

KIC 008643851

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})
008643851-01	OBS	No	5.536474	131.732388	49.6	16.067	9.9	7.8	2.37	6054	1.95	1661.83
008643851-02	OBS	No	494.181774	509.548014	1853.1	28.281	47.2	22.7	2.37	6054	19.04	4.17
008643851-03	OBS	No	5.534905	133.868225	22.5	38.273	8.0	4.1	2.37	6054	1.20	1662.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008643851-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008643851-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008643851-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

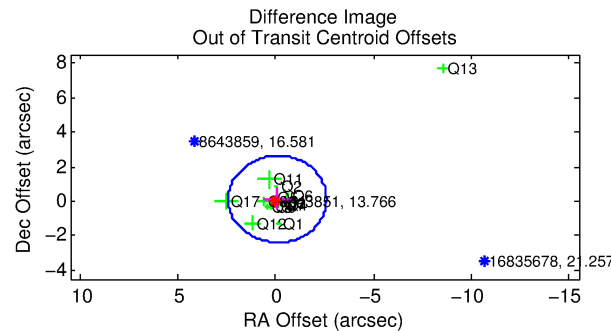
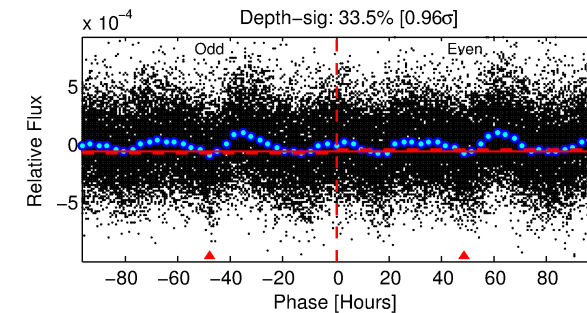
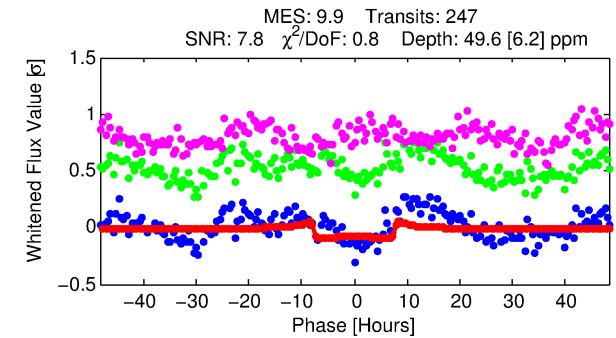
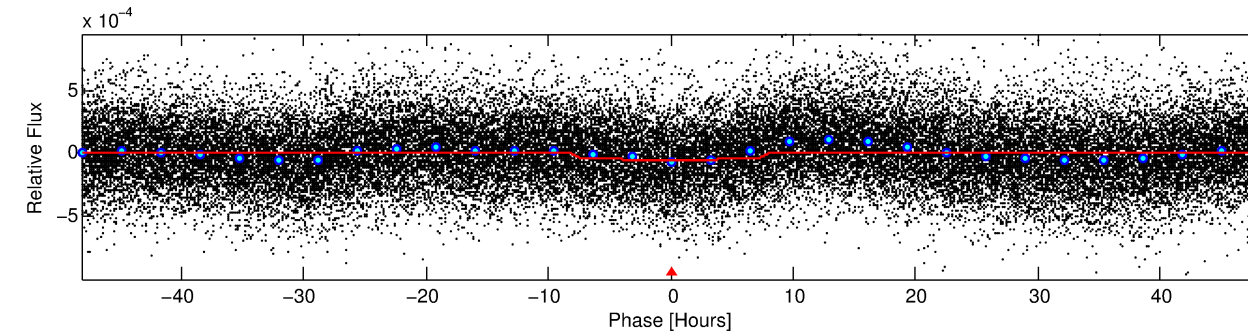
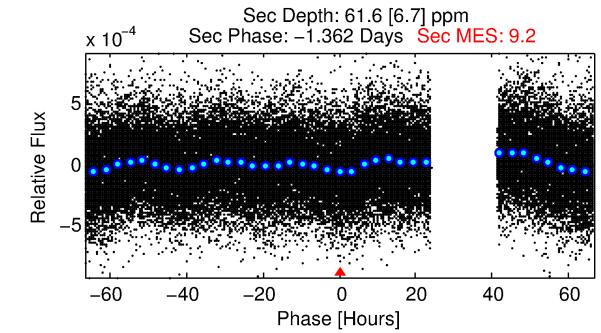
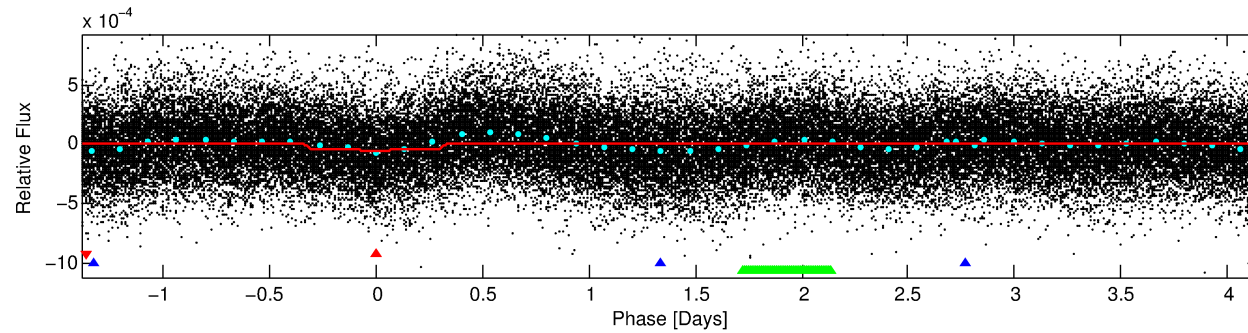
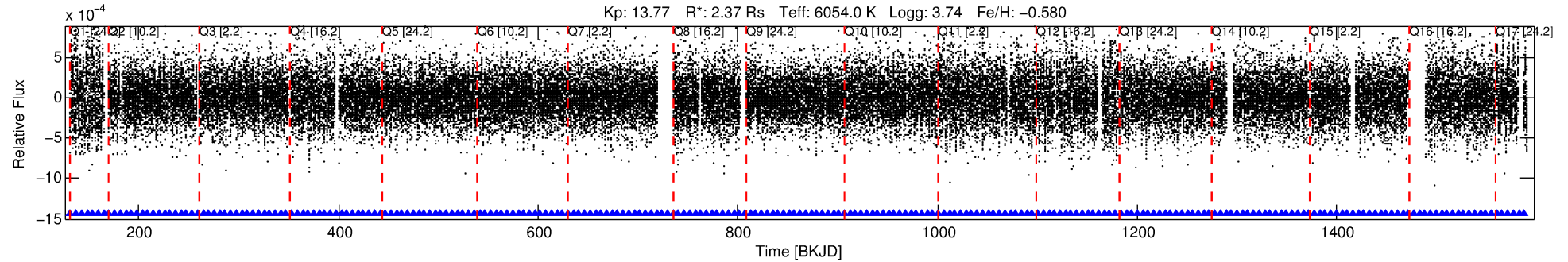
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008643851-01

No Significant Match Found

DV One-Page Summary

KIC: 8643851 Candidate: 1 of 3 Period: 5.536 d



DV Fit Results:

Period = 5.53647 [0.00010] d
Epoch = 131.7324 [0.0122] BKJD
Rp/R* = 0.0075 [0.0010]
a/R* = 1.53 [0.52]
b = 0.90 [0.13]
Seff = 1661.82 [1788.27]
Teq = 1628 [438] K
Rp = 1.95 [1.15] Re
a = 0.0638 [0.0401] AU
Ag = 36.35 [40.05] [0.88σ]
Teffp = 6181 [479] K [7.02σ]

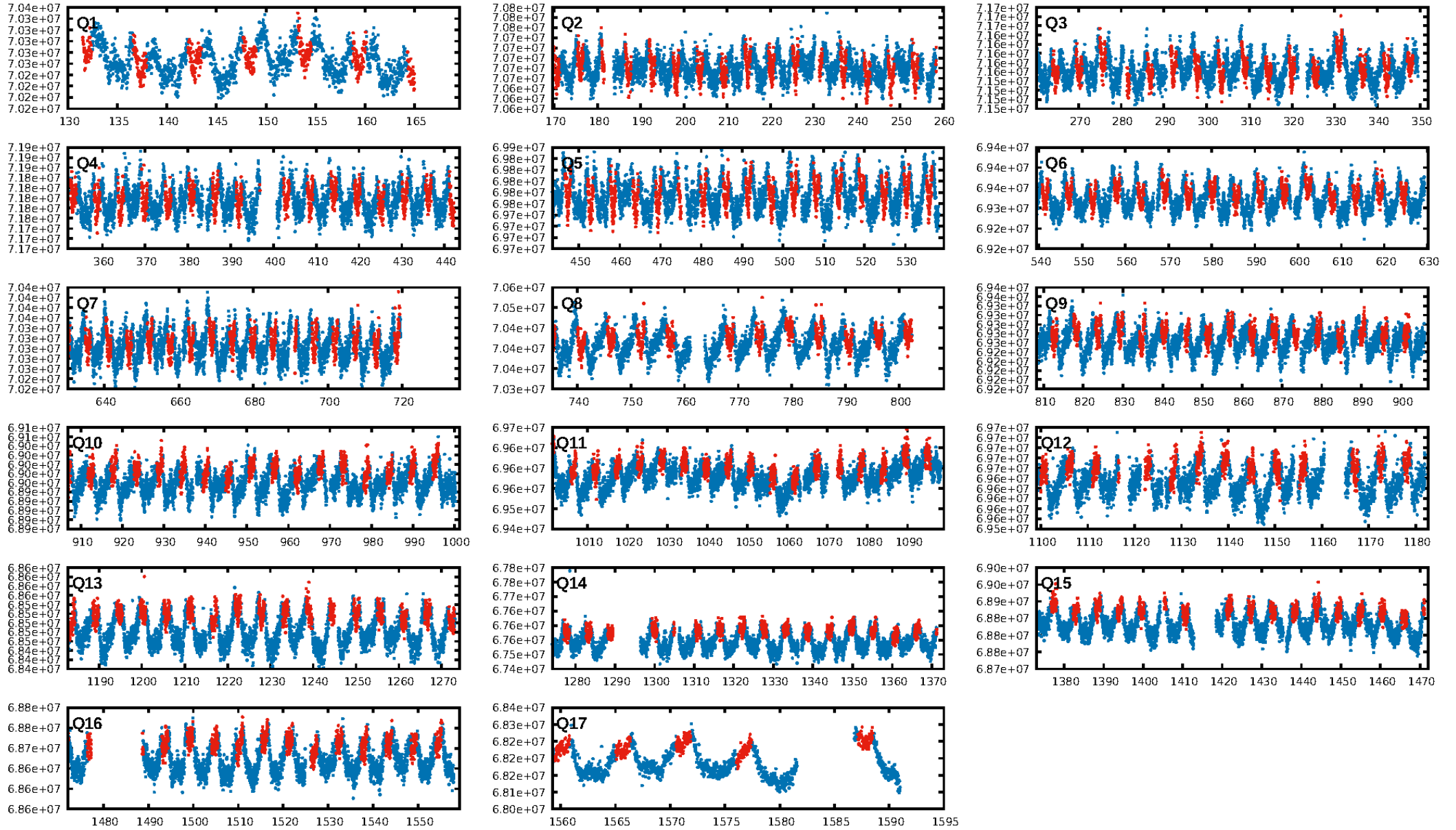
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: 100.0% [360.55σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [235/235]
GhostDiagnostic-chr: 1.835
Centroid-sig: 3.4%
Centroid-so: 1.629 arcsec [1.84σ]
OotOffset-rm: 0.148 arcsec [0.18σ]
KicOffset-rm: 0.279 arcsec [0.41σ]
OotOffset-st: 2/3/4/5 [14]
KicOffset-st: 2/3/4/5 [14]
DiffImageQuality-fgm: 0.79 [11/14]
DiffImageOverlap-fno: 0.53 [9/17]

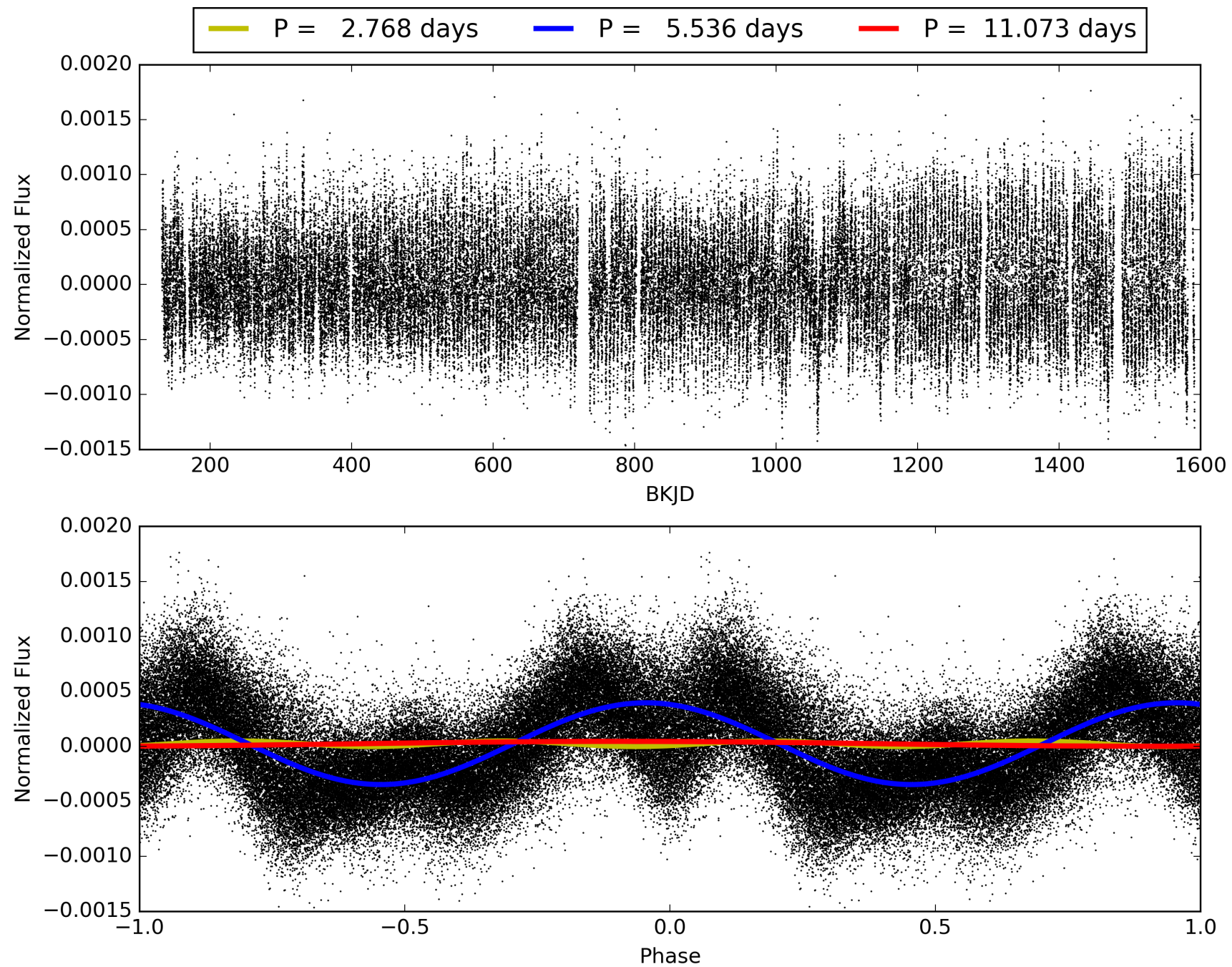
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:52:44 Z

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

TCE 008643851-01, PDC Light Curves

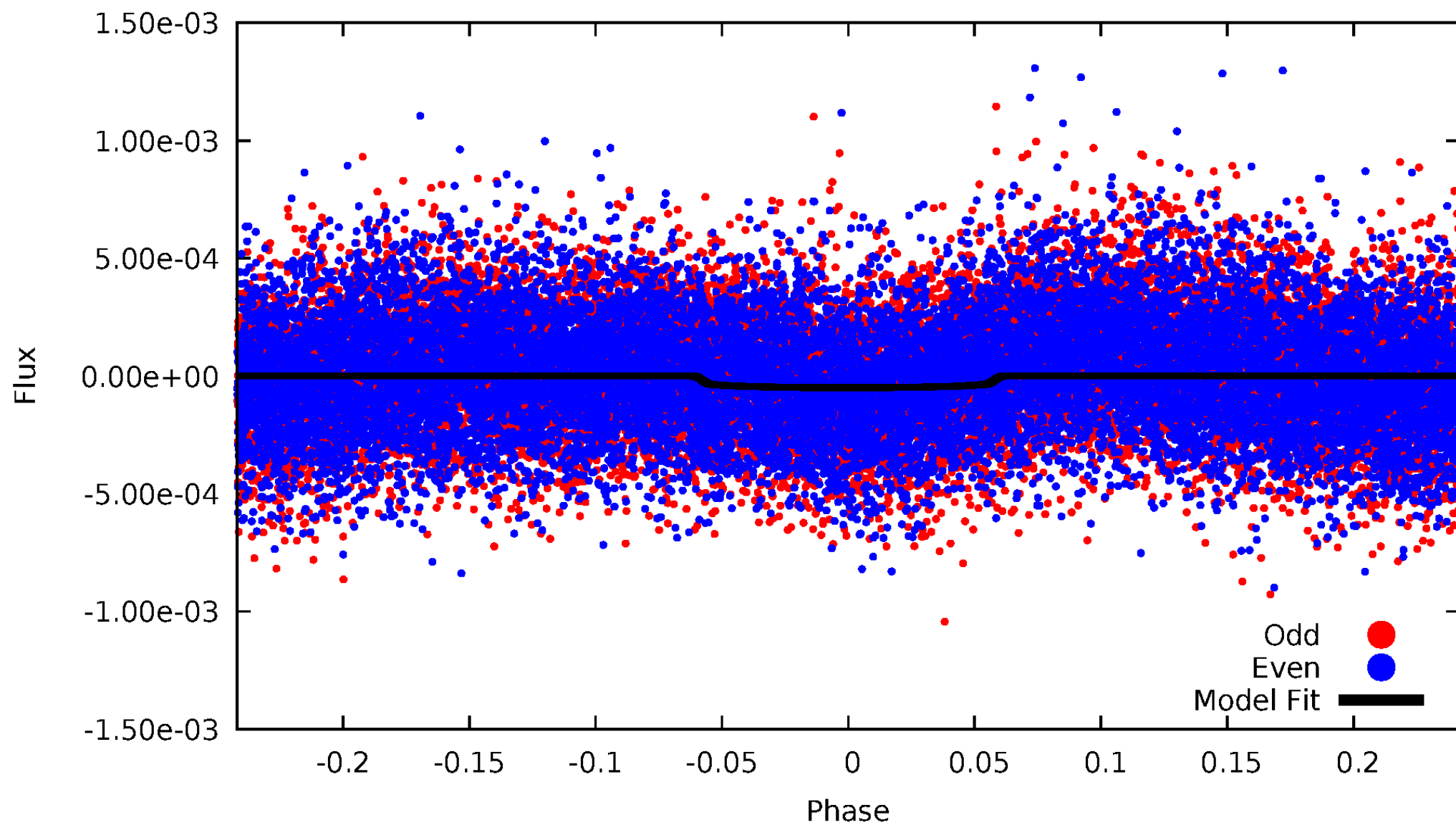


TCE 008643851-01



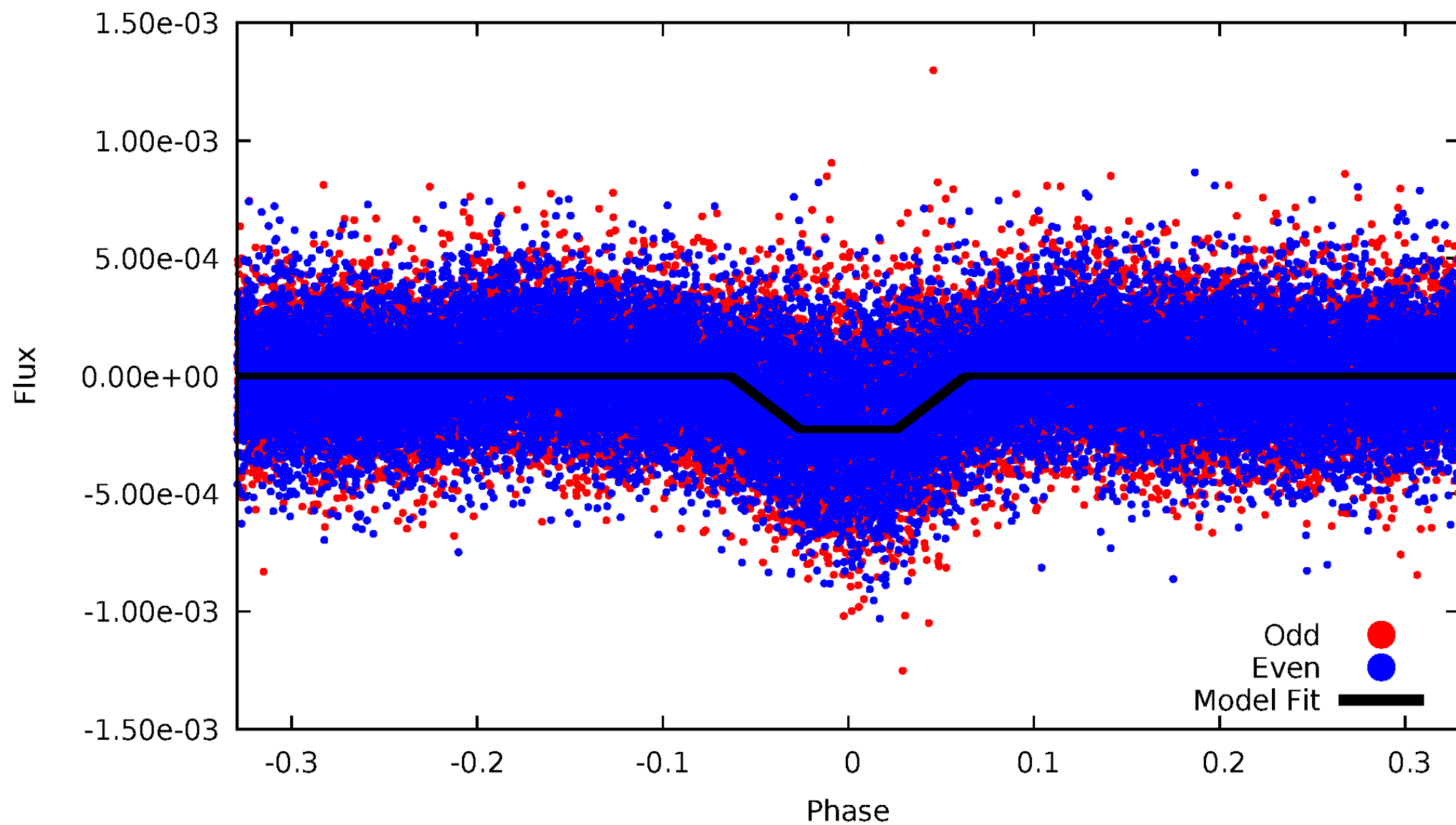
DV Odd/Even

TCE 008643851-01

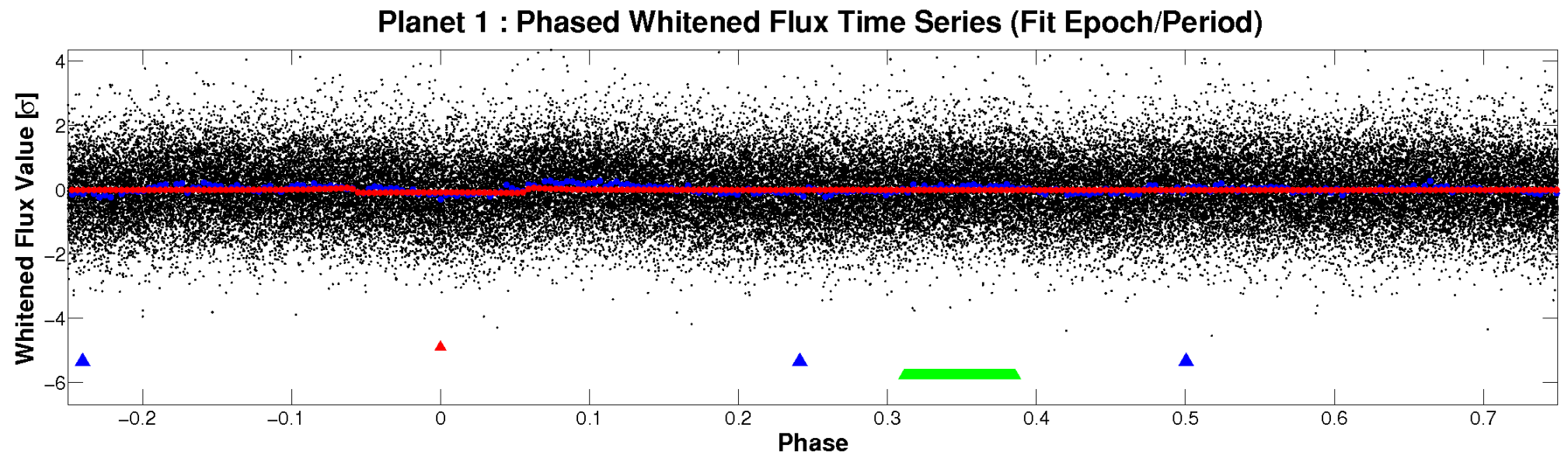
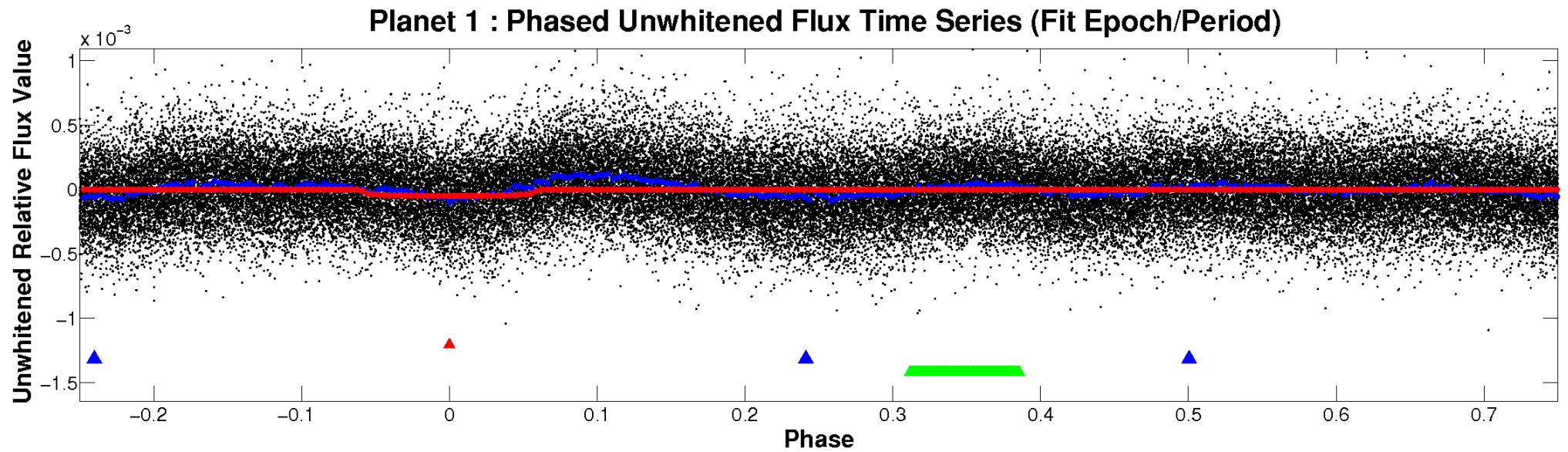


ALT Odd/Even

TCE 008643851-01

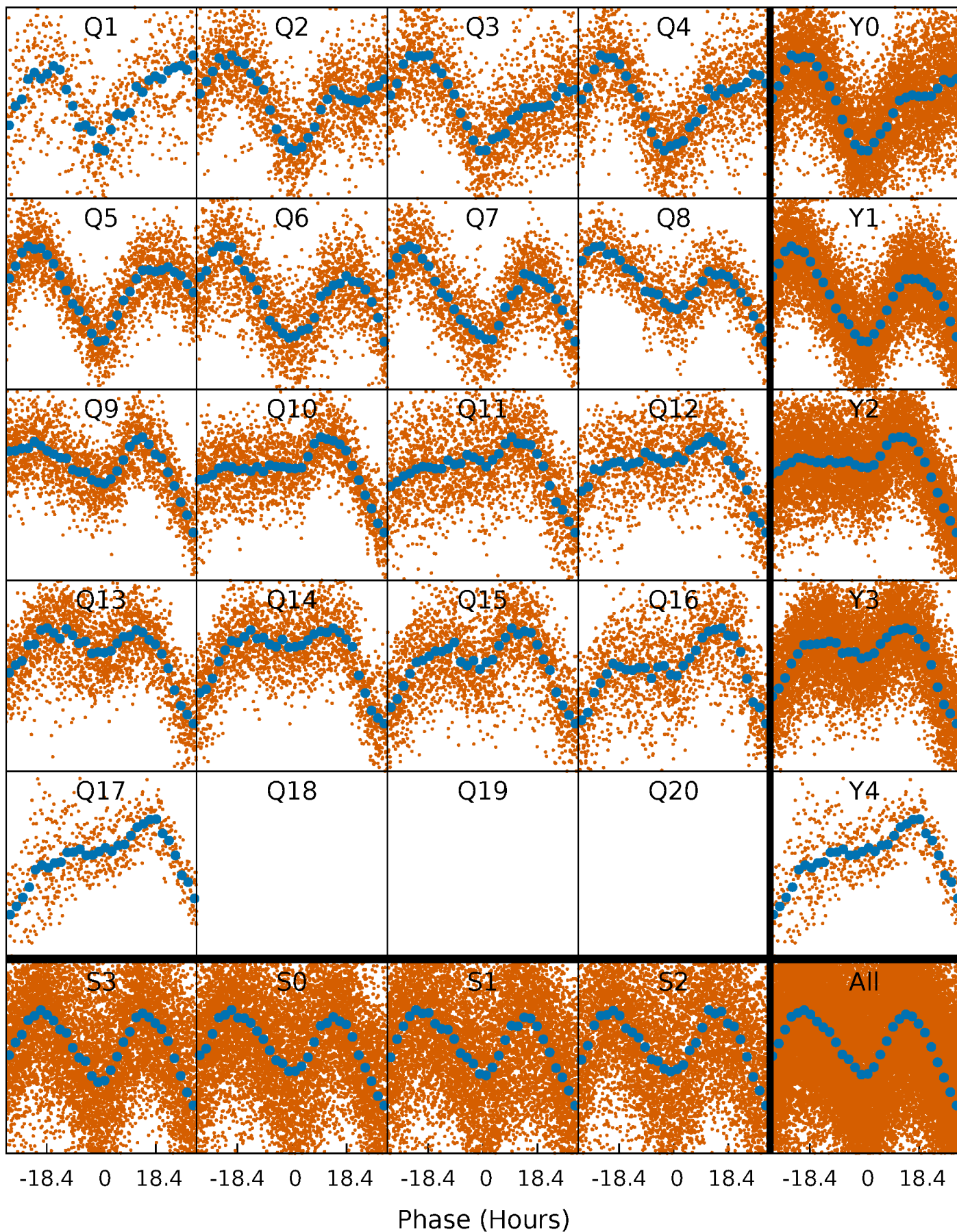


Non-Whitened Vs. Whitened Light Curve



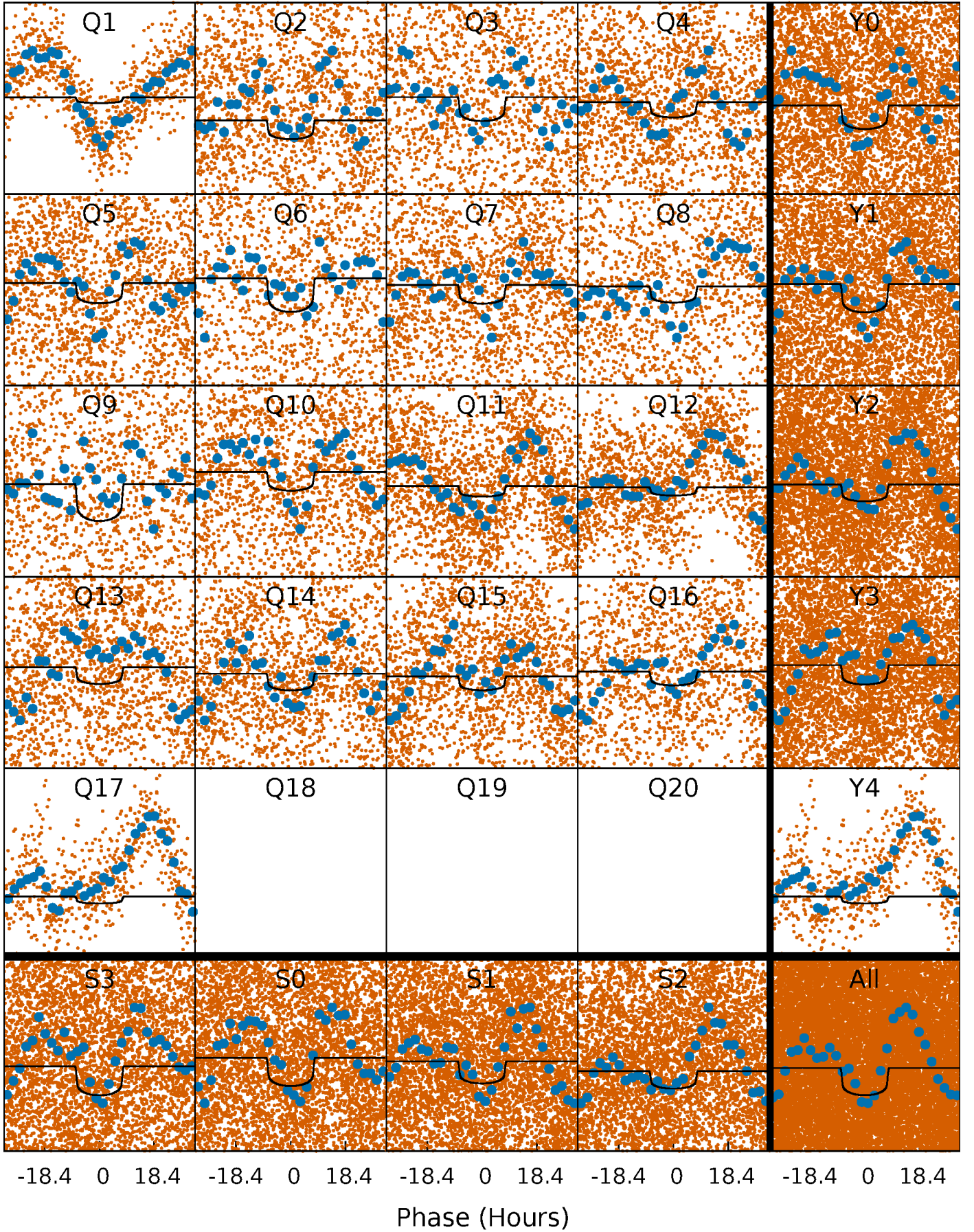
PDC Quarter-Phased Transit Curves

TCE 008643851-01 P= 5.536474 Days $T_0=131.732388$ (BKJD)



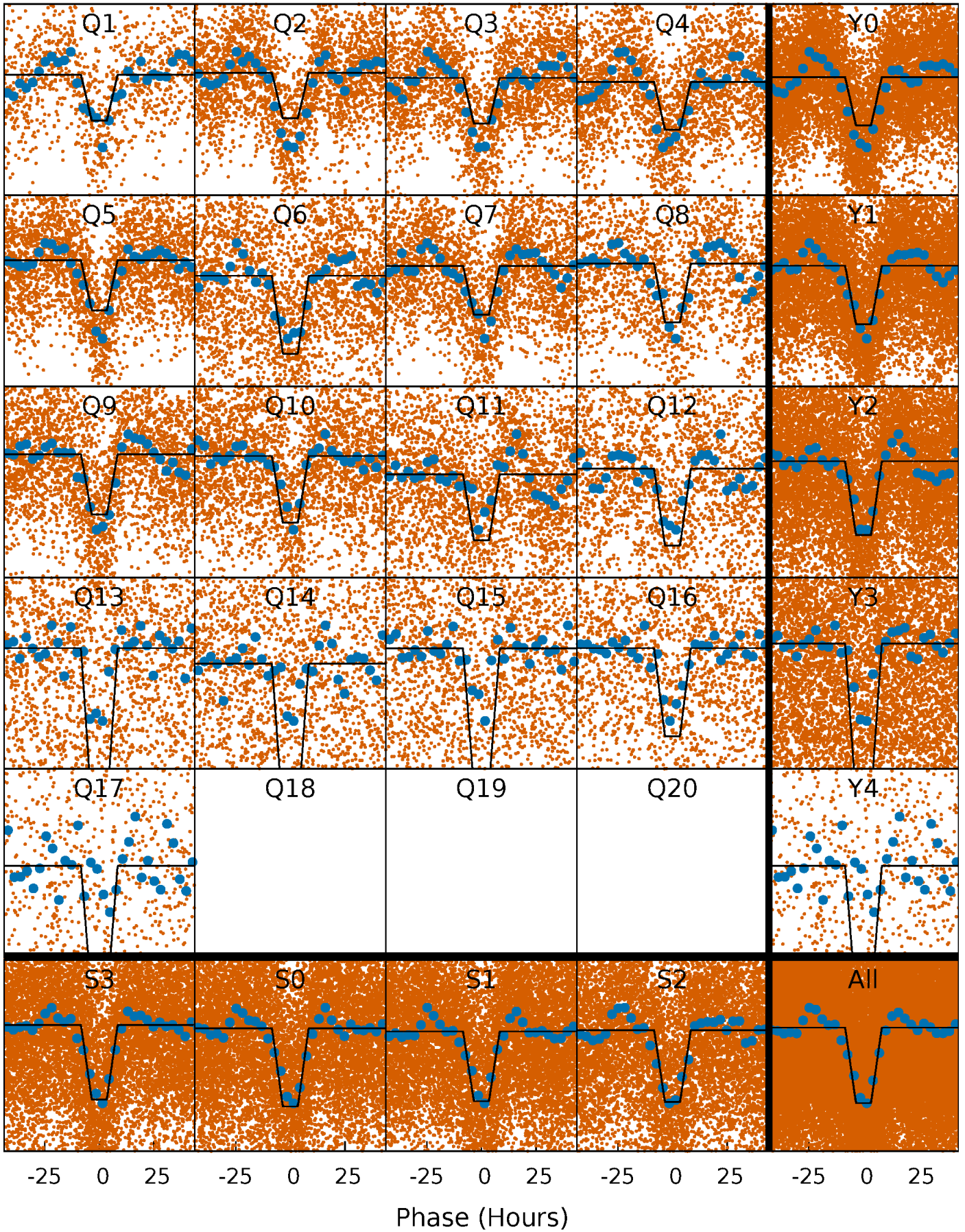
DV Quarter-Phased Transit Curves

TCE 008643851-01 P= 5.536474 Days $T_0=131.732388$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

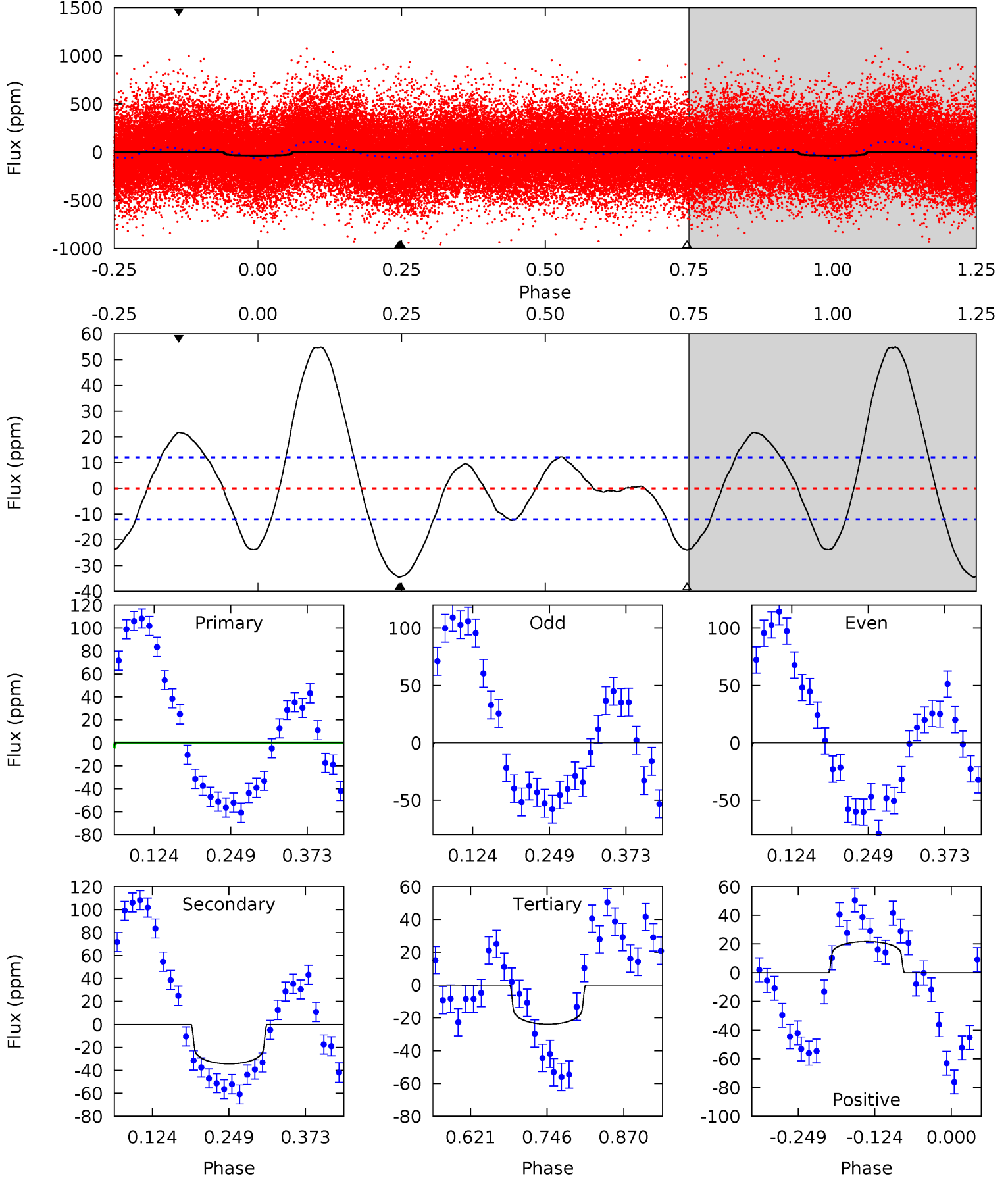
TCE 008643851-01 P= 5.537116 Days $T_0=131.678687$ (BKJD)



DV Model-Shift Uniqueness Test

008643851-01, P = 5.536474 Days, E = 126.195914 Days

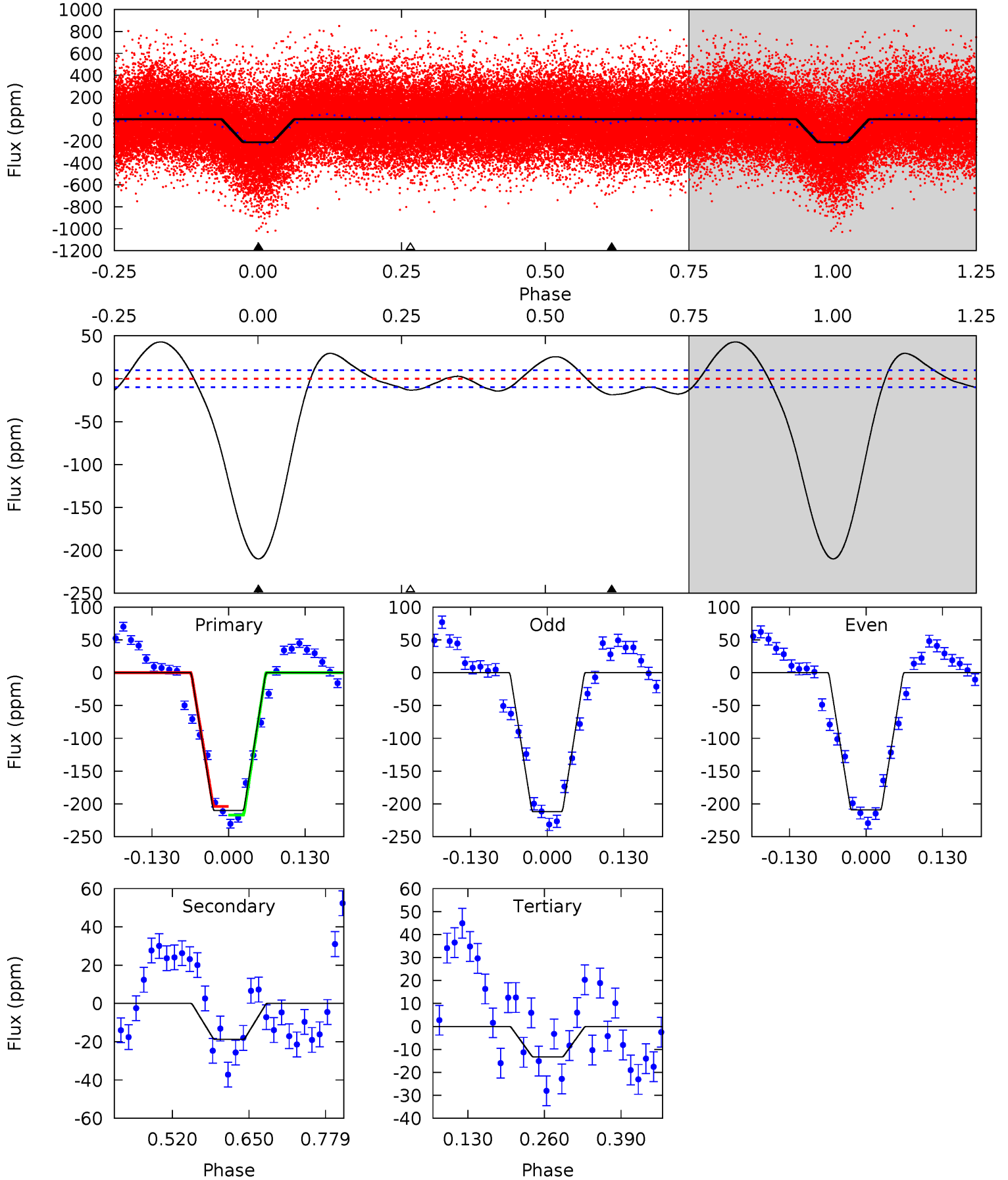
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	13.0	9.01	8.18	4.52	1.54	6.81	4.02	4.84	3.96	4.79	1.88	1.05	0.61	0.67



Alt Model-Shift Uniqueness Test

008643851-01, P = 5.537116 Days, E = 126.141571 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
95.3	8.50	6.03	0	4.51	1.51	7.73	89.3	95.3	2.47	8.50	0.56	0.98	0.17	2.95



Stellar Parameters For KIC 008643851

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6054^{+214}_{-193}	$3.741^{+0.648}_{-0.162}$	$-0.580^{+0.350}_{-0.250}$	$2.370^{+0.587}_{-1.370}$	$1.127^{+0.153}_{-0.285}$	$0.119^{+1.092}_{-0.051}$
	+4%/-3%	+17%/-4%	+60%/-43%	+25%/-58%	+14%/-25%	+916%/-43%
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 008643851-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-34 ± 3	$1.80^{+0.47}_{-0.56}$	2221^{+201}_{-336}	5360^{+434}_{-341}	23^{+24}_{-9}
Alt.	-19 ± 2	$3.74^{+0.73}_{-1.10}$	2246^{+189}_{-360}	3611^{+143}_{-141}	$3.003^{+2.690}_{-0.958}$

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

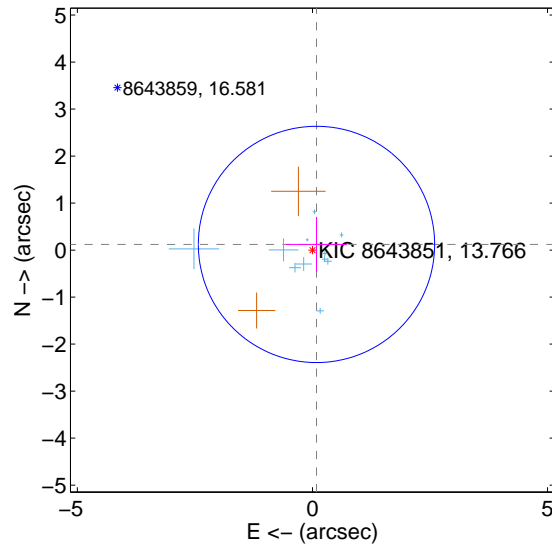
Supplemental centroid analysis for 008643851-01. Kepler magnitude: 13.77. Transit SNR 7.75

There are 11 quarters with good PRF difference image offsets

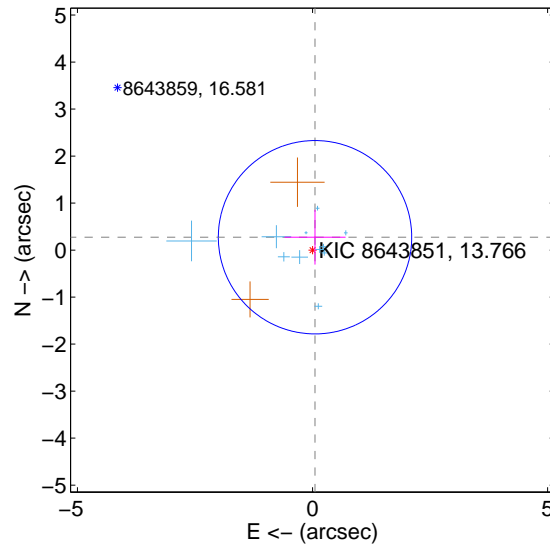
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.148 ± 0.838	0.18	-0.086 ± 0.655	0.121 ± 0.585
PRF-fit source offset from KIC position	0.279 ± 0.686	0.41	-0.053 ± 0.649	0.274 ± 0.582
photometric centroid source offset	1.63 ± 0.89	1.84	-0.96 ± 0.97	1.32 ± 0.84

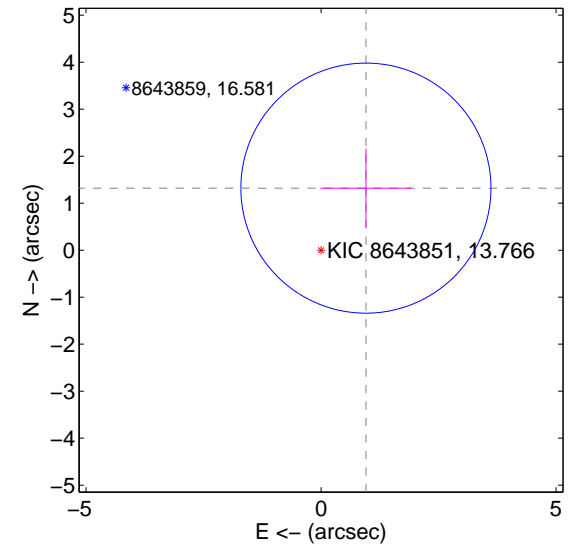
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

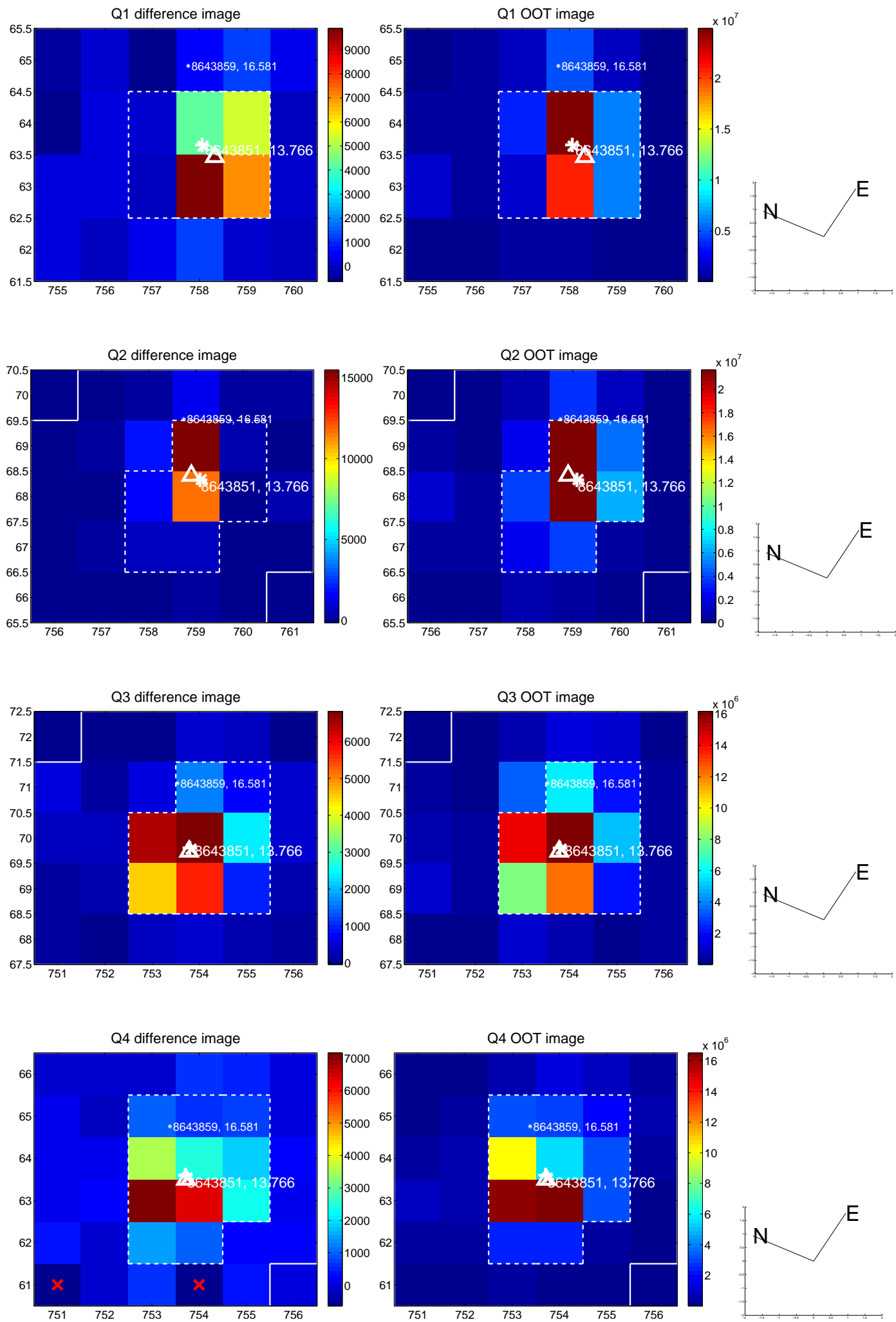


offset from photometric centroids

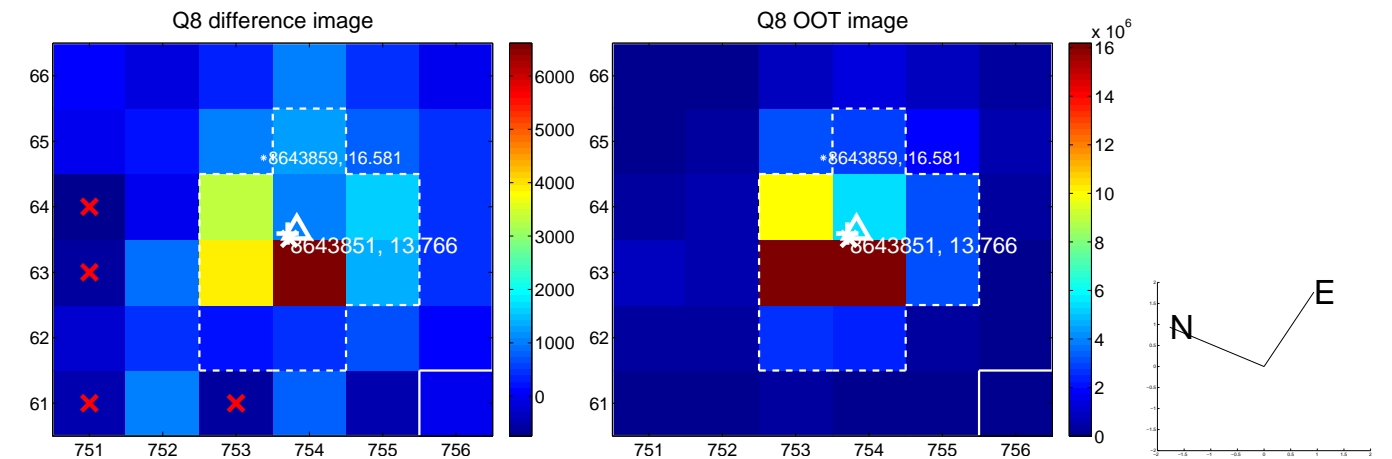
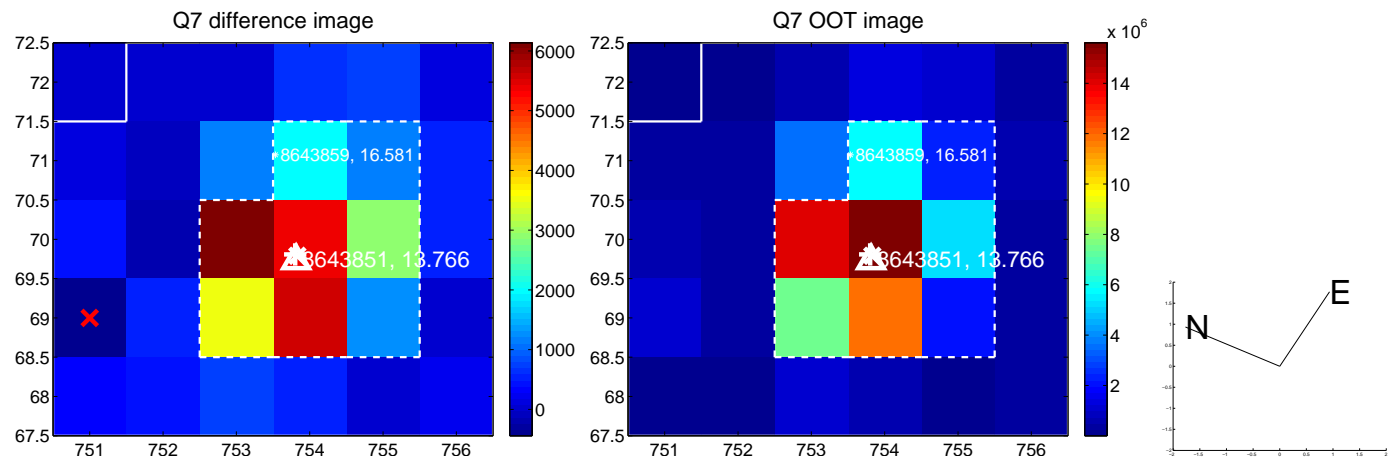
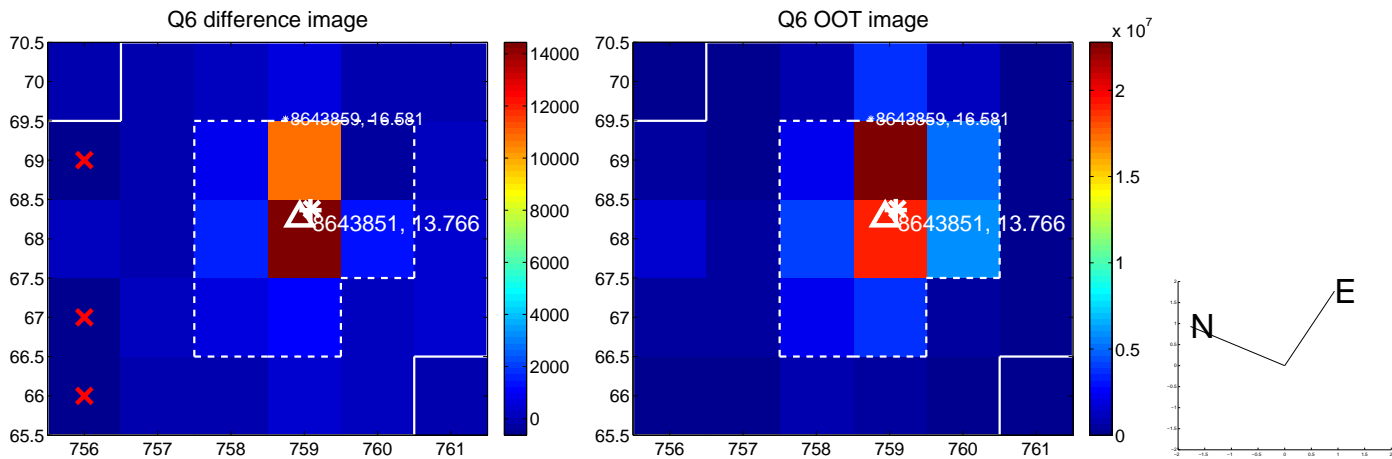
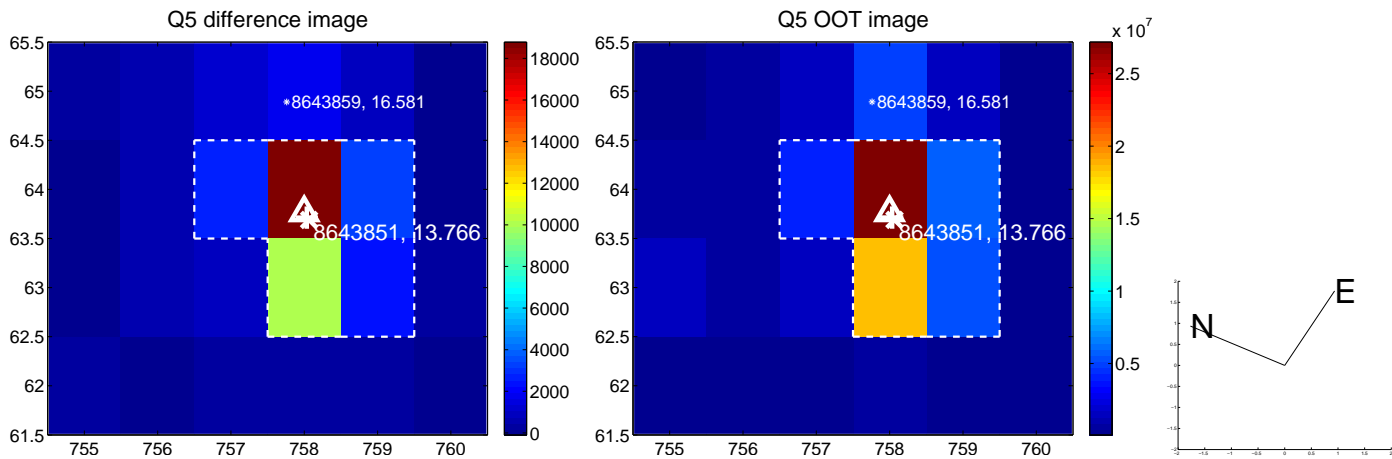


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

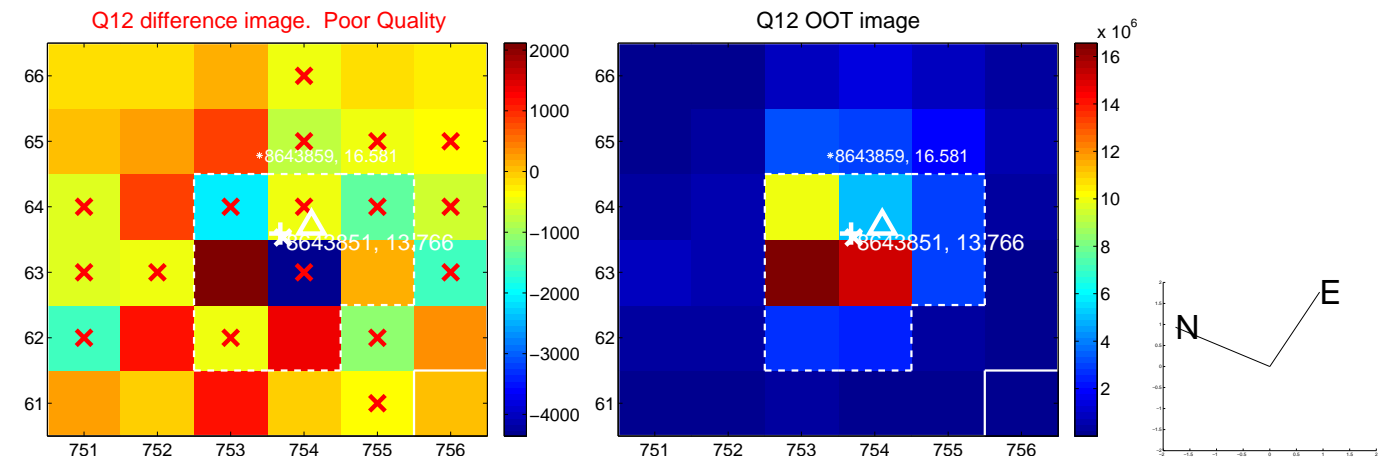
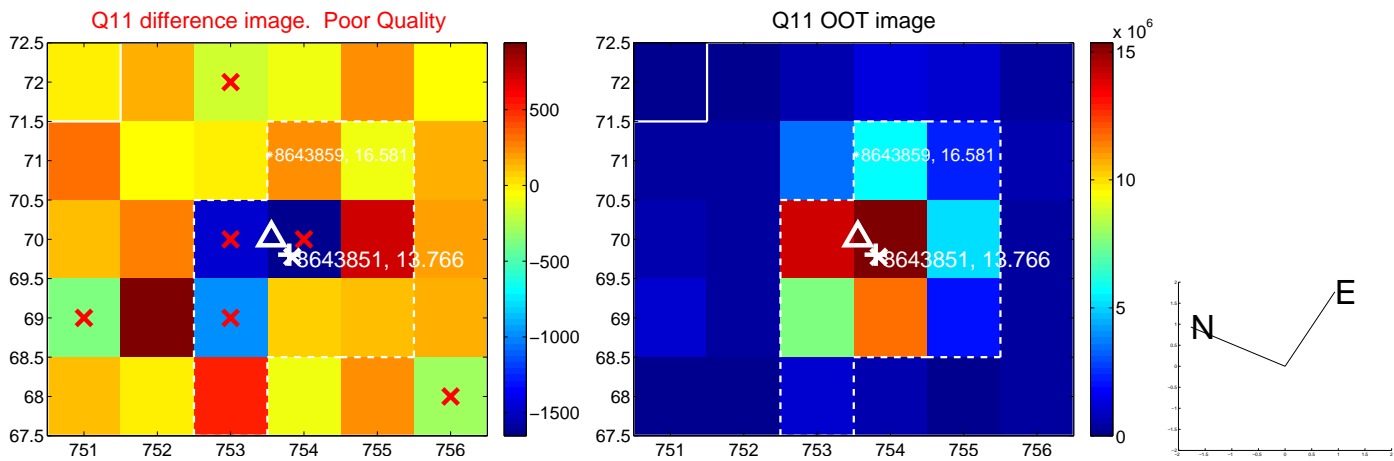
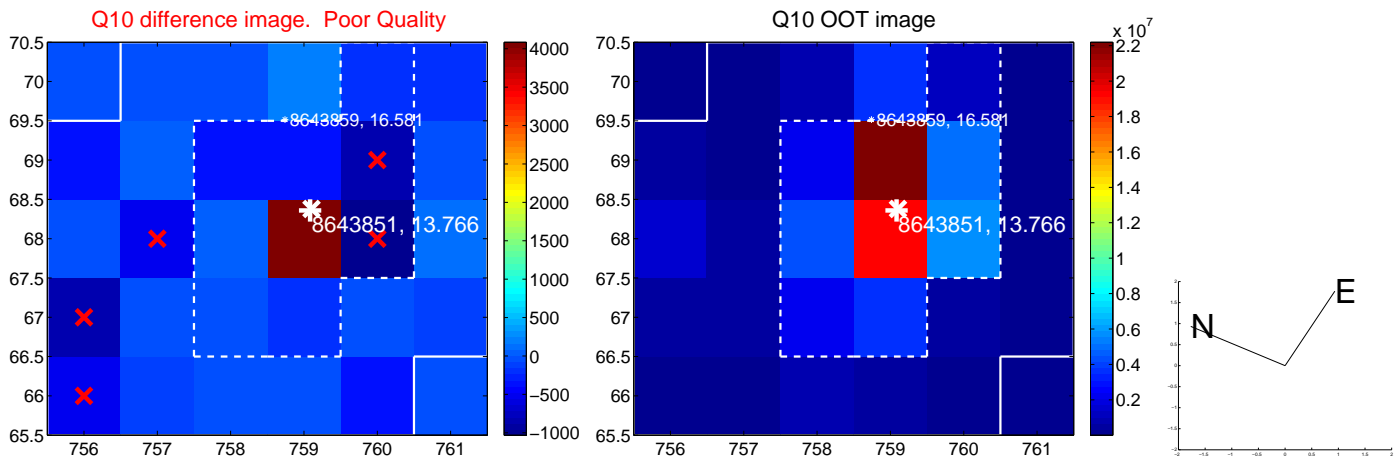
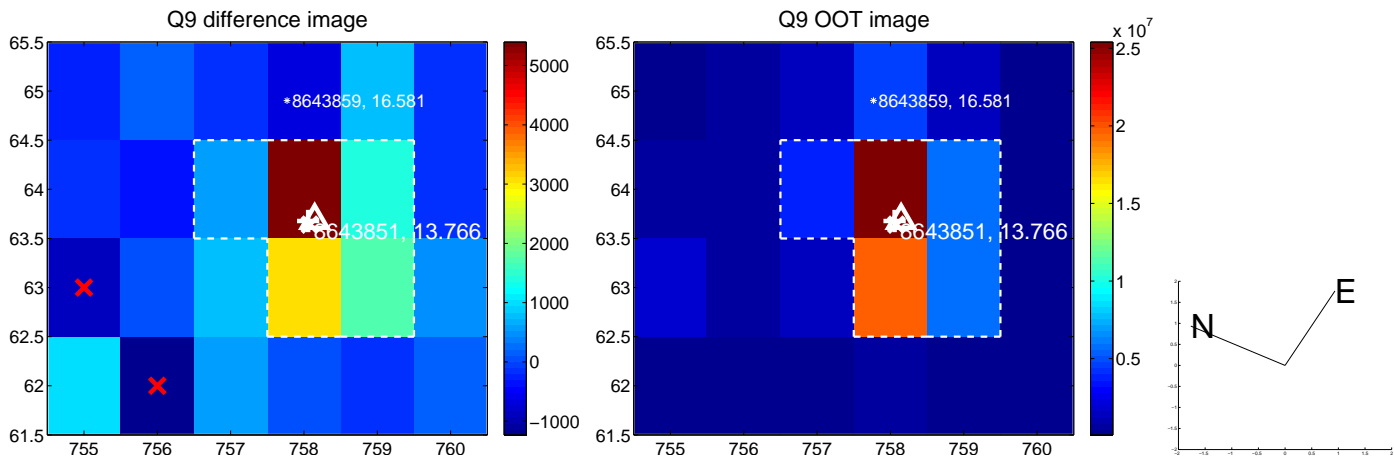
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



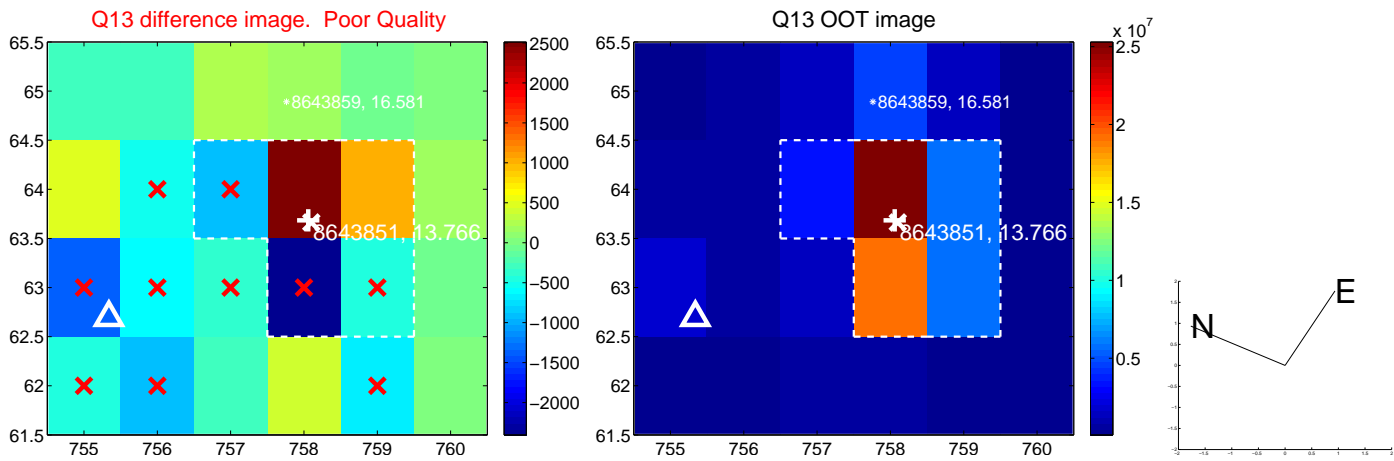
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



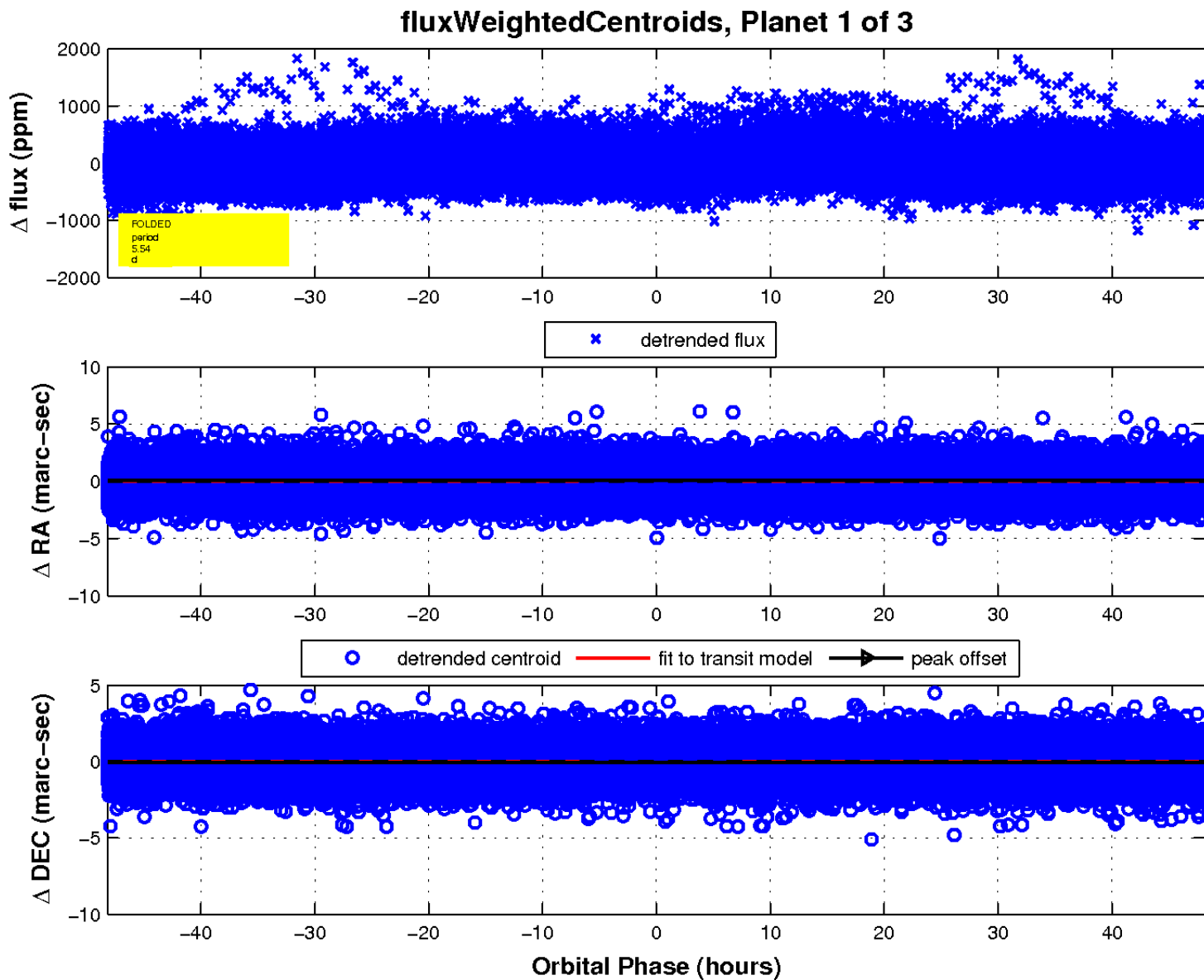
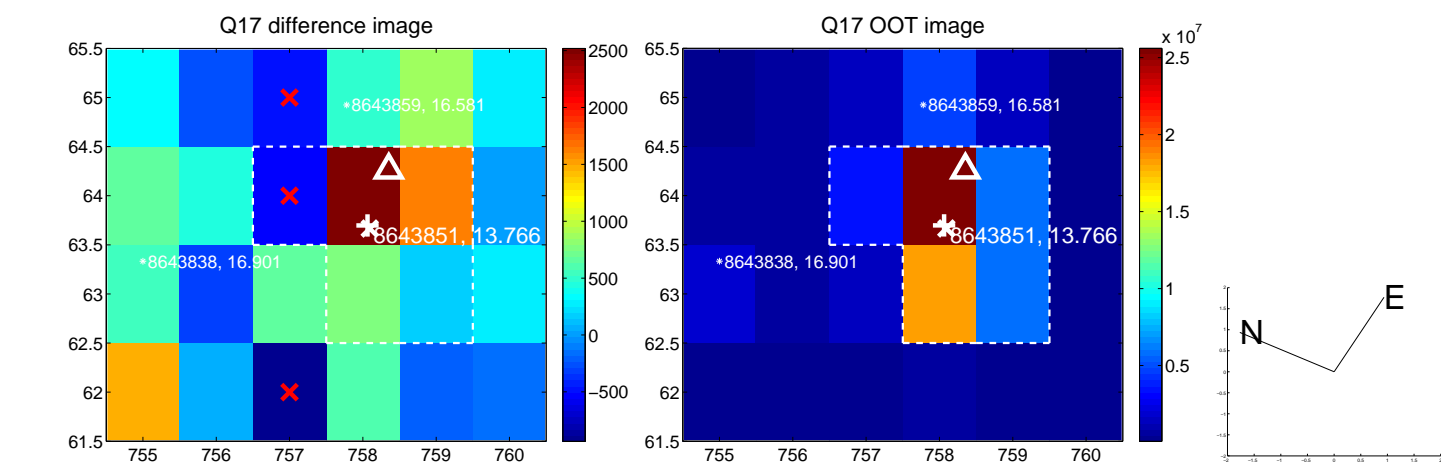
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

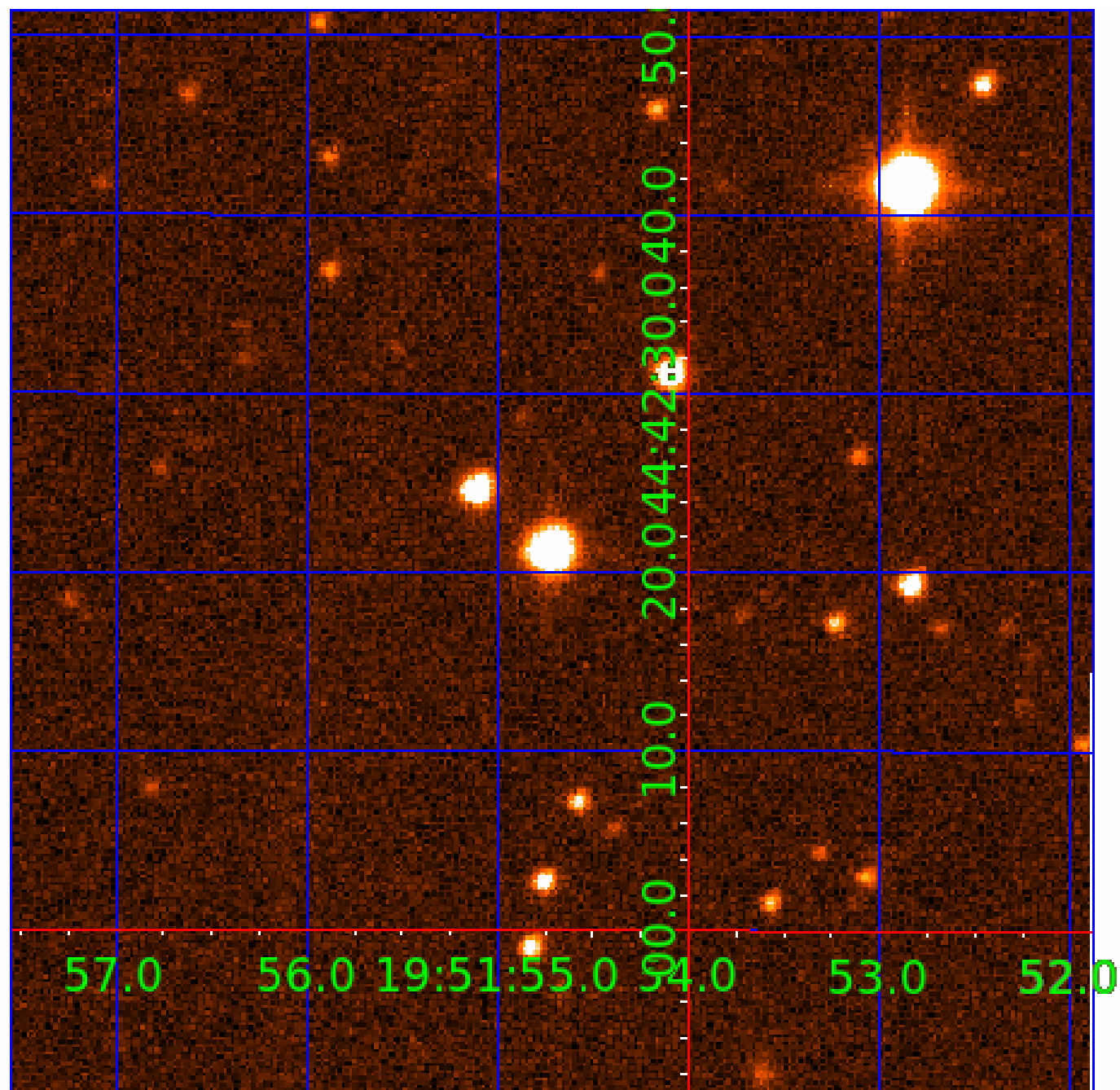


white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008643851

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})
008643851-01	OBS	No	5.536474	131.732388	49.6	16.067	9.9	7.8	2.37	6054	1.95	1661.83
008643851-02	OBS	No	494.181774	509.548014	1853.1	28.281	47.2	22.7	2.37	6054	19.04	4.17
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008643851-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008643851-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008643851-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

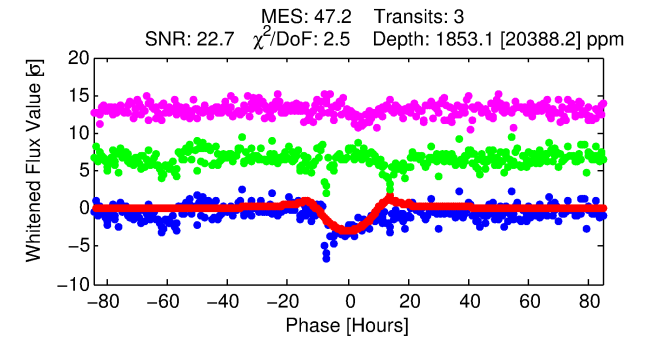
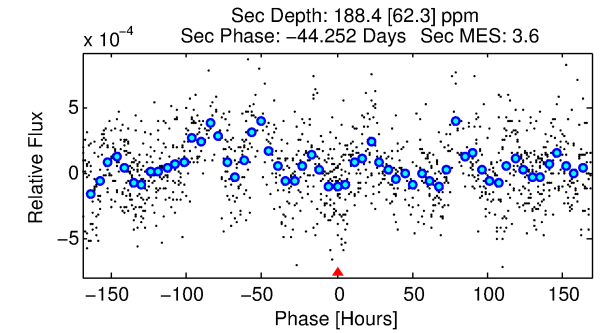
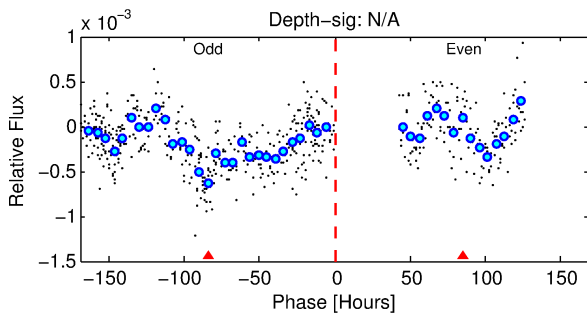
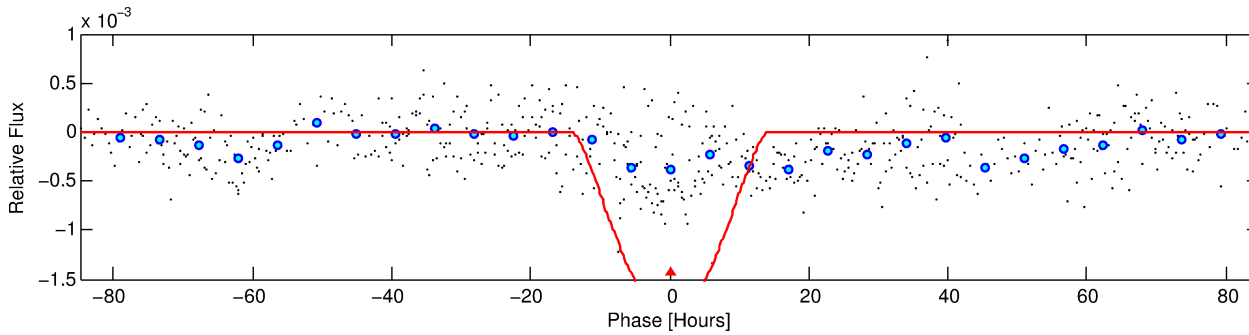
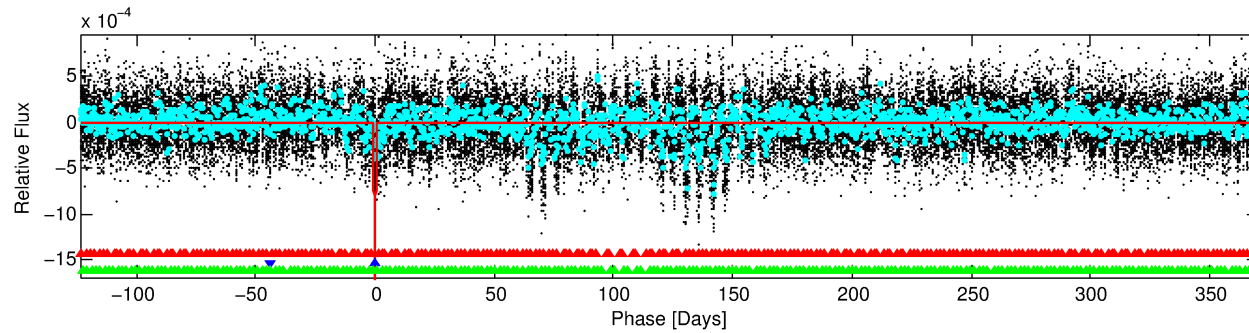
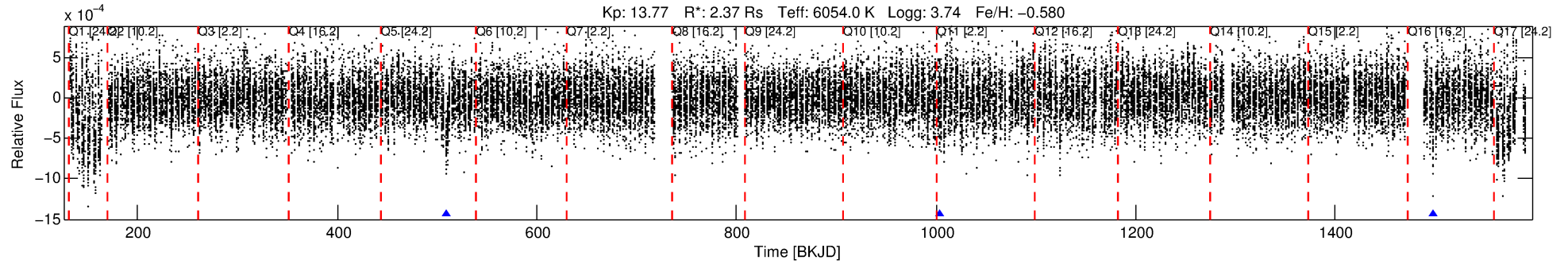
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008643851-02

No Significant Match Found

DV One-Page Summary

KIC: 8643851 Candidate: 2 of 3 Period: 494.182 d



DV Fit Results:

Period = 494.18177 [0.02814] d
Epoch = 509.5480 [0.0317] BKJD
Rp/R* = 0.0736 [0.1063]
a/R* = 52.16 [17.18]
b = 1.00 [0.40]
Seff = 4.17 [4.48]
Teq = 364 [98] K
Rp = 19.04 [29.61] Re
a = 1.2739 [0.8015] AU
Ag = 464.13 [1436.93] [0.32σ]
Teffp = 2614 [1902] K [1.18σ]

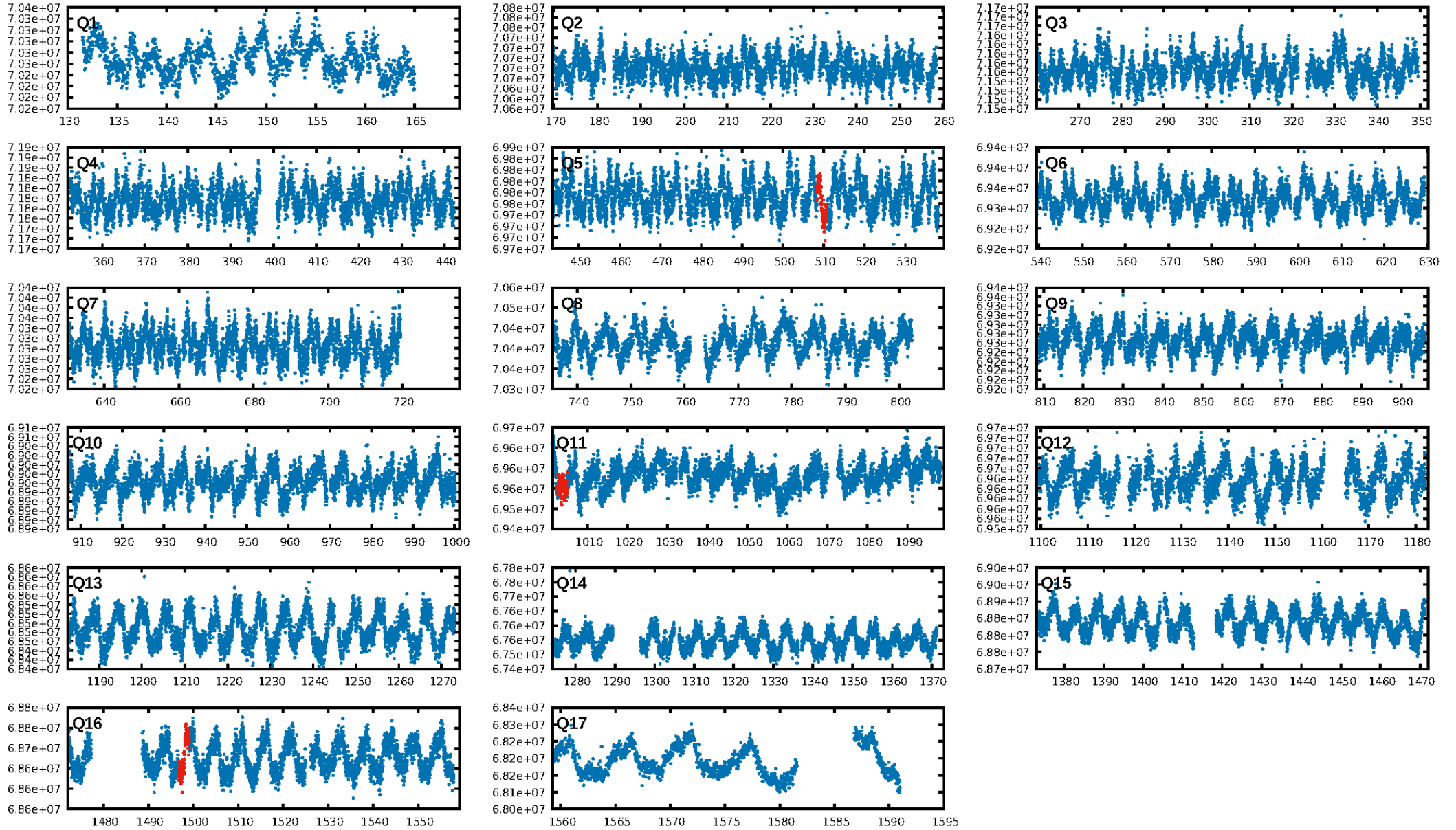
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [360.55σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -101
Centroid-sig: 20.8%
Centroid-so: 0.549 arcsec [2.53σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.00 [0/1]

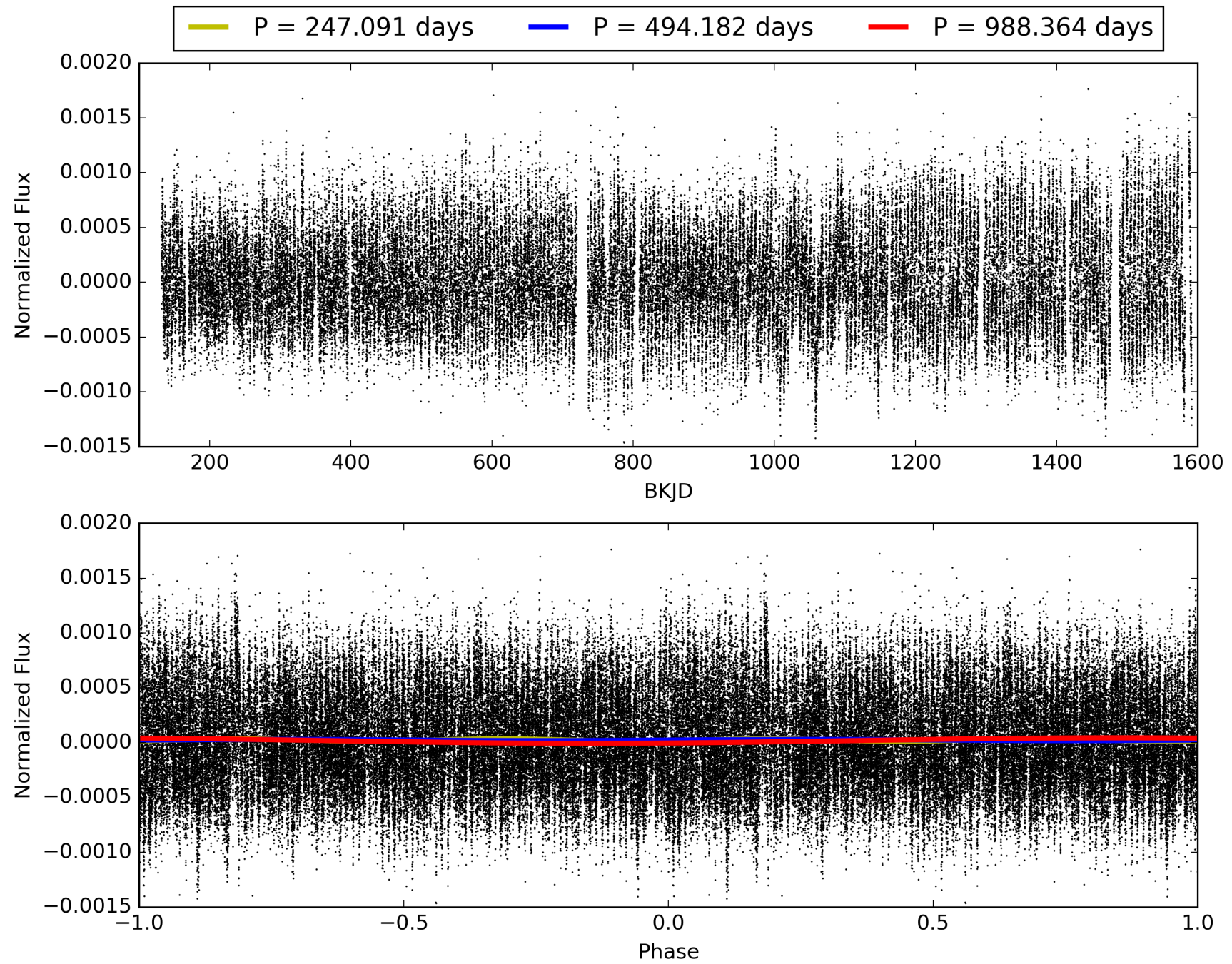
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:52:55 Z

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

TCE 008643851-02, PDC Light Curves

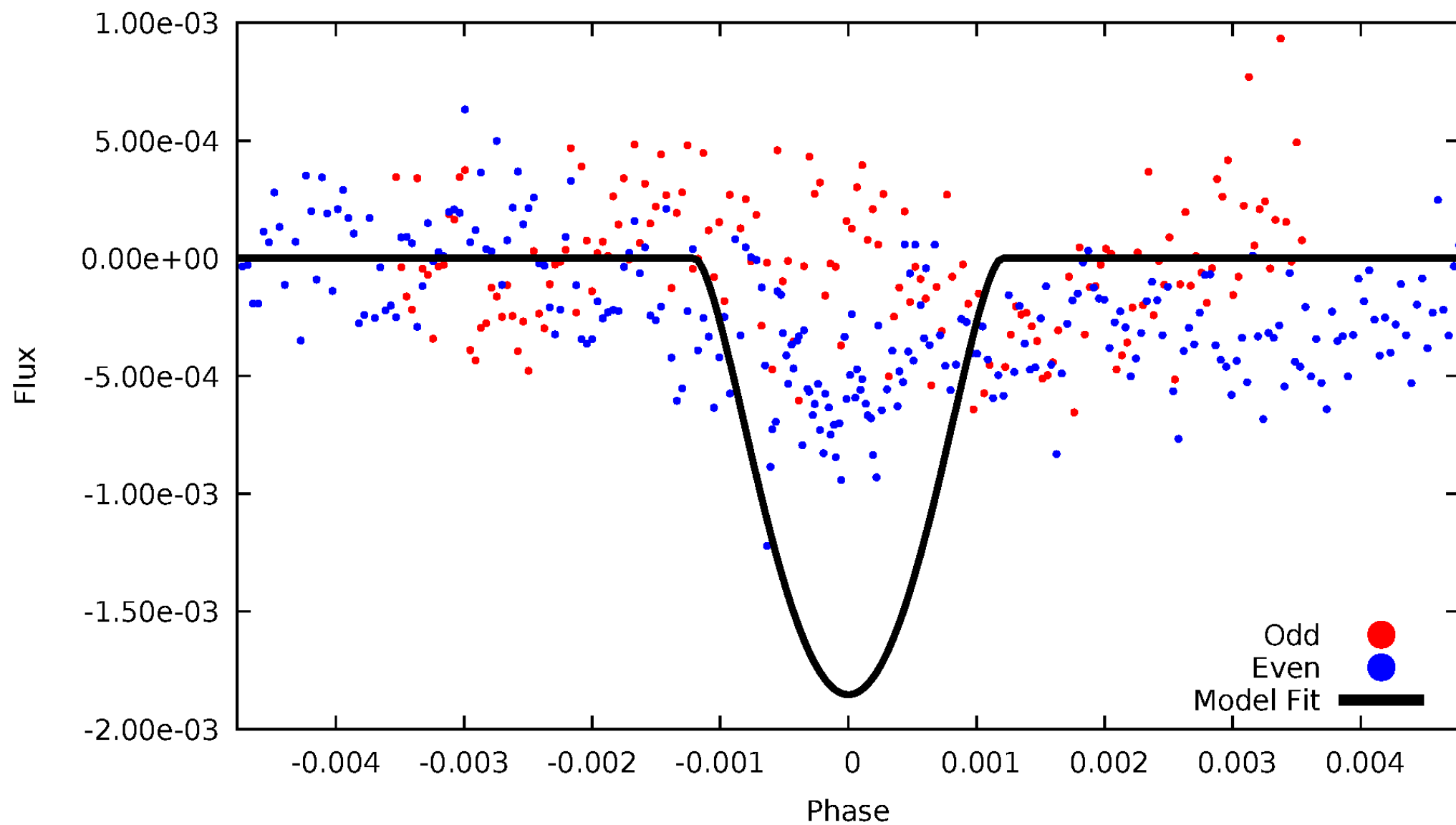


TCE 008643851-02



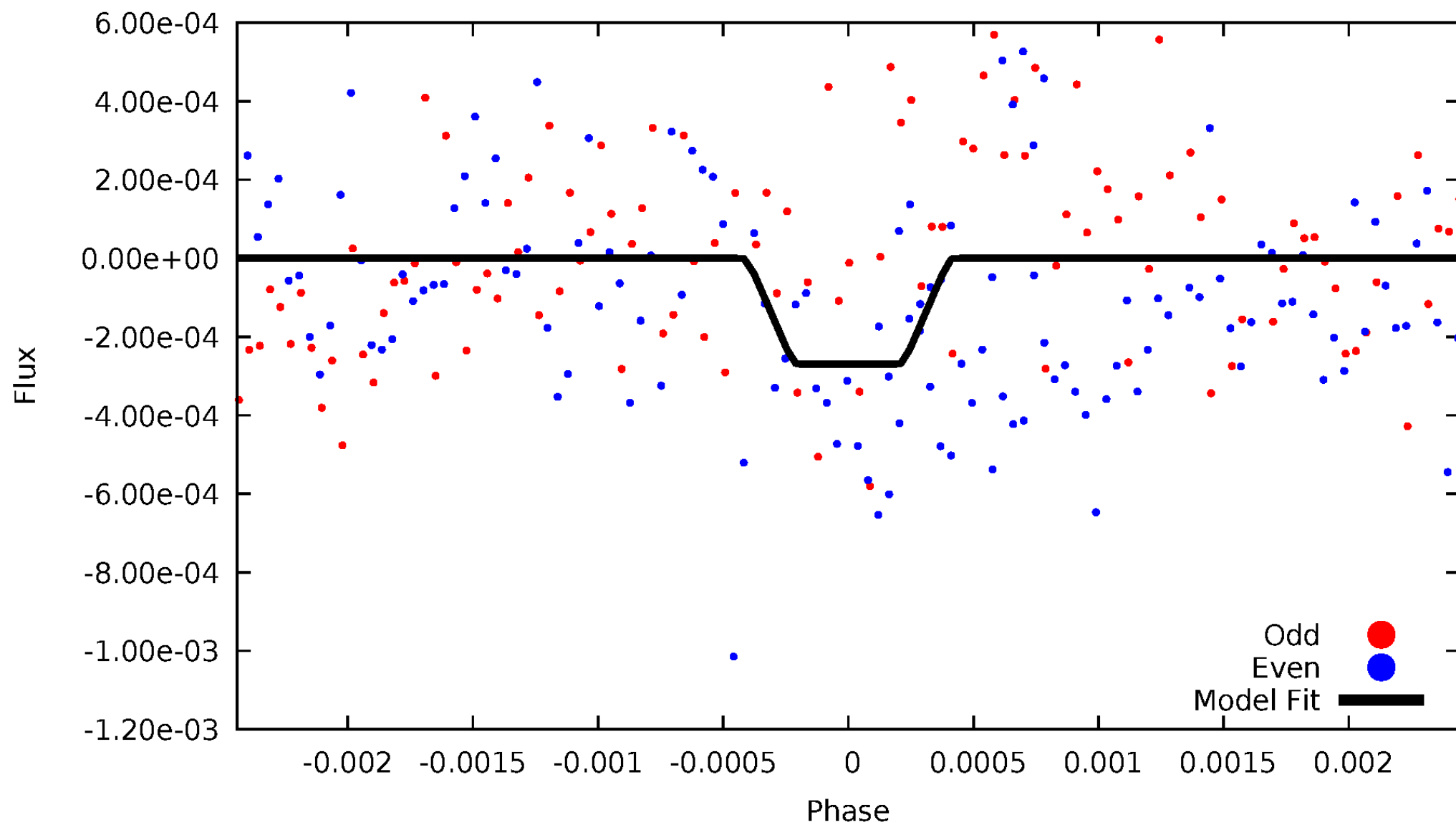
DV Odd/Even

TCE 008643851-02



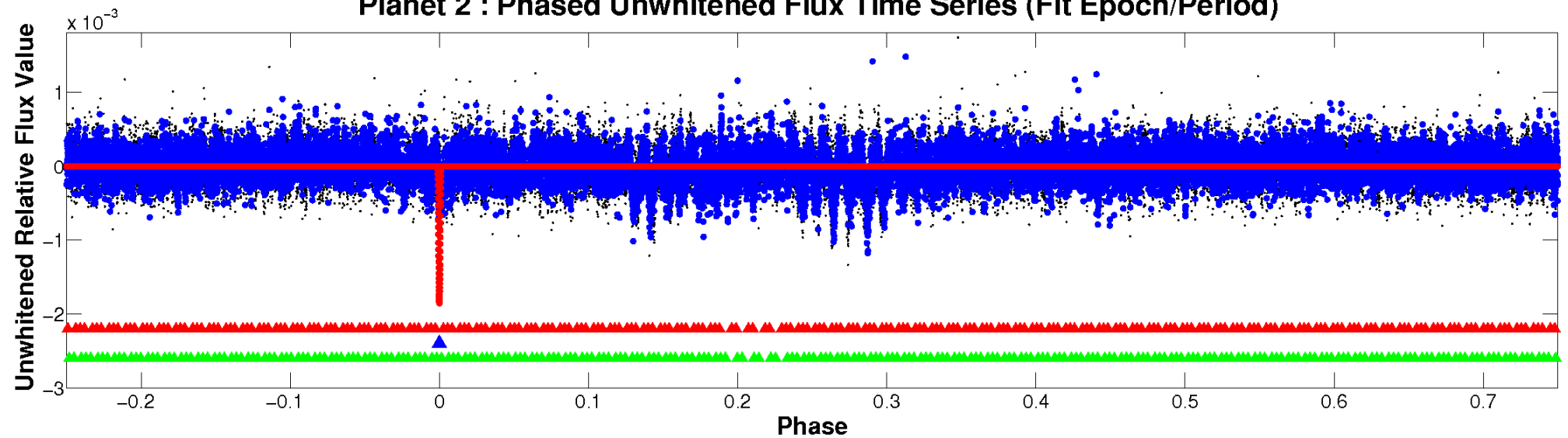
ALT Odd/Even

TCE 008643851-02

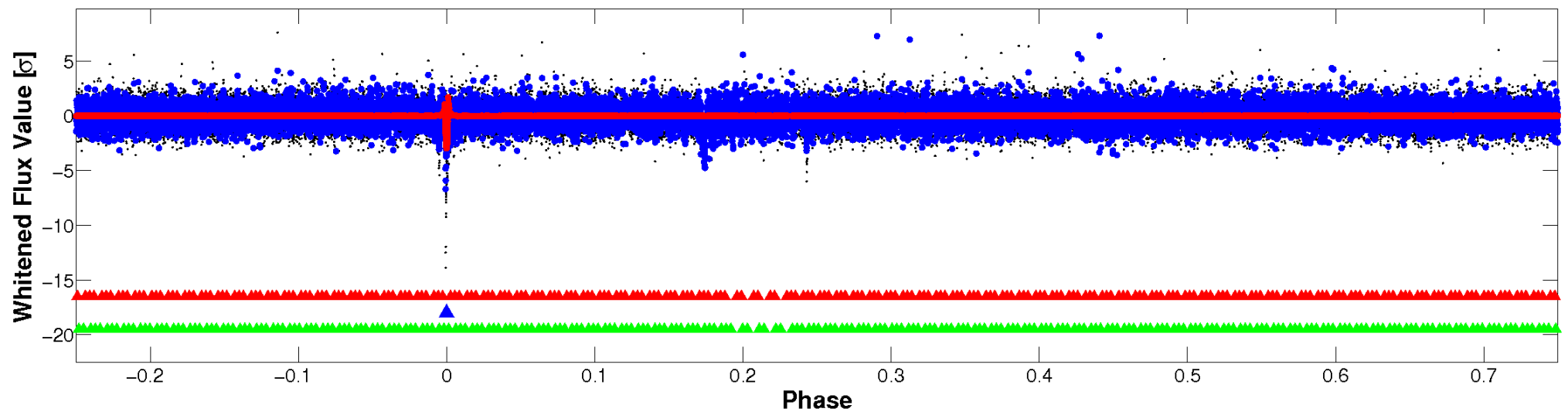


Non-Whitened Vs. Whitened Light Curve

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

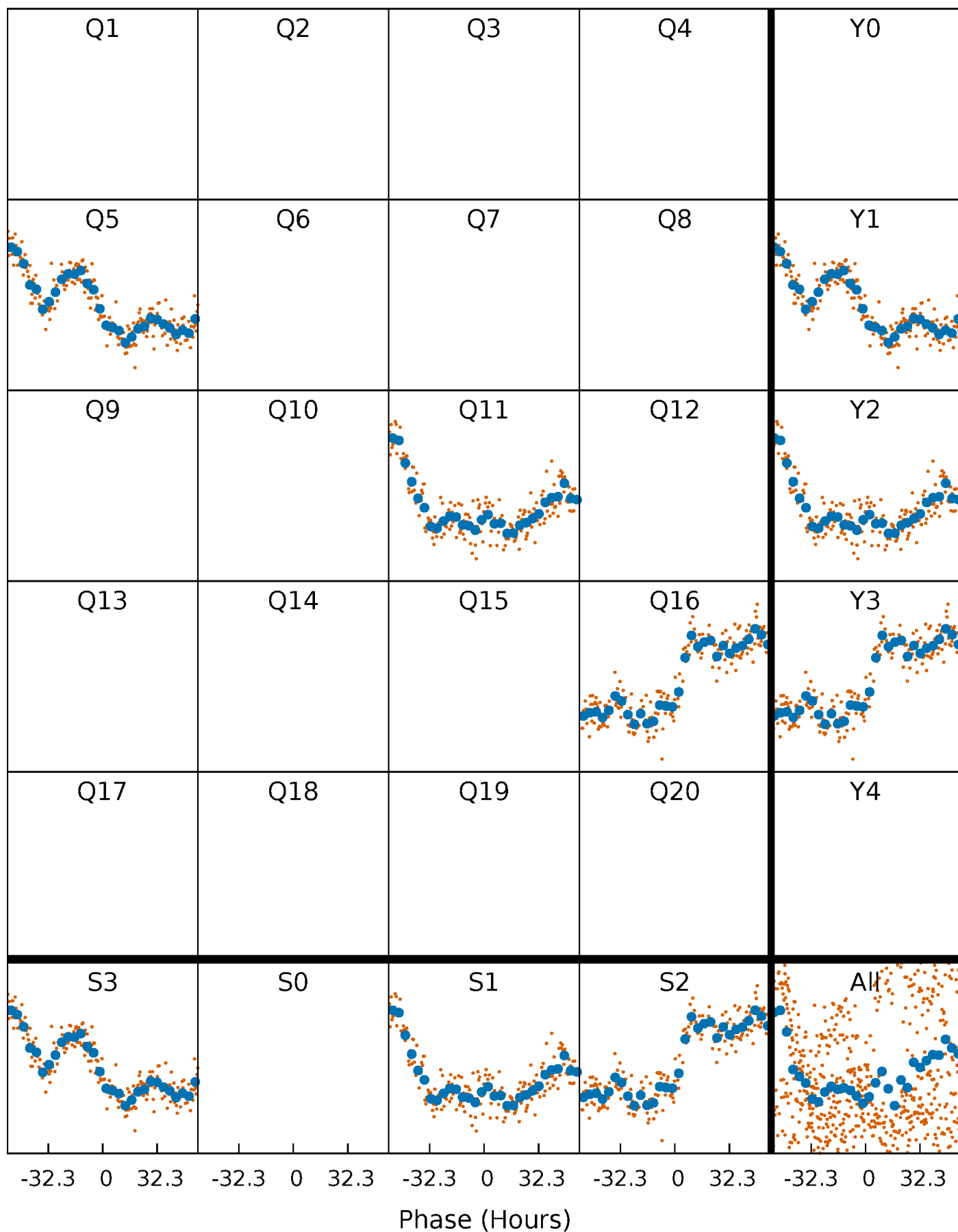


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 008643851-02 $P=494.181774$ Days $T_0=509.548014$ (BKJD)



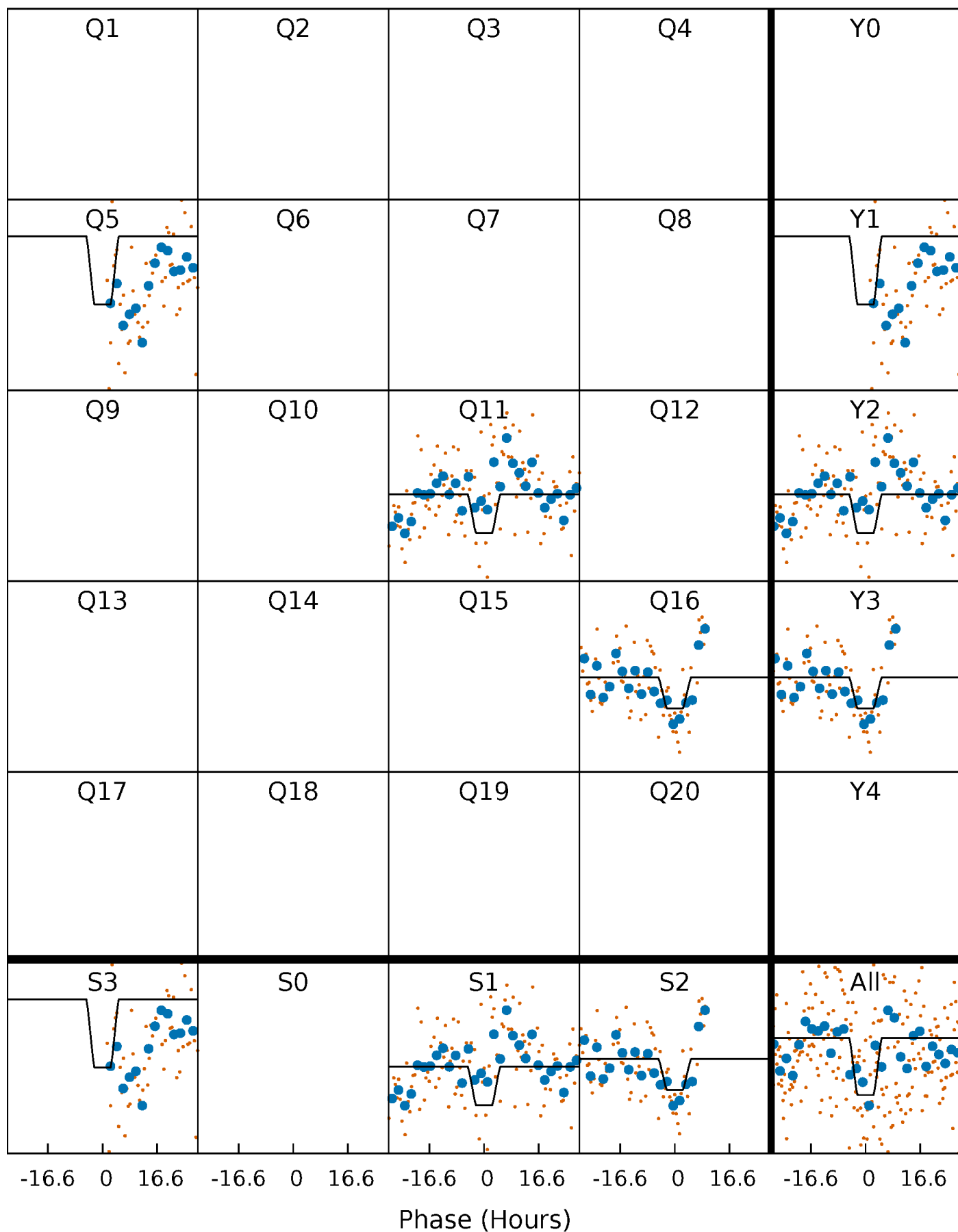
DV Quarter-Phased Transit Curves

TCE 008643851-02 $P=494.181774$ Days $T_0=509.548014$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

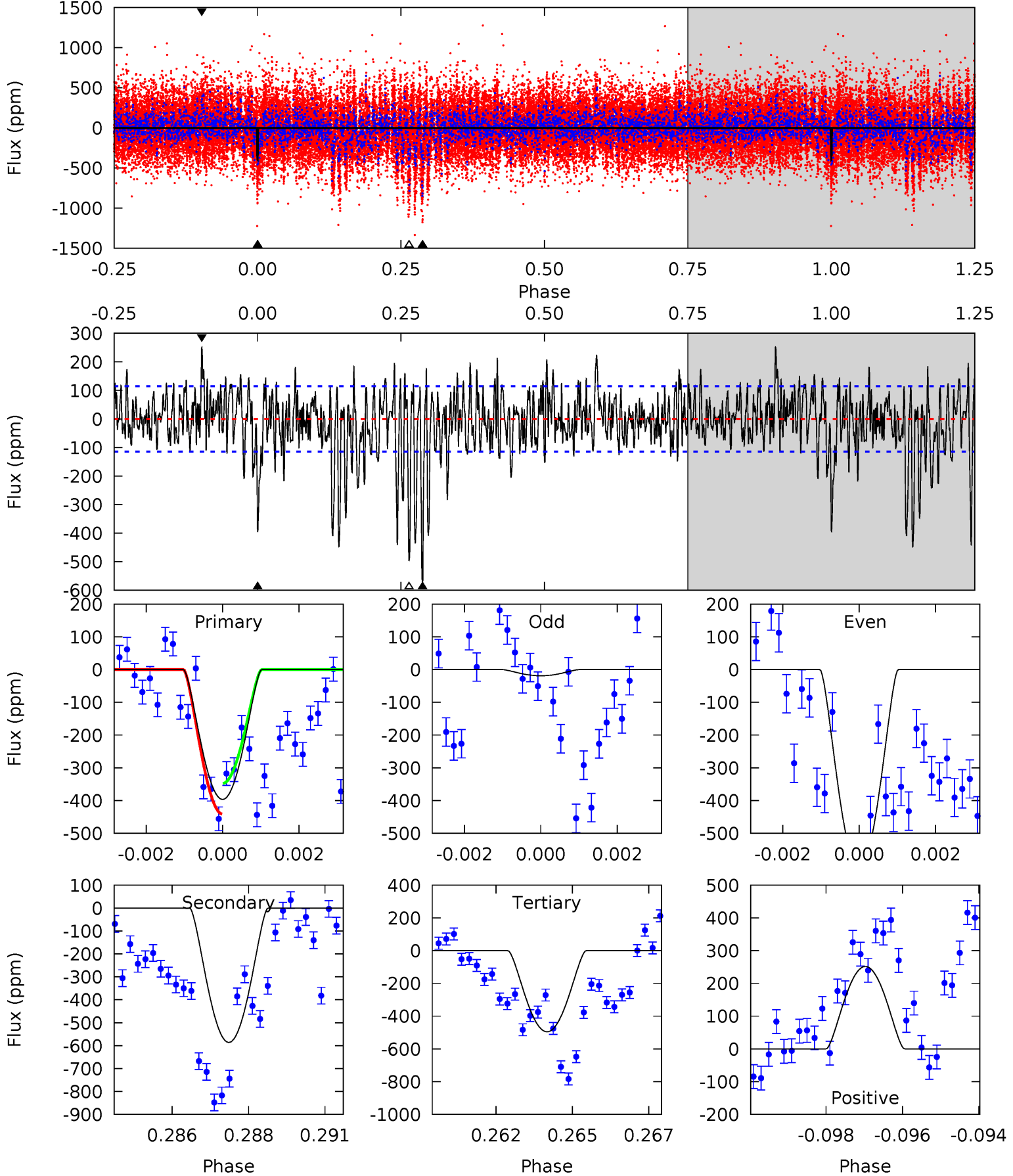
TCE 008643851-02 P=494.328684 Days $T_0=509.166995$ (BKJD)



DV Model-Shift Uniqueness Test

008643851-02, P = 494.181774 Days, E = 15.366240 Days

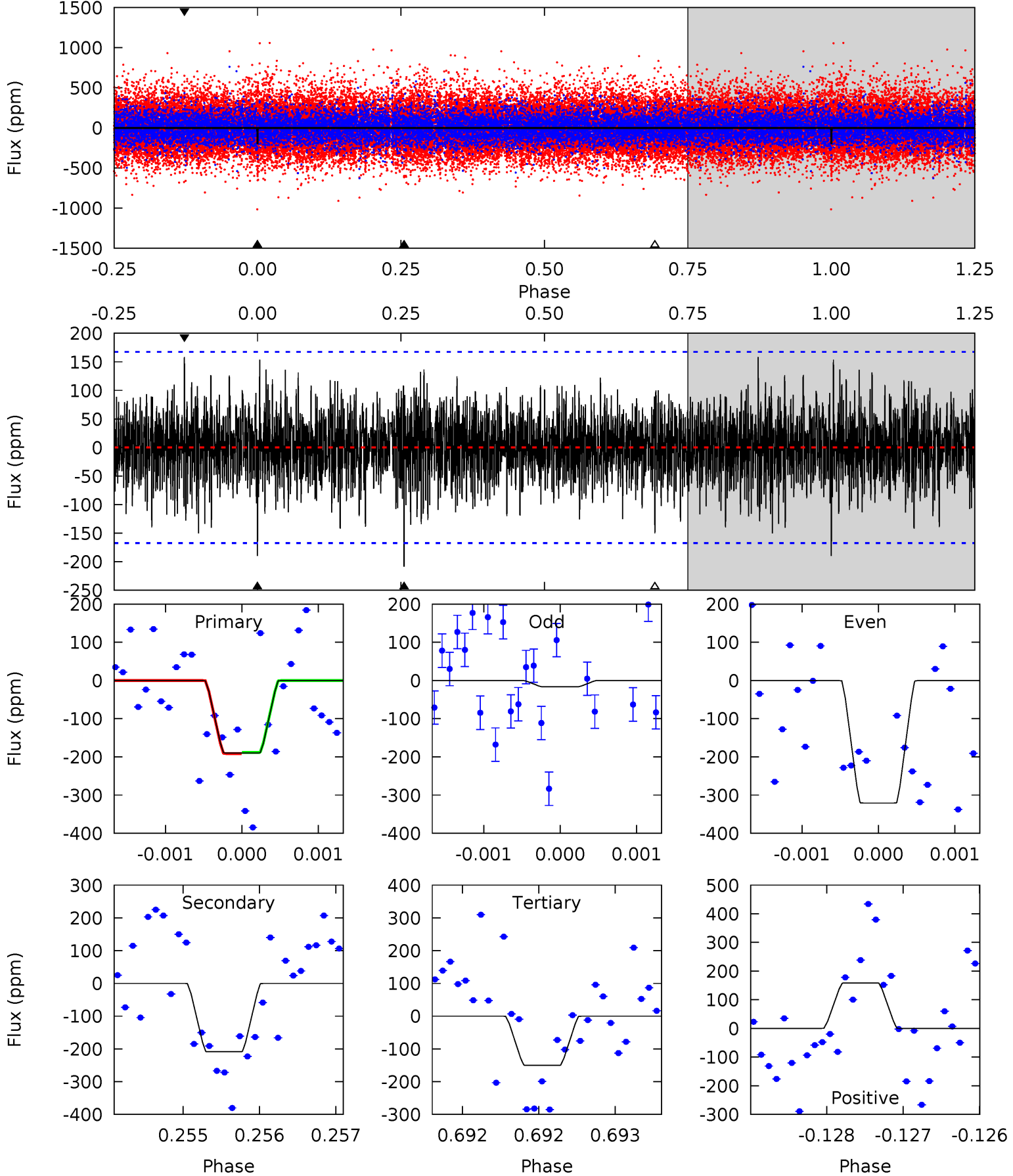
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	27.2	23.0	11.7	5.30	3.04	4.53	-4.59	6.72	4.19	15.5	13.2	0.74	0.30	2.16



Alt Model-Shift Uniqueness Test

008643851-02, P = 494.328684 Days, E = 14.838311 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.20	6.81	4.91	5.18	5.48	3.33	1.49	1.29	1.03	1.90	1.64	4.91	0.76	0.43	0.05



Stellar Parameters For KIC 008643851

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6054^{+214}_{-193}	$3.741^{+0.648}_{-0.162}$	$-0.580^{+0.350}_{-0.250}$	$2.370^{+0.587}_{-1.370}$	$1.127^{+0.153}_{-0.285}$	$0.119^{+1.092}_{-0.051}$
	+4%/-3%	+17%/-4%	+60%/-43%	+25%/-58%	+14%/-25%	+916%/-43%
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 008643851-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-586 ± 22	$24.07^{+25.71}_{-17.52}$	499^{+44}_{-74}	3416^{+2022}_{-601}	880^{+11064}_{-669}
Alt.	-208 ± 31	$17.16^{+21.33}_{-11.95}$	495^{+47}_{-75}	3207^{+1643}_{-593}	629^{+6072}_{-513}

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 $A_{obs} \gg 1.0$

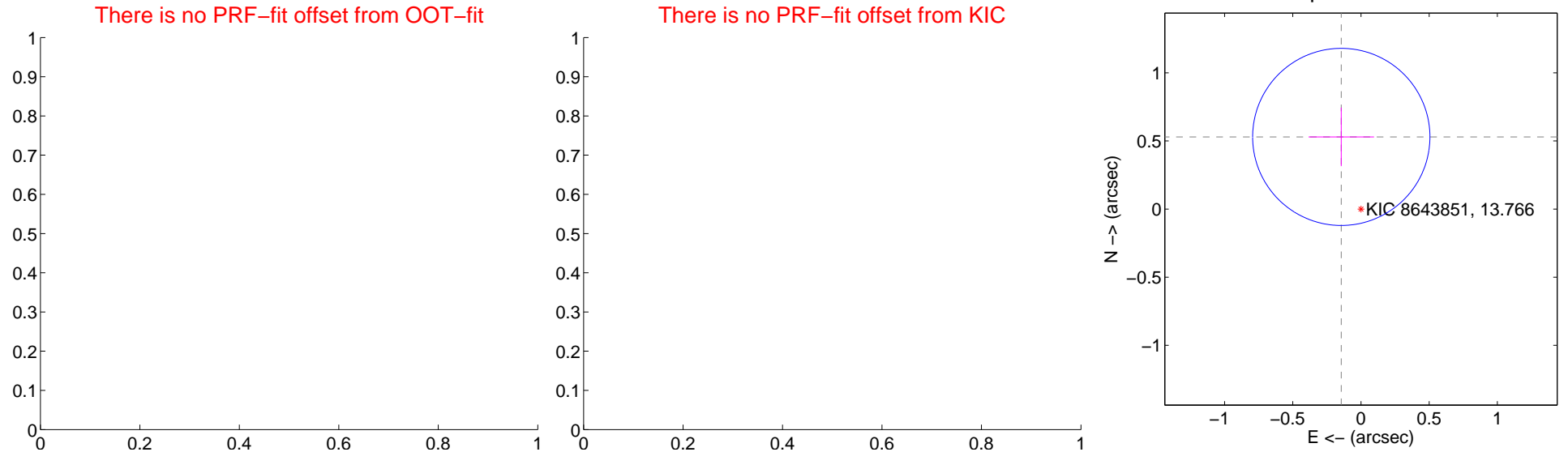
DV Centroid Data

Supplemental centroid analysis for 008643851-02. Kepler magnitude: 13.77. Transit SNR 22.70

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	0.55 ± 0.22	2.53	0.14 ± 0.24	0.53 ± 0.21

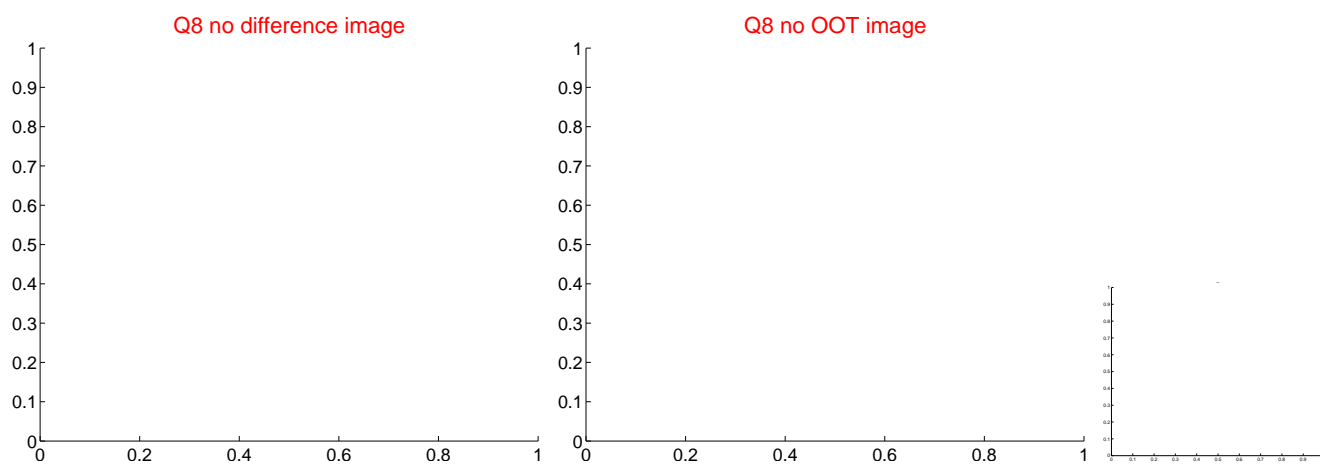
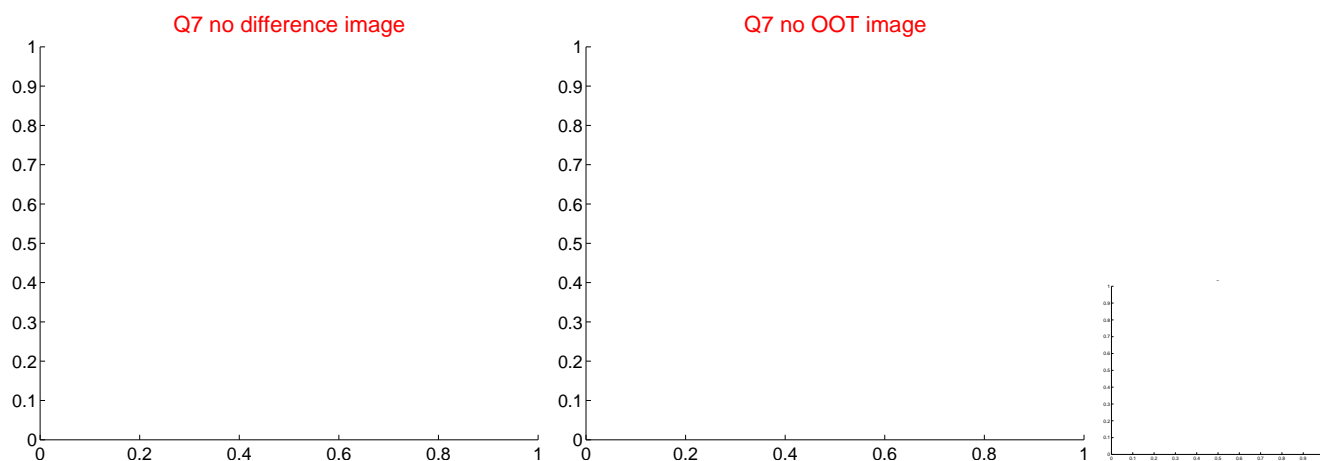
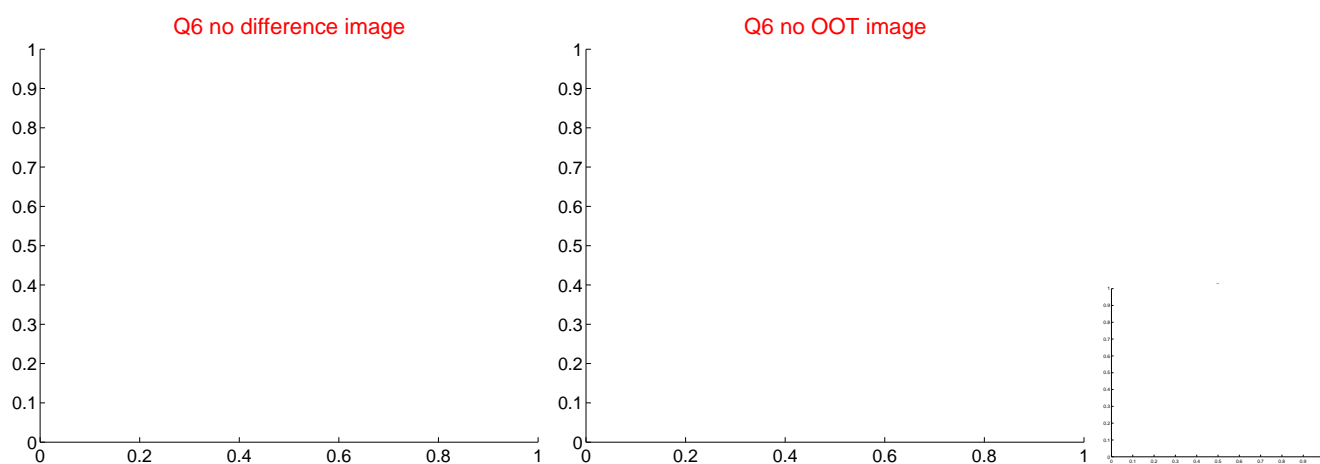
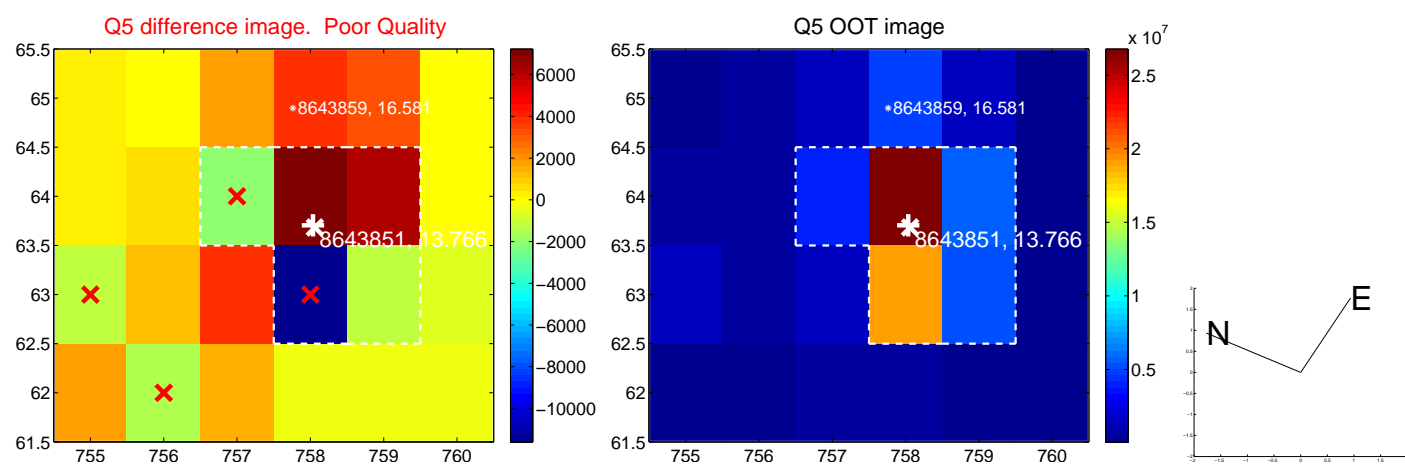


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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



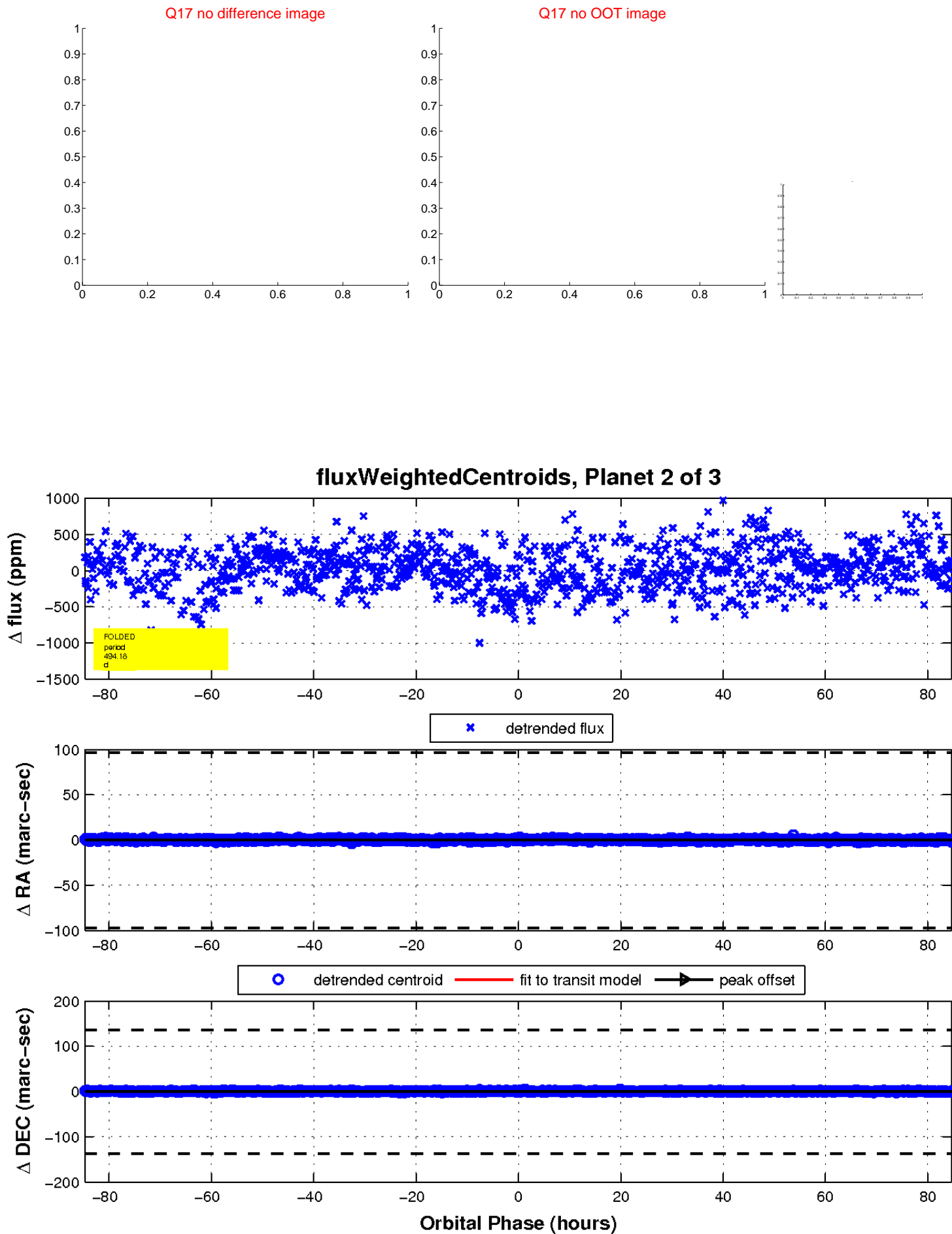
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

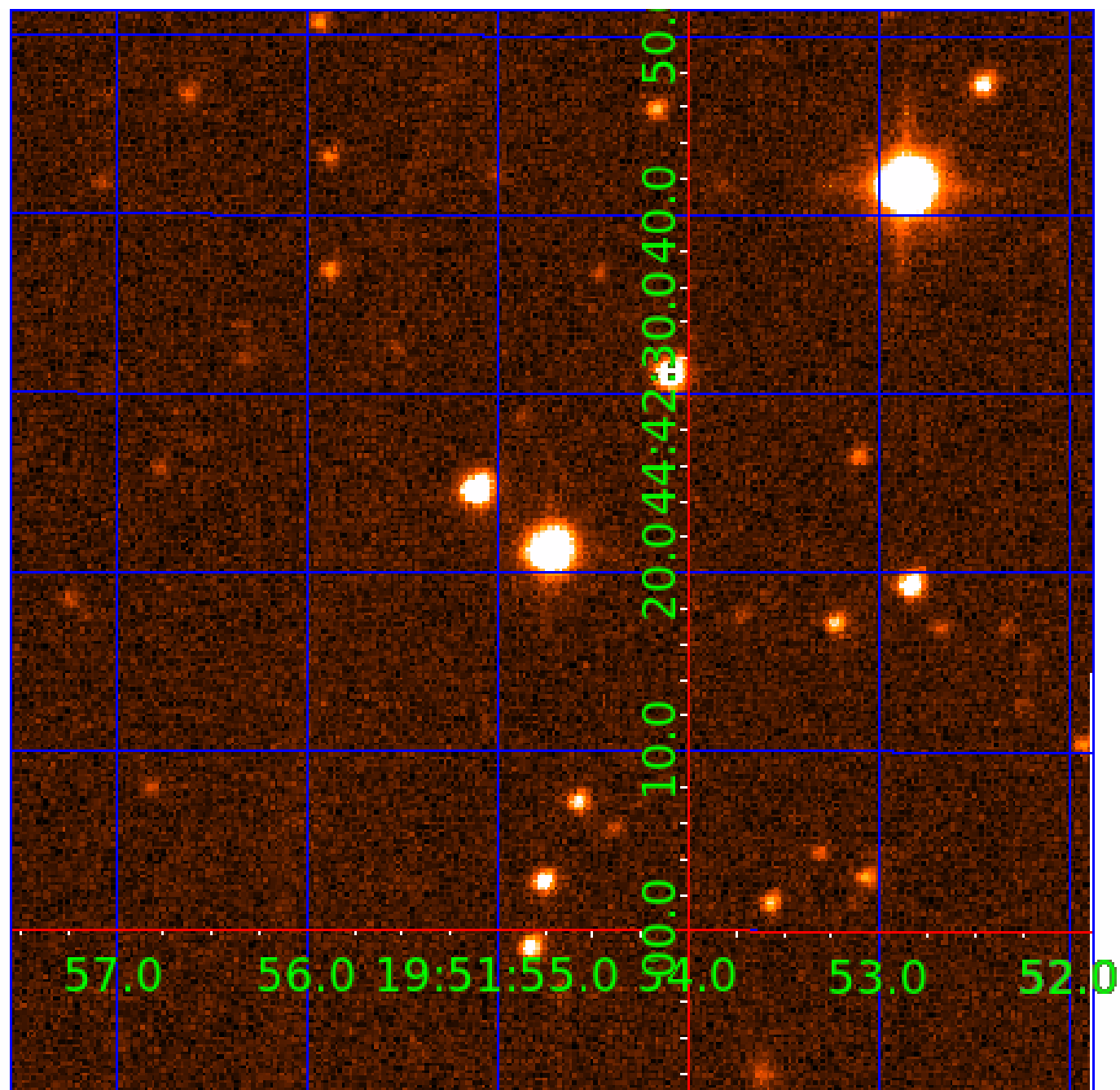


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008643851

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})
008643851-01	OBS	No	5.536474	131.732388	49.6	16.067	9.9	7.8	2.37	6054	1.95	1661.83
008643851-02	OBS	No	494.181774	509.548014	1853.1	28.281	47.2	22.7	2.37	6054	19.04	4.17
008643851-03	OBS	No	5.534905	133.868225	22.5	38.273	8.0	4.1	2.37	6054	1.20	1662.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008643851-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008643851-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008643851-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

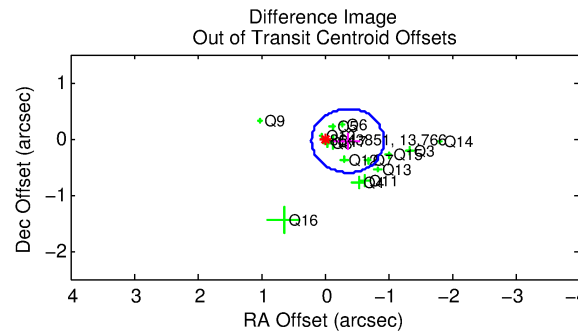
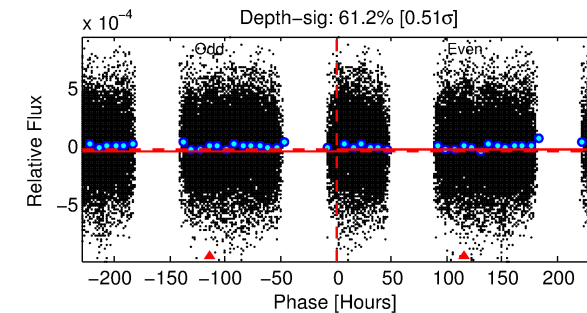
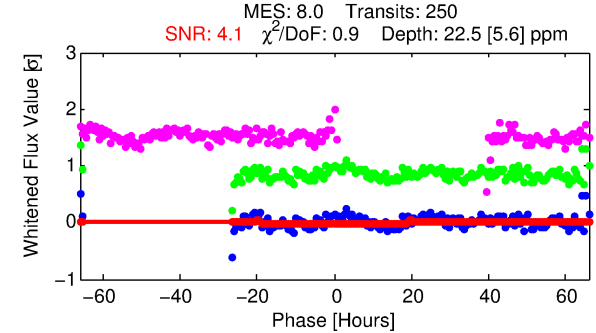
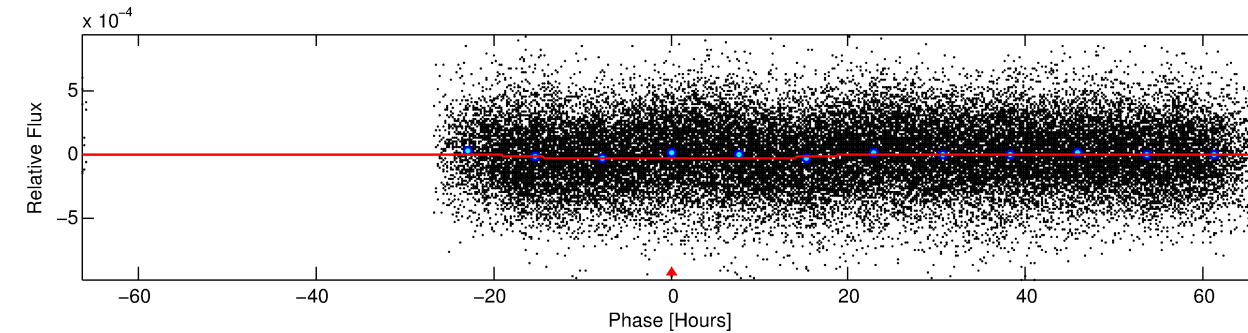
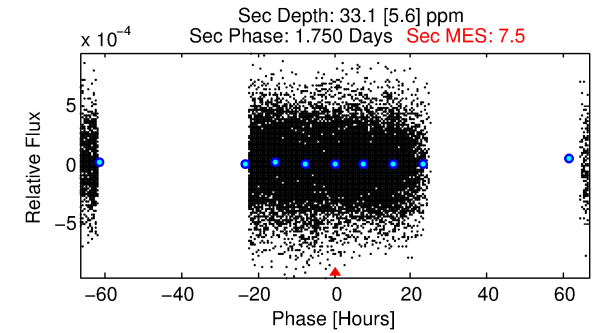
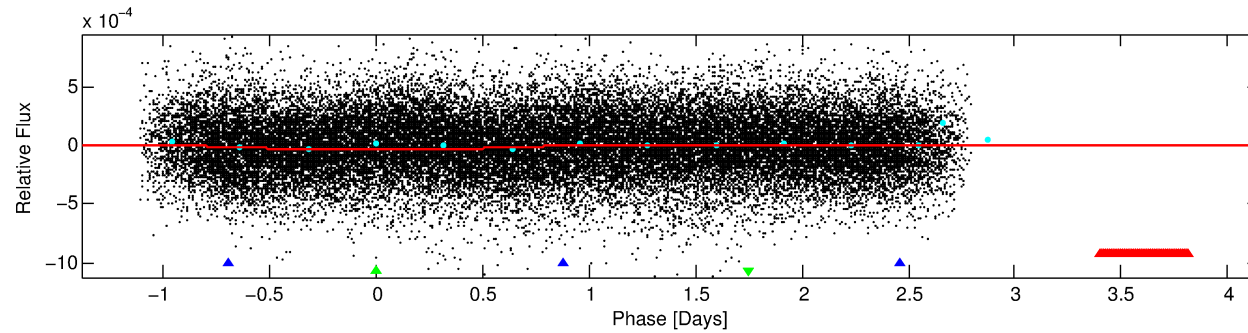
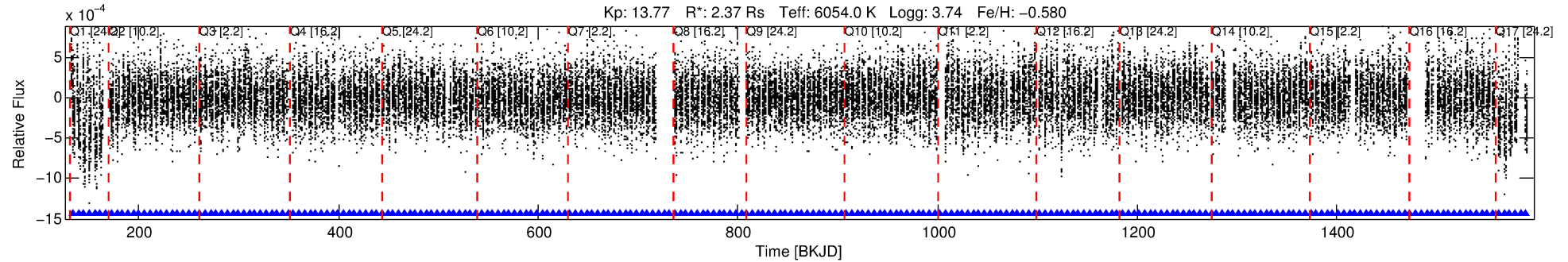
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008643851-03

No Significant Match Found

DV One-Page Summary

KIC: 8643851 Candidate: 3 of 3 Period: 5.535 d



DV Fit Results:

Period = 5.53490 [0.00026] d
Epoch = 133.8682 [0.0321] BKJD
Rp/R* = 0.0046 [0.0020]
a/R* = 1.15 [0.63]
b = 0.70 [1.62]
Seff = 1662.45 [1788.95]
Teq = 1628 [438] K
Rp = 1.20 [0.87] Re
a = 0.0638 [0.0401] AU
Ag = 51.23 [70.88] [0.71σ]
Teffp = 6735 [1502] K [3.26σ]

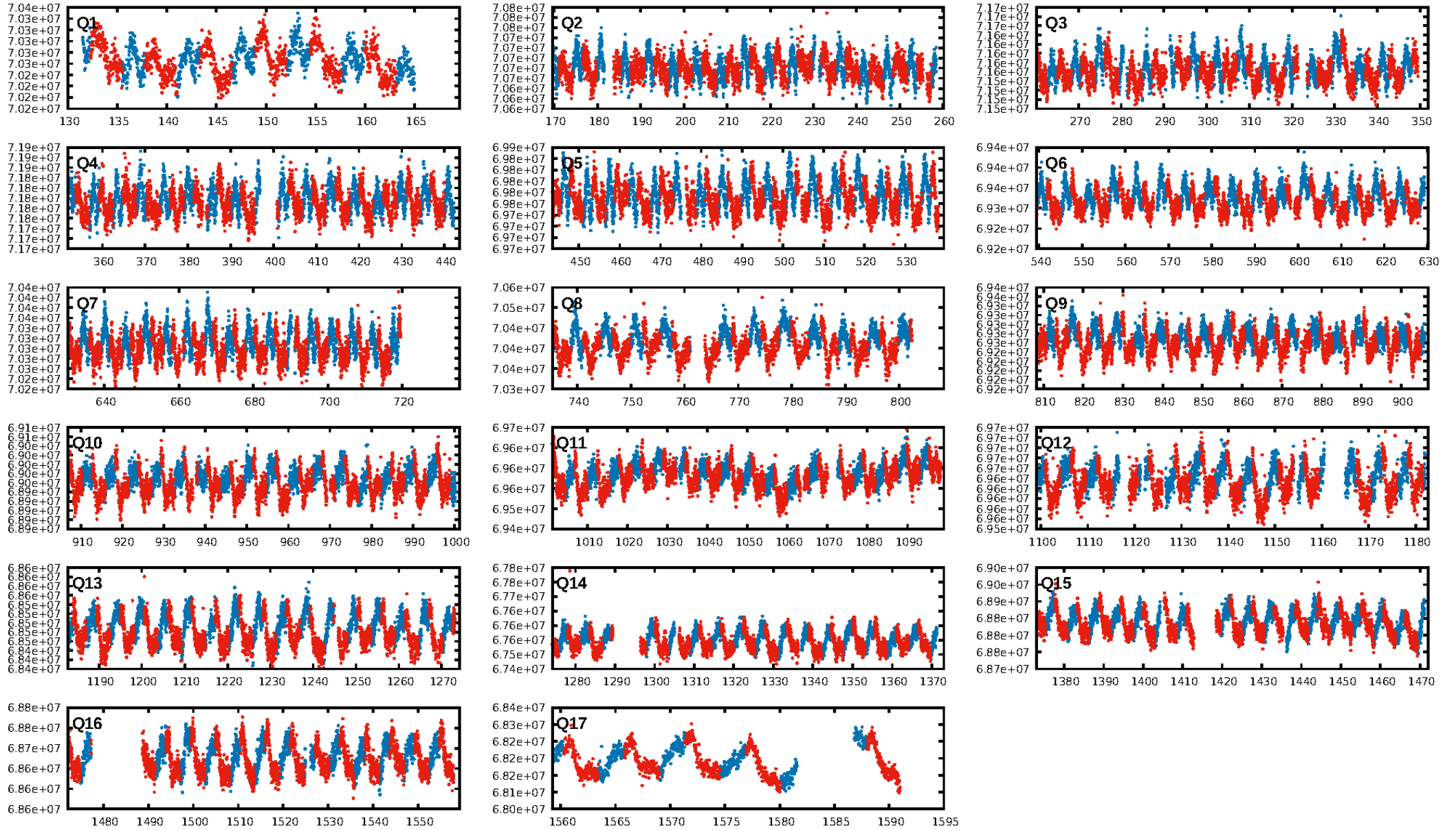
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [239/239]
GhostDiagnostic-chr: 1.694
Centroid-sig: 0.0%
Centroid-so: 6.122 arcsec [4.70σ]
OotOffset-rm: 0.364 arcsec [1.92σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-rm: 0.373 arcsec [1.83σ]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.87 [13/15]
DiffImageOverlap-fno: 0.00 [0/17]

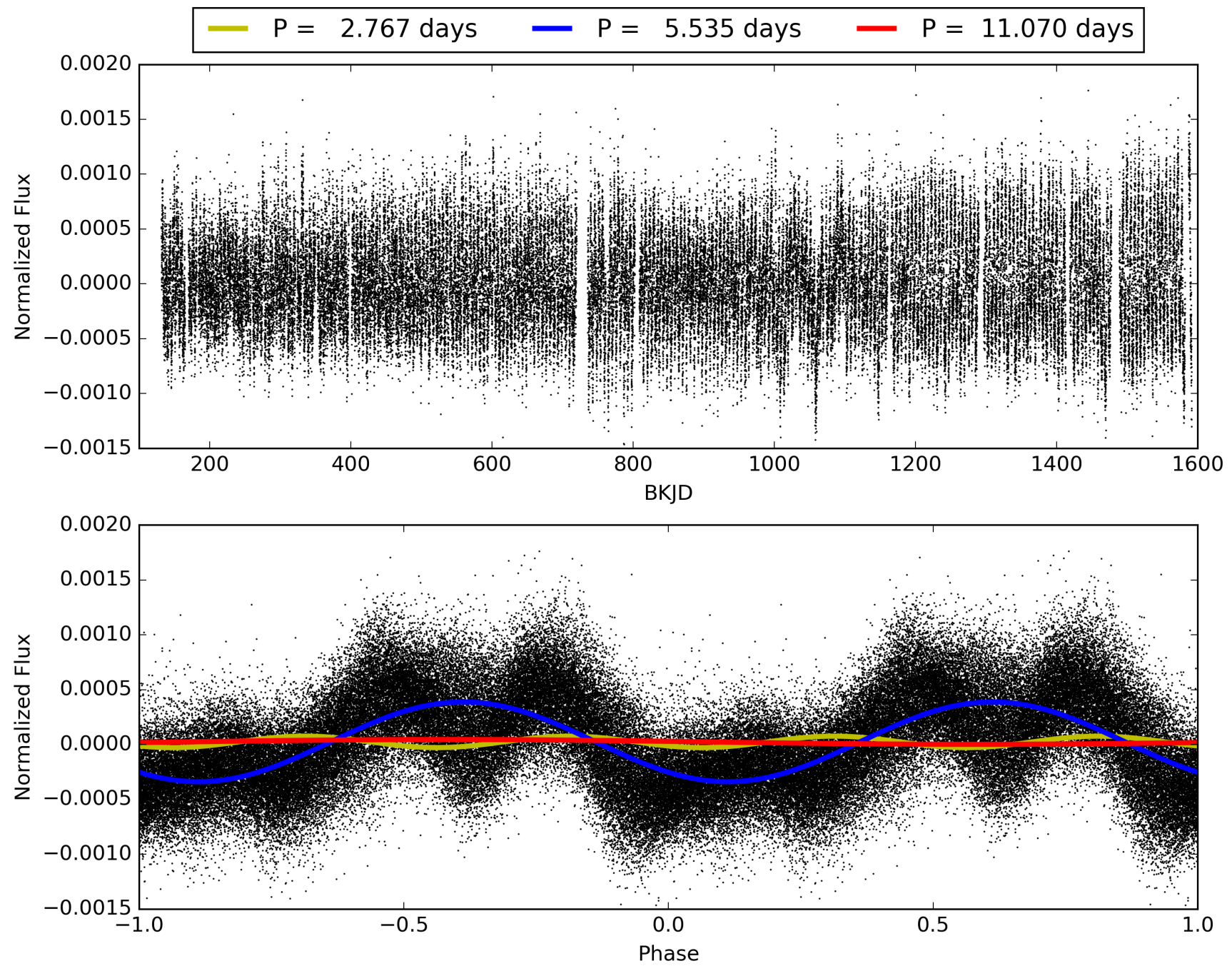
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:53:04 Z

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

TCE 008643851-03, PDC Light Curves

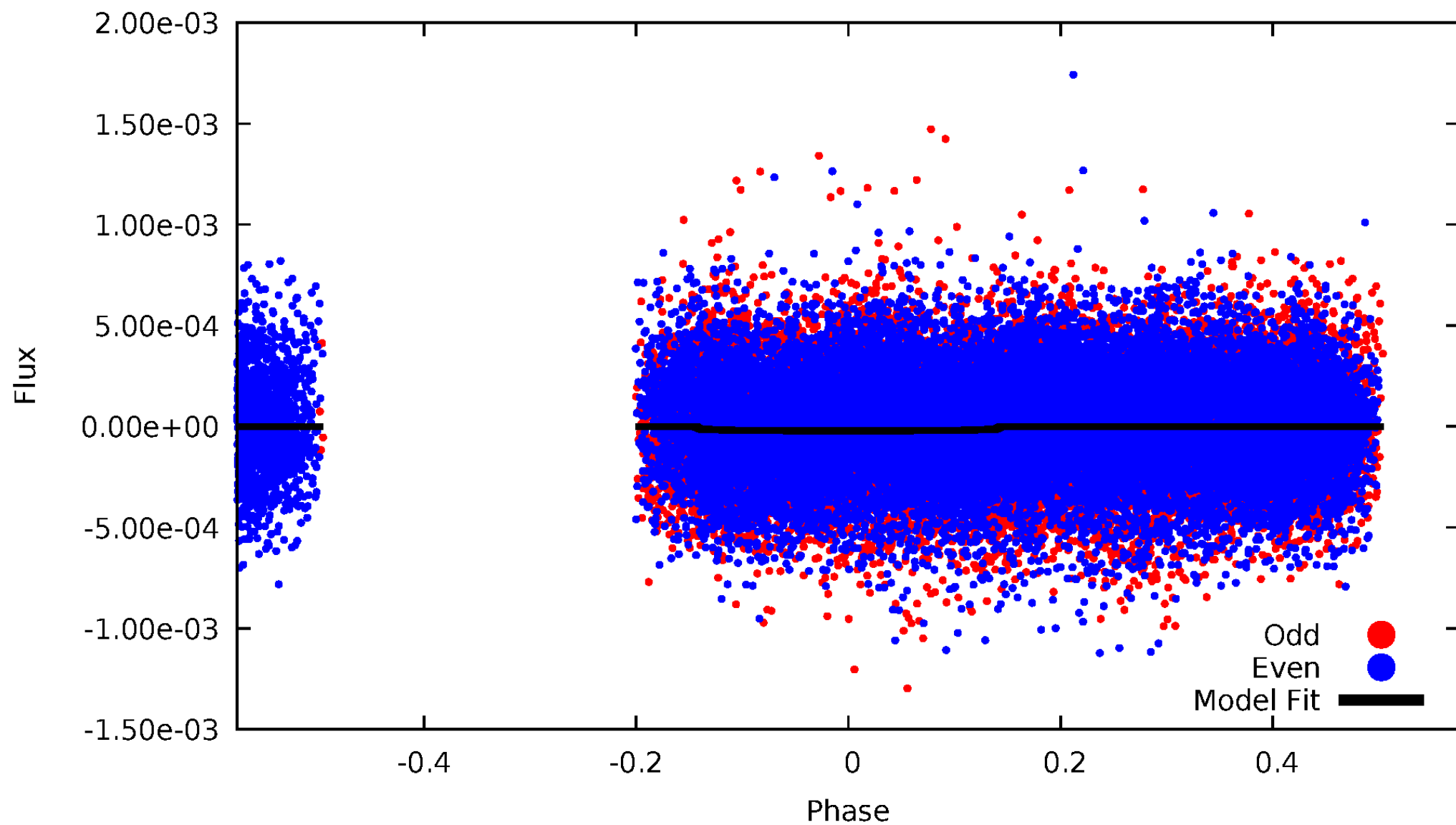


TCE 008643851-03



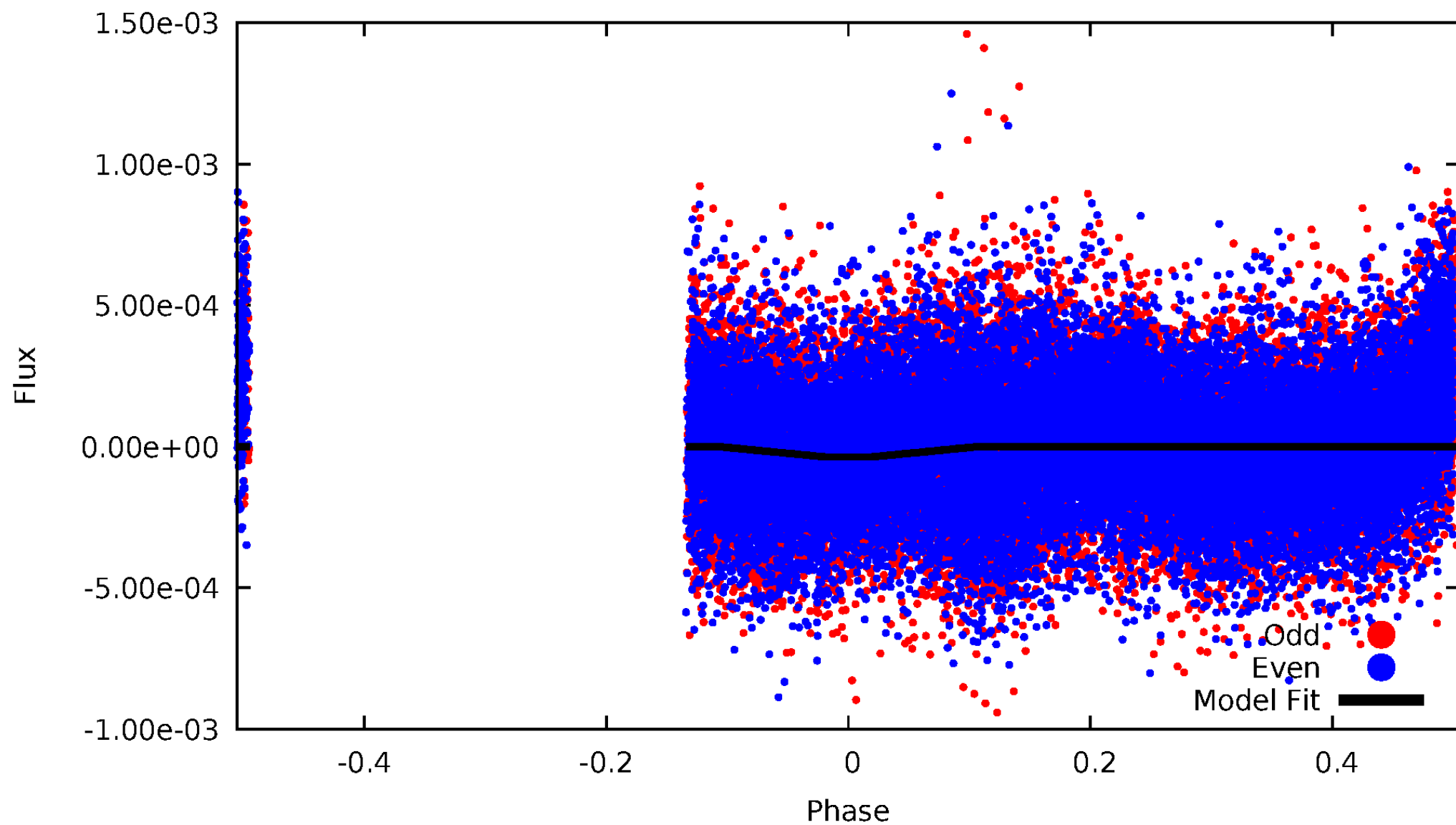
DV Odd/Even

TCE 008643851-03



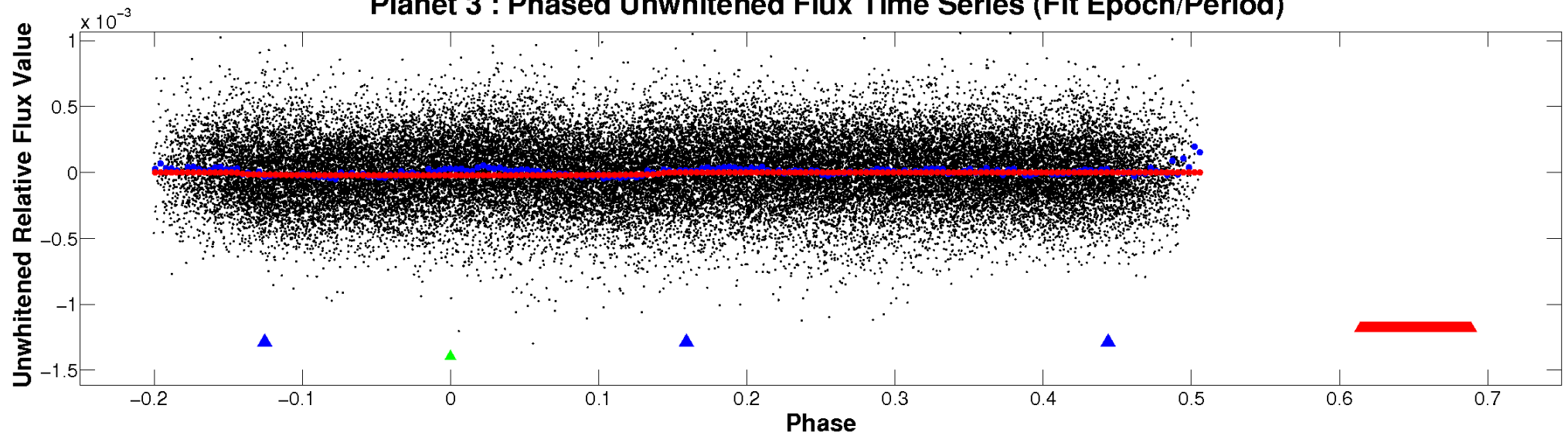
ALT Odd/Even

TCE 008643851-03

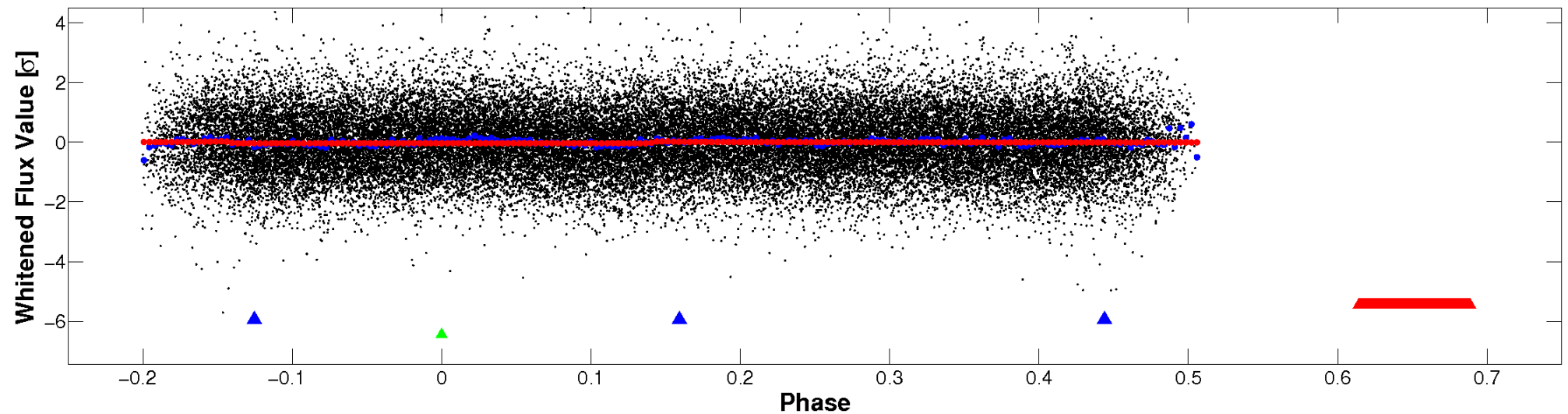


Non-Whitened Vs. Whitened Light Curve

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

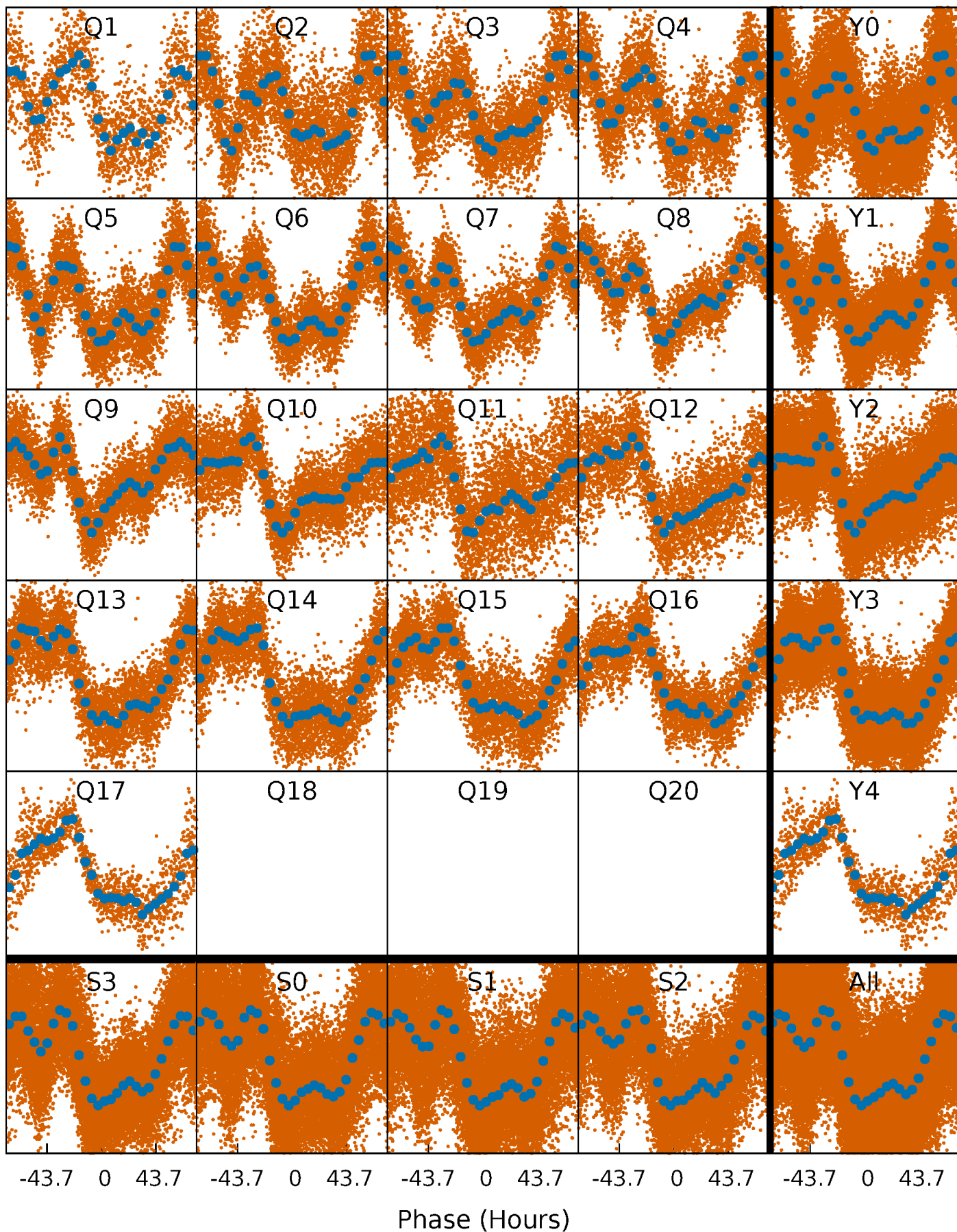


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



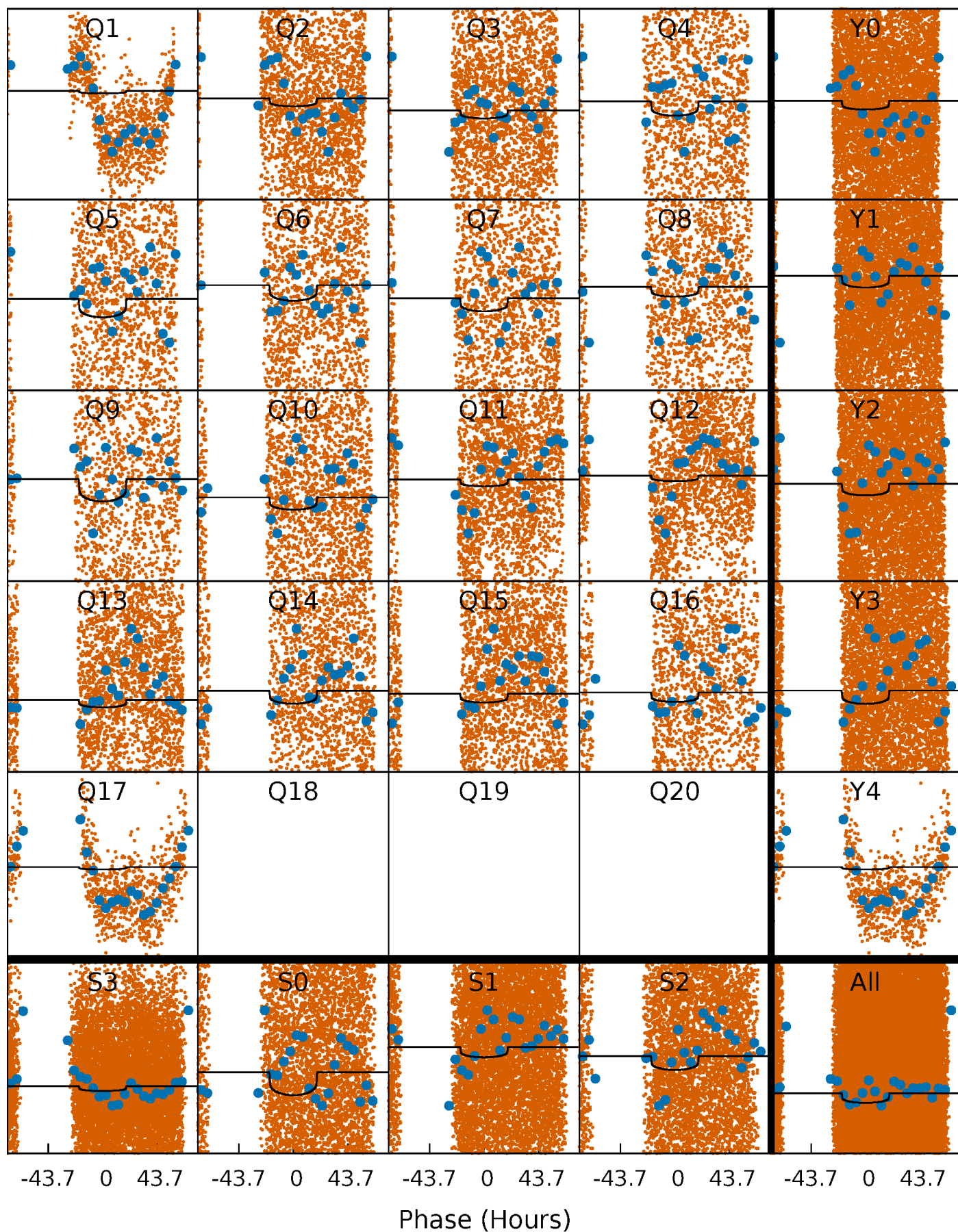
PDC Quarter-Phased Transit Curves

TCE 008643851-03 P= 5.534905 Days $T_0=133.868225$ (BKJD)



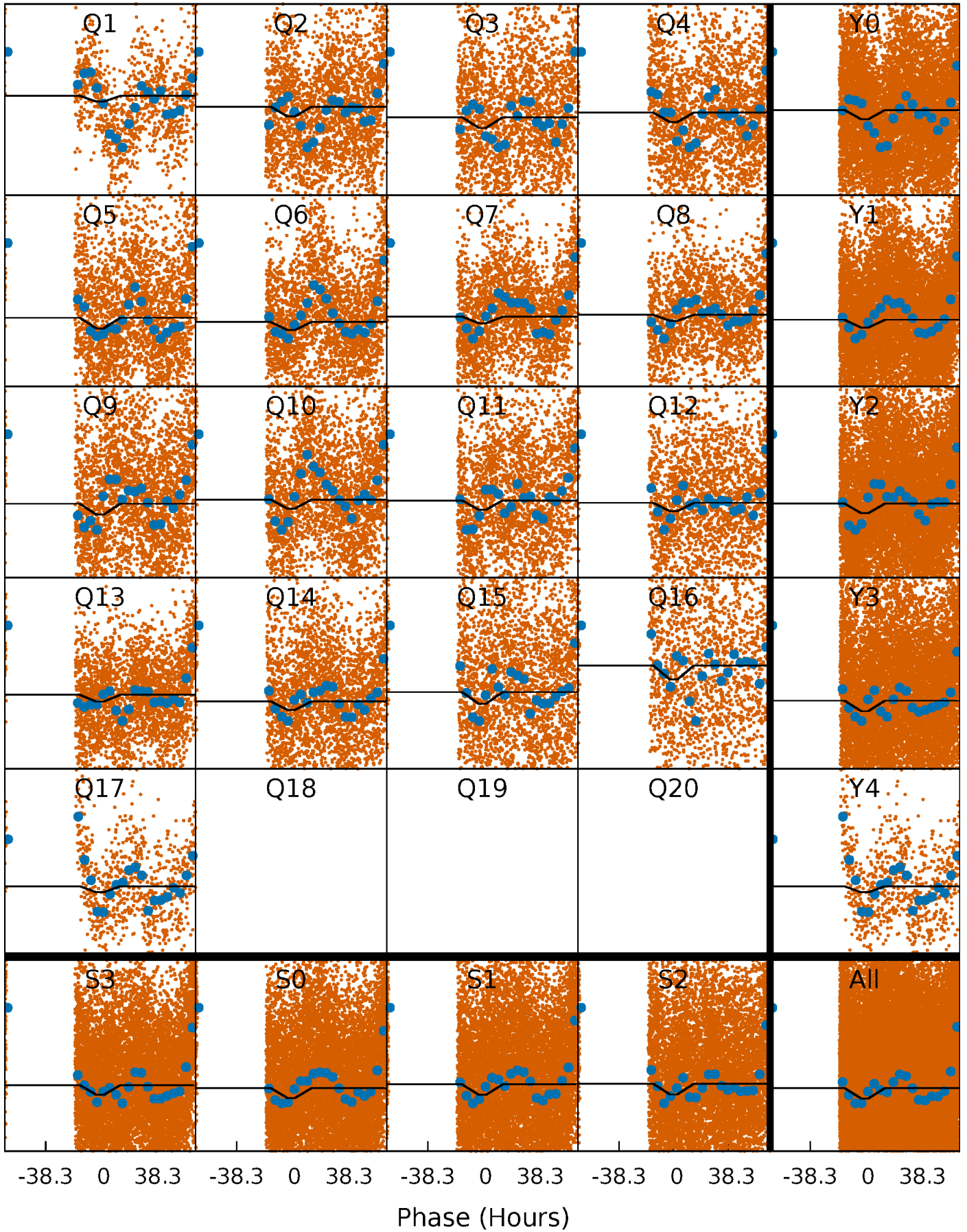
DV Quarter-Phased Transit Curves

TCE 008643851-03 P= 5.534905 Days $T_0=133.868225$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

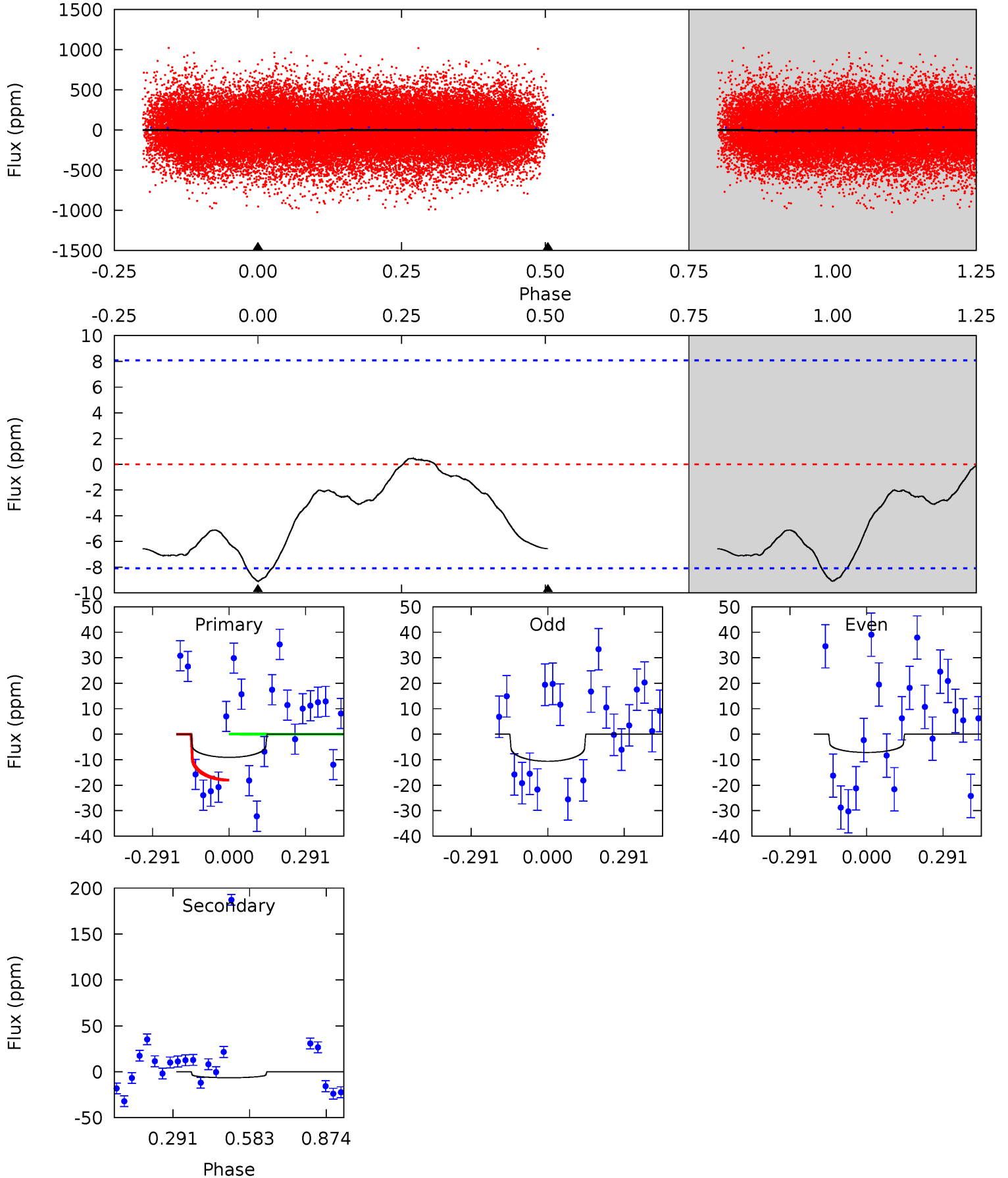
TCE 008643851-03 P= 5.536342 Days $T_0=133.492027$ (BKJD)



DV Model-Shift Uniqueness Test

008643851-03, P = 5.534905 Days, E = 128.333320 Days

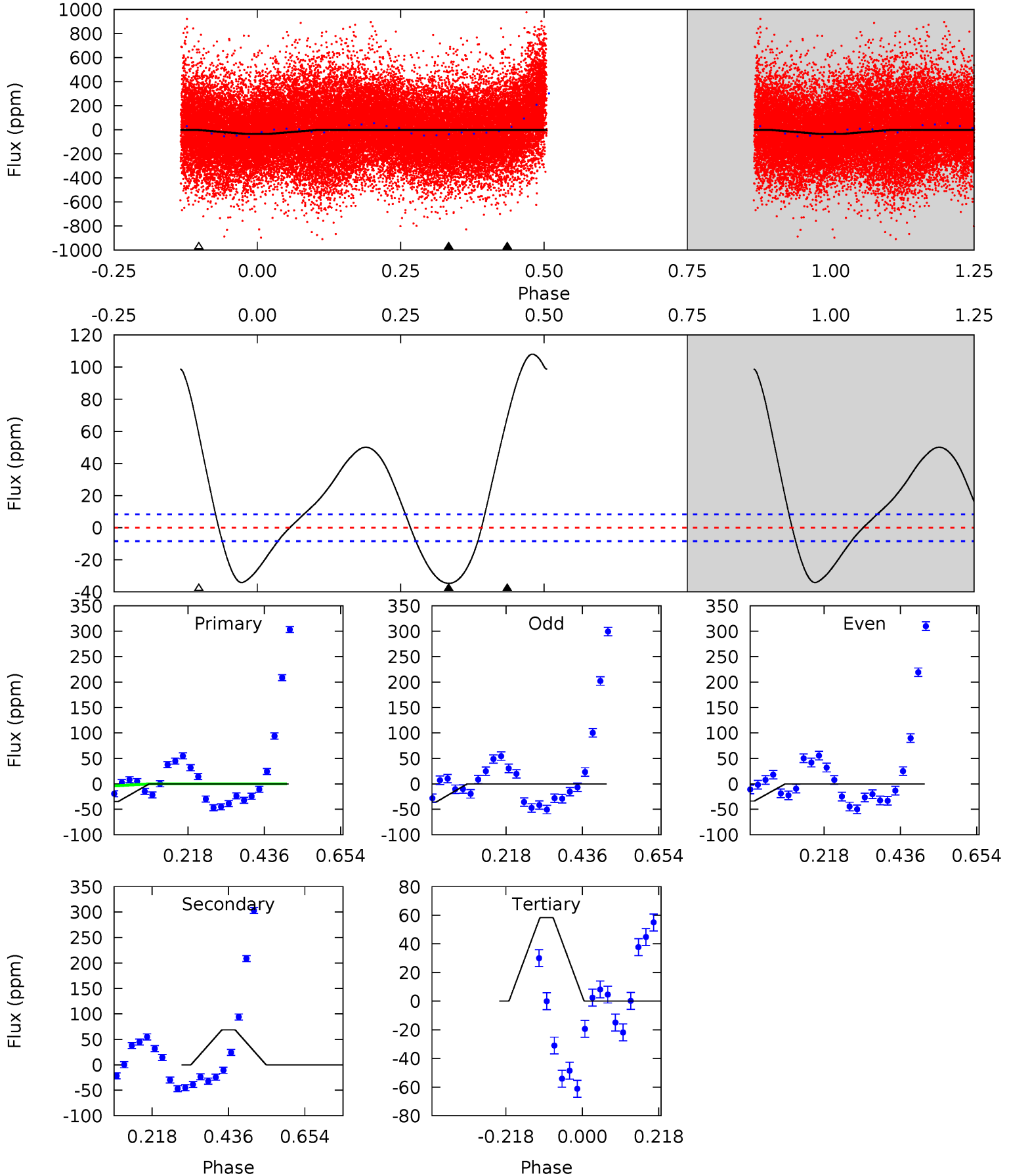
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.88	3.52	0	0	4.34	1.05	0.37	4.88	4.88	3.52	3.52	0.92	7.29	0.05	4.92



Alt Model-Shift Uniqueness Test

008643851-03, P = 5.536342 Days, E = 127.955685 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	-36.1	-30.7	0	4.40	1.23	18.2	48.9	18.2	-5.46	-36.1	0.50	1.27	0.76	16.5



Stellar Parameters For KIC 008643851

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6054^{+214}_{-193}	$3.741^{+0.648}_{-0.162}$	$-0.580^{+0.350}_{-0.250}$	$2.370^{+0.587}_{-1.370}$	$1.127^{+0.153}_{-0.285}$	$0.119^{+1.092}_{-0.051}$
	+4%/-3%	+17%/-4%	+60%/-43%	+25%/-58%	+14%/-25%	+916%/-43%
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 008643851-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7 ± 2	$1.05^{+0.59}_{-0.48}$	2213^{+208}_{-349}	4604^{+1168}_{-650}	13^{+33}_{-8}
Alt.	69 ± 2	$1.42^{+0.68}_{-0.61}$	2222^{+213}_{-360}	-7034^{+947}_{-2223}	$-75.874^{+40.998}_{-144.277}$

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 $A_{obs} \gg 1.0$

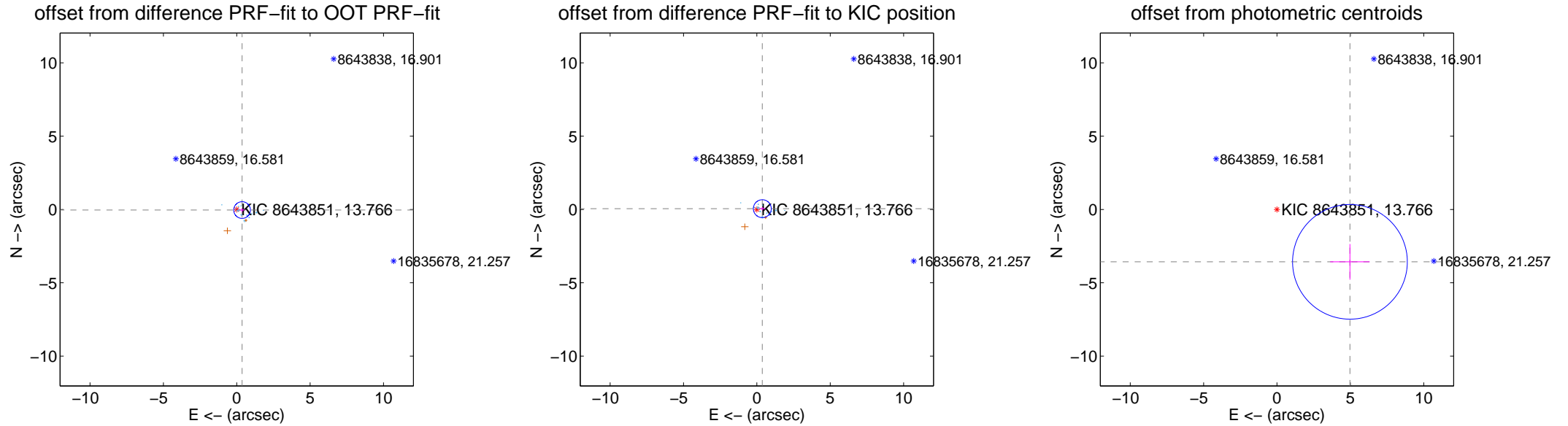
DV Centroid Data

Supplemental centroid analysis for 008643851-03. Kepler magnitude: 13.77. Transit SNR 4.08

There are 13 quarters with good PRF difference image offsets

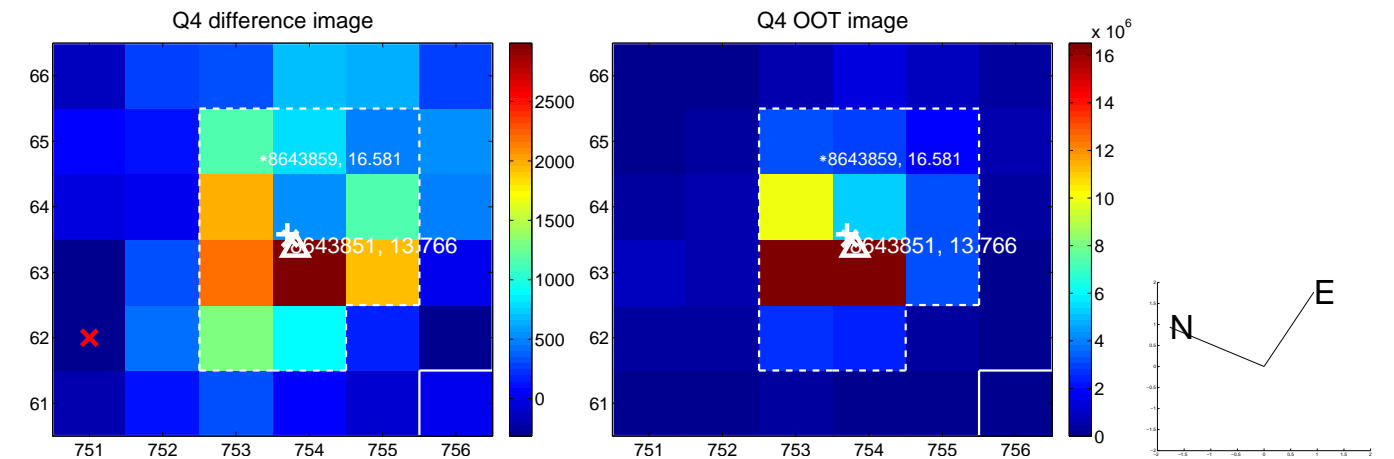
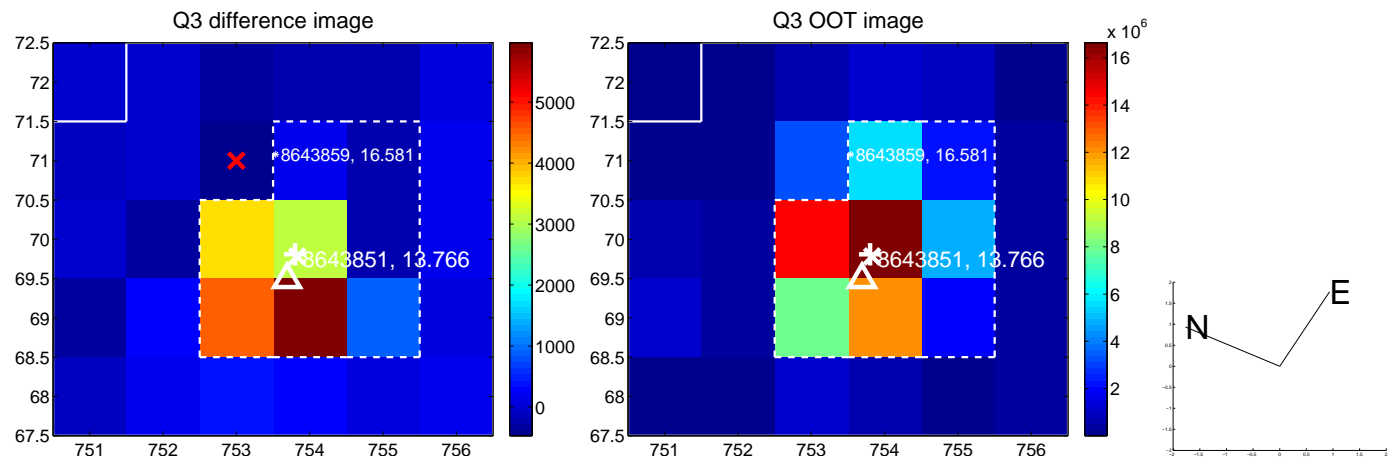
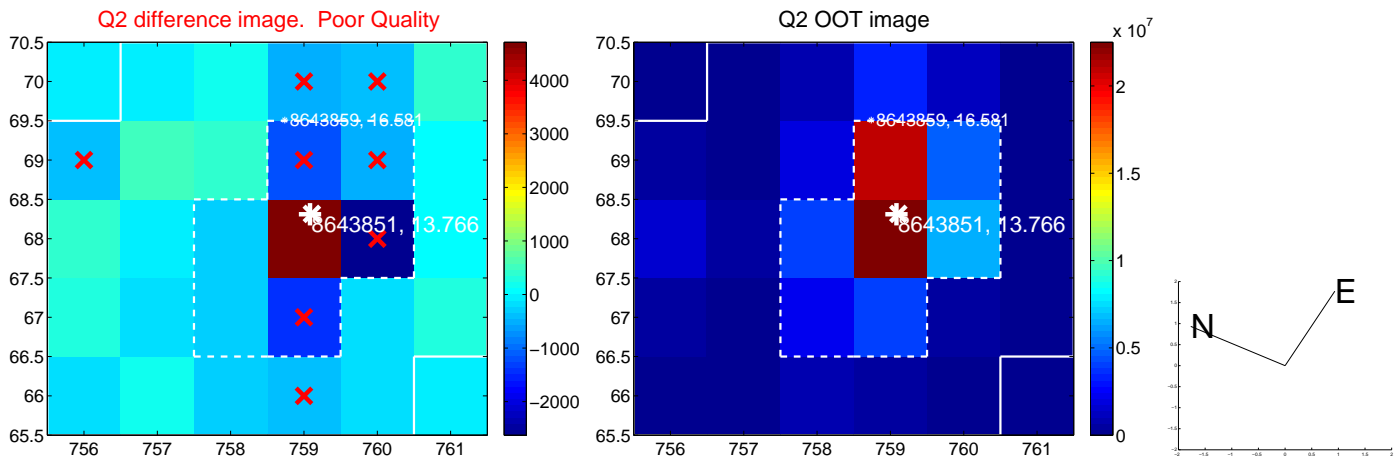
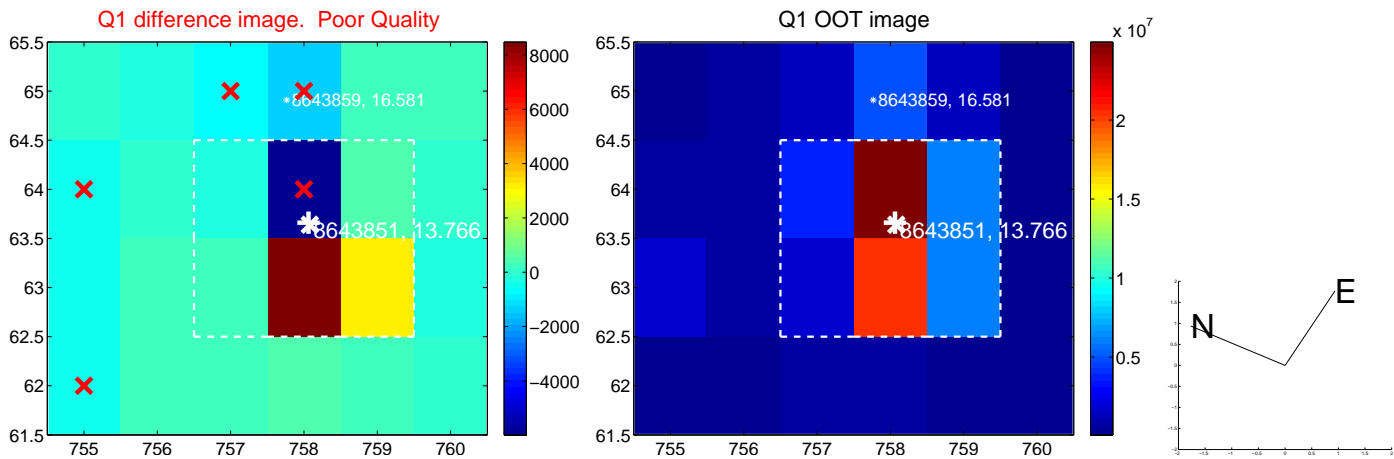
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.364 ± 0.190	1.92	-0.361 ± 0.190	-0.039 ± 0.135
PRF-fit source offset from KIC position	0.373 ± 0.203	1.83	-0.369 ± 0.205	0.055 ± 0.121
photometric centroid source offset	6.12 ± 1.30	4.70	-4.97 ± 1.35	-3.57 ± 1.22

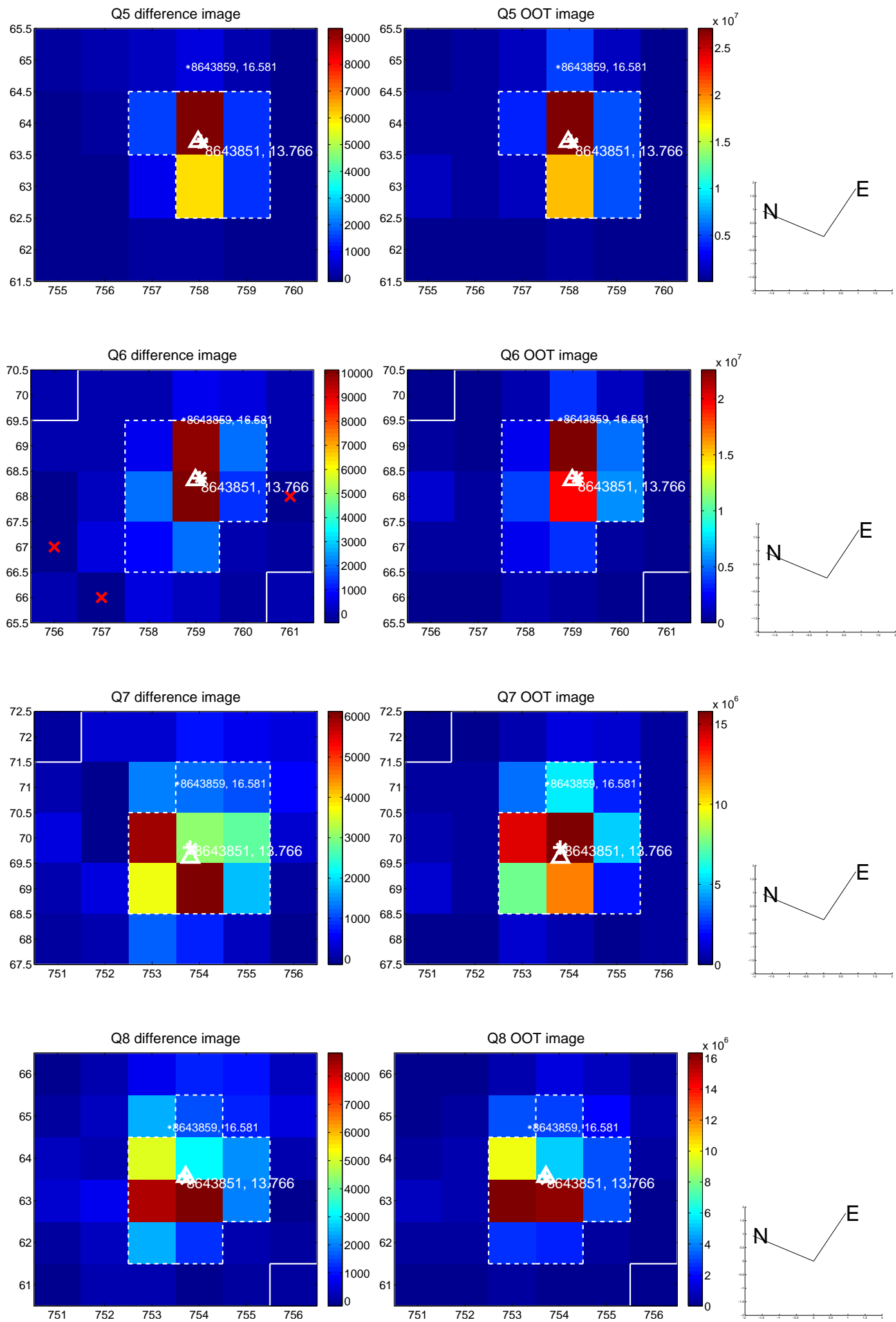


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

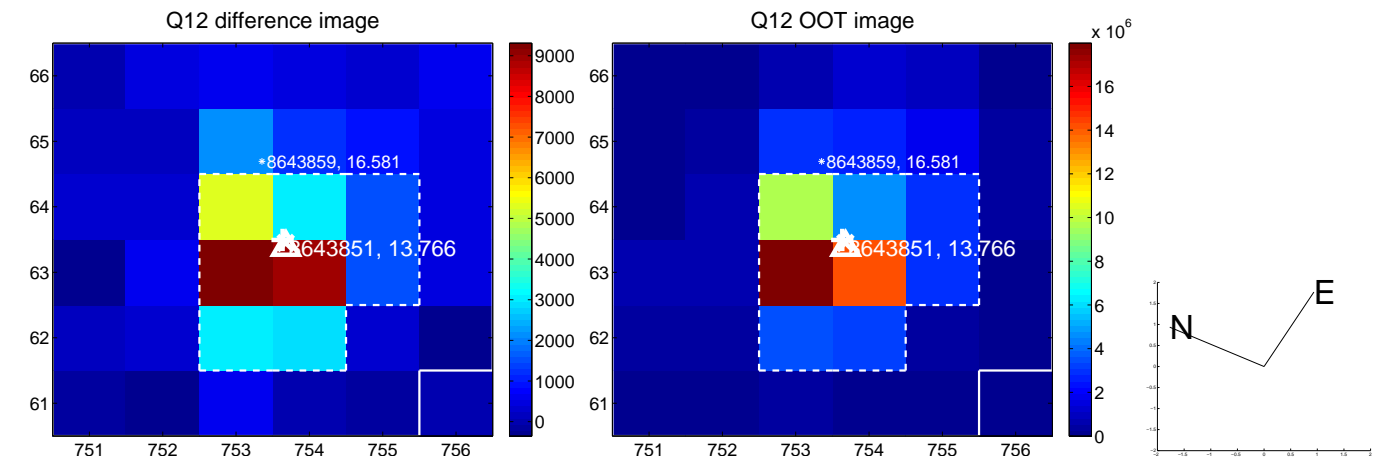
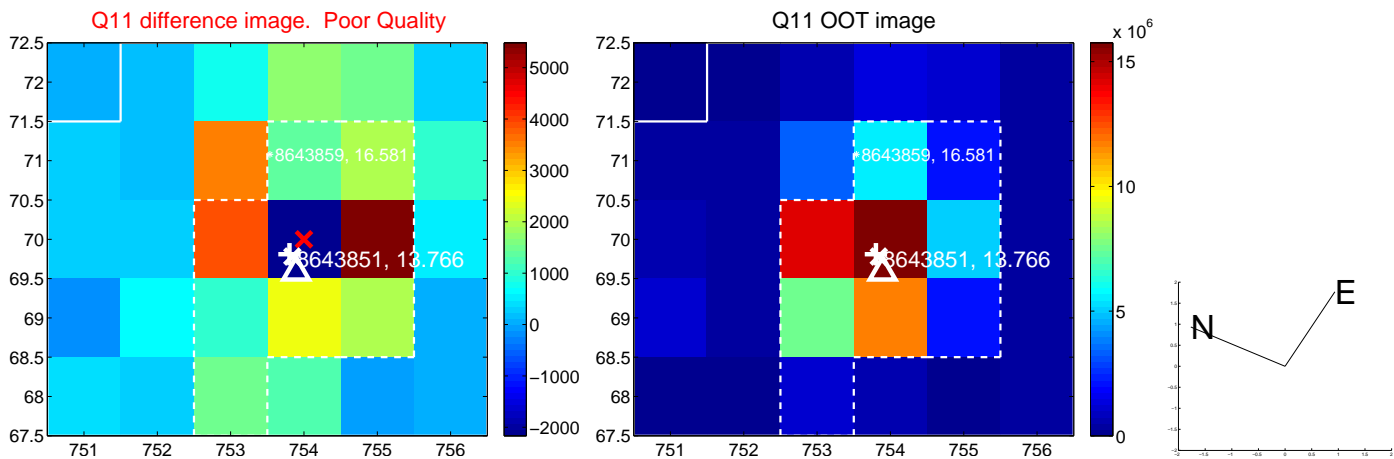
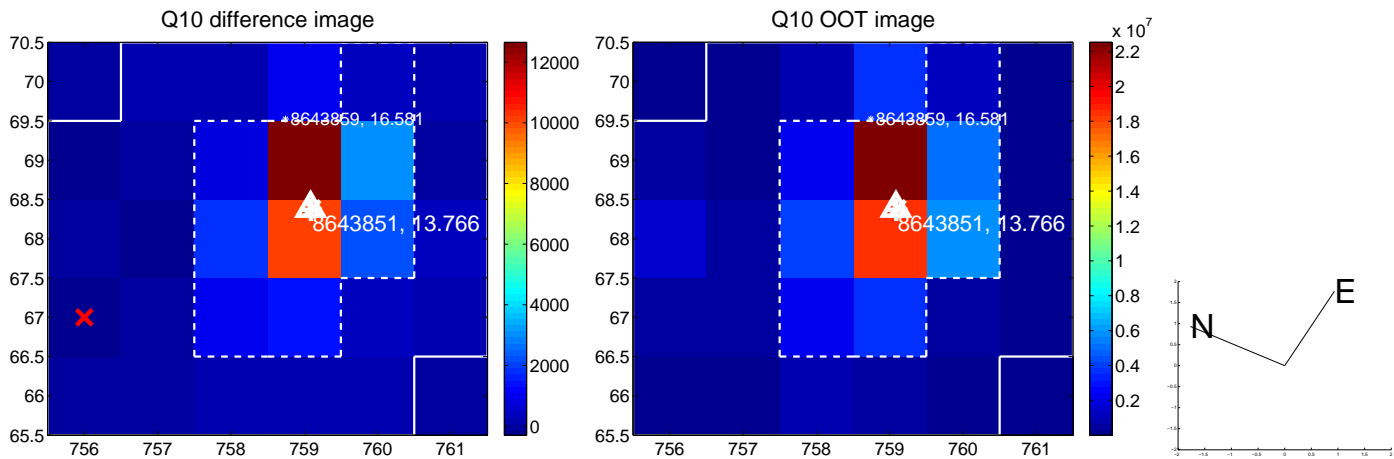
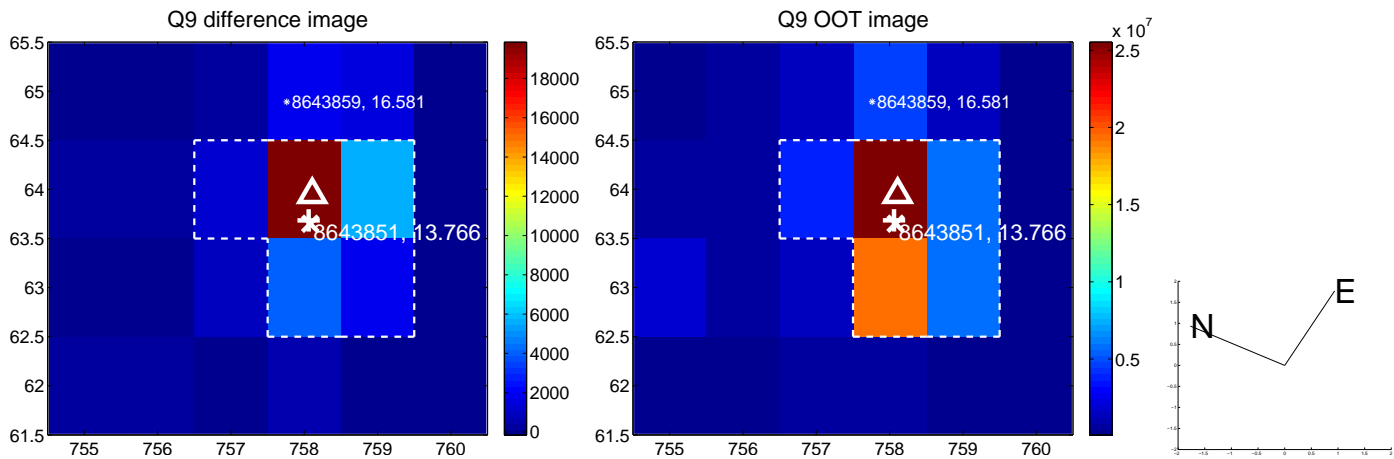
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



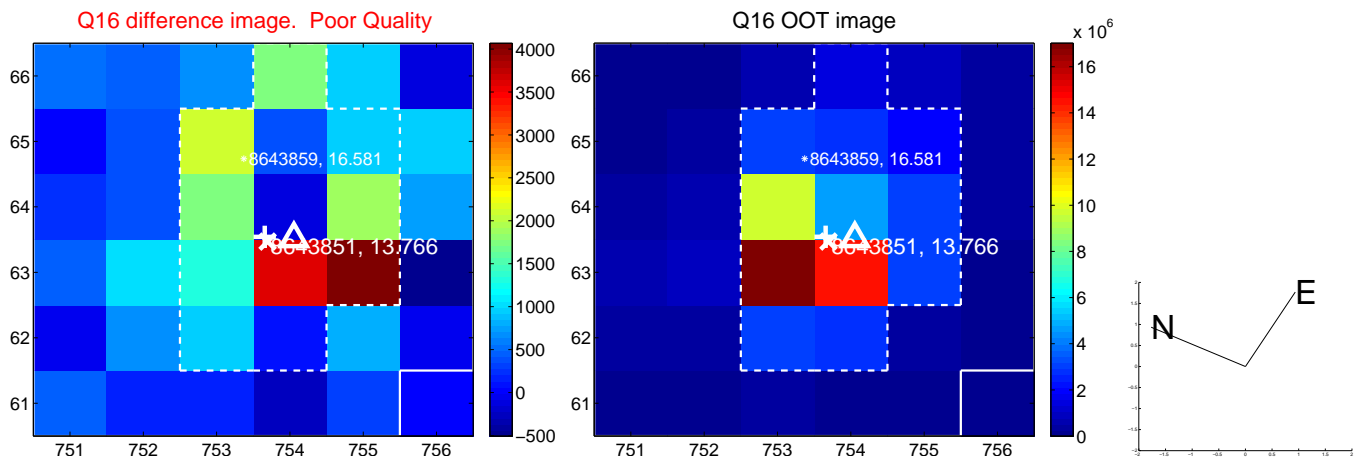
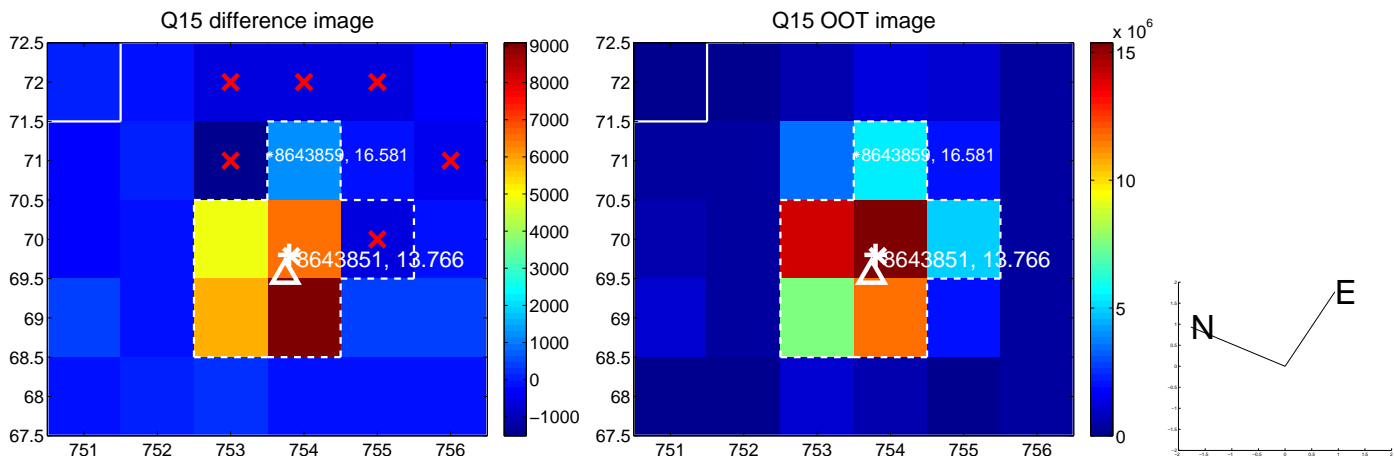
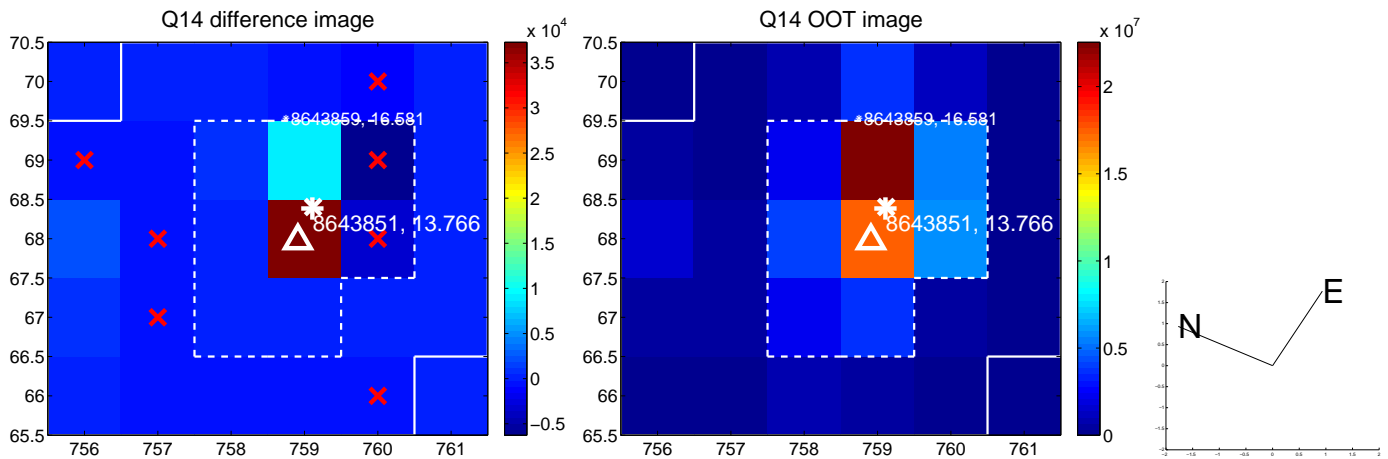
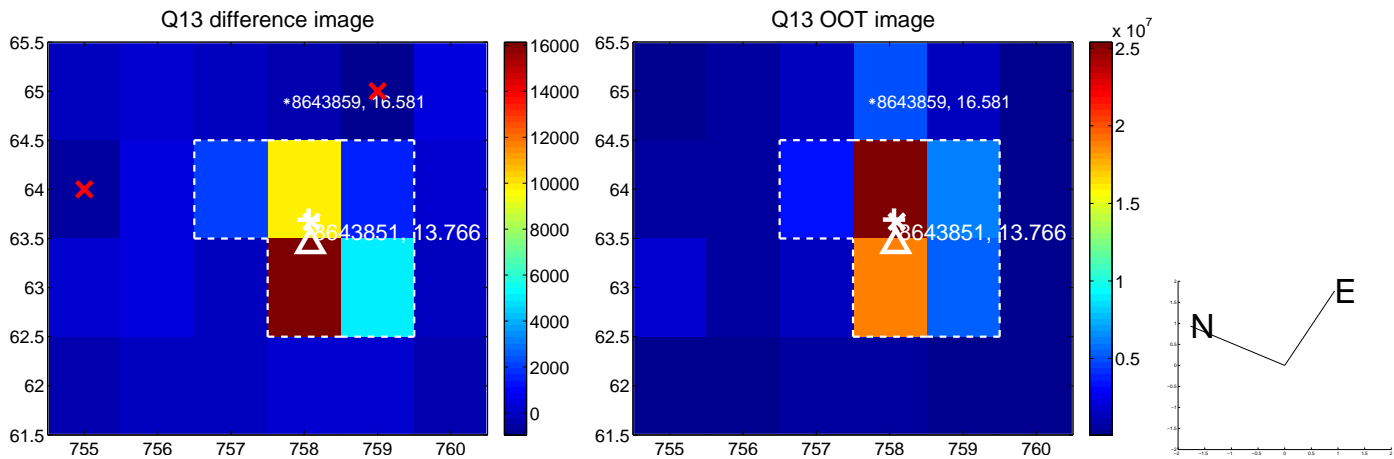
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



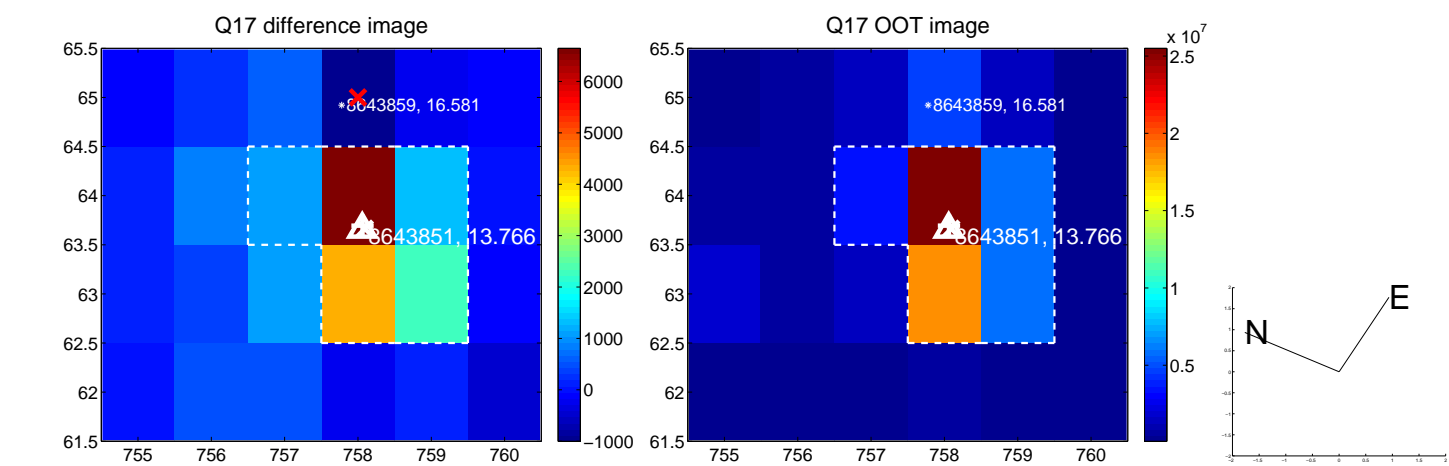
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



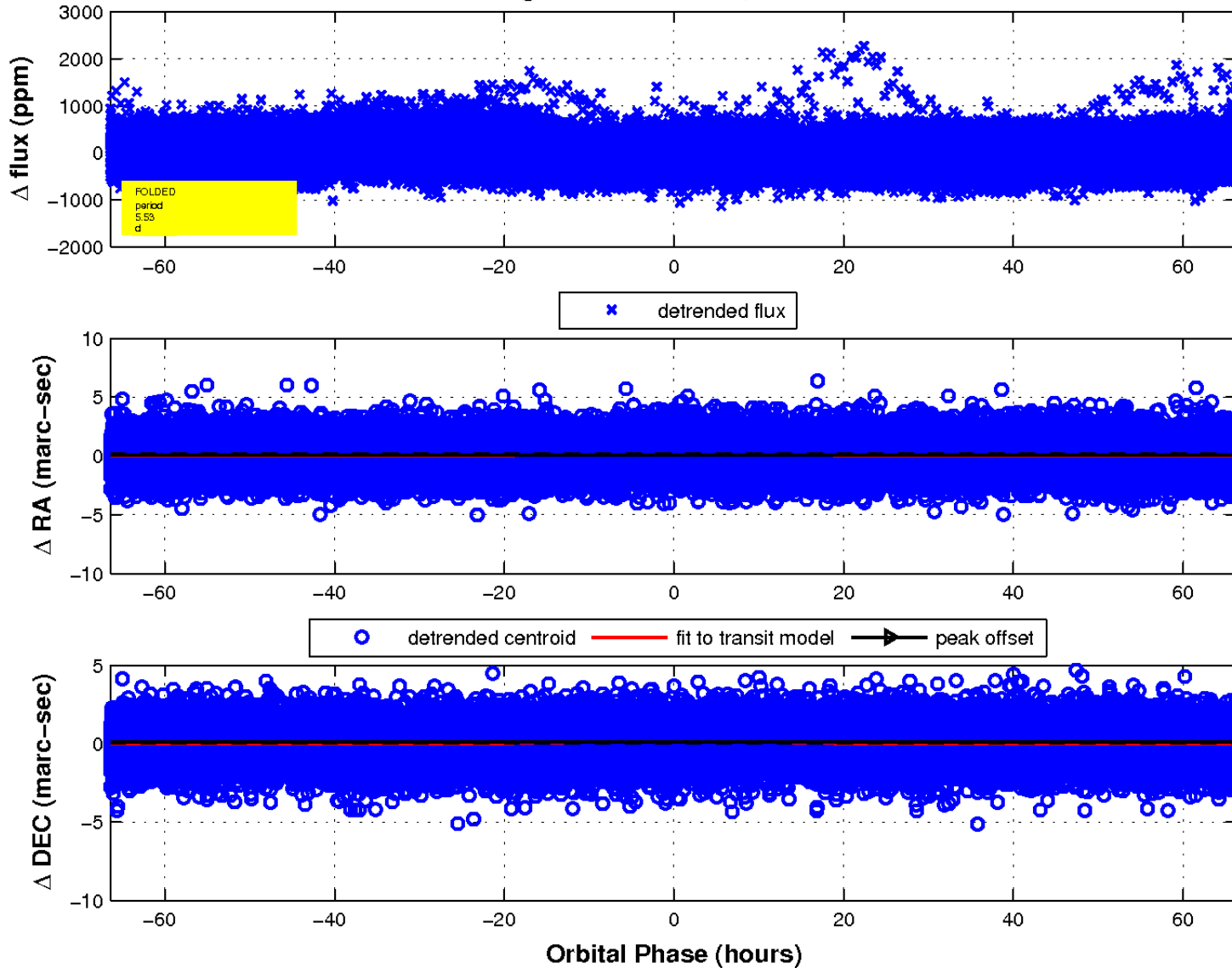
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

