

KIC 008367410

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})
008367410-01	OBS	No	1.284101	131.713566	71.6	8.724	7.3	10.0	0.70	4402	0.66	397.03
008367410-04	OBS	No	31.732588	136.293707	232.5	7.679	14.3	3.3	0.70	4402	1.16	5.52
008367410-05	OBS	No	67.980089	149.377782	1019.4	5.822	13.5	9.8	0.70	4402	2.30	2.00
008367410-07	OBS	No	44.329621	156.488878	671.1	3.623	9.9	6.7	0.70	4402	2.27	3.53
008367410-08	OBS	No	19.791548	146.474216	803.1	2.527	10.2	8.7	0.70	4402	2.31	10.35
008367410-09	OBS	No	29.267988	156.314958	336.0	8.696	8.4	5.0	0.70	4402	1.54	6.14
008367410-10	OBS	No	151.560909	145.190516	1333.2	4.208	11.2	8.3	0.70	4402	2.66	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008367410-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008367410-04	OBS	FP	0.00	1	0	0	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—CENT_FEW_DIFFS
008367410-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
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Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

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

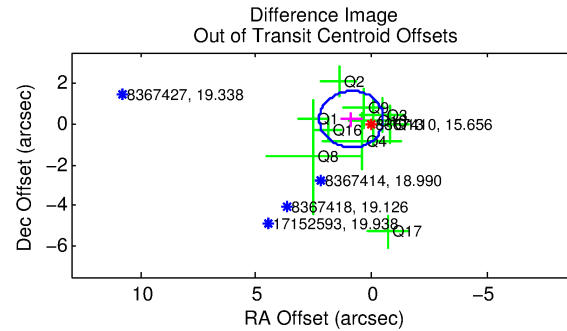
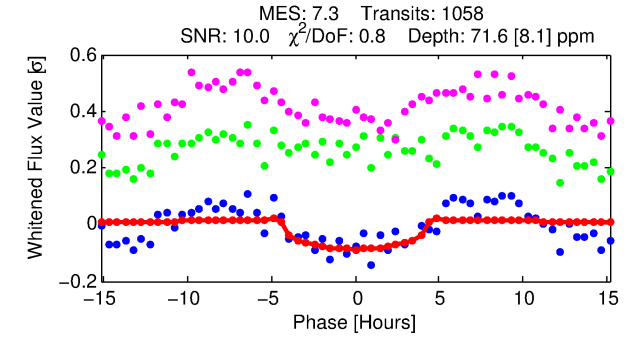
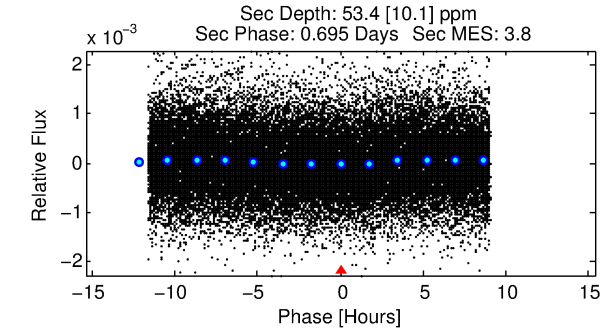
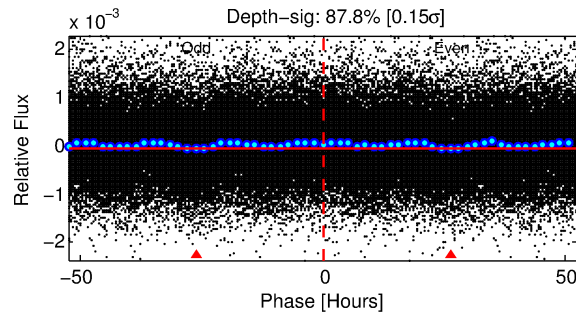
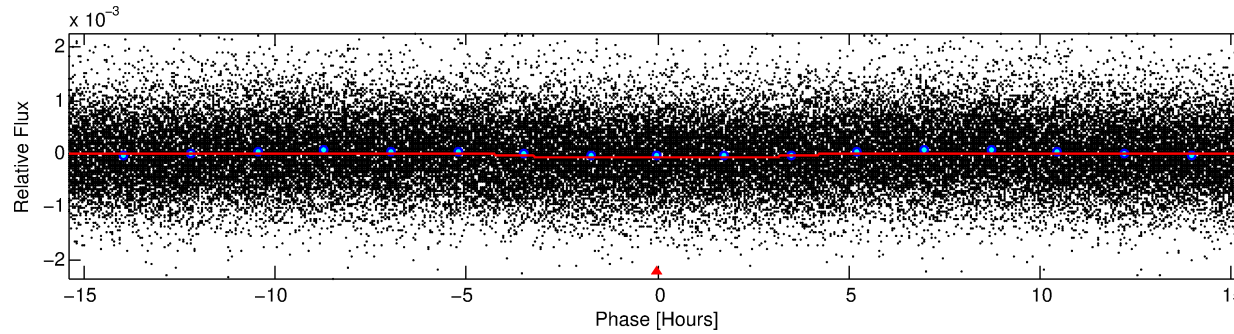
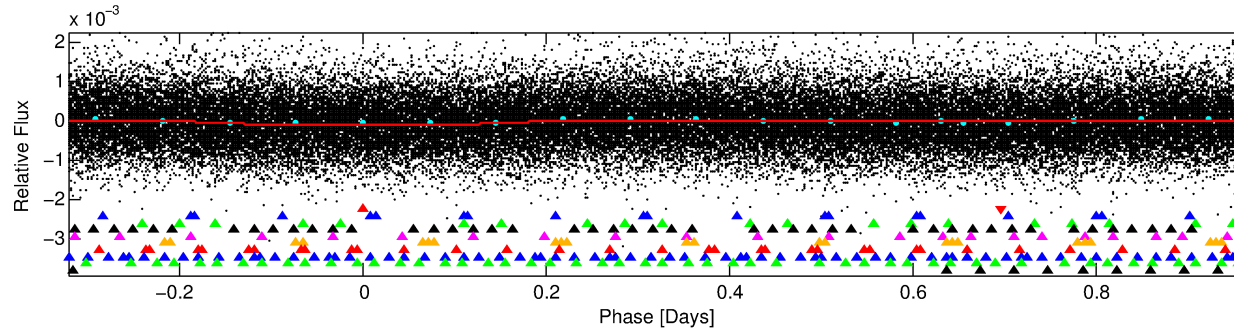
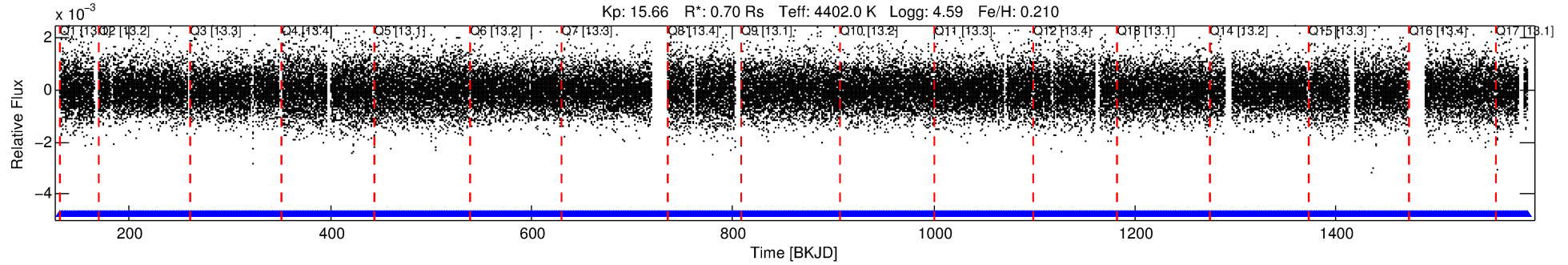
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008367410-01

No Significant Match Found

DV One-Page Summary

KIC: 8367410 Candidate: 1 of 10 Period: 1.284 d



DV Fit Results:

Period = 1.28410 [0.00002] d
Epoch = 131.7136 [0.0079] BKJD
Rp/R* = 0.0086 [0.0043]
a/R* = 1.14 [0.42]
b = 0.77 [0.89]
Seff = 397.03 [61.34]
Teff = 4067 [1040] K [2.81 σ]
Ag = 28.53 [29.12] [0.95 σ]
a = 0.0205 [0.0014] AU
Rp = 0.66 [0.33] Re
Teff = 4067 [1040] K [2.81 σ]

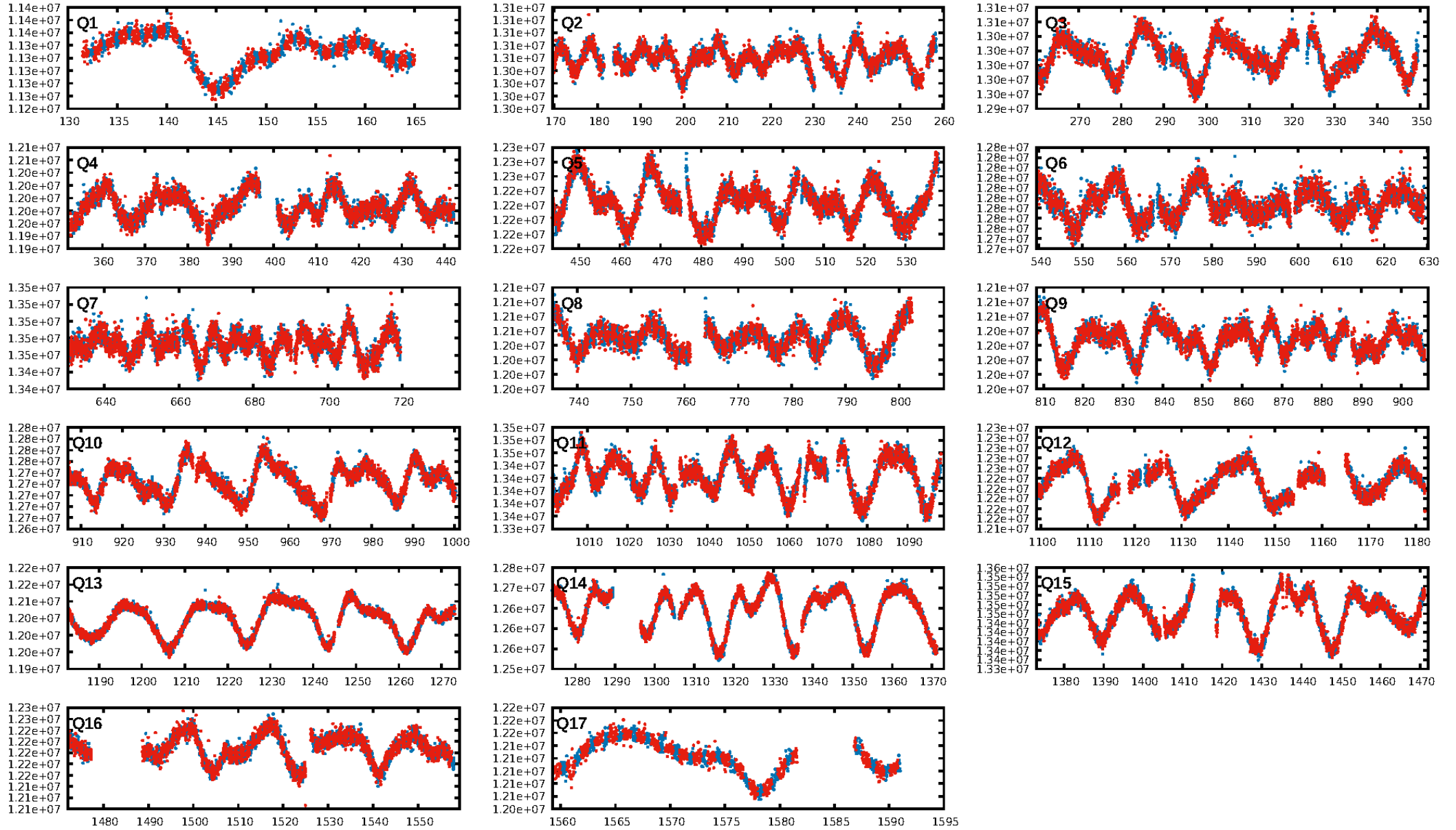
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [48.91 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1010/1010]
GhostDiagnostic-chr: 1.246
Centroid-sig: 0.1%
Centroid-so: 2.094 arcsec [1.92 σ]
OotOffset-rm: 0.908 arcsec [1.97 σ]
KicOffset-rm: 1.073 arcsec [2.50 σ]
OotOffset-st: 2/1/3/4 [10]
KicOffset-st: 2/1/3/4 [10]
DiffImageQuality-fgm: 0.60 [6/10]
DiffImageOverlap-fno: 1.00 [17/17]

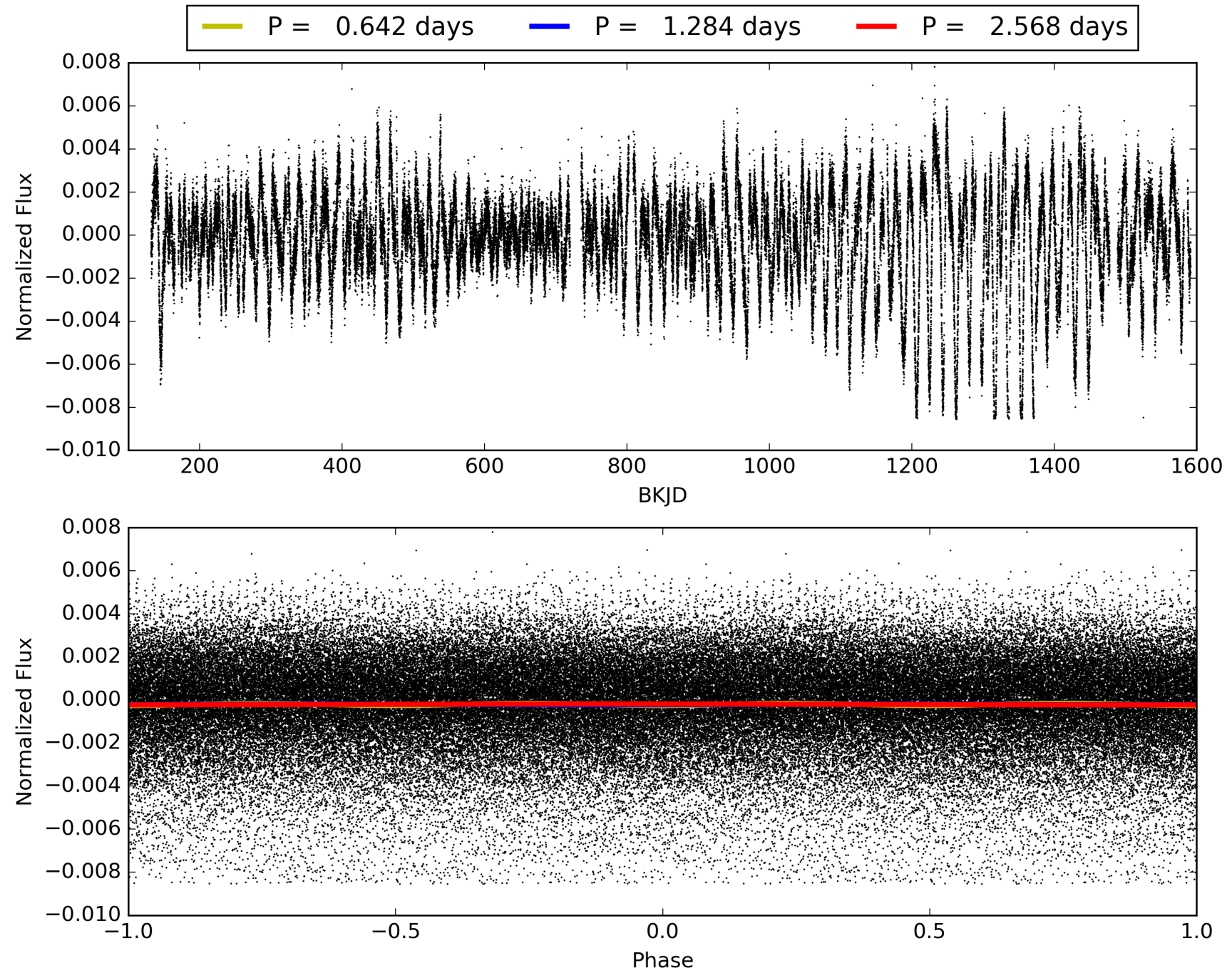
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:11:56 Z

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

TCE 008367410-01, PDC Light Curves

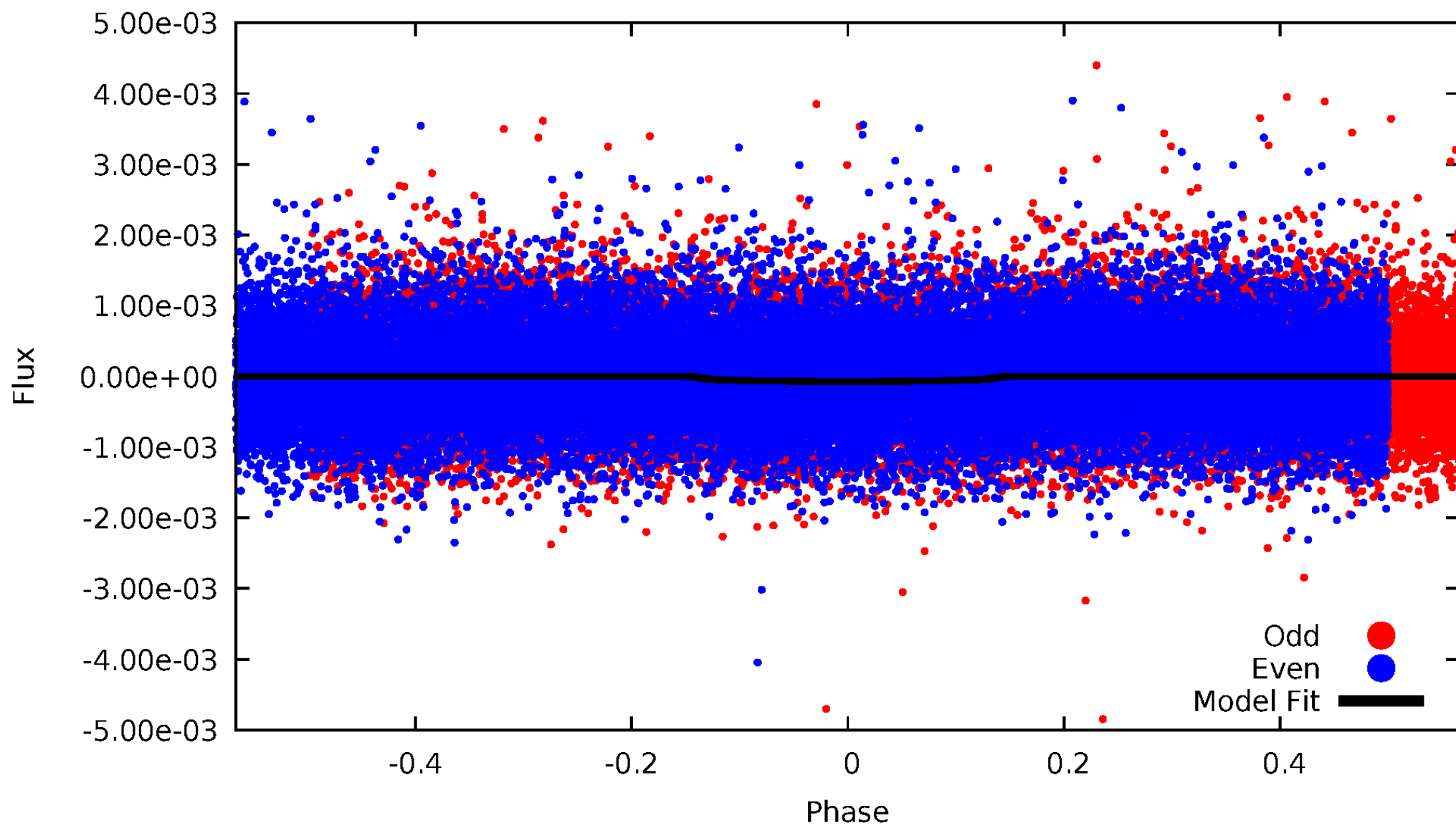


TCE 008367410-01



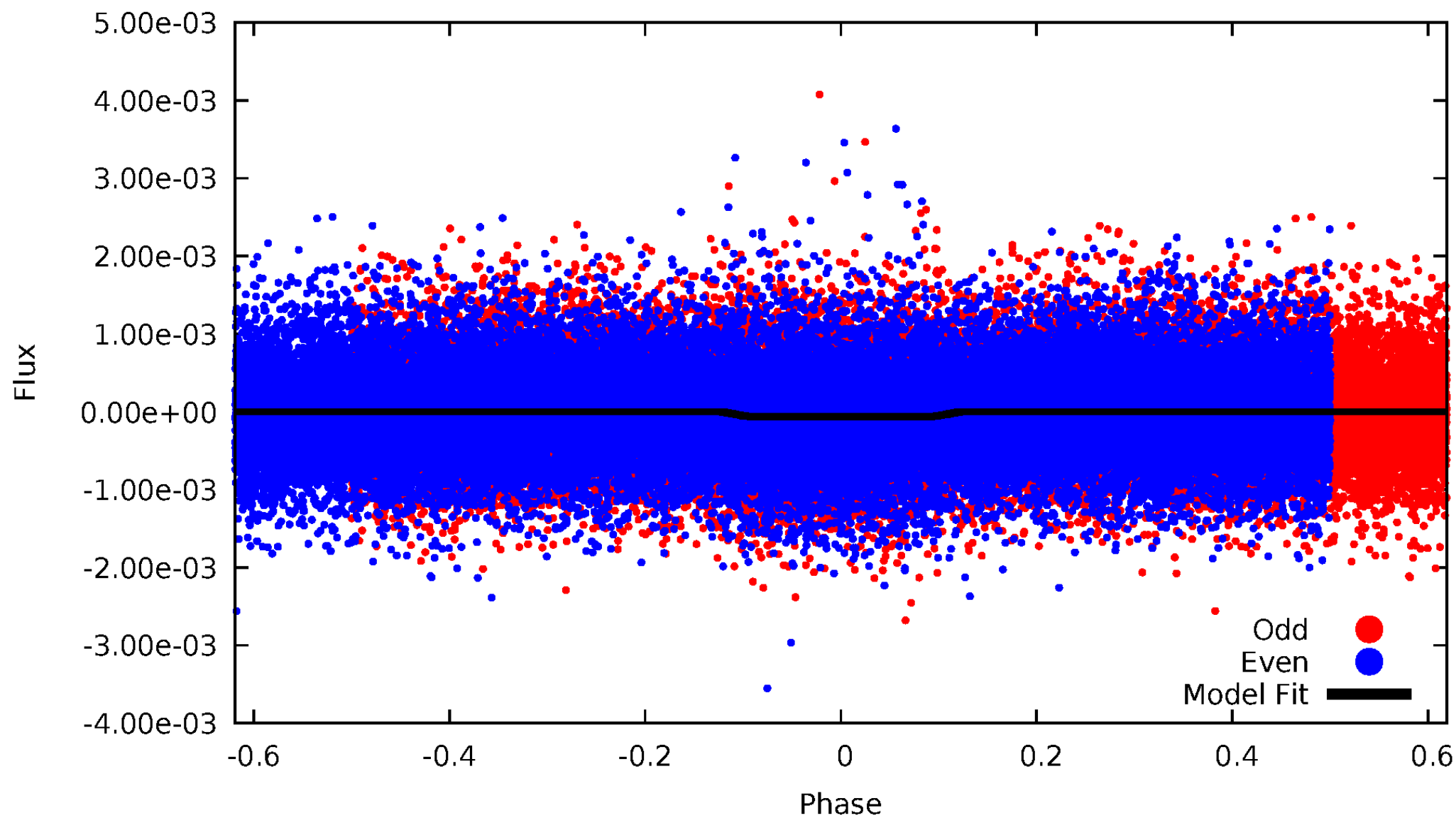
DV Odd/Even

TCE 008367410-01



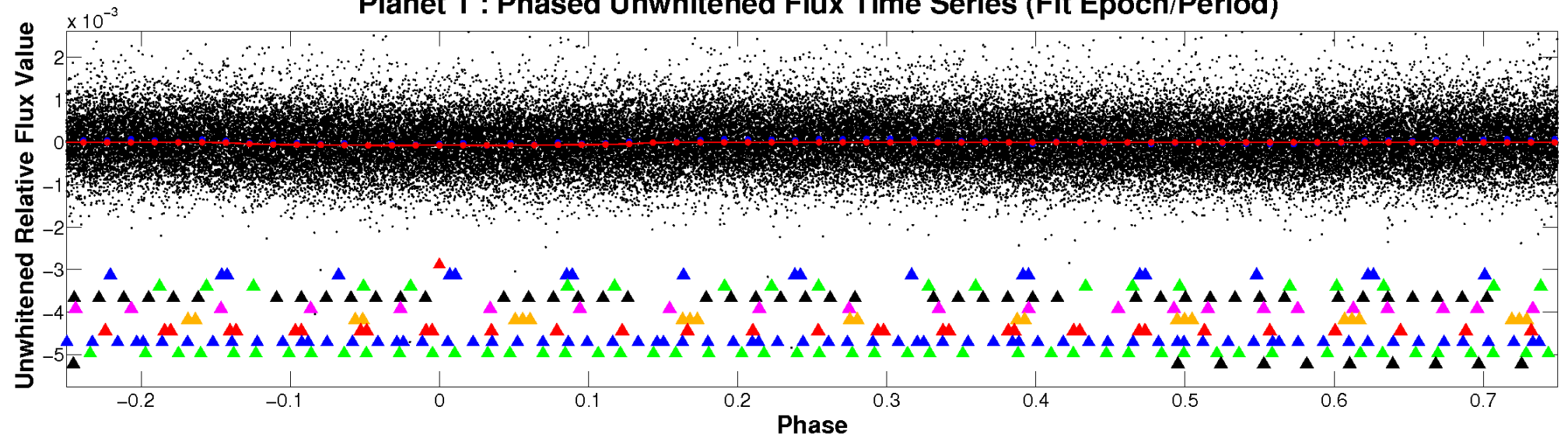
ALT Odd/Even

TCE 008367410-01

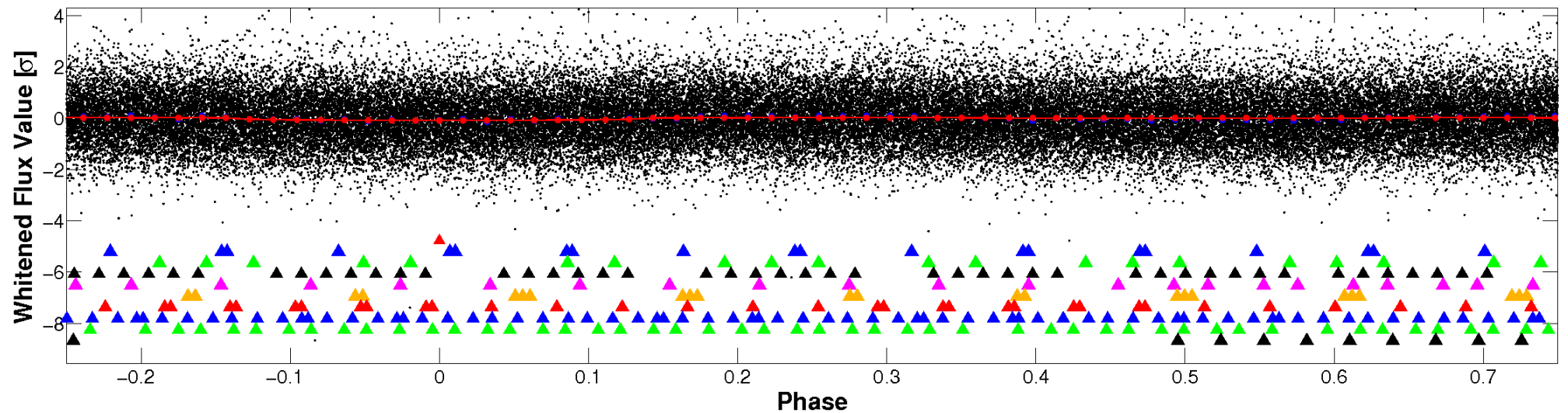


Non-Whitened Vs. Whitened Light Curve

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

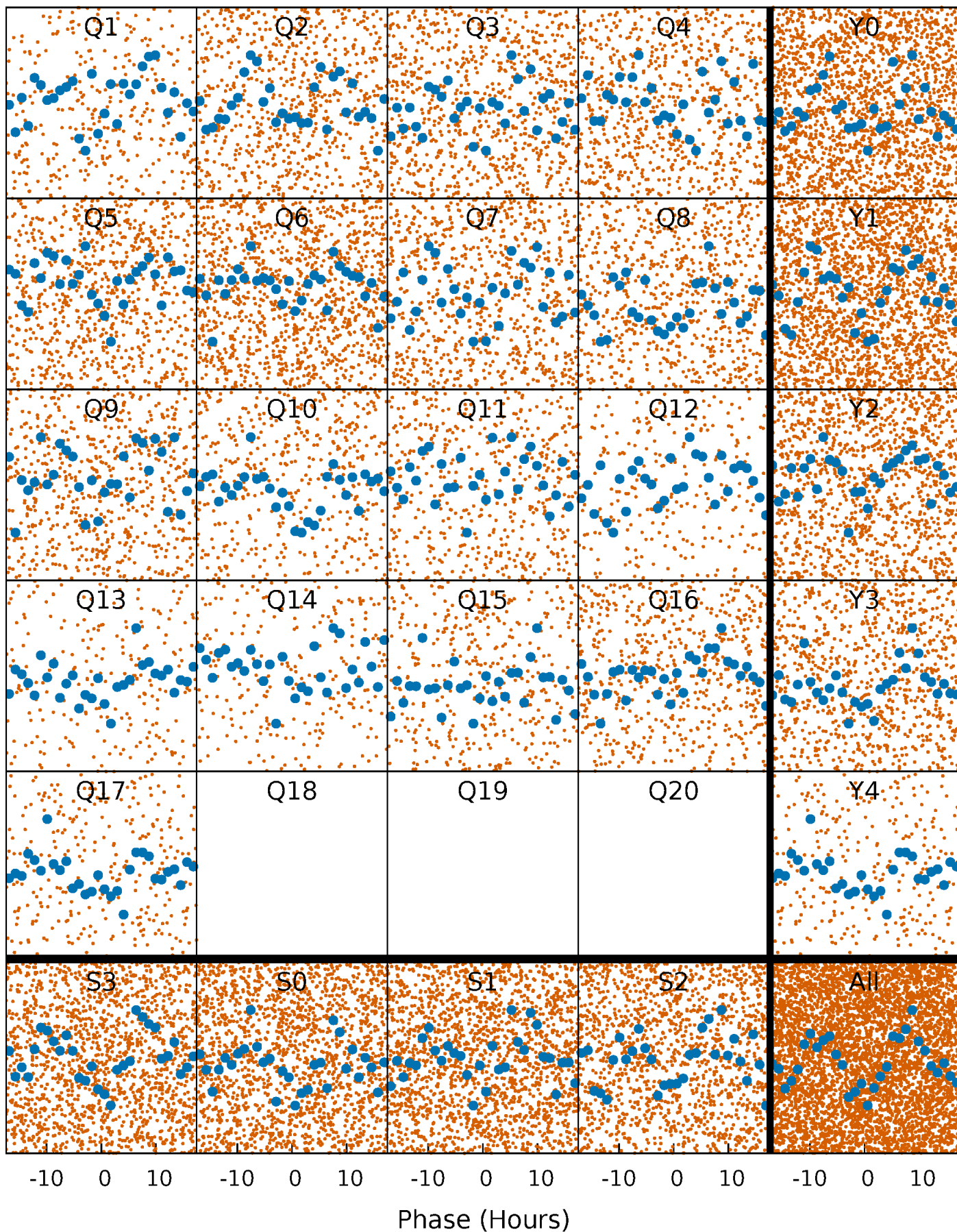


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



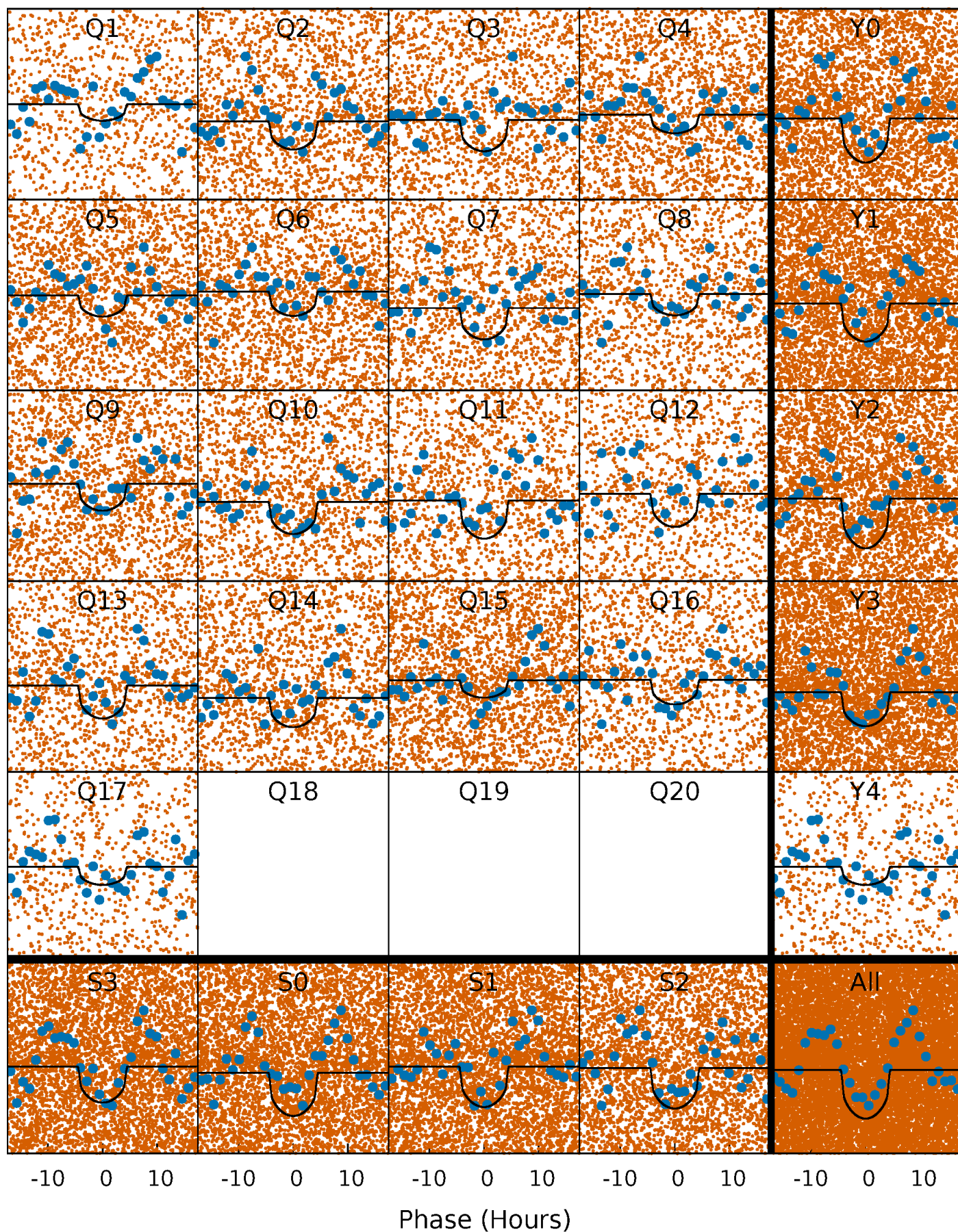
PDC Quarter-Phased Transit Curves

TCE 008367410-01 P= 1.284101 Days $T_0=131.713566$ (BKJD)



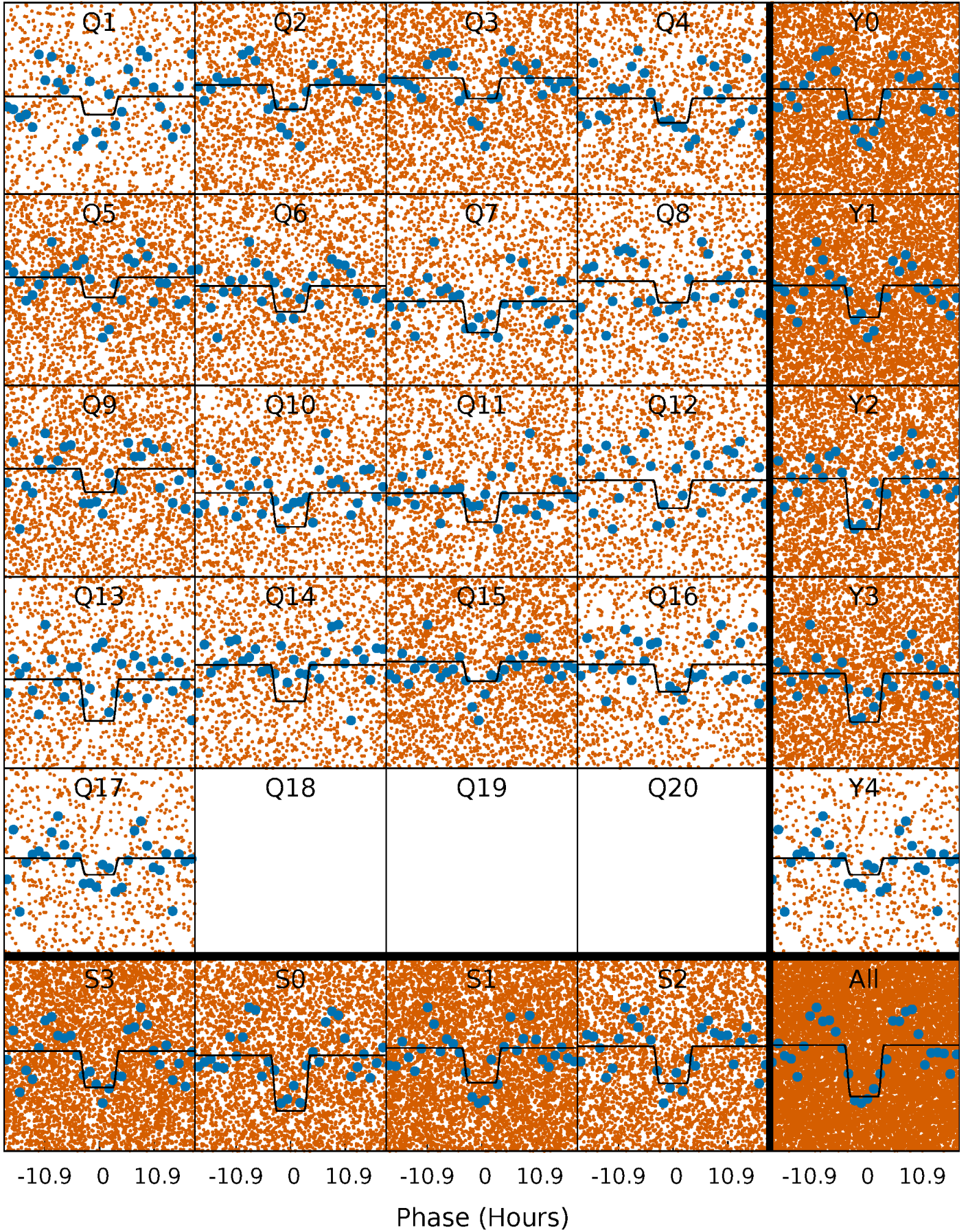
DV Quarter-Phased Transit Curves

TCE 008367410-01 P= 1.284101 Days $T_0=131.713566$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

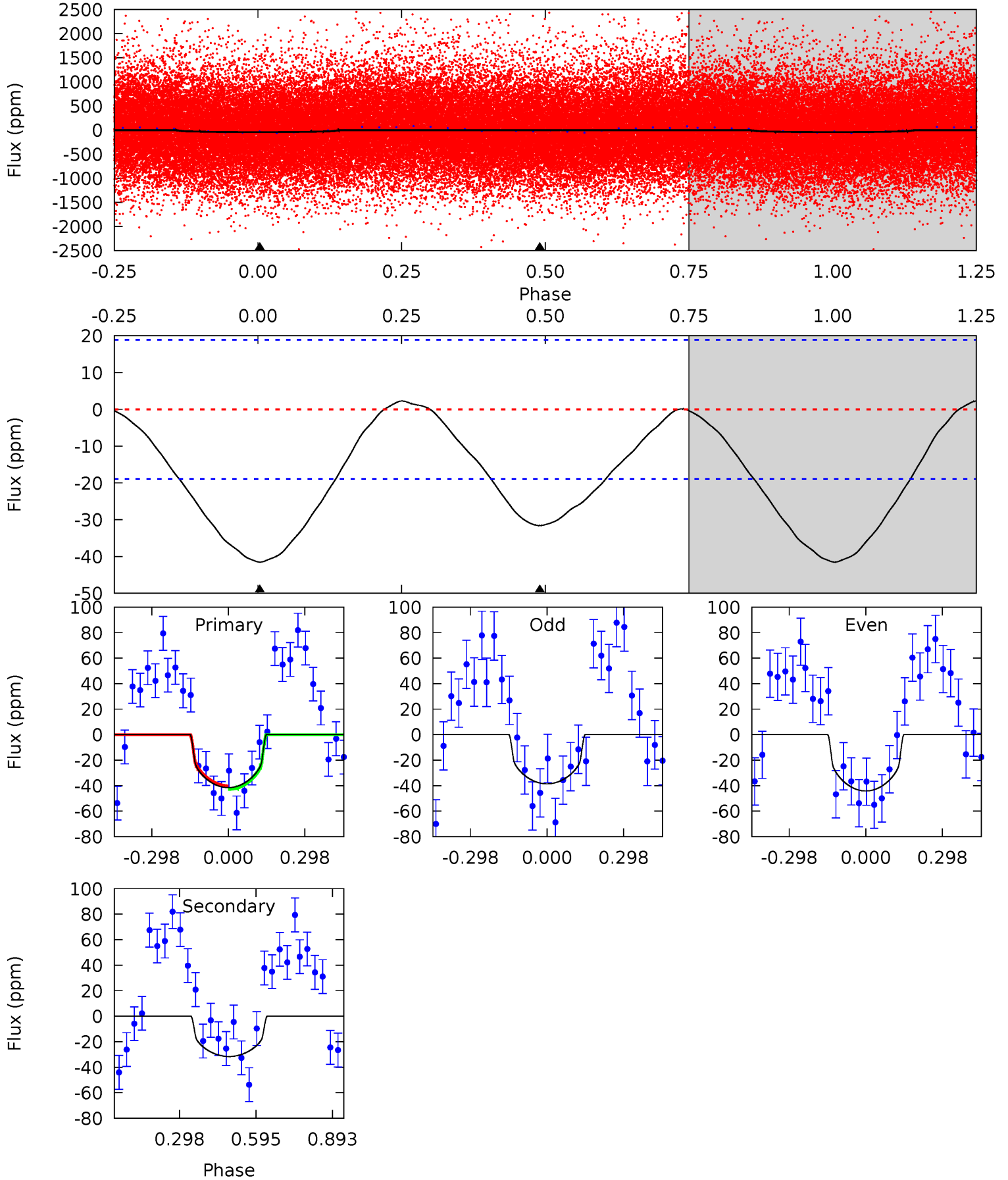
TCE 008367410-01 P= 1.284070 Days $T_0=131.728453$ (BKJD)



DV Model-Shift Uniqueness Test

008367410-01, P = 1.284101 Days, E = 130.429465 Days

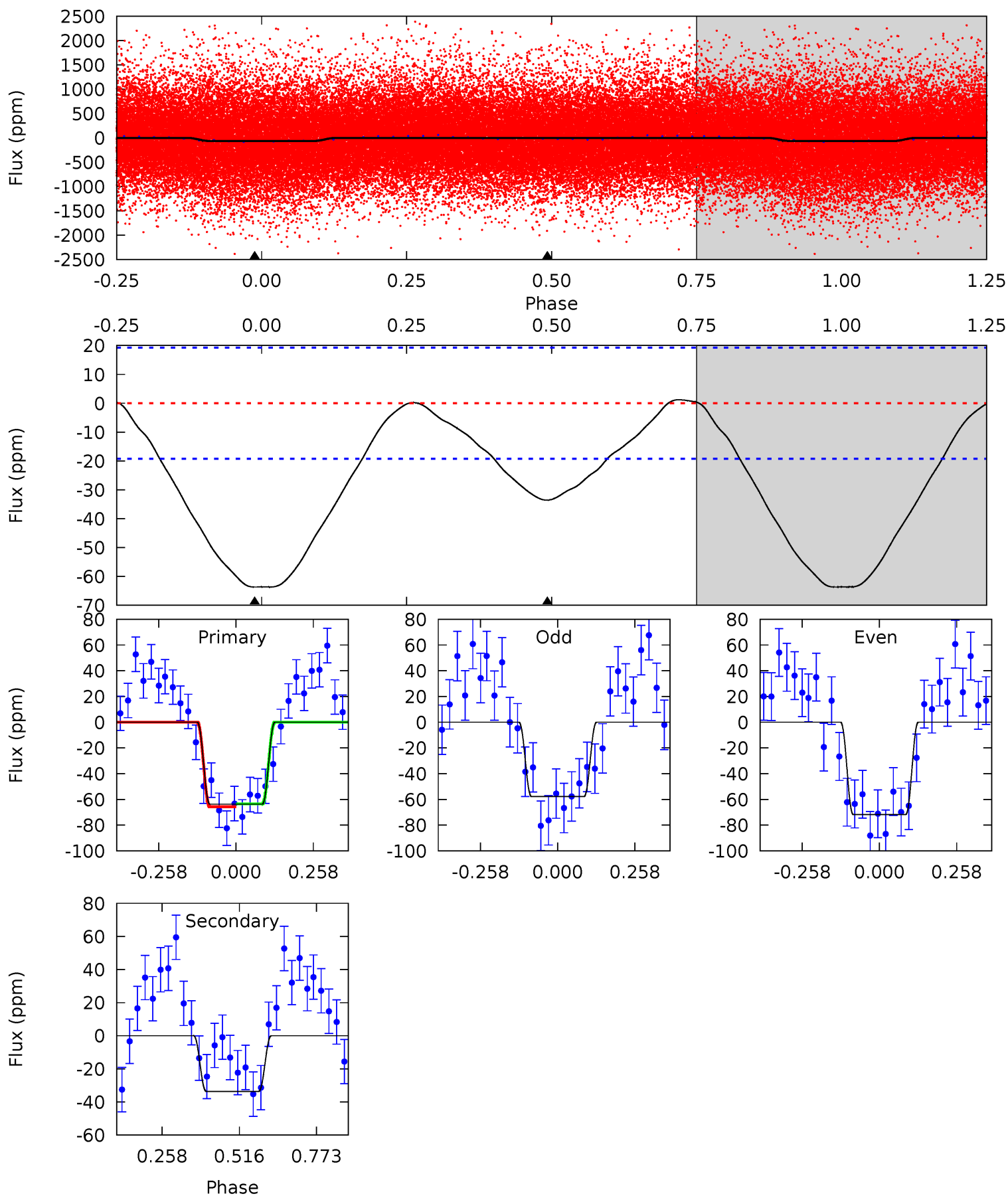
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.52	7.24	0	0	4.33	1.04	0.35	9.52	9.52	7.24	7.24	0.64	1.19	0.05	0.31



Alt Model-Shift Uniqueness Test

008367410-01, P = 1.284070 Days, E = 130.444383 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	7.62	0	0	4.36	1.13	0.46	14.4	14.4	7.62	7.62	1.60	0.85	0.02	0.26



Stellar Parameters For KIC 008367410

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4402^{+132}_{-132}	$4.586^{+0.052}_{-0.016}$	$0.210^{+0.200}_{-0.300}$	$0.705^{+0.029}_{-0.059}$	$0.699^{+0.050}_{-0.050}$	$2.804^{+0.643}_{-0.186}$
	+3%/-3%	+1%/-0%	+95%/-143%	+4%/-8%	+7%/-7%	+23%/-7%
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 008367410-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-32 ± 4	$0.66^{+0.32}_{-0.31}$	1581^{+49}_{-53}	3762^{+980}_{-461}	17^{+43}_{-9}
Alt.	-34 ± 4	$0.63^{+0.34}_{-0.32}$	1576^{+52}_{-55}	3842^{+1174}_{-496}	20^{+61}_{-12}

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

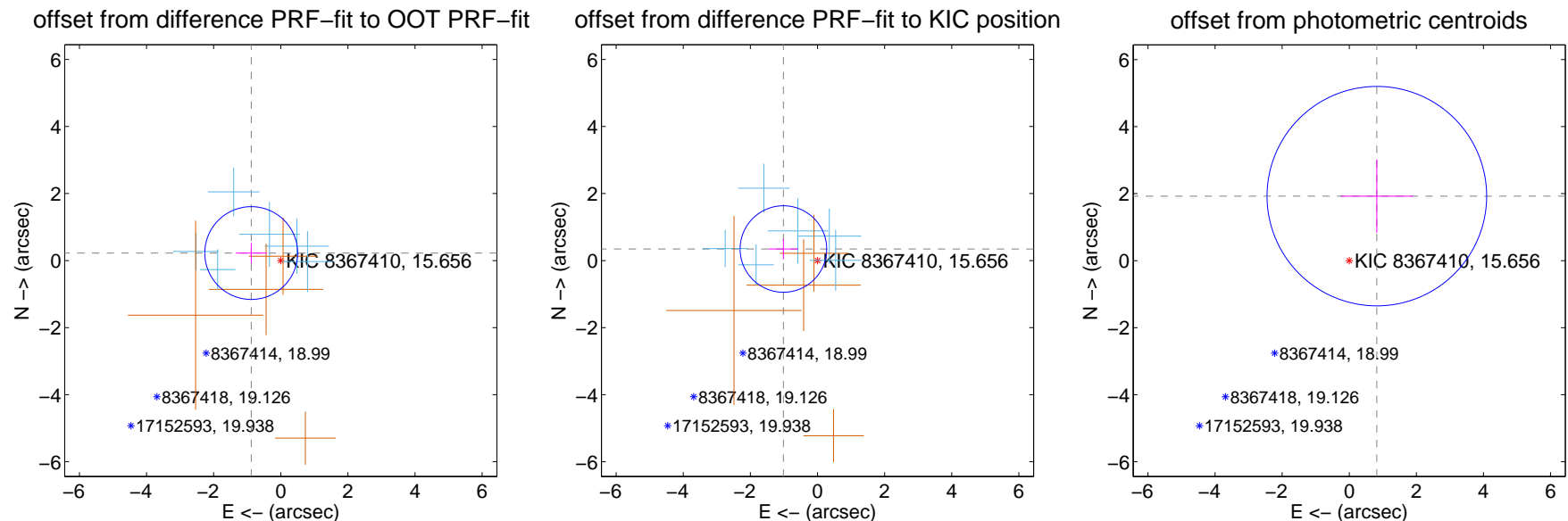
DV Centroid Data

Supplemental centroid analysis for 008367410-01. Kepler magnitude: 15.66. Transit SNR 10.03

There are 6 quarters with good PRF difference image offsets

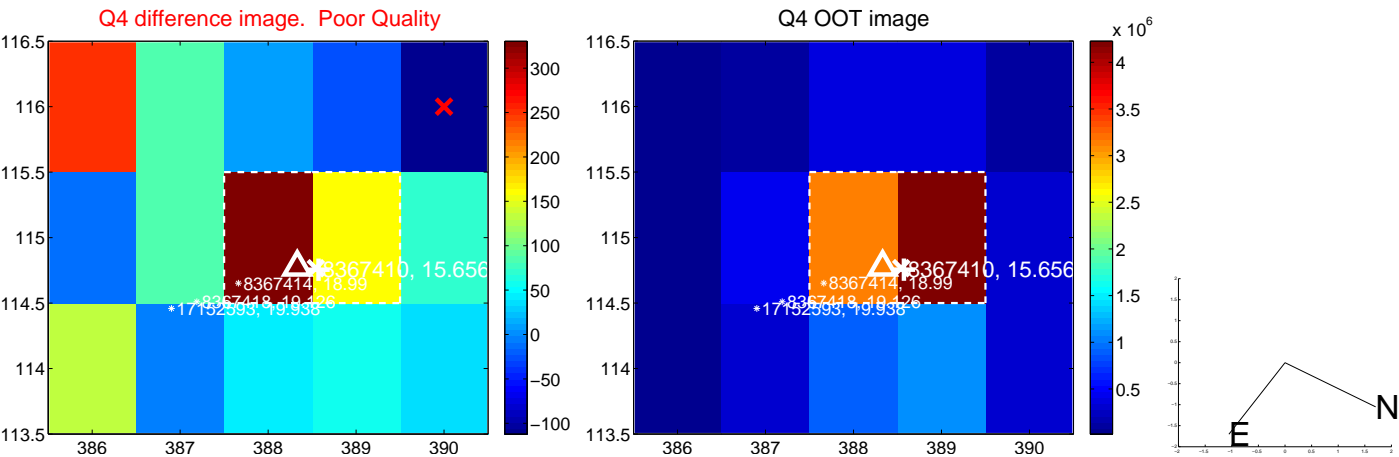
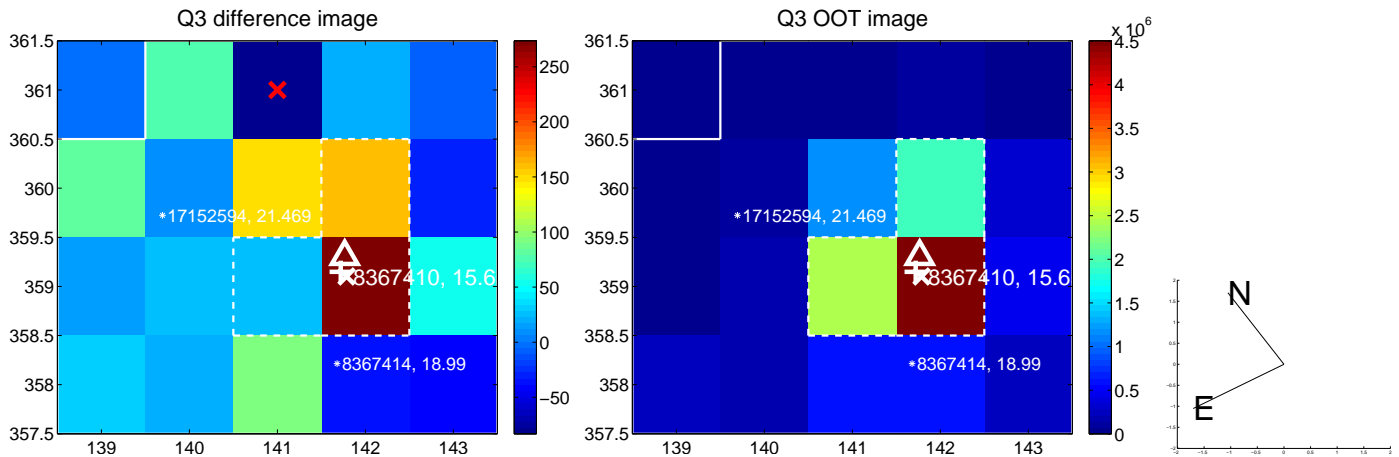
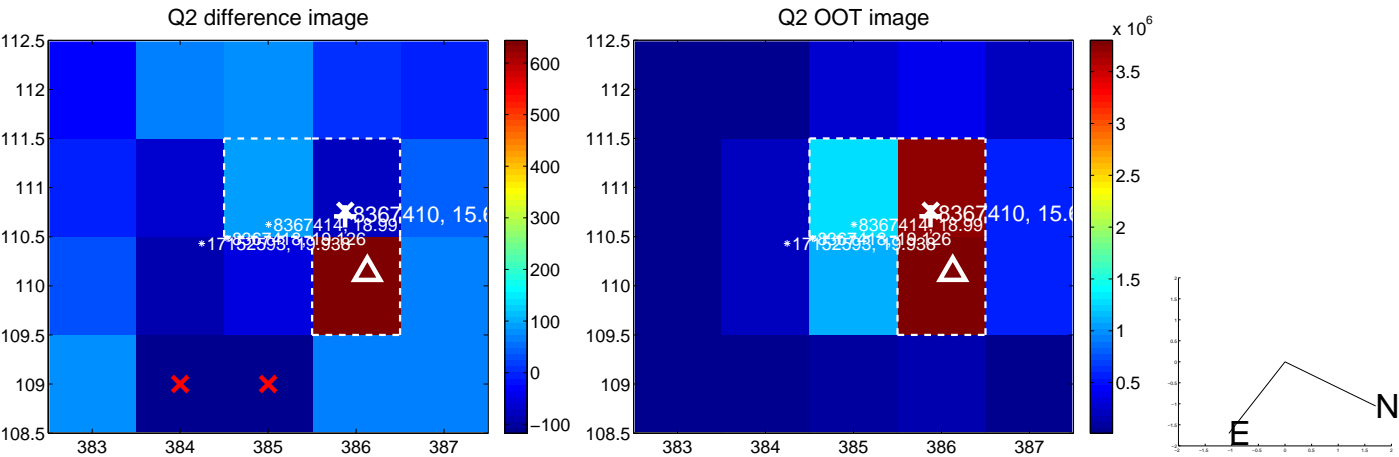
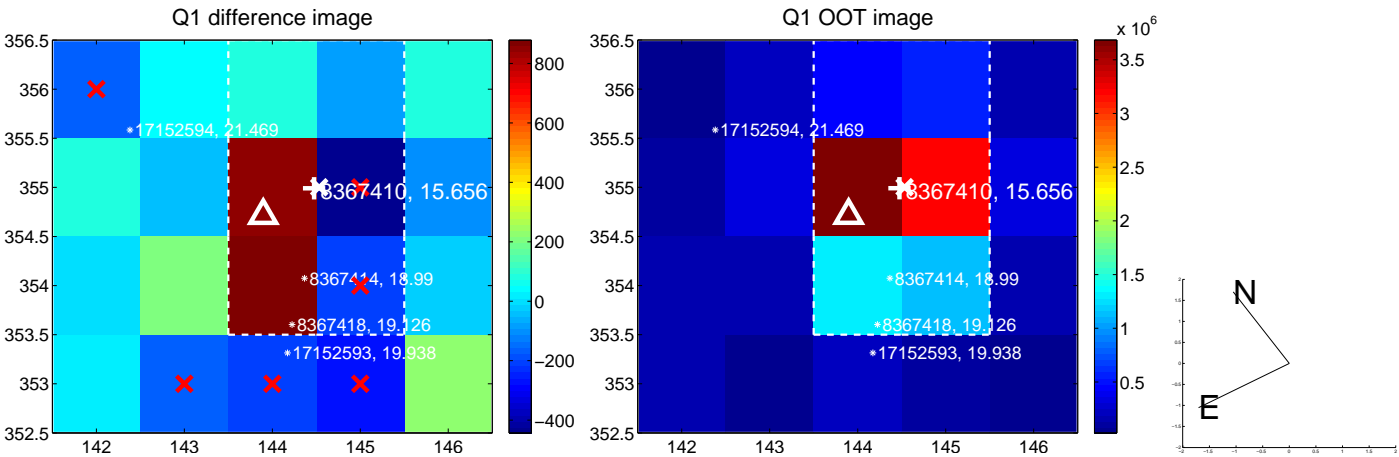
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.908 ± 0.461	1.97	0.880 ± 0.470	0.225 ± 0.302
PRF-fit source offset from KIC position	1.073 ± 0.430	2.50	1.016 ± 0.442	0.345 ± 0.306
photometric centroid source offset	2.09 ± 1.09	1.92	-0.82 ± 1.08	1.93 ± 1.09

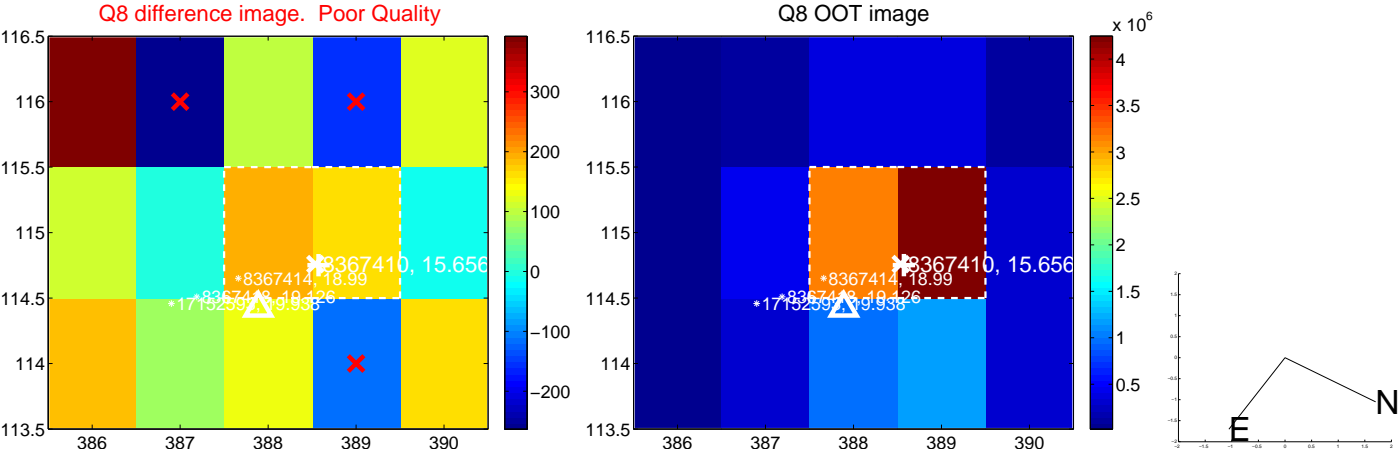
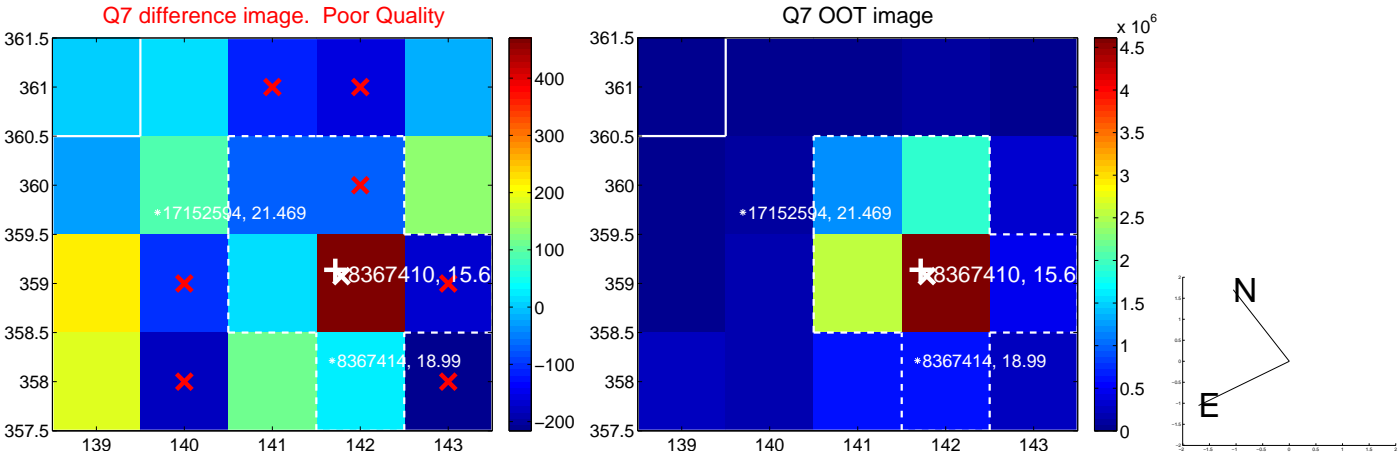
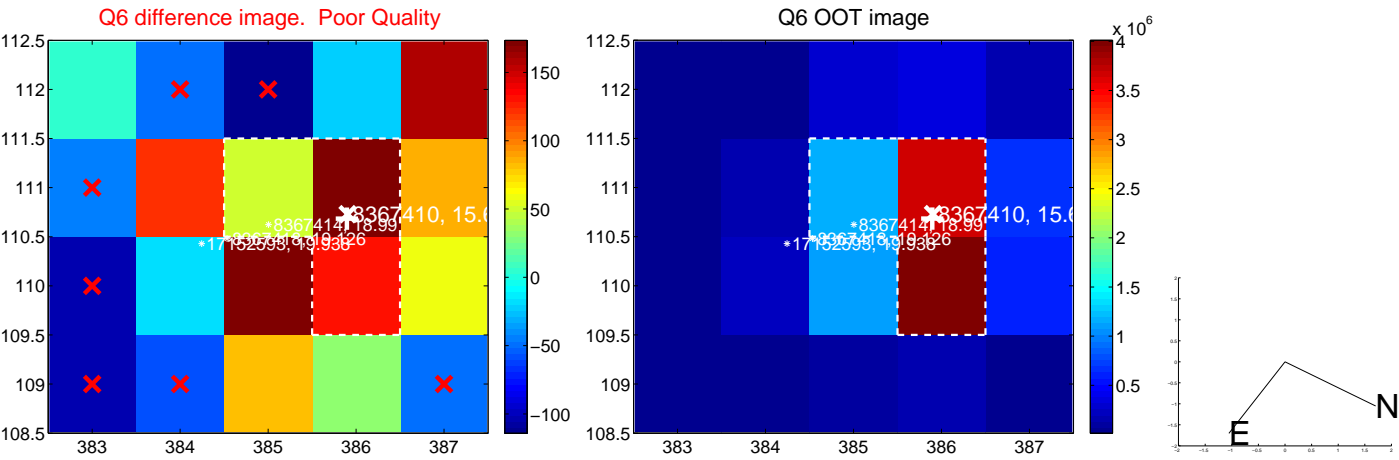
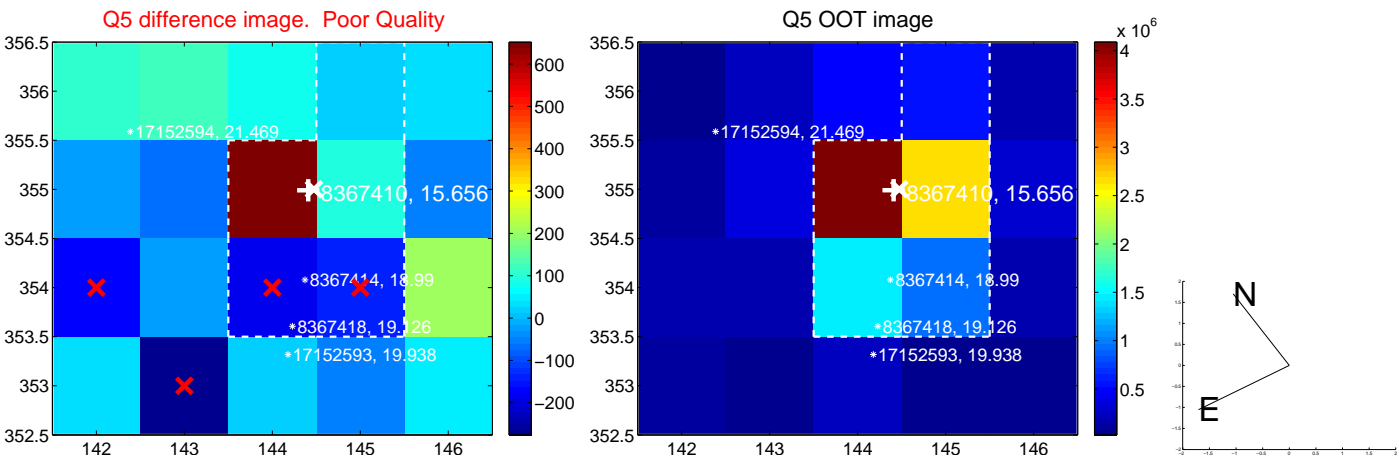


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

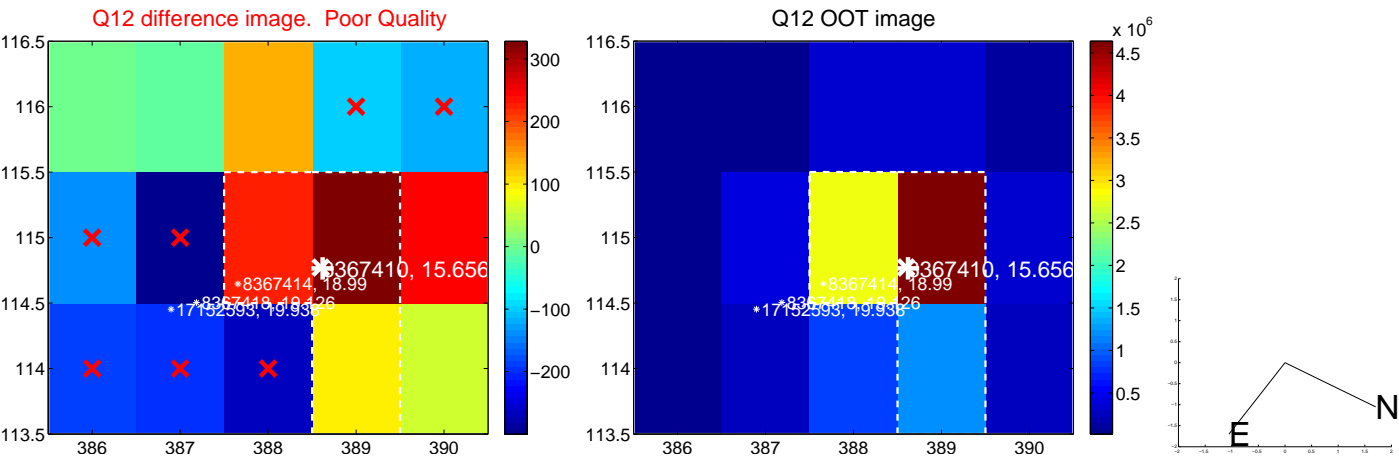
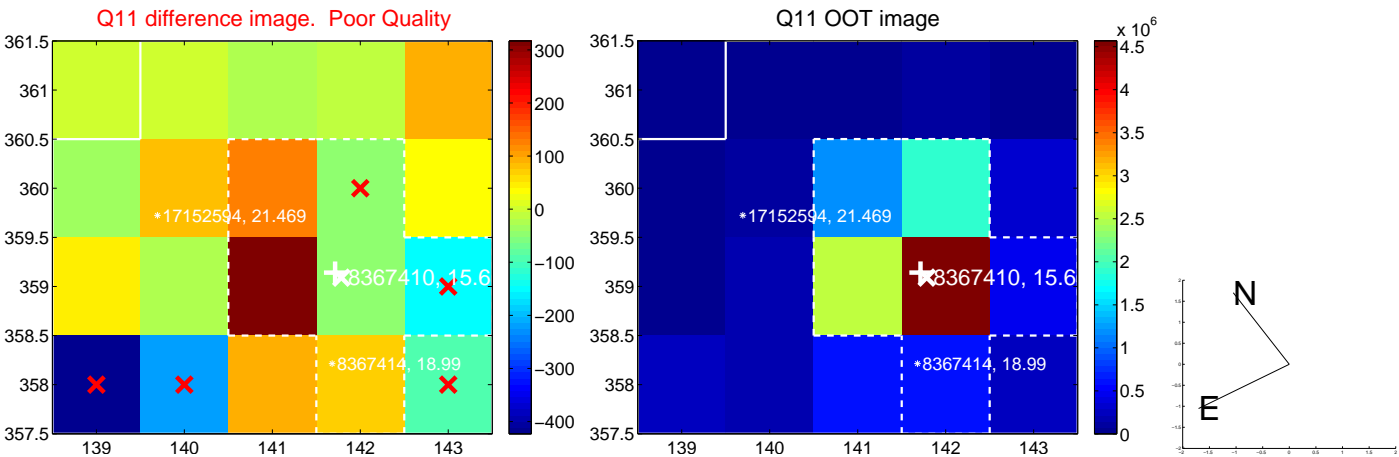
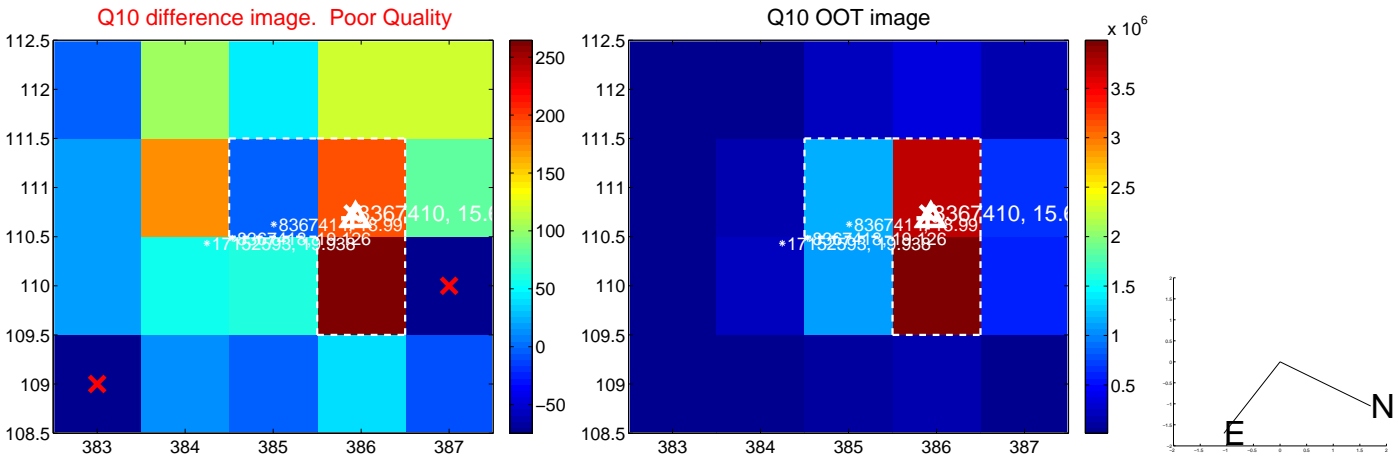
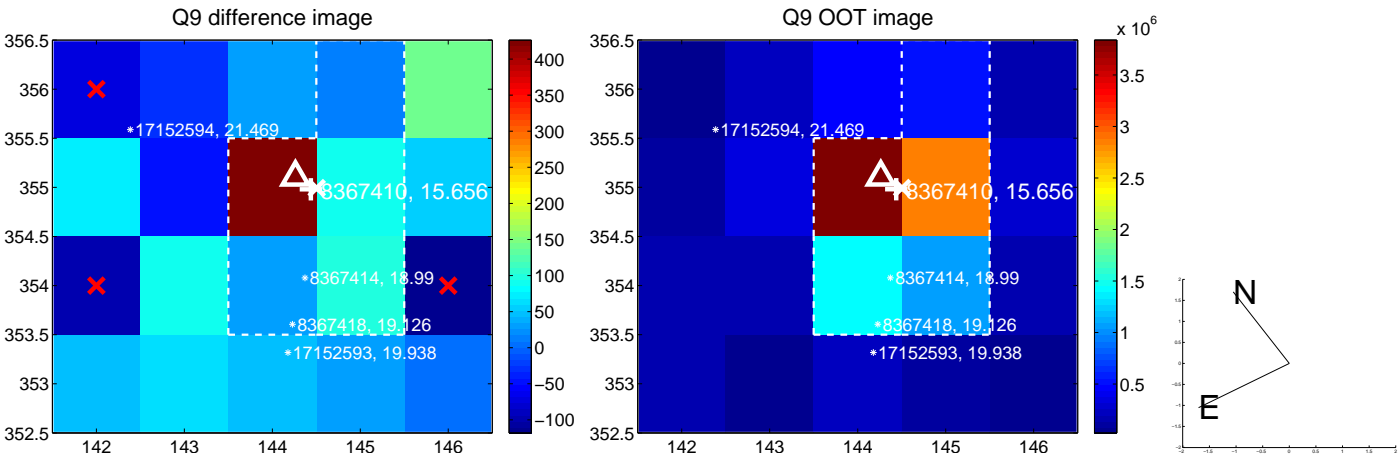
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



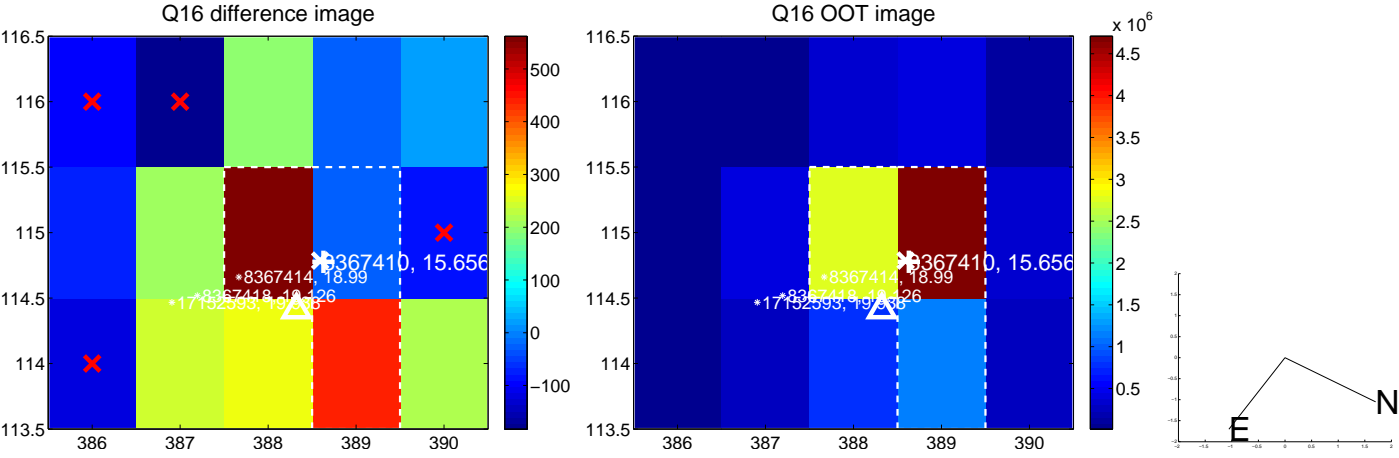
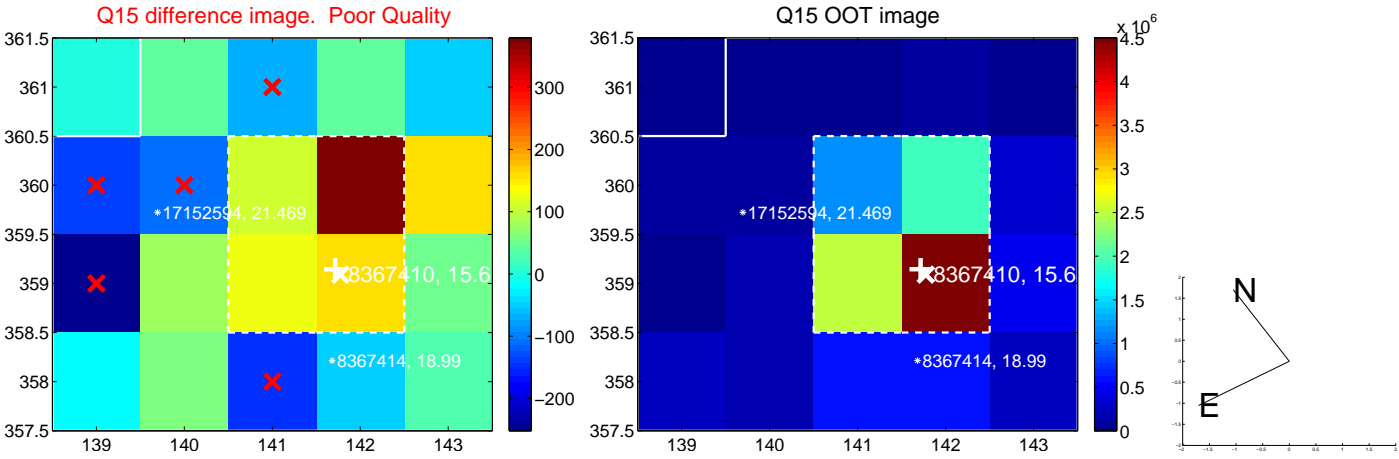
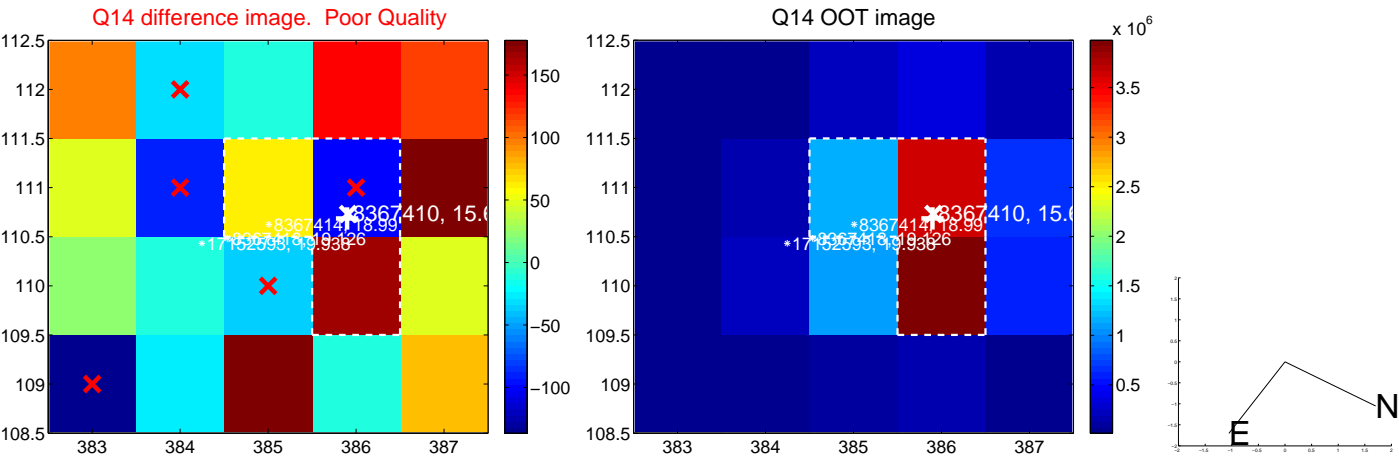
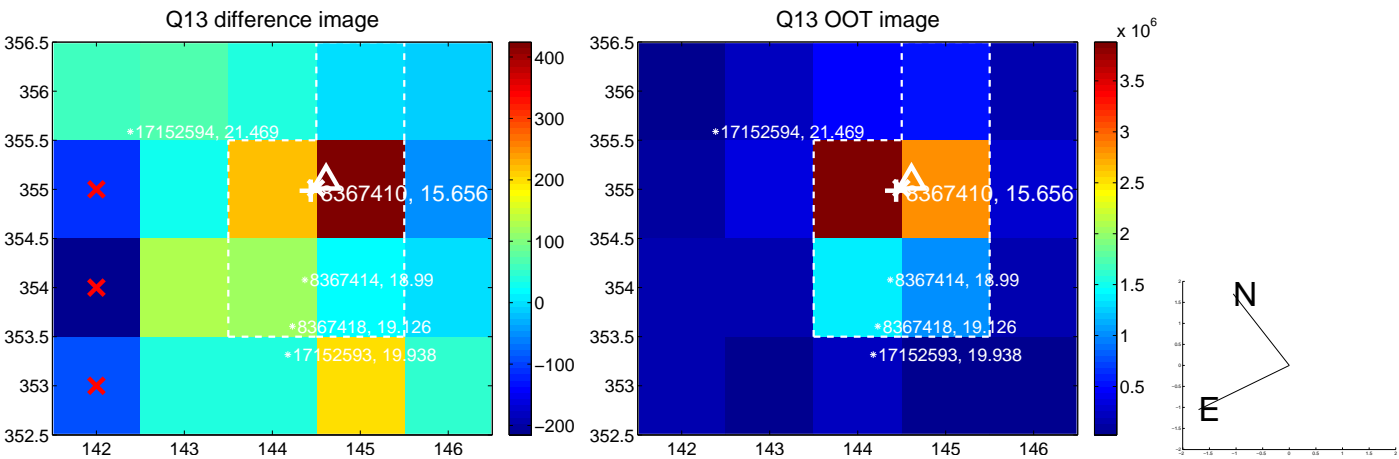
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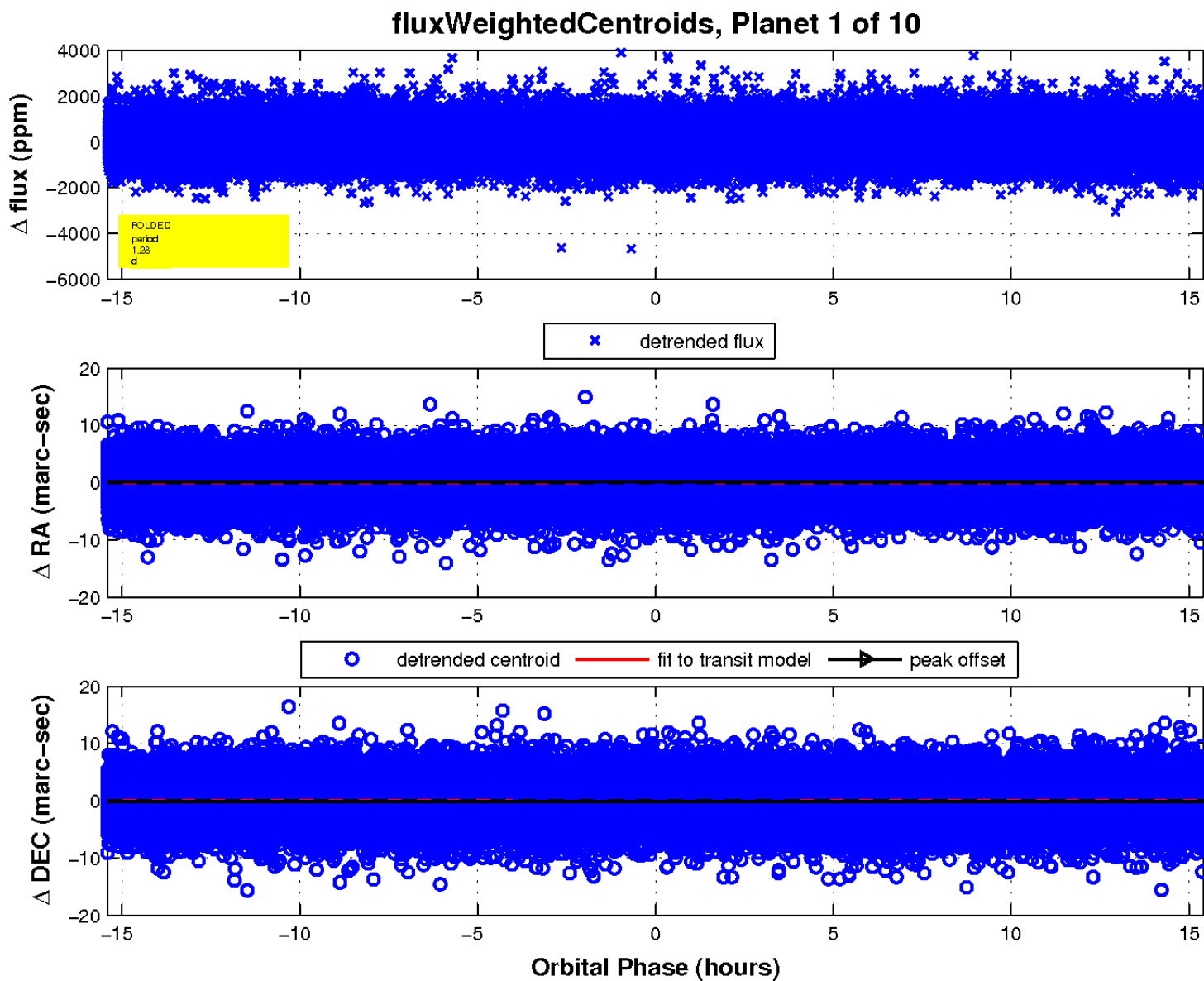
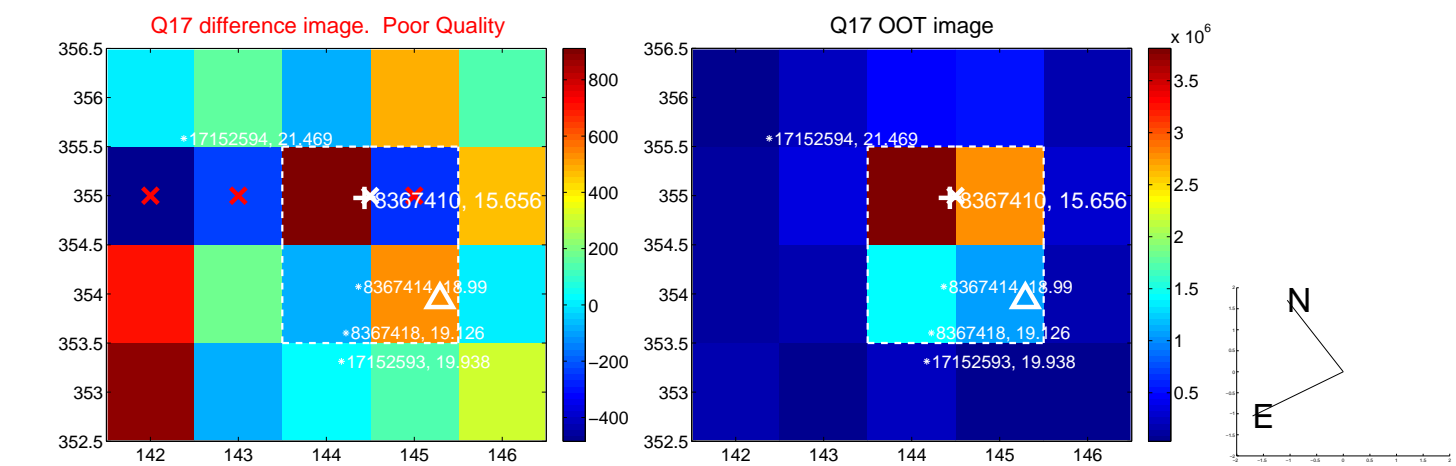
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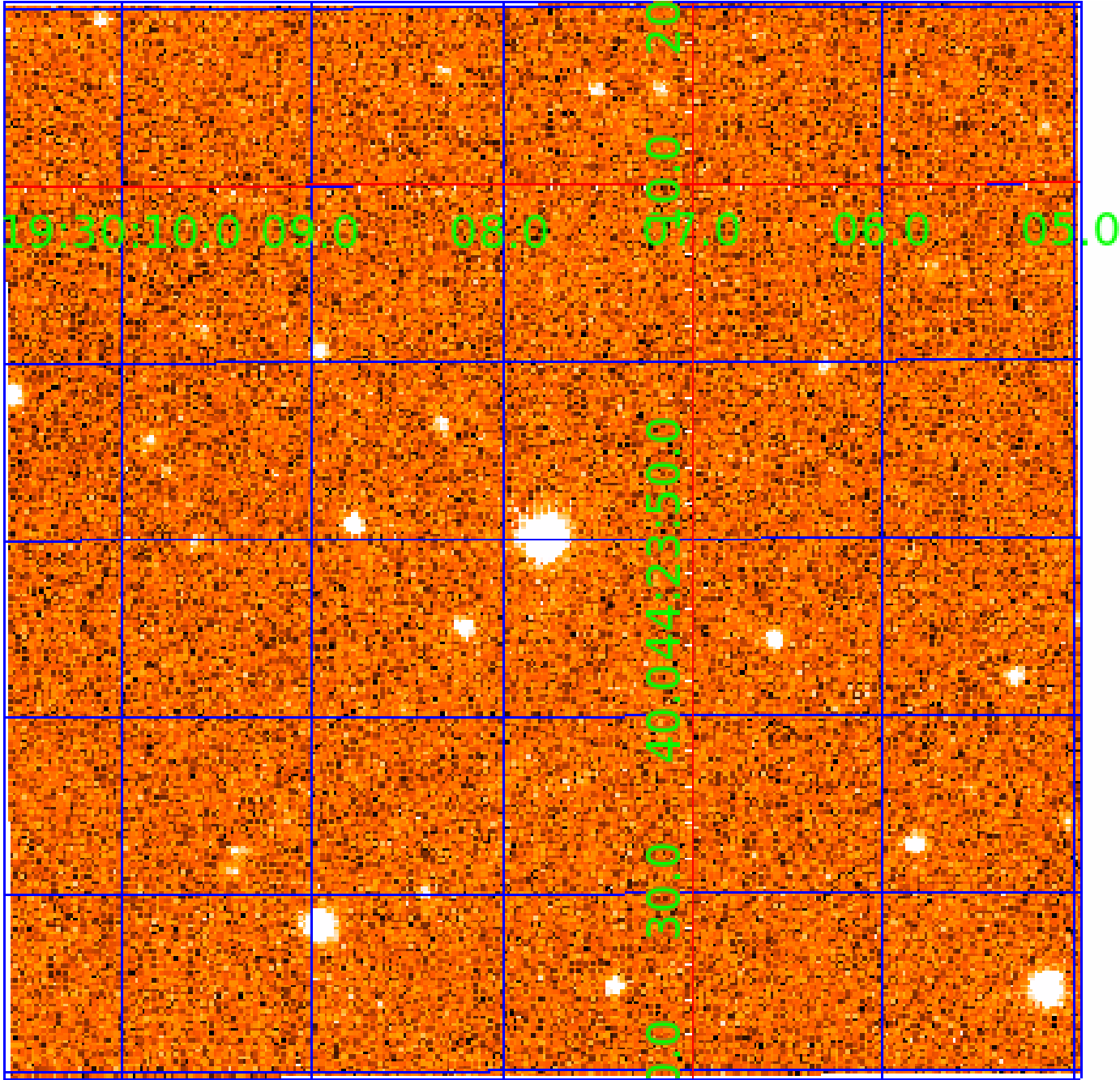


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UKIRT Image

Declination



KIC 008367410

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008367410-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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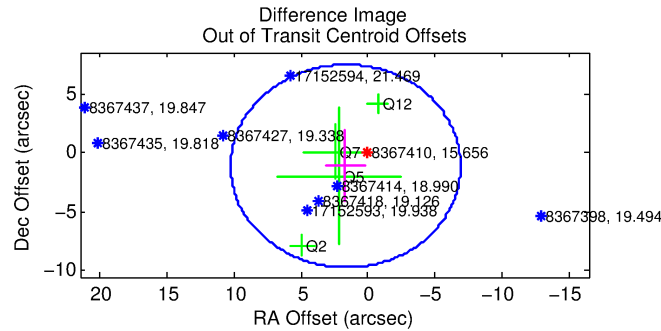
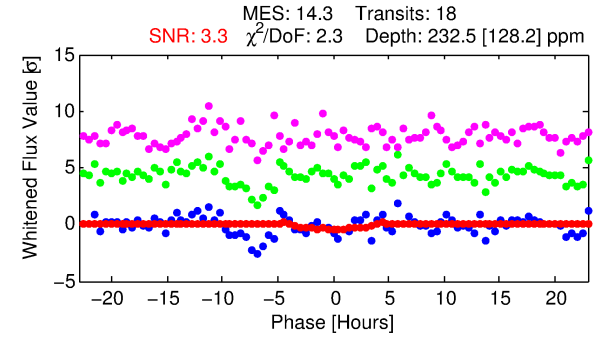
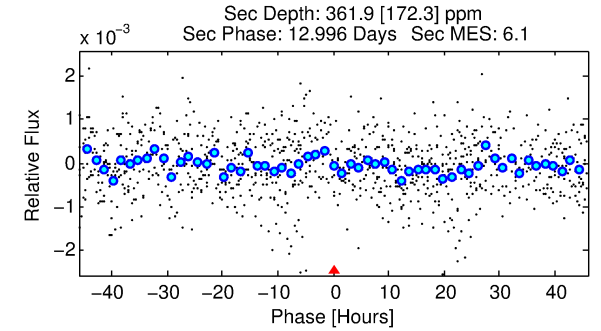
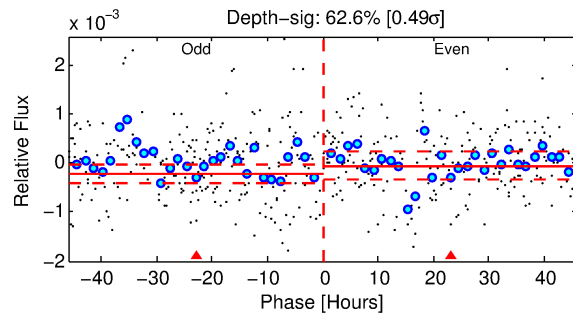
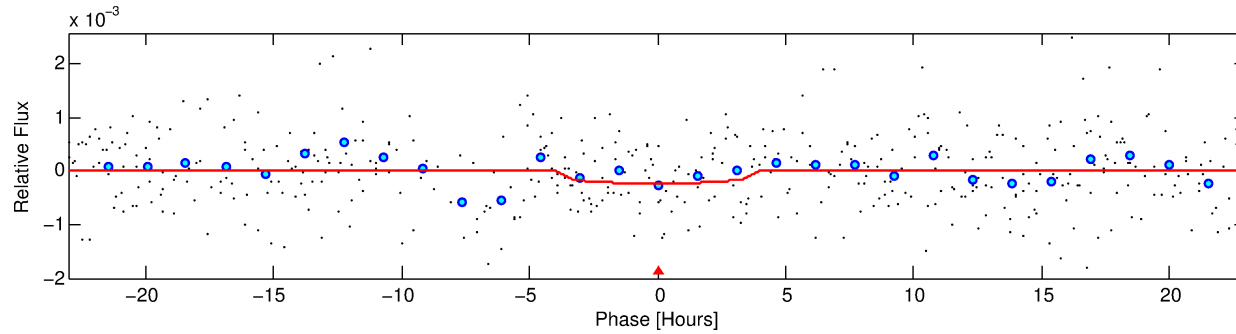
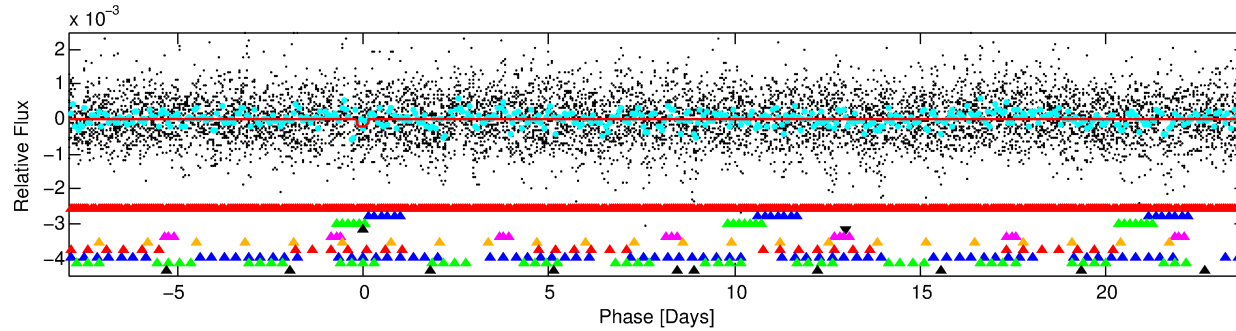
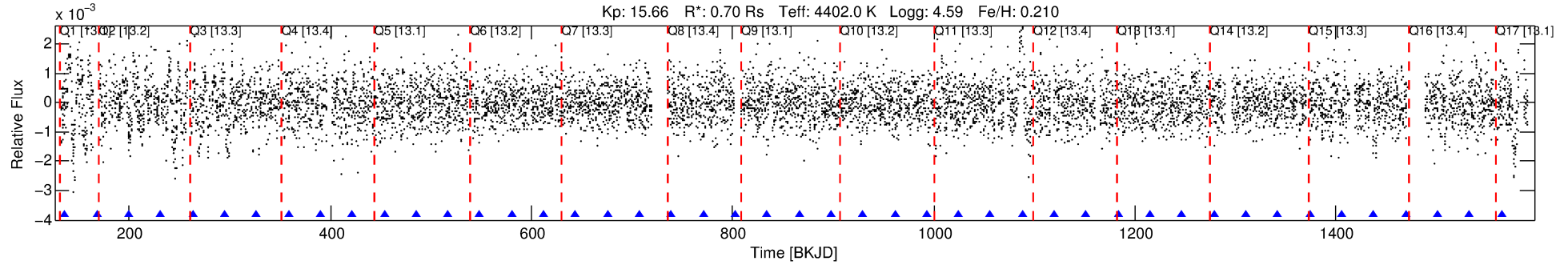
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008367410-04

No Significant Match Found

DV One-Page Summary

KIC: 8367410 Candidate: 4 of 10 Period: 31.733 d



DV Fit Results:

Period = 31.73259 [0.00216] d
Epoch = 136.2937 [0.0594] BKJD
Rp/R* = 0.0151 [0.0428]
a/R* = 22.32 [196.30]
b = 0.73 [5.79]
Seff = 5.52 [0.85]
Teq = 391 [15] K
Rp = 1.16 [3.29] Re
a = 0.1741 [0.0119] AU
Ag = 4464.06 [25354.75] [0.18 σ]
Teffp = 4939 [7013] K [0.65 σ]

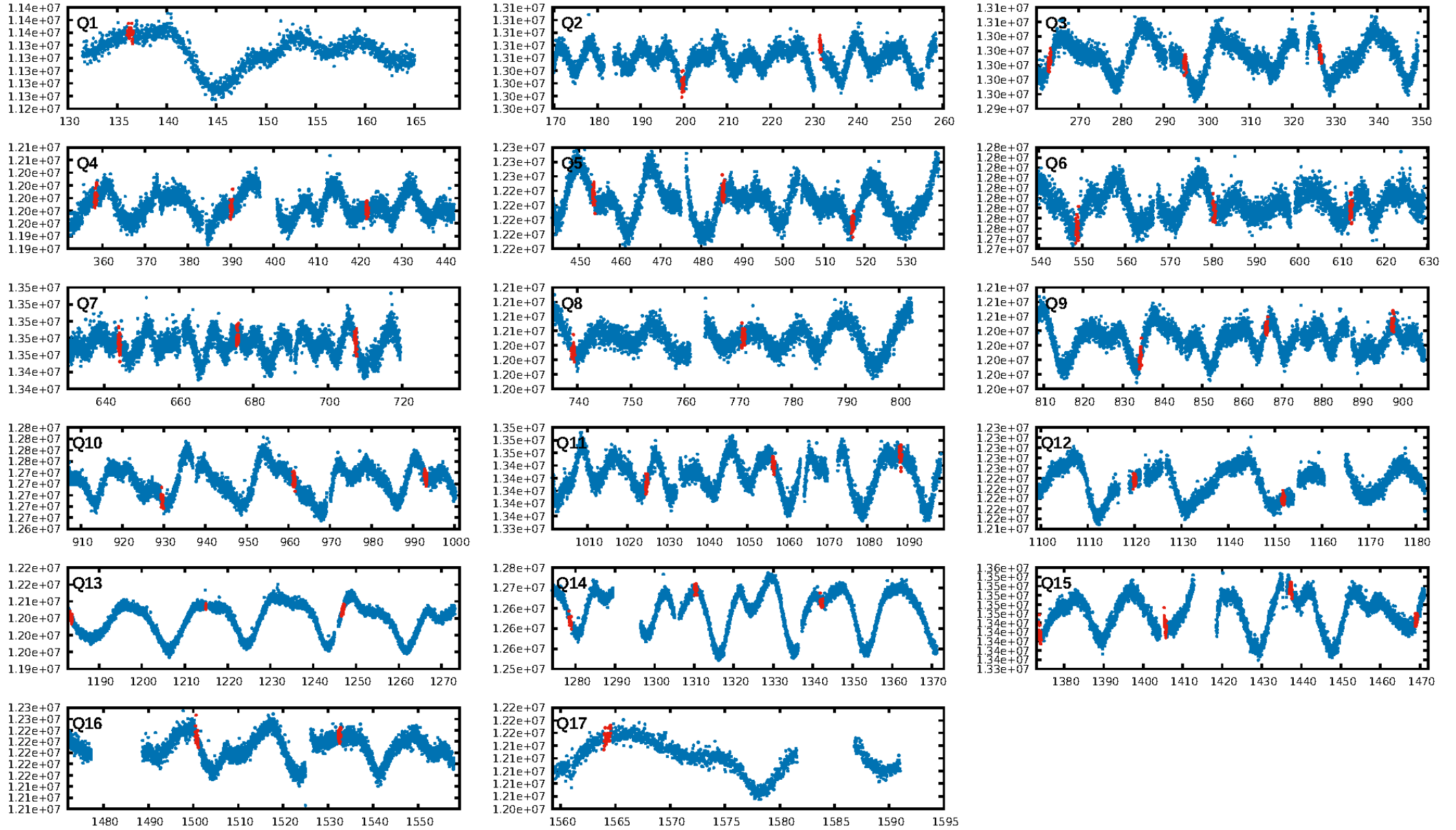
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.10 σ]
LongPeriod-sig: 100.0% [35.61 σ]
ModelChiSquare2-sig: 11.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [16/16]
GhostDiagnostic-chr: -0.9756
Centroid-sig: 6.1%
Centroid-so: 2.441 arcsec [1.35 σ]
OotOffset-rm: 2.009 arcsec [0.70 σ]
KicOffset-rm: 2.008 arcsec [0.80 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.00 [0/16]

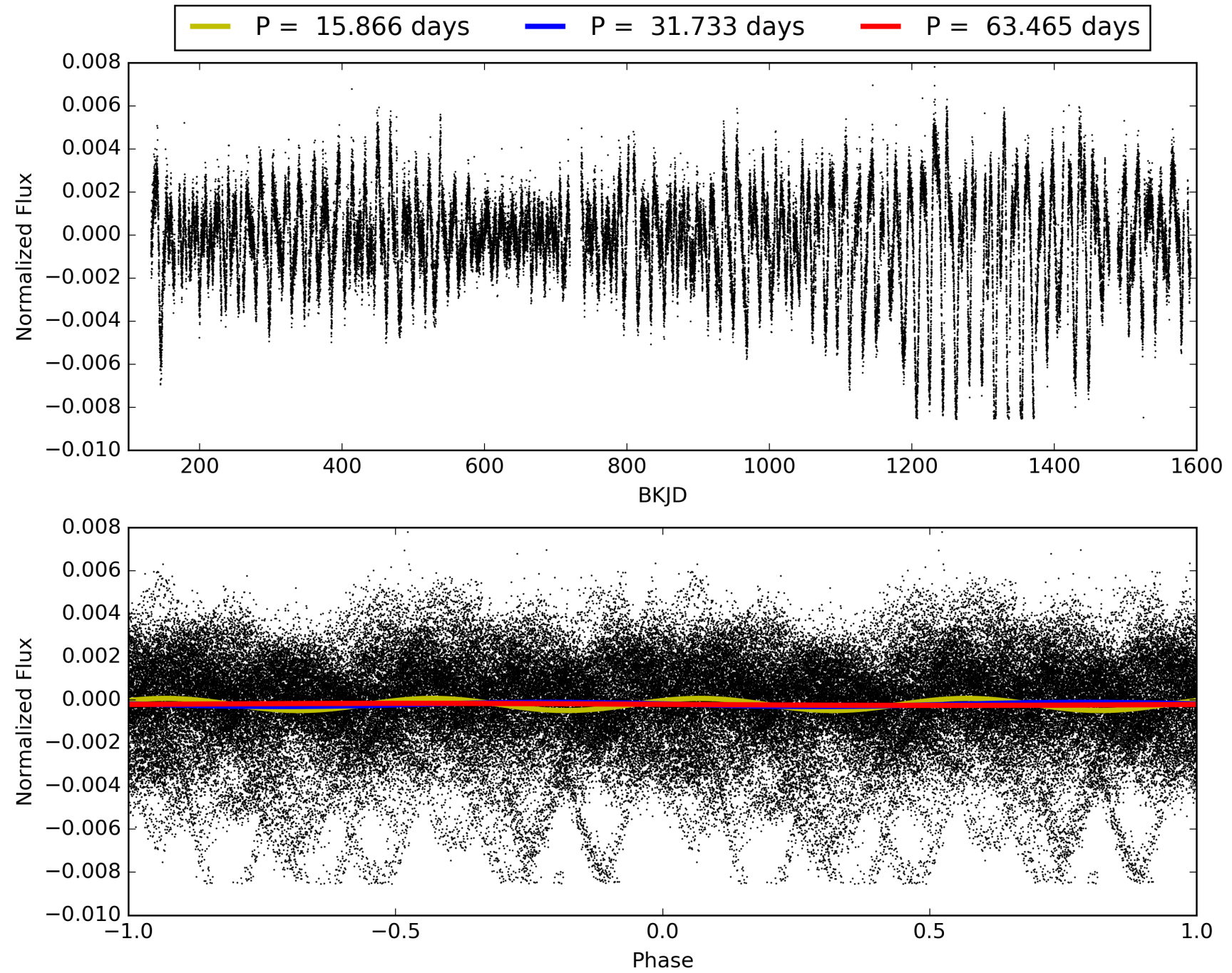
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:12:15 Z

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

TCE 008367410-04, PDC Light Curves

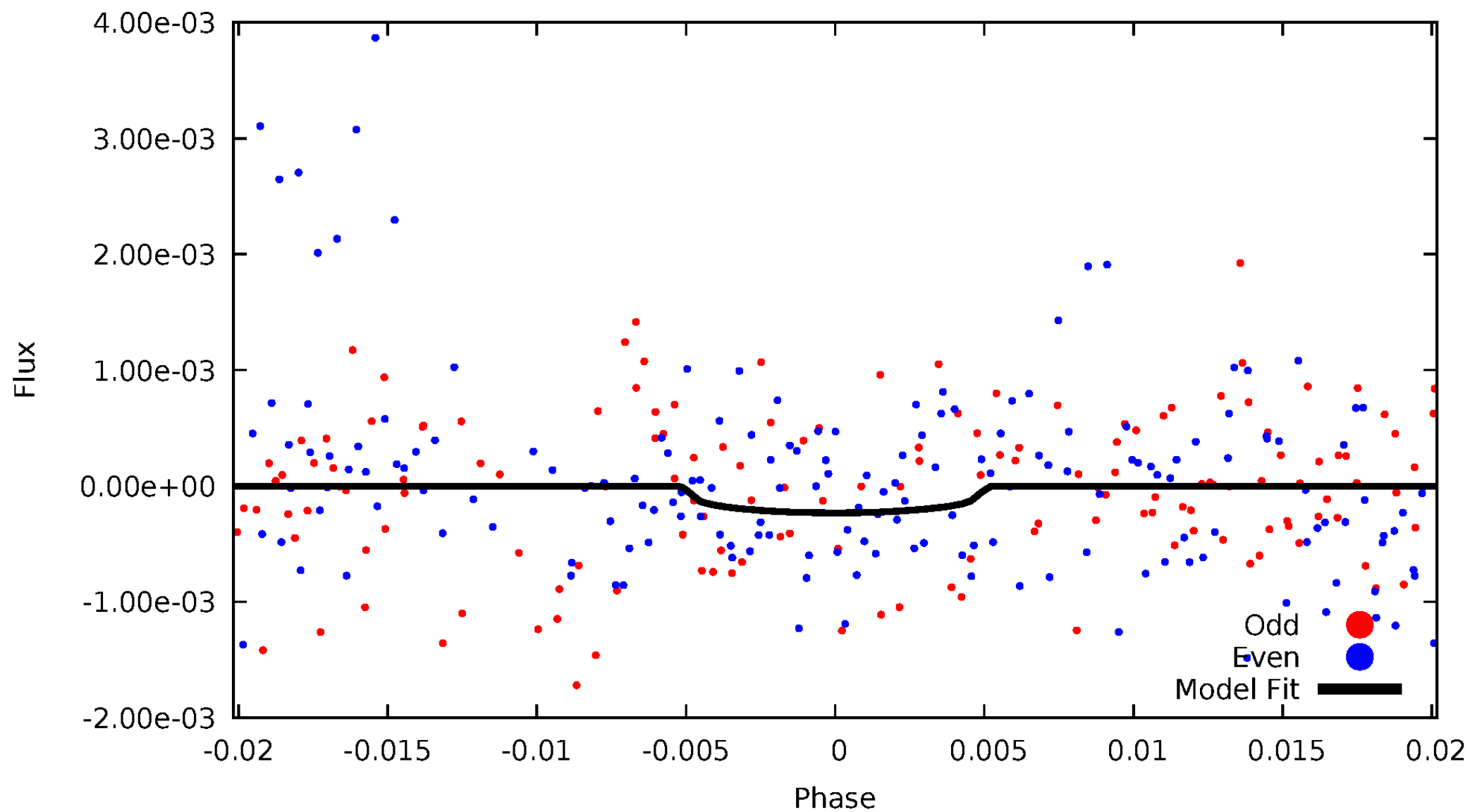


TCE 008367410-04



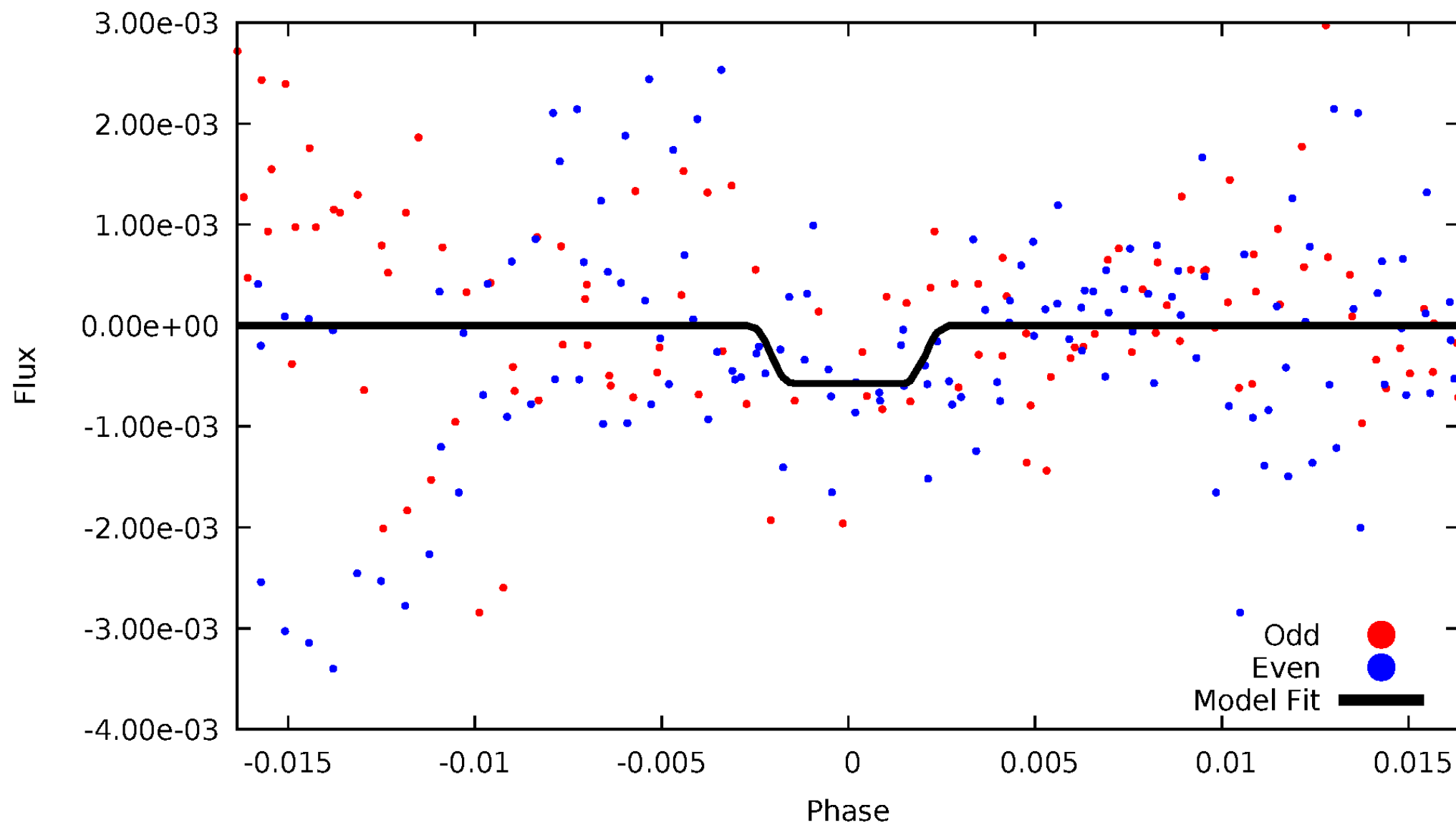
DV Odd/Even

TCE 008367410-04



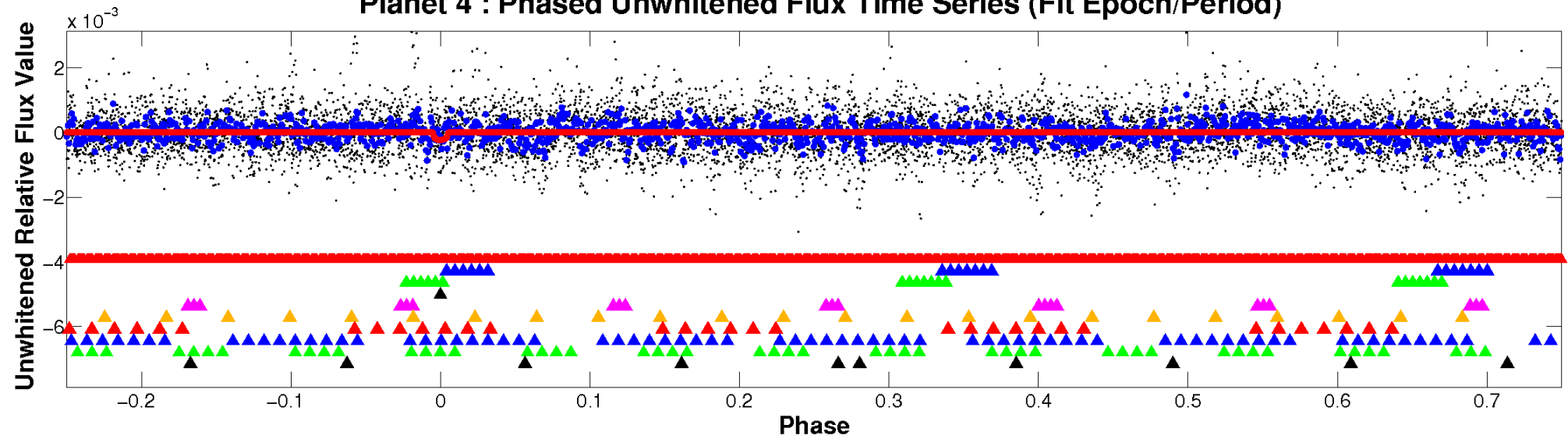
ALT Odd/Even

TCE 008367410-04

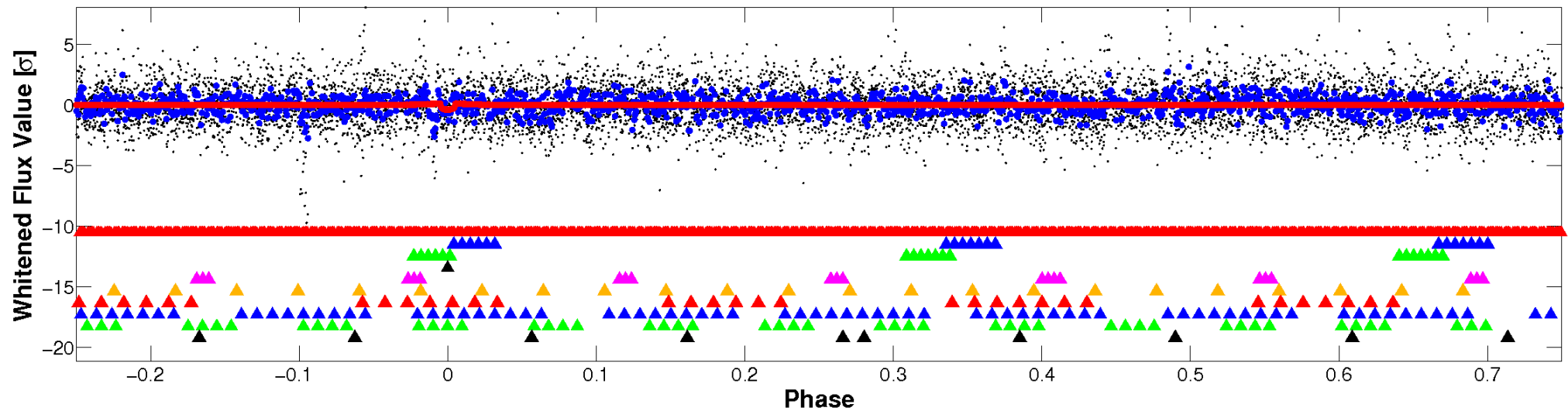


Non-Whitened Vs. Whitened Light Curve

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

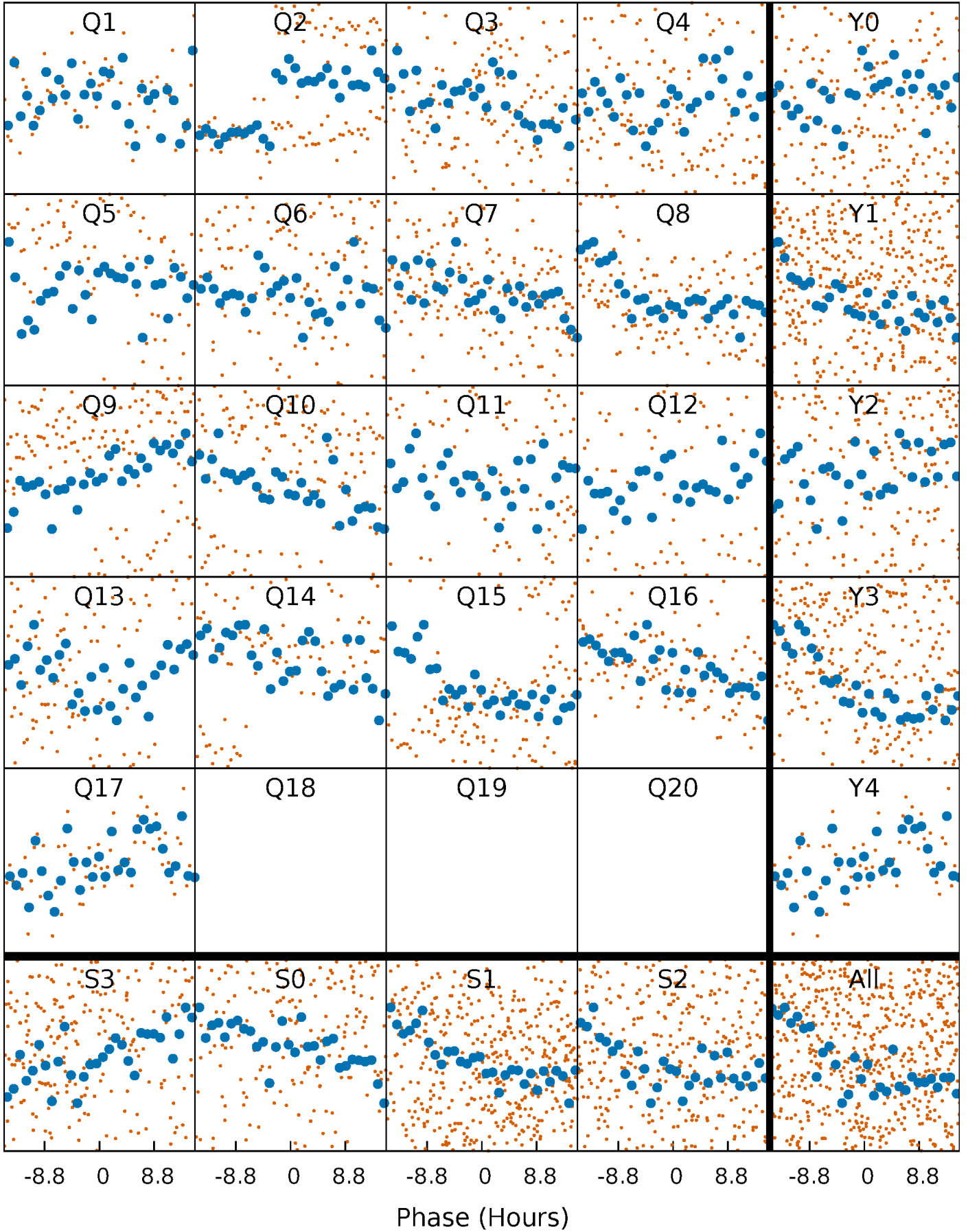


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



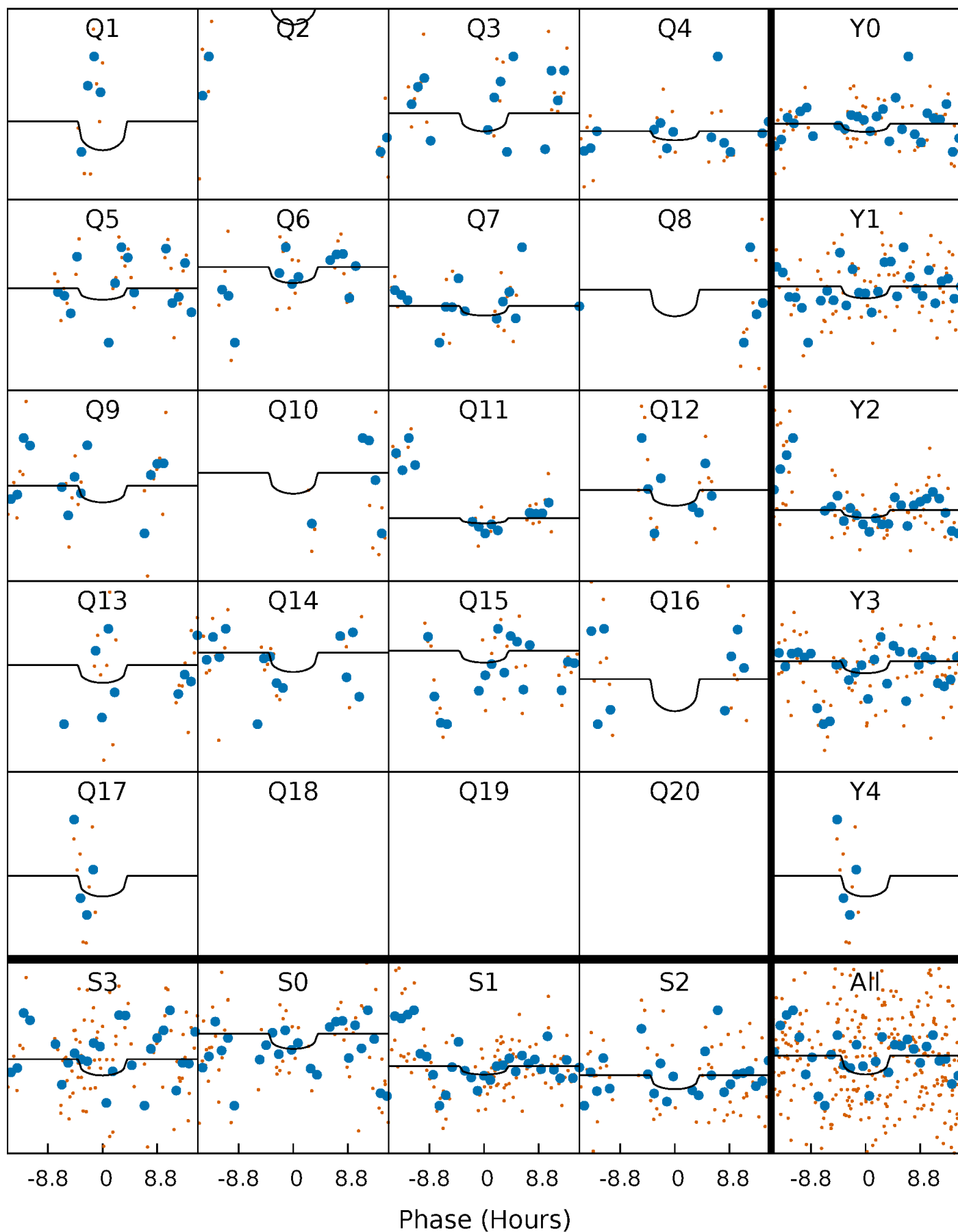
PDC Quarter-Phased Transit Curves

TCE 008367410-04 P= 31.732588 Days $T_0=136.293707$ (BKJD)



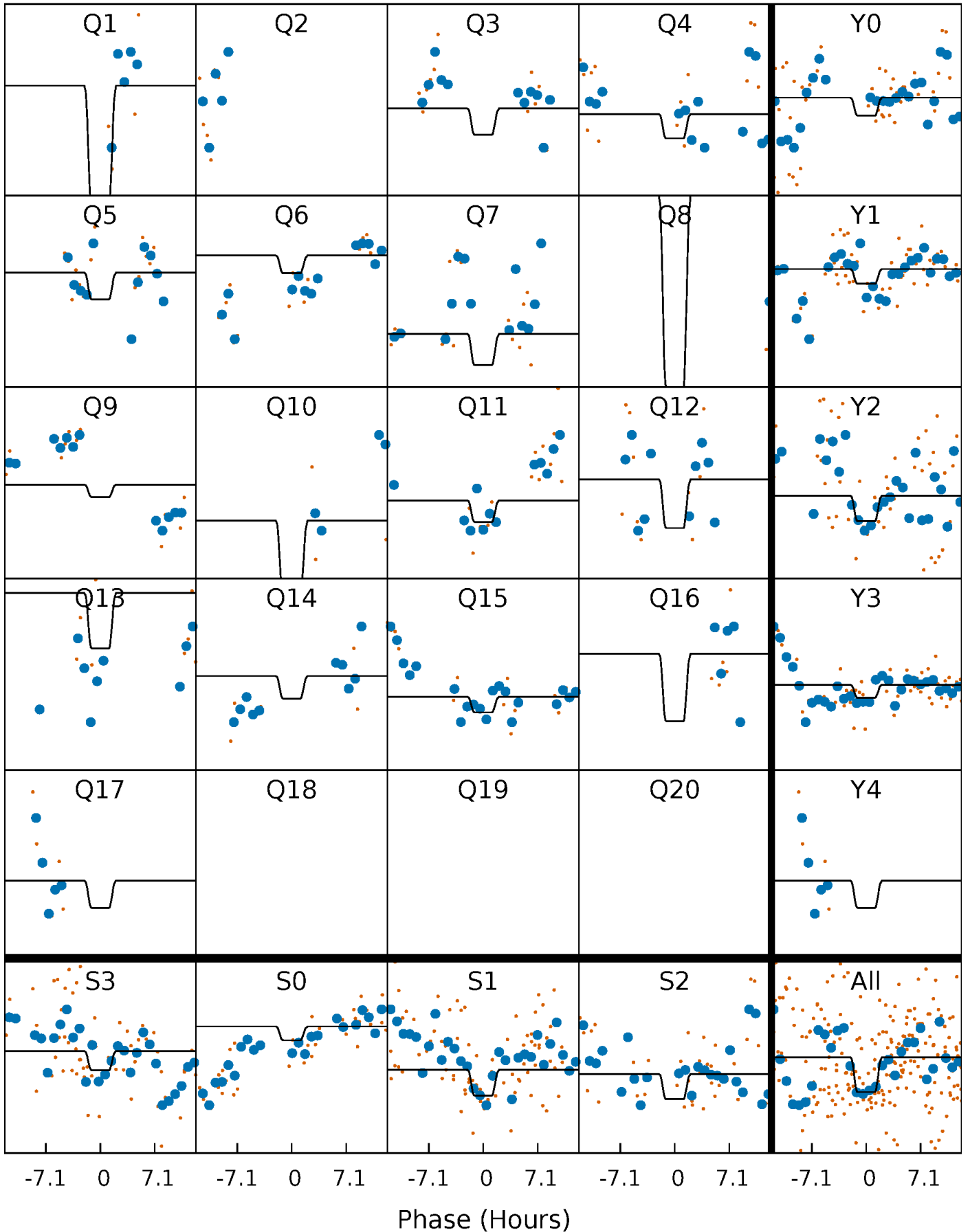
DV Quarter-Phased Transit Curves

TCE 008367410-04 P= 31.732588 Days $T_0=136.293707$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

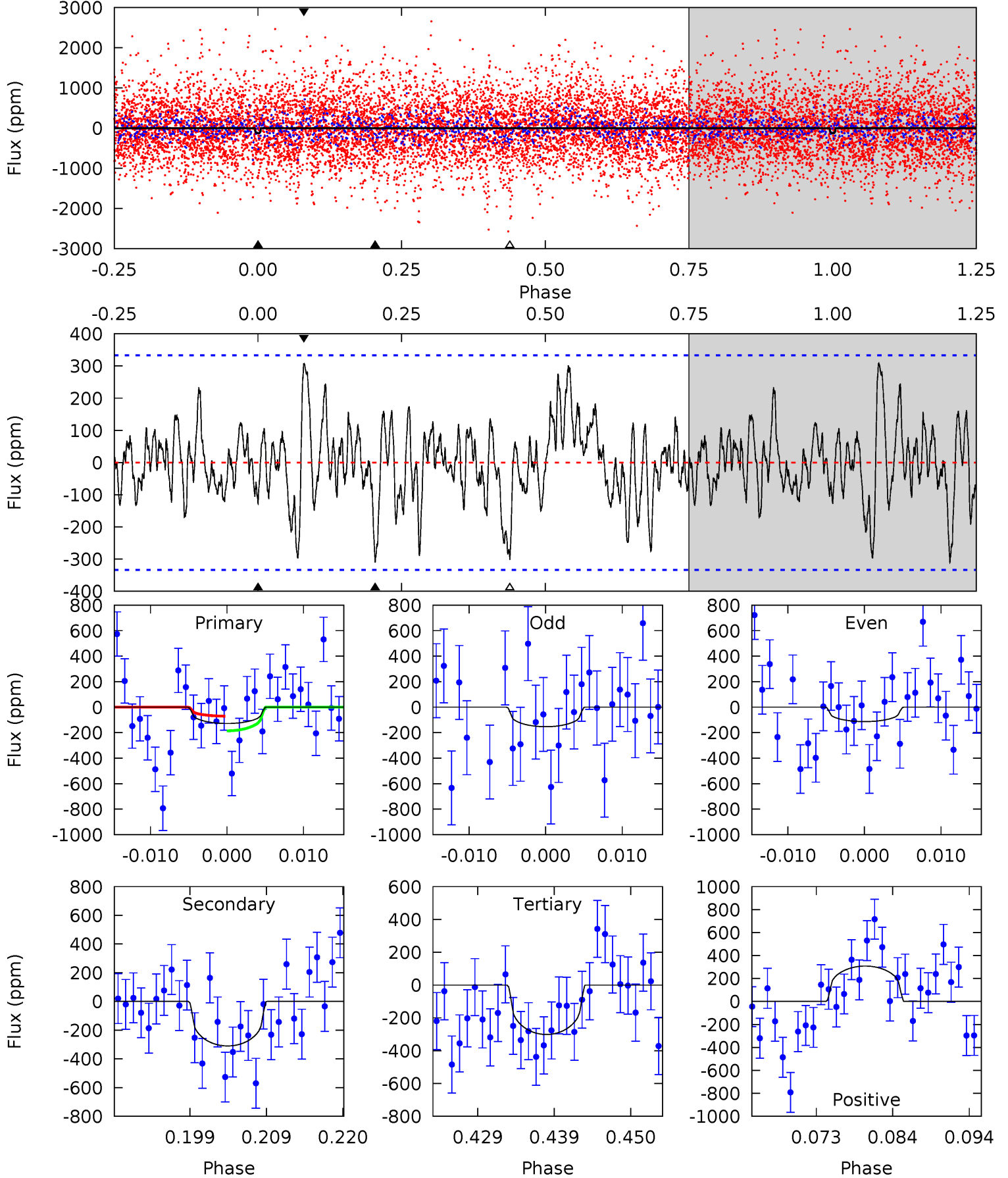
TCE 008367410-04 P= 31.740626 Days $T_0=136.085632$ (BKJD)



DV Model-Shift Uniqueness Test

008367410-04, $P = 31.732588$ Days, $E = 104.561119$ Days

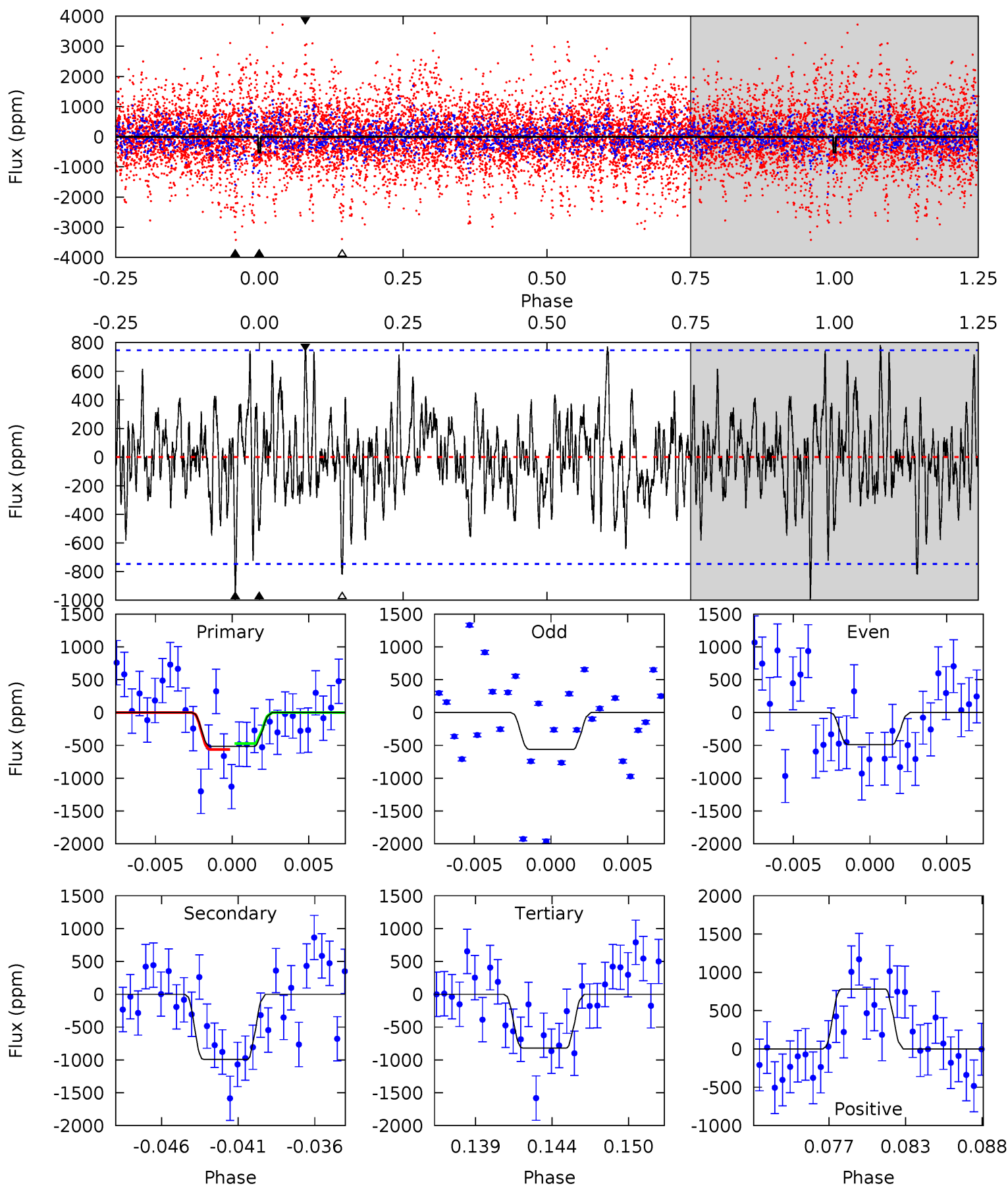
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.93	4.66	4.53	4.64	5.02	2.56	1.60	-2.60	-2.71	0.13	0.03	0.30	1.76	0.50	0.87



Alt Model-Shift Uniqueness Test

008367410-04, P = 31.740626 Days, E = 104.345006 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.56	6.86	5.65	5.40	5.15	2.80	1.62	-2.10	-1.84	1.20	1.46	0.24	1.15	0.44	0.31



Stellar Parameters For KIC 008367410

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4402^{+132}_{-132}	$4.586^{+0.052}_{-0.016}$	$0.210^{+0.200}_{-0.300}$	$0.705^{+0.029}_{-0.059}$	$0.699^{+0.050}_{-0.050}$	$2.804^{+0.643}_{-0.186}$
	+3%/-3%	+1%/-0%	+95%/-143%	+4%/-8%	+7%/-7%	+23%/-7%
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 008367410-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-310 ± 66	$2.76^{+2.51}_{-1.79}$	543^{+17}_{-19}	3435^{+1622}_{-611}	675^{+4601}_{-495}
Alt.	-994 ± 145	$2.94^{+2.72}_{-1.97}$	541^{+20}_{-16}	4063^{+2594}_{-771}	1897^{+16027}_{-1396}

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

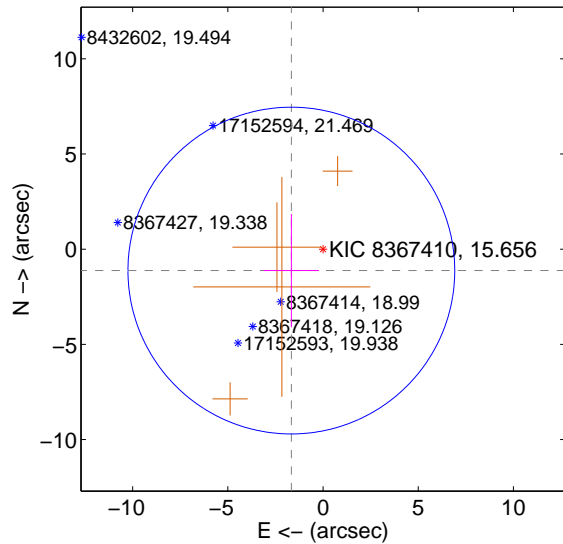
Supplemental centroid analysis for 008367410-04. Kepler magnitude: 15.66. Transit SNR 3.26

There are 0 quarters with good PRF difference image offsets

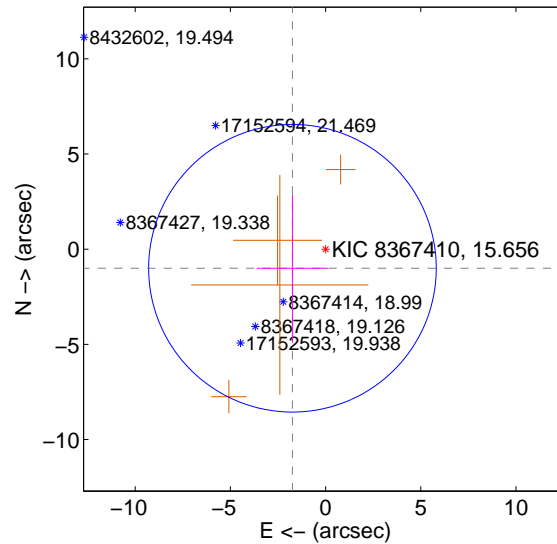
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.009 ± 2.860	0.70	1.665 ± 1.452	-1.124 ± 2.975
PRF-fit source offset from KIC position	2.008 ± 2.518	0.80	1.740 ± 1.868	-1.002 ± 3.862
photometric centroid source offset	2.44 ± 1.80	1.35	-2.01 ± 1.82	-1.38 ± 1.76

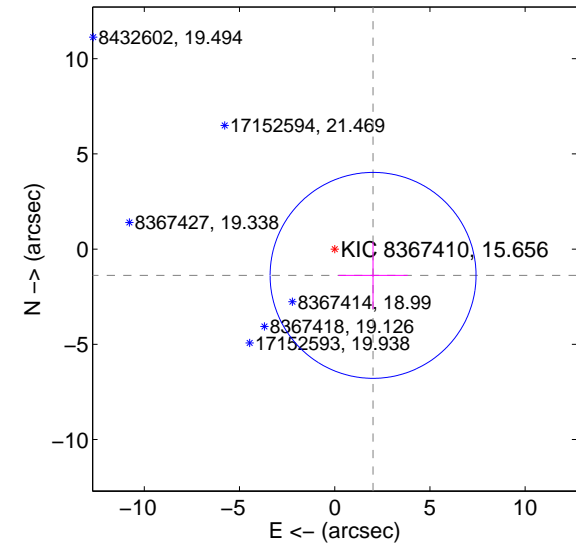
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

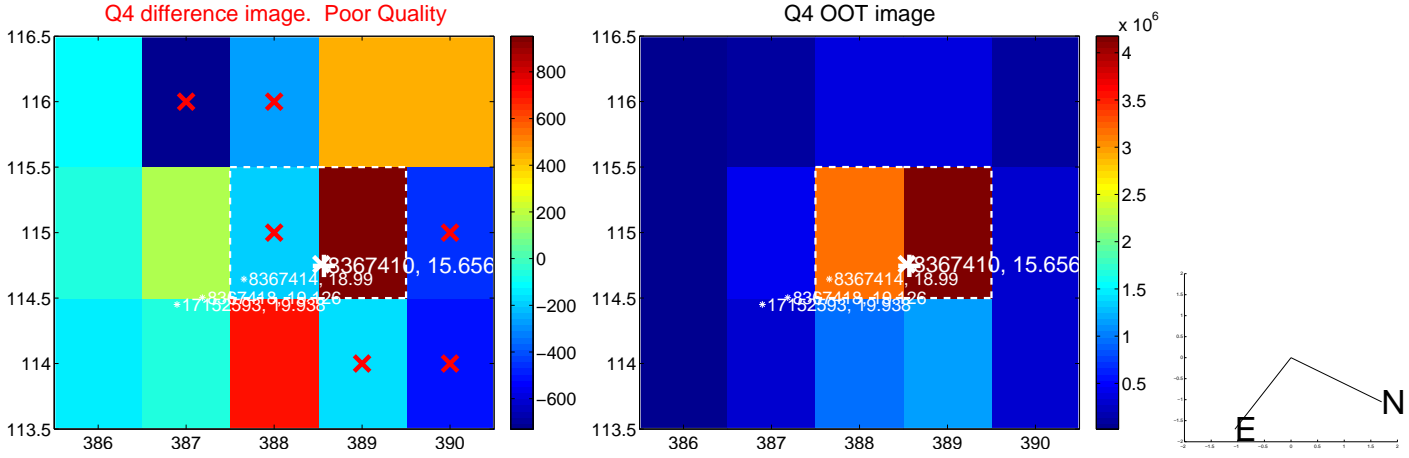
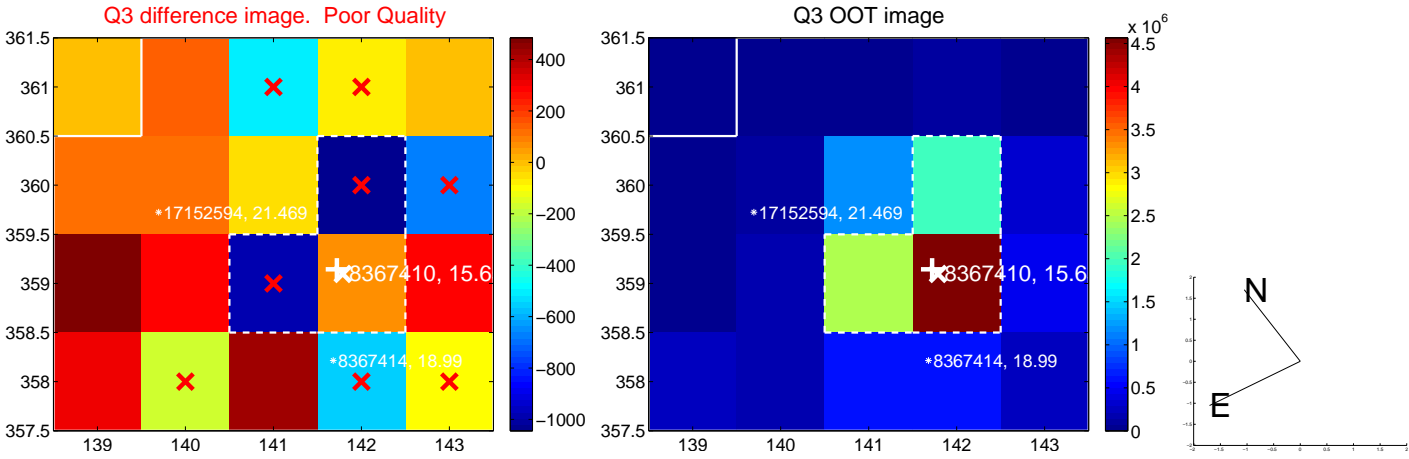
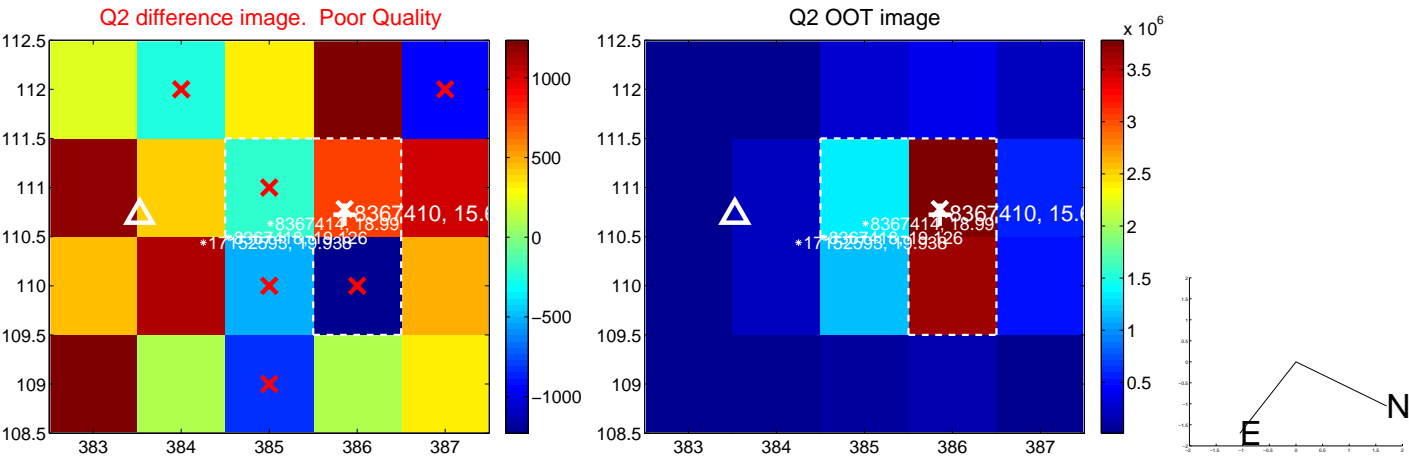
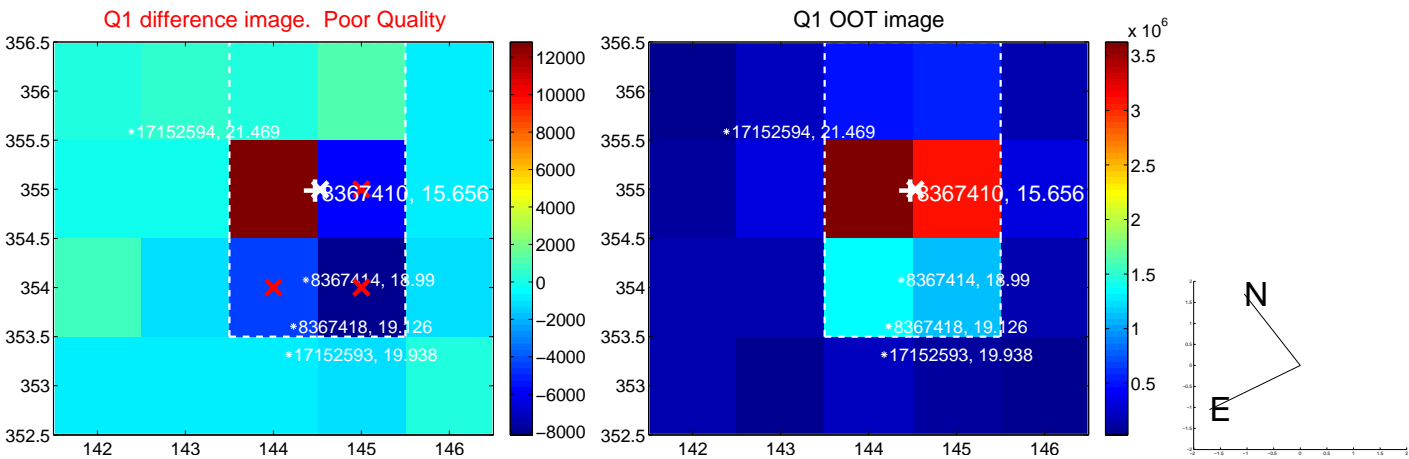


offset from photometric centroids

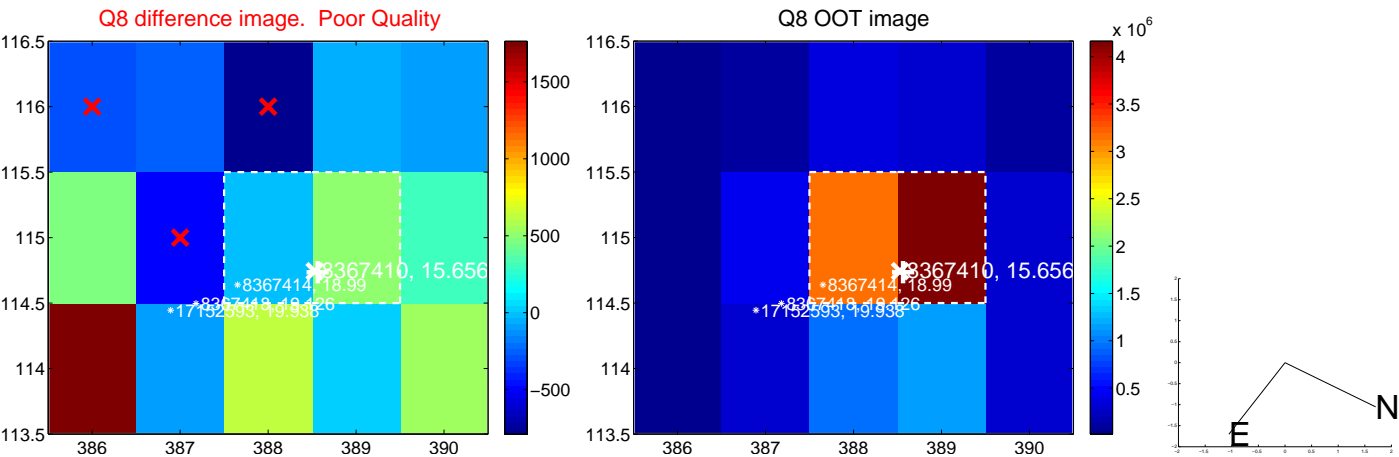
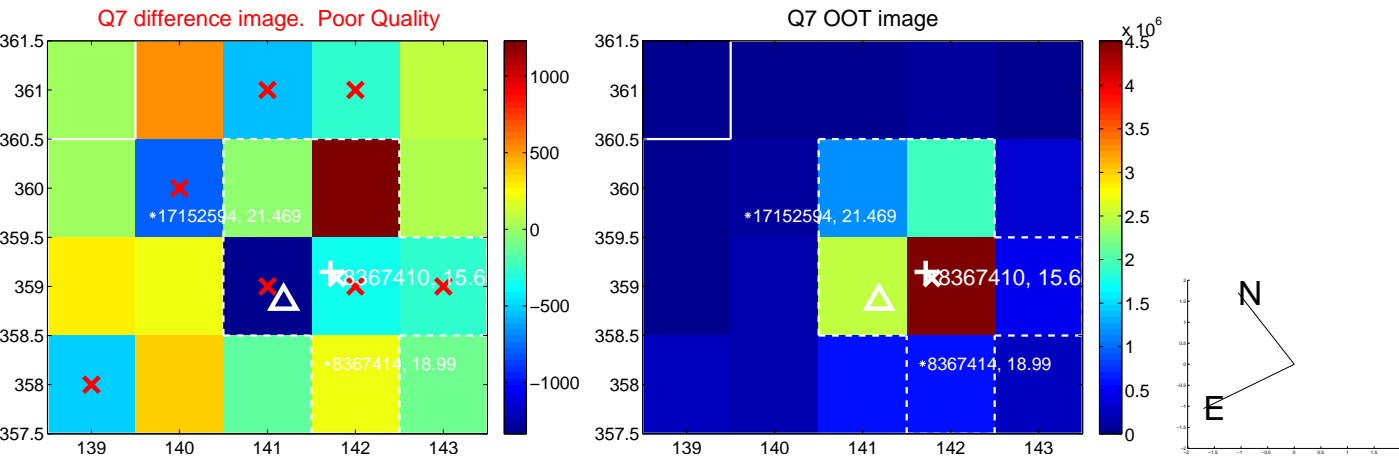
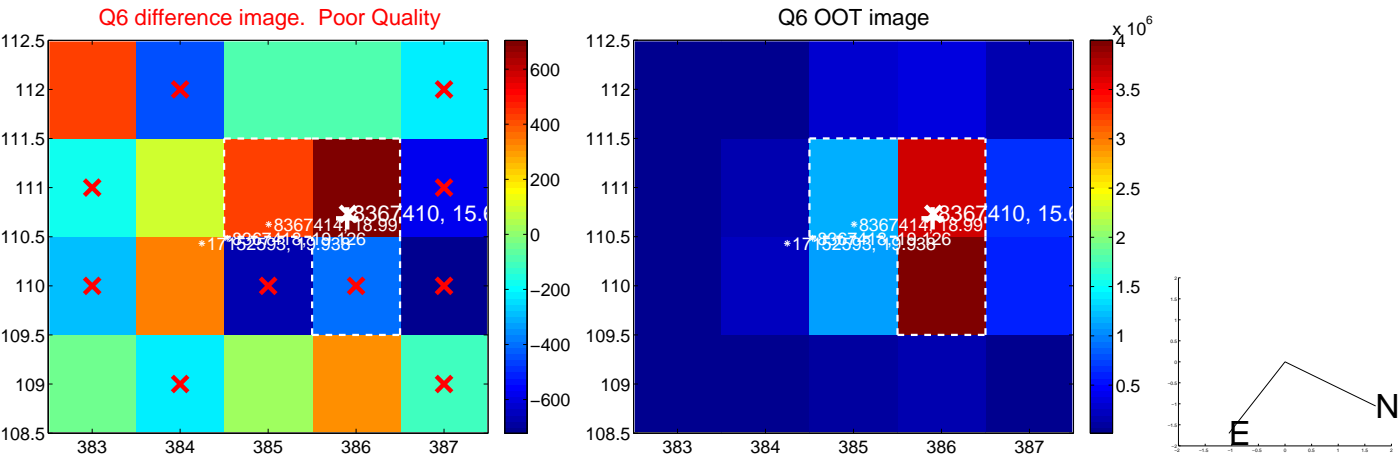
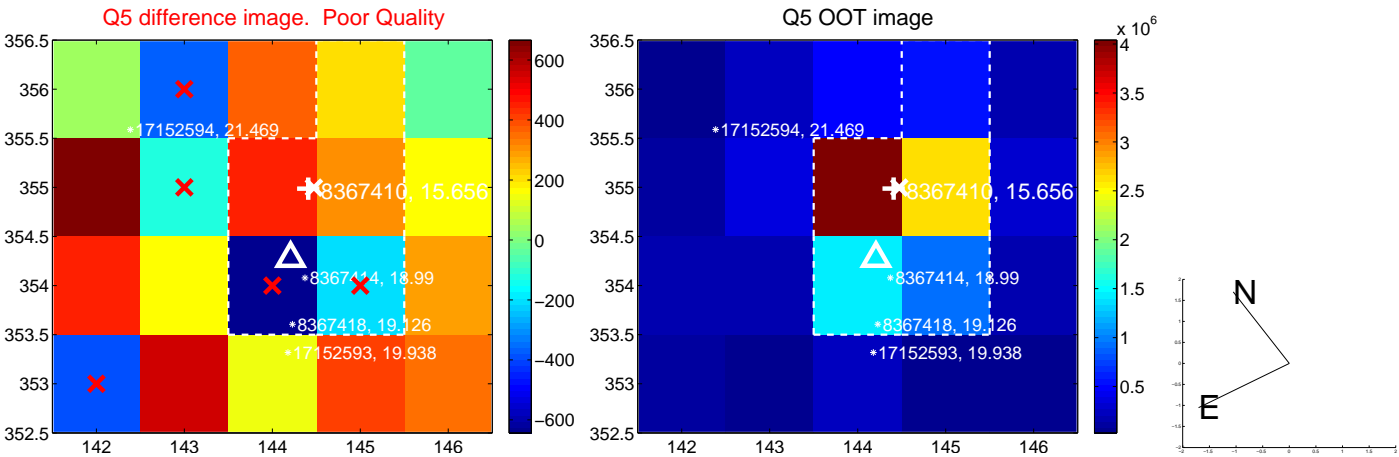


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

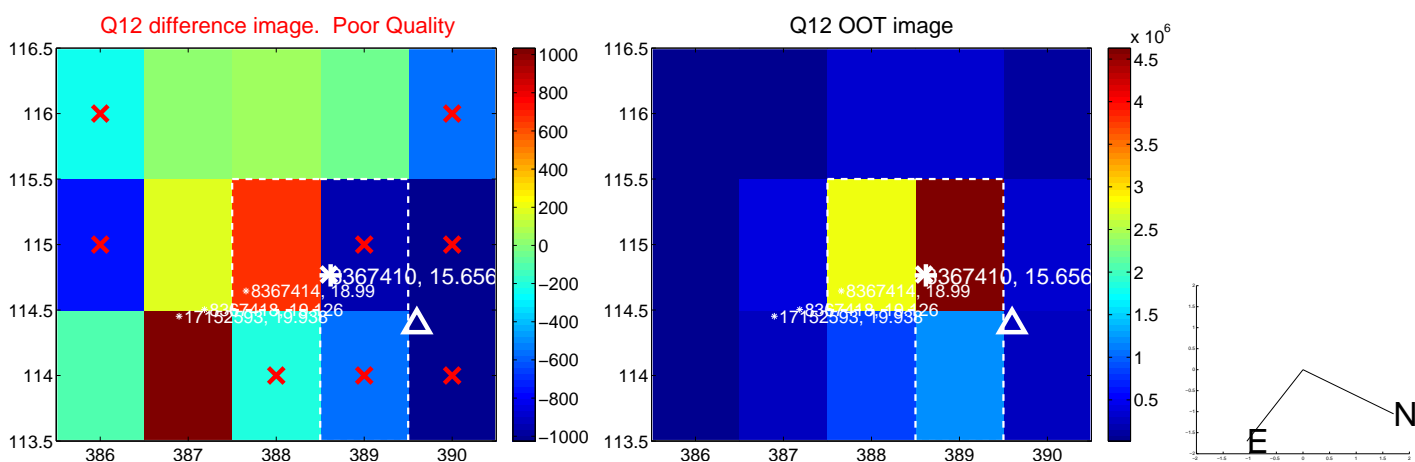
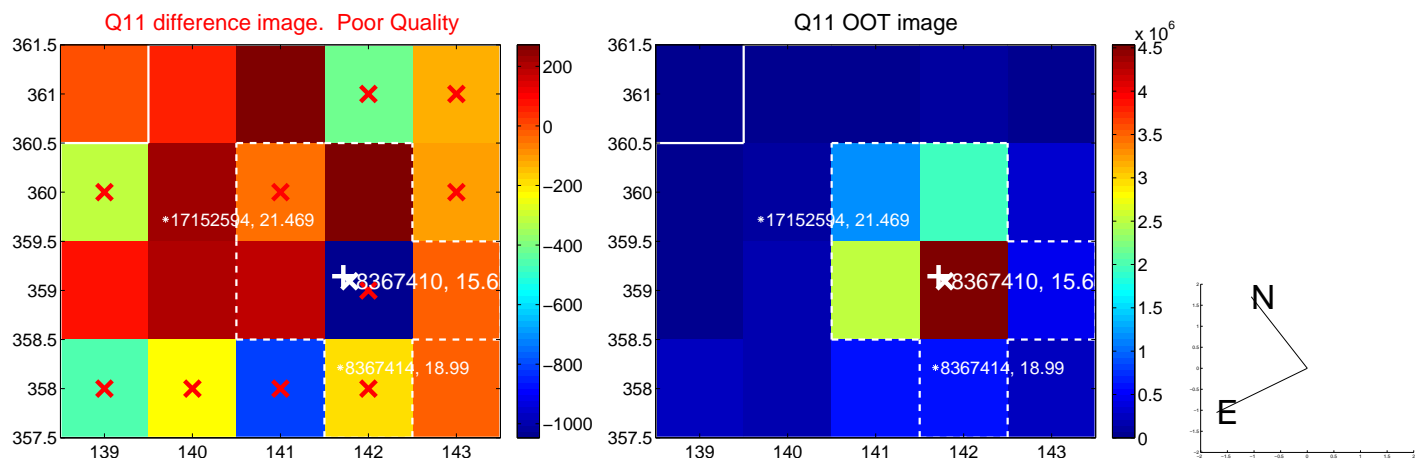
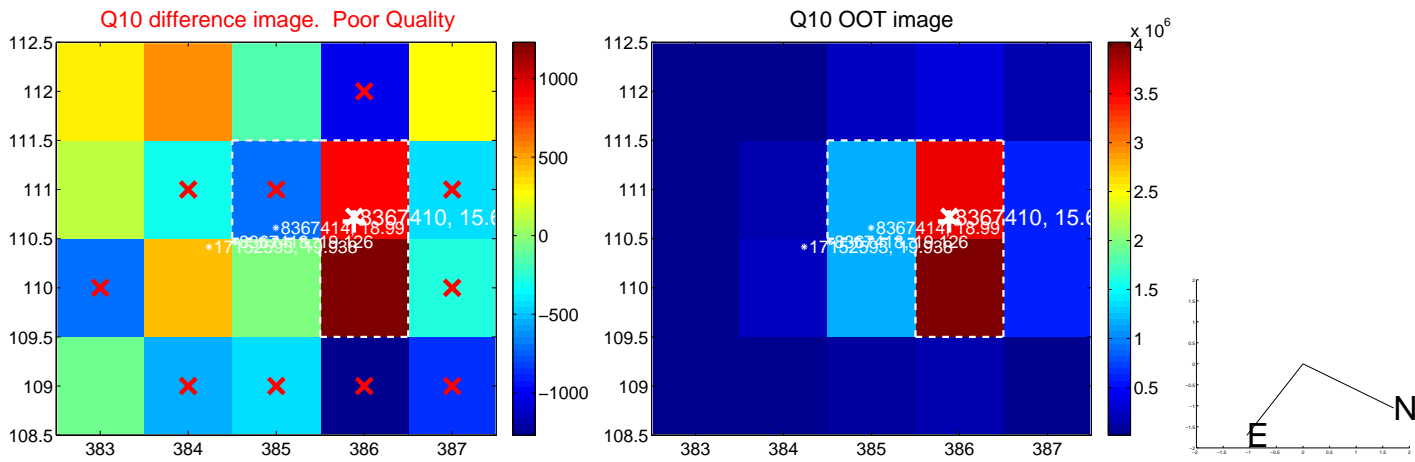
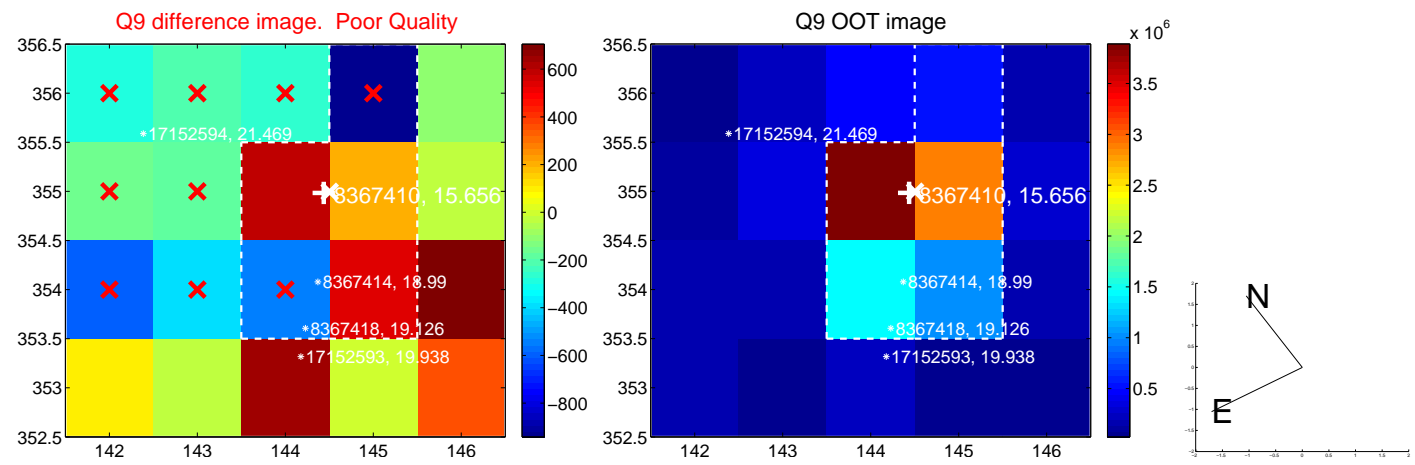
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



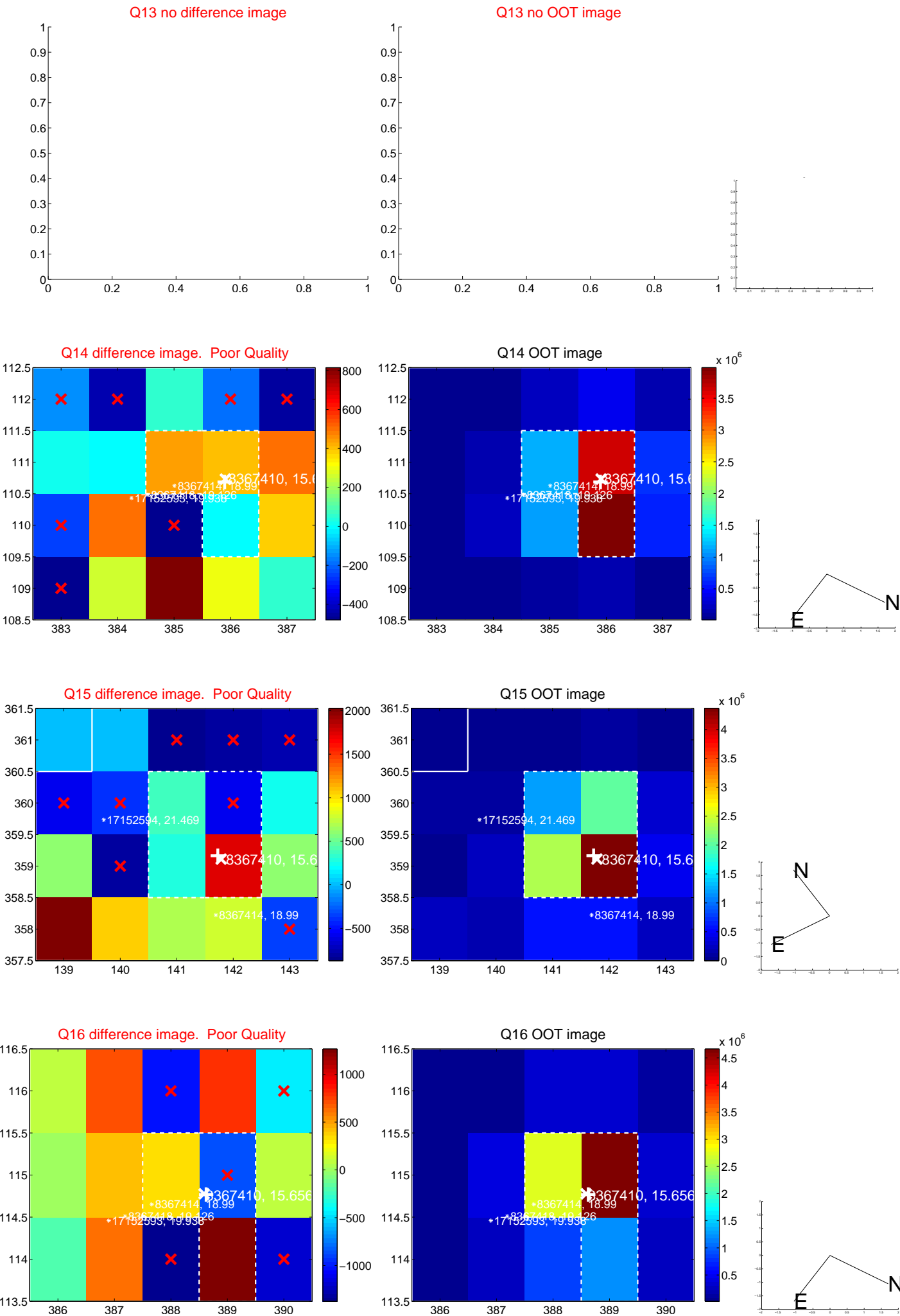
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



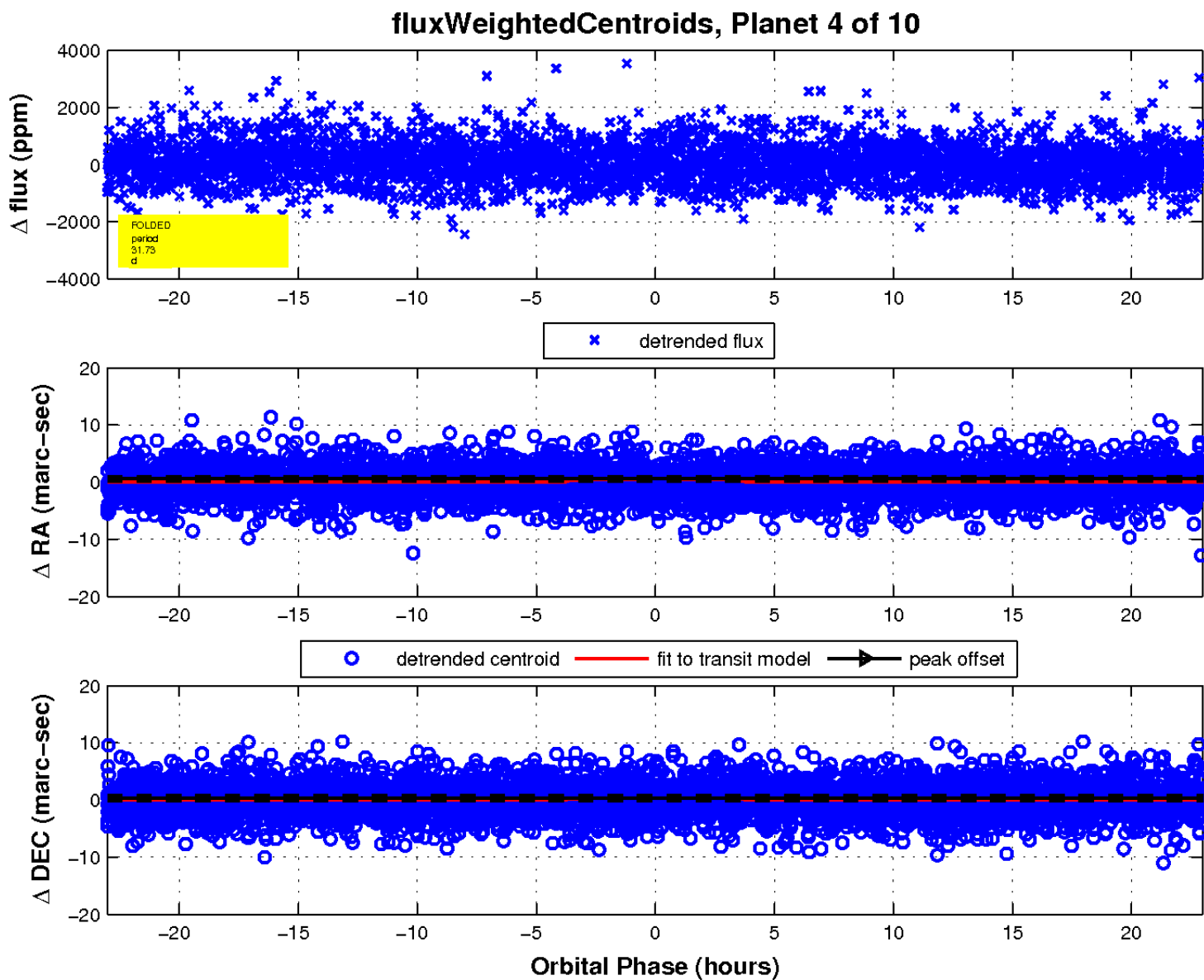
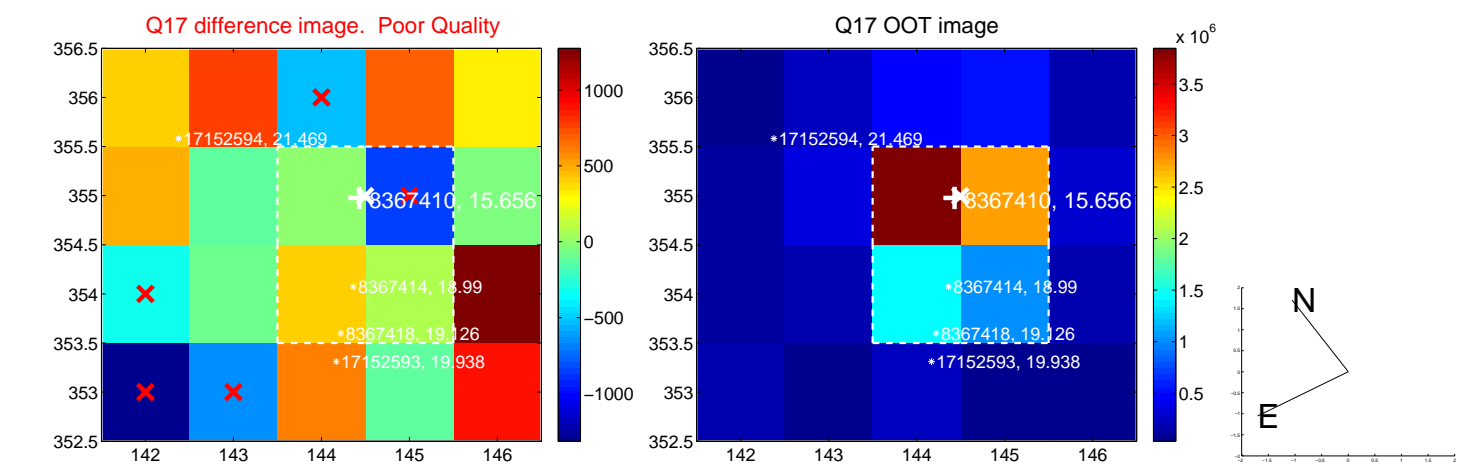
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

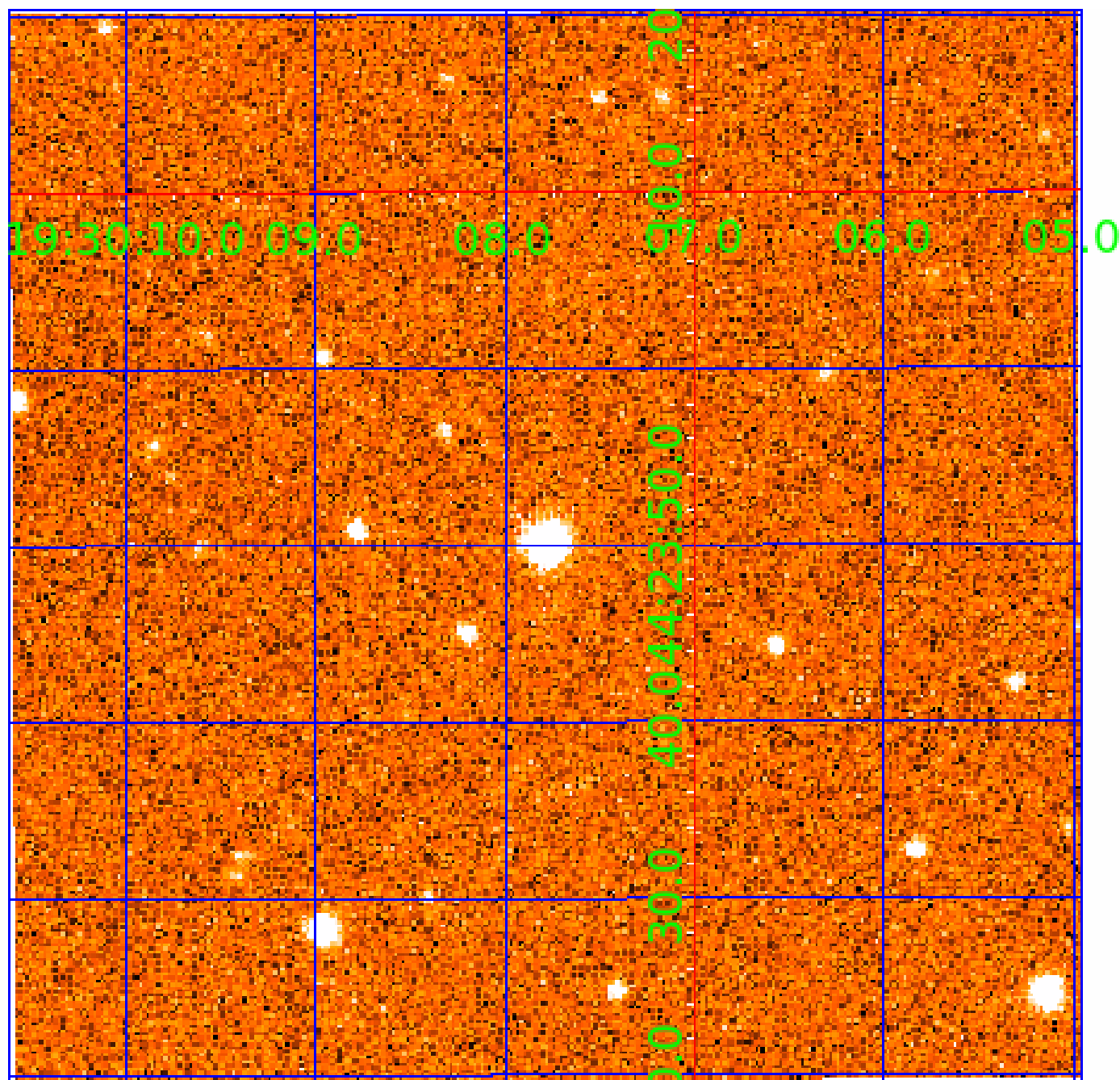


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008367410

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})
008367410-01	OBS	No	1.284101	131.713566	71.6	8.724	7.3	10.0	0.70	4402	0.66	397.03
008367410-04	OBS	No	31.732588	136.293707	232.5	7.679	14.3	3.3	0.70	4402	1.16	5.52
008367410-05	OBS	No	67.980089	149.377782	1019.4	5.822	13.5	9.8	0.70	4402	2.30	2.00
008367410-07	OBS	No	44.329621	156.488878	671.1	3.623	9.9	6.7	0.70	4402	2.27	3.53
008367410-08	OBS	No	19.791548	146.474216	803.1	2.527	10.2	8.7	0.70	4402	2.31	10.35
008367410-09	OBS	No	29.267988	156.314958	336.0	8.696	8.4	5.0	0.70	4402	1.54	6.14
008367410-10	OBS	No	151.560909	145.190516	1333.2	4.208	11.2	8.3	0.70	4402	2.66	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008367410-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008367410-04	OBS	FP	0.00	1	0	0	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—CENT_FEW_DIFFS
008367410-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

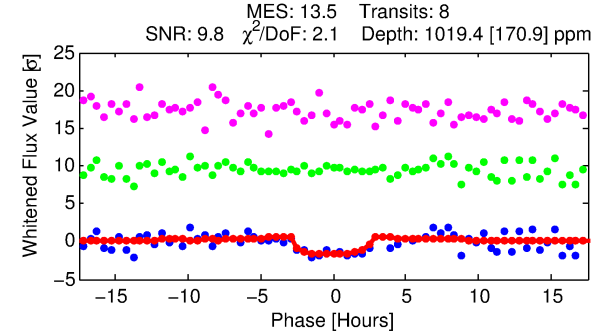
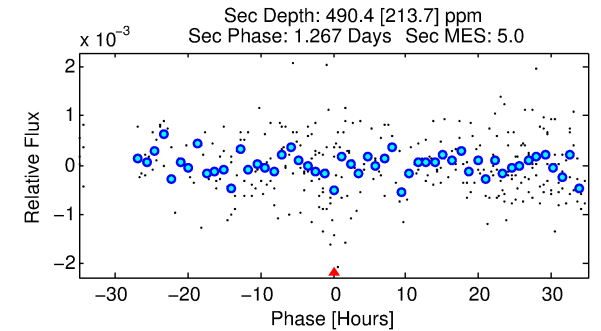
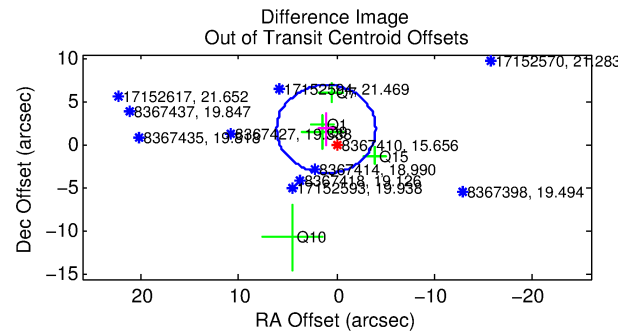
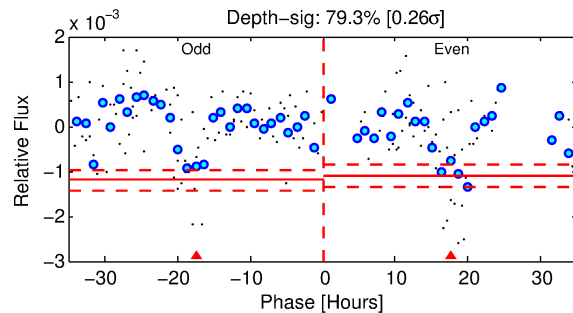
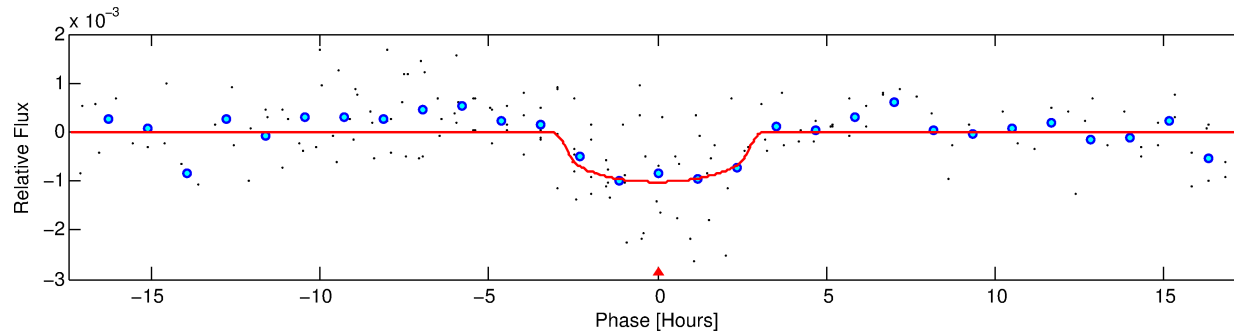
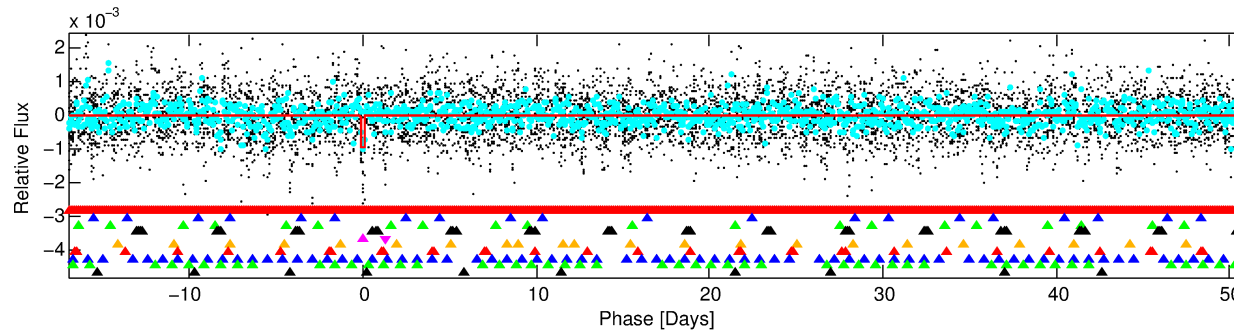
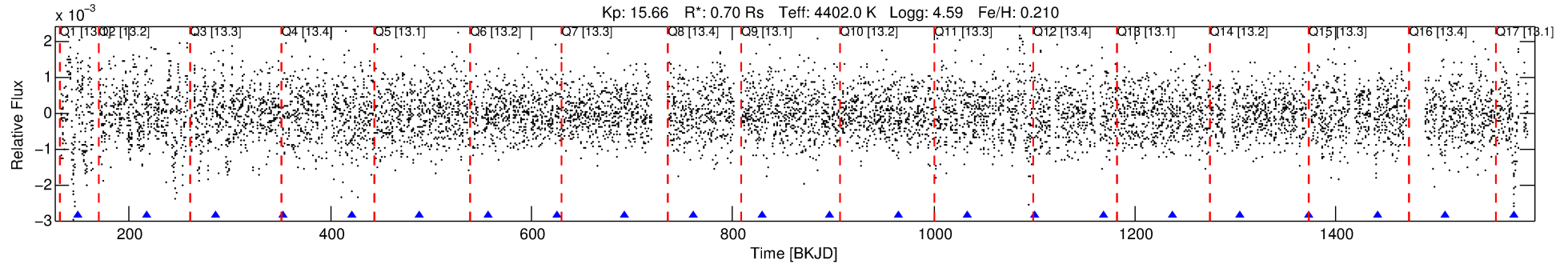
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008367410-05

No Significant Match Found

DV One-Page Summary

KIC: 8367410 Candidate: 5 of 10 Period: 67.980 d



DV Fit Results:

Period = 67.98009 [0.00136] d
Epoch = 149.3778 [0.0144] BKJD
Rp/R* = 0.0300 [0.0472]
a/R* = 75.33 [341.48]
b = 0.59 [5.17]
Seff = 2.00 [0.31]
Teq = 303 [12] K
Rp = 2.30 [3.63] Re
a = 0.2893 [0.0198] AU
Ag = 4253.73 [13532.59] [0.31 σ]
Teffp = 3785 [3011] K [1.16 σ]

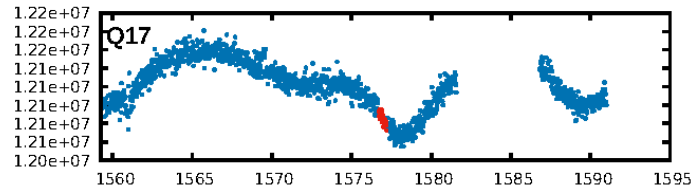
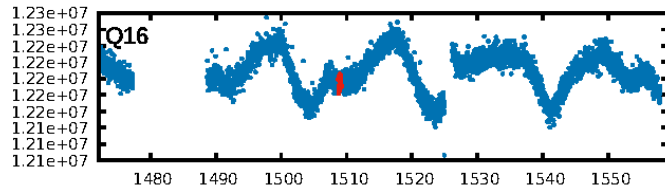
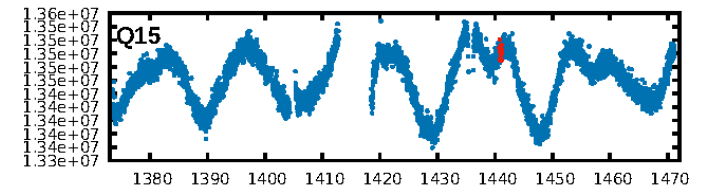
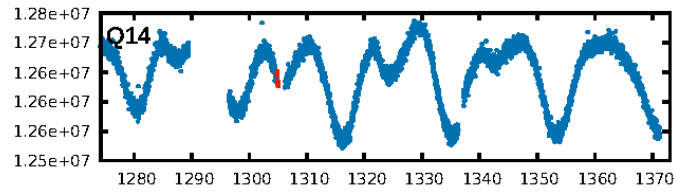
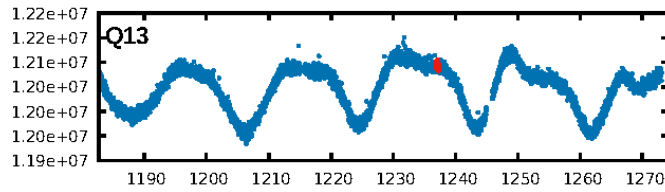
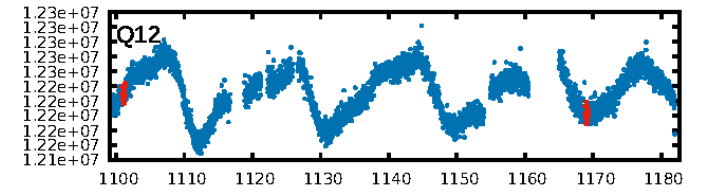
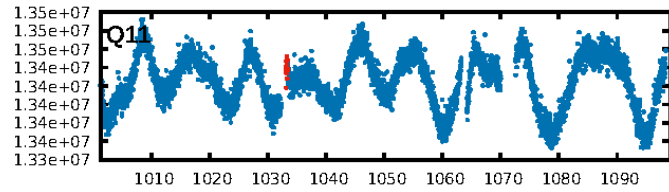
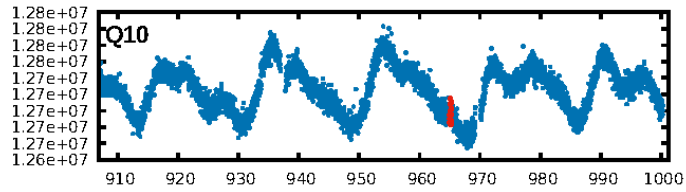
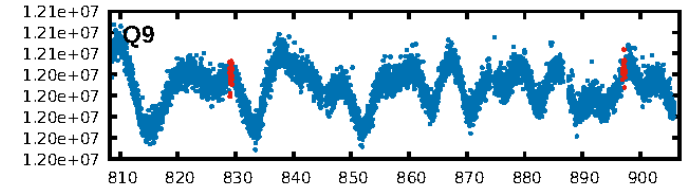
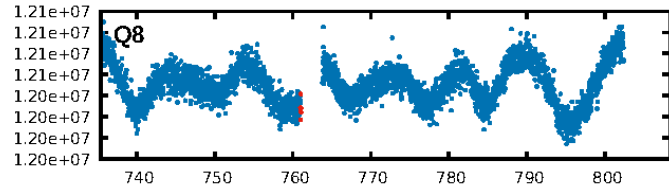
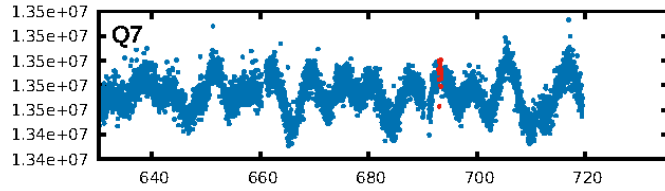
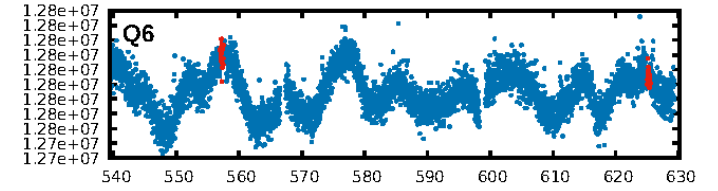
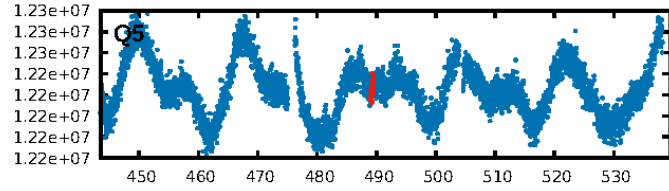
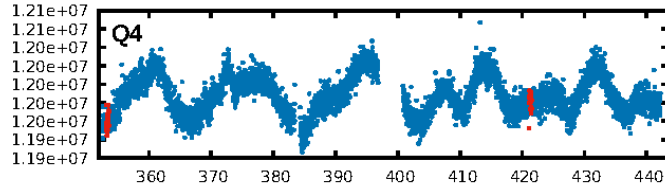
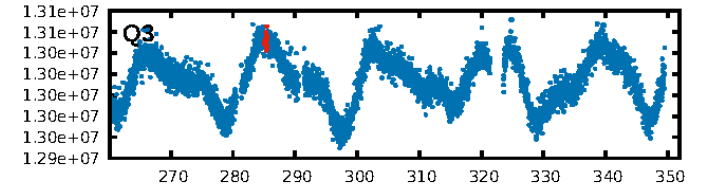
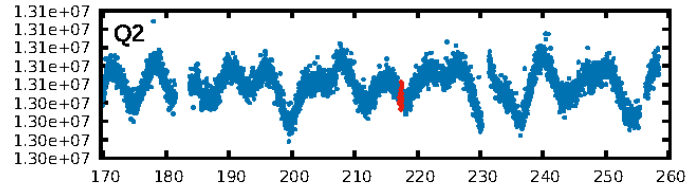
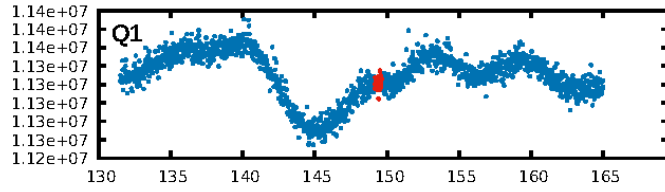
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.32 σ]
LongPeriod-sig: 100.0% [23.91 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 80.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -1.878
Centroid-sig: 0.4%
Centroid-so: 1.453 arcsec [2.05 σ]
OotOffset-rm: 2.133 arcsec [1.26 σ]
OotOffset-st: 1/2/0/2 [5]
KicOffset-rm: 2.099 arcsec [1.10 σ]
KicOffset-st: 1/2/0/2 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 0.00 [0/14]

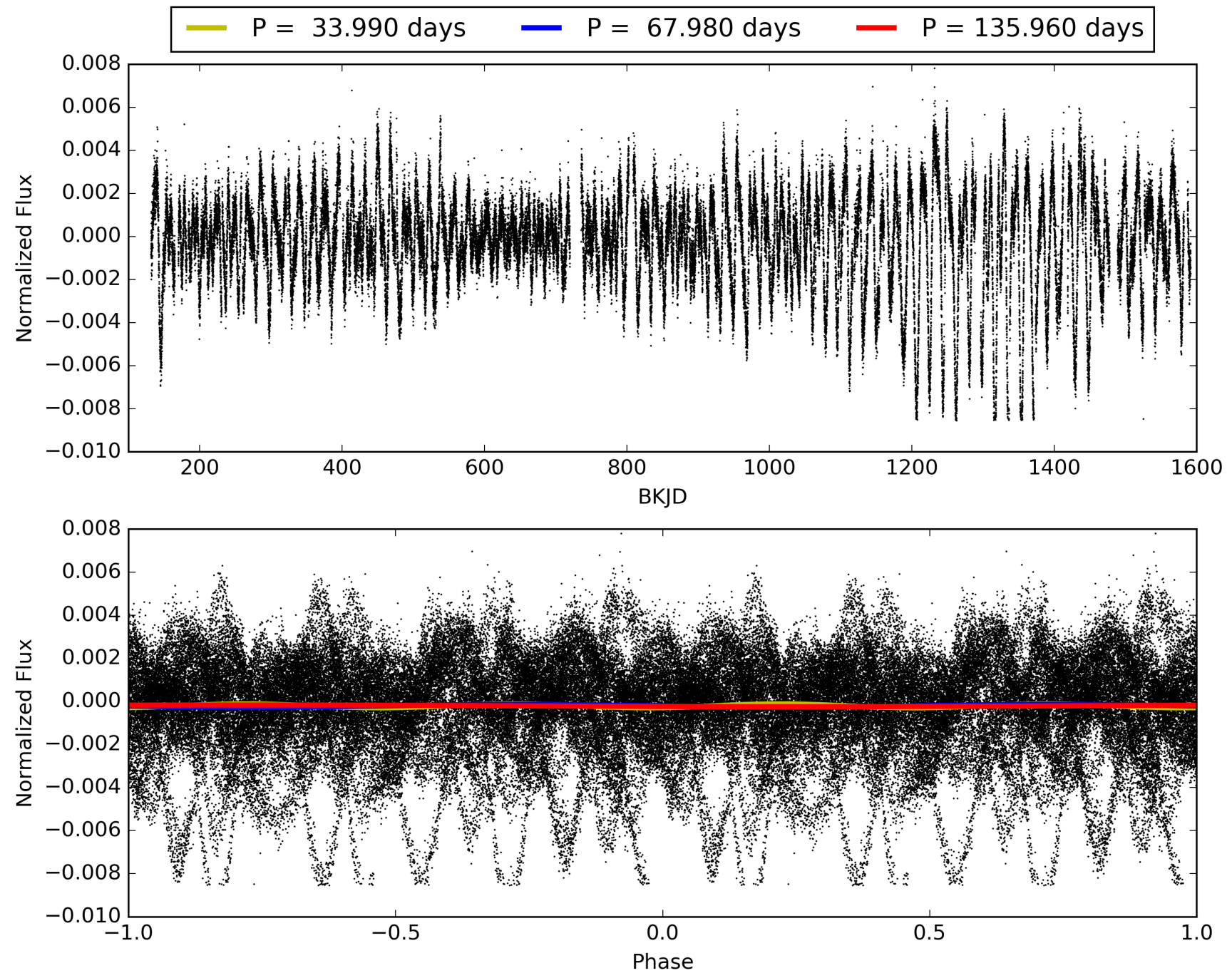
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:12:18 Z

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

TCE 008367410-05, PDC Light Curves

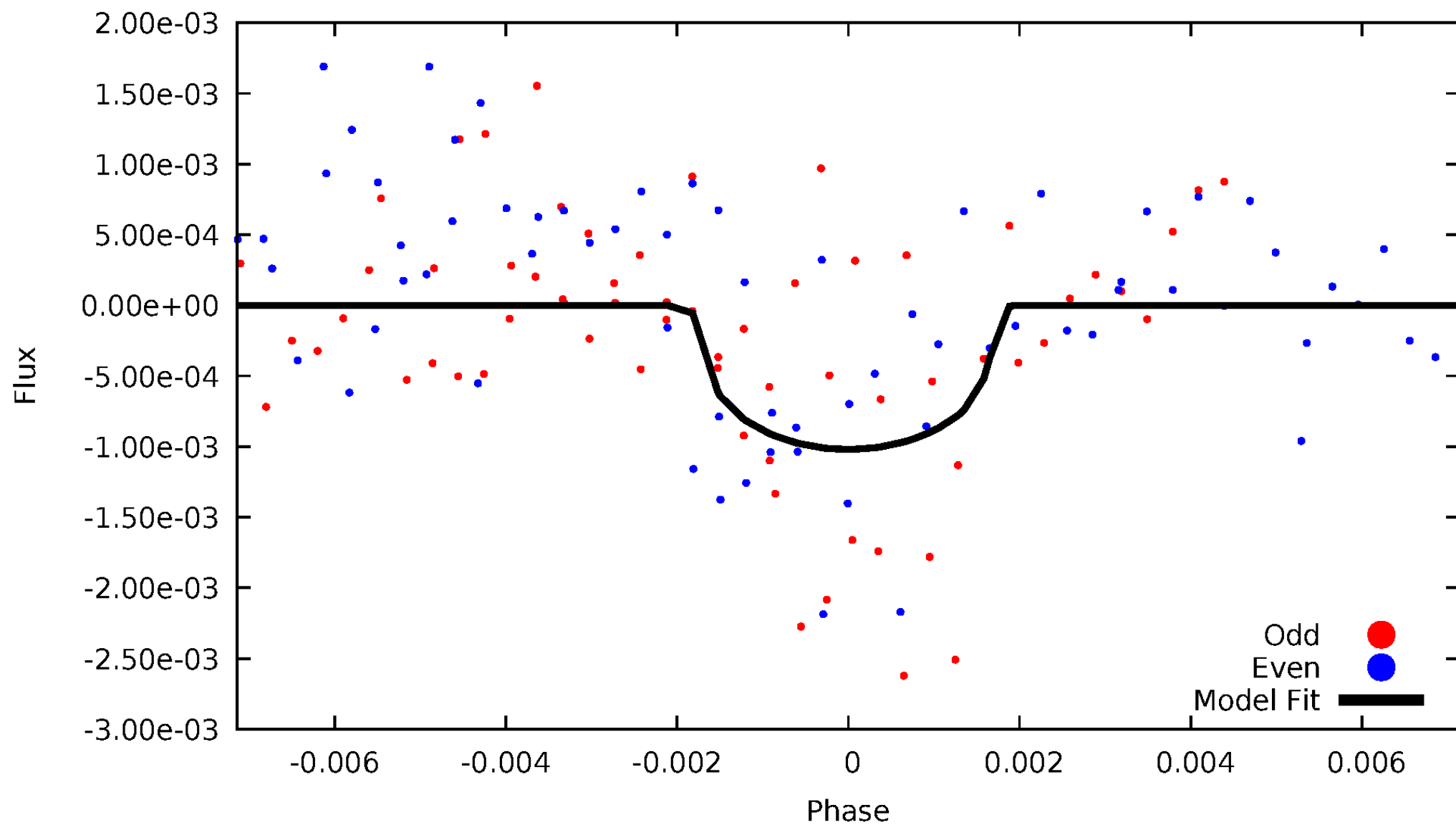


TCE 008367410-05



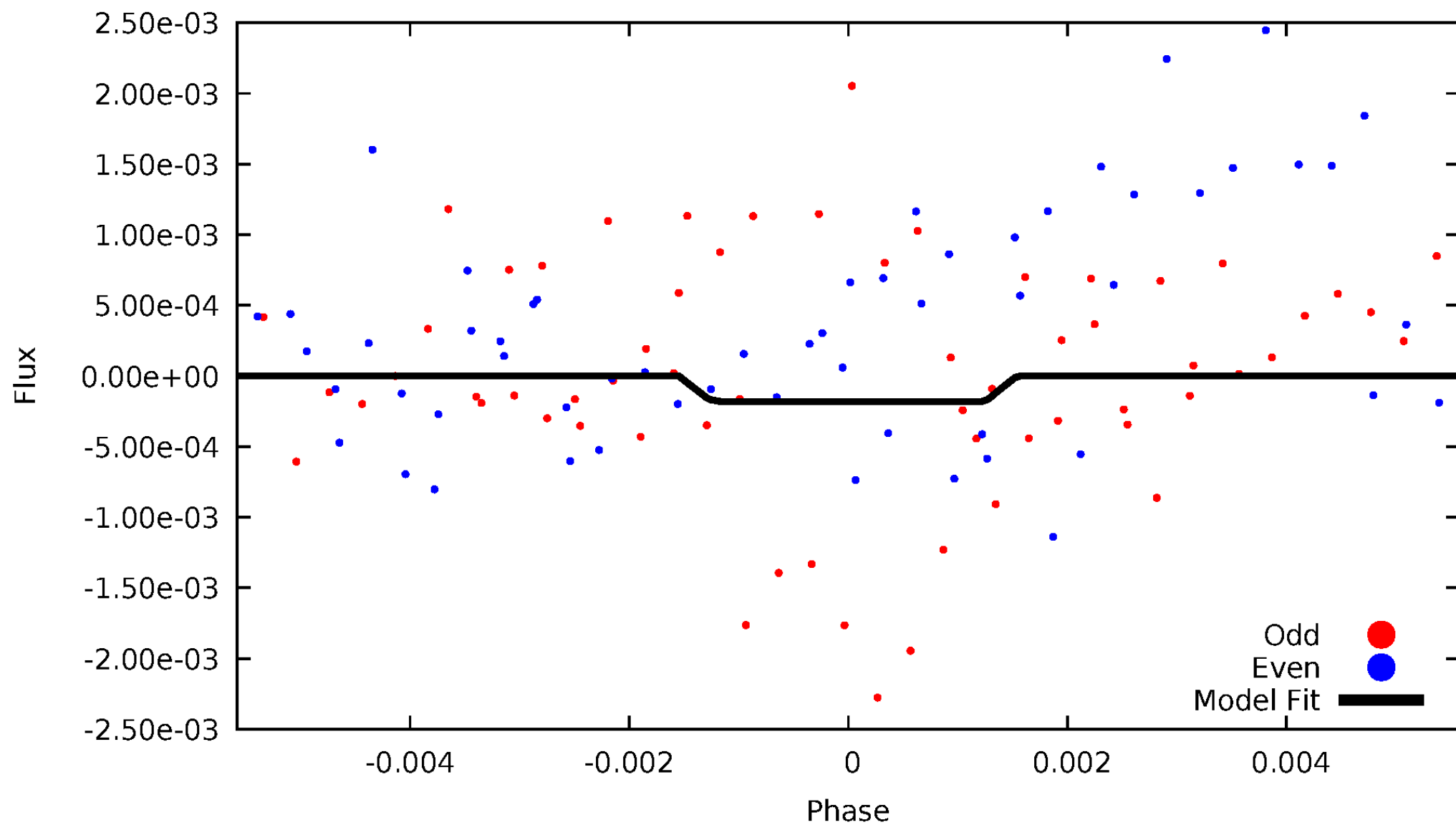
DV Odd/Even

TCE 008367410-05



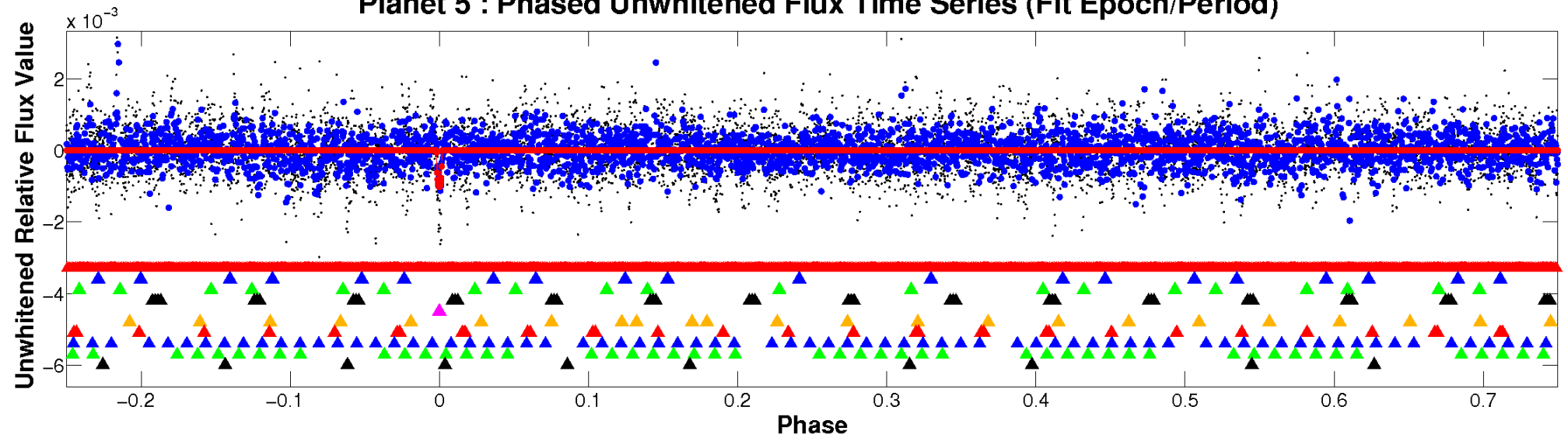
ALT Odd/Even

TCE 008367410-05

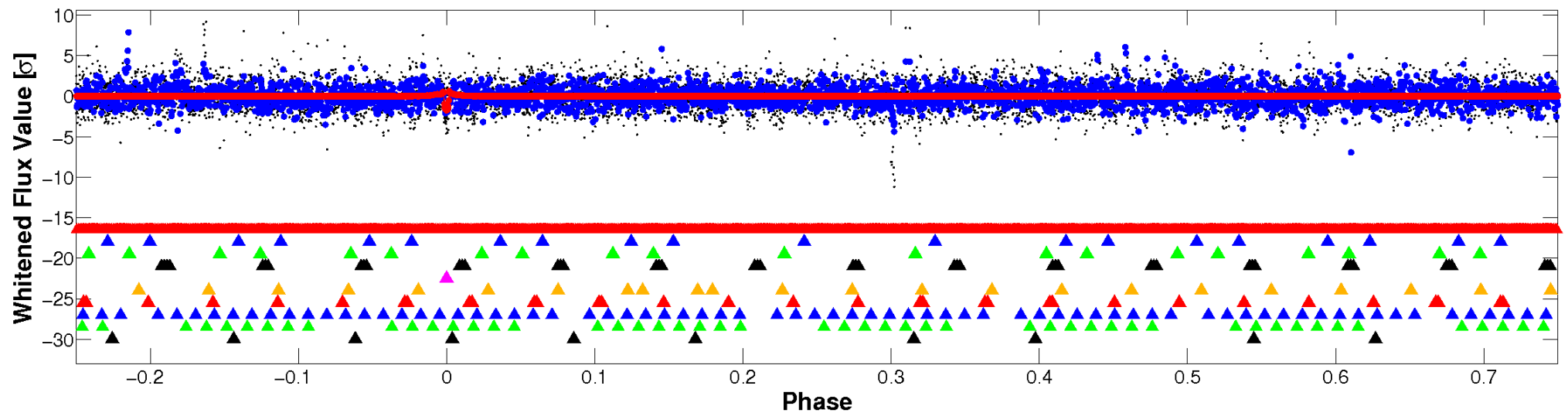


Non-Whitened Vs. Whitened Light Curve

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

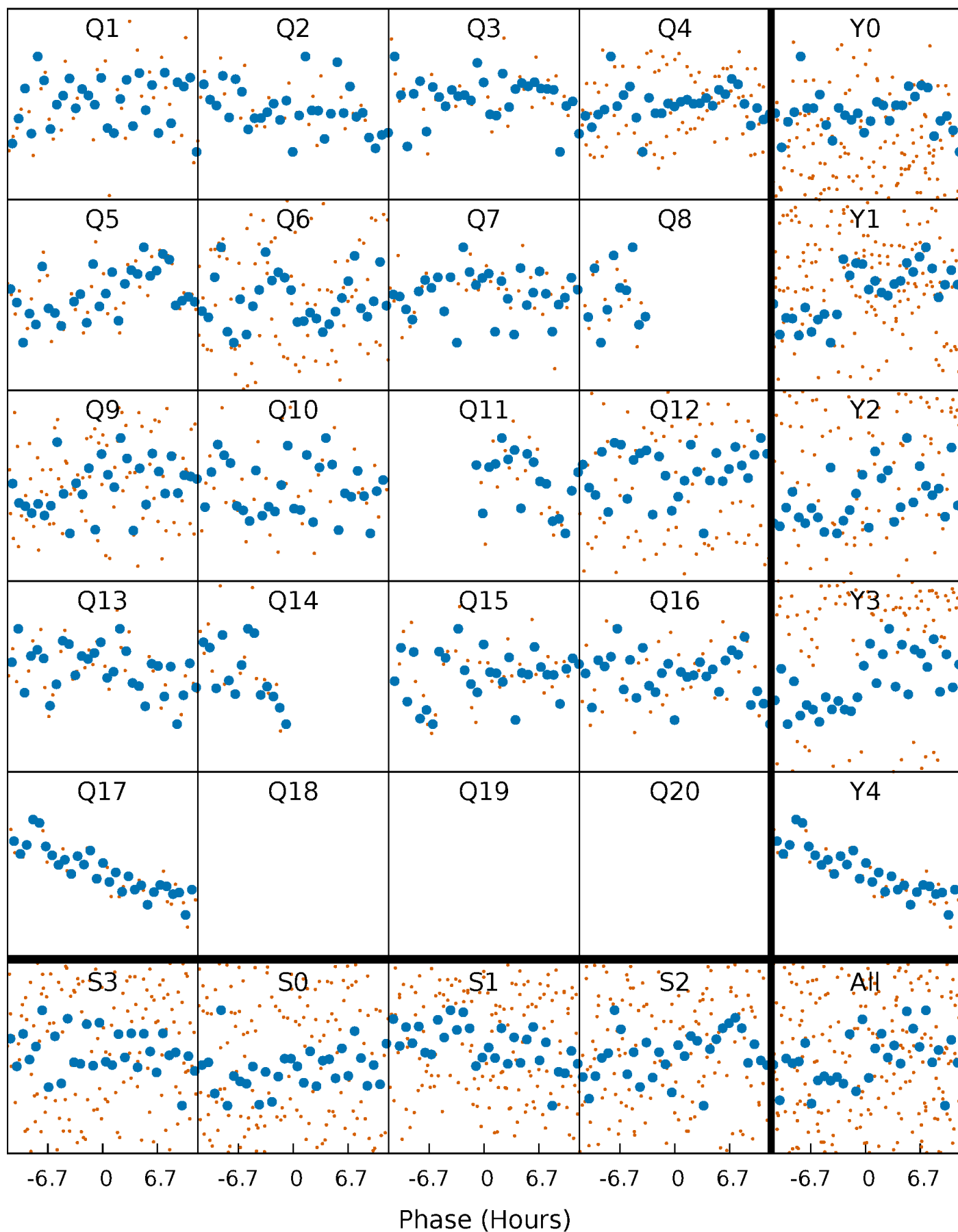


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



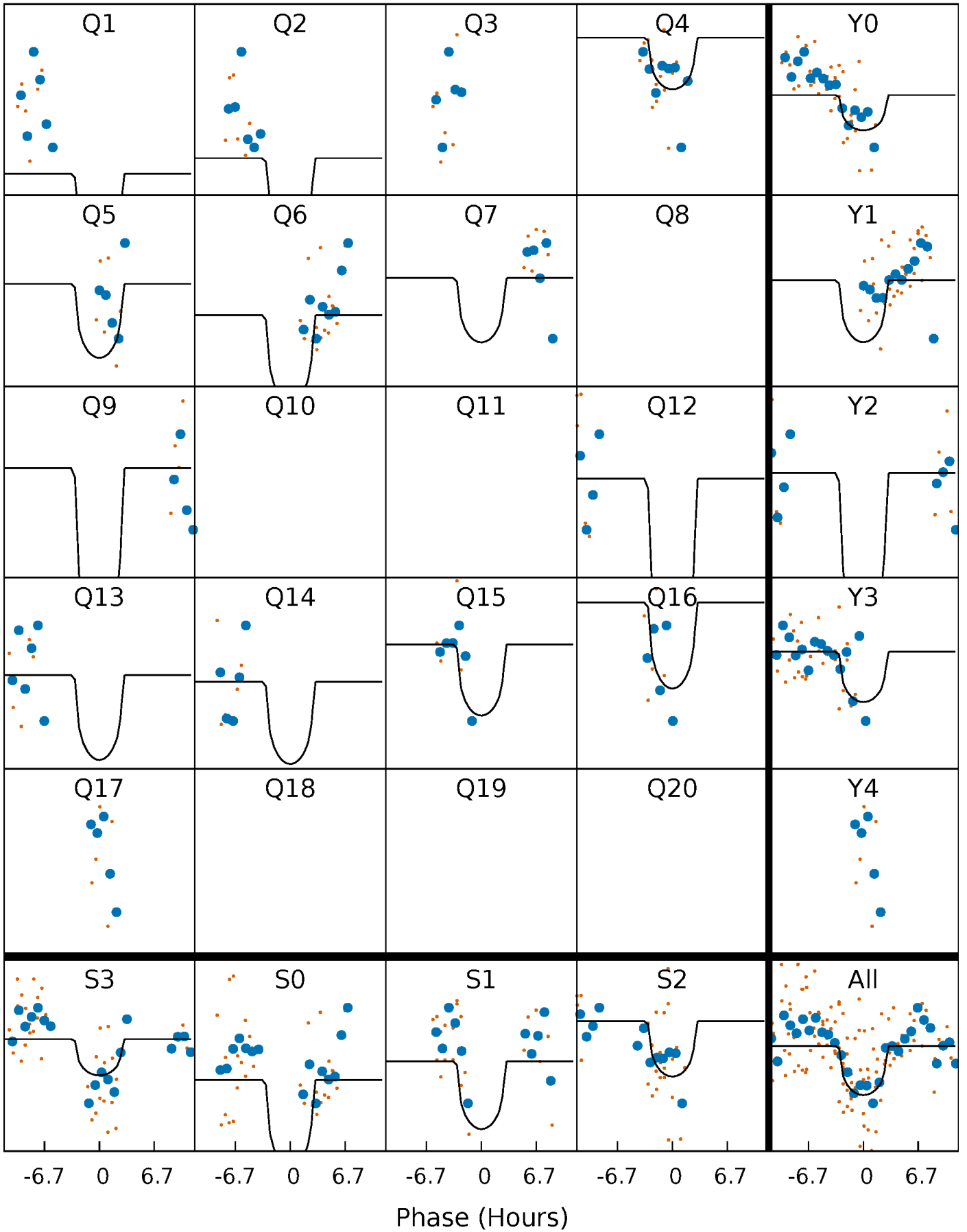
PDC Quarter-Phased Transit Curves

TCE 008367410-05 P= 67.980089 Days $T_0=149.377782$ (BKJD)



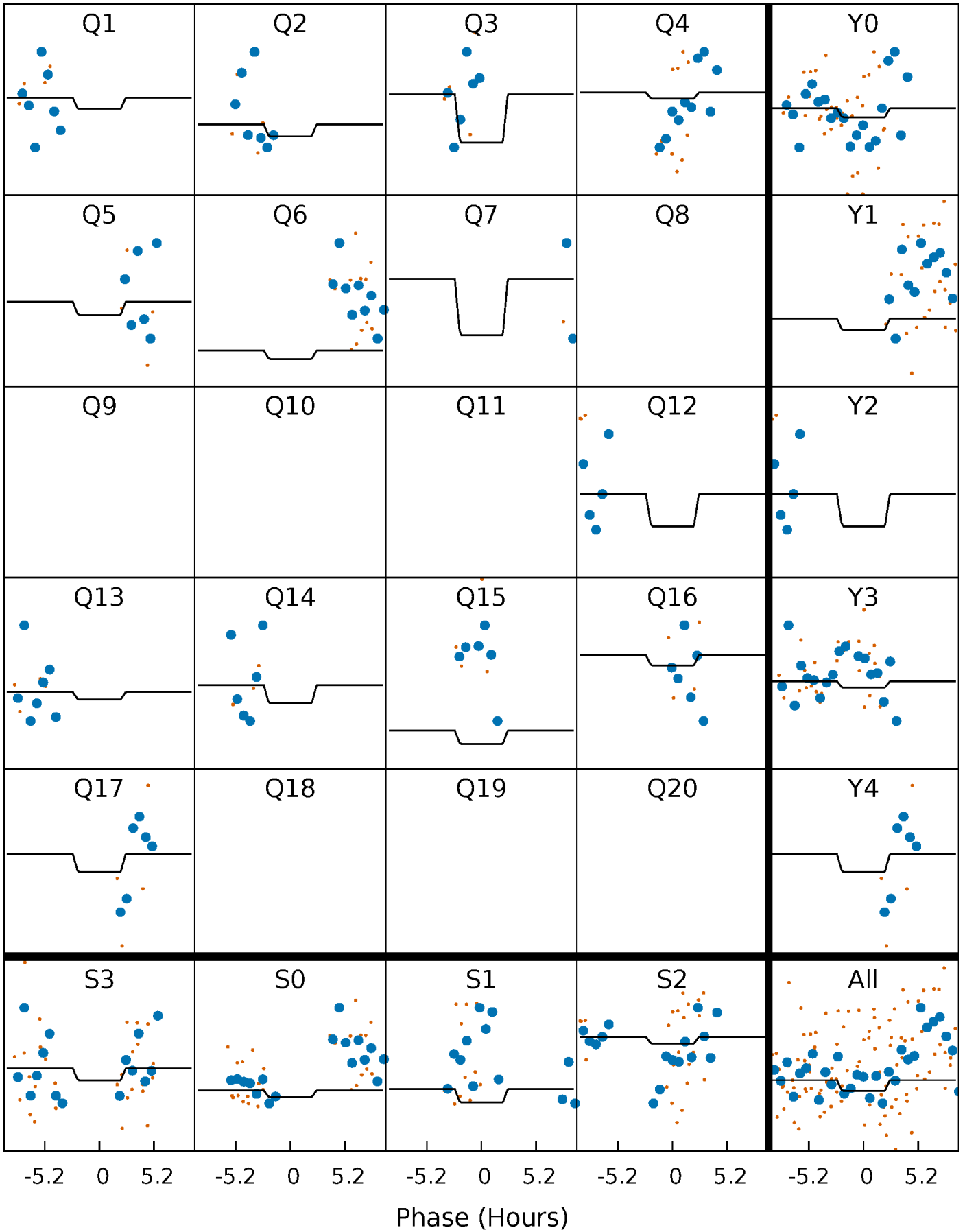
DV Quarter-Phased Transit Curves

TCE 008367410-05 P= 67.980089 Days $T_0=149.377782$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

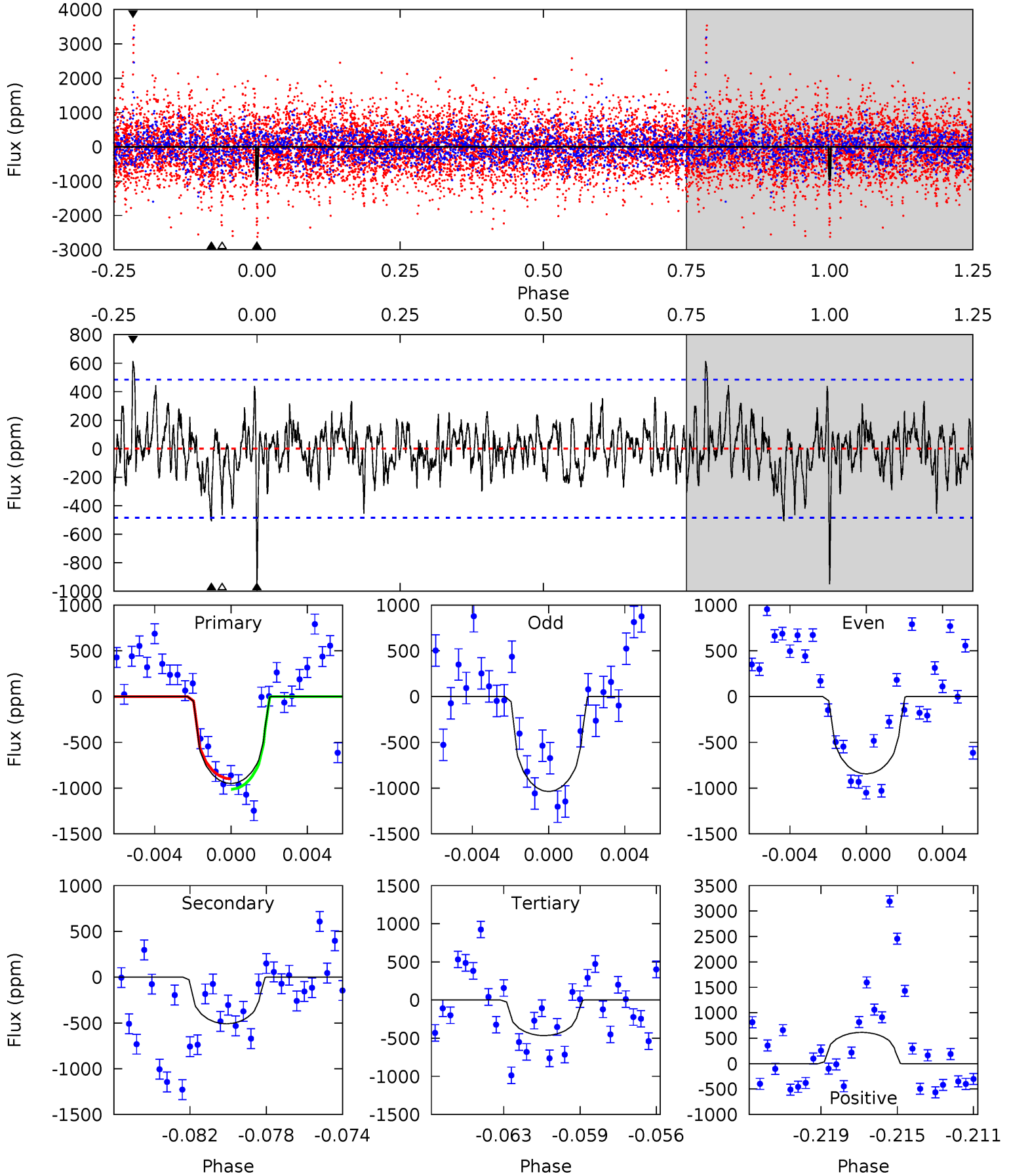
TCE 008367410-05 $P = 67.978539$ Days $T_0 = 149.281240$ (BKJD)



DV Model-Shift Uniqueness Test

008367410-05, P = 67.980089 Days, E = 81.397693 Days

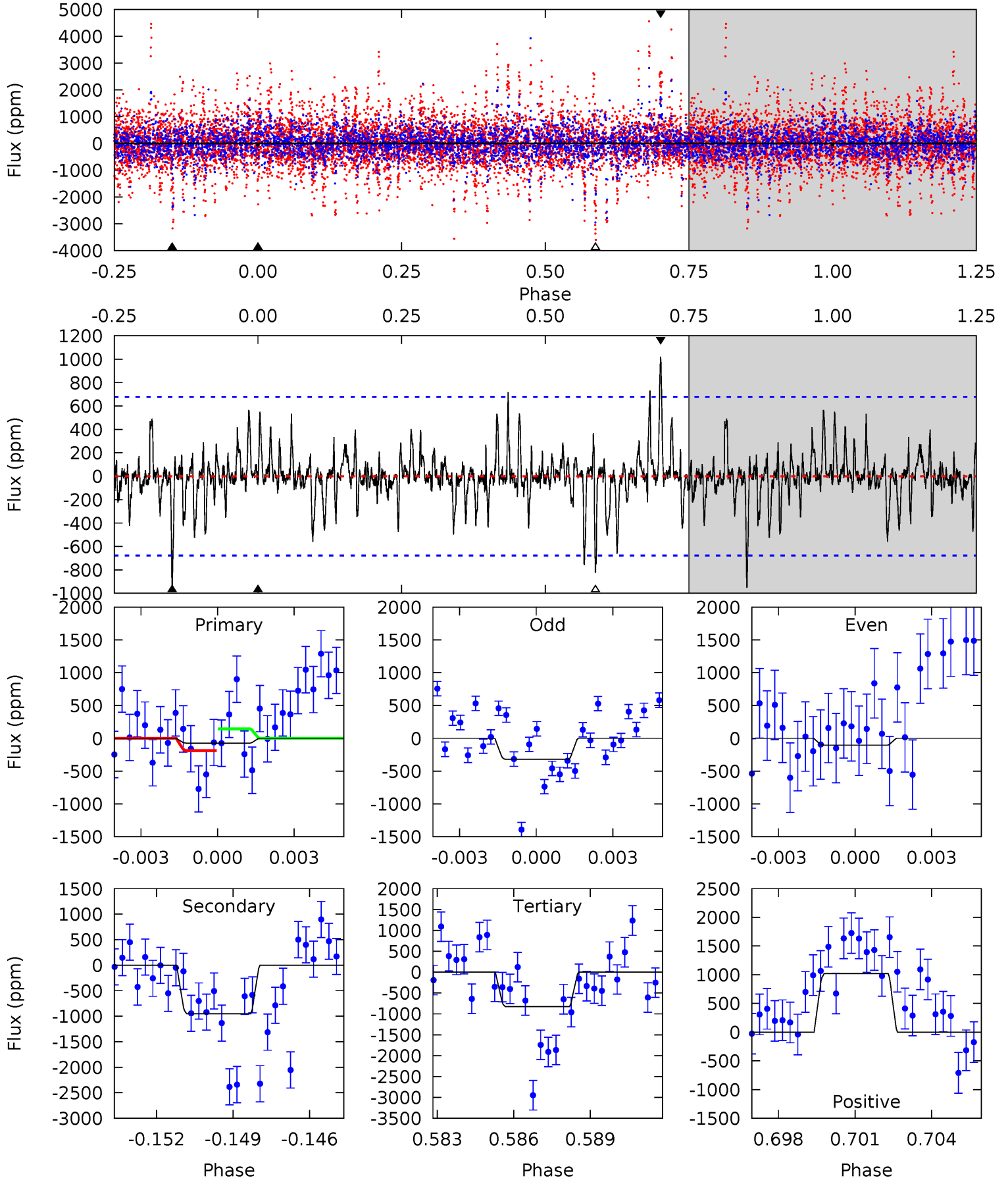
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	5.48	5.01	6.61	5.21	2.90	1.54	5.22	3.61	0.47	-1.14	1.03	0.95	0.39	0.61



Alt Model-Shift Uniqueness Test

008367410-05, P = 67.978539 Days, E = 81.302701 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.57	7.40	6.42	7.93	5.26	2.98	1.45	-5.85	-7.36	0.98	-0.53	0.84	0.50	0.52	0.17



Stellar Parameters For KIC 008367410

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4402^{+132}_{-132}	$4.586^{+0.052}_{-0.016}$	$0.210^{+0.200}_{-0.300}$	$0.705^{+0.029}_{-0.059}$	$0.699^{+0.050}_{-0.050}$	$2.804^{+0.643}_{-0.186}$
	+3%/-3%	+1%/-0%	+95%/-143%	+4%/-8%	+7%/-7%	+23%/-7%
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 008367410-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-509 ± 93	$3.44^{+2.97}_{-2.30}$	421^{+14}_{-14}	3457^{+1640}_{-563}	1990^{+16249}_{-1424}
Alt.	-952 ± 129	$2.80^{+2.96}_{-1.92}$	420^{+13}_{-14}	4080^{+2793}_{-839}	5571^{+50883}_{-4282}

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 $A_{obs} \gg 1.0$

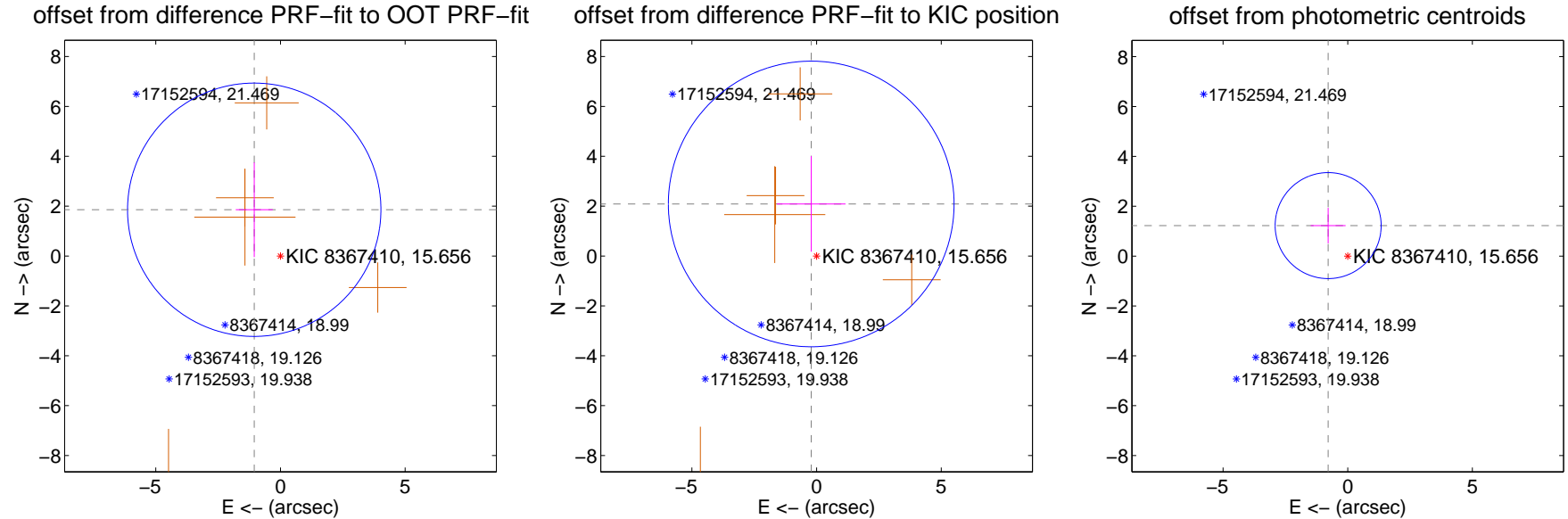
DV Centroid Data

Supplemental centroid analysis for 008367410-05. Kepler magnitude: 15.66. Transit SNR 9.80

There are 0 quarters with good PRF difference image offsets

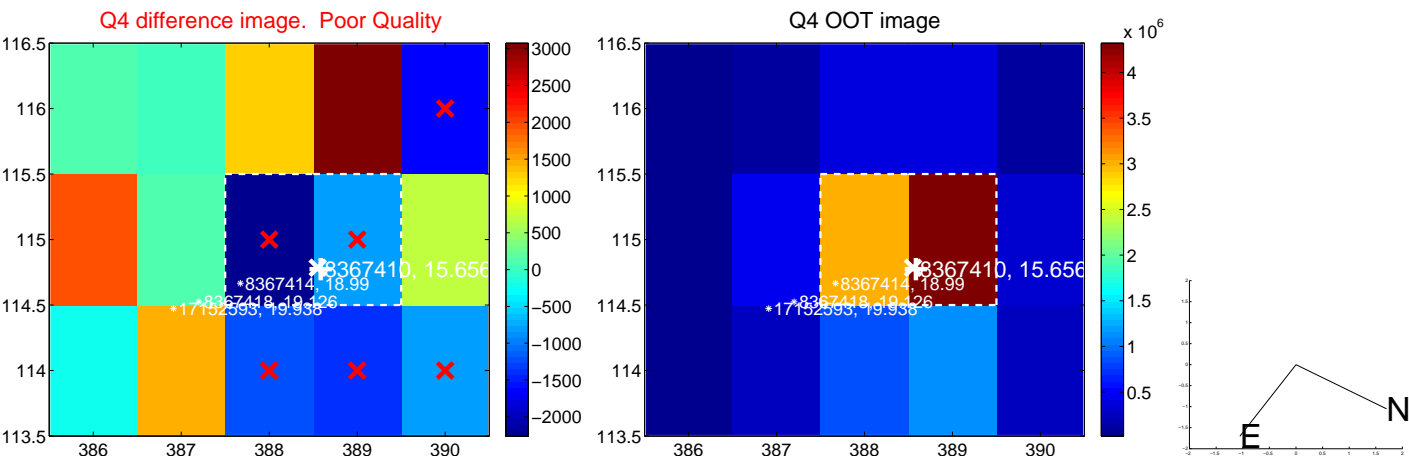
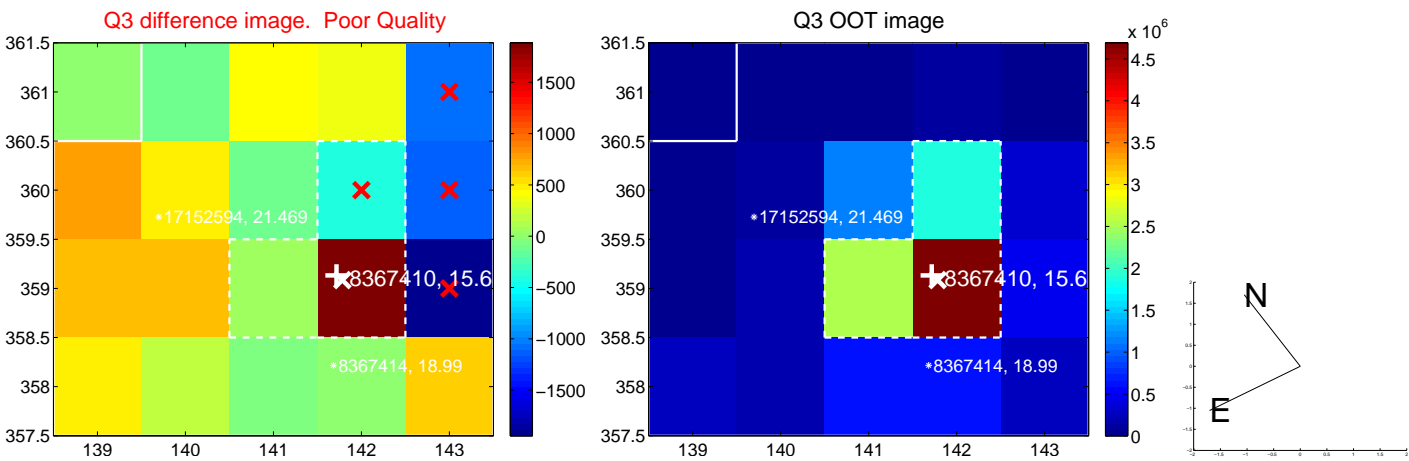
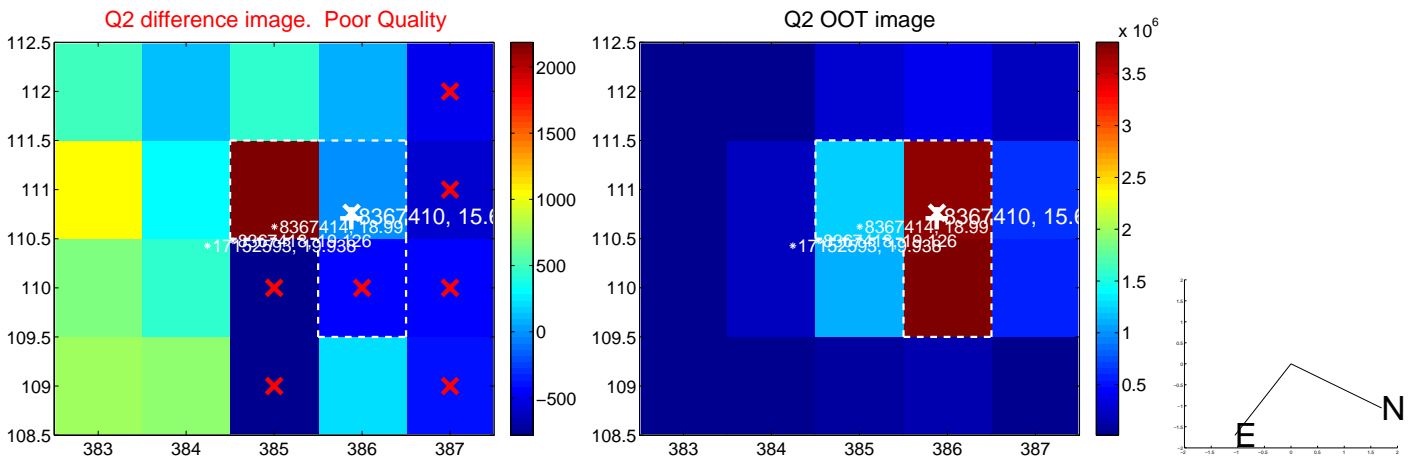
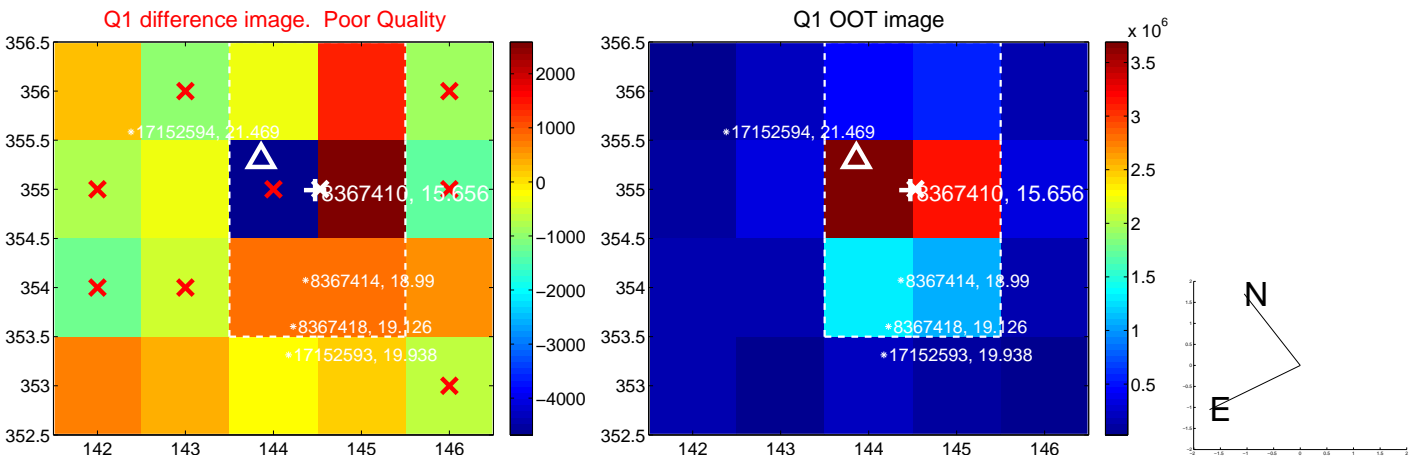
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.133 ± 1.693	1.26	1.052 ± 0.742	1.855 ± 1.900
PRF-fit source offset from KIC position	2.099 ± 1.909	1.10	0.215 ± 1.377	2.088 ± 1.914
photometric centroid source offset	1.45 ± 0.71	2.05	0.78 ± 0.70	1.22 ± 0.71

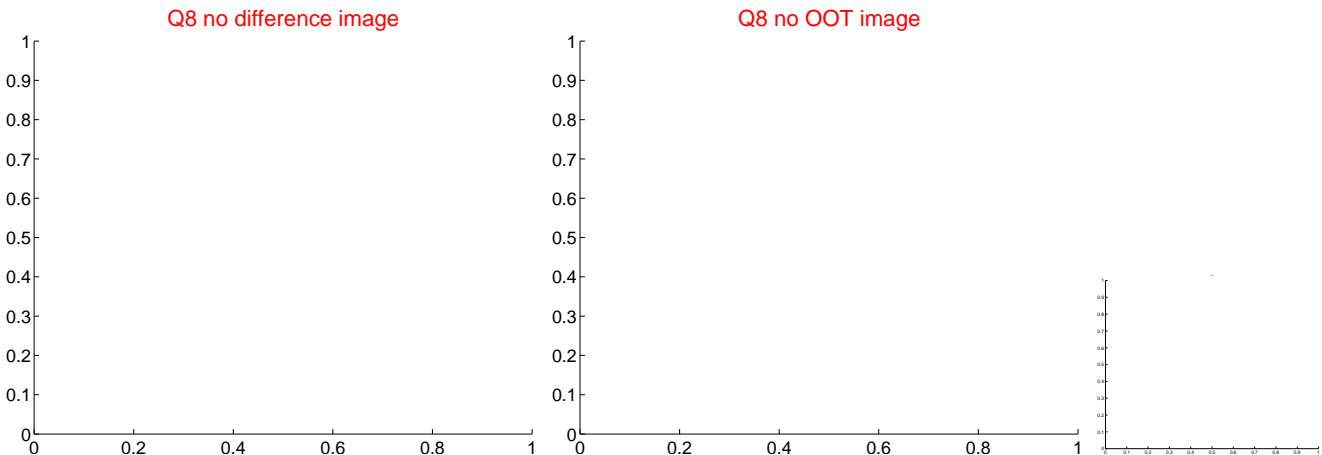
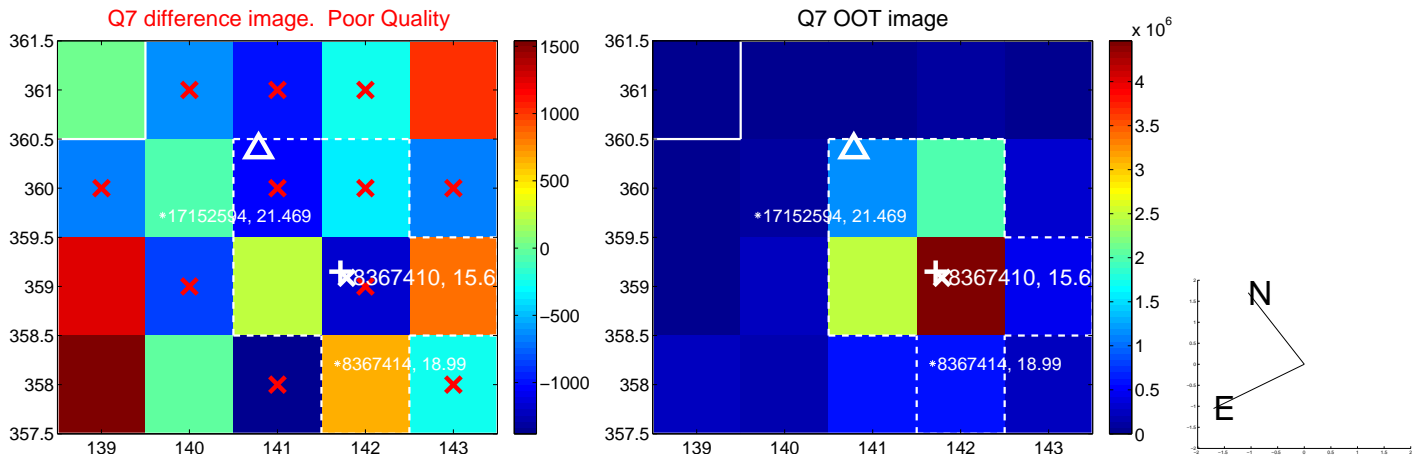
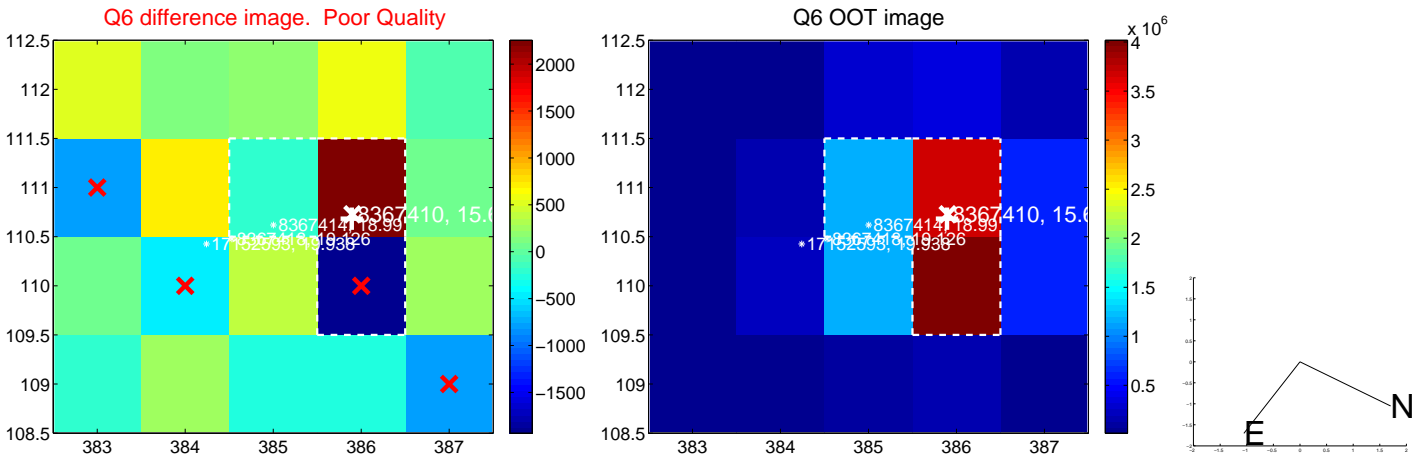
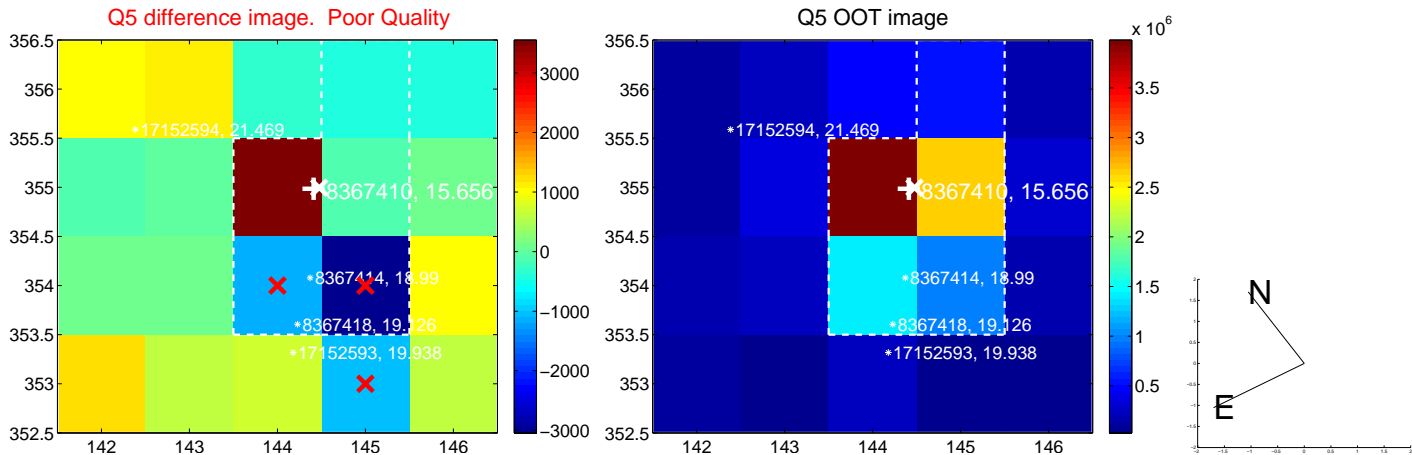


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

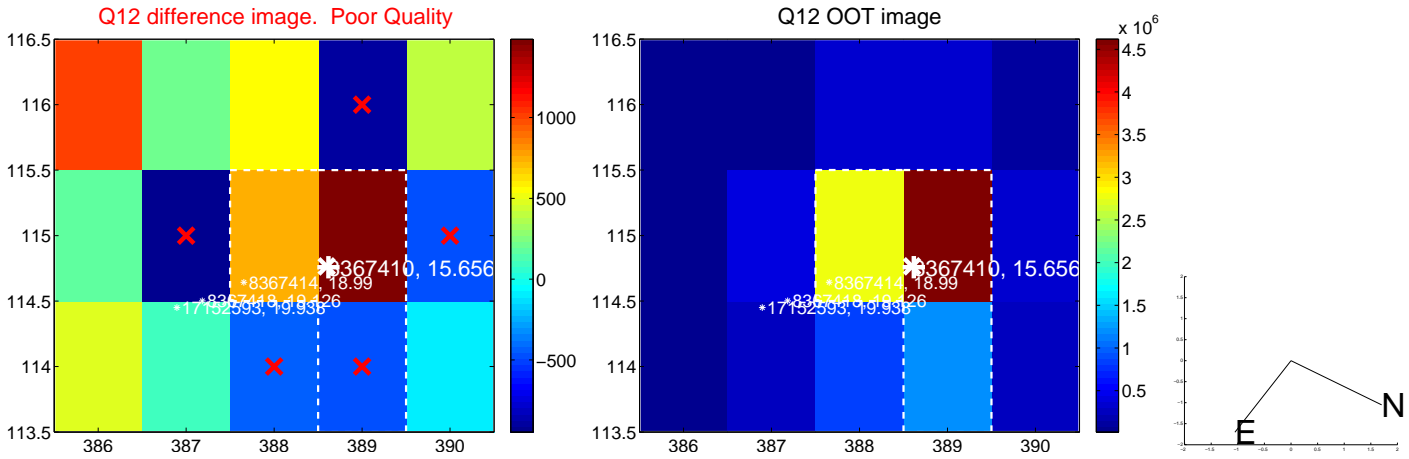
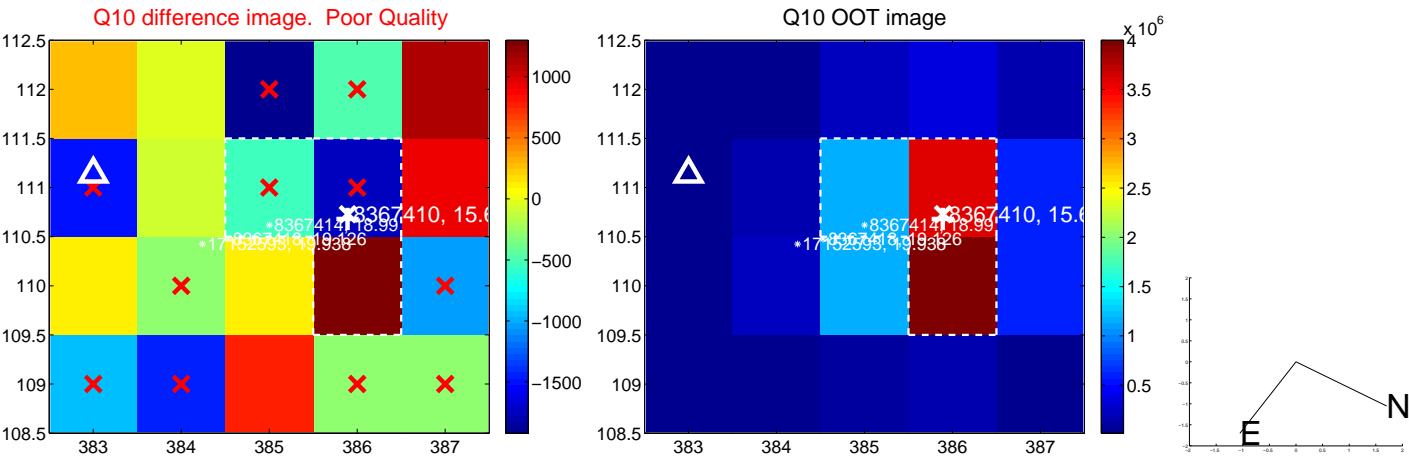
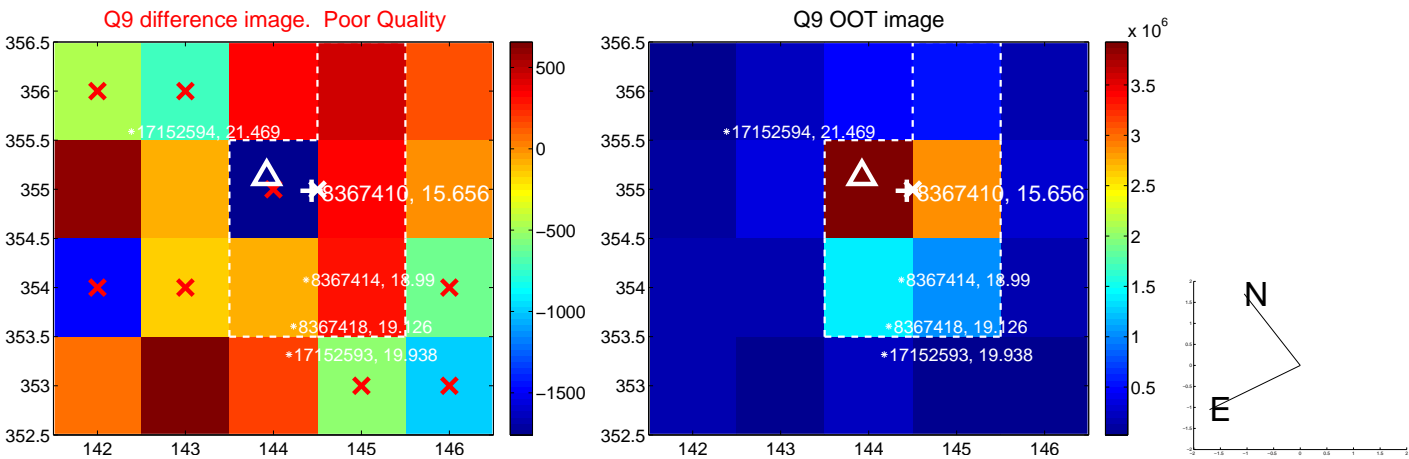
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



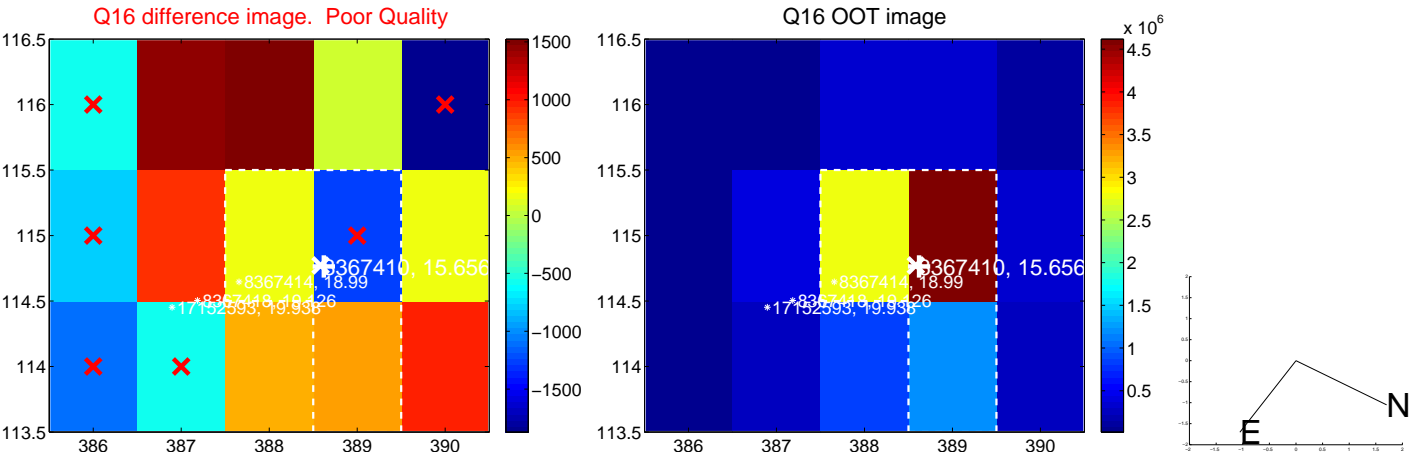
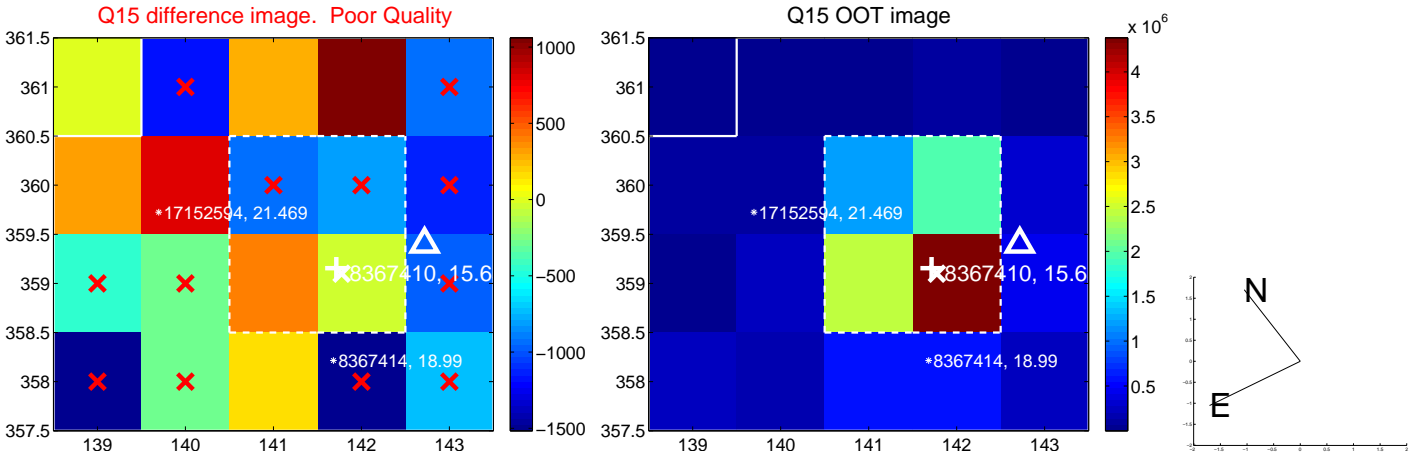
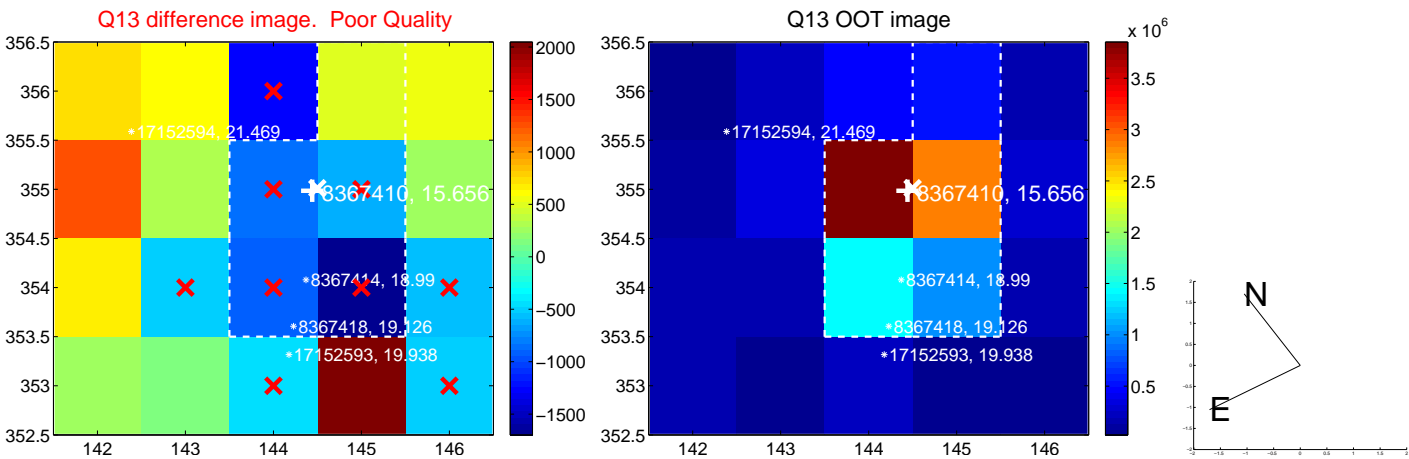
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



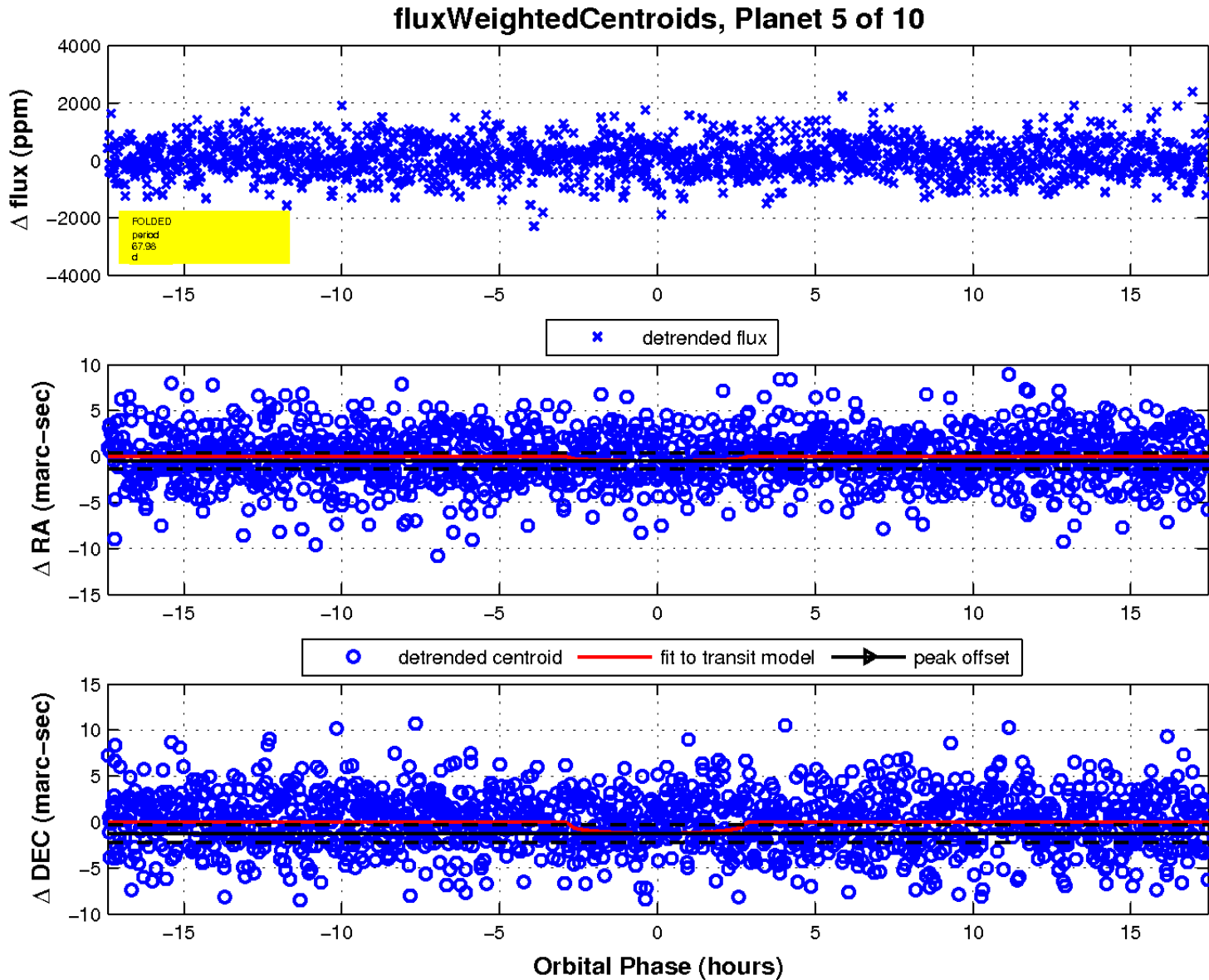
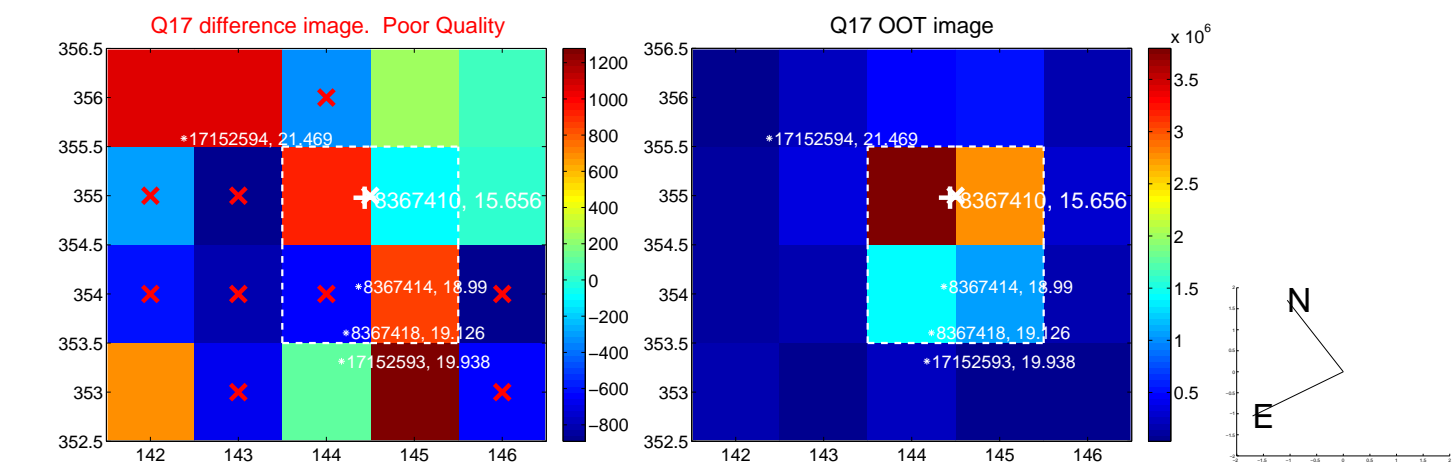
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

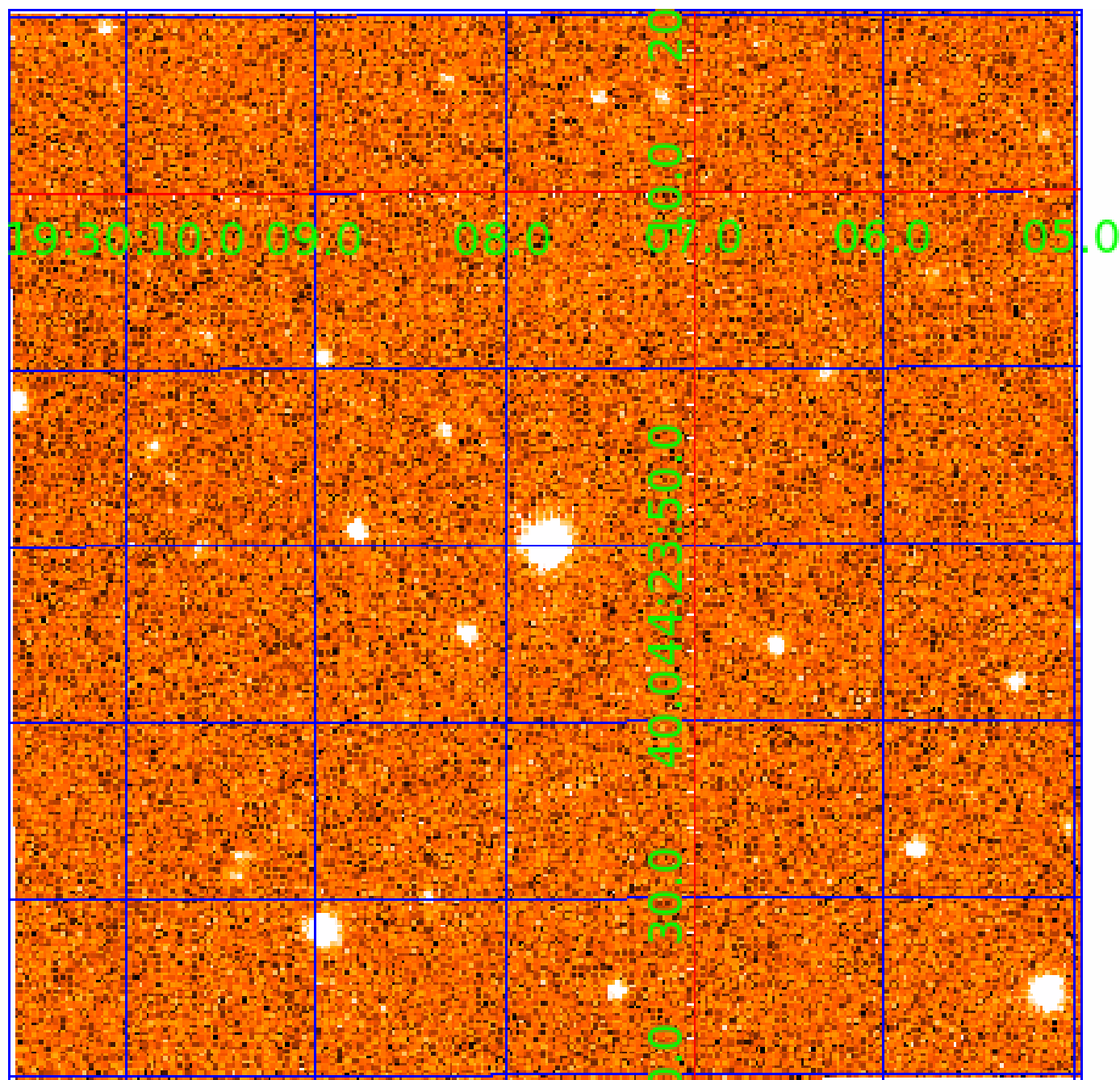


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008367410

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})
008367410-01	OBS	No	1.284101	131.713566	71.6	8.724	7.3	10.0	0.70	4402	0.66	397.03
008367410-04	OBS	No	31.732588	136.293707	232.5	7.679	14.3	3.3	0.70	4402	1.16	5.52
008367410-05	OBS	No	67.980089	149.377782	1019.4	5.822	13.5	9.8	0.70	4402	2.30	2.00
008367410-07	OBS	No	44.329621	156.488878	671.1	3.623	9.9	6.7	0.70	4402	2.27	3.53
008367410-08	OBS	No	19.791548	146.474216	803.1	2.527	10.2	8.7	0.70	4402	2.31	10.35
008367410-09	OBS	No	29.267988	156.314958	336.0	8.696	8.4	5.0	0.70	4402	1.54	6.14
008367410-10	OBS	No	151.560909	145.190516	1333.2	4.208	11.2	8.3	0.70	4402	2.66	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008367410-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008367410-04	OBS	FP	0.00	1	0	0	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—CENT_FEW_DIFFS
008367410-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

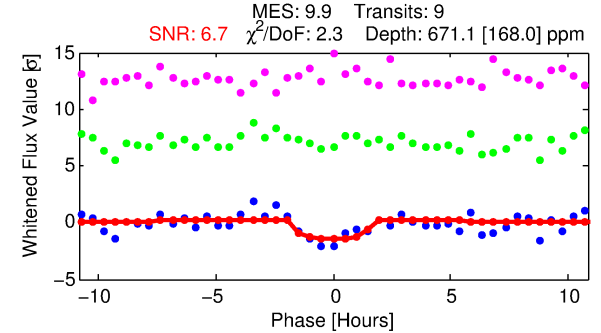
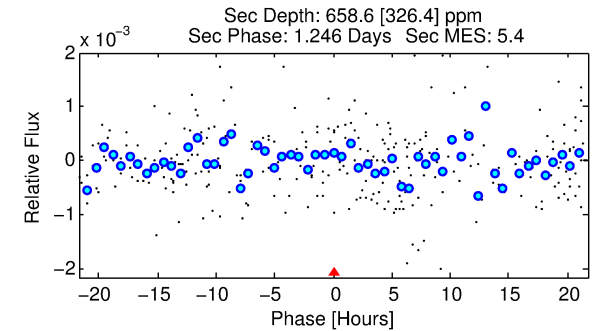
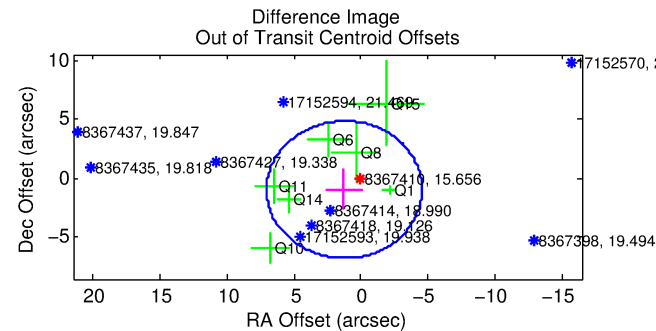
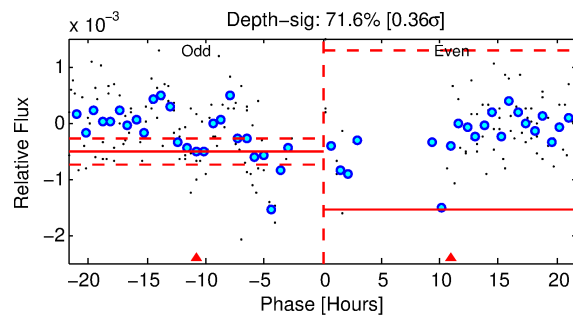
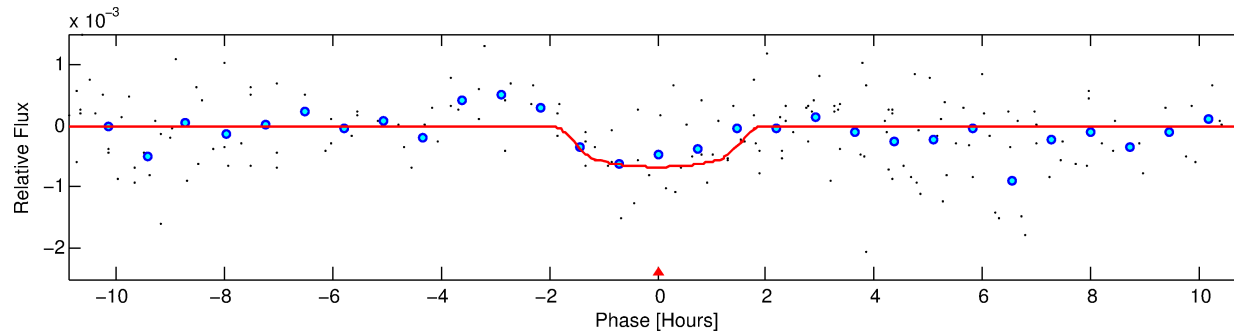
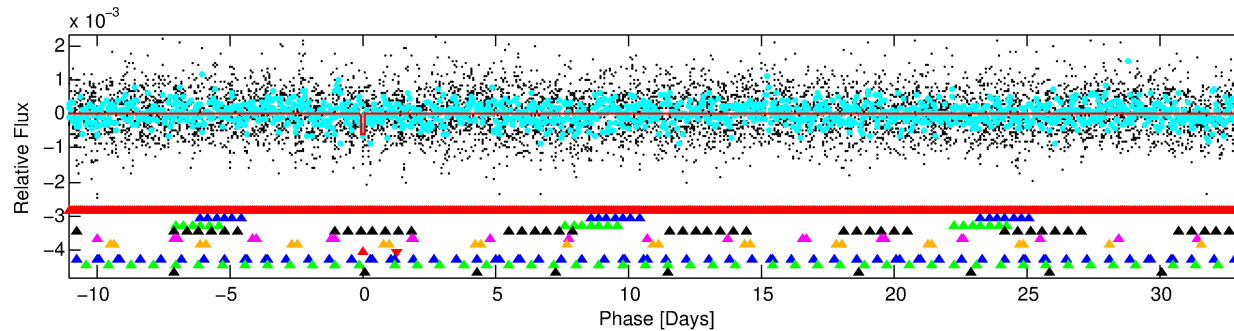
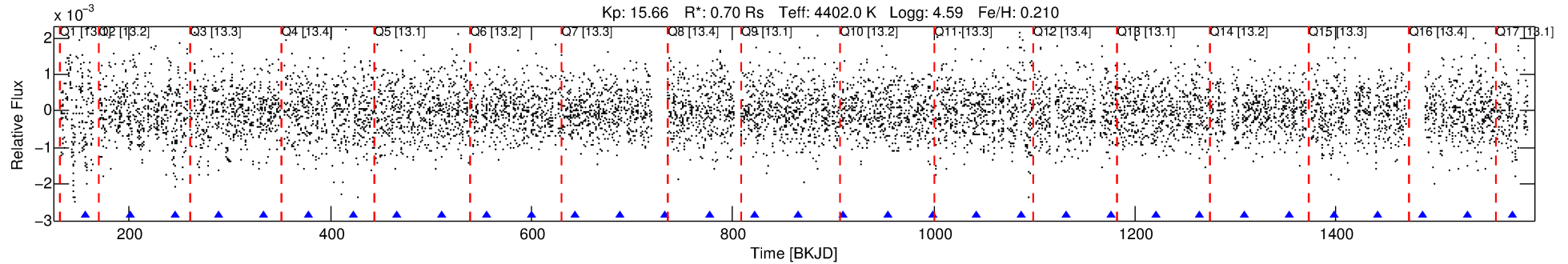
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008367410-07

No Significant Match Found

DV One-Page Summary

KIC: 8367410 Candidate: 7 of 10 Period: 44.330 d



DV Fit Results:

Period = 44.32962 [0.00107] d
Epoch = 156.4889 [0.0188] BKJD
Rp/R* = 0.0295 [0.0164]
a/R* = 46.60 [86.00]
b = 0.90 [0.40]
Seff = 3.53 [0.55]
Teq = 350 [14] K
Rp = 2.27 [1.27] Re
a = 0.2176 [0.0149] AU
Ag = 3332.64 [4067.75] [0.82 σ]
Teffp = 4106 [1255] K [2.99 σ]

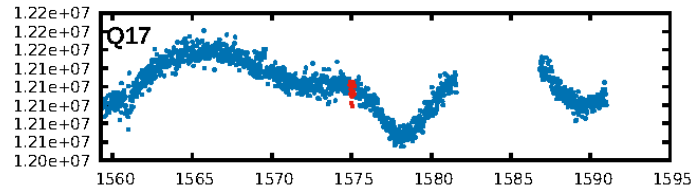
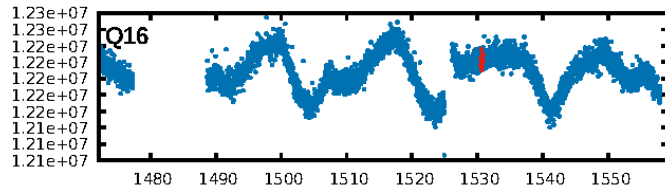
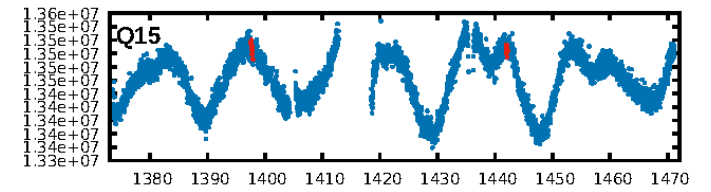
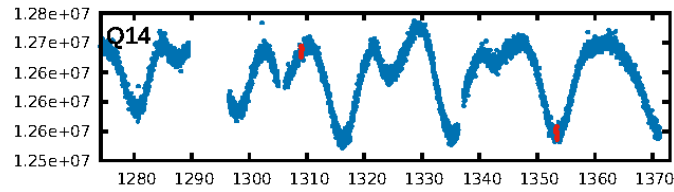
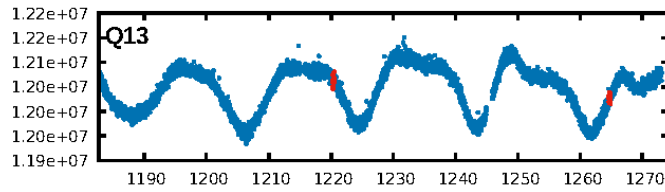
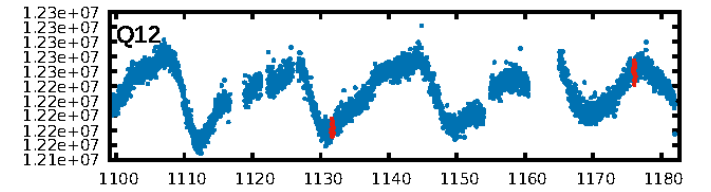
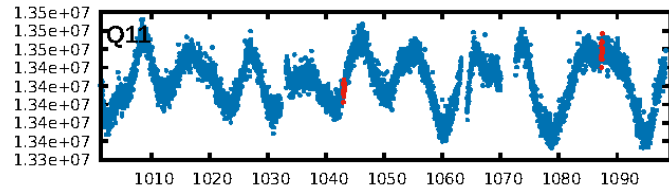
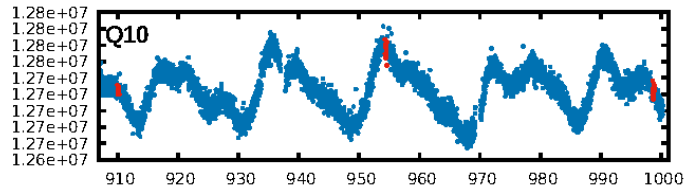
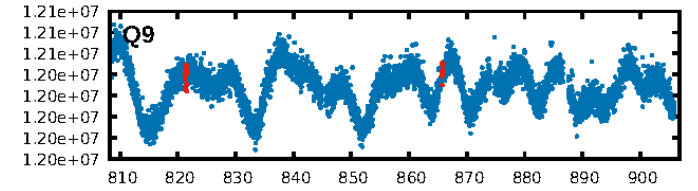
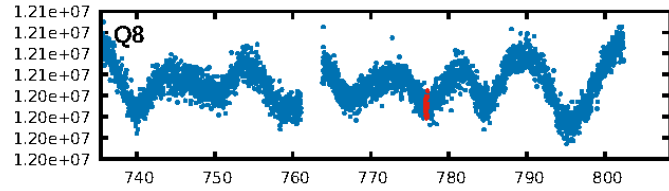
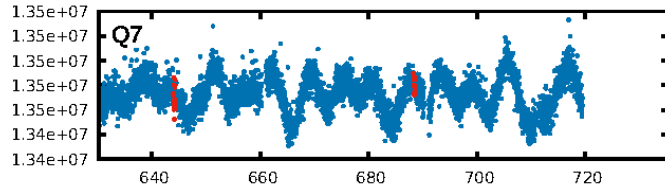
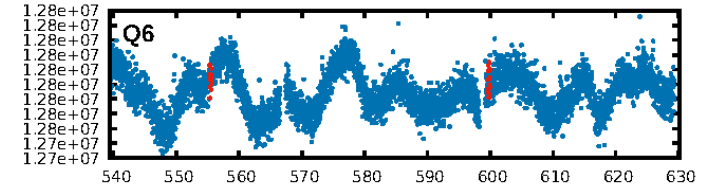
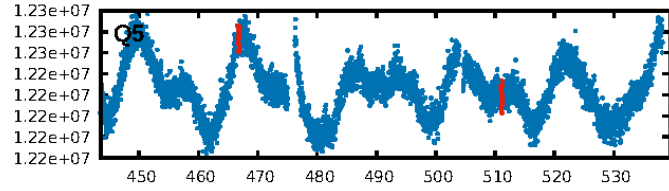
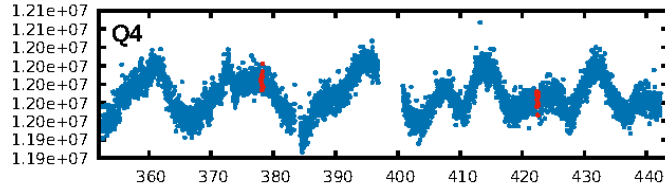
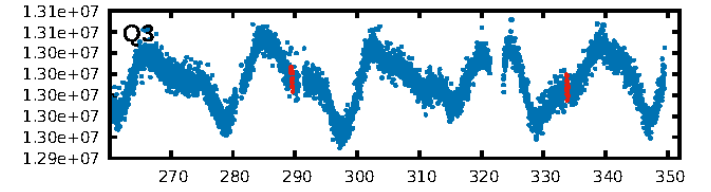
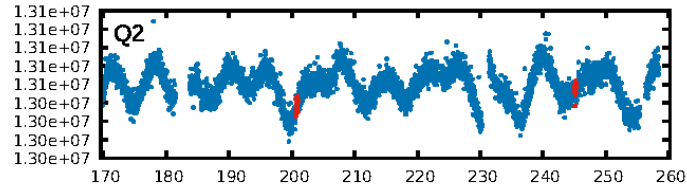
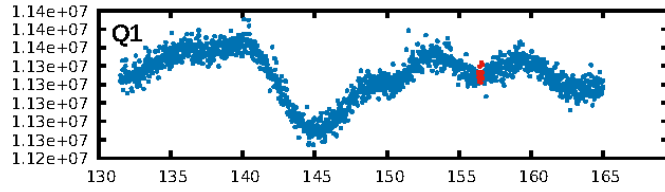
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [35.61 σ]
LongPeriod-sig: 100.0% [97.34 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 76.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 0.3193
Centroid-sig: 3.3%
Centroid-so: 1.641 arcsec [1.56 σ]
OotOffset-rm: 1.569 arcsec [0.81 σ]
KicOffset-rm: 1.651 arcsec [0.94 σ]
OotOffset-st: 3/2/1/1 [7]
KicOffset-st: 3/2/1/1 [7]
DiffImageQuality-fgm: 0.14 [1/7]
DiffImageOverlap-fno: 0.29 [5/17]

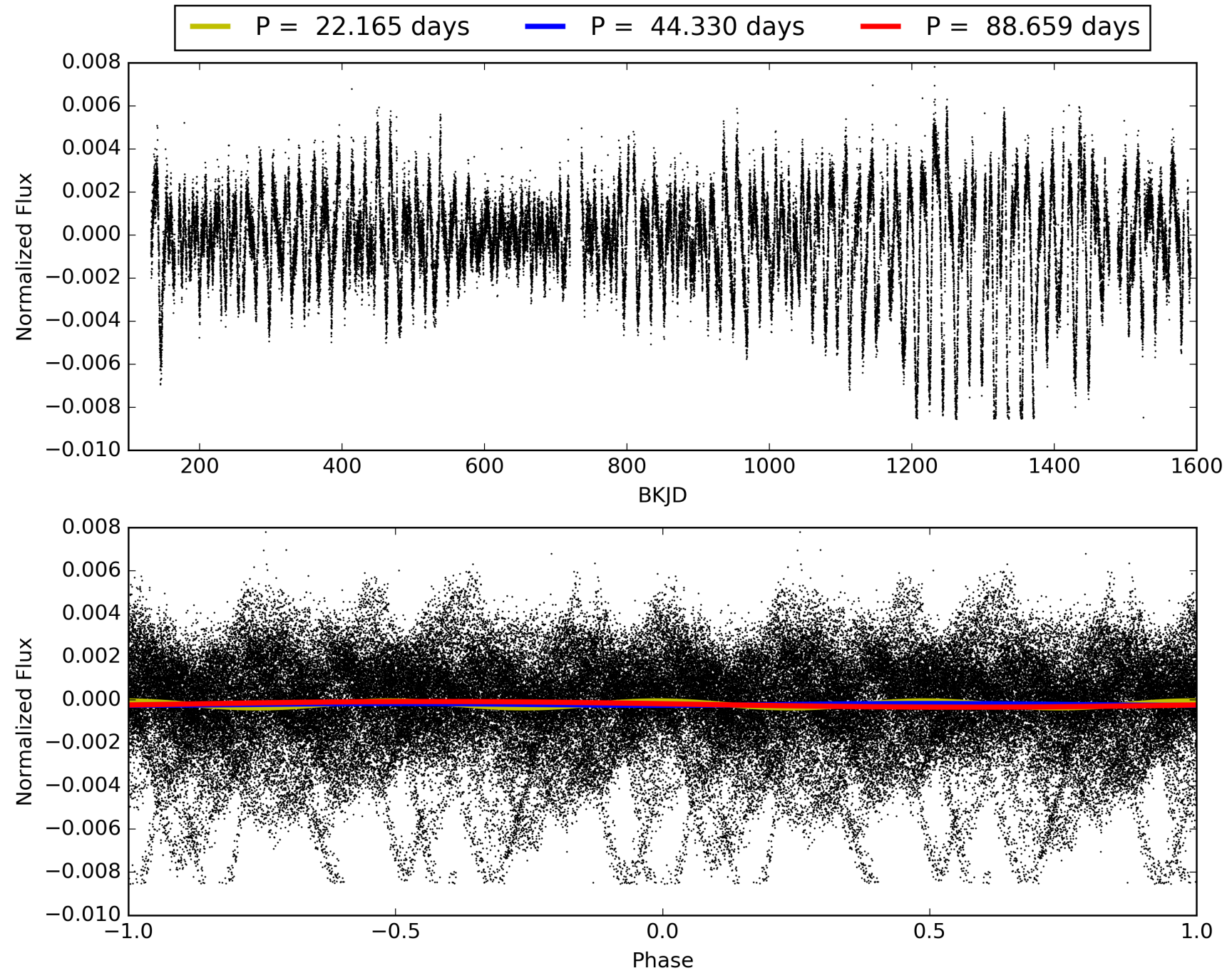
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:12:25 Z

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

TCE 008367410-07, PDC Light Curves

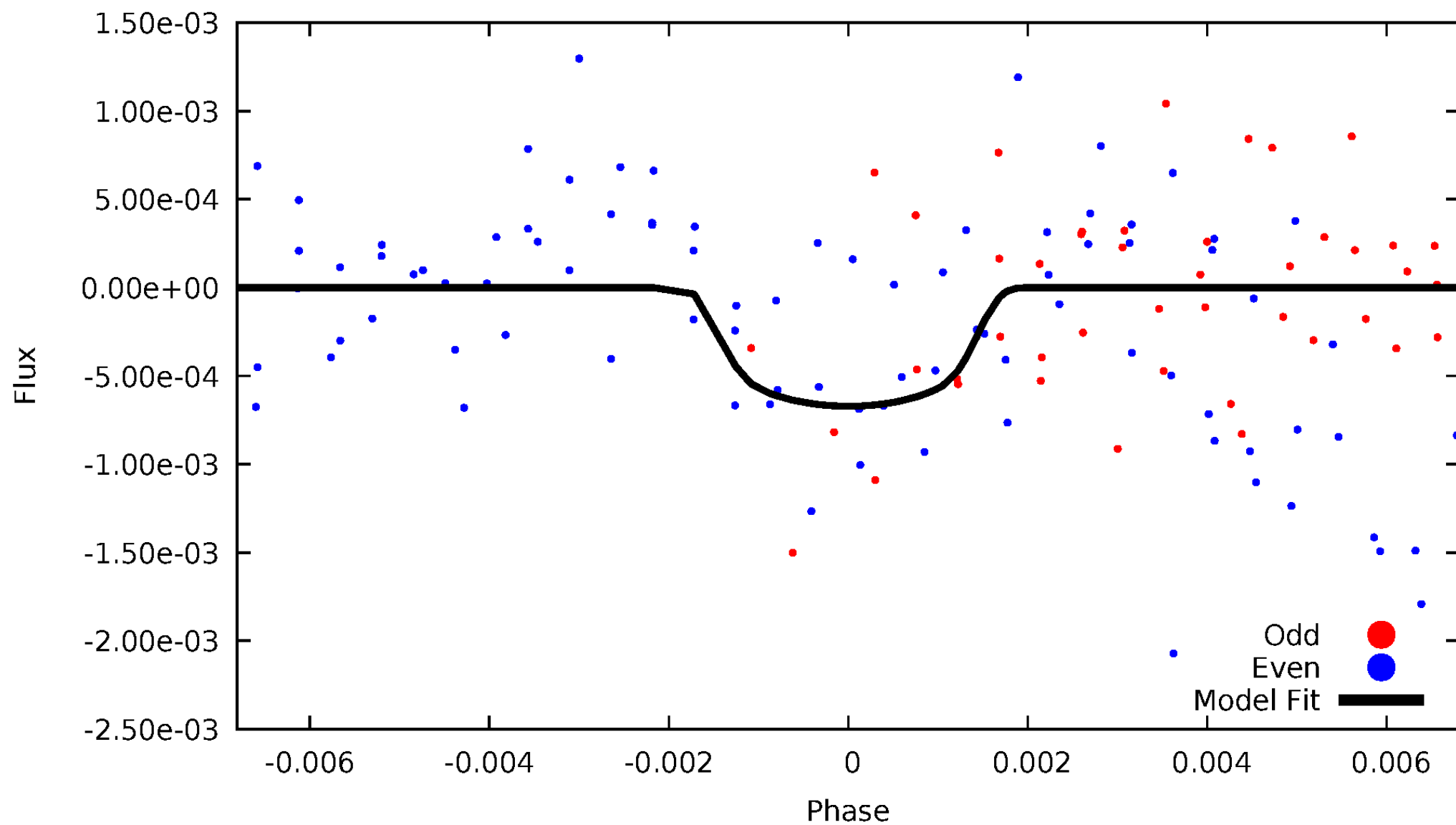


TCE 008367410-07



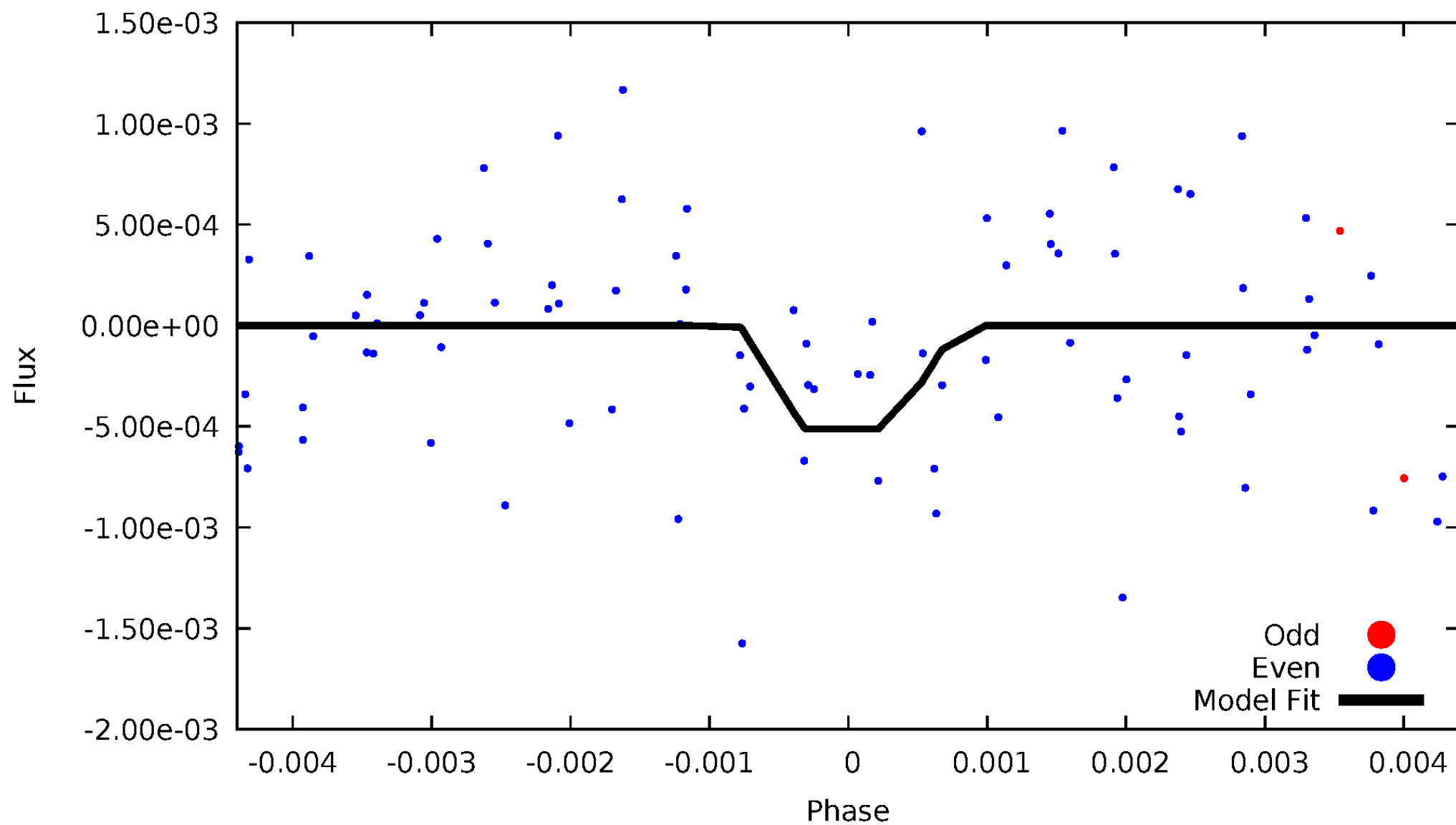
DV Odd/Even

TCE 008367410-07



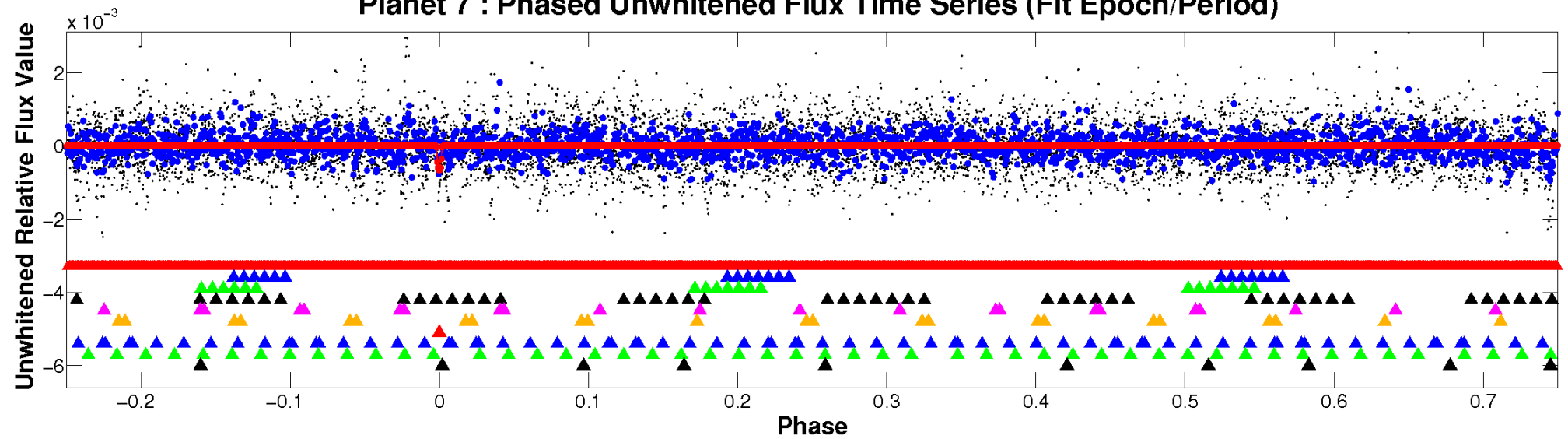
ALT Odd/Even

TCE 008367410-07

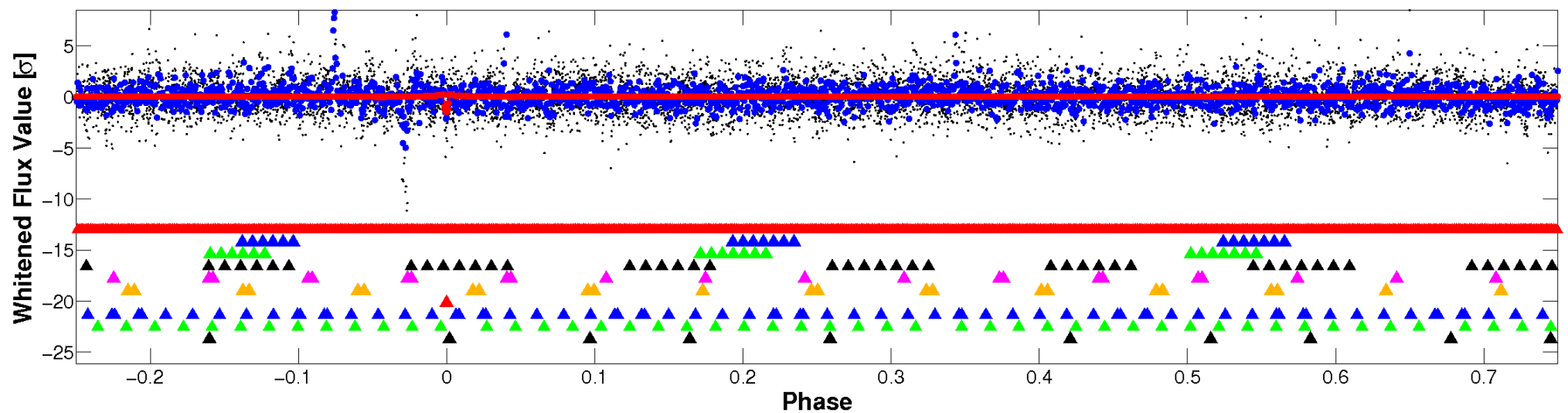


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

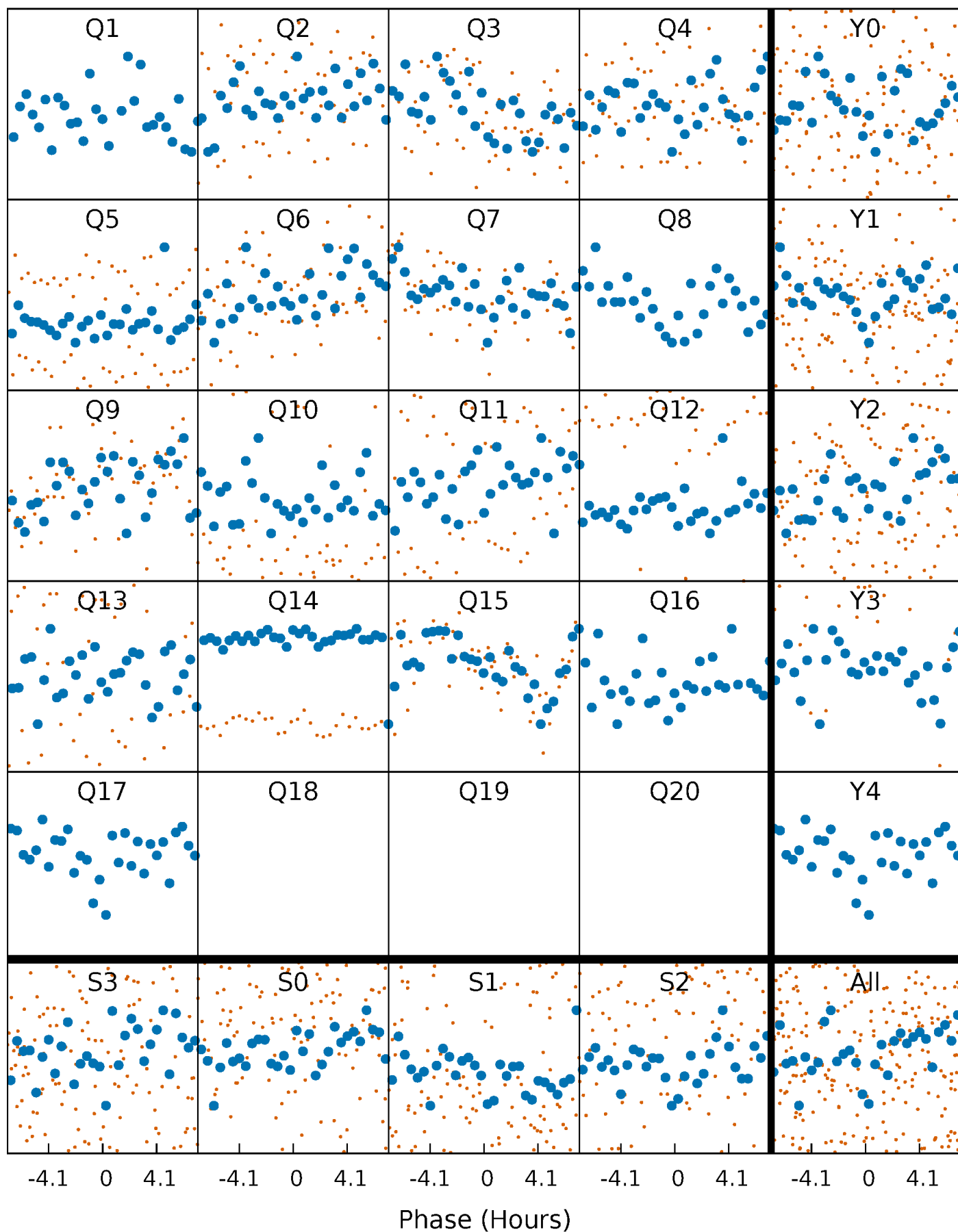


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



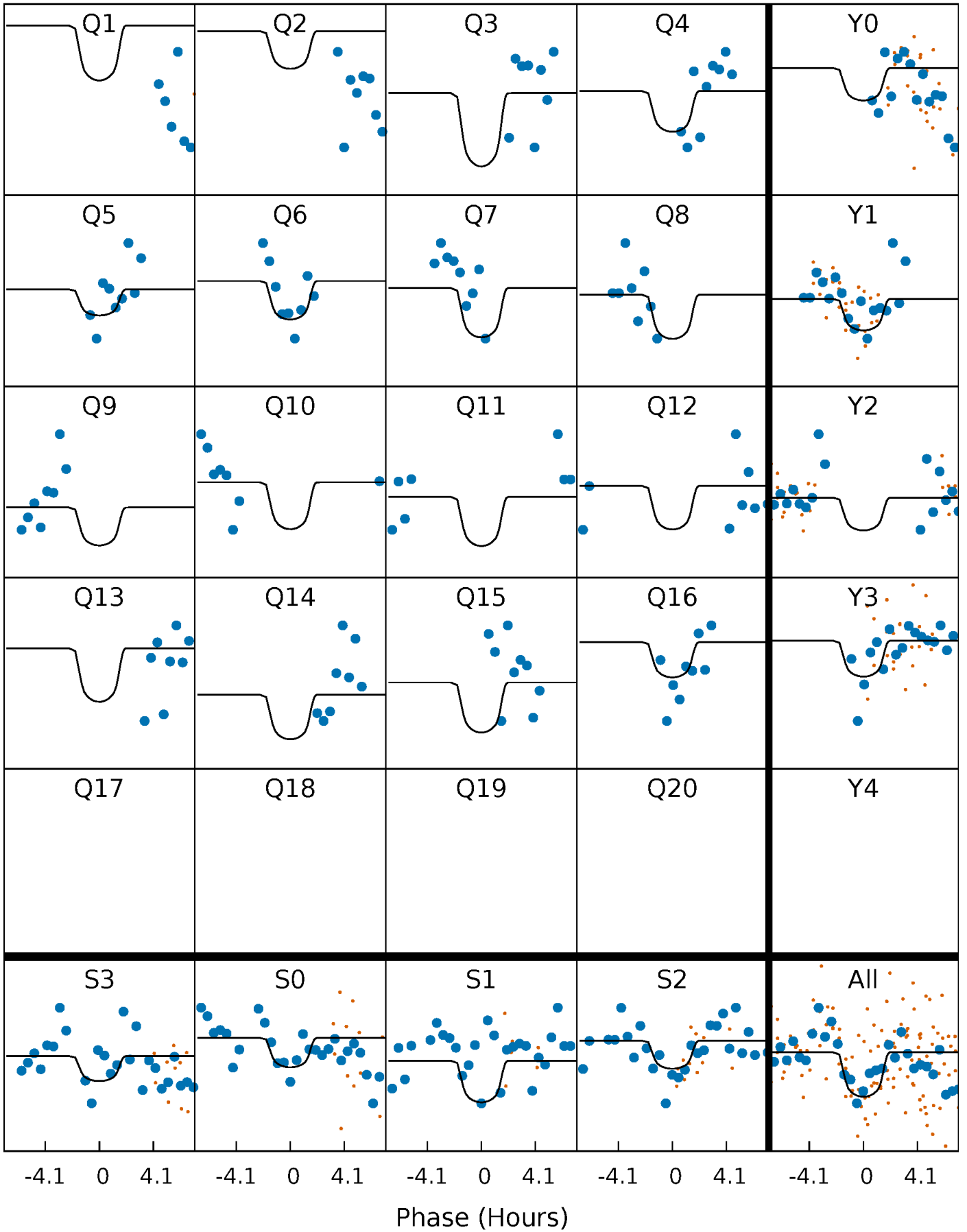
PDC Quarter-Phased Transit Curves

TCE 008367410-07 P= 44.329621 Days $T_0=156.488878$ (BKJD)



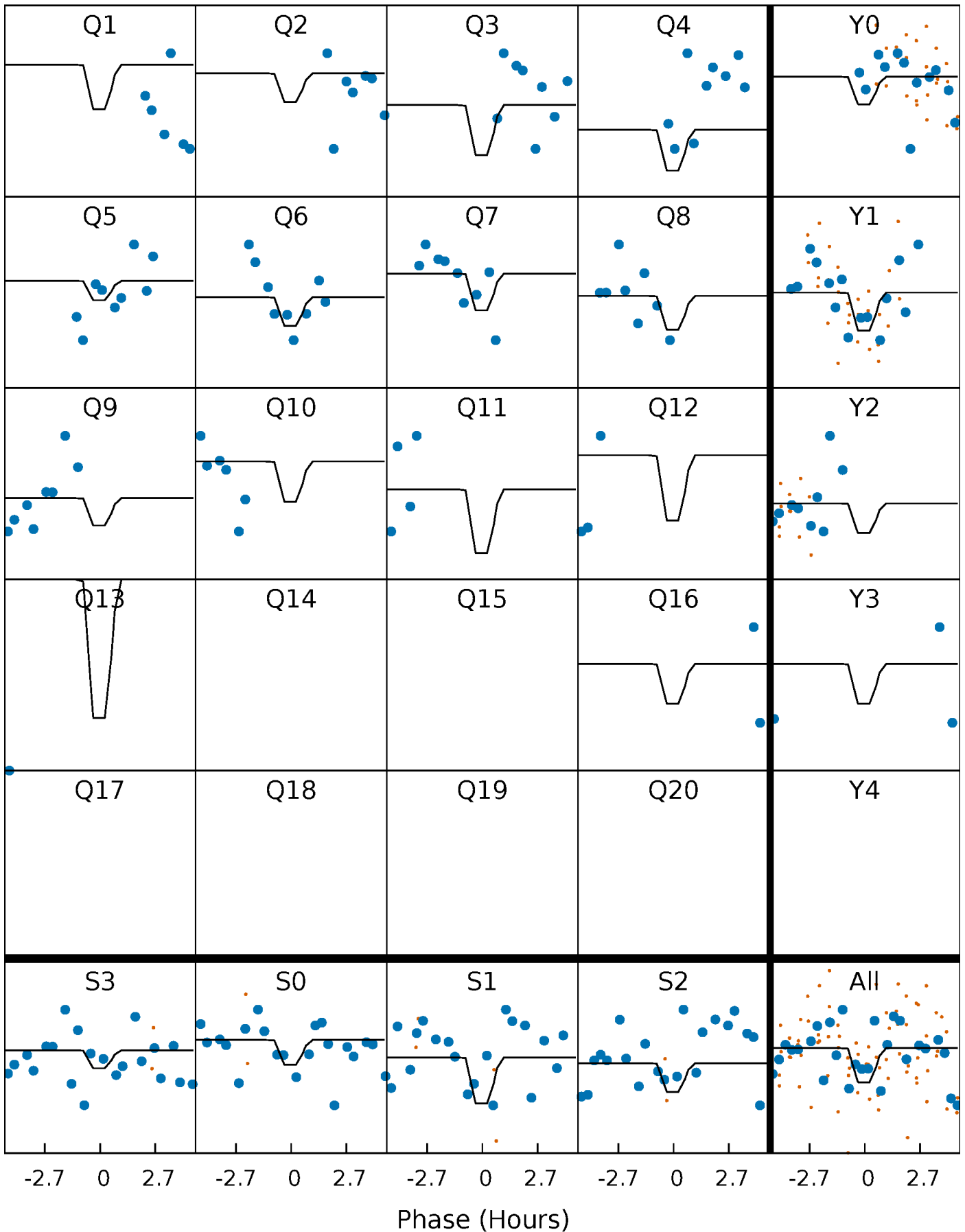
DV Quarter-Phased Transit Curves

TCE 008367410-07 $P = 44.329621$ Days $T_0 = 156.488878$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

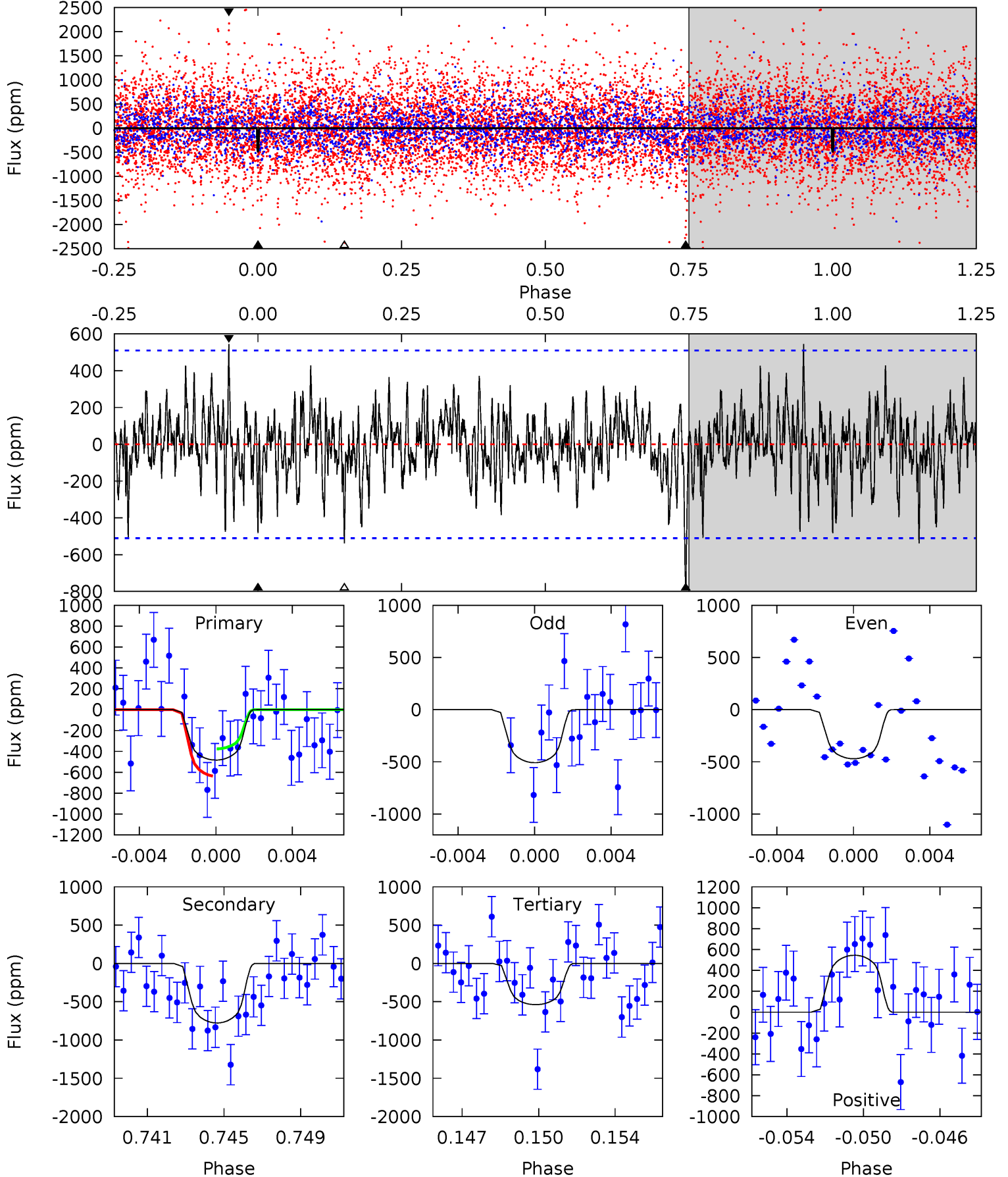
TCE 008367410-07 $P = 44.320035$ Days $T_0 = 156.581155$ (BKJD)



DV Model-Shift Uniqueness Test

008367410-07, P = 44.329621 Days, E = 112.159257 Days

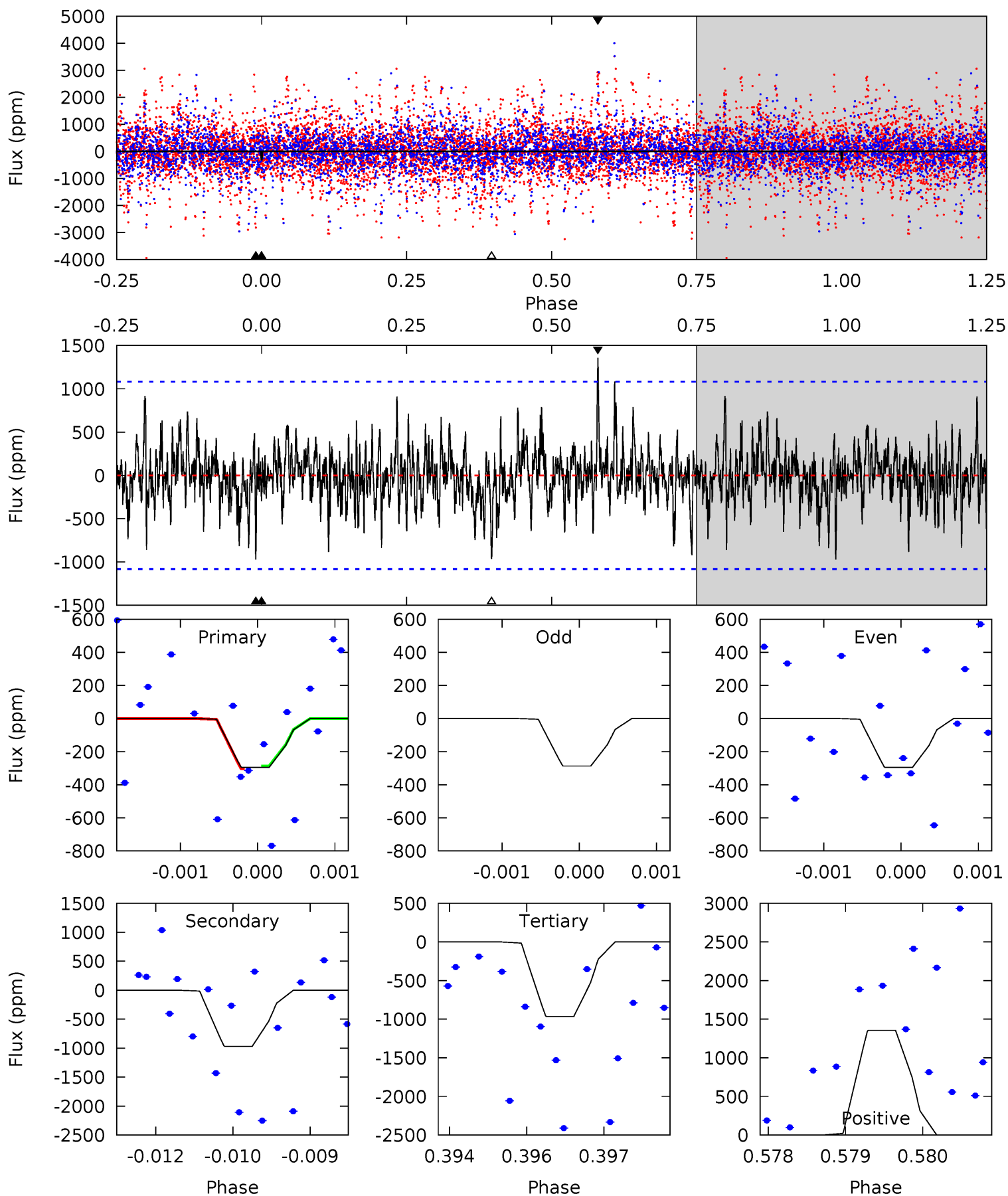
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.93	7.93	5.49	5.56	5.21	2.89	1.54	-0.57	-0.63	2.44	2.37	0.18	0.93	0.41	1.29



Alt Model-Shift Uniqueness Test

008367410-07, P = 44.320035 Days, E = 112.261120 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.47	4.83	4.81	6.75	5.38	3.18	1.35	-3.34	-5.28	0.02	-1.91	0.02	1.11	0.58	0.04



Stellar Parameters For KIC 008367410

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4402^{+132}_{-132}	$4.586^{+0.052}_{-0.016}$	$0.210^{+0.200}_{-0.300}$	$0.705^{+0.029}_{-0.059}$	$0.699^{+0.050}_{-0.050}$	$2.804^{+0.643}_{-0.186}$
	+3%/-3%	+1%/-0%	+95%/-143%	+4%/-8%	+7%/-7%	+23%/-7%
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 008367410-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-778 ± 98	$2.20^{+1.22}_{-1.13}$	484^{+17}_{-16}	4329^{+1541}_{-632}	4115^{+14130}_{-2414}
Alt.	-971 ± 201	$1.80^{+1.20}_{-1.02}$	485^{+16}_{-16}	4866^{+2543}_{-842}	7524^{+35896}_{-4681}

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

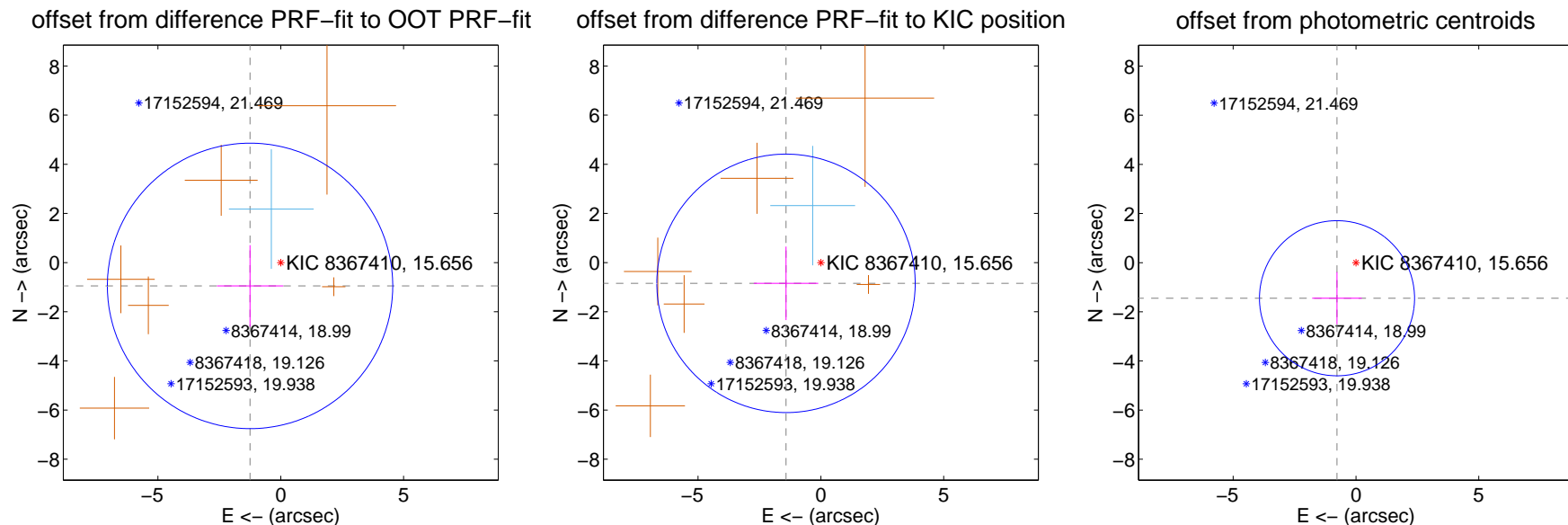
DV Centroid Data

Supplemental centroid analysis for 008367410-07. Kepler magnitude: 15.66. Transit SNR 6.74

There are 1 quarters with good PRF difference image offsets

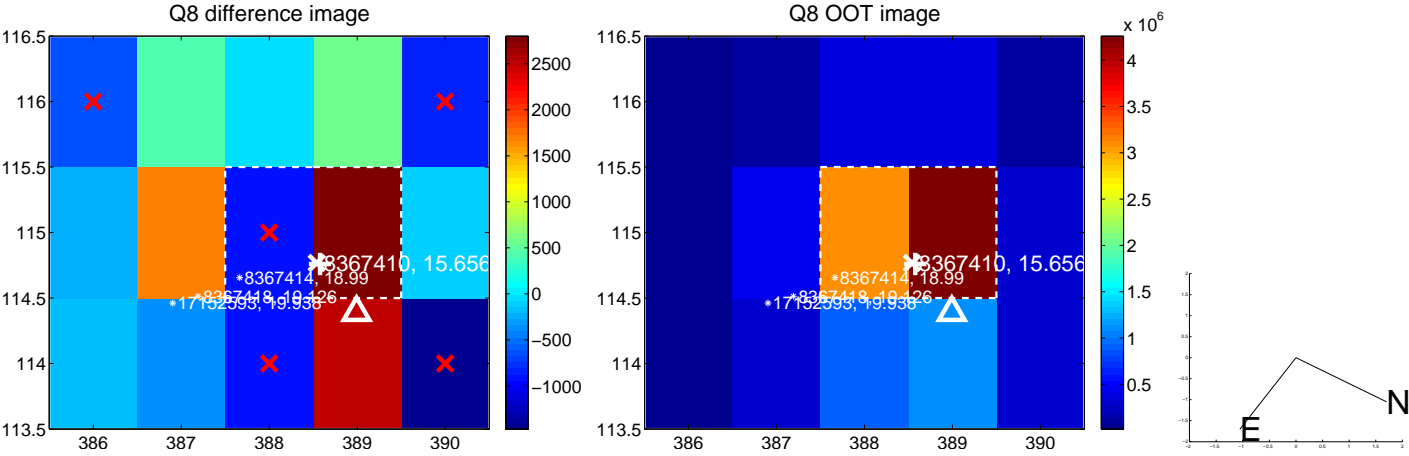
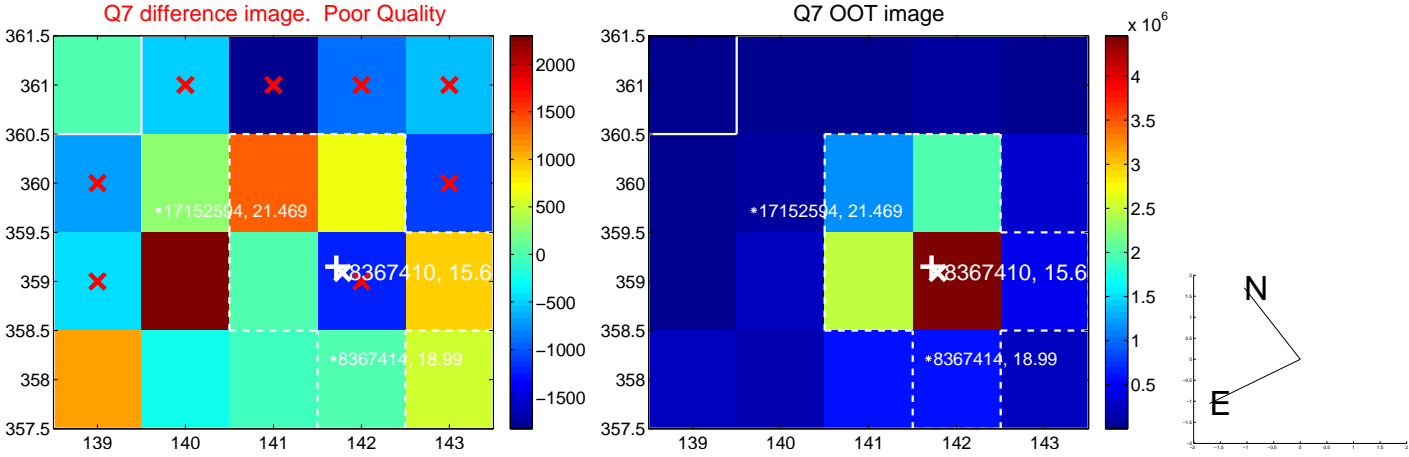
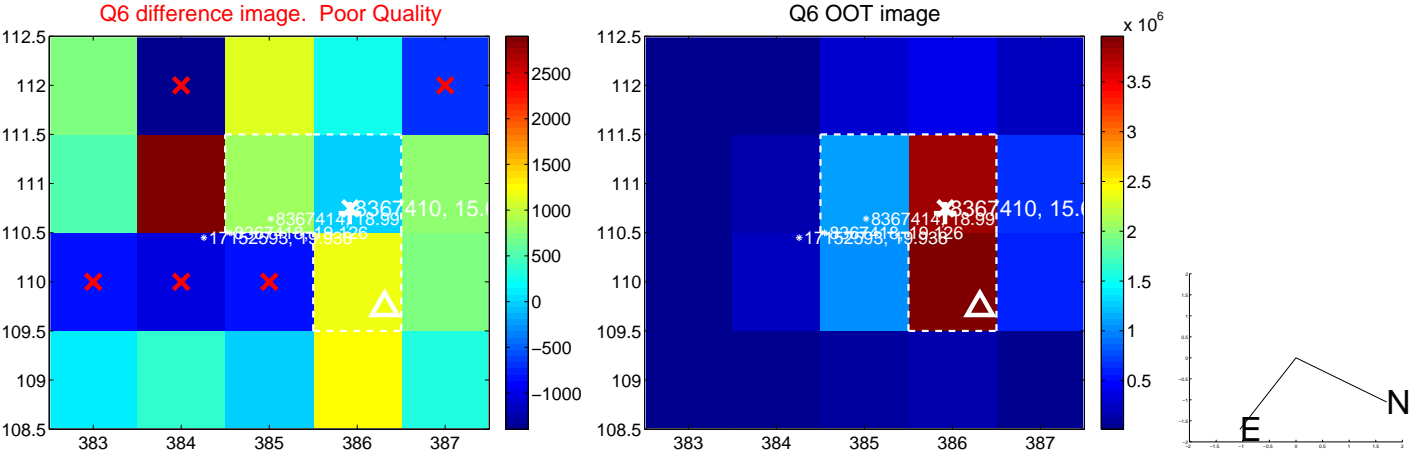
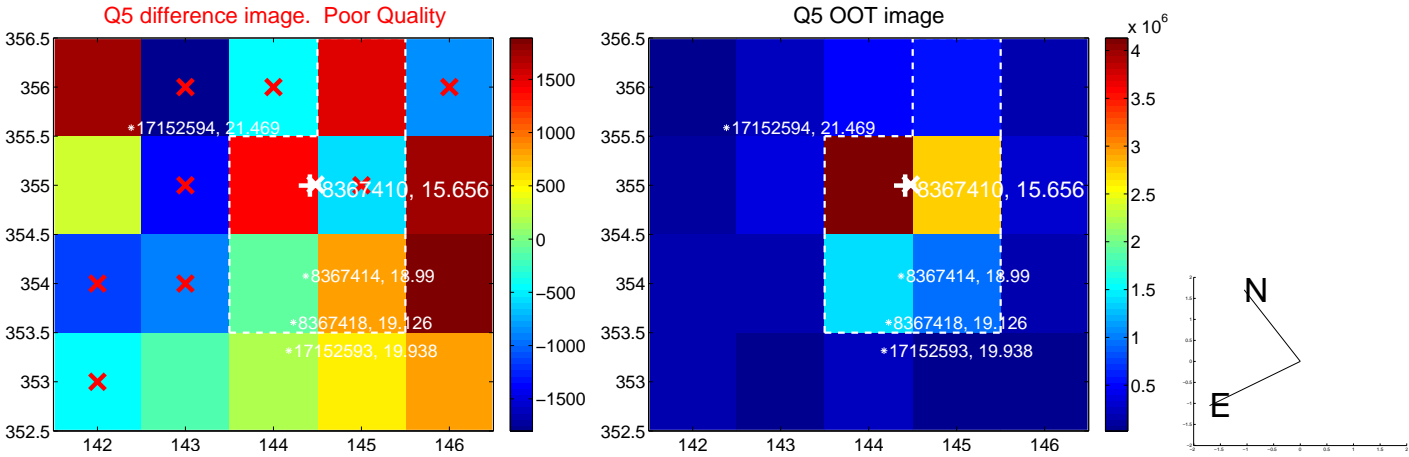
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.569 ± 1.936	0.81	1.249 ± 1.347	-0.949 ± 1.659
PRF-fit source offset from KIC position	1.651 ± 1.753	0.94	1.418 ± 1.312	-0.845 ± 1.495
photometric centroid source offset	1.64 ± 1.05	1.56	0.77 ± 1.01	-1.45 ± 1.06

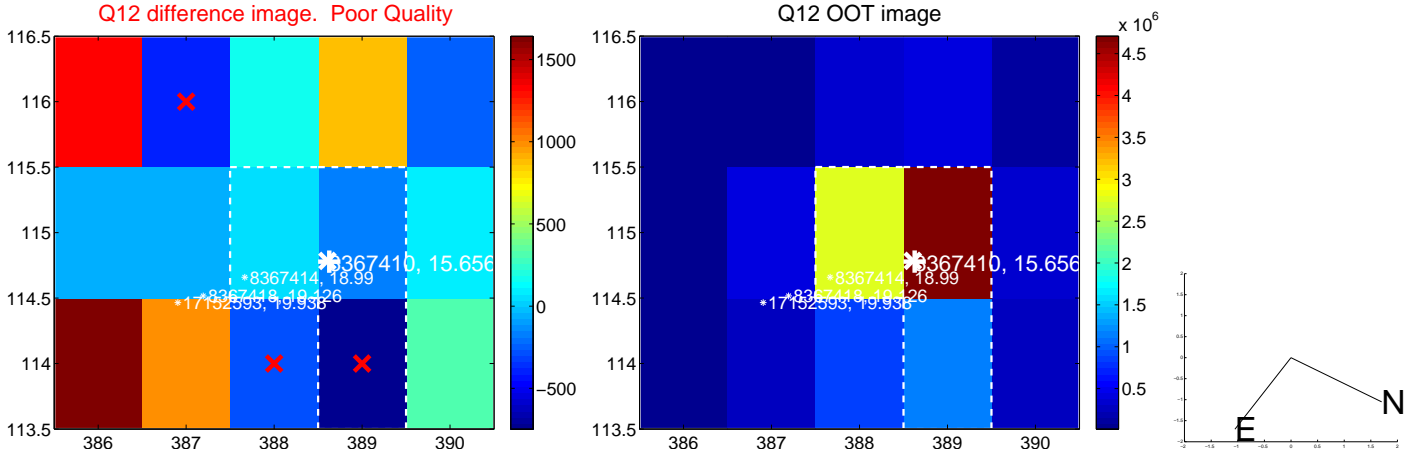
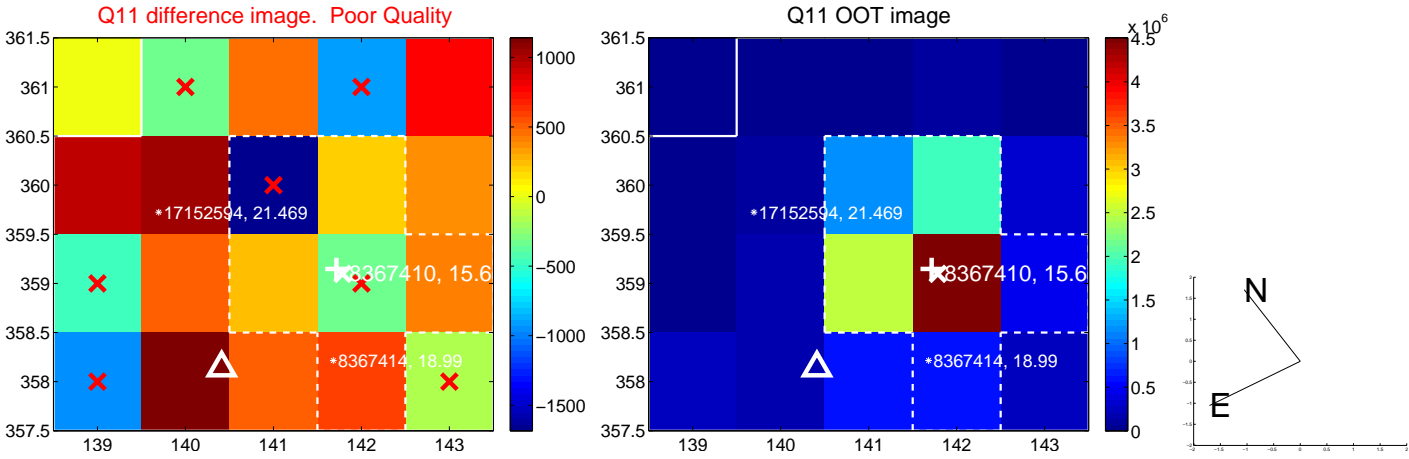
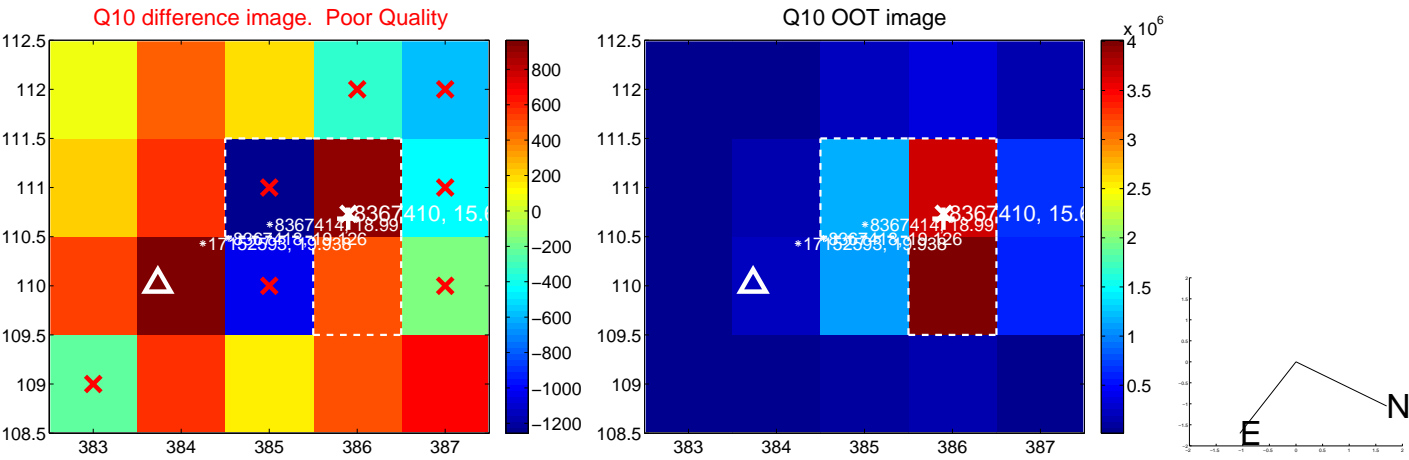
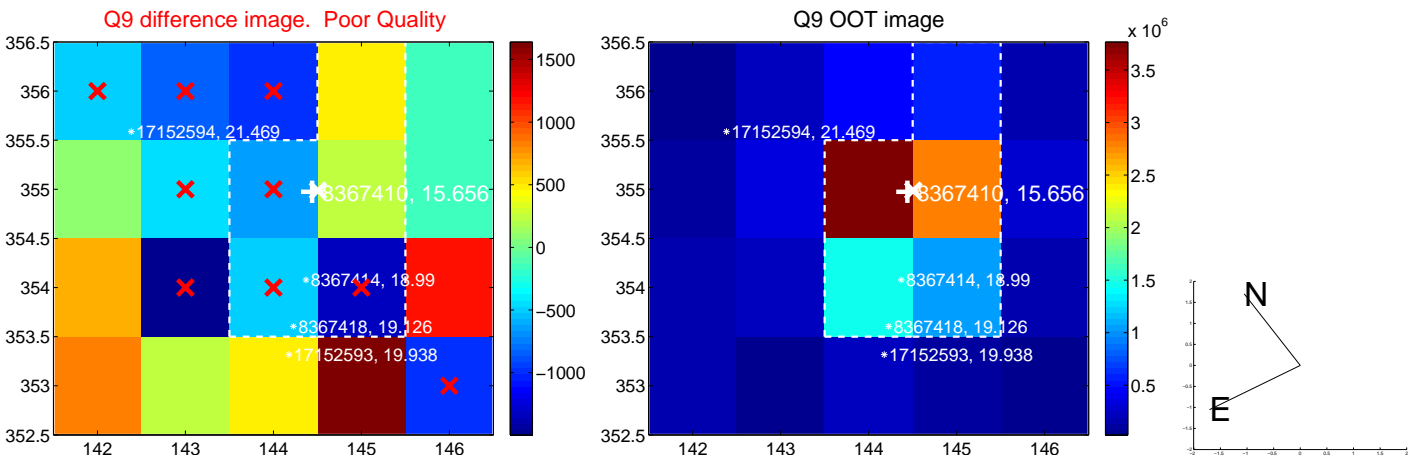


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

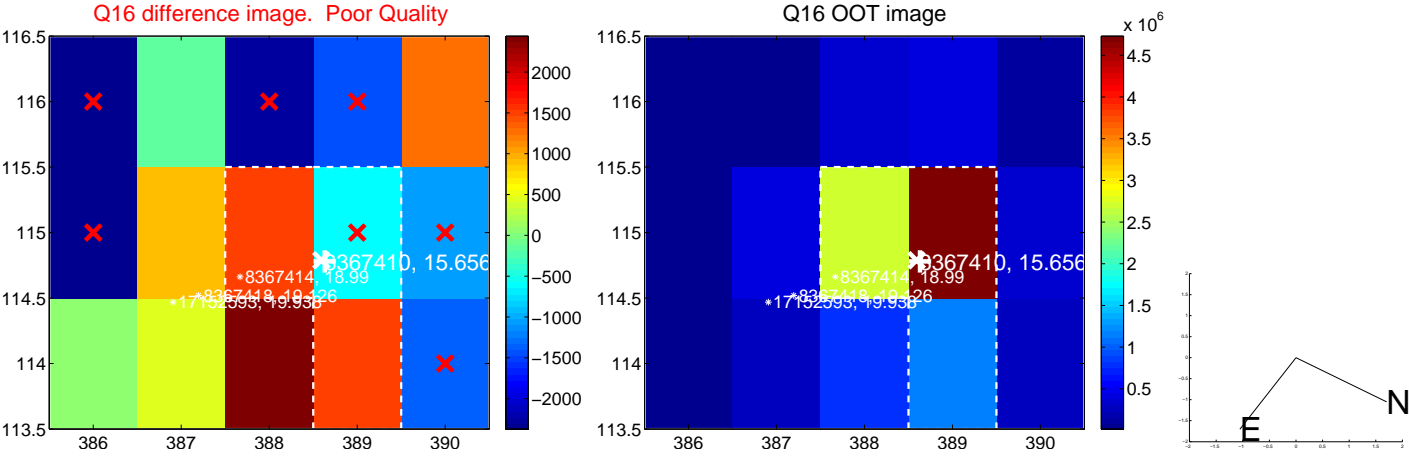
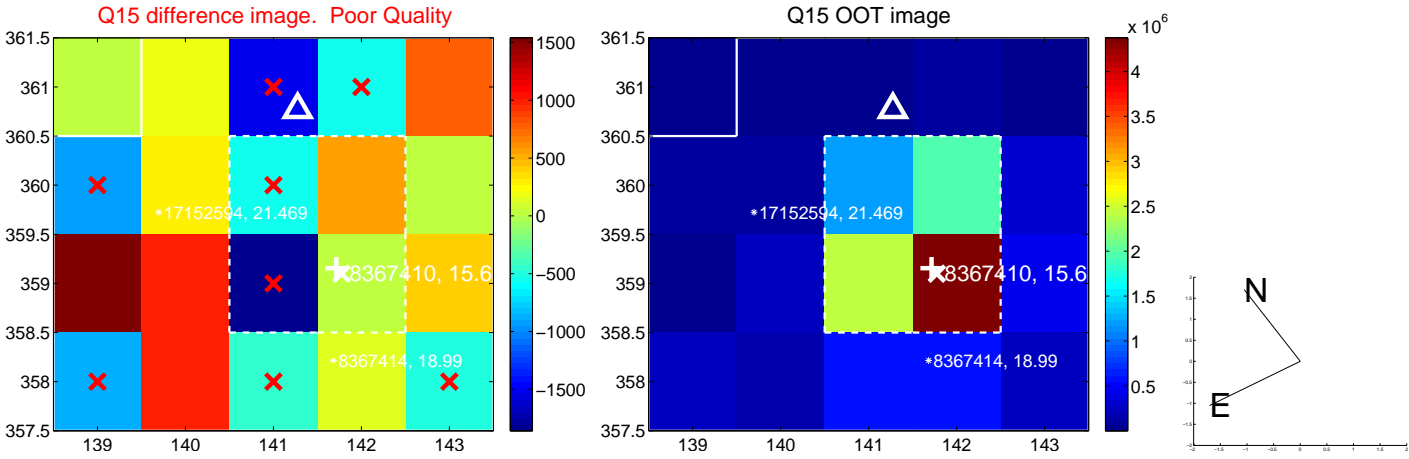
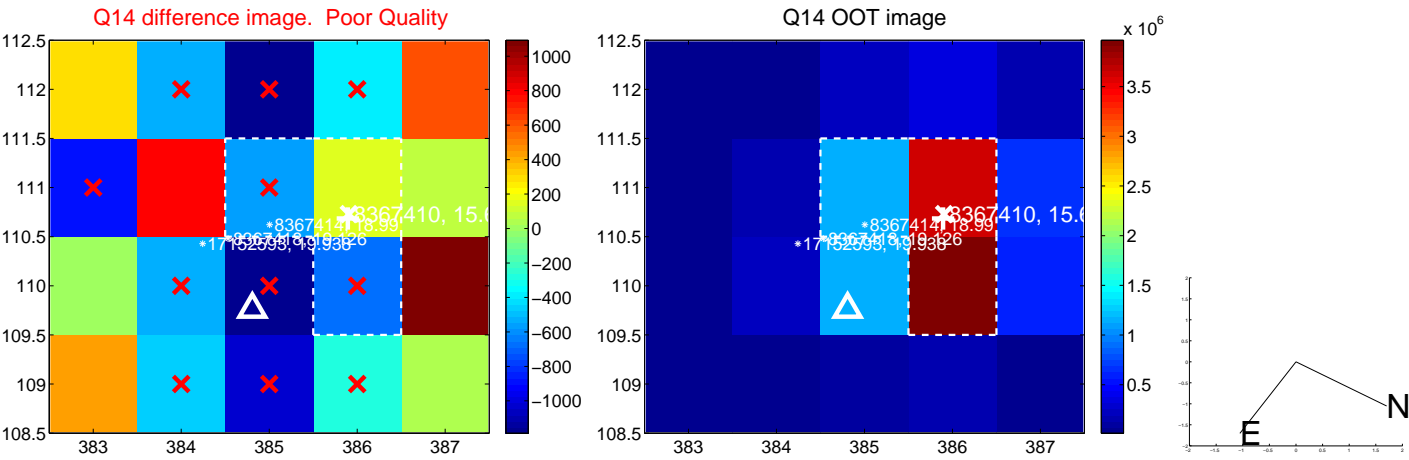
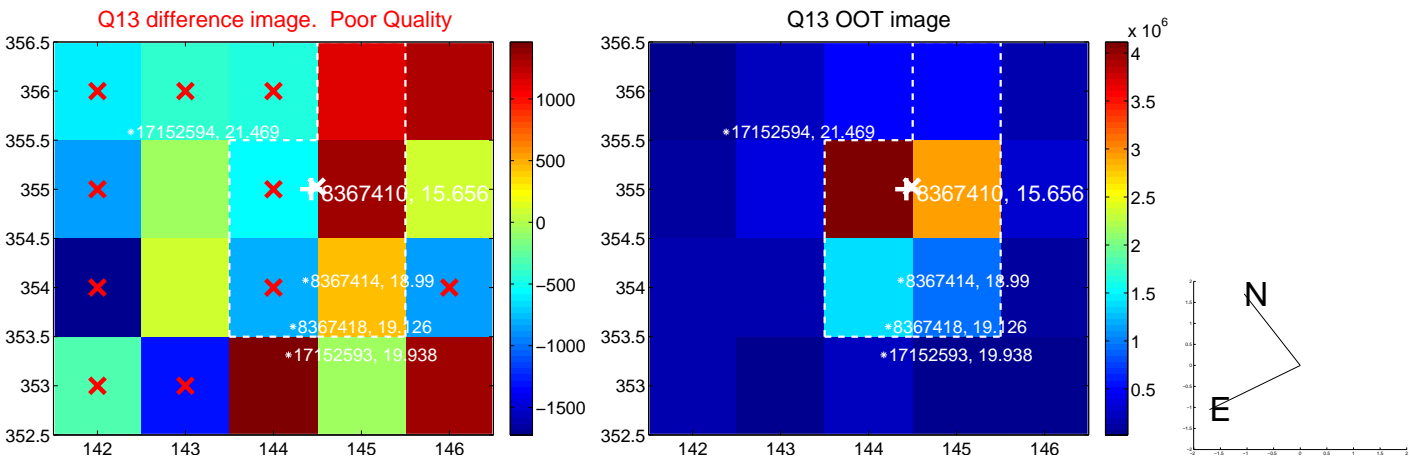
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



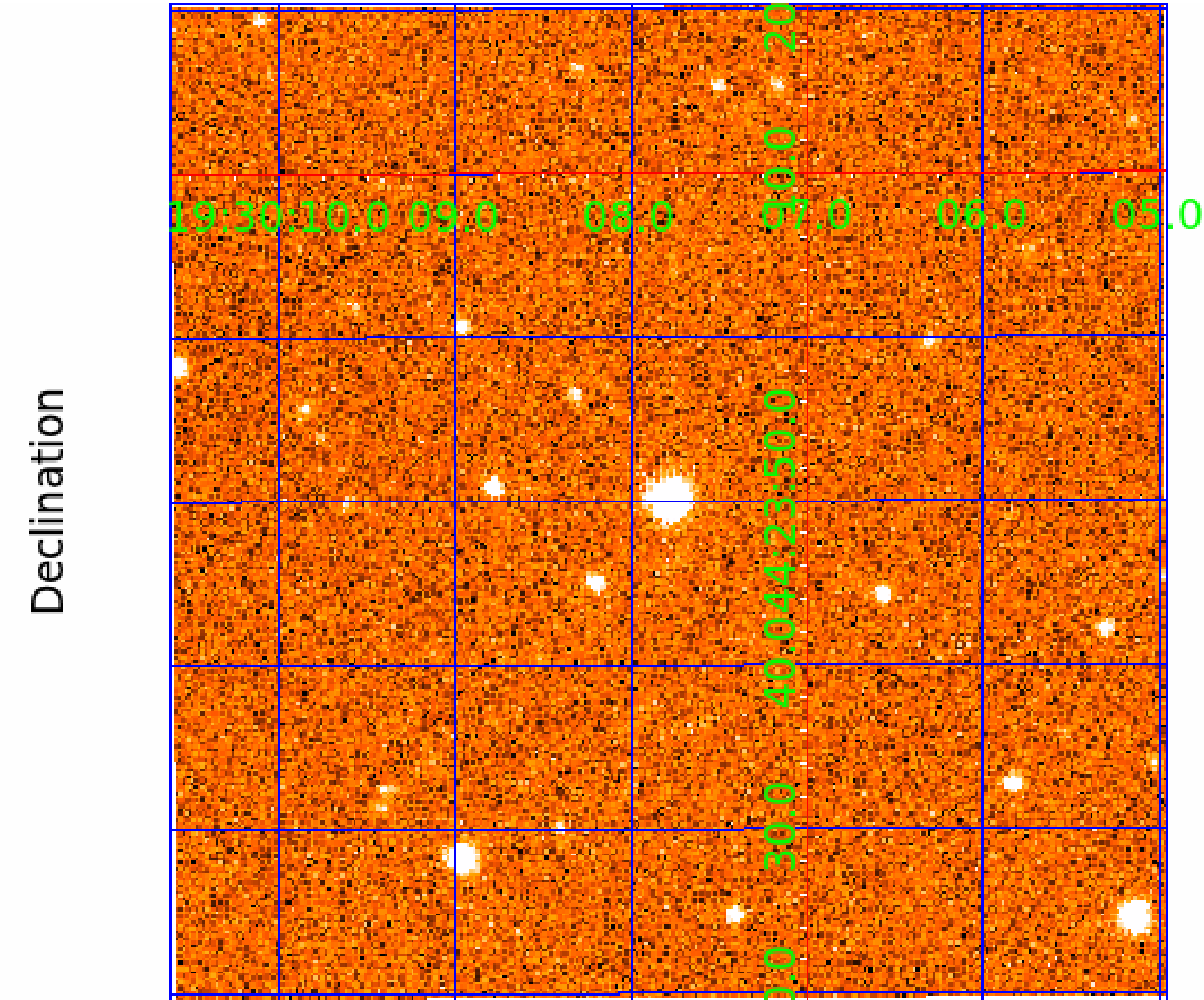
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008367410

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})
008367410-01	OBS	No	1.284101	131.713566	71.6	8.724	7.3	10.0	0.70	4402	0.66	397.03
008367410-04	OBS	No	31.732588	136.293707	232.5	7.679	14.3	3.3	0.70	4402	1.16	5.52
008367410-05	OBS	No	67.980089	149.377782	1019.4	5.822	13.5	9.8	0.70	4402	2.30	2.00
008367410-07	OBS	No	44.329621	156.488878	671.1	3.623	9.9	6.7	0.70	4402	2.27	3.53
008367410-08	OBS	No	19.791548	146.474216	803.1	2.527	10.2	8.7	0.70	4402	2.31	10.35
008367410-09	OBS	No	29.267988	156.314958	336.0	8.696	8.4	5.0	0.70	4402	1.54	6.14
008367410-10	OBS	No	151.560909	145.190516	1333.2	4.208	11.2	8.3	0.70	4402	2.66	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008367410-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008367410-04	OBS	FP	0.00	1	0	0	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—CENT_FEW_DIFFS
008367410-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

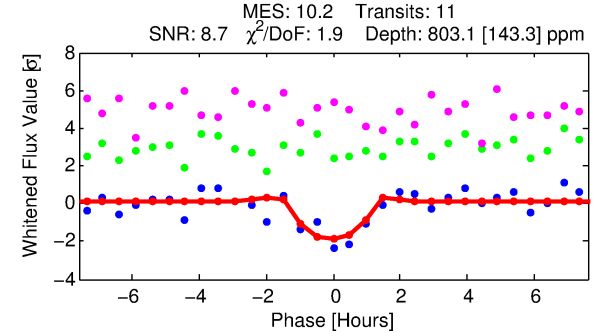
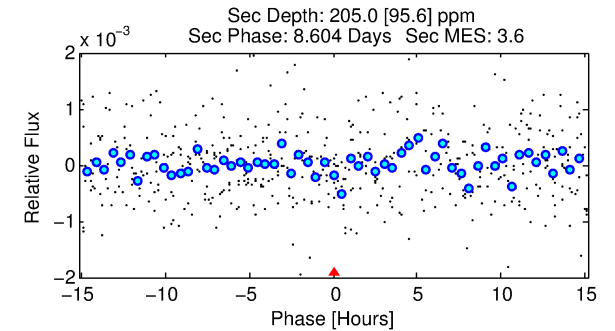
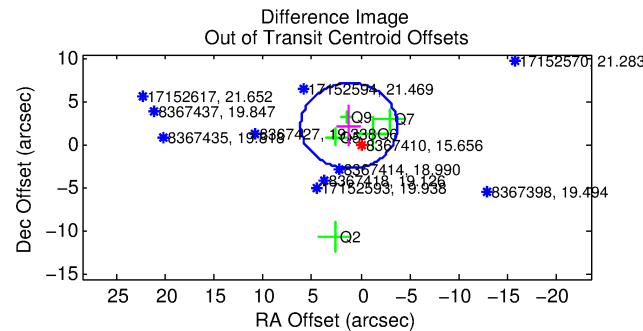
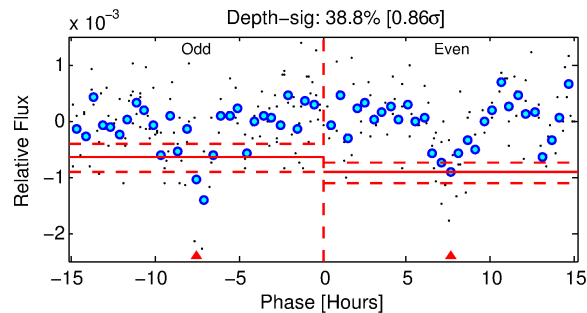
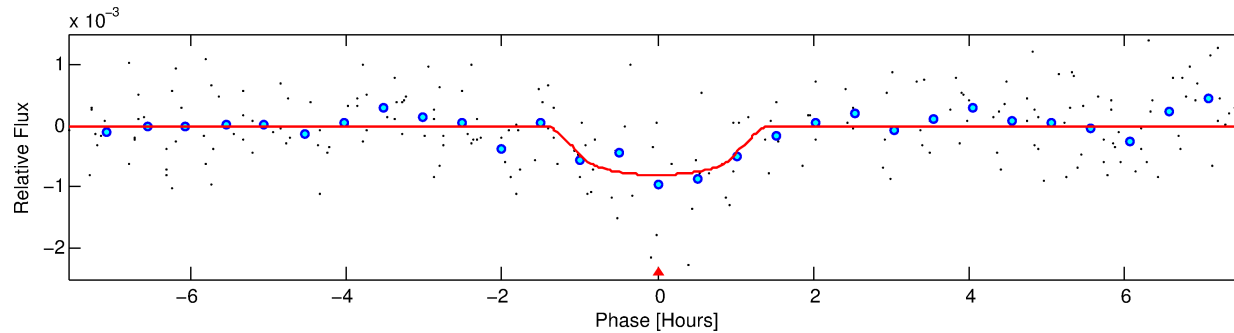
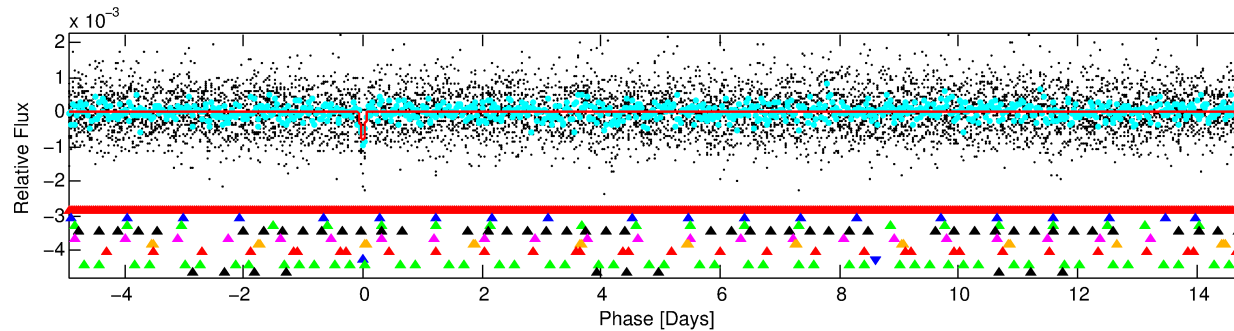
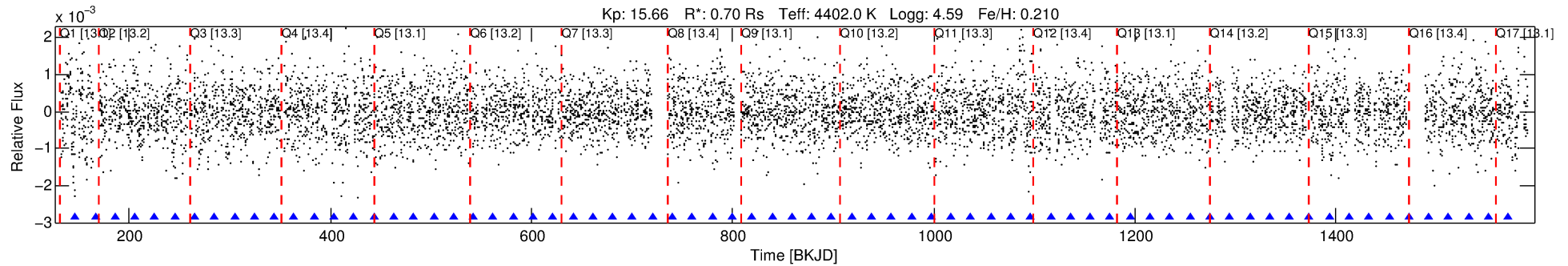
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008367410-08

No Significant Match Found

DV One-Page Summary

KIC: 8367410 Candidate: 8 of 10 Period: 19.792 d



DV Fit Results:

Period = 19.79155 [0.00023] d
Epoch = 146.4742 [0.0090] BKJD
Rp/R* = 0.0300 [0.0466]
a/R* = 36.60 [179.77]
b = 0.83 [1.94]
Seff = 10.35 [1.60]
Teq = 457 [18] K
Rp = 2.31 [3.59] Re
a = 0.1271 [0.0087] AU
Ag = 341.83 [1074.48] [0.32 σ]
Teffp = 3041 [2390] K [1.08 σ]

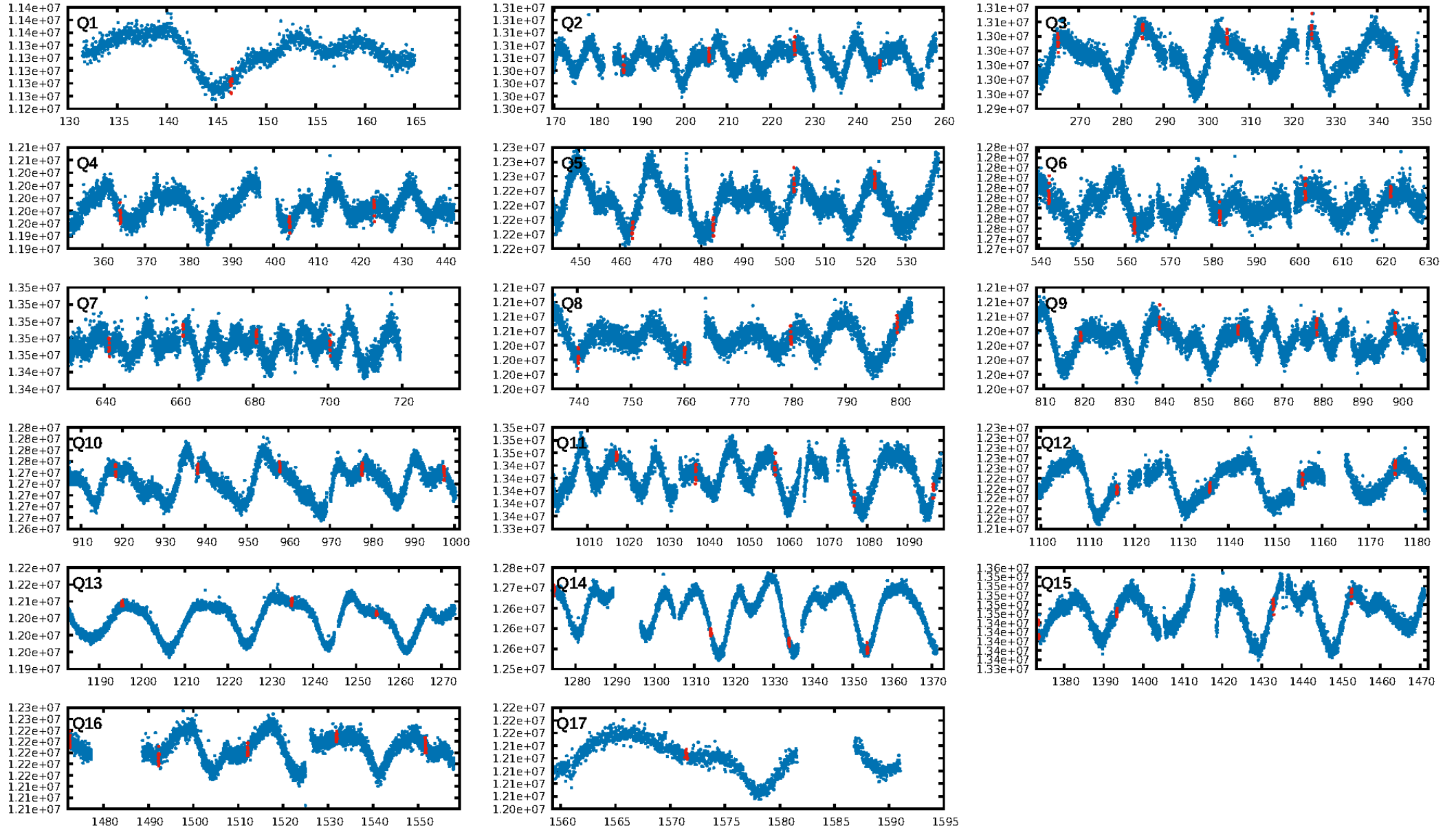
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [48.91 σ]
LongPeriod-sig: 100.0% [25.11 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 58.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: -0.4792
Centroid-sig: 4.7%
Centroid-so: 1.080 arcsec [1.50 σ]
OotOffset-rm: 2.534 arcsec [1.54 σ]
OotOffset-st: 2/1/0/2 [5]
KicOffset-rm: 2.759 arcsec [2.11 σ]
KicOffset-st: 2/1/0/2 [5]
DiffImageQuality-fgm: 0.20 [1/5]
DiffImageOverlap-fno: 0.50 [8/16]

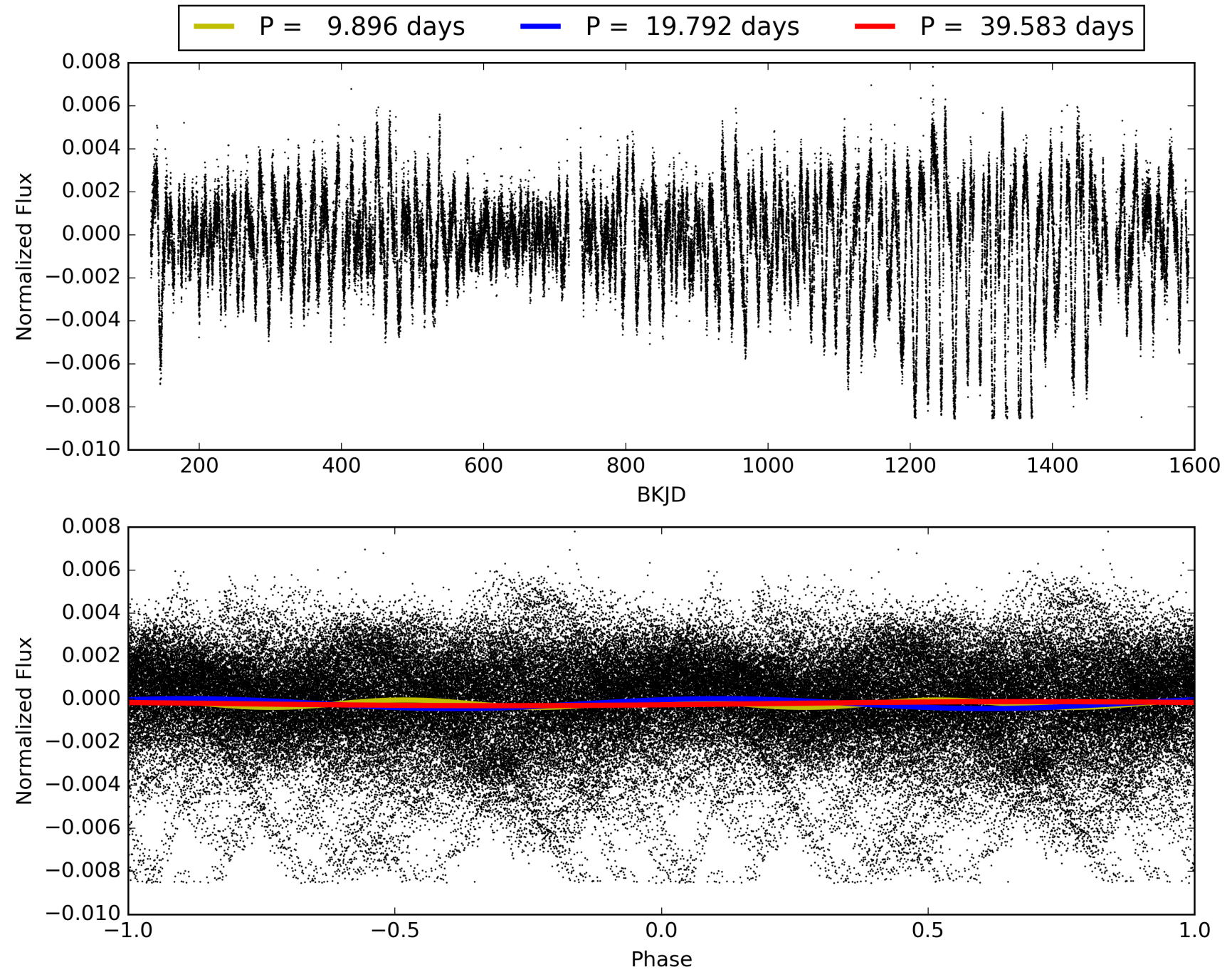
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:12:28 Z

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

TCE 008367410-08, PDC Light Curves

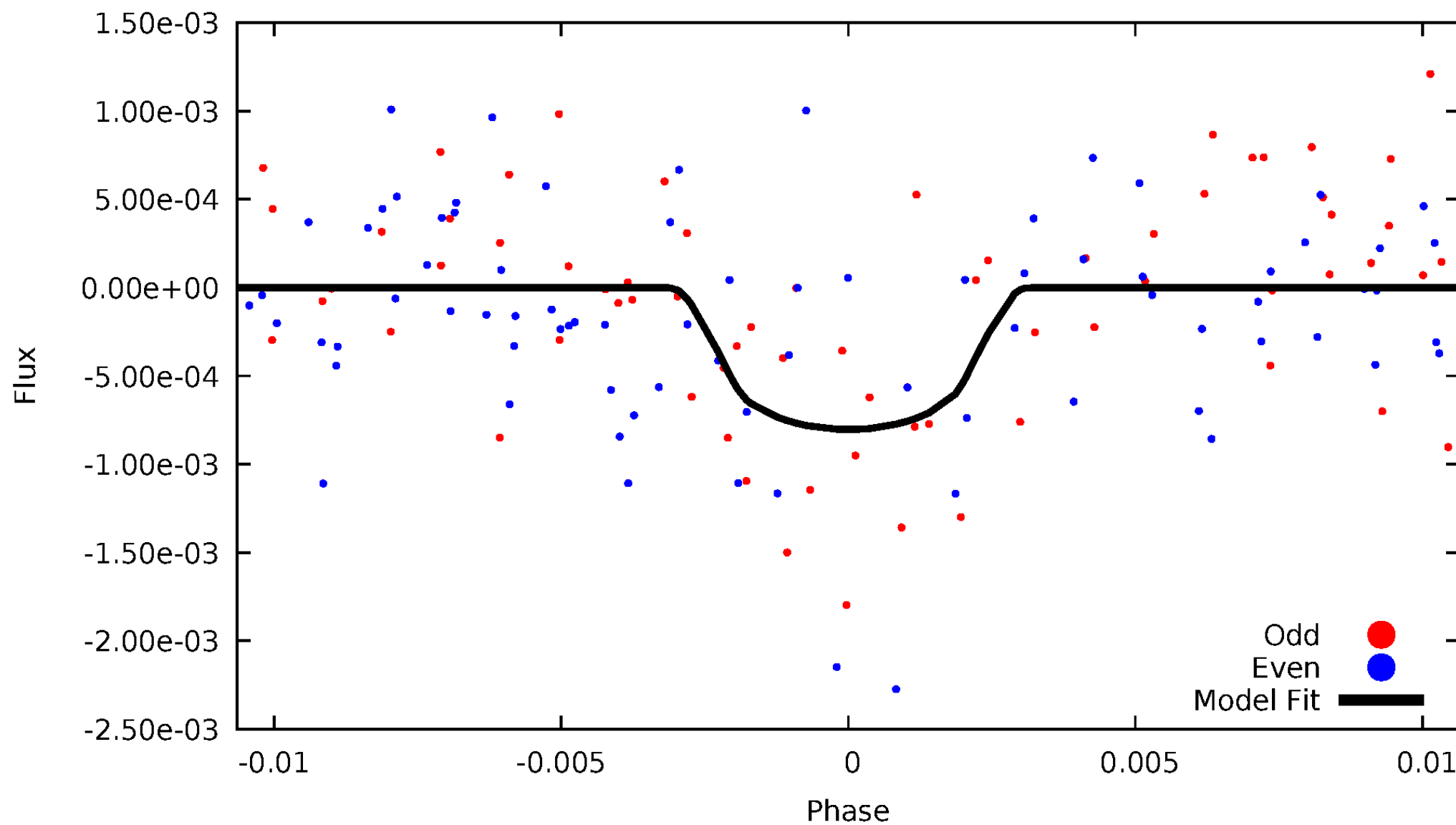


TCE 008367410-08



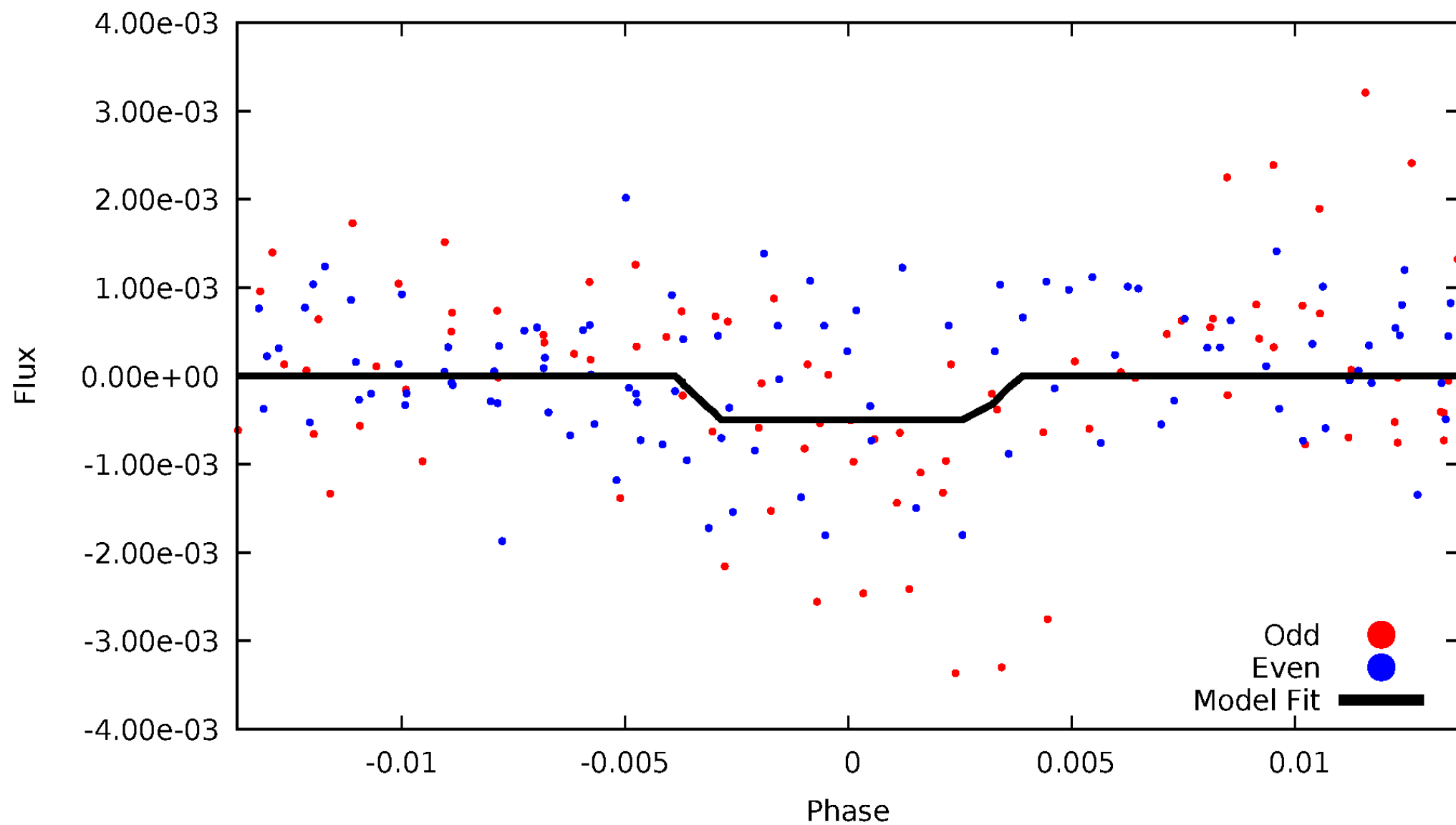
DV Odd/Even

TCE 008367410-08



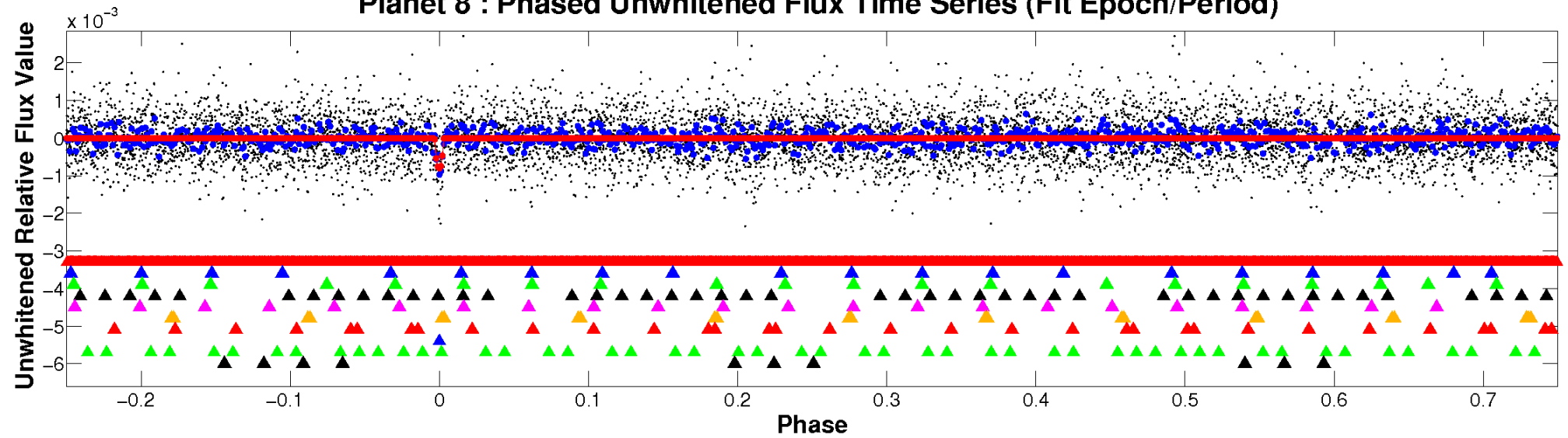
ALT Odd/Even

TCE 008367410-08

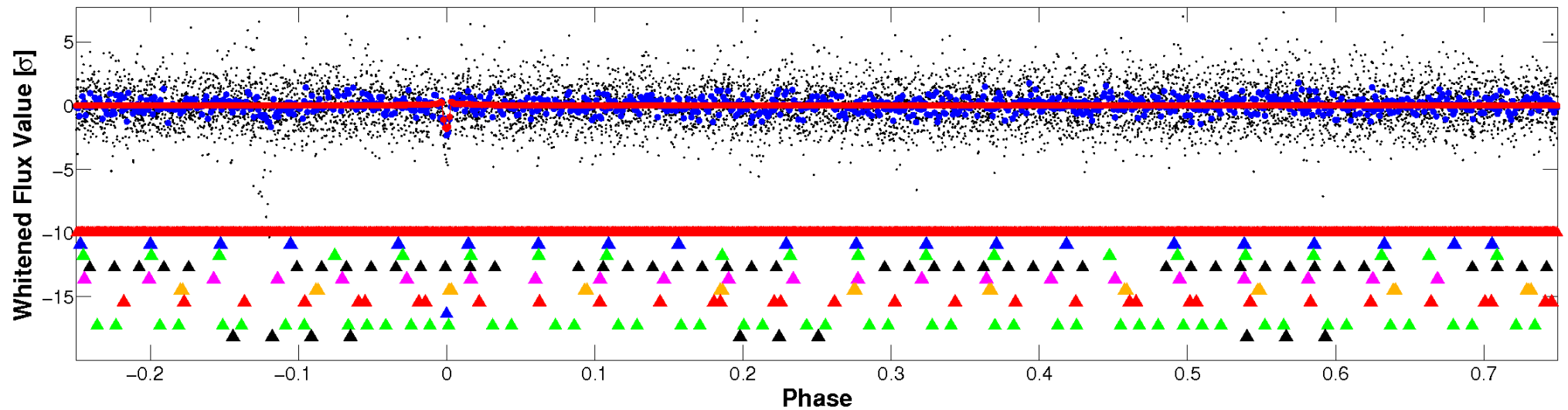


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

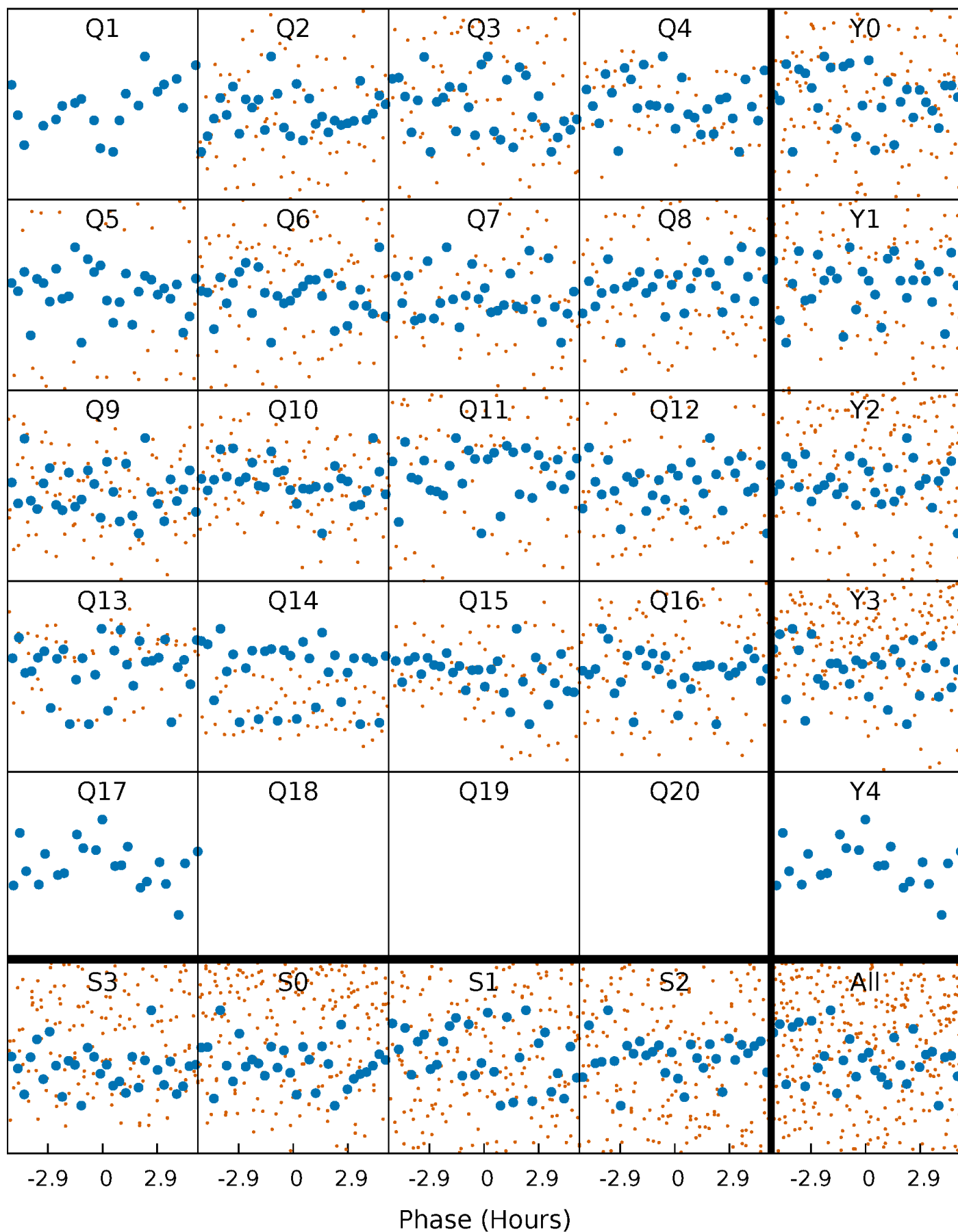


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



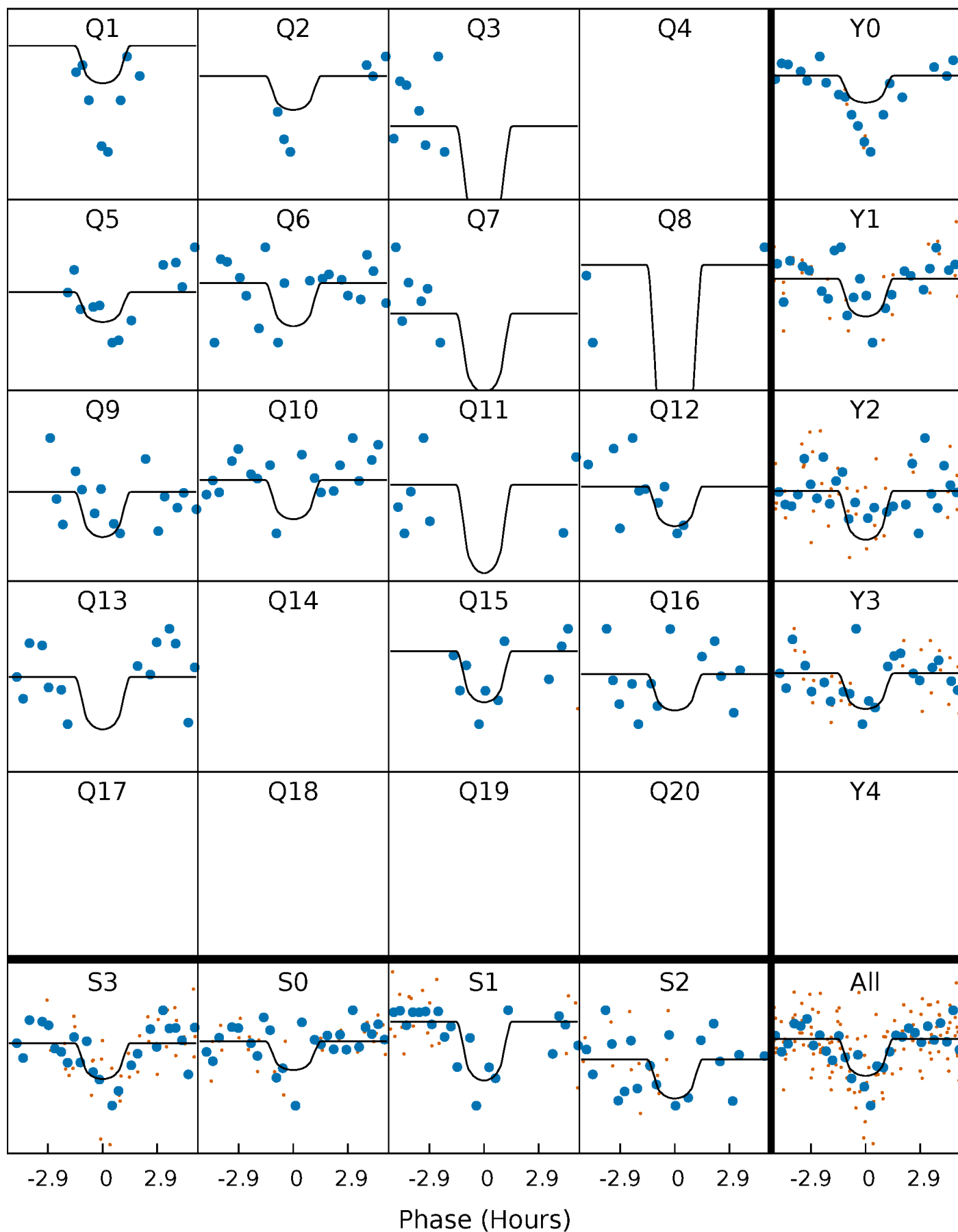
PDC Quarter-Phased Transit Curves

TCE 008367410-08 P= 19.791548 Days $T_0=146.474216$ (BKJD)



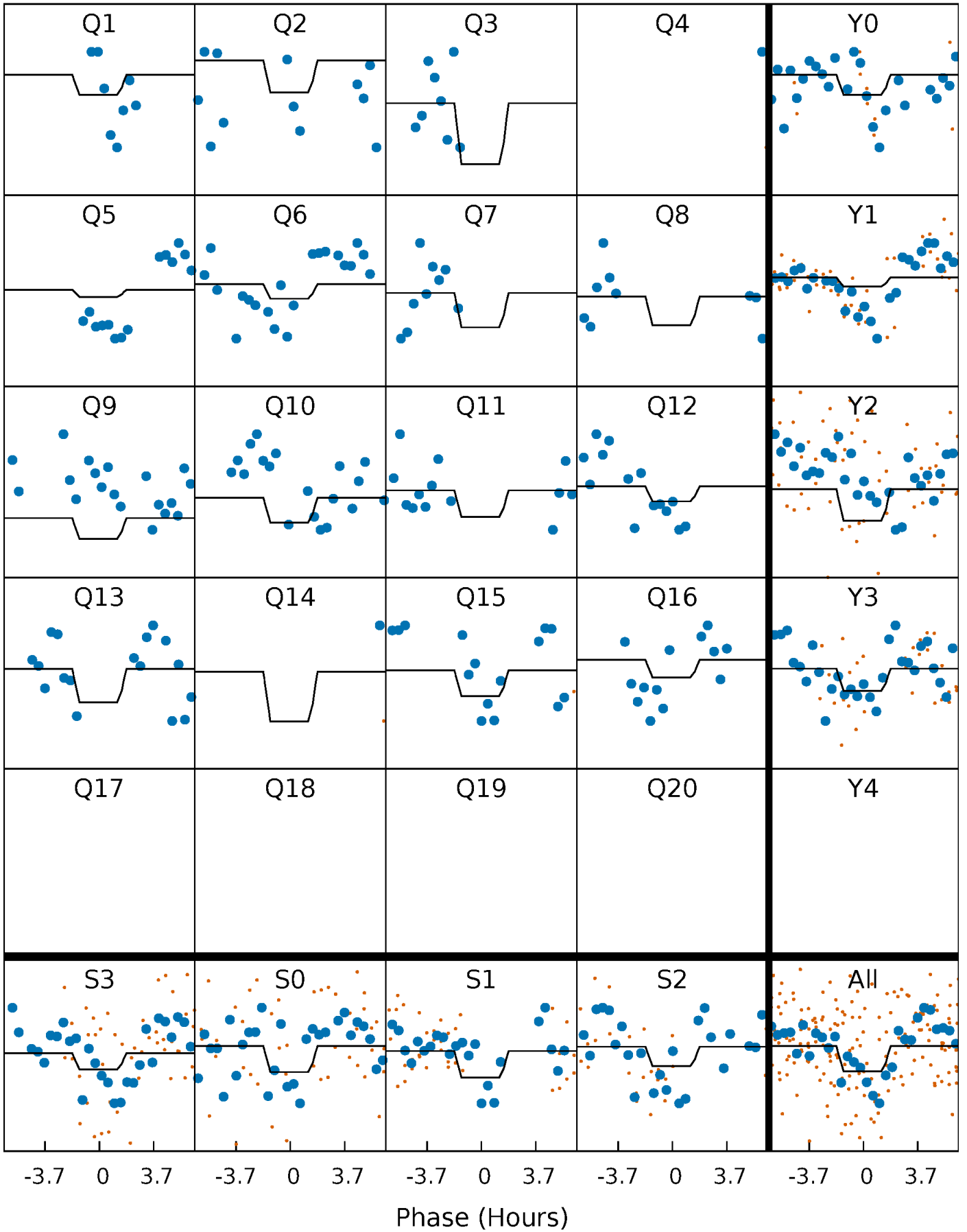
DV Quarter-Phased Transit Curves

TCE 008367410-08 P= 19.791548 Days $T_0=146.474216$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

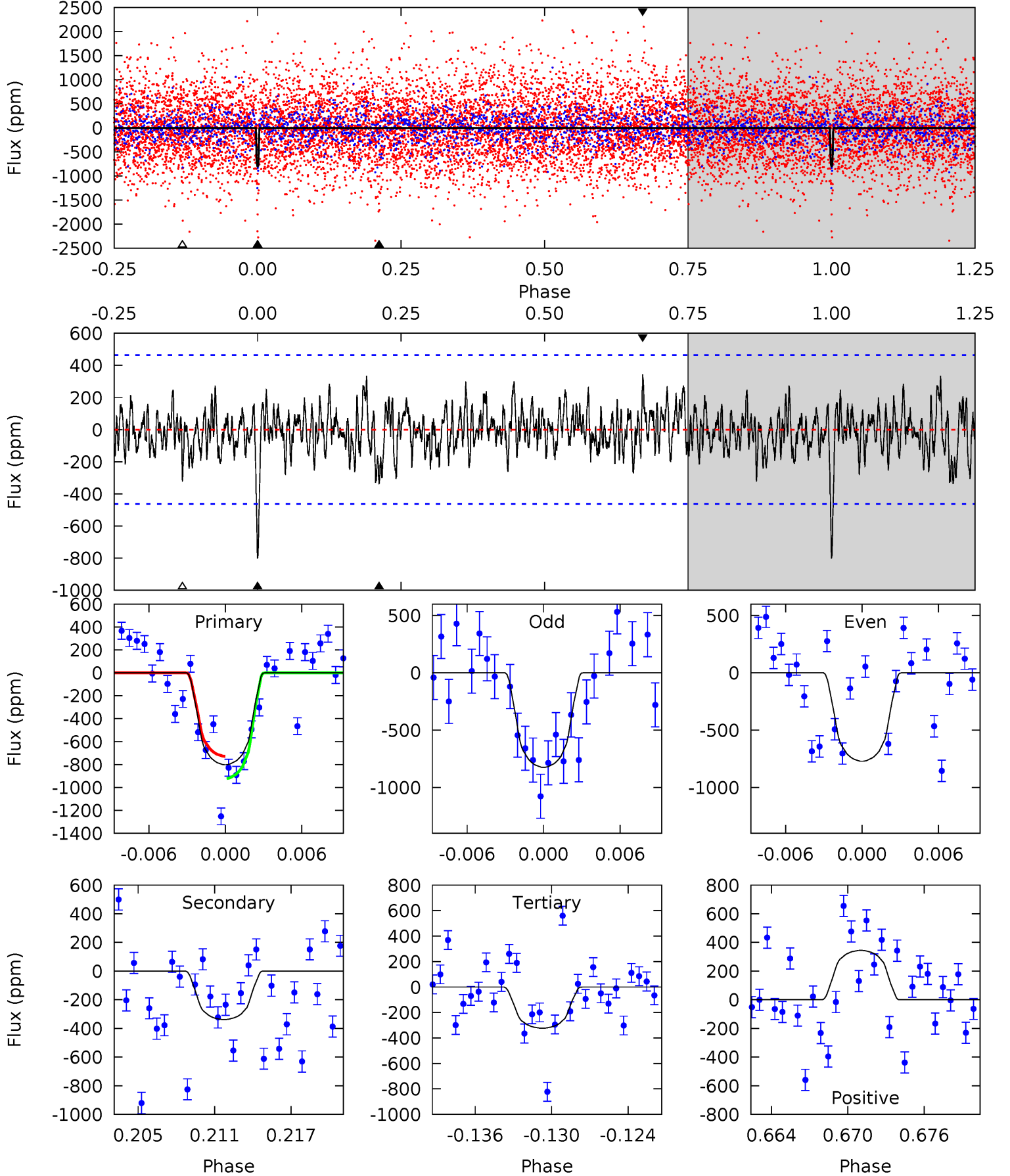
TCE 008367410-08 P= 19.791844 Days $T_0=146.440083$ (BKJD)



DV Model-Shift Uniqueness Test

008367410-08, $P = 19.791548$ Days, $E = 126.682668$ Days

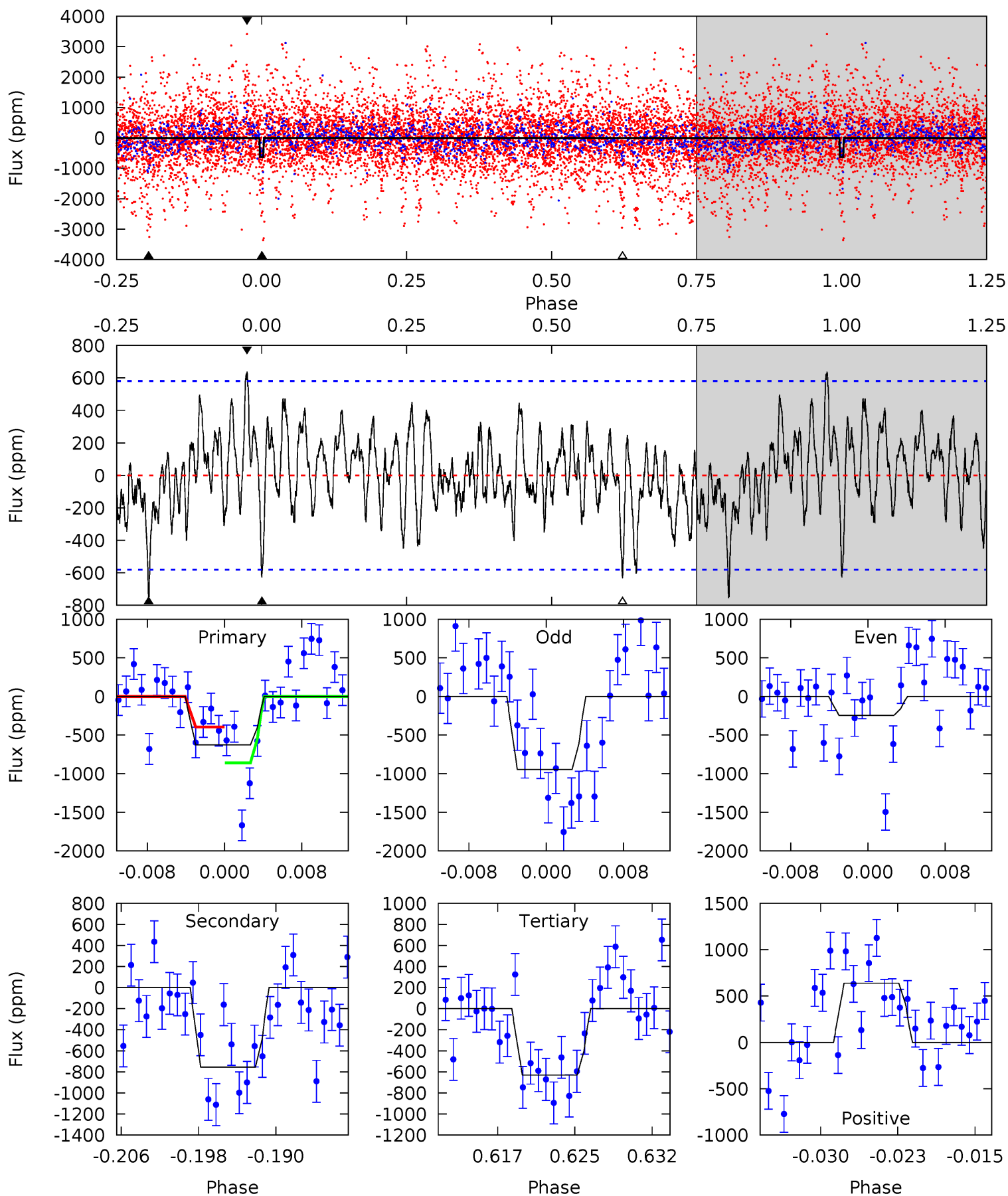
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.86	3.74	3.58	3.81	5.12	2.74	1.23	5.29	5.06	0.16	-0.07	0.29	1.11	0.30	1.05



Alt Model-Shift Uniqueness Test

008367410-08, P = 19.791844 Days, E = 126.648239 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.48	6.60	5.51	5.58	5.08	2.67	1.77	-0.03	-0.10	1.09	1.02	3.05	1.01	0.46	2.03



Stellar Parameters For KIC 008367410

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4402^{+132}_{-132}	$4.586^{+0.052}_{-0.016}$	$0.210^{+0.200}_{-0.300}$	$0.705^{+0.029}_{-0.059}$	$0.699^{+0.050}_{-0.050}$	$2.804^{+0.643}_{-0.186}$
	+3%/-3%	+1%/-0%	+95%/-143%	+4%/-8%	+7%/-7%	+23%/-7%
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 008367410-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-338 ± 90	$3.30^{+3.20}_{-2.08}$	634^{+20}_{-21}	3256^{+1329}_{-563}	268^{+1648}_{-202}
Alt.	-755 ± 114	$3.17^{+2.72}_{-2.03}$	634^{+20}_{-21}	3786^{+1989}_{-697}	654^{+4522}_{-463}

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 $A_{obs} \gg 1.0$

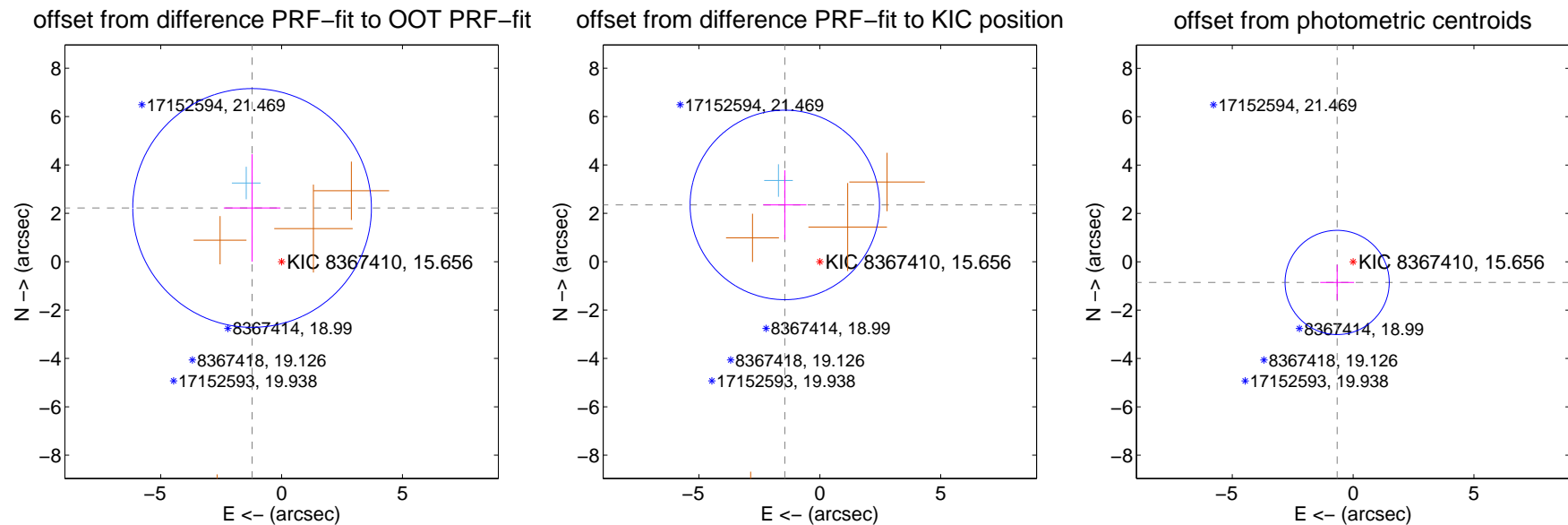
DV Centroid Data

Supplemental centroid analysis for 008367410-08. Kepler magnitude: 15.66. Transit SNR 8.68

There are 1 quarters with good PRF difference image offsets

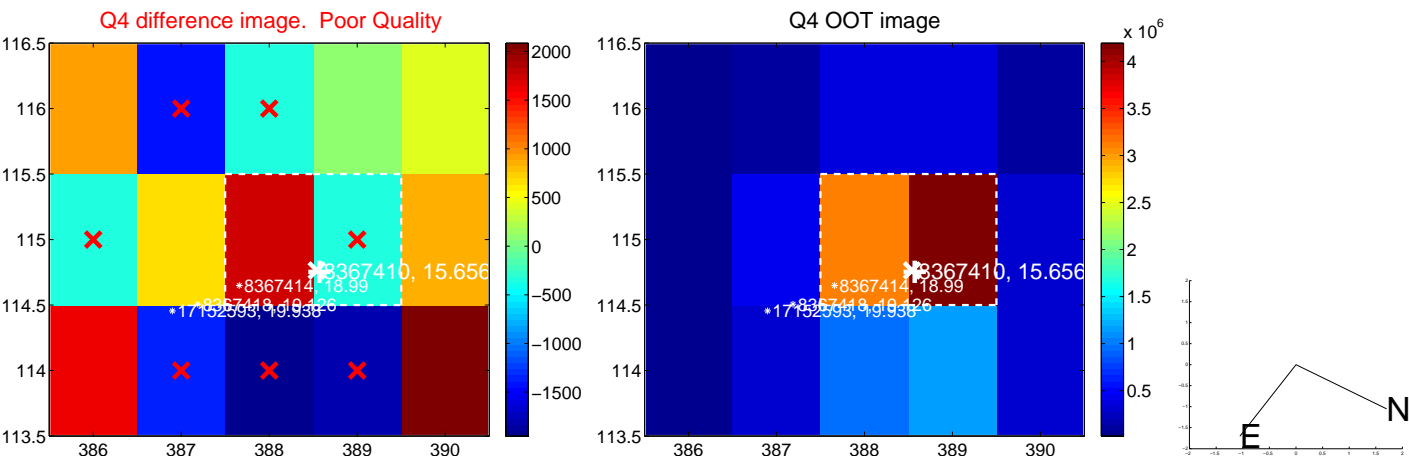
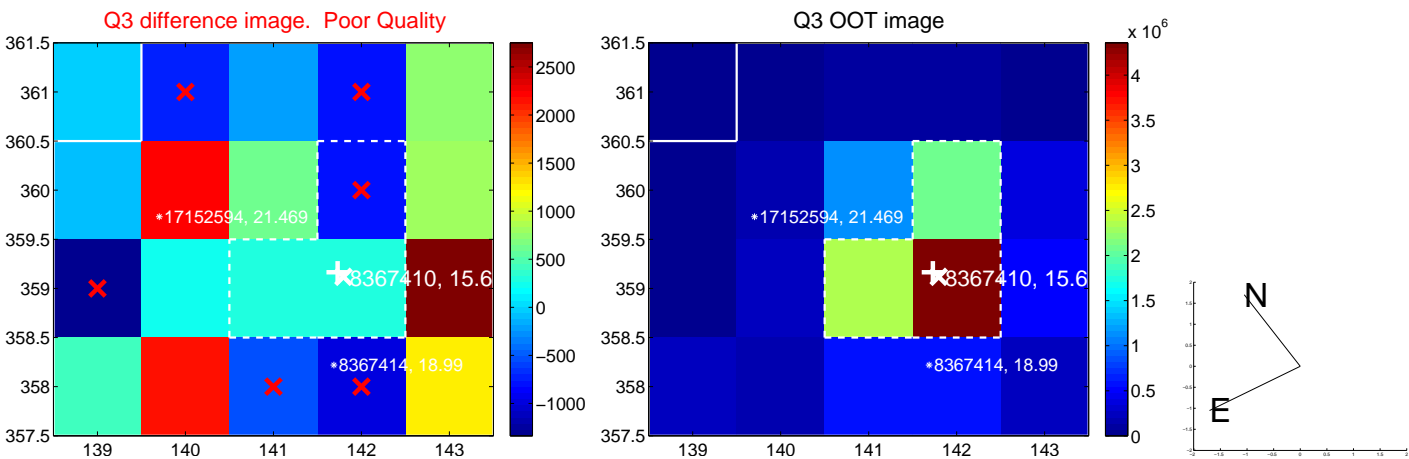
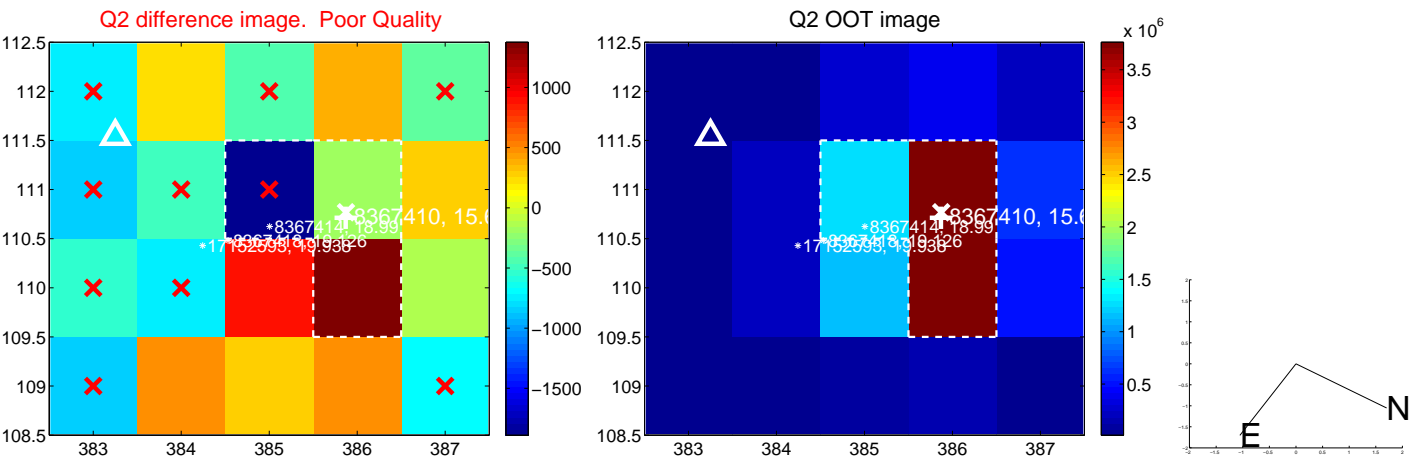
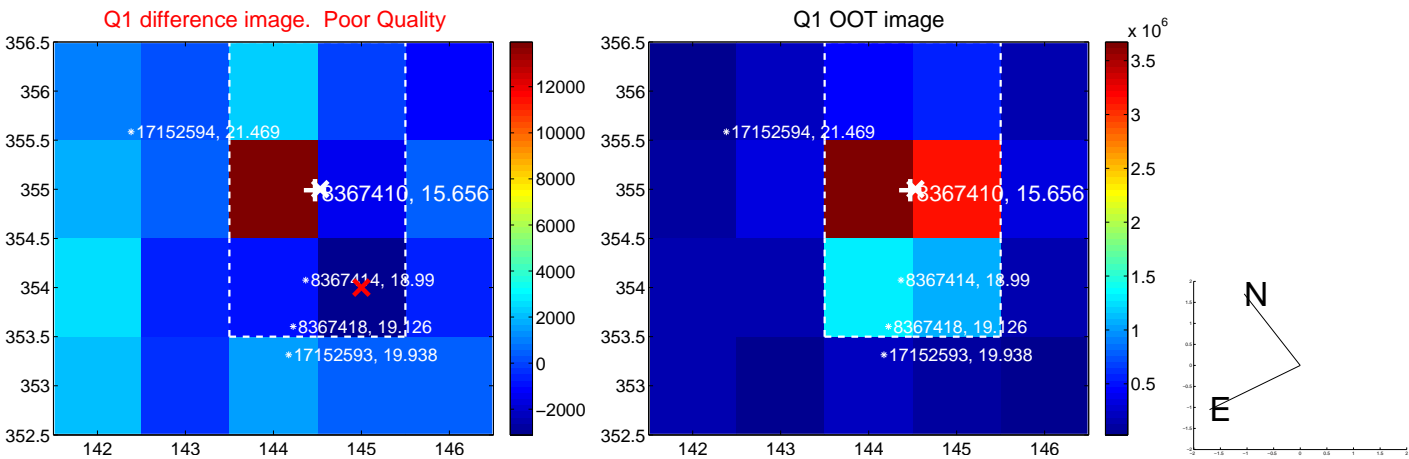
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.534 ± 1.645	1.54	1.220 ± 1.170	2.221 ± 2.221
PRF-fit source offset from KIC position	2.759 ± 1.306	2.11	1.449 ± 0.897	2.347 ± 1.431
photometric centroid source offset	1.08 ± 0.72	1.50	0.66 ± 0.70	-0.86 ± 0.73

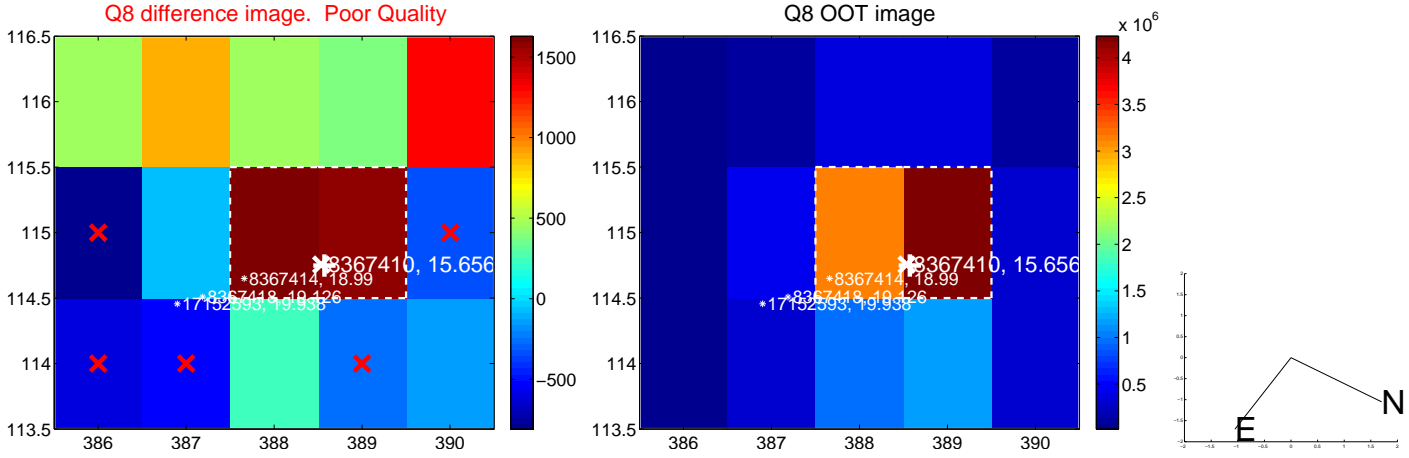
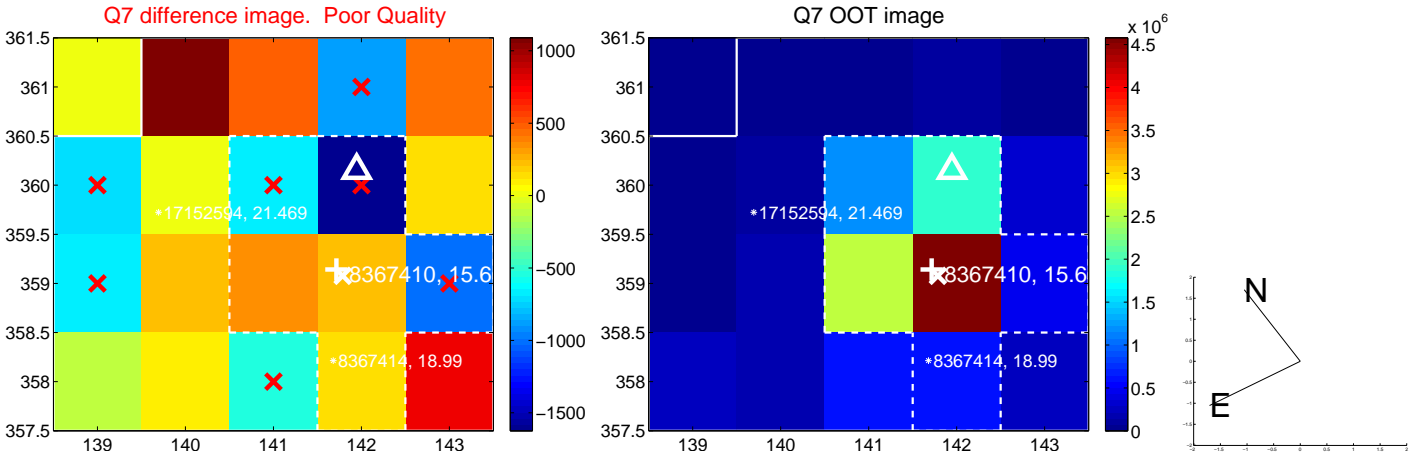
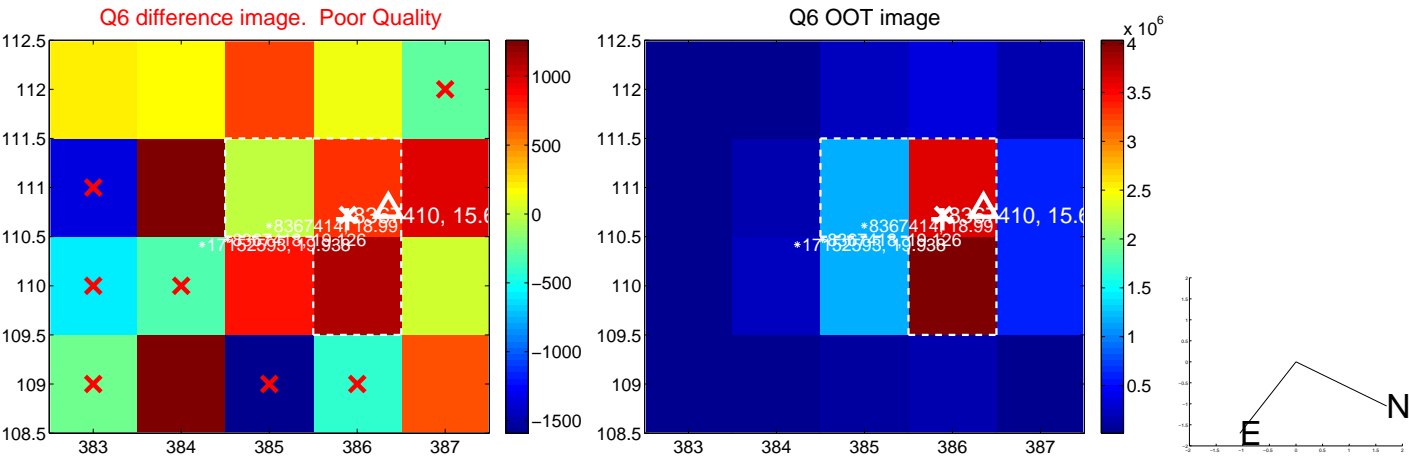
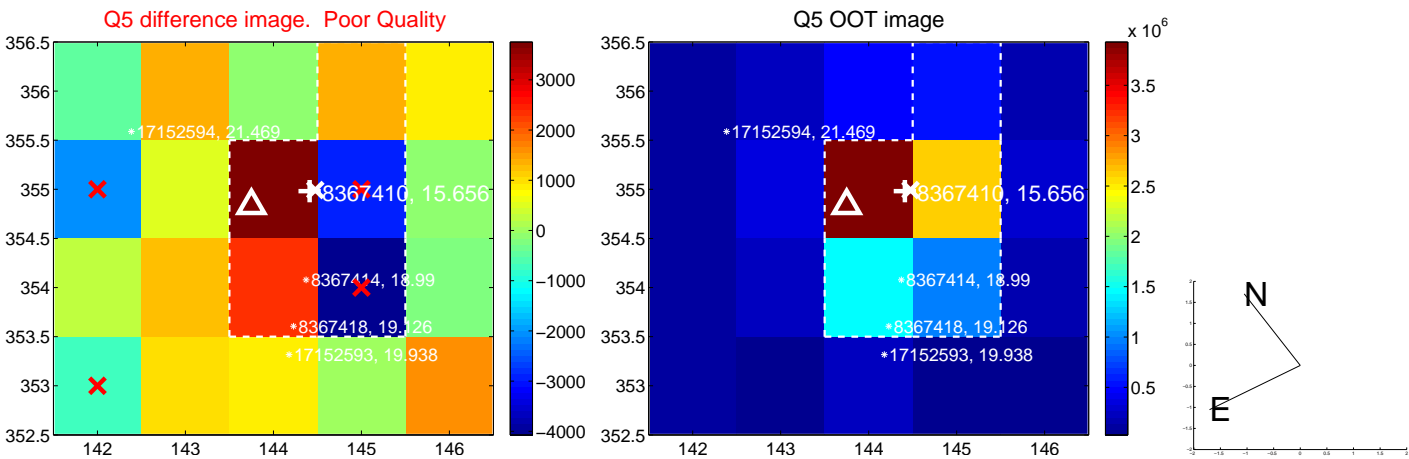


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

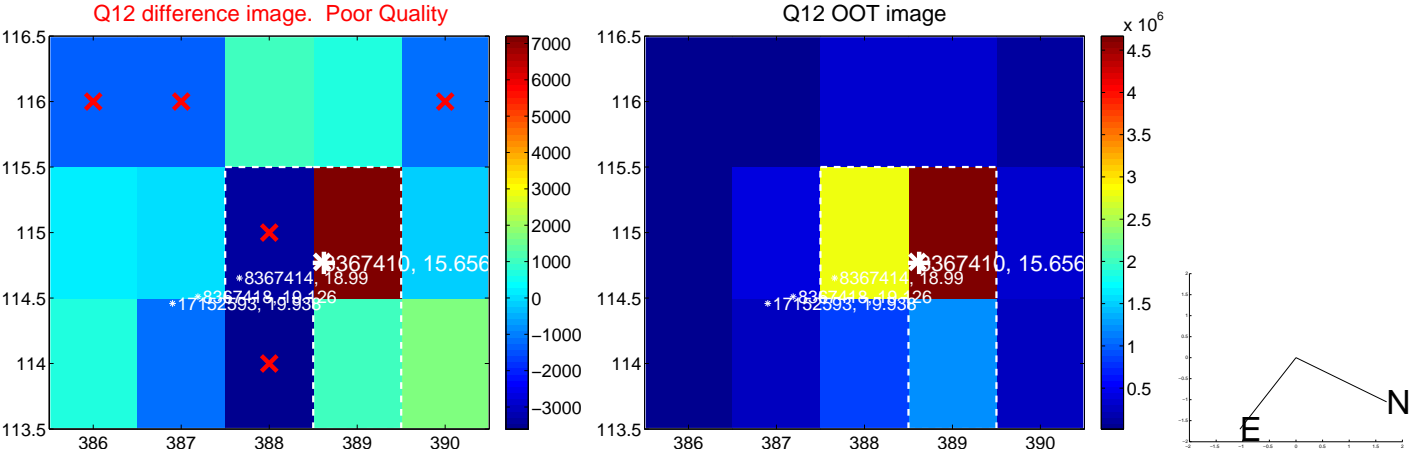
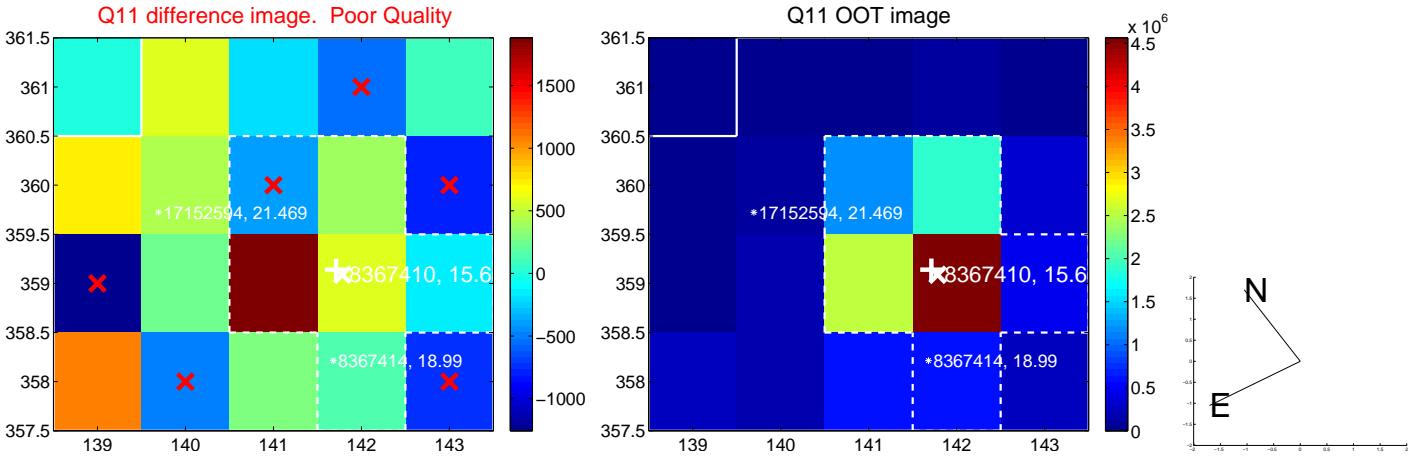
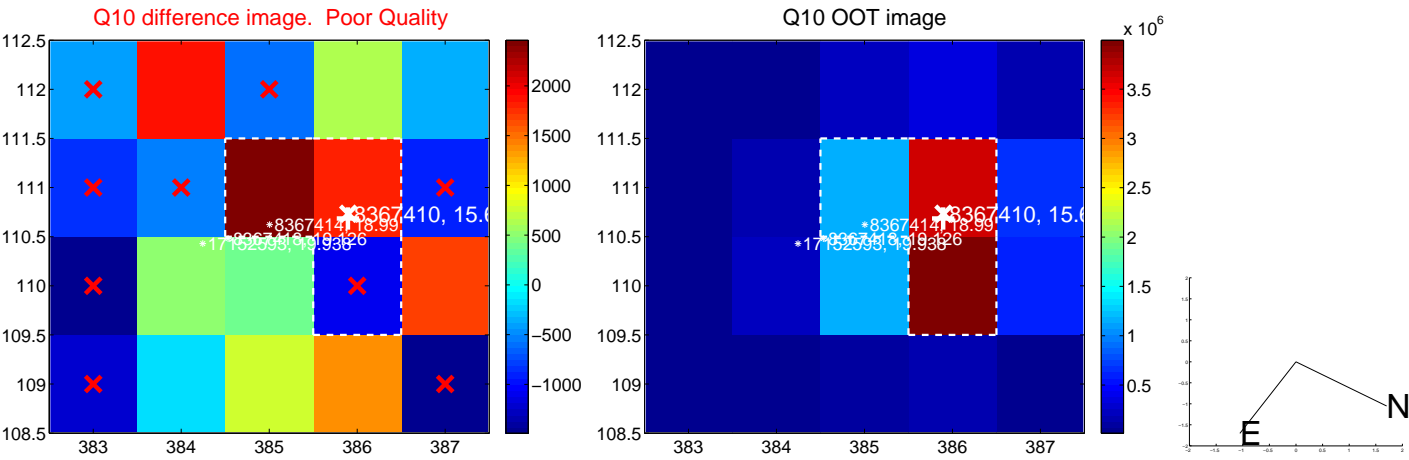
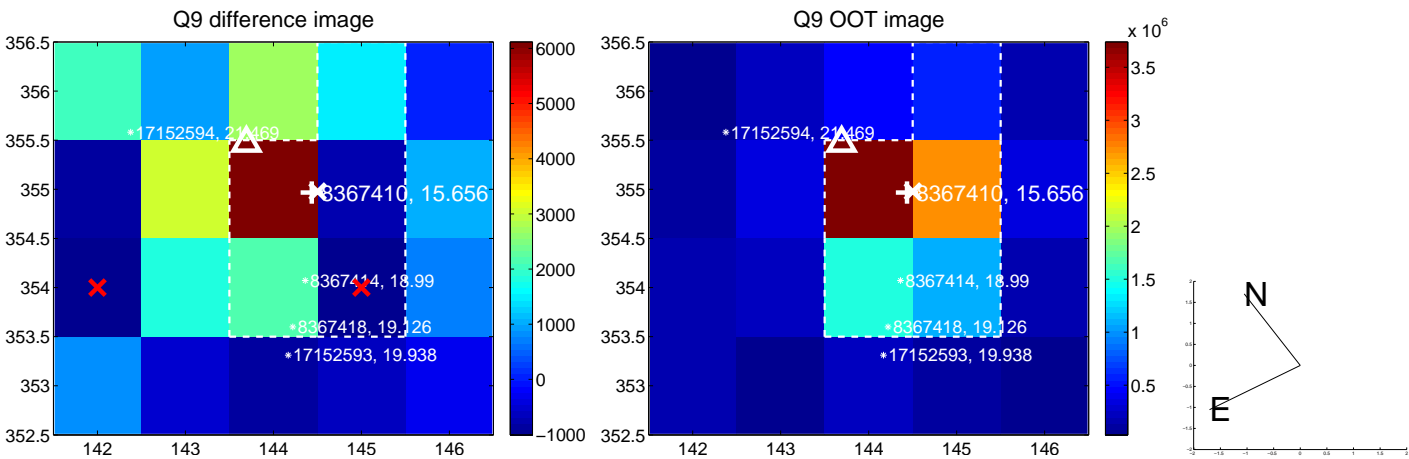
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



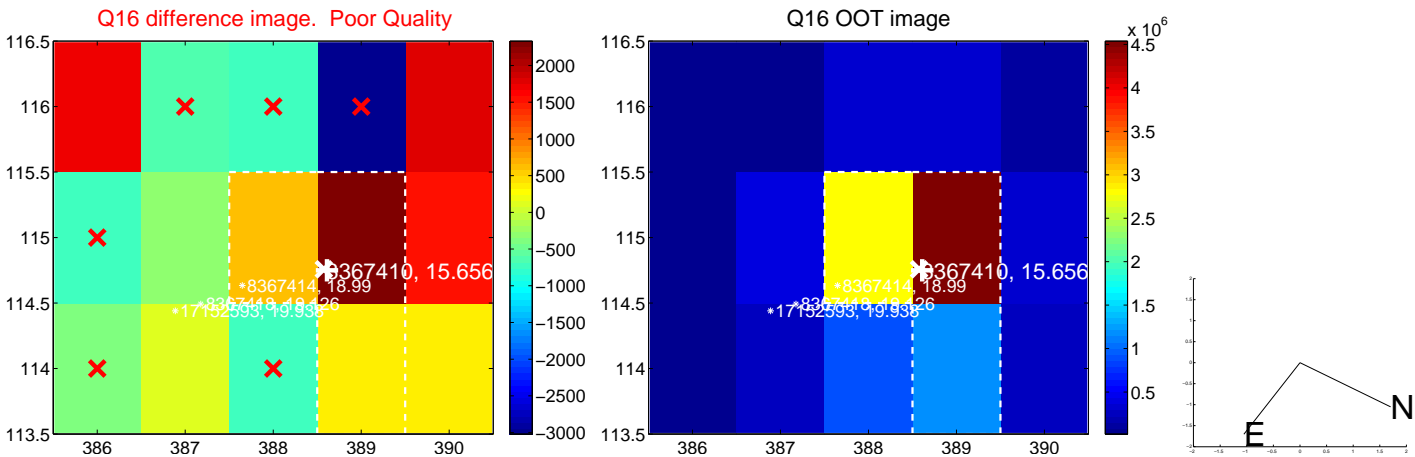
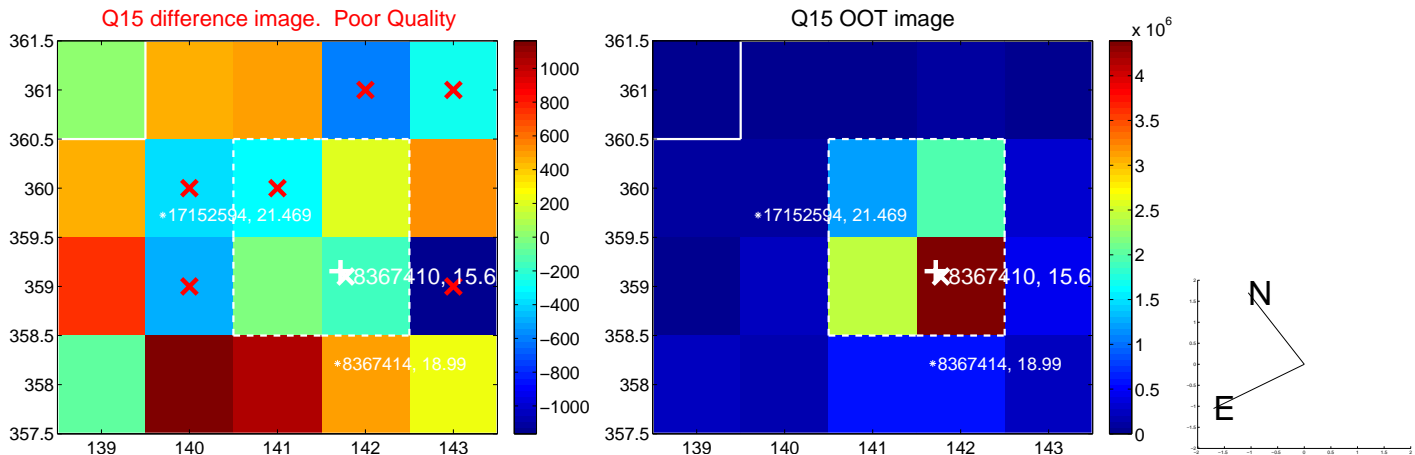
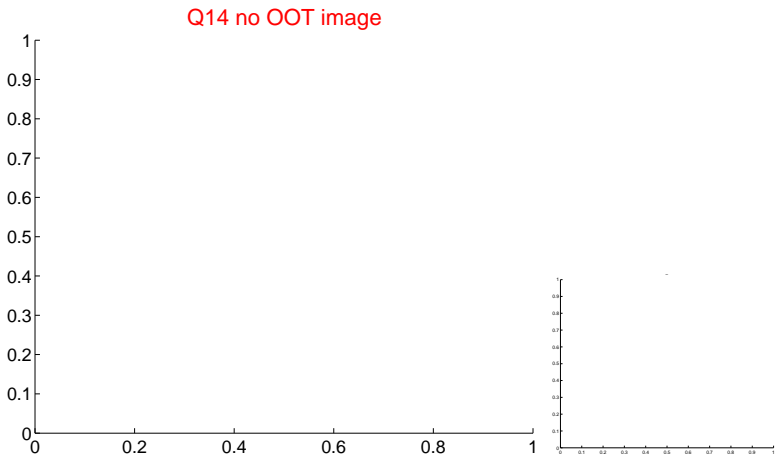
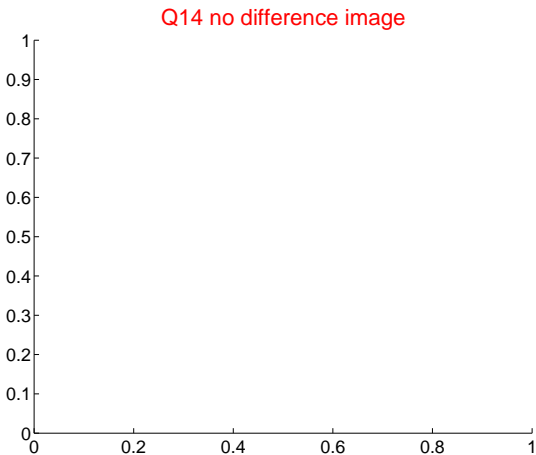
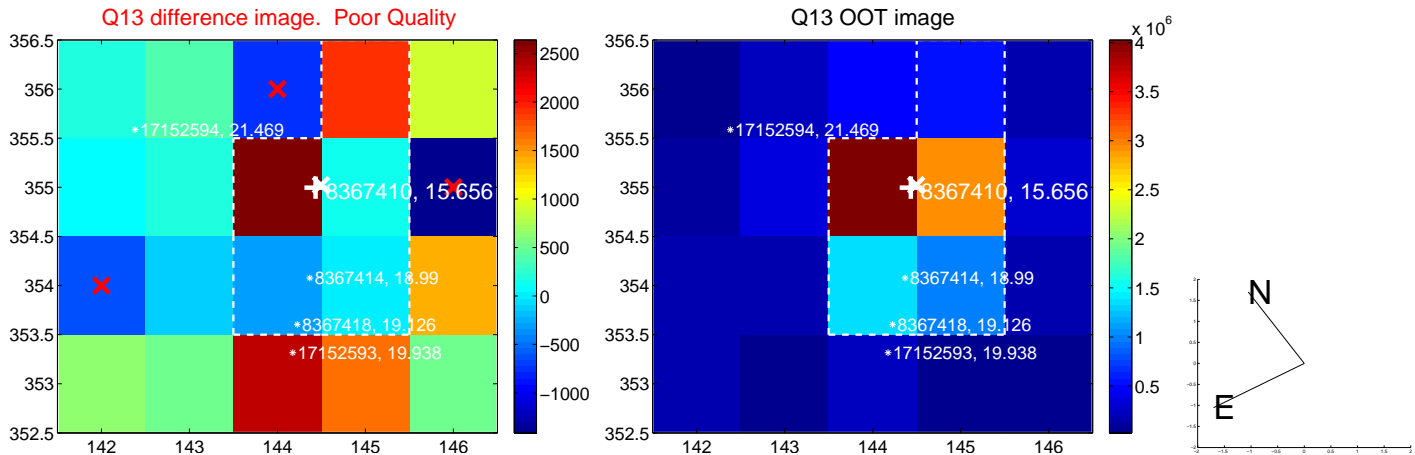
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



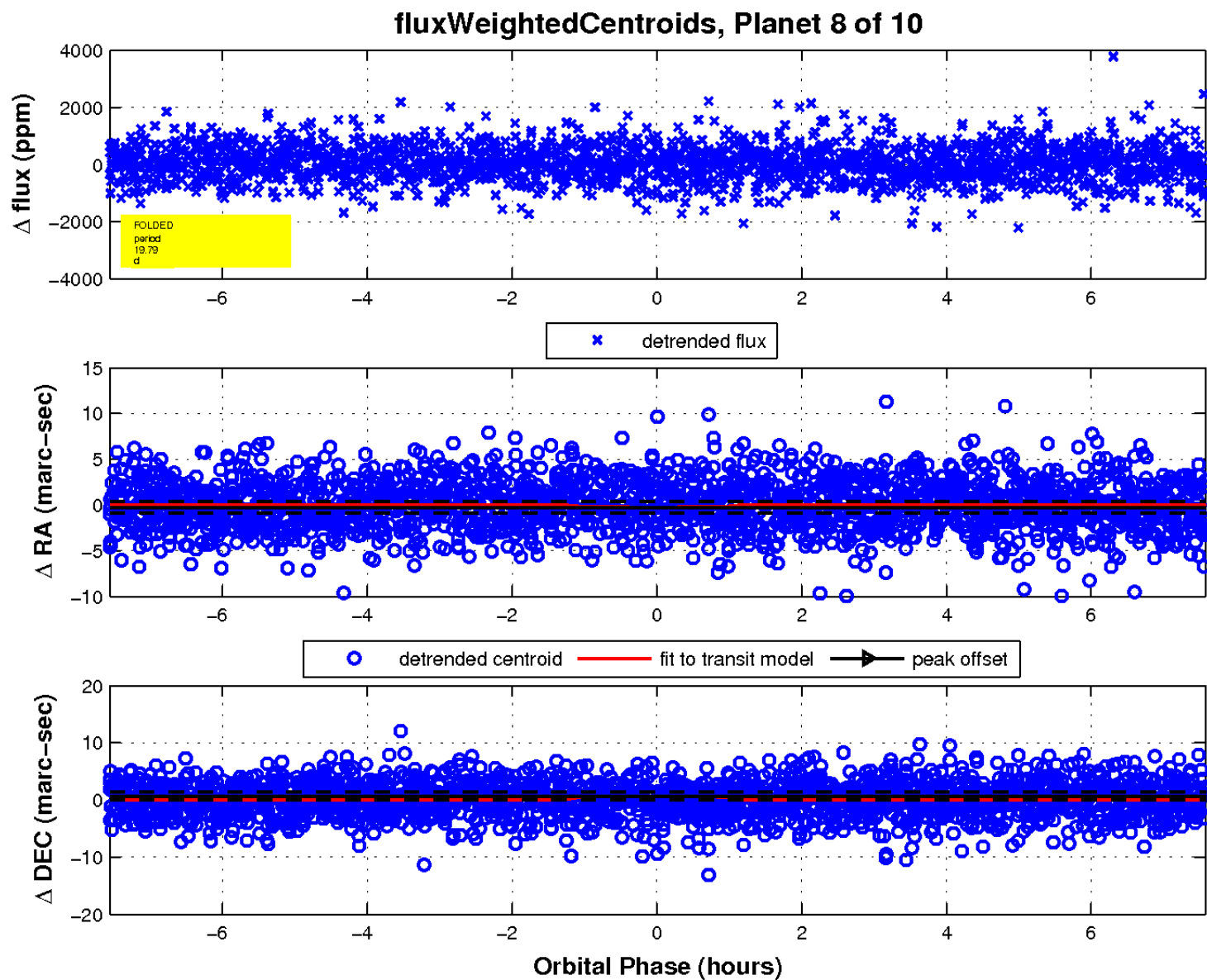
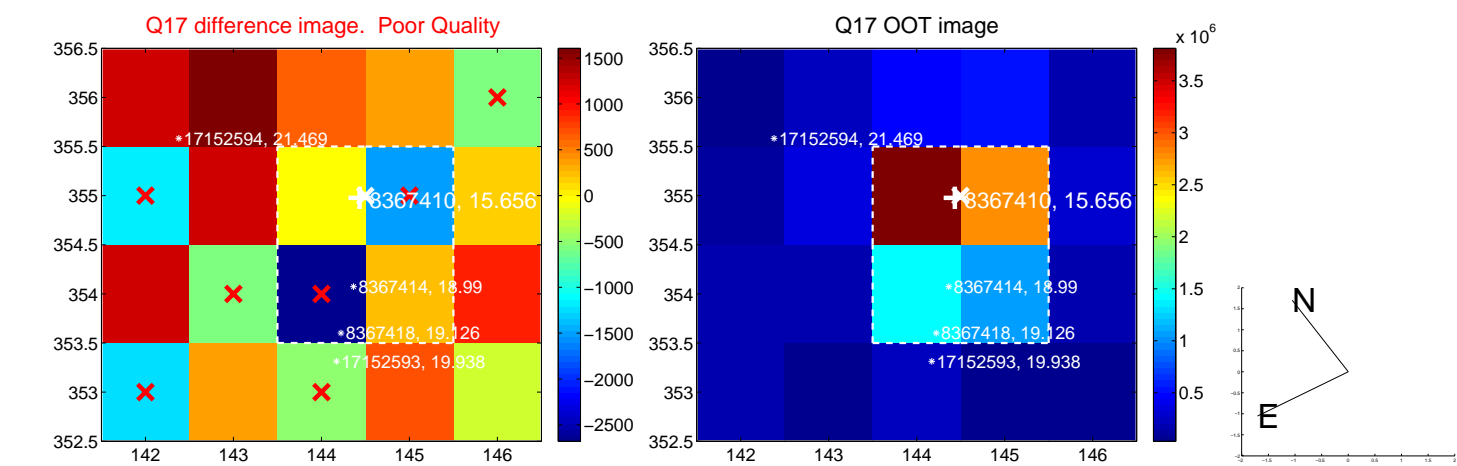
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

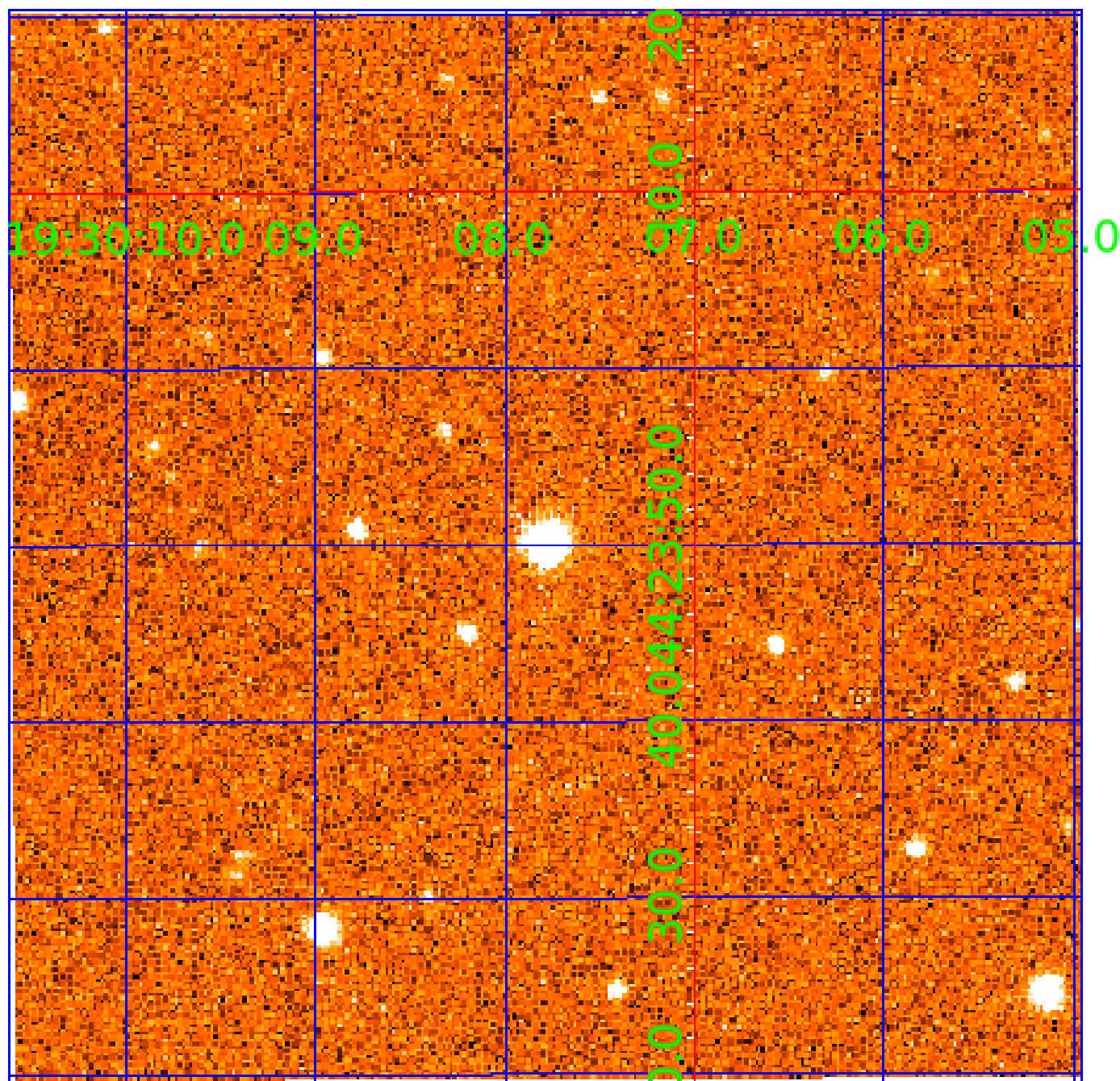


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008367410

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})
008367410-01	OBS	No	1.284101	131.713566	71.6	8.724	7.3	10.0	0.70	4402	0.66	397.03
008367410-04	OBS	No	31.732588	136.293707	232.5	7.679	14.3	3.3	0.70	4402	1.16	5.52
008367410-05	OBS	No	67.980089	149.377782	1019.4	5.822	13.5	9.8	0.70	4402	2.30	2.00
008367410-07	OBS	No	44.329621	156.488878	671.1	3.623	9.9	6.7	0.70	4402	2.27	3.53
008367410-08	OBS	No	19.791548	146.474216	803.1	2.527	10.2	8.7	0.70	4402	2.31	10.35
008367410-09	OBS	No	29.267988	156.314958	336.0	8.696	8.4	5.0	0.70	4402	1.54	6.14
008367410-10	OBS	No	151.560909	145.190516	1333.2	4.208	11.2	8.3	0.70	4402	2.66	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008367410-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008367410-04	OBS	FP	0.00	1	0	0	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—CENT_FEW_DIFFS
008367410-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

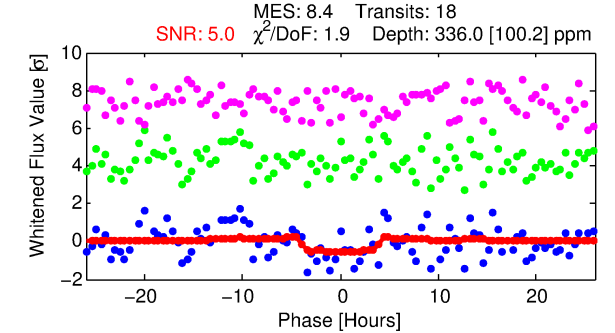
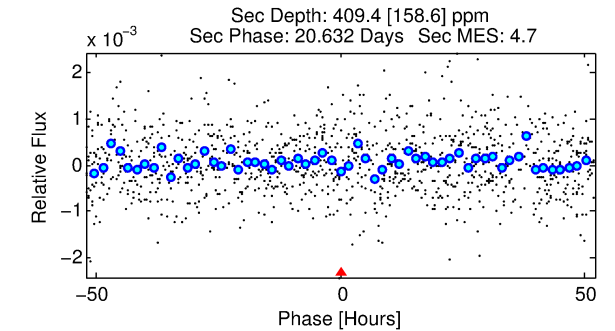
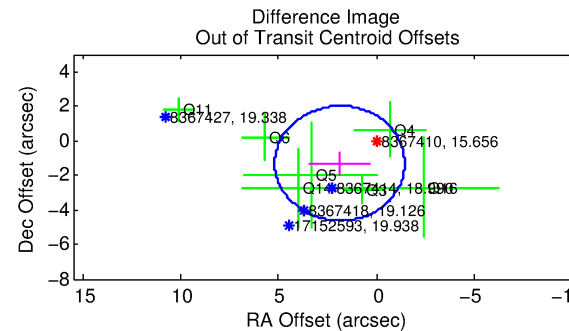
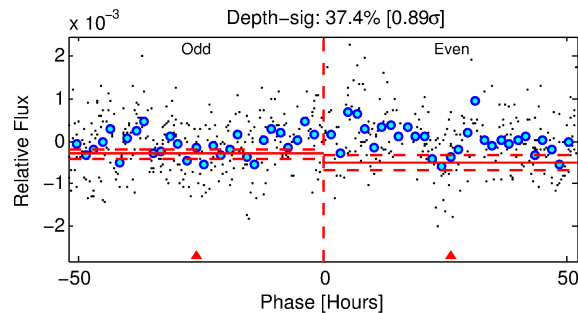
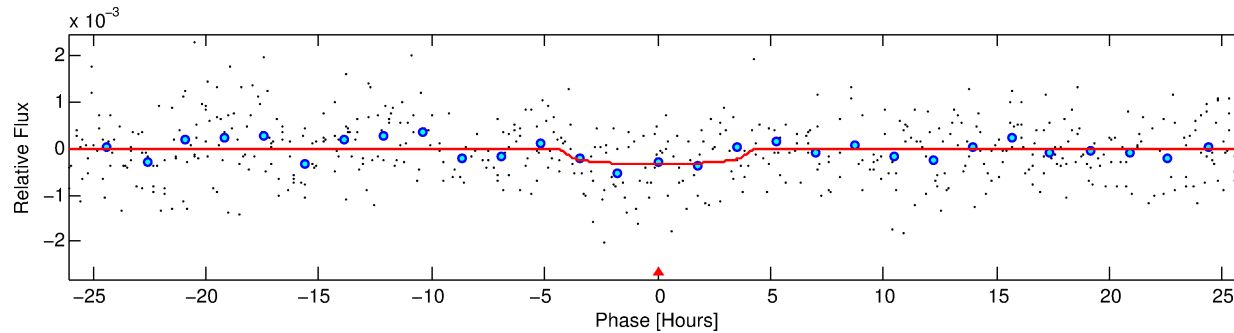
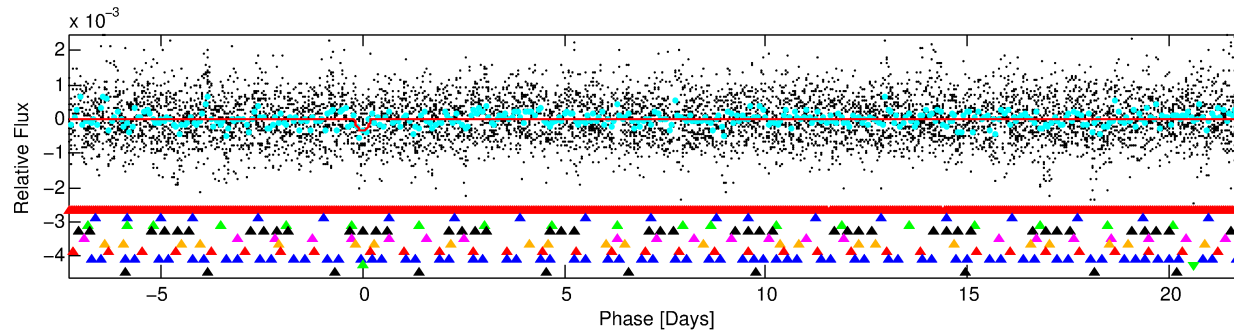
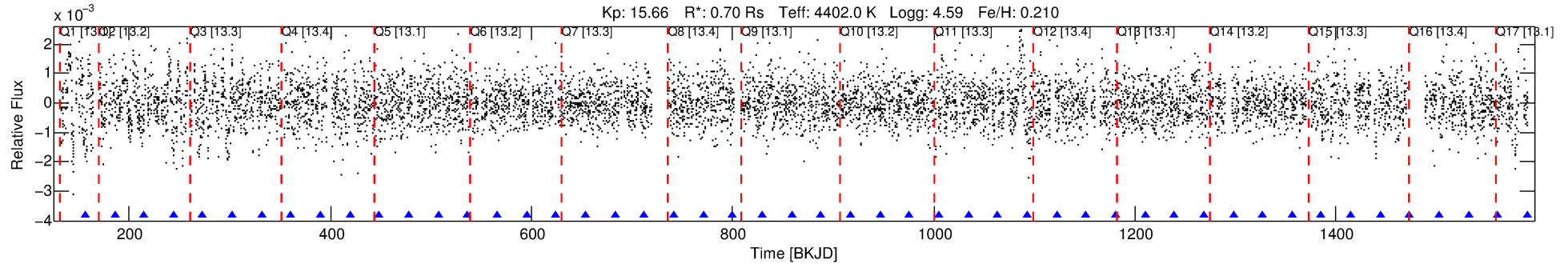
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008367410-09

No Significant Match Found

DV One-Page Summary

KIC: 8367410 Candidate: 9 of 10 Period: 29.268 d



DV Fit Results:

Period = 29.26799 [0.00175] d
Epoch = 156.3150 [0.0488] BKJD
Rp/R* = 0.0201 [0.0141]
a/R* = 13.81 [32.56]
b = 0.87 [0.69]
Seff = 6.14 [0.95]
Teq = 401 [16] K
Rp = 1.54 [1.09] Re
a = 0.1650 [0.0113] AU
Ag = 2574.11 [3757.95] [0.68 σ]
Teffp = 4421 [1615] K [2.49 σ]

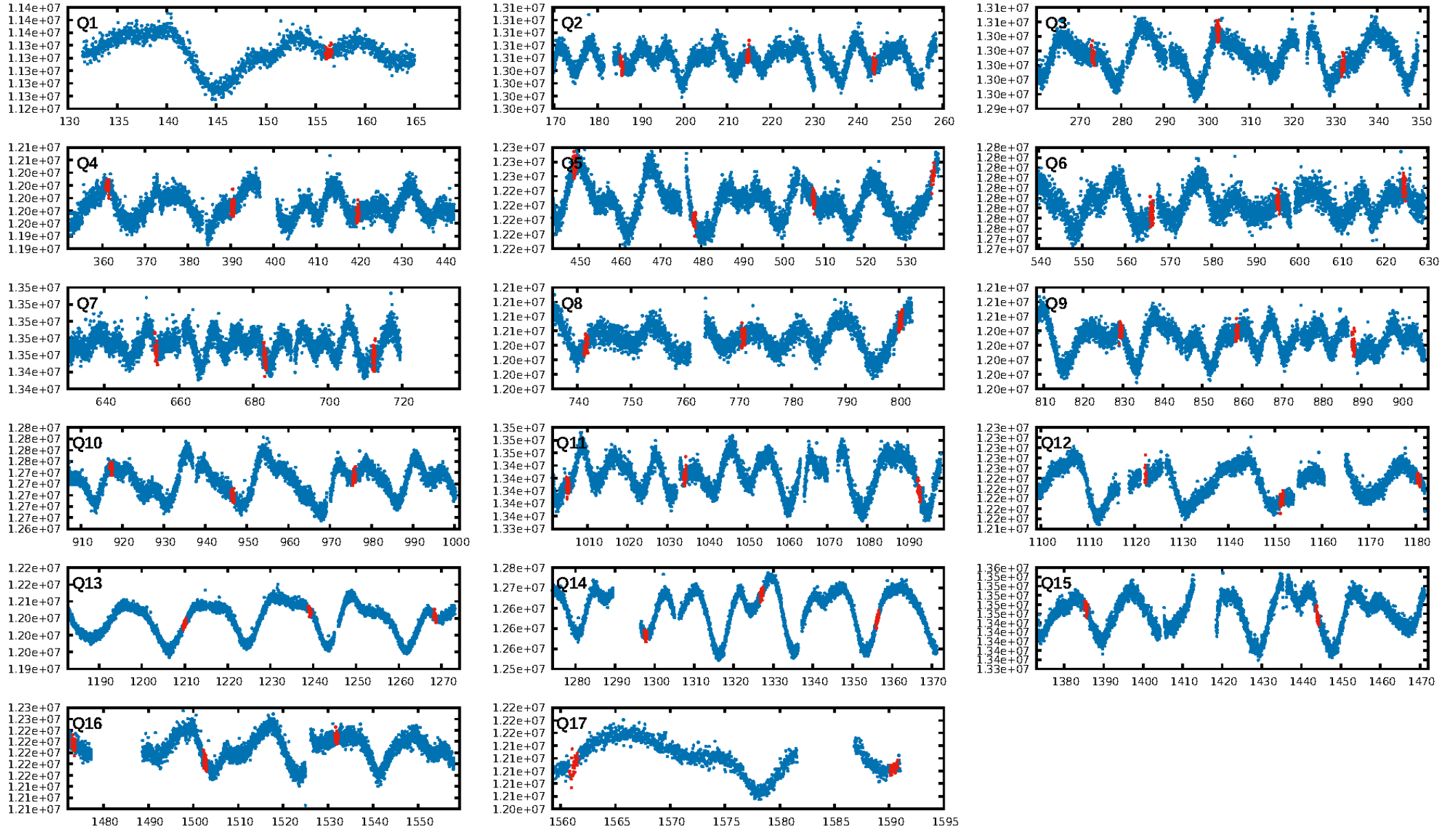
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.11 σ]
LongPeriod-sig: 100.0% [5.10 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [18/18]
GhostDiagnostic-chr: -2.703
Centroid-sig: 0.1%
Centroid-so: 2.109 arcsec [1.89 σ]
OotOffset-rm: 2.288 arcsec [2.07 σ]
KicOffset-rm: 2.384 arcsec [2.03 σ]
OotOffset-st: 2/2/2/1 [7]
KicOffset-st: 2/2/2/1 [7]
DiffImageQuality-fgm: 0.00 [0/7]
DiffImageOverlap-fno: 0.00 [0/16]

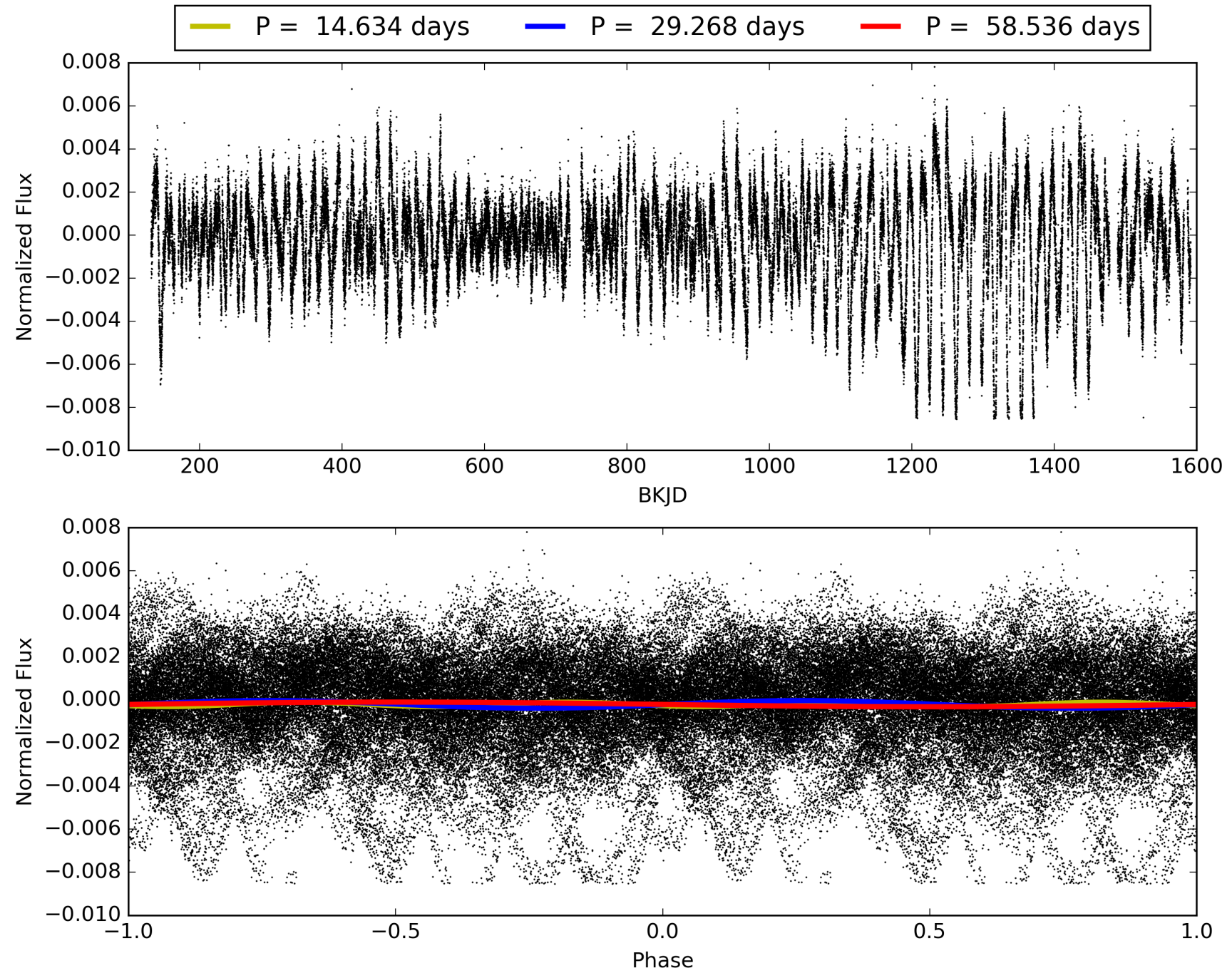
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:12:31 Z

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

TCE 008367410-09, PDC Light Curves

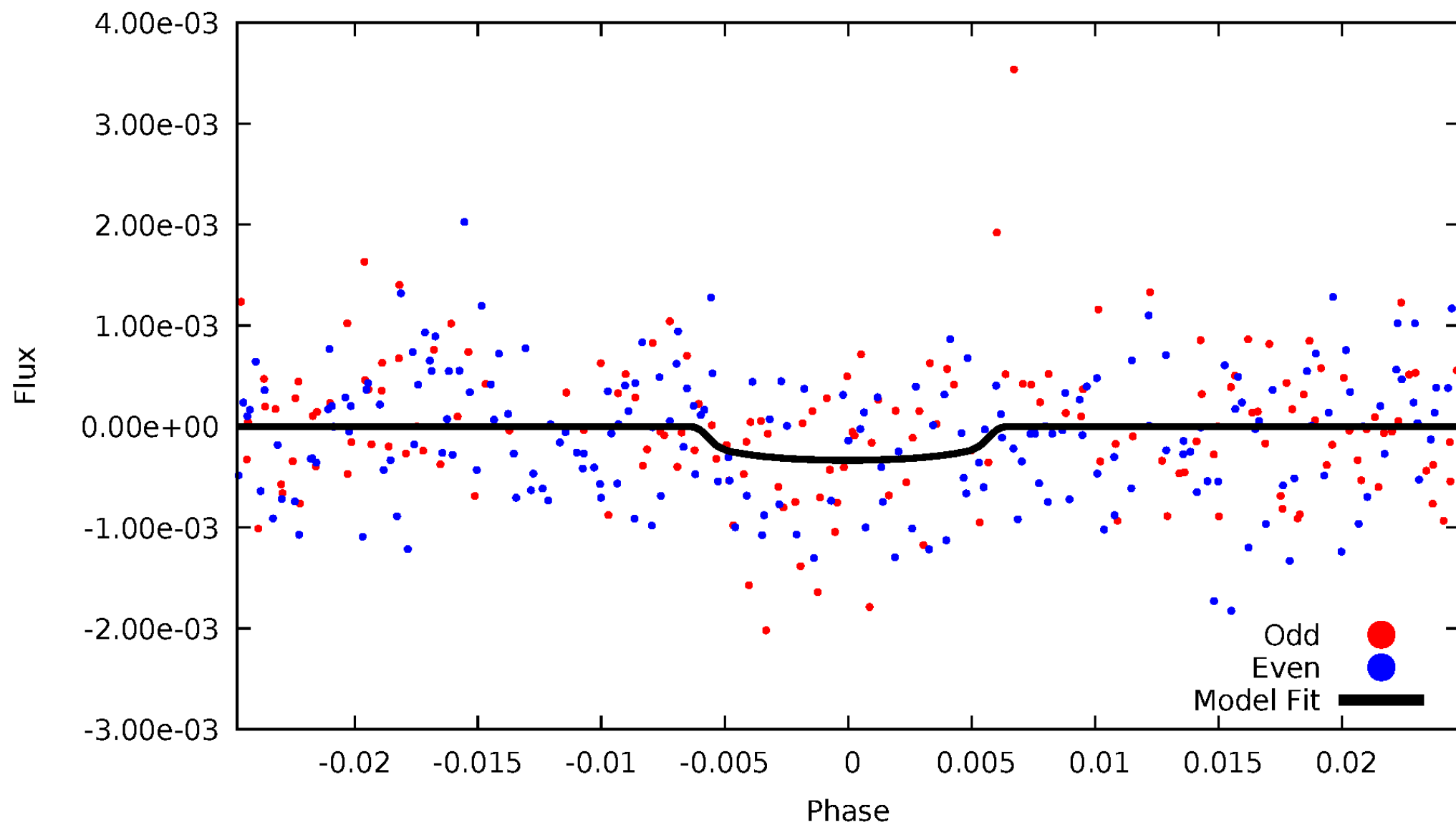


TCE 008367410-09



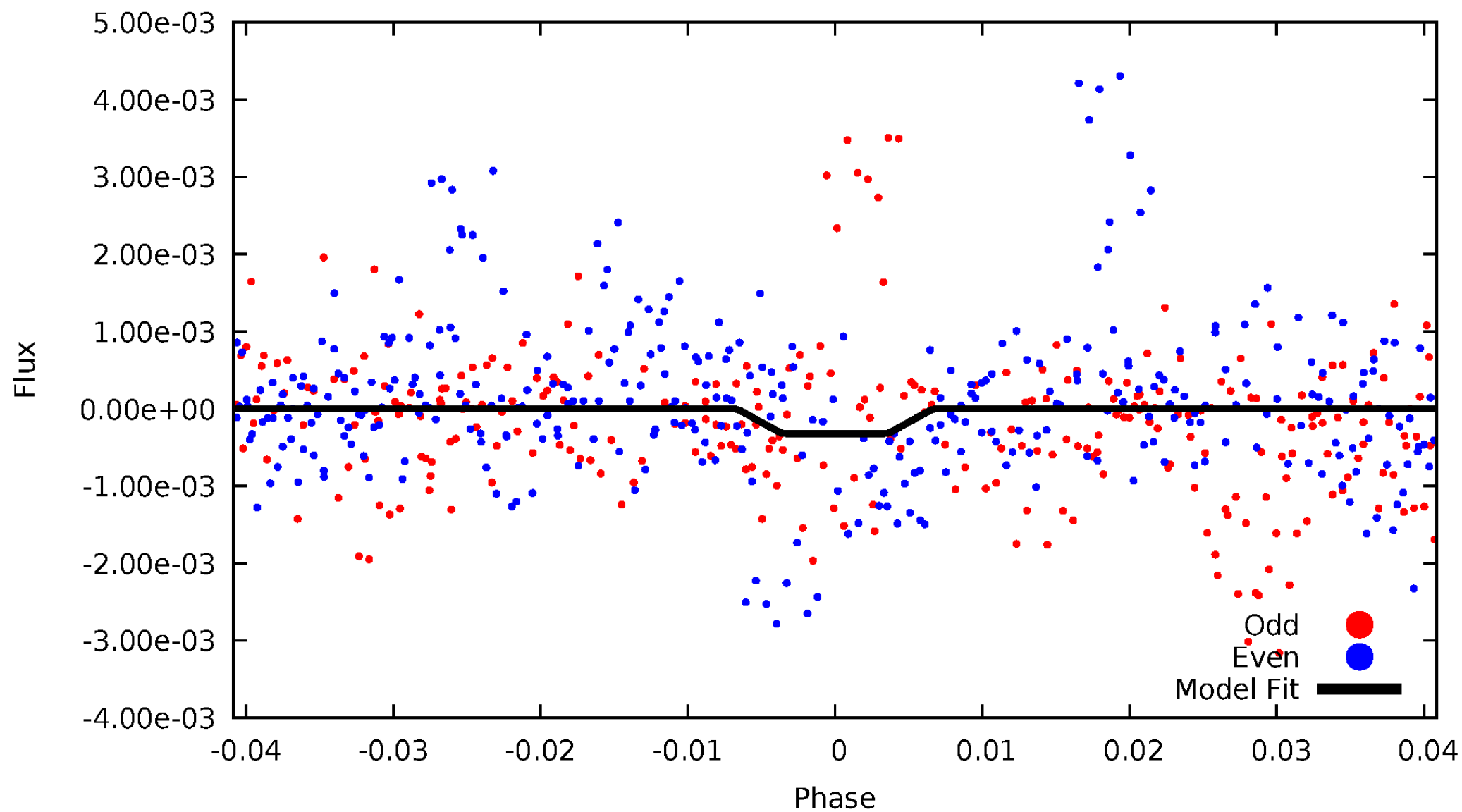
DV Odd/Even

TCE 008367410-09



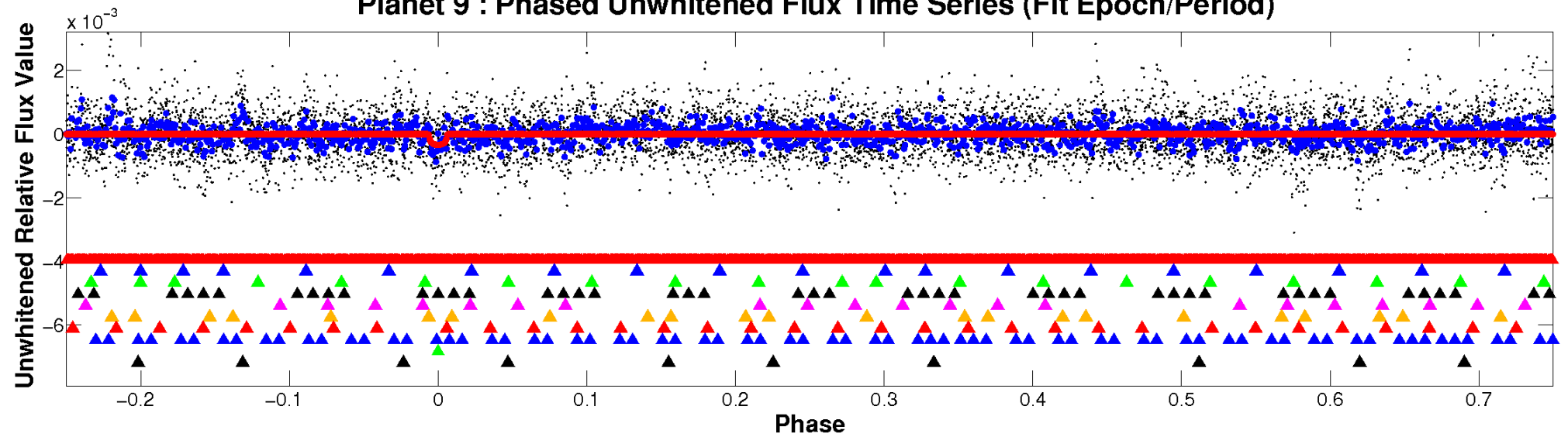
ALT Odd/Even

TCE 008367410-09

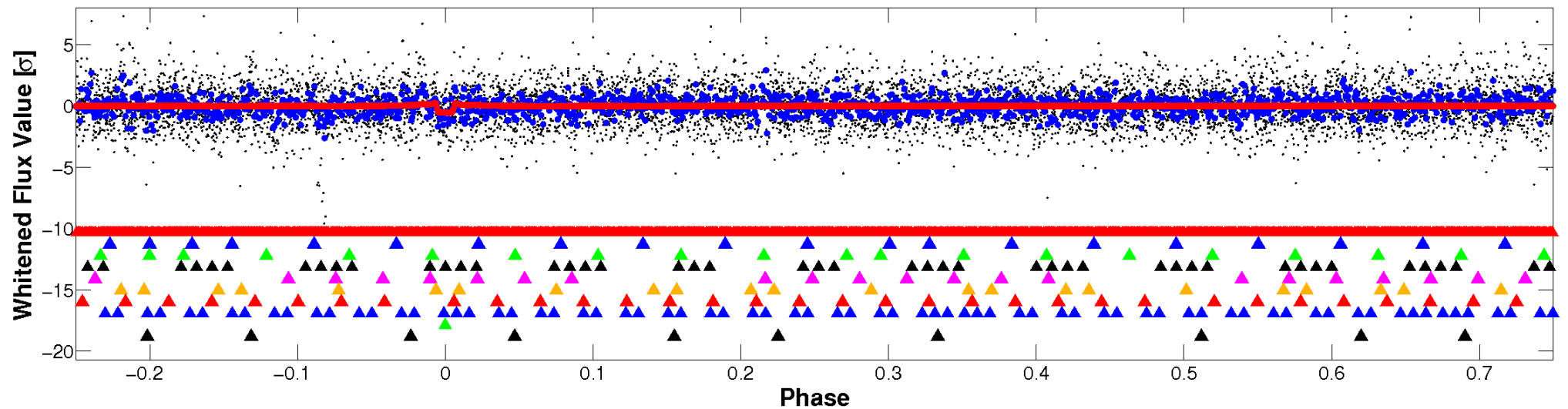


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

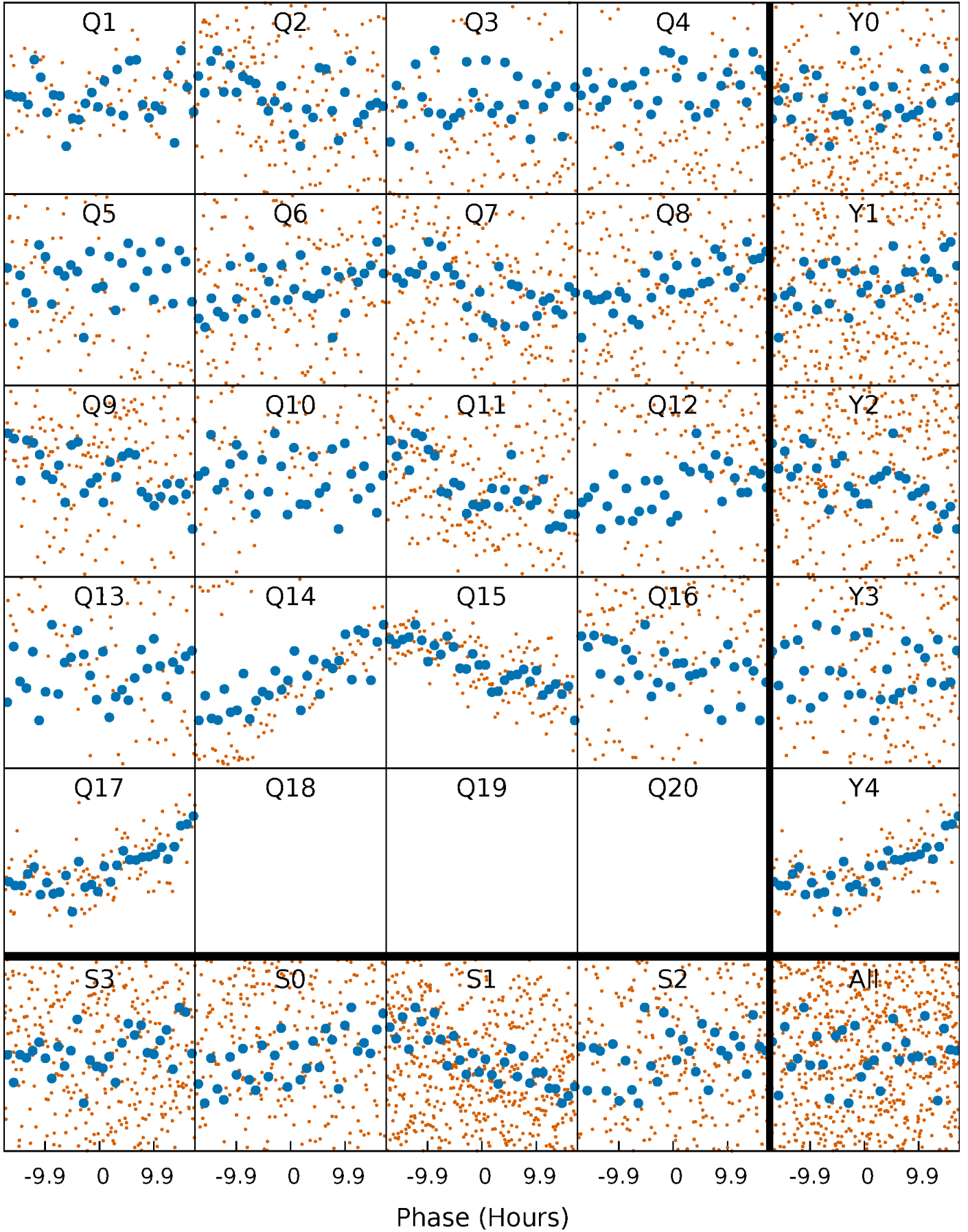


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



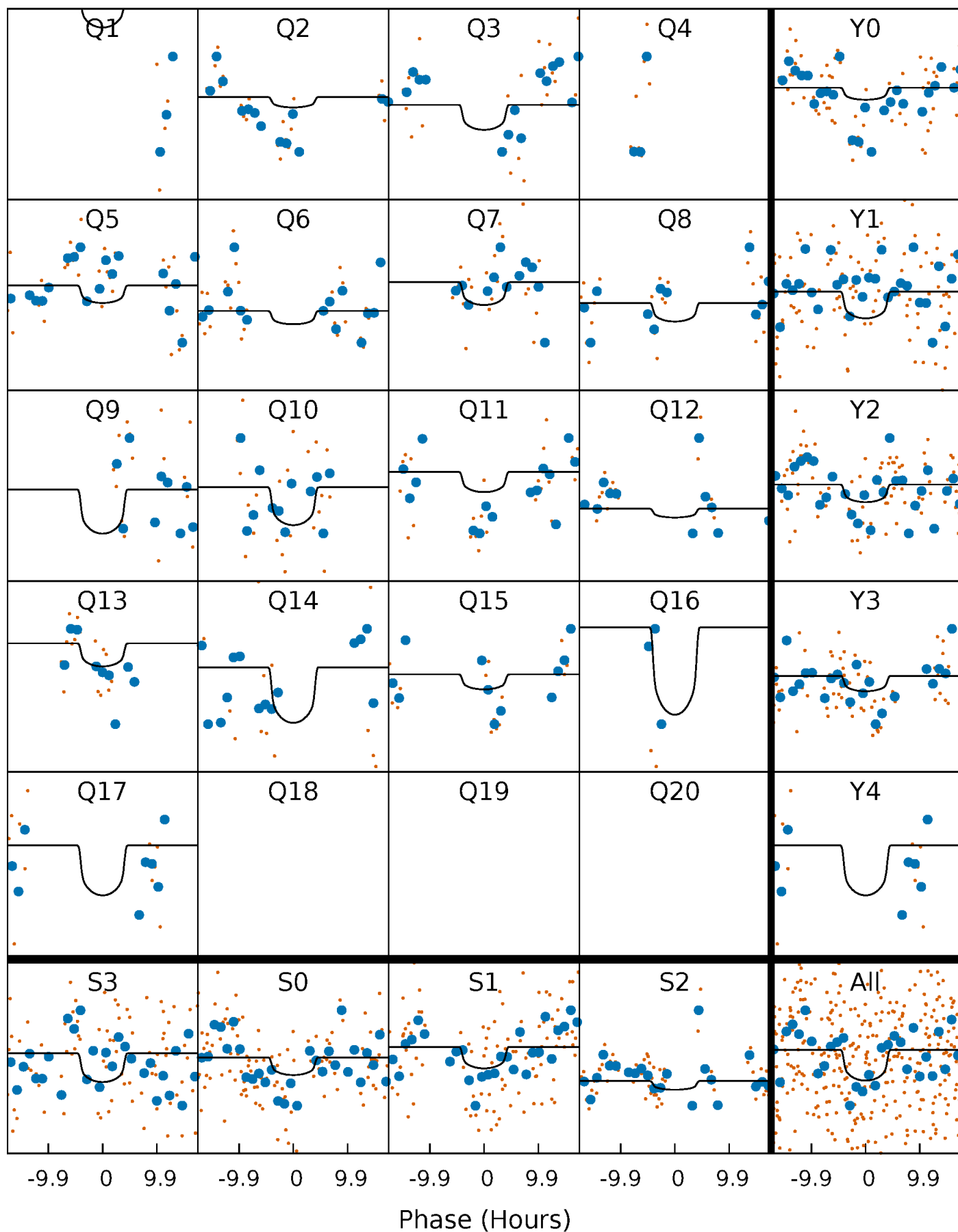
PDC Quarter-Phased Transit Curves

TCE 008367410-09 P= 29.267988 Days $T_0=156.314958$ (BKJD)



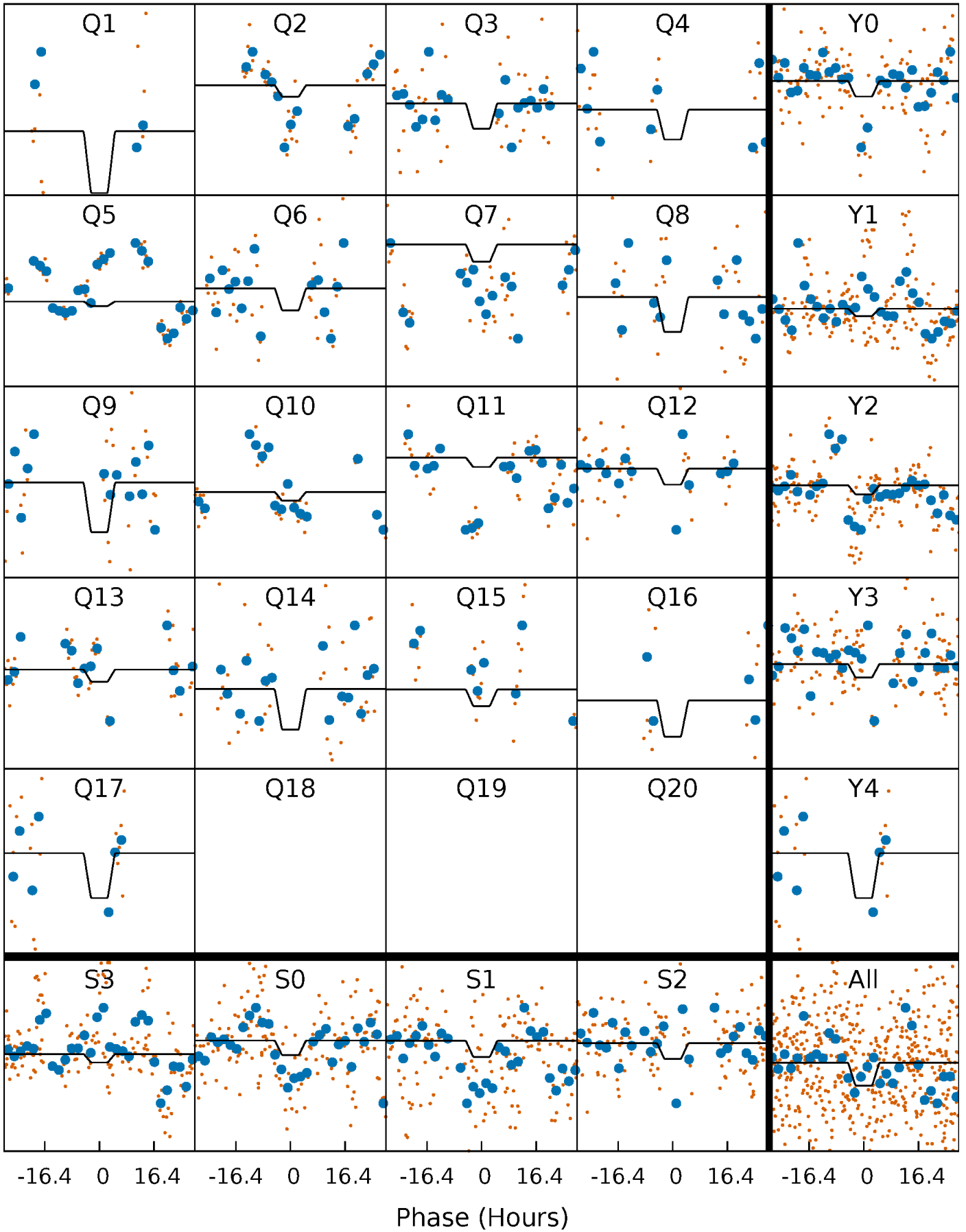
DV Quarter-Phased Transit Curves

TCE 008367410-09 P= 29.267988 Days $T_0=156.314958$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

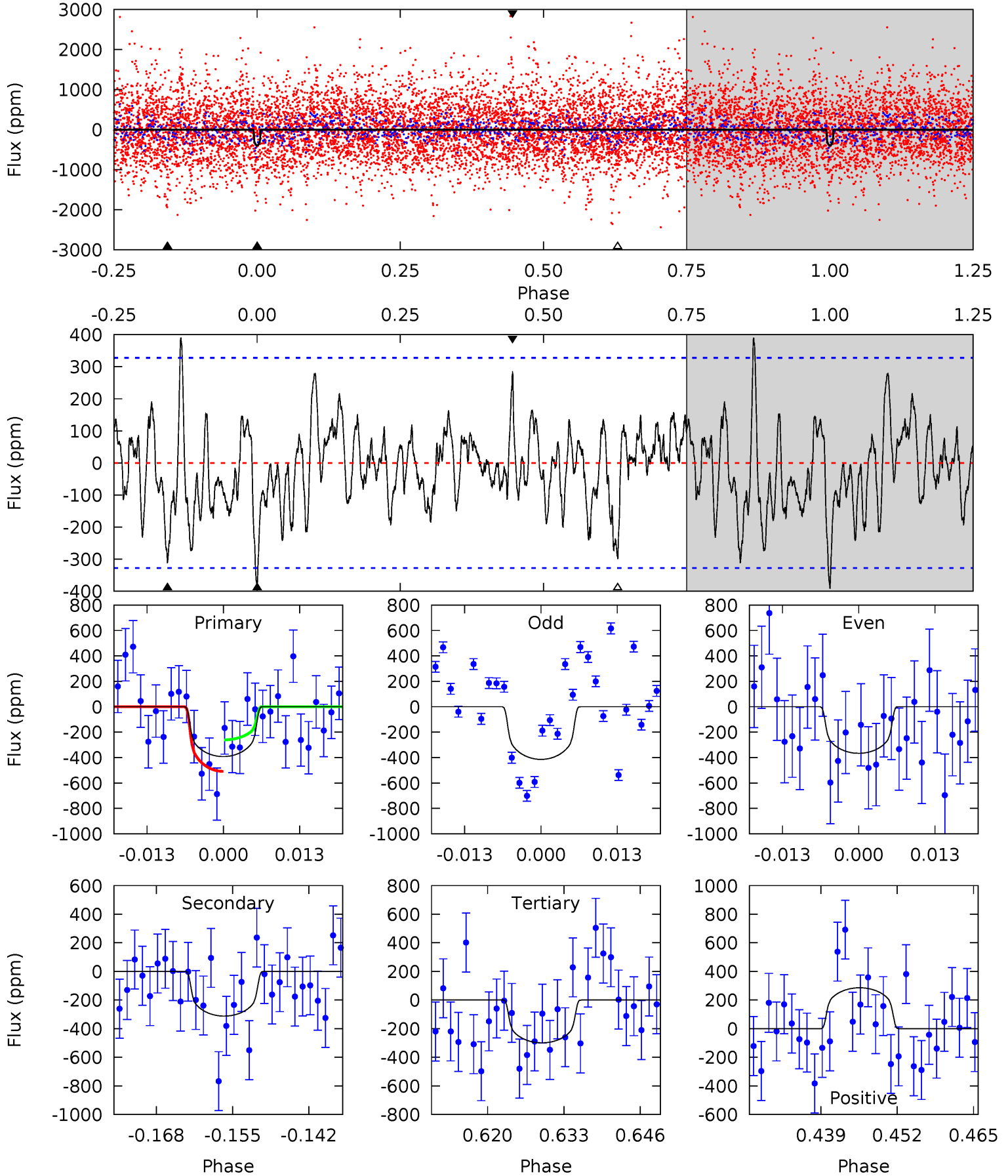
TCE 008367410-09 $P = 29.272449$ Days $T_0 = 156.247484$ (BKJD)



DV Model-Shift Uniqueness Test

008367410-09, $P = 29.267988$ Days, $E = 127.046970$ Days

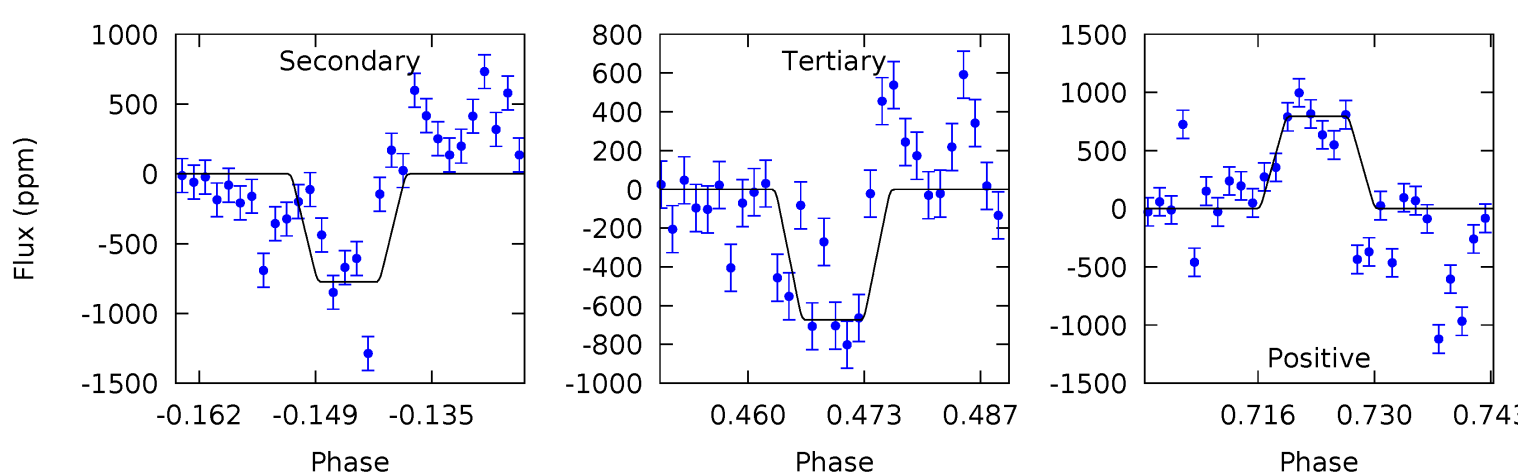
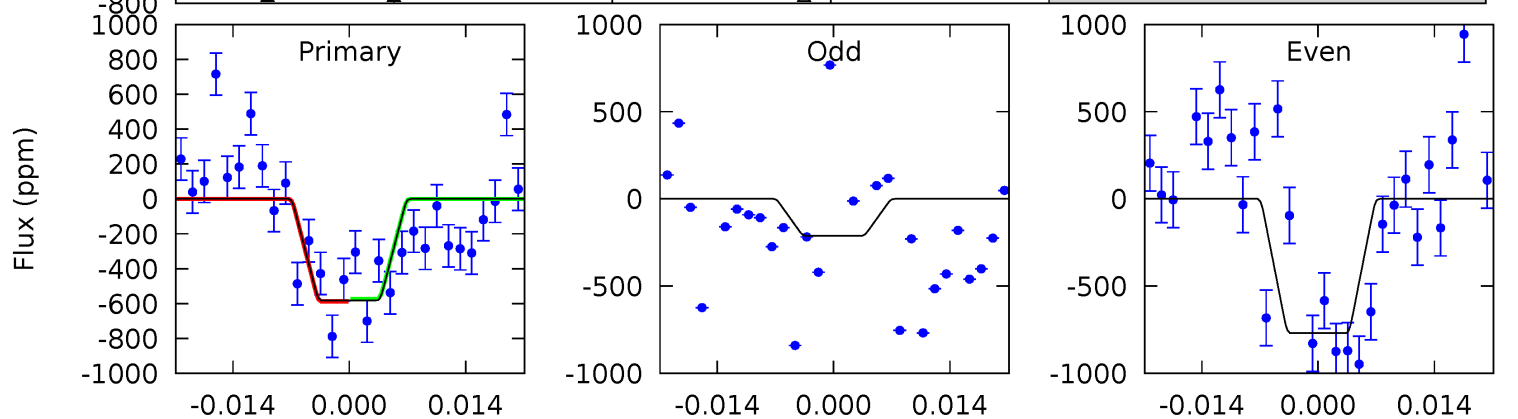
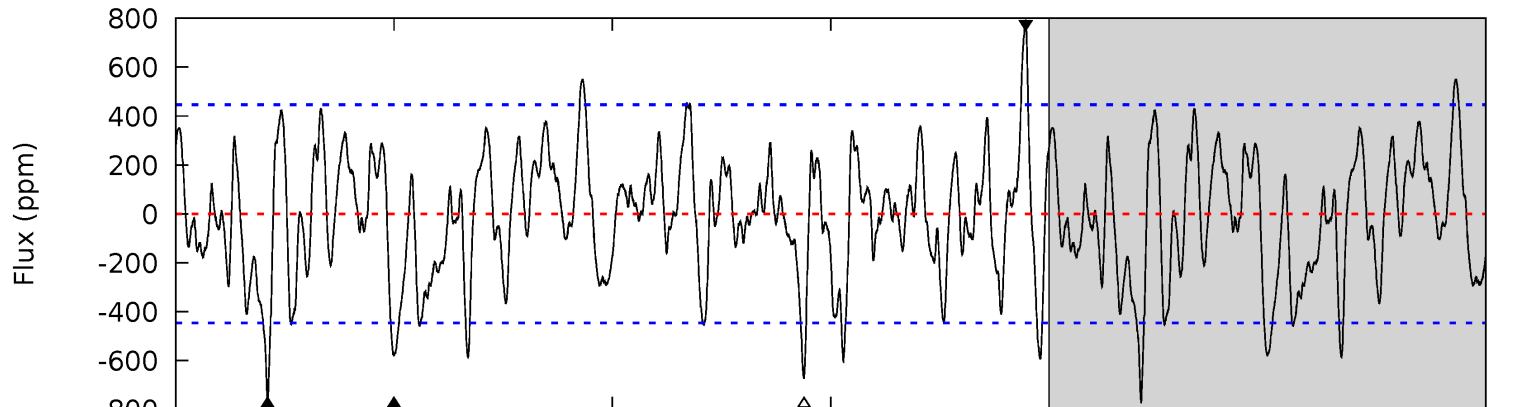
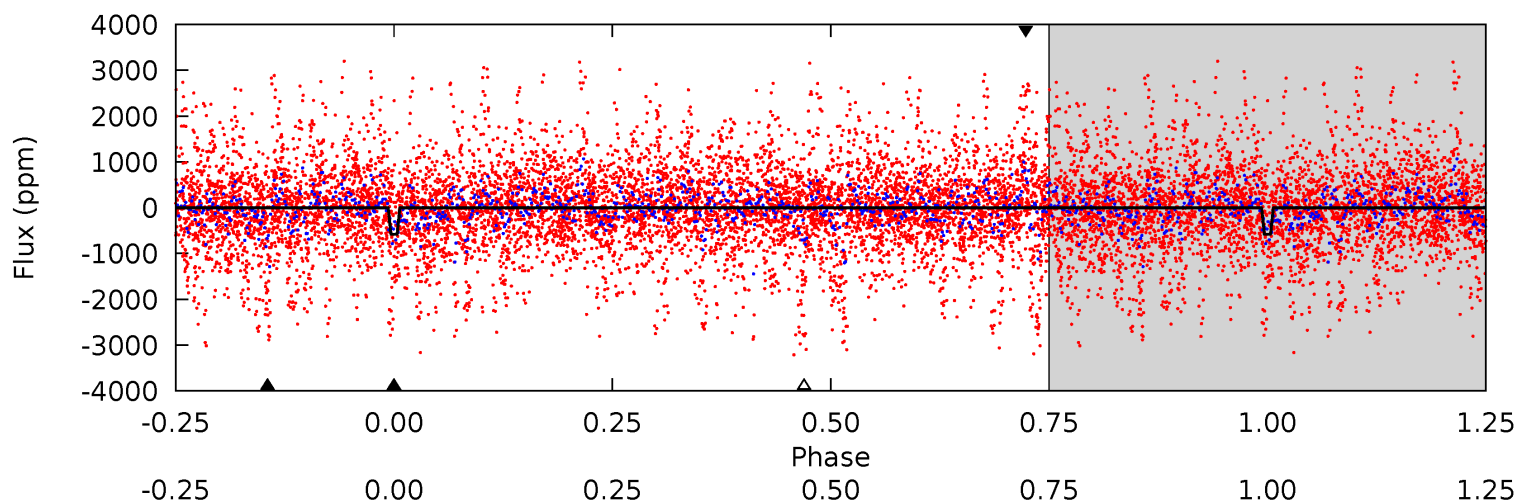
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.96	4.75	4.55	4.34	4.98	2.49	1.63	1.41	1.61	0.20	0.40	0.36	0.99	0.50	1.89



Alt Model-Shift Uniqueness Test

008367410-09, P = 29.272449 Days, E = 126.975035 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.47	8.60	7.49	8.83	4.97	2.47	2.51	-1.03	-2.37	1.11	-0.23	3.04	0.68	0.51	0.08



Stellar Parameters For KIC 008367410

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4402^{+132}_{-132}	$4.586^{+0.052}_{-0.016}$	$0.210^{+0.200}_{-0.300}$	$0.705^{+0.029}_{-0.059}$	$0.699^{+0.050}_{-0.050}$	$2.804^{+0.643}_{-0.186}$
	+3%/-3%	+1%/-0%	+95%/-143%	+4%/-8%	+7%/-7%	+23%/-7%
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 008367410-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-312 ± 66	$1.64^{+1.05}_{-0.91}$	557^{+19}_{-19}	4101^{+1637}_{-664}	1780^{+6996}_{-1158}
Alt.	-773 ± 90	$1.57^{+1.06}_{-0.93}$	557^{+20}_{-19}	4973^{+2836}_{-905}	4712^{+25845}_{-3048}

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

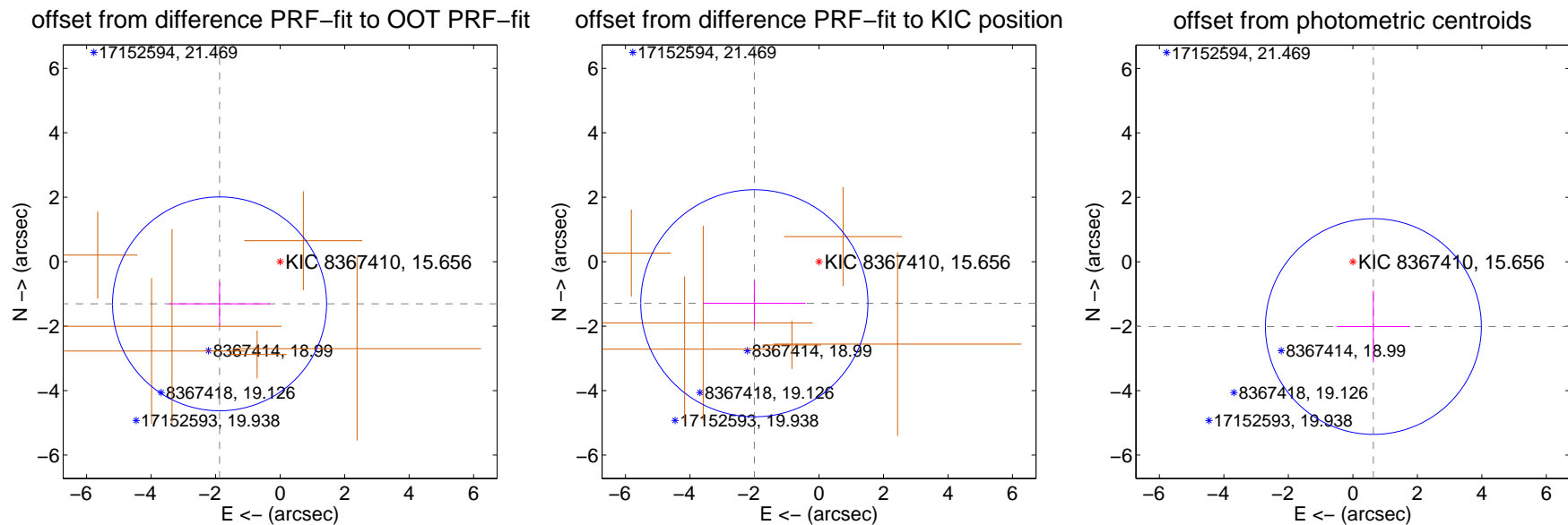
DV Centroid Data

Supplemental centroid analysis for 008367410-09. Kepler magnitude: 15.66. Transit SNR 4.99

There are 0 quarters with good PRF difference image offsets

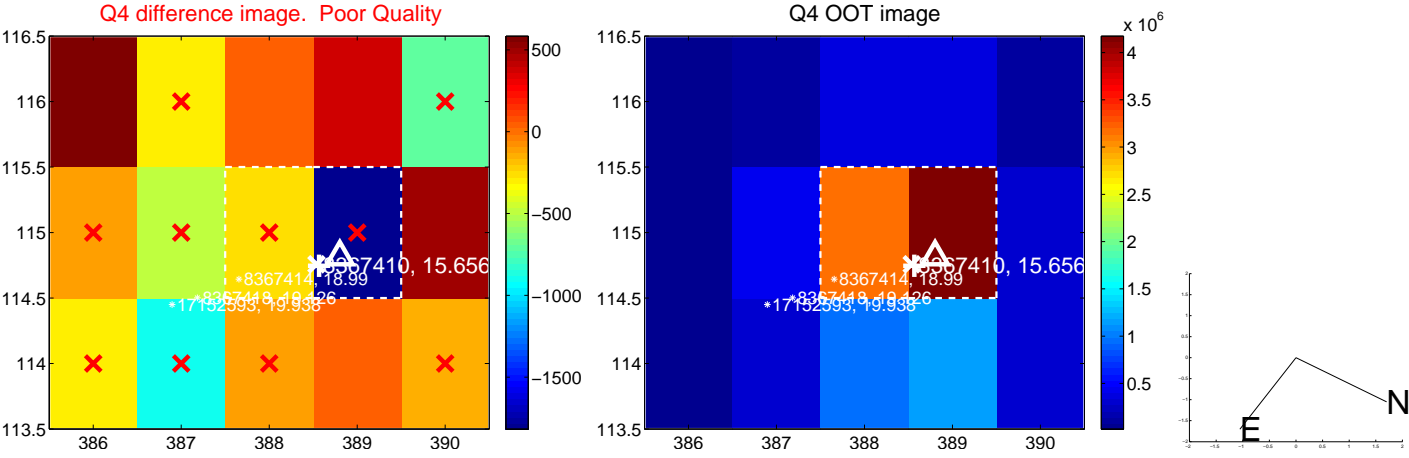
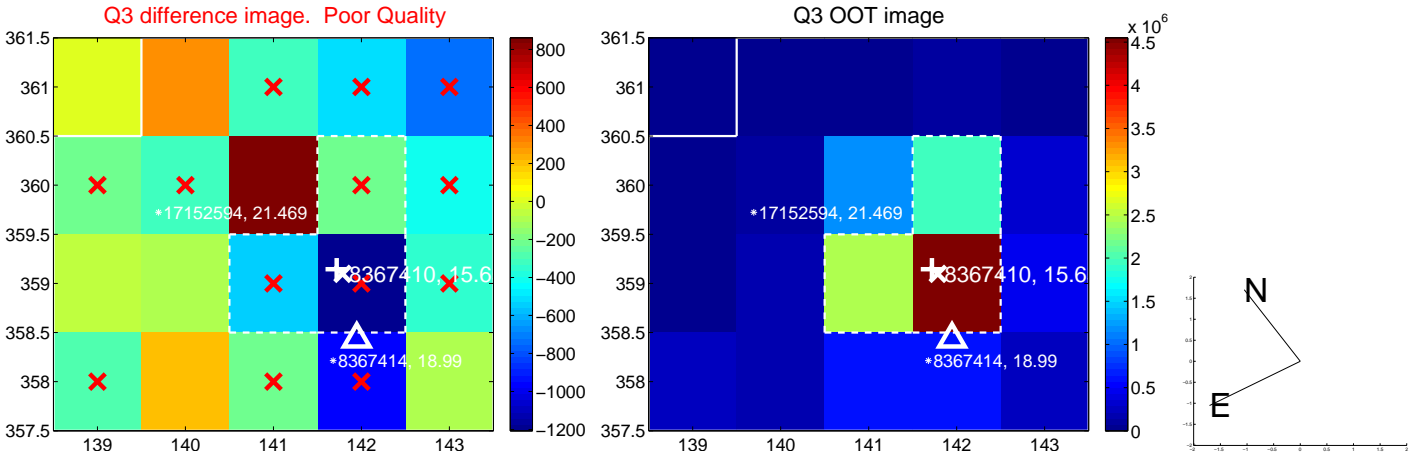
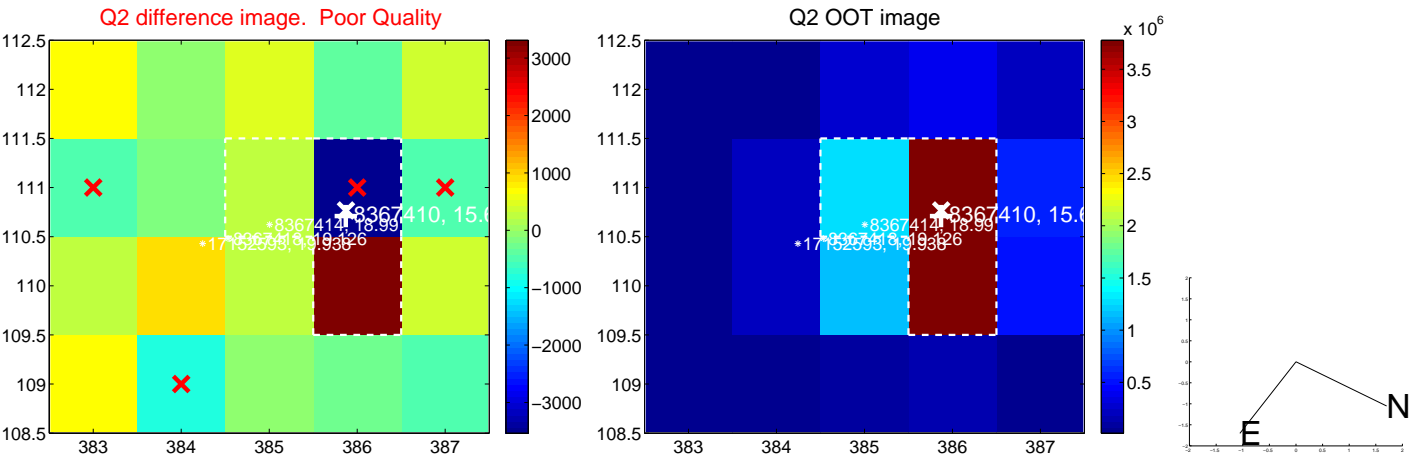
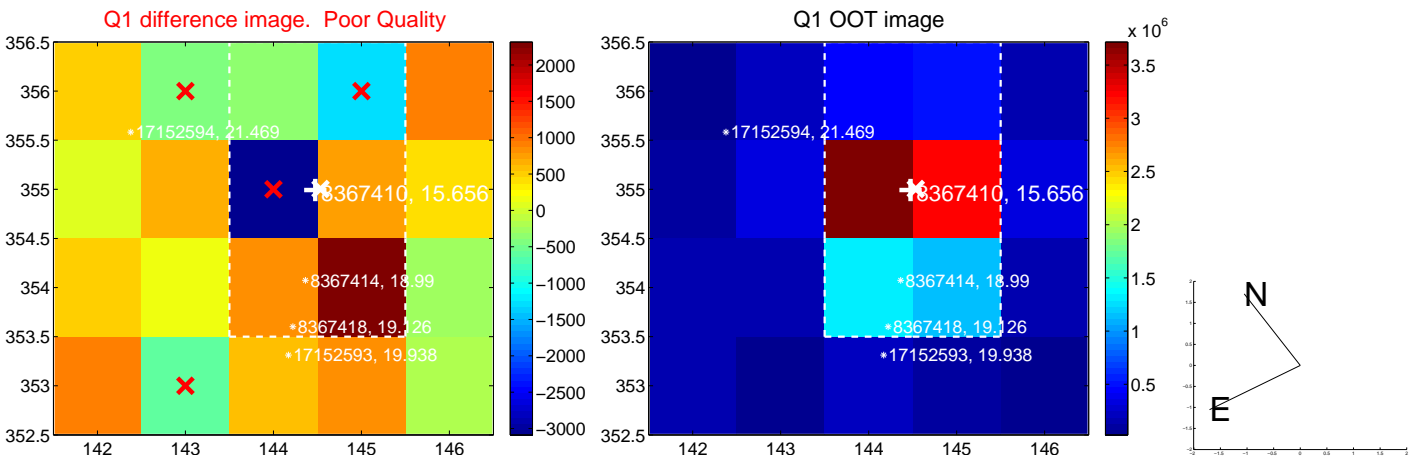
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.288 ± 1.106	2.07	1.878 ± 1.566	-1.308 ± 0.673
PRF-fit source offset from KIC position	2.384 ± 1.174	2.03	2.005 ± 1.590	-1.290 ± 0.688
photometric centroid source offset	2.11 ± 1.12	1.89	-0.64 ± 1.14	-2.01 ± 1.11

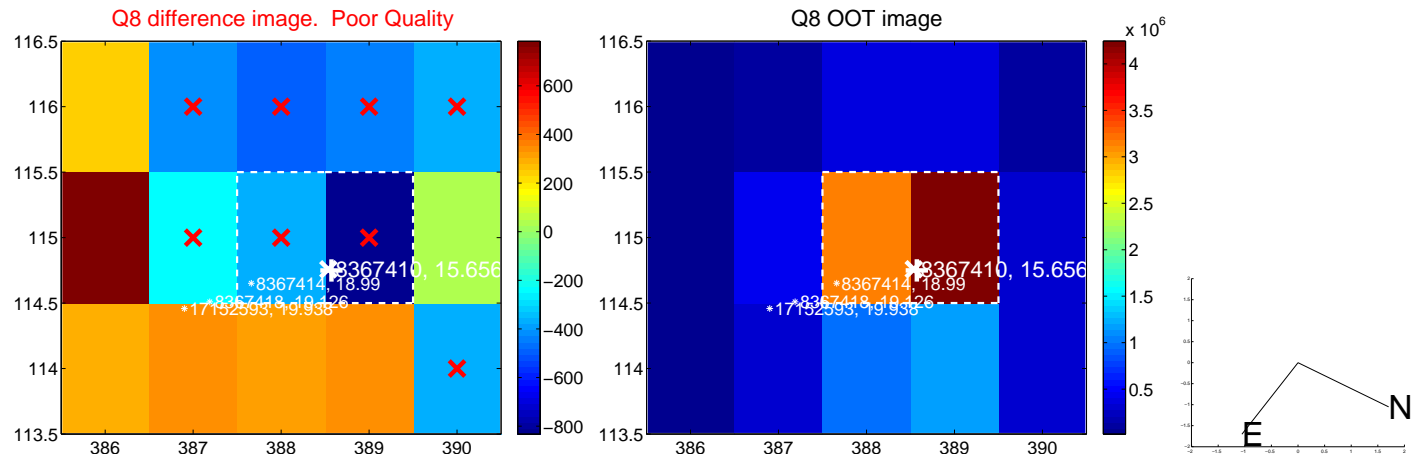
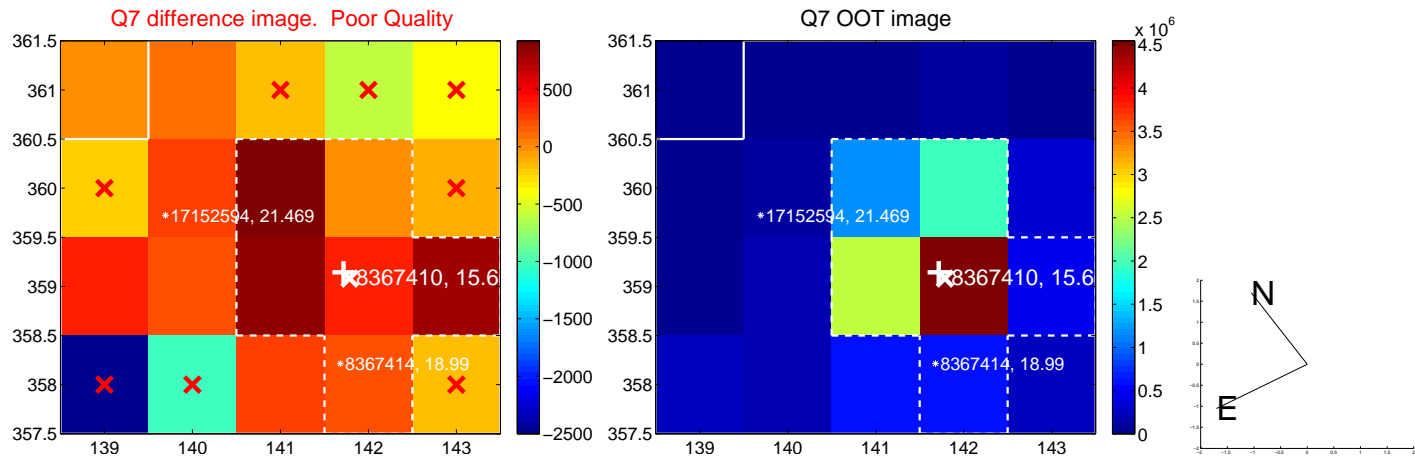
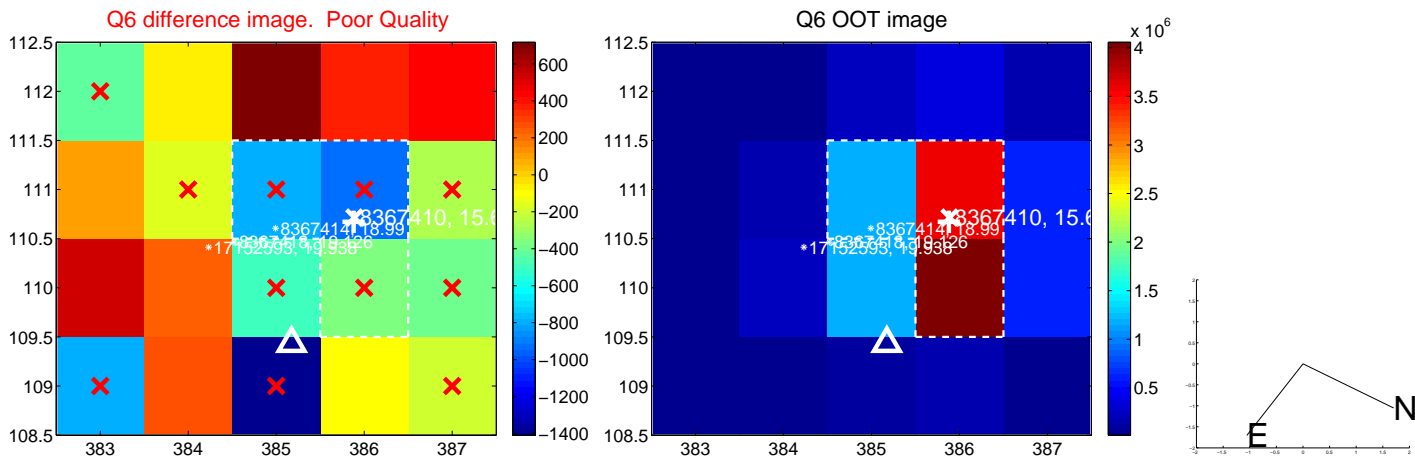
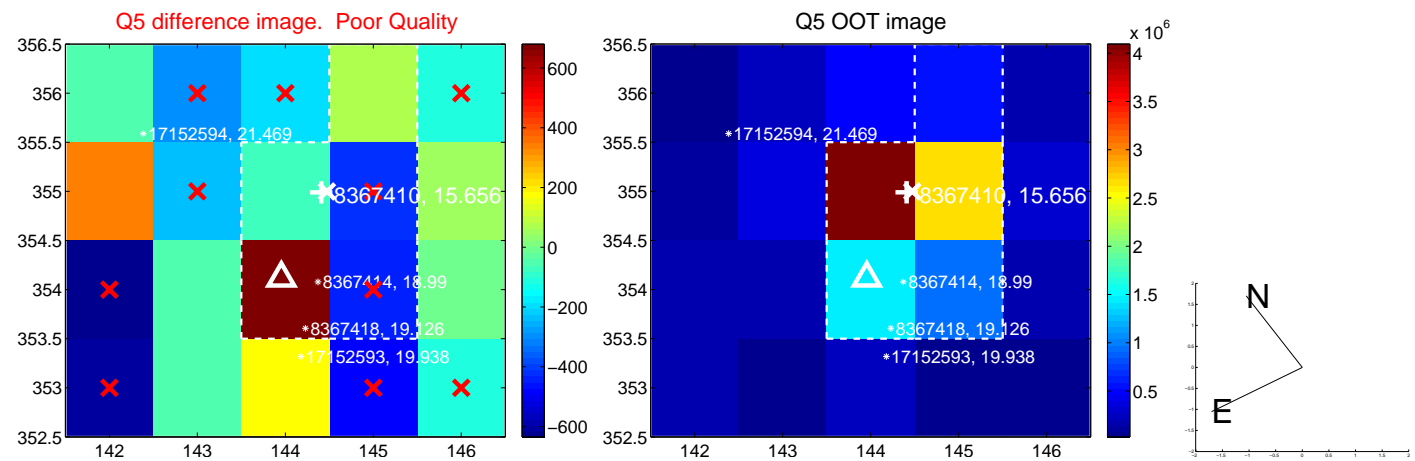


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

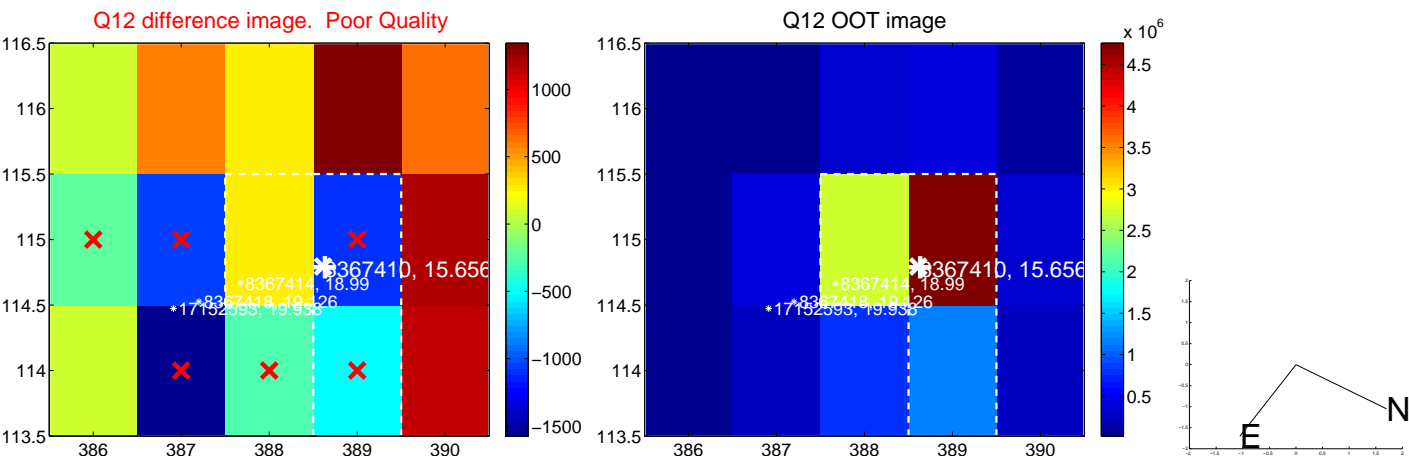
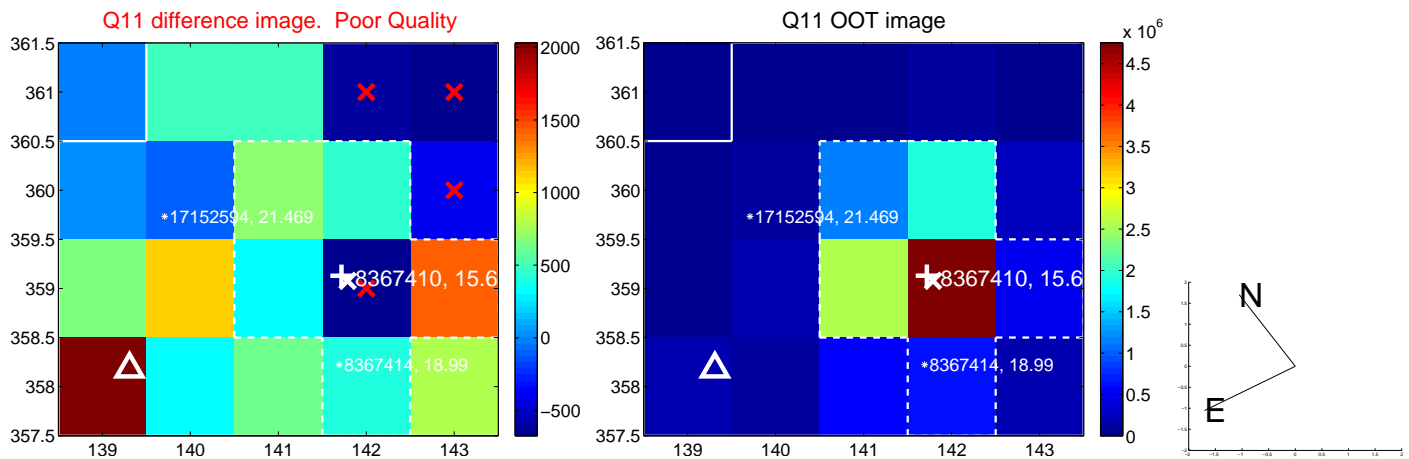
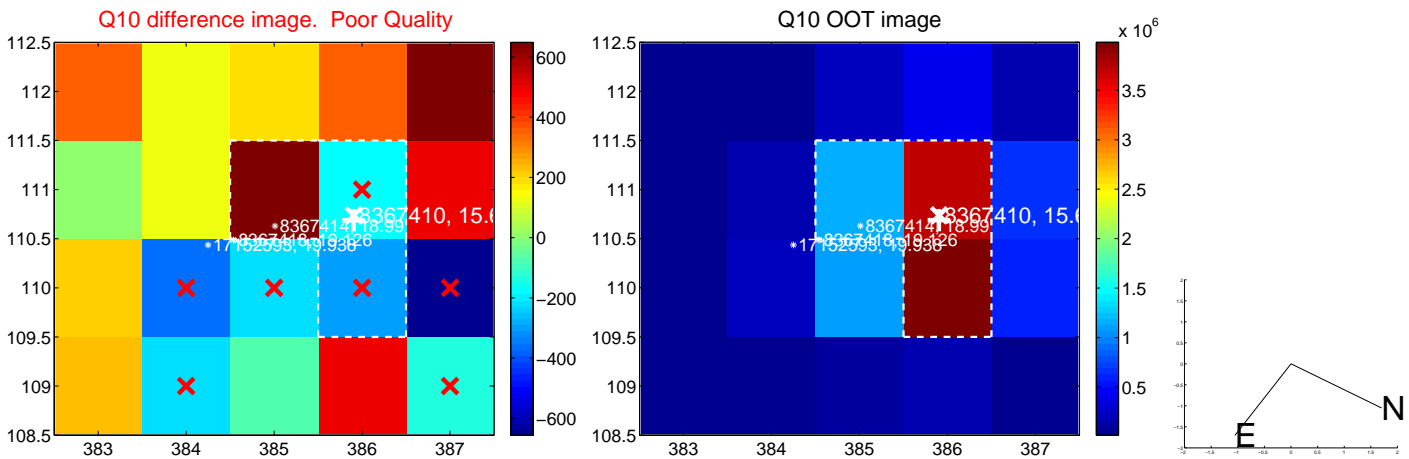
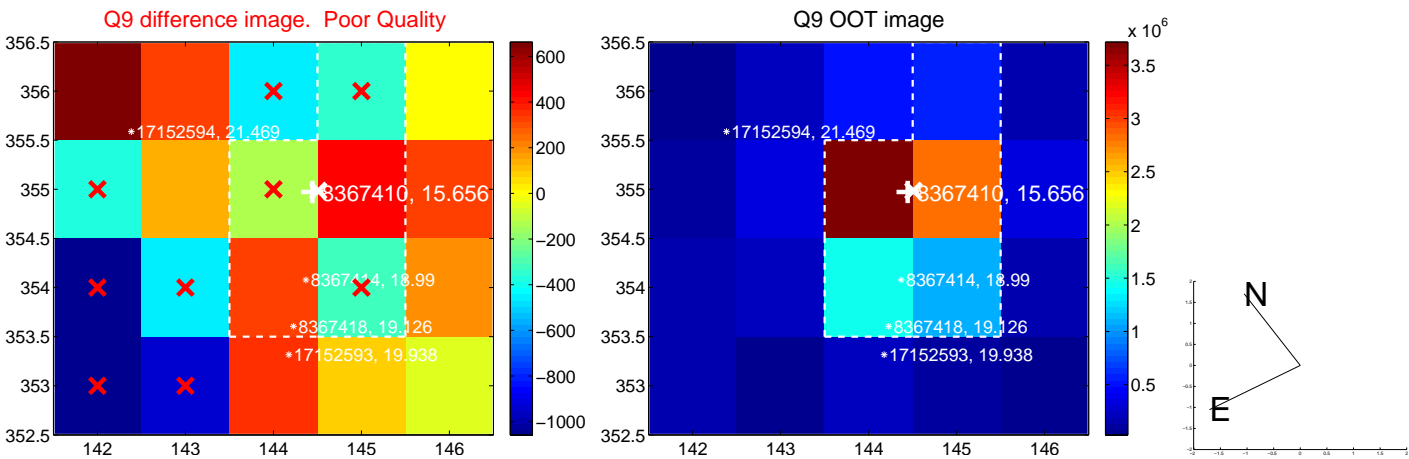
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



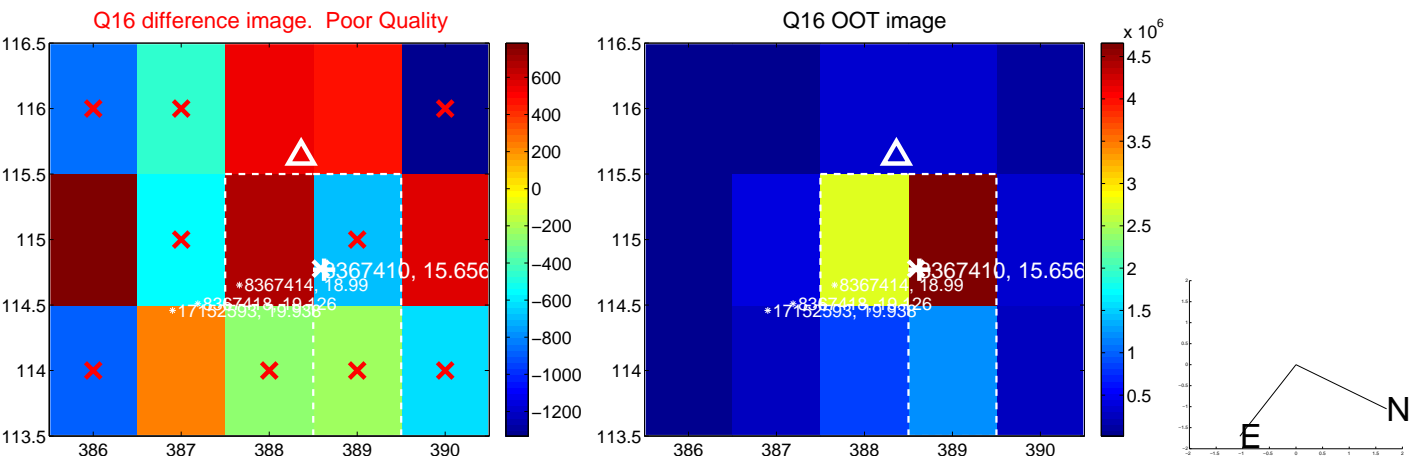
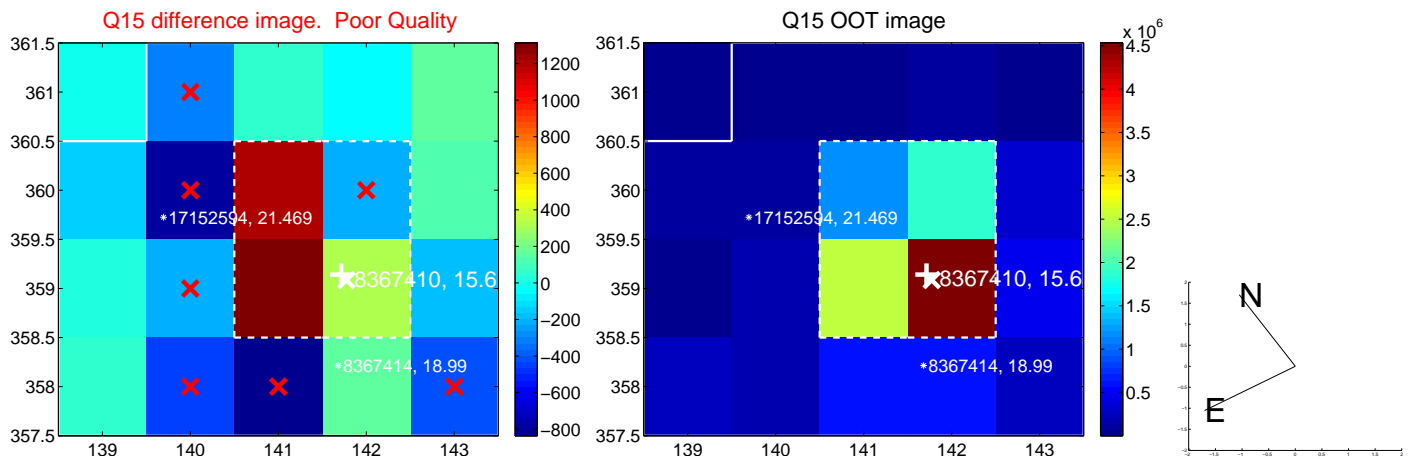
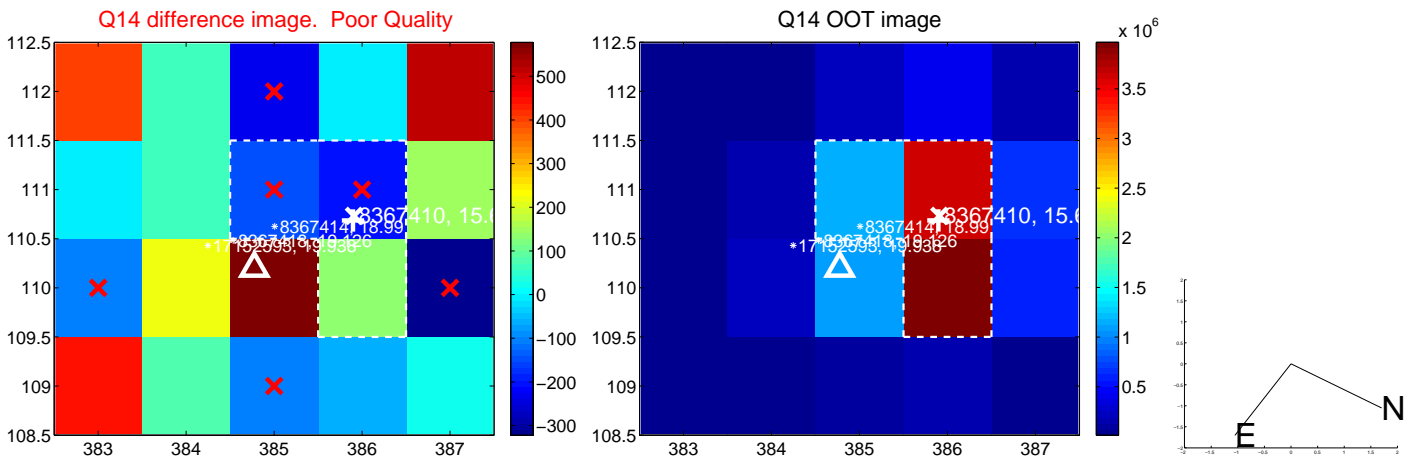
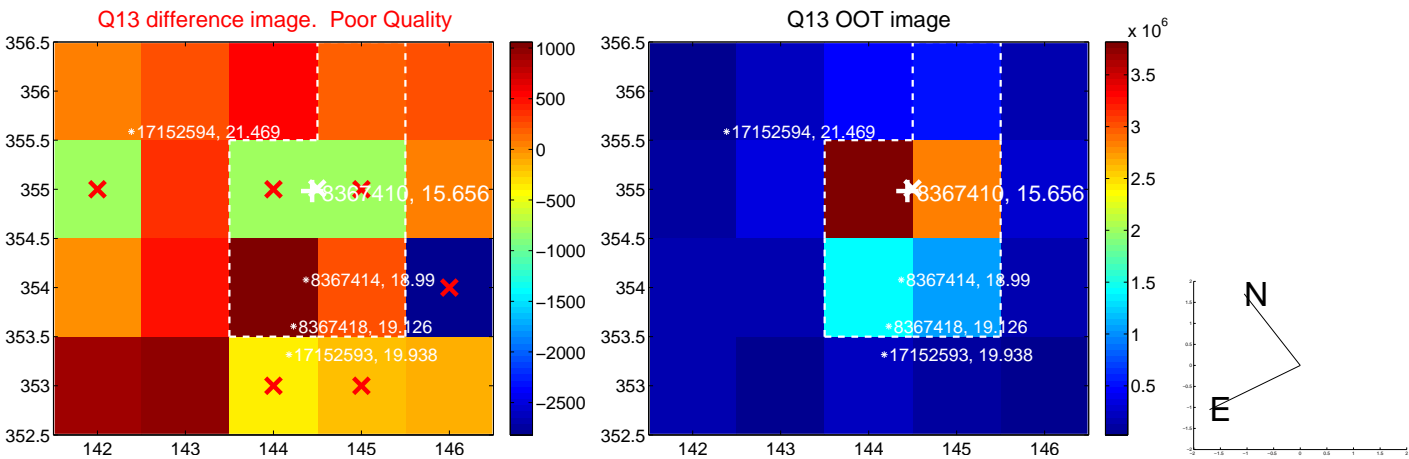
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



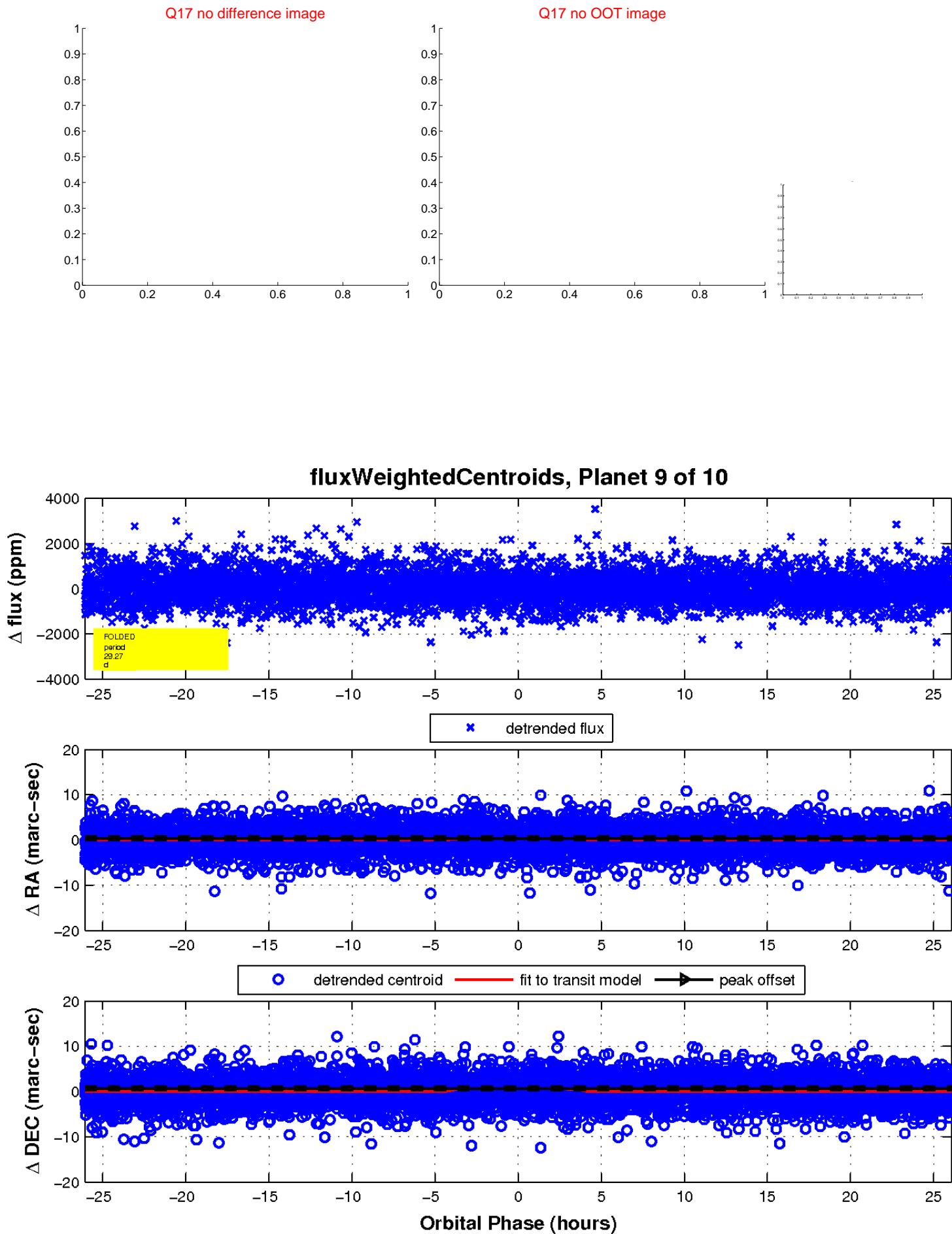
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

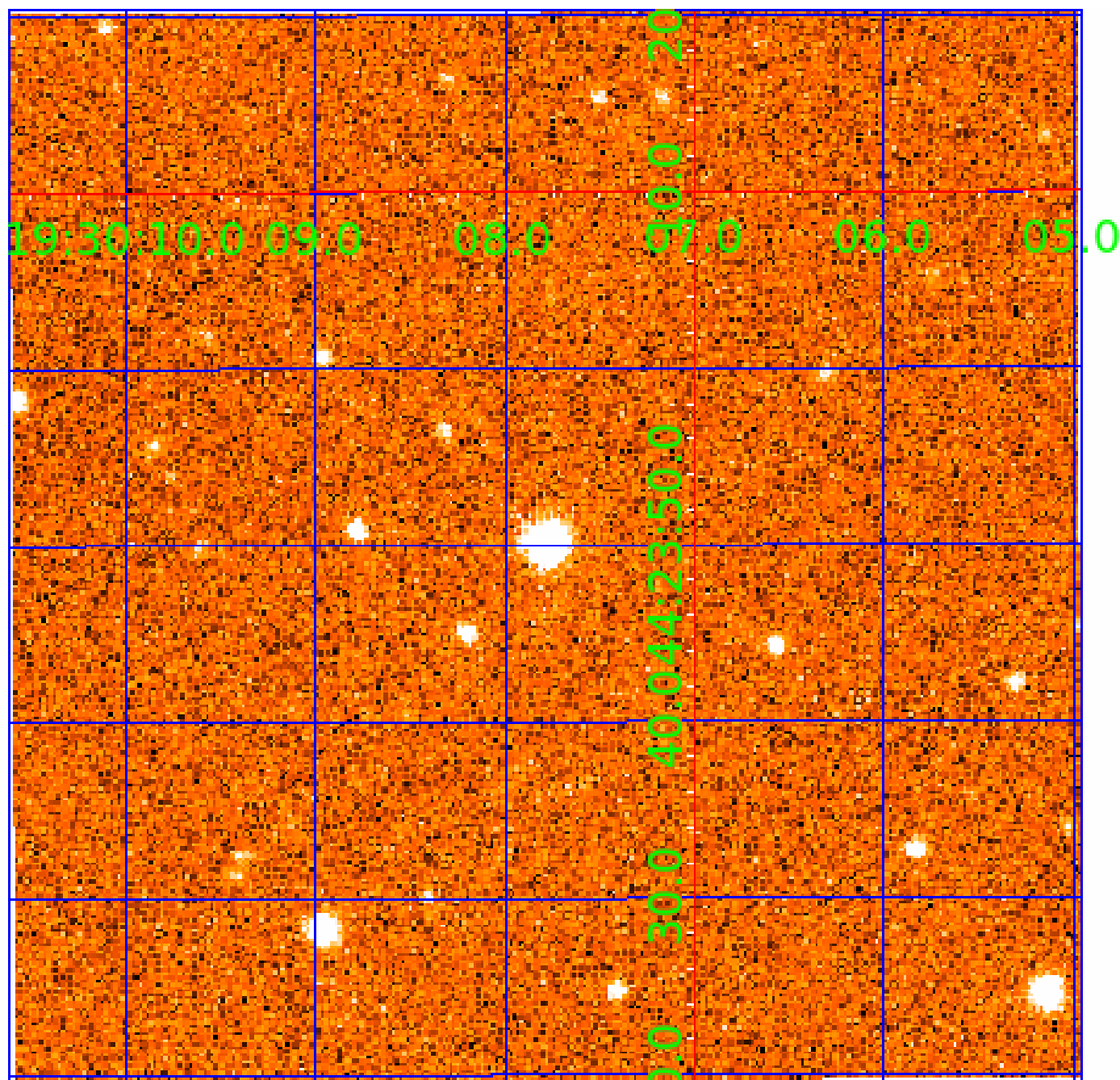


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008367410

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})
008367410-01	OBS	No	1.284101	131.713566	71.6	8.724	7.3	10.0	0.70	4402	0.66	397.03
008367410-04	OBS	No	31.732588	136.293707	232.5	7.679	14.3	3.3	0.70	4402	1.16	5.52
008367410-05	OBS	No	67.980089	149.377782	1019.4	5.822	13.5	9.8	0.70	4402	2.30	2.00
008367410-07	OBS	No	44.329621	156.488878	671.1	3.623	9.9	6.7	0.70	4402	2.27	3.53
008367410-08	OBS	No	19.791548	146.474216	803.1	2.527	10.2	8.7	0.70	4402	2.31	10.35
008367410-09	OBS	No	29.267988	156.314958	336.0	8.696	8.4	5.0	0.70	4402	1.54	6.14
008367410-10	OBS	No	151.560909	145.190516	1333.2	4.208	11.2	8.3	0.70	4402	2.66	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008367410-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008367410-04	OBS	FP	0.00	1	0	0	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—CENT_FEW_DIFFS
008367410-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008367410-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

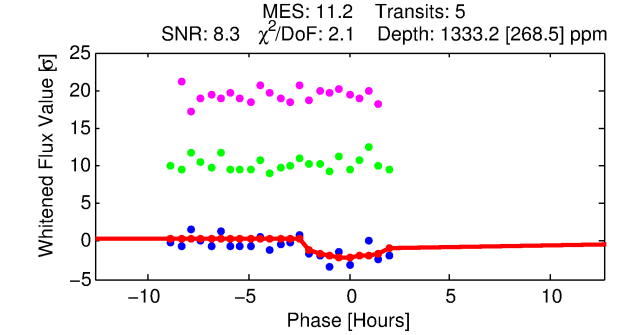
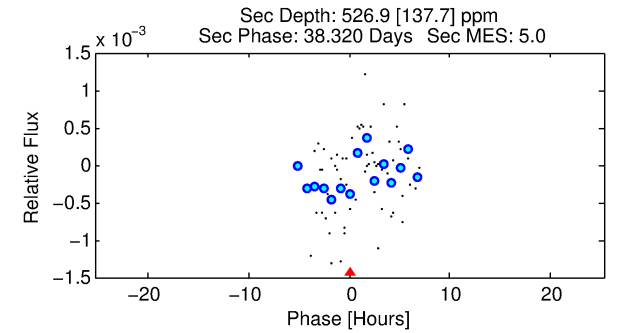
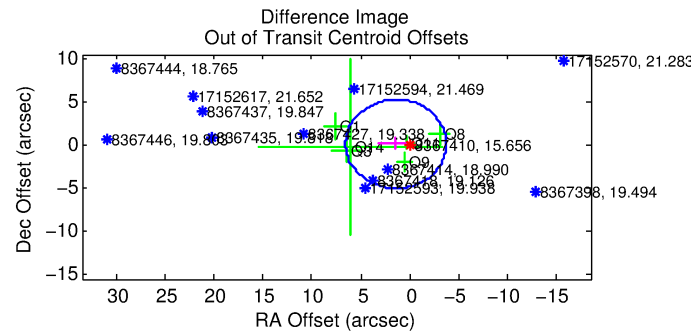
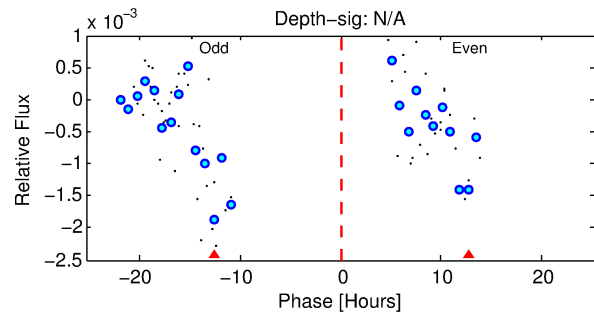
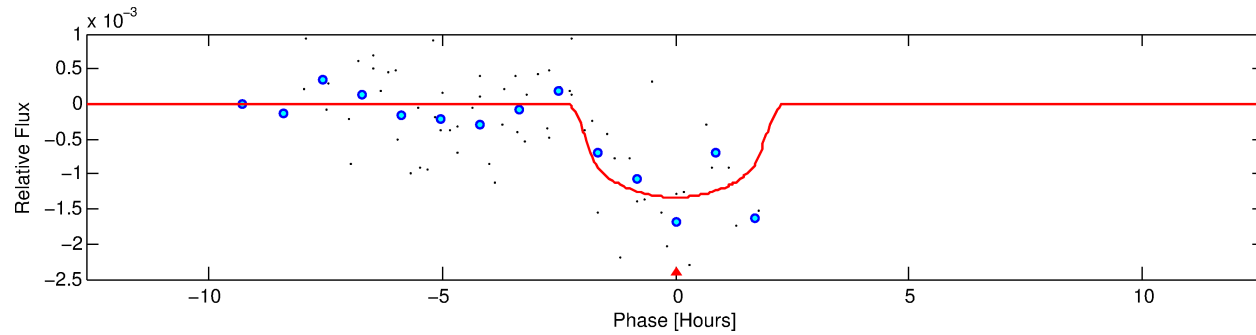
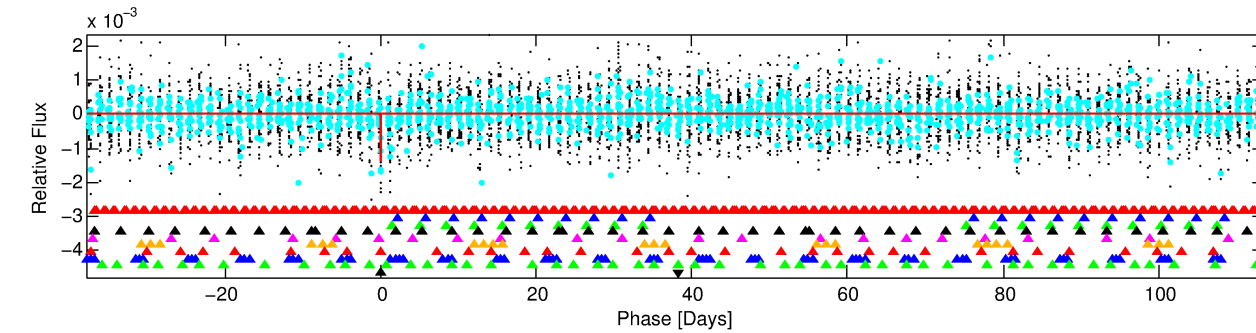
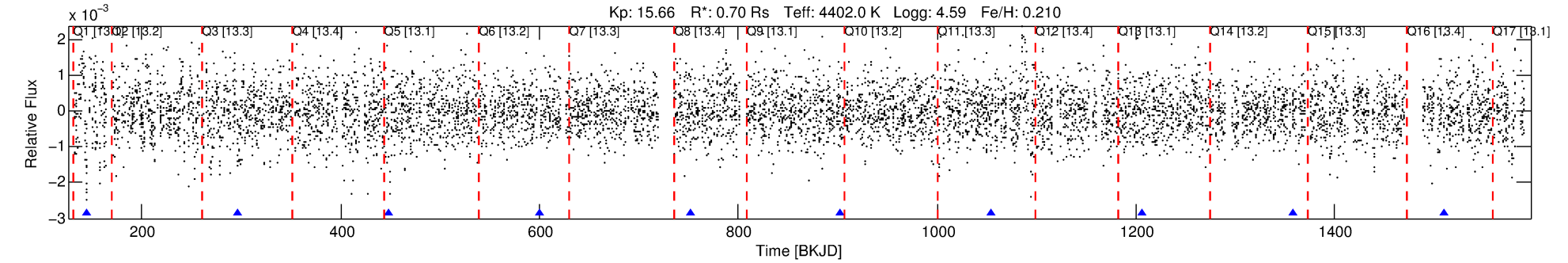
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008367410-10

No Significant Match Found

DV One-Page Summary

KIC: 8367410 Candidate: 10 of 10 Period: 151.561 d



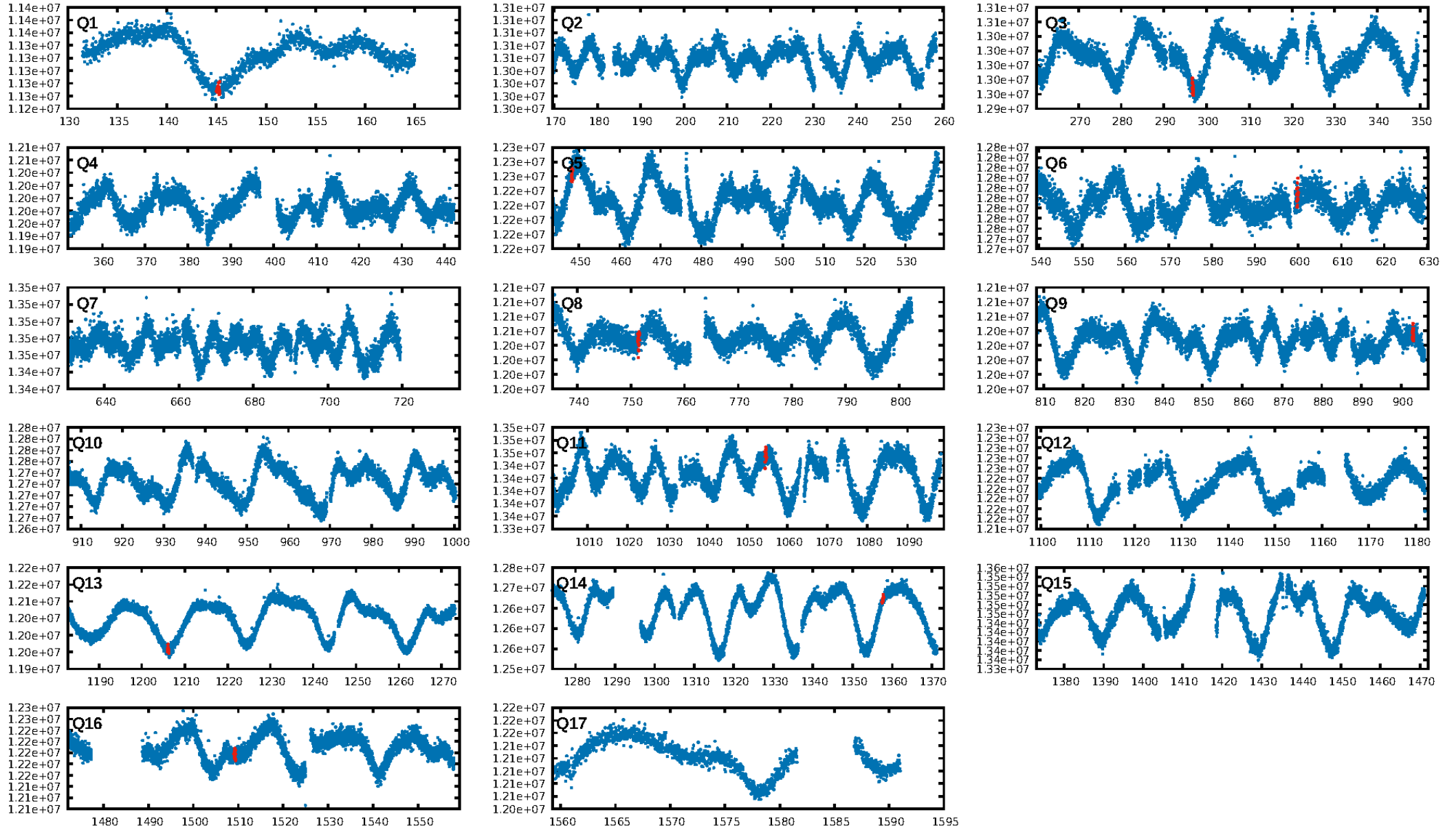
DV Fit Results:

Period = 151.56091 [0.00605] d
Epoch = 145.1905 [0.0112] BKJD
Rp/R* = 0.0346 [0.0540]
a/R* = 228.06 [1022.22]
b = 0.62 [4.59]
Seff = 0.69 [0.11]
Teq = 232 [9] K
Rp = 2.66 [4.16] Re
a = 0.4938 [0.0339] AU
Ag = 9974.72 [31229.86] [0.32] σ
Teffp = 3585 [2807] K [1.19] σ

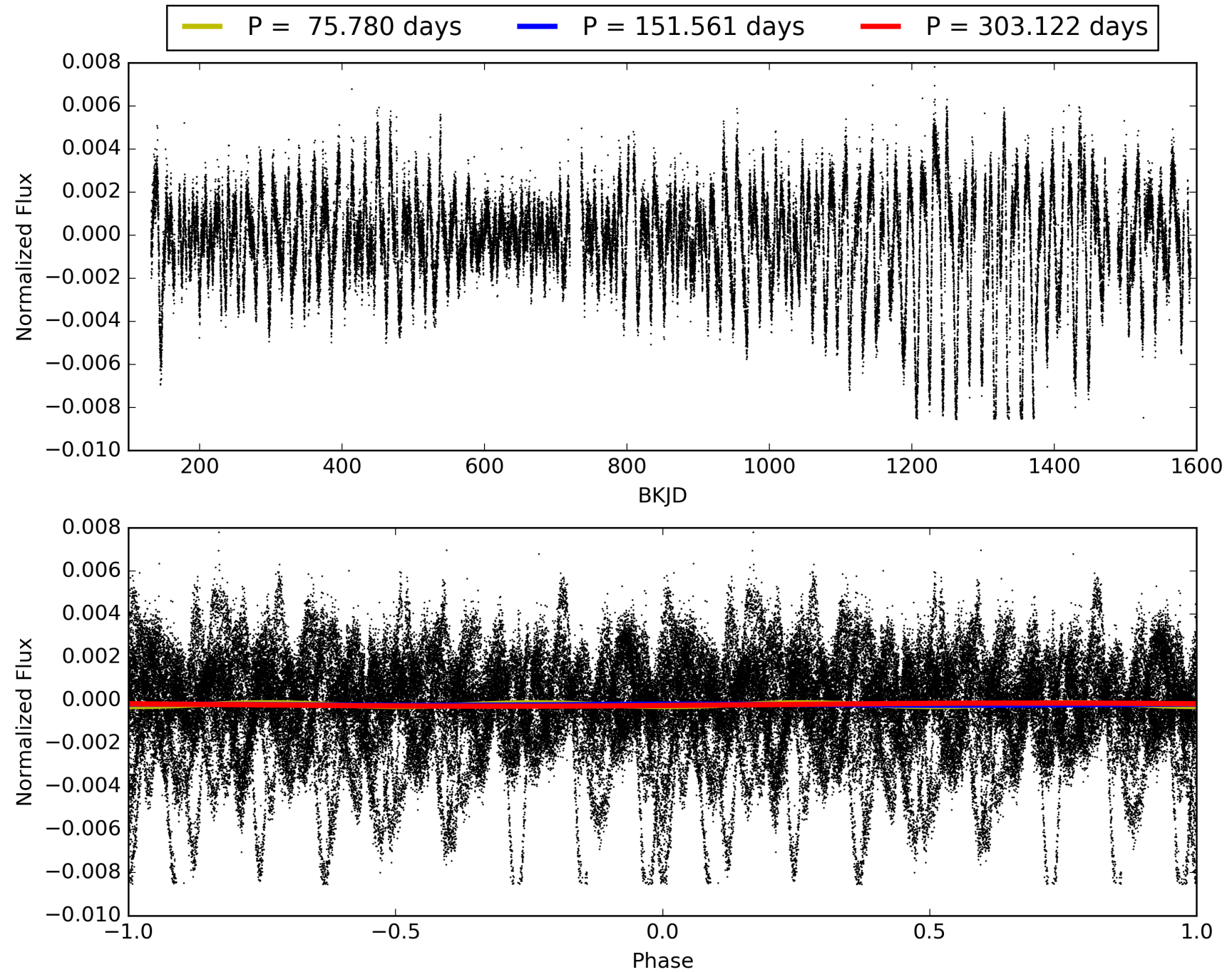
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [308.40] σ
LongPeriod-sig: N/A
ModelChiSquare2-sig: 29.3%
ModelChiSquareGof-sig: 91.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.111
Centroid-sig: 70.6%
Centroid-so: 0.185 arcsec [0.21] σ
OotOffset-rm: 1.433 arcsec [0.84] σ
KicOffset-rm: 1.644 arcsec [0.90] σ
OotOffset-st: 1/2/1/2 [6]
KicOffset-st: 1/2/1/2 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.25 [2/8]

TCE 008367410-10, PDC Light Curves

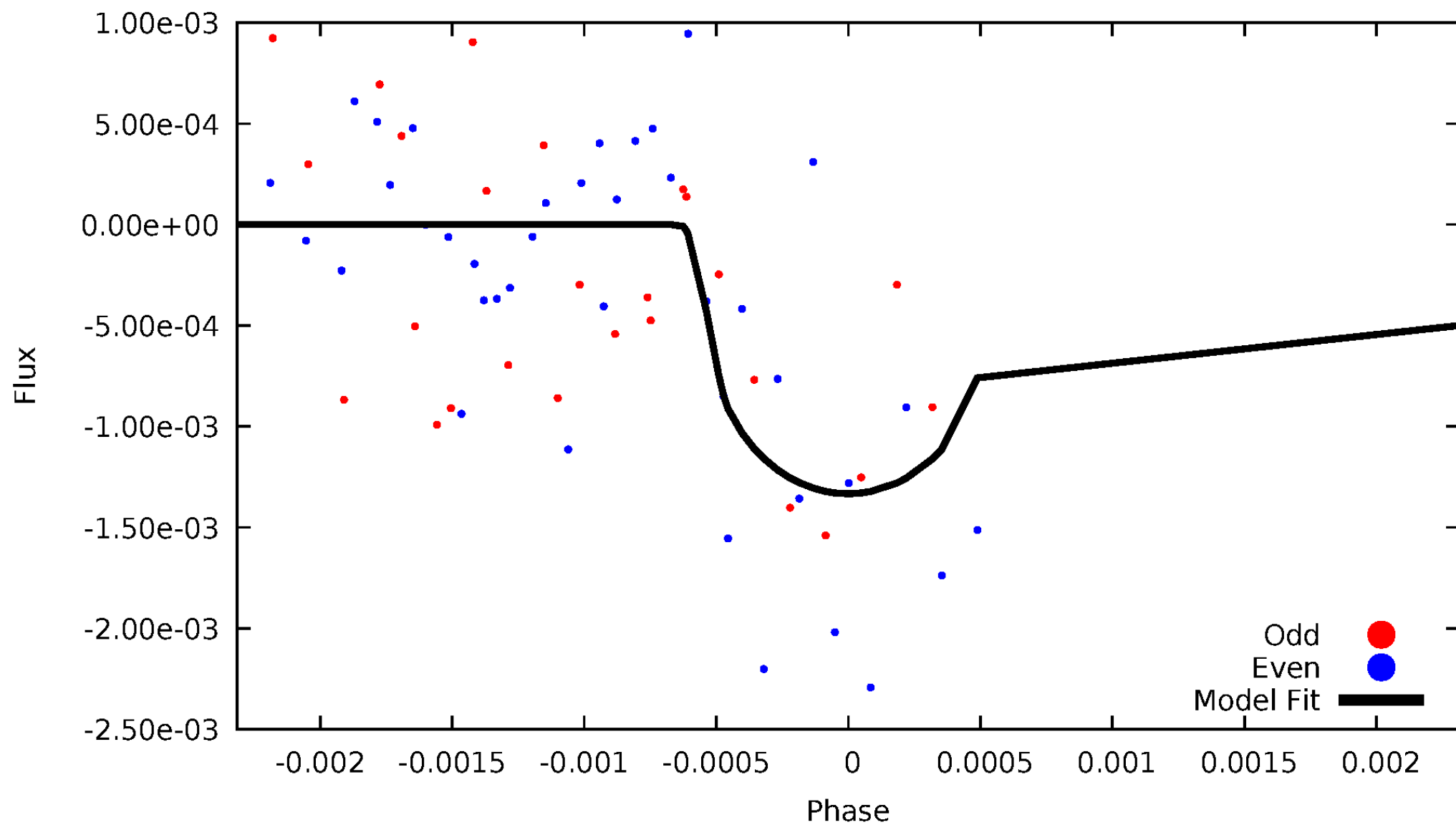


TCE 008367410-10



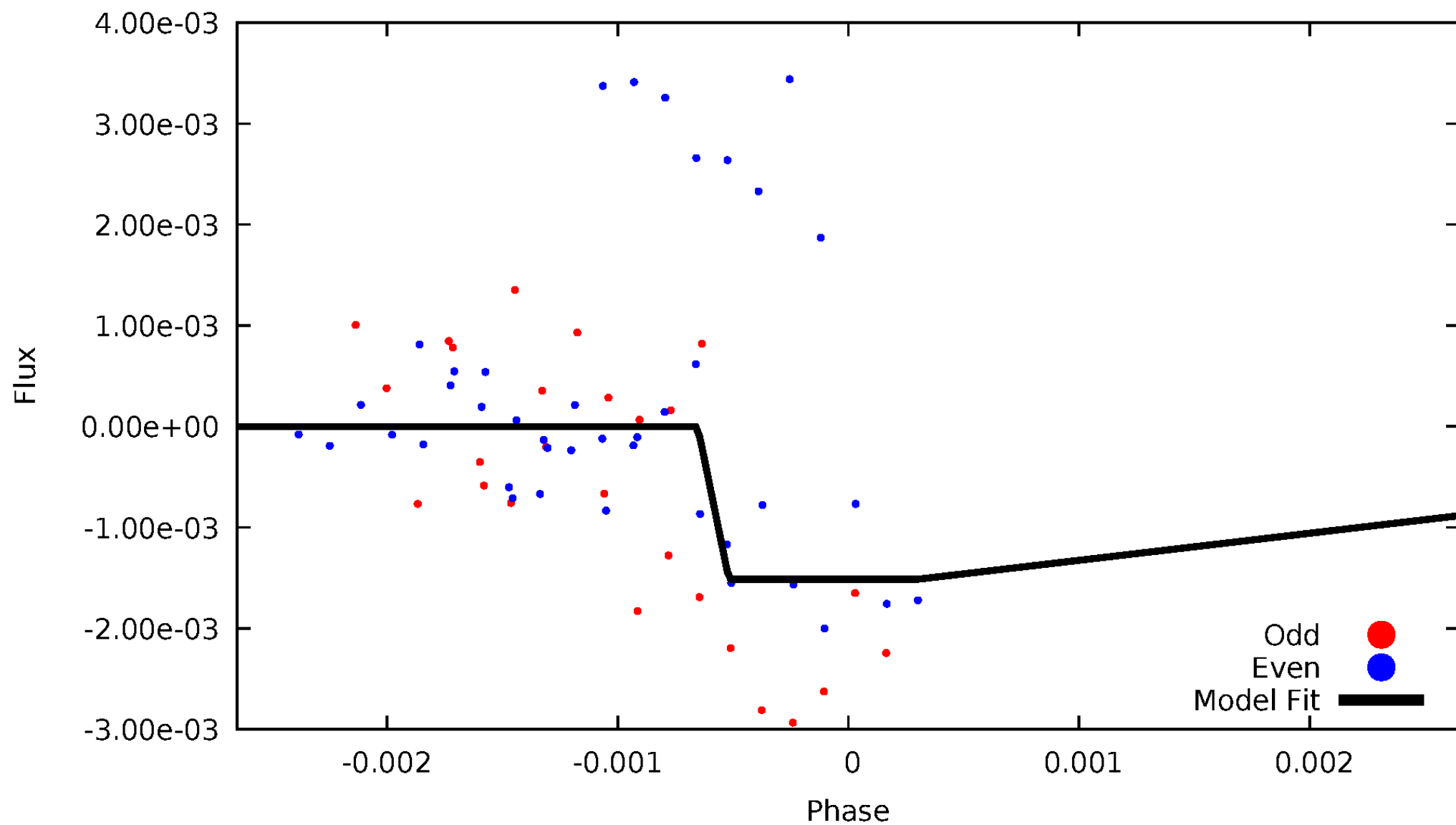
DV Odd/Even

TCE 008367410-10



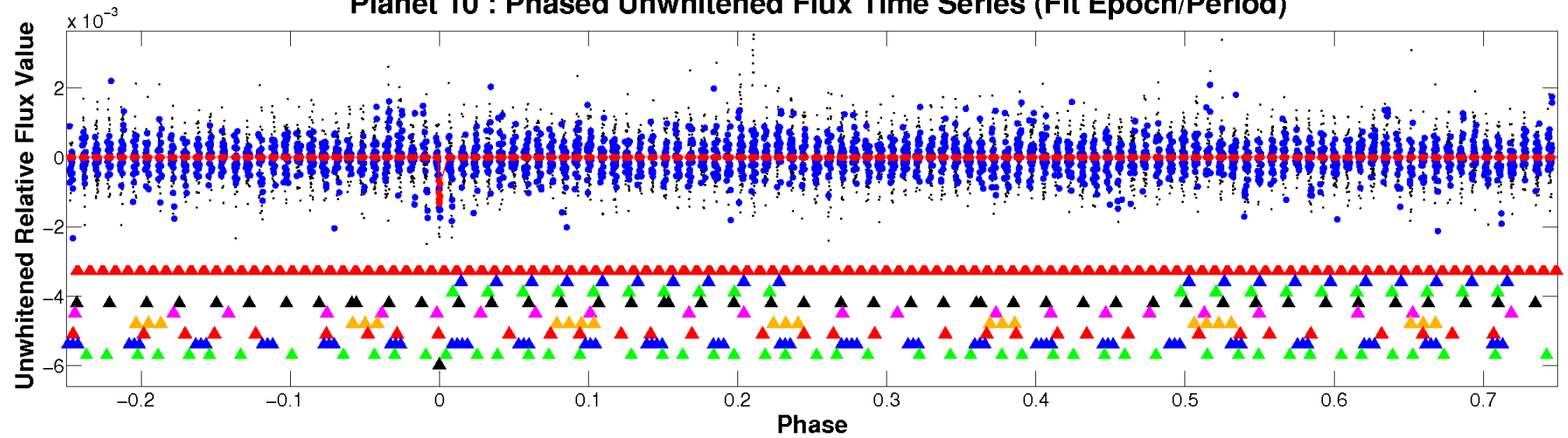
ALT Odd/Even

TCE 008367410-10

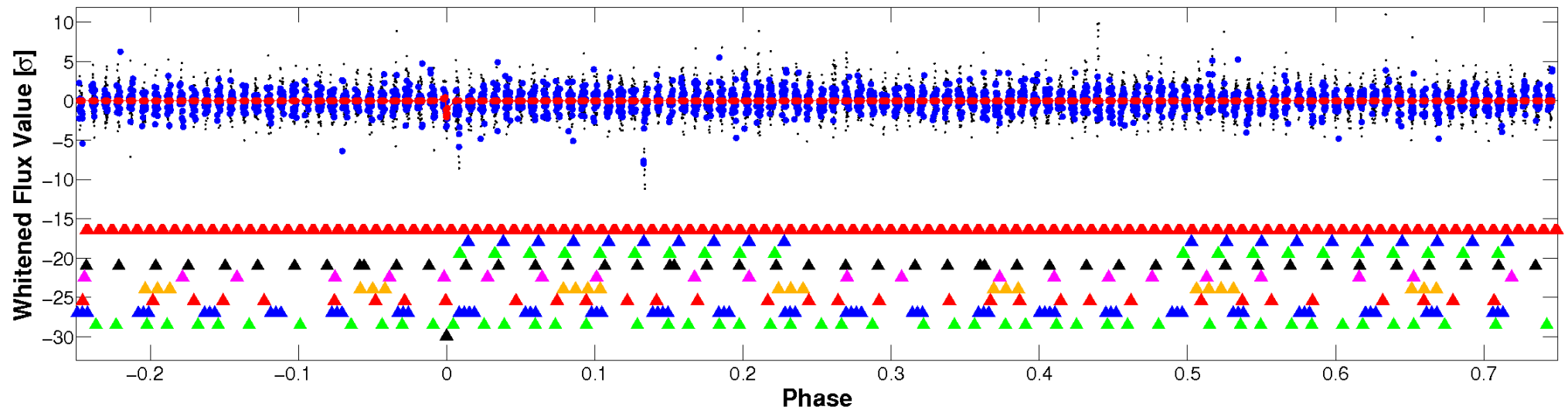


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

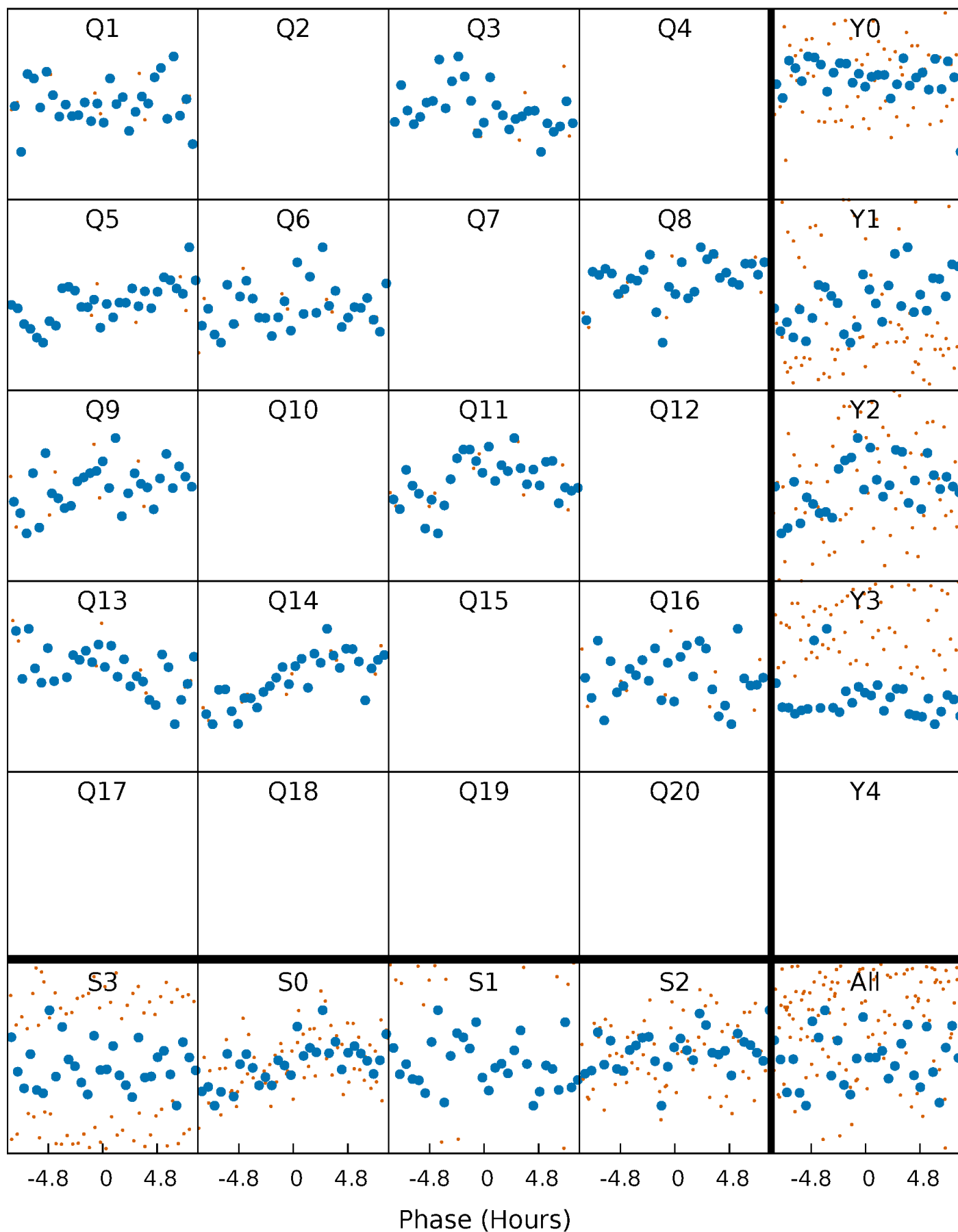


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



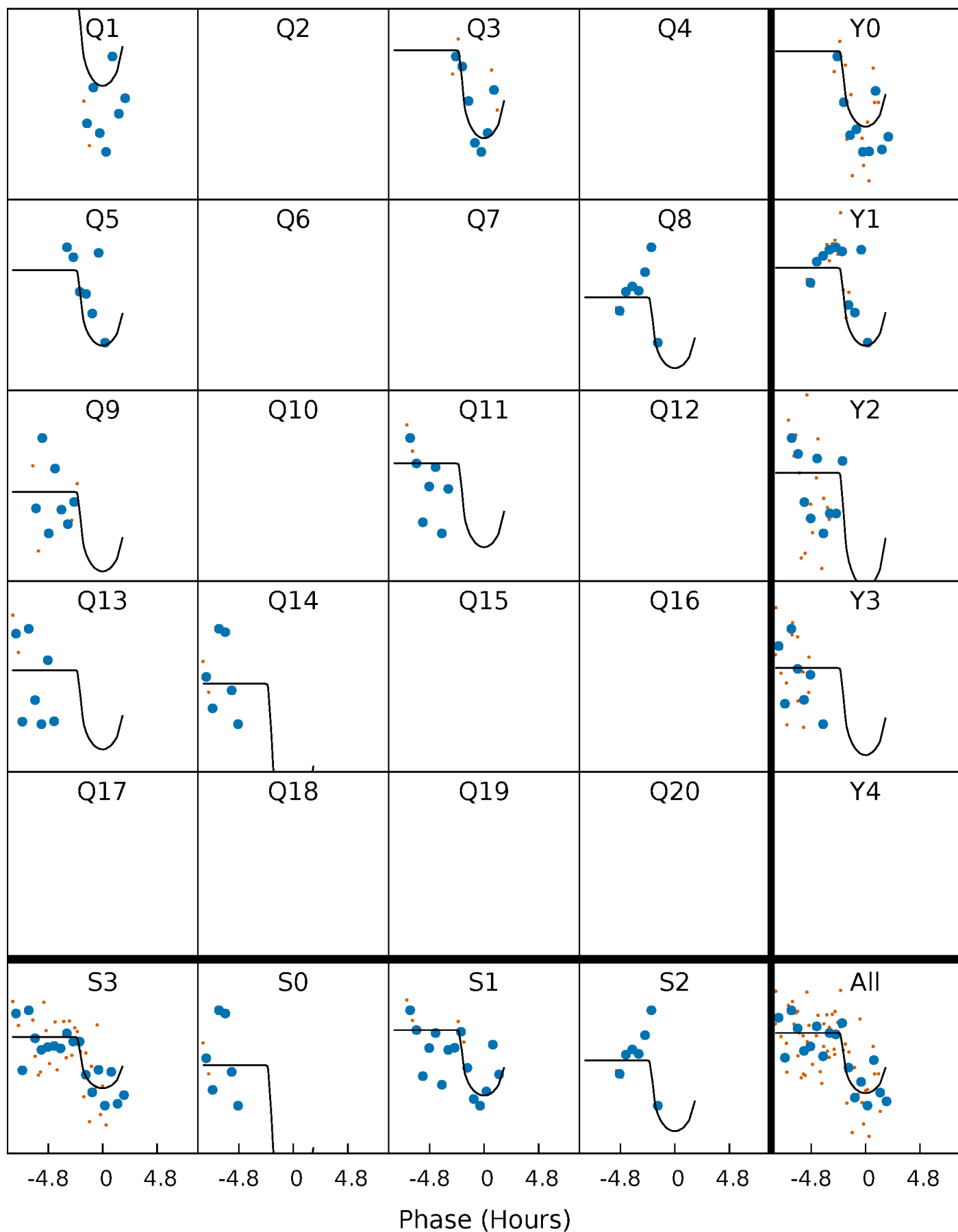
PDC Quarter-Phased Transit Curves

TCE 008367410-10 P=151.560909 Days $T_0=145.190516$ (BKJD)



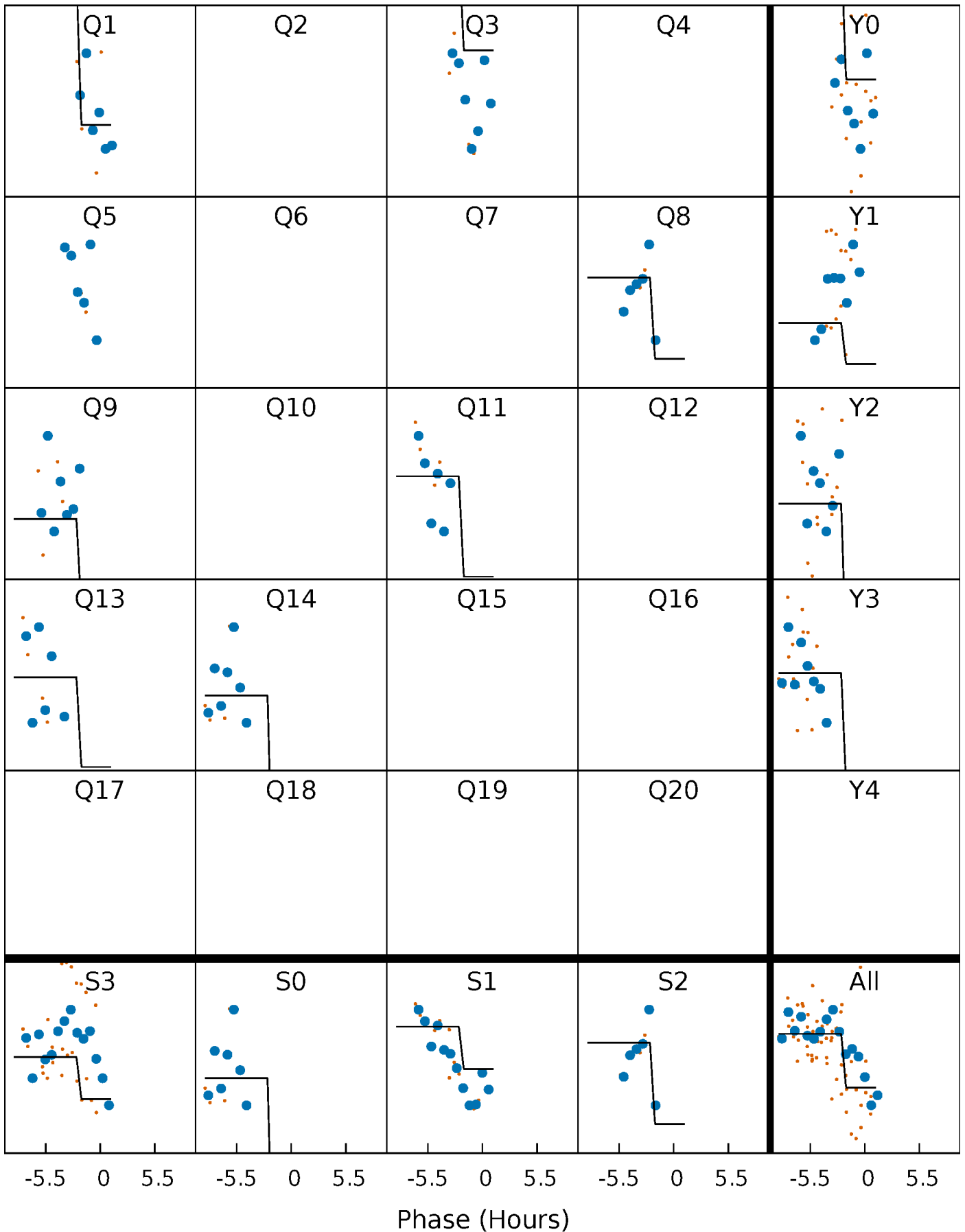
DV Quarter-Phased Transit Curves

TCE 008367410-10 $P=151.560909$ Days $T_0=145.190516$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

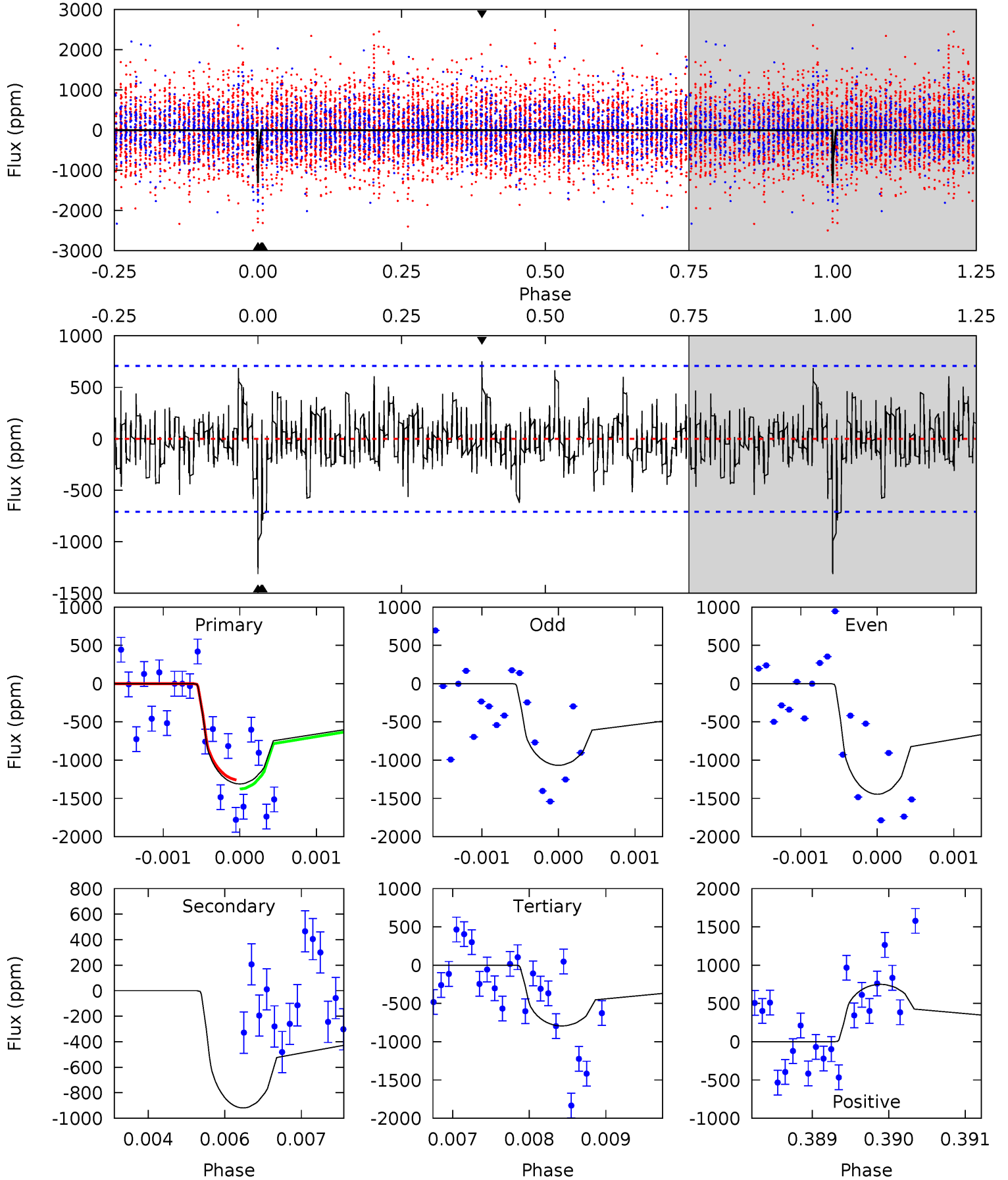
TCE 008367410-10 P=151.555910 Days $T_0=145.218877$ (BKJD)



DV Model-Shift Uniqueness Test

008367410-10, P = 151.560909 Days, E = 145.190516 Days

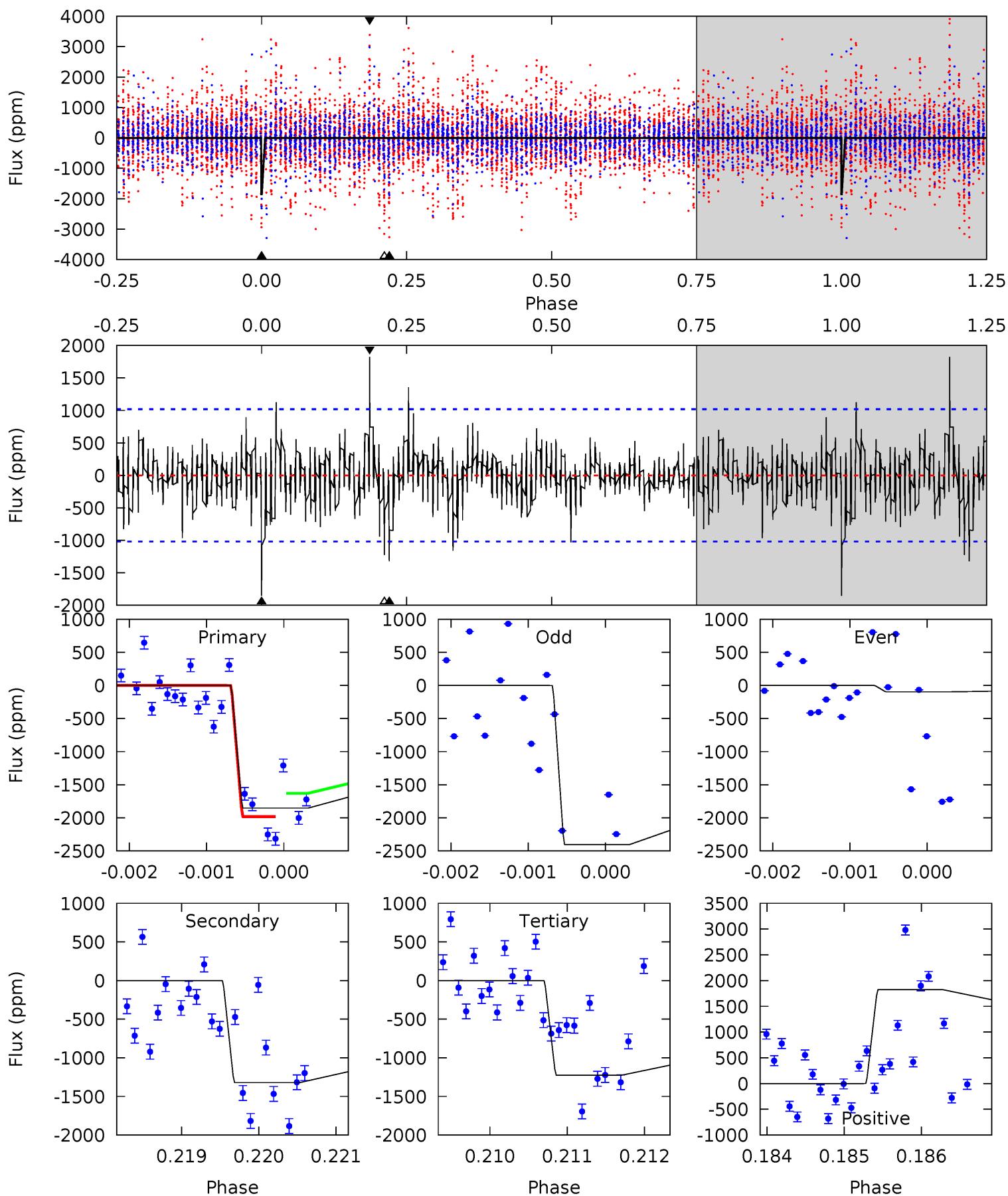
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	7.05	6.09	5.75	5.43	3.26	1.42	3.97	4.31	0.96	1.30	1.41	1.05	0.36	0.42



Alt Model-Shift Uniqueness Test

008367410-10, P = 151.555910 Days, E = 145.218877 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.93	7.08	6.57	9.77	5.46	3.30	1.50	3.36	0.16	0.51	-2.69	6.47	0.47	0.50	0.79



Stellar Parameters For KIC 008367410

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4402^{+132}_{-132}	$4.586^{+0.052}_{-0.016}$	$0.210^{+0.200}_{-0.300}$	$0.705^{+0.029}_{-0.059}$	$0.699^{+0.050}_{-0.050}$	$2.804^{+0.643}_{-0.186}$
	+3%/-3%	+1%/-0%	+95%/-143%	+4%/-8%	+7%/-7%	+23%/-7%
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 008367410-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-919 ± 130	$4.09^{+3.21}_{-2.63}$	322^{+11}_{-11}	3620^{+1778}_{-590}	7216^{+51844}_{-4895}
Alt.	-1321 ± 187	$4.42^{+3.54}_{-2.94}$	321^{+11}_{-11}	3710^{+2027}_{-606}	9360^{+71792}_{-6449}

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

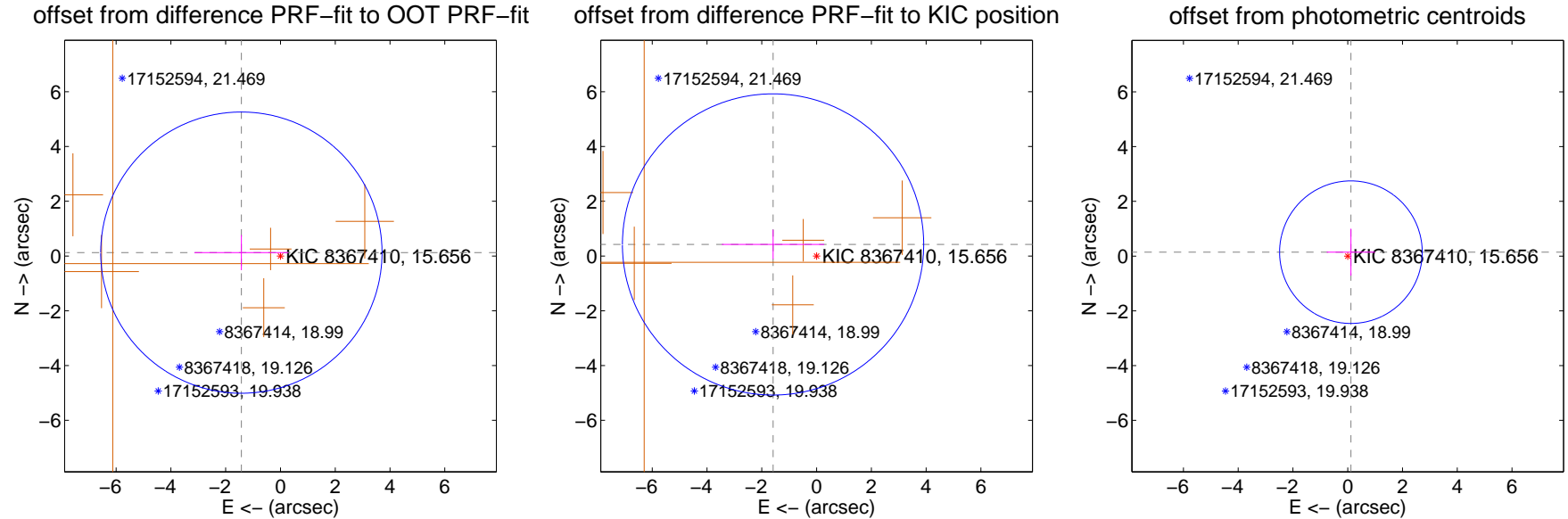
DV Centroid Data

Supplemental centroid analysis for 008367410-10. Kepler magnitude: 15.66. Transit SNR 8.32

There are 0 quarters with good PRF difference image offsets

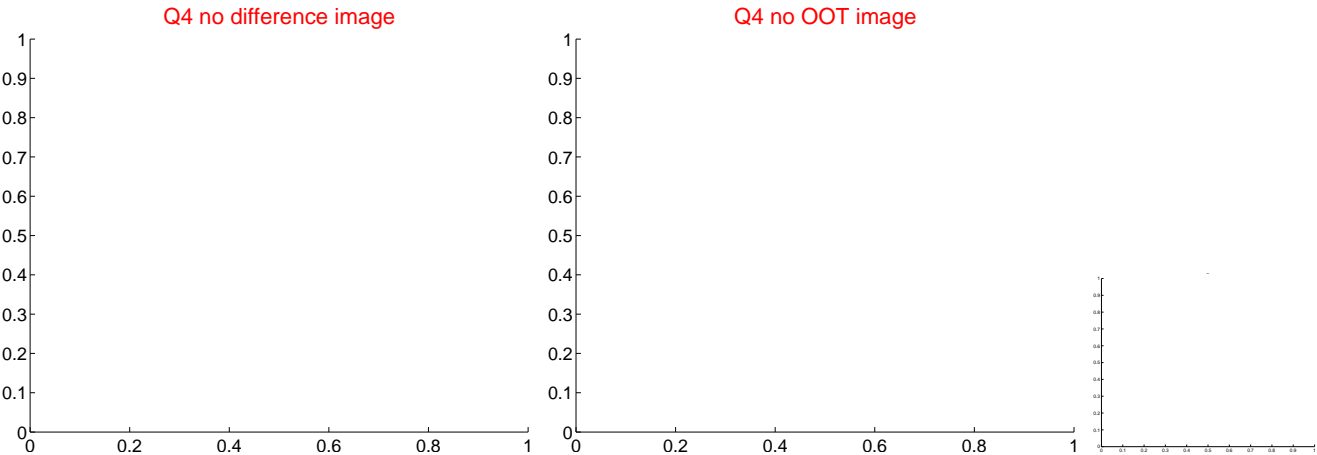
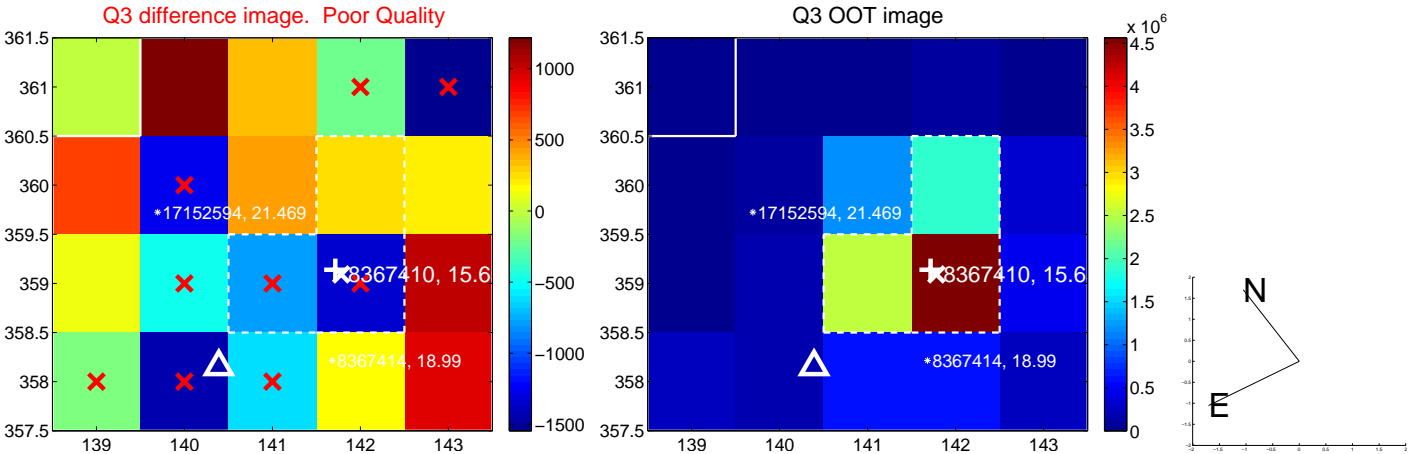
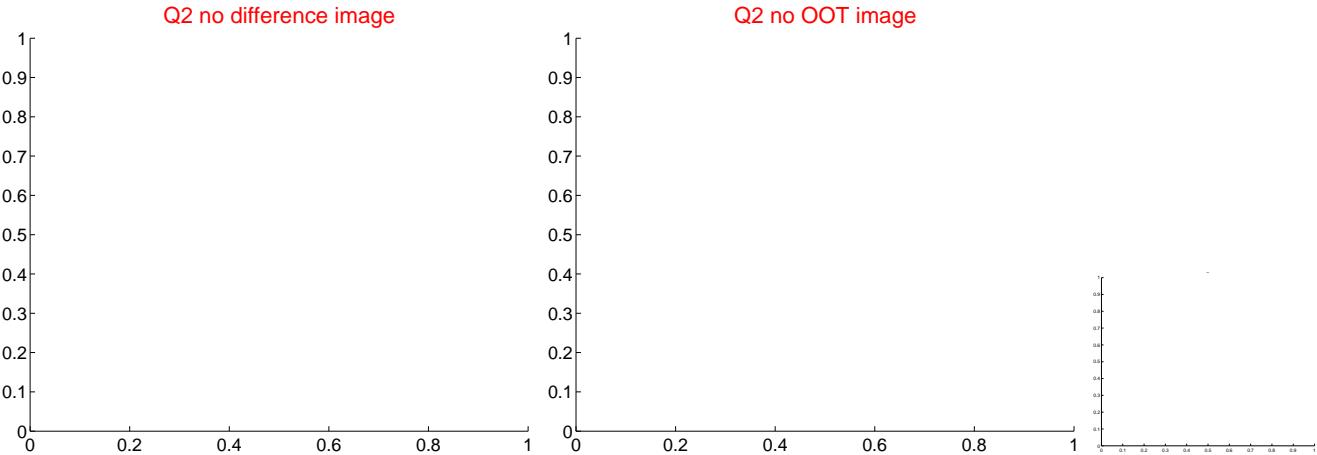
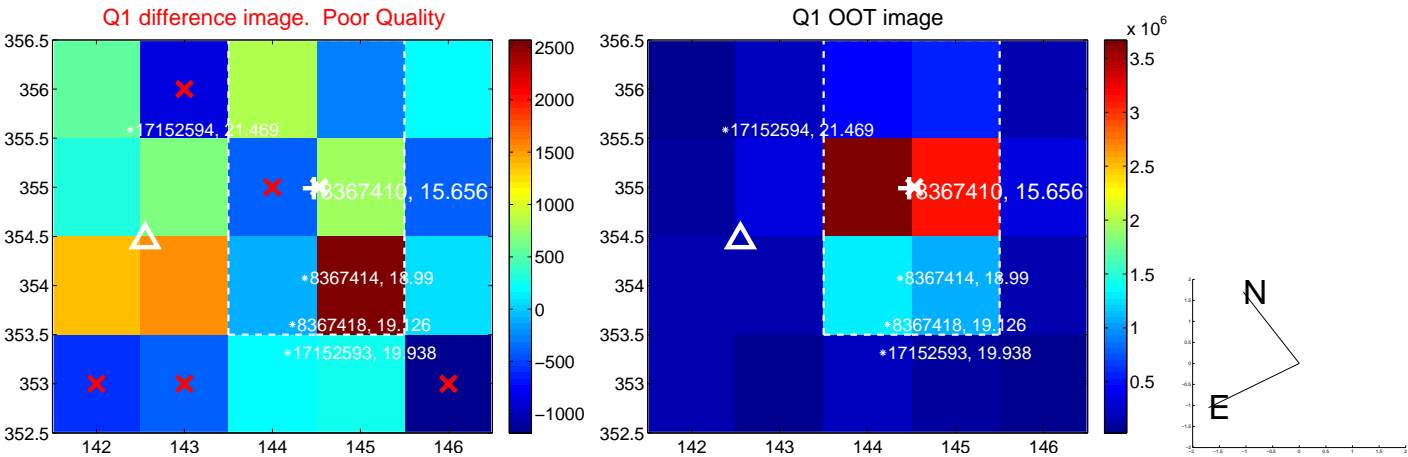
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.433 ± 1.712	0.84	1.427 ± 1.718	0.124 ± 0.642
PRF-fit source offset from KIC position	1.644 ± 1.834	0.90	1.589 ± 1.868	0.423 ± 0.538
photometric centroid source offset	0.18 ± 0.87	0.21	-0.12 ± 0.88	0.14 ± 0.86

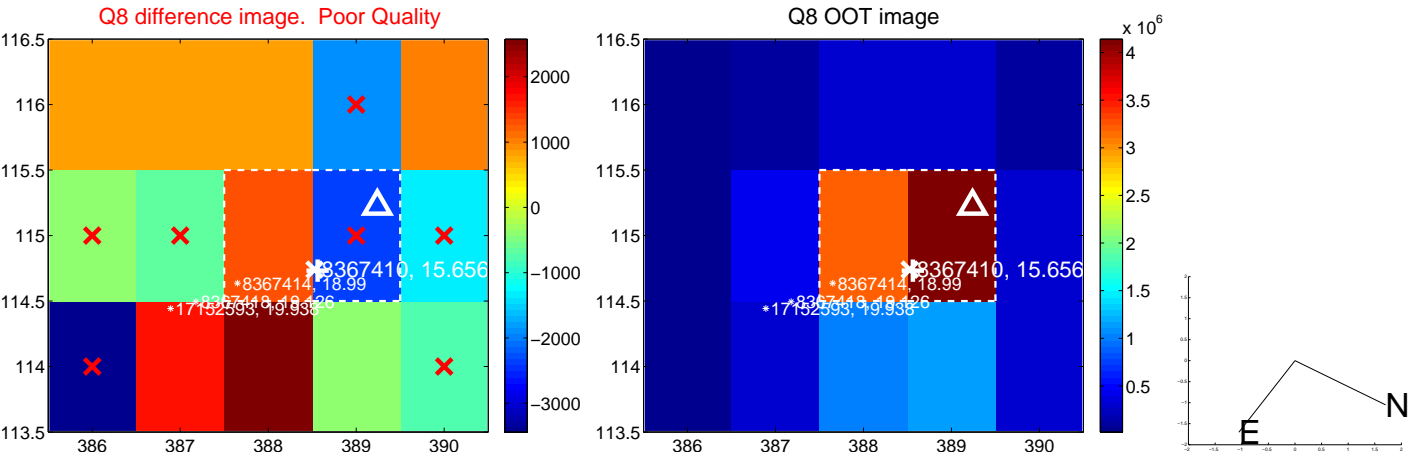
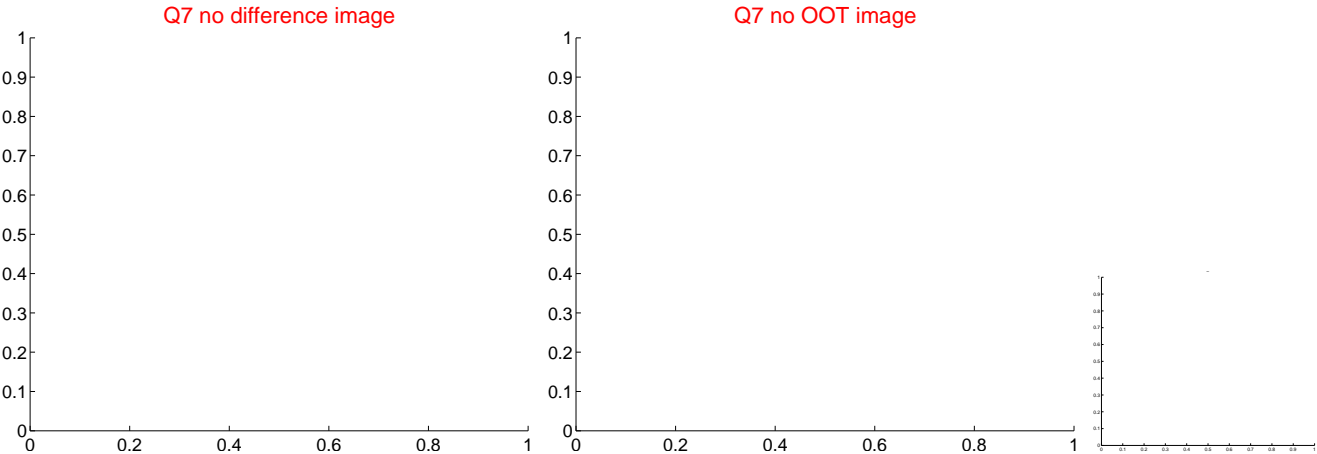
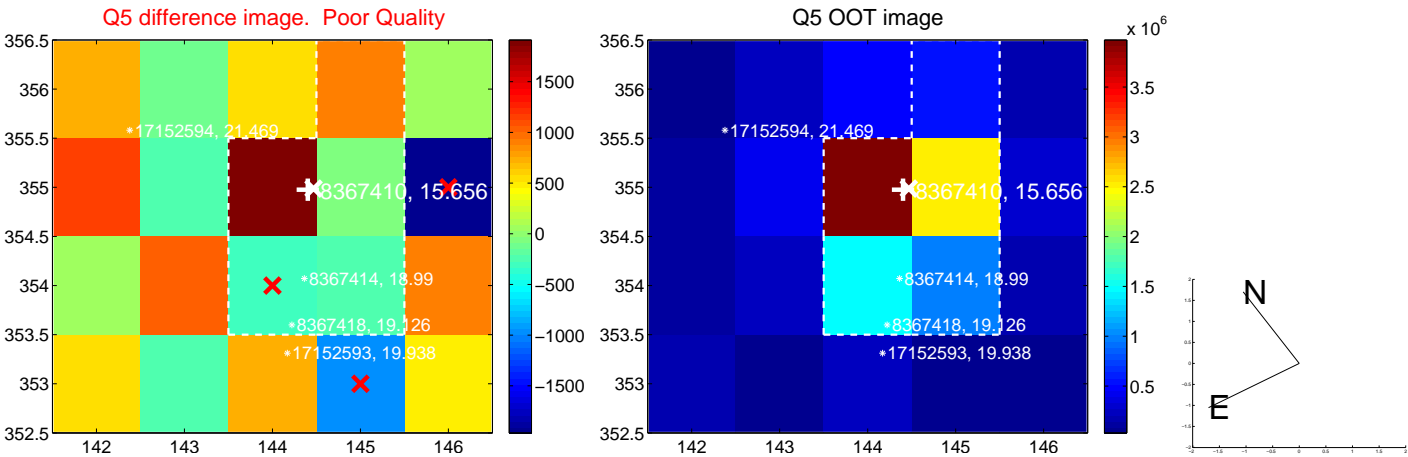


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

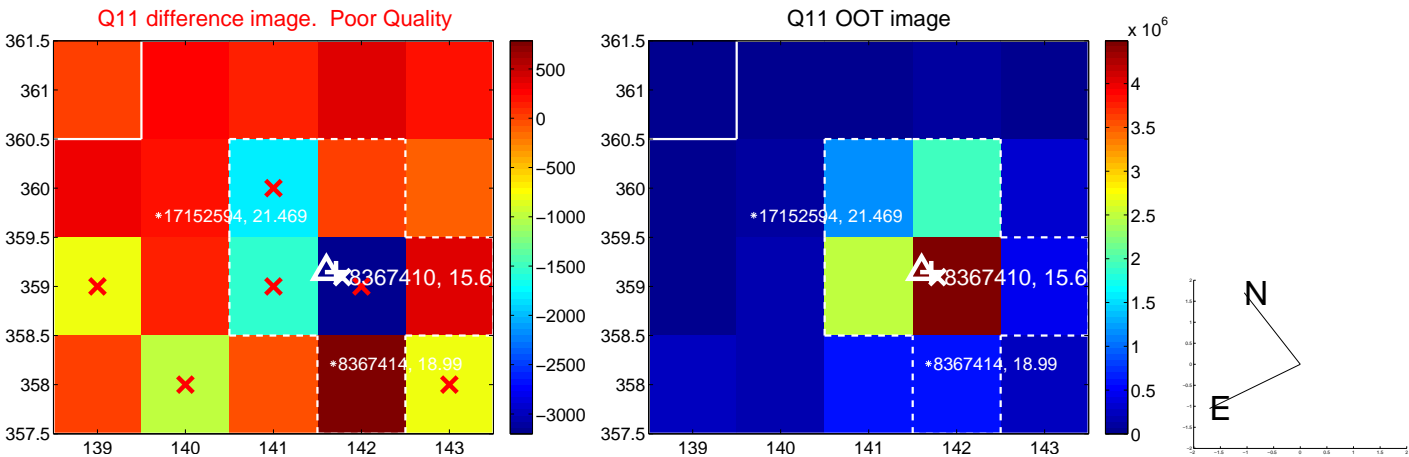
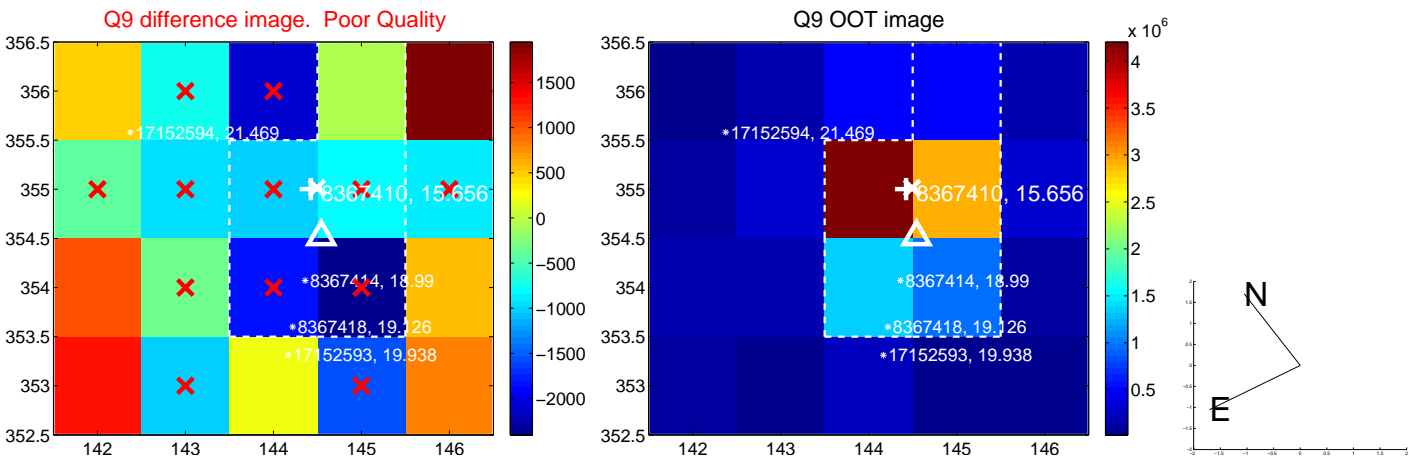
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



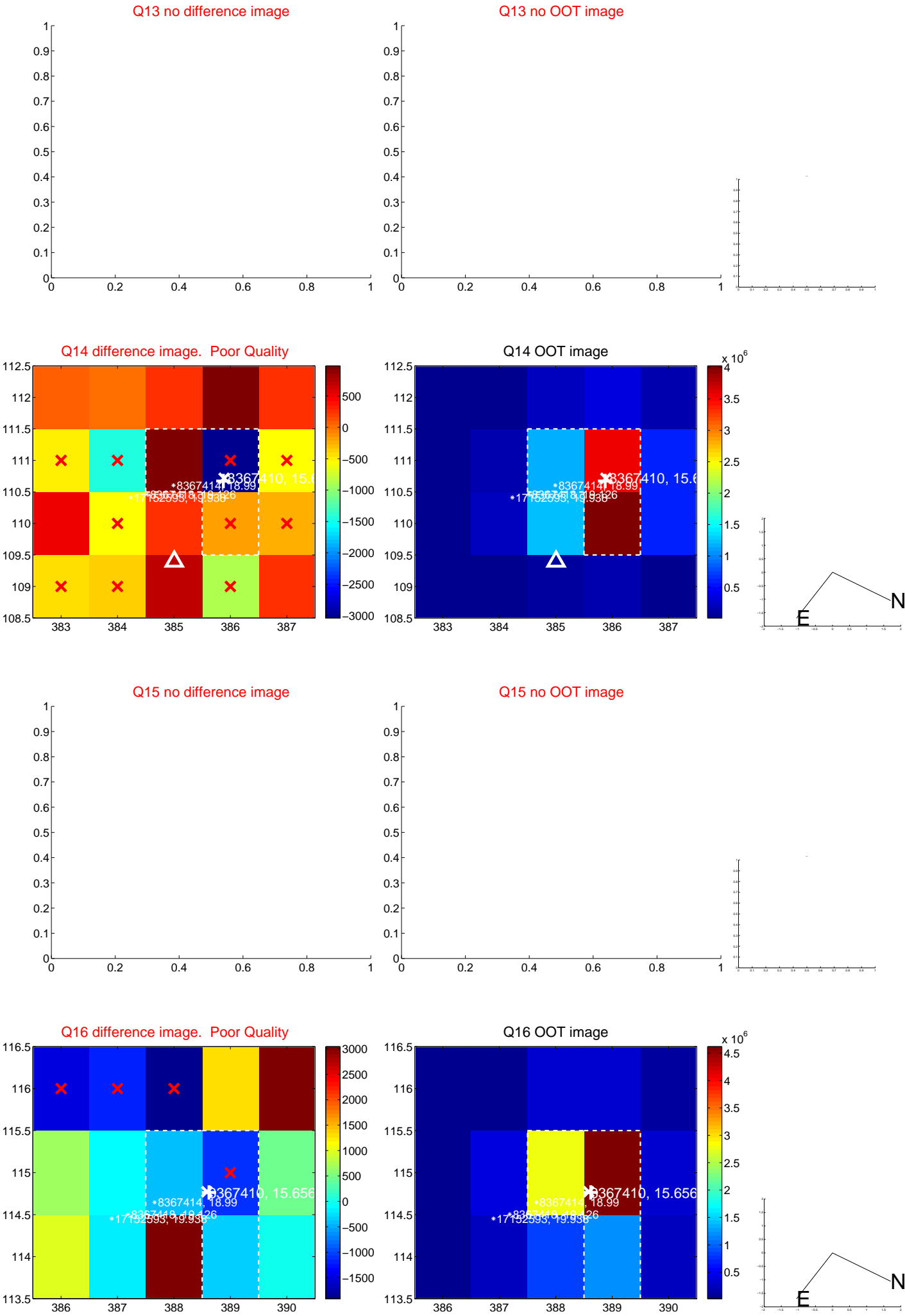
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



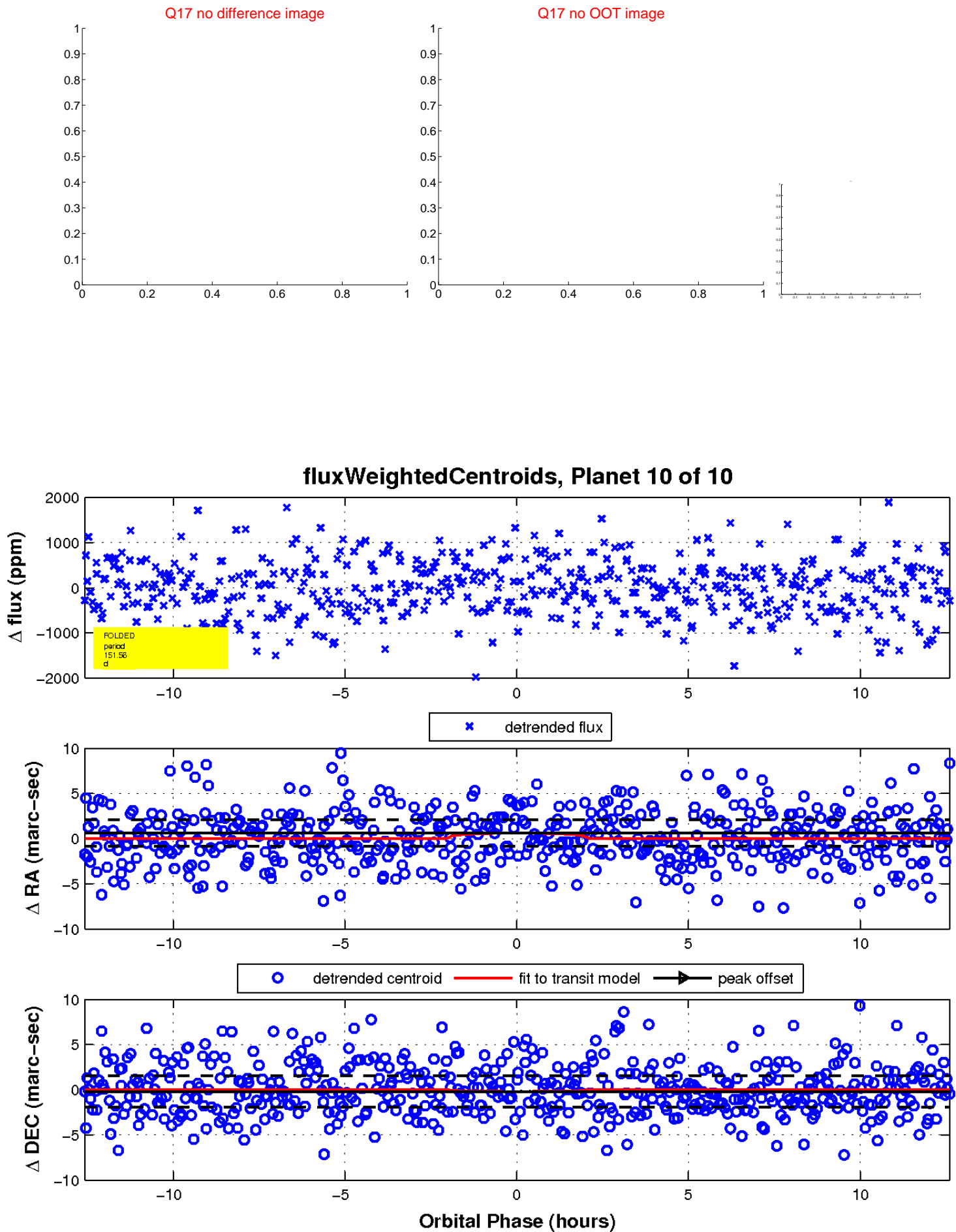
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

