

KIC 005088084

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})
005088084-01	OBS	No	351.304836	253.335320	1813.7	51.121	35.8	10.1	1.08	5941	4.58	1.37
005088084-02	OBS	No	376.541510	169.573401	2638.7	10.511	27.6	15.6	1.08	5941	10.41	1.25
005088084-04	OBS	No	399.027207	147.863092	145.2	8.357	41.6	1.5	1.08	5941	1.56	1.16
005088084-05	OBS	No	382.795502	211.917052	2699.2	12.500	34.3	-1.0	1.08	5941	5.59	1.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005088084-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005088084-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005088084-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_ZUMA—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_FEW_DIFFS
005088084-05	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—EPHEM_MATCH

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

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

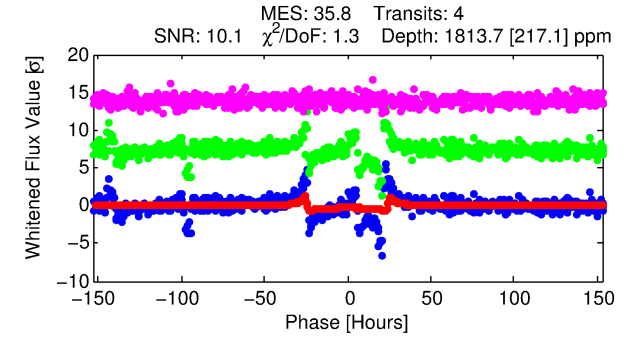
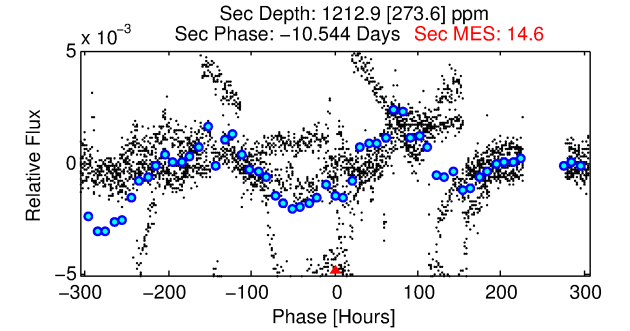
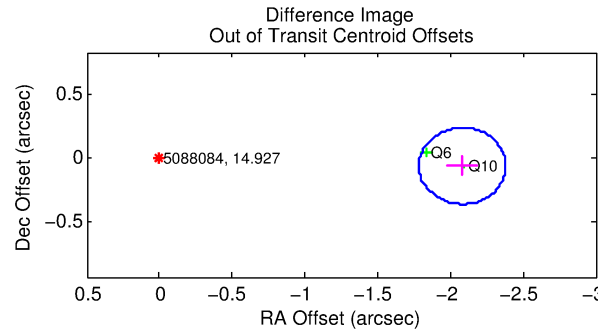
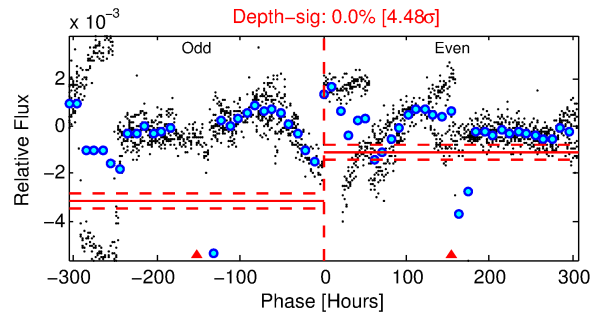
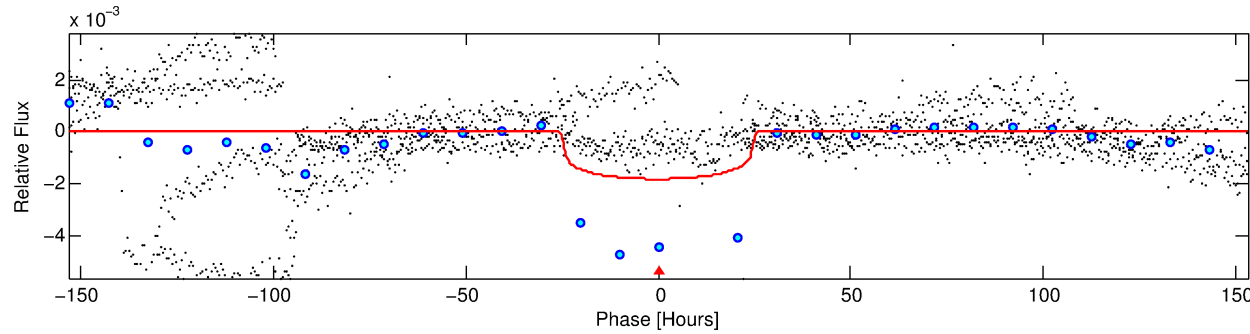
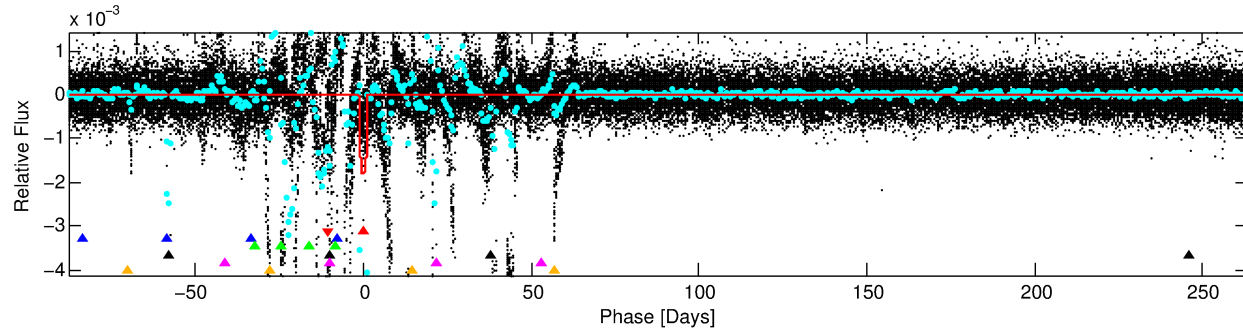
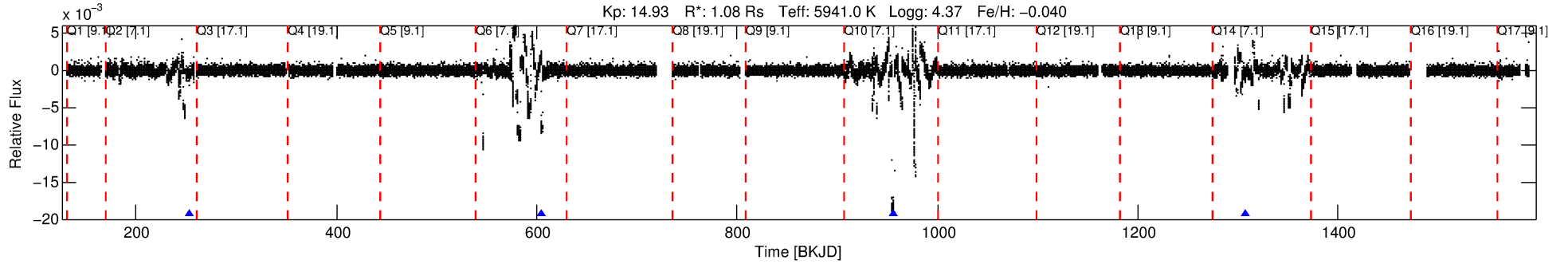
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005088084-01

No Significant Match Found

DV One-Page Summary

KIC: 5088084 Candidate: 1 of 6 Period: 351.305 d



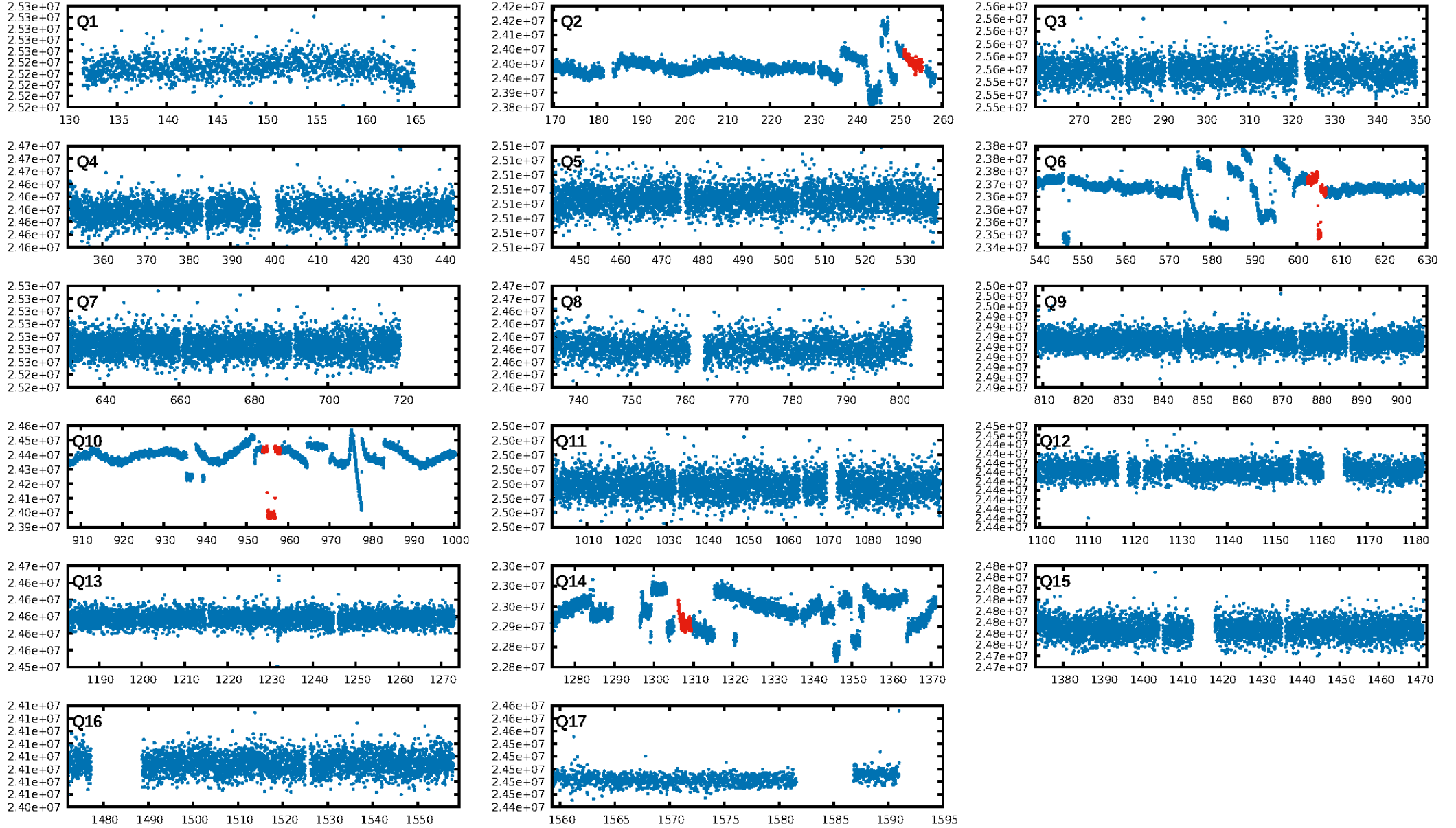
DV Fit Results:

Period = 351.30484 [0.00791] d
Epoch = 253.3353 [0.0150] BKJD
Rp/R* = 0.0388 [0.0032]
a/R* = 54.54 [12.67]
b = 0.00 [538.31]
Seff = 1.37 [0.53]
Teq = 276 [27] K
Rp = 4.58 [1.41] Re
a = 0.9772 [0.2456] AU
Ag = 30399.16 [14025.39] [2.17 σ]
Teffp = 5630 [431] K [12.41 σ]

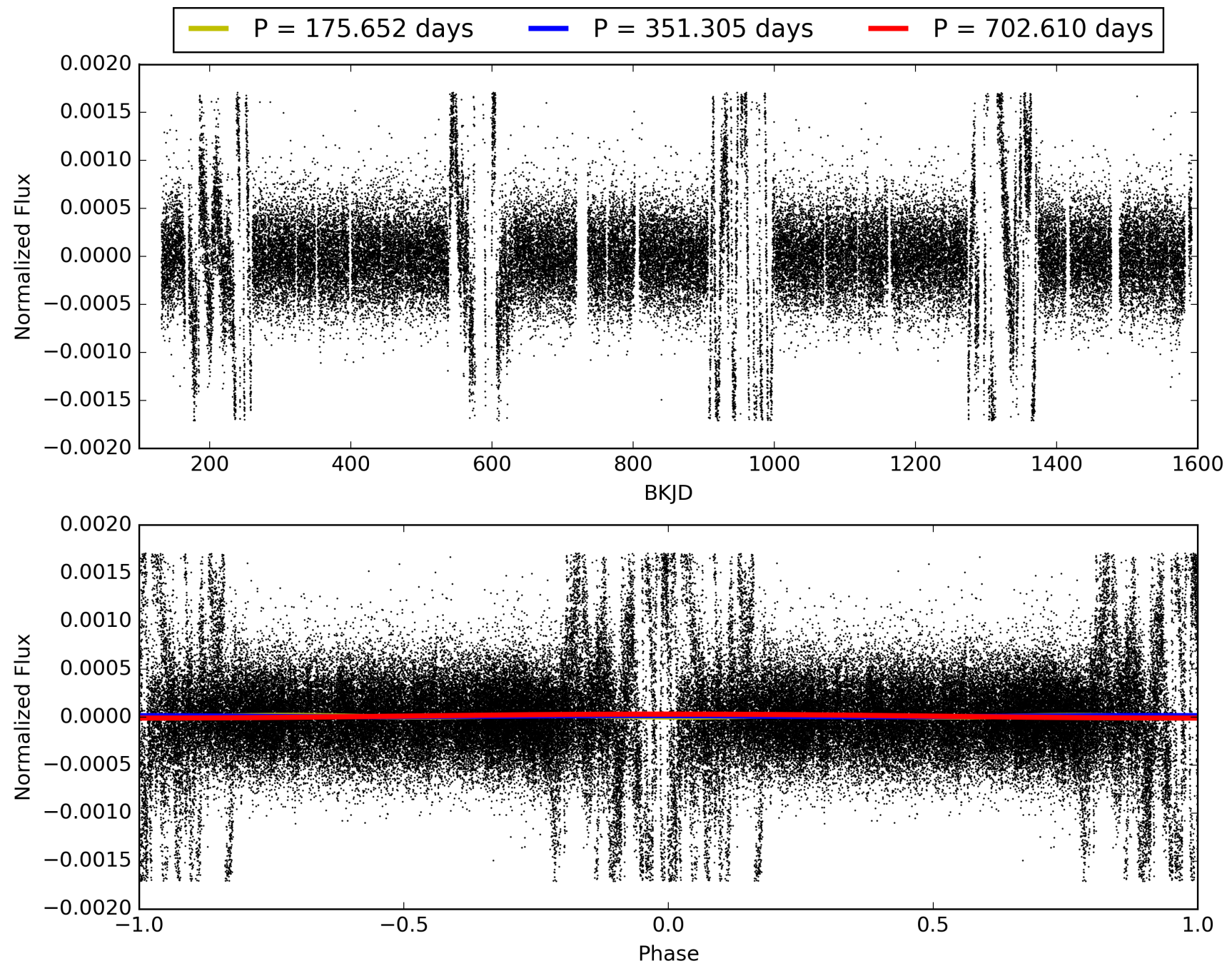
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [3.70 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 93.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.2796
Centroid-sig: 7.0%
Centroid-so: 0.505 arcsec [0.65 σ]
OotOffset-rm: 2.081 arcsec [20.94 σ]
KicOffset-rm: 2.069 arcsec [14.45 σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 005088084-01, PDC Light Curves

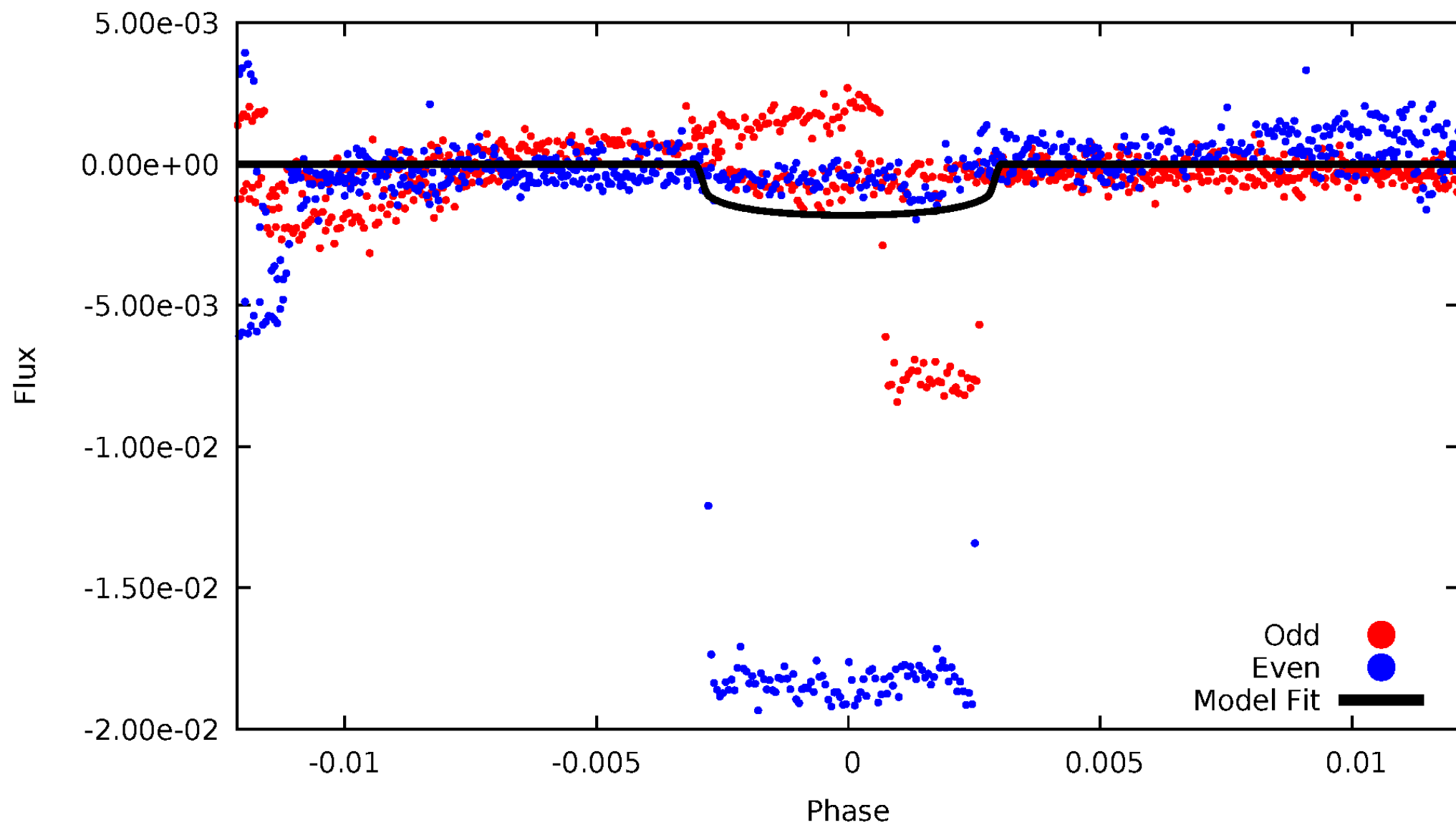


TCE 005088084-01



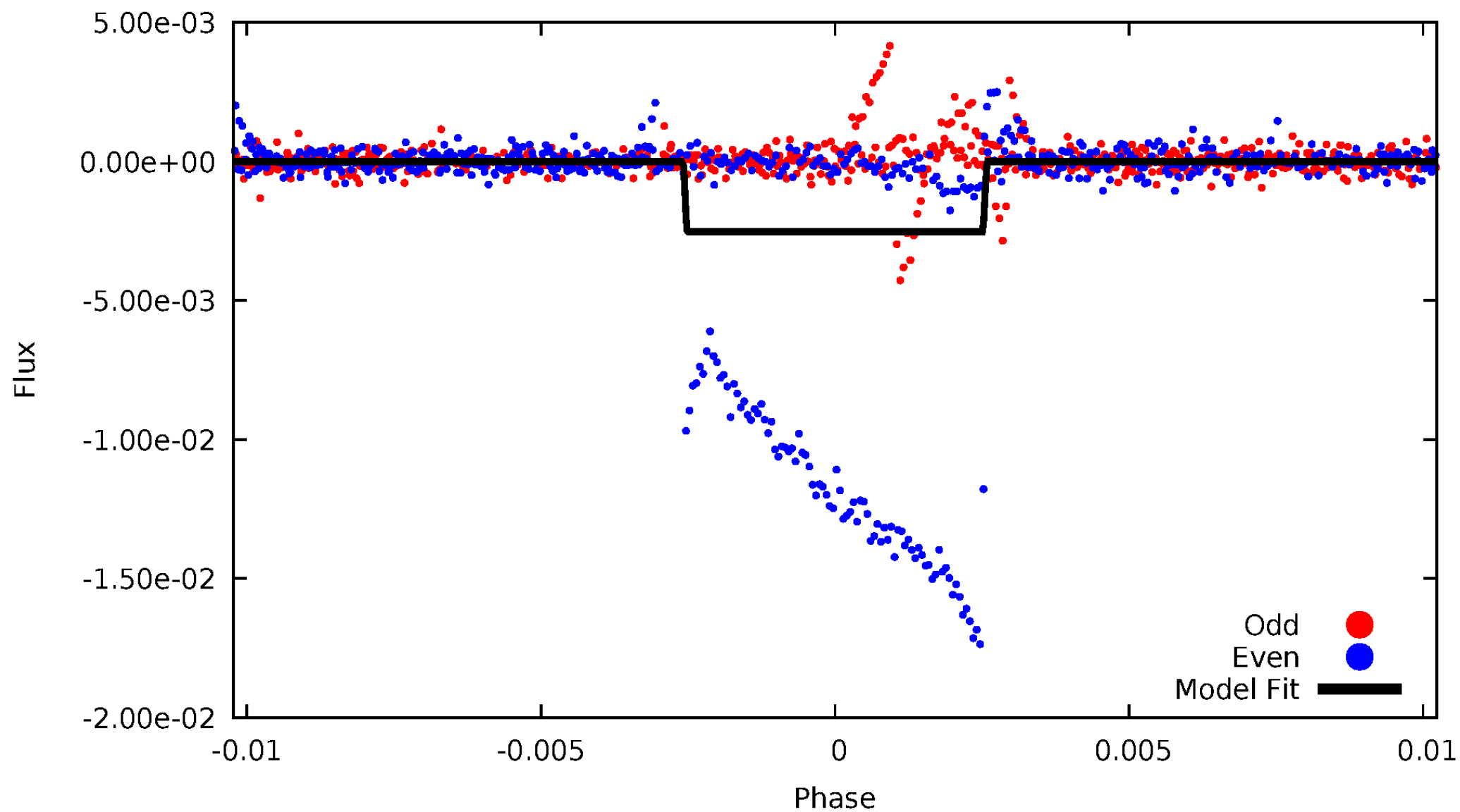
DV Odd/Even

TCE 005088084-01



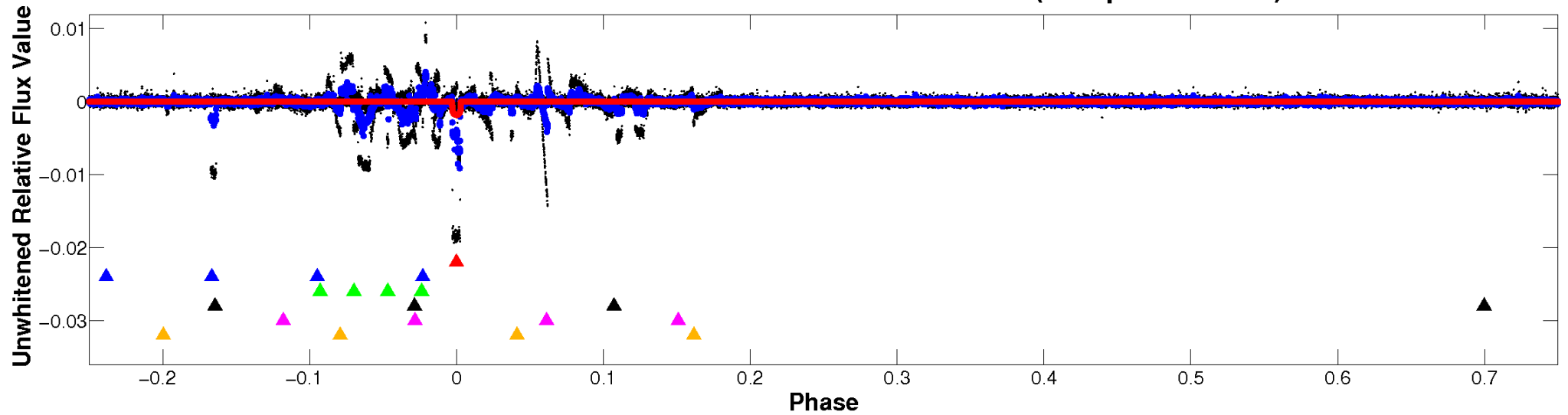
ALT Odd/Even

TCE 005088084-01

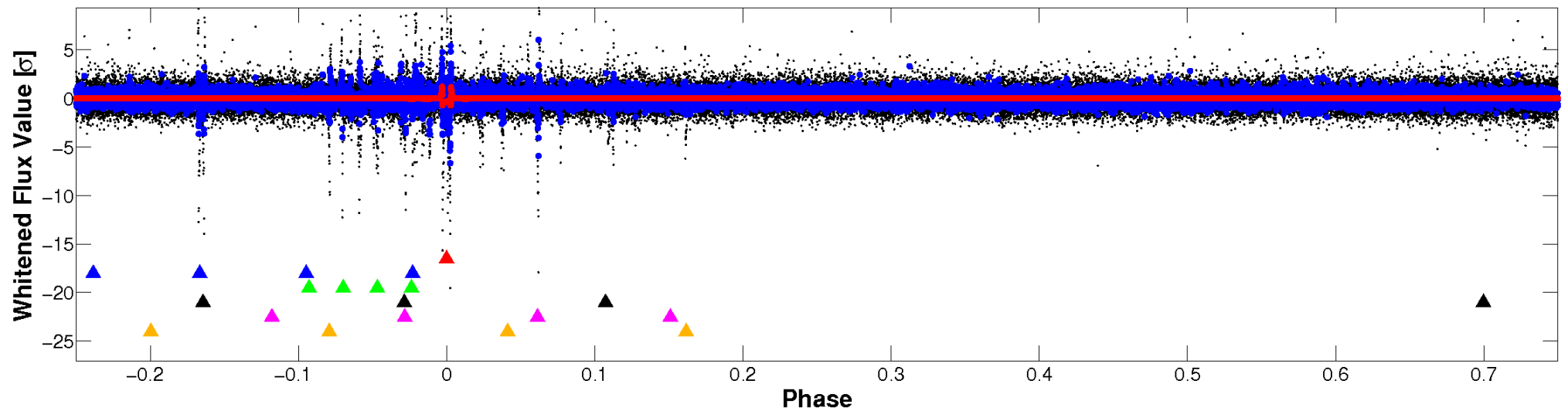


Non-Whitened Vs. Whitened Light Curve

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

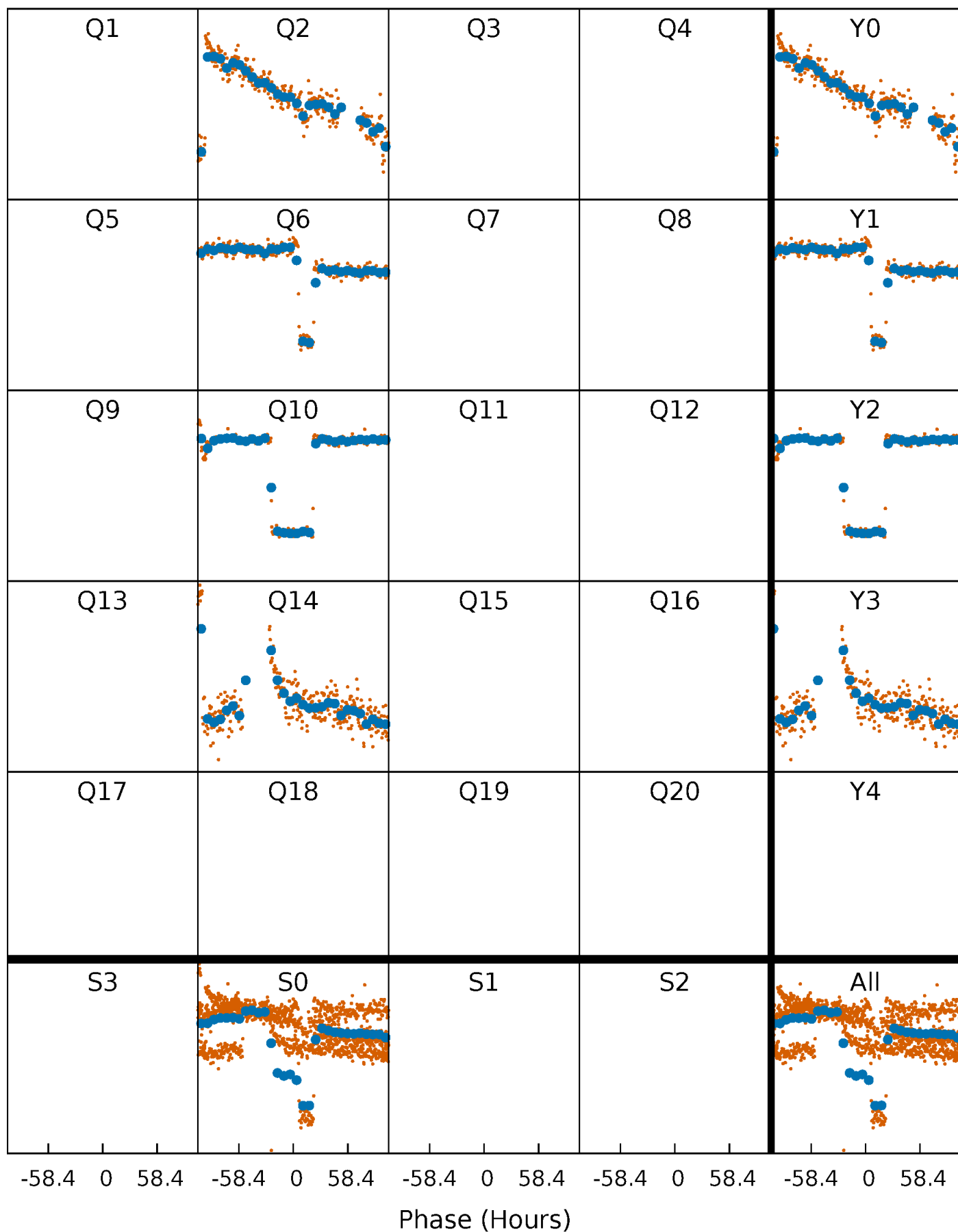


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



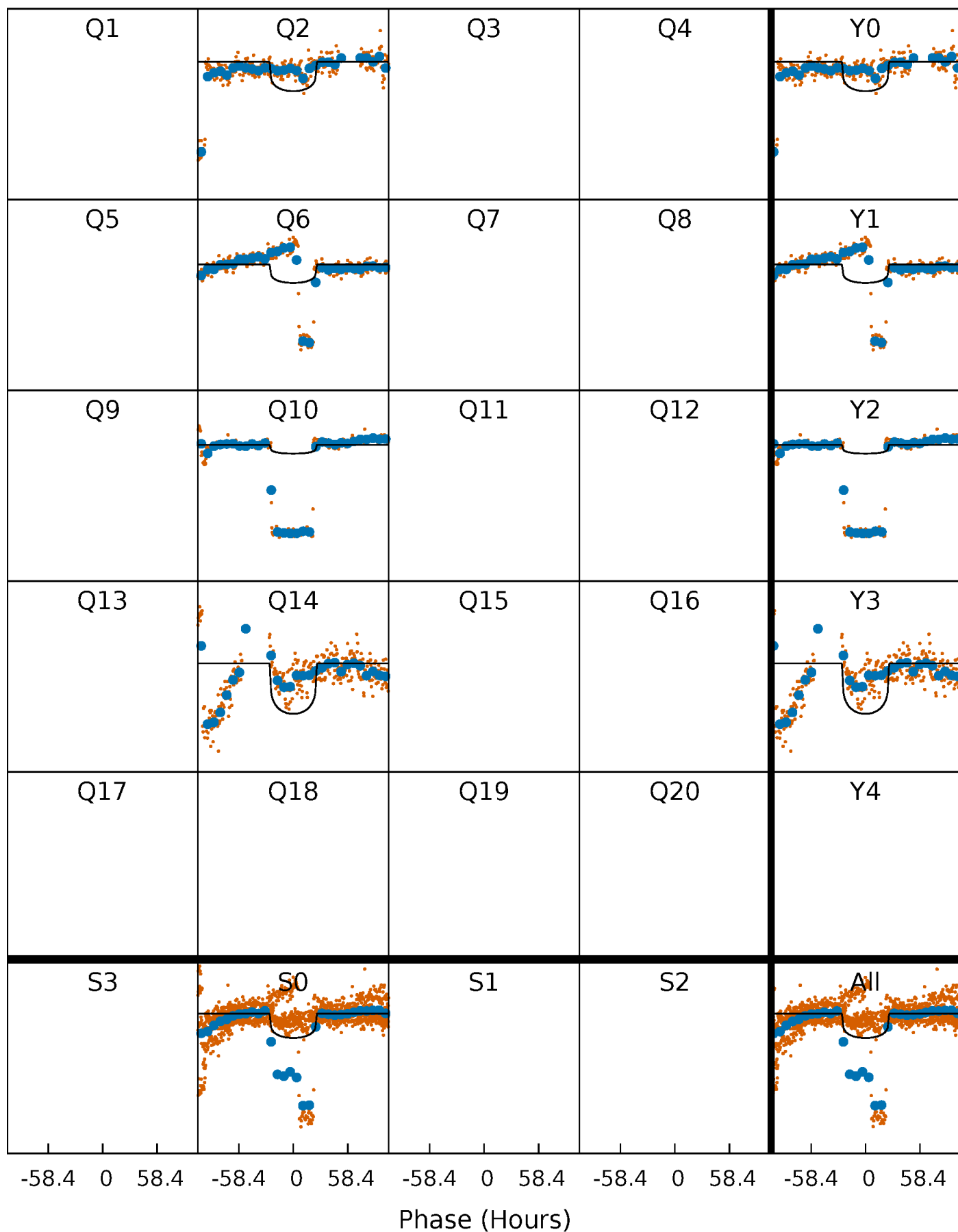
PDC Quarter-Phased Transit Curves

TCE 005088084-01 P=351.304836 Days $T_0=253.335320$ (BKJD)



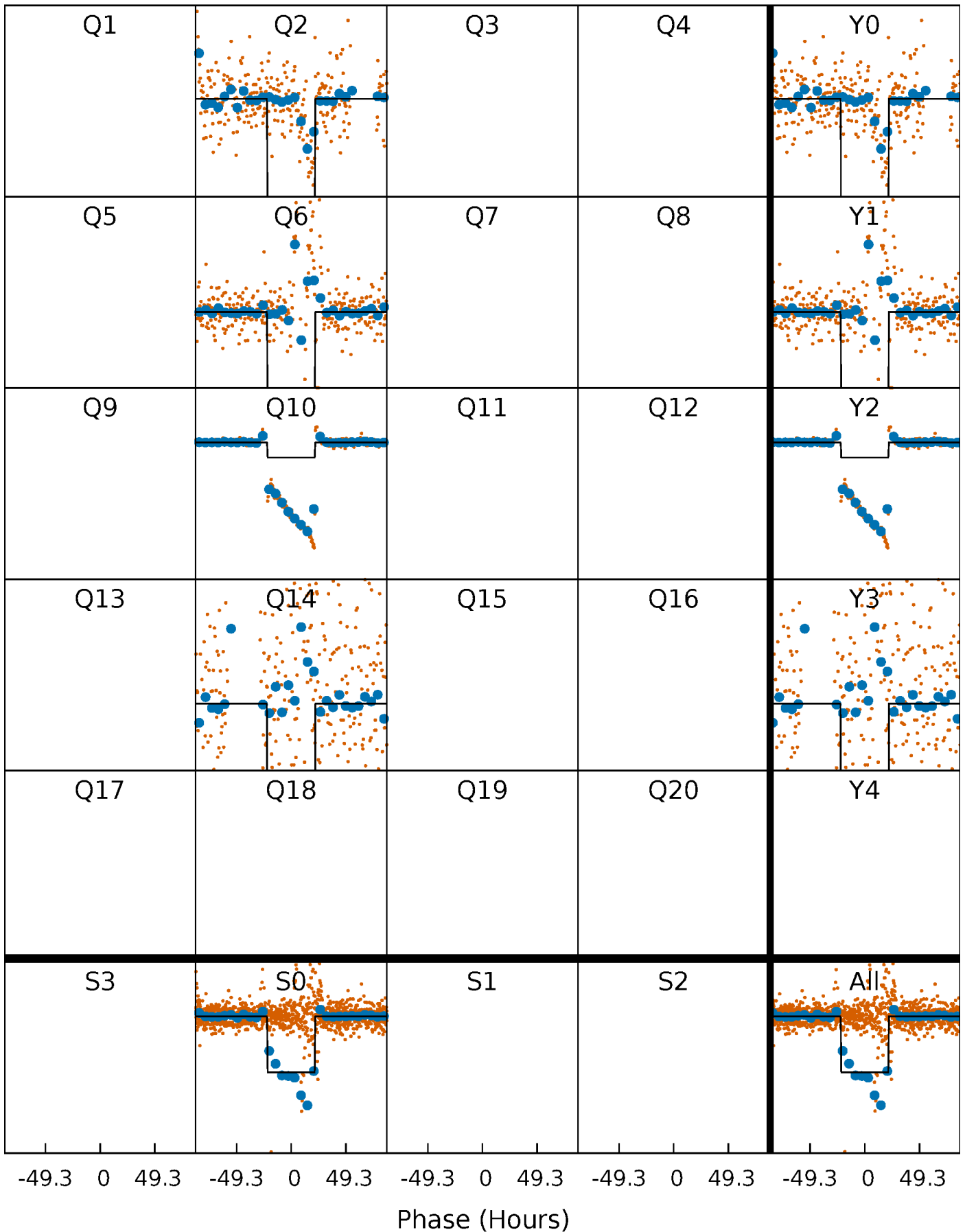
DV Quarter-Phased Transit Curves

TCE 005088084-01 P=351.304836 Days $T_0=253.335320$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

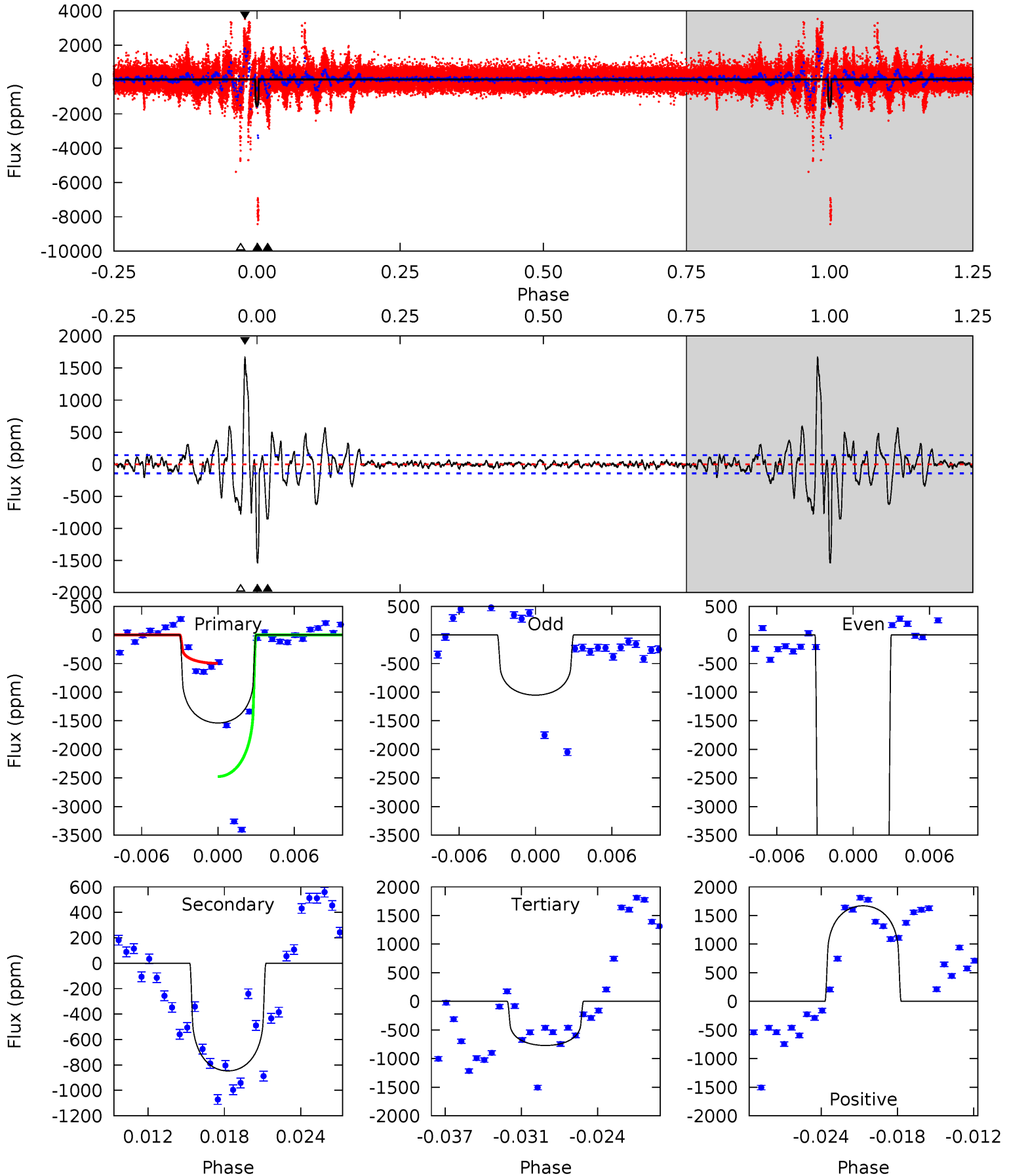
TCE 005088084-01 P=351.409554 Days $T_0=253.121048$ (BKJD)



DV Model-Shift Uniqueness Test

005088084-01, P = 351.304836 Days, E = 253.335320 Days

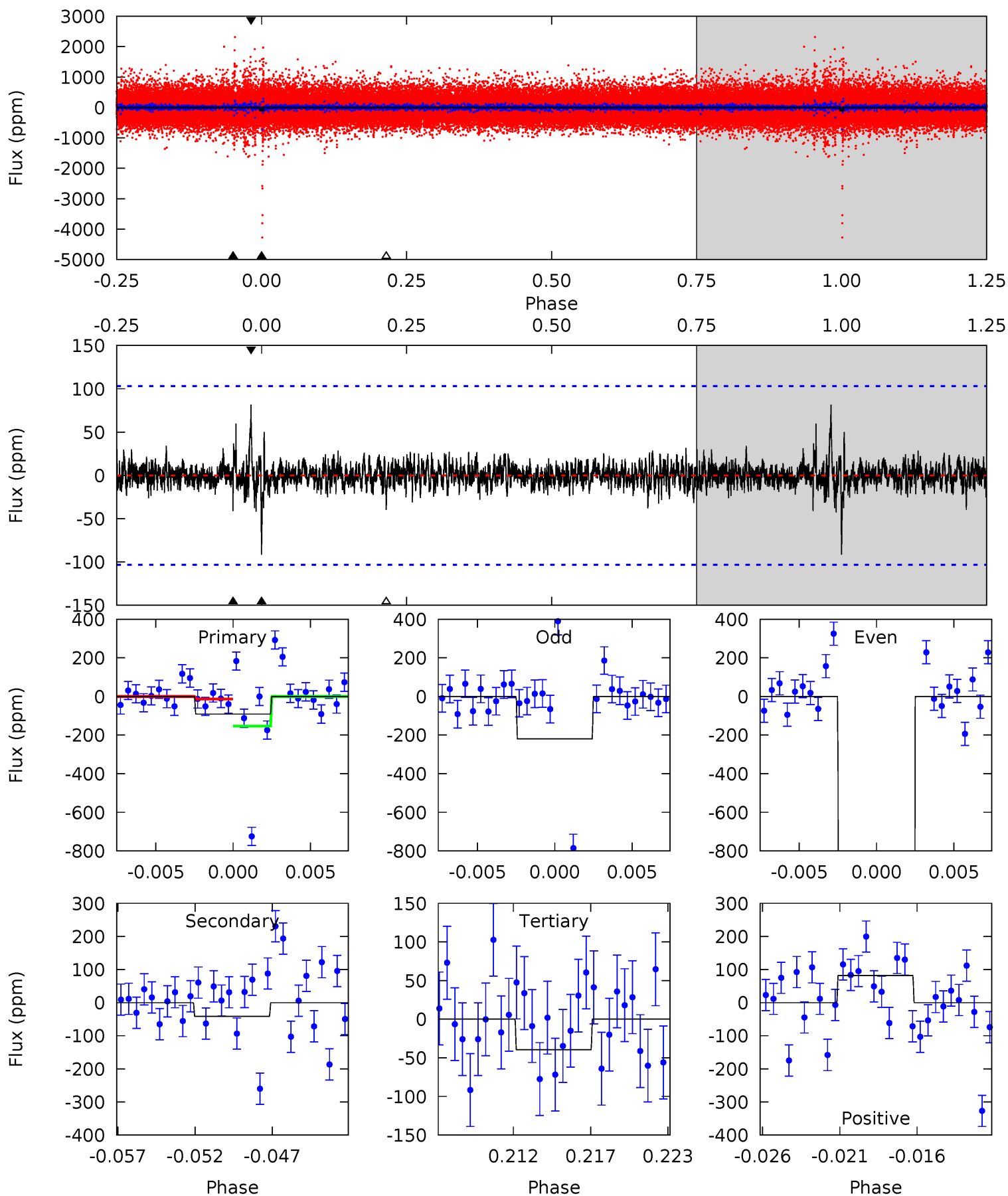
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
55.3	30.5	27.7	60.1	5.12	2.74	6.58	27.6	-4.72	2.74	-29.6	106.1	4.71	0.52	0



Alt Model-Shift Uniqueness Test

005088084-01, P = 351.409554 Days, E = 253.121048 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.56	2.06	1.98	4.08	5.15	2.80	0.51	2.58	0.48	0.08	-2.02	167.5	53.1	0.47	3.47



Stellar Parameters For KIC 005088084

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5941^{+164}_{-184}	$4.373^{+0.124}_{-0.201}$	$-0.040^{+0.250}_{-0.300}$	$1.082^{+0.322}_{-0.173}$	$1.009^{+0.152}_{-0.110}$	$1.122^{+0.550}_{-0.590}$
	+3%/-3%	+3%/-5%	+625%/-750%	+30%/-16%	+15%/-11%	+49%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005088084-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-847 ± 28	$4.67^{+0.86}_{-0.64}$	388^{+31}_{-23}	5190^{+269}_{-211}	20513^{+6563}_{-5587}
Alt.	-41 ± 20	$6.07^{+0.96}_{-0.79}$	388^{+27}_{-22}	2830^{+191}_{-252}	561^{+370}_{-295}

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 $A_{obs} \gg 1.0$

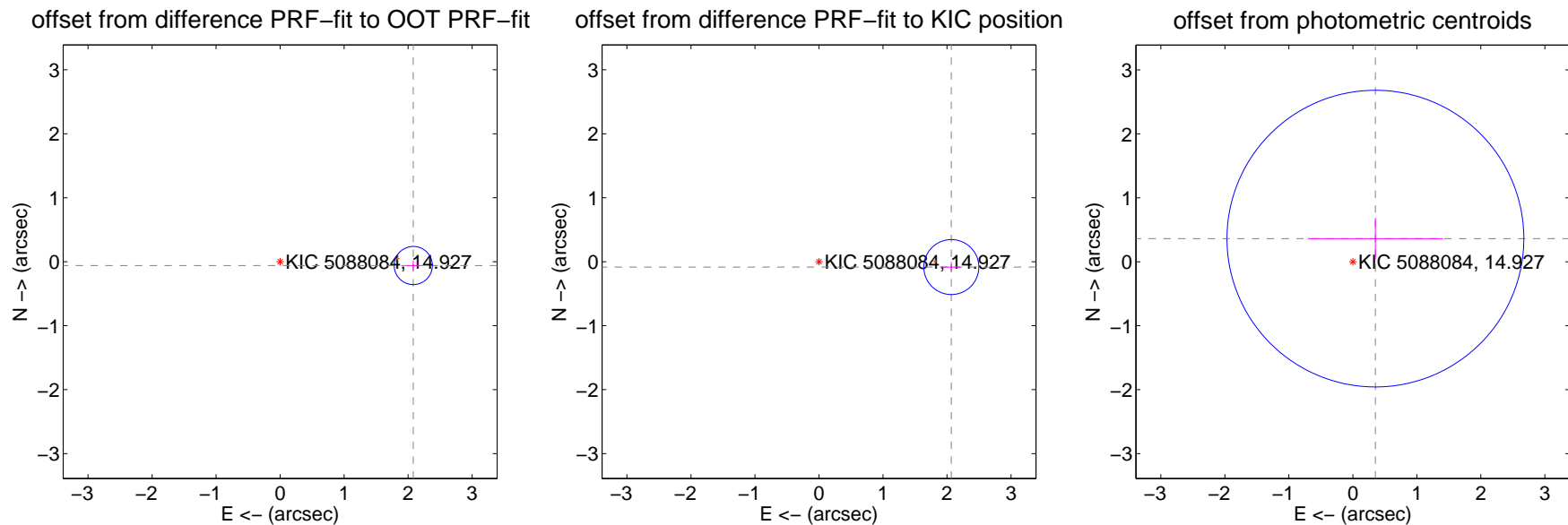
DV Centroid Data

Supplemental centroid analysis for 005088084-01. Kepler magnitude: 14.93. Transit SNR 10.15

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.081 ± 0.099	20.94	-2.081 ± 0.099	-0.060 ± 0.074
PRF-fit source offset from KIC position	2.069 ± 0.143	14.45	-2.067 ± 0.142	-0.084 ± 0.079
photometric centroid source offset	0.51 ± 0.77	0.65	-0.35 ± 1.06	0.36 ± 0.32



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.

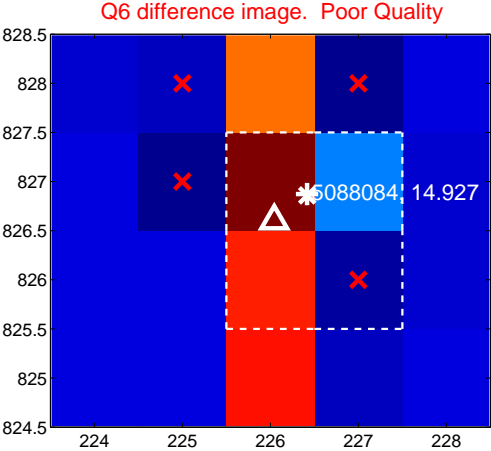
Q5 no difference image



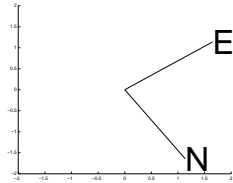
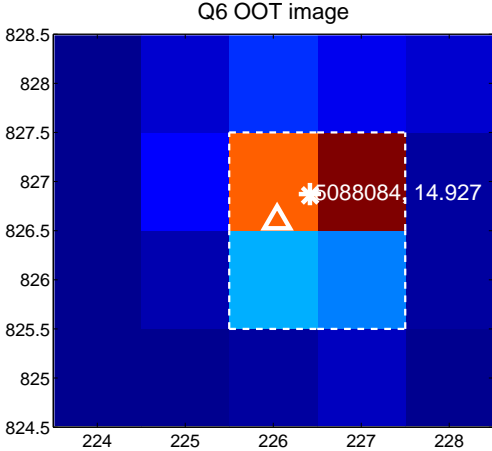
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



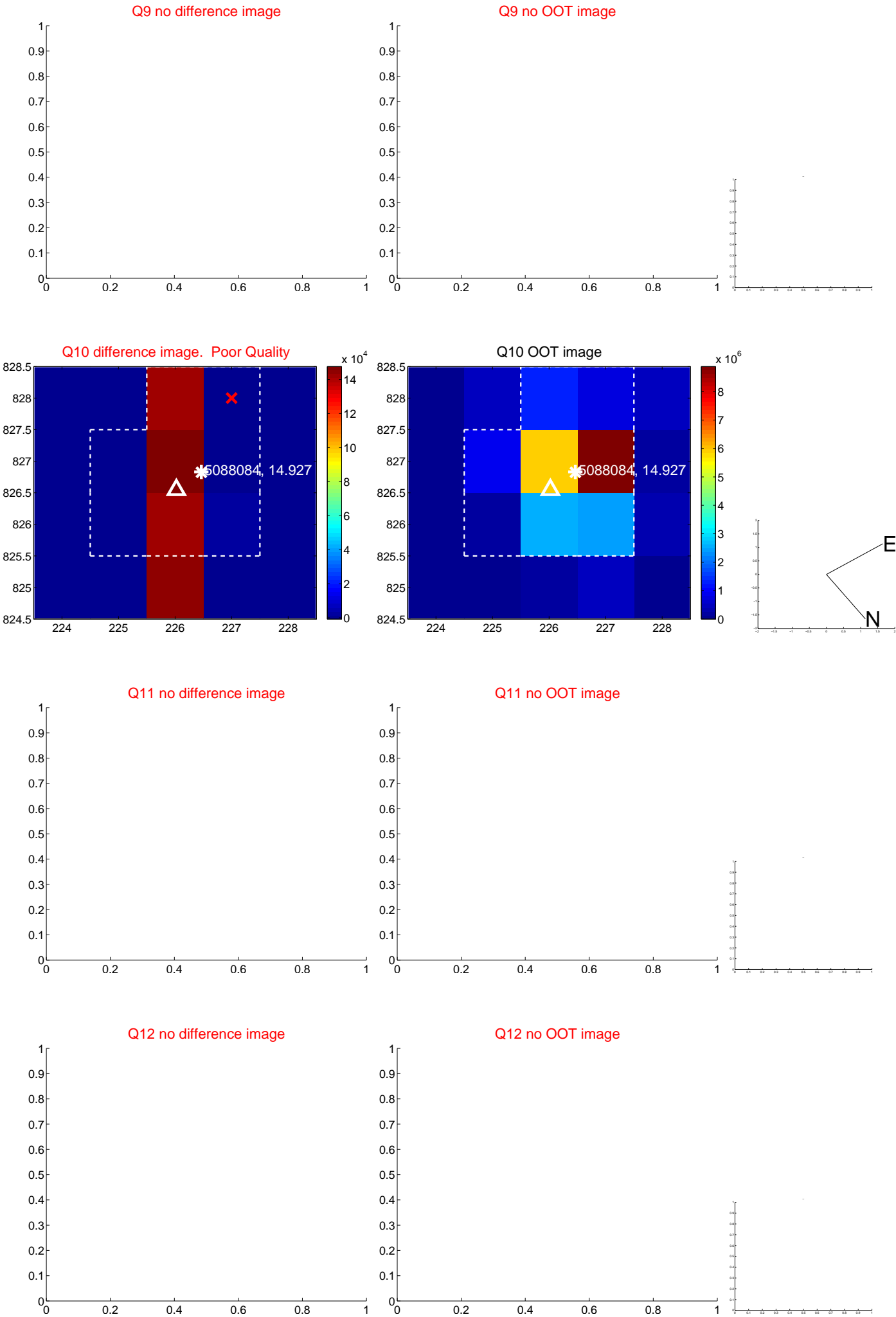
Q8 no difference image



Q8 no OOT image



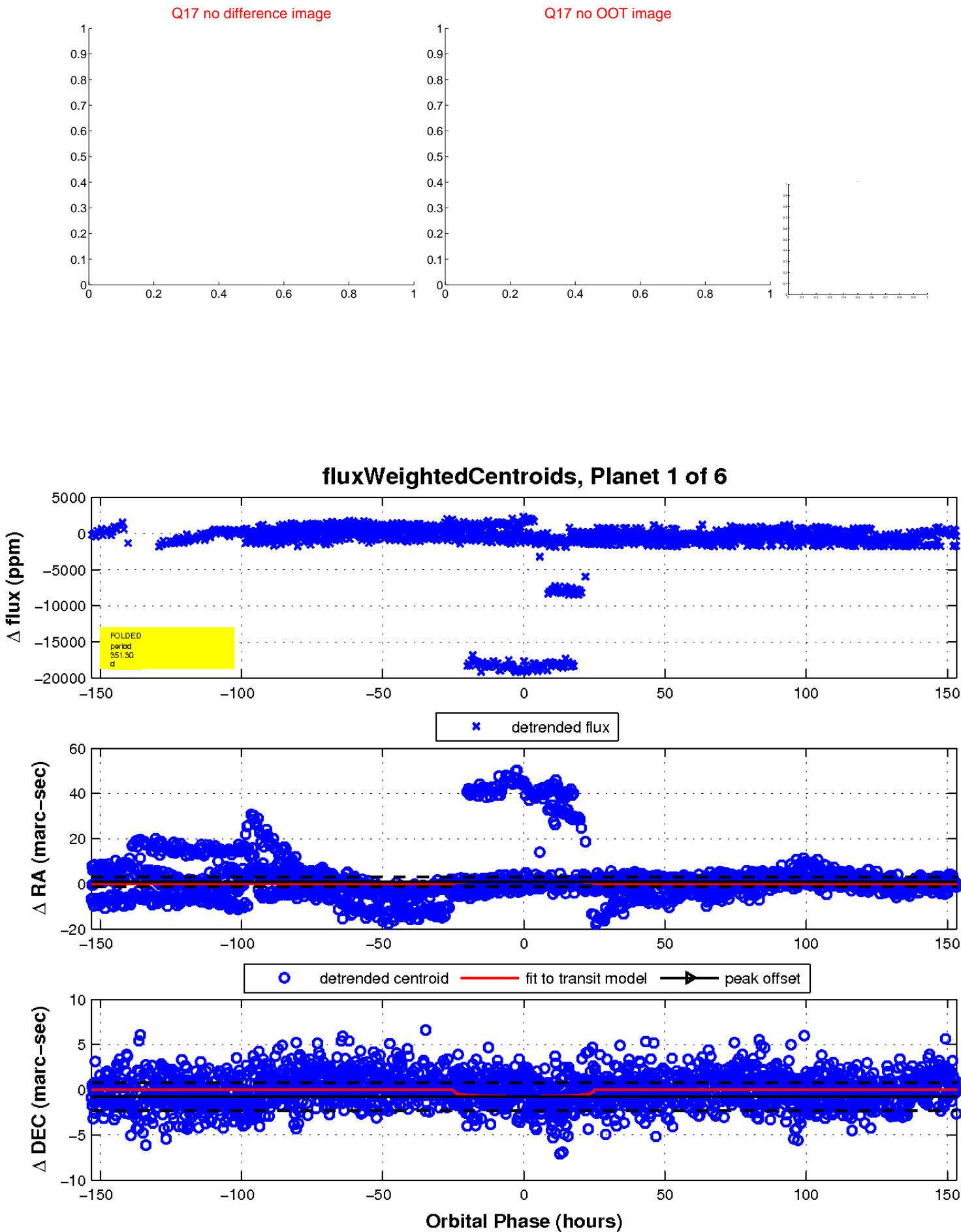
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

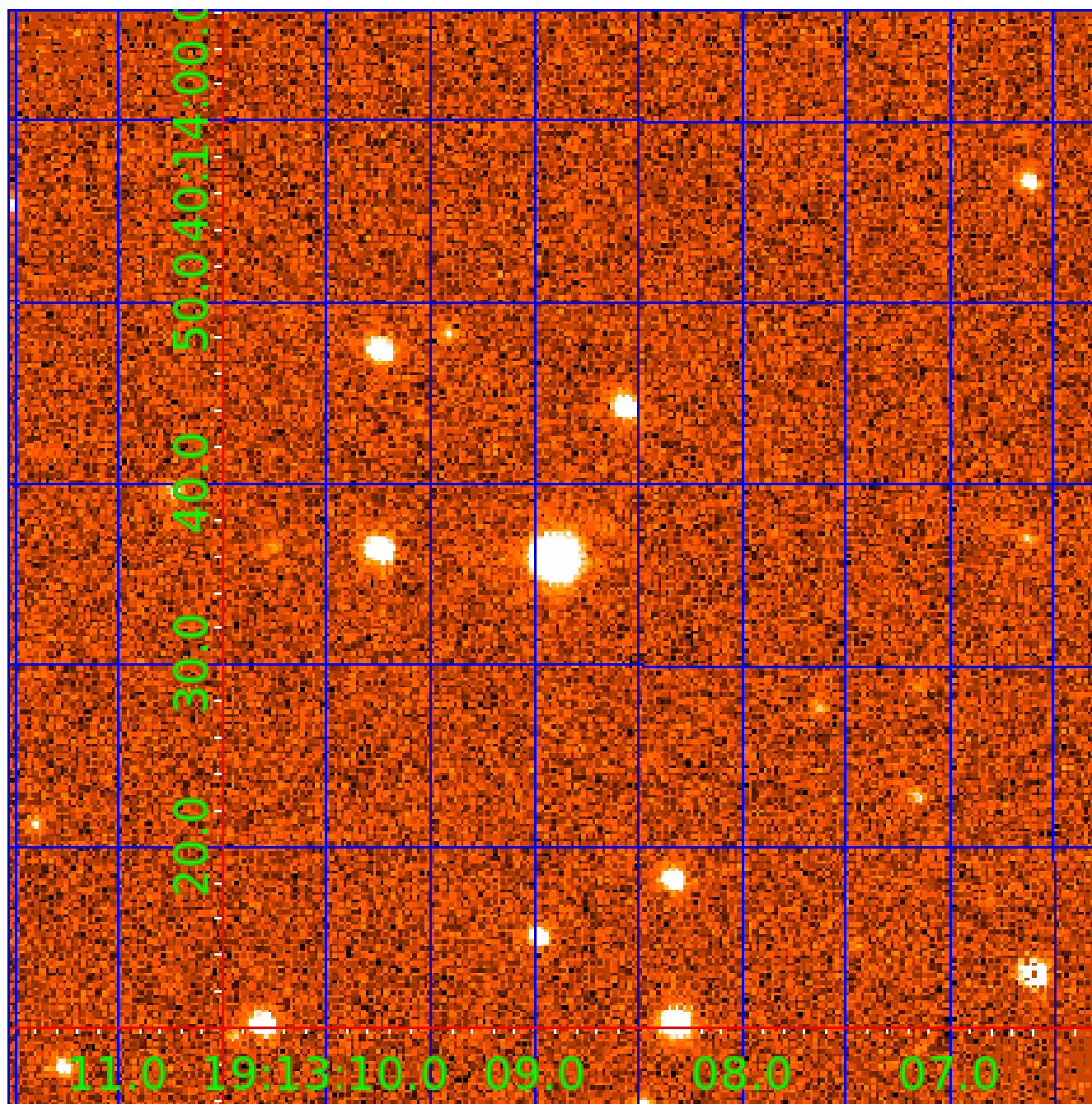


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005088084

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})
005088084-01	OBS	No	351.304836	253.335320	1813.7	51.121	35.8	10.1	1.08	5941	4.58	1.37
005088084-02	OBS	No	376.541510	169.573401	2638.7	10.511	27.6	15.6	1.08	5941	10.41	1.25
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005088084-05	OBS	No	382.795502	211.917052	2699.2	12.500	34.3	-1.0	1.08	5941	5.59	1.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005088084-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005088084-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005088084-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_ZUMA—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_FEW_DIFFS
005088084-05	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—EPHEM_MATCH

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

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

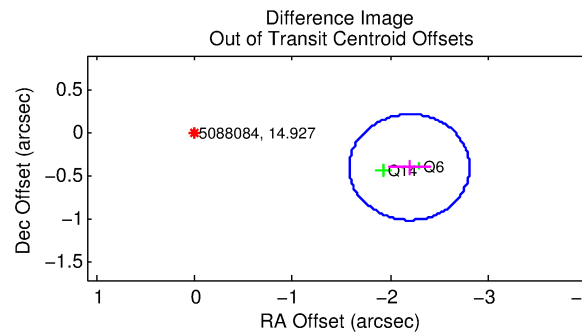
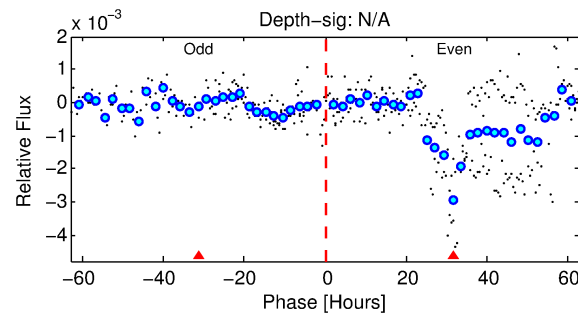
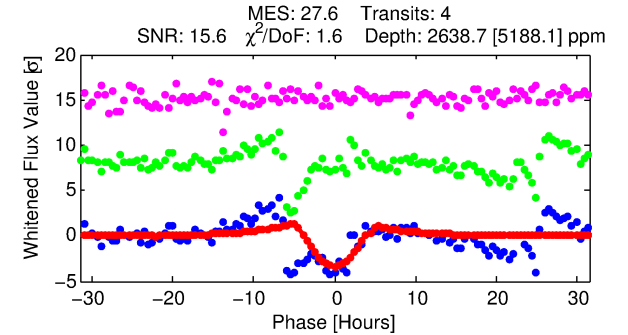
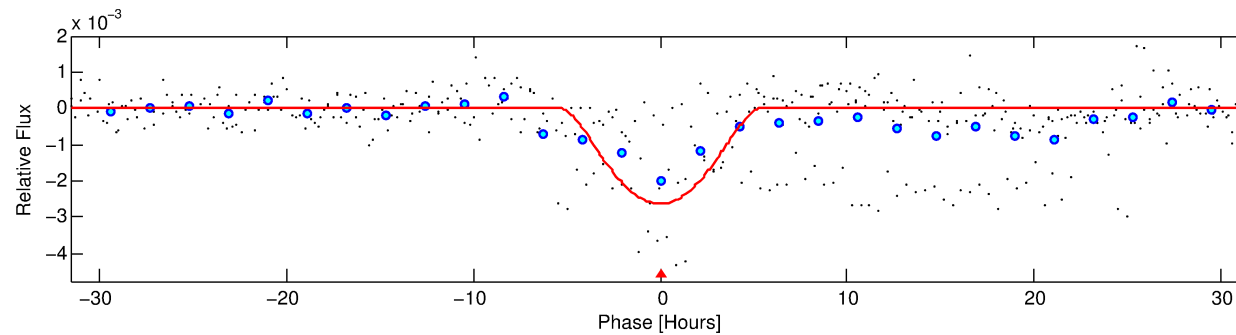
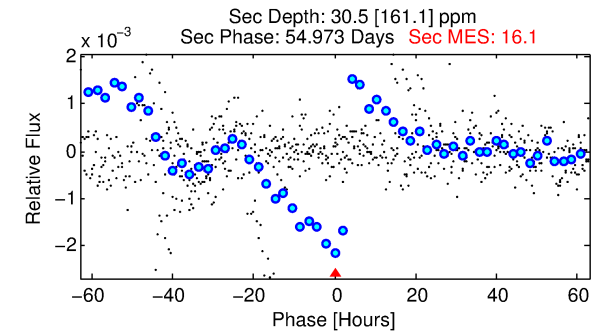
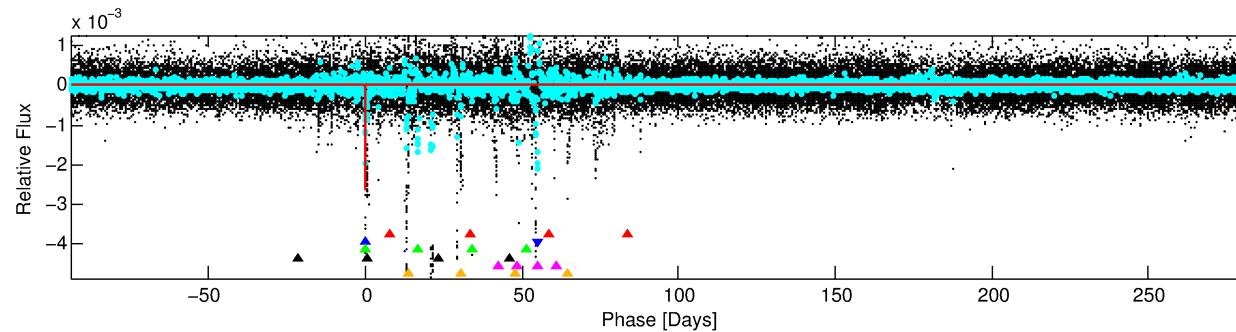
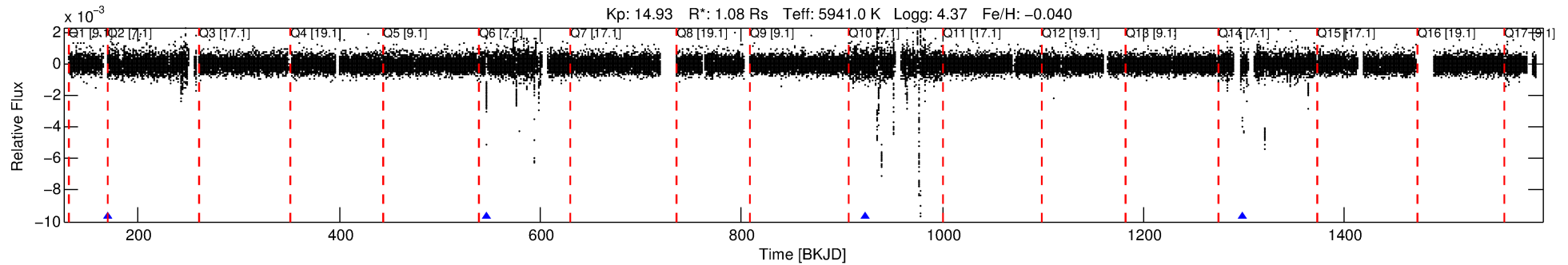
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005088084-02

No Significant Match Found

DV One-Page Summary

KIC: 5088084 Candidate: 2 of 6 Period: 376.542 d



DV Fit Results:

Period = 376.54151 [0.00838] d
Epoch = 169.5734 [0.0167] BKJD
Rp/R* = 0.0882 [0.1859]
a/R* = 117.46 [50.93]
b = 1.00 [0.15]
Seff = 1.25 [0.48]
Teq = 269 [26] K
Rp = 10.41 [22.16] Re
a = 1.0234 [0.2572] AU
Ag = 162.14 [1096.71] [0.15σ]
Teffp = 1487 [2511] K [0.48σ]

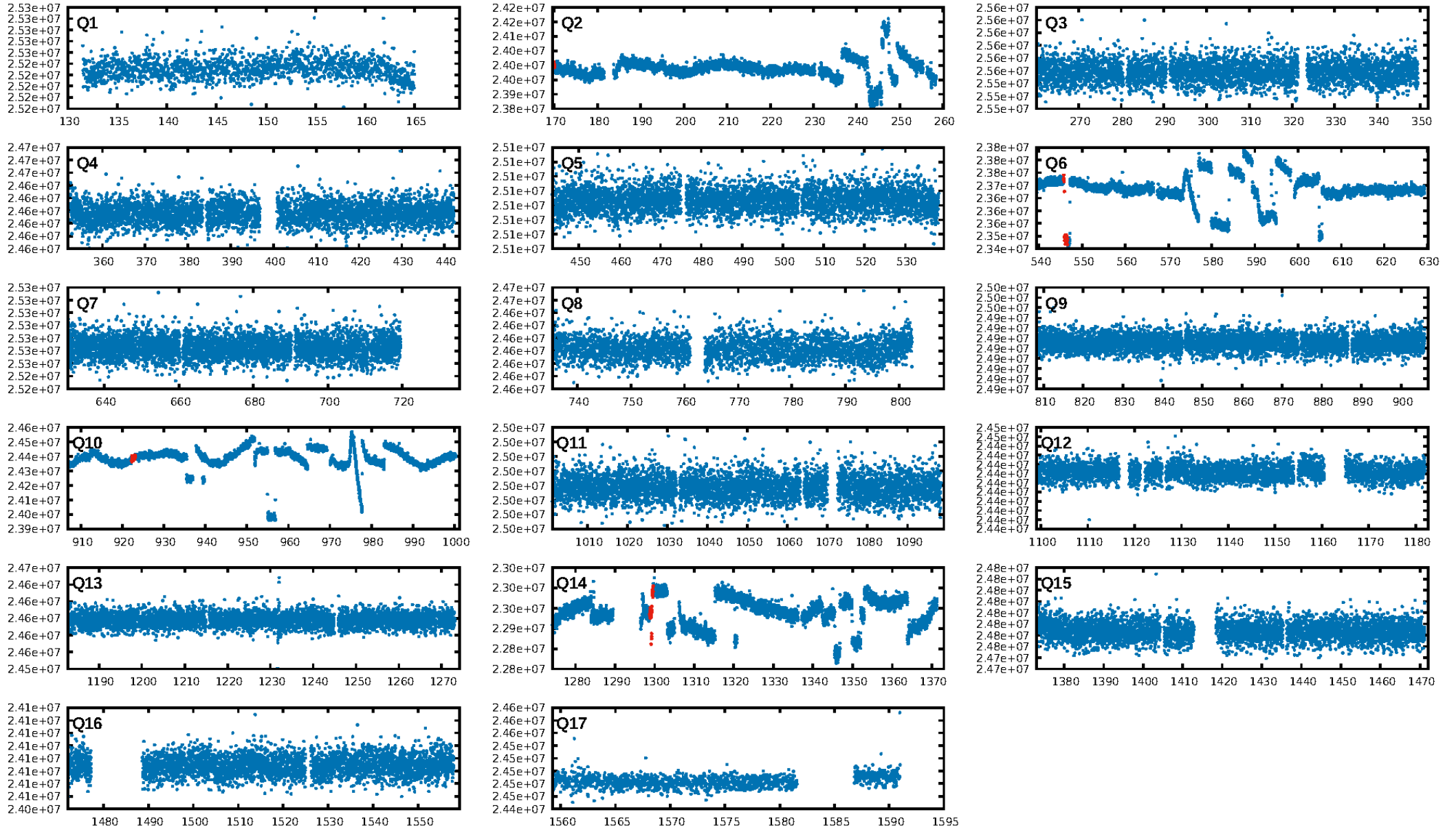
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.91σ]
LongPeriod-sig: 100.0% [9.19σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 16.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.6906
Centroid-sig: 5.8%
Centroid-so: 0.882 arcsec [1.30σ]
OotOffset-rm: 2.231 arcsec [10.91σ]
KicOffset-rm: 2.244 arcsec [13.48σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.33 [1/3]

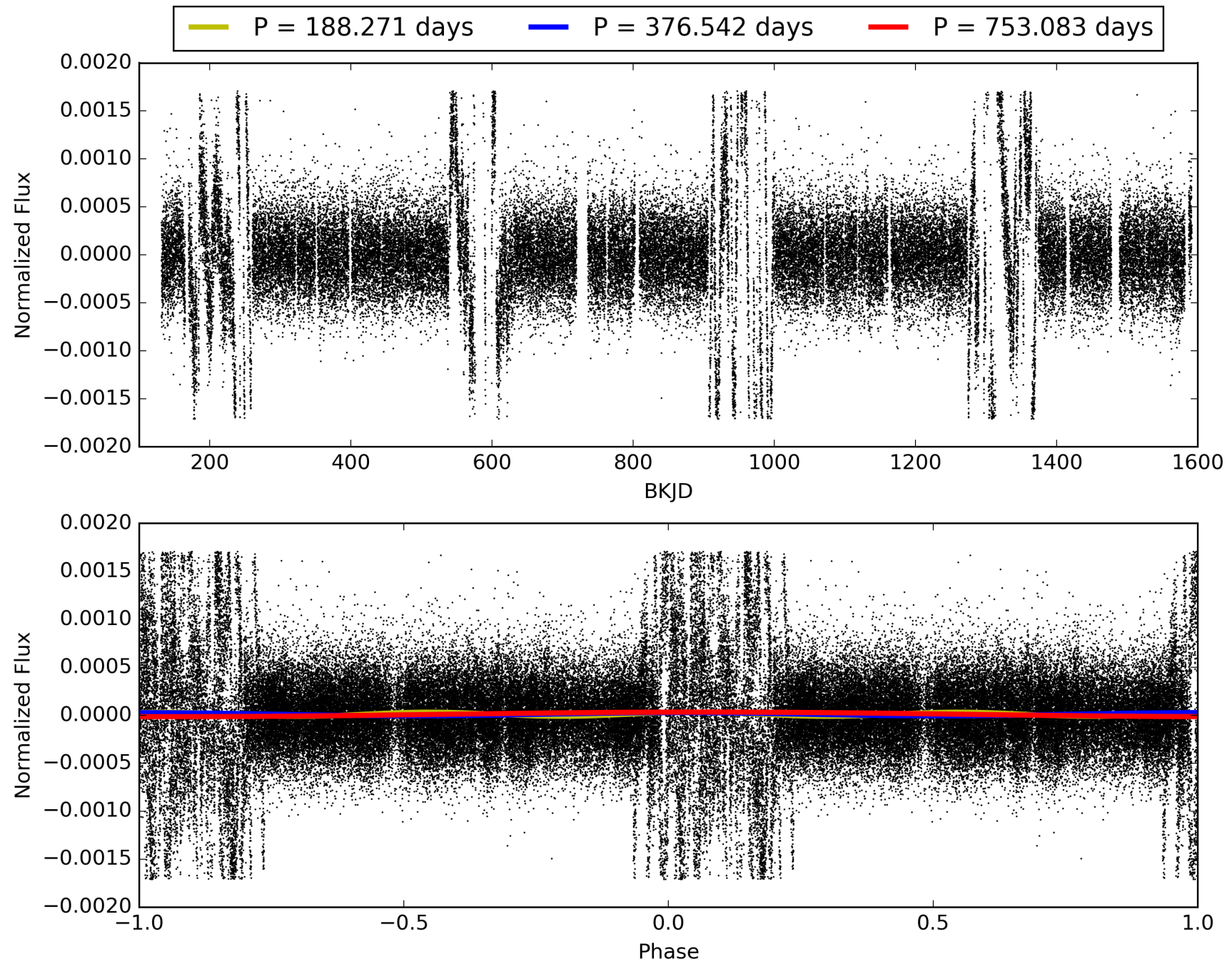
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005088084-02, PDC Light Curves

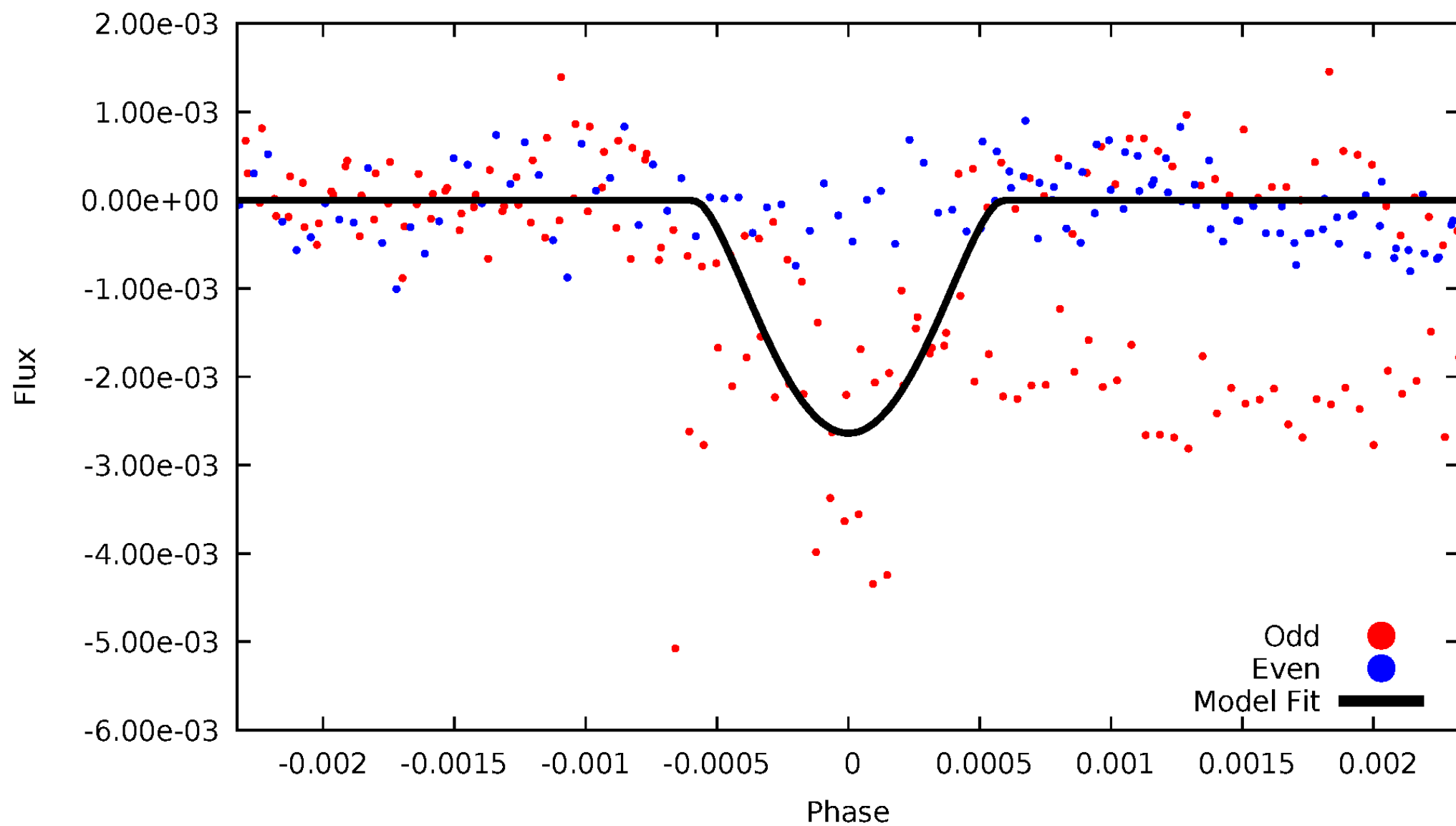


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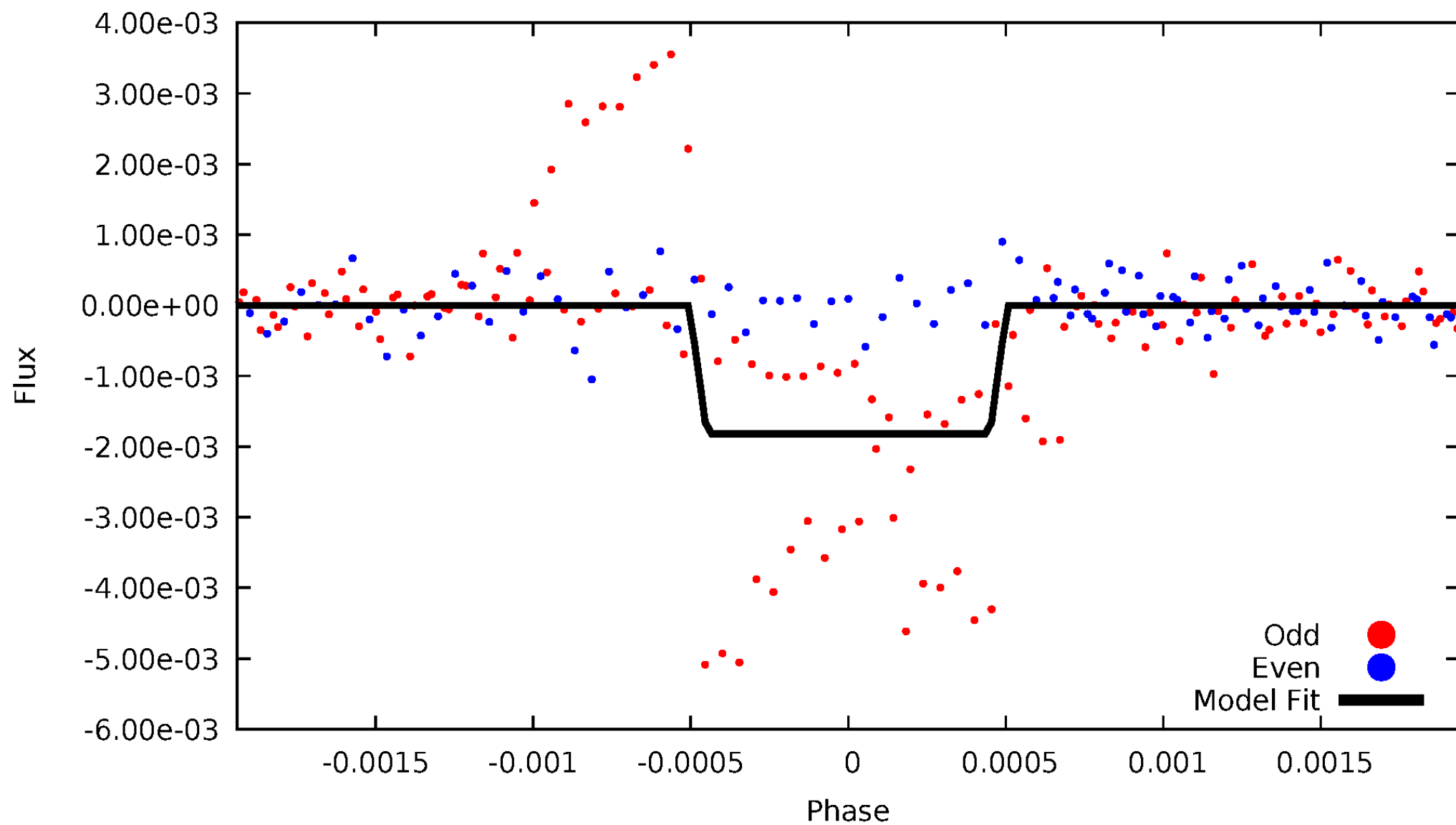
DV Odd/Even

TCE 005088084-02



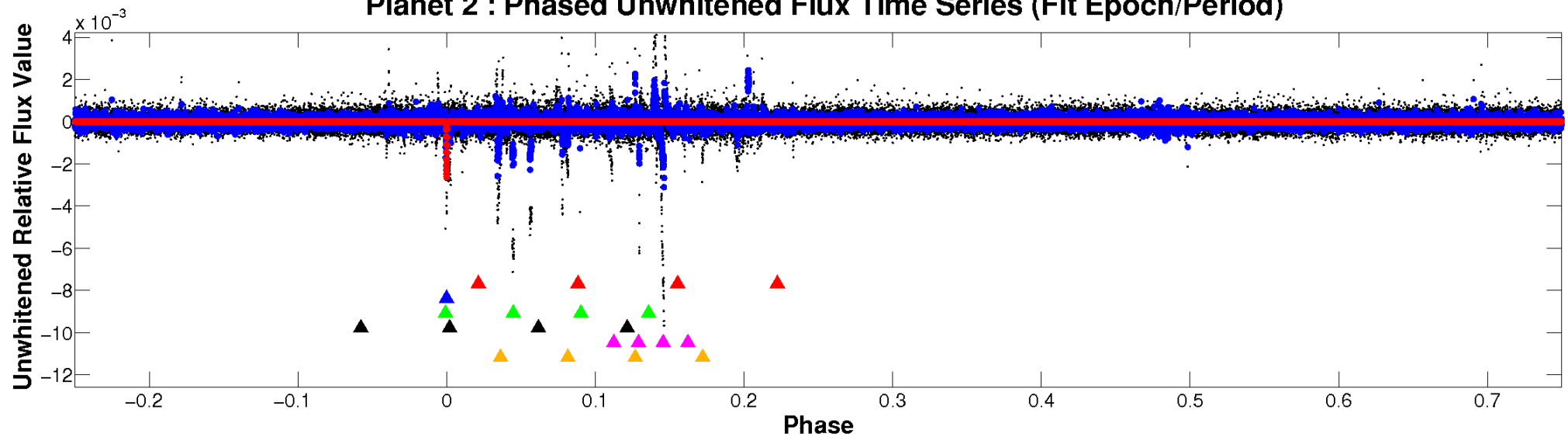
ALT Odd/Even

TCE 005088084-02

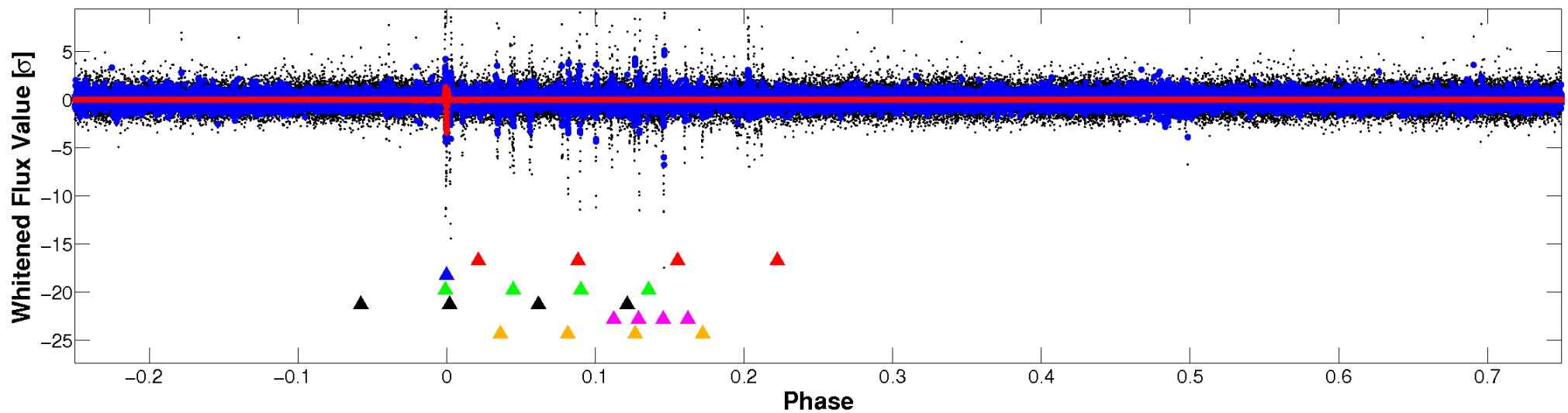


Non-Whitened Vs. Whitened Light Curve

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

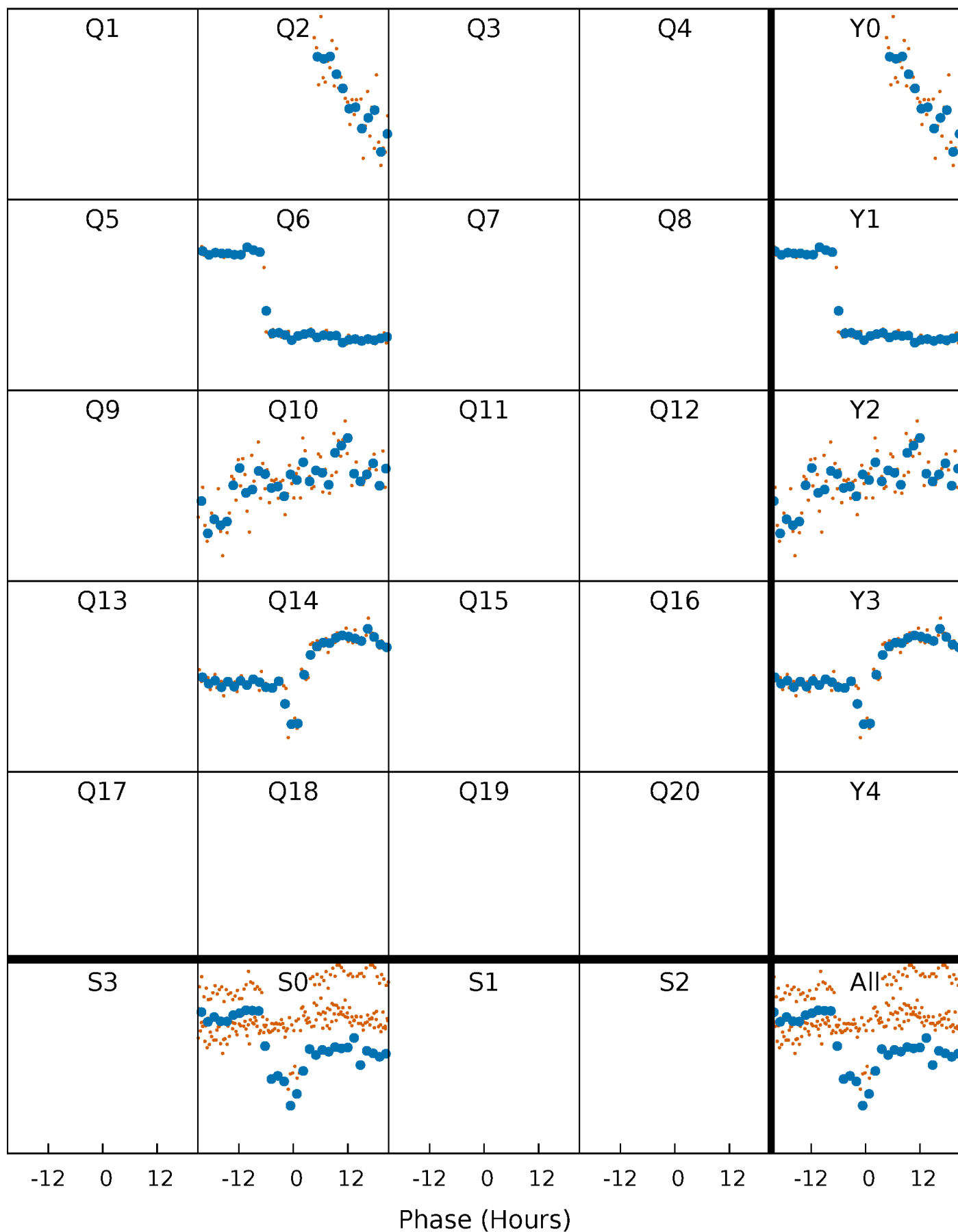


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



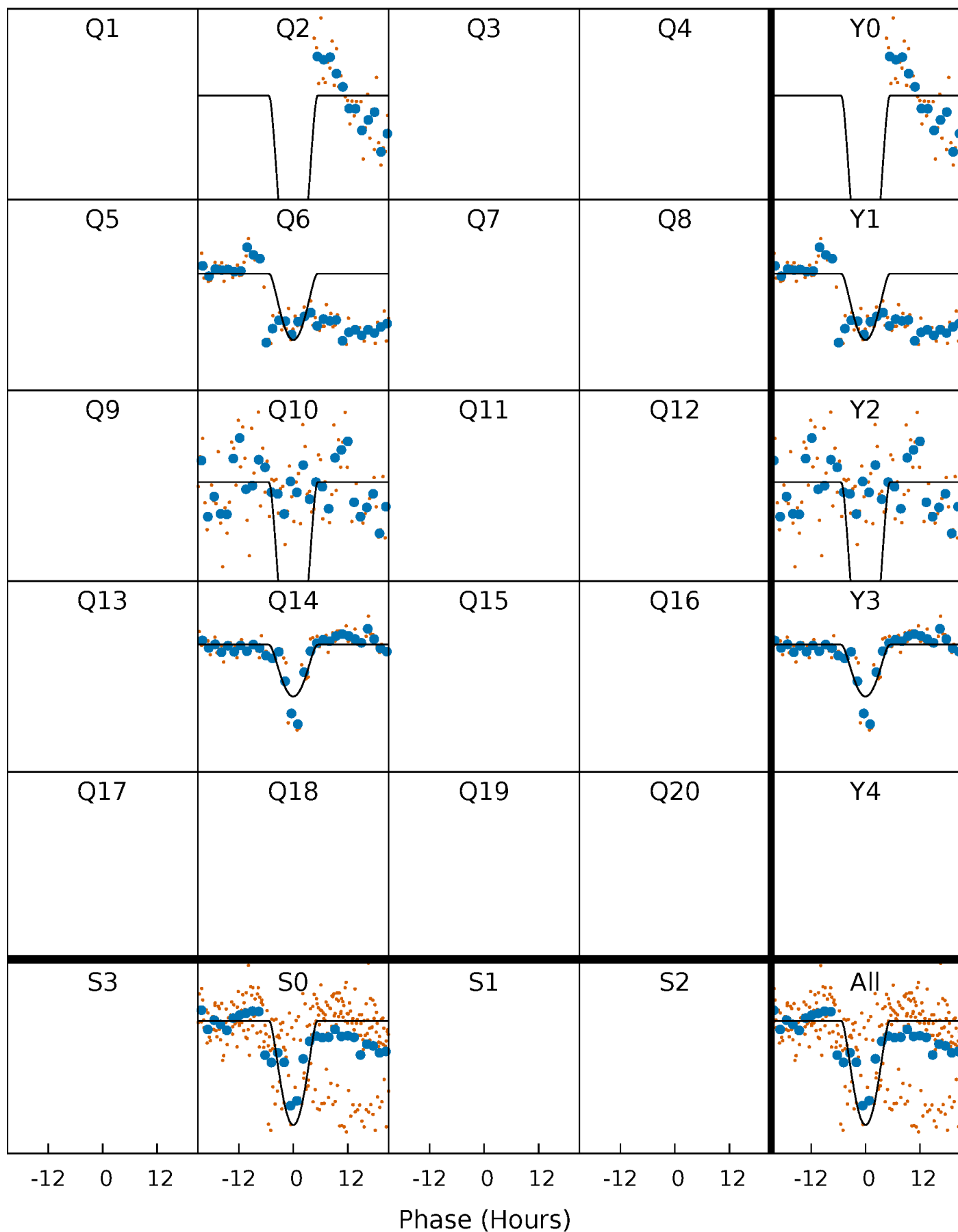
PDC Quarter-Phased Transit Curves

TCE 005088084-02 P=376.541510 Days $T_0=169.573401$ (BKJD)



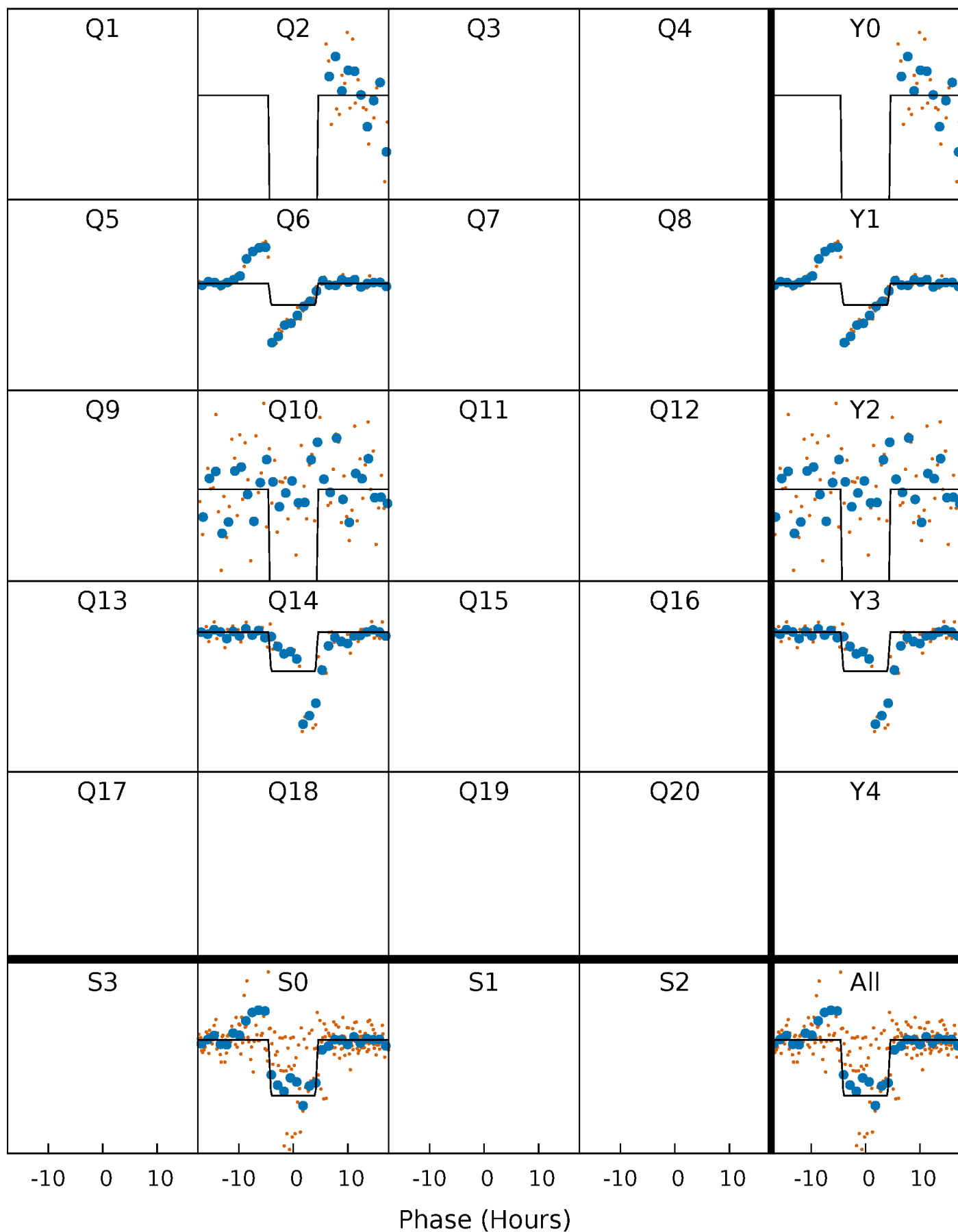
DV Quarter-Phased Transit Curves

TCE 005088084-02 P=376.541510 Days $T_0=169.573401$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

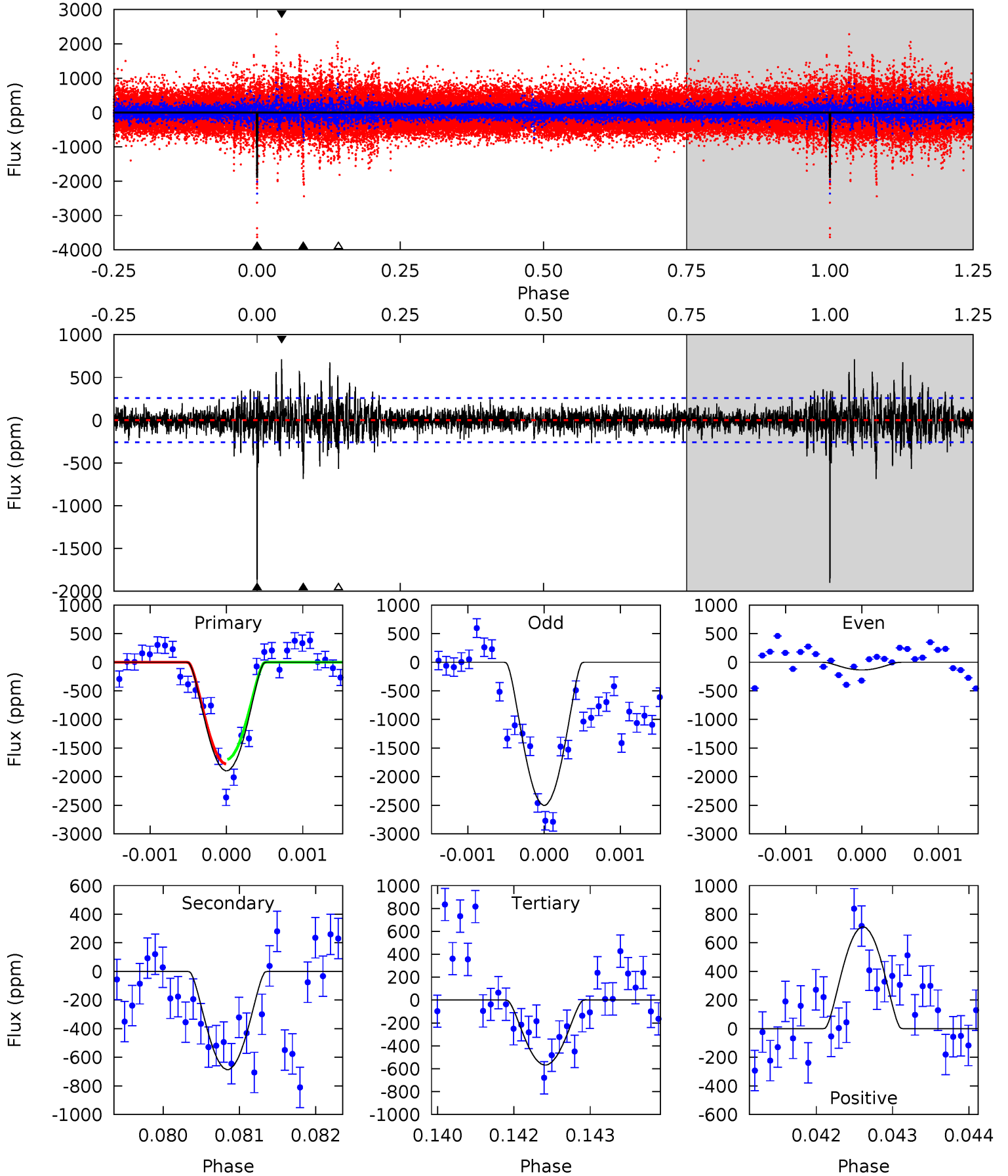
TCE 005088084-02 P=376.522399 Days $T_0=169.515434$ (BKJD)



DV Model-Shift Uniqueness Test

005088084-02, P = 376.541510 Days, E = 169.573401 Days

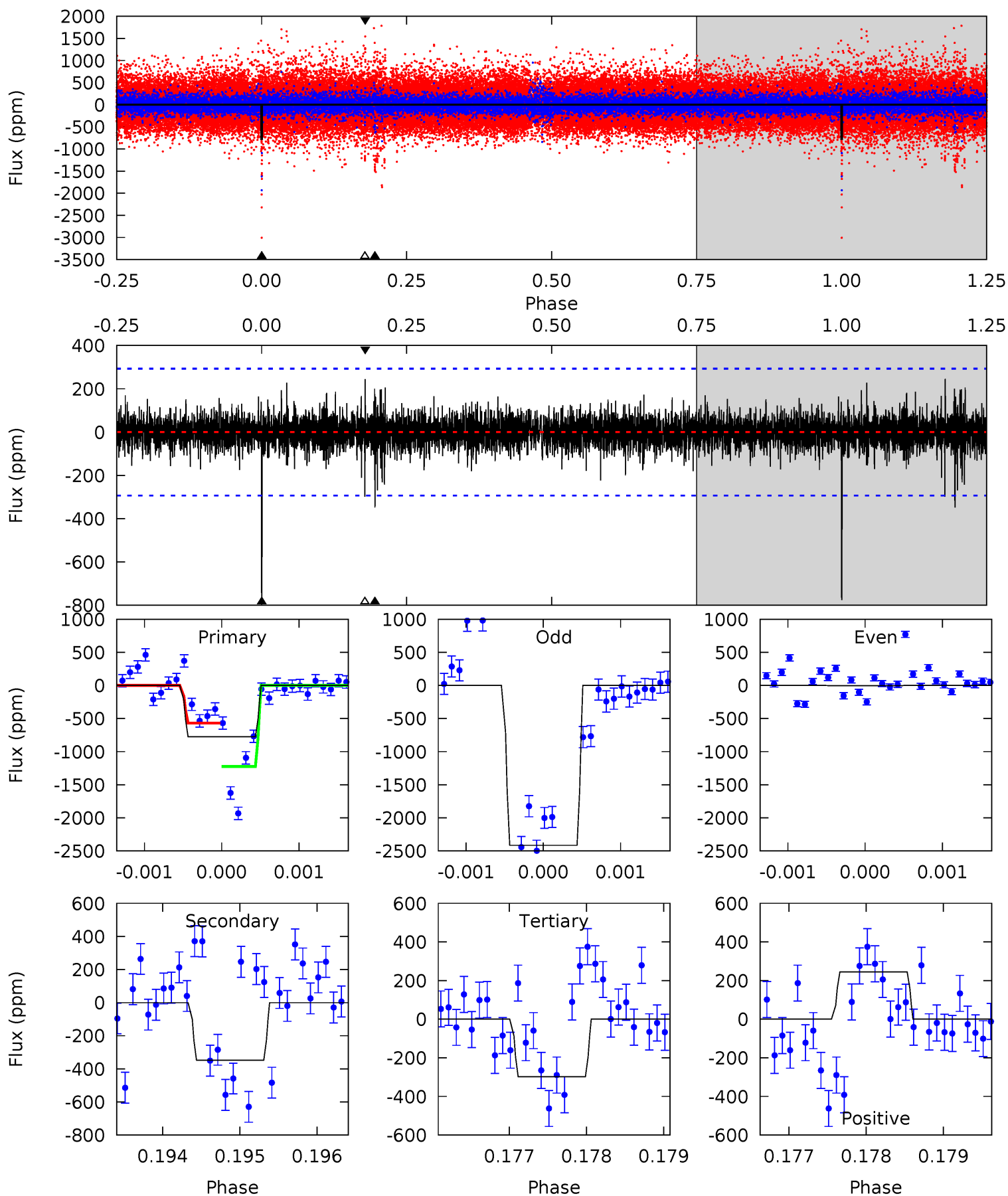
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.9	14.4	11.9	14.9	5.42	3.25	2.19	27.9	24.9	2.48	-0.53	20.0	-0.40	0.27	0.84



Alt Model-Shift Uniqueness Test

005088084-02, P = 376.522399 Days, E = 169.515434 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	6.47	5.55	4.56	5.45	3.29	0.93	8.88	9.87	0.92	1.91	26.0	0.83	0.24	6.07



Stellar Parameters For KIC 005088084

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5941^{+164}_{-184}	$4.373^{+0.124}_{-0.201}$	$-0.040^{+0.250}_{-0.300}$	$1.082^{+0.322}_{-0.173}$	$1.009^{+0.152}_{-0.110}$	$1.122^{+0.550}_{-0.590}$
	+3%/-3%	+3%/-5%	+625%/-750%	+30%/-16%	+15%/-11%	+49%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005088084-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-686 ± 48	$20.18^{+17.79}_{-12.93}$	380^{+29}_{-21}	3008^{+1210}_{-447}	981^{+6598}_{-710}
Alt.	-348 ± 54	$17.32^{+16.38}_{-12.35}$	379^{+27}_{-24}	2854^{+1425}_{-428}	663^{+7830}_{-490}

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

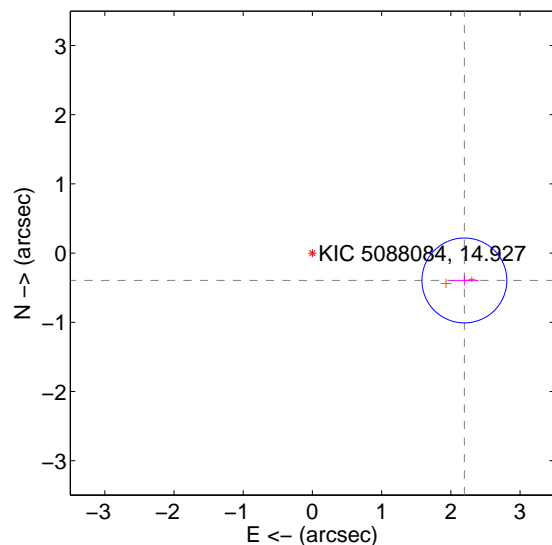
Supplemental centroid analysis for 005088084-02. Kepler magnitude: 14.93. Transit SNR 15.56

There are 0 quarters with good PRF difference image offsets

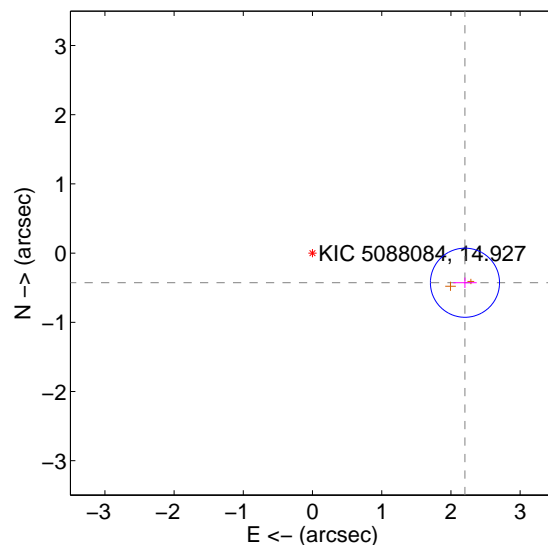
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.231 ± 0.204	10.91	-2.195 ± 0.207	-0.395 ± 0.073
PRF-fit source offset from KIC position	2.244 ± 0.166	13.48	-2.203 ± 0.169	-0.428 ± 0.075
photometric centroid source offset	0.88 ± 0.68	1.30	-0.72 ± 0.78	-0.51 ± 0.41

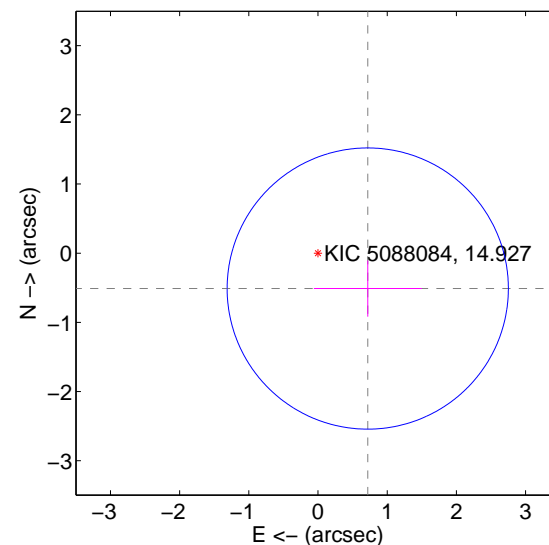
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

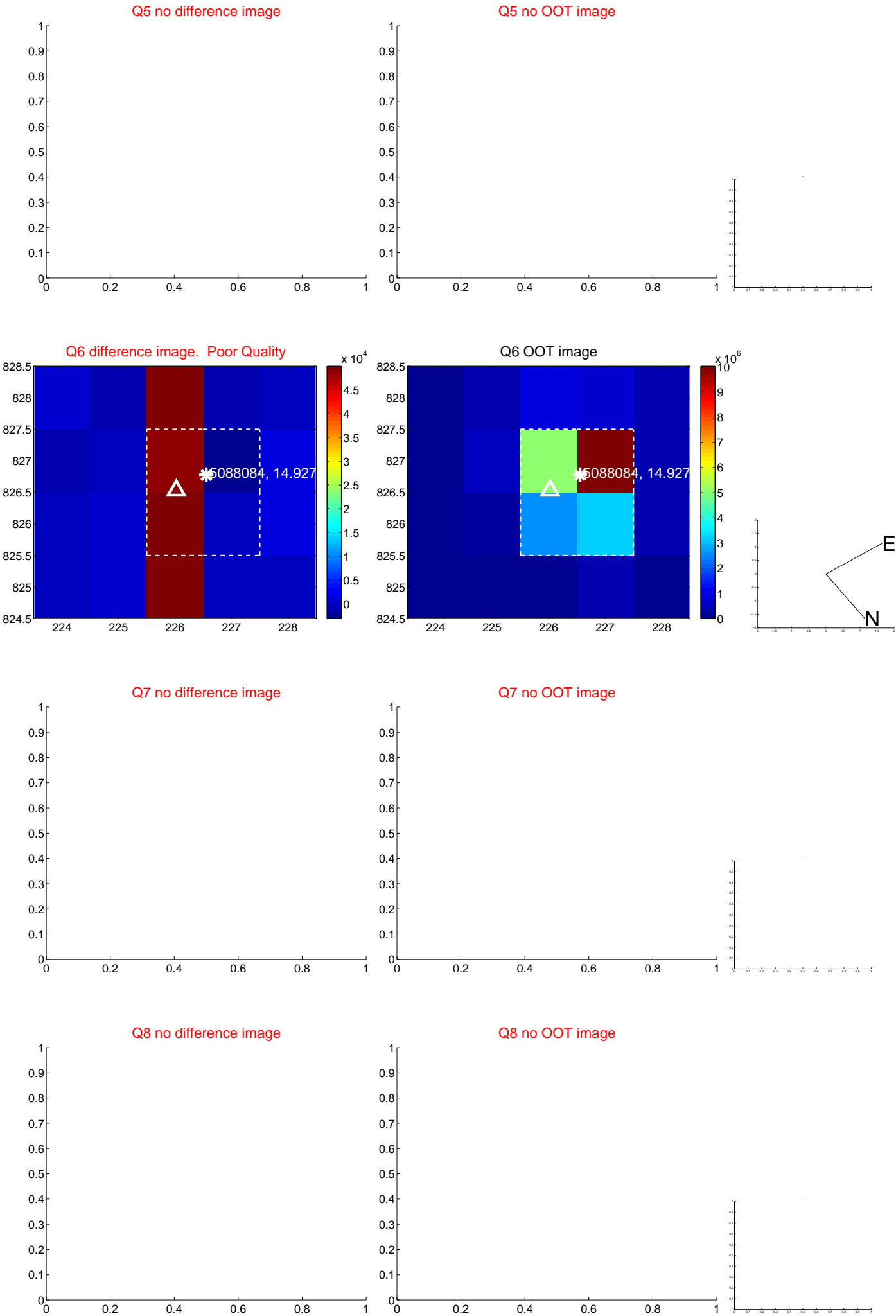


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

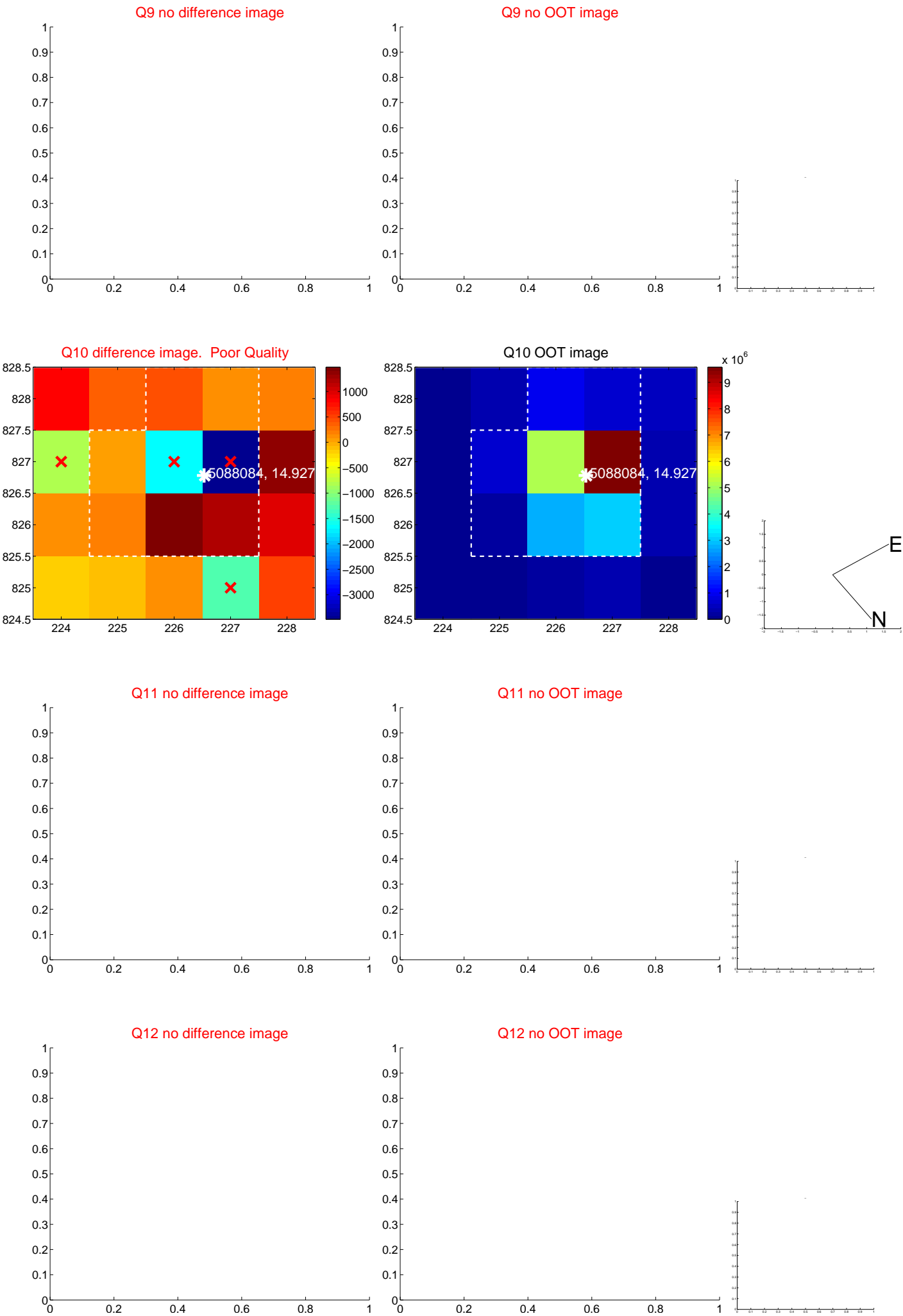
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



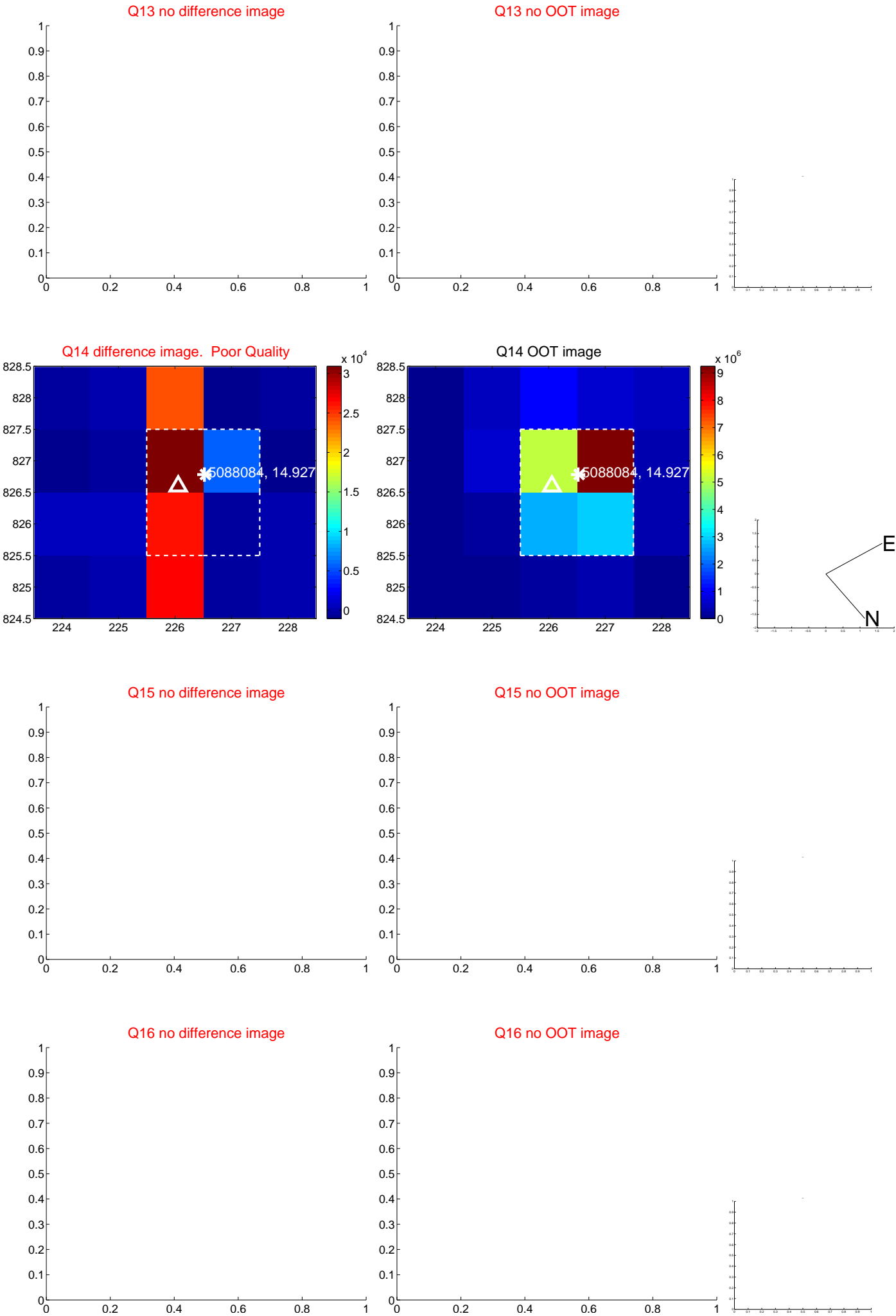
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

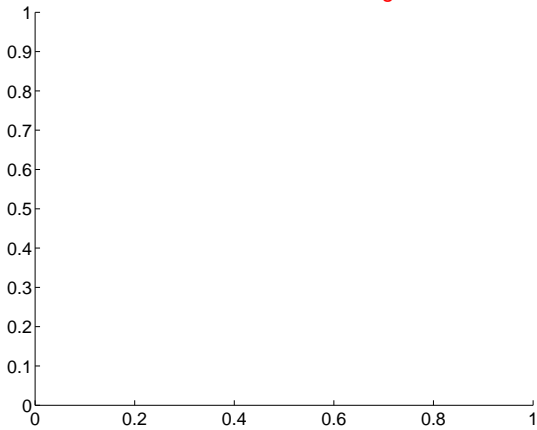


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

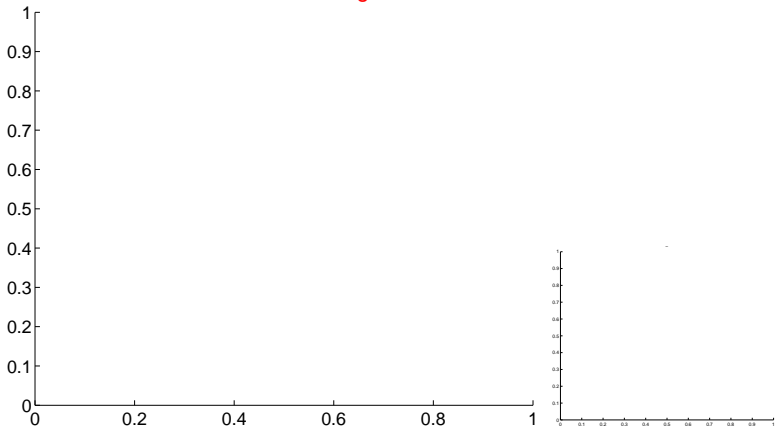


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

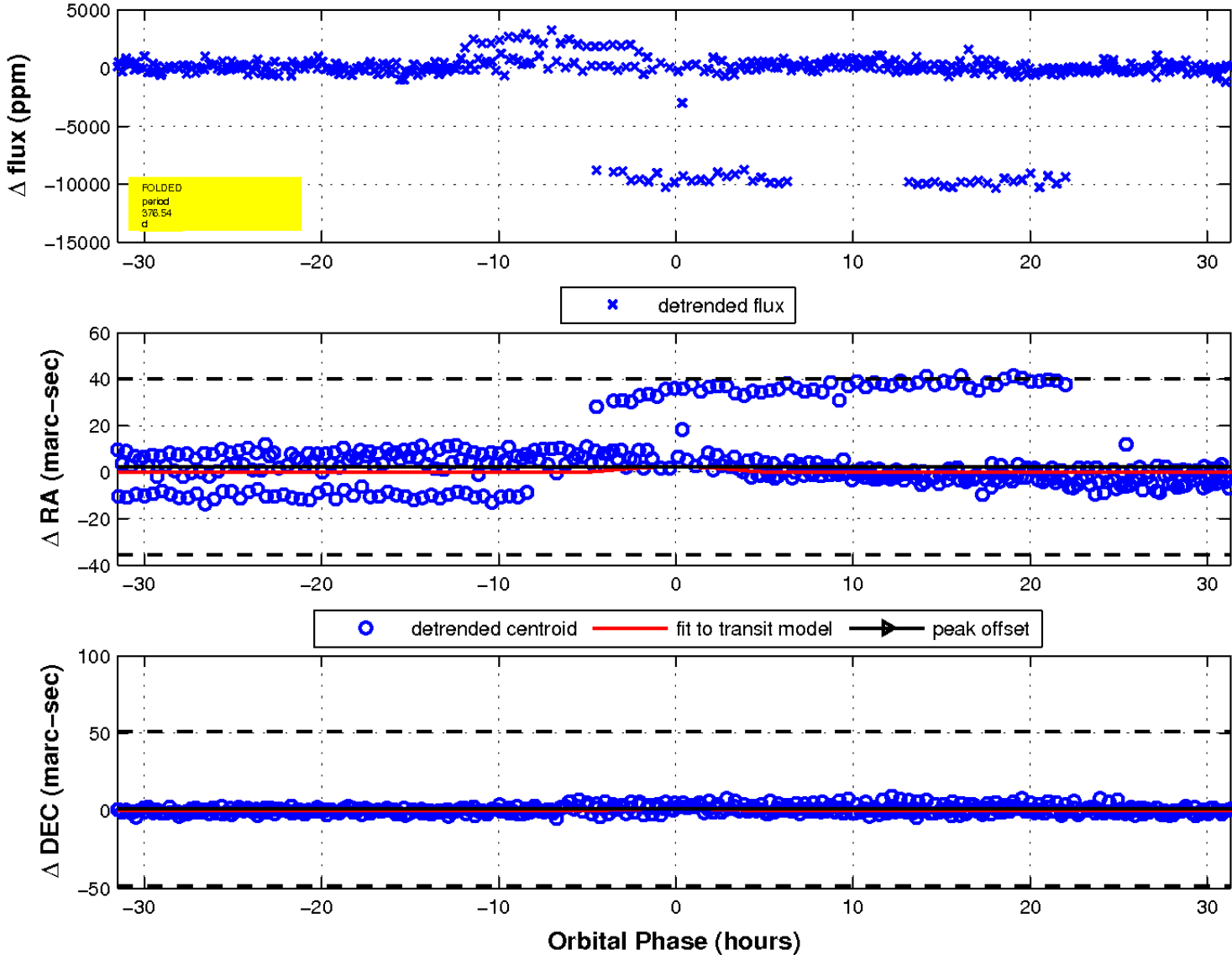
Q17 no difference image



Q17 no OOT image

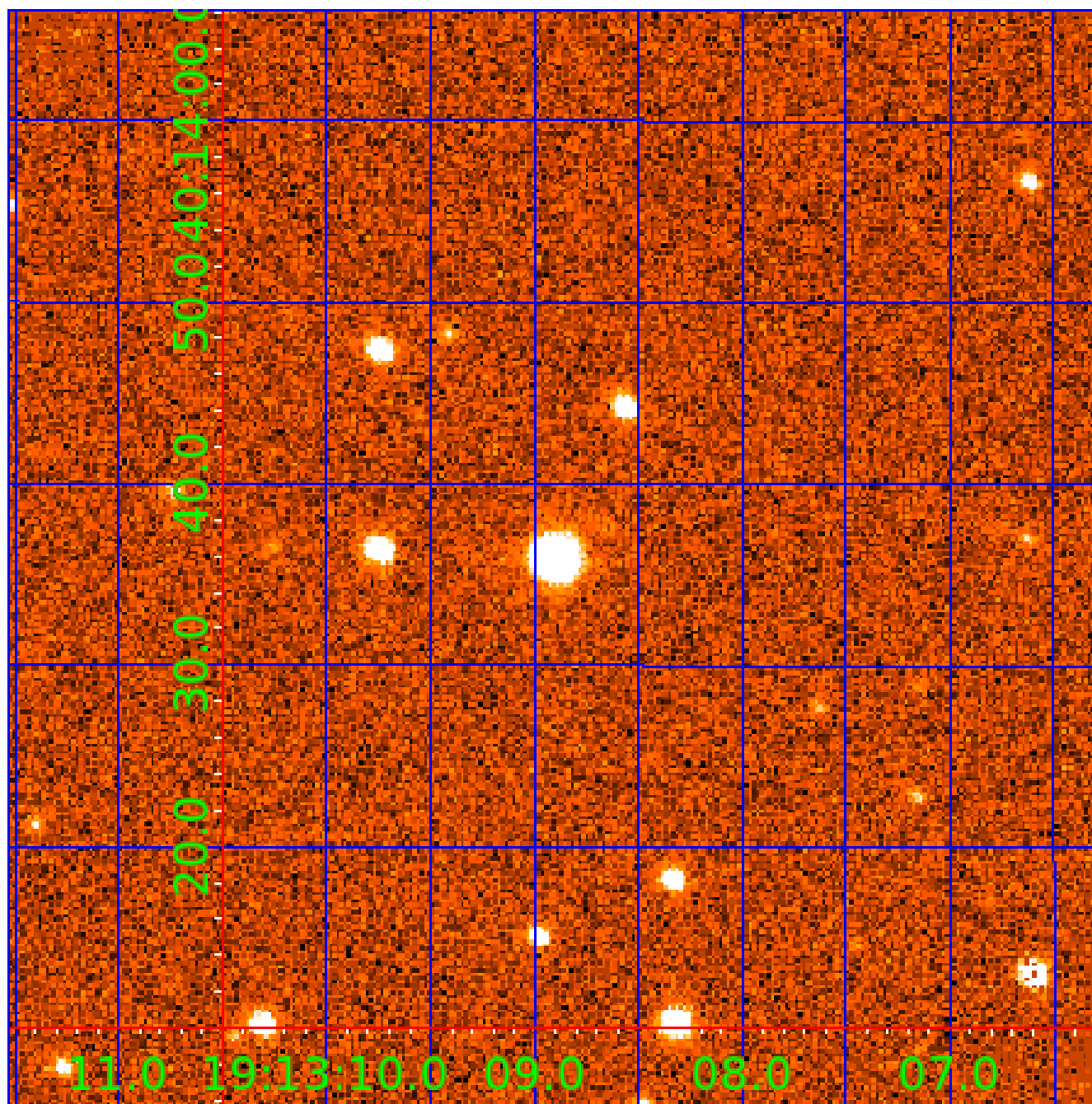


fluxWeightedCentroids, Planet 2 of 6



UKIRT Image

Declination



KIC 005088084

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})
005088084-01	OBS	No	351.304836	253.335320	1813.7	51.121	35.8	10.1	1.08	5941	4.58	1.37
005088084-02	OBS	No	376.541510	169.573401	2638.7	10.511	27.6	15.6	1.08	5941	10.41	1.25
005088084-04	OBS	No	399.027207	147.863092	145.2	8.357	41.6	1.5	1.08	5941	1.56	1.16
005088084-05	OBS	No	382.795502	211.917052	2699.2	12.500	34.3	-1.0	1.08	5941	5.59	1.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005088084-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005088084-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005088084-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_ZUMA—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_FEW_DIFFS
005088084-05	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—EPHEM_MATCH

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

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

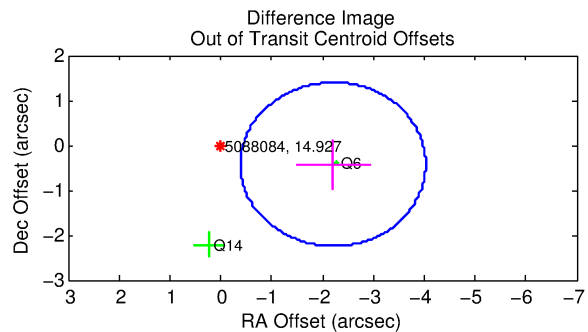
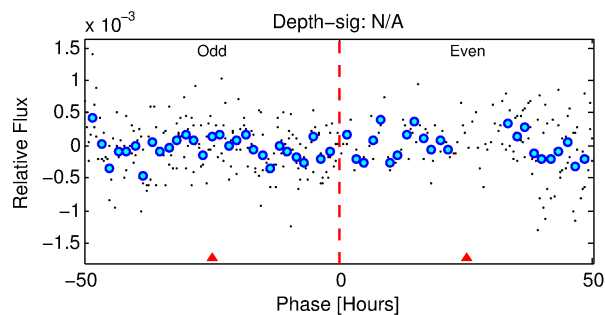
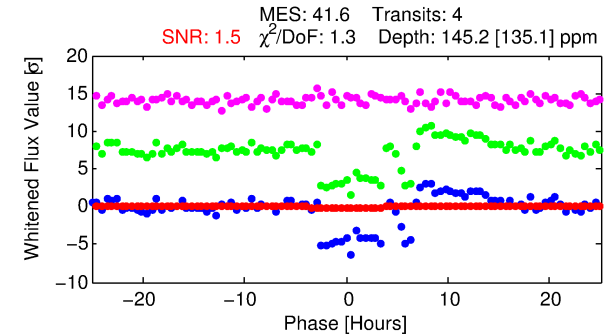
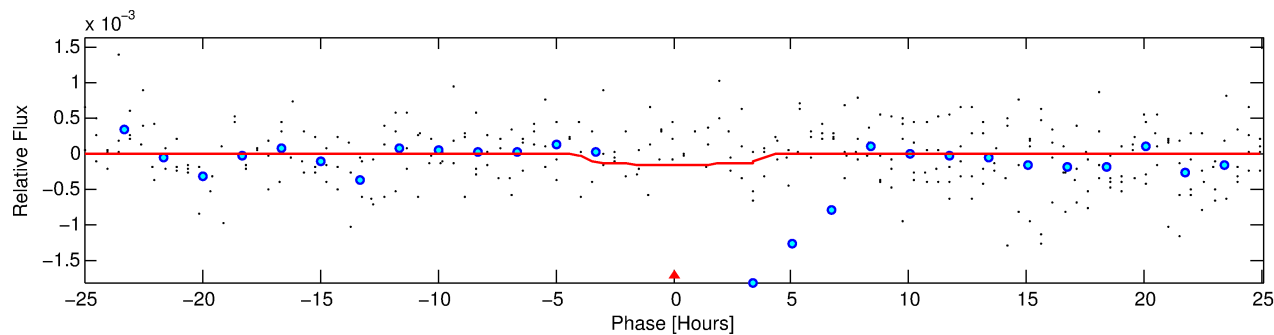
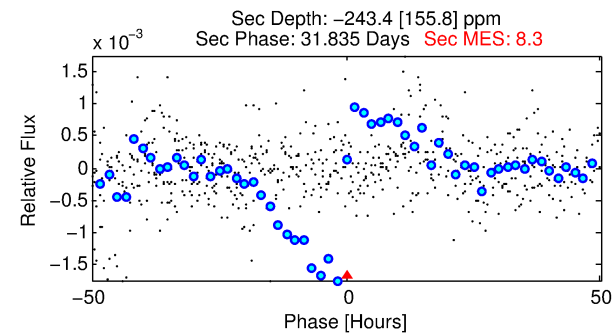
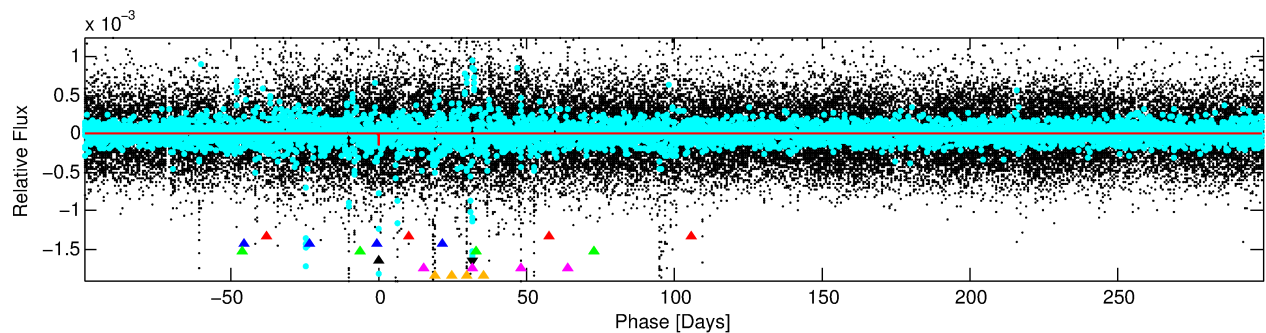
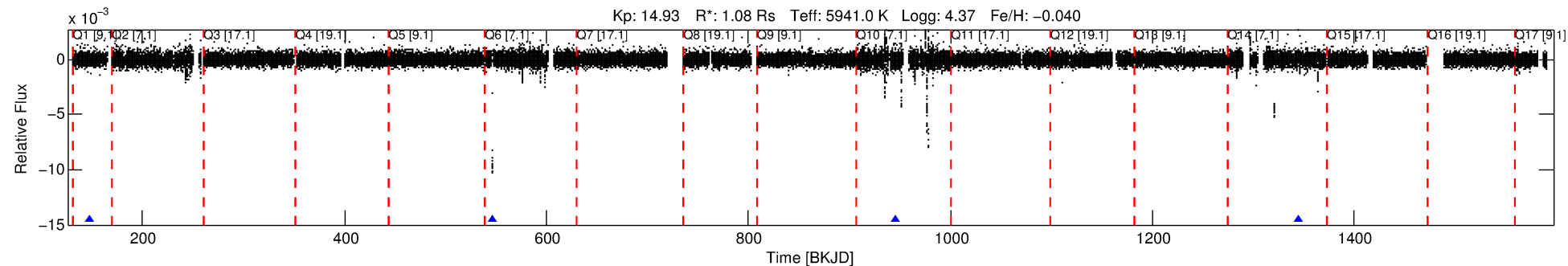
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005088084-04

No Significant Match Found

DV One-Page Summary

KIC: 5088084 Candidate: 4 of 6 Period: 399.027 d



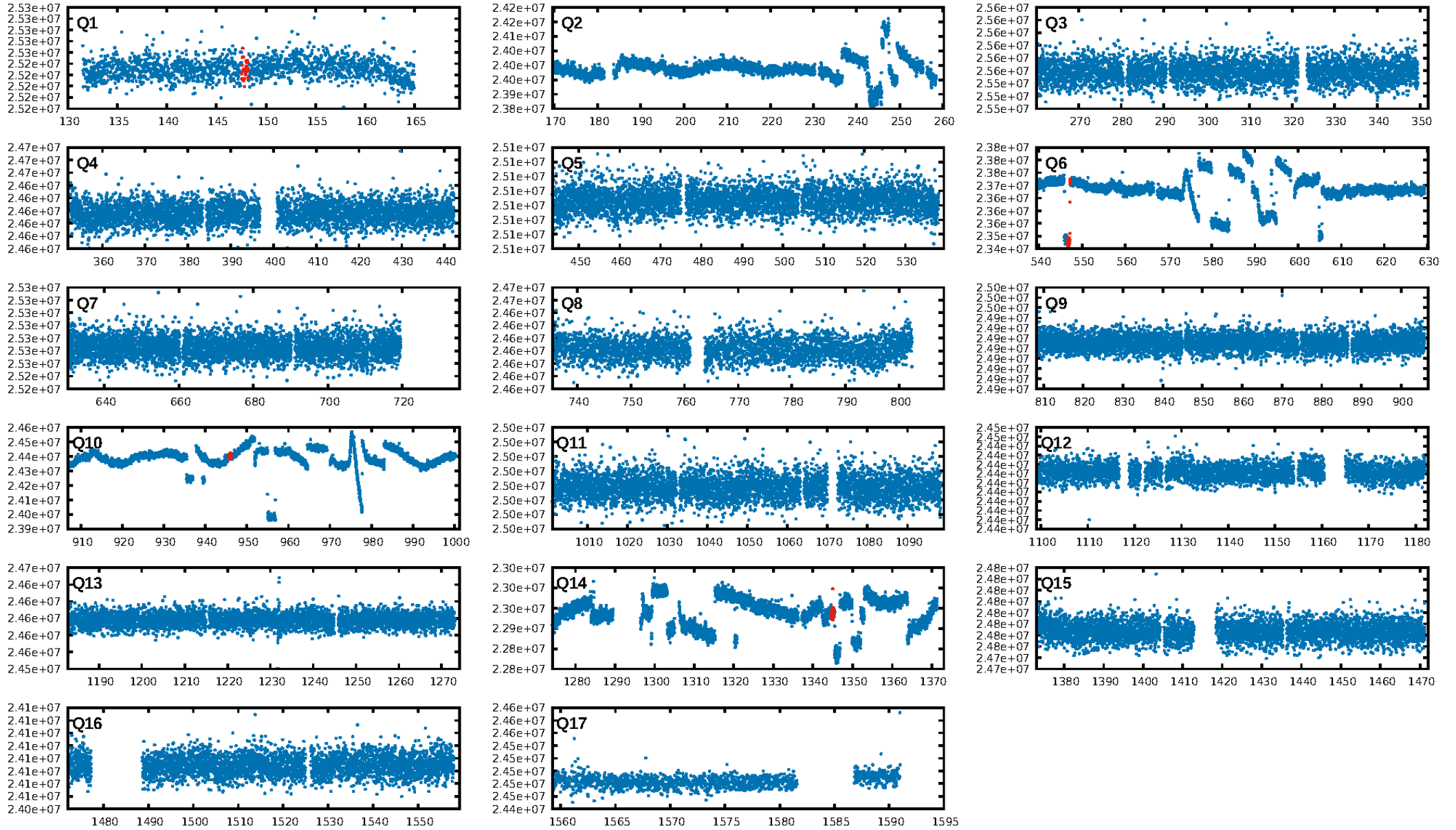
DV Fit Results:

Period = 399.02721 [0.04221] d
Epoch = 147.8631 [0.0830] BKJD
Rp/R* = 0.0133 [0.0201]
a/R* = 158.63 [1109.95]
b = 0.92 [1.28]
Seff = 1.15 [0.45]
Teff = 264 [26] K
Rp = 1.57 [2.42] Re
a = 1.0638 [0.2673] AU
Ag = N/A
Teffp = N/A

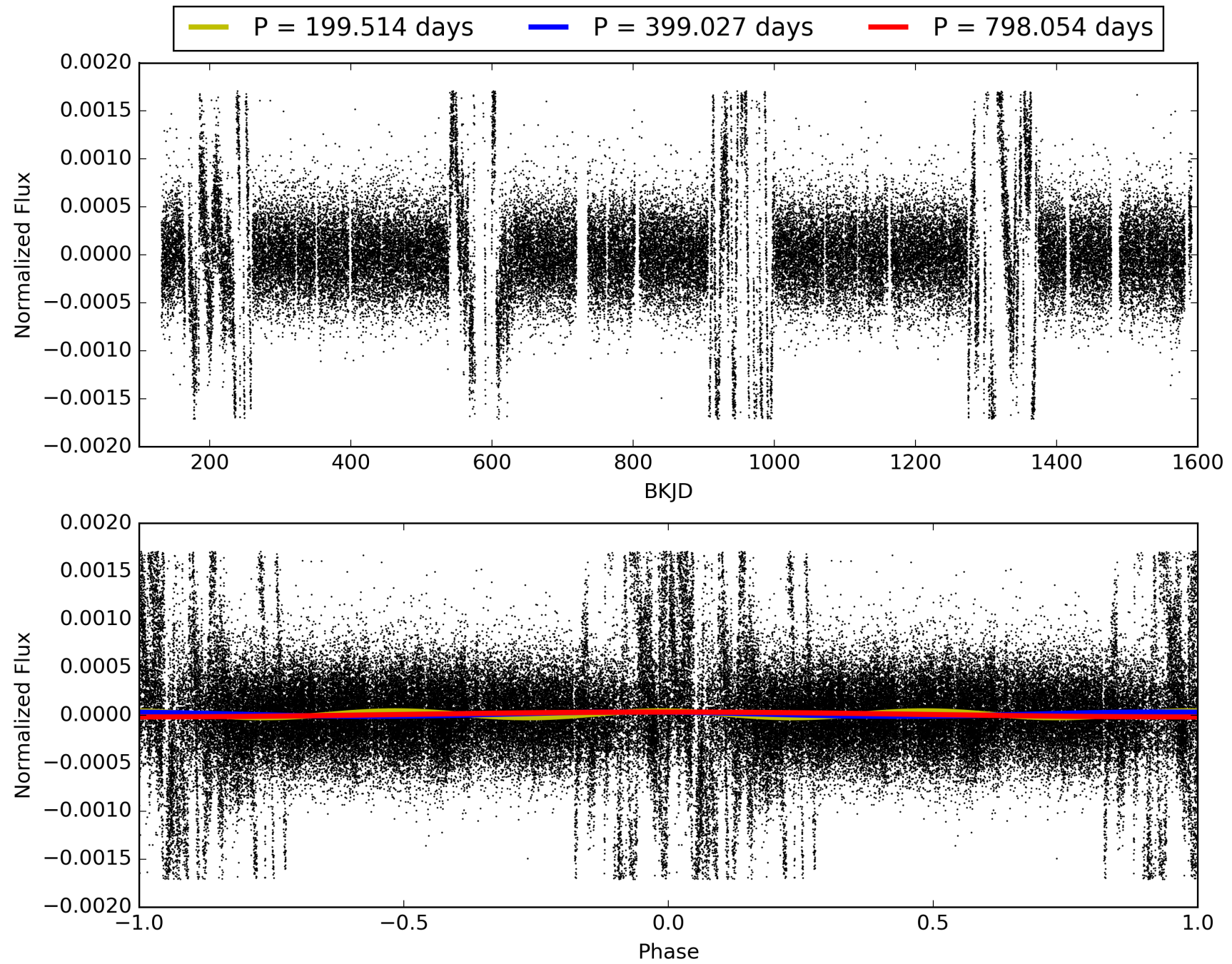
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.37σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 63.2%
ModelChiSquareGof-sig: 98.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.691
Centroid-sig: 0.3%
Centroid-so: 12.720 arcsec [2.09σ]
OotOffset-rm: 2.249 arcsec [3.70σ]
KicOffset-rm: 2.239 arcsec [2.32σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.75 [3/4]

TCE 005088084-04, PDC Light Curves

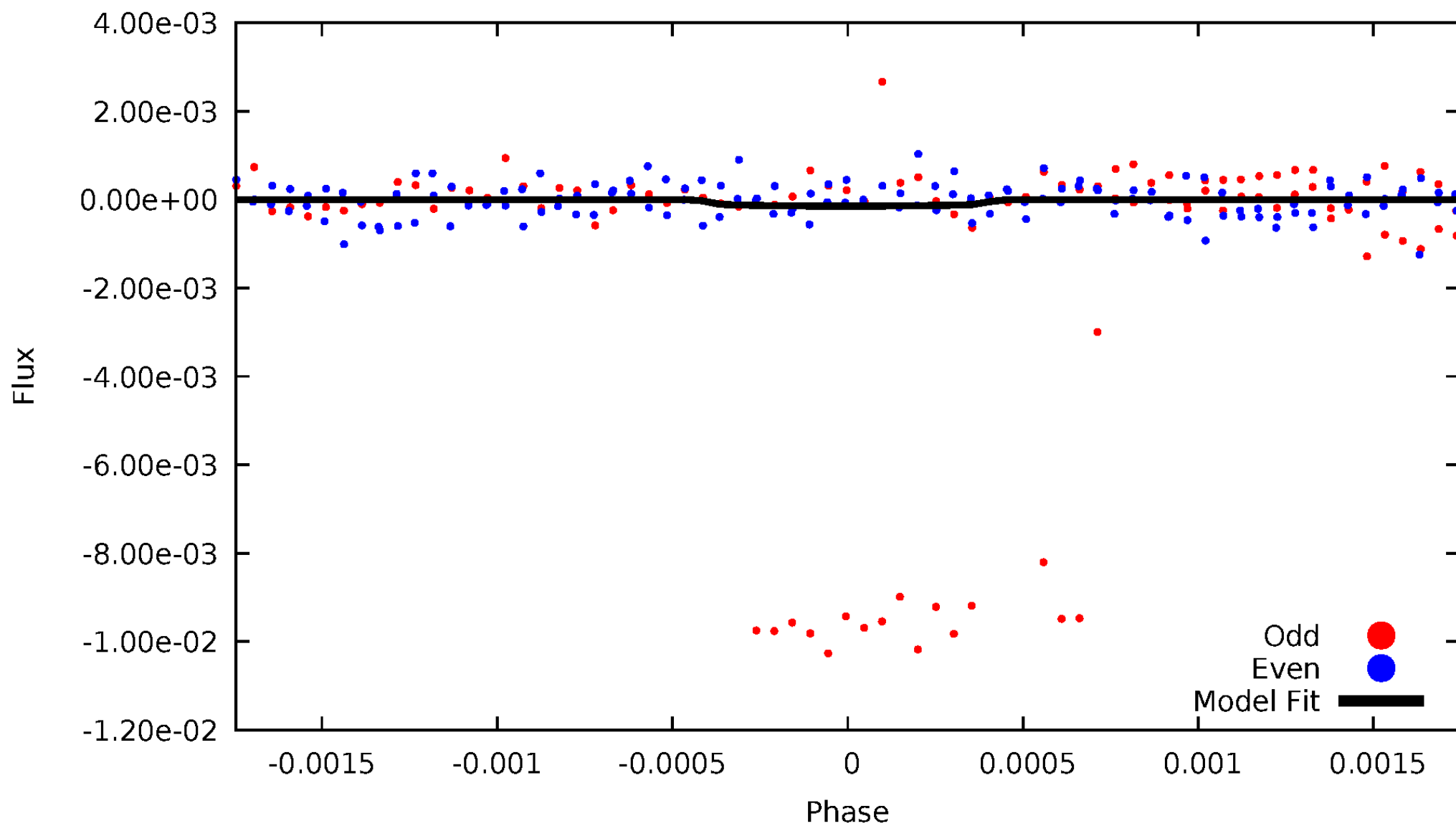


TCE 005088084-04



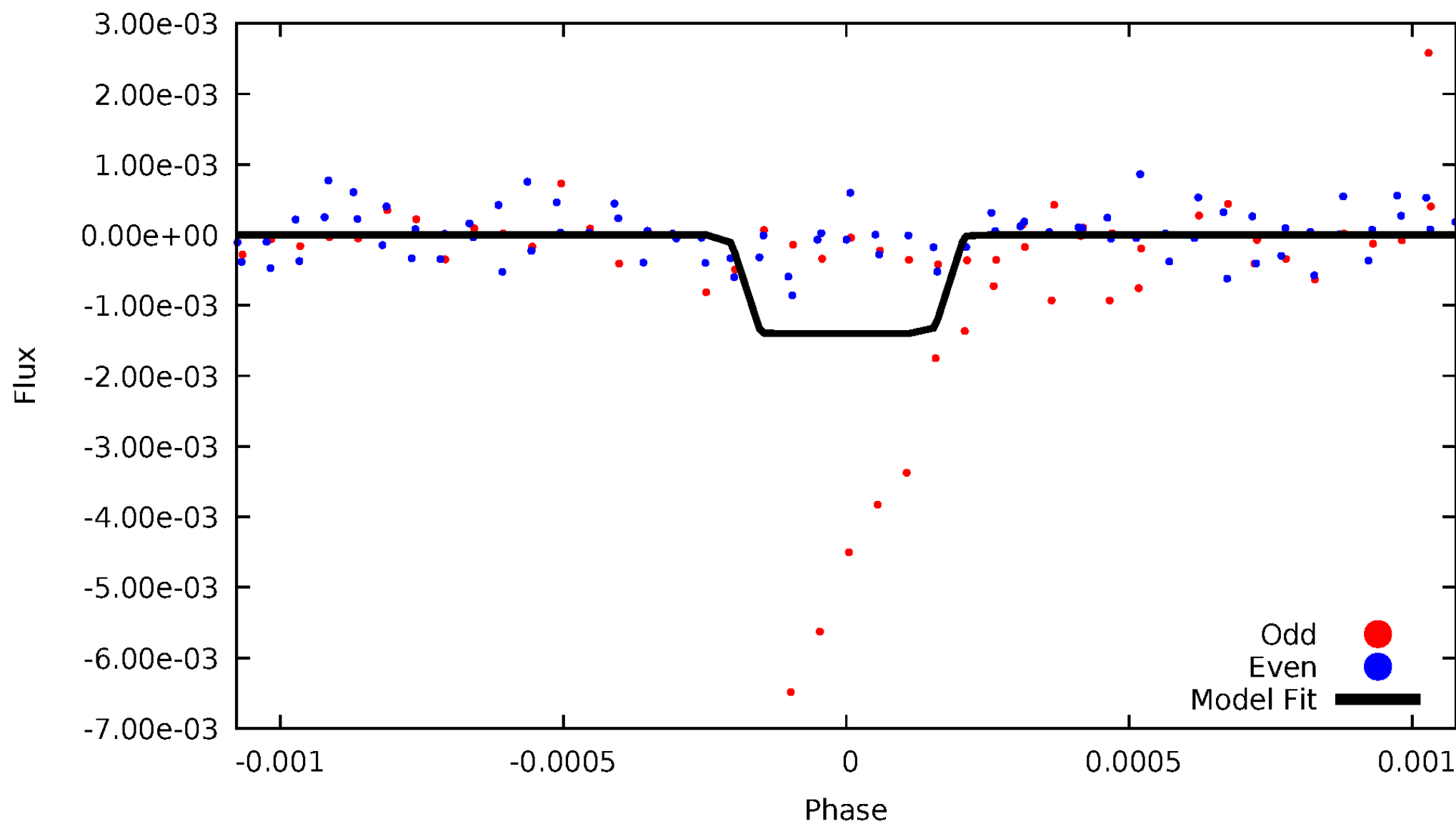
DV Odd/Even

TCE 005088084-04



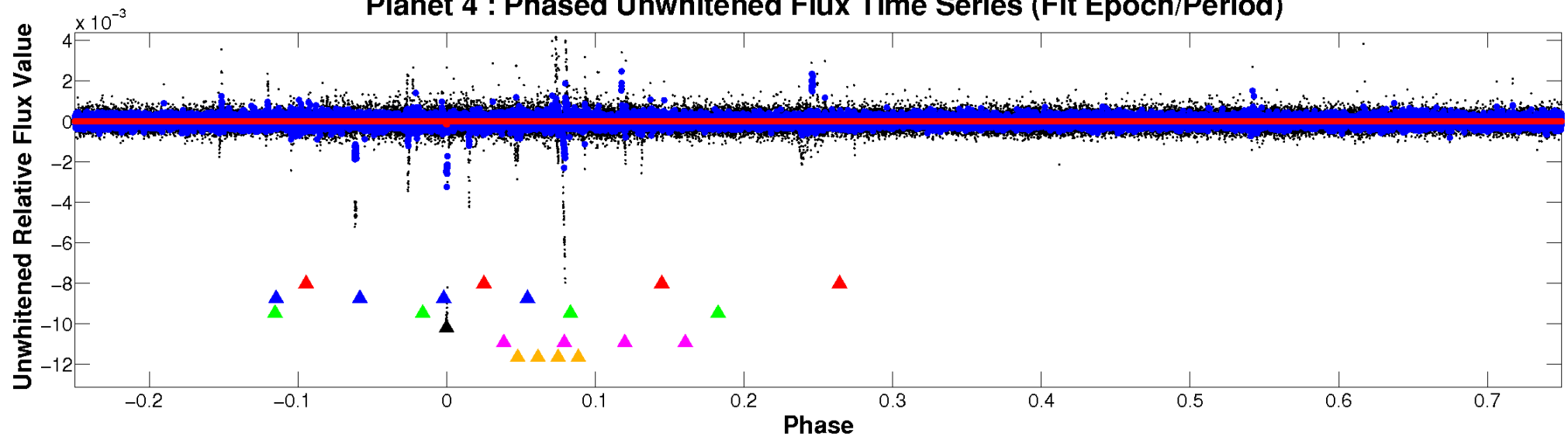
ALT Odd/Even

TCE 005088084-04

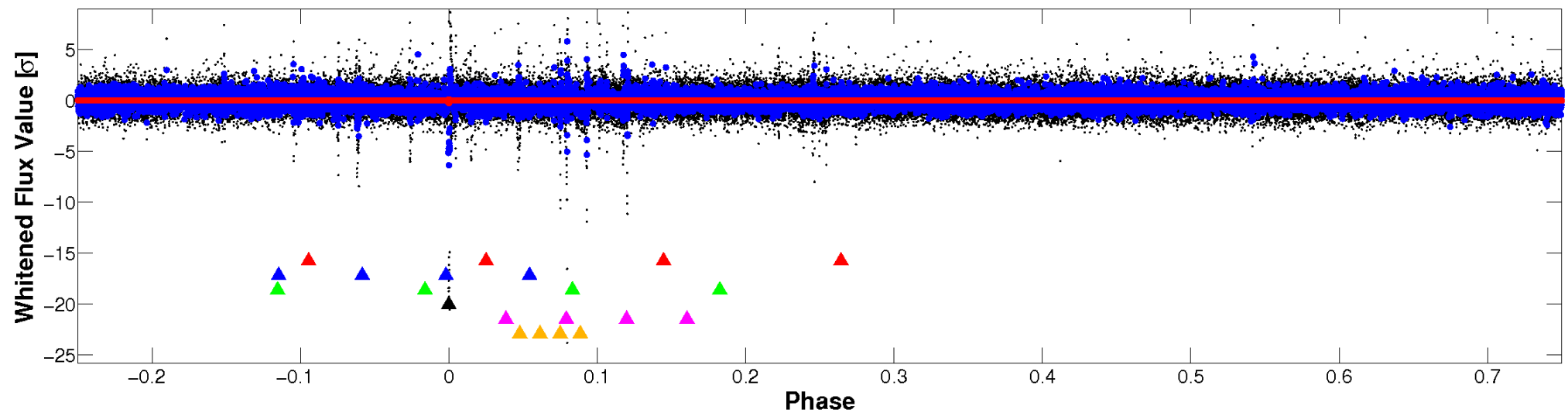


Non-Whitened Vs. Whitened Light Curve

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

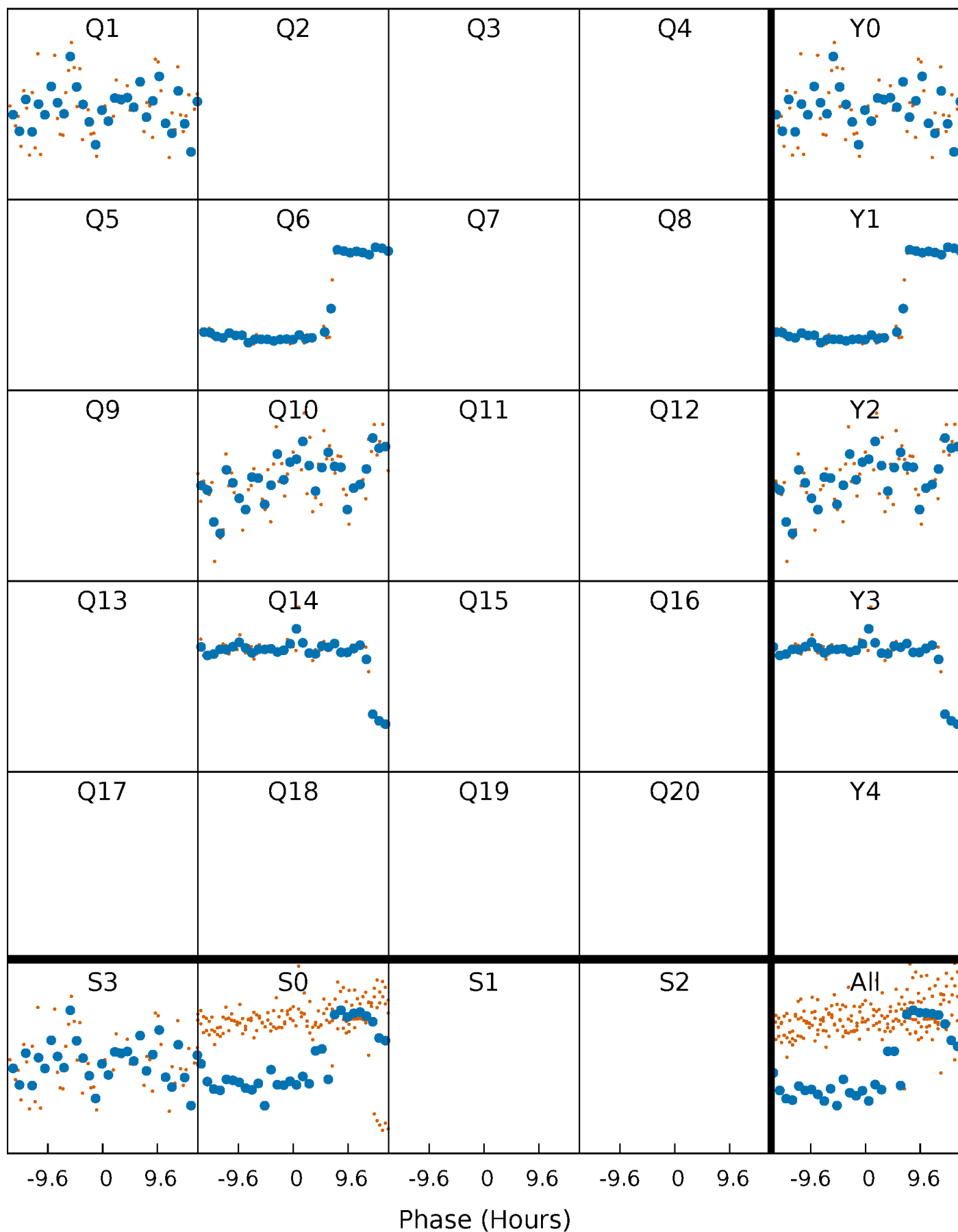


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



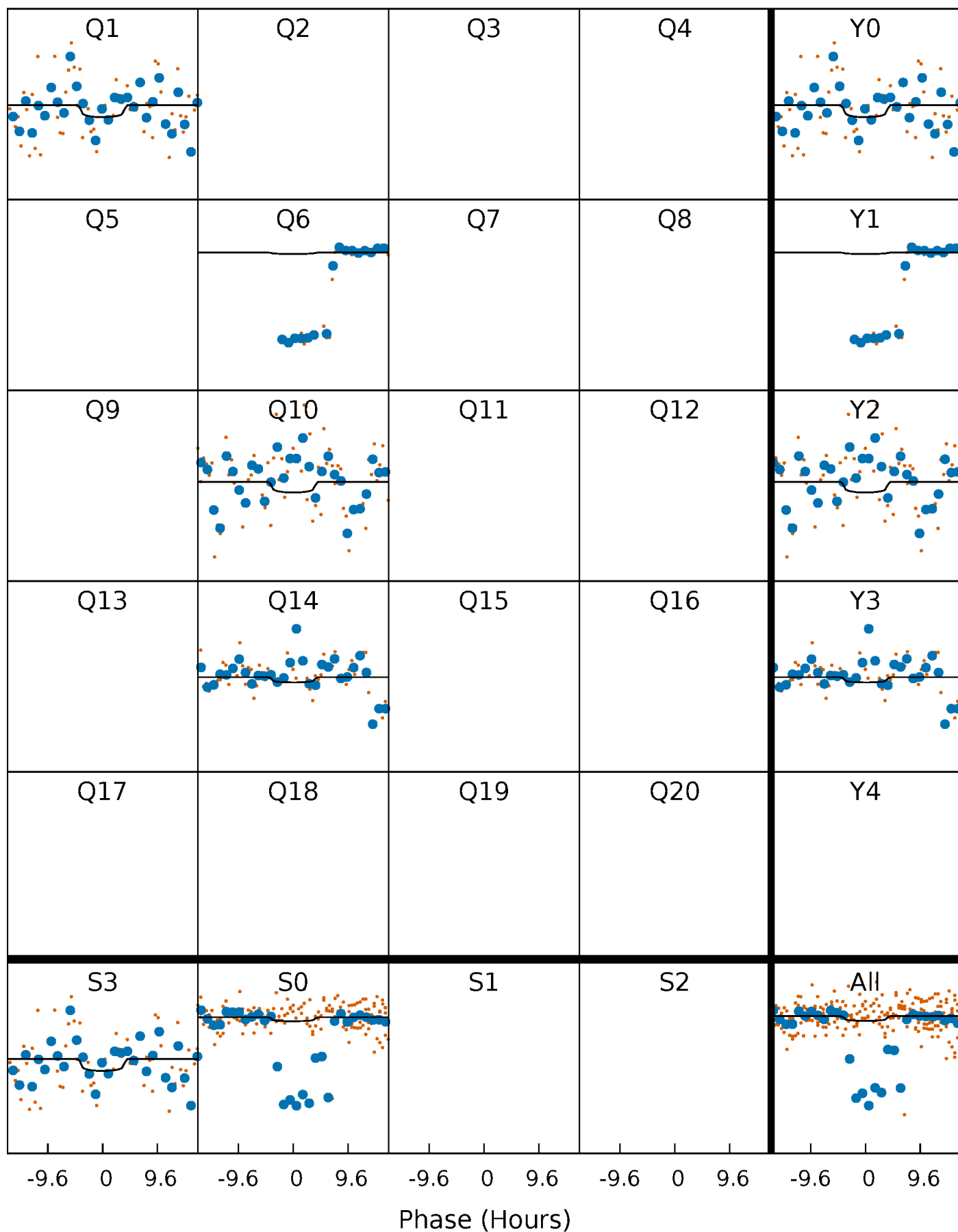
PDC Quarter-Phased Transit Curves

TCE 005088084-04 P=399.027207 Days $T_0=147.863092$ (BKJD)



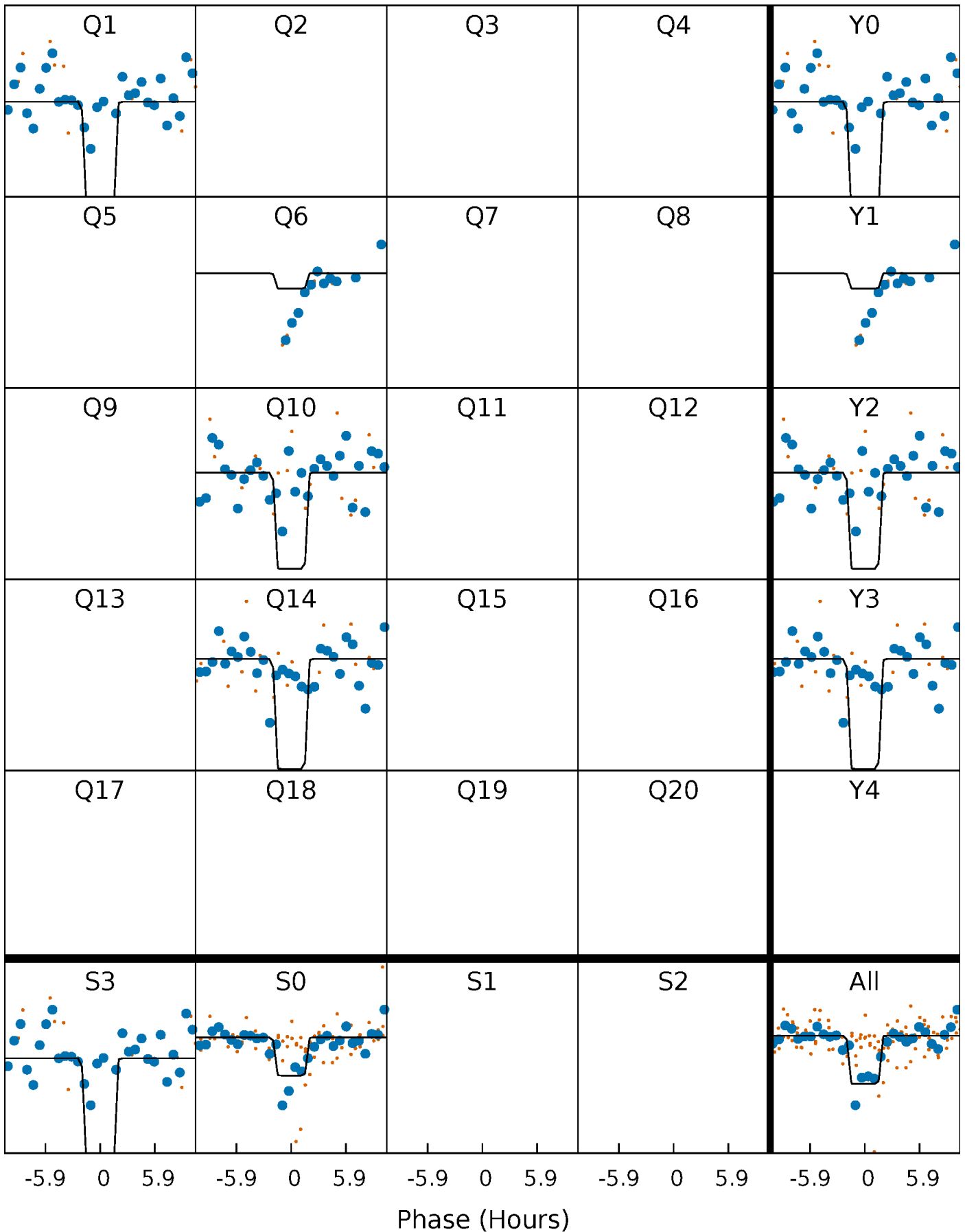
DV Quarter-Phased Transit Curves

TCE 005088084-04 $P=399.027207$ Days $T_0=147.863092$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

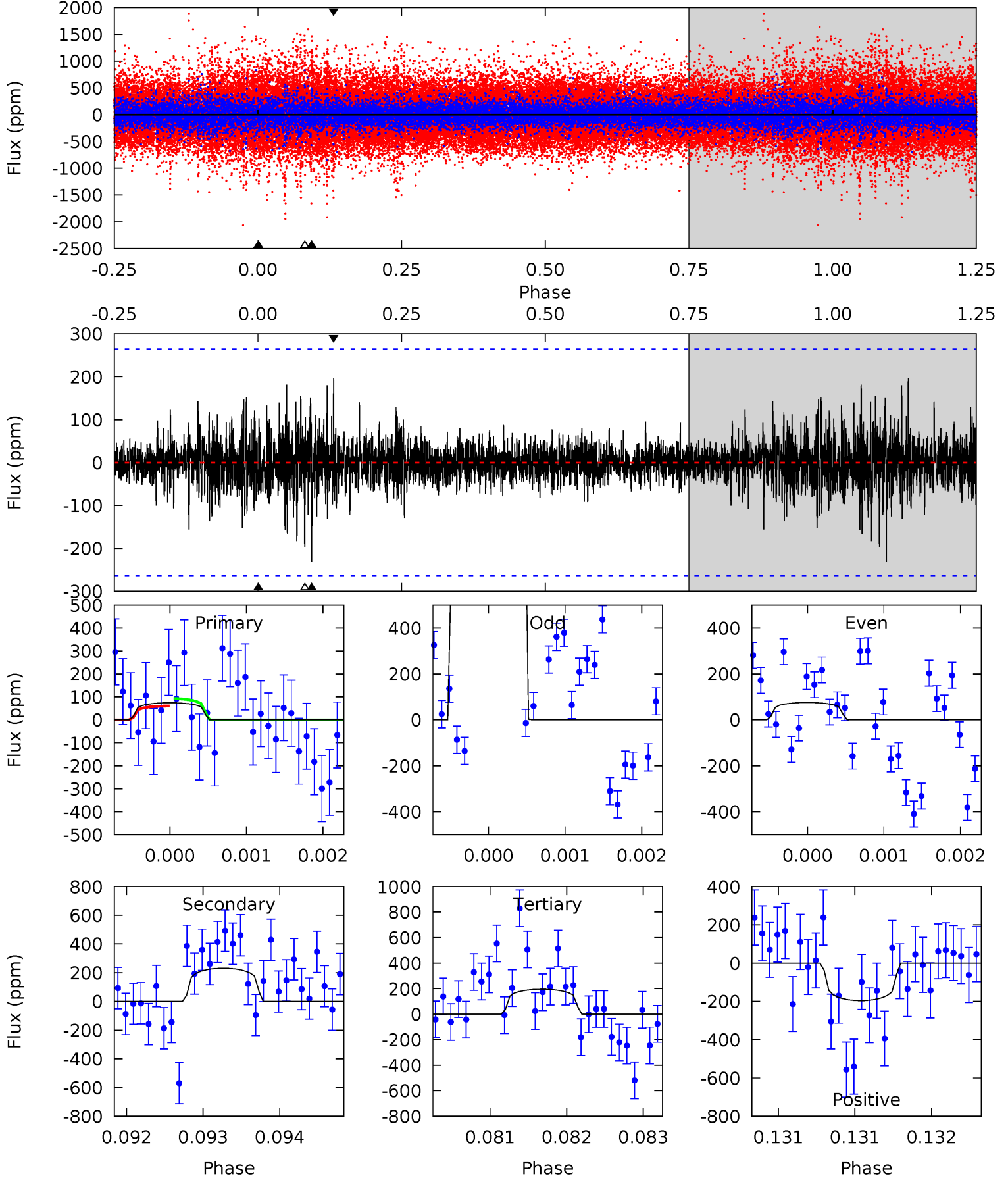
TCE 005088084-04 P=398.965259 Days $T_0=147.860152$ (BKJD)



DV Model-Shift Uniqueness Test

005088084-04, P = 399.027207 Days, E = 147.863092 Days

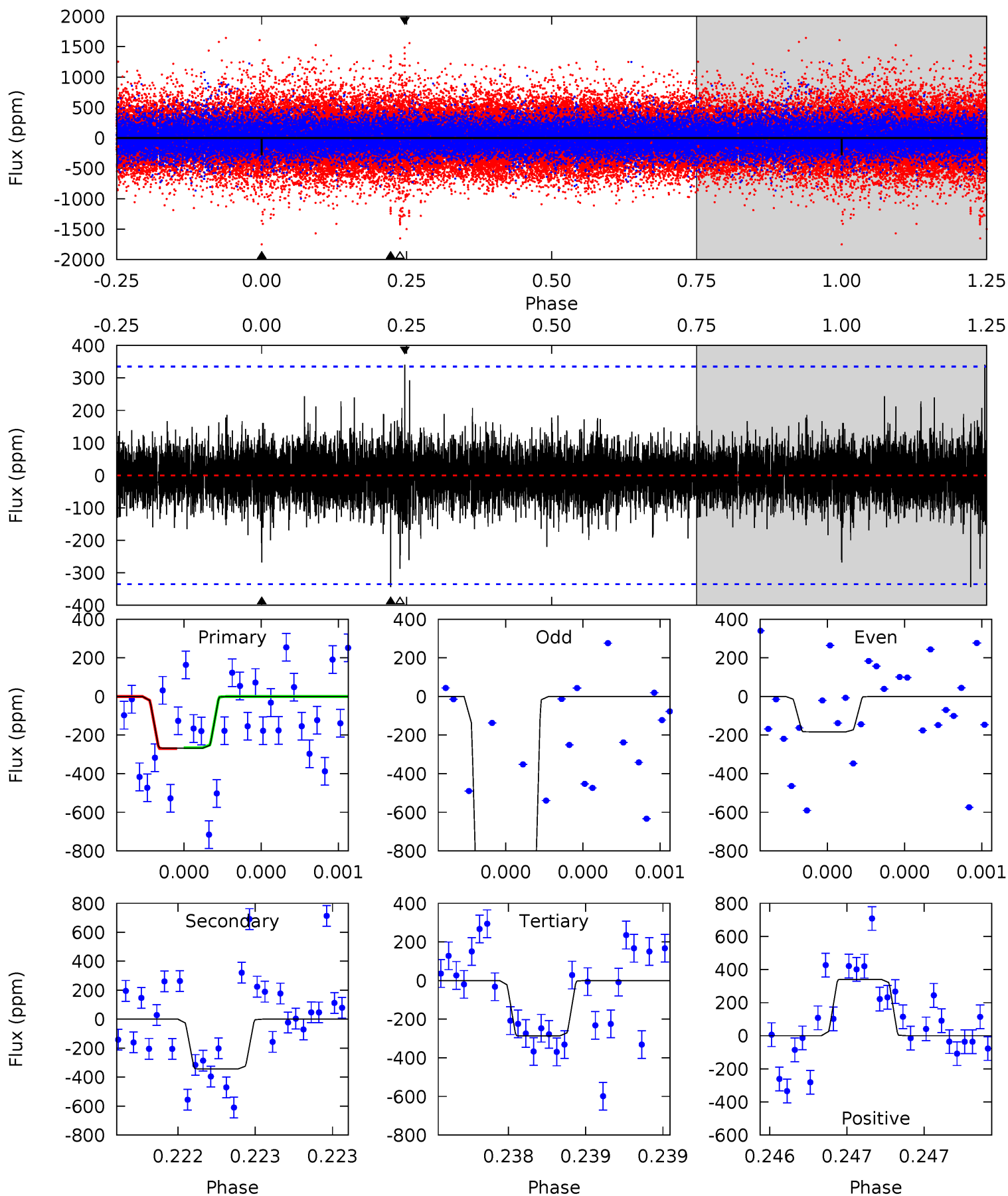
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.55	4.80	4.06	4.06	5.48	3.33	0.77	-2.52	-2.52	0.73	0.73	43.2	-32.2	0.46	0.34



Alt Model-Shift Uniqueness Test

005088084-04, P = 398.965259 Days, E = 147.860152 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.47	5.73	4.79	5.68	5.59	3.50	0.89	-0.32	-1.21	0.95	0.05	13.6	5.80	0.50	0.04



Stellar Parameters For KIC 005088084

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5941^{+164}_{-184}	$4.373^{+0.124}_{-0.201}$	$-0.040^{+0.250}_{-0.300}$	$1.082^{+0.322}_{-0.173}$	$1.009^{+0.152}_{-0.110}$	$1.122^{+0.550}_{-0.590}$
	+3%/-3%	+3%/-5%	+625%/-750%	+30%/-16%	+15%/-11%	+49%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005088084-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-231 ± 48	$2.43^{+2.23}_{-1.69}$	374^{+25}_{-24}	5263^{+5165}_{-1205}	$25166^{+229554}_{-18582}$
Alt.	-344 ± 60	$4.57^{+2.55}_{-2.18}$	371^{+27}_{-19}	4366^{+1256}_{-635}	10163^{+26249}_{-6069}

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

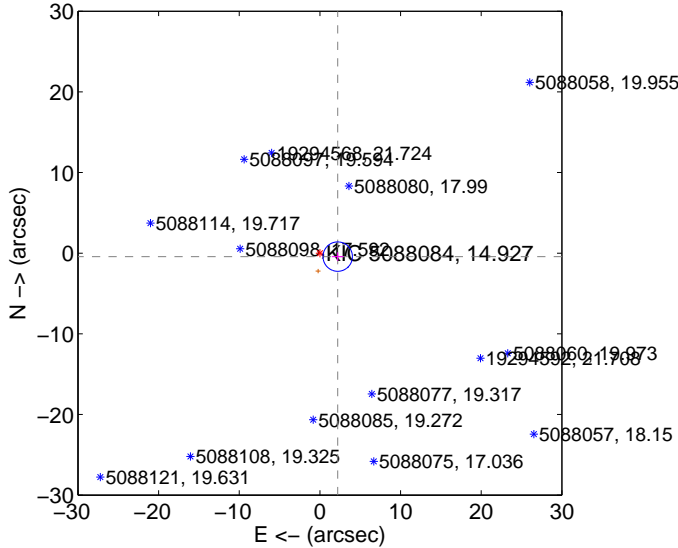
Supplemental centroid analysis for 005088084-04. Kepler magnitude: 14.93. Transit SNR 1.52

There are 0 quarters with good PRF difference image offsets

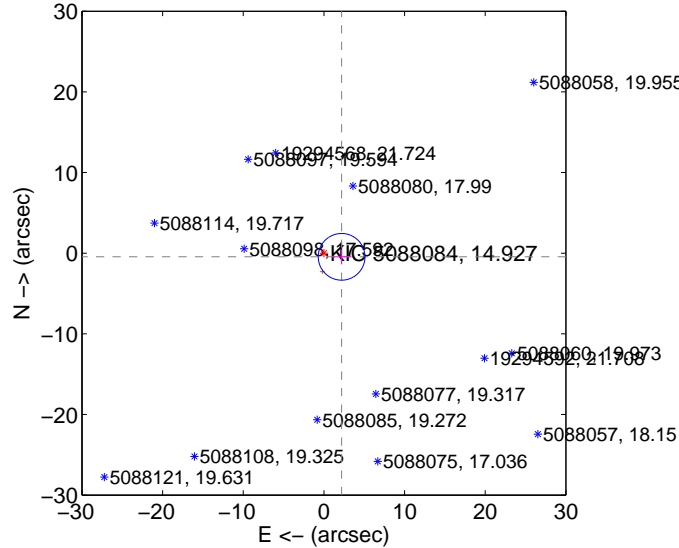
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.249 \pm 0.607	3.70	-2.208 \pm 0.720	-0.426 \pm 0.532
PRF-fit source offset from KIC position	2.239 \pm 0.965	2.32	-2.193 \pm 1.170	-0.454 \pm 0.897
photometric centroid source offset	12.72 \pm 6.10	2.09	-9.55 \pm 6.85	-8.40 \pm 4.95

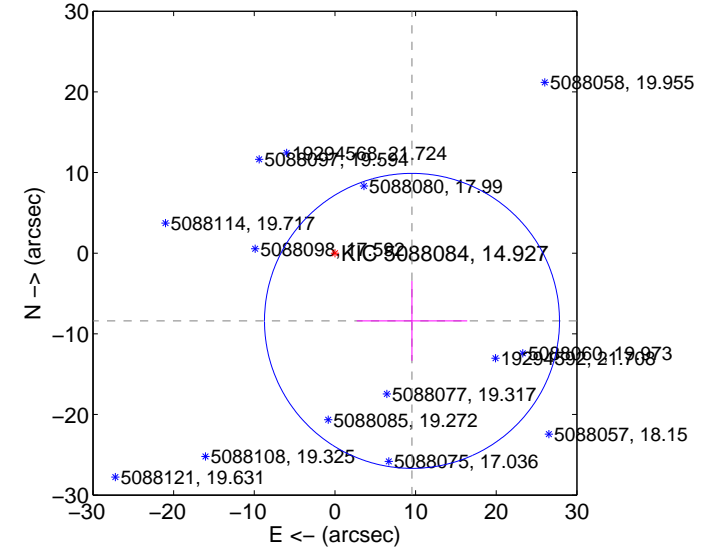
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

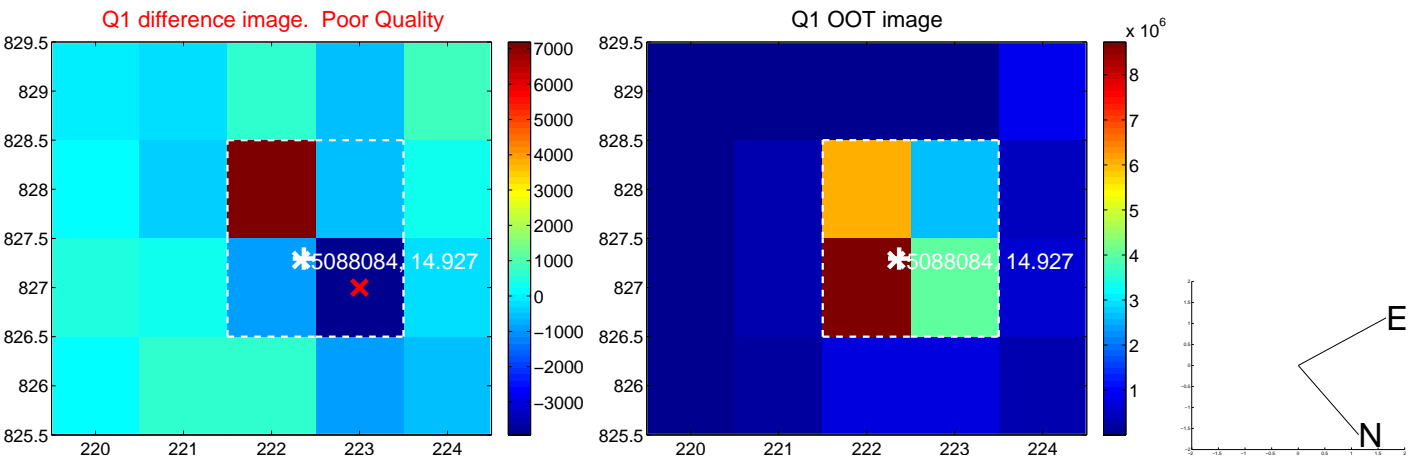


offset from photometric centroids

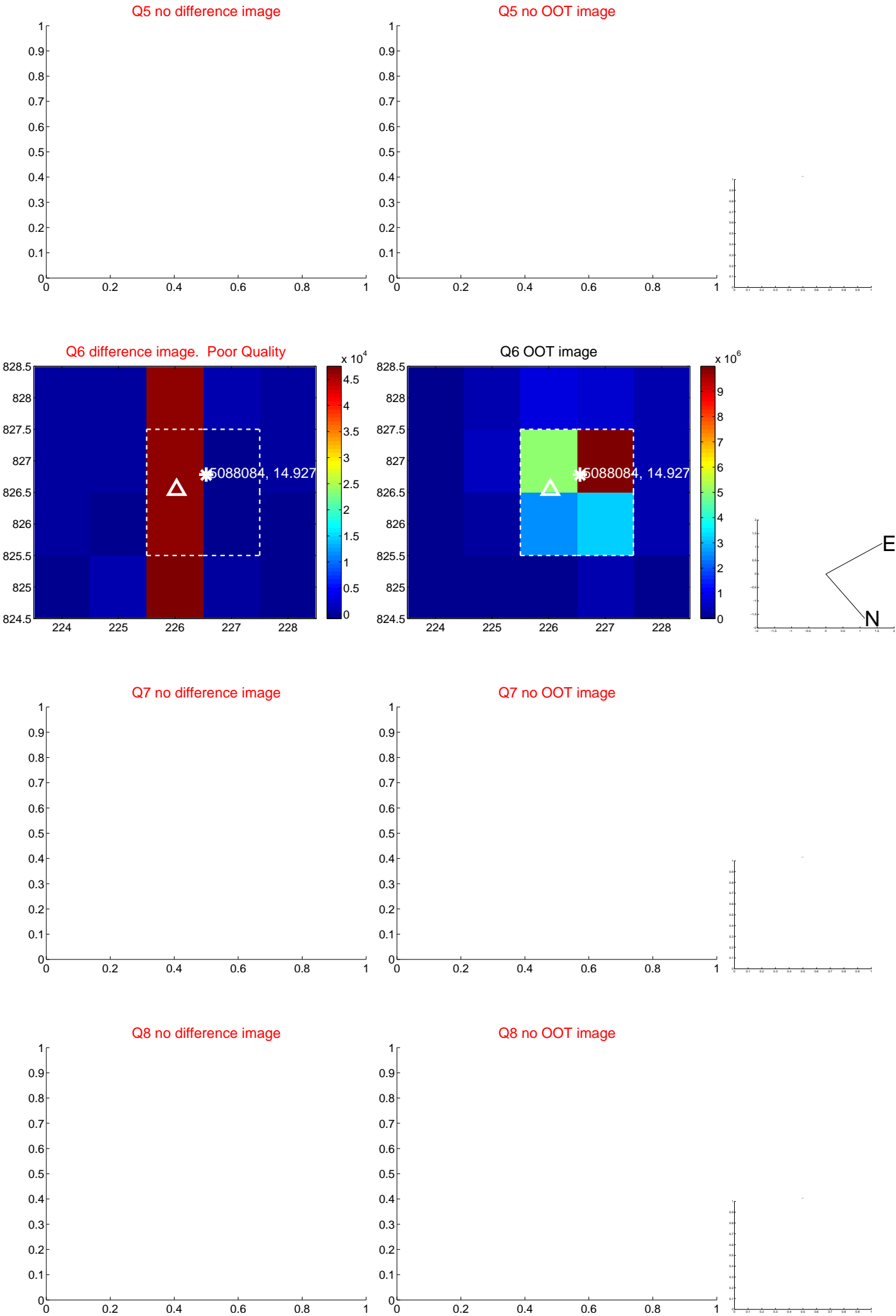


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

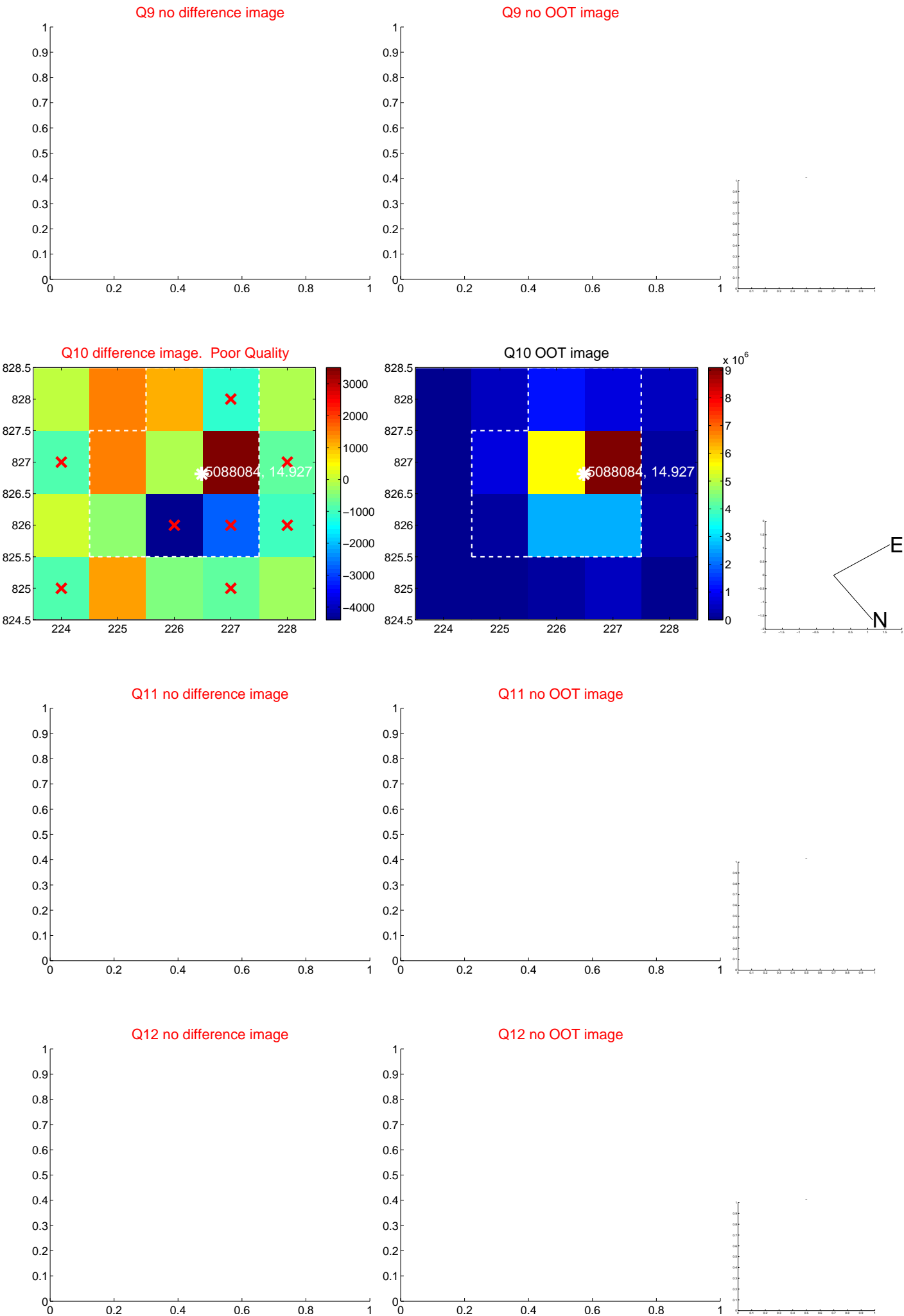
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



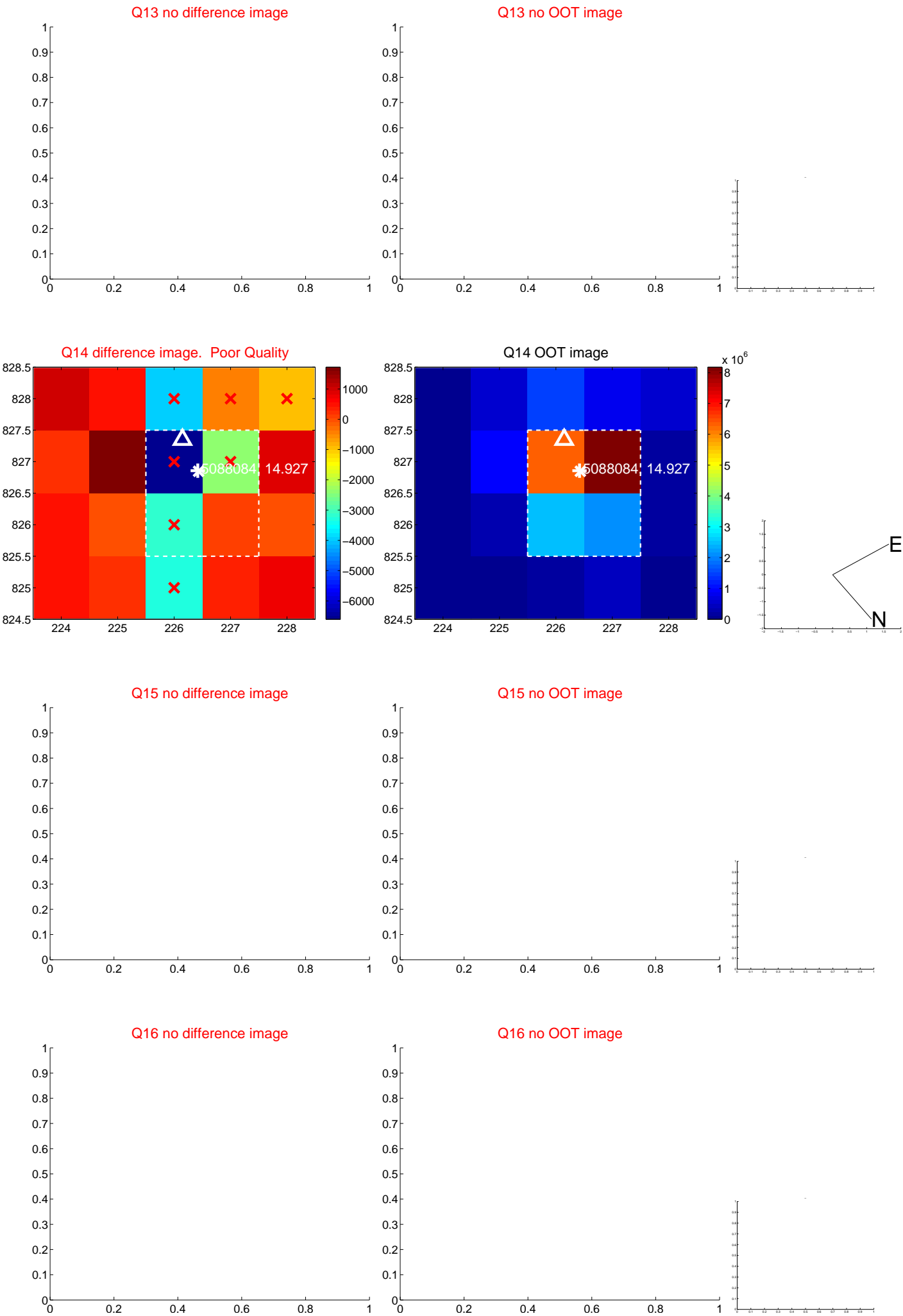
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

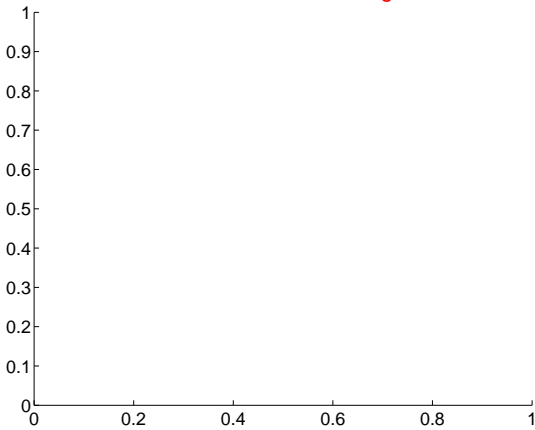


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

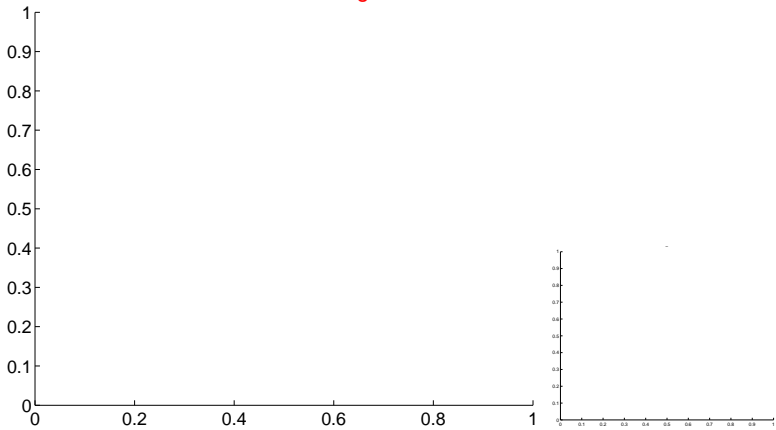


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

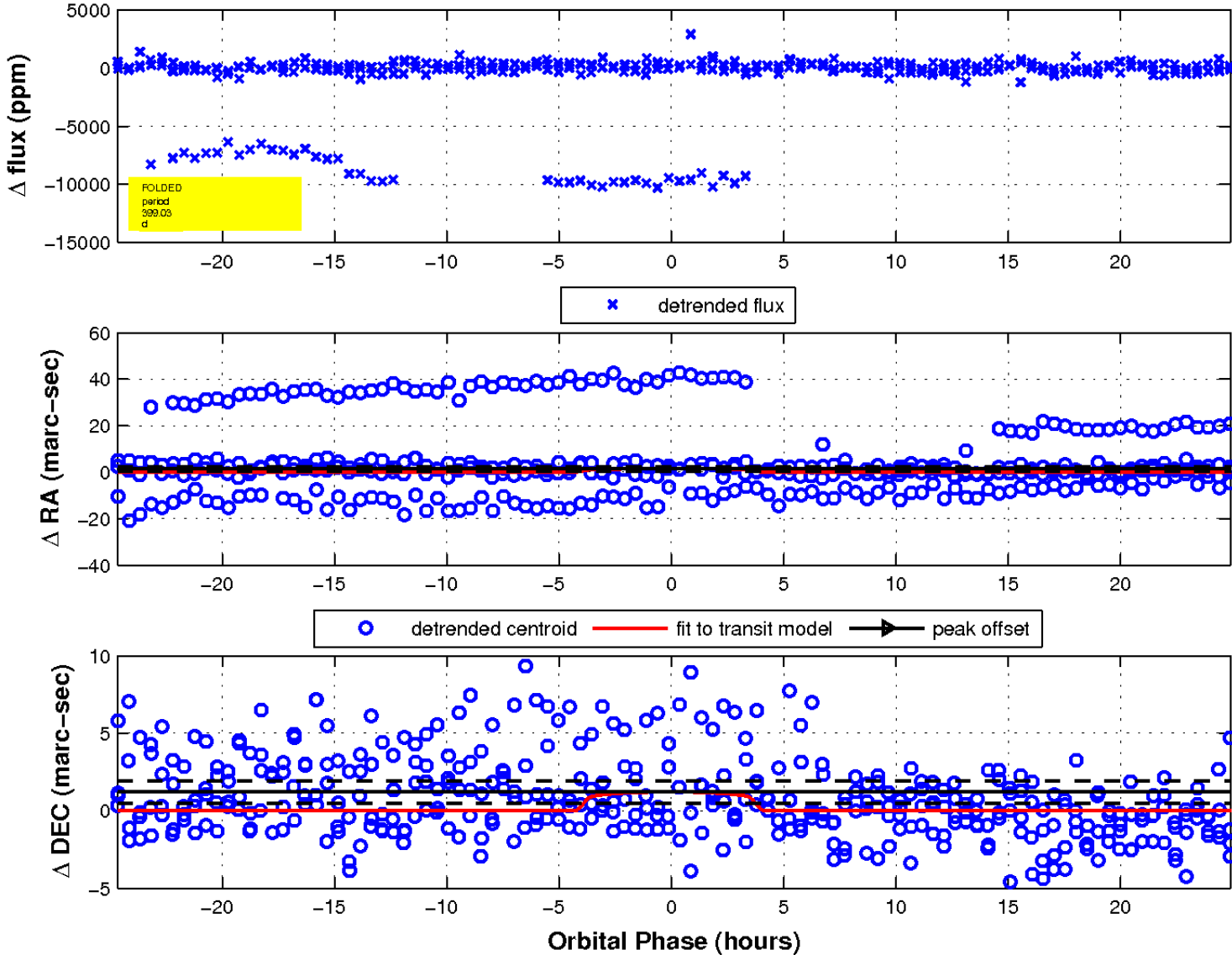
Q17 no difference image



Q17 no OOT image

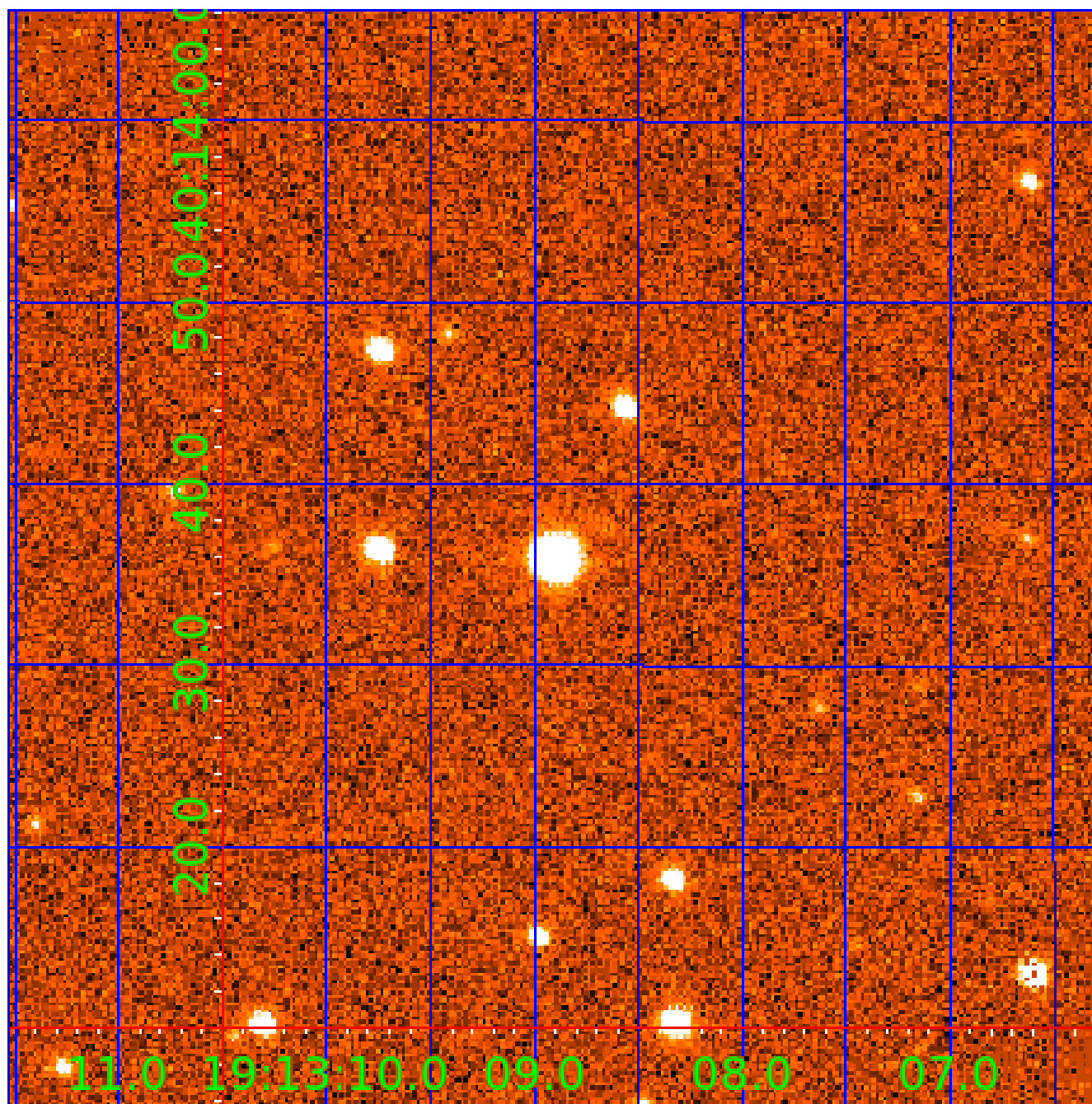


fluxWeightedCentroids, Planet 4 of 6



UKIRT Image

Declination



KIC 005088084

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})
005088084-01	OBS	No	351.304836	253.335320	1813.7	51.121	35.8	10.1	1.08	5941	4.58	1.37
005088084-02	OBS	No	376.541510	169.573401	2638.7	10.511	27.6	15.6	1.08	5941	10.41	1.25
005088084-04	OBS	No	399.027207	147.863092	145.2	8.357	41.6	1.5	1.08	5941	1.56	1.16
005088084-05	OBS	No	382.795502	211.917052	2699.2	12.500	34.3	-1.0	1.08	5941	5.59	1.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005088084-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005088084-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005088084-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_ZUMA—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_FEW_DIFFS
005088084-05	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—EPHEM_MATCH

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.

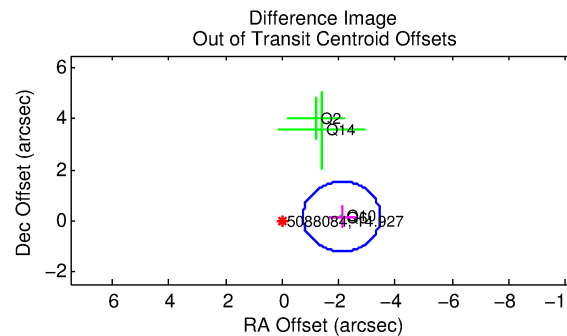
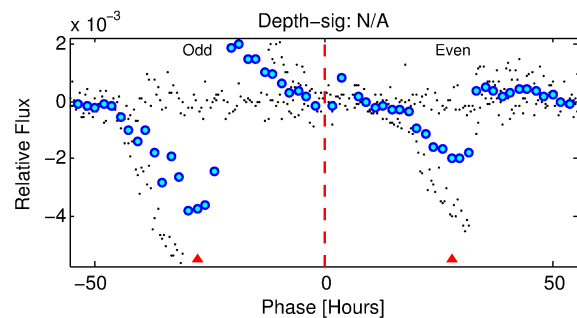
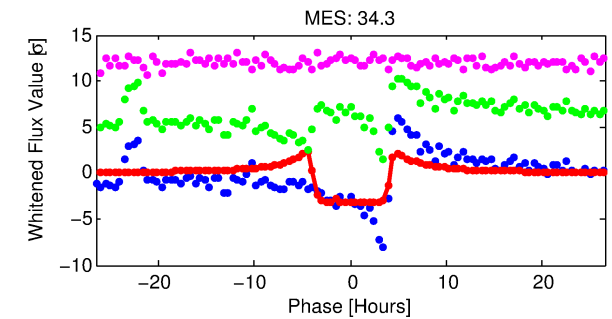
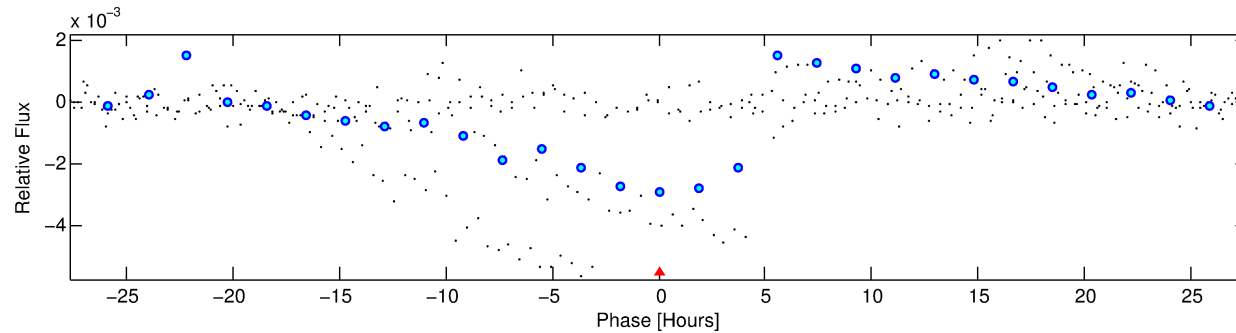
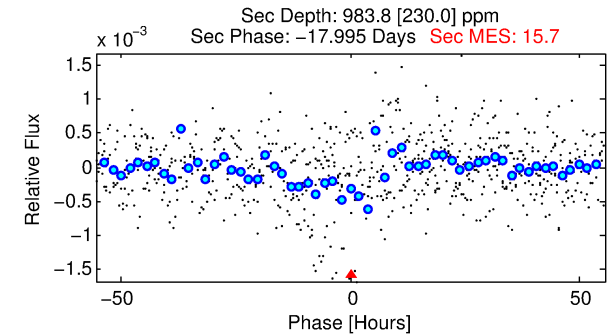
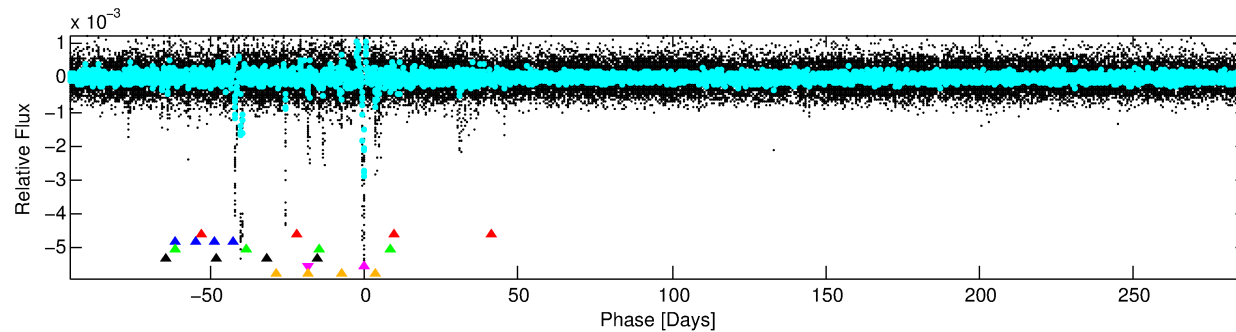
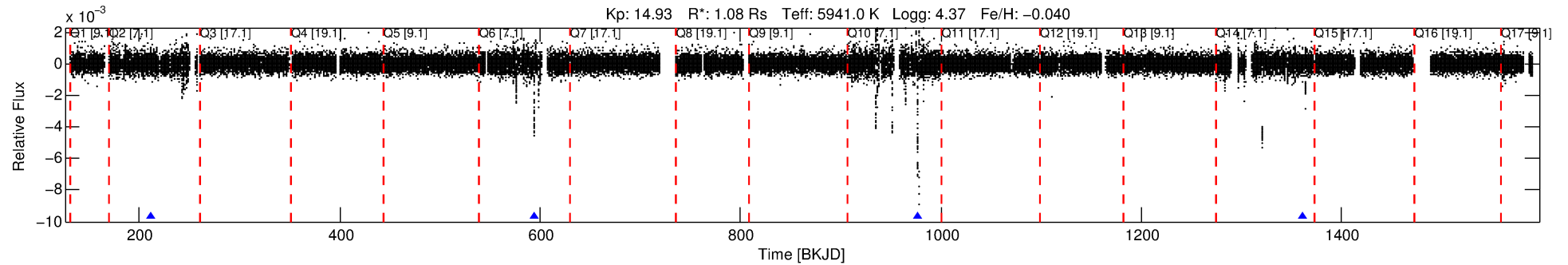
Ephemeris Match Information For 005088084-05

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005088084-05	5088084	005521373-02	5521373	1:1	2409.4	606	1	12.55	14.92	0.05	Col-Anomaly	1	0.16	0.89

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5088084 Candidate: 5 of 6 Period: 382.796 d



TPS TCE Results:

Period = 382.79550 d
Epoch = 211.9171 BKJD

DV fit results are unavailable

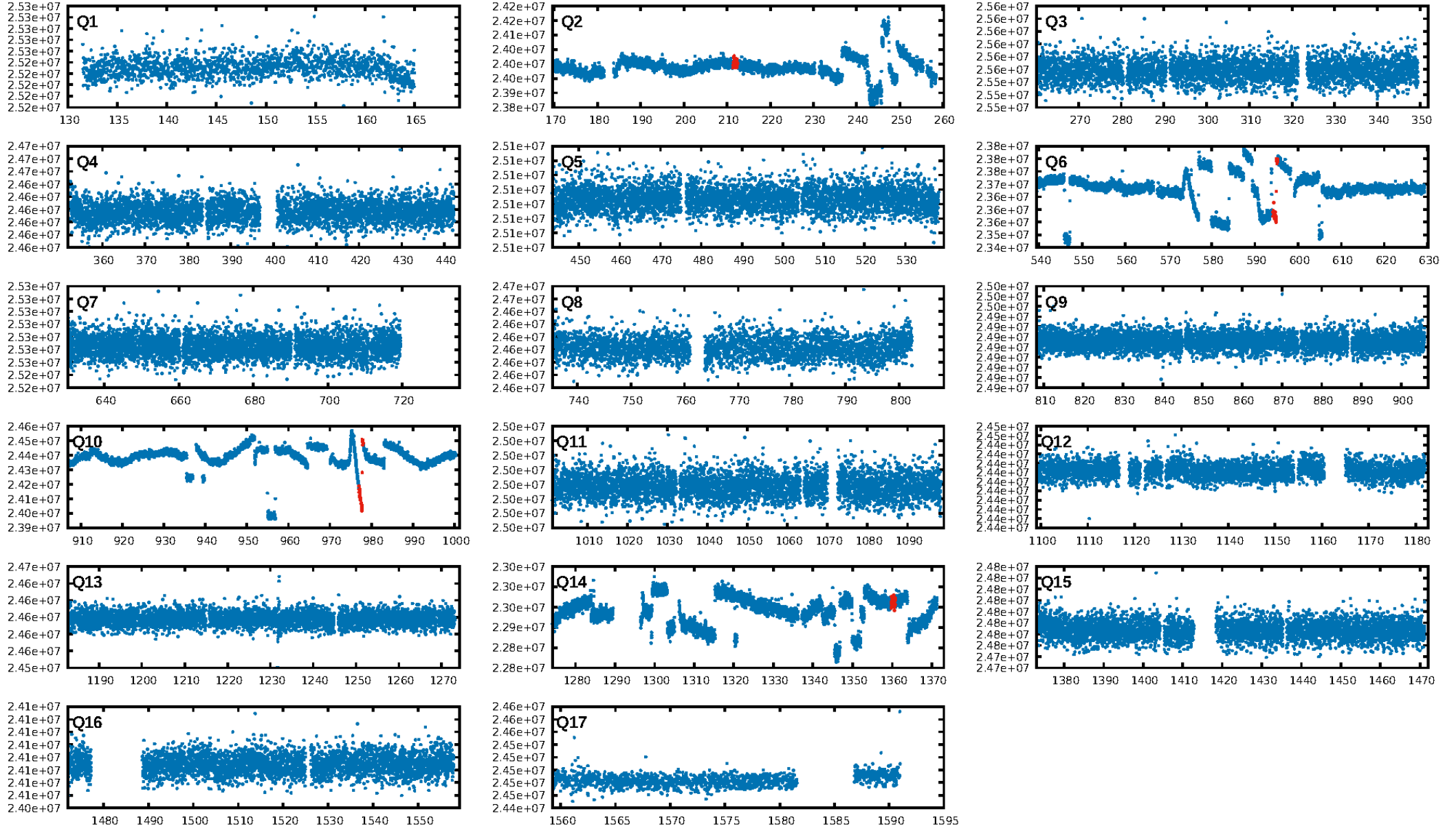
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.19σ]
LongPeriod-sig: 100.0% [16.62σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.047
Centroid-sig: 18.4%
Centroid-so: 0.342 arcsec [1.01σ]
OotOffset-rm: 2.108 arcsec [4.61σ]
KicOffset-rm: 2.068 arcsec [4.52σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 1.00 [4/4]

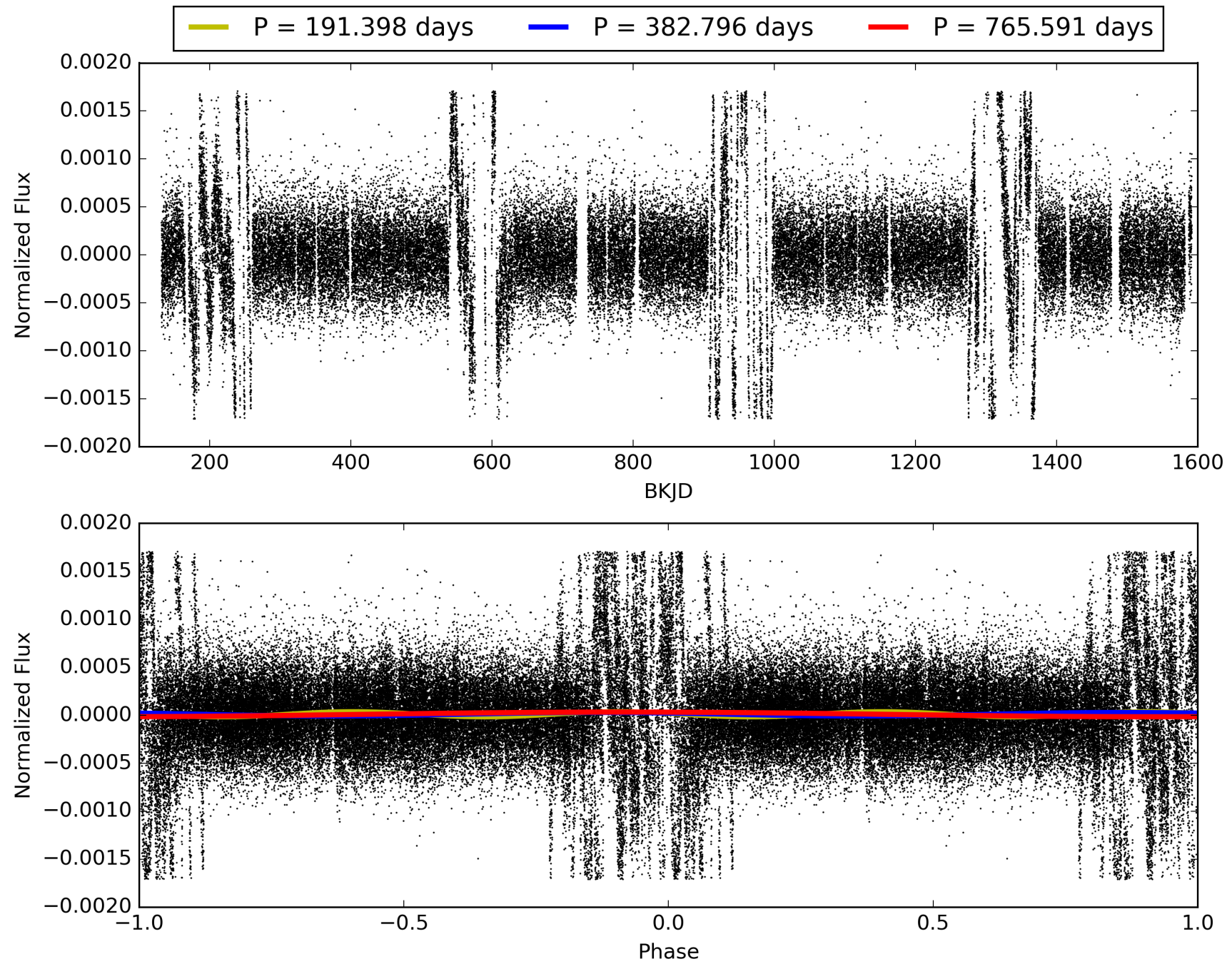
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:12:33 Z

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

TCE 005088084-05, PDC Light Curves

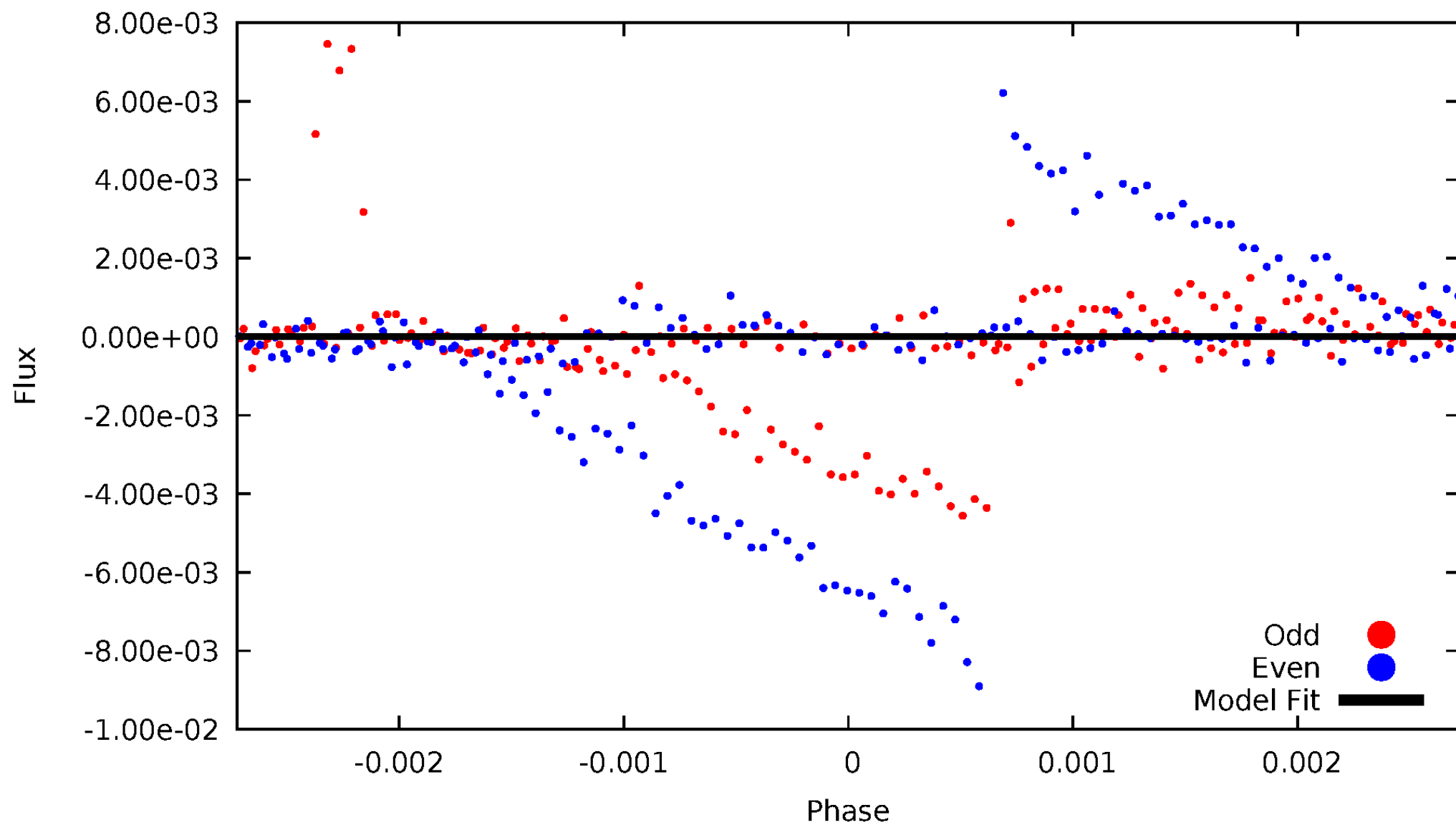


TCE 005088084-05



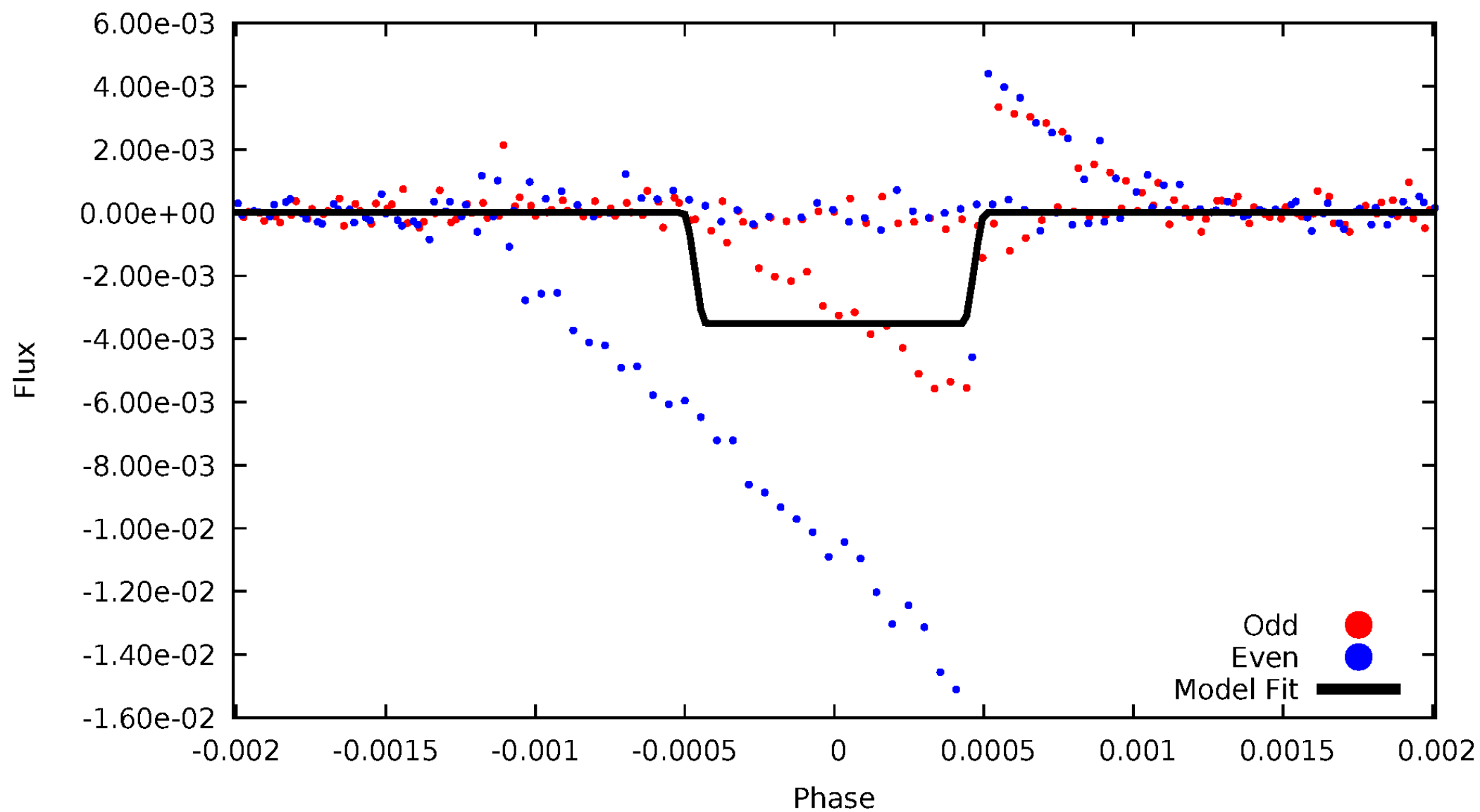
DV Odd/Even

TCE 005088084-05

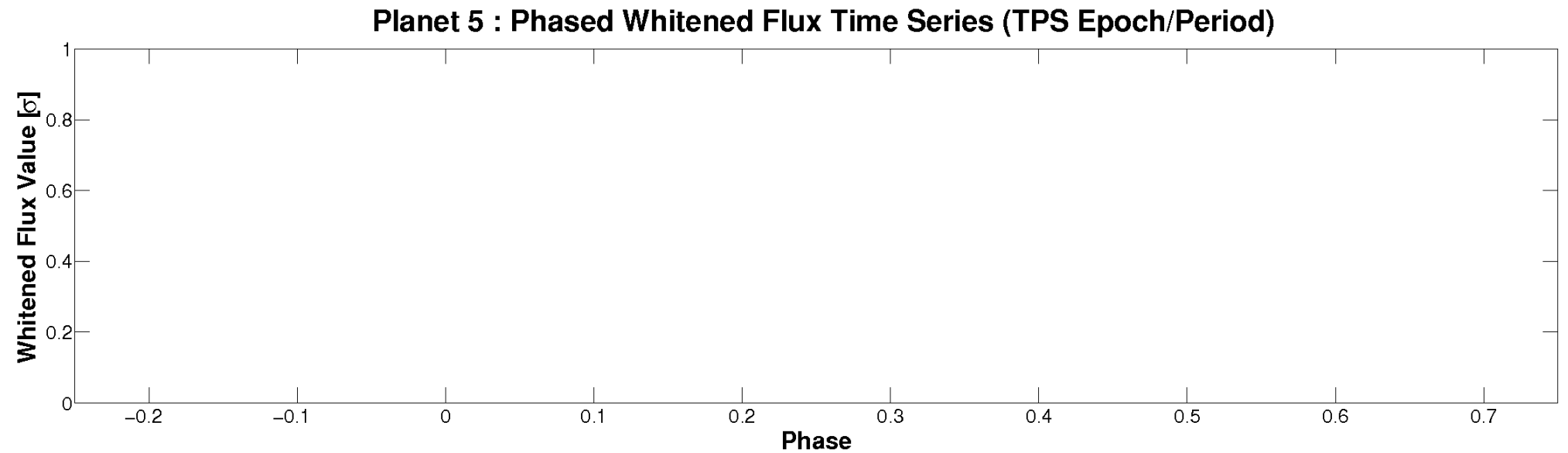
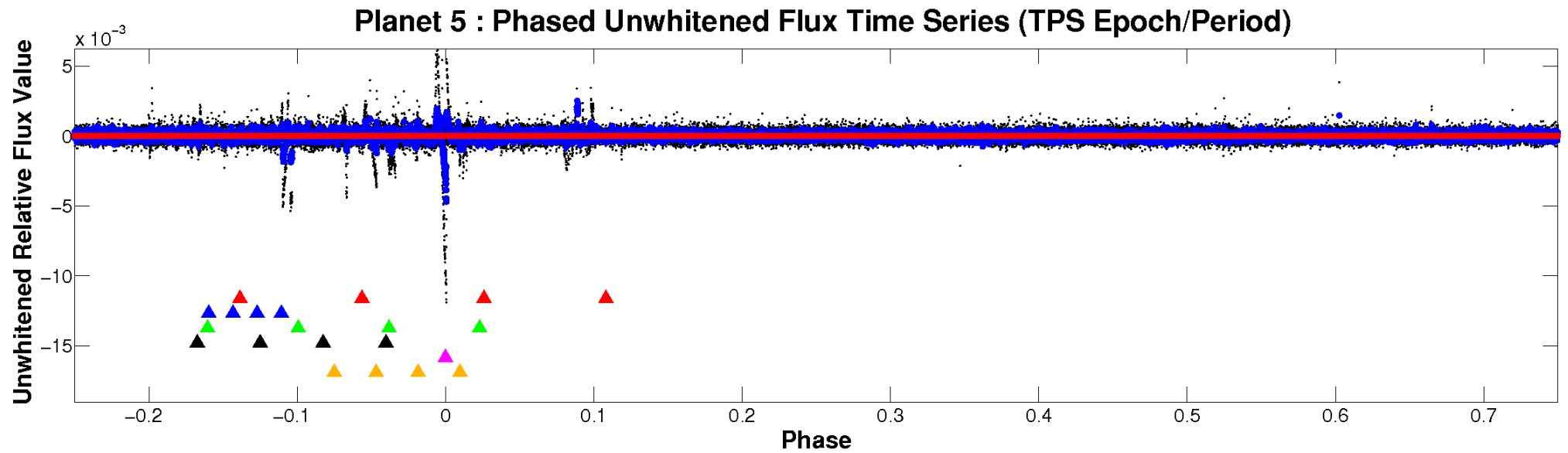


ALT Odd/Even

TCE 005088084-05

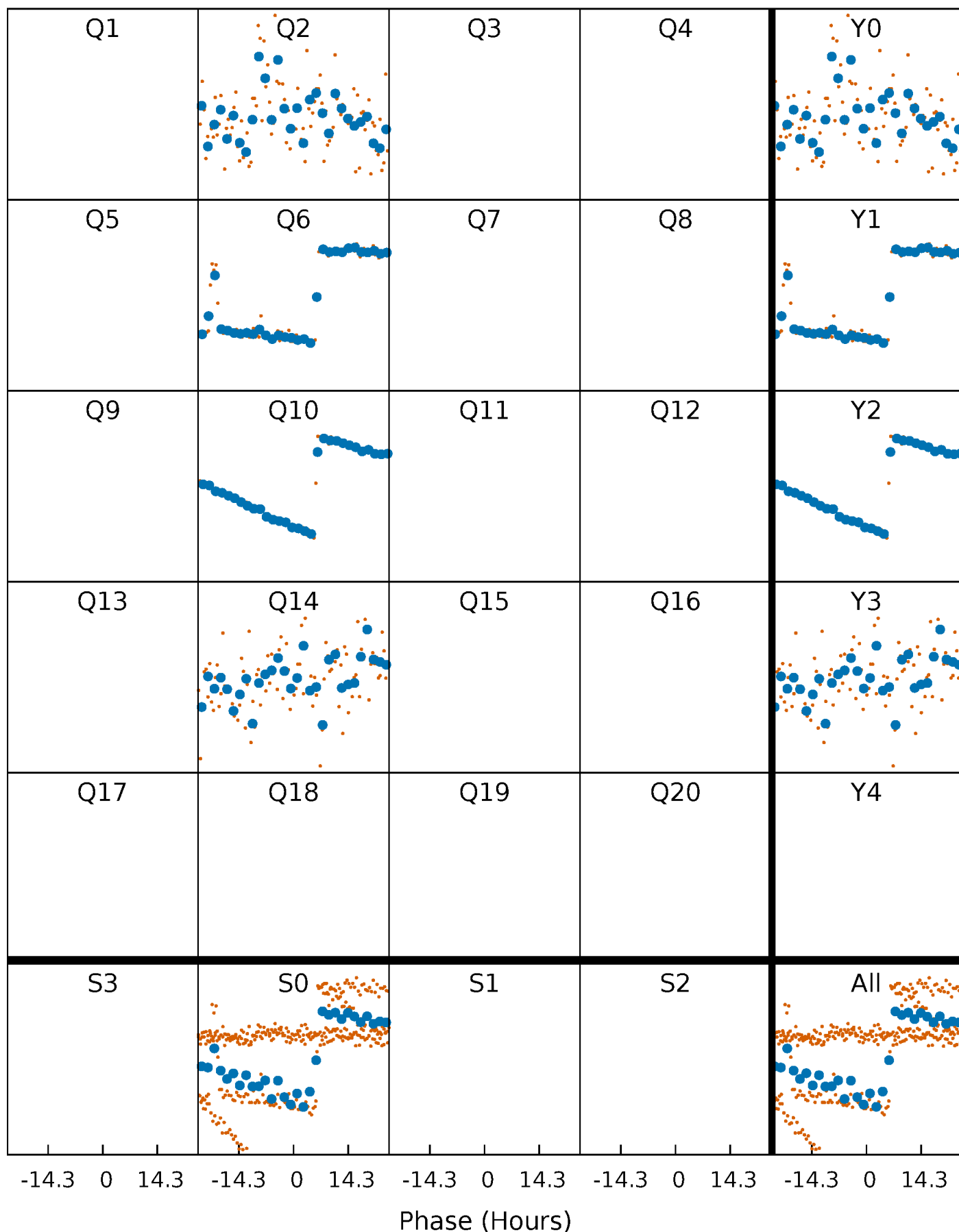


Non-Whitened Vs. Whitened Light Curve



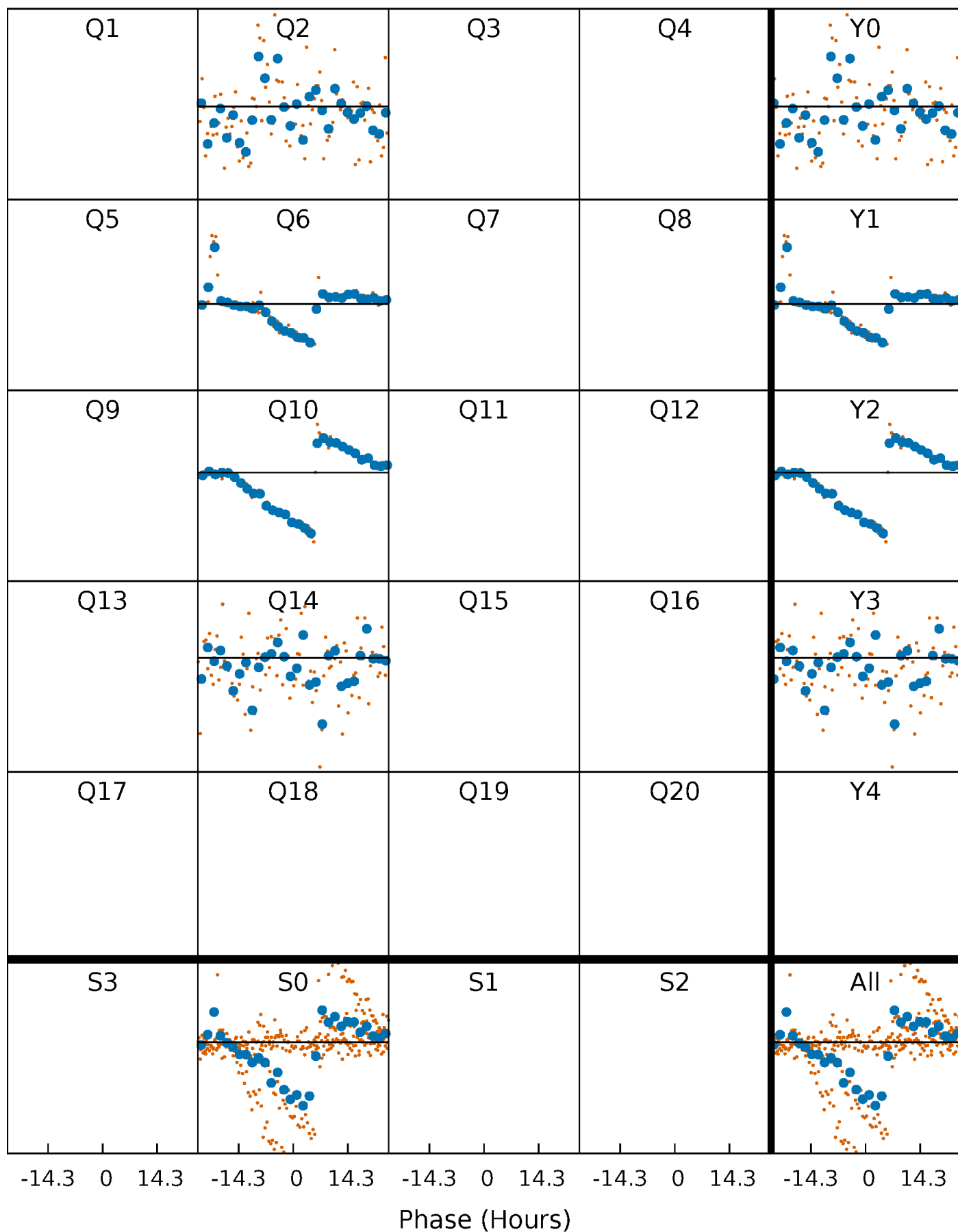
PDC Quarter-Phased Transit Curves

TCE 005088084-05 P=382.795502 Days $T_0=211.917052$ (BKJD)



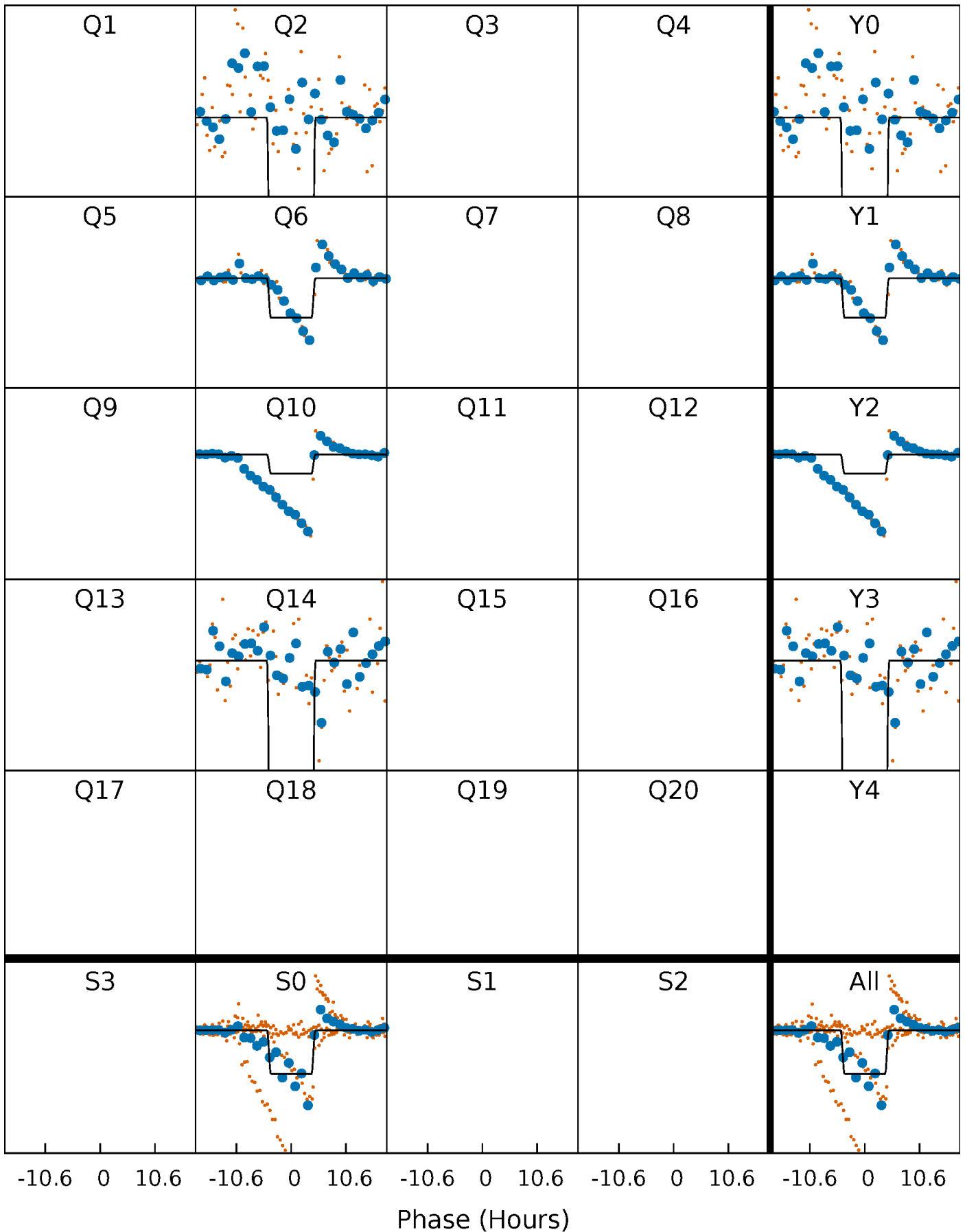
DV Quarter-Phased Transit Curves

TCE 005088084-05 $P=382.795502$ Days $T_0=211.917052$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

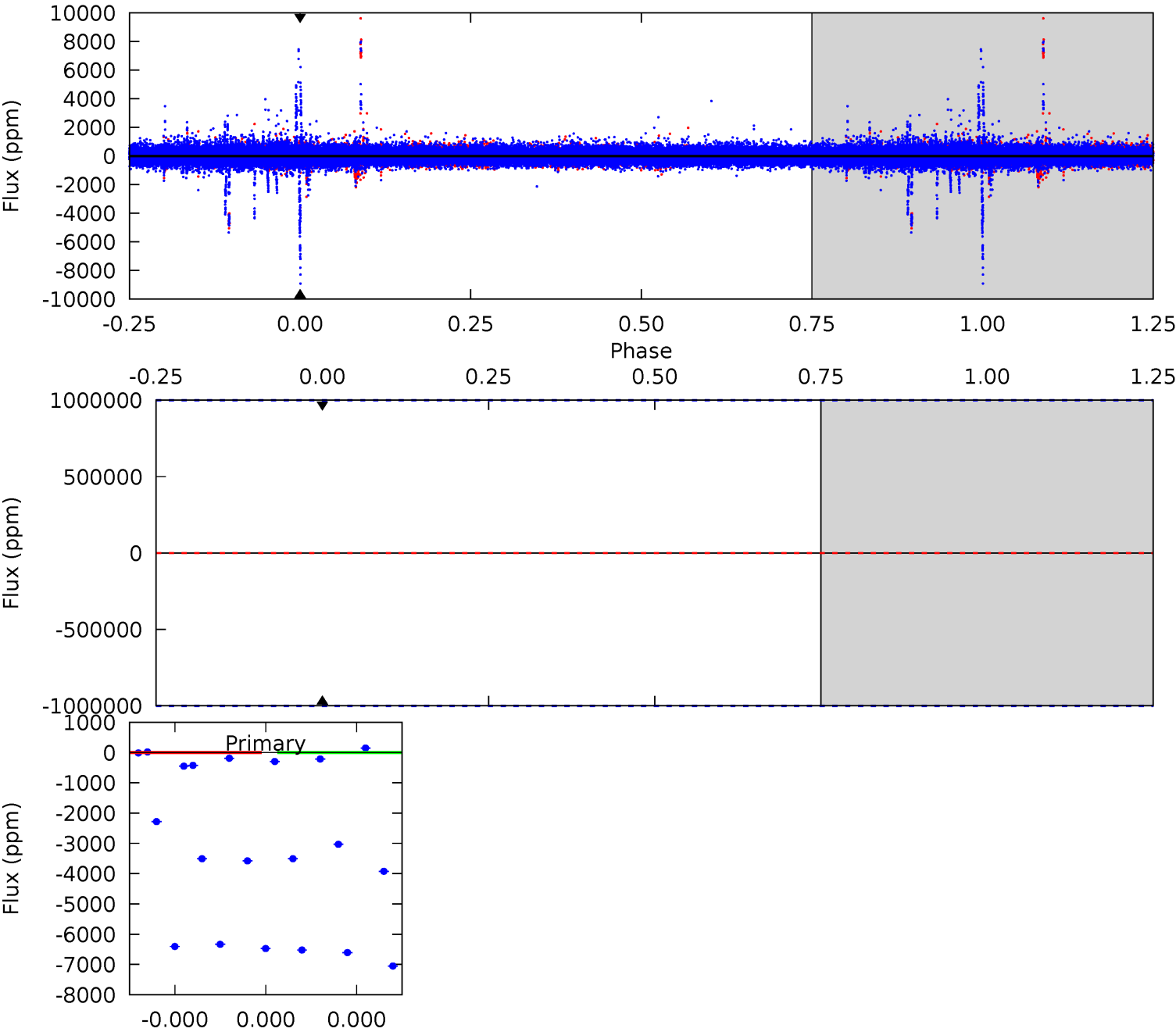
TCE 005088084-05 P=382.795502 Days $T_0=211.983947$ (BKJD)



DV Model-Shift Uniqueness Test

005088084-05, P = 382.795502 Days, E = 211.917052 Days

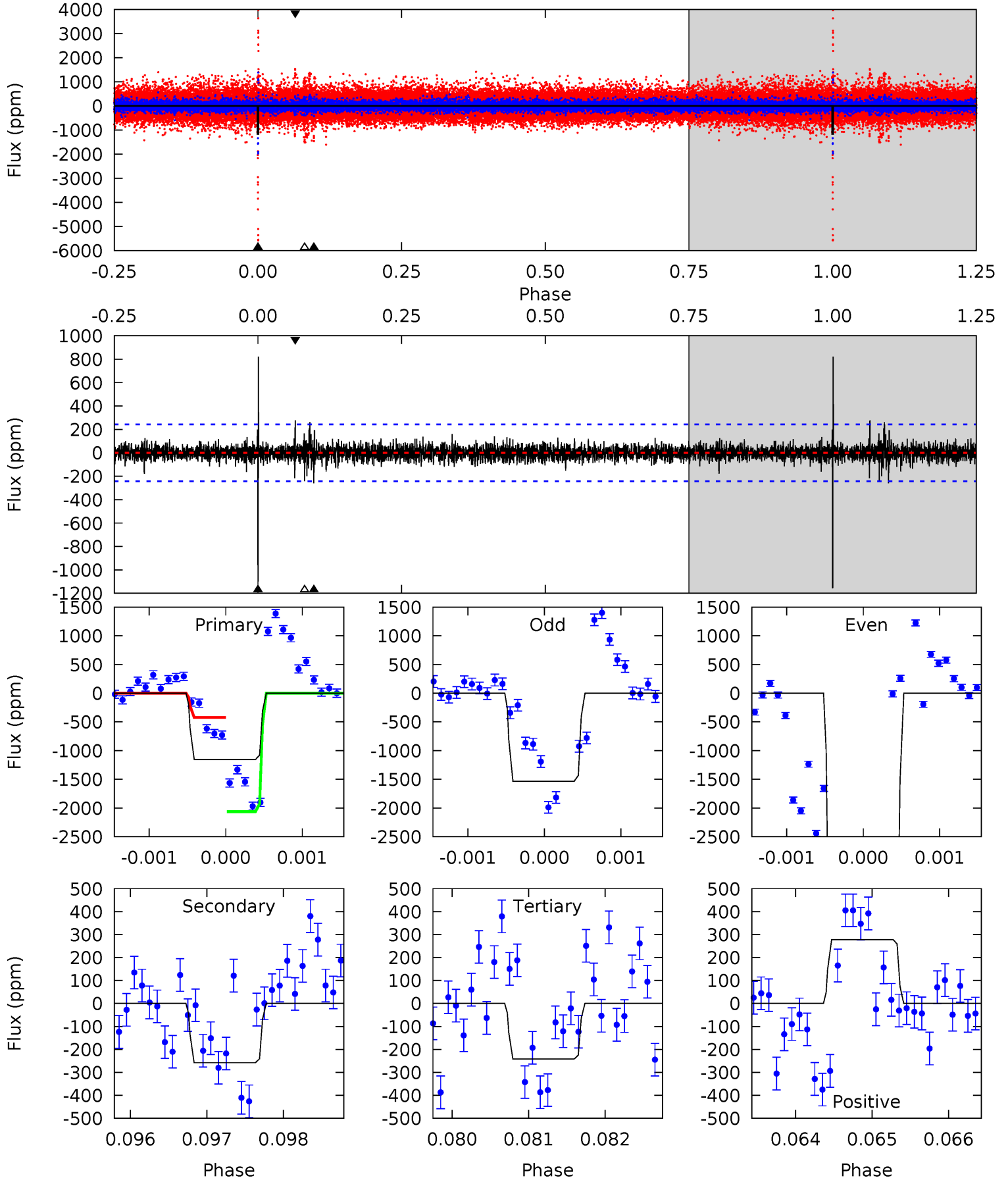
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005088084-05, P = 382.795502 Days, E = 211.983947 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.0	5.81	5.43	6.26	5.45	3.29	0.93	20.6	19.7	0.37	-0.45	50.2	2.19	0.42	17.7



Stellar Parameters For KIC 005088084

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5941^{+164}_{-184}	$4.373^{+0.124}_{-0.201}$	$-0.040^{+0.250}_{-0.300}$	$1.082^{+0.322}_{-0.173}$	$1.009^{+0.152}_{-0.110}$	$1.122^{+0.550}_{-0.590}$
	+3%/-3%	+3%/-5%	+625%/-750%	+30%/-16%	+15%/-11%	+49%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005088084-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$11.09^{+9.24}_{-7.38}$	377^{+25}_{-22}	-4297^{+21736}_{-13507}	$-9158.674^{+856712.236}_{-835808.834}$
Alt.	-258 ± 44	$11.62^{+10.70}_{-7.25}$	376^{+31}_{-21}	3076^{+1127}_{-480}	1082^{+6759}_{-766}

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

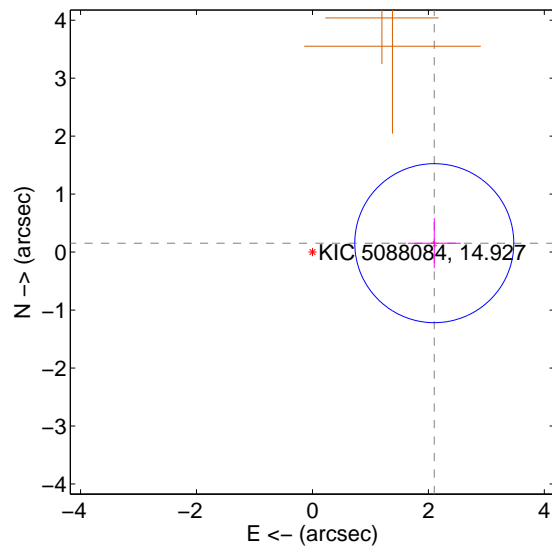
Supplemental centroid analysis for 005088084-05. Kepler magnitude: 14.93. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

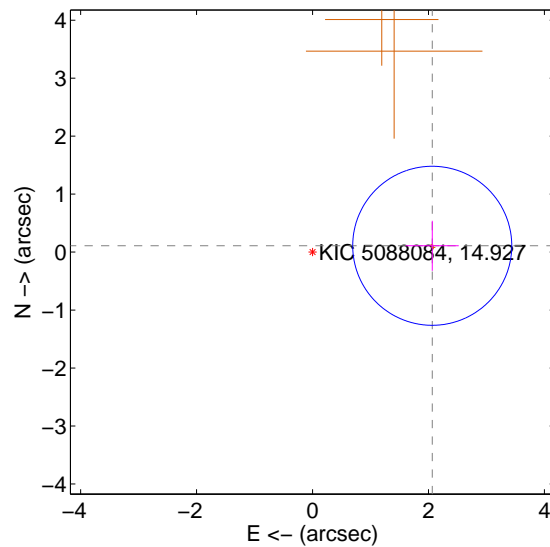
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.108 ± 0.457	4.61	-2.102 ± 0.457	0.154 ± 0.432
PRF-fit source offset from KIC position	2.068 ± 0.457	4.52	-2.065 ± 0.457	0.109 ± 0.432
photometric centroid source offset	0.34 ± 0.34	1.01	-0.34 ± 0.34	0.05 ± 0.20

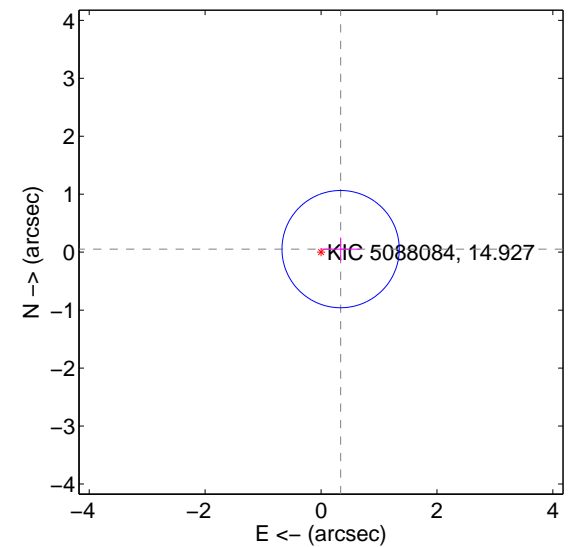
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

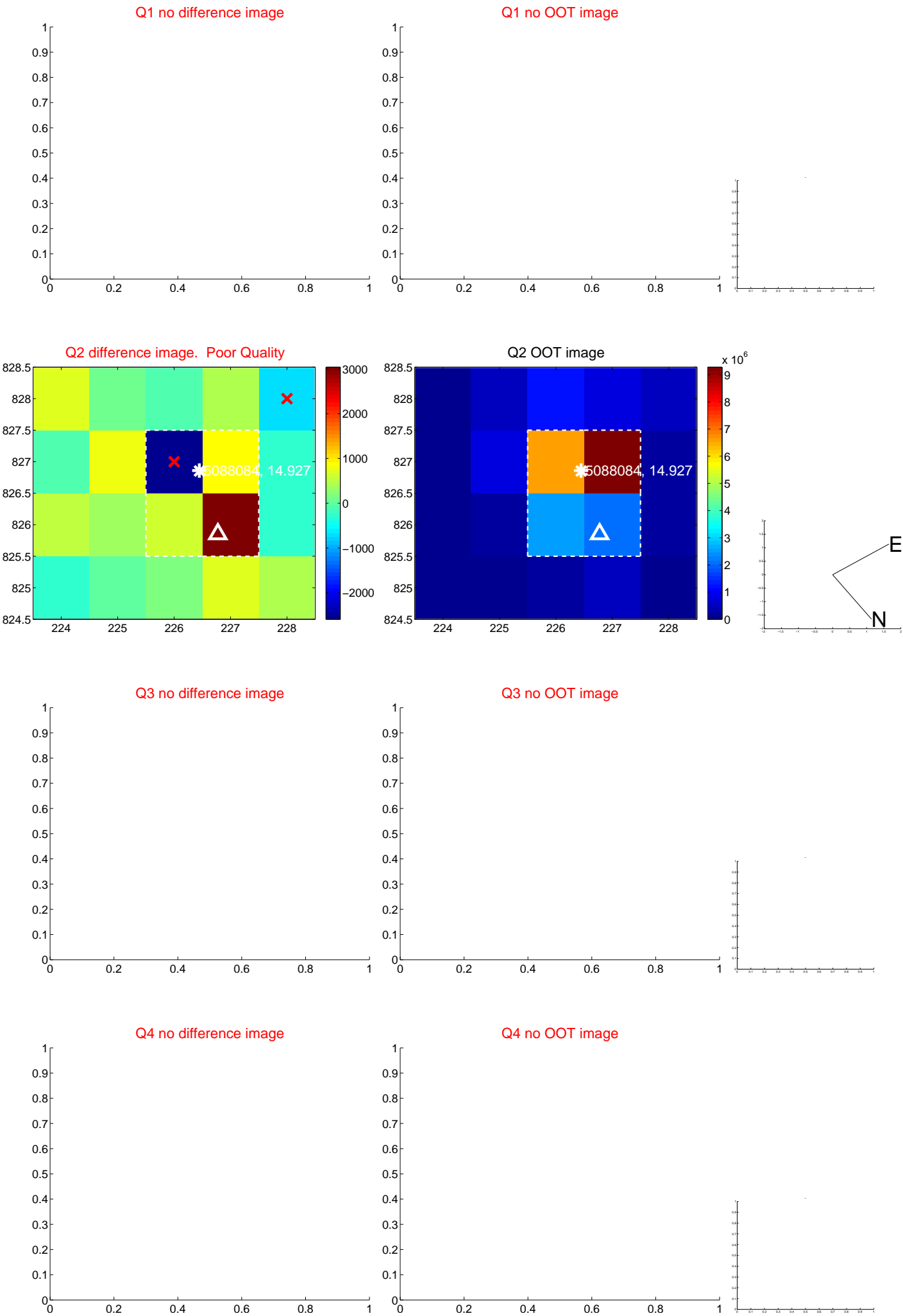


offset from photometric centroids

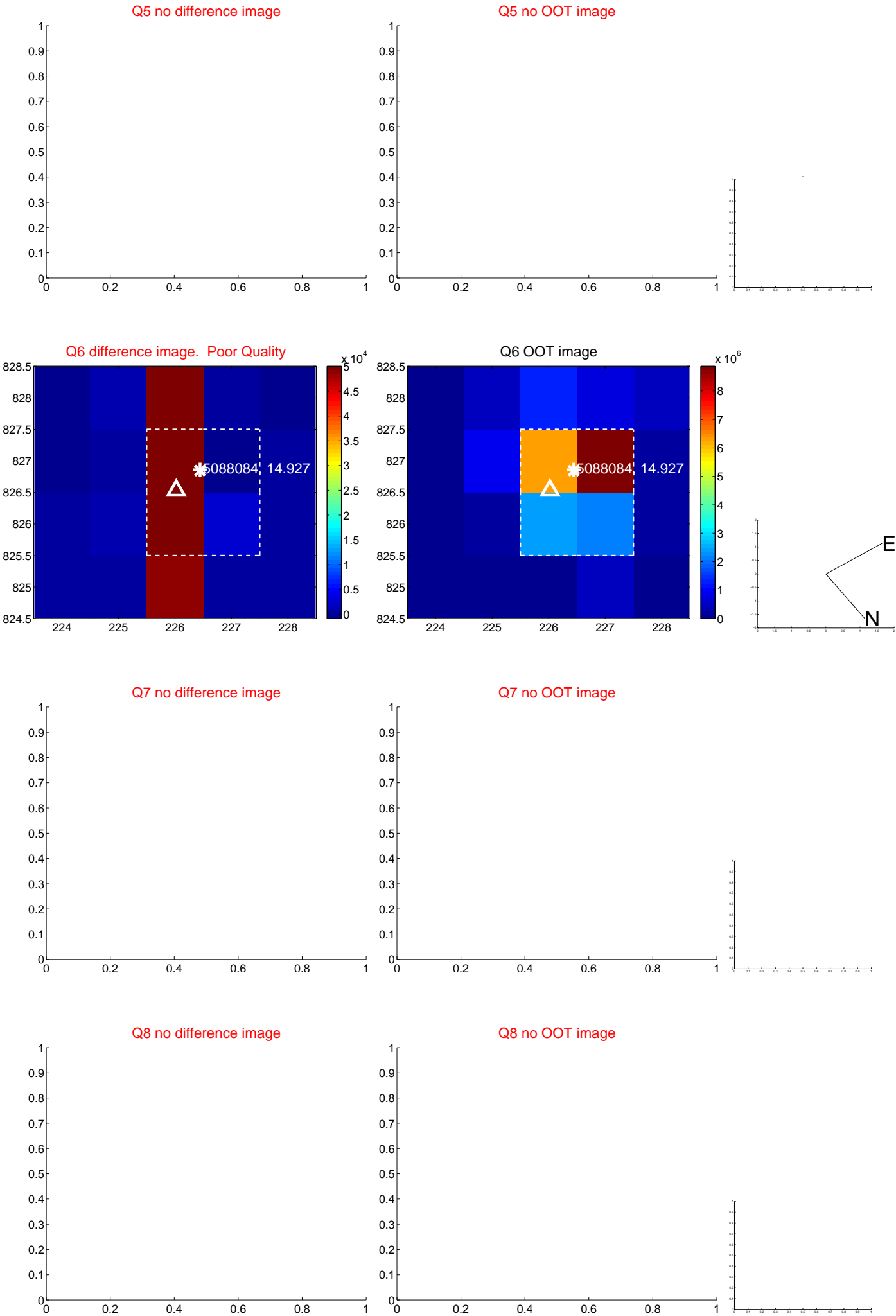


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

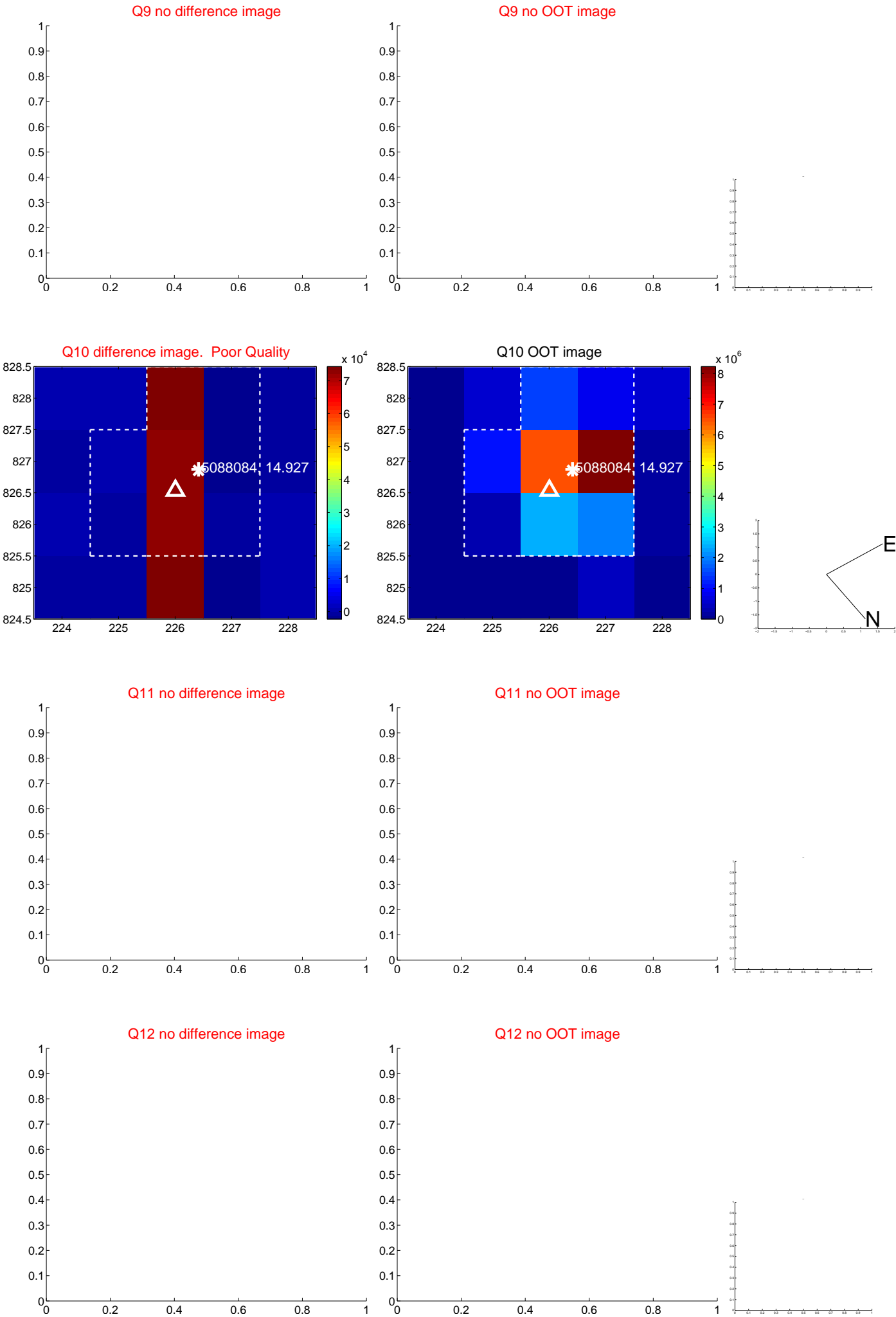
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



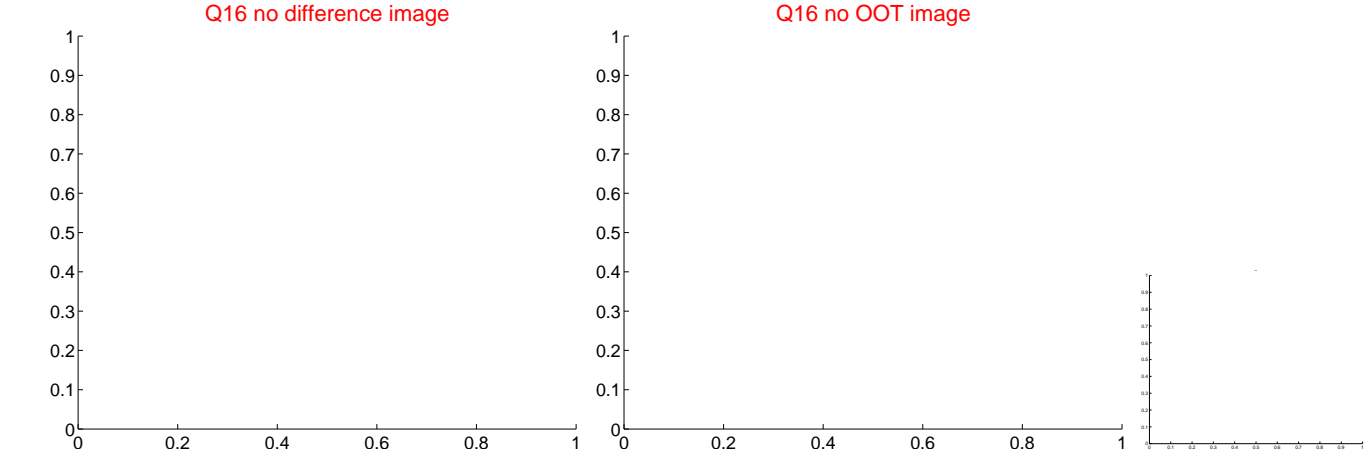
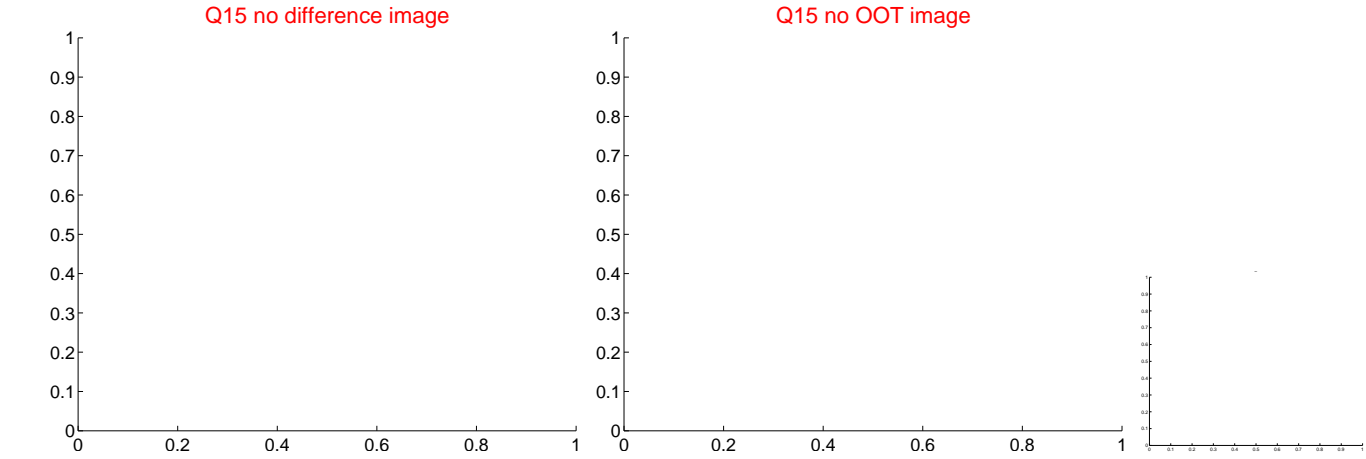
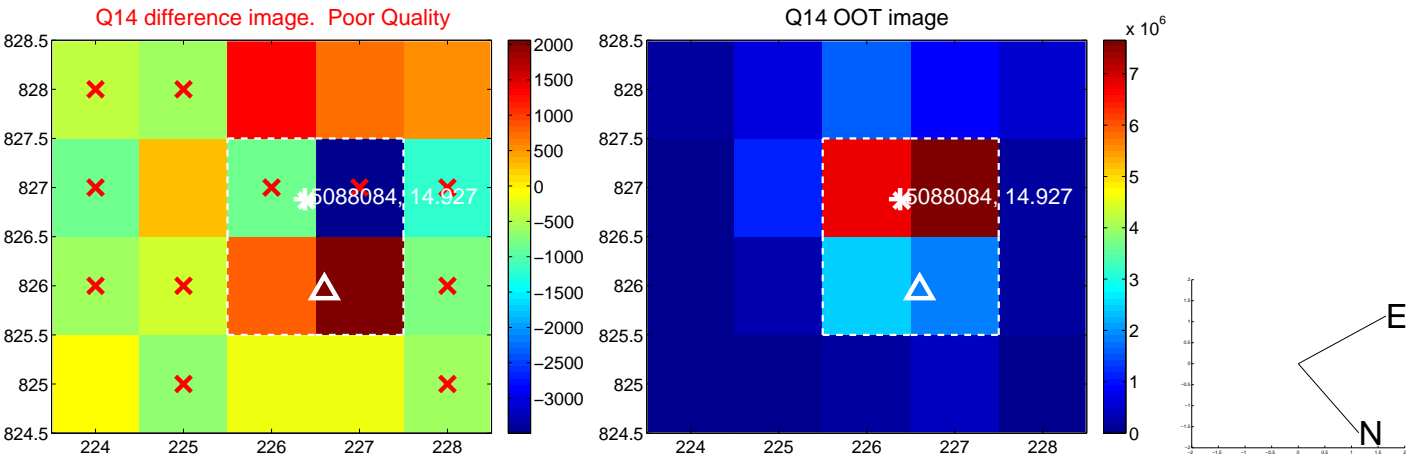
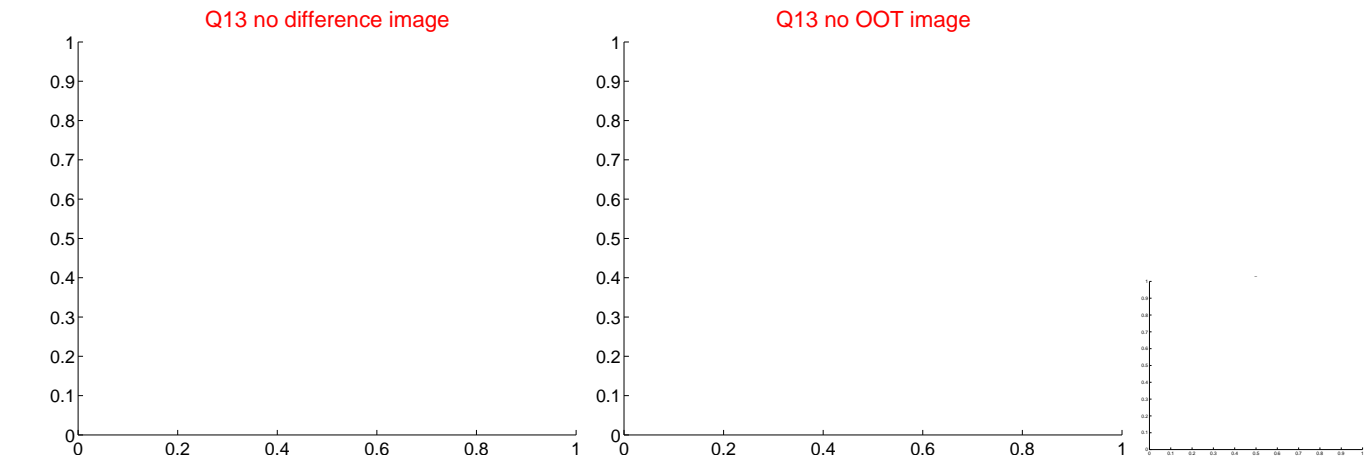
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

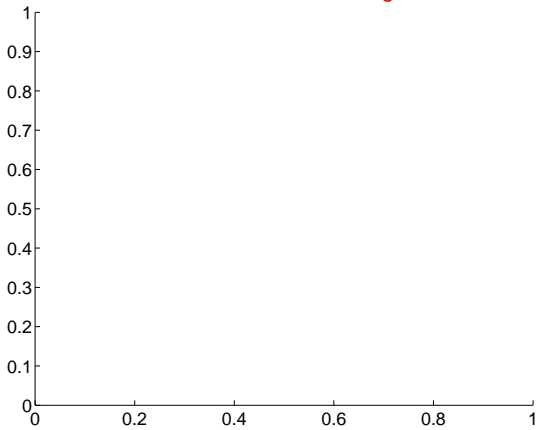


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

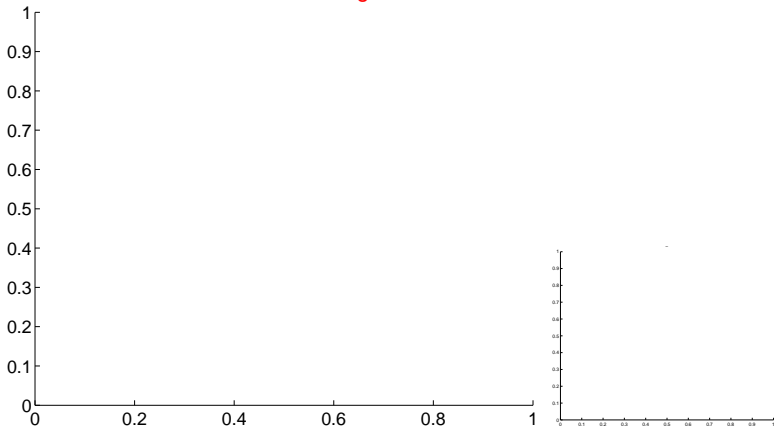


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

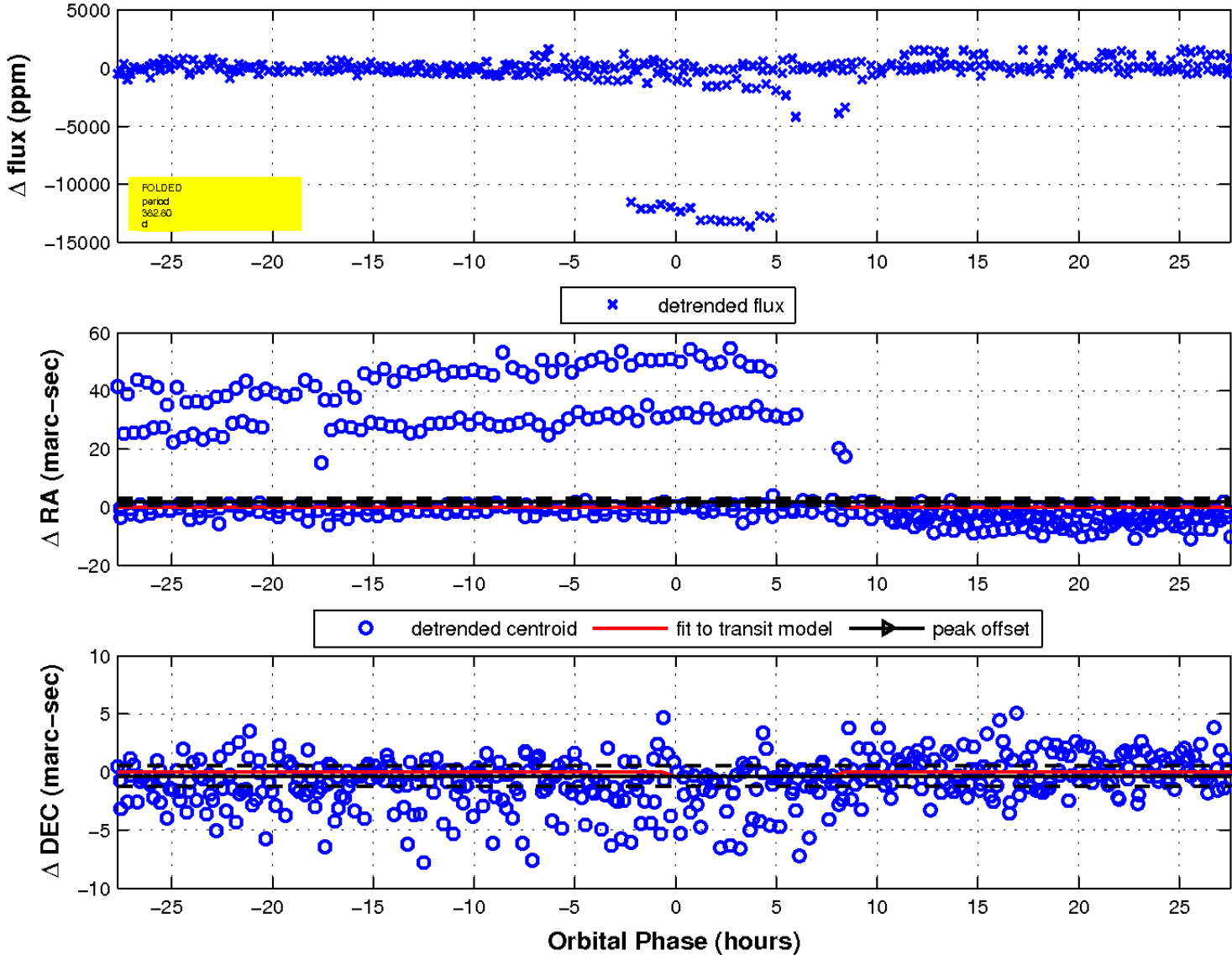
Q17 no difference image



Q17 no OOT image



fluxWeightedCentroids, Planet 5 of 6



UKIRT Image

Declination

