

KIC 008226542

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})
008226542-01	OBS	No	443.299273	331.358022	208.2	15.000	13.0	-1.0	0.60	4575	0.83	0.15
008226542-02	OBS	No	570.608185	223.036670	515.5	10.672	11.3	8.3	0.60	4575	1.47	0.11
008226542-03	OBS	No	401.021643	158.534768	262.8	7.793	11.6	6.0	0.60	4575	1.18	0.18
008226542-04	OBS	No	0.657948	131.898760	19.2	5.432	8.3	8.9	0.60	4575	0.25	915.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008226542-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
008226542-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008226542-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_POS_DV
008226542-04	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

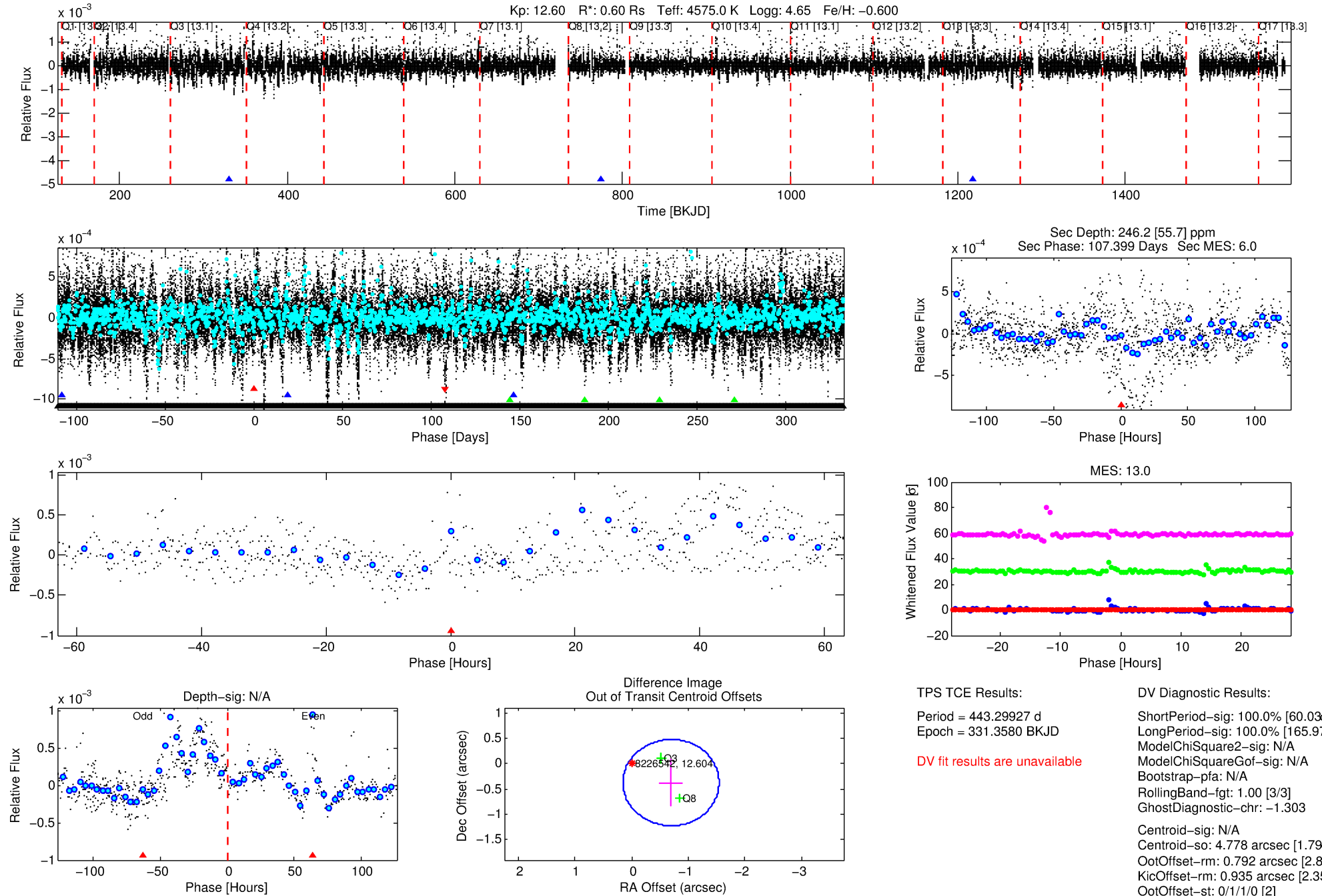
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008226542-01

No Significant Match Found

DV One-Page Summary

KIC: 8226542 Candidate: 1 of 4 Period: 443.299 d



TPS TCE Results:

Period = 443.29927 d
Epoch = 331.3580 BKJD

DV fit results are unavailable

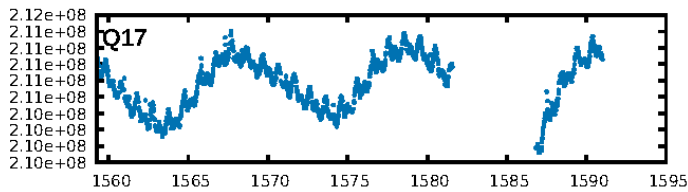
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [60.03 σ]
LongPeriod-sig: 100.0% [165.97 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.303
Centroid-sig: N/A
Centroid-so: 4.778 arcsec [1.79 σ]
OotOffset-rm: 0.792 arcsec [2.80 σ]
KicOffset-rm: 0.935 arcsec [2.35 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/2]

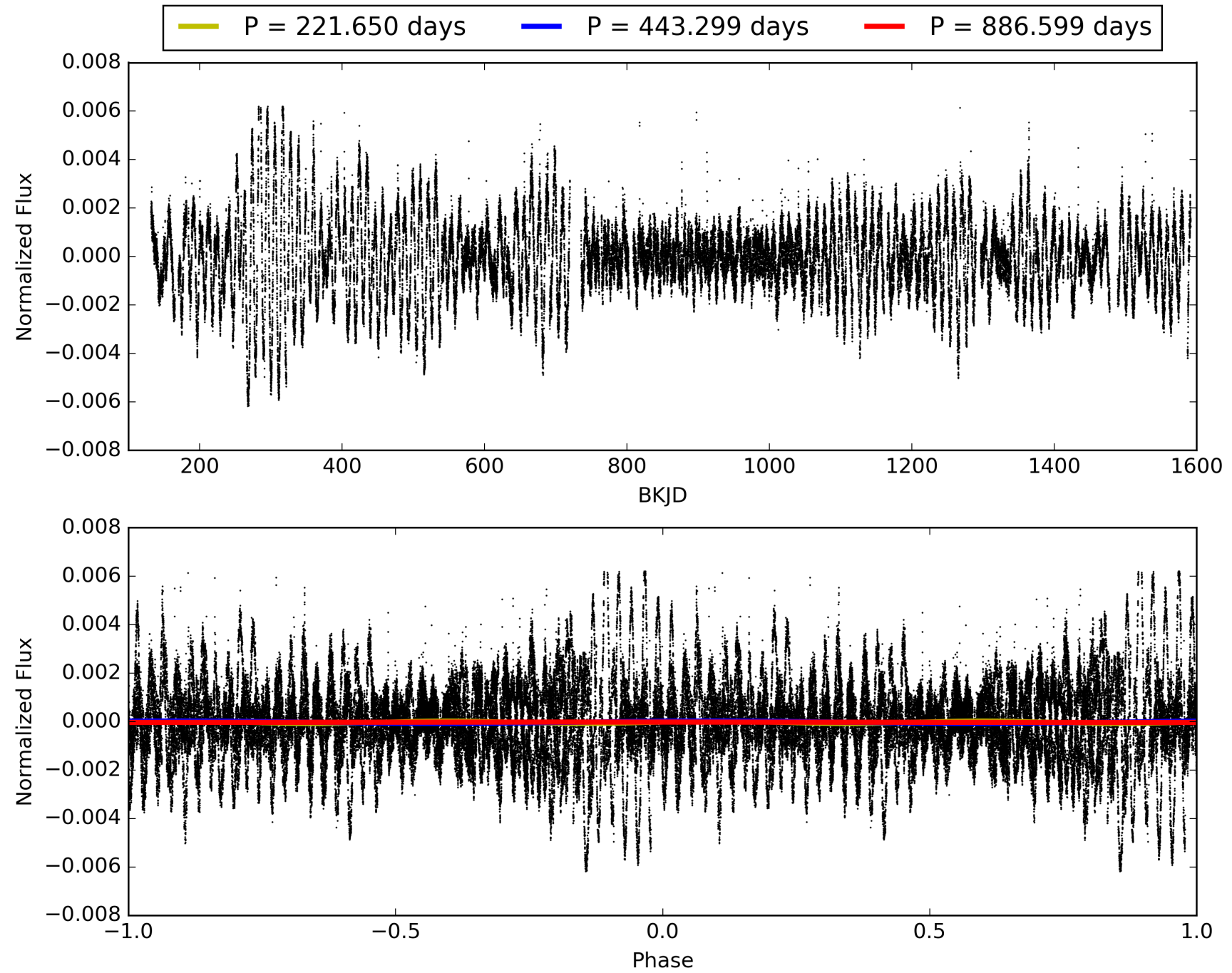
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:28:44 Z

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

TCE 008226542-01, PDC Light Curves

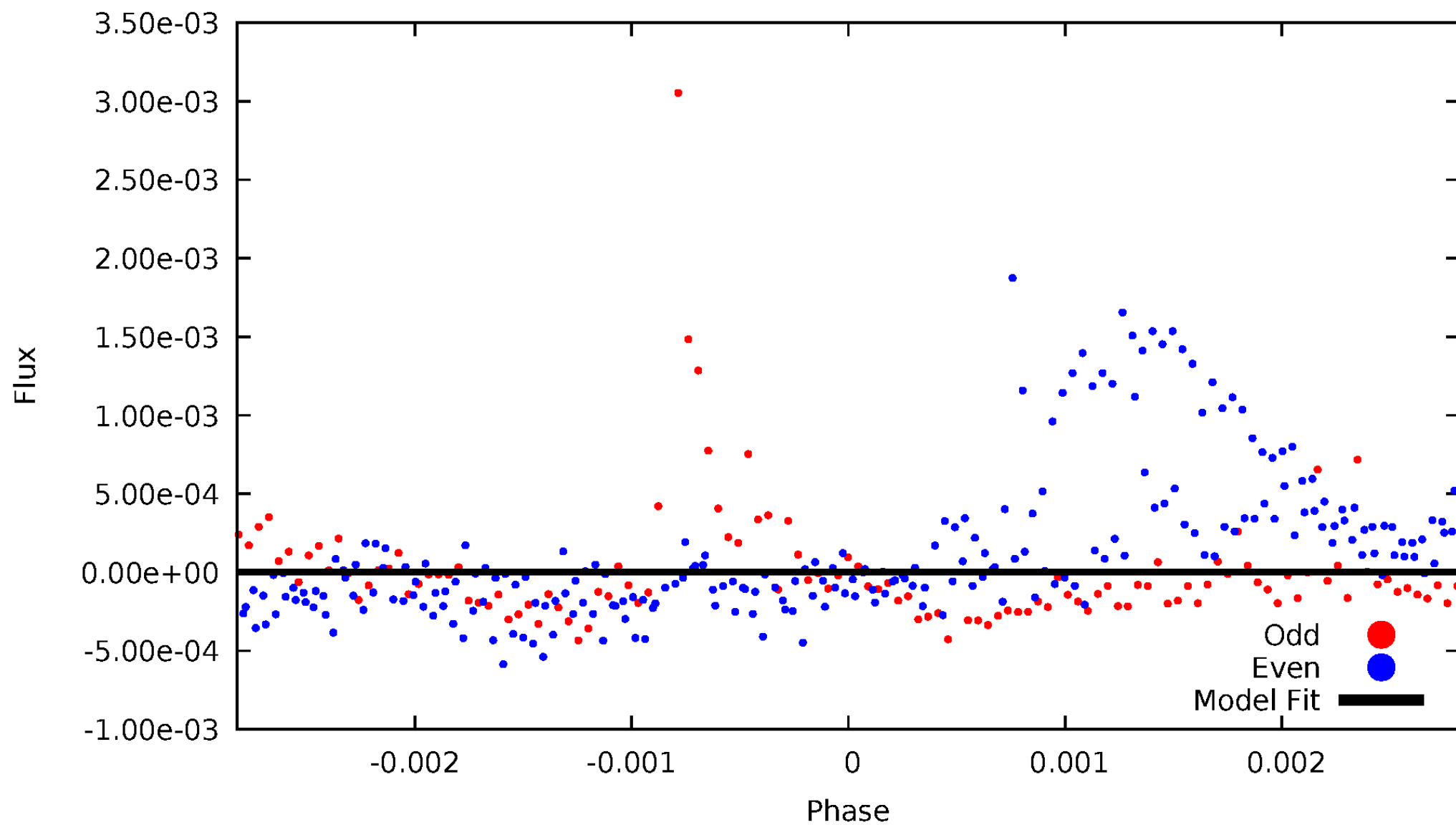


TCE 008226542-01



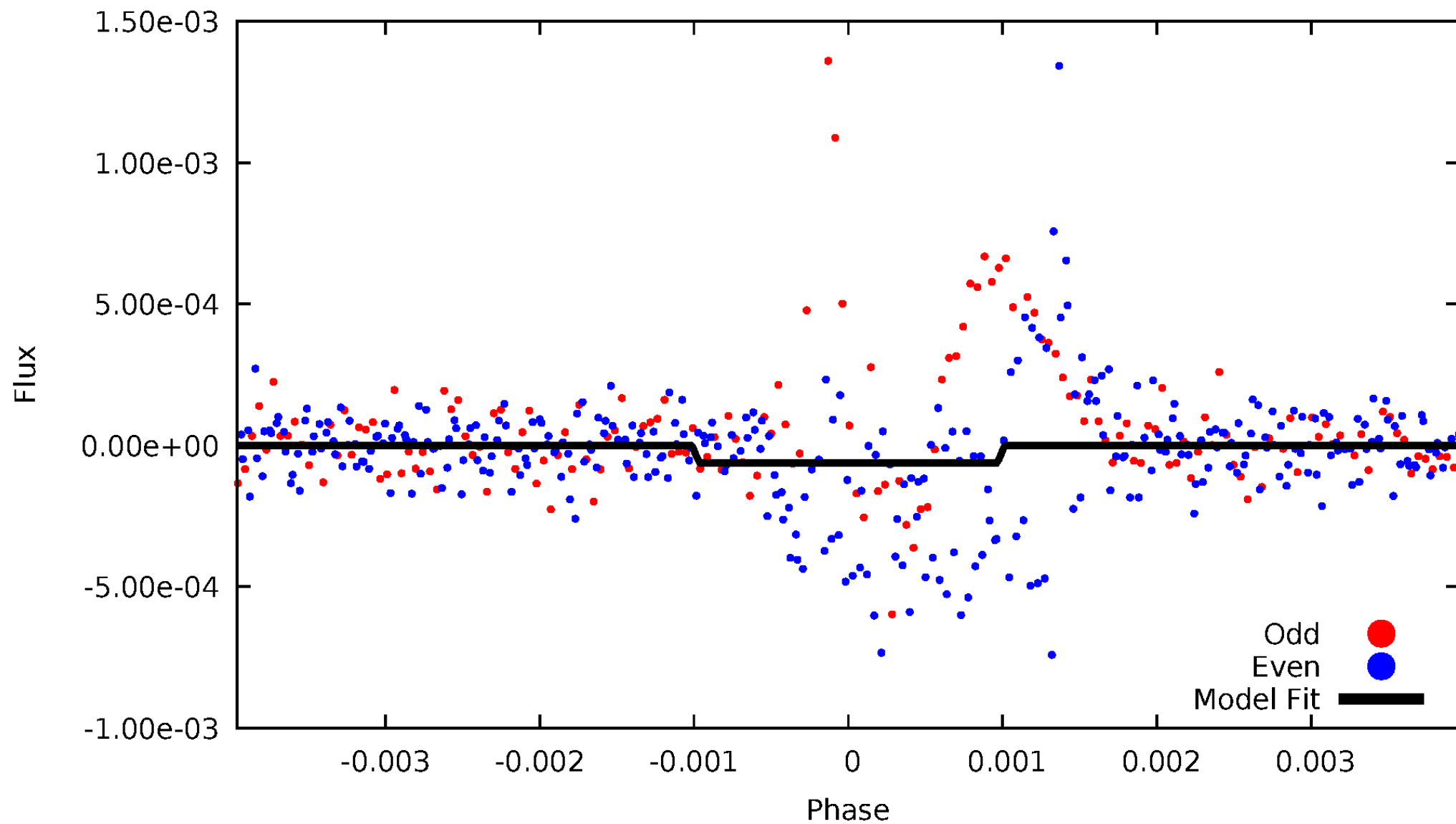
DV Odd/Even

TCE 008226542-01

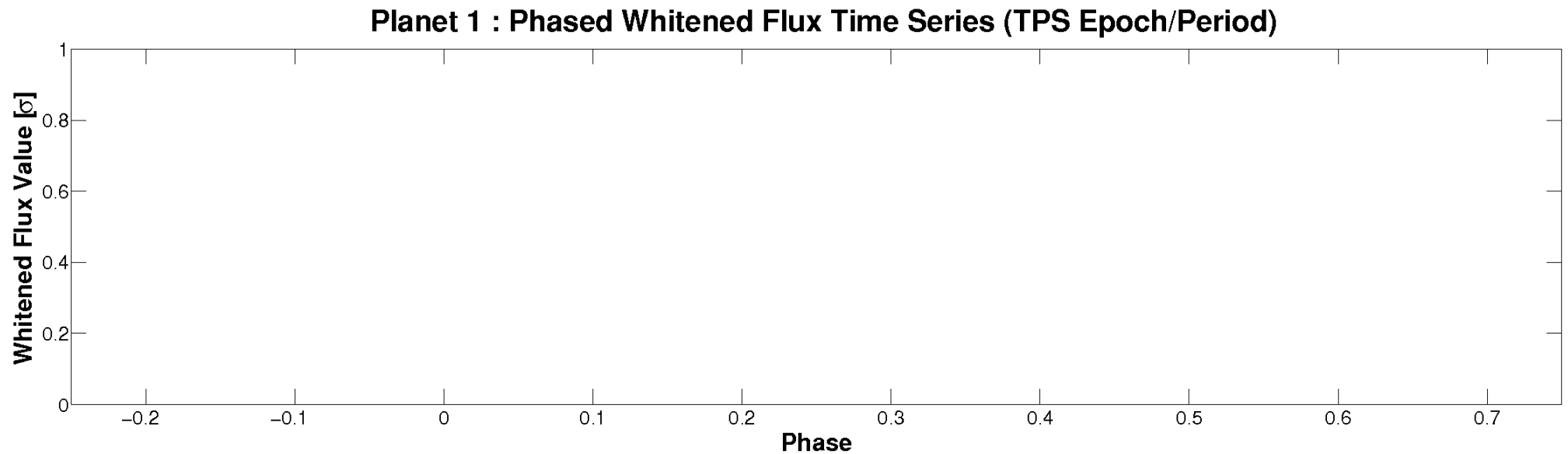
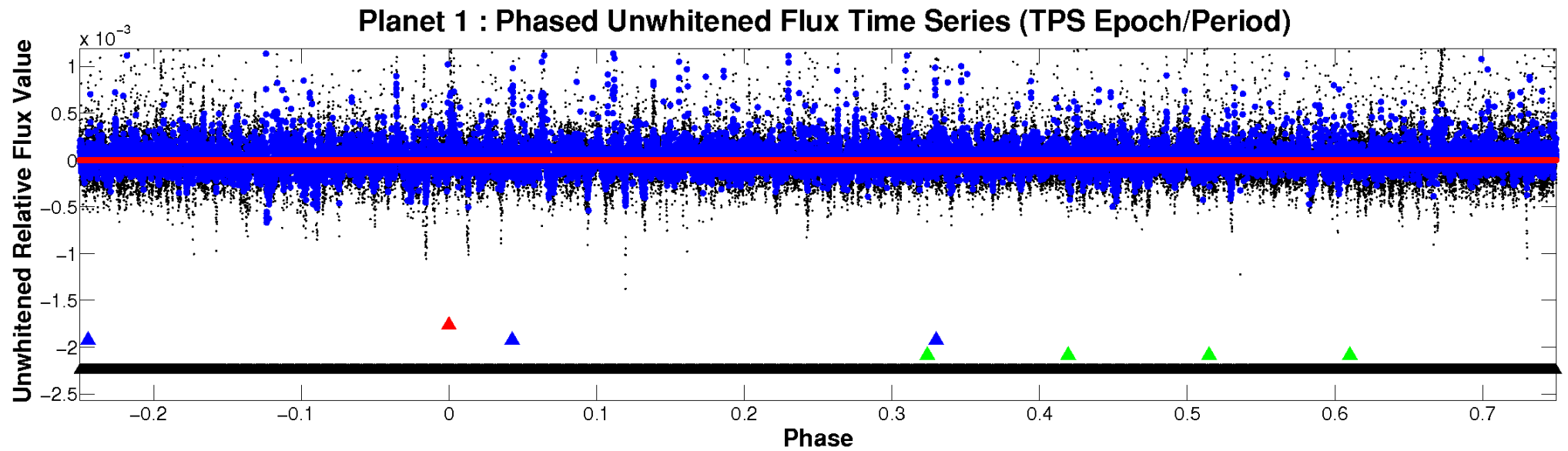


ALT Odd/Even

TCE 008226542-01

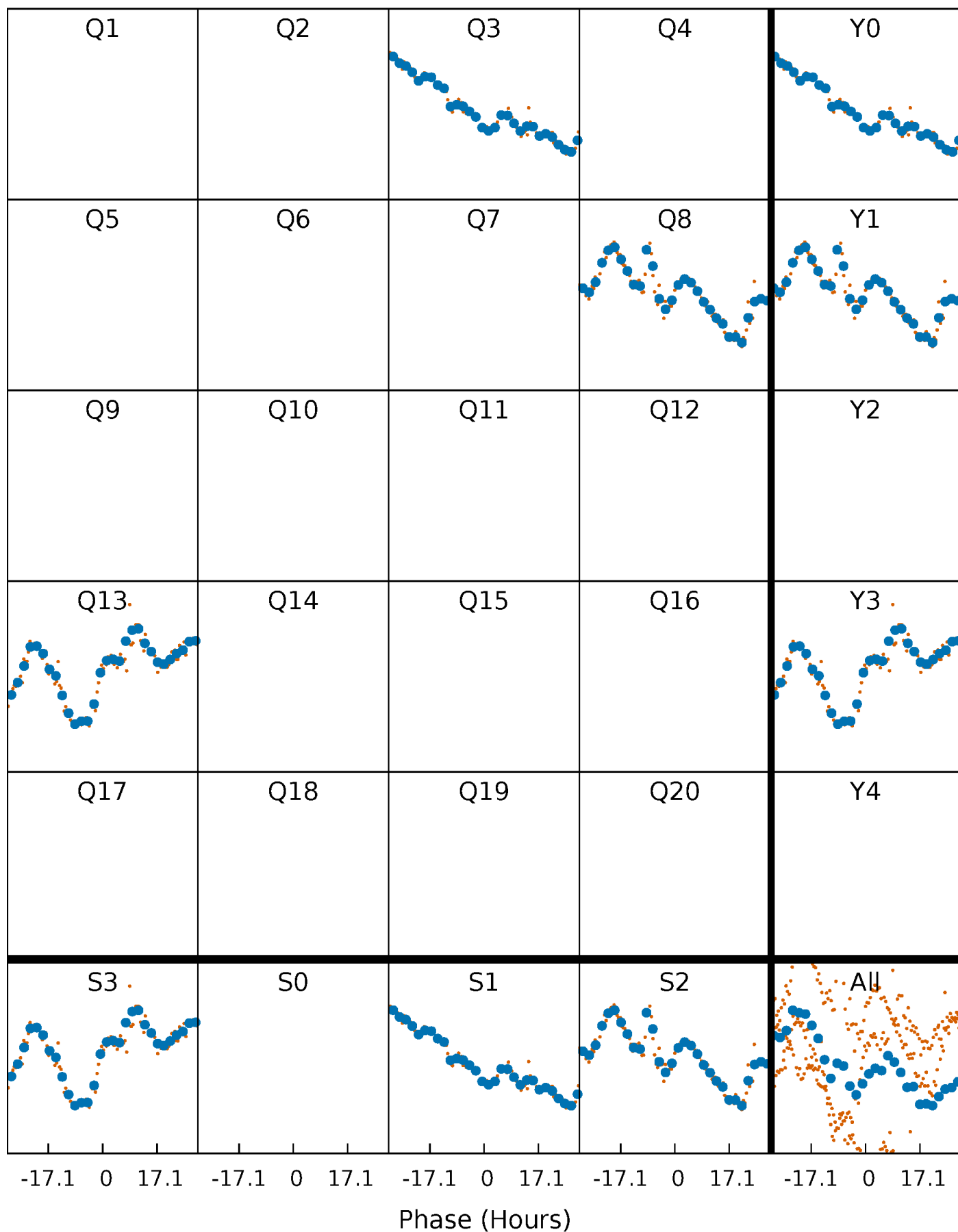


Non-Whitened Vs. Whitened Light Curve



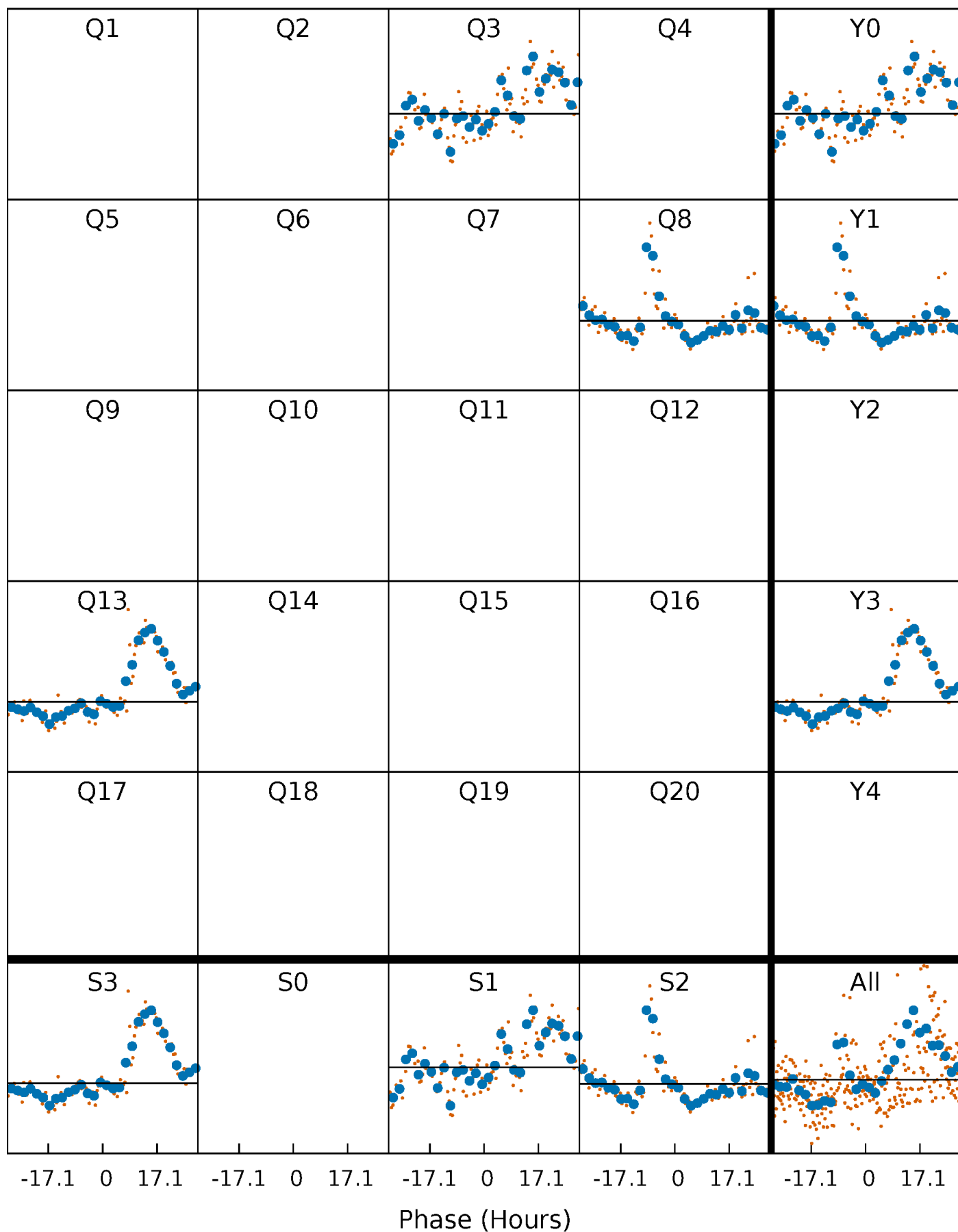
PDC Quarter-Phased Transit Curves

TCE 008226542-01 P=443.299273 Days $T_0=331.358022$ (BKJD)



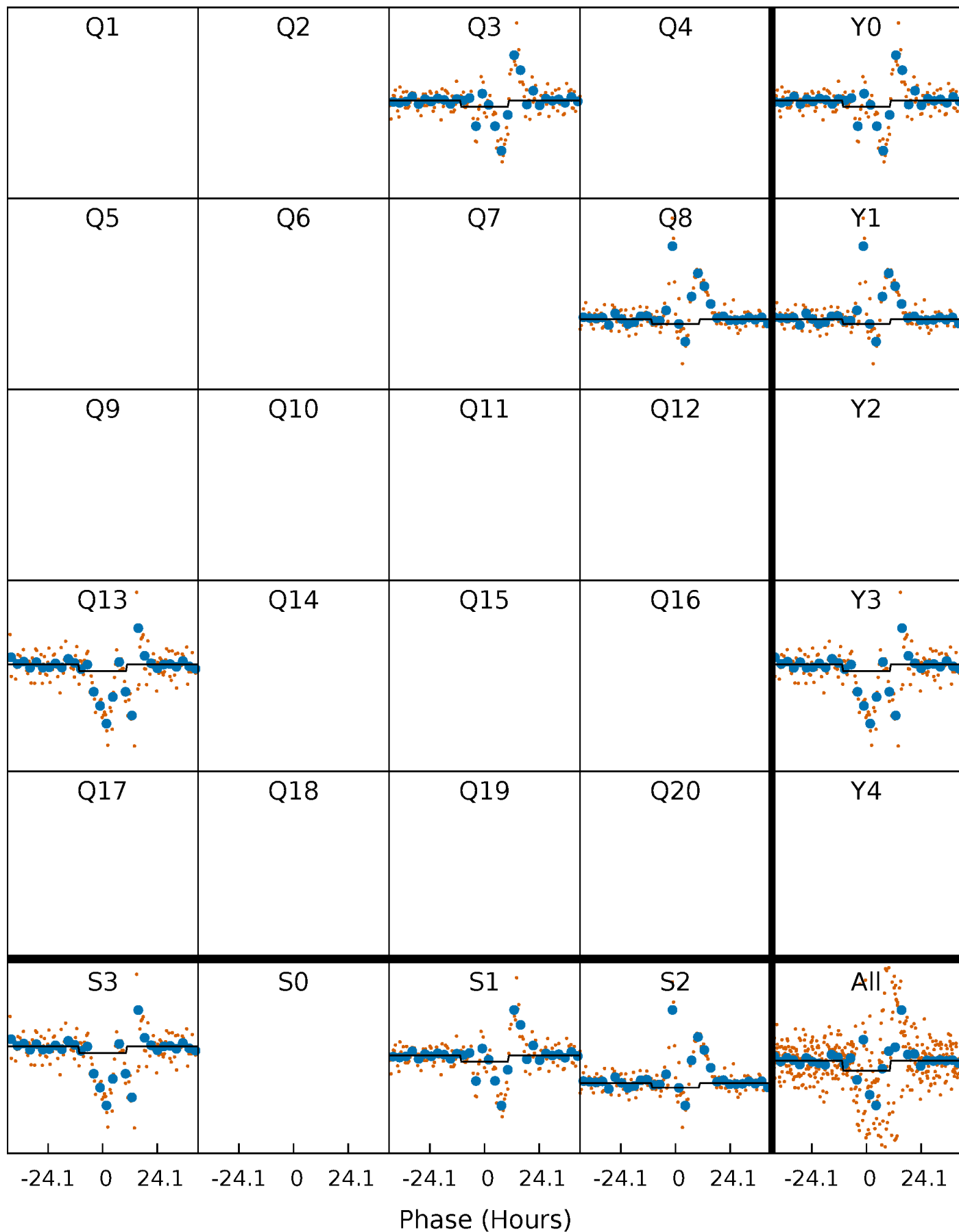
DV Quarter-Phased Transit Curves

TCE 008226542-01 $P=443.299273$ Days $T_0=331.358022$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

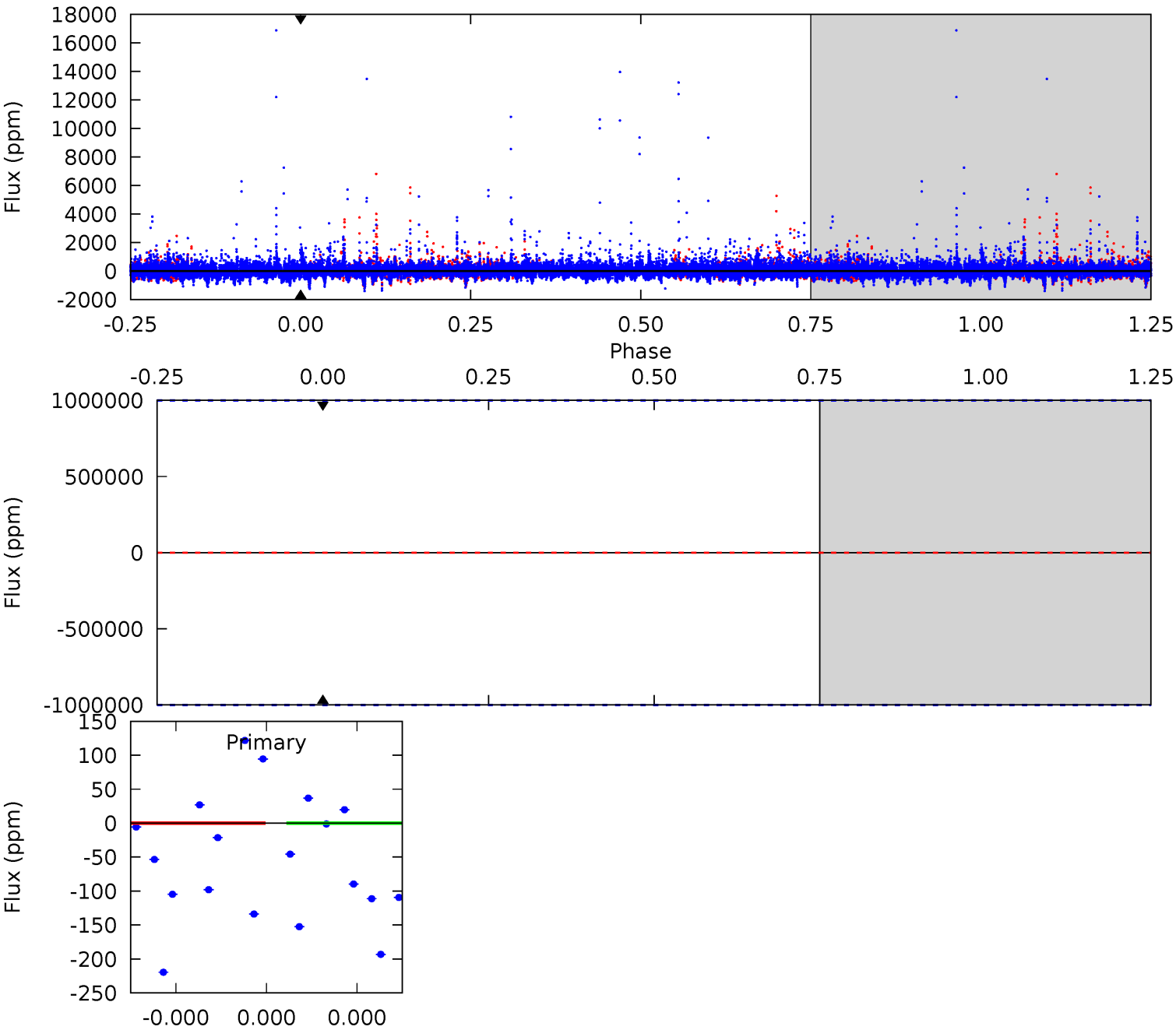
TCE 008226542-01 P=443.299273 Days $T_0=331.088714$ (BKJD)



DV Model-Shift Uniqueness Test

008226542-01, P = 443.299273 Days, E = 331.358022 Days

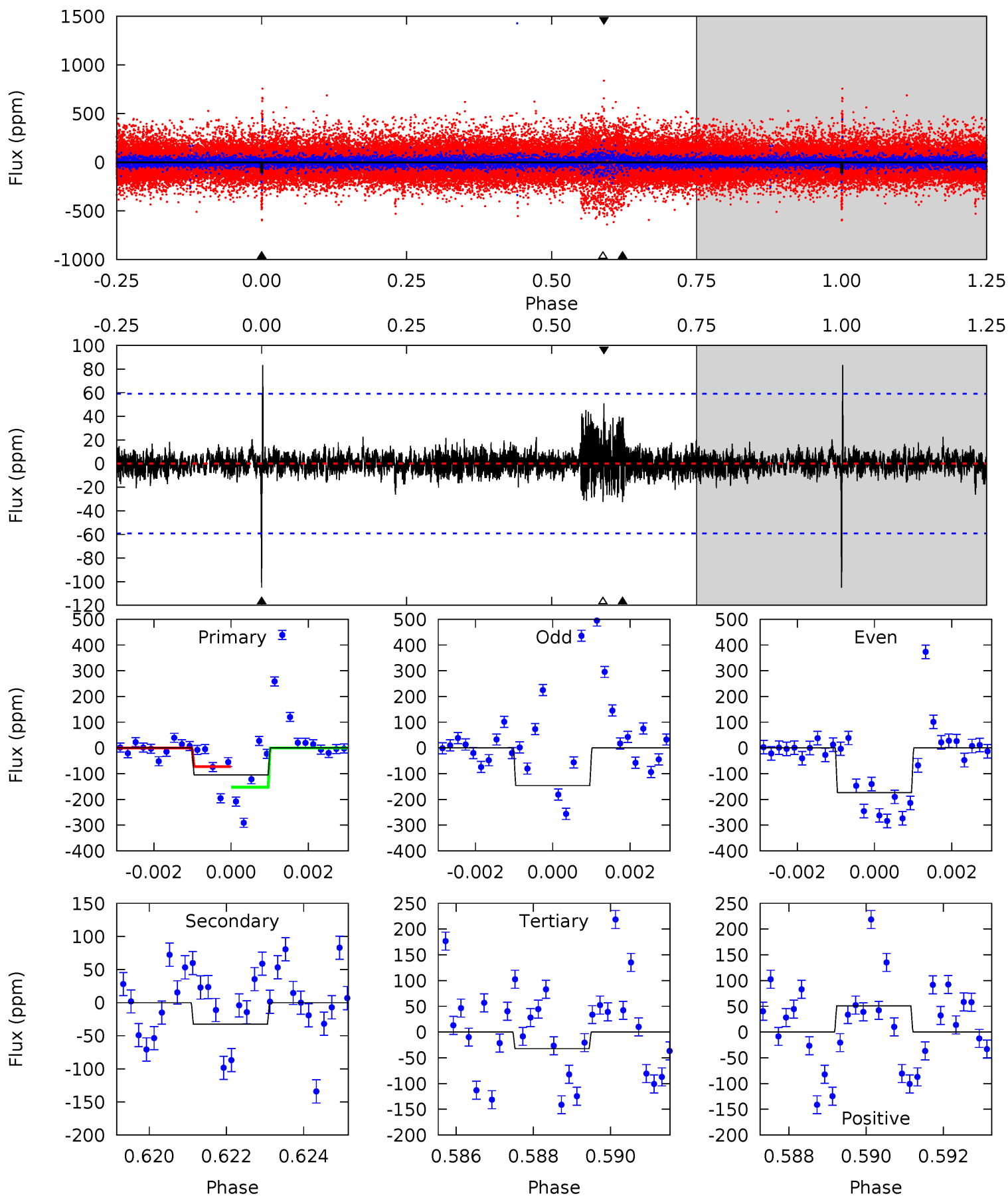
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008226542-01, P = 443.299273 Days, E = 331.088714 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.46	2.93	2.90	4.59	5.33	3.09	0.69	6.56	4.88	0.02	-1.66	1.16	0.48	0.44	3.62



Stellar Parameters For KIC 008226542

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4575^{+164}_{-109}	$4.652^{+0.010}_{-0.020}$	$-0.600^{+0.300}_{-0.100}$	$0.599^{+0.036}_{-0.012}$	$0.586^{+0.059}_{-0.012}$	$3.840^{+0.192}_{-0.419}$
	+4%/-2%	+0%/-0%	+50%/-17%	+6%/-2%	+10%/-2%	+5%/-11%
Source	PHO1	FLK73	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 008226542-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$4.76^{+4.95}_{-3.35}$	224^{+8}_{-6}	-3312^{+16502}_{-8793}	$-18430.805^{+4355391.793}_{-3668963.567}$
Alt.	-33 ± 11	$4.55^{+4.87}_{-3.09}$	224^{+8}_{-6}	2209^{+695}_{-327}	765^{+6924}_{-601}

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 $A_{obs} \gg 1.0$

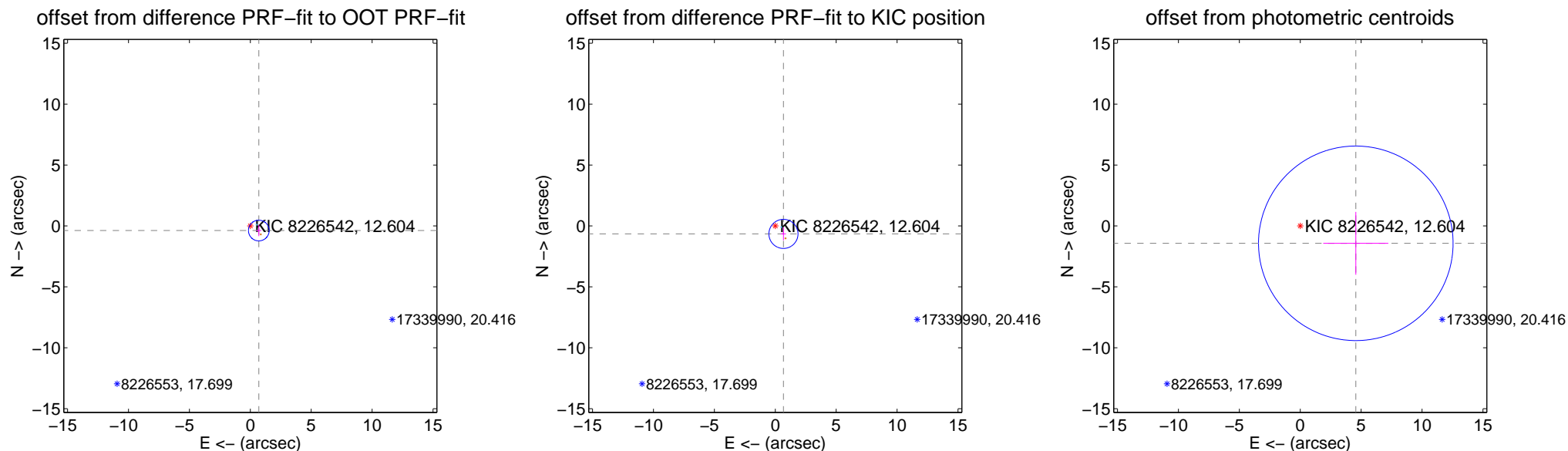
DV Centroid Data

Supplemental centroid analysis for 008226542-01. Kepler magnitude: 12.60. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.792 ± 0.283	2.80	-0.697 ± 0.205	-0.376 ± 0.459
PRF-fit source offset from KIC position	0.935 ± 0.398	2.35	-0.671 ± 0.213	-0.651 ± 0.528
photometric centroid source offset	4.78 ± 2.66	1.79	-4.56 ± 2.67	-1.42 ± 2.58



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

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

Q1 no difference image



Q1 no OOT image



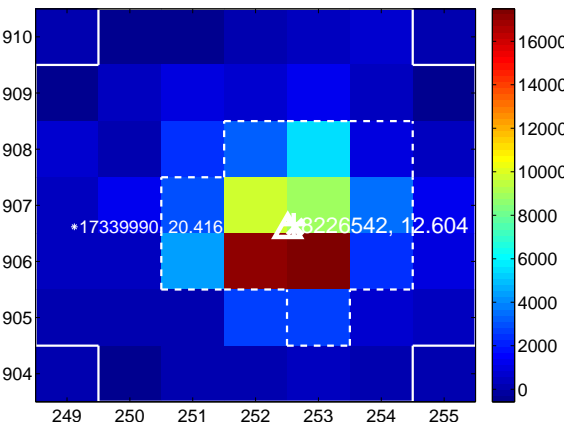
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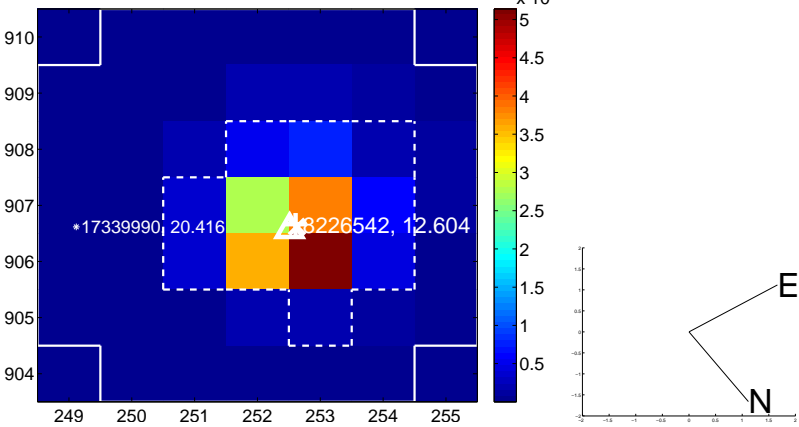
Q2 no OOT image



Q3 difference image



Q3 OOT image



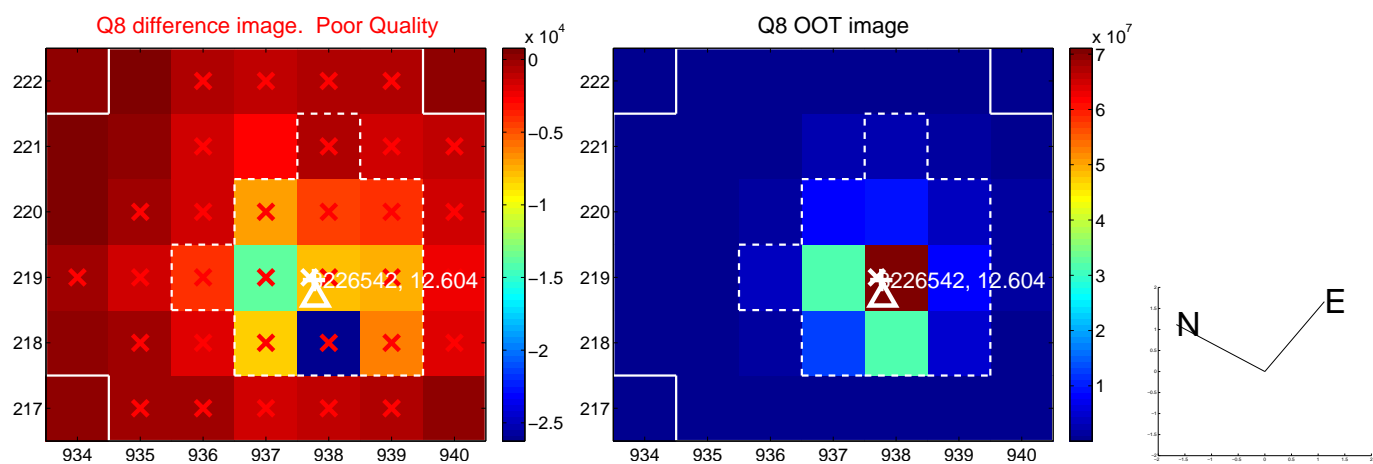
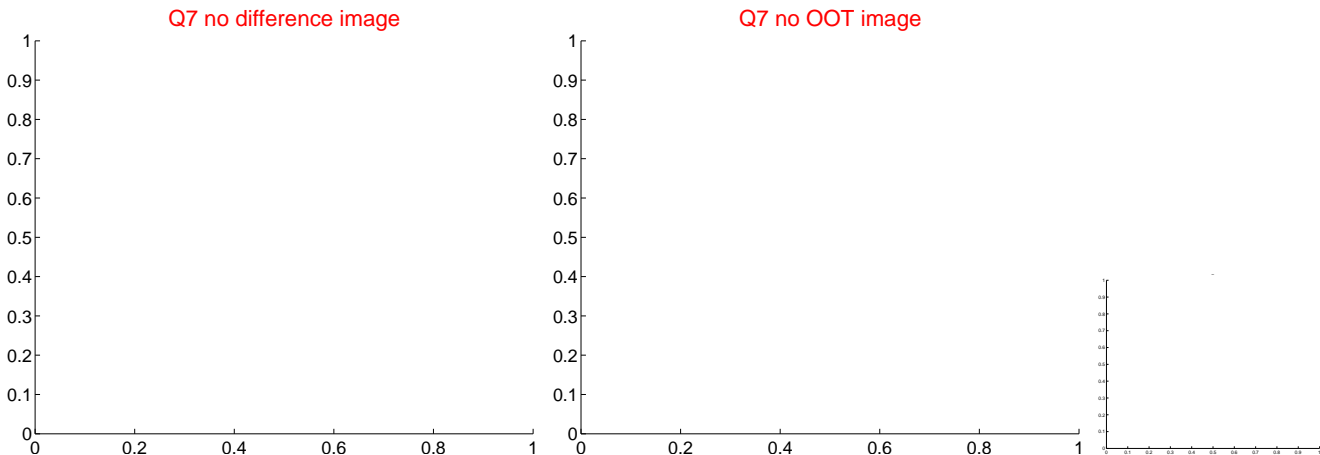
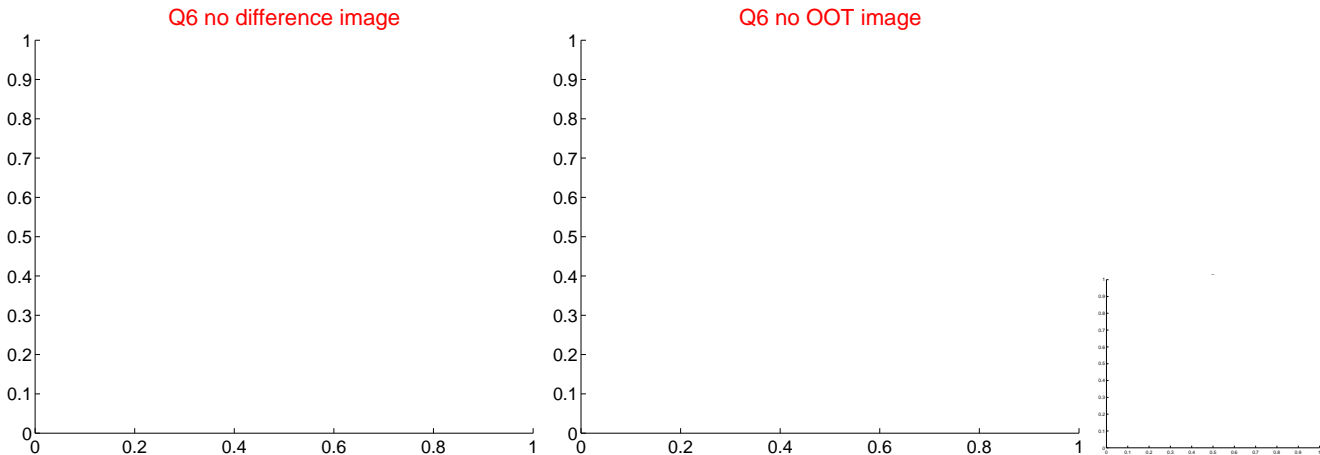
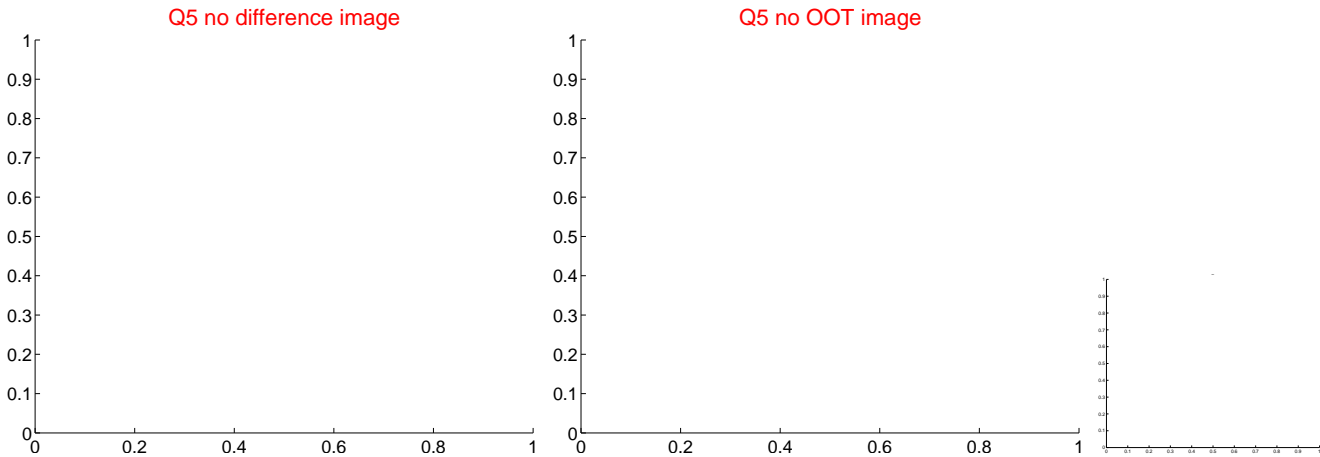
Q4 no difference image



Q4 no OOT image



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



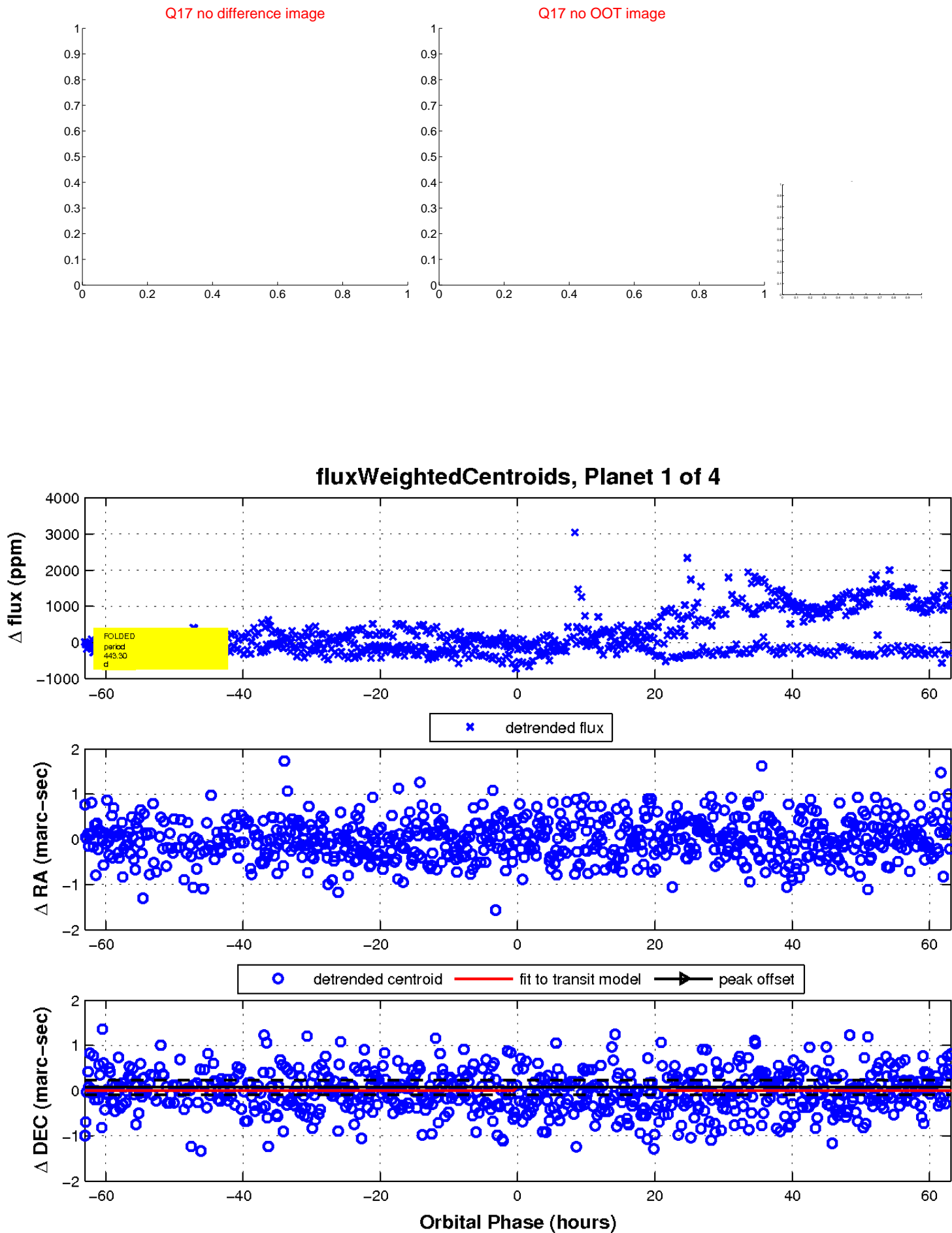
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

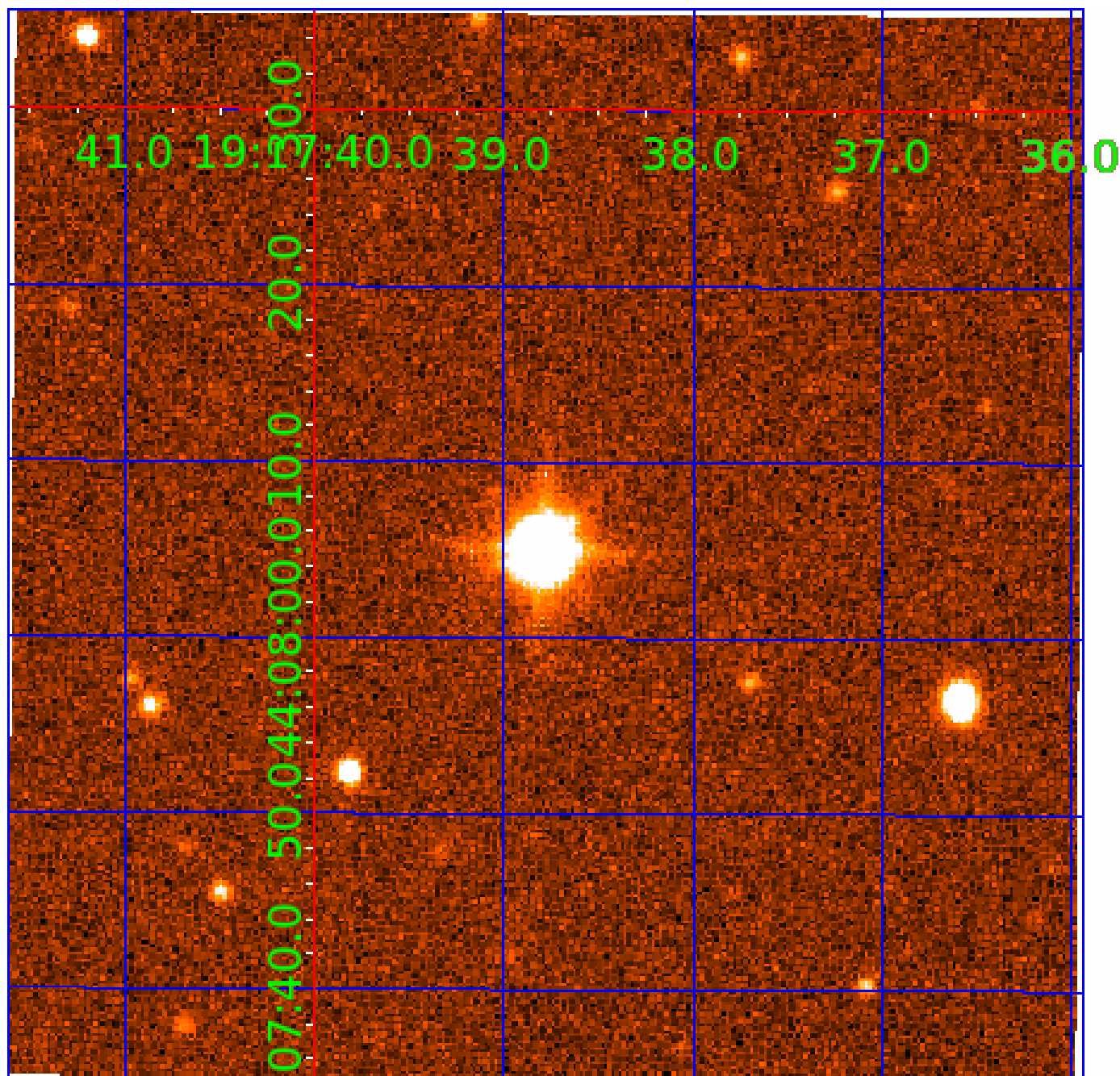


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008226542

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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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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008226542-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008226542-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_POS_DV
008226542-04	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

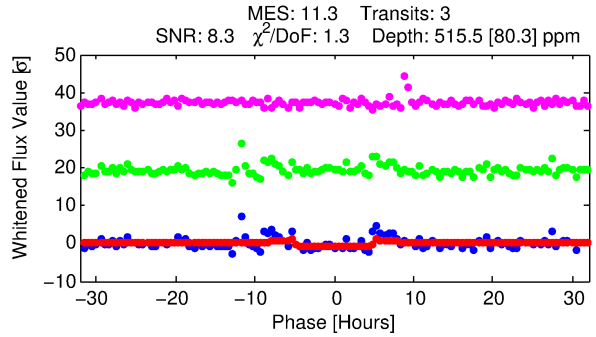
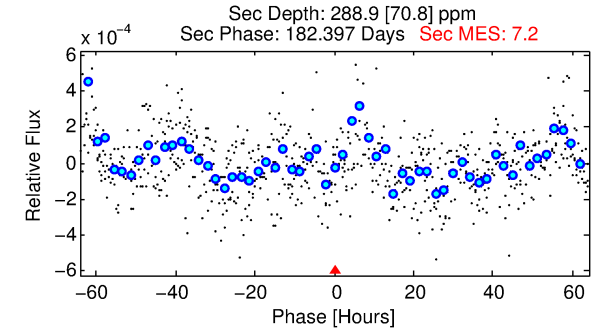
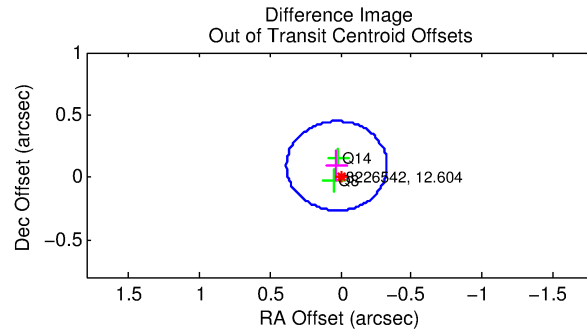
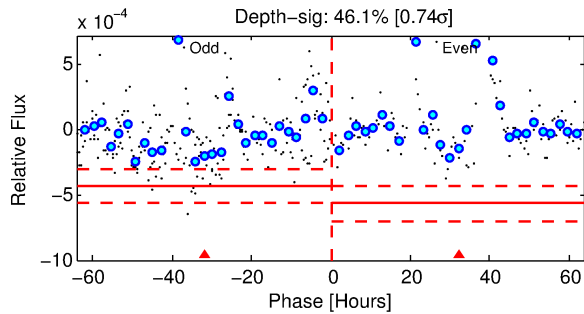
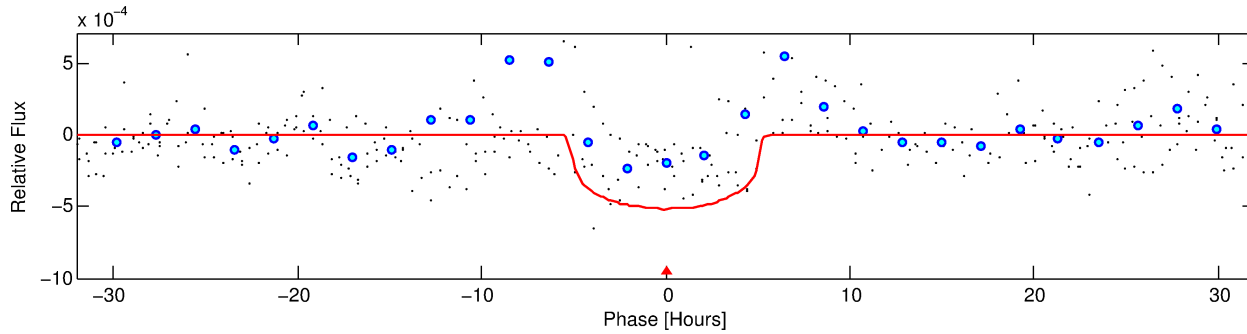
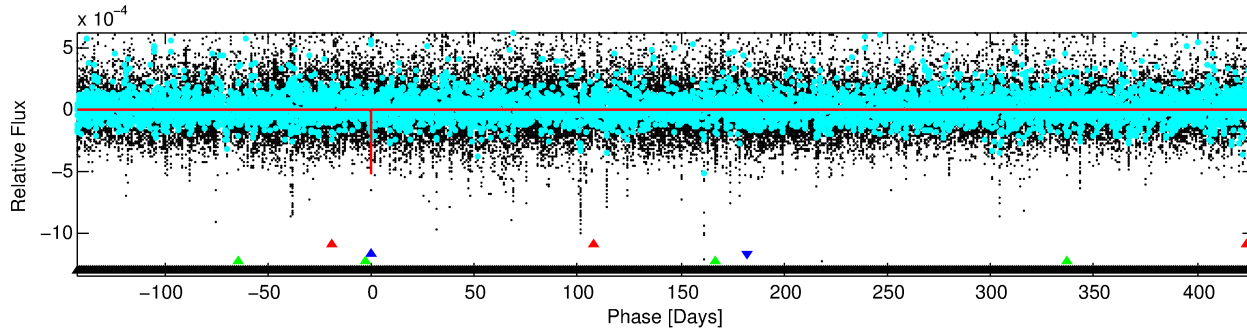
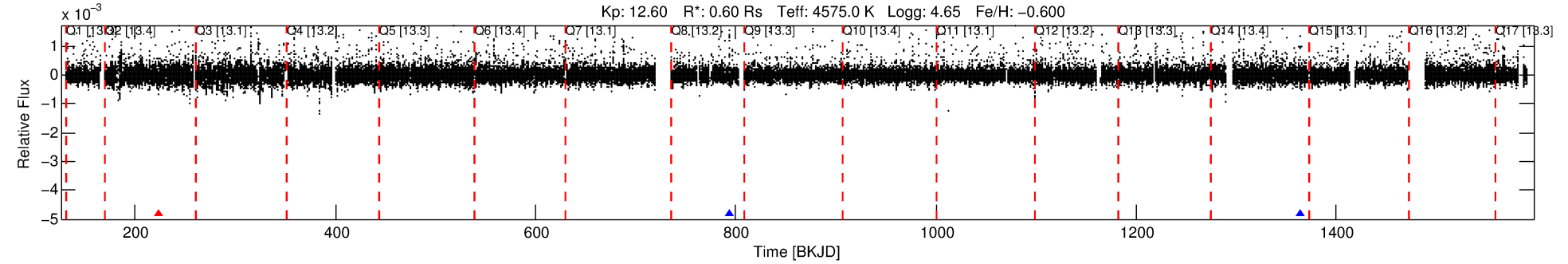
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008226542-02

No Significant Match Found

DV One-Page Summary

KIC: 8226542 Candidate: 2 of 4 Period: 570.608 d



DV Fit Results:

Period = 570.60819 [0.00854] d
Epoch = 223.0367 [0.0110] BKJD
Rp/R* = 0.0224 [0.0063]
a/R* = 293.71 [259.12]
b = 0.73 [0.57]
Seff = 0.11 [0.02]
Teq = 147 [6] K
Rp = 1.47 [0.42] Re
a = 1.1277 [0.0484] AU
Ag = 94018.34 [57437.08] [1.64 σ]
Teffp = 3982 [623] K [6.16 σ]

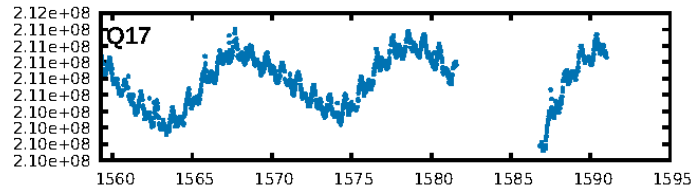
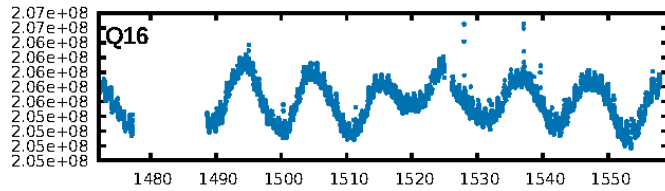
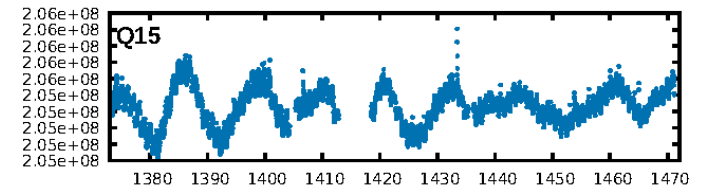
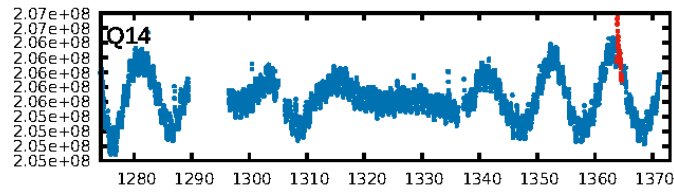
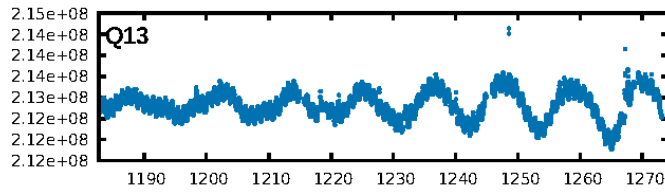
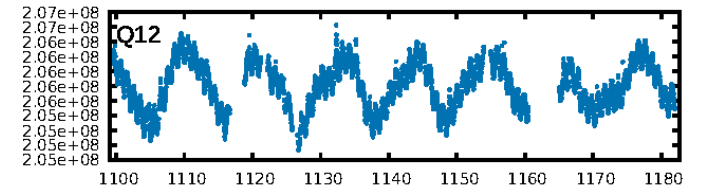
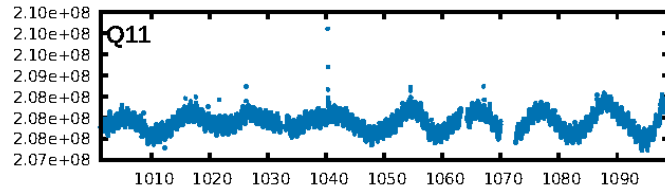
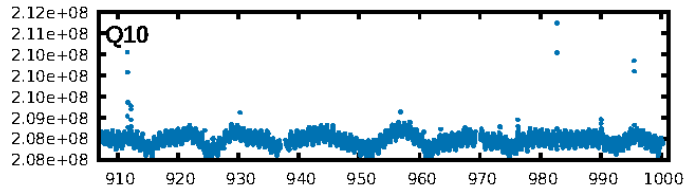
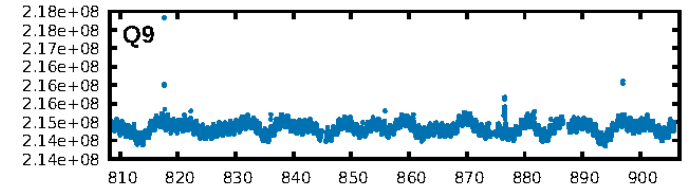
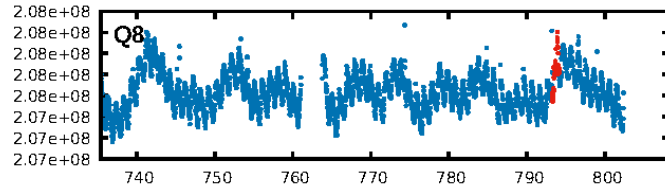
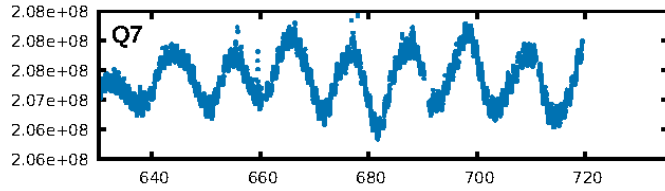
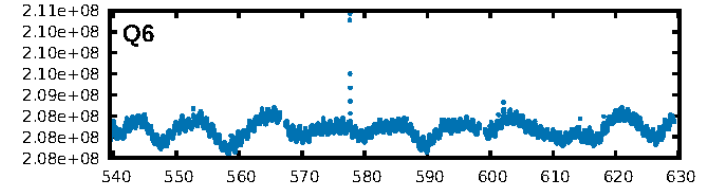
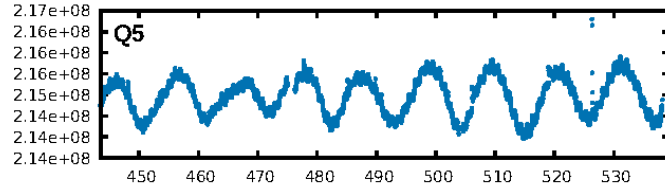
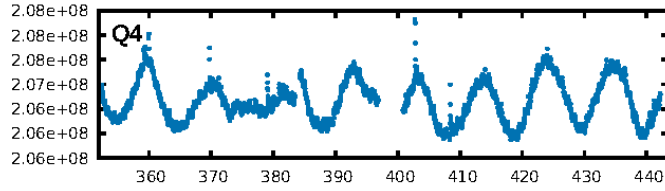
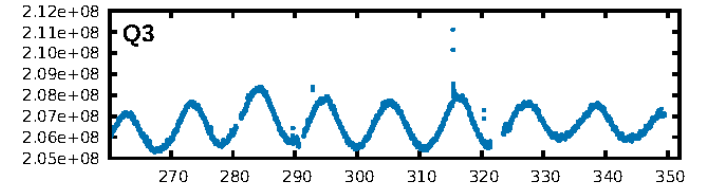
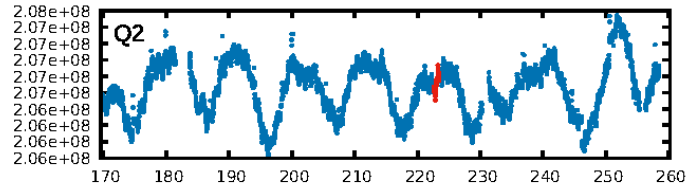
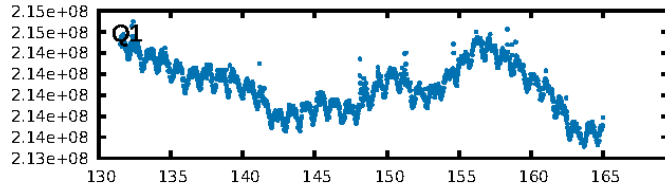
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [165.97 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 14.3%
ModelChiSquareGof-sig: 94.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: 1.789
Centroid-sig: N/A
Centroid-so: 0.680 arcsec [1.37 σ]
OotOffset-rm: 0.094 arcsec [0.79 σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-rm: 0.242 arcsec [1.78 σ]
KicOffset-st: 1/0/1/0 [2]
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DiffImageOverlap-fno: 0.00 [0/2]

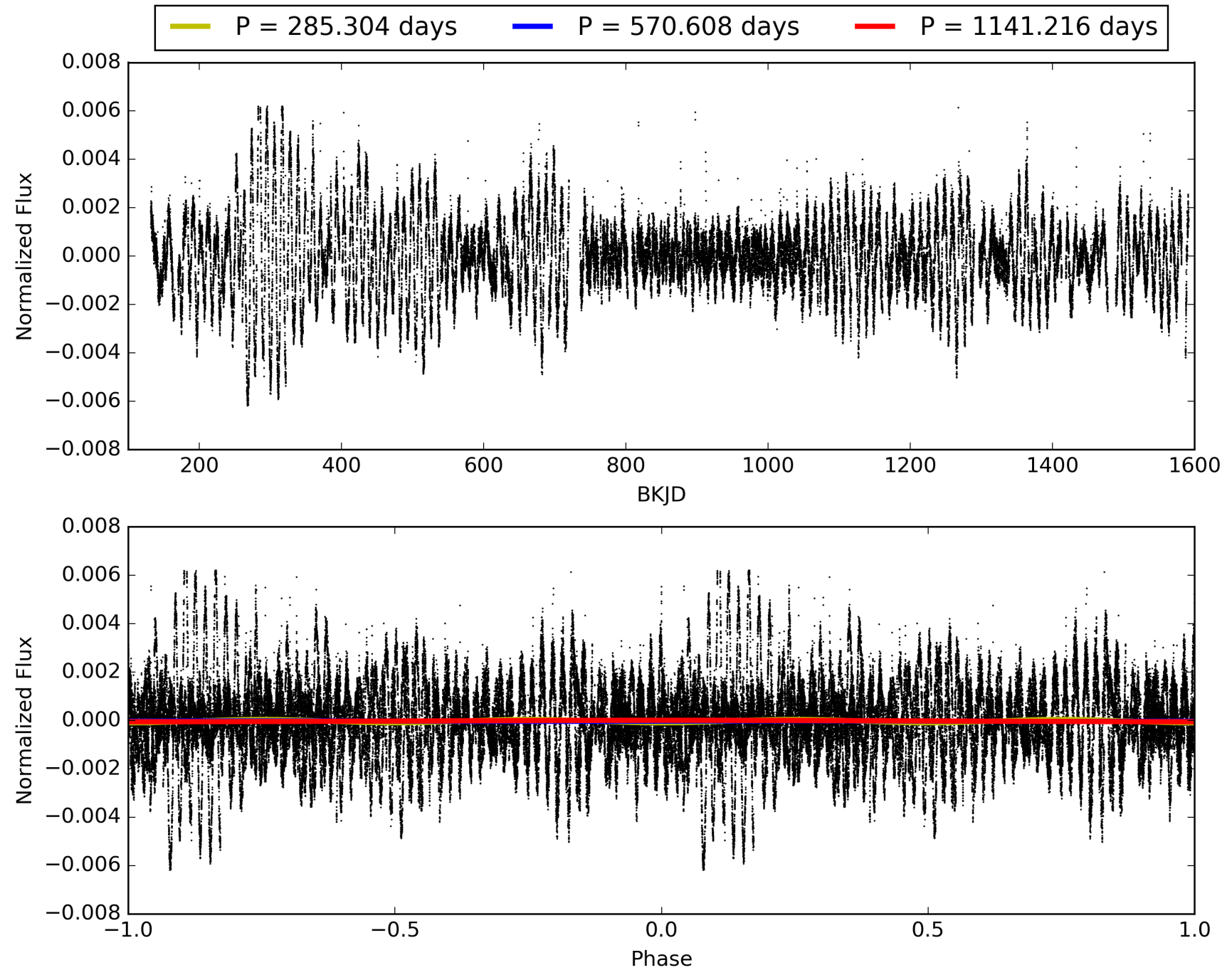
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:28:55 Z

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

TCE 008226542-02, PDC Light Curves

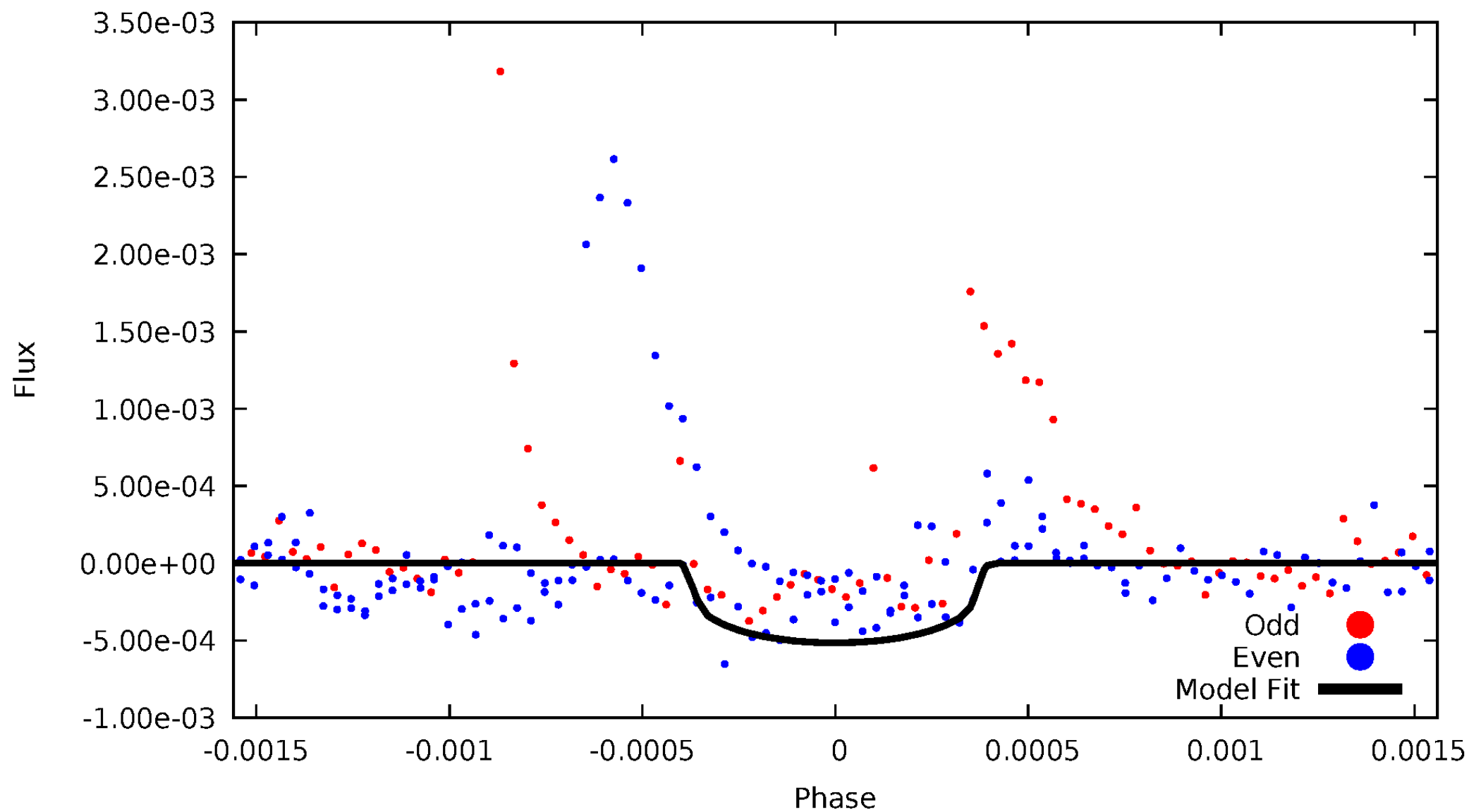


TCE 008226542-02



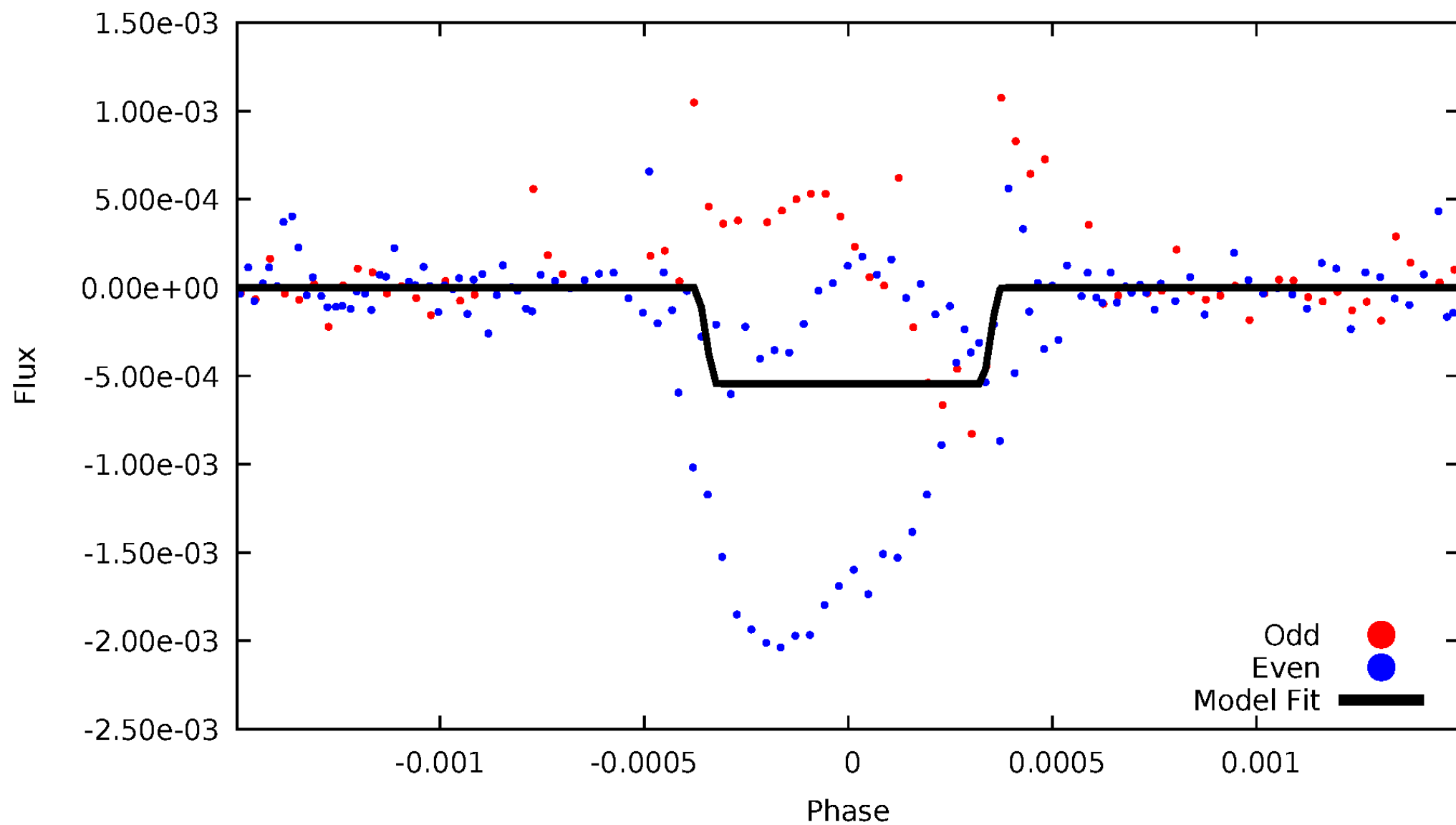
DV Odd/Even

TCE 008226542-02



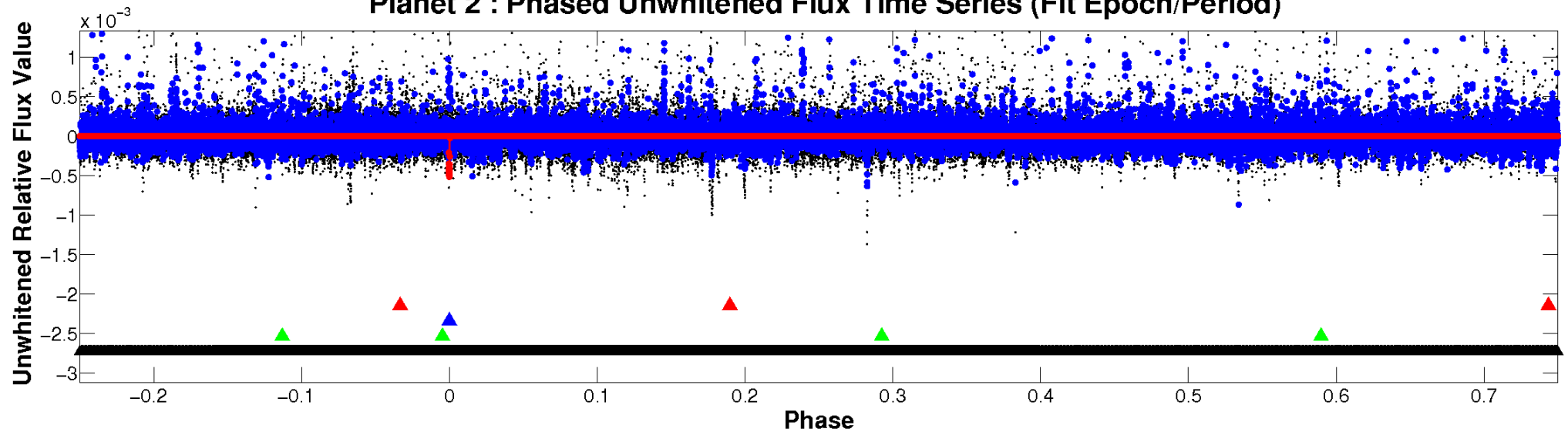
ALT Odd/Even

TCE 008226542-02

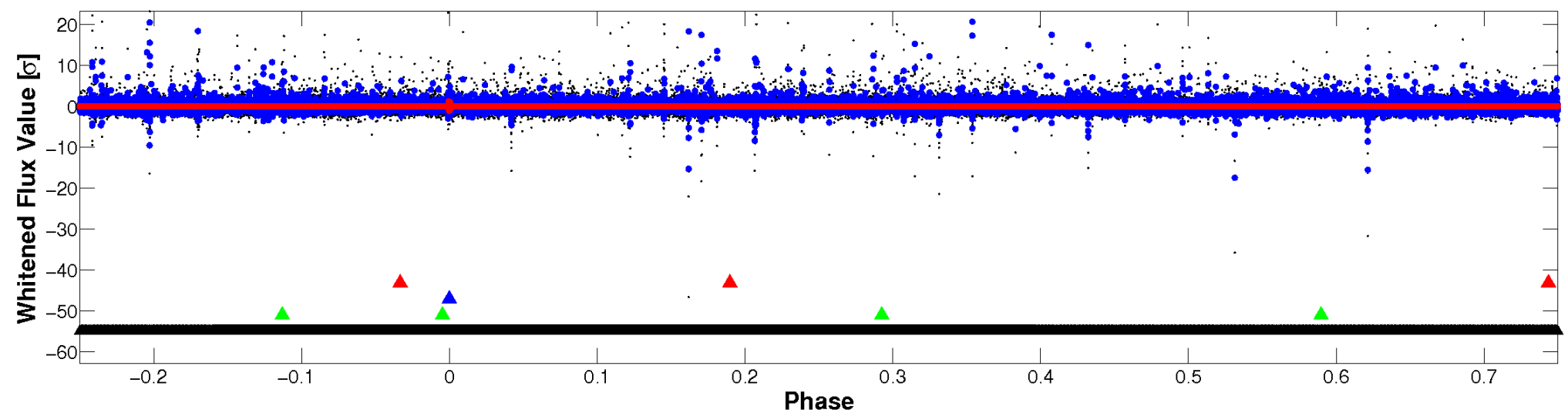


Non-Whitened Vs. Whitened Light Curve

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



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



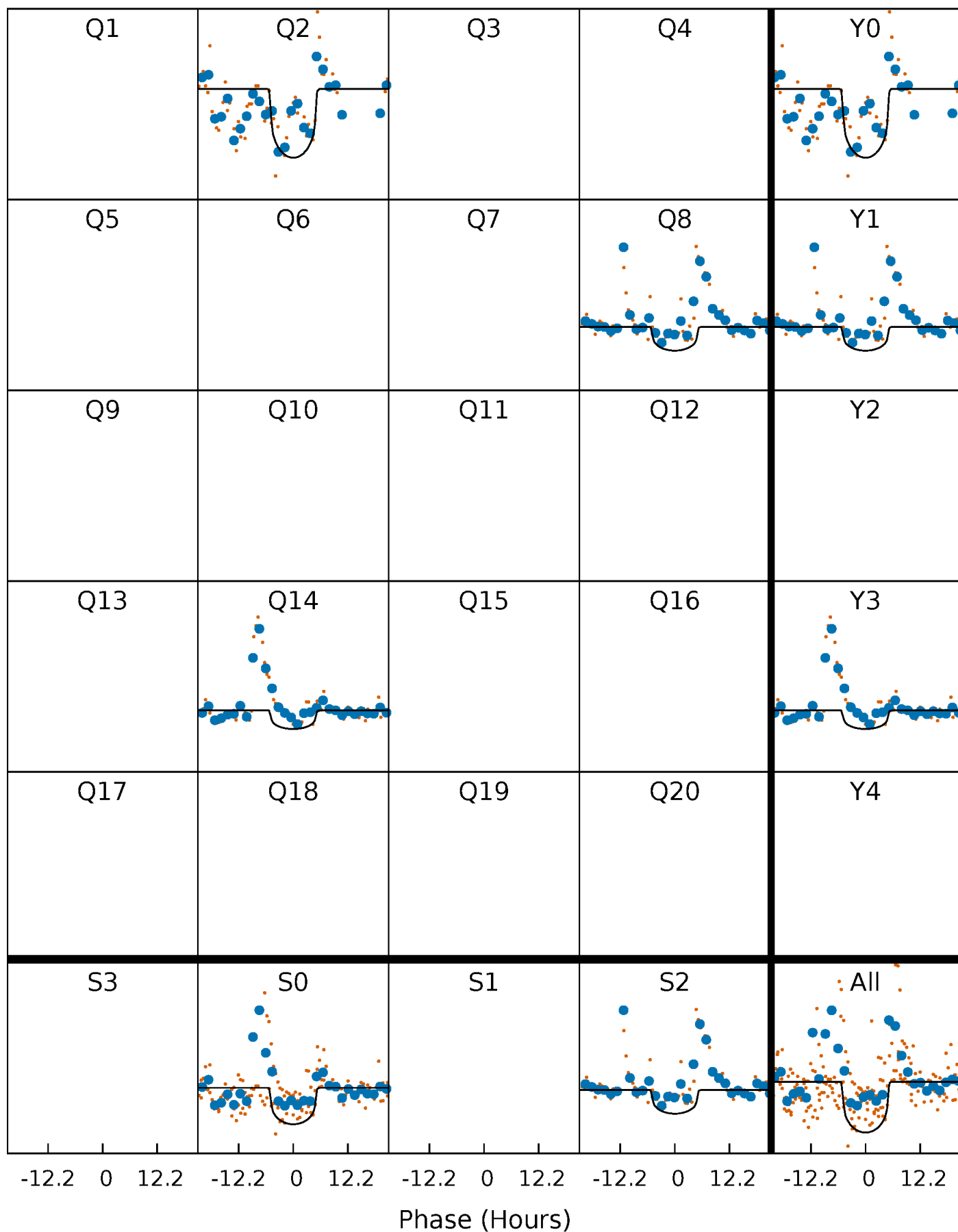
PDC Quarter-Phased Transit Curves

TCE 008226542-02 P=570.608185 Days $T_0=223.036670$ (BKJD)



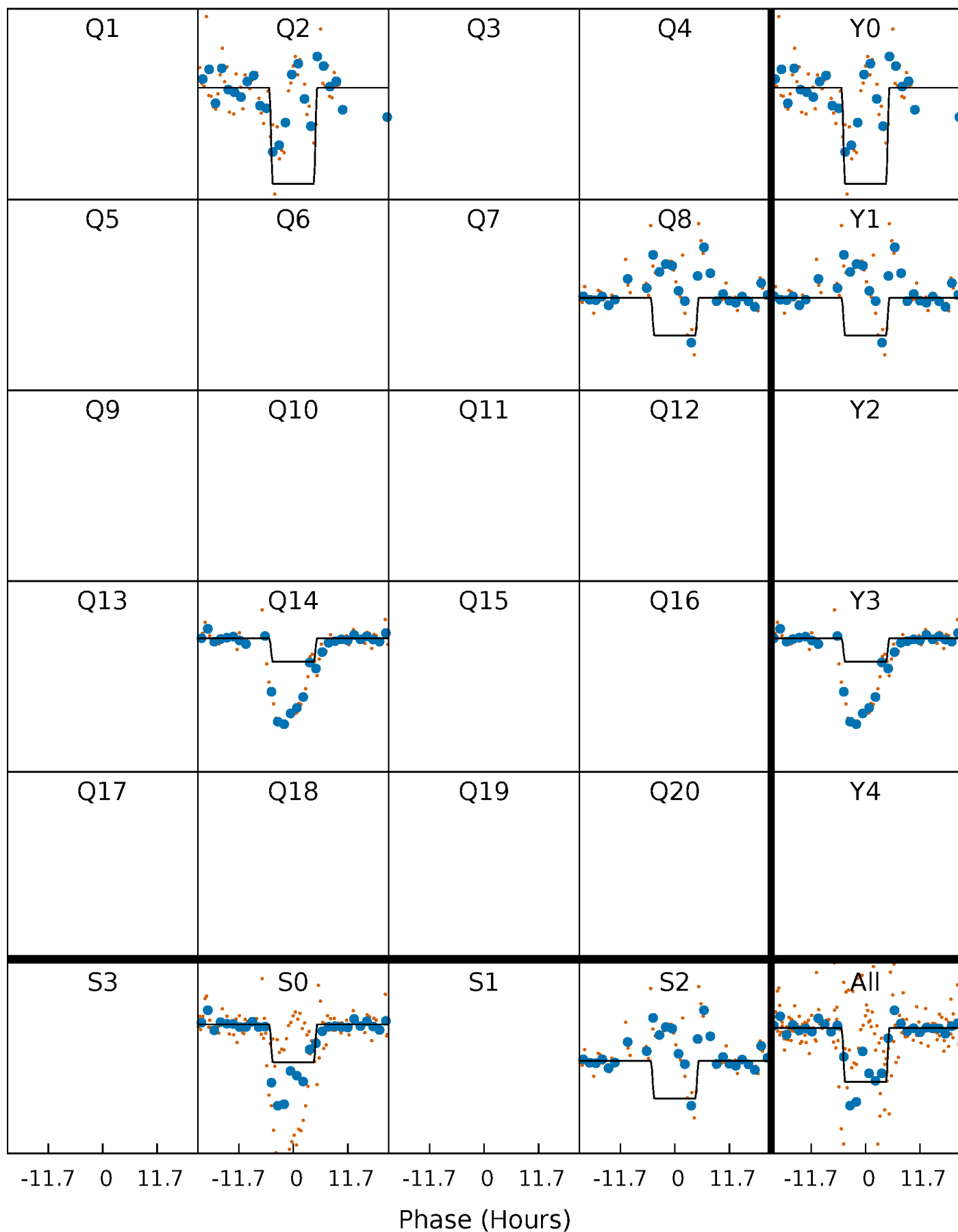
DV Quarter-Phased Transit Curves

TCE 008226542-02 P=570.608185 Days $T_0=223.036670$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

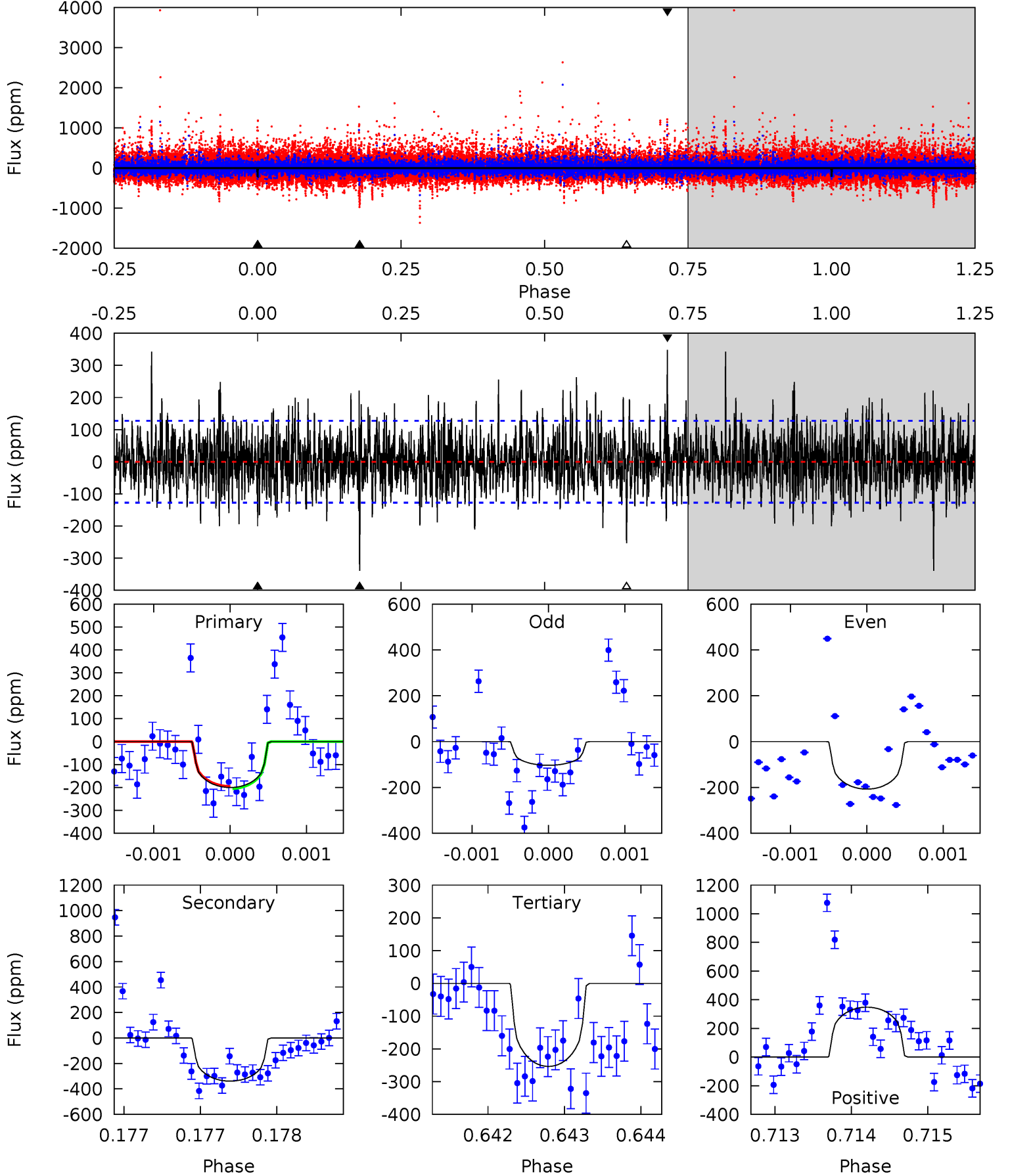
TCE 008226542-02 P=570.593541 Days $T_0=223.037235$ (BKJD)



DV Model-Shift Uniqueness Test

008226542-02, P = 570.608185 Days, E = 223.036670 Days

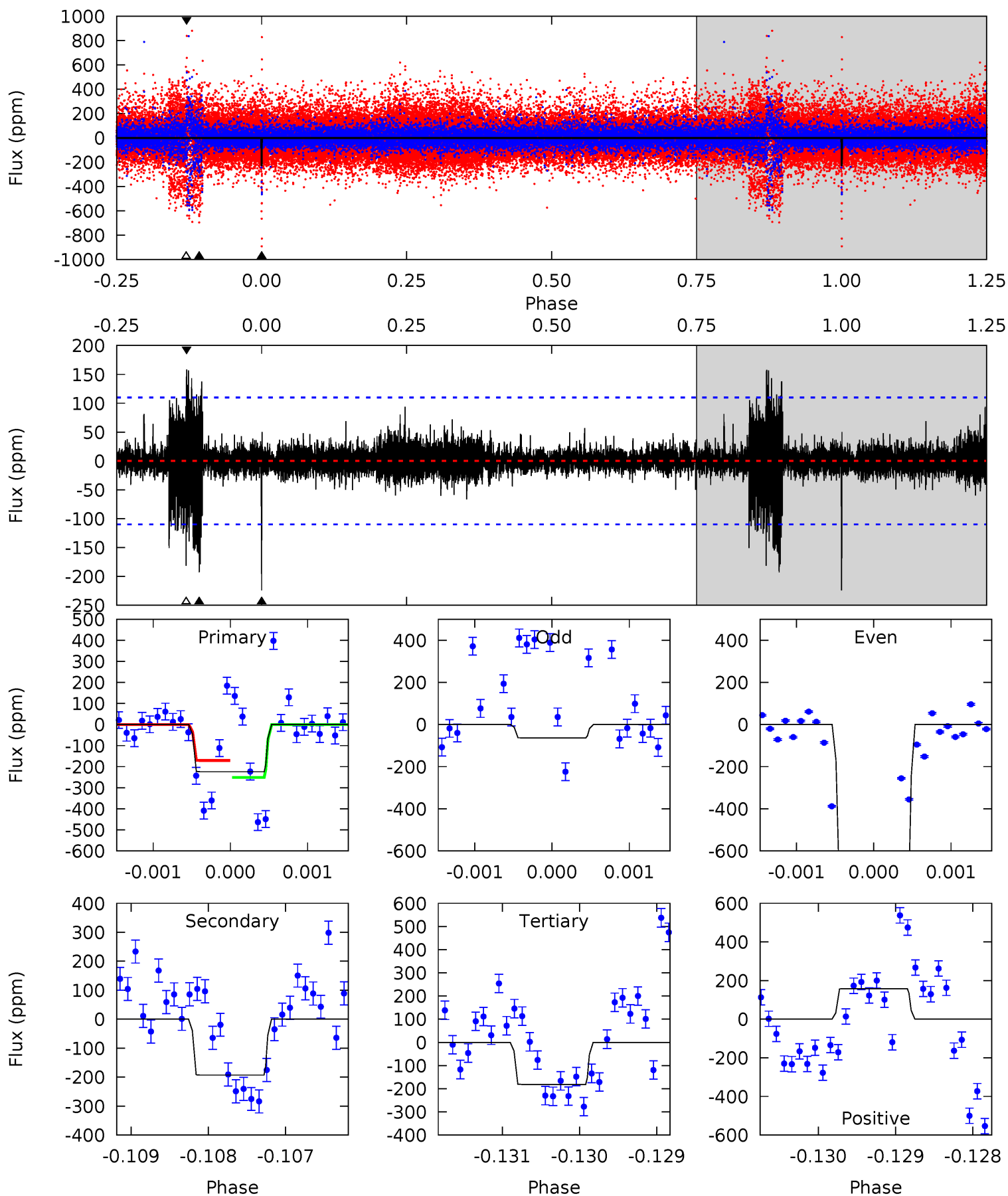
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.64	14.6	10.9	15.0	5.49	3.35	2.88	-2.29	-6.39	3.69	-0.41	1.56	1.71	0.51	0.21



Alt Model-Shift Uniqueness Test

008226542-02, P = 570.593541 Days, E = 223.037235 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	9.68	9.11	7.92	5.51	3.38	1.09	2.13	3.32	0.58	1.76	23.2	3.55	0.41	1.89



Stellar Parameters For KIC 008226542

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4575^{+164}_{-109}	$4.652^{+0.010}_{-0.020}$	$-0.600^{+0.300}_{-0.100}$	$0.599^{+0.036}_{-0.012}$	$0.586^{+0.059}_{-0.012}$	$3.840^{+0.192}_{-0.419}$
	+4%/-2%	+0%/-0%	+50%/-17%	+6%/-2%	+10%/-2%	+5%/-11%
Source	PHO1	FLK73	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 008226542-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-339 ± 23	$1.50^{+0.39}_{-0.44}$	206^{+7}_{-5}	4245^{+608}_{-348}	$105064^{+109017}_{-38663}$
Alt.	-193 ± 20	$1.54^{+0.39}_{-0.45}$	206^{+8}_{-5}	3804^{+520}_{-297}	57562^{+56493}_{-21892}

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

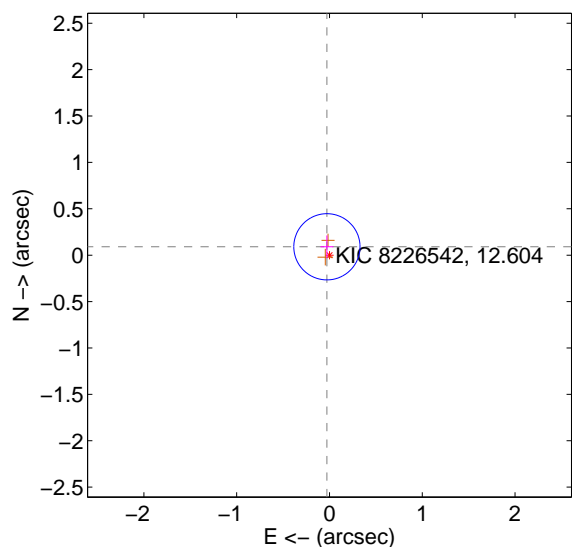
Supplemental centroid analysis for 008226542-02. Kepler magnitude: 12.60. Transit SNR 8.29

There are 0 quarters with good PRF difference image offsets

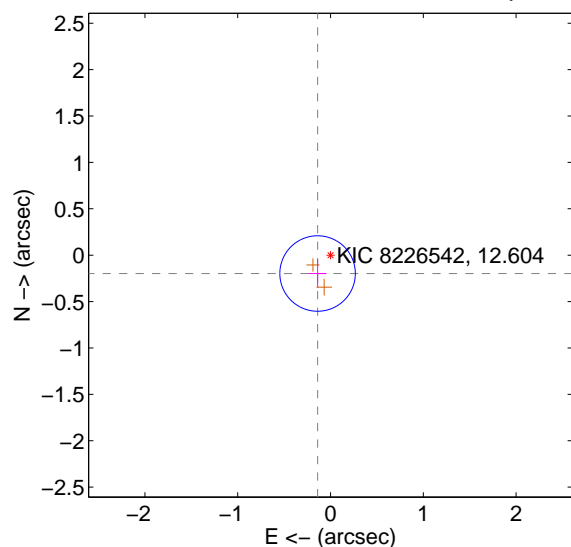
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.094 ± 0.119	0.79	0.028 ± 0.069	0.090 ± 0.123
PRF-fit source offset from KIC position	0.242 ± 0.136	1.78	0.139 ± 0.097	-0.198 ± 0.151
photometric centroid source offset	0.68 ± 0.50	1.37	0.17 ± 0.50	0.66 ± 0.50

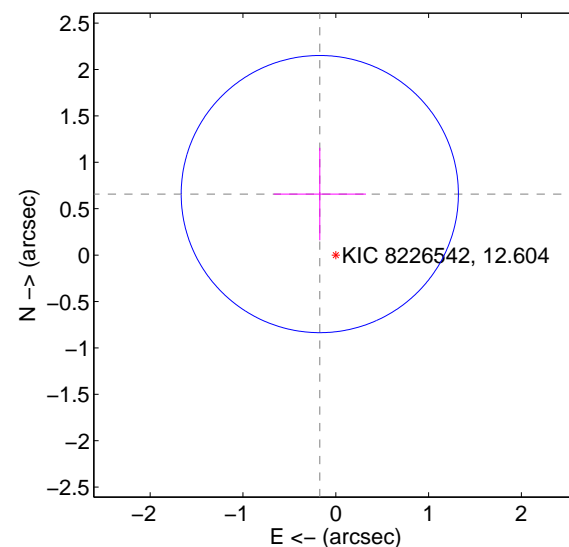
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

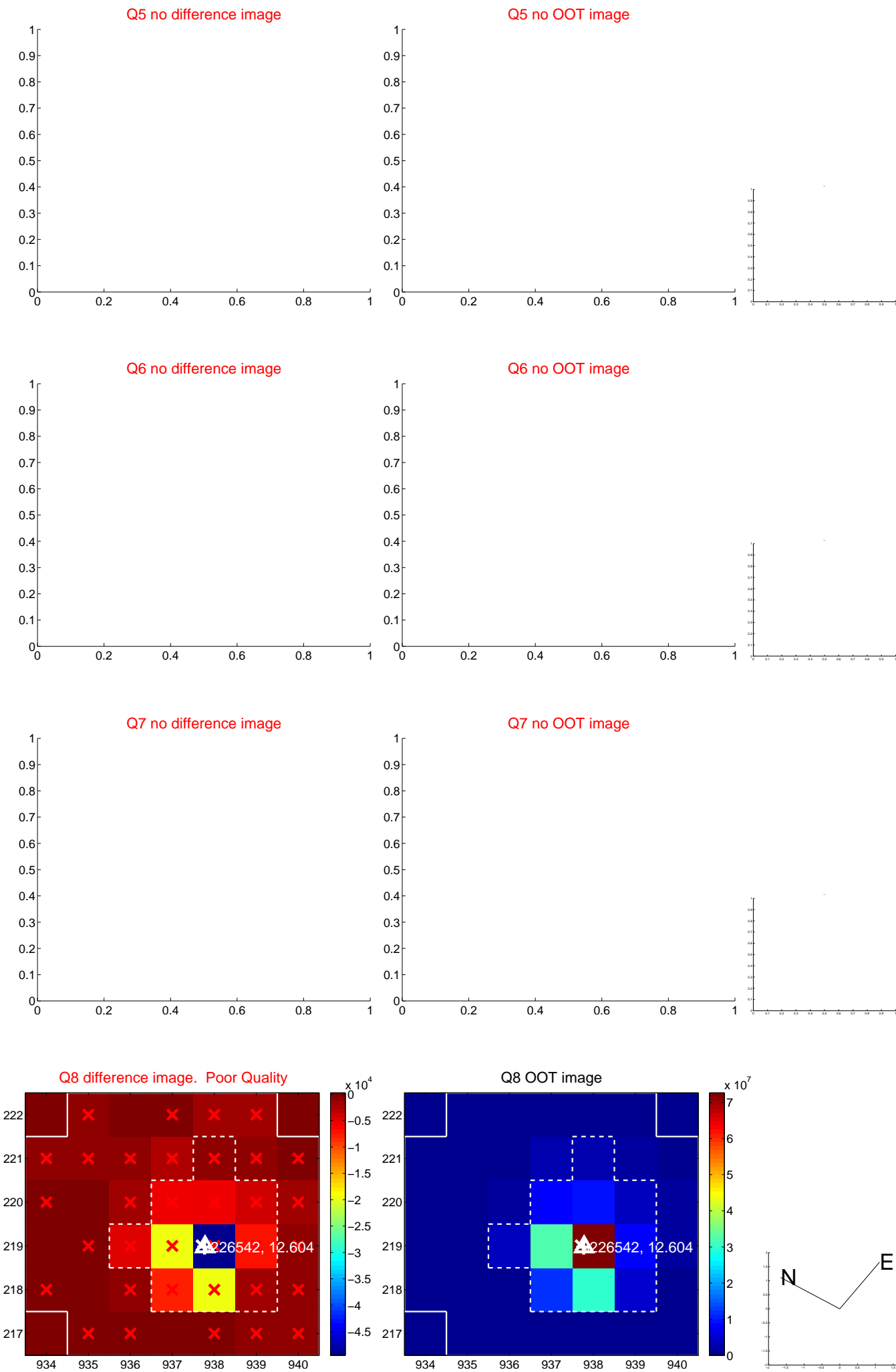


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



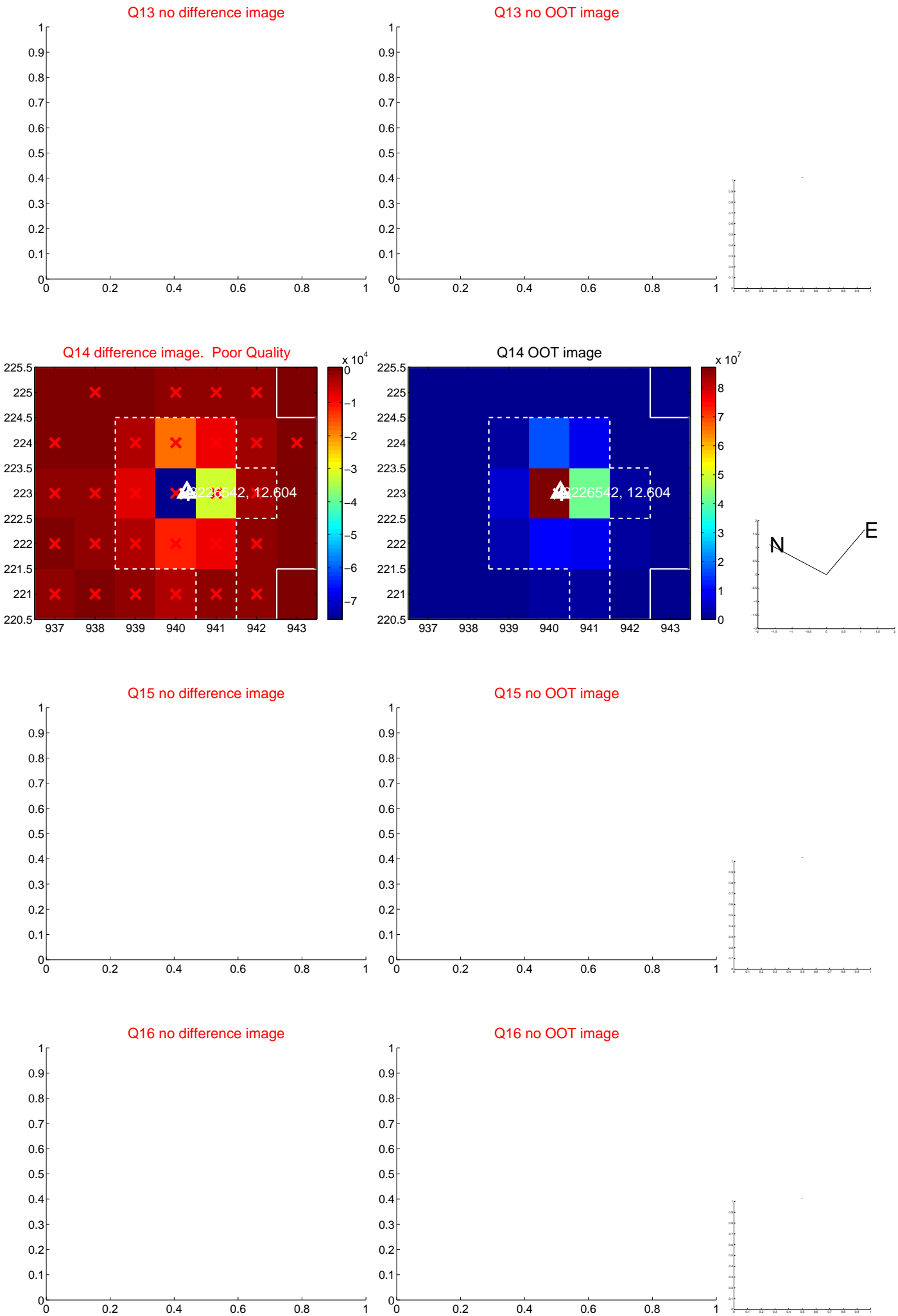
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



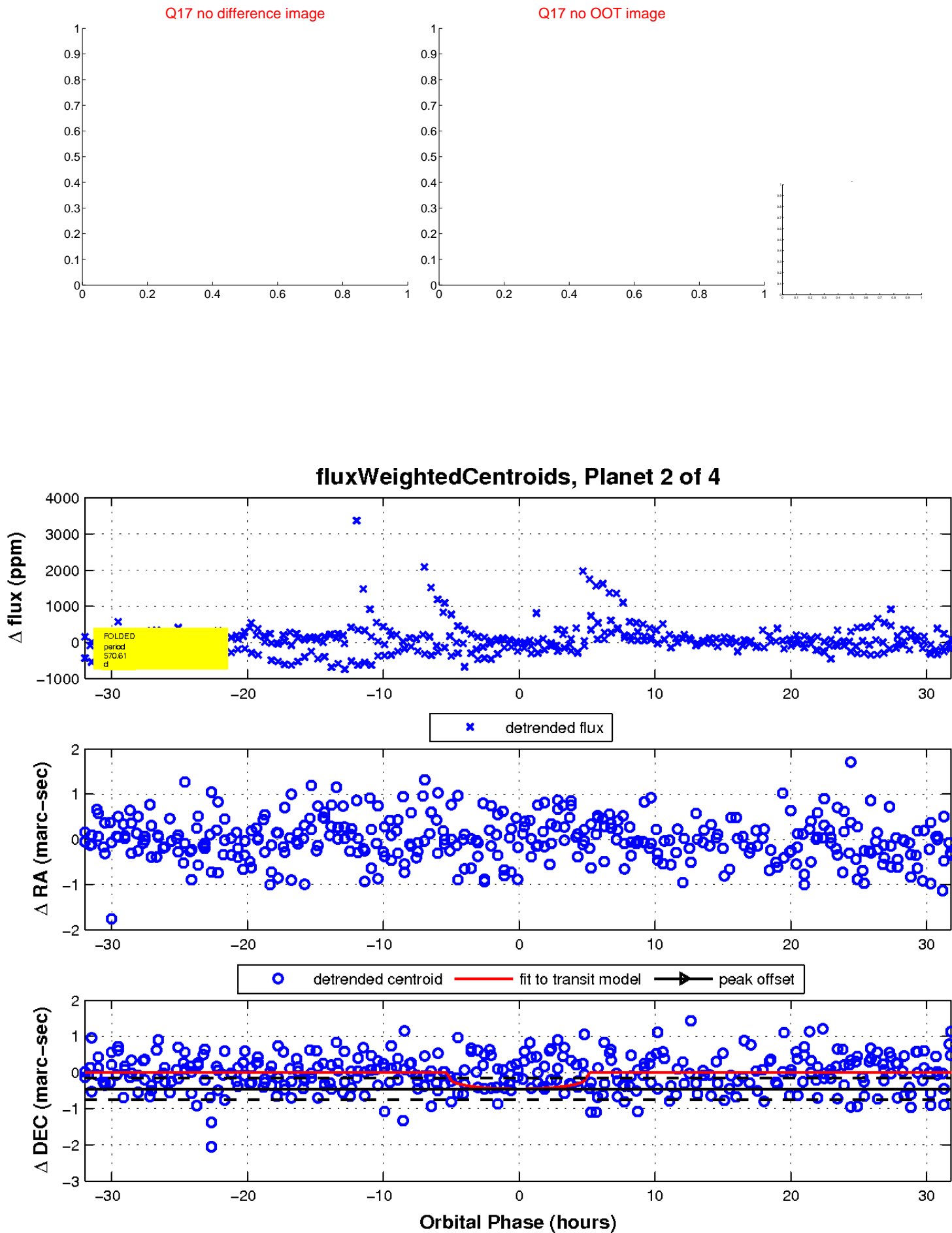
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

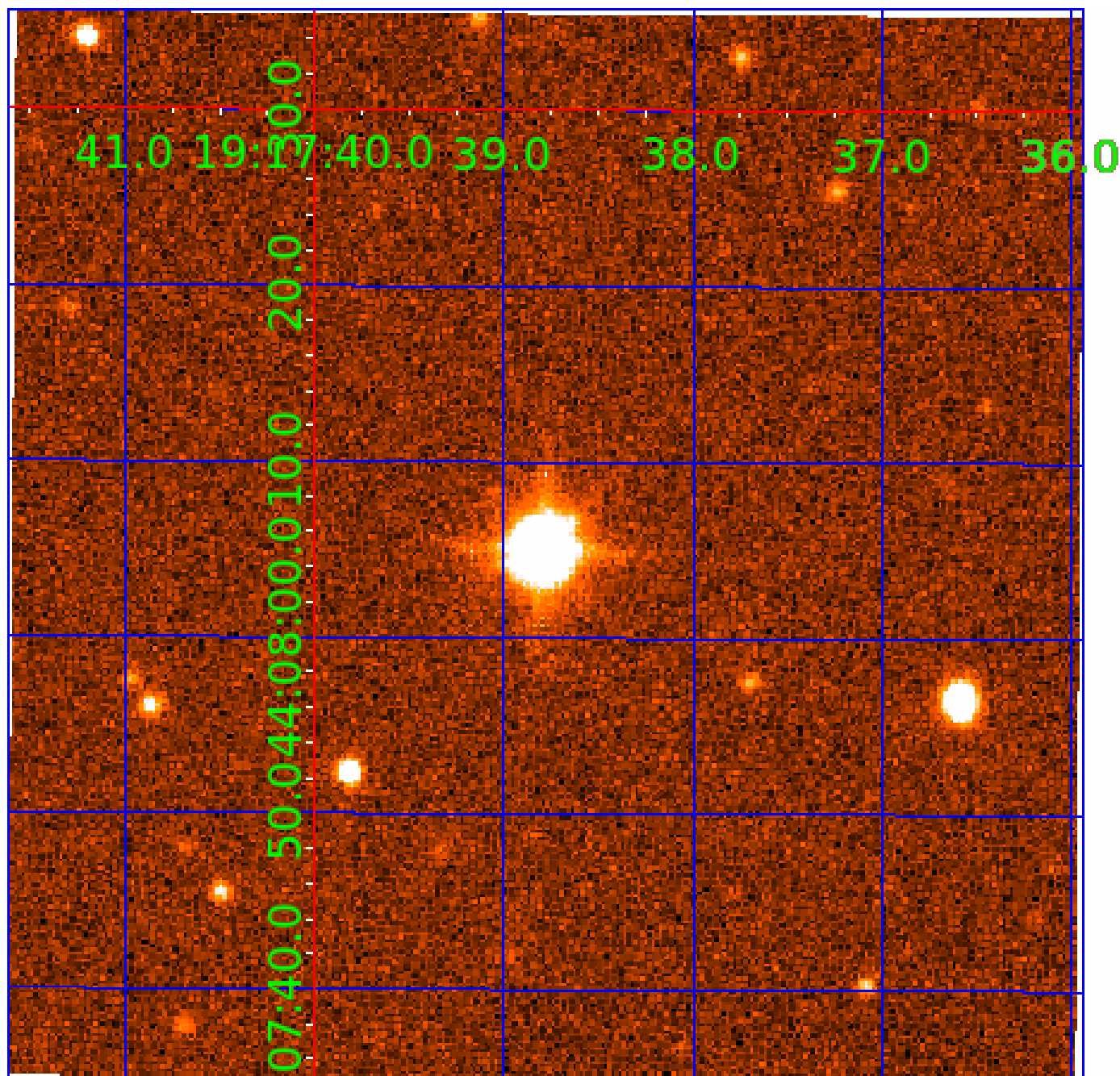


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008226542

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})
008226542-01	OBS	No	443.299273	331.358022	208.2	15.000	13.0	-1.0	0.60	4575	0.83	0.15
008226542-02	OBS	No	570.608185	223.036670	515.5	10.672	11.3	8.3	0.60	4575	1.47	0.11
008226542-03	OBS	No	401.021643	158.534768	262.8	7.793	11.6	6.0	0.60	4575	1.18	0.18
008226542-04	OBS	No	0.657948	131.898760	19.2	5.432	8.3	8.9	0.60	4575	0.25	915.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008226542-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
008226542-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008226542-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_POS_DV
008226542-04	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

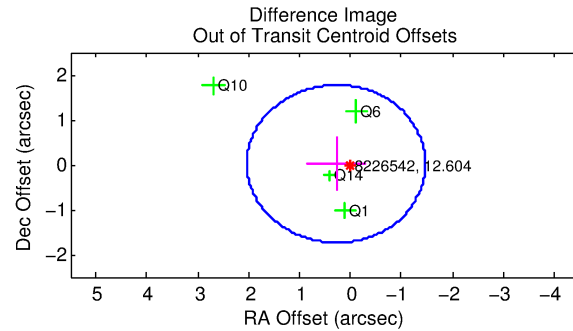
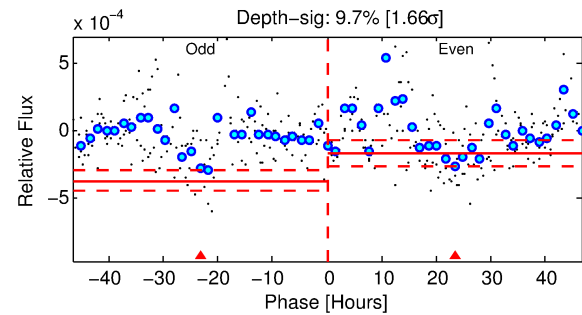
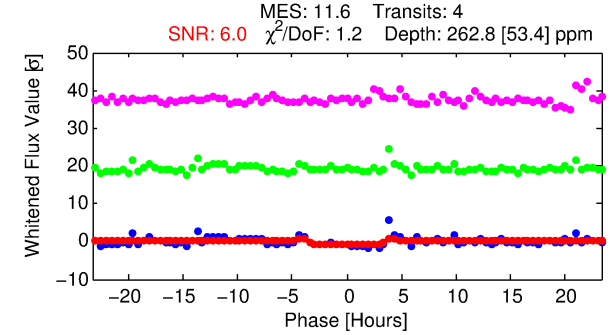
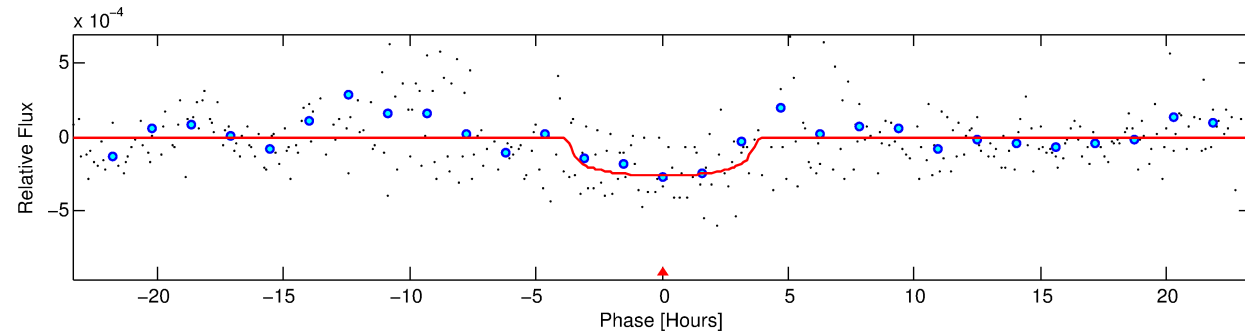
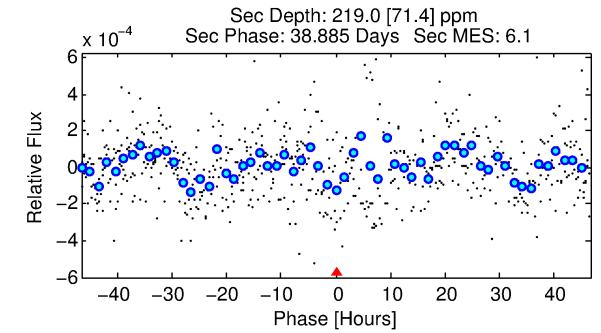
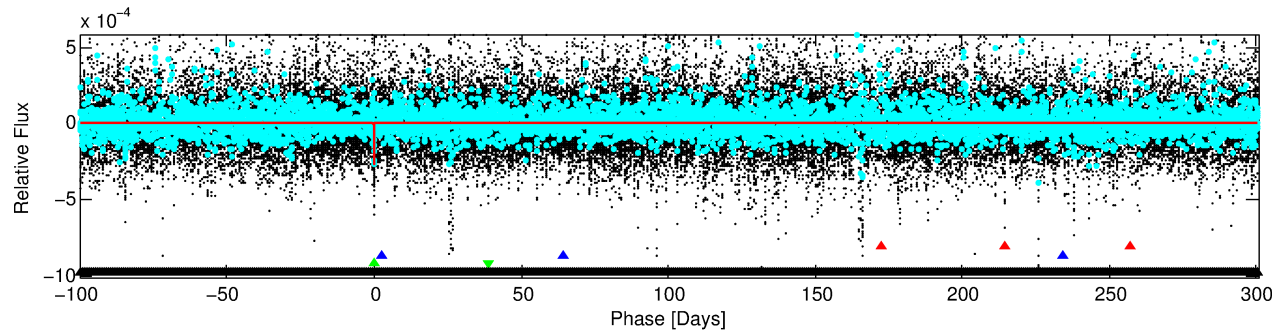
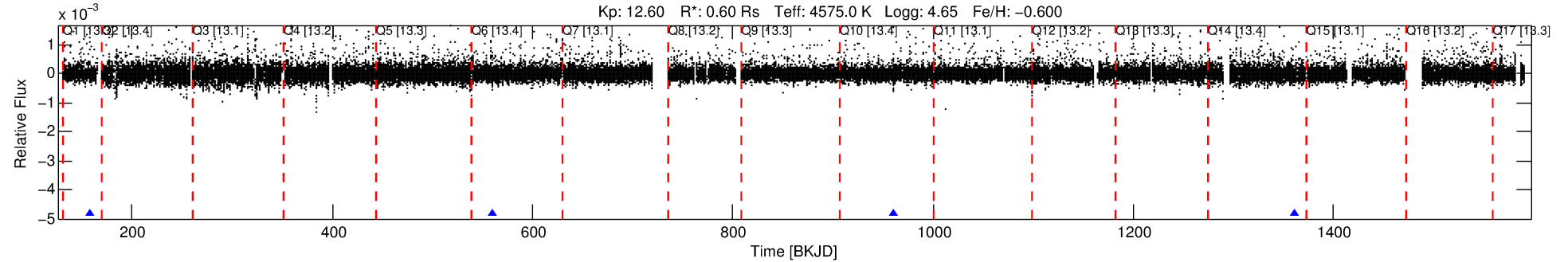
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008226542-03

No Significant Match Found

DV One-Page Summary

KIC: 8226542 Candidate: 3 of 4 Period: 401.022 d



DV Fit Results:

Period = 401.02164 [0.00749] d
Epoch = 158.5348 [0.0133] BKJD
Rp/R* = 0.0180 [0.0053]
a/R* = 194.55 [194.24]
b = 0.89 [0.24]
Seff = 0.18 [0.03]
Teq = 165 [6] K
Rp = 1.17 [0.35] Re
a = 0.8914 [0.0382] AU
Ag = 69389.57 [46622.09] [1.49σ]
Teffp = 4152 [711] K [5.61σ]

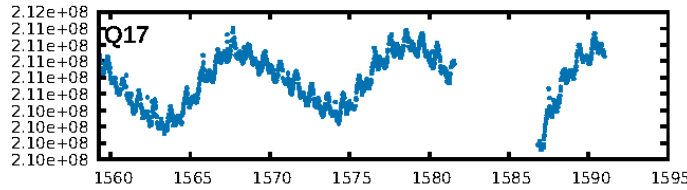
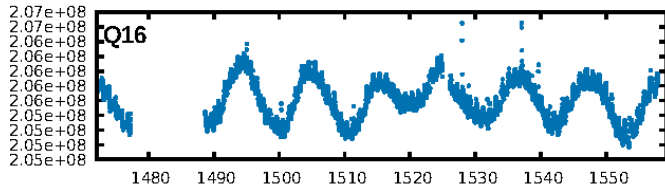
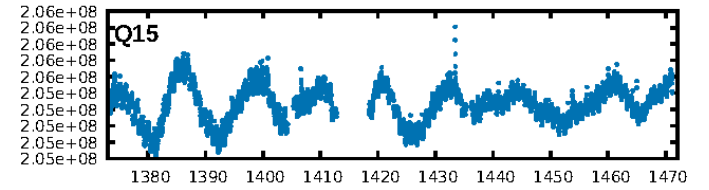
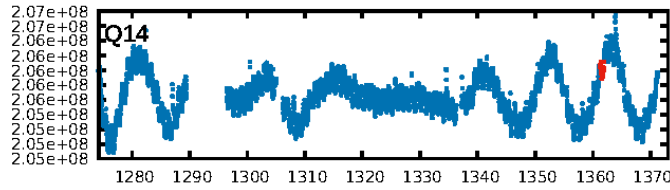
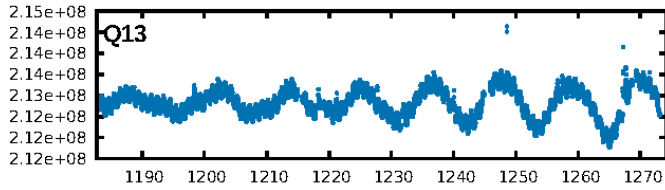
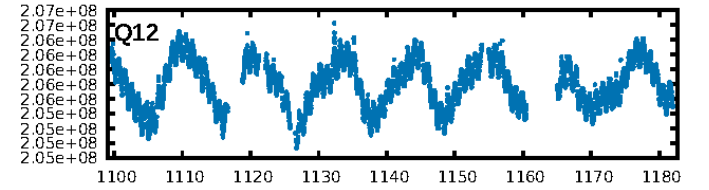
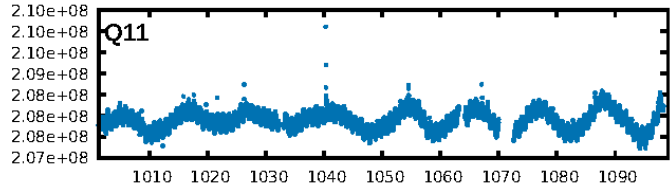
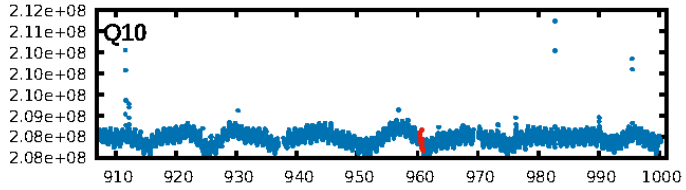
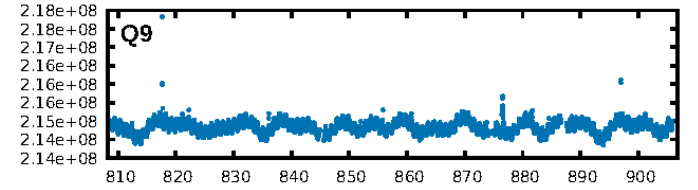
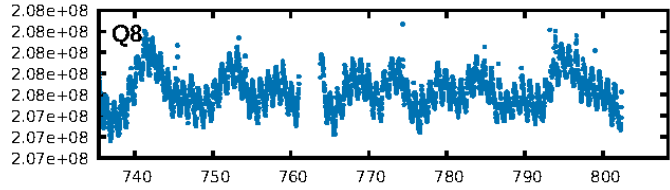
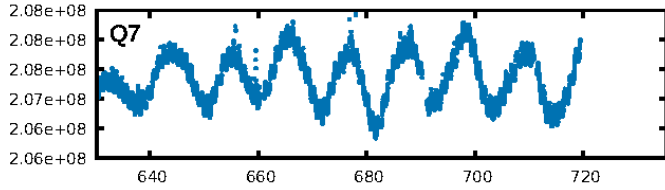
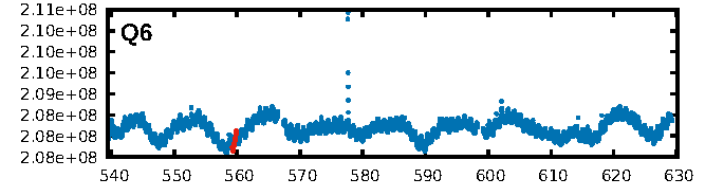
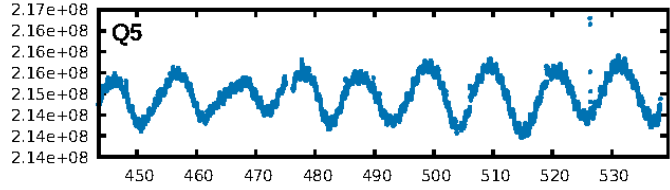
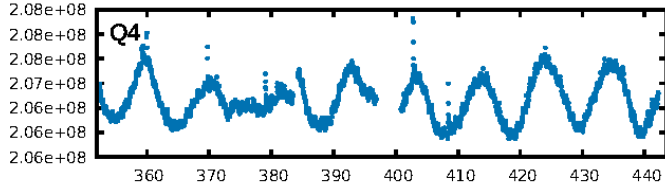
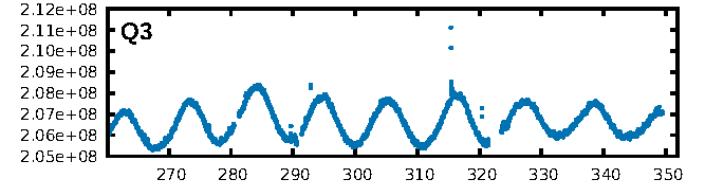
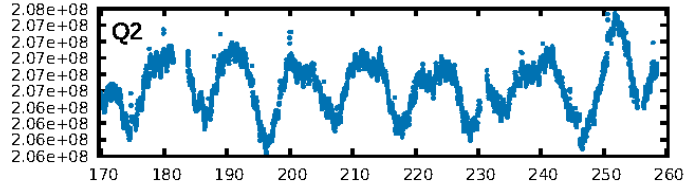
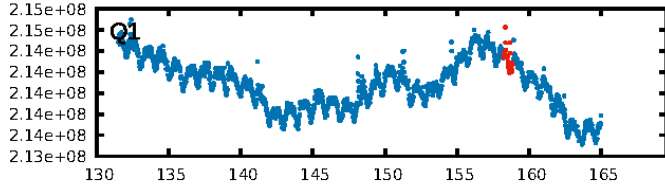
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1011.51σ]
LongPeriod-sig: 100.0% [60.03σ]
ModelChiSquare2-sig: 4.1%
ModelChiSquareGof-sig: 96.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -3.34
Centroid-sig: N/A
Centroid-so: 1.396 arcsec [1.49σ]
OotOffset-rm: 0.280 arcsec [0.48σ]
KicOffset-rm: 0.509 arcsec [1.15σ]
OotOffset-st: 3/0/0/1 [4]
KicOffset-st: 3/0/0/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.00 [0/4]

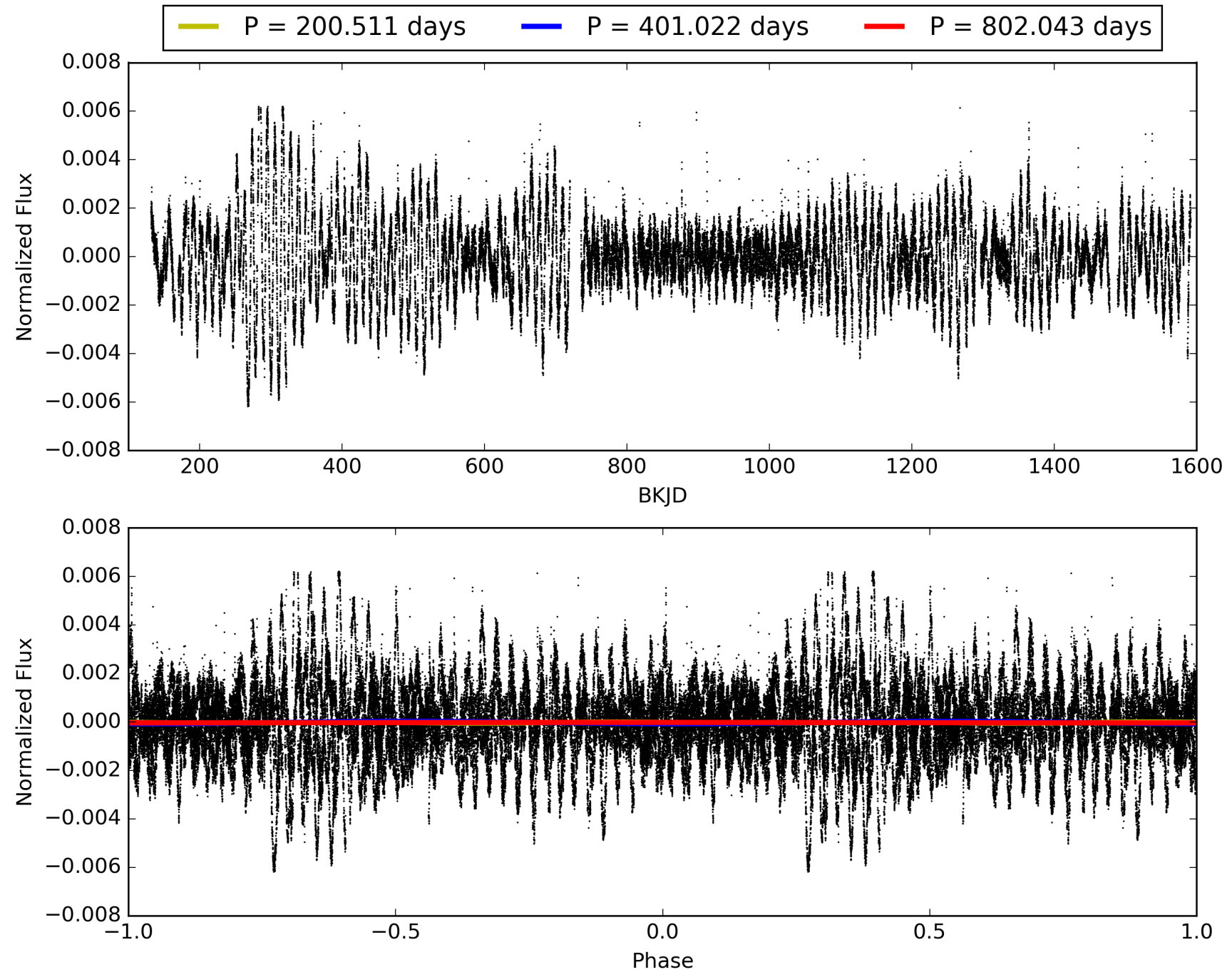
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:29:06 Z

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

TCE 008226542-03, PDC Light Curves

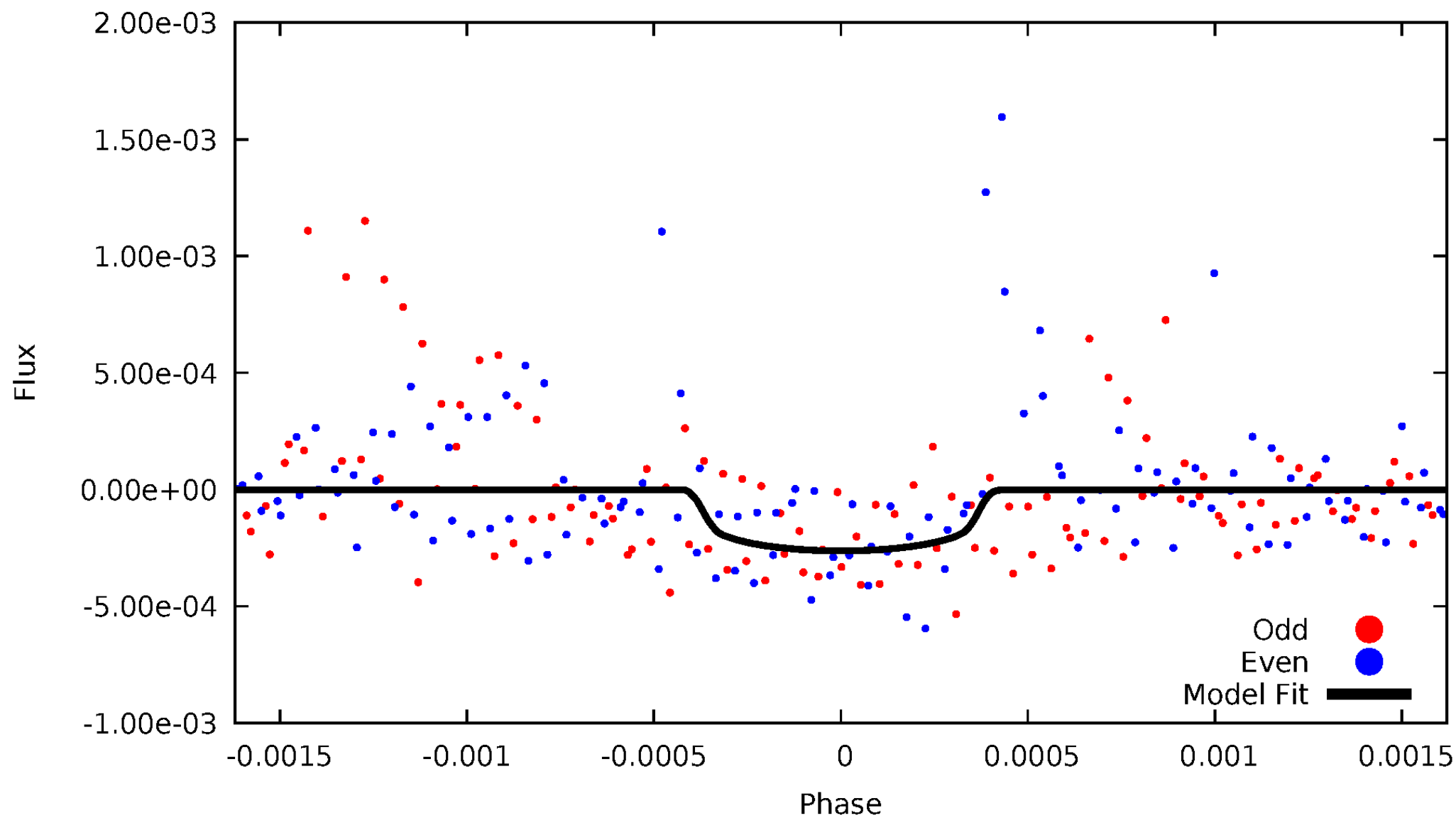


TCE 008226542-03



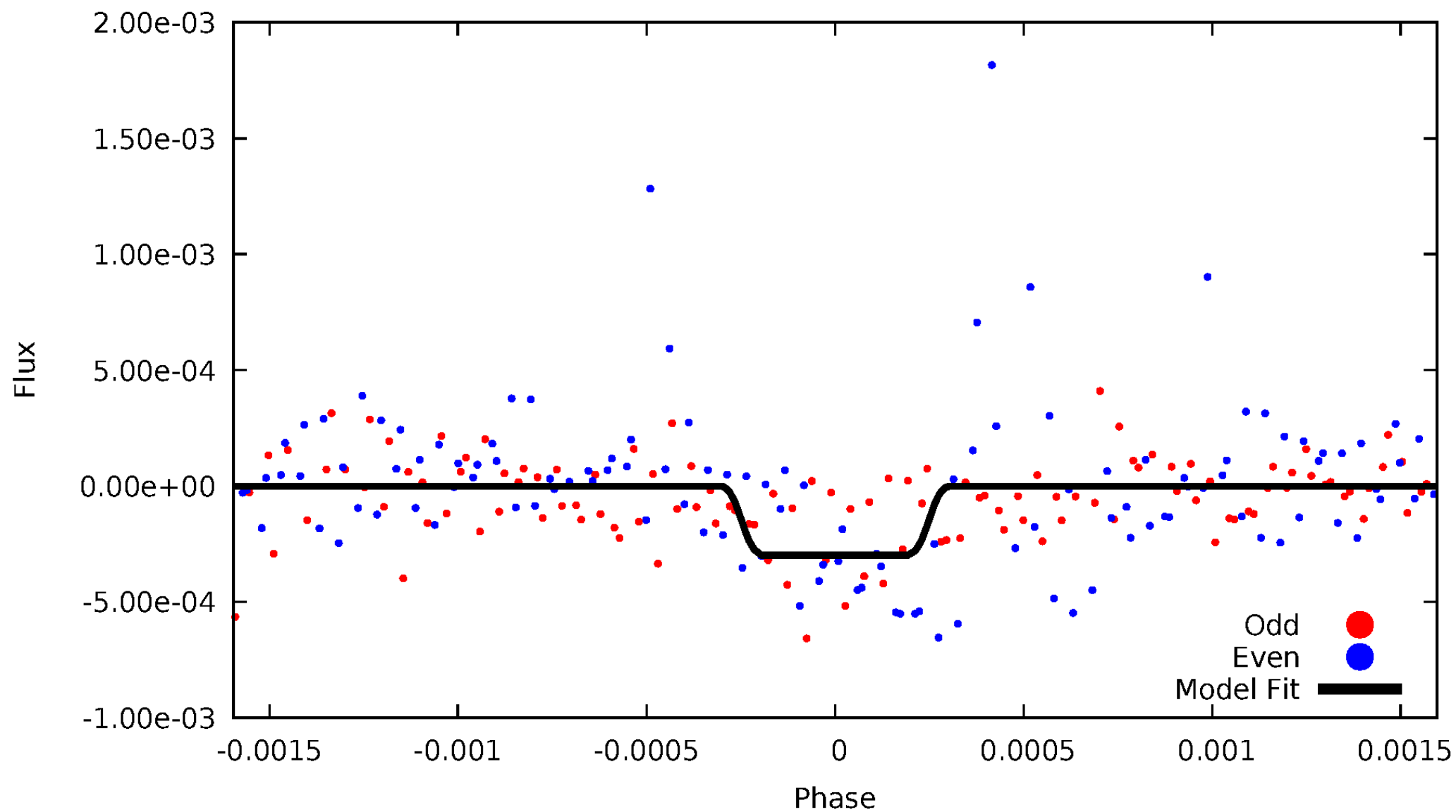
DV Odd/Even

TCE 008226542-03



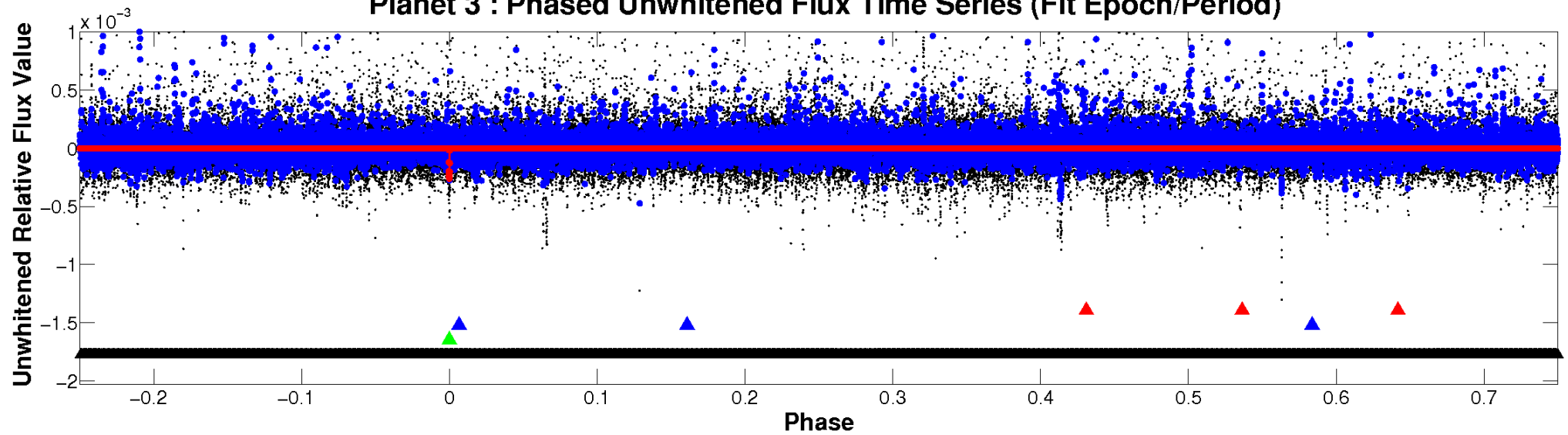
ALT Odd/Even

TCE 008226542-03

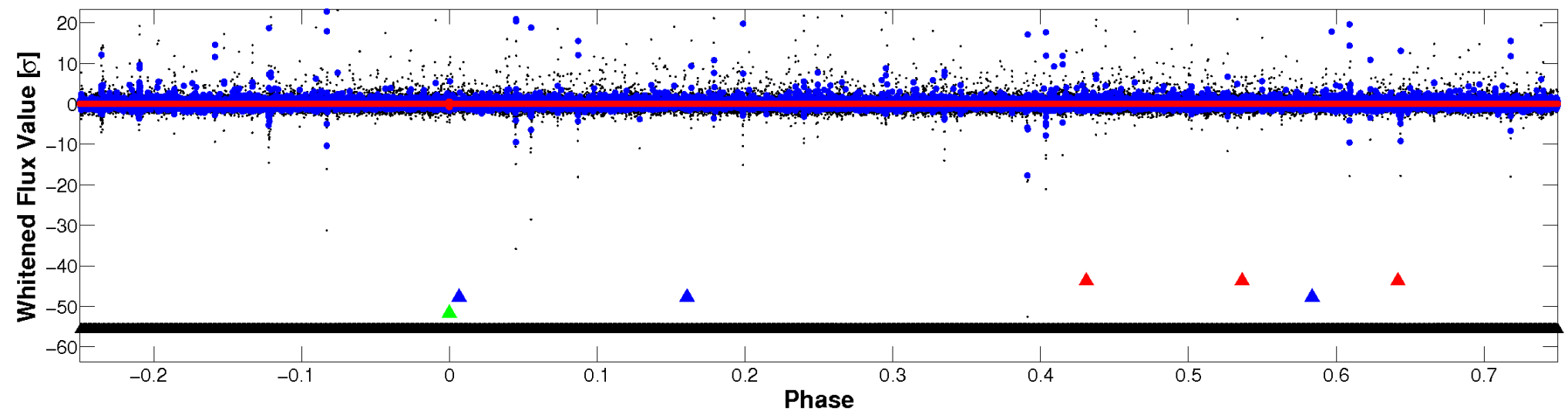


Non-Whitened Vs. Whitened Light Curve

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

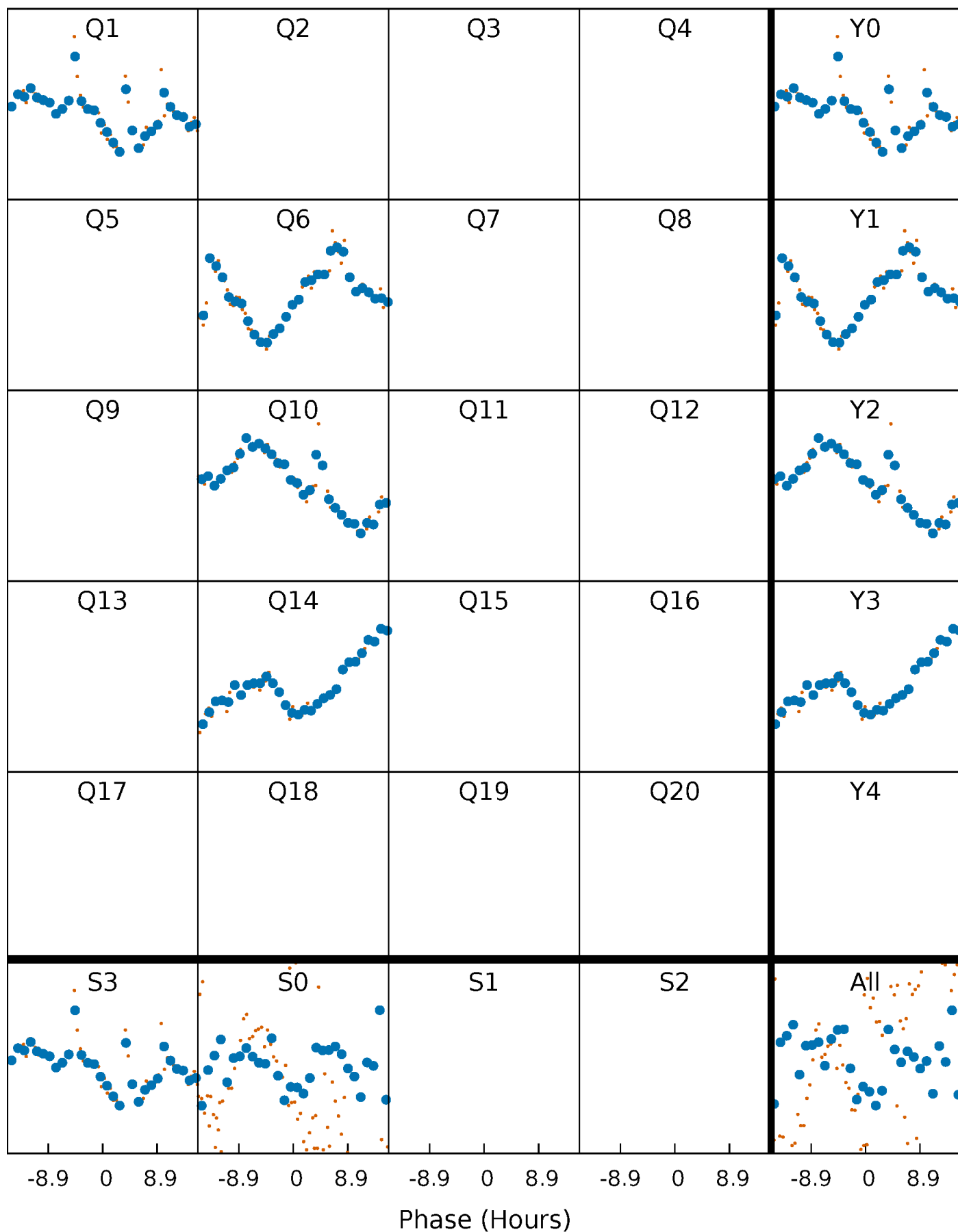


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



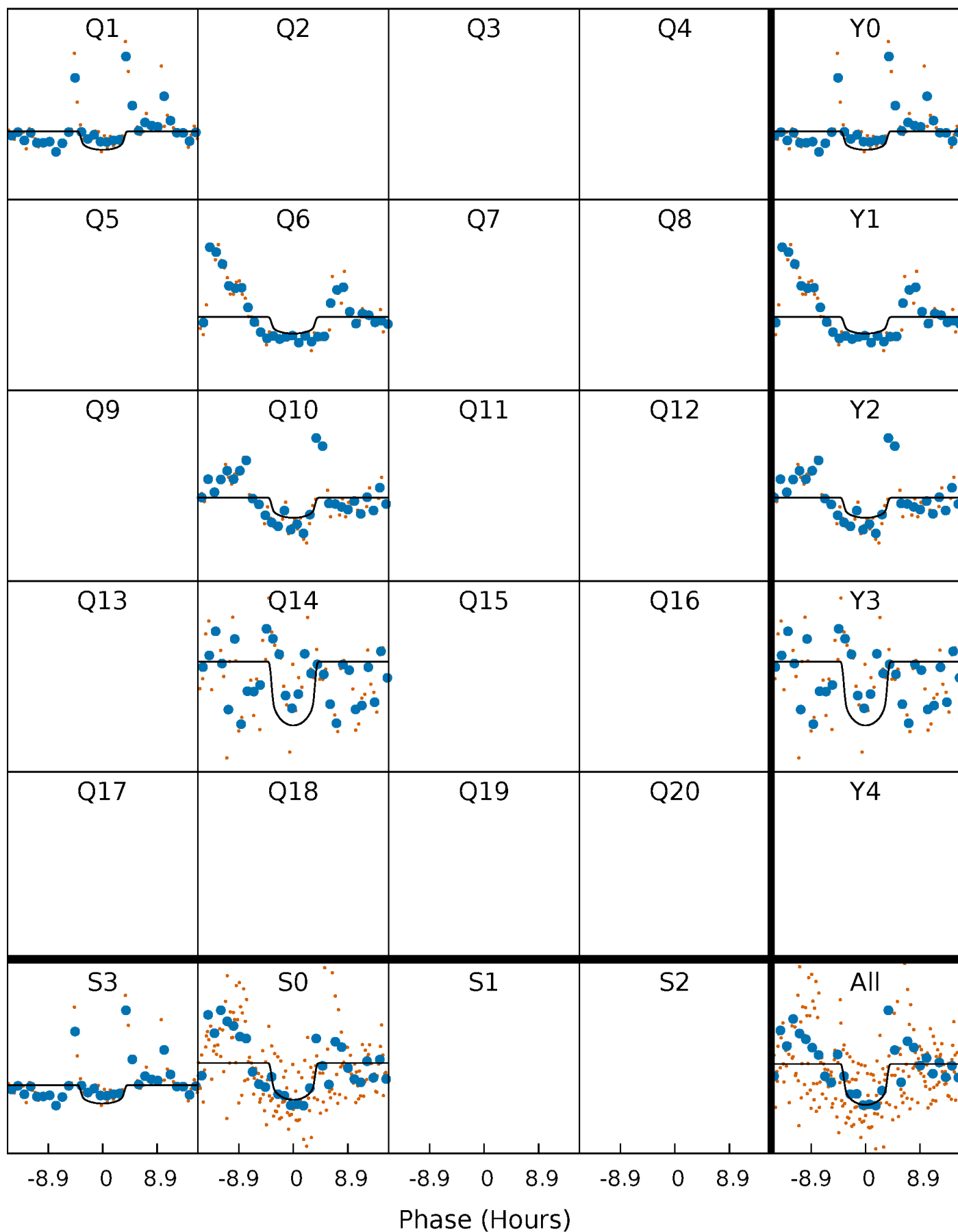
PDC Quarter-Phased Transit Curves

TCE 008226542-03 P=401.021643 Days $T_0=158.534768$ (BKJD)



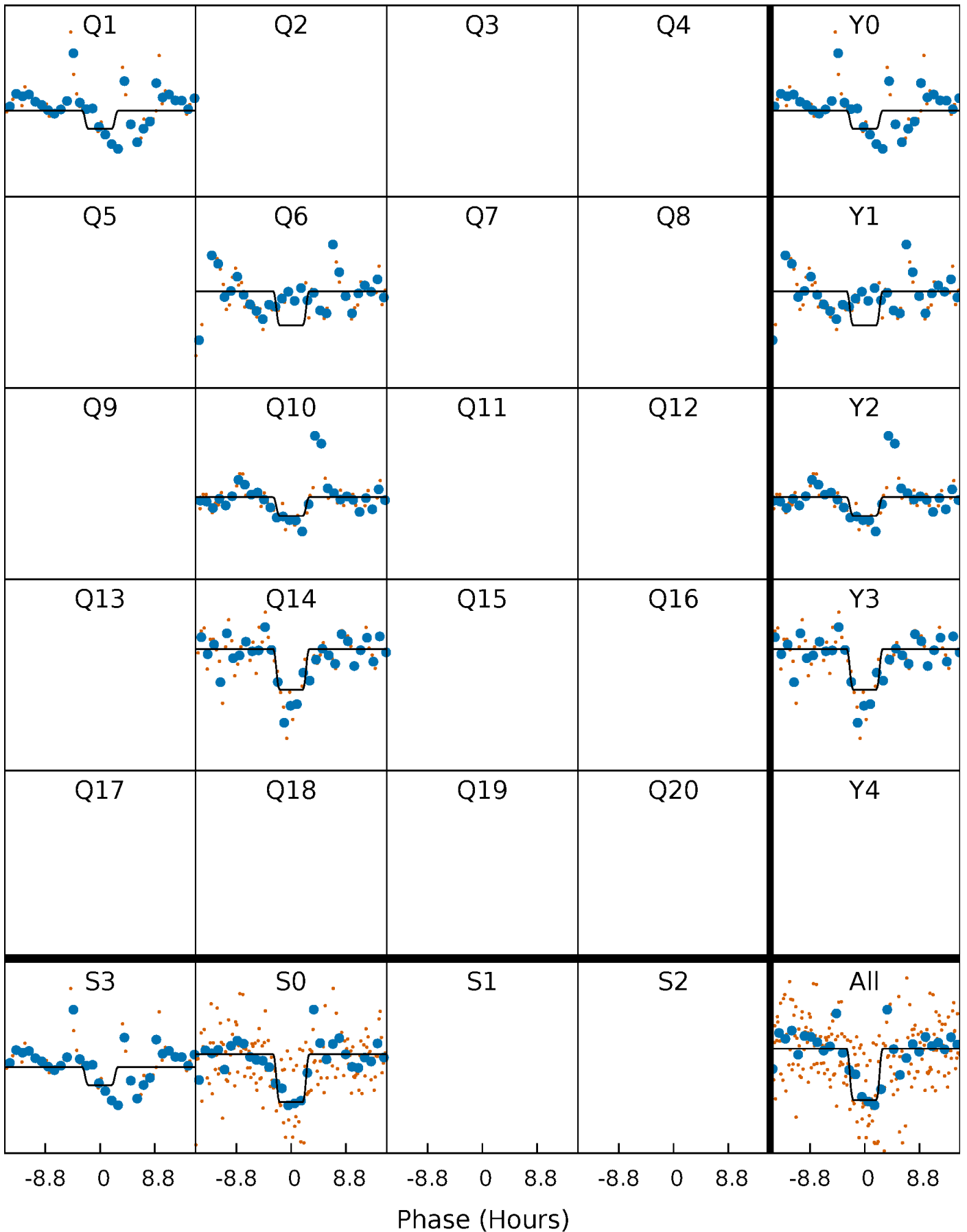
DV Quarter-Phased Transit Curves

TCE 008226542-03 P=401.021643 Days $T_0=158.534768$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

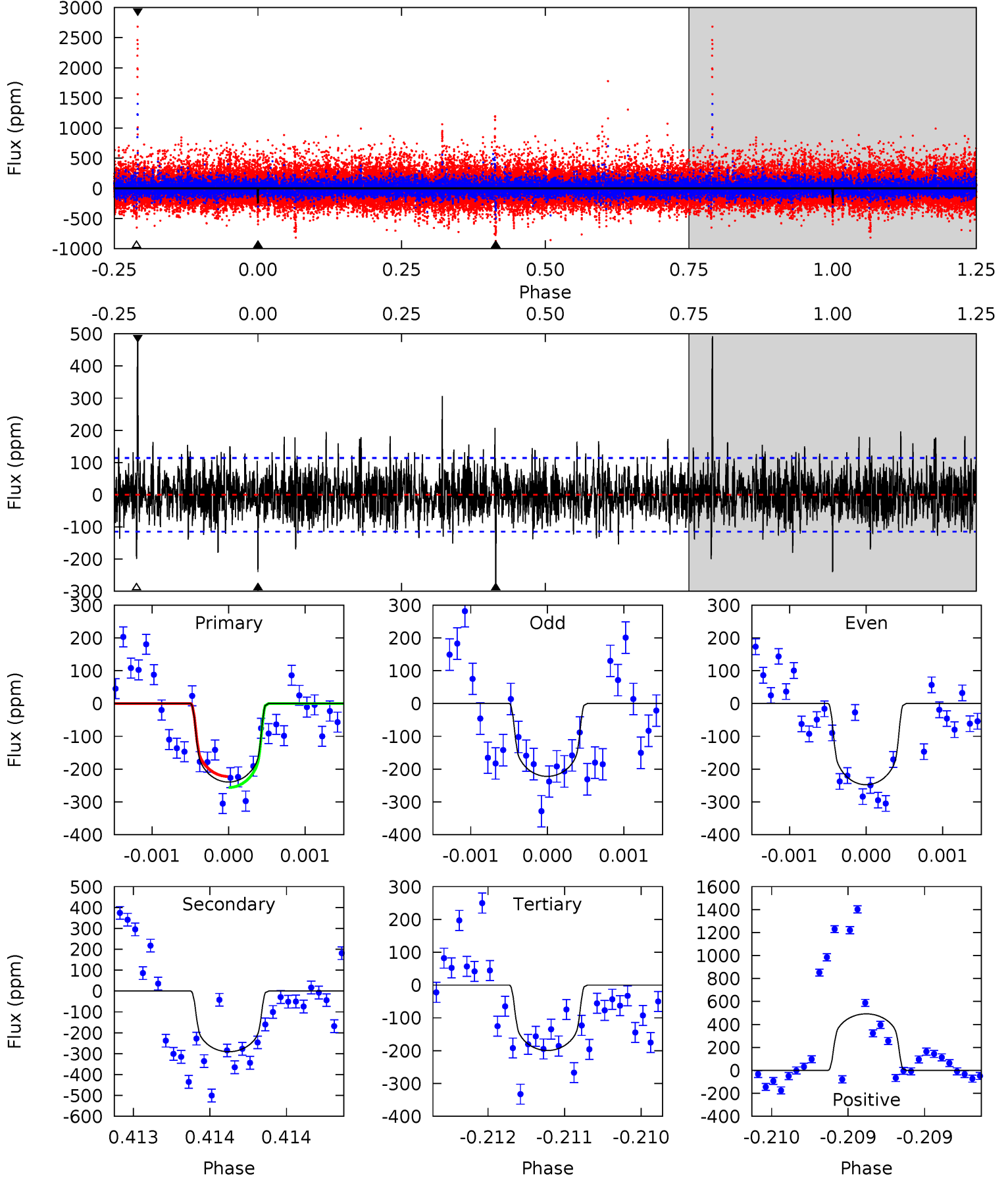
TCE 008226542-03 P=401.022237 Days $T_0=158.539322$ (BKJD)



DV Model-Shift Uniqueness Test

008226542-03, P = 401.021643 Days, E = 158.534768 Days

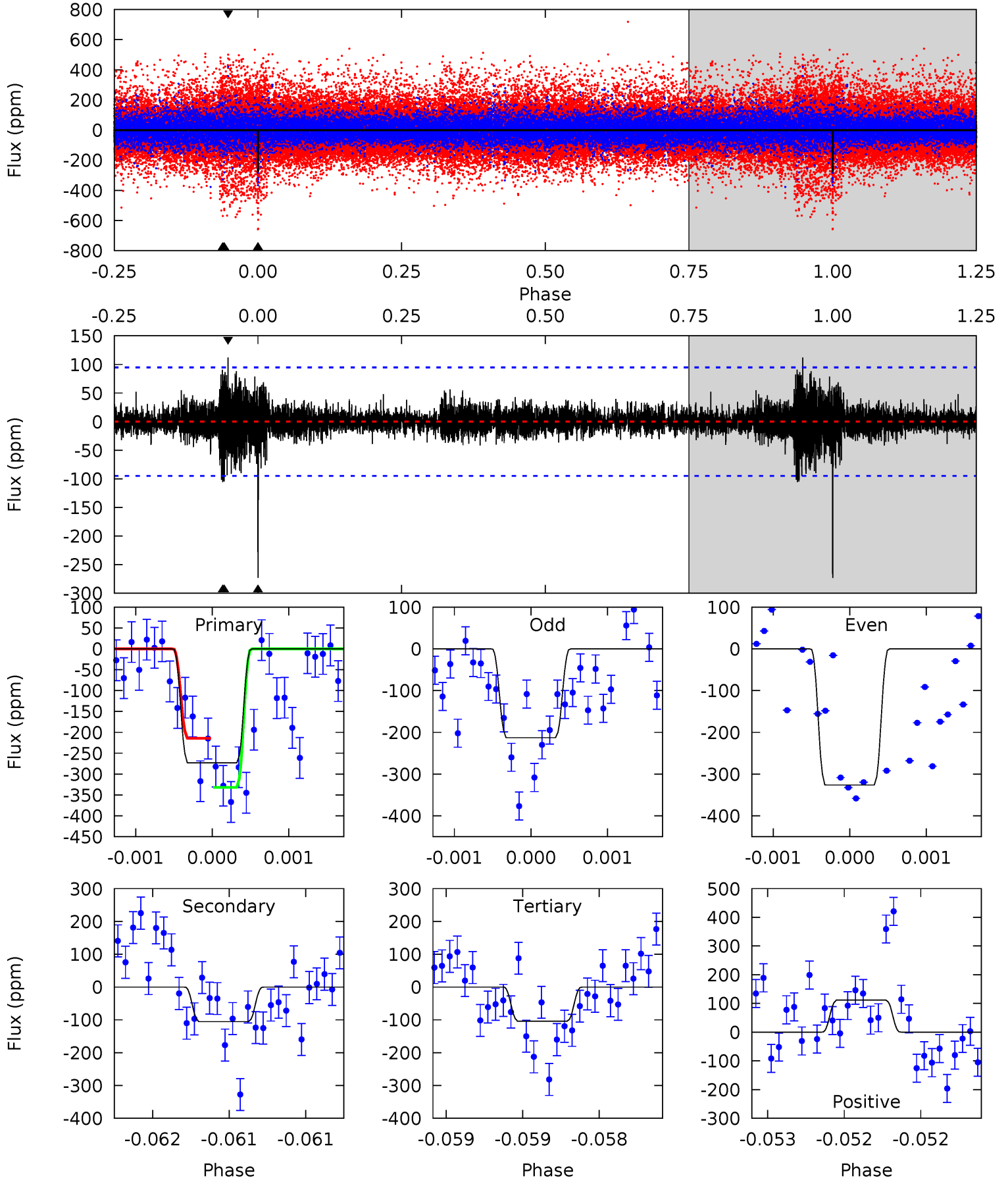
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	13.9	9.55	23.5	5.48	3.33	2.51	1.91	-12.1	4.37	-9.62	0.52	0.96	0.63	0.81



Alt Model-Shift Uniqueness Test

008226542-03, P = 401.022237 Days, E = 158.539322 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	6.17	6.10	6.54	5.54	3.43	1.07	9.87	9.42	0.07	-0.37	3.24	0.85	0.29	3.43



Stellar Parameters For KIC 008226542

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4575^{+164}_{-109}	$4.652^{+0.010}_{-0.020}$	$-0.600^{+0.300}_{-0.100}$	$0.599^{+0.036}_{-0.012}$	$0.586^{+0.059}_{-0.012}$	$3.840^{+0.192}_{-0.419}$
	+4%/-2%	+0%/-0%	+50%/-17%	+6%/-2%	+10%/-2%	+5%/-11%
Source	PHO1	FLK73	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 008226542-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-291 ± 21	$1.18^{+0.35}_{-0.33}$	232^{+8}_{-6}	4492^{+720}_{-420}	90957^{+86638}_{-36528}
Alt.	-106 ± 17	$1.13^{+0.35}_{-0.34}$	232^{+8}_{-6}	3805^{+558}_{-339}	35699^{+38208}_{-14919}

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

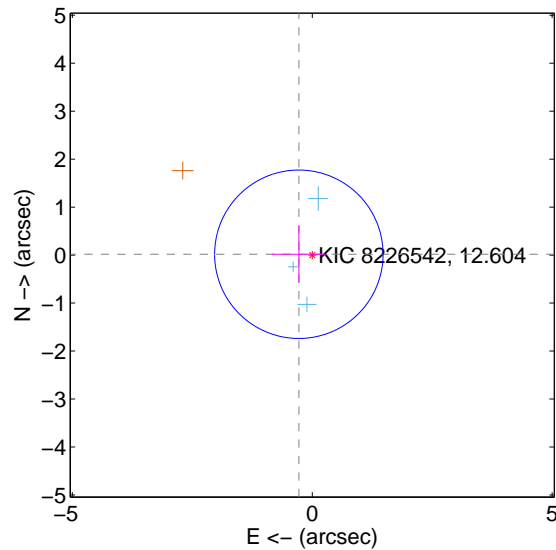
Supplemental centroid analysis for 008226542-03. Kepler magnitude: 12.60. Transit SNR 5.98

There are 3 quarters with good PRF difference image offsets

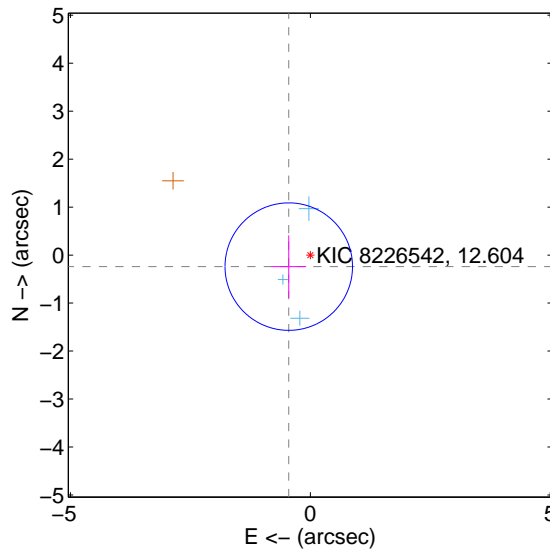
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.280 ± 0.585	0.48	0.279 ± 0.563	0.017 ± 0.591
PRF-fit source offset from KIC position	0.509 ± 0.443	1.15	0.449 ± 0.362	-0.240 ± 0.652
photometric centroid source offset	1.40 ± 0.94	1.49	-0.19 ± 0.87	-1.38 ± 0.94

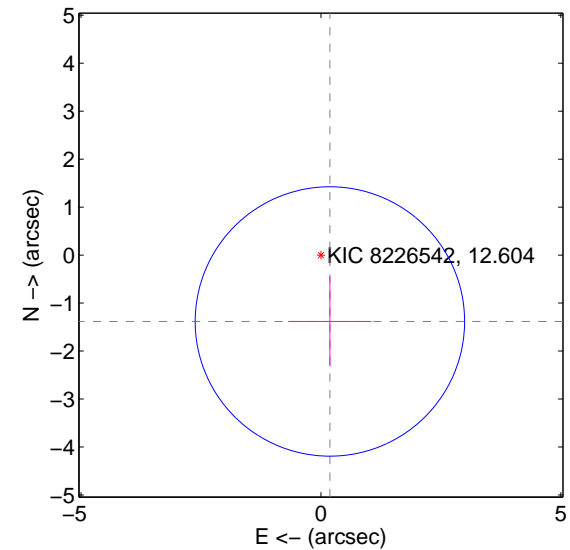
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

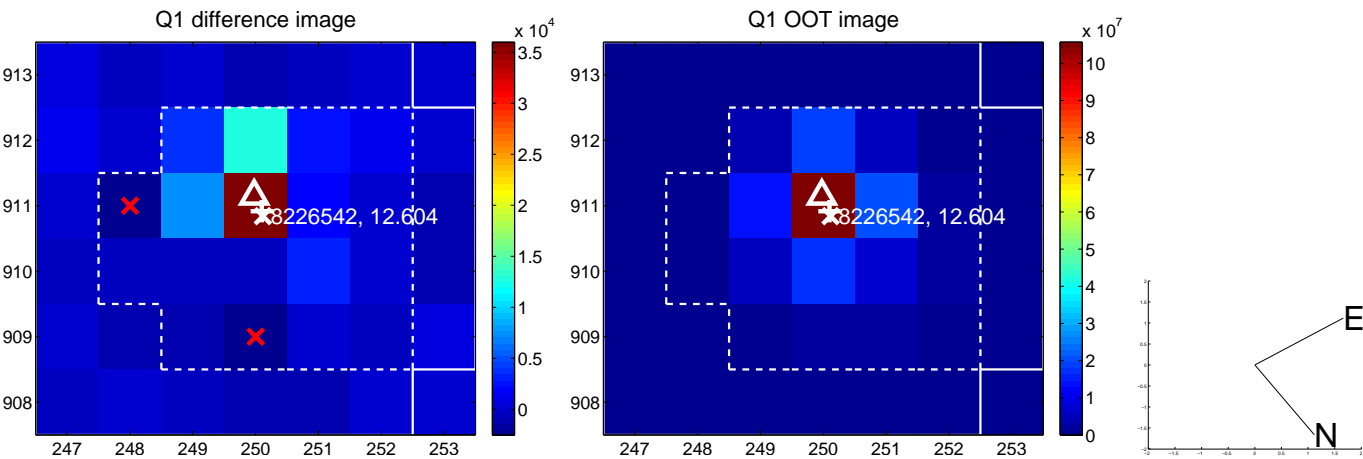


offset from photometric centroids

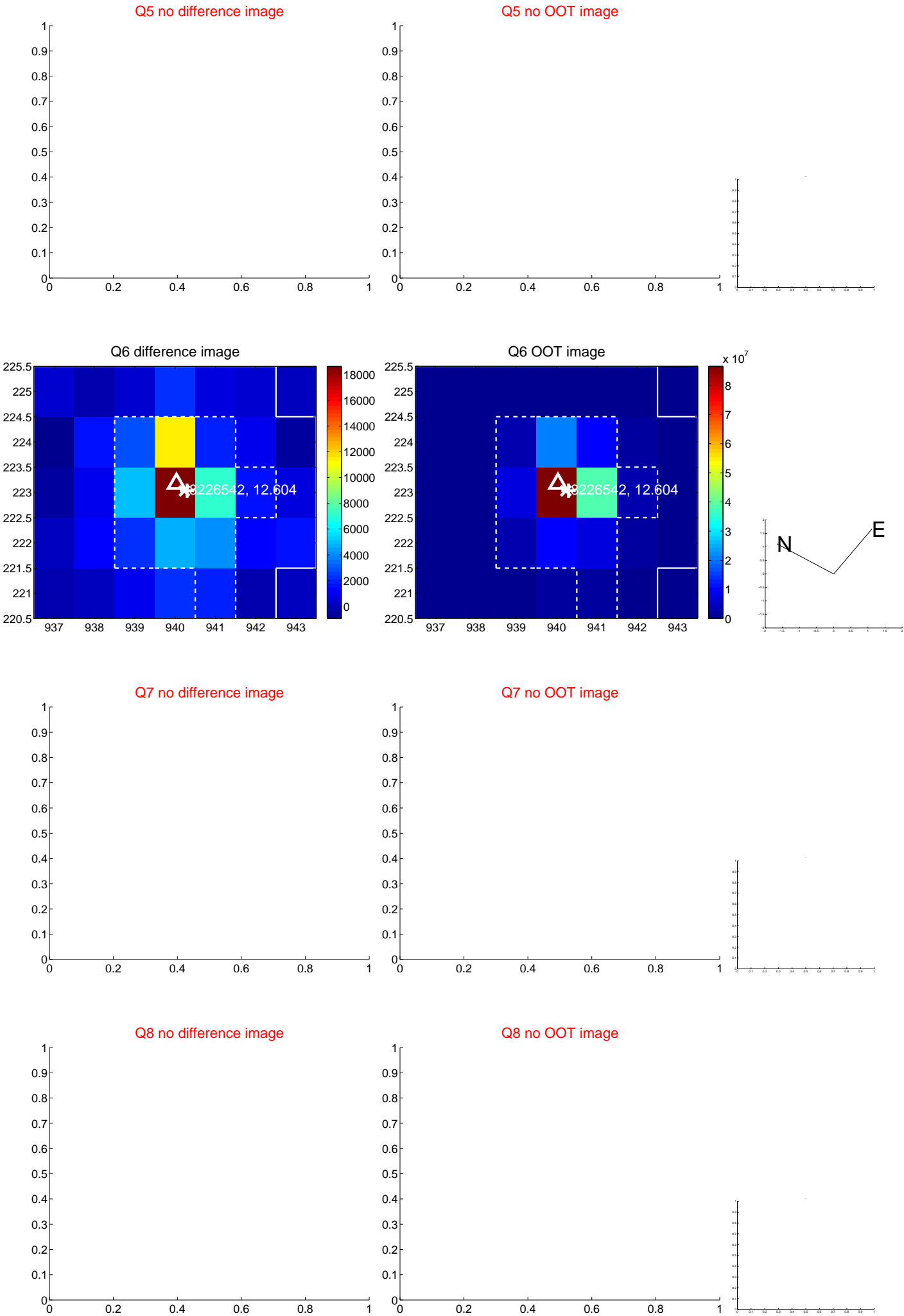


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

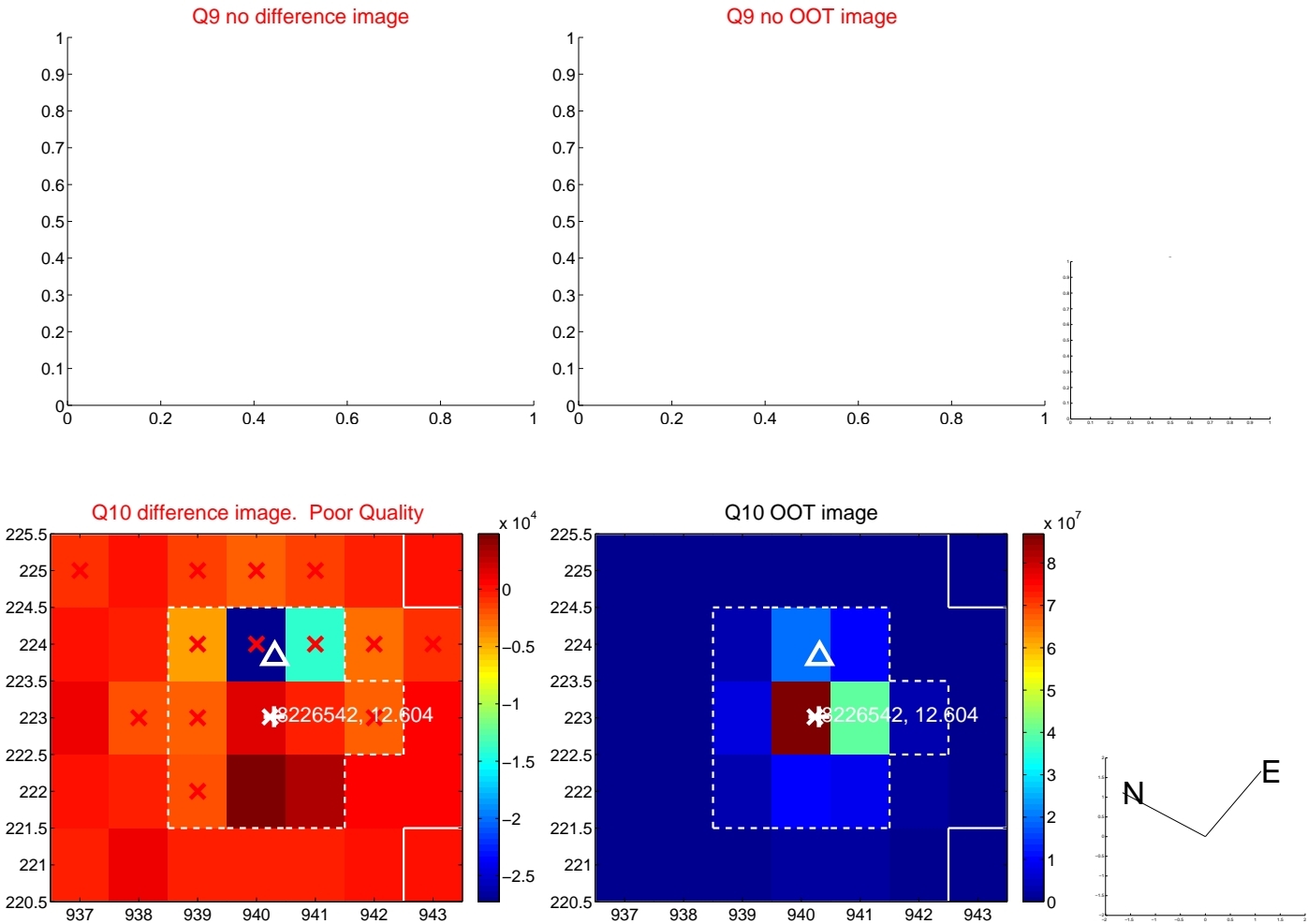
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



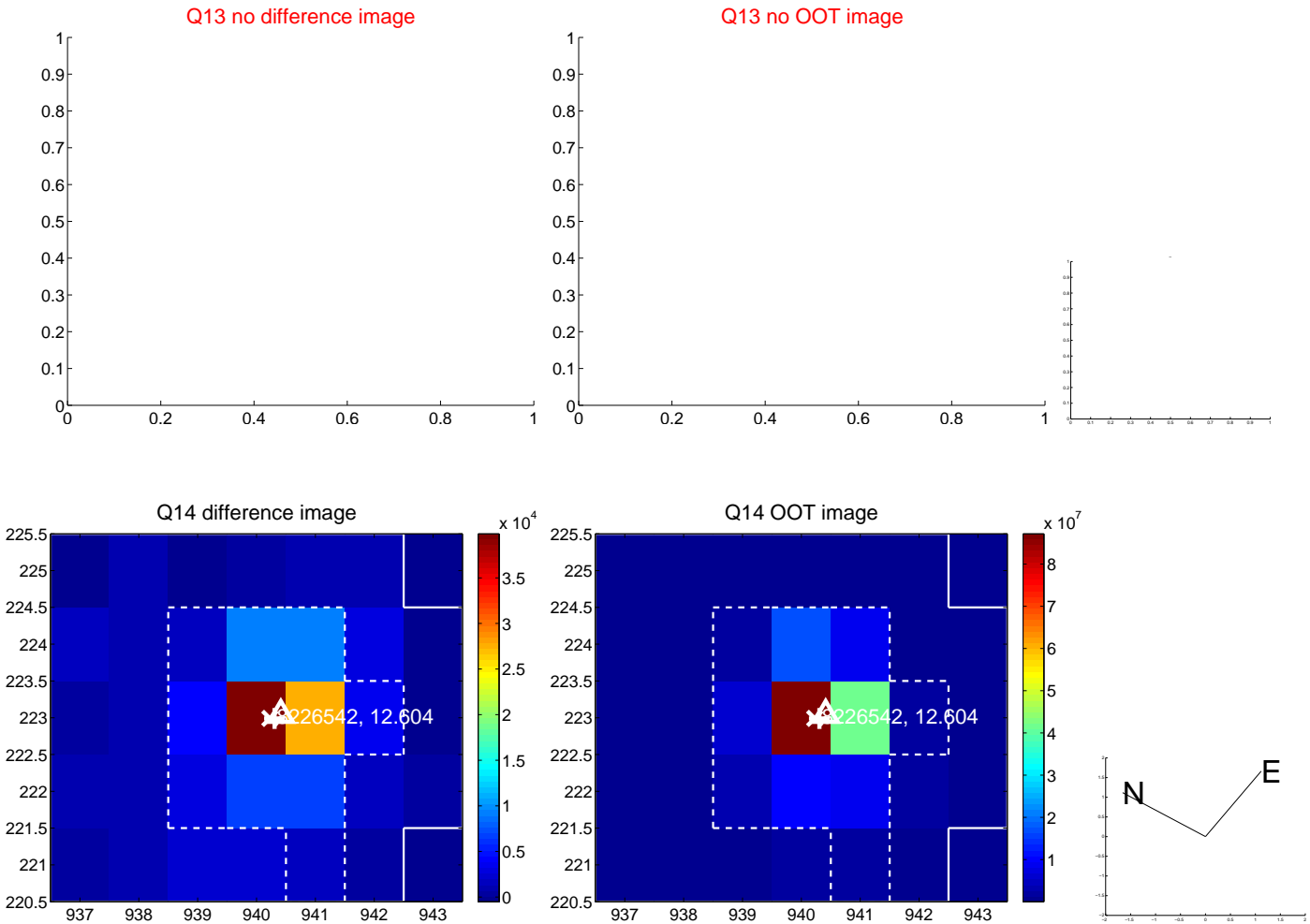
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



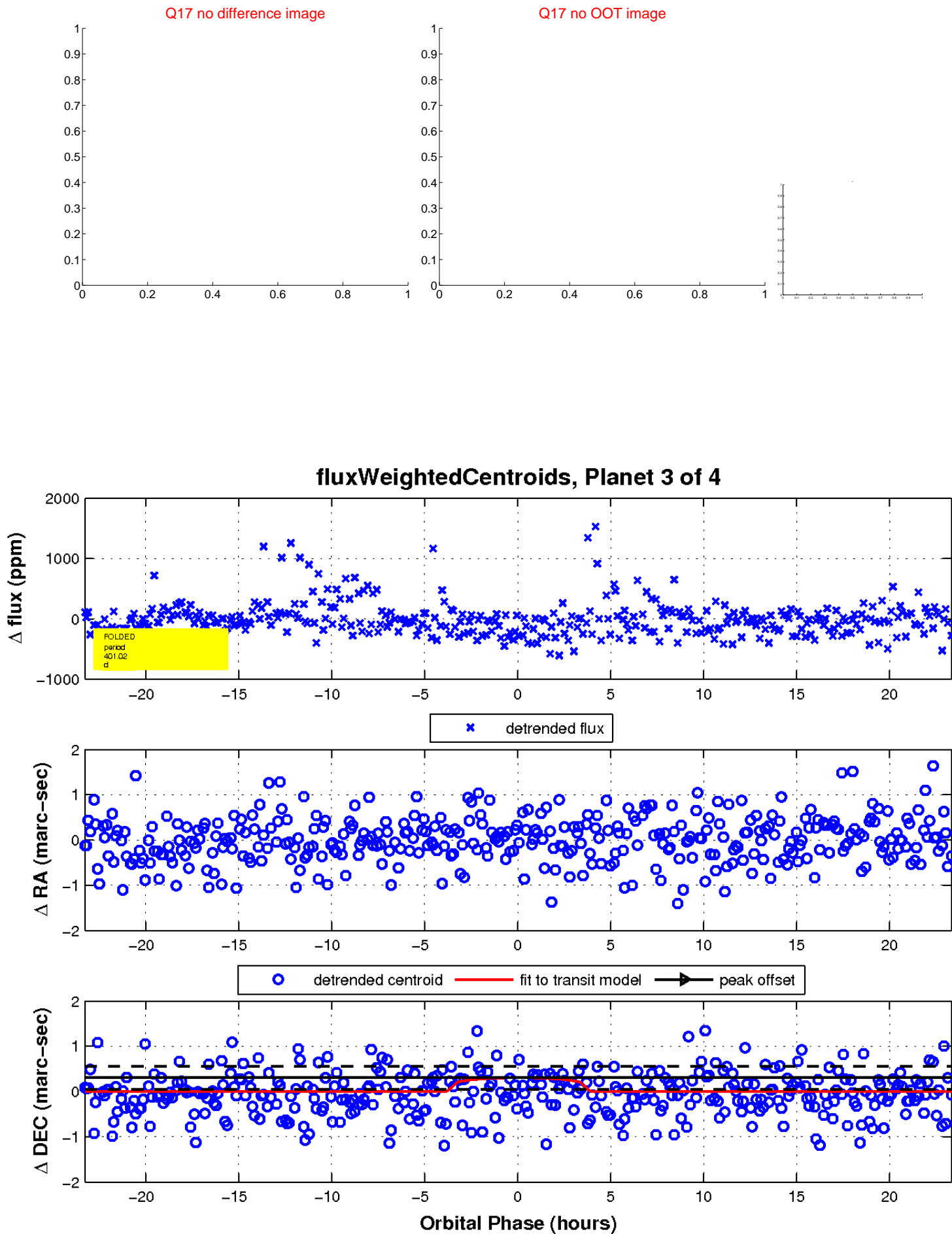
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

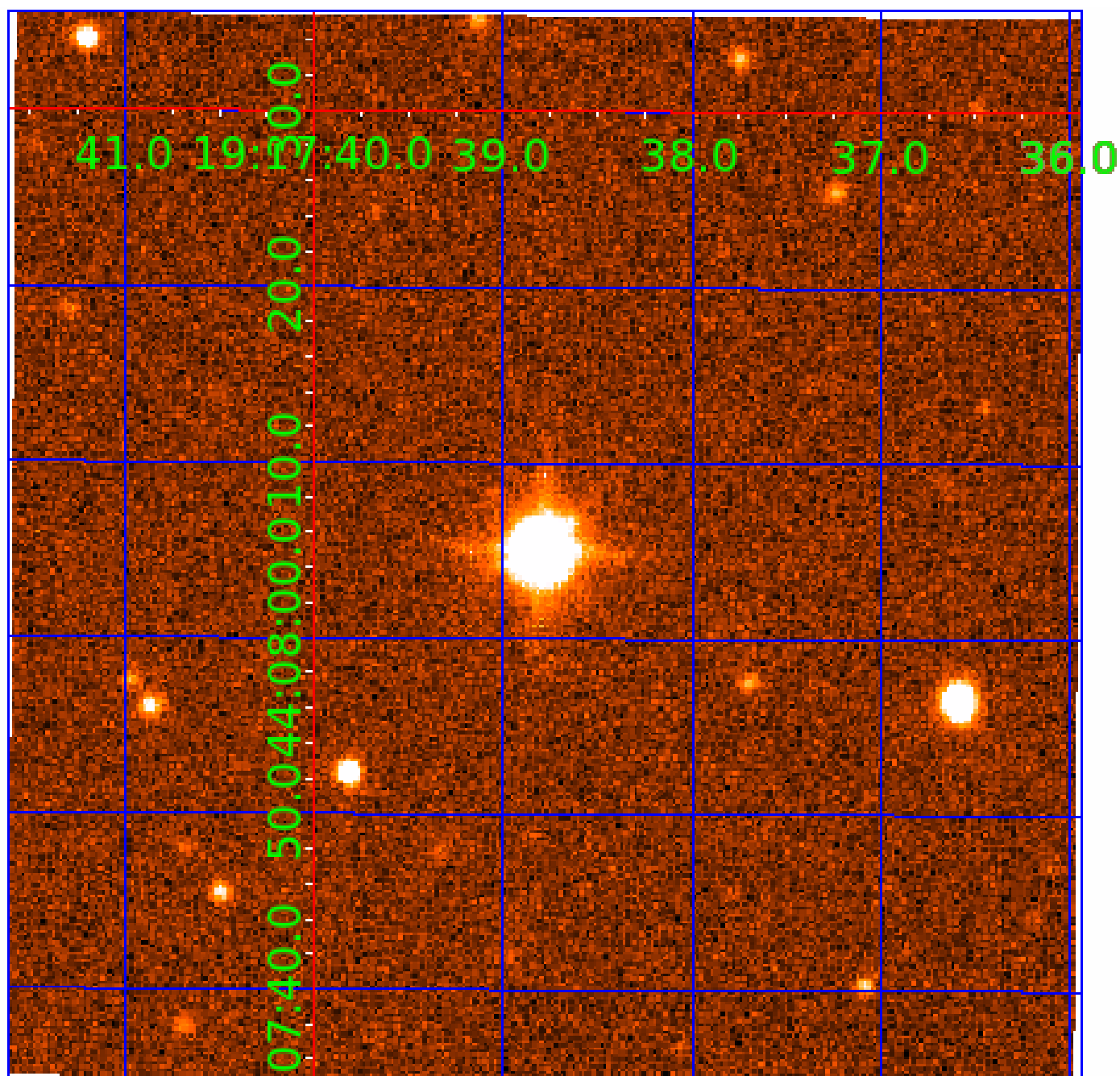


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008226542

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})
008226542-01	OBS	No	443.299273	331.358022	208.2	15.000	13.0	-1.0	0.60	4575	0.83	0.15
008226542-02	OBS	No	570.608185	223.036670	515.5	10.672	11.3	8.3	0.60	4575	1.47	0.11
008226542-03	OBS	No	401.021643	158.534768	262.8	7.793	11.6	6.0	0.60	4575	1.18	0.18
008226542-04	OBS	No	0.657948	131.898760	19.2	5.432	8.3	8.9	0.60	4575	0.25	915.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008226542-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
008226542-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008226542-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_POS_DV
008226542-04	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

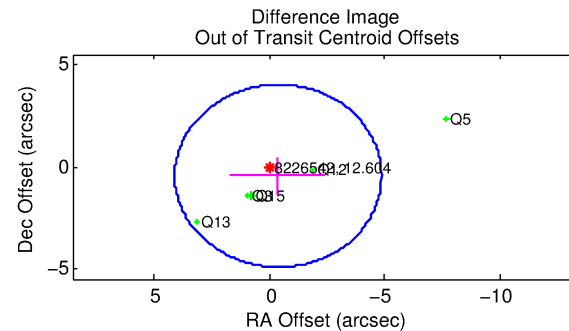
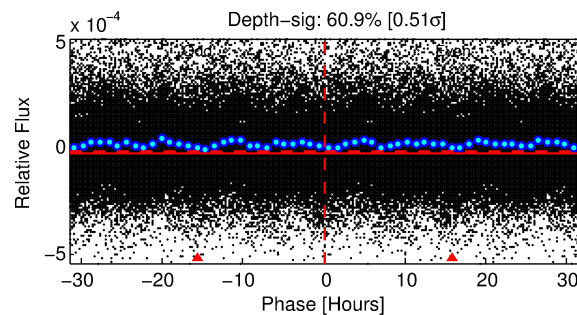
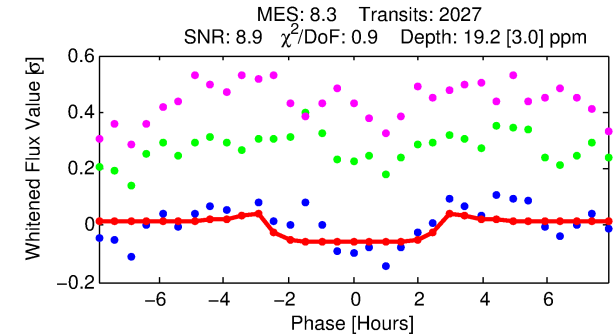
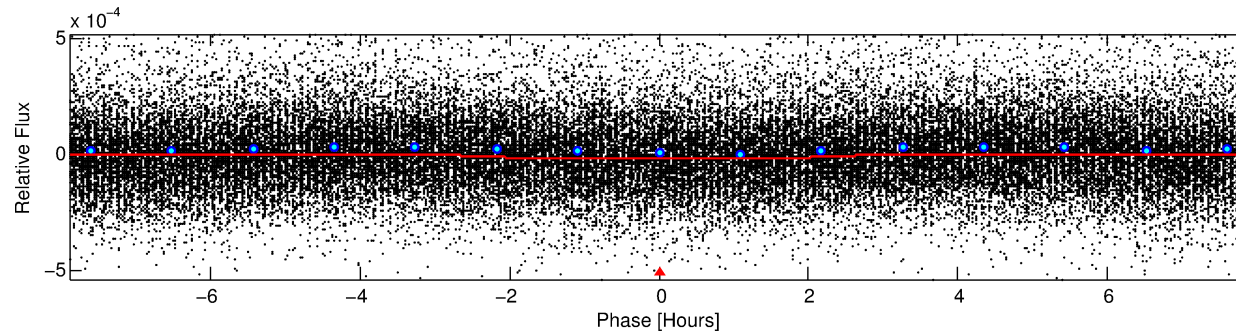
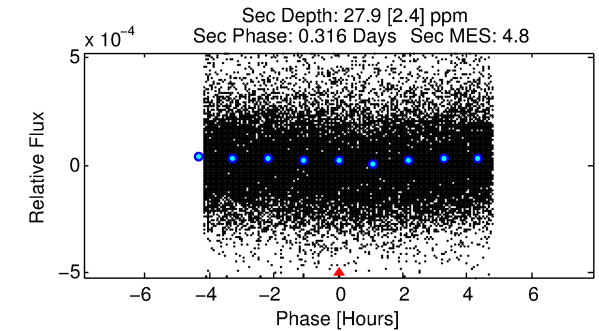
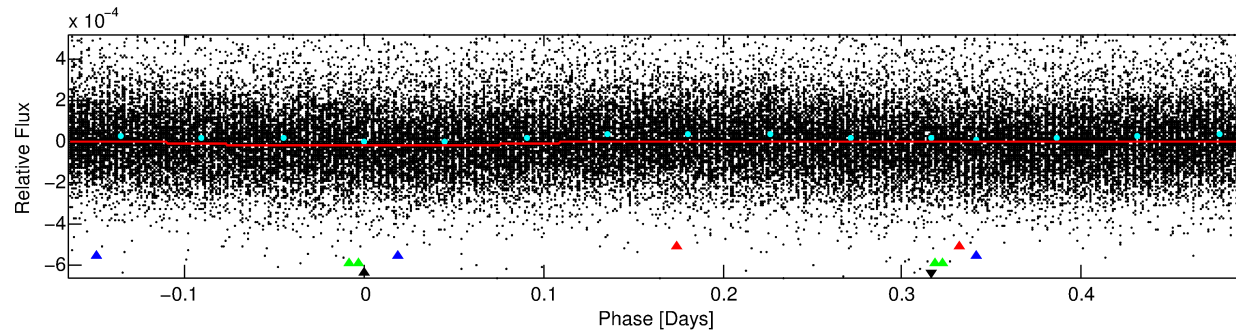
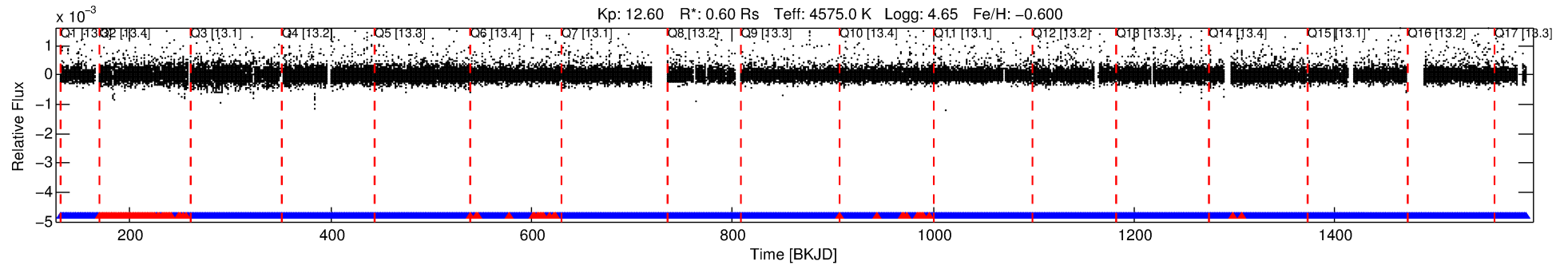
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008226542-04

No Significant Match Found

DV One-Page Summary

KIC: 8226542 Candidate: 4 of 4 Period: 0.658 d



DV Fit Results:

Period = 0.65795 [0.00001] d
Epoch = 131.8988 [0.0040] BKJD
Rp/R* = 0.0039 [0.0023]
a/R* = 1.14 [0.49]
b = 0.10 [20.42]
Seff = 915.84 [139.22]
Teff = 1403 [53] K
Rp = 0.25 [0.15] Re
a = 0.0124 [0.0005] AU
Ag = 36.93 [44.36] [0.81σ]
Teffp = 5346 [1615] K [2.44σ]

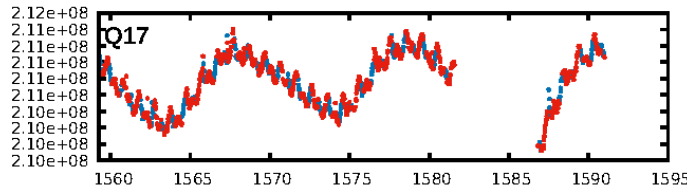
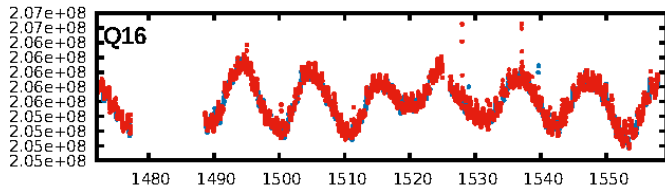
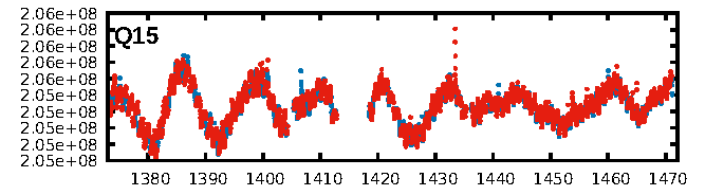
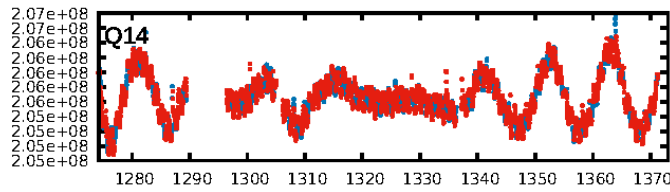
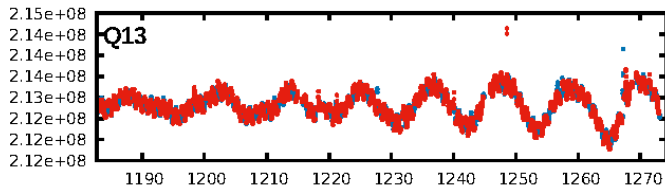
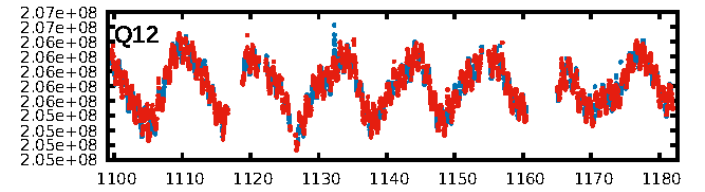
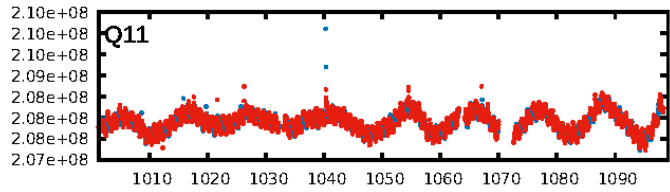
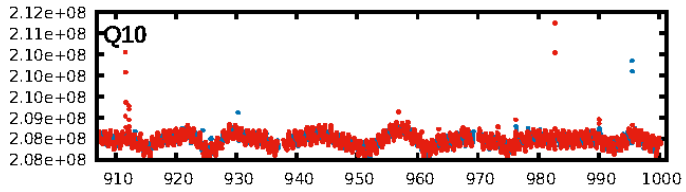
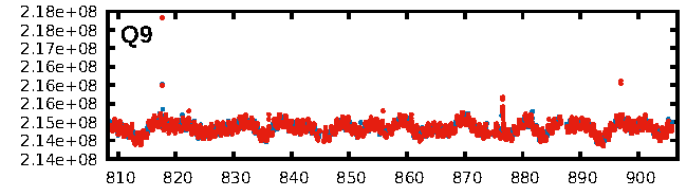
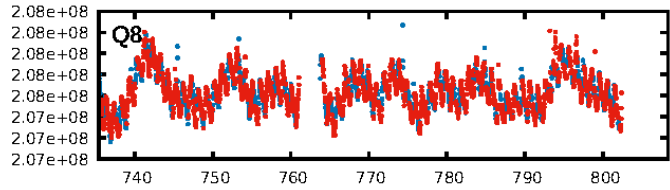
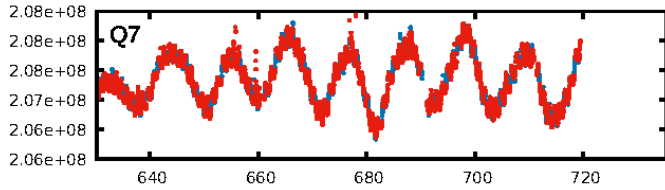
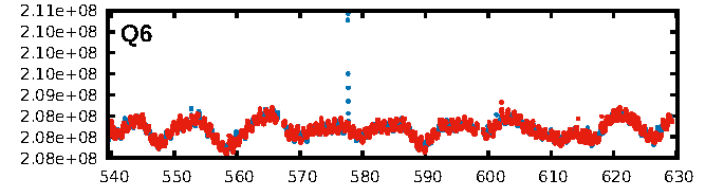
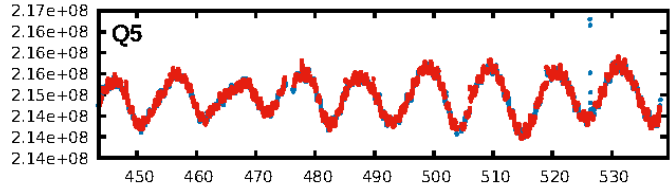
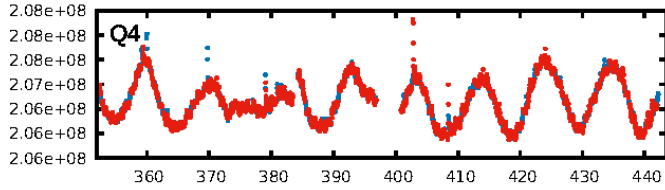
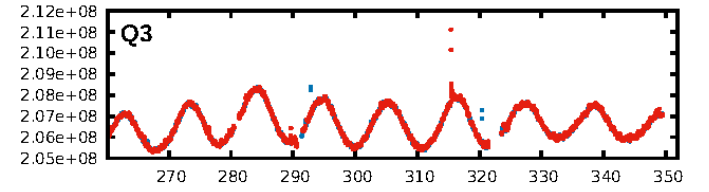
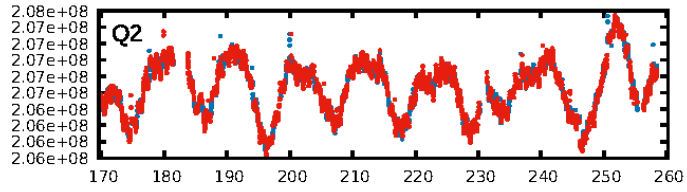
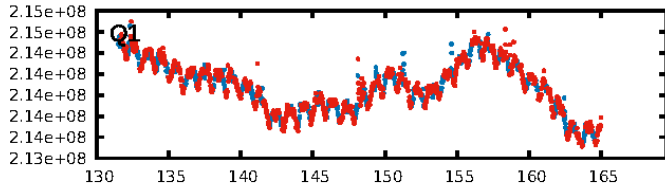
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1011.51σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.93 [1809/1938]
GhostDiagnostic-chr: -10.56
Centroid-sig: N/A
Centroid-so: 0.656 arcsec [1.18σ]
OotOffset-rm: 0.596 arcsec [0.40σ]
KicOffset-rm: 0.899 arcsec [0.78σ]
OotOffset-st: 0/2/1/2 [5]
KicOffset-st: 0/2/1/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 1.00 [17/17]

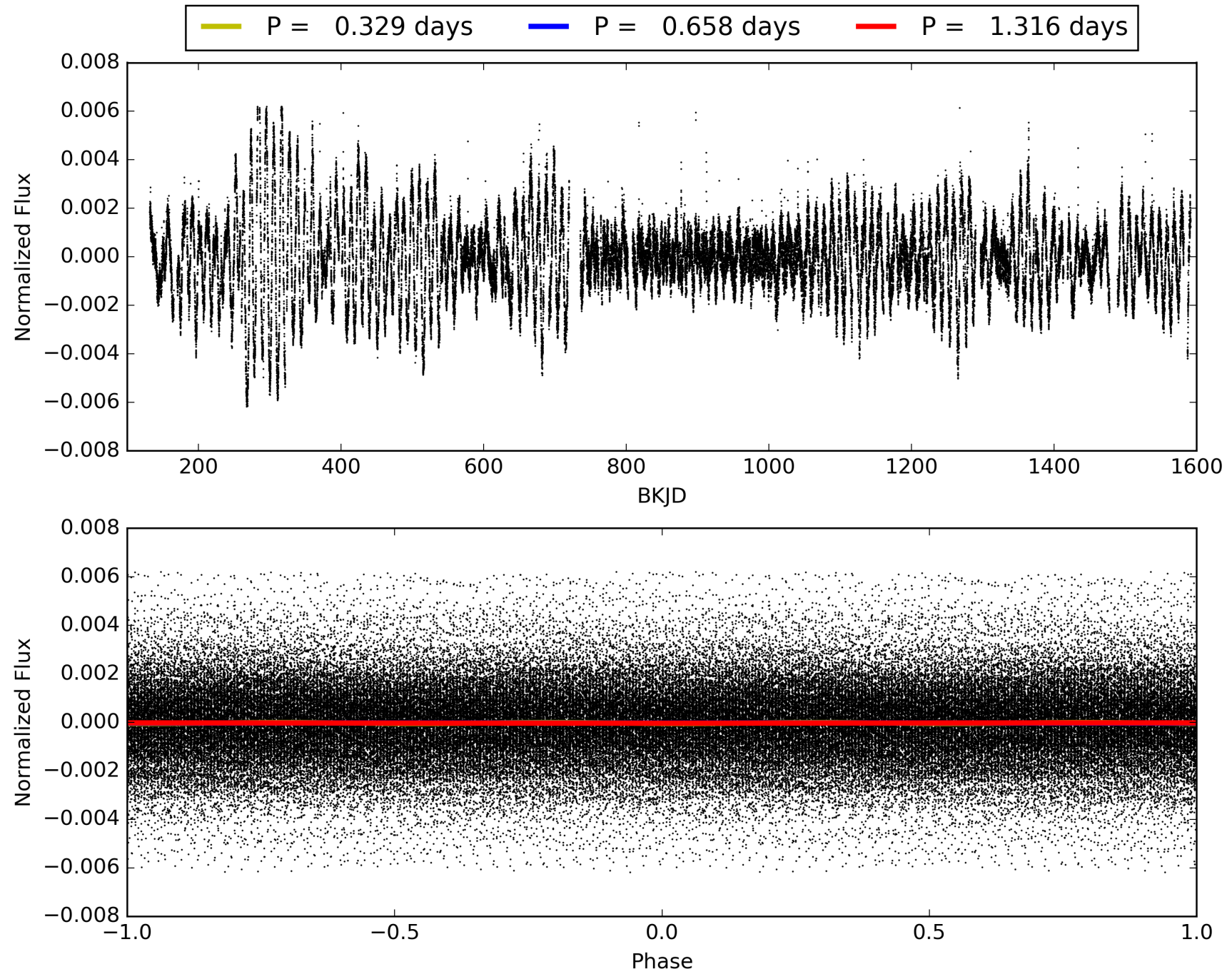
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:29:17 Z

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

TCE 008226542-04, PDC Light Curves

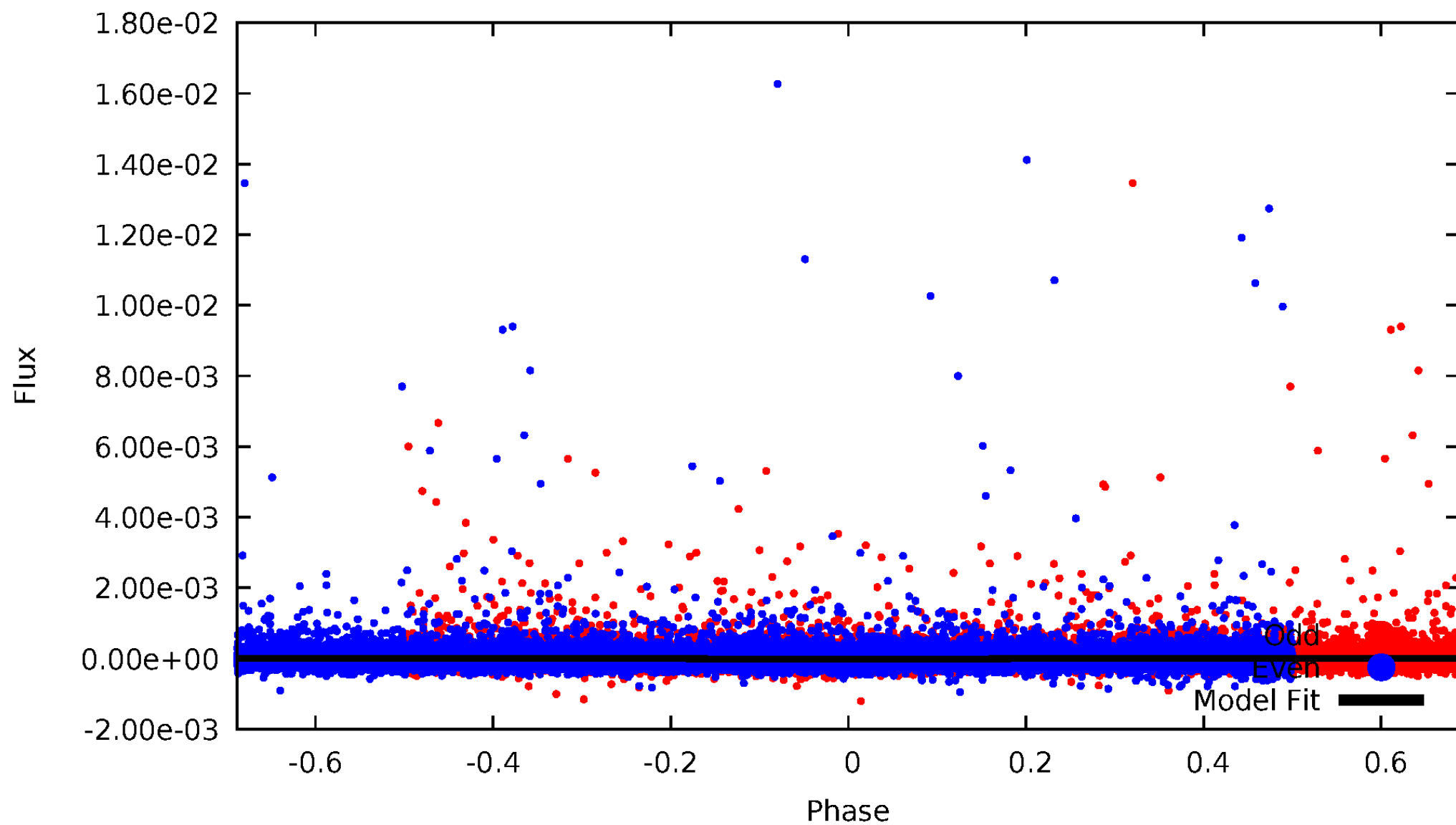


TCE 008226542-04



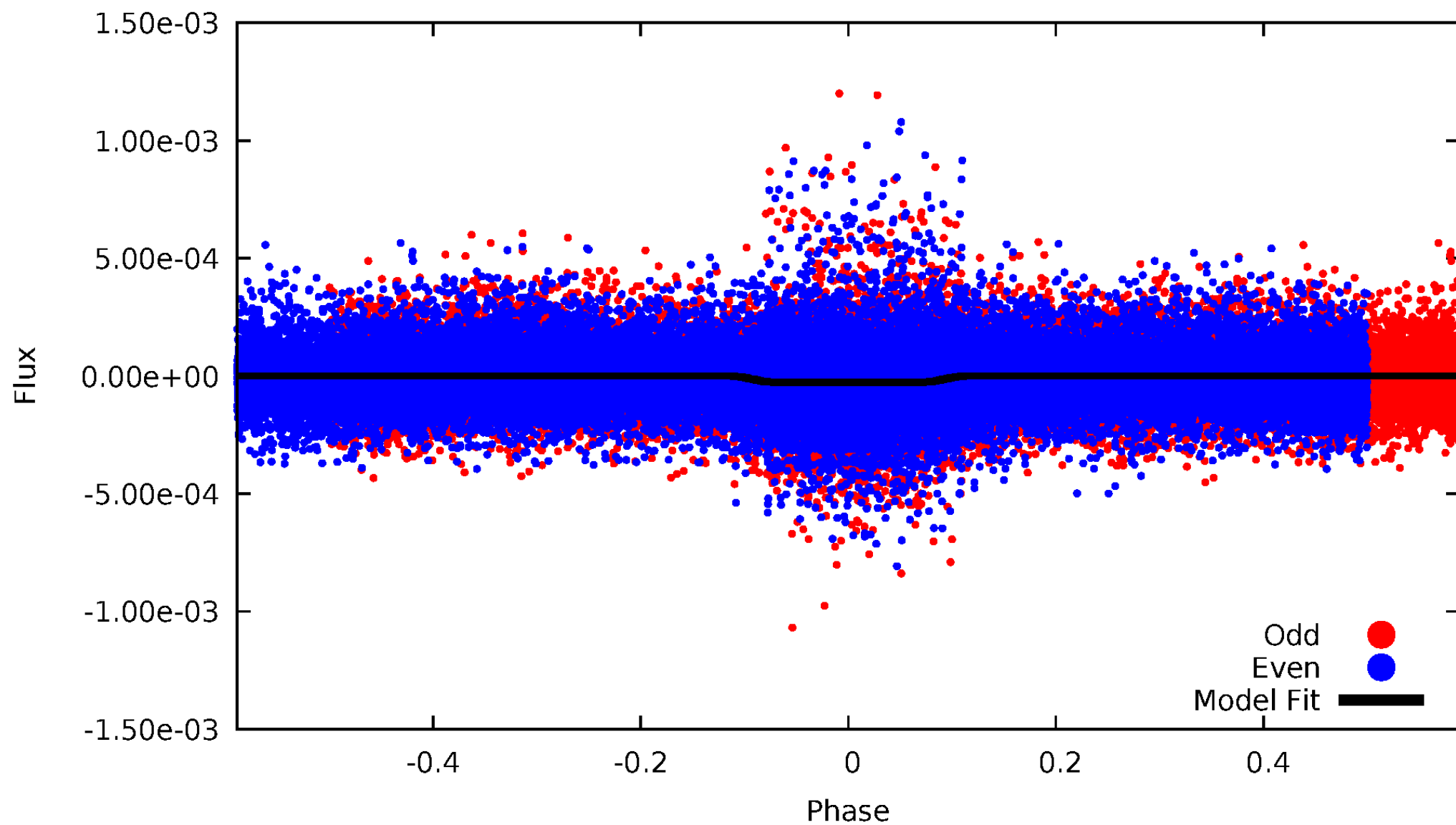
DV Odd/Even

TCE 008226542-04



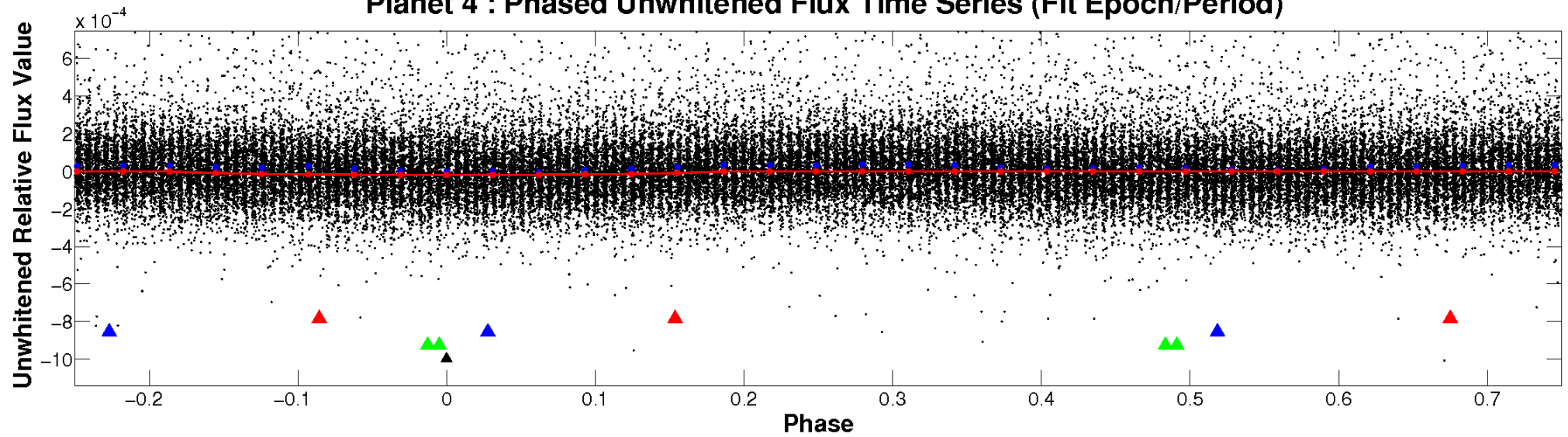
ALT Odd/Even

TCE 008226542-04

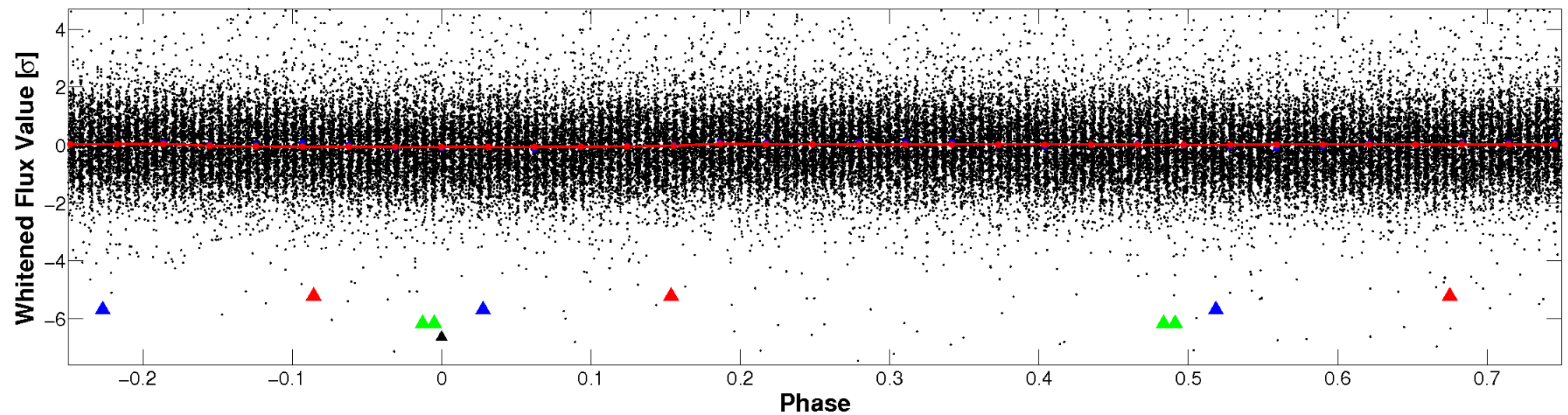


Non-Whitened Vs. Whitened Light Curve

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

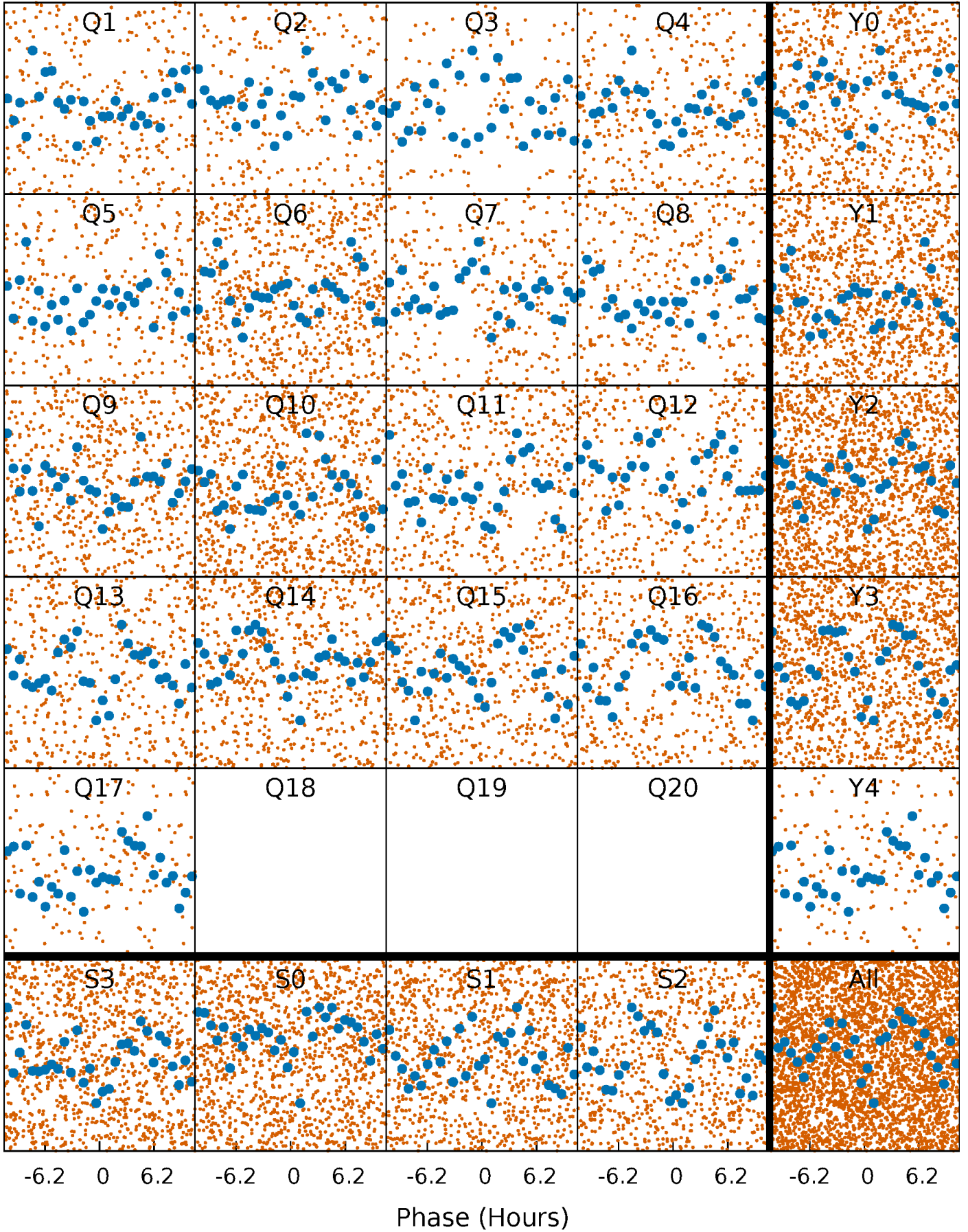


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



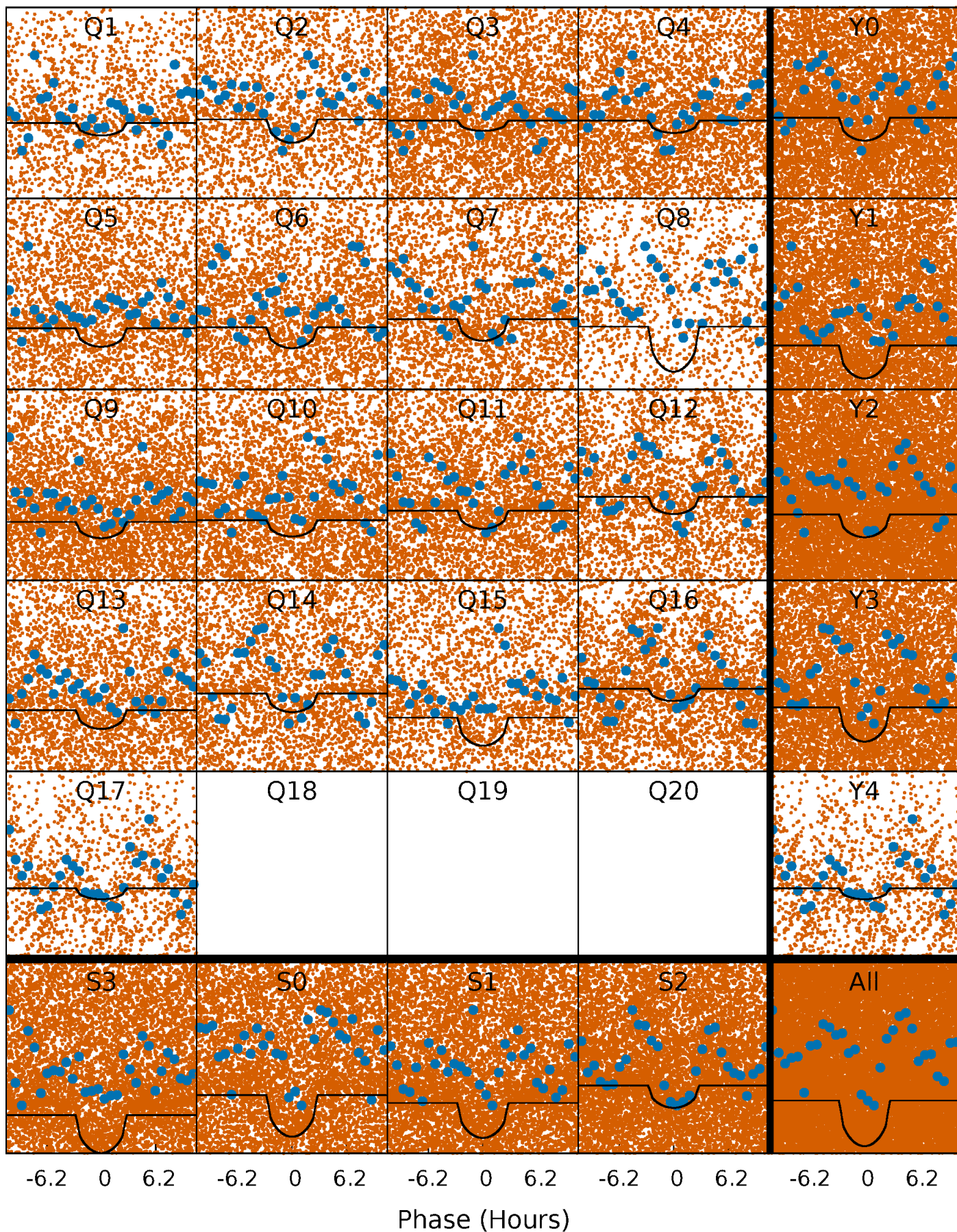
PDC Quarter-Phased Transit Curves

TCE 008226542-04 P= 0.657948 Days $T_0=131.898761$ (BKJD)



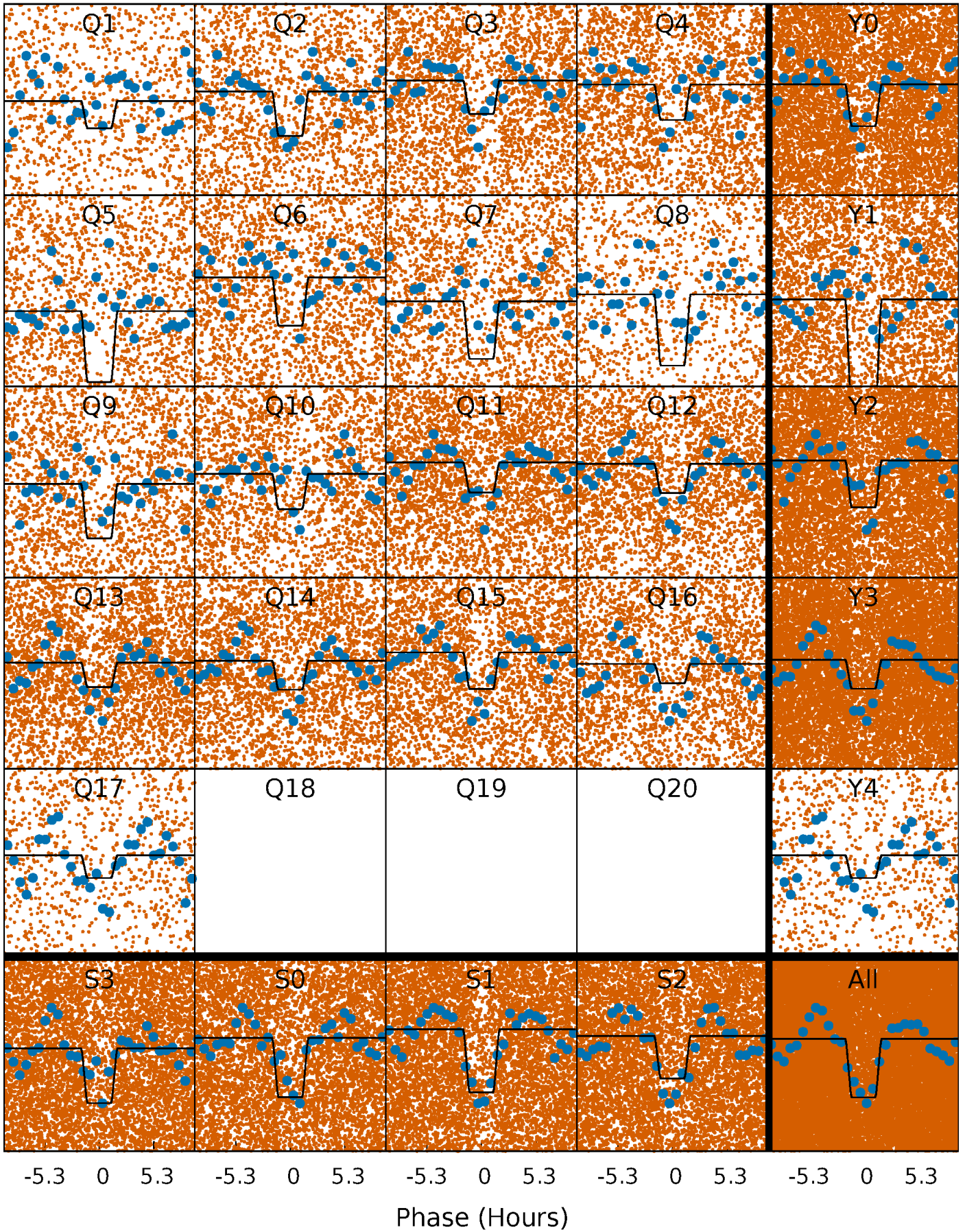
DV Quarter-Phased Transit Curves

TCE 008226542-04 P= 0.657948 Days $T_0=131.898761$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

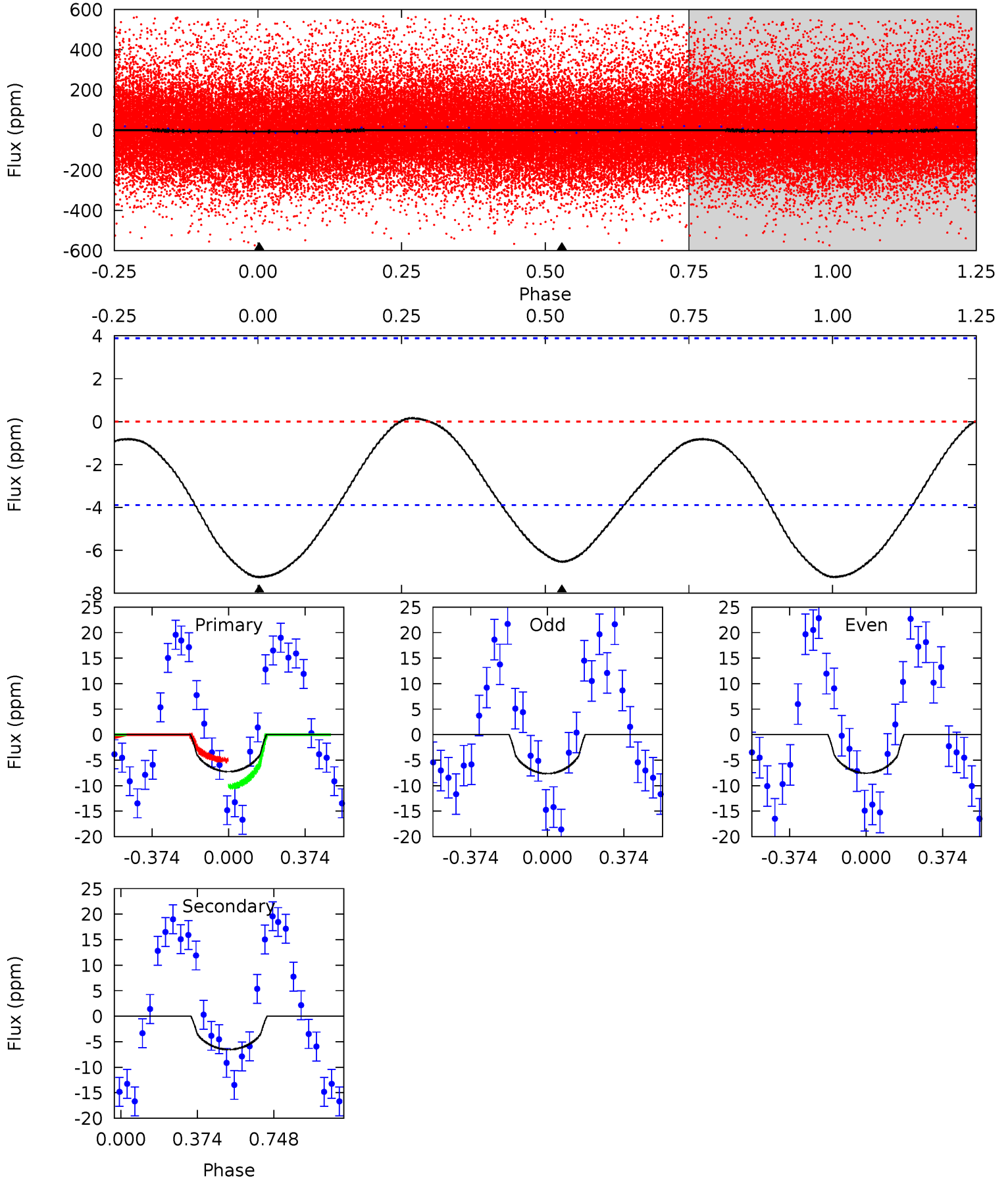
TCE 008226542-04 P= 0.657970 Days $T_0=131.890776$ (BKJD)



DV Model-Shift Uniqueness Test

008226542-04, P = 0.657948 Days, E = 131.240813 Days

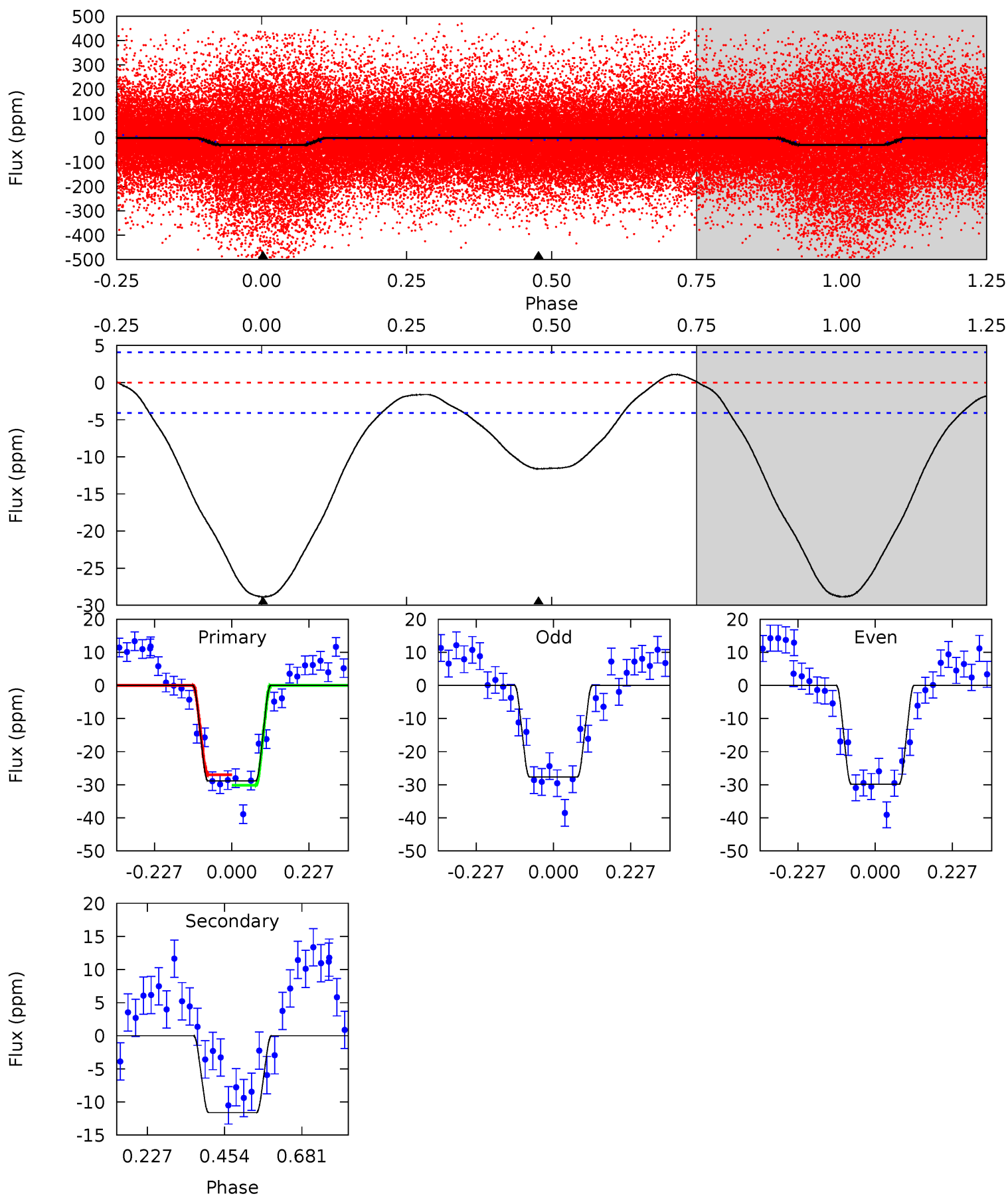
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.98	7.19	0	0	4.28	0.89	0.43	7.98	7.98	7.19	7.19	0.04	-2.65	0.02	2.77



Alt Model-Shift Uniqueness Test

008226542-04, P = 0.657970 Days, E = 131.232806 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.9	12.5	0	0	4.39	1.21	1.32	30.9	30.9	12.5	12.5	1.17	1.24	0.04	1.72



Stellar Parameters For KIC 008226542

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4575^{+164}_{-109}	$4.652^{+0.010}_{-0.020}$	$-0.600^{+0.300}_{-0.100}$	$0.599^{+0.036}_{-0.012}$	$0.586^{+0.059}_{-0.012}$	$3.840^{+0.192}_{-0.419}$
	+4%/-2%	+0%/-0%	+50%/-17%	+6%/-2%	+10%/-2%	+5%/-11%
Source	PHO1	FLK73	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 008226542-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7 ± 1	$0.26^{+0.16}_{-0.14}$	1965^{+68}_{-47}	3897^{+1384}_{-582}	$8.292^{+31.978}_{-5.082}$
Alt.	-12 ± 1	$0.35^{+0.15}_{-0.14}$	1967^{+69}_{-54}	3871^{+868}_{-468}	$8.105^{+14.398}_{-4.151}$

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

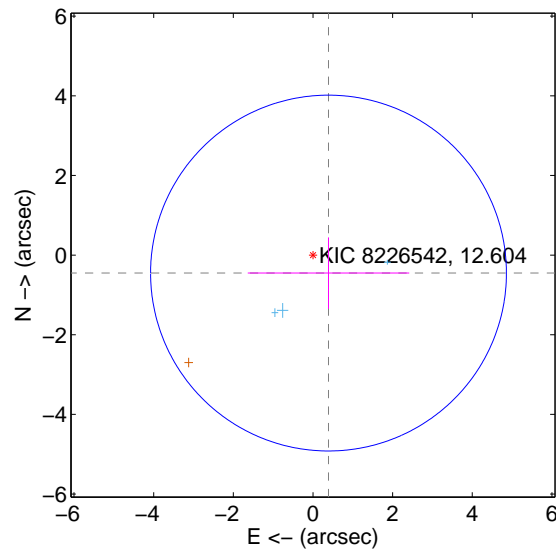
Supplemental centroid analysis for 008226542-04. Kepler magnitude: 12.60. Transit SNR 8.86

There are 3 quarters with good PRF difference image offsets

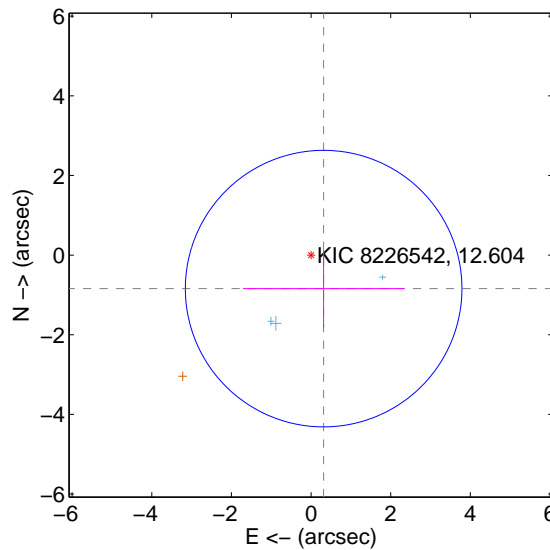
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.596 ± 1.489	0.40	-0.390 ± 2.028	-0.451 ± 0.897
PRF-fit source offset from KIC position	0.899 ± 1.157	0.78	-0.316 ± 2.026	-0.842 ± 0.975
photometric centroid source offset	0.66 ± 0.55	1.18	0.59 ± 0.54	0.29 ± 0.59

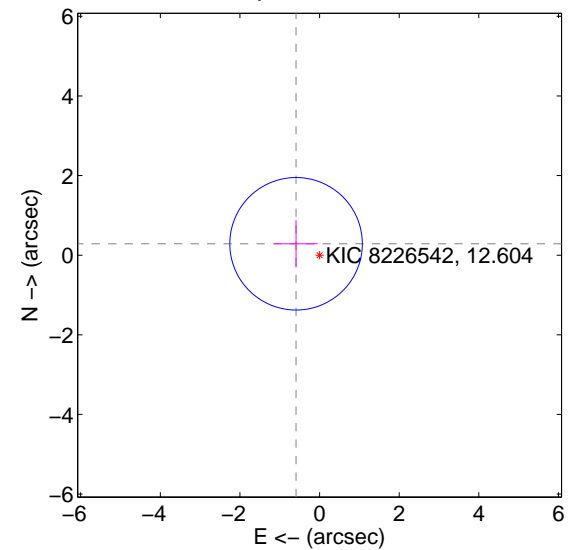
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

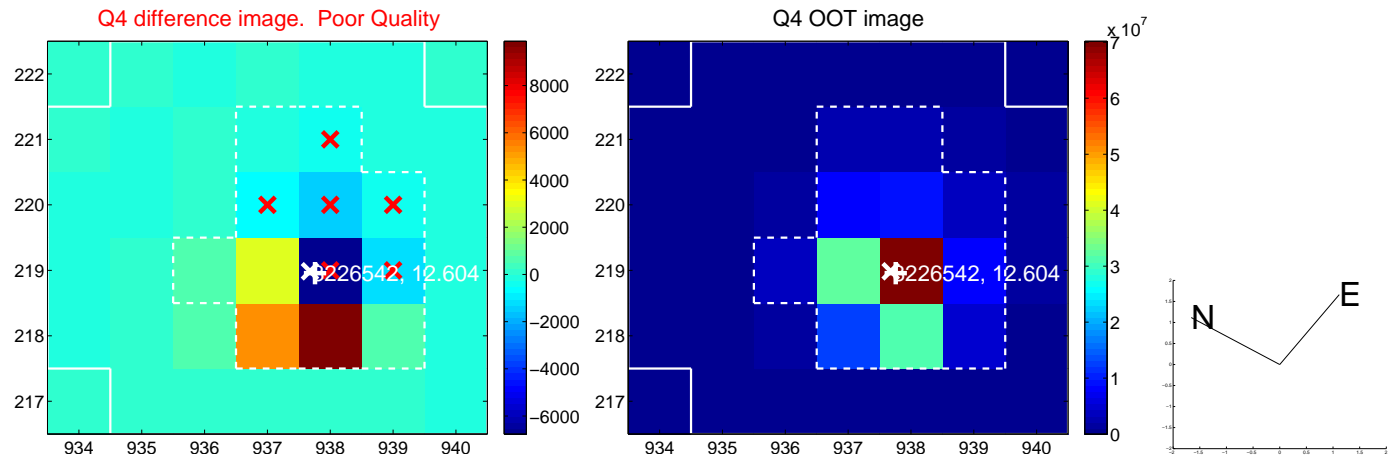
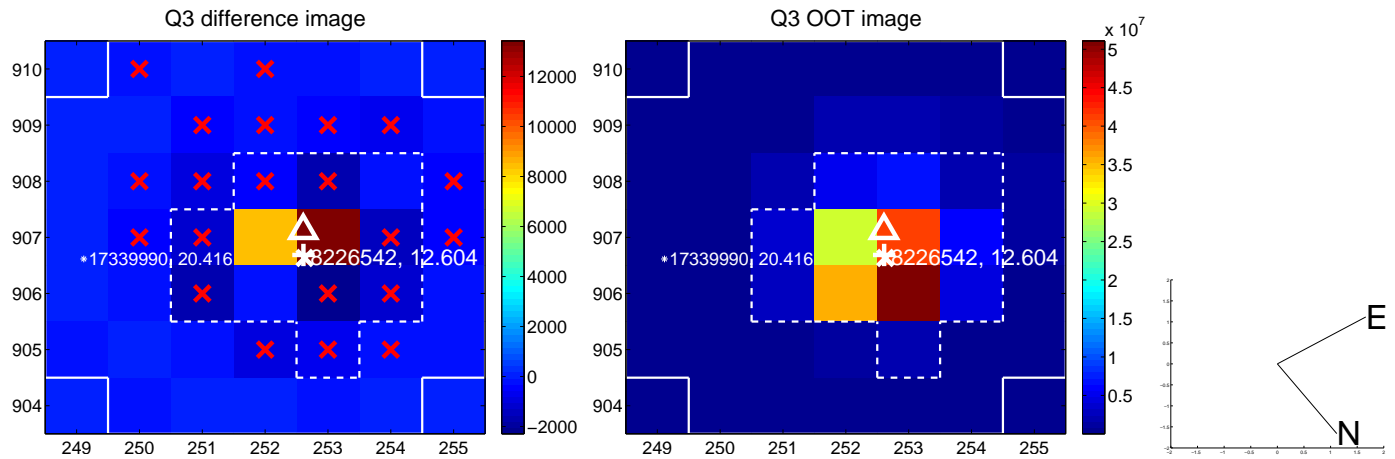
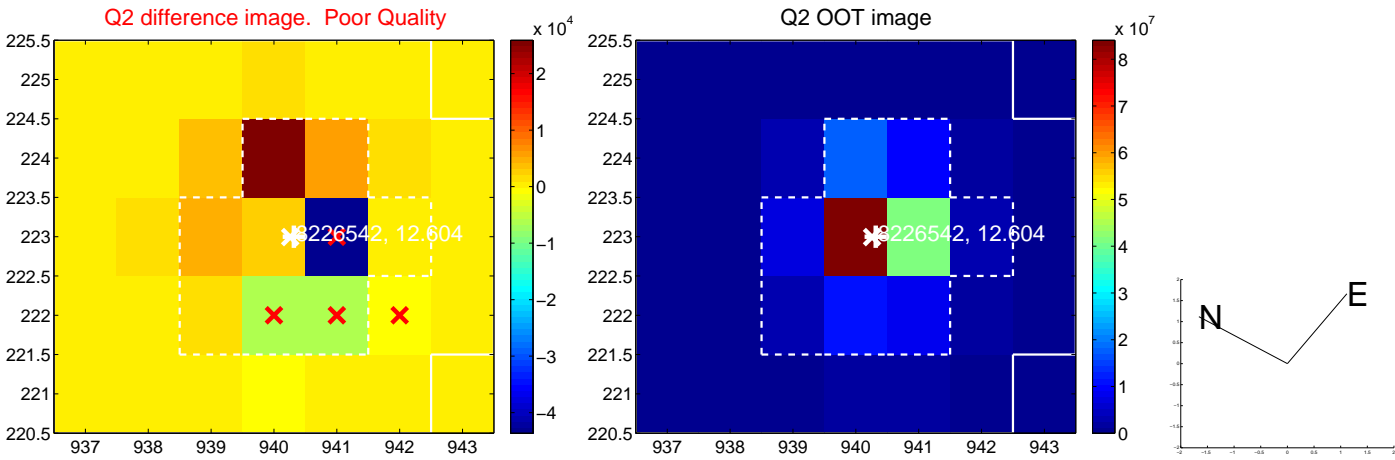
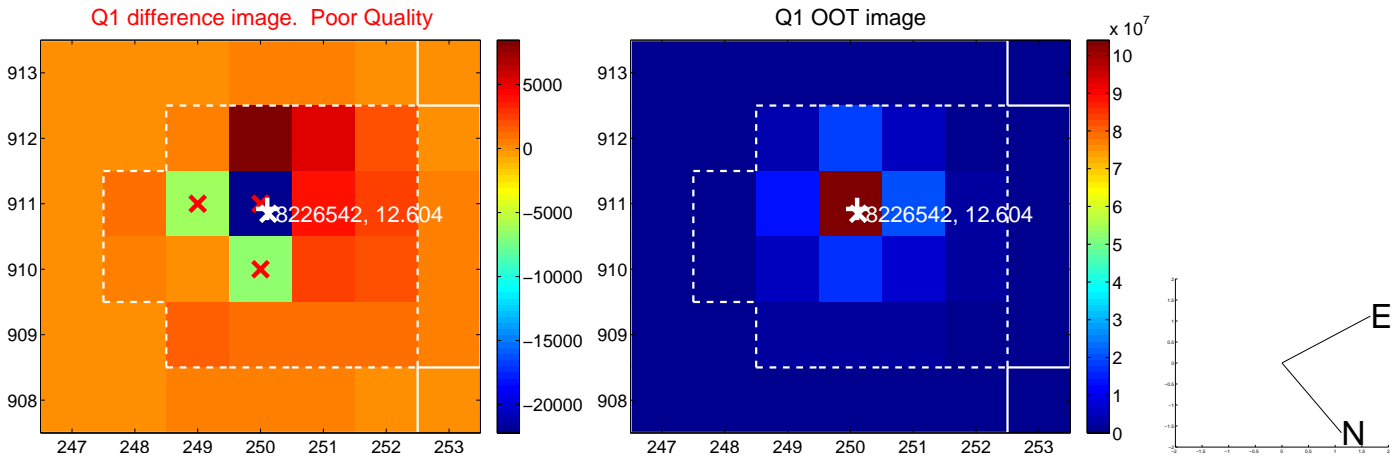


offset from photometric centroids

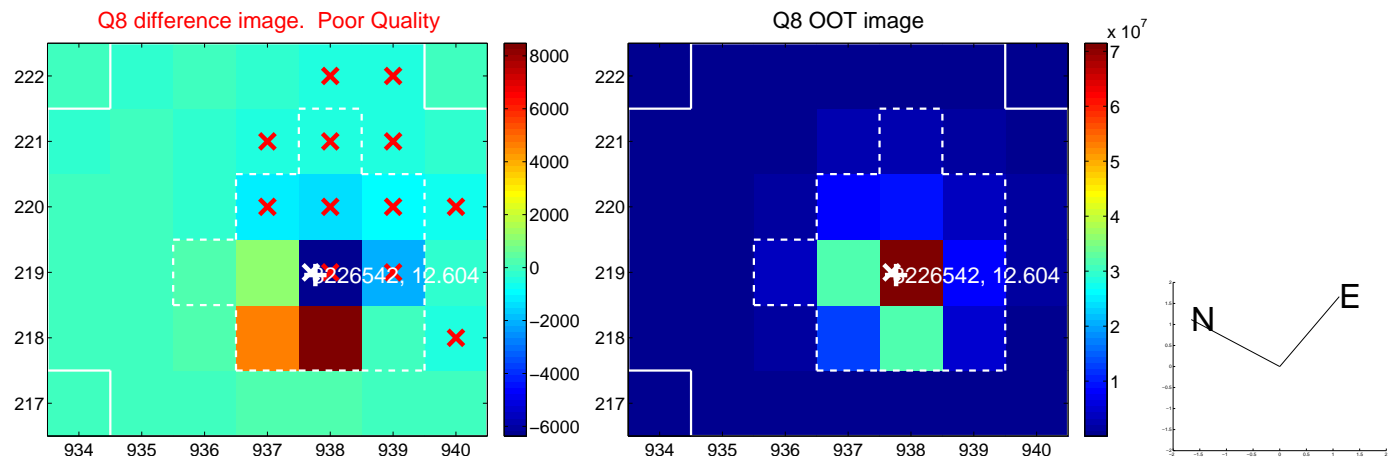
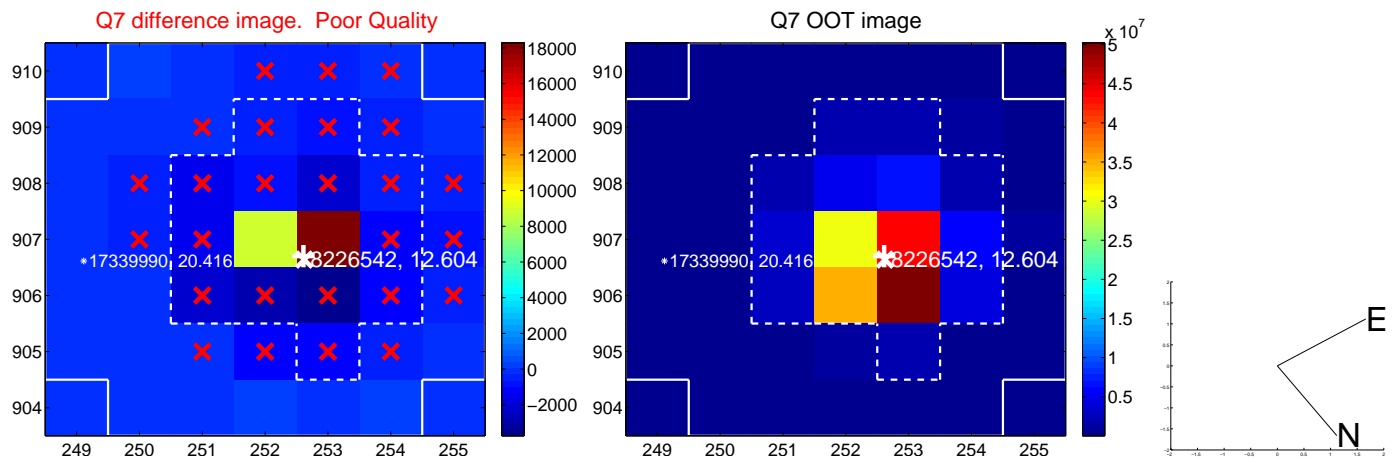
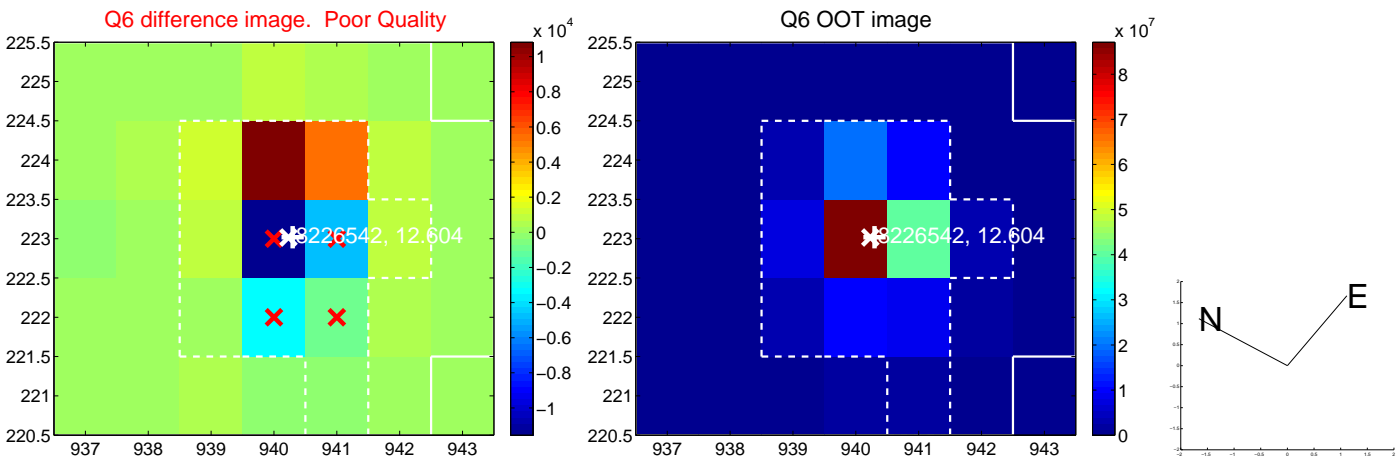
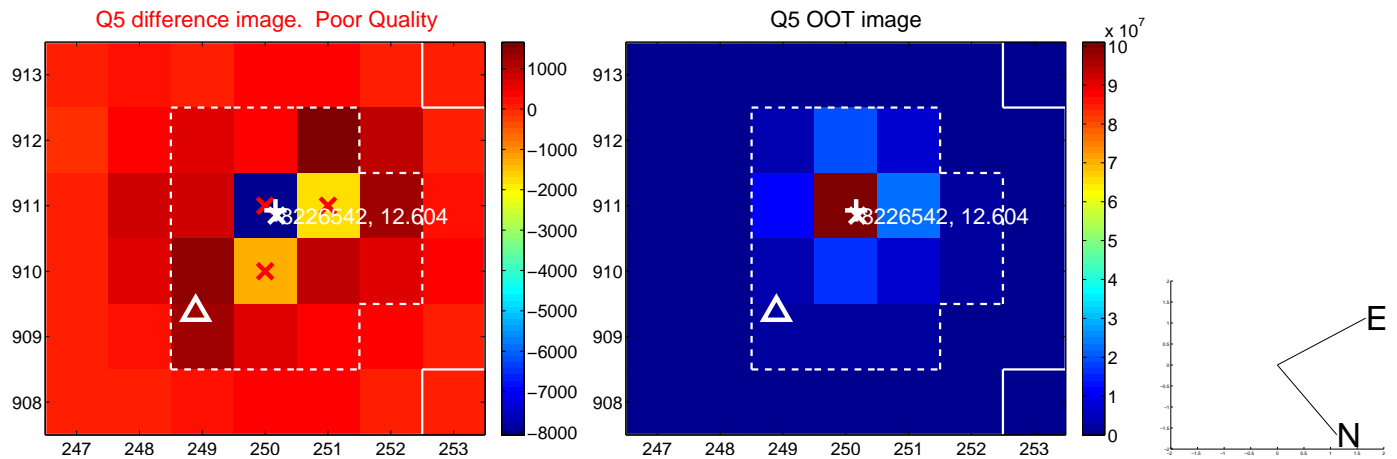


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

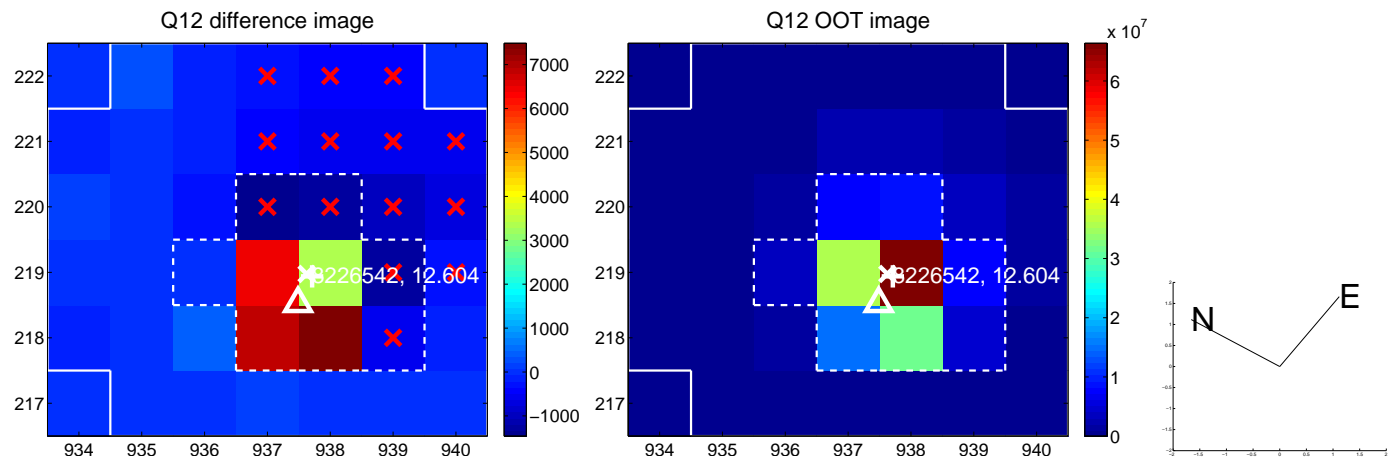
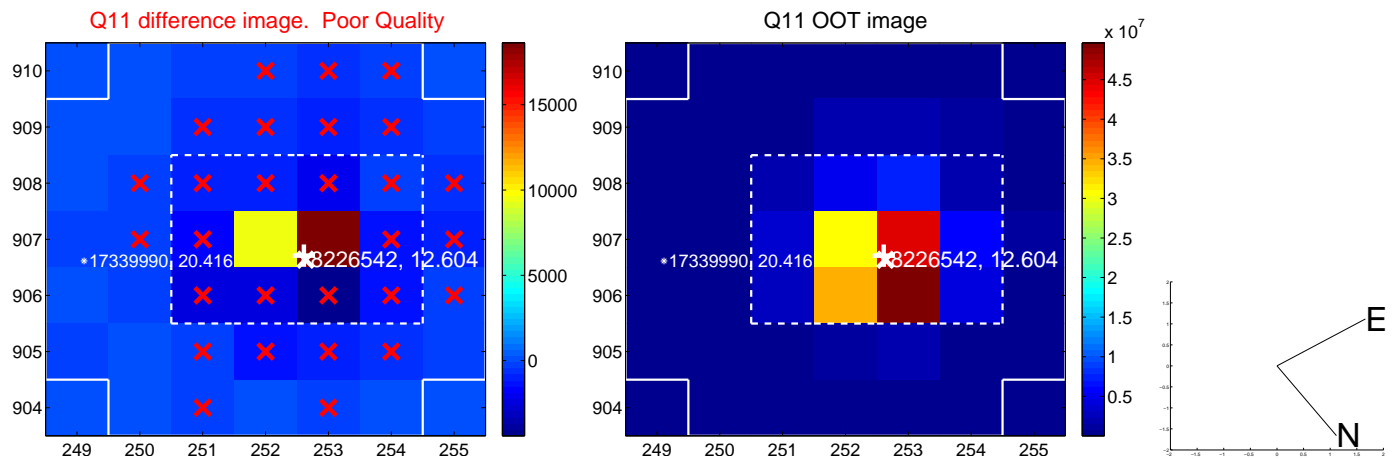
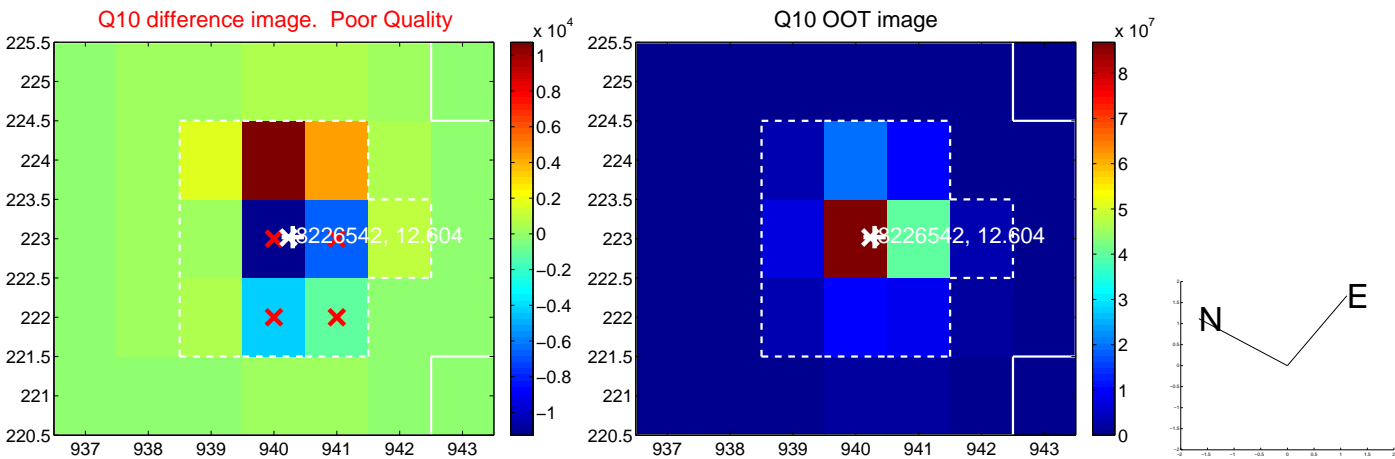
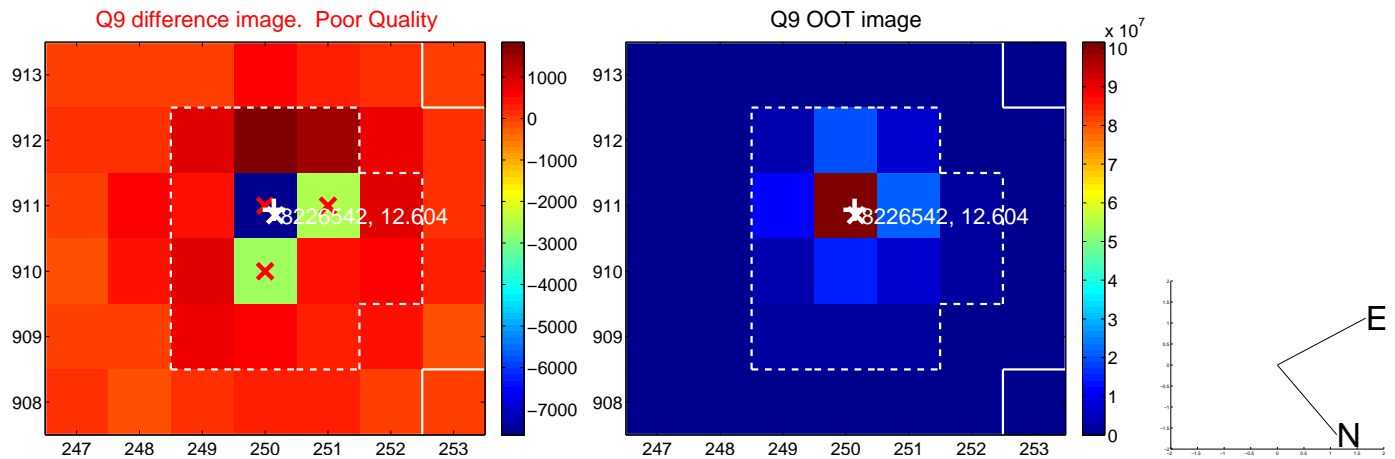
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



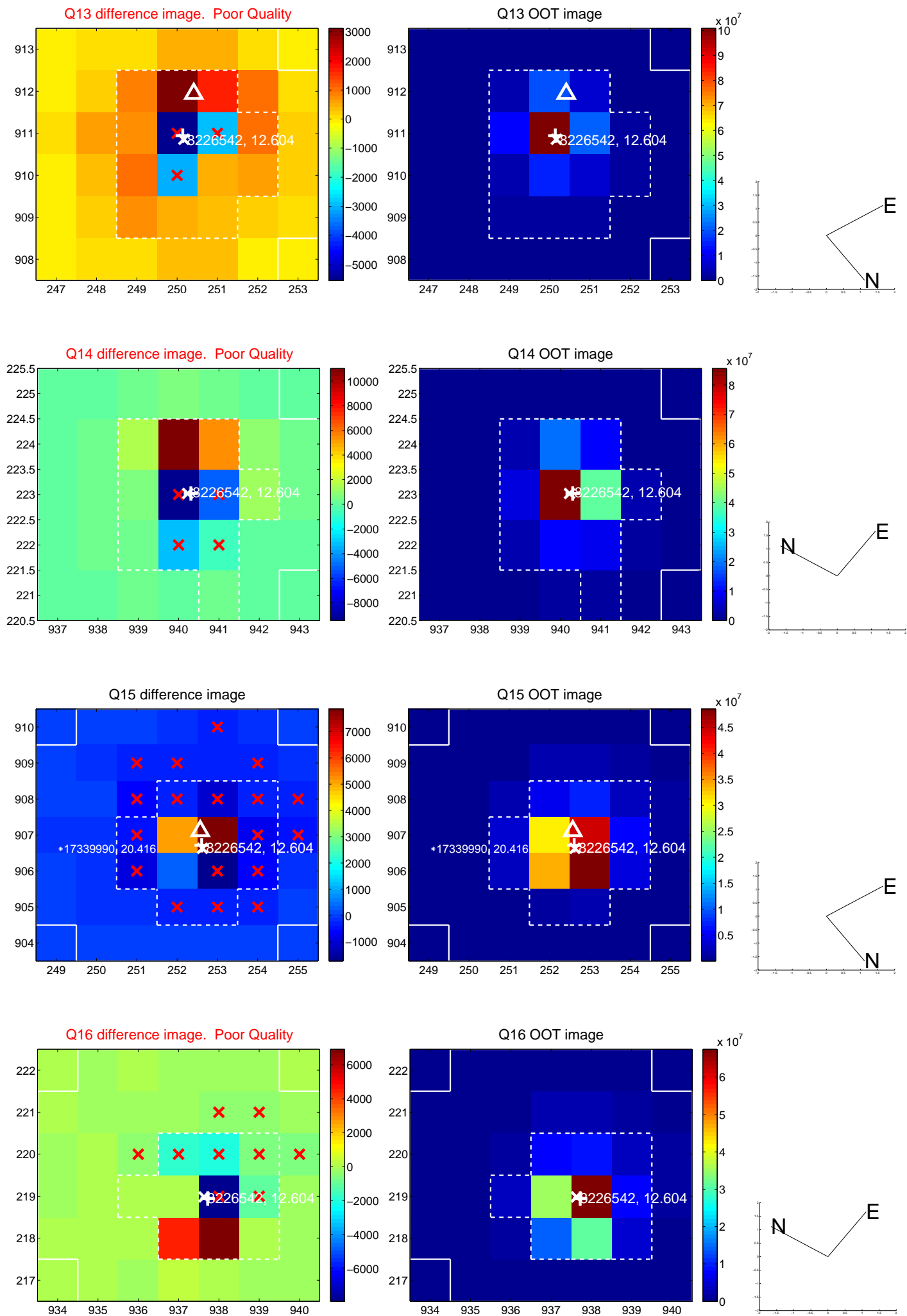
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



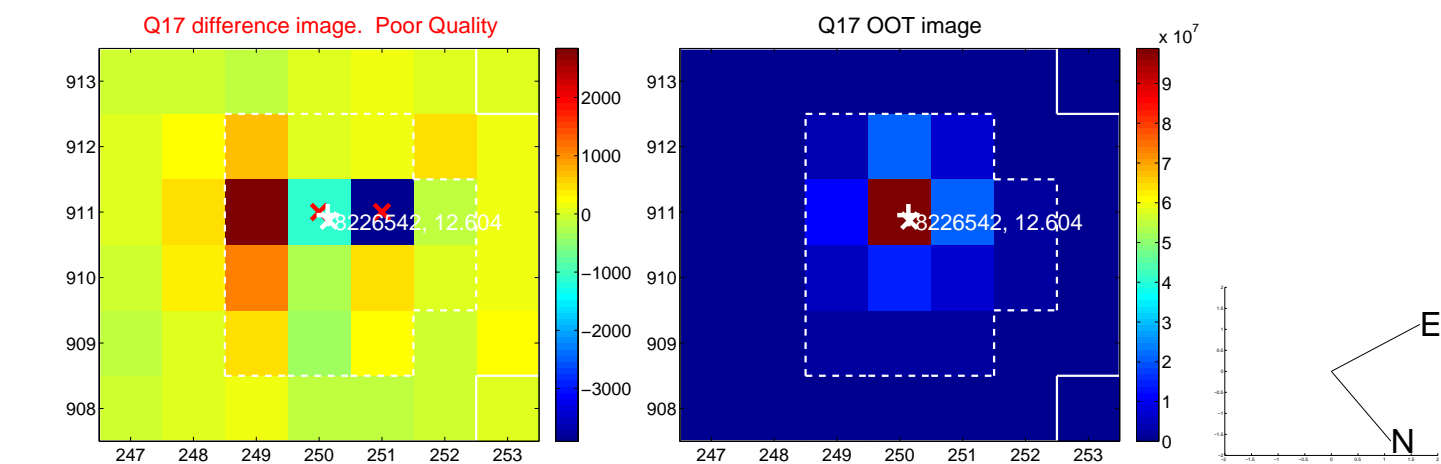
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



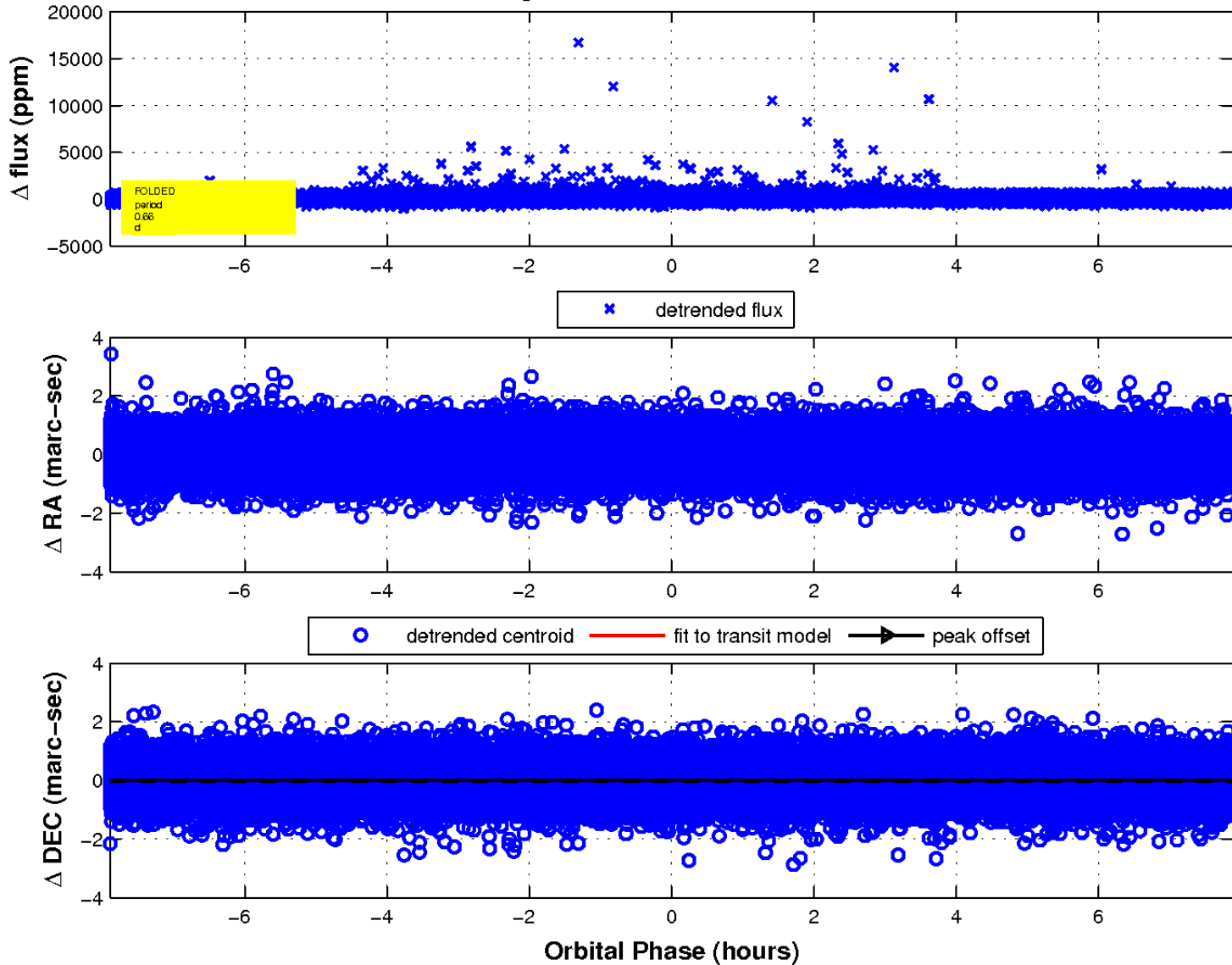
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

