

KIC 009955177

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})
009955177-01	OBS	No	278.949596	256.905748	448.7	8.193	17.8	12.6	1.79	7186	3.97	7.93
009955177-02	OBS	No	2.093069	131.826917	17.2	11.948	13.3	14.3	1.79	7186	0.83	5399.90
009955177-03	OBS	No	91.474237	163.482704	315.8	15.000	26.3	-1.0	1.79	7186	3.21	35.08
009955177-04	OBS	No	99.875043	187.762906	73.1	4.619	16.3	4.6	1.79	7186	1.75	31.20
009955177-05	OBS	No	136.155609	186.978241	81.0	4.372	14.5	2.6	1.79	7186	1.83	20.64
009955177-06	OBS	No	87.335950	169.026468	493.3	1.591	16.7	7.9	1.79	7186	4.04	37.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009955177-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009955177-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
009955177-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009955177-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_RESOLVED_OFFSET
009955177-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009955177-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

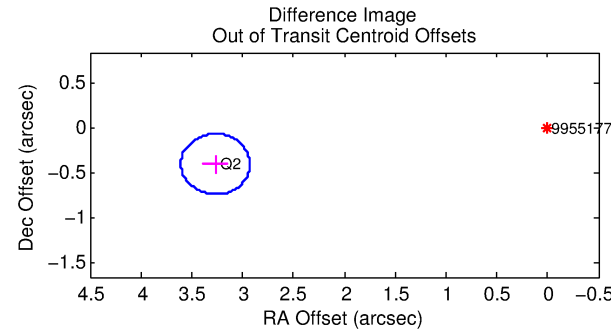
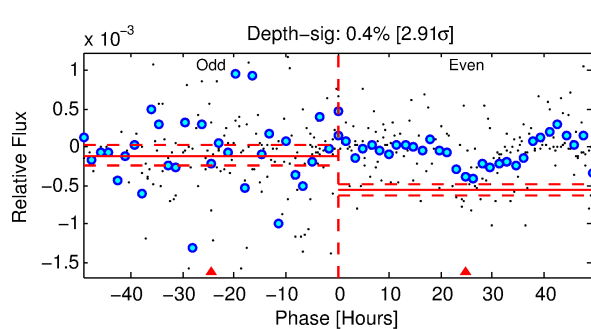
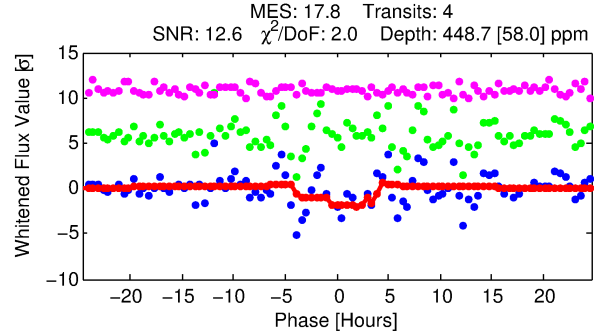
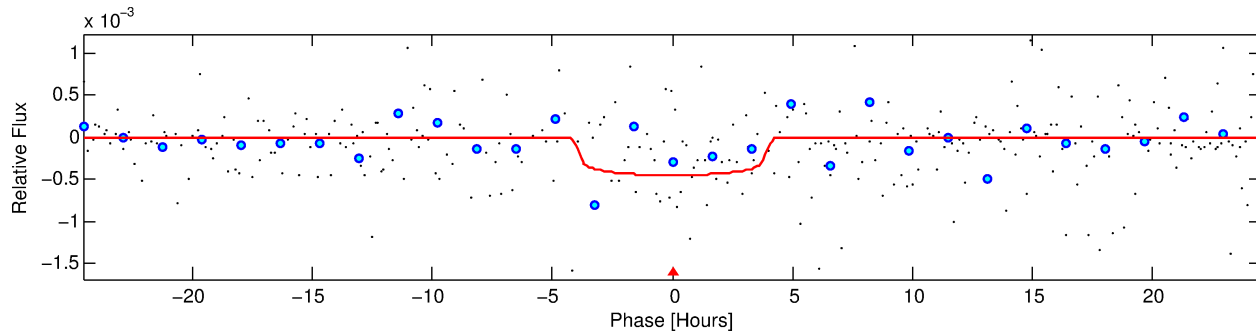
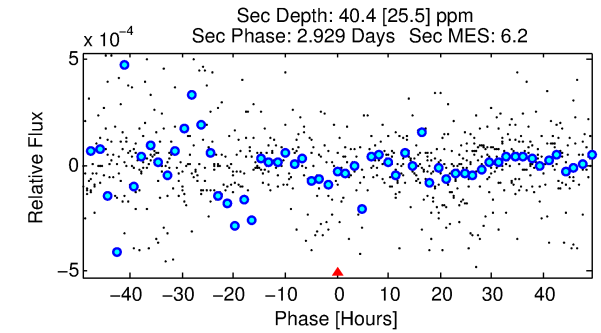
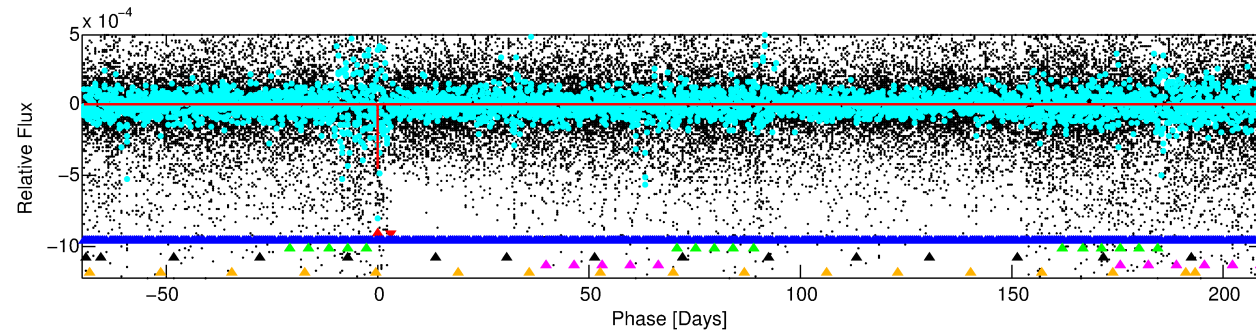
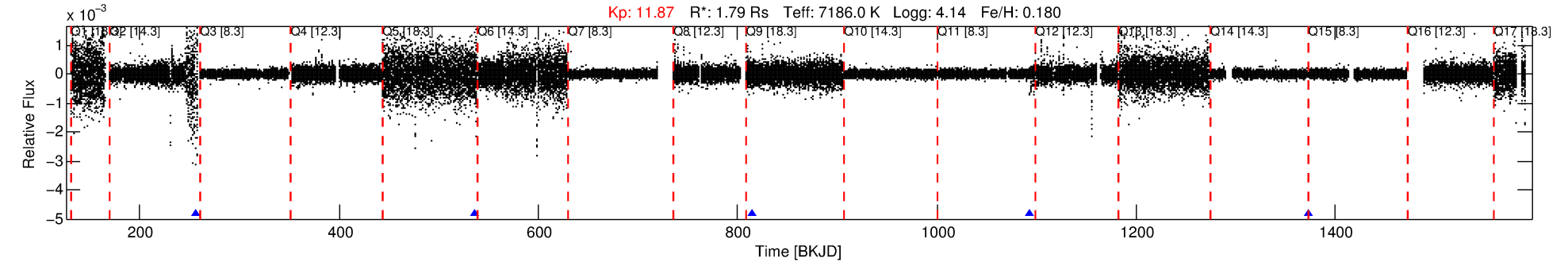
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009955177-01

No Significant Match Found

DV One-Page Summary

KIC: 9955177 Candidate: 1 of 6 Period: 278.950 d



DV Fit Results:

Period = 278.94960 [0.00837] d
Epoch = 256.9057 [0.0186] BKJD
Rp/R* = 0.0204 [0.0185]
a/R* = 216.69 [1165.28]
b = 0.59 [5.98]
Seff = 7.93 [3.15]
Teq = 428 [43] K
Rp = 3.97 [3.81] Re
a = 0.9802 [0.2547] AU
Ag = 1355.72 [2649.85] [0.51σ]
Teffp = 4015 [1933] K [1.86σ]

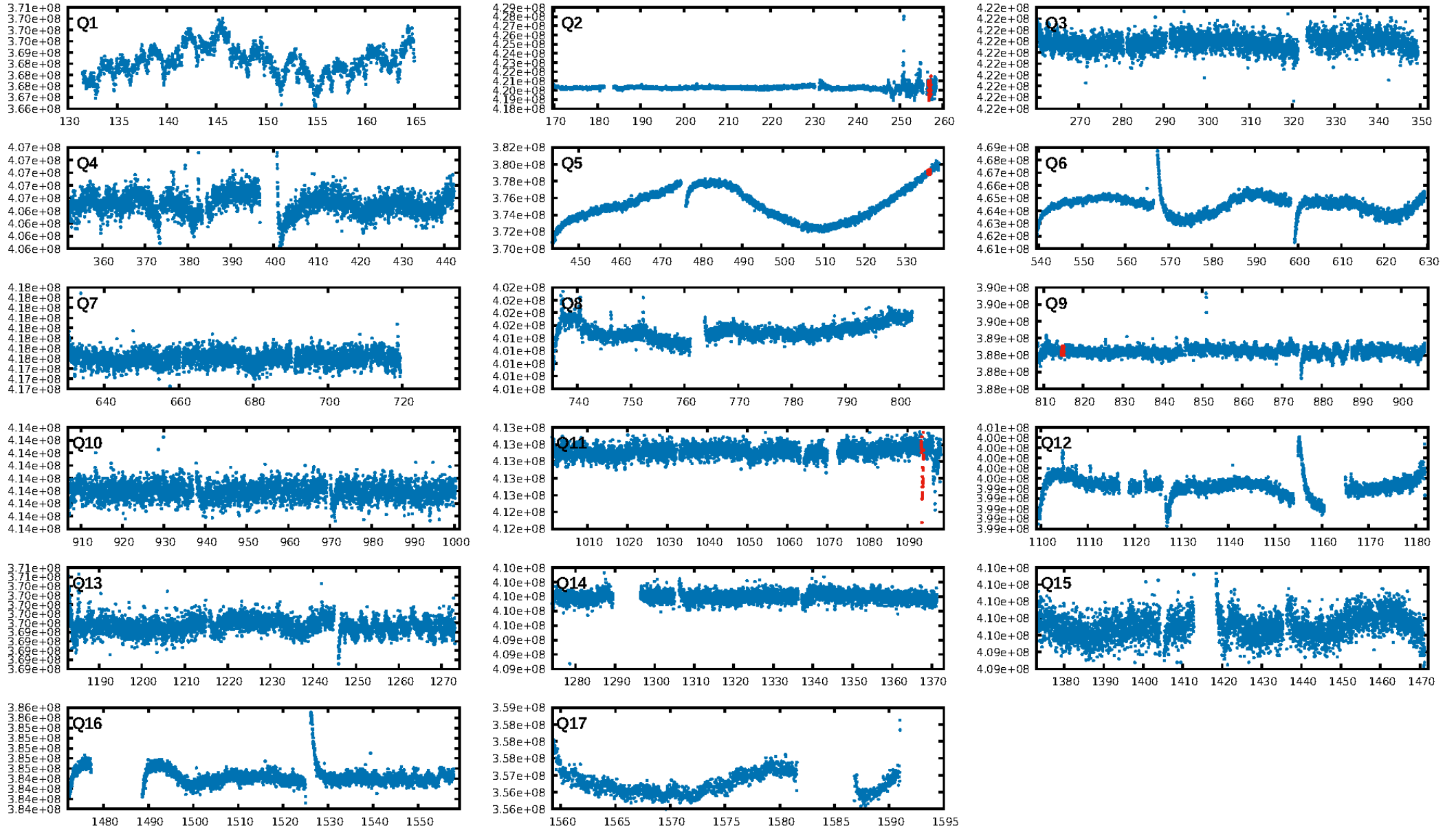
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [369.02σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 14.6%
Bootstrap-pfa: 5.53e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.066
Centroid-sig: 89.6%
Centroid-so: 2.869 arcsec [5.30σ]
OotOffset-rm: 3.290 arcsec [29.19σ]
KicOffset-rm: 6.308 arcsec [6.69σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 0.00 [0/3]
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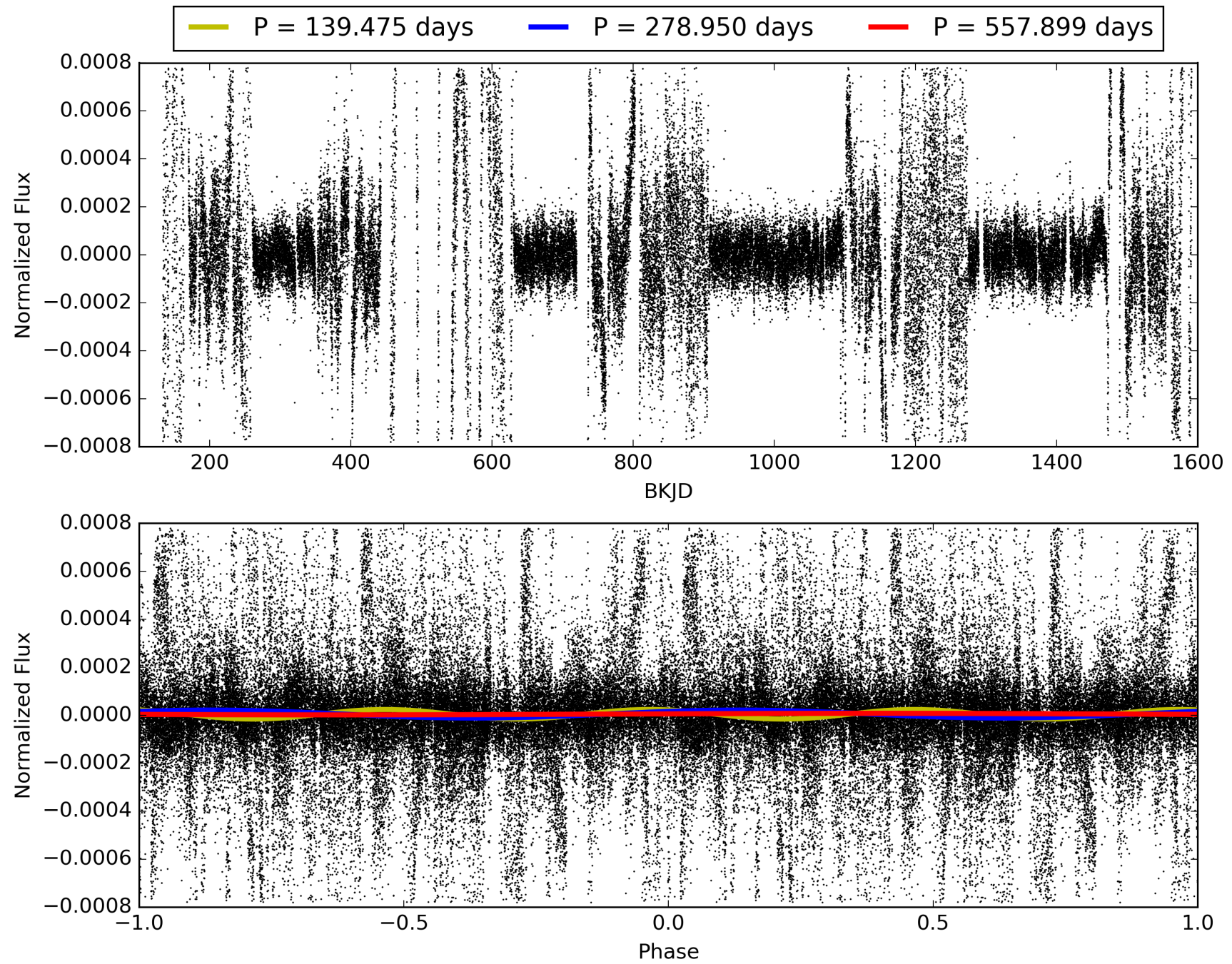
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009955177-01, PDC Light Curves

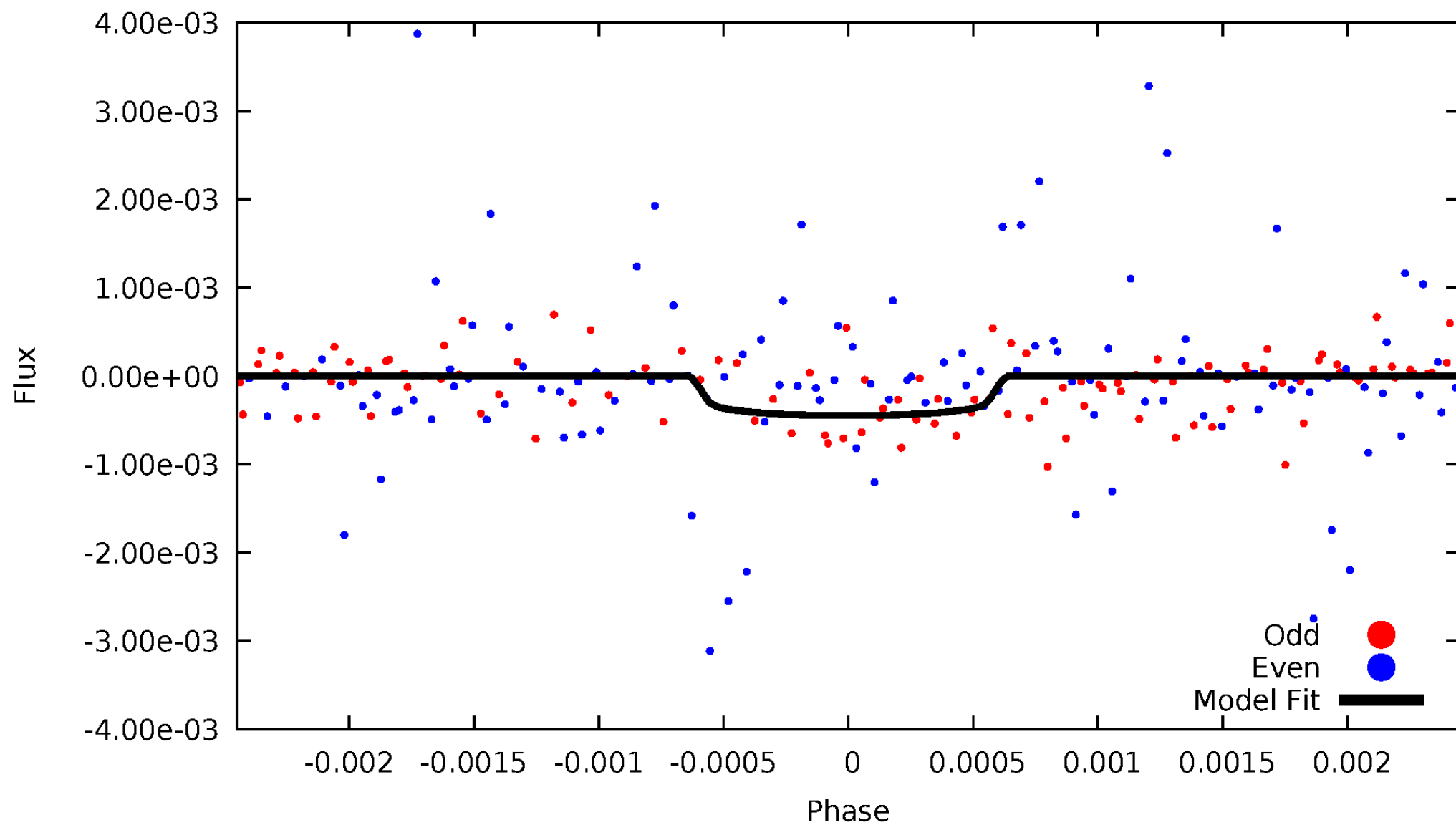


TCE 009955177-01



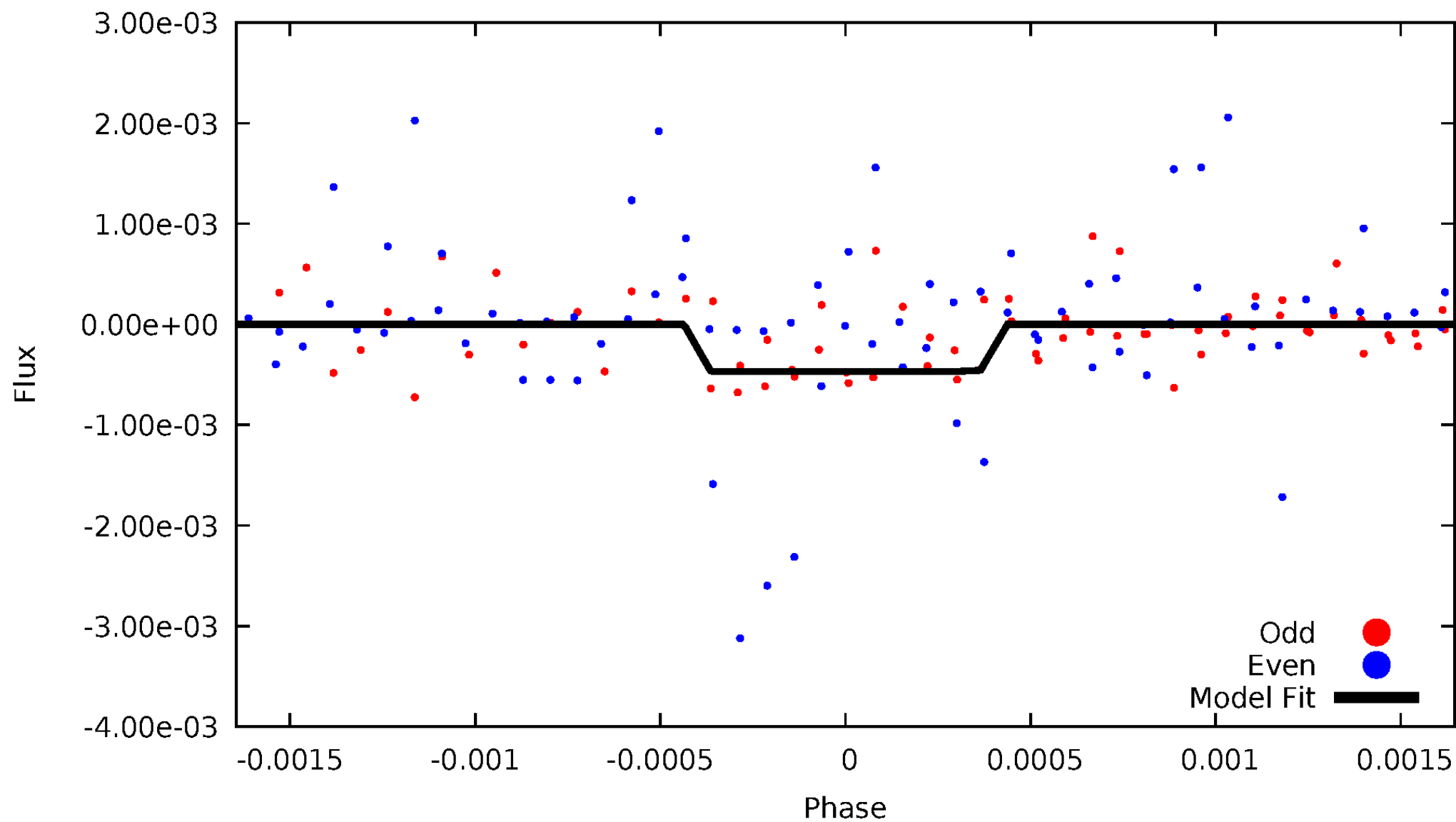
DV Odd/Even

TCE 009955177-01



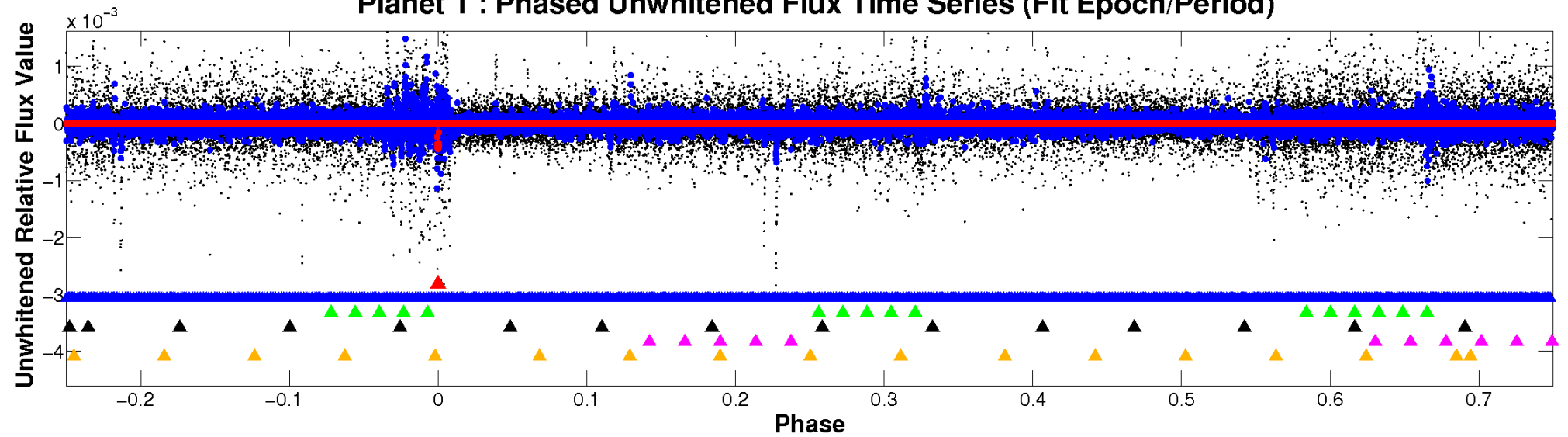
ALT Odd/Even

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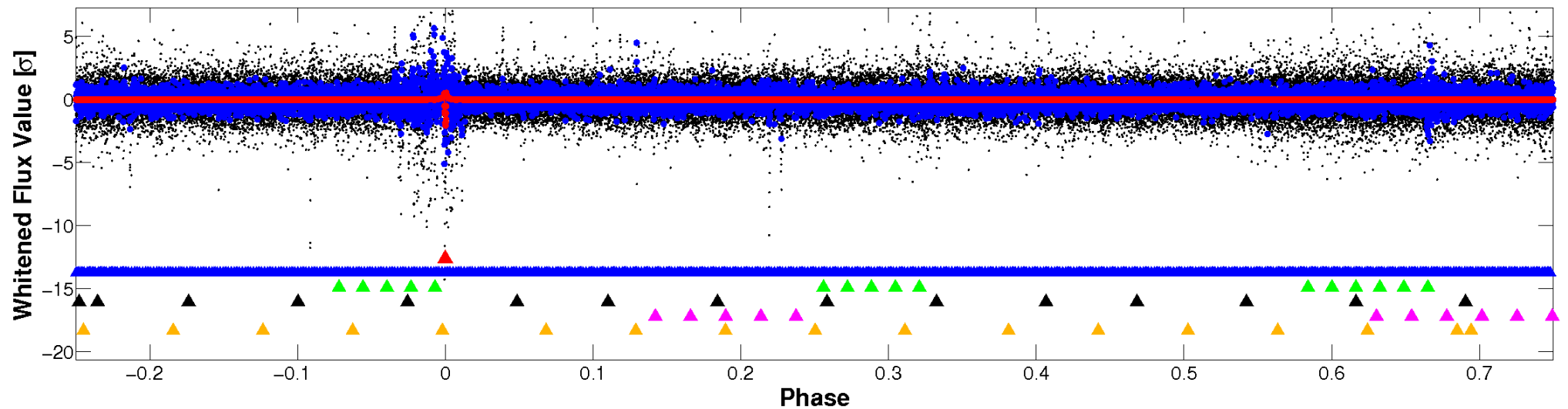


Non-Whitened Vs. Whitened Light Curve

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

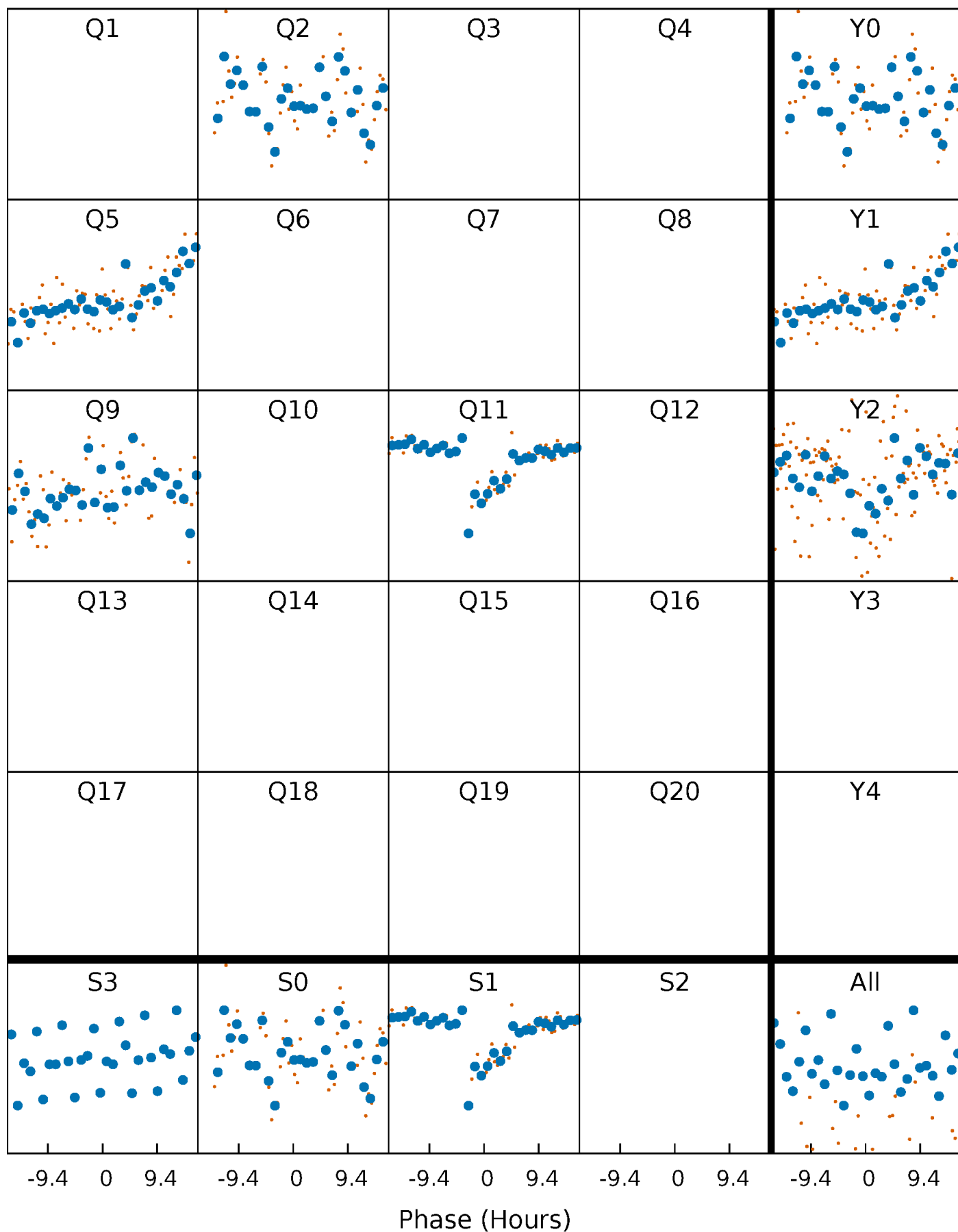


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



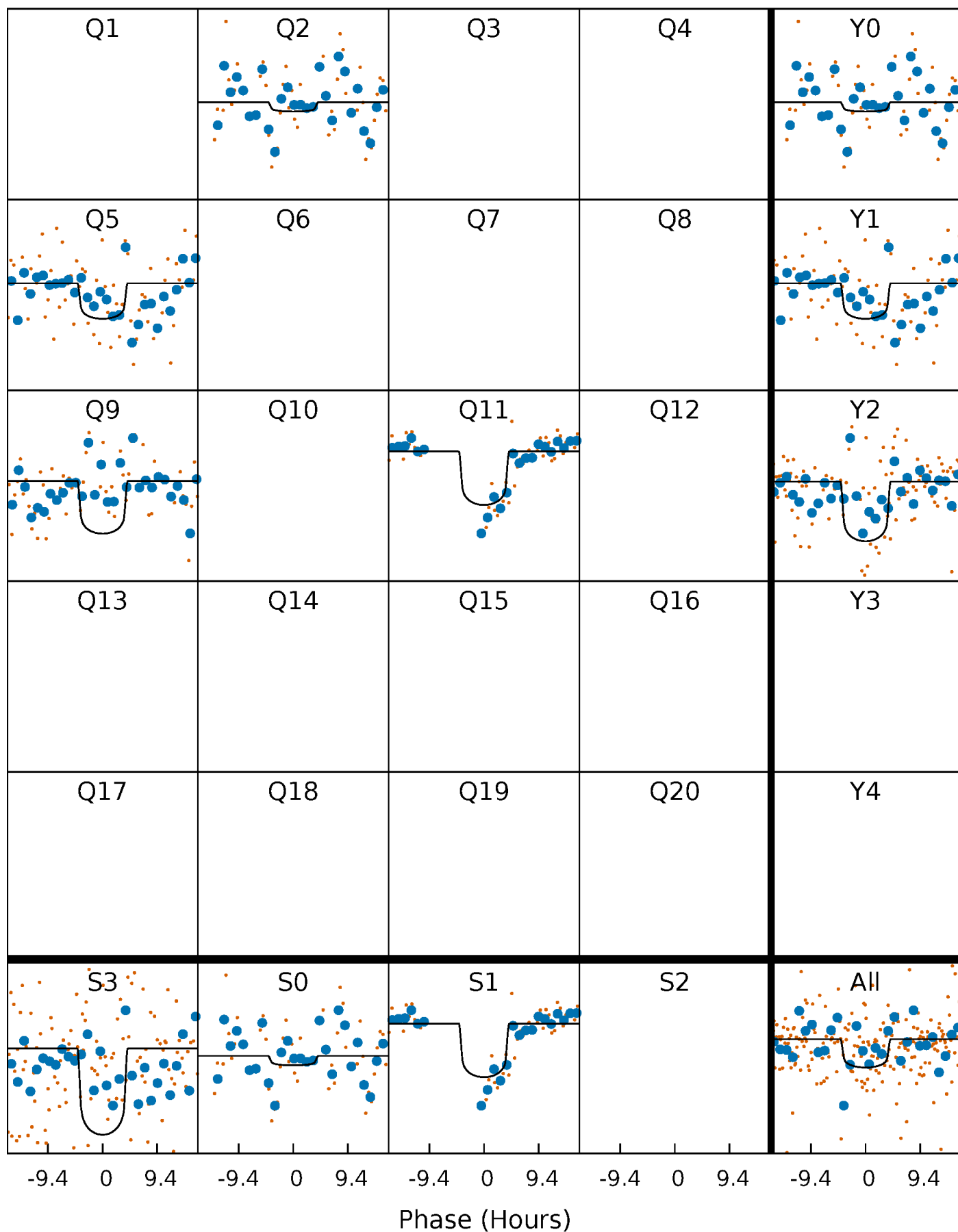
PDC Quarter-Phased Transit Curves

TCE 009955177-01 P=278.949596 Days $T_0=256.905748$ (BKJD)



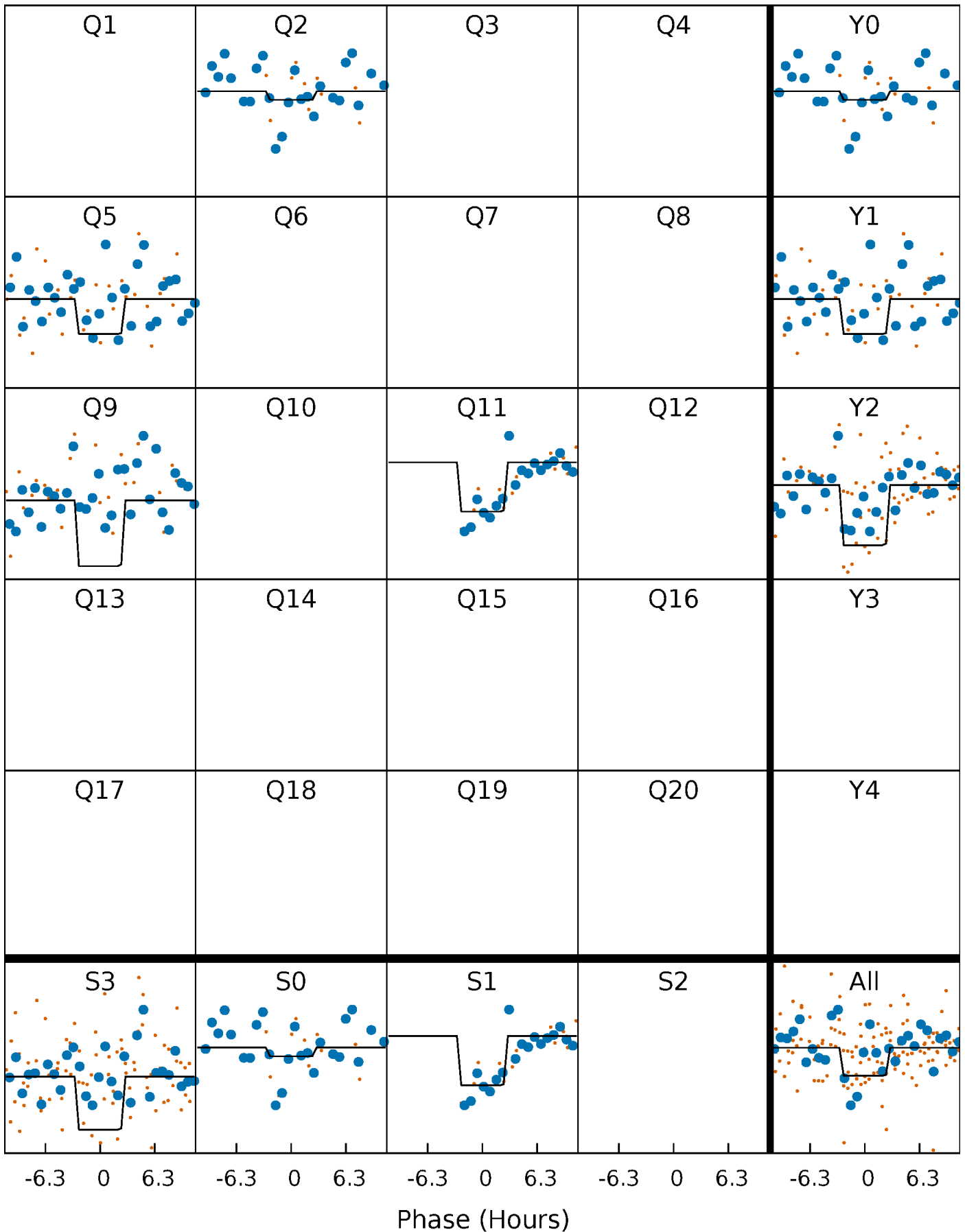
DV Quarter-Phased Transit Curves

TCE 009955177-01 P=278.949596 Days $T_0=256.905748$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

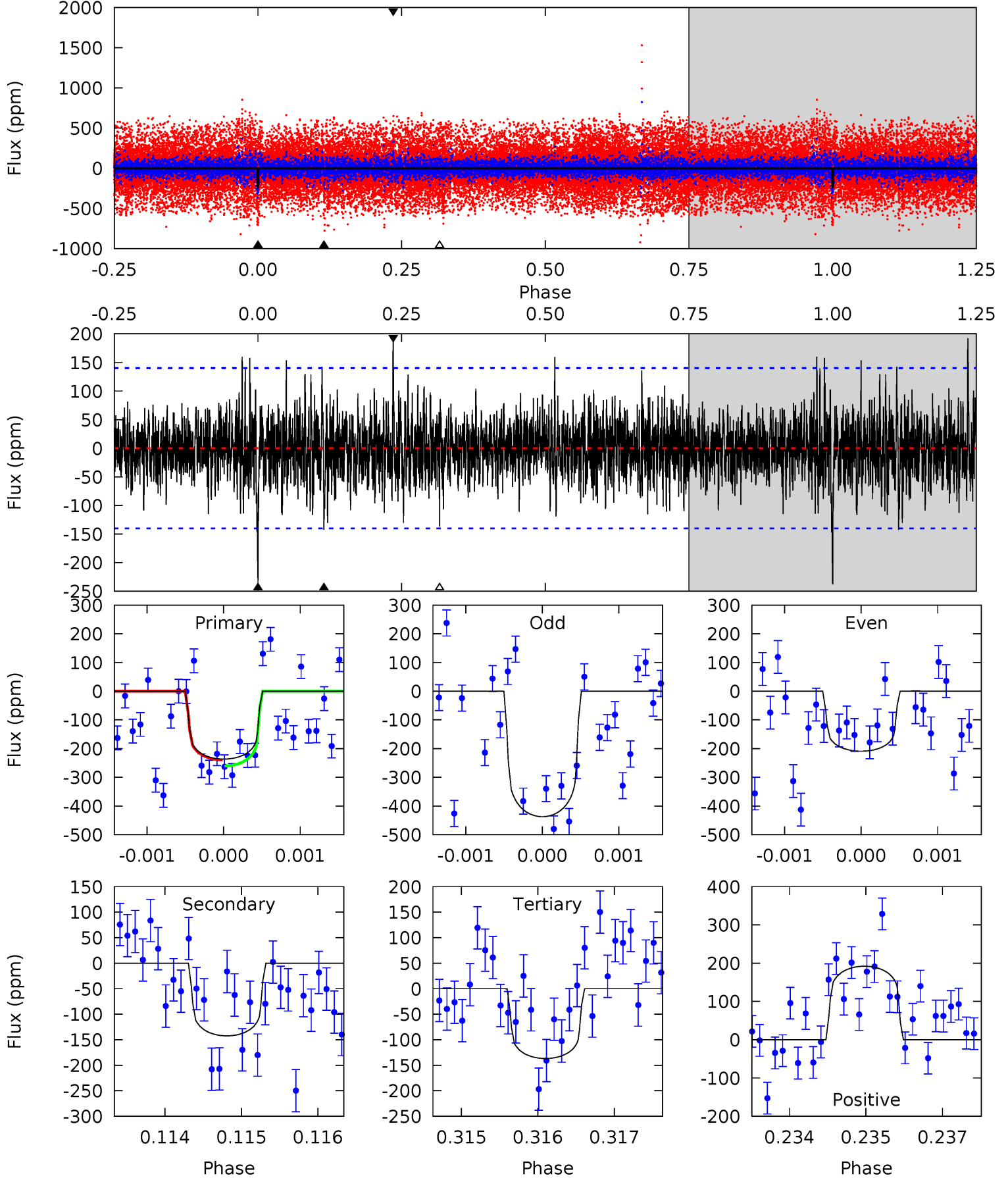
TCE 009955177-01 P=278.999828 Days $T_0=256.830592$ (BKJD)



DV Model-Shift Uniqueness Test

009955177-01, P = 278.949596 Days, E = 256.905748 Days

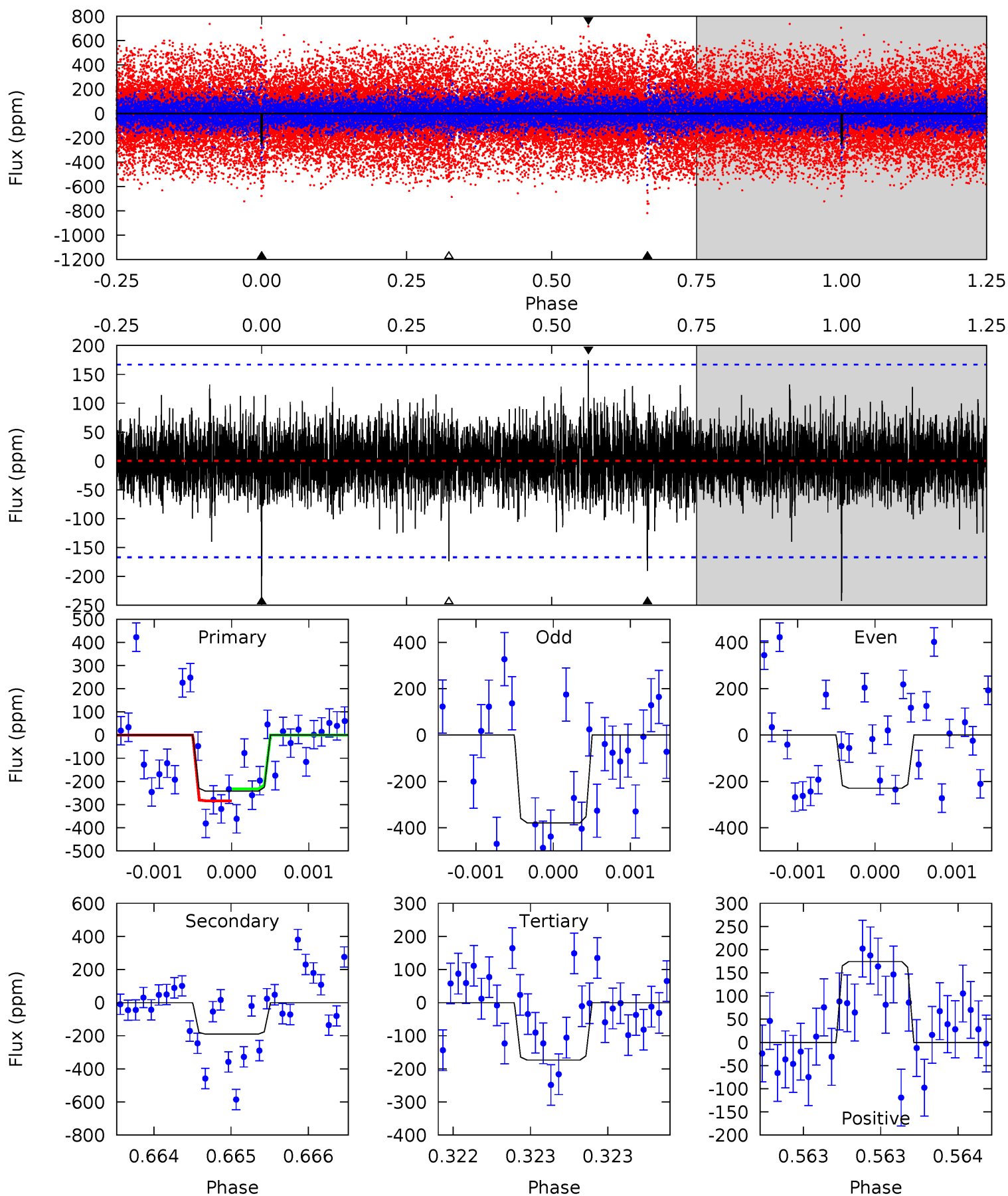
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.13	5.49	5.28	7.41	5.41	3.22	1.51	3.85	1.72	0.22	-1.91	3.87	0.89	0.45	0



Alt Model-Shift Uniqueness Test

009955177-01, P = 278.999828 Days, E = 256.830592 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.95	6.24	5.69	5.72	5.48	3.33	1.13	2.26	2.23	0.55	0.52	2.40	1.32	0.42	0.87



Stellar Parameters For KIC 009955177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7186^{+200}_{-275}	$4.142^{+0.105}_{-0.195}$	$0.180^{+0.150}_{-0.350}$	$1.786^{+0.569}_{-0.306}$	$1.615^{+0.211}_{-0.233}$	$0.399^{+0.194}_{-0.206}$
	+3%/-4%	+3%/-5%	+83%/-194%	+32%/-17%	+13%/-14%	+49%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009955177-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-142 ± 26	$4.75^{+3.70}_{-2.93}$	602^{+51}_{-37}	5021^{+3180}_{-955}	3200^{+19817}_{-2191}
Alt.	-190 ± 30	$4.82^{+3.55}_{-2.90}$	603^{+48}_{-38}	5367^{+3638}_{-1032}	4254^{+24535}_{-2814}

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

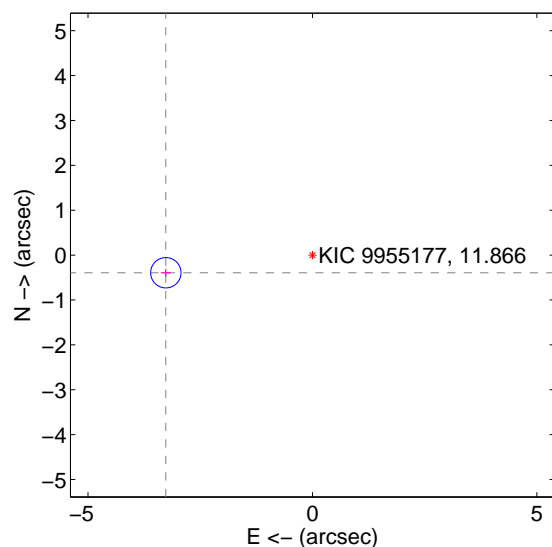
Supplemental centroid analysis for 009955177-01. **Kepler magnitude: 11.87.** Transit SNR 12.58

There are 0 quarters with good PRF difference image offsets

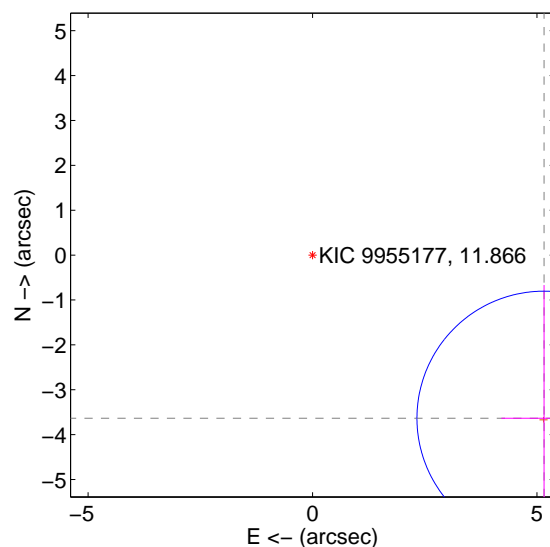
The OOT PRF centroid is offset from the target star catalog position by about 9.03 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.290 ± 0.113	29.19	3.266 ± 0.113	-0.393 ± 0.092
PRF-fit source offset from KIC position	6.308 ± 0.943	6.69	-5.157 ± 0.950	-3.634 ± 2.965
photometric centroid source offset	2.87 ± 0.54	5.30	-2.68 ± 0.57	-1.02 ± 0.29

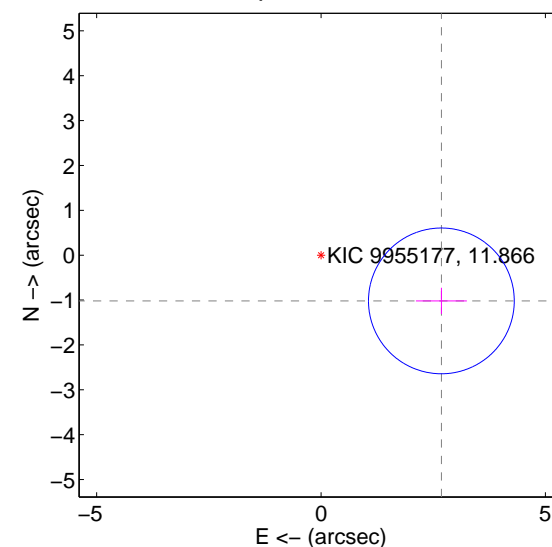
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

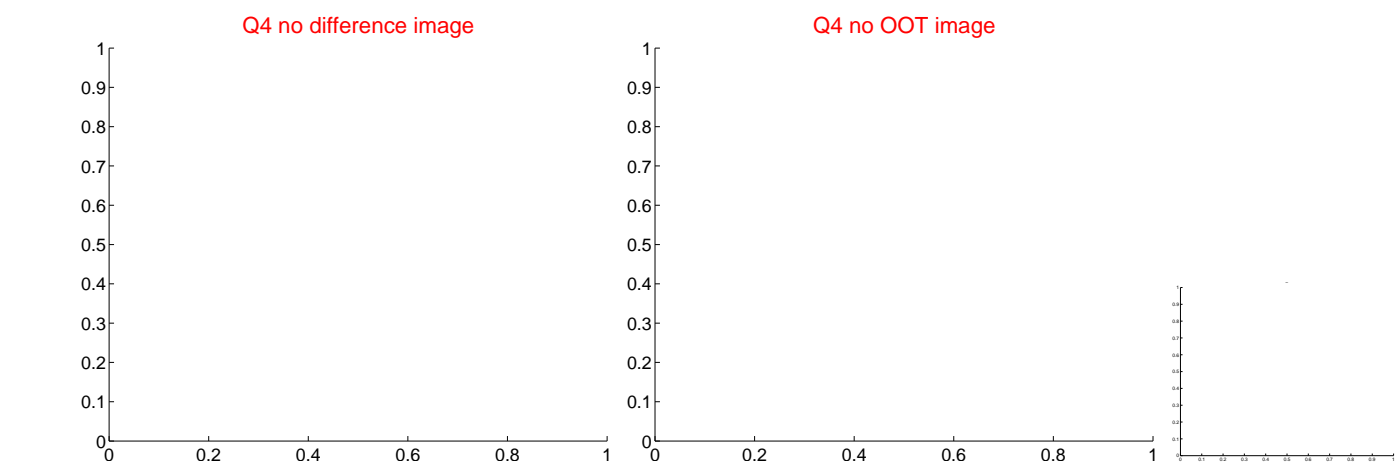
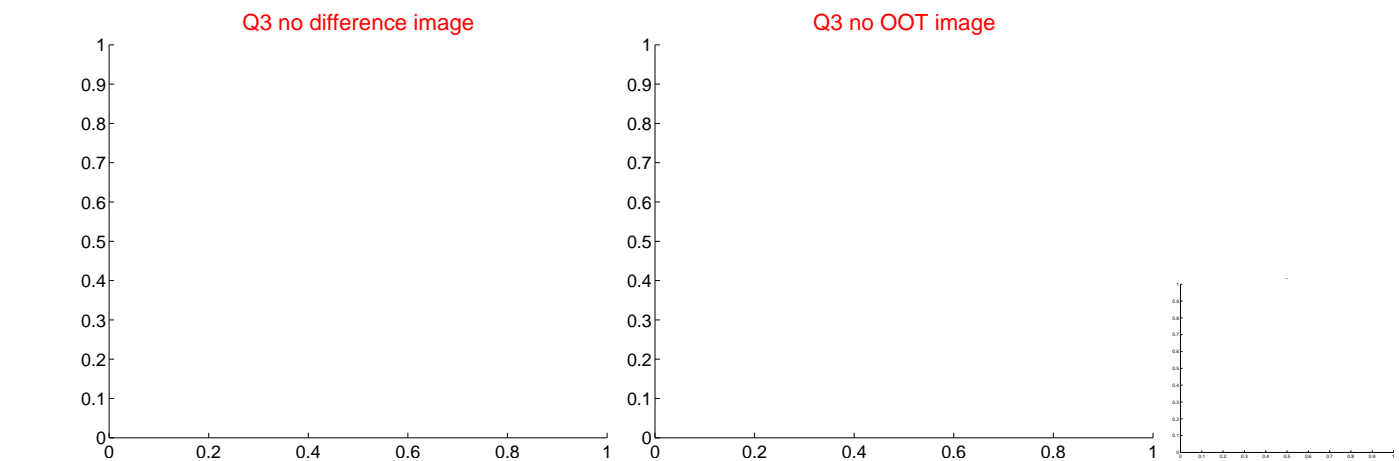
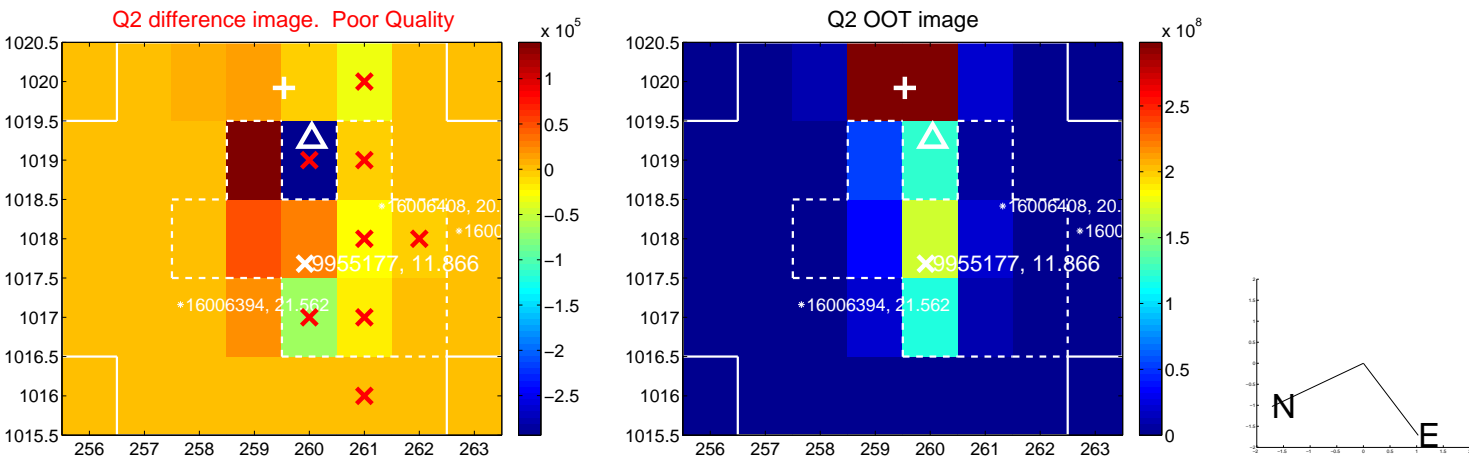
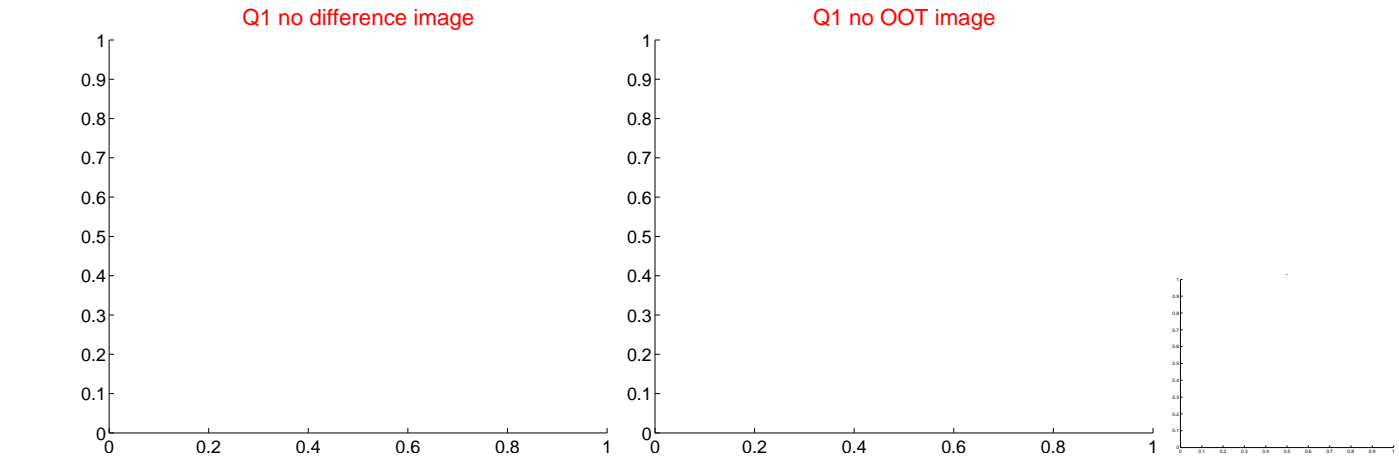


offset from photometric centroids

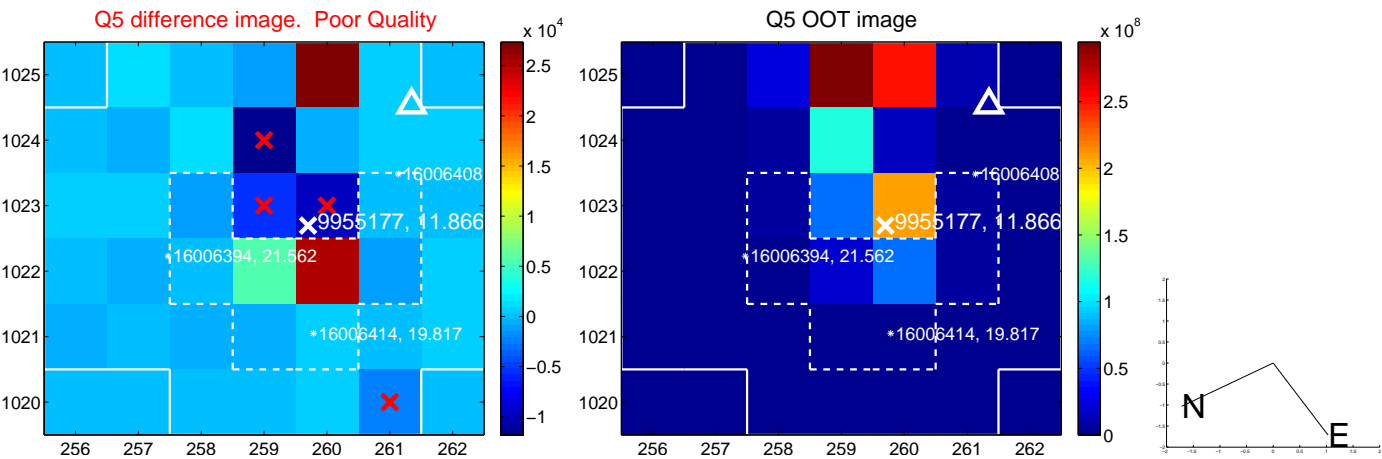


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

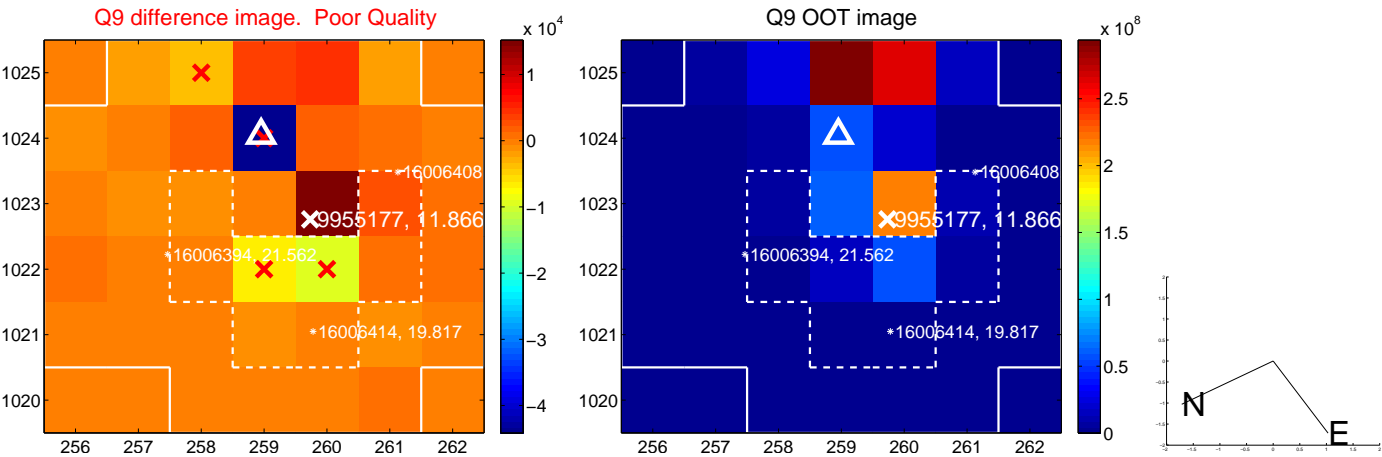
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



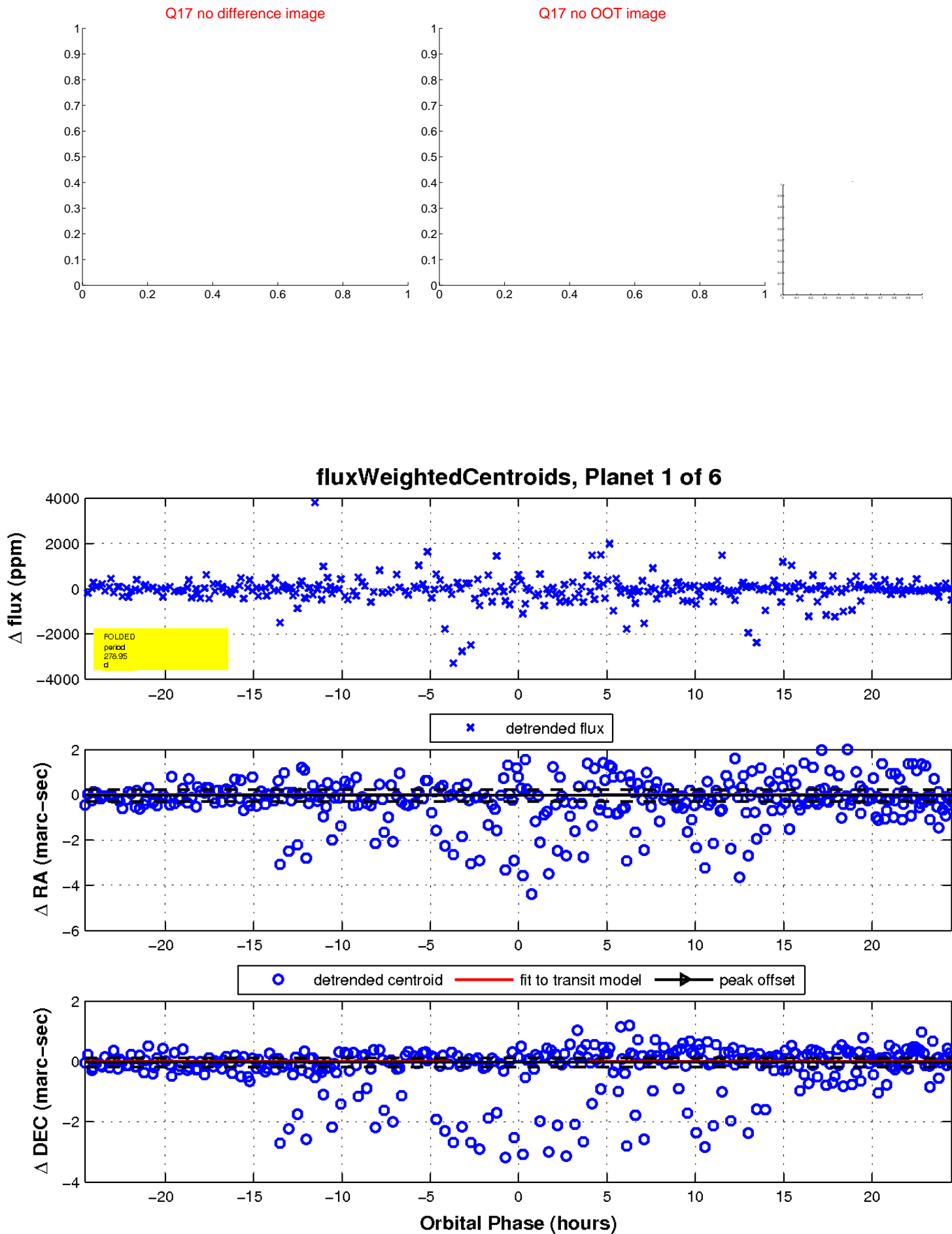
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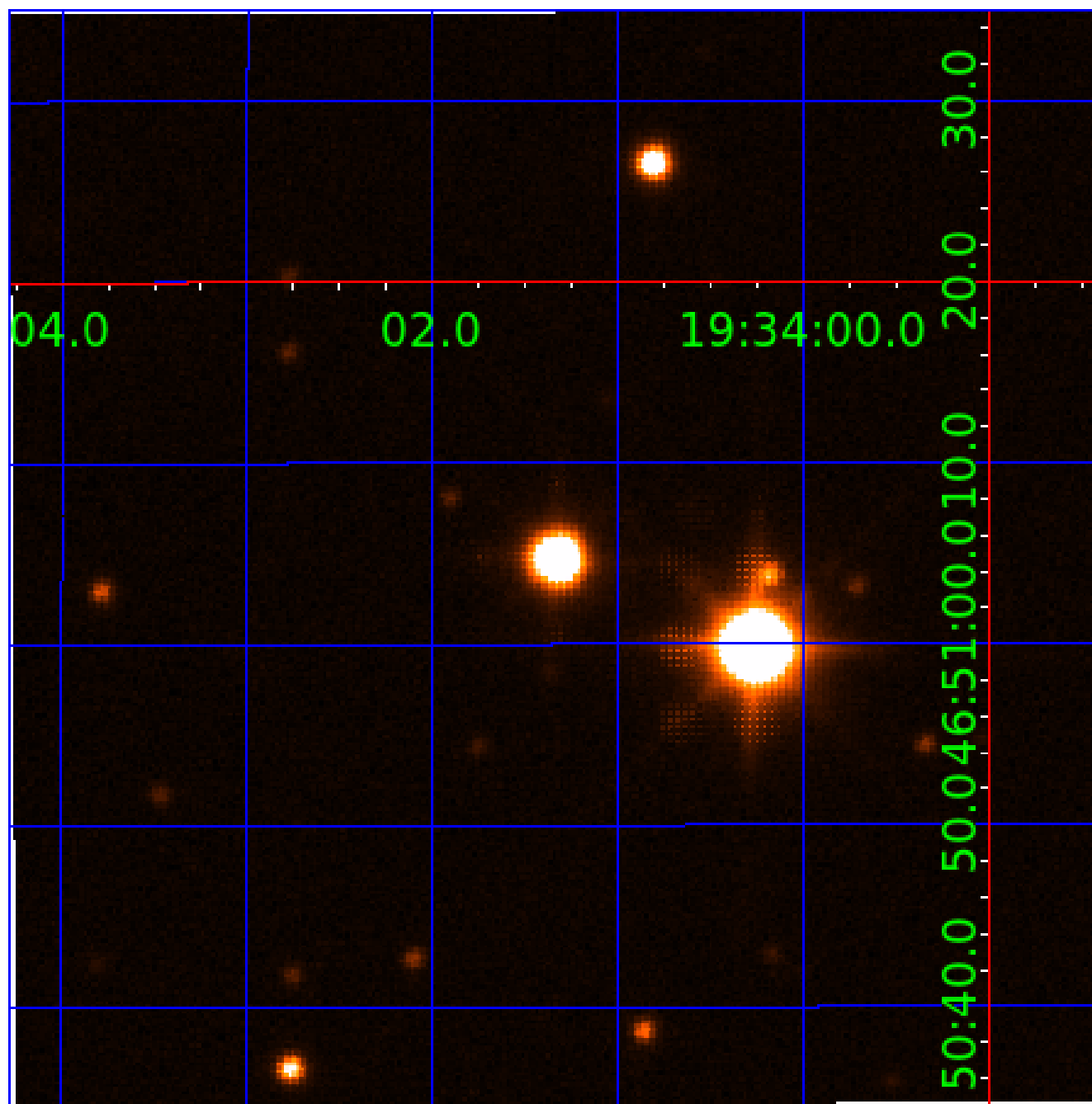


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009955177

Q1-17 DR25 TCE Parameters

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009955177-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
009955177-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009955177-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_RESOLVED_OFFSET
009955177-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009955177-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

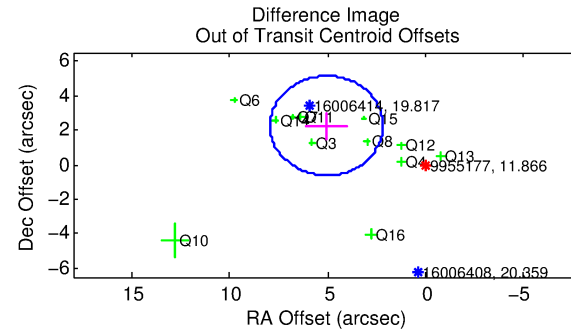
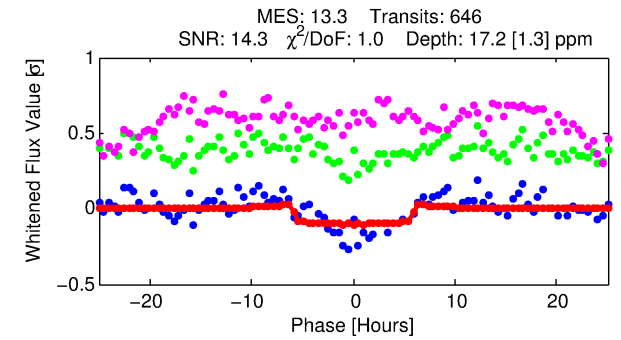
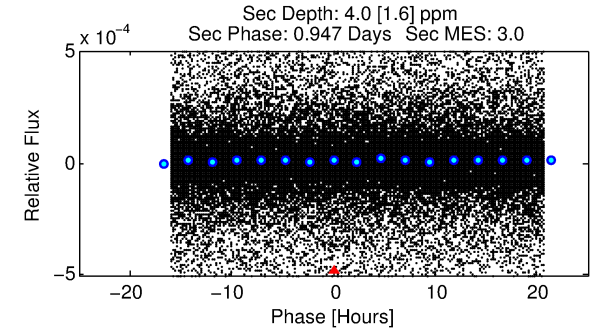
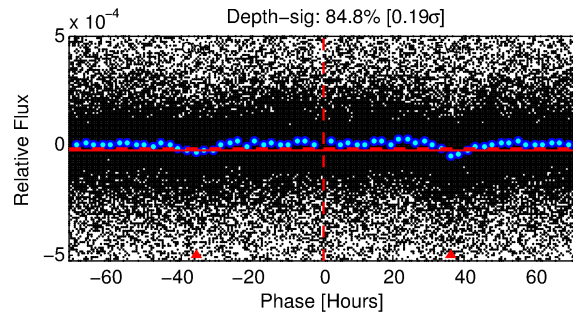
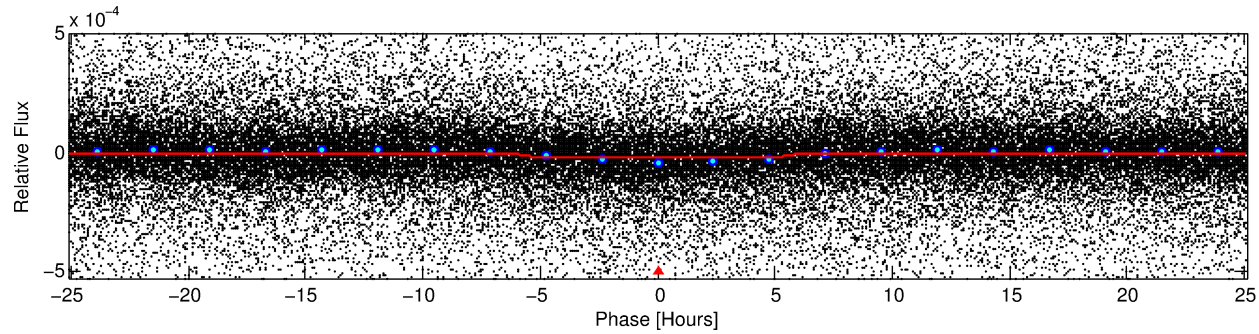
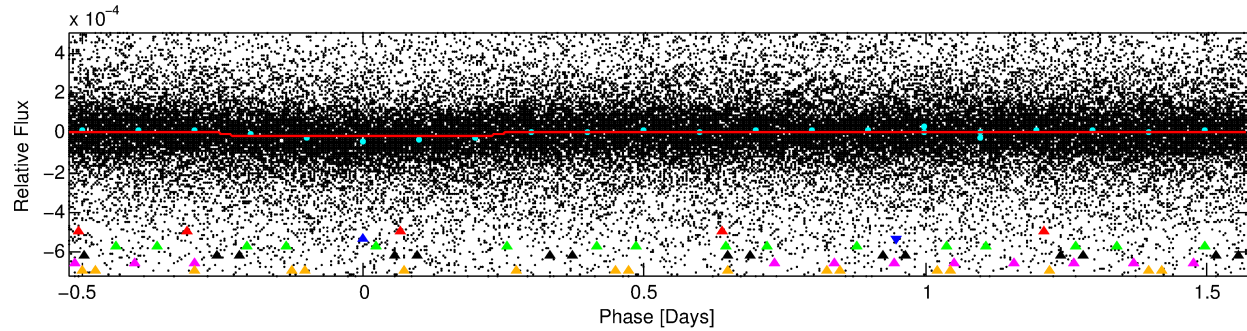
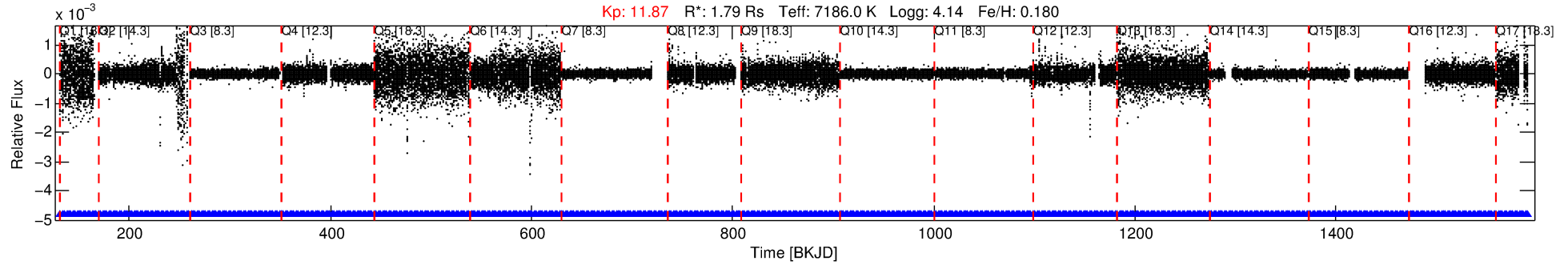
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009955177-02

No Significant Match Found

DV One-Page Summary

KIC: 9955177 Candidate: 2 of 6 Period: 2.093 d



DV Fit Results:

Period = 2.09307 [0.00002] d
Epoch = 131.8269 [0.0067] BKJD
Rp/R* = 0.0043 [0.0011]
a/R* = 1.17 [0.50]
b = 0.84 [0.58]
Seff = 5399.91 [2147.40]
Teq = 2186 [217] K
Rp = 0.83 [0.34] Re
a = 0.0376 [0.0098] AU
Ag = 4.46 [3.37] [1.03 σ]
Teffp = 4911 [831] K [3.17 σ]

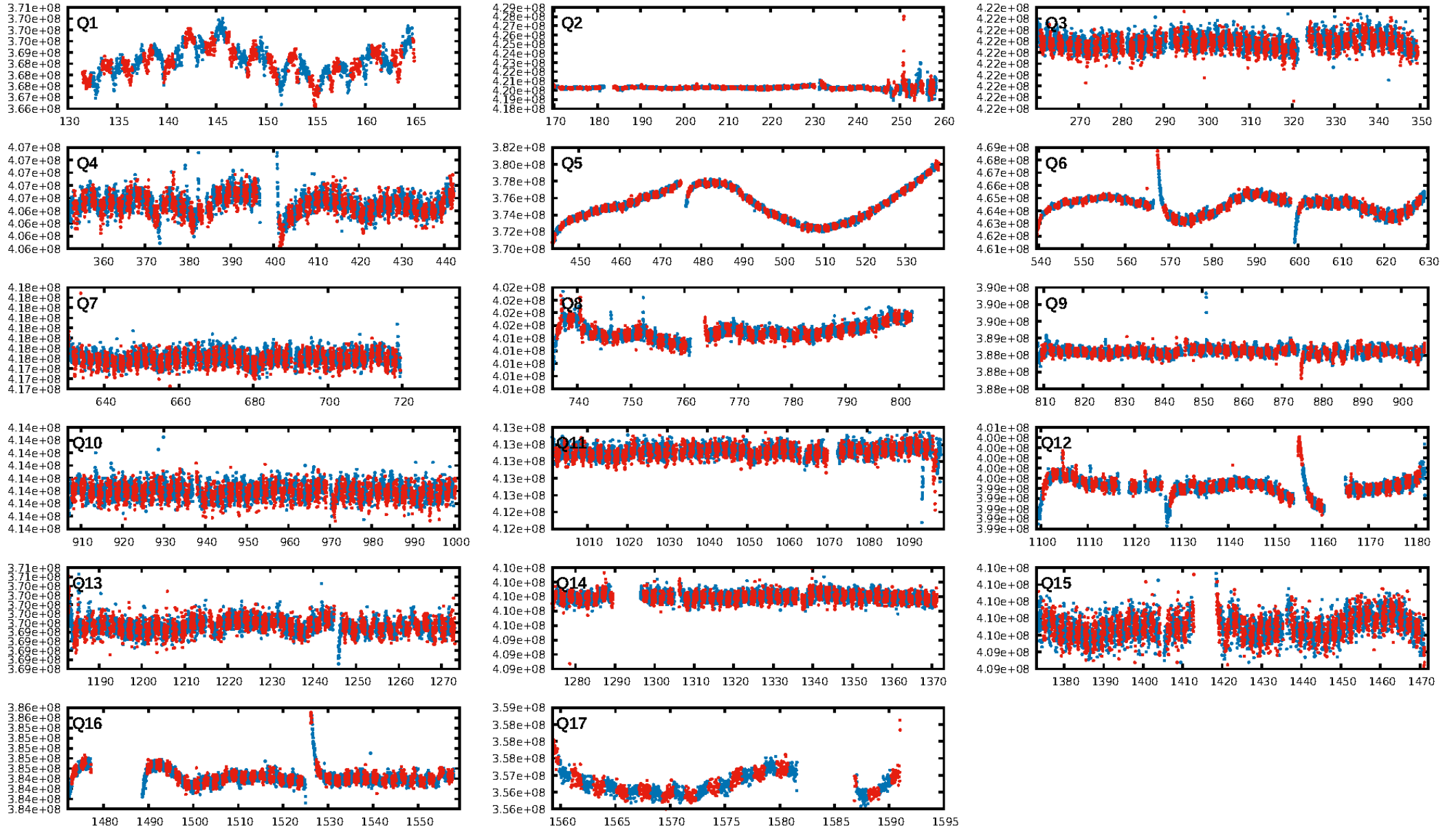
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [169.73 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.30e-20
RollingBand-fgt: 1.00 [617/617]
GhostDiagnostic-chr: 1.36
Centroid-sig: 0.0%
Centroid-so: 0.978 arcsec [1.68 σ]
OotOffset-rm: 5.536 arcsec [5.77 σ]
KicOffset-rm: 0.331 arcsec [0.65 σ]
OotOffset-st: 3/4/4/1 [12]
KicOffset-st: 3/4/4/4 [15]
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DiffImageOverlap-fno: 1.00 [17/17]

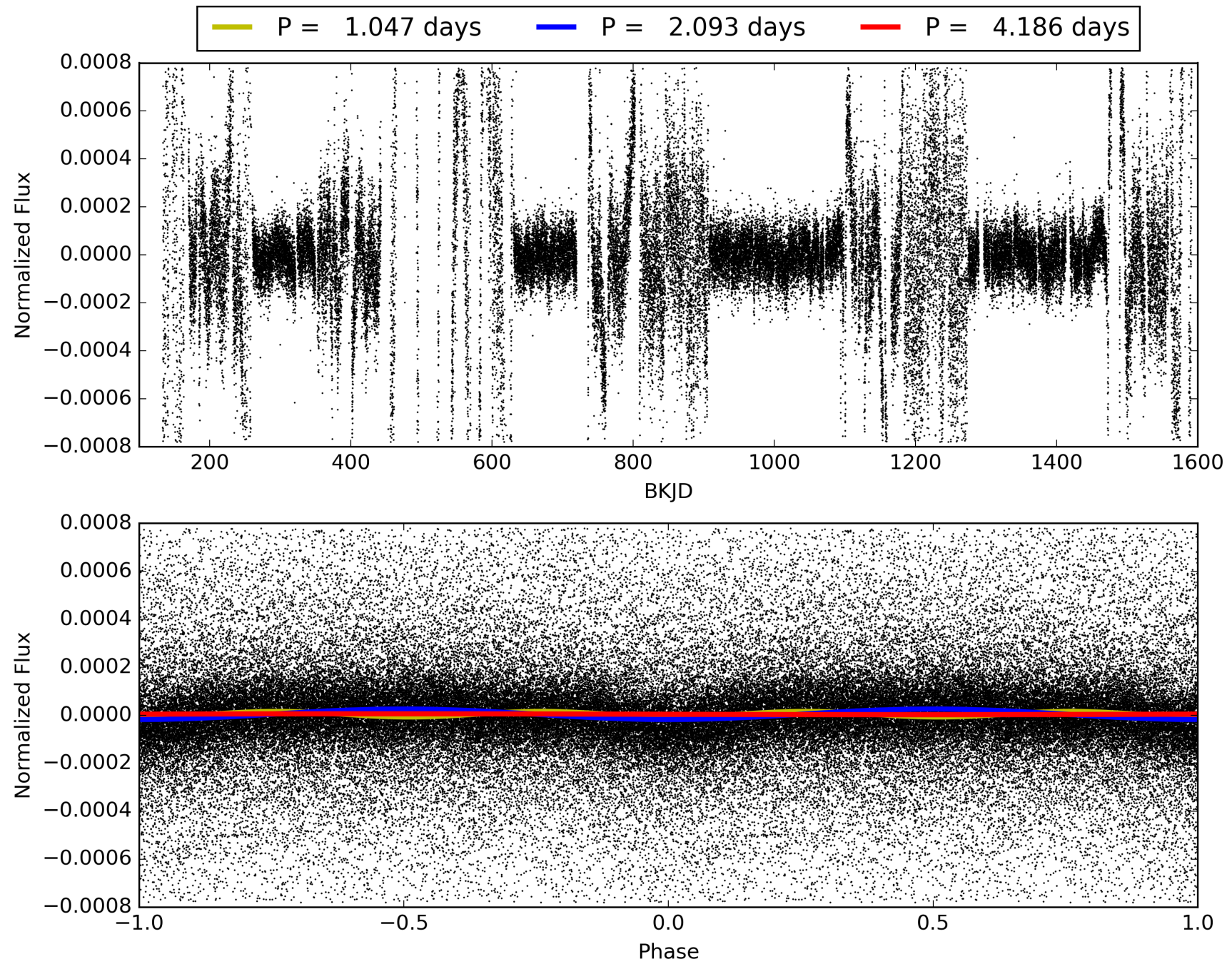
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009955177-02, PDC Light Curves

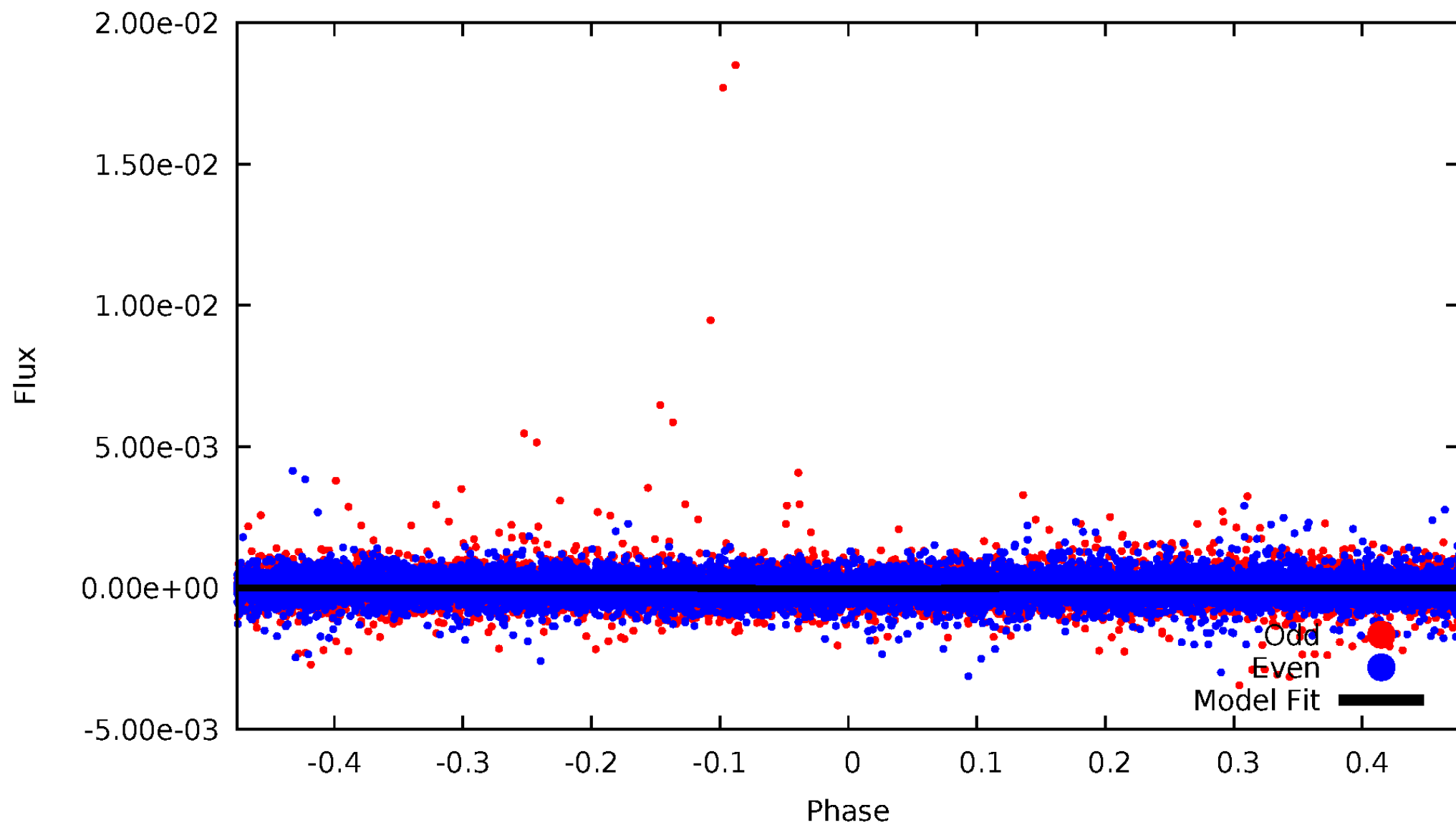


TCE 009955177-02



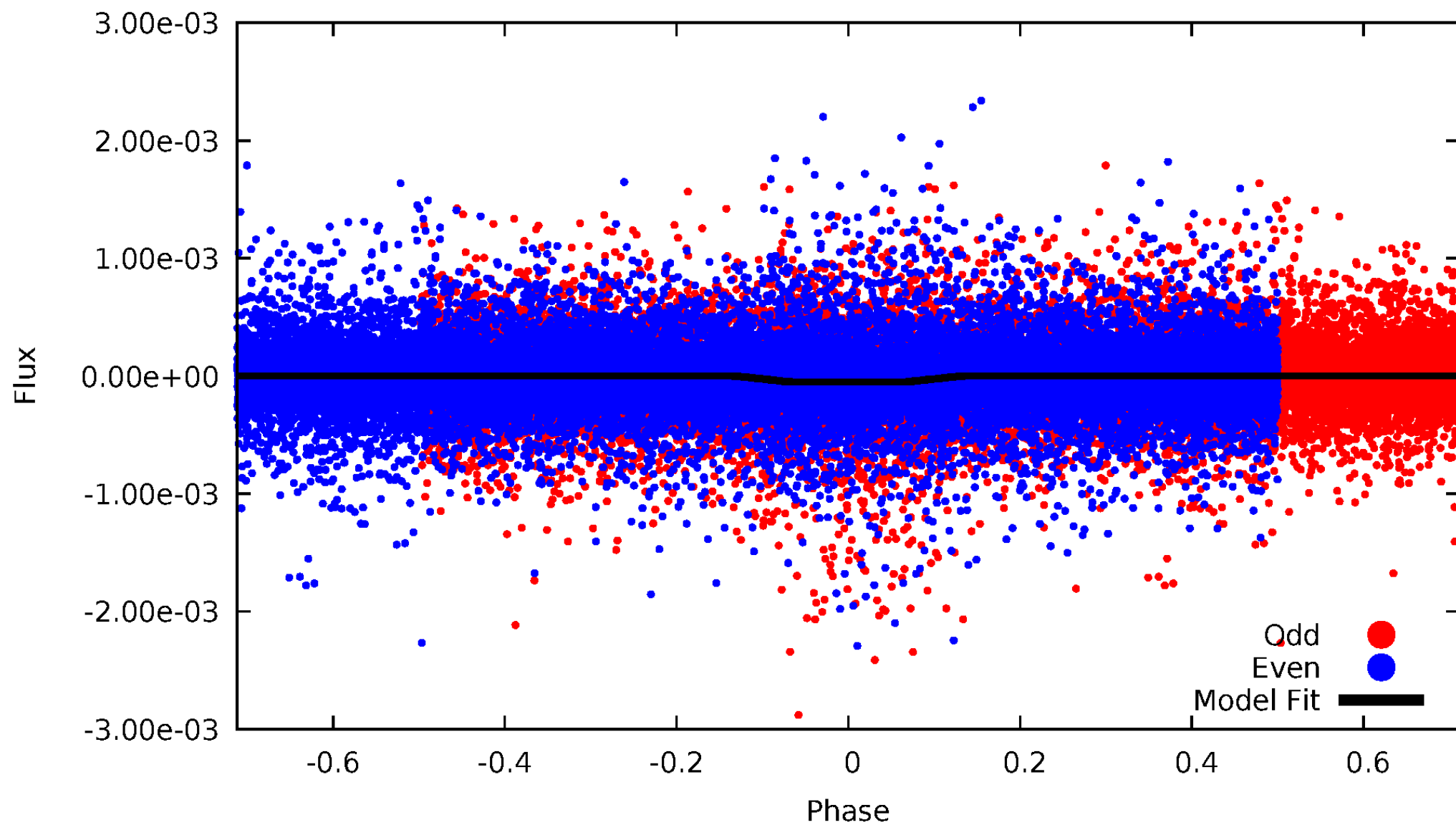
DV Odd/Even

TCE 009955177-02



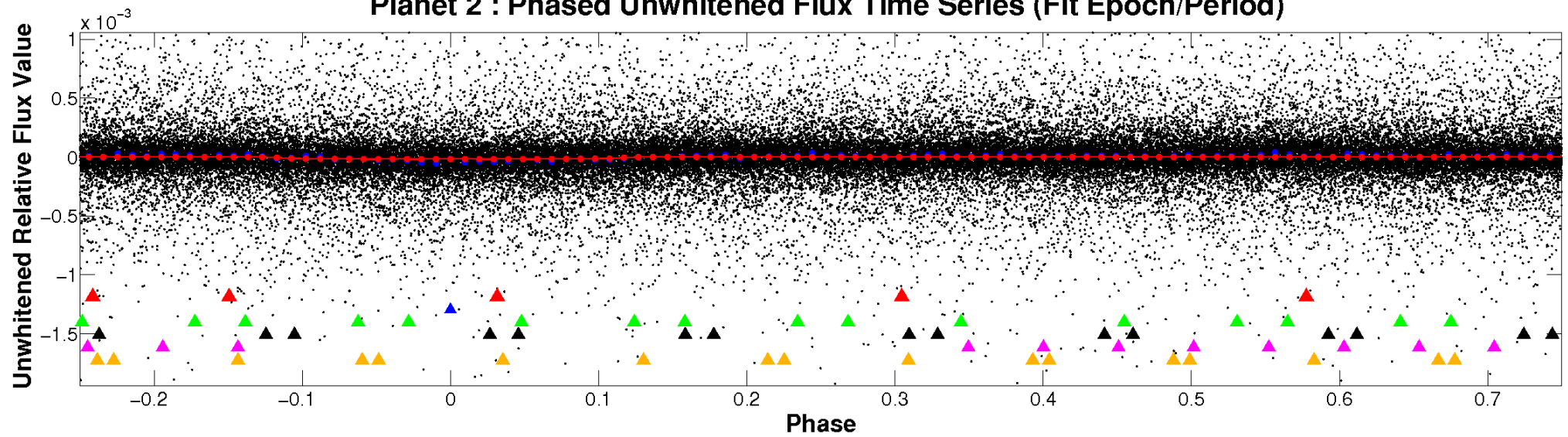
ALT Odd/Even

TCE 009955177-02

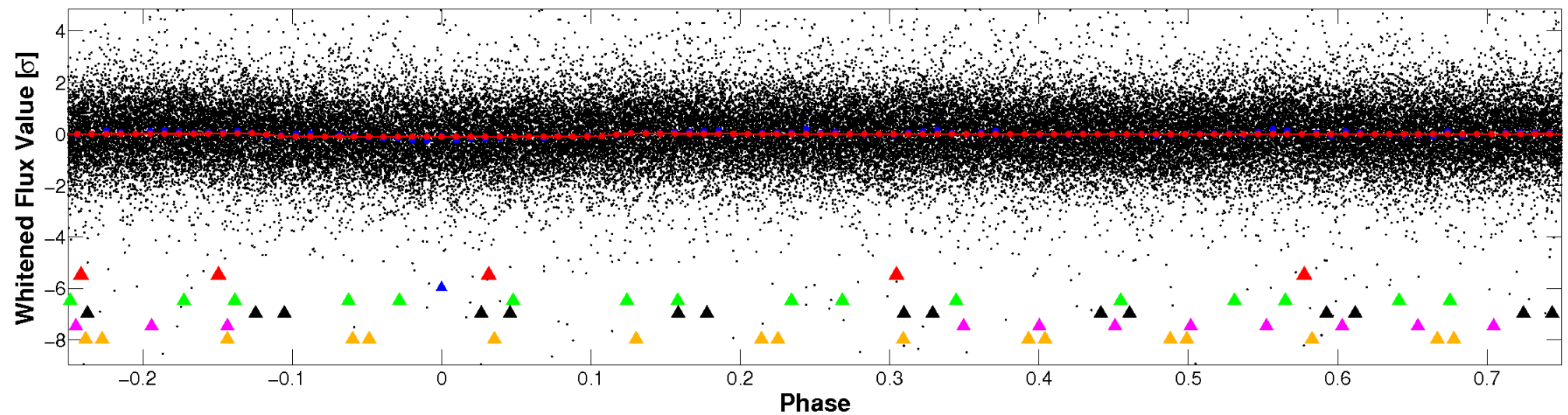


Non-Whitened Vs. Whitened Light Curve

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

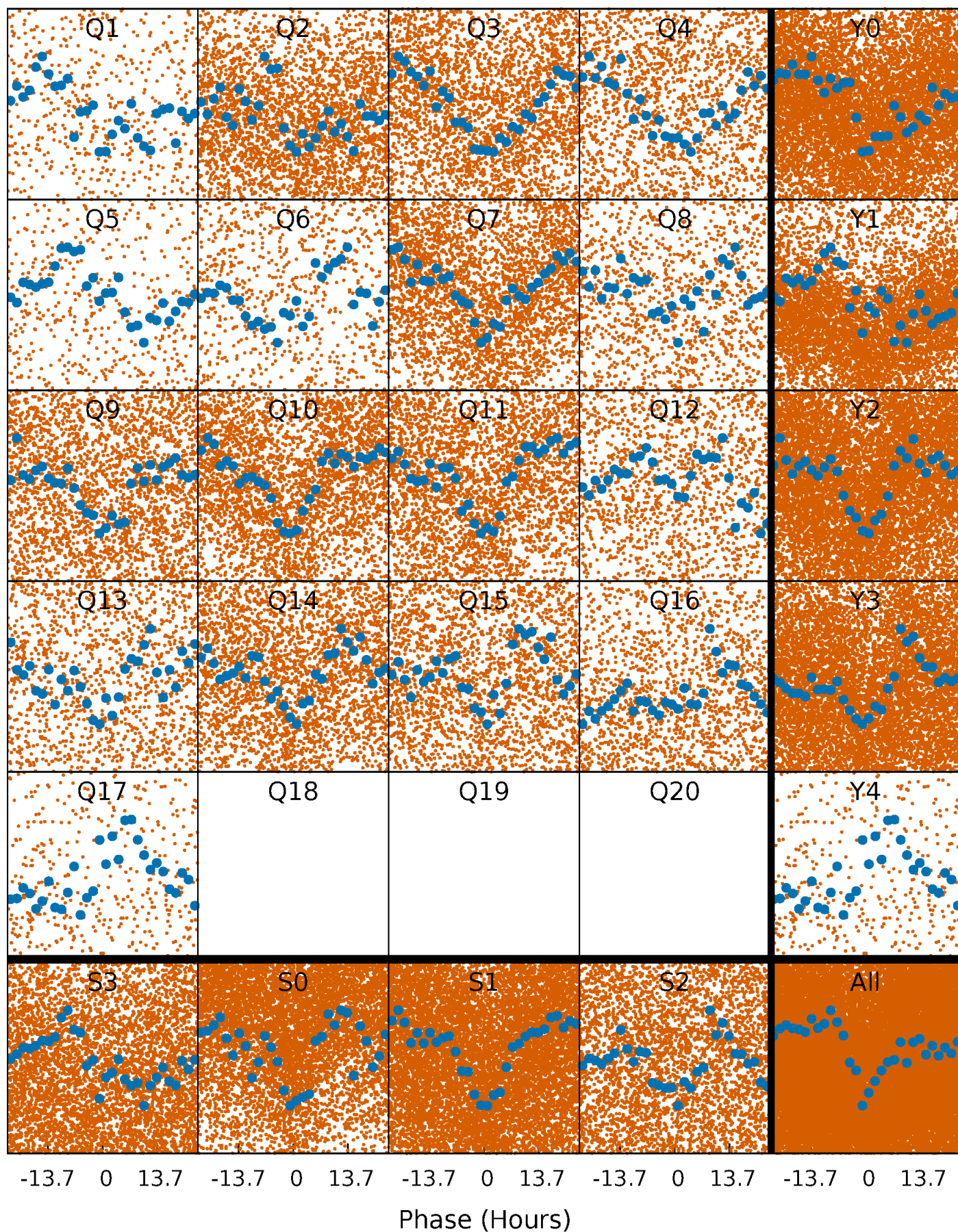


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



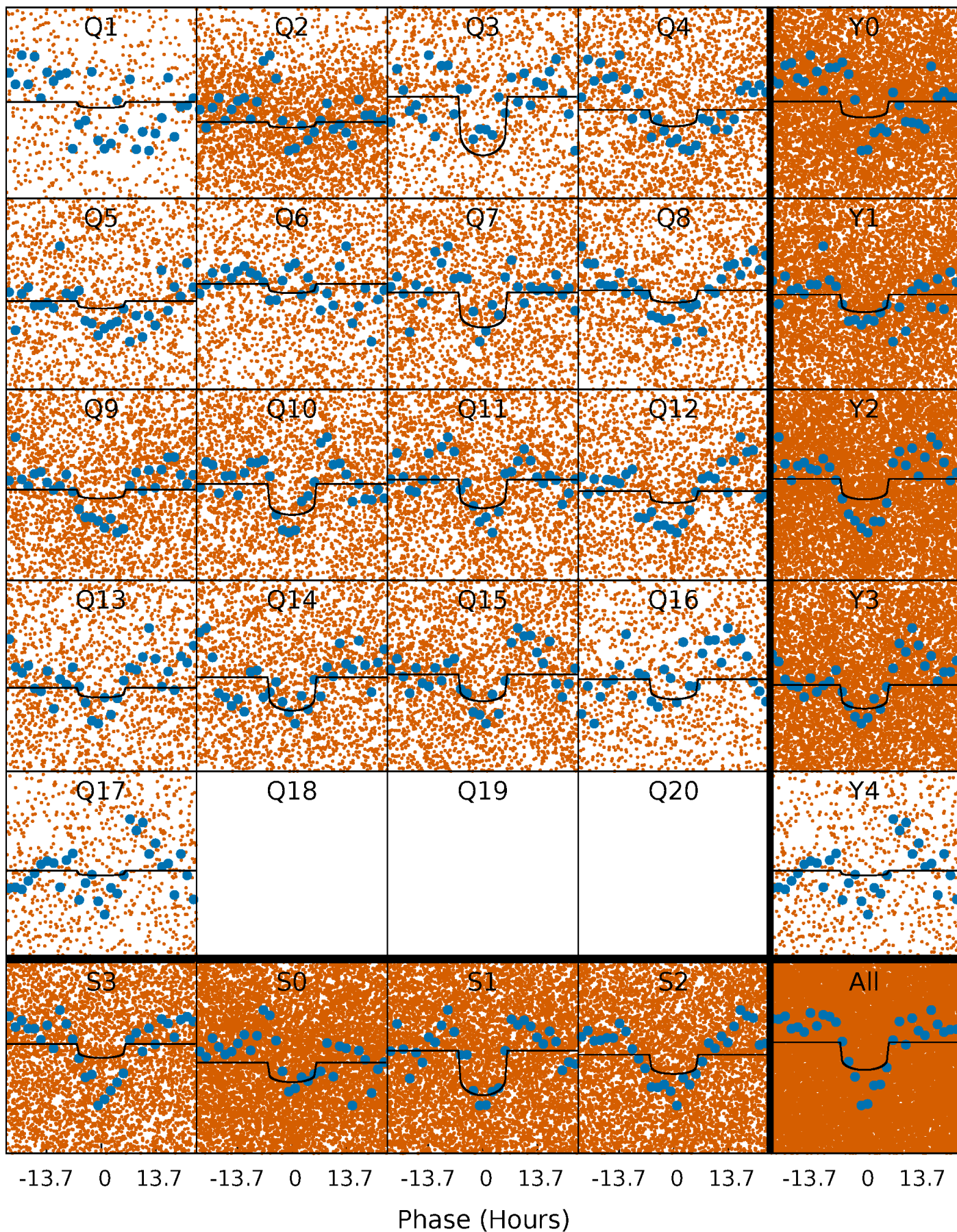
PDC Quarter-Phased Transit Curves

TCE 009955177-02 P= 2.093069 Days $T_0=131.826917$ (BKJD)



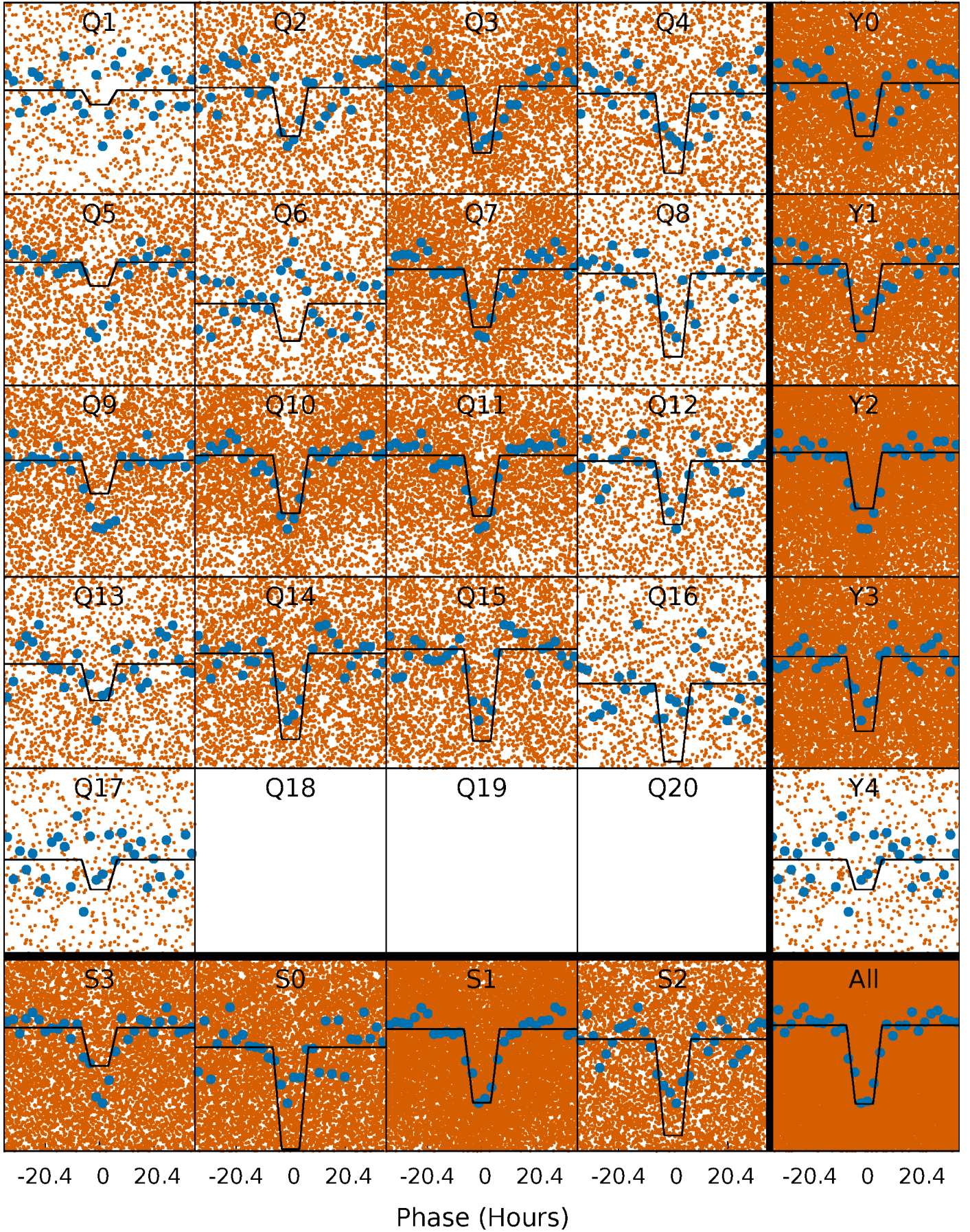
DV Quarter-Phased Transit Curves

TCE 009955177-02 P= 2.093069 Days $T_0=131.826917$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

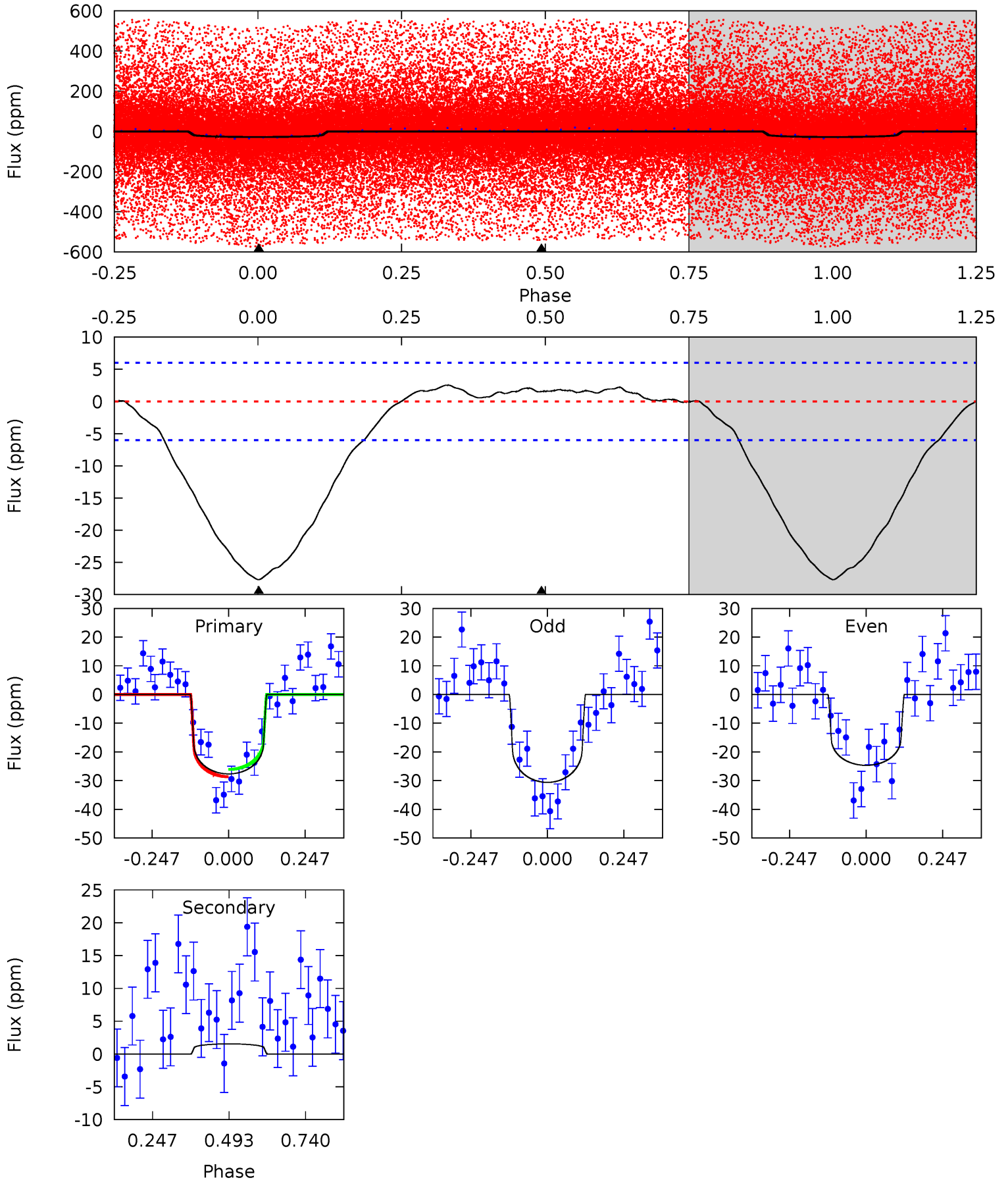
TCE 009955177-02 P= 2.093146 Days $T_0=131.794341$ (BKJD)



DV Model-Shift Uniqueness Test

009955177-02, P = 2.093069 Days, E = 129.733848 Days

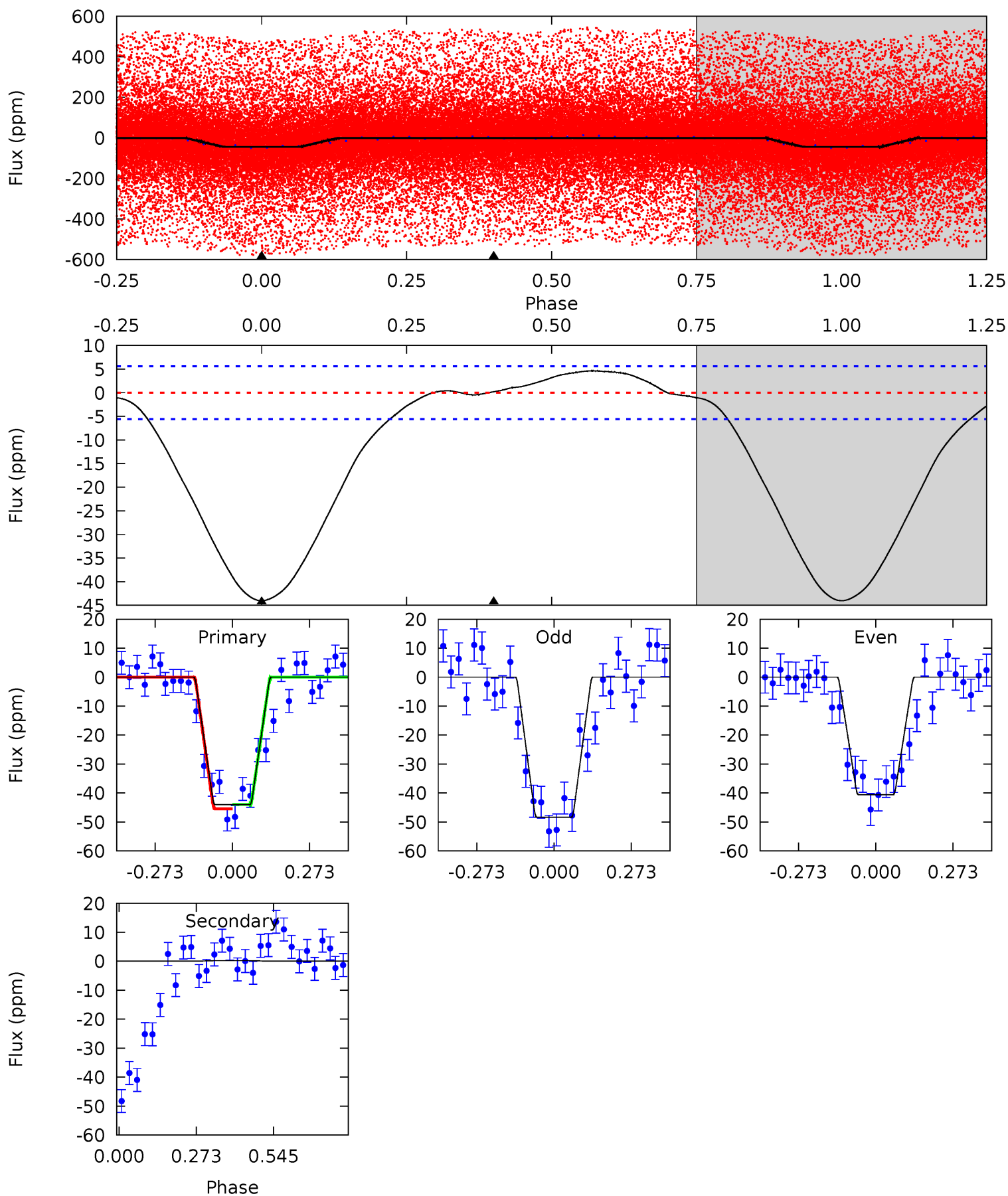
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.1	-1.12	0	0	4.37	1.16	0.36	20.1	20.1	-1.12	-1.12	2.19	1.14	0.08	0



Alt Model-Shift Uniqueness Test

009955177-02, P = 2.093146 Days, E = 129.701195 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.3	-0.16	0	0	4.35	1.10	1.01	34.3	34.3	-0.16	-0.16	3.11	0.97	0.10	0.59



Stellar Parameters For KIC 009955177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7186^{+200}_{-275}	$4.142^{+0.105}_{-0.195}$	$0.180^{+0.150}_{-0.350}$	$1.786^{+0.569}_{-0.306}$	$1.615^{+0.211}_{-0.233}$	$0.399^{+0.194}_{-0.206}$
	+3%/-4%	+3%/-5%	+83%/-194%	+32%/-17%	+13%/-14%	+49%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009955177-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	2 ± 1	$0.86^{+0.25}_{-0.24}$	3078^{+232}_{-191}	-4194^{+976}_{-770}	$-1.442^{+1.393}_{-2.626}$
Alt.	0 ± 1	$1.43^{+0.28}_{-0.25}$	3076^{+239}_{-181}	-3259^{+5911}_{-474}	$-0.087^{+0.472}_{-0.505}$

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 $A_{obs} \gg 1.0$

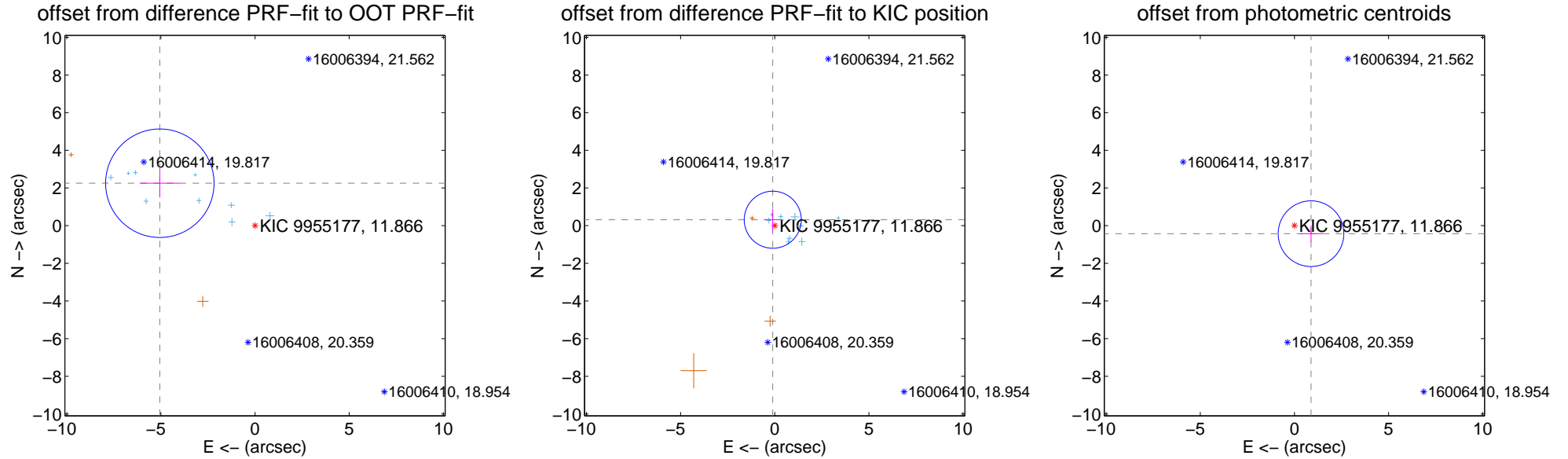
DV Centroid Data

Supplemental centroid analysis for 009955177-02. **Kepler magnitude: 11.87.** Transit SNR 14.30

There are 10 quarters with good PRF difference image offsets

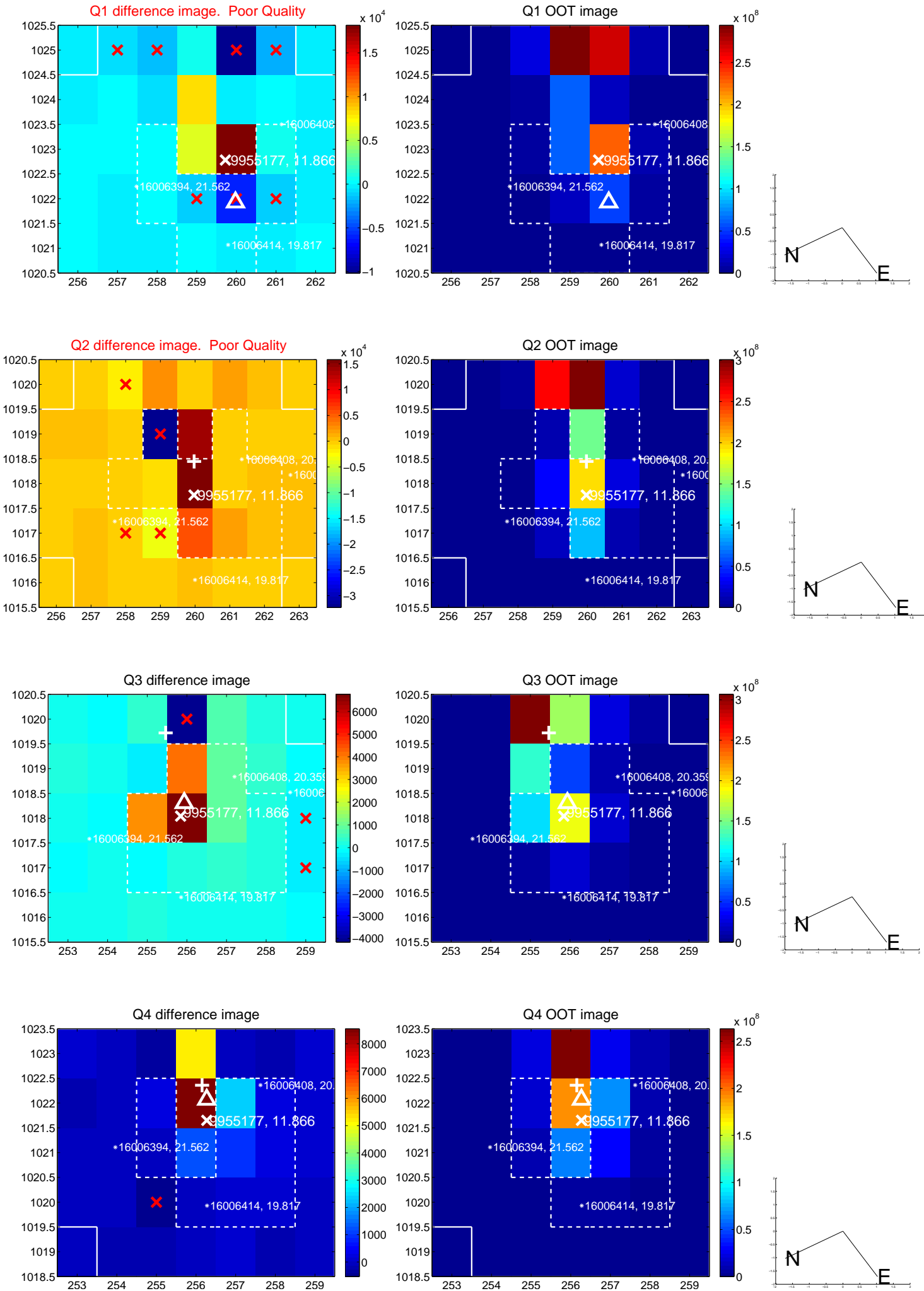
The OOT PRF centroid is offset from the target star catalog position by about 2.74 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.536 \pm 0.960	5.77	5.057 \pm 1.067	2.252 \pm 0.759
PRF-fit source offset from KIC position	0.331 \pm 0.505	0.65	0.105 \pm 0.464	0.314 \pm 0.578
photometric centroid source offset	0.98 \pm 0.58	1.68	-0.88 \pm 0.61	-0.43 \pm 0.43

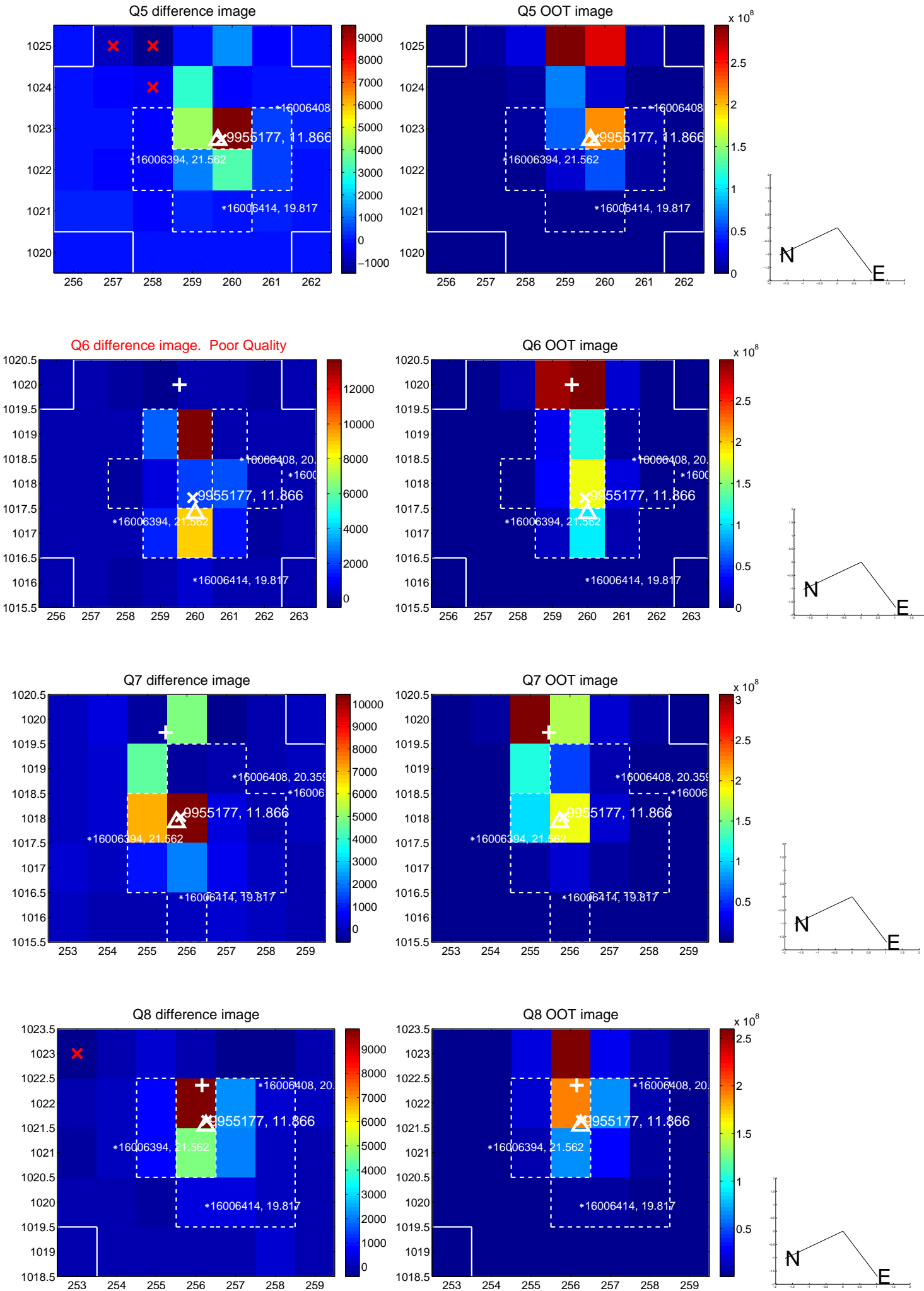


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

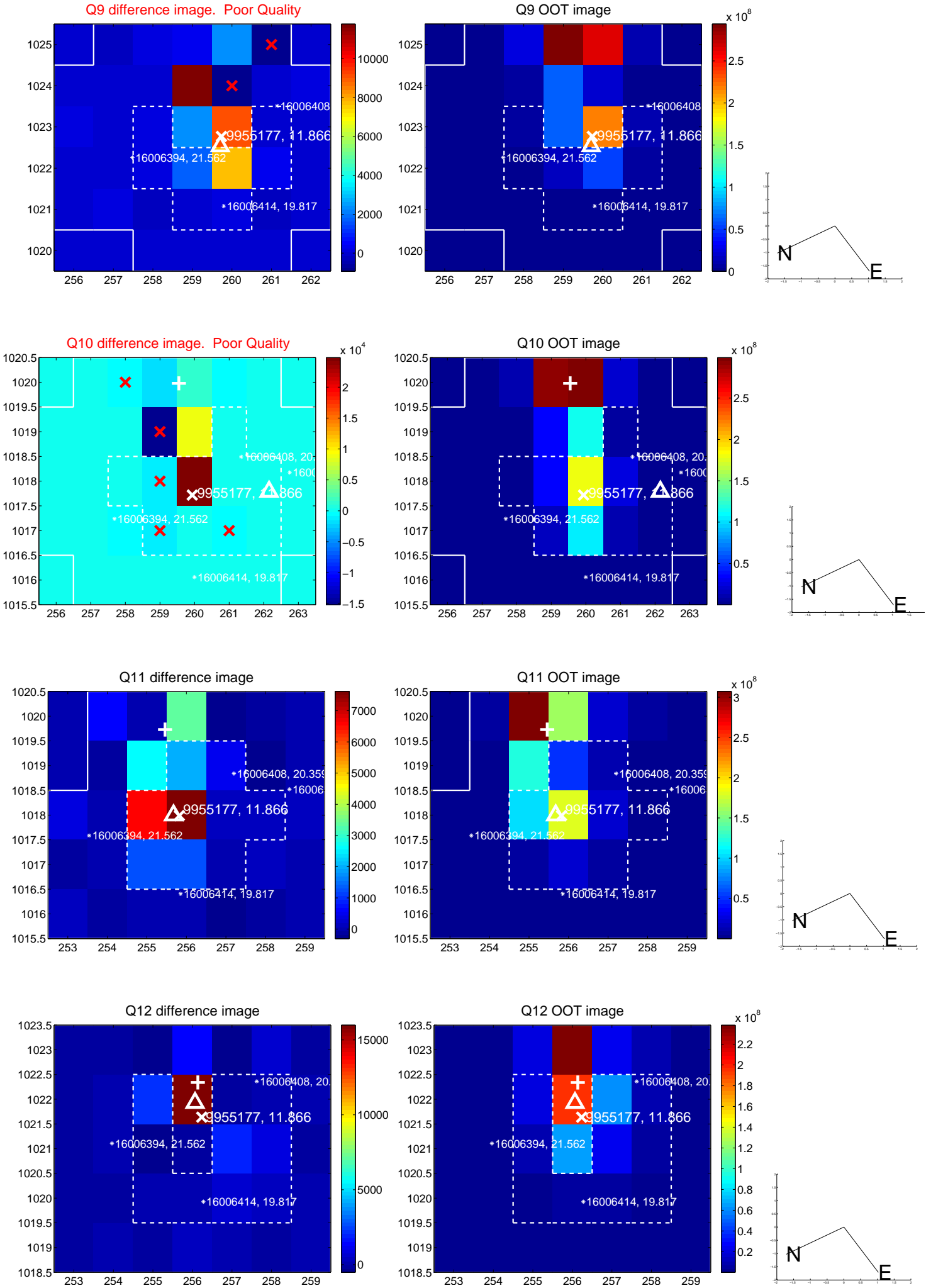
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



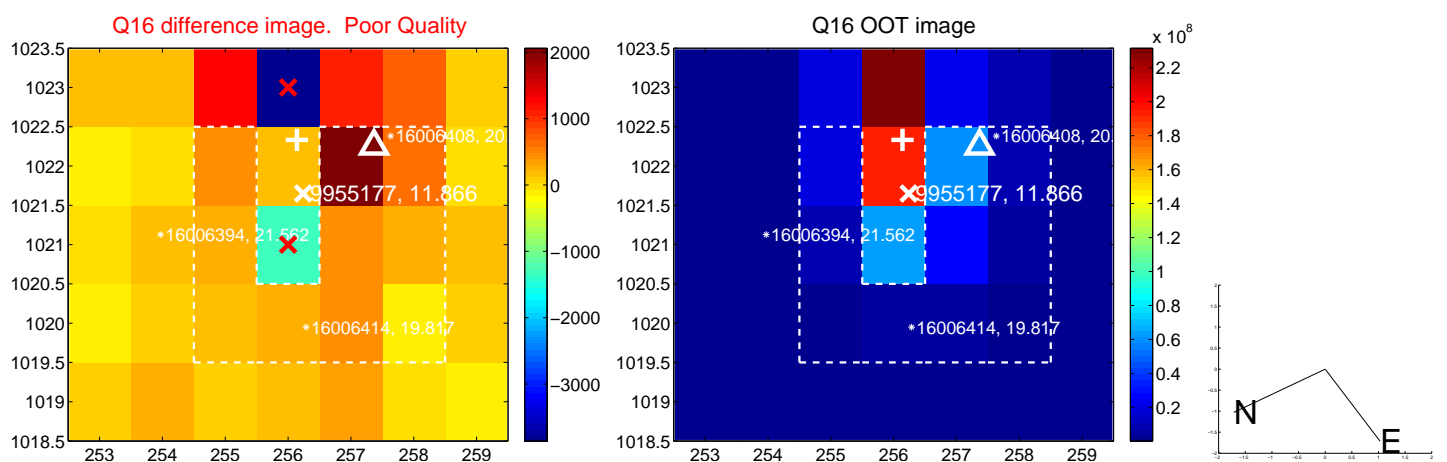
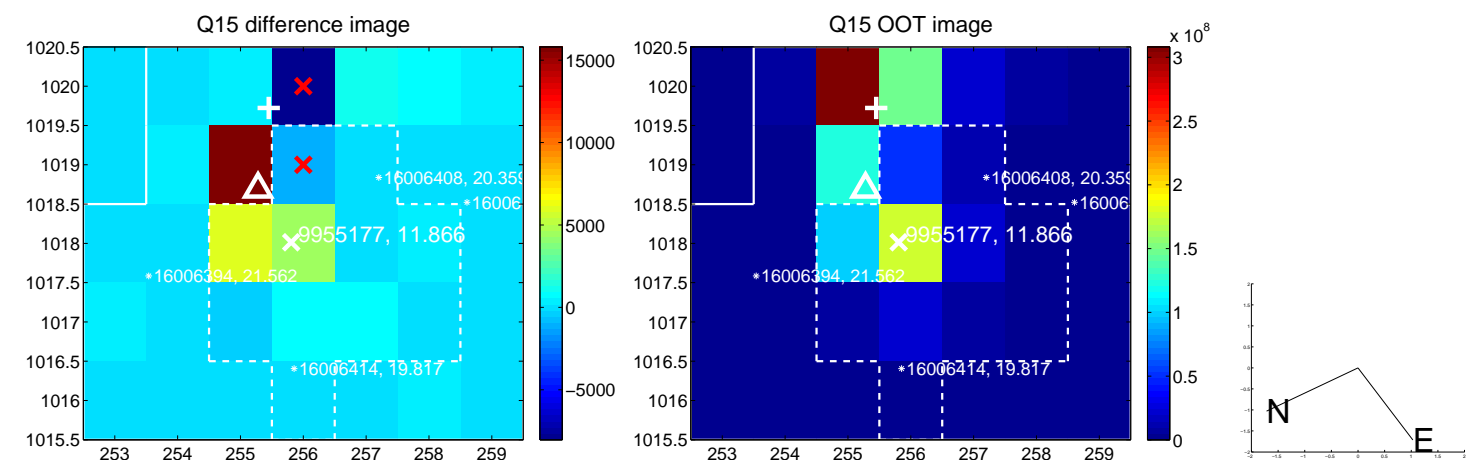
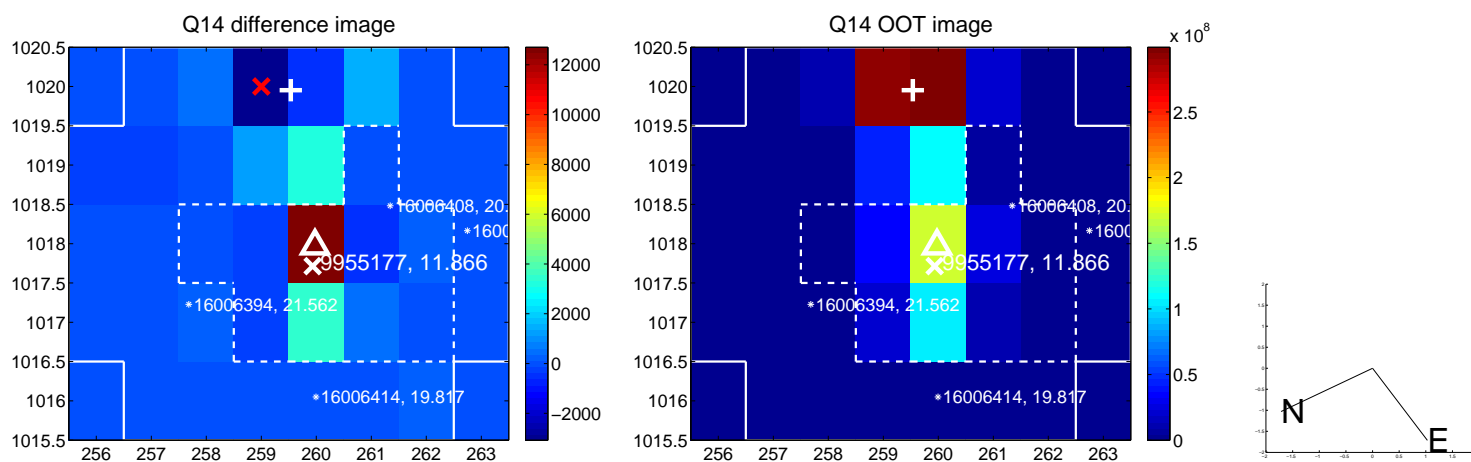
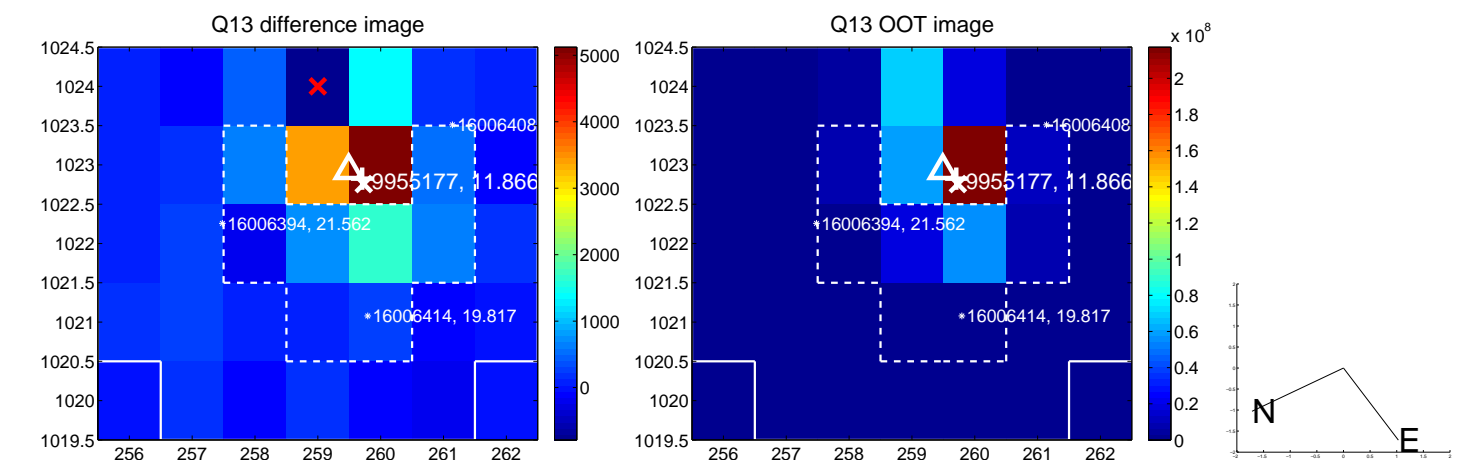
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



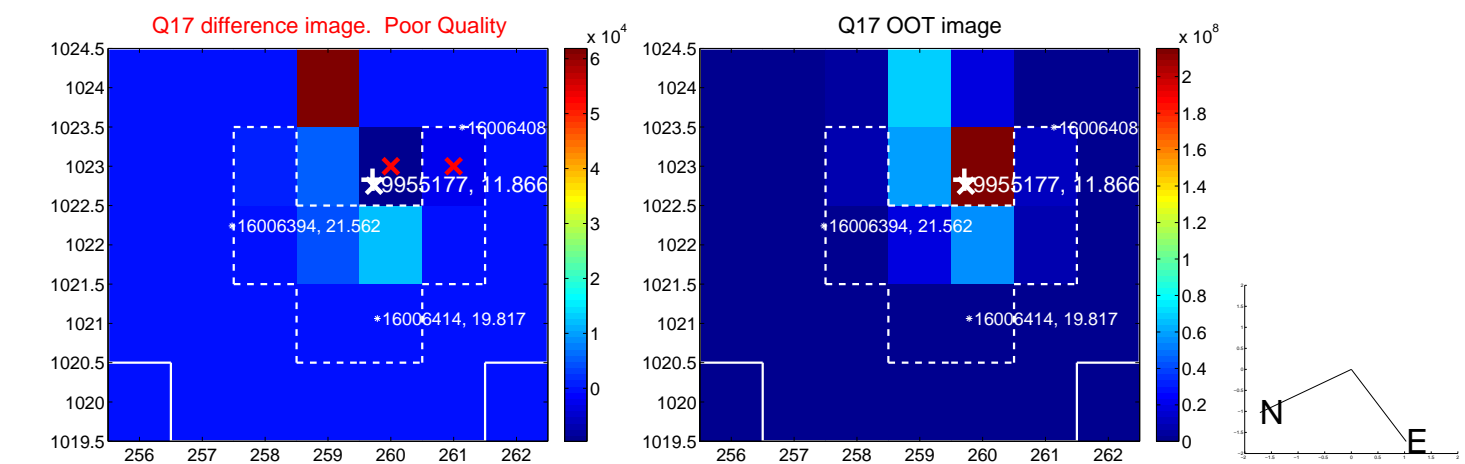
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



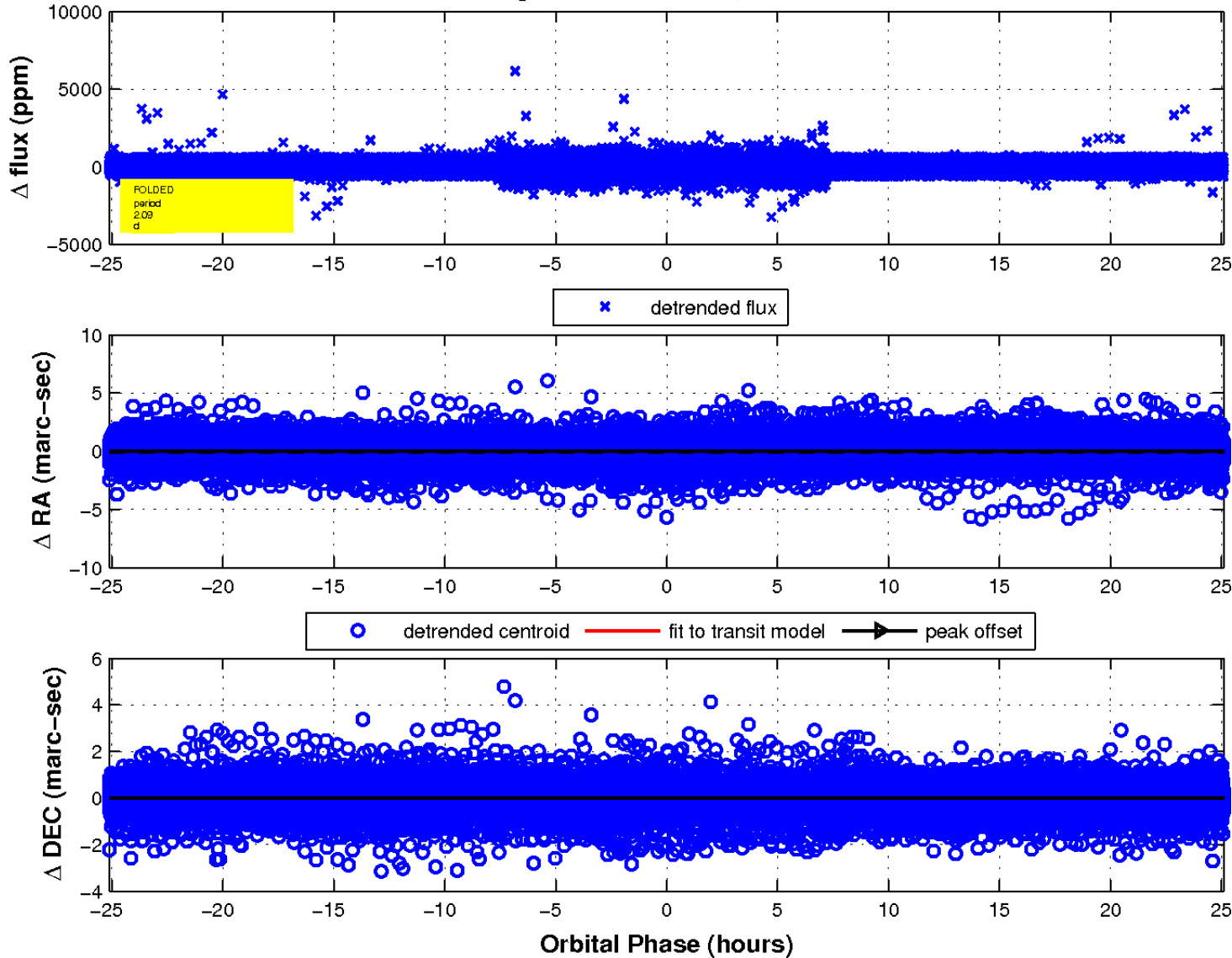
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

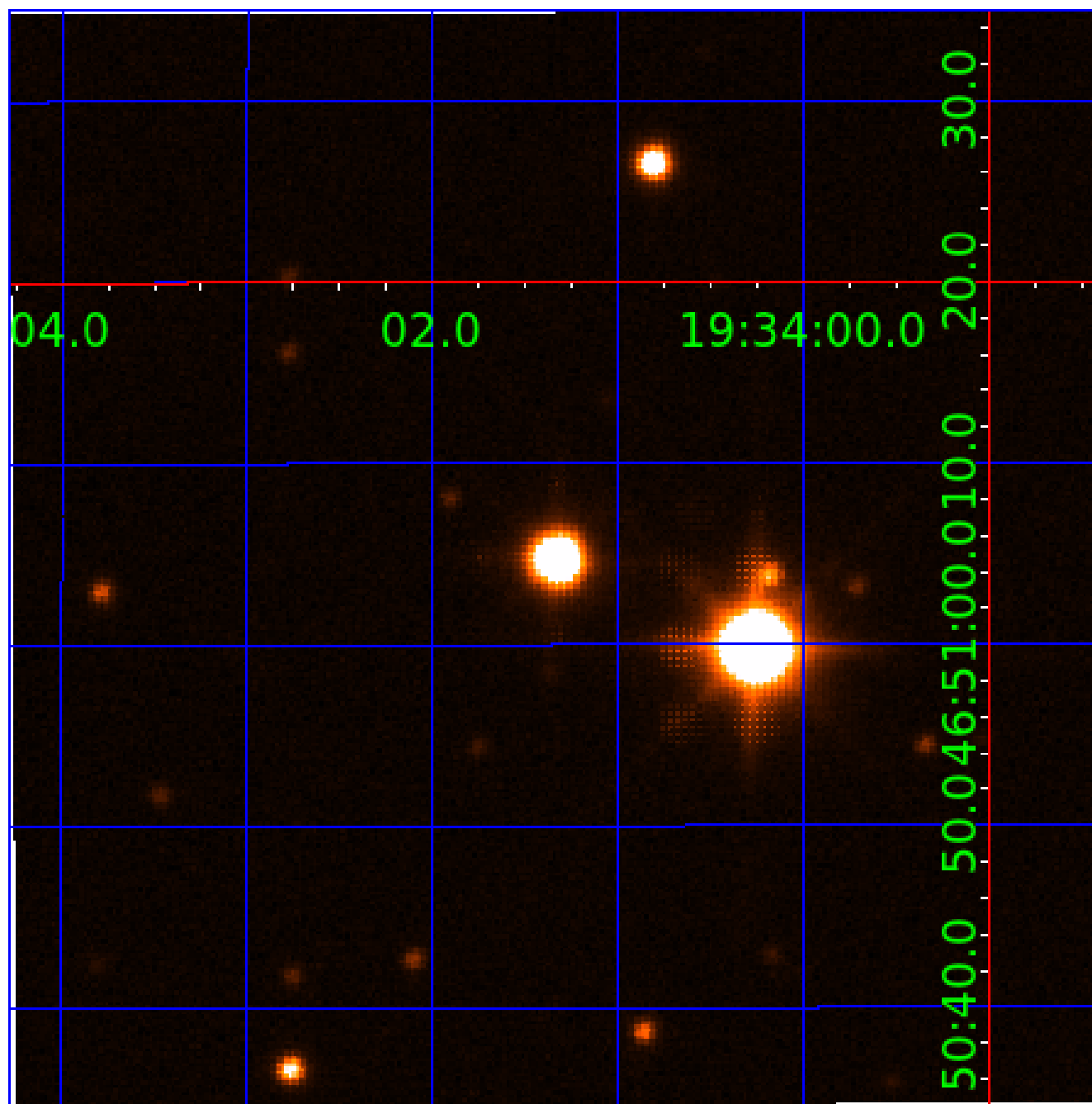


fluxWeightedCentroids, Planet 2 of 6



UKIRT Image

Declination



KIC 009955177

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})
009955177-01	OBS	No	278.949596	256.905748	448.7	8.193	17.8	12.6	1.79	7186	3.97	7.93
009955177-02	OBS	No	2.093069	131.826917	17.2	11.948	13.3	14.3	1.79	7186	0.83	5399.90
009955177-03	OBS	No	91.474237	163.482704	315.8	15.000	26.3	-1.0	1.79	7186	3.21	35.08
009955177-04	OBS	No	99.875043	187.762906	73.1	4.619	16.3	4.6	1.79	7186	1.75	31.20
009955177-05	OBS	No	136.155609	186.978241	81.0	4.372	14.5	2.6	1.79	7186	1.83	20.64
009955177-06	OBS	No	87.335950	169.026468	493.3	1.591	16.7	7.9	1.79	7186	4.04	37.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009955177-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009955177-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
009955177-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009955177-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_RESOLVED_OFFSET
009955177-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009955177-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

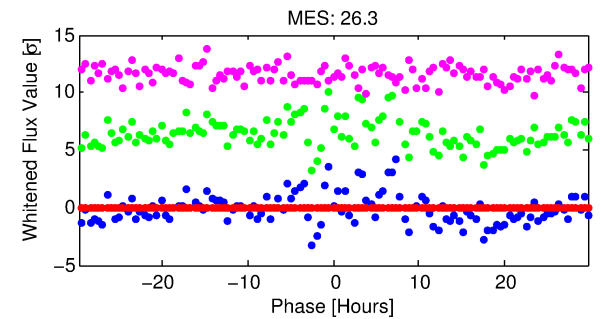
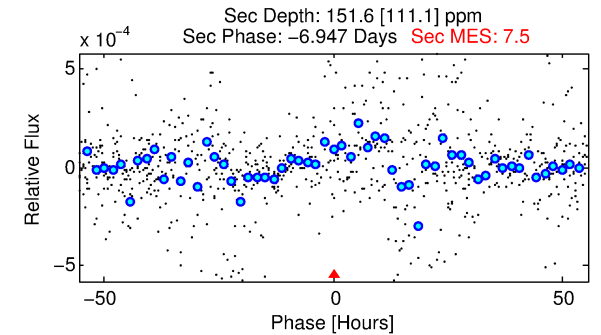
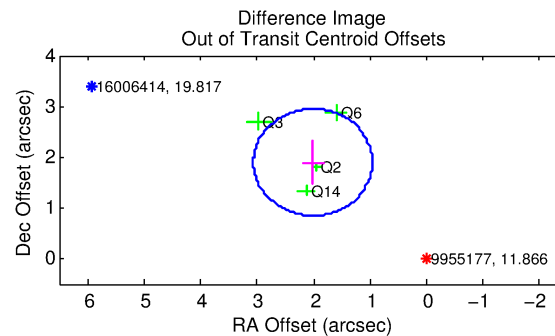
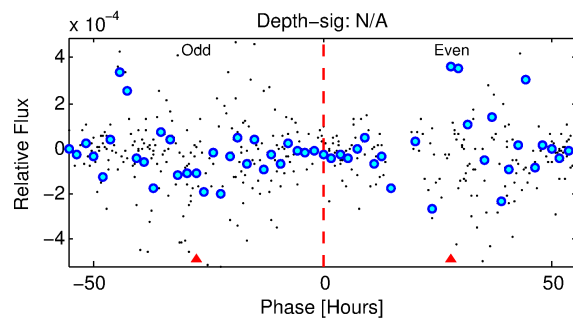
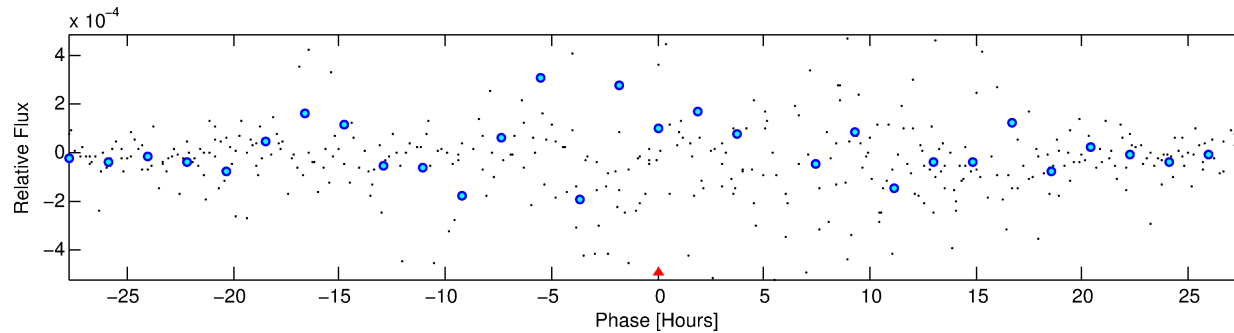
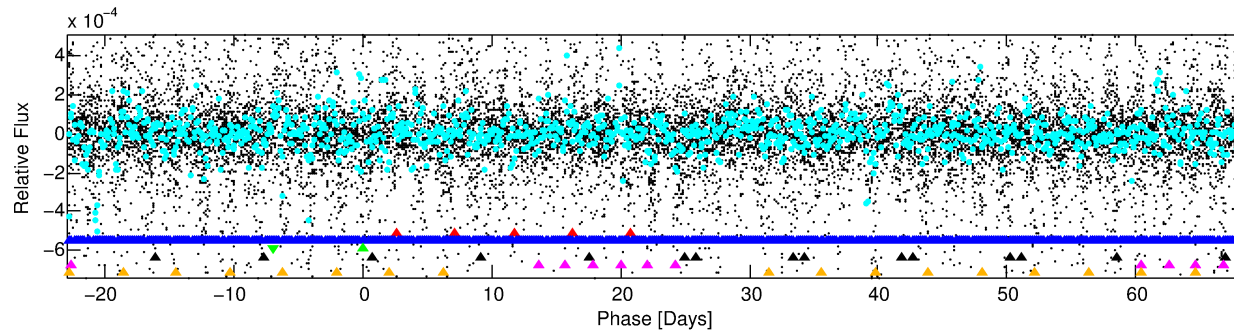
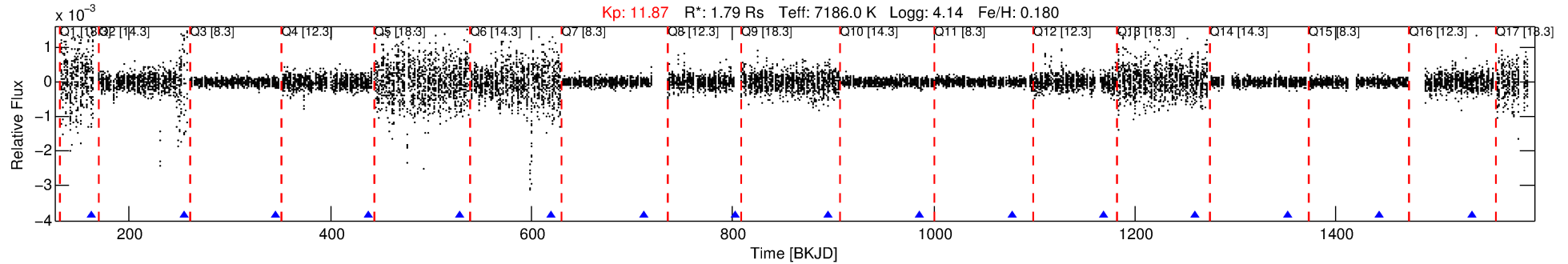
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009955177-03

No Significant Match Found

DV One-Page Summary

KIC: 9955177 Candidate: 3 of 6 Period: 91.474 d



TPS TCE Results:

Period = 91.47424 d
Epoch = 163.4827 BKJD

DV fit results are unavailable

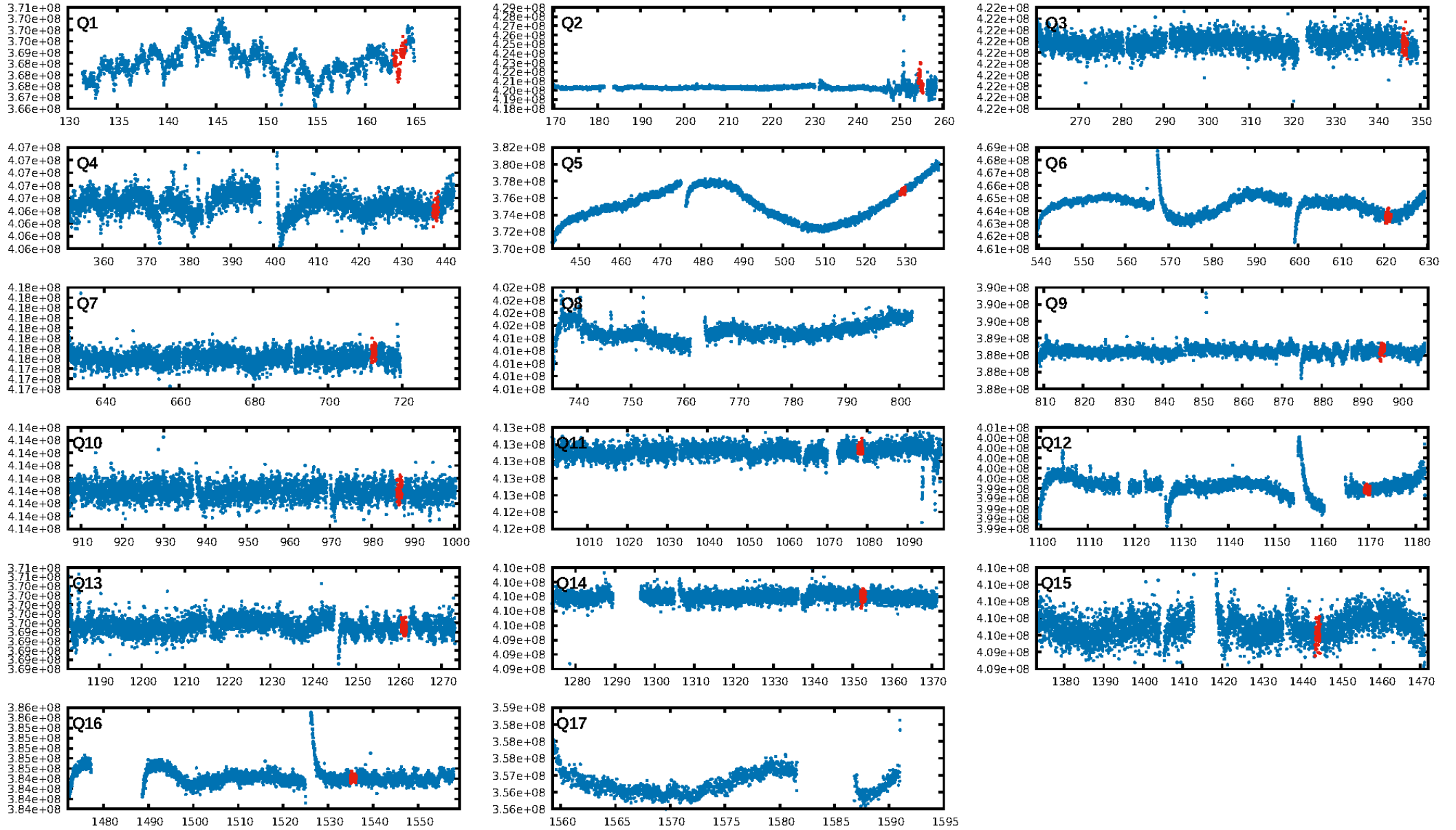
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.58σ]
LongPeriod-sig: 100.0% [12.85σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.41e-37
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -0.4332
Centroid-sig: 20.5%
Centroid-so: 0.865 arcsec [0.37σ]
OotOffset-rm: 2.765 arcsec [7.89σ]
KicOffset-rm: 6.465 arcsec [6.67σ]
OotOffset-st: 3/1/0/0 [4]
KicOffset-st: 3/1/0/3 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.14 [2/14]

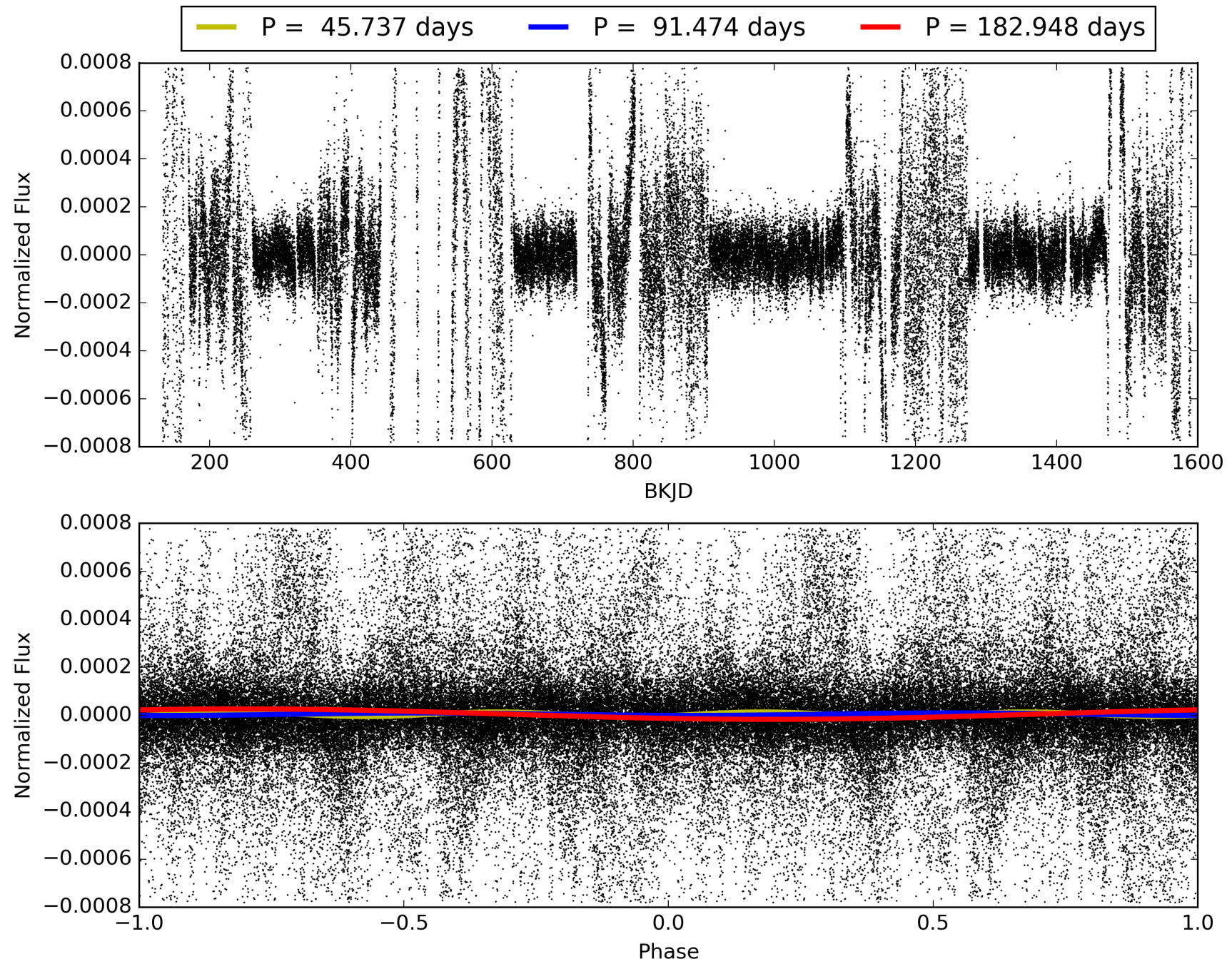
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:54:03 Z

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

TCE 009955177-03, PDC Light Curves

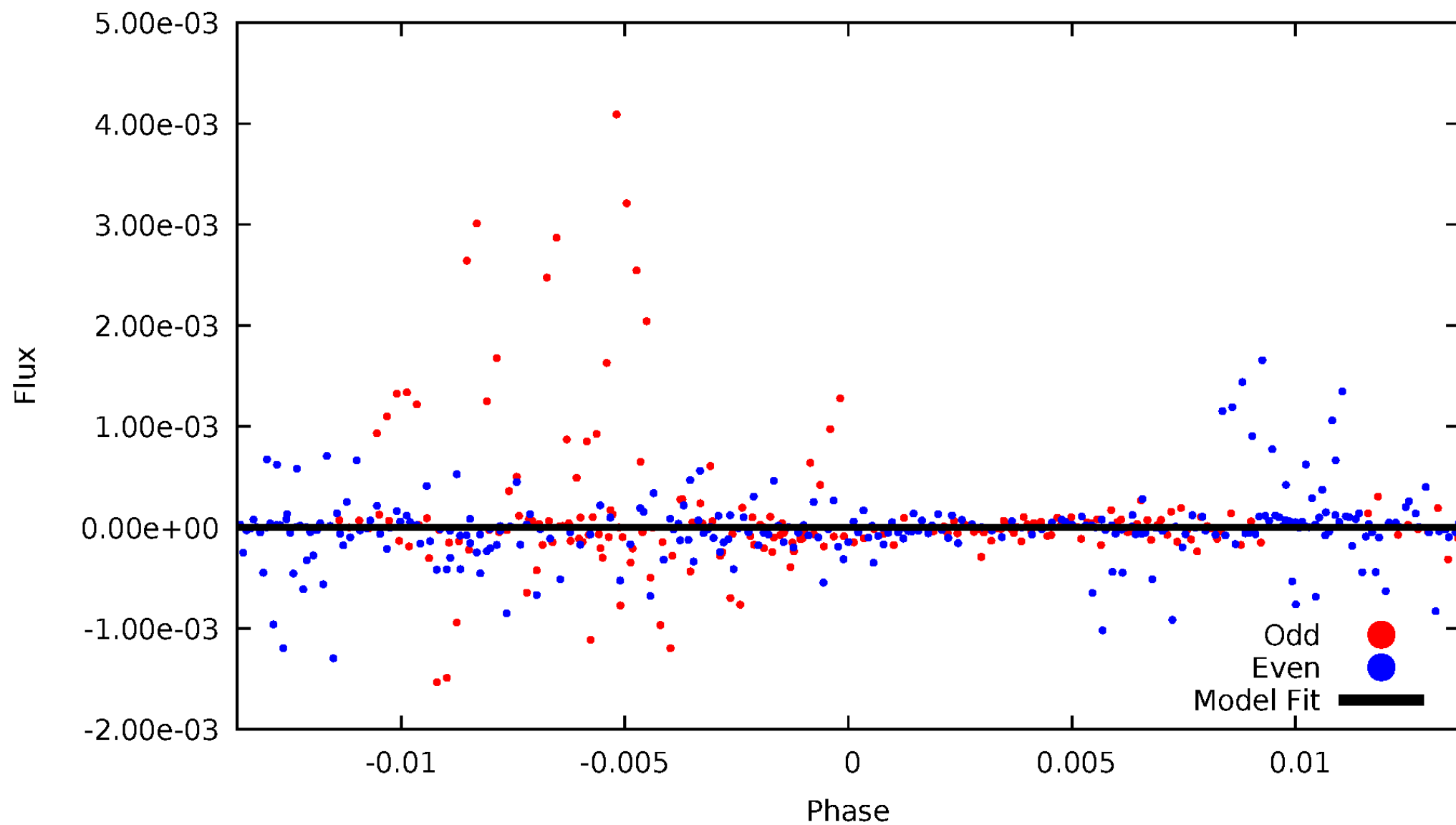


TCE 009955177-03



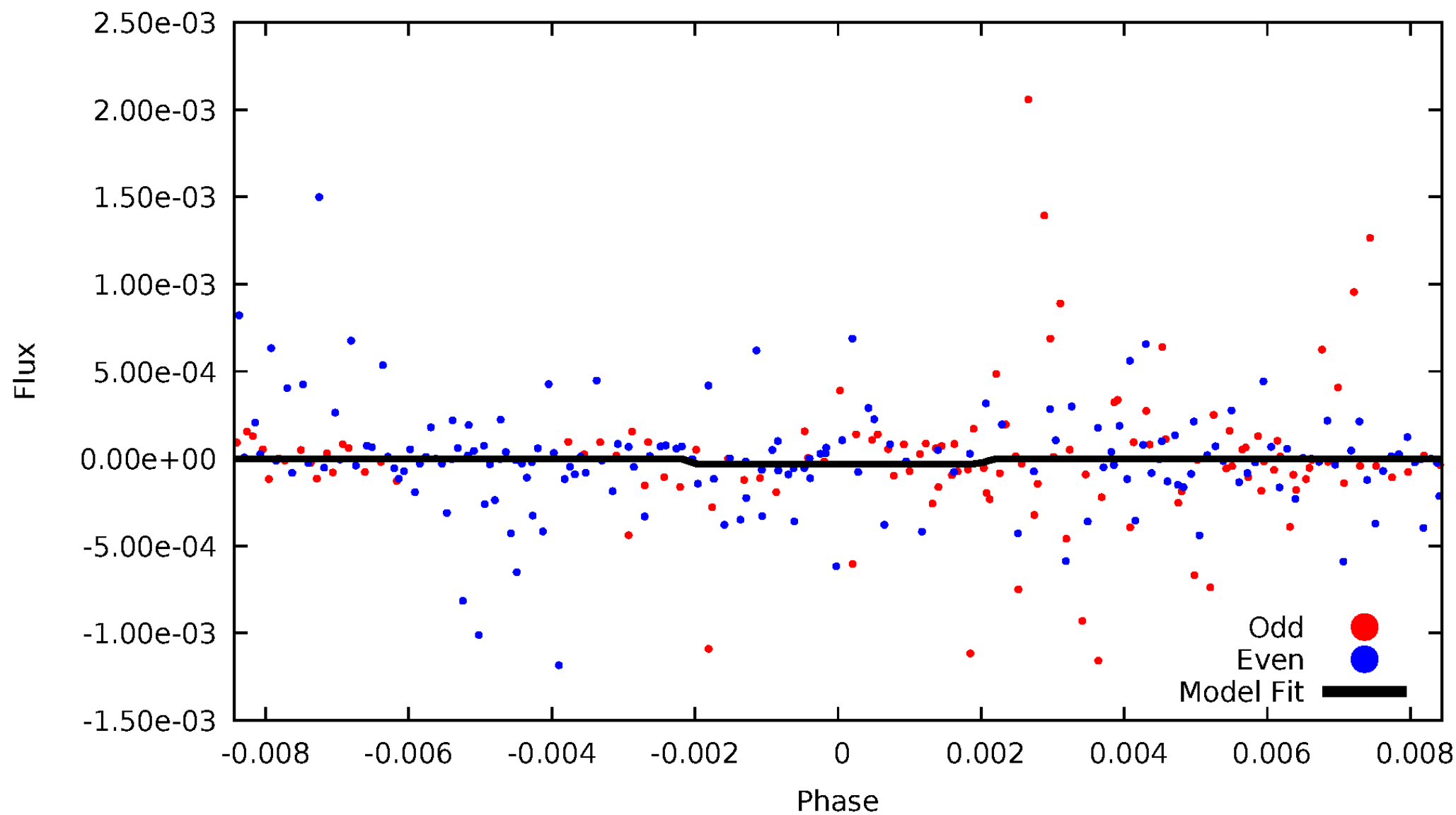
DV Odd/Even

TCE 009955177-03



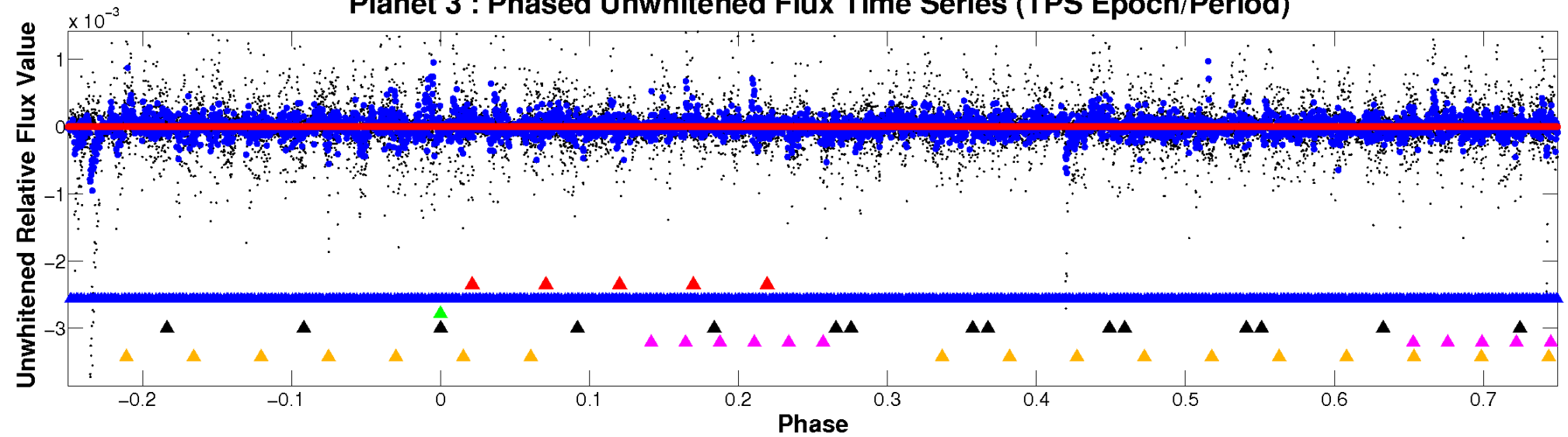
ALT Odd/Even

TCE 009955177-03



Non-Whitened Vs. Whitened Light Curve

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

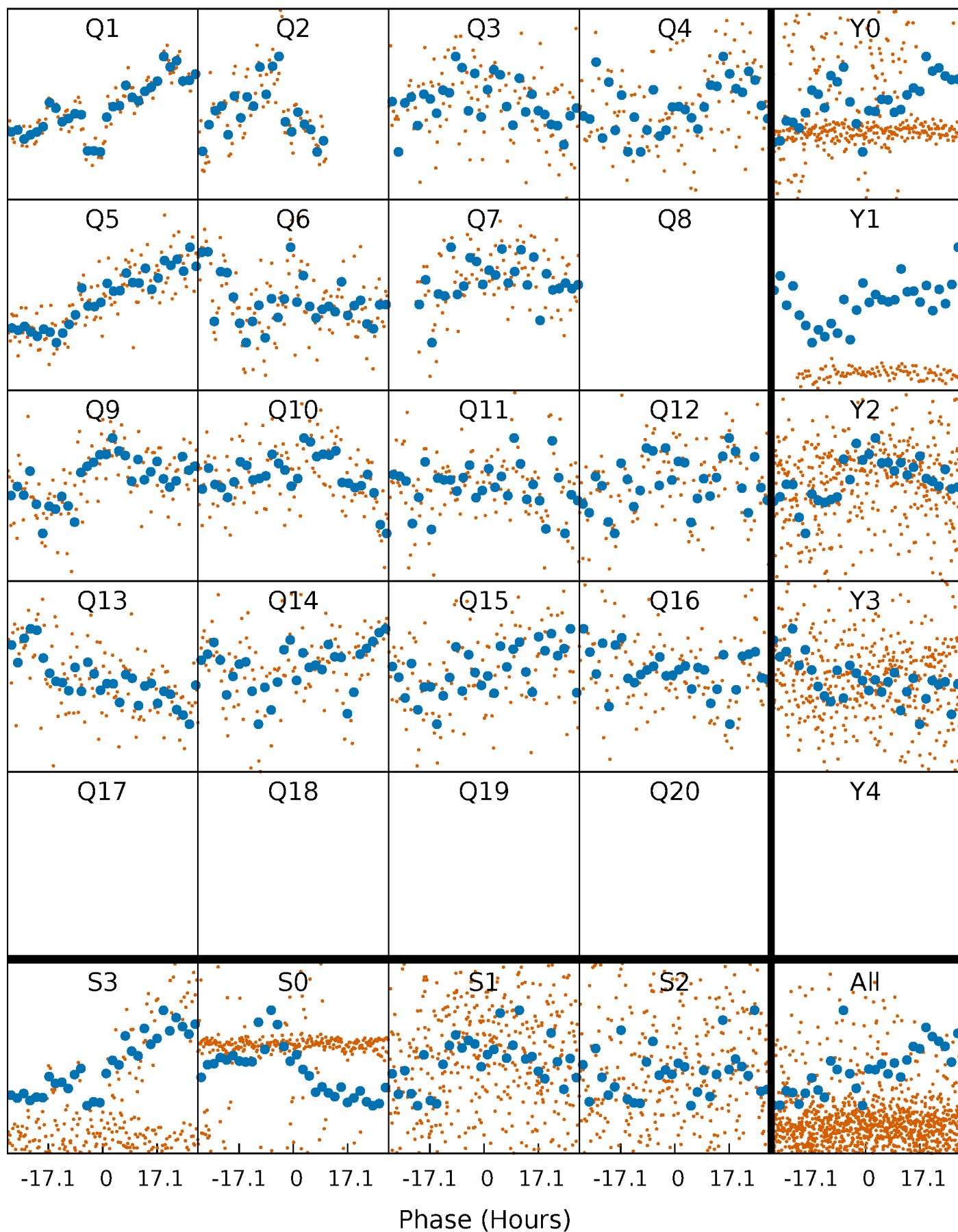


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



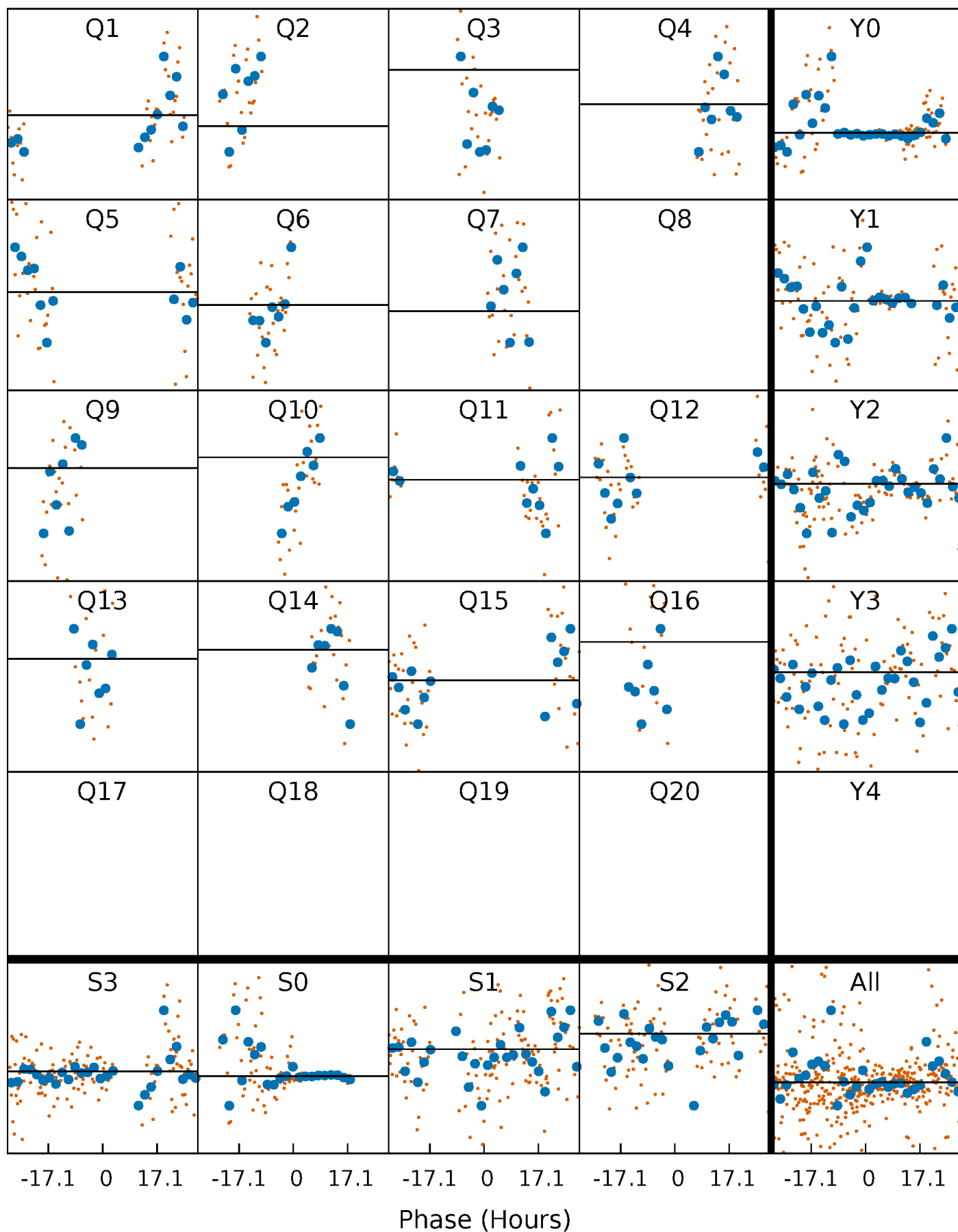
PDC Quarter-Phased Transit Curves

TCE 009955177-03 P= 91.474237 Days $T_0=163.482704$ (BKJD)



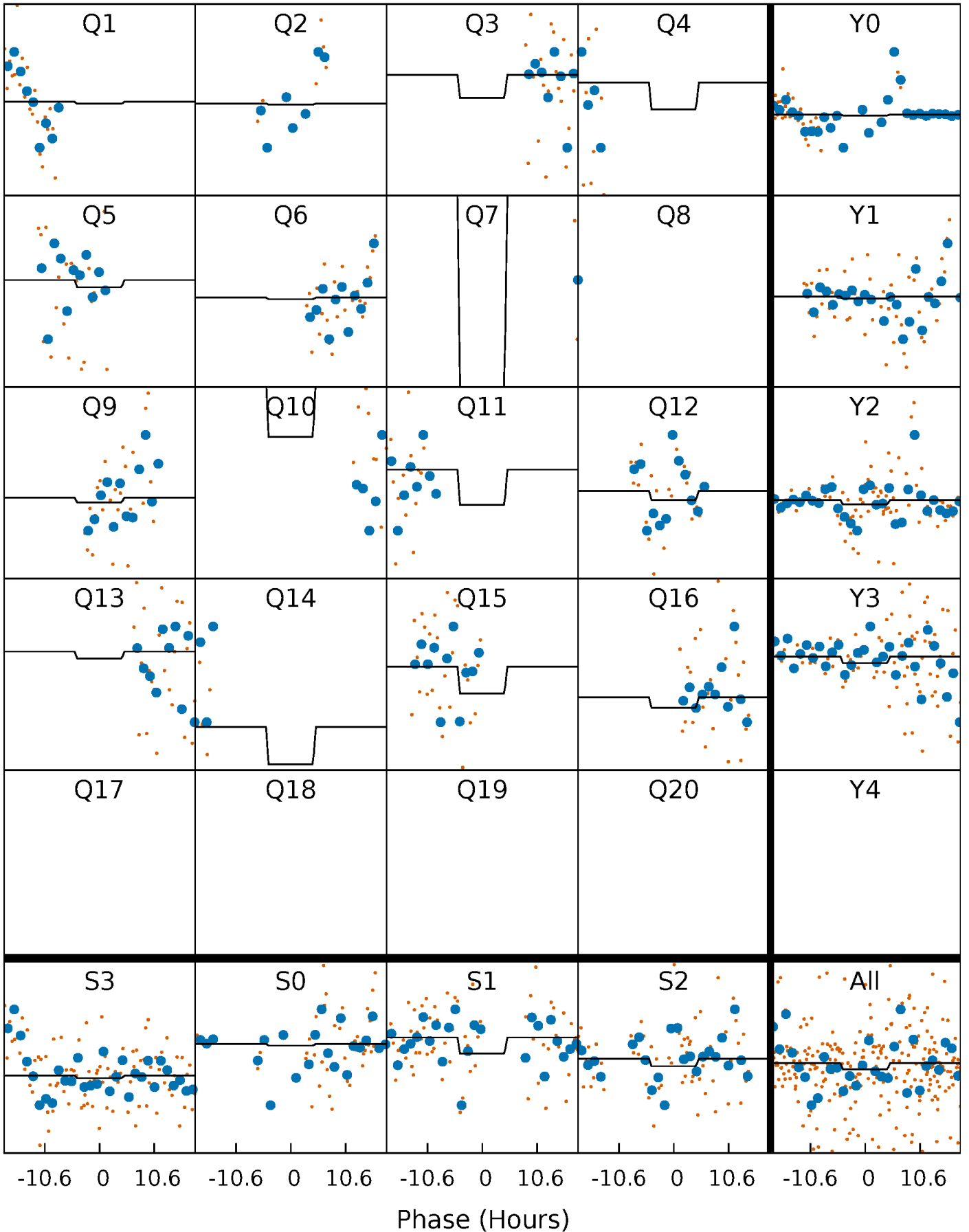
DV Quarter-Phased Transit Curves

TCE 009955177-03 $P = 91.474237$ Days $T_0 = 163.482704$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

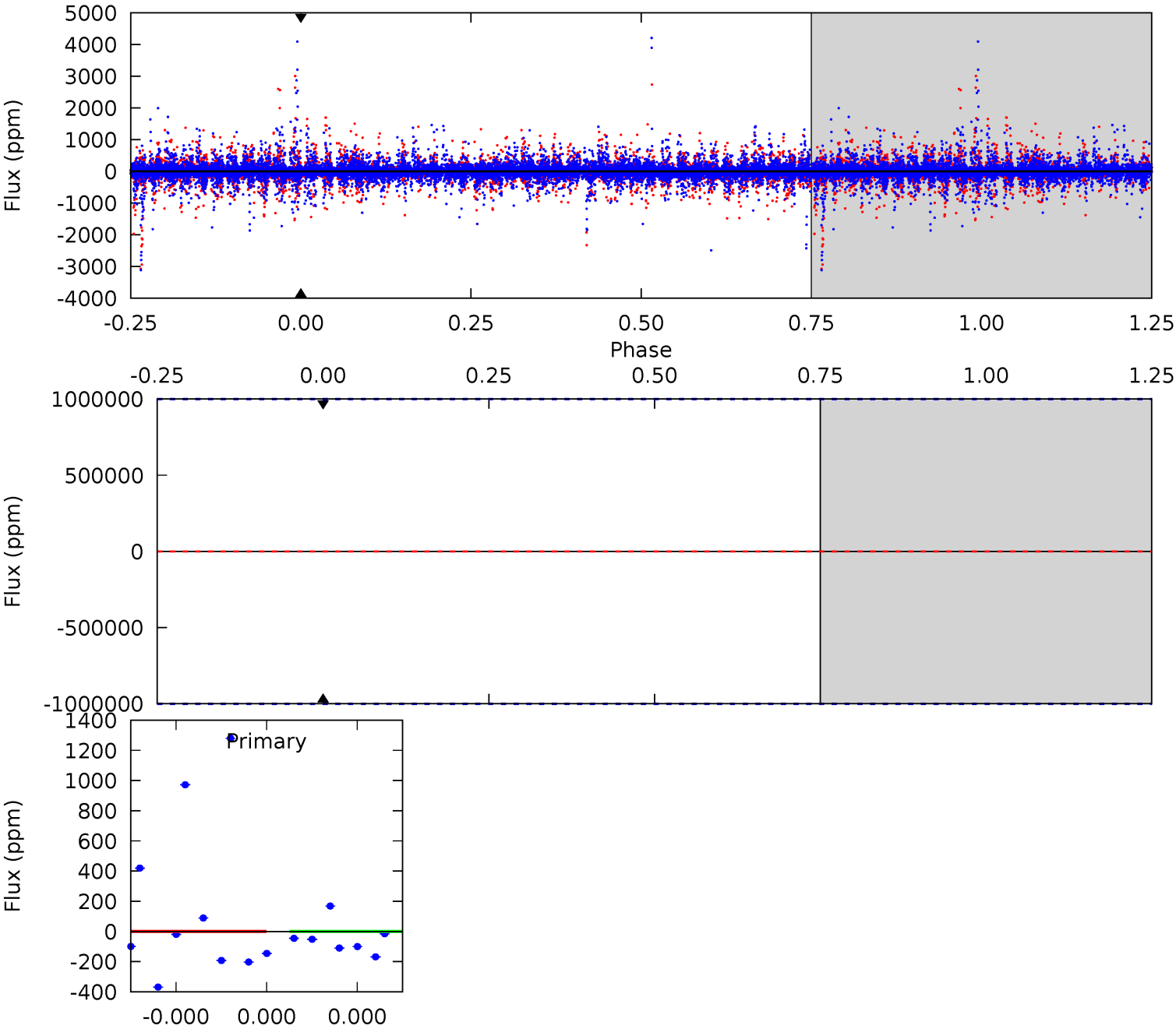
TCE 009955177-03 P= 91.474237 Days $T_0=162.786004$ (BKJD)



DV Model-Shift Uniqueness Test

009955177-03, P = 91.474237 Days, E = 72.008467 Days

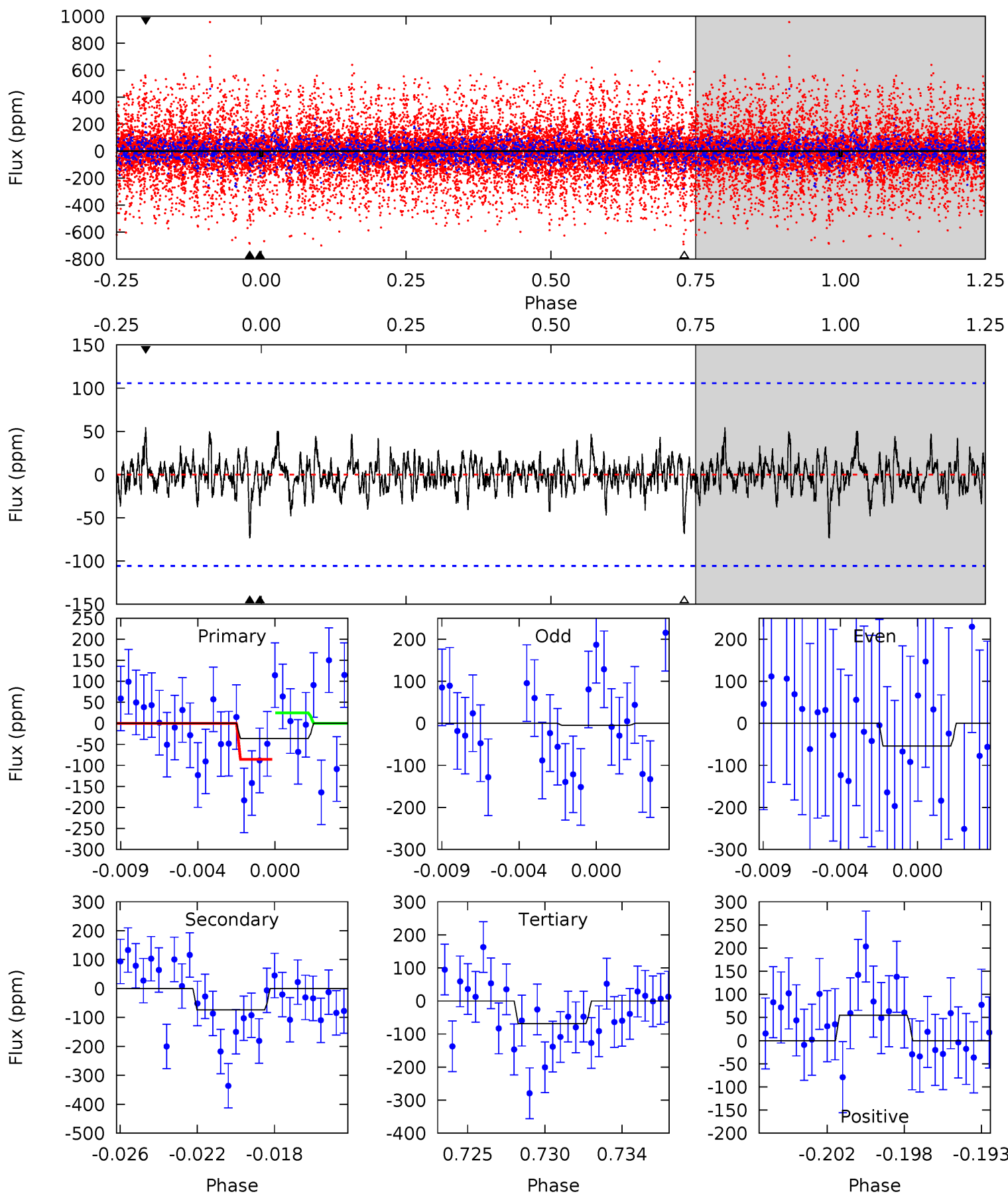
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009955177-03, P = 91.474237 Days, E = 71.311767 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.78	3.60	3.36	2.68	5.18	2.85	0.74	-1.59	-0.91	0.24	0.92	1.12	4.52	0.43	0



Stellar Parameters For KIC 009955177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7186^{+200}_{-275}	$4.142^{+0.105}_{-0.195}$	$0.180^{+0.150}_{-0.350}$	$1.786^{+0.569}_{-0.306}$	$1.615^{+0.211}_{-0.233}$	$0.399^{+0.194}_{-0.206}$
	+3%/-4%	+3%/-5%	+83%/-194%	+32%/-17%	+13%/-14%	+49%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009955177-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$15.75^{+14.60}_{-10.84}$	879^{+67}_{-55}	6698^{+31757}_{-34373}	2035^{+99165}_{-68412}
Alt.	-73 ± 20	$13.78^{+15.05}_{-9.77}$	874^{+65}_{-49}	3111^{+1541}_{-581}	44^{+453}_{-35}

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

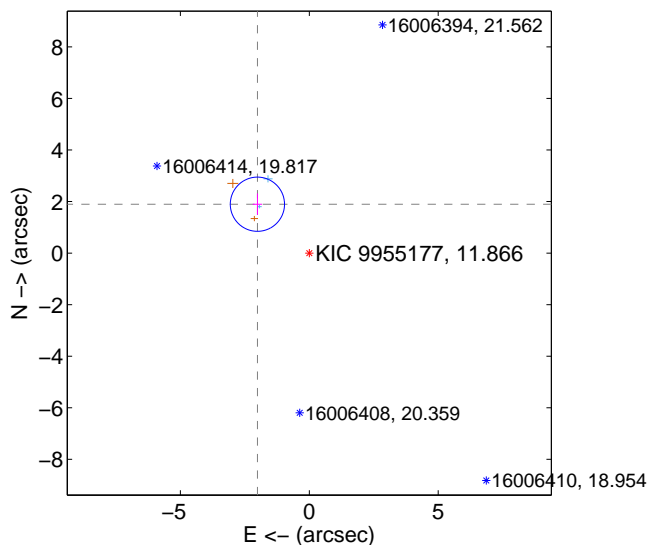
Supplemental centroid analysis for 009955177-03. **Kepler magnitude: 11.87.** Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

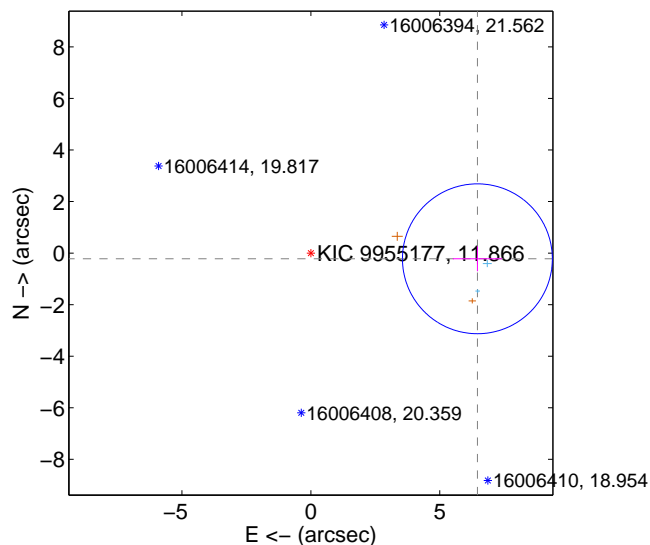
The OOT PRF centroid is offset from the target star catalog position by about 8.98 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.765 ± 0.351	7.89	2.013 ± 0.181	1.897 ± 0.416
PRF-fit source offset from KIC position	6.465 ± 0.969	6.67	-6.461 ± 0.956	-0.221 ± 0.482
photometric centroid source offset	0.86 ± 2.32	0.37	-0.82 ± 2.38	0.26 ± 1.62

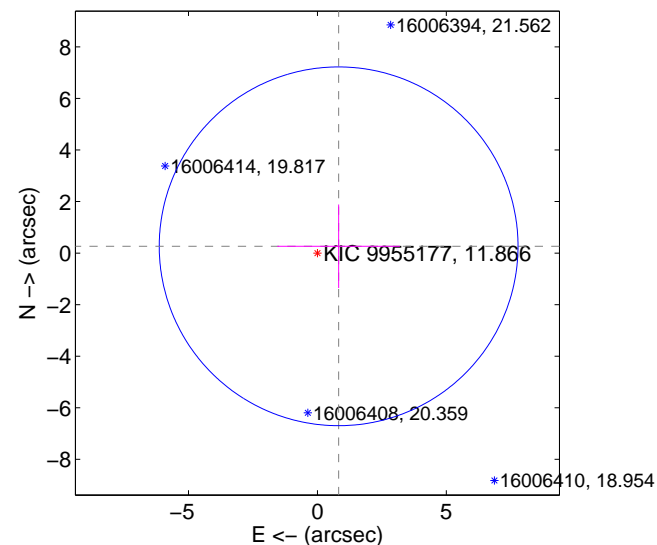
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

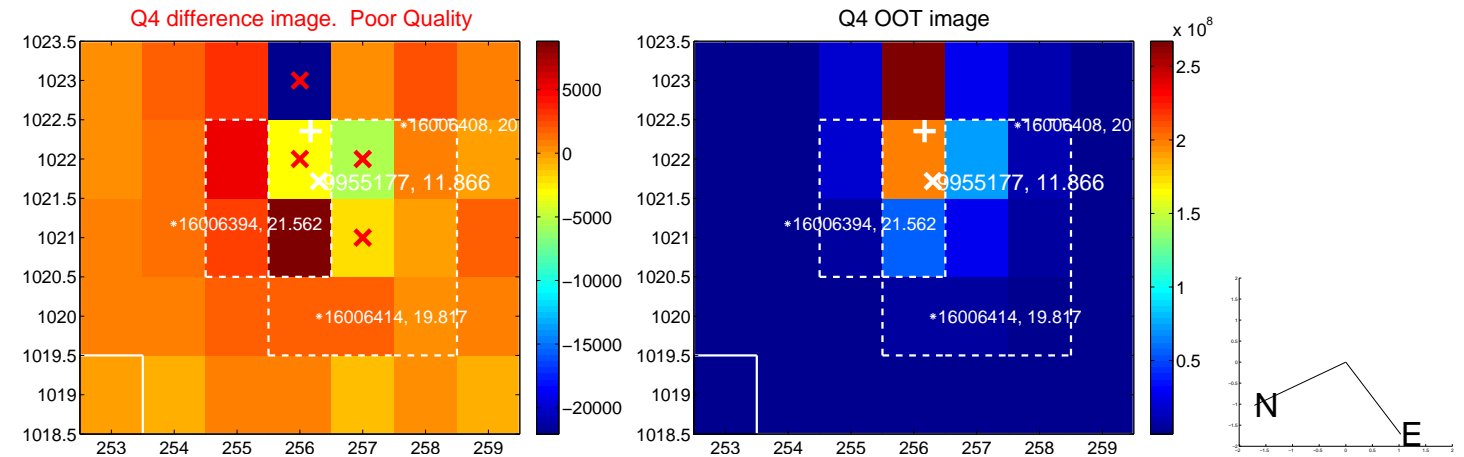
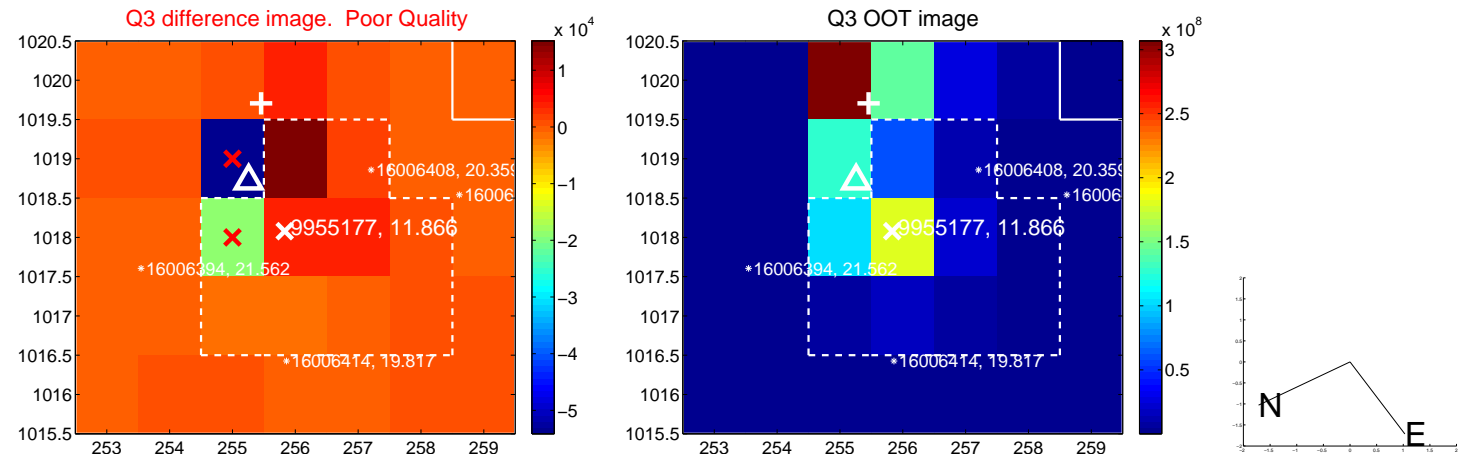
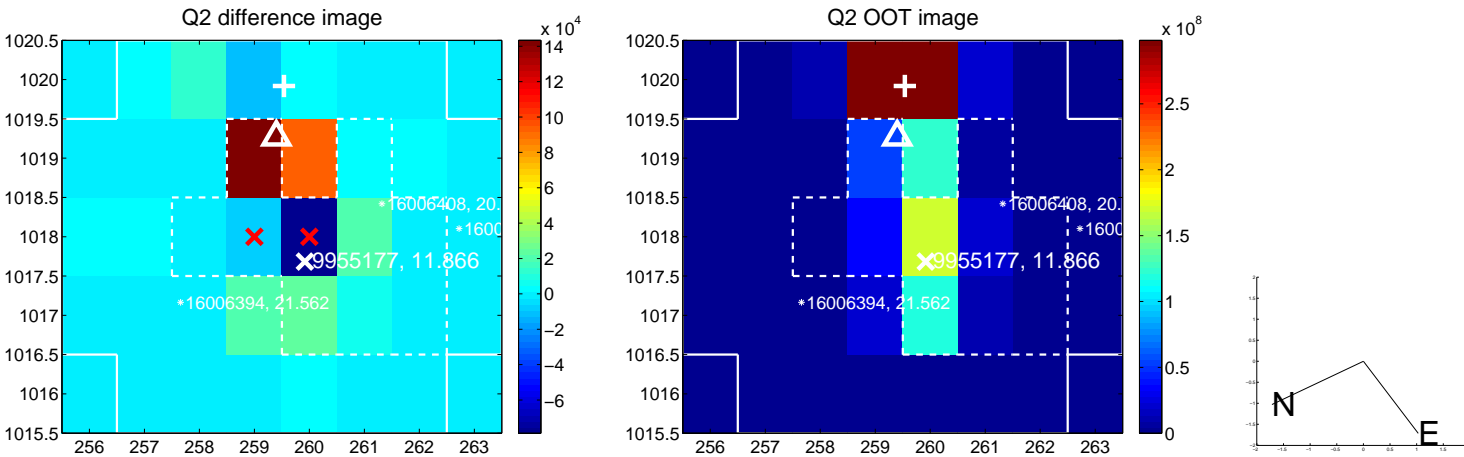
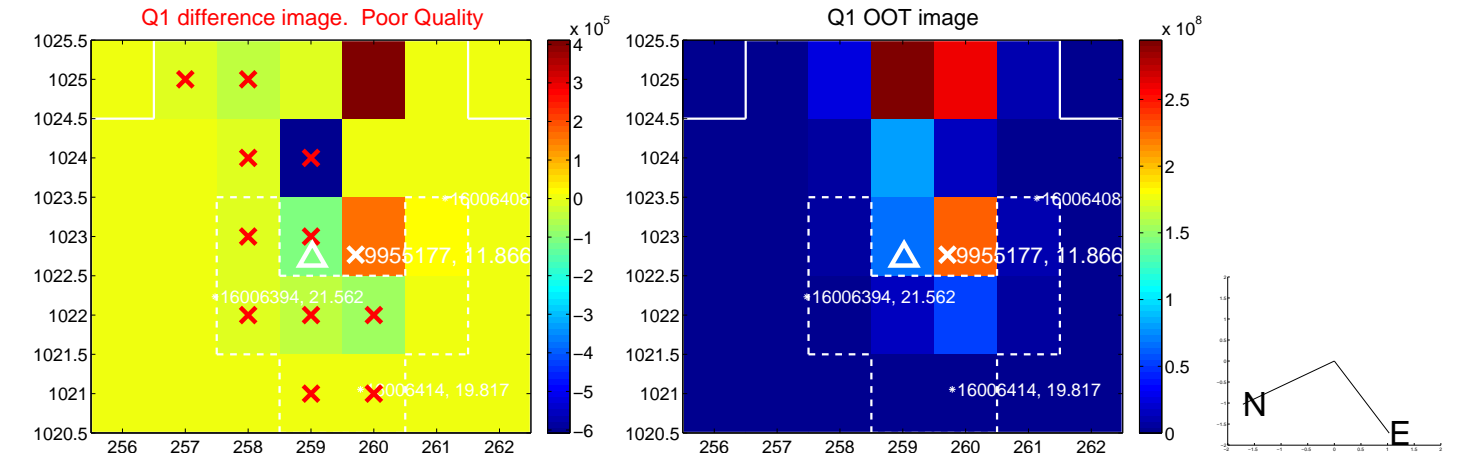


offset from photometric centroids

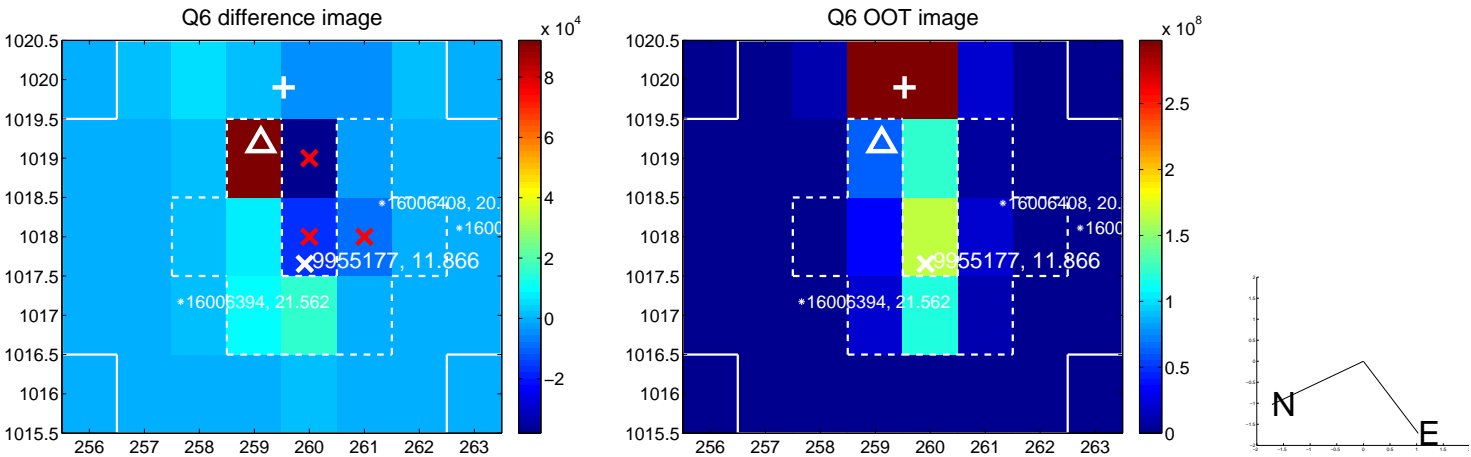
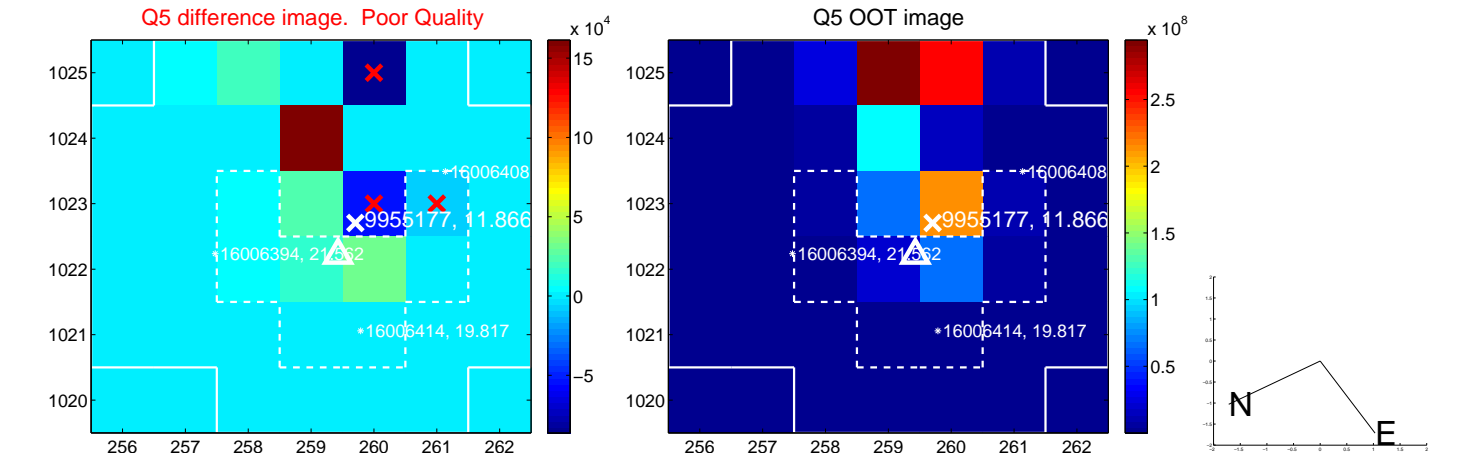


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

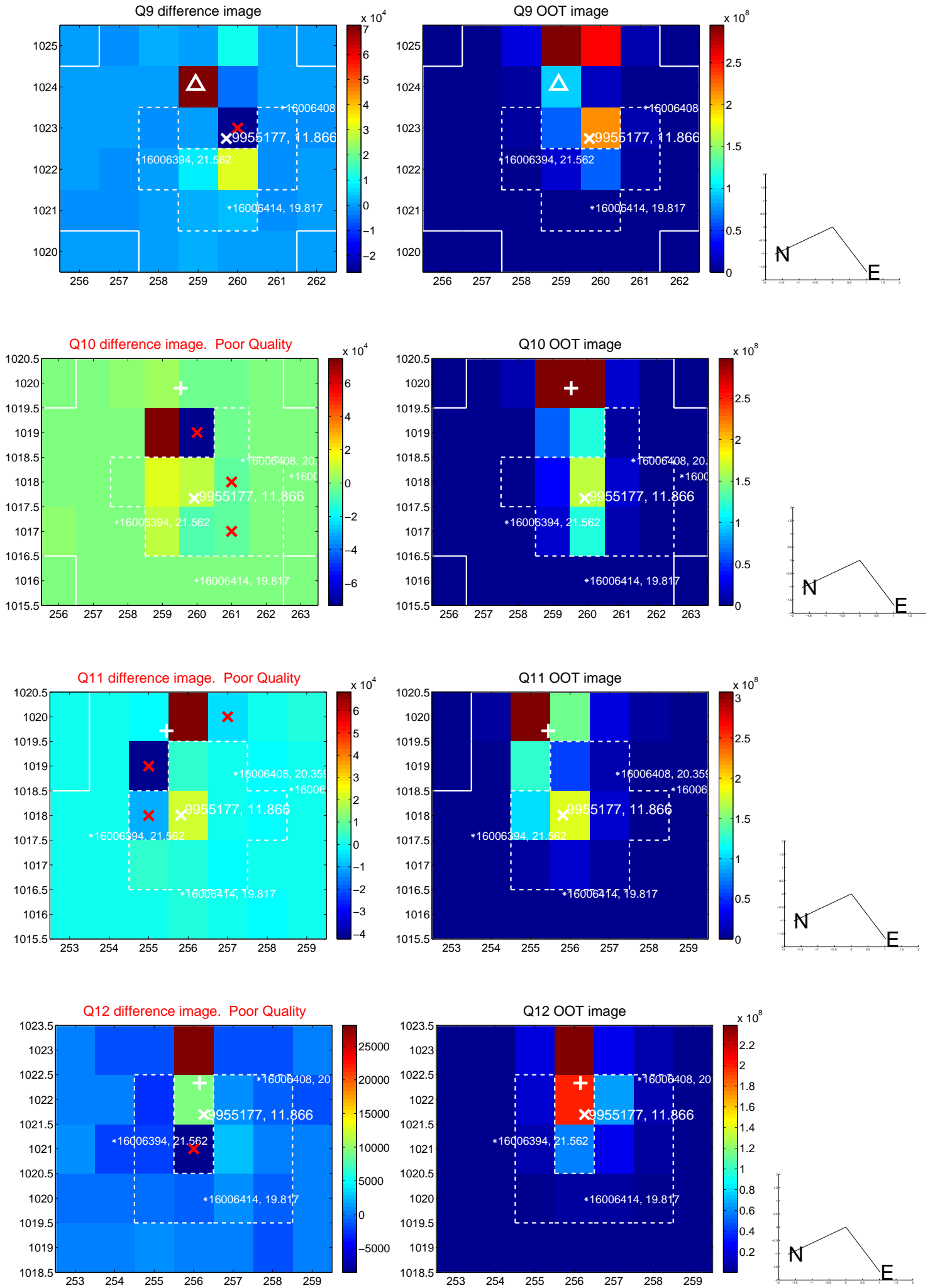
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



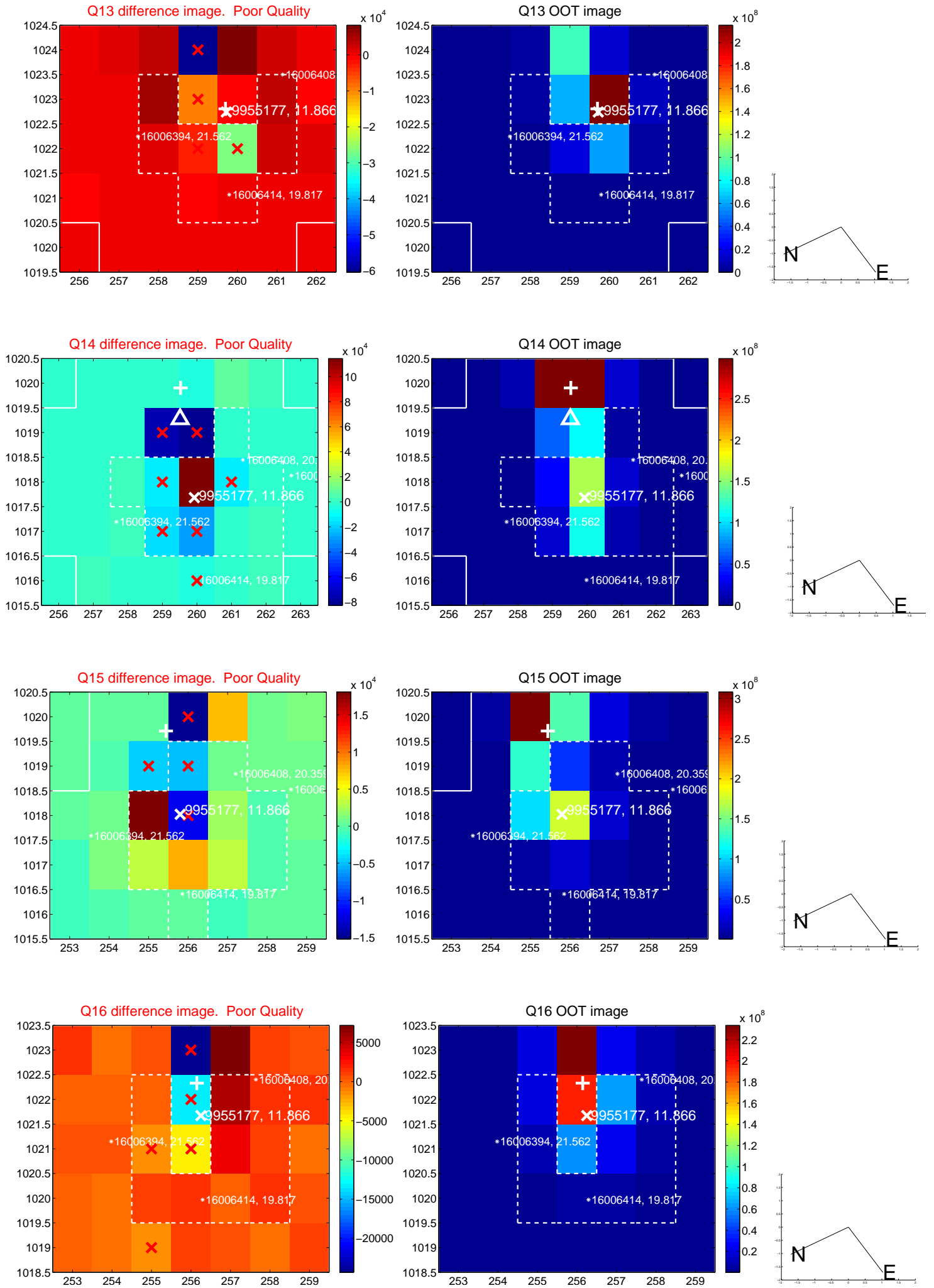
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



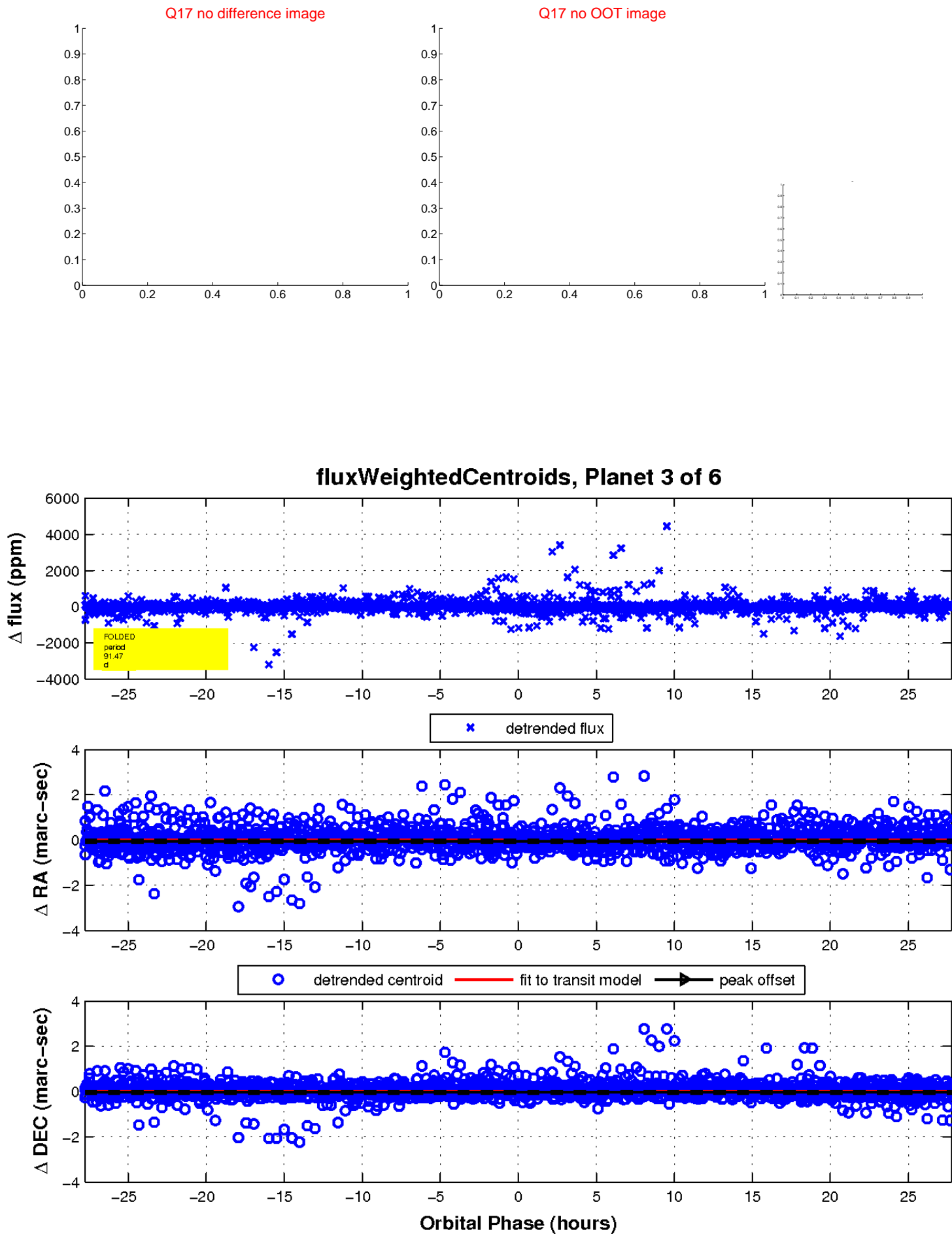
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

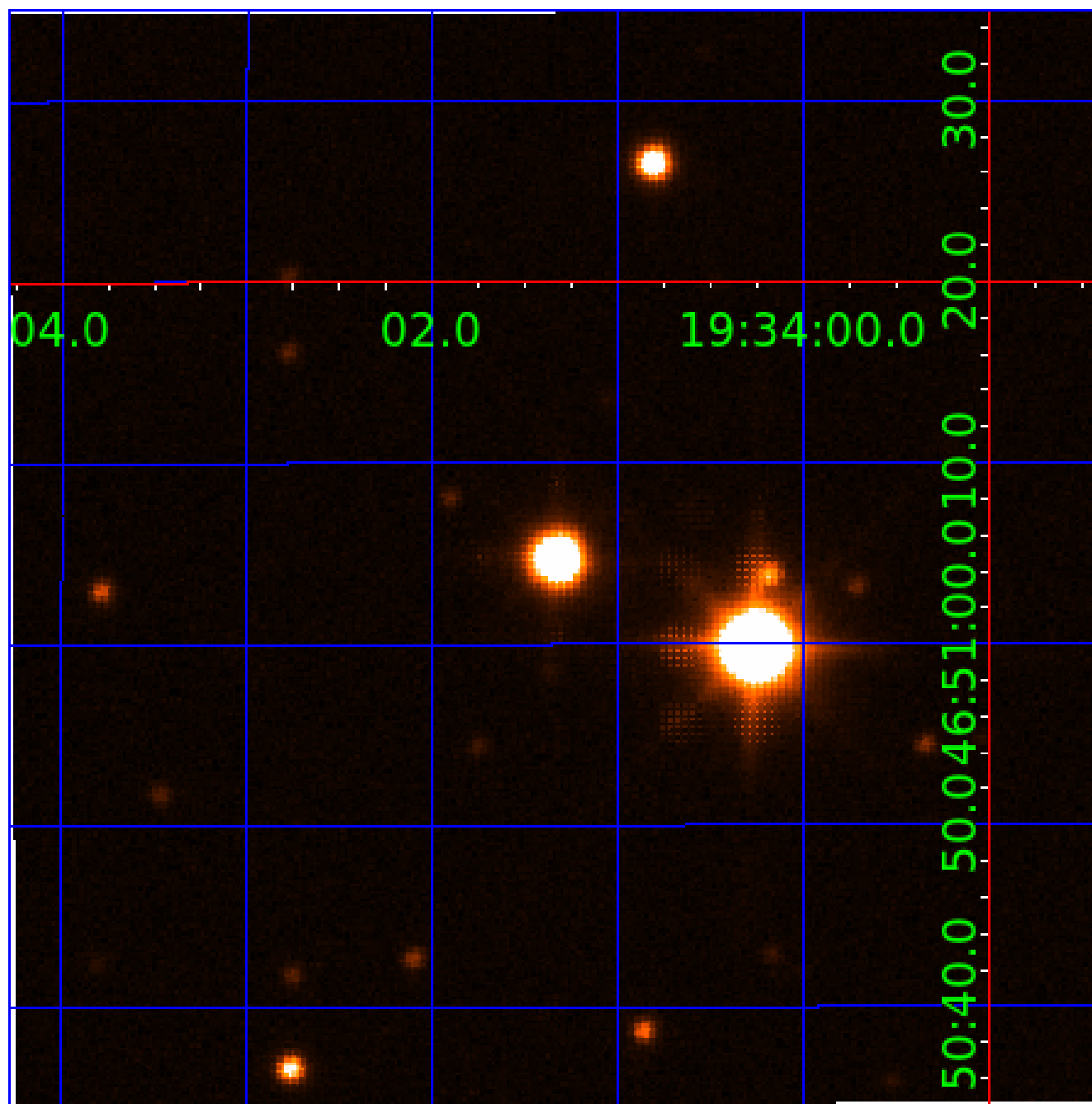


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009955177

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})
009955177-01	OBS	No	278.949596	256.905748	448.7	8.193	17.8	12.6	1.79	7186	3.97	7.93
009955177-02	OBS	No	2.093069	131.826917	17.2	11.948	13.3	14.3	1.79	7186	0.83	5399.90
009955177-03	OBS	No	91.474237	163.482704	315.8	15.000	26.3	-1.0	1.79	7186	3.21	35.08
009955177-04	OBS	No	99.875043	187.762906	73.1	4.619	16.3	4.6	1.79	7186	1.75	31.20
009955177-05	OBS	No	136.155609	186.978241	81.0	4.372	14.5	2.6	1.79	7186	1.83	20.64
009955177-06	OBS	No	87.335950	169.026468	493.3	1.591	16.7	7.9	1.79	7186	4.04	37.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009955177-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009955177-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
009955177-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009955177-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_RESOLVED_OFFSET
009955177-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009955177-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

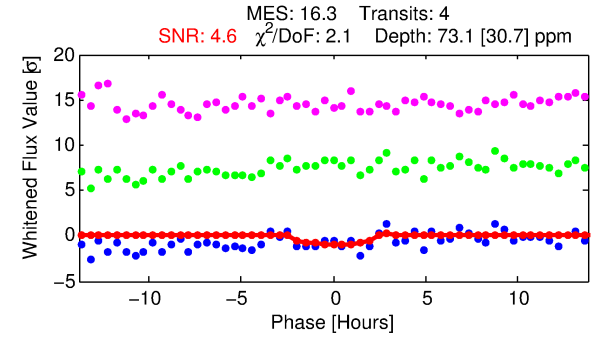
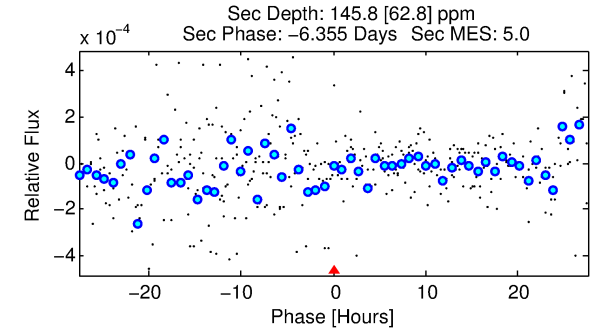
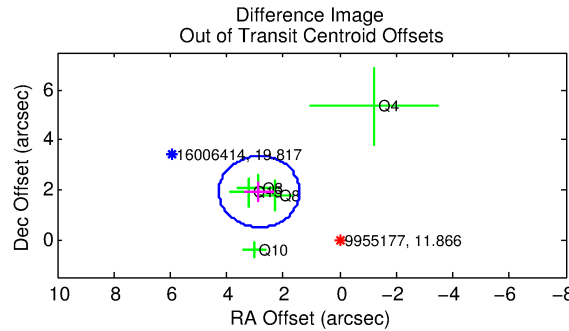
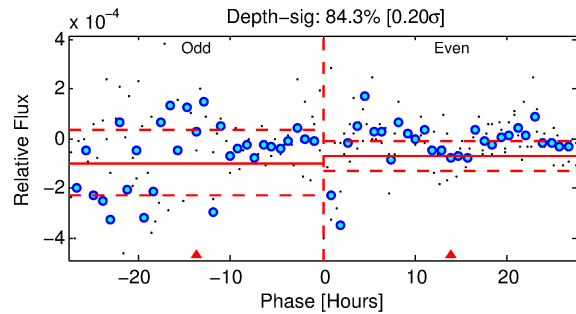
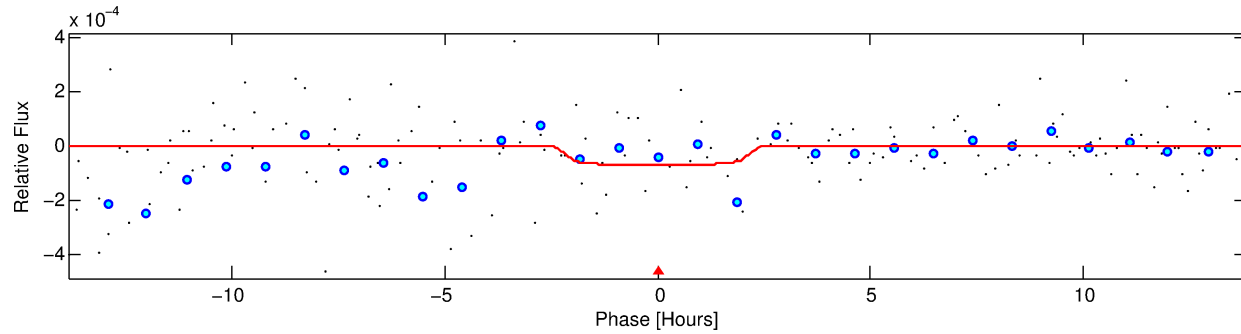
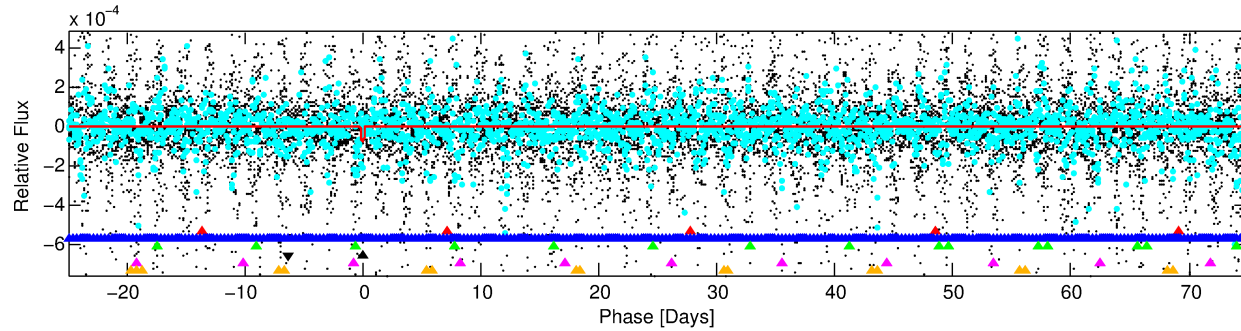
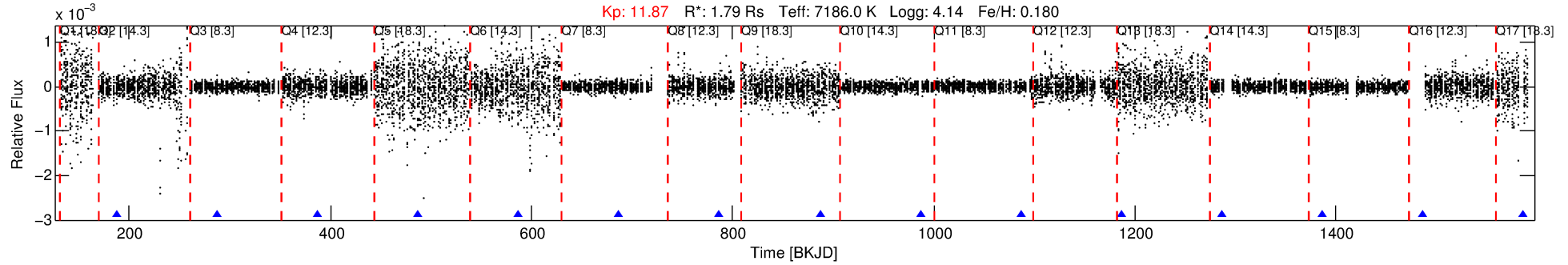
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009955177-04

No Significant Match Found

DV One-Page Summary

KIC: 9955177 Candidate: 4 of 6 Period: 99.875 d



DV Fit Results:

Period = 99.87504 [0.00315] d
Epoch = 187.7629 [0.0267] BKJD
Rp/R* = 0.0090 [0.0399]
a/R* = 80.24 [2220.06]
b = 0.88 [6.92]
Seff = 31.20 [12.41]
Teq = 603 [60] K
Rp = 1.75 [7.79] Re
a = 0.4942 [0.1284] AU
Ag = 6380.16 [56688.69] [0.11 σ]
Teffp = 8327 [18485] K [0.42 σ]

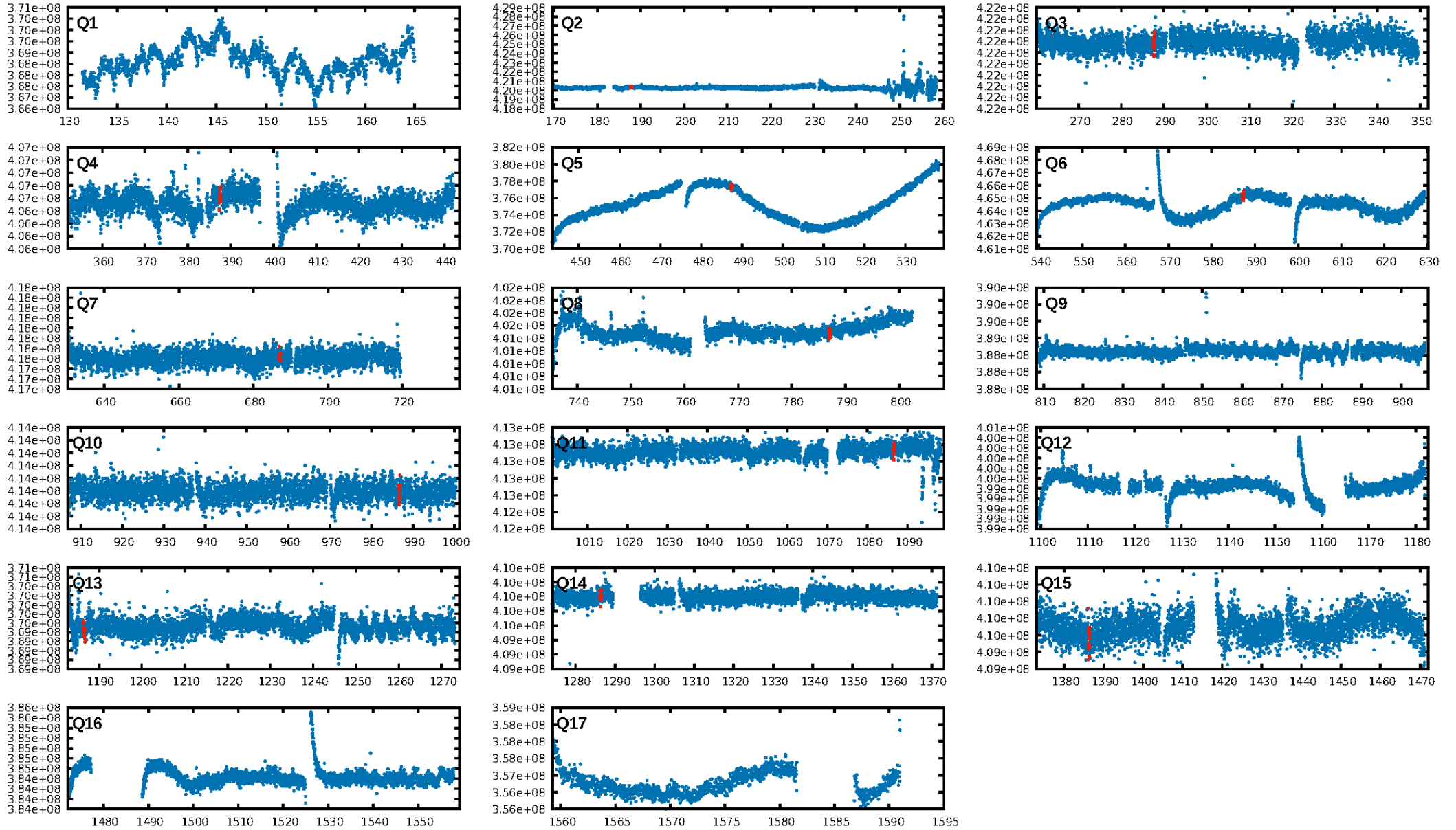
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.85 σ]
LongPeriod-sig: 100.0% [136.90 σ]
ModelChiSquare2-sig: 1.3%
ModelChiSquareGof-sig: 69.1%
Bootstrap-pfa: 4.60e-16
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -3.381
Centroid-sig: 9.9%
Centroid-so: 1.507 arcsec [1.43 σ]
OotOffset-rm: 3.440 arcsec [7.23 σ]
KicOffset-rm: 4.402 arcsec [3.71 σ]
OotOffset-st: 1/2/2/0 [5]
KicOffset-st: 3/2/2/1 [8]
DiffImageQuality-fgm: 0.12 [1/8]
DiffImageOverlap-fno: 0.42 [5/12]

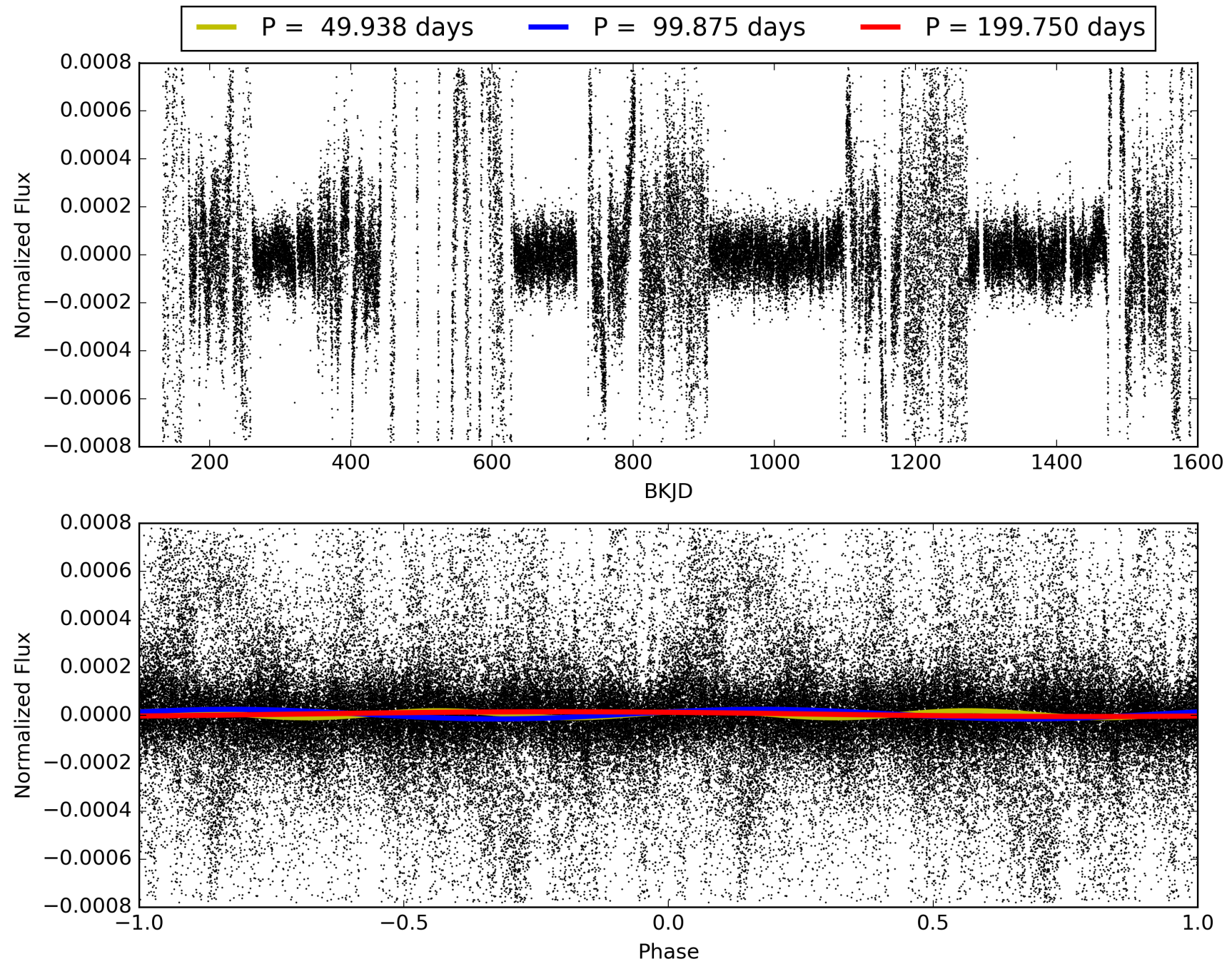
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:54:08 Z

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

TCE 009955177-04, PDC Light Curves

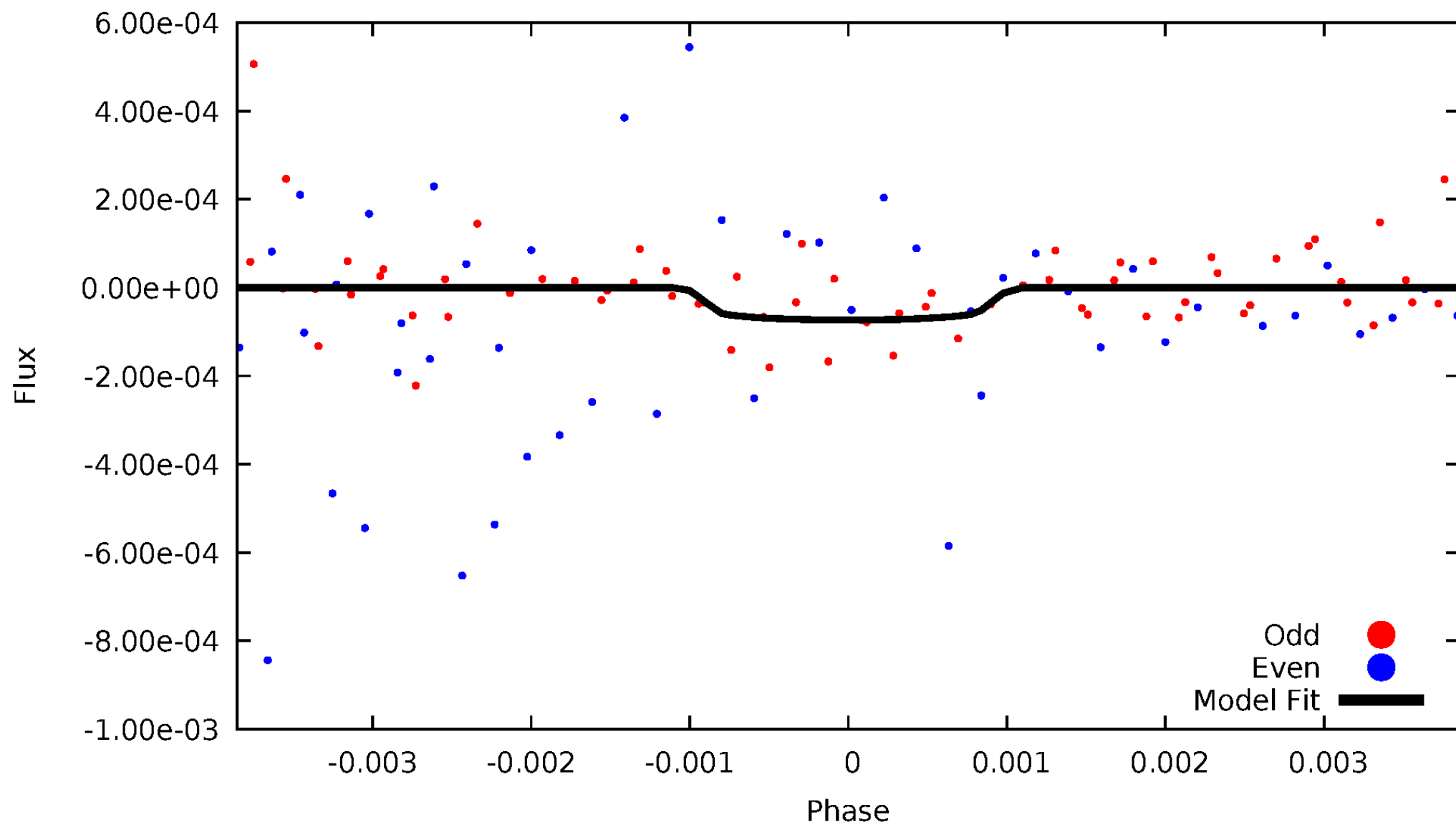


TCE 009955177-04



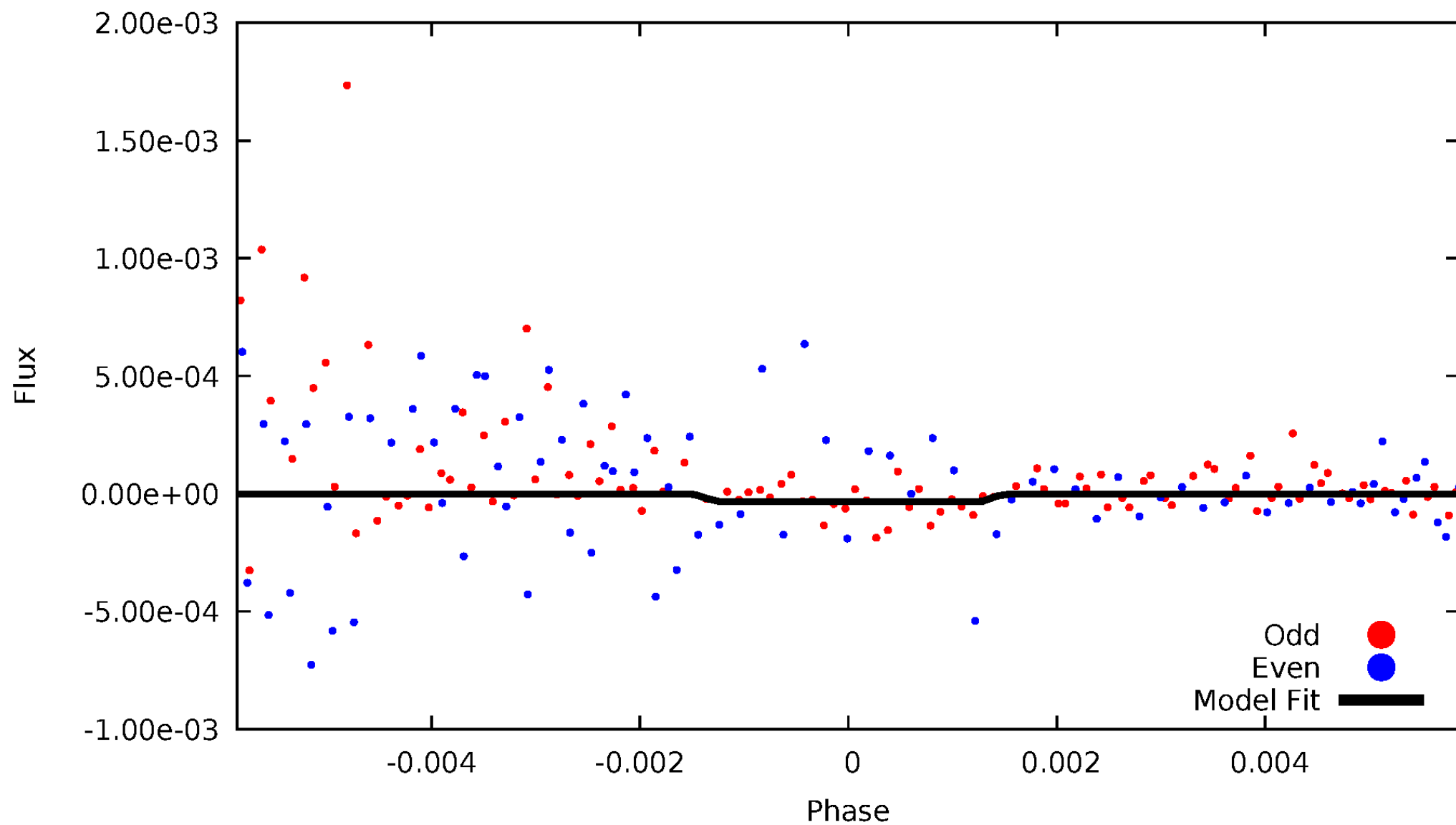
DV Odd/Even

TCE 009955177-04



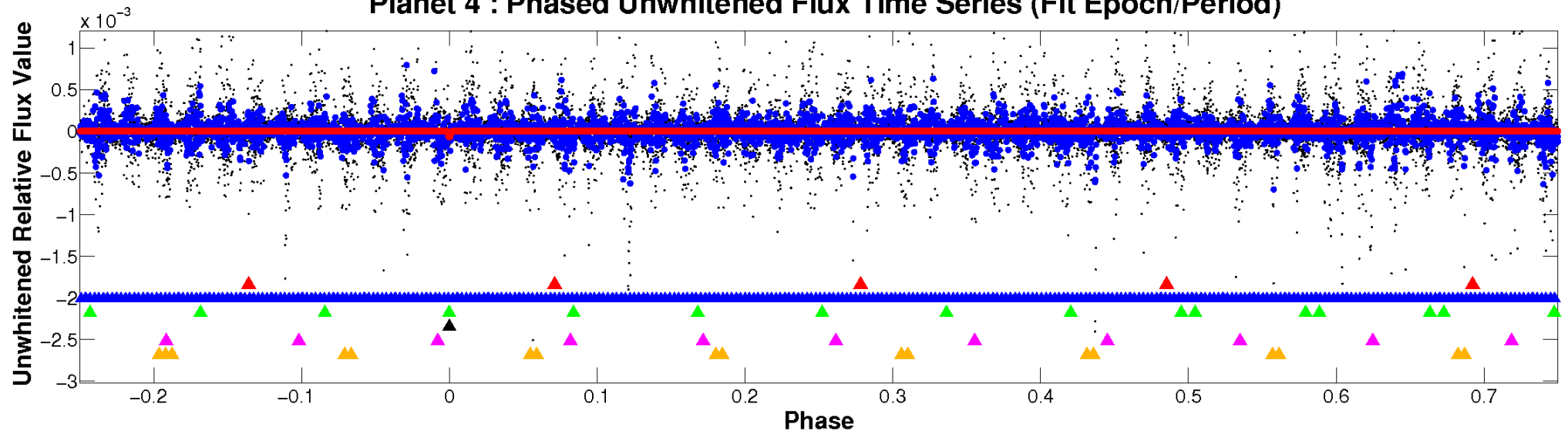
ALT Odd/Even

TCE 009955177-04

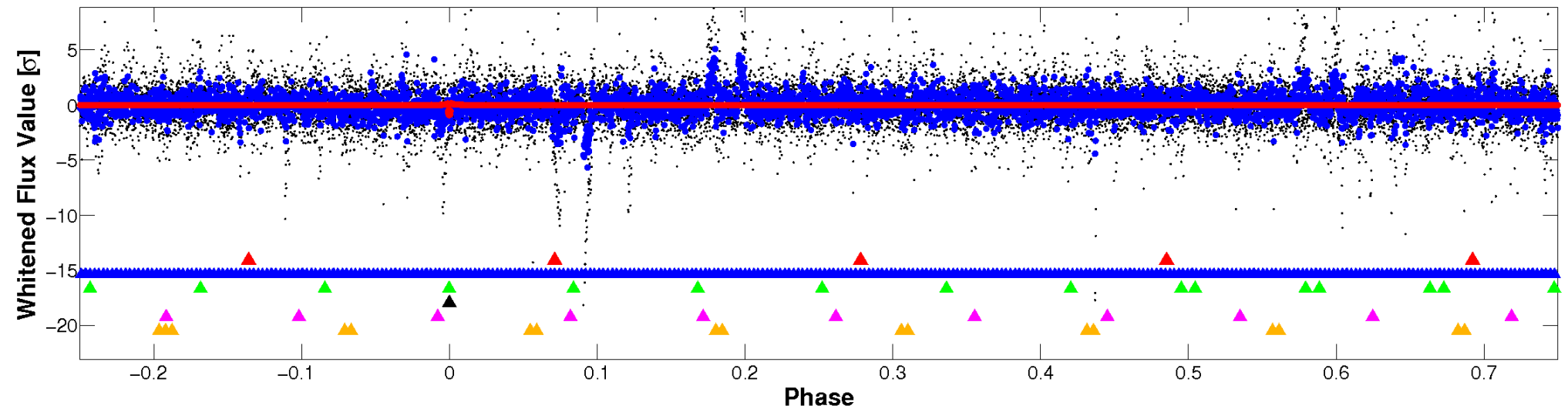


Non-Whitened Vs. Whitened Light Curve

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

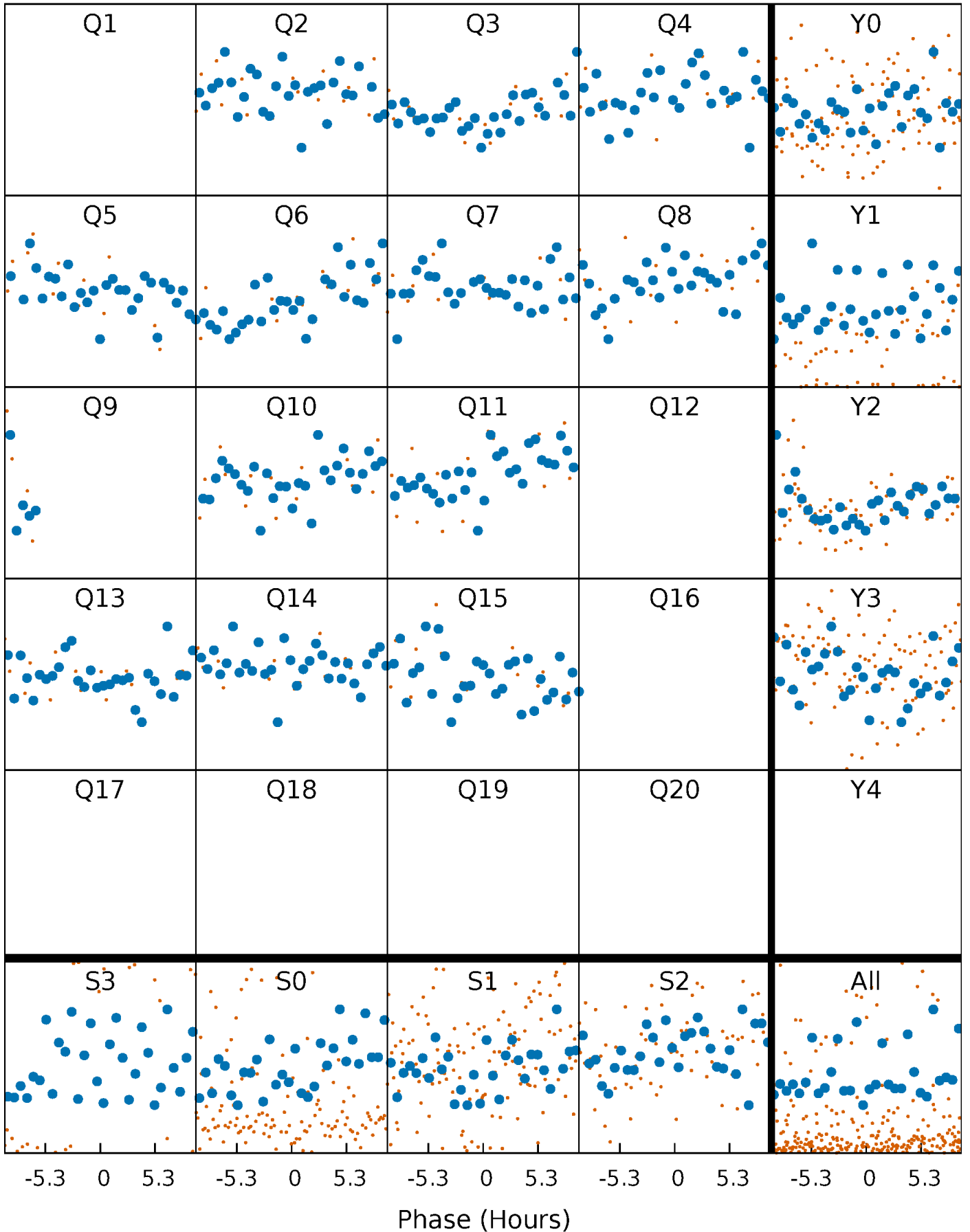


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



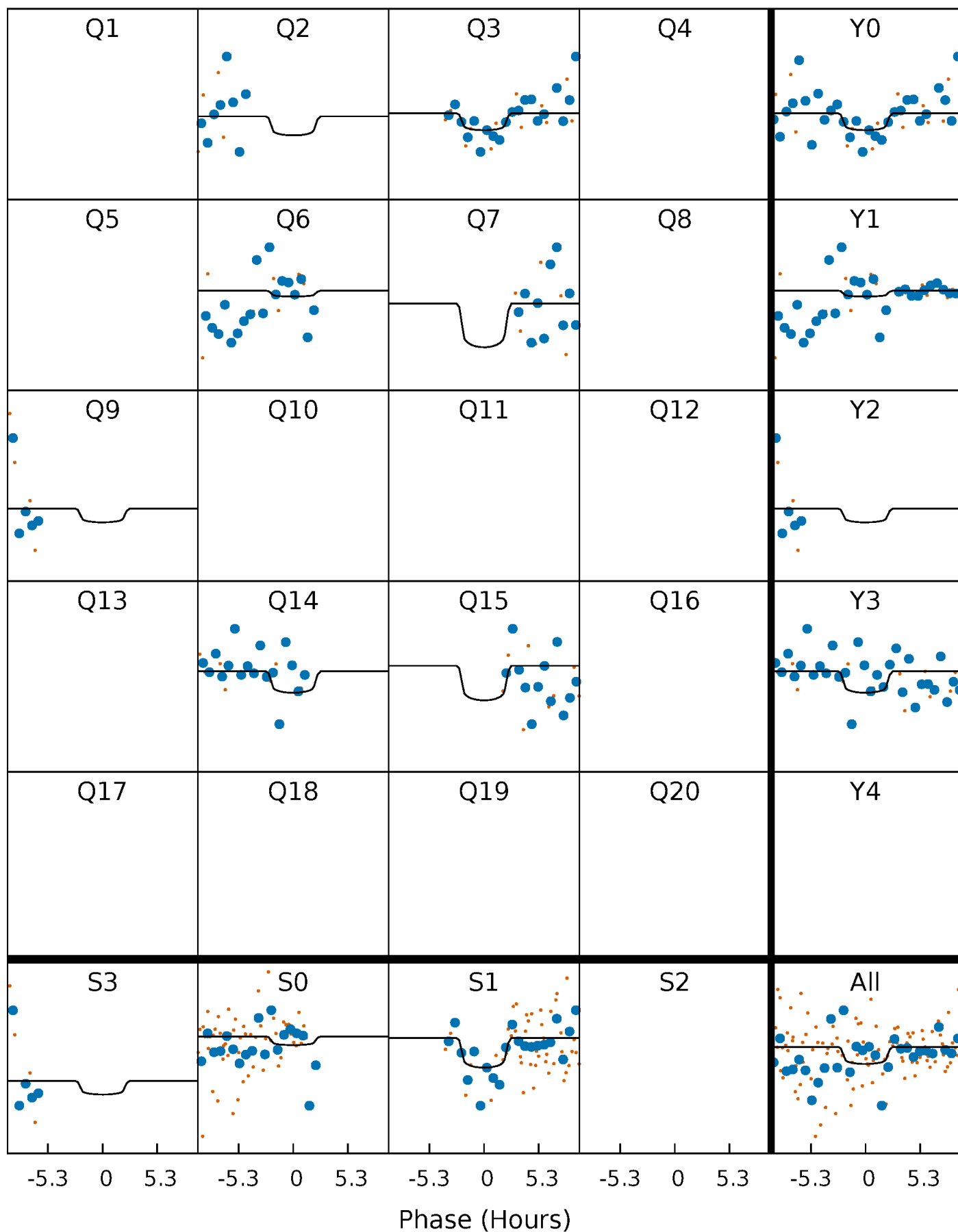
PDC Quarter-Phased Transit Curves

TCE 009955177-04 P= 99.875043 Days $T_0=187.762906$ (BKJD)



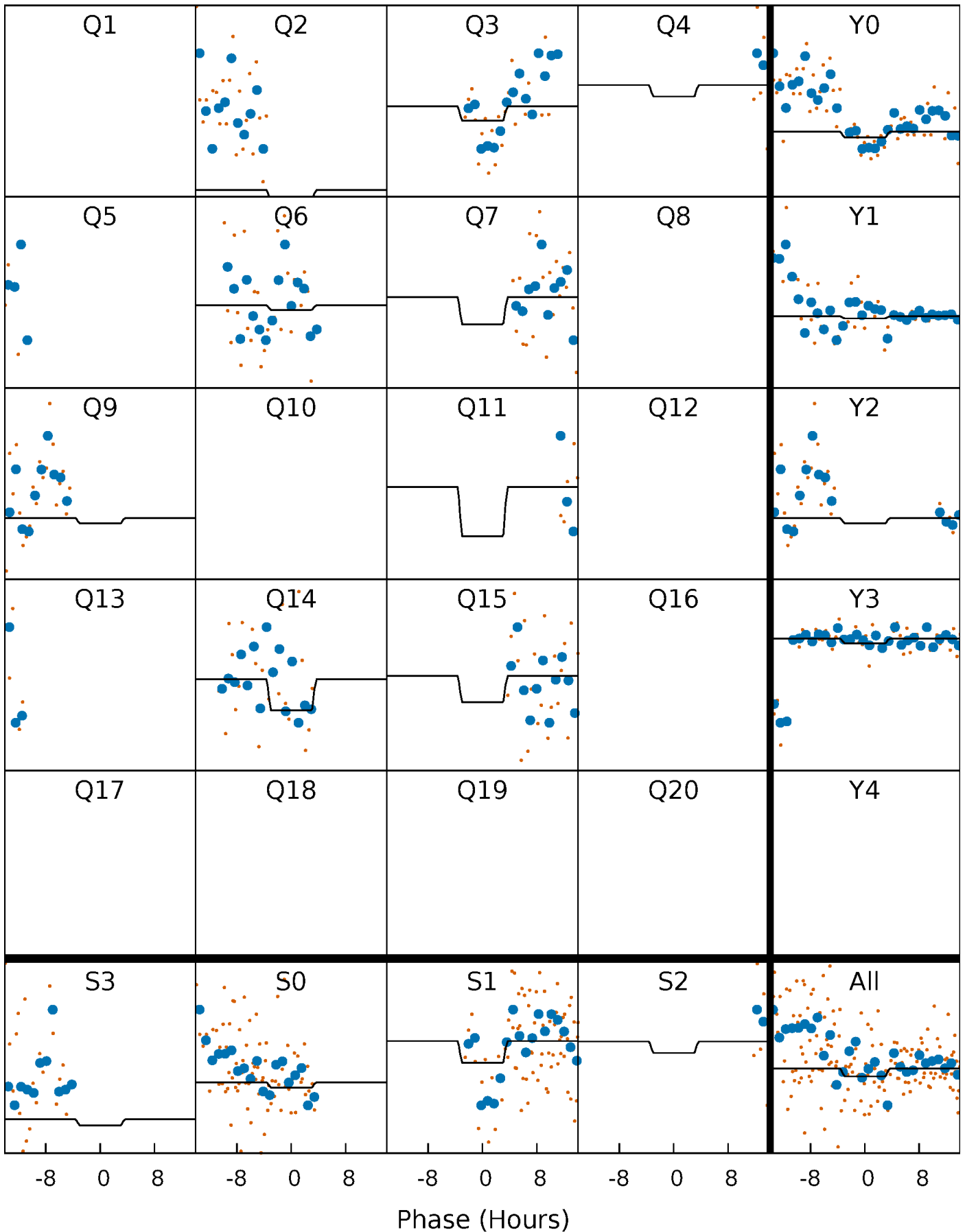
DV Quarter-Phased Transit Curves

TCE 009955177-04 P= 99.875043 Days $T_0=187.762906$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

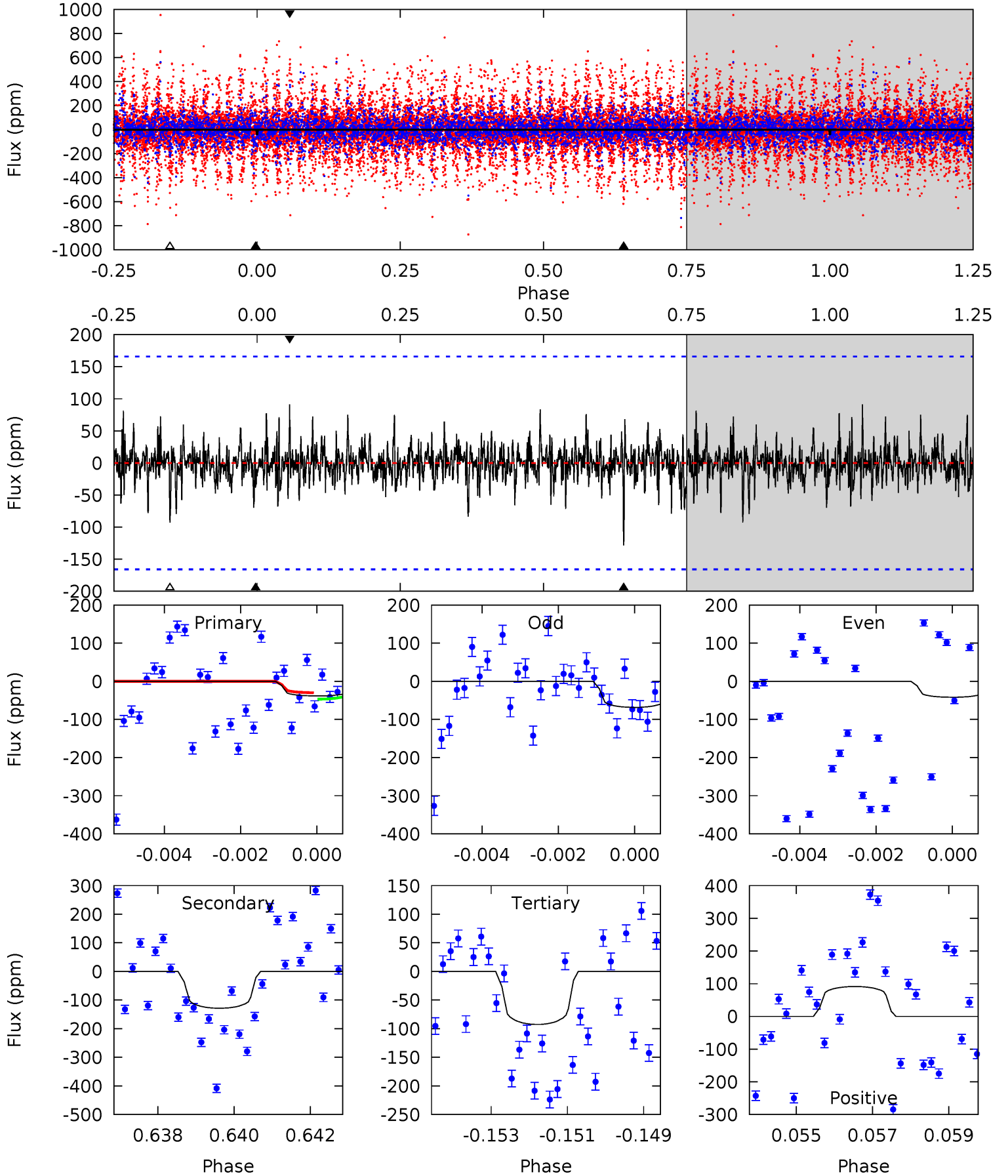
TCE 009955177-04 P= 99.872430 Days $T_0=187.715028$ (BKJD)



DV Model-Shift Uniqueness Test

009955177-04, P = 99.875043 Days, E = 87.887863 Days

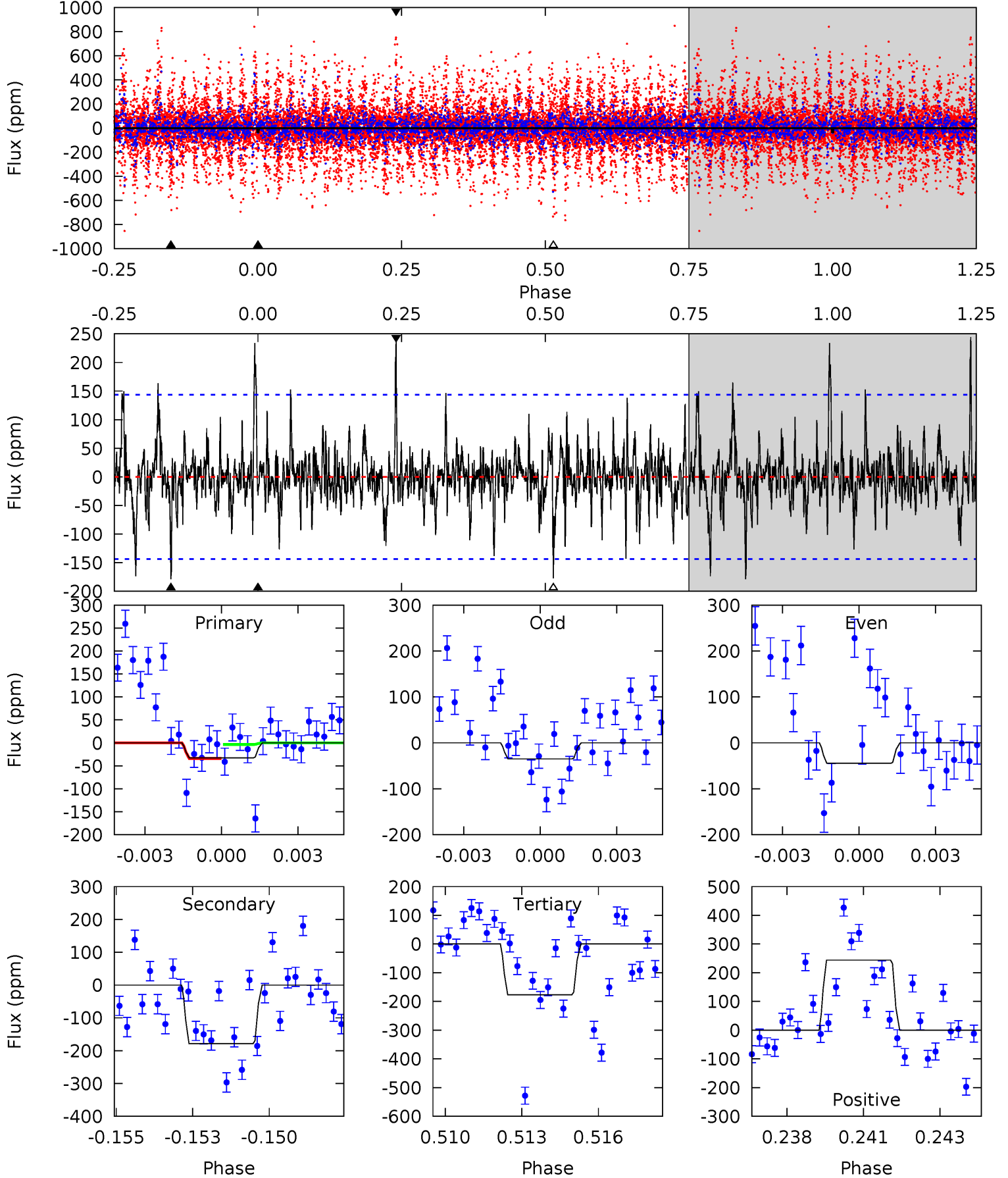
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.23	4.13	2.97	2.93	5.32	3.08	0.69	-1.74	-1.70	1.15	1.20	0.38	1.18	0.42	0.28



Alt Model-Shift Uniqueness Test

009955177-04, P = 99.872430 Days, E = 87.842598 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.20	6.54	6.48	8.93	5.26	2.97	1.51	-5.28	-7.73	0.06	-2.39	0.16	0.15	0.58	0.56



Stellar Parameters For KIC 009955177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7186^{+200}_{-275}	$4.142^{+0.105}_{-0.195}$	$0.180^{+0.150}_{-0.350}$	$1.786^{+0.569}_{-0.306}$	$1.615^{+0.211}_{-0.233}$	$0.399^{+0.194}_{-0.206}$
	+3%/-4%	+3%/-5%	+83%/-194%	+32%/-17%	+13%/-14%	+49%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009955177-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-129 ± 31	$6.23^{+5.88}_{-4.24}$	850^{+67}_{-49}	4486^{+3162}_{-991}	433^{+3736}_{-327}
Alt.	-179 ± 27	$5.83^{+6.28}_{-4.07}$	854^{+59}_{-52}	4890^{+4419}_{-1137}	709^{+7437}_{-544}

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 $A_{obs} \gg 1.0$

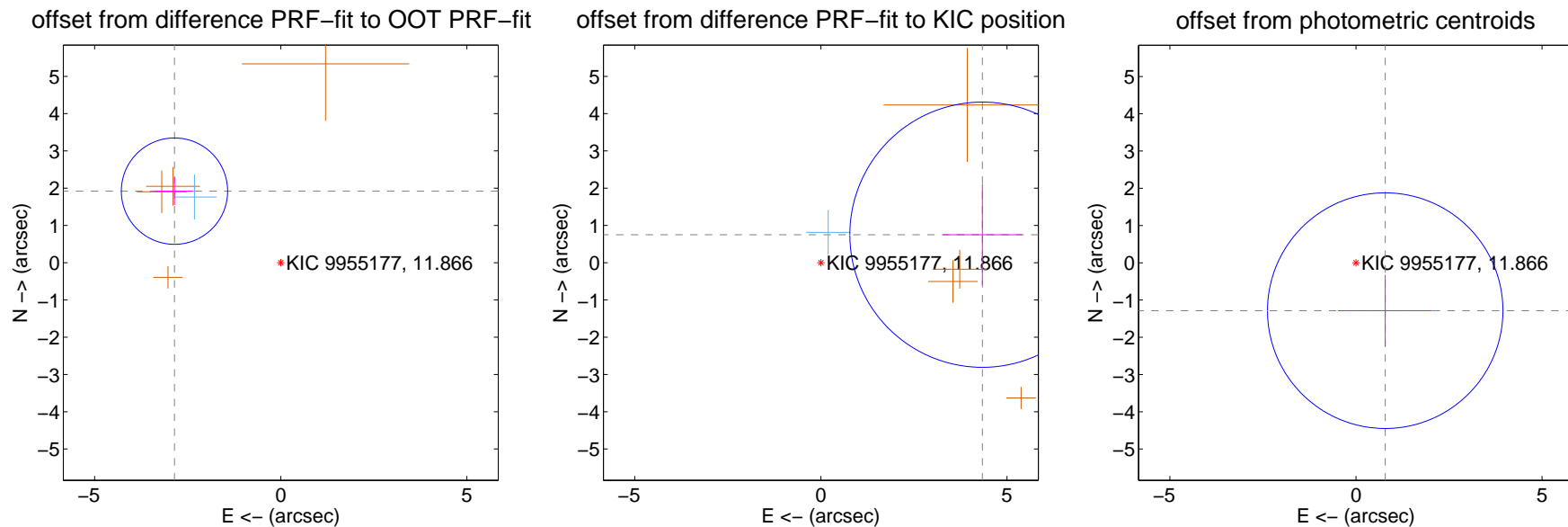
DV Centroid Data

Supplemental centroid analysis for 009955177-04. **Kepler magnitude: 11.87.** Transit SNR 4.58

There are 1 quarters with good PRF difference image offsets

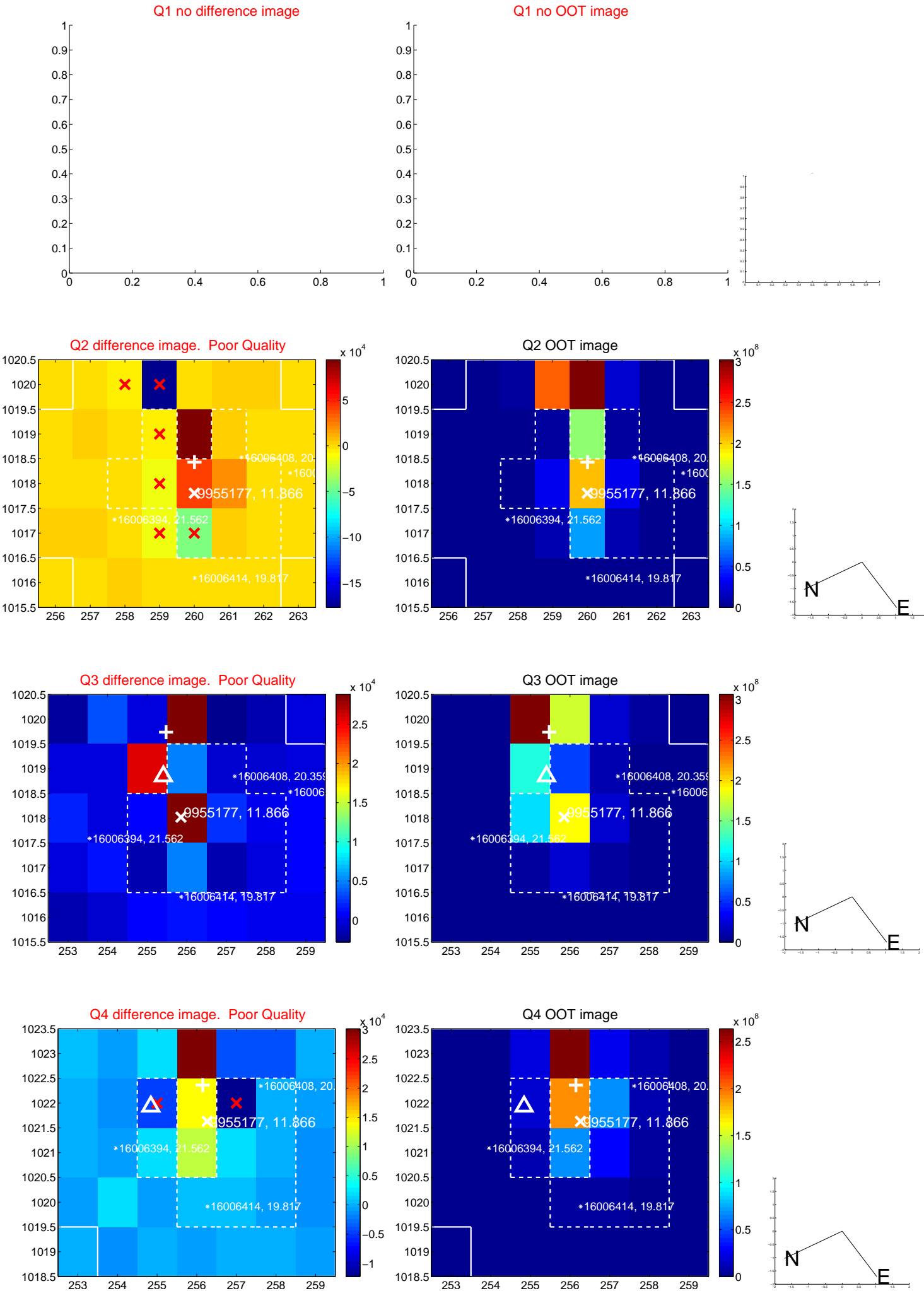
The OOT PRF centroid is offset from the target star catalog position by about 7.16 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.440 ± 0.476	7.23	2.854 ± 0.515	1.920 ± 0.374
PRF-fit source offset from KIC position	4.402 ± 1.186	3.71	-4.338 ± 1.068	0.751 ± 1.356
photometric centroid source offset	1.51 ± 1.05	1.43	-0.79 ± 1.27	-1.29 ± 0.96

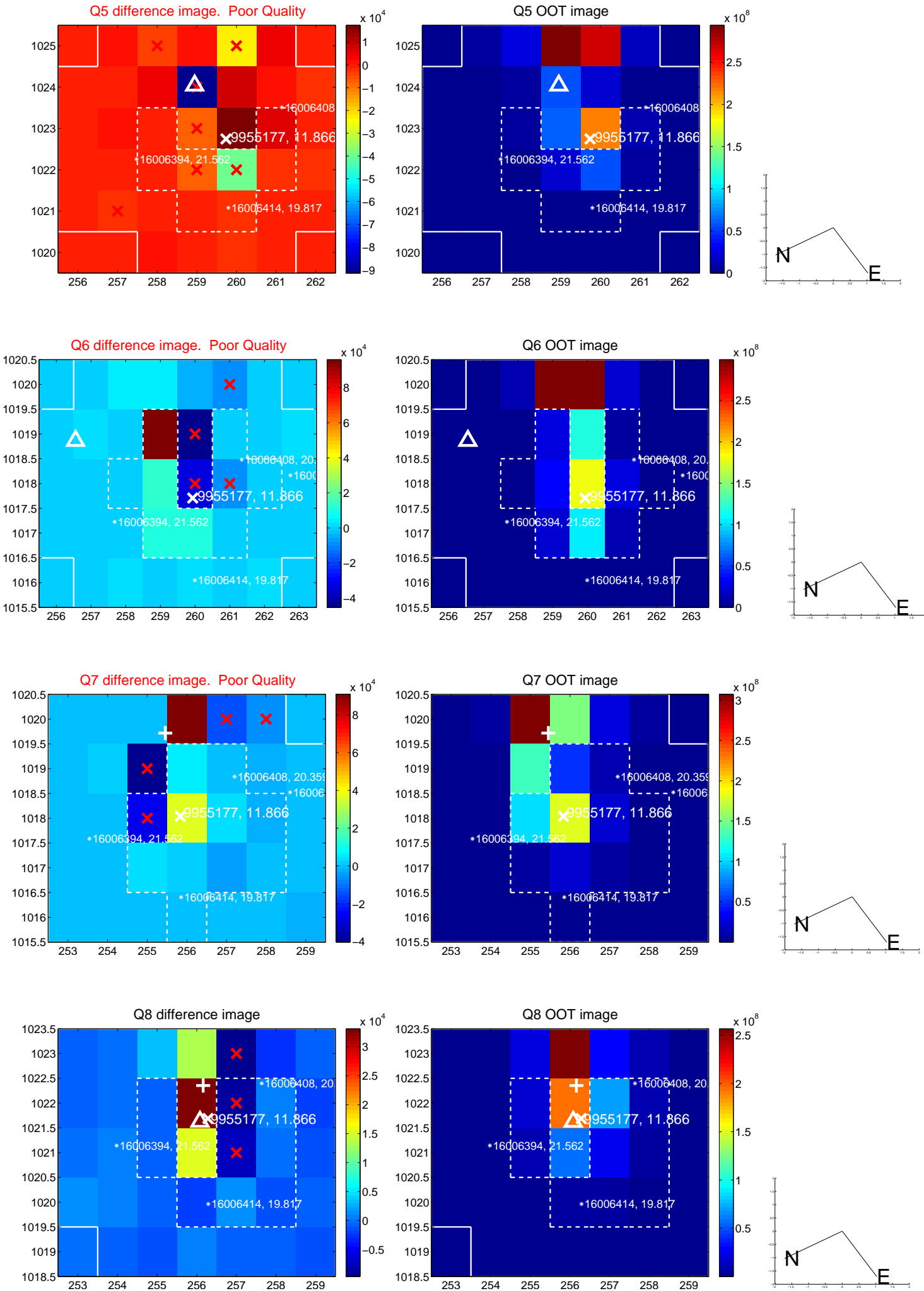


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

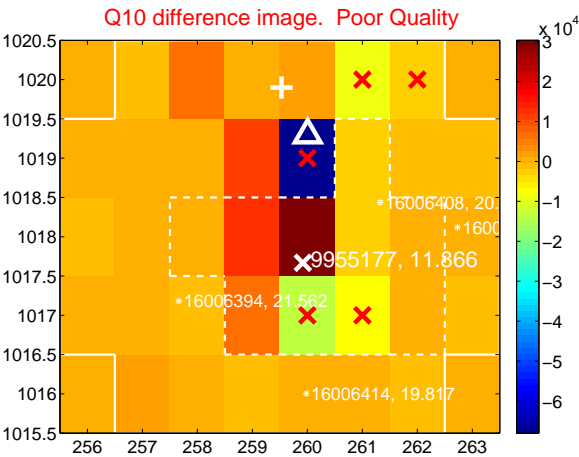
Q9 no difference image



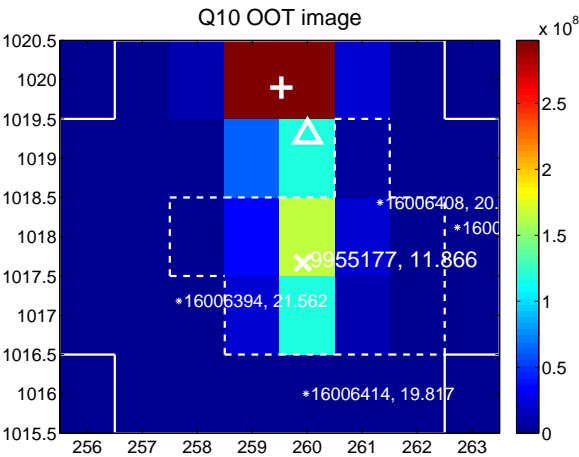
Q9 no OOT image



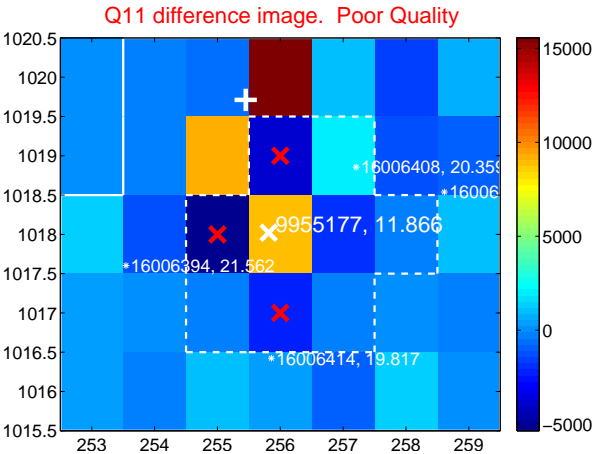
Q10 difference image. Poor Quality



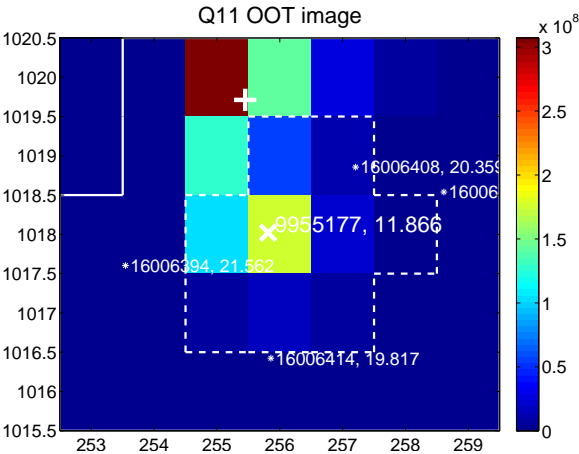
Q10 OOT image



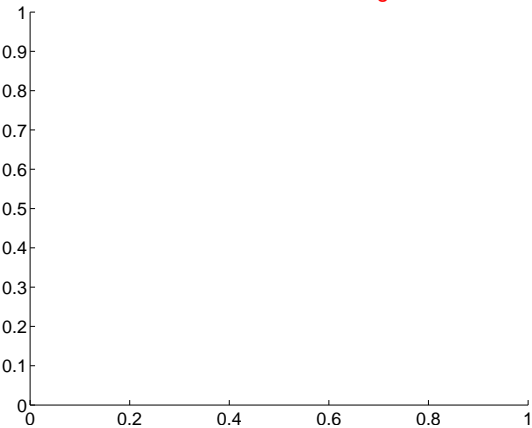
Q11 difference image. Poor Quality



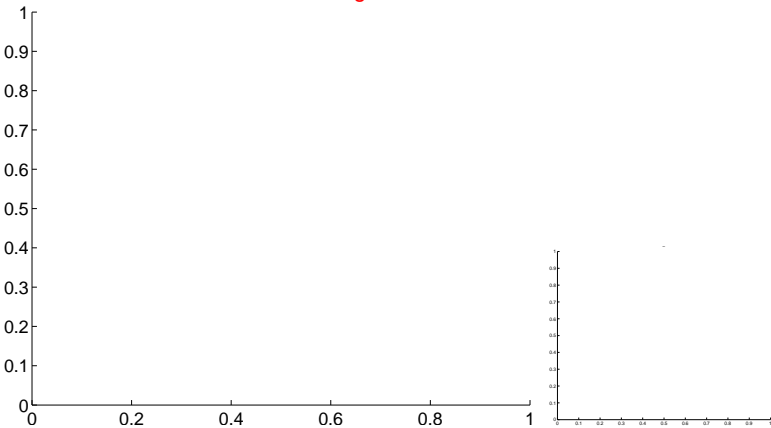
Q11 OOT image



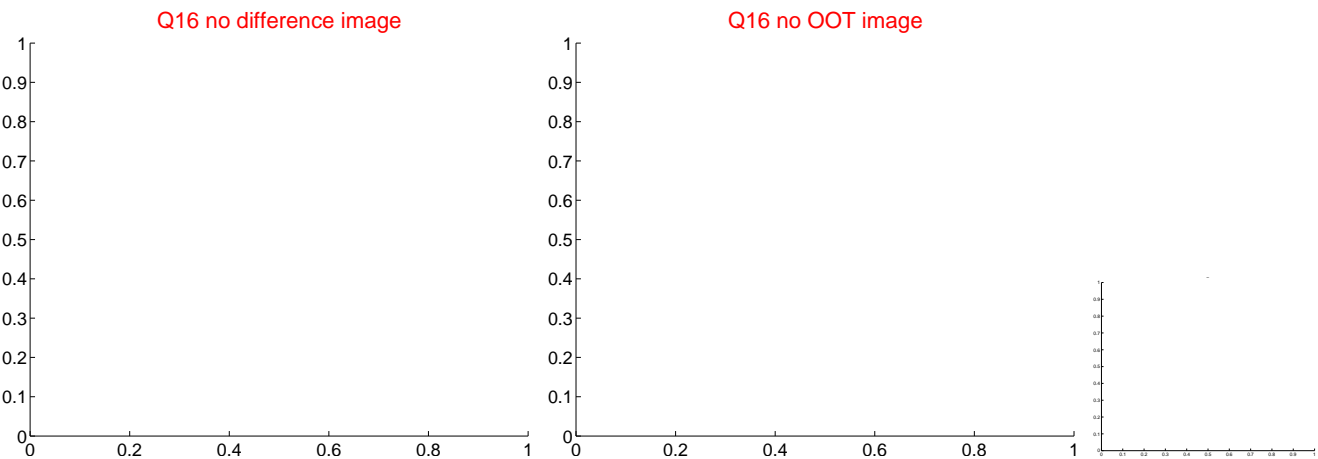
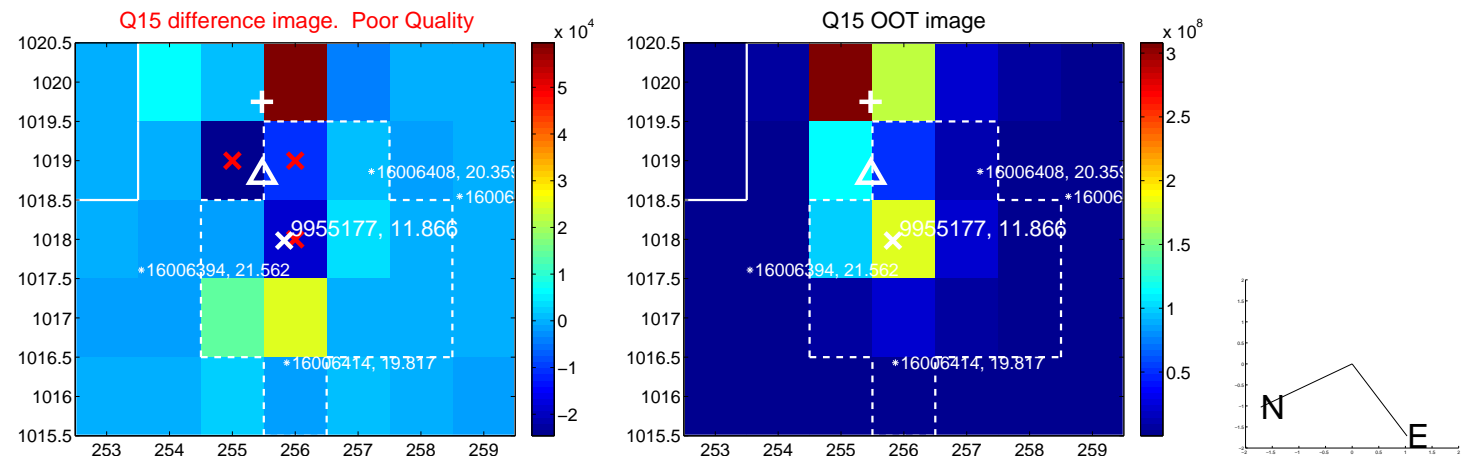
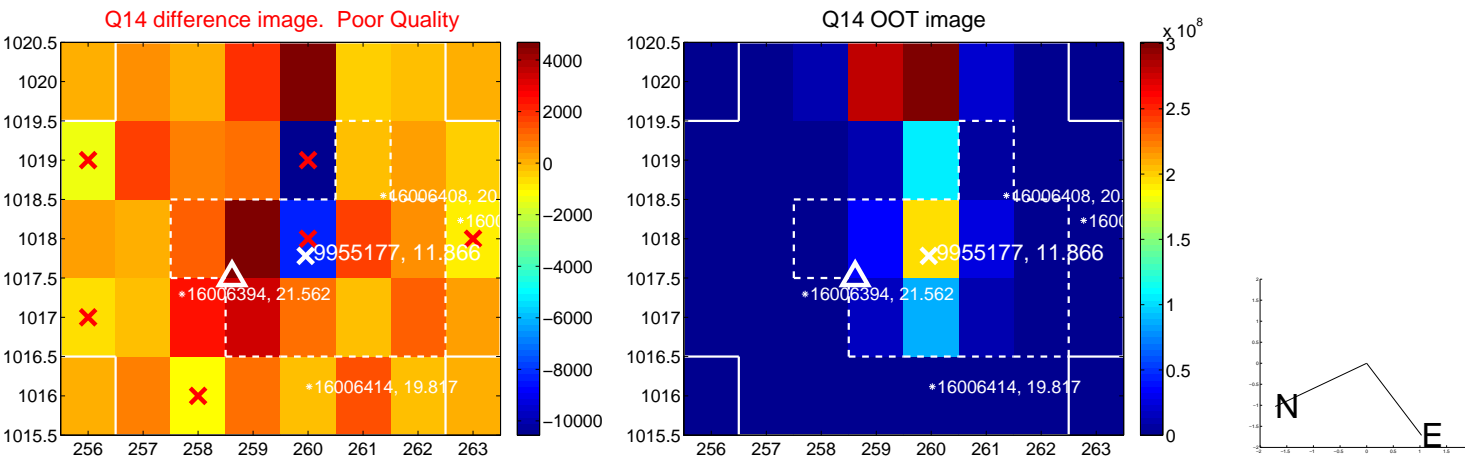
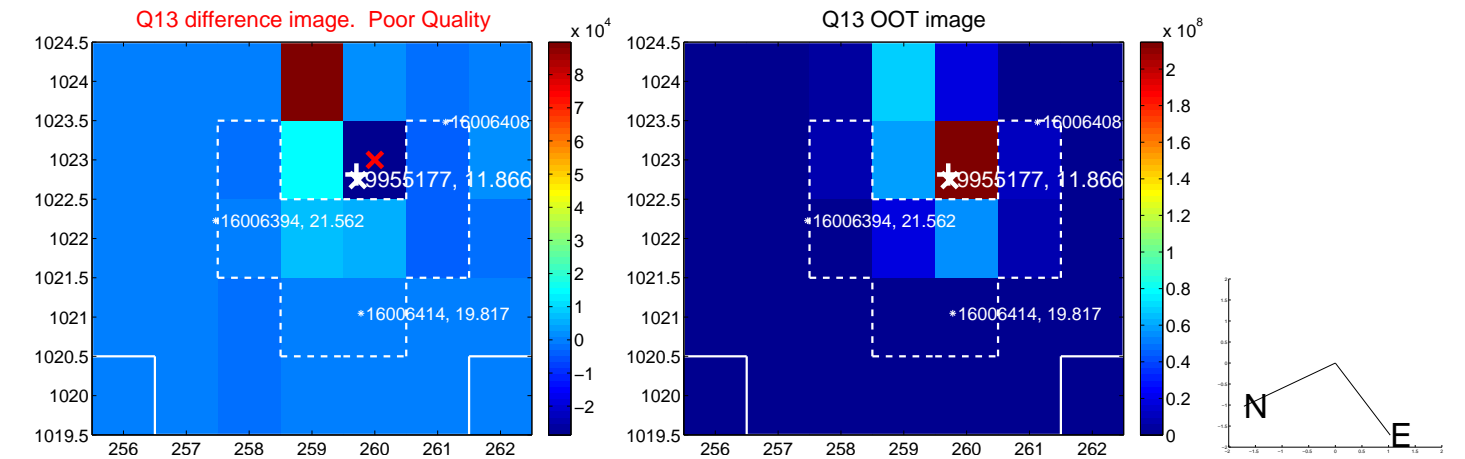
Q12 no difference image



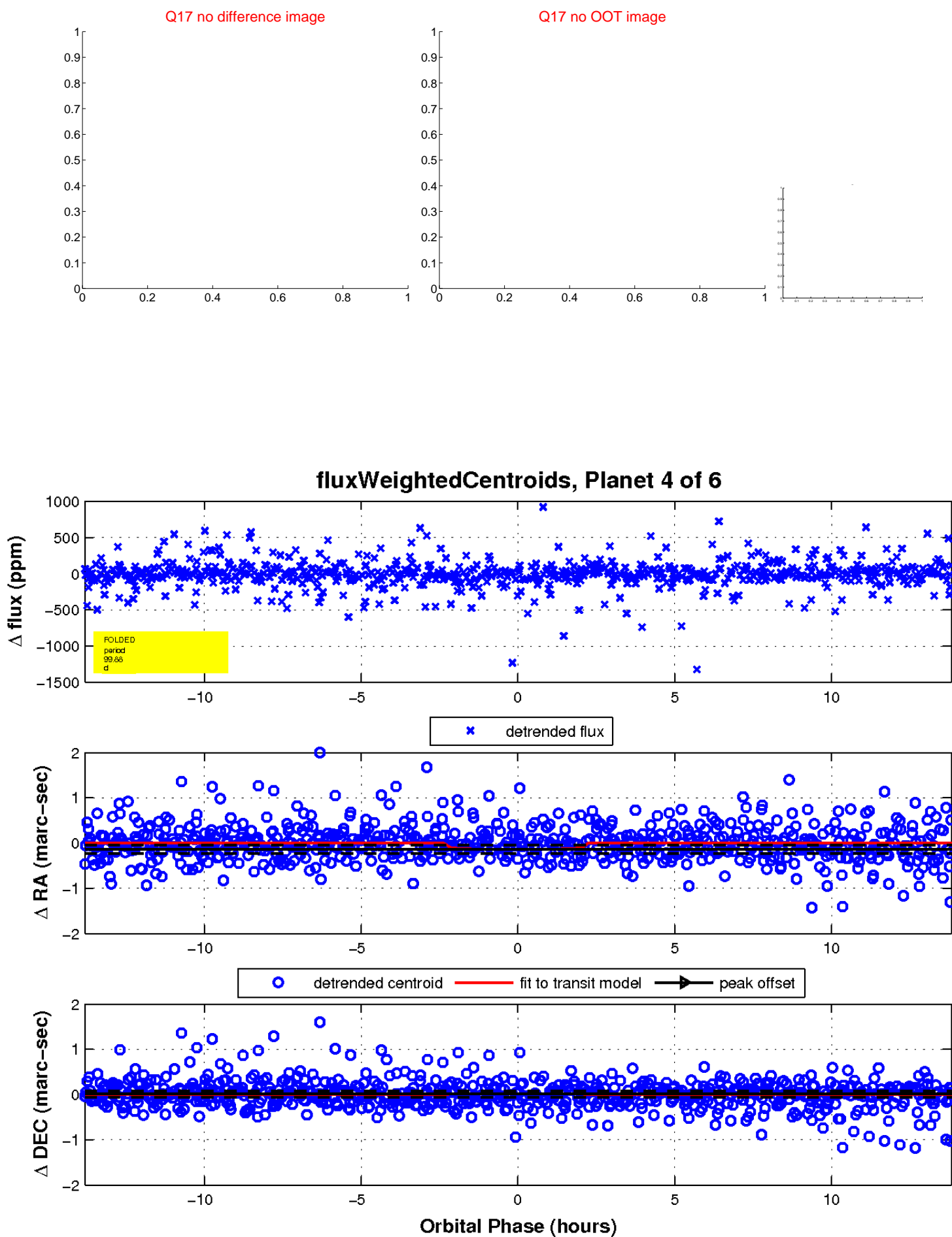
Q12 no OOT image



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

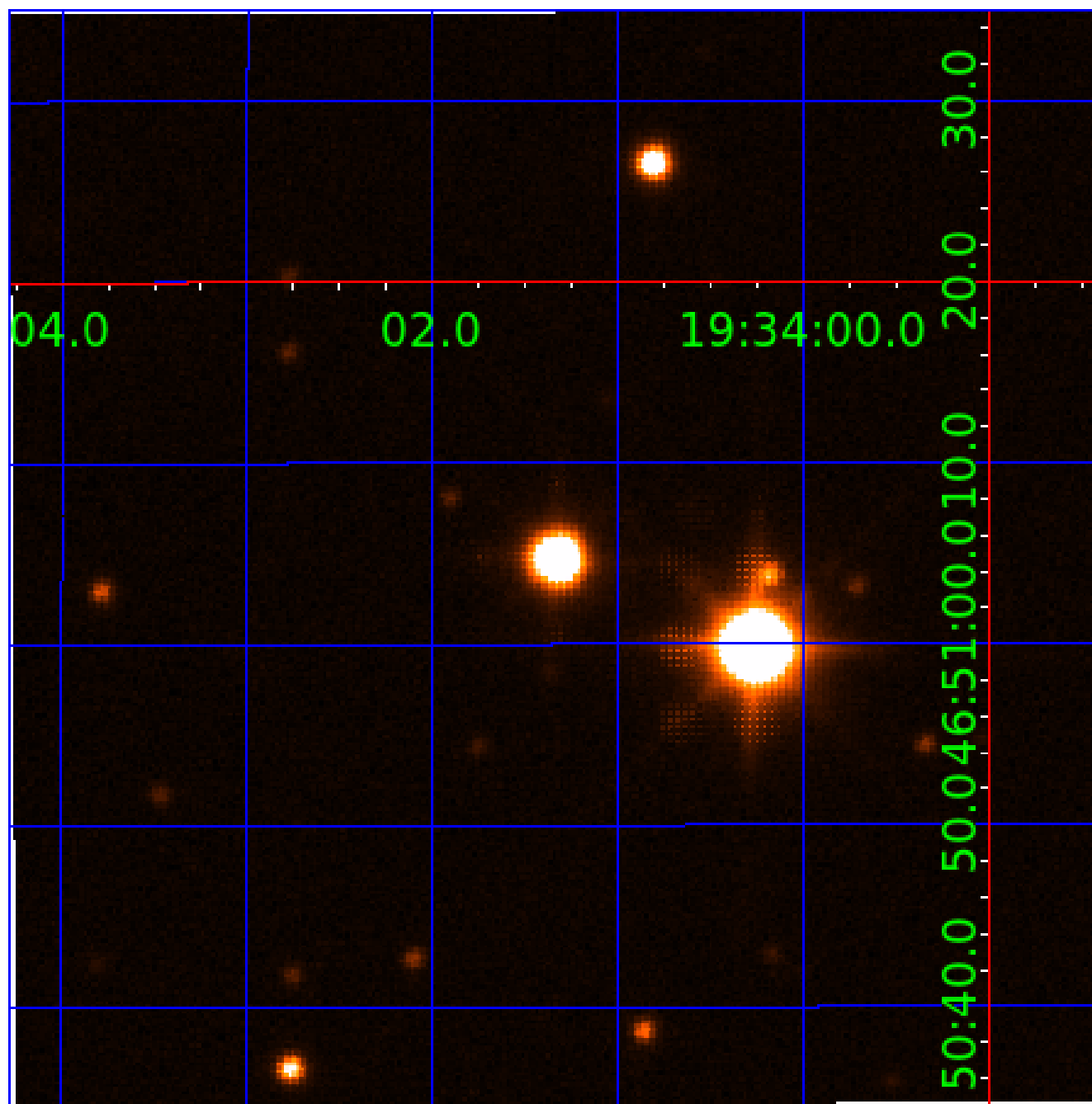


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009955177

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})
009955177-01	OBS	No	278.949596	256.905748	448.7	8.193	17.8	12.6	1.79	7186	3.97	7.93
009955177-02	OBS	No	2.093069	131.826917	17.2	11.948	13.3	14.3	1.79	7186	0.83	5399.90
009955177-03	OBS	No	91.474237	163.482704	315.8	15.000	26.3	-1.0	1.79	7186	3.21	35.08
009955177-04	OBS	No	99.875043	187.762906	73.1	4.619	16.3	4.6	1.79	7186	1.75	31.20
009955177-05	OBS	No	136.155609	186.978241	81.0	4.372	14.5	2.6	1.79	7186	1.83	20.64
009955177-06	OBS	No	87.335950	169.026468	493.3	1.591	16.7	7.9	1.79	7186	4.04	37.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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009955177-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
009955177-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009955177-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_RESOLVED_OFFSET
009955177-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009955177-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

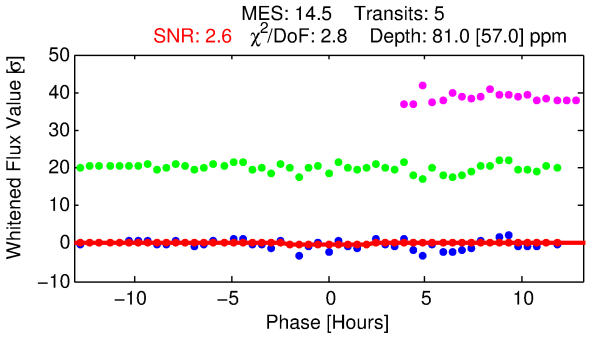
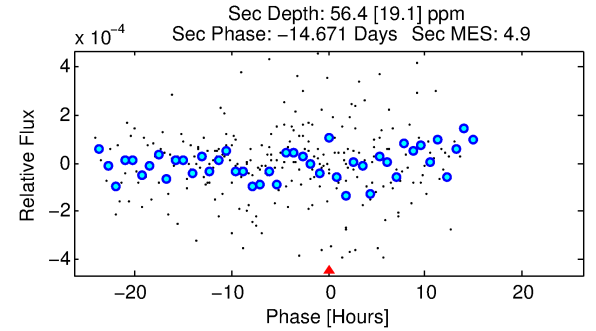
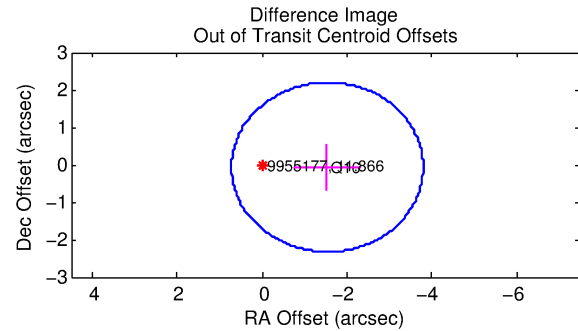
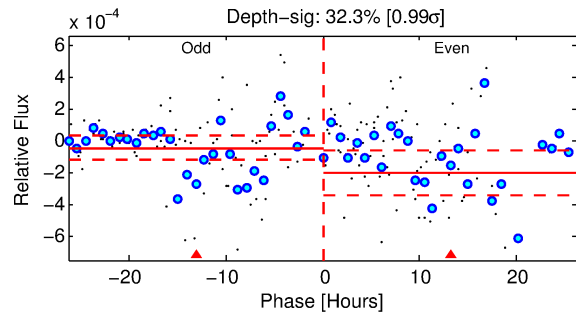
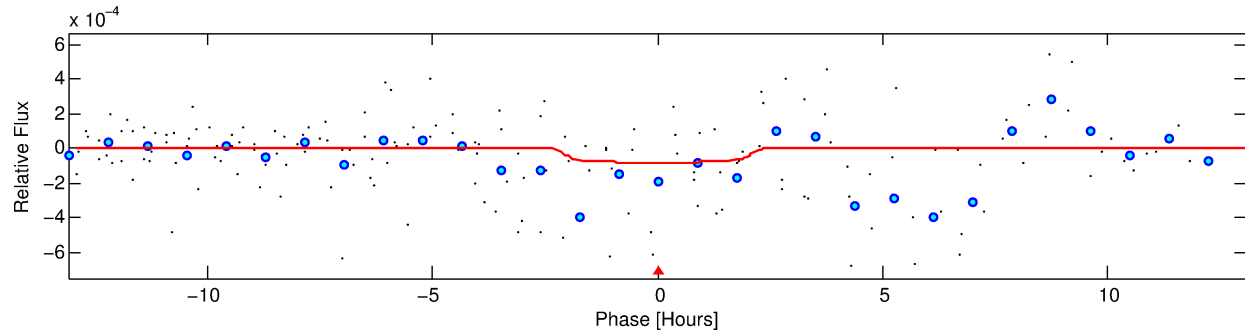
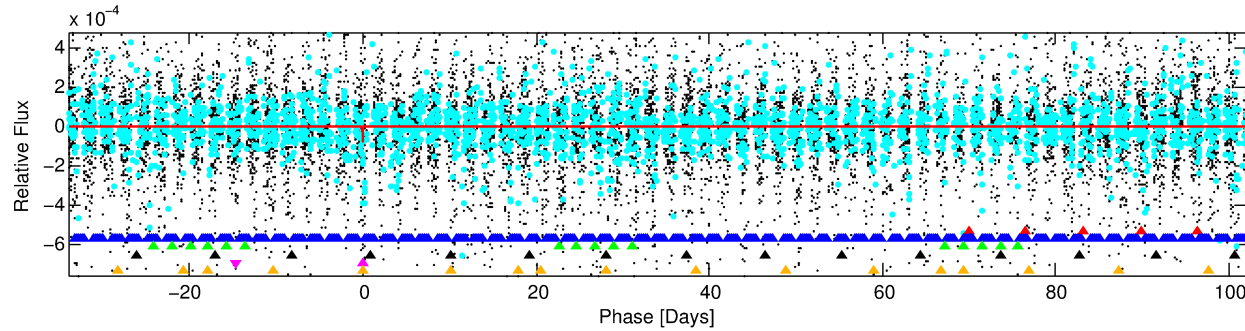
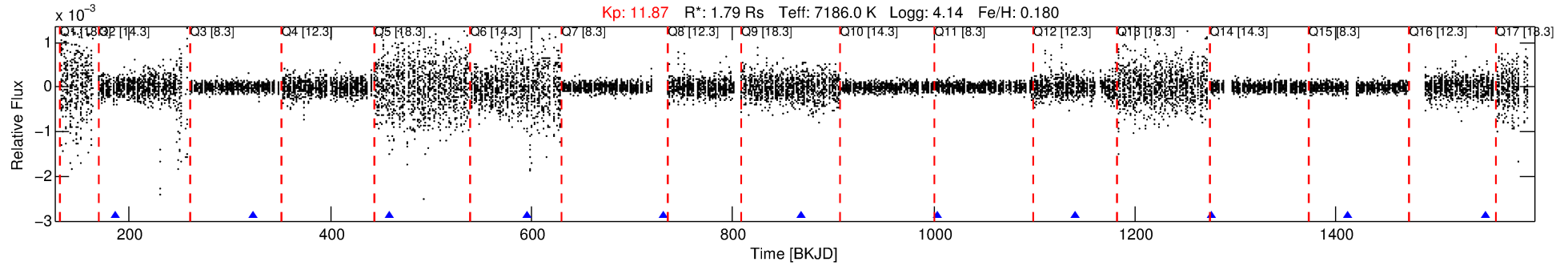
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009955177-05

No Significant Match Found

DV One-Page Summary

KIC: 9955177 Candidate: 5 of 6 Period: 136.156 d



DV Fit Results:

Period = 136.15561 [0.01913] d
Epoch = 186.9782 [0.0702] BKJD
Rp/R* = 0.0094 [0.0398]
a/R* = 122.63 [3232.30]
b = 0.87 [7.56]
Seff = 20.64 [8.21]
Teq = 544 [54] K
Rp = 1.83 [7.77] Re
a = 0.6076 [0.1579] AU
Ag = 3431.59 [29153.62] [0.12 σ]
Teffp = 6432 [13650] K [0.43 σ]

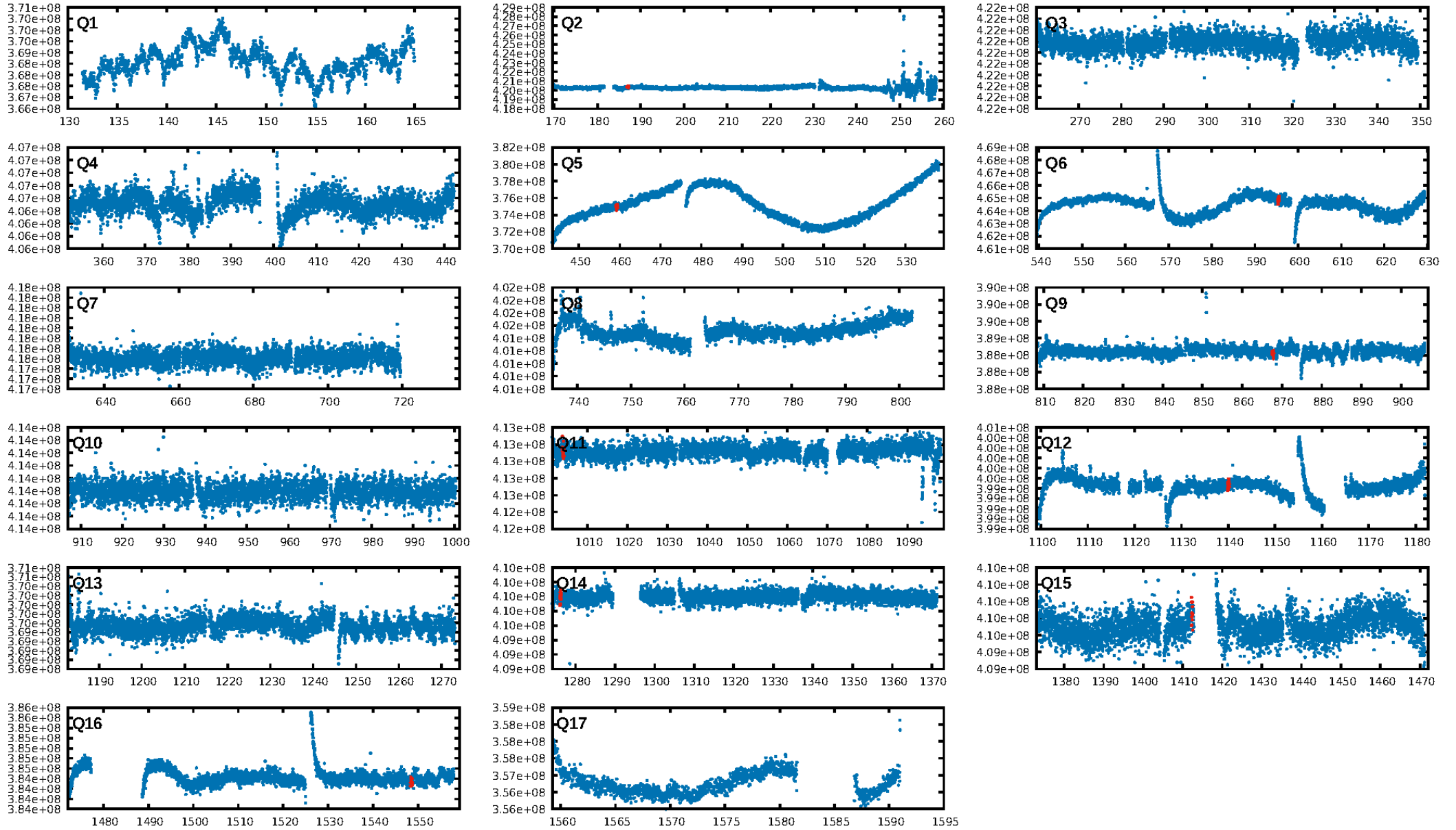
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [136.90 σ]
LongPeriod-sig: 100.0% [369.02 σ]
ModelChiSquare2-sig: 1.4%
ModelChiSquareGof-sig: 11.9%
Bootstrap-pfa: 6.58e-13
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 2.065
Centroid-sig: 34.4%
Centroid-so: 2.737 arcsec [1.96 σ]
OotOffset-rm: 1.545 arcsec [2.05 σ]
KicOffset-rm: 4.548 arcsec [2.42 σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 1/0/1/2 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.43 [3/7]

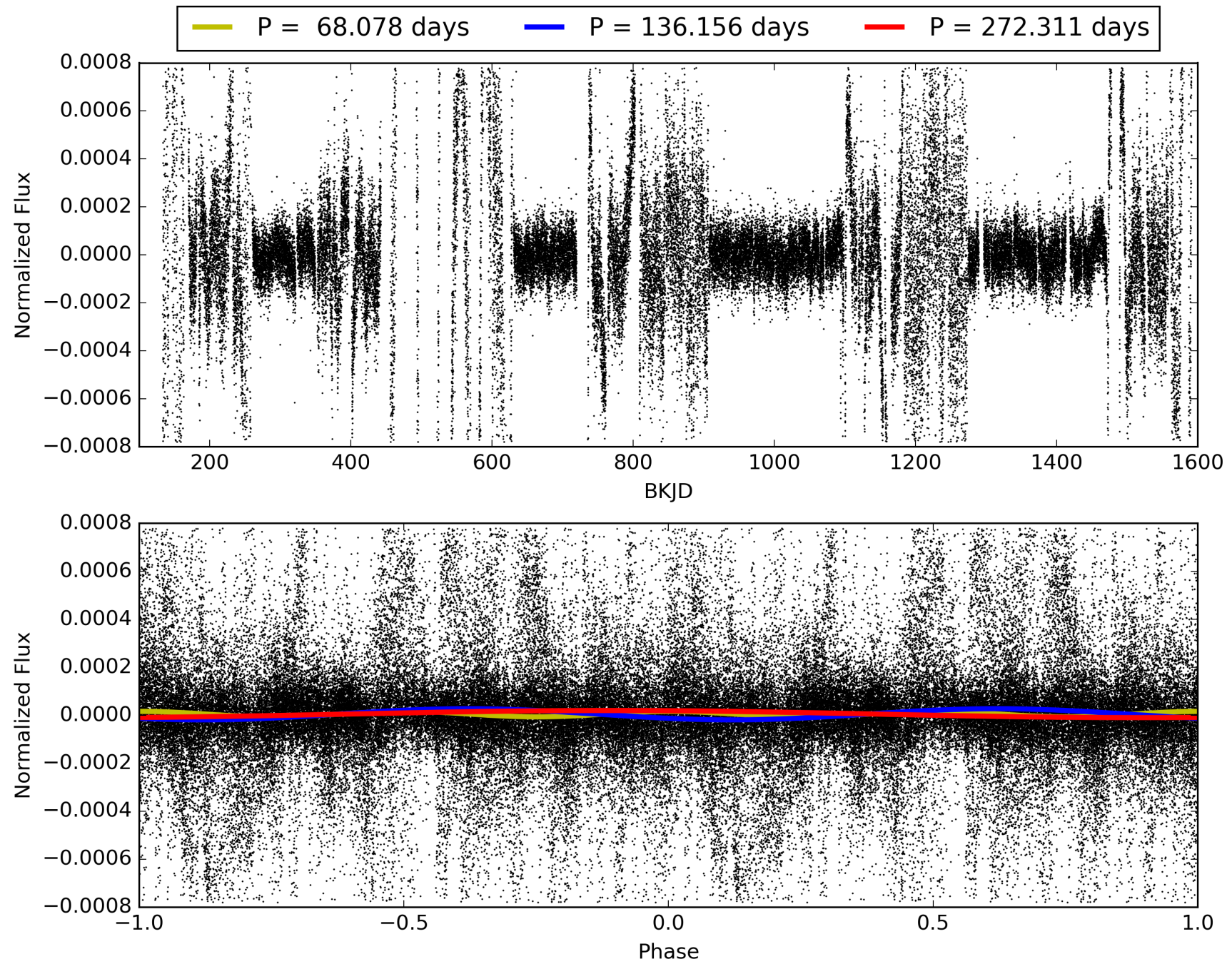
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:54:12 Z

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

TCE 009955177-05, PDC Light Curves

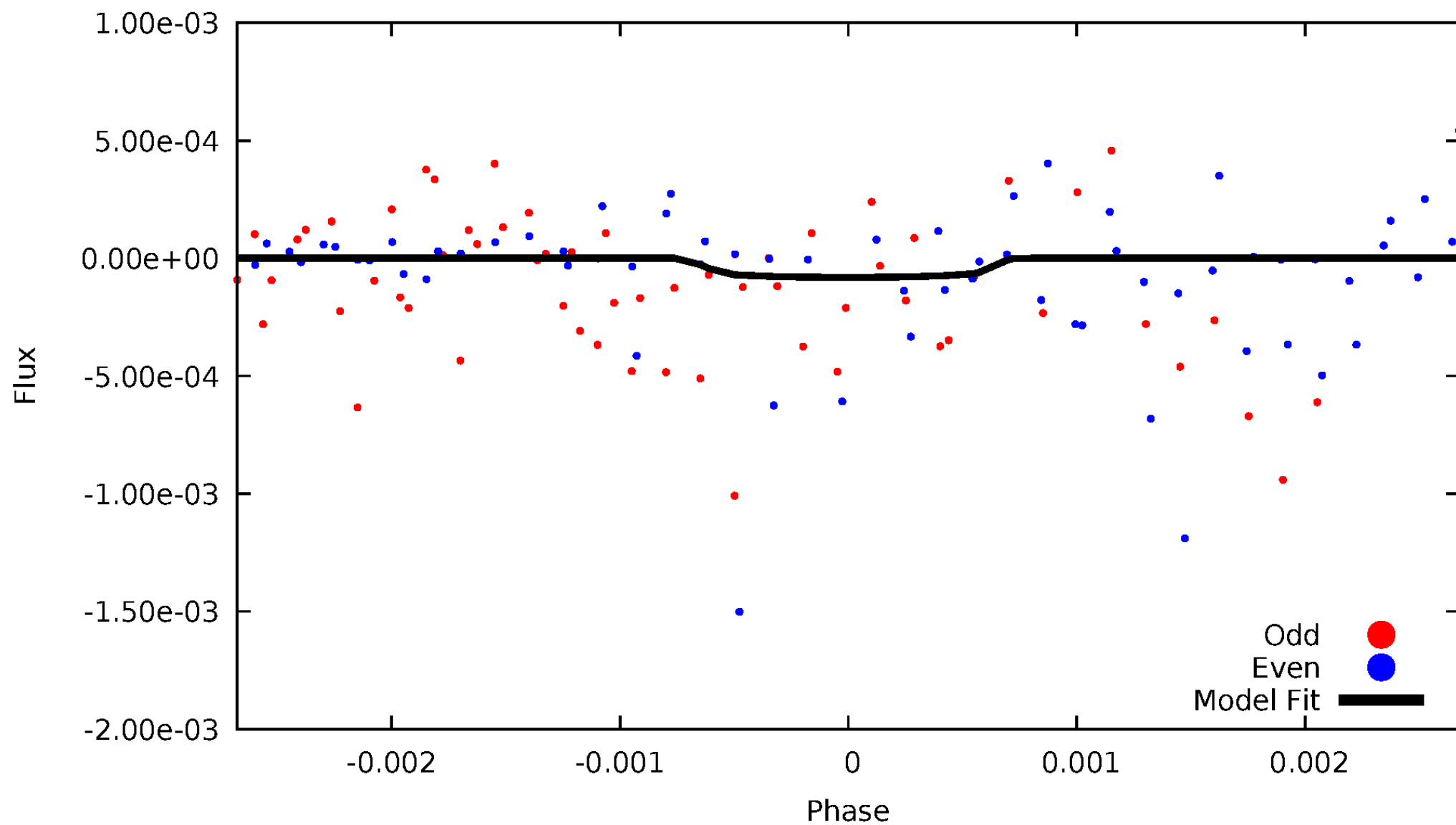


TCE 009955177-05



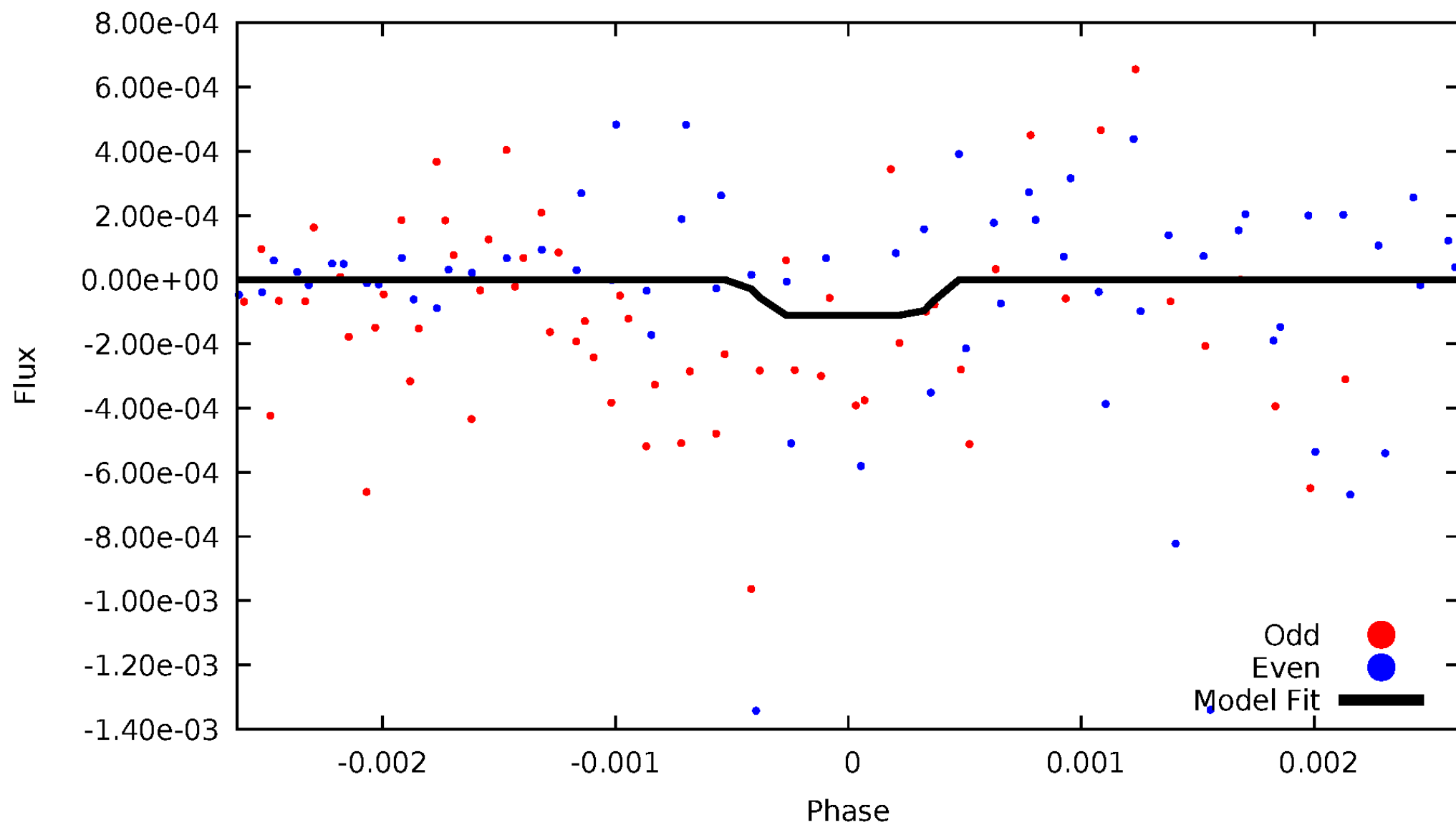
DV Odd/Even

TCE 009955177-05



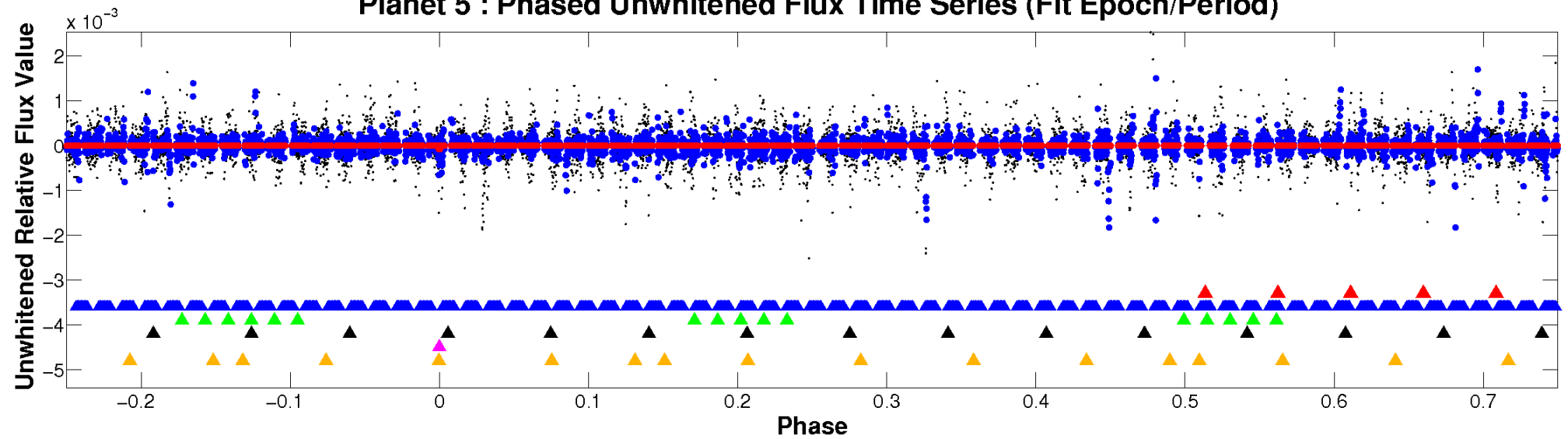
ALT Odd/Even

TCE 009955177-05

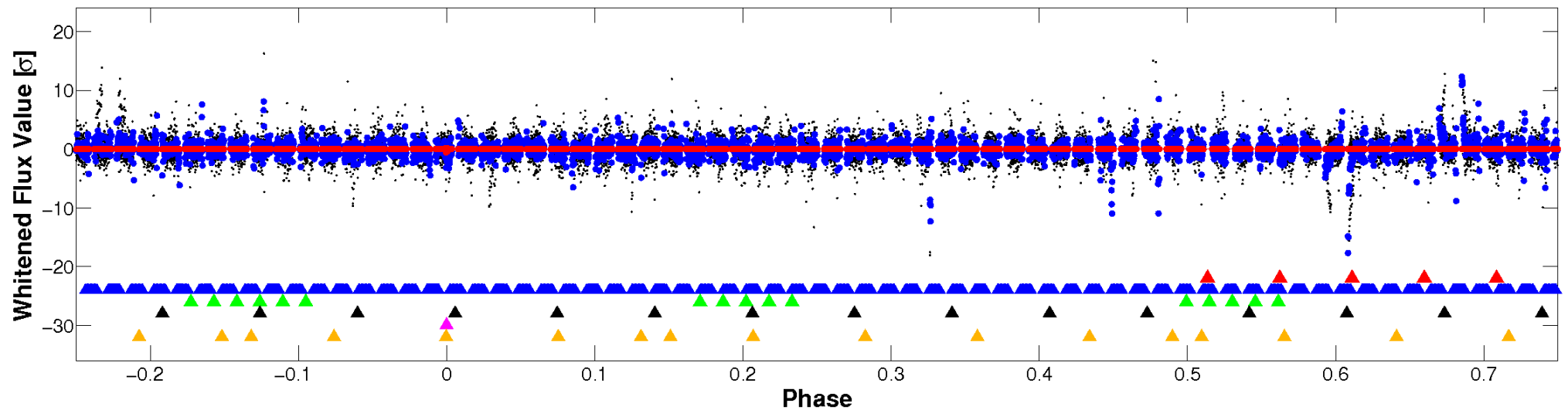


Non-Whitened Vs. Whitened Light Curve

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

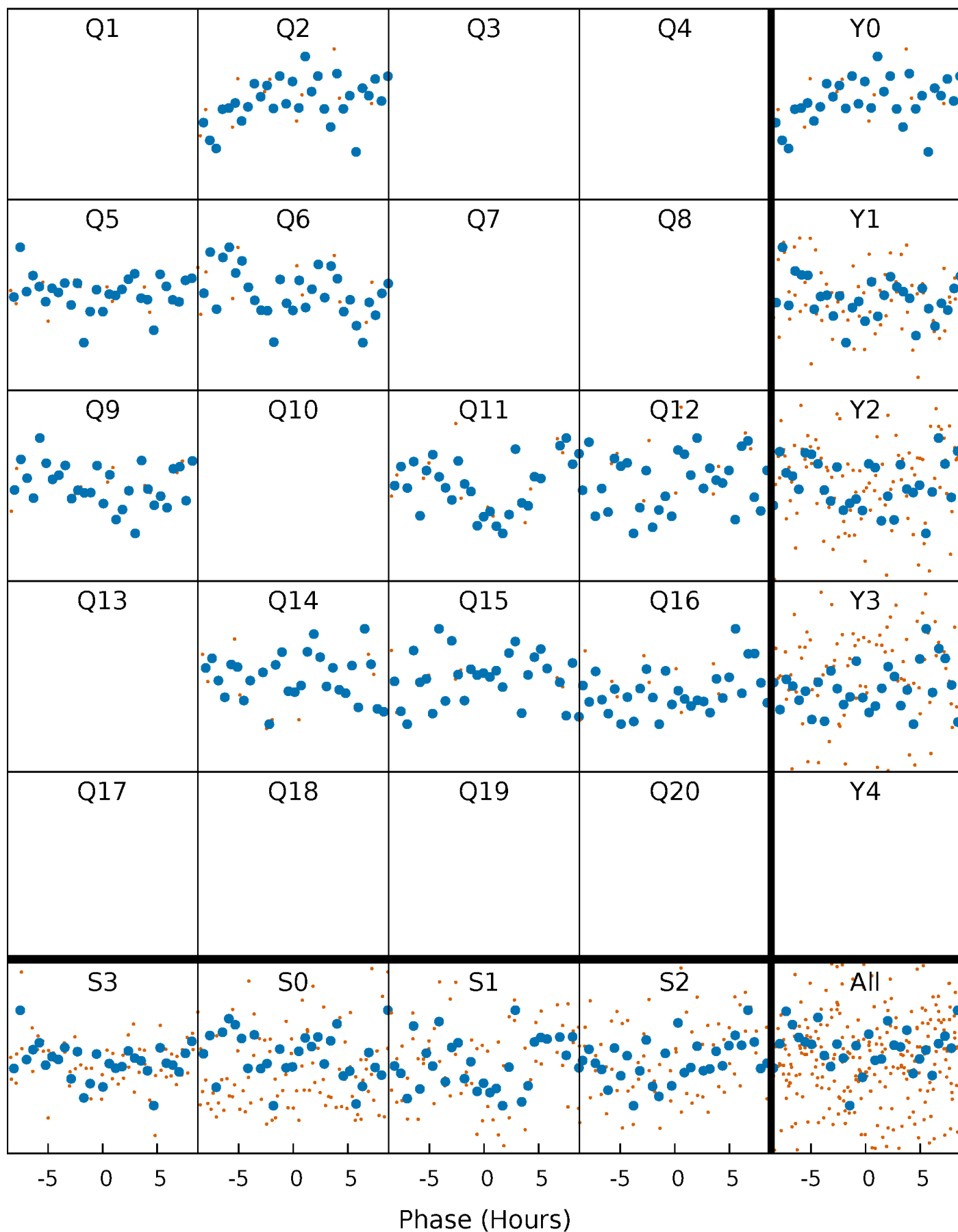


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



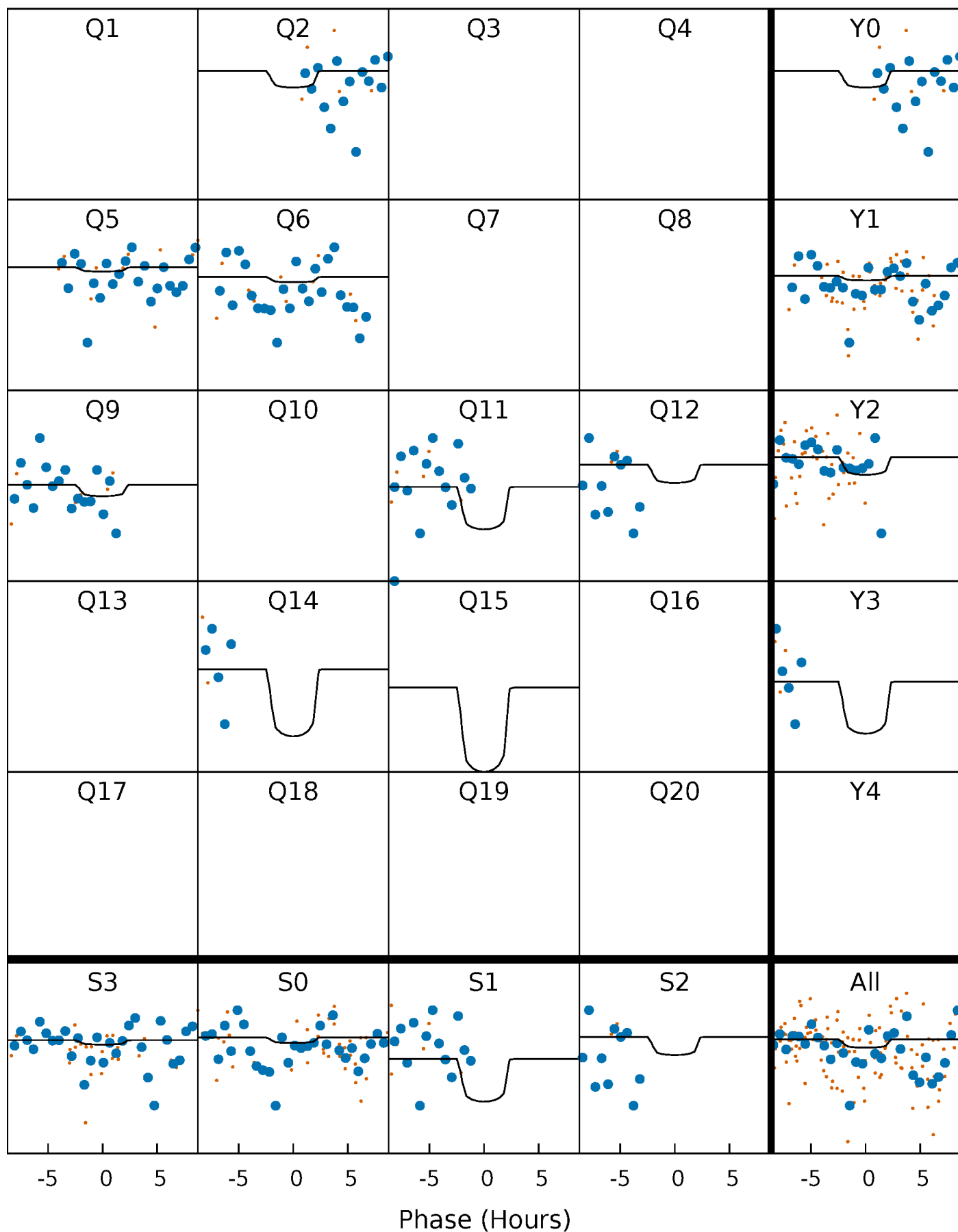
PDC Quarter-Phased Transit Curves

TCE 009955177-05 $P=136.155609$ Days $T_0=186.978241$ (BKJD)



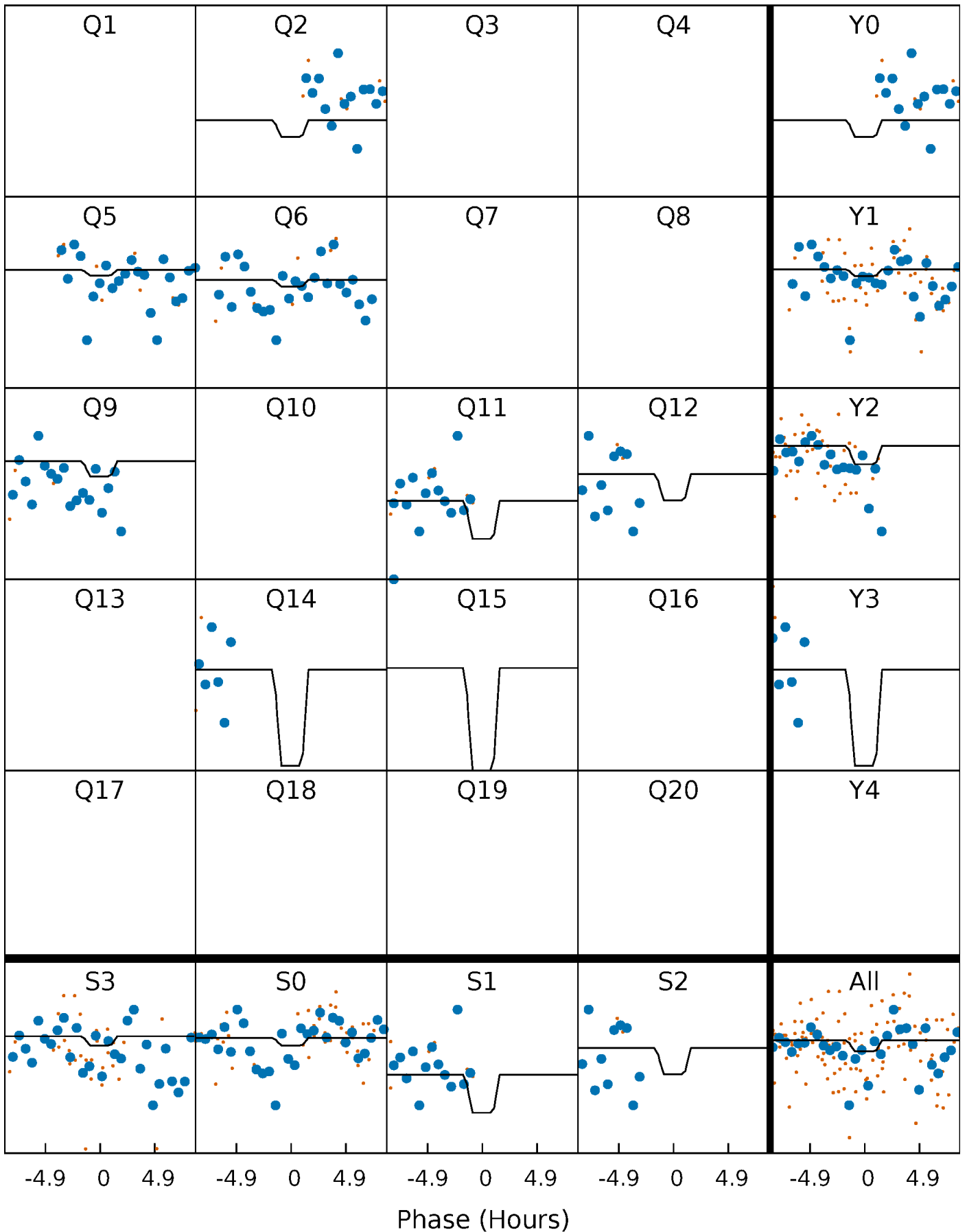
DV Quarter-Phased Transit Curves

TCE 009955177-05 $P=136.155609$ Days $T_0=186.978241$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

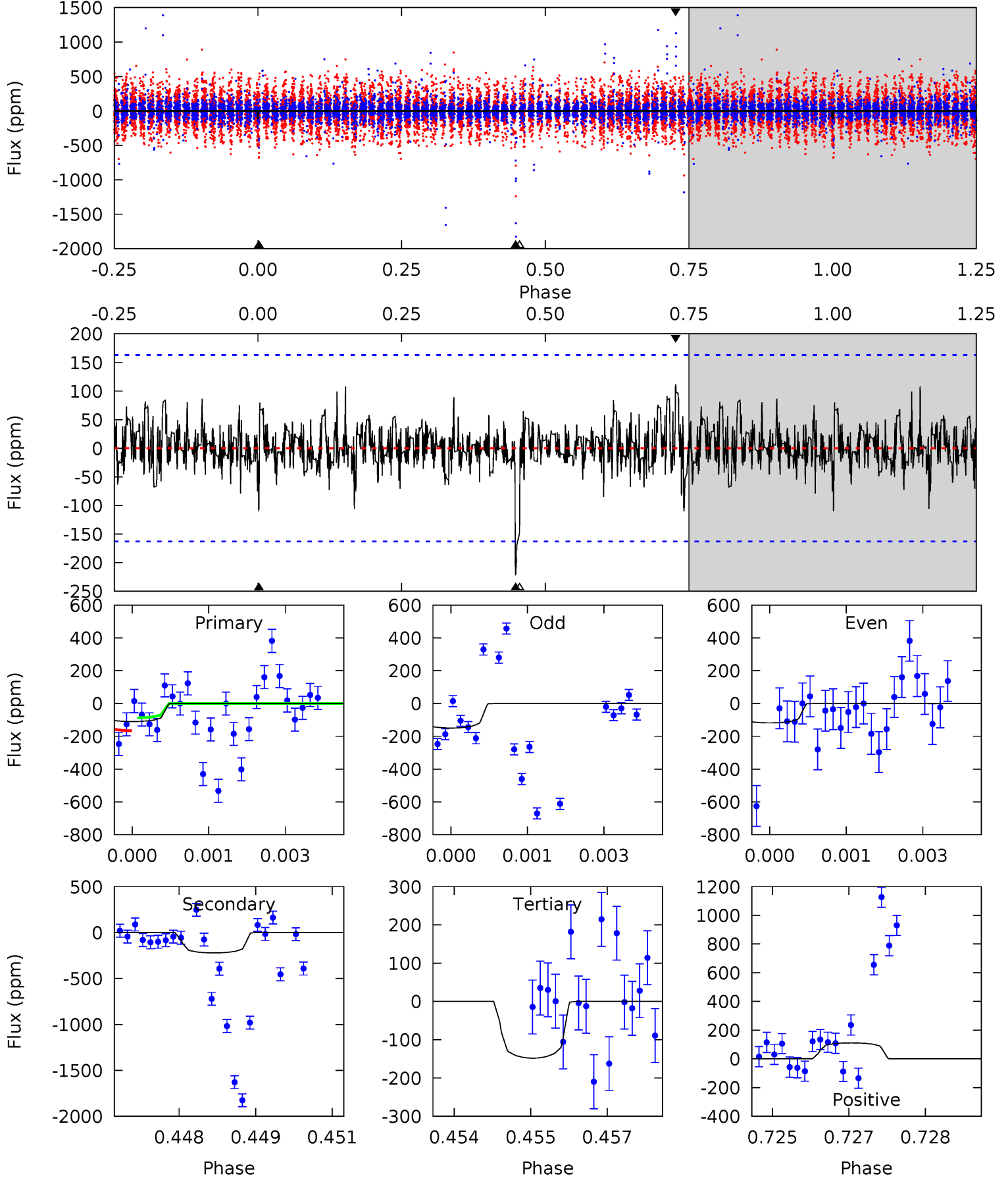
TCE 009955177-05 $P=136.155621$ Days $T_0=186.967212$ (BKJD)



DV Model-Shift Uniqueness Test

009955177-05, P = 136.155609 Days, E = 50.822632 Days

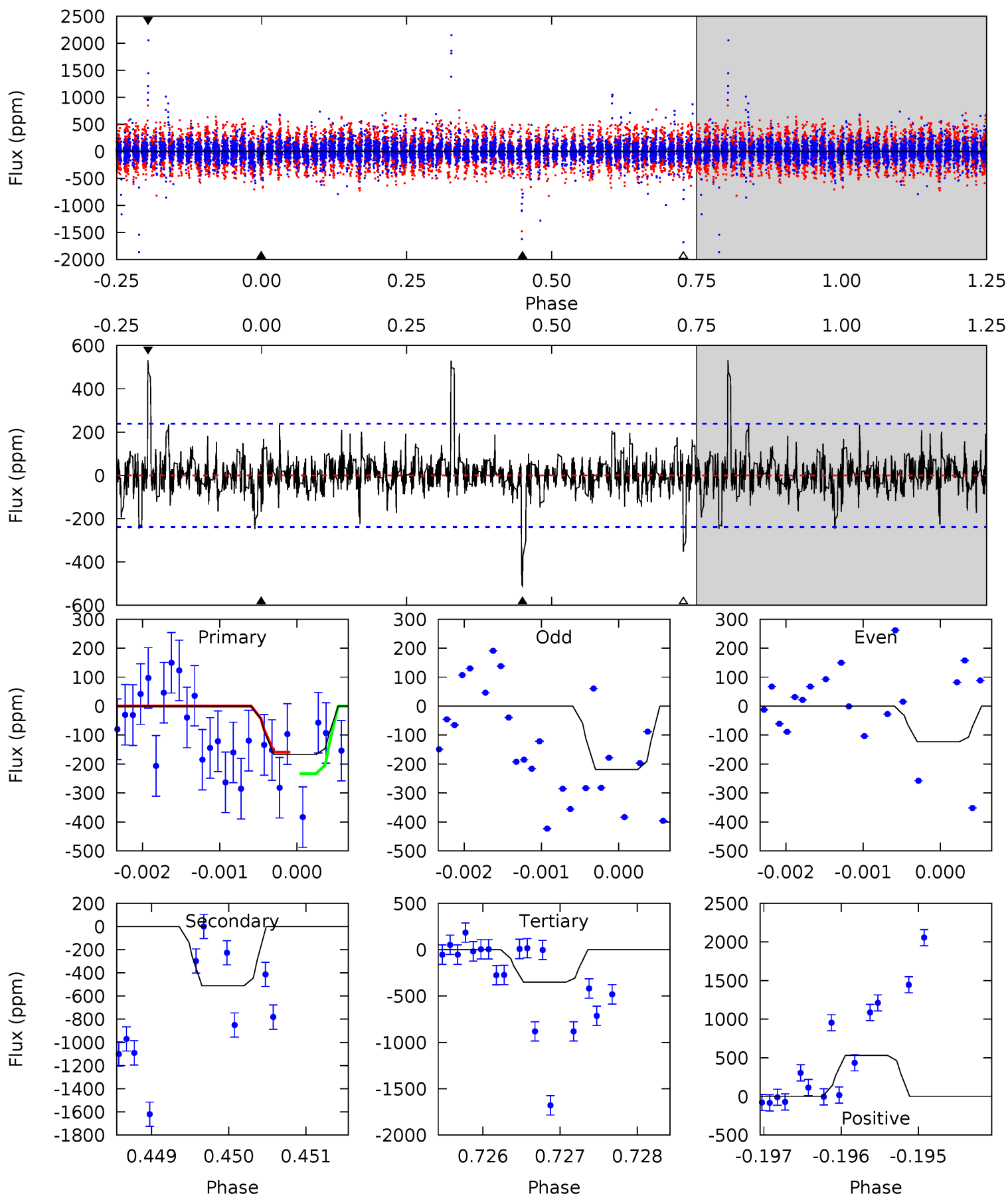
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.63	7.31	4.89	3.67	5.38	3.18	0.83	-1.26	-0.04	2.42	3.64	0.48	1.79	0.33	1.34



Alt Model-Shift Uniqueness Test

009955177-05, P = 136.155621 Days, E = 50.811591 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.85	11.7	8.08	12.2	5.47	3.32	1.28	-4.23	-8.37	3.66	-0.48	1.01	0.86	0.51	0.90



Stellar Parameters For KIC 009955177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7186^{+200}_{-275}	$4.142^{+0.105}_{-0.195}$	$0.180^{+0.150}_{-0.350}$	$1.786^{+0.569}_{-0.306}$	$1.615^{+0.211}_{-0.233}$	$0.399^{+0.194}_{-0.206}$
	+3%/-4%	+3%/-5%	+83%/-194%	+32%/-17%	+13%/-14%	+49%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009955177-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-222 ± 30	$5.87^{+6.46}_{-4.03}$	766^{+60}_{-44}	5116^{+4289}_{-1306}	1237^{+11679}_{-951}
Alt.	-511 ± 43	$5.92^{+6.67}_{-4.06}$	764^{+60}_{-42}	6093^{+8173}_{-1648}	2888^{+28012}_{-2227}

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

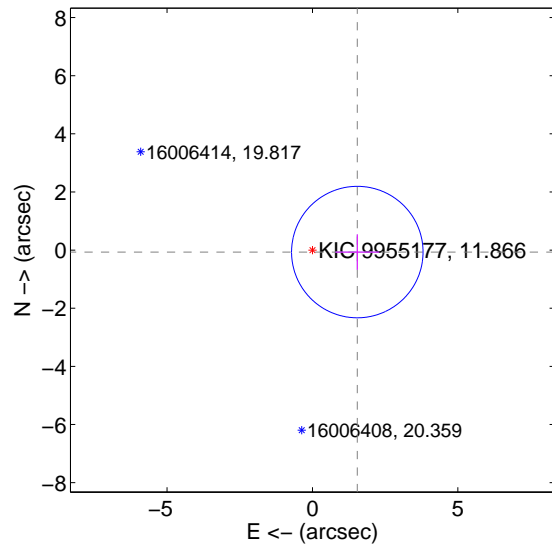
Supplemental centroid analysis for 009955177-05. **Kepler magnitude: 11.87.** Transit SNR 2.61

There are 2 quarters with good PRF difference image offsets

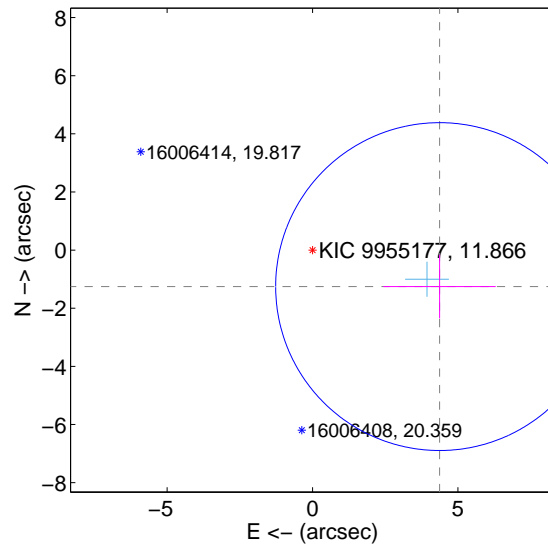
The OOT PRF centroid is offset from the target star catalog position by about 2.57 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.545 ± 0.754	2.05	-1.543 ± 0.754	-0.068 ± 0.608
PRF-fit source offset from KIC position	4.548 ± 1.880	2.42	-4.371 ± 1.930	-1.255 ± 1.094
photometric centroid source offset	2.74 ± 1.40	1.96	-1.99 ± 1.61	-1.88 ± 1.11

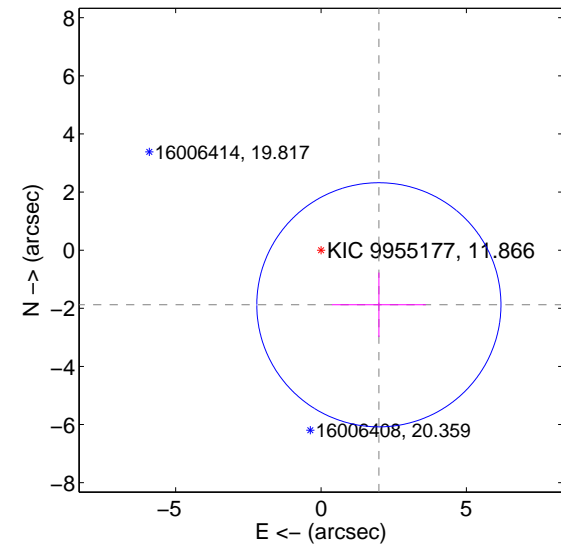
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

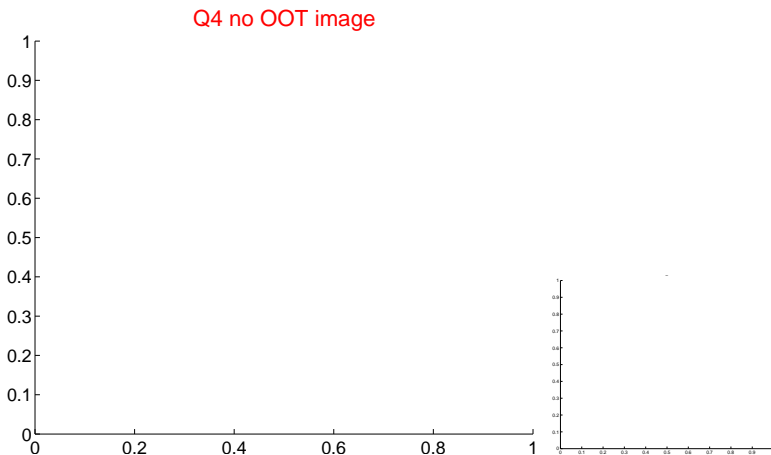
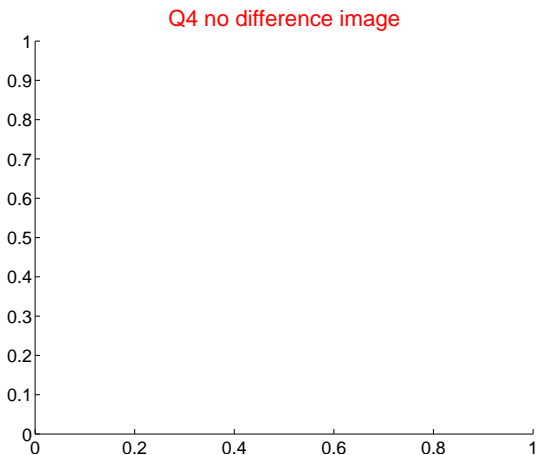
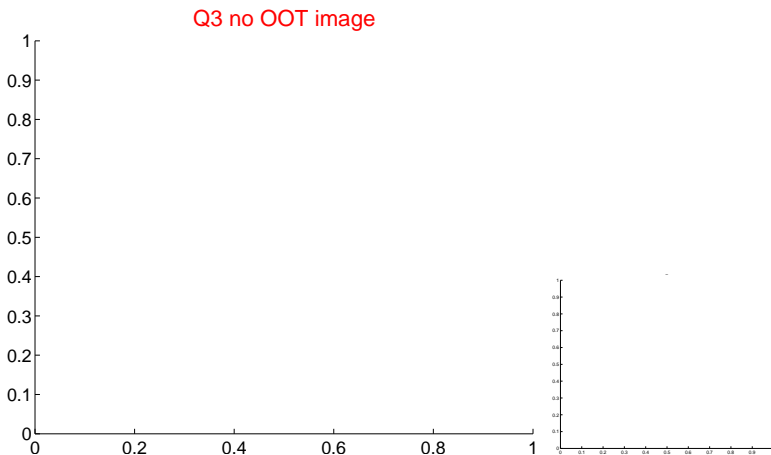
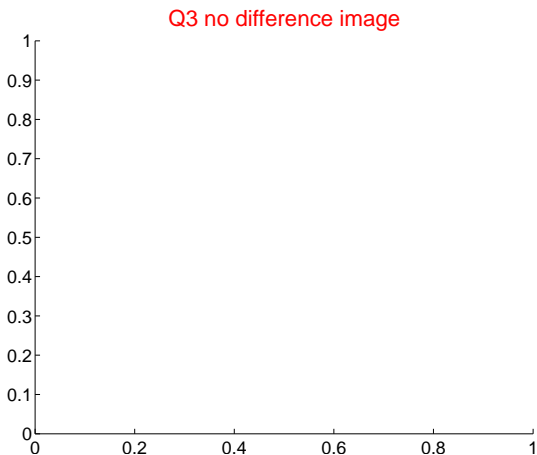
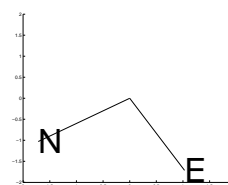
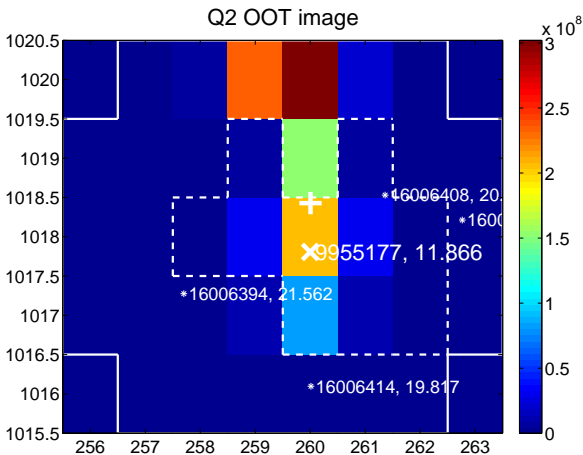
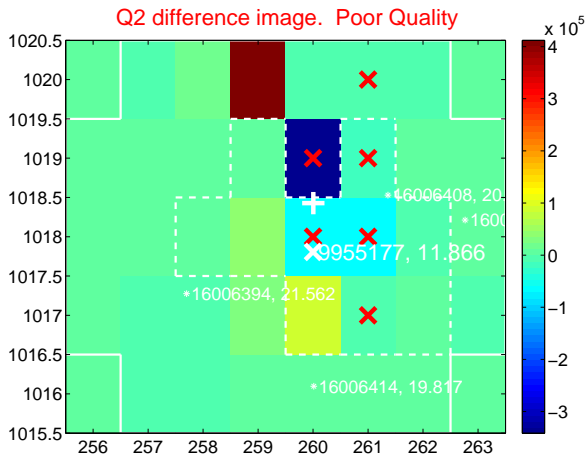
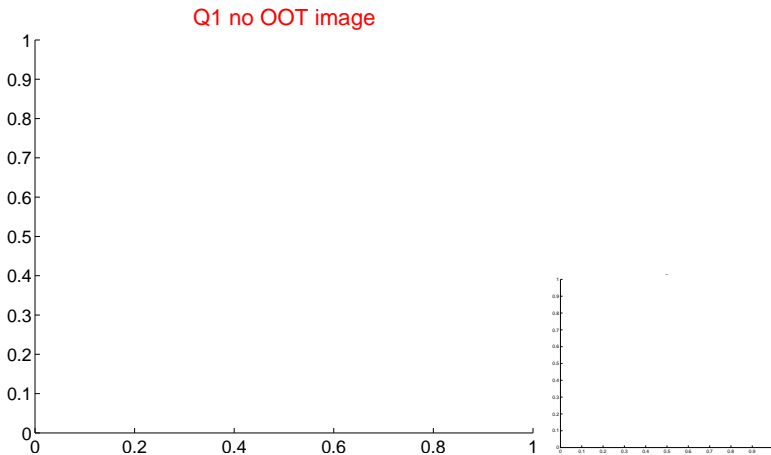
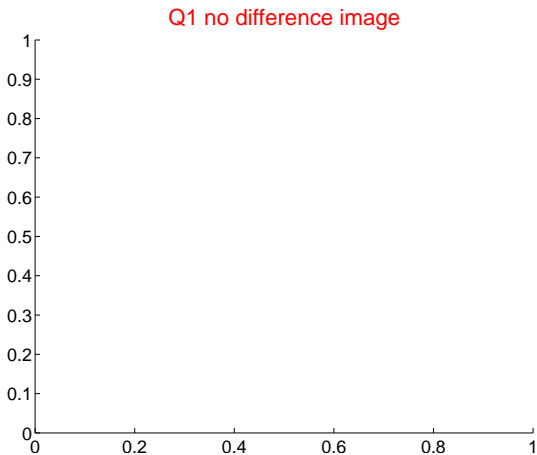


offset from photometric centroids

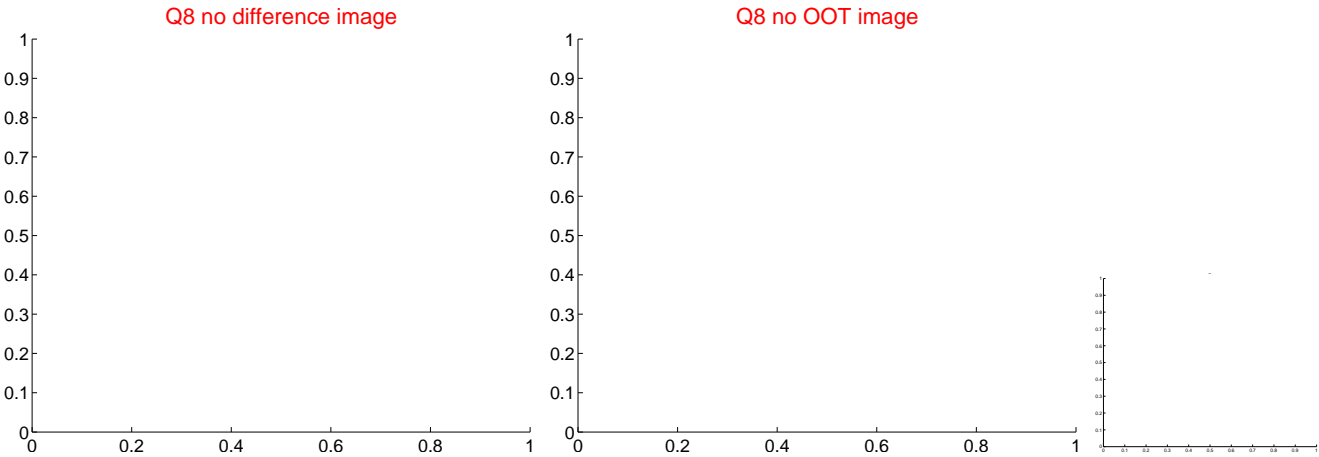
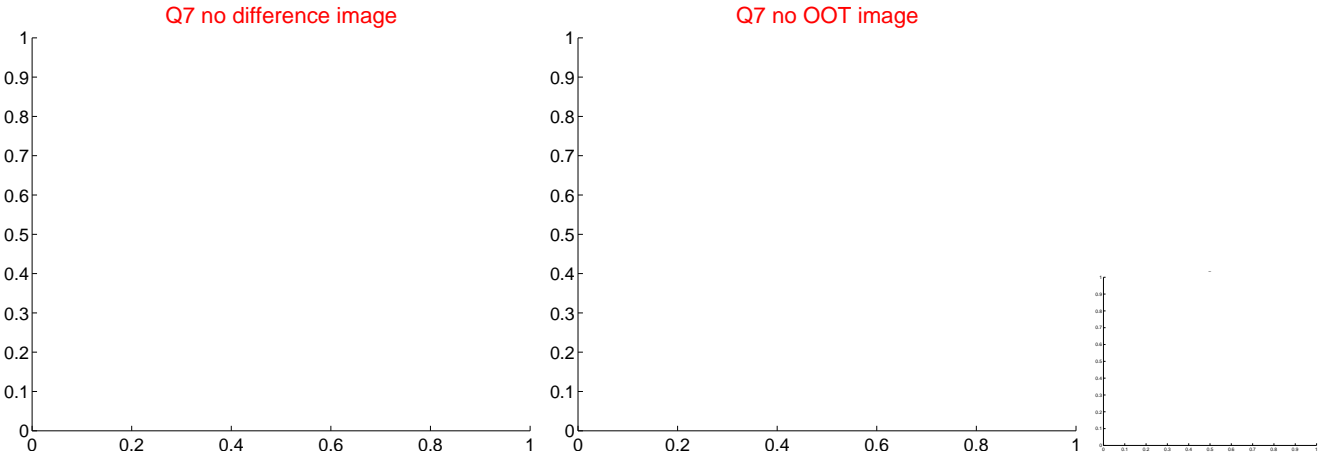
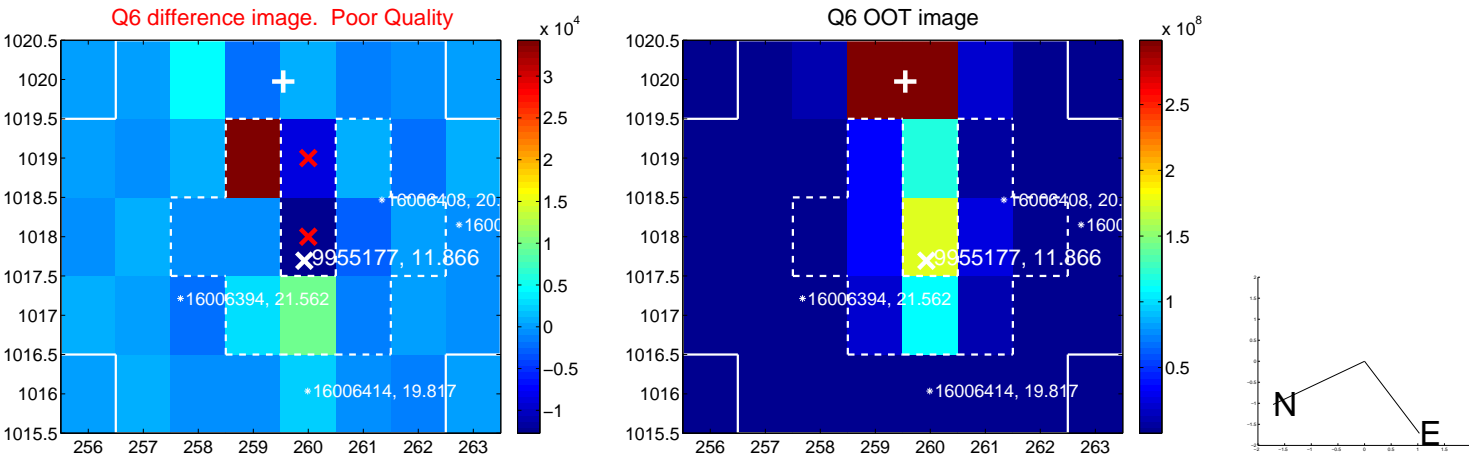
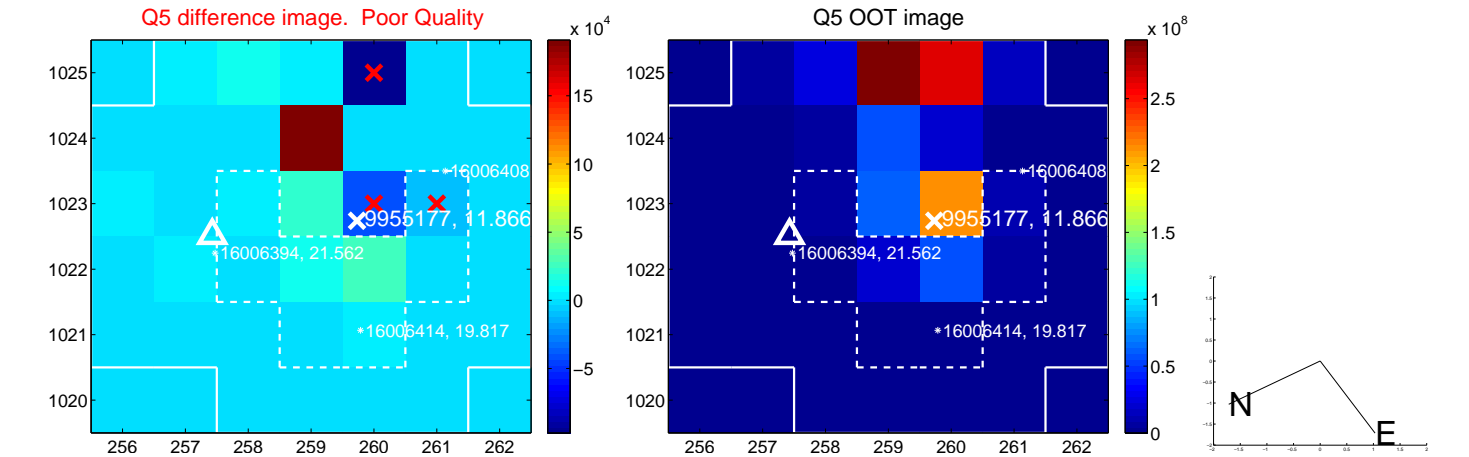


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

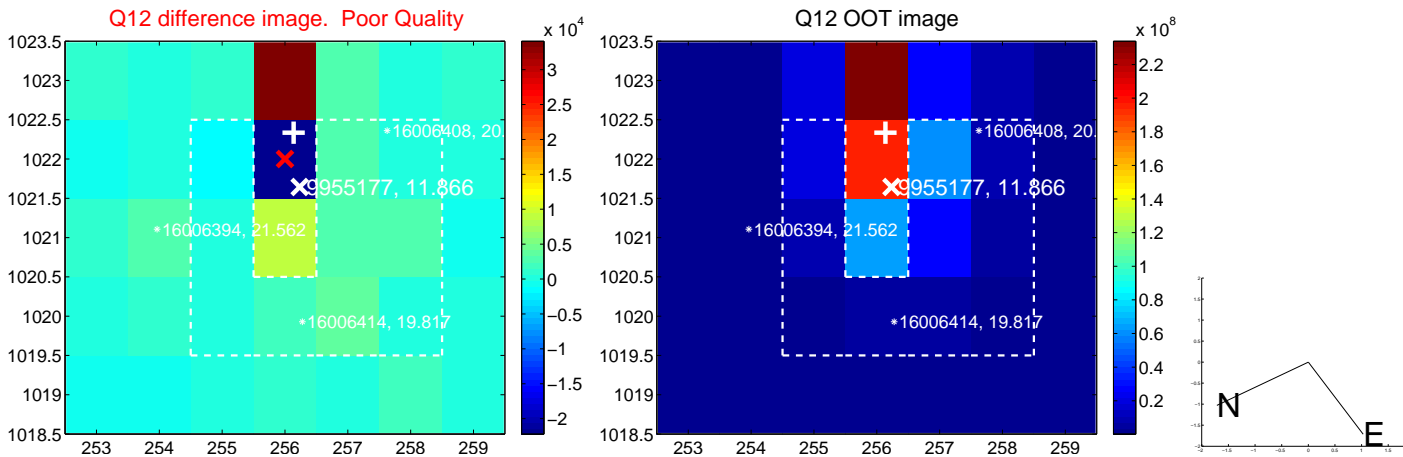
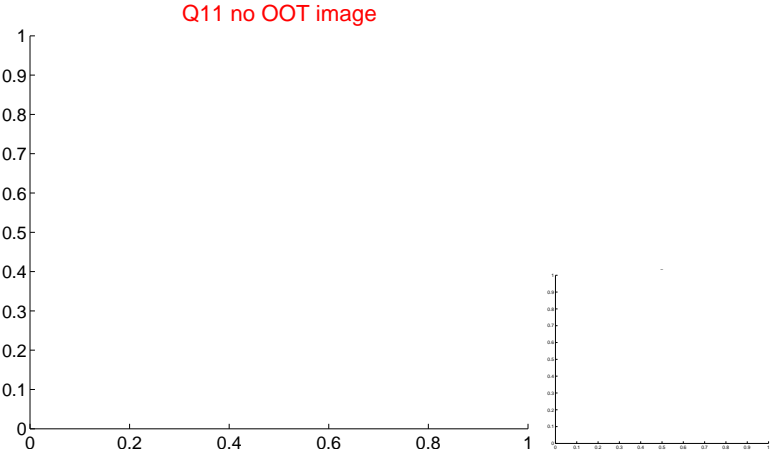
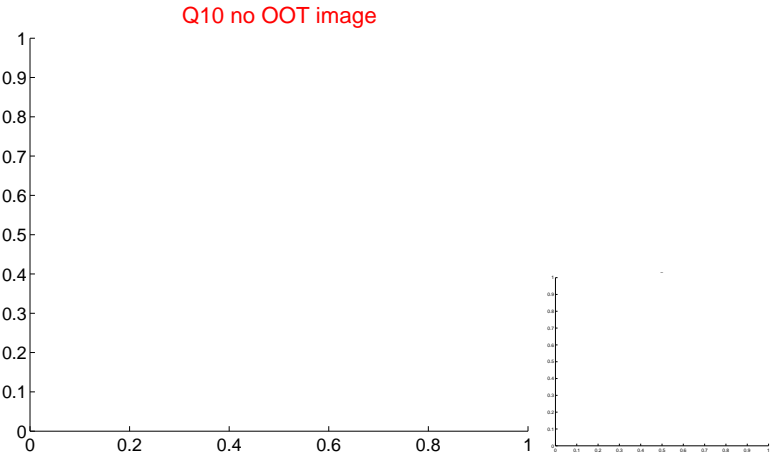
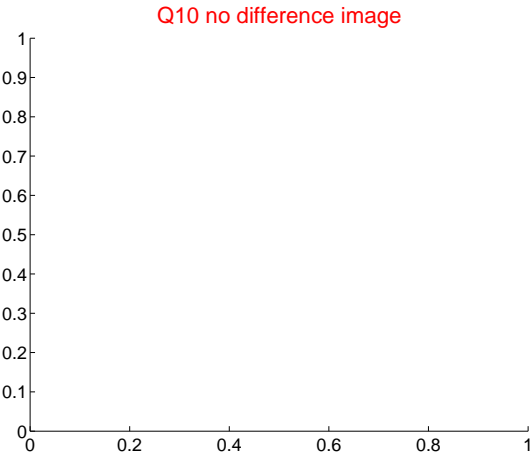
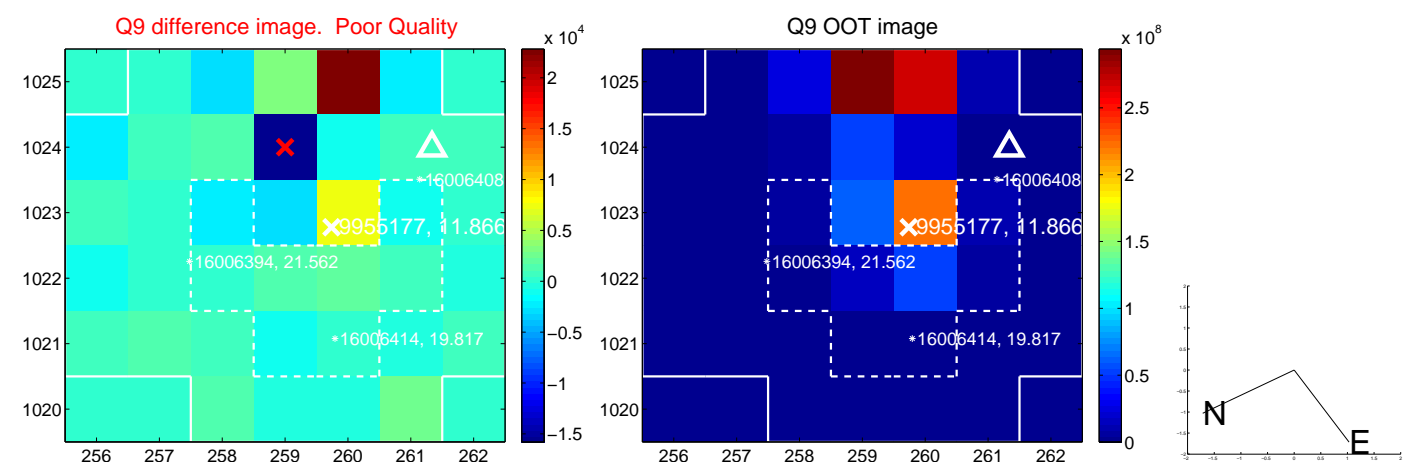
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

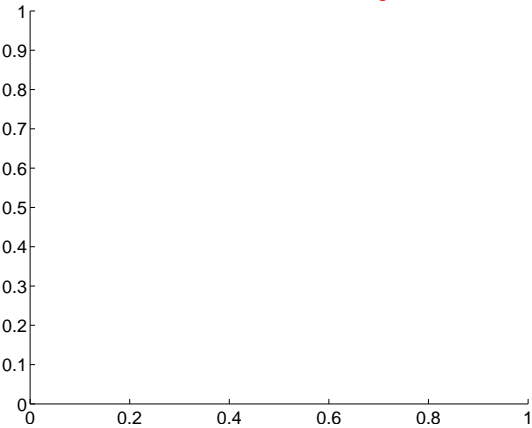


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

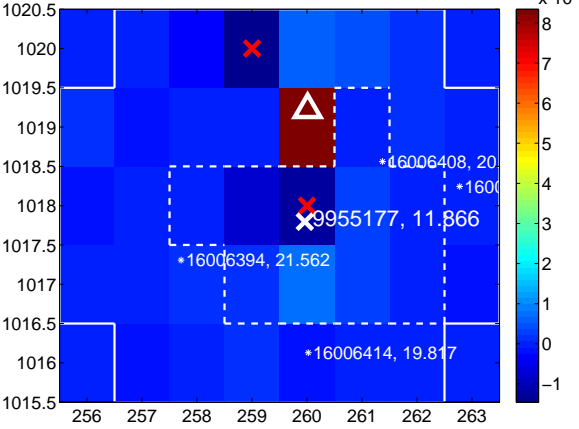
Q13 no difference image



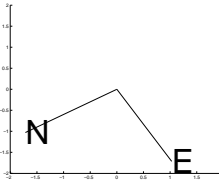
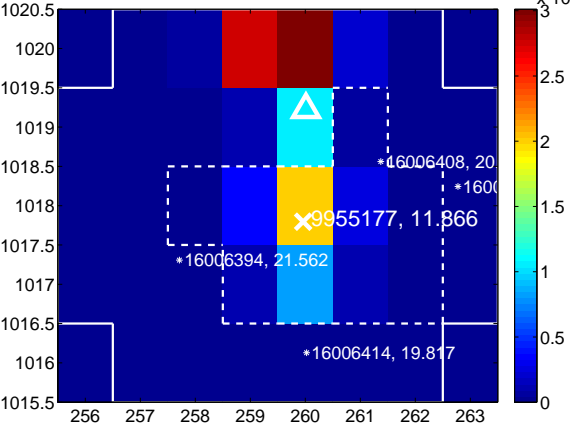
Q13 no OOT image



Q14 difference image



Q14 OOT image



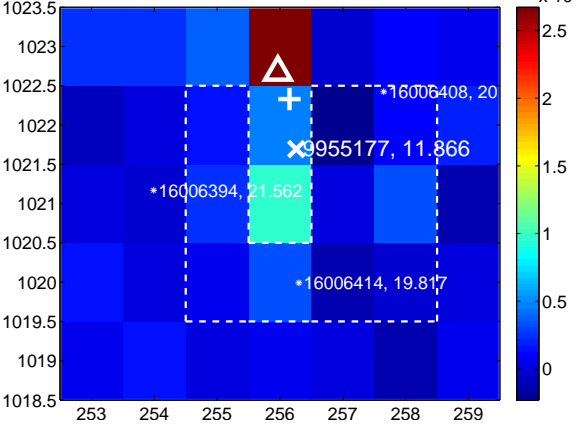
Q15 no difference image



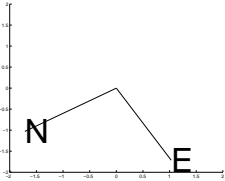
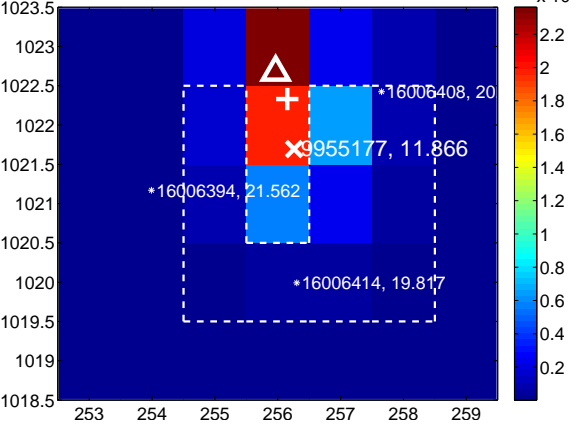
Q15 no OOT image



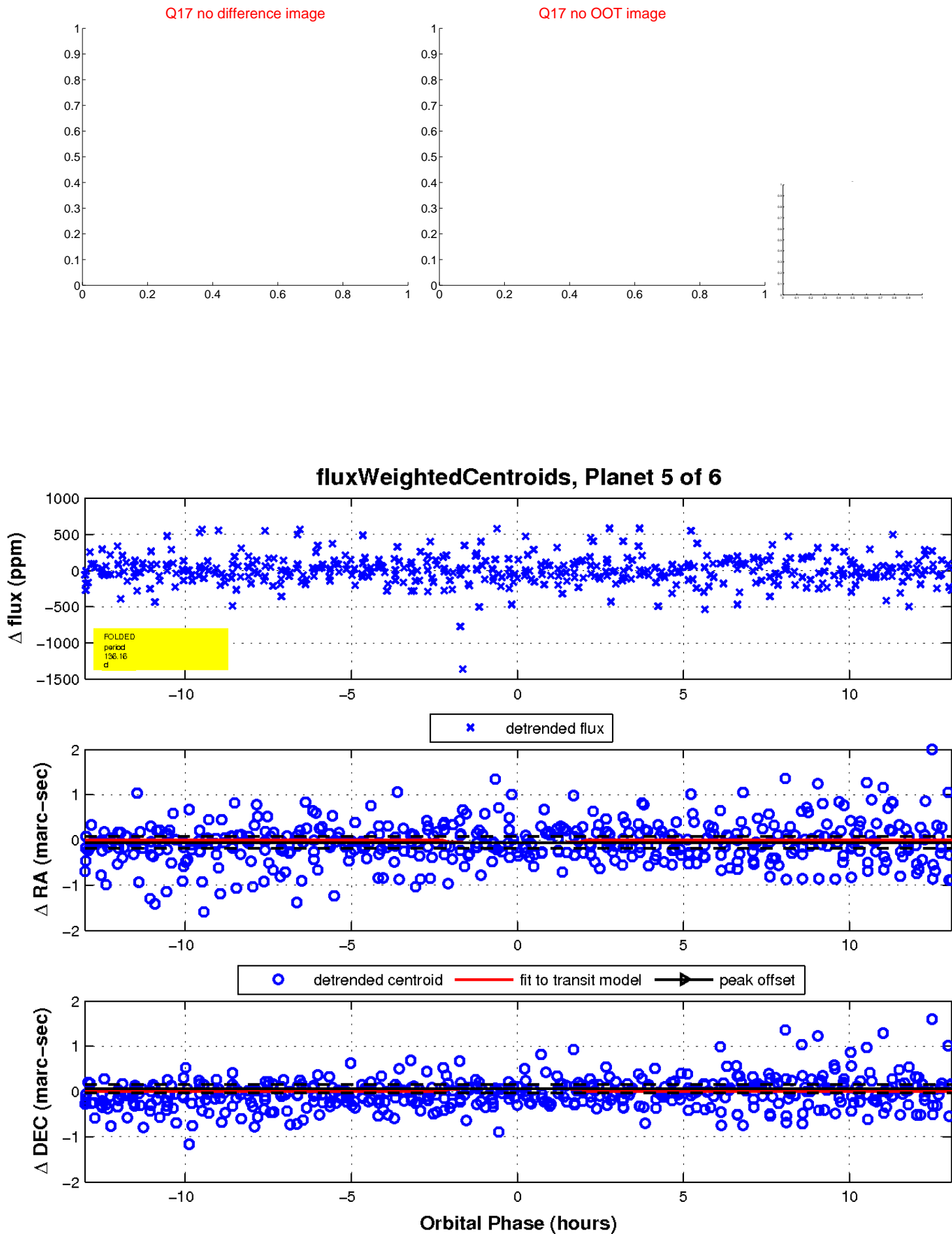
Q16 difference image



Q16 OOT image

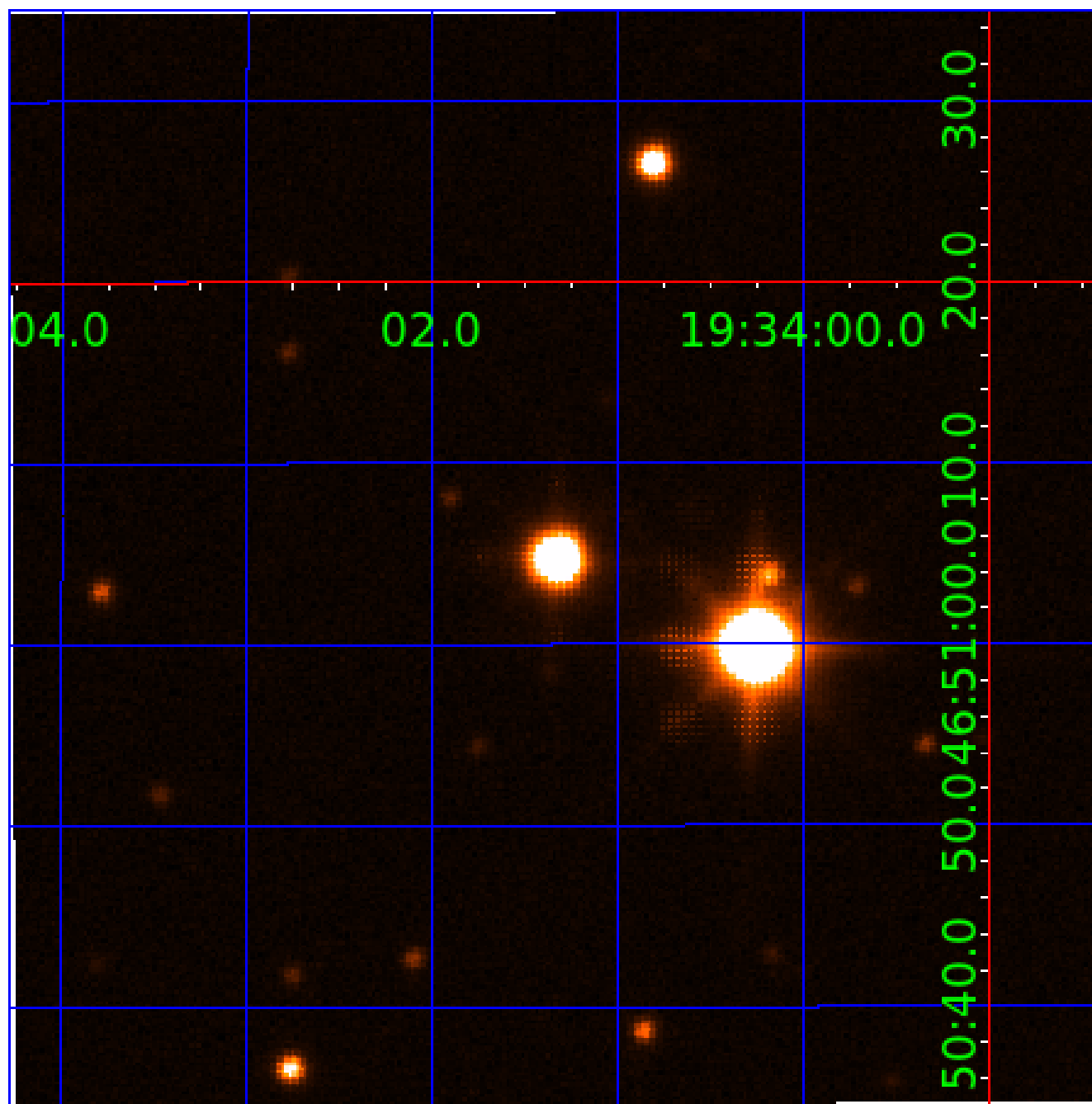


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009955177

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})
009955177-01	OBS	No	278.949596	256.905748	448.7	8.193	17.8	12.6	1.79	7186	3.97	7.93
009955177-02	OBS	No	2.093069	131.826917	17.2	11.948	13.3	14.3	1.79	7186	0.83	5399.90
009955177-03	OBS	No	91.474237	163.482704	315.8	15.000	26.3	-1.0	1.79	7186	3.21	35.08
009955177-04	OBS	No	99.875043	187.762906	73.1	4.619	16.3	4.6	1.79	7186	1.75	31.20
009955177-05	OBS	No	136.155609	186.978241	81.0	4.372	14.5	2.6	1.79	7186	1.83	20.64
009955177-06	OBS	No	87.335950	169.026468	493.3	1.591	16.7	7.9	1.79	7186	4.04	37.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009955177-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009955177-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
009955177-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009955177-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_RESOLVED_OFFSET
009955177-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009955177-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

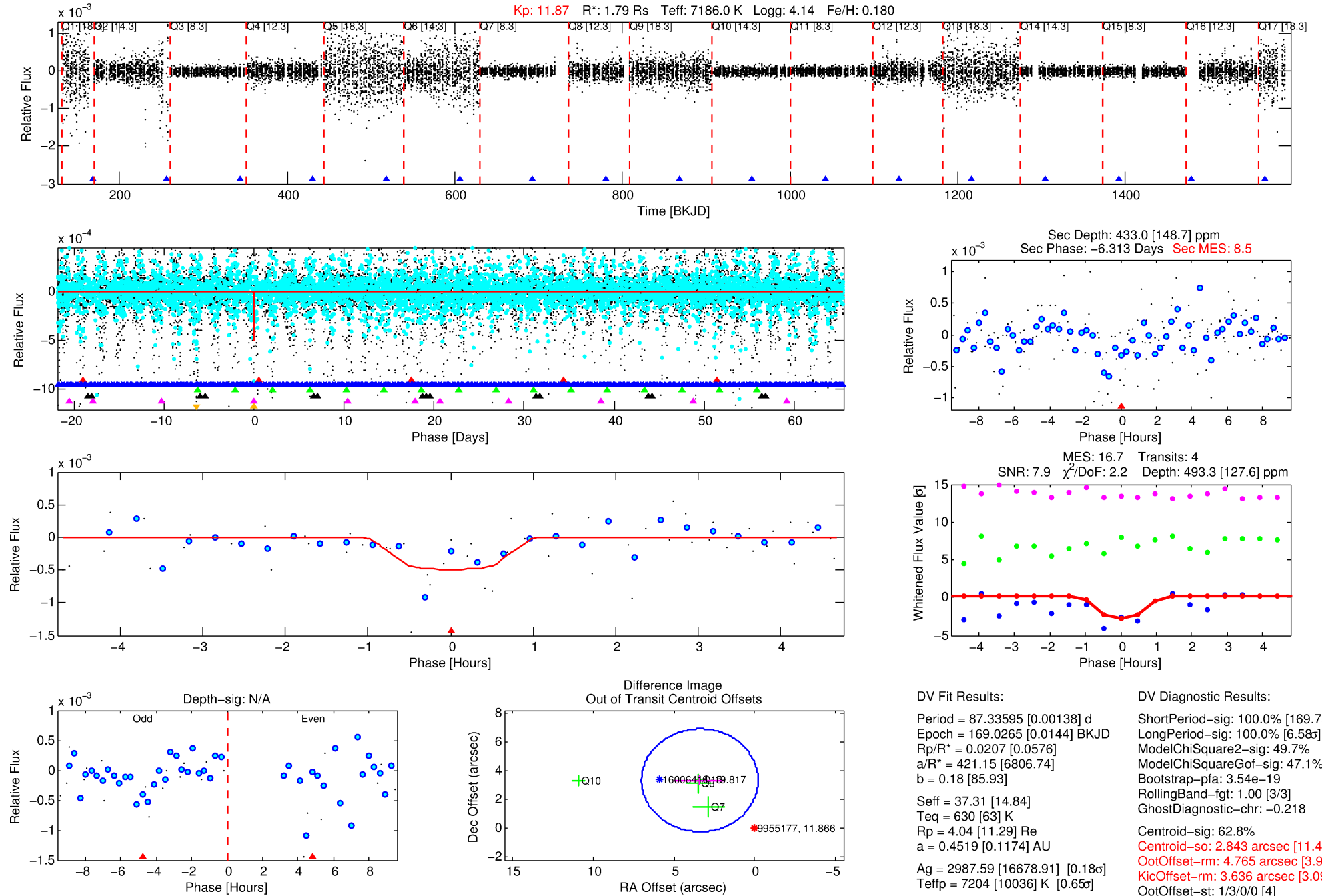
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009955177-06

No Significant Match Found

DV One-Page Summary

KIC: 9955177 Candidate: 6 of 6 Period: 87.336 d



DV Fit Results:

Period = 87.33595 [0.00138] d
Epoch = 169.0265 [0.0144] BKJD
Rp/R* = 0.0207 [0.0576]
a/R* = 421.15 [6806.74]
b = 0.18 [85.93]
Seff = 37.31 [14.84]
Teq = 630 [63] K
Rp = 4.04 [11.29] Re
a = 0.4519 [0.1174] AU
Ag = 2987.59 [16678.91] [0.18] σ
Teff = 7204 [10036] K [0.65] σ

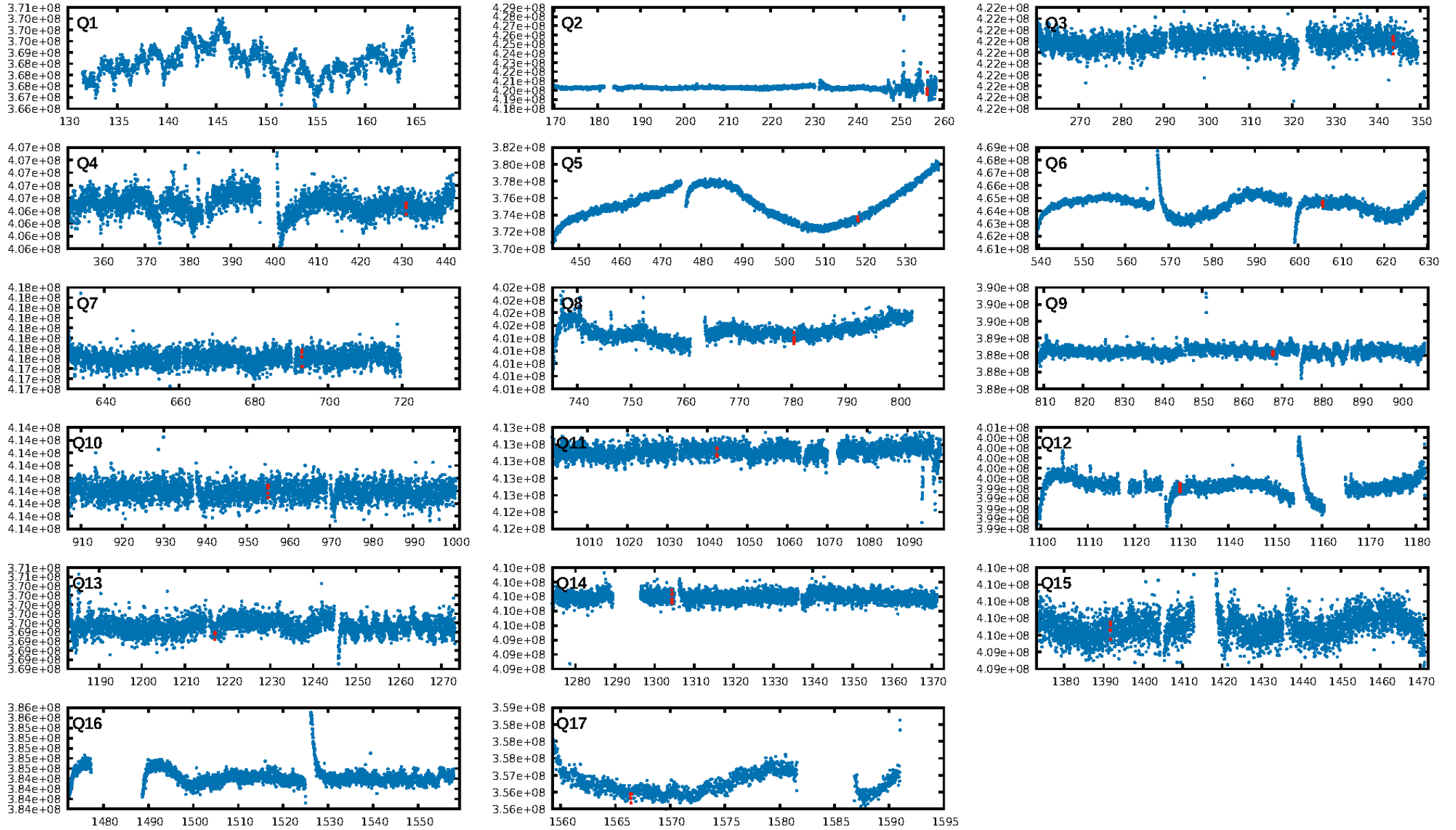
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [169.73] σ
LongPeriod-sig: 100.0% [6.58] σ
ModelChiSquare2-sig: 49.7%
ModelChiSquareGof-sig: 47.1%
Bootstrap-pfa: 3.54e-19
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.218
Centroid-sig: 62.8%
Centroid-so: 2.843 arcsec [11.44] σ
OotOffset-rm: 4.765 arcsec [3.96] σ
KicOffset-rm: 3.636 arcsec [3.09] σ
OotOffset-st: 1/3/0/0 [4]
KicOffset-st: 2/3/0/1 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.43 [6/14]

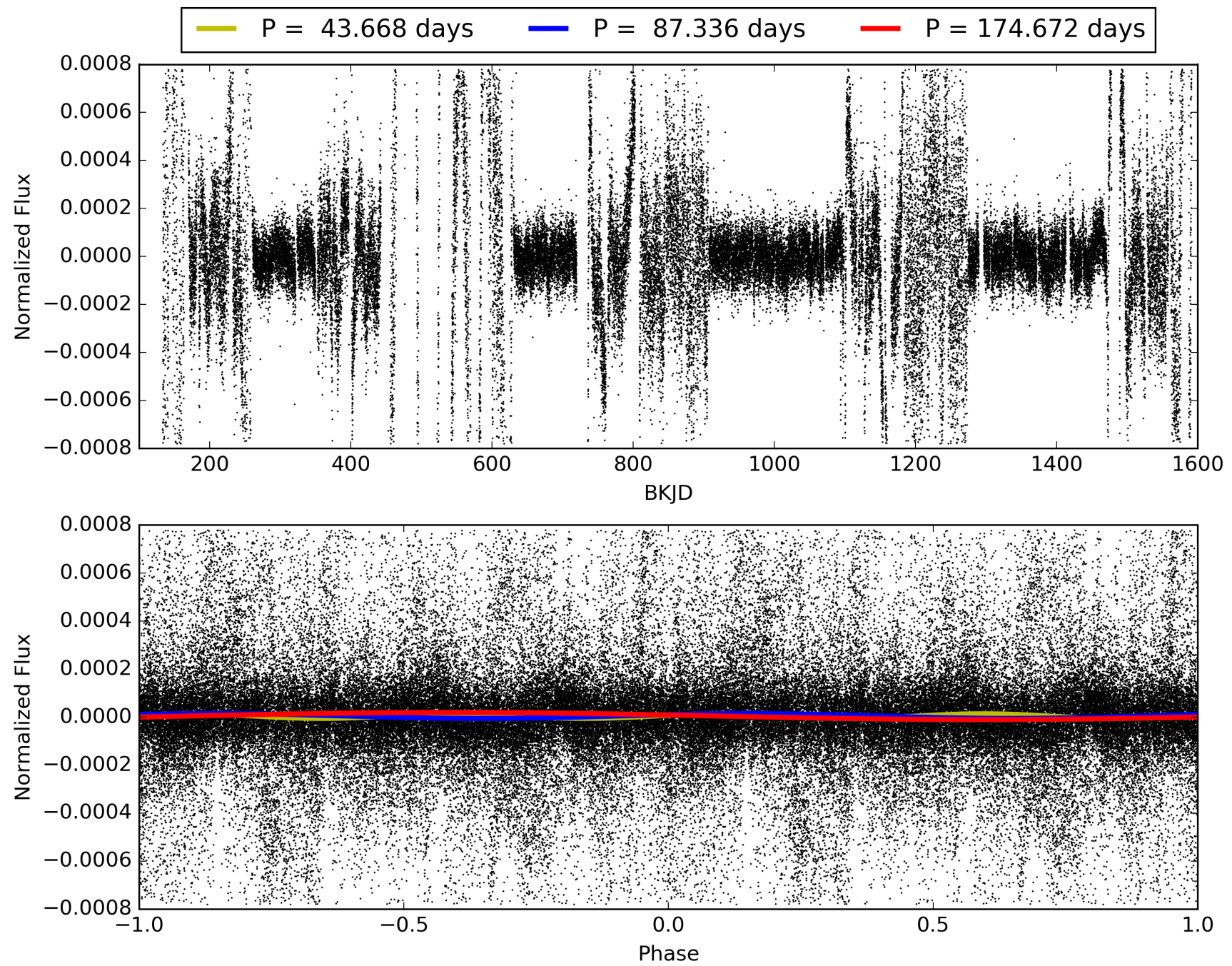
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:54:17 Z

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

TCE 009955177-06, PDC Light Curves

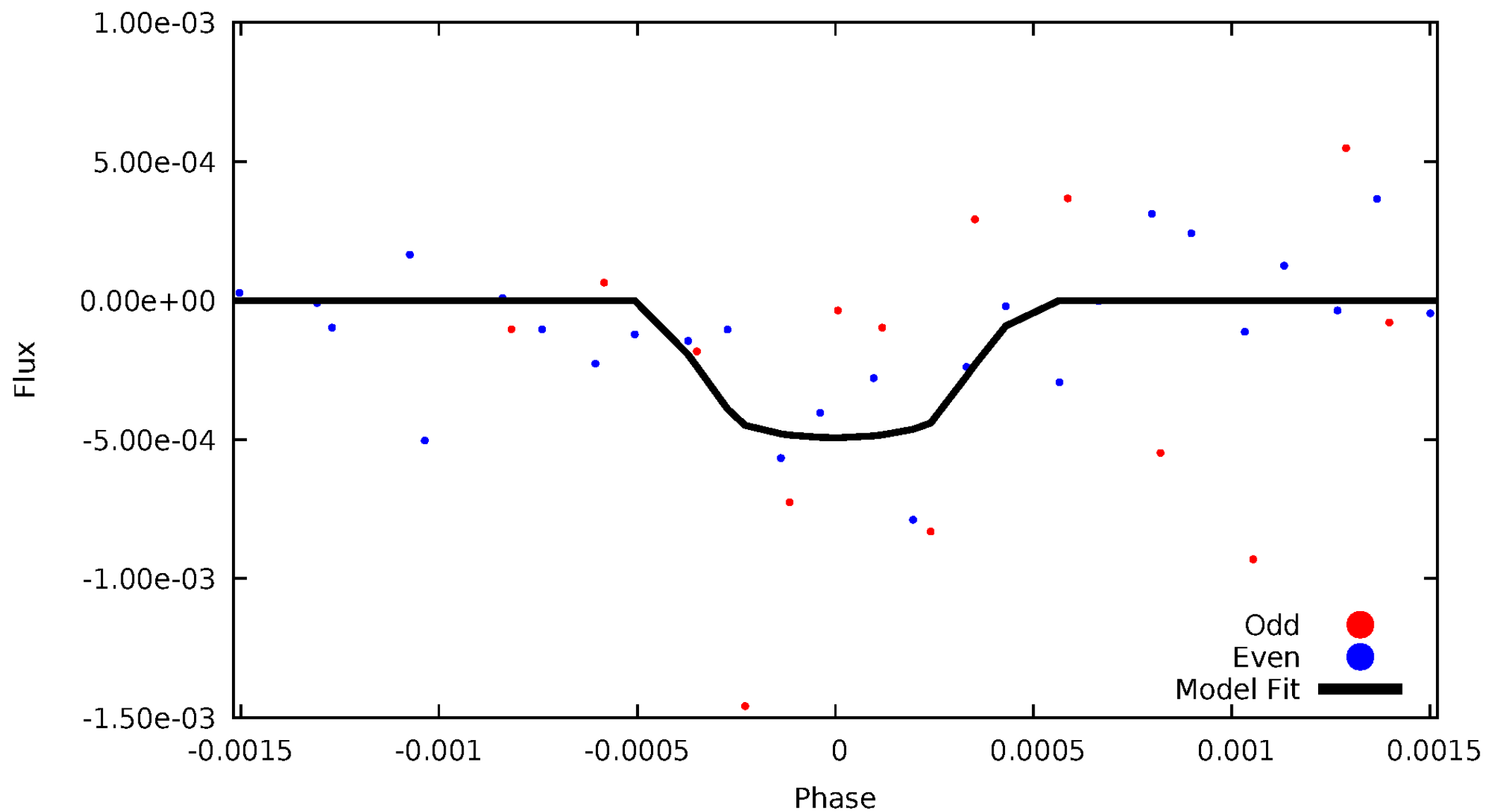


TCE 009955177-06



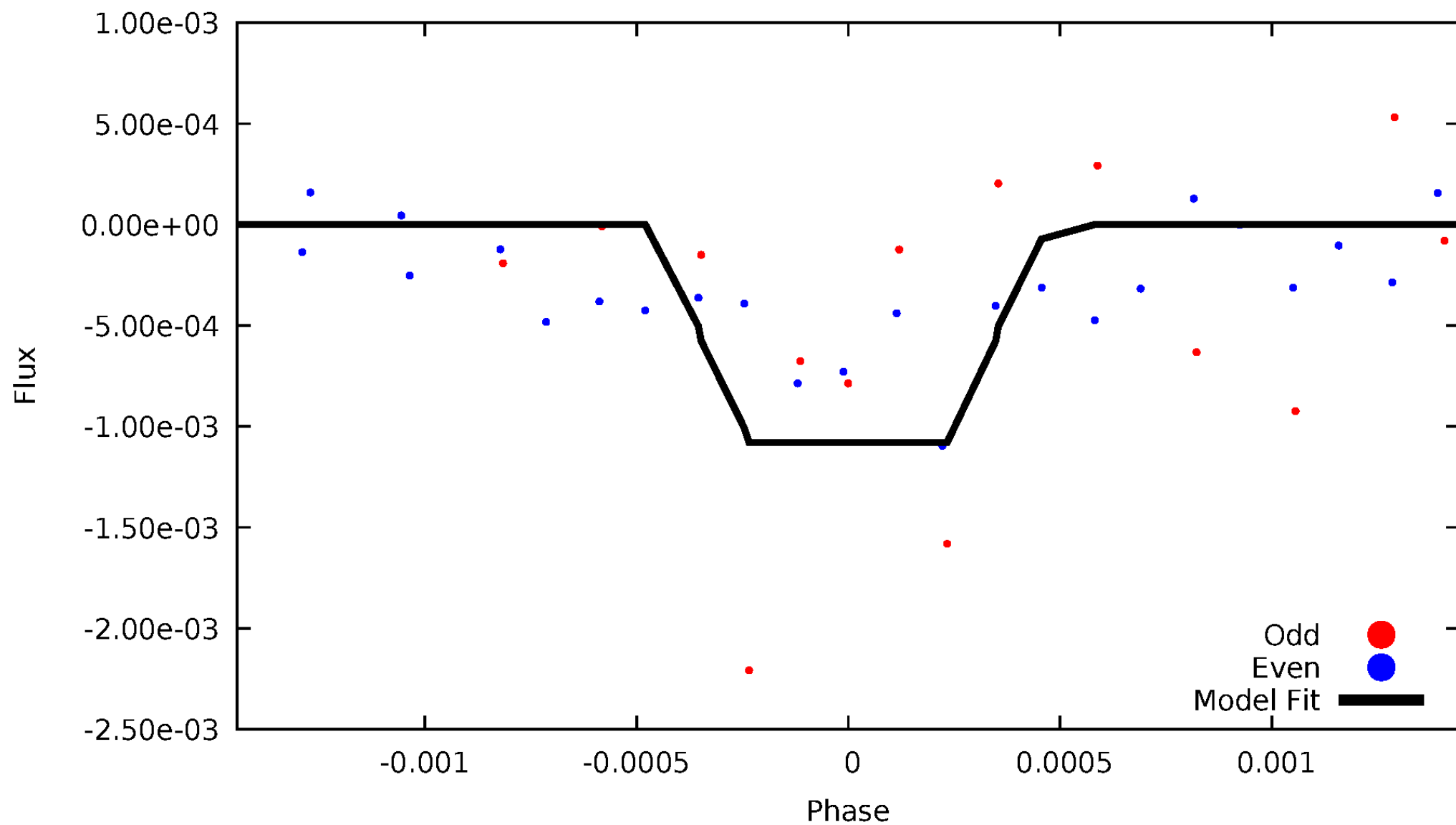
DV Odd/Even

TCE 009955177-06



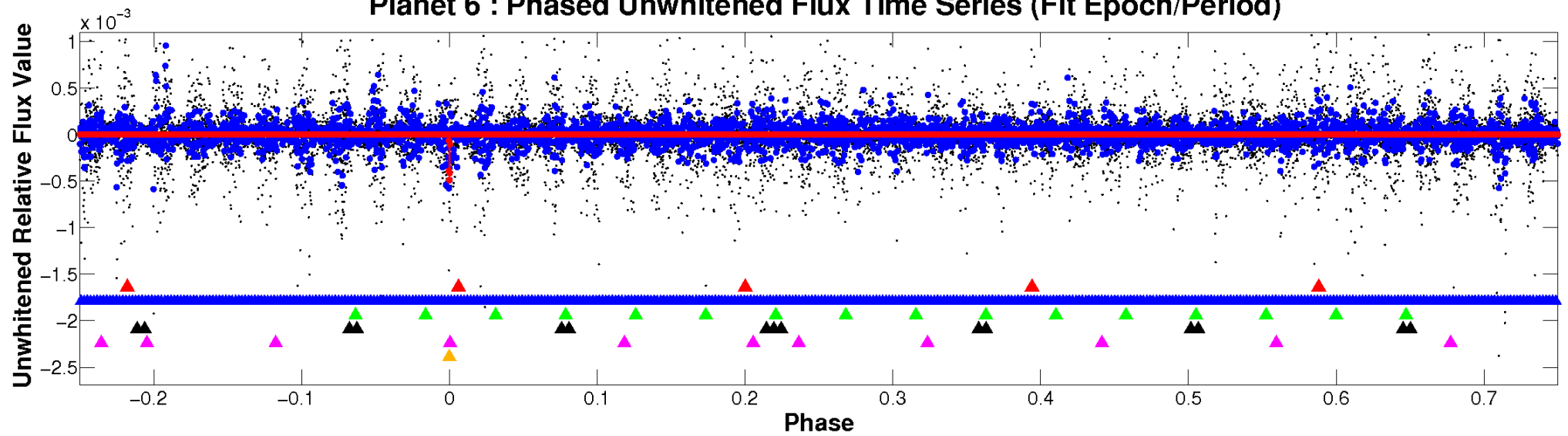
ALT Odd/Even

TCE 009955177-06

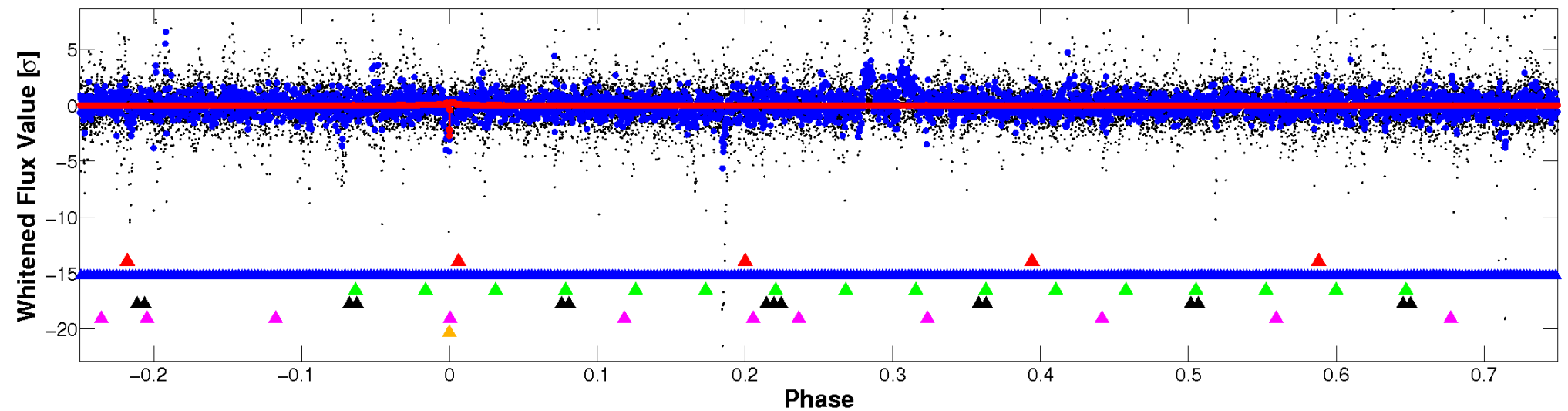


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

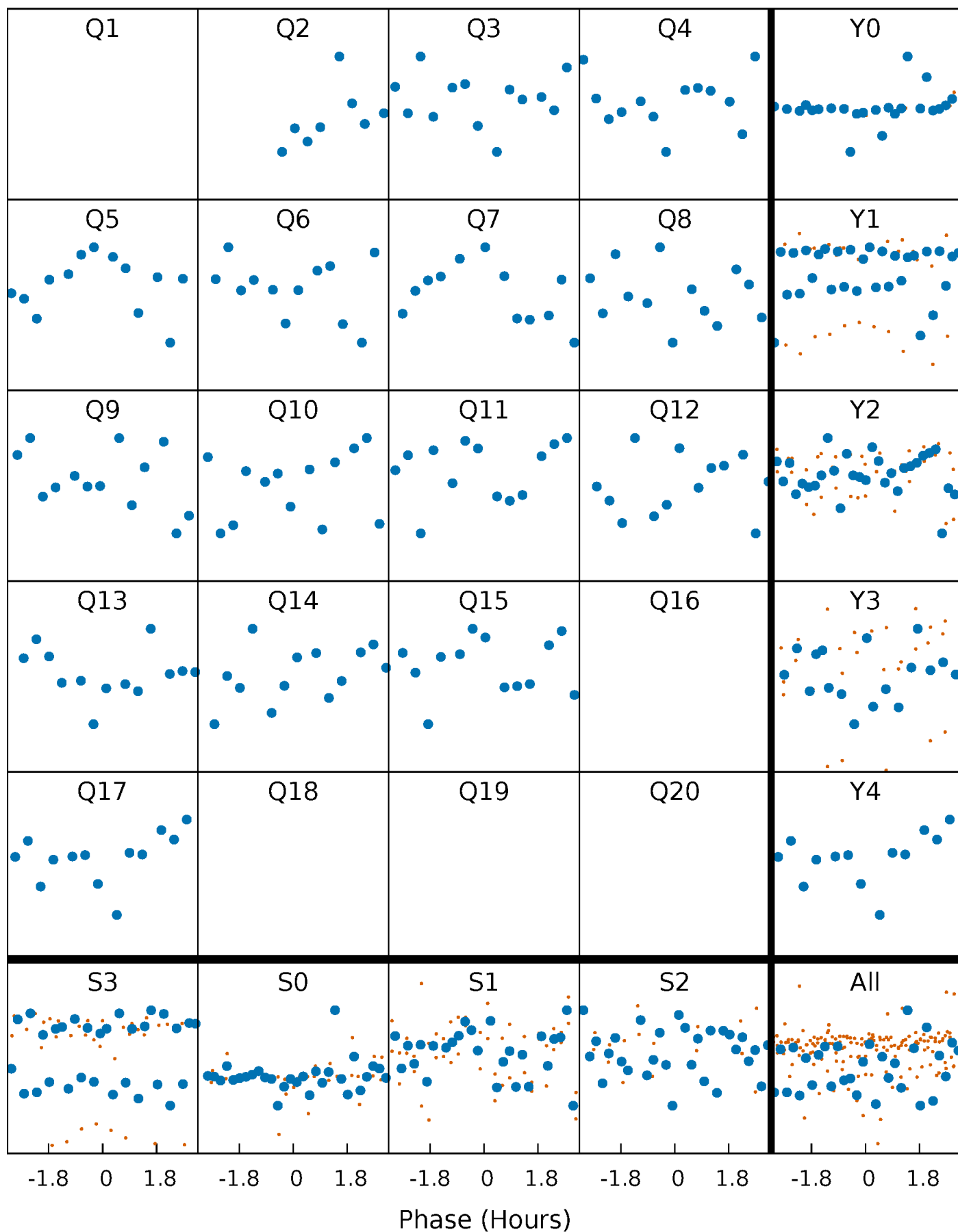


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



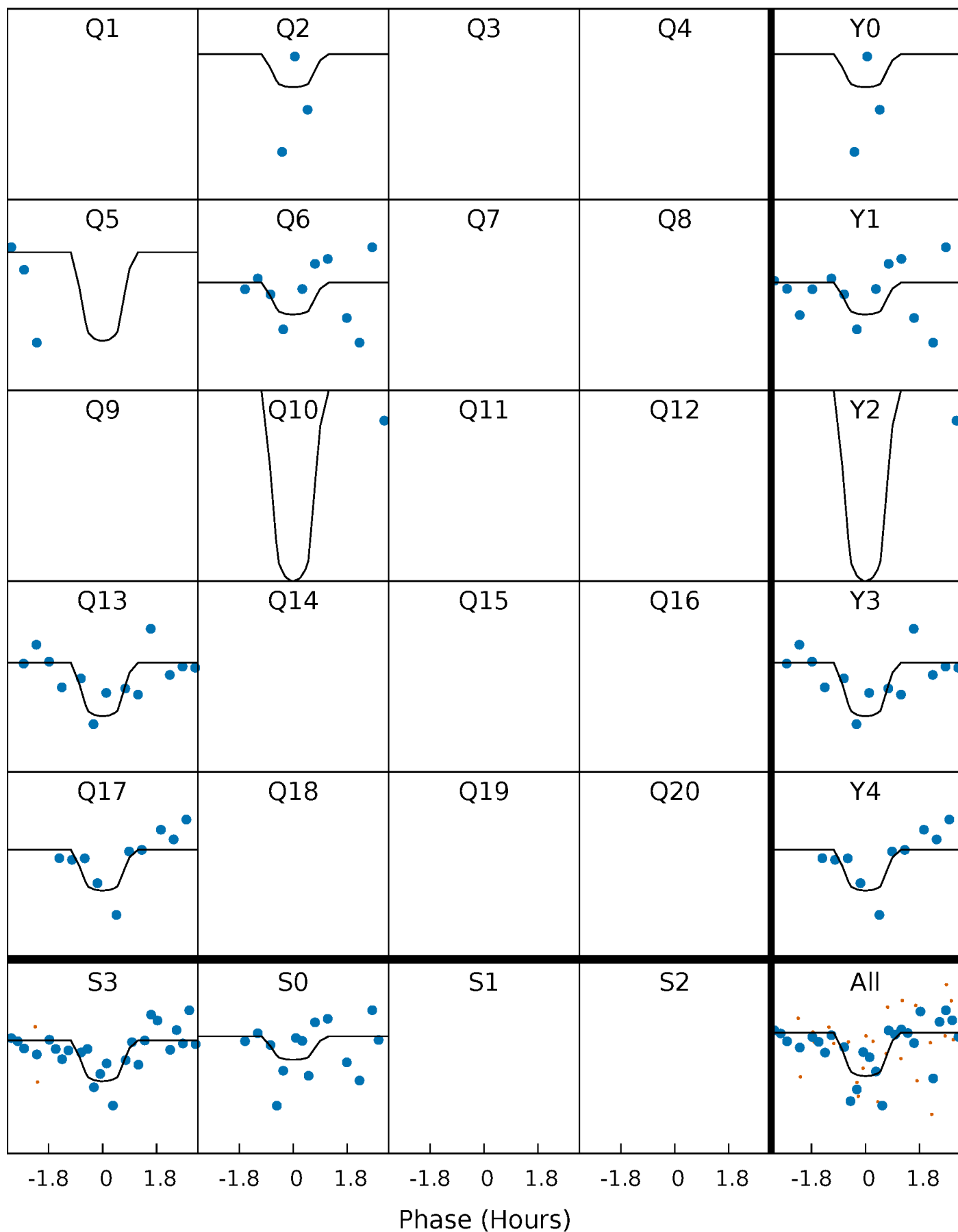
PDC Quarter-Phased Transit Curves

TCE 009955177-06 P= 87.335950 Days $T_0=169.026468$ (BKJD)



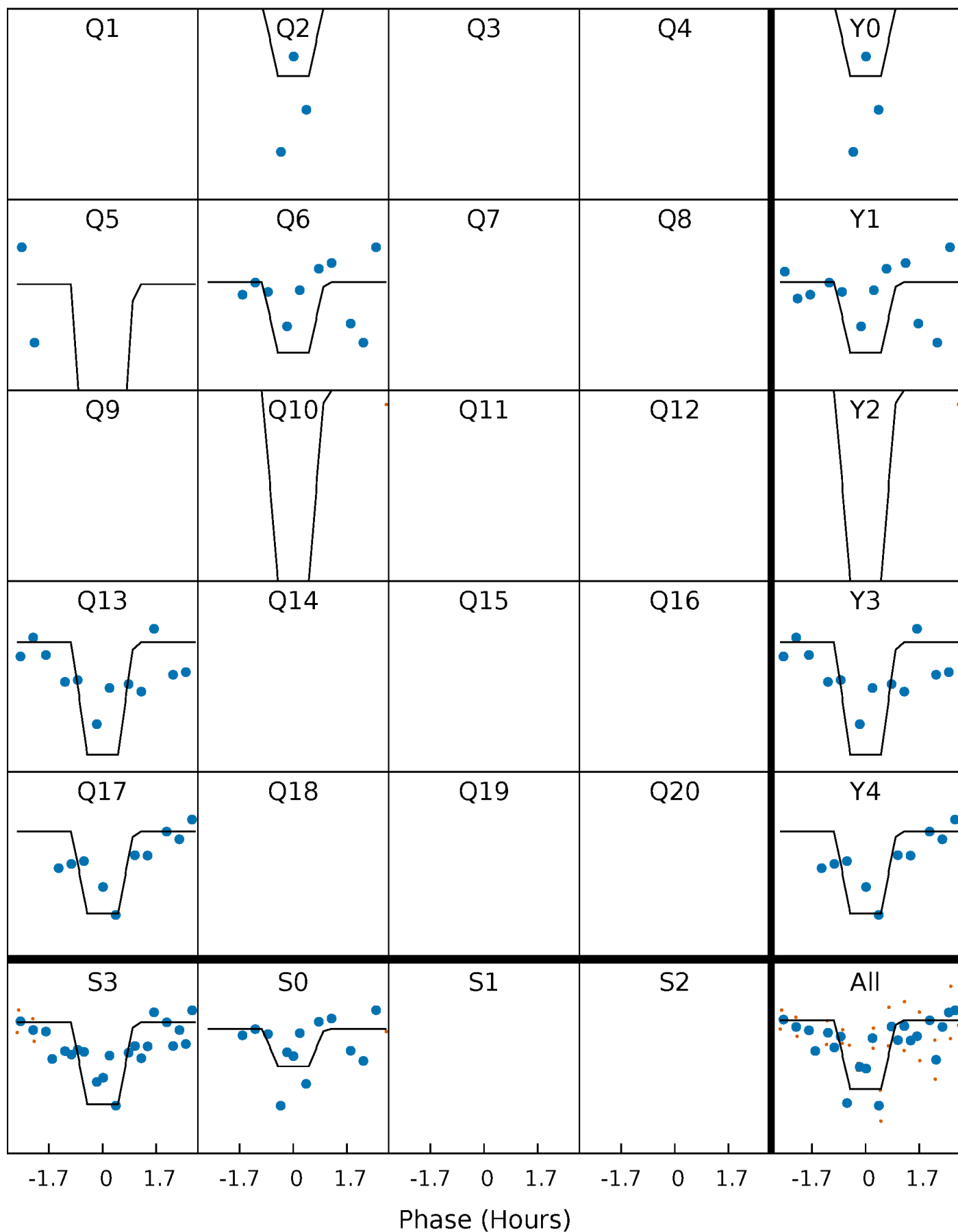
DV Quarter-Phased Transit Curves

TCE 009955177-06 P= 87.335950 Days $T_0=169.026468$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

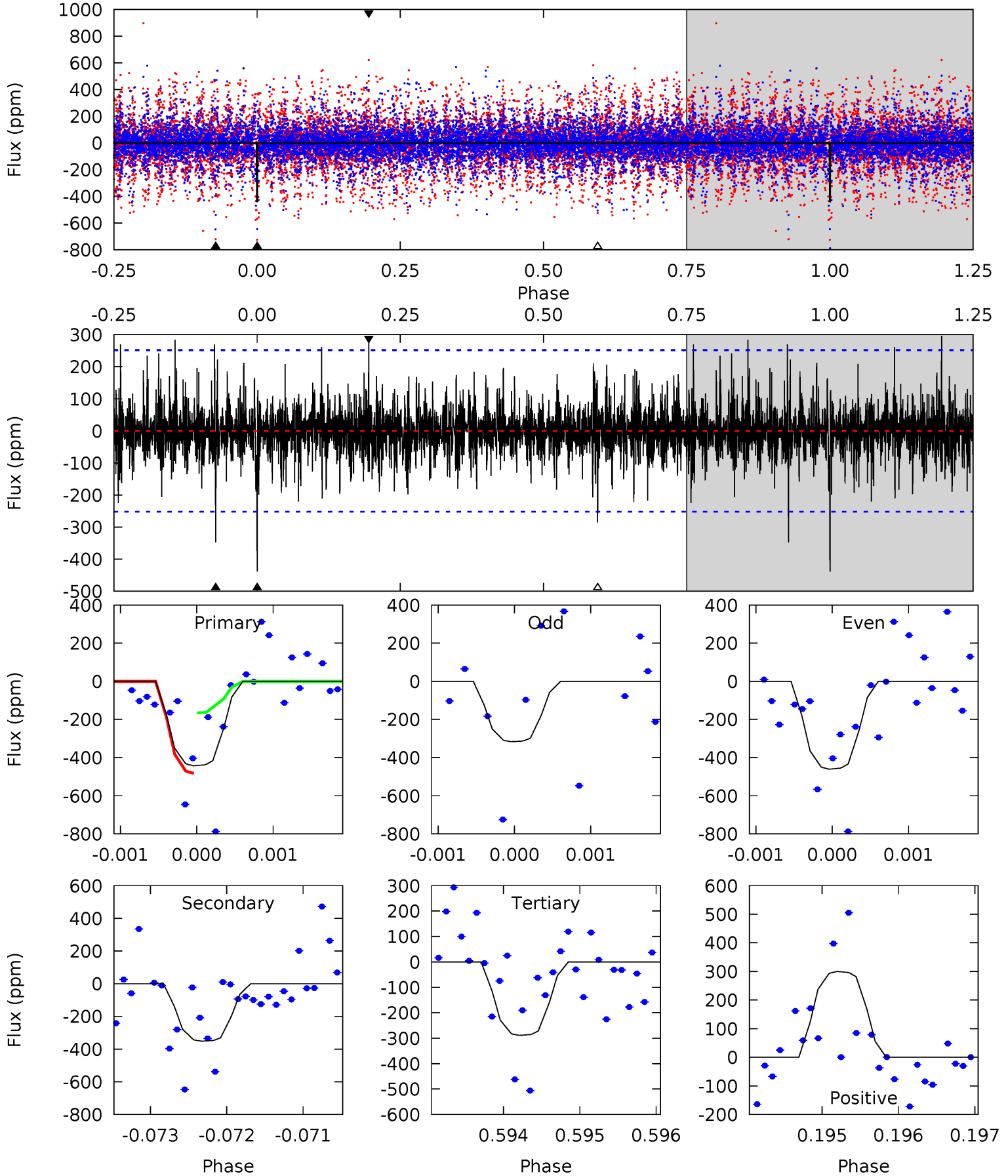
TCE 009955177-06 P= 87.335758 Days $T_0=169.027252$ (BKJD)



DV Model-Shift Uniqueness Test

009955177-06, P = 87.335950 Days, E = 81.690518 Days

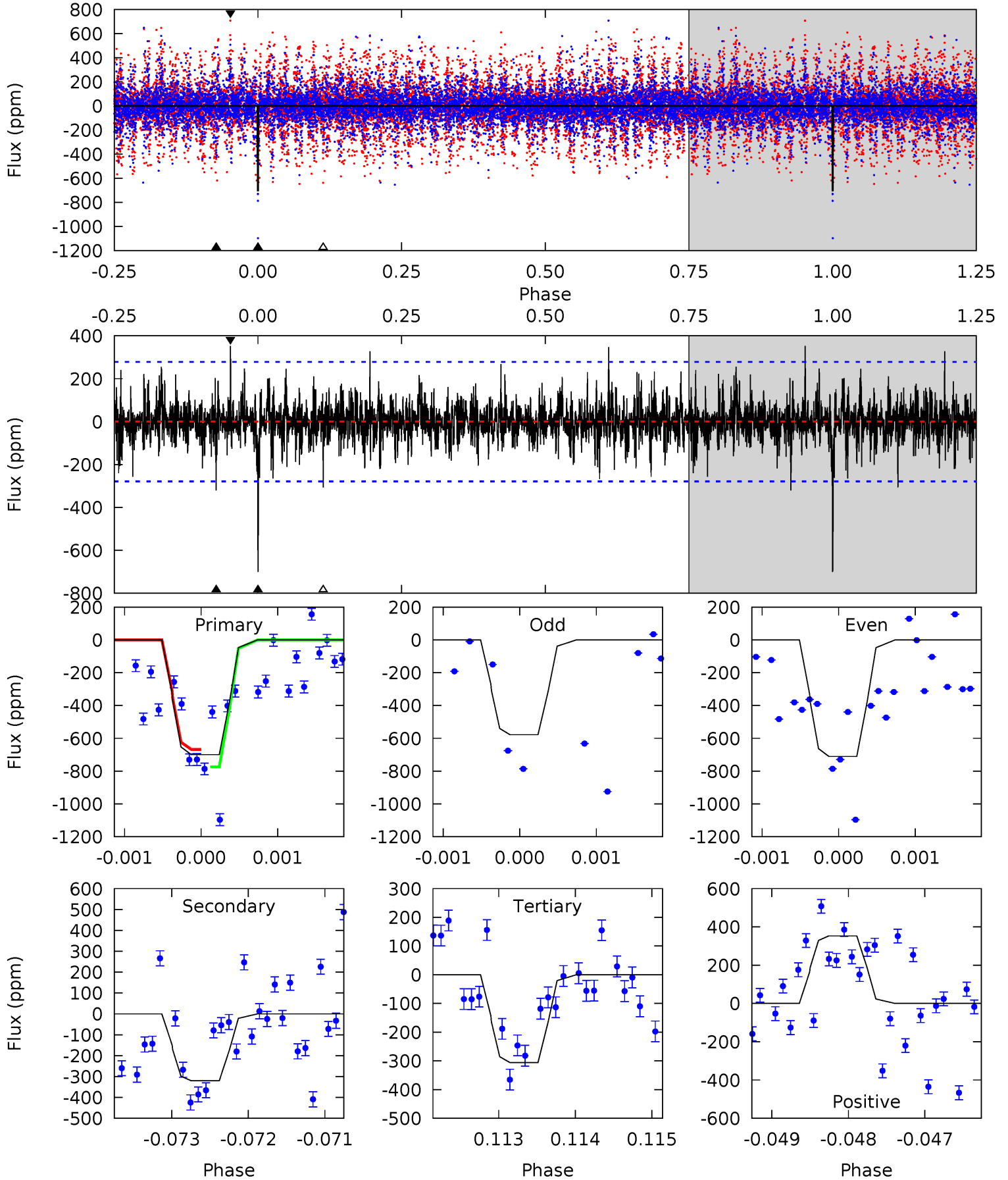
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.51	7.55	6.20	6.43	5.46	3.31	1.26	3.30	3.07	1.35	1.11	1.51	1.12	0.40	3.53



Alt Model-Shift Uniqueness Test

009955177-06, P = 87.335758 Days, E = 81.691494 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	6.28	6.00	6.92	5.46	3.31	1.32	7.73	6.81	0.28	-0.64	1.23	1.15	0.34	1.04



Stellar Parameters For KIC 009955177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7186^{+200}_{-275}	$4.142^{+0.105}_{-0.195}$	$0.180^{+0.150}_{-0.350}$	$1.786^{+0.569}_{-0.306}$	$1.615^{+0.211}_{-0.233}$	$0.399^{+0.194}_{-0.206}$
	+3%/-4%	+3%/-5%	+83%/-194%	+32%/-17%	+13%/-14%	+49%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009955177-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-348 ± 46	$9.85^{+9.80}_{-6.60}$	891^{+66}_{-57}	4525^{+3144}_{-931}	398^{+3279}_{-296}
Alt.	-320 ± 51	$11.25^{+9.66}_{-7.42}$	888^{+67}_{-53}	4217^{+2725}_{-788}	273^{+2092}_{-195}

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 $A_{obs} \gg 1.0$

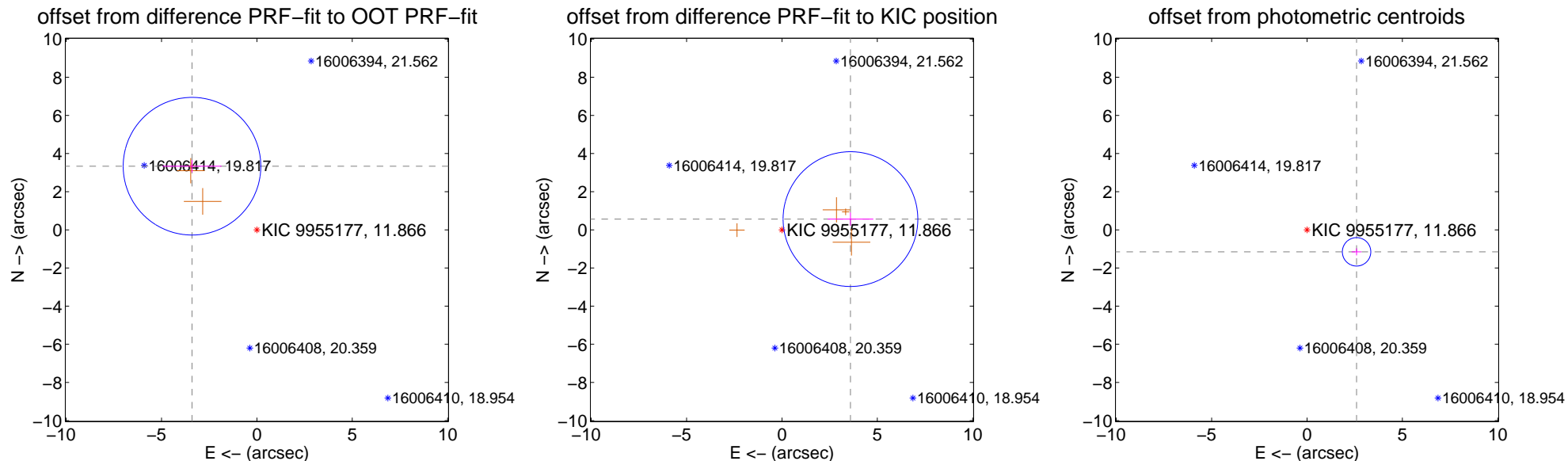
DV Centroid Data

Supplemental centroid analysis for 009955177-06. **Kepler magnitude: 11.87.** Transit SNR 7.90

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 7.17 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.765 ± 1.203	3.96	3.402 ± 1.545	3.336 ± 0.322
PRF-fit source offset from KIC position	3.636 ± 1.177	3.09	-3.592 ± 1.199	0.564 ± 0.347
photometric centroid source offset	2.84 ± 0.25	11.44	-2.60 ± 0.26	-1.15 ± 0.19



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

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

Q1 no difference image



Q1 no OOT image



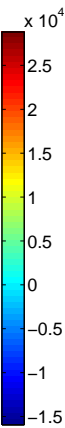
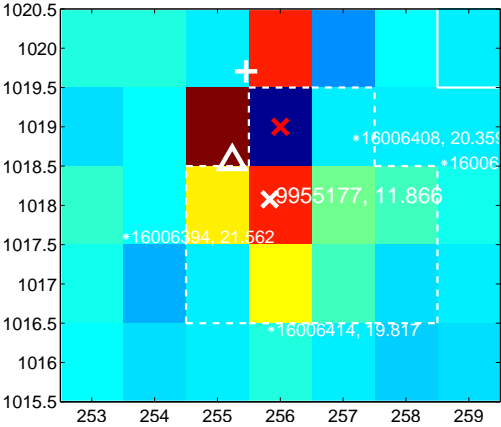
Q2 no difference image



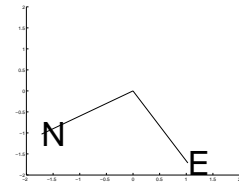
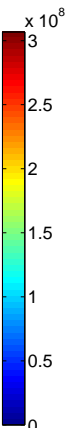
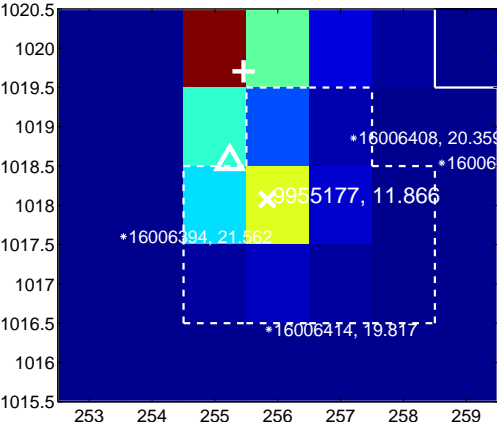
Q2 no OOT image



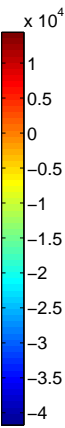
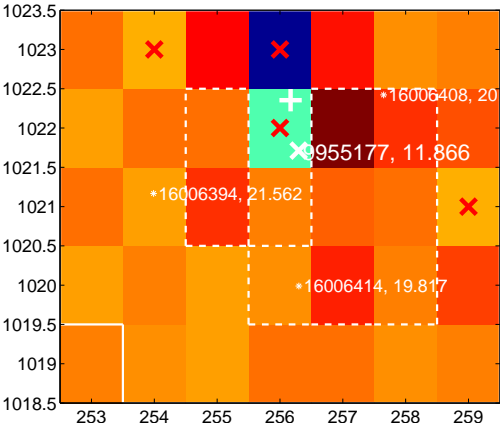
Q3 difference image. Poor Quality



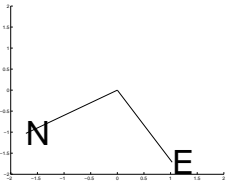
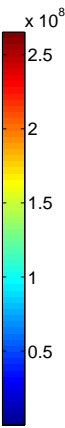
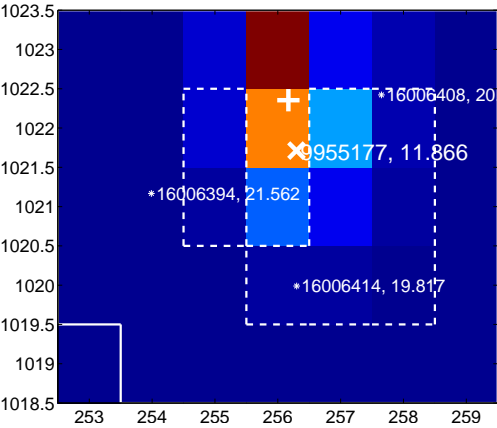
Q3 OOT image



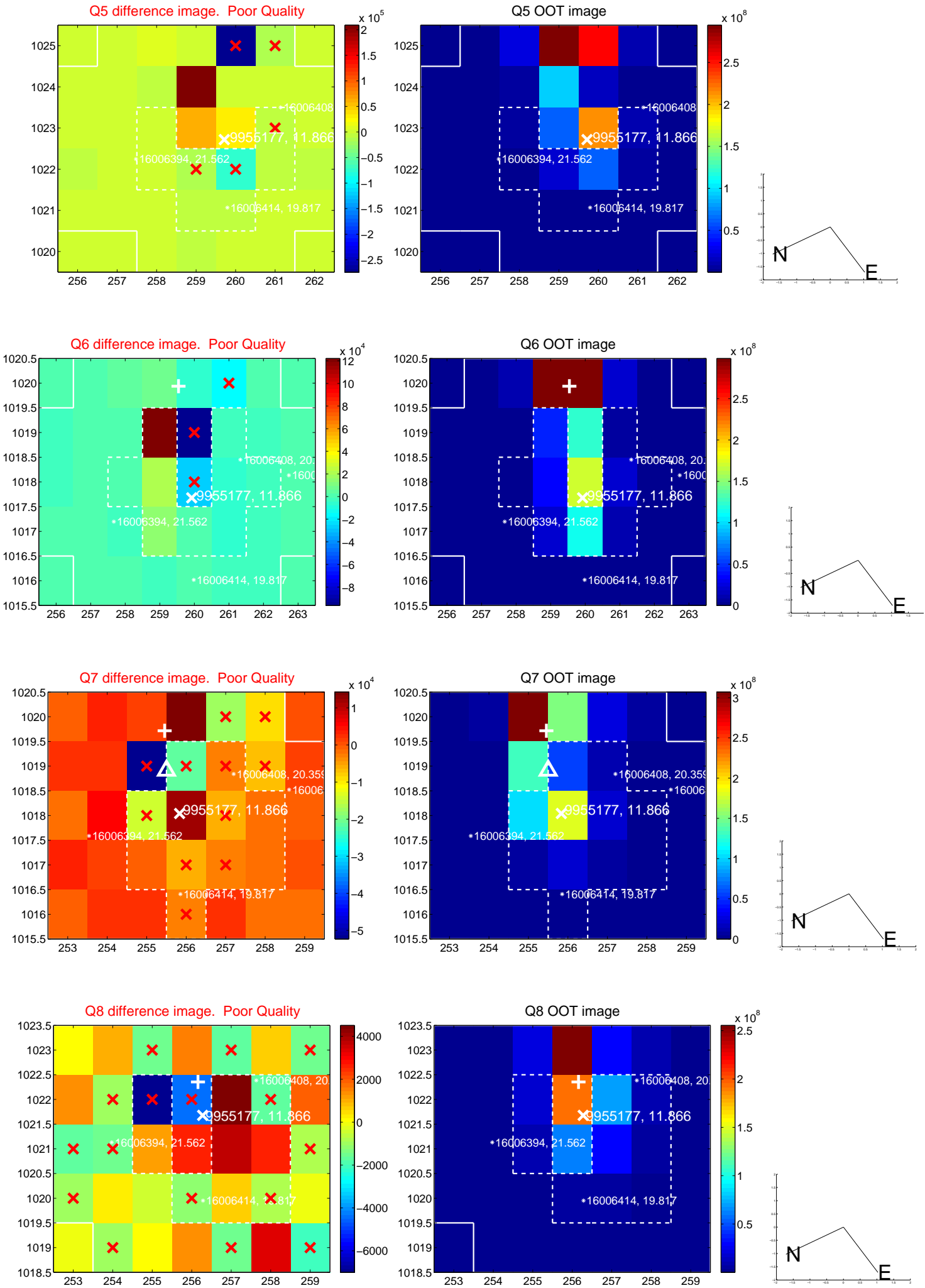
Q4 difference image. Poor Quality



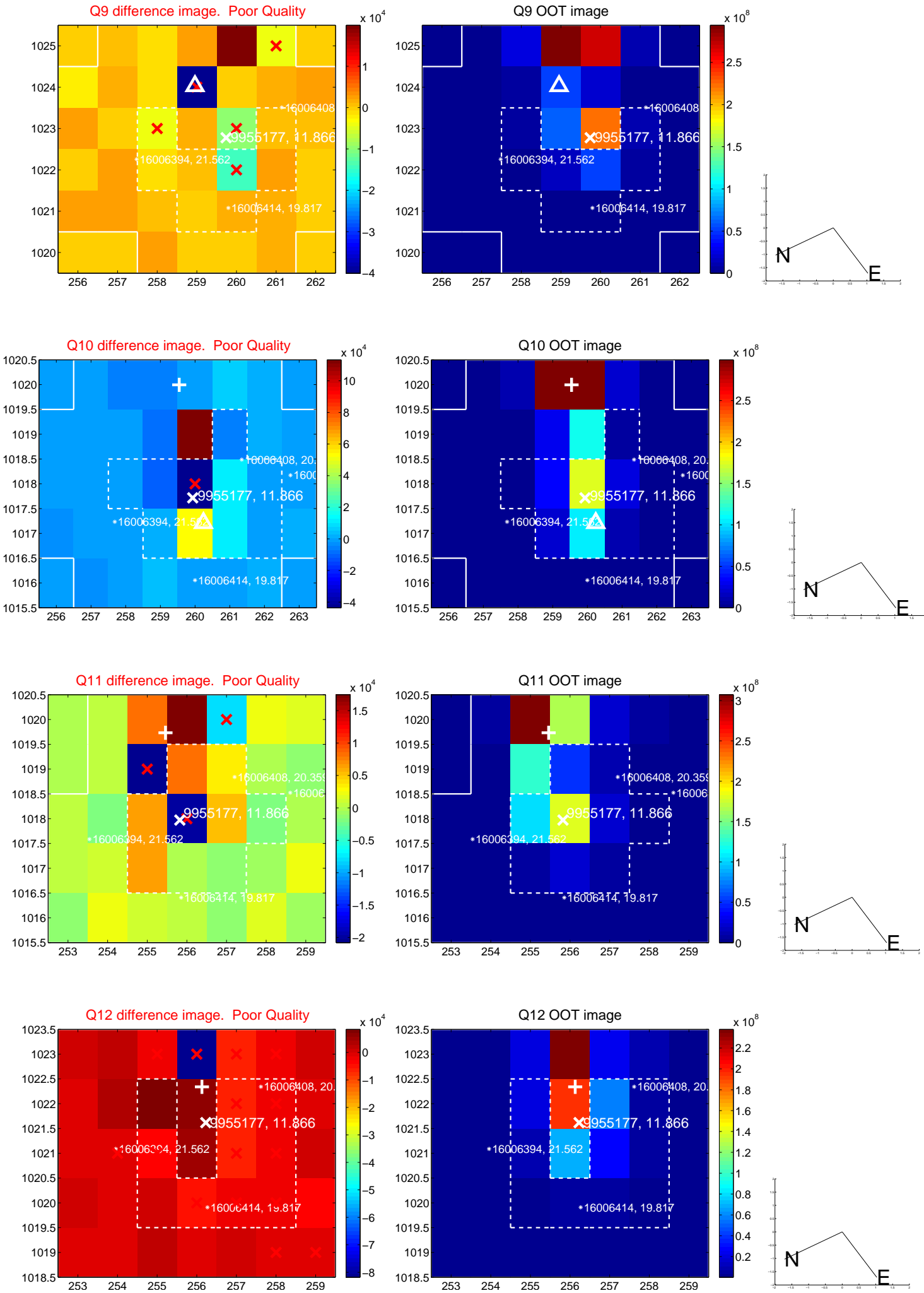
Q4 OOT image



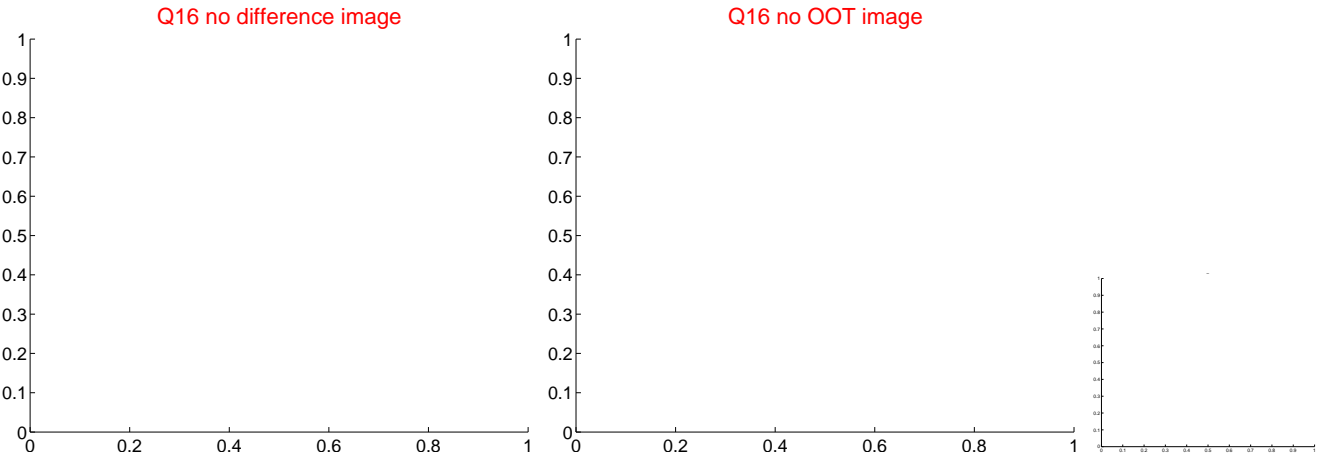
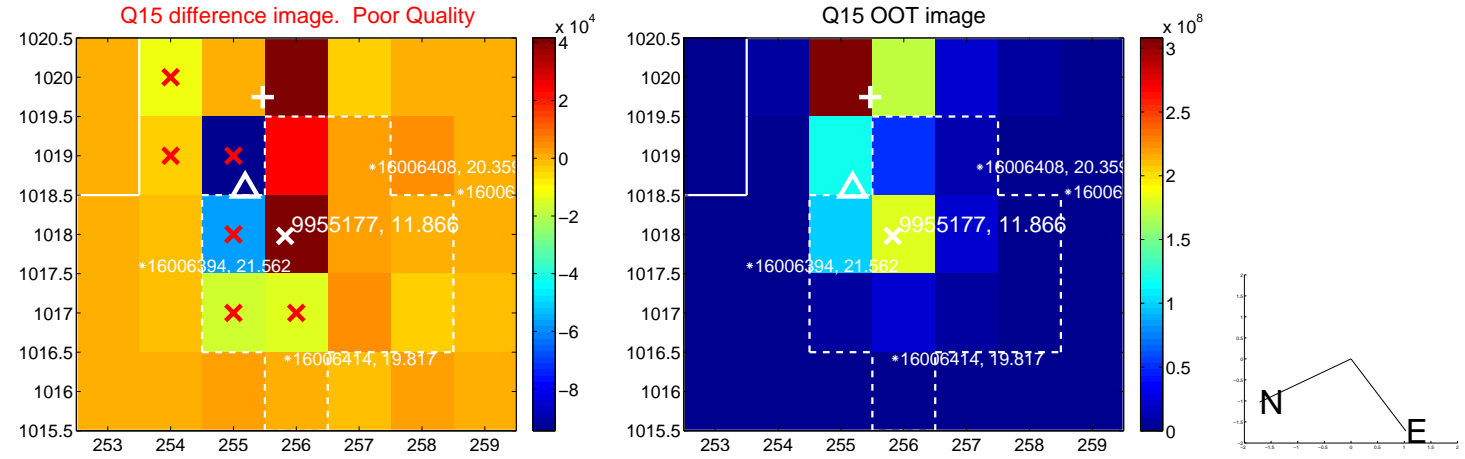
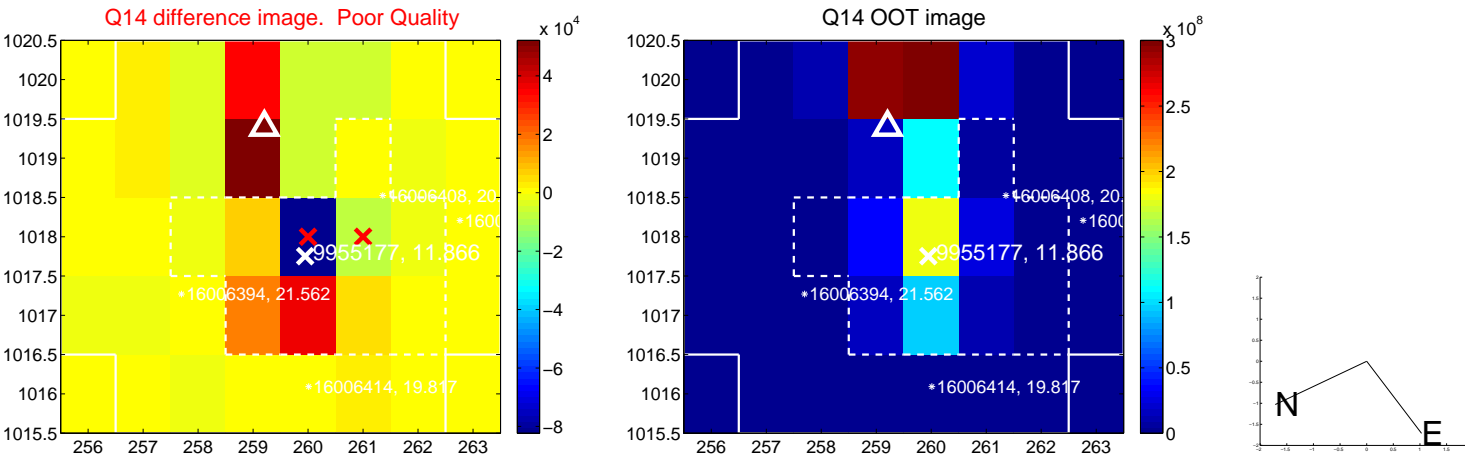
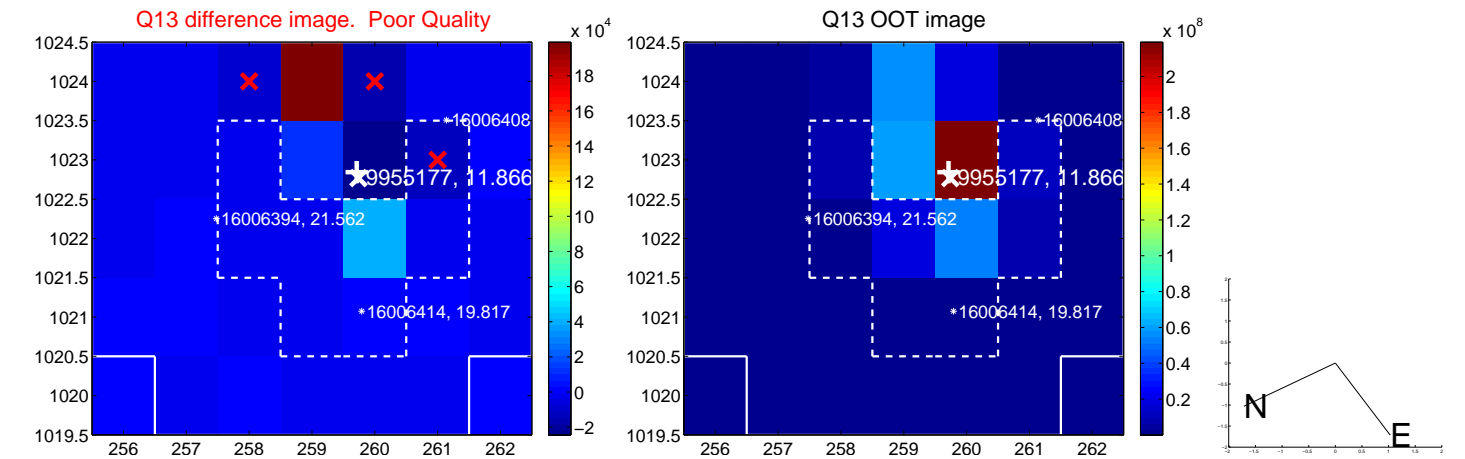
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



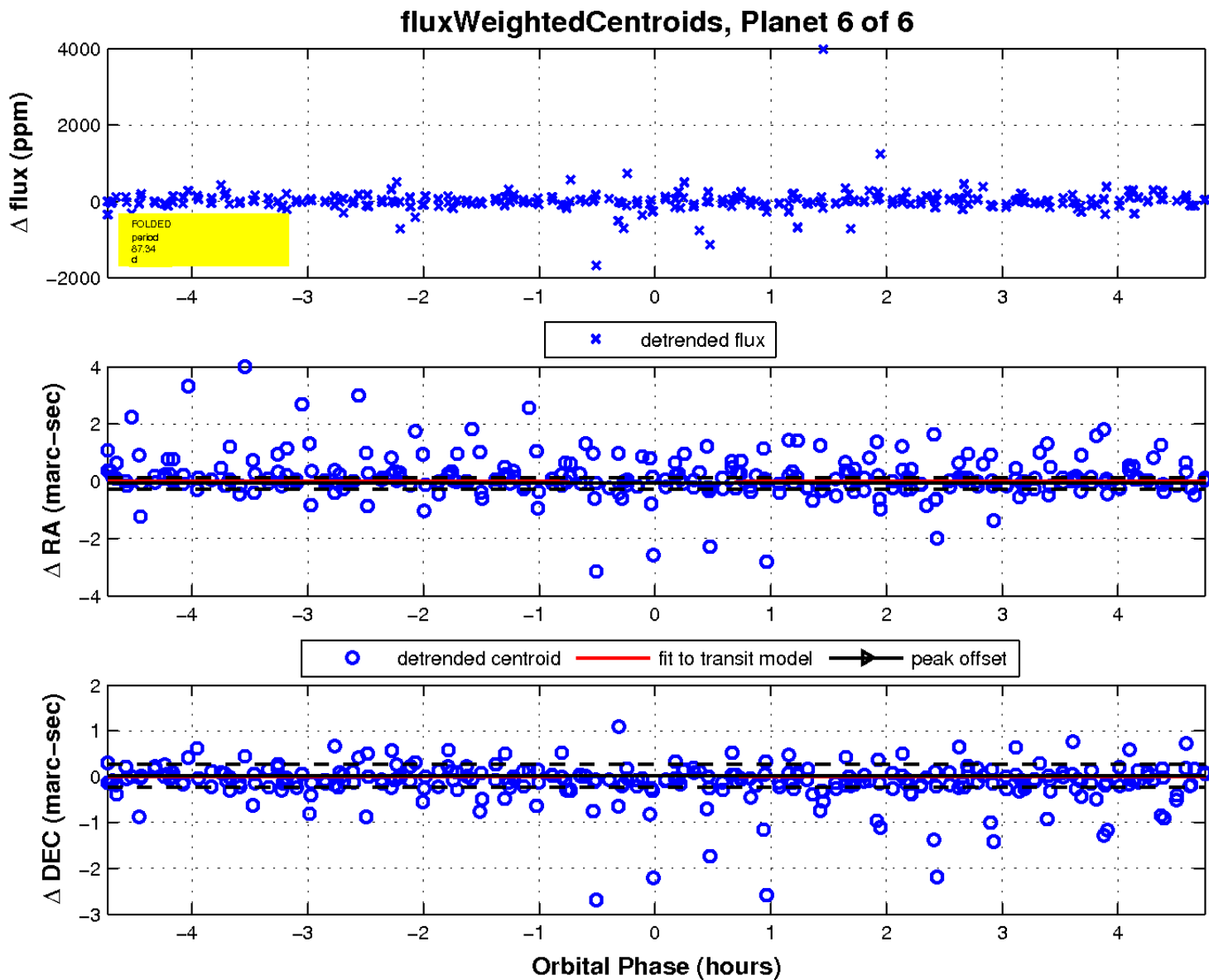
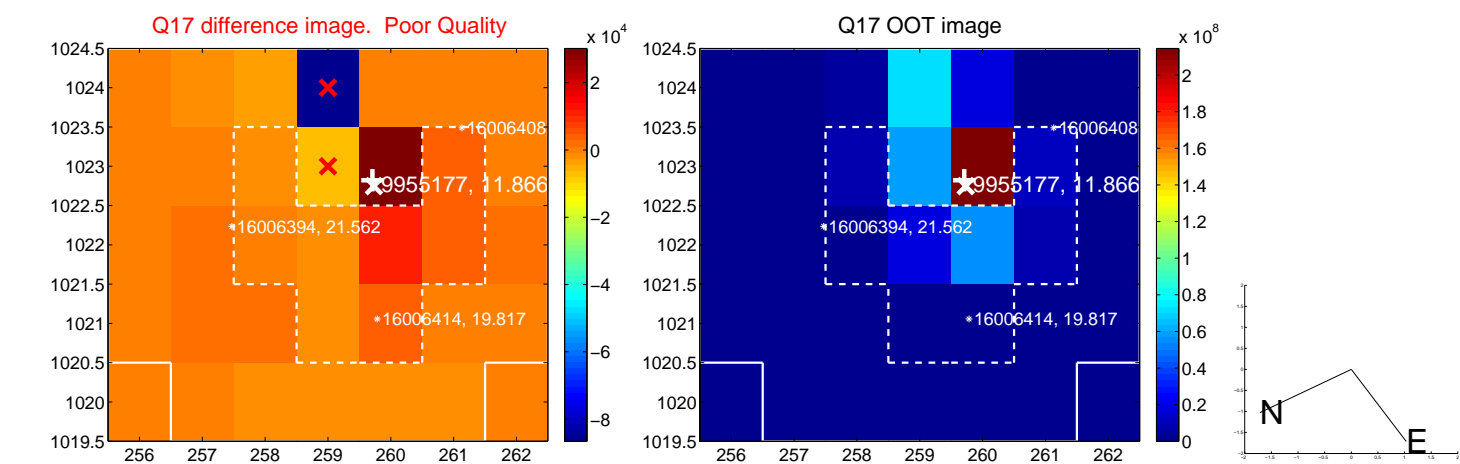
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

