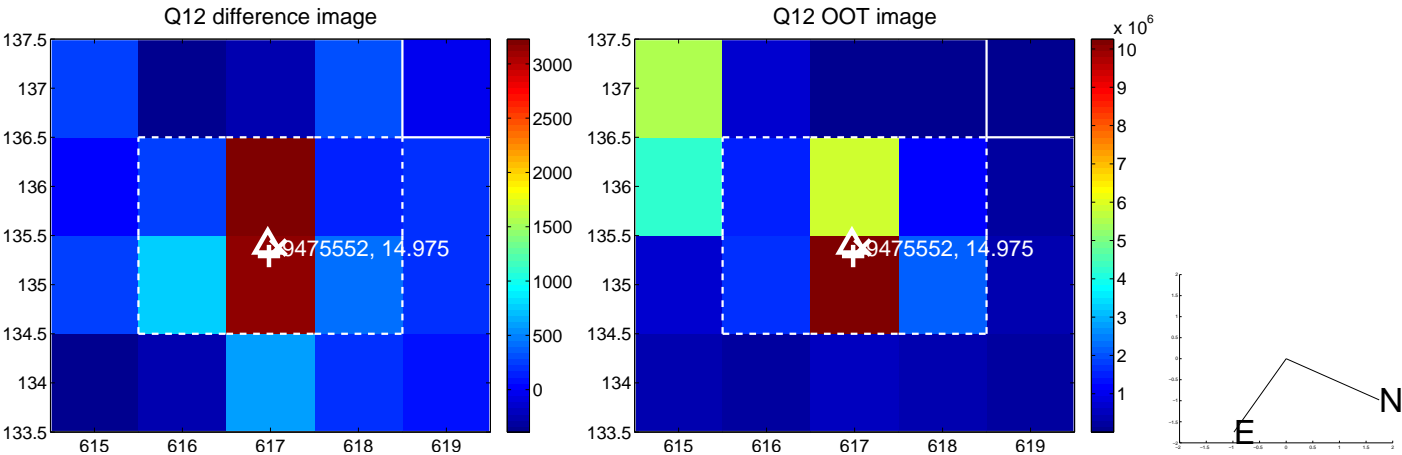
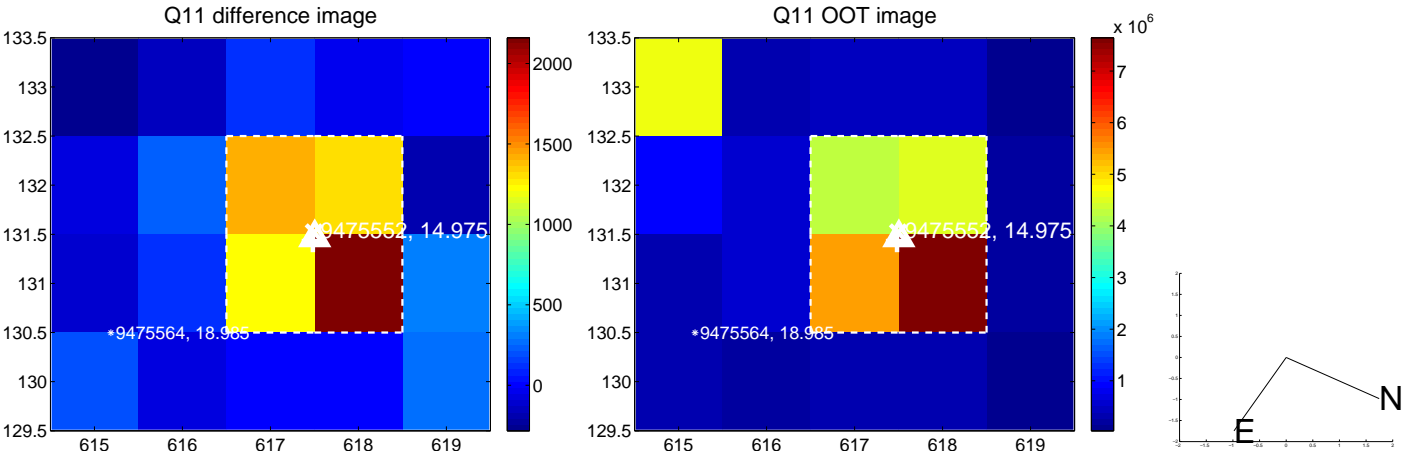
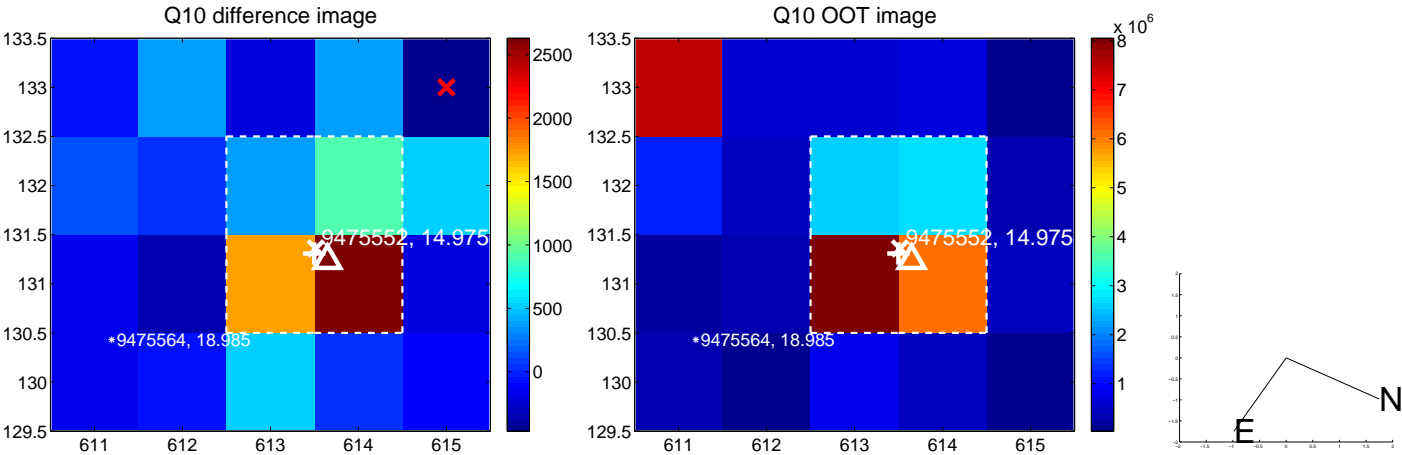
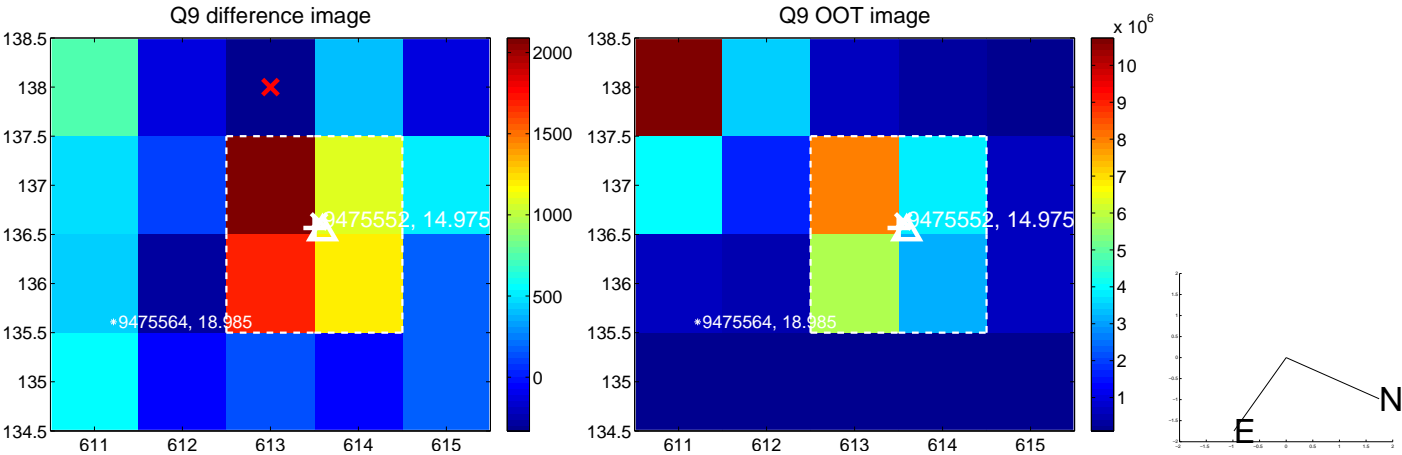
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



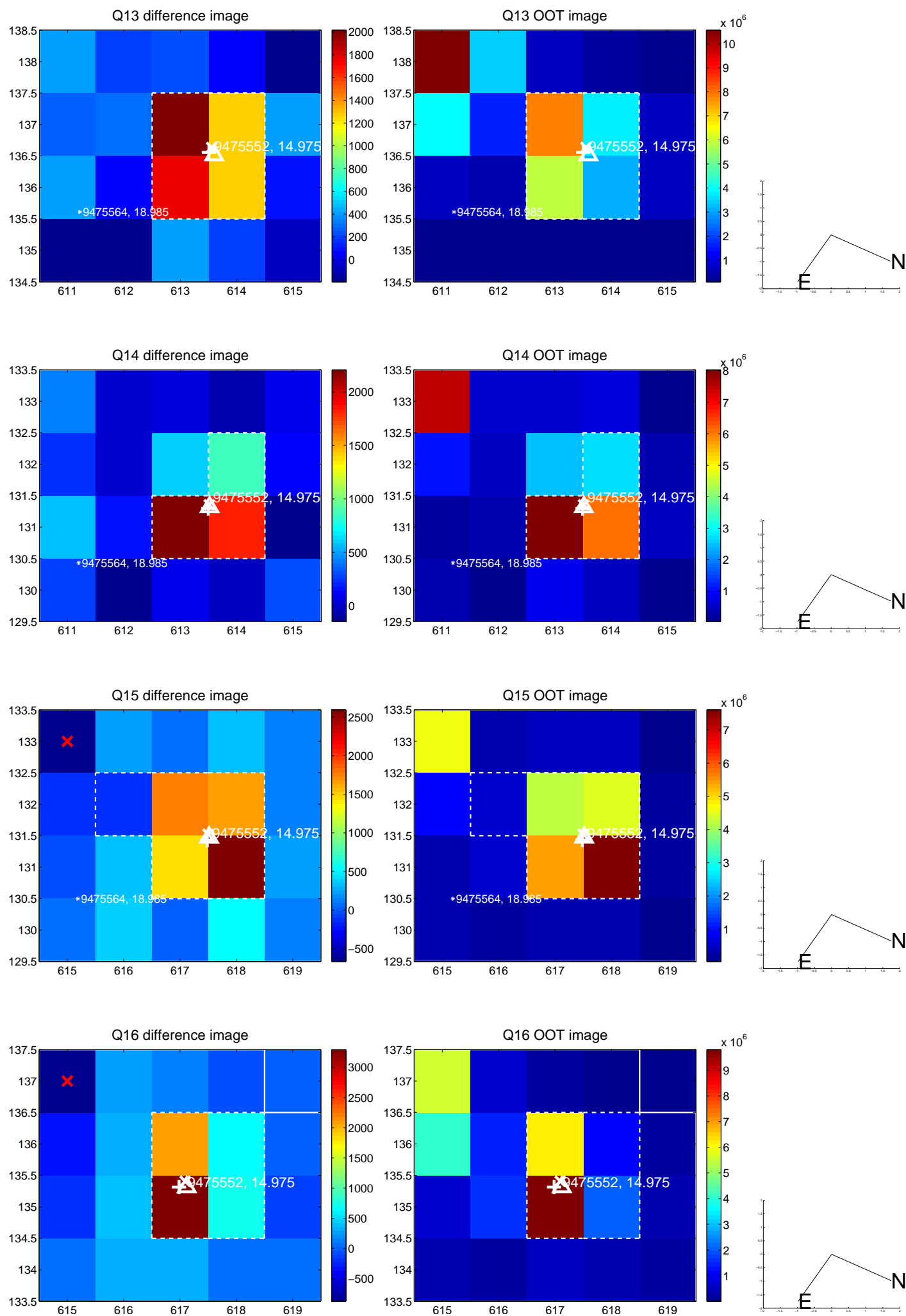
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



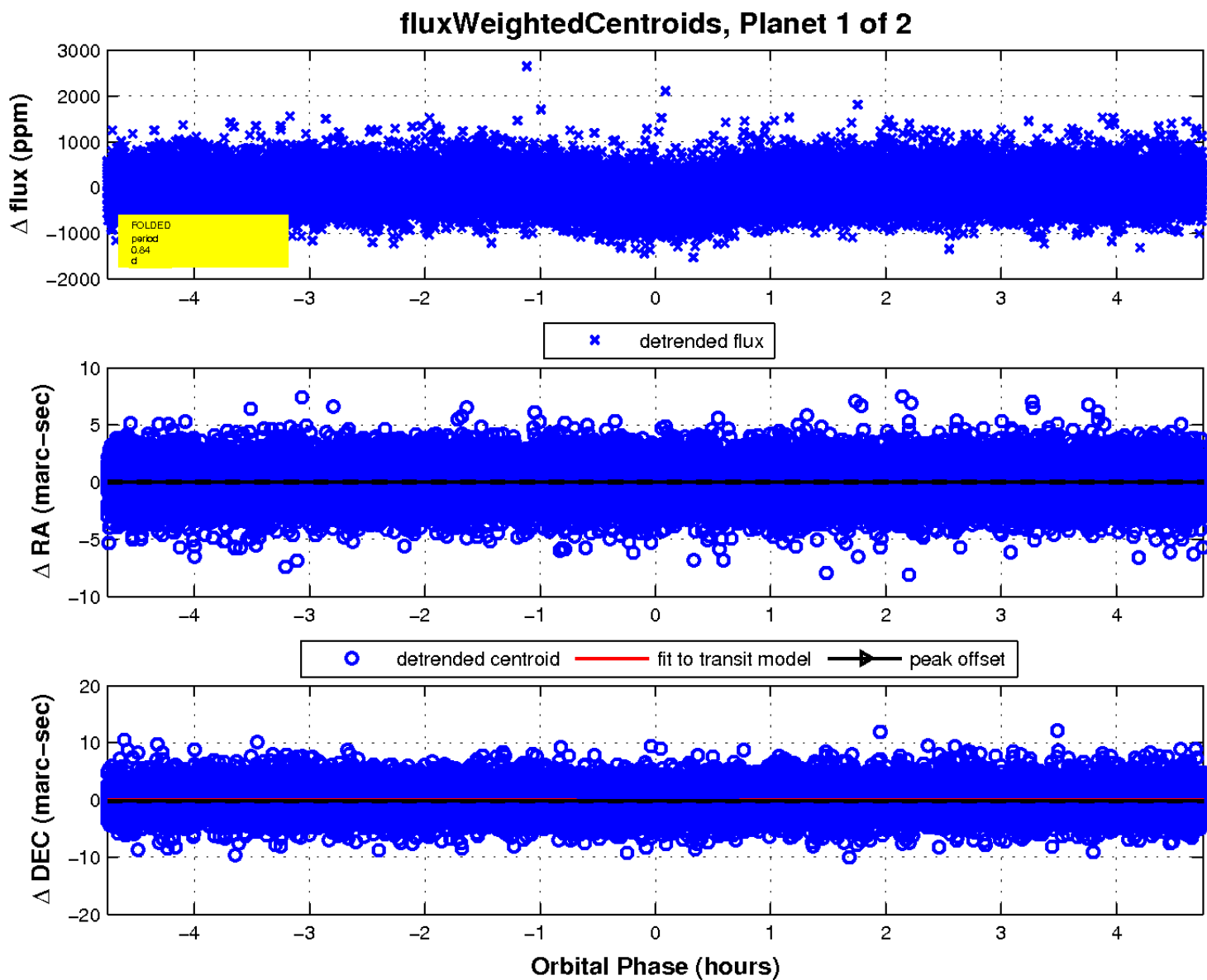
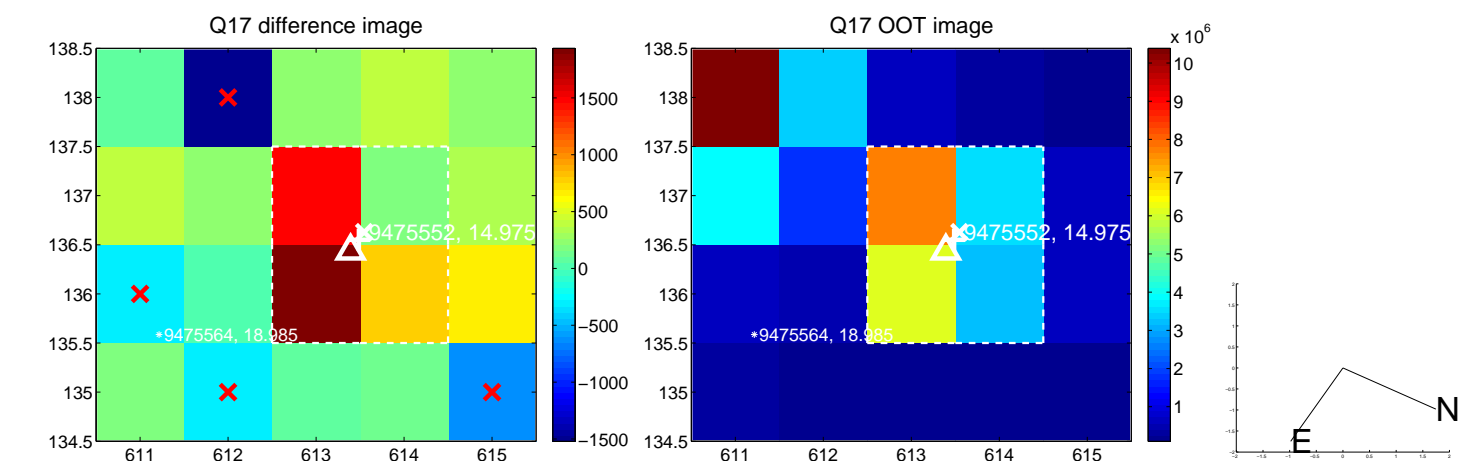
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

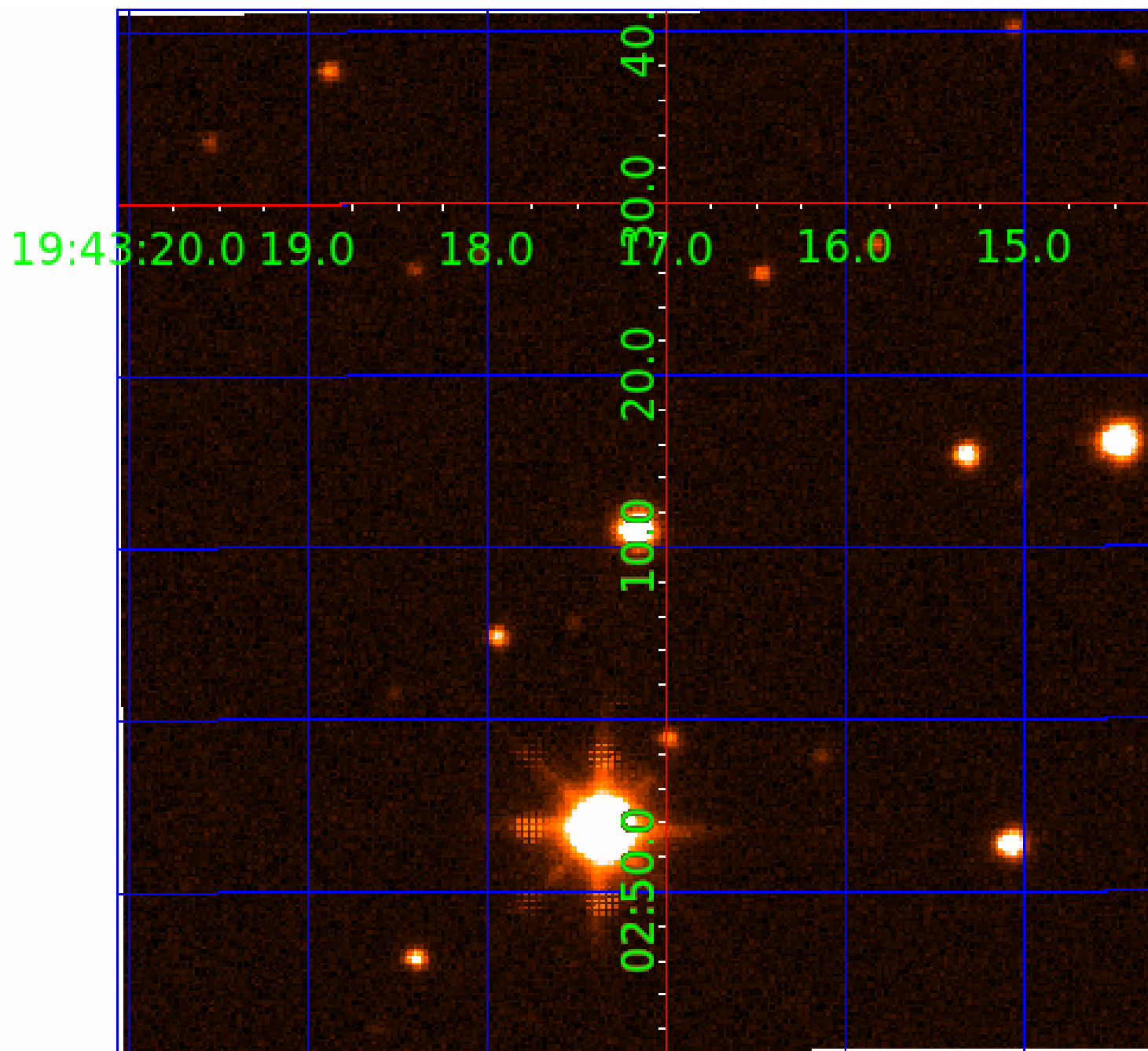


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009475552

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})
009475552-01	OBS	2694.01	0.843376	131.969388	251.5	1.585	42.9	41.6	0.86	4818	1.68	1334.49
009475552-02	OBS	2694.02	6.566059	134.497256	423.7	1.863	19.8	23.3	0.86	4818	2.14	86.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009475552-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009475552-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

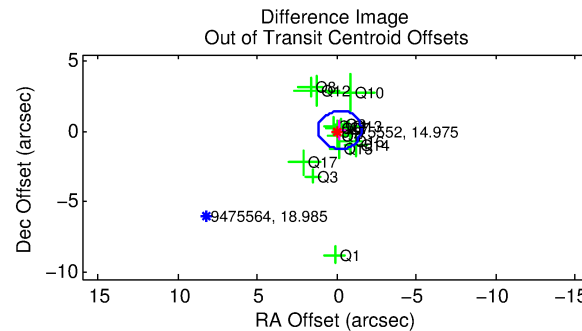
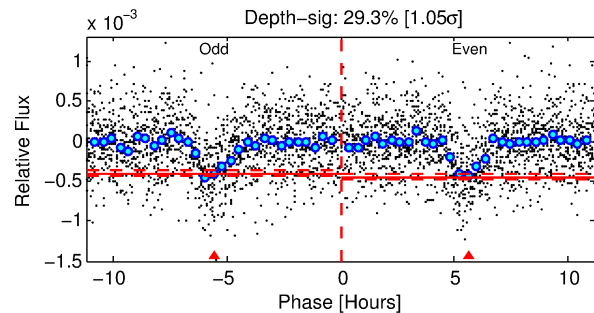
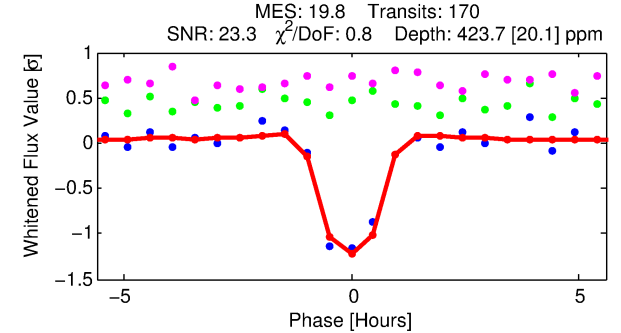
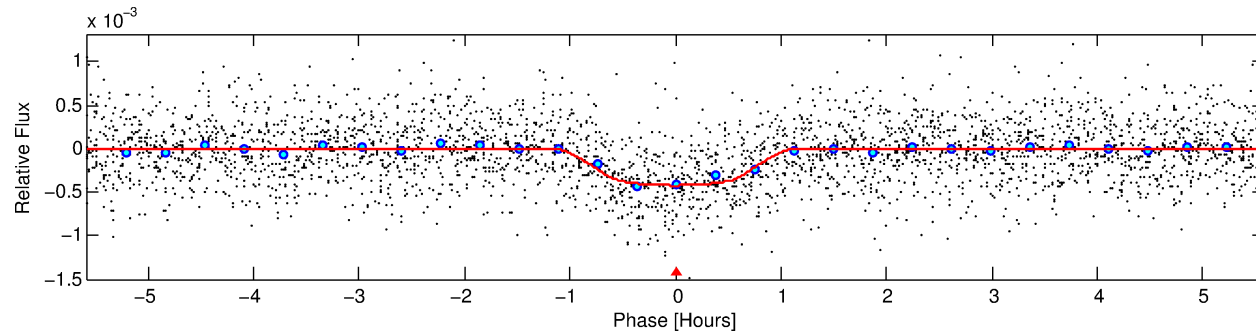
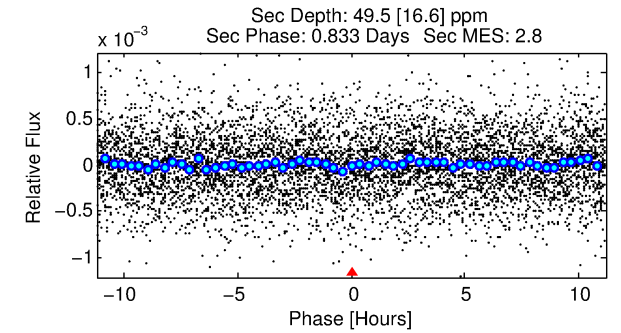
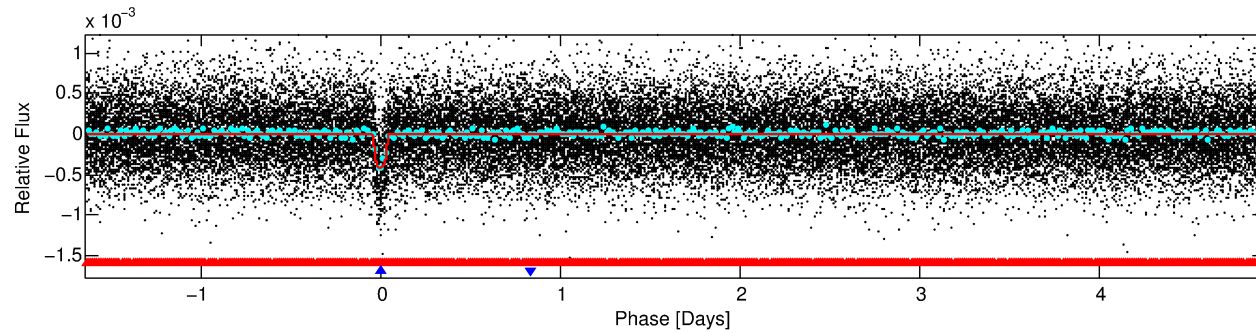
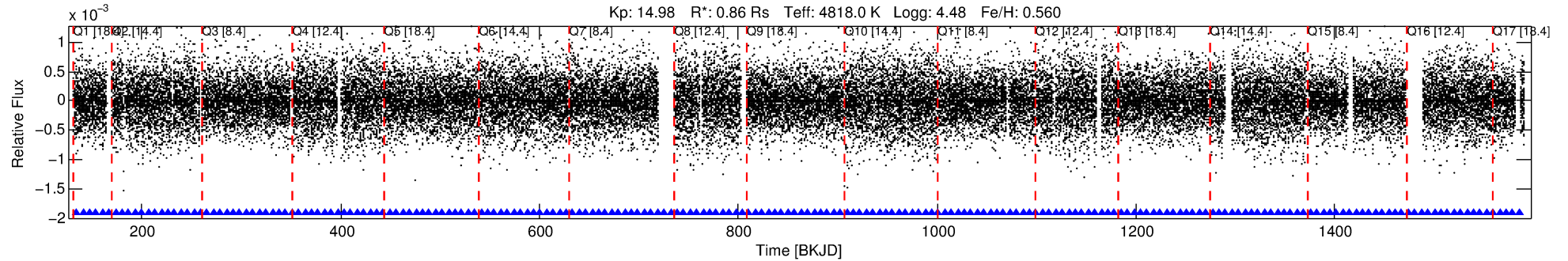
Ephemeris Match Information For 009475552-02

No Significant Match Found

DV One-Page Summary

KIC: 9475552 Candidate: 2 of 2 Period: 6.566 d

KOI: K02694.02 Corr: 0.964



DV Fit Results:

Period = 6.56606 [0.00002] d
Epoch = 134.4973 [0.0018] BKJD
Rp/R* = 0.0229 [0.0090]
a/R* = 13.75 [19.38]
b = 0.89 [0.35]
Seff = 86.48 [78.57]
Teff = 778 [177] K
Rp = 2.14 [0.87] Re
a = 0.0640 [0.0291] AU
Ag = 24.25 [30.12] [0.77σ]
Teffp = 2668 [576] K [3.14σ]

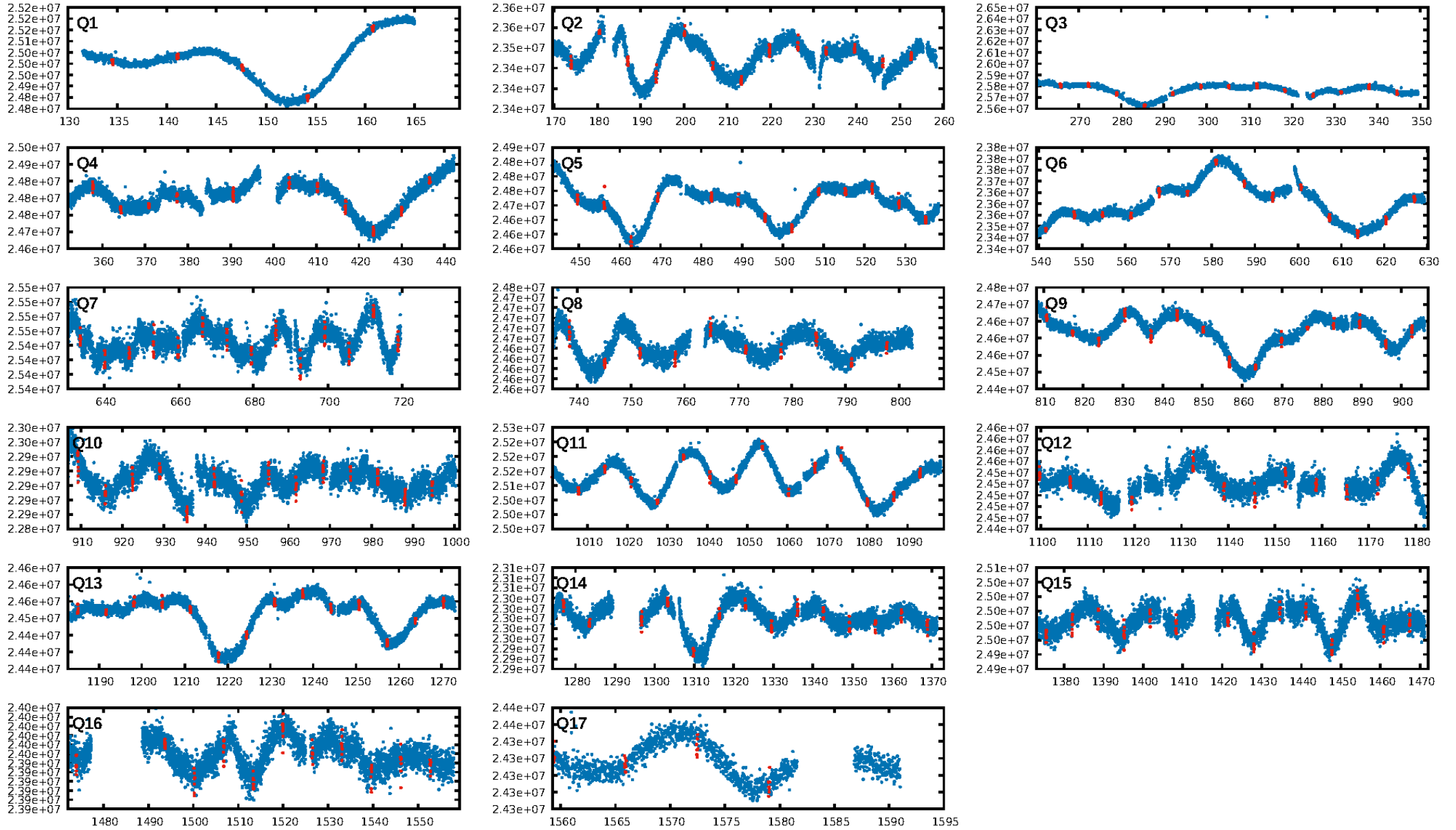
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [56.16σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 98.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.65e-82
RollingBand-fgt: 1.00 [163/163]
GhostDiagnostic-chr: 12.84
Centroid-sig: 4.1%
Centroid-so: 1.194 arcsec [2.37σ]
OotOffset-rm: 0.237 arcsec [0.53σ]
KicOffset-rm: 0.271 arcsec [0.71σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.60 [9/15]
DiffImageOverlap-fno: 0.94 [16/17]

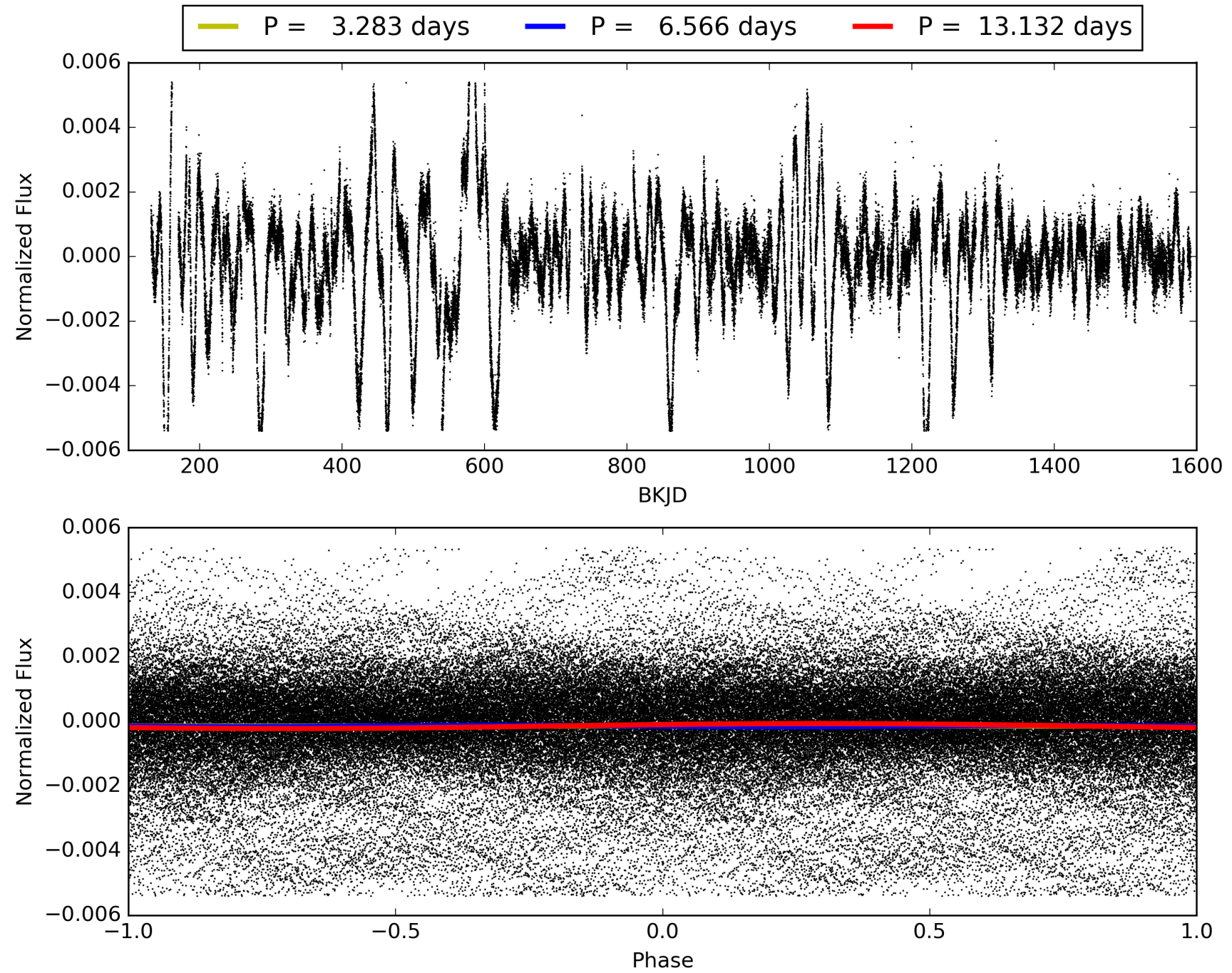
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:00:49 Z

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

TCE 009475552-02, PDC Light Curves

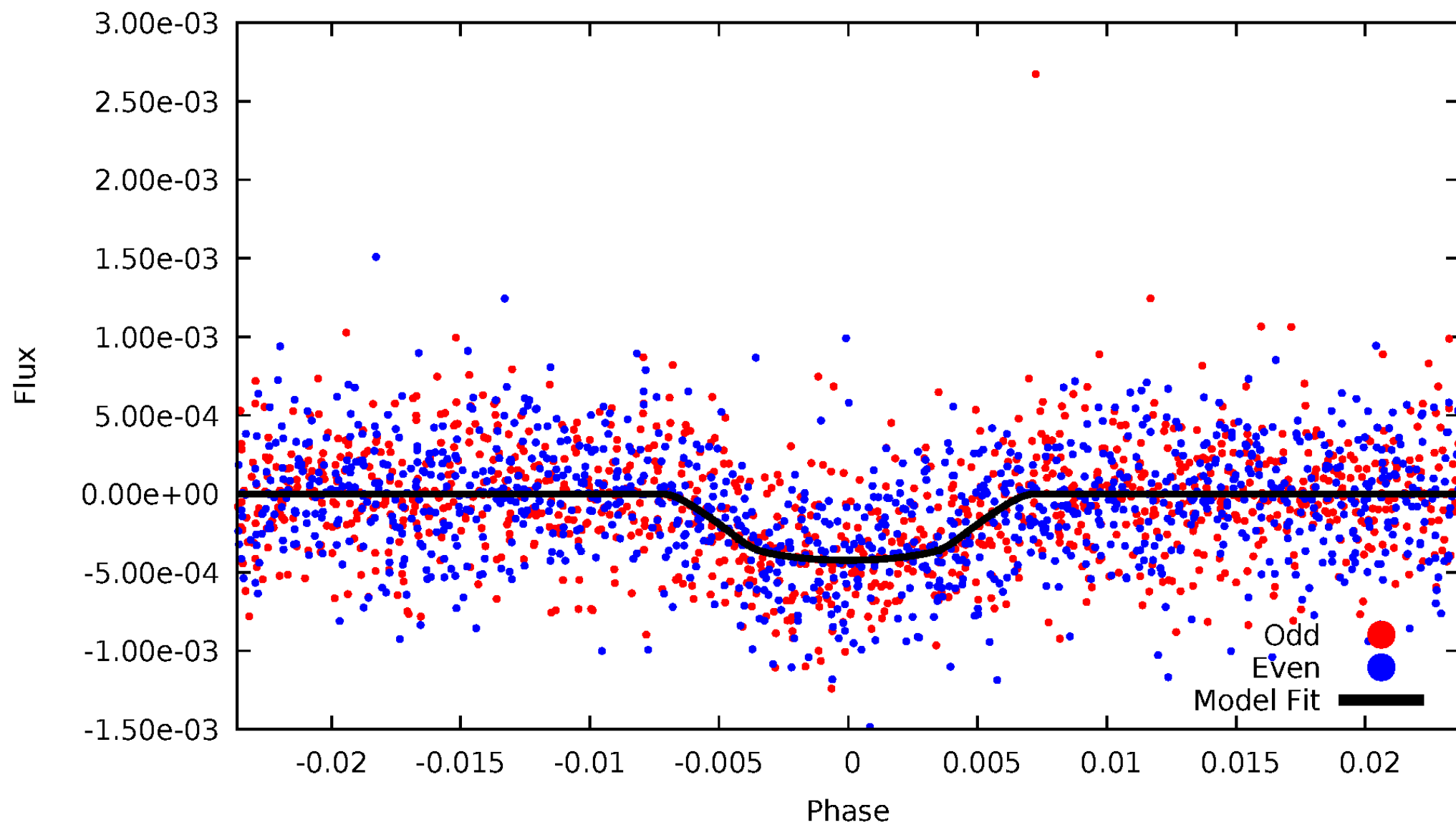


TCE 009475552-02



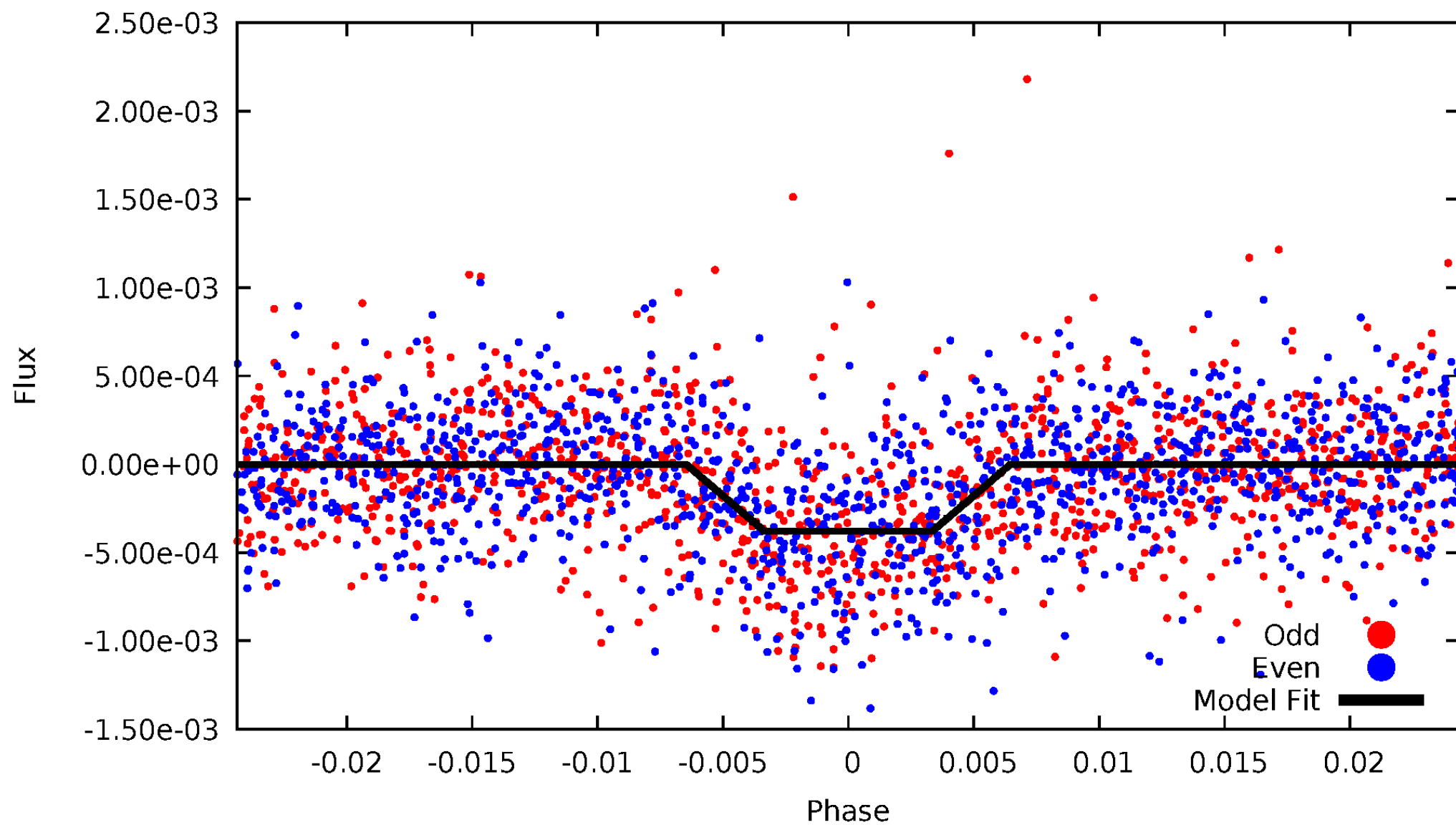
DV Odd/Even

TCE 009475552-02



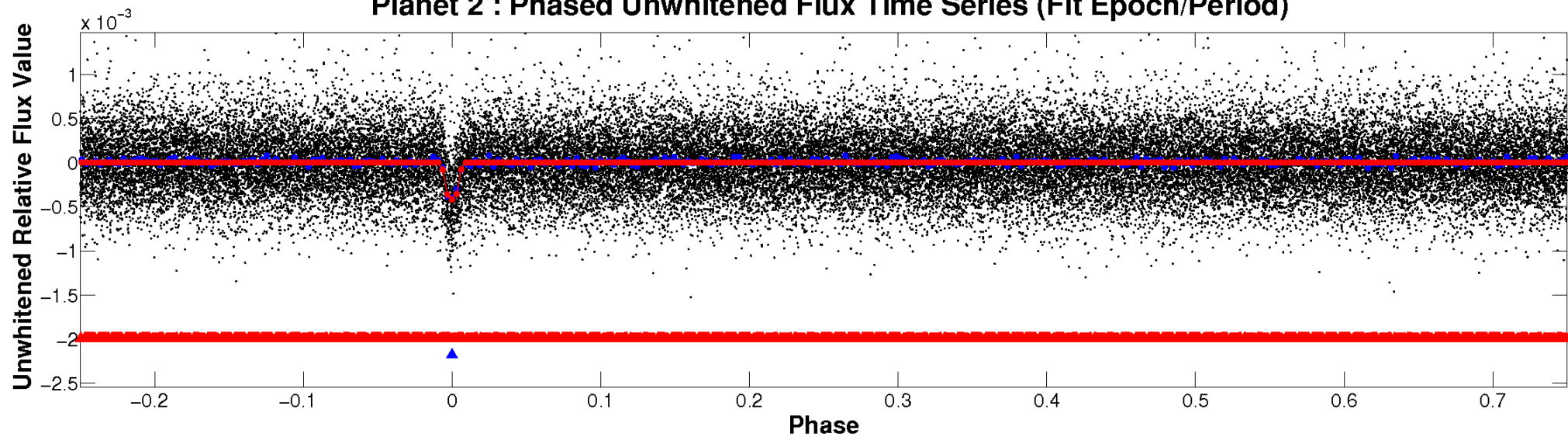
ALT Odd/Even

TCE 009475552-02

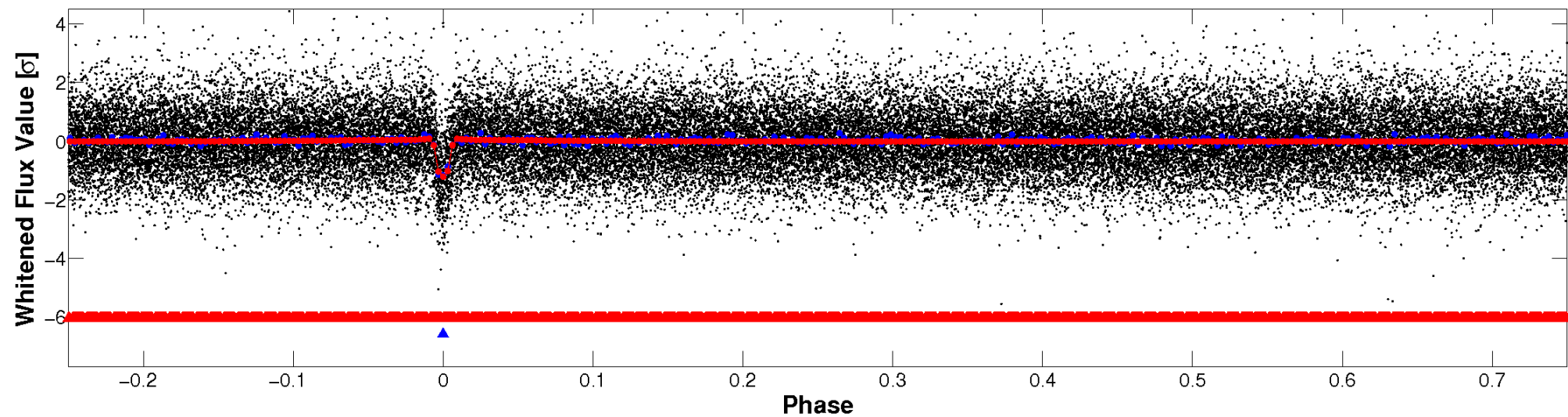


Non-Whitened Vs. Whitened Light Curve

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

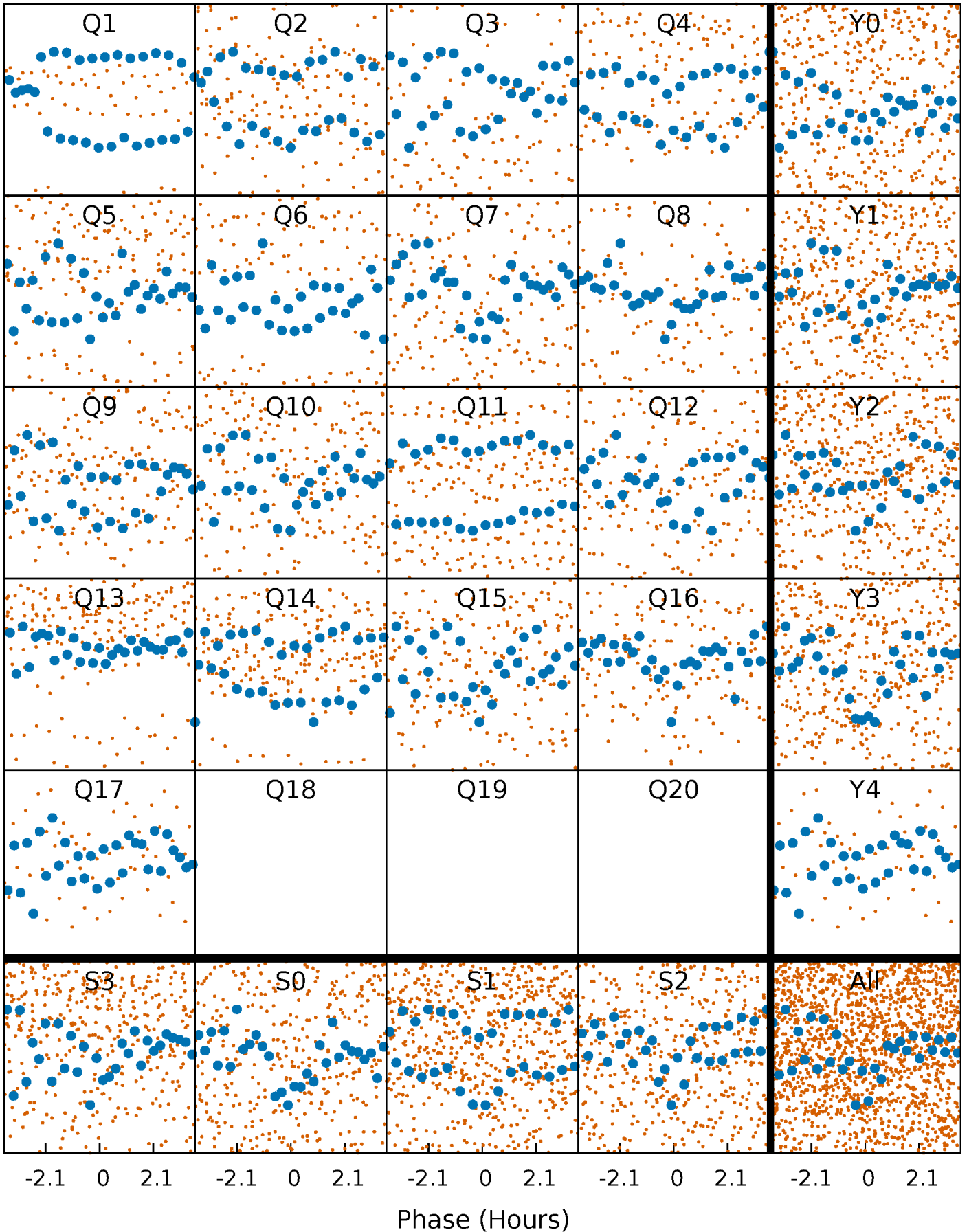


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



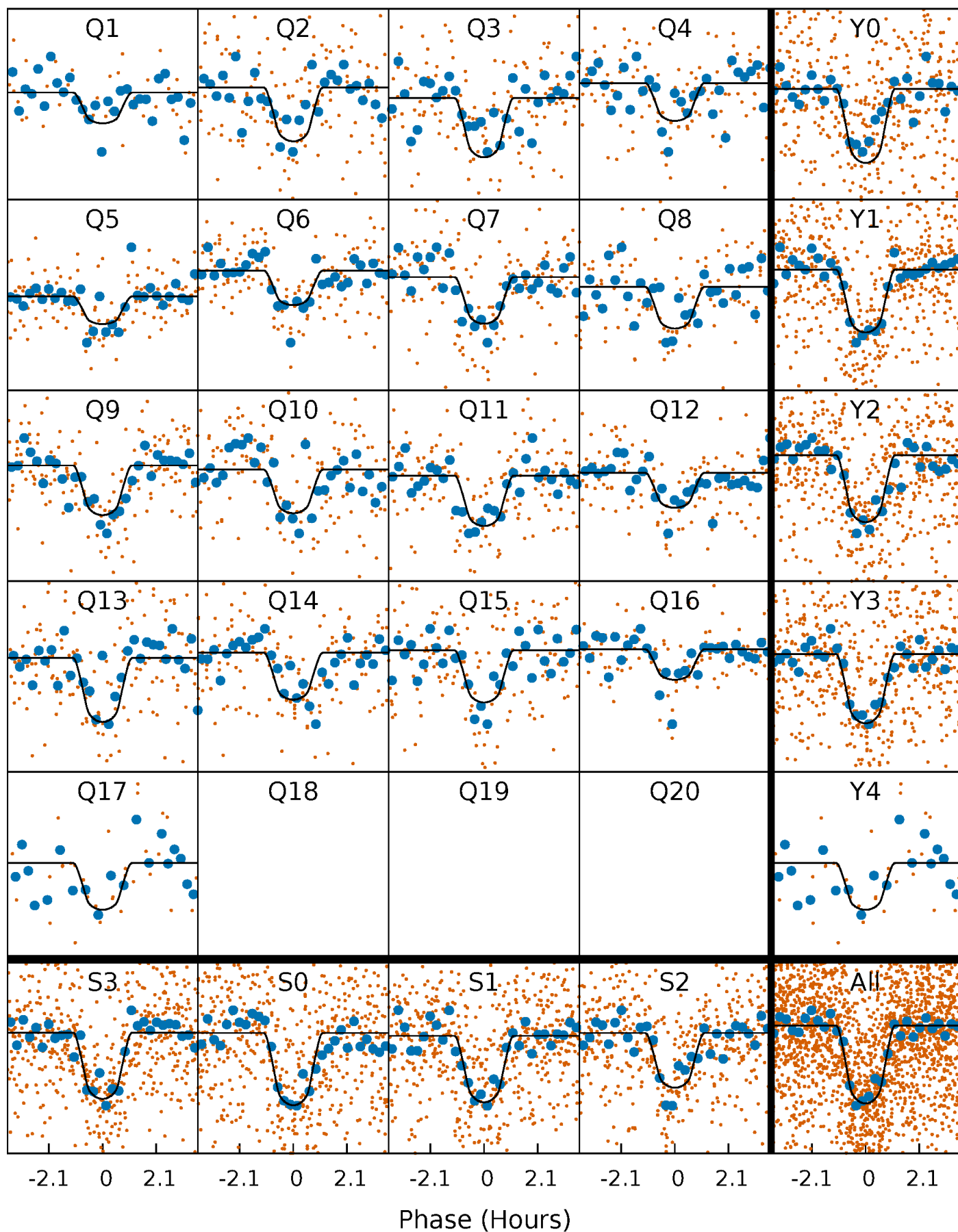
PDC Quarter-Phased Transit Curves

TCE 009475552-02 P= 6.566059 Days $T_0=134.497256$ (BKJD)



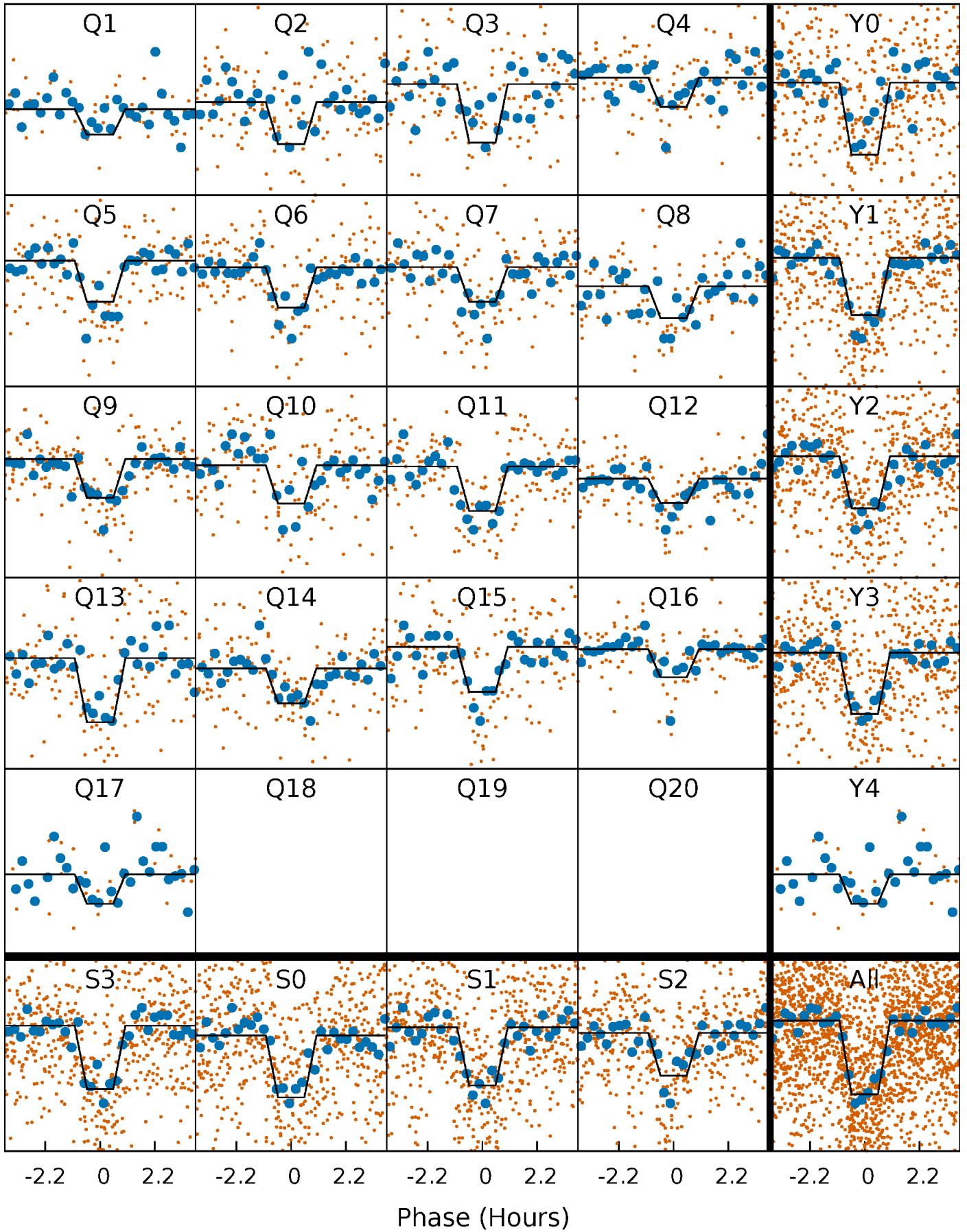
DV Quarter-Phased Transit Curves

TCE 009475552-02 P= 6.566059 Days $T_0=134.497256$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

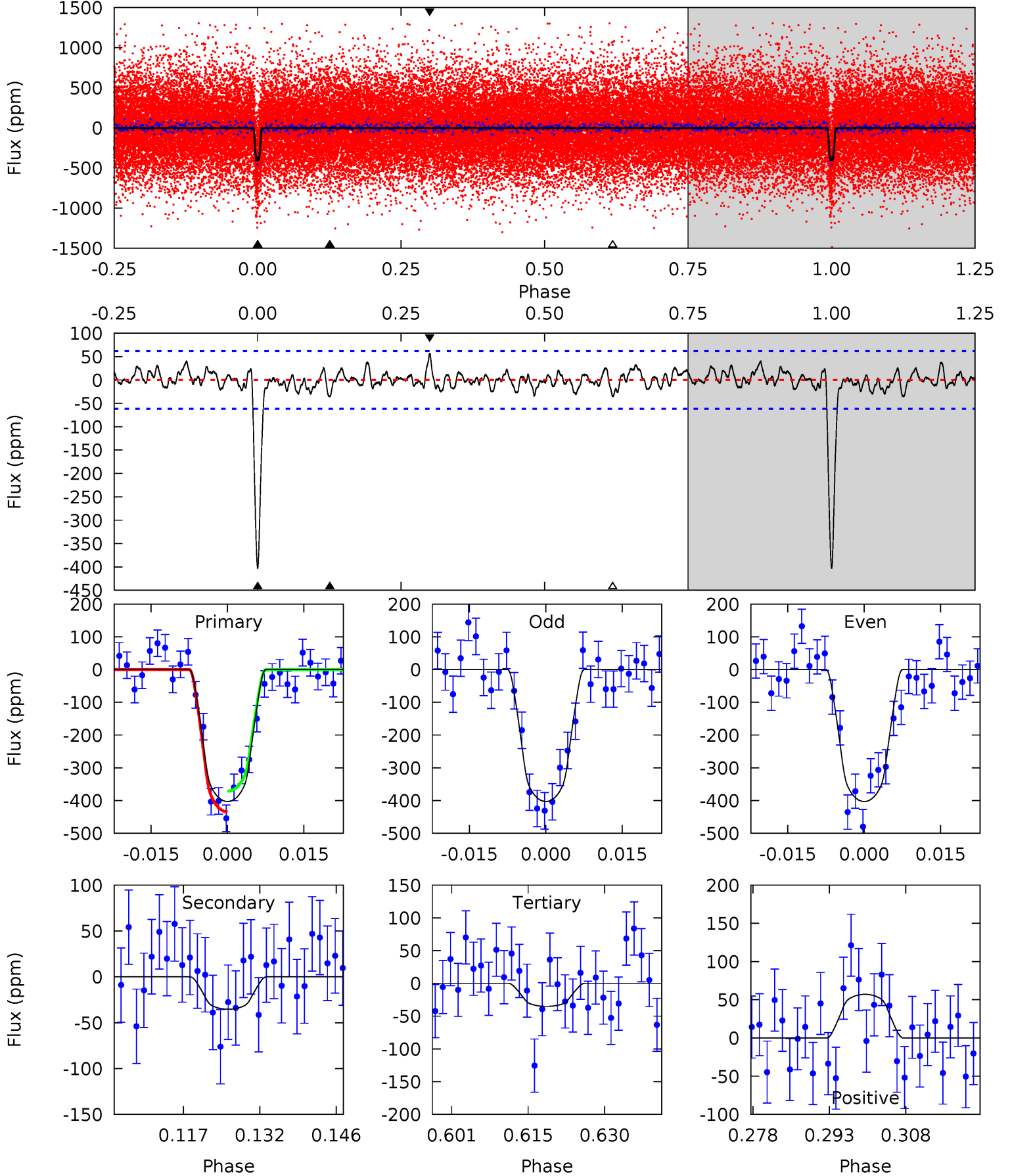
TCE 009475552-02 P= 6.566057 Days $T_0=134.497184$ (BKJD)



DV Model-Shift Uniqueness Test

009475552-02, P = 6.566059 Days, E = 127.931197 Days

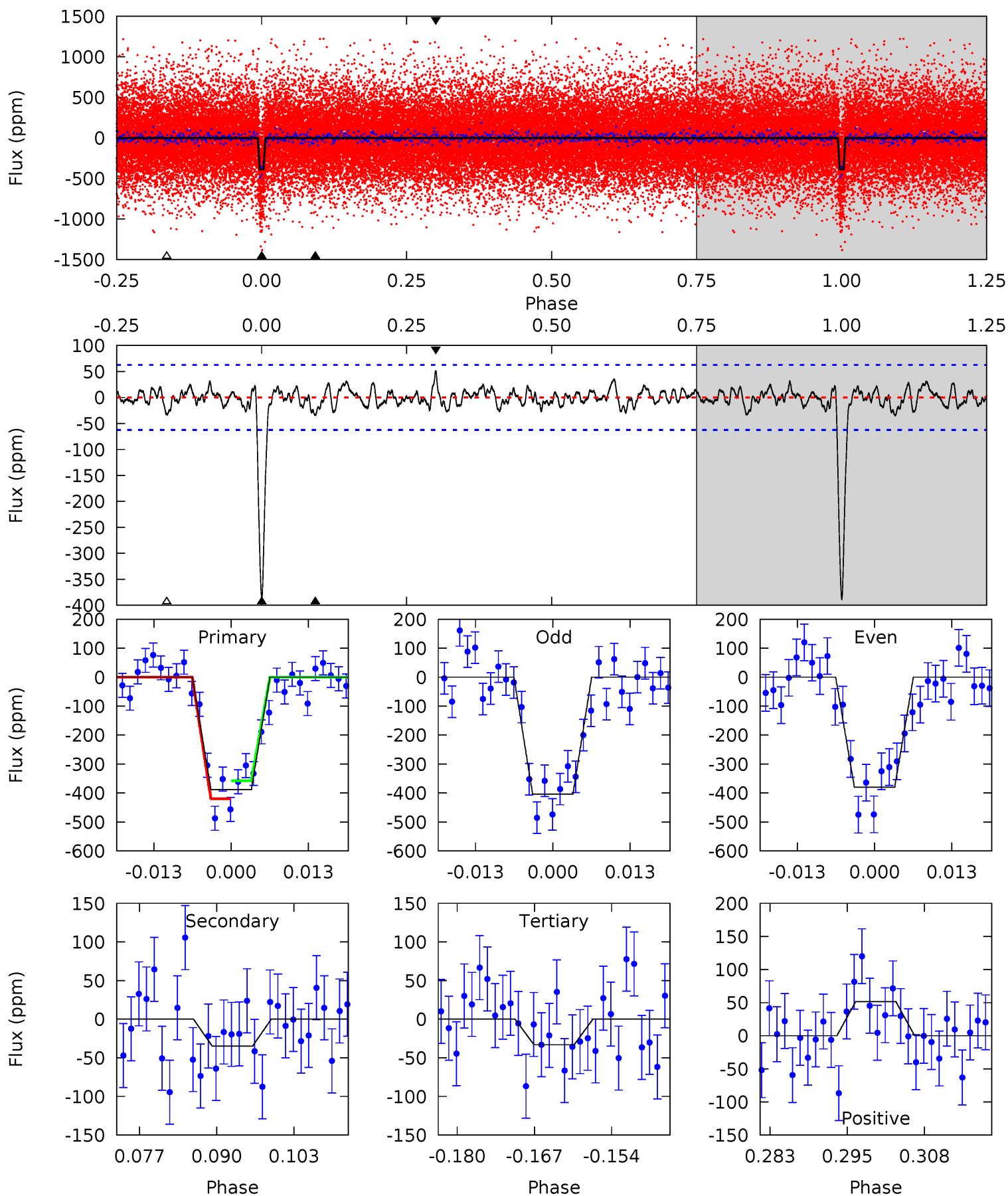
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.4	2.83	2.82	4.59	4.95	2.44	1.15	29.6	27.8	0.01	-1.75	0.00	0.96	0.12	2.55



Alt Model-Shift Uniqueness Test

009475552-02, P = 6.566057 Days, E = 127.931127 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.8	2.77	2.62	4.08	4.98	2.49	1.04	28.2	26.7	0.15	-1.31	0.96	0.96	0.12	2.49



Stellar Parameters For KIC 009475552

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4818^{+143}_{-129}	$4.481^{+0.078}_{-0.585}$	$0.560^{+0.050}_{-0.300}$	$0.856^{+0.089}_{-0.089}$	$0.809^{+0.047}_{-0.042}$	$1.818^{+0.874}_{-1.578}$
	+3%/-3%	+2%/-13%	+9%/-54%	+10%/-10%	+6%/-5%	+48%/-87%
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 009475552-02 / KOI 2694.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-35 ± 12	$2.23^{+0.94}_{-0.90}$	1108^{+49}_{-48}	3023^{+553}_{-348}	15^{+30}_{-9}
Alt.	-35 ± 13	$1.90^{+0.92}_{-0.84}$	1105^{+52}_{-48}	3152^{+731}_{-366}	20^{+56}_{-11}

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 $A_{obs} \gg 1.0$

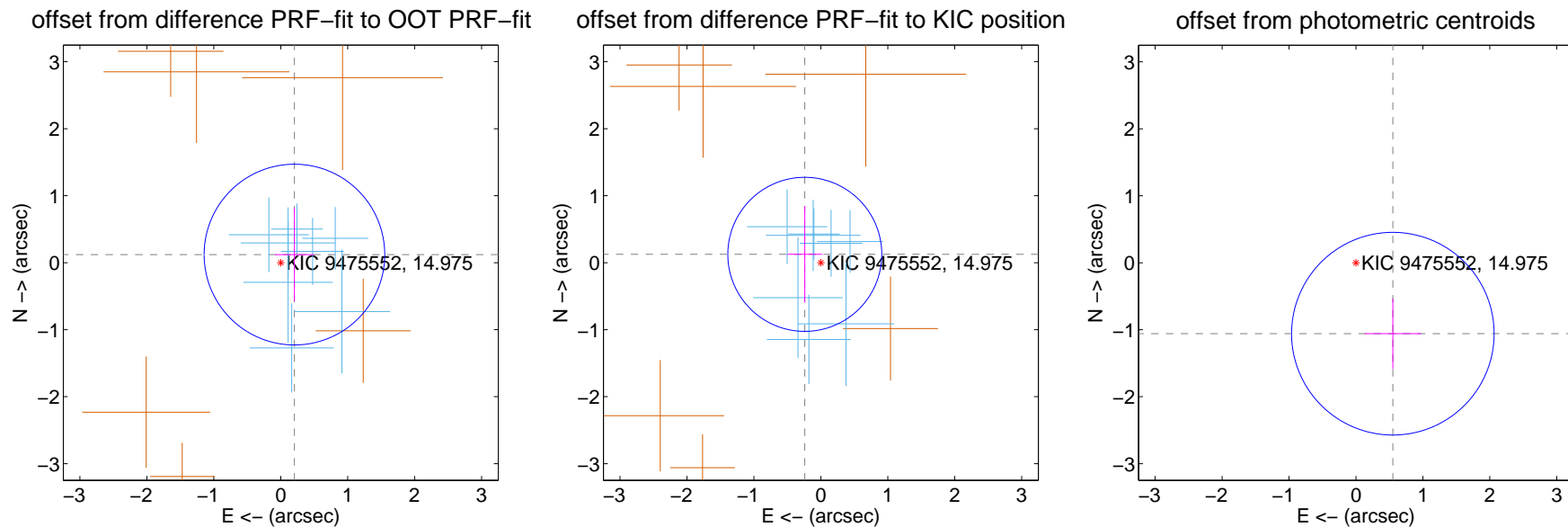
DV Centroid Data

Supplemental centroid analysis for 009475552-02. Kepler magnitude: 14.97. Transit SNR 23.28

There are 9 quarters with good PRF difference image offsets

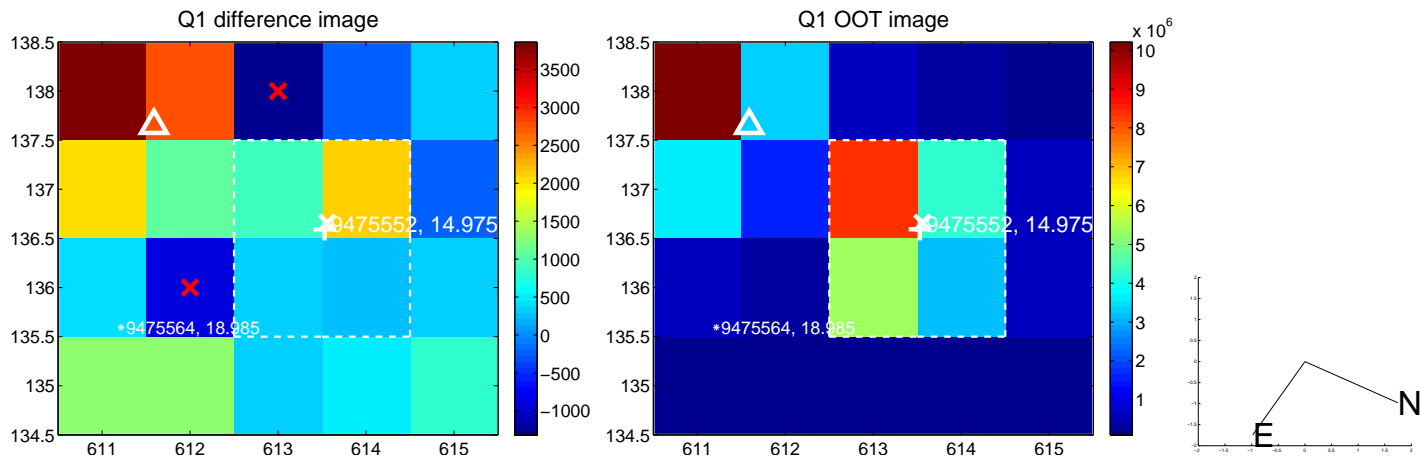
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.237 ± 0.450	0.53	-0.204 ± 0.290	0.121 ± 0.699
PRF-fit source offset from KIC position	0.271 ± 0.383	0.71	0.240 ± 0.261	0.125 ± 0.719
photometric centroid source offset	1.19 ± 0.50	2.37	-0.55 ± 0.42	-1.06 ± 0.52

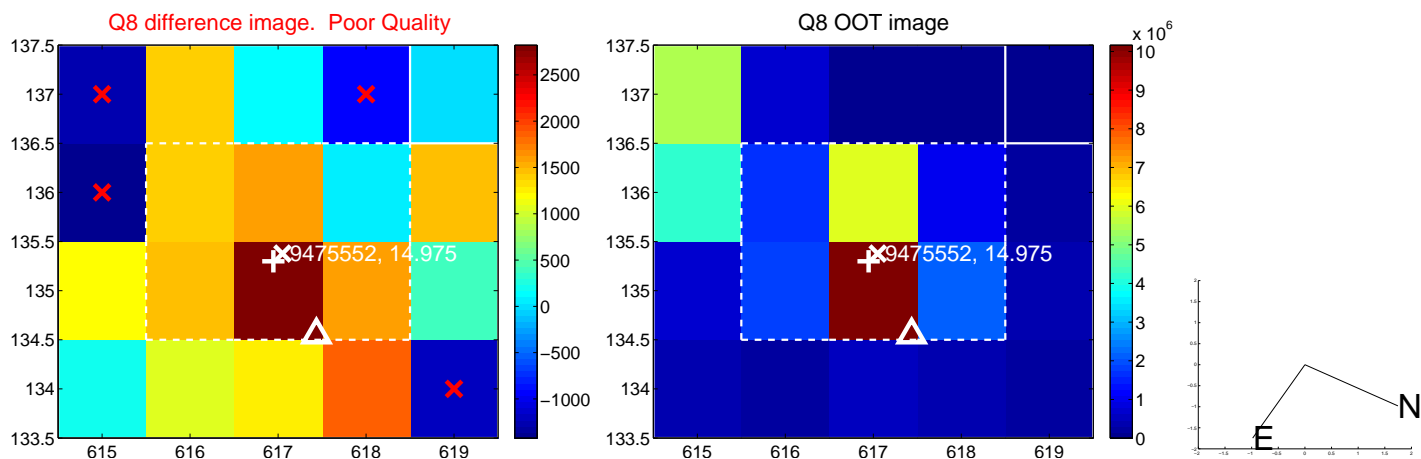
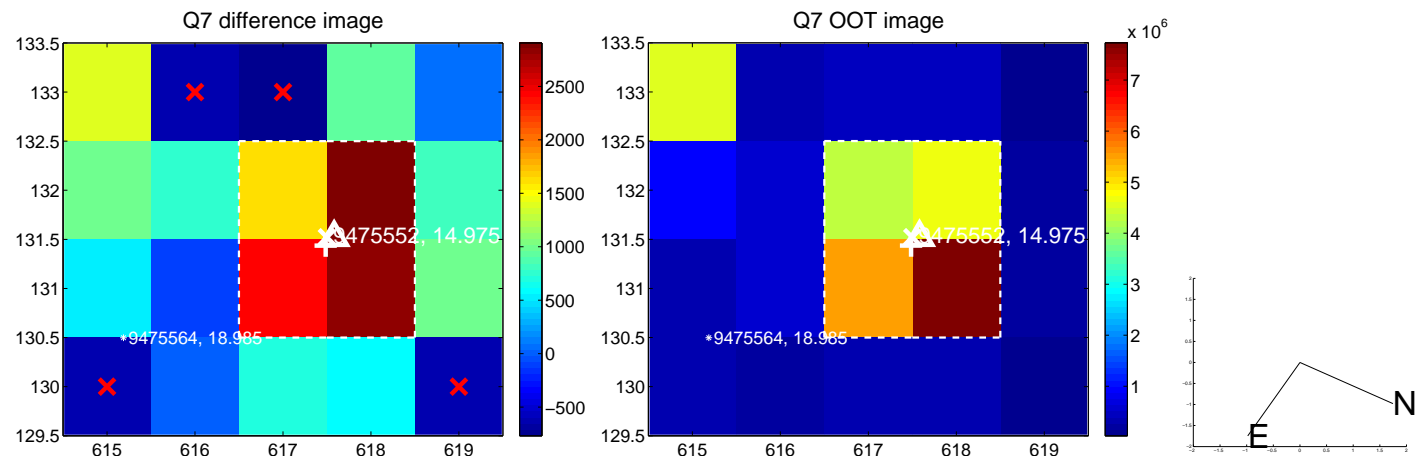
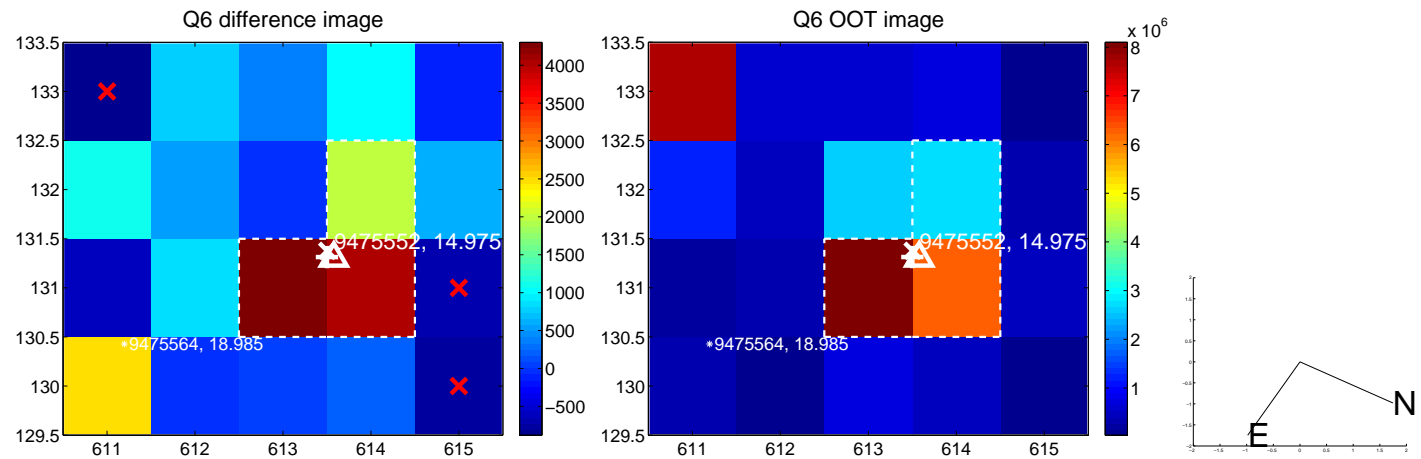
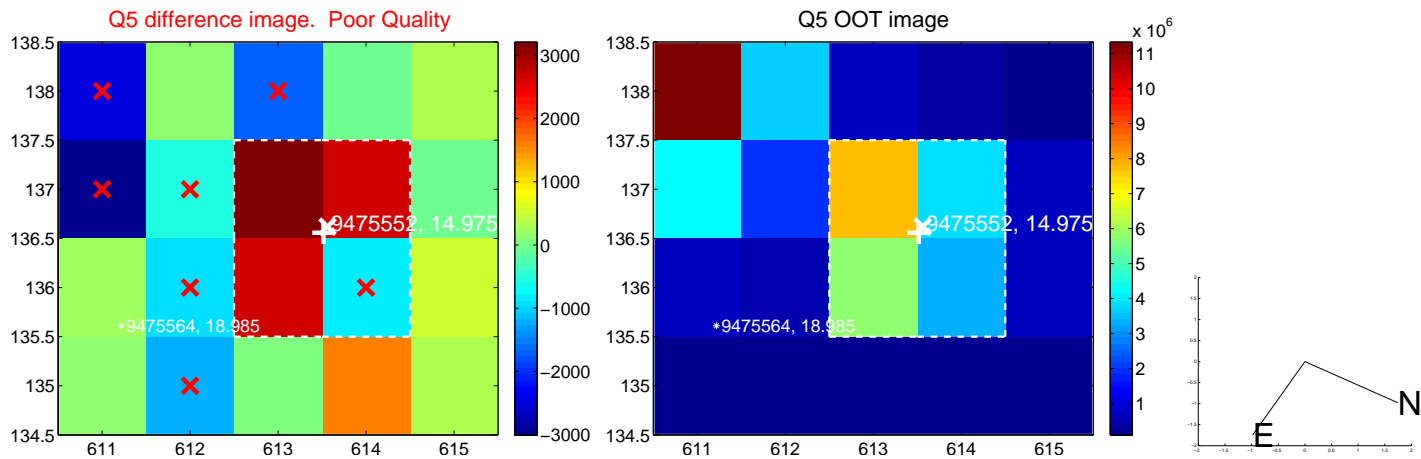


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

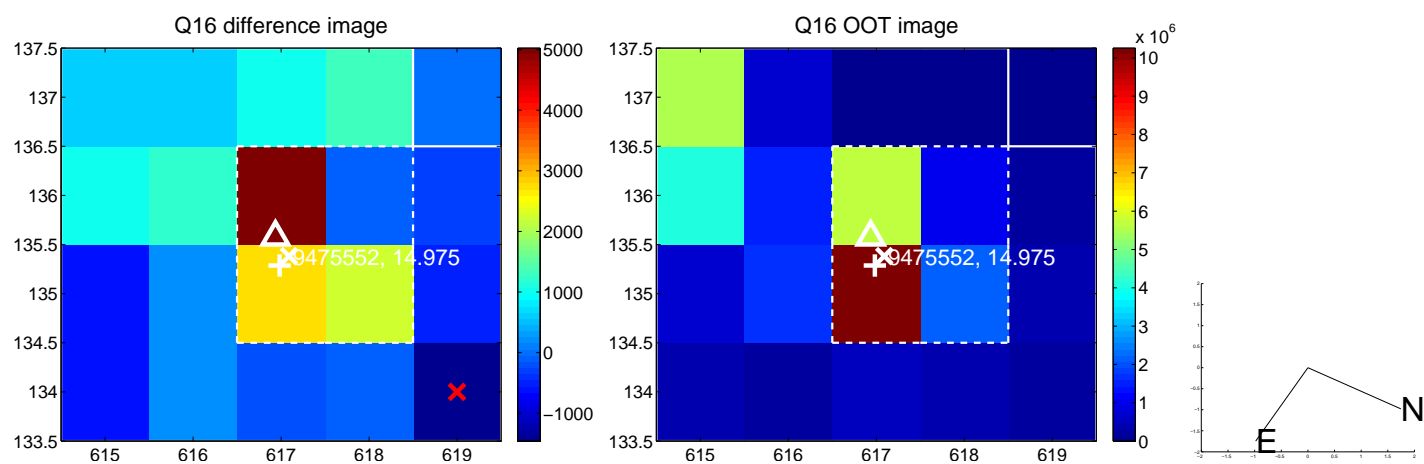
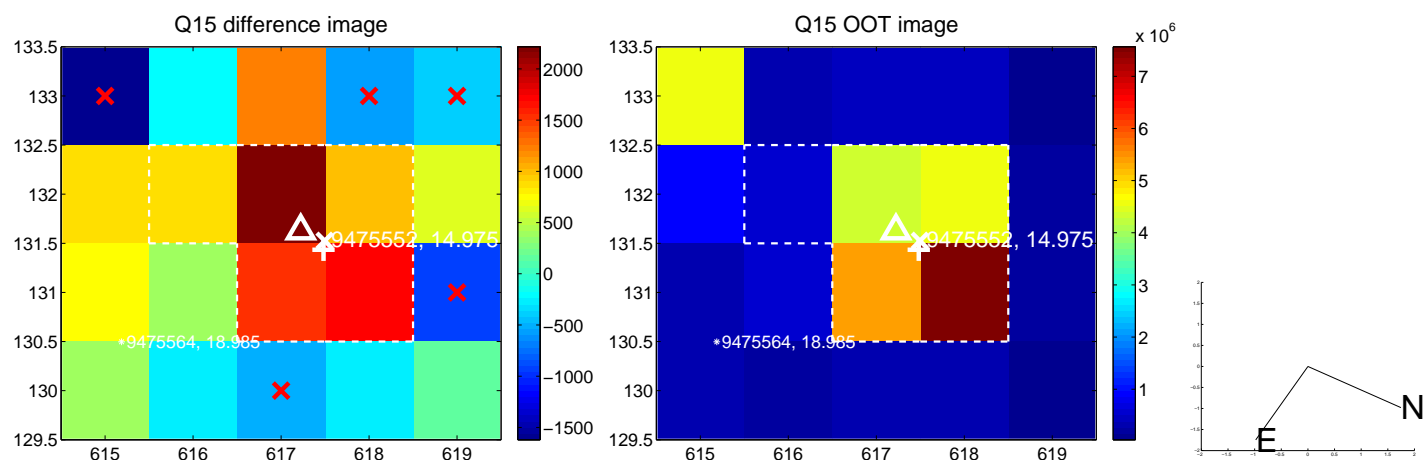
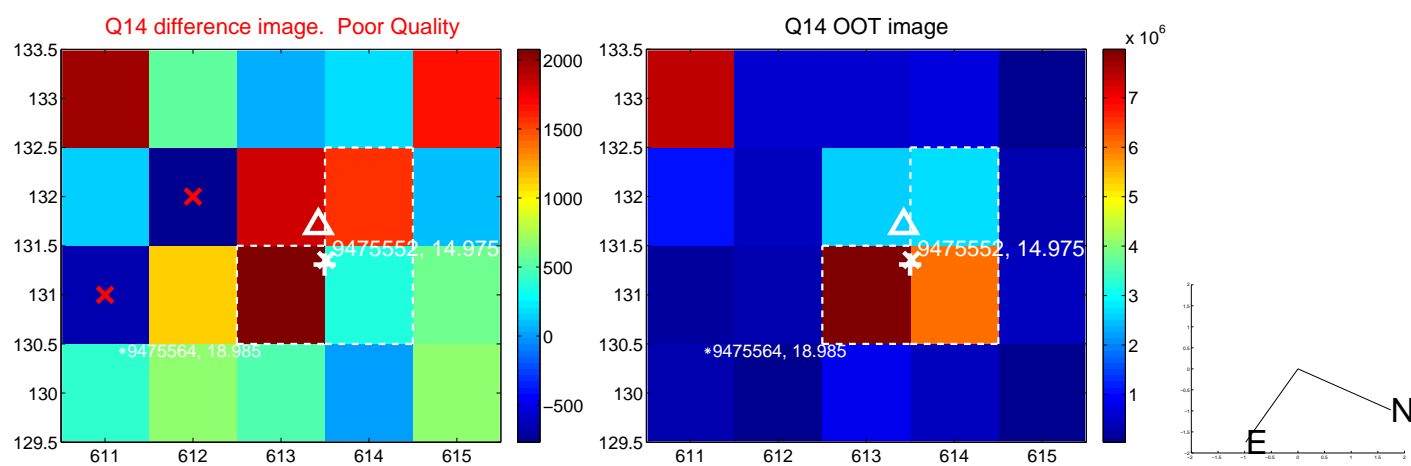
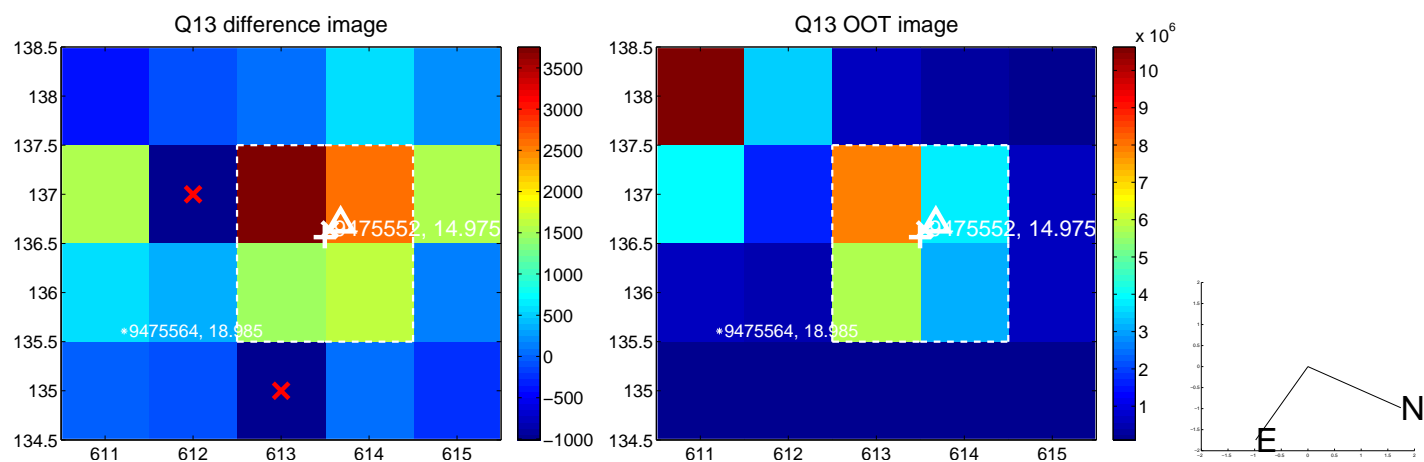
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

