

KIC 005392413

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})
005392413-01	OBS	No	1.410853	132.941643	48.1	8.626	8.6	8.2	0.98	6687	0.69	2721.05
005392413-02	OBS	No	100.099511	135.128892	709.9	4.501	9.7	8.9	0.98	6687	2.88	9.26
005392413-03	OBS	No	33.115975	136.924915	594.7	4.393	9.4	9.9	0.98	6687	2.65	40.49
005392413-04	OBS	No	58.436391	141.988134	621.4	4.363	9.2	10.3	0.98	6687	2.72	18.99
005392413-05	OBS	No	105.409286	150.470111	734.6	3.211	8.4	8.7	0.98	6687	3.00	8.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005392413-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005392413-02	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
005392413-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005392413-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005392413-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

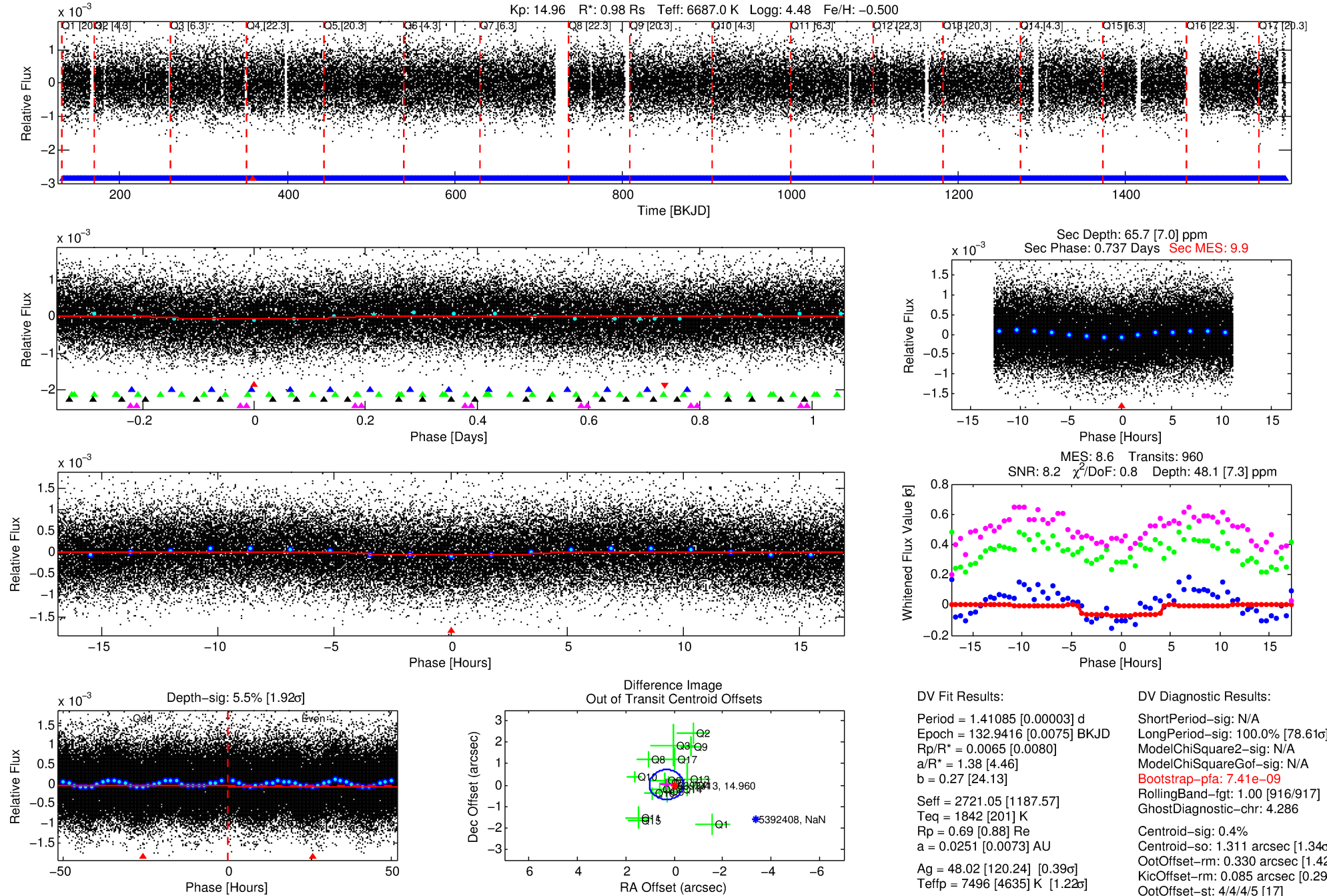
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005392413-01

No Significant Match Found

DV One-Page Summary

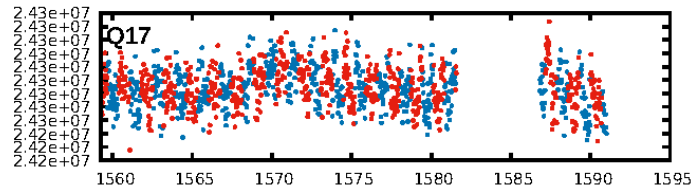
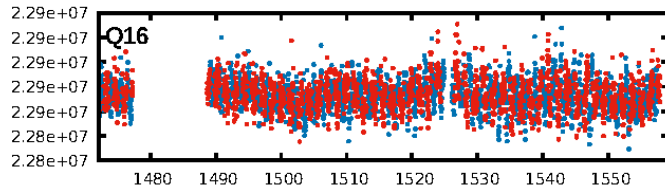
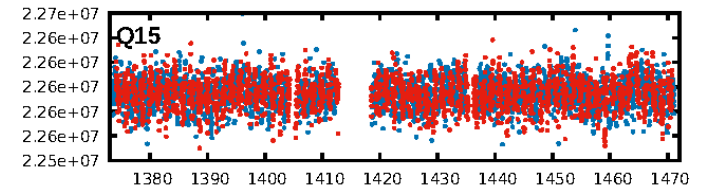
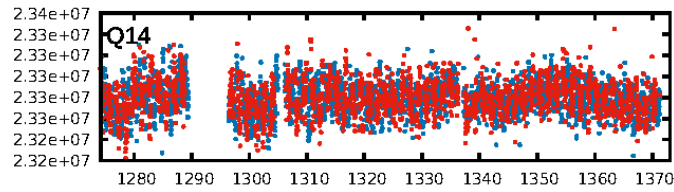
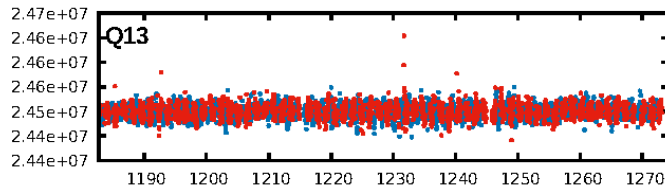
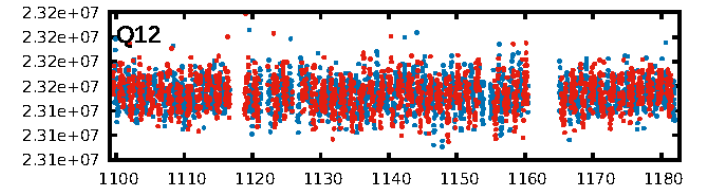
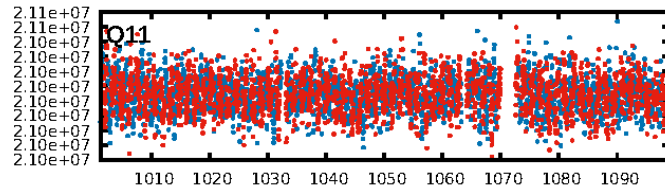
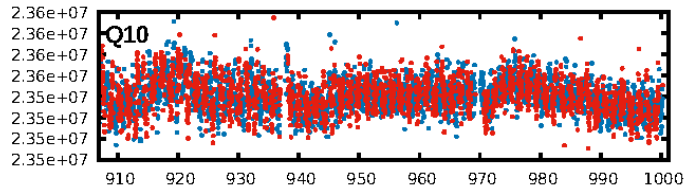
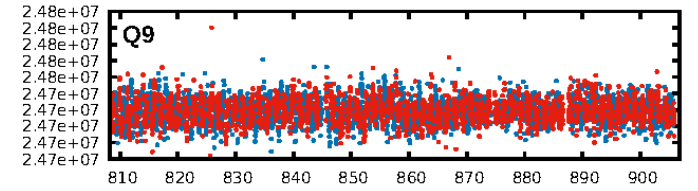
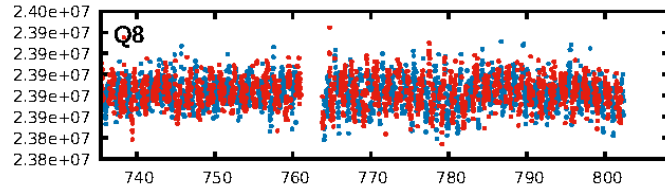
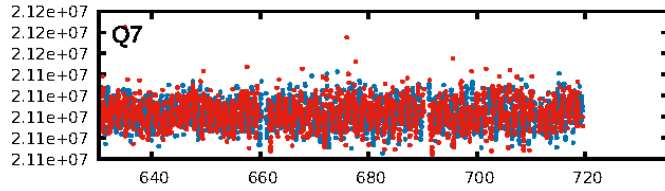
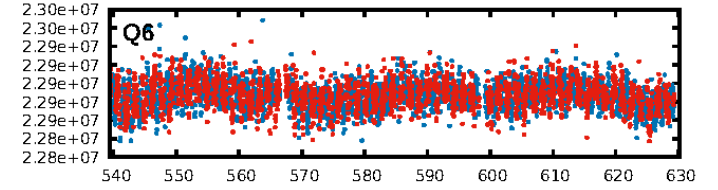
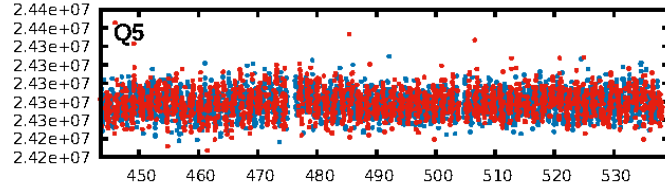
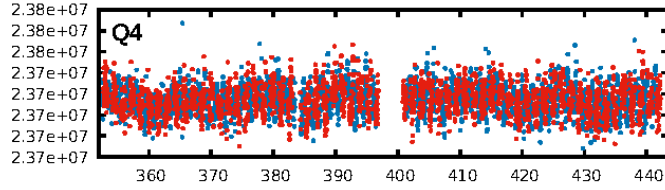
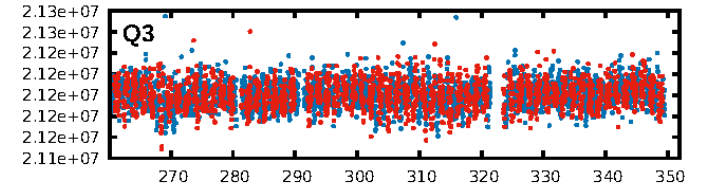
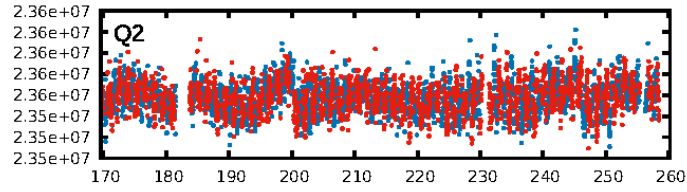
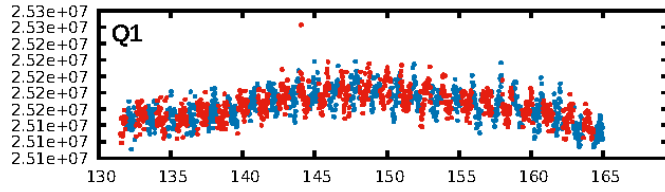
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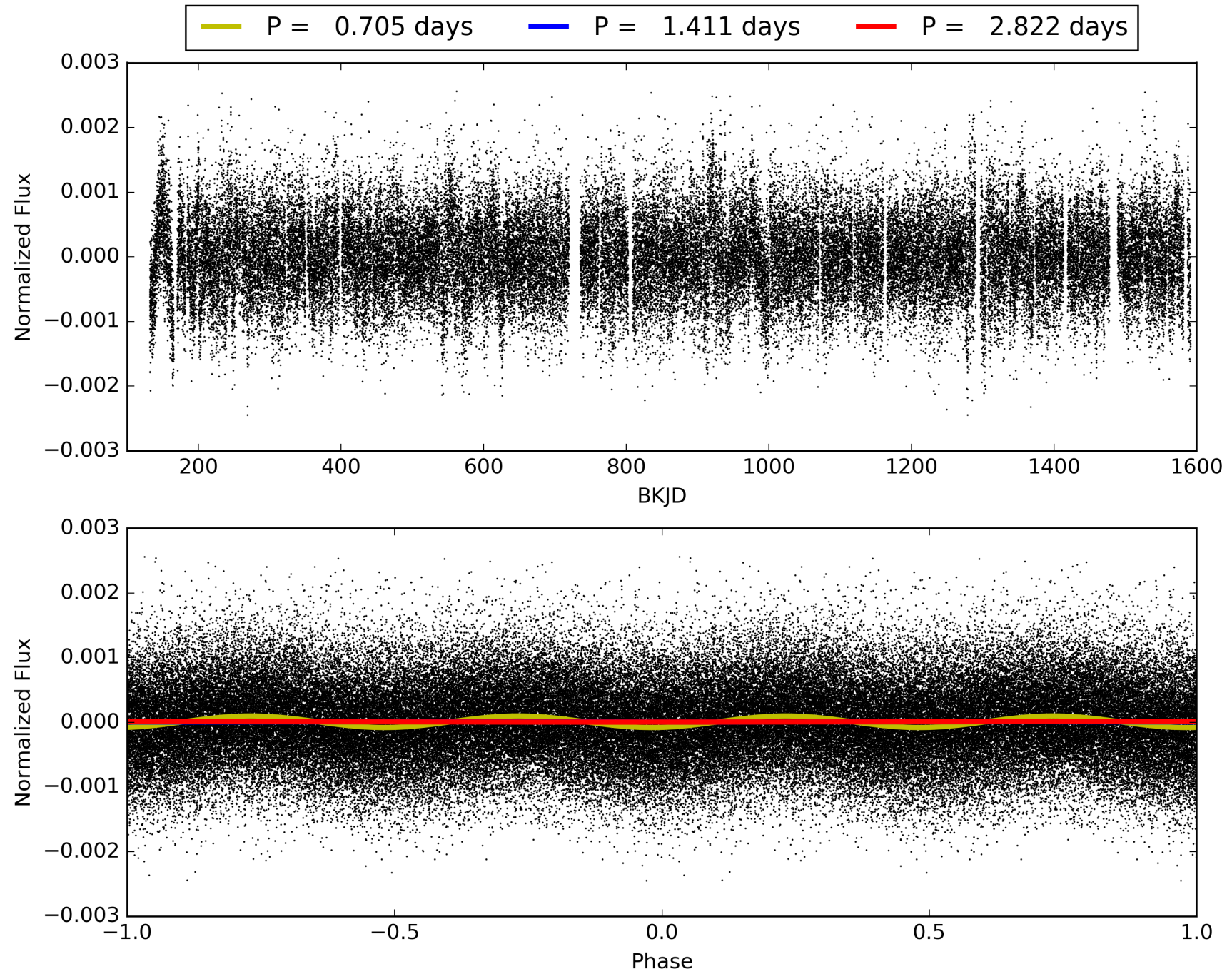
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005392413-01, PDC Light Curves

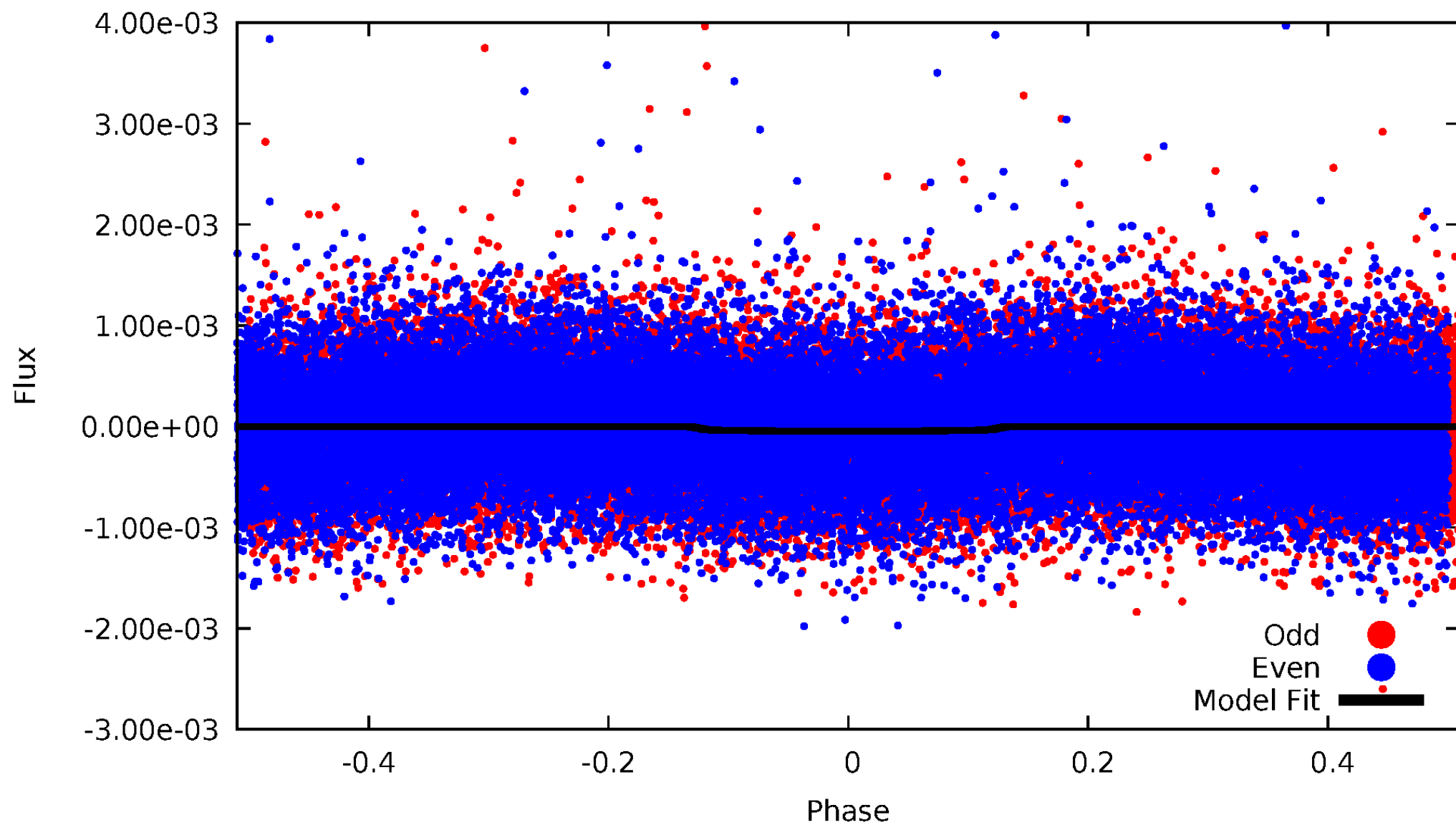


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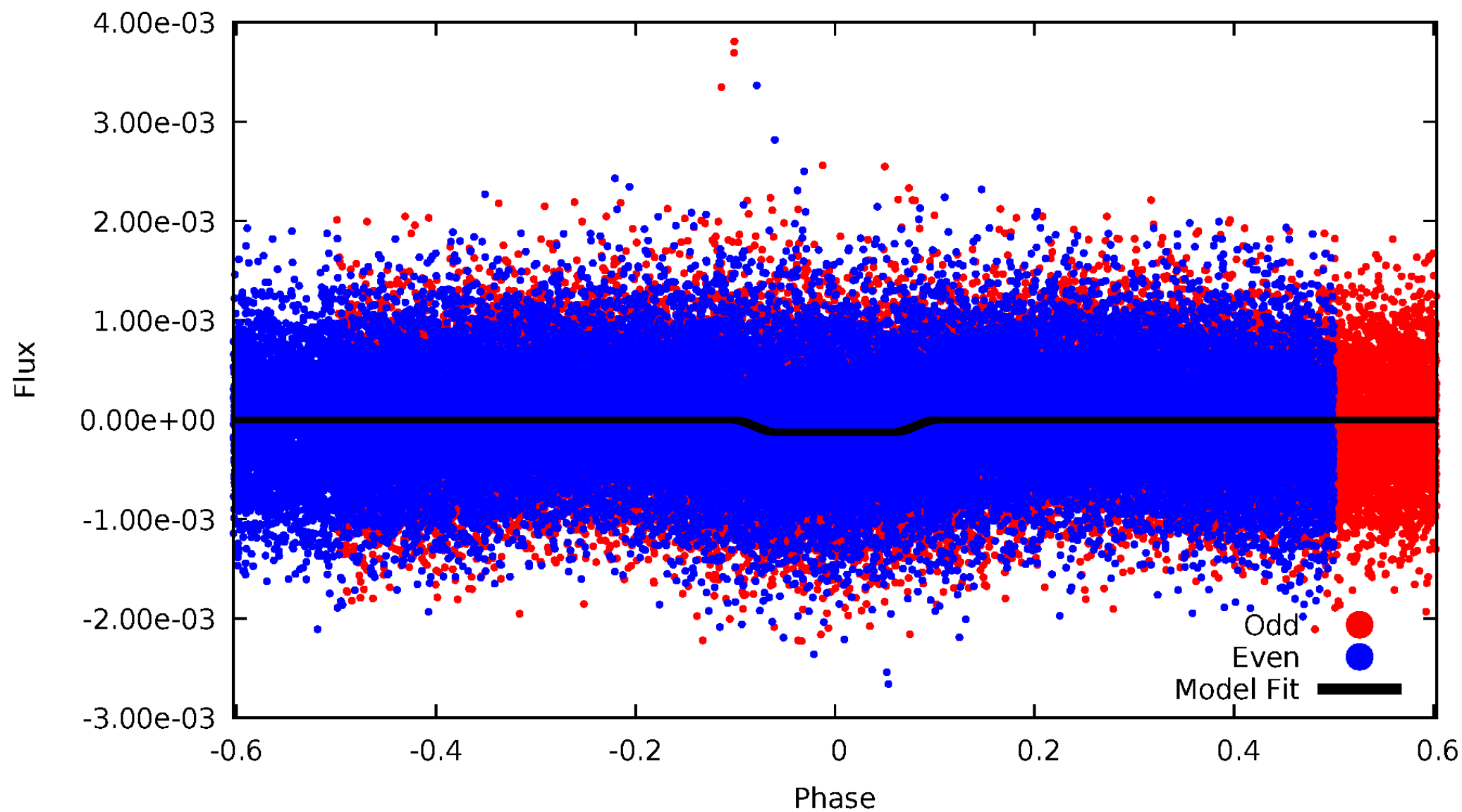
DV Odd/Even

TCE 005392413-01



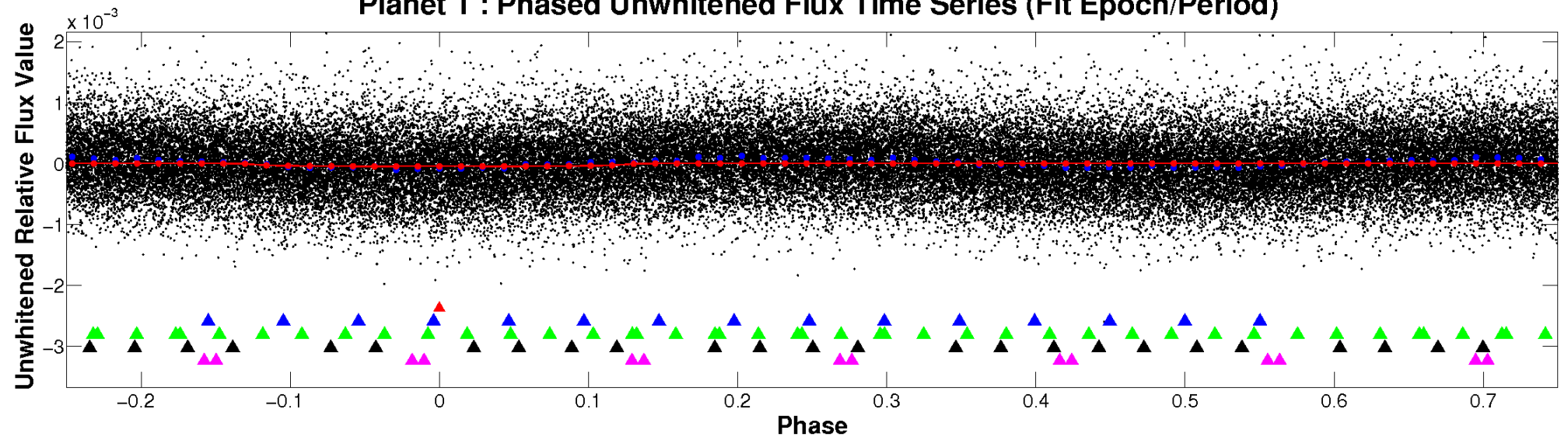
ALT Odd/Even

TCE 005392413-01

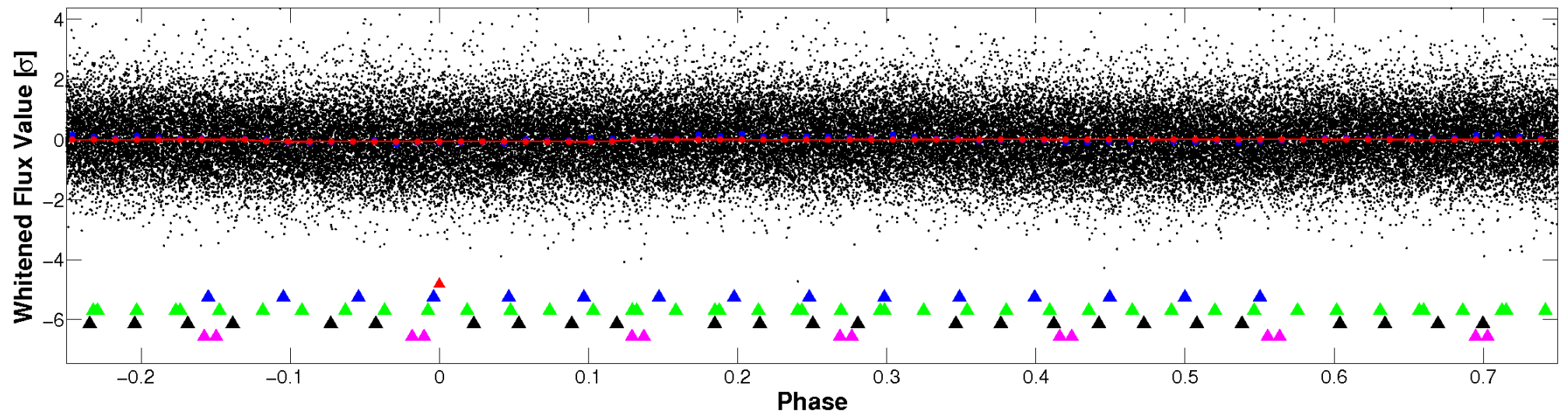


Non-Whitened Vs. Whitened Light Curve

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

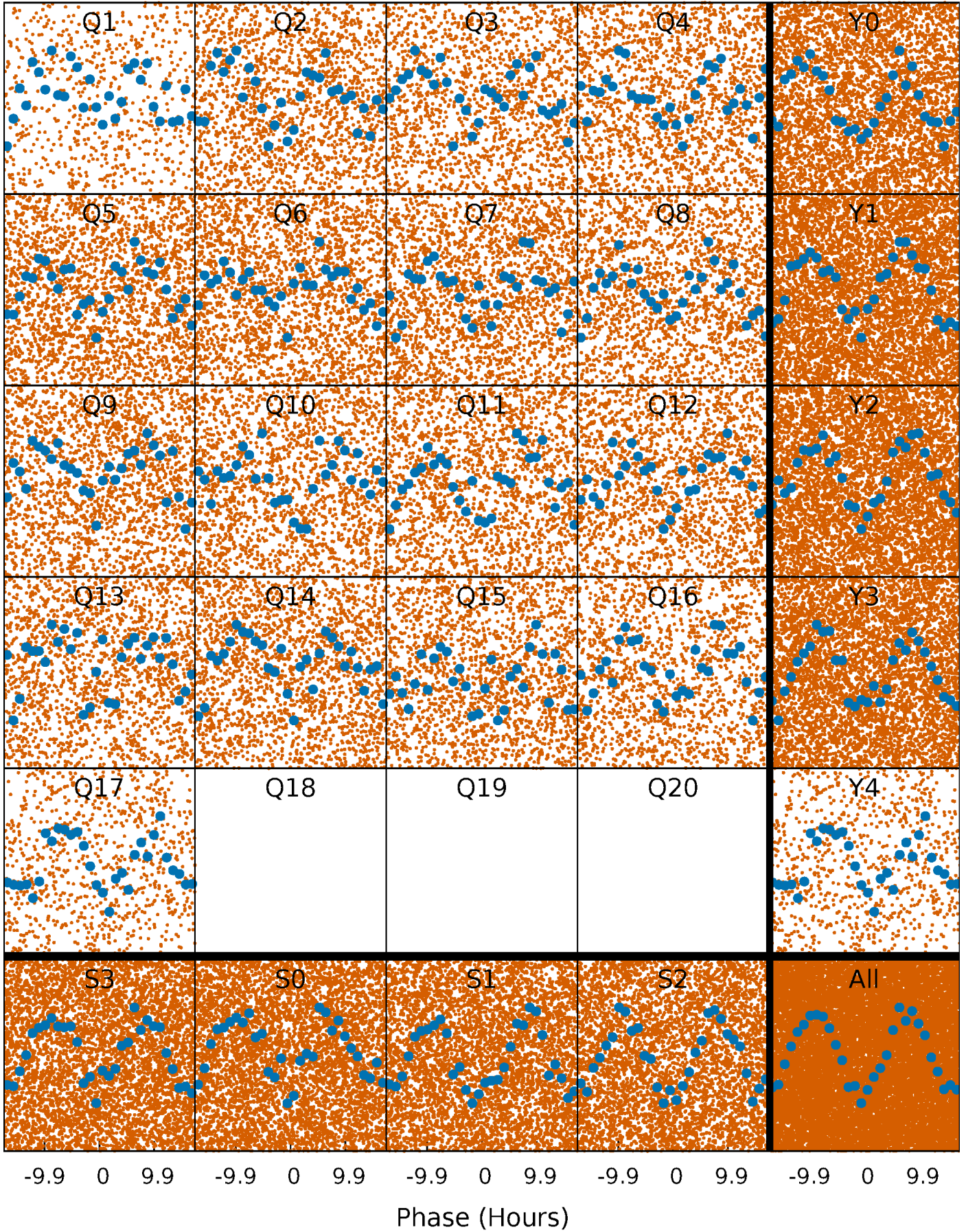


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



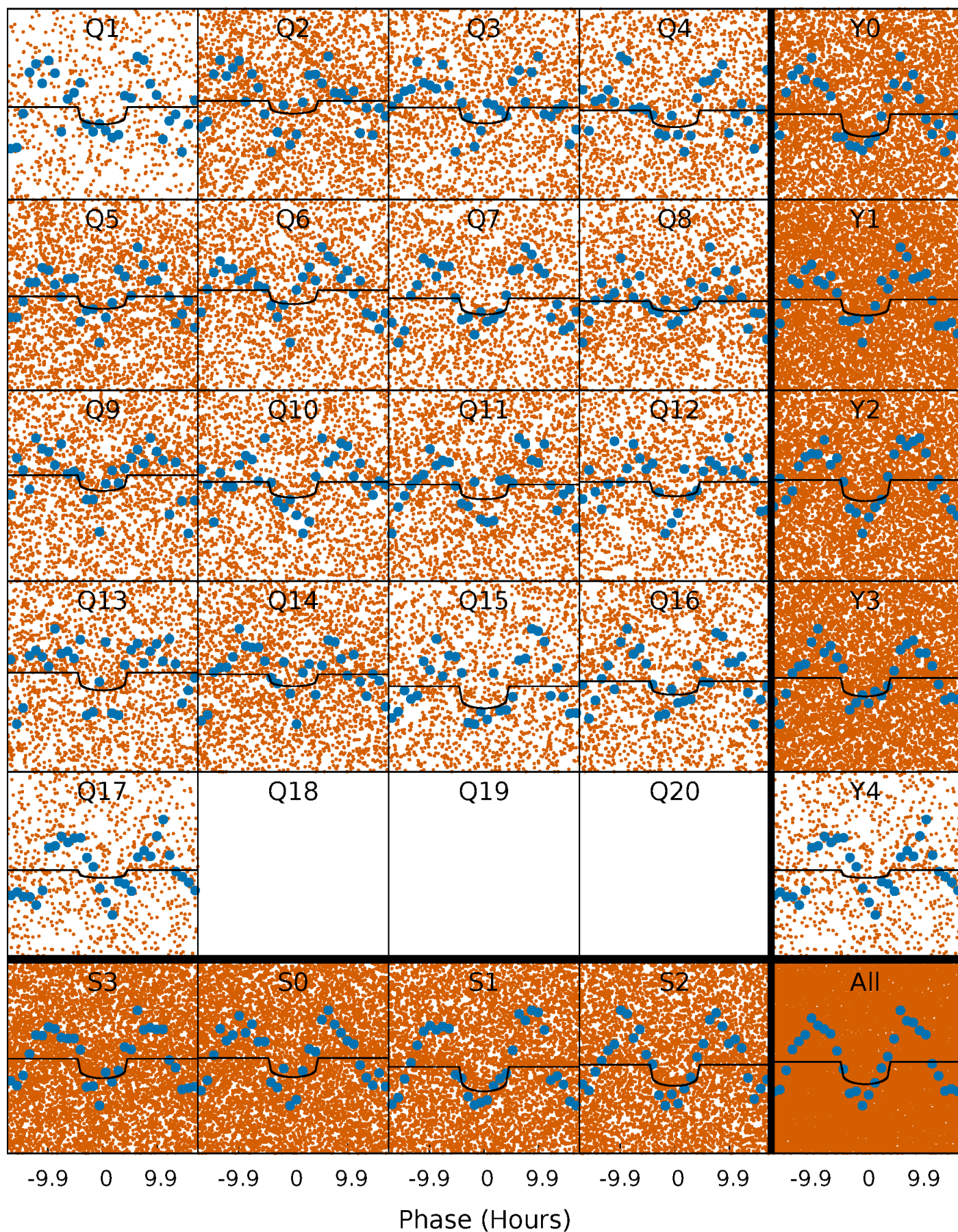
PDC Quarter-Phased Transit Curves

TCE 005392413-01 P= 1.410853 Days $T_0=132.941643$ (BKJD)



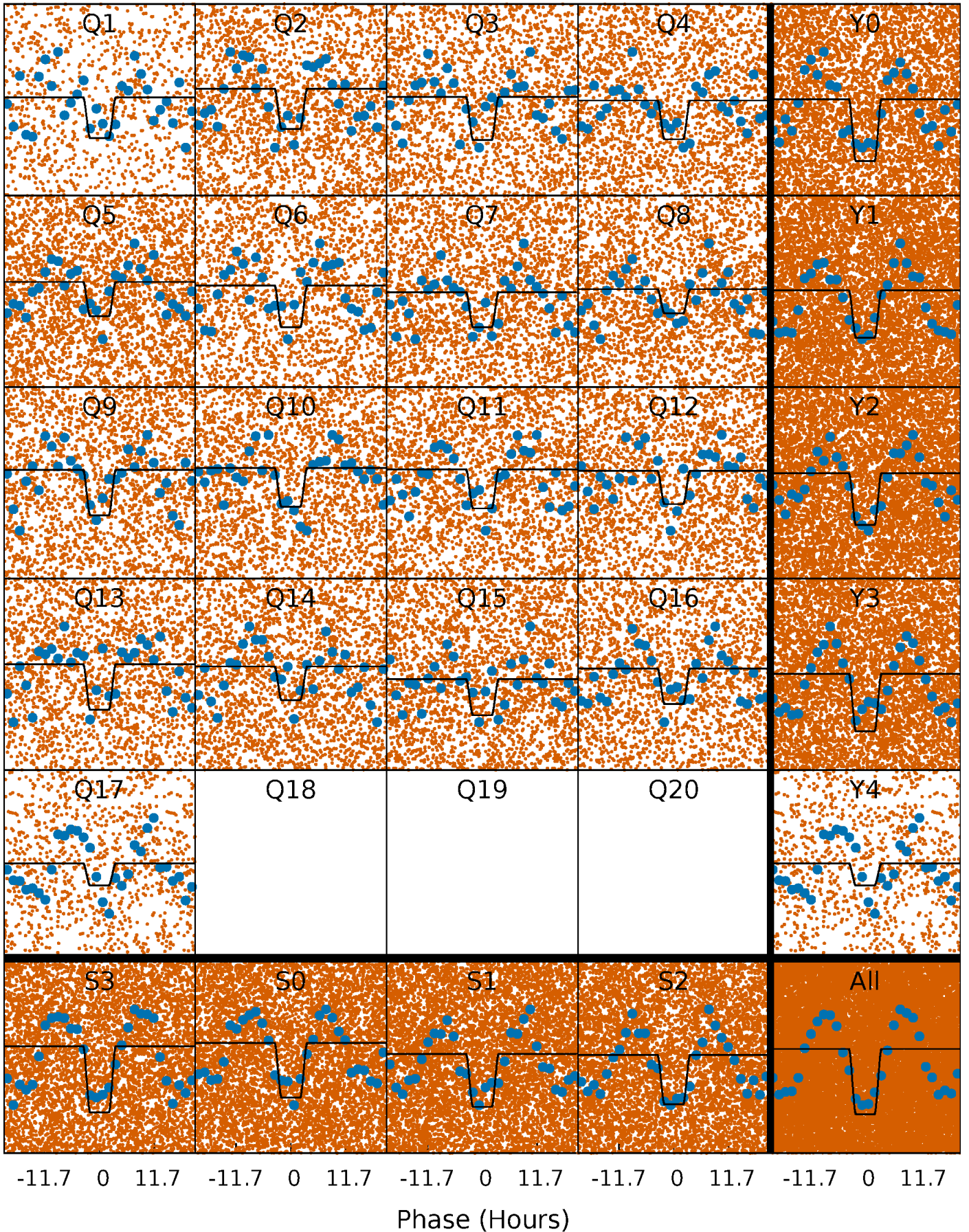
DV Quarter-Phased Transit Curves

TCE 005392413-01 P= 1.410853 Days $T_0=132.941643$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

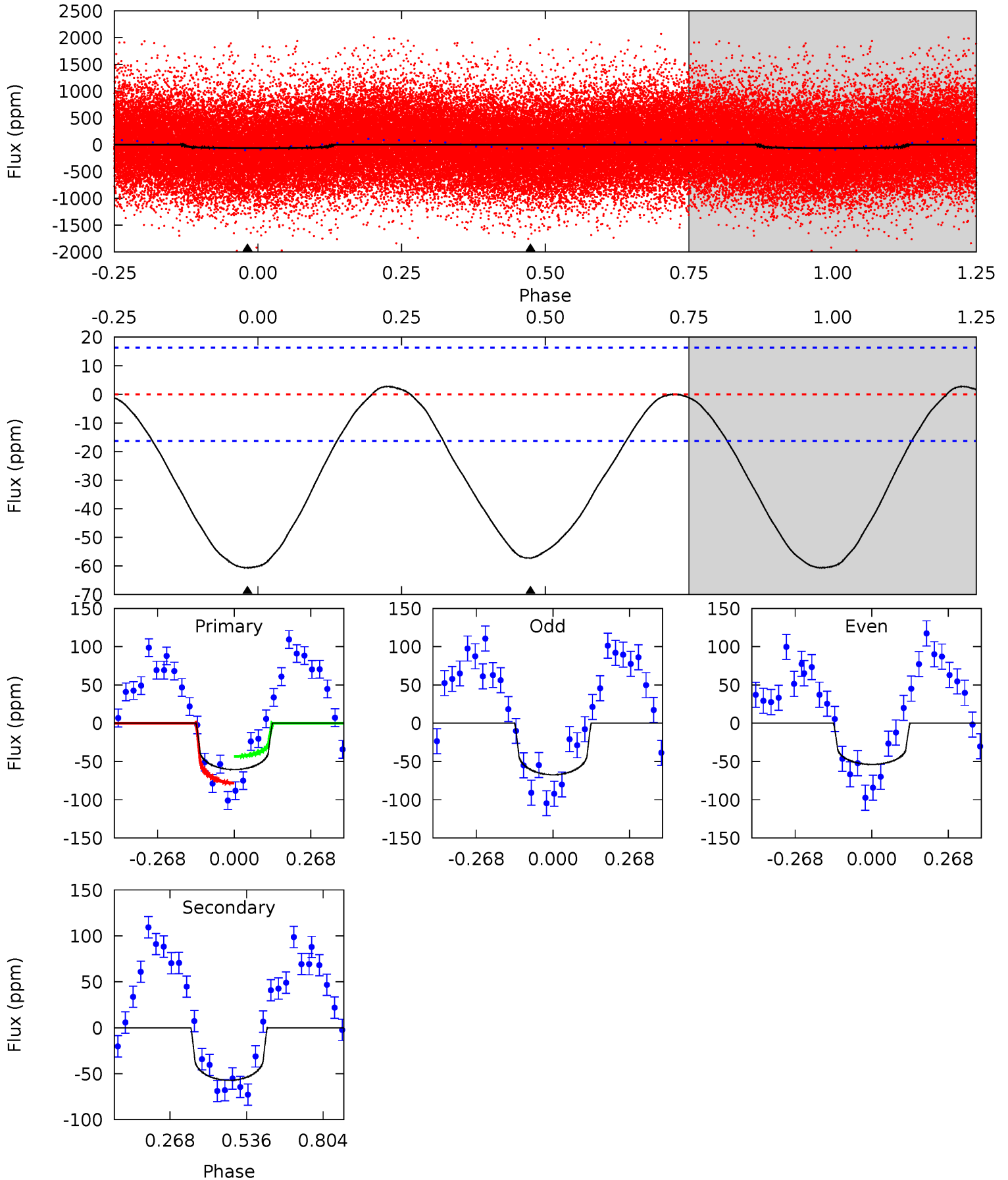
TCE 005392413-01 P= 1.410869 Days $T_0=132.912159$ (BKJD)



DV Model-Shift Uniqueness Test

005392413-01, P = 1.410853 Days, E = 130.119937 Days

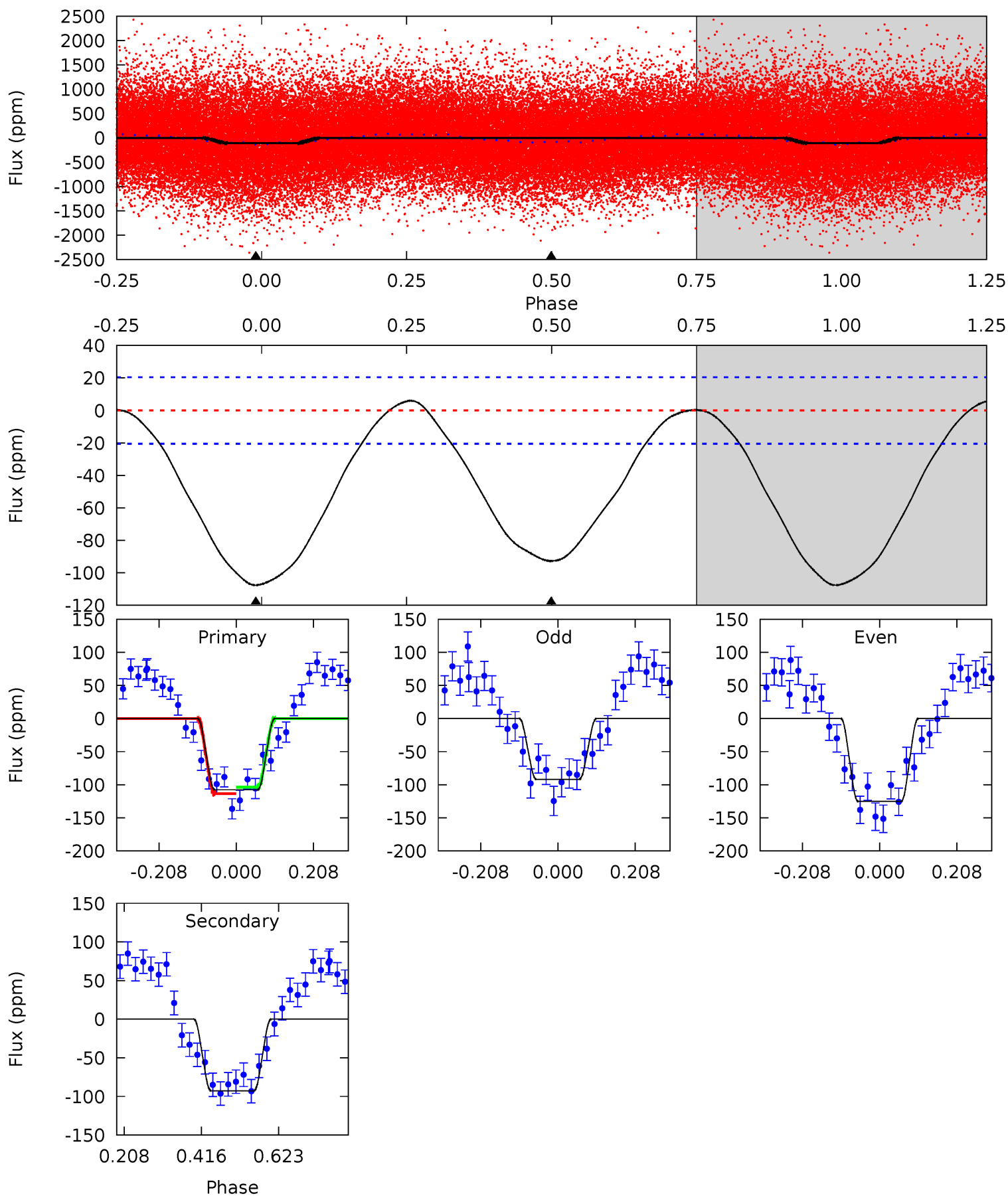
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	15.3	0	0	4.35	1.11	0.40	16.2	16.2	15.3	15.3	1.81	1.11	0.04	4.73



Alt Model-Shift Uniqueness Test

005392413-01, P = 1.410869 Days, E = 131.501290 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.2	20.0	0	0	4.41	1.26	0.70	23.2	23.2	20.0	20.0	3.61	1.05	0.05	1.04



Stellar Parameters For KIC 005392413

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6687^{+188}_{-235}	$4.482^{+0.039}_{-0.221}$	$-0.500^{+0.300}_{-0.300}$	$0.978^{+0.346}_{-0.087}$	$1.089^{+0.158}_{-0.118}$	$1.639^{+0.263}_{-0.935}$
	+3%/-4%	+1%/-5%	+60%/-60%	+35%/-9%	+15%/-11%	+16%/-57%
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 005392413-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-57 ± 4	$0.96^{+0.83}_{-0.63}$	2653^{+200}_{-133}	6328^{+6490}_{-1565}	21^{+162}_{-15}
Alt.	-93 ± 5	$1.40^{+0.92}_{-0.77}$	2644^{+206}_{-136}	5925^{+3517}_{-1190}	17^{+65}_{-11}

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

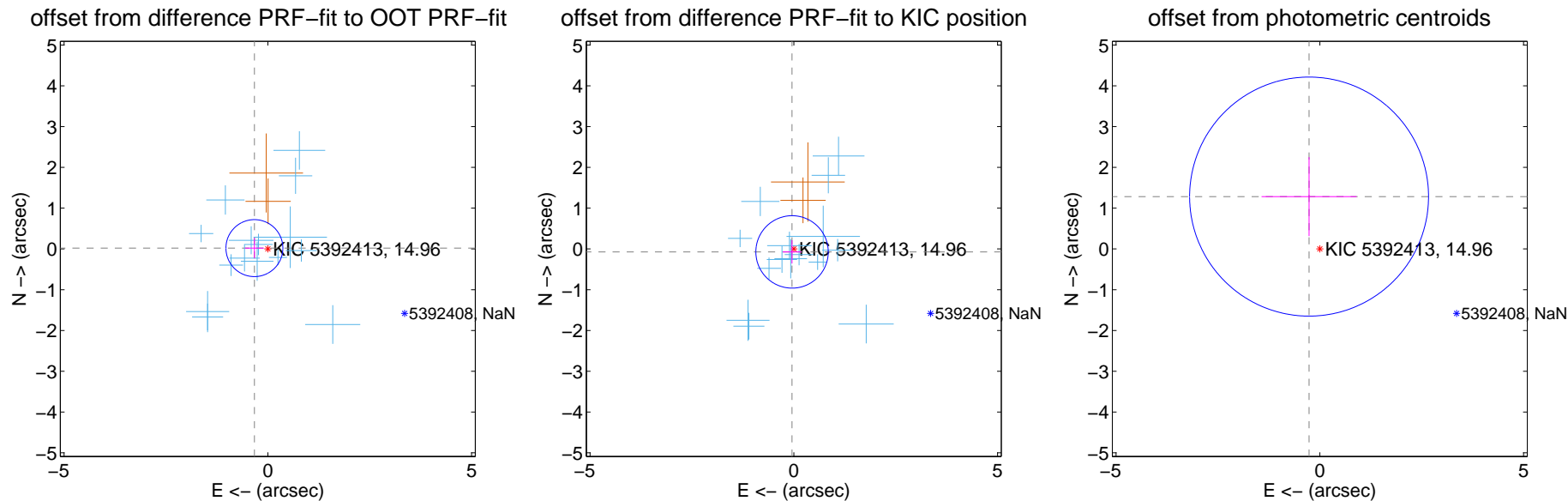
DV Centroid Data

Supplemental centroid analysis for 005392413-01. Kepler magnitude: 14.96. Transit SNR 8.23

There are 15 quarters with good PRF difference image offsets

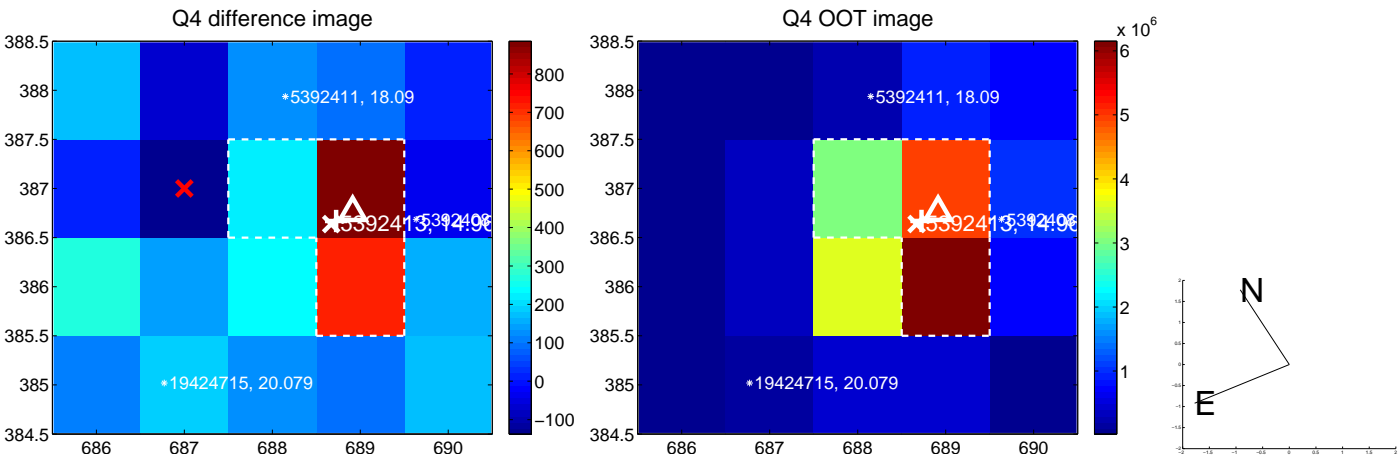
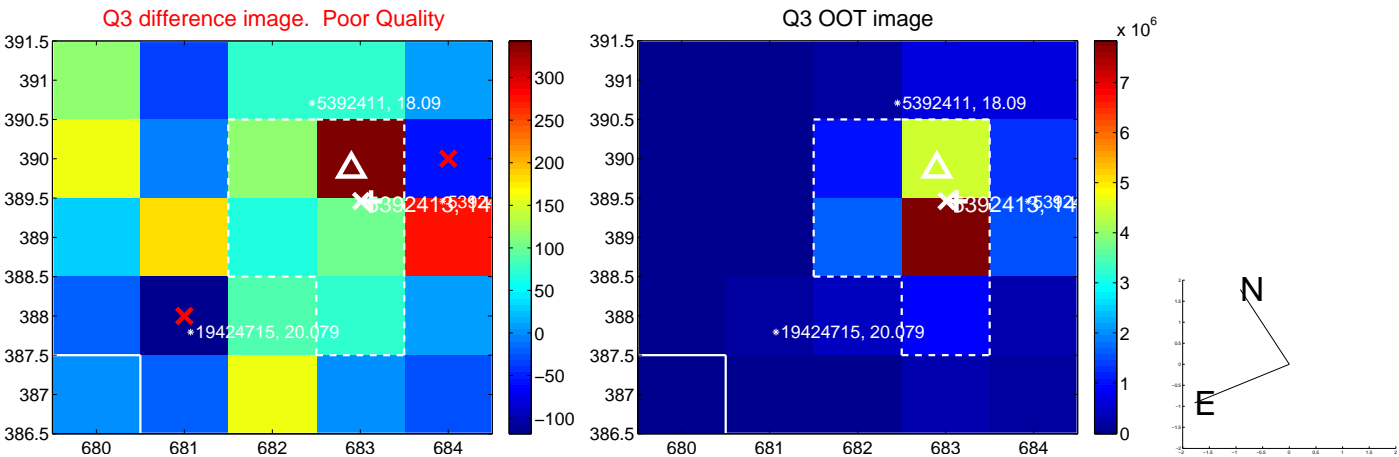
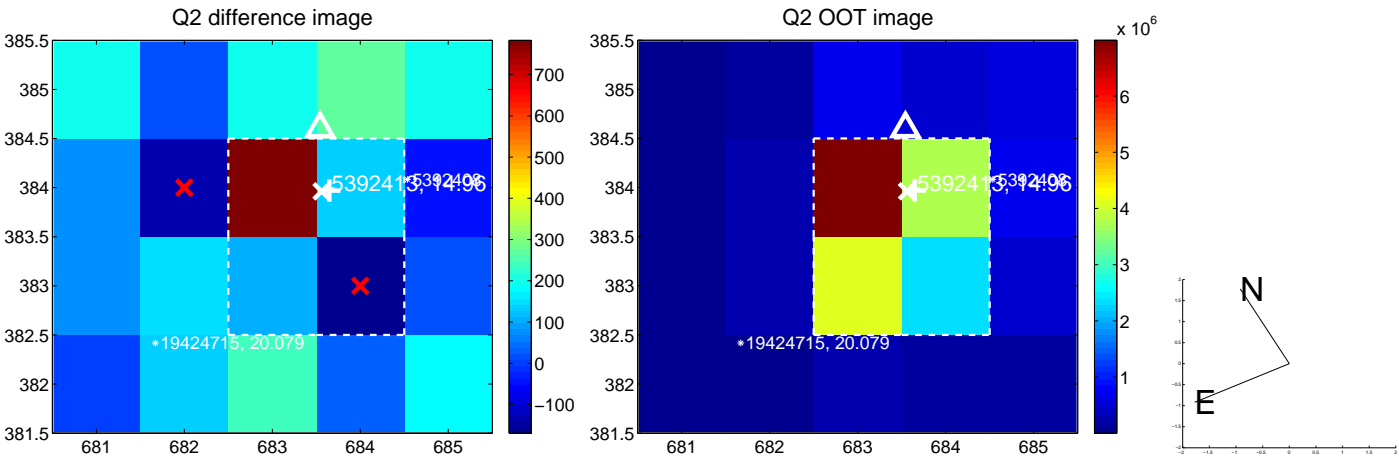
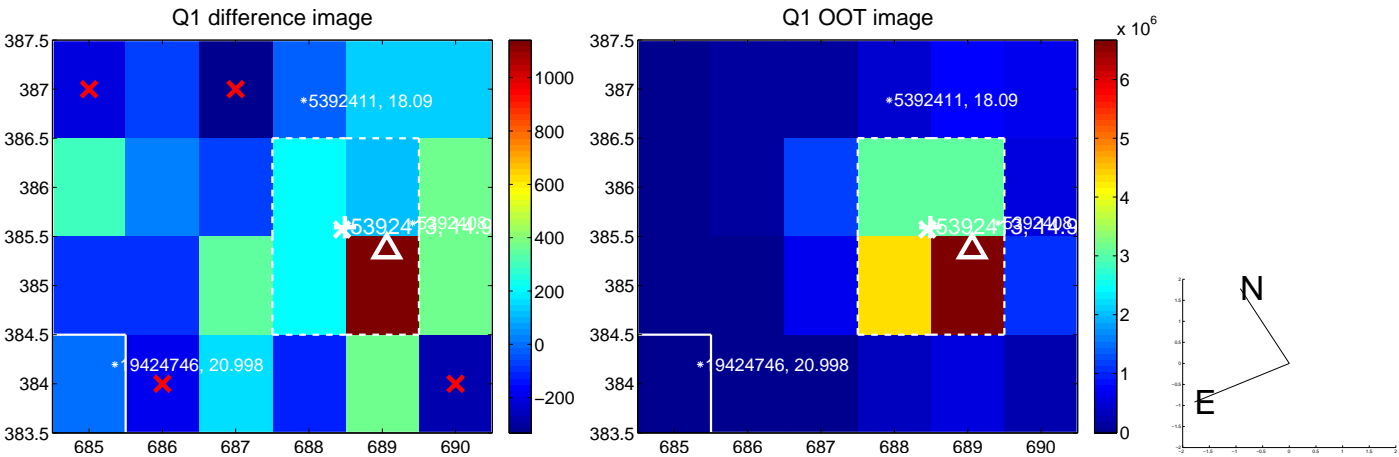
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.330 ± 0.233	1.42	0.329 ± 0.233	0.020 ± 0.248
PRF-fit source offset from KIC position	0.085 ± 0.296	0.29	0.044 ± 0.227	-0.073 ± 0.285
photometric centroid source offset	1.31 ± 0.98	1.34	0.26 ± 1.17	1.28 ± 0.97

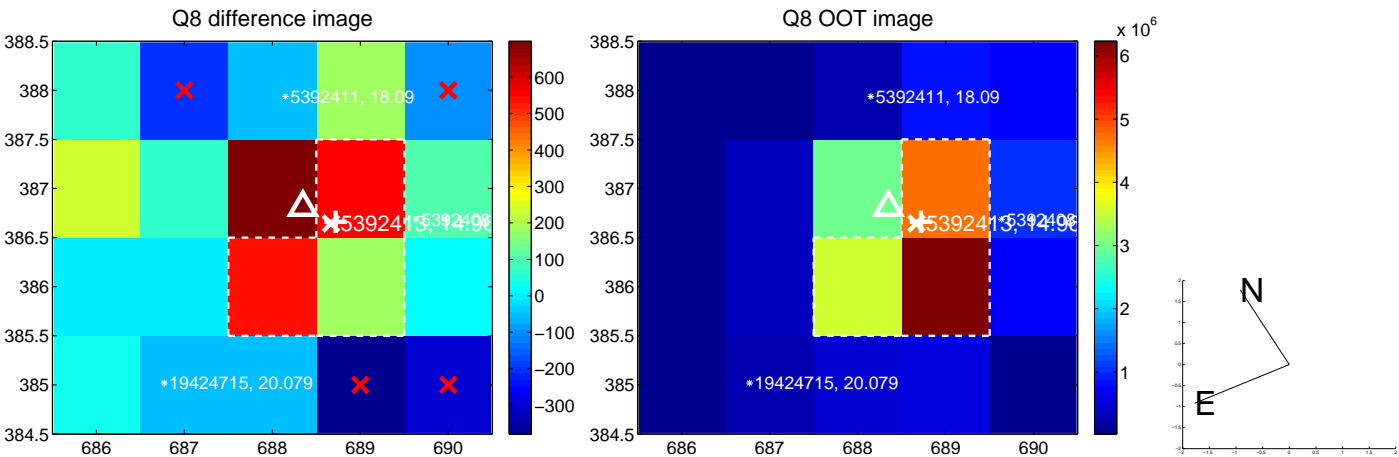
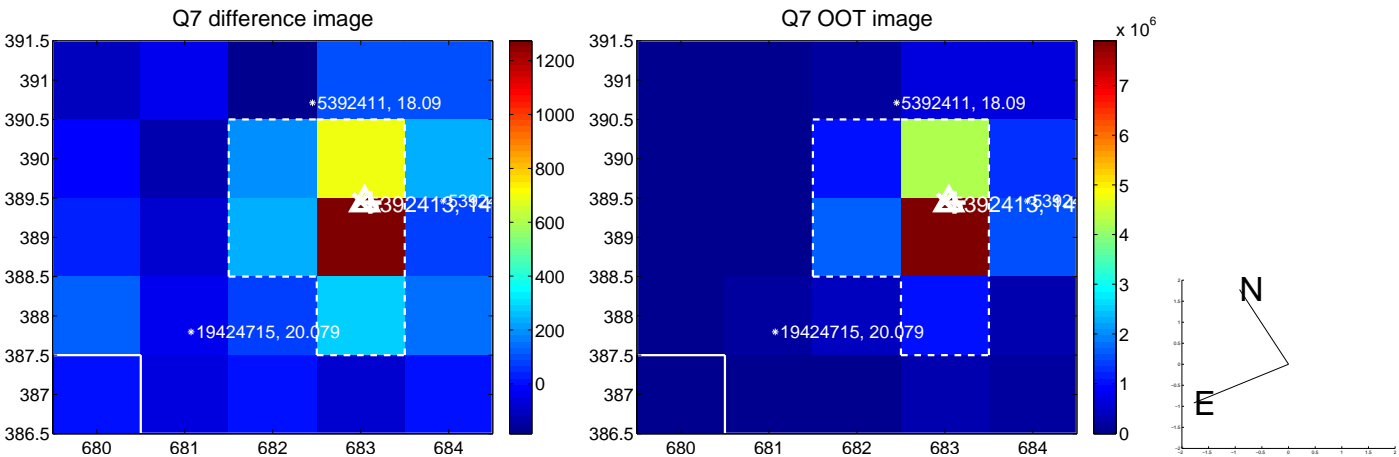
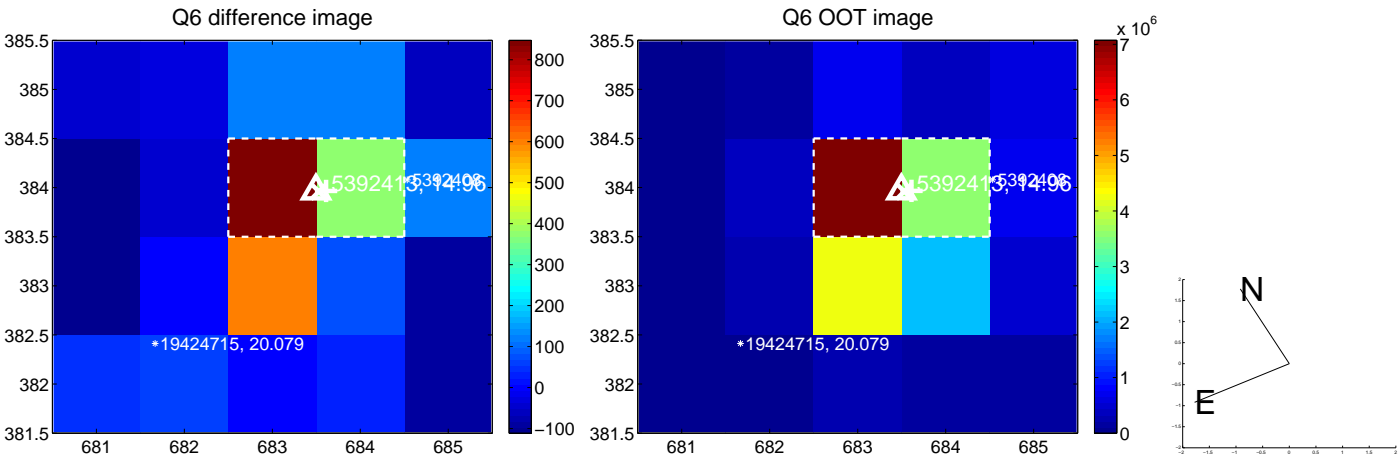
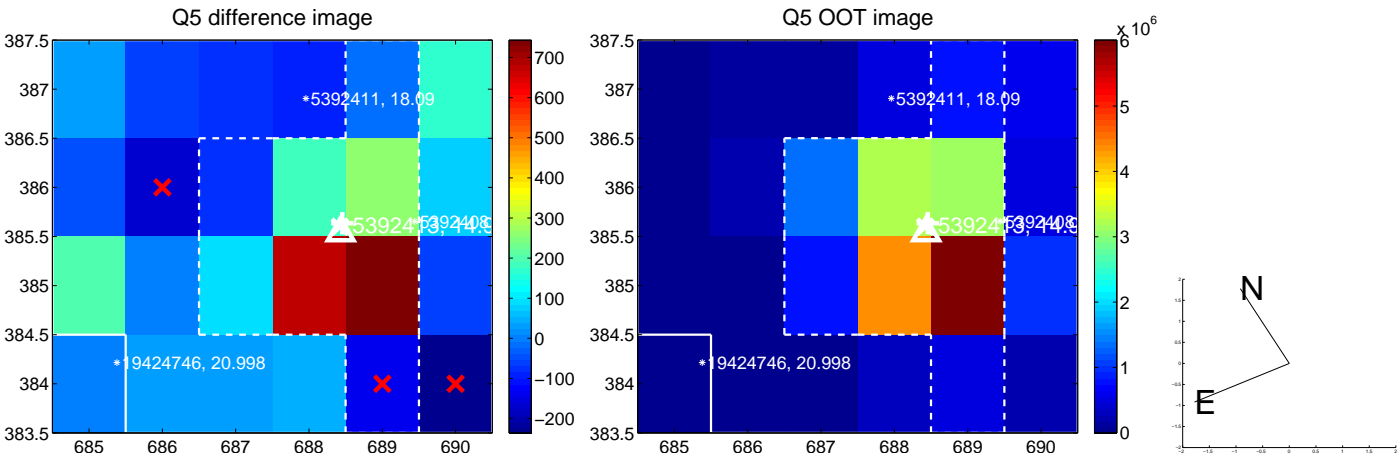


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

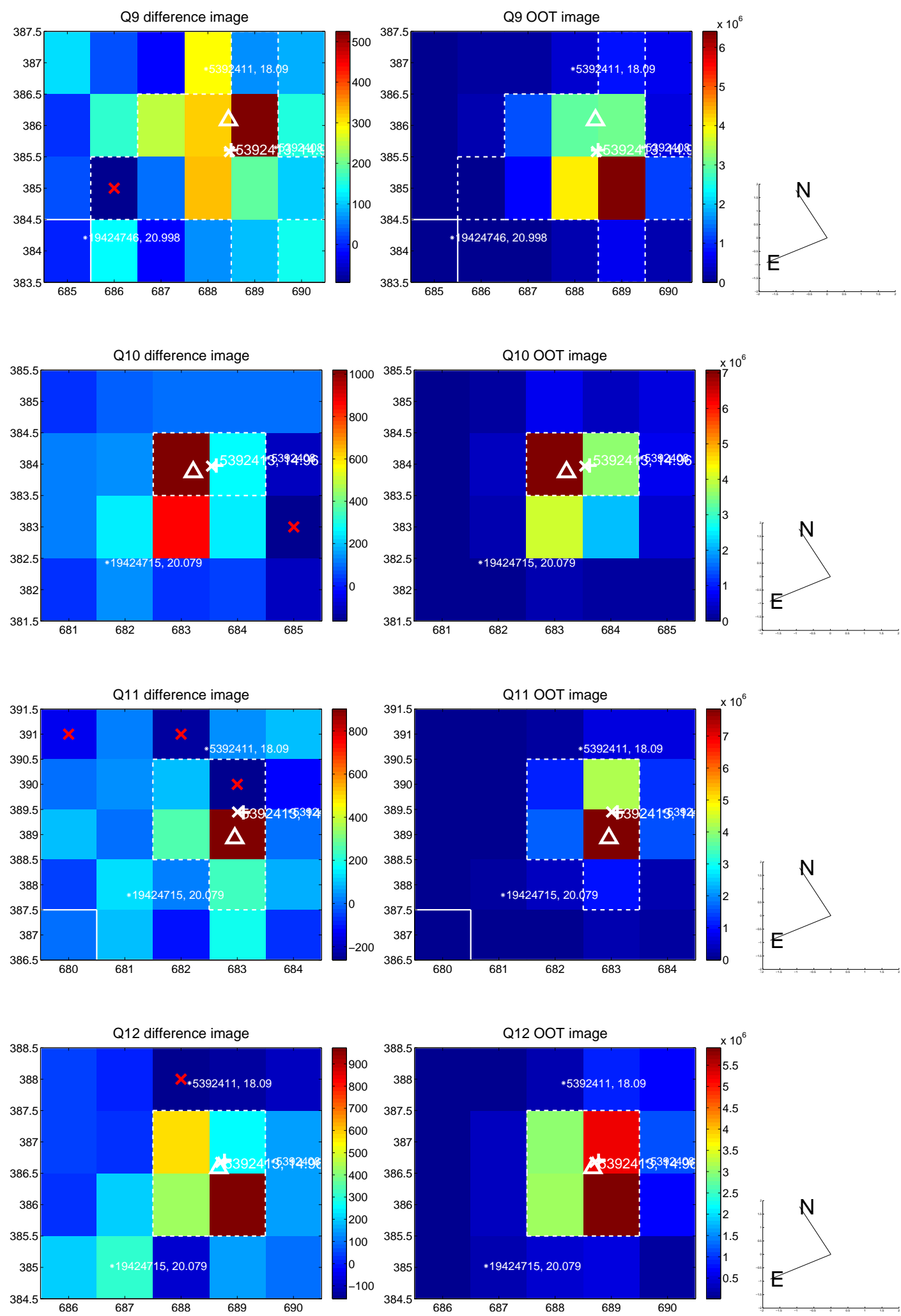
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



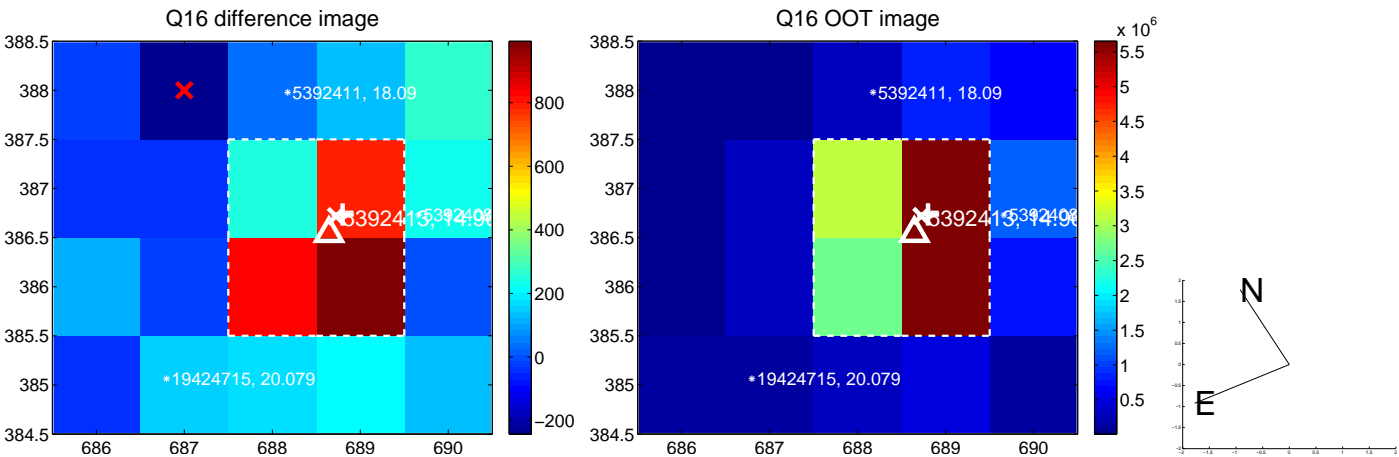
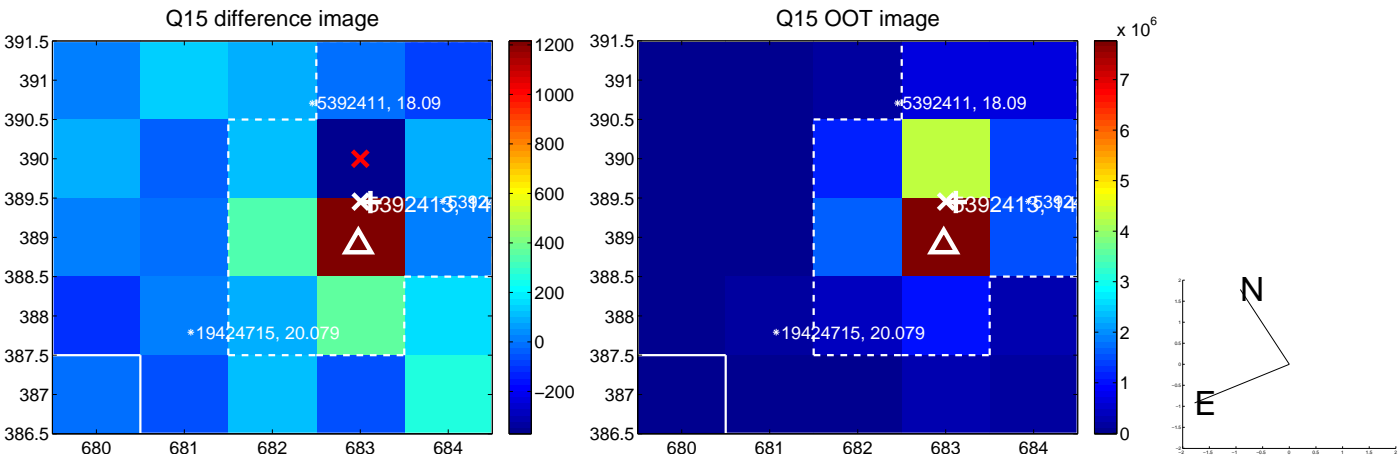
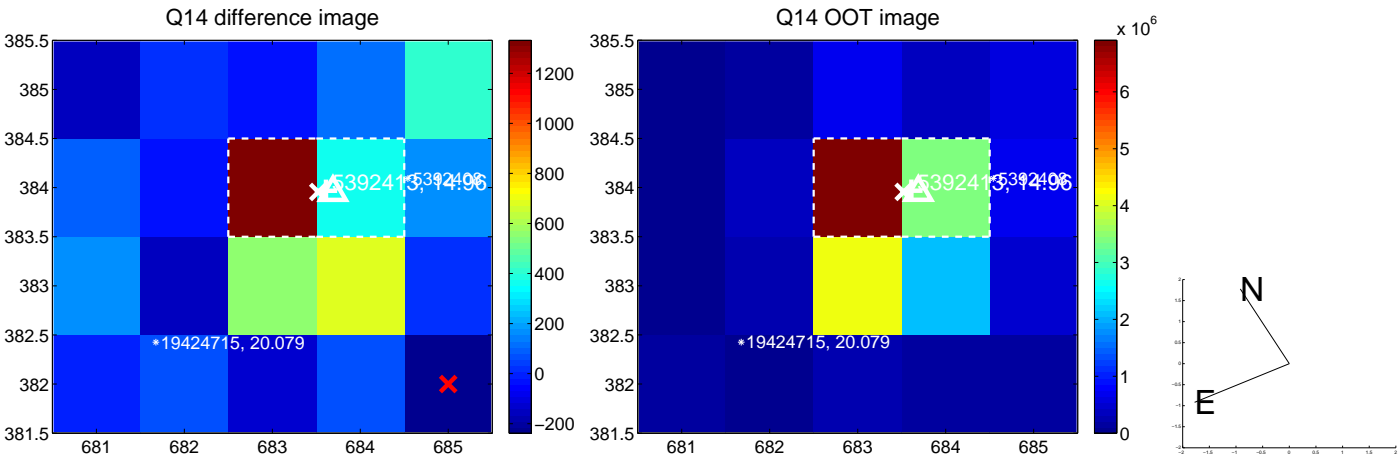
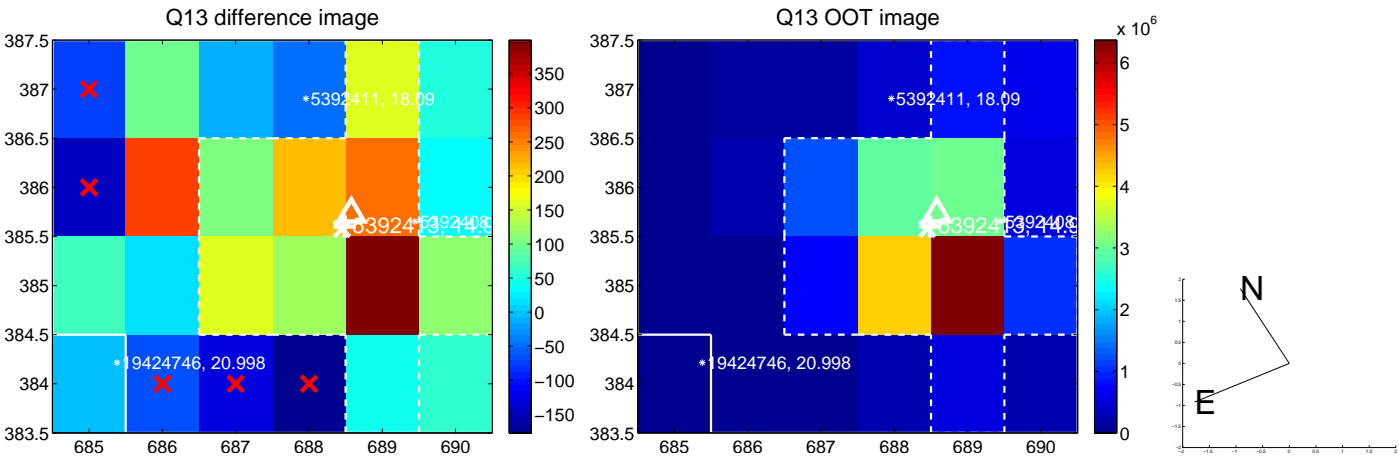
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



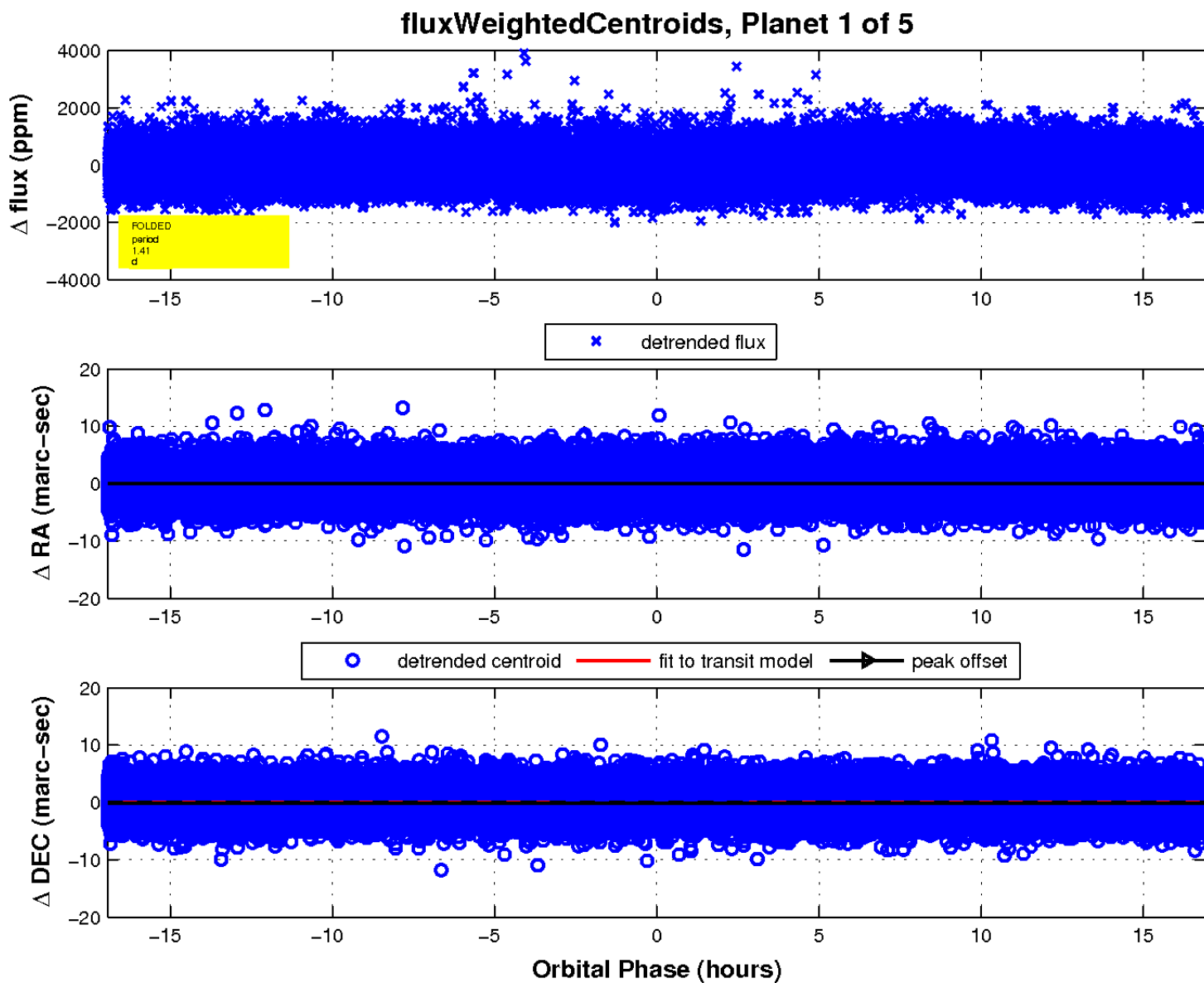
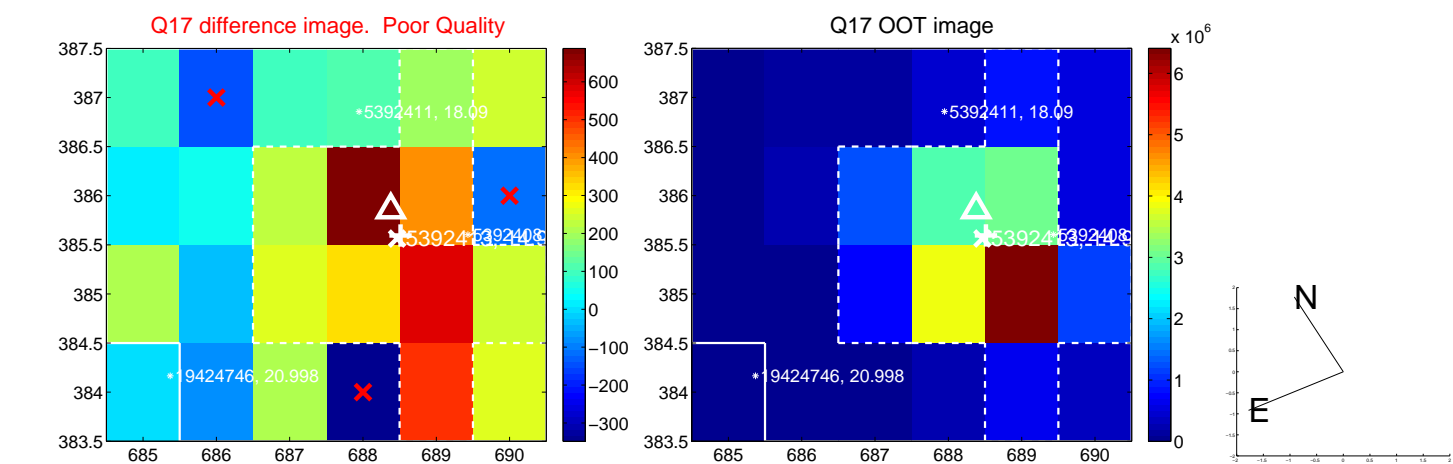
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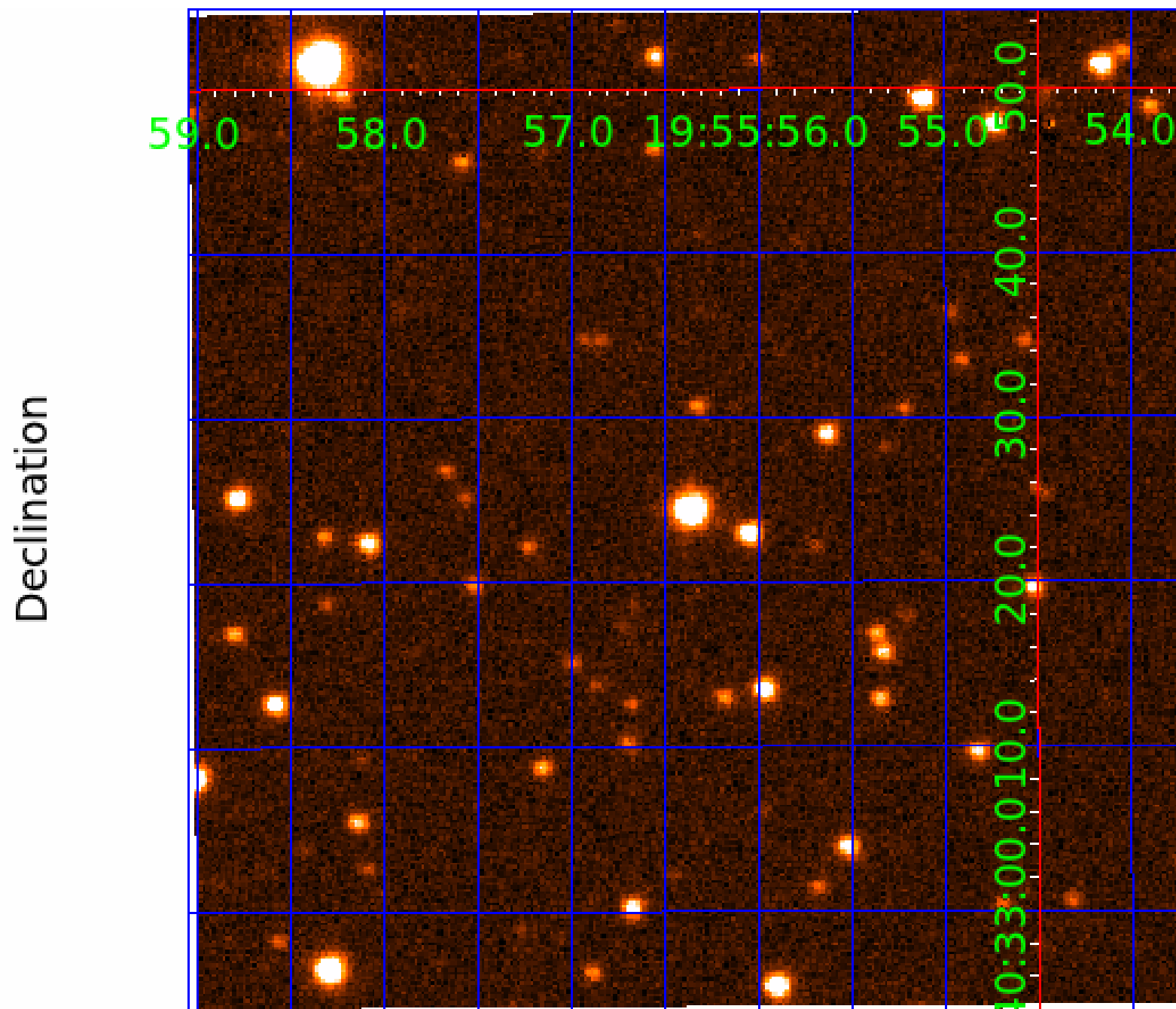
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UKIRT Image



KIC 005392413

Q1-17 DR25 TCE Parameters

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005392413-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005392413-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005392413-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

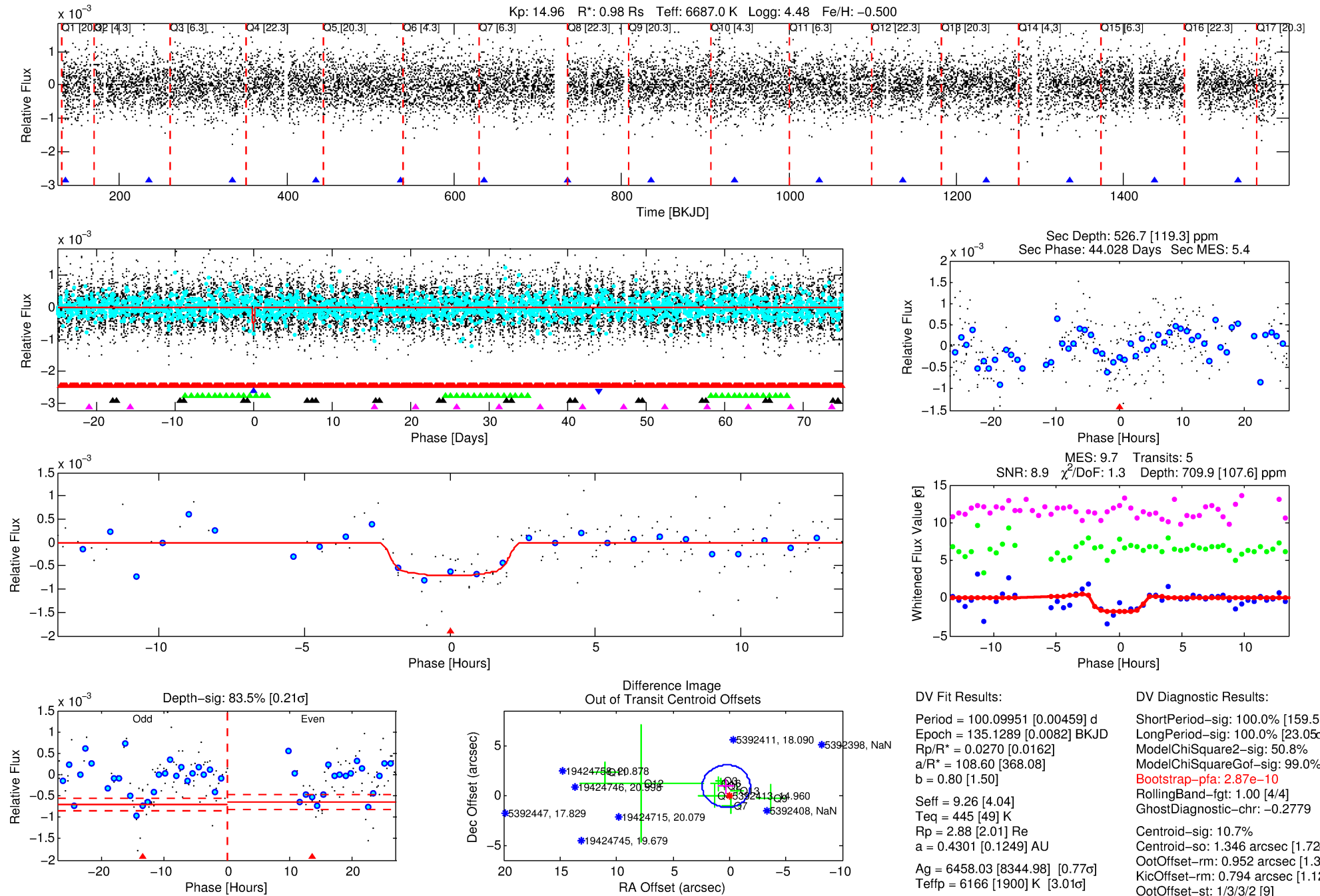
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005392413-02

No Significant Match Found

DV One-Page Summary

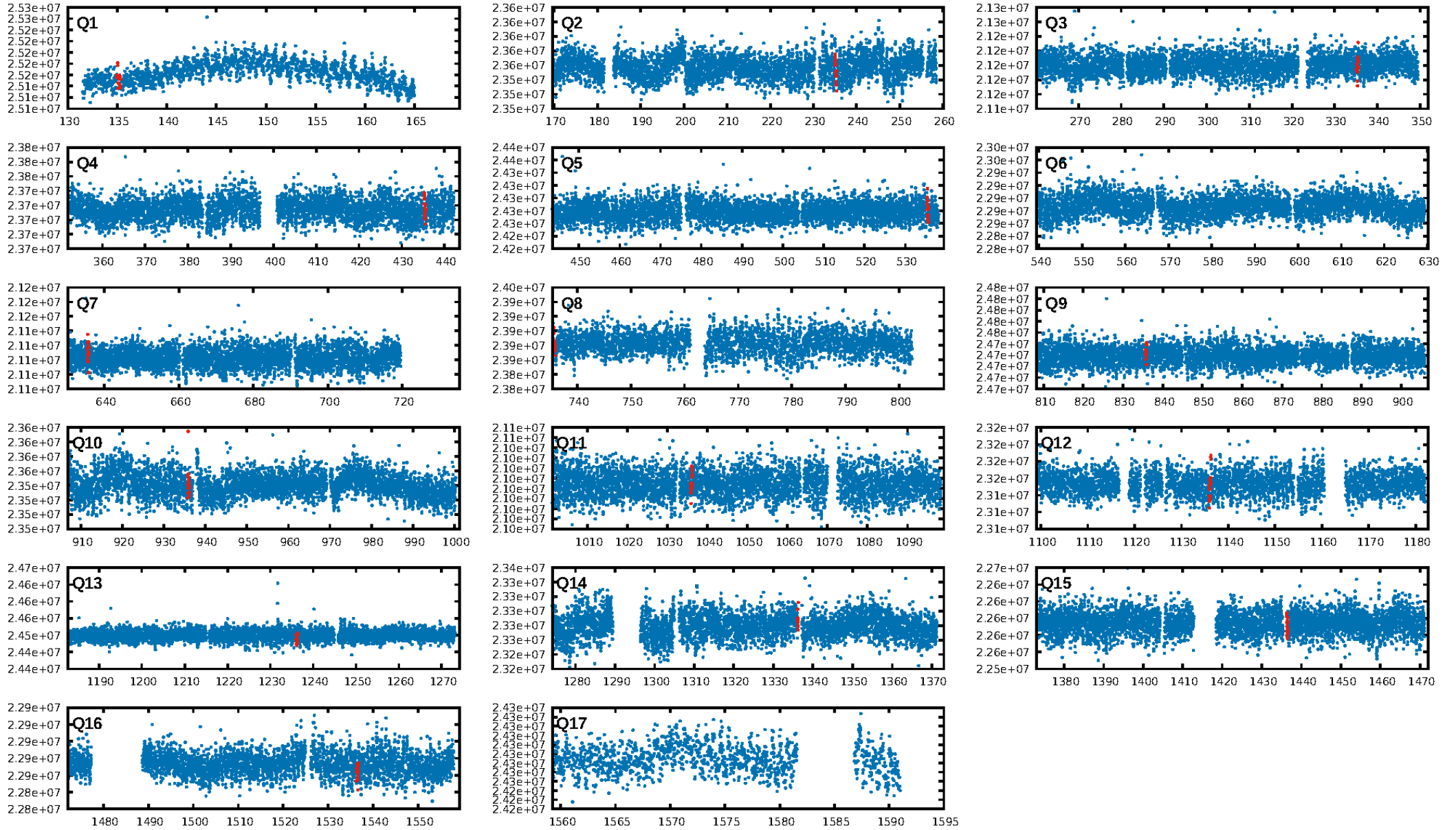
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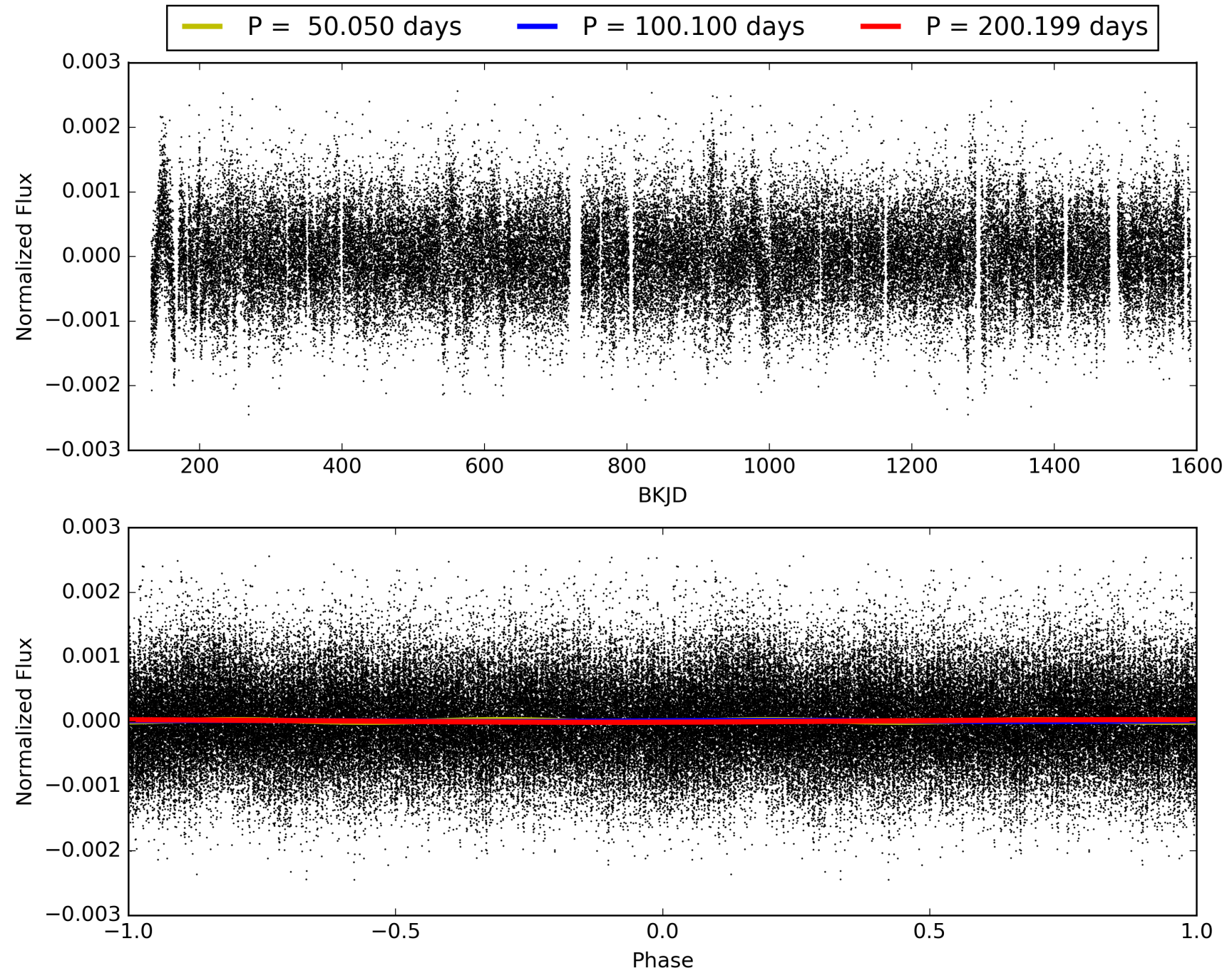
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005392413-02, PDC Light Curves

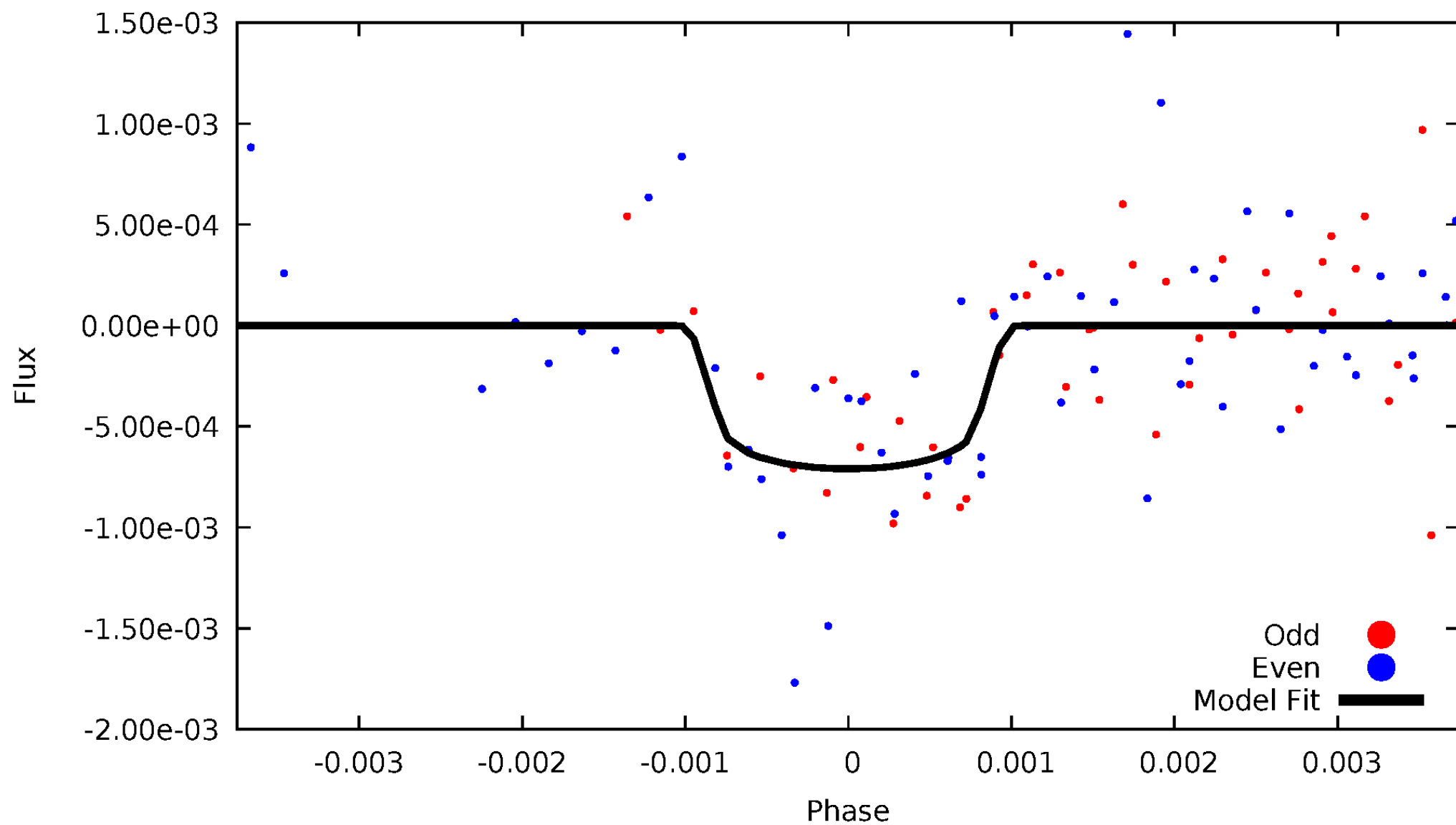


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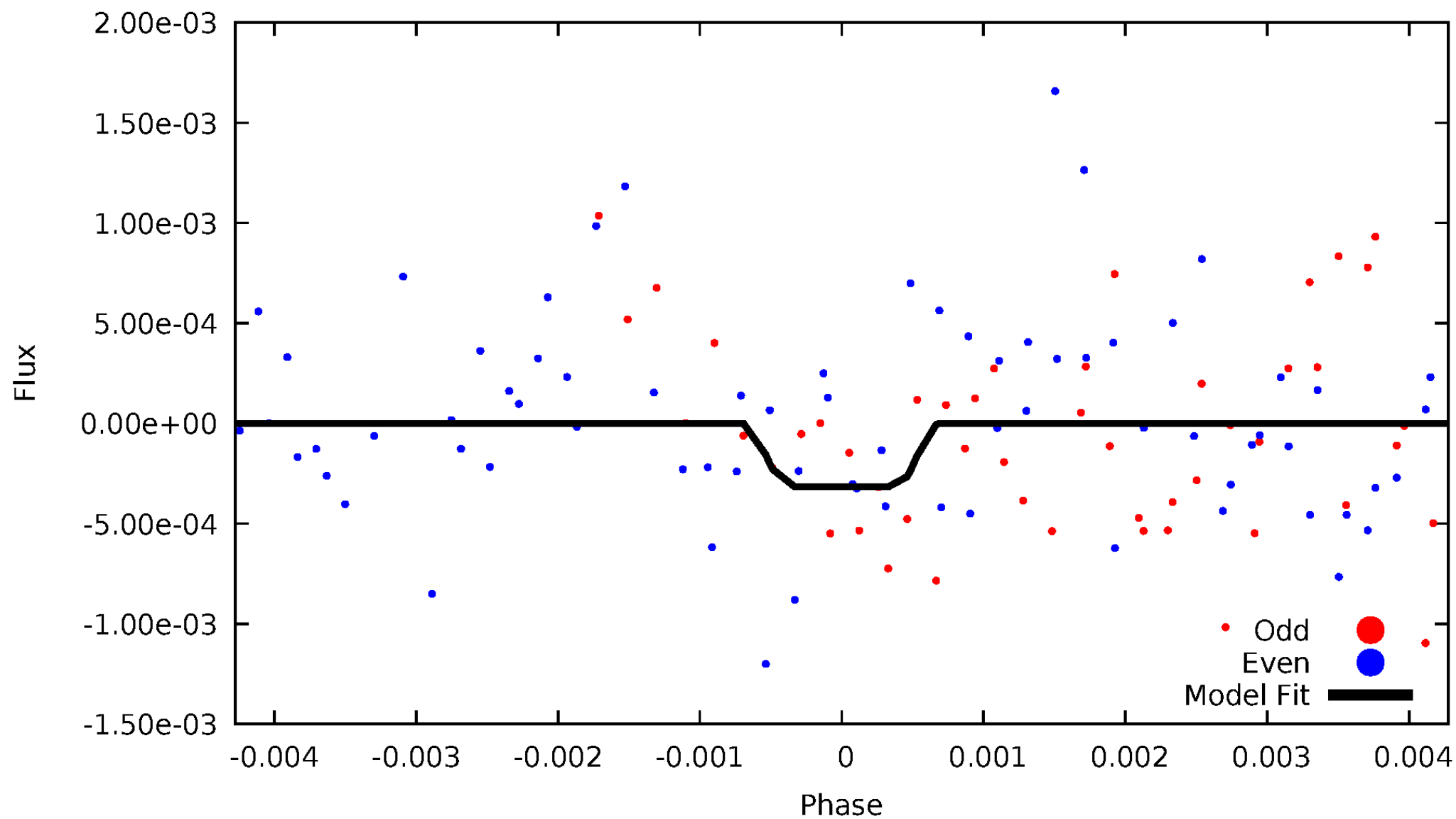
DV Odd/Even

TCE 005392413-02



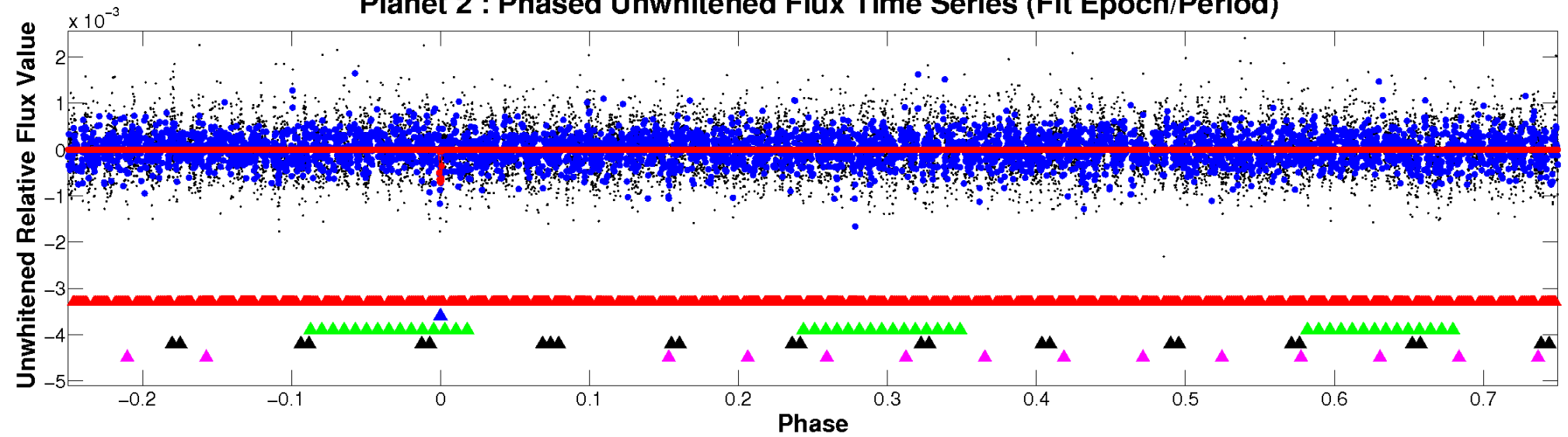
ALT Odd/Even

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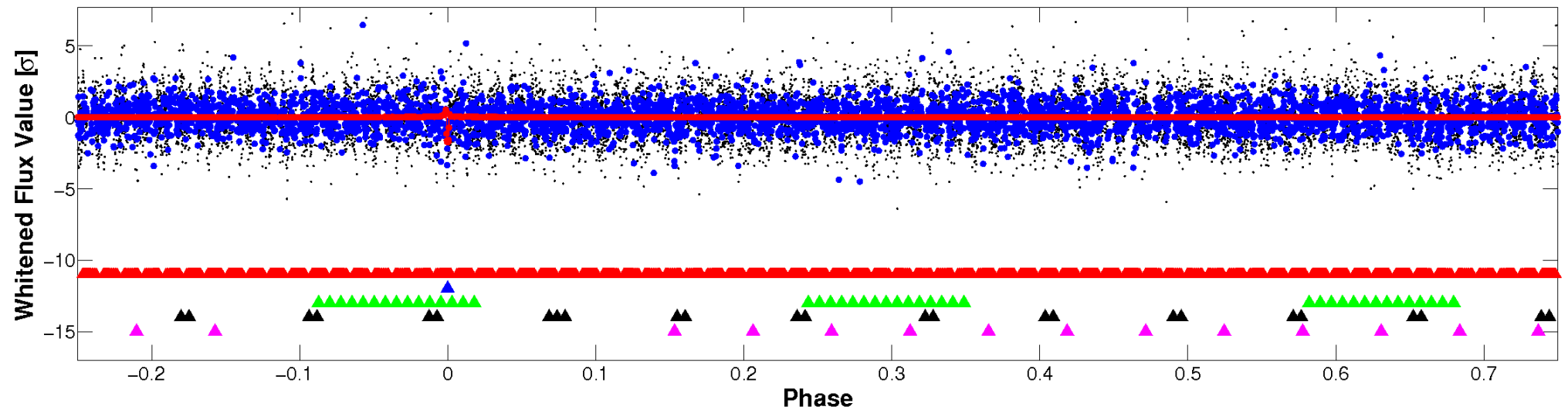


Non-Whitened Vs. Whitened Light Curve

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

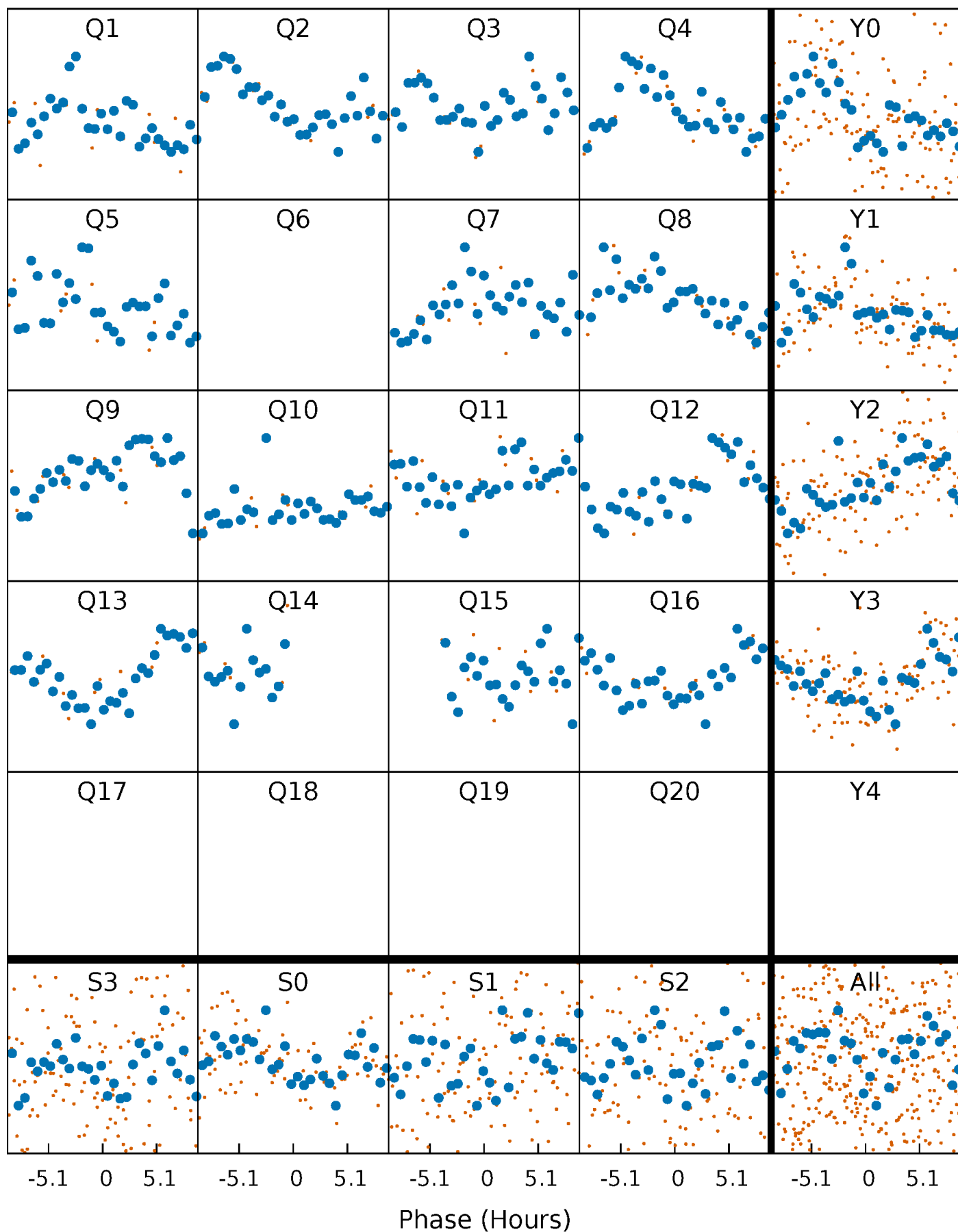


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



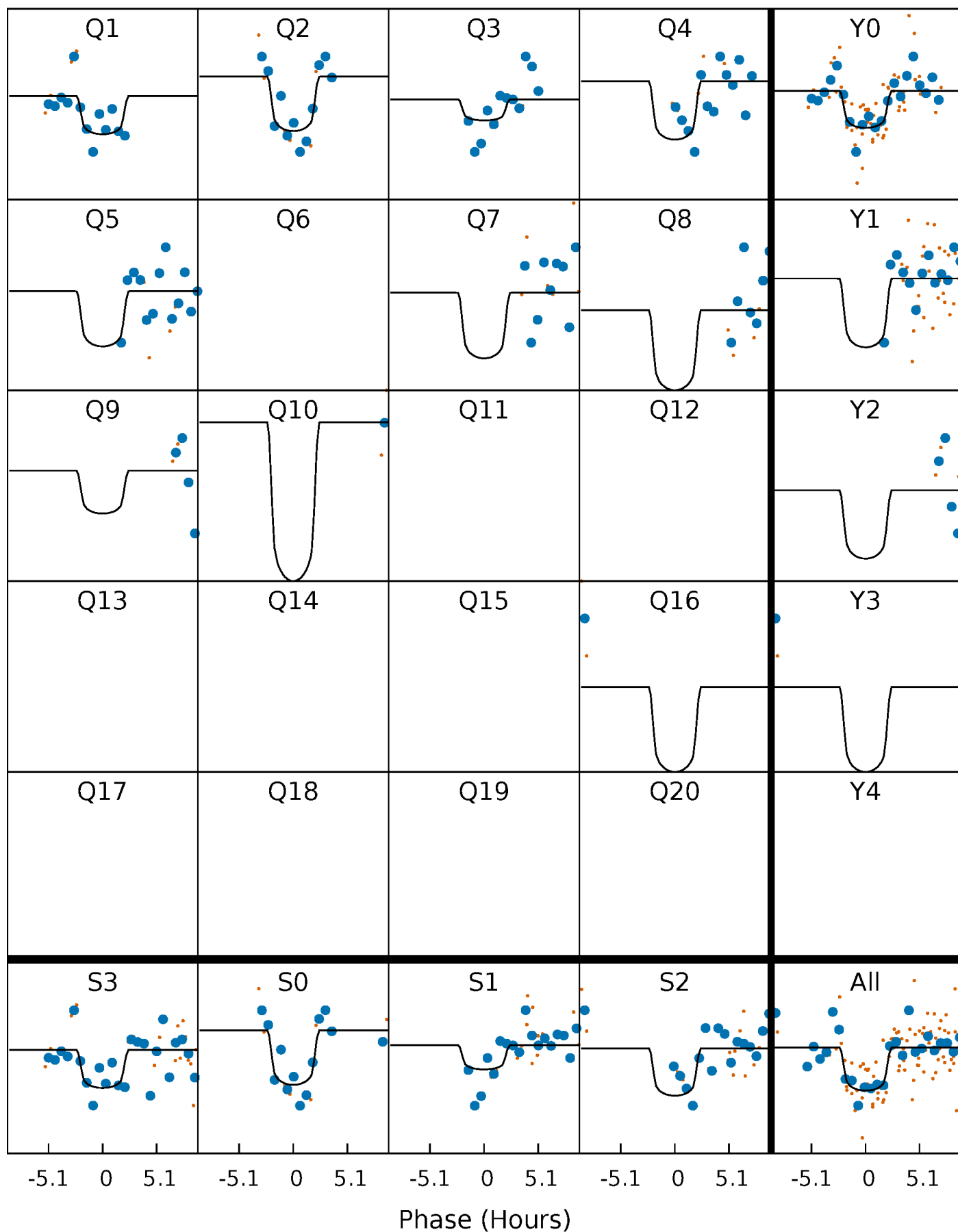
PDC Quarter-Phased Transit Curves

TCE 005392413-02 P=100.099511 Days $T_0=135.128892$ (BKJD)



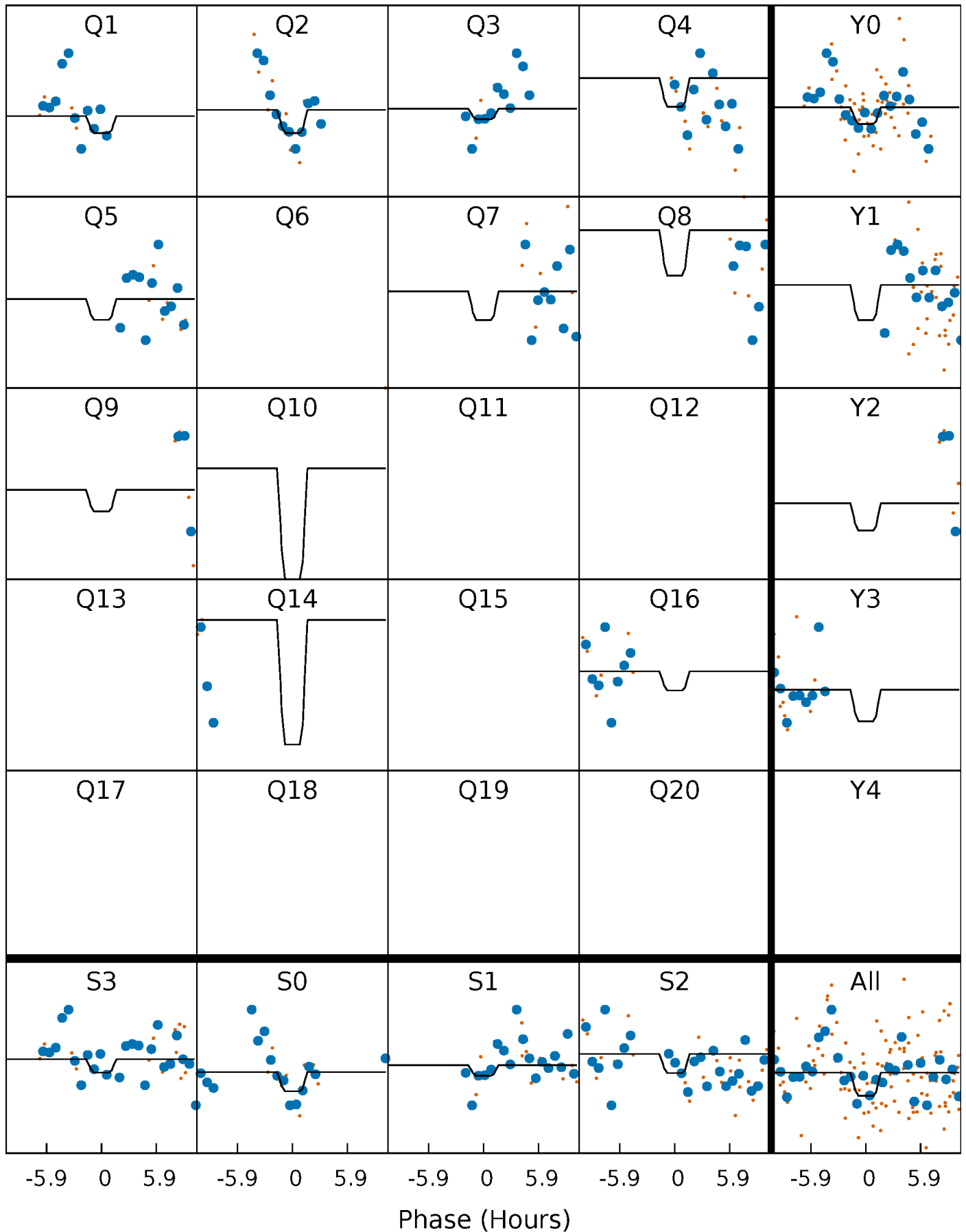
DV Quarter-Phased Transit Curves

TCE 005392413-02 P=100.099511 Days $T_0=135.128892$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

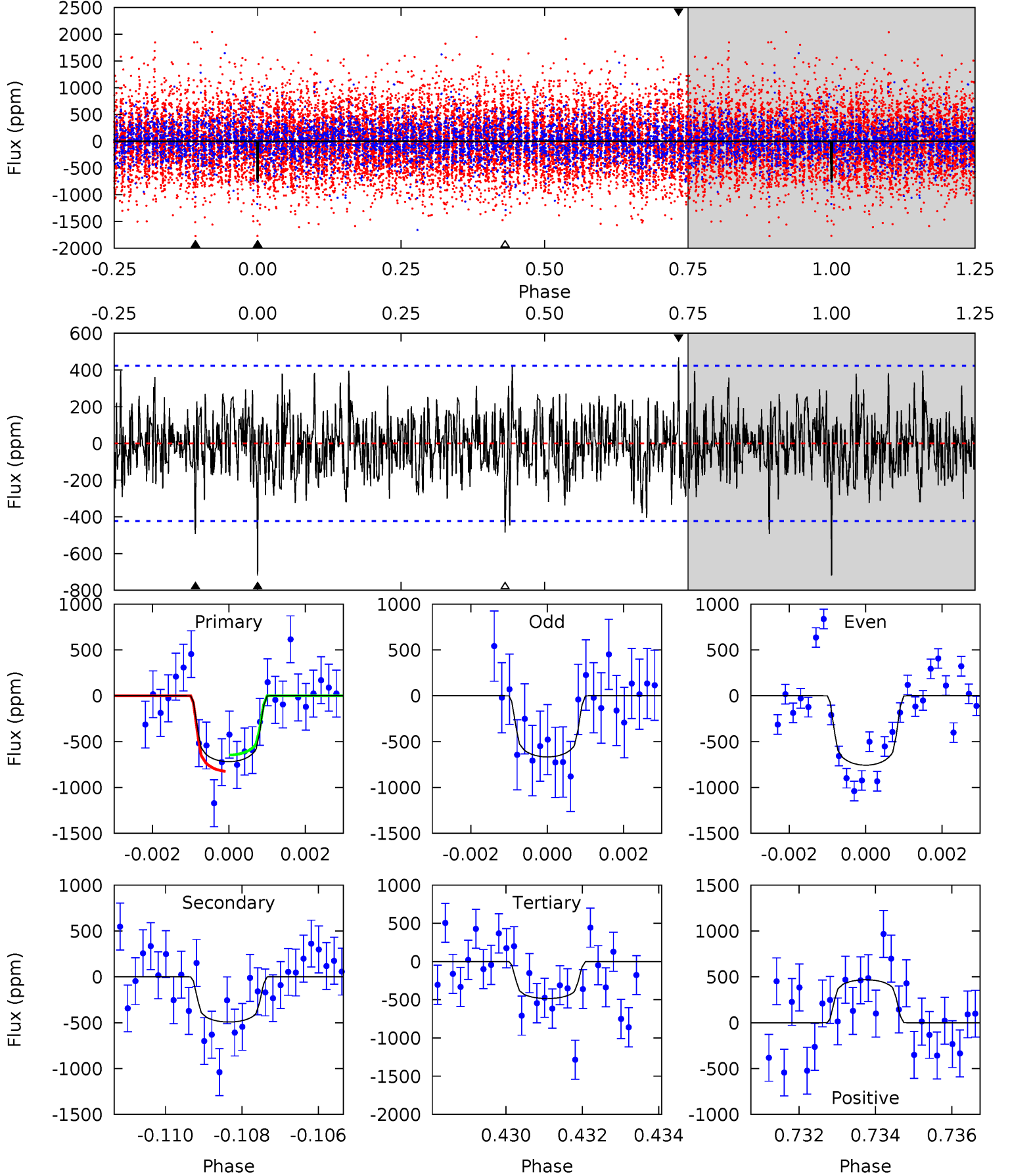
TCE 005392413-02 P=100.084508 Days $T_0=135.179649$ (BKJD)



DV Model-Shift Uniqueness Test

005392413-02, P = 100.099511 Days, E = 35.029381 Days

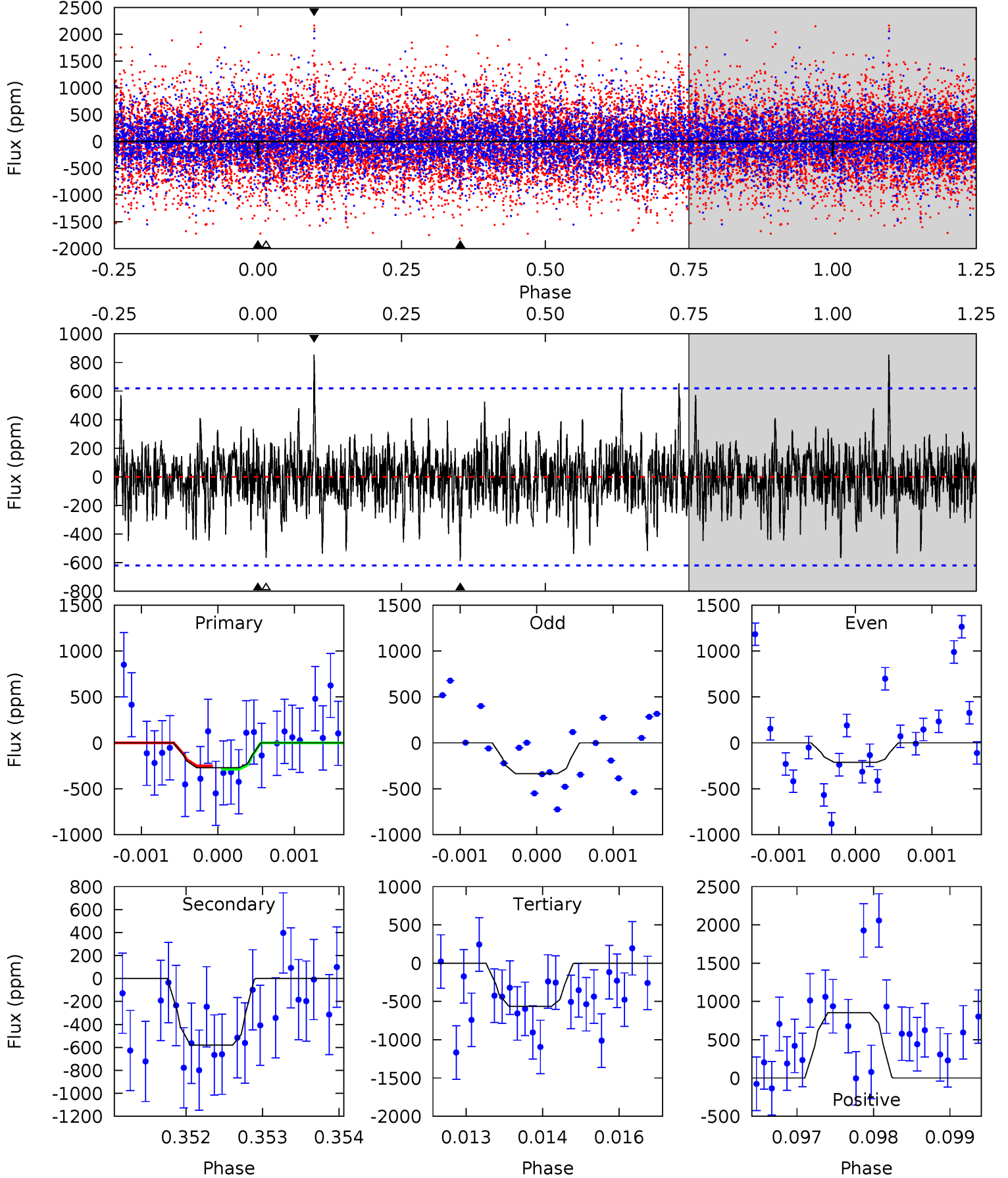
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.04	6.20	6.09	5.89	5.32	3.08	1.64	2.95	3.15	0.11	0.31	0.56	0.96	0.39	1.10



Alt Model-Shift Uniqueness Test

005392413-02, P = 100.084508 Days, E = 35.095141 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.37	5.08	4.95	7.47	5.42	3.24	1.37	-2.58	-5.10	0.13	-2.39	0.53	1.12	0.60	0.16



Stellar Parameters For KIC 005392413

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6687^{+188}_{-235}	$4.482^{+0.039}_{-0.221}$	$-0.500^{+0.300}_{-0.300}$	$0.978^{+0.346}_{-0.087}$	$1.089^{+0.158}_{-0.118}$	$1.639^{+0.263}_{-0.935}$
	+3%/-4%	+1%/-5%	+60%/-60%	+35%/-9%	+15%/-11%	+16%/-57%
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 005392413-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-493 ± 80	$3.08^{+1.97}_{-1.64}$	637^{+46}_{-32}	6019^{+3438}_{-1196}	5171^{+20182}_{-3277}
Alt.	-581 ± 114	$2.30^{+1.98}_{-1.44}$	639^{+46}_{-32}	7312^{+7845}_{-1902}	10822^{+64829}_{-7641}

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

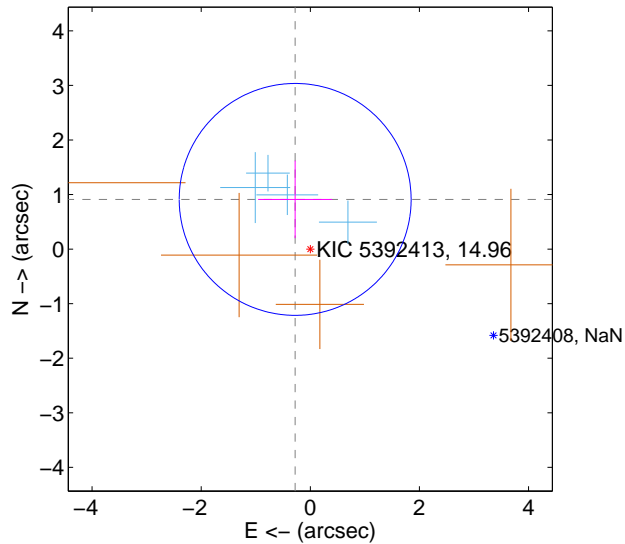
Supplemental centroid analysis for 005392413-02. Kepler magnitude: 14.96. Transit SNR 8.89

There are 4 quarters with good PRF difference image offsets

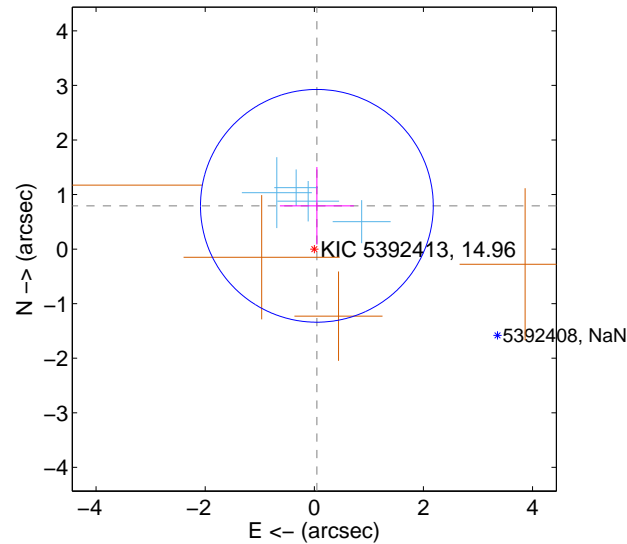
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.952 ± 0.708	1.34	0.277 ± 0.678	0.911 ± 0.711
PRF-fit source offset from KIC position	0.794 ± 0.711	1.12	-0.047 ± 0.678	0.793 ± 0.711
photometric centroid source offset	1.35 ± 0.78	1.72	-0.62 ± 0.90	-1.19 ± 0.75

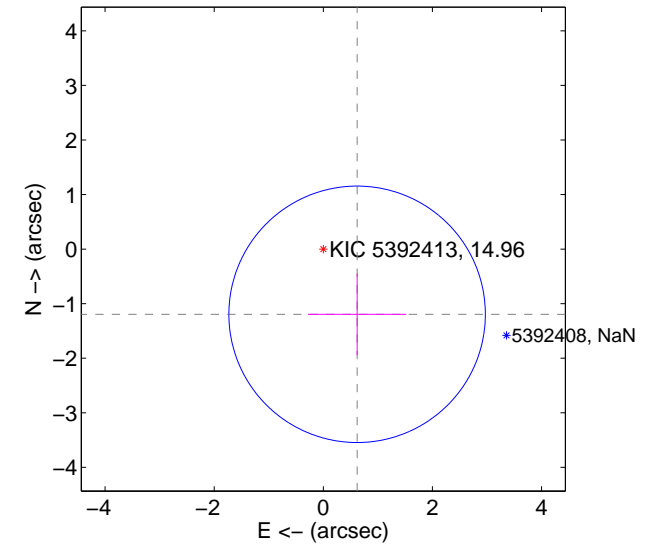
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

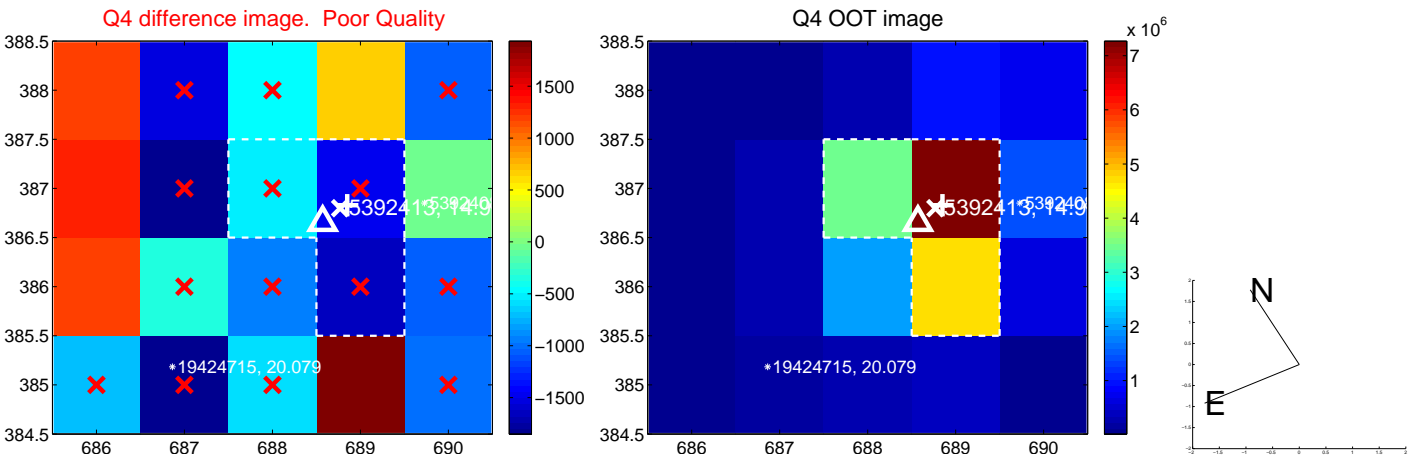
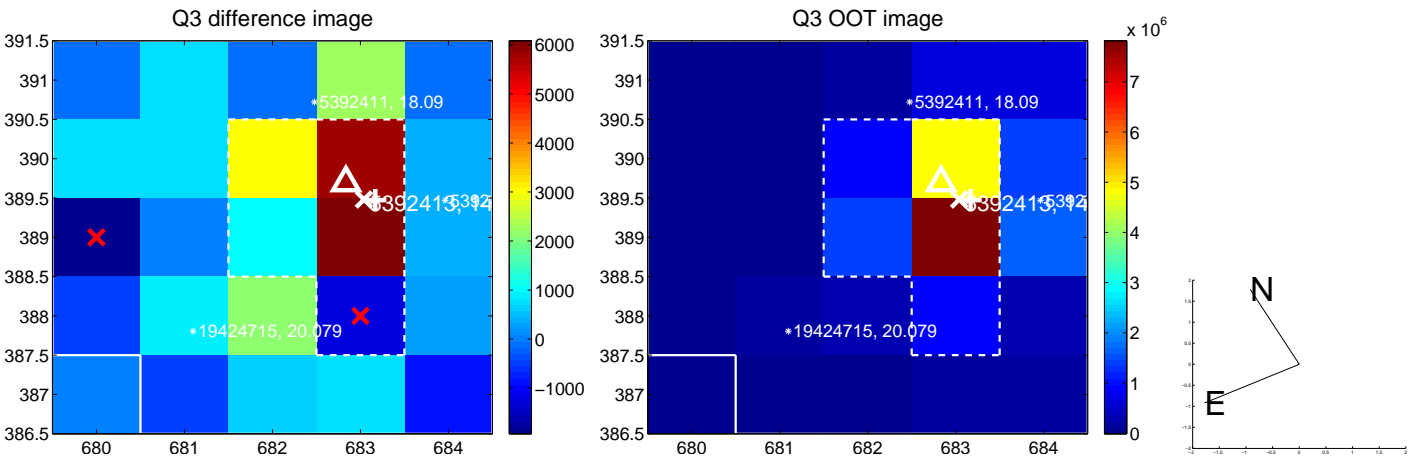
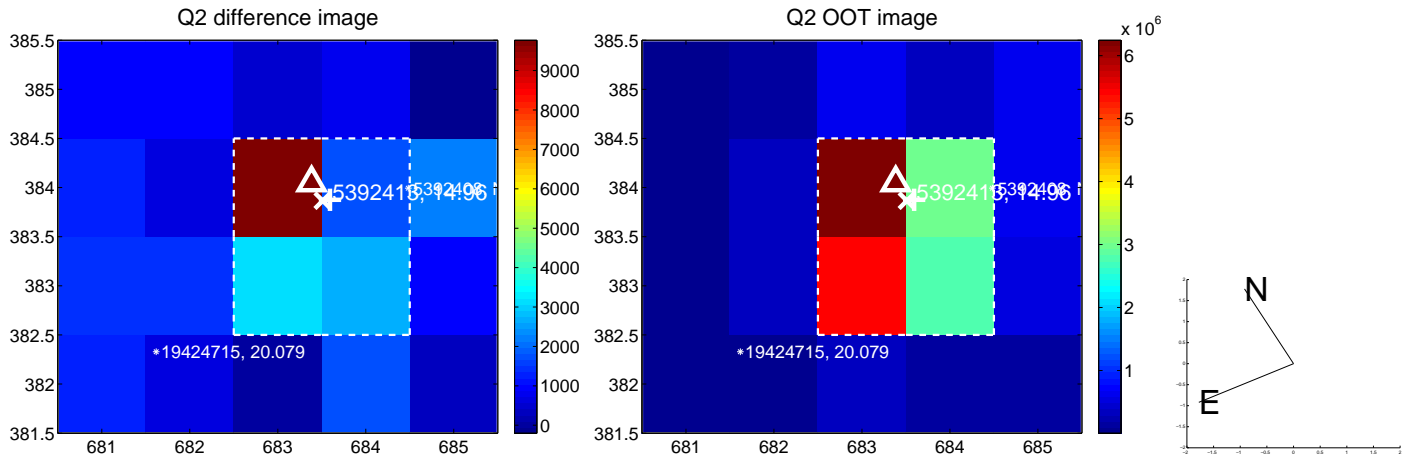
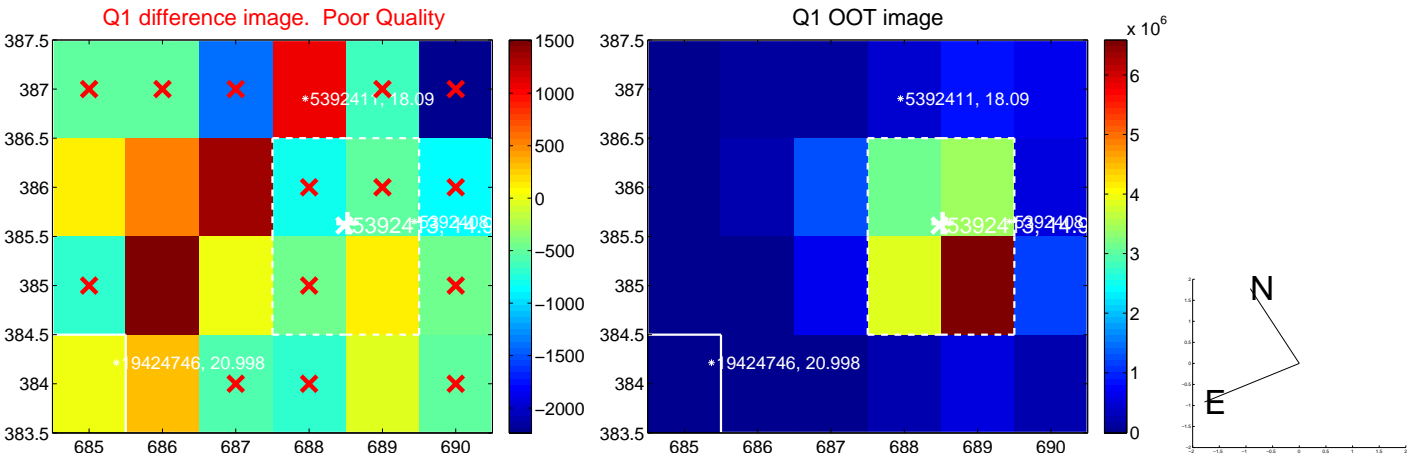


offset from photometric centroids

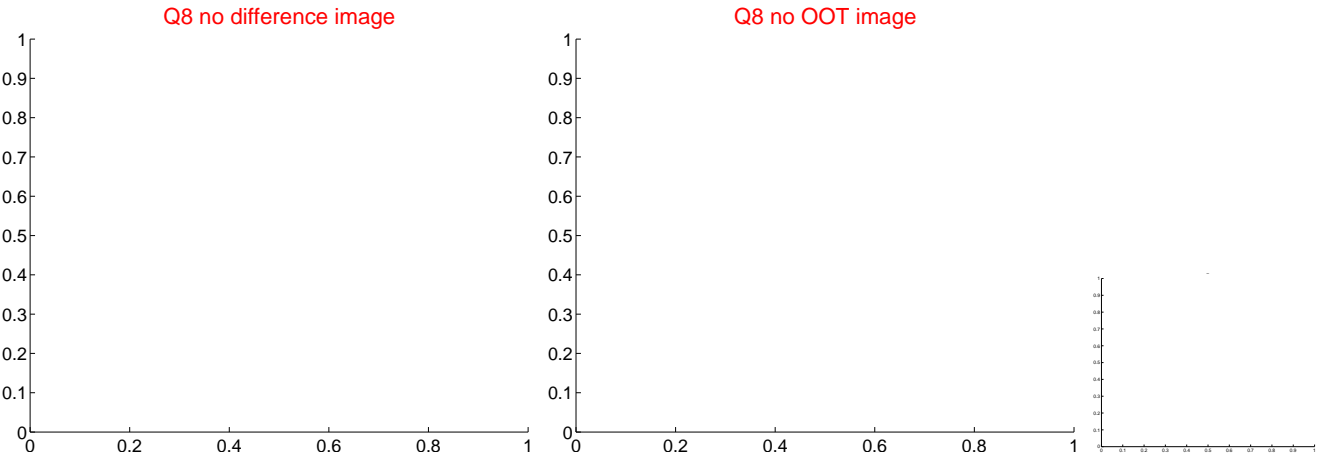
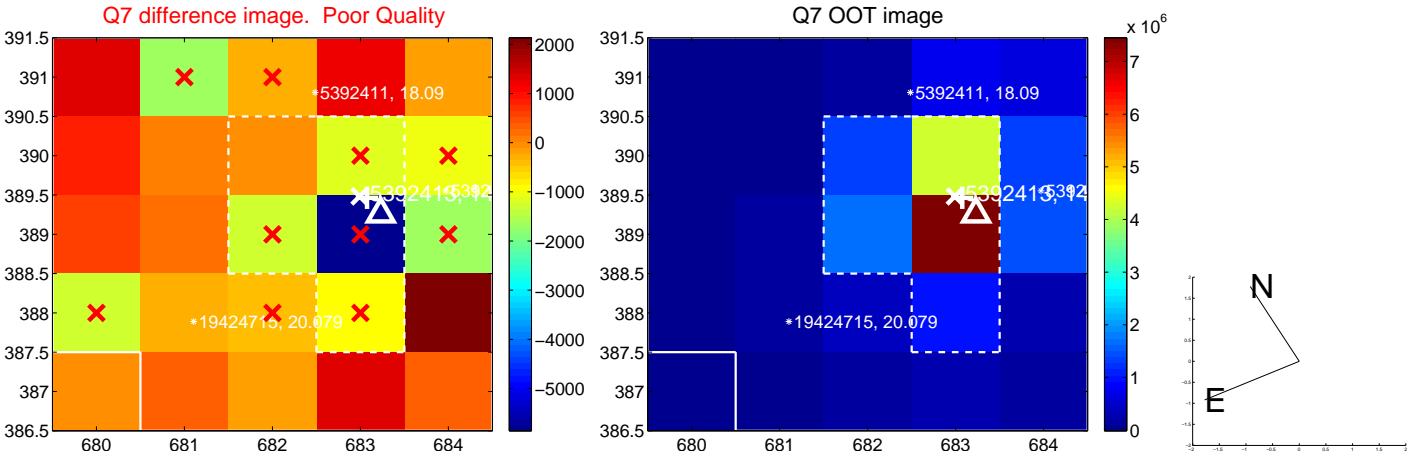
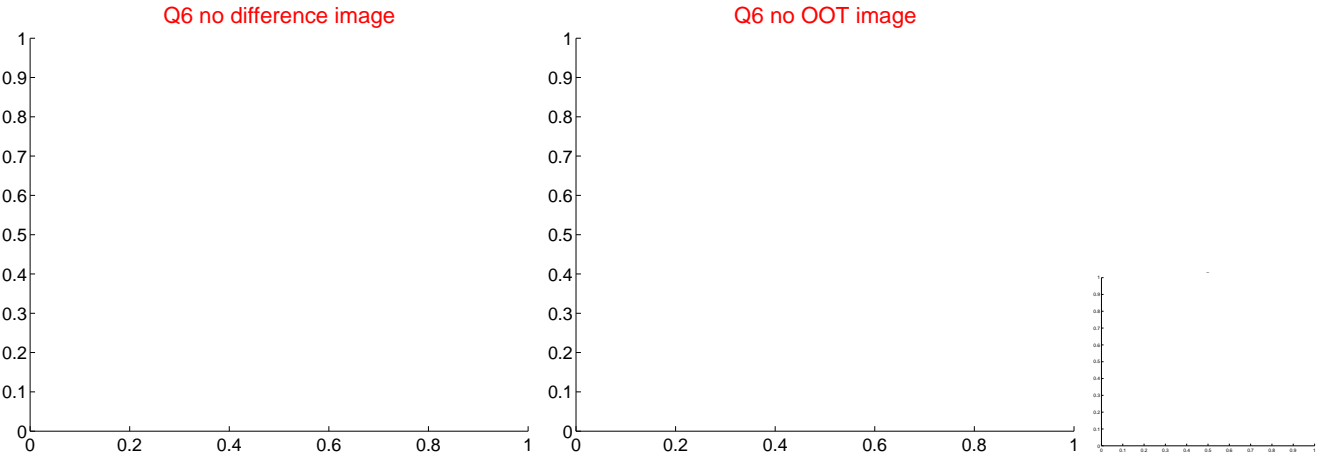
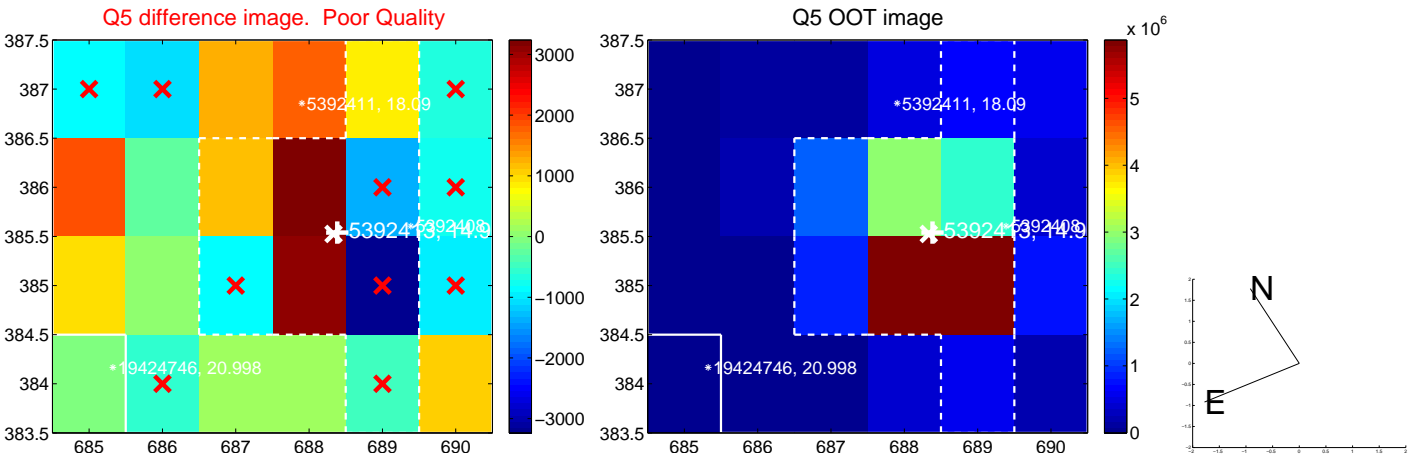


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

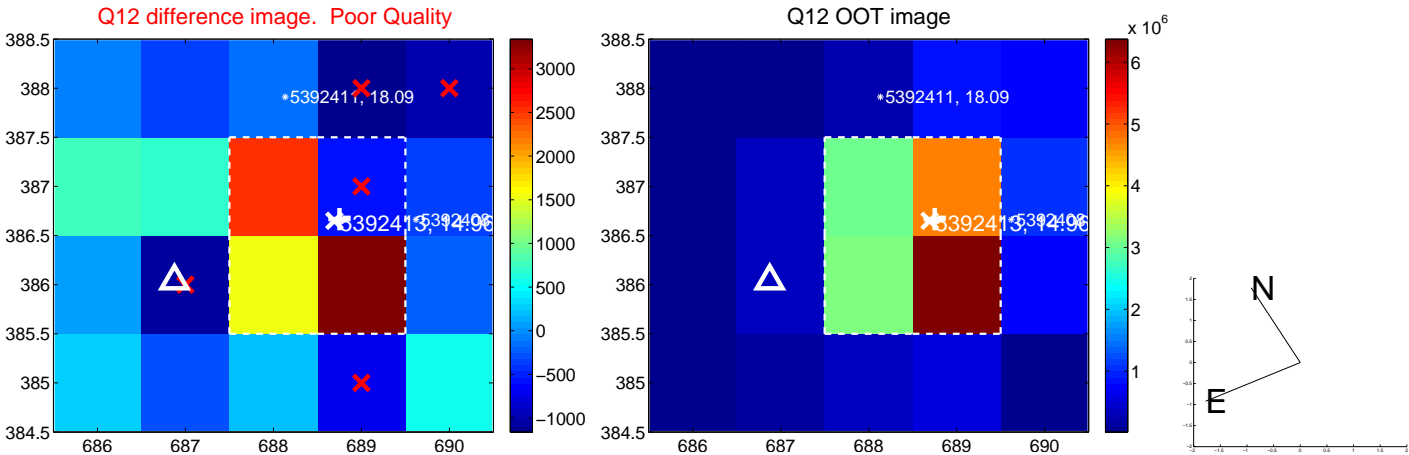
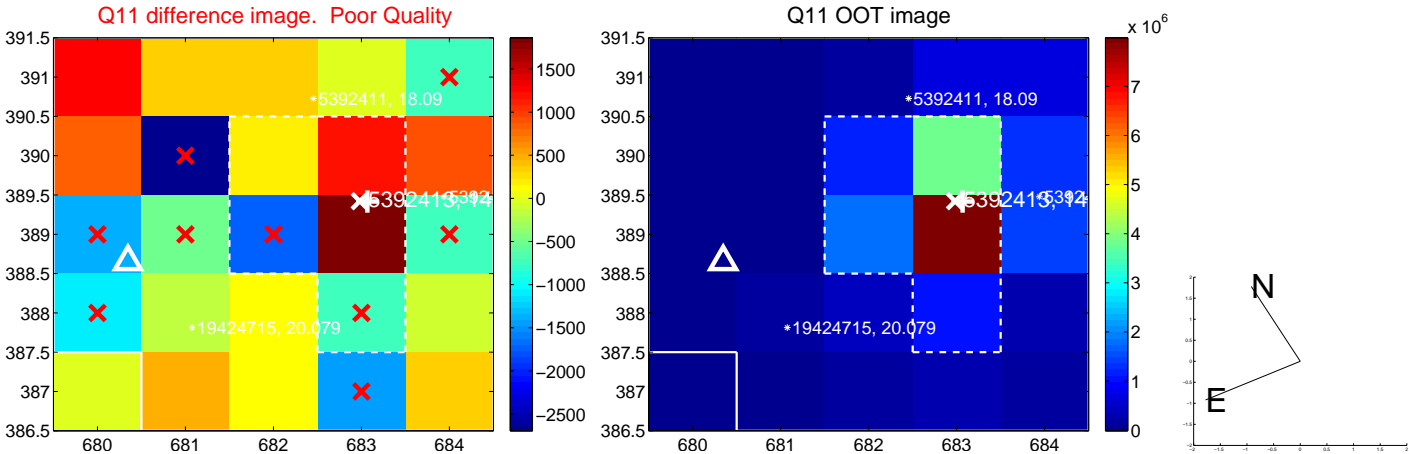
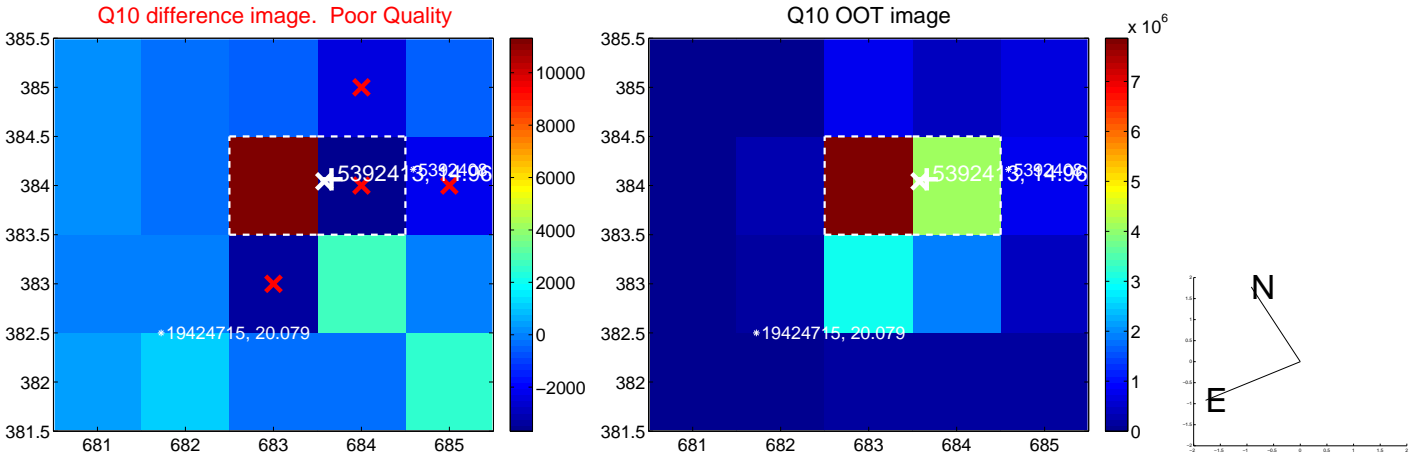
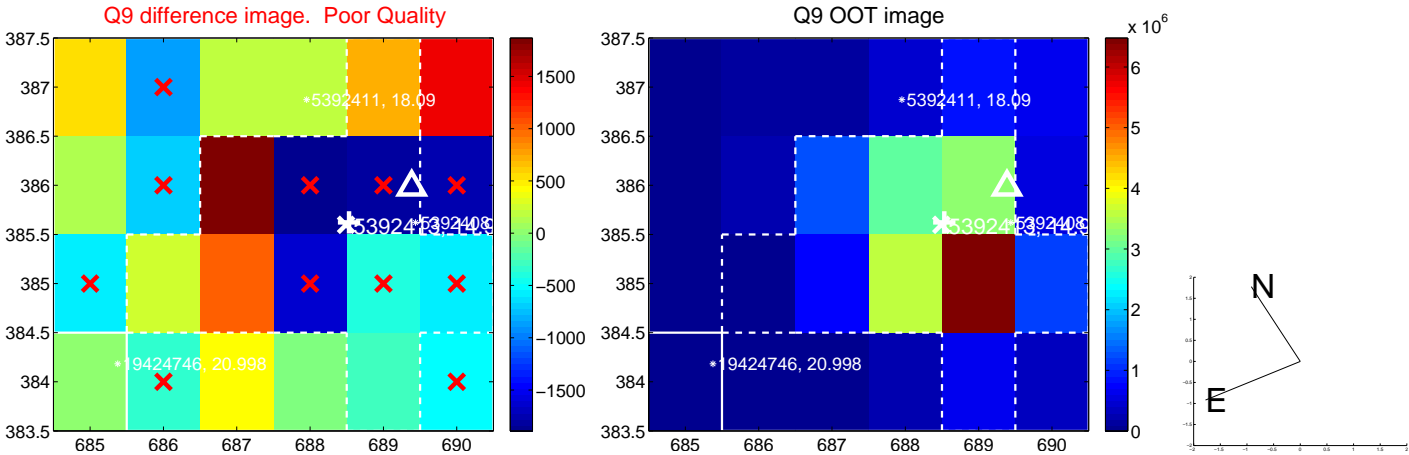
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



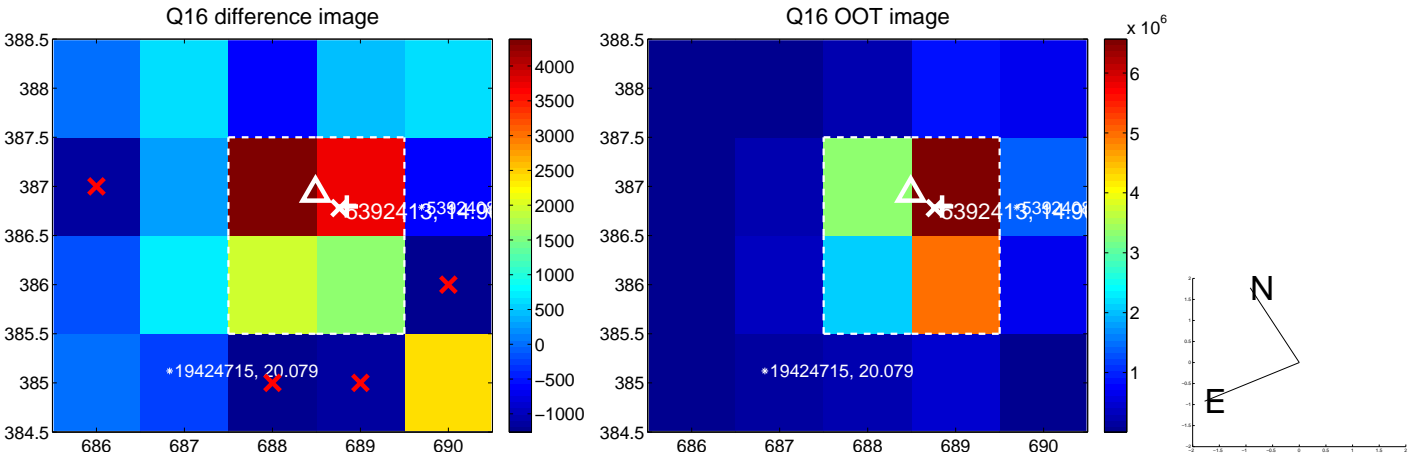
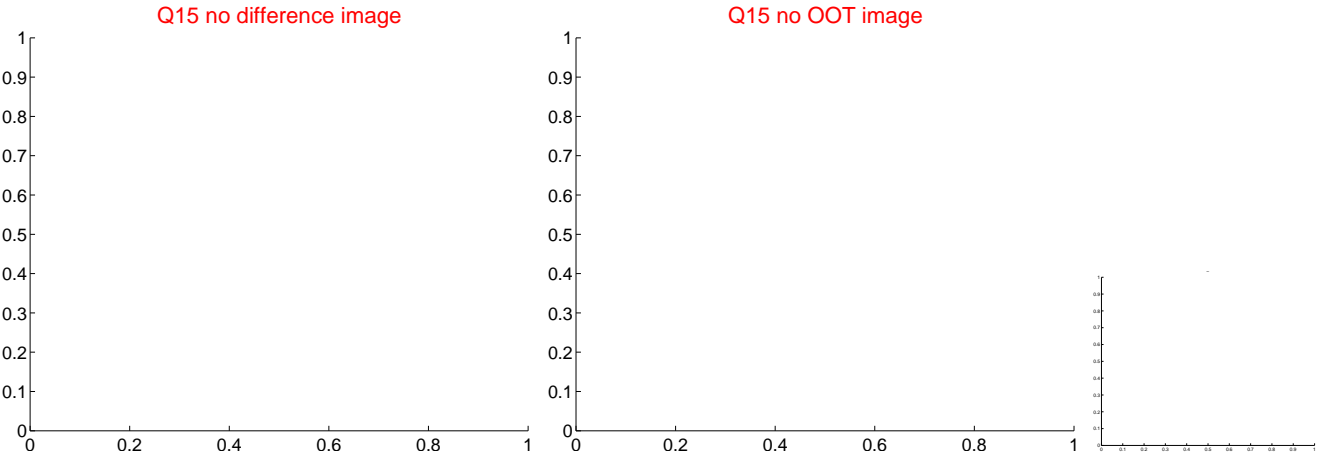
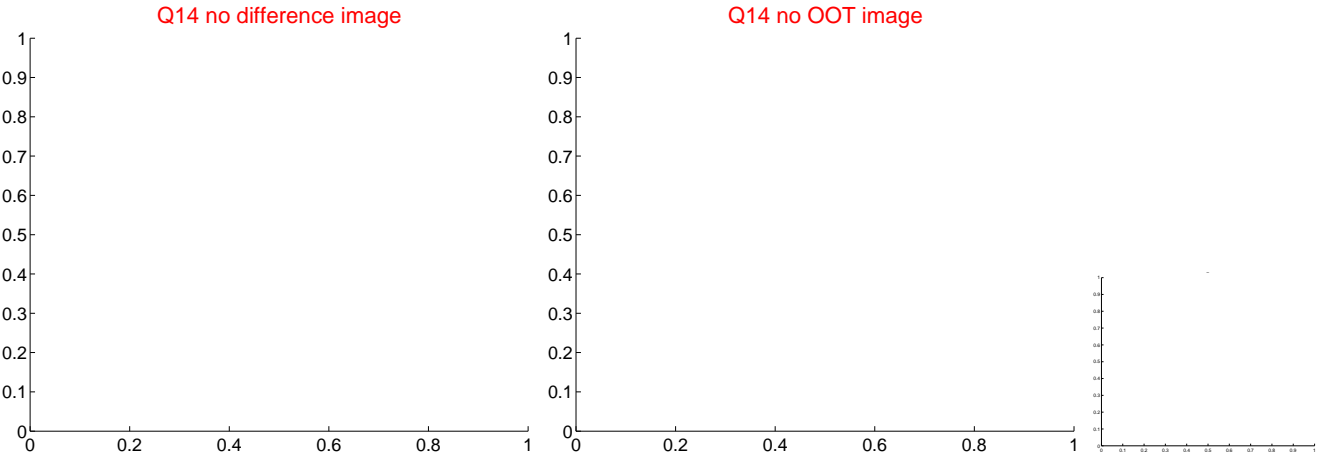
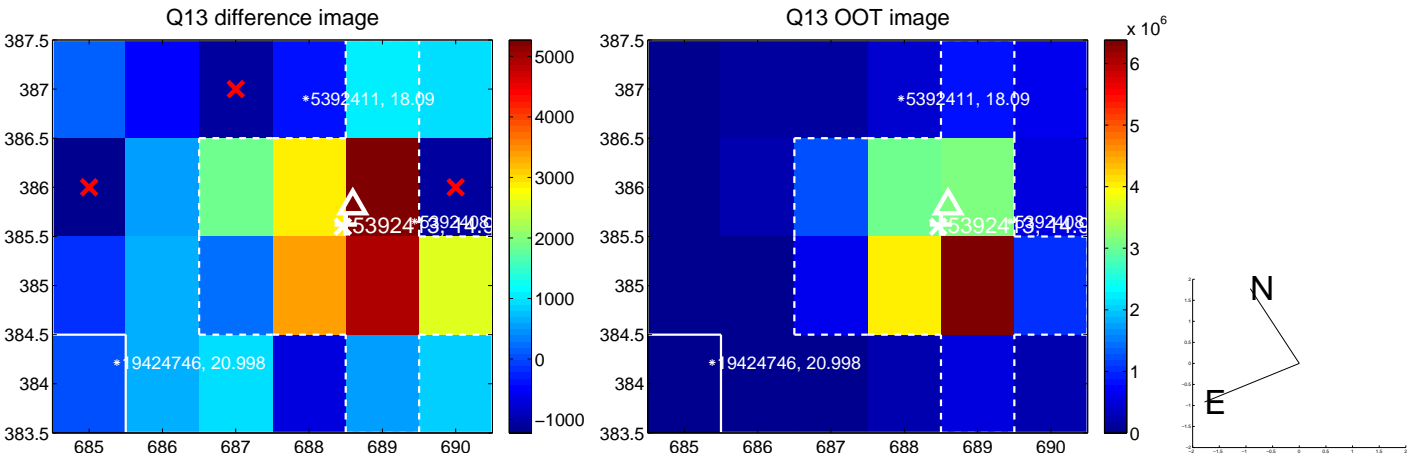
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



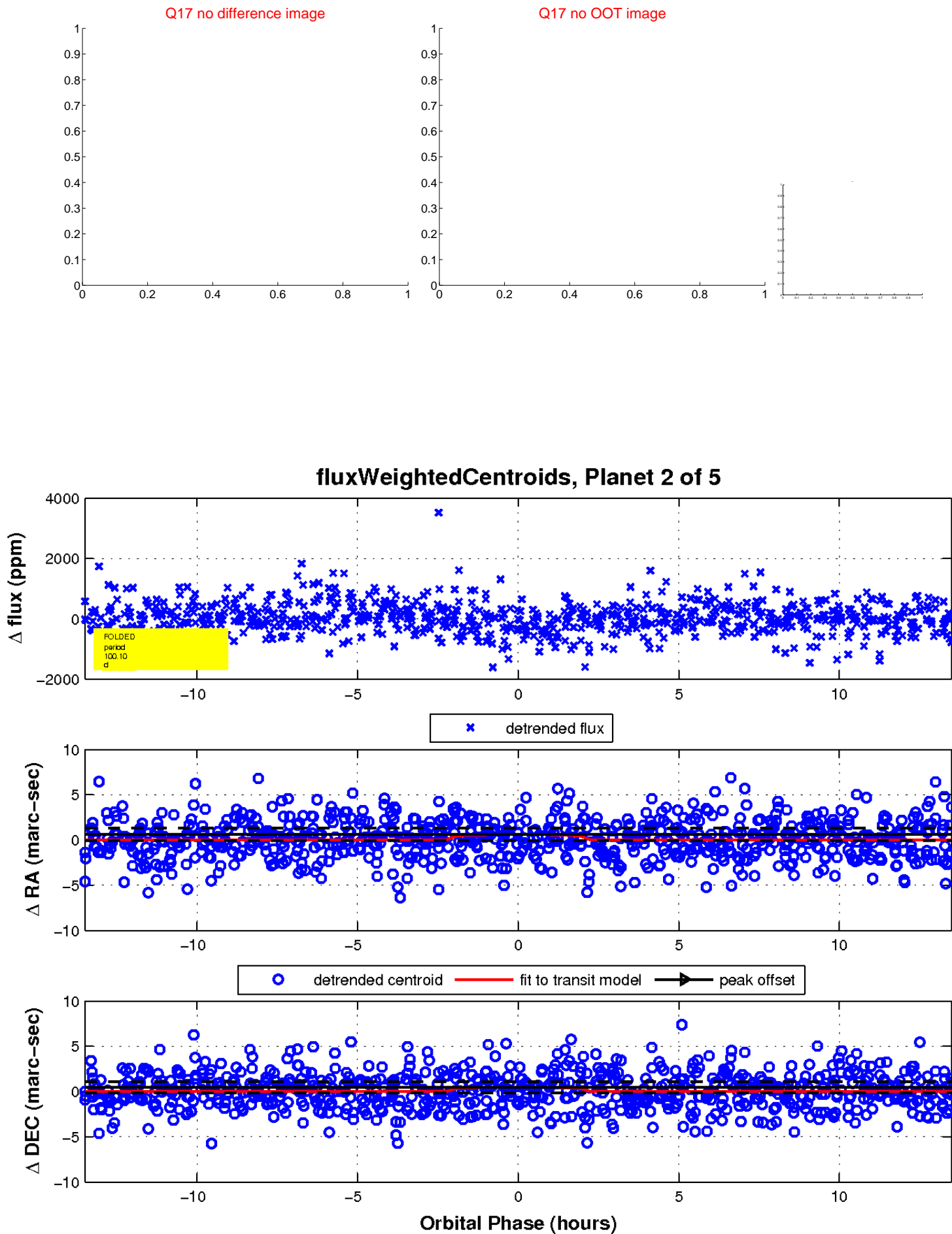
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



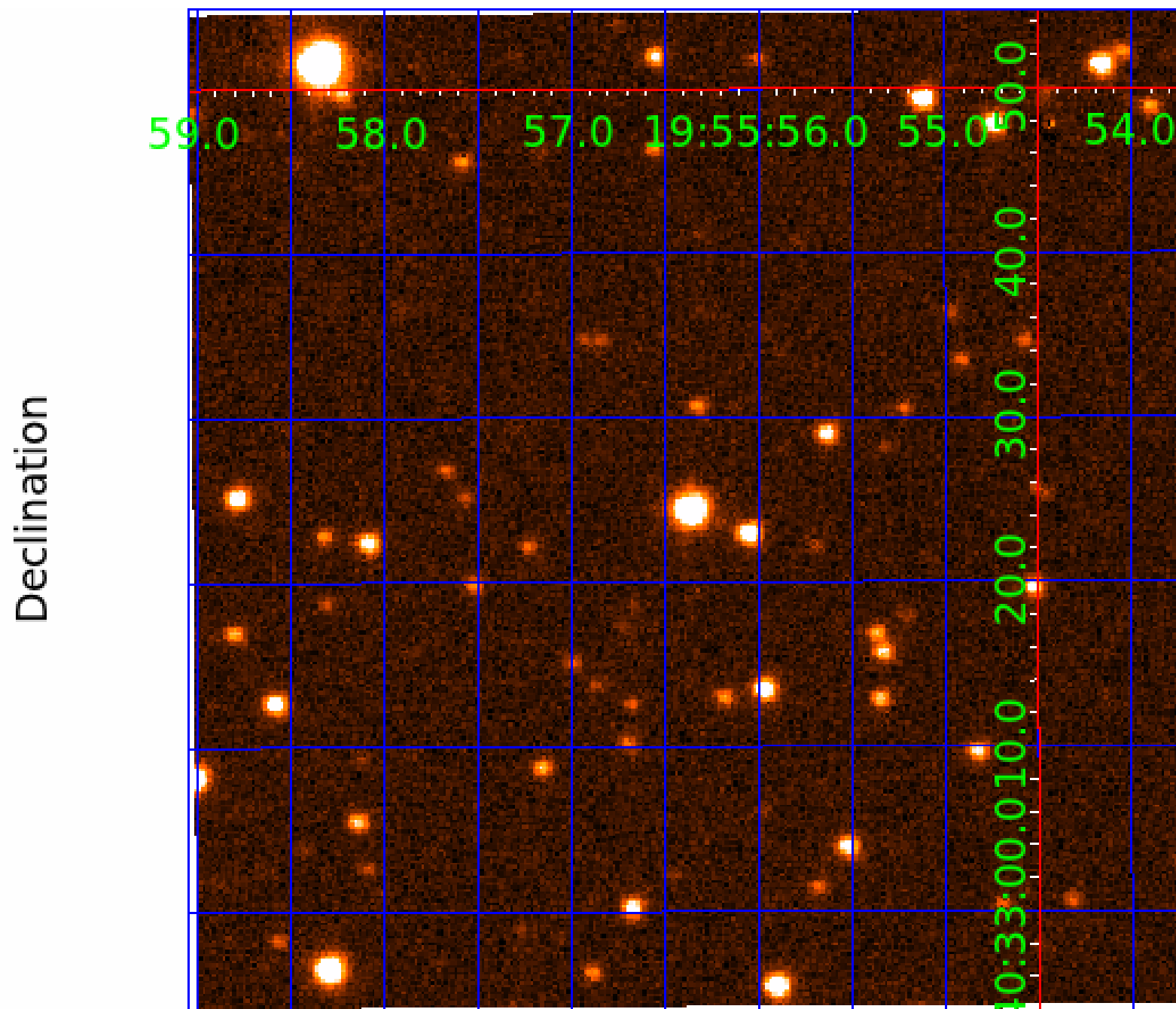
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005392413

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})
005392413-01	OBS	No	1.410853	132.941643	48.1	8.626	8.6	8.2	0.98	6687	0.69	2721.05
005392413-02	OBS	No	100.099511	135.128892	709.9	4.501	9.7	8.9	0.98	6687	2.88	9.26
005392413-03	OBS	No	33.115975	136.924915	594.7	4.393	9.4	9.9	0.98	6687	2.65	40.49
005392413-04	OBS	No	58.436391	141.988134	621.4	4.363	9.2	10.3	0.98	6687	2.72	18.99
005392413-05	OBS	No	105.409286	150.470111	734.6	3.211	8.4	8.7	0.98	6687	3.00	8.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005392413-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005392413-02	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
005392413-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005392413-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005392413-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

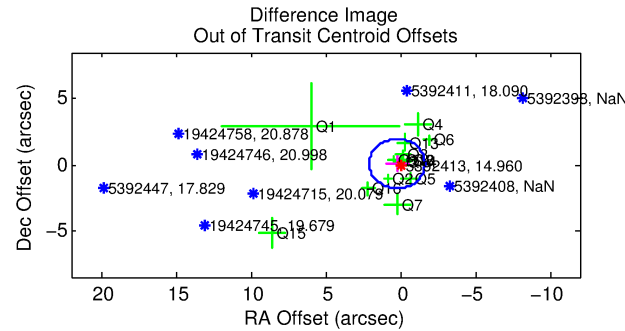
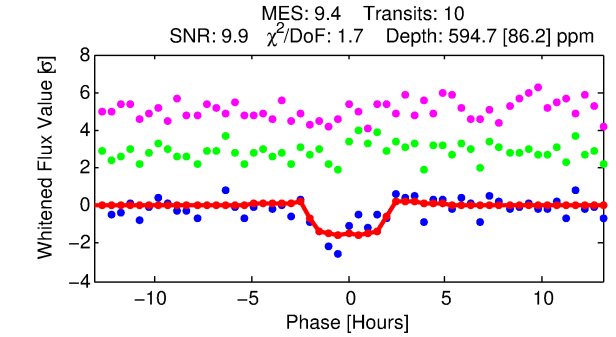
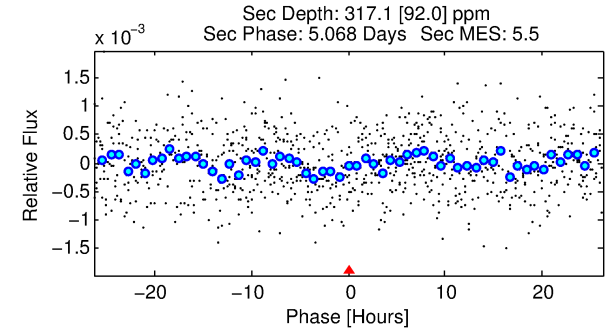
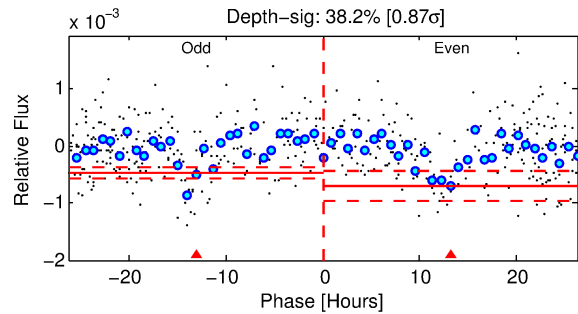
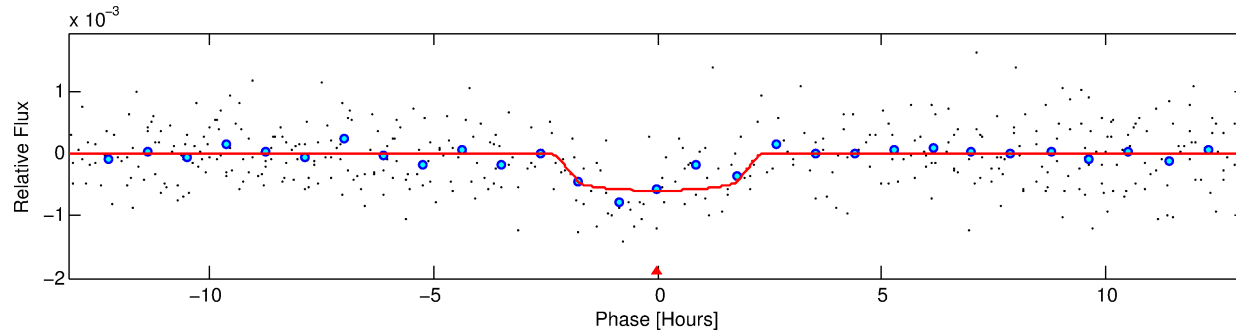
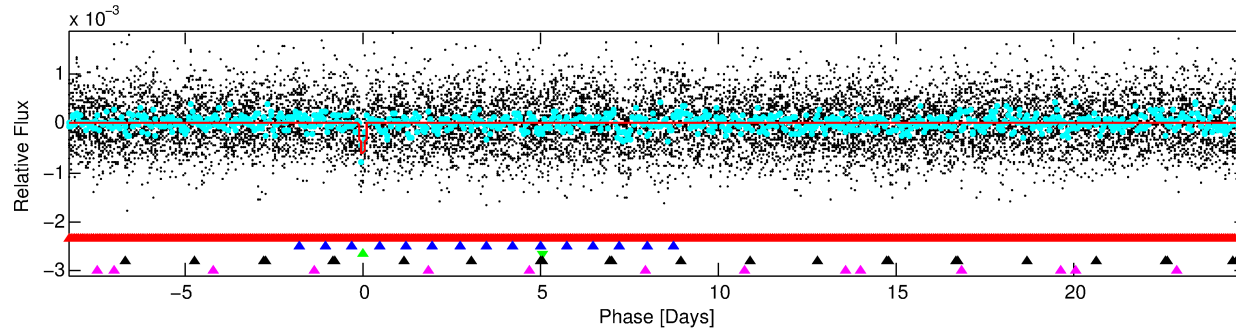
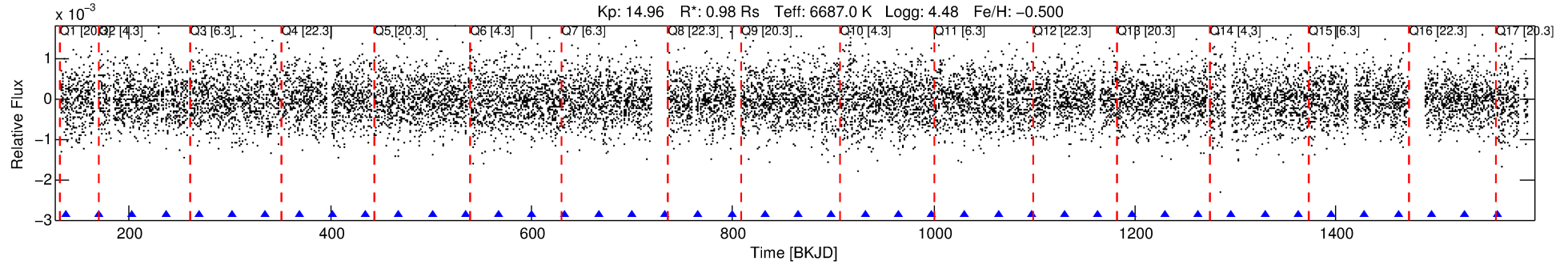
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005392413-03

No Significant Match Found

DV One-Page Summary

KIC: 5392413 Candidate: 3 of 5 Period: 33.116 d



DV Fit Results:

Period = 33.11597 [0.00055] d
Epoch = 136.9249 [0.0130] BKJD
Rp/R* = 0.0249 [0.0115]
a/R* = 35.45 [92.75]
b = 0.82 [1.05]
Seff = 40.49 [17.67]
Teq = 643 [70] K
Rp = 2.65 [1.54] Re
a = 0.2057 [0.0598] AU
Ag = 1048.29 [1103.25] [0.95 σ]
Teffp = 5659 [1384] K [3.62 σ]

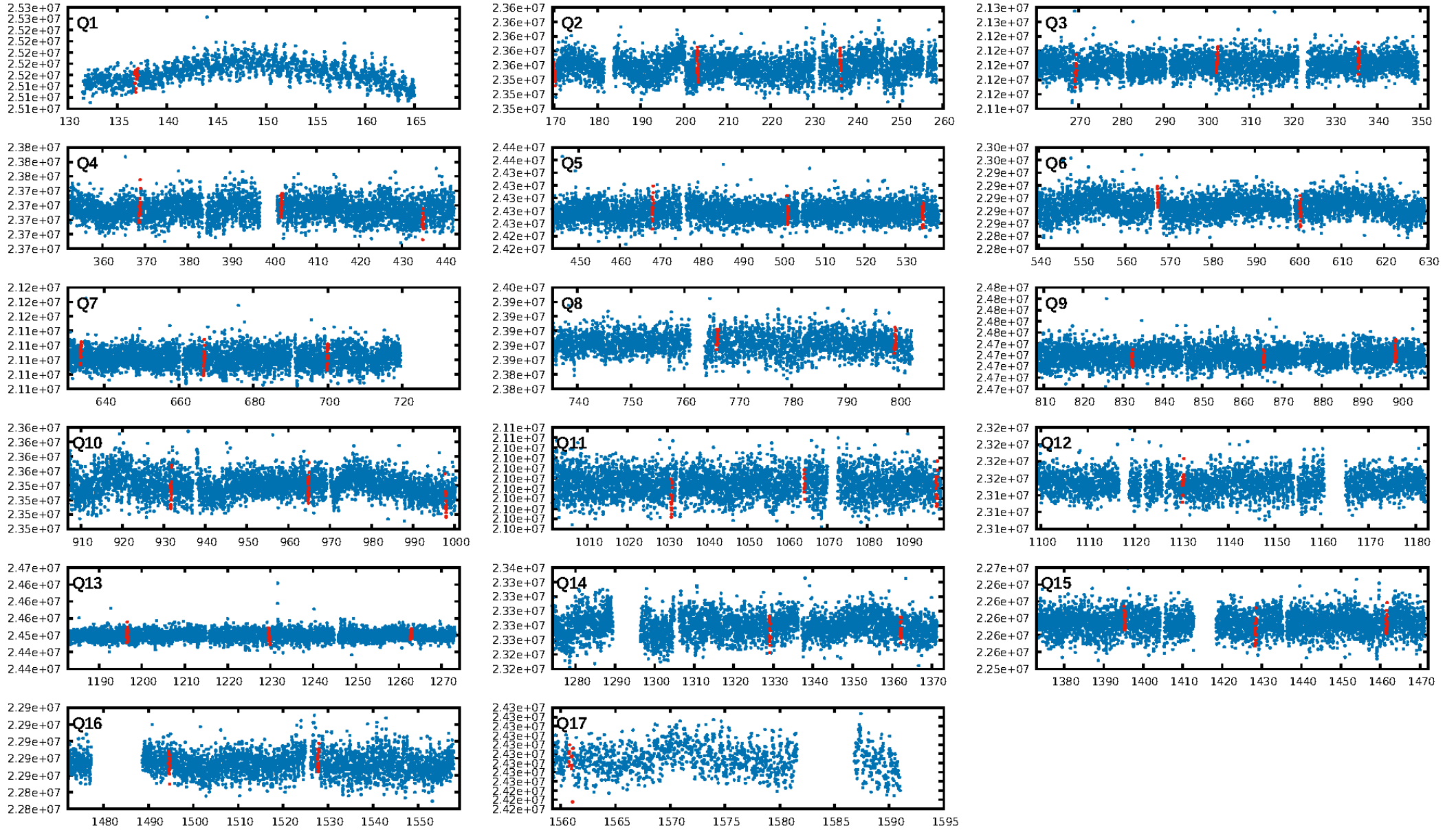
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [78.61 σ]
LongPeriod-sig: 100.0% [98.15 σ]
ModelChiSquare2-sig: 73.9%
ModelChiSquareGof-sig: 93.9%
Bootstrap-pfa: 6.59e-10
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: 1.36
Centroid-sig: 33.3%
Centroid-so: 0.105 arcsec [0.18 σ]
OotOffset-rm: 0.245 arcsec [0.39 σ]
KicOffset-rm: 0.059 arcsec [0.10 σ]
OotOffset-st: 4/4/3/3 [14]
KicOffset-st: 4/4/3/3 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 0.20 [3/15]

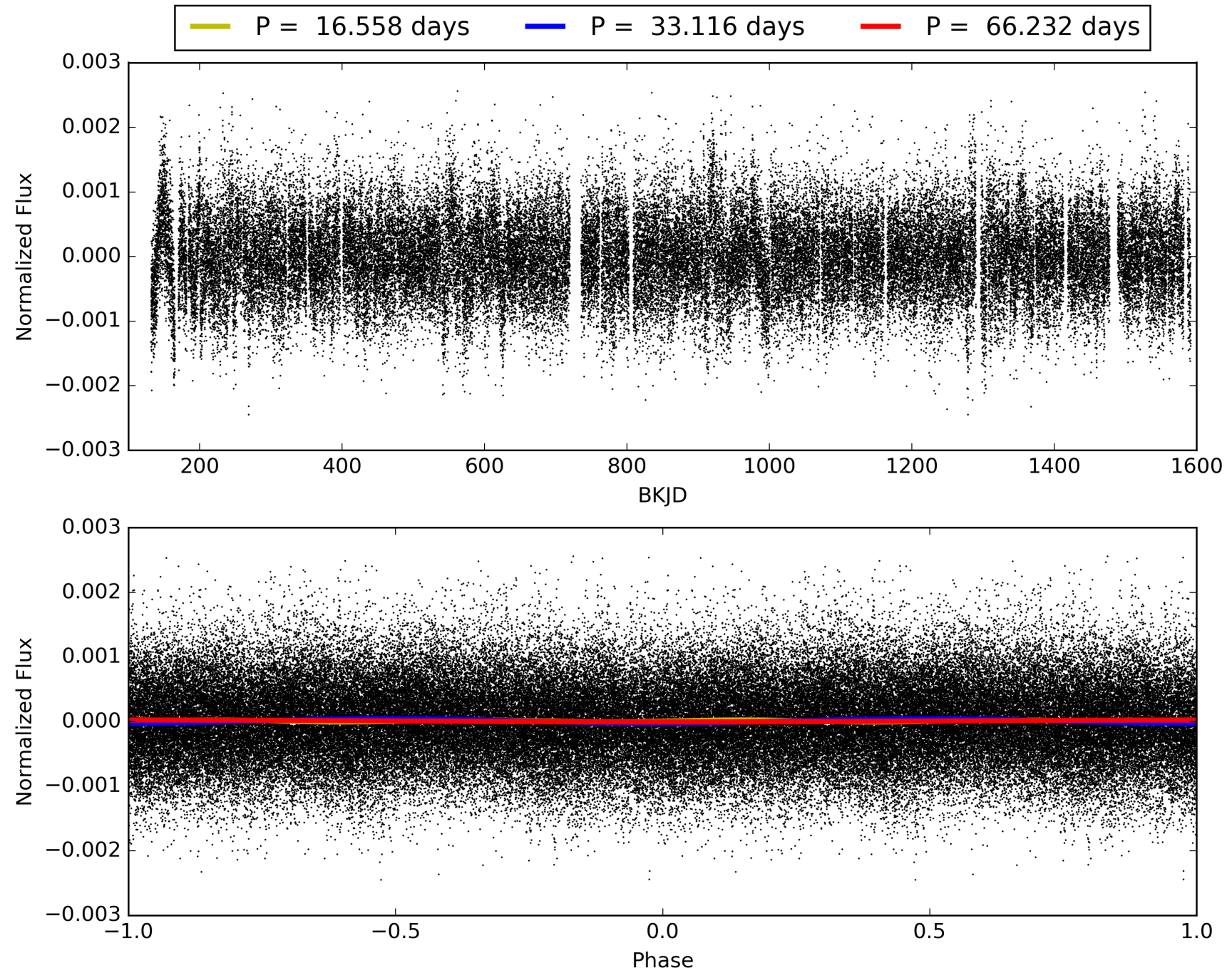
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:16:56 Z

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

TCE 005392413-03, PDC Light Curves

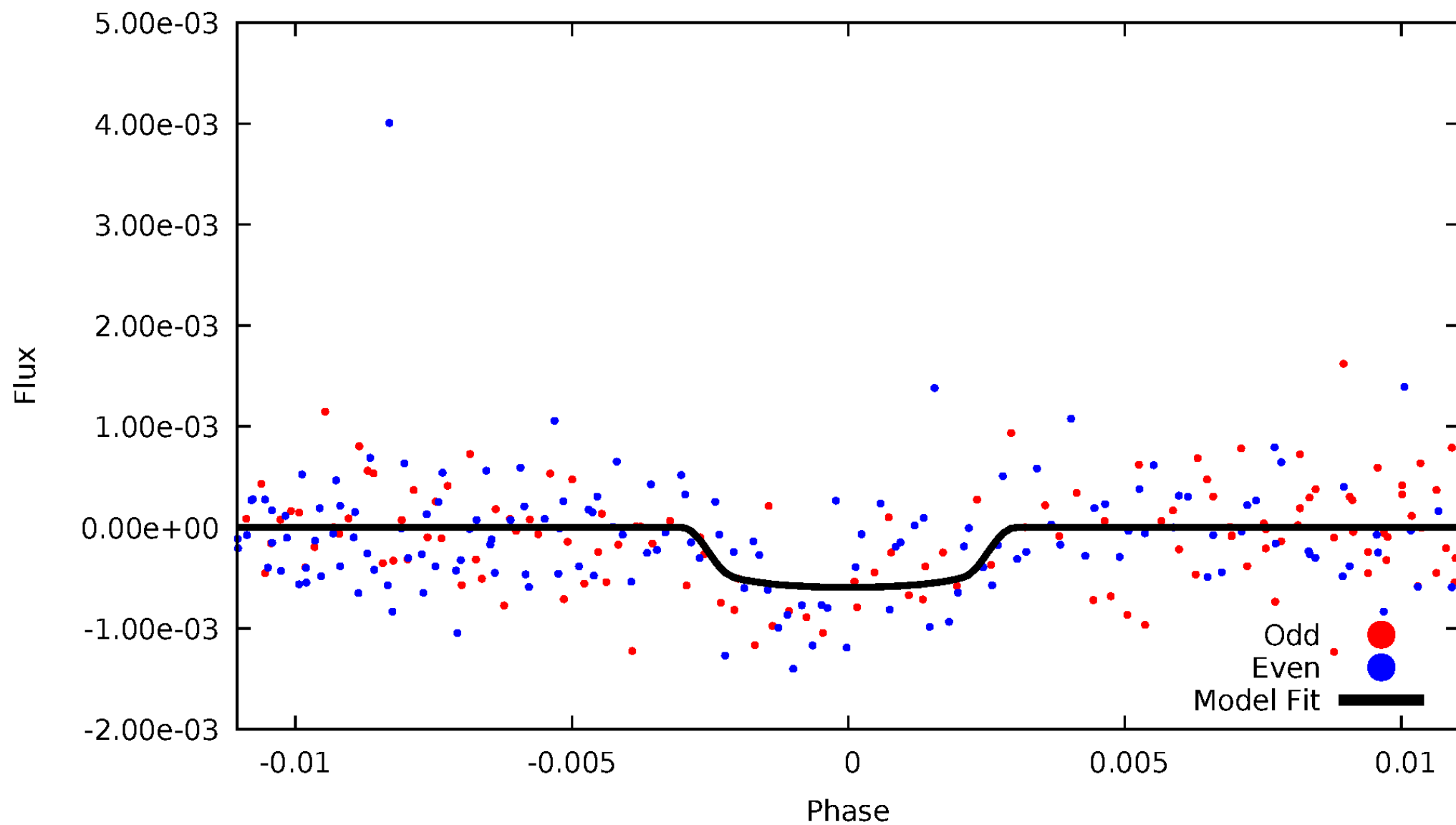


TCE 005392413-03



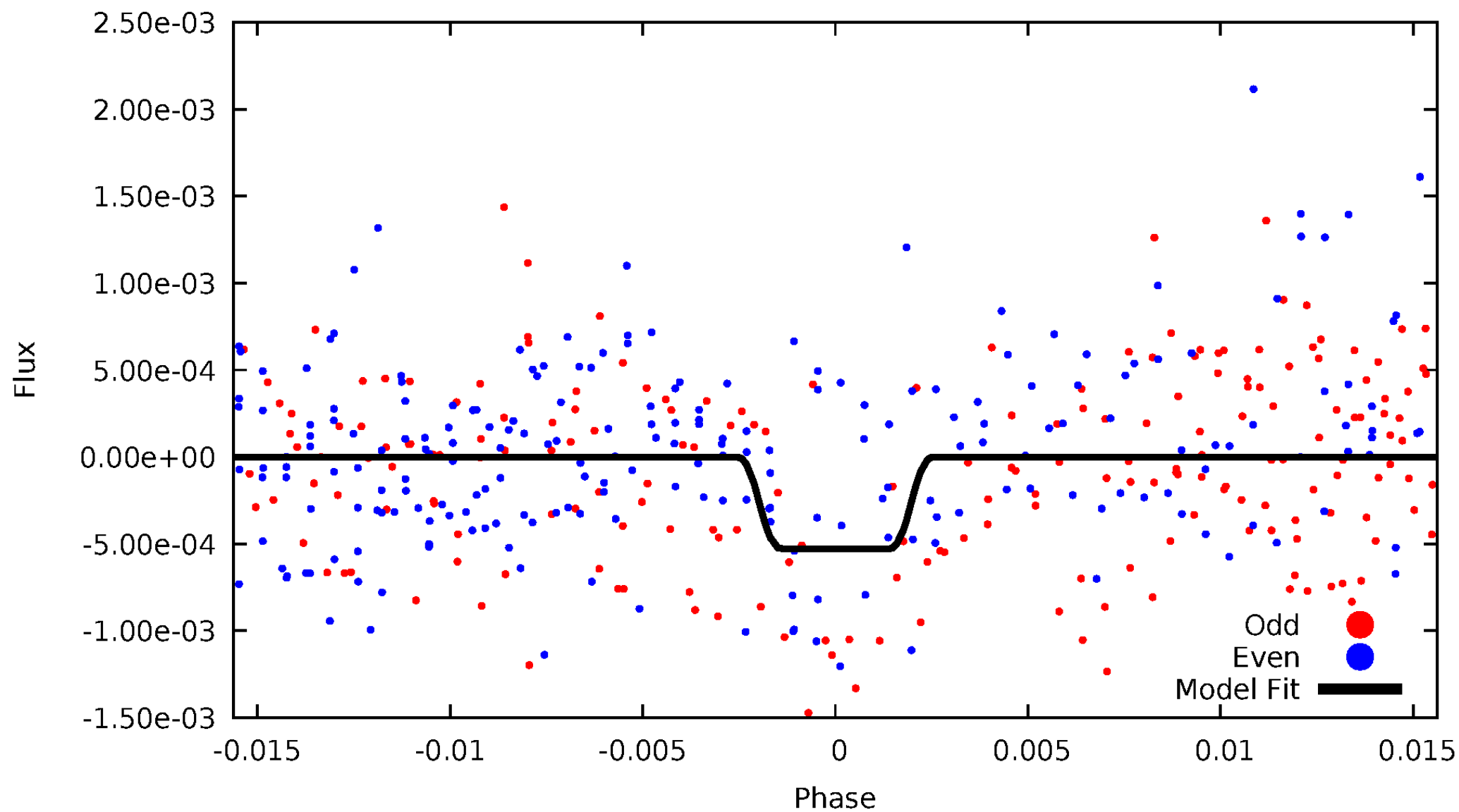
DV Odd/Even

TCE 005392413-03



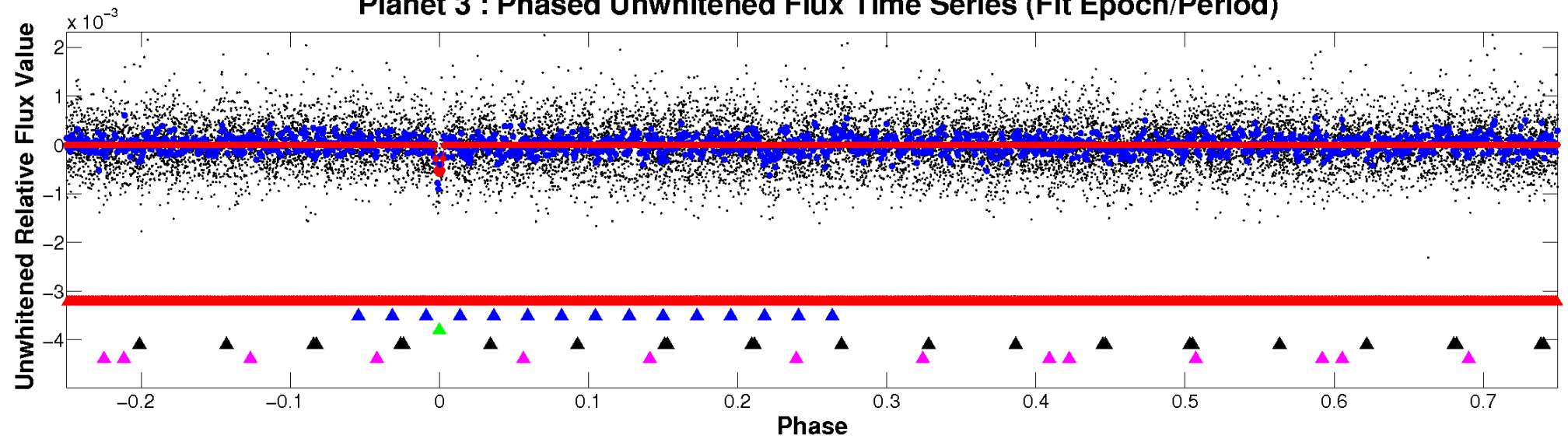
ALT Odd/Even

TCE 005392413-03

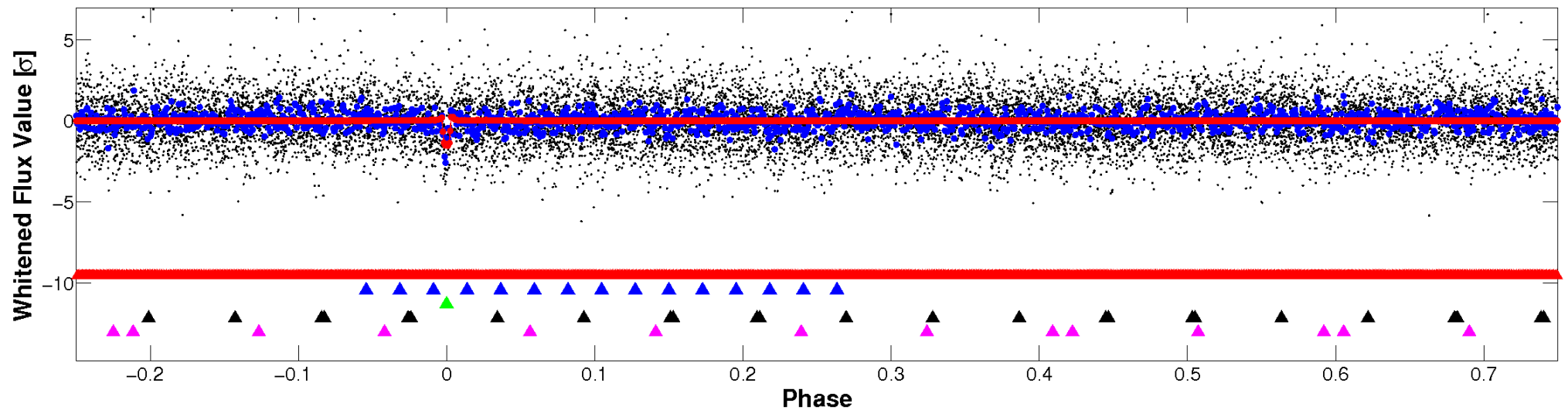


Non-Whitened Vs. Whitened Light Curve

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

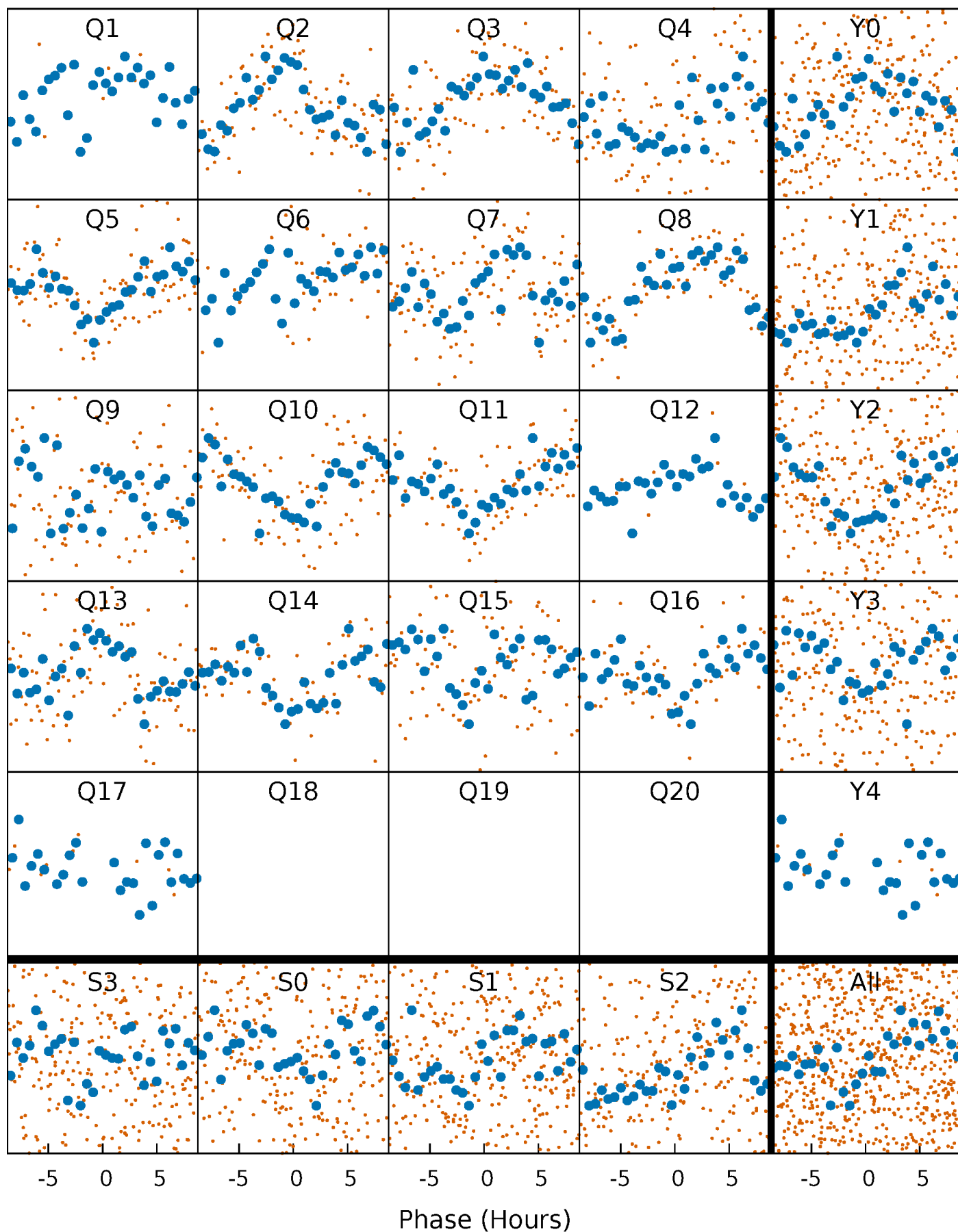


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



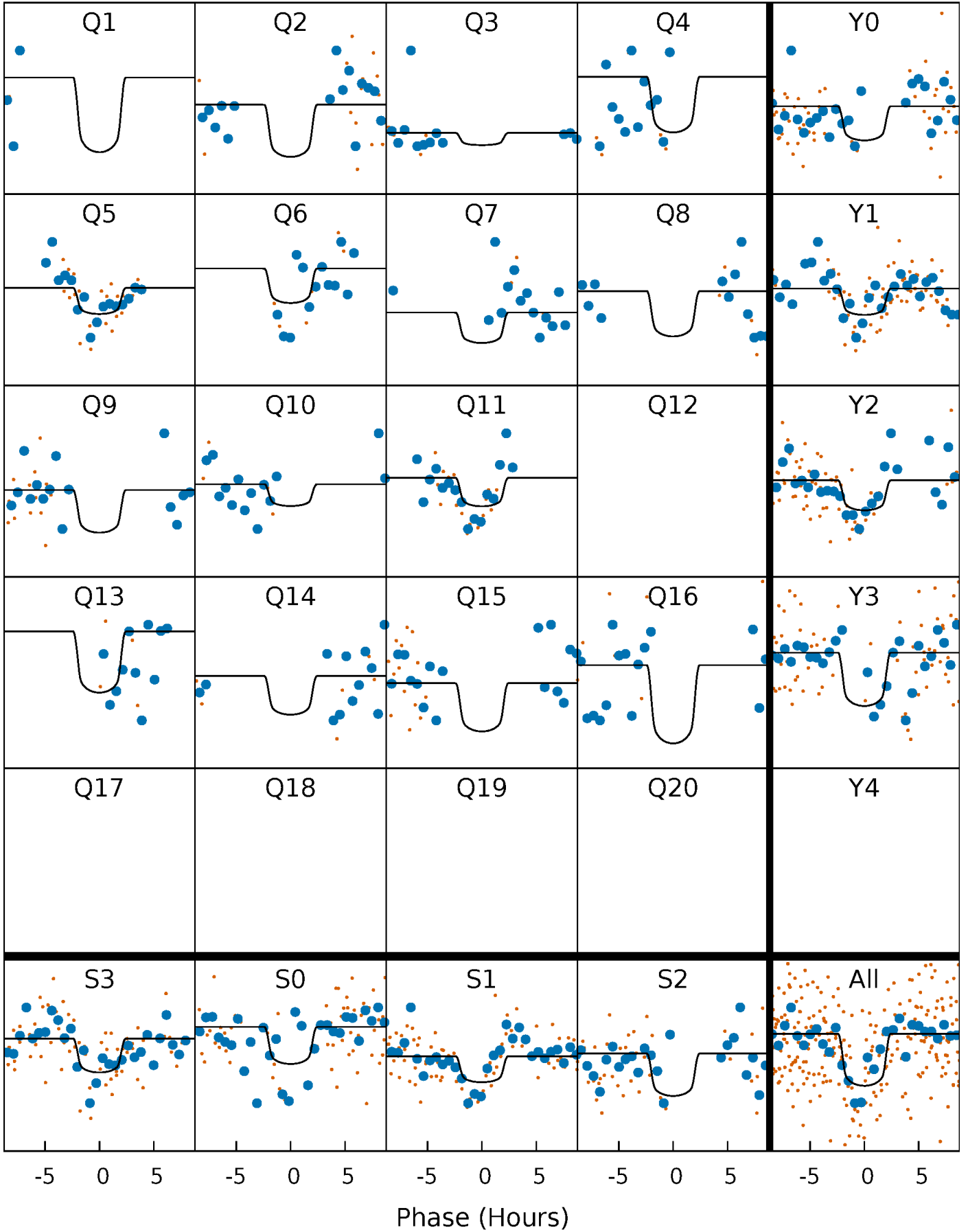
PDC Quarter-Phased Transit Curves

TCE 005392413-03 P= 33.115975 Days $T_0=136.924915$ (BKJD)



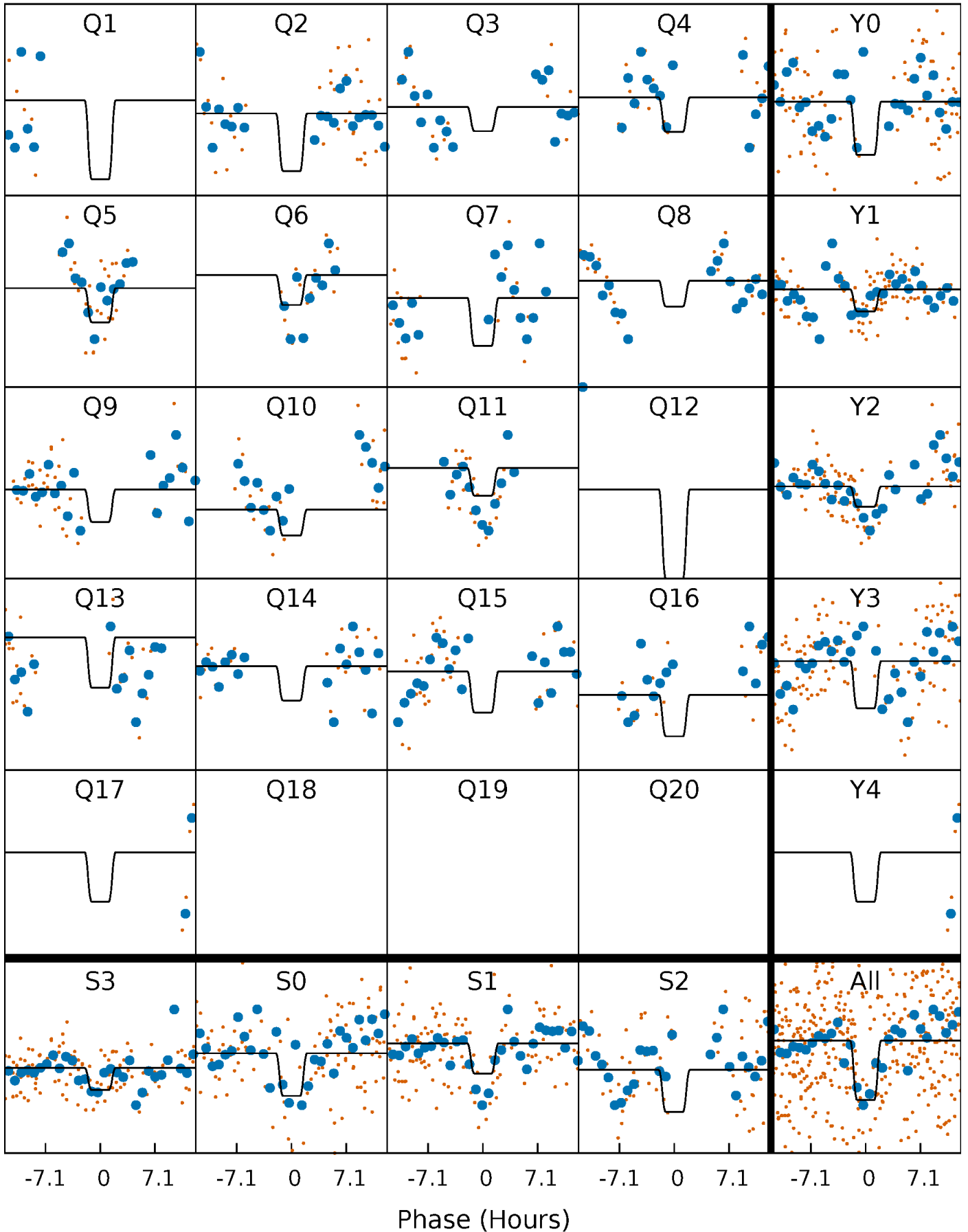
DV Quarter-Phased Transit Curves

TCE 005392413-03 P= 33.115975 Days $T_0=136.924915$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

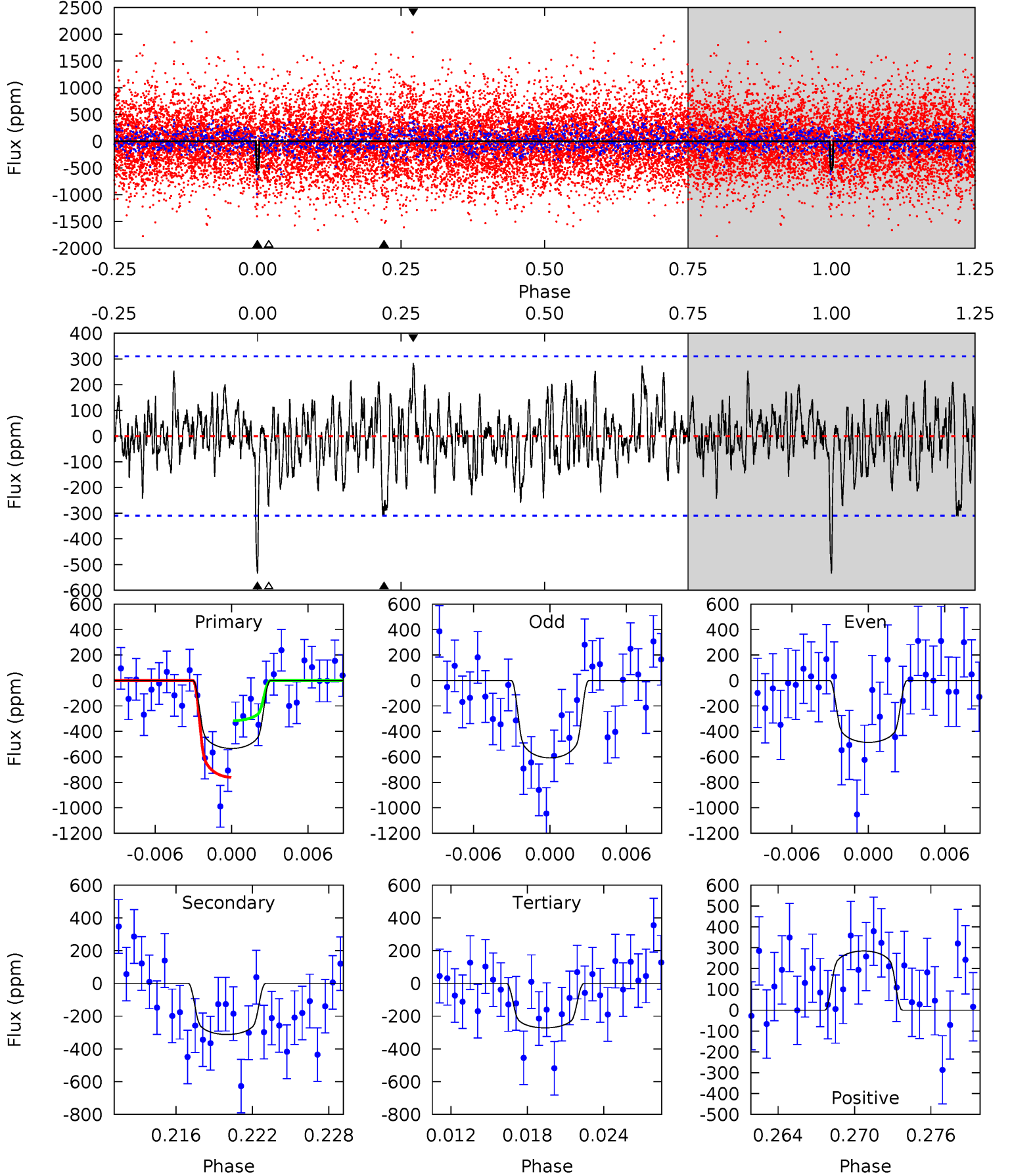
TCE 005392413-03 P= 33.113853 Days $T_0=136.949352$ (BKJD)



DV Model-Shift Uniqueness Test

005392413-03, $P = 33.115975$ Days, $E = 103.808940$ Days

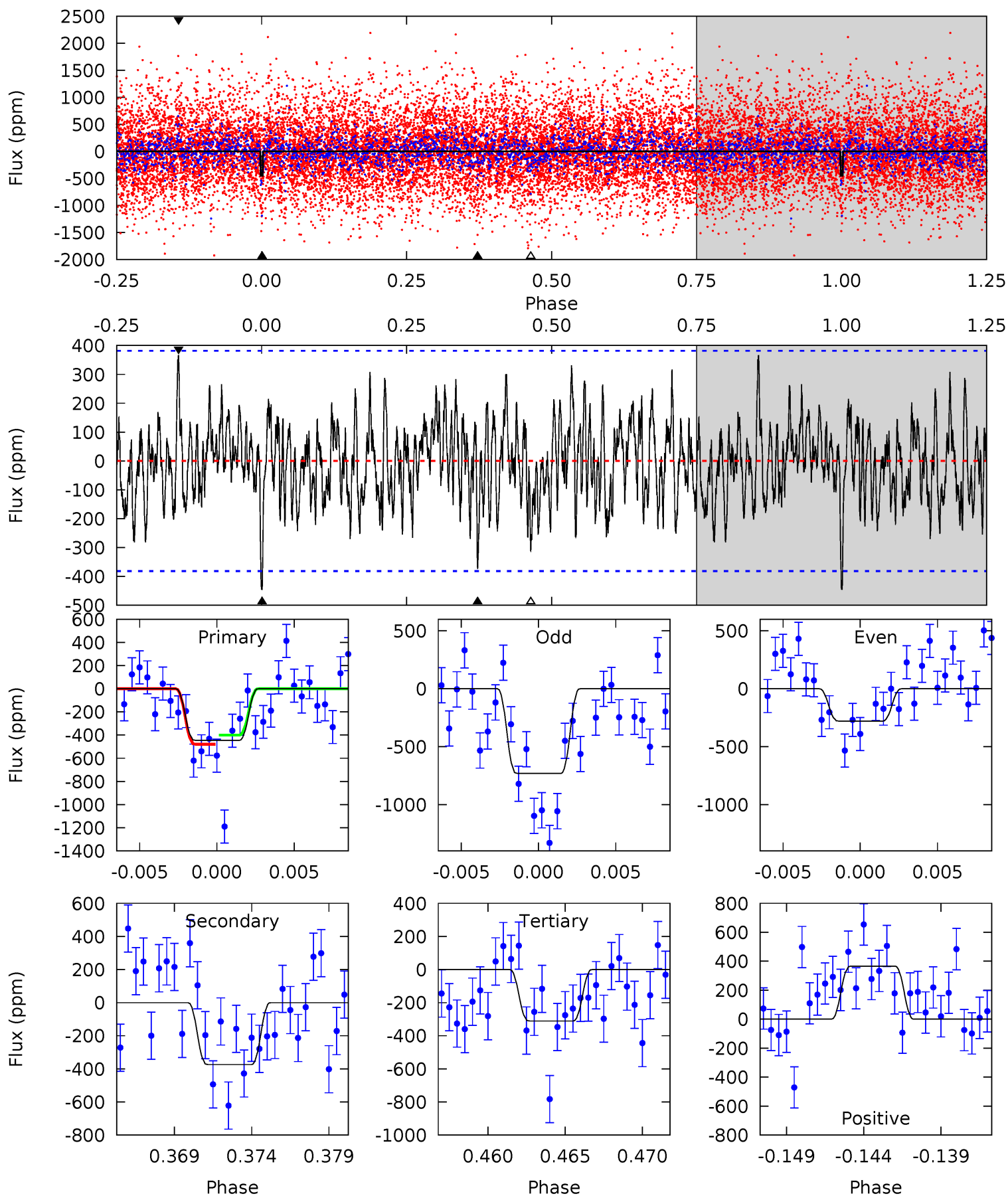
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.83	5.16	4.49	4.69	5.12	2.75	1.52	4.33	4.13	0.67	0.47	0.99	0.71	0.35	3.68



Alt Model-Shift Uniqueness Test

005392413-03, P = 33.113853 Days, E = 103.835499 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.04	5.07	4.21	4.96	5.17	2.82	1.62	1.83	1.08	0.86	0.10	2.98	1.85	0.45	0.54



Stellar Parameters For KIC 005392413

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6687^{+188}_{-235}	$4.482^{+0.039}_{-0.221}$	$-0.500^{+0.300}_{-0.300}$	$0.978^{+0.346}_{-0.087}$	$1.089^{+0.158}_{-0.118}$	$1.639^{+0.263}_{-0.935}$
	+3%/-4%	+1%/-5%	+60%/-60%	+35%/-9%	+15%/-11%	+16%/-57%
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 005392413-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-312 ± 61	$2.91^{+1.33}_{-1.40}$	919^{+79}_{-41}	5611^{+2275}_{-906}	851^{+2250}_{-456}
Alt.	-374 ± 74	$2.66^{+1.49}_{-1.27}$	924^{+66}_{-50}	6040^{+2649}_{-1048}	1241^{+3164}_{-725}

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

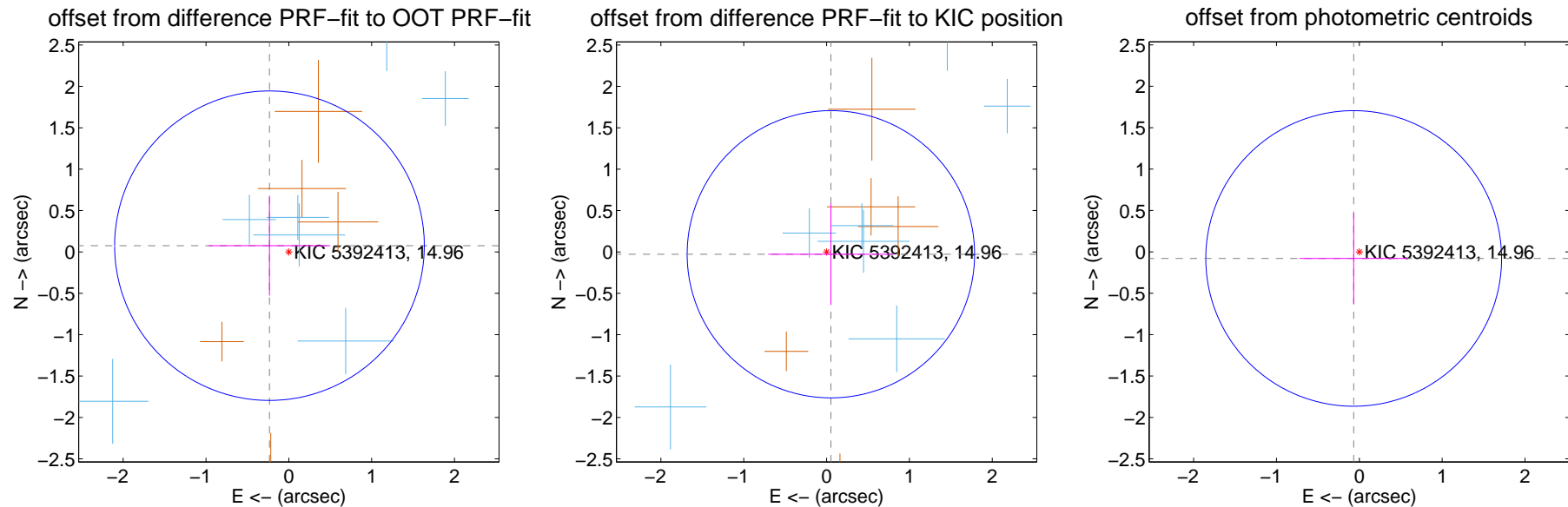
DV Centroid Data

Supplemental centroid analysis for 005392413-03. Kepler magnitude: 14.96. Transit SNR 9.85

There are 7 quarters with good PRF difference image offsets

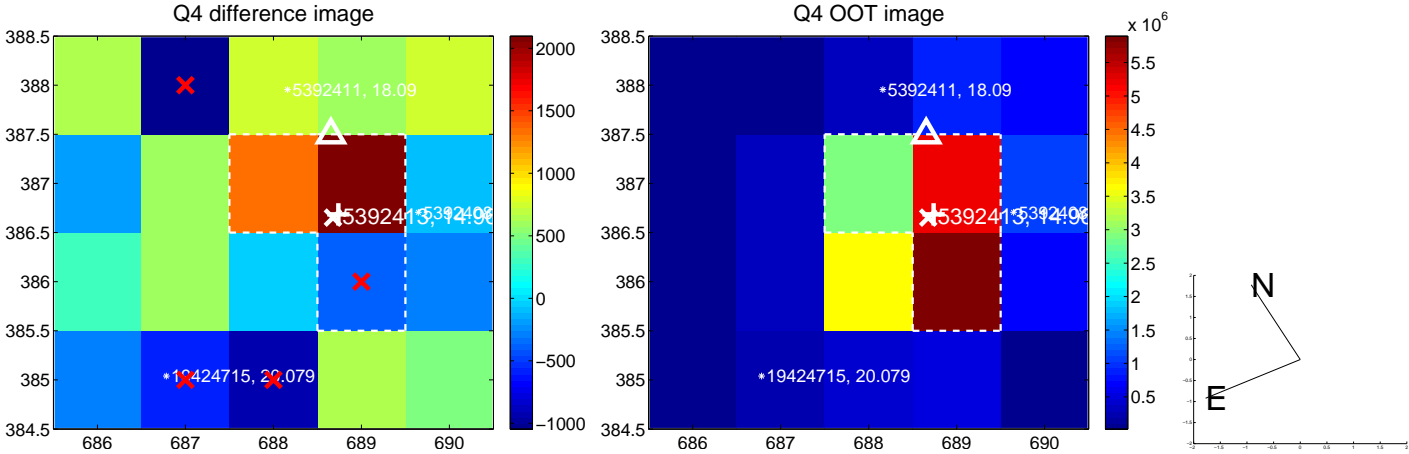
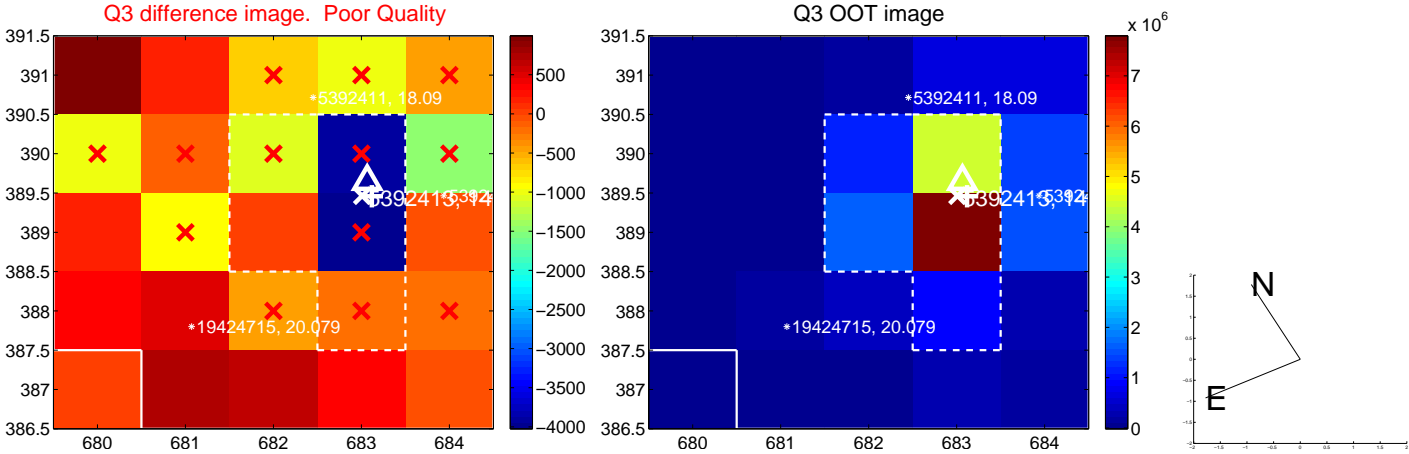
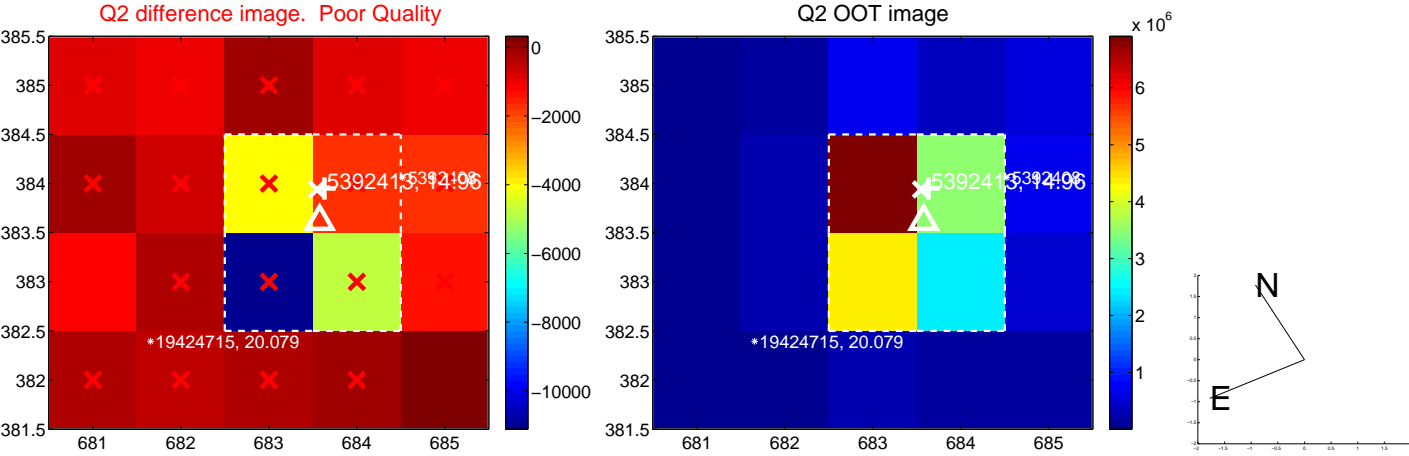
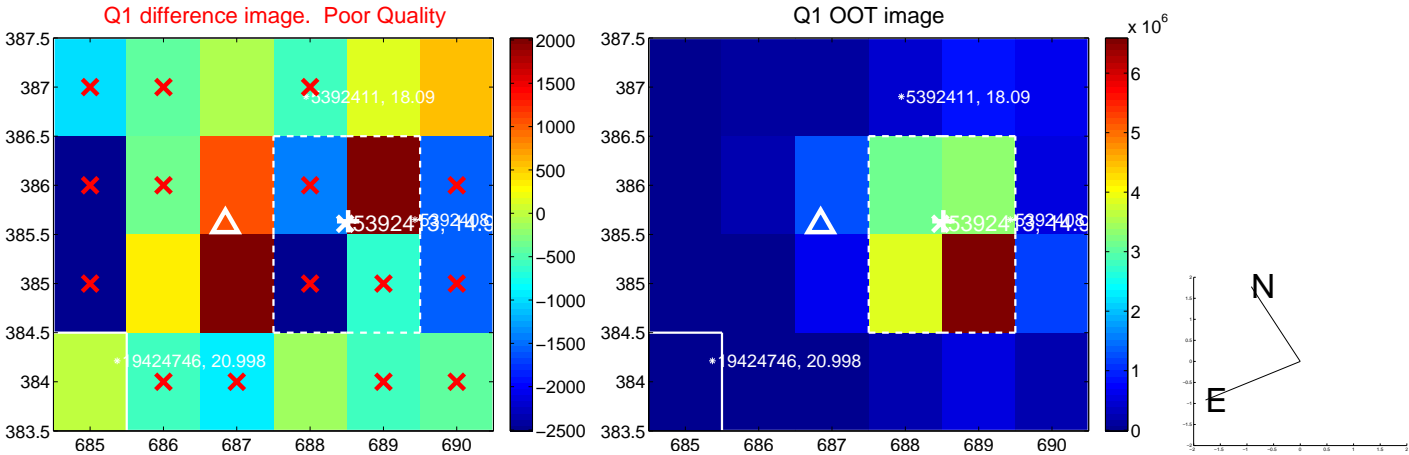
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.245 ± 0.623	0.39	0.234 ± 0.734	0.075 ± 0.603
PRF-fit source offset from KIC position	0.059 ± 0.578	0.10	-0.052 ± 0.755	-0.028 ± 0.612
photometric centroid source offset	0.10 ± 0.60	0.18	0.07 ± 0.65	-0.08 ± 0.55

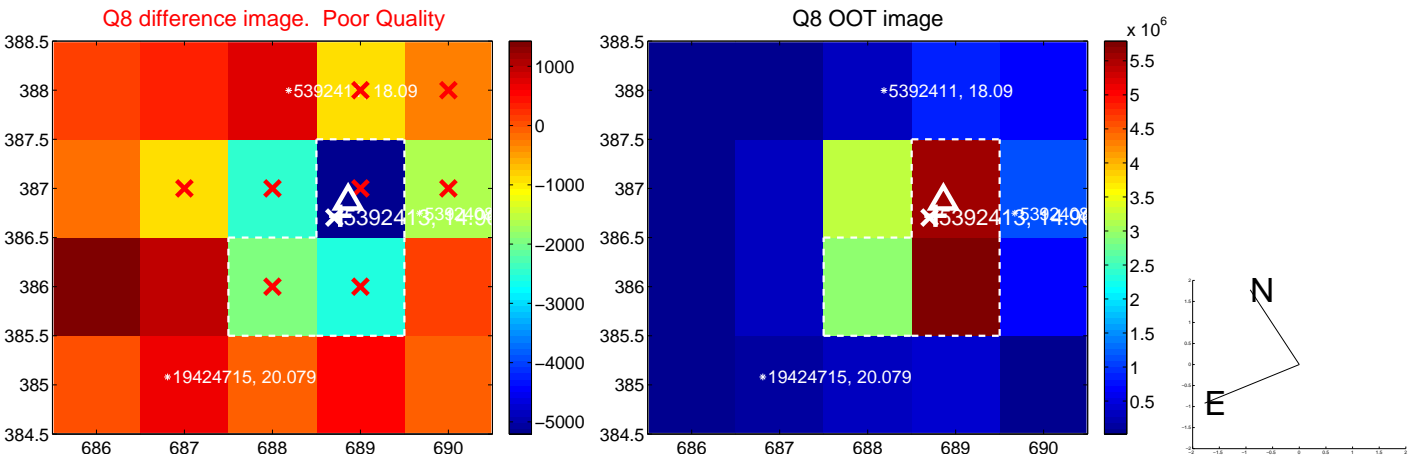
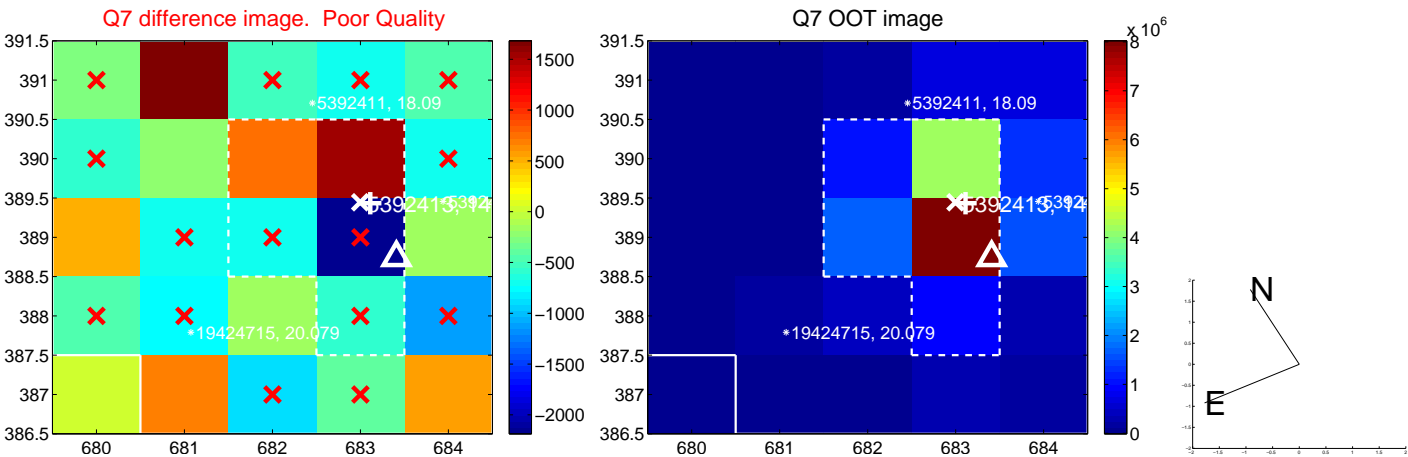
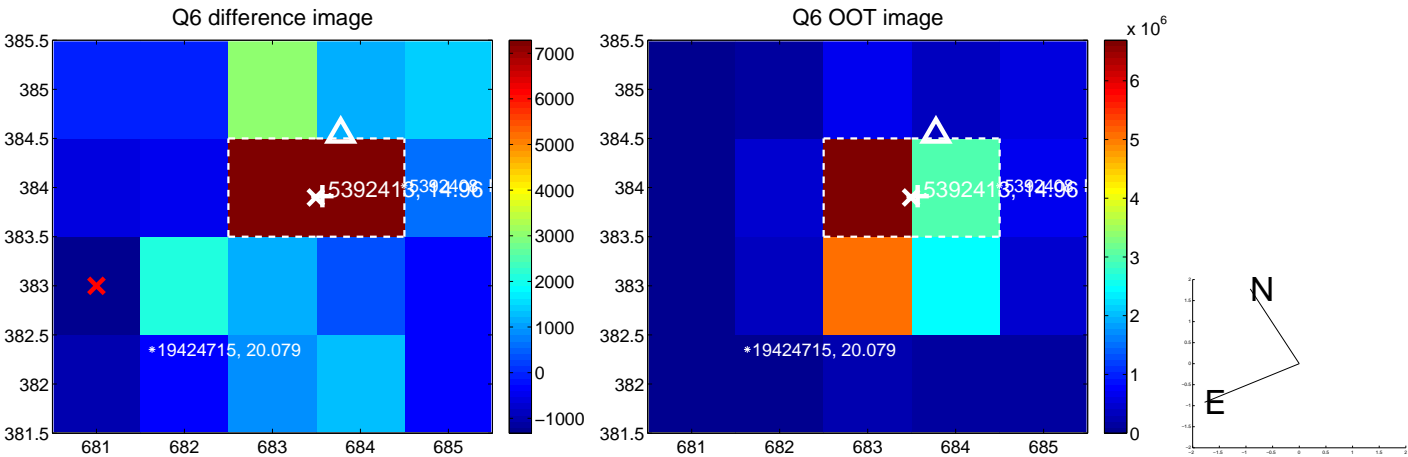
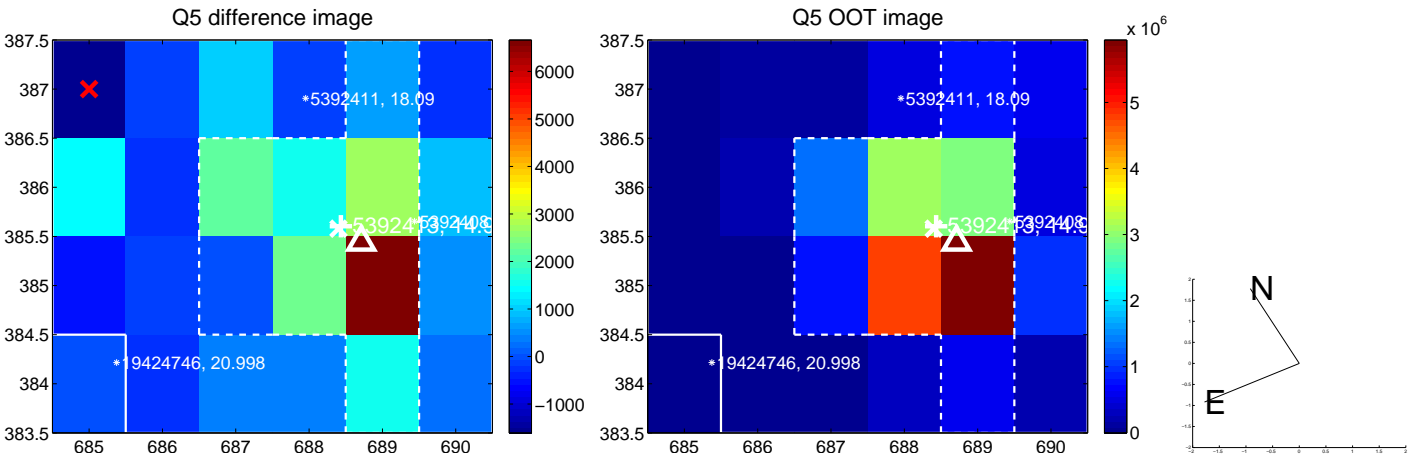


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

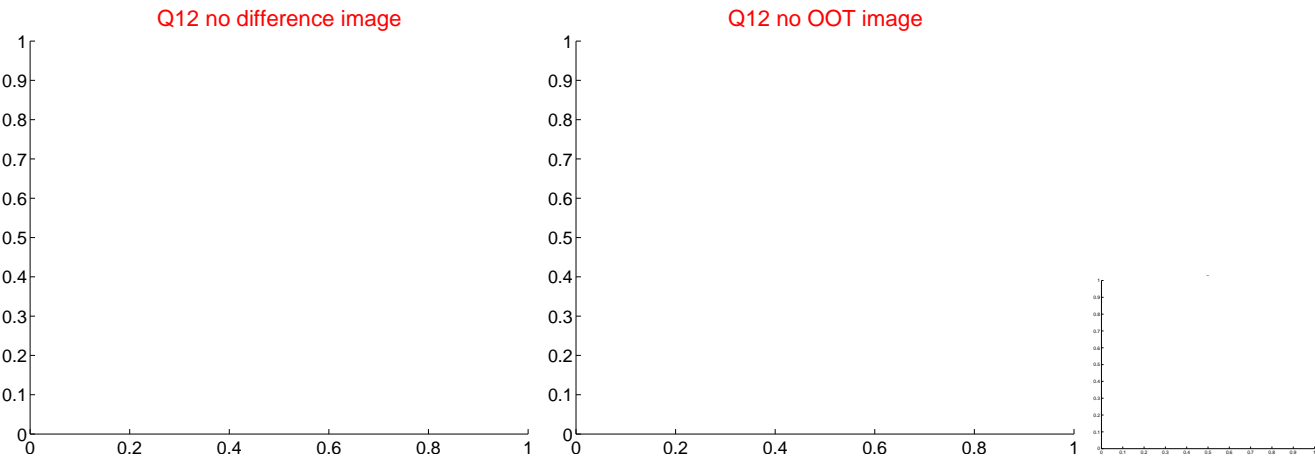
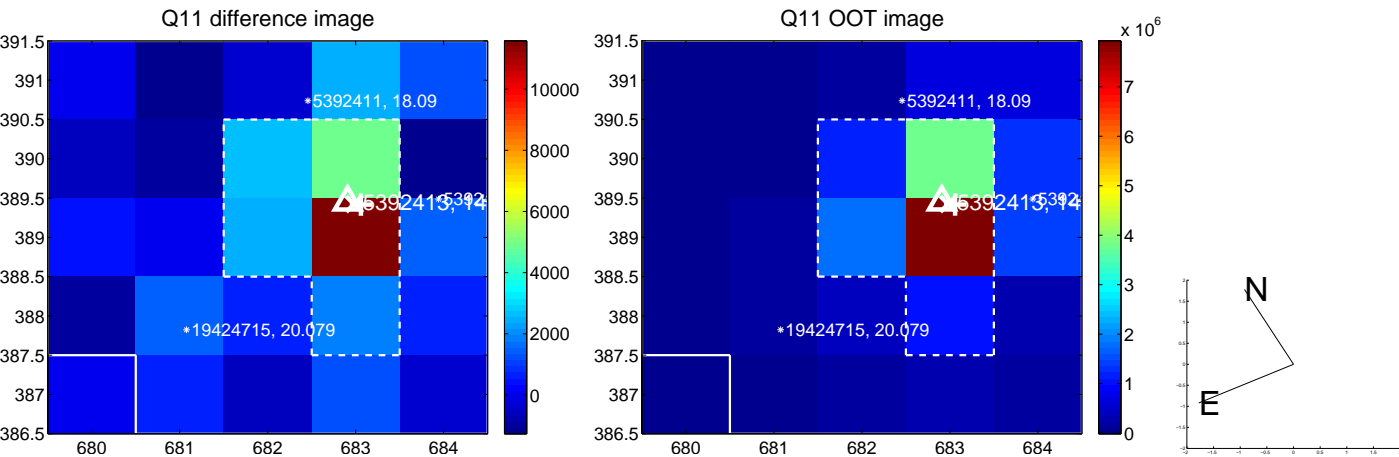
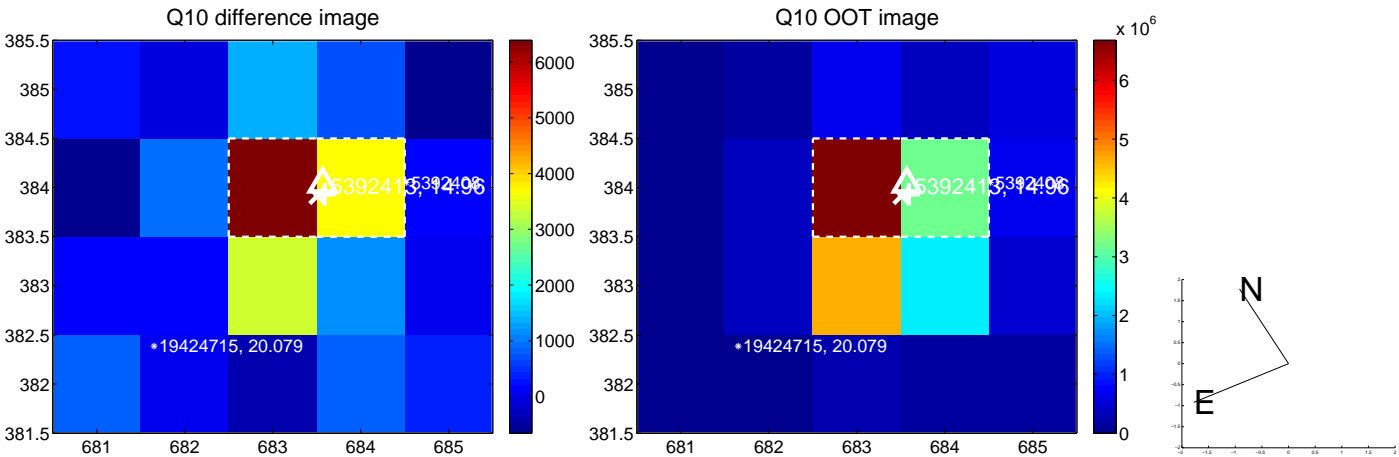
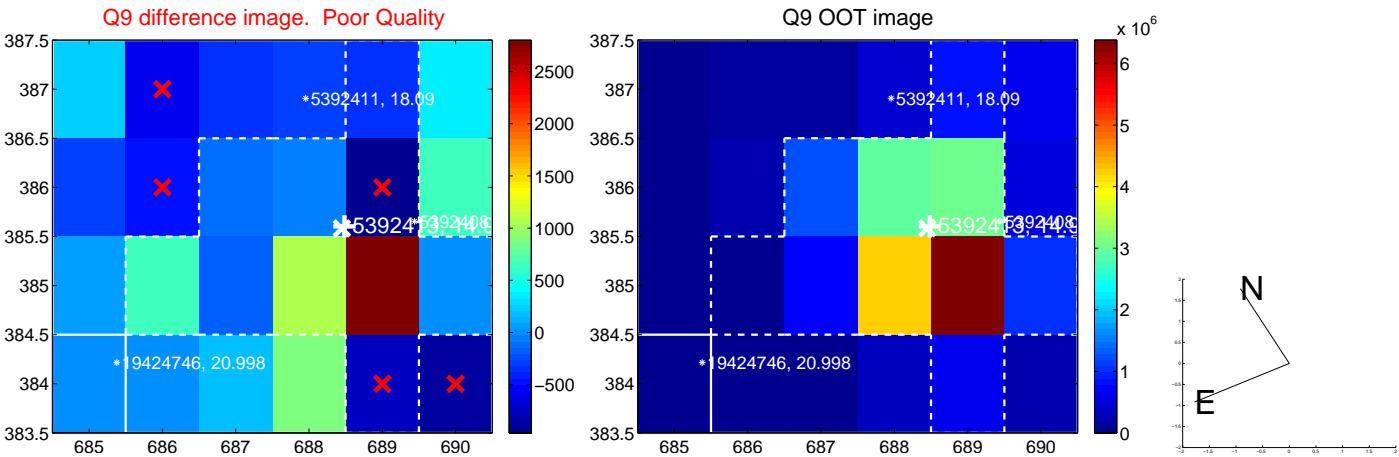
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



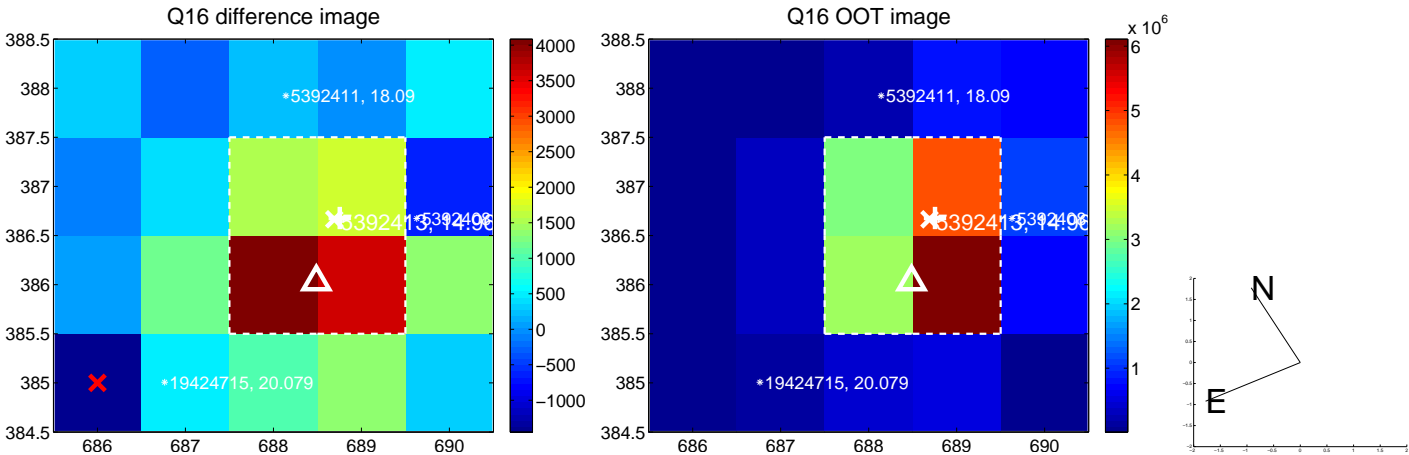
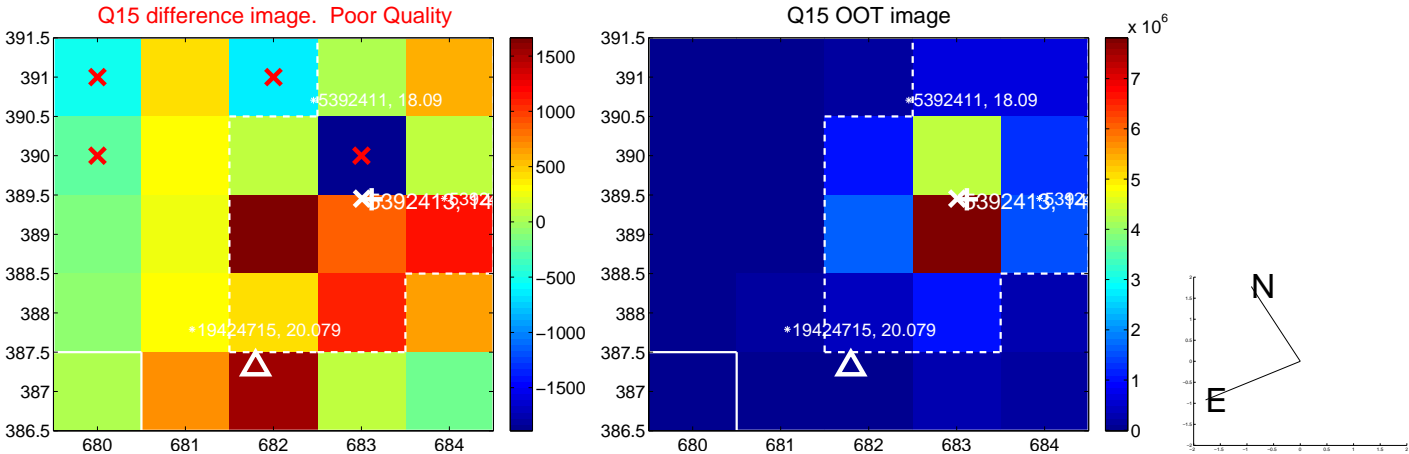
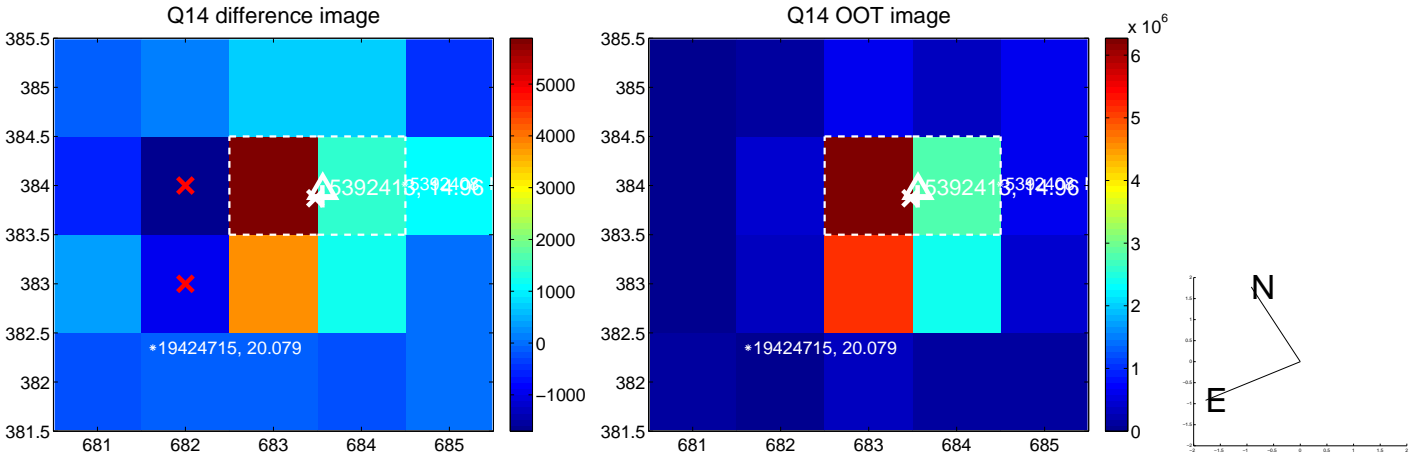
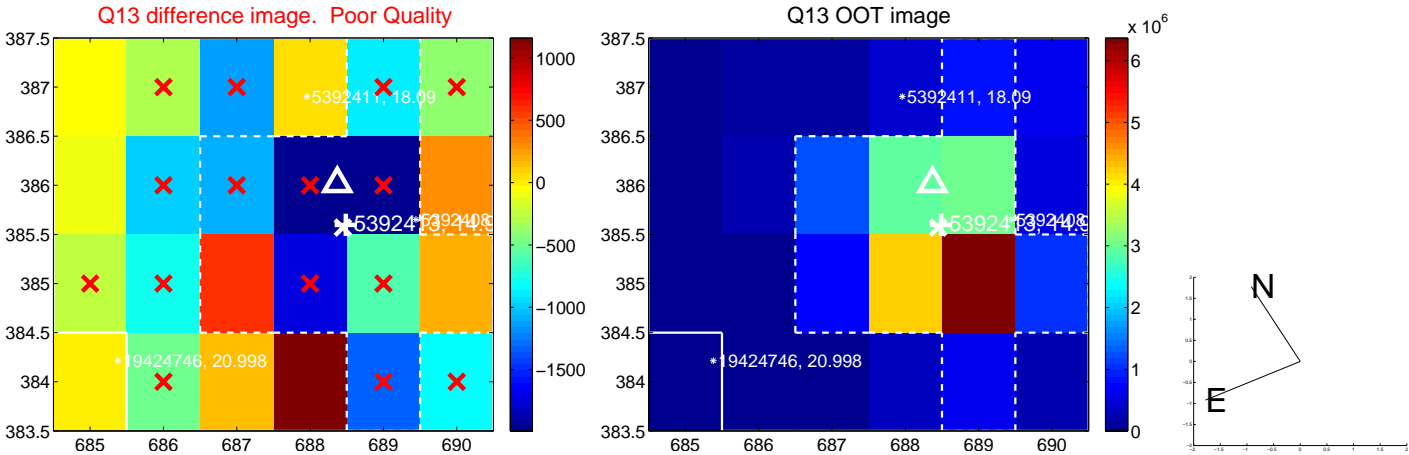
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



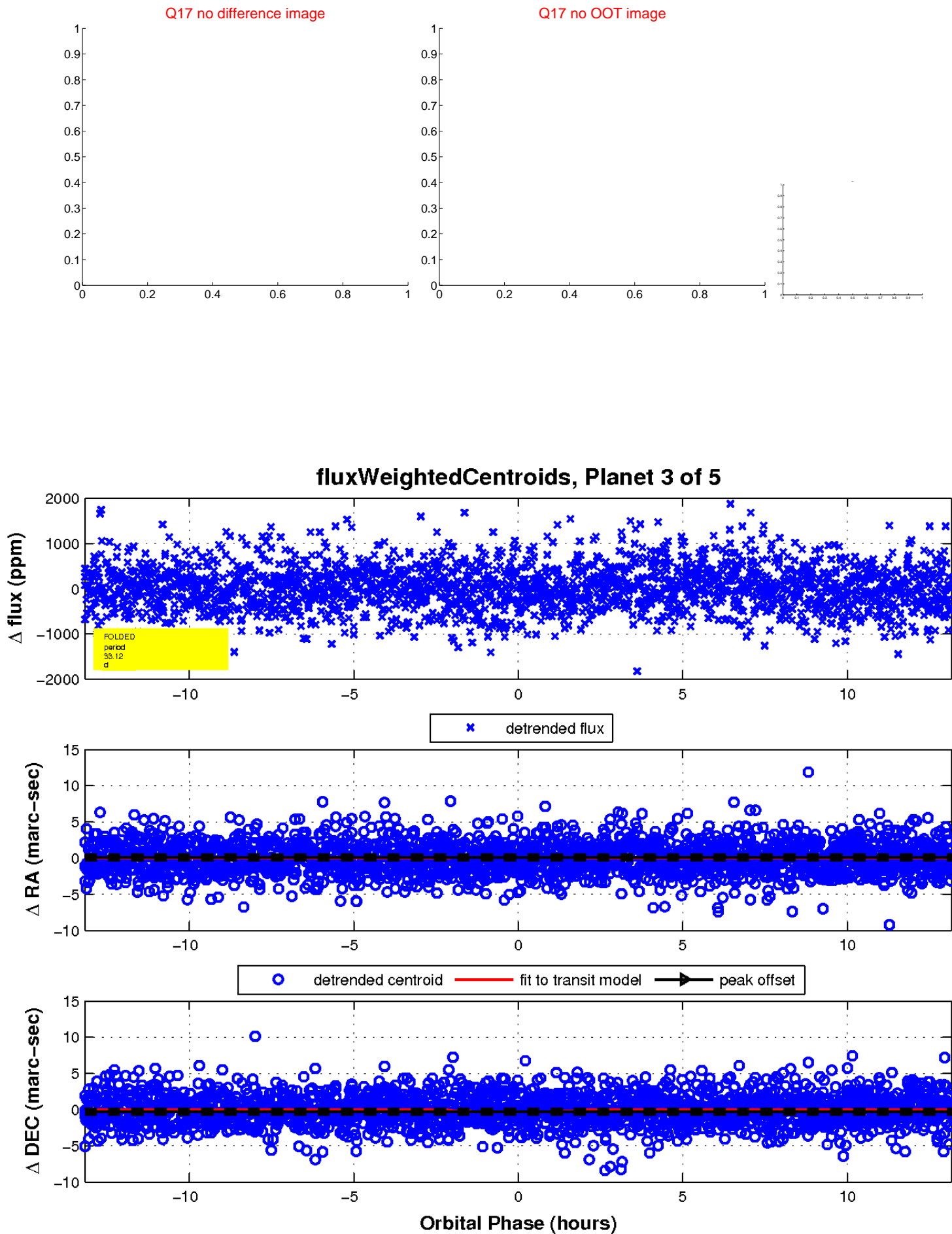
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



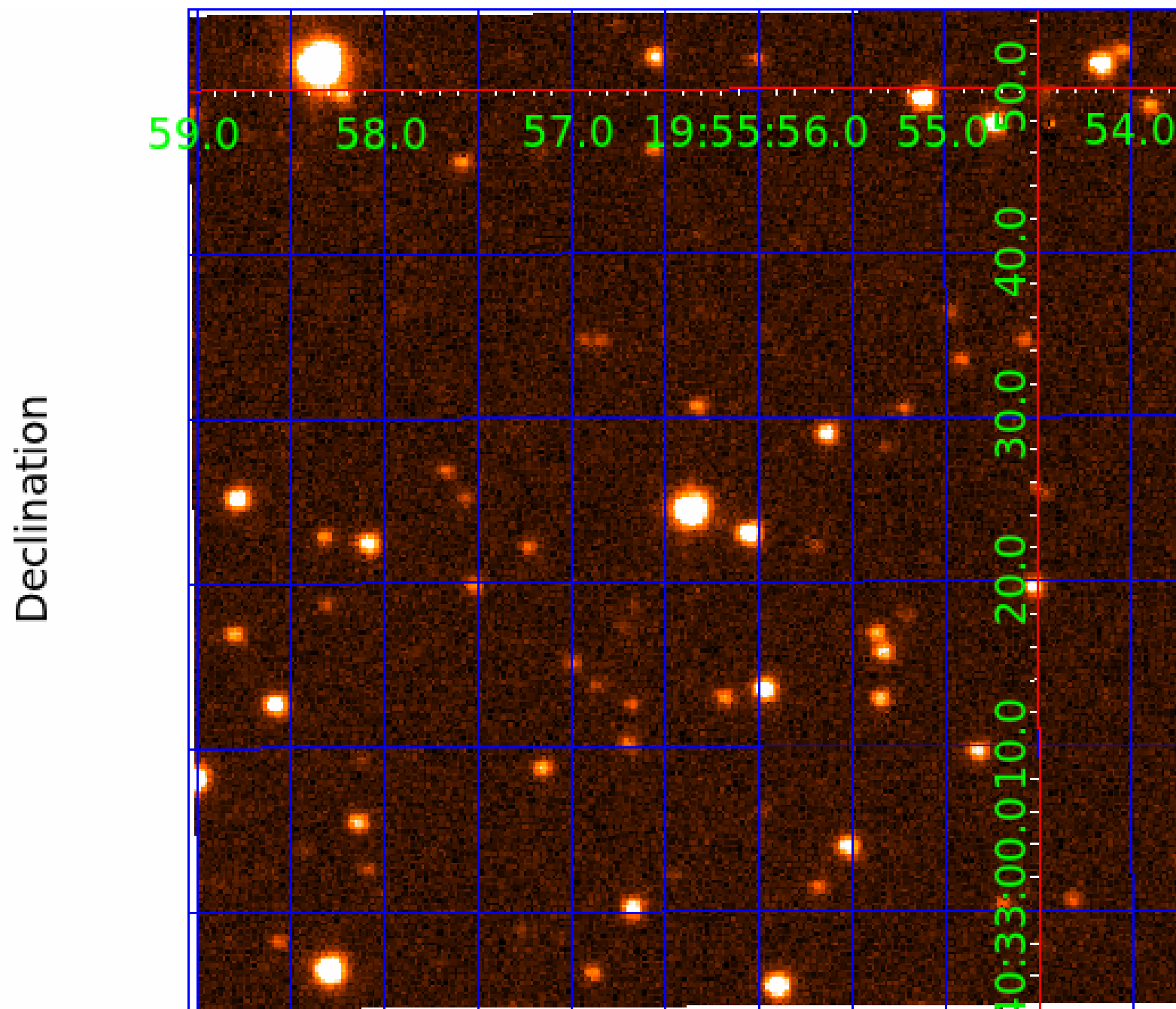
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005392413

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})
005392413-01	OBS	No	1.410853	132.941643	48.1	8.626	8.6	8.2	0.98	6687	0.69	2721.05
005392413-02	OBS	No	100.099511	135.128892	709.9	4.501	9.7	8.9	0.98	6687	2.88	9.26
005392413-03	OBS	No	33.115975	136.924915	594.7	4.393	9.4	9.9	0.98	6687	2.65	40.49
005392413-04	OBS	No	58.436391	141.988134	621.4	4.363	9.2	10.3	0.98	6687	2.72	18.99
005392413-05	OBS	No	105.409286	150.470111	734.6	3.211	8.4	8.7	0.98	6687	3.00	8.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005392413-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005392413-02	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
005392413-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005392413-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005392413-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

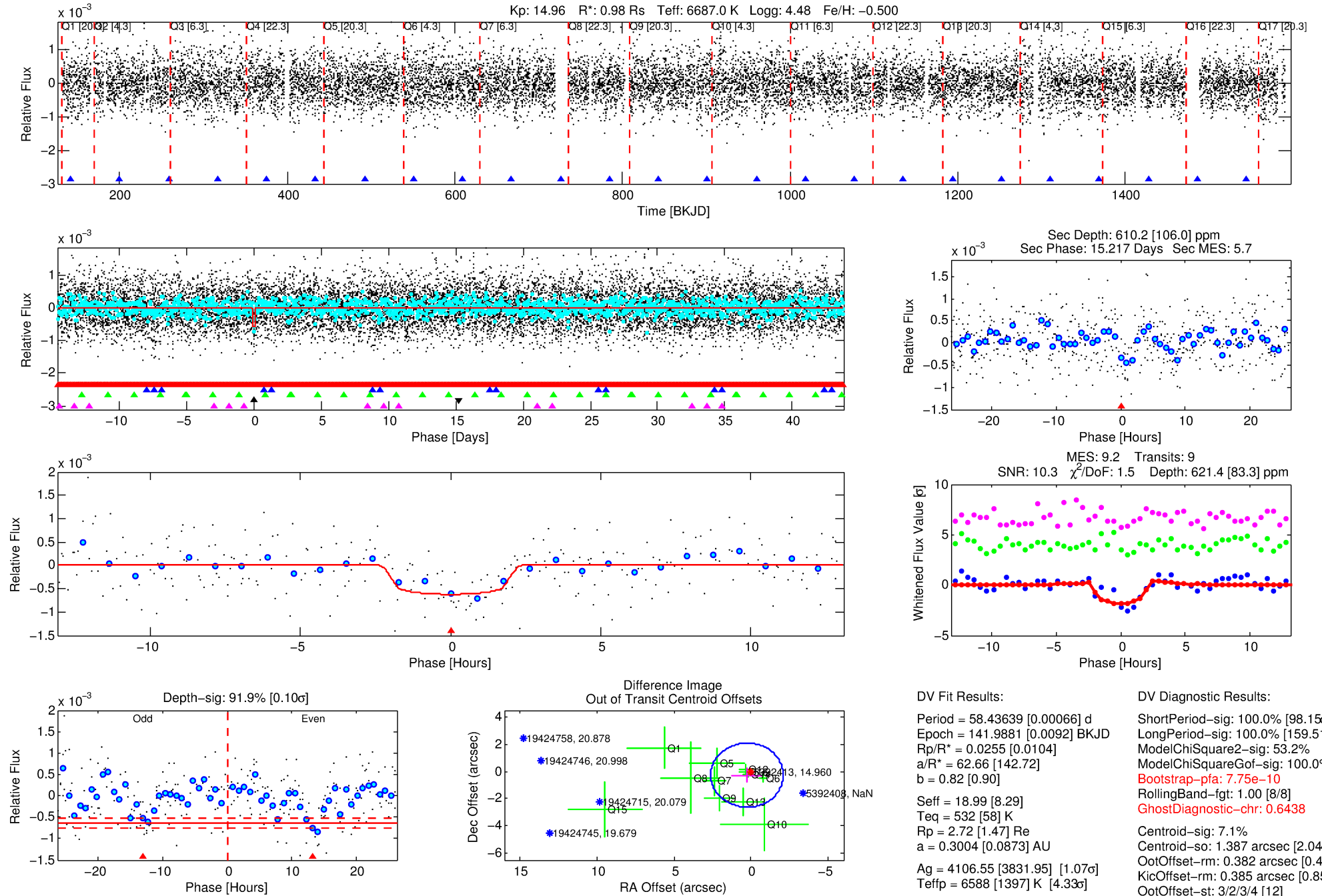
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005392413-04

No Significant Match Found

DV One-Page Summary

KIC: 5392413 Candidate: 4 of 5 Period: 58.436 d



DV Fit Results:

Period = 58.43639 [0.00066] d
Epoch = 141.9881 [0.0092] BKJD
Rp/R* = 0.0255 [0.0104]
a/R* = 62.66 [142.72]
b = 0.82 [0.90]
Seff = 18.99 [8.29]
Teq = 532 [58] K
Rp = 2.72 [1.47] Re
a = 0.3004 [0.0873] AU
Ag = 4106.55 [3831.95] [1.07 σ]
Teff = 6588 [1397] K [4.33 σ]

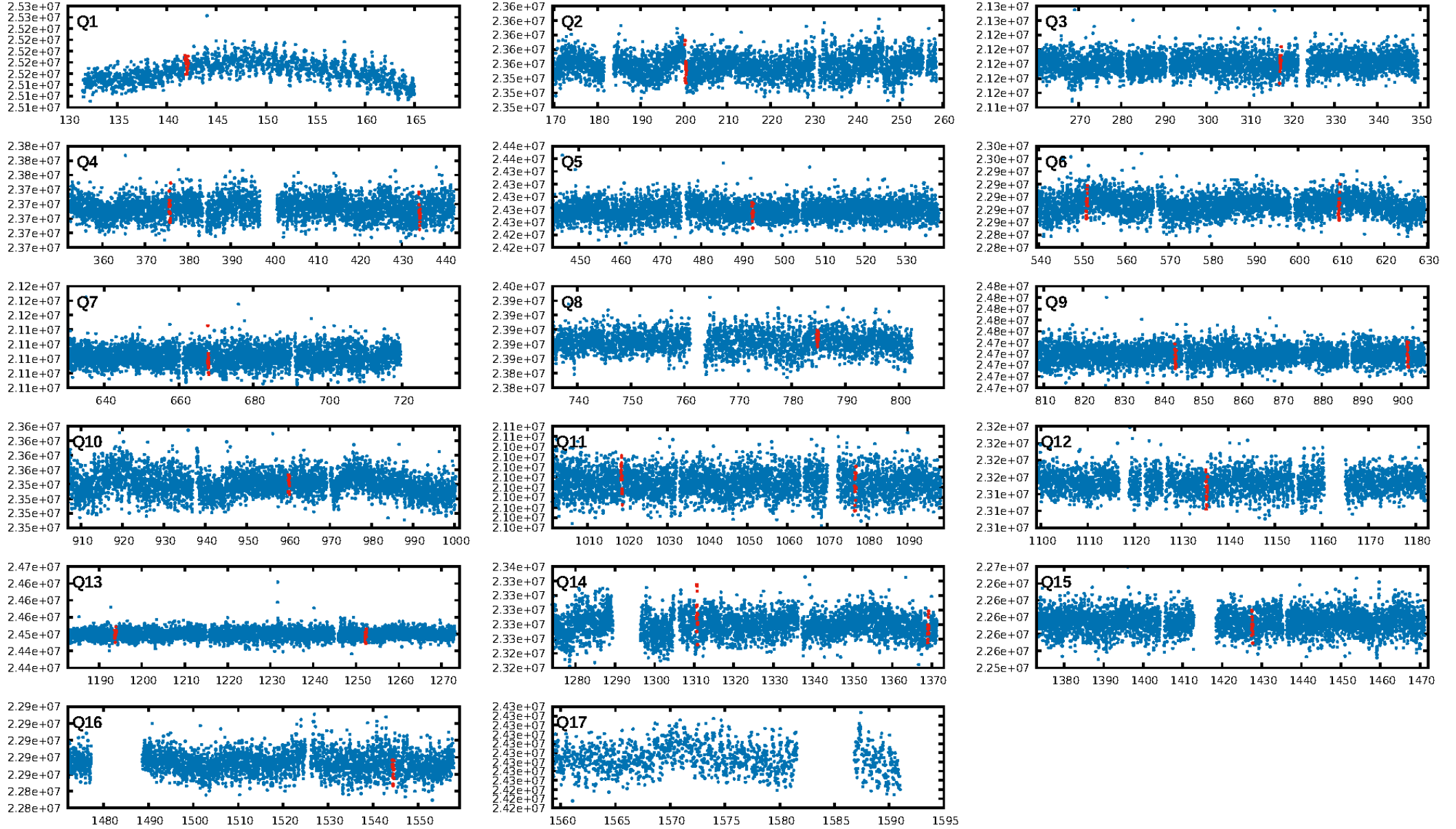
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [98.15 σ]
LongPeriod-sig: 100.0% [159.51 σ]
ModelChiSquare2-sig: 53.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.75e-10
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 0.6438
Centroid-sig: 7.1%
Centroid-so: 1.387 arcsec [2.04 σ]
OotOffset-rm: 0.382 arcsec [0.49 σ]
OotOffset-st: 3/2/3/4 [12]
KicOffset-rm: 0.385 arcsec [0.85 σ]
KicOffset-st: 3/2/3/4 [12]
DiffImageQuality-fgm: 0.25 [3/12]
DiffImageOverlap-fno: 0.27 [4/15]

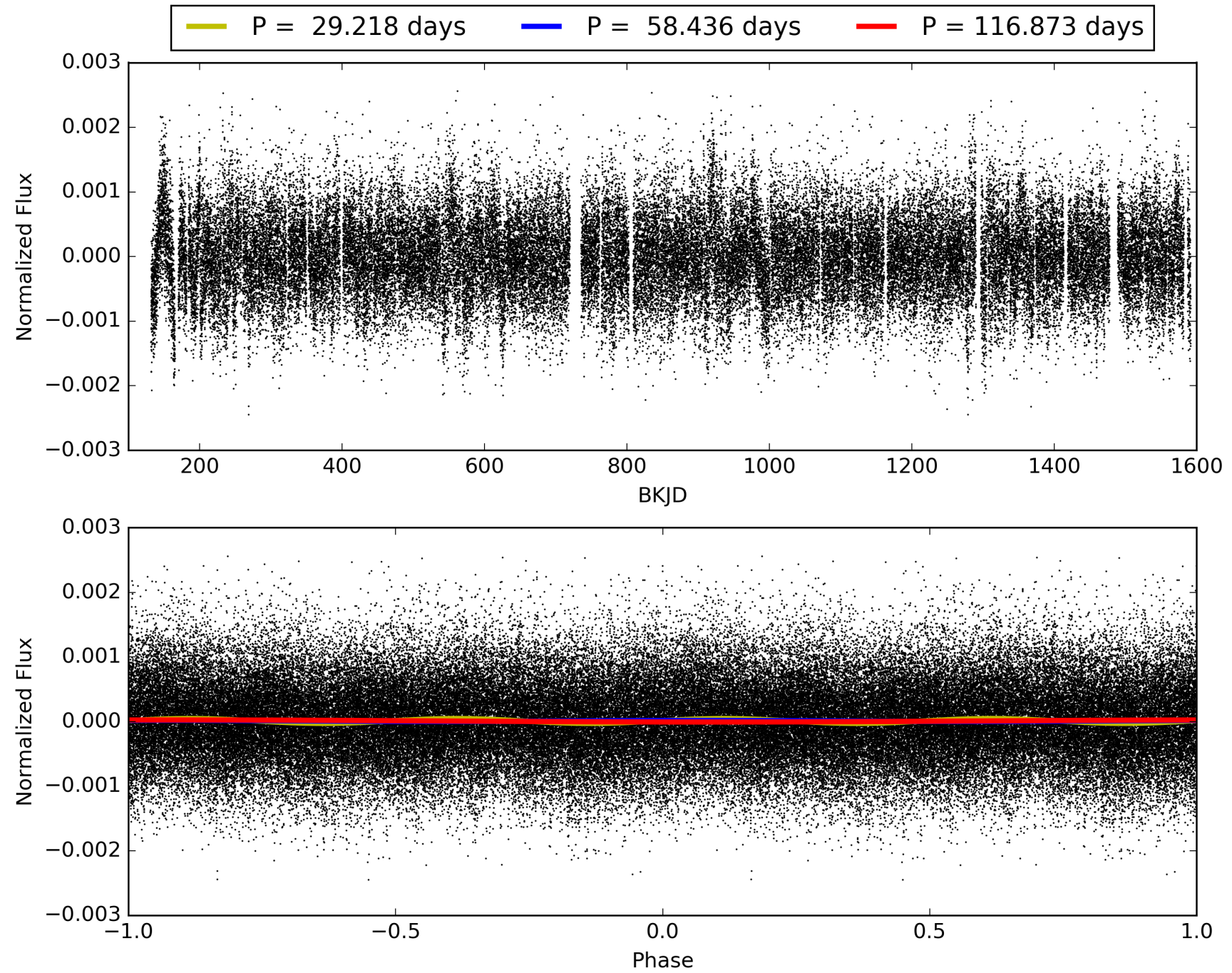
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:17:00 Z

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

TCE 005392413-04, PDC Light Curves

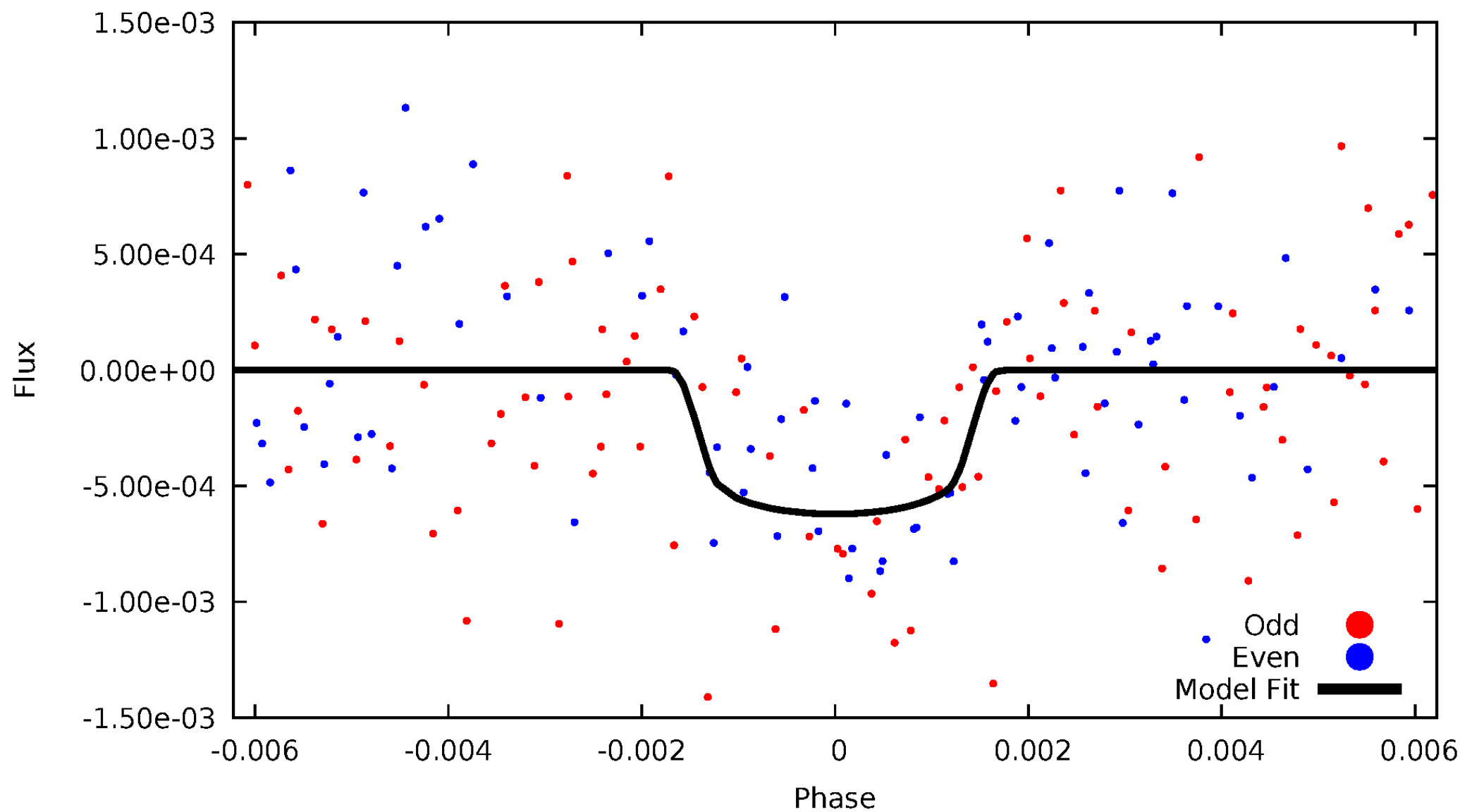


TCE 005392413-04



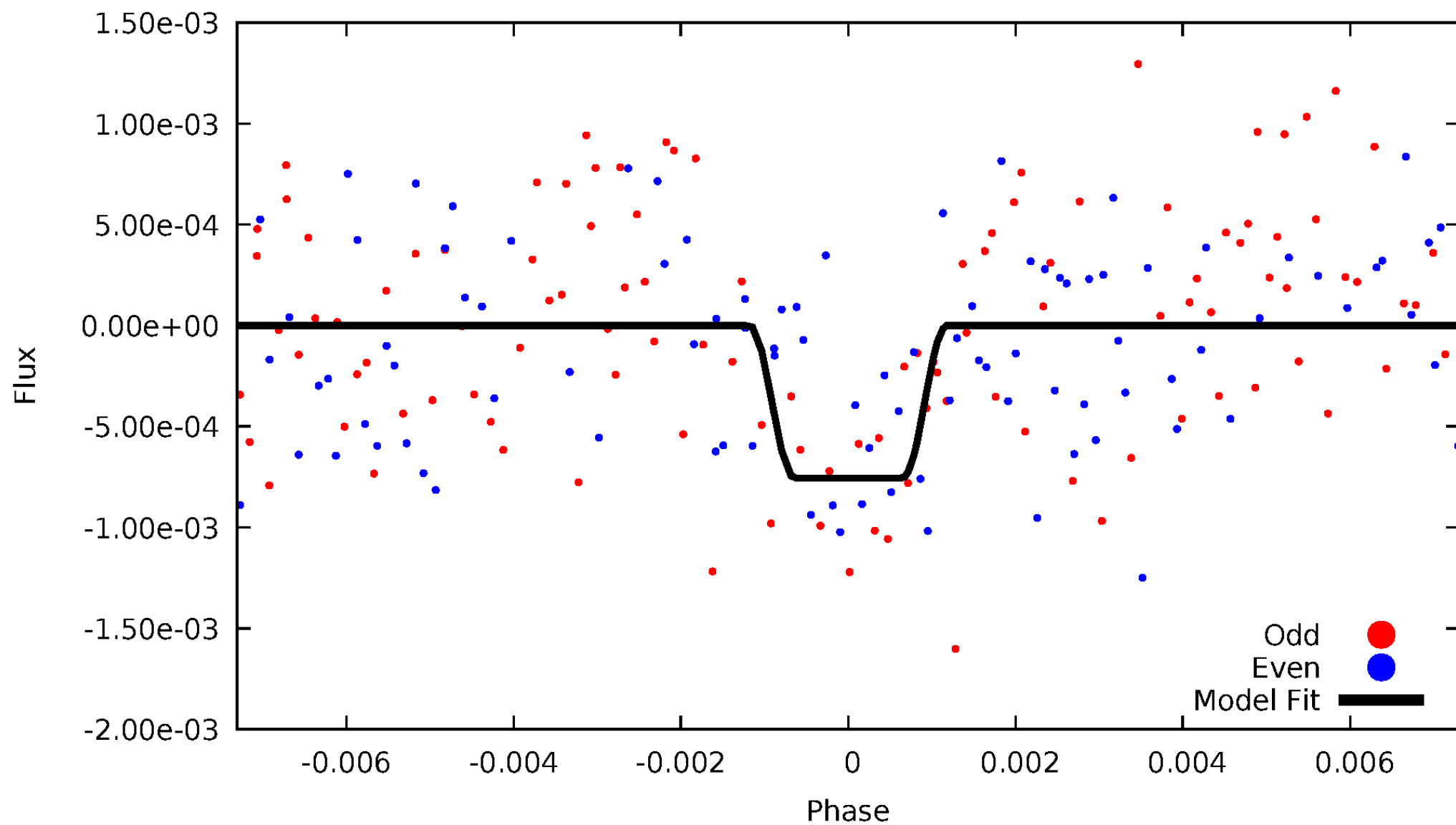
DV Odd/Even

TCE 005392413-04



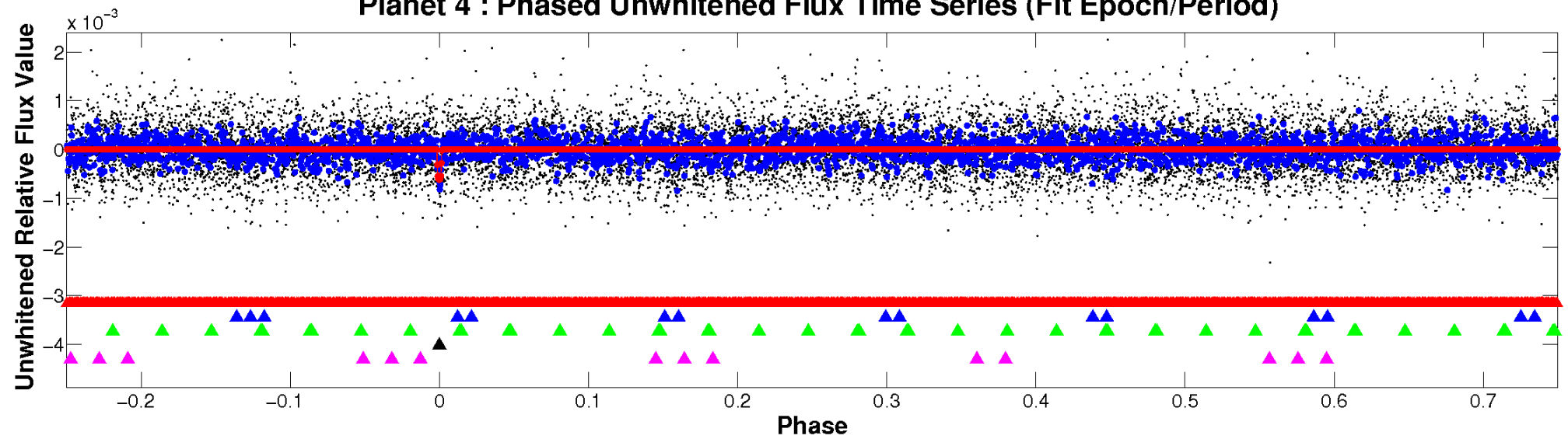
ALT Odd/Even

TCE 005392413-04

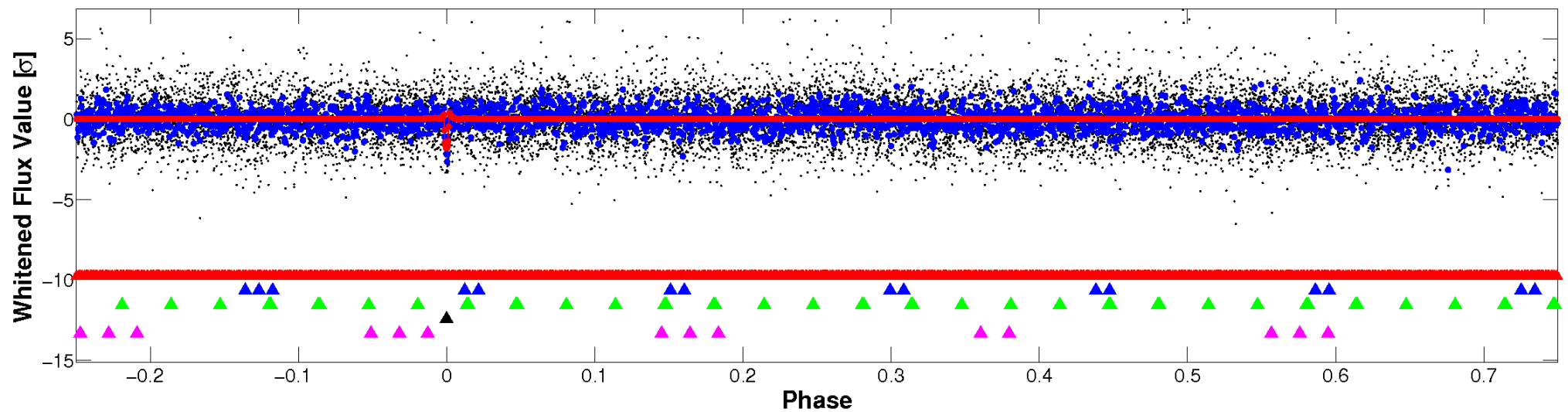


Non-Whitened Vs. Whitened Light Curve

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

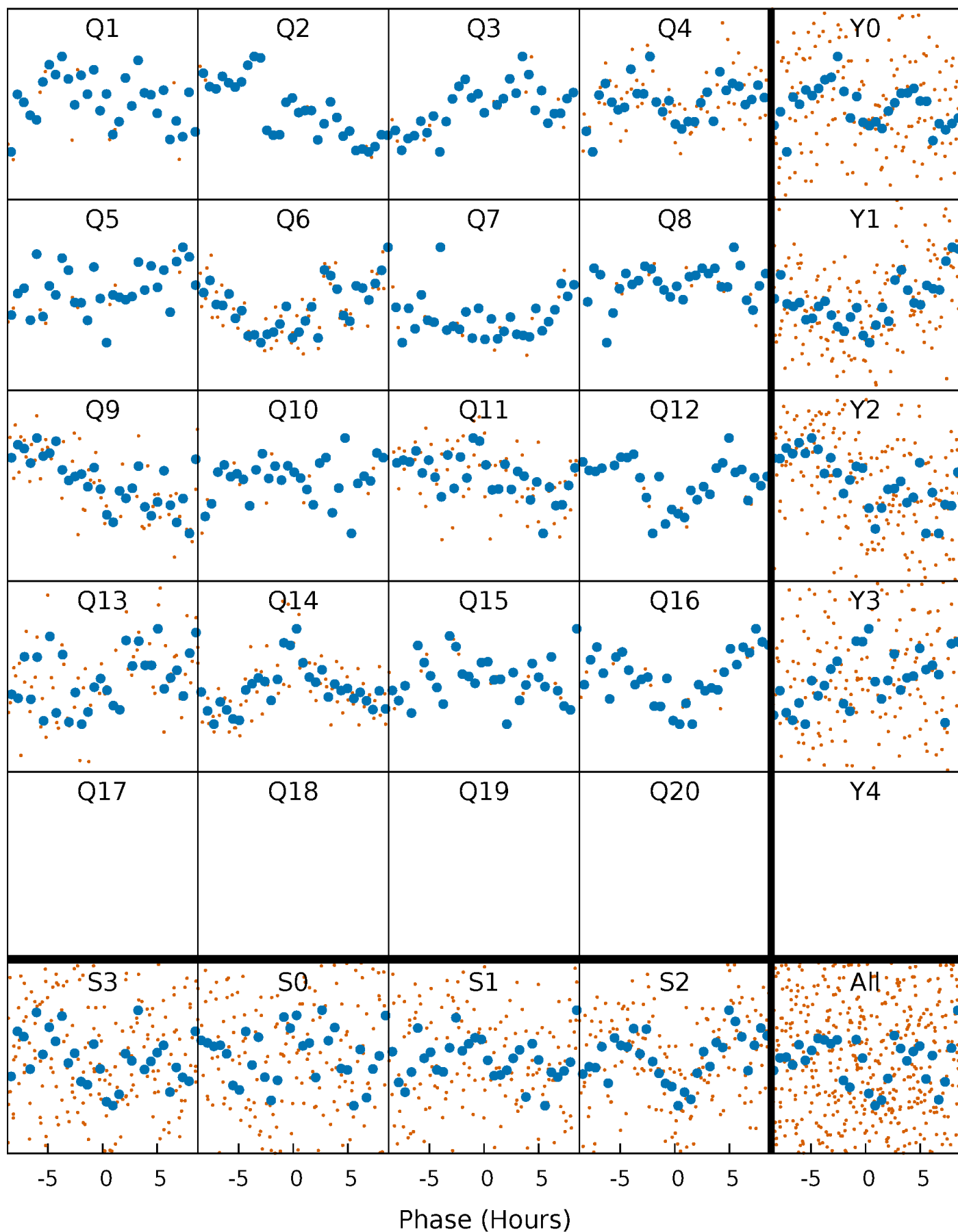


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



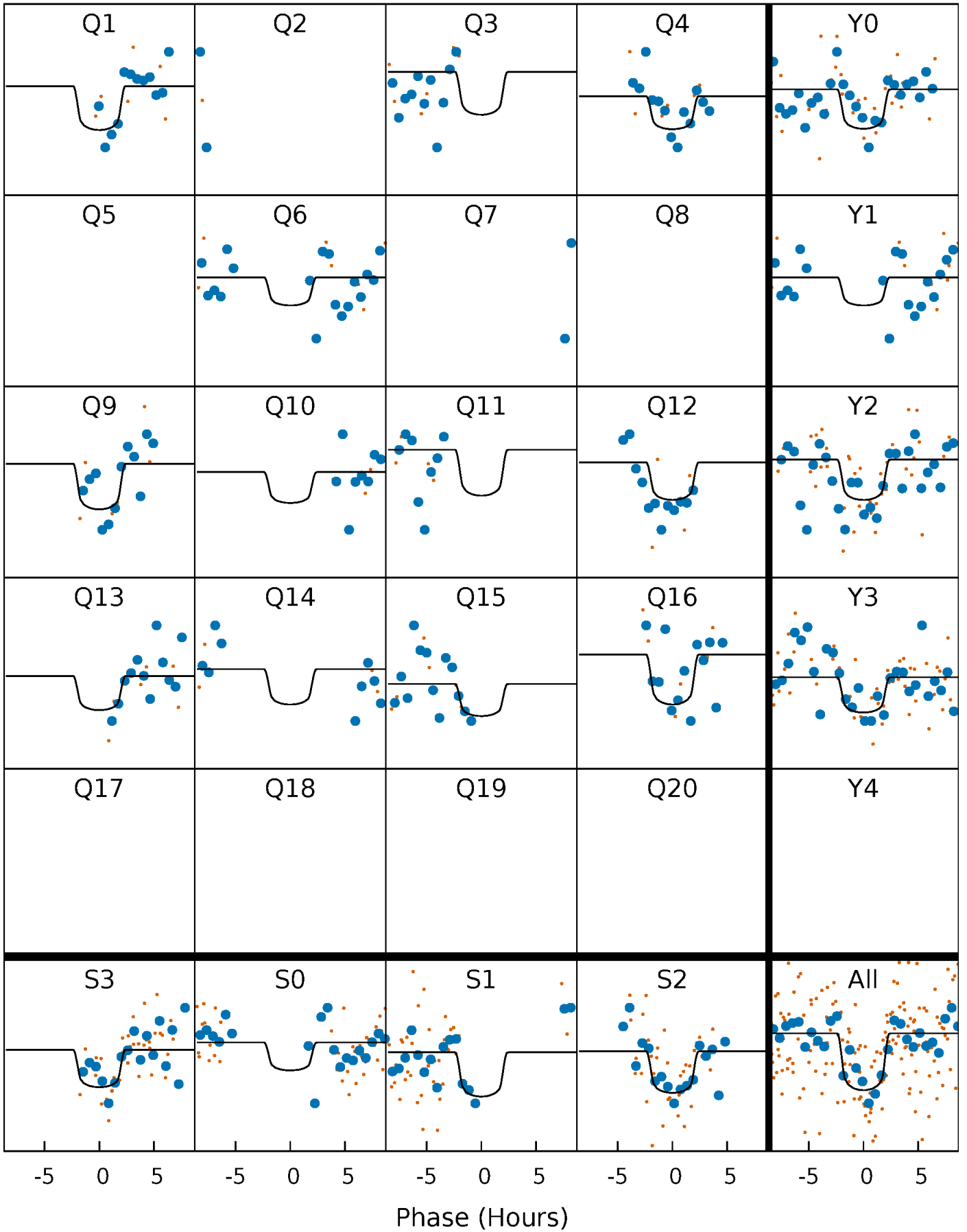
PDC Quarter-Phased Transit Curves

TCE 005392413-04 P= 58.436391 Days $T_0=141.988134$ (BKJD)



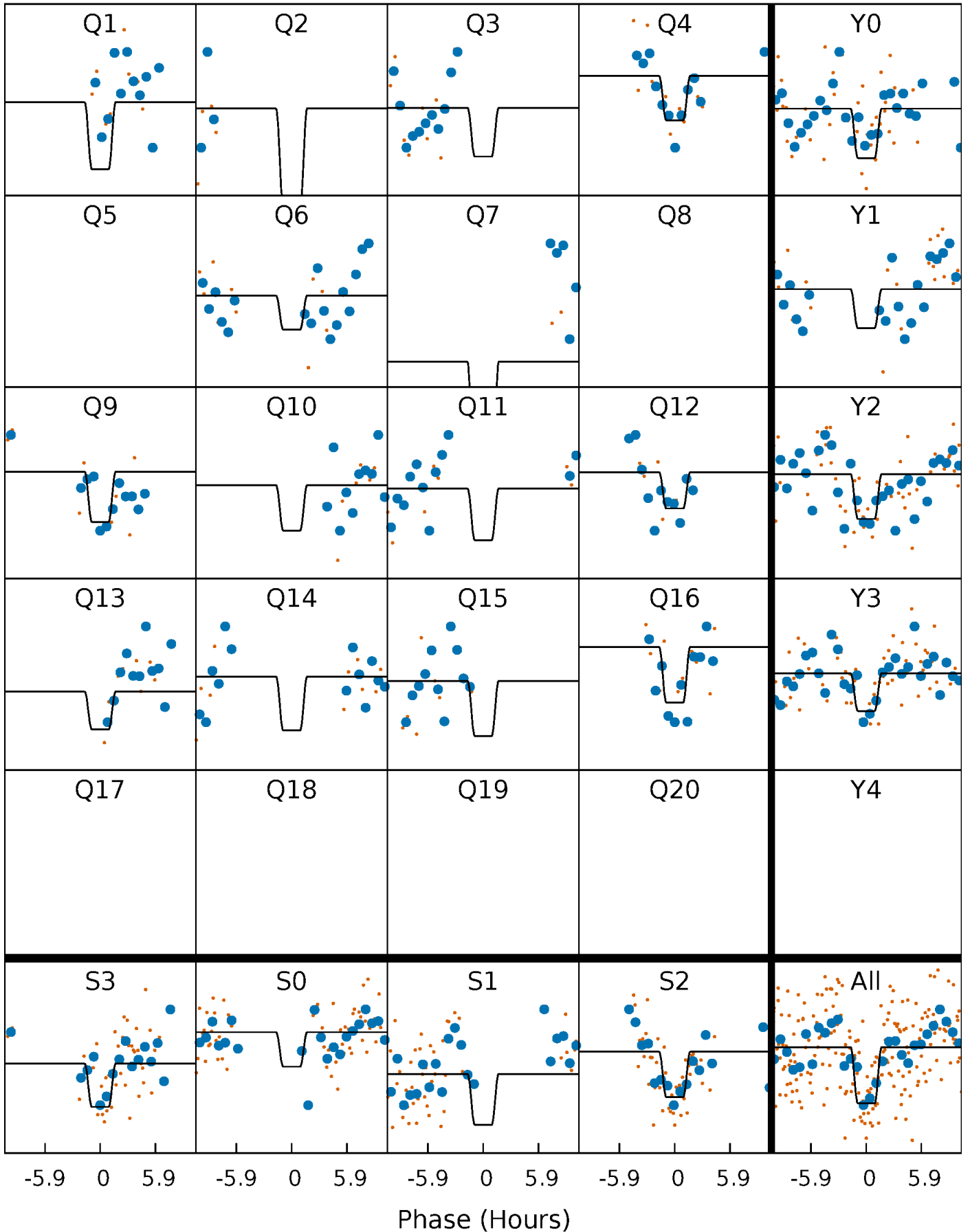
DV Quarter-Phased Transit Curves

TCE 005392413-04 P= 58.436391 Days $T_0=141.988134$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

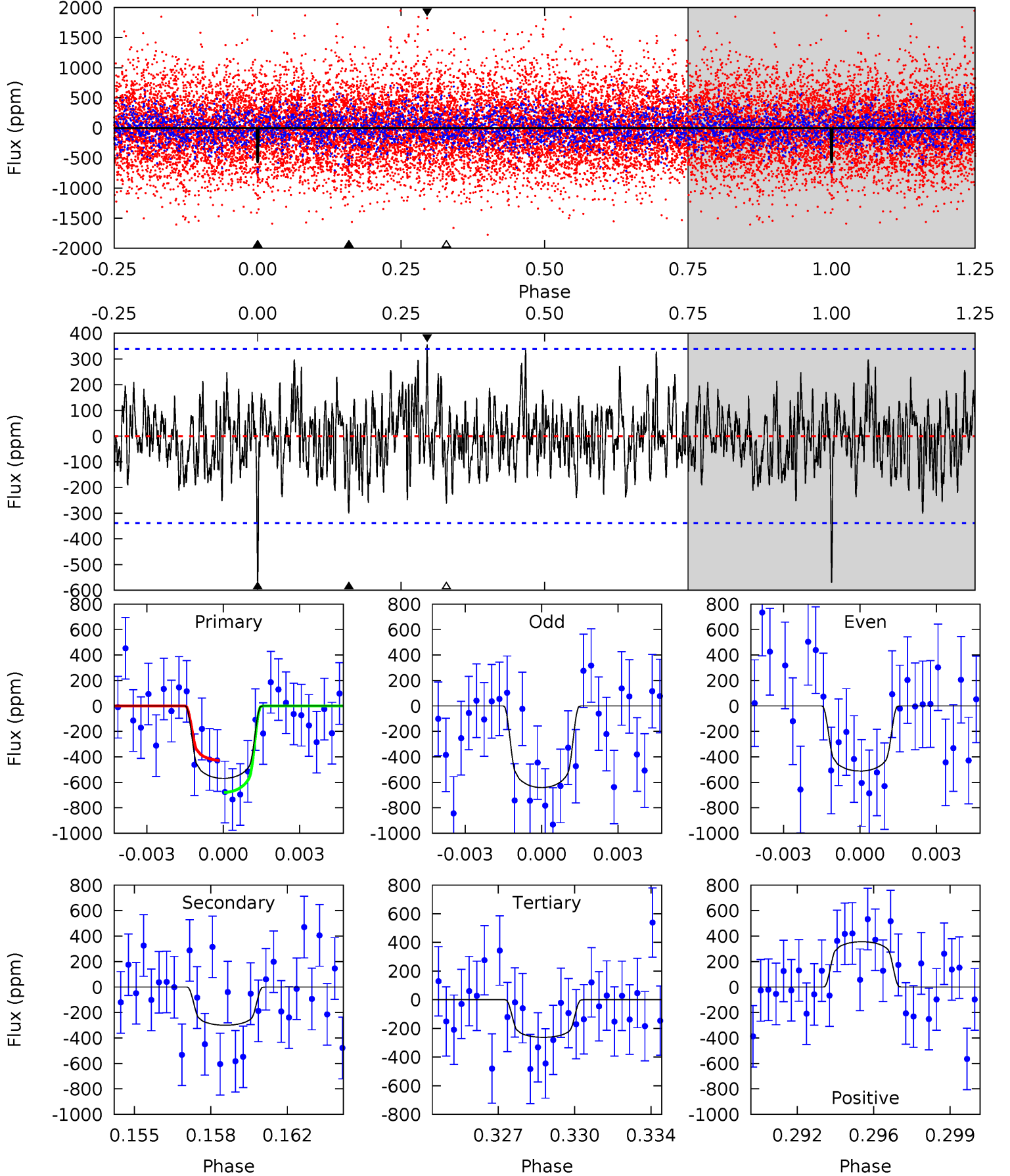
TCE 005392413-04 P= 58.436129 Days $T_0=142.010571$ (BKJD)



DV Model-Shift Uniqueness Test

005392413-04, P = 58.436391 Days, E = 83.551743 Days

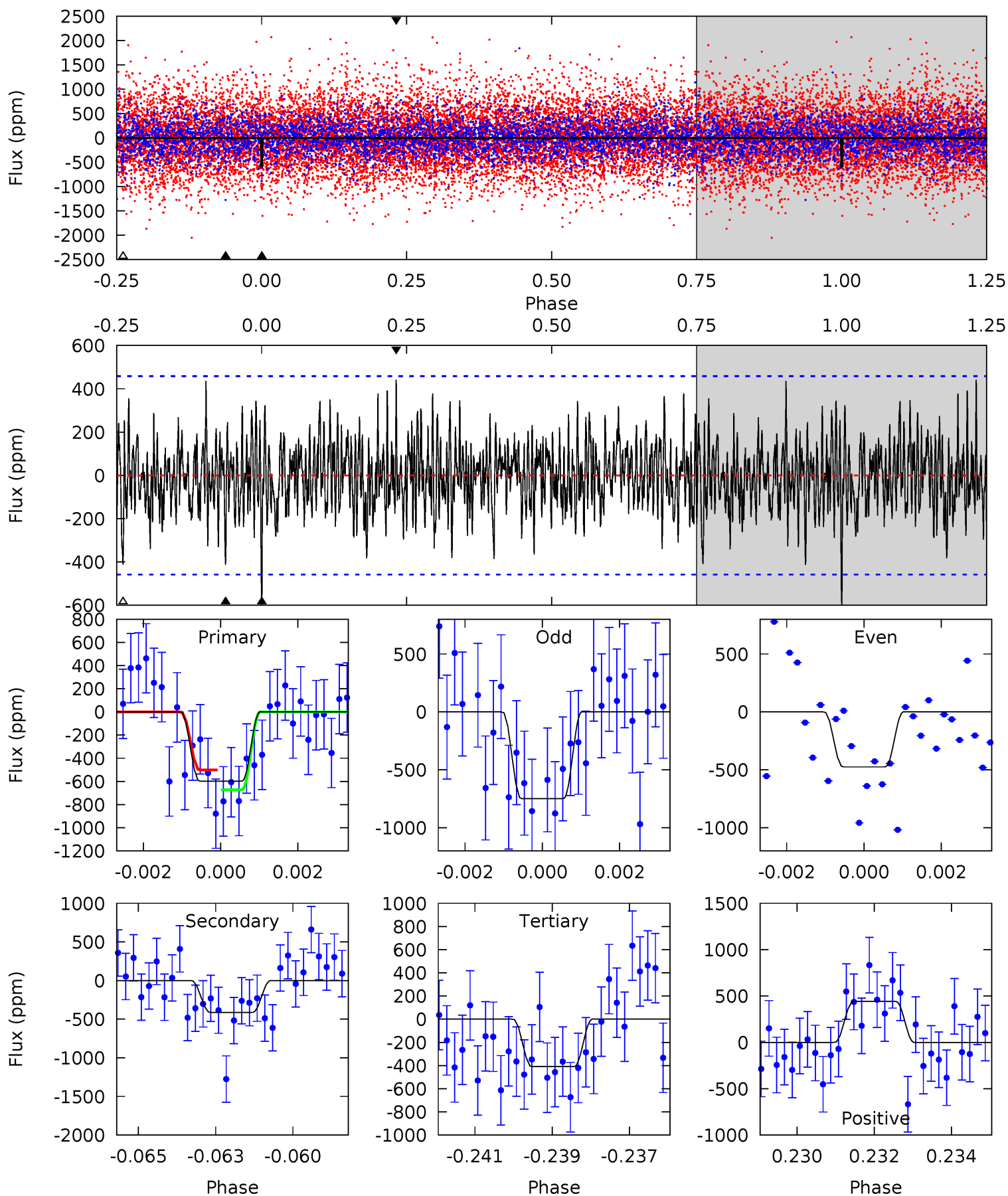
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.79	4.63	4.05	5.49	5.23	2.93	1.58	4.74	3.30	0.58	-0.86	1.00	1.04	0.38	1.92



Alt Model-Shift Uniqueness Test

005392413-04, P = 58.436129 Days, E = 83.574442 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.91	4.77	4.73	5.11	5.30	3.05	1.55	2.18	1.80	0.04	-0.34	1.60	0.87	0.43	0.98



Stellar Parameters For KIC 005392413

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6687^{+188}_{-235}	$4.482^{+0.039}_{-0.221}$	$-0.500^{+0.300}_{-0.300}$	$0.978^{+0.346}_{-0.087}$	$1.089^{+0.158}_{-0.118}$	$1.639^{+0.263}_{-0.935}$
	+3%/-4%	+1%/-5%	+60%/-60%	+35%/-9%	+15%/-11%	+16%/-57%
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 005392413-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-300 ± 65	$2.91^{+1.24}_{-1.16}$	764^{+59}_{-40}	5522^{+1741}_{-808}	1742^{+3269}_{-925}
Alt.	-412 ± 86	$3.31^{+1.36}_{-1.31}$	769^{+62}_{-42}	5646^{+1624}_{-753}	1925^{+3220}_{-1022}

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 $A_{obs} \gg 1.0$

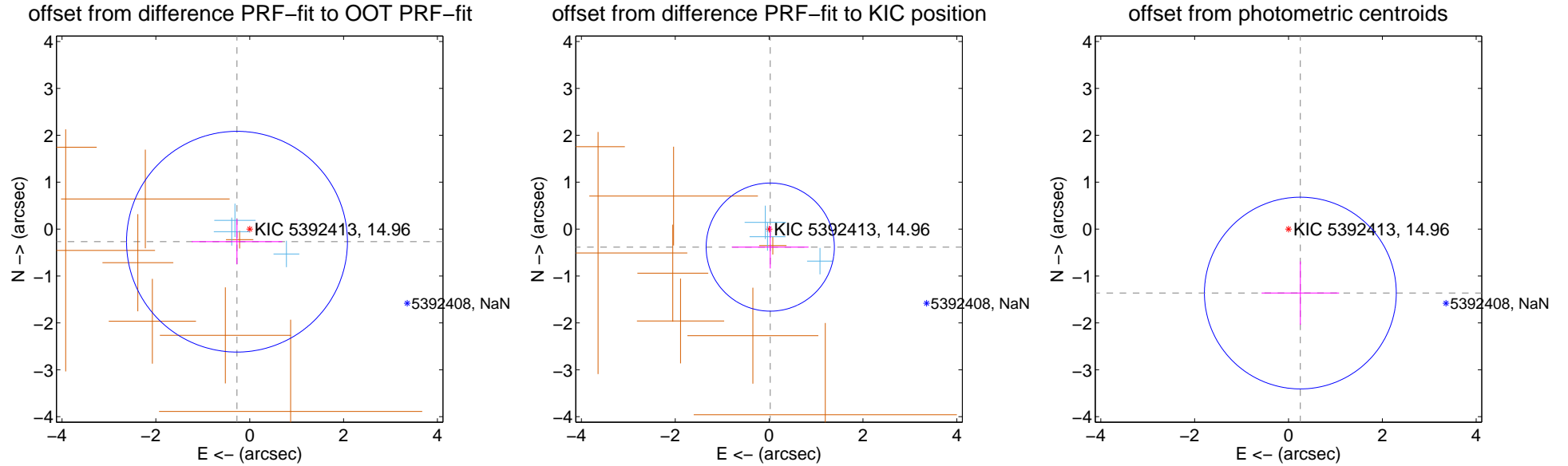
DV Centroid Data

Supplemental centroid analysis for 005392413-04. Kepler magnitude: 14.96. Transit SNR 10.33

There are 3 quarters with good PRF difference image offsets

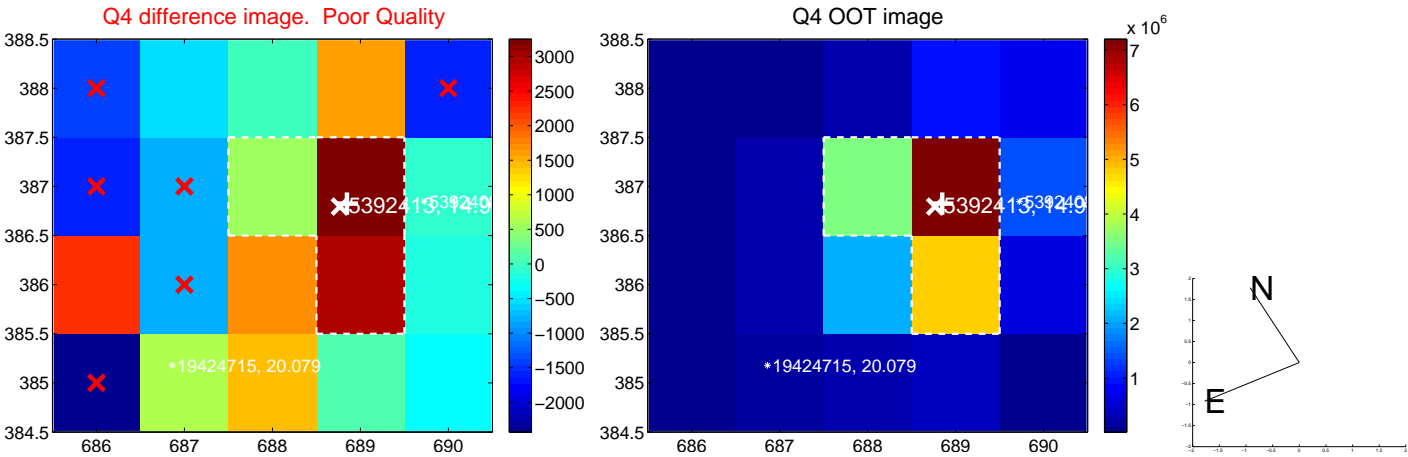
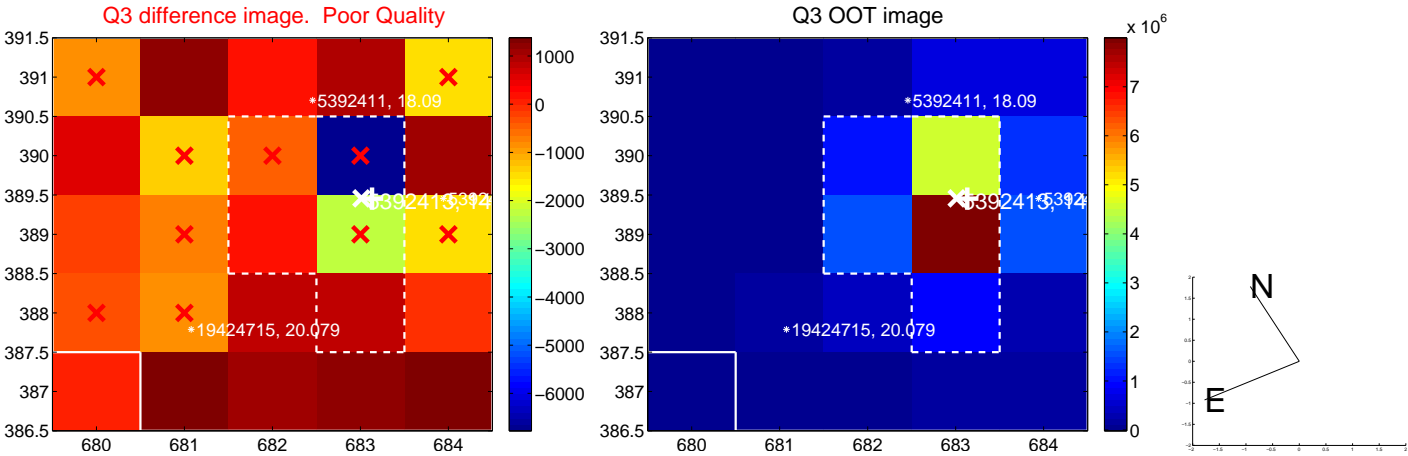
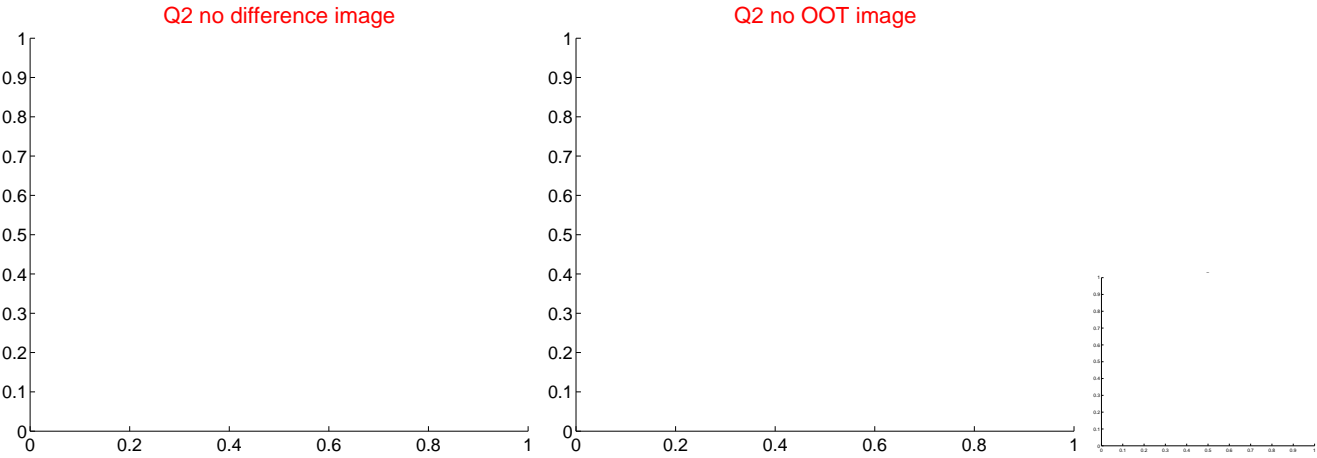
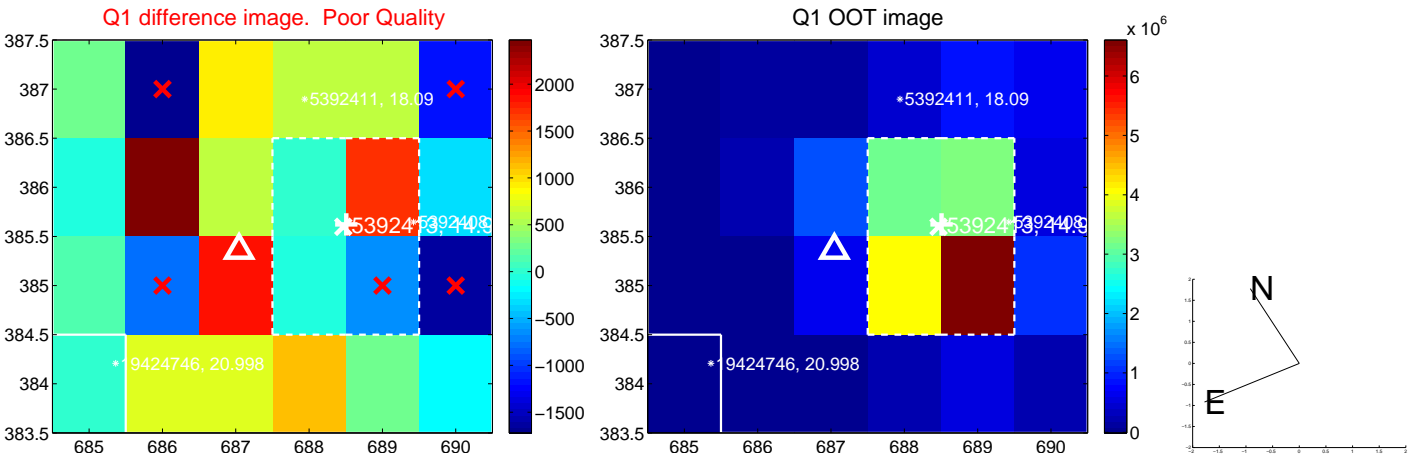
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.382 ± 0.784	0.49	0.271 ± 0.965	-0.269 ± 0.480
PRF-fit source offset from KIC position	0.385 ± 0.455	0.85	-0.025 ± 0.817	-0.384 ± 0.455
photometric centroid source offset	1.39 ± 0.68	2.04	-0.25 ± 0.83	-1.36 ± 0.68

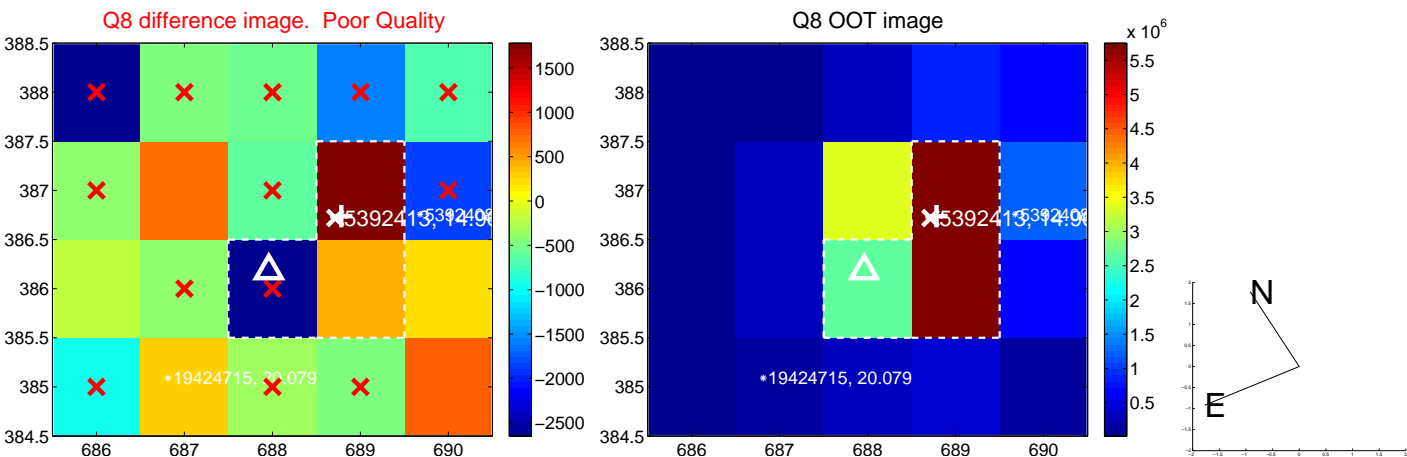
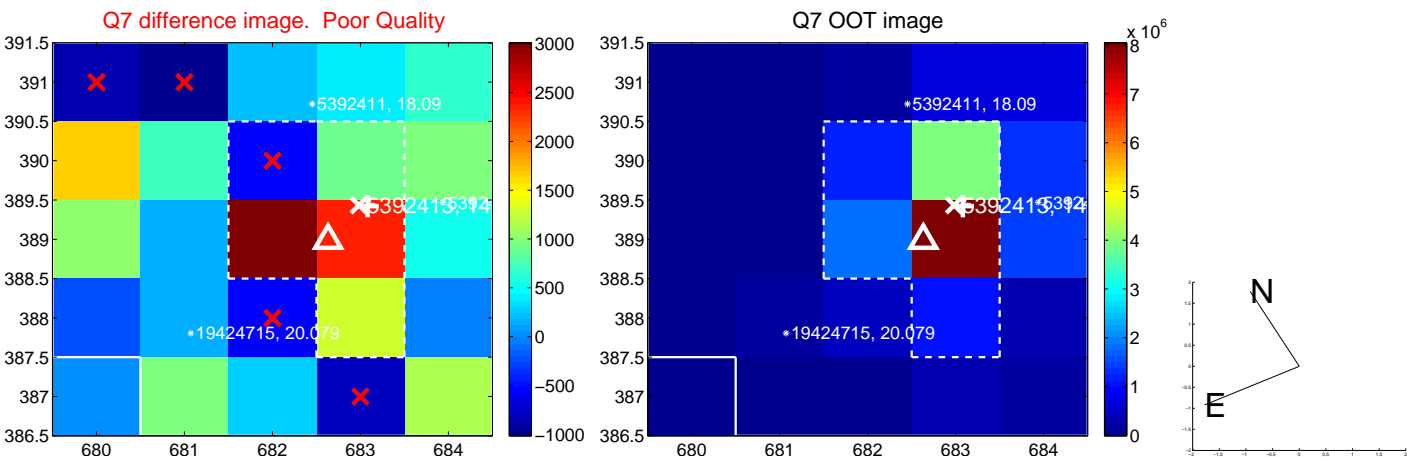
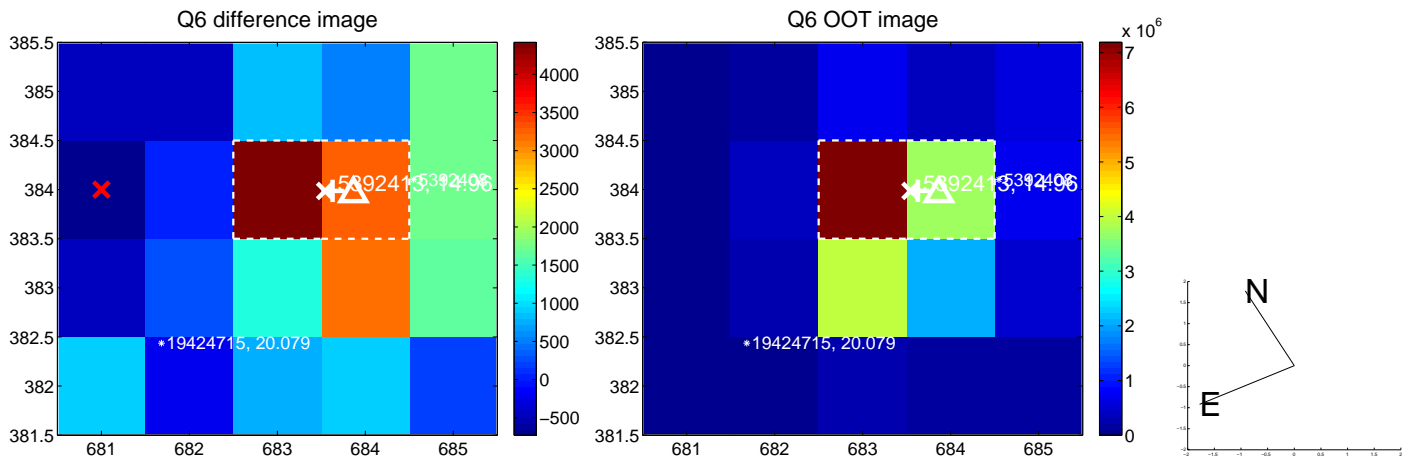
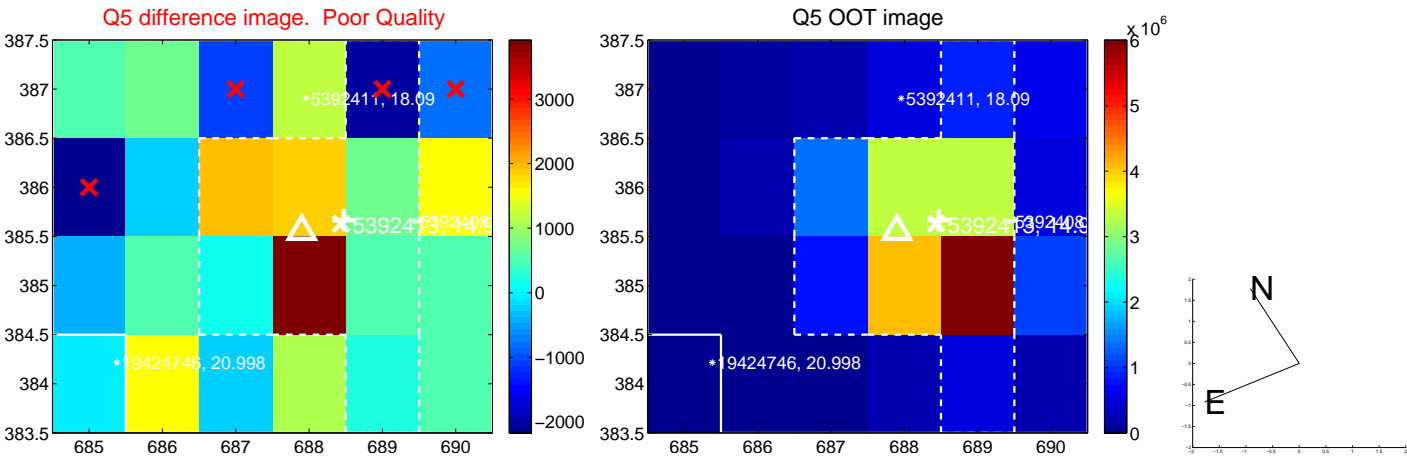


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

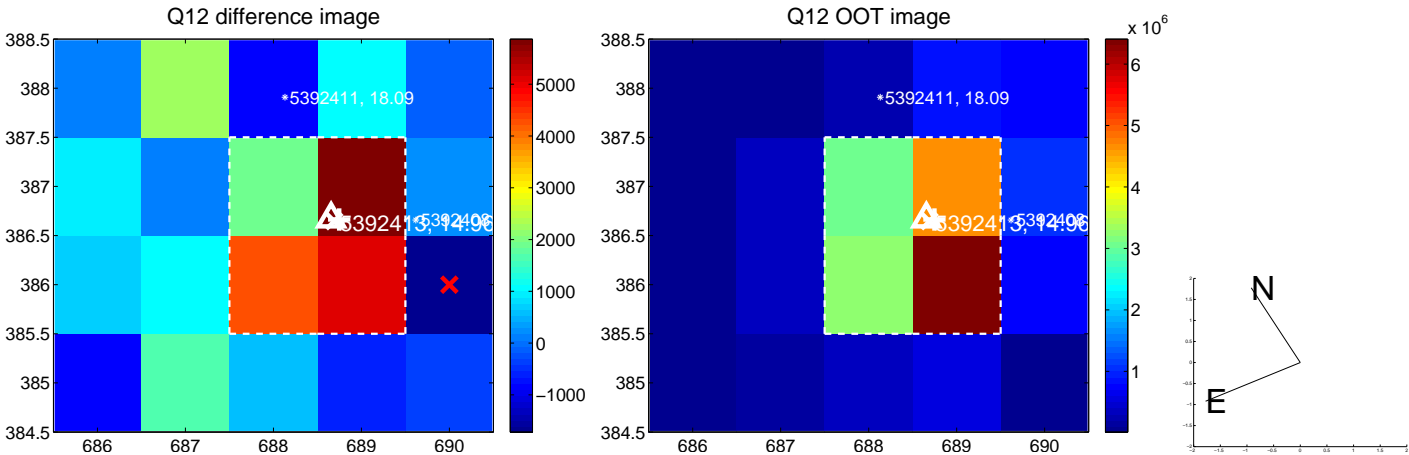
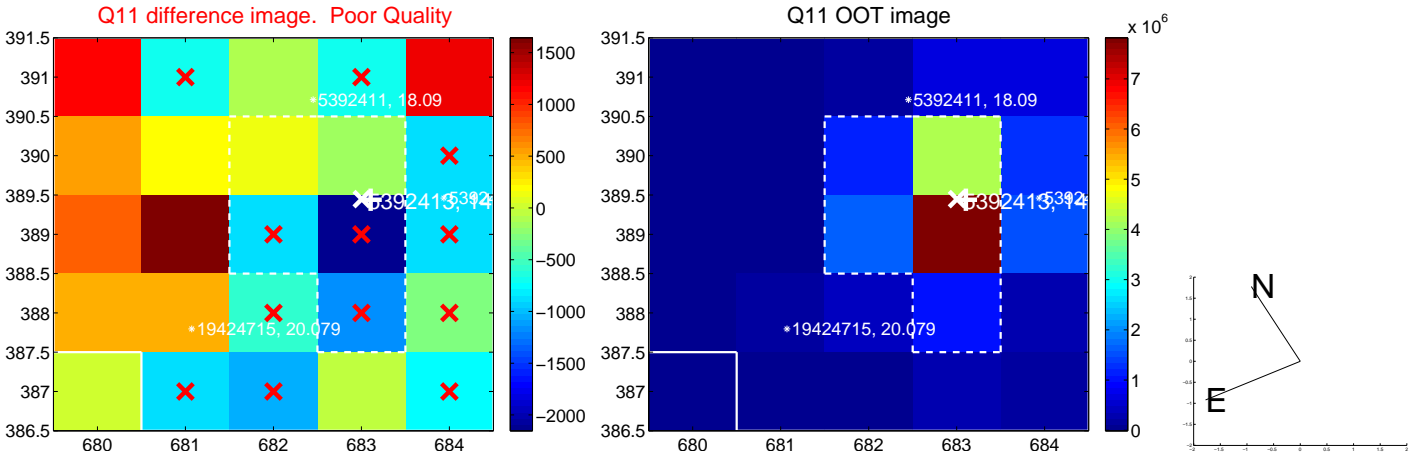
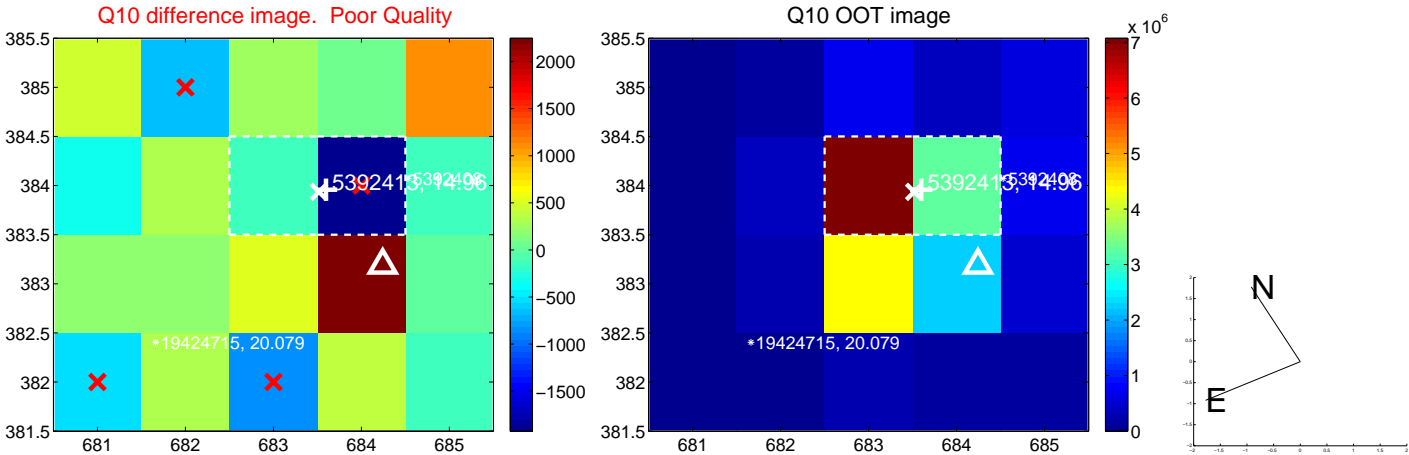
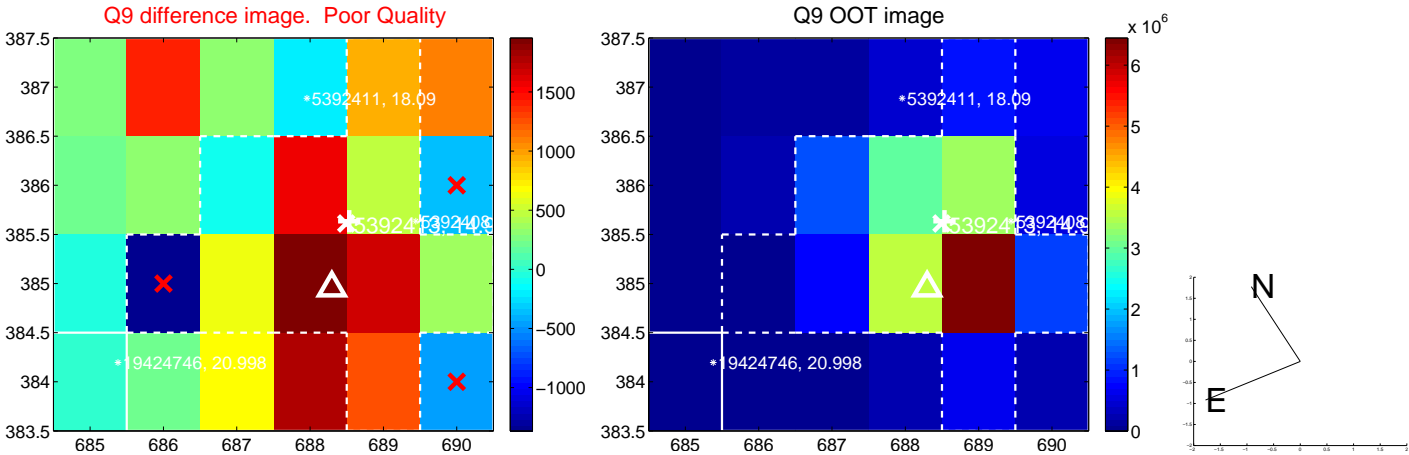
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



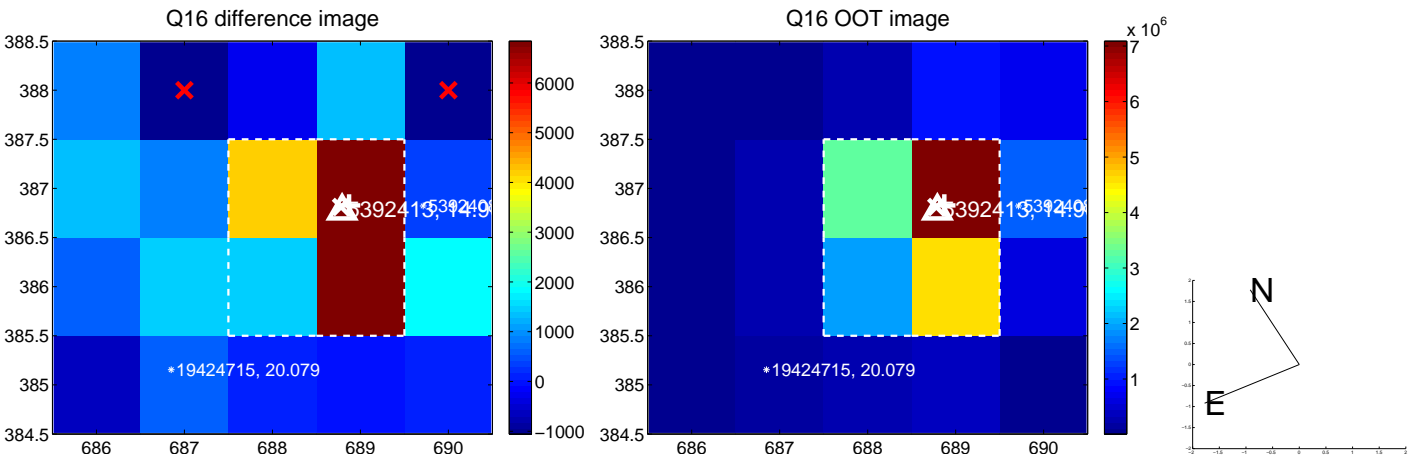
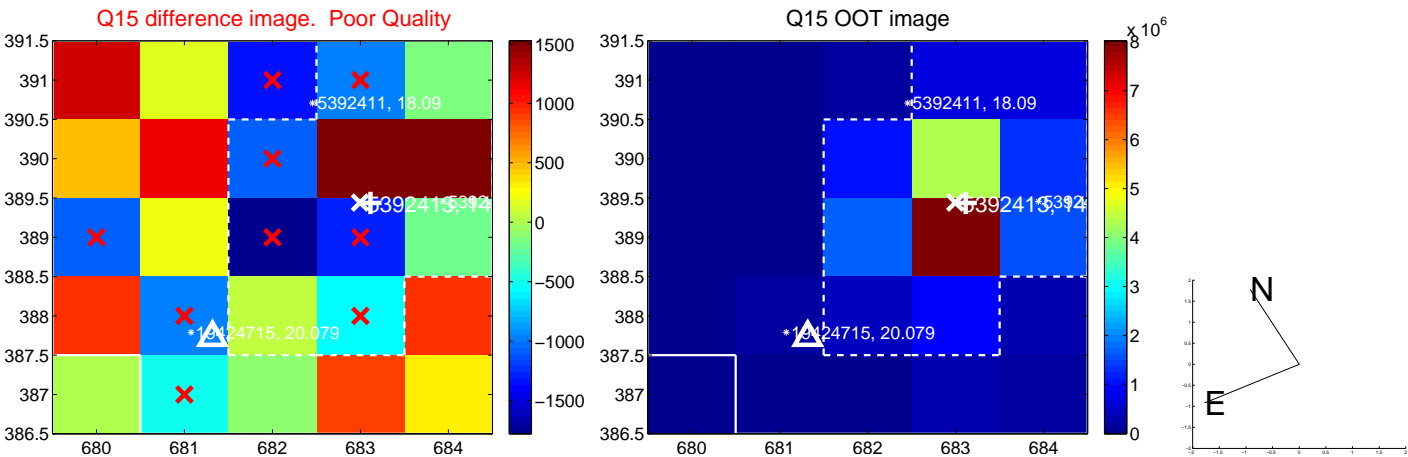
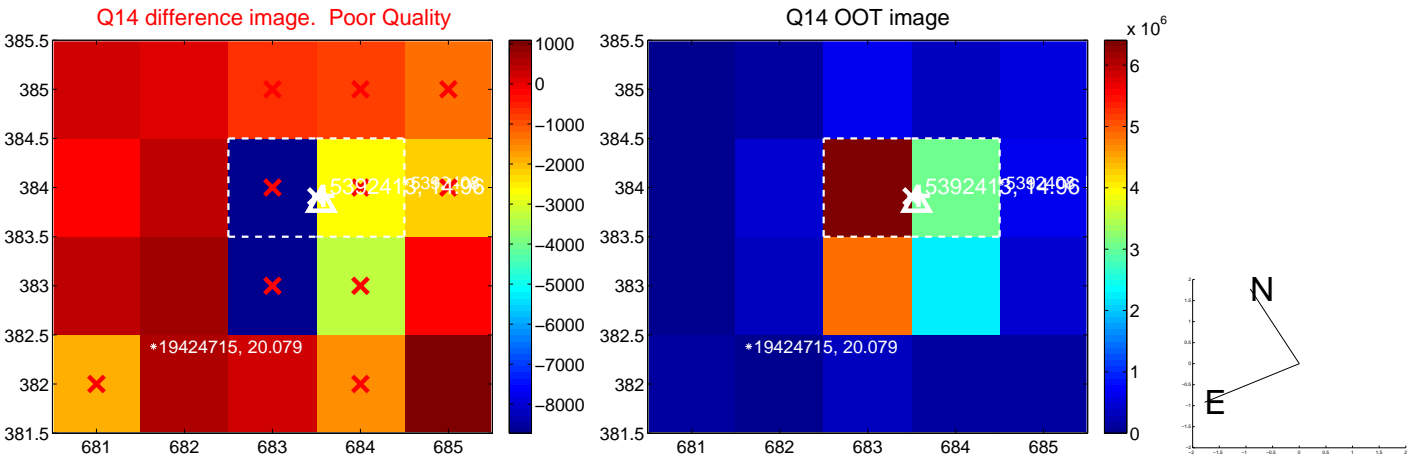
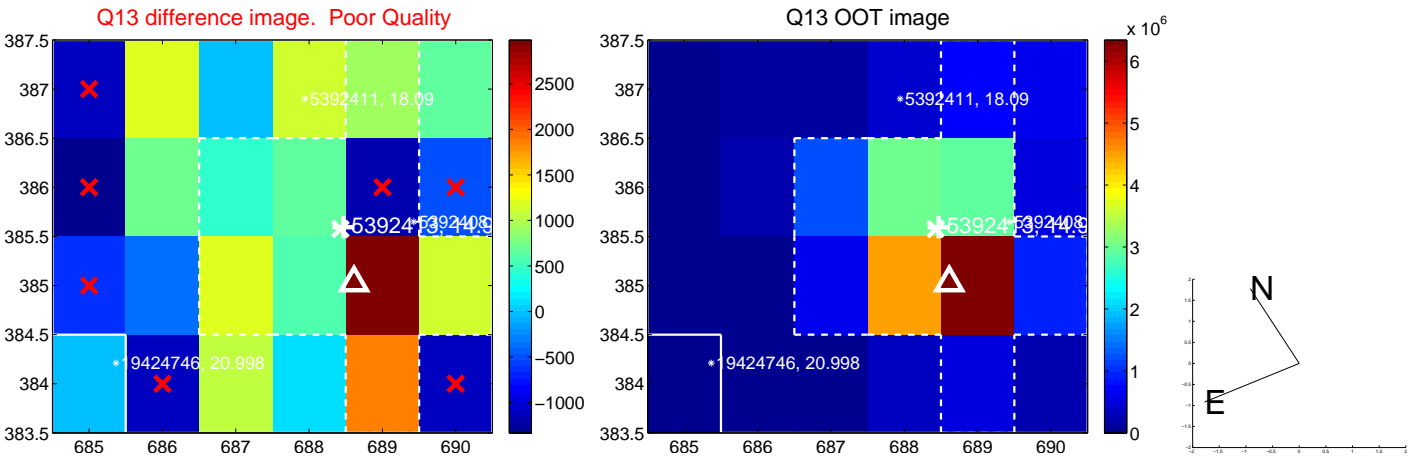
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



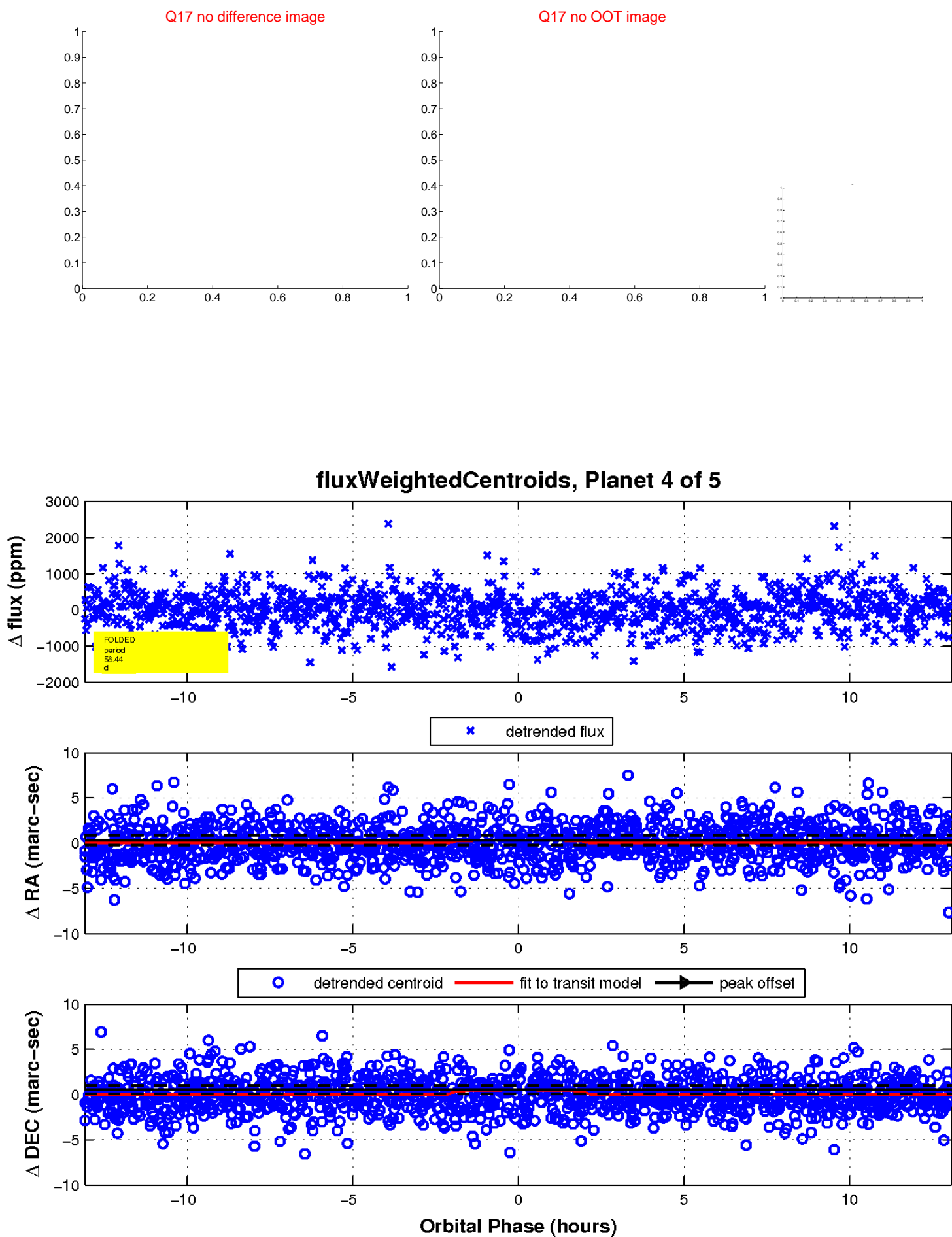
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



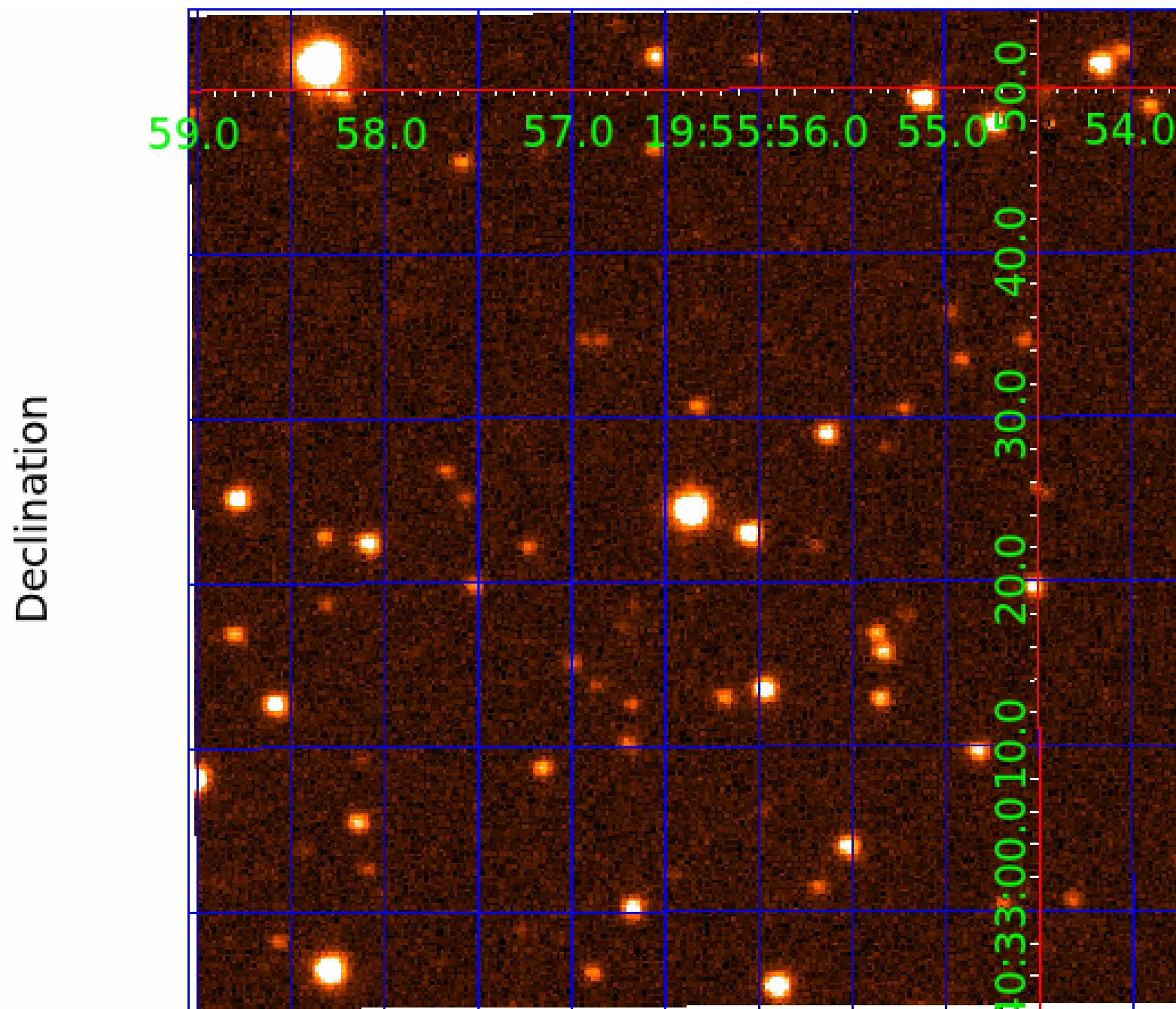
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005392413

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})
005392413-01	OBS	No	1.410853	132.941643	48.1	8.626	8.6	8.2	0.98	6687	0.69	2721.05
005392413-02	OBS	No	100.099511	135.128892	709.9	4.501	9.7	8.9	0.98	6687	2.88	9.26
005392413-03	OBS	No	33.115975	136.924915	594.7	4.393	9.4	9.9	0.98	6687	2.65	40.49
005392413-04	OBS	No	58.436391	141.988134	621.4	4.363	9.2	10.3	0.98	6687	2.72	18.99
005392413-05	OBS	No	105.409286	150.470111	734.6	3.211	8.4	8.7	0.98	6687	3.00	8.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005392413-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005392413-02	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
005392413-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005392413-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005392413-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

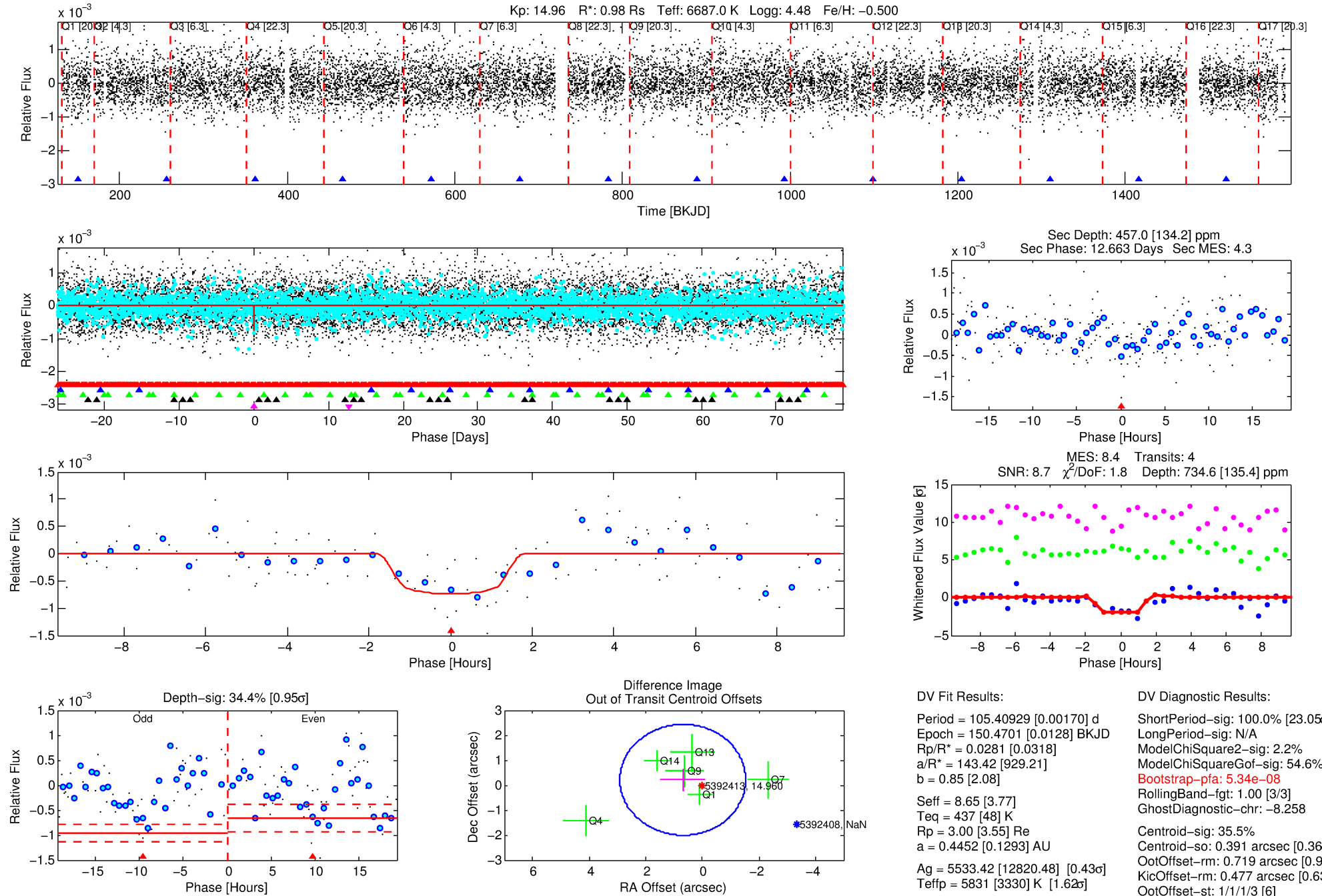
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005392413-05

No Significant Match Found

DV One-Page Summary

KIC: 5392413 Candidate: 5 of 5 Period: 105.409 d



DV Fit Results:

Period = 105.40929 [0.00170] d
Epoch = 150.4701 [0.0128] BKJD
Rp/R* = 0.0281 [0.0318]
a/R* = 143.42 [929.21]
b = 0.85 [2.08]
Seff = 8.65 [3.77]
Teff = 437 [48] K
Rp = 3.00 [3.55] Re
a = 0.4452 [0.1293] AU
Ag = 5533.42 [12820.48] [0.43 σ]
Teffp = 5831 [3330] K [1.62 σ]

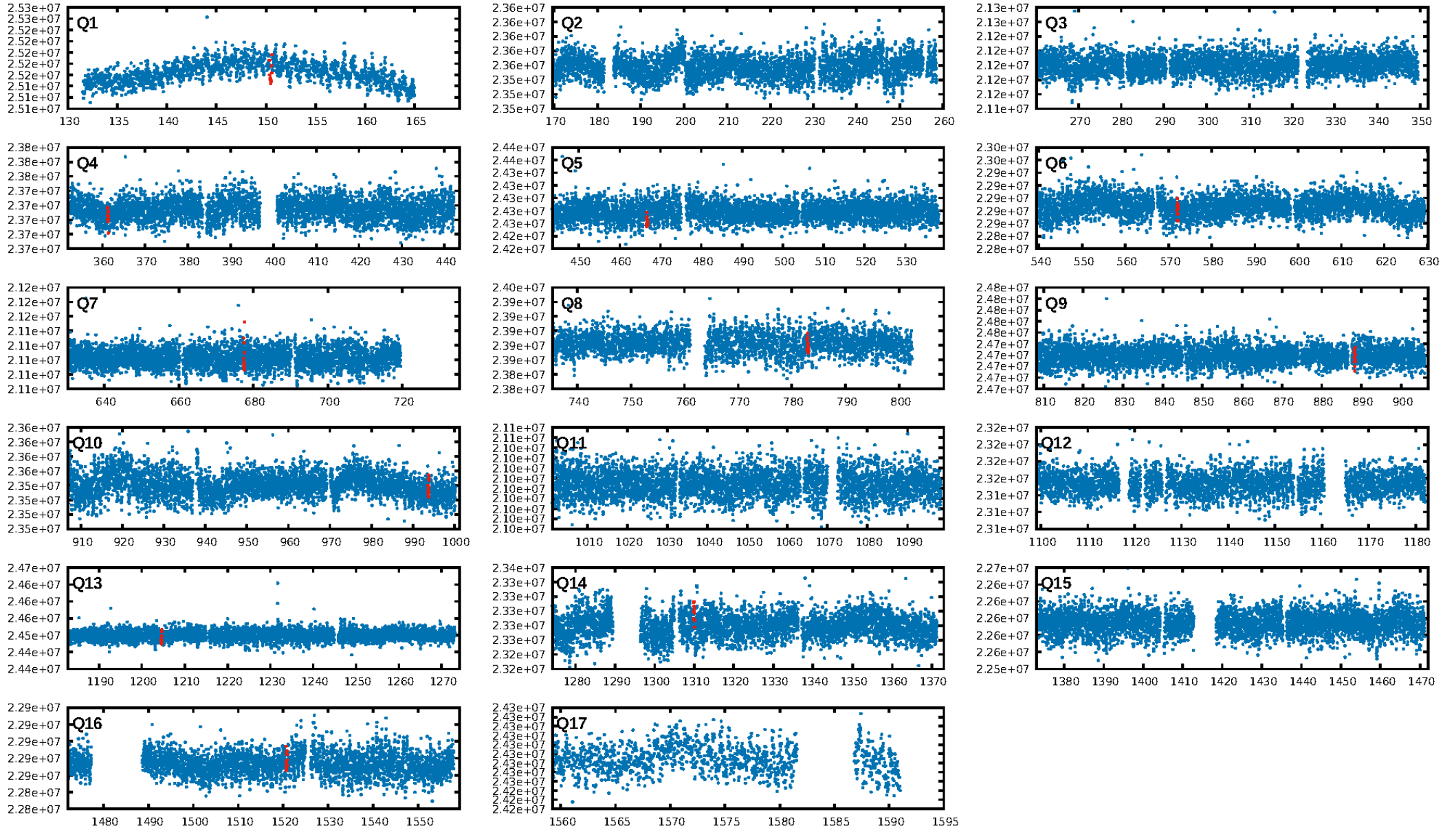
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [23.05 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.2%
ModelChiSquareGof-sig: 54.6%
Bootstrap-pfa: 5.34e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -8.258
Centroid-sig: 35.5%
Centroid-so: 0.391 arcsec [0.36 σ]
OotOffset-rm: 0.719 arcsec [0.97 σ]
OotOffset-st: 1/1/1/3 [6]
KicOffset-rm: 0.477 arcsec [0.63 σ]
KicOffset-st: 1/1/1/3 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.36 [4/11]

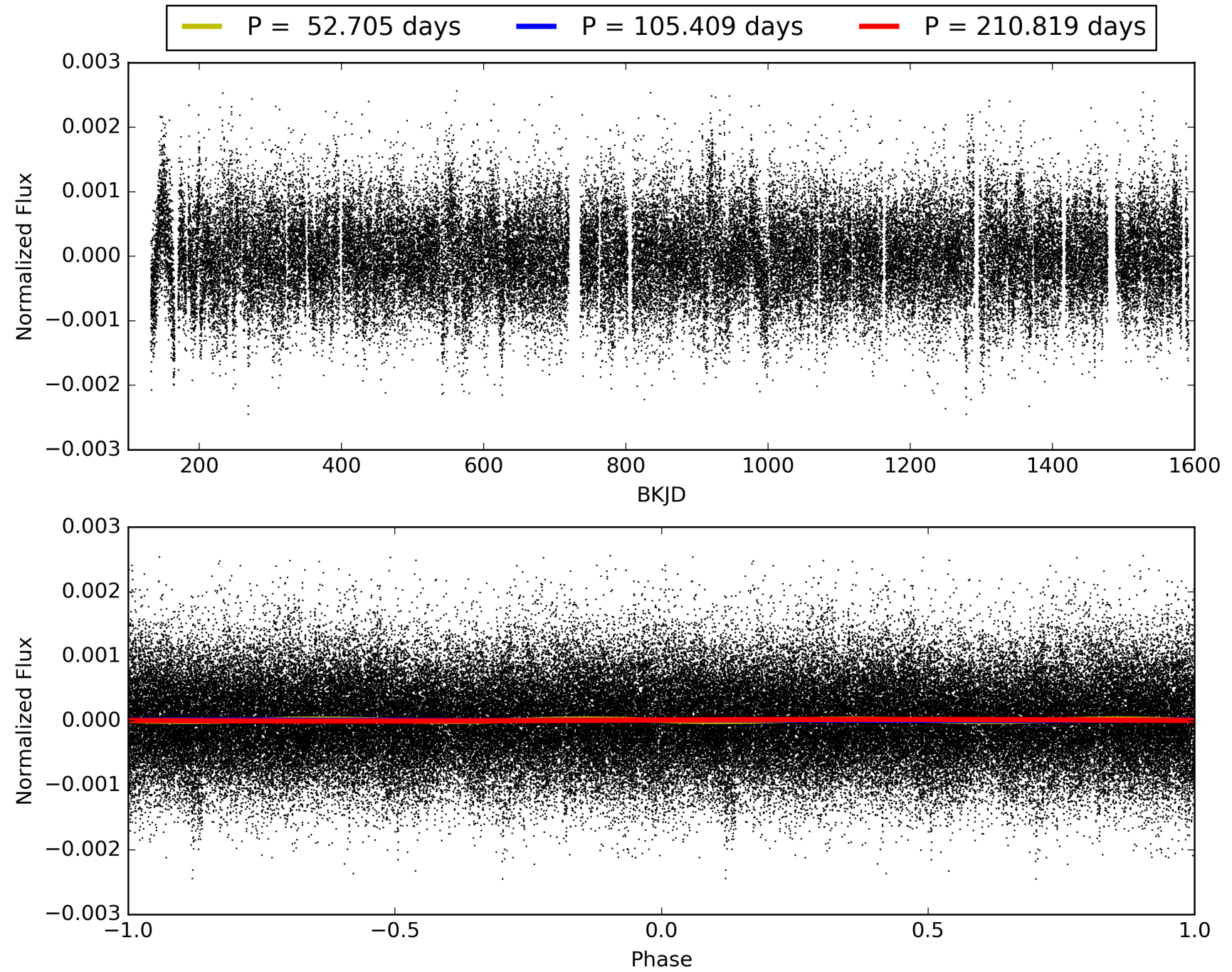
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:17:04 Z

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

TCE 005392413-05, PDC Light Curves

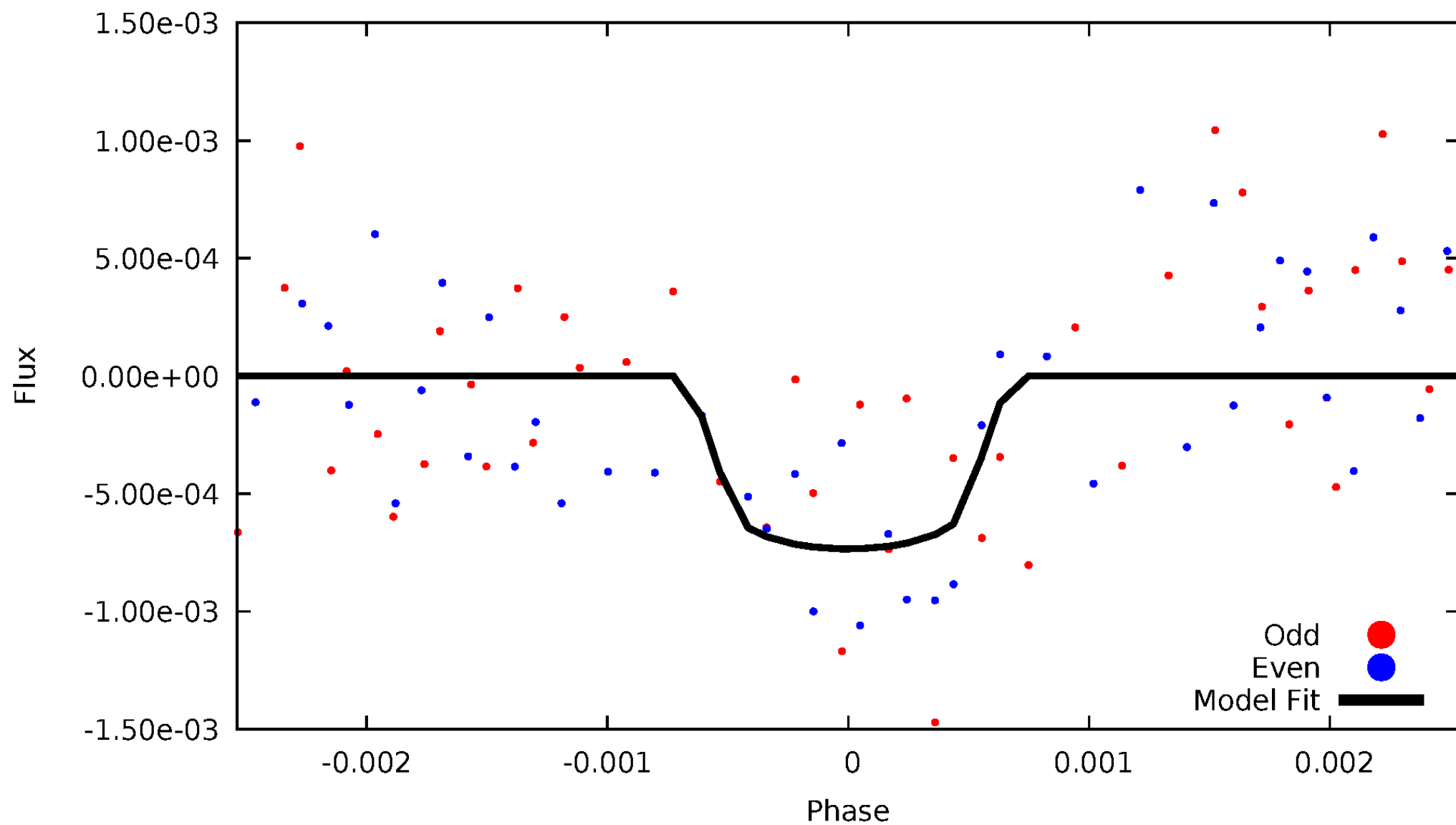


TCE 005392413-05



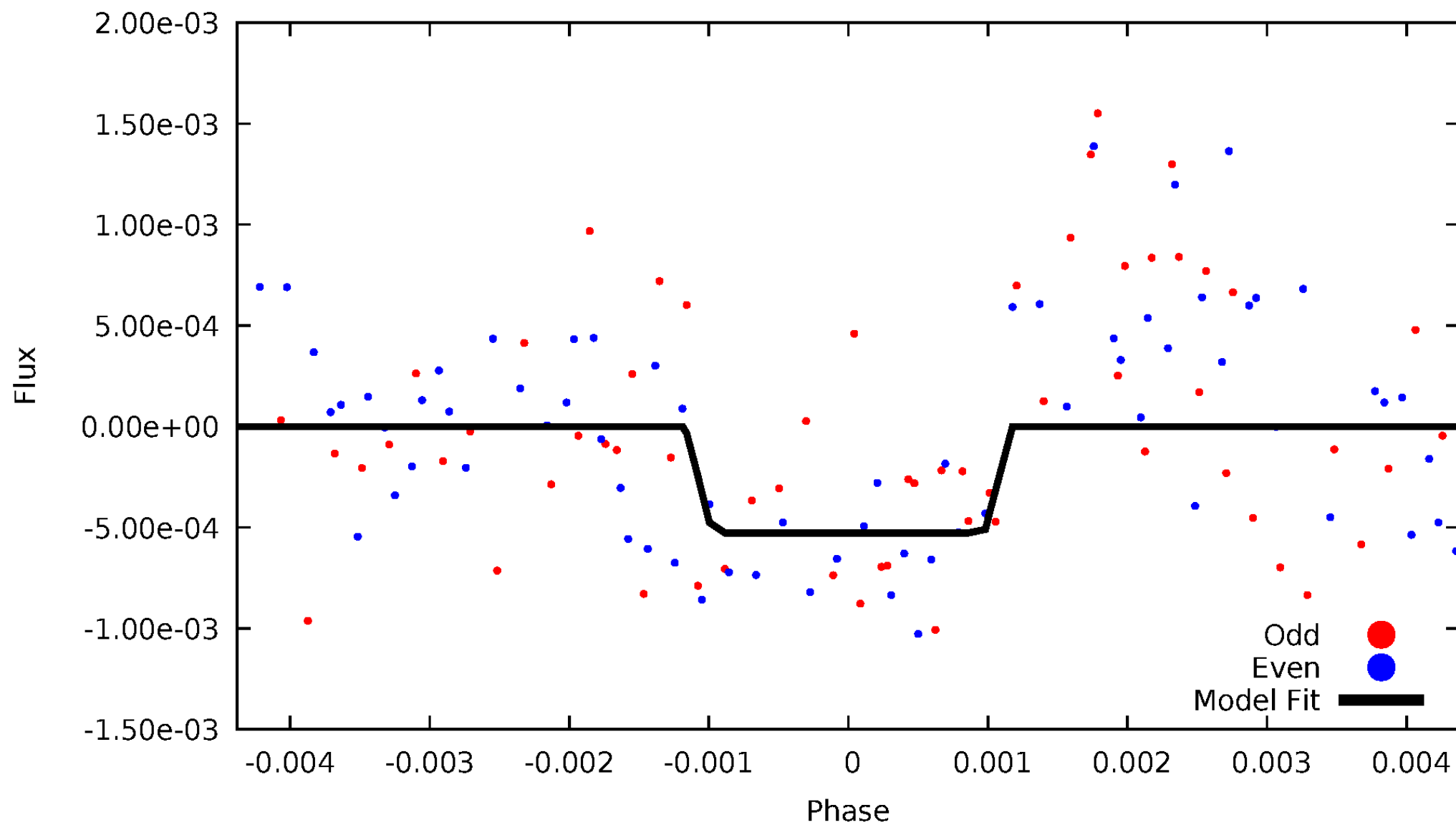
DV Odd/Even

TCE 005392413-05



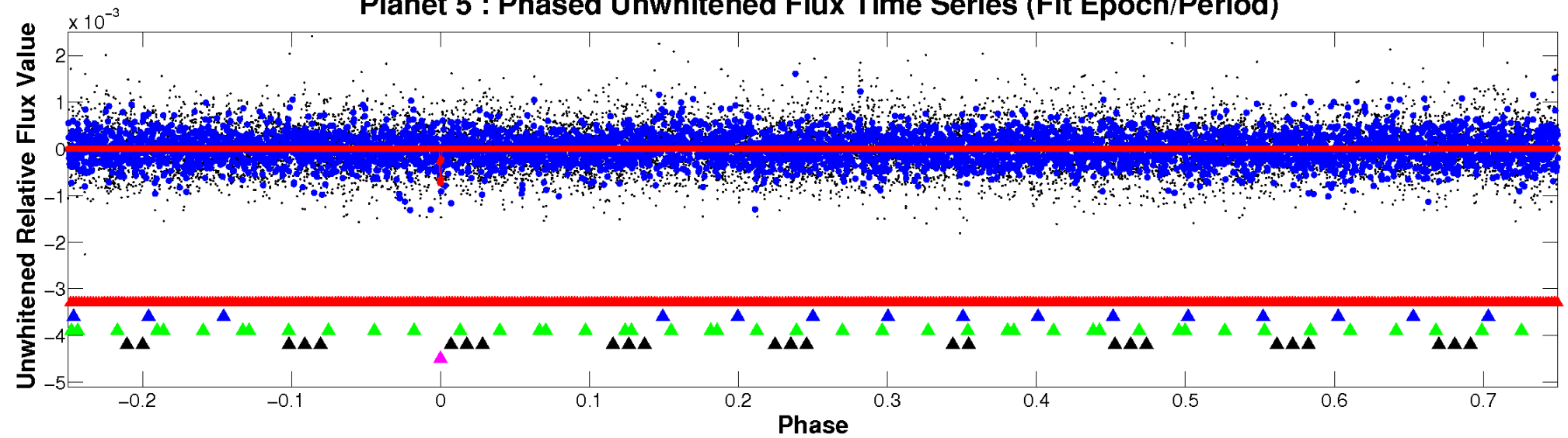
ALT Odd/Even

TCE 005392413-05

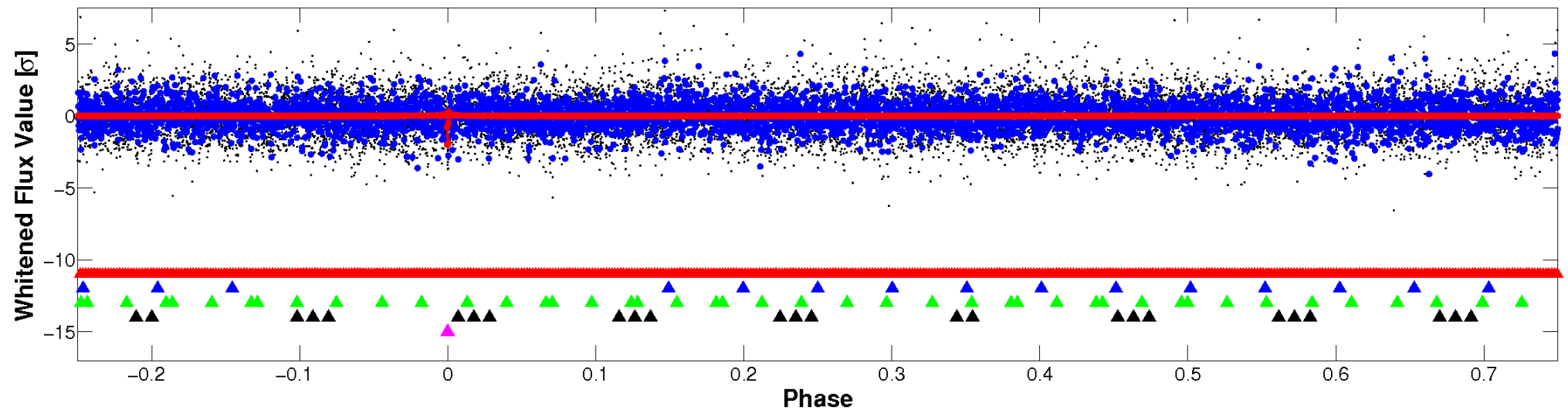


Non-Whitened Vs. Whitened Light Curve

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

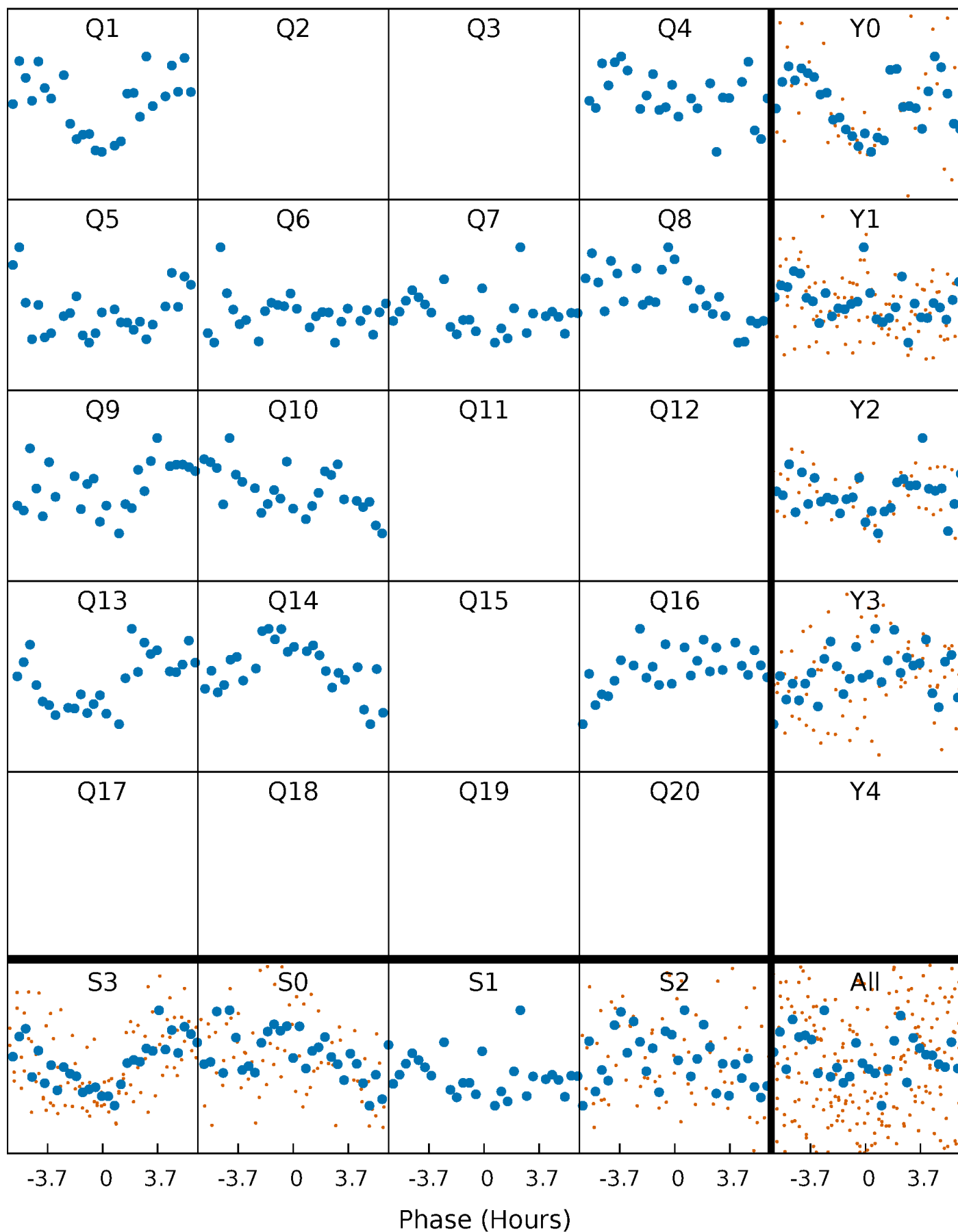


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



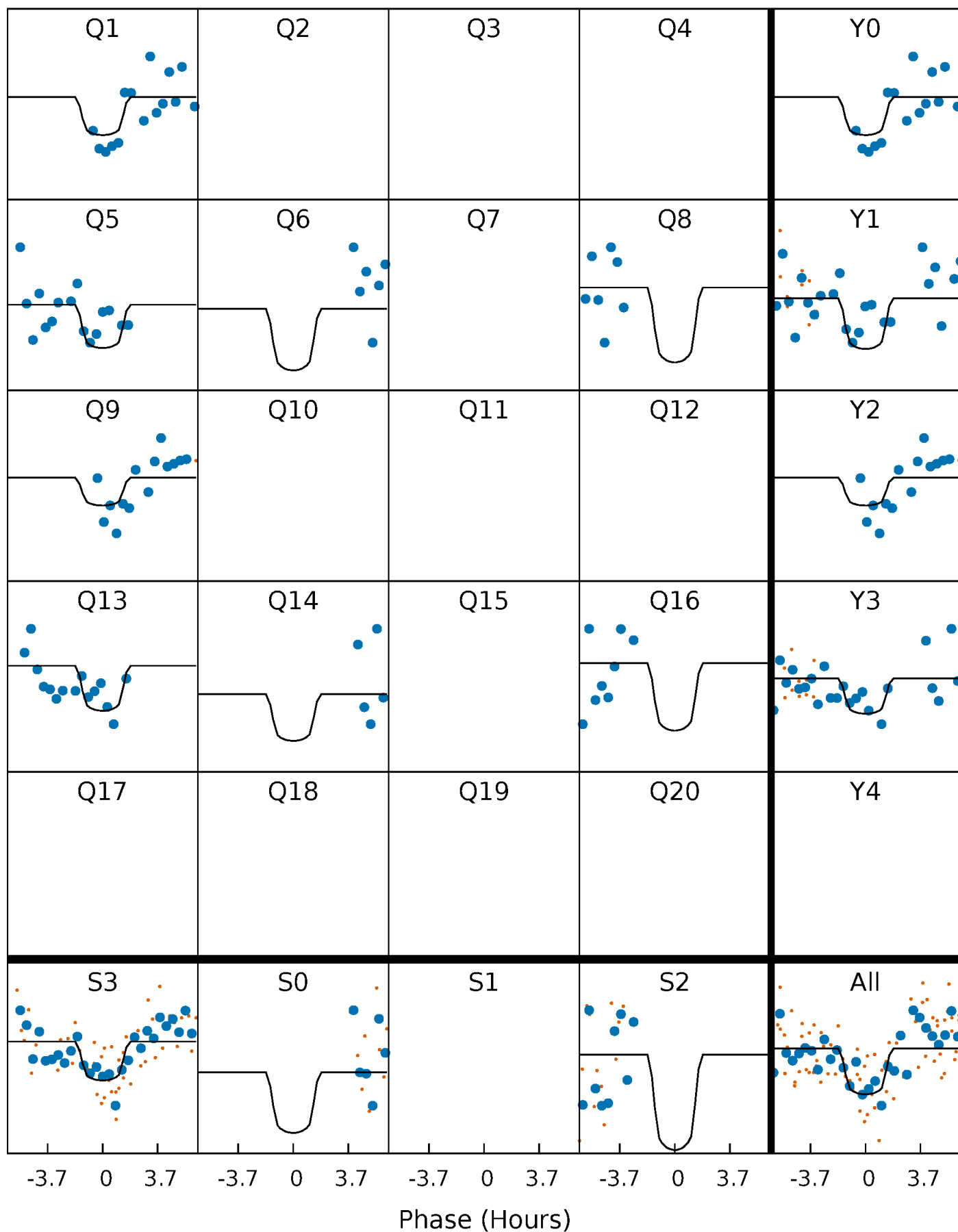
PDC Quarter-Phased Transit Curves

TCE 005392413-05 $P=105.409286$ Days $T_0=150.470111$ (BKJD)



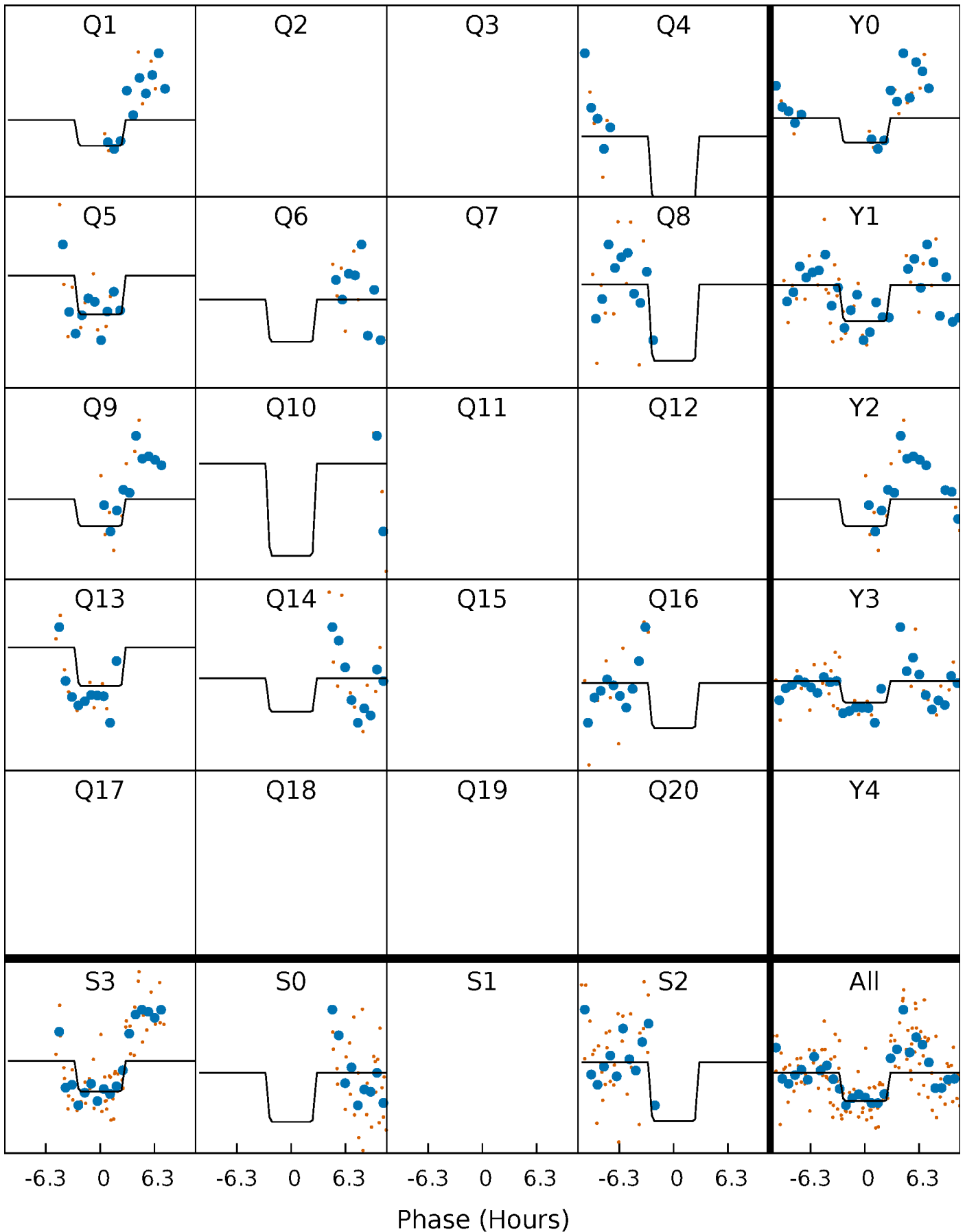
DV Quarter-Phased Transit Curves

TCE 005392413-05 $P=105.409286$ Days $T_0=150.470111$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

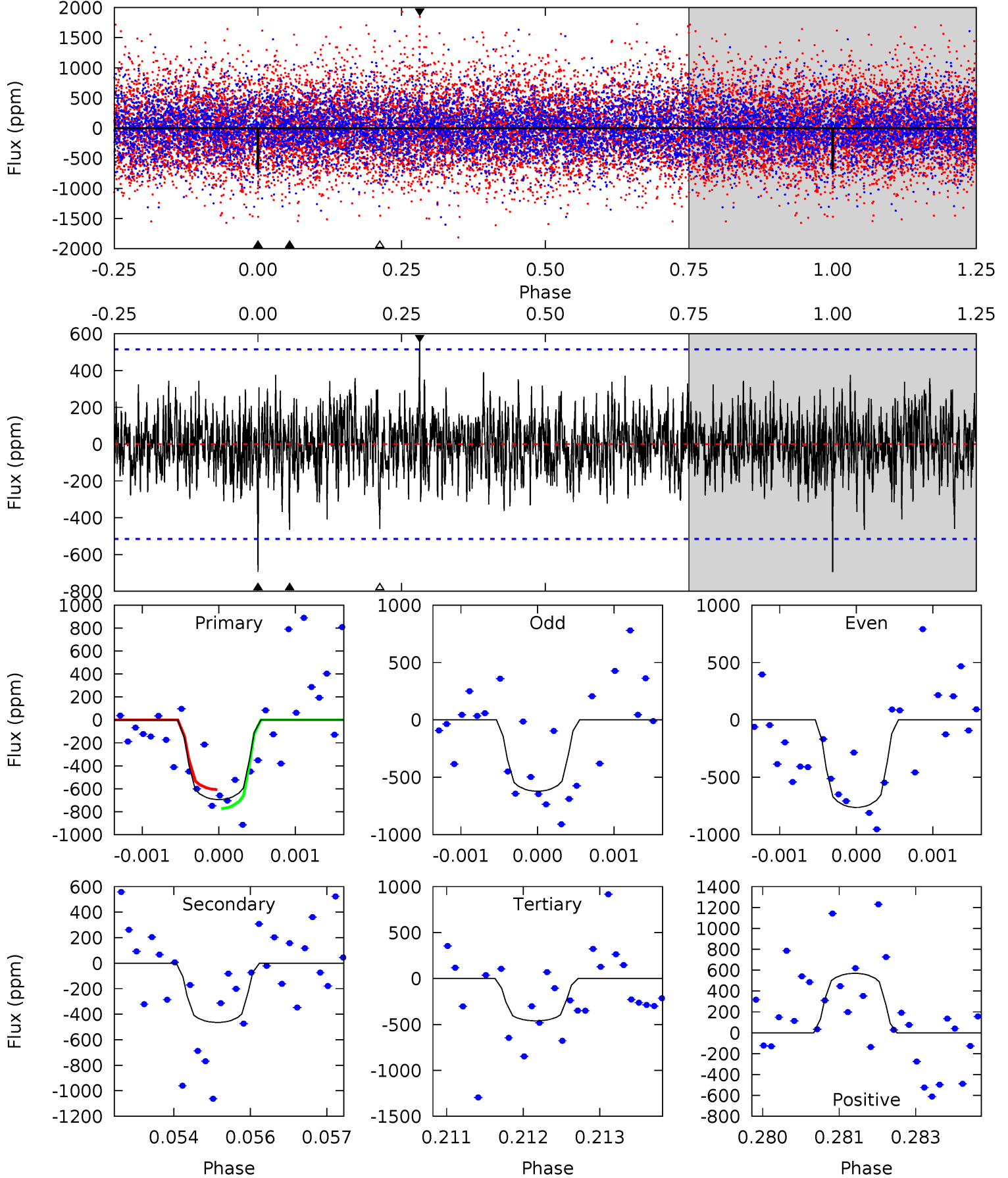
TCE 005392413-05 P=105.413559 Days $T_0=150.412508$ (BKJD)



DV Model-Shift Uniqueness Test

005392413-05, P = 105.409286 Days, E = 45.060825 Days

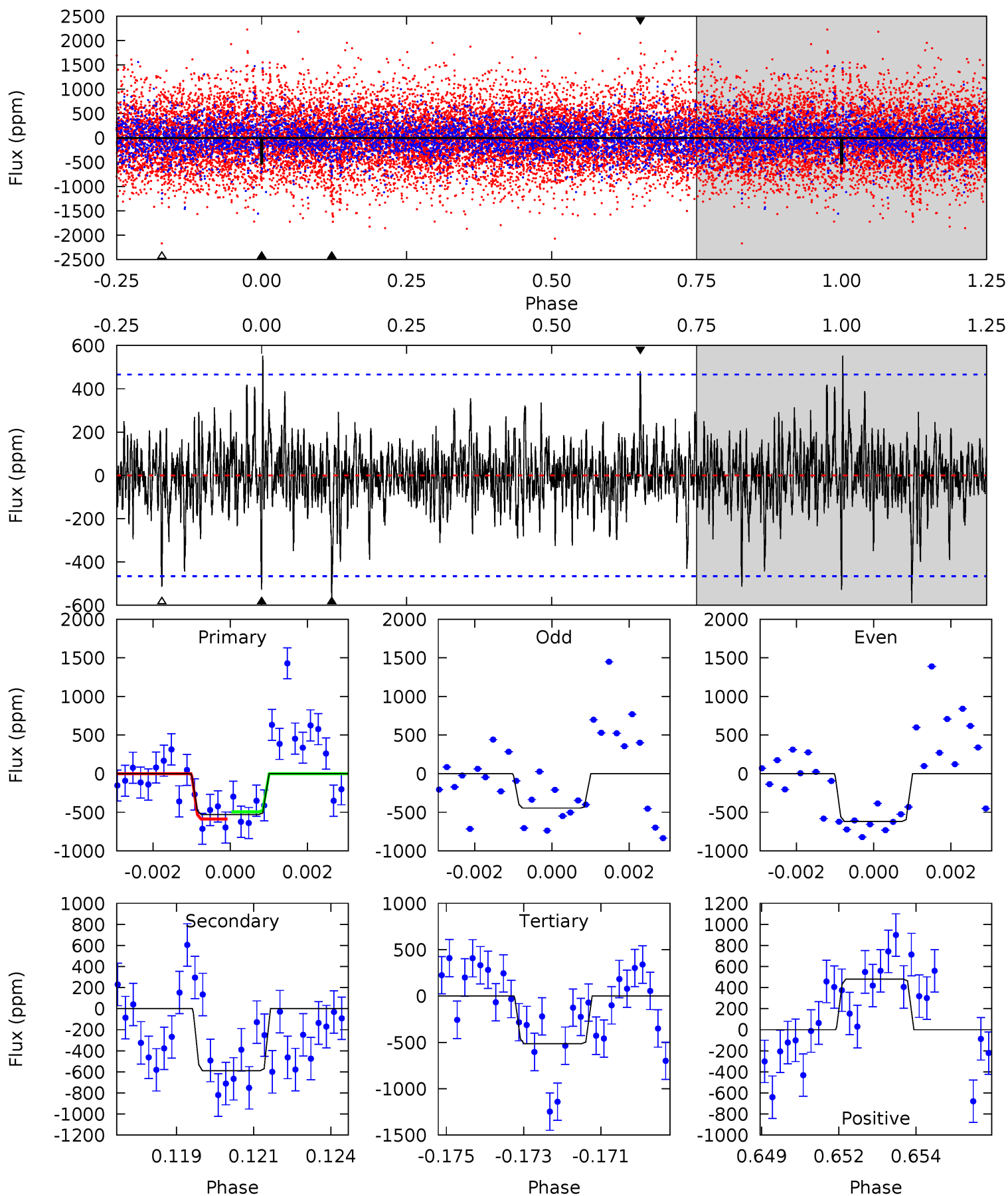
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.27	4.86	4.83	5.96	5.40	3.20	1.36	2.44	1.31	0.04	-1.10	0.75	0.95	0.45	0.86



Alt Model-Shift Uniqueness Test

005392413-05, $P = 105.413559$ Days, $E = 44.998949$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.01	6.70	5.84	5.46	5.30	3.04	1.31	0.17	0.55	0.86	1.24	0.99	1.02	0.48	0.52



Stellar Parameters For KIC 005392413

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6687^{+188}_{-235}	$4.482^{+0.039}_{-0.221}$	$-0.500^{+0.300}_{-0.300}$	$0.978^{+0.346}_{-0.087}$	$1.089^{+0.158}_{-0.118}$	$1.639^{+0.263}_{-0.935}$
	+3%/-4%	+1%/-5%	+60%/-60%	+35%/-9%	+15%/-11%	+16%/-57%
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 005392413-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-465 ± 96	$4.24^{+3.52}_{-2.59}$	628^{+53}_{-29}	5141^{+3580}_{-1061}	2780^{+16844}_{-1935}
Alt.	-590 ± 88	$3.71^{+3.01}_{-2.47}$	626^{+49}_{-30}	5780^{+5478}_{-1303}	4662^{+37931}_{-3267}

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 $A_{obs} \gg 1.0$

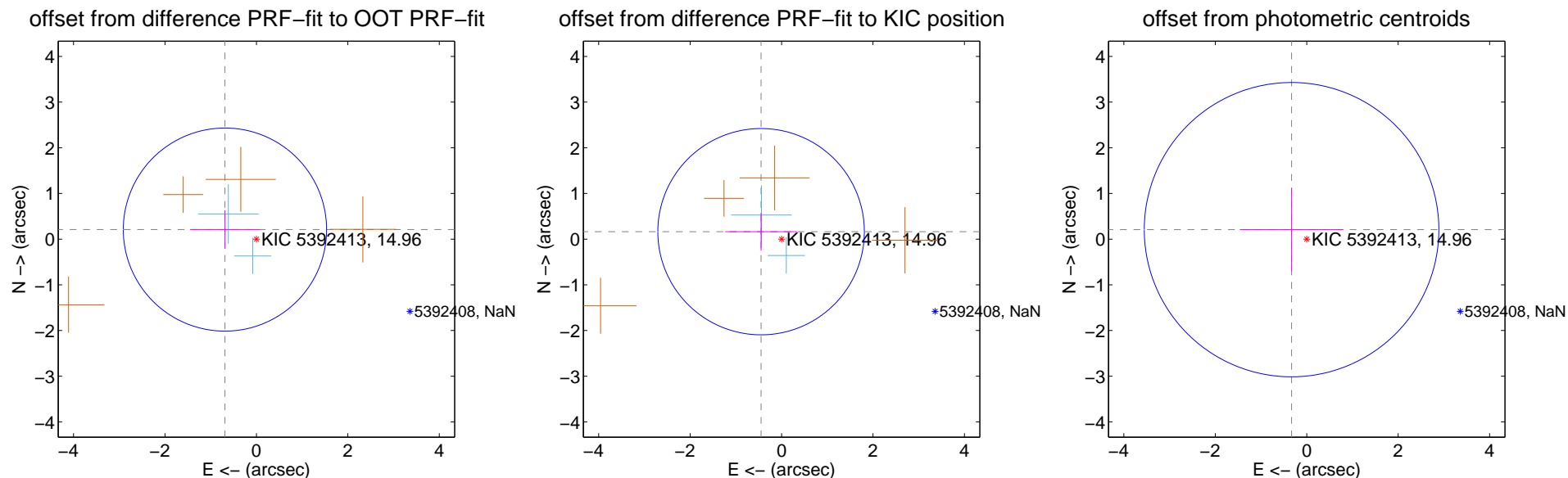
DV Centroid Data

Supplemental centroid analysis for 005392413-05. Kepler magnitude: 14.96. Transit SNR 8.66

There are 2 quarters with good PRF difference image offsets

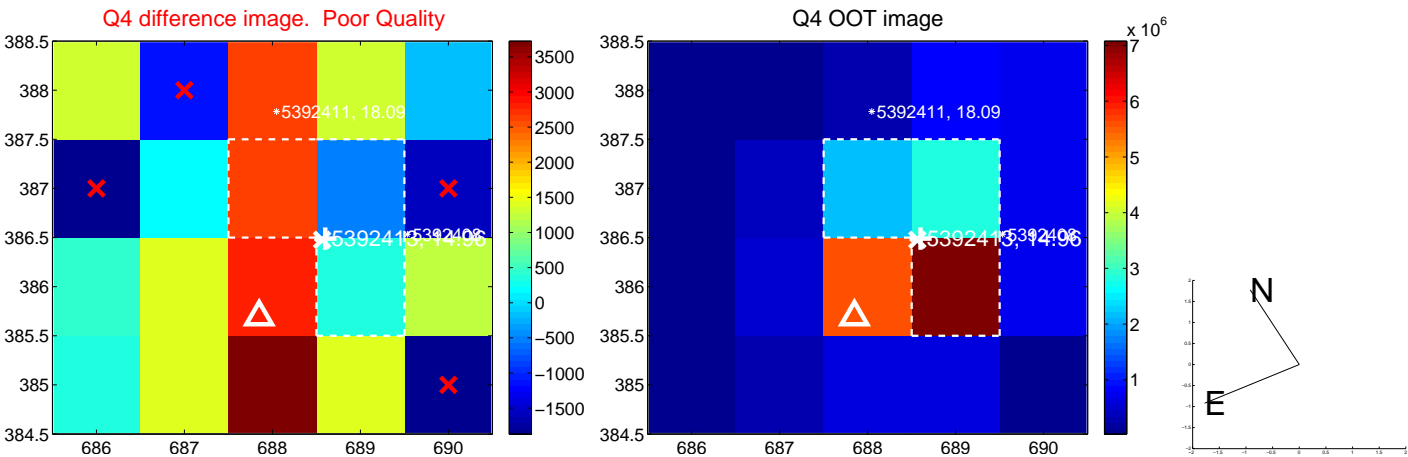
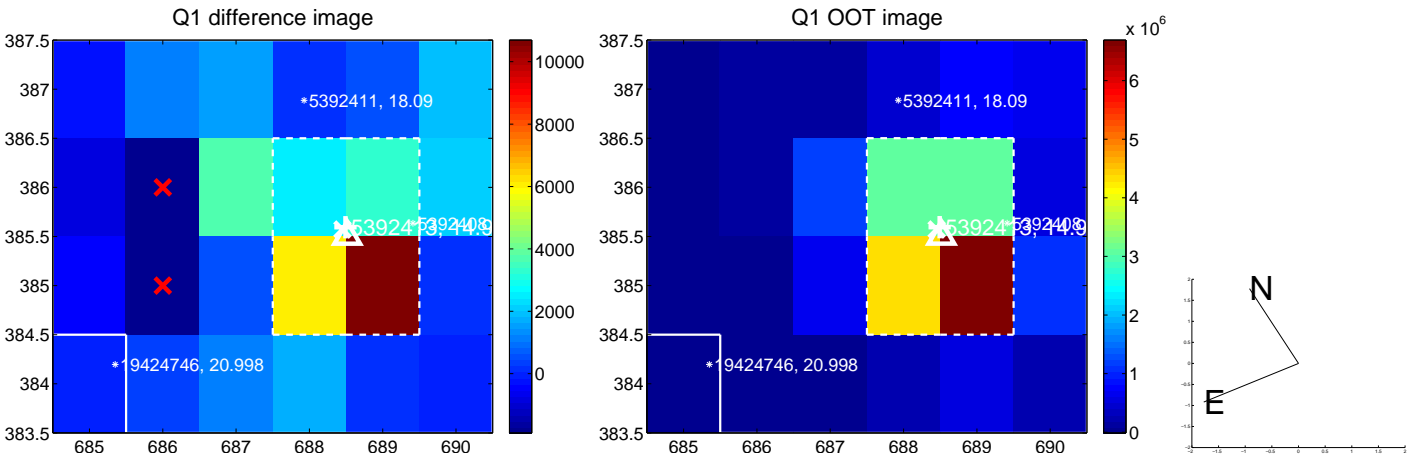
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.719 ± 0.741	0.97	0.688 ± 0.764	0.209 ± 0.422
PRF-fit source offset from KIC position	0.477 ± 0.753	0.63	0.448 ± 0.787	0.163 ± 0.415
photometric centroid source offset	0.39 ± 1.07	0.36	0.33 ± 1.13	0.21 ± 0.91

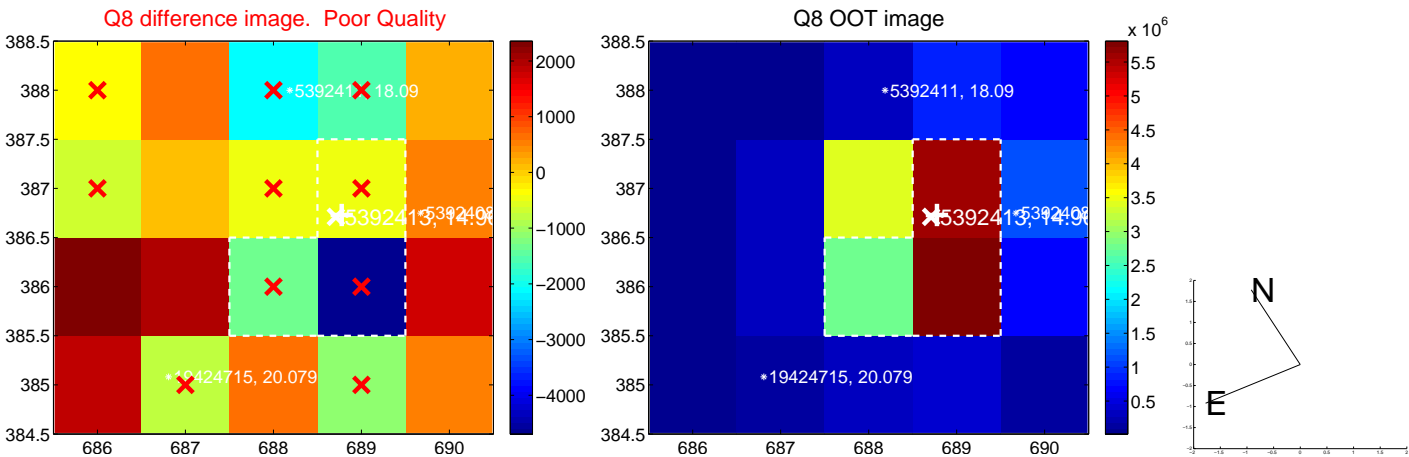
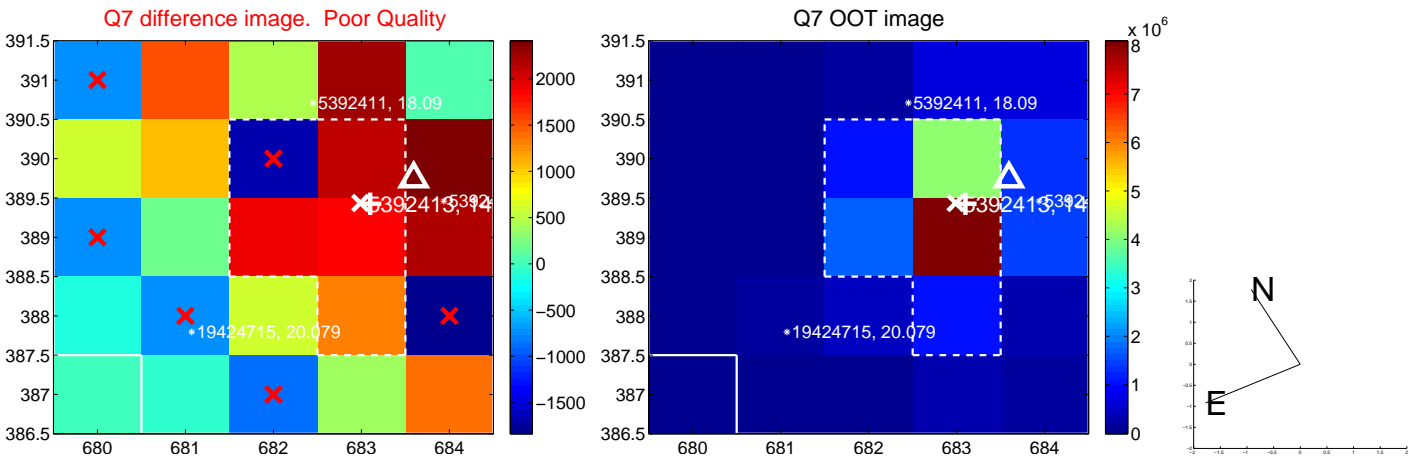
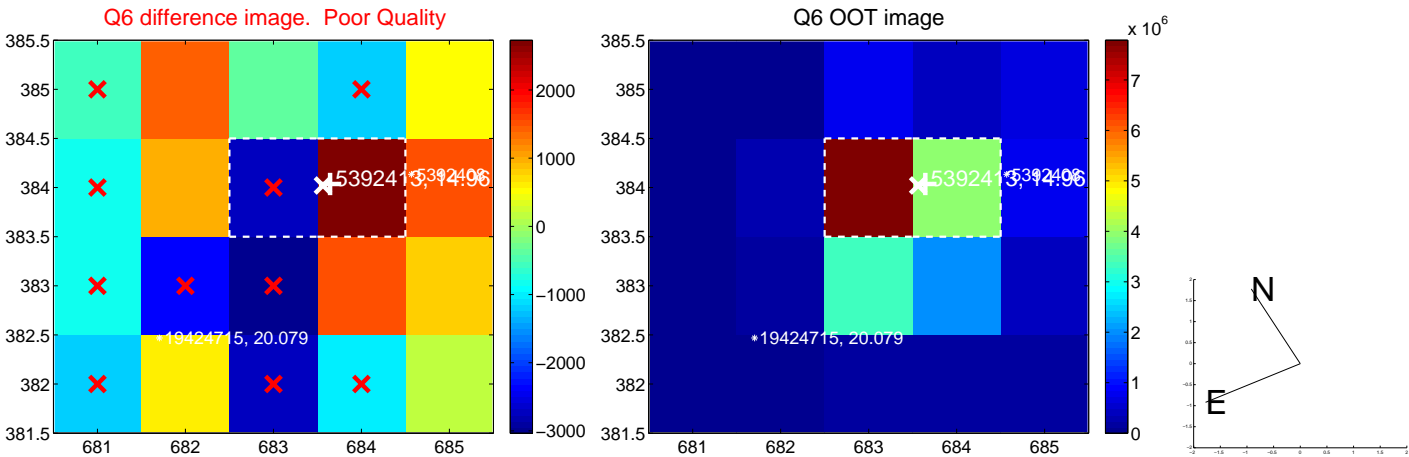
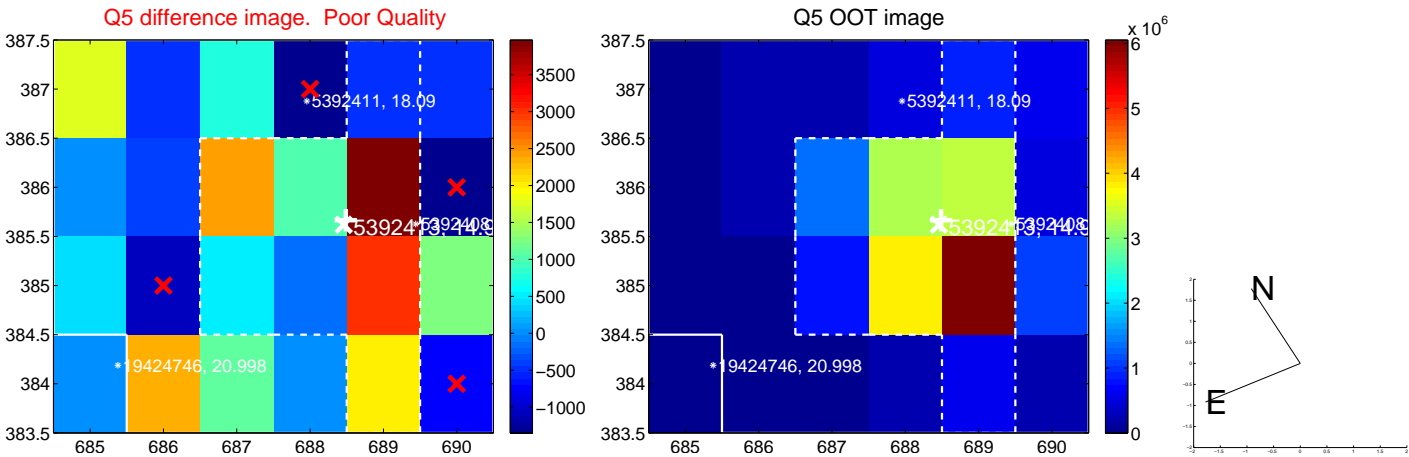


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

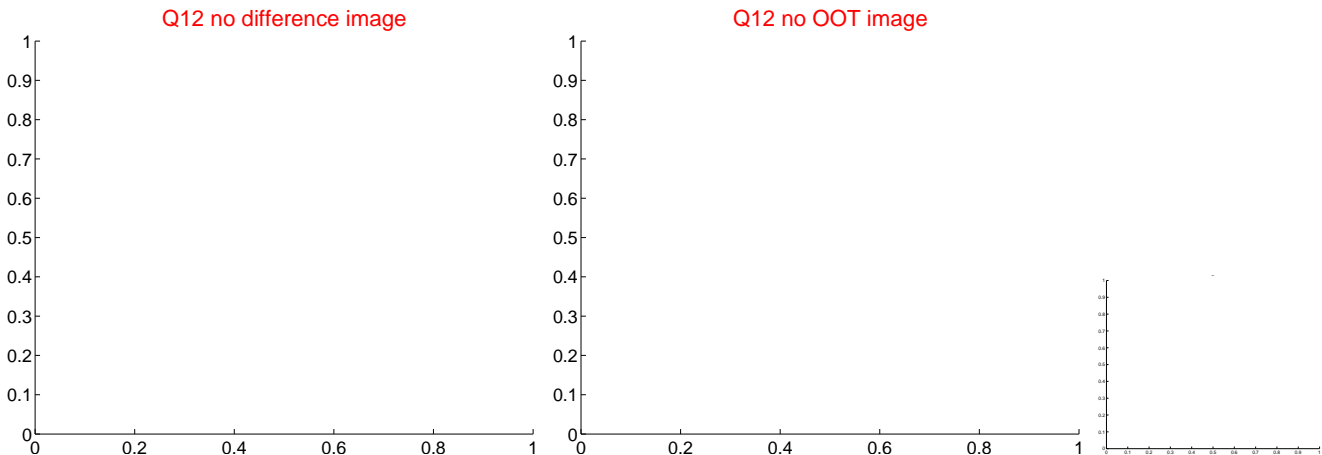
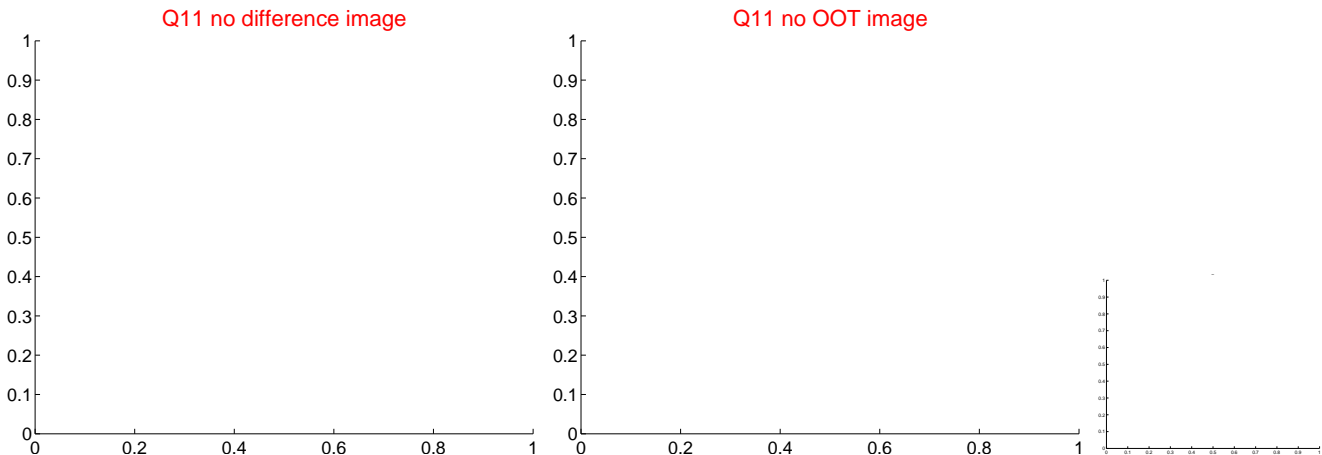
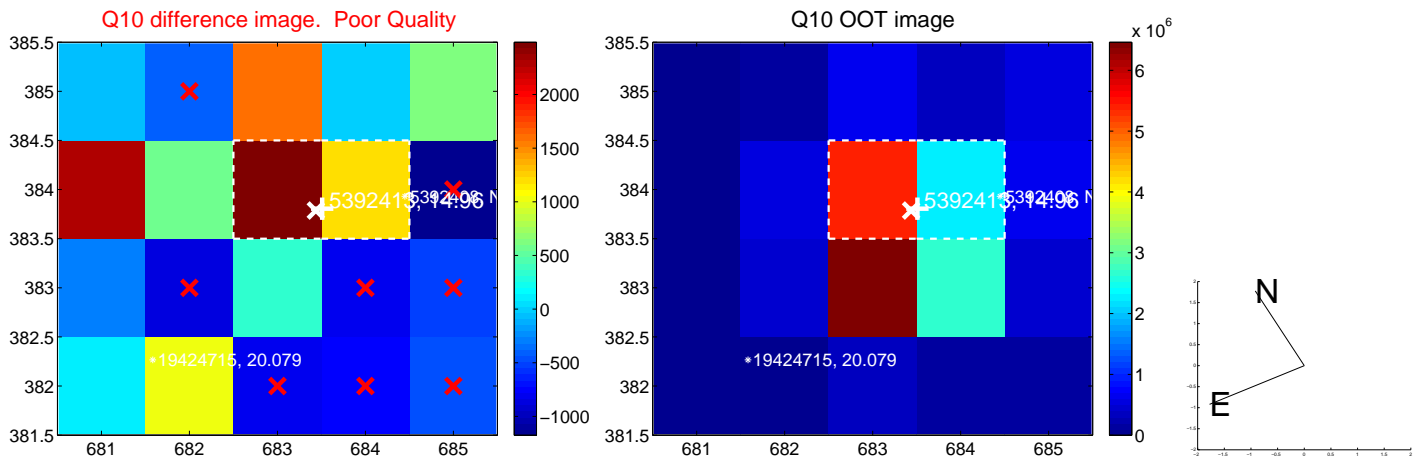
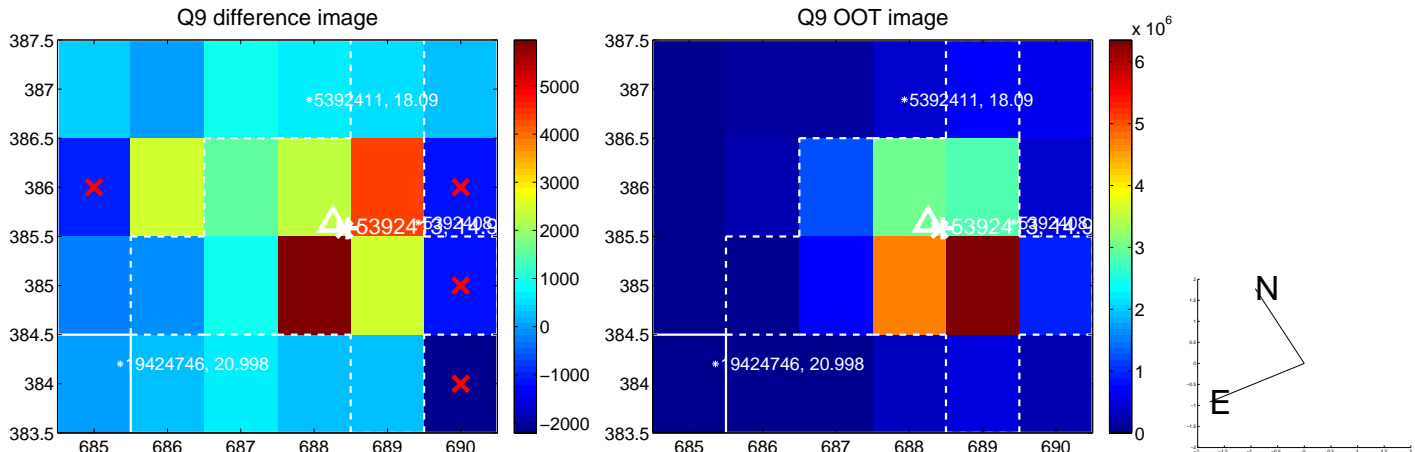
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



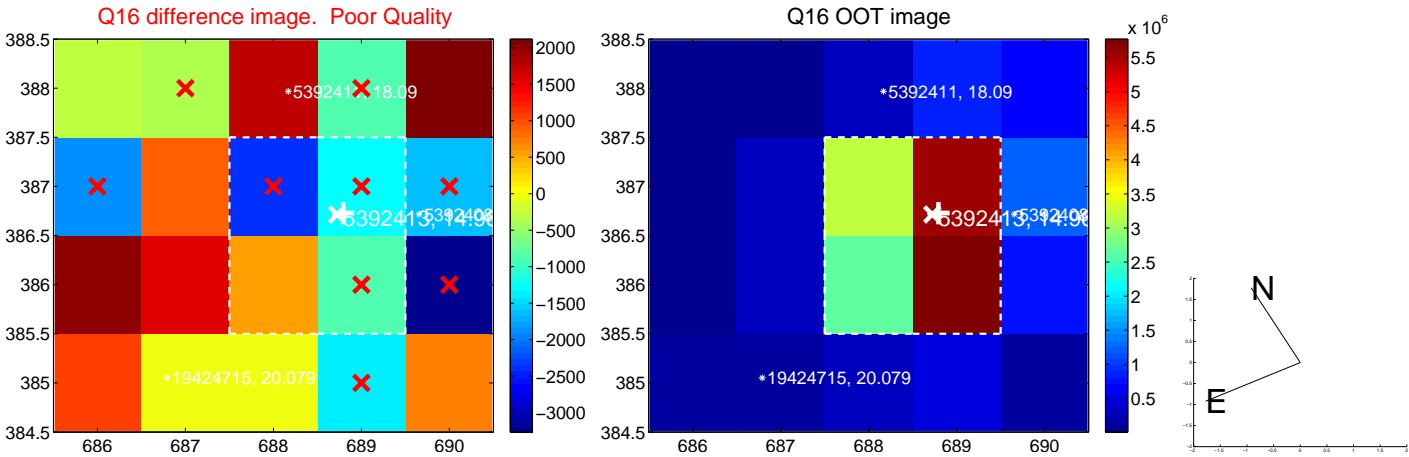
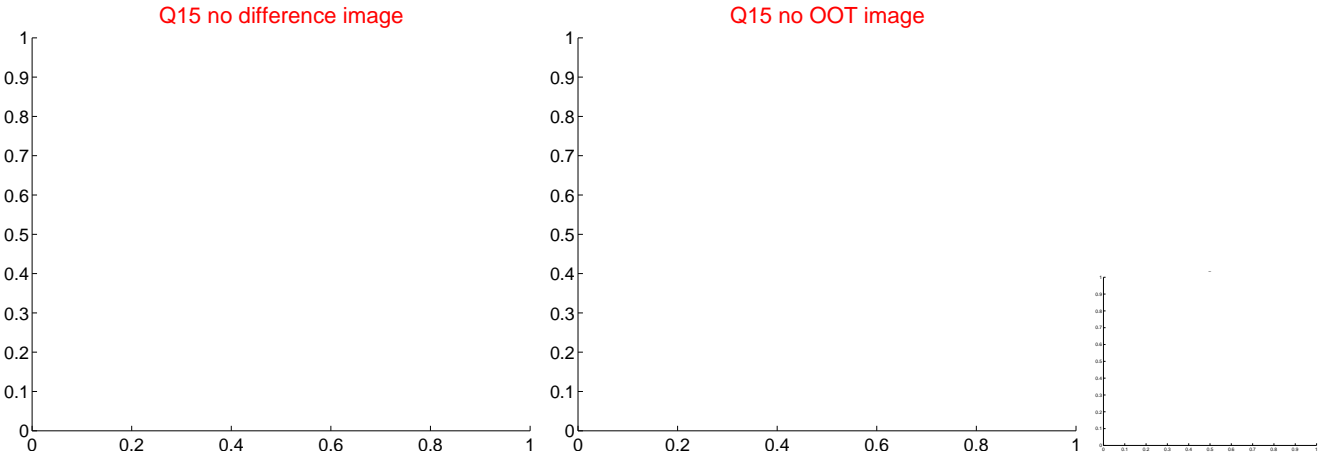
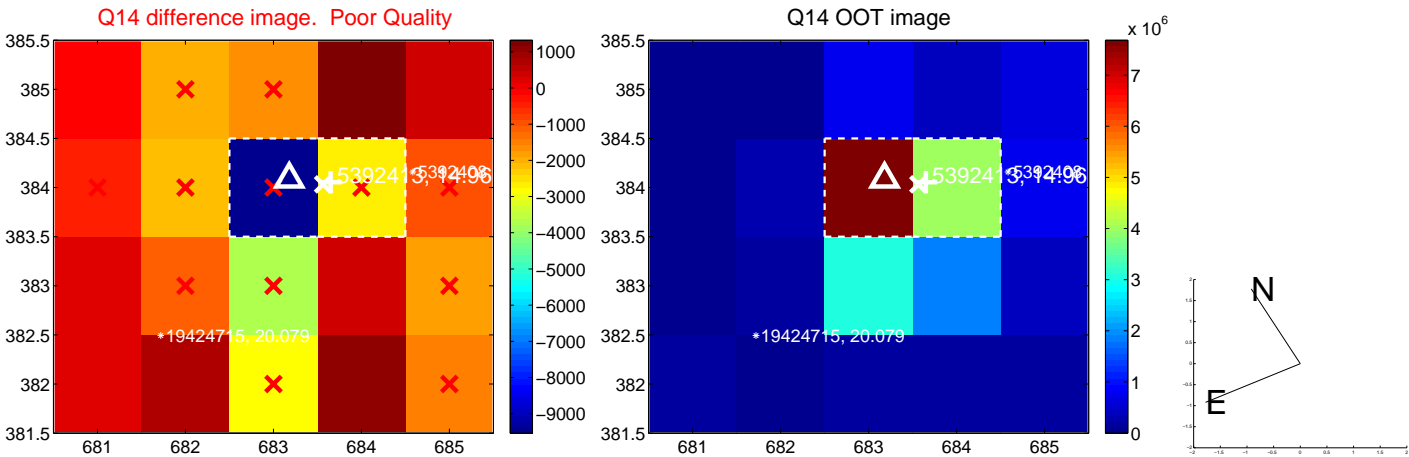
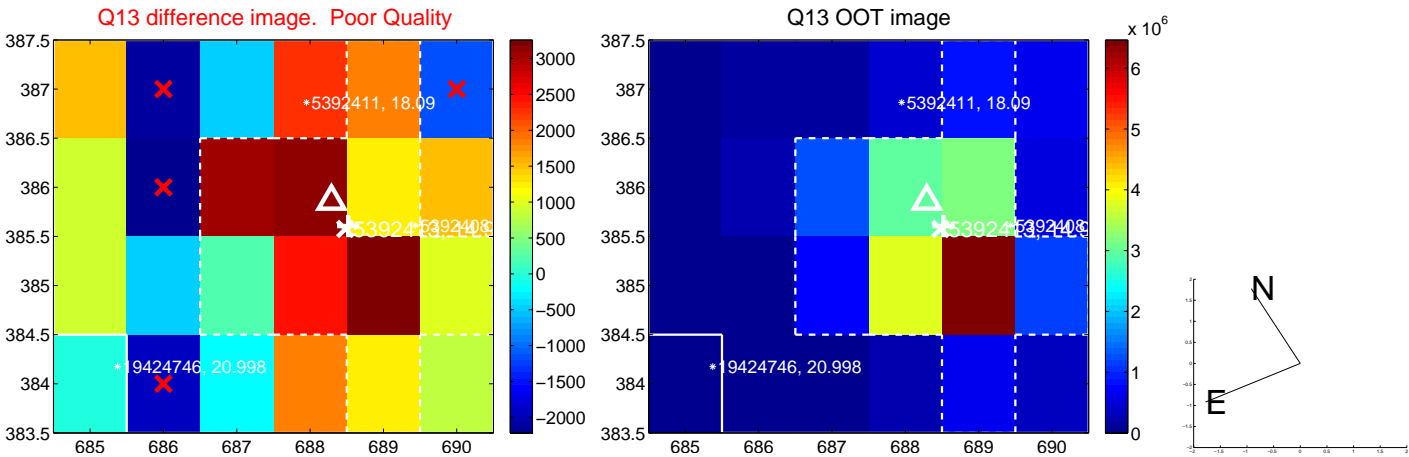
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



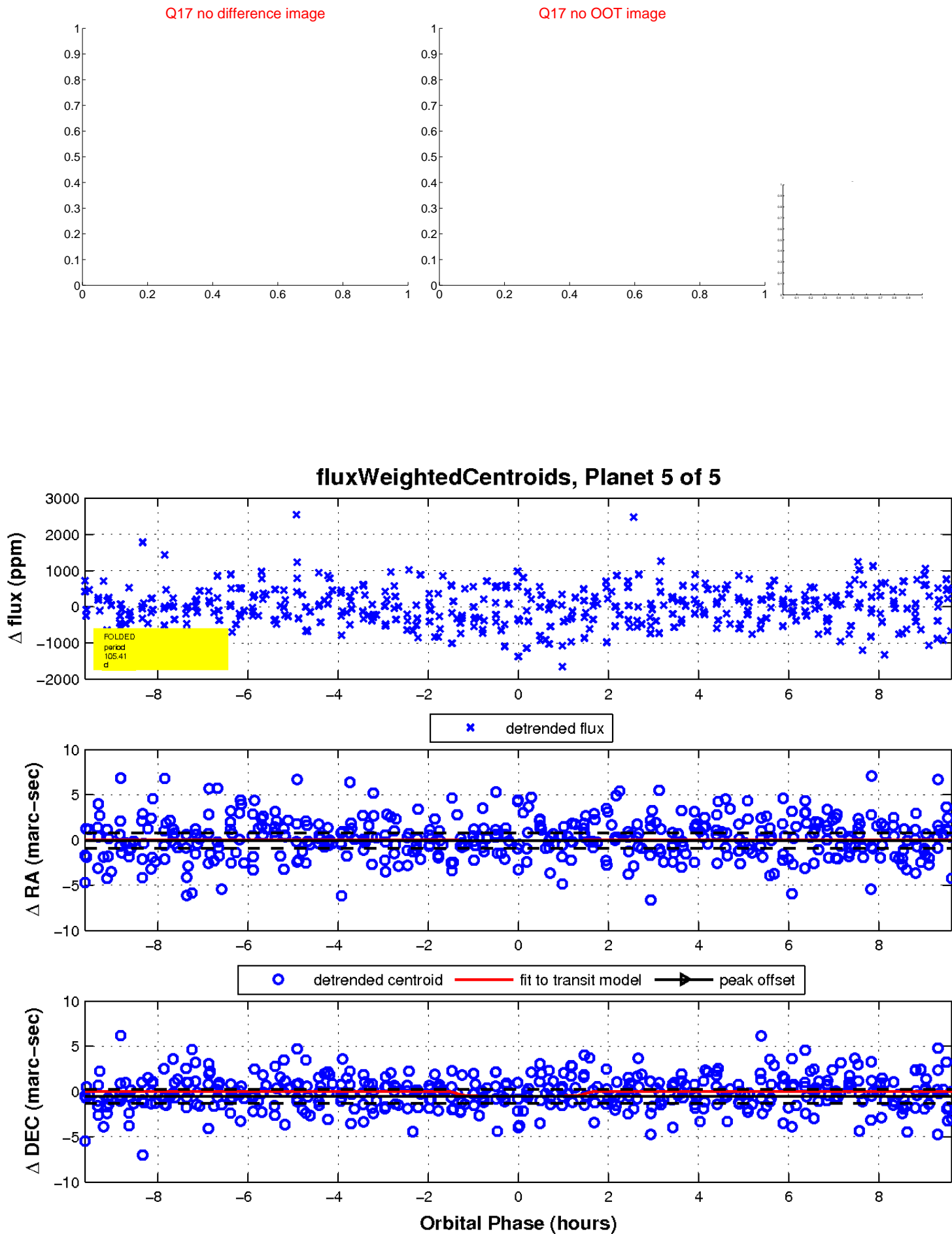
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

