

KIC 012784183

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})
012784183-01	OBS	No	0.626080	131.512525	12.8	3.430	7.2	3.2	0.45	3650	0.16	257.12
012784183-02	OBS	No	62.937124	176.865631	546.3	4.622	11.1	8.4	0.45	3650	1.18	0.55
012784183-03	OBS	No	125.295712	176.826452	813.3	4.338	11.4	9.4	0.45	3650	1.36	0.22
012784183-04	OBS	No	214.189645	213.850444	680.2	13.236	8.2	7.3	0.45	3650	1.37	0.11
012784183-05	OBS	No	316.103102	135.032524	648.4	4.723	7.8	6.8	0.45	3650	1.12	0.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012784183-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_MEAS
012784183-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012784183-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012784183-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012784183-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

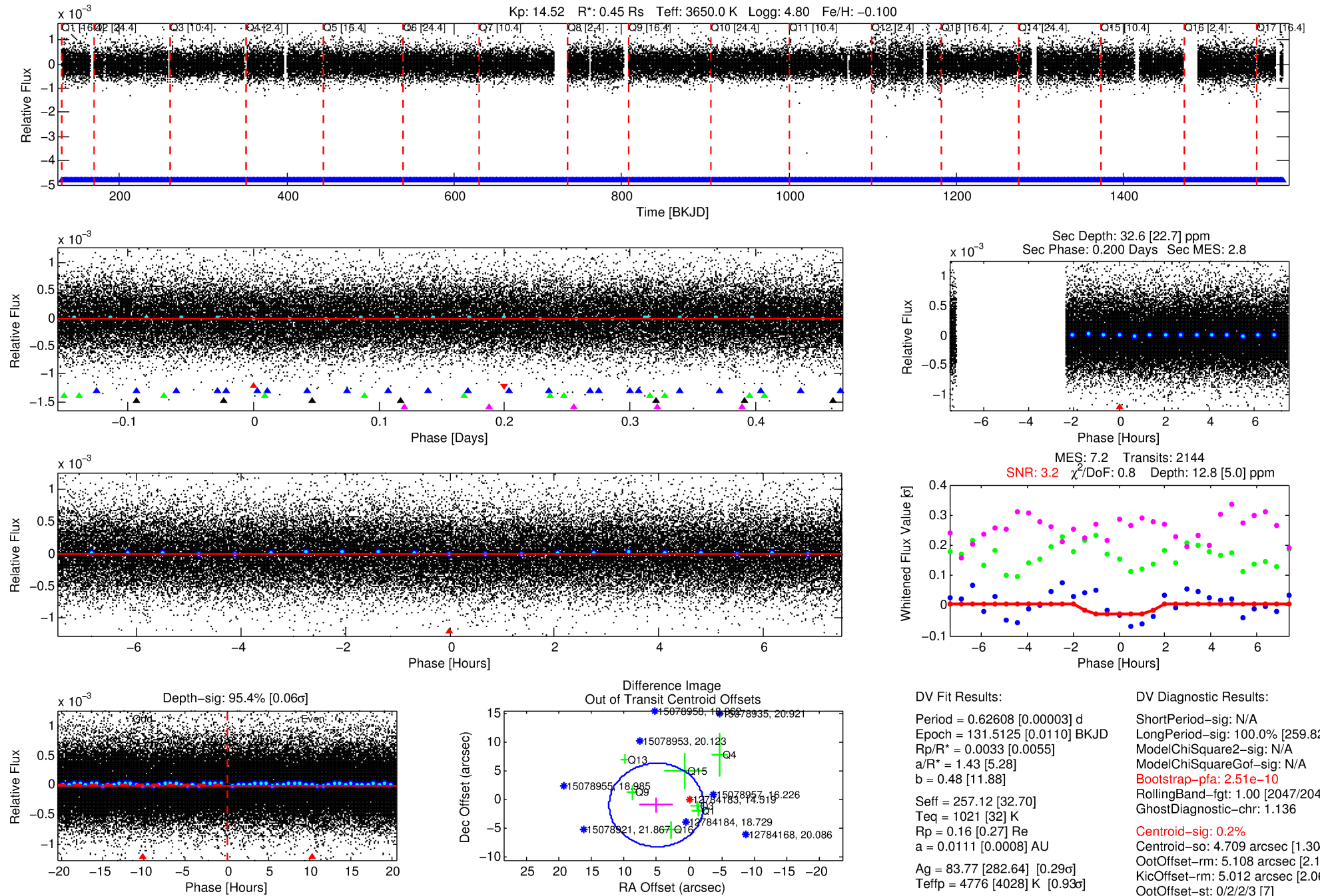
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012784183-01

No Significant Match Found

DV One-Page Summary

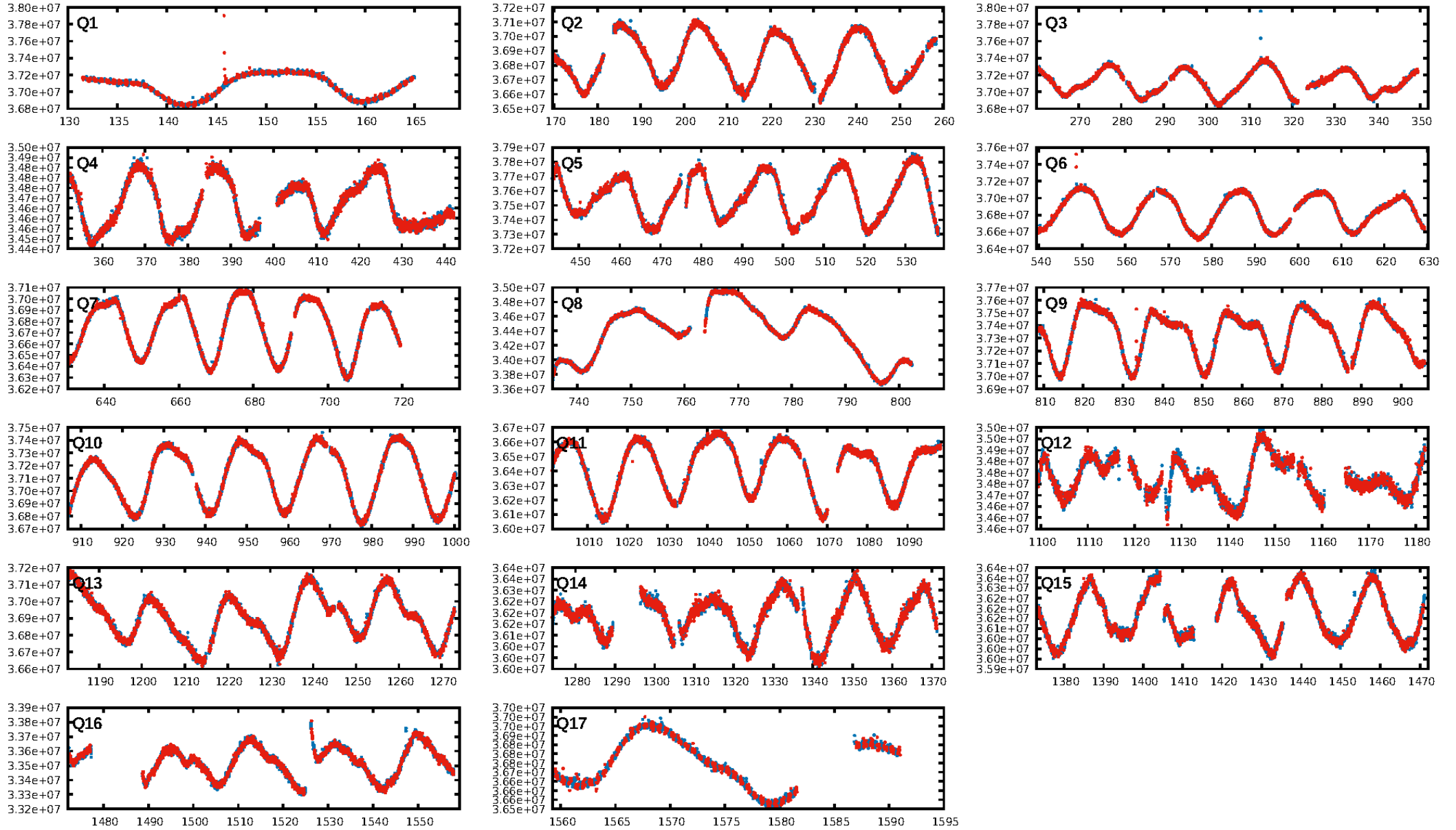
KIC: 12784183 Candidate: 1 of 5 Period: 0.626 d



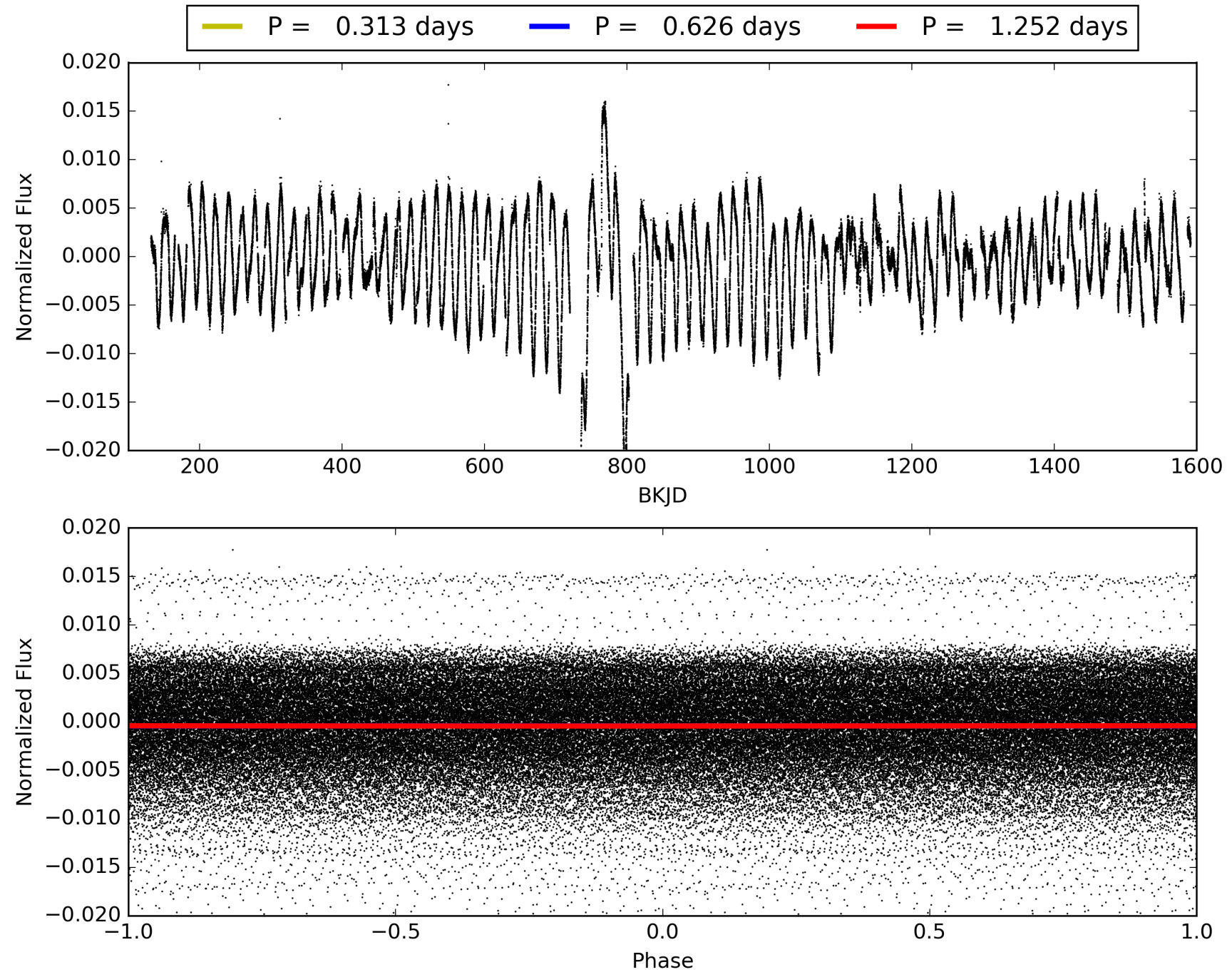
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:15:33 Z

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

TCE 012784183-01, PDC Light Curves

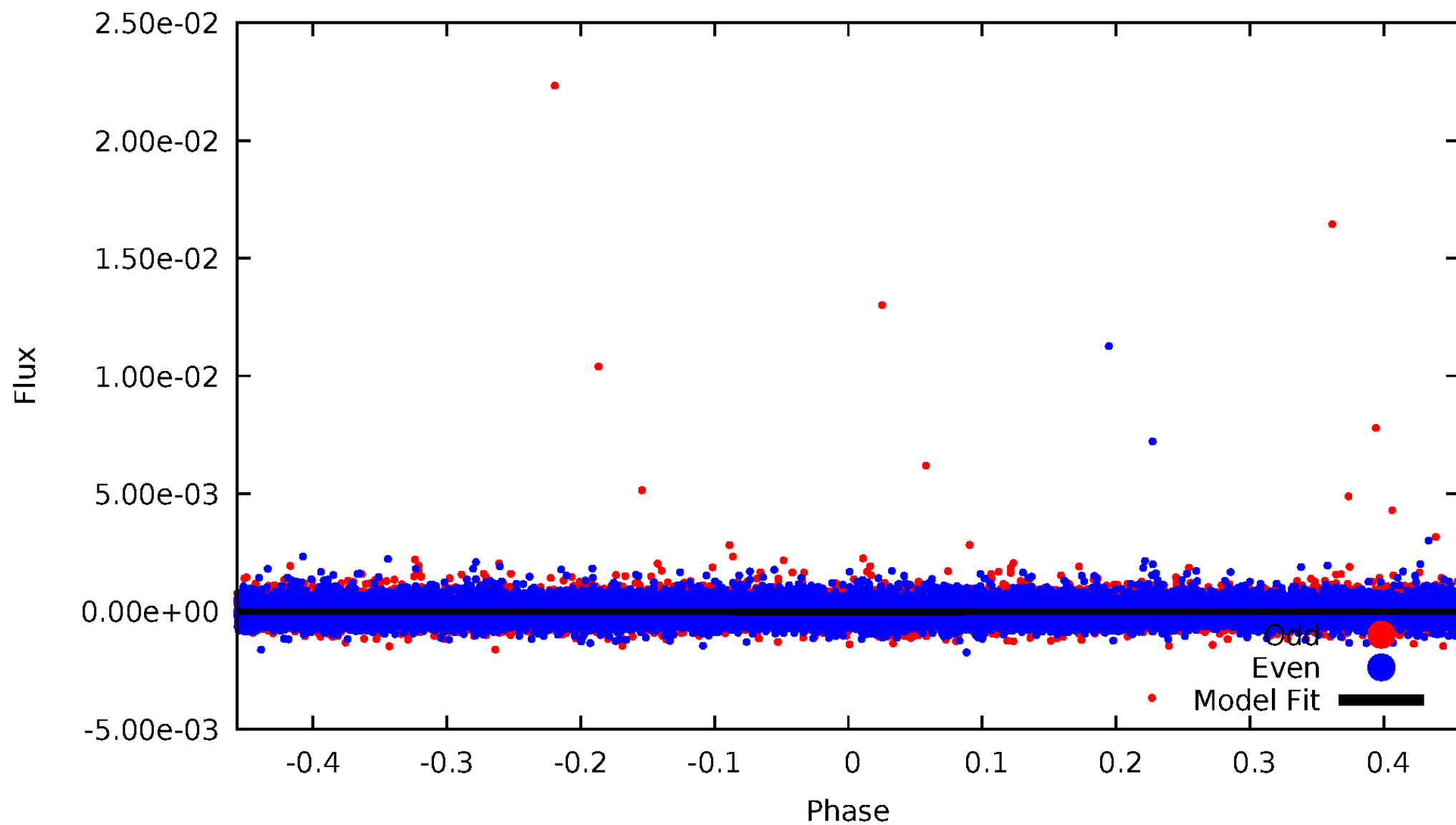


TCE 012784183-01



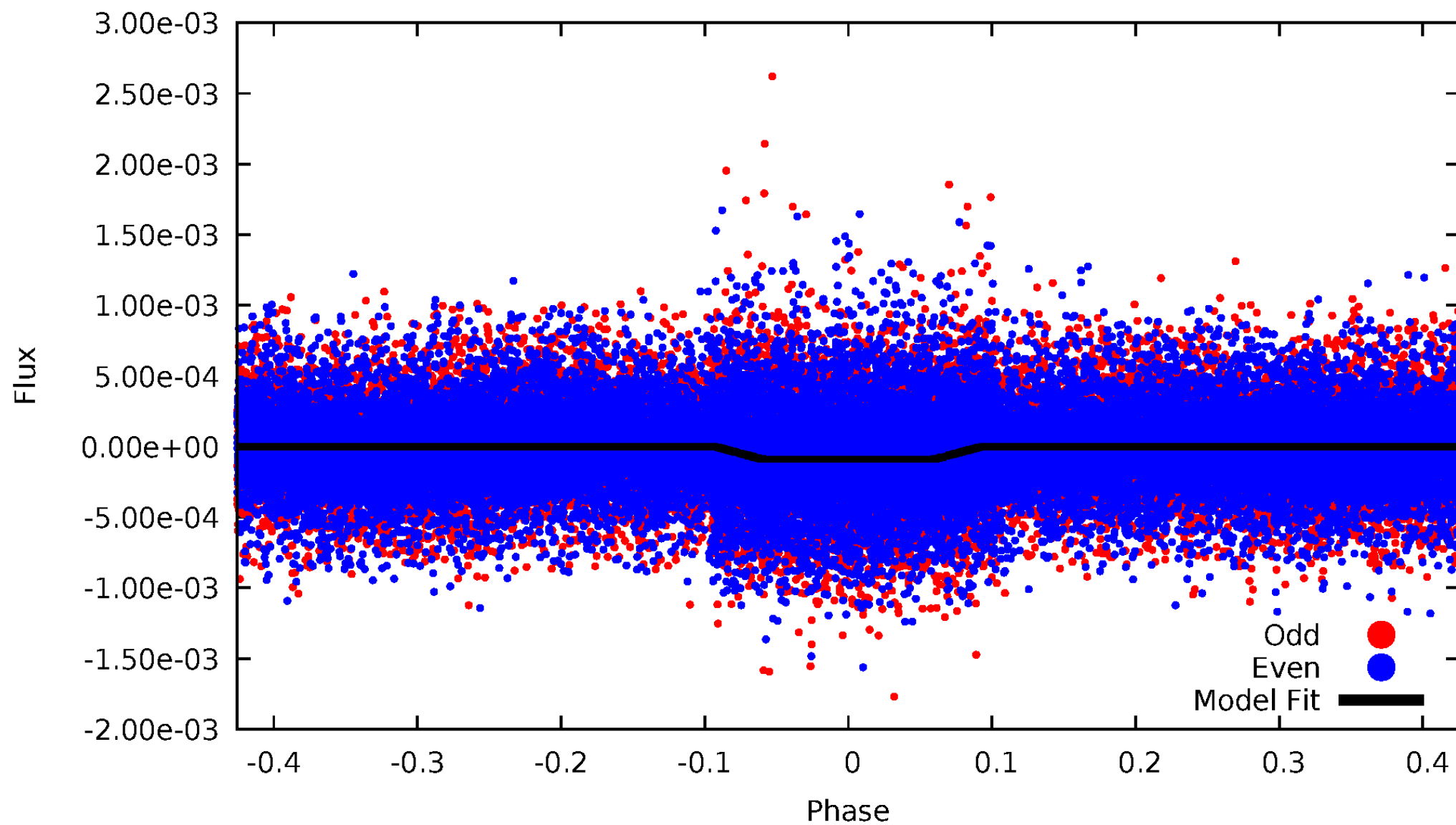
DV Odd/Even

TCE 012784183-01



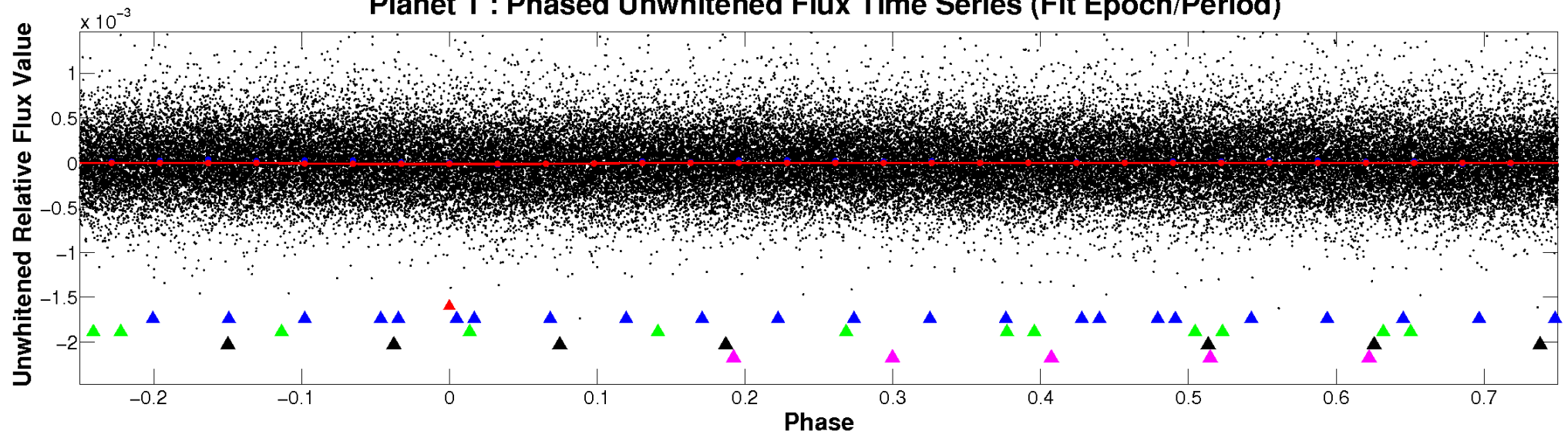
ALT Odd/Even

TCE 012784183-01

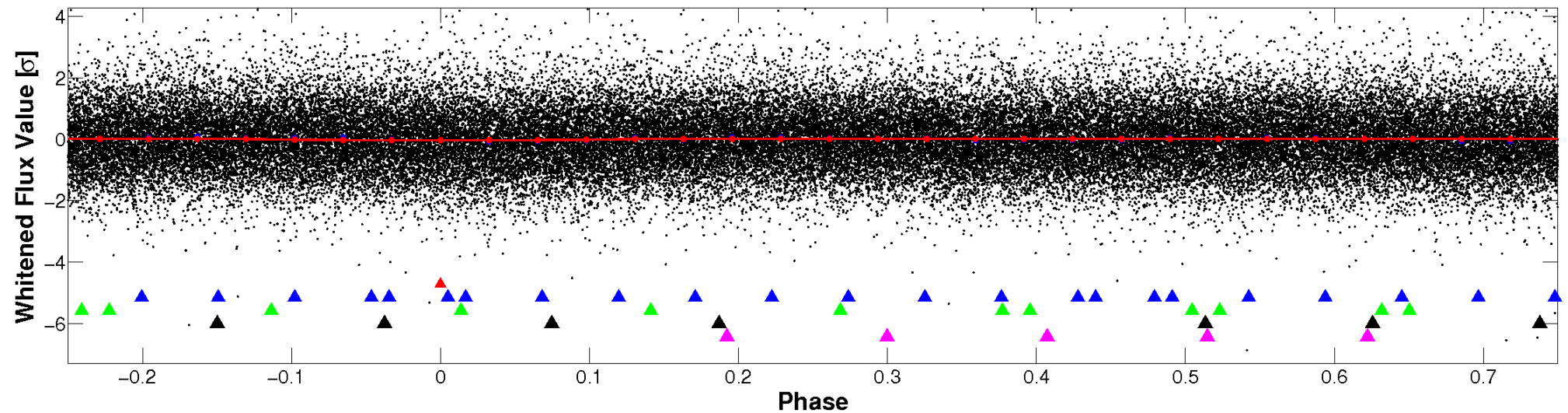


Non-Whitened Vs. Whitened Light Curve

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

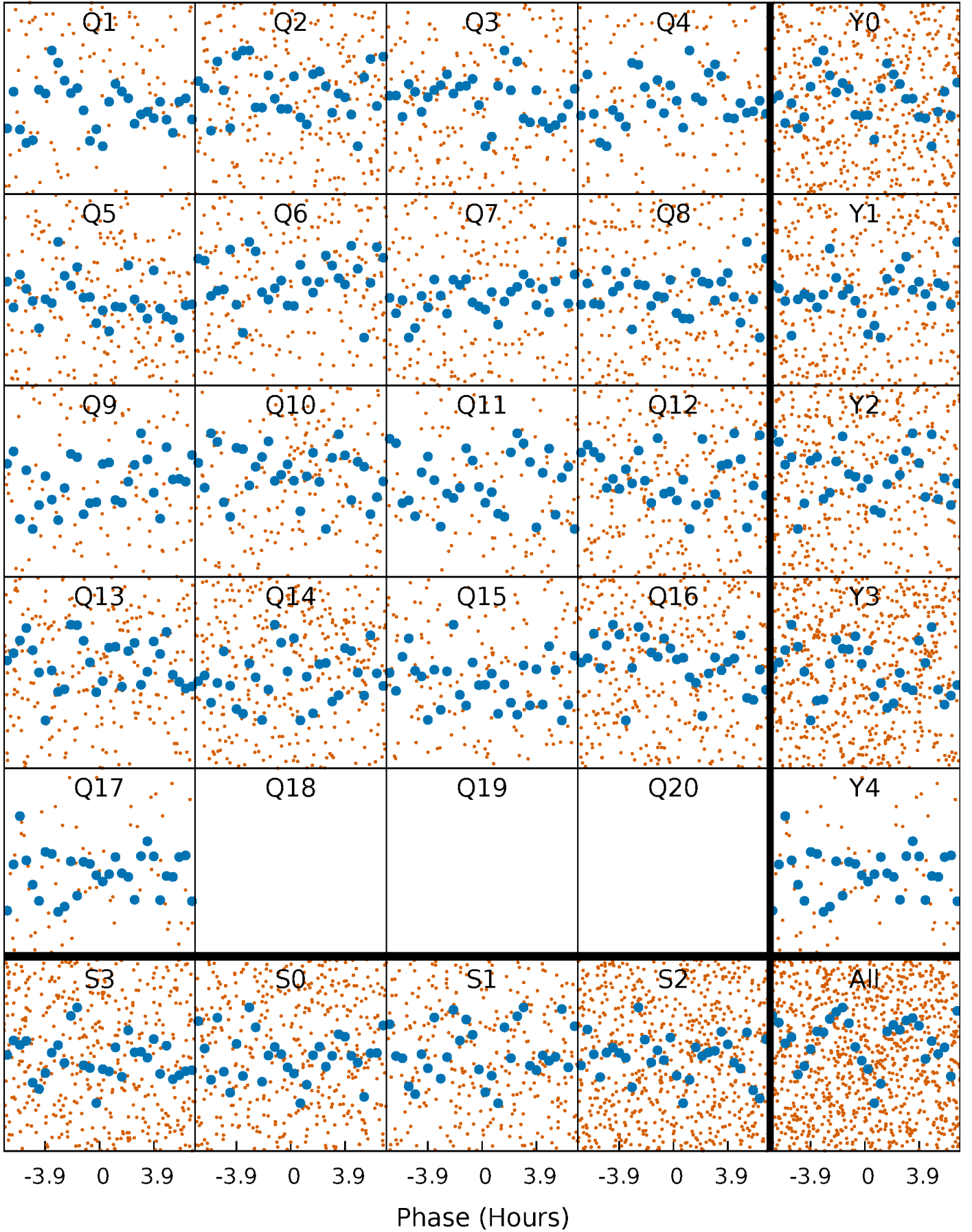


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



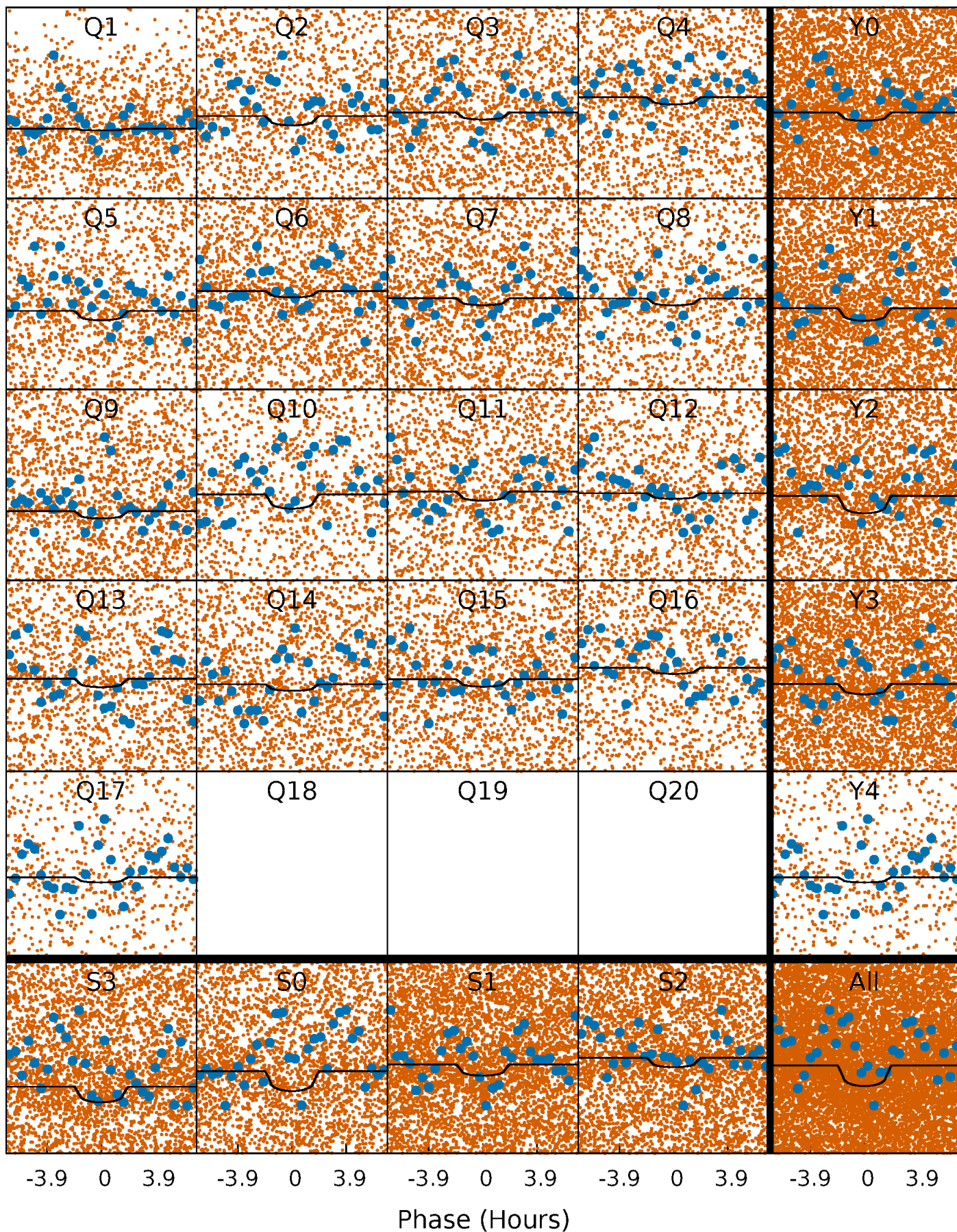
PDC Quarter-Phased Transit Curves

TCE 012784183-01 P= 0.626080 Days $T_0=131.512525$ (BKJD)



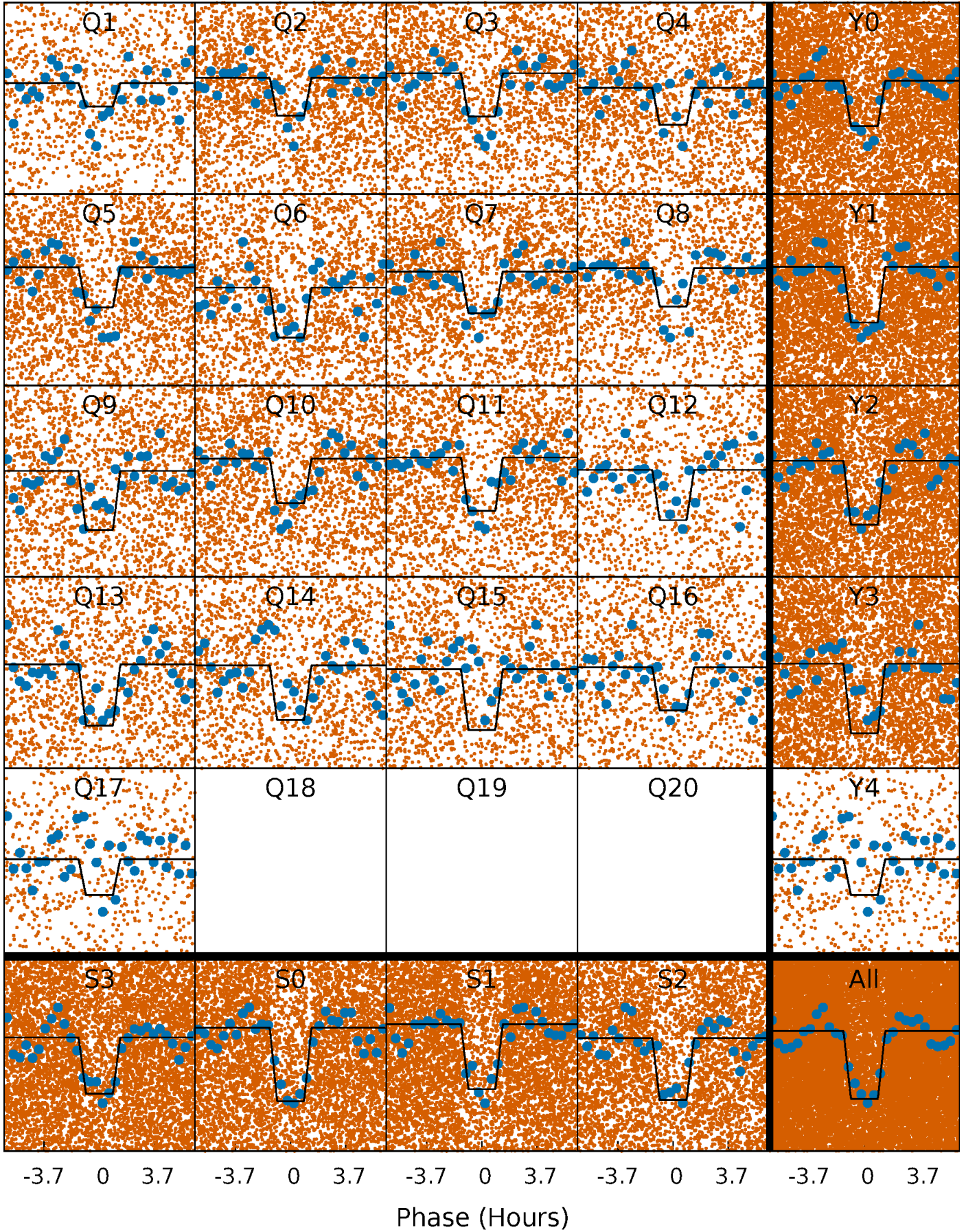
DV Quarter-Phased Transit Curves

TCE 012784183-01 P= 0.626080 Days $T_0=131.512525$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

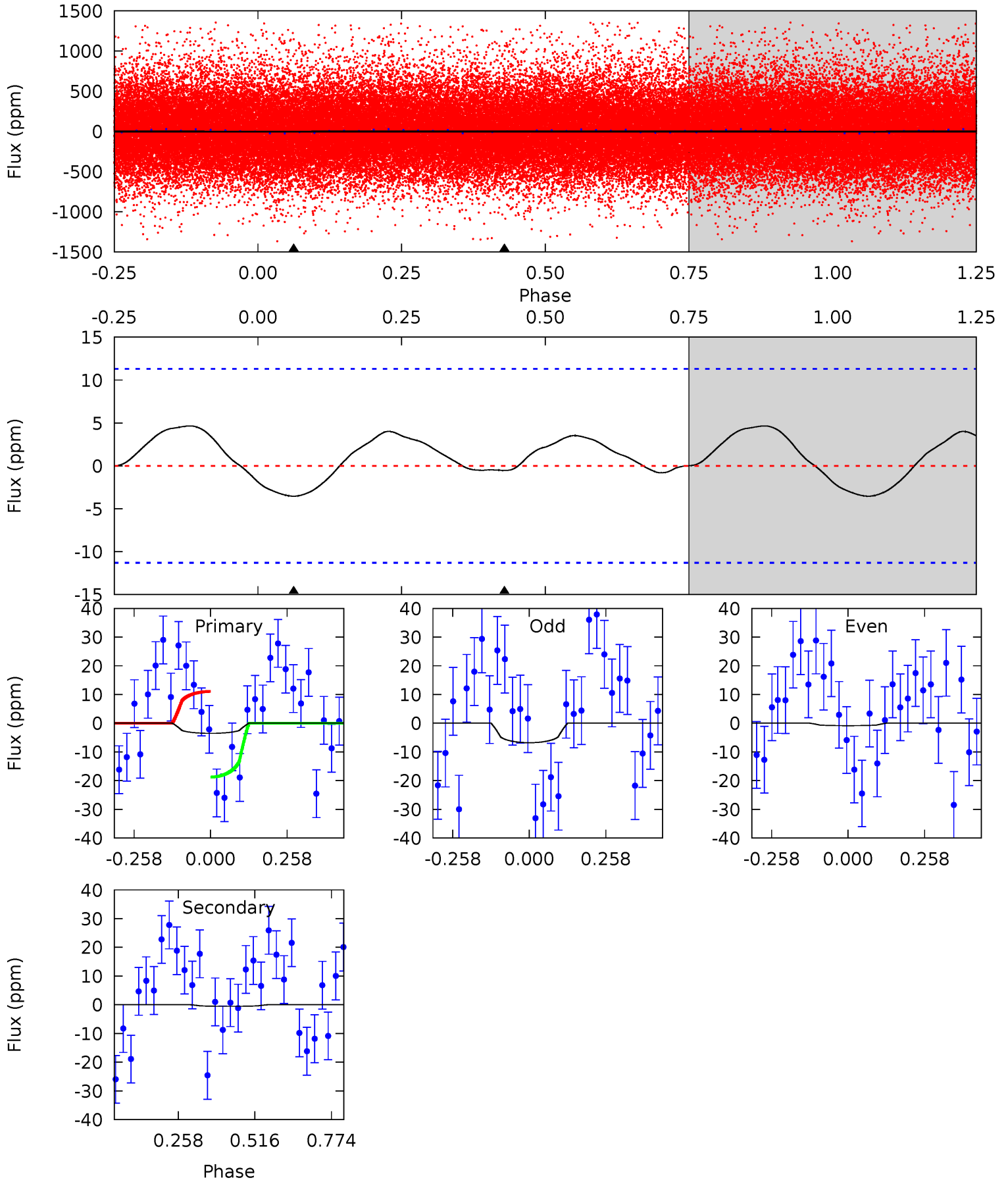
TCE 012784183-01 P= 0.626106 Days $T_0=131.509654$ (BKJD)



DV Model-Shift Uniqueness Test

012784183-01, P = 0.626080 Days, E = 130.886445 Days

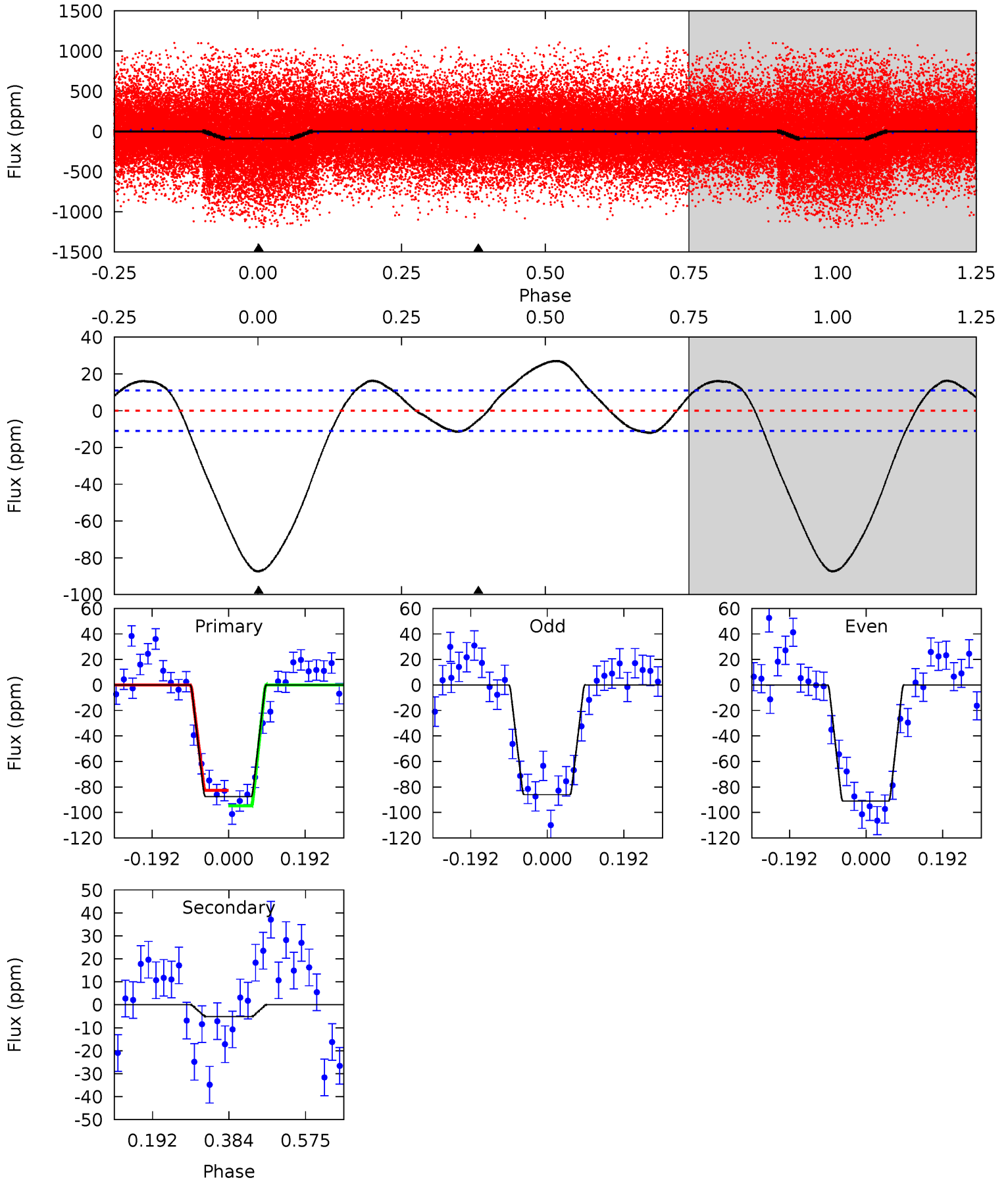
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.37	0.21	0	0	4.36	1.13	0.34	1.37	1.37	0.21	0.21	1.15	-0.93	0.57	1.51



Alt Model-Shift Uniqueness Test

012784183-01, P = 0.626106 Days, E = 131.509654 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.1	2.06	0	0	4.43	1.31	3.91	35.1	35.1	2.06	2.06	1.00	0.95	0.24	2.44



Stellar Parameters For KIC 012784183

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3650^{+65}_{-73}	$4.805^{+0.048}_{-0.032}$	$-0.100^{+0.100}_{-0.100}$	$0.445^{+0.036}_{-0.044}$	$0.461^{+0.034}_{-0.045}$	$7.367^{+1.811}_{-1.003}$
	+2%/-2%	+1%/-1%	+100%/-100%	+8%/-10%	+7%/-10%	+25%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012784183-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1 ± 3	$0.26^{+0.24}_{-0.18}$	1422^{+33}_{-36}	-1797^{+4655}_{-824}	$0.206^{+5.848}_{-2.773}$
Alt.	-5 ± 2	$0.47^{+0.26}_{-0.25}$	1422^{+35}_{-38}	2356^{+513}_{-433}	$1.511^{+4.638}_{-1.032}$

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

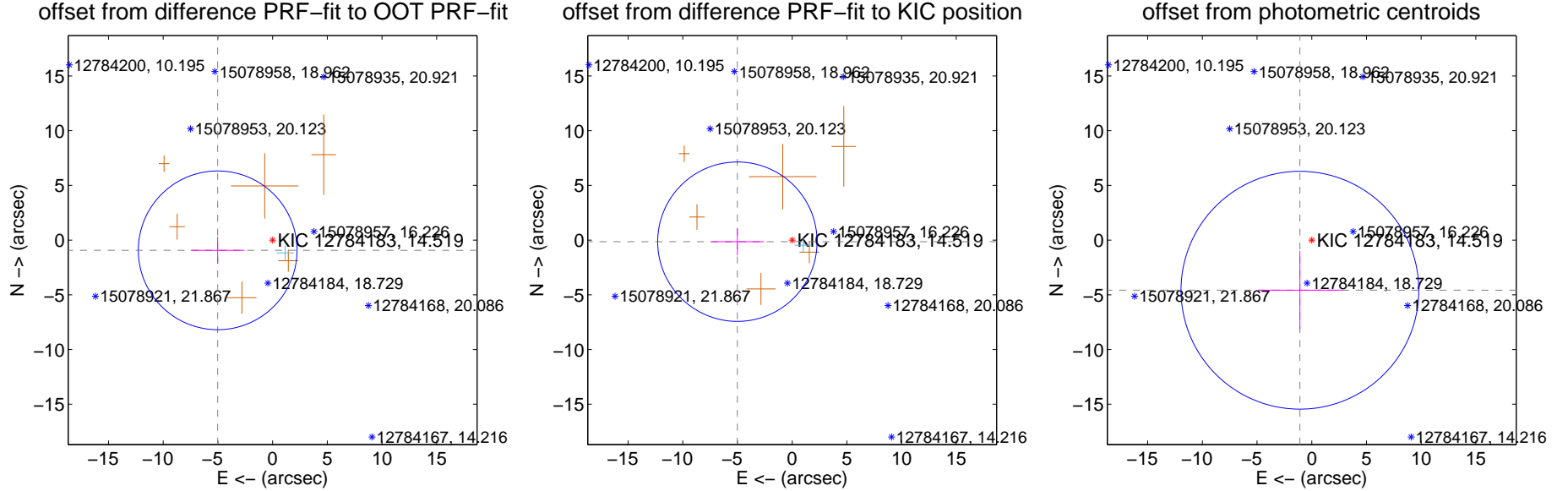
DV Centroid Data

Supplemental centroid analysis for 012784183-01. Kepler magnitude: 14.52. Transit SNR 3.19

There are 1 quarters with good PRF difference image offsets

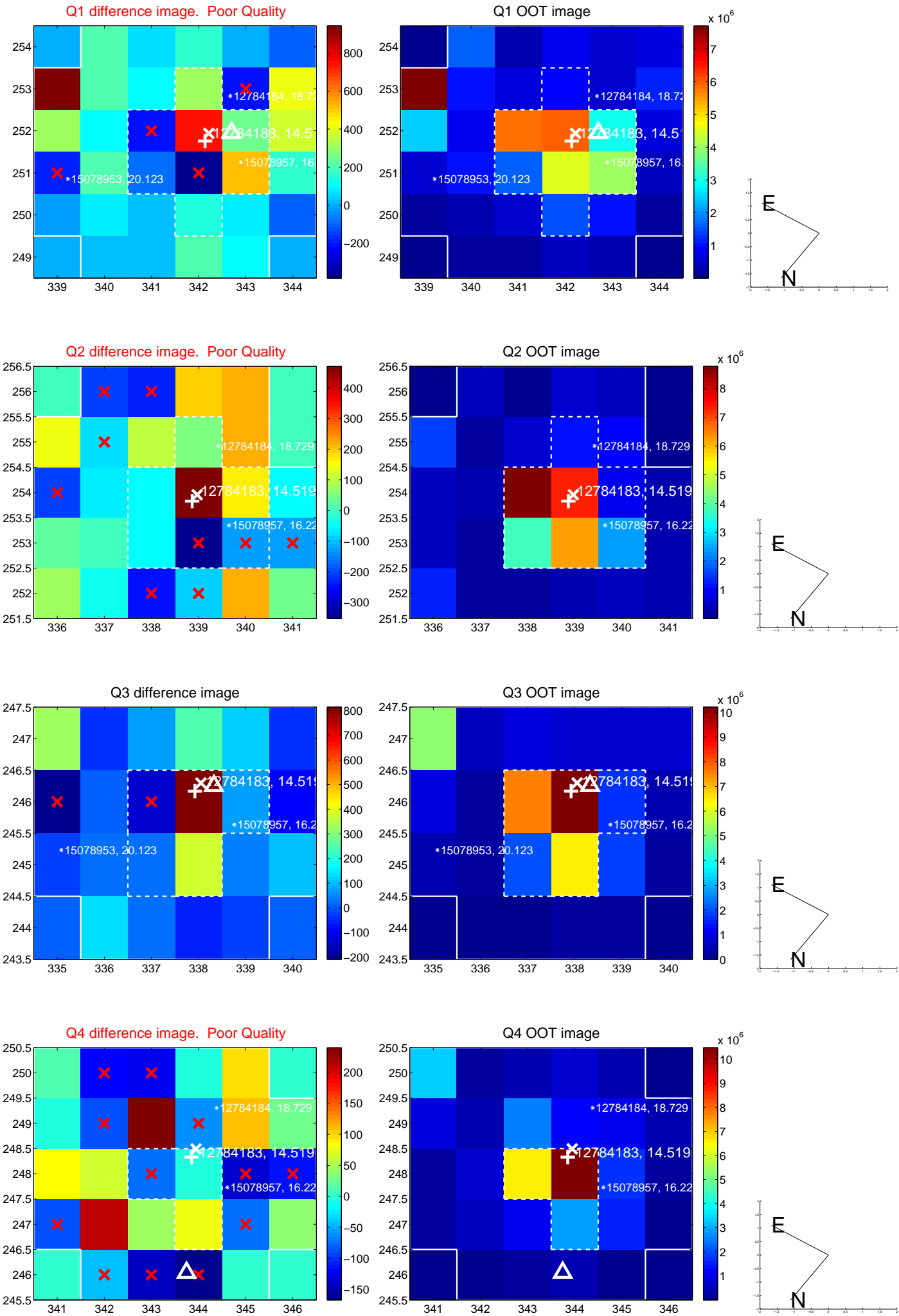
The direct PRF centroid is offset from the target star catalog position by about 0.81 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.108 ± 2.419	2.11	5.021 ± 2.449	-0.936 ± 1.228
PRF-fit source offset from KIC position	5.012 ± 2.429	2.06	5.010 ± 2.430	-0.146 ± 1.250
photometric centroid source offset	4.71 ± 3.62	1.30	1.08 ± 3.87	-4.58 ± 3.61

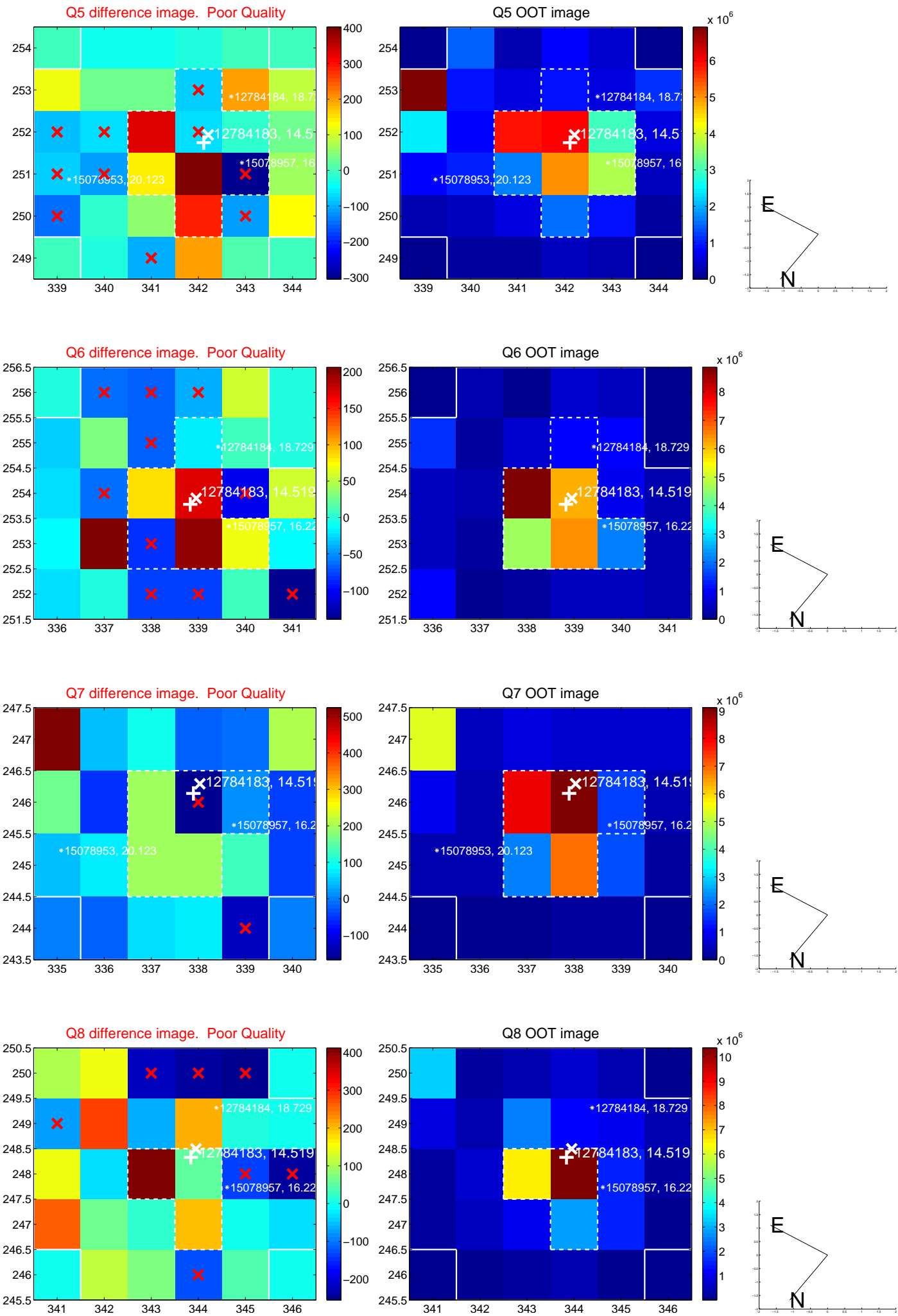


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

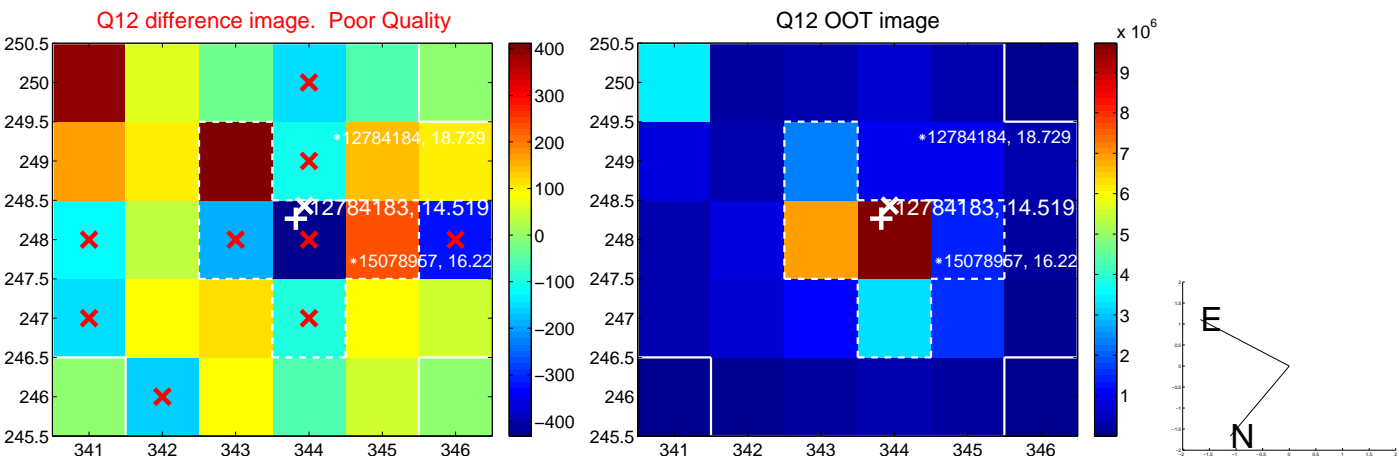
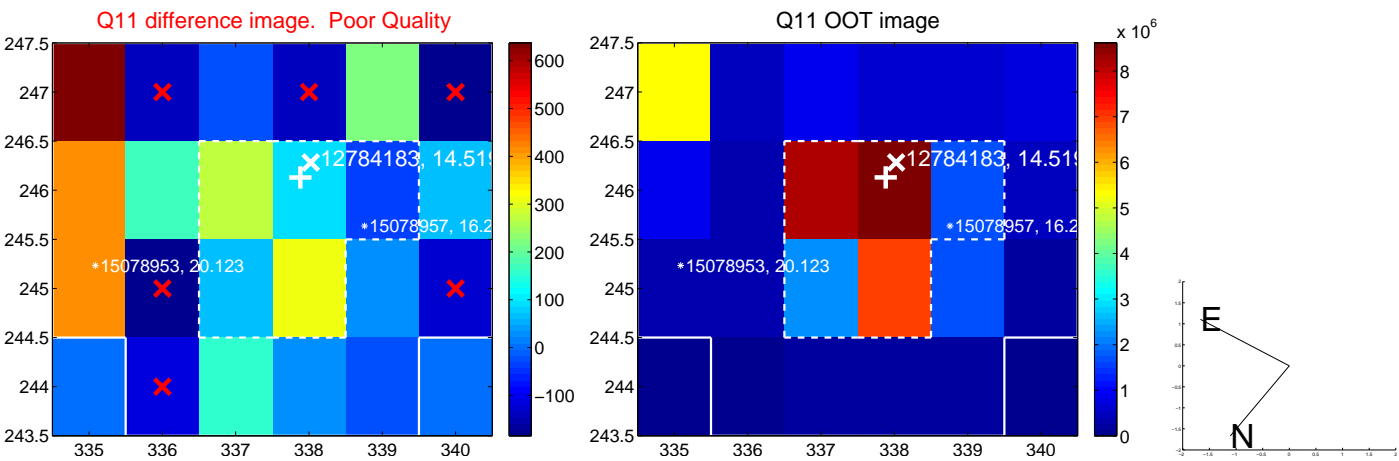
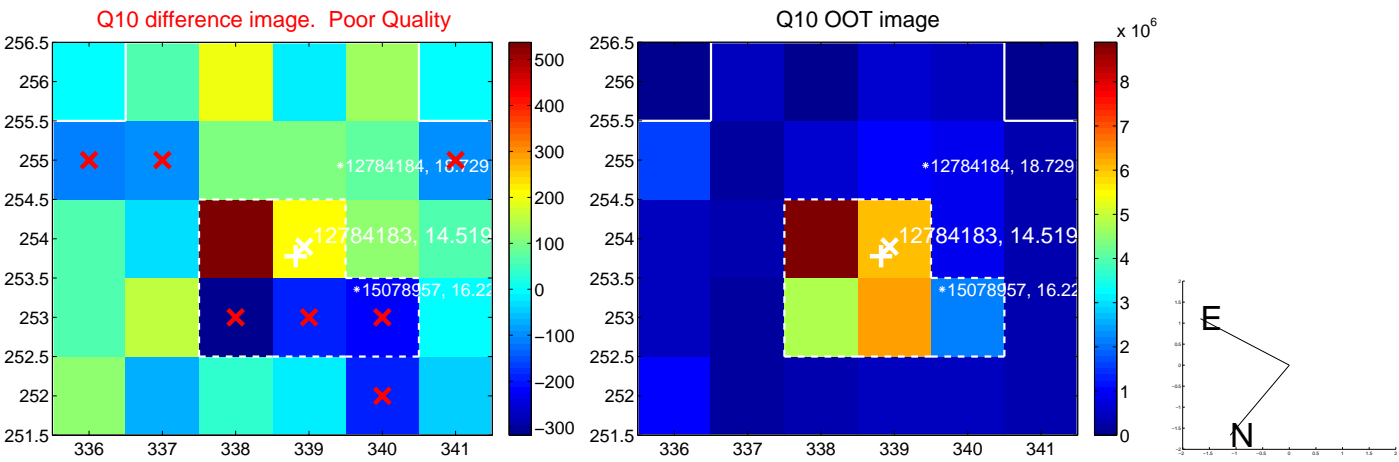
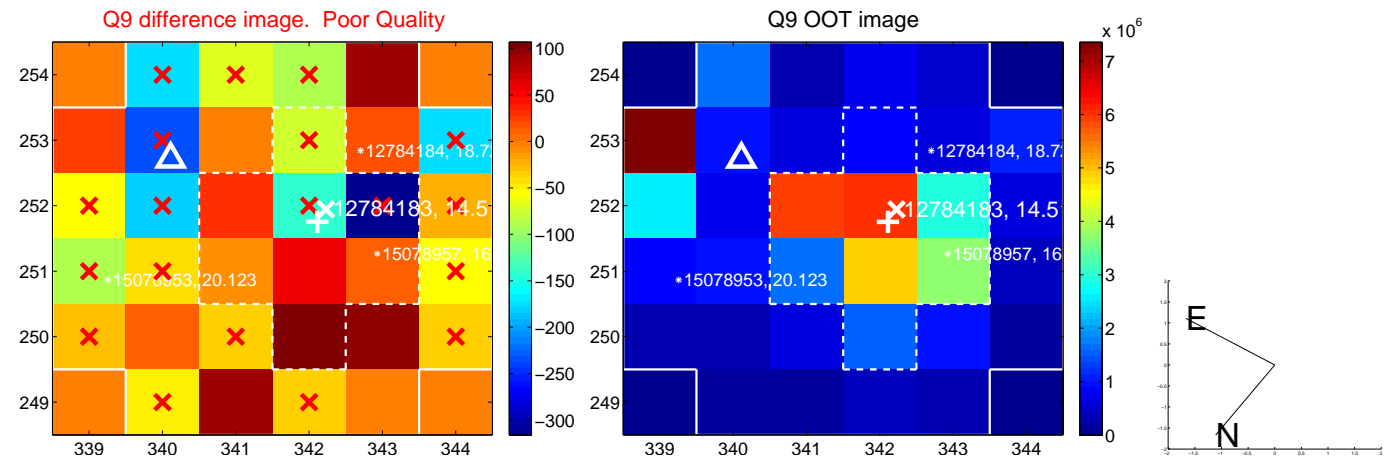
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



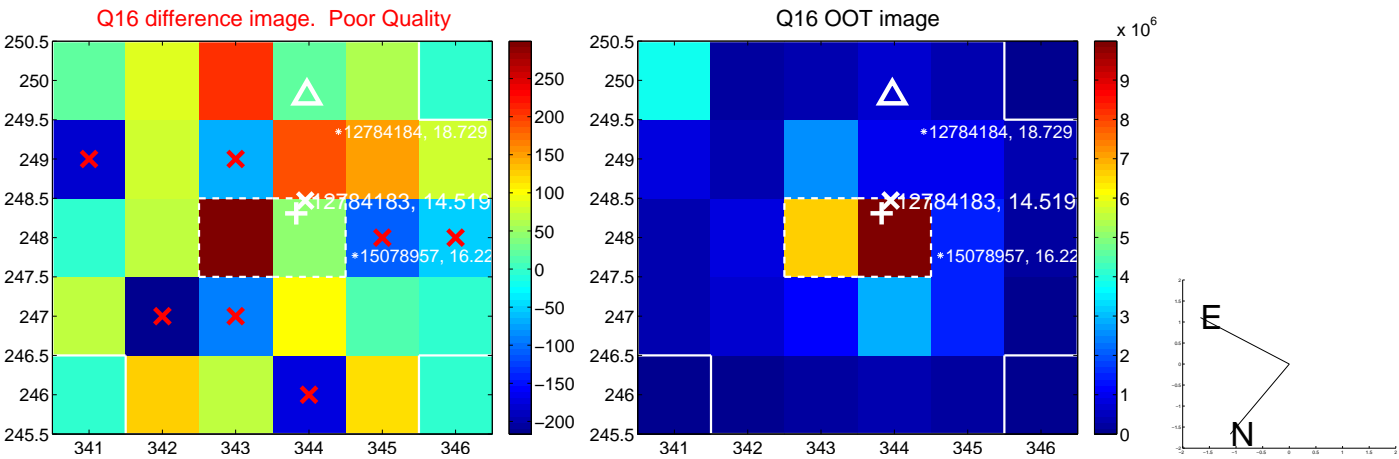
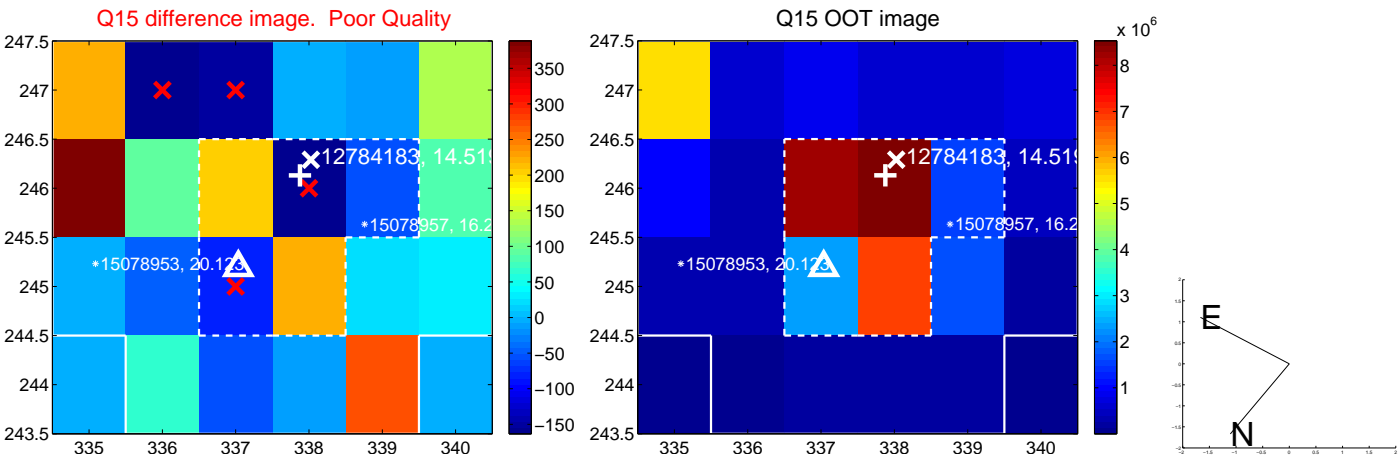
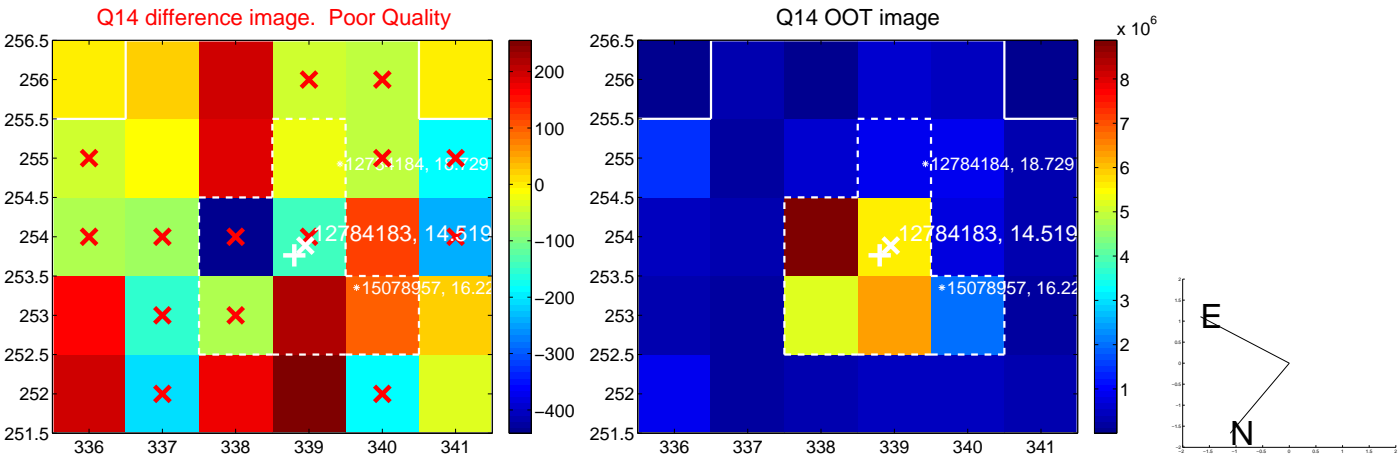
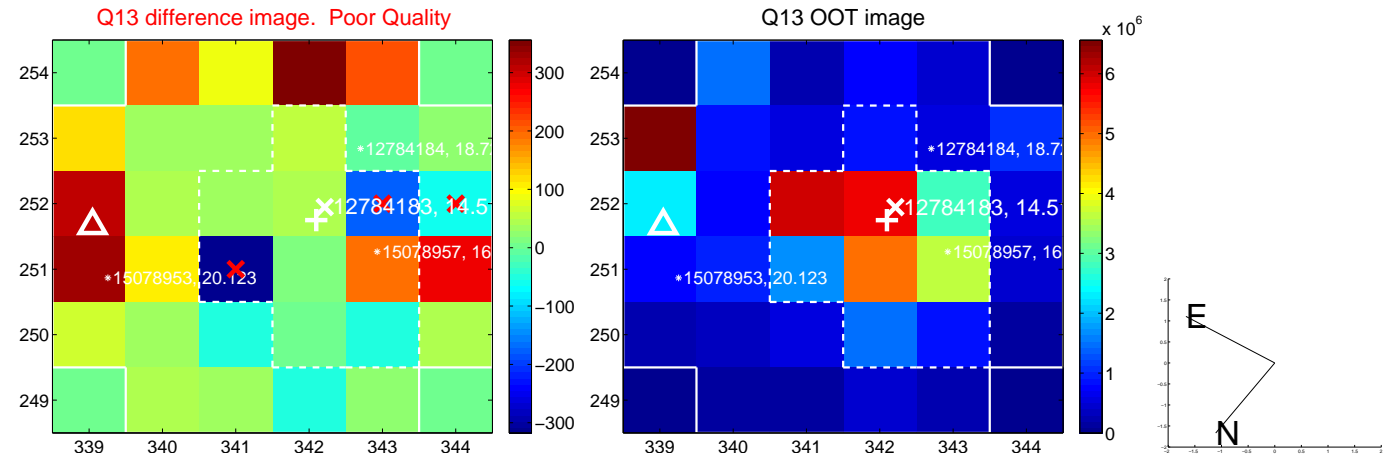
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



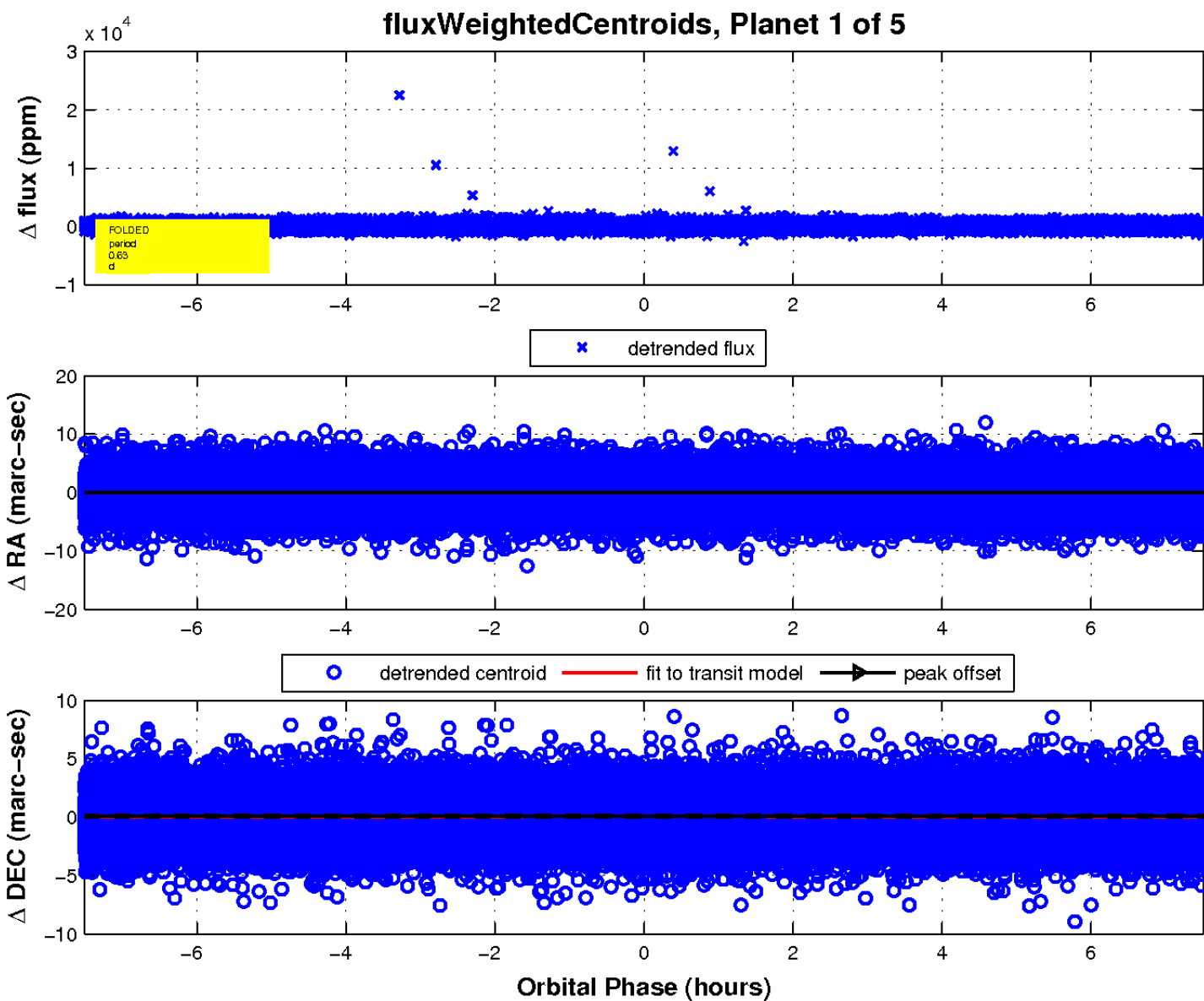
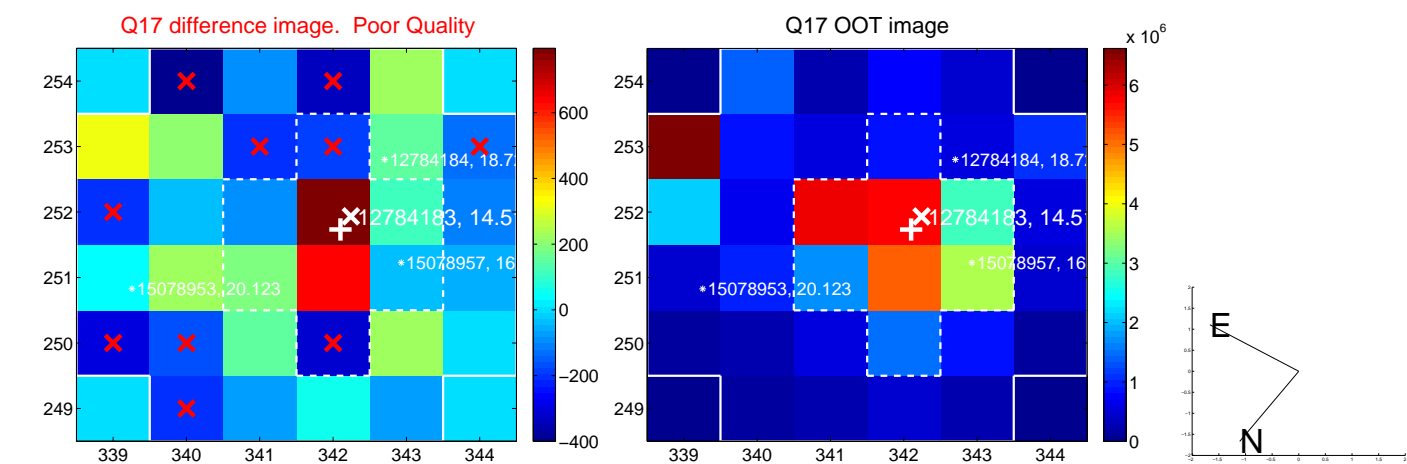
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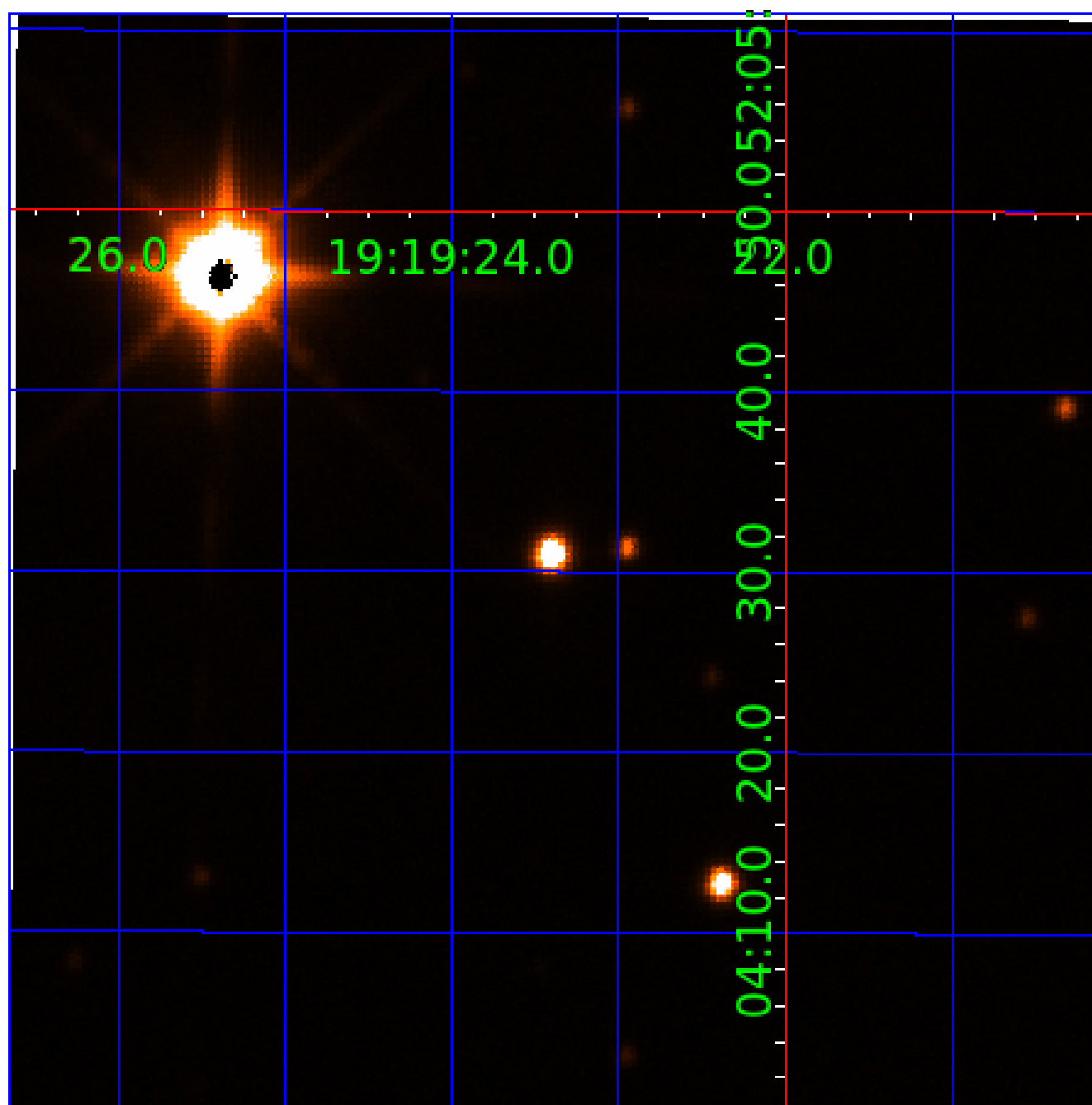


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UKIRT Image

Declination



KIC 012784183

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})
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012784183-03	OBS	No	125.295712	176.826452	813.3	4.338	11.4	9.4	0.45	3650	1.36	0.22
012784183-04	OBS	No	214.189645	213.850444	680.2	13.236	8.2	7.3	0.45	3650	1.37	0.11
012784183-05	OBS	No	316.103102	135.032524	648.4	4.723	7.8	6.8	0.45	3650	1.12	0.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012784183-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_MEAS
012784183-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012784183-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012784183-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012784183-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

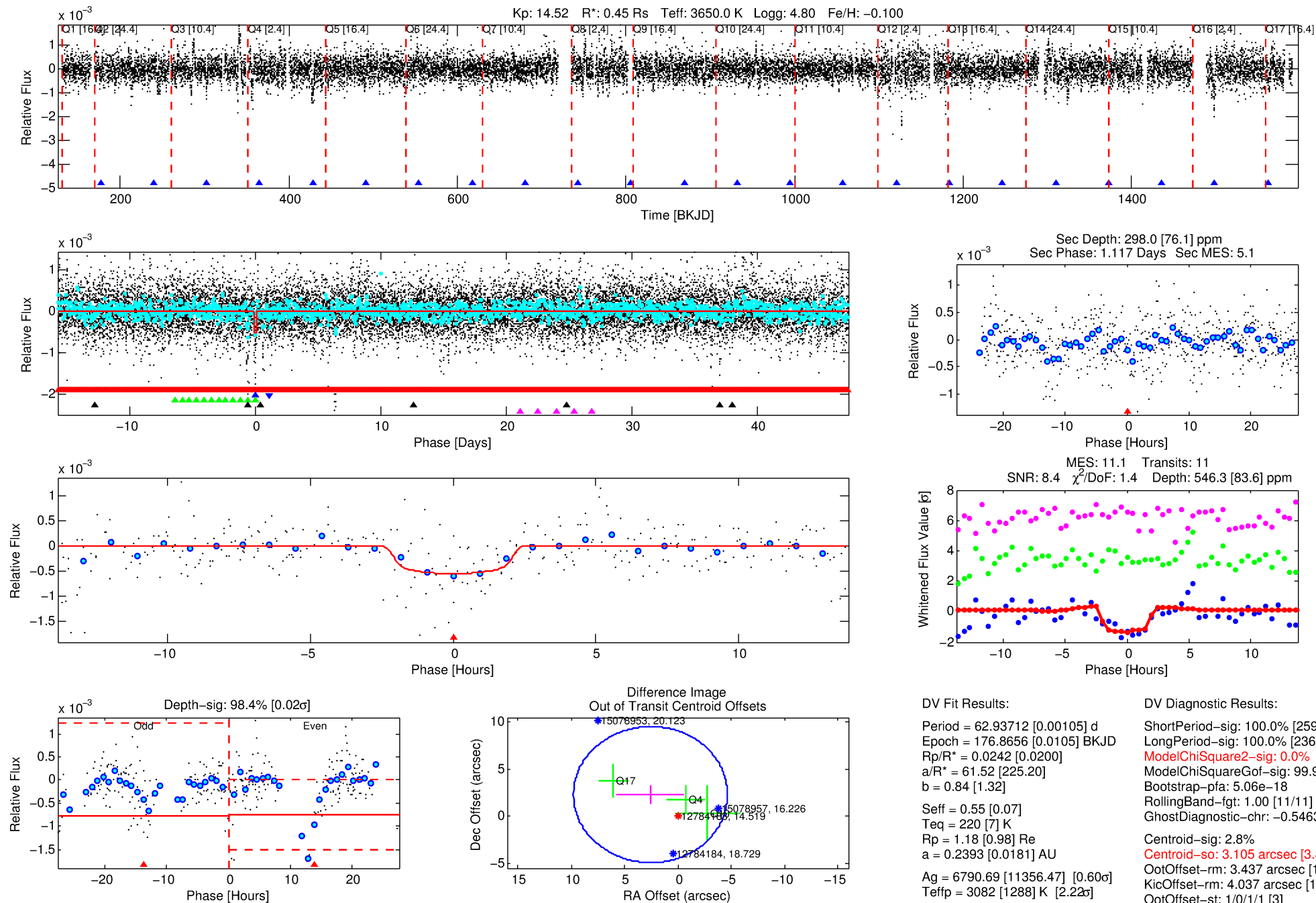
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012784183-02

No Significant Match Found

DV One-Page Summary

KIC: 12784183 Candidate: 2 of 5 Period: 62.937 d



DV Fit Results:

Period = 62.93712 [0.00105] d
Epoch = 176.8656 [0.0105] BKJD
Rp/R* = 0.0242 [0.0200]
a/R* = 61.52 [225.20]
b = 0.84 [1.32]
Seff = 0.55 [0.07]
Teq = 220 [7] K
Rp = 1.18 [0.98] Re
a = 0.2393 [0.0181] AU
Ag = 6790.69 [11356.47] [0.60 σ]
Teff = 3082 [1288] K [2.22 σ]

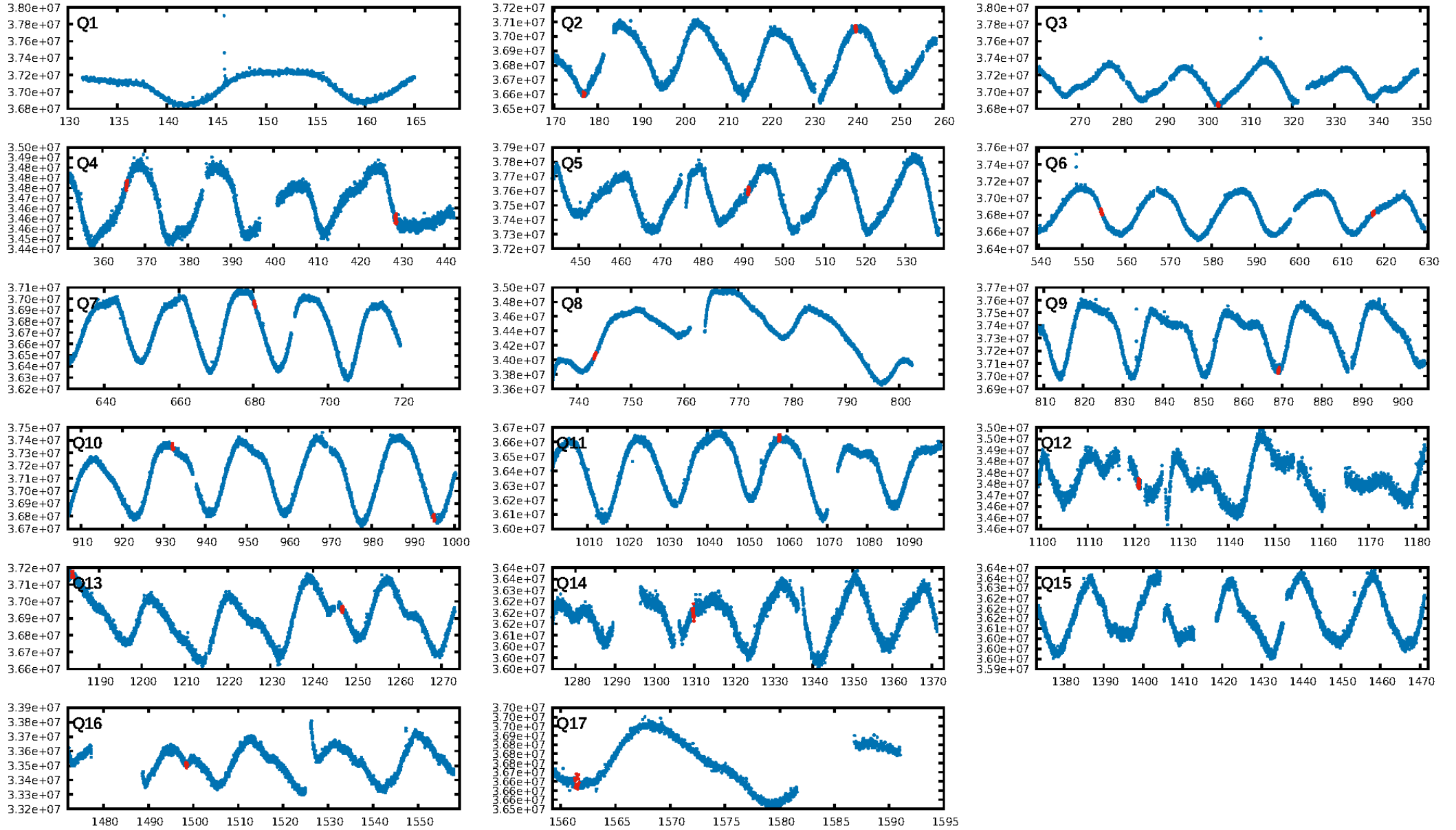
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [259.82 σ]
LongPeriod-sig: 100.0% [236.09 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 5.06e-18
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: -0.5463
Centroid-sig: 2.8%
Centroid-so: 3.105 arcsec [3.84 σ]
OotOffset-rm: 3.437 arcsec [1.43 σ]
KicOffset-rm: 4.037 arcsec [1.60 σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.00 [0/13]

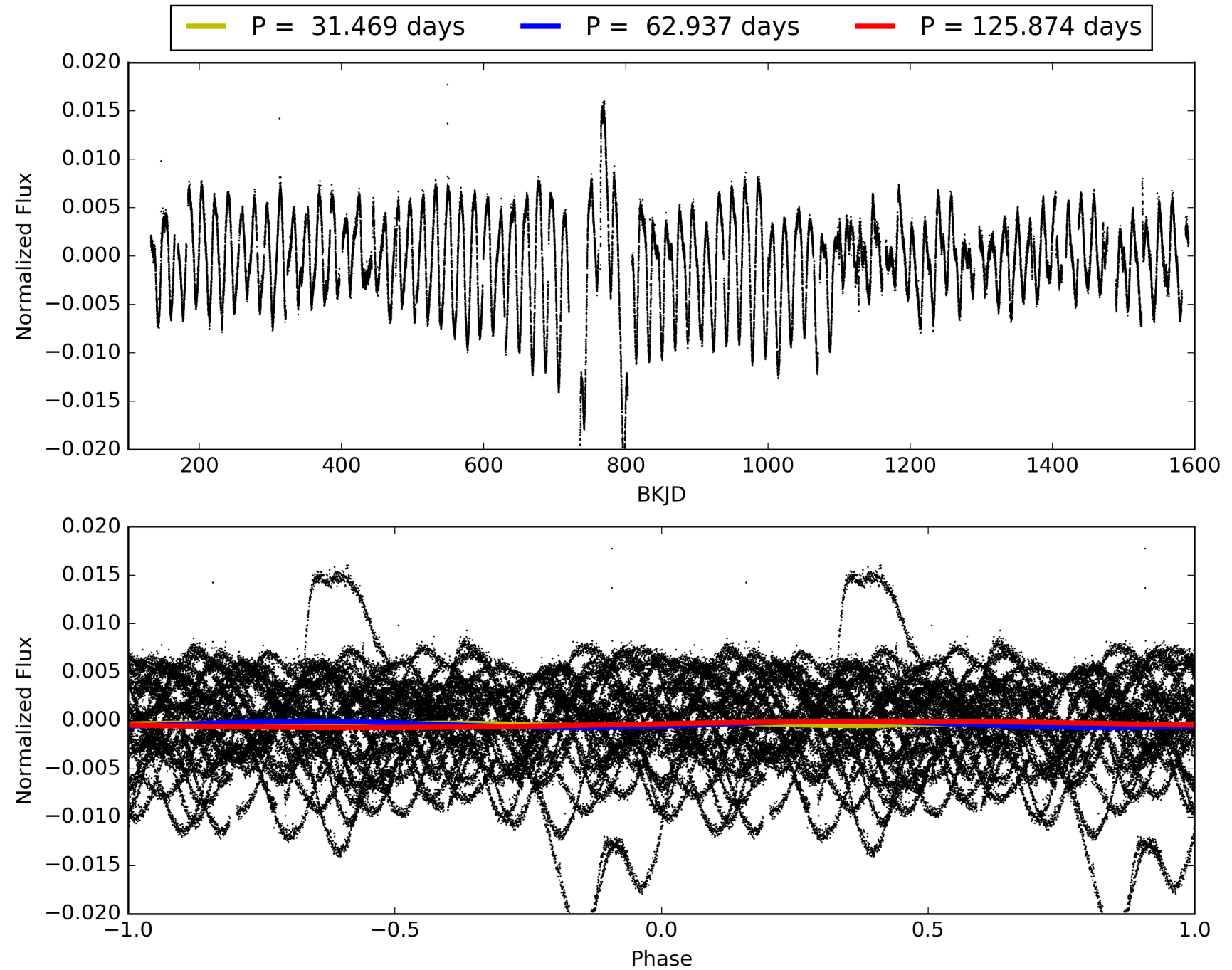
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:15:43 Z

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TCE 012784183-02, PDC Light Curves

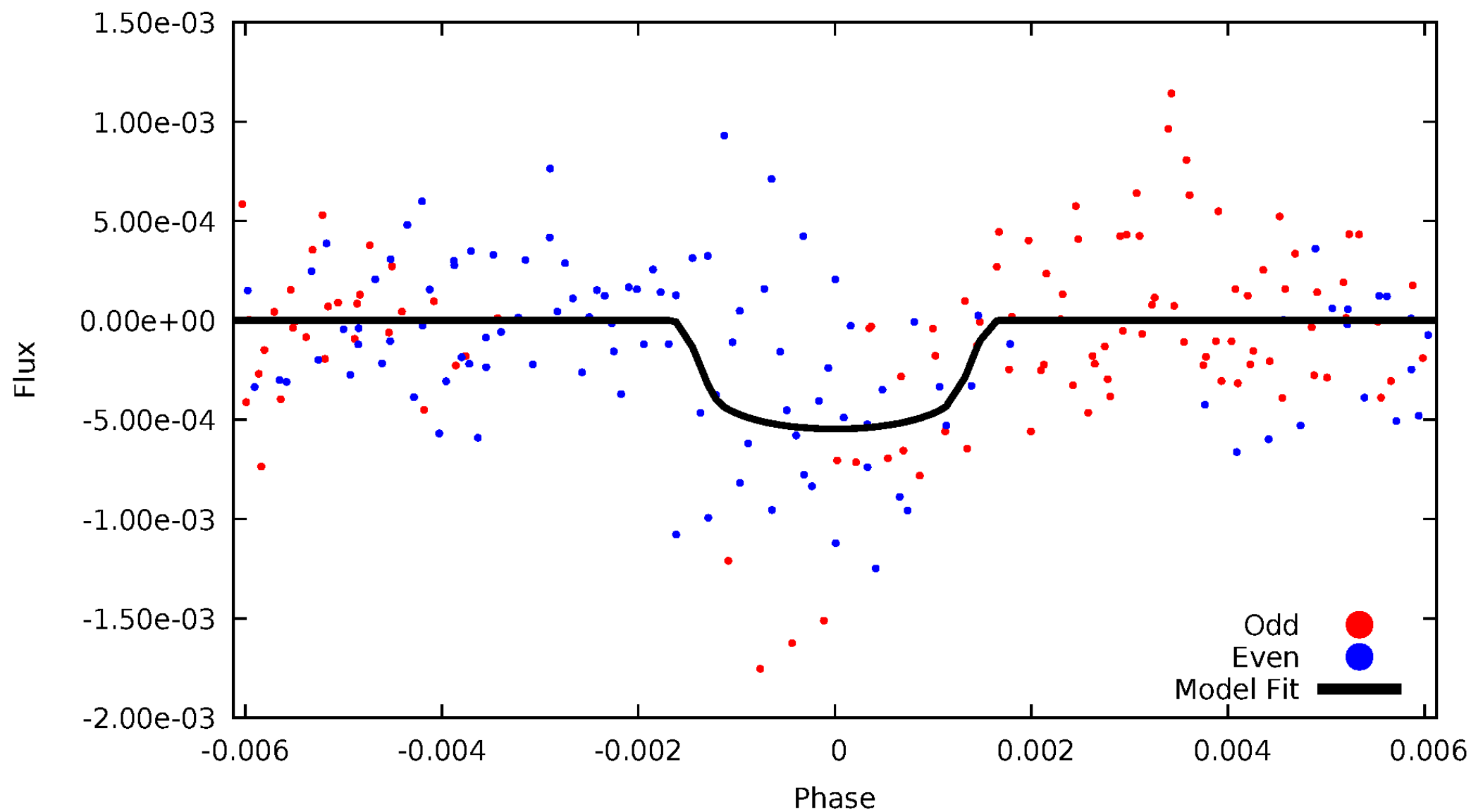


TCE 012784183-02



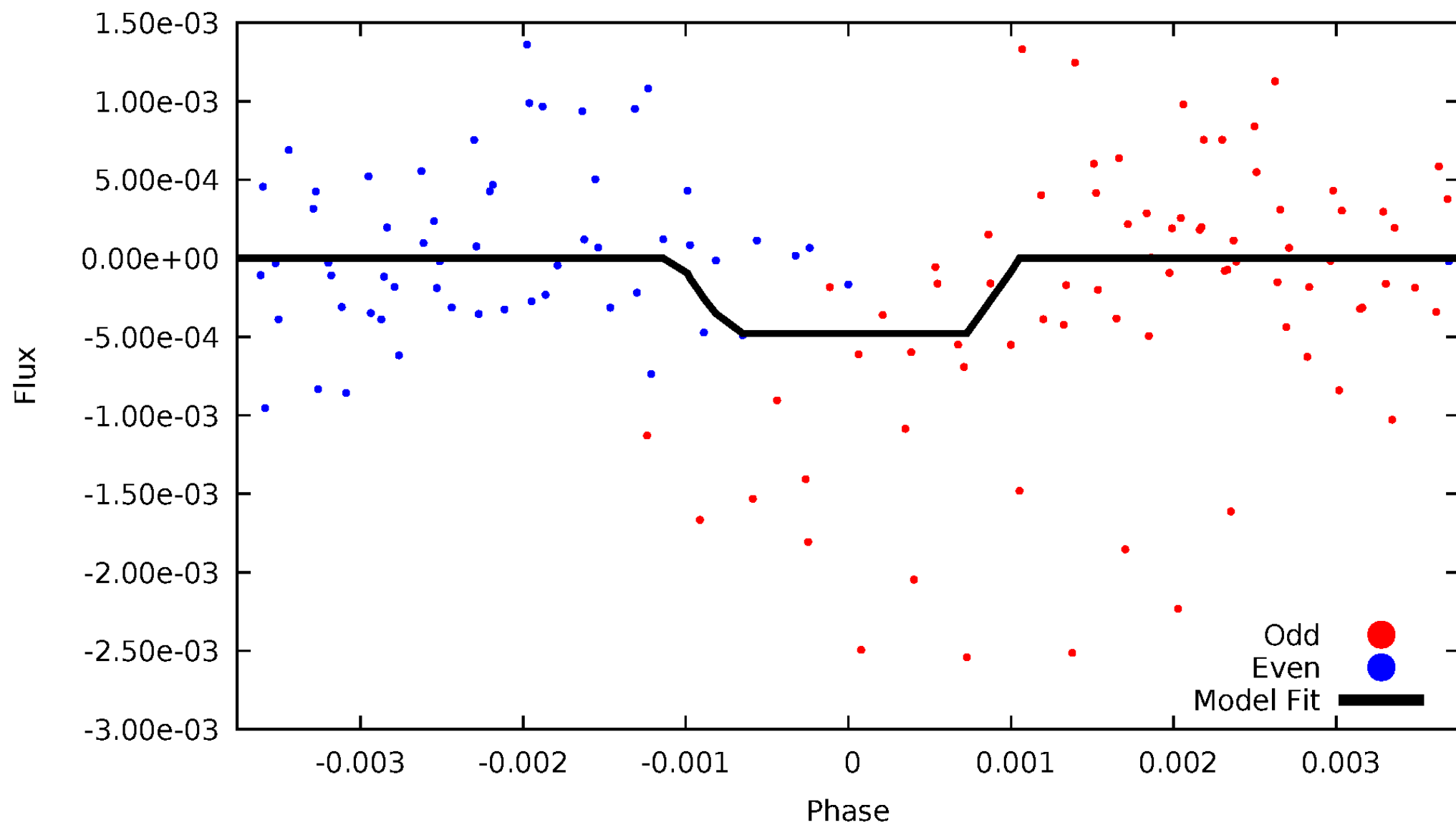
DV Odd/Even

TCE 012784183-02



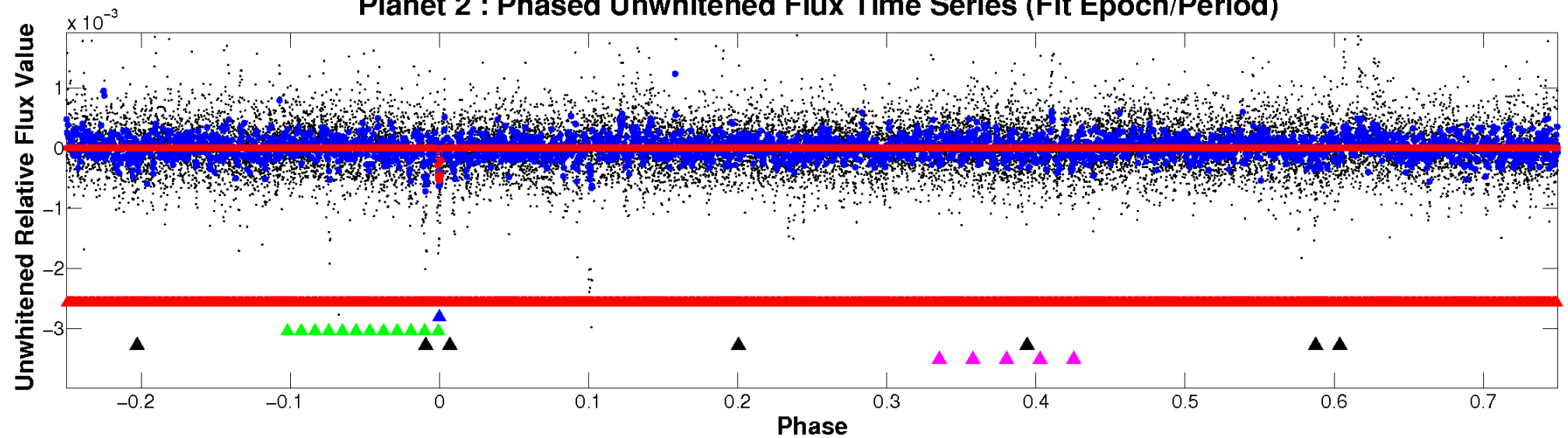
ALT Odd/Even

TCE 012784183-02

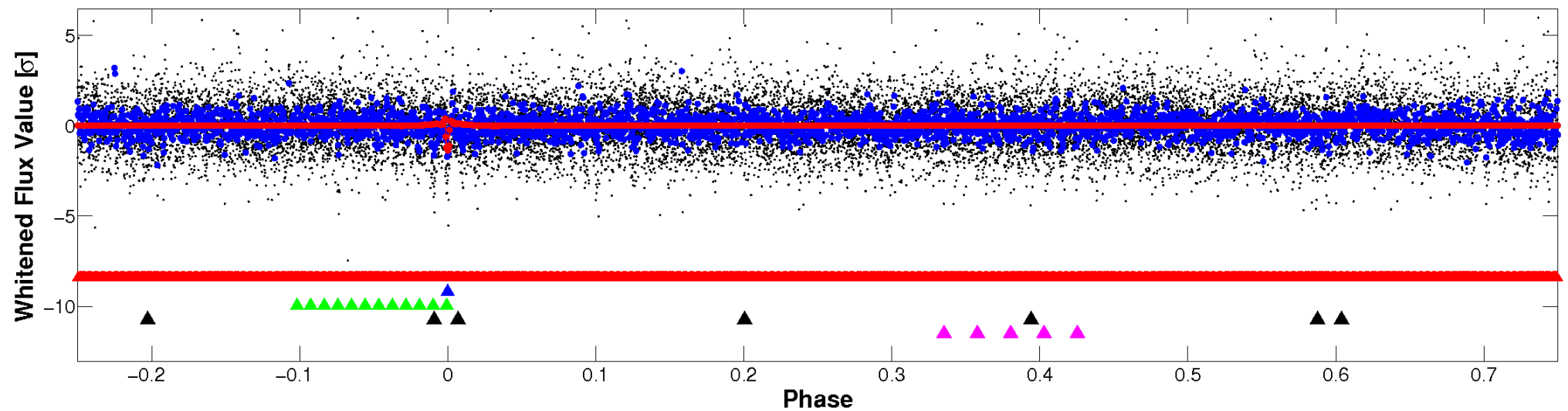


Non-Whitened Vs. Whitened Light Curve

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

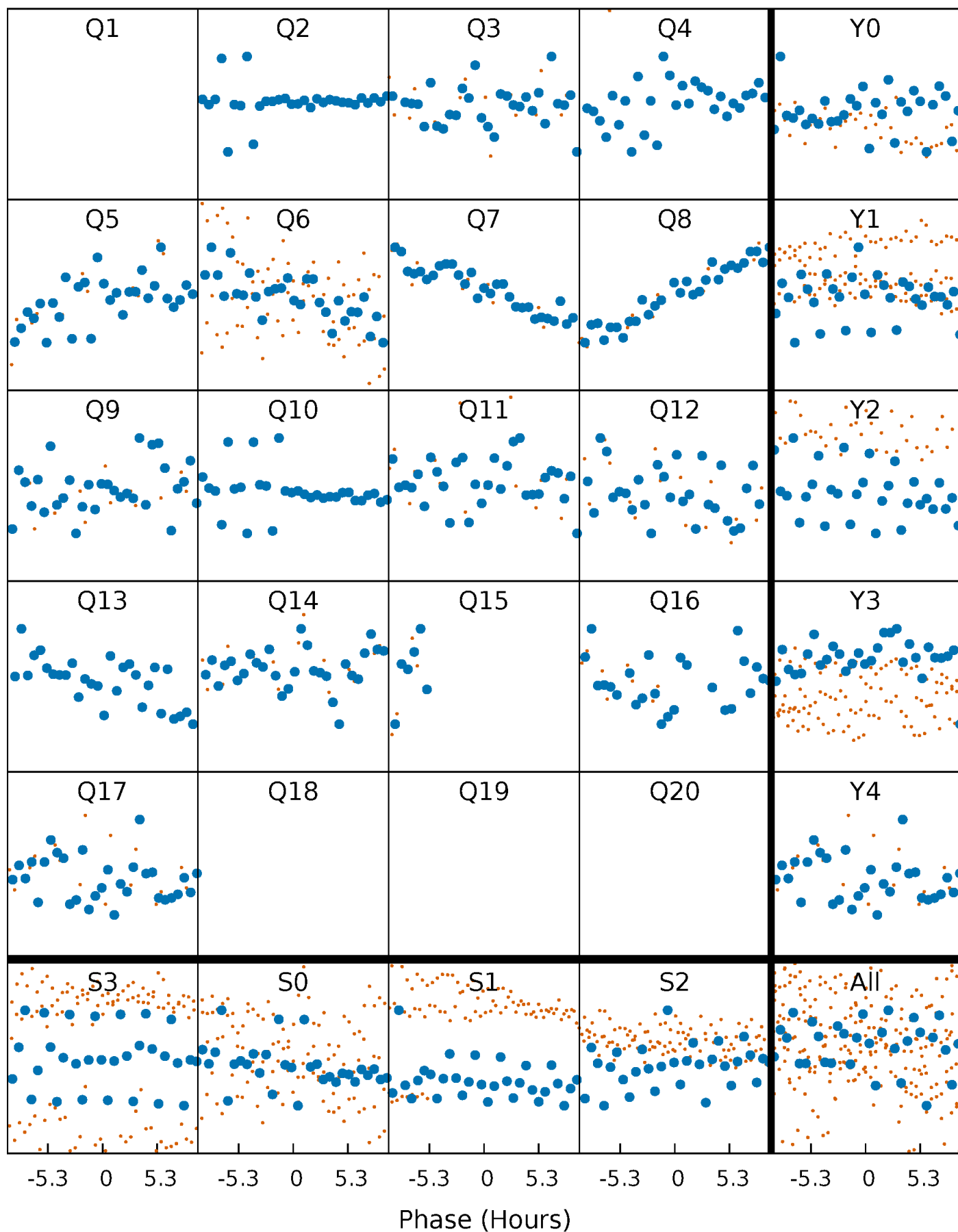


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



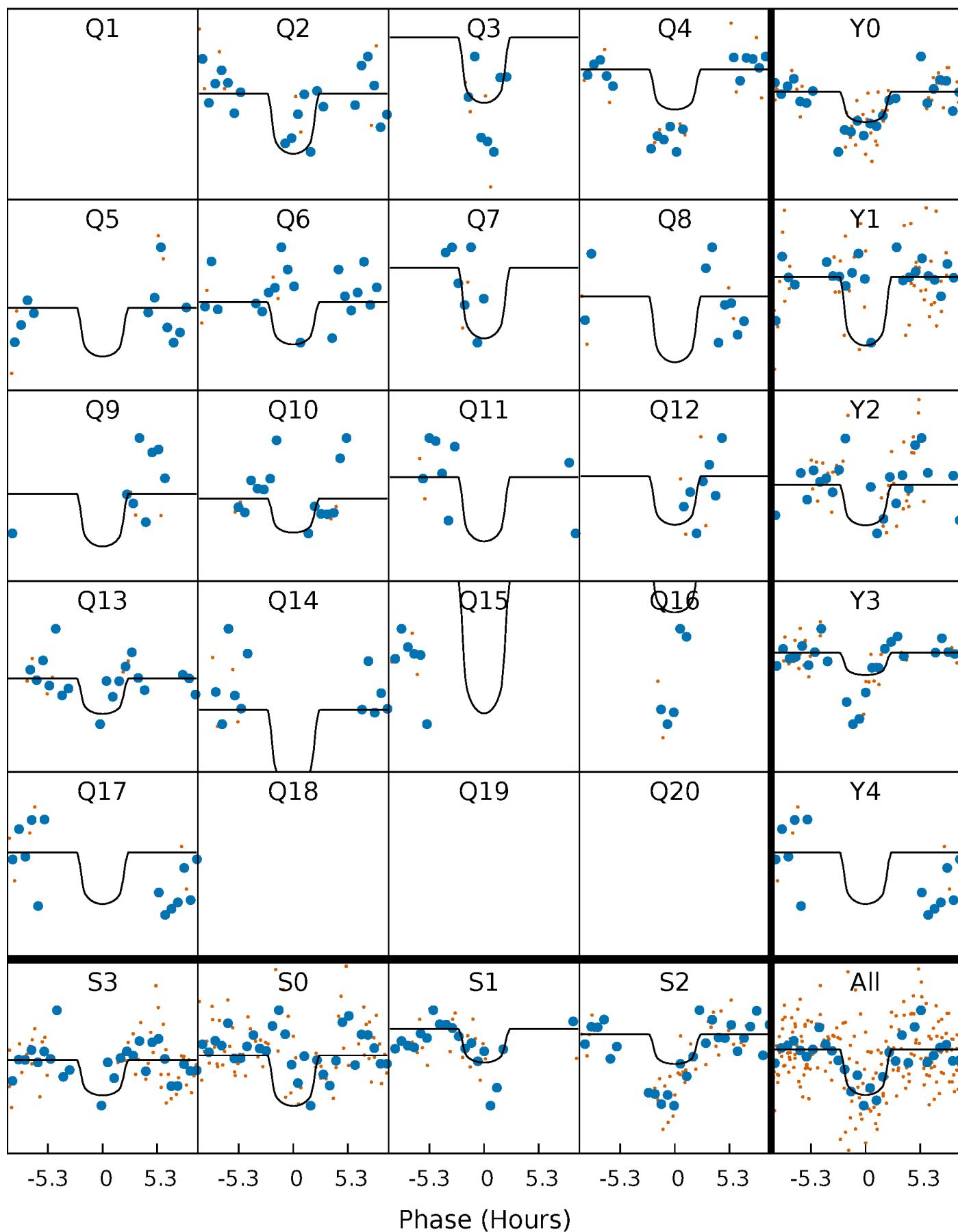
PDC Quarter-Phased Transit Curves

TCE 012784183-02 P= 62.937124 Days $T_0=176.865631$ (BKJD)



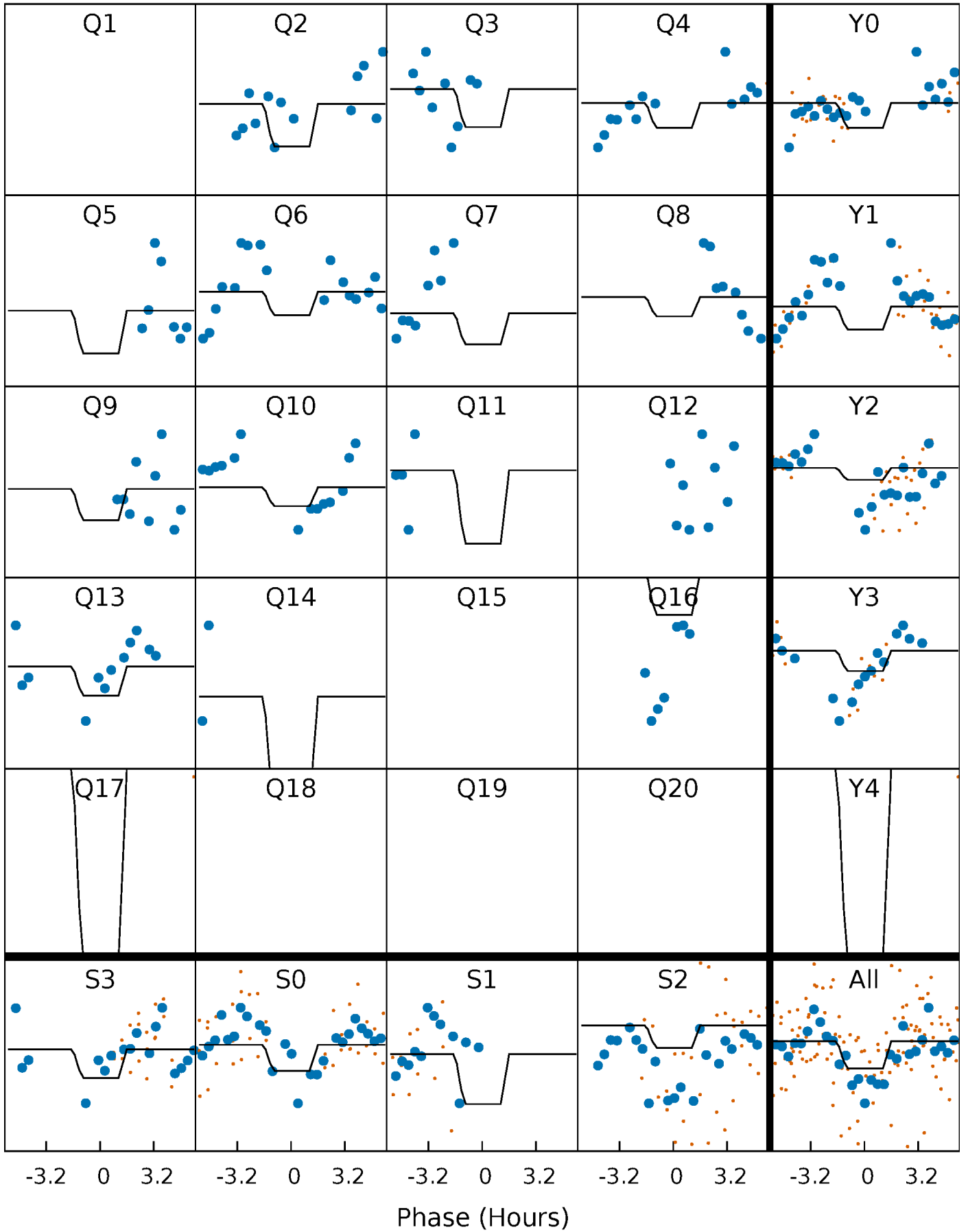
DV Quarter-Phased Transit Curves

TCE 012784183-02 P= 62.937124 Days $T_0=176.865631$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

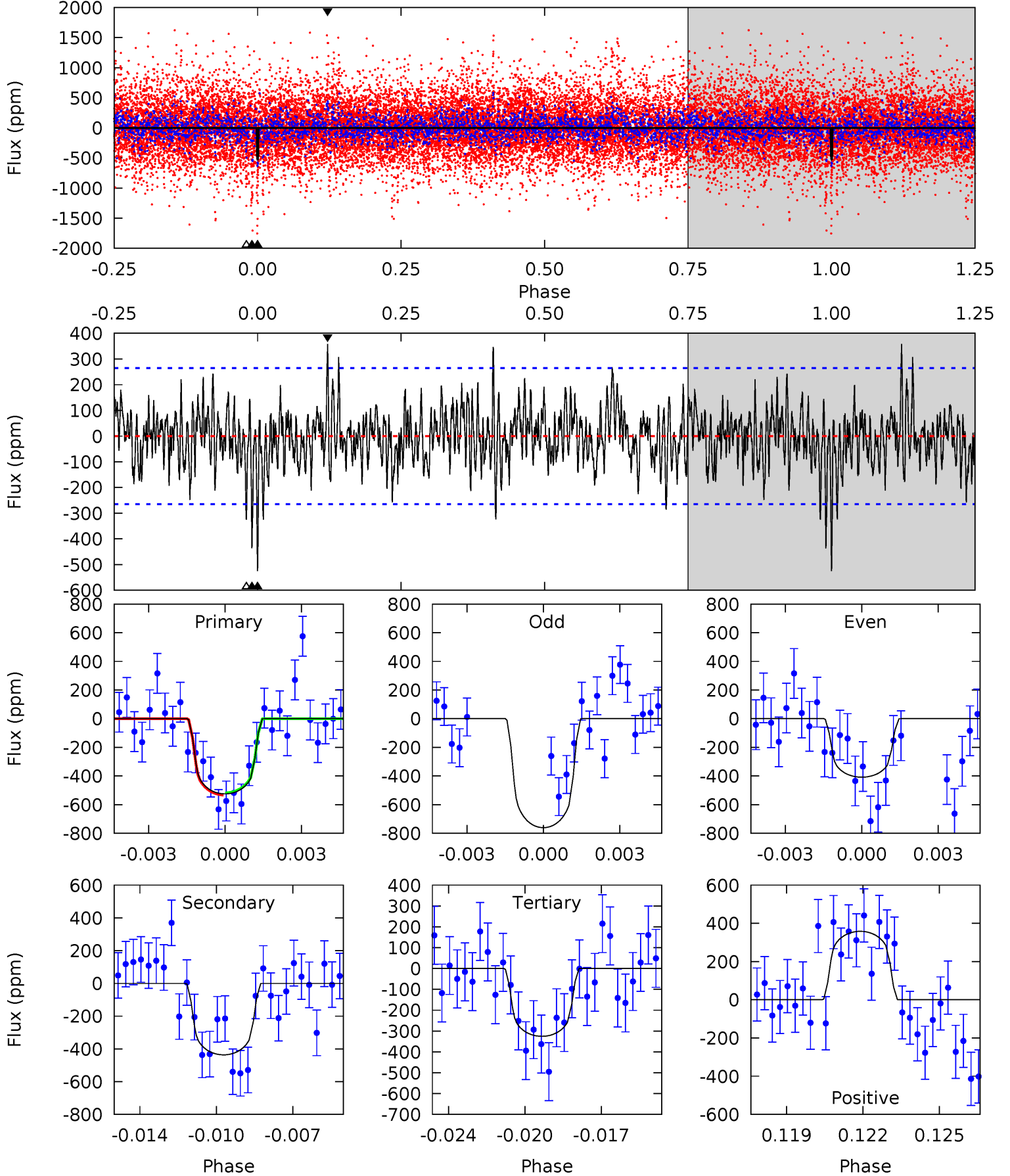
TCE 012784183-02 P= 62.932237 Days $T_0=176.977828$ (BKJD)



DV Model-Shift Uniqueness Test

012784183-02, P = 62.937124 Days, E = 113.928507 Days

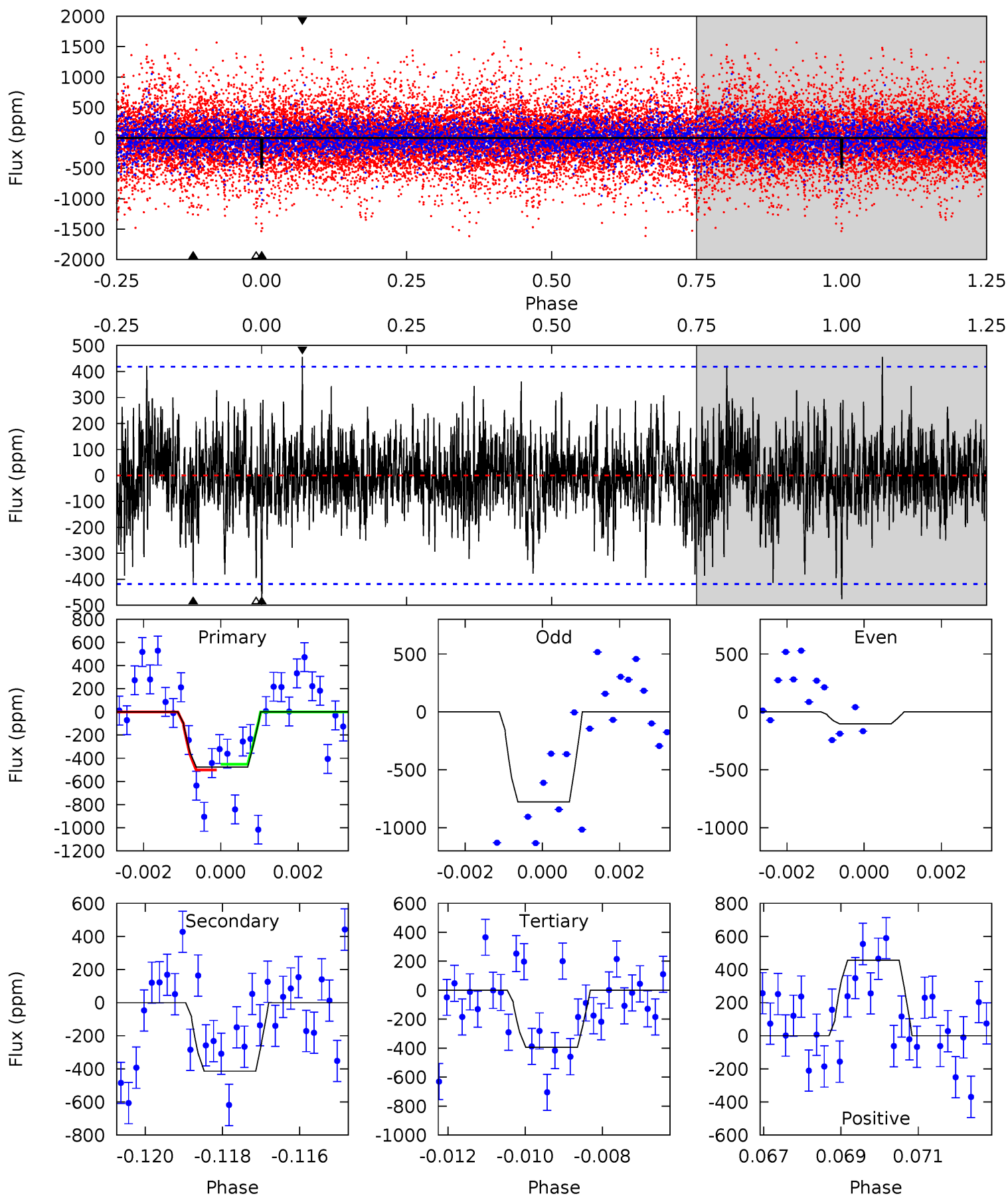
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	8.63	6.43	7.08	5.23	2.93	1.85	3.95	3.30	2.19	1.55	3.30	0.99	0.41	0.14



Alt Model-Shift Uniqueness Test

012784183-02, P = 62.932237 Days, E = 114.045591 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.05	5.27	5.03	5.80	5.32	3.08	1.43	1.03	0.25	0.24	-0.53	4.26	2.16	0.49	0.32



Stellar Parameters For KIC 012784183

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3650^{+65}_{-73}	$4.805^{+0.048}_{-0.032}$	$-0.100^{+0.100}_{-0.100}$	$0.445^{+0.036}_{-0.044}$	$0.461^{+0.034}_{-0.045}$	$7.367^{+1.811}_{-1.003}$
	+2%/-2%	+1%/-1%	+100%/-100%	+8%/-10%	+7%/-10%	+25%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012784183-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-436 ± 51	$1.24^{+0.97}_{-0.73}$	306^{+7}_{-8}	3404^{+1188}_{-506}	8866^{+41155}_{-5958}
Alt.	-414 ± 79	$1.23^{+0.96}_{-0.75}$	306^{+7}_{-8}	3404^{+1300}_{-534}	8711^{+48030}_{-6022}

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 $A_{obs} \gg 1.0$

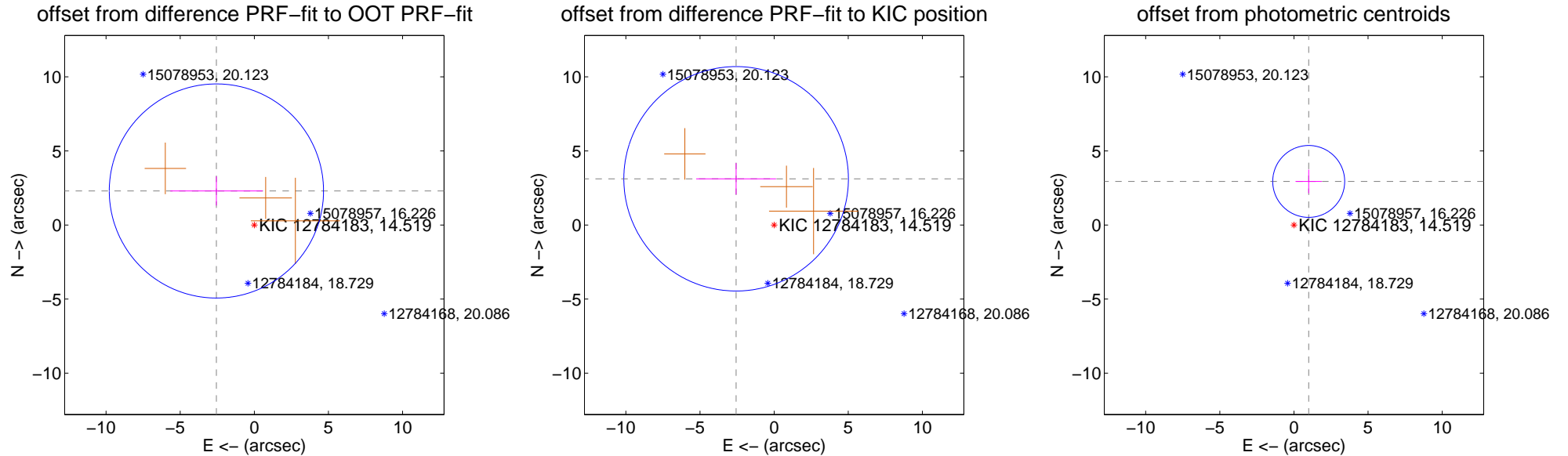
DV Centroid Data

Supplemental centroid analysis for 012784183-02. Kepler magnitude: 14.52. Transit SNR 8.38

There are 0 quarters with good PRF difference image offsets

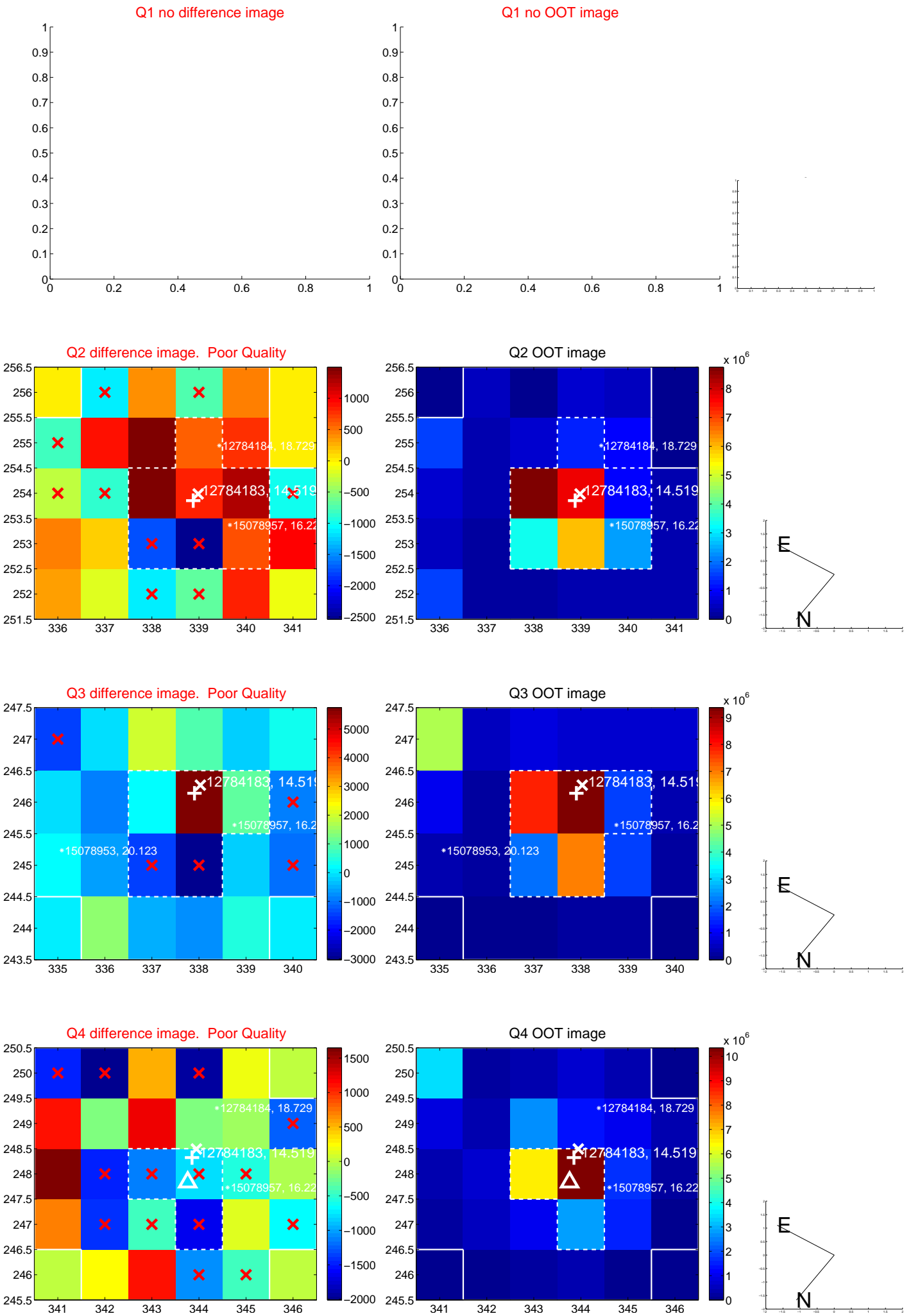
The direct PRF centroid is offset from the target star catalog position by about 0.98 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.437 ± 2.408	1.43	2.557 ± 3.115	2.296 ± 0.980
PRF-fit source offset from KIC position	4.037 ± 2.524	1.60	2.564 ± 2.696	3.118 ± 1.063
photometric centroid source offset	3.10 ± 0.81	3.84	-1.00 ± 0.89	2.94 ± 0.80

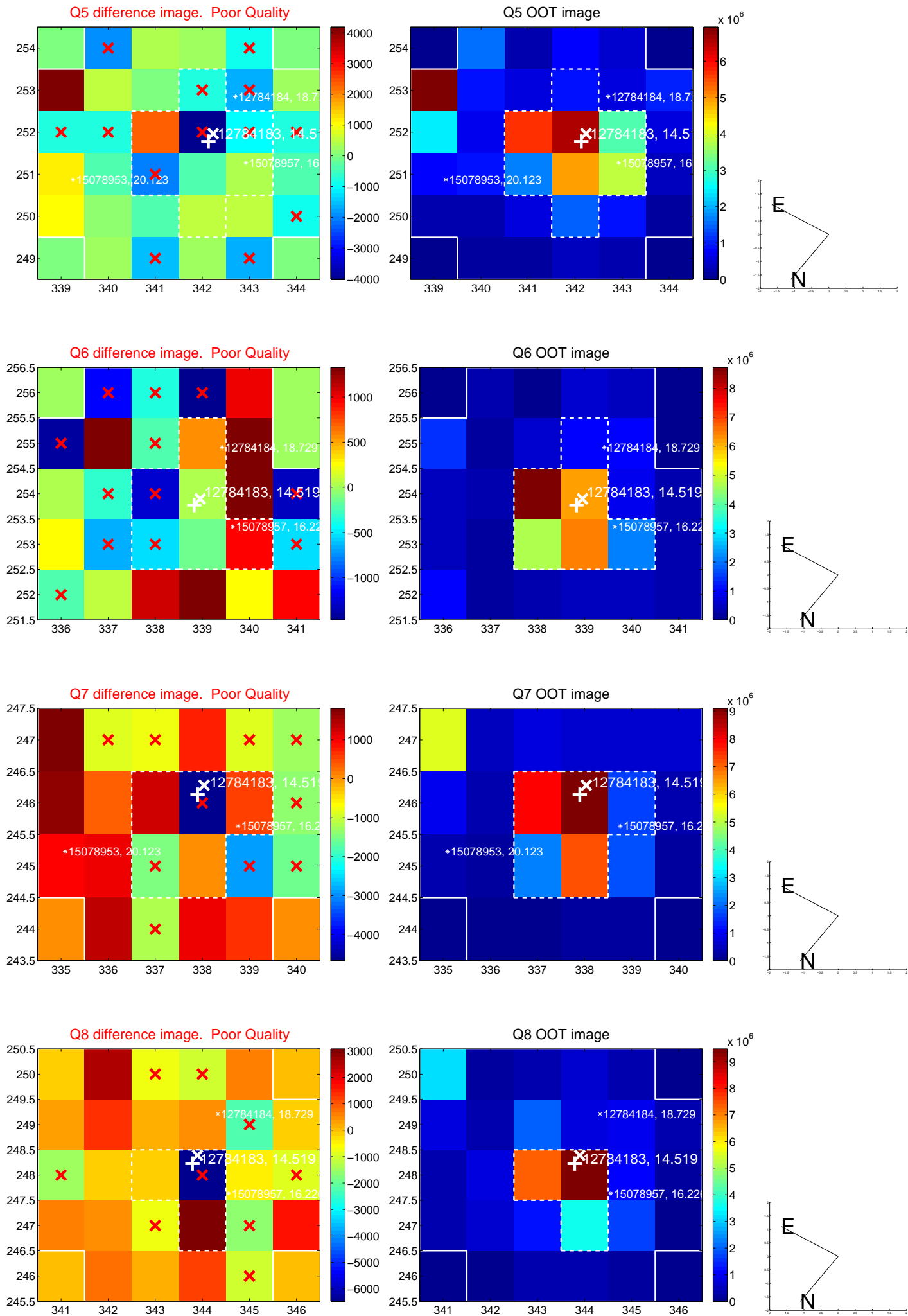


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

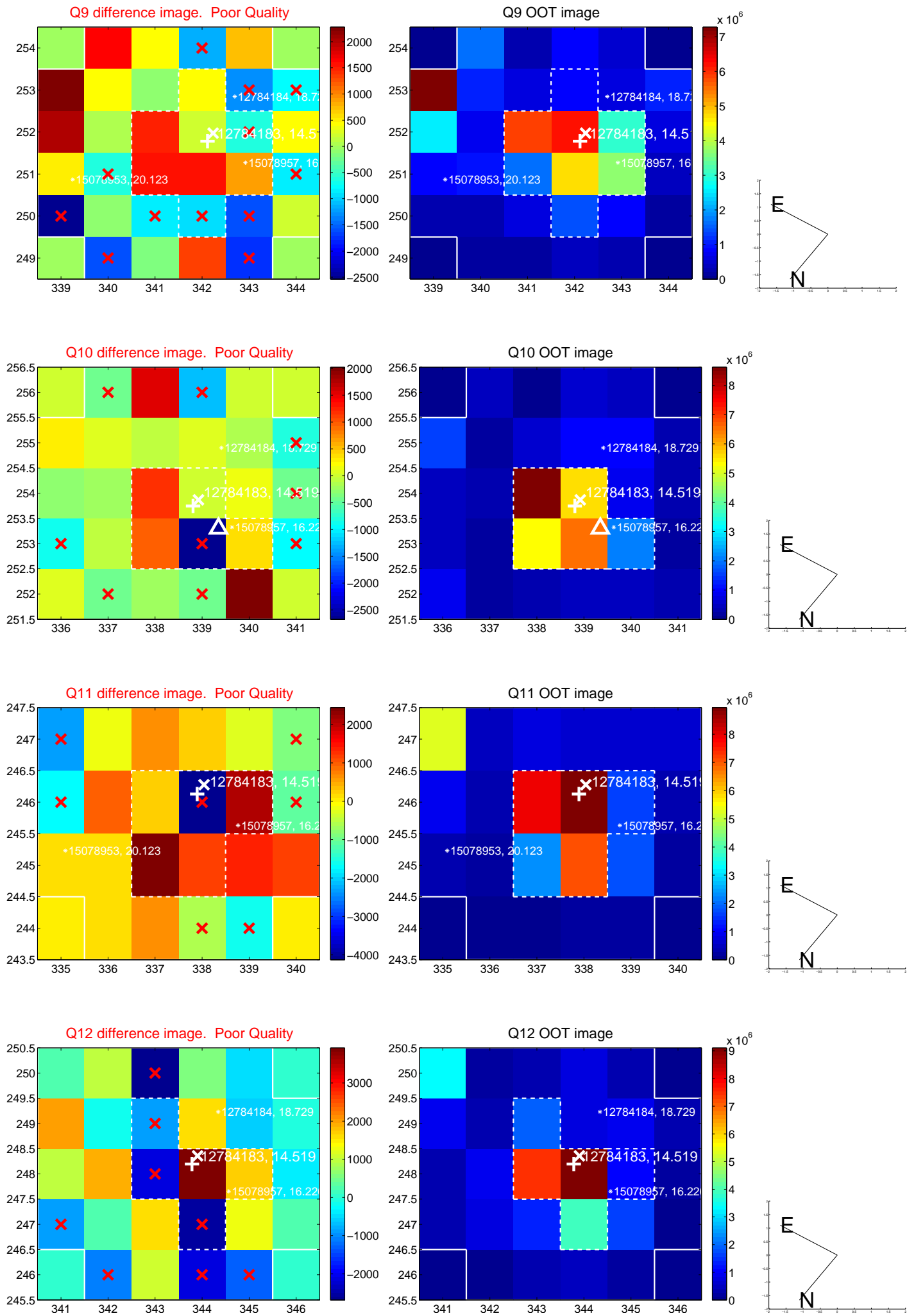
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



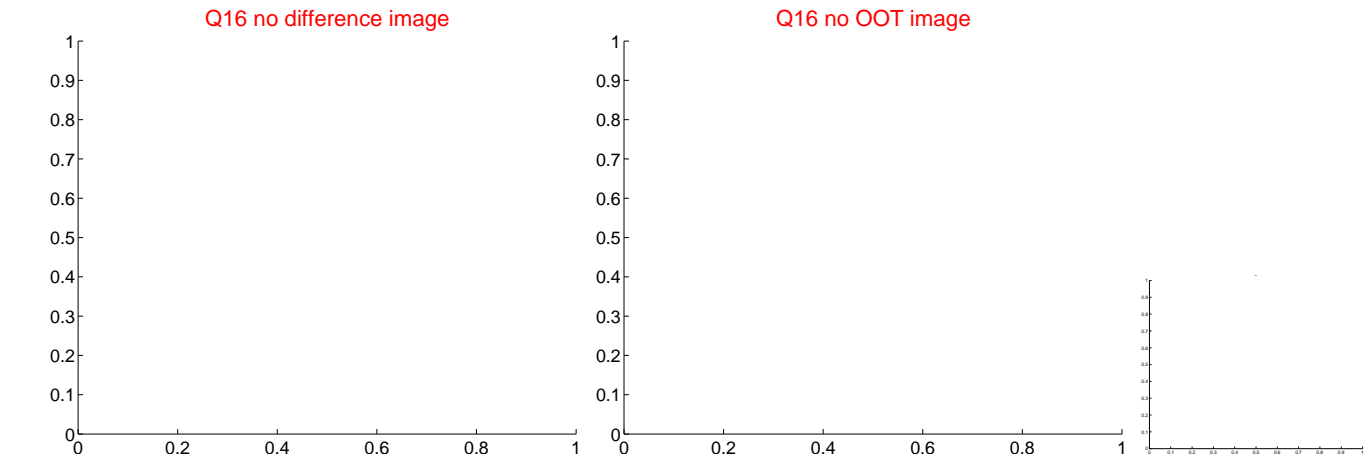
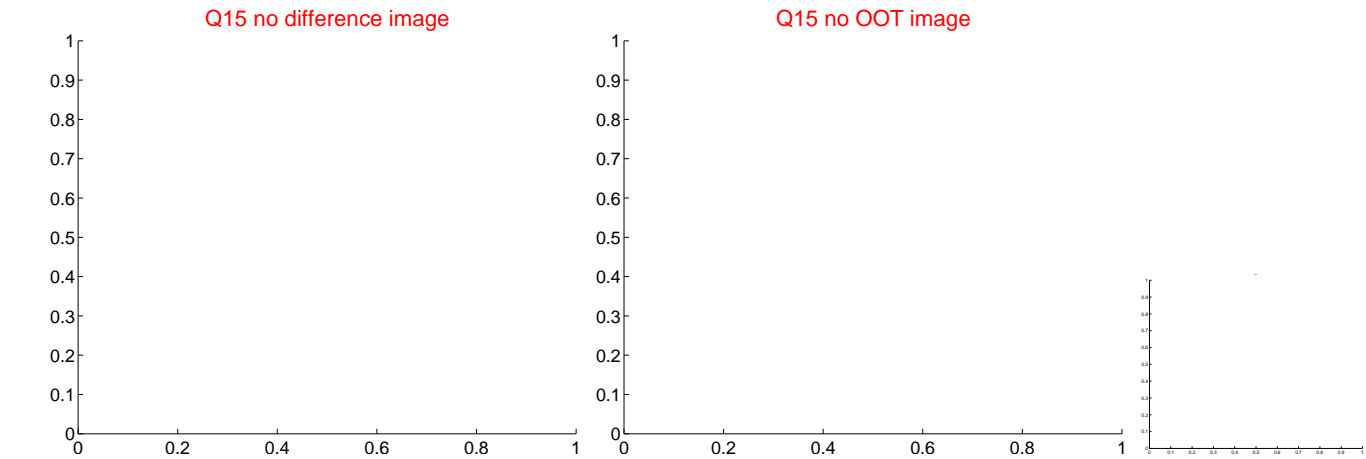
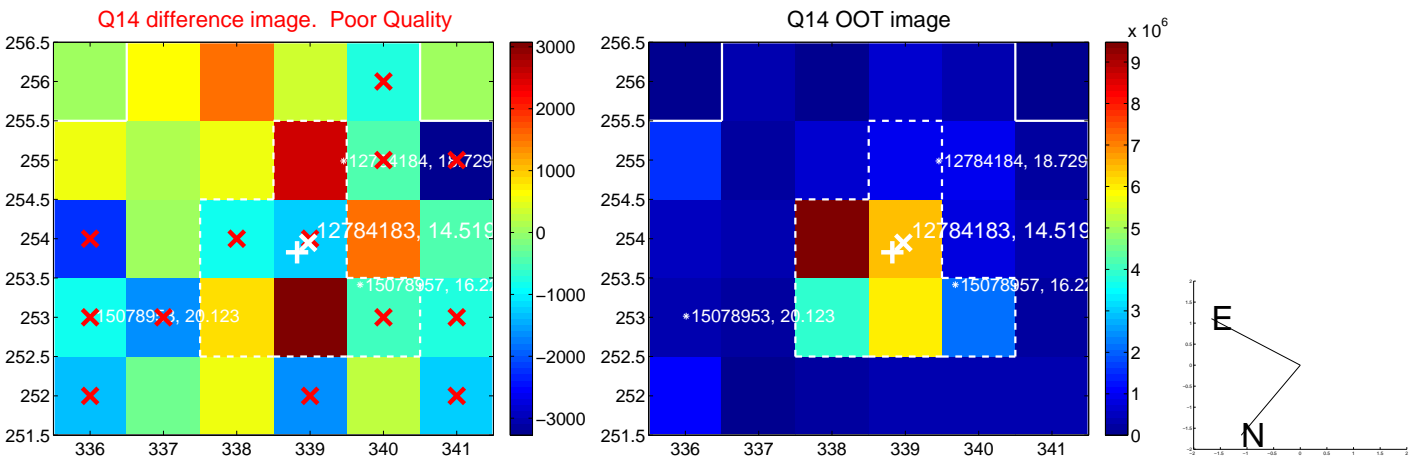
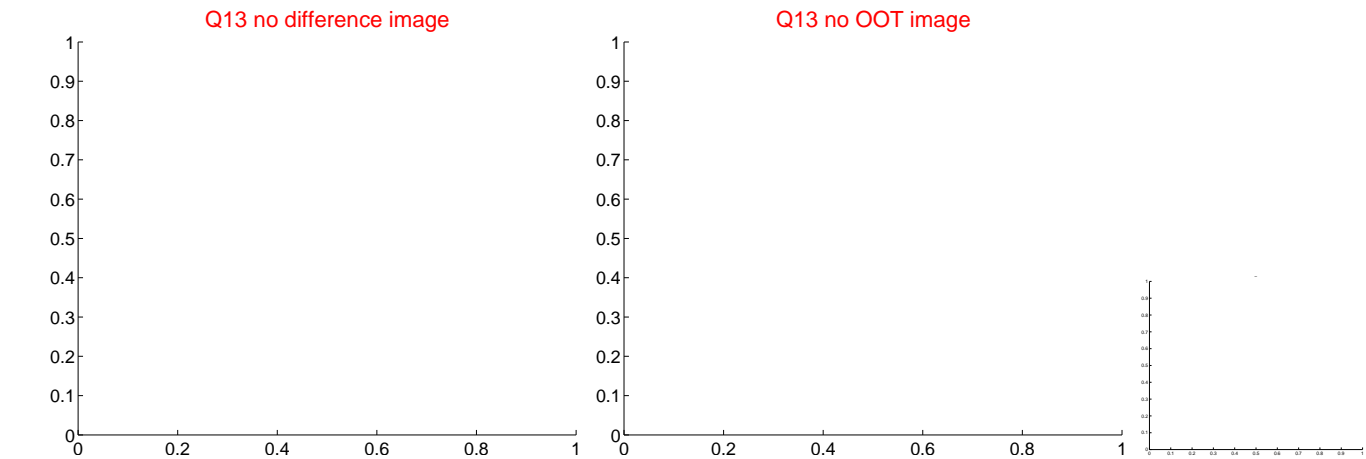
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



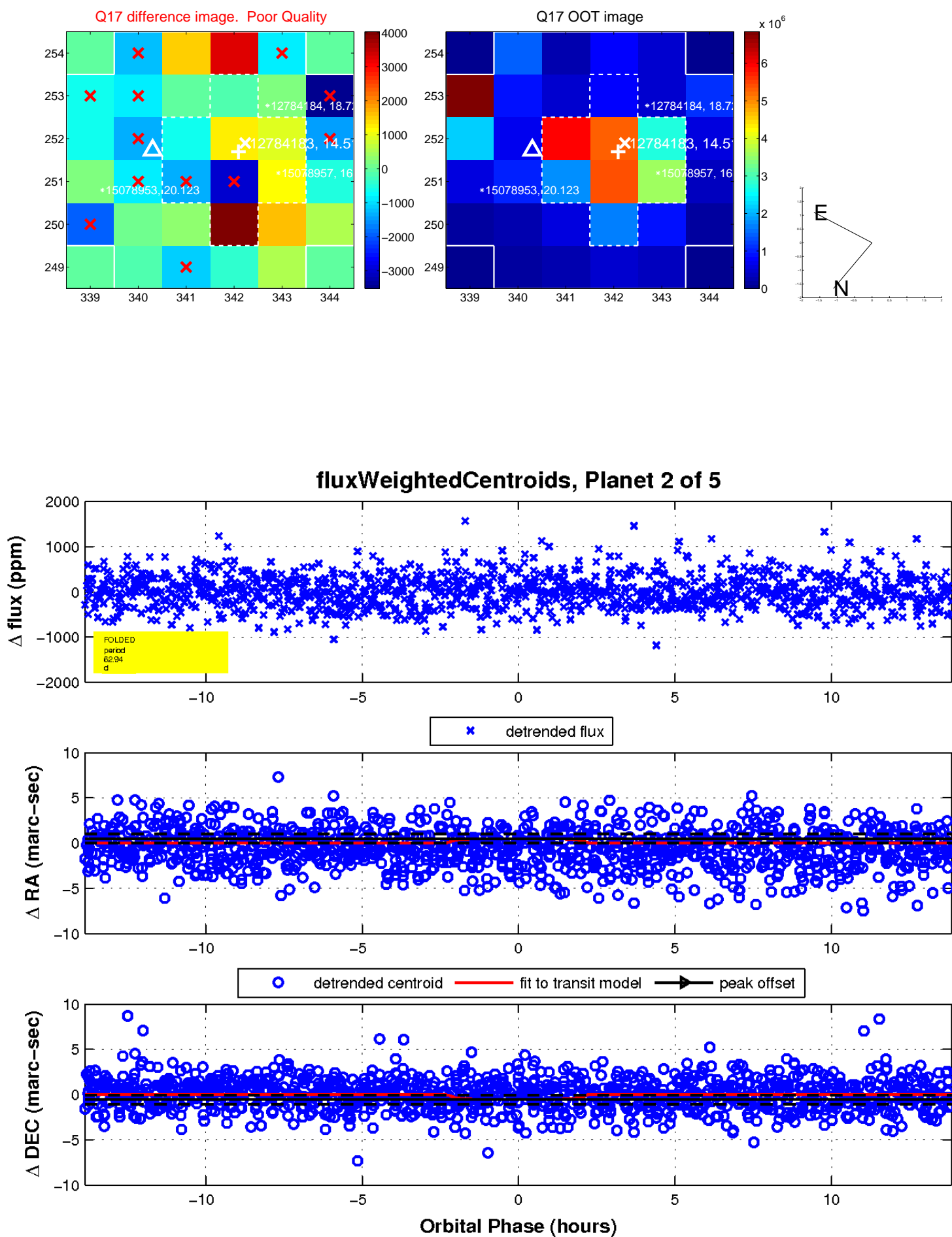
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

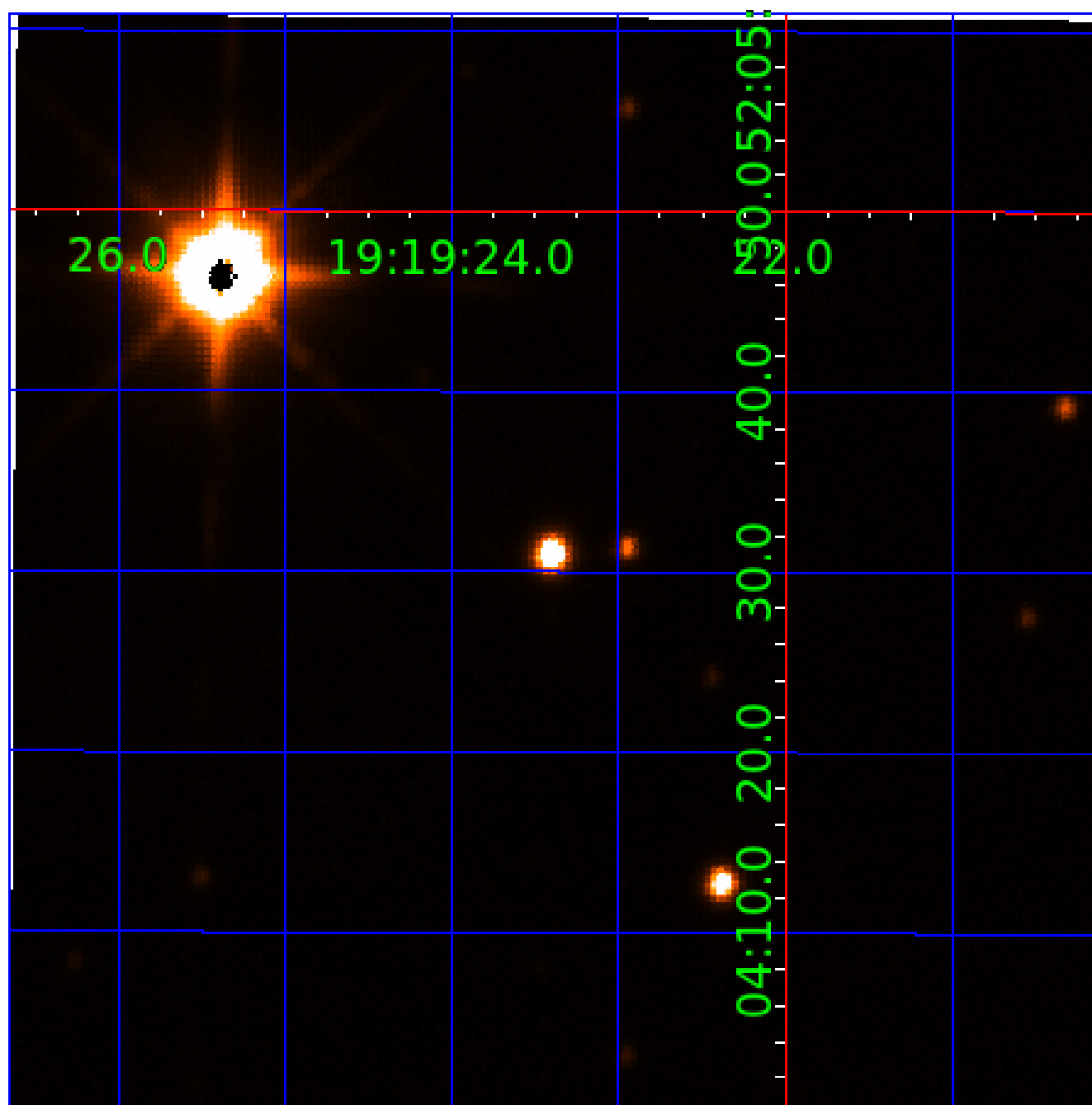


white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012784183

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})
012784183-01	OBS	No	0.626080	131.512525	12.8	3.430	7.2	3.2	0.45	3650	0.16	257.12
012784183-02	OBS	No	62.937124	176.865631	546.3	4.622	11.1	8.4	0.45	3650	1.18	0.55
012784183-03	OBS	No	125.295712	176.826452	813.3	4.338	11.4	9.4	0.45	3650	1.36	0.22
012784183-04	OBS	No	214.189645	213.850444	680.2	13.236	8.2	7.3	0.45	3650	1.37	0.11
012784183-05	OBS	No	316.103102	135.032524	648.4	4.723	7.8	6.8	0.45	3650	1.12	0.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012784183-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_MEAS
012784183-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012784183-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012784183-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012784183-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

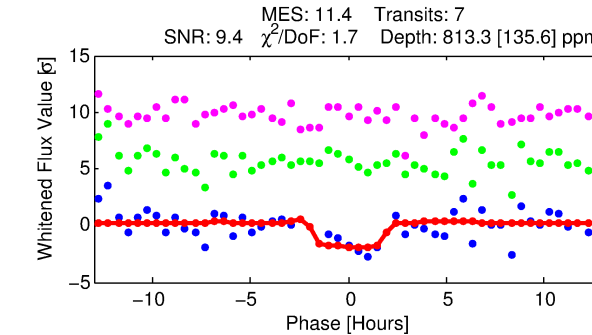
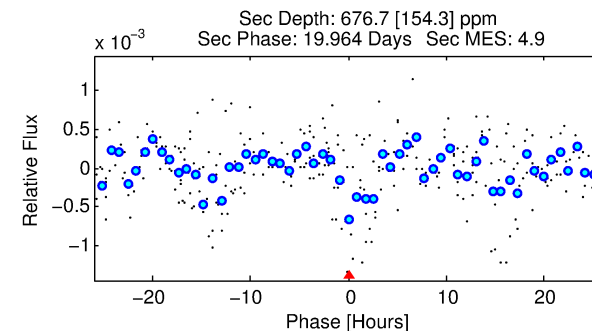
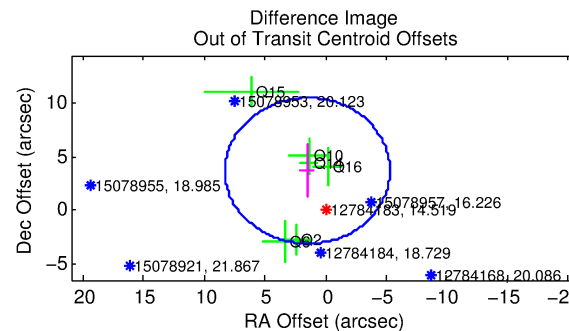
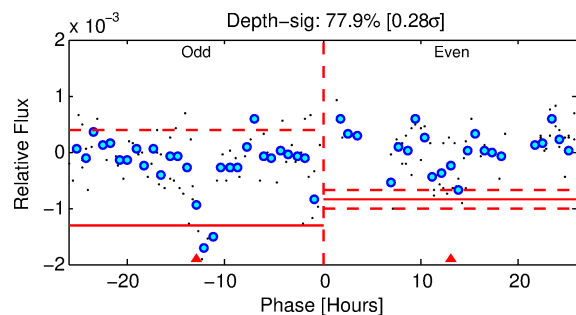
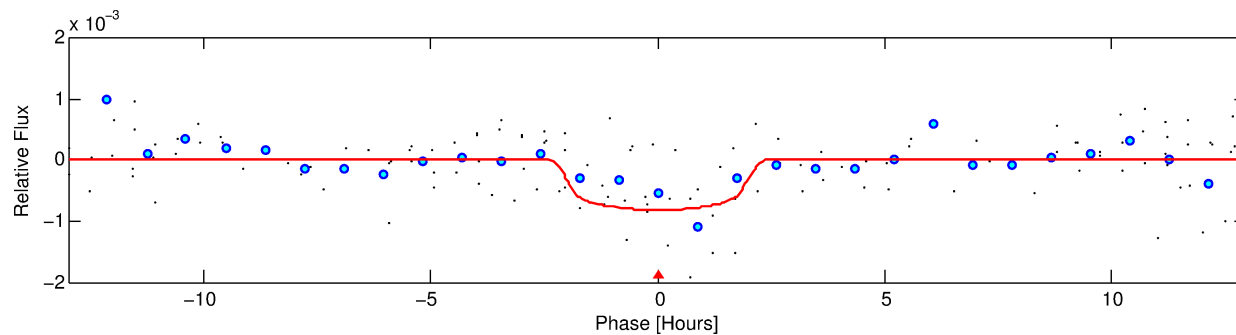
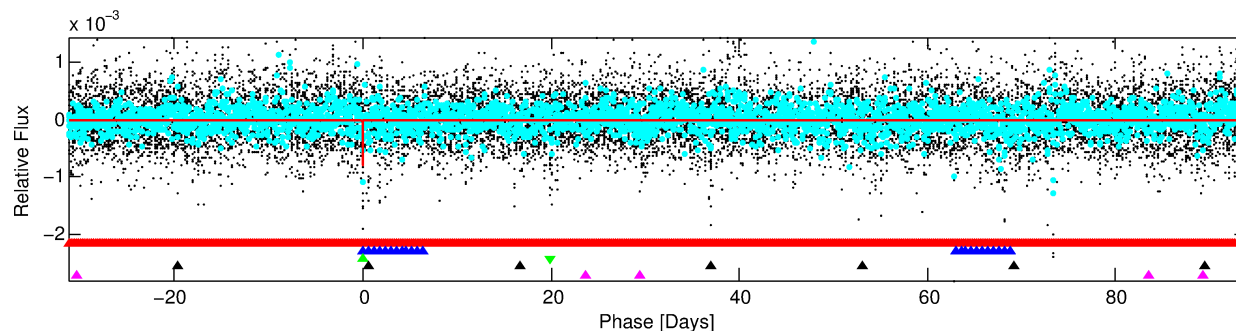
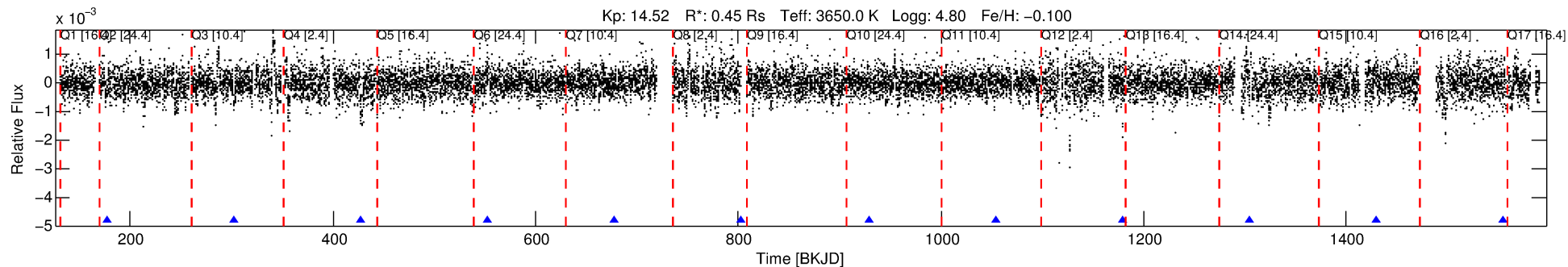
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012784183-03

No Significant Match Found

DV One-Page Summary

KIC: 12784183 Candidate: 3 of 5 Period: 125.296 d



DV Fit Results:

Period = 125.29571 [0.00188] d
Epoch = 176.8265 [0.0128] BKJD
Rp/R* = 0.0279 [0.0508]
a/R* = 164.25 [1309.18]
b = 0.71 [5.64]
Seff = 0.22 [0.03]
Teq = 175 [6] K
Rp = 1.36 [2.47] Re
a = 0.3786 [0.0286] AU
Ag = 29007.74 [105855.90] [0.27 σ]
Teffp = 3522 [3213] K [1.04 σ]

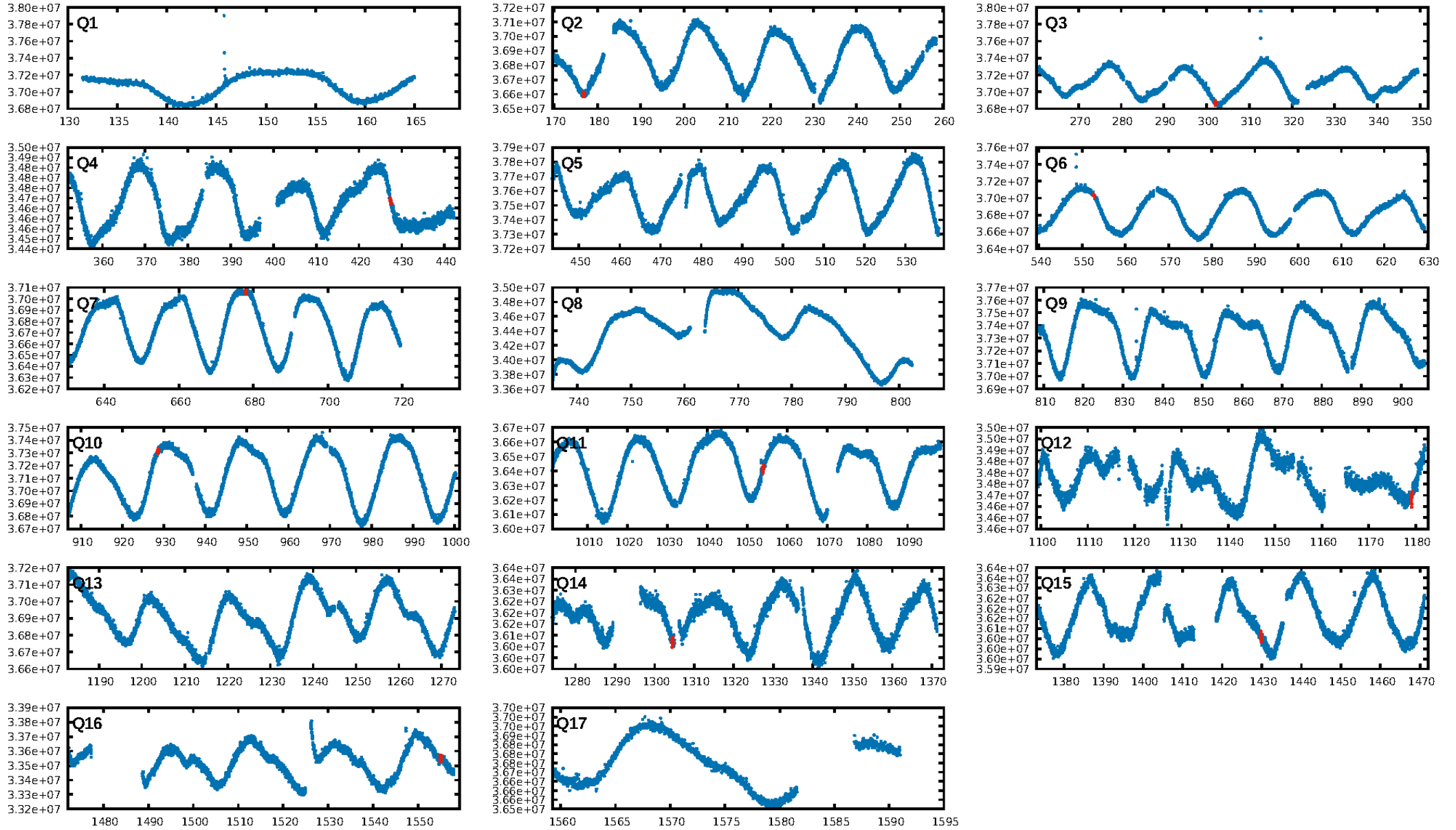
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [236.09 σ]
LongPeriod-sig: 100.0% [153.17 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: 8.52e-16
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -1.105
Centroid-sig: 8.7%
Centroid-so: 2.752 arcsec [3.83 σ]
OotOffset-rm: 3.995 arcsec [1.76 σ]
KicOffset-rm: 4.713 arcsec [2.04 σ]
OotOffset-st: 4/1/1/0 [6]
KicOffset-st: 4/1/1/0 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.00 [0/10]

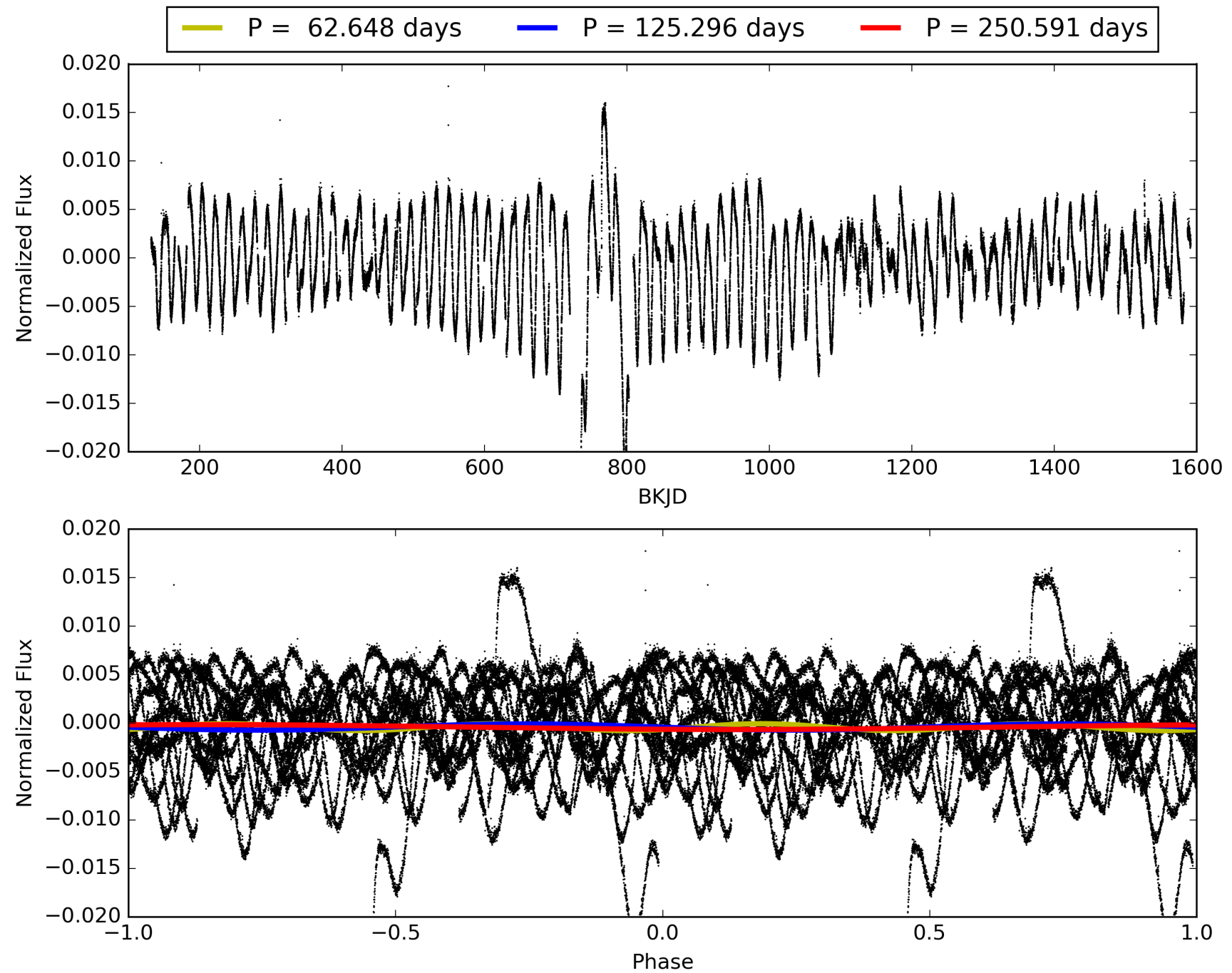
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:15:48 Z

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

TCE 012784183-03, PDC Light Curves

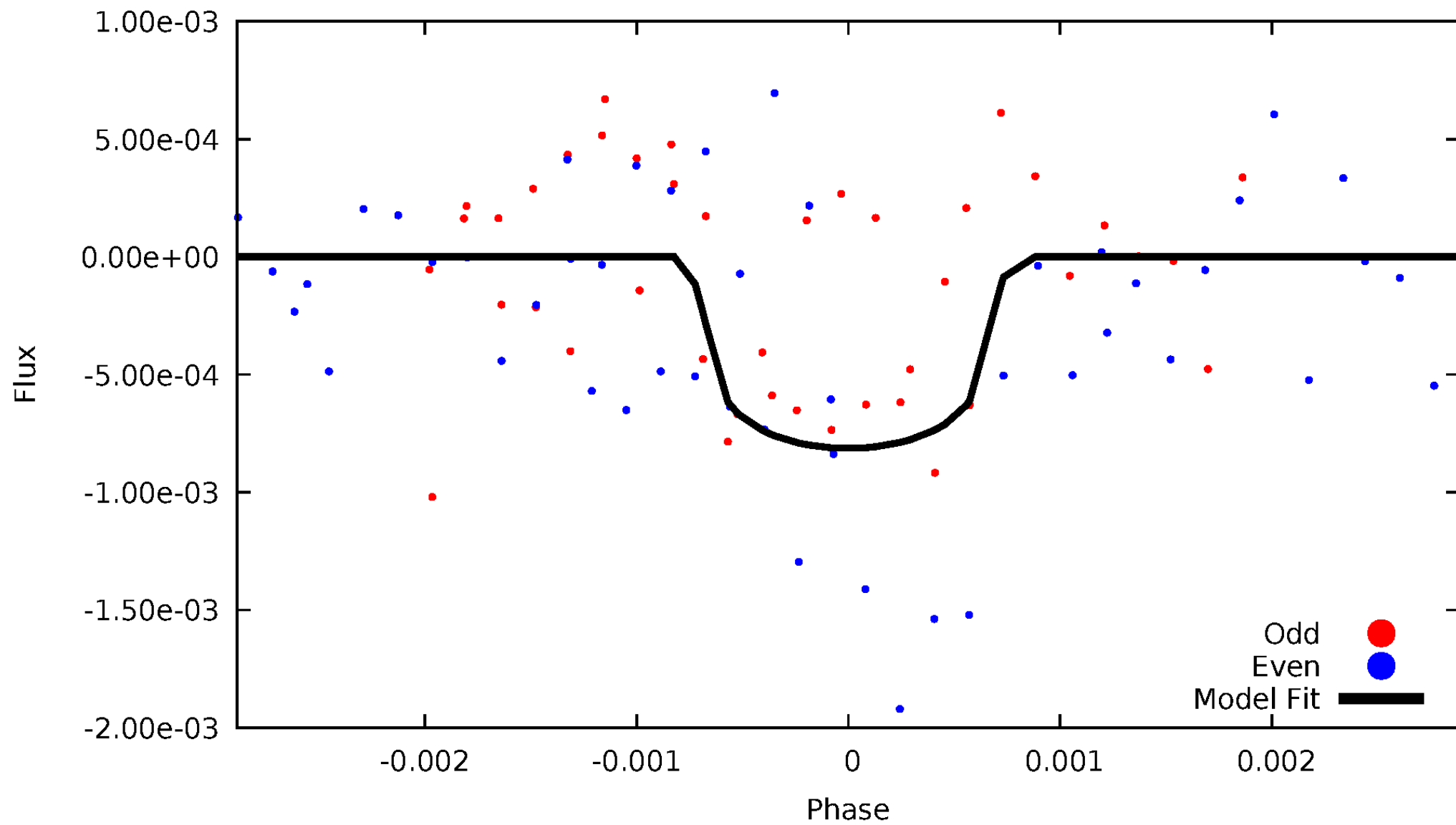


TCE 012784183-03



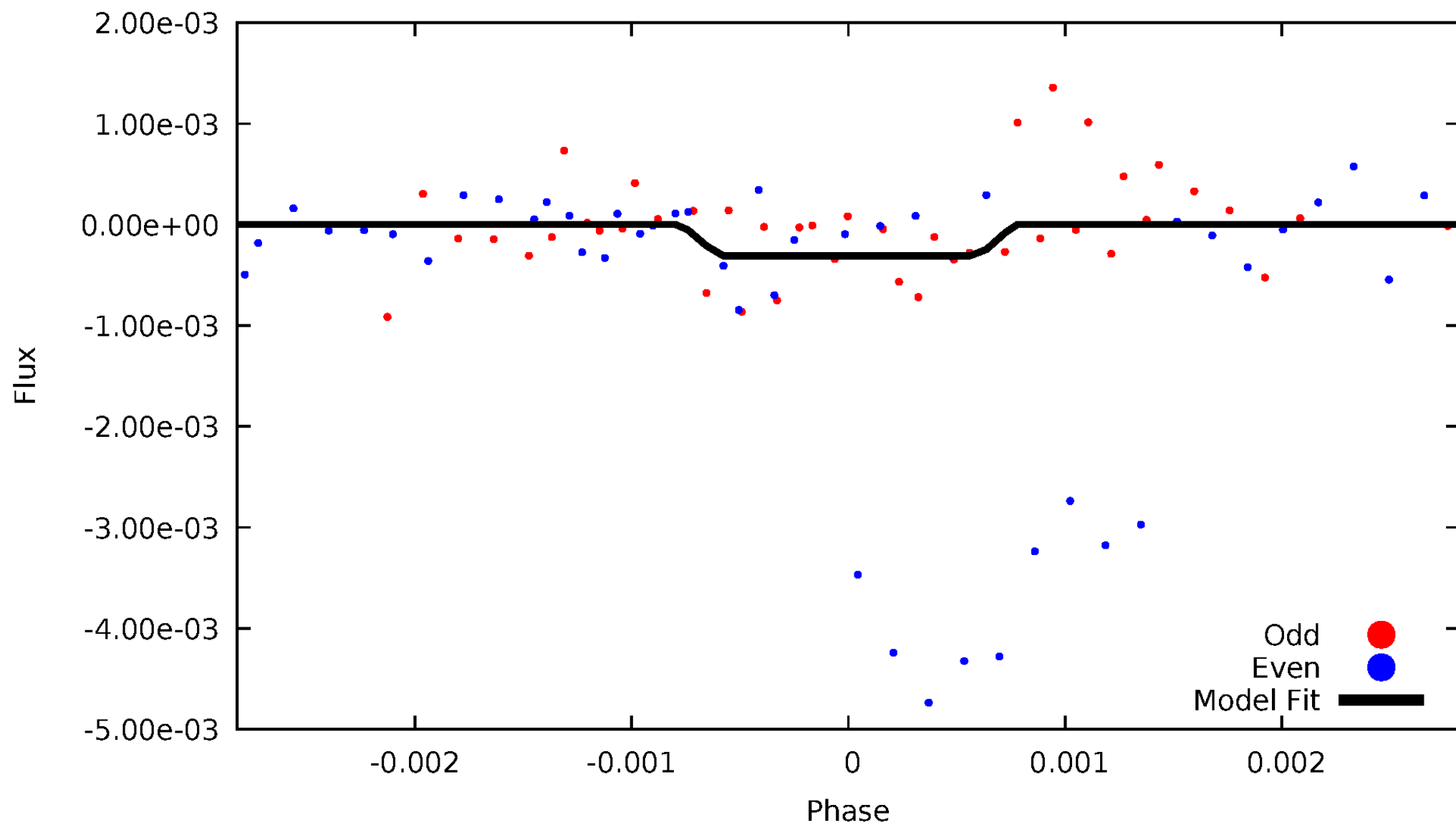
DV Odd/Even

TCE 012784183-03



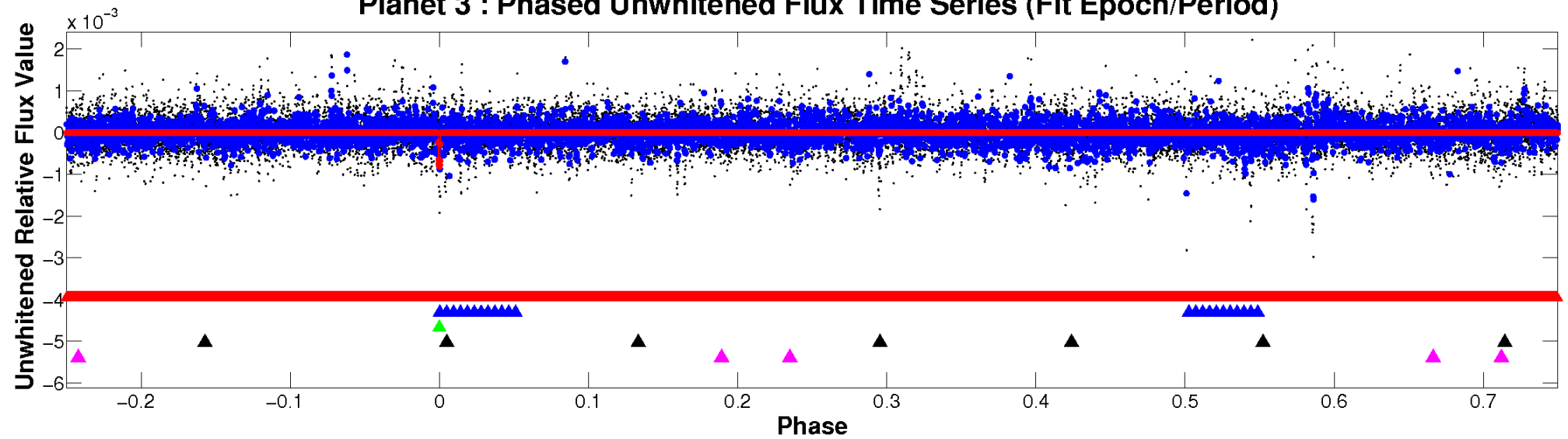
ALT Odd/Even

TCE 012784183-03

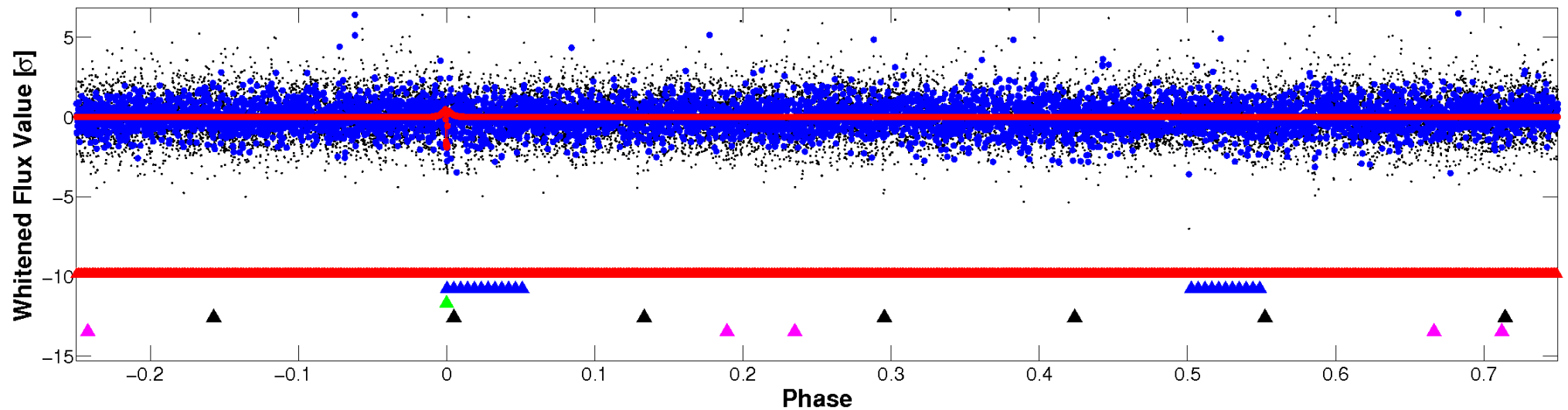


Non-Whitened Vs. Whitened Light Curve

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

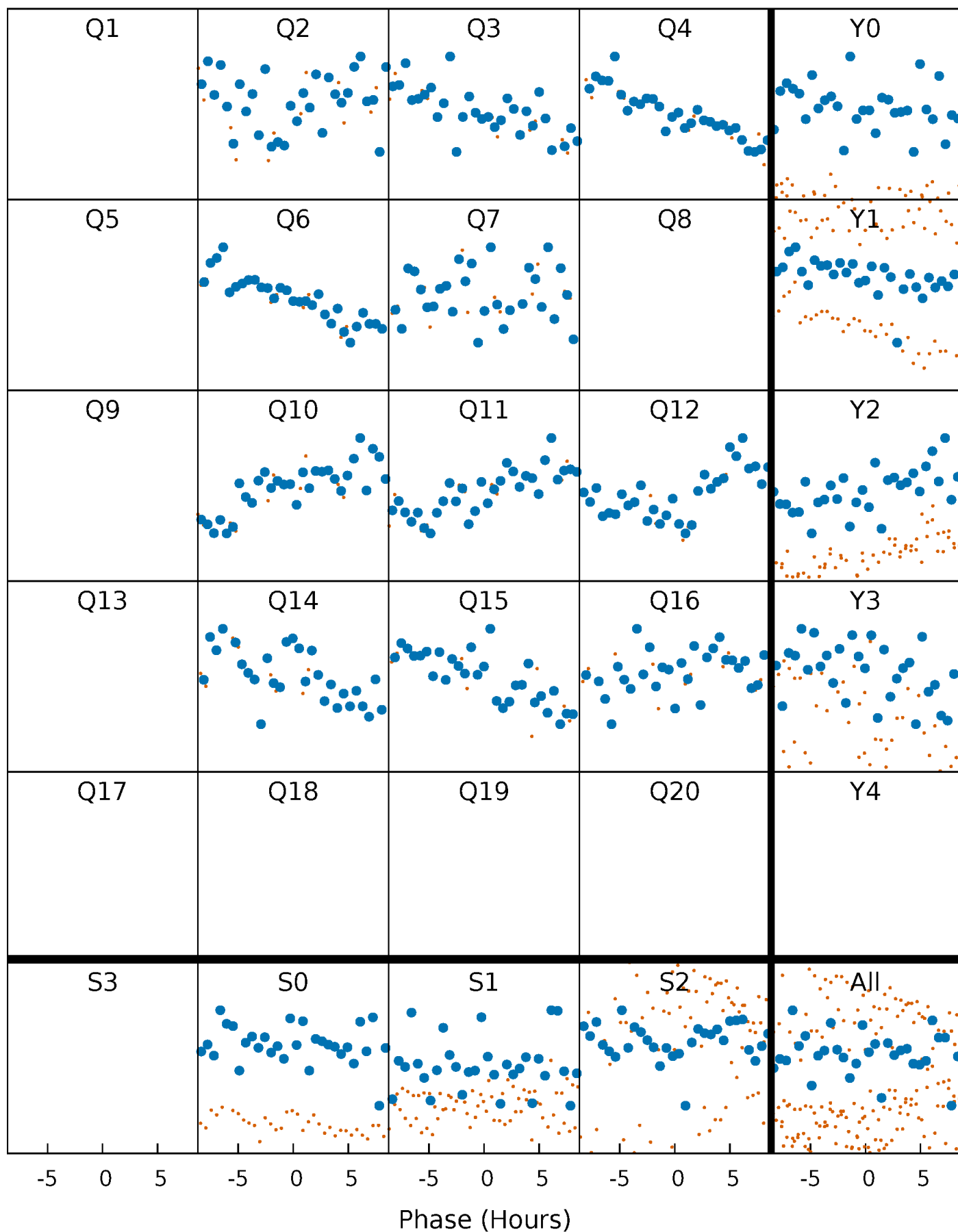


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



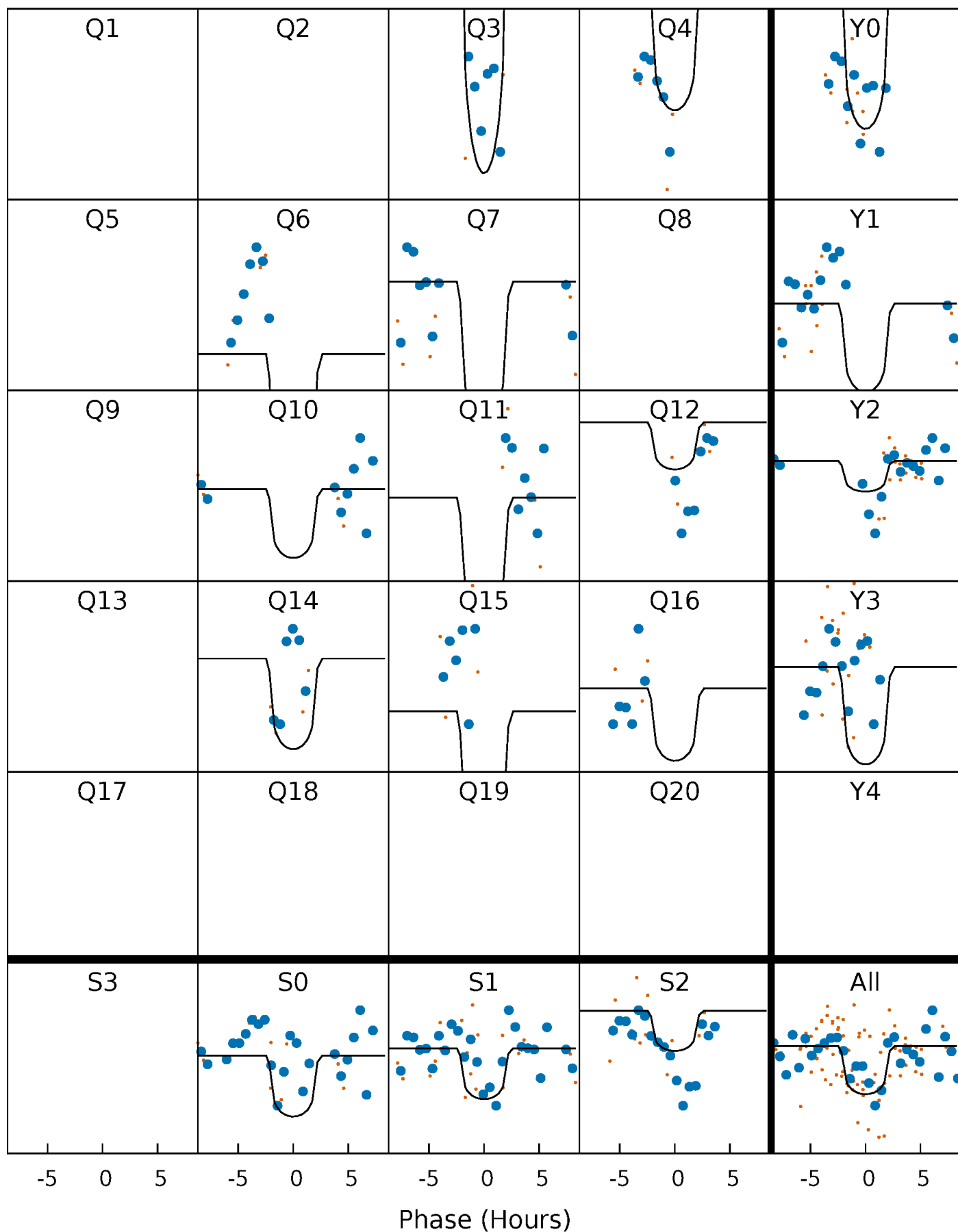
PDC Quarter-Phased Transit Curves

TCE 012784183-03 $P=125.295712$ Days $T_0=176.826452$ (BKJD)



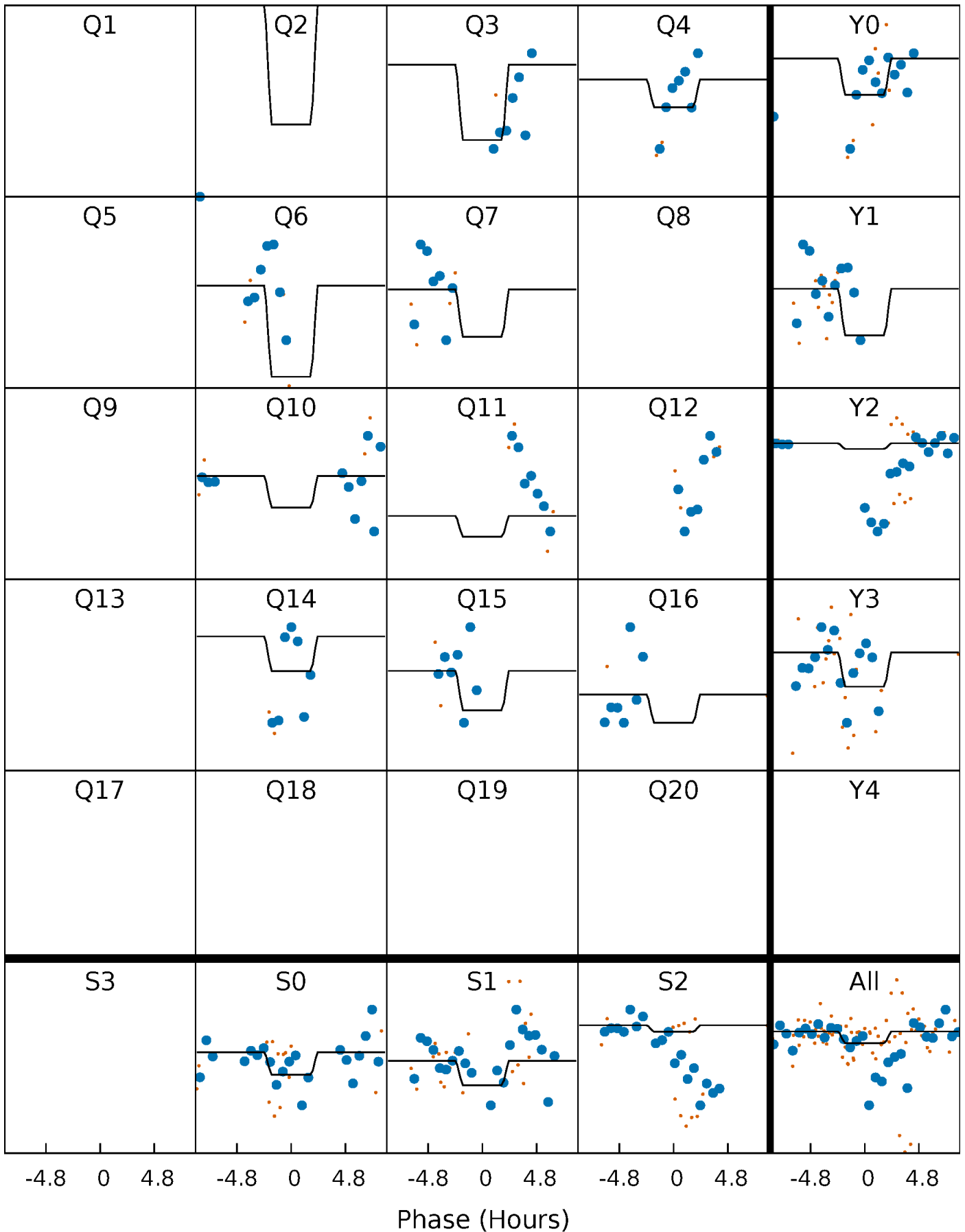
DV Quarter-Phased Transit Curves

TCE 012784183-03 P=125.295712 Days $T_0=176.826452$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

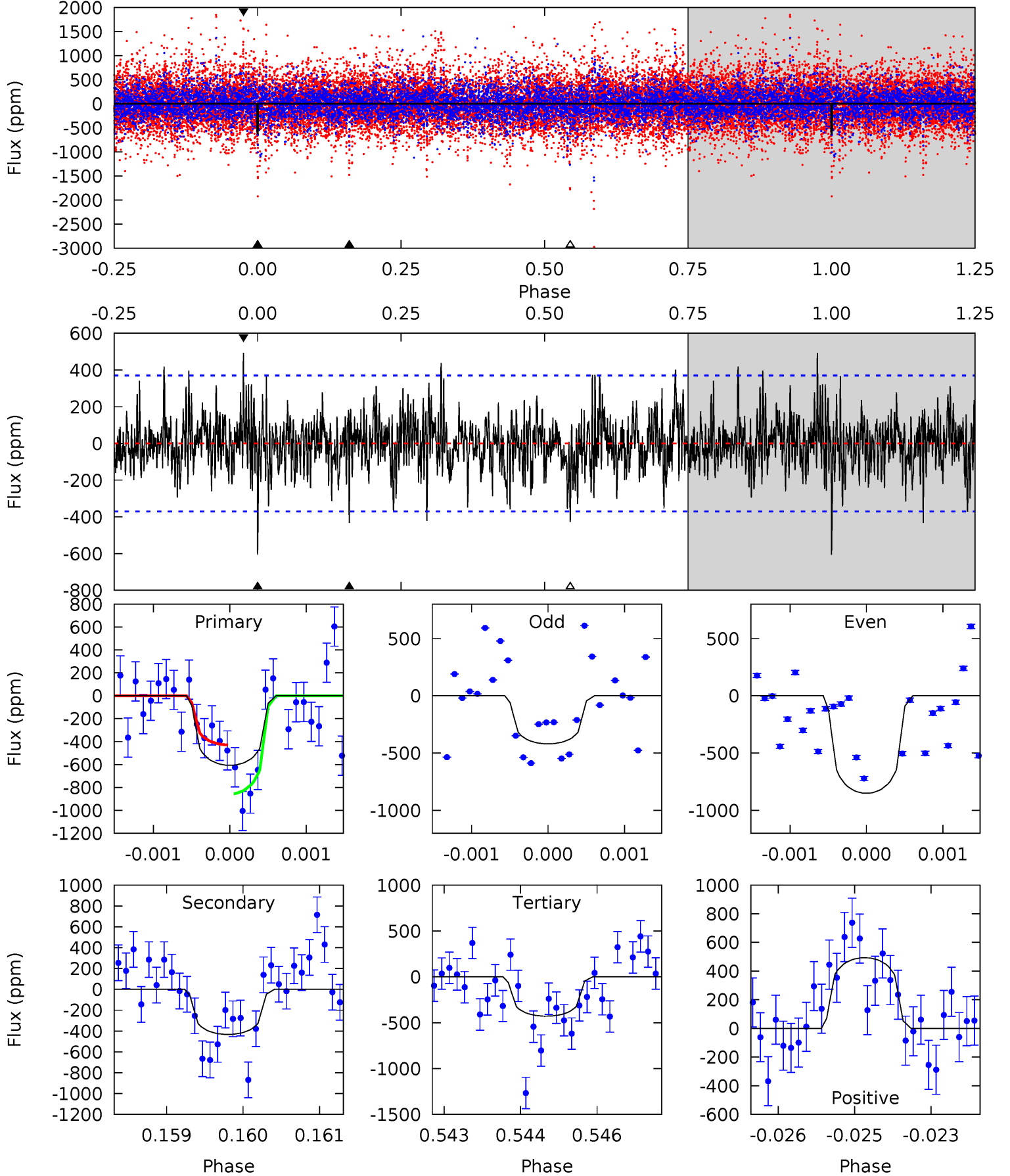
TCE 012784183-03 P=125.307798 Days $T_0=176.713749$ (BKJD)



DV Model-Shift Uniqueness Test

012784183-03, P = 125.295712 Days, E = 51.530740 Days

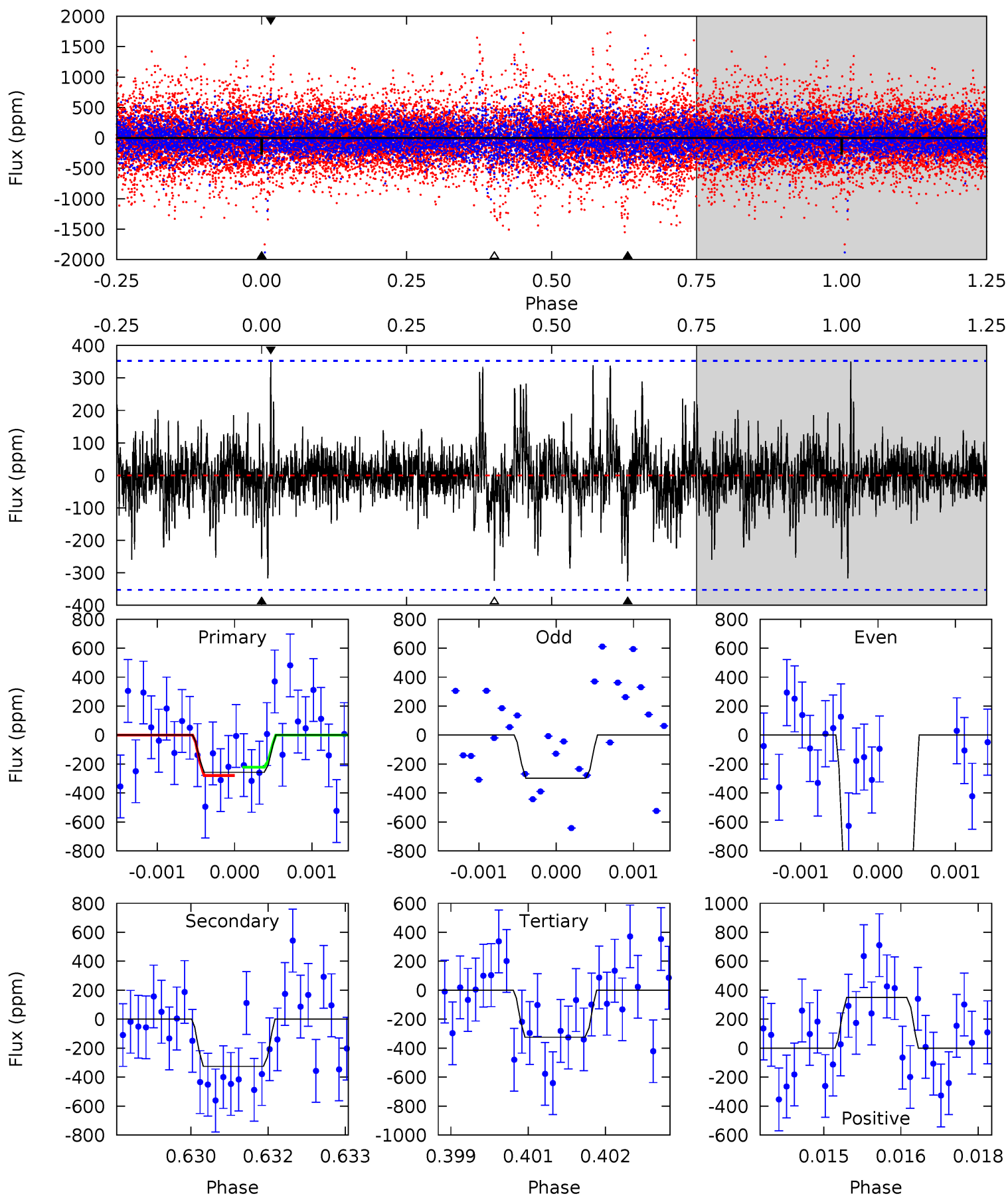
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.82	6.29	6.24	7.17	5.38	3.18	1.74	2.59	1.65	0.05	-0.88	3.15	0.95	0.45	3.08



Alt Model-Shift Uniqueness Test

012784183-03, P = 125.307798 Days, E = 51.405951 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.93	4.98	4.96	5.35	5.38	3.18	1.10	-1.03	-1.42	0.02	-0.37	7.53	3.12	0.52	0.43



Stellar Parameters For KIC 012784183

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3650^{+65}_{-73}	$4.805^{+0.048}_{-0.032}$	$-0.100^{+0.100}_{-0.100}$	$0.445^{+0.036}_{-0.044}$	$0.461^{+0.034}_{-0.045}$	$7.367^{+1.811}_{-1.003}$
	+2%/-2%	+1%/-1%	+100%/-100%	+8%/-10%	+7%/-10%	+25%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012784183-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-433 ± 69	$2.28^{+2.01}_{-1.51}$	243^{+6}_{-6}	2855^{+1149}_{-427}	6427^{+51975}_{-4699}
Alt.	-326 ± 65	$2.03^{+2.12}_{-1.39}$	243^{+6}_{-6}	2860^{+1157}_{-492}	6442^{+53853}_{-4957}

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

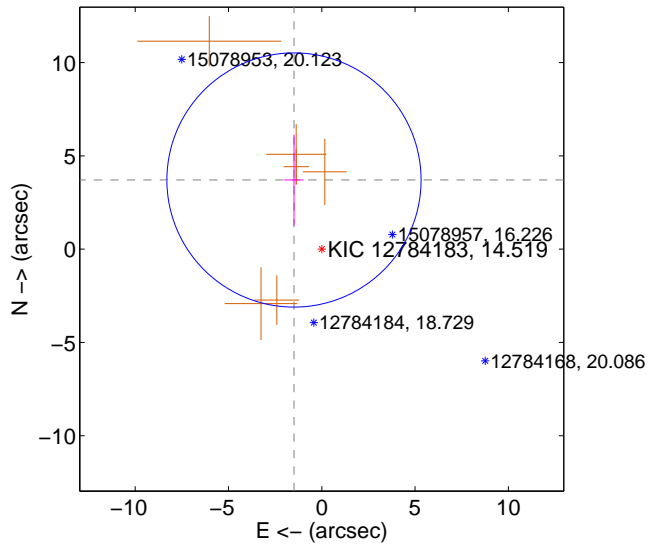
Supplemental centroid analysis for 012784183-03. Kepler magnitude: 14.52. Transit SNR 9.43

There are 0 quarters with good PRF difference image offsets

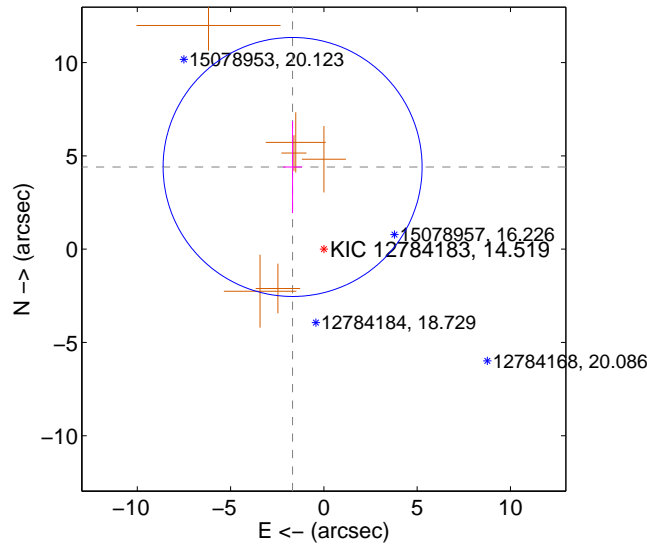
The direct PRF centroid is offset from the target star catalog position by about 0.69 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.995 ± 2.270	1.76	1.490 ± 0.519	3.707 ± 2.438
PRF-fit source offset from KIC position	4.713 ± 2.313	2.04	1.676 ± 0.513	4.405 ± 2.467
photometric centroid source offset	2.75 ± 0.72	3.83	-0.22 ± 0.80	2.74 ± 0.72

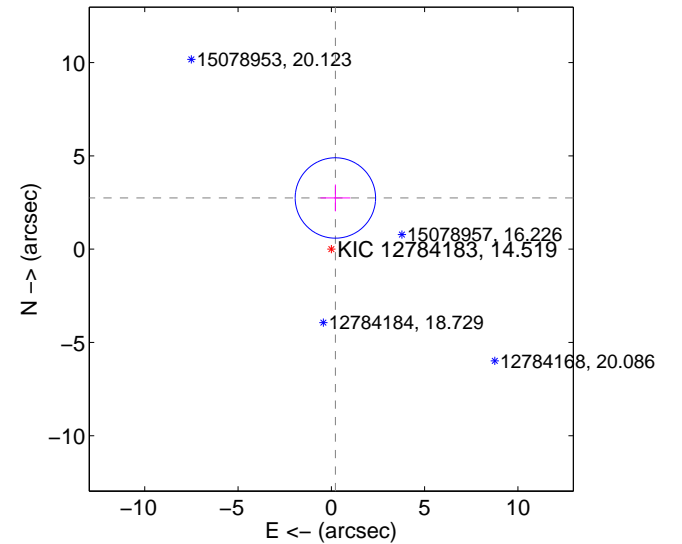
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

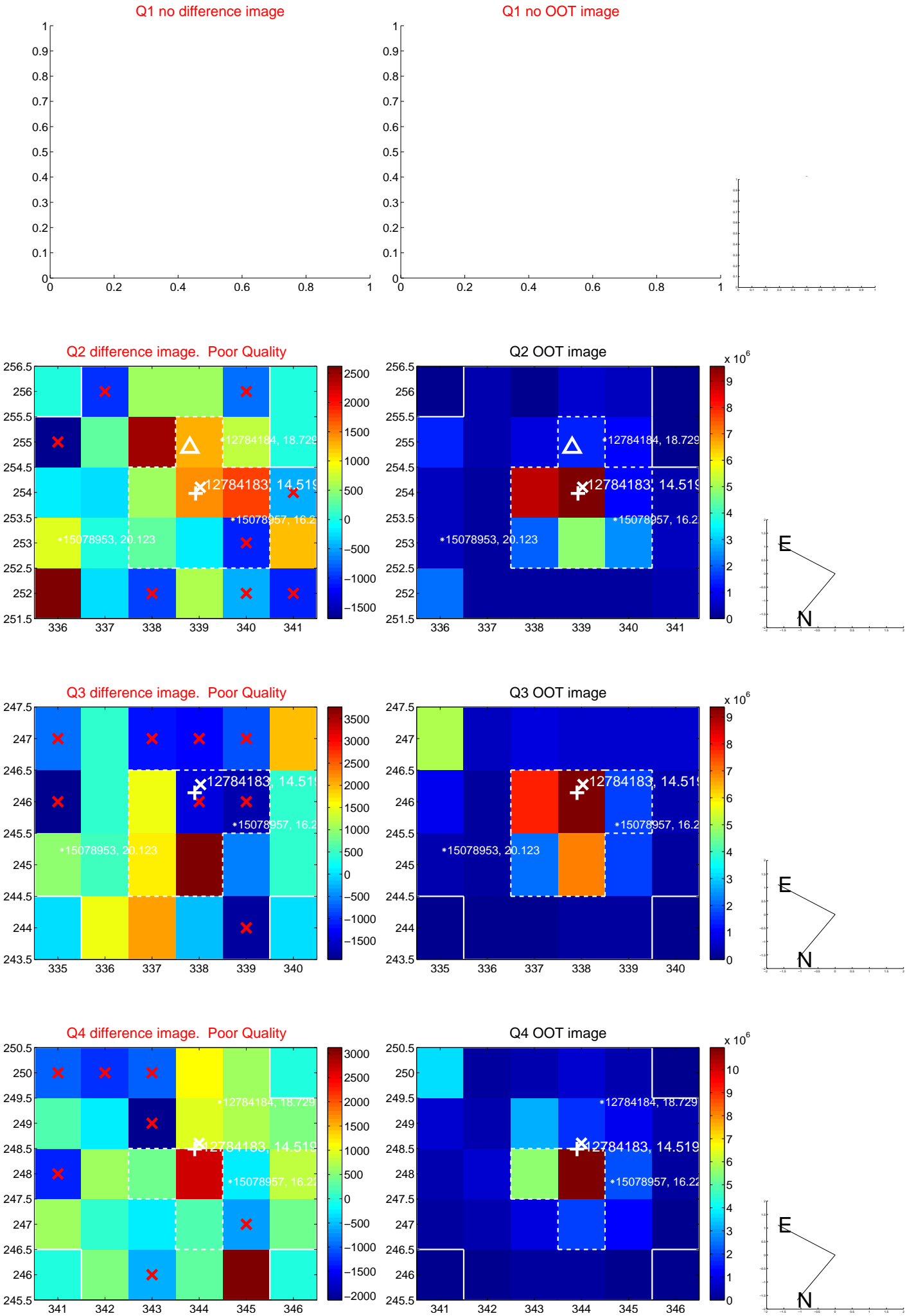


offset from photometric centroids

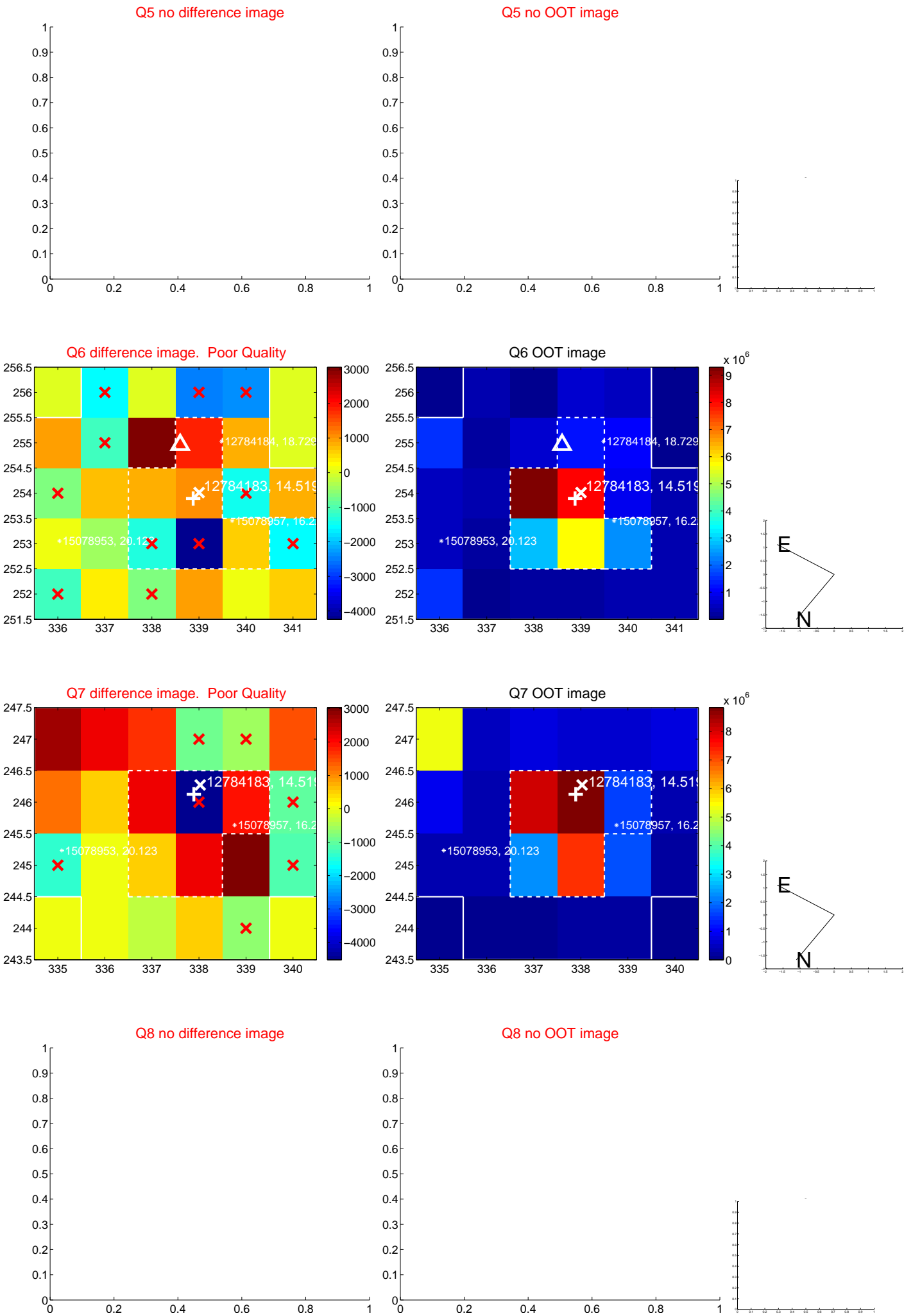


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

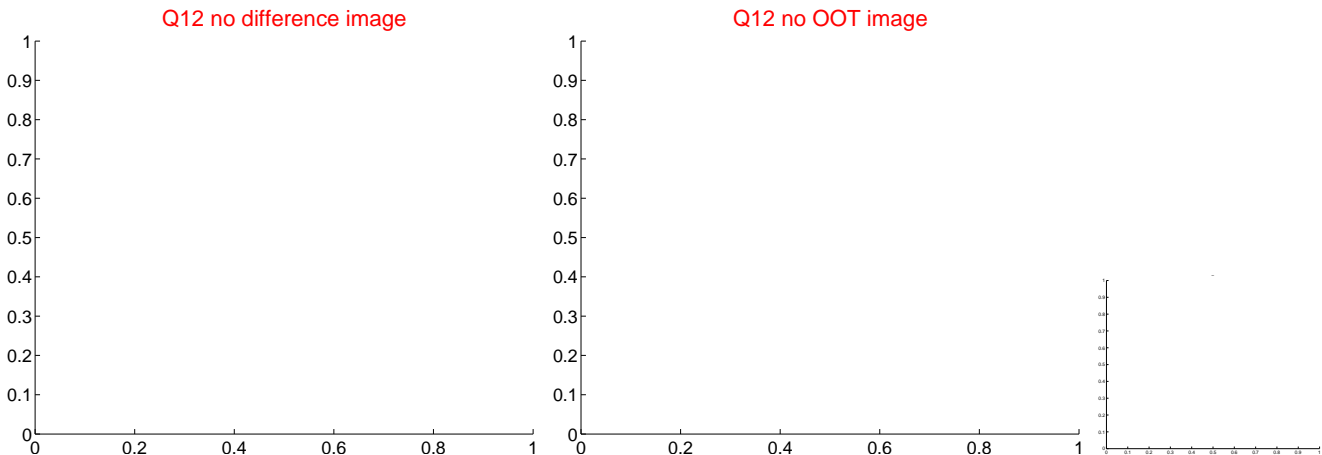
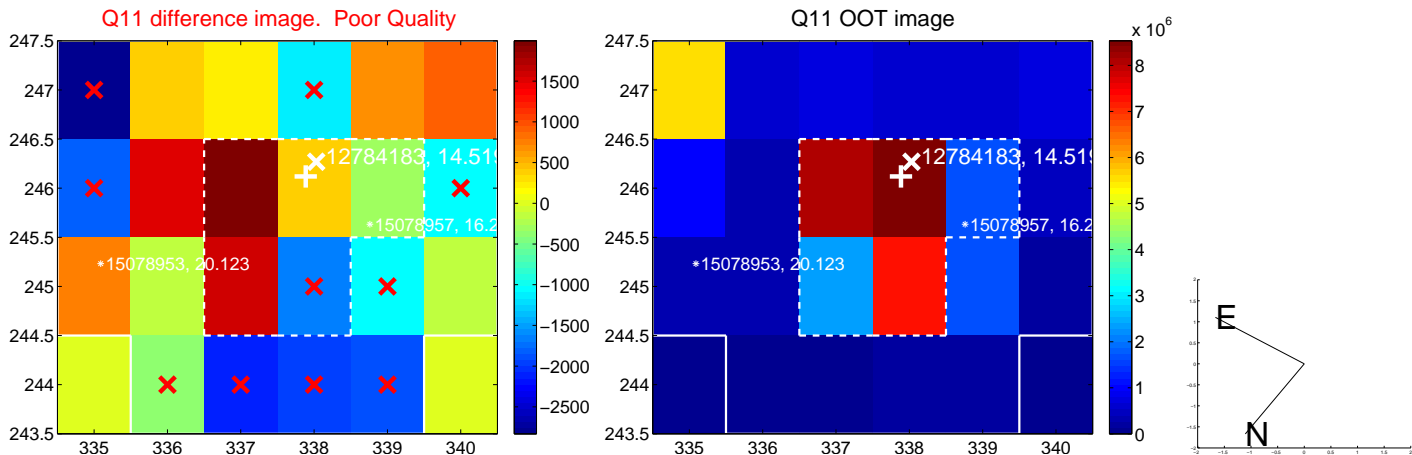
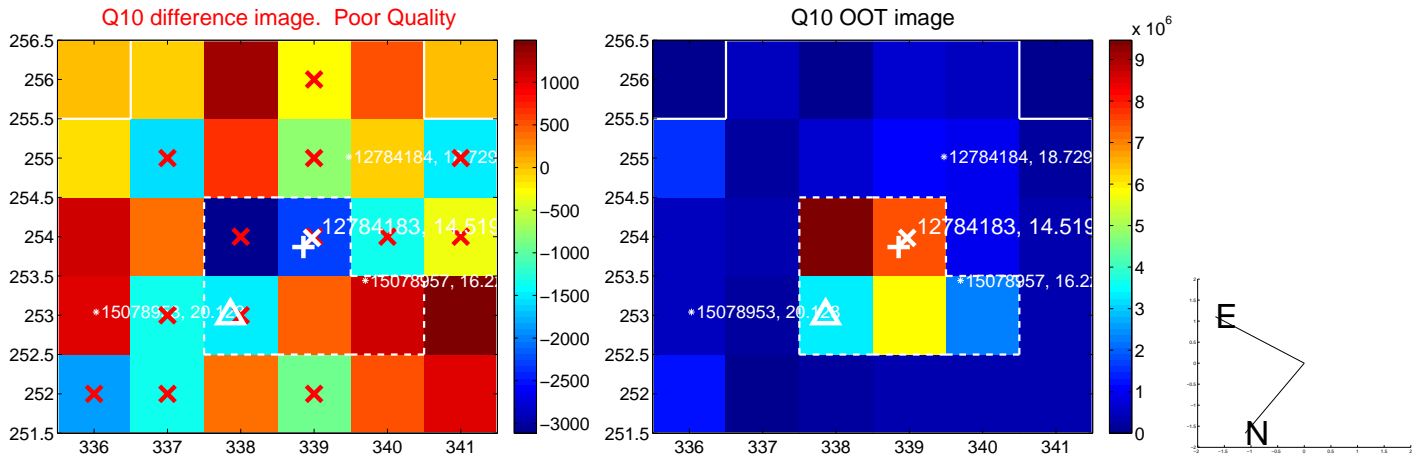
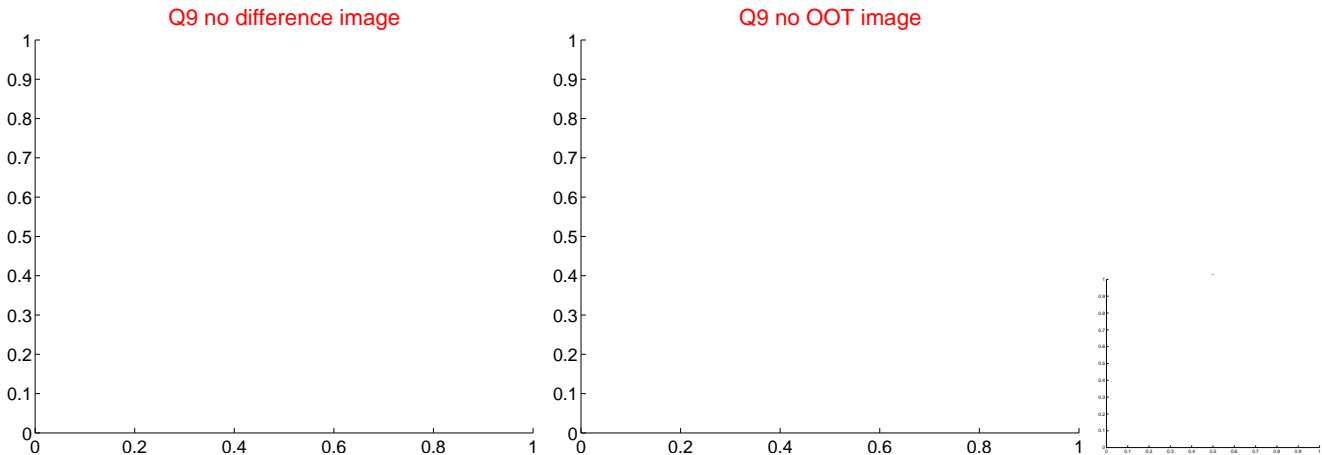
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



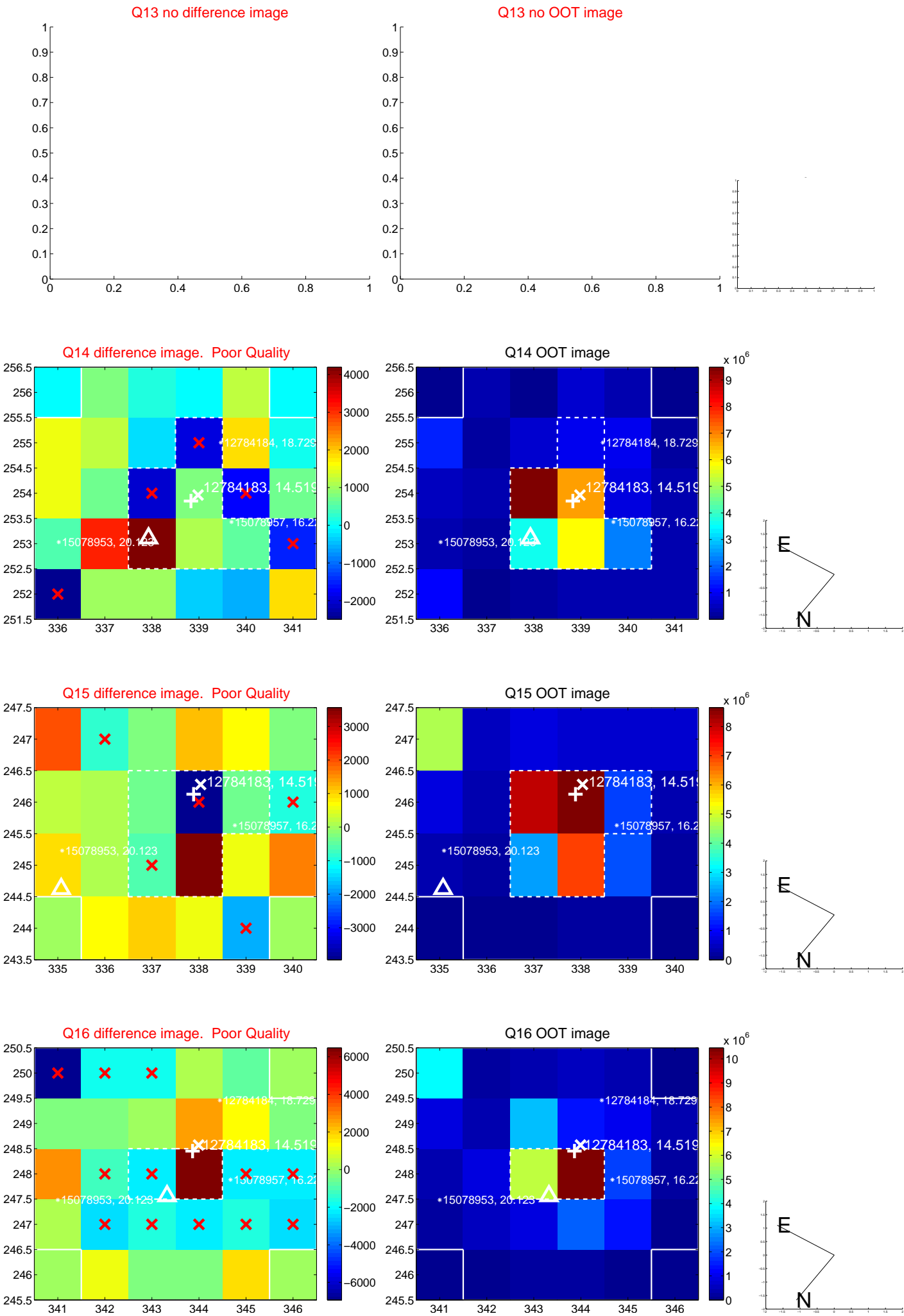
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



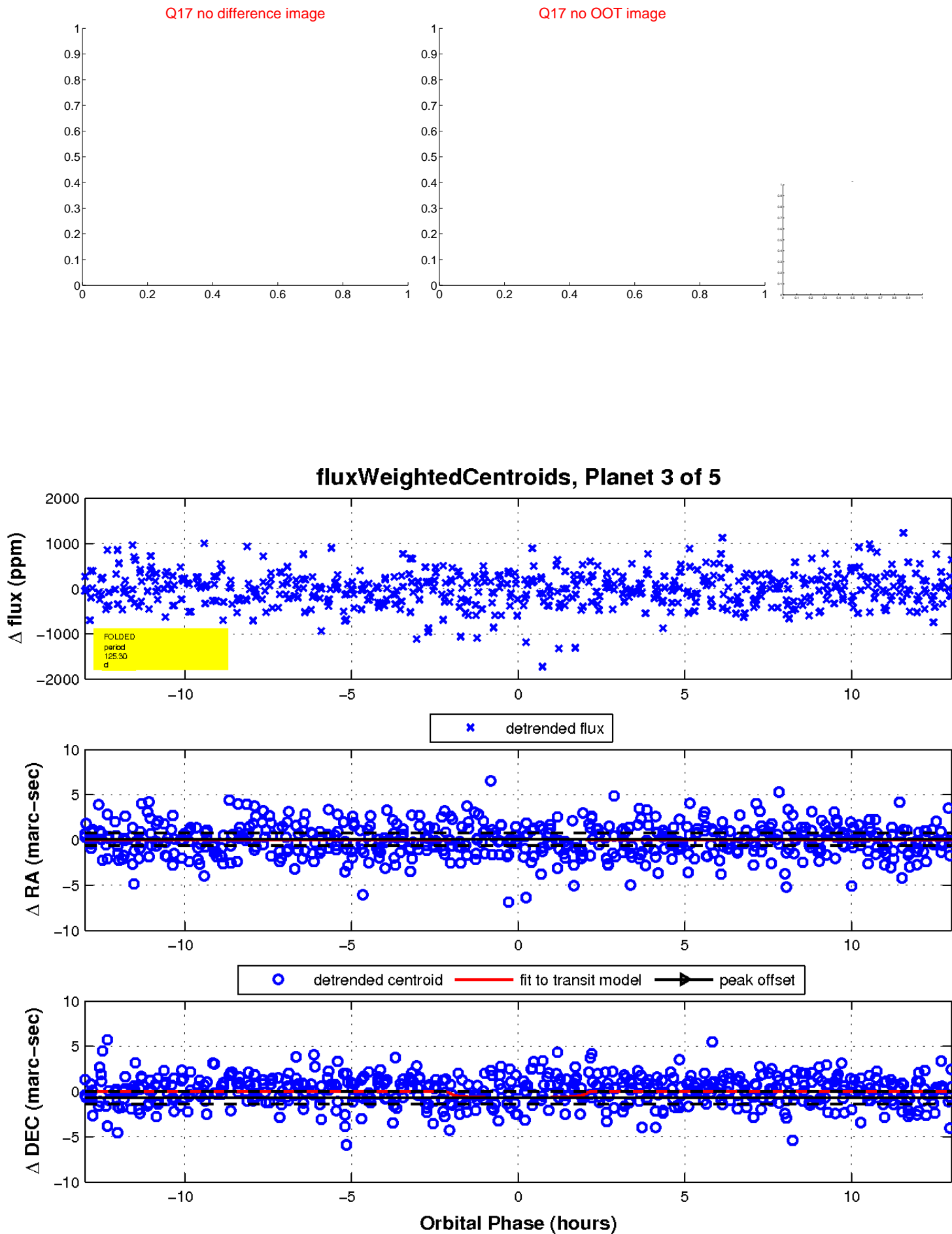
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

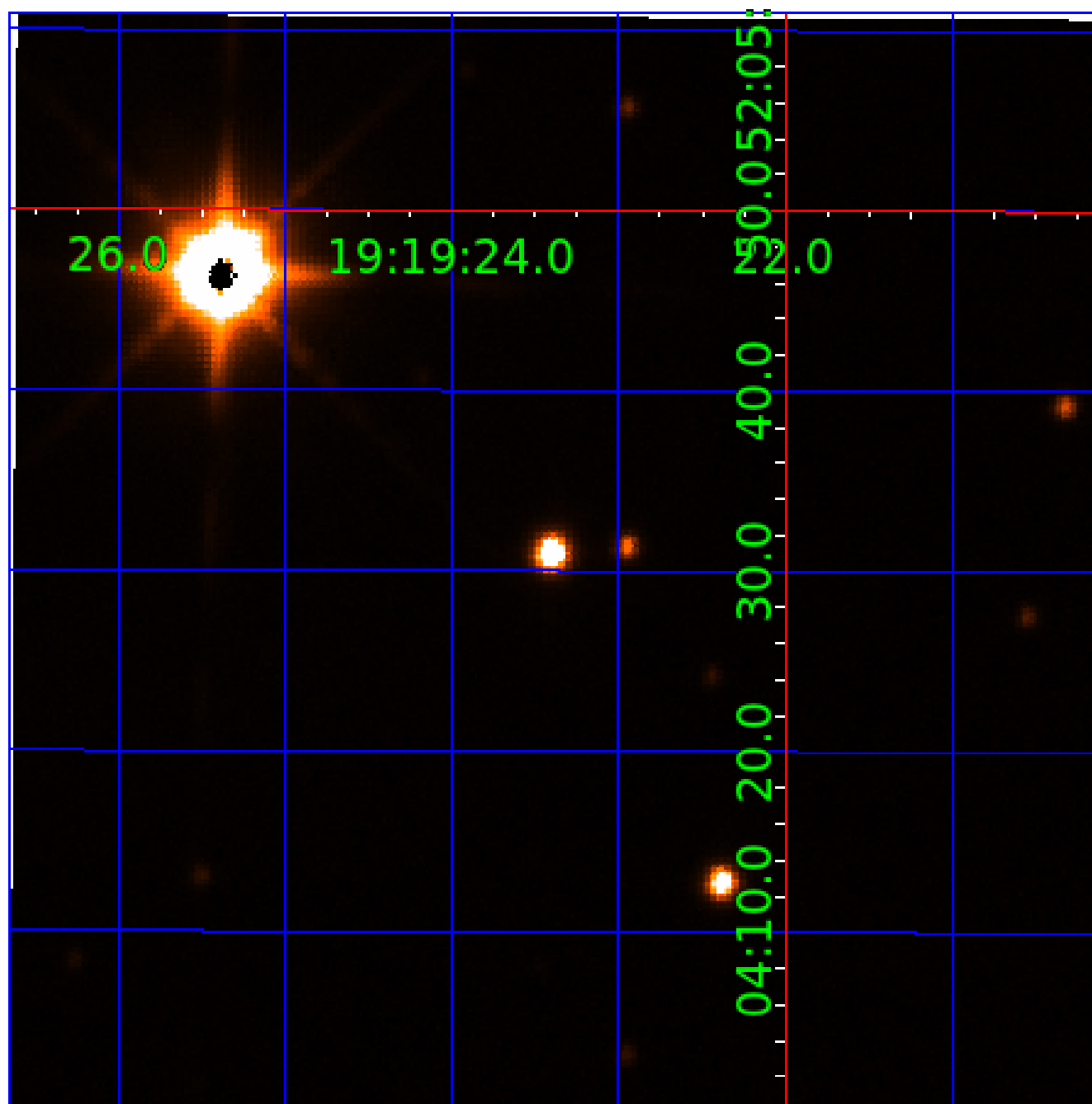


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012784183

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})
012784183-01	OBS	No	0.626080	131.512525	12.8	3.430	7.2	3.2	0.45	3650	0.16	257.12
012784183-02	OBS	No	62.937124	176.865631	546.3	4.622	11.1	8.4	0.45	3650	1.18	0.55
012784183-03	OBS	No	125.295712	176.826452	813.3	4.338	11.4	9.4	0.45	3650	1.36	0.22
012784183-04	OBS	No	214.189645	213.850444	680.2	13.236	8.2	7.3	0.45	3650	1.37	0.11
012784183-05	OBS	No	316.103102	135.032524	648.4	4.723	7.8	6.8	0.45	3650	1.12	0.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012784183-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_MEAS
012784183-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012784183-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012784183-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012784183-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

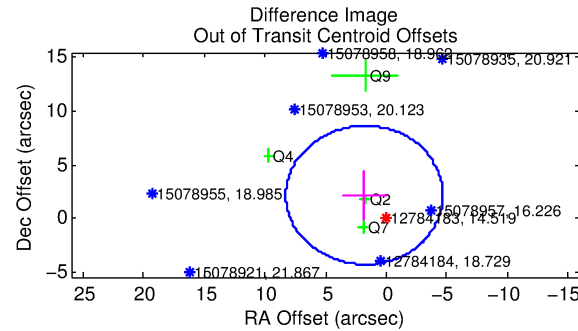
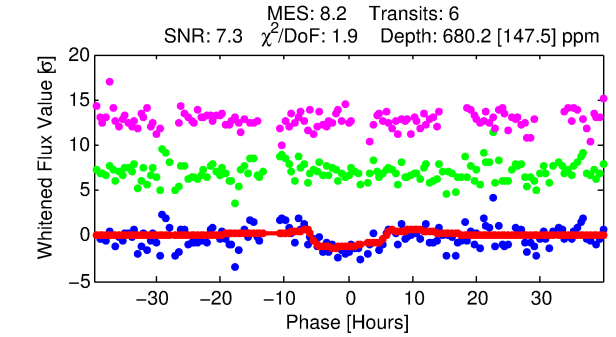
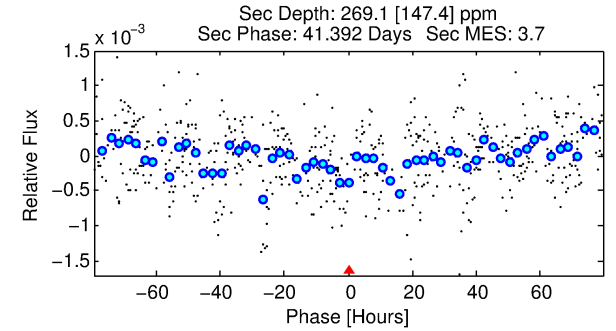
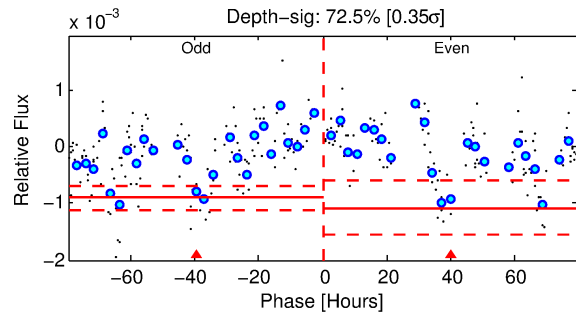
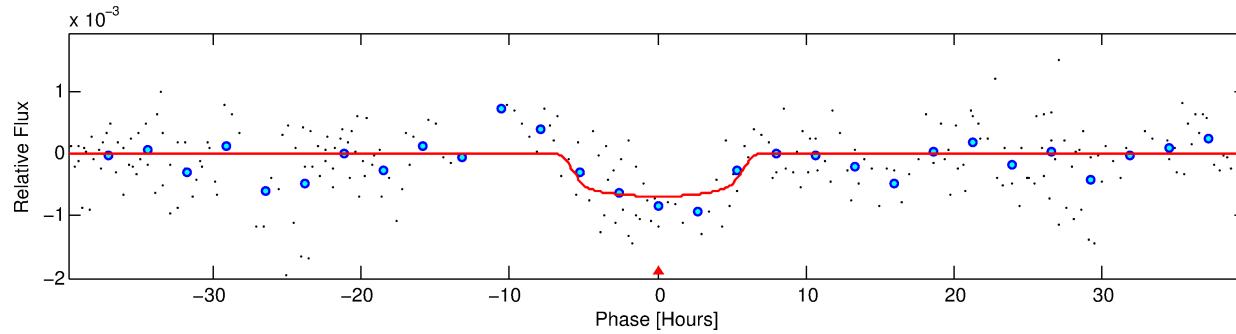
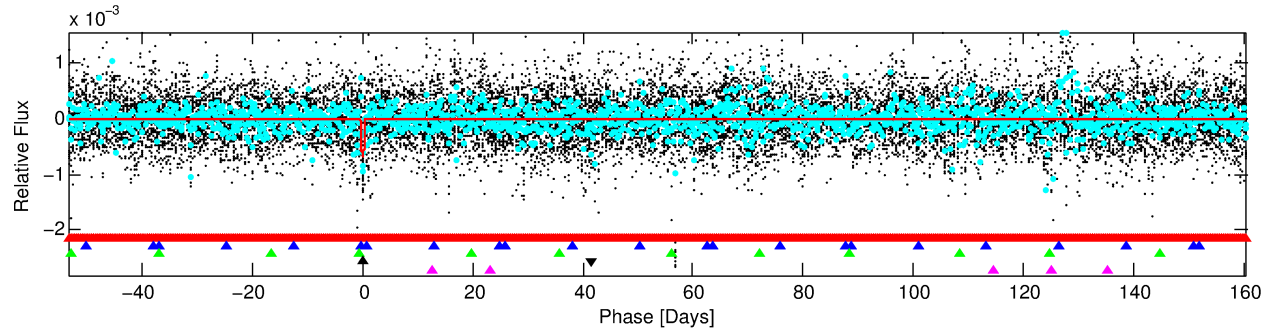
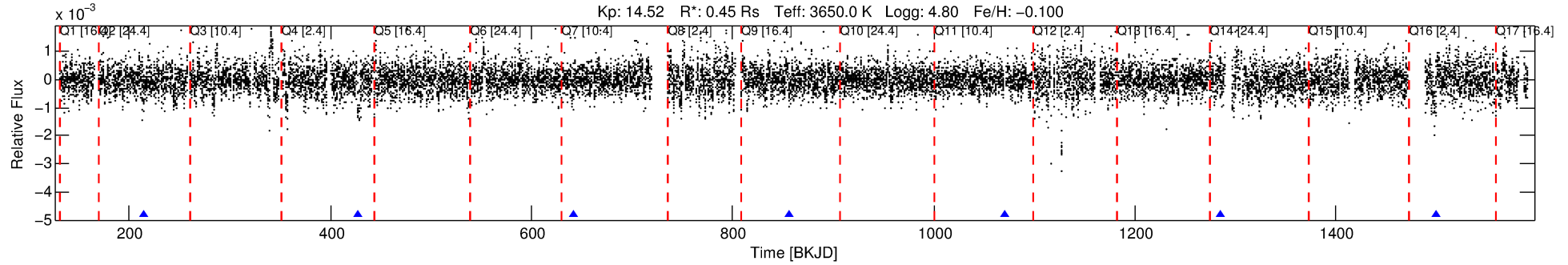
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012784183-04

No Significant Match Found

DV One-Page Summary

KIC: 12784183 Candidate: 4 of 5 Period: 214.190 d



DV Fit Results:

Period = 214.18965 [0.02784] d
Epoch = 213.8504 [0.1142] BKJD
Rp/R* = 0.0282 [0.0063]
a/R* = 62.93 [50.88]
b = 0.89 [0.20]
Seff = 0.11 [0.01]
Teq = 146 [5] K
Rp = 1.37 [0.33] Re
a = 0.5413 [0.0409] AU
Ag = 23097.85 [16476.31] [1.40 σ]
Teffp = 2783 [495] K [5.33 σ]

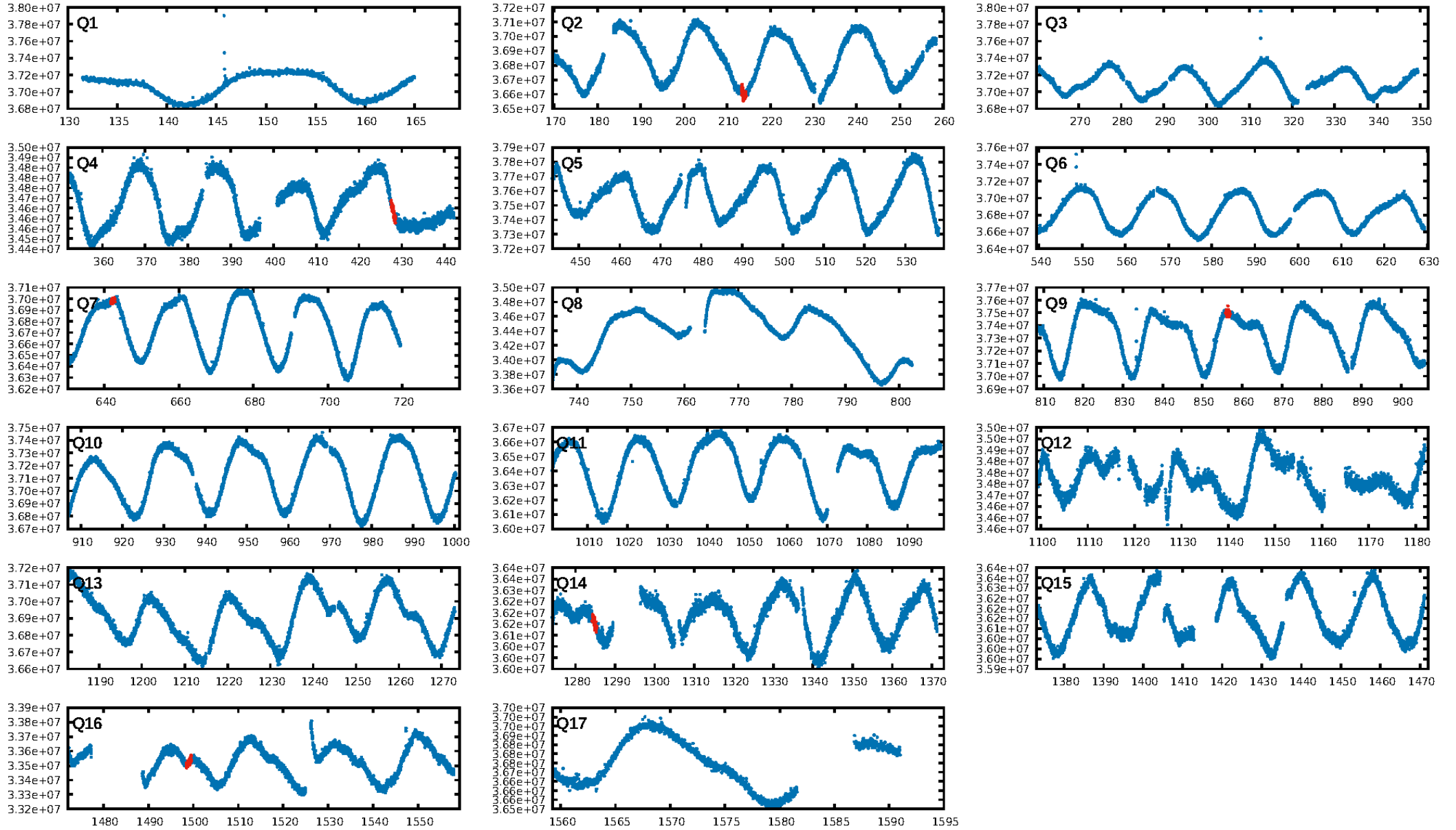
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [153.17 σ]
LongPeriod-sig: 100.0% [174.05 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.45e-10
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.193
Centroid-sig: 18.4%
Centroid-so: 2.745 arcsec [3.37 σ]
OotOffset-rm: 2.795 arcsec [1.29 σ]
KicOffset-rm: 3.384 arcsec [1.18 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.00 [0/5]

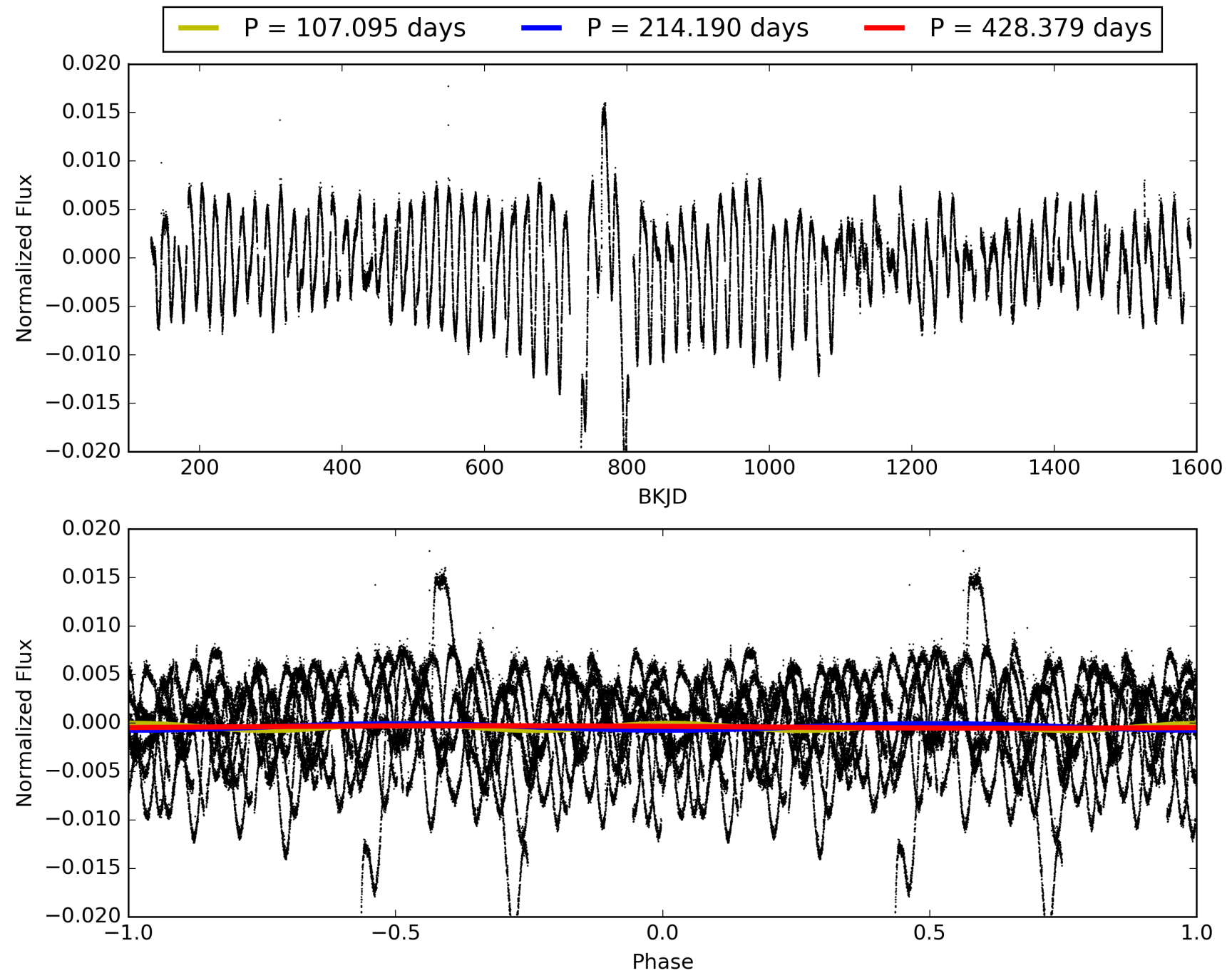
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:15:52 Z

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

TCE 012784183-04, PDC Light Curves

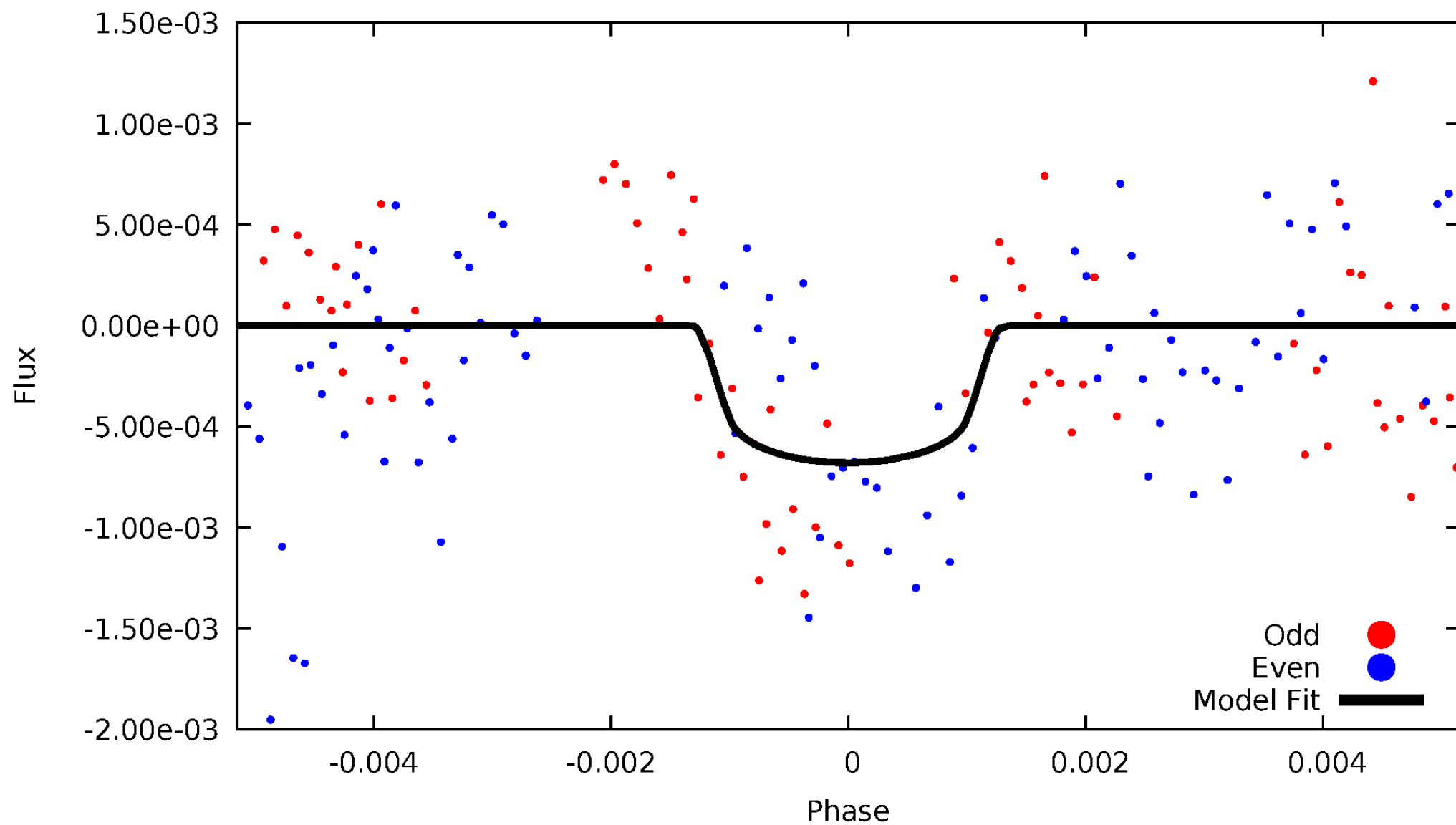


TCE 012784183-04



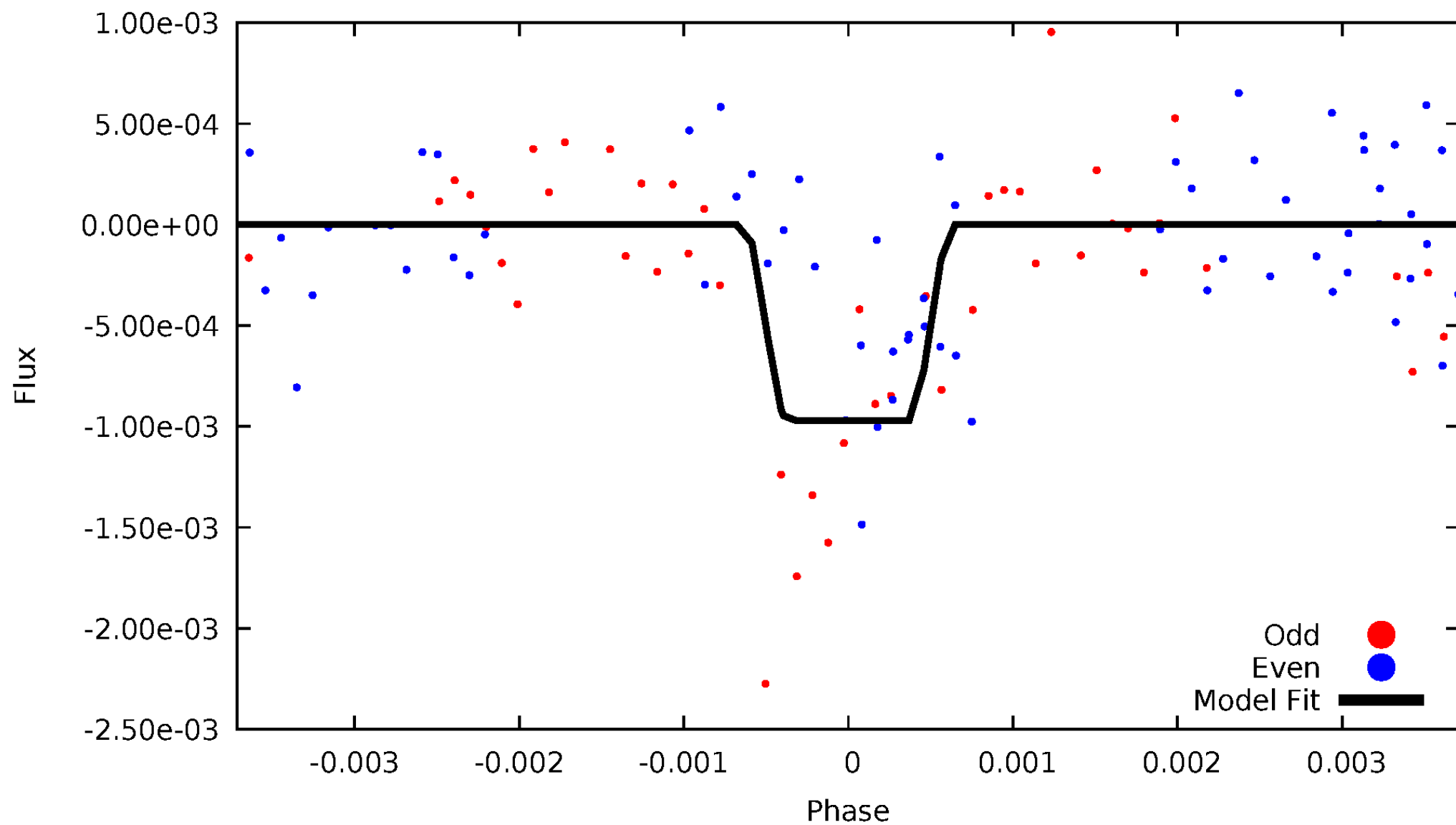
DV Odd/Even

TCE 012784183-04



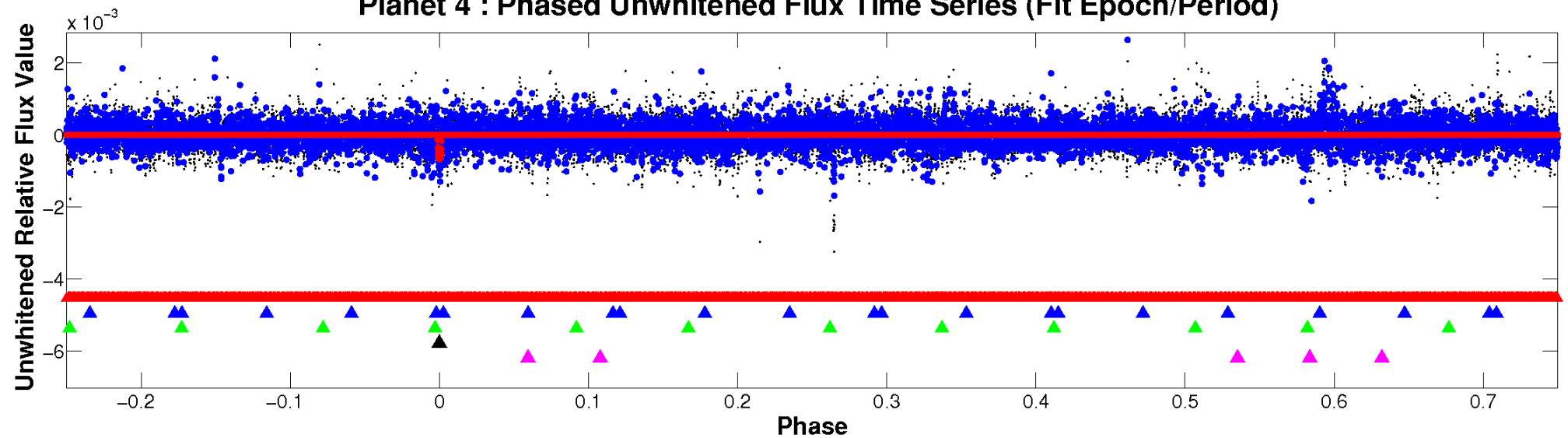
ALT Odd/Even

TCE 012784183-04

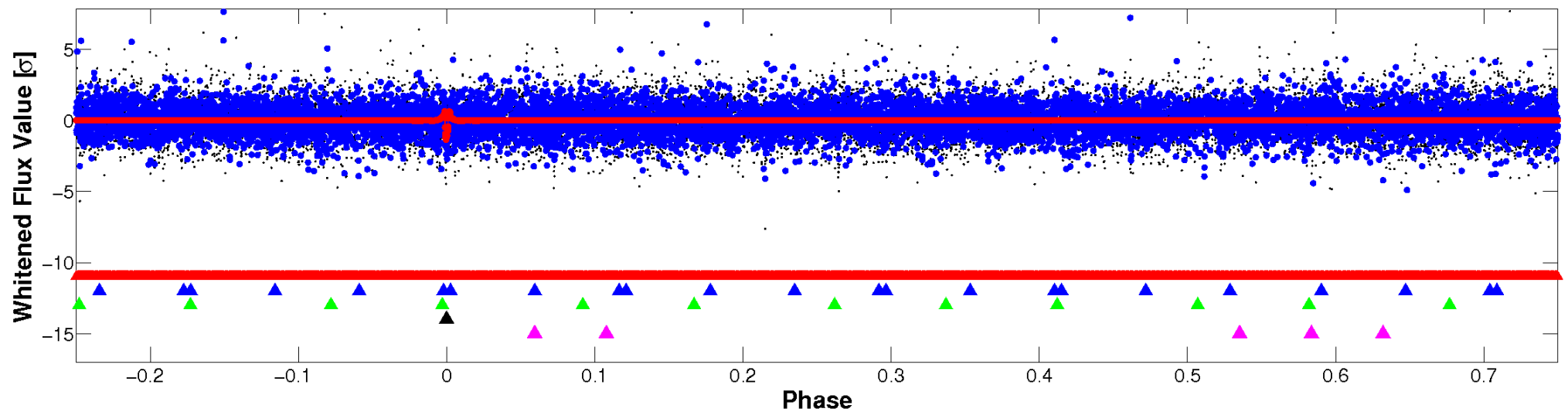


Non-Whitened Vs. Whitened Light Curve

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

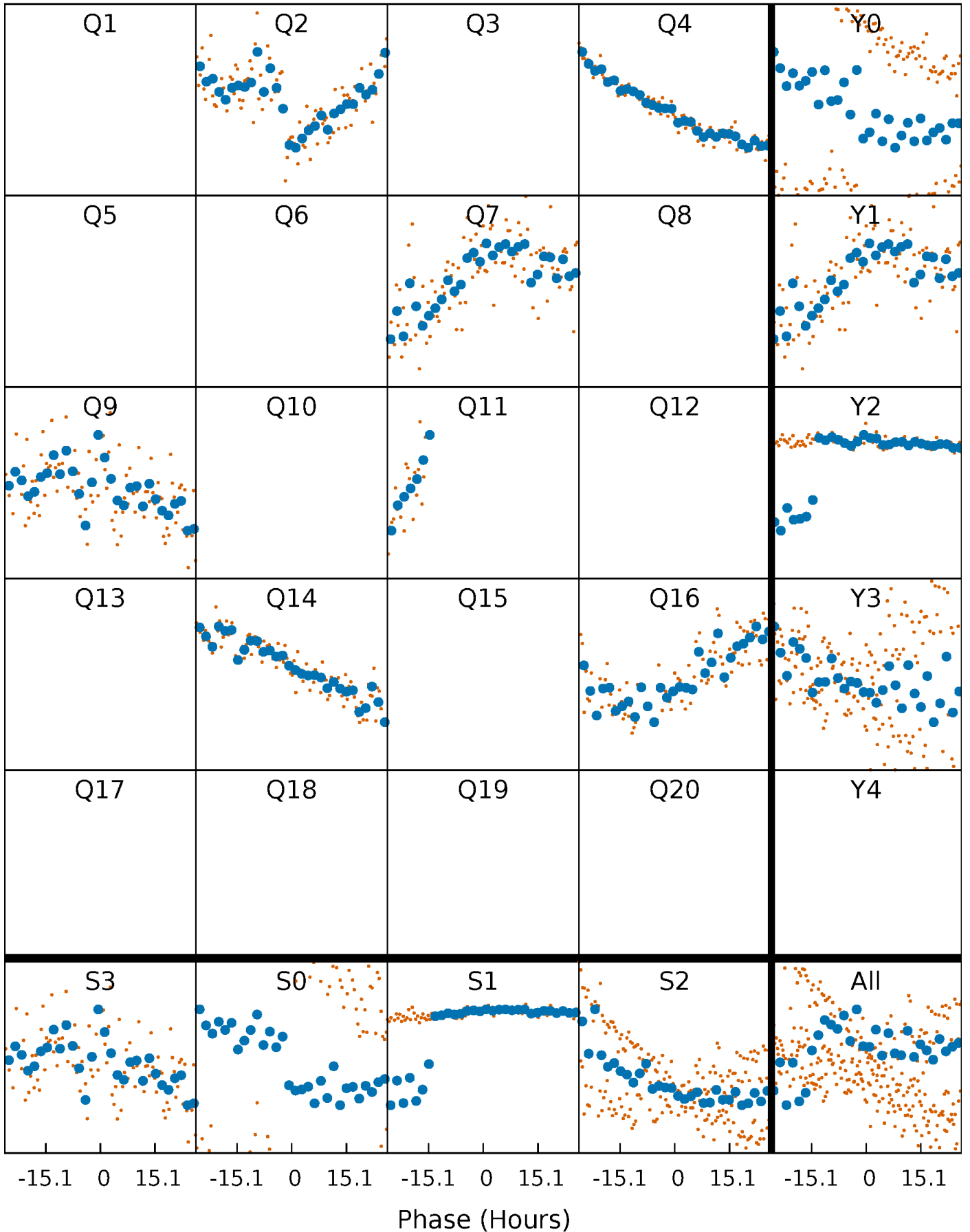


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



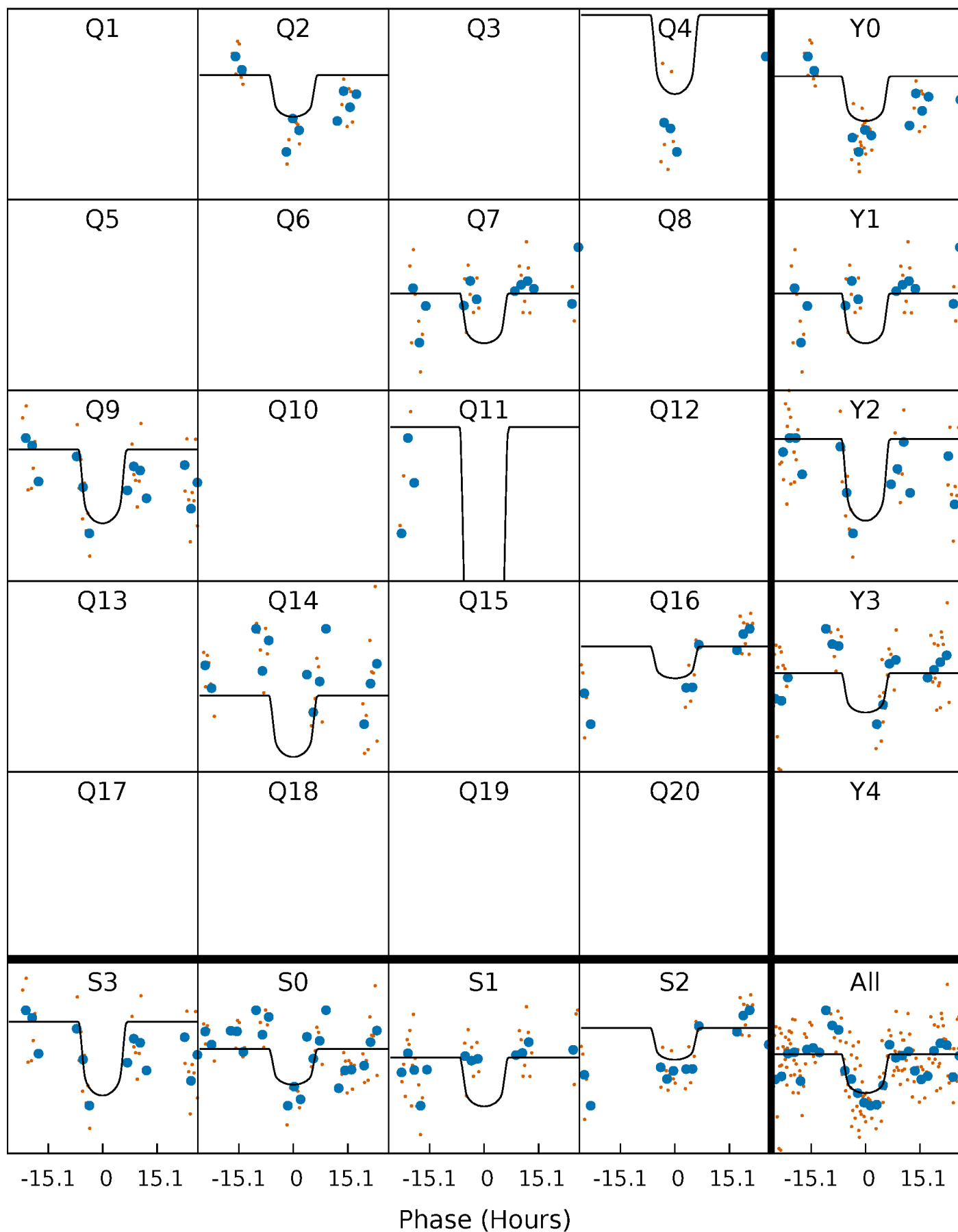
PDC Quarter-Phased Transit Curves

TCE 012784183-04 $P=214.189646$ Days $T_0=213.850444$ (BKJD)



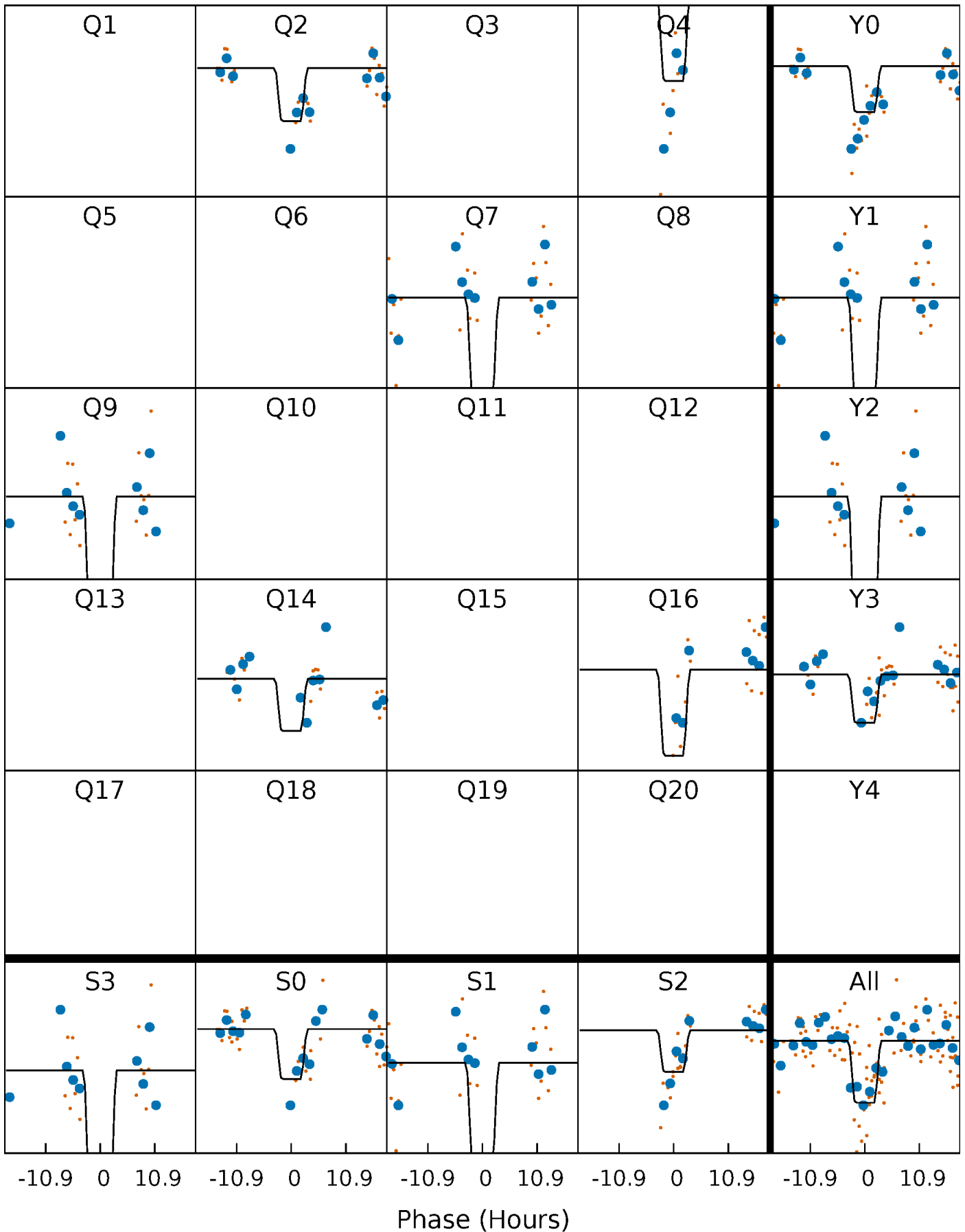
DV Quarter-Phased Transit Curves

TCE 012784183-04 $P=214.189646$ Days $T_0=213.850444$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

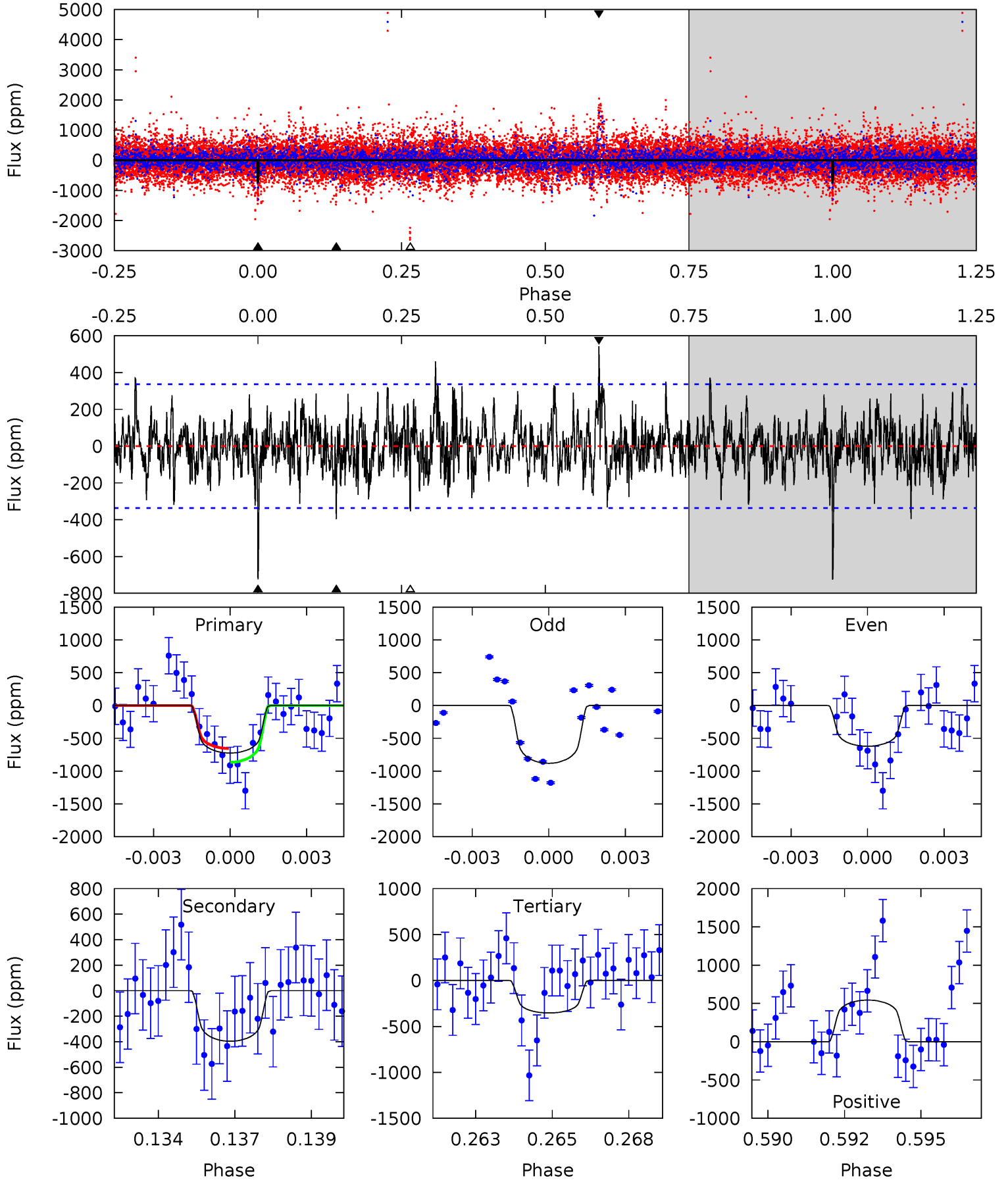
TCE 012784183-04 P=214.225443 Days $T_0=213.761629$ (BKJD)



DV Model-Shift Uniqueness Test

012784183-04, P = 214.189646 Days, E = 213.850444 Days

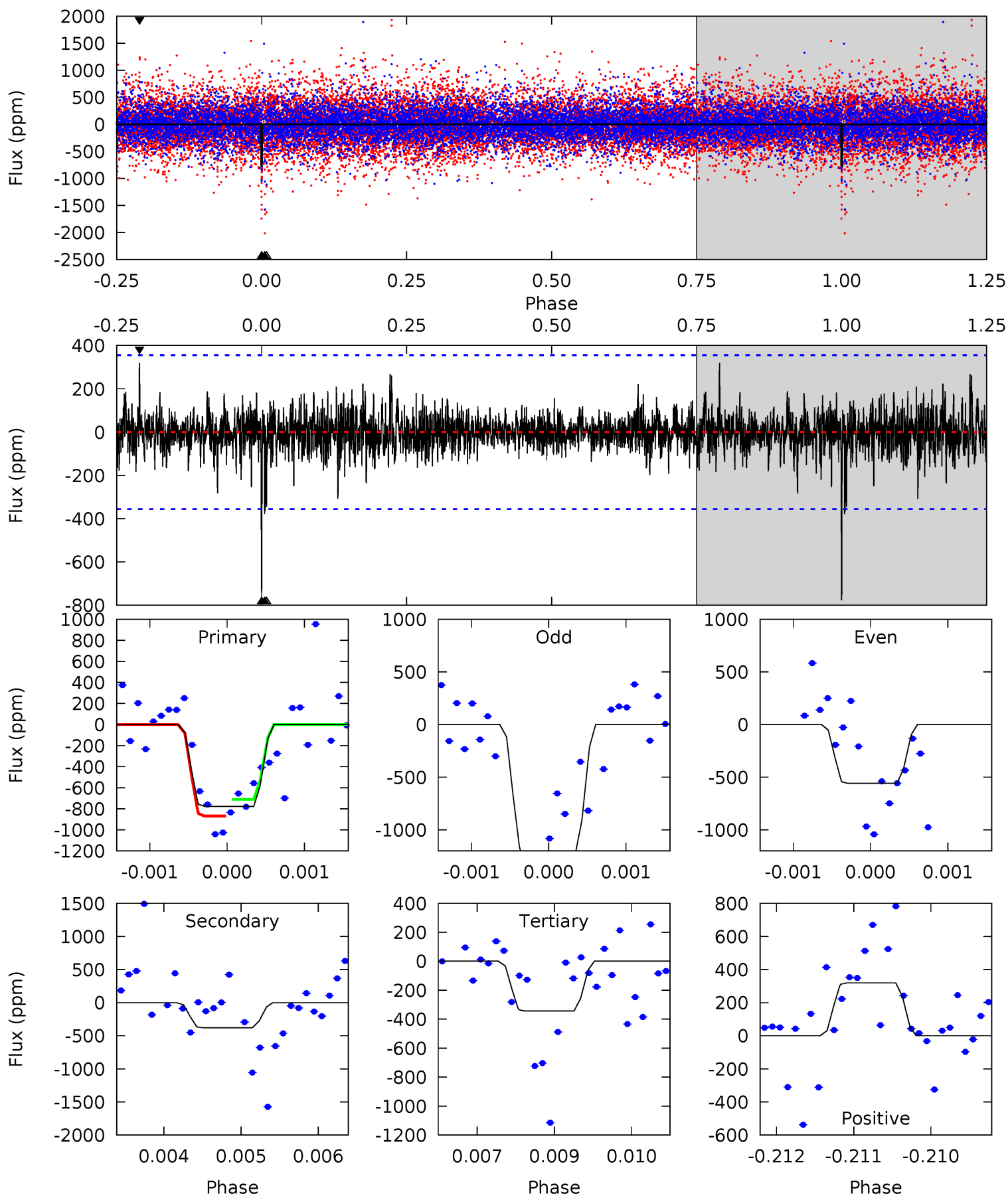
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	6.22	5.55	8.54	5.28	3.01	1.79	5.83	2.84	0.67	-2.32	2.02	0.73	0.43	1.59



Alt Model-Shift Uniqueness Test

012784183-04, P = 214.225443 Days, E = 213.761629 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	5.78	5.26	4.88	5.44	3.27	0.98	6.63	7.01	0.52	0.90	4.83	0.92	0.29	1.19



Stellar Parameters For KIC 012784183

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3650^{+65}_{-73}	$4.805^{+0.048}_{-0.032}$	$-0.100^{+0.100}_{-0.100}$	$0.445^{+0.036}_{-0.044}$	$0.461^{+0.034}_{-0.045}$	$7.367^{+1.811}_{-1.003}$
	+2%/-2%	+1%/-1%	+100%/-100%	+8%/-10%	+7%/-10%	+25%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012784183-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-396 ± 64	$1.36^{+0.32}_{-0.30}$	203^{+5}_{-5}	3281^{+277}_{-222}	34934^{+24163}_{-12544}
Alt.	-378 ± 65	$1.48^{+0.34}_{-0.31}$	203^{+5}_{-5}	3170^{+236}_{-197}	28077^{+17421}_{-10615}

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

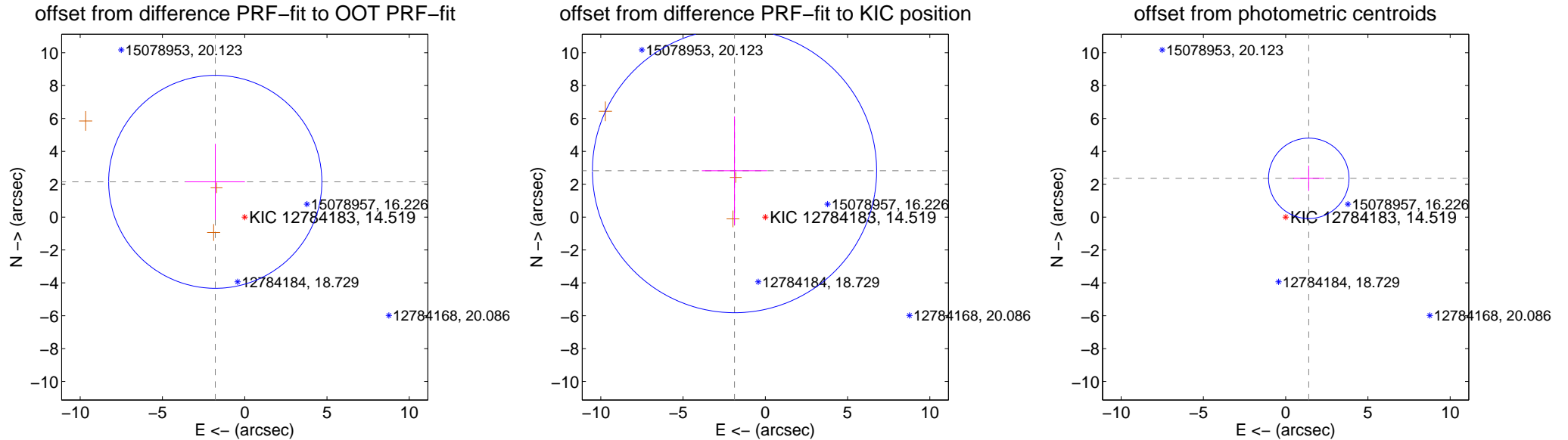
DV Centroid Data

Supplemental centroid analysis for 012784183-04. Kepler magnitude: 14.52. Transit SNR 7.31

There are 0 quarters with good PRF difference image offsets

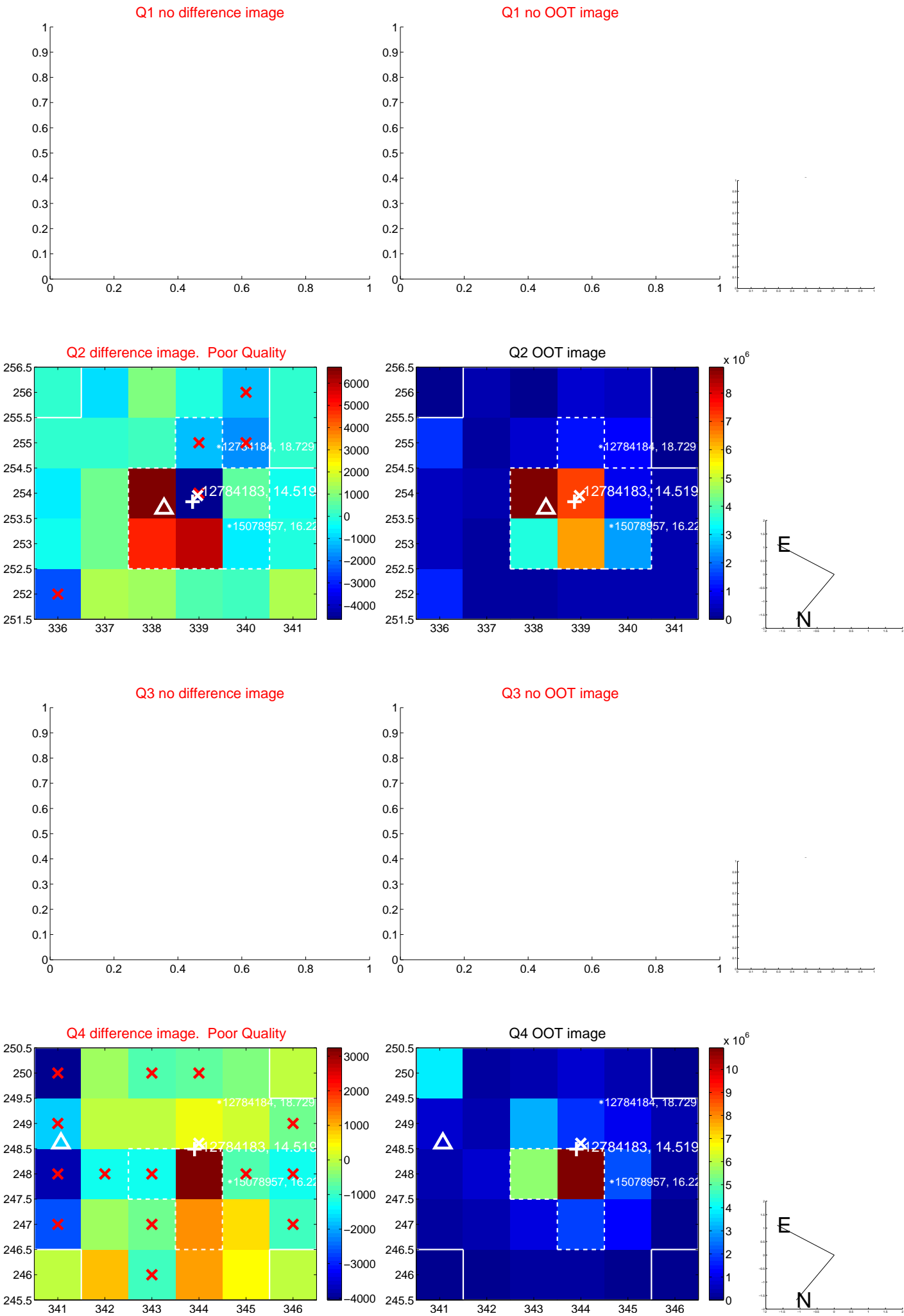
The direct PRF centroid is offset from the target star catalog position by about 0.90 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.795 ± 2.159	1.29	1.790 ± 1.801	2.146 ± 2.314
PRF-fit source offset from KIC position	3.384 ± 2.878	1.18	1.872 ± 1.983	2.819 ± 3.303
photometric centroid source offset	2.75 ± 0.82	3.37	-1.41 ± 0.94	2.36 ± 0.77



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



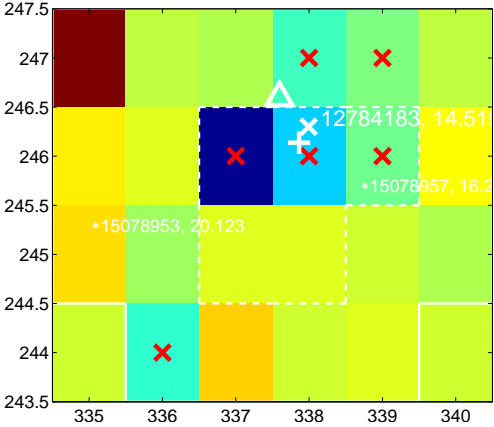
Q6 no difference image



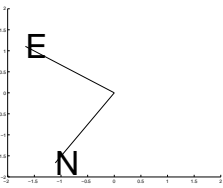
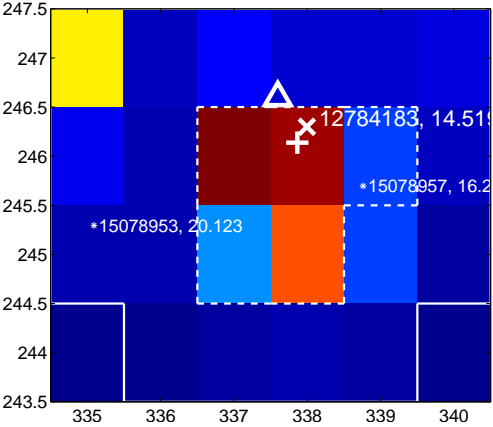
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



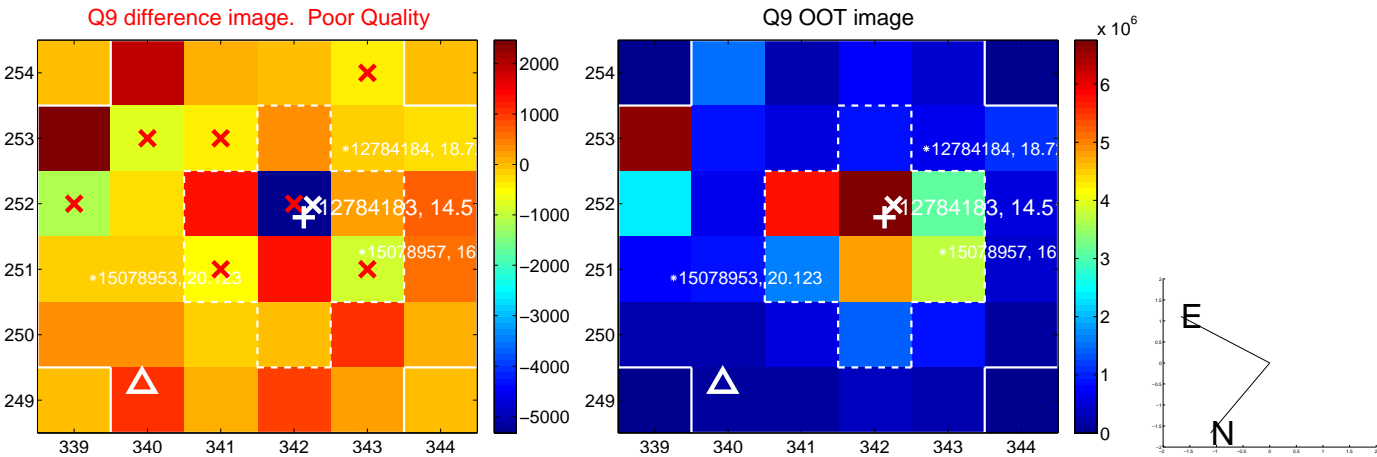
Q8 no difference image



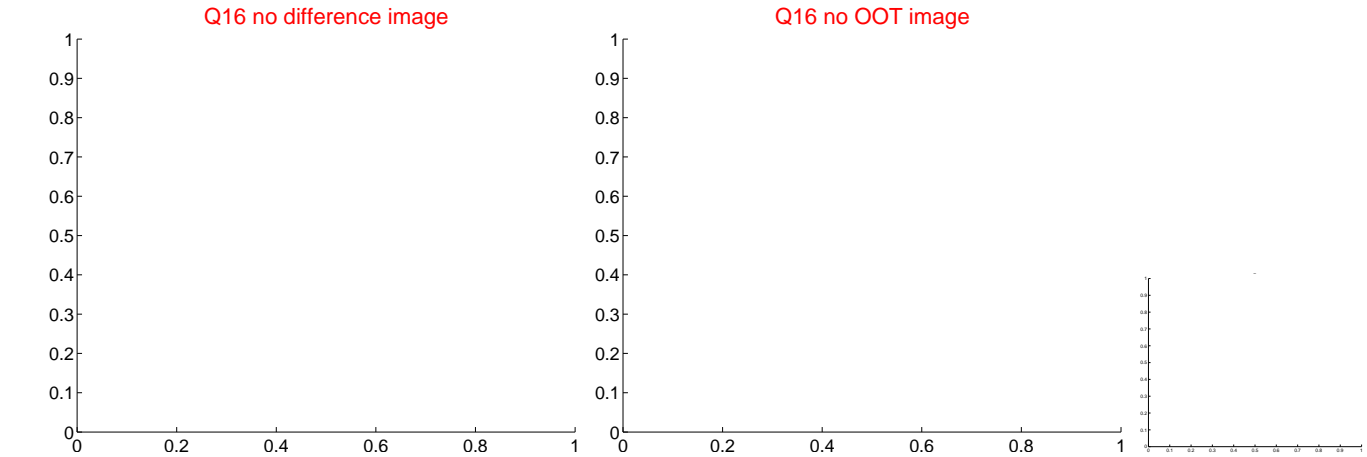
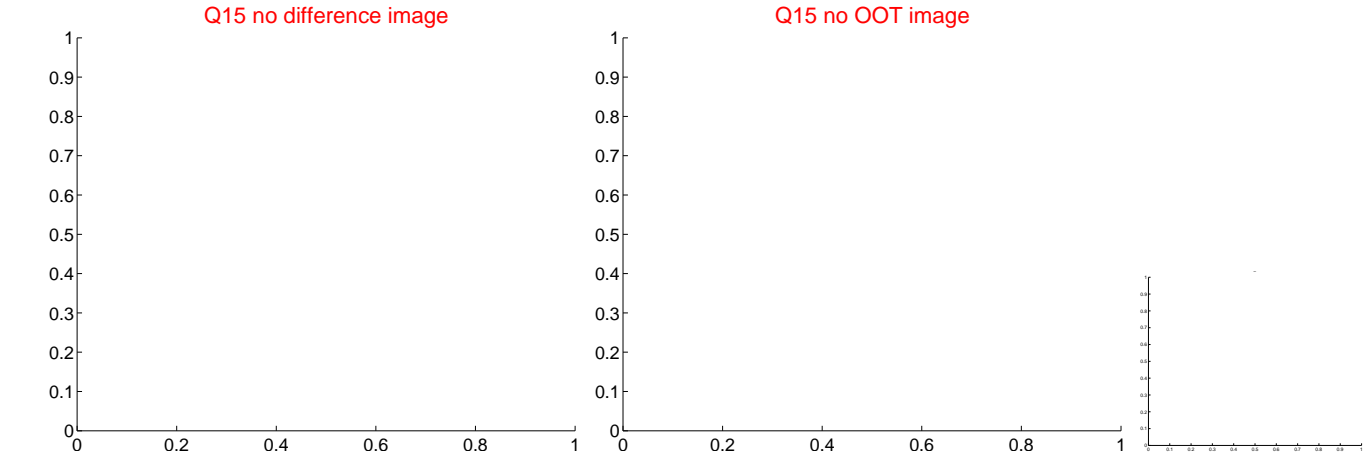
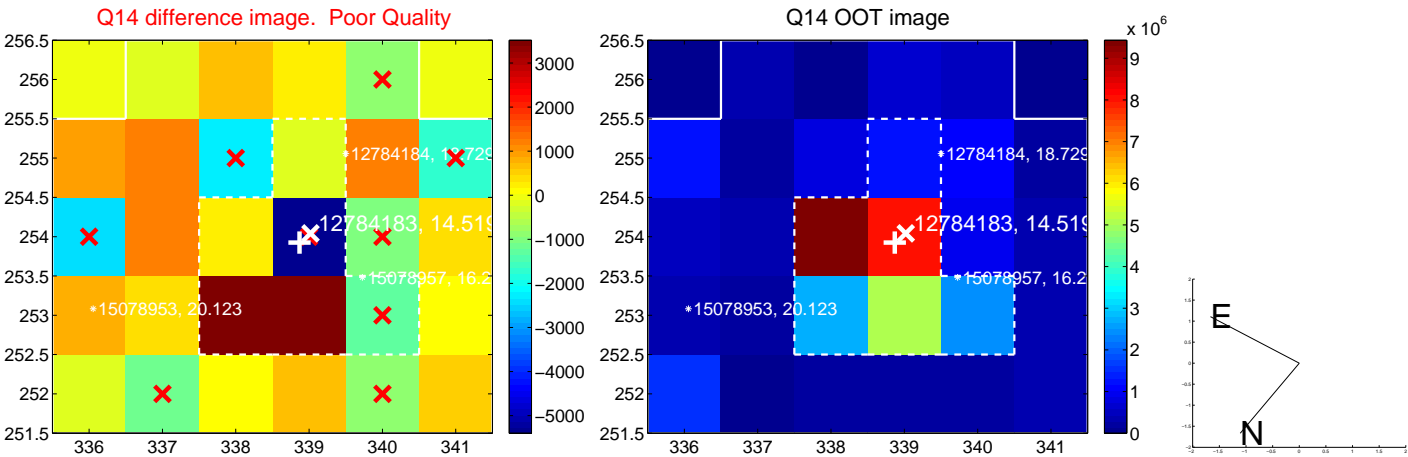
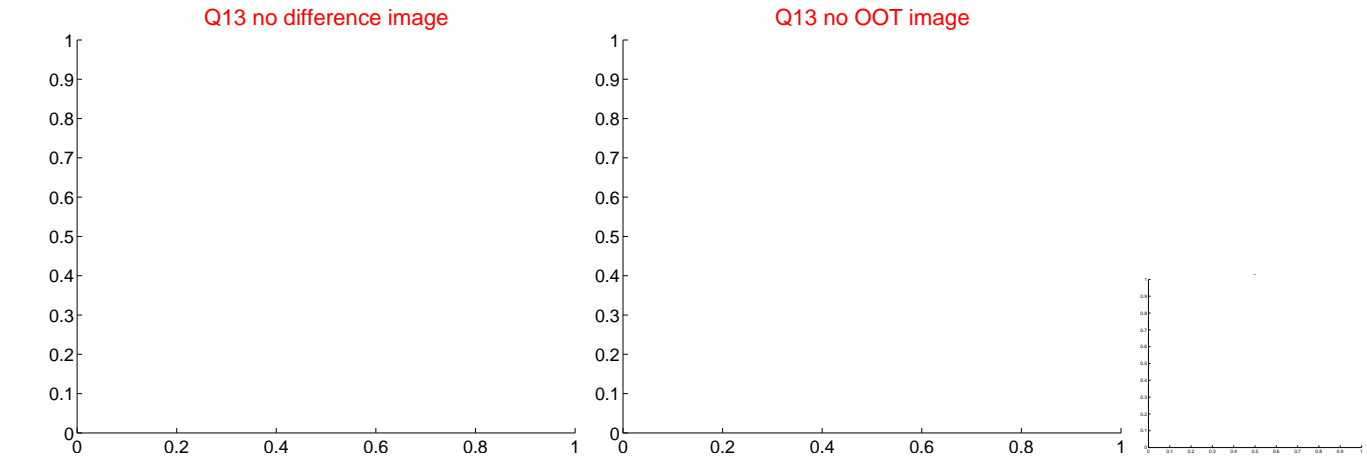
Q8 no OOT image



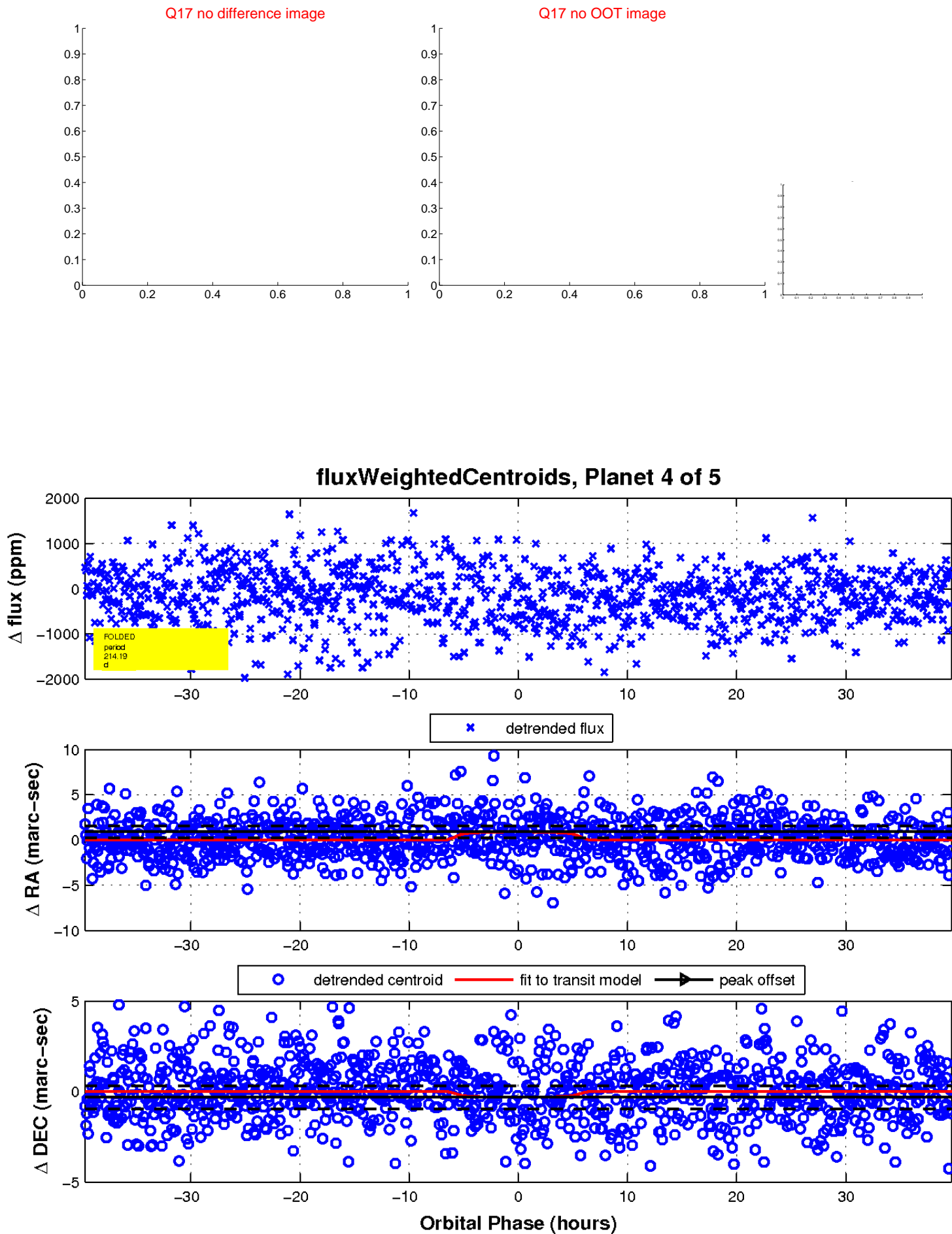
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

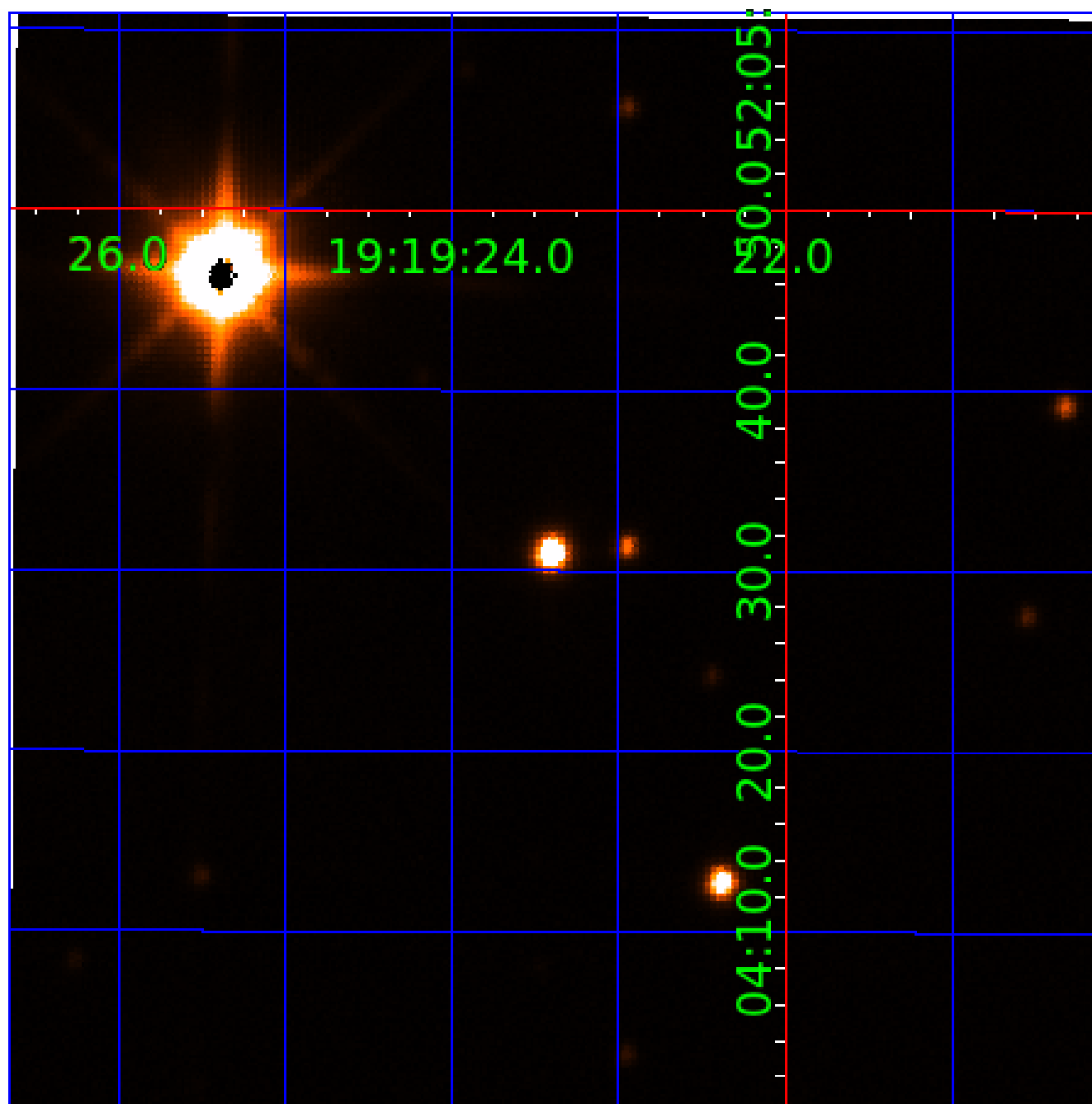


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012784183

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})
012784183-01	OBS	No	0.626080	131.512525	12.8	3.430	7.2	3.2	0.45	3650	0.16	257.12
012784183-02	OBS	No	62.937124	176.865631	546.3	4.622	11.1	8.4	0.45	3650	1.18	0.55
012784183-03	OBS	No	125.295712	176.826452	813.3	4.338	11.4	9.4	0.45	3650	1.36	0.22
012784183-04	OBS	No	214.189645	213.850444	680.2	13.236	8.2	7.3	0.45	3650	1.37	0.11
012784183-05	OBS	No	316.103102	135.032524	648.4	4.723	7.8	6.8	0.45	3650	1.12	0.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012784183-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_MEAS
012784183-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012784183-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012784183-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012784183-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

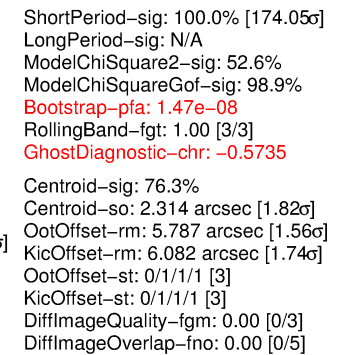
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

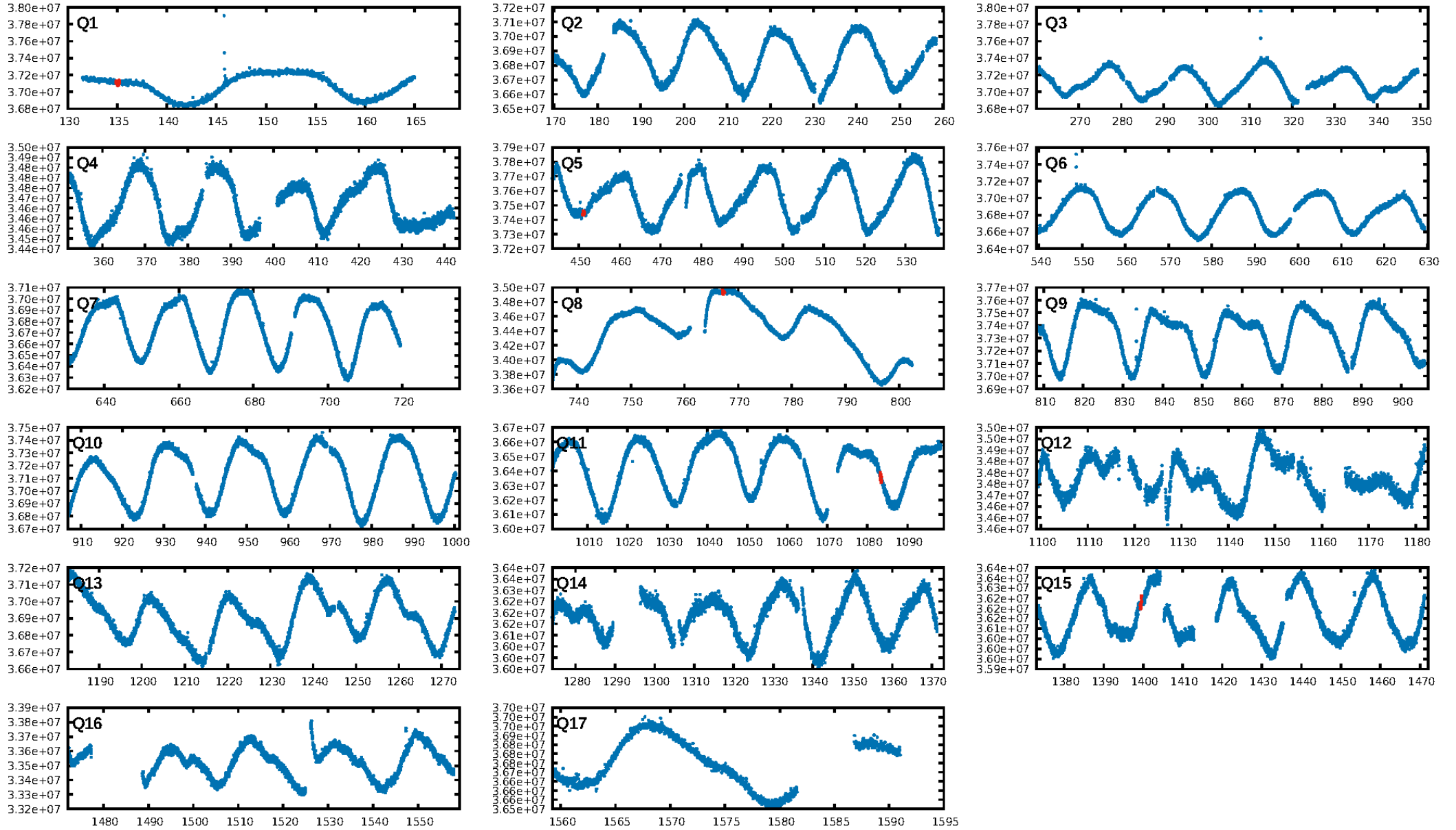
Ephemeris Match Information For 012784183-05

No Significant Match Found

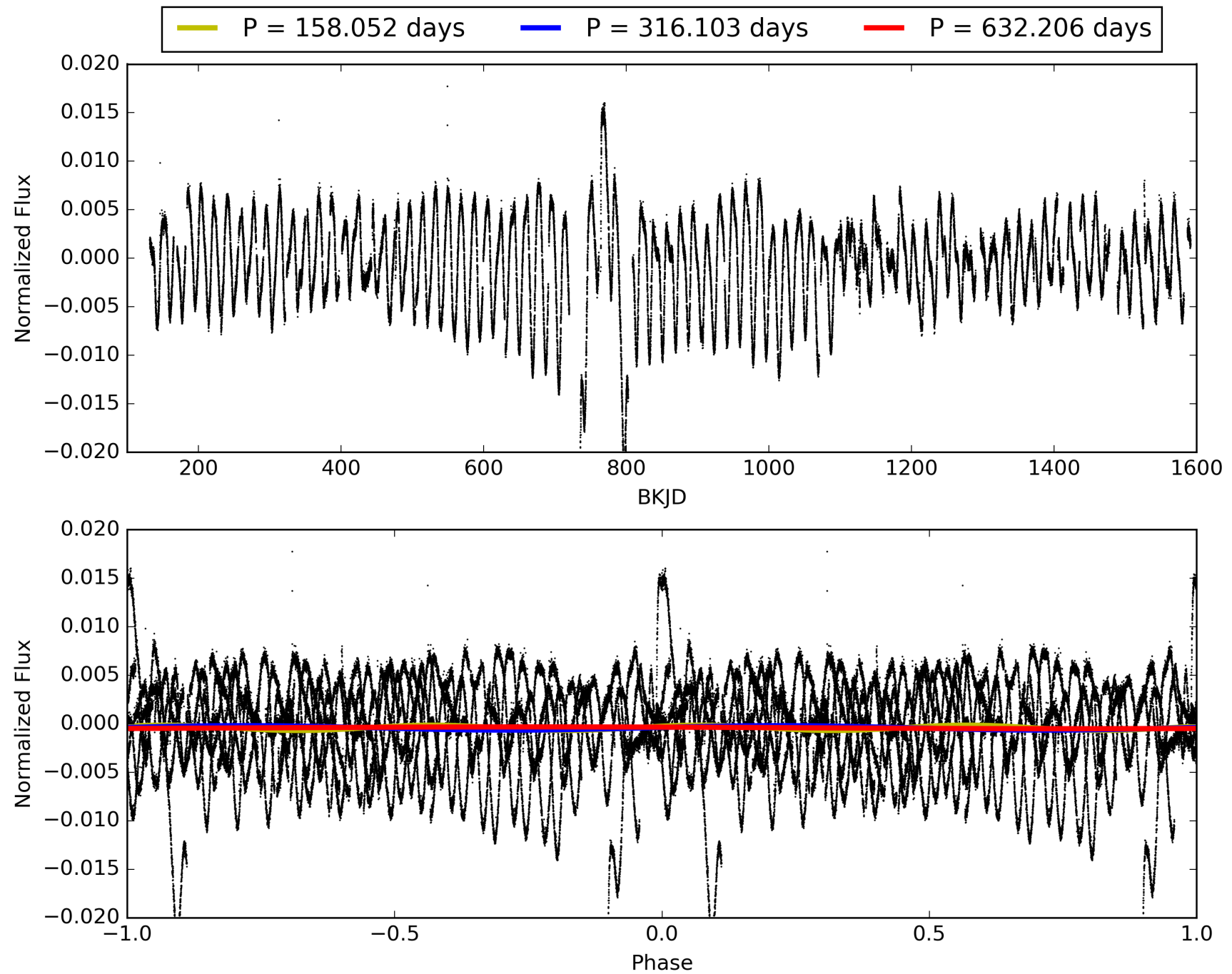
KIC: 12784183 Candidate: 5 of 5 Period: 316.103 d



TCE 012784183-05, PDC Light Curves

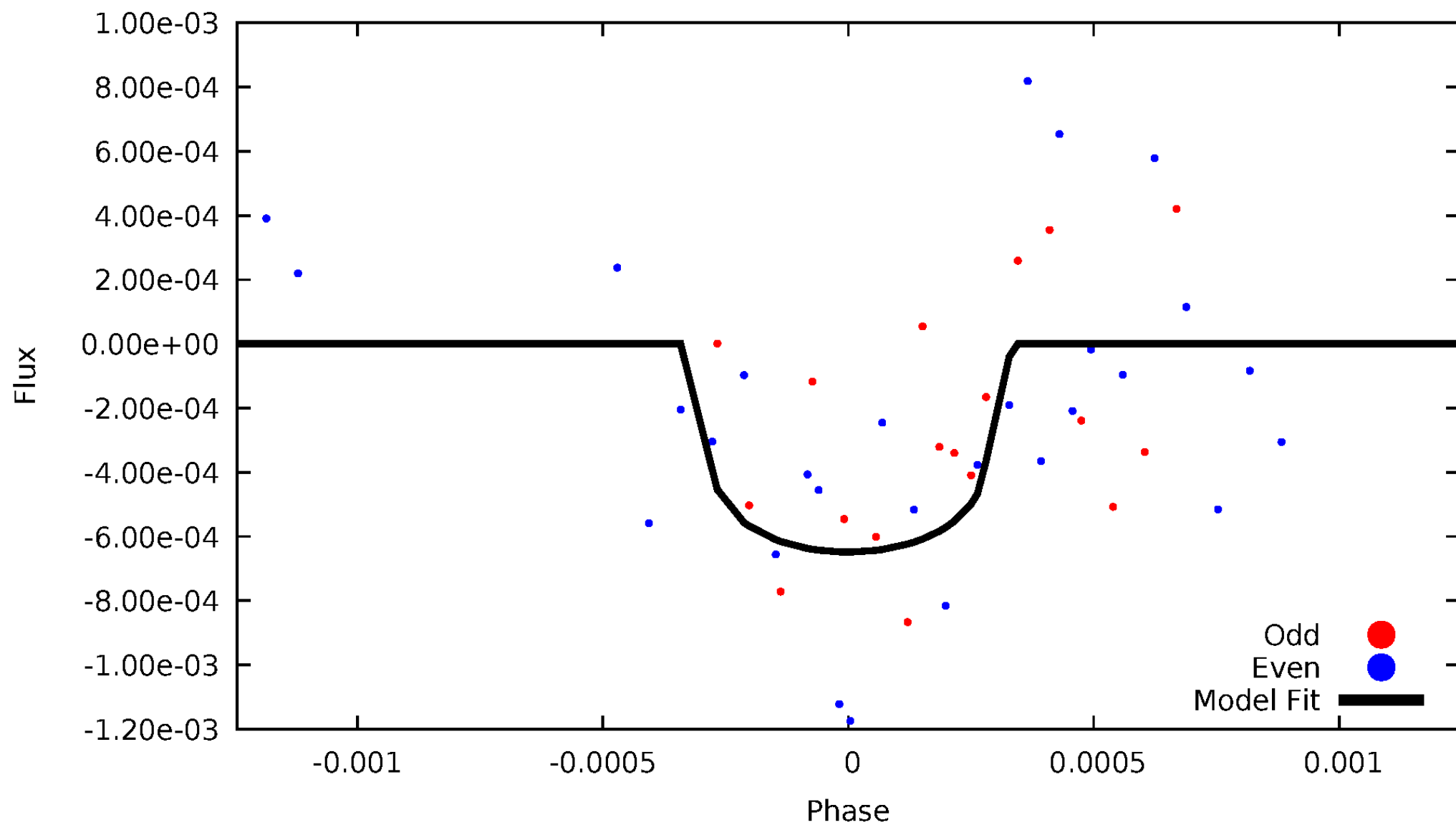


TCE 012784183-05



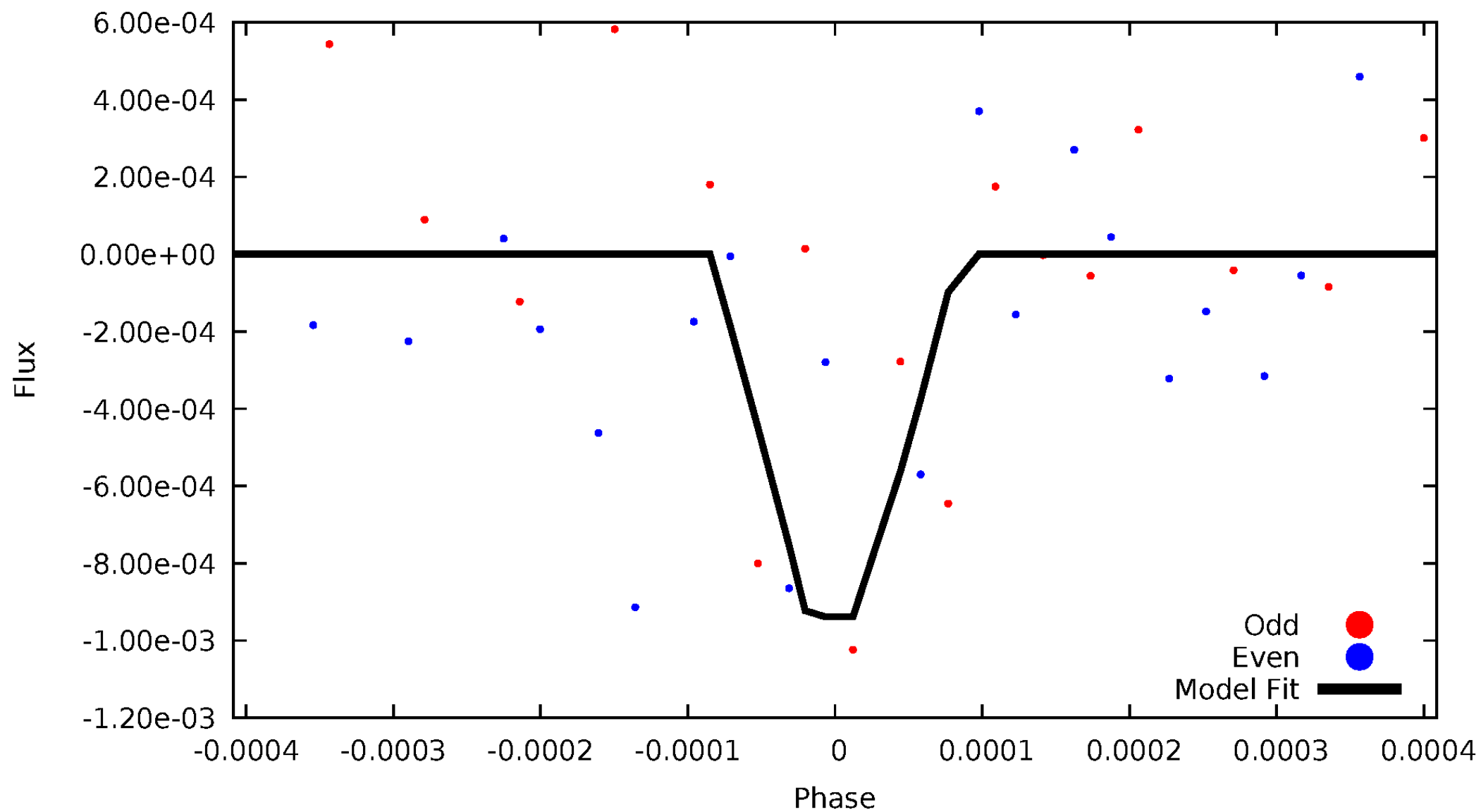
DV Odd/Even

TCE 012784183-05



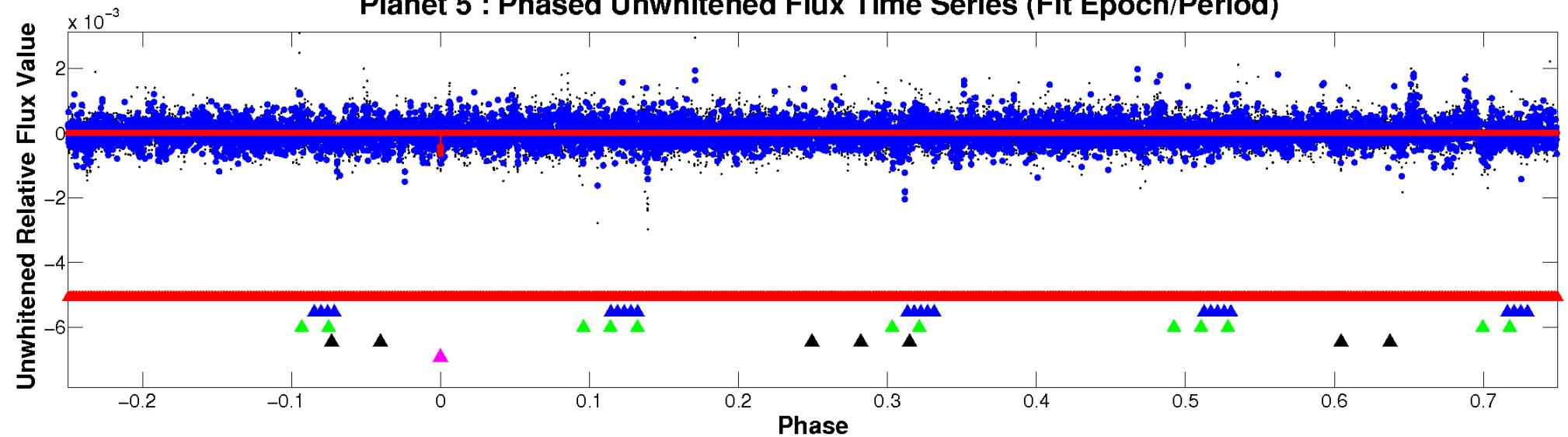
ALT Odd/Even

TCE 012784183-05

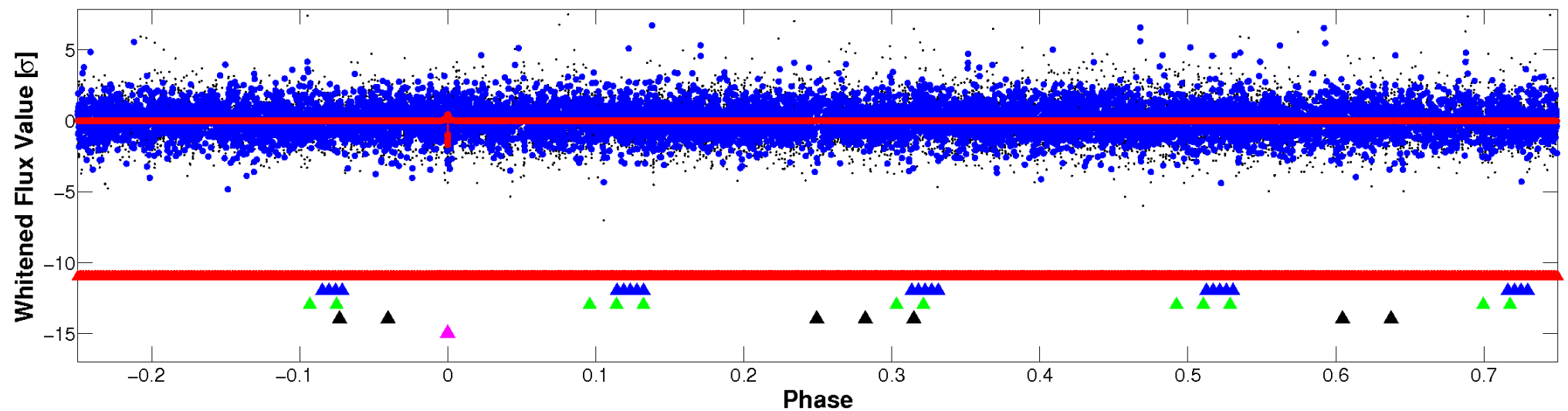


Non-Whitened Vs. Whitened Light Curve

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

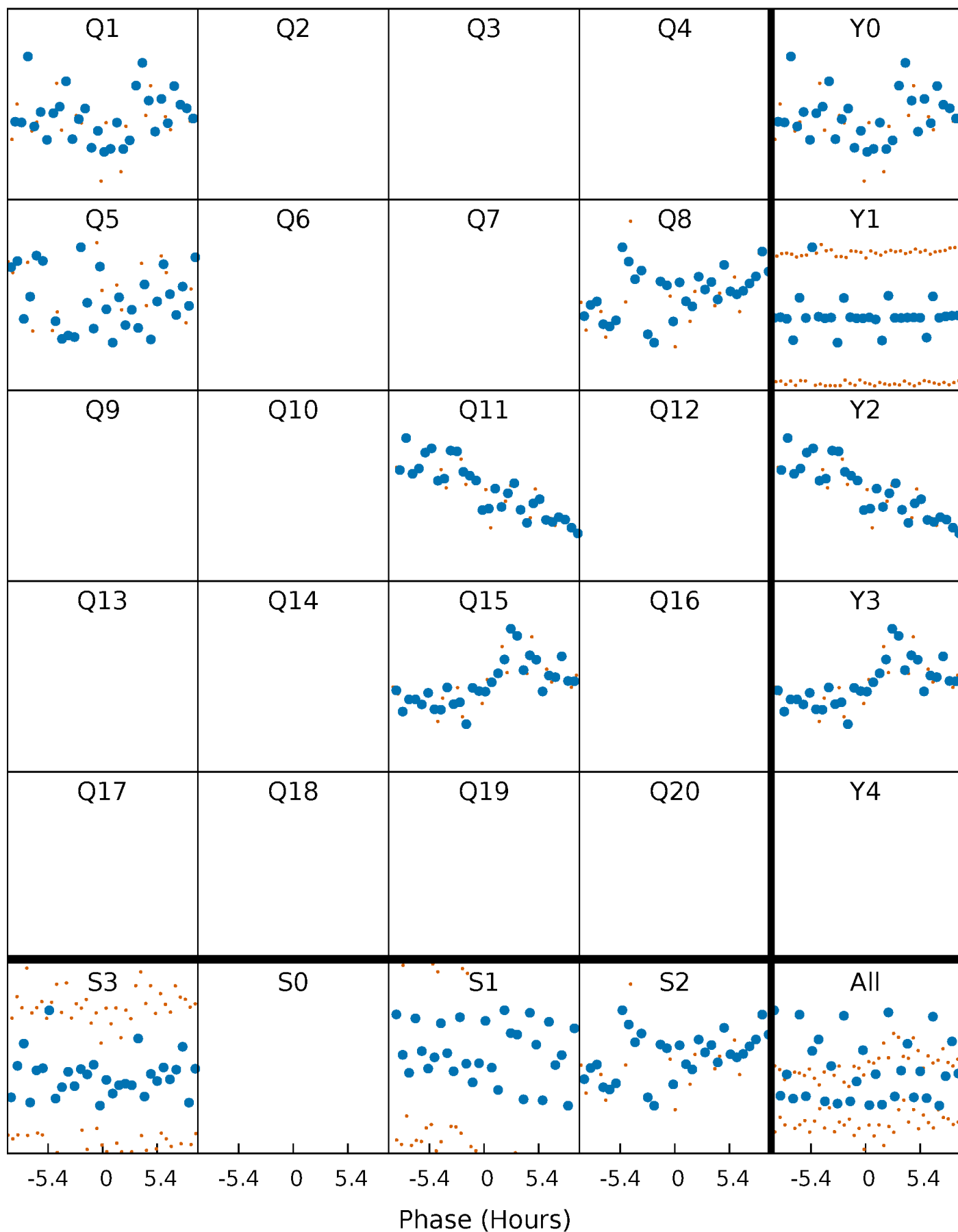


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



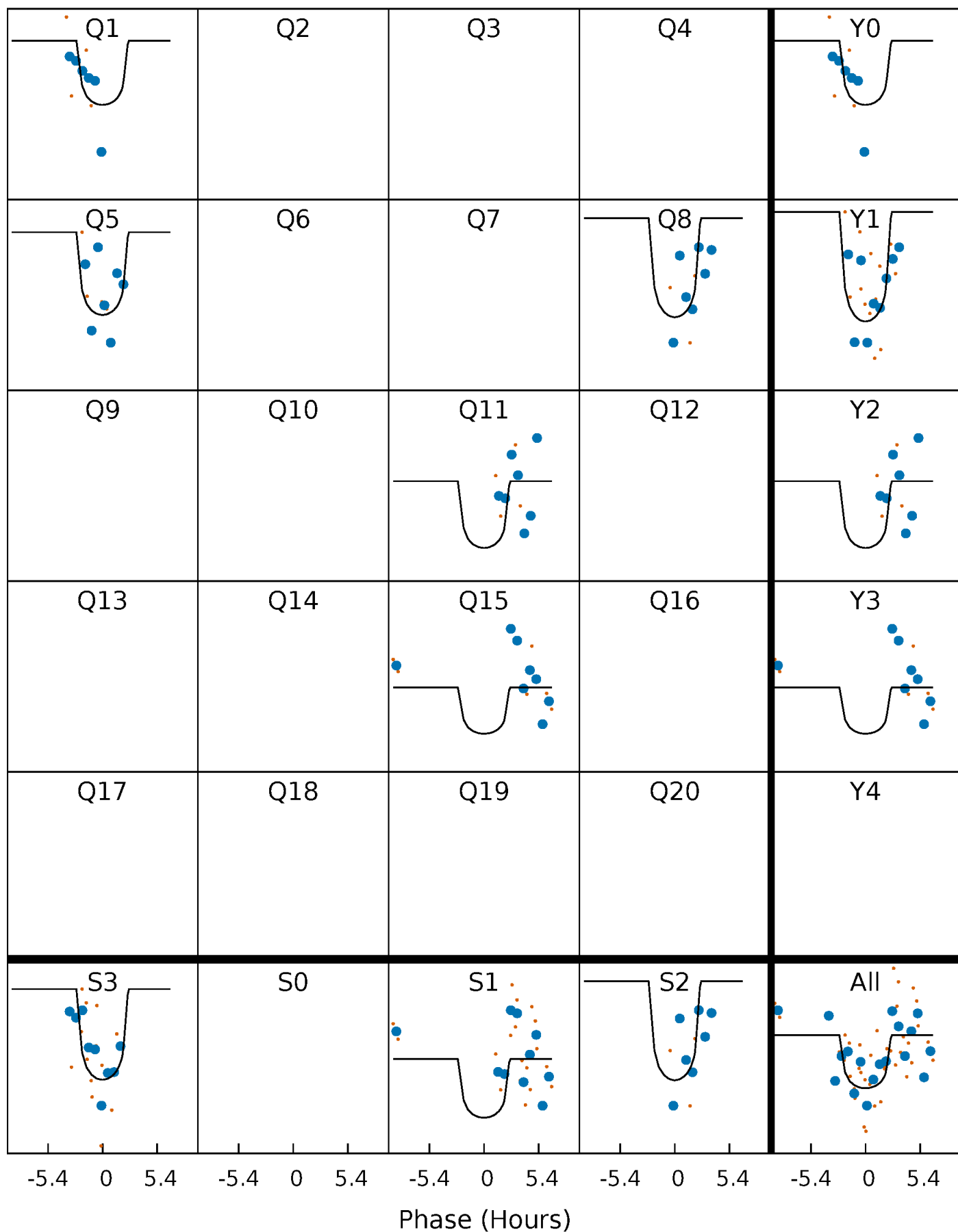
PDC Quarter-Phased Transit Curves

TCE 012784183-05 $P=316.103102$ Days $T_0=135.032524$ (BKJD)



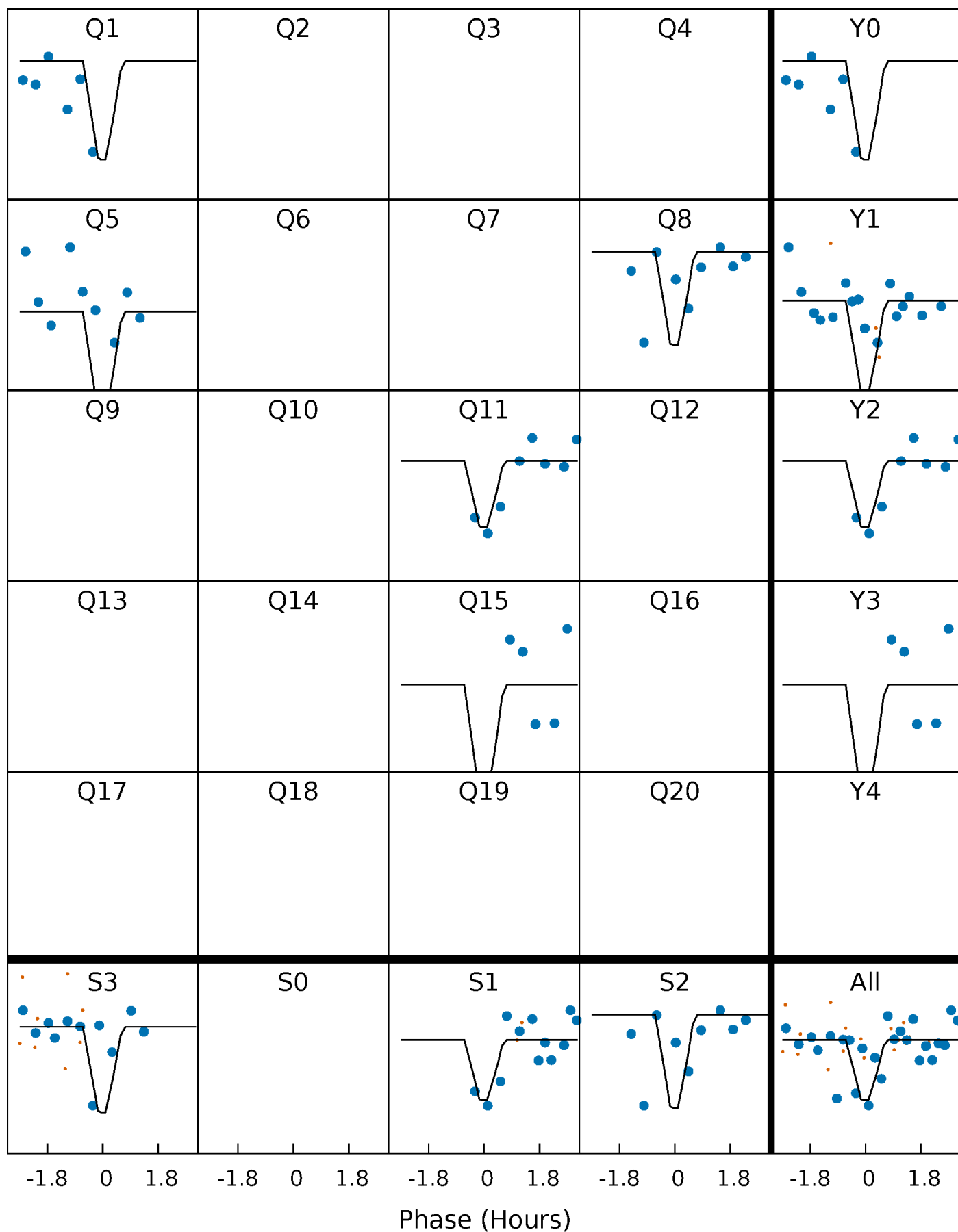
DV Quarter-Phased Transit Curves

TCE 012784183-05 $P=316.103102$ Days $T_0=135.032524$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

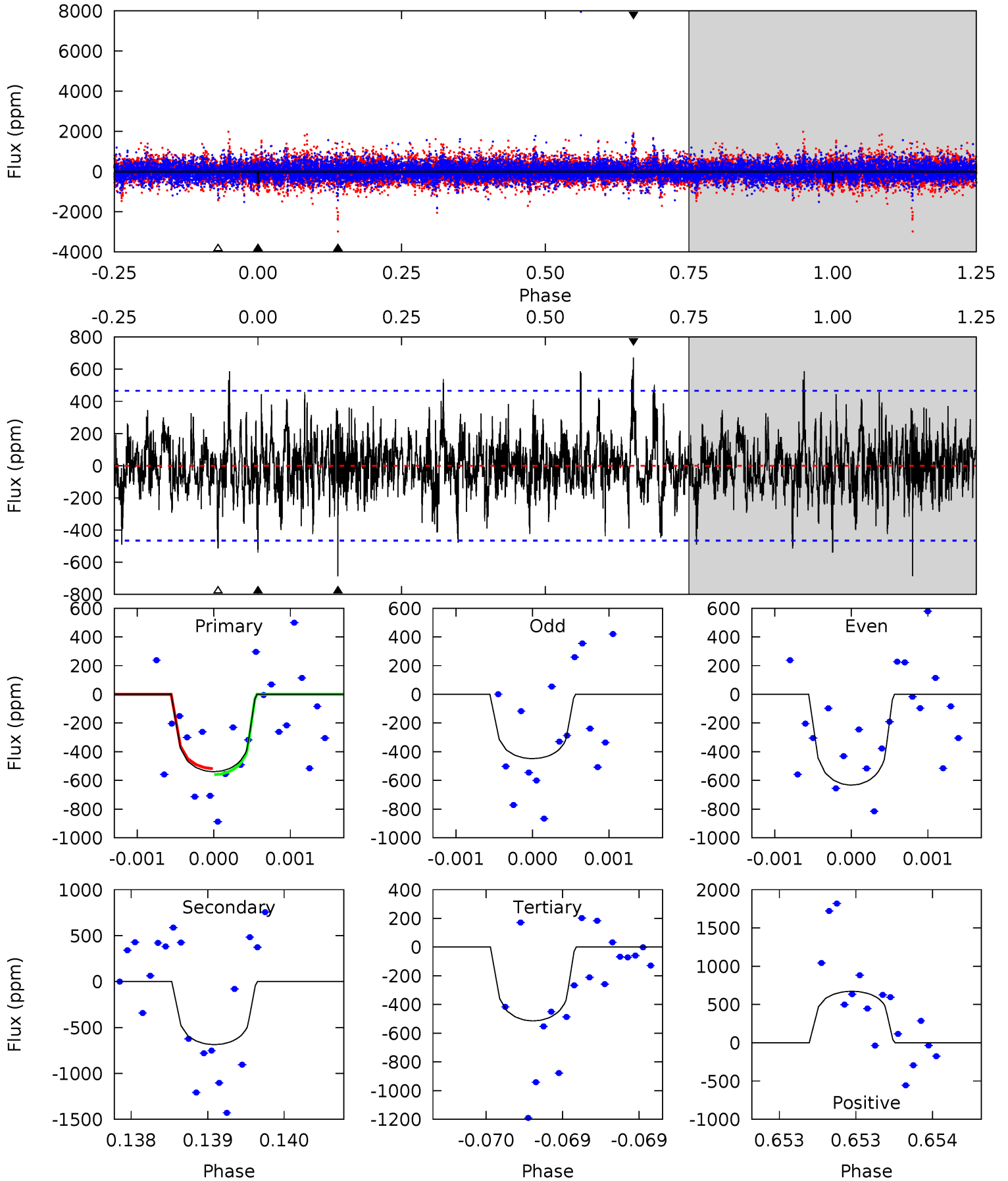
TCE 012784183-05 $P=316.123235$ Days $T_0=135.036543$ (BKJD)



DV Model-Shift Uniqueness Test

012784183-05, P = 316.103102 Days, E = 135.032524 Days

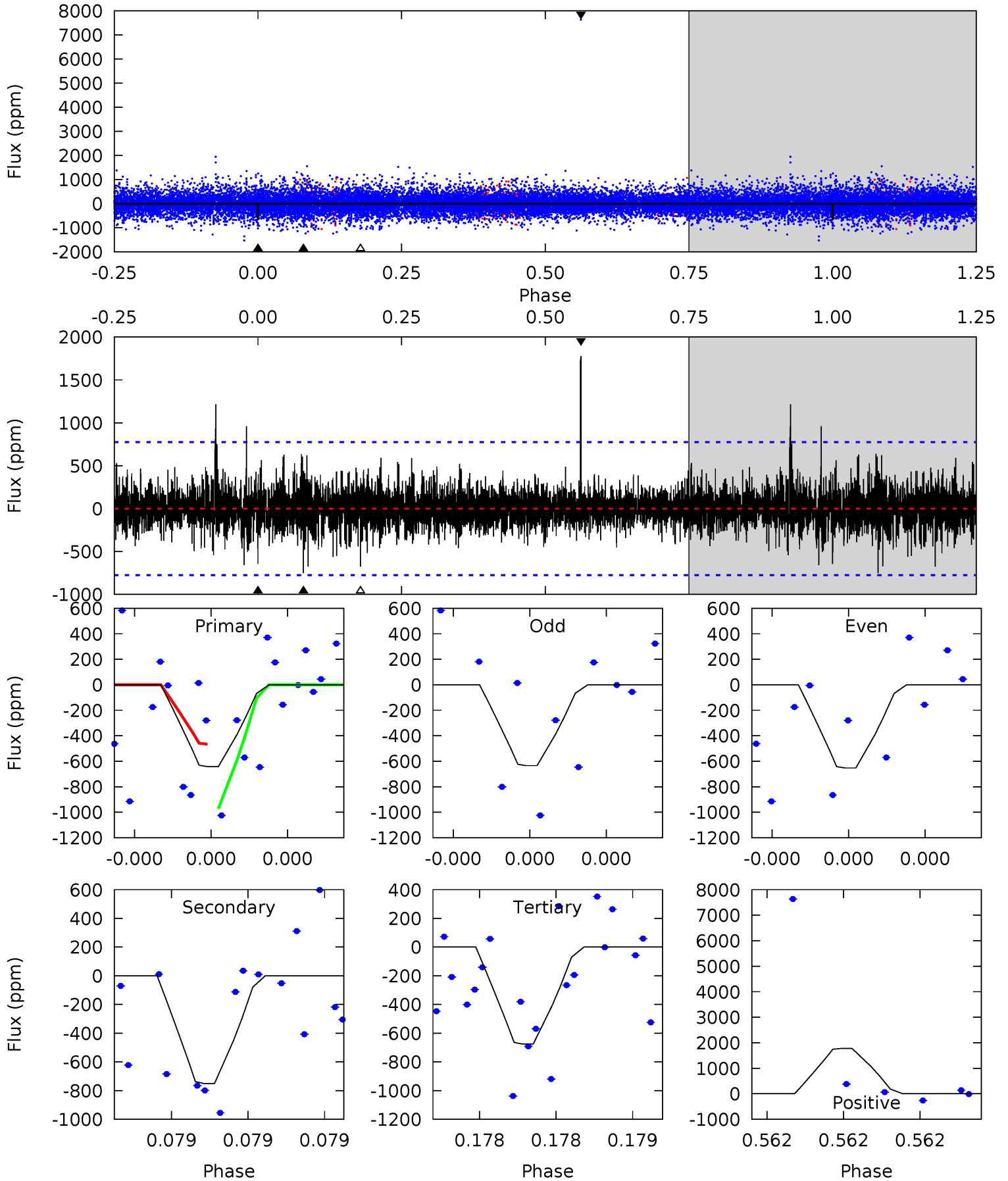
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.41	8.16	6.11	7.99	5.54	3.43	1.70	0.30	-1.58	2.05	0.17	1.09	0.86	0.49	0.25



Alt Model-Shift Uniqueness Test

012784183-05, P = 316.123235 Days, E = 135.036543 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.80	5.62	5.06	13.3	5.80	3.83	1.20	-0.25	-8.51	0.56	-7.70	0.07	1.36	0.70	1.90



Stellar Parameters For KIC 012784183

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3650^{+65}_{-73}	$4.805^{+0.048}_{-0.032}$	$-0.100^{+0.100}_{-0.100}$	$0.445^{+0.036}_{-0.044}$	$0.461^{+0.034}_{-0.045}$	$7.367^{+1.811}_{-1.003}$
	+2%/-2%	+1%/-1%	+100%/-100%	+8%/-10%	+7%/-10%	+25%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012784183-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-686 ± 84	$16.26^{+17.04}_{-11.05}$	178^{+5}_{-4}	1920^{+552}_{-244}	712^{+6294}_{-548}
Alt.	-750 ± 134	$17.69^{+19.09}_{-12.20}$	179^{+4}_{-5}	1901^{+541}_{-242}	648^{+5665}_{-501}

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

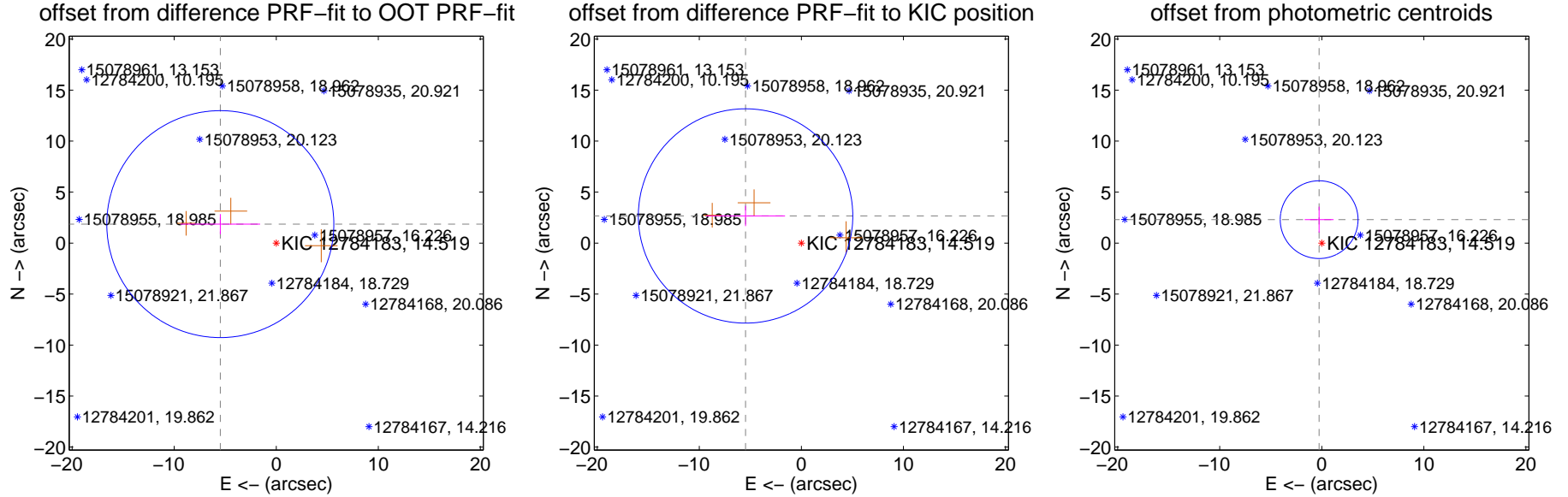
DV Centroid Data

Supplemental centroid analysis for 012784183-05. Kepler magnitude: 14.52. Transit SNR 6.78

There are 0 quarters with good PRF difference image offsets

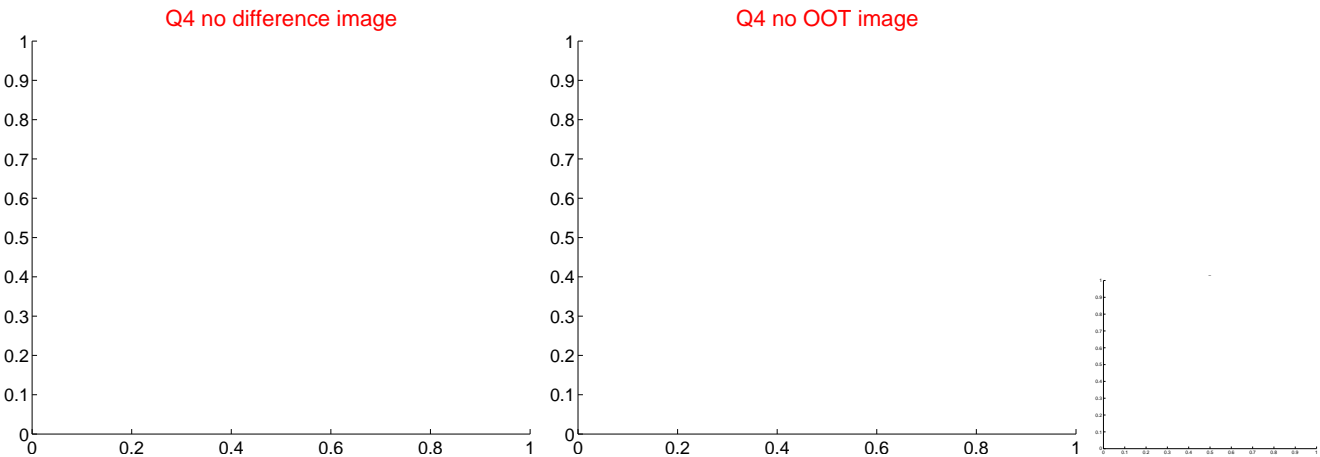
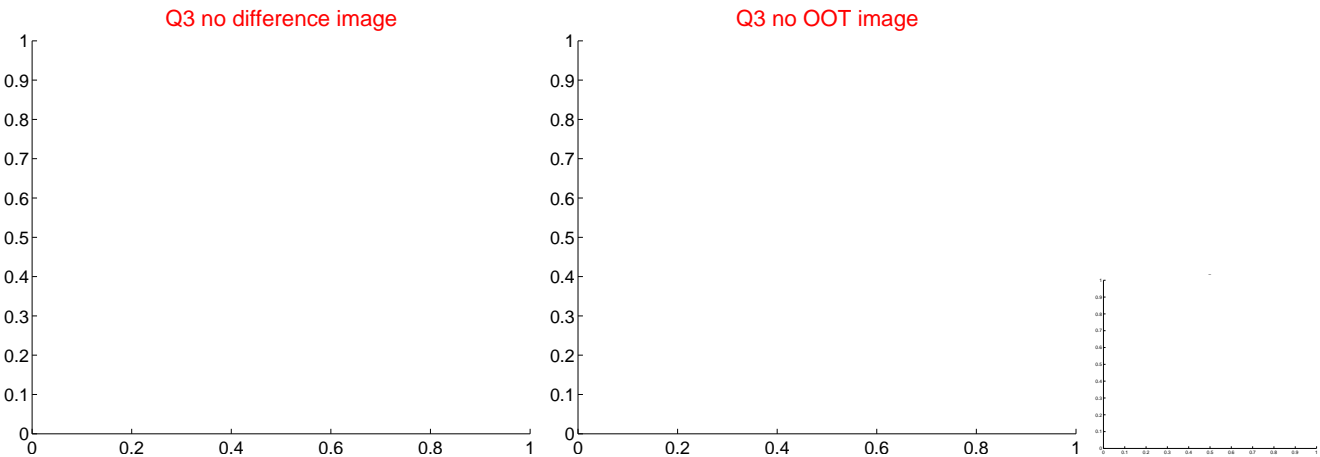
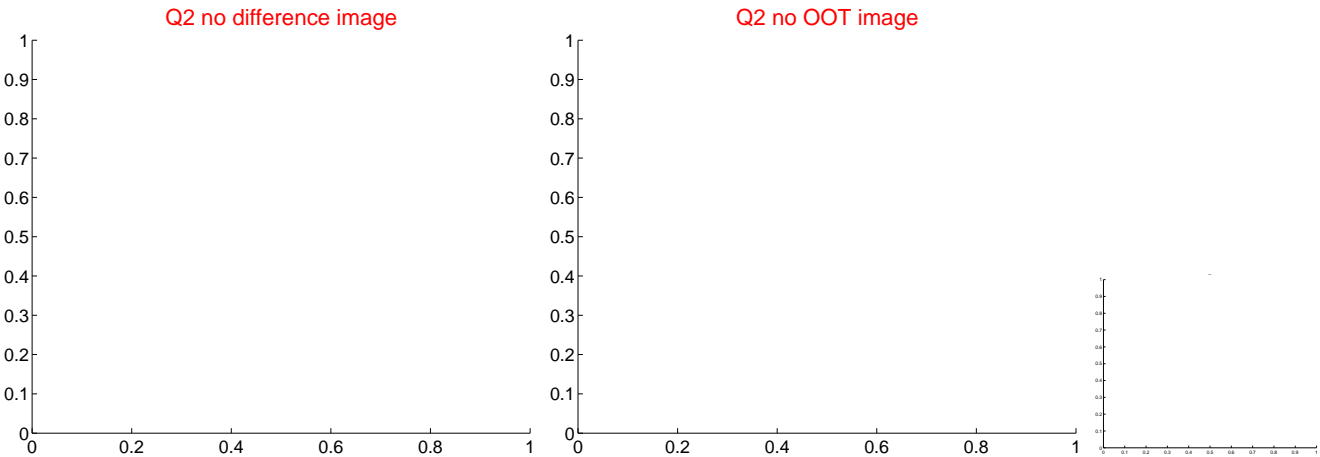
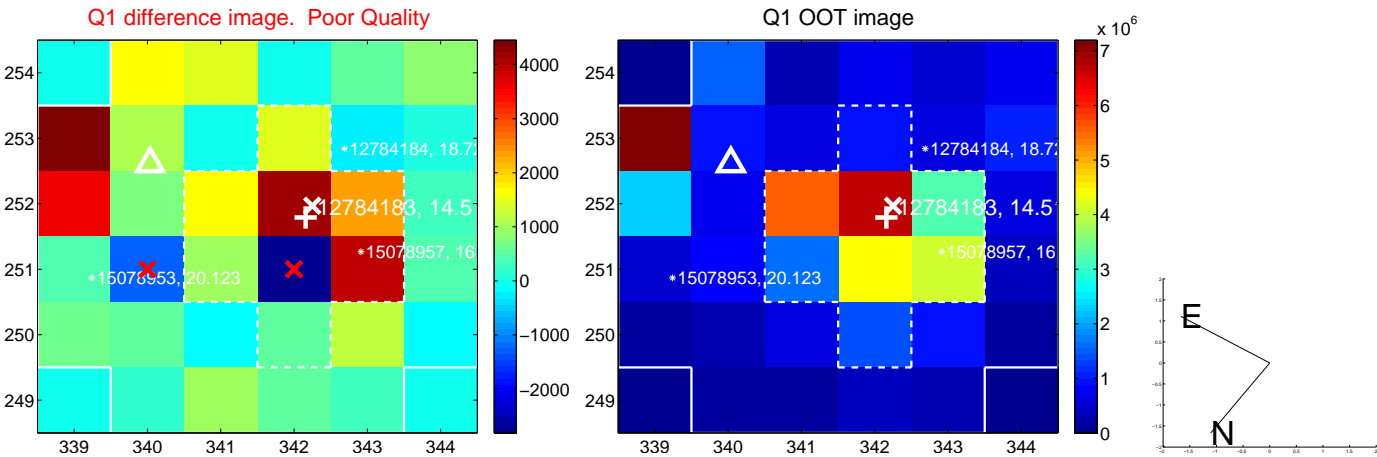
The direct PRF centroid is offset from the target star catalog position by about 0.84 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.787 ± 3.709	1.56	5.480 ± 3.902	1.861 ± 0.987
PRF-fit source offset from KIC position	6.082 ± 3.503	1.74	5.469 ± 3.865	2.661 ± 0.999
photometric centroid source offset	2.31 ± 1.27	1.82	0.26 ± 1.42	2.30 ± 1.27

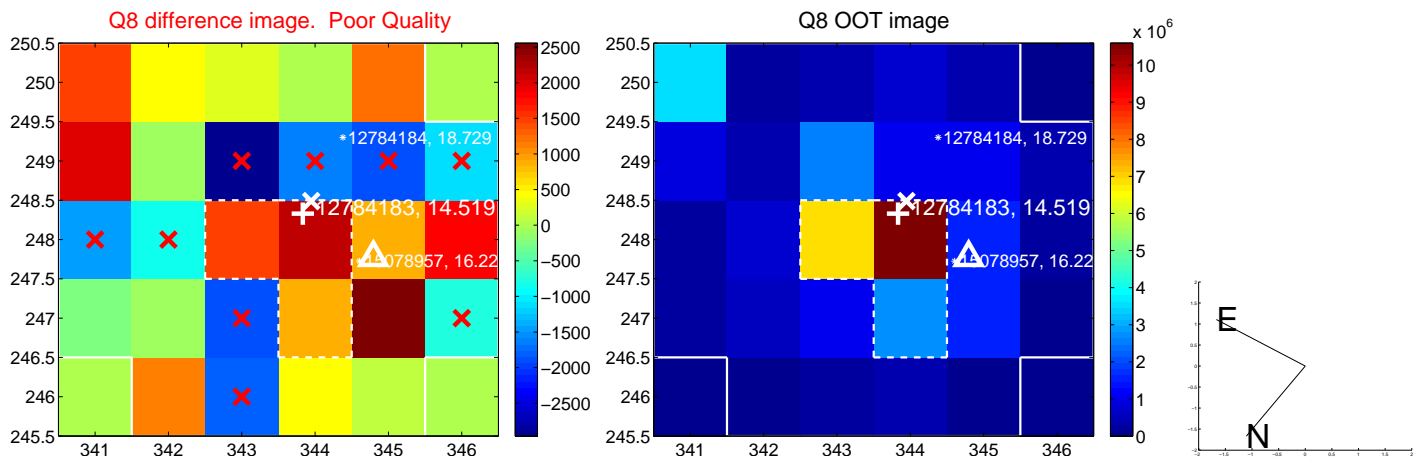
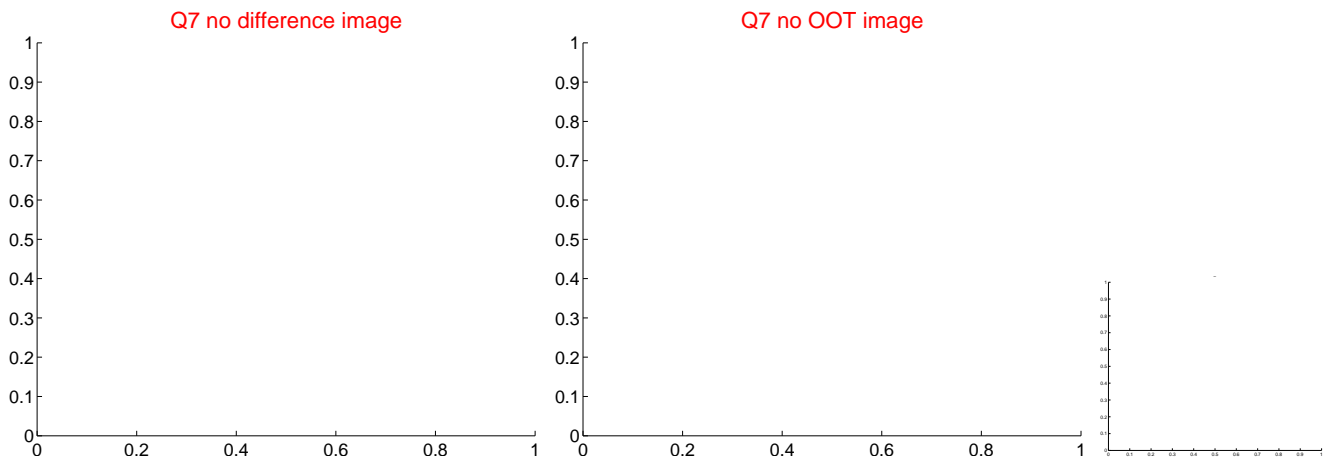
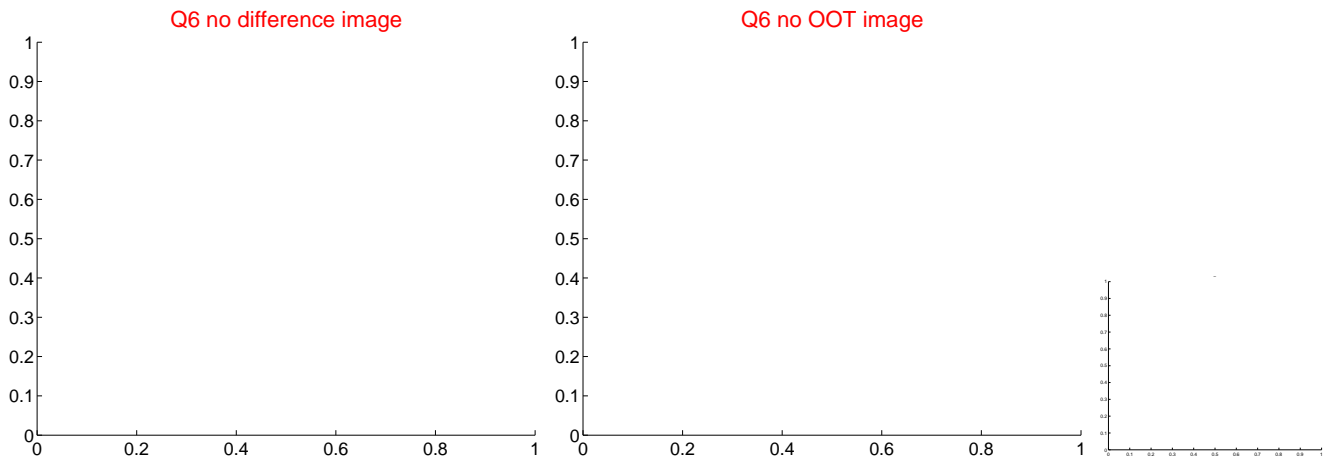
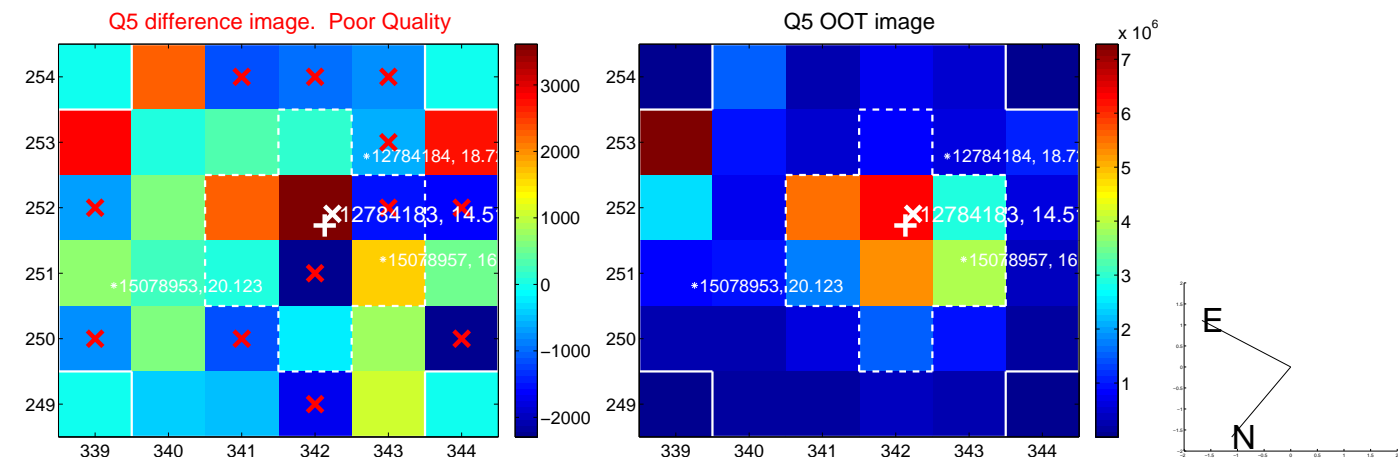


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

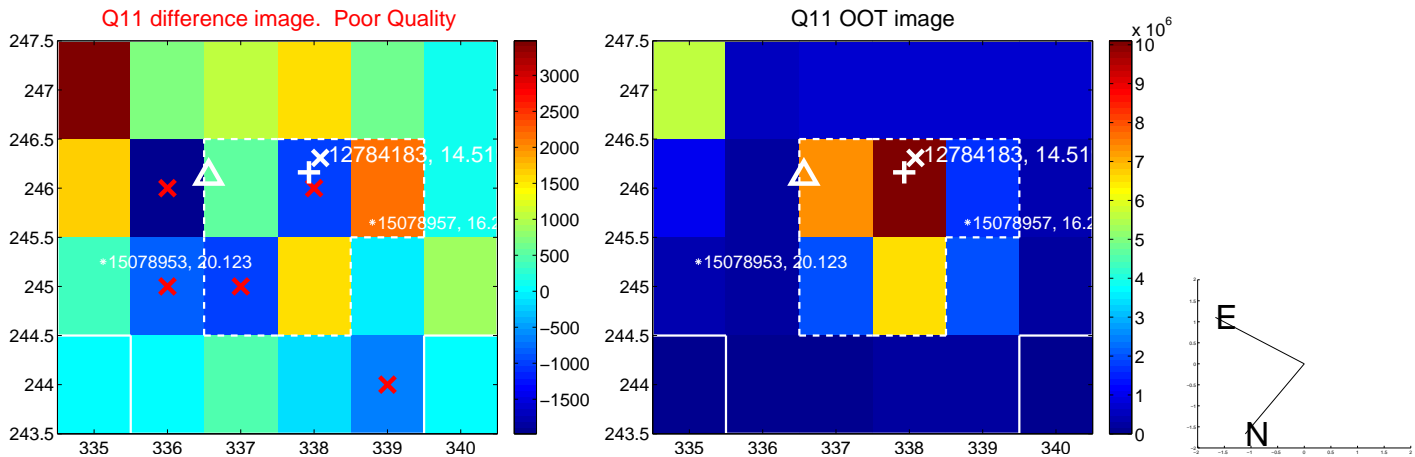
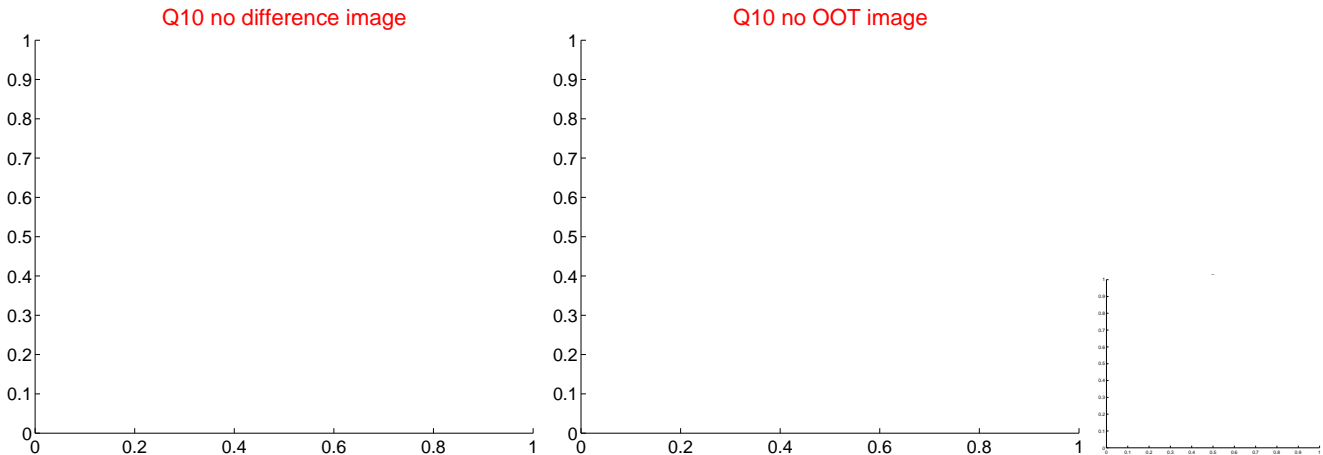
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



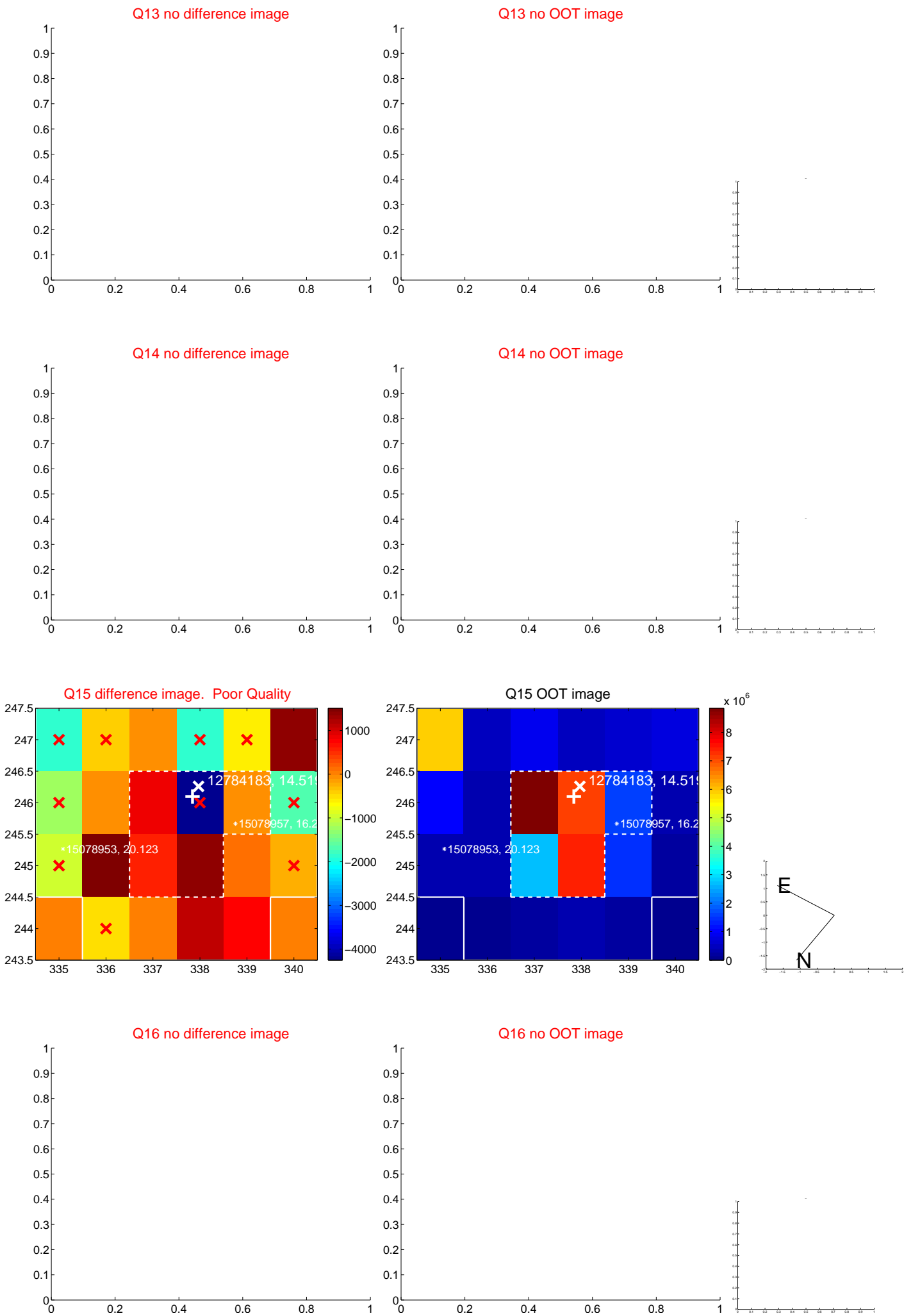
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



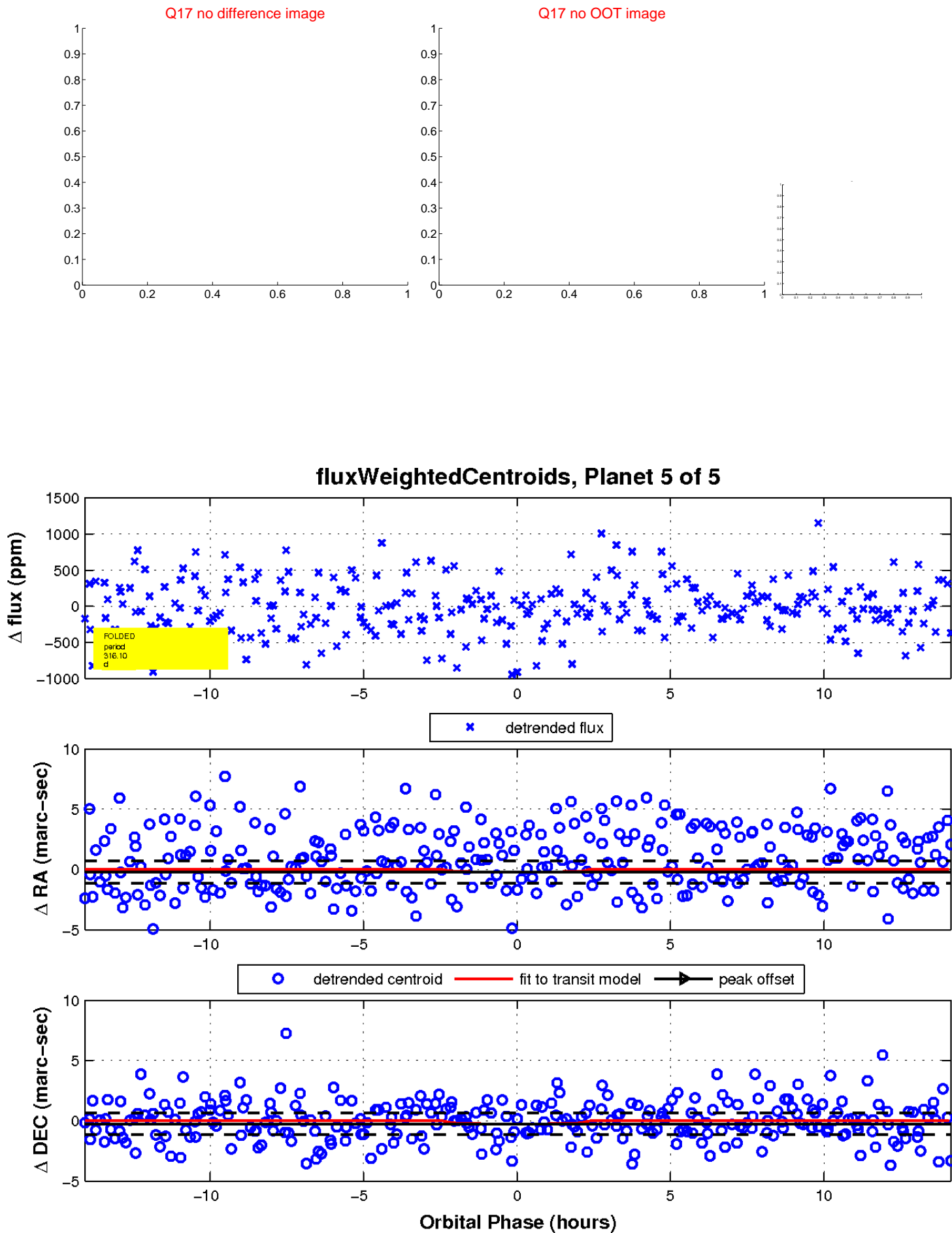
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



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



UKIRT Image

Declination

