

KIC 007703305

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})
007703305-01	OBS	No	373.501065	260.193309	93.0	2.692	46.3	1.9	1.56	8011	2.48	6.84
007703305-02	OBS	No	387.461864	246.170825	80.9	26.653	27.5	6.3	1.56	8011	1.52	6.51
007703305-03	OBS	No	98.263361	176.833568	28.8	0.549	8.1	8.7	1.56	8011	0.92	40.57
007703305-04	OBS	No	45.860077	145.057982	17.0	1.457	7.9	3.7	1.56	8011	0.66	112.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007703305-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_ZUMA_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
007703305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007703305-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007703305-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

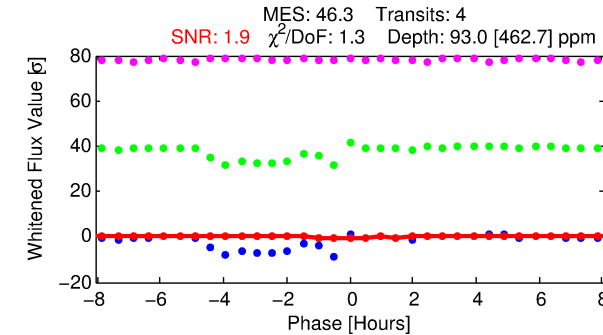
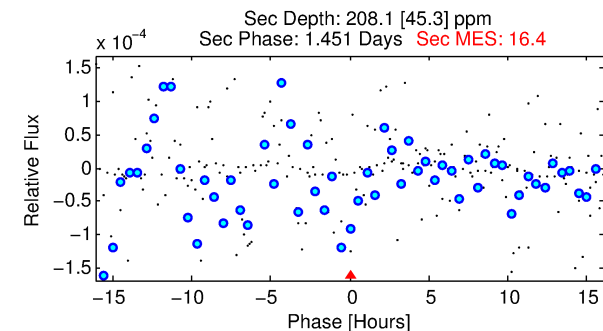
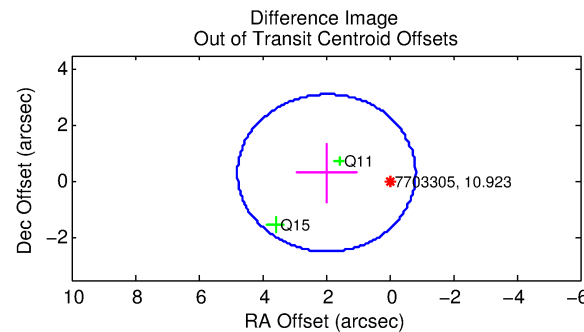
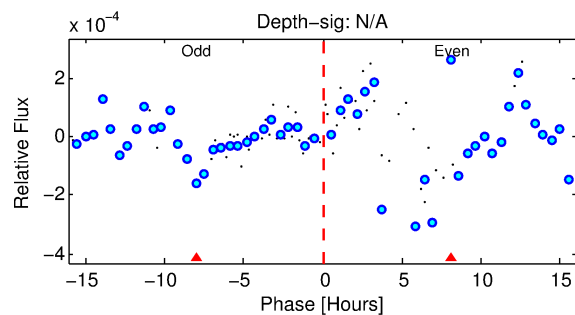
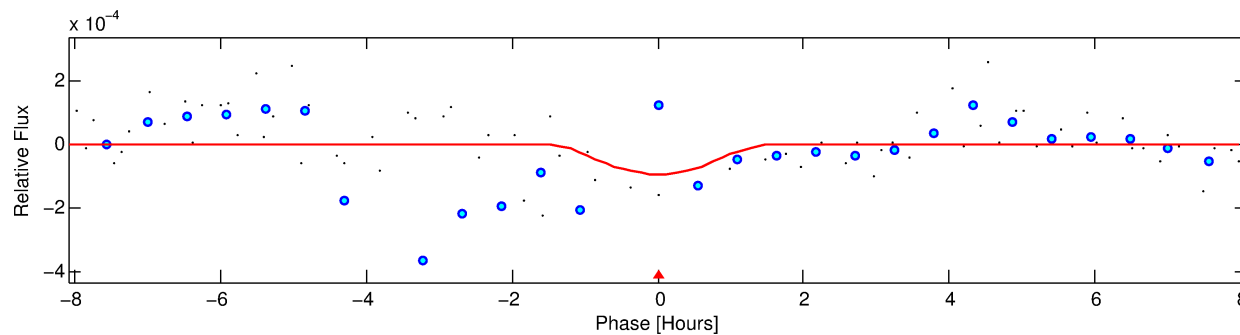
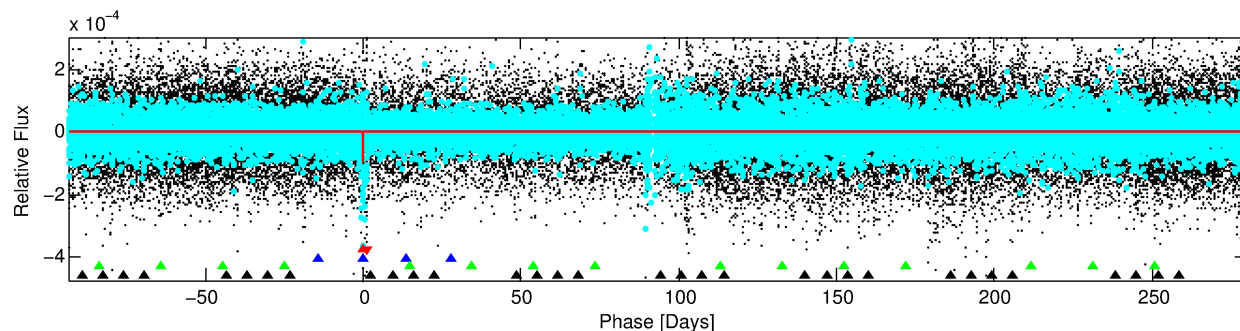
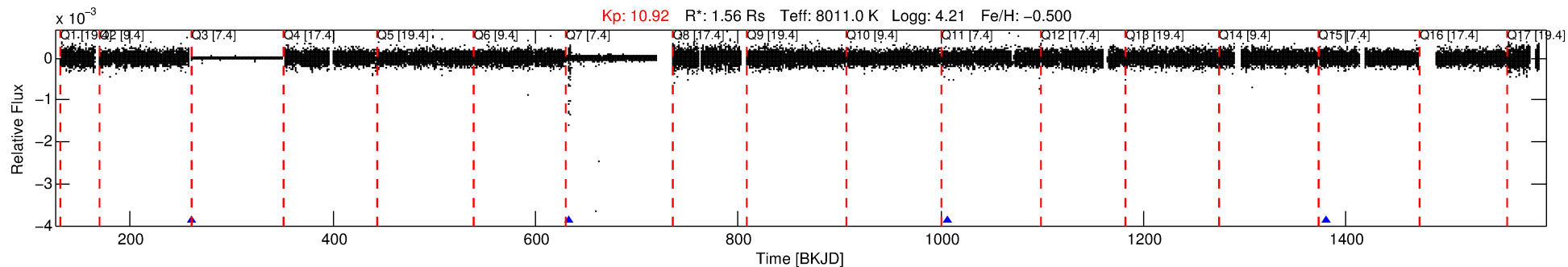
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007703305-01

No Significant Match Found

DV One-Page Summary

KIC: 7703305 Candidate: 1 of 4 Period: 373.501 d



DV Fit Results:

Period = 373.50107 [0.02154] d
Epoch = 260.1933 [0.0383] BKJD
Rp/R* = 0.0146 [0.2108]
a/R* = 208.71 [1180.44]
b = 1.00 [0.39]
Seff = 6.84 [2.53]
Teq = 412 [38] K
Rp = 2.47 [35.85] Re
a = 1.1445 [0.2618] AU
Ag = 24489.27 [709432.23] [0.03σ]
Teff = 7975 [57757] K [0.13σ]

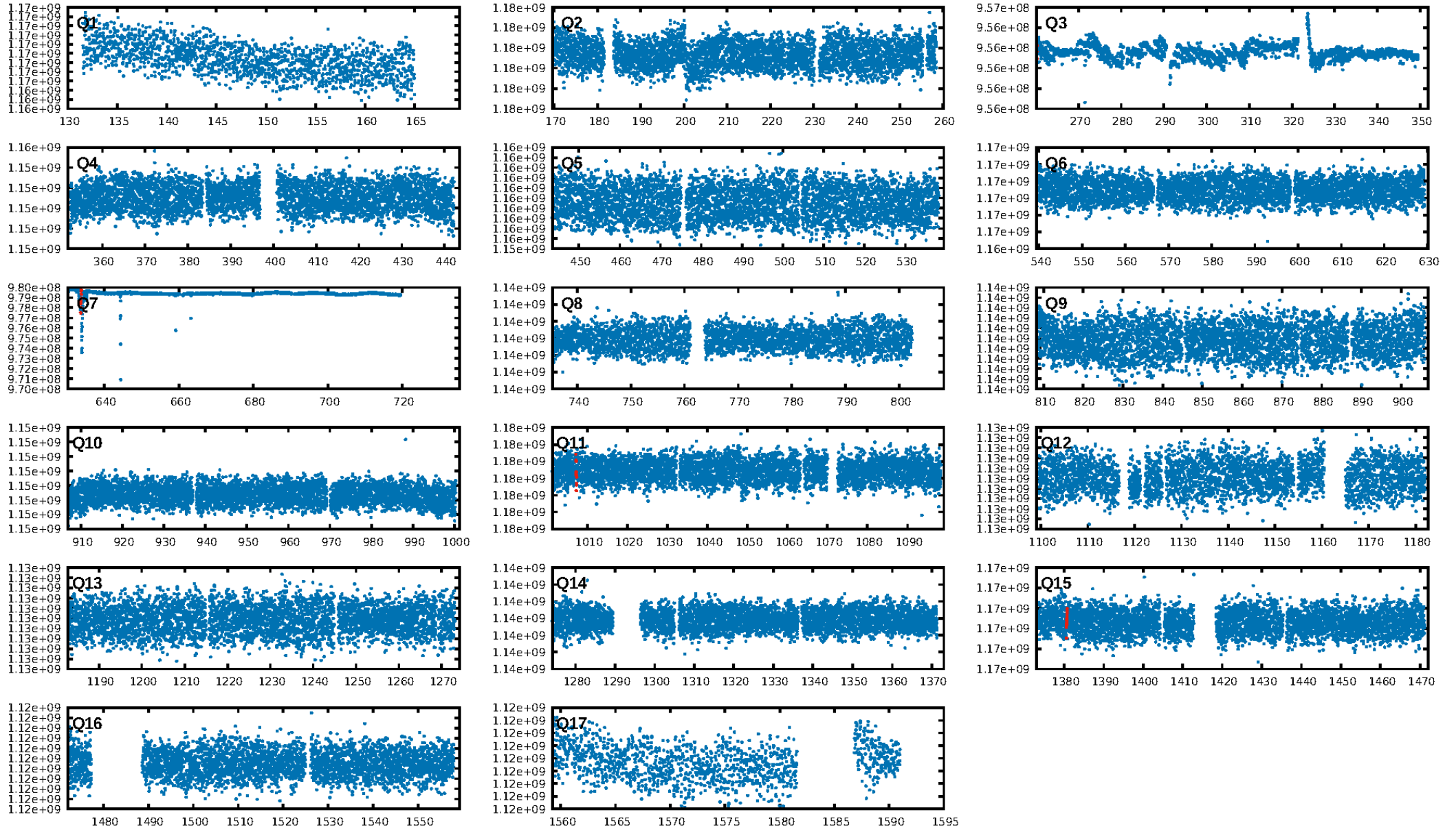
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [2403.88σ]
LongPeriod-sig: 100.0% [12.51σ]
ModelChiSquare2-sig: 94.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.14e-237
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.2
Centroid-sig: 83.8%
Centroid-so: 1.552 arcsec [0.37σ]
OotOffset-rm: 2.001 arcsec [2.14σ]
KicOffset-rm: 2.309 arcsec [2.51σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

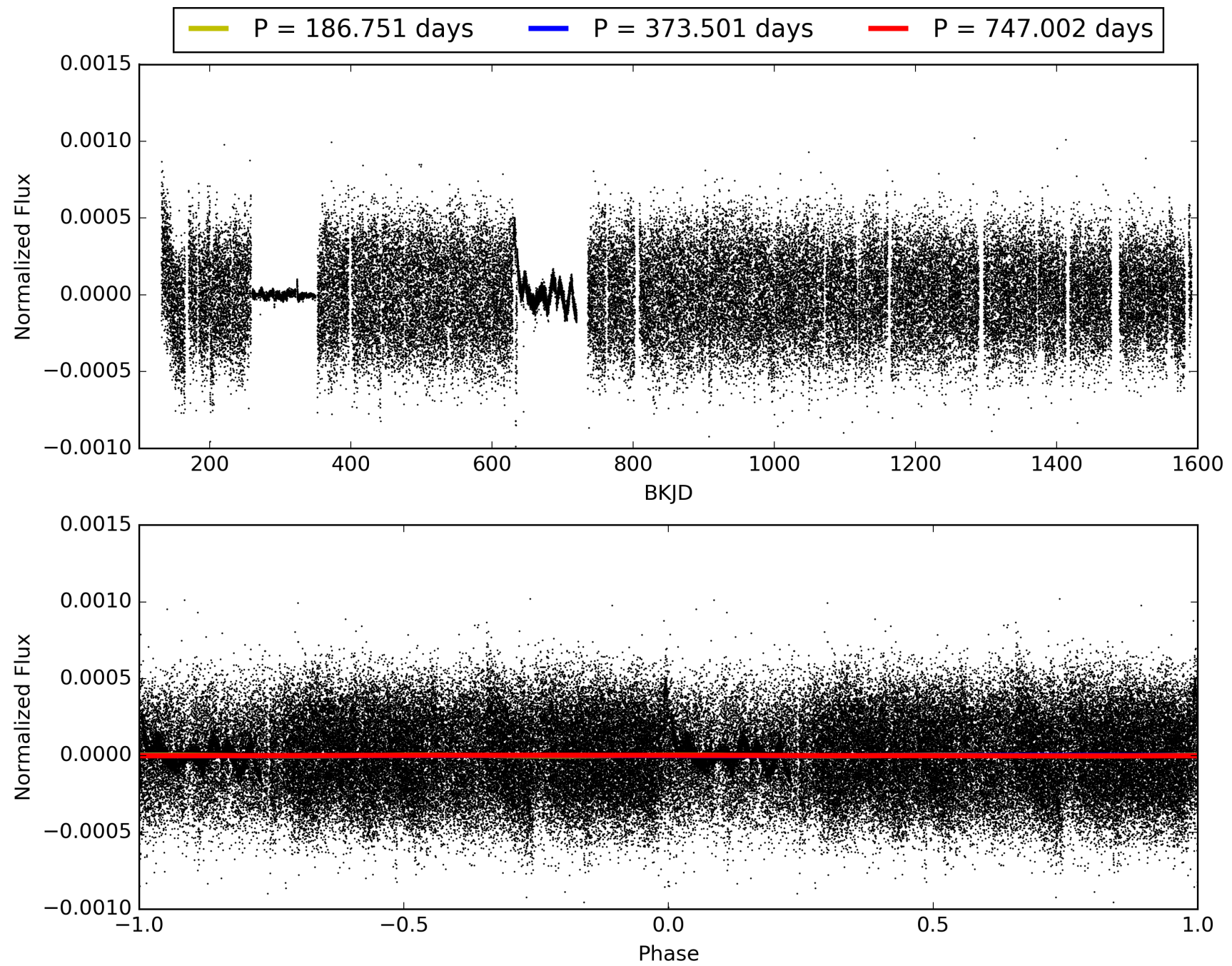
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 05:08:51 Z

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

TCE 007703305-01, PDC Light Curves

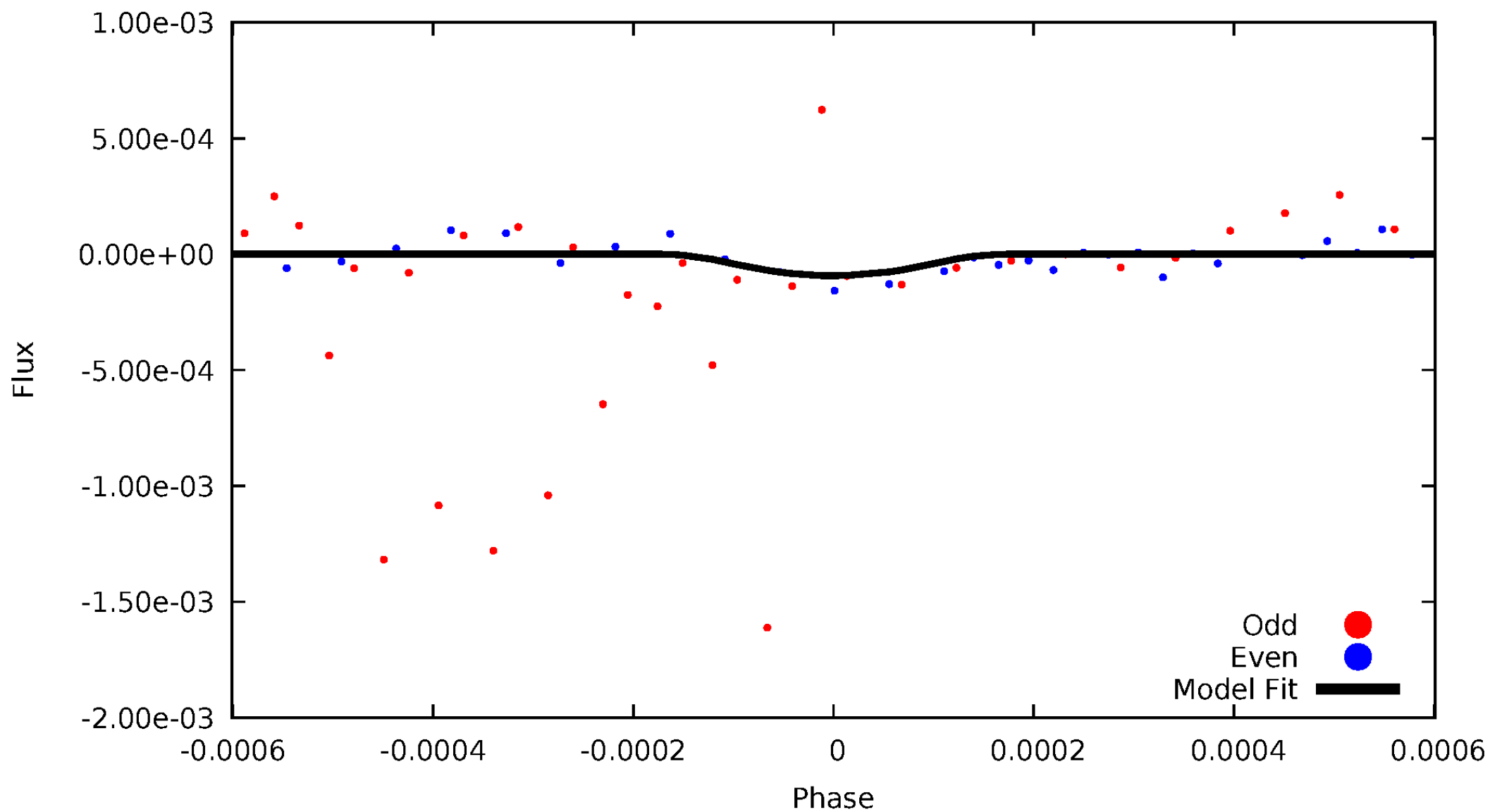


TCE 007703305-01



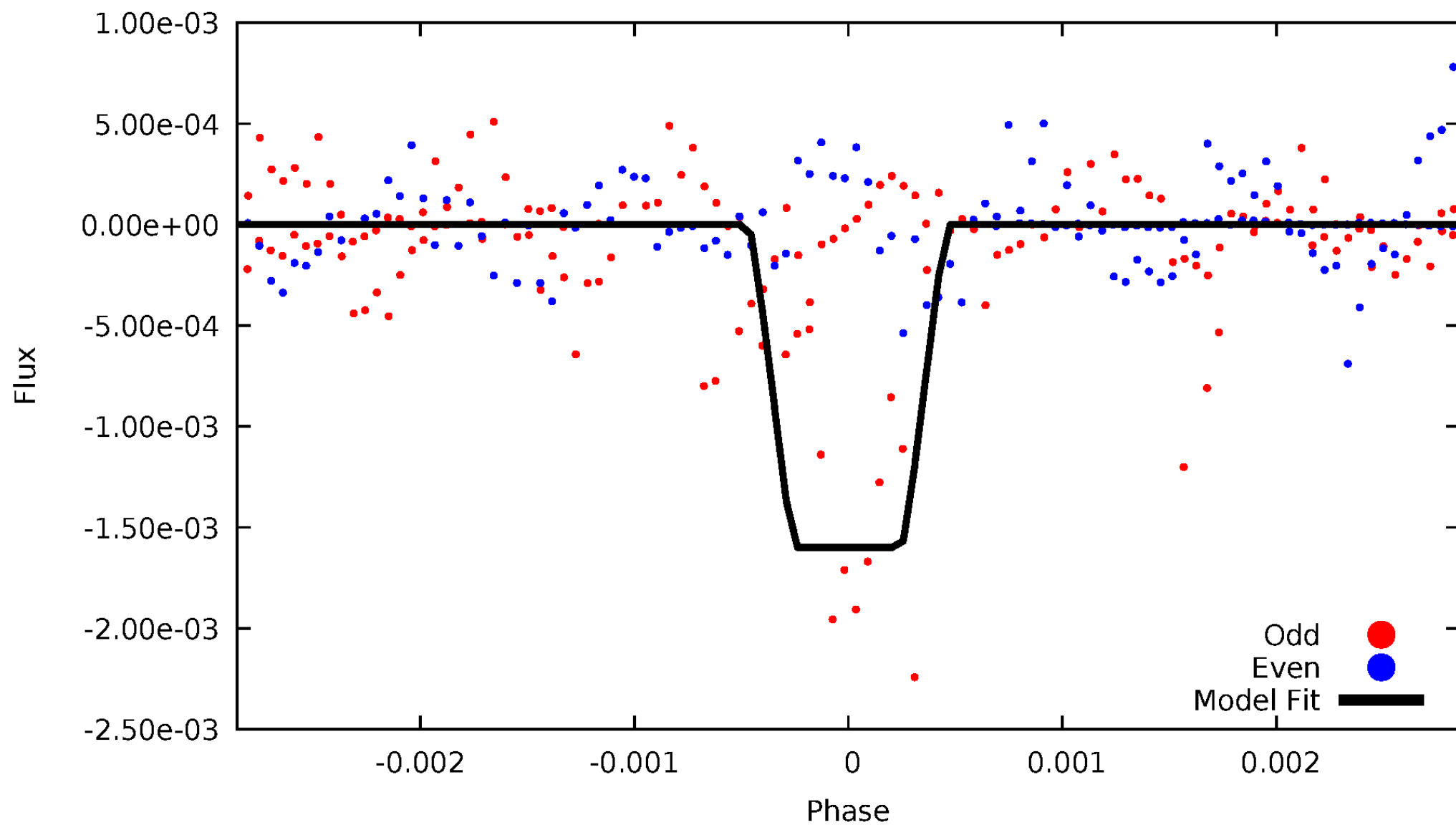
DV Odd/Even

TCE 007703305-01



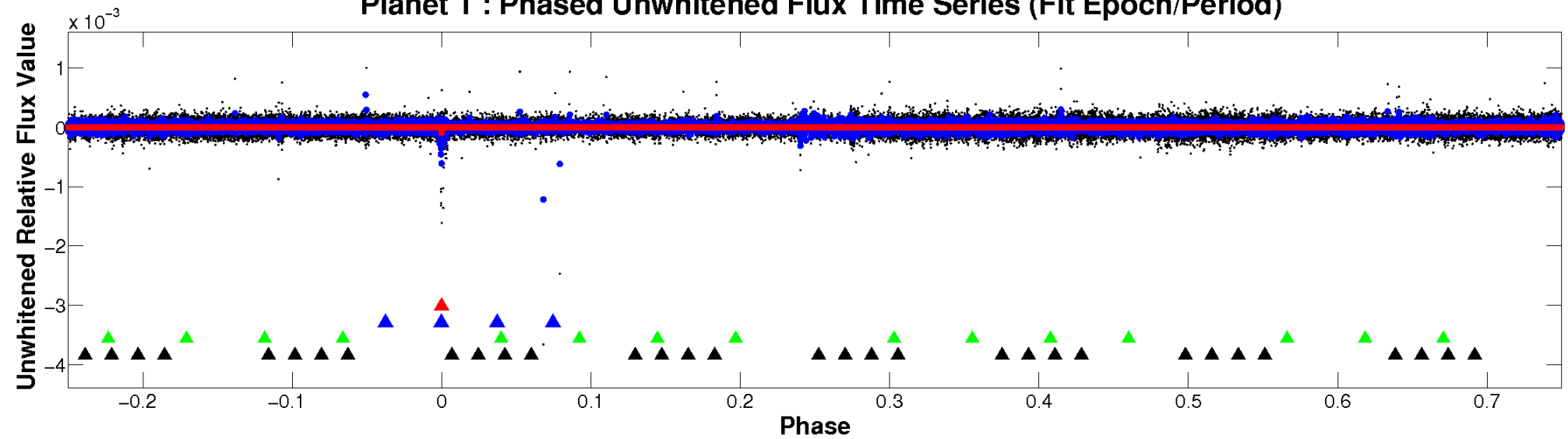
ALT Odd/Even

TCE 007703305-01

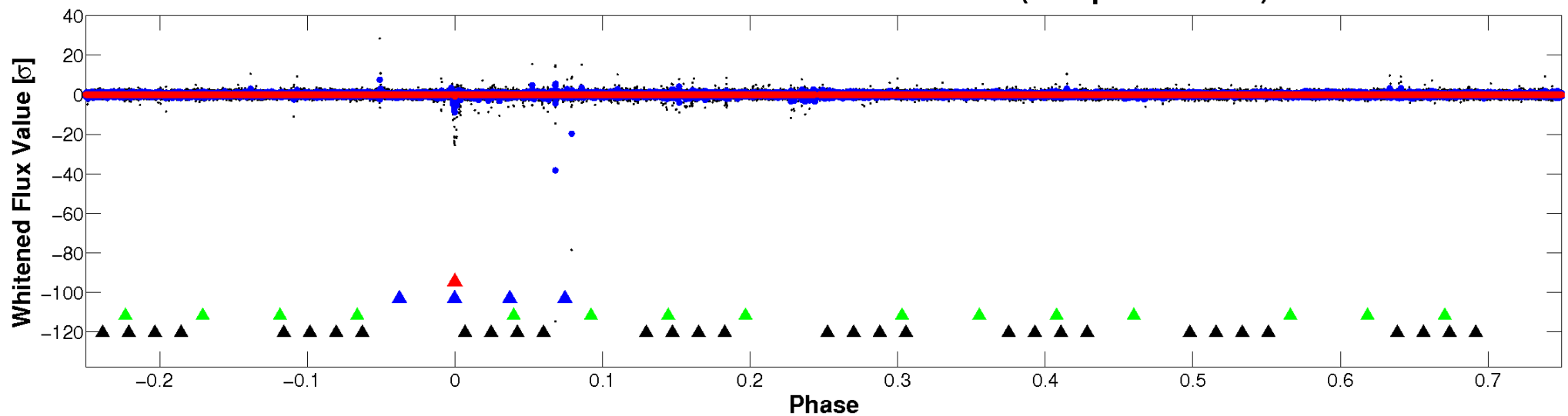


Non-Whitened Vs. Whitened Light Curve

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

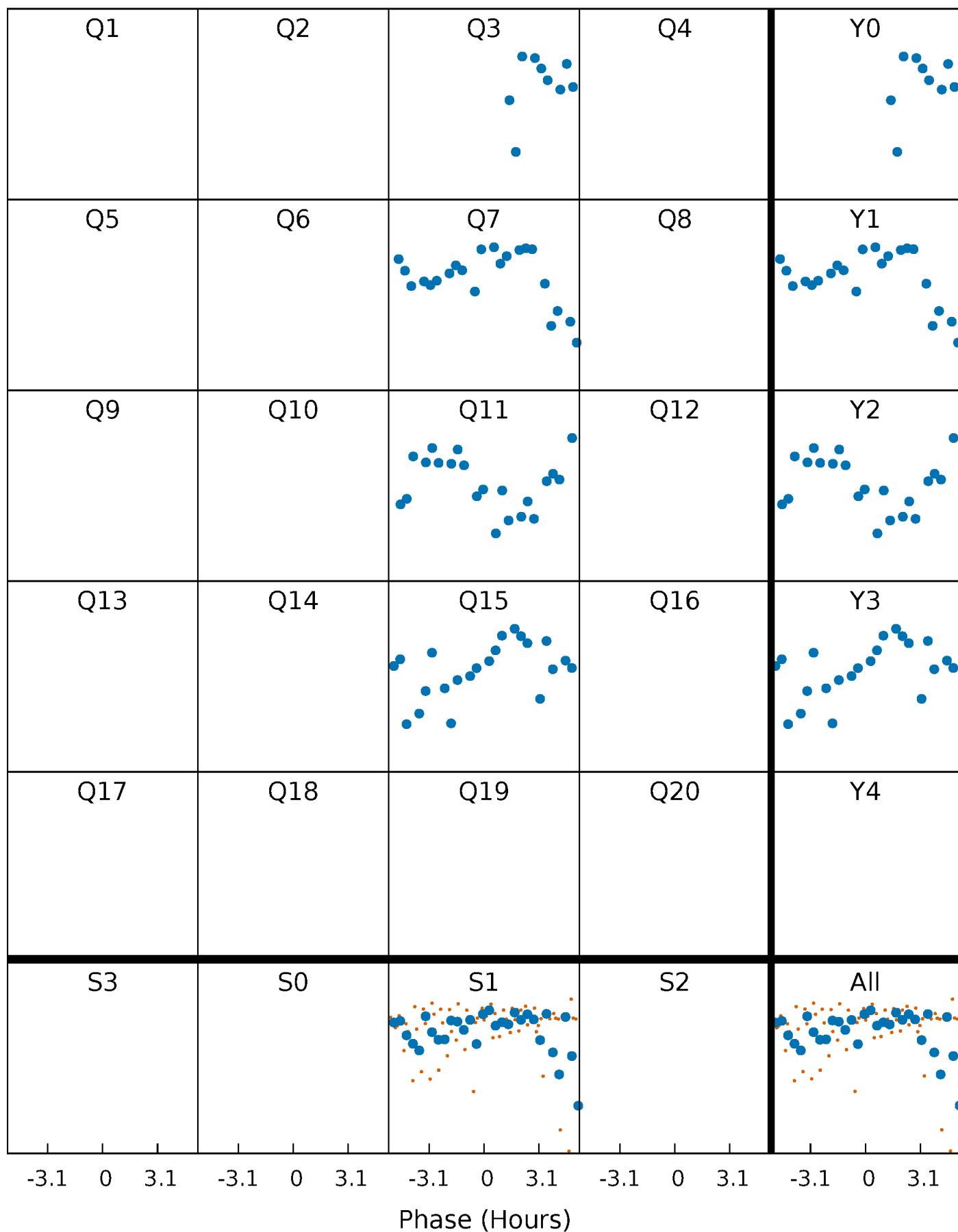


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



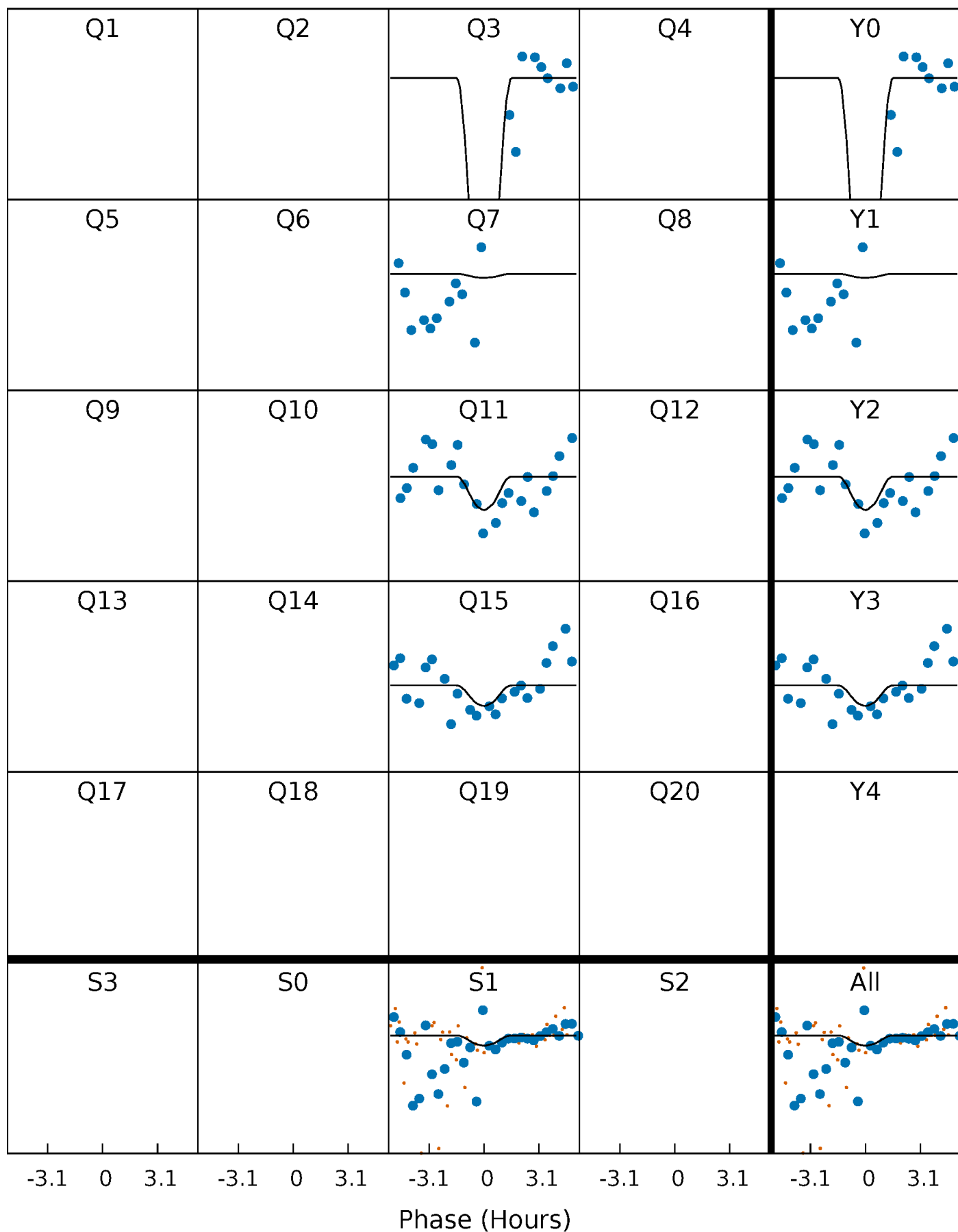
PDC Quarter-Phased Transit Curves

TCE 007703305-01 P=373.501065 Days $T_0=260.193309$ (BKJD)



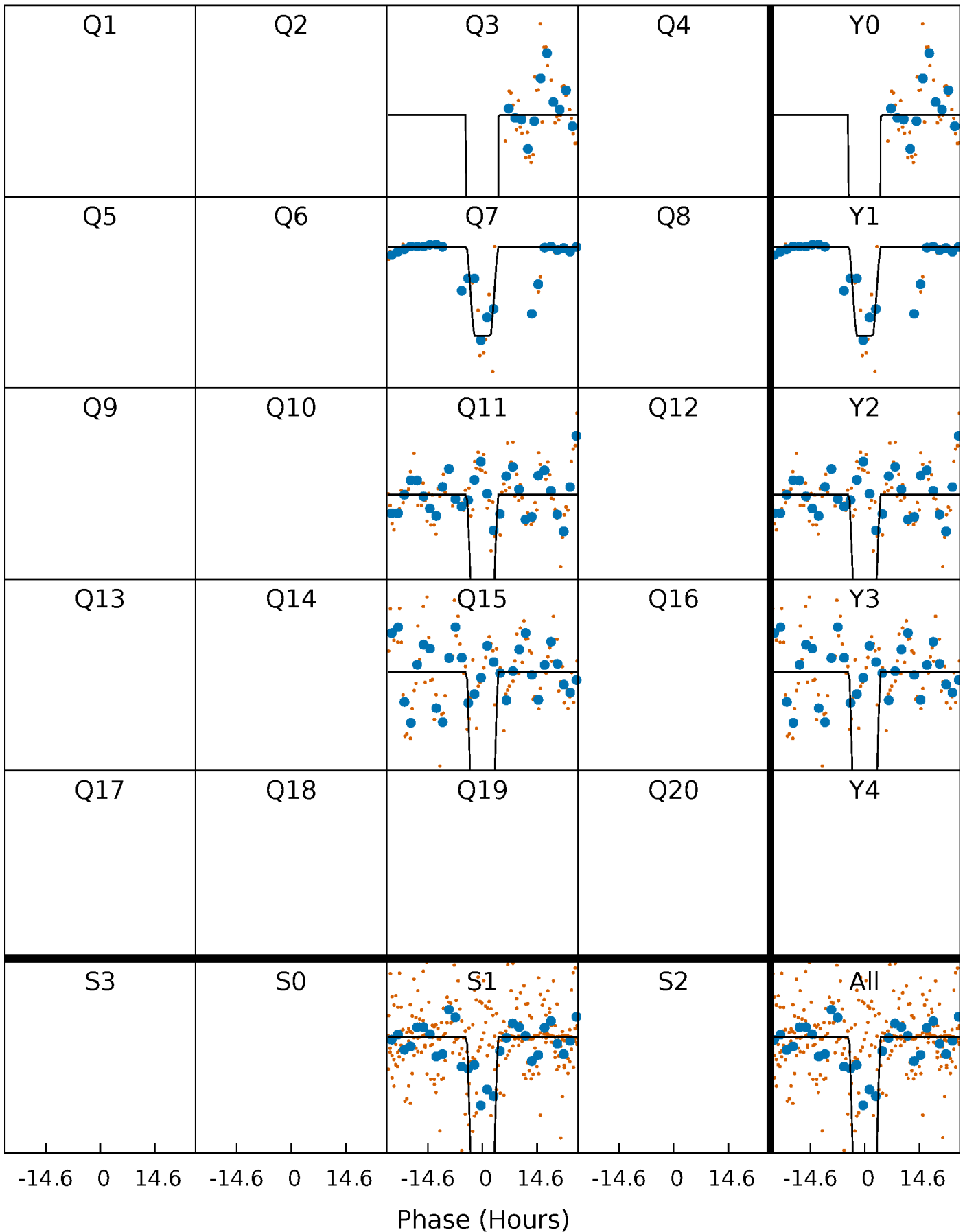
DV Quarter-Phased Transit Curves

TCE 007703305-01 P=373.501065 Days $T_0=260.193309$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

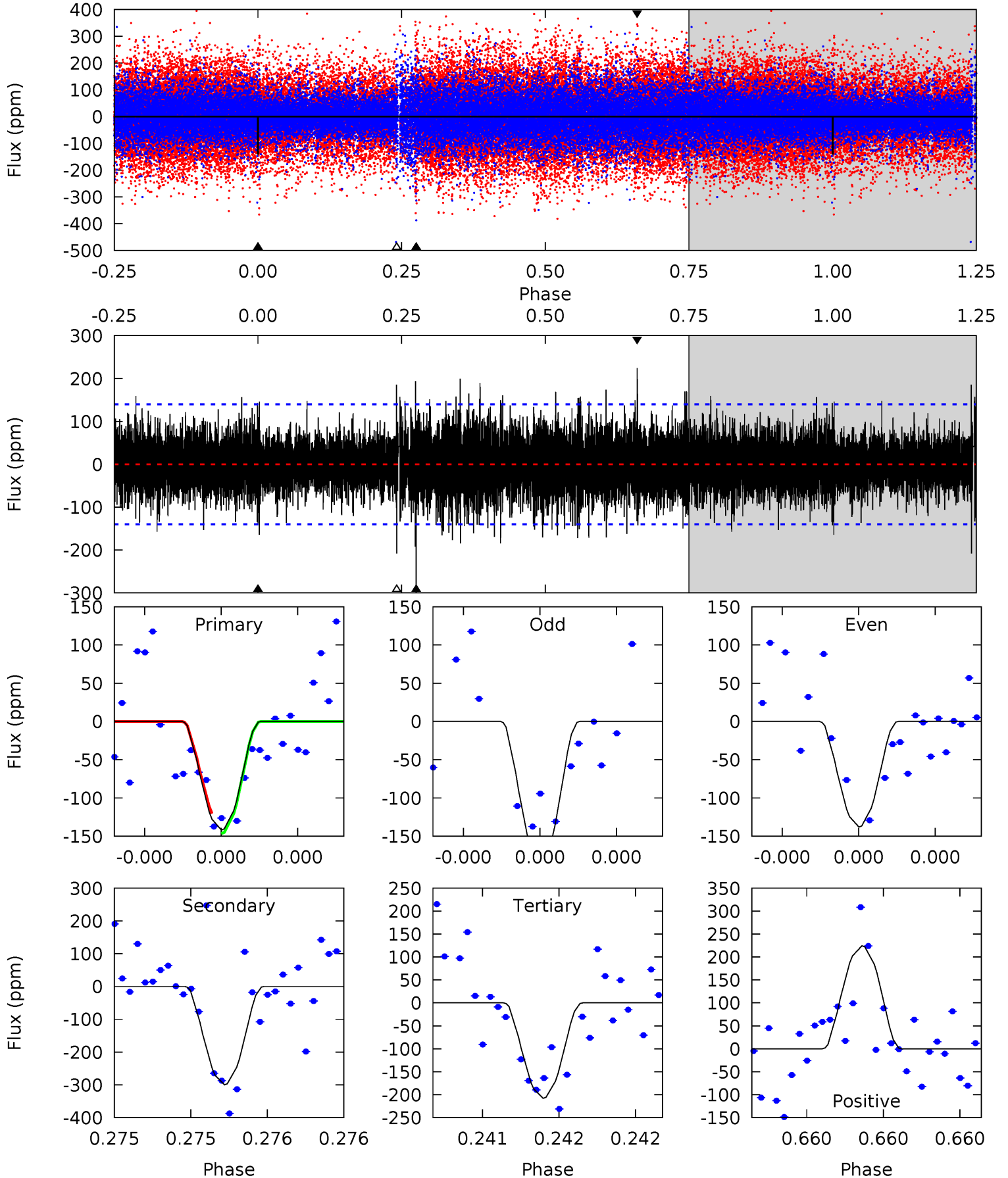
TCE 007703305-01 P=373.566344 Days $T_0=259.987742$ (BKJD)



DV Model-Shift Uniqueness Test

007703305-01, P = 373.501065 Days, E = 260.193309 Days

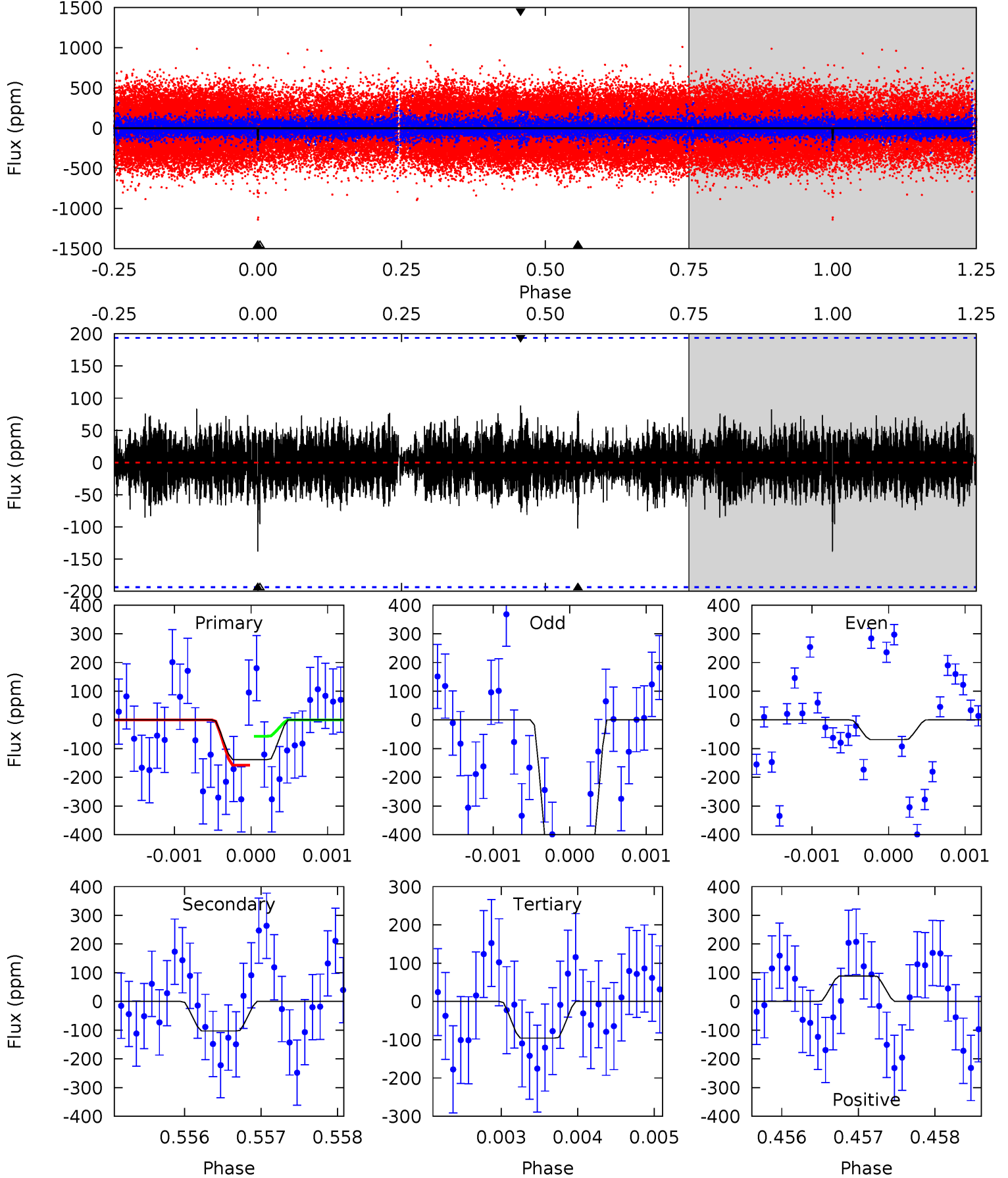
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.73	12.1	8.39	9.06	5.64	3.58	1.83	-2.66	-3.33	3.72	3.05	0.97	1.65	0.43	0



Alt Model-Shift Uniqueness Test

007703305-01, P = 373.566344 Days, E = 259.987742 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.90	2.89	2.70	2.50	5.45	3.30	0.73	1.20	1.40	0.20	0.40	7.43	68.4	0.39	1.41



Stellar Parameters For KIC 007703305

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8011^{+250}_{-333}	$4.209^{+0.120}_{-0.180}$	$-0.500^{+0.200}_{-0.350}$	$1.558^{+0.426}_{-0.284}$	$1.431^{+0.196}_{-0.178}$	$0.533^{+0.344}_{-0.240}$
	+3%/-4%	+3%/-4%	+40%/-70%	+27%/-18%	+14%/-12%	+64%/-45%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007703305-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-300 ± 25	$24.31^{+26.40}_{-17.52}$	578^{+46}_{-37}	3268^{+1874}_{-584}	352^{+4335}_{-266}
Alt.	-103 ± 35	$27.63^{+27.38}_{-19.62}$	579^{+37}_{-39}	2714^{+1176}_{-426}	89^{+1050}_{-68}

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

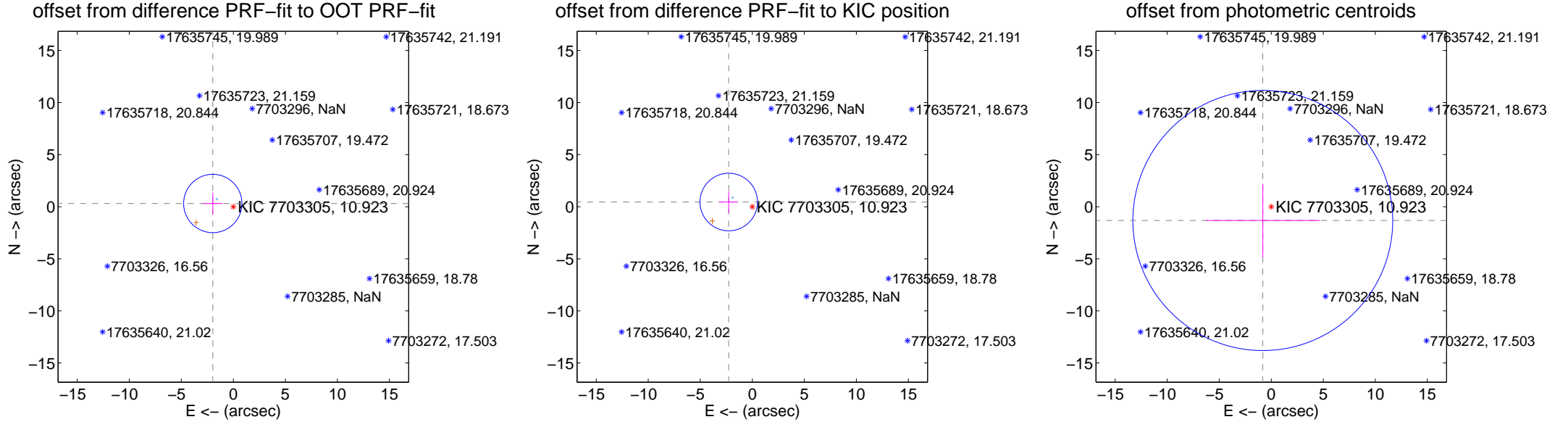
DV Centroid Data

Supplemental centroid analysis for 007703305-01. **Kepler magnitude: 10.92.** Transit SNR 1.94

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.001 ± 0.933	2.14	1.976 ± 0.931	0.311 ± 1.042
PRF-fit source offset from KIC position	2.309 ± 0.921	2.51	2.265 ± 0.916	0.451 ± 1.036
photometric centroid source offset	1.55 ± 4.16	0.37	0.81 ± 5.50	-1.32 ± 3.52



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.

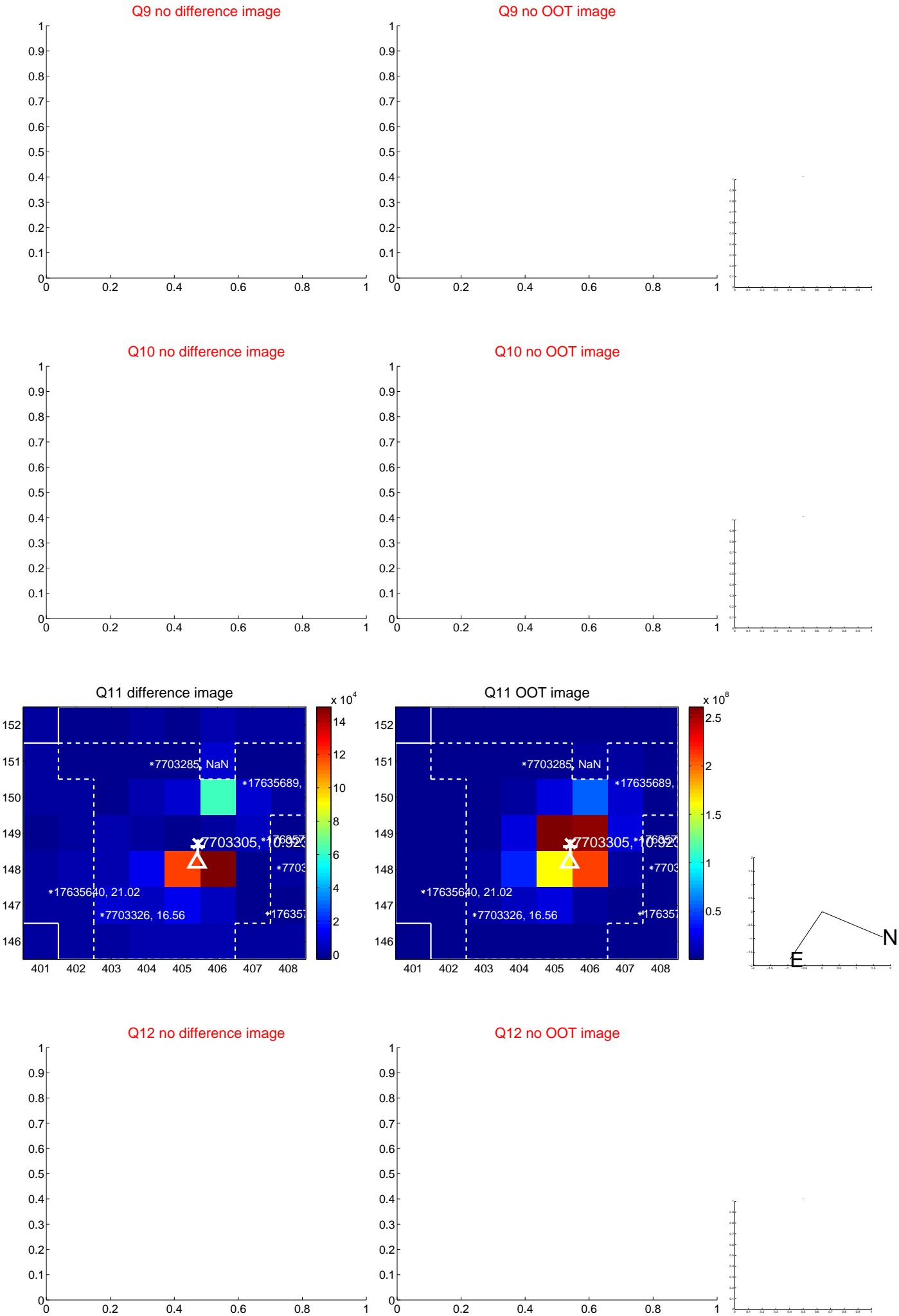
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



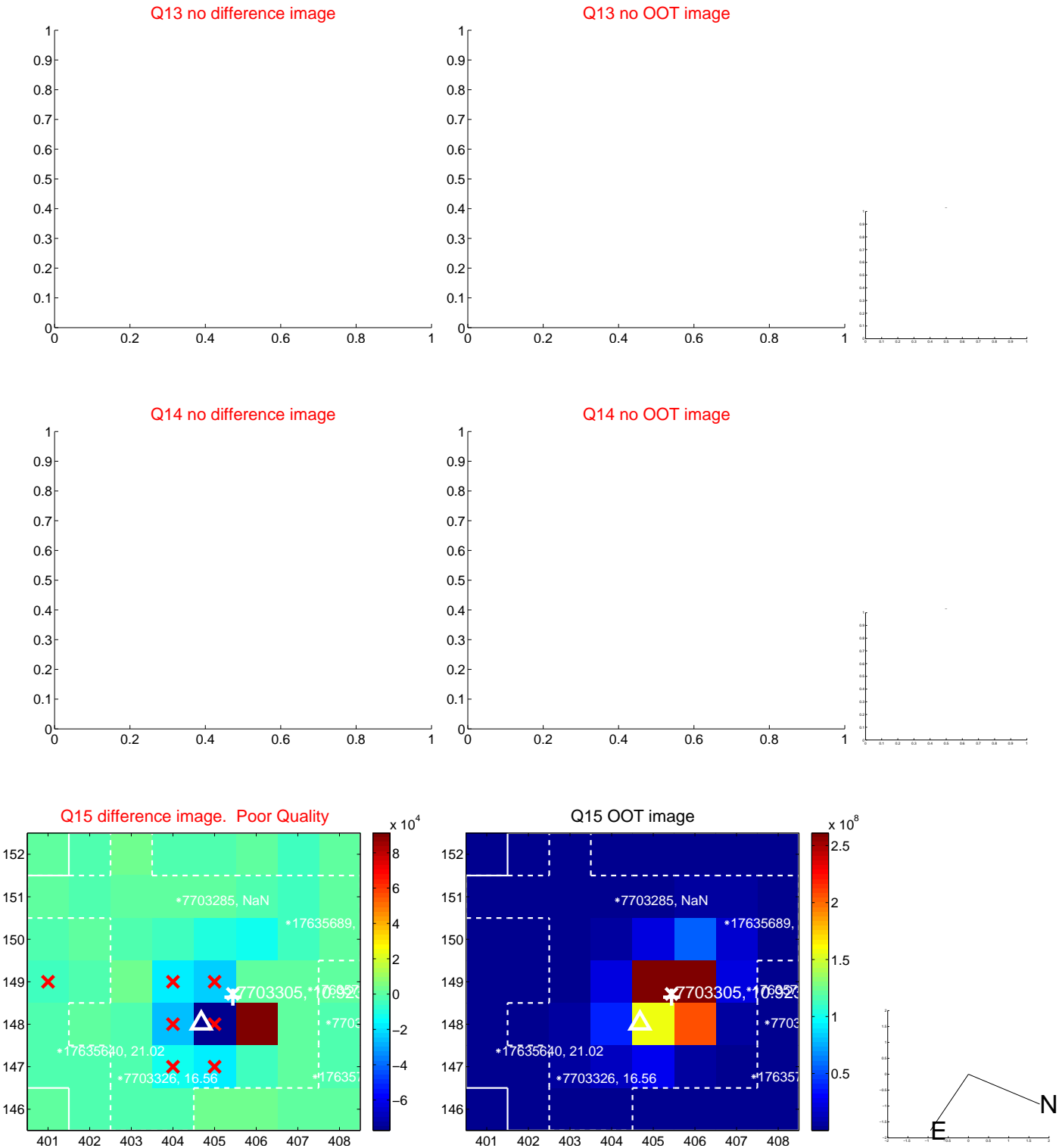
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



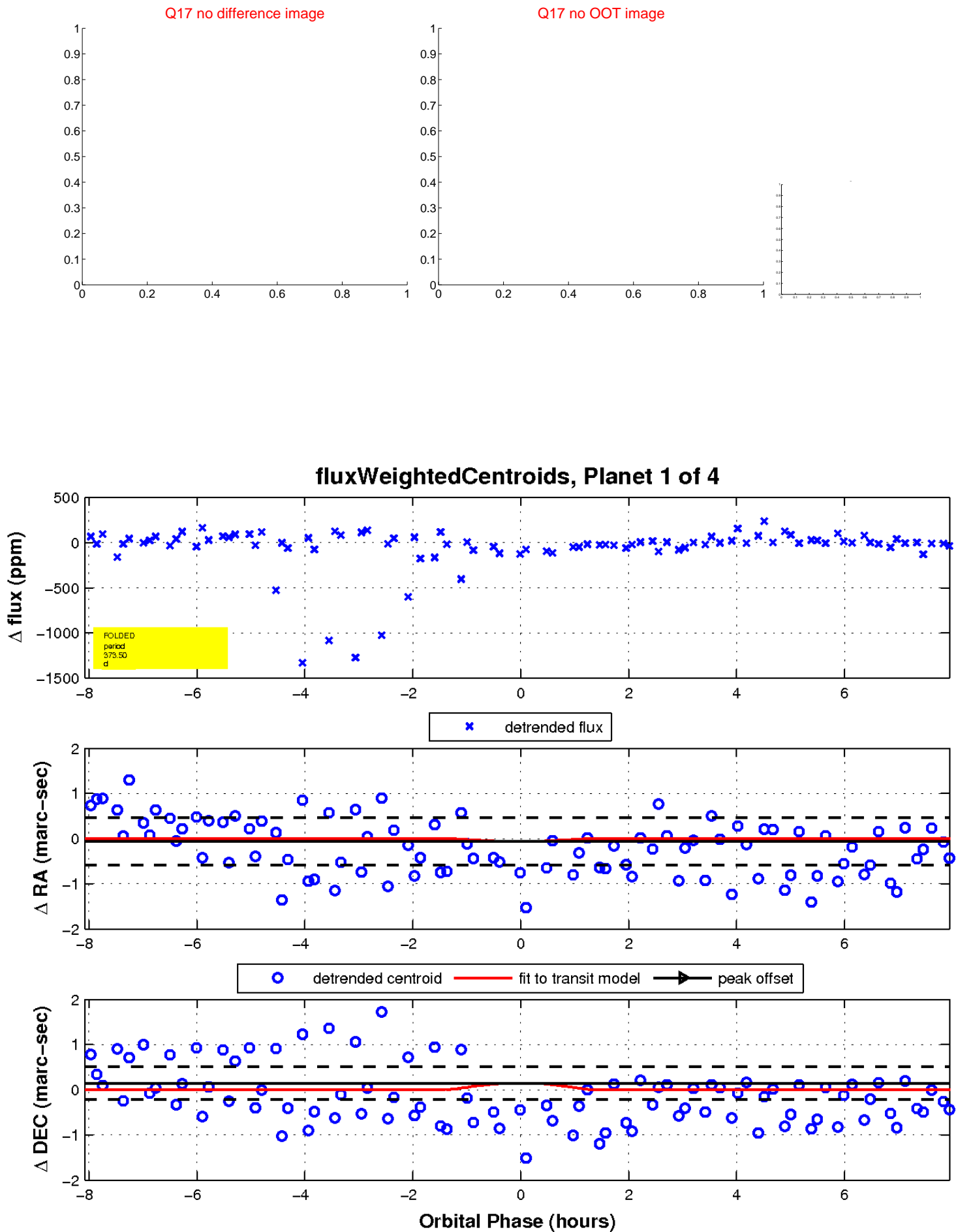
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



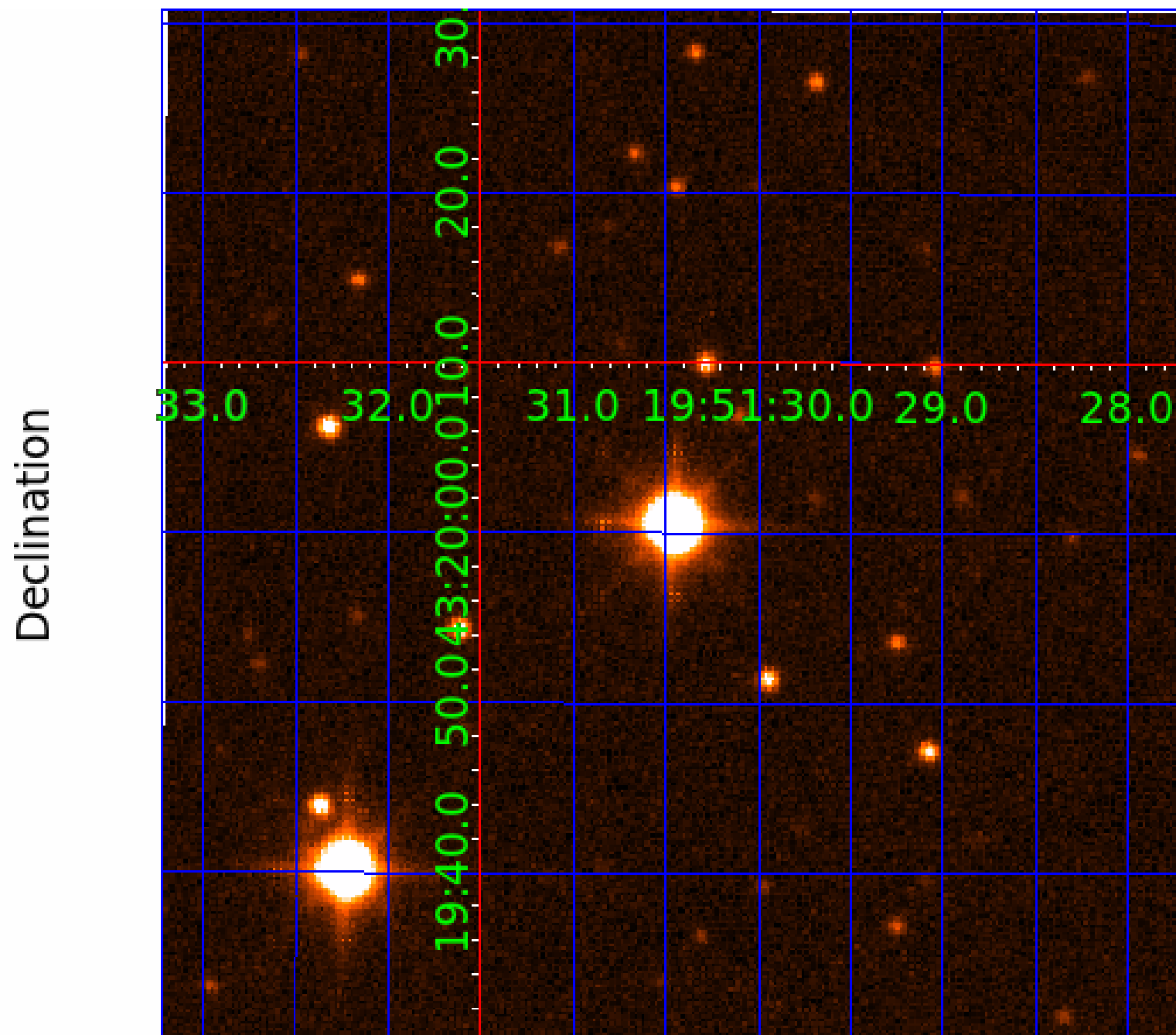
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 007703305

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})
007703305-01	OBS	No	373.501065	260.193309	93.0	2.692	46.3	1.9	1.56	8011	2.48	6.84
007703305-02	OBS	No	387.461864	246.170825	80.9	26.653	27.5	6.3	1.56	8011	1.52	6.51
007703305-03	OBS	No	98.263361	176.833568	28.8	0.549	8.1	8.7	1.56	8011	0.92	40.57
007703305-04	OBS	No	45.860077	145.057982	17.0	1.457	7.9	3.7	1.56	8011	0.66	112.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007703305-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_ZUMA_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
007703305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007703305-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007703305-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

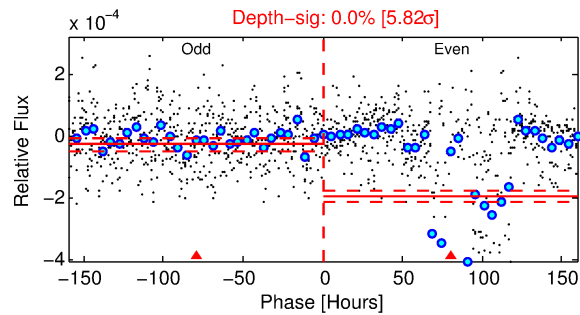
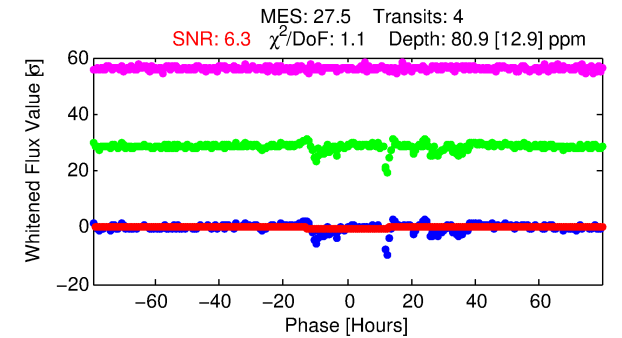
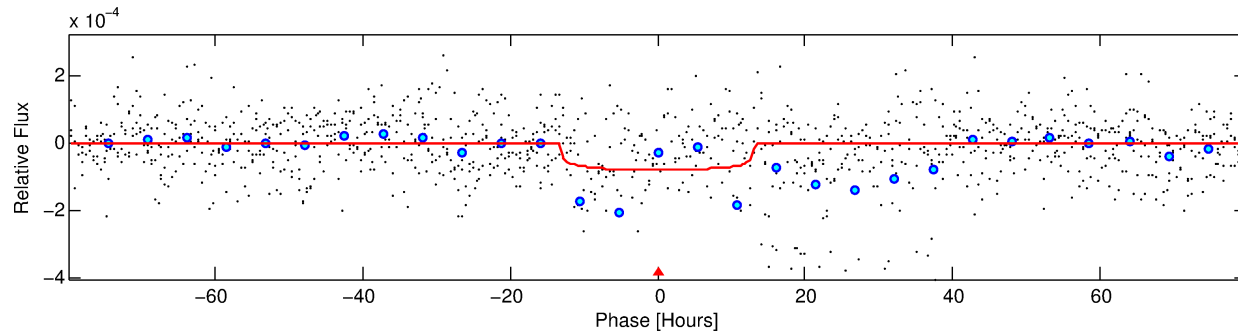
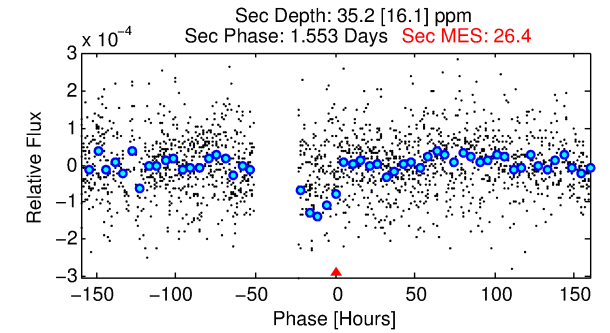
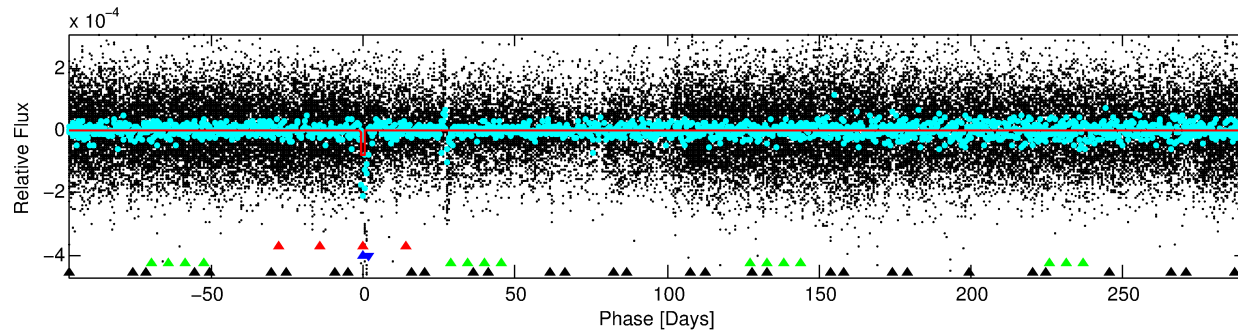
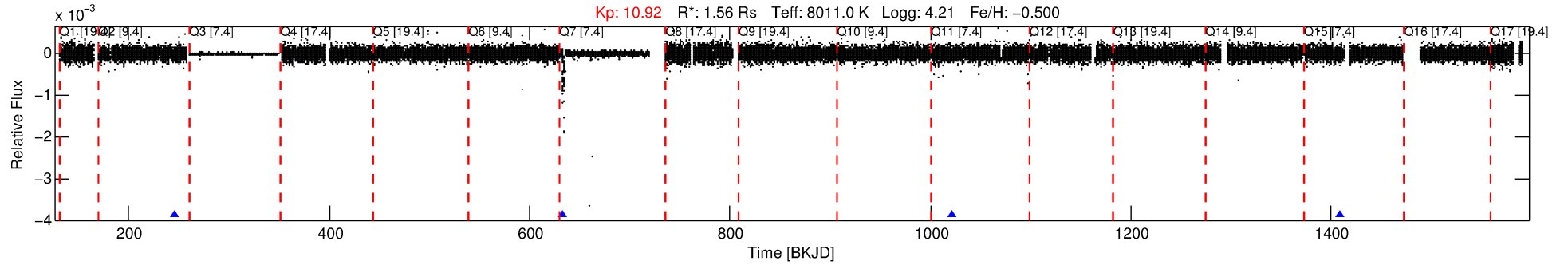
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007703305-02

No Significant Match Found

DV One-Page Summary

KIC: 7703305 Candidate: 2 of 4 Period: 387.462 d



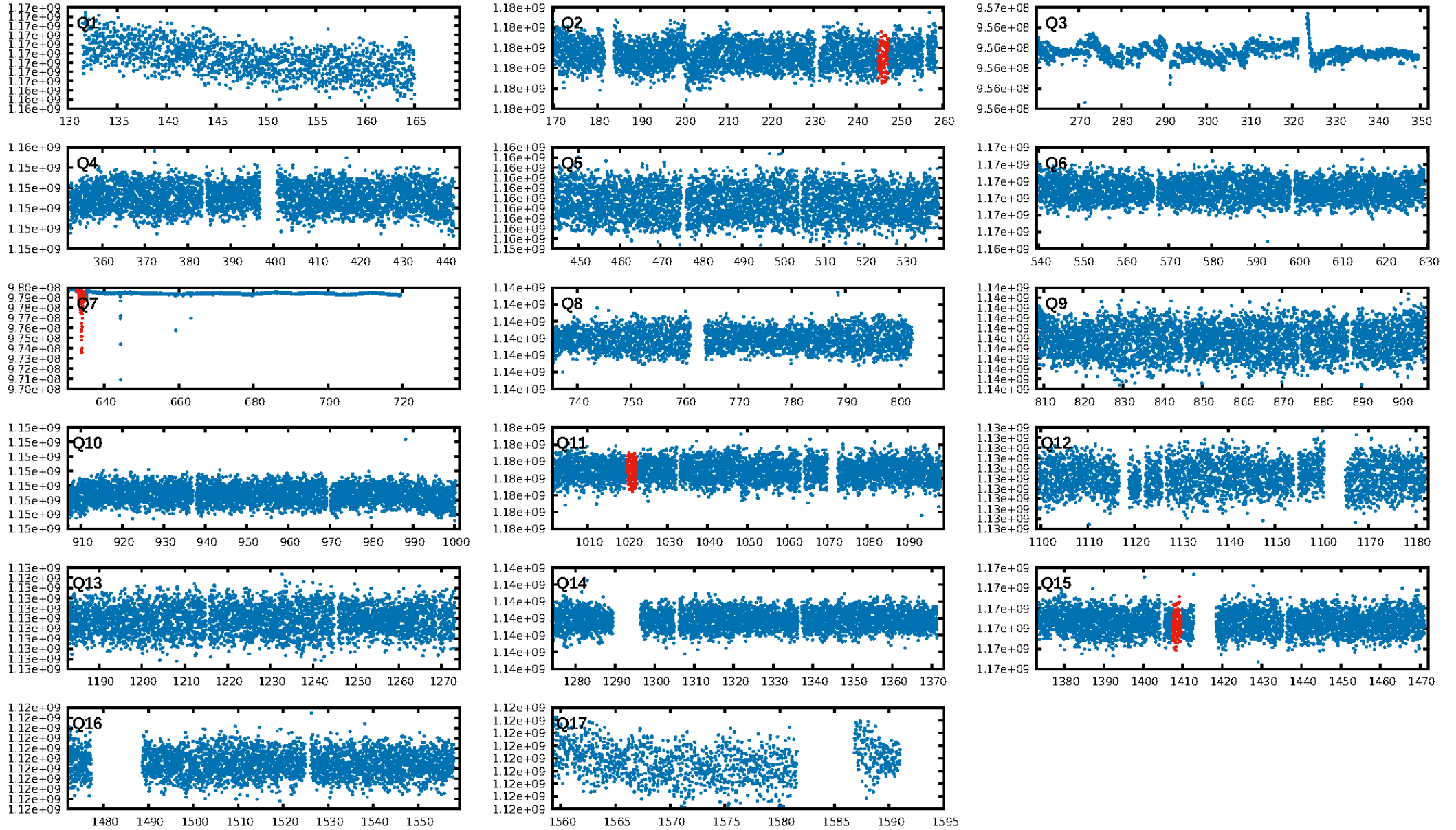
DV Fit Results:

Period = 387.46186 [0.01359] d
Epoch = 246.1708 [0.0235] BKJD
Rp/R* = 0.0089 [0.0015]
a/R* = 75.15 [66.67]
b = 0.75 [0.52]
Seff = 6.51 [2.41]
Teq = 407 [38] K
Rp = 1.52 [0.49] Re
a = 1.1728 [0.2683] AU
Ag = 11555.01 [7596.09] [1.52σ]
Teffp = 6530 [966] K [6.33σ]

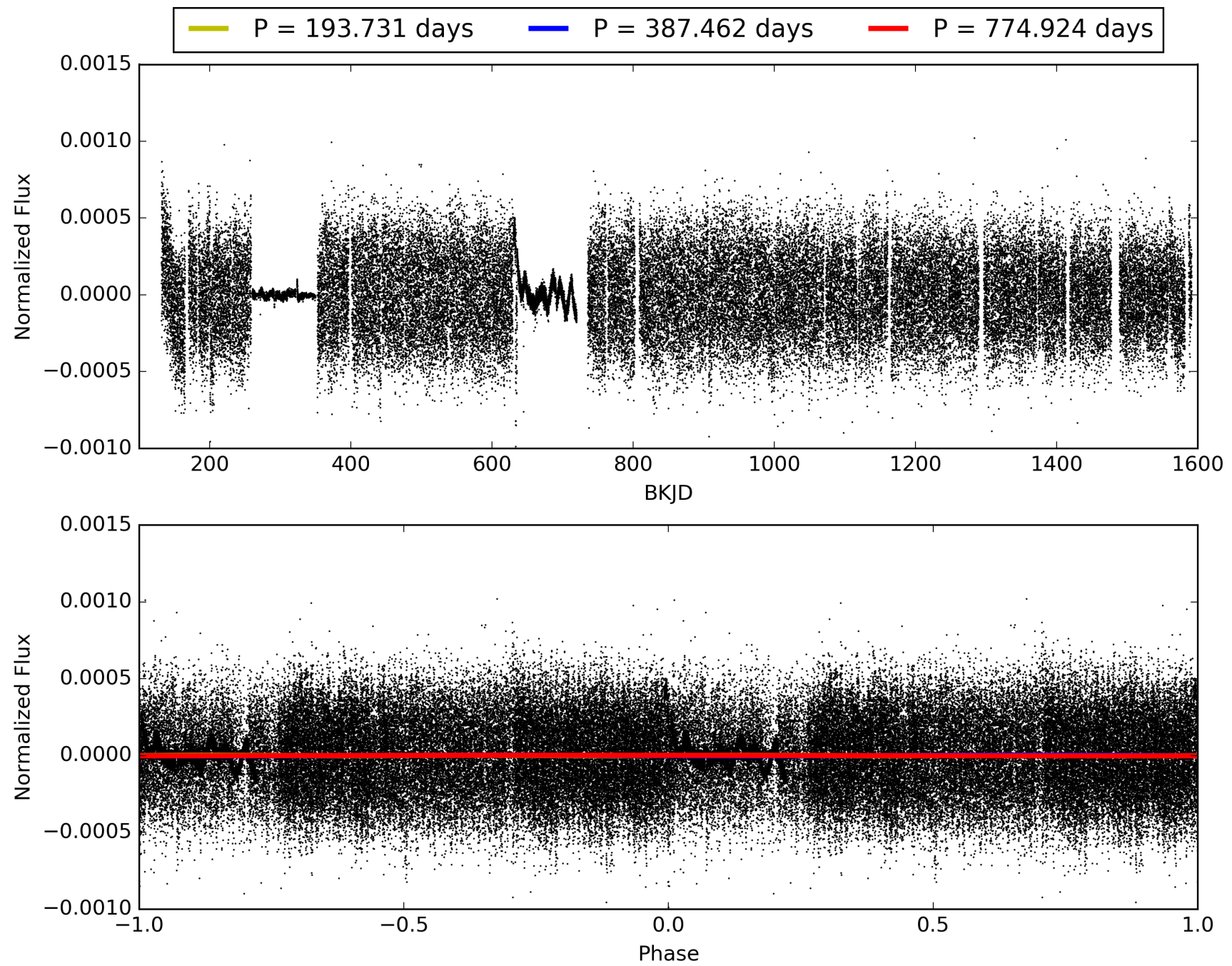
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.51σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.66e-69
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.5014
Centroid-sig: 0.1%
Centroid-so: 8.404 arcsec [2.33σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: N/A

TCE 007703305-02, PDC Light Curves

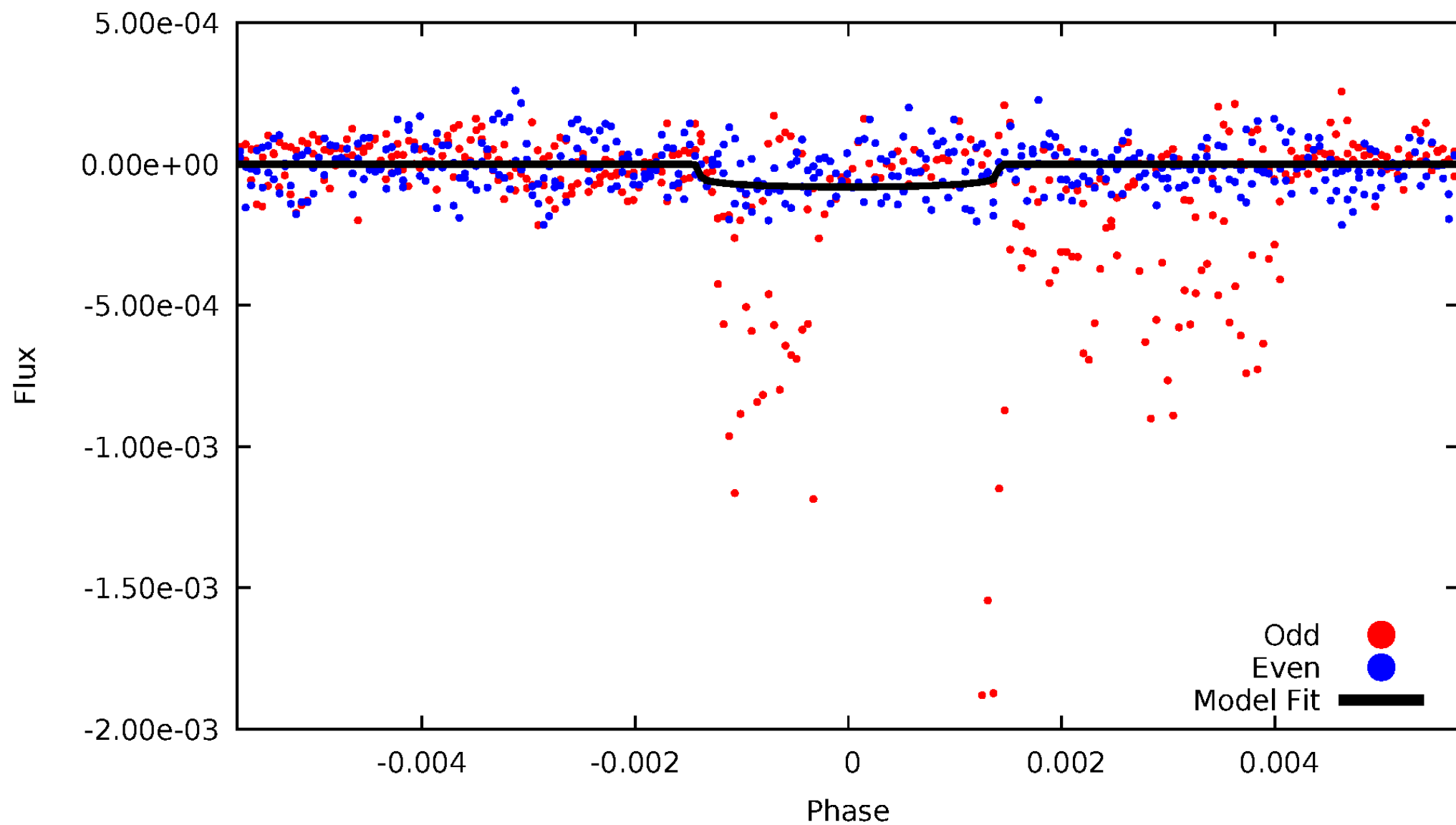


TCE 007703305-02



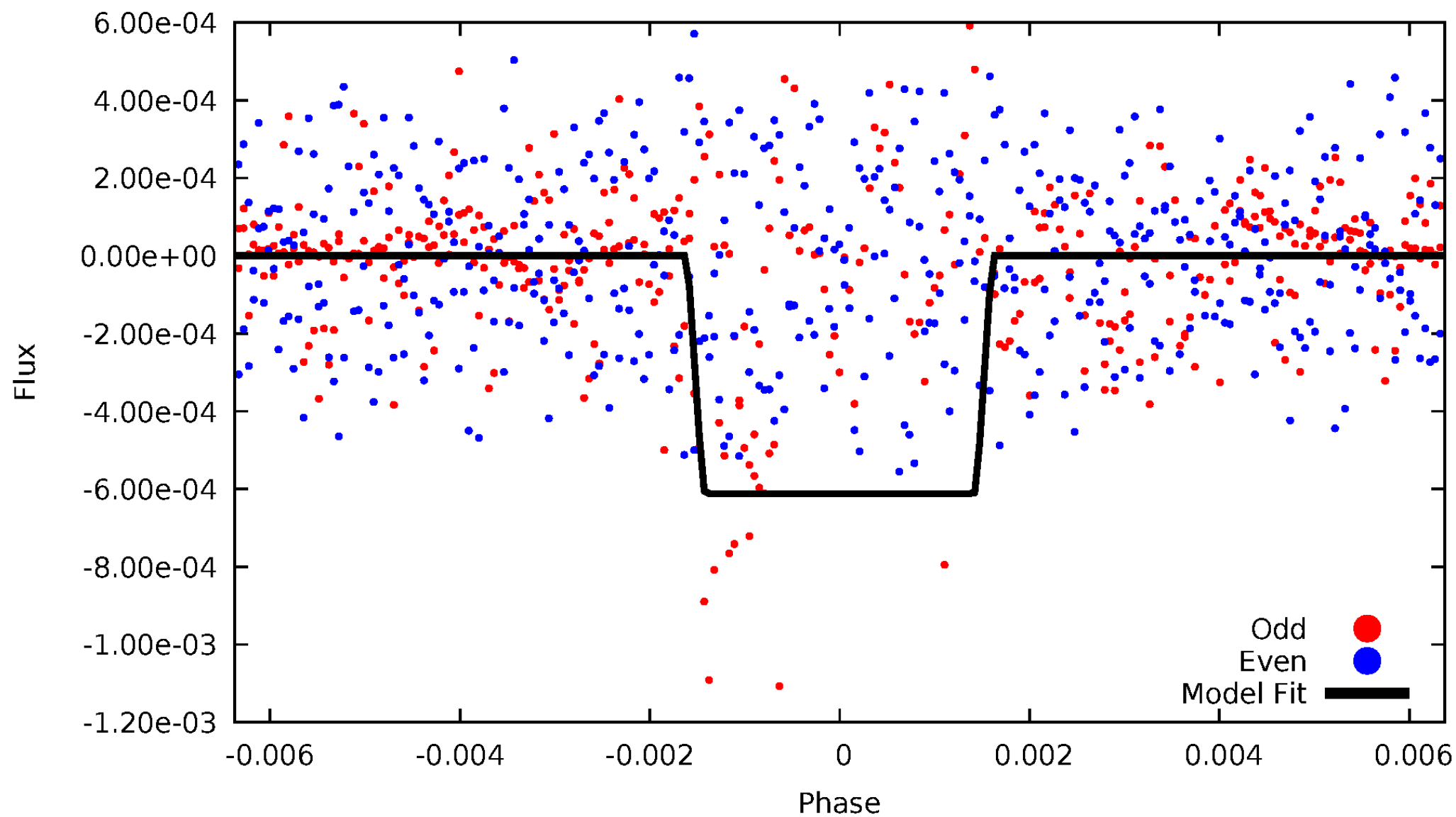
DV Odd/Even

TCE 007703305-02



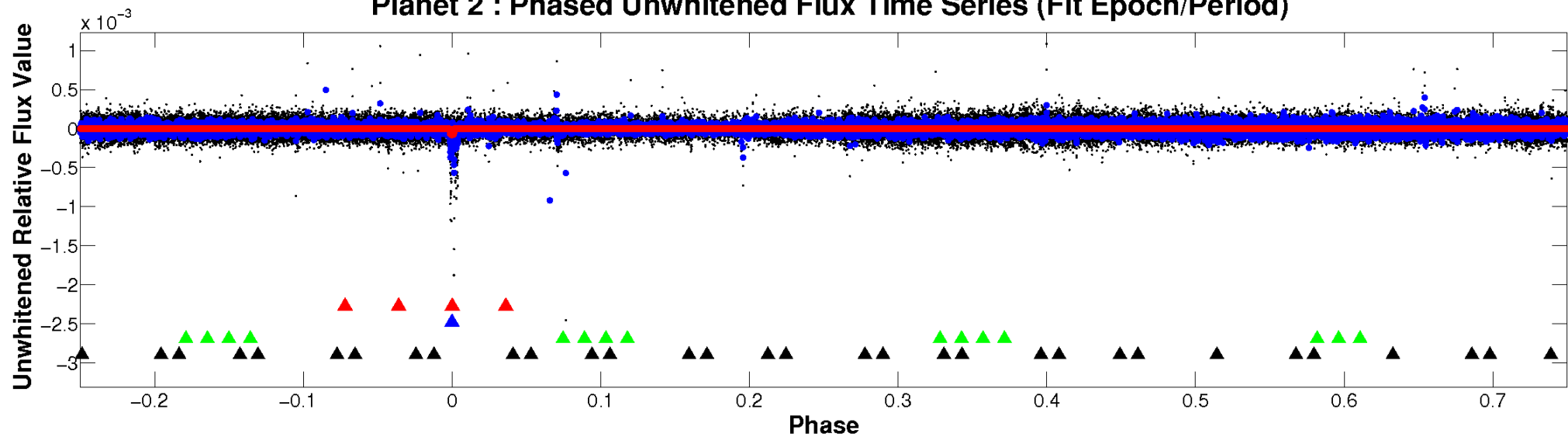
ALT Odd/Even

TCE 007703305-02

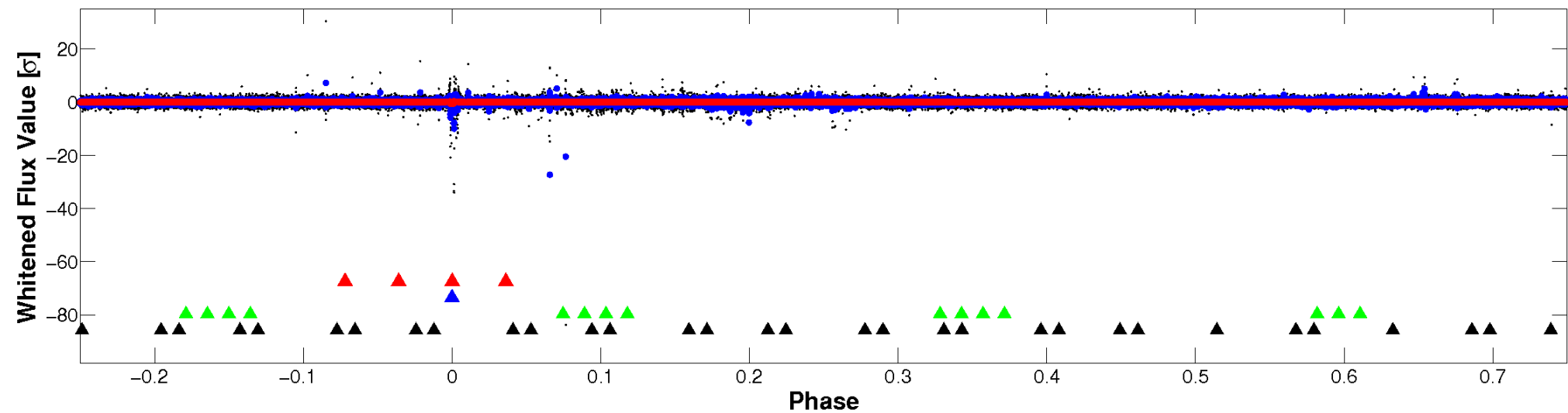


Non-Whitened Vs. Whitened Light Curve

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

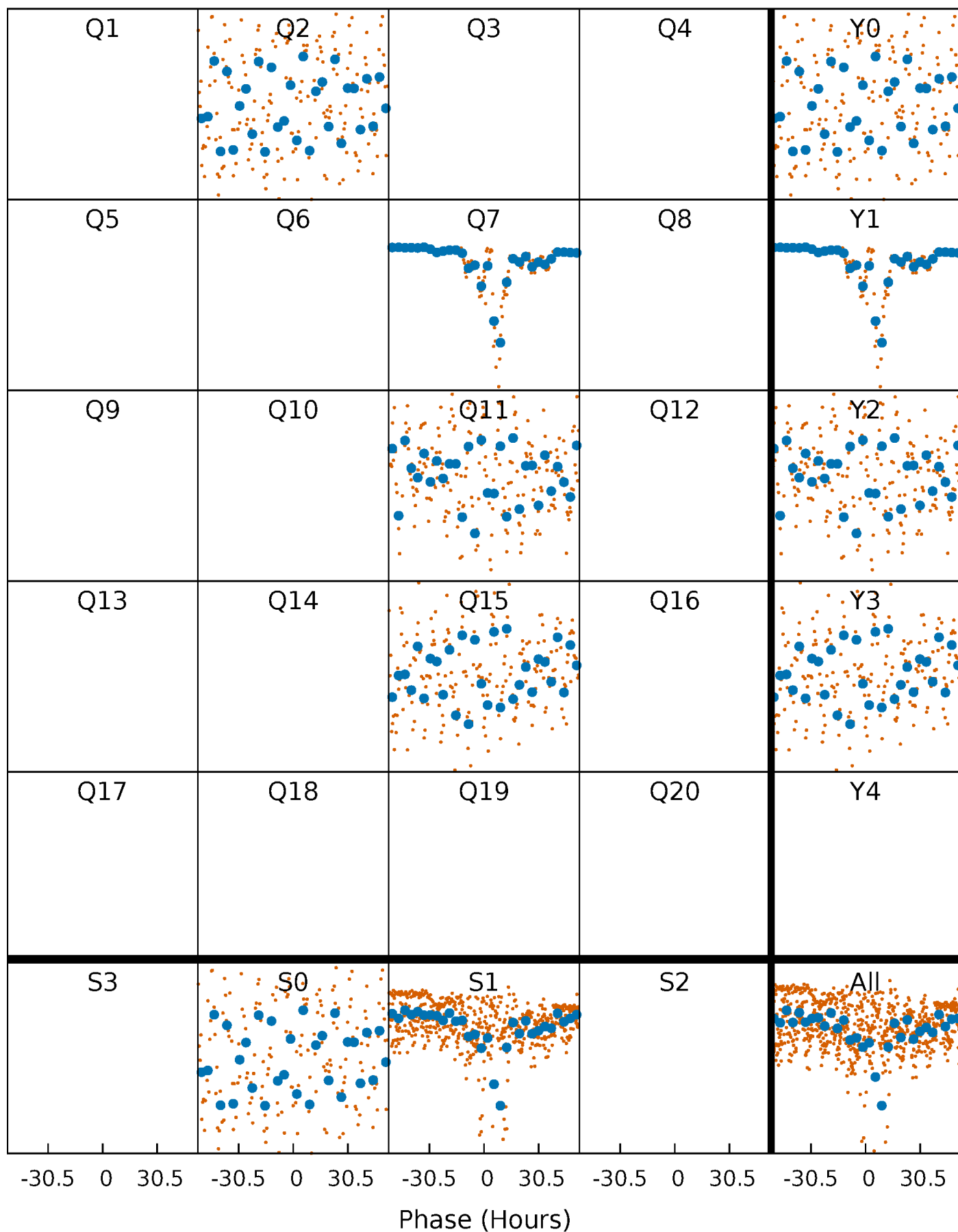


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 007703305-02 P=387.461864 Days $T_0=246.170825$ (BKJD)



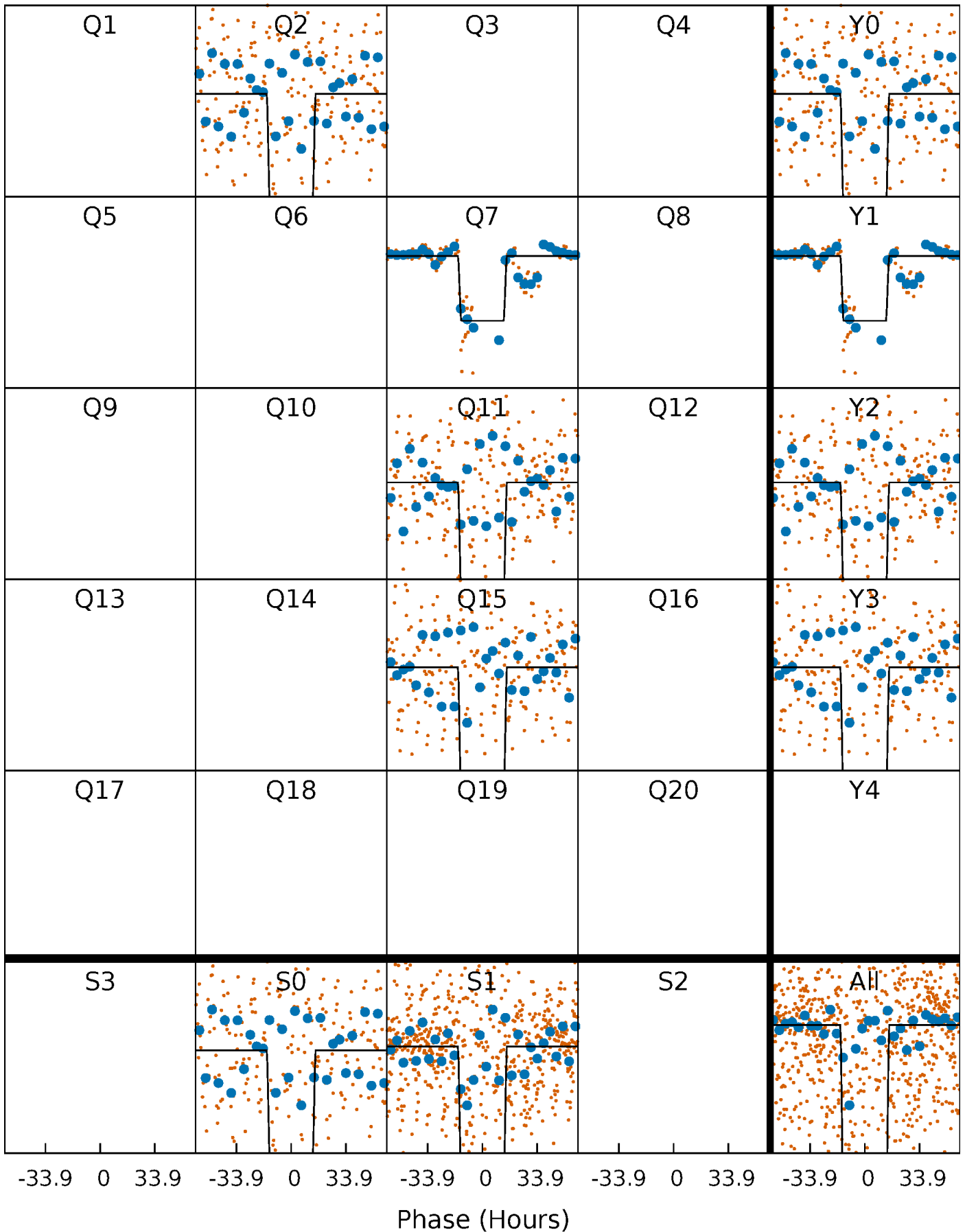
DV Quarter-Phased Transit Curves

TCE 007703305-02 $P=387.461864$ Days $T_0=246.170825$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

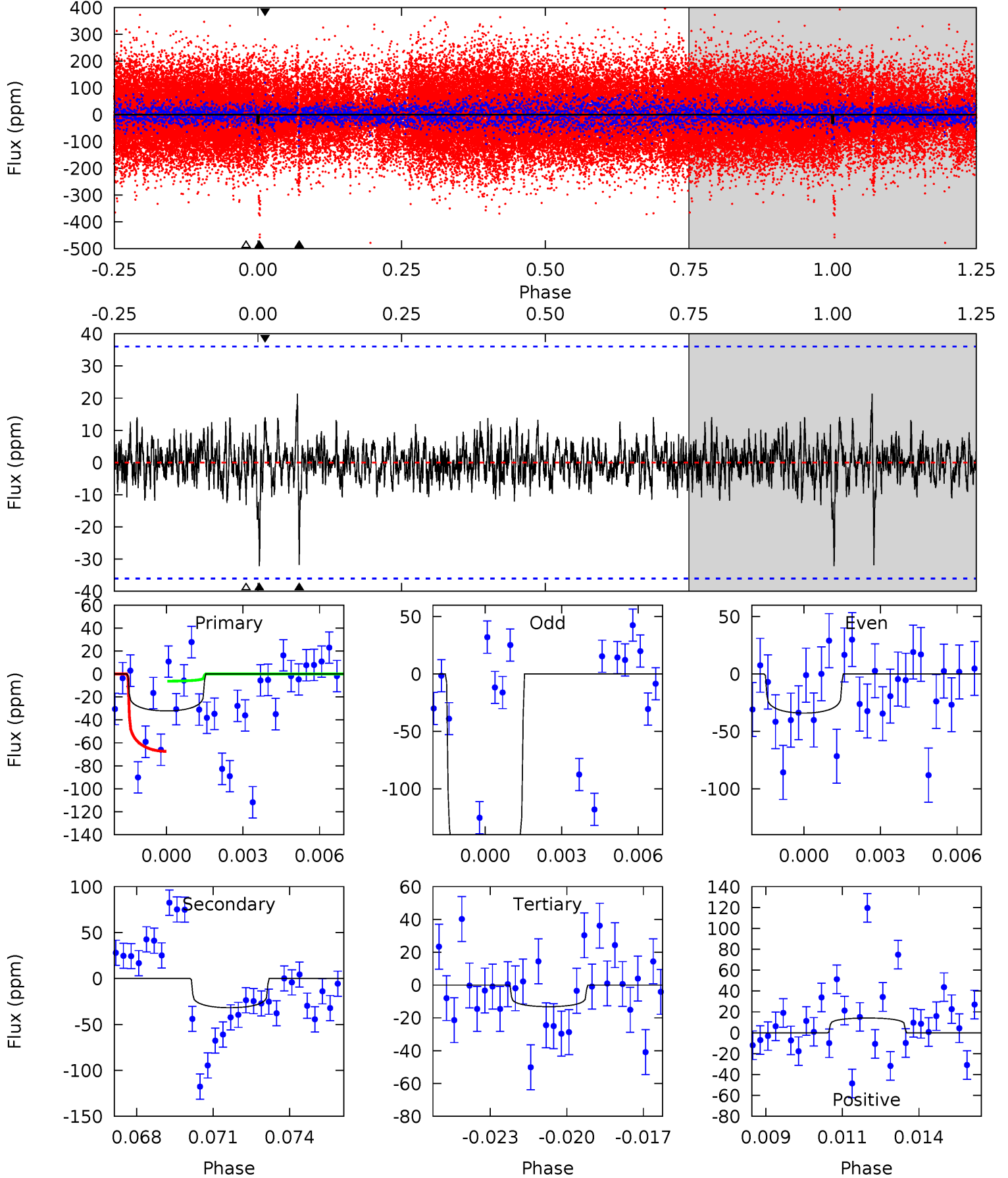
TCE 007703305-02 P=387.420298 Days $T_0=246.332131$ (BKJD)



DV Model-Shift Uniqueness Test

007703305-02, $P = 387.461864$ Days, $E = 246.170825$ Days

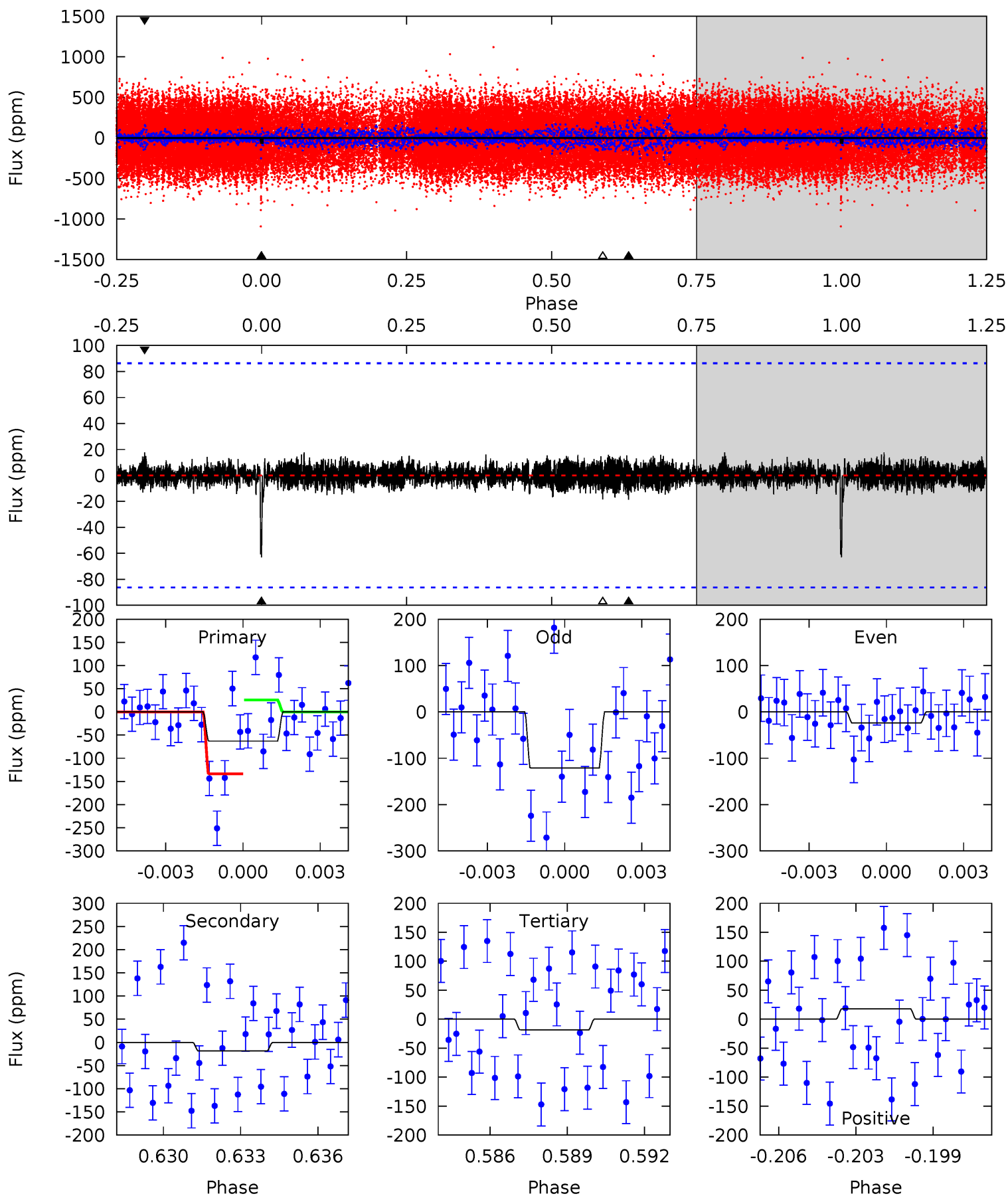
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.70	4.65	1.92	2.06	5.26	2.98	0.67	2.78	2.64	2.72	2.58	11.5	6.79	0.40	4.53



Alt Model-Shift Uniqueness Test

007703305-02, P = 387.420298 Days, E = 246.332131 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.83	1.13	1.11	1.08	5.24	2.95	0.31	2.72	2.75	0.02	0.05	2.90	7.19	0.22	3.28



Stellar Parameters For KIC 007703305

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8011^{+250}_{-333}	$4.209^{+0.120}_{-0.180}$	$-0.500^{+0.200}_{-0.350}$	$1.558^{+0.426}_{-0.284}$	$1.431^{+0.196}_{-0.178}$	$0.533^{+0.344}_{-0.240}$
	+3%/-4%	+3%/-4%	+40%/-70%	+27%/-18%	+14%/-12%	+64%/-45%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007703305-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-32 ± 7	$1.55^{+0.35}_{-0.30}$	571^{+43}_{-37}	6150^{+660}_{-602}	9734^{+5728}_{-3721}
Alt.	-19 ± 16	$4.27^{+0.68}_{-0.55}$	573^{+39}_{-37}	3637^{+474}_{-1126}	693^{+791}_{-649}

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

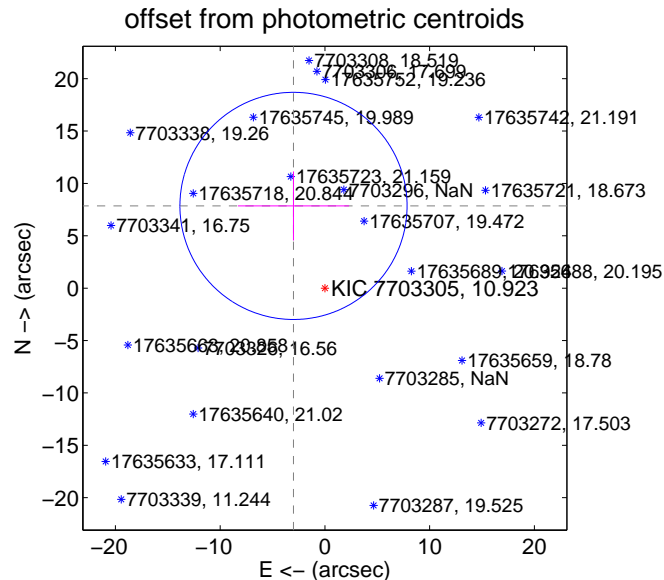
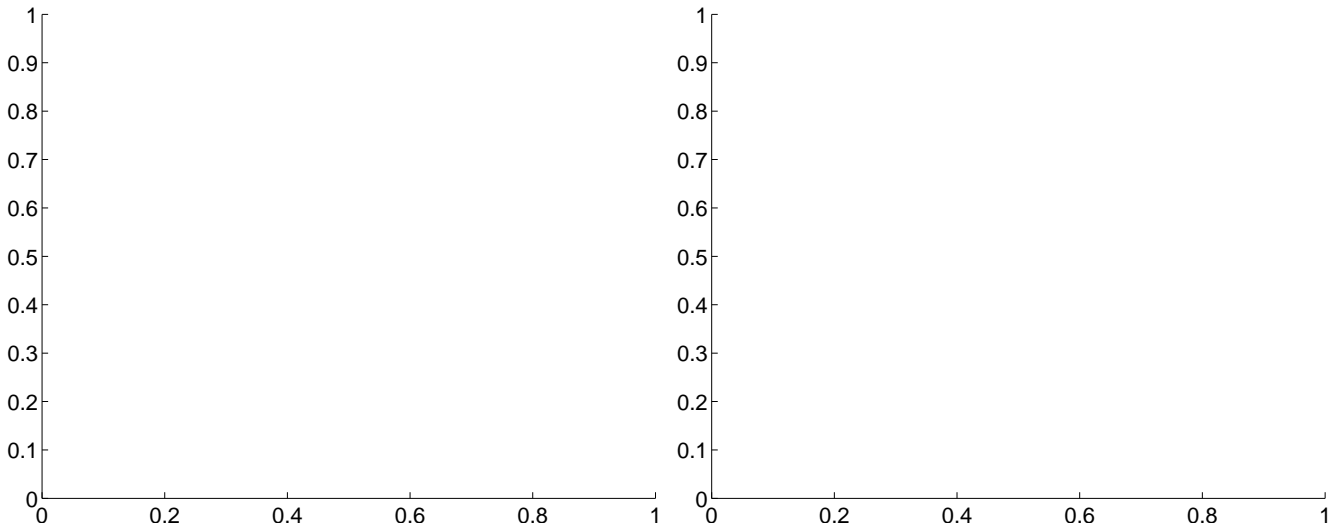
DV Centroid Data

Supplemental centroid analysis for 007703305-02. **Kepler magnitude: 10.92.** Transit SNR 6.35

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	8.40 ± 3.61	2.33	3.00 ± 5.31	7.85 ± 3.29



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

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



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



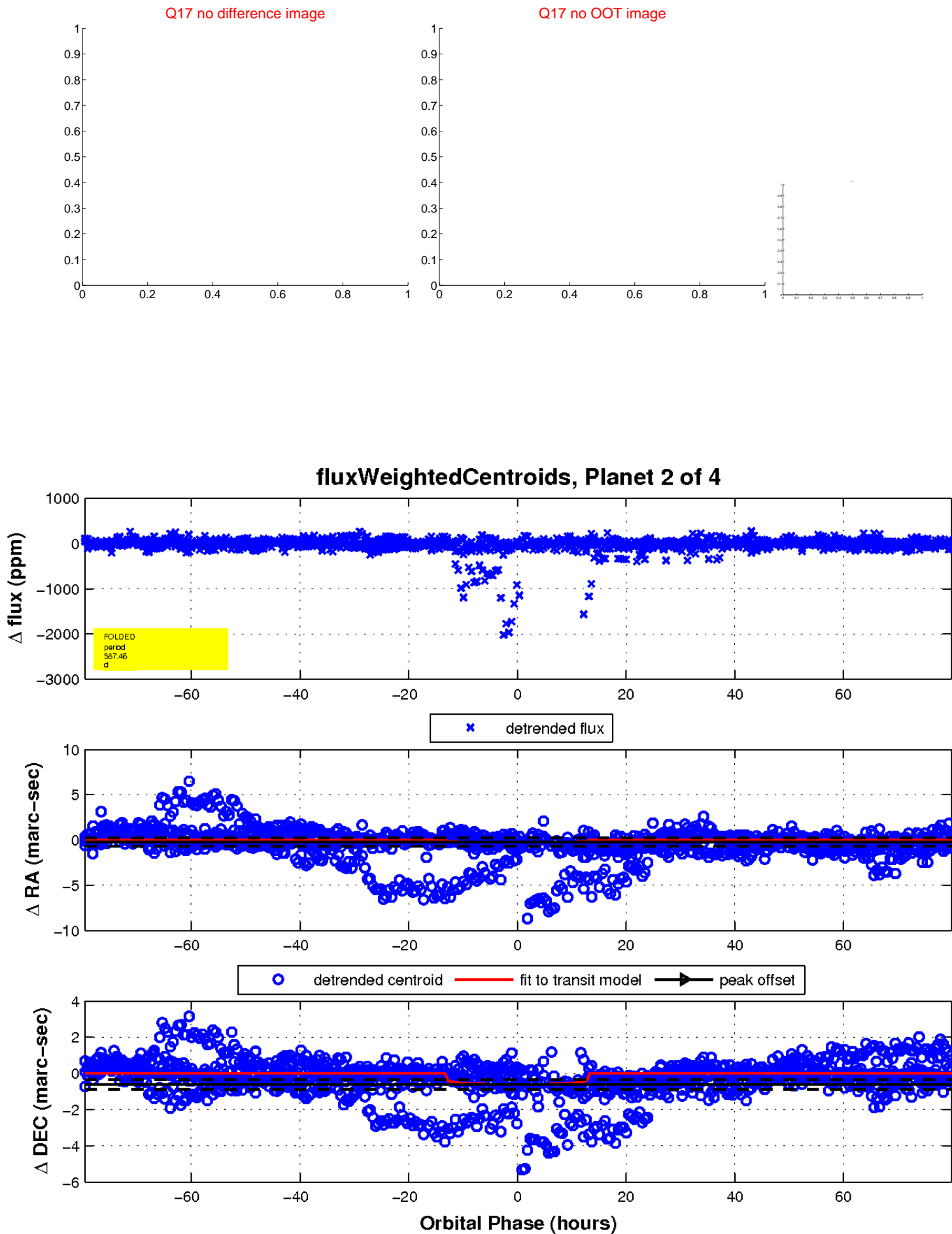
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



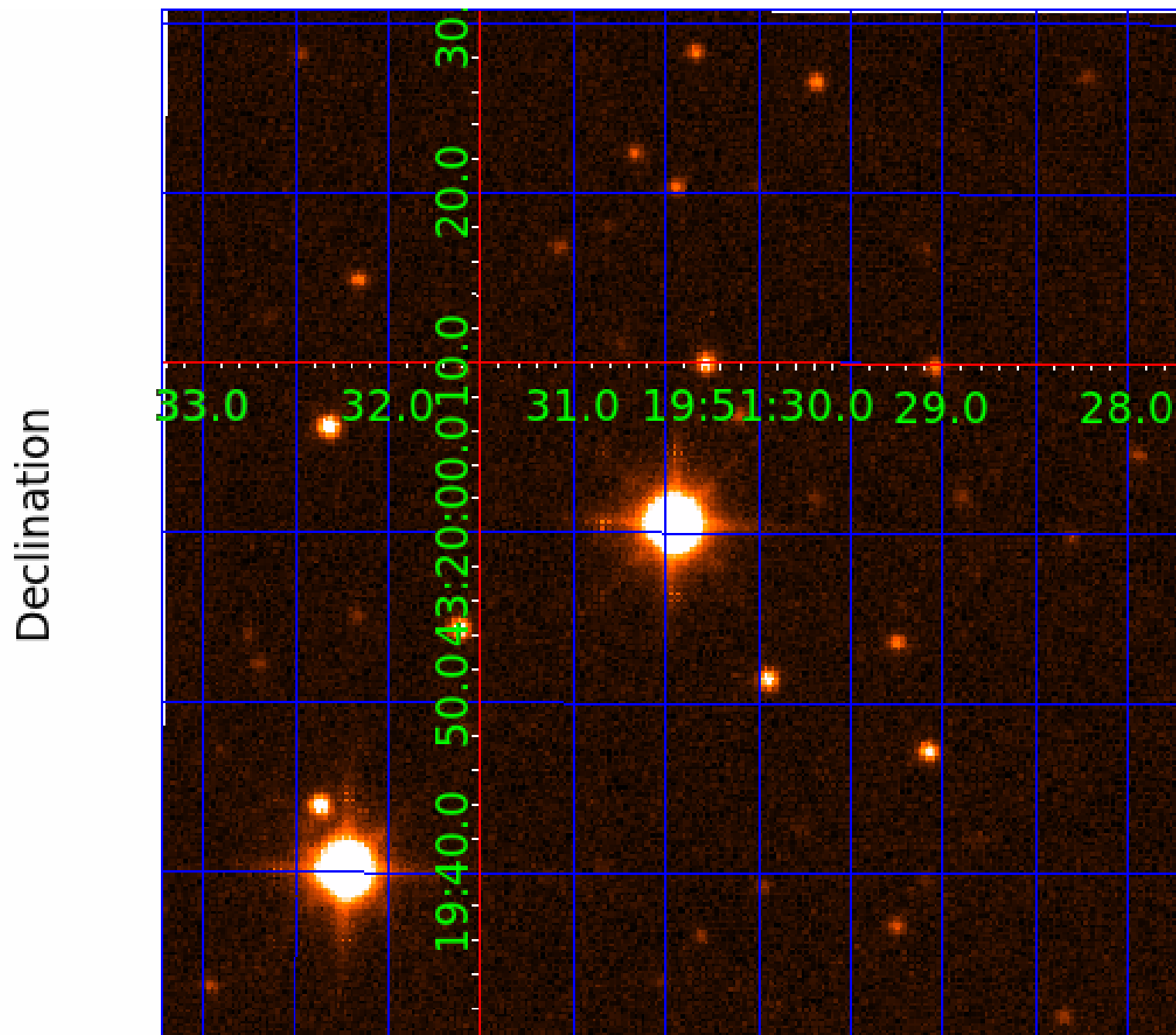
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 007703305

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})
007703305-01	OBS	No	373.501065	260.193309	93.0	2.692	46.3	1.9	1.56	8011	2.48	6.84
007703305-02	OBS	No	387.461864	246.170825	80.9	26.653	27.5	6.3	1.56	8011	1.52	6.51
007703305-03	OBS	No	98.263361	176.833568	28.8	0.549	8.1	8.7	1.56	8011	0.92	40.57
007703305-04	OBS	No	45.860077	145.057982	17.0	1.457	7.9	3.7	1.56	8011	0.66	112.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007703305-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_ZUMA_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
007703305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007703305-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007703305-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

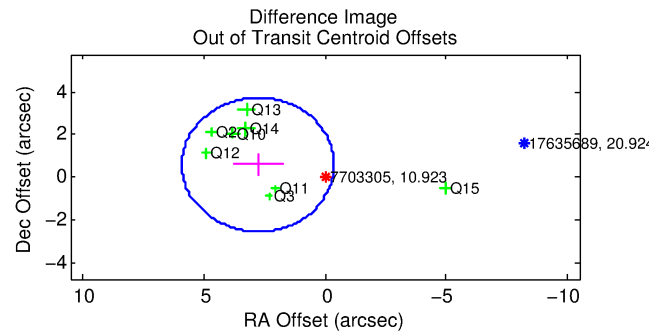
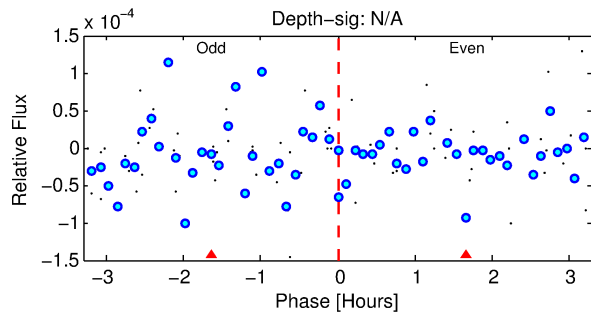
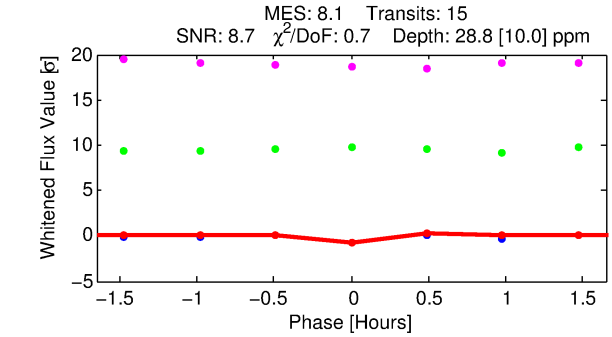
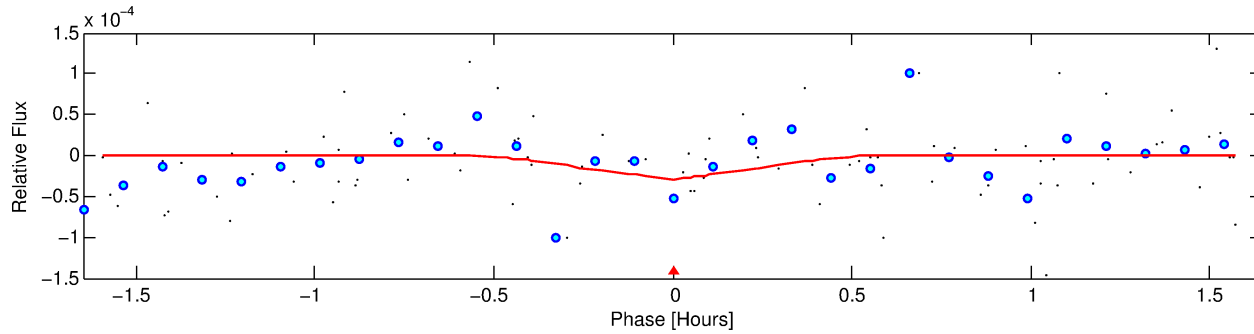
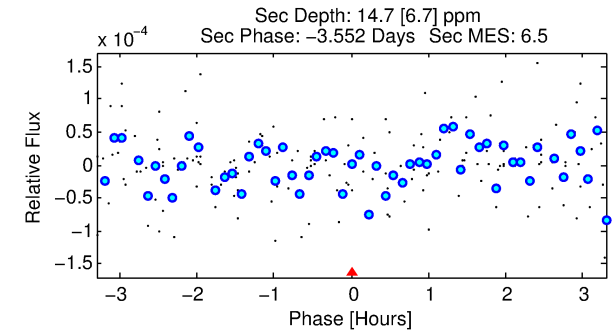
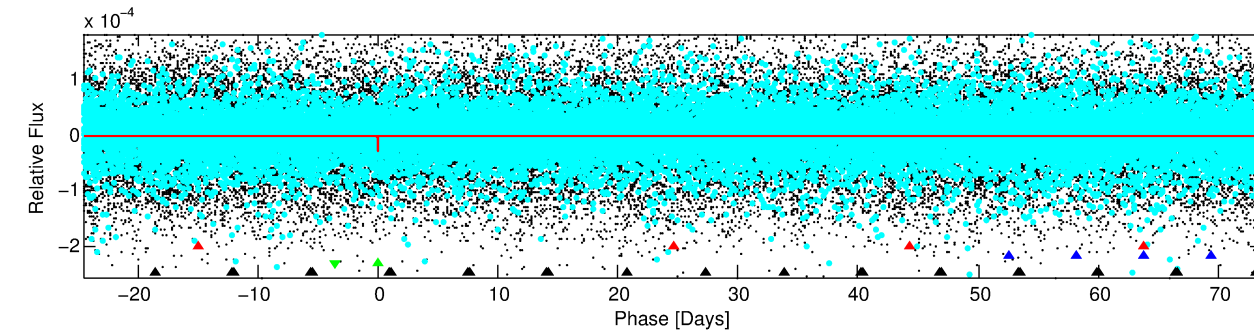
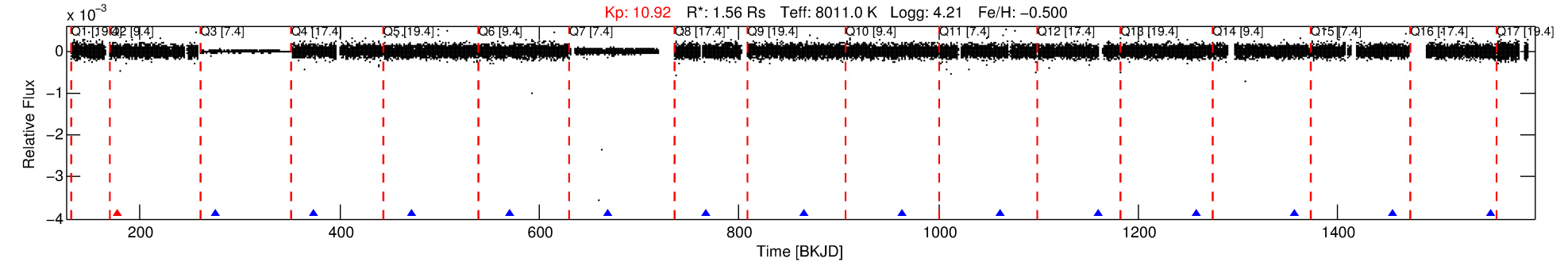
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007703305-03

No Significant Match Found

DV One-Page Summary

KIC: 7703305 Candidate: 3 of 4 Period: 98.263 d



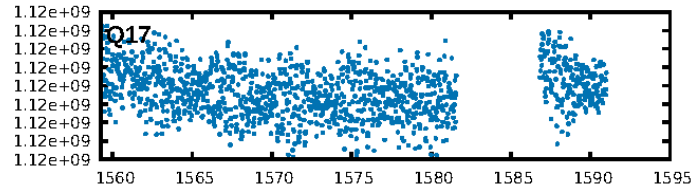
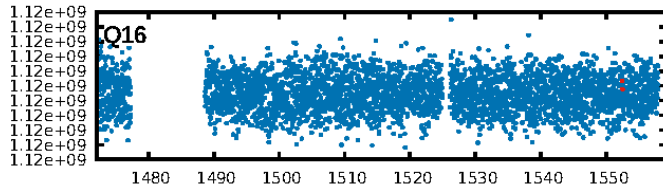
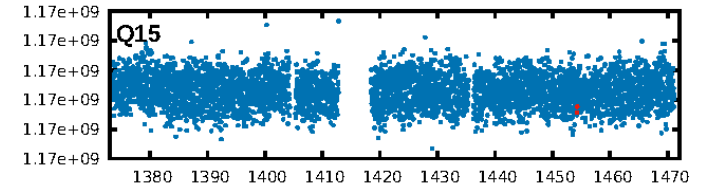
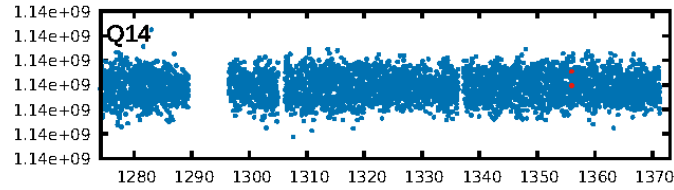
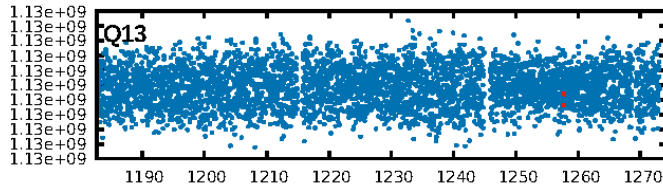
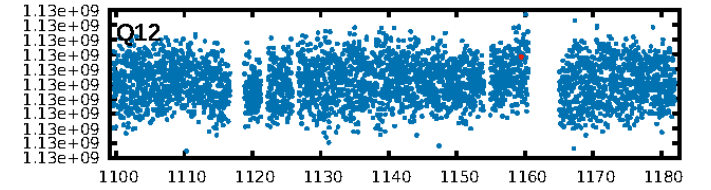
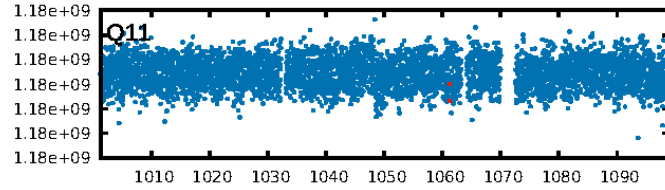
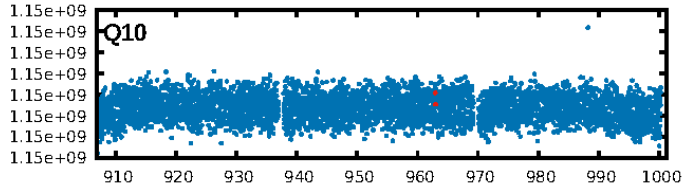
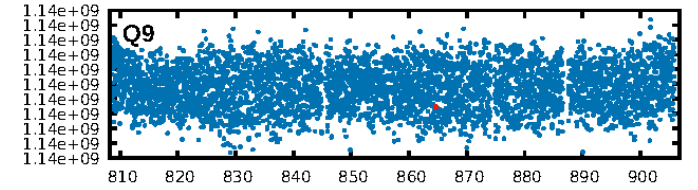
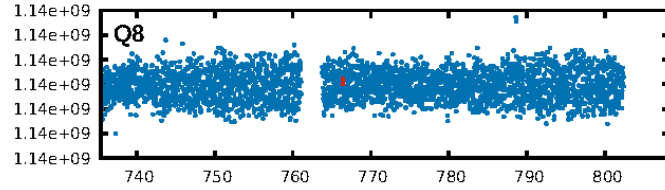
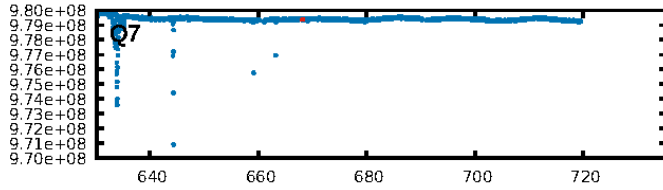
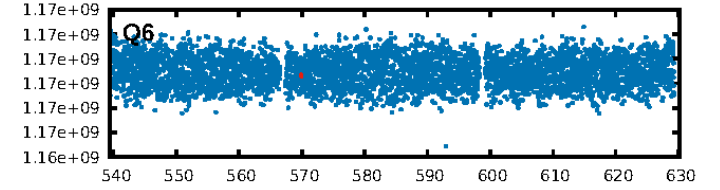
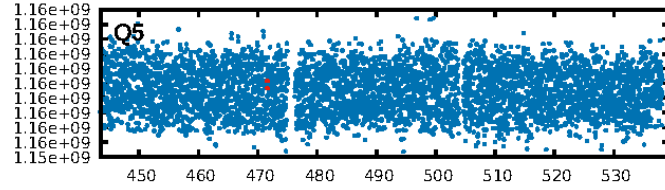
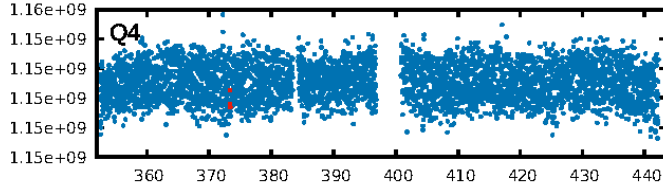
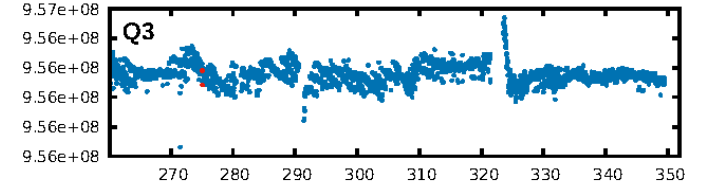
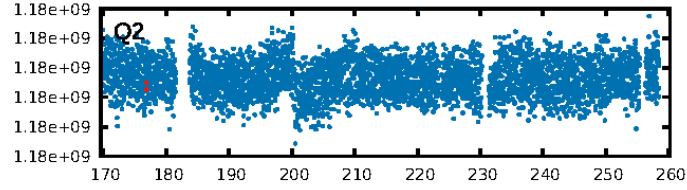
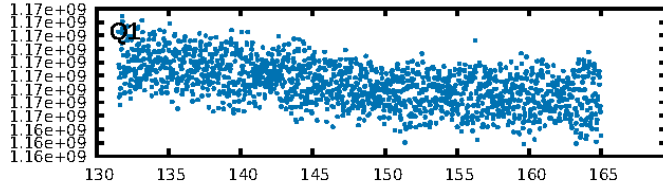
DV Fit Results:

Period = 98.26336 [0.00088] d
Epoch = 176.8336 [0.0060] BKJD
Rp/R* = 0.0054 [0.0207]
a/R* = 976.98 [22931.94]
b = 0.71 [16.88]
Seff = 40.57 [15.03]
Teq = 644 [60] K
Rp = 0.92 [3.53] Re
a = 0.4699 [0.1075] AU
Ag = 2098.33 [16053.56] [0.13σ]
Teffp = 6734 [12871] K [0.47σ]

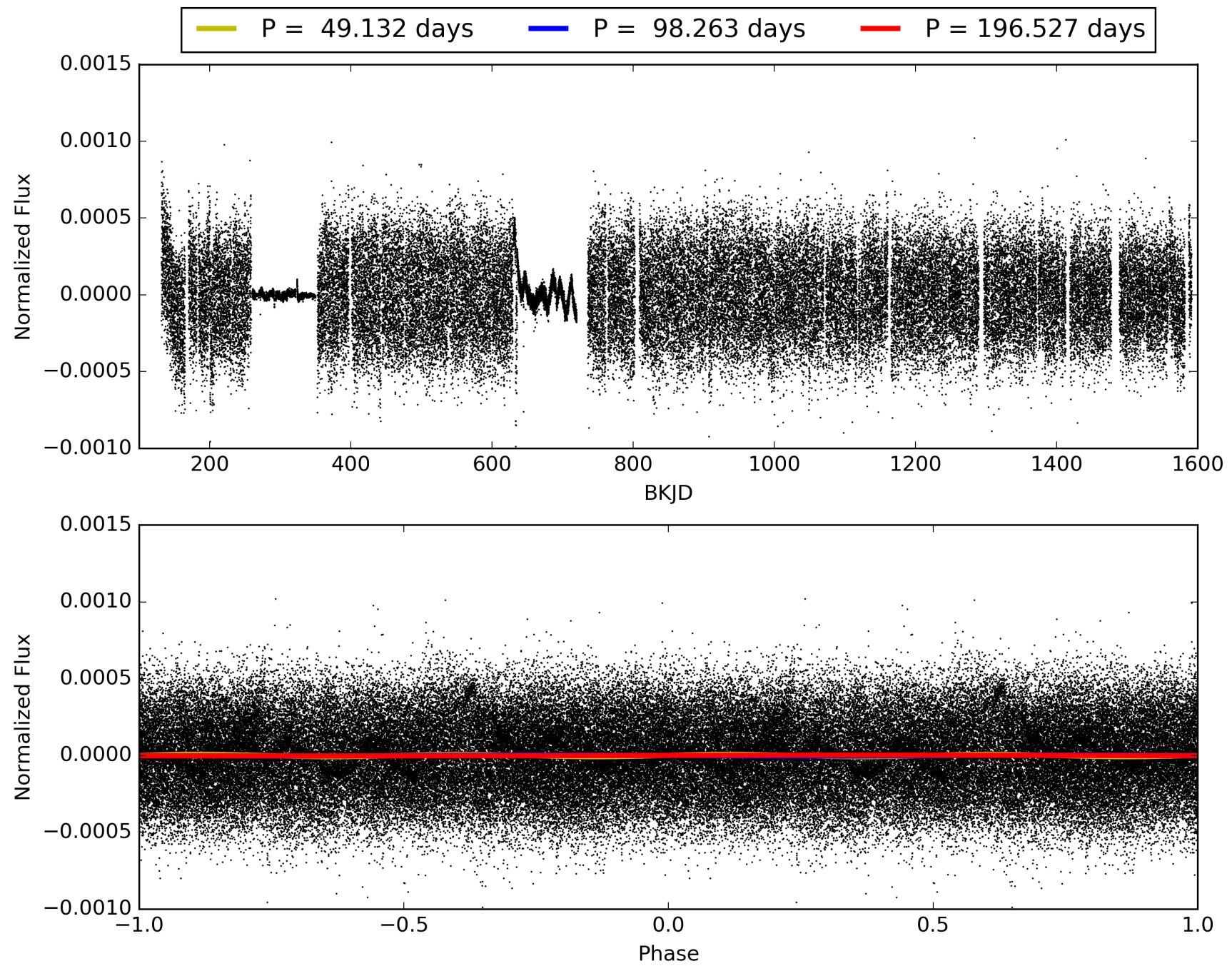
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [807.91σ]
LongPeriod-sig: 100.0% [2403.88σ]
ModelChiSquare2-sig: 99.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.58e-08
RollingBand-fgt: 0.93 [14/15]
GhostDiagnostic-chr: -0.4836
Centroid-sig: 31.3%
Centroid-so: 8.304 arcsec [1.05σ]
OotOffset-rm: 2.830 arcsec [2.71σ]
KicOffset-rm: 3.141 arcsec [3.33σ]
OotOffset-st: 3/3/1/1 [8]
KicOffset-st: 3/3/1/1 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 1.00 [10/10]

TCE 007703305-03, PDC Light Curves

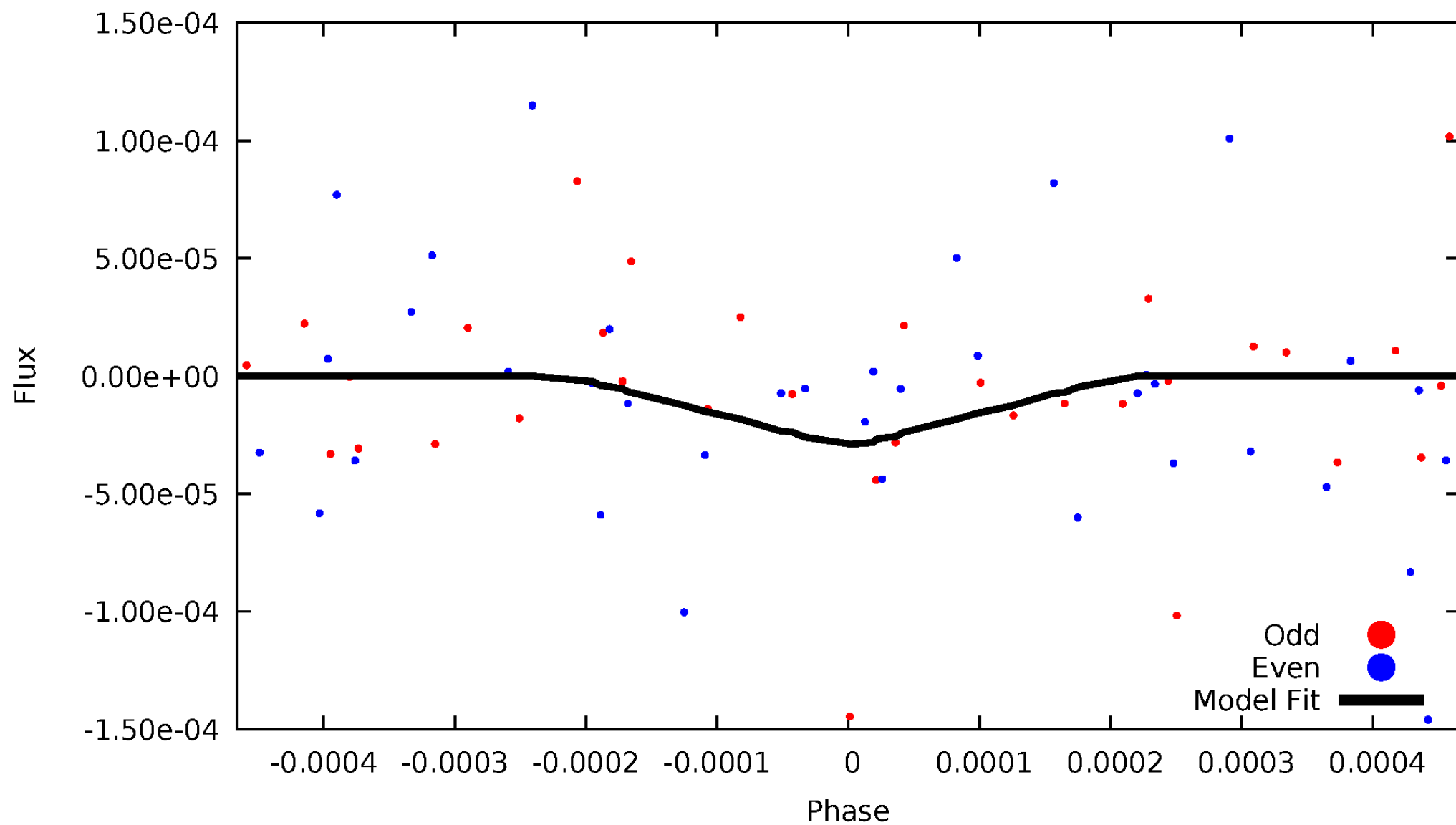


TCE 007703305-03



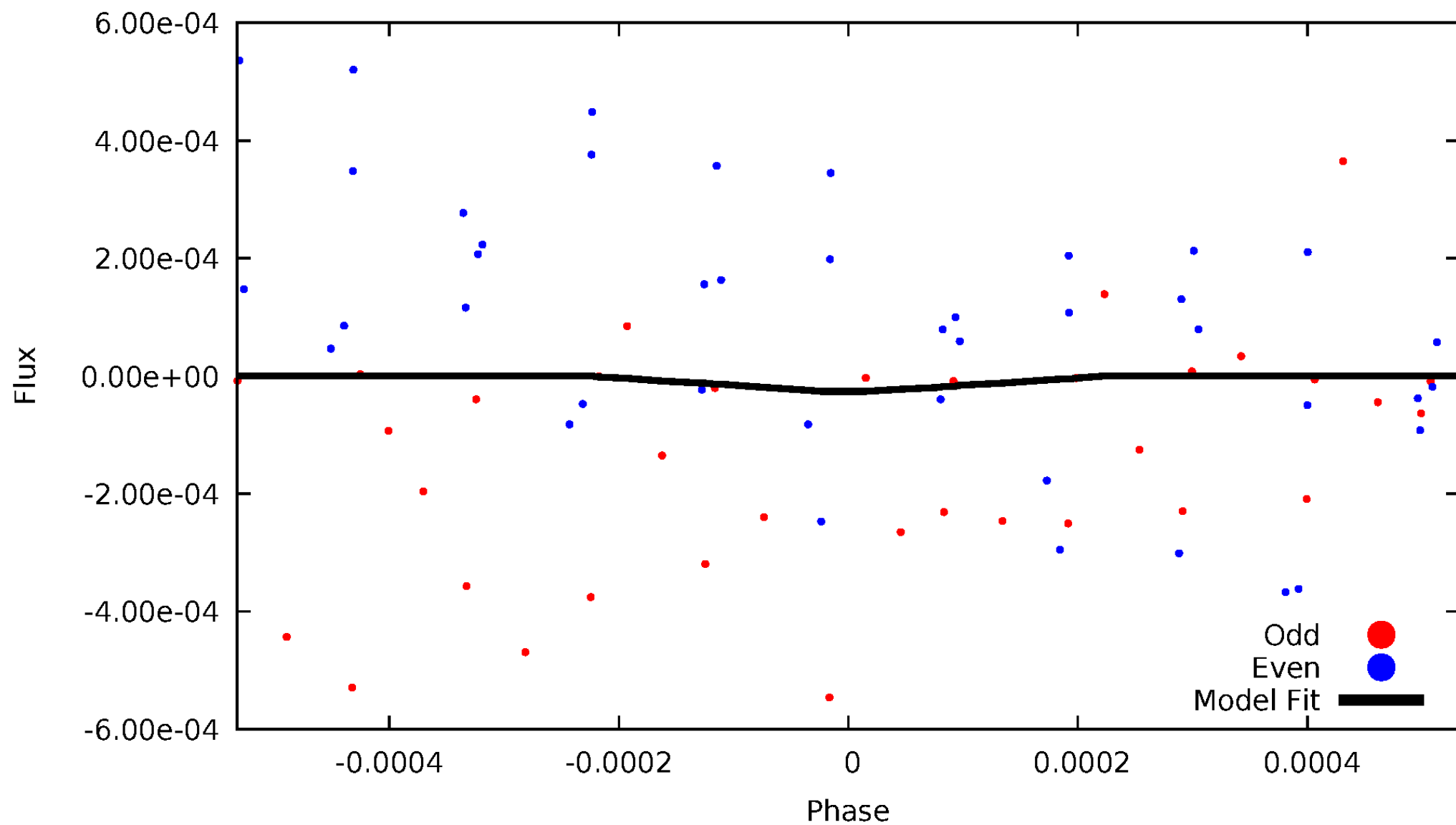
DV Odd/Even

TCE 007703305-03



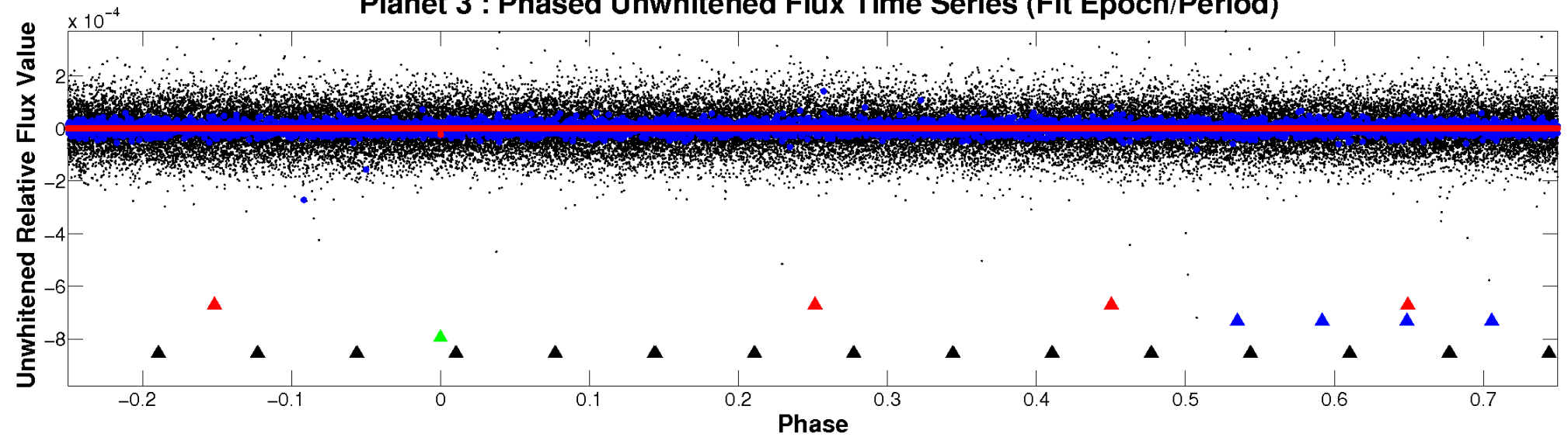
ALT Odd/Even

TCE 007703305-03

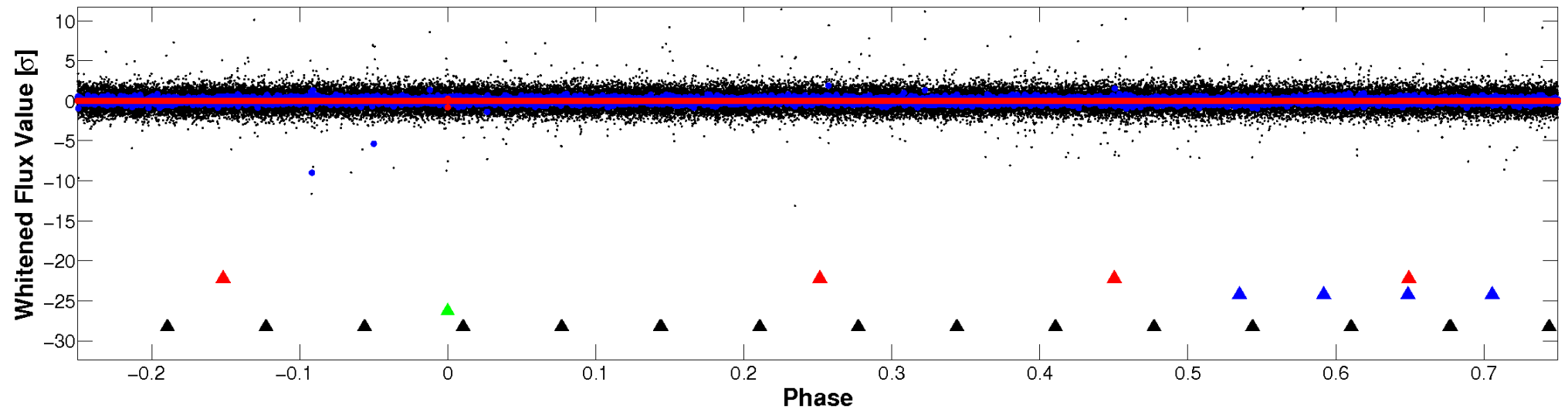


Non-Whitened Vs. Whitened Light Curve

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

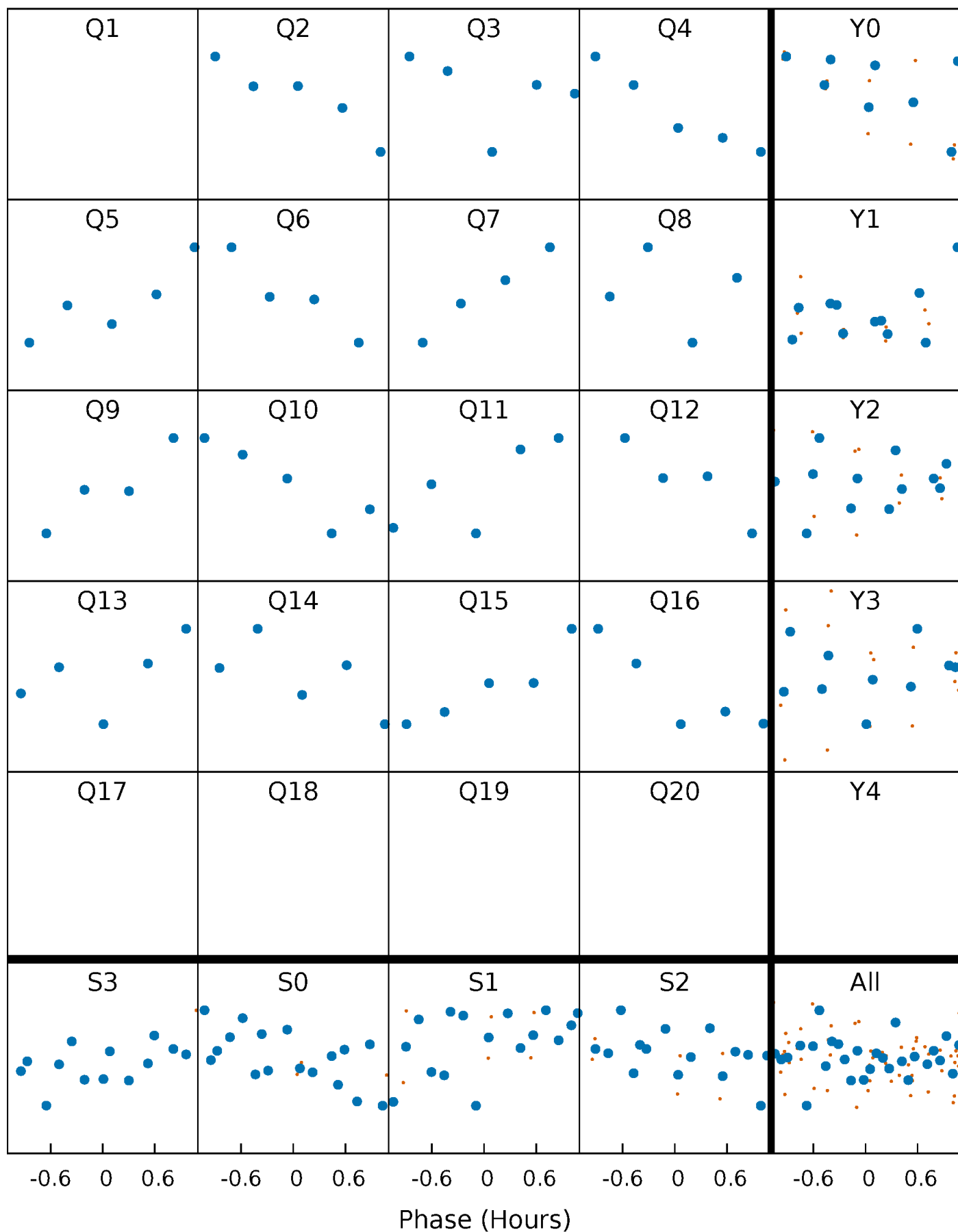


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



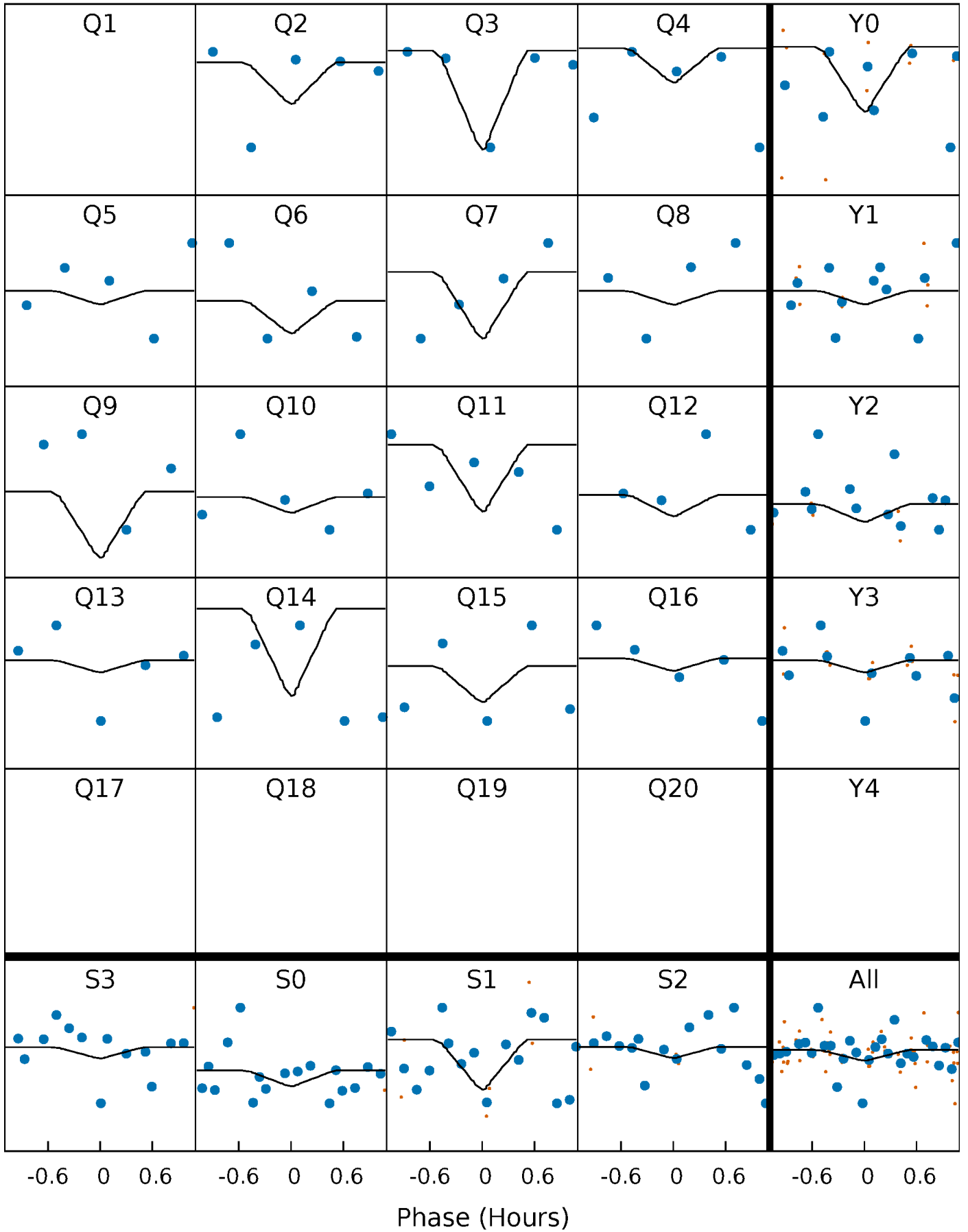
PDC Quarter-Phased Transit Curves

TCE 007703305-03 P= 98.263361 Days $T_0=176.833568$ (BKJD)



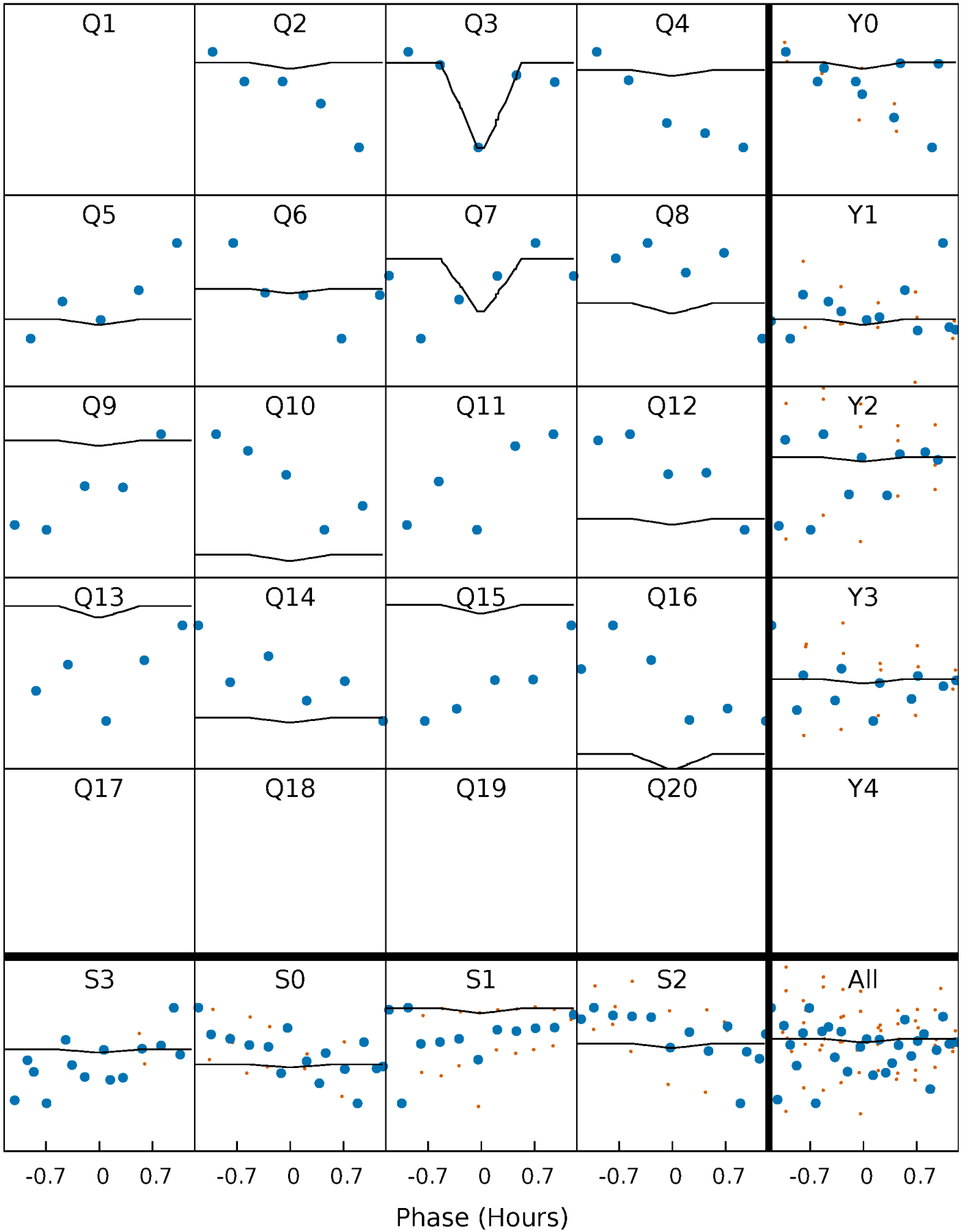
DV Quarter-Phased Transit Curves

TCE 007703305-03 P= 98.263361 Days $T_0=176.833568$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

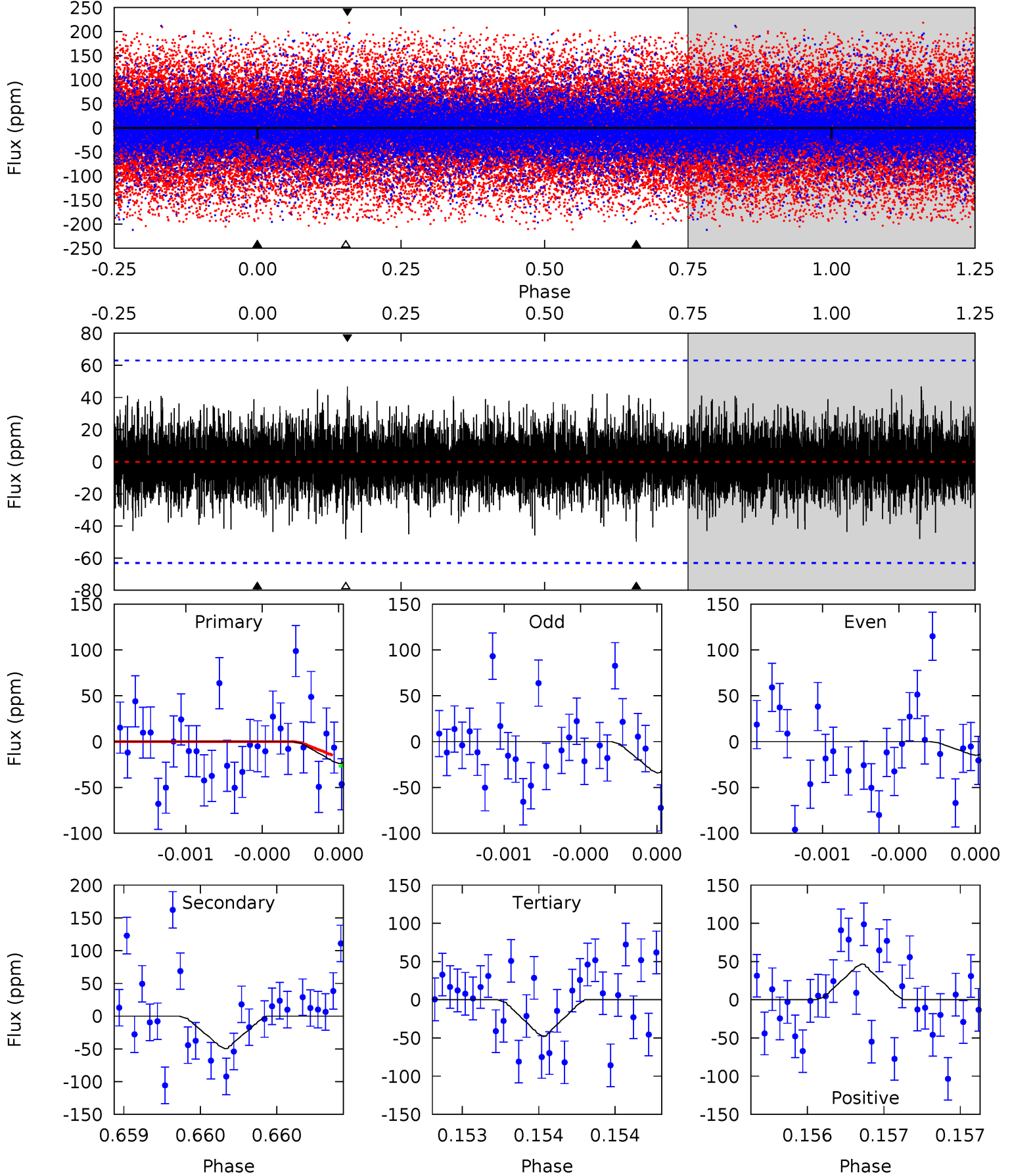
TCE 007703305-03 P= 98.262481 Days $T_0=176.838890$ (BKJD)



DV Model-Shift Uniqueness Test

007703305-03, P = 98.263361 Days, E = 78.570207 Days

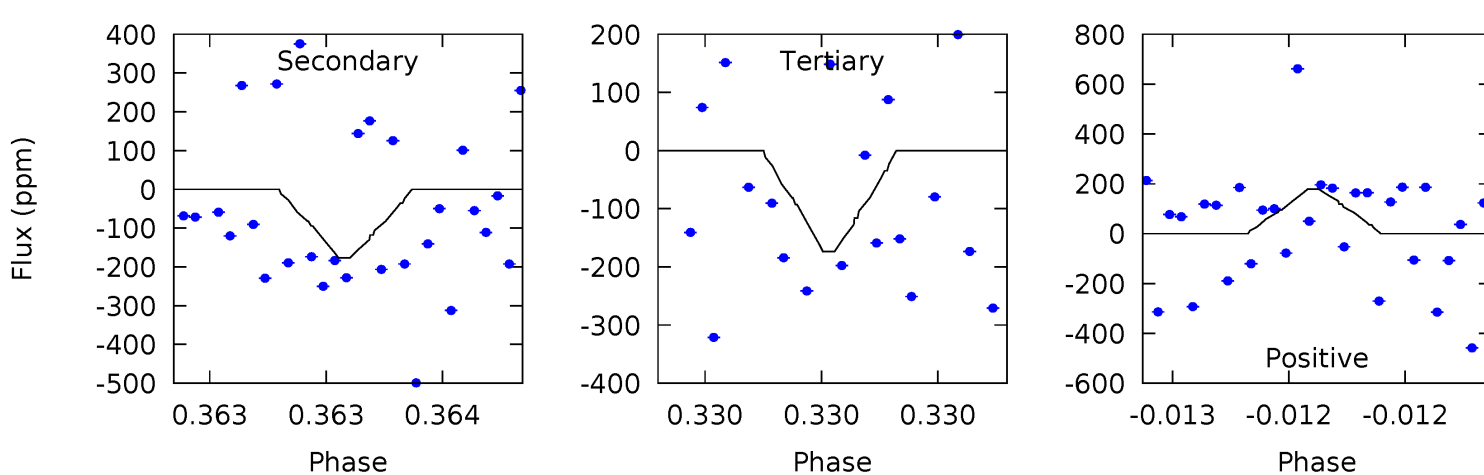
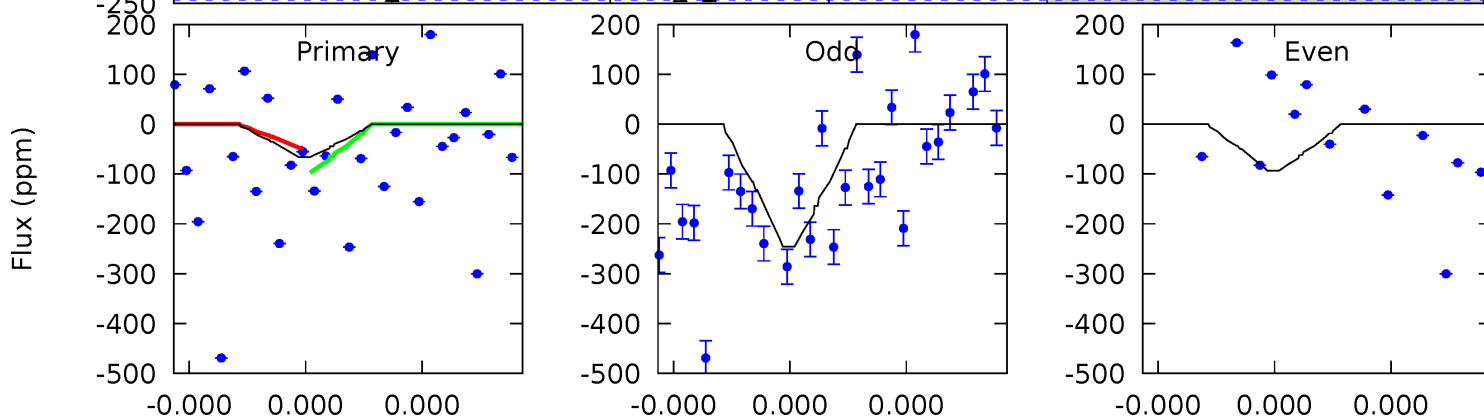
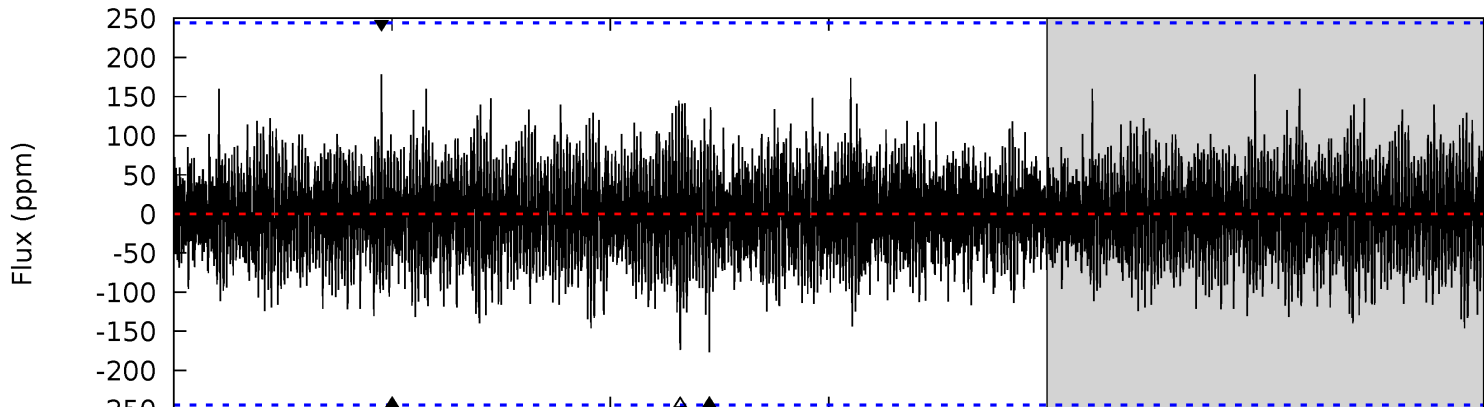
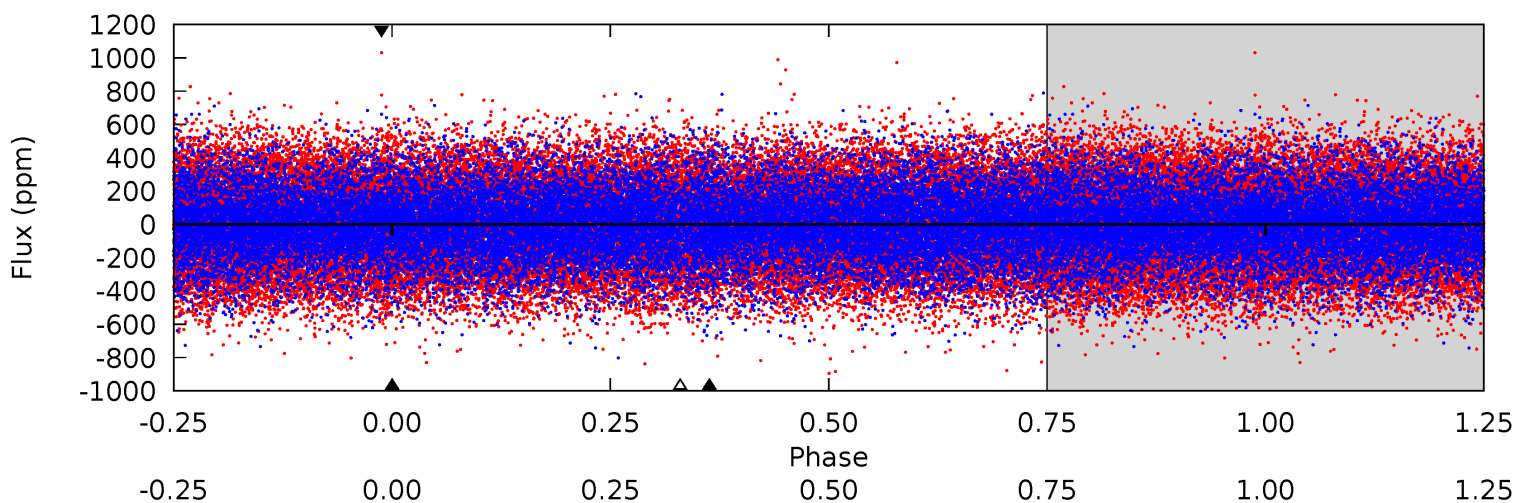
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.12	4.42	4.27	4.17	5.61	3.54	1.13	-2.15	-2.05	0.15	0.26	0.87	1.16	0.49	0.53



Alt Model-Shift Uniqueness Test

007703305-03, P = 98.262481 Days, E = 78.576409 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.52	4.06	3.99	4.10	5.62	3.55	1.02	-2.47	-2.57	0.07	-0.03	1.75	2.41	0.50	0.58



Stellar Parameters For KIC 007703305

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8011^{+250}_{-333}	$4.209^{+0.120}_{-0.180}$	$-0.500^{+0.200}_{-0.350}$	$1.558^{+0.426}_{-0.284}$	$1.431^{+0.196}_{-0.178}$	$0.533^{+0.344}_{-0.240}$
	+3%/-4%	+3%/-4%	+40%/-70%	+27%/-18%	+14%/-12%	+64%/-45%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007703305-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-50 ± 11	$2.83^{+2.99}_{-1.88}$	906^{+65}_{-55}	5134^{+4295}_{-1226}	711^{+5870}_{-538}
Alt.	-177 ± 43	$2.70^{+2.79}_{-1.91}$	907^{+63}_{-53}	7299^{+12251}_{-2253}	2974^{+32849}_{-2285}

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

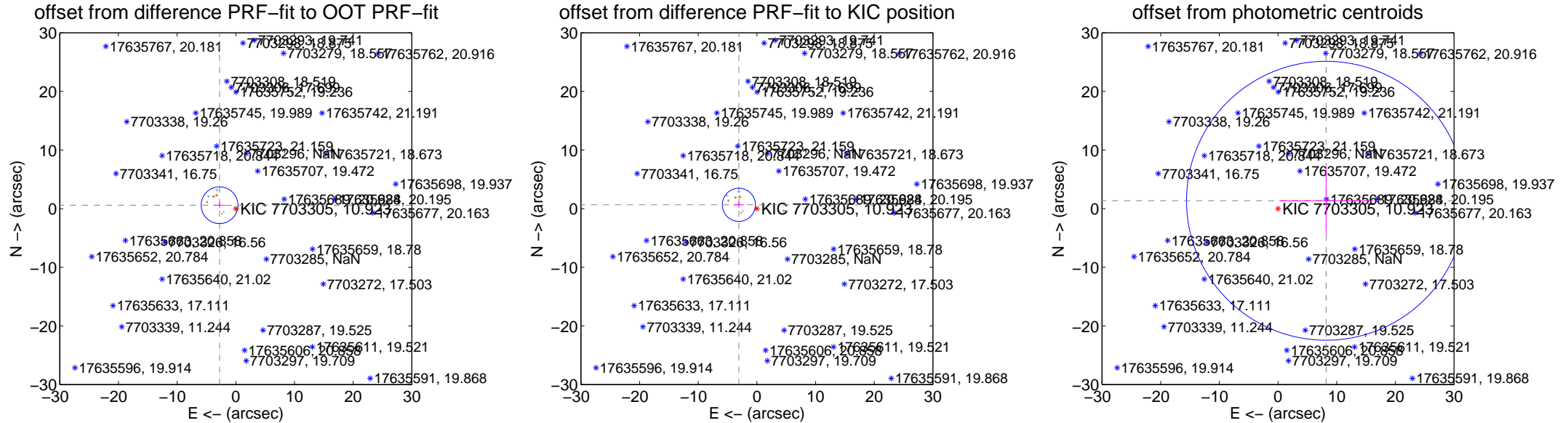
DV Centroid Data

Supplemental centroid analysis for 007703305-03. **Kepler magnitude: 10.92.** Transit SNR 8.67

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.830 ± 1.044	2.71	2.767 ± 1.002	0.590 ± 0.519
PRF-fit source offset from KIC position	3.141 ± 0.942	3.33	3.071 ± 0.907	0.658 ± 0.493
photometric centroid source offset	8.30 ± 7.93	1.05	-8.19 ± 7.98	1.35 ± 5.78



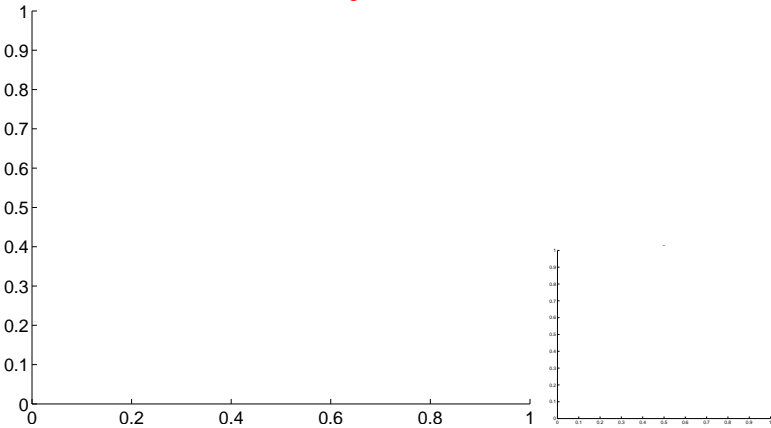
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

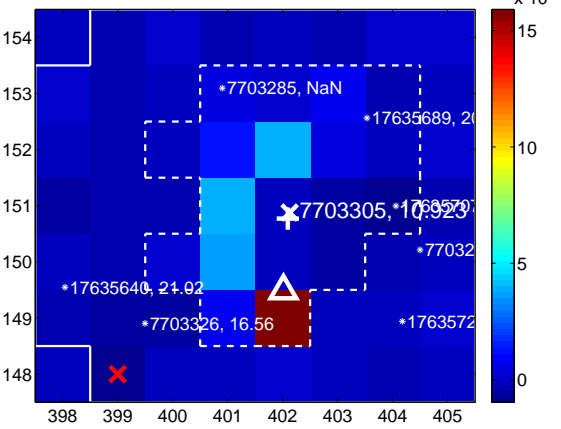
Q1 no difference image



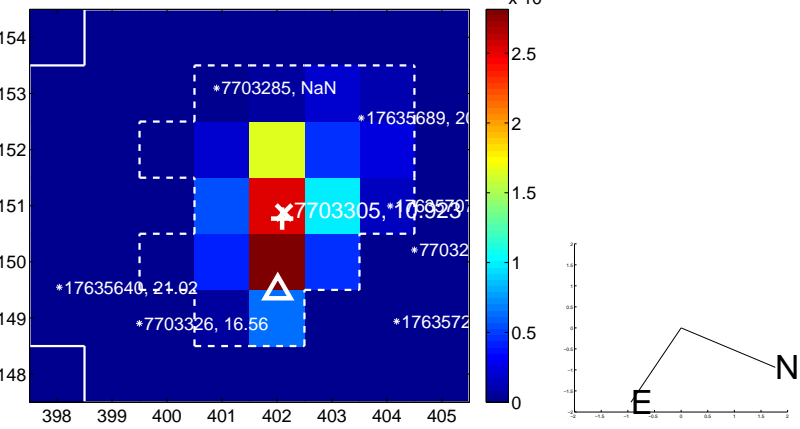
Q1 no OOT image



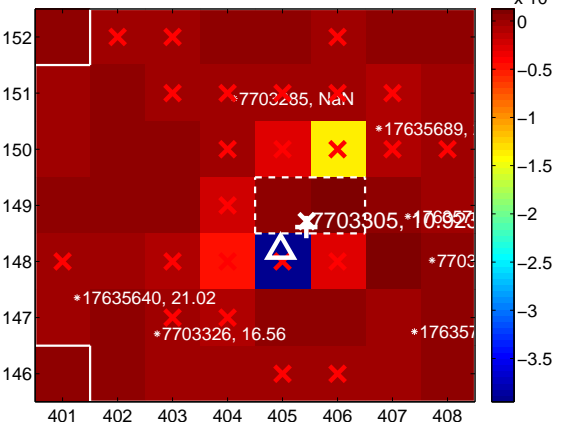
Q2 difference image



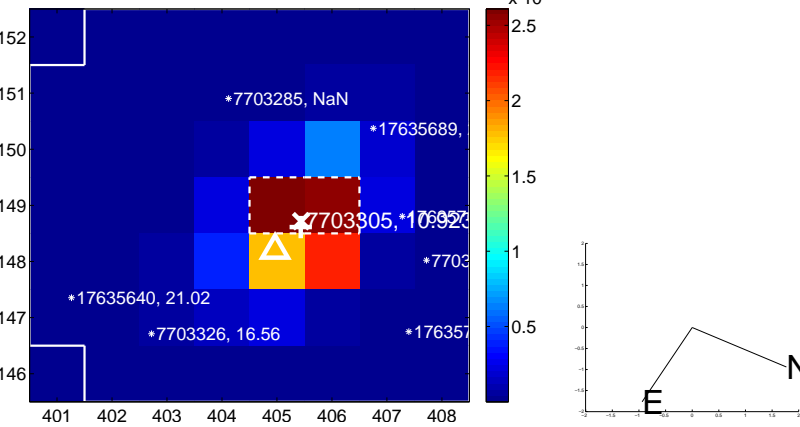
Q2 OOT image



Q3 difference image. Poor Quality



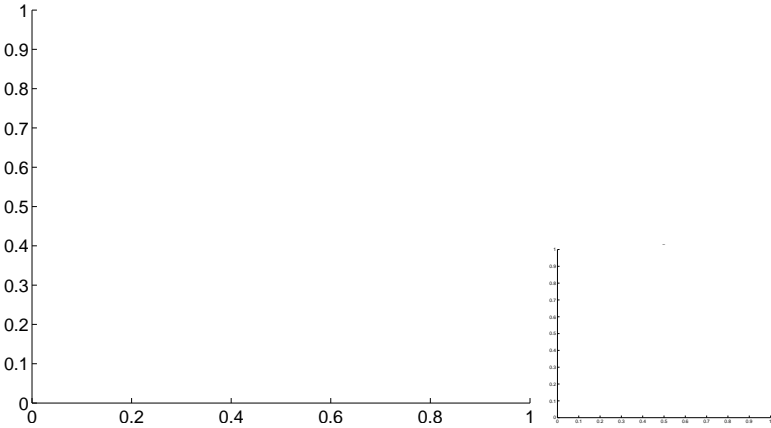
Q3 OOT image



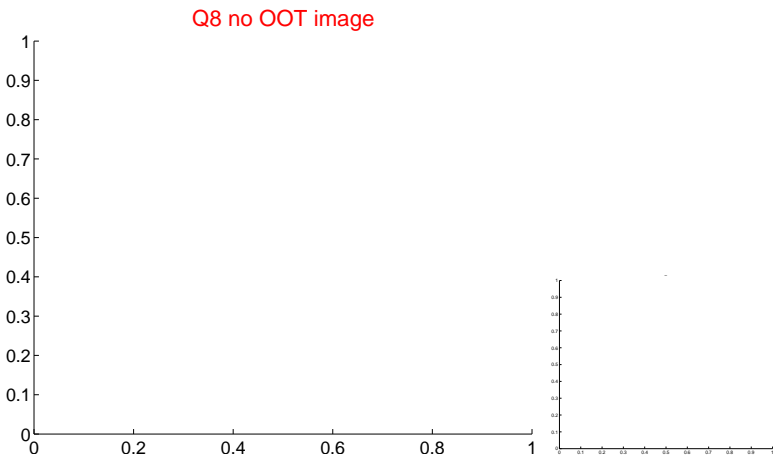
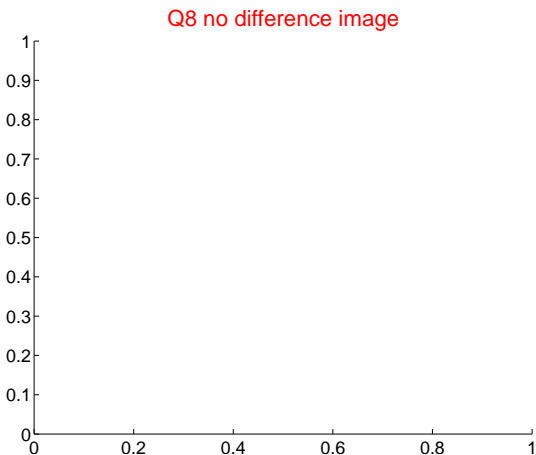
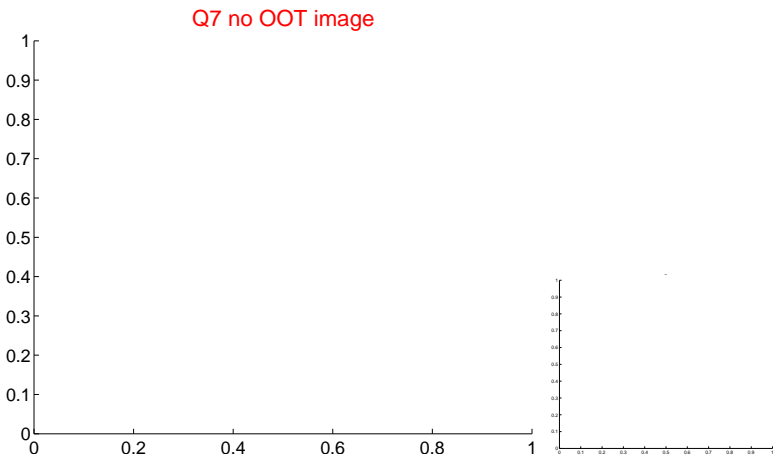
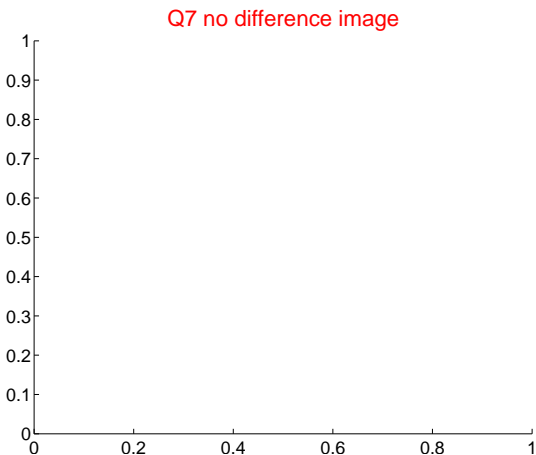
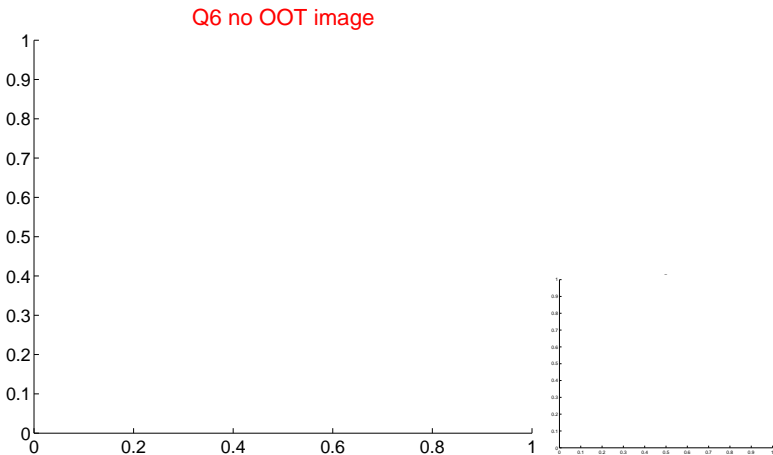
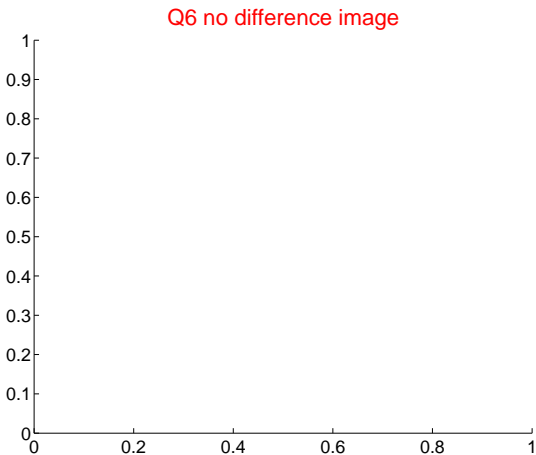
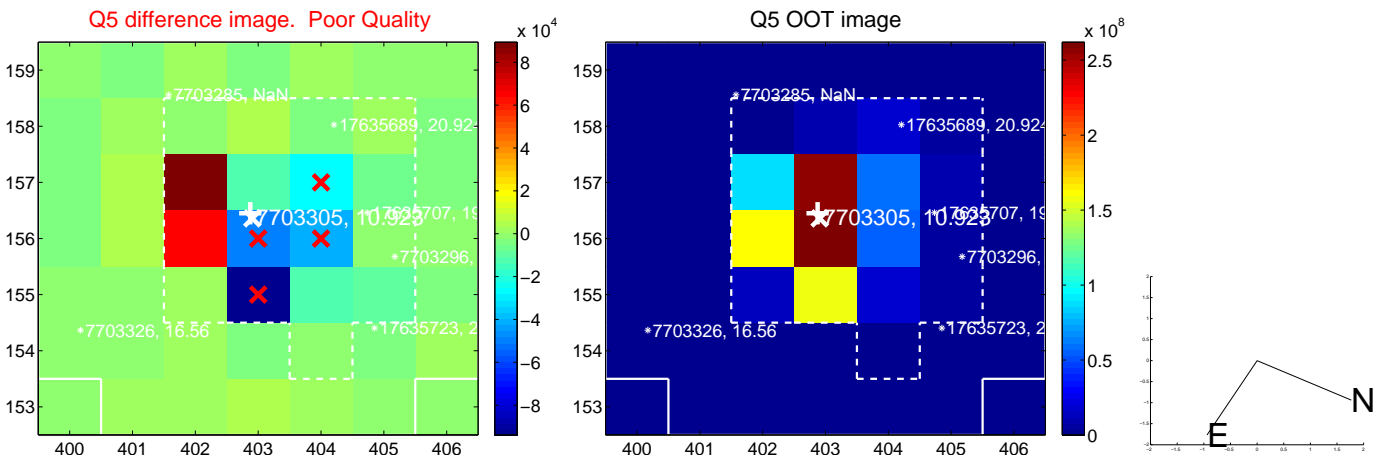
Q4 no difference image



Q4 no OOT image



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

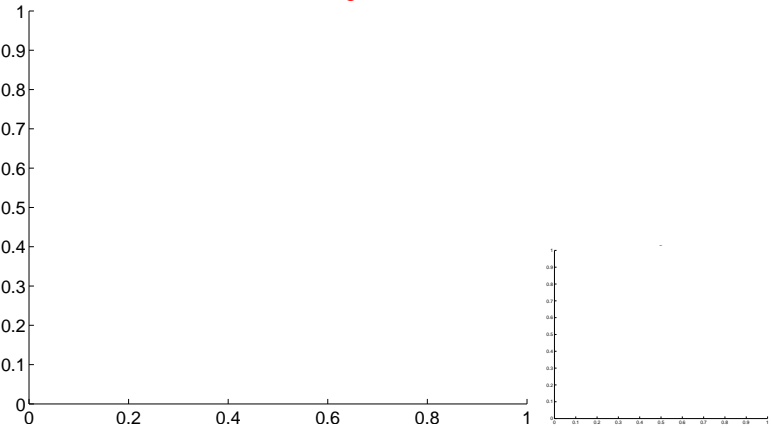


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

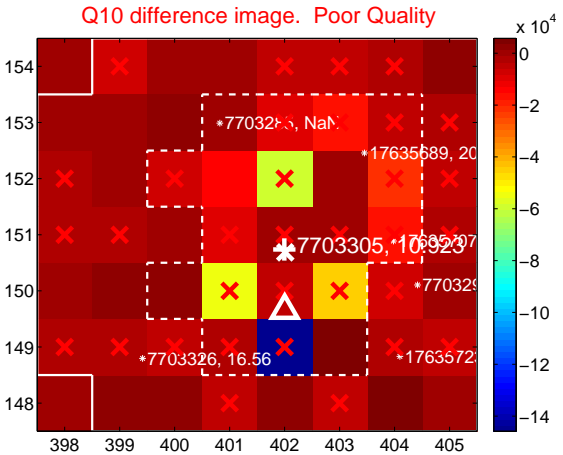
Q9 no difference image



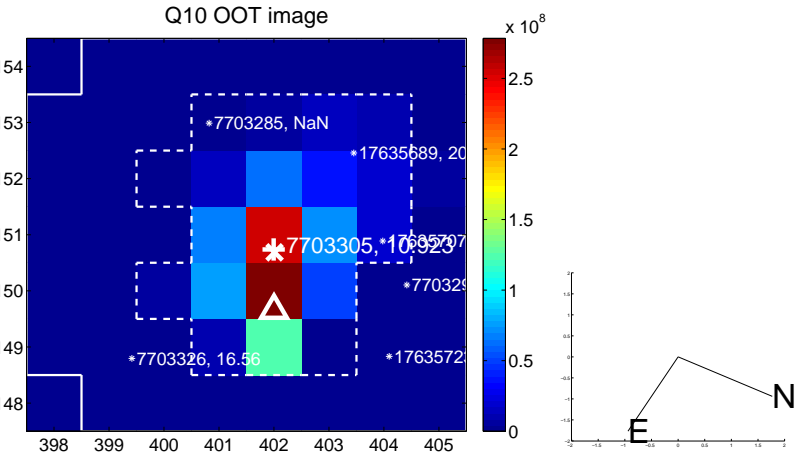
Q9 no OOT image



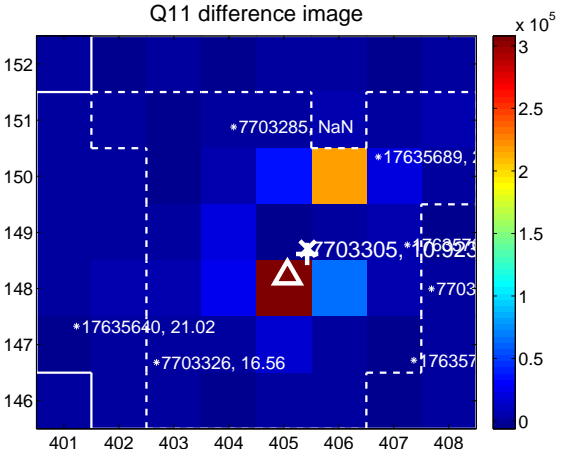
Q10 difference image. Poor Quality



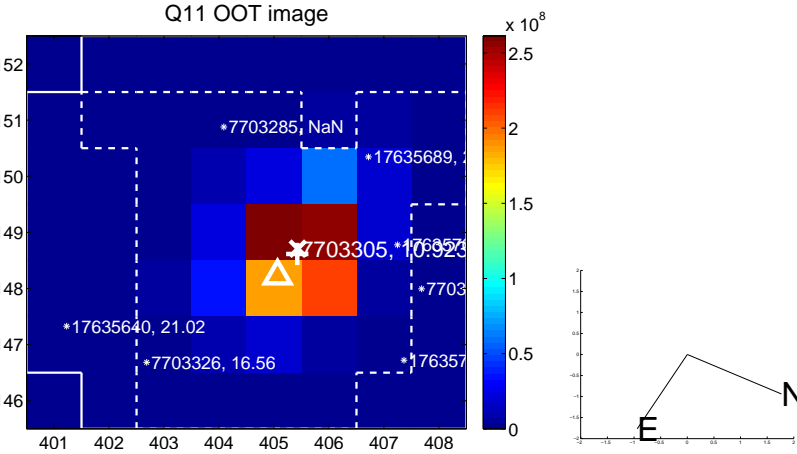
Q10 OOT image



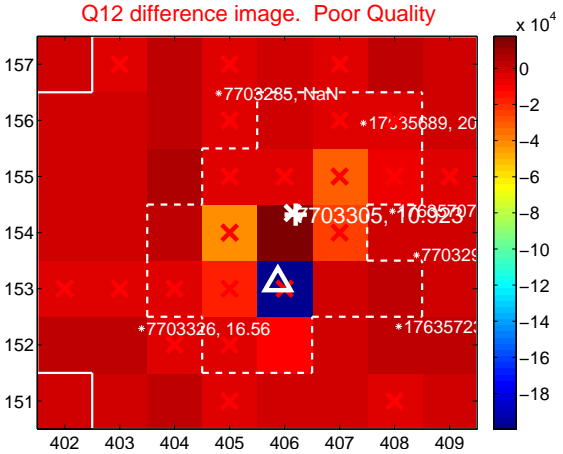
Q11 difference image



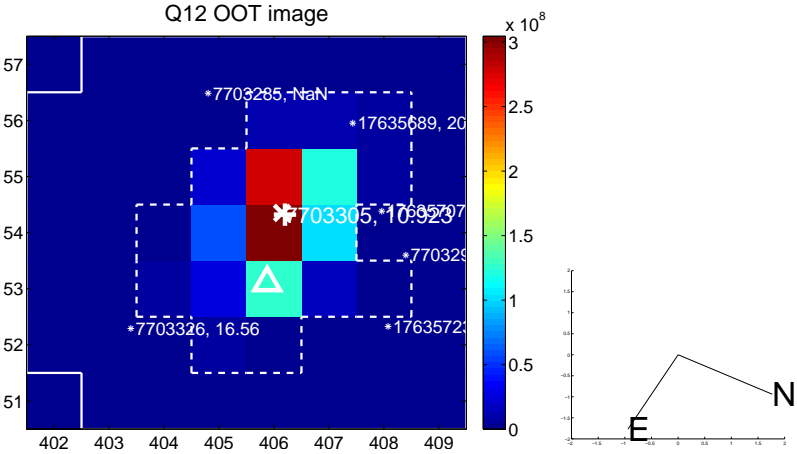
Q11 OOT image



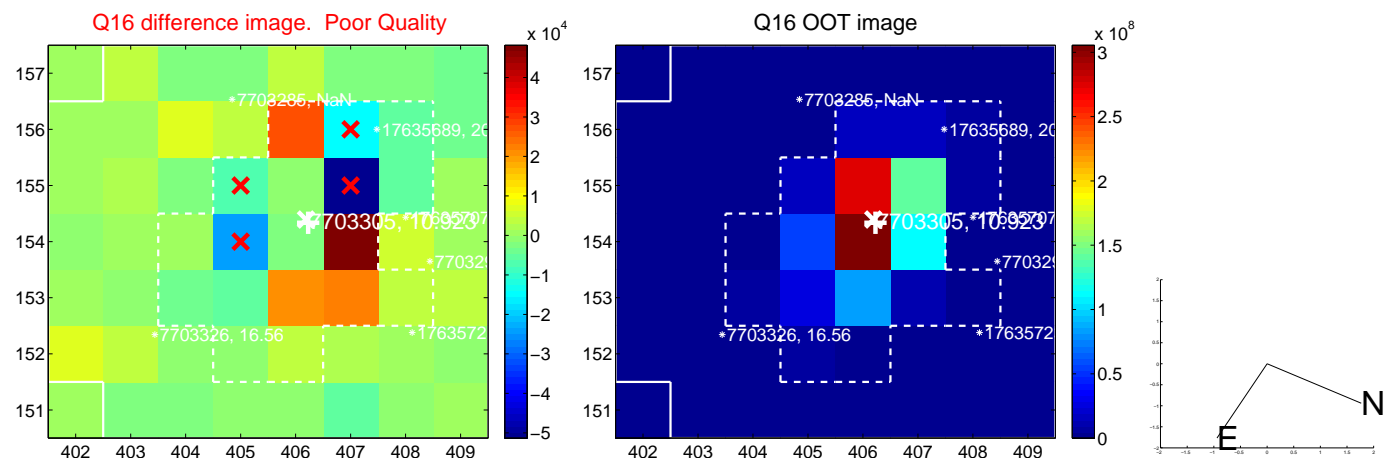
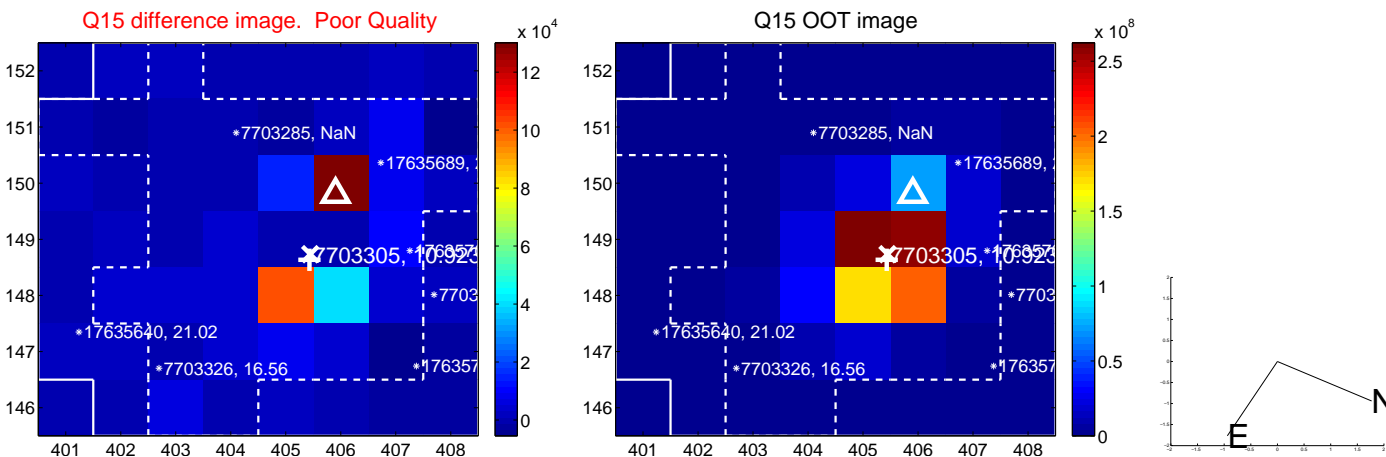
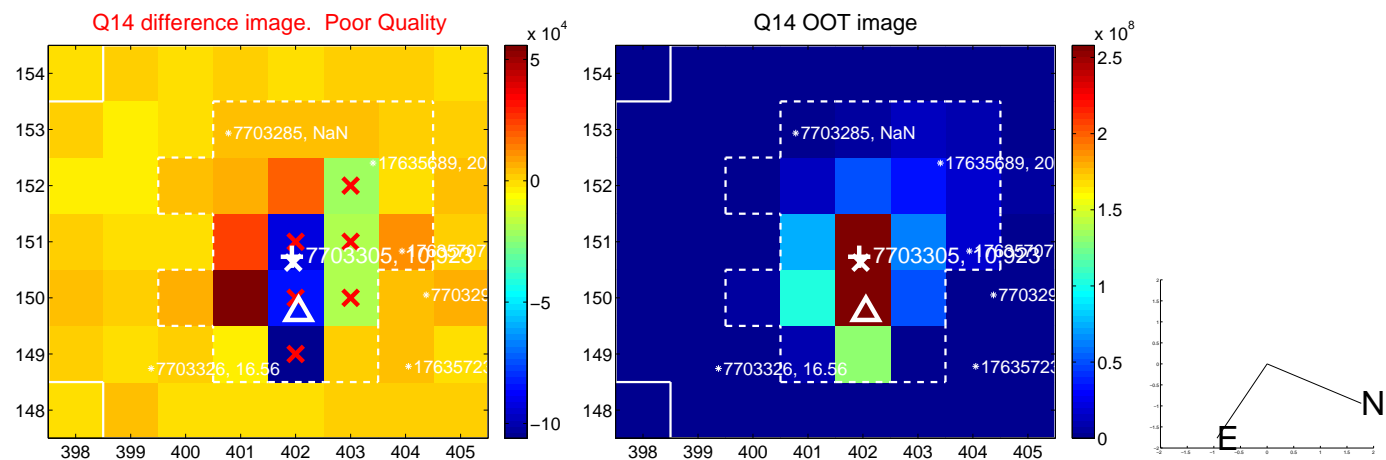
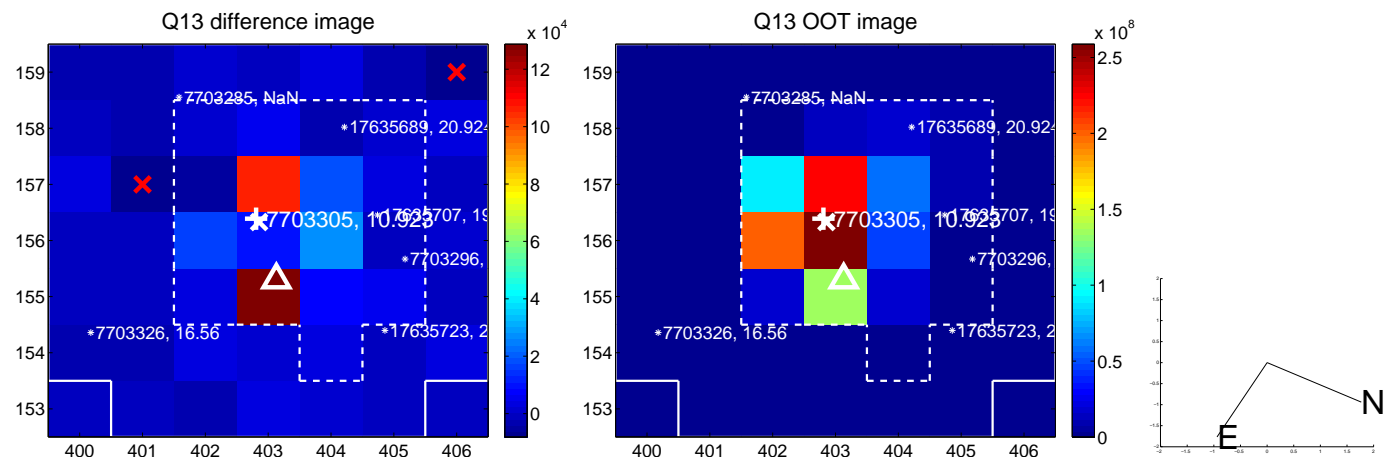
Q12 difference image. Poor Quality



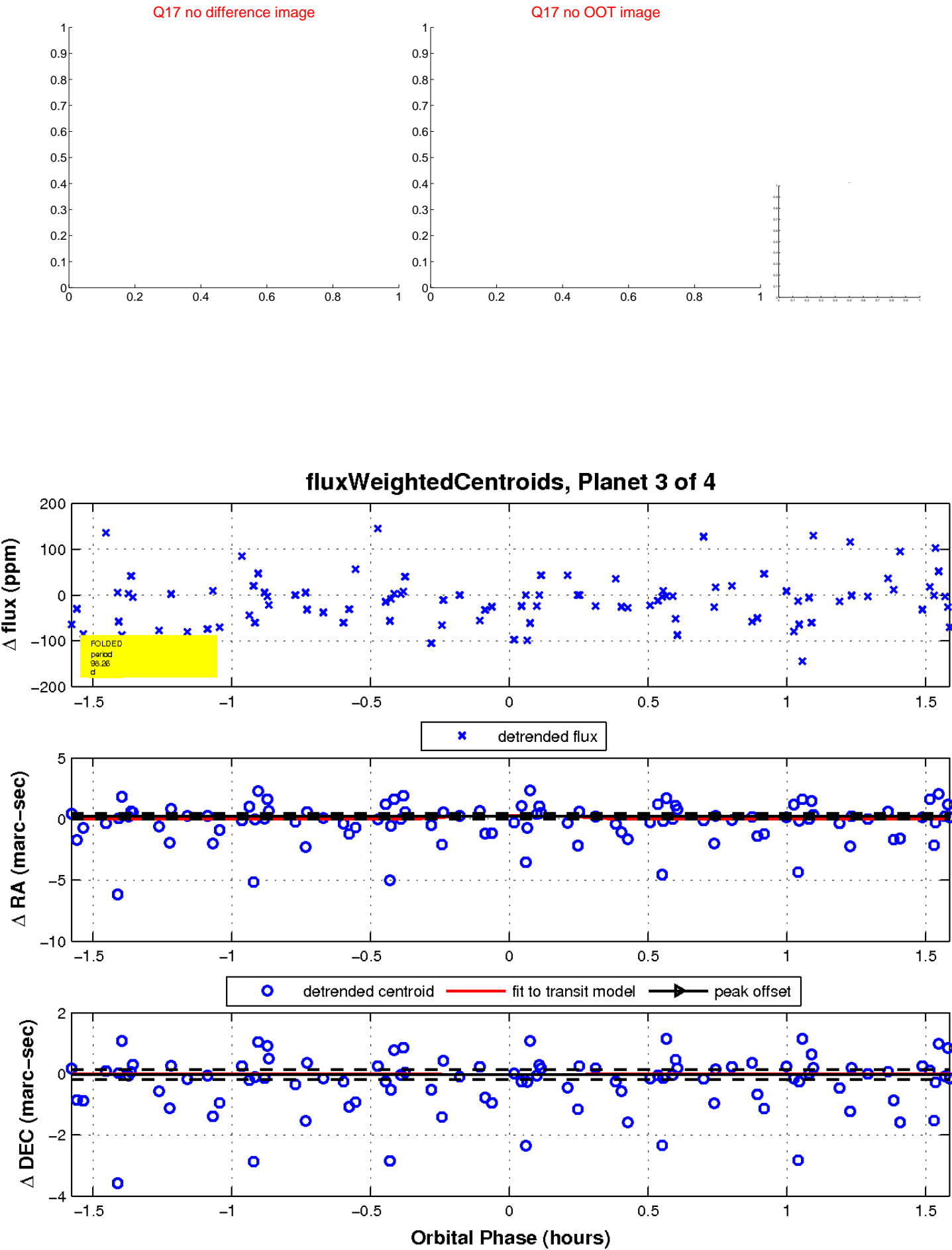
Q12 OOT image



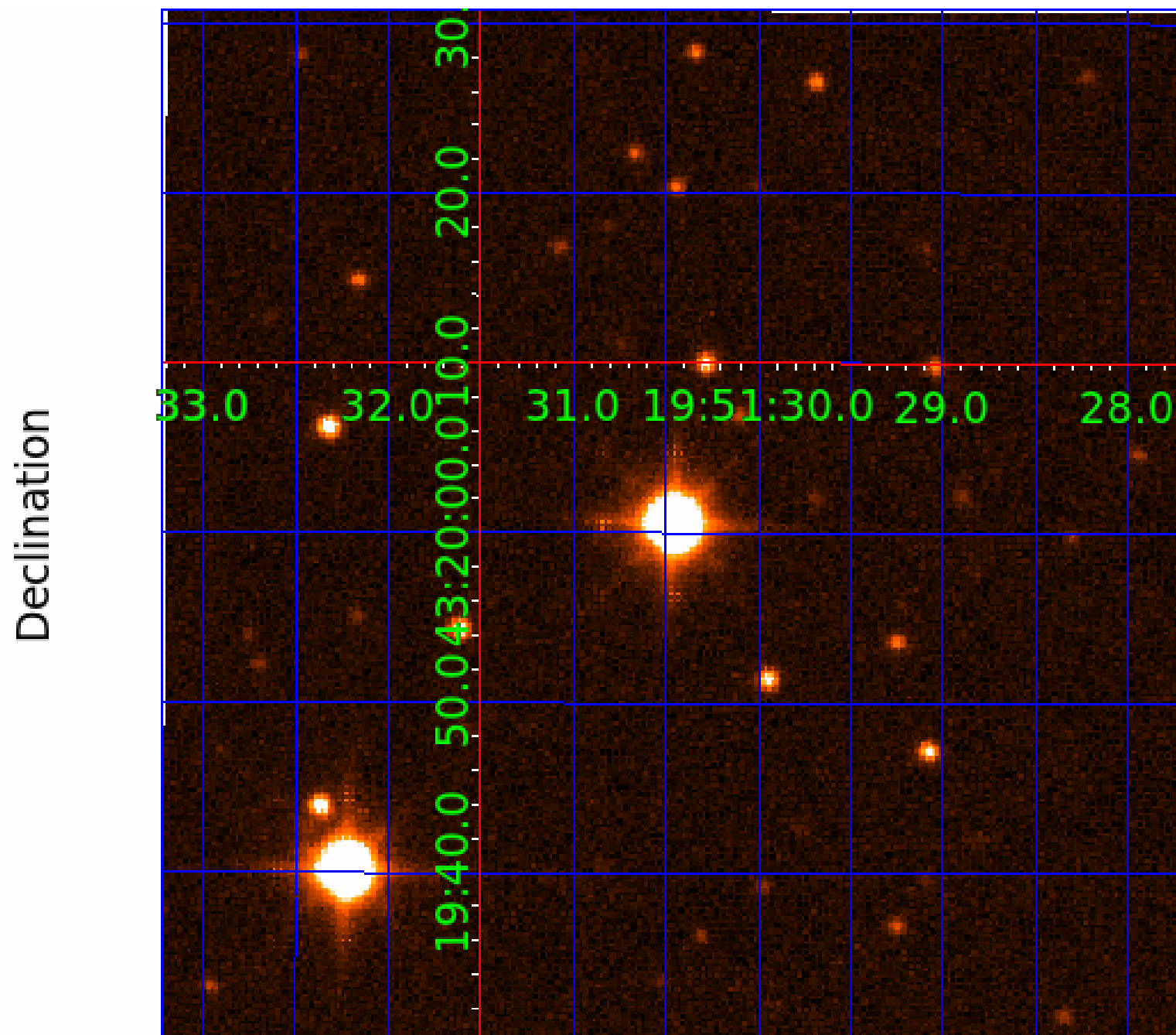
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 007703305

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})
007703305-01	OBS	No	373.501065	260.193309	93.0	2.692	46.3	1.9	1.56	8011	2.48	6.84
007703305-02	OBS	No	387.461864	246.170825	80.9	26.653	27.5	6.3	1.56	8011	1.52	6.51
007703305-03	OBS	No	98.263361	176.833568	28.8	0.549	8.1	8.7	1.56	8011	0.92	40.57
007703305-04	OBS	No	45.860077	145.057982	17.0	1.457	7.9	3.7	1.56	8011	0.66	112.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007703305-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_ZUMA_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
007703305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007703305-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007703305-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

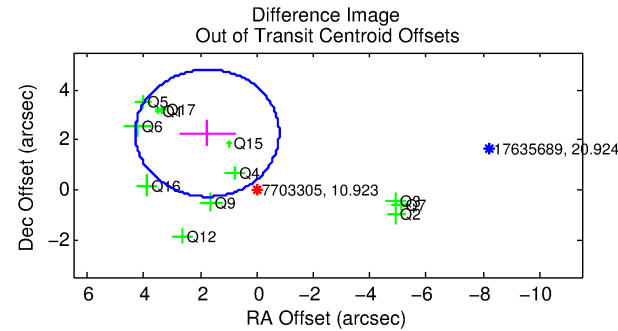
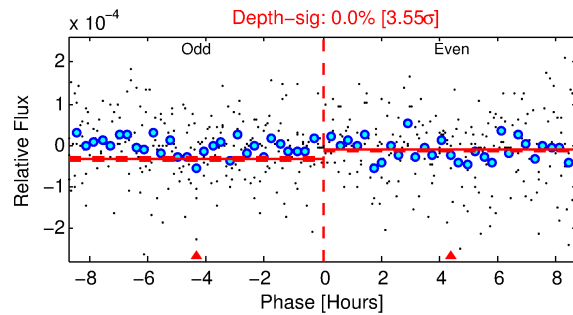
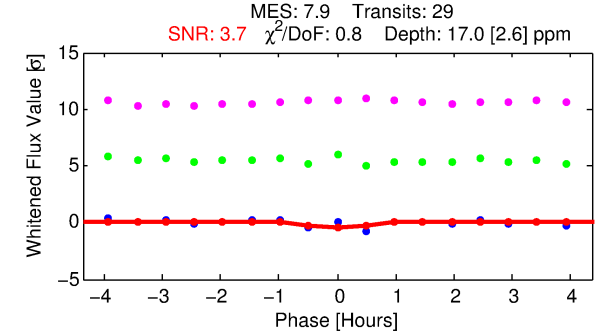
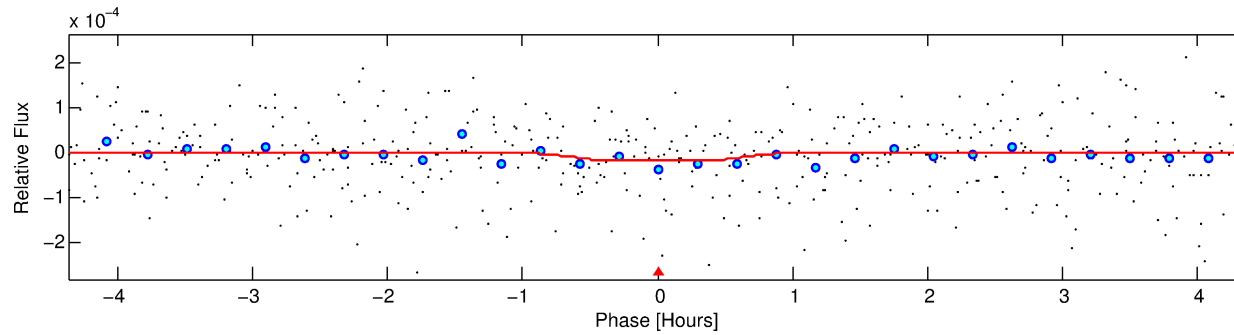
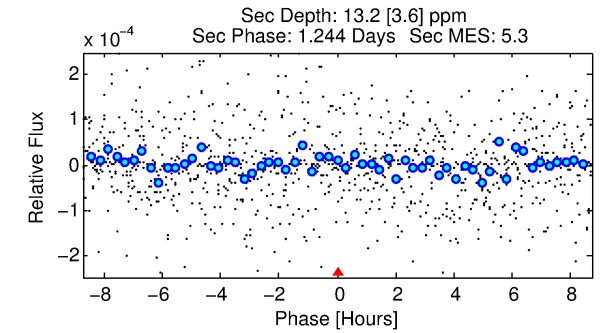
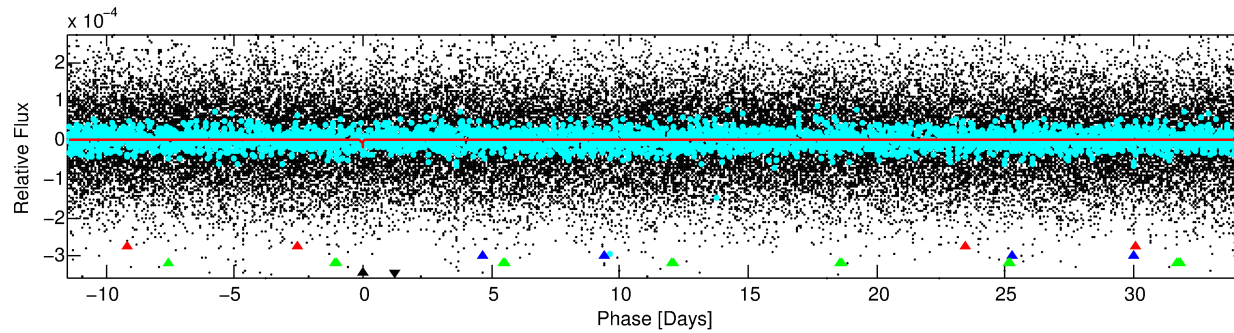
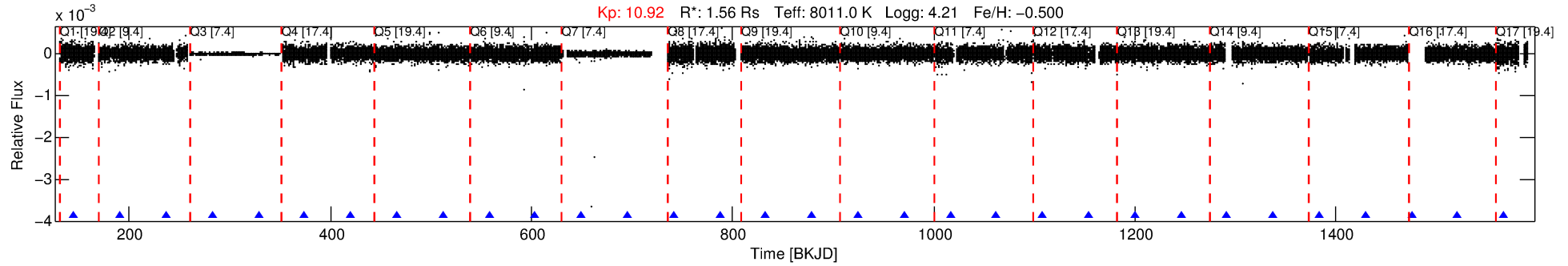
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007703305-04

No Significant Match Found

DV One-Page Summary

KIC: 7703305 Candidate: 4 of 4 Period: 45.860 d



DV Fit Results:

Period = 45.86008 [0.00078] d
Epoch = 145.0580 [0.0038] BKJD
Rp/R* = 0.0039 [0.0118]
a/R* = 219.83 [4084.17]
b = 0.42 [37.19]
Seff = 112.06 [41.51]
Teq = 830 [77] K
Rp = 0.66 [2.02] Re
a = 0.2827 [0.0647] AU
Ag = 1322.32 [8023.79] [0.16σ]
Teffp = 7735 [11721] K [0.59σ]

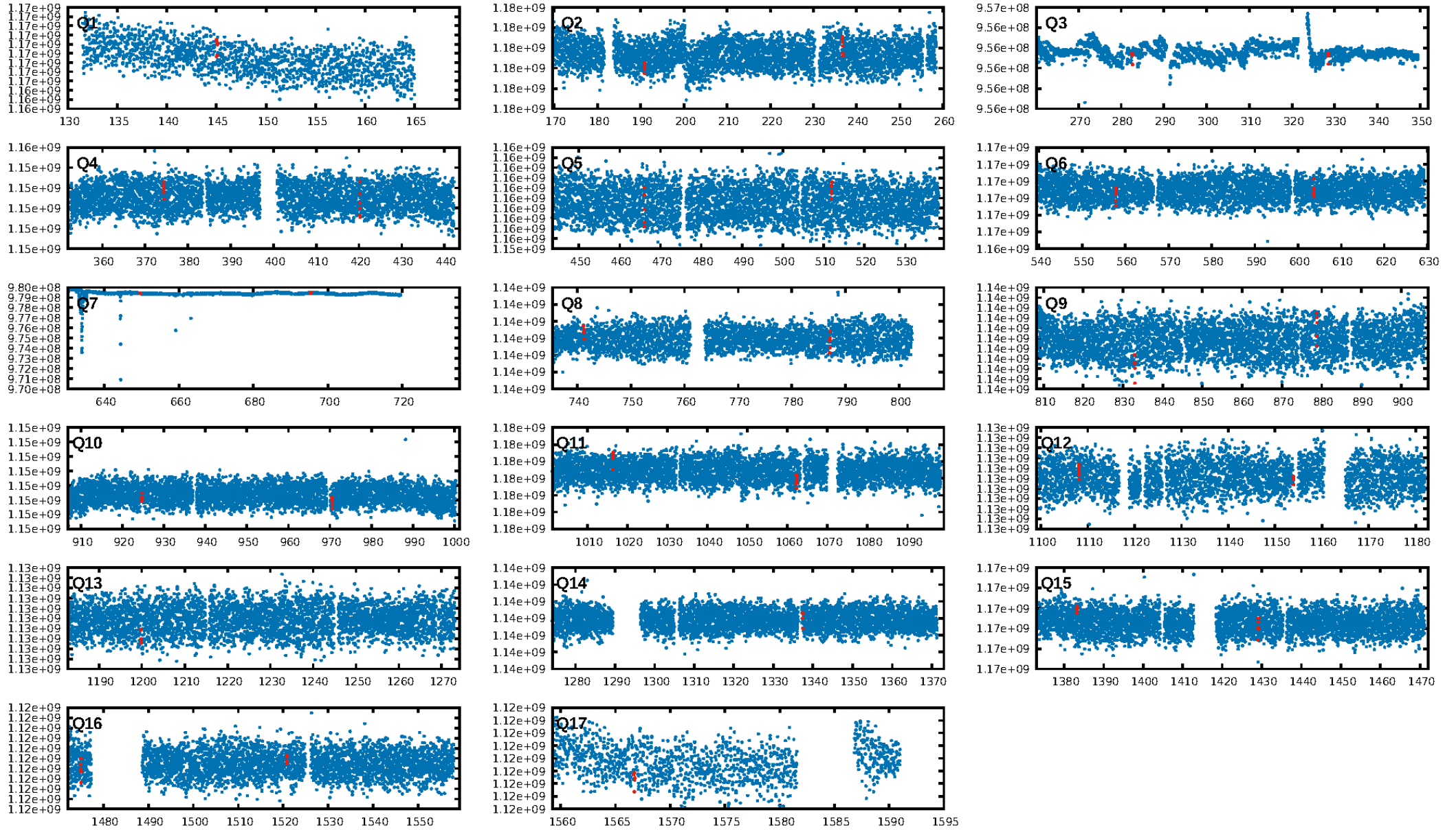
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [807.91σ]
ModelChiSquare2-sig: 99.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.78e-08
RollingBand-fgt: 1.00 [27/27]
GhostDiagnostic-chr: 0.3541
Centroid-sig: 0.8%
Centroid-so: 8.475 arcsec [1.93σ]
OotOffset-rm: 2.865 arcsec [3.37σ]
KicOffset-rm: 2.822 arcsec [3.11σ]
OotOffset-st: 2/3/3/4 [12]
KicOffset-st: 2/3/3/4 [12]
DiffImageQuality-fgm: 0.33 [4/12]
DiffImageOverlap-fno: 1.00 [15/15]

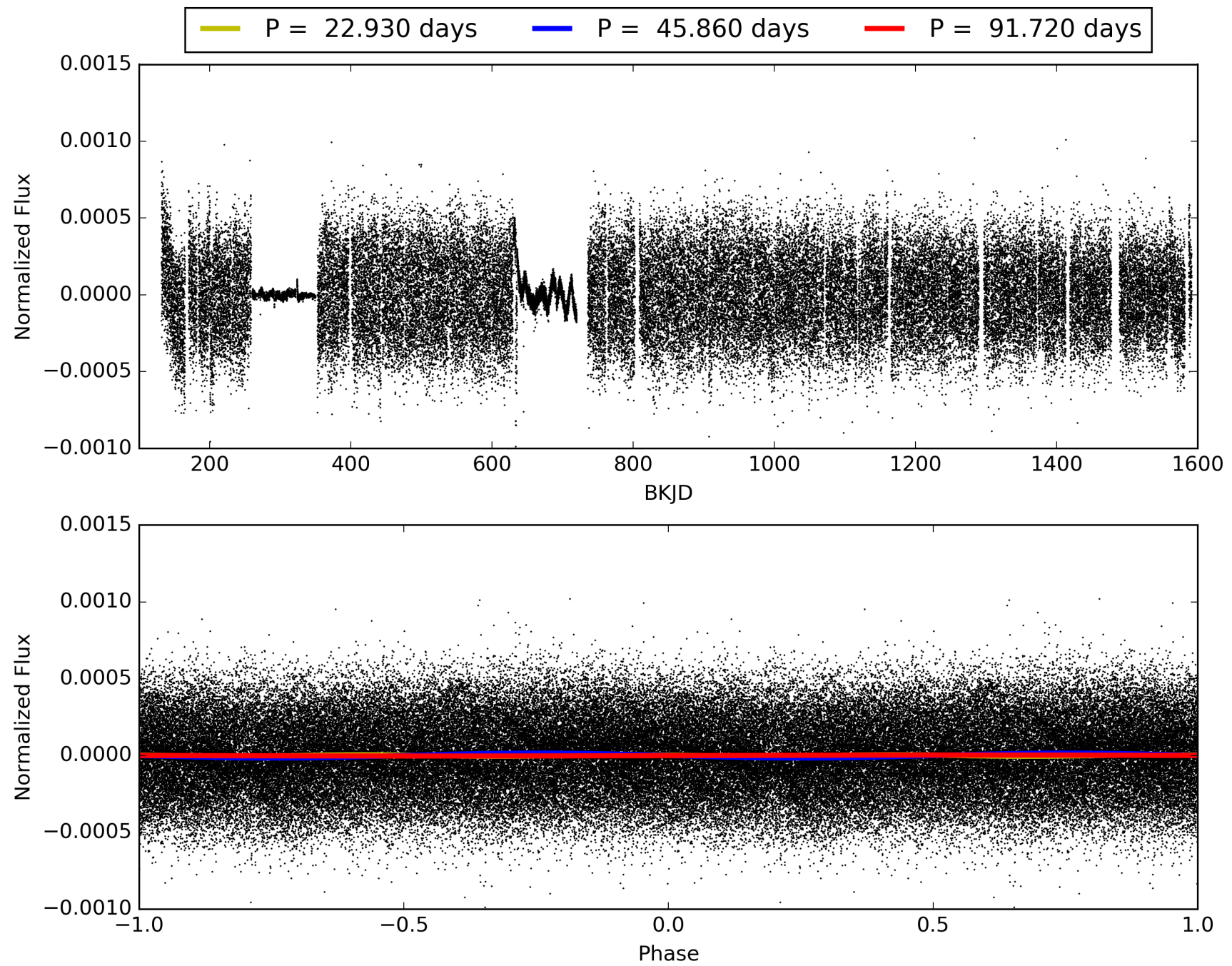
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 05:09:31 Z

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

TCE 007703305-04, PDC Light Curves

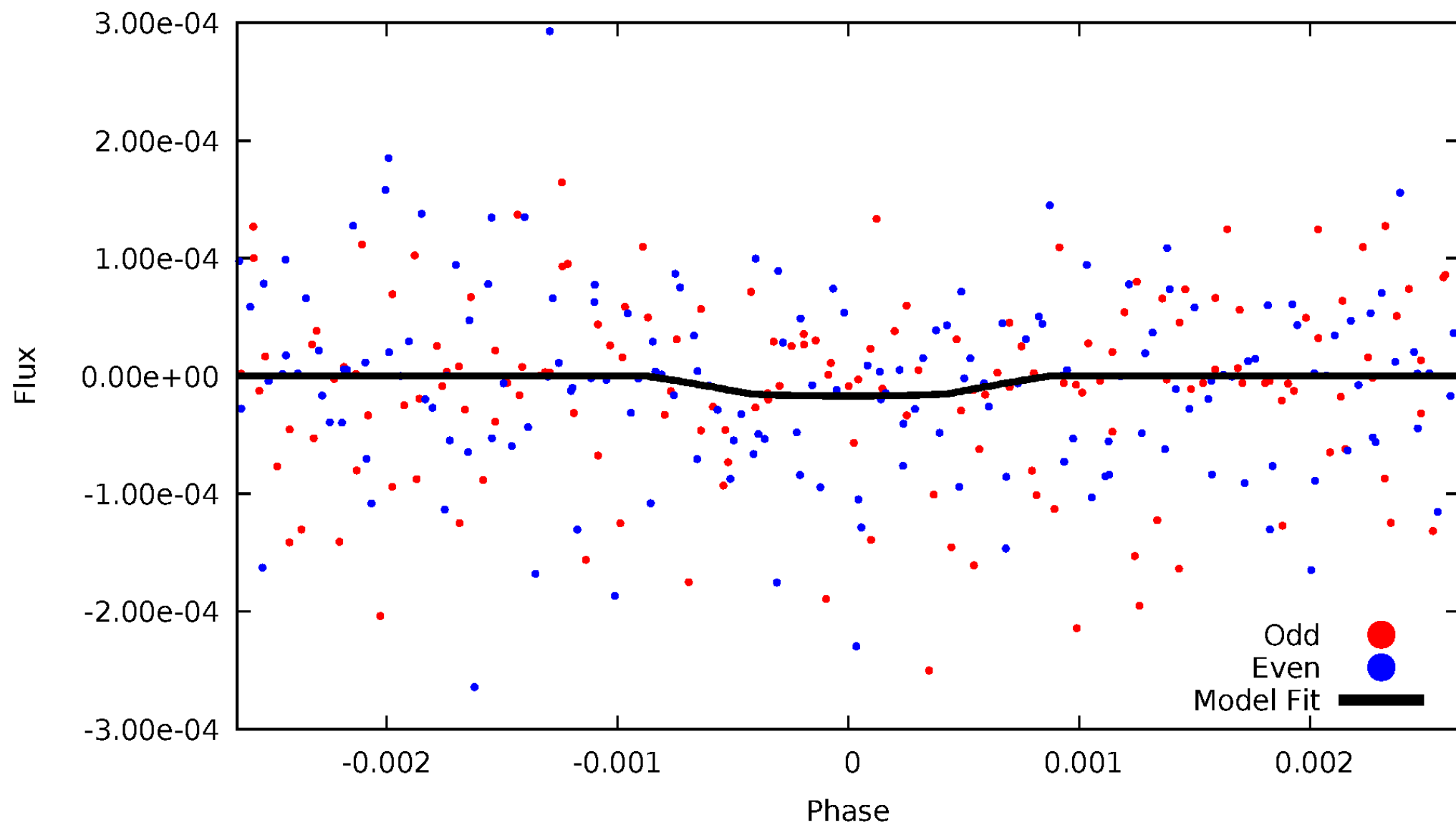


TCE 007703305-04



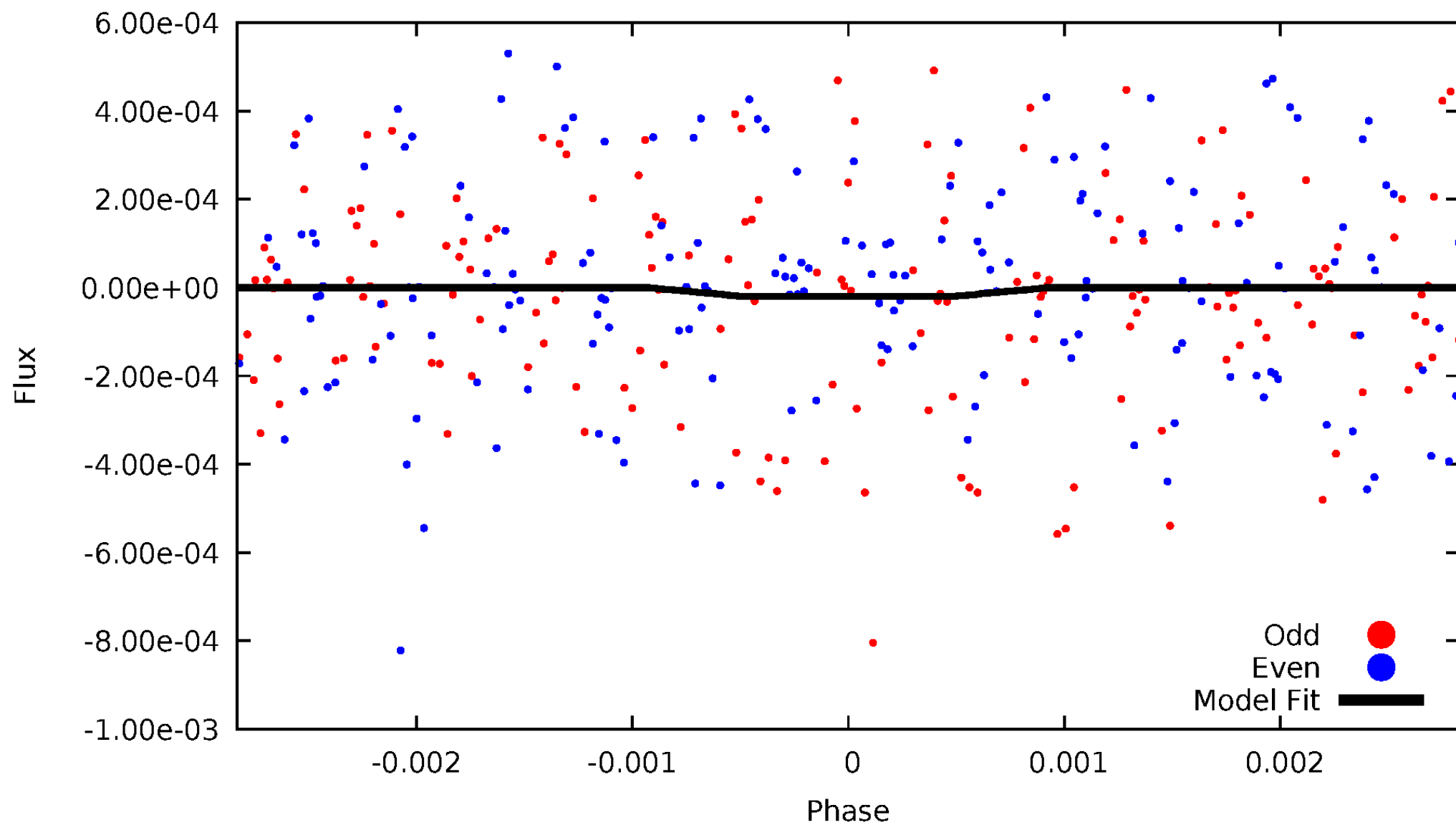
DV Odd/Even

TCE 007703305-04



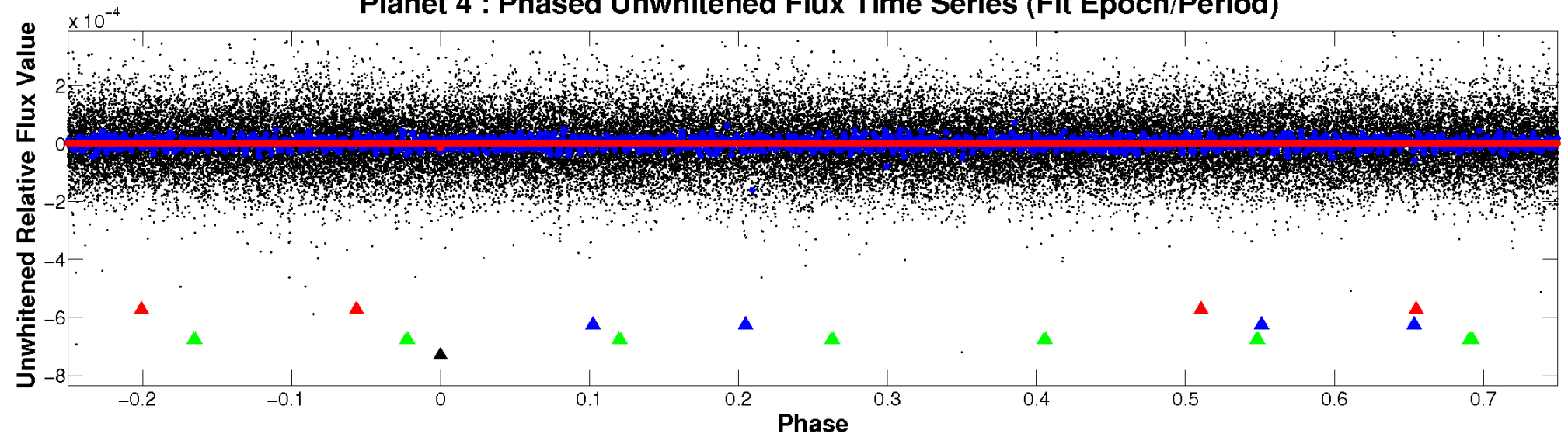
ALT Odd/Even

TCE 007703305-04

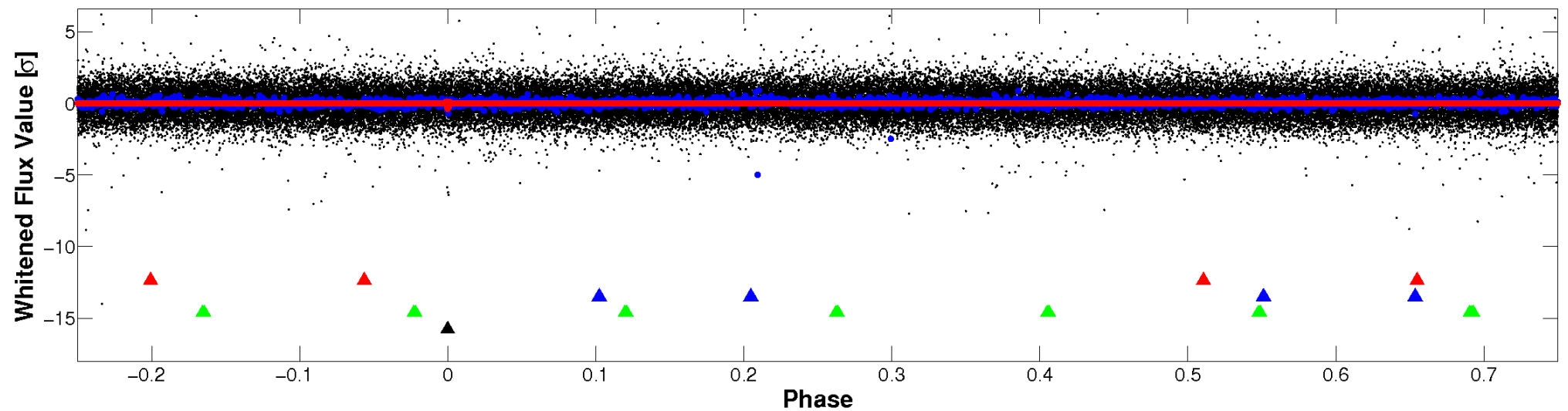


Non-Whitened Vs. Whitened Light Curve

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

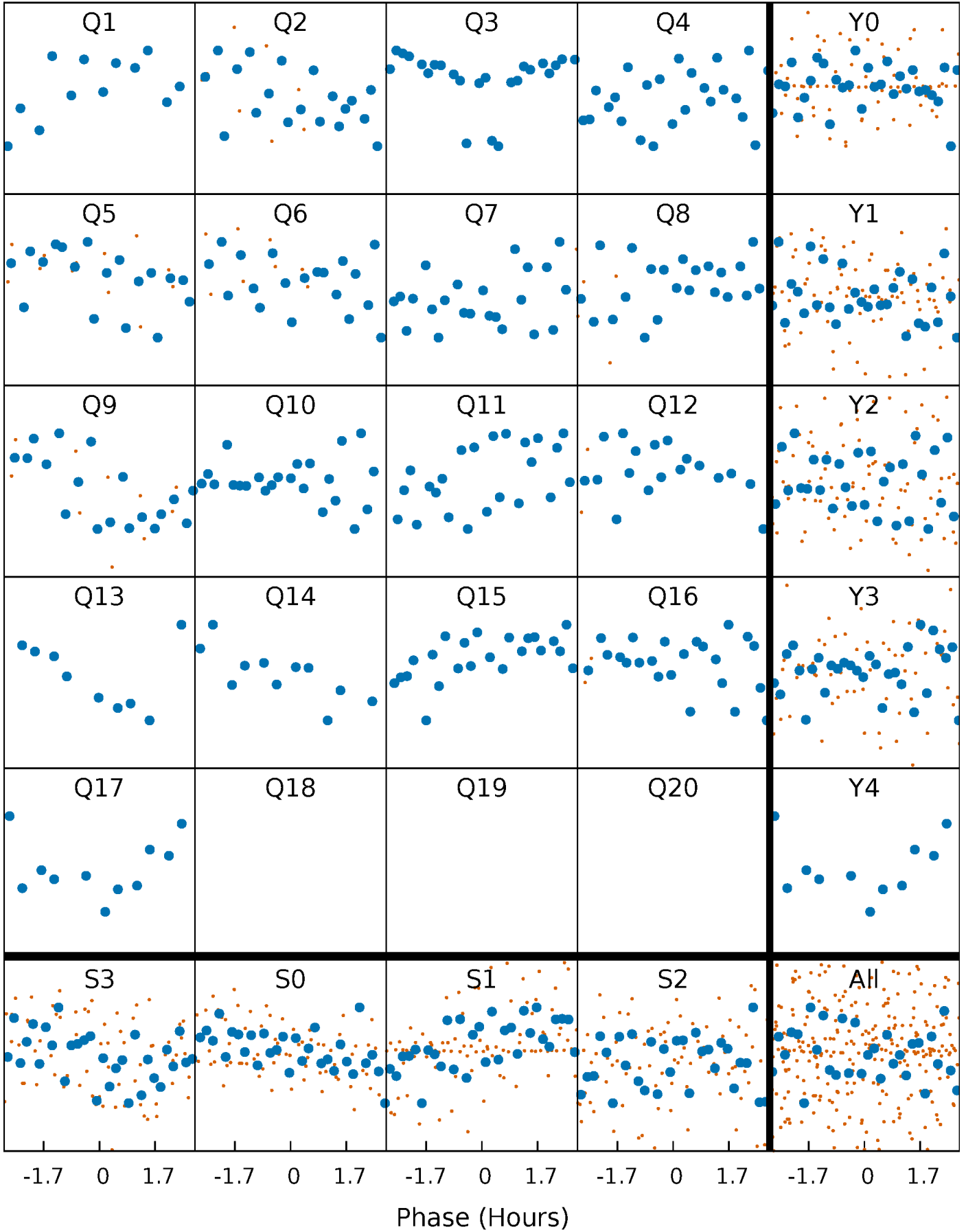


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



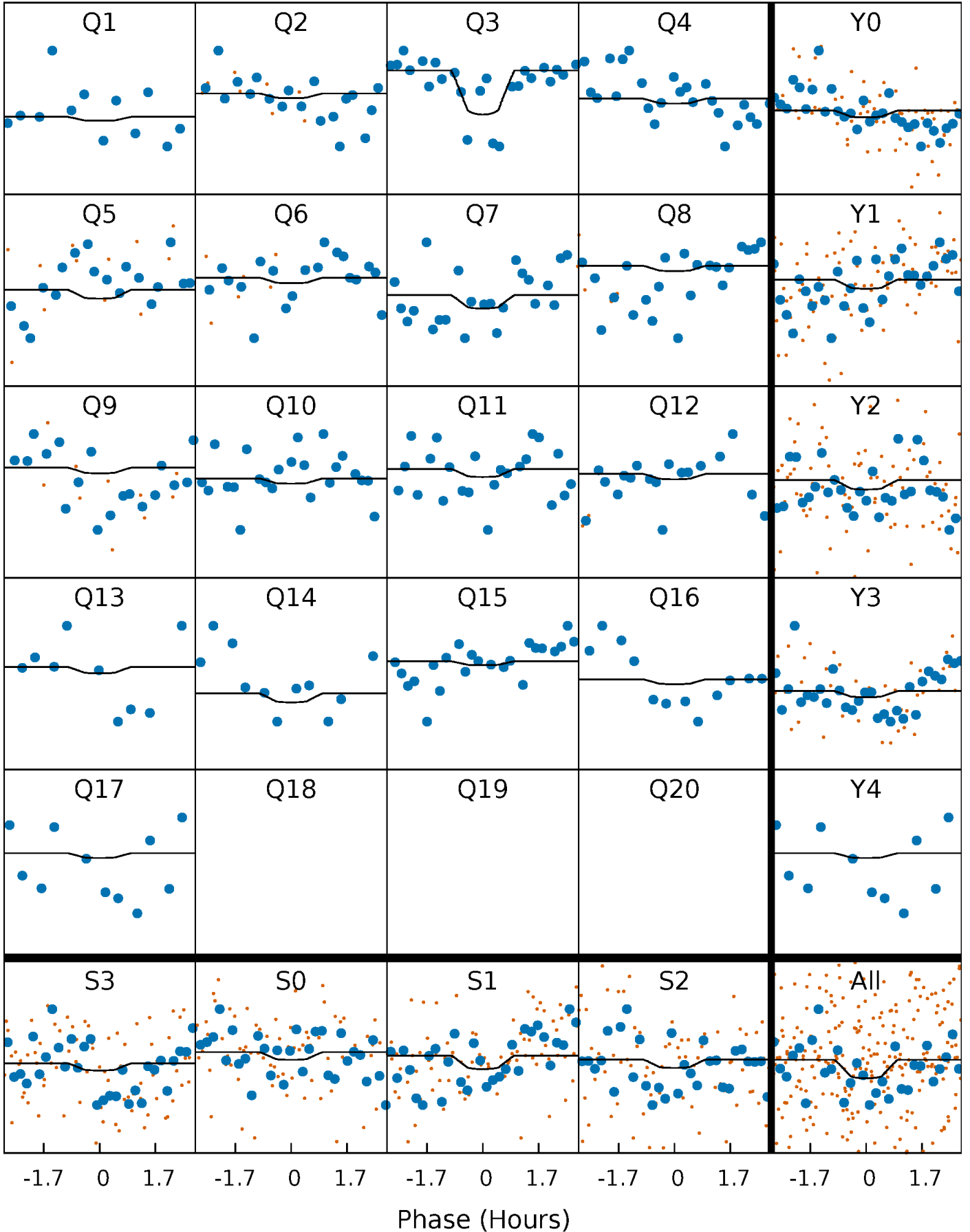
PDC Quarter-Phased Transit Curves

TCE 007703305-04 $P = 45.860077$ Days $T_0 = 145.057982$ (BKJD)



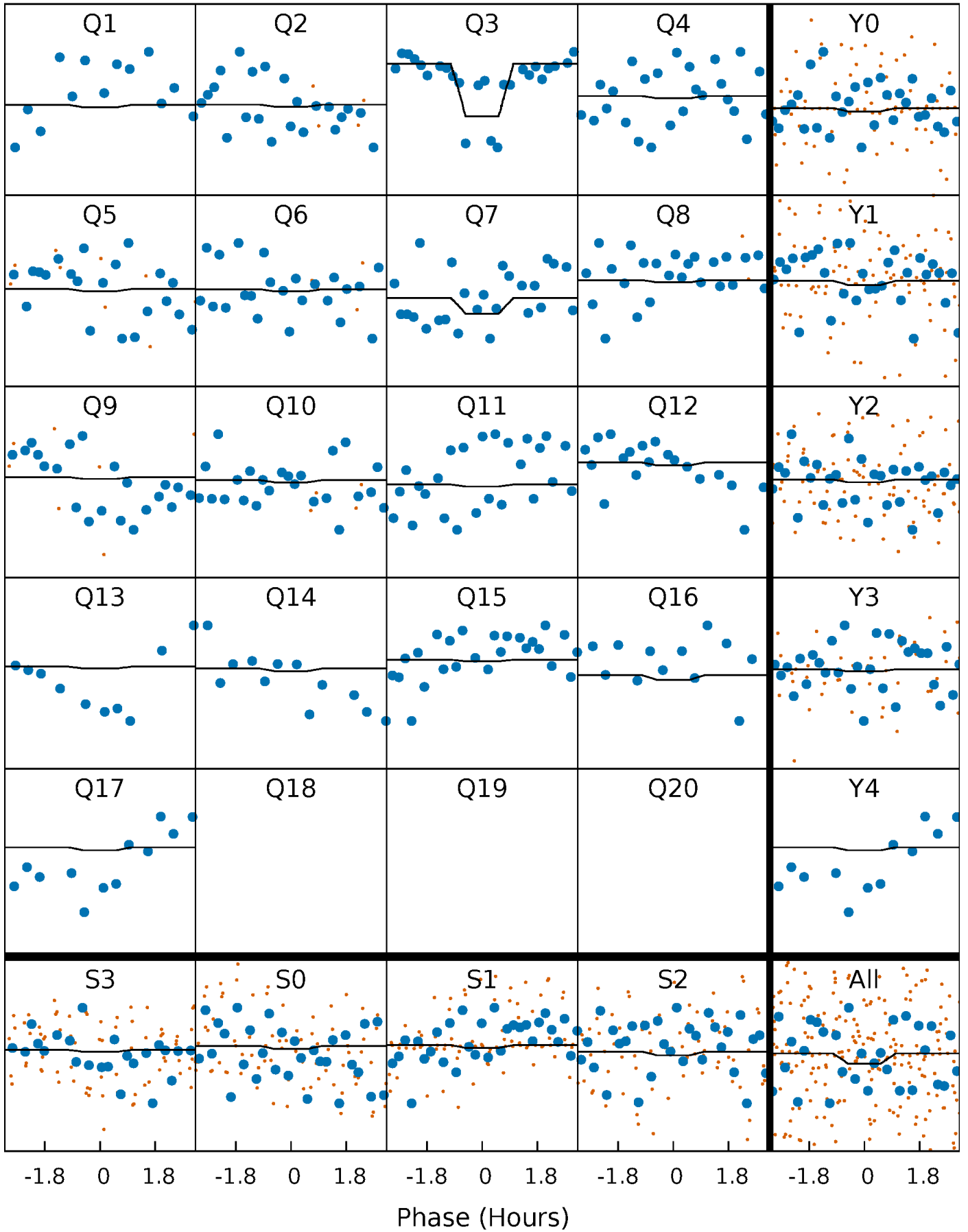
DV Quarter-Phased Transit Curves

TCE 007703305-04 P= 45.860077 Days $T_0=145.057982$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

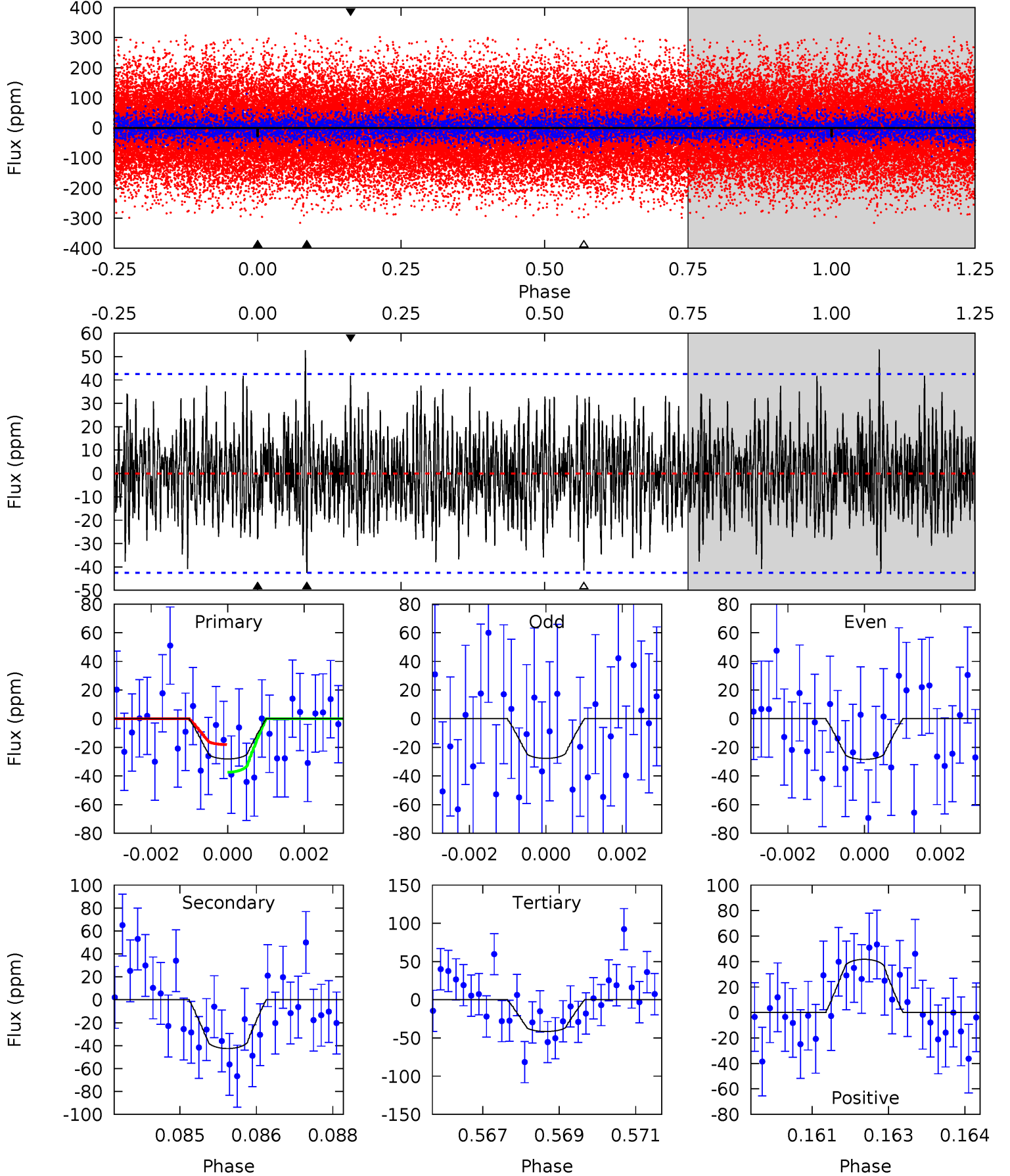
TCE 007703305-04 P= 45.860854 Days $T_0=145.057083$ (BKJD)



DV Model-Shift Uniqueness Test

007703305-04, P = 45.860077 Days, E = 99.197905 Days

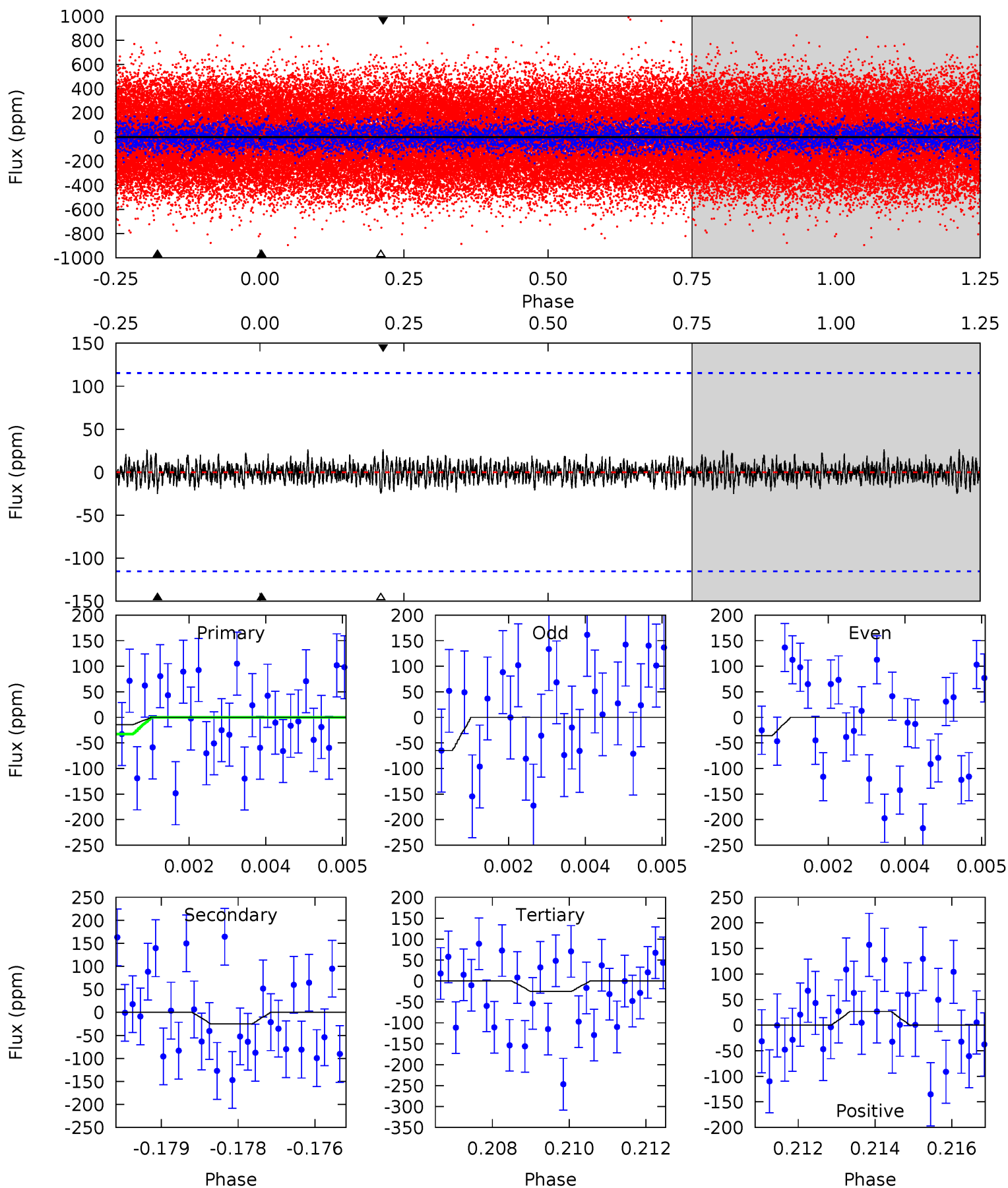
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.54	5.36	5.22	5.26	5.35	3.13	1.74	-1.68	-1.72	0.14	0.10	0.04	2.23	0.55	1.22



Alt Model-Shift Uniqueness Test

007703305-04, P = 45.860854 Days, E = 99.196229 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.67	1.17	1.15	1.23	5.34	3.12	0.38	-0.48	-0.57	0.02	-0.07	0.67	0.85	0.51	0.67



Stellar Parameters For KIC 007703305

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8011^{+250}_{-333}	$4.209^{+0.120}_{-0.180}$	$-0.500^{+0.200}_{-0.350}$	$1.558^{+0.426}_{-0.284}$	$1.431^{+0.196}_{-0.178}$	$0.533^{+0.344}_{-0.240}$
	+3%/-4%	+3%/-4%	+40%/-70%	+27%/-18%	+14%/-12%	+64%/-45%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007703305-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-43 ± 8	$1.67^{+1.70}_{-1.12}$	1165^{+85}_{-64}	6388^{+7445}_{-1733}	684^{+5674}_{-523}
Alt.	-25 ± 22	$1.60^{+1.83}_{-1.10}$	1169^{+76}_{-73}	5305^{+5620}_{-1882}	304^{+3496}_{-278}

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 $A_{obs} \gg 1.0$

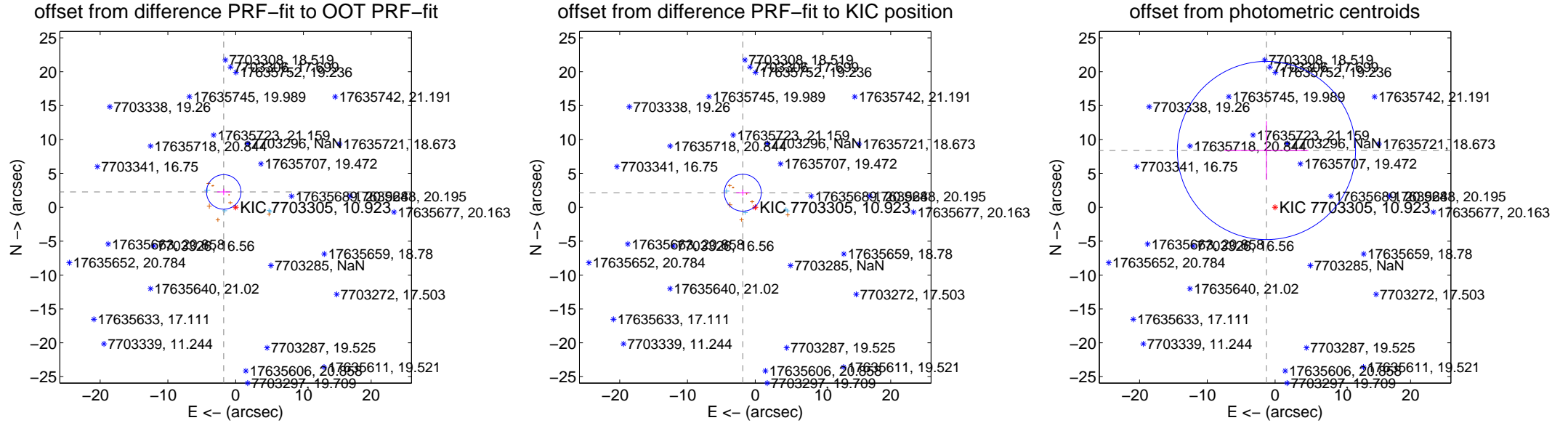
DV Centroid Data

Supplemental centroid analysis for 007703305-04. **Kepler magnitude: 10.92.** Transit SNR 3.68

There are 4 quarters with good PRF difference image offsets

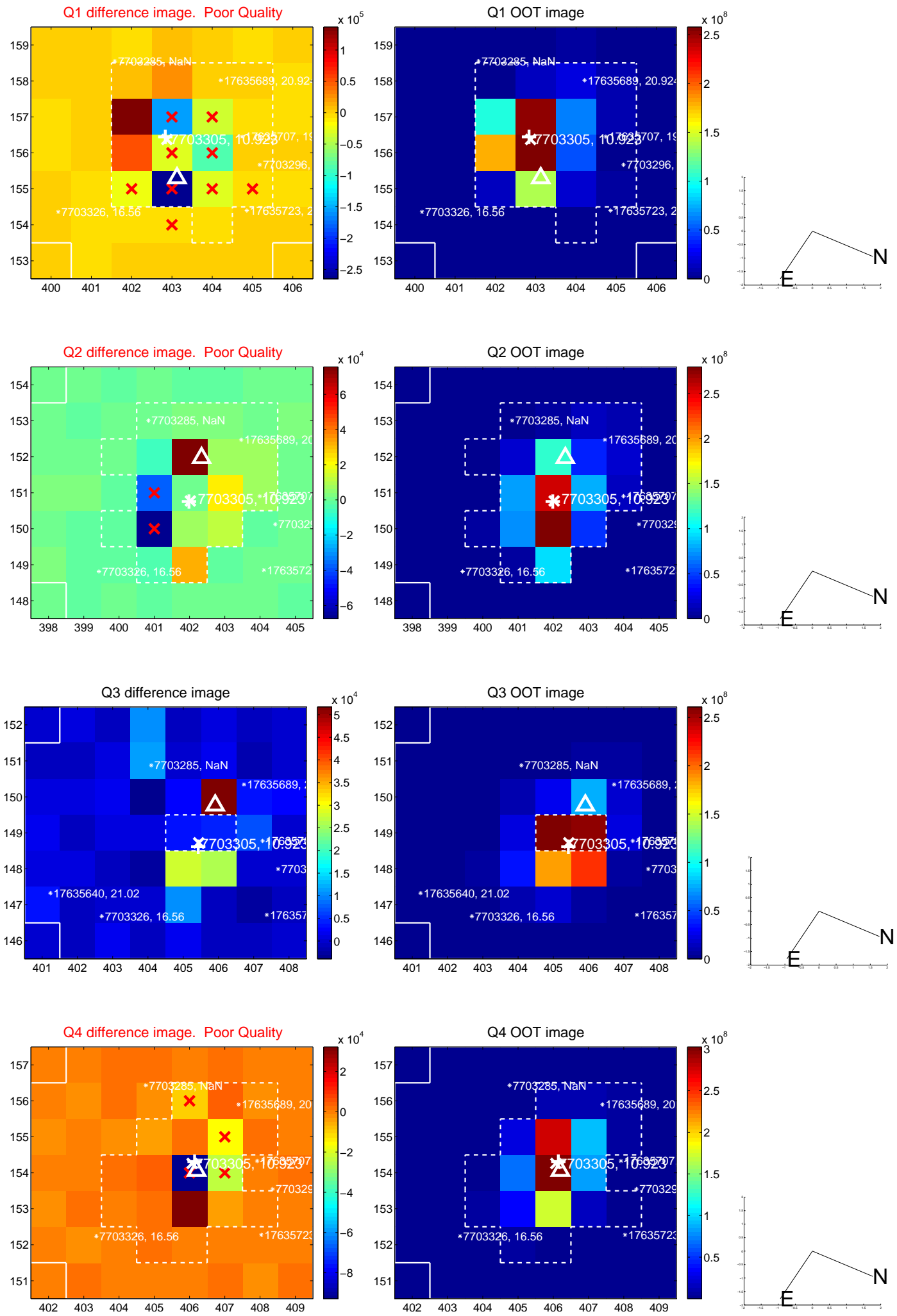
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.865 \pm 0.849	3.37	1.758 \pm 0.958	2.262 \pm 0.465
PRF-fit source offset from KIC position	2.822 \pm 0.909	3.11	1.832 \pm 0.969	2.146 \pm 0.462
photometric centroid source offset	8.48 \pm 4.38	1.93	1.27 \pm 6.19	8.38 \pm 4.33

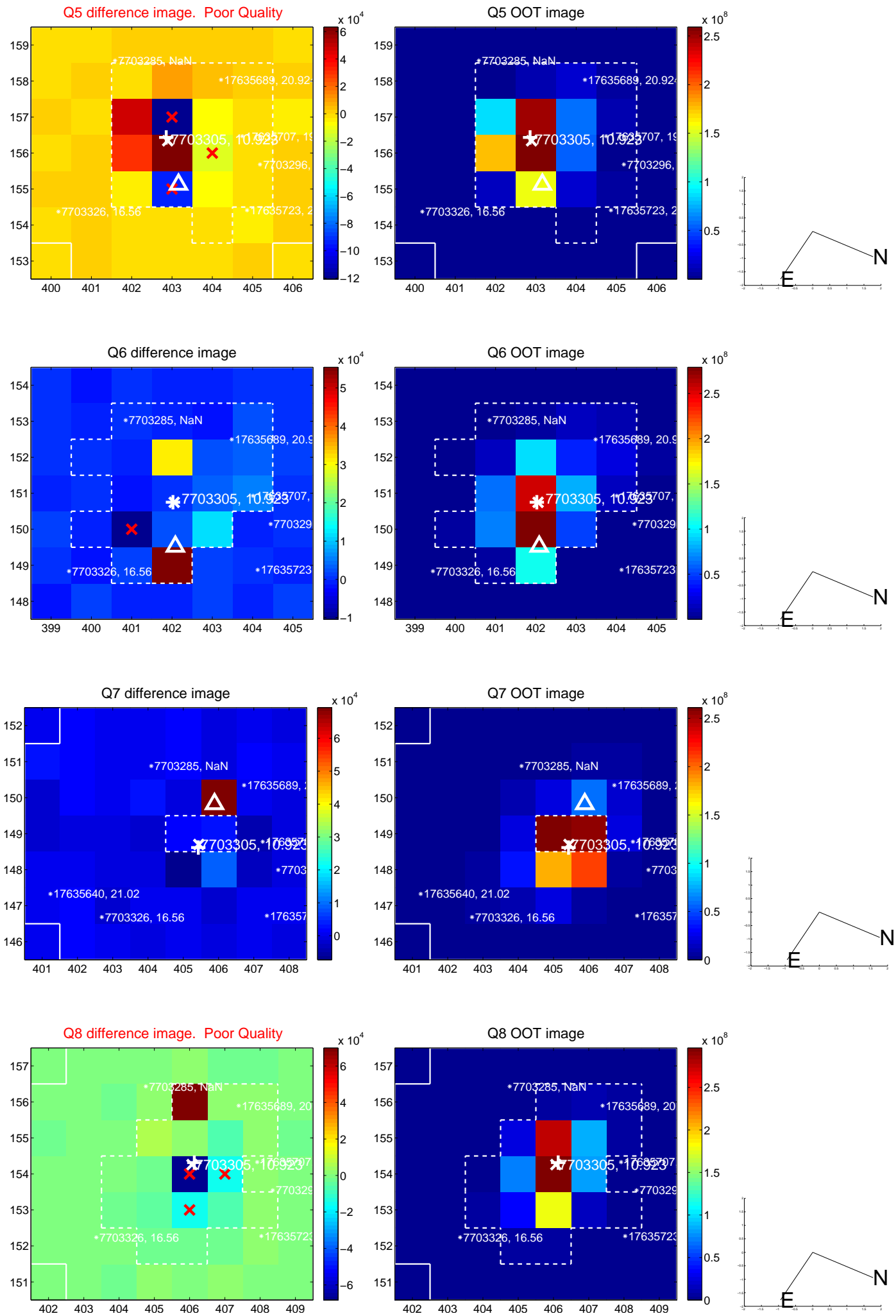


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

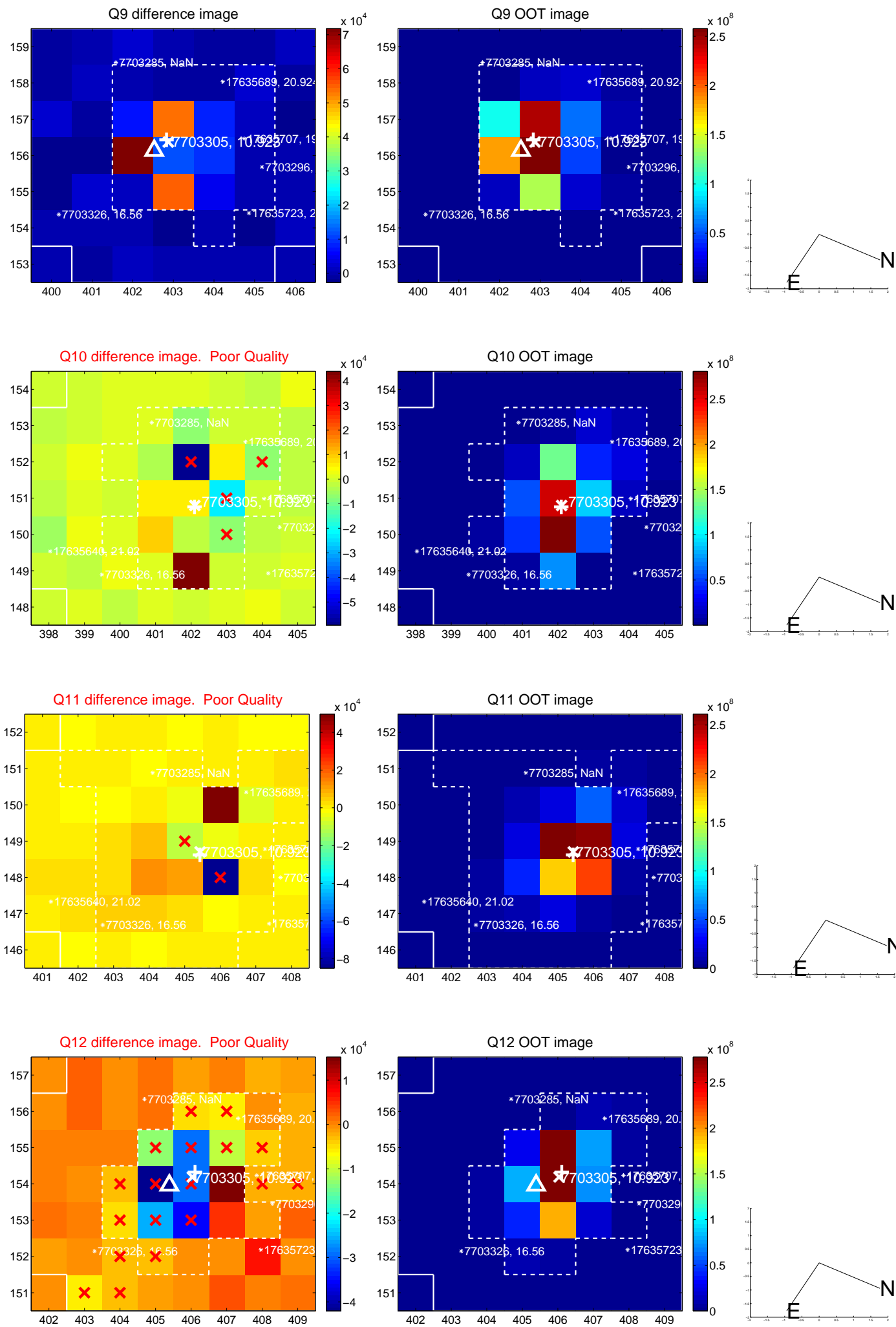
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



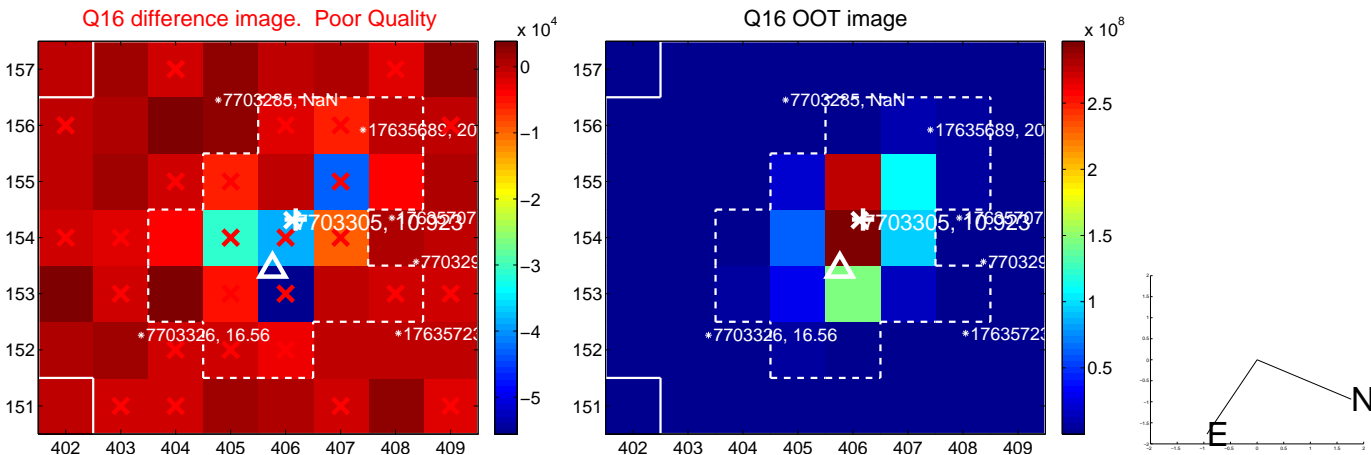
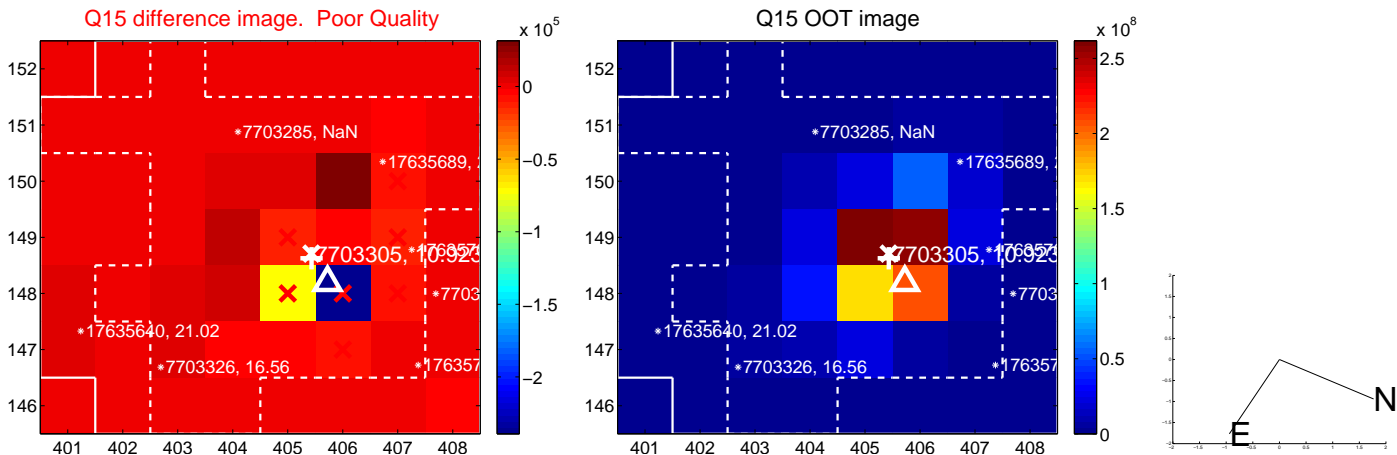
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



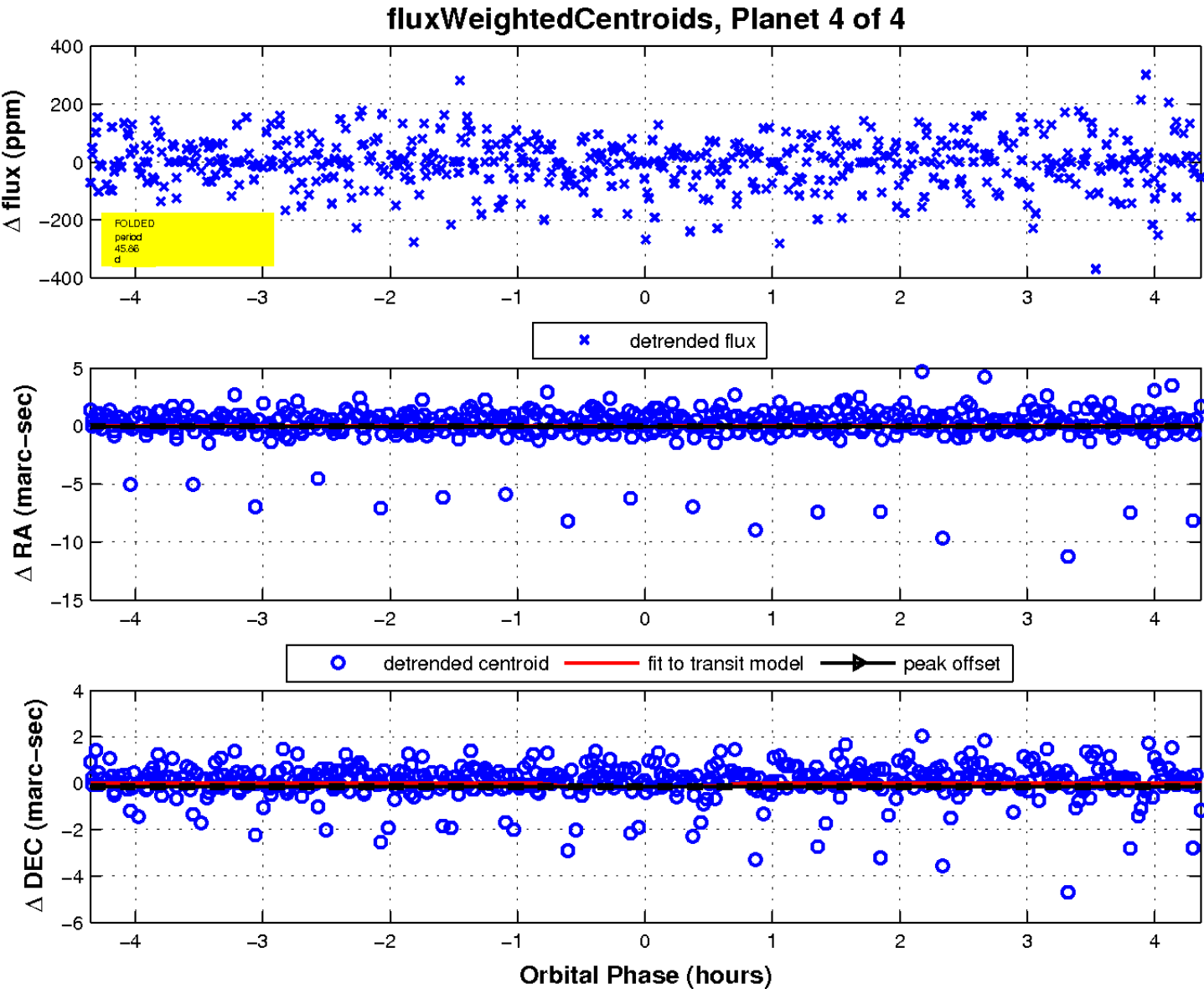
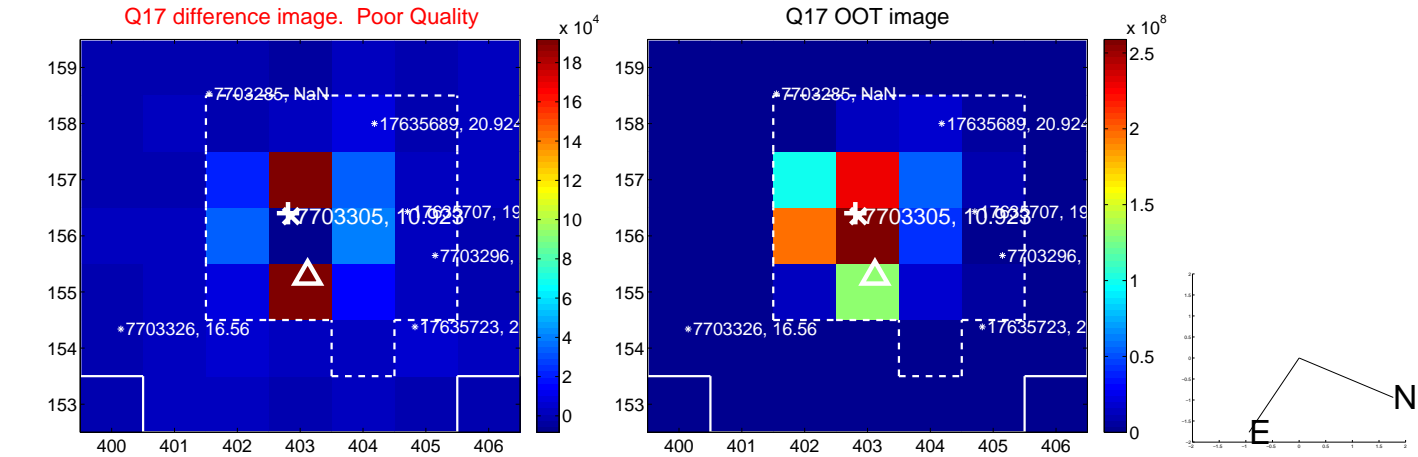
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

