

KIC 009773512

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})
009773512-01	OBS	No	0.700698	131.762252	26.3	2.718	11.6	13.0	3.28	8169	1.96	114938.14
009773512-02	OBS	No	440.969982	266.325816	396.2	0.519	14.1	1.9	3.28	8169	7.10	21.31
009773512-03	OBS	No	432.775710	266.055208	401.5	5.954	10.2	7.7	3.28	8169	7.13	21.85
009773512-04	OBS	No	566.241438	388.468833	438.7	3.612	10.1	7.3	3.28	8169	8.12	15.27
009773512-05	OBS	No	0.757751	131.639486	26.7	1.979	8.7	8.8	3.28	8169	1.98	103546.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009773512-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009773512-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_SATURATED
009773512-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

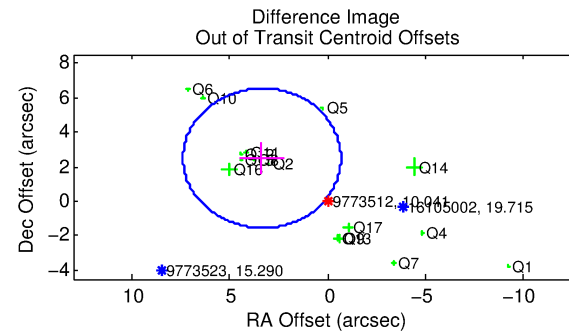
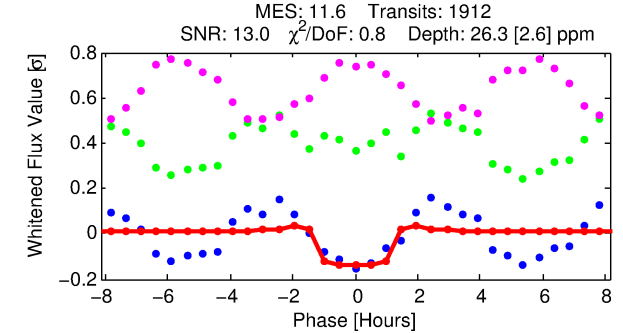
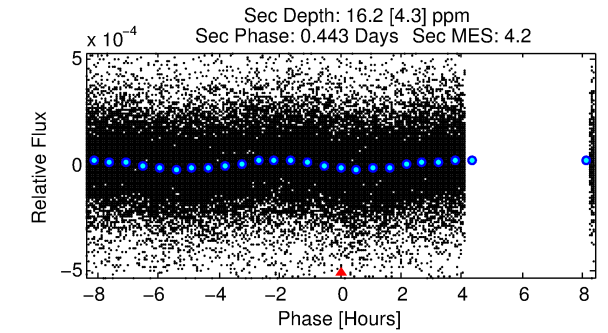
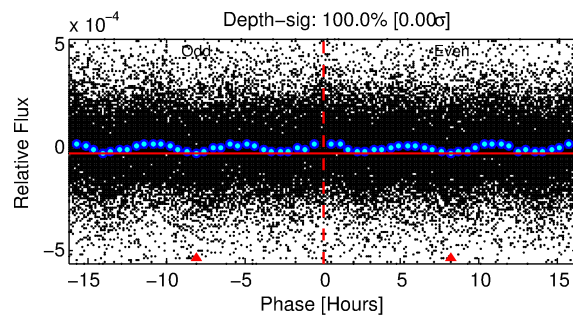
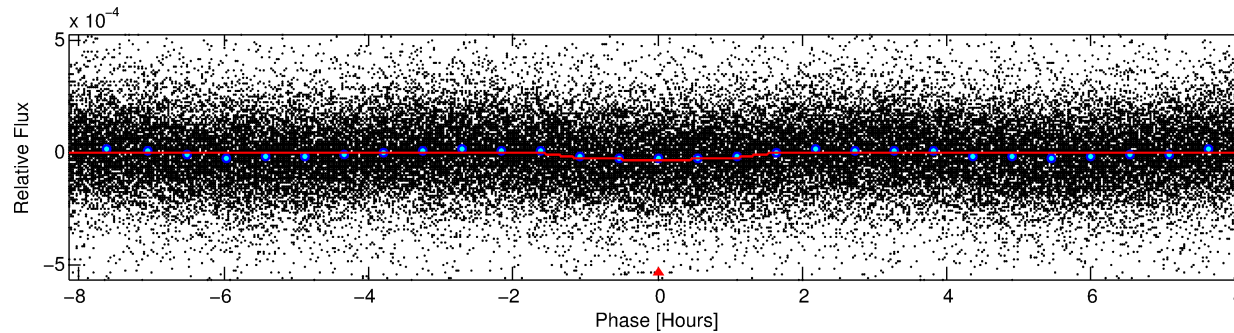
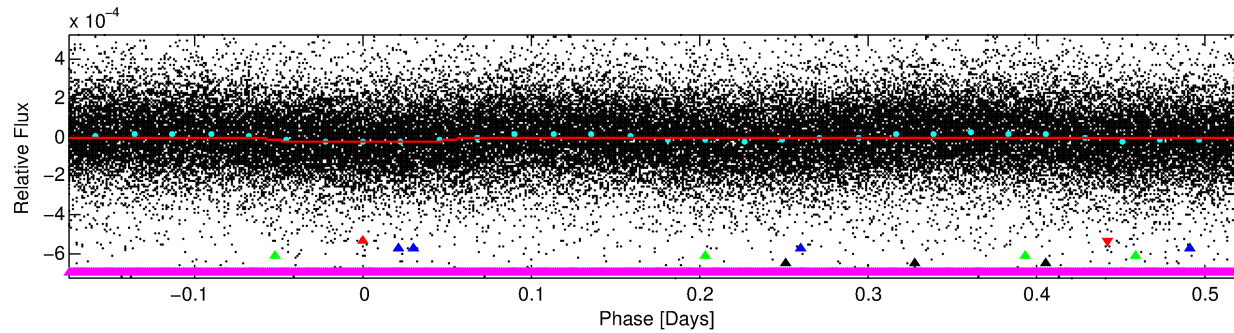
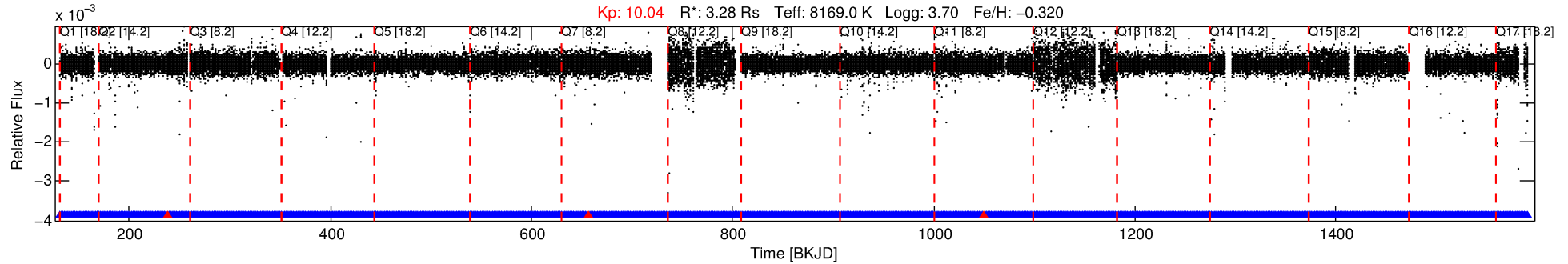
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009773512-01

No Significant Match Found

DV One-Page Summary

KIC: 9773512 Candidate: 1 of 5 Period: 0.701 d



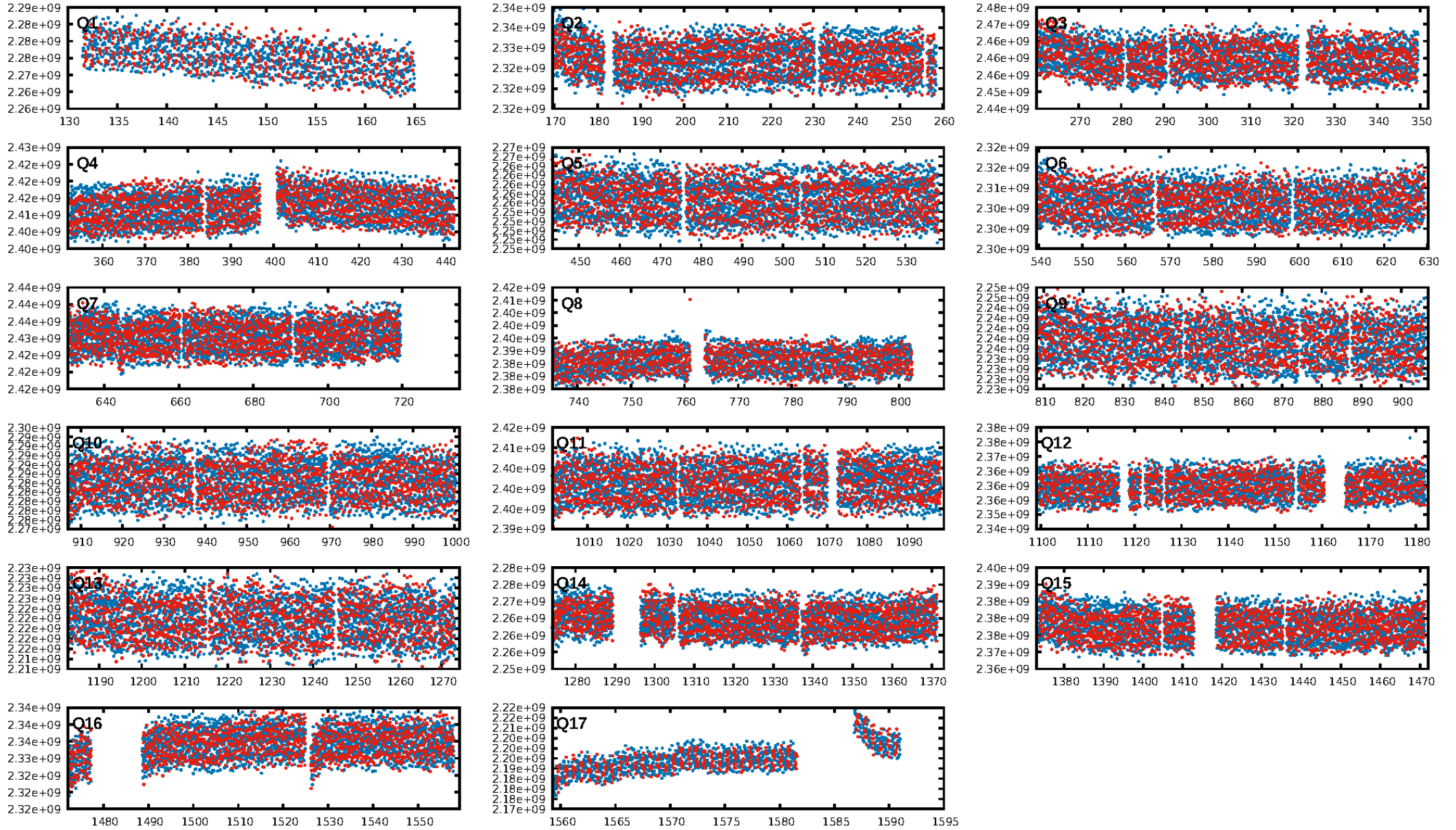
DV Fit Results:

Period = 0.70070 [0.00001] d
Epoch = 131.7623 [0.0017] BKJD
 R_p/R^* = 0.0055 [0.0010]
 a/R^* = 1.29 [0.57]
 b = 0.90 [0.24]
 Seff = 114938.14 [92536.18]
 Teq = 4695 [945] K
 R_p = 1.96 [1.06] R_e
 a = 0.0193 [0.0095] AU
 Ag = 0.87 [0.78] [-0.17 σ]
 Teffp = 7002 [836] K [1.83 σ]

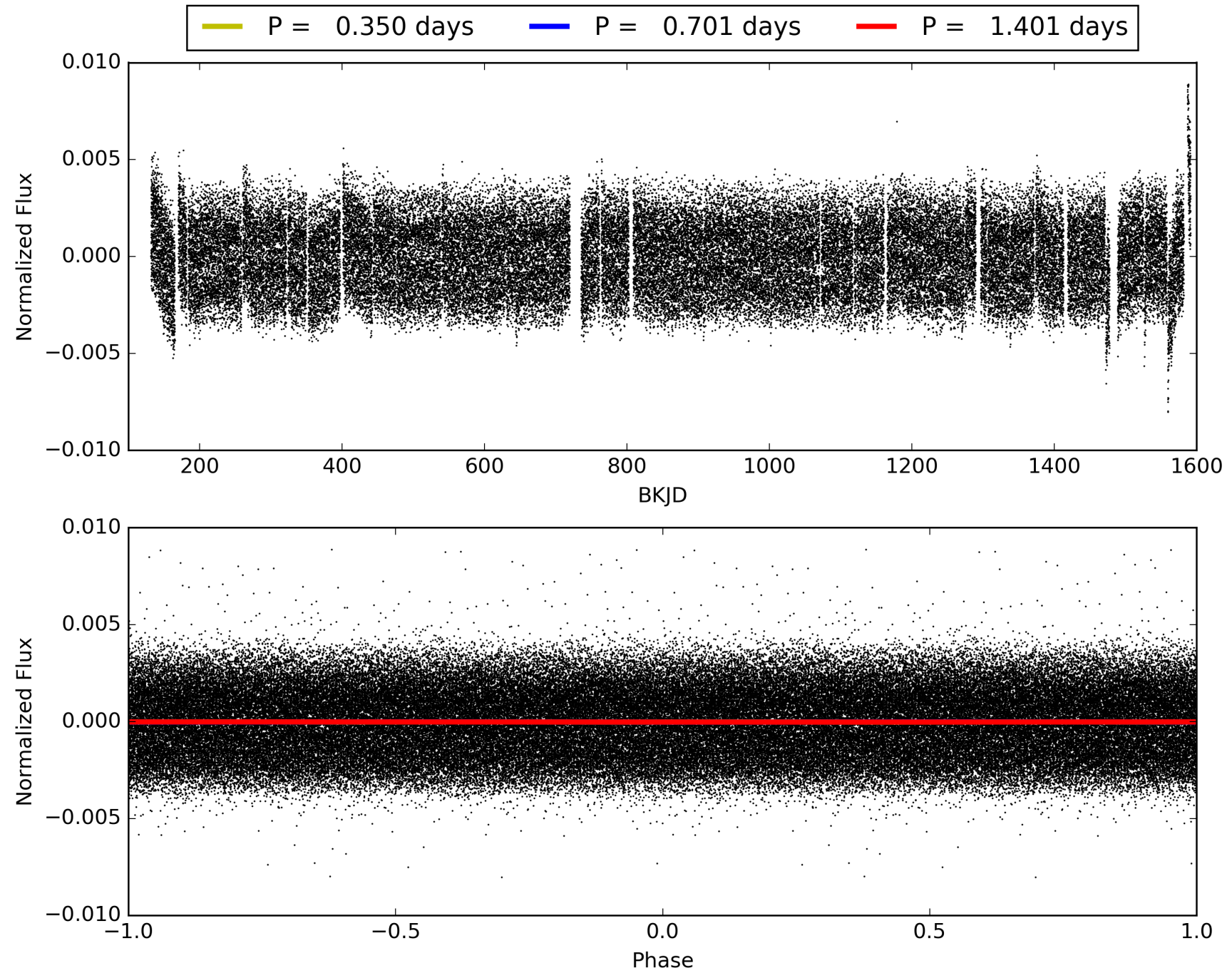
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 31.6% [0.41 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.40e-21
RollingBand-fgt: 1.00 [1823/1826]
GhostDiagnostic-chr: N/A
Centroid-sig: 45.7%
Centroid-so: 1.166 arcsec [2.89 σ]
OotOffset-rm: 4.171 arcsec [3.10 σ]
KicOffset-rm: 4.197 arcsec [2.82 σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.06 [1/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009773512-01, PDC Light Curves

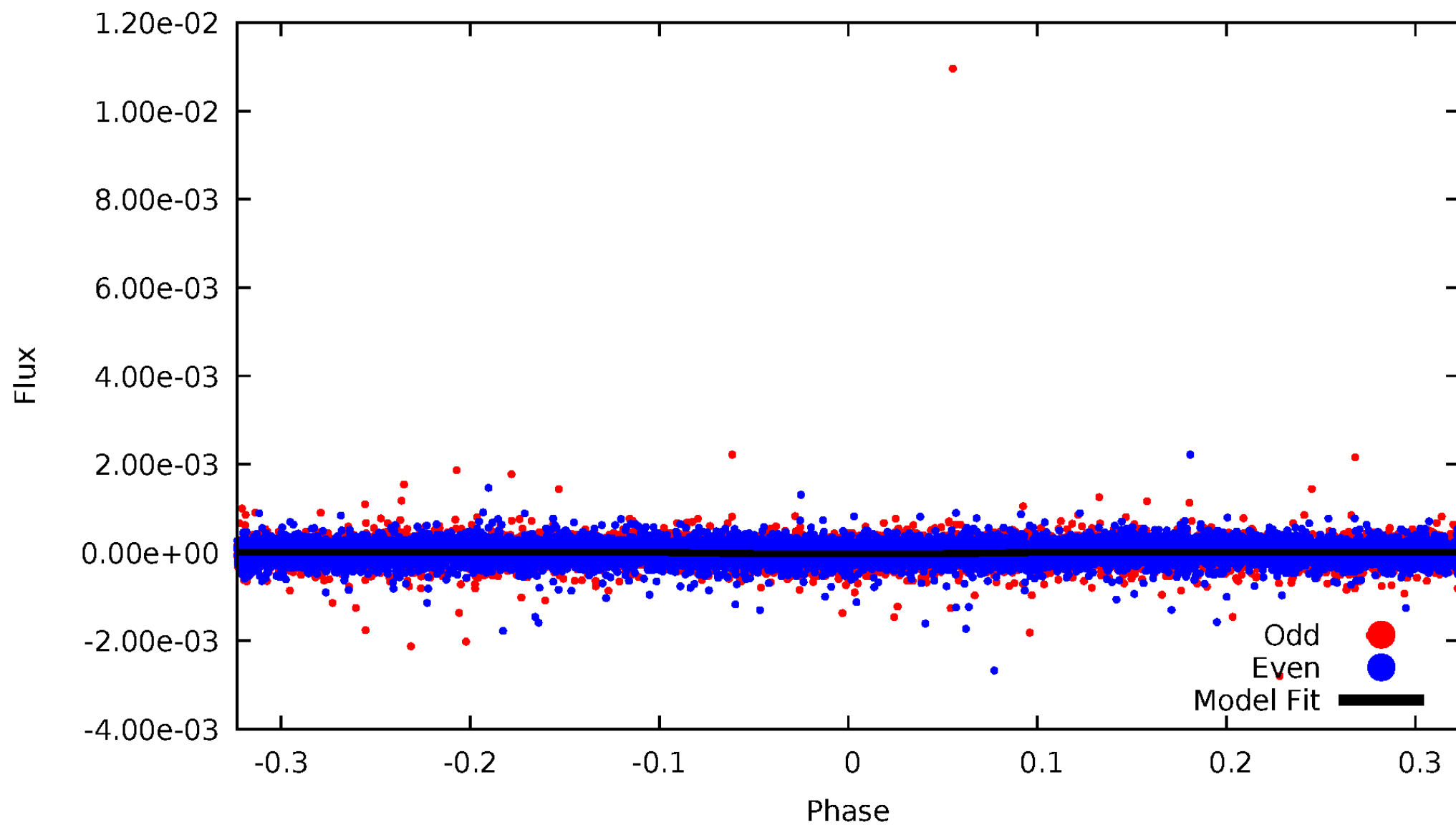


TCE 009773512-01



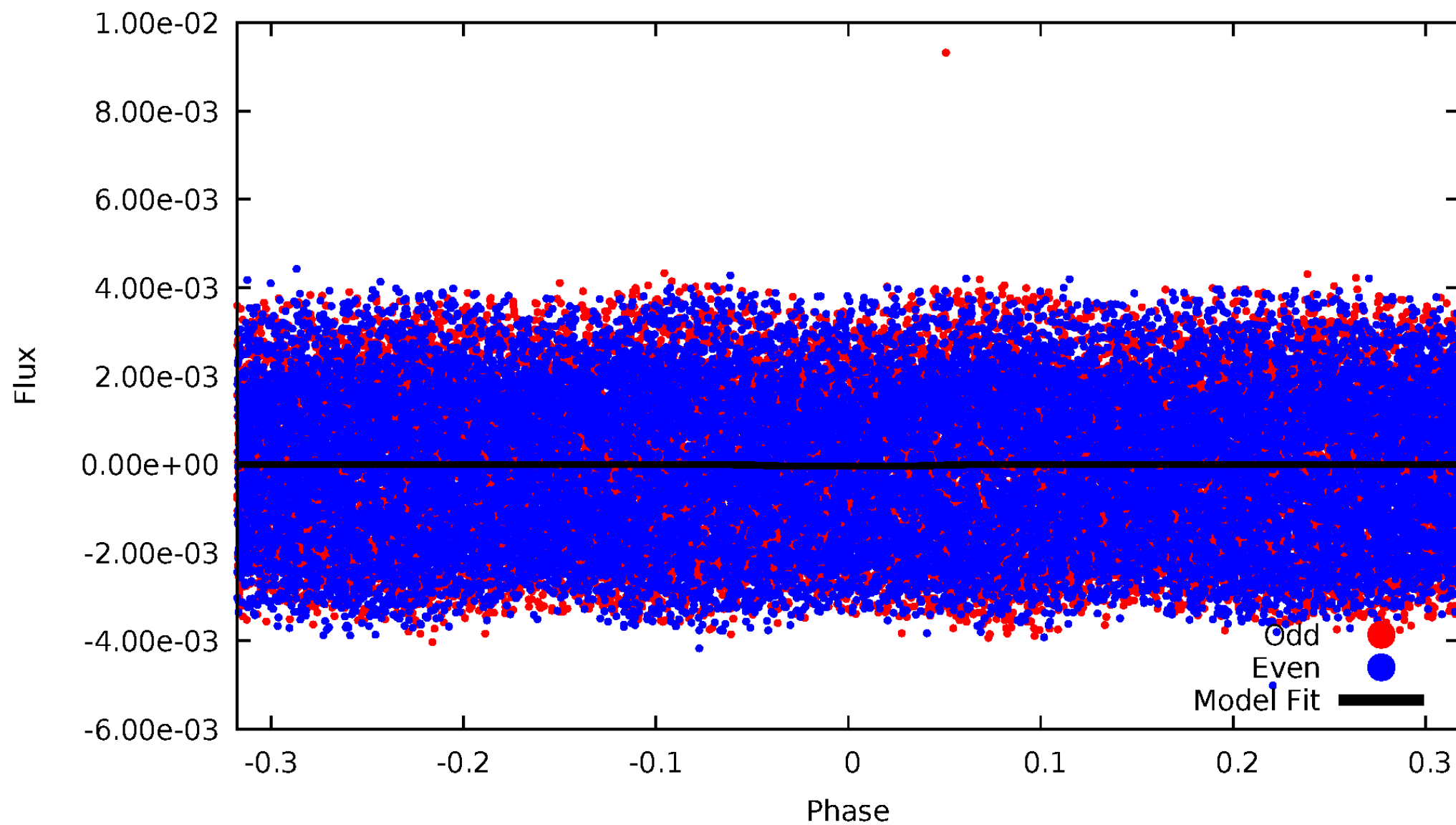
DV Odd/Even

TCE 009773512-01

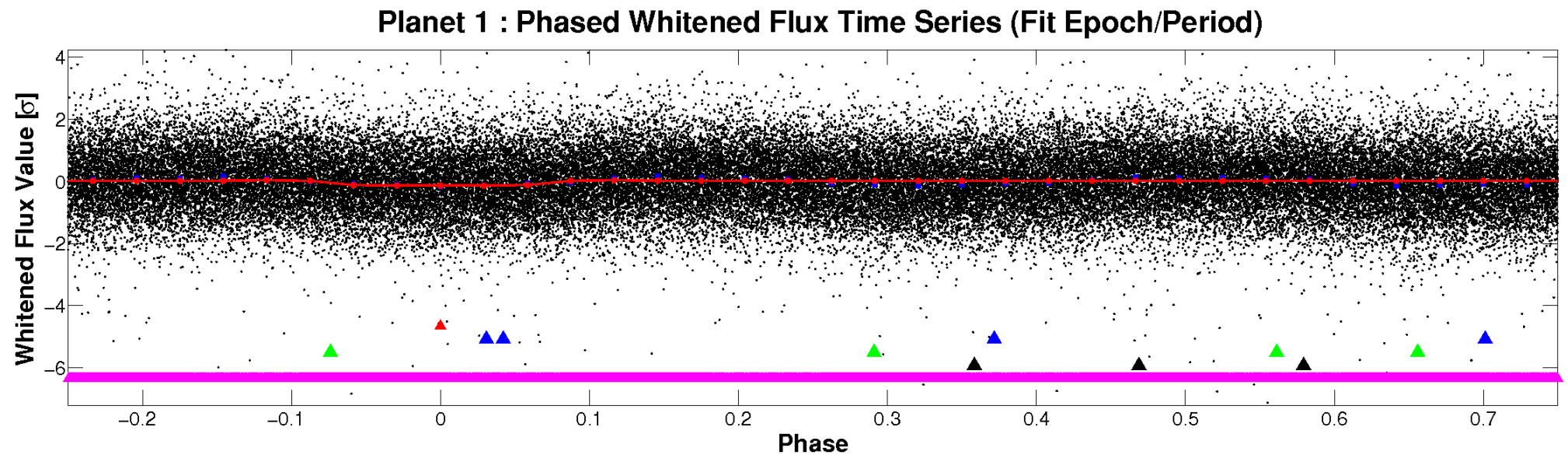
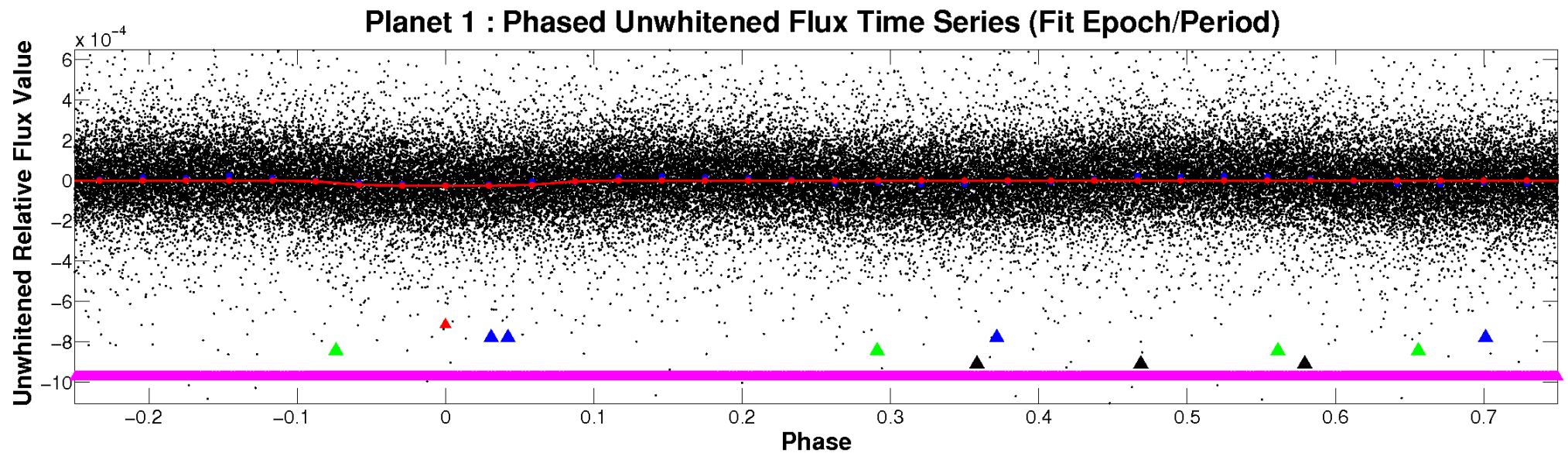


ALT Odd/Even

TCE 009773512-01

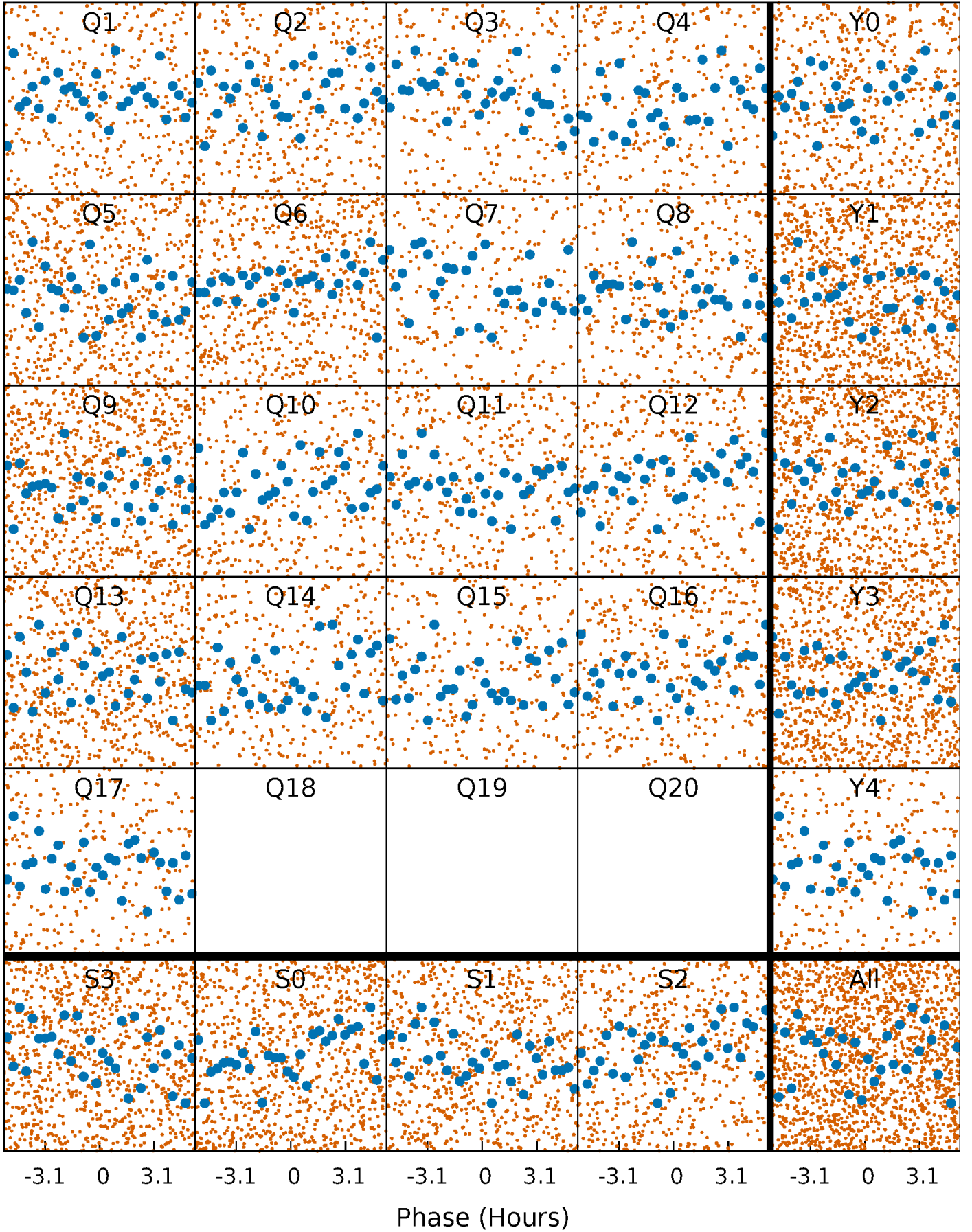


Non-Whitened Vs. Whitened Light Curve



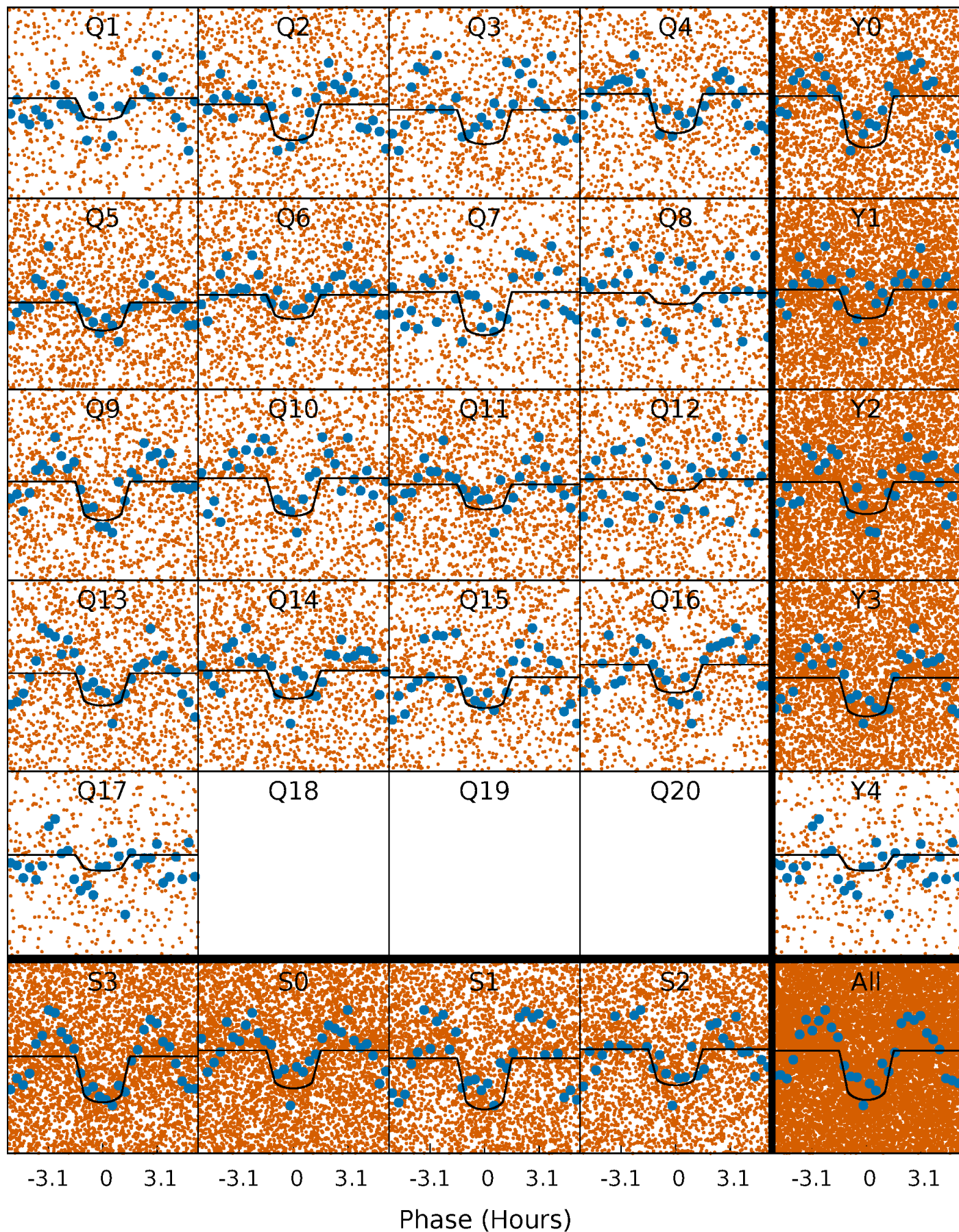
PDC Quarter-Phased Transit Curves

TCE 009773512-01 P= 0.700698 Days $T_0=131.762252$ (BKJD)



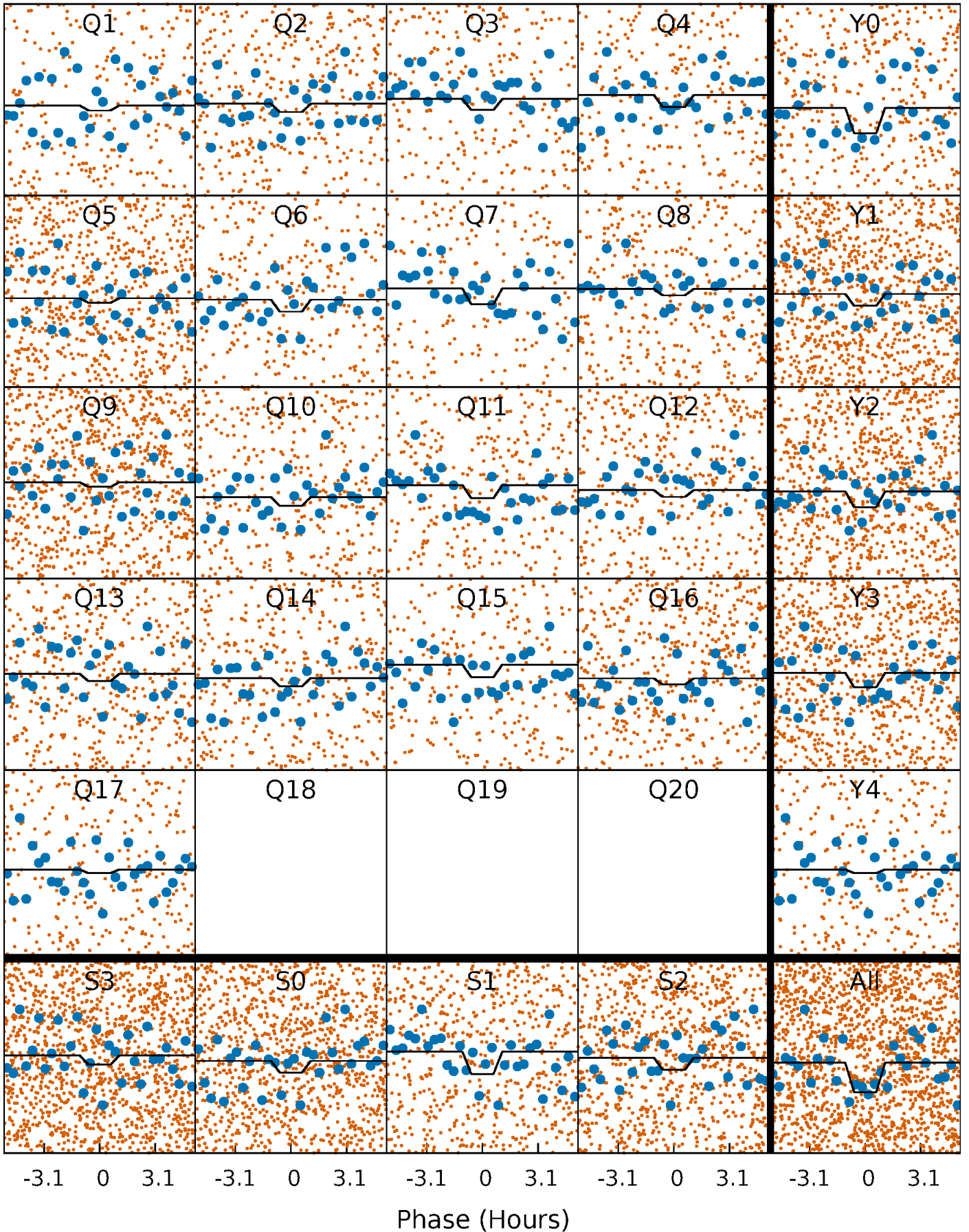
DV Quarter-Phased Transit Curves

TCE 009773512-01 P= 0.700698 Days $T_0=131.762252$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

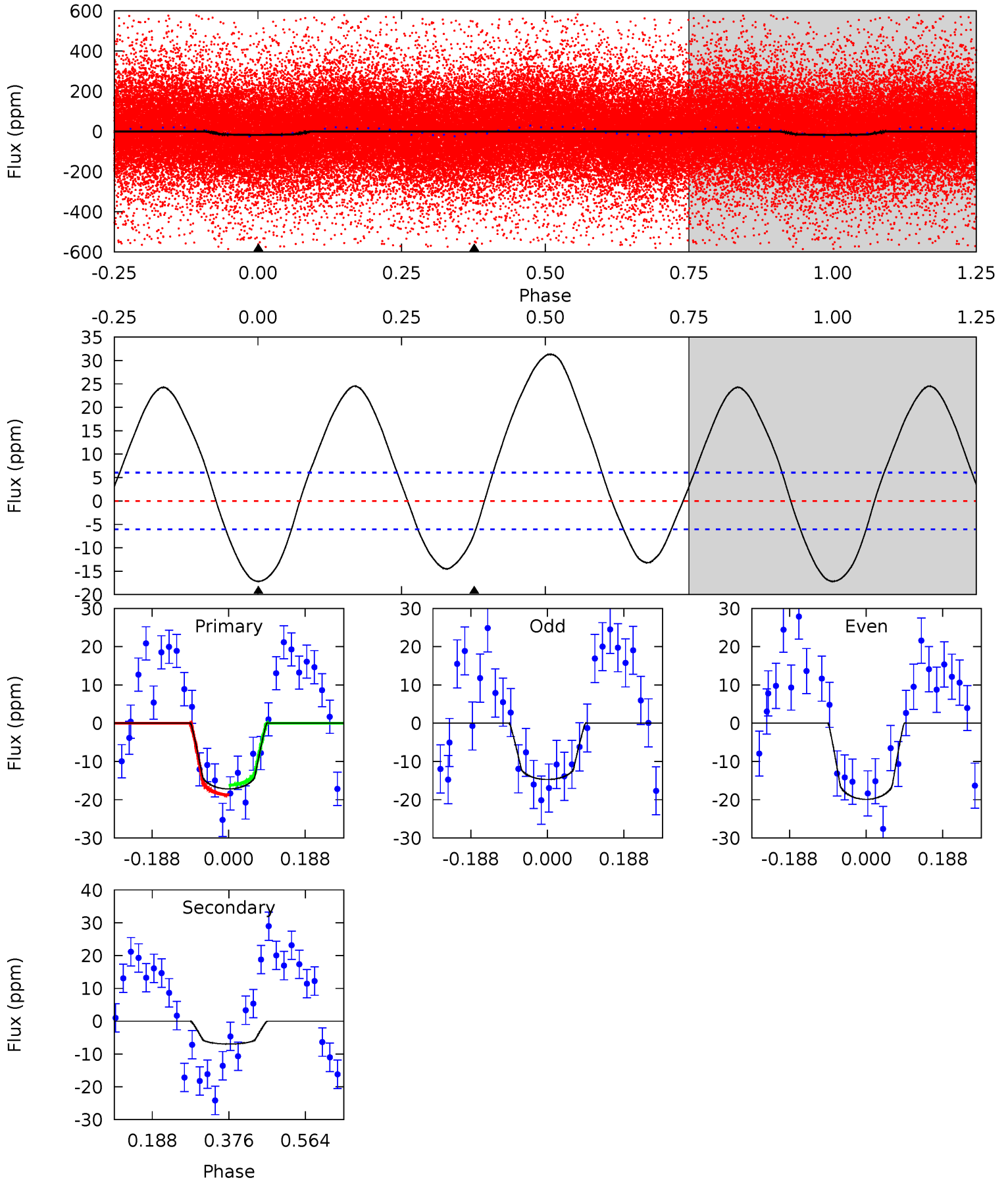
TCE 009773512-01 P= 0.700702 Days $T_0=131.761880$ (BKJD)



DV Model-Shift Uniqueness Test

009773512-01, P = 0.700698 Days, E = 131.061554 Days

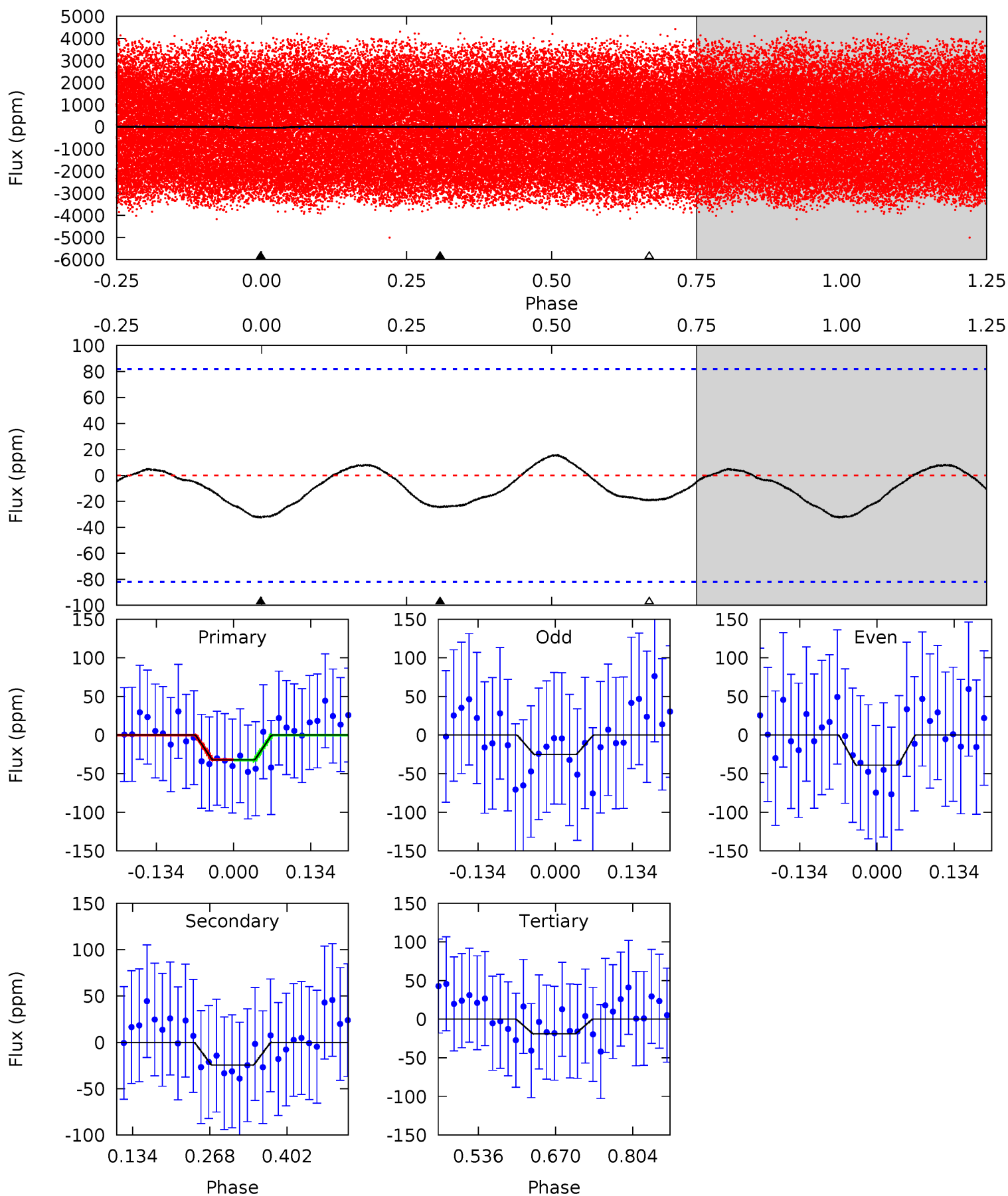
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	5.10	0	0	4.43	1.32	7.84	12.6	12.6	5.10	5.10	1.92	1.08	0.65	0.94



Alt Model-Shift Uniqueness Test

009773512-01, P = 0.700702 Days, E = 131.061178 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.77	1.34	1.04	0	4.50	1.50	0.58	0.72	1.77	0.29	1.34	0.38	0.55	0.33	0.00



Stellar Parameters For KIC 009773512

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8169^{+223}_{-334}	$3.699^{+0.464}_{-0.087}$	$-0.320^{+0.200}_{-0.300}$	$3.284^{+0.555}_{-1.664}$	$1.964^{+0.322}_{-0.523}$	$0.078^{+0.414}_{-0.027}$
	+3%/-4%	+13%/-2%	+62%/-94%	+17%/-51%	+16%/-27%	+530%/-34%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009773512-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7 ± 1	$1.78^{+0.51}_{-0.51}$	6299^{+465}_{-827}	4354^{+1052}_{-7860}	$0.447^{+0.428}_{-0.185}$
Alt.	-24 ± 18	$1.89^{+0.50}_{-0.55}$	6308^{+479}_{-742}	6850^{+1877}_{-9461}	$1.416^{+1.719}_{-1.123}$

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

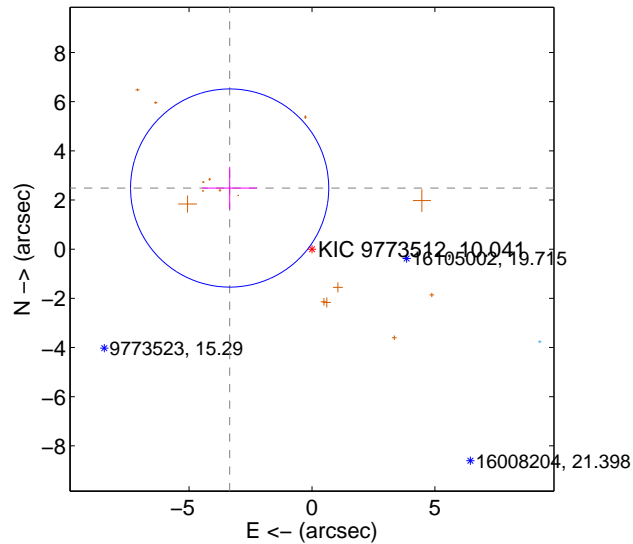
Supplemental centroid analysis for 009773512-01. **Kepler magnitude: 10.04.** Transit SNR 12.97

There are 1 quarters with good PRF difference image offsets

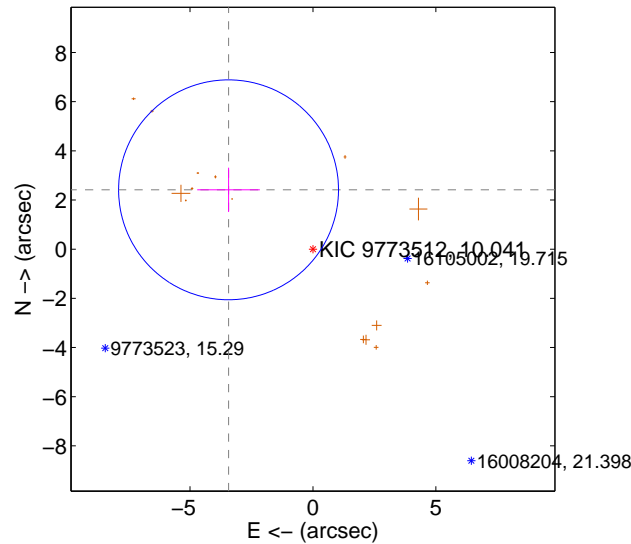
The OOT PRF centroid is offset from the target star catalog position by about 2.18 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.171 ± 1.344	3.10	3.349 ± 1.116	2.487 ± 0.861
PRF-fit source offset from KIC position	4.197 ± 1.491	2.82	3.433 ± 1.274	2.415 ± 0.901
photometric centroid source offset	1.17 ± 0.40	2.89	-0.95 ± 0.45	-0.67 ± 0.30

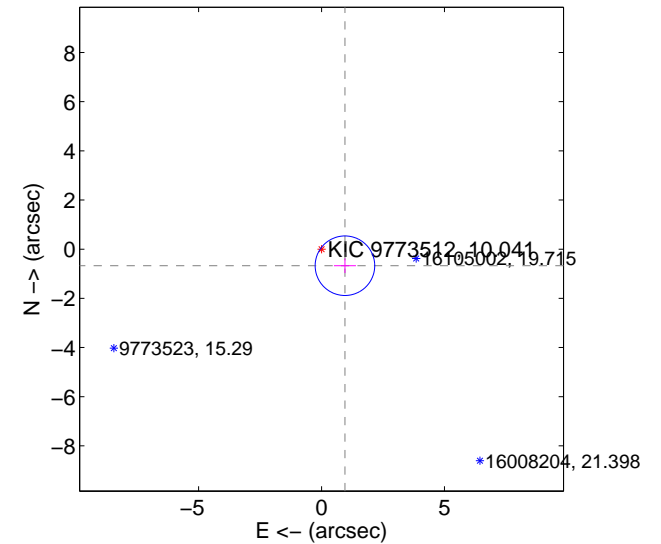
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

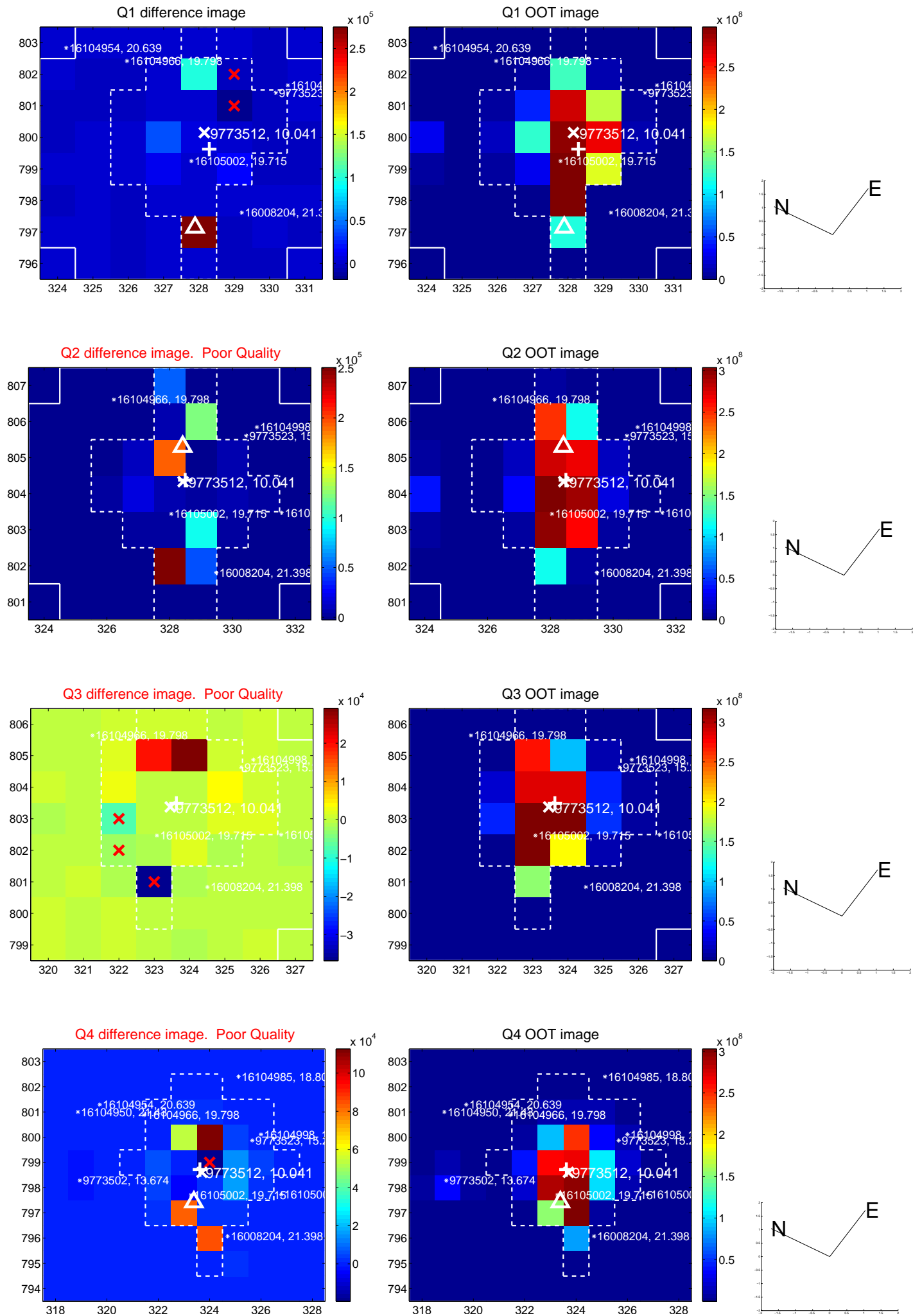


offset from photometric centroids

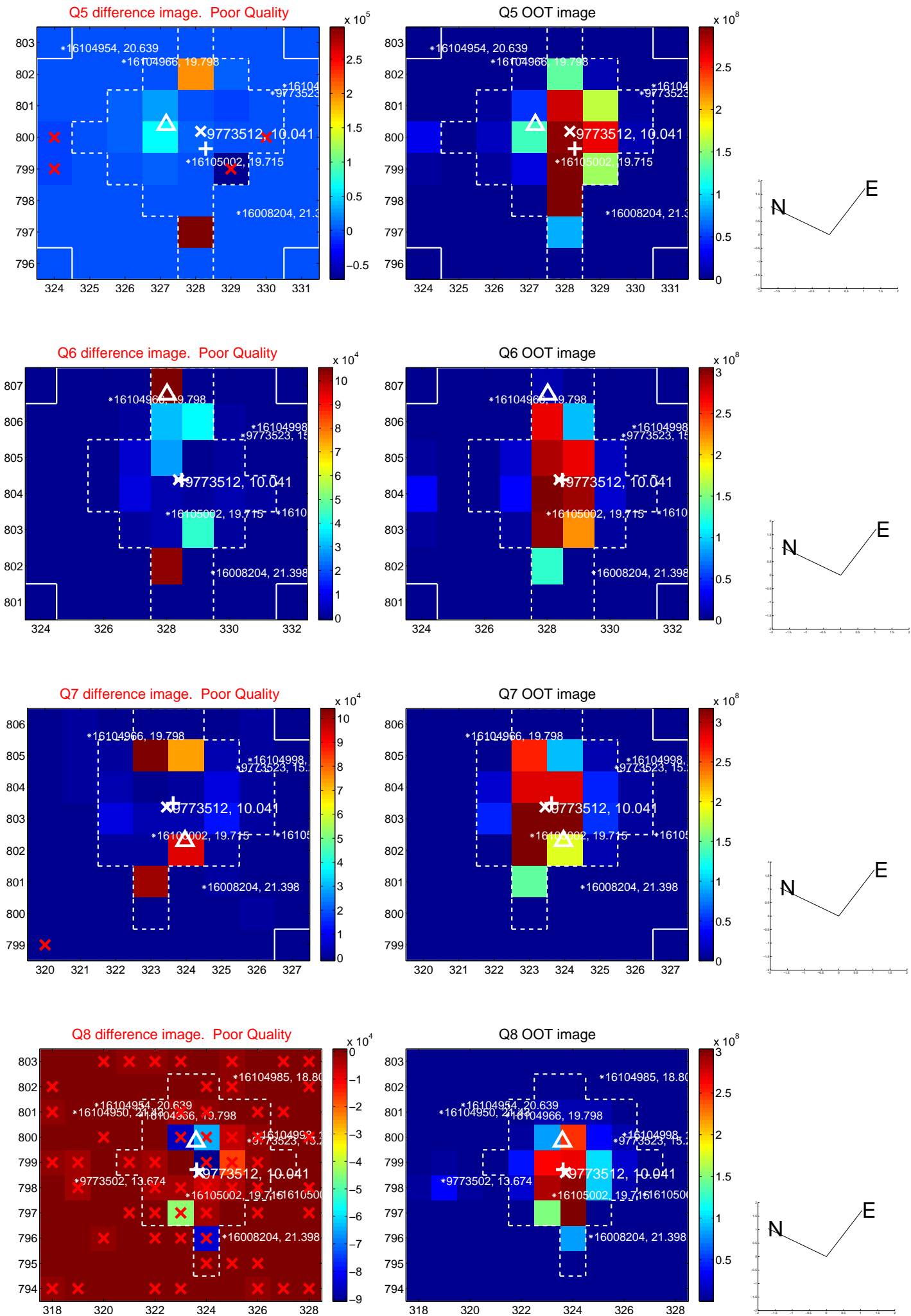


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

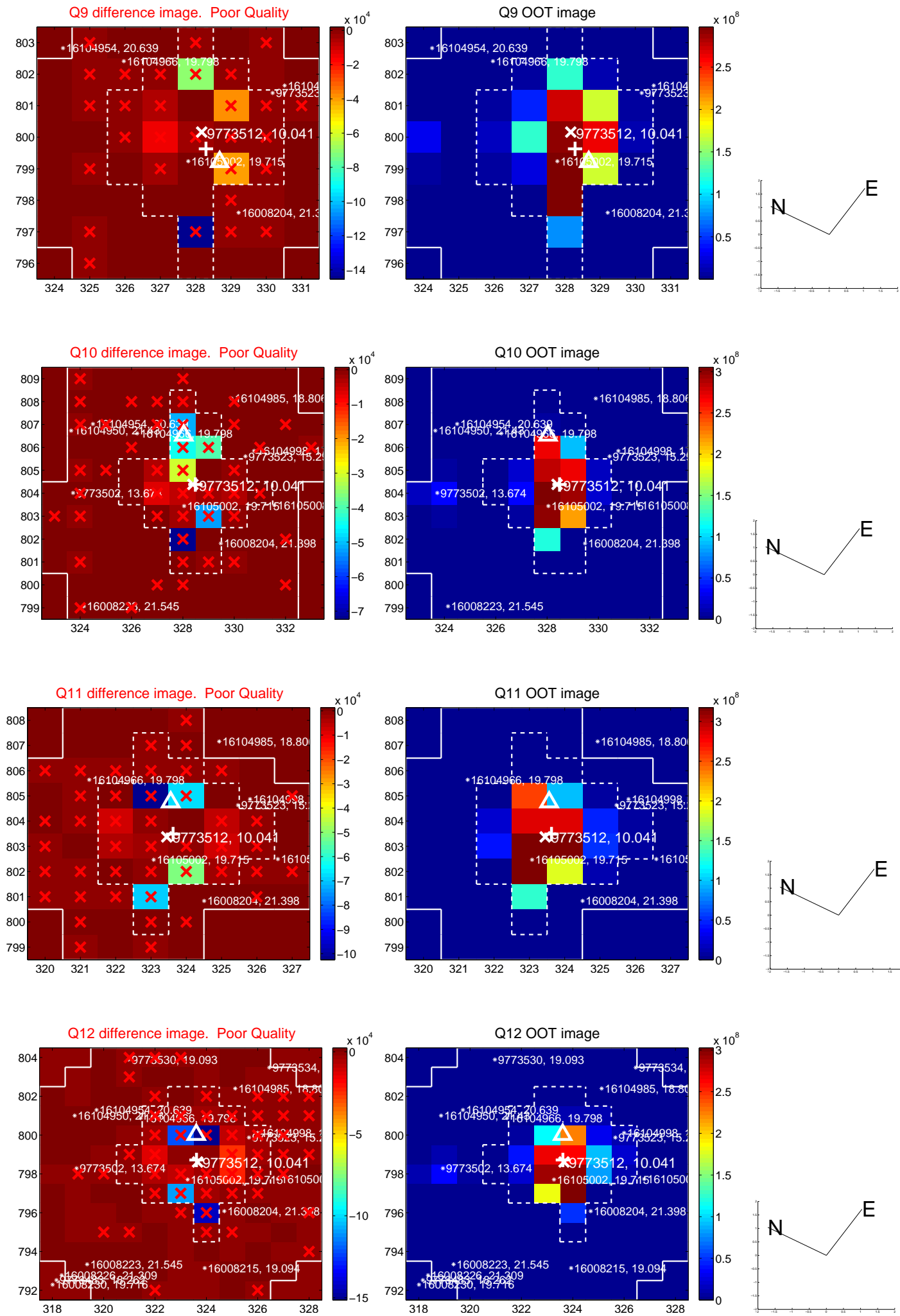
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



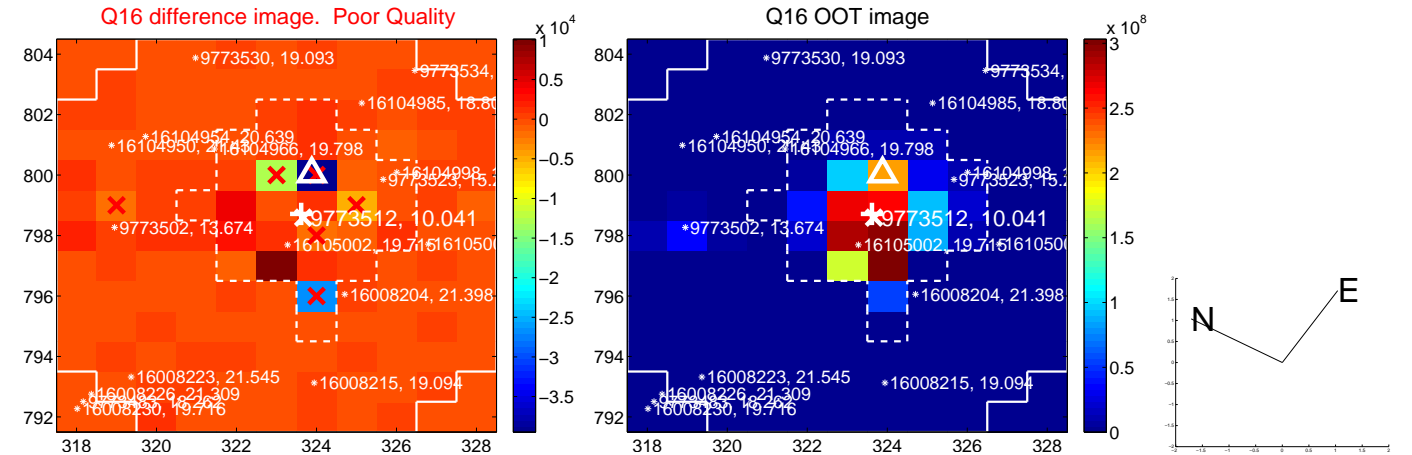
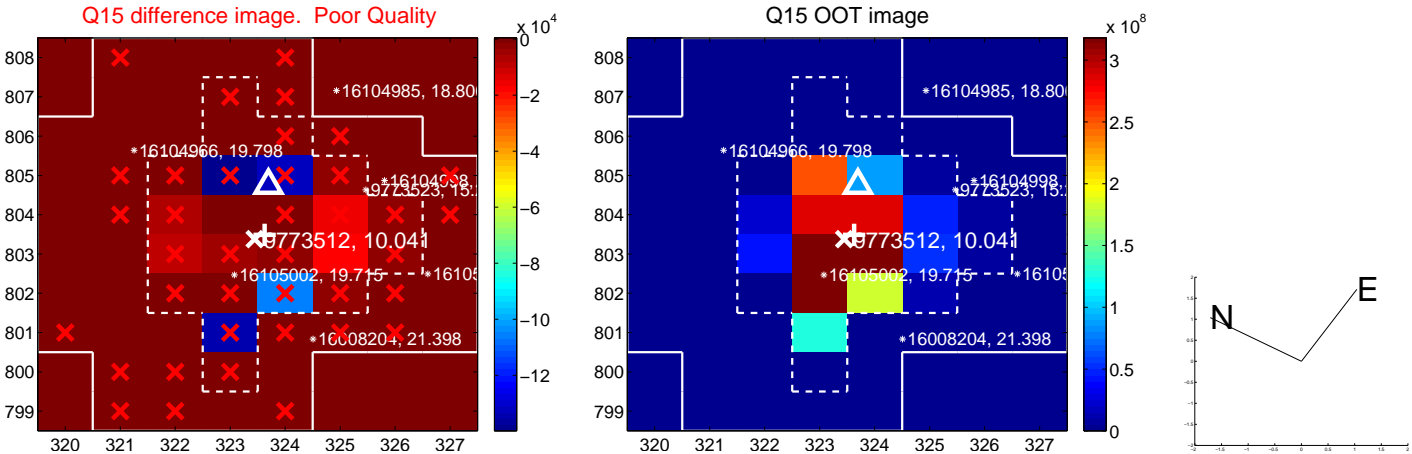
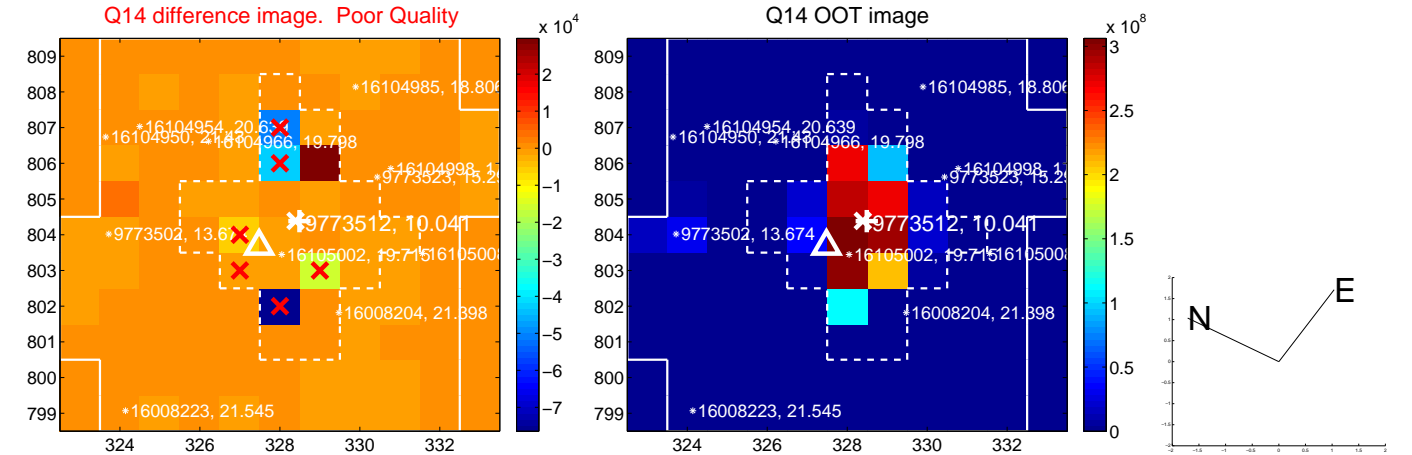
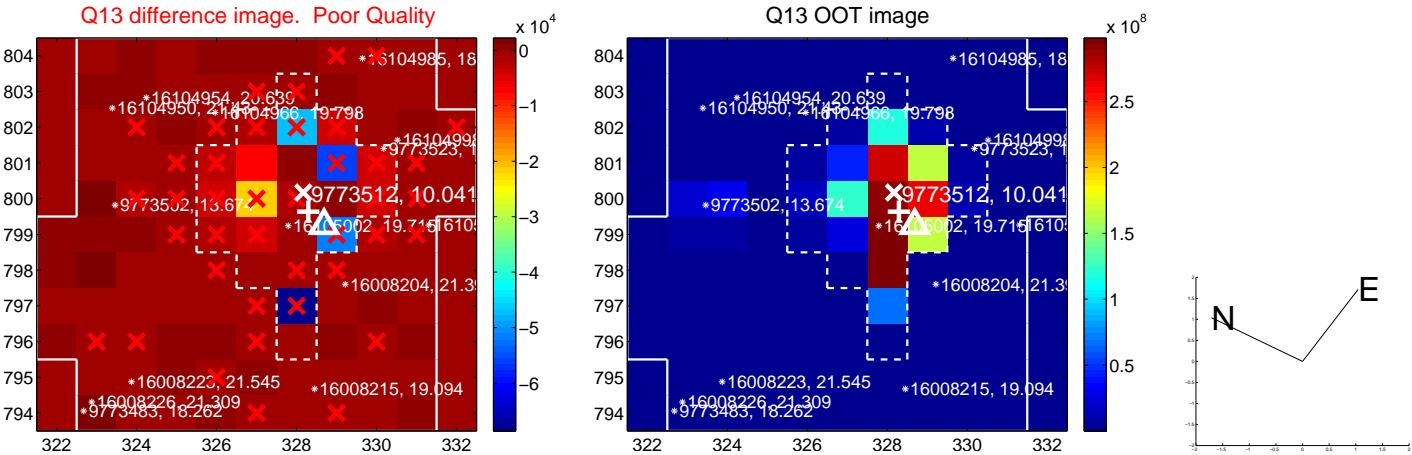
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



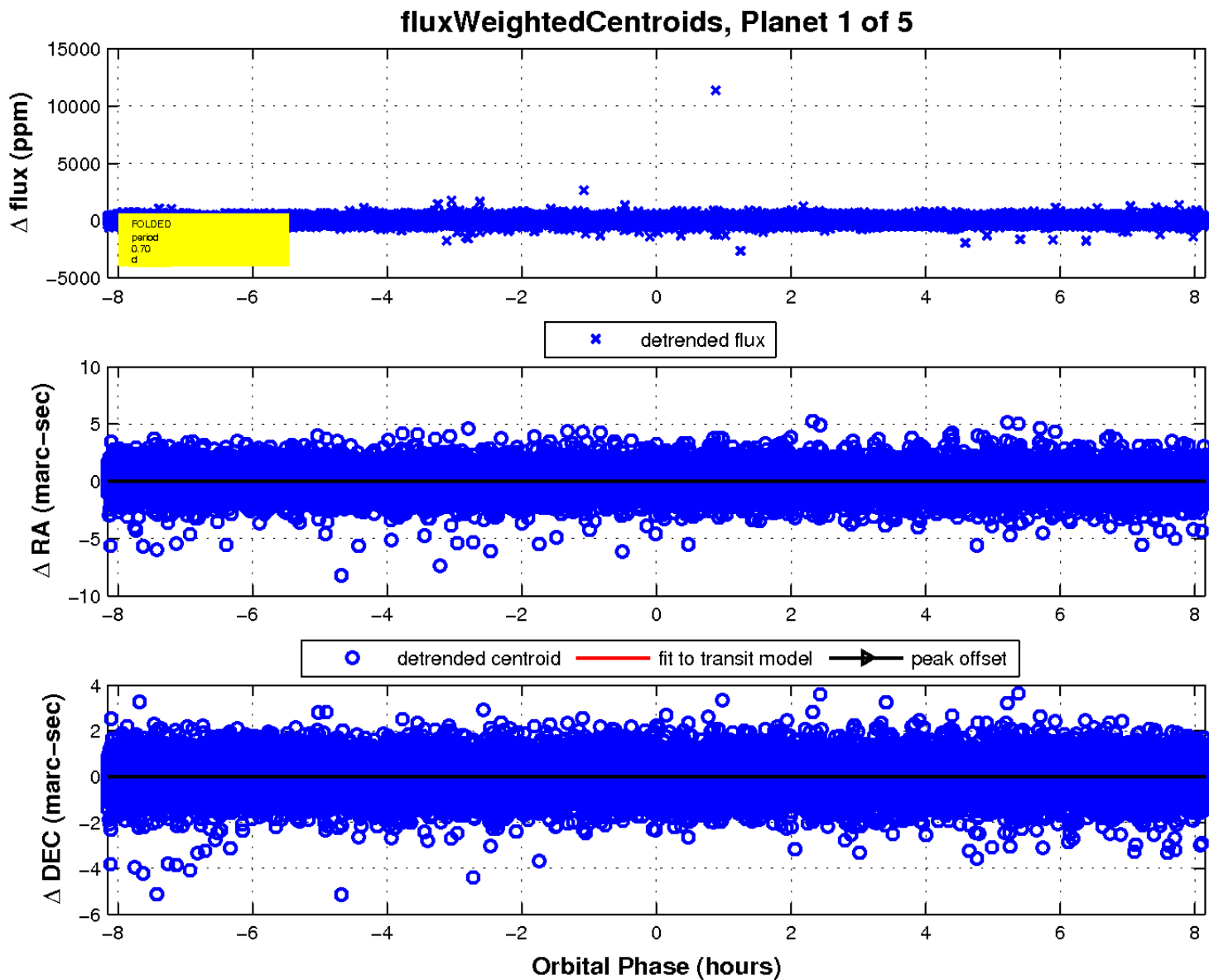
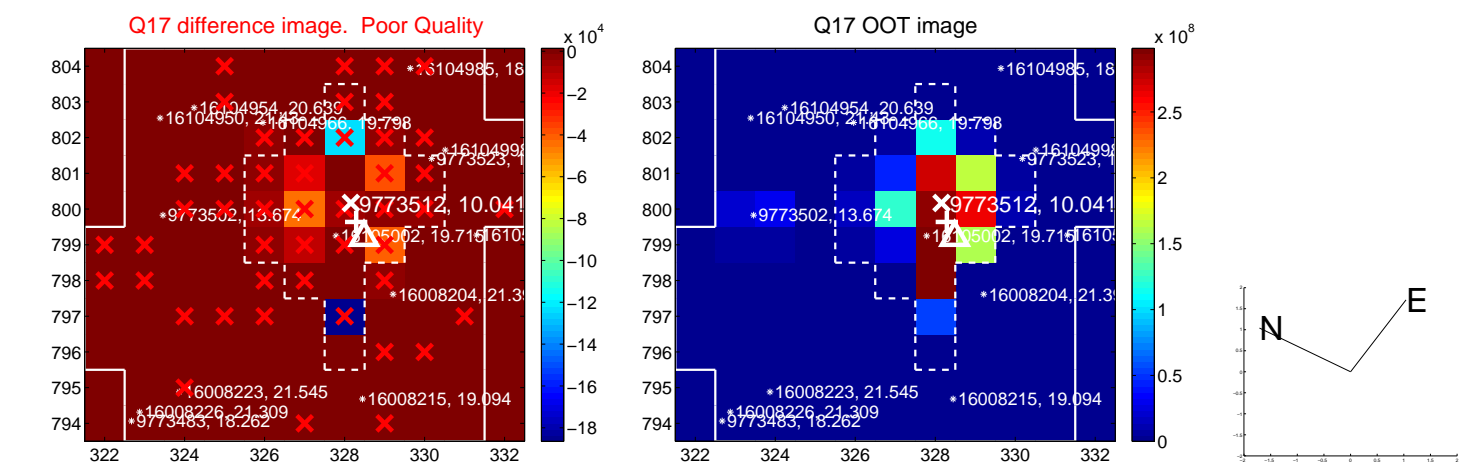
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

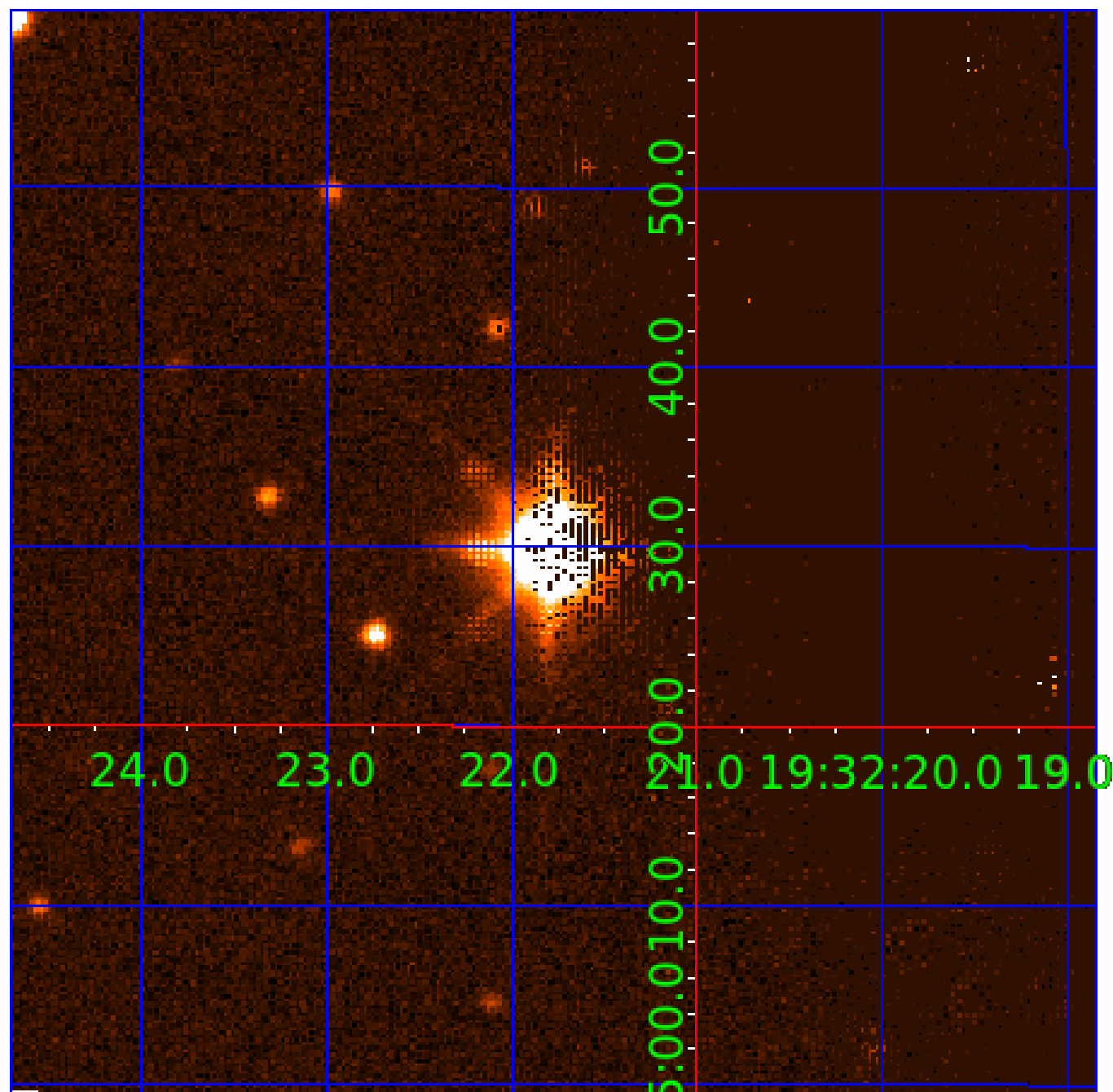


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009773512

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})
009773512-01	OBS	No	0.700698	131.762252	26.3	2.718	11.6	13.0	3.28	8169	1.96	114938.14
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009773512-05	OBS	No	0.757751	131.639486	26.7	1.979	8.7	8.8	3.28	8169	1.98	103546.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009773512-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009773512-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_SATURATED
009773512-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

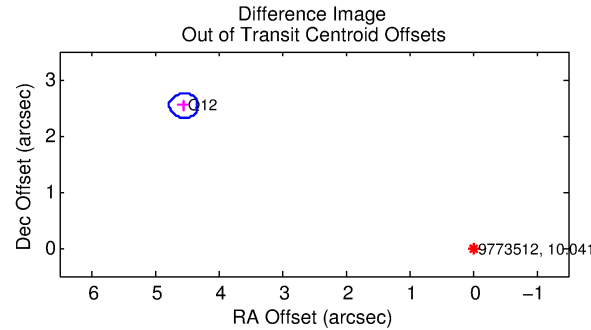
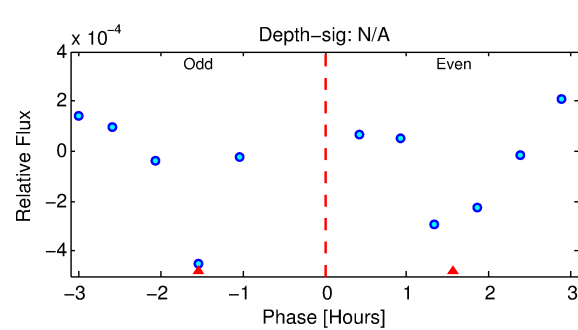
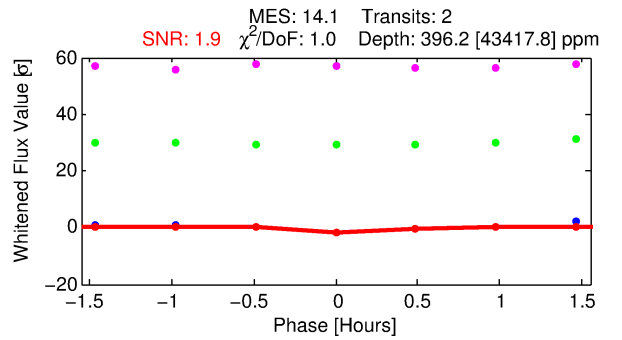
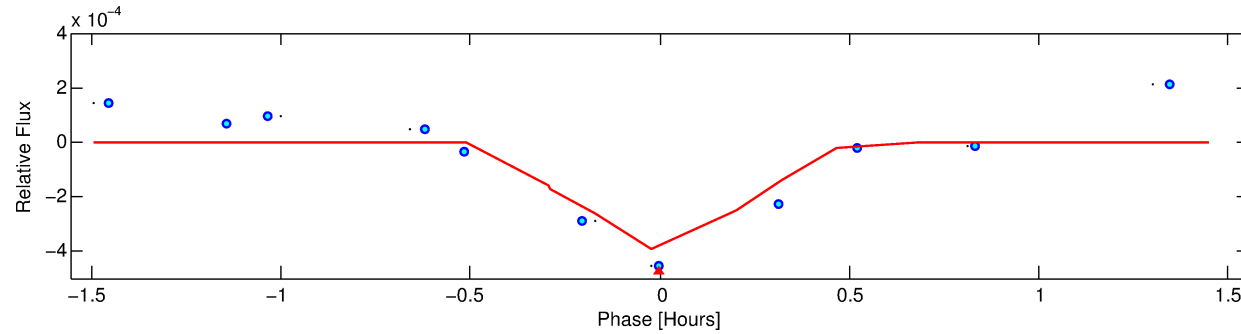
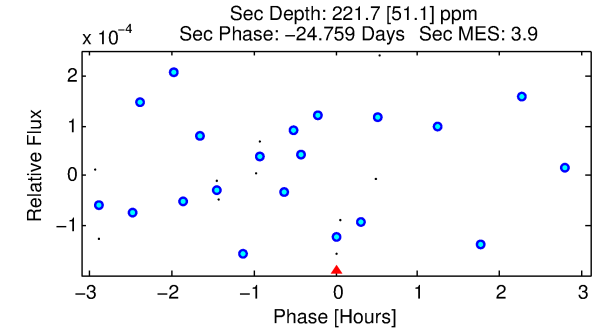
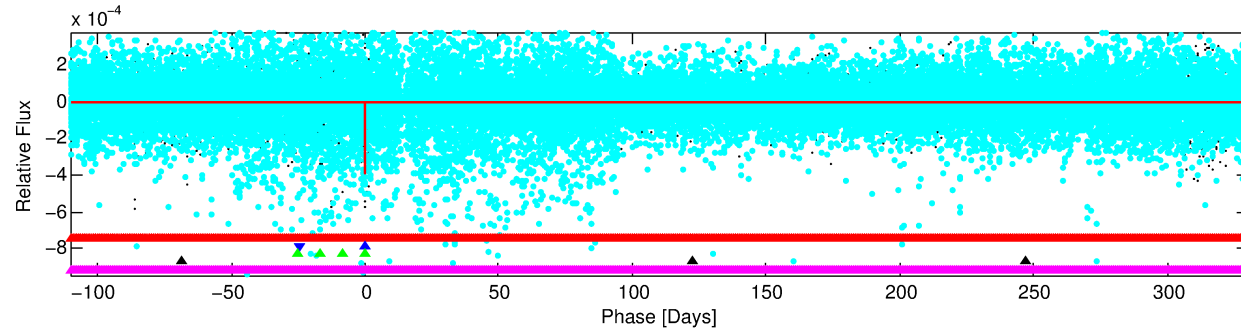
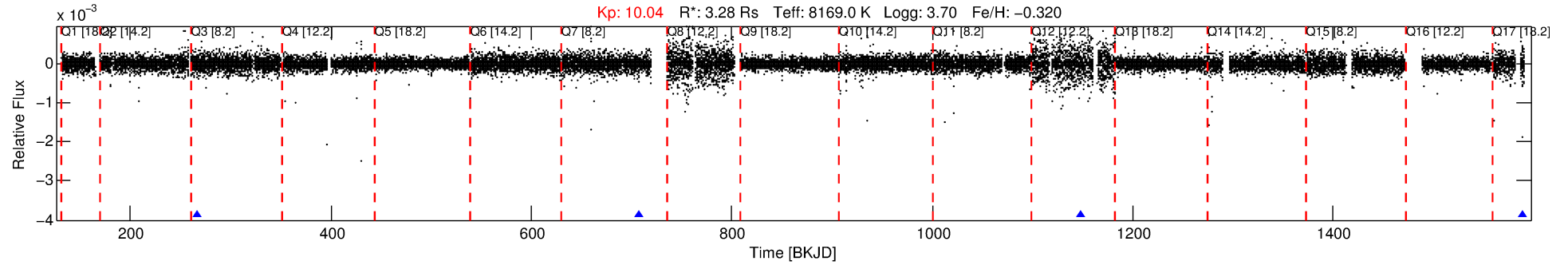
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009773512-02

No Significant Match Found

DV One-Page Summary

KIC: 9773512 Candidate: 2 of 5 Period: 440.970 d



DV Fit Results:

Period = 440.96998 [0.41938] d
Epoch = 266.3258 [0.4864] BKJD
Rp/R* = 0.0198 [0.6252]
a/R* = 5691.57 [2399079.12]
b = 0.52 [531.61]
Seff = 21.31 [17.16]
Teq = 548 [110] K
Rp = 7.10 [224.09] Re
a = 1.4209 [0.6975] AU
Ag = 4890.20 [308823.58] [0.02σ]
Teff = 7084 [111825] K [0.06σ]

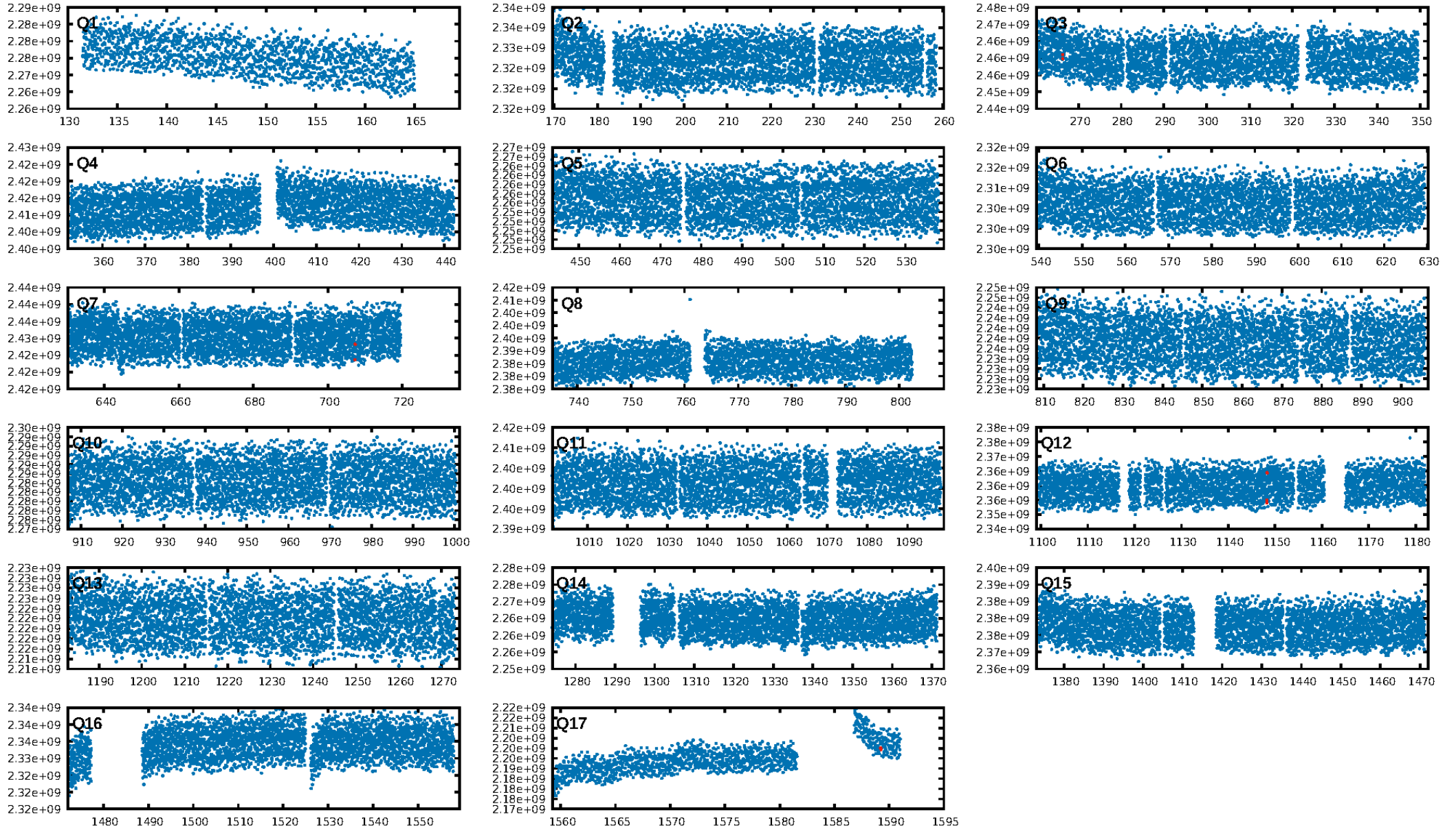
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.91σ]
LongPeriod-sig: 100.0% [824.02σ]
ModelChiSquare2-sig: 74.6%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 9.25e-17
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: N/A
Centroid-sig: 50.5%
Centroid-so: 0.285 arcsec [0.35σ]
OotOffset-rm: 5.205 arcsec [70.68σ]
KicOffset-rm: 5.687 arcsec [77.33σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/1]

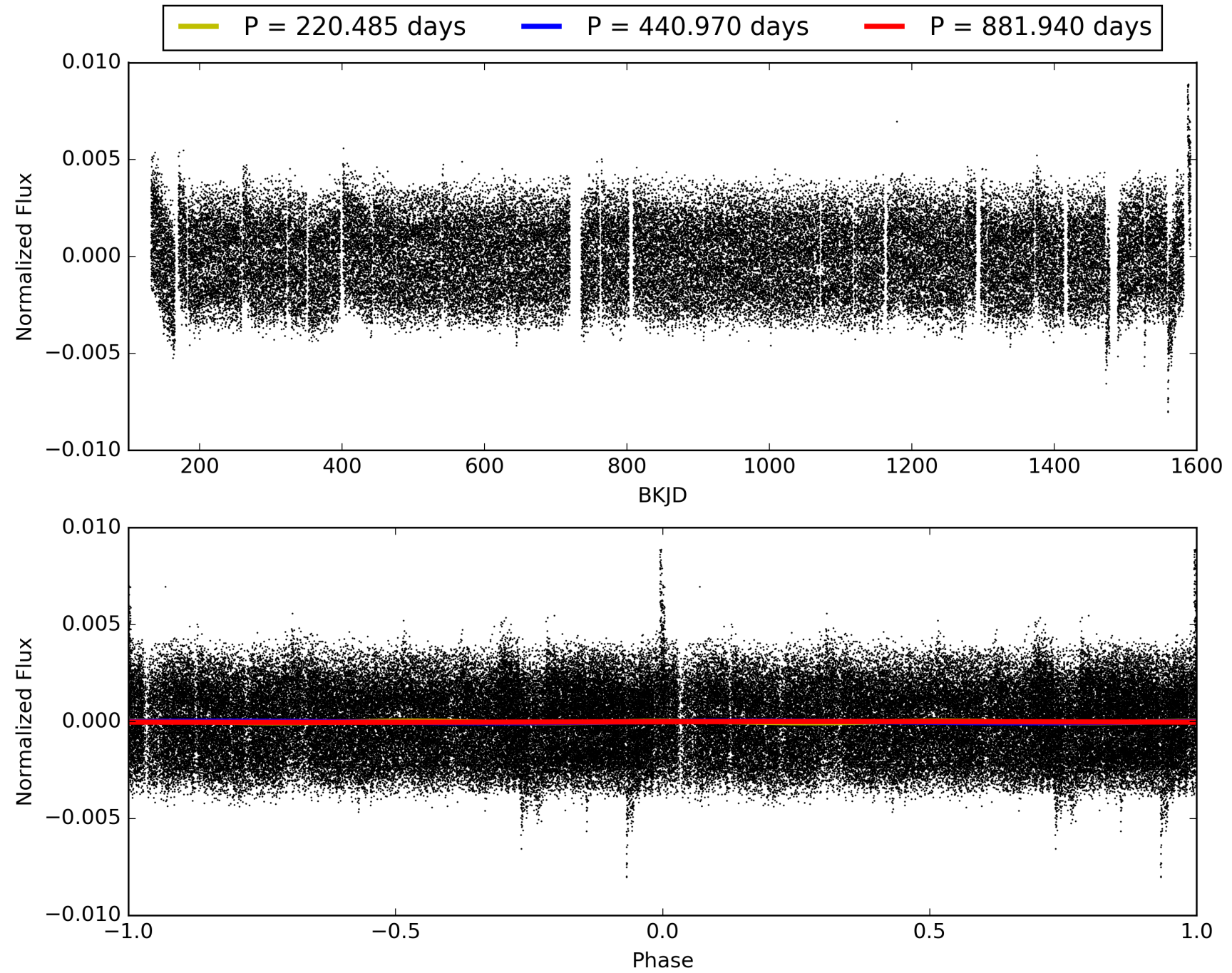
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009773512-02, PDC Light Curves

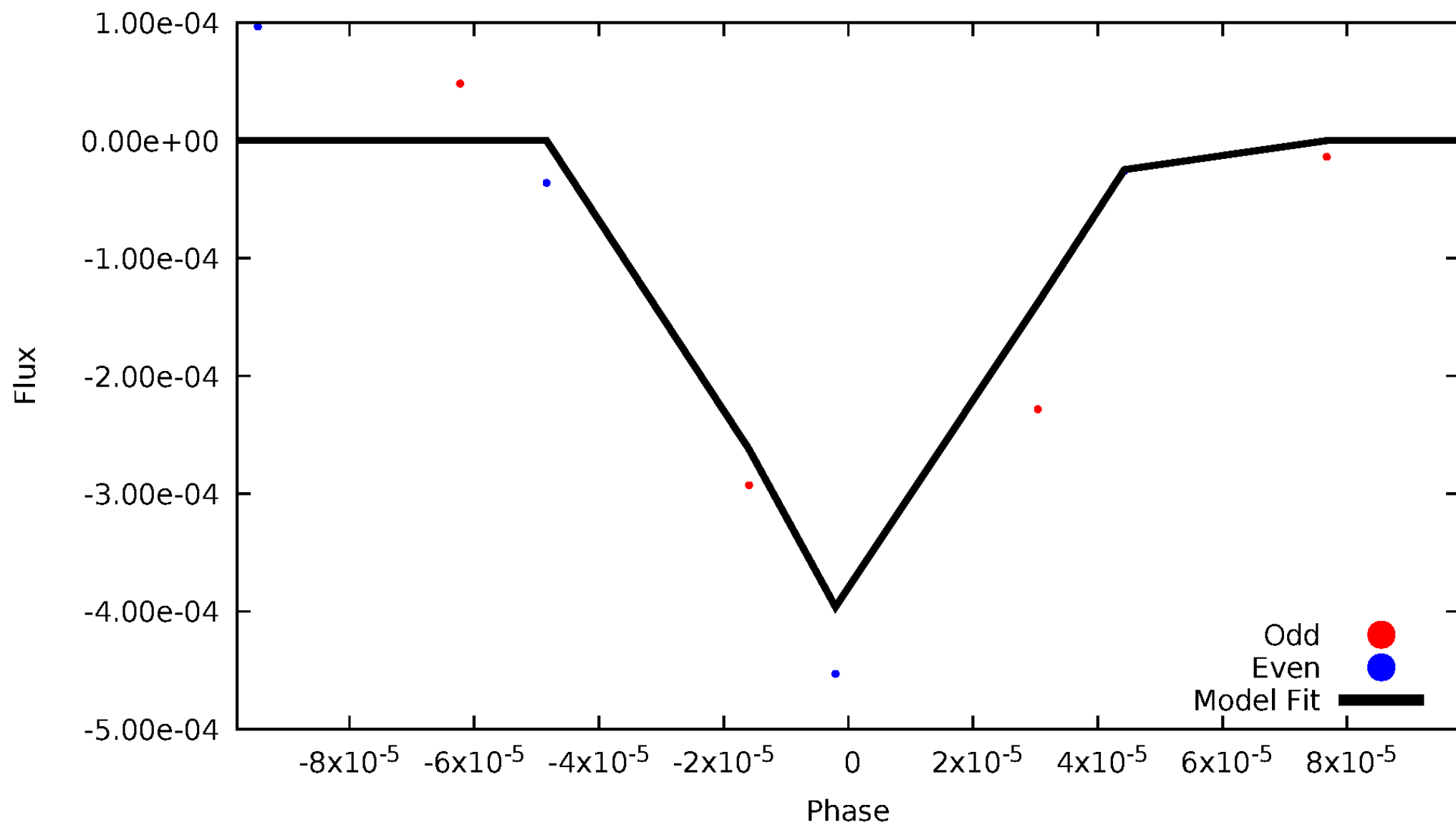


TCE 009773512-02



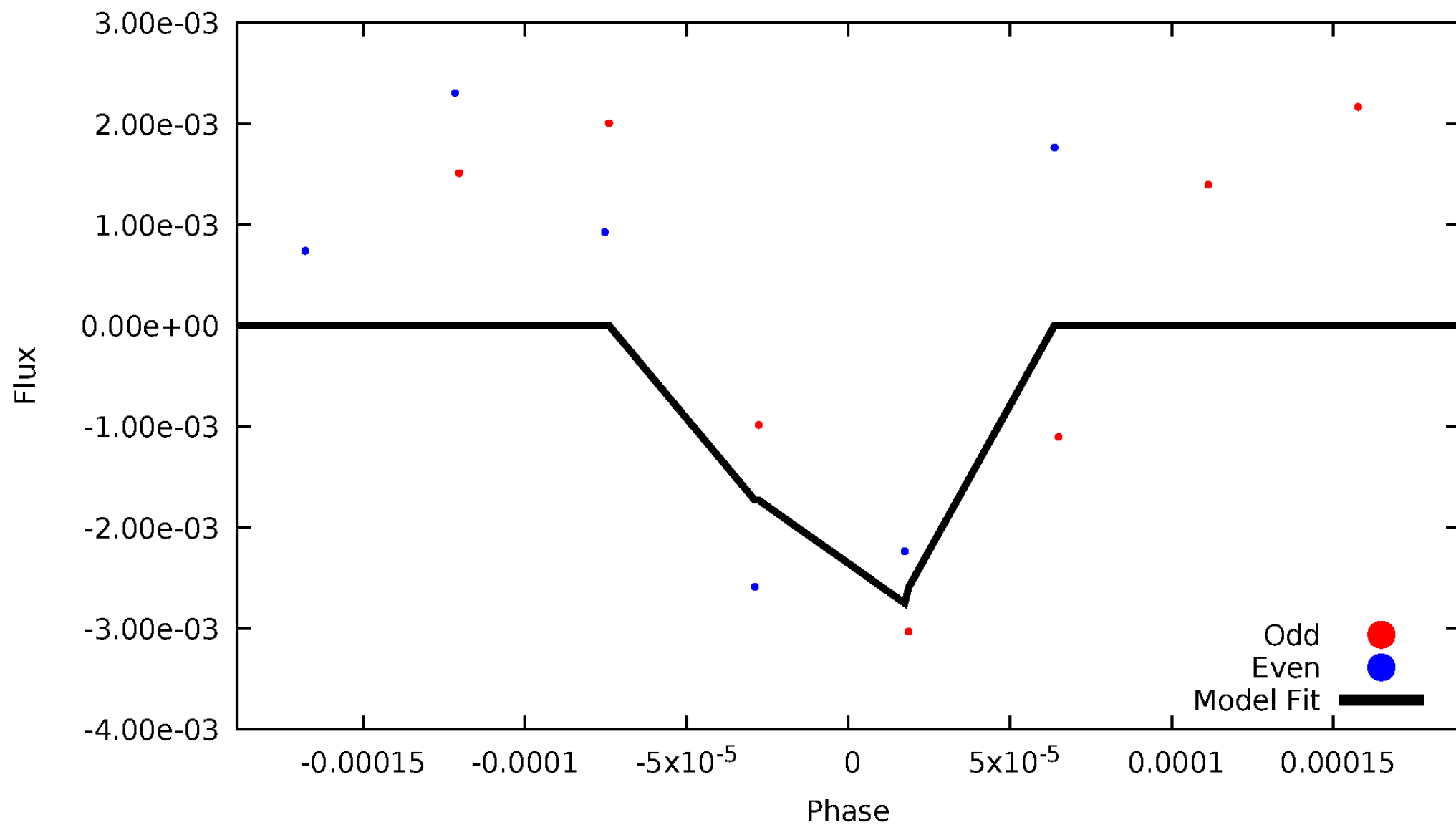
DV Odd/Even

TCE 009773512-02



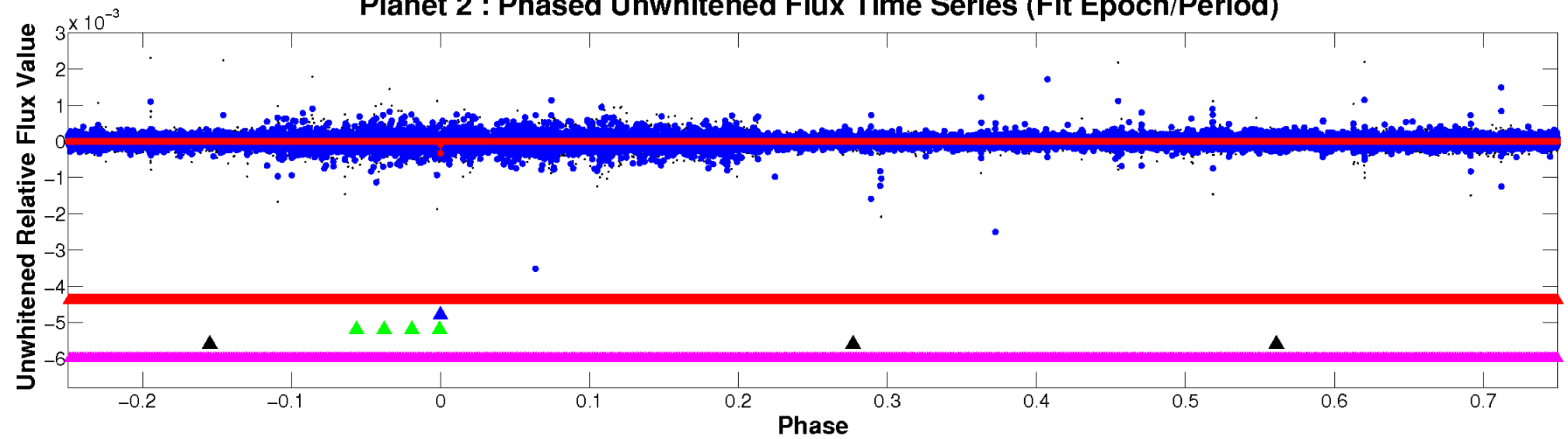
ALT Odd/Even

TCE 009773512-02

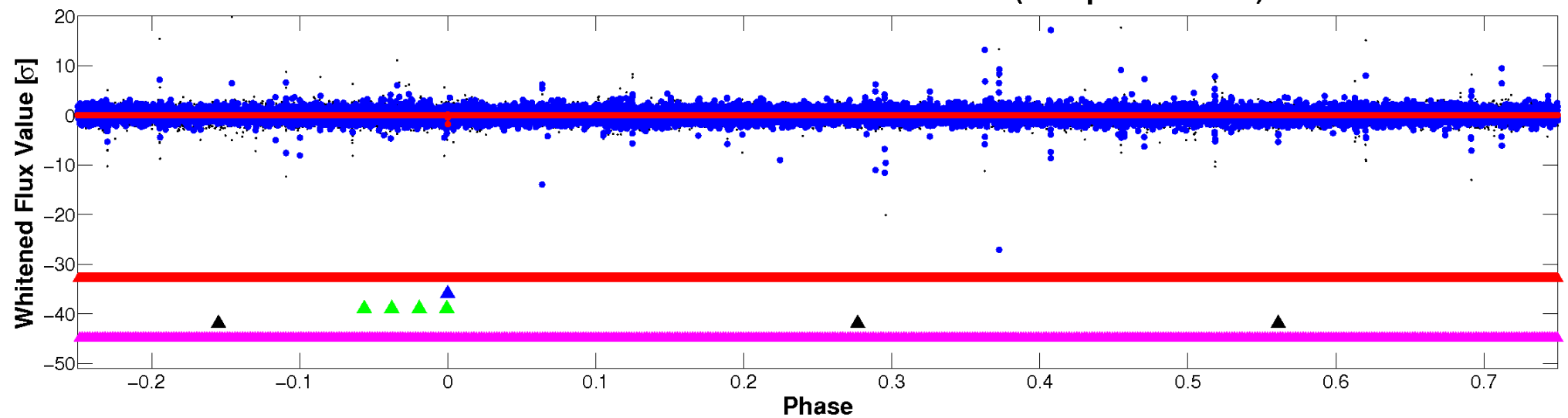


Non-Whitened Vs. Whitened Light Curve

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

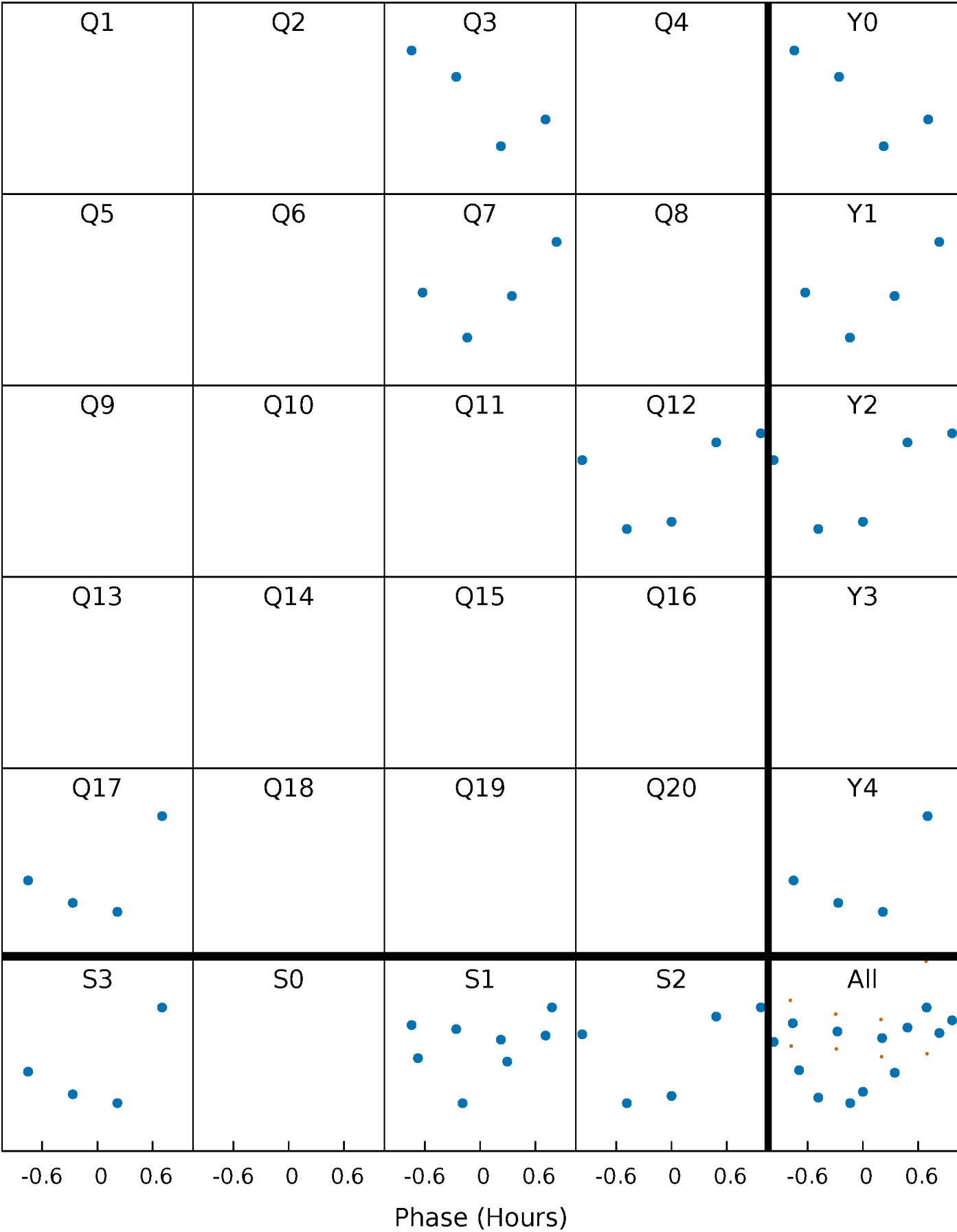


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



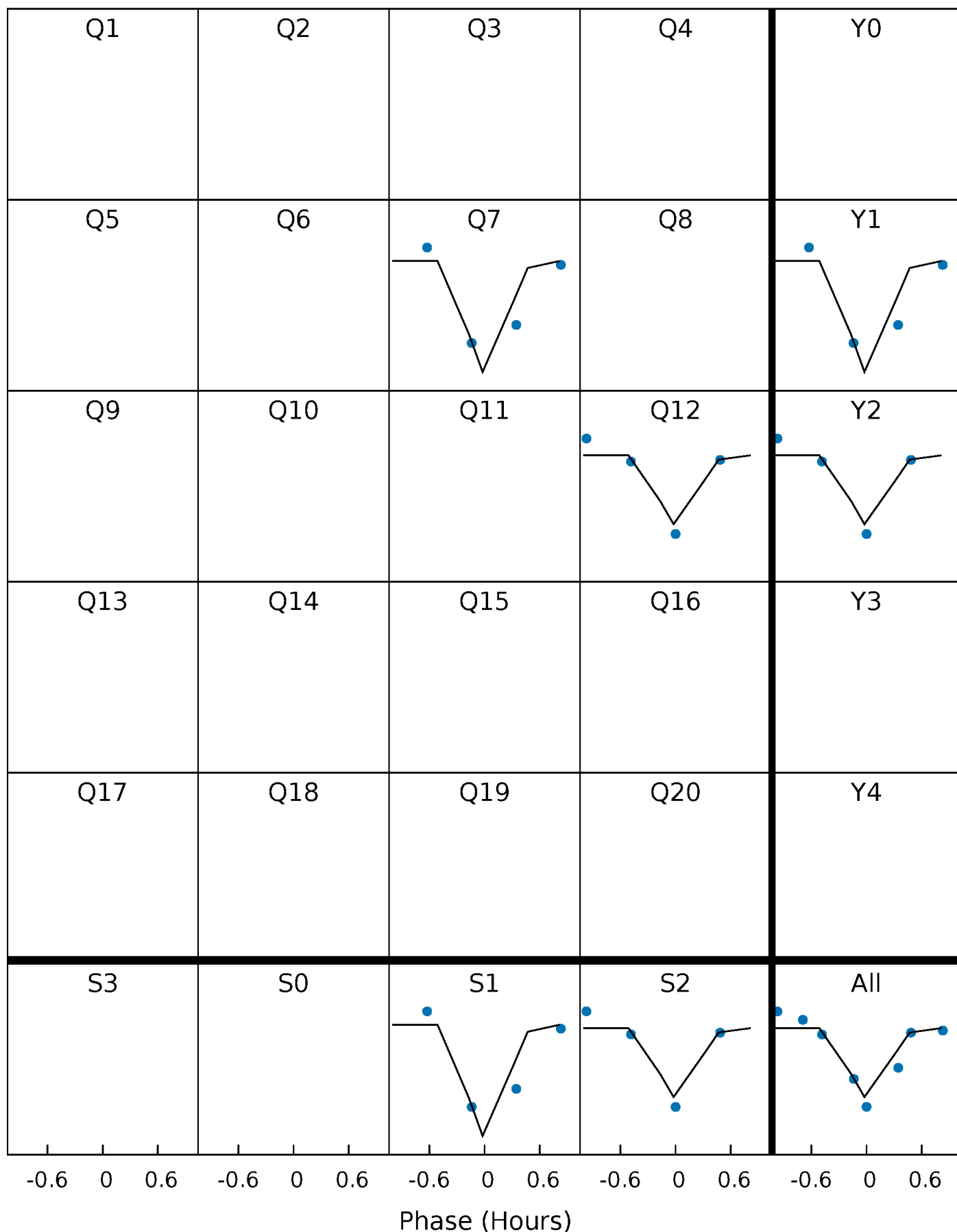
PDC Quarter-Phased Transit Curves

TCE 009773512-02 P=440.969982 Days $T_0=266.325816$ (BKJD)



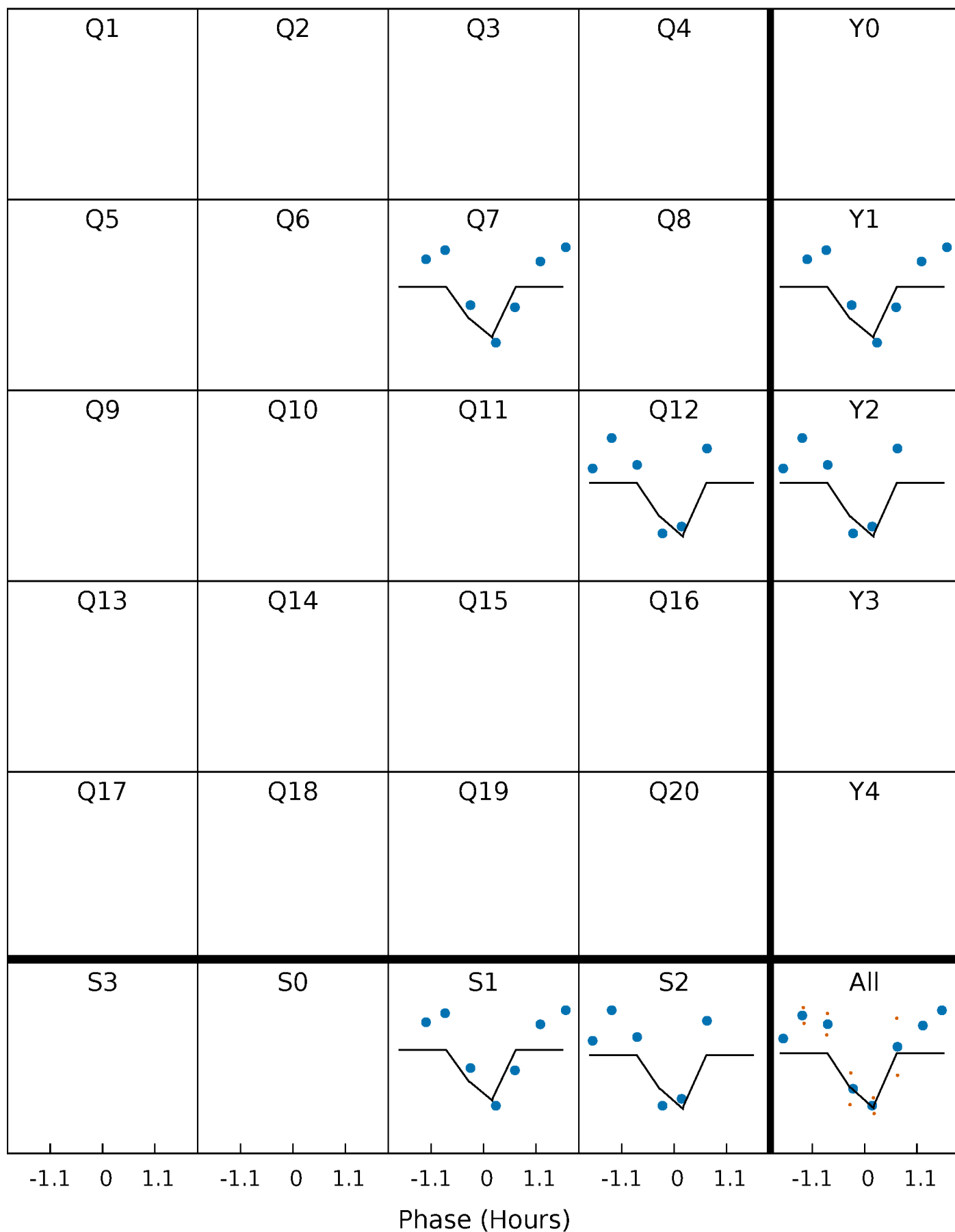
DV Quarter-Phased Transit Curves

TCE 009773512-02 P=440.969982 Days $T_0=266.325816$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

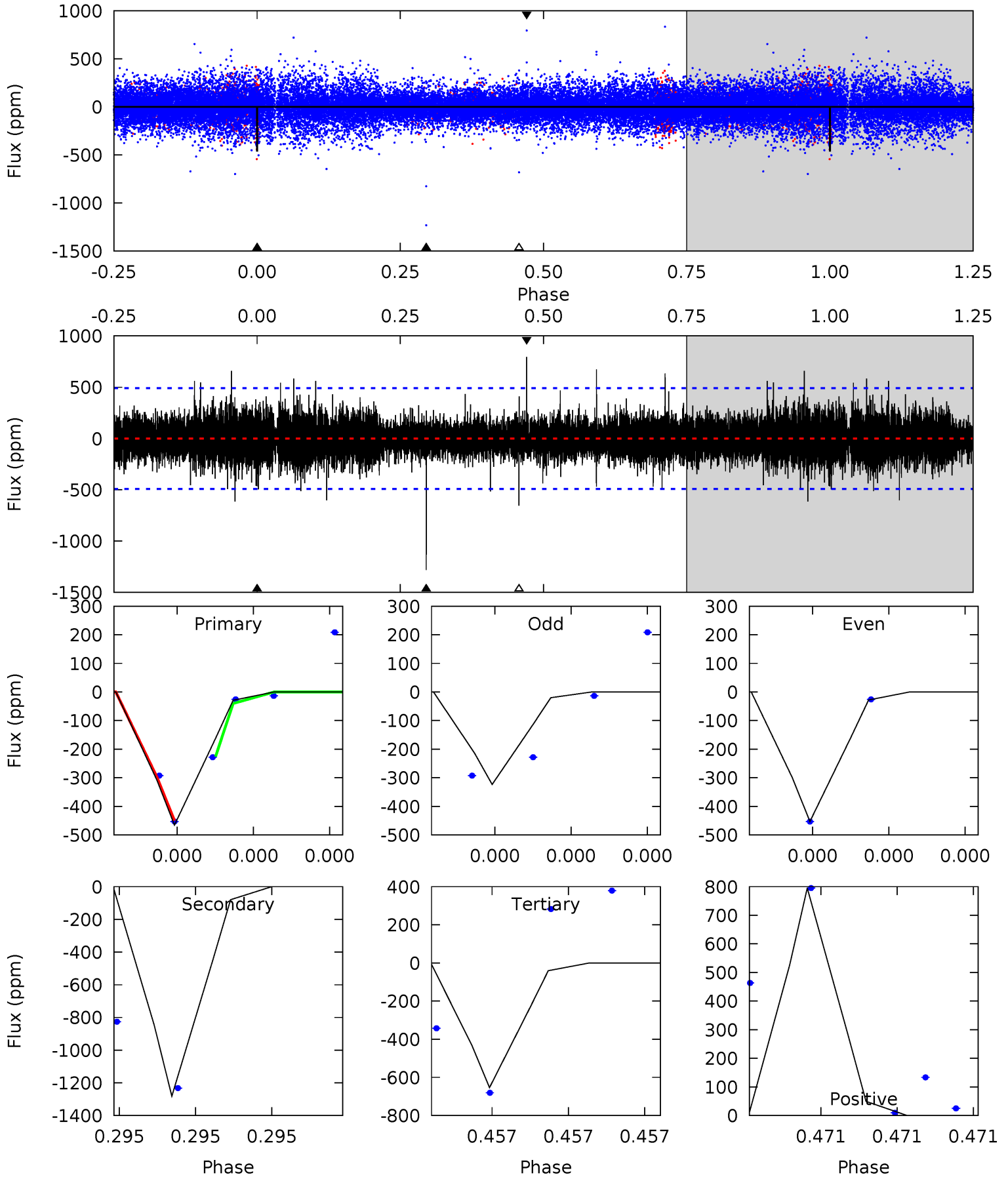
TCE 009773512-02 P=440.976658 Days $T_0=266.303881$ (BKJD)



DV Model-Shift Uniqueness Test

009773512-02, P = 440.969982 Days, E = 266.325816 Days

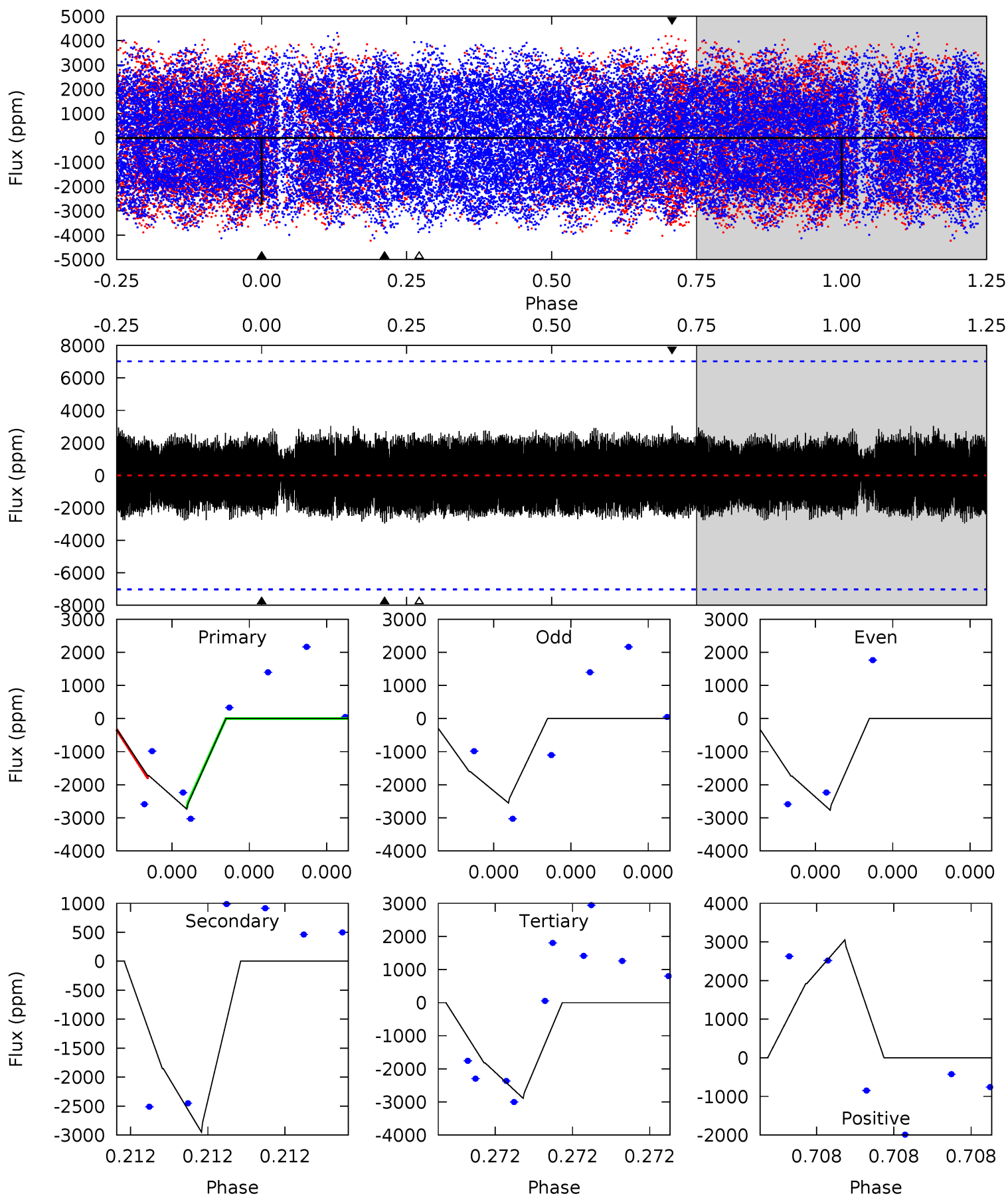
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.62	15.5	7.89	9.60	5.93	4.01	1.22	-2.27	-3.98	7.58	5.87	0.78	1.00	0.38	1.37



Alt Model-Shift Uniqueness Test

009773512-02, P = 440.976658 Days, E = 266.303881 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.29	2.46	2.41	2.55	5.86	3.91	0.91	-0.13	-0.26	0.05	-0.09	0.09	1.00	0.51	0.00



Stellar Parameters For KIC 009773512

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8169^{+223}_{-334}	$3.699^{+0.464}_{-0.087}$	$-0.320^{+0.200}_{-0.300}$	$3.284^{+0.555}_{-1.664}$	$1.964^{+0.322}_{-0.523}$	$0.078^{+0.414}_{-0.027}$
	+3%/-4%	+13%/-2%	+62%/-94%	+17%/-51%	+16%/-27%	+530%/-34%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009773512-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1282±83	$135.23^{+159.13}_{-100.48}$	738^{+51}_{-88}	2989^{+1603}_{-535}	75^{+1080}_{-59}
Alt.	-2951±1198	$142.36^{+163.61}_{-100.70}$	738^{+52}_{-98}	3254^{+1815}_{-622}	149^{+1505}_{-119}

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

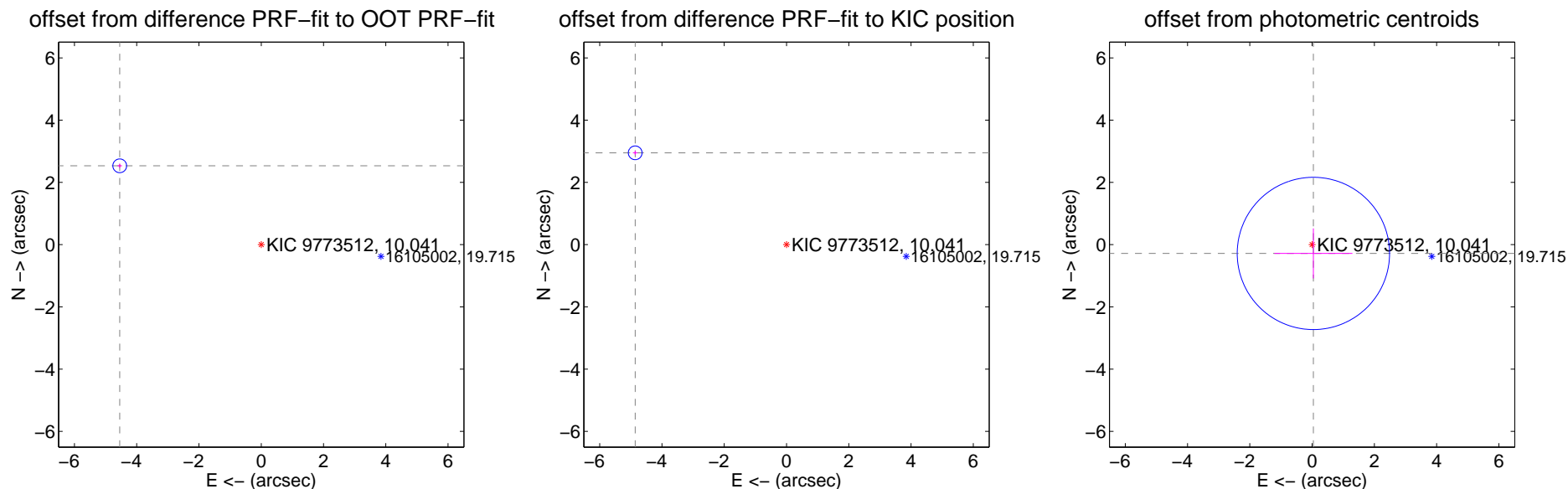
DV Centroid Data

Supplemental centroid analysis for 009773512-02. **Kepler magnitude: 10.04.** Transit SNR 1.88

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.205 ± 0.074	70.68	4.547 ± 0.074	2.534 ± 0.071
PRF-fit source offset from KIC position	5.687 ± 0.074	77.33	4.862 ± 0.074	2.951 ± 0.071
photometric centroid source offset	0.29 ± 0.82	0.35	-0.04 ± 1.25	-0.28 ± 0.80



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.

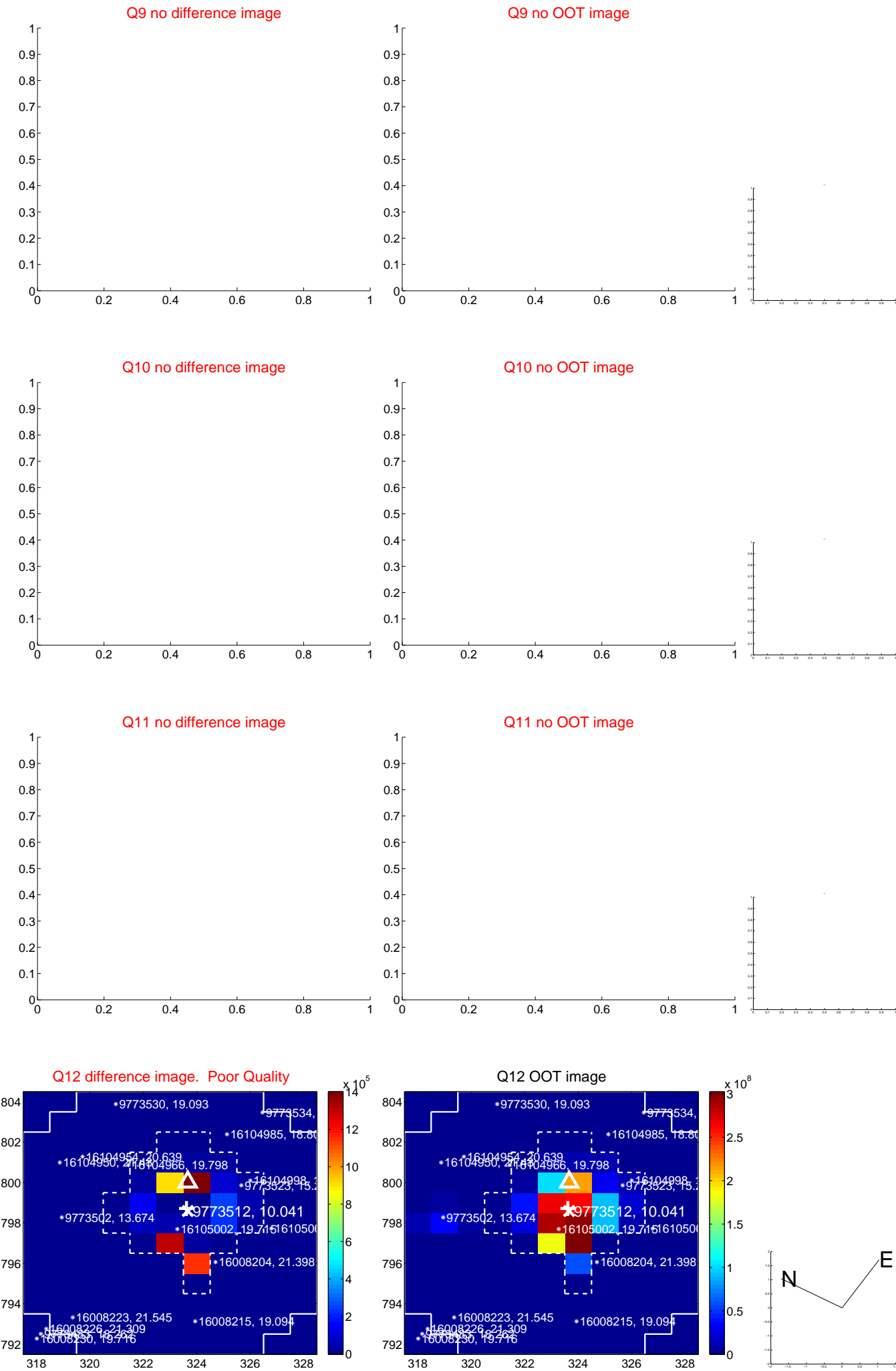
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



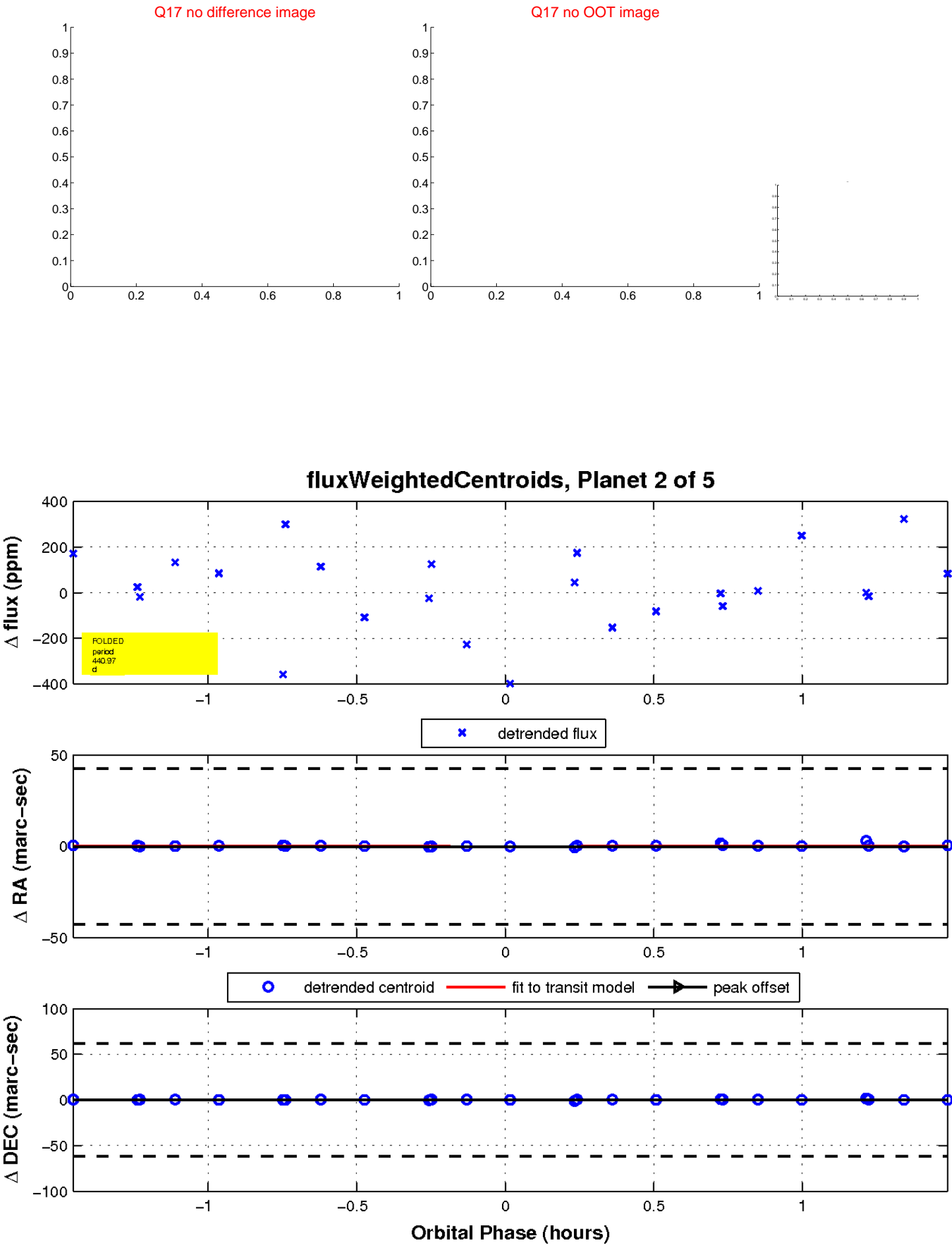
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

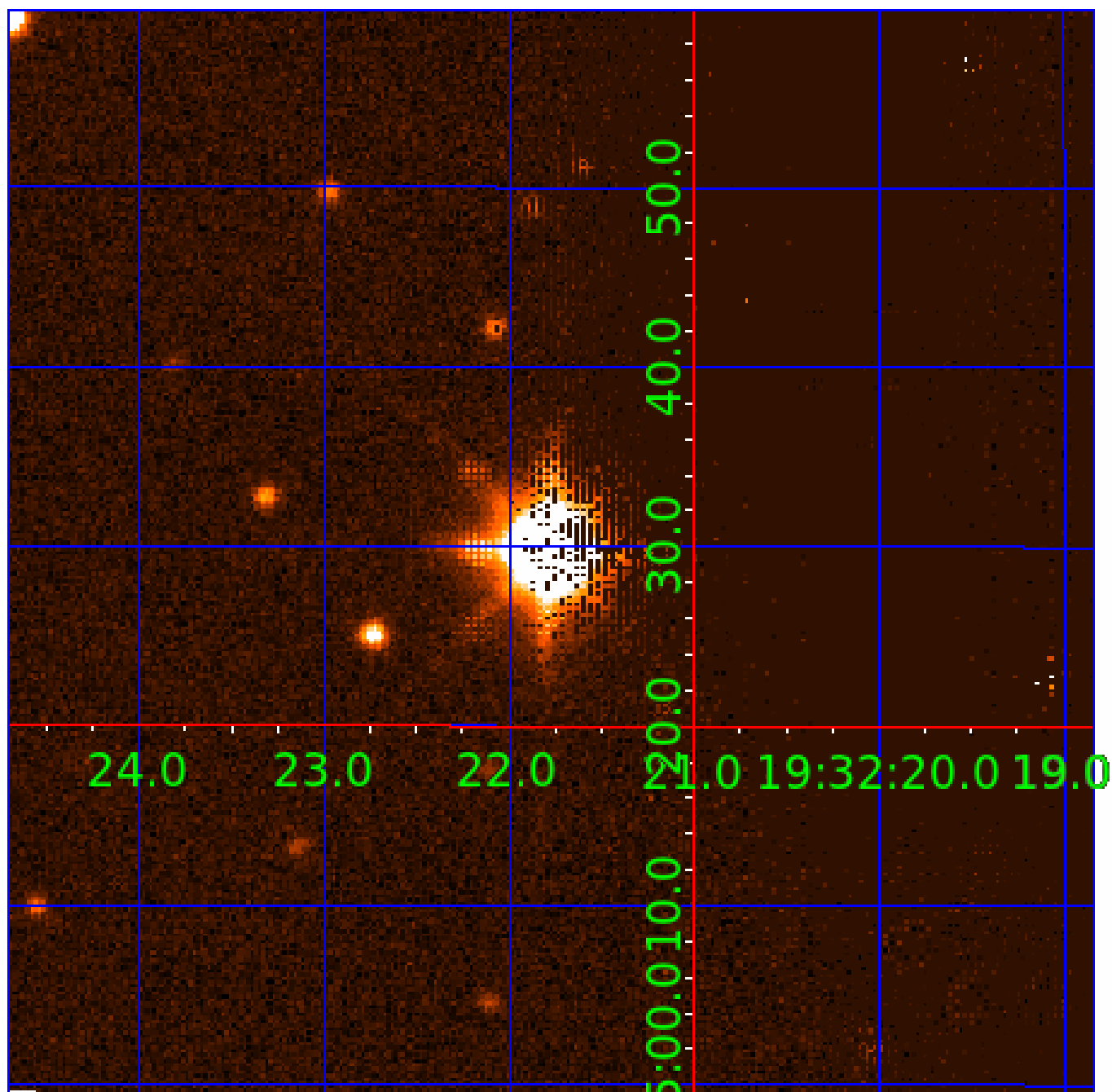


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009773512

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})
009773512-01	OBS	No	0.700698	131.762252	26.3	2.718	11.6	13.0	3.28	8169	1.96	114938.14
009773512-02	OBS	No	440.969982	266.325816	396.2	0.519	14.1	1.9	3.28	8169	7.10	21.31
009773512-03	OBS	No	432.775710	266.055208	401.5	5.954	10.2	7.7	3.28	8169	7.13	21.85
009773512-04	OBS	No	566.241438	388.468833	438.7	3.612	10.1	7.3	3.28	8169	8.12	15.27
009773512-05	OBS	No	0.757751	131.639486	26.7	1.979	8.7	8.8	3.28	8169	1.98	103546.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009773512-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009773512-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

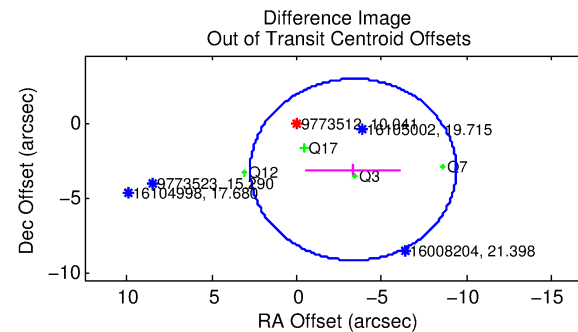
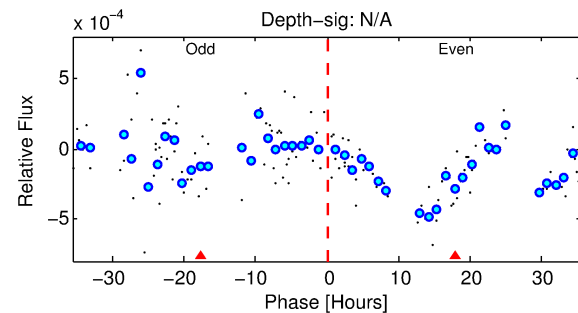
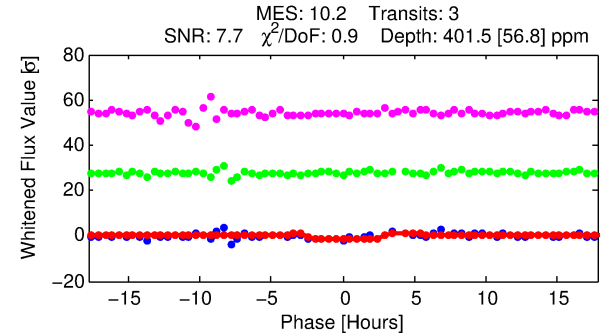
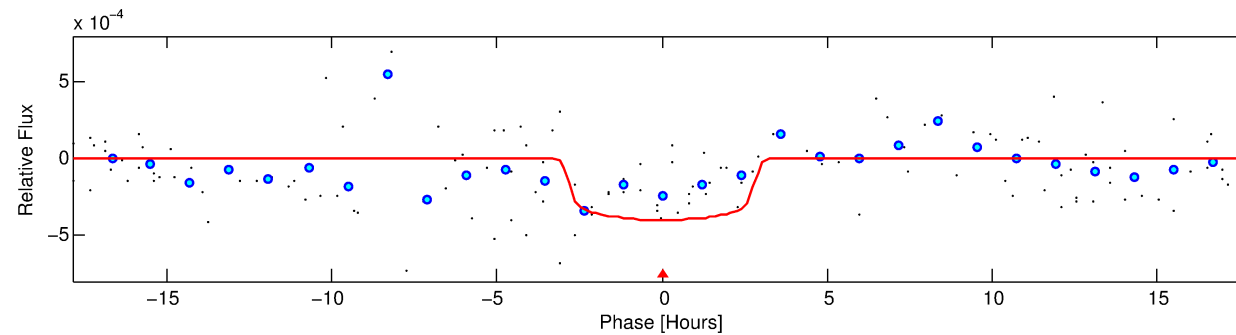
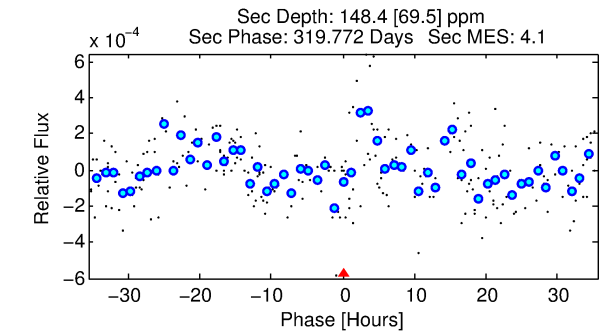
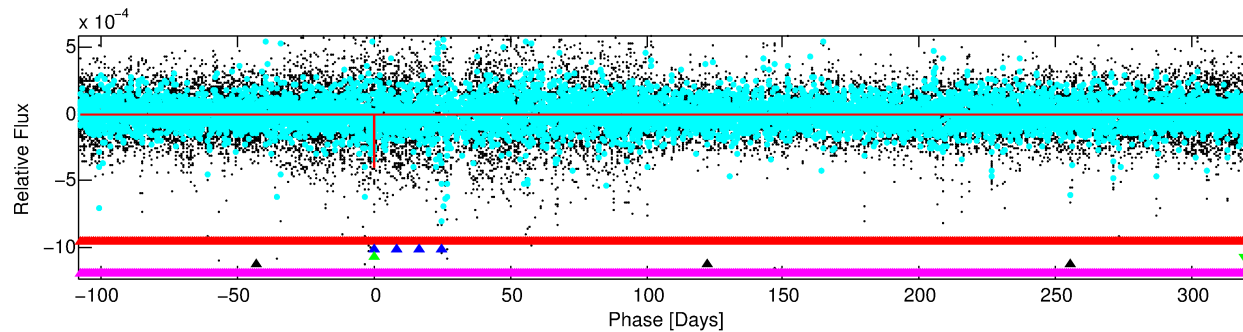
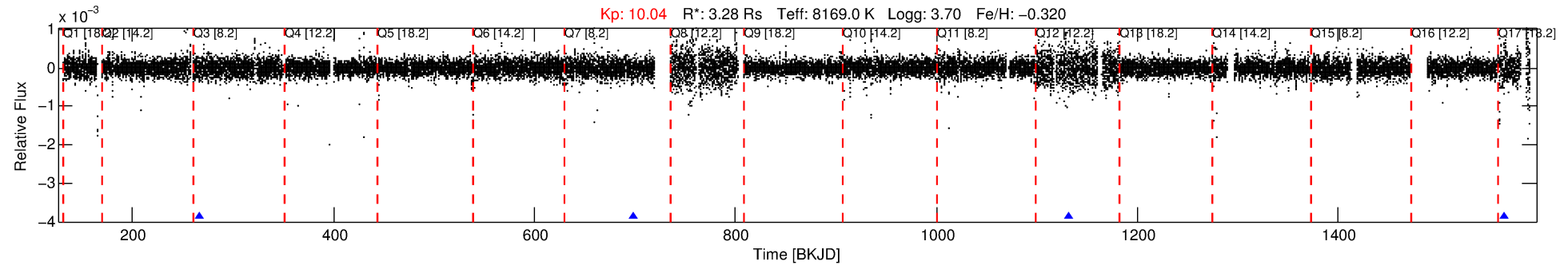
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009773512-03

No Significant Match Found

DV One-Page Summary

KIC: 9773512 Candidate: 3 of 5 Period: 432.776 d



DV Fit Results:

Period = 432.77571 [0.00485] d
Epoch = 266.0552 [0.0086] BKJD
Rp/R* = 0.0199 [0.0076]
a/R* = 388.29 [819.35]
b = 0.74 [1.28]
Seff = 21.85 [17.59]
Teq = 551 [111] K
Rp = 7.13 [4.53] Re
a = 1.4033 [0.6888] AU
Ag = 3162.34 [3782.20] [0.84σ]
Teffp = 6392 [1461] K [3.99σ]

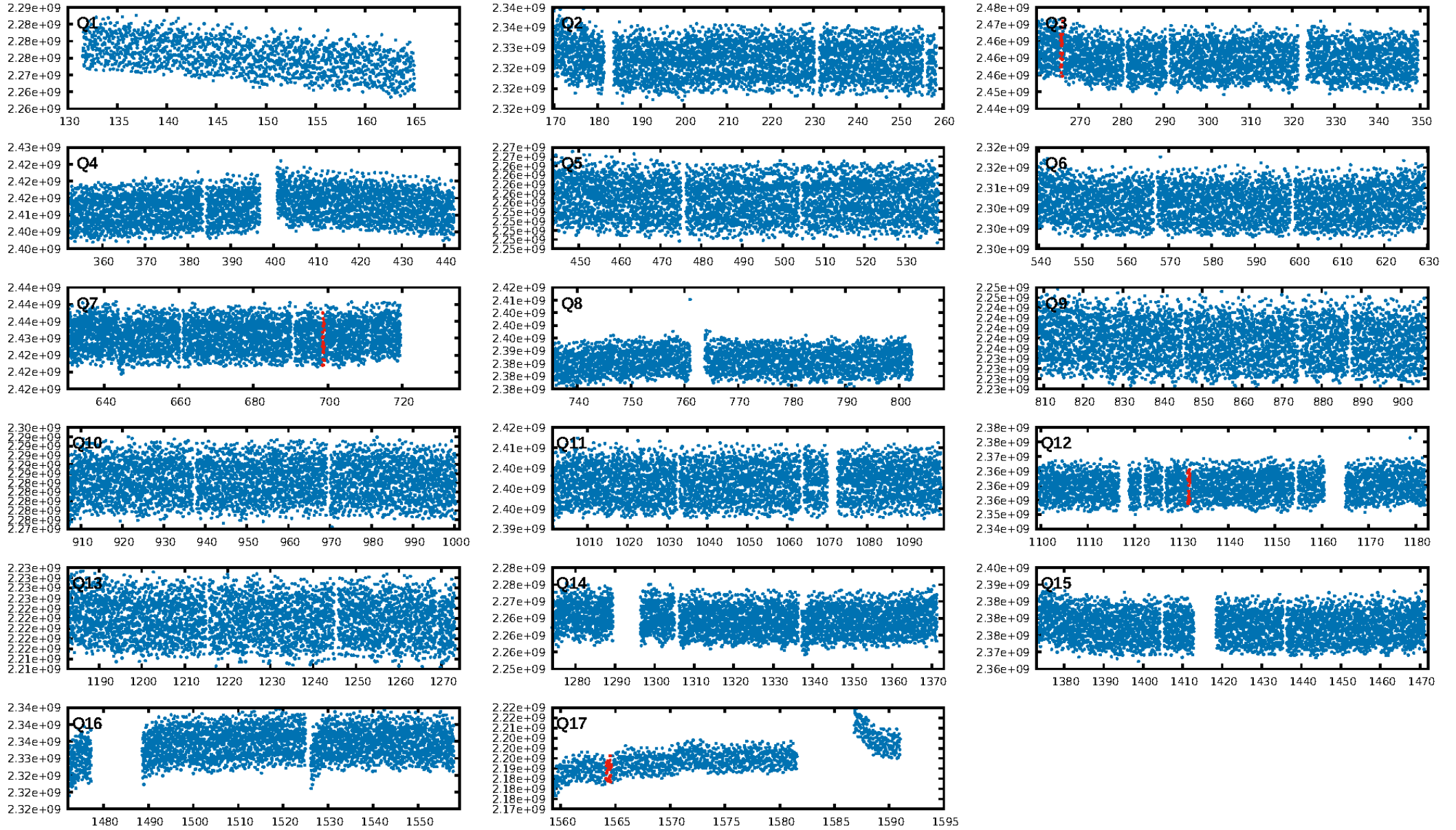
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1652.64σ]
LongPeriod-sig: 100.0% [32.91σ]
ModelChiSquare2-sig: 21.4%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.67e-10
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: N/A
Centroid-sig: 23.7%
Centroid-so: 0.600 arcsec [1.28σ]
OotOffset-rm: 4.579 arcsec [2.27σ]
KicOffset-rm: 4.549 arcsec [2.68σ]
OotOffset-st: 0/2/1/1 [4]
KicOffset-st: 0/2/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.00 [0/4]

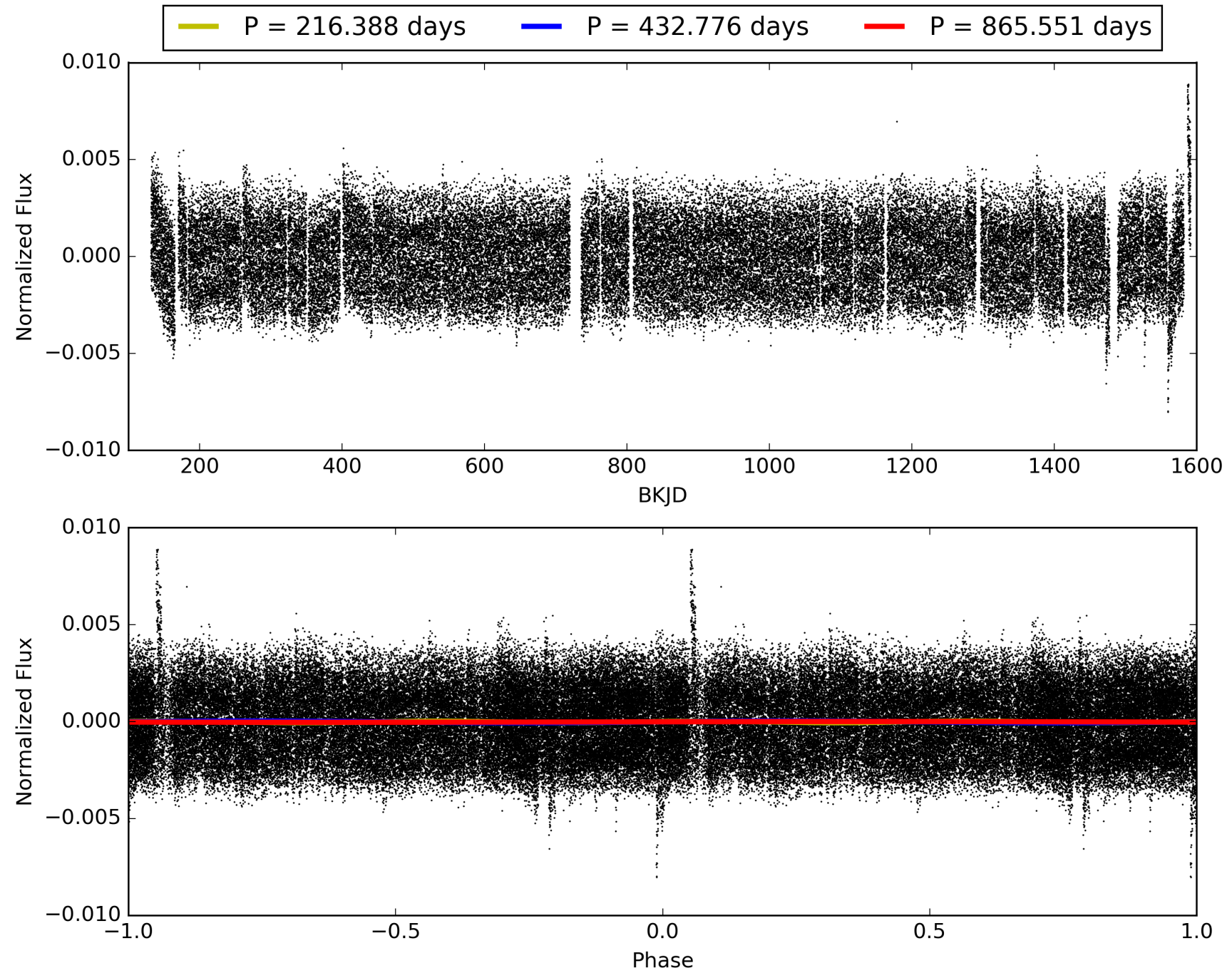
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:52:33 Z

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

TCE 009773512-03, PDC Light Curves

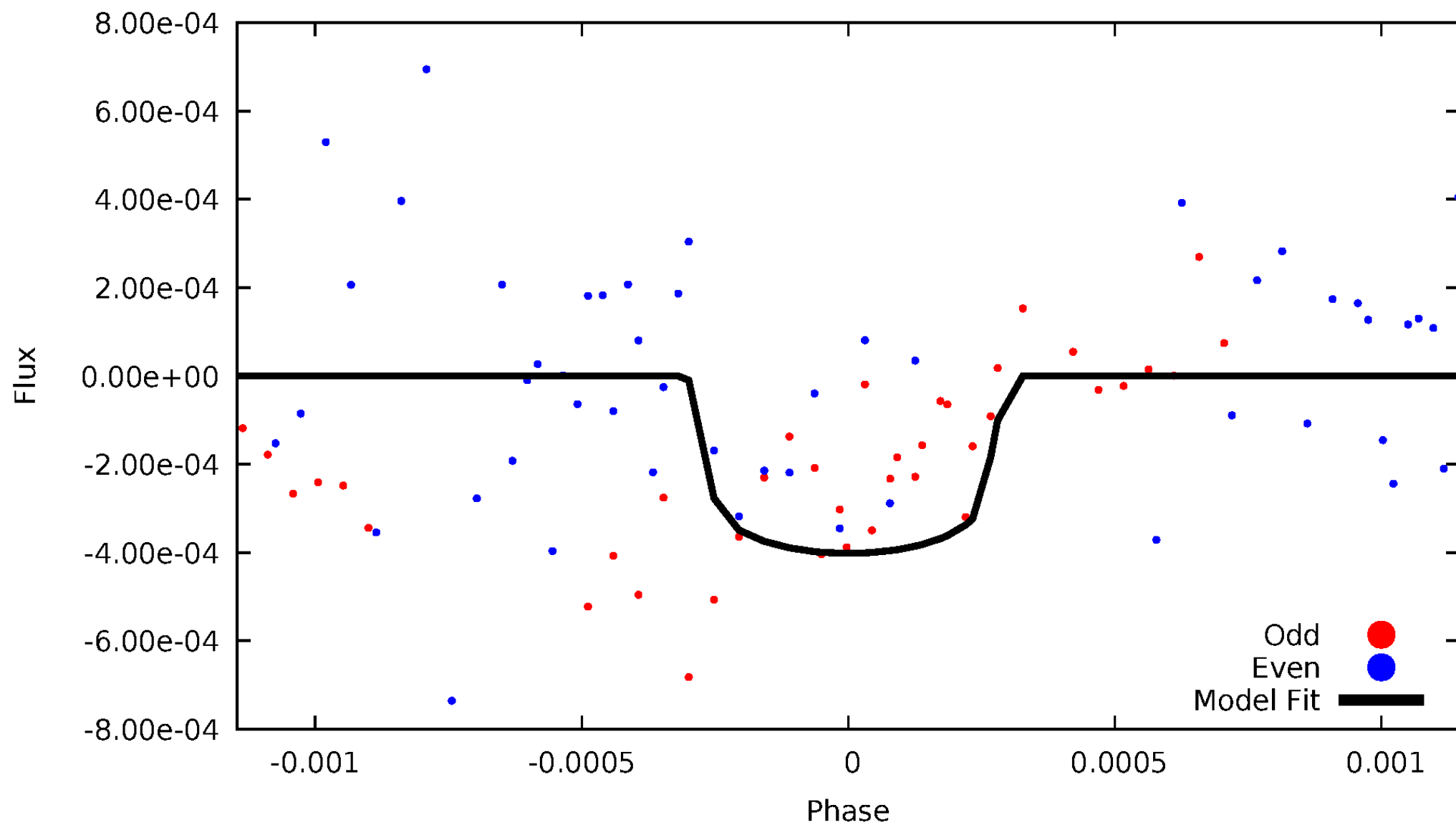


TCE 009773512-03



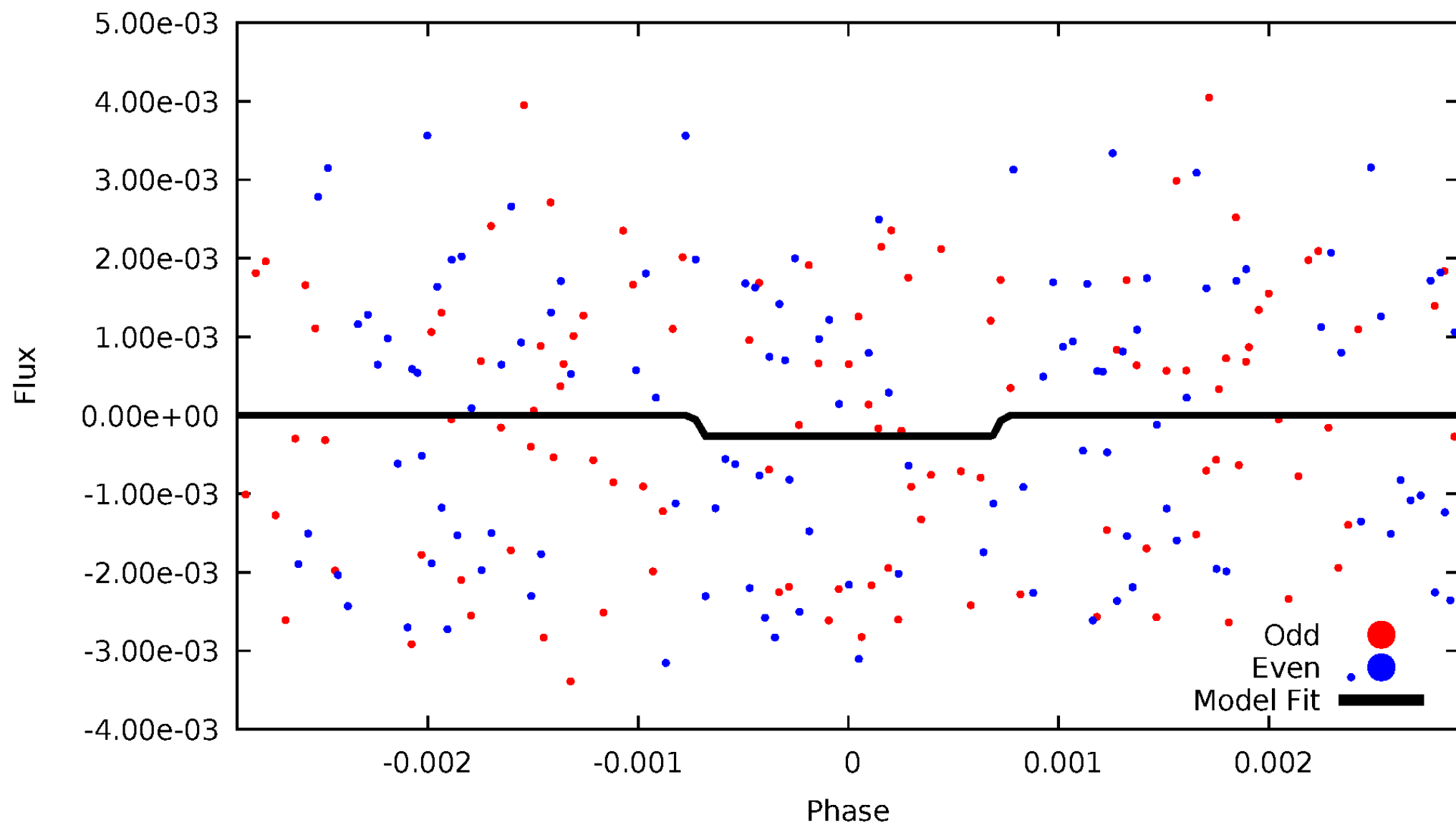
DV Odd/Even

TCE 009773512-03



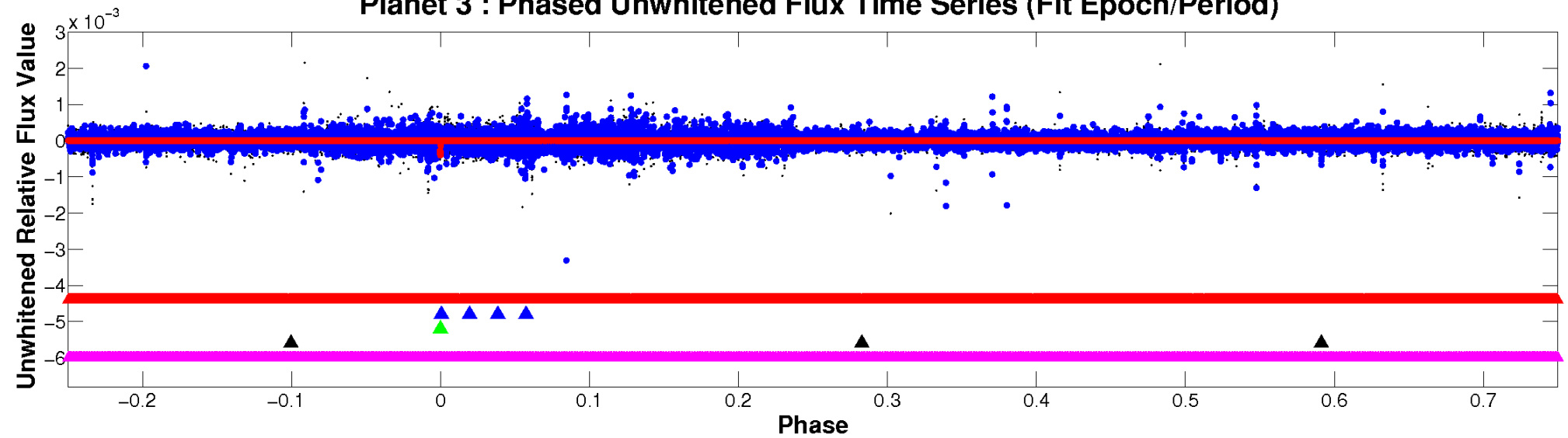
ALT Odd/Even

TCE 009773512-03

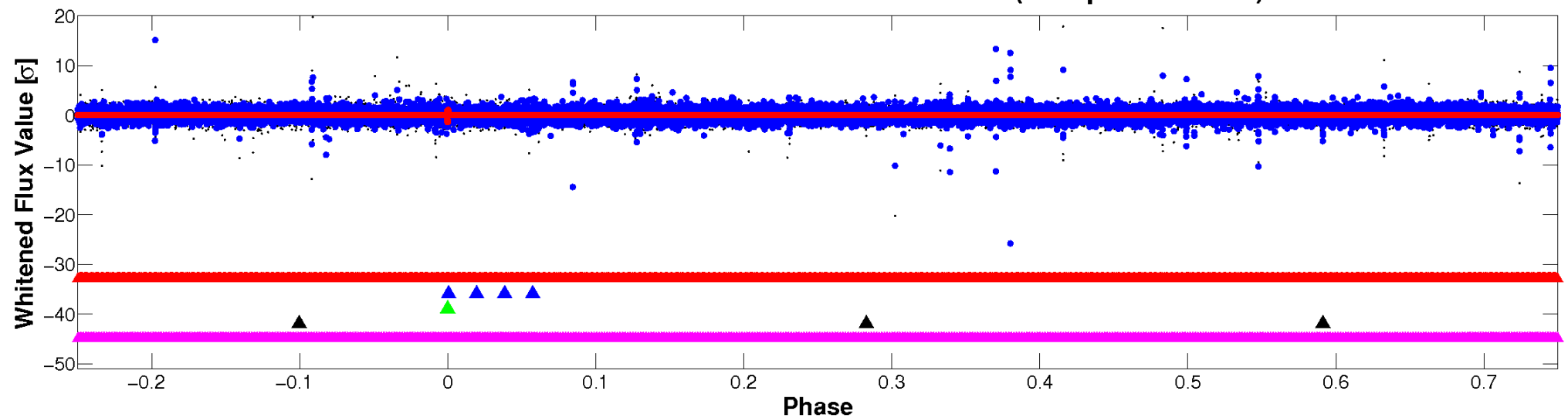


Non-Whitened Vs. Whitened Light Curve

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

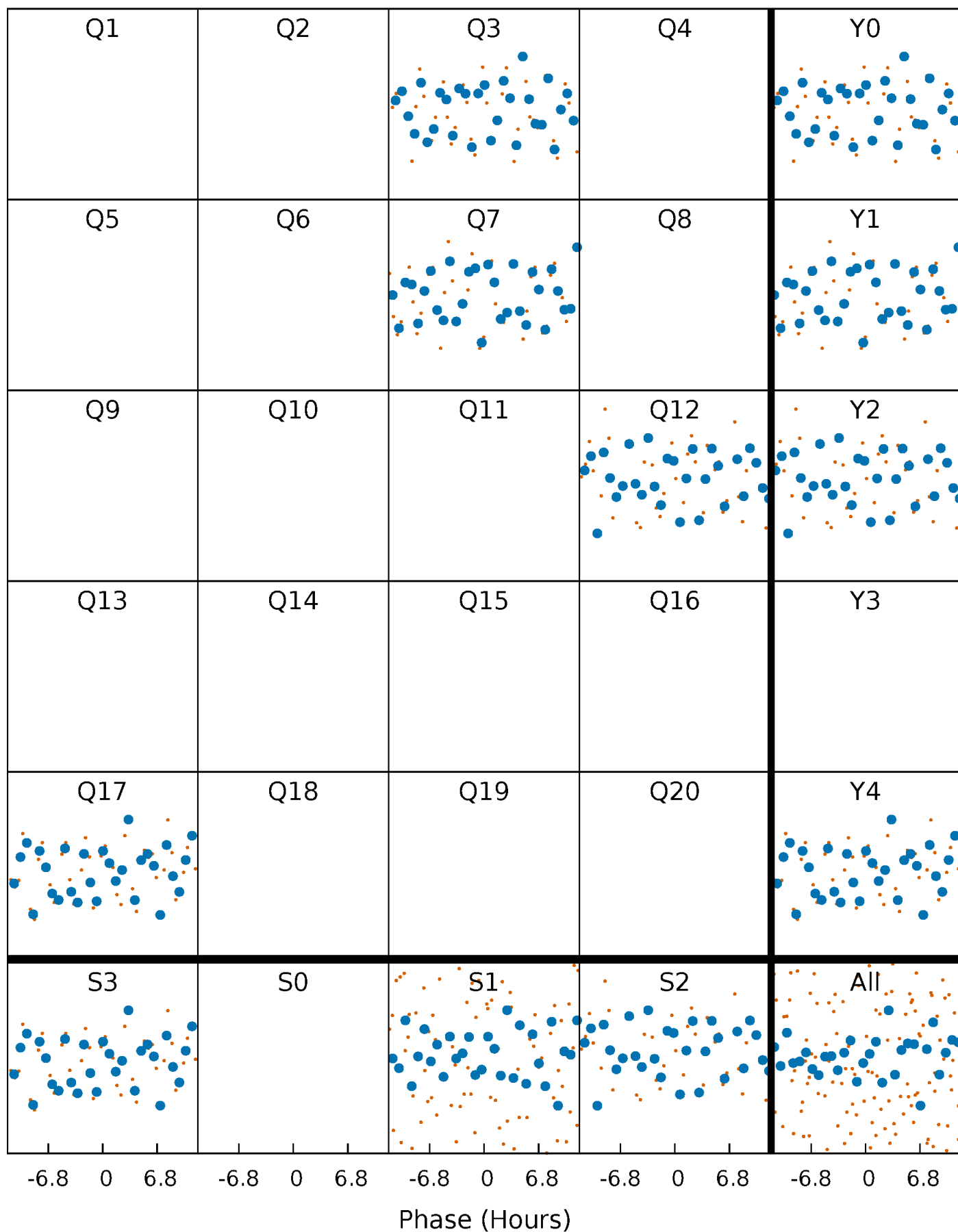


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



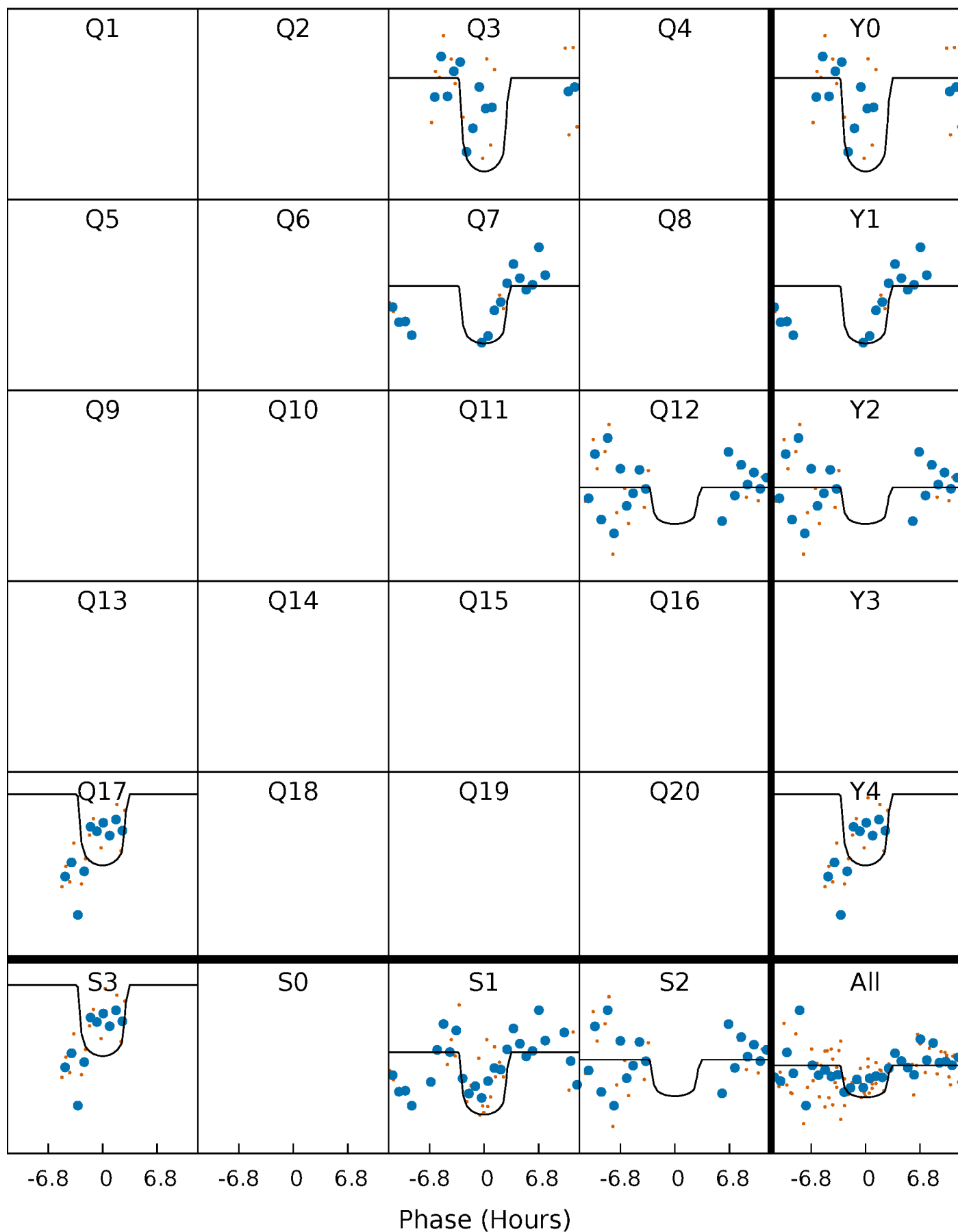
PDC Quarter-Phased Transit Curves

TCE 009773512-03 $P=432.775710$ Days $T_0=266.055208$ (BKJD)



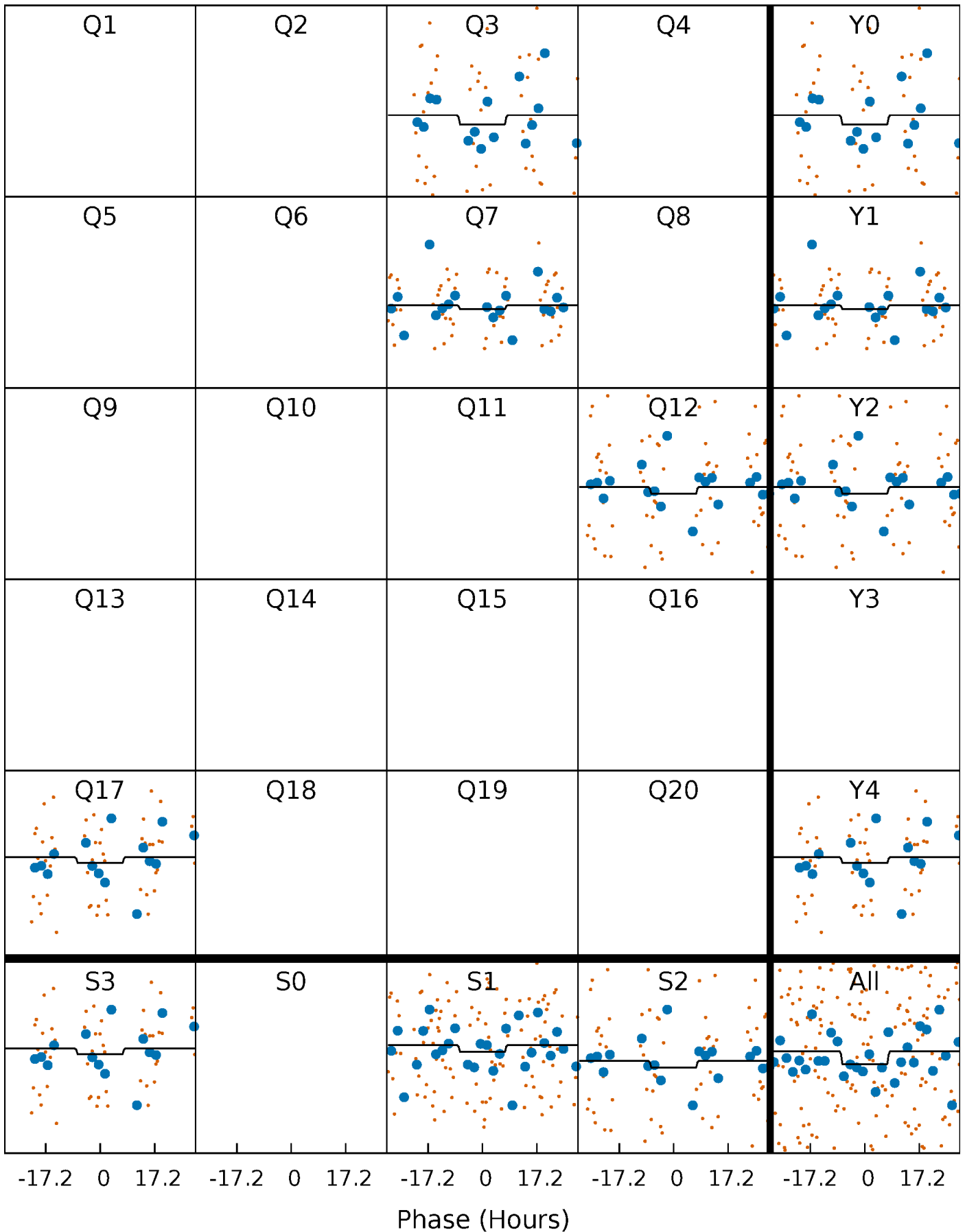
DV Quarter-Phased Transit Curves

TCE 009773512-03 P=432.775710 Days $T_0=266.055208$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

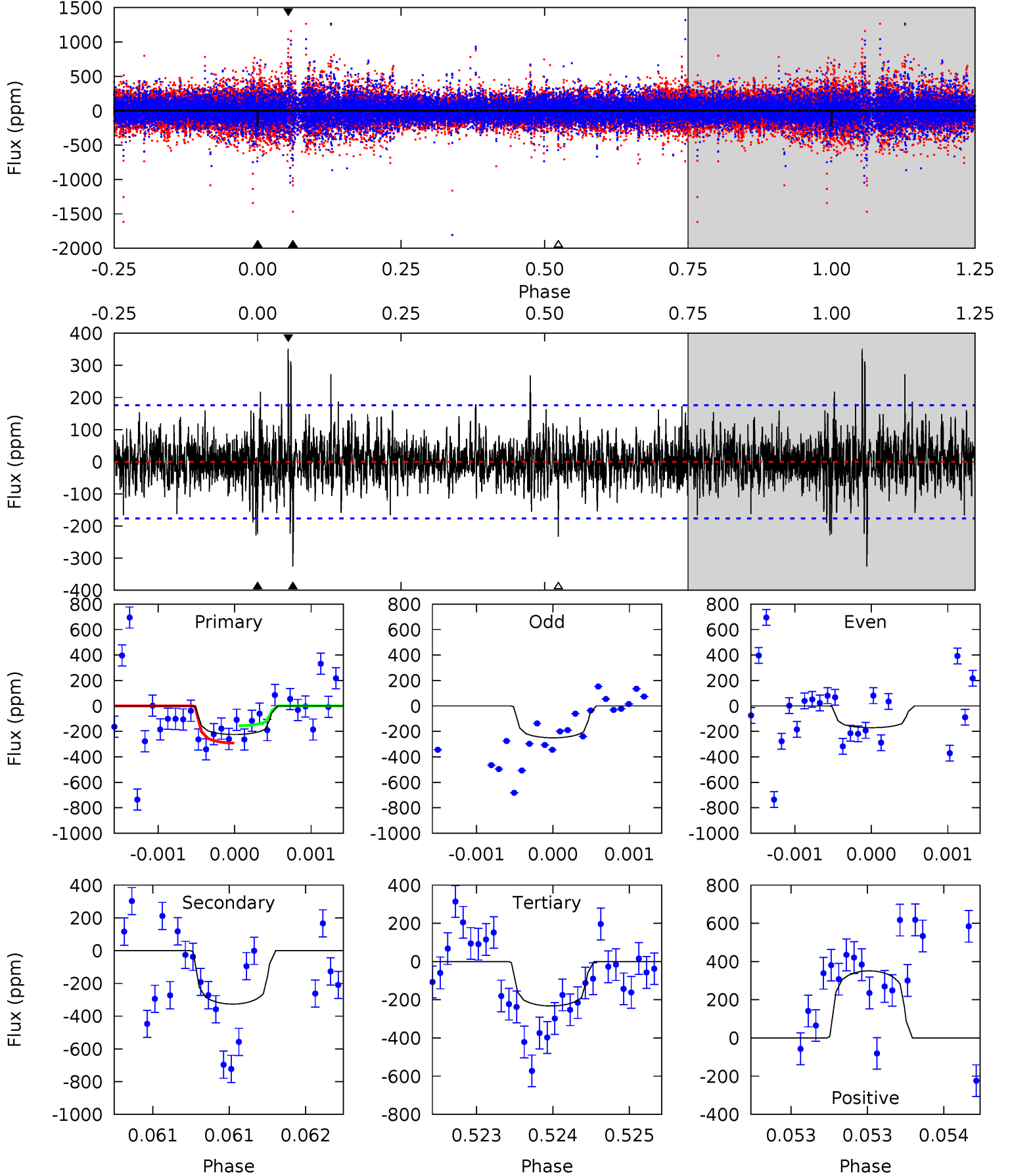
TCE 009773512-03 P=432.796423 Days $T_0=265.985621$ (BKJD)



DV Model-Shift Uniqueness Test

009773512-03, P = 432.775710 Days, E = 266.055208 Days

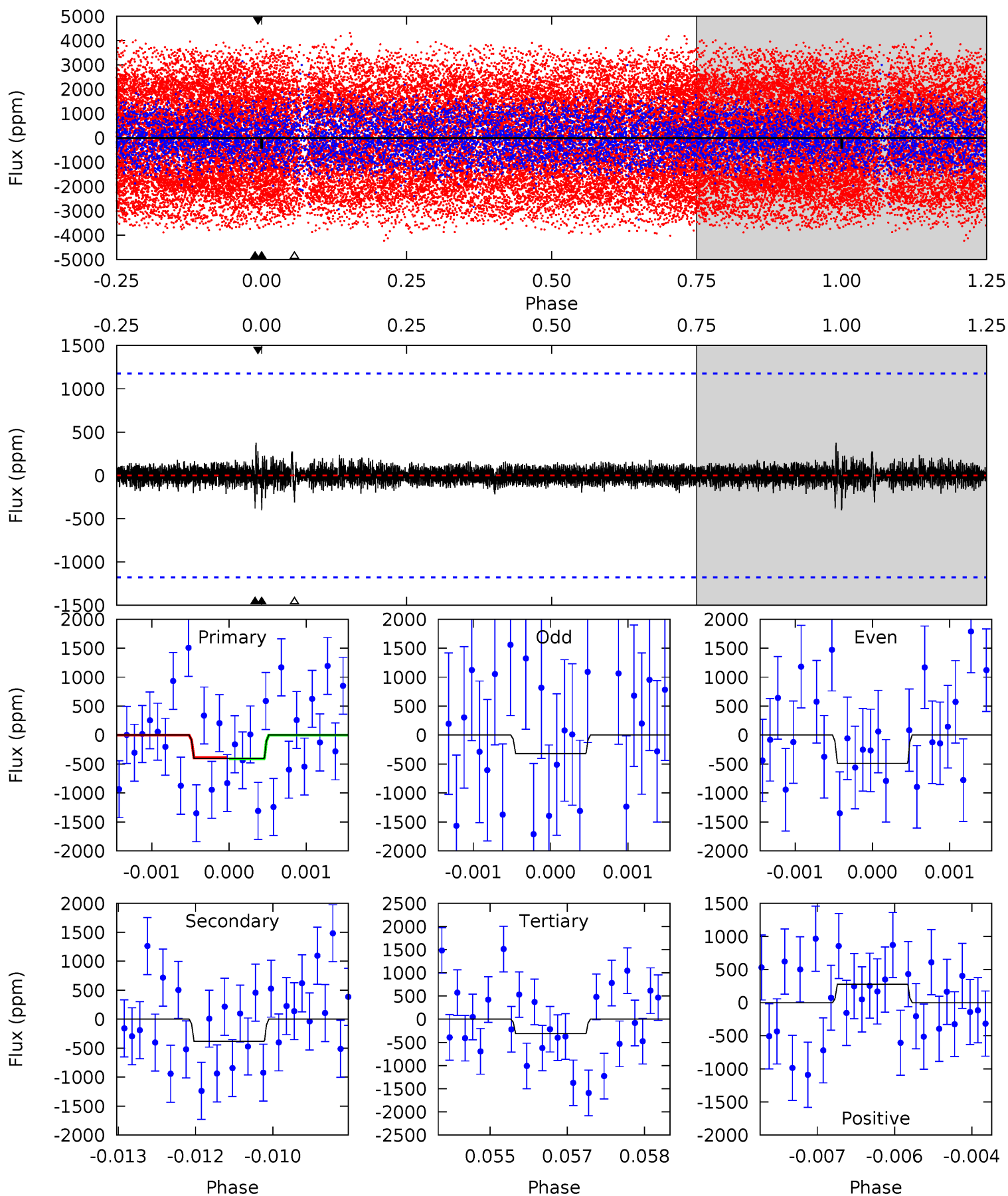
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.06	10.3	7.32	11.1	5.55	3.44	1.64	-0.26	-4.00	2.96	-0.78	1.18	0.92	0.52	2.15



Alt Model-Shift Uniqueness Test

009773512-03, P = 432.796423 Days, E = 265.985621 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.84	1.74	1.43	1.27	5.38	3.18	0.28	0.41	0.57	0.32	0.47	0.38	1.03	0.48	0.04



Stellar Parameters For KIC 009773512

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8169^{+223}_{-334}	$3.699^{+0.464}_{-0.087}$	$-0.320^{+0.200}_{-0.300}$	$3.284^{+0.555}_{-1.664}$	$1.964^{+0.322}_{-0.523}$	$0.078^{+0.414}_{-0.027}$
	+3%/-4%	+13%/-2%	+62%/-94%	+17%/-51%	+16%/-27%	+530%/-34%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009773512-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-327 ± 32	$6.37^{+3.10}_{-2.67}$	741^{+55}_{-86}	7734^{+2979}_{-1368}	8782^{+17246}_{-4736}
Alt.	-381 ± 219	$5.08^{+2.99}_{-2.38}$	745^{+52}_{-90}	9106^{+5768}_{-2820}	14769^{+40470}_{-10900}

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 $A_{obs} \gg 1.0$

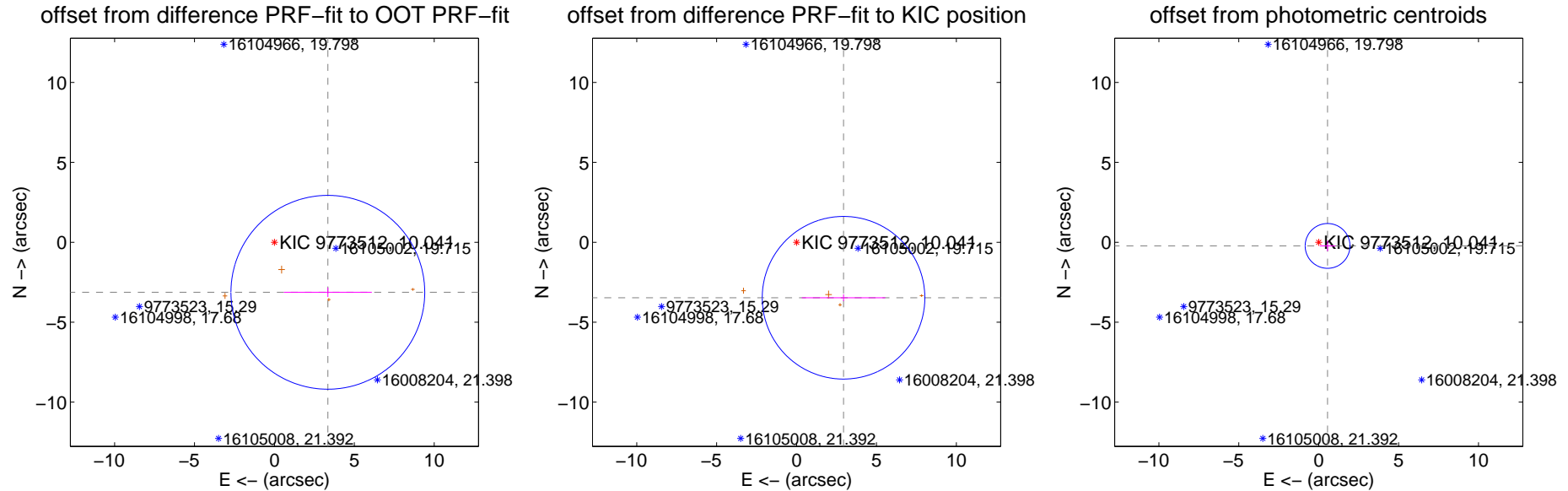
DV Centroid Data

Supplemental centroid analysis for 009773512-03. **Kepler magnitude: 10.04.** Transit SNR 7.68

There are 0 quarters with good PRF difference image offsets

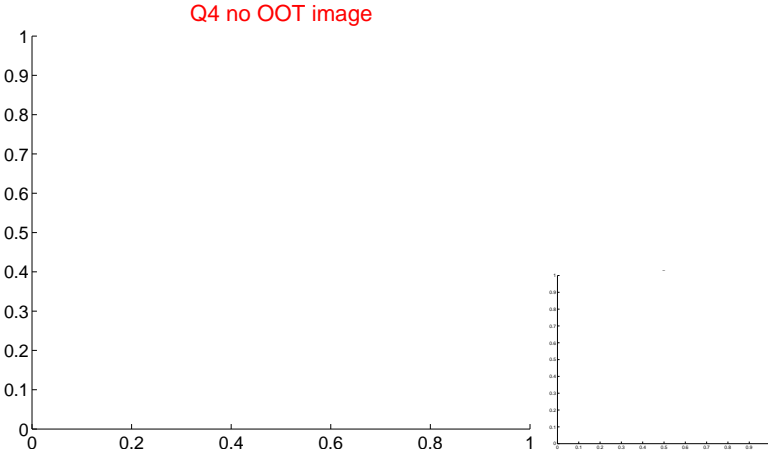
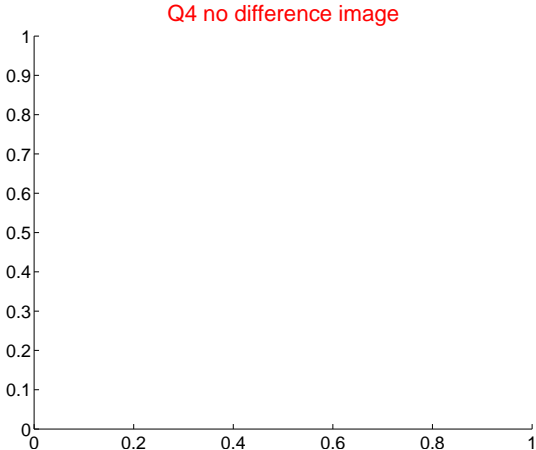
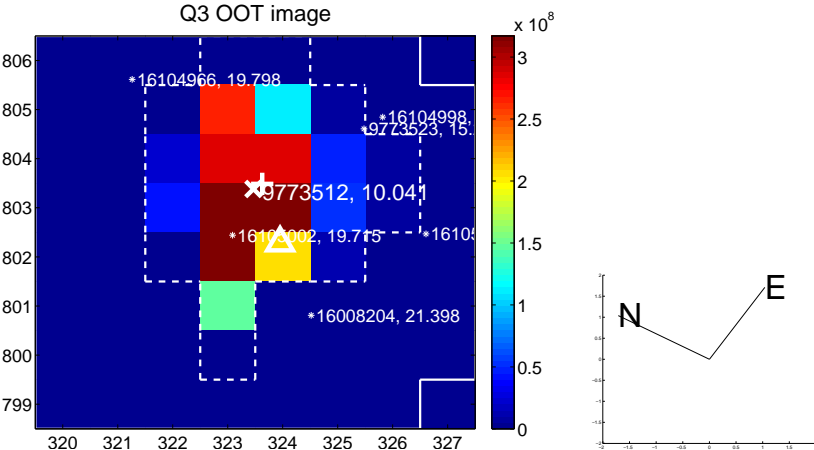
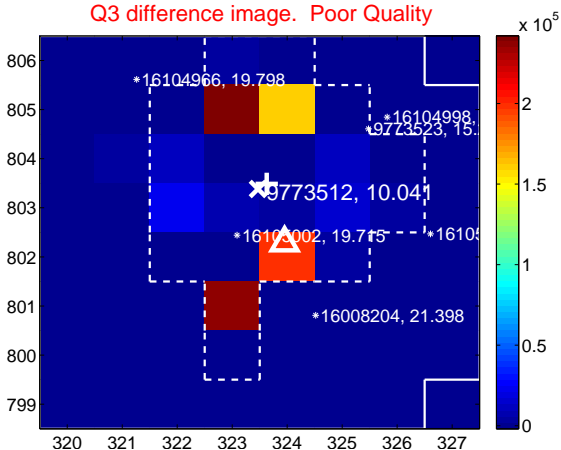
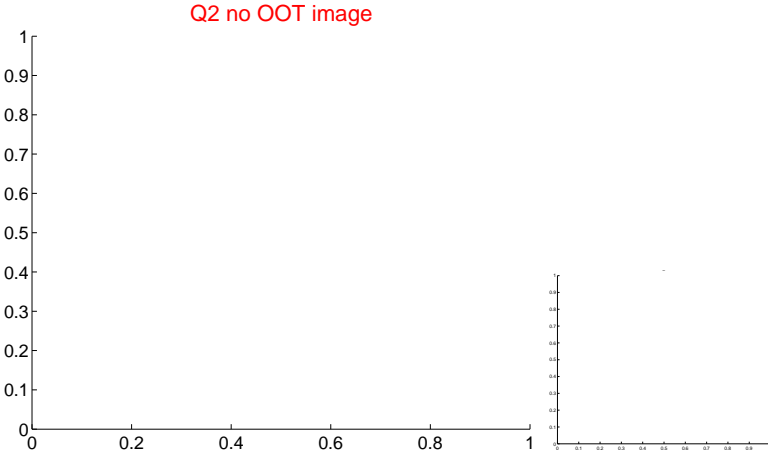
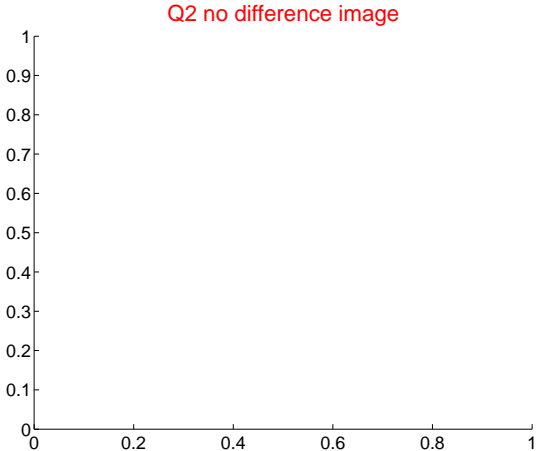
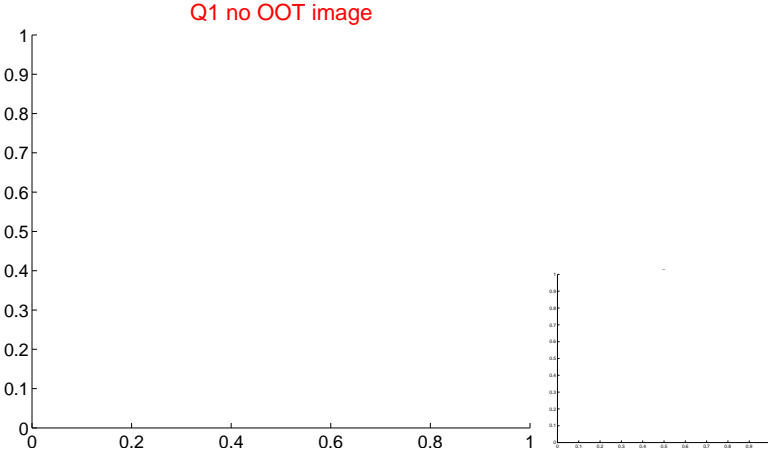
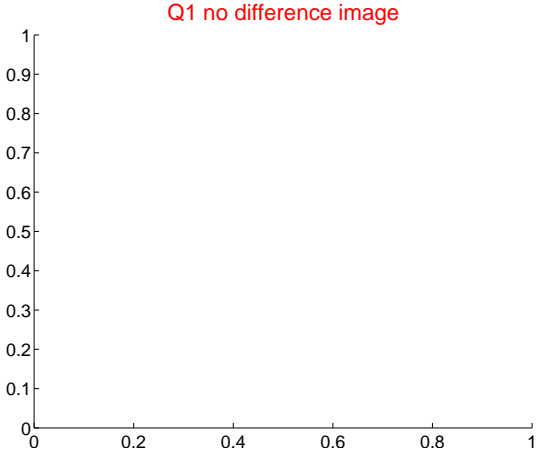
The OOT PRF centroid is offset from the target star catalog position by about 2.20 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.579 ± 2.021	2.27	-3.343 ± 2.755	-3.130 ± 0.296
PRF-fit source offset from KIC position	4.549 ± 1.696	2.68	-2.940 ± 2.612	-3.472 ± 0.215
photometric centroid source offset	0.60 ± 0.47	1.28	-0.56 ± 0.49	-0.23 ± 0.33

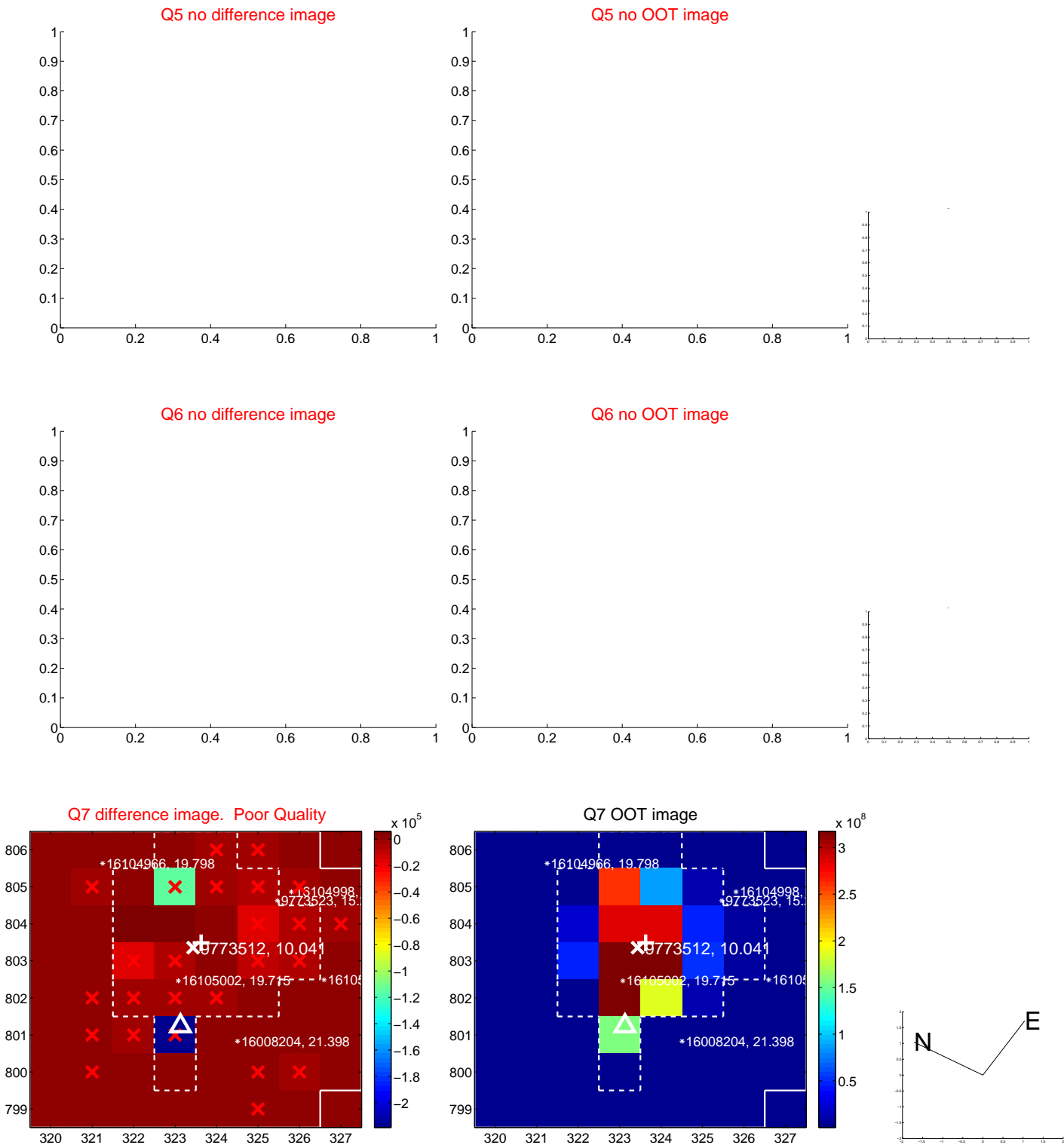


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

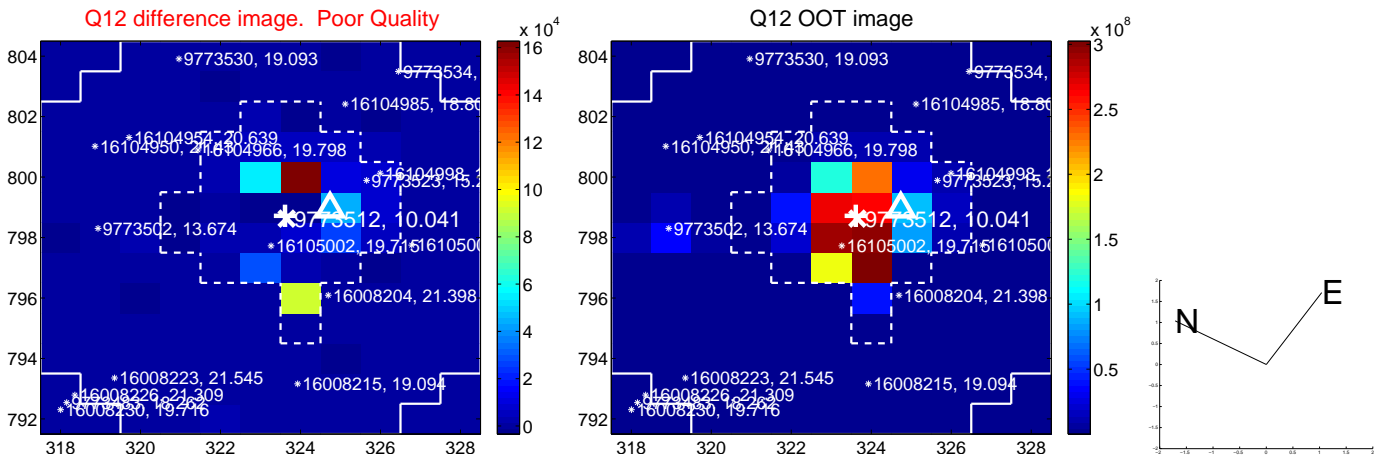
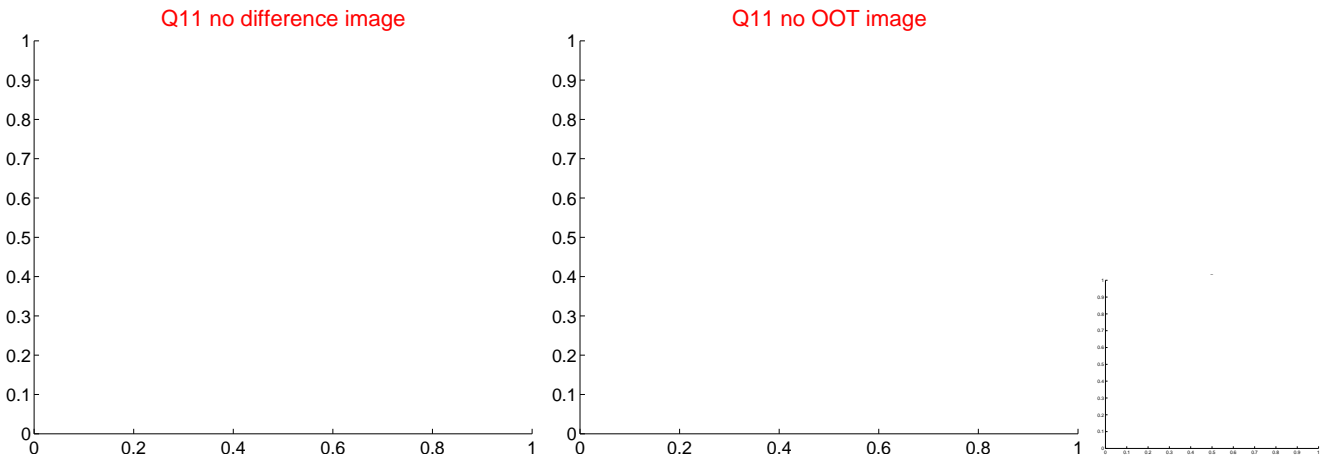
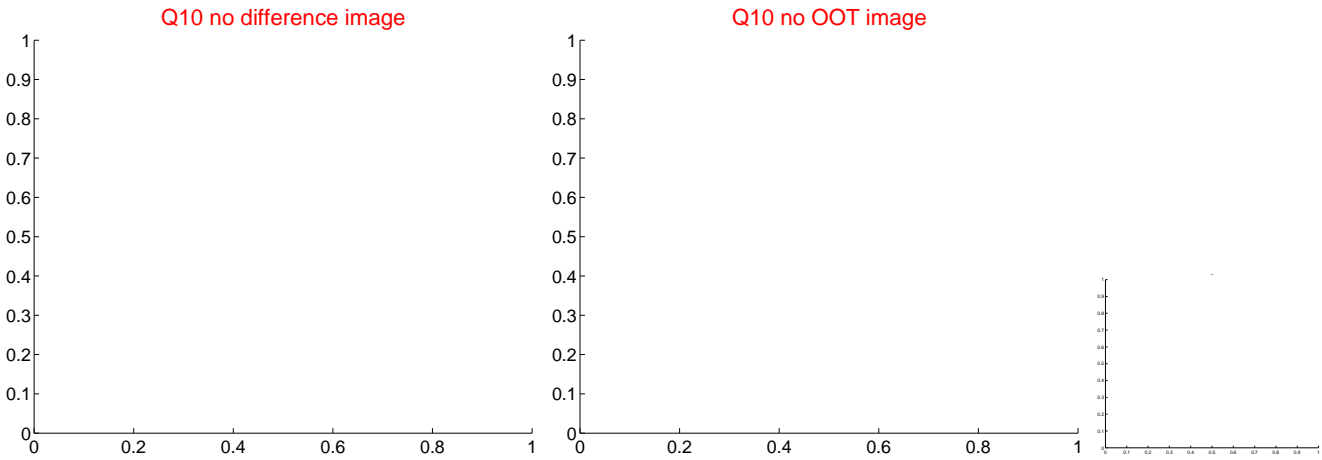
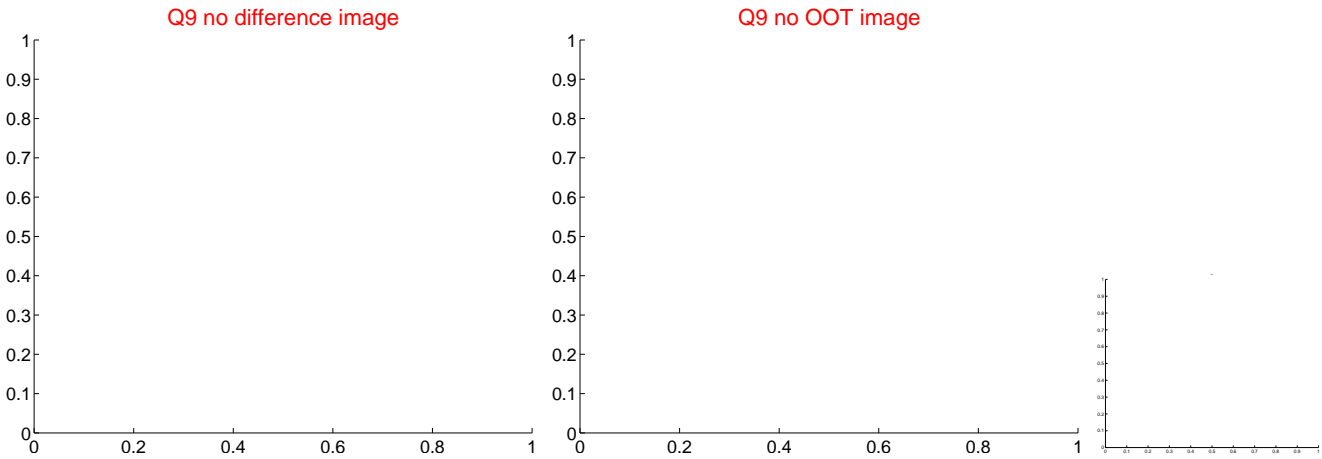
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



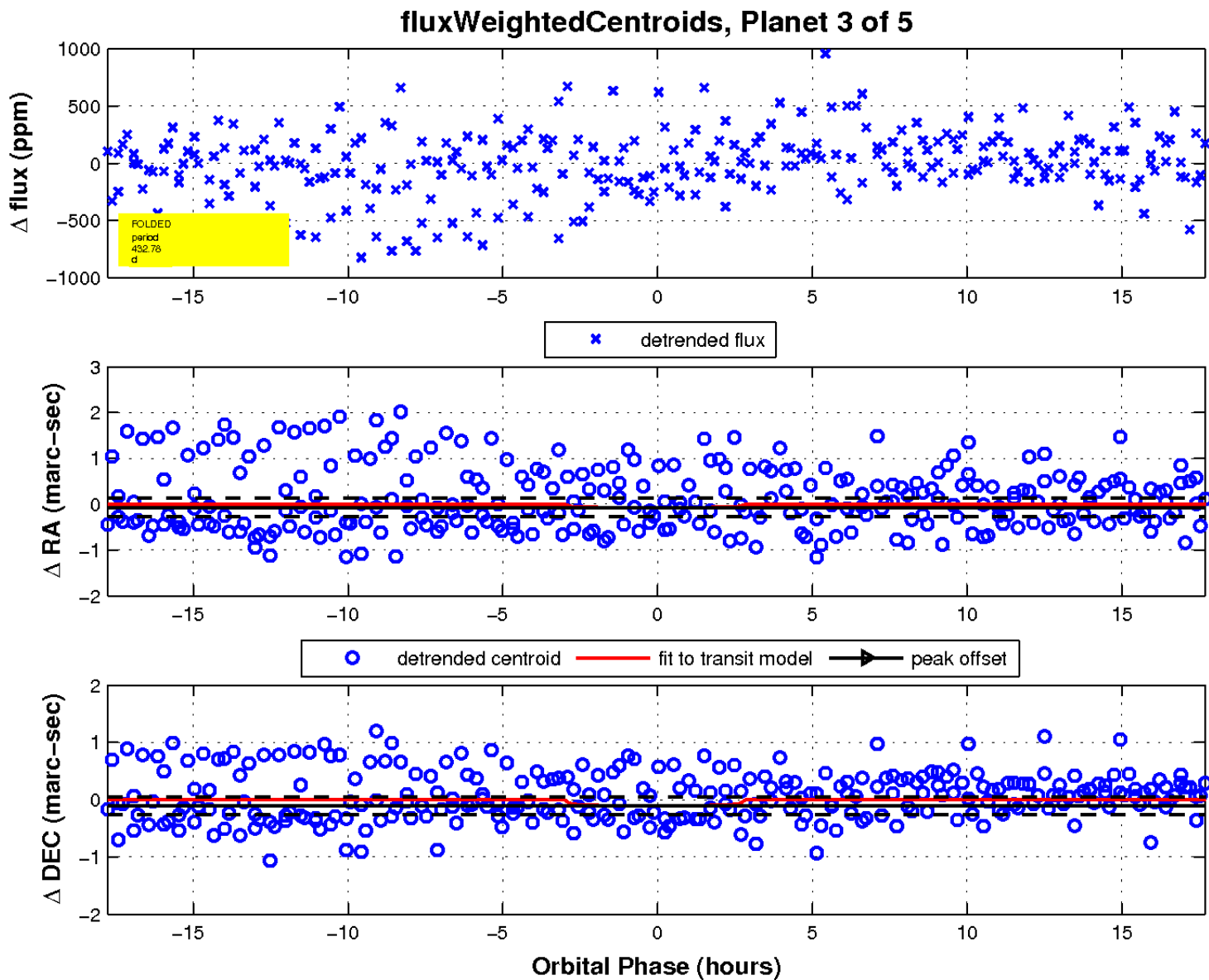
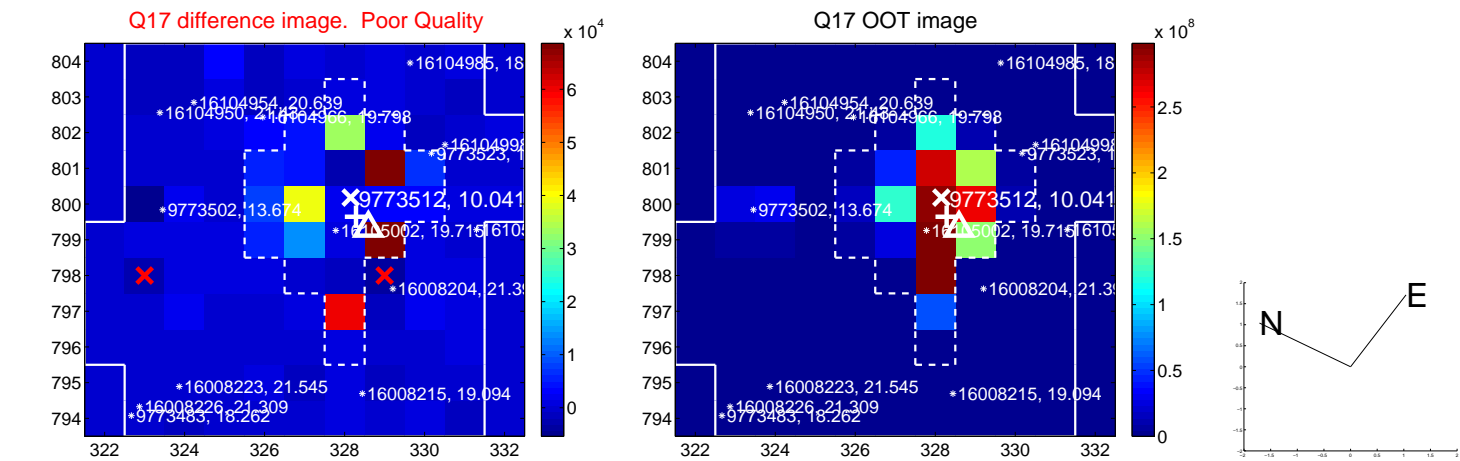
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

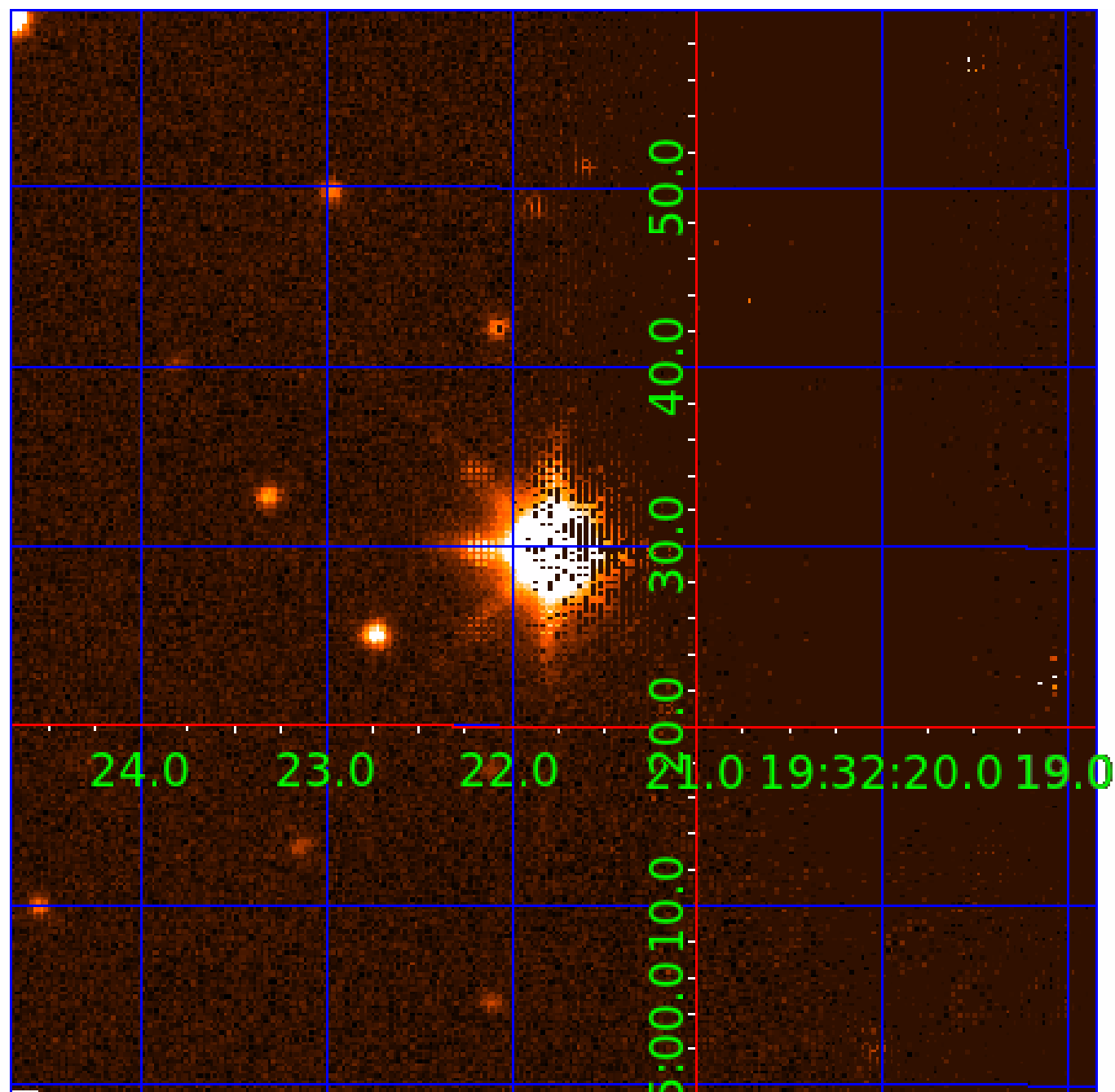


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009773512

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})
009773512-01	OBS	No	0.700698	131.762252	26.3	2.718	11.6	13.0	3.28	8169	1.96	114938.14
009773512-02	OBS	No	440.969982	266.325816	396.2	0.519	14.1	1.9	3.28	8169	7.10	21.31
009773512-03	OBS	No	432.775710	266.055208	401.5	5.954	10.2	7.7	3.28	8169	7.13	21.85
009773512-04	OBS	No	566.241438	388.468833	438.7	3.612	10.1	7.3	3.28	8169	8.12	15.27
009773512-05	OBS	No	0.757751	131.639486	26.7	1.979	8.7	8.8	3.28	8169	1.98	103546.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009773512-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009773512-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

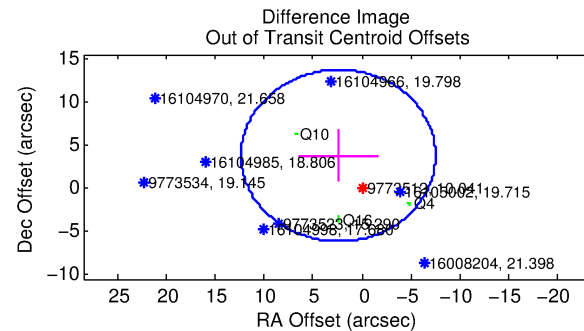
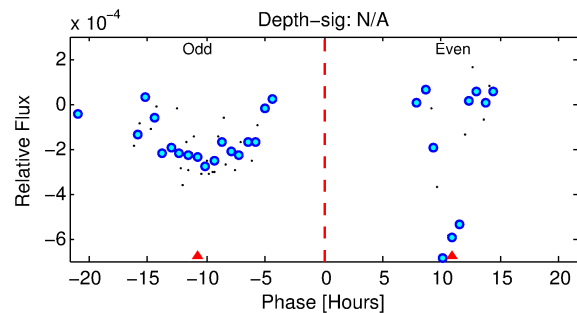
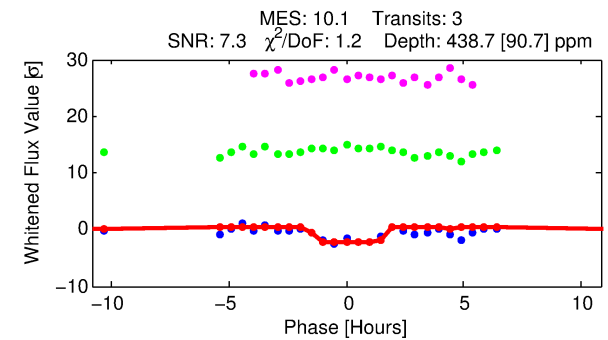
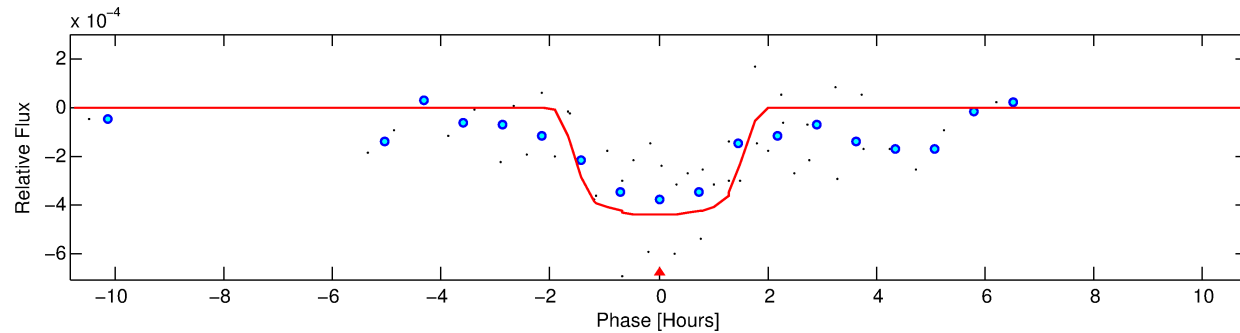
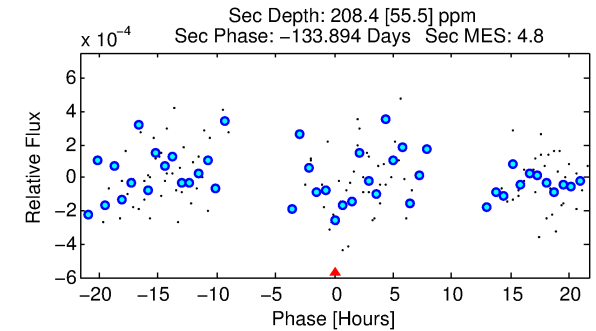
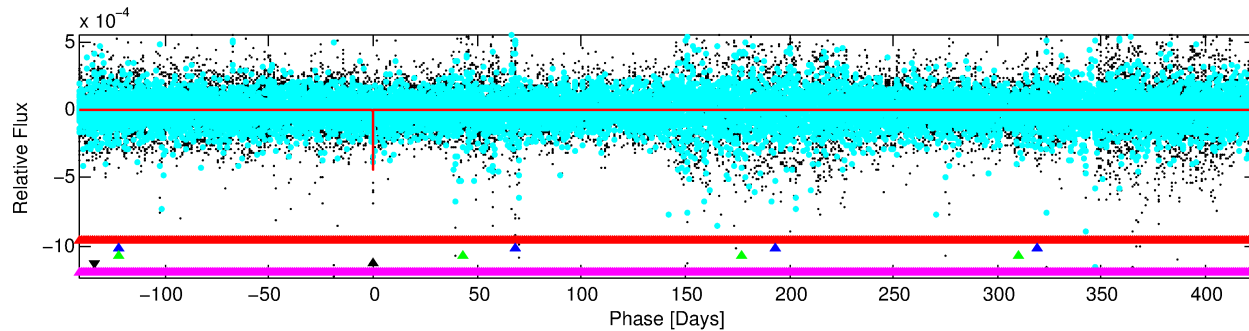
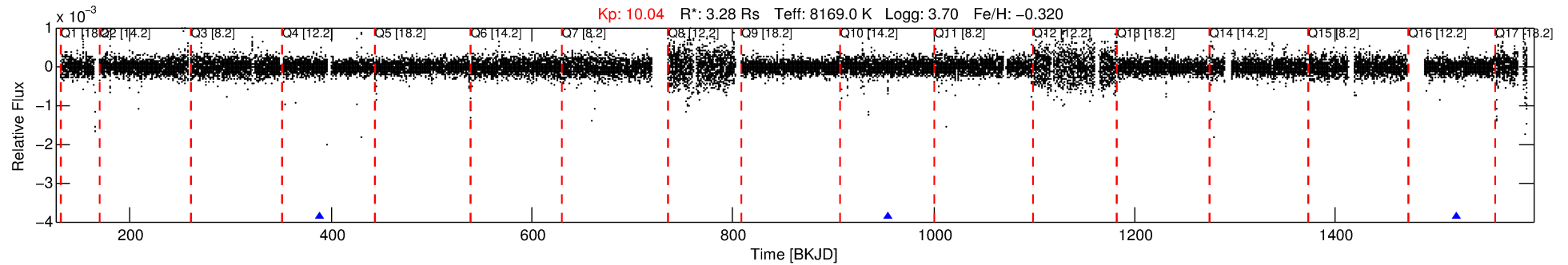
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009773512-04

No Significant Match Found

DV One-Page Summary

KIC: 9773512 Candidate: 4 of 5 Period: 566.241 d



DV Fit Results:

Period = 566.24144 [0.00761] d
Epoch = 388.4688 [0.0330] BKJD
Rp/R* = 0.0227 [0.0074]
a/R* = 543.75 [1027.77]
b = 0.92 [0.38]
Seff = 15.27 [12.29]
Teq = 504 [101] K
Rp = 8.12 [4.90] Re
a = 1.6787 [0.8240] AU
Ag = 4896.18 [5186.36] [0.94] σ
Teffp = 6519 [1184] K [5.06] σ

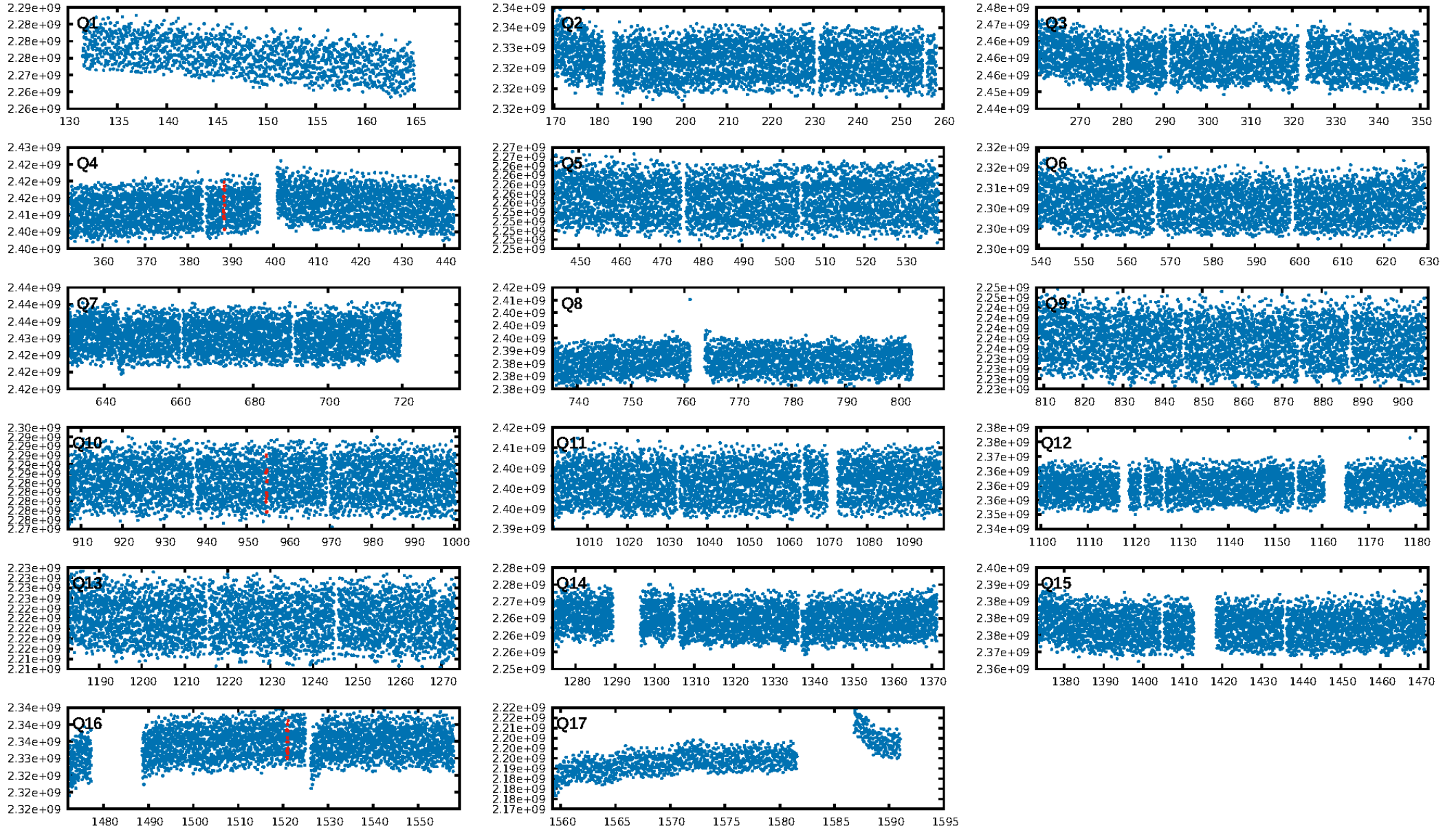
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [824.02] σ
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.8%
ModelChiSquareGof-sig: 97.9%
Bootstrap-pfa: 1.50e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 47.3%
Centroid-so: 1.514 arcsec [2.14] σ
OotOffset-rm: 4.497 arcsec [1.36] σ
KicOffset-rm: 4.517 arcsec [1.41] σ
OotOffset-st: 1/0/2/0 [3]
KicOffset-st: 1/0/2/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.00 [0/3]

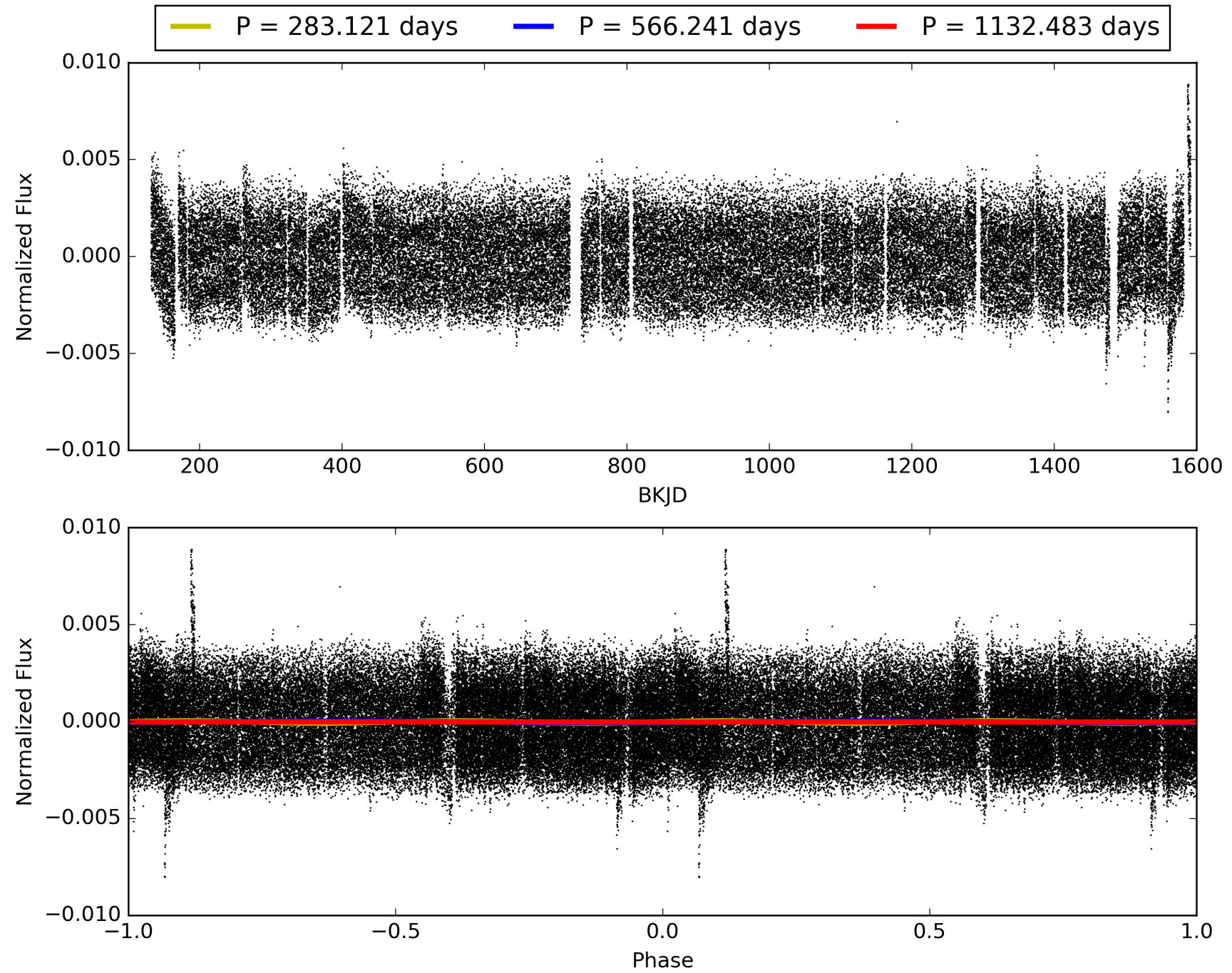
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:52:46 Z

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

TCE 009773512-04, PDC Light Curves

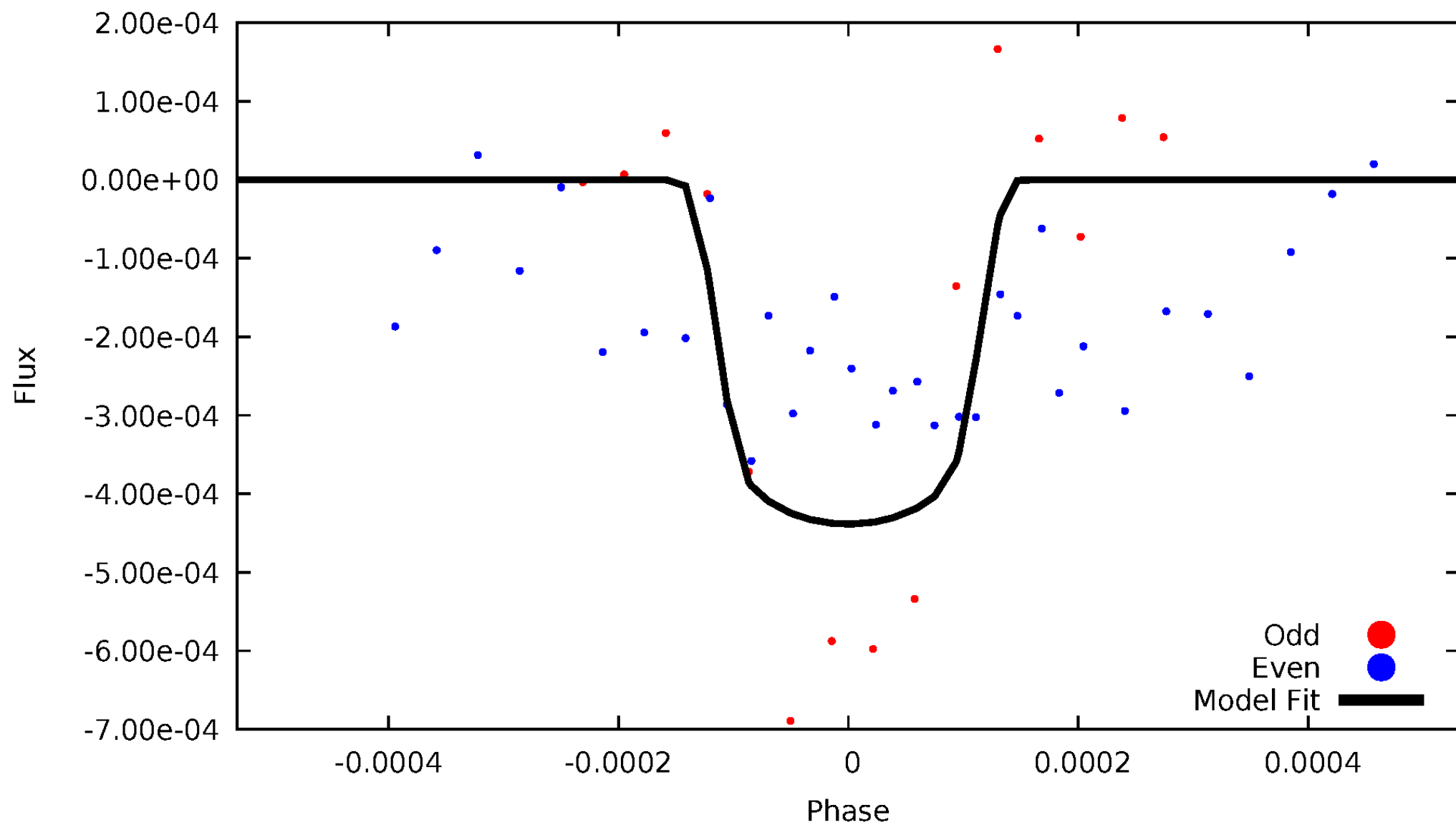


TCE 009773512-04



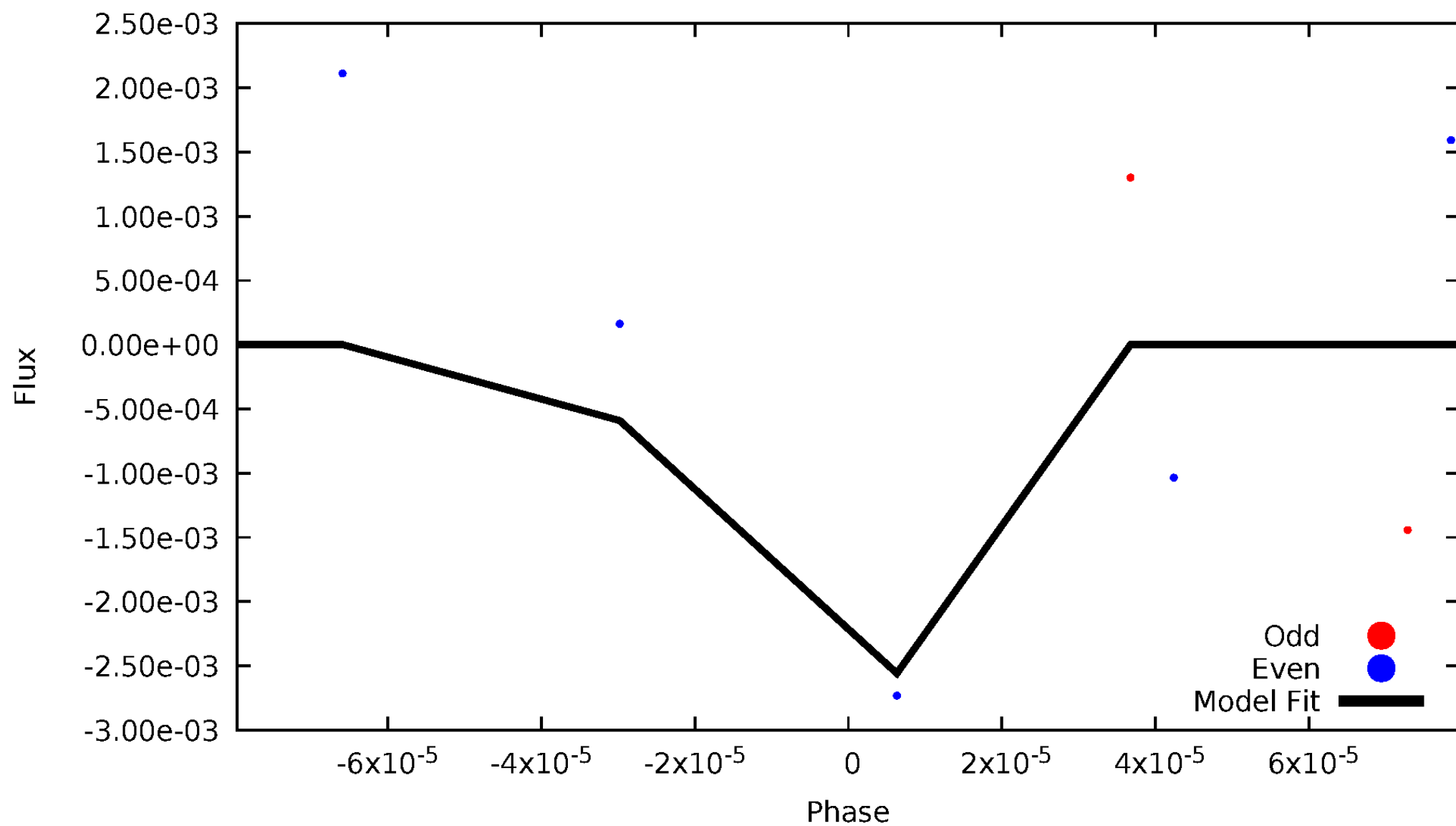
DV Odd/Even

TCE 009773512-04



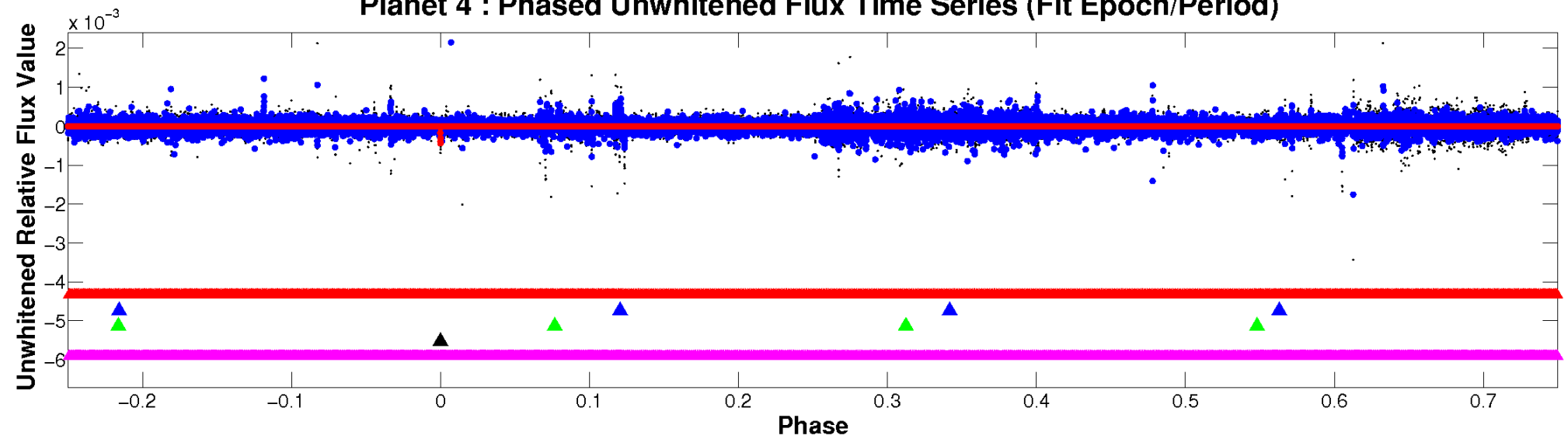
ALT Odd/Even

TCE 009773512-04

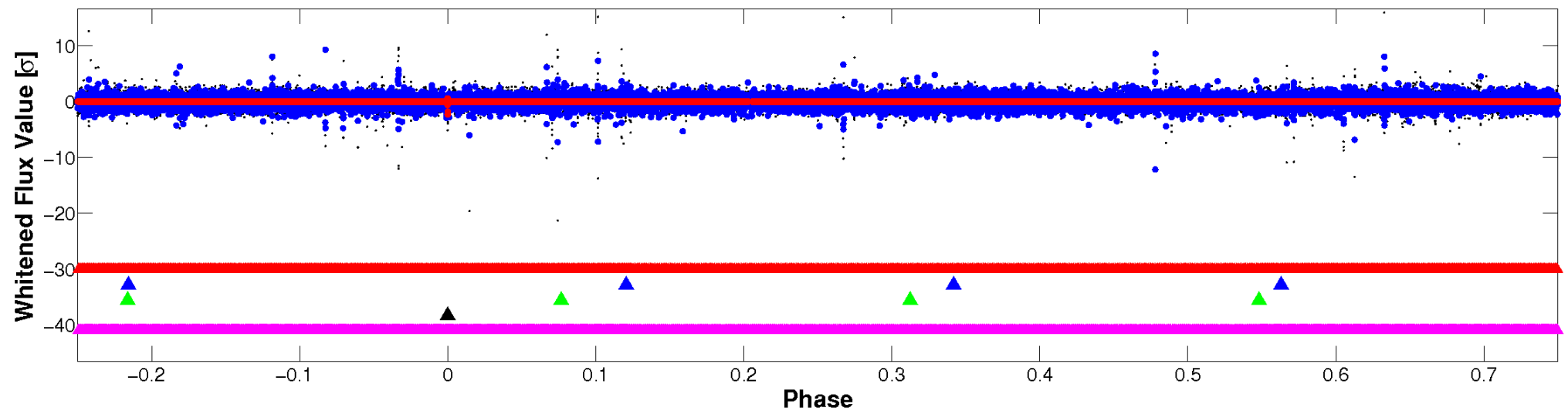


Non-Whitened Vs. Whitened Light Curve

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

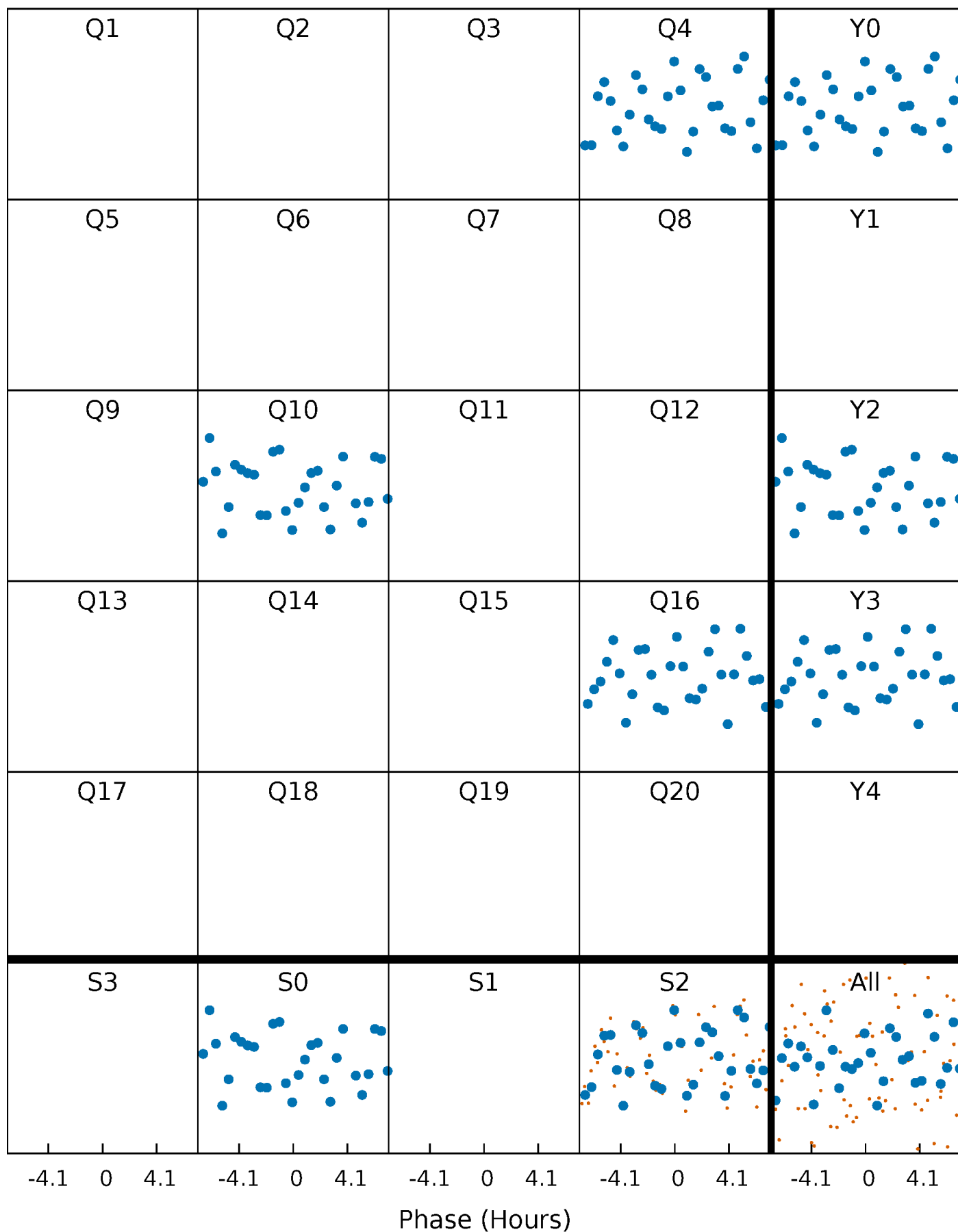


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



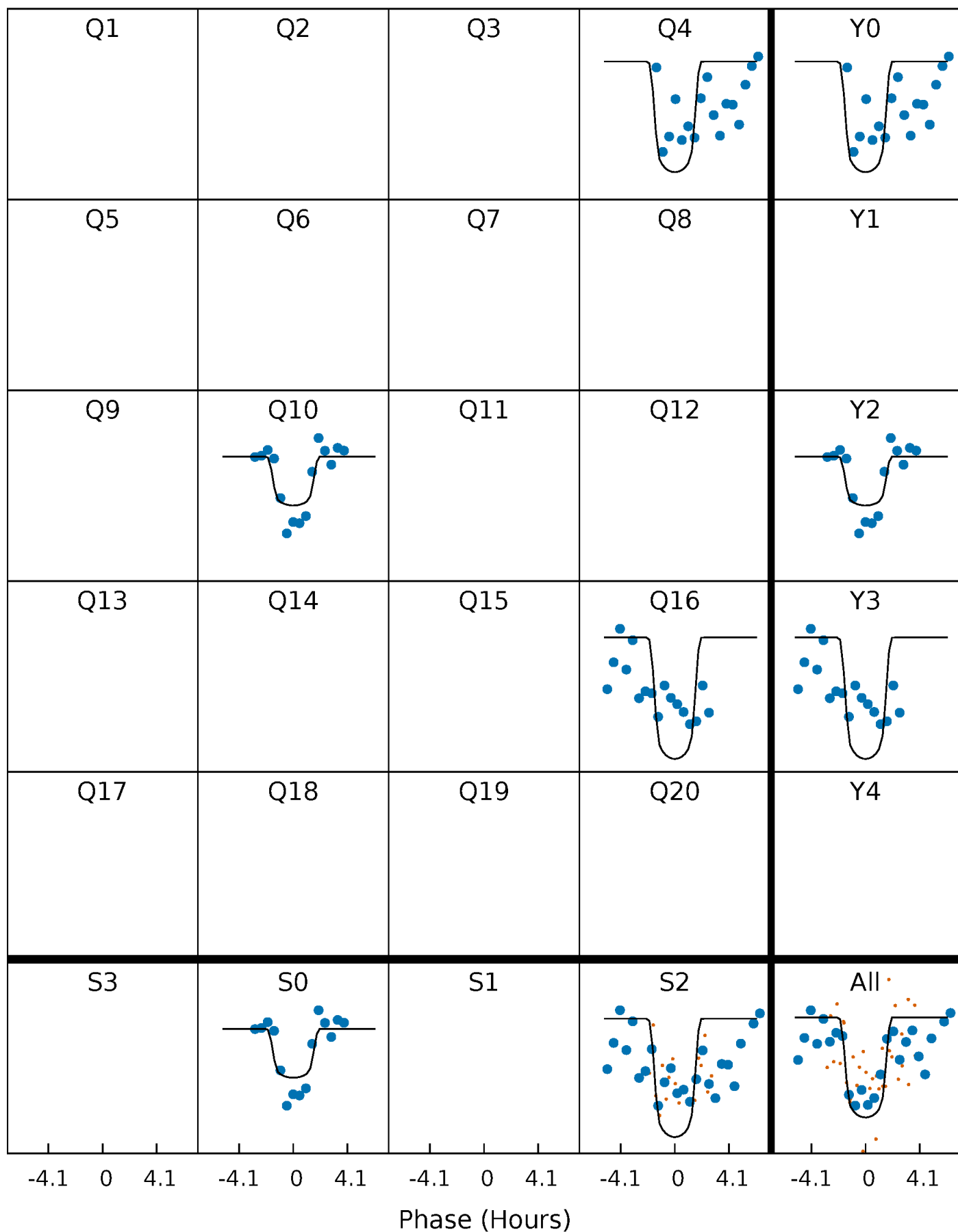
PDC Quarter-Phased Transit Curves

TCE 009773512-04 P=566.241438 Days $T_0=388.468833$ (BKJD)



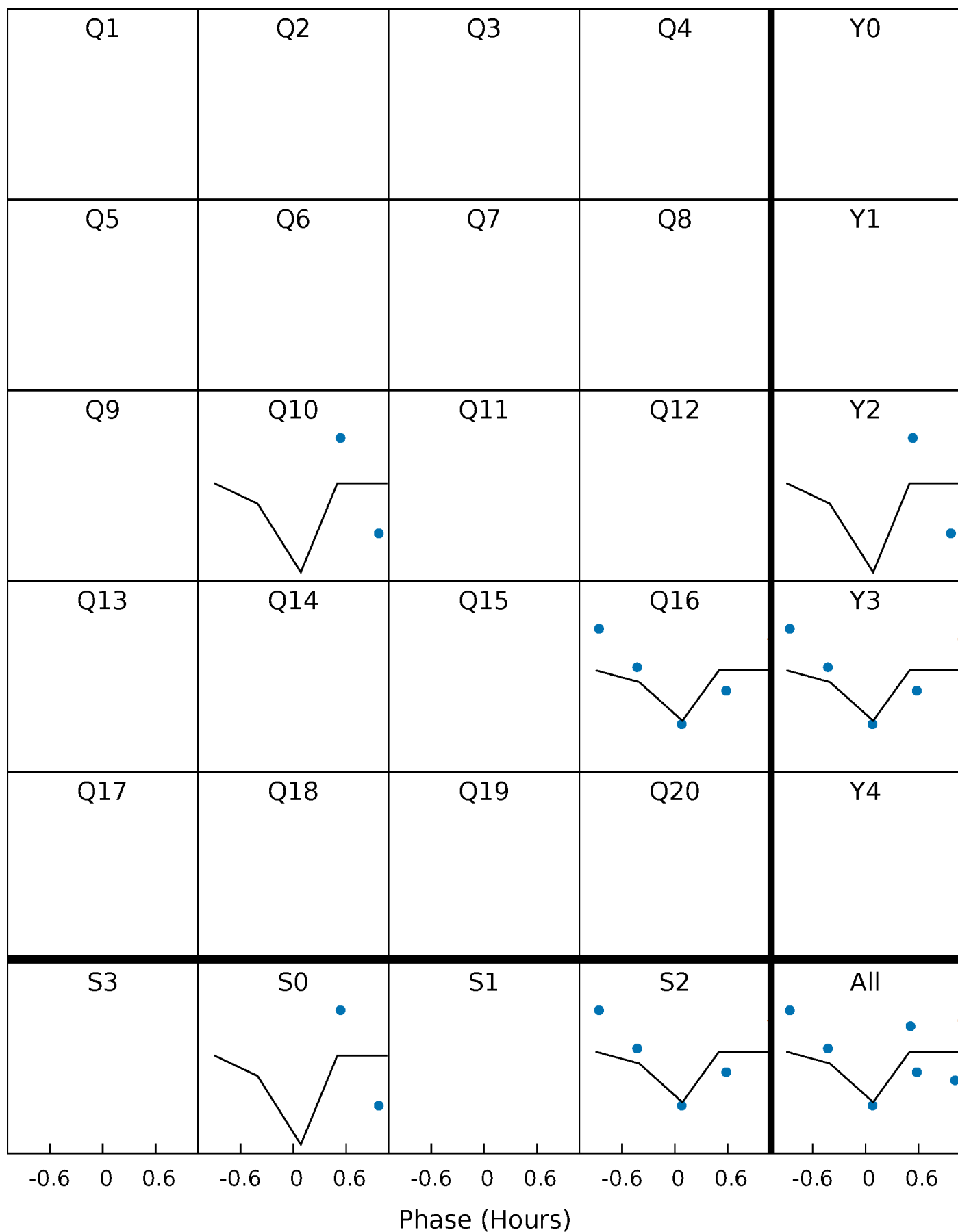
DV Quarter-Phased Transit Curves

TCE 009773512-04 P=566.241438 Days $T_0=388.468833$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

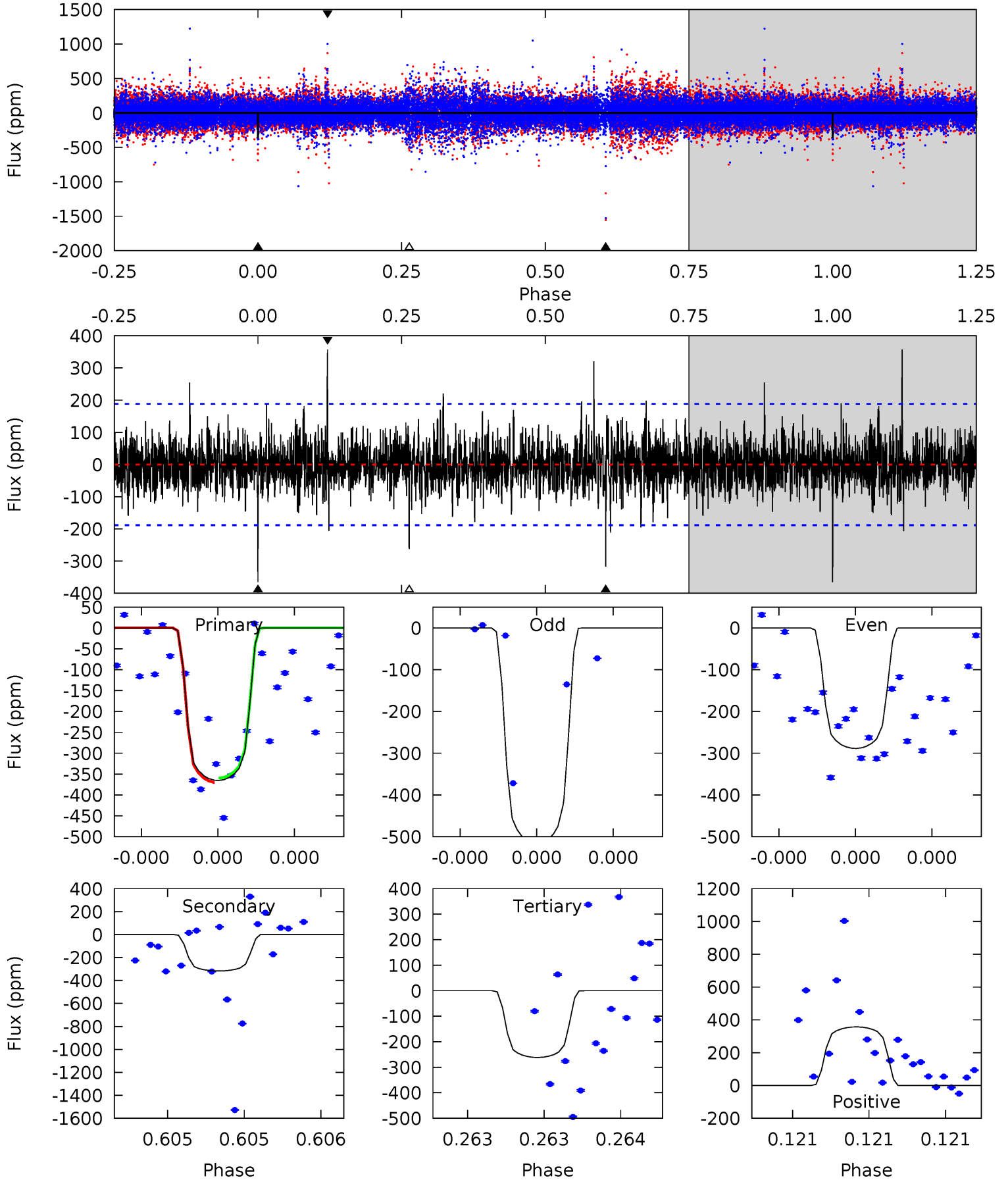
TCE 009773512-04 P=566.227570 Days $T_0=388.331081$ (BKJD)



DV Model-Shift Uniqueness Test

009773512-04, P = 566.241438 Days, E = 388.468833 Days

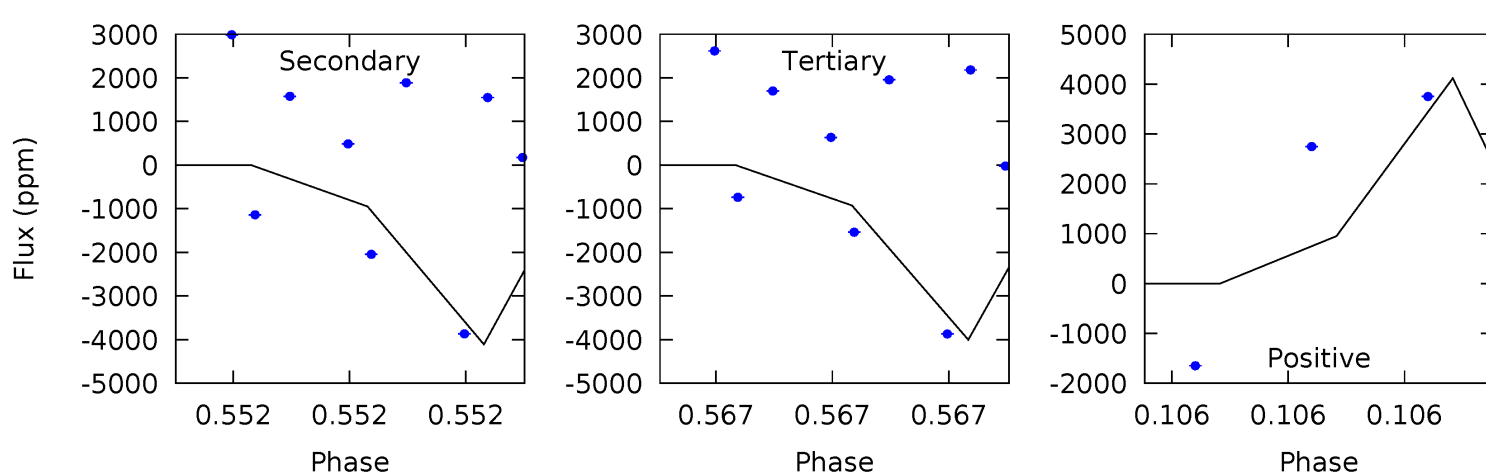
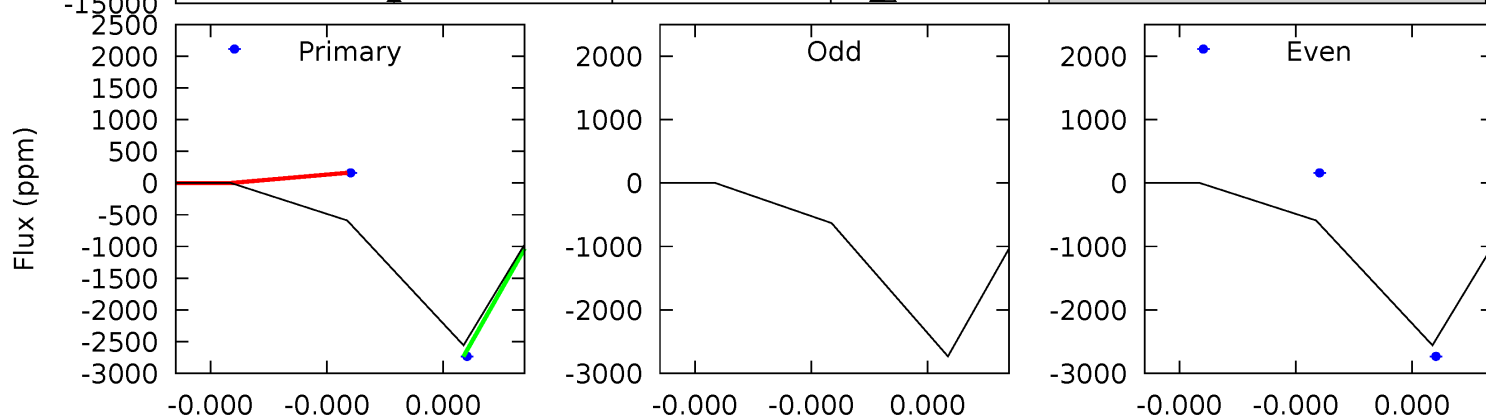
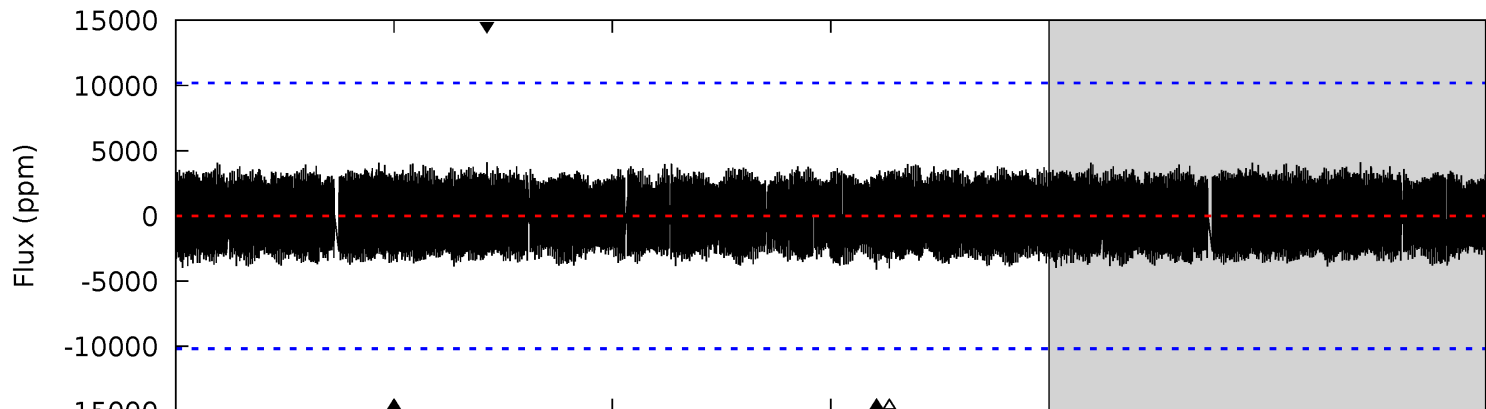
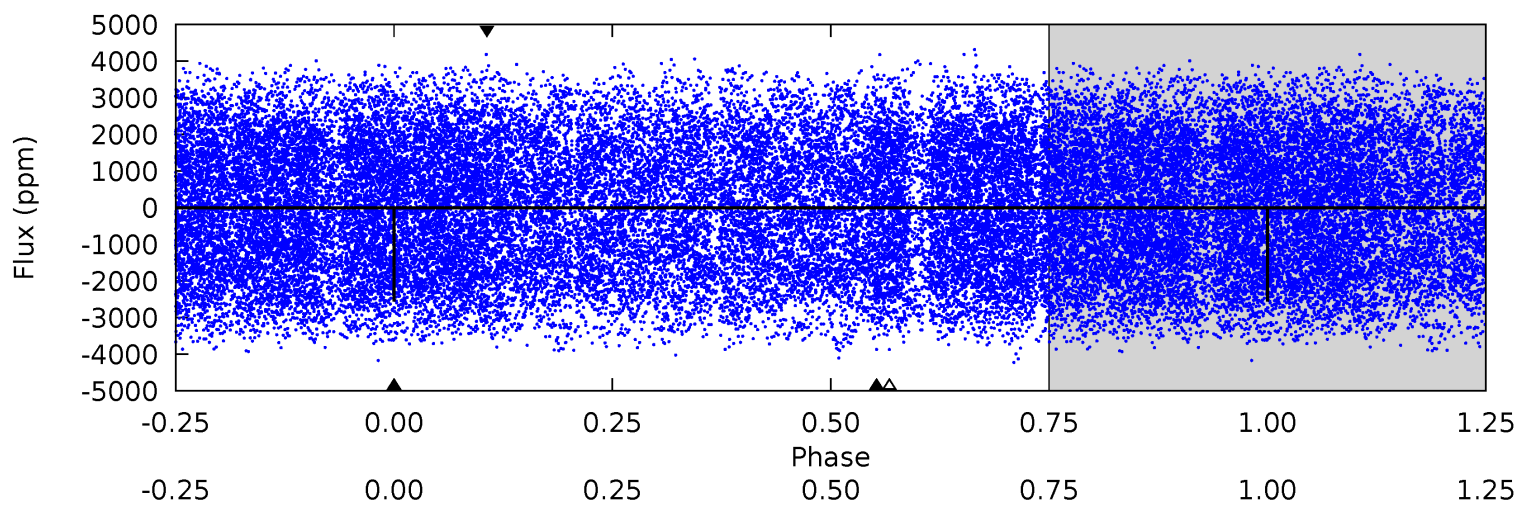
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	9.55	7.88	10.8	5.68	3.64	1.60	3.12	0.24	1.67	-1.21	3.01	1.24	0.49	0.16



Alt Model-Shift Uniqueness Test

009773512-04, P = 566.227570 Days, E = 388.331081 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.51	2.43	2.36	2.43	6.01	4.13	0.97	-0.85	-0.92	0.06	-0.00	0.00	0	0.50	0.00



Stellar Parameters For KIC 009773512

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8169^{+223}_{-334}	$3.699^{+0.464}_{-0.087}$	$-0.320^{+0.200}_{-0.300}$	$3.284^{+0.555}_{-1.664}$	$1.964^{+0.322}_{-0.523}$	$0.078^{+0.414}_{-0.027}$
	+3%/-4%	+13%/-2%	+62%/-94%	+17%/-51%	+16%/-27%	+530%/-34%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009773512-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-317 ± 33	$7.33^{+3.18}_{-2.84}$	676^{+52}_{-74}	7083^{+1966}_{-1102}	9069^{+14716}_{-4514}
Alt.	-4111 ± 1693	$18.21^{+3.91}_{-4.86}$	676^{+51}_{-81}	9022^{+1565}_{-1552}	19749^{+18607}_{-9628}

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 $A_{obs} \gg 1.0$

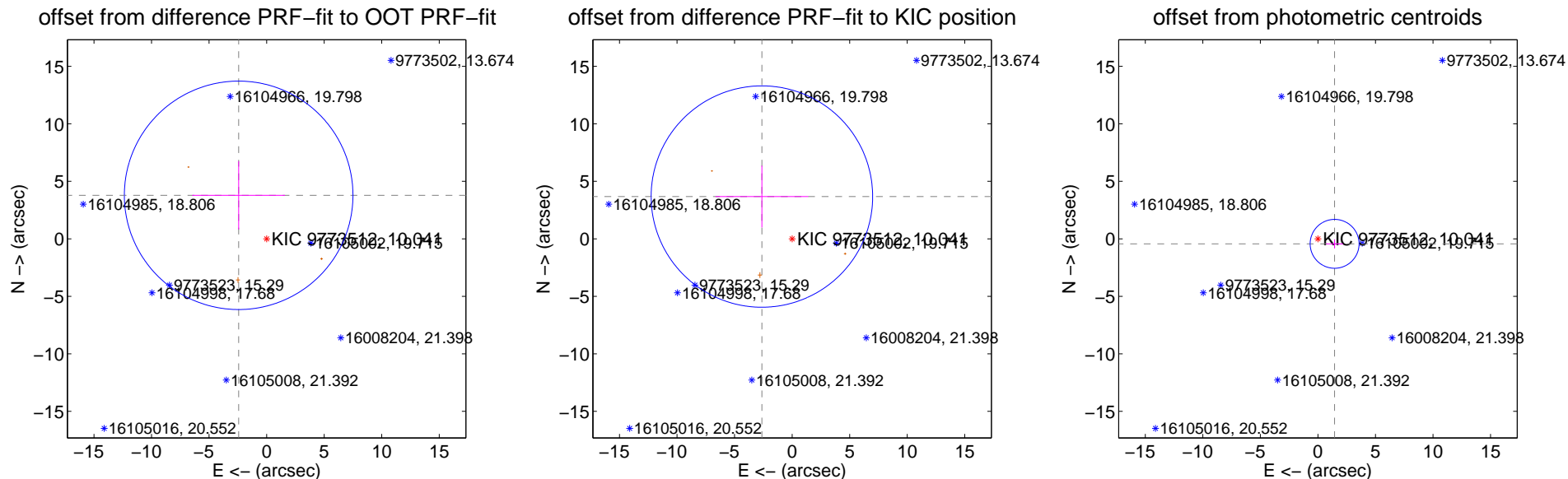
DV Centroid Data

Supplemental centroid analysis for 009773512-04. **Kepler magnitude: 10.04.** Transit SNR 7.33

There are 0 quarters with good PRF difference image offsets

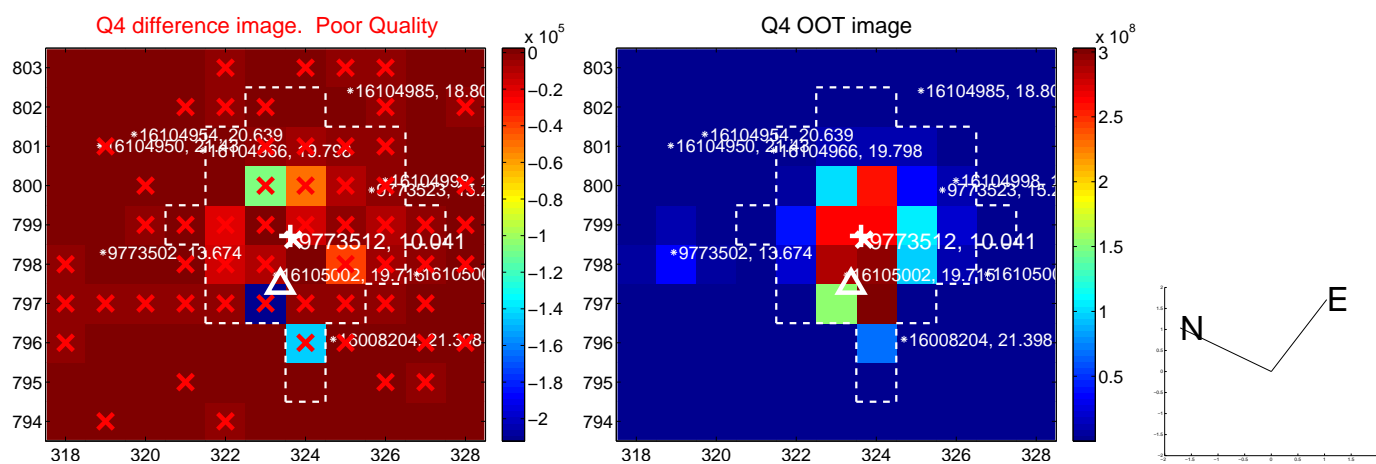
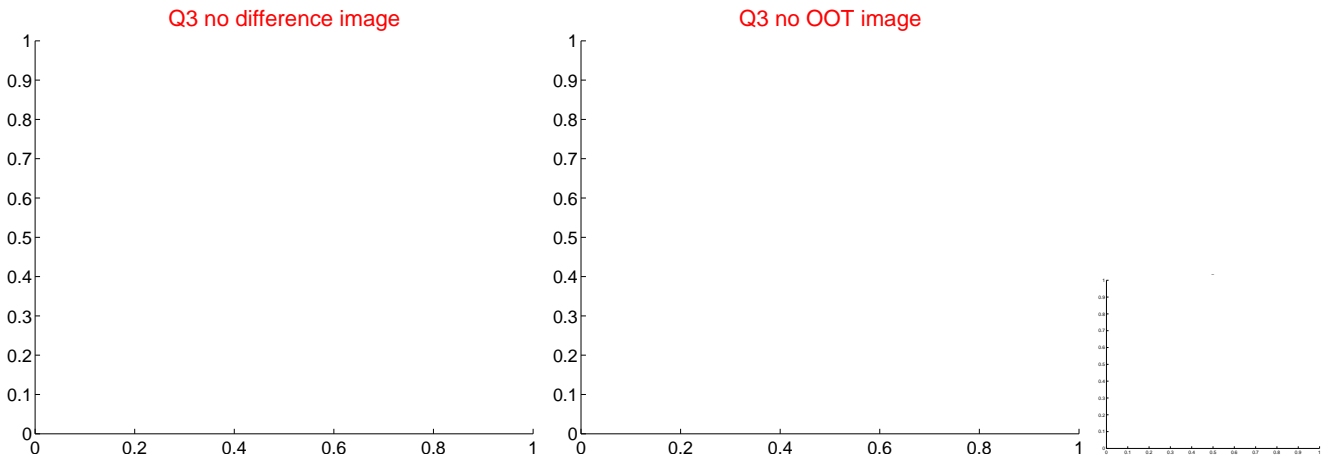
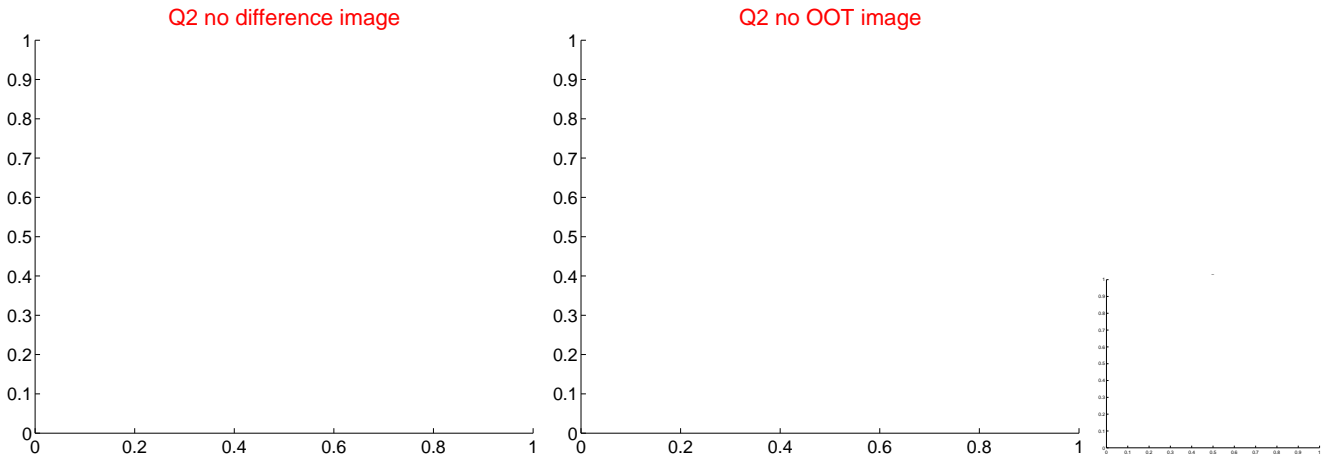
The direct PRF centroid is offset from the target star catalog position by about 0.53 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.497 ± 3.310	1.36	2.432 ± 4.028	3.782 ± 2.964
PRF-fit source offset from KIC position	4.517 ± 3.208	1.41	2.627 ± 4.034	3.675 ± 2.689
photometric centroid source offset	1.51 ± 0.71	2.14	-1.45 ± 0.73	-0.44 ± 0.39



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.

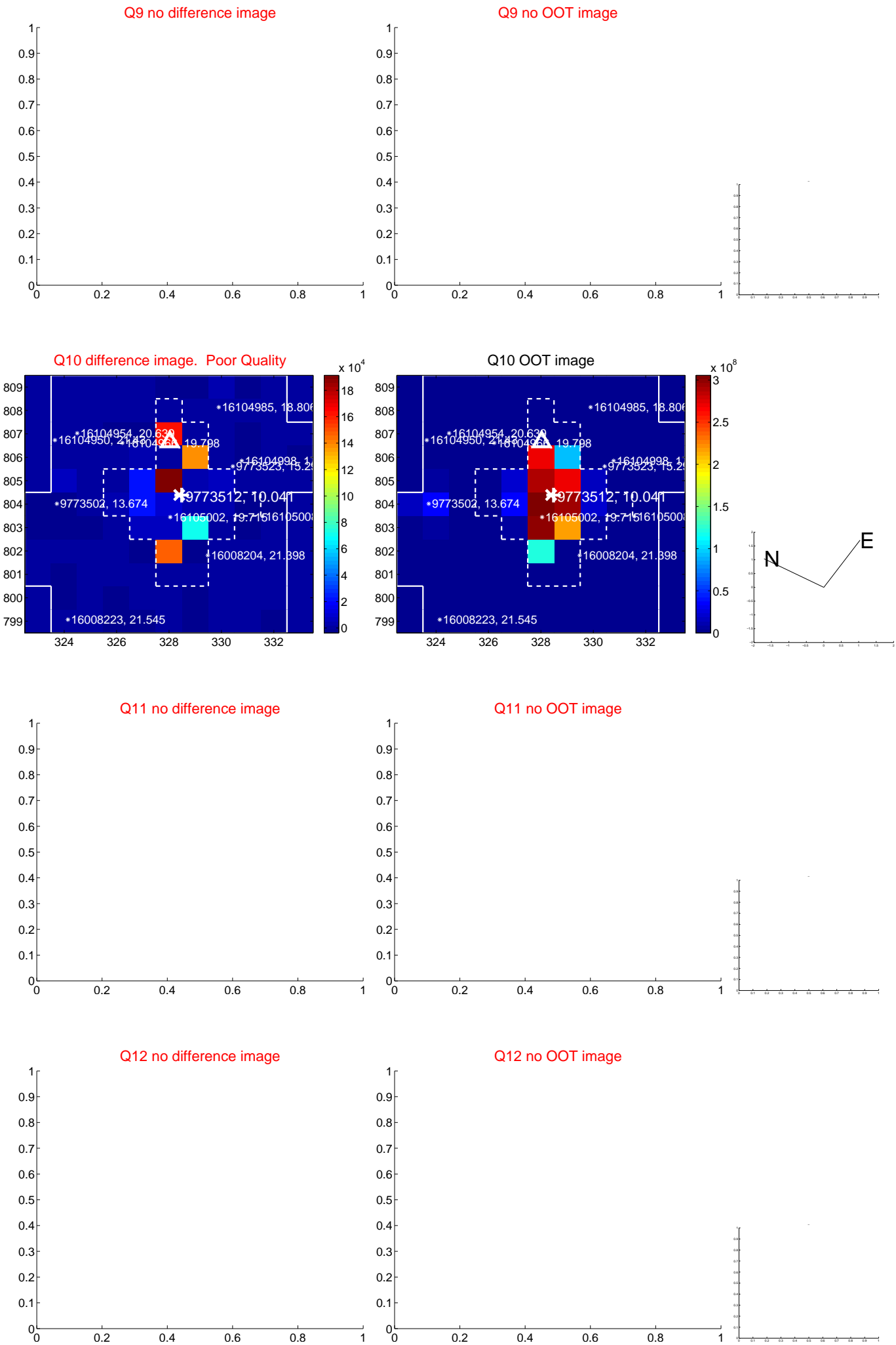
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



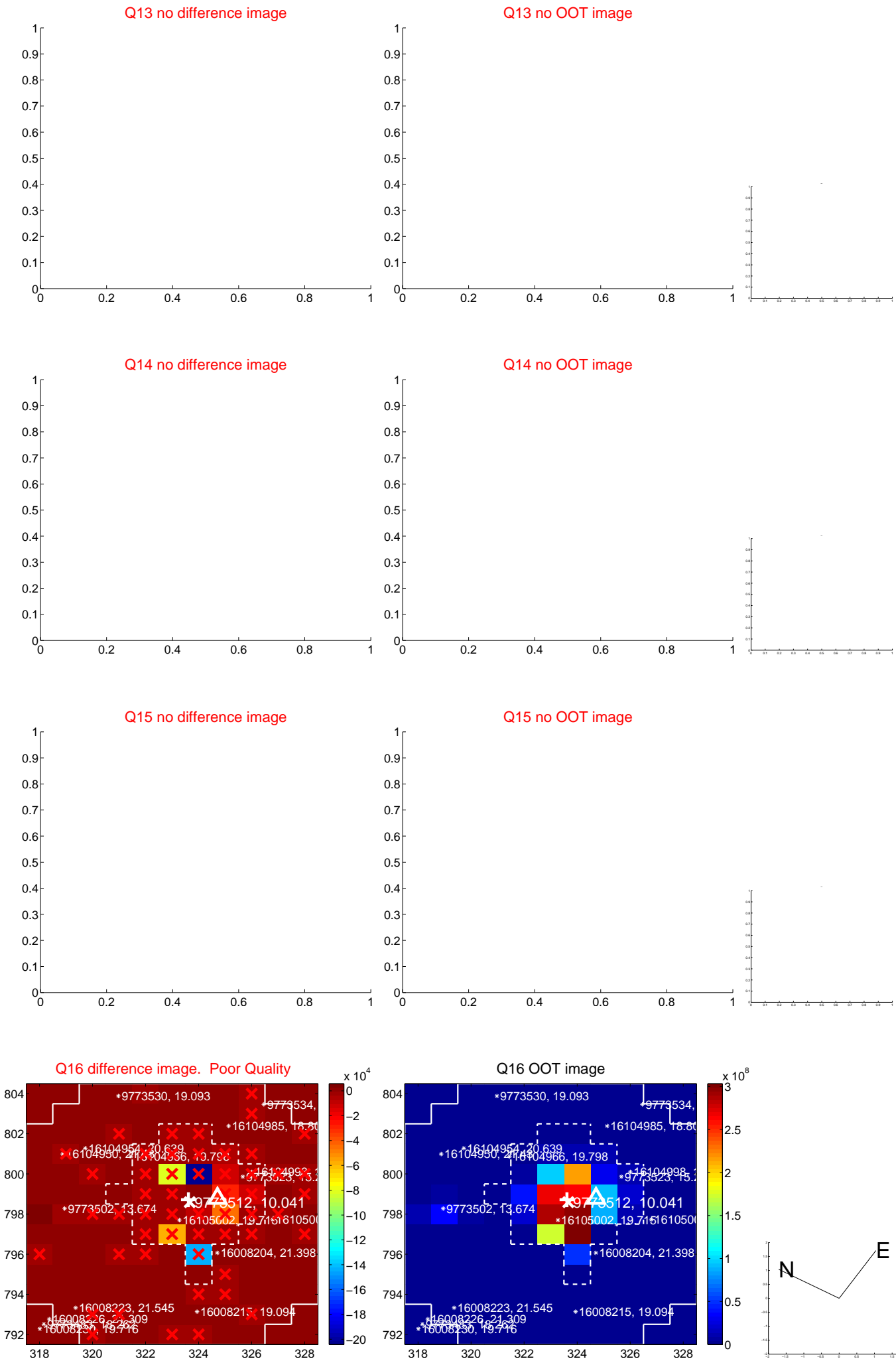
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



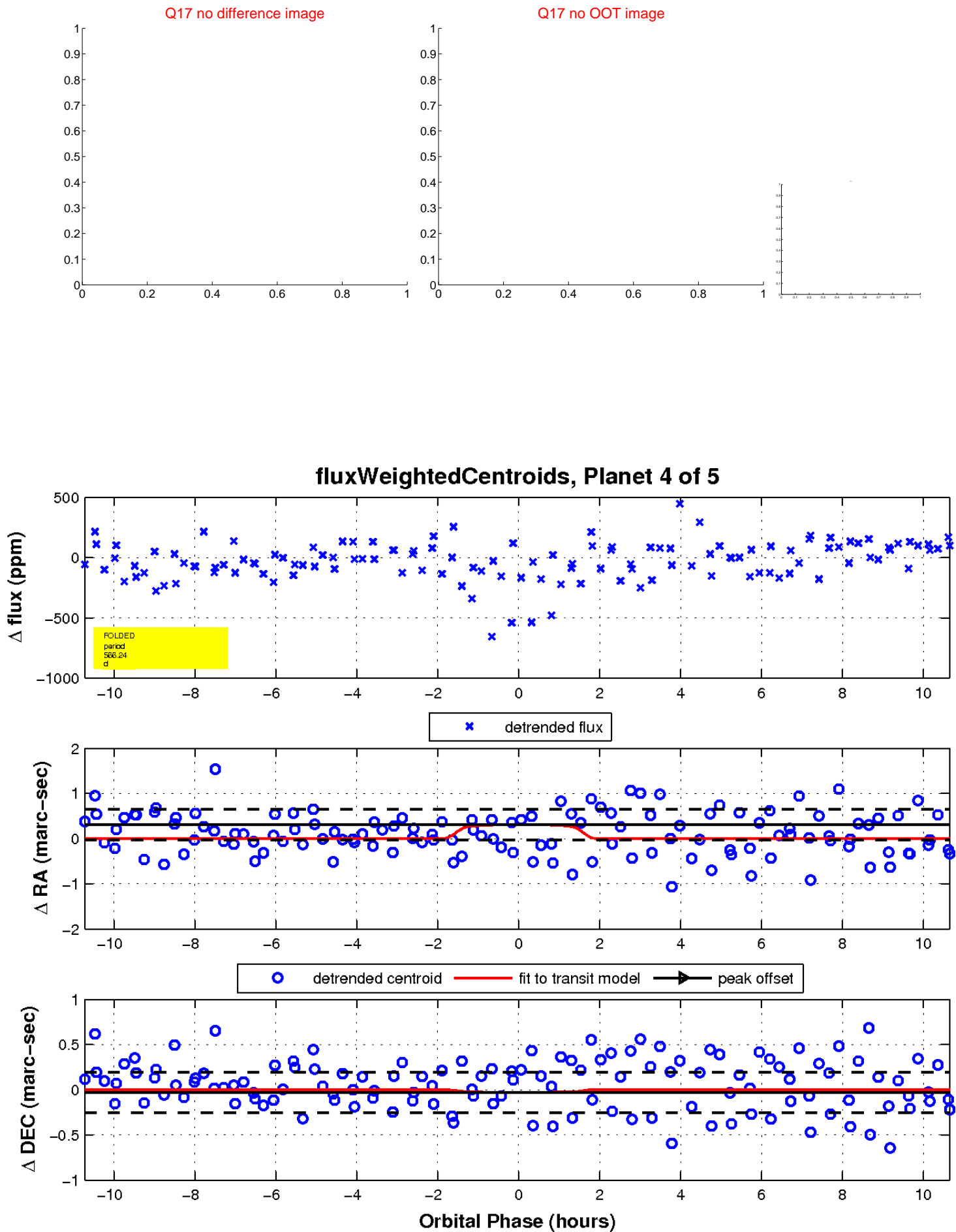
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

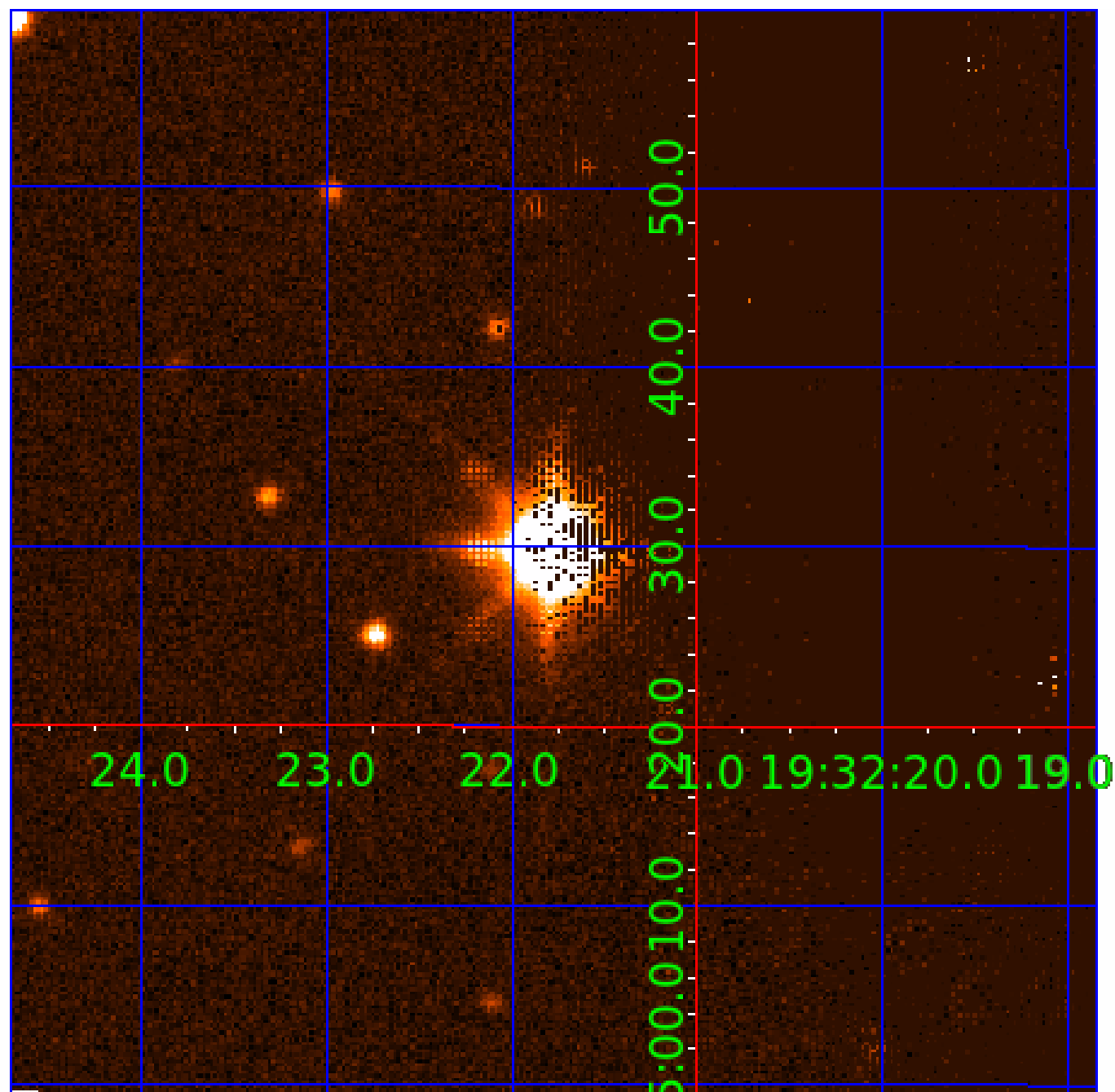


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009773512

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})
009773512-01	OBS	No	0.700698	131.762252	26.3	2.718	11.6	13.0	3.28	8169	1.96	114938.14
009773512-02	OBS	No	440.969982	266.325816	396.2	0.519	14.1	1.9	3.28	8169	7.10	21.31
009773512-03	OBS	No	432.775710	266.055208	401.5	5.954	10.2	7.7	3.28	8169	7.13	21.85
009773512-04	OBS	No	566.241438	388.468833	438.7	3.612	10.1	7.3	3.28	8169	8.12	15.27
009773512-05	OBS	No	0.757751	131.639486	26.7	1.979	8.7	8.8	3.28	8169	1.98	103546.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009773512-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009773512-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009773512-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

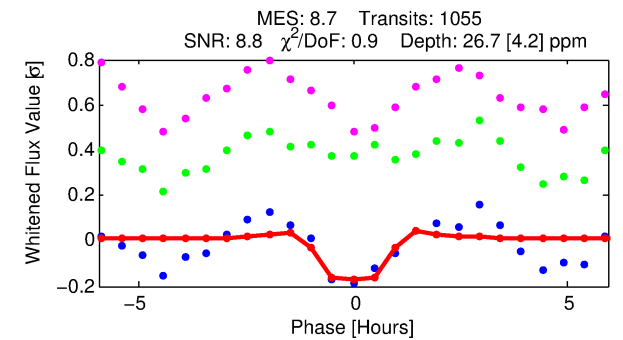
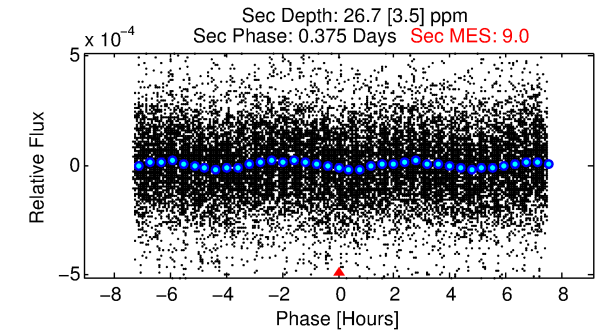
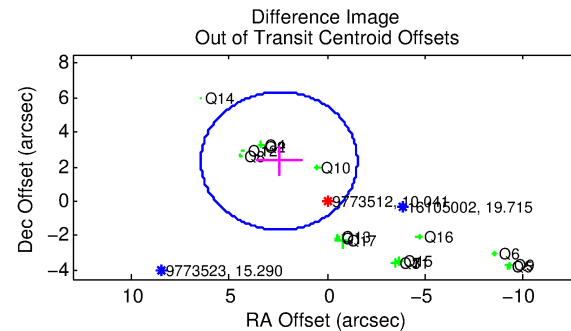
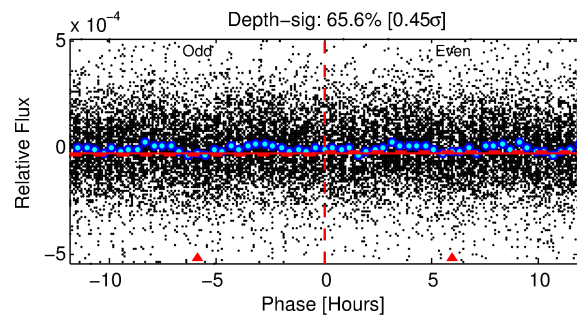
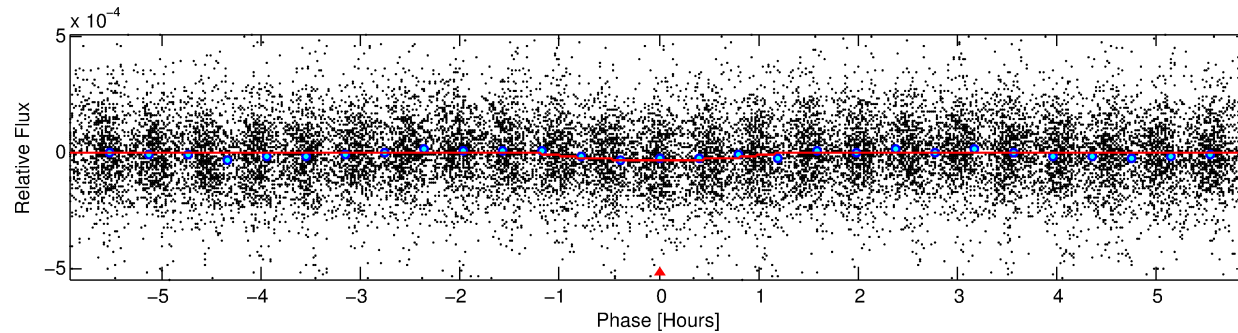
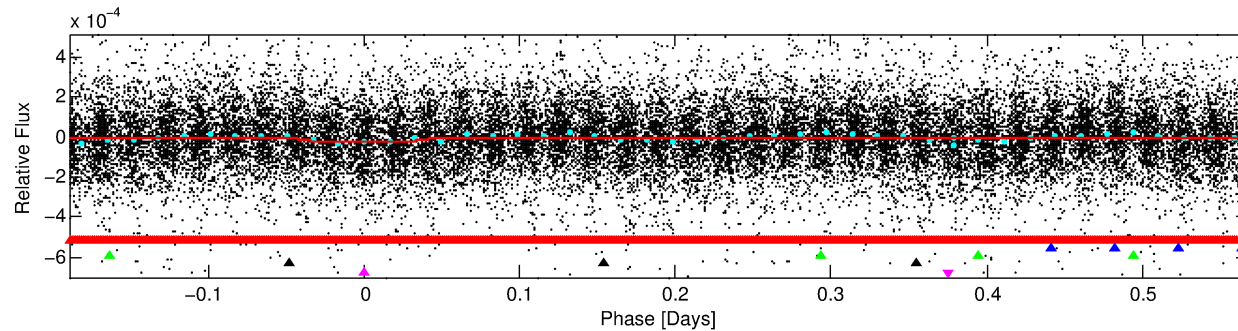
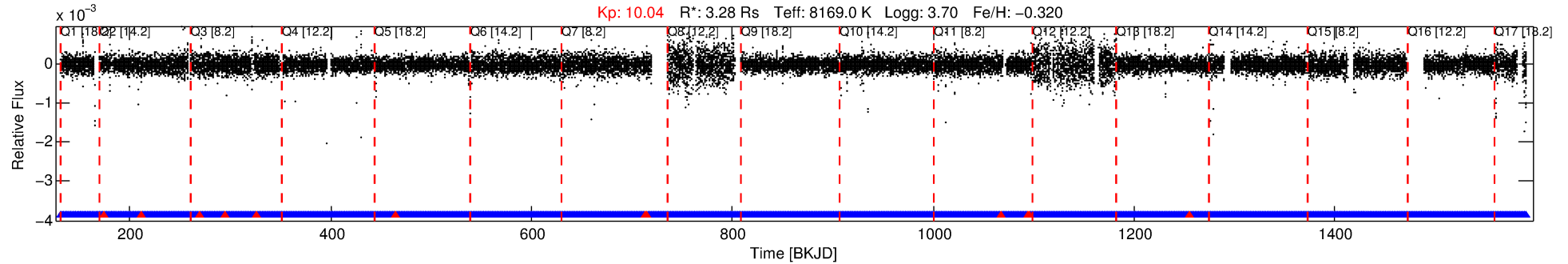
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009773512-05

No Significant Match Found

DV One-Page Summary

KIC: 9773512 Candidate: 5 of 5 Period: 0.758 d



DV Fit Results:

Period = 0.75775 [0.00001] d
Epoch = 131.6395 [0.0025] BKJD
 R_p/R^* = 0.0055 [0.0021]
 a/R^* = 1.61 [2.31]
 b = 0.90 [0.50]
 Seff = 103546.86 [83365.12]
 T_{eq} = 4574 [921] K
 R_p = 1.98 [1.25] R_e
 a = 0.0204 [0.0100] AU
 Ag = 1.56 [1.71] [0.33 σ]
 T_{eff} = 7901 [1546] K [1.85 σ]

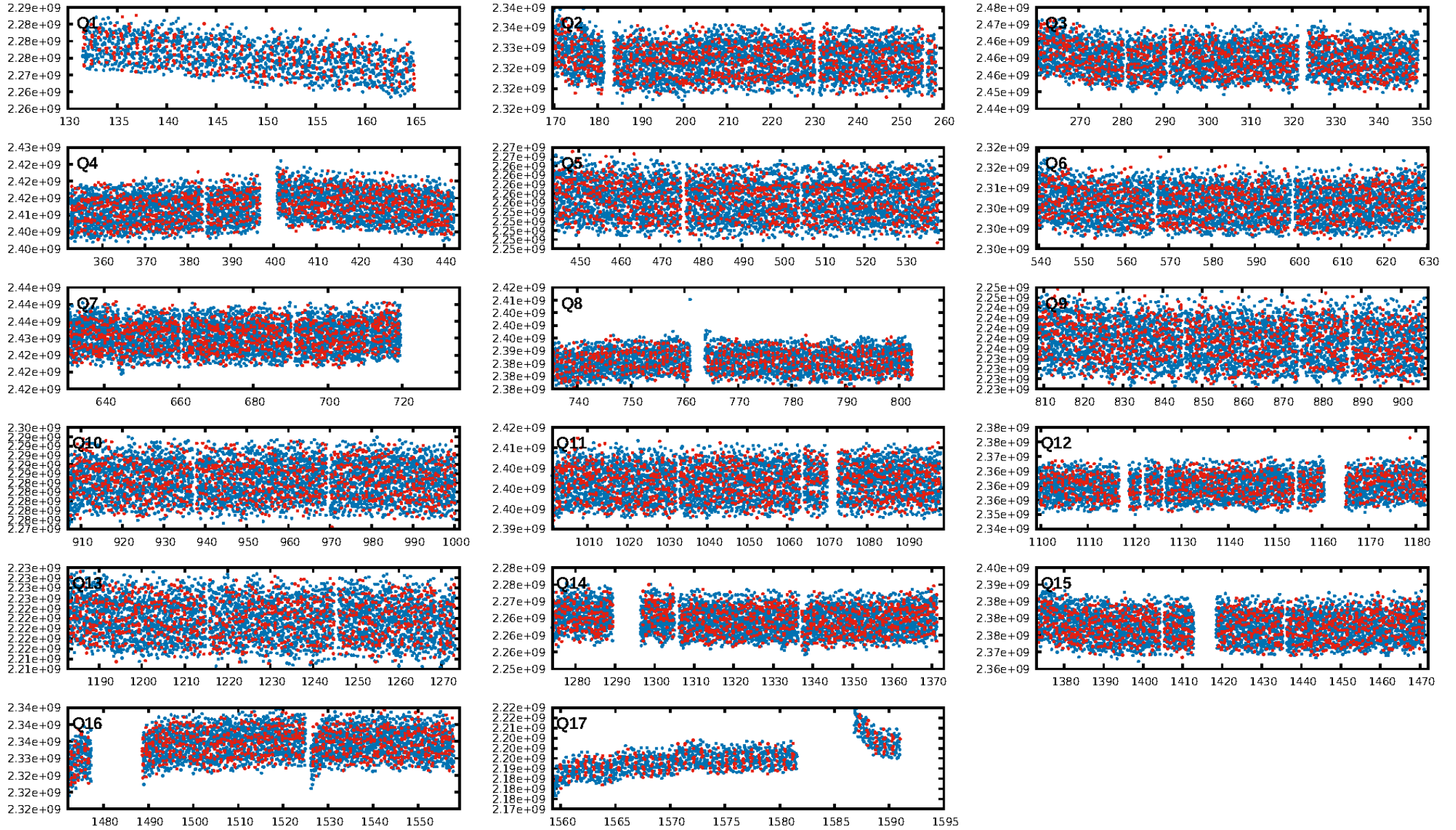
DV Diagnostic Results:

ShortPeriod-sig: 31.6% [0.41 σ]
LongPeriod-sig: 100.0% [1652.64 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.84e-15
RollingBand-fgt: 0.99 [992/1004]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 2.174 arcsec [4.93 σ]
OotOffset-rm: 3.375 arcsec [2.54 σ]
KicOffset-rm: 3.443 arcsec [2.26 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.18 [3/17]
DiffImageOverlap-fno: 1.00 [17/17]

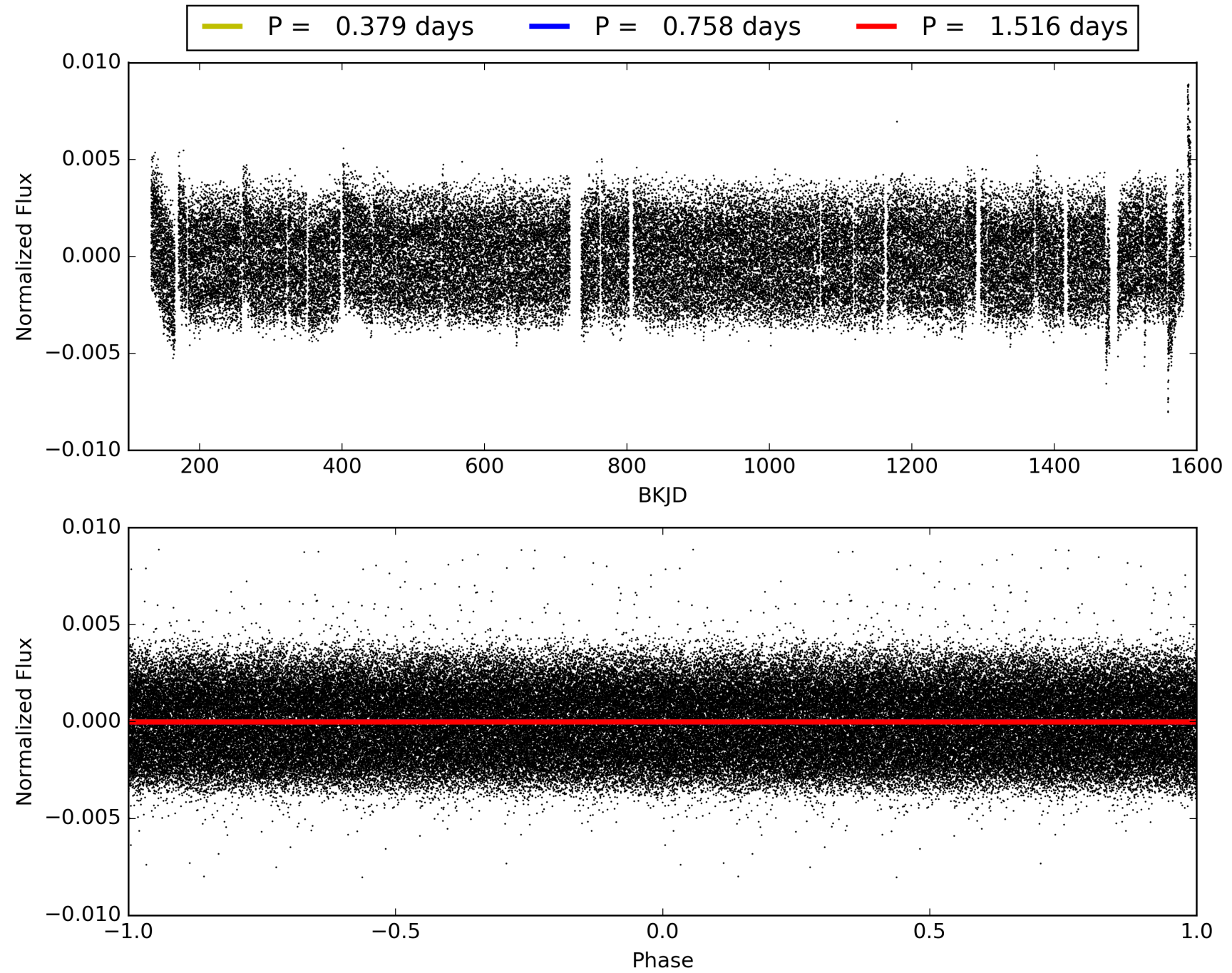
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:52:53 Z

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

TCE 009773512-05, PDC Light Curves

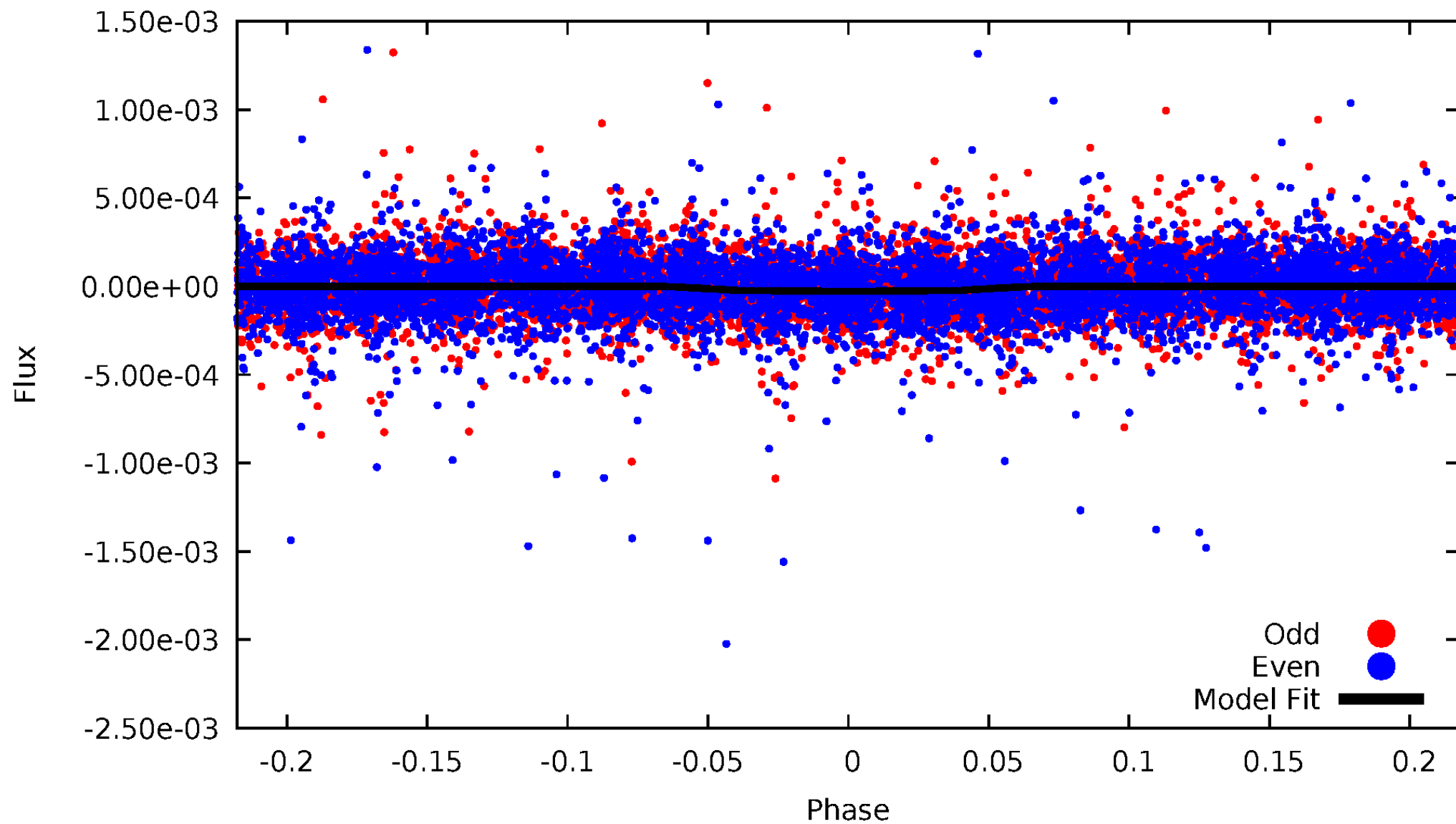


TCE 009773512-05



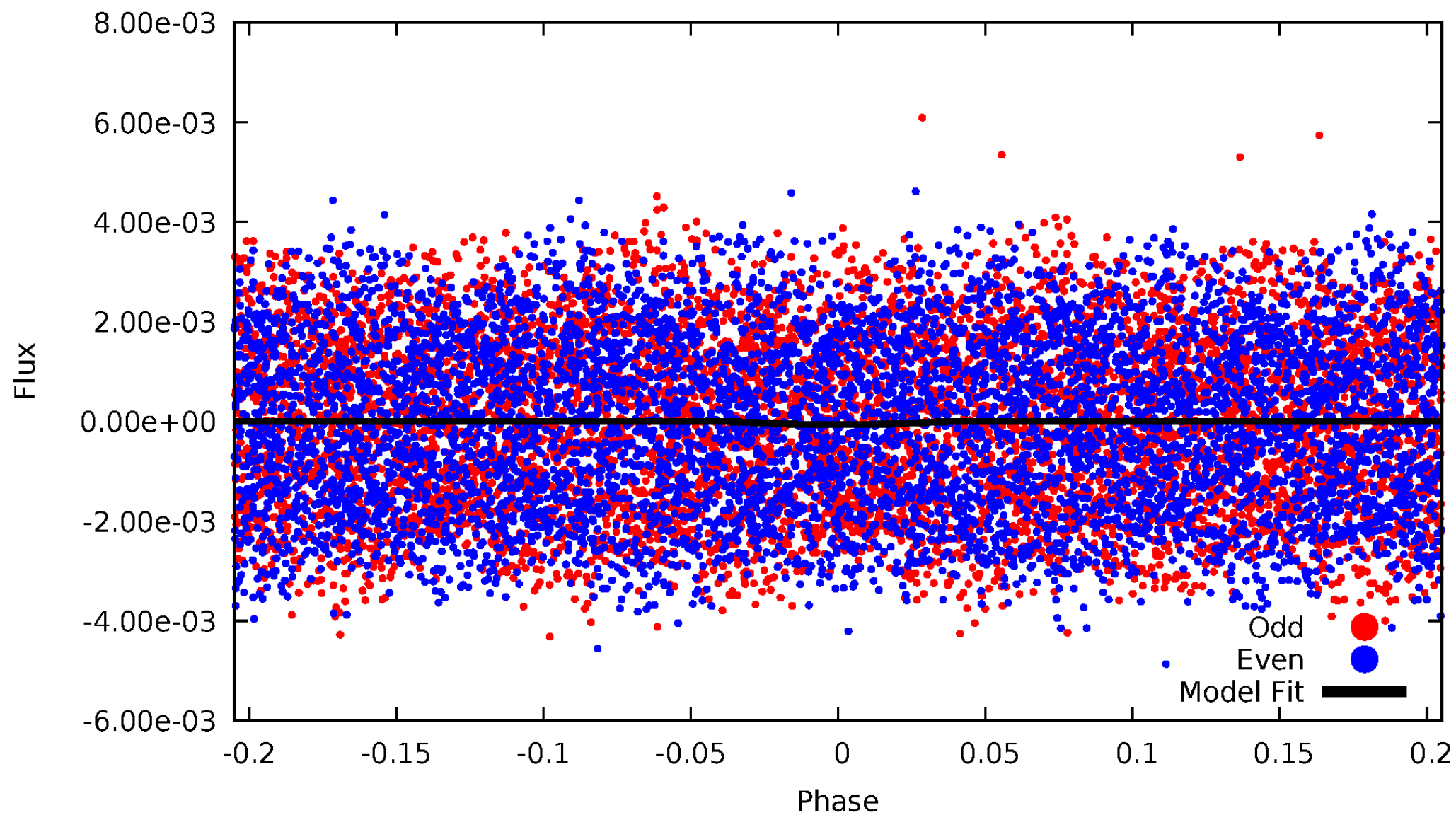
DV Odd/Even

TCE 009773512-05



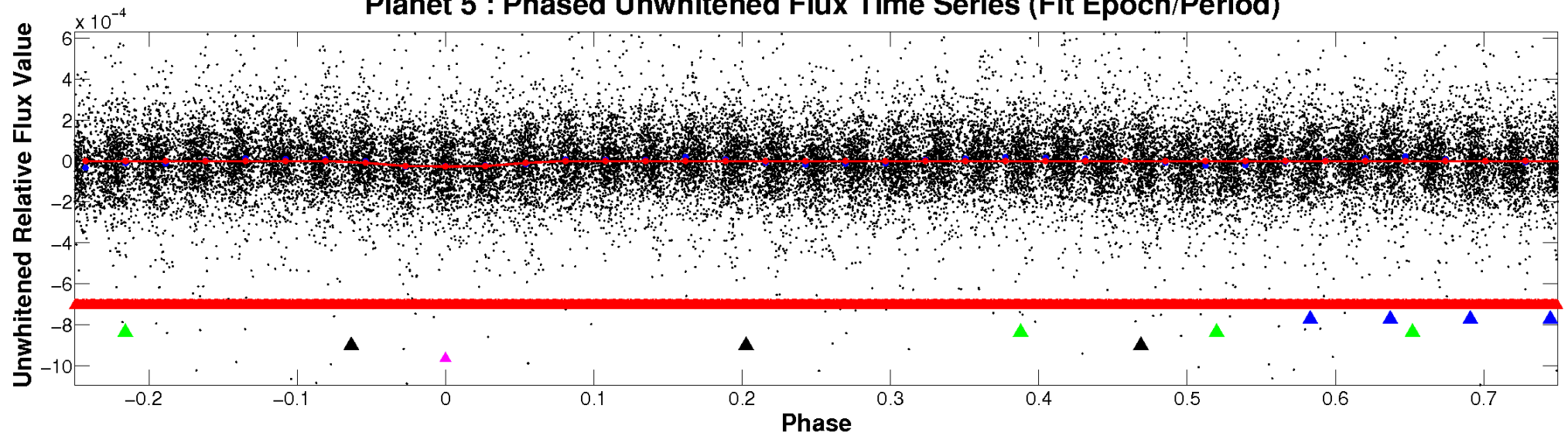
ALT Odd/Even

TCE 009773512-05

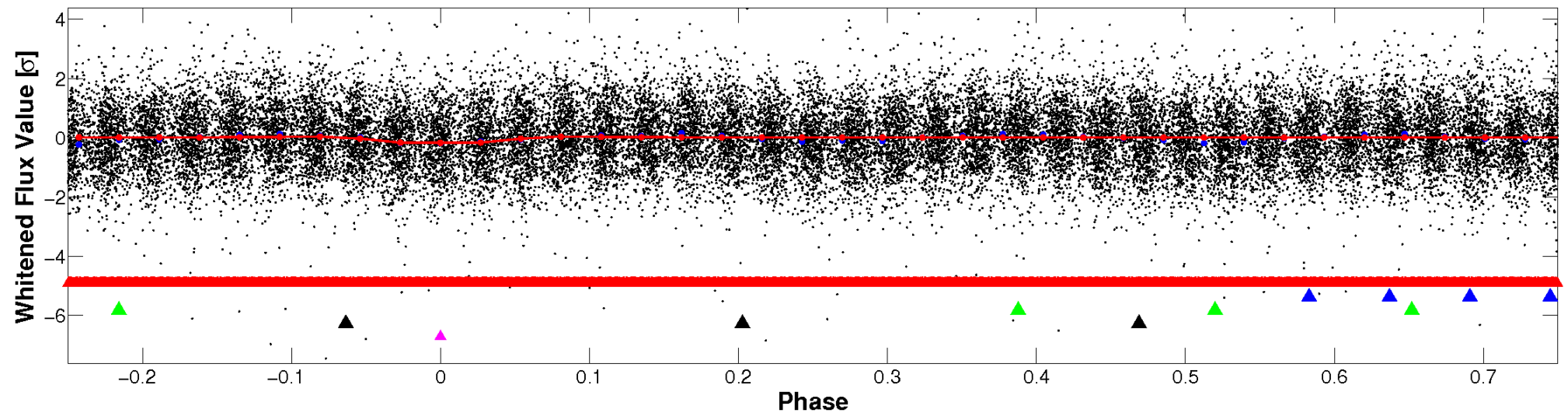


Non-Whitened Vs. Whitened Light Curve

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

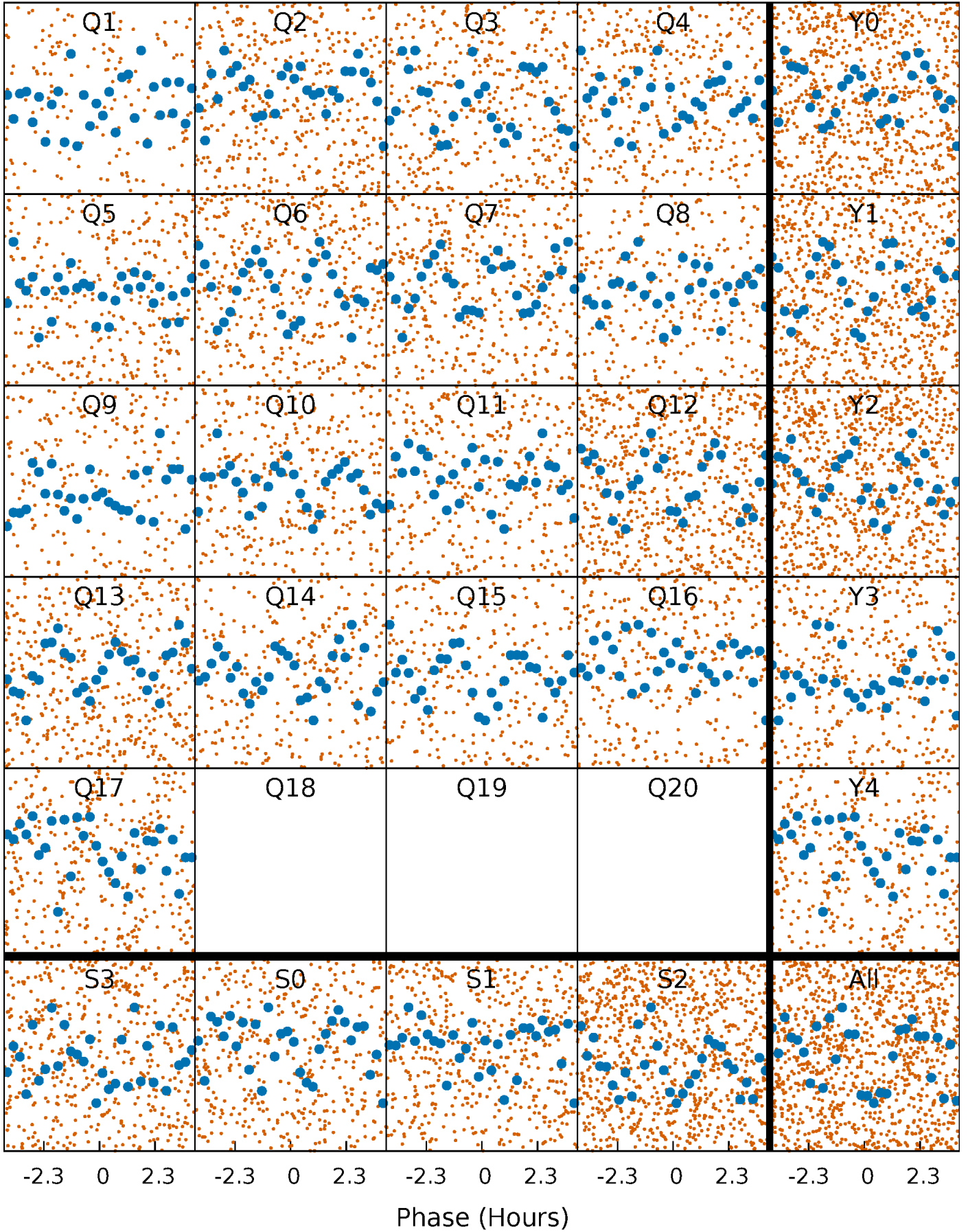


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



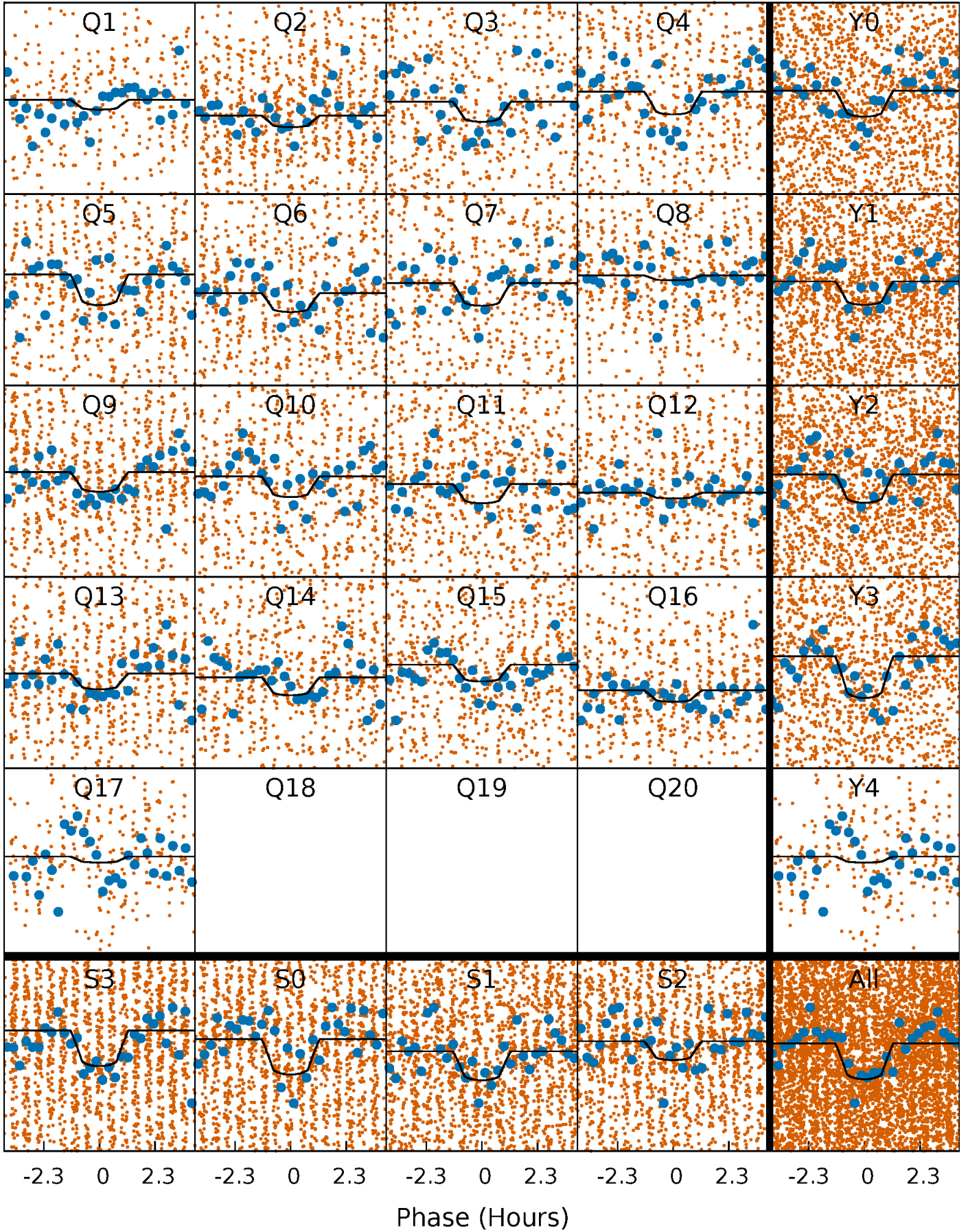
PDC Quarter-Phased Transit Curves

TCE 009773512-05 $P = 0.757751$ Days $T_0 = 131.639486$ (BKJD)



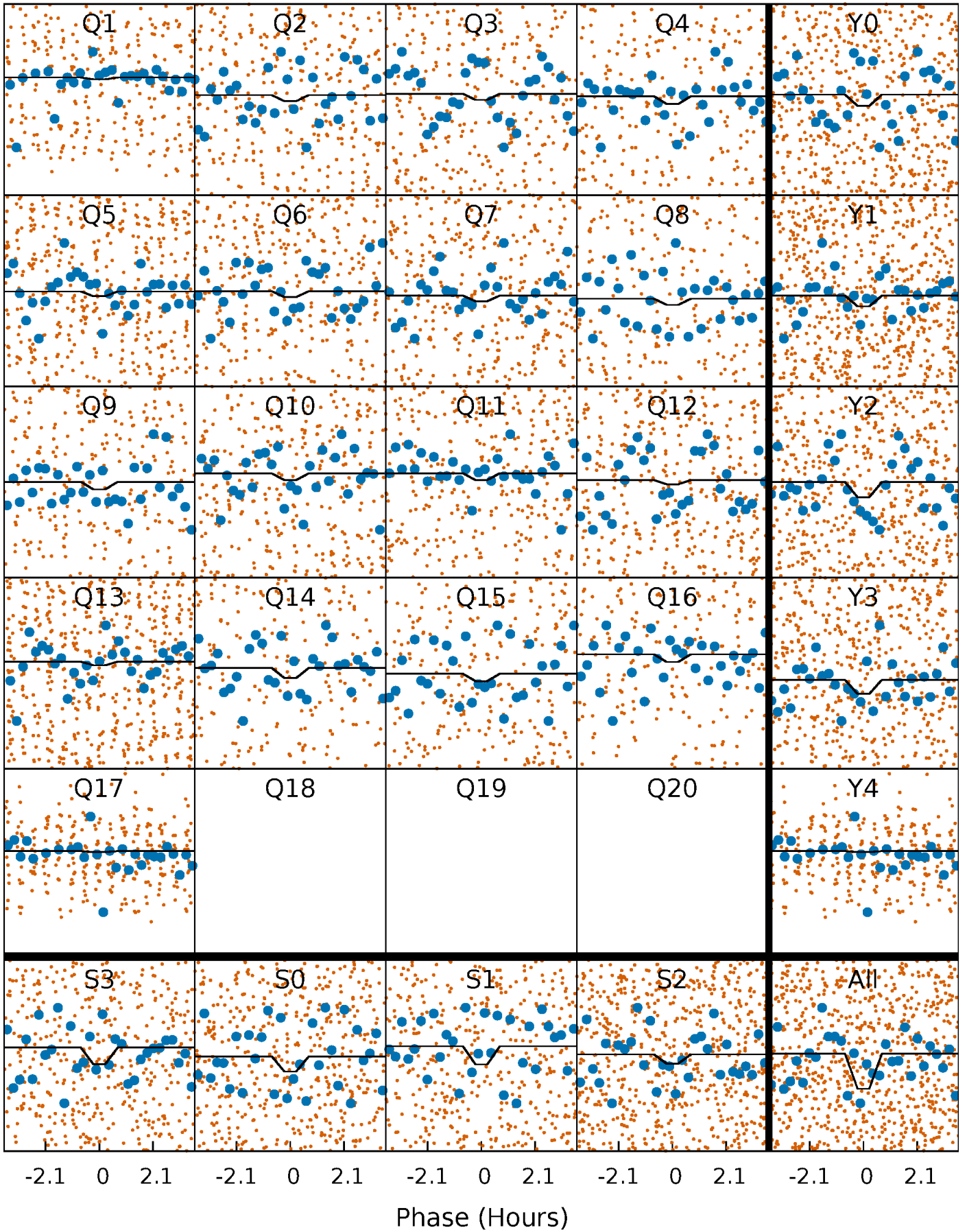
DV Quarter-Phased Transit Curves

TCE 009773512-05 $P = 0.757751$ Days $T_0 = 131.639486$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

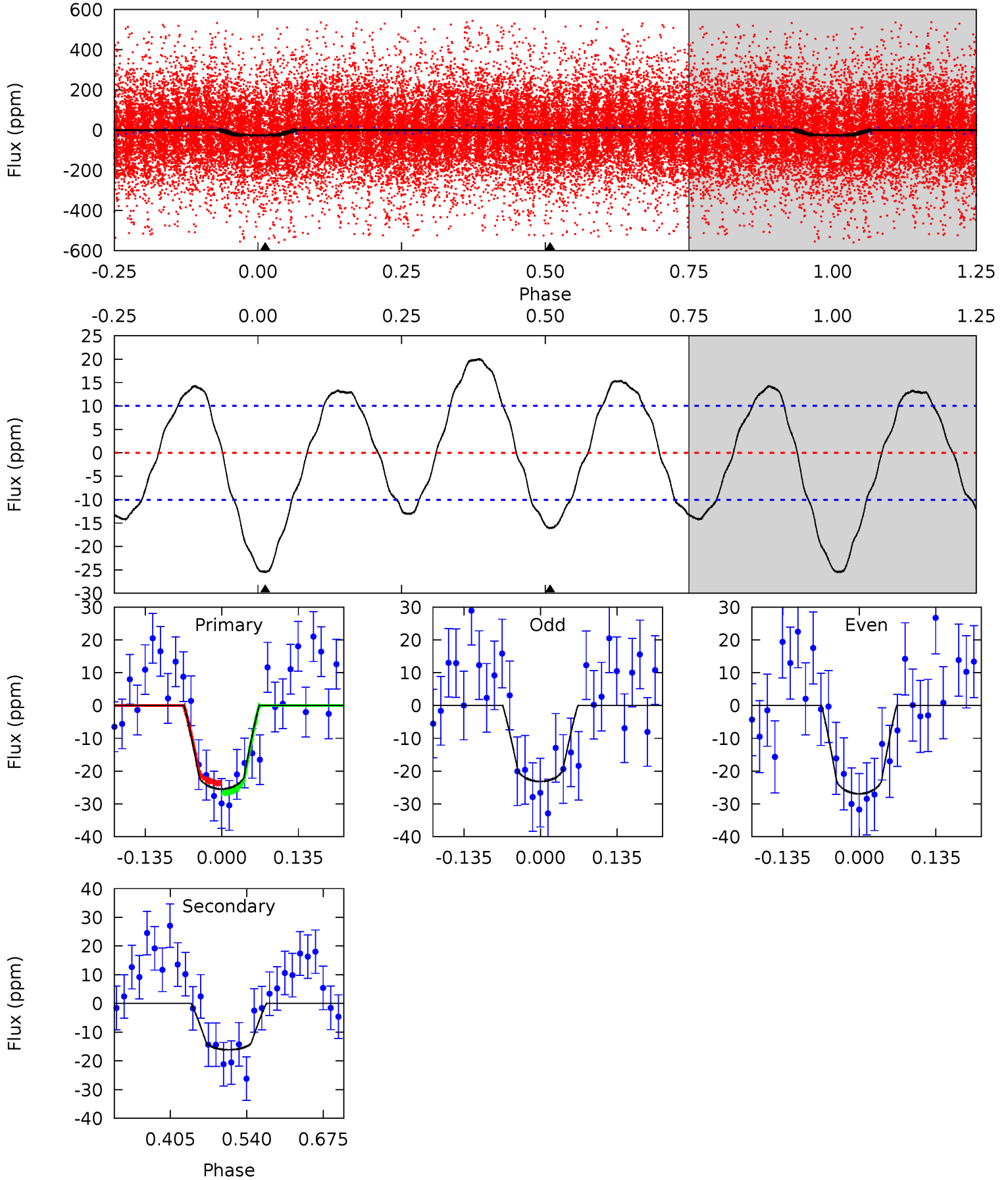
TCE 009773512-05 P= 0.757763 Days $T_0=131.638804$ (BKJD)



DV Model-Shift Uniqueness Test

009773512-05, P = 0.757751 Days, E = 130.881735 Days

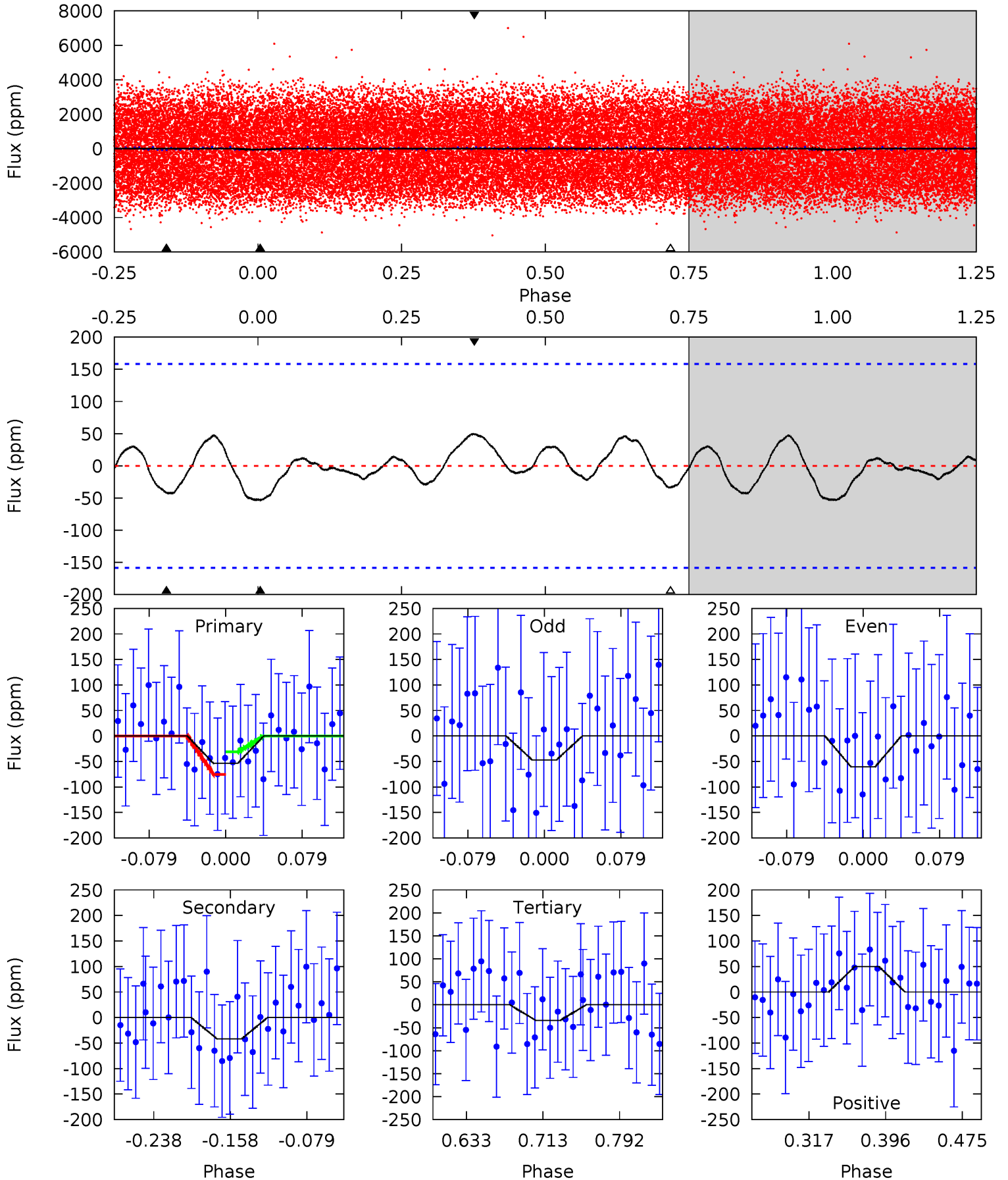
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	7.22	0	0	4.50	1.50	4.53	11.4	11.4	7.22	7.22	0.85	1.13	0.44	0.68



Alt Model-Shift Uniqueness Test

009773512-05, P = 0.757763 Days, E = 130.881041 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.56	1.22	0.99	1.45	4.61	1.76	0.64	0.57	0.11	0.23	-0.22	0.20	0.55	0.48	0.64



Stellar Parameters For KIC 009773512

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8169^{+223}_{-334}	$3.699^{+0.464}_{-0.087}$	$-0.320^{+0.200}_{-0.300}$	$3.284^{+0.555}_{-1.664}$	$1.964^{+0.322}_{-0.523}$	$0.078^{+0.414}_{-0.027}$
	+3%/-4%	+13%/-2%	+62%/-94%	+17%/-51%	+16%/-27%	+530%/-34%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009773512-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-16 ± 2	$1.75^{+0.87}_{-0.72}$	6191^{+438}_{-796}	6236^{+2477}_{-1471}	$1.166^{+2.214}_{-0.631}$
Alt.	-42 ± 34	$2.58^{+0.93}_{-0.82}$	6167^{+435}_{-708}	6687^{+2374}_{-10621}	$1.352^{+2.303}_{-1.129}$

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

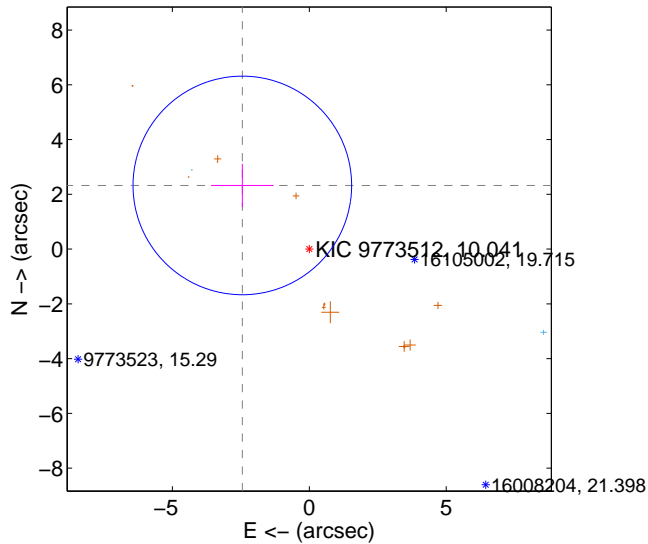
Supplemental centroid analysis for 009773512-05. **Kepler magnitude: 10.04.** Transit SNR 8.79

There are 3 quarters with good PRF difference image offsets

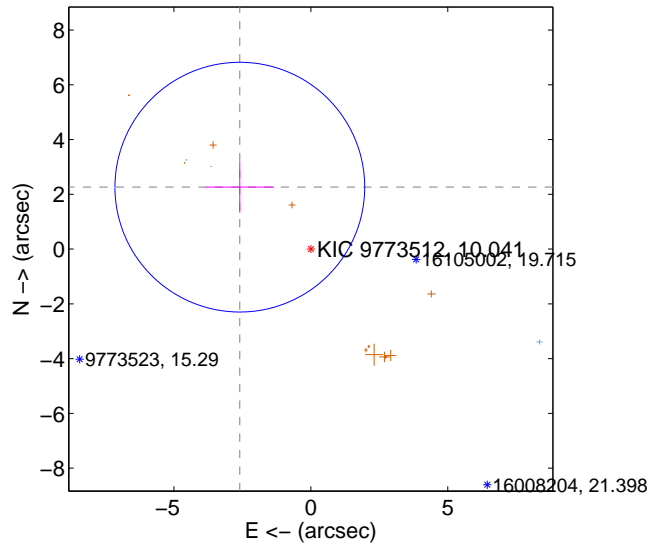
The OOT PRF centroid is offset from the target star catalog position by about 2.19 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.375 ± 1.331	2.54	2.446 ± 1.141	2.325 ± 0.792
PRF-fit source offset from KIC position	3.443 ± 1.521	2.26	2.594 ± 1.254	2.264 ± 0.934
photometric centroid source offset	2.17 ± 0.44	4.93	-1.62 ± 0.51	-1.45 ± 0.34

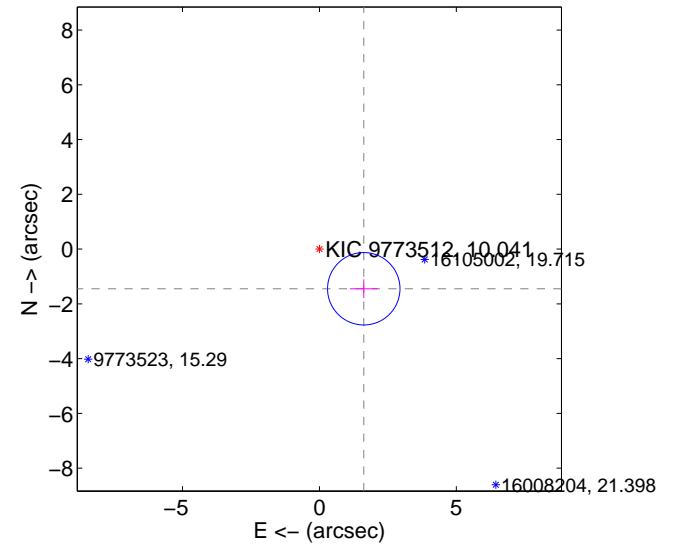
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

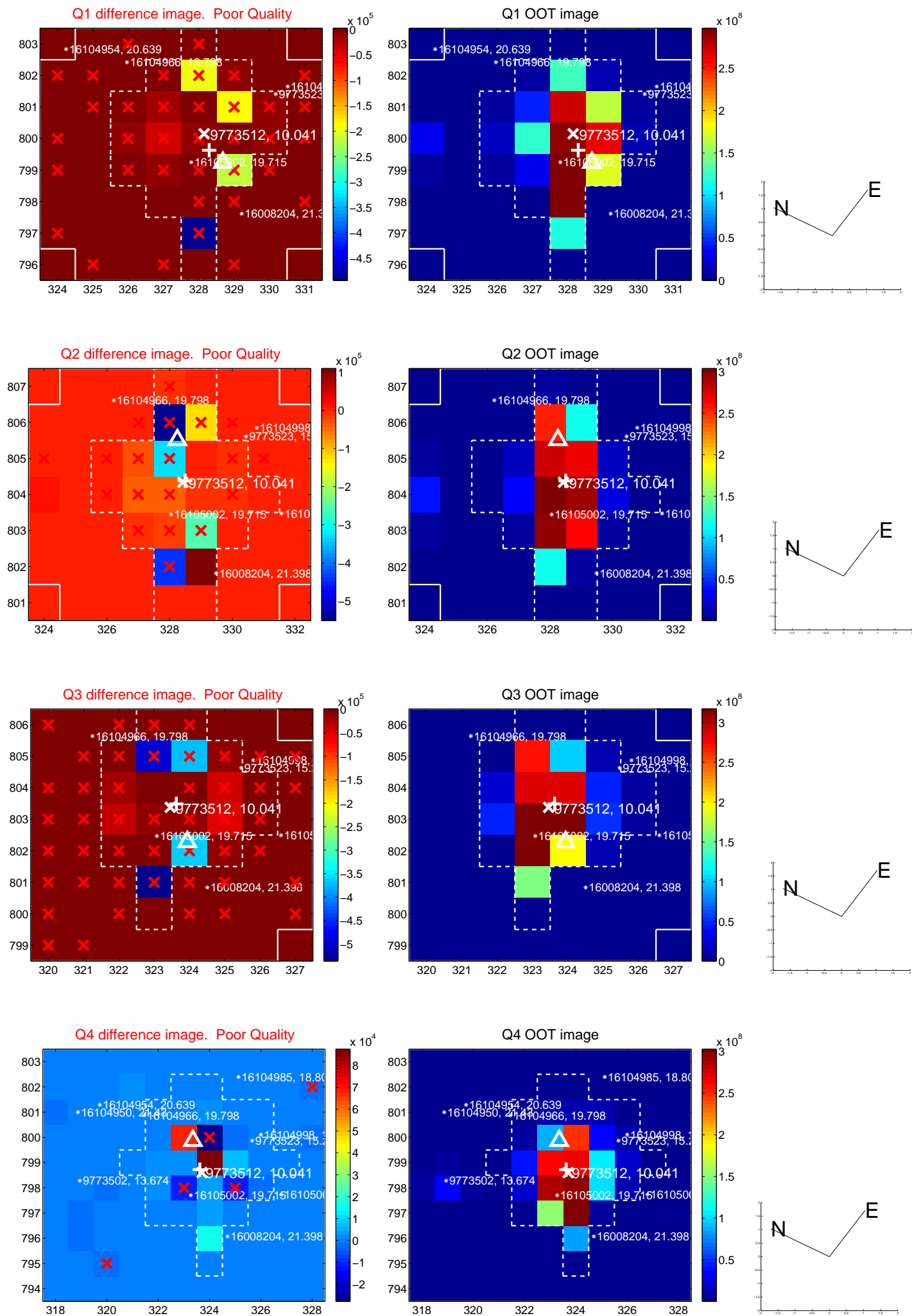


offset from photometric centroids

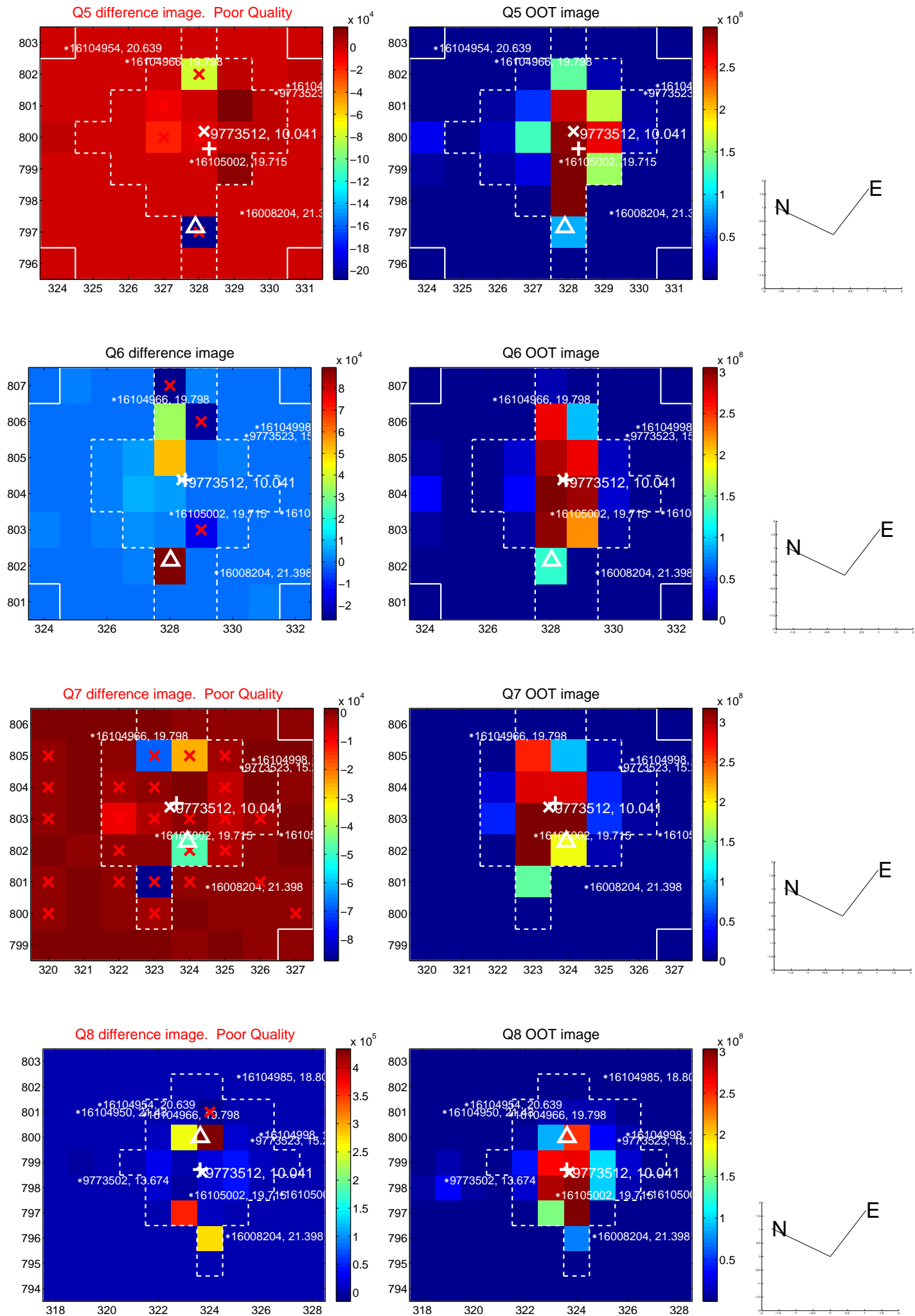


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

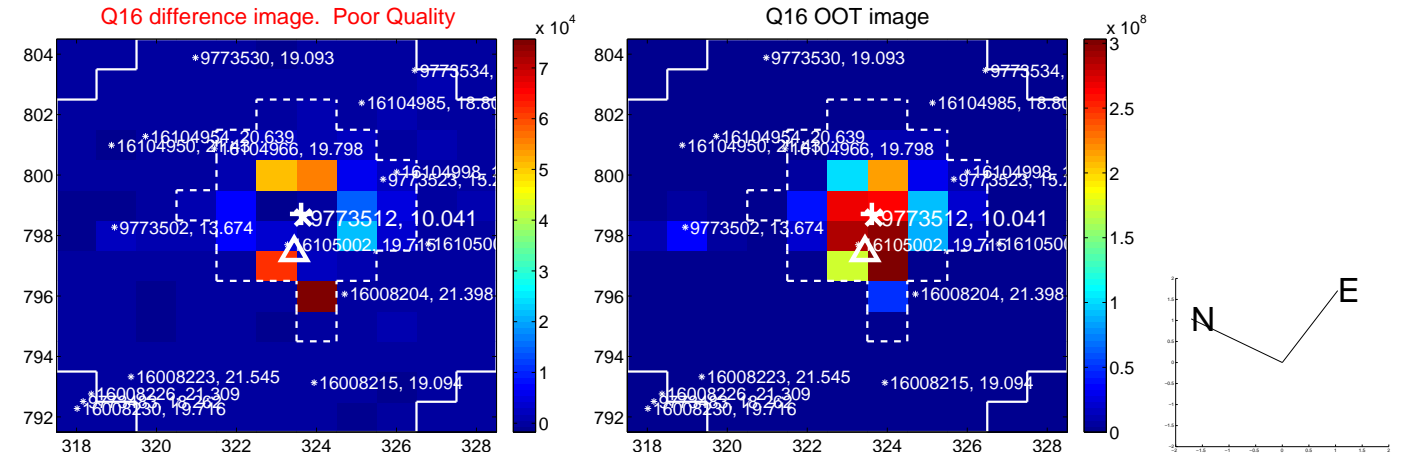
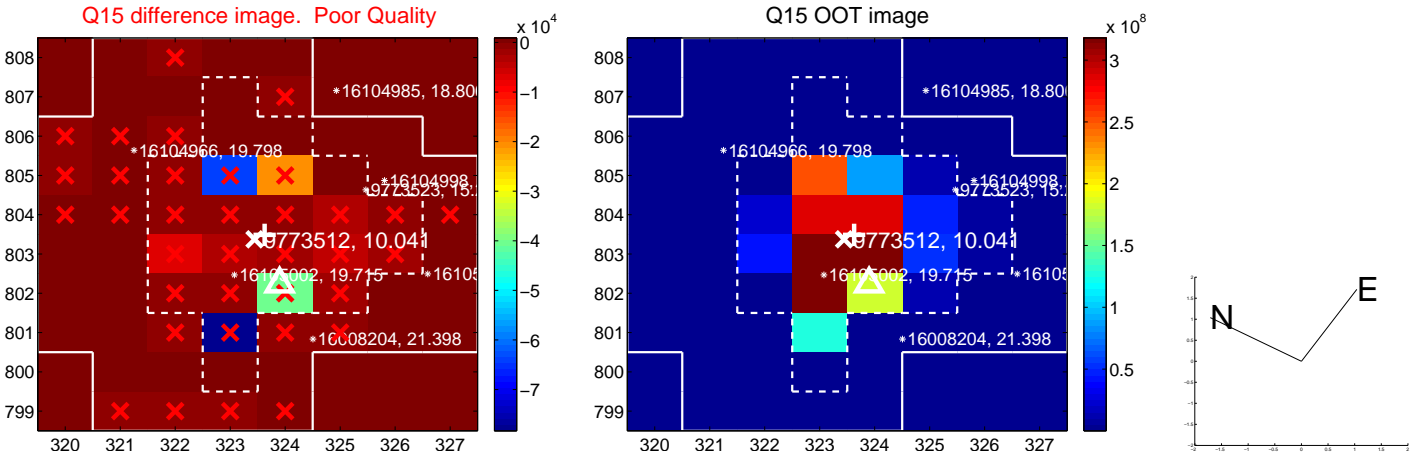
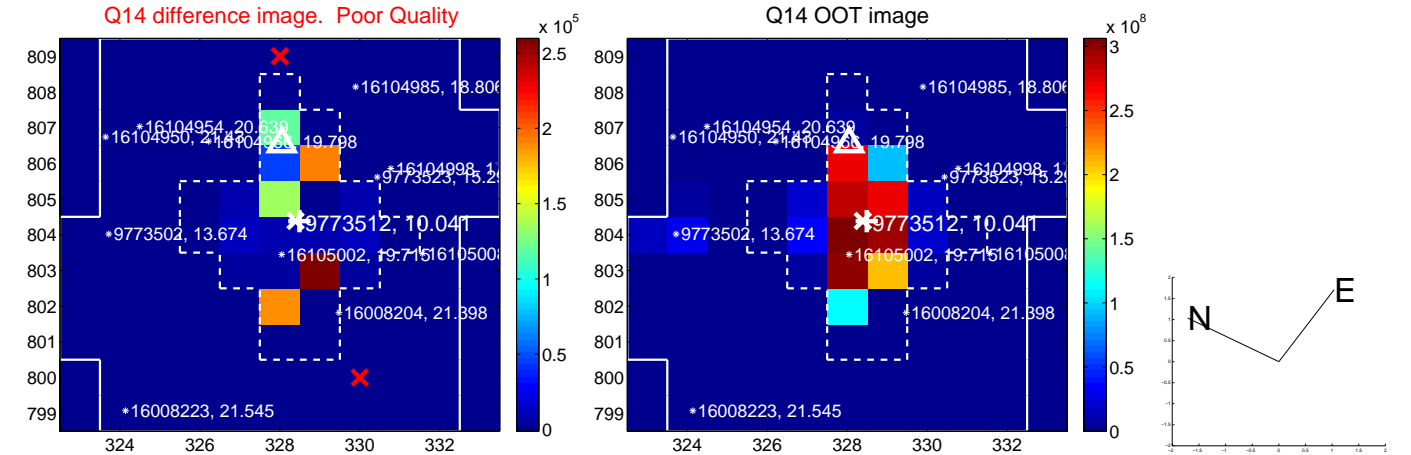
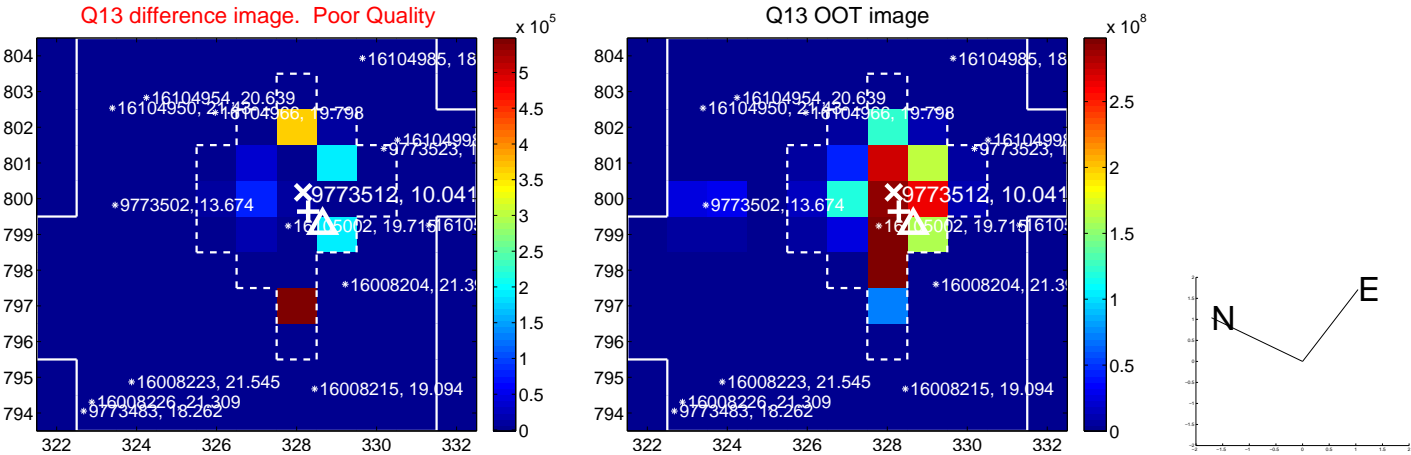
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



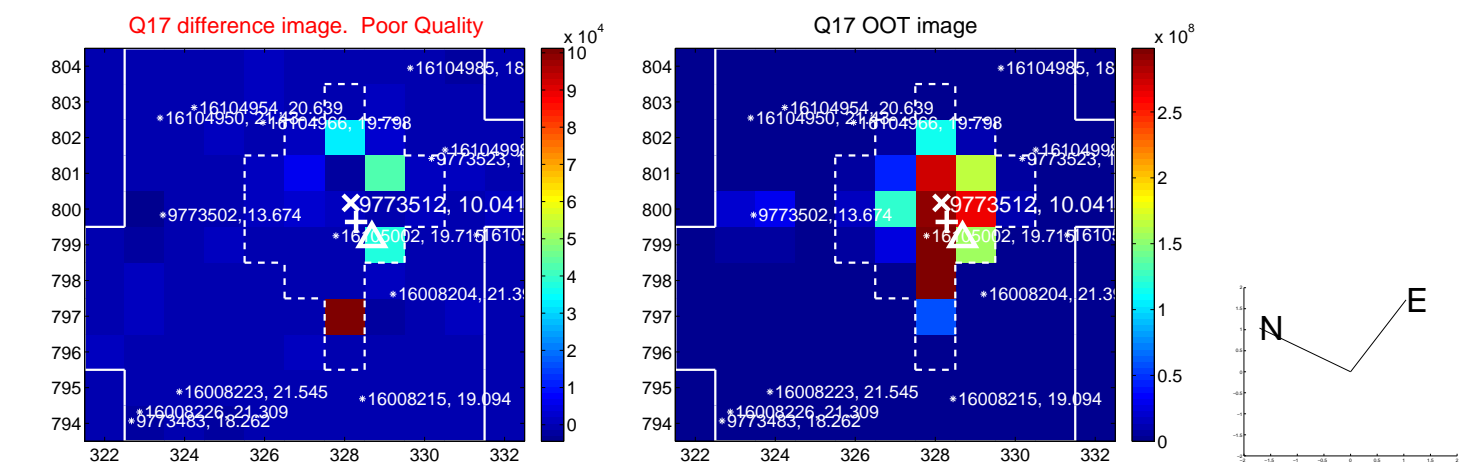
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



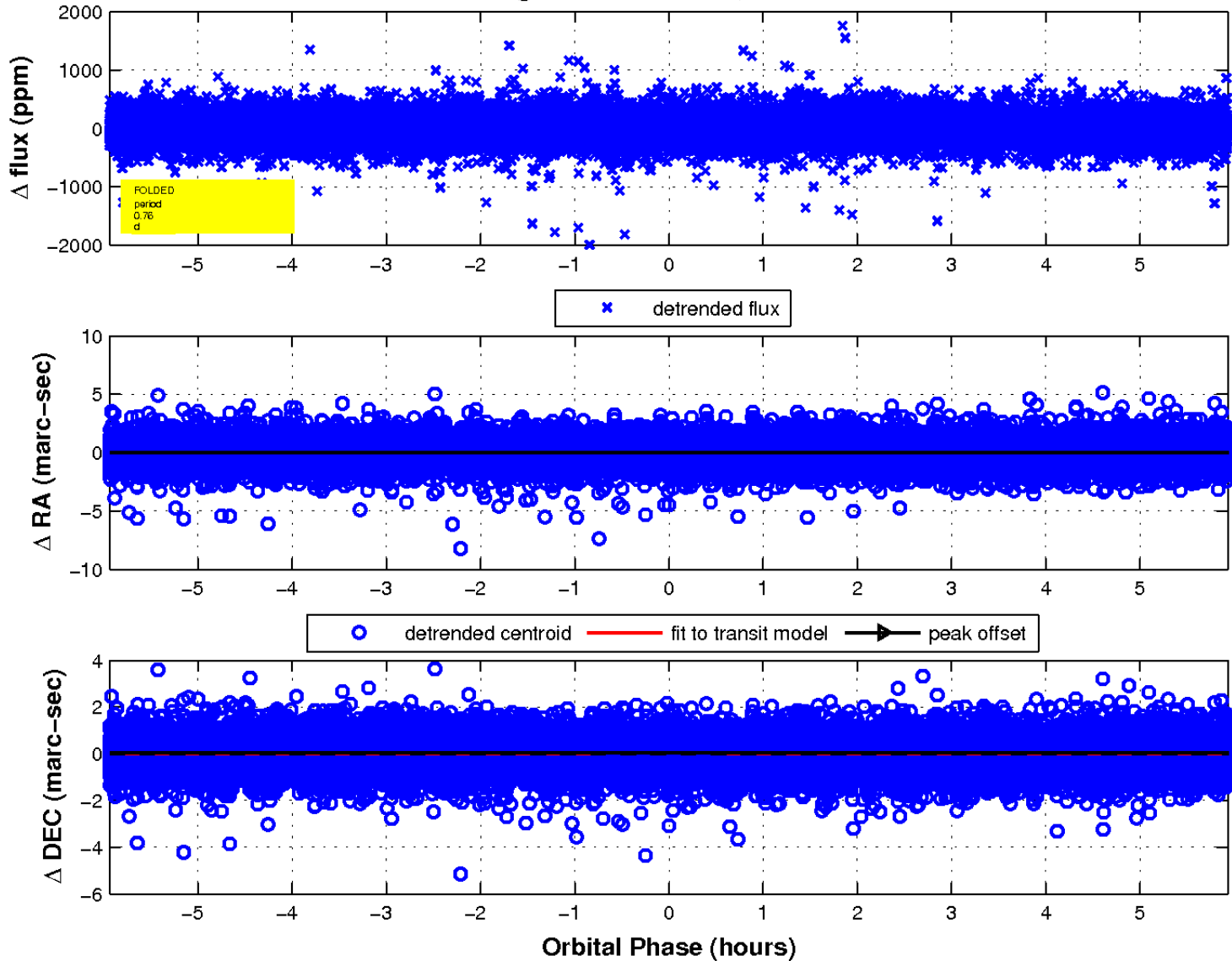
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

Declination

