

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})
002303102-01	OBS	No	2.298875	132.974167	31.1	11.443	8.2	9.8	1.26	5465	0.74	1137.95
002303102-02	OBS	No	242.161051	173.380485	650.8	21.893	36.3	9.1	1.26	5465	6.47	2.29
002303102-03	OBS	No	319.894193	386.351543	393.4	15.000	19.9	-1.0	1.26	5465	2.44	1.58
002303102-04	OBS	No	434.460665	509.040892	576.8	13.180	19.1	12.4	1.26	5465	3.47	1.05
002303102-05	OBS	No	159.358266	154.502554	141.2	22.045	16.9	3.5	1.26	5465	1.61	4.00
002303102-07	OBS	No	139.966466	243.994110	322.2	10.625	13.4	8.3	1.26	5465	2.38	4.75
002303102-08	OBS	No	148.524623	145.415390	297.7	1.235	12.9	4.6	1.26	5465	2.38	4.39
002303102-09	OBS	No	544.908556	342.926822	523.6	5.000	12.9	-1.0	1.26	5465	2.82	0.78
002303102-10	OBS	No	480.480981	161.570218	309.9	15.557	11.5	6.9	1.26	5465	2.61	0.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002303102-01	OBS	FP	0.00	1	0	0	0	LPP_DV
002303102-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
002303102-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
002303102-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
002303102-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
002303102-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

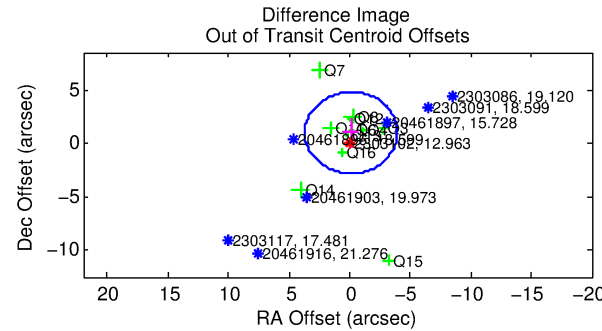
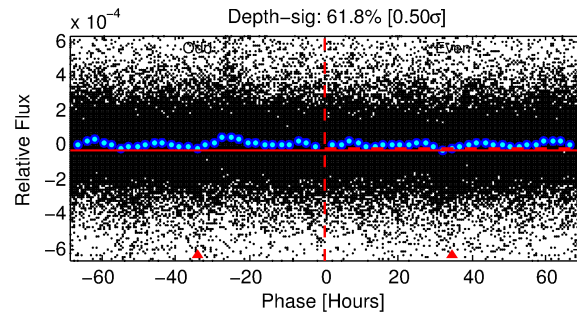
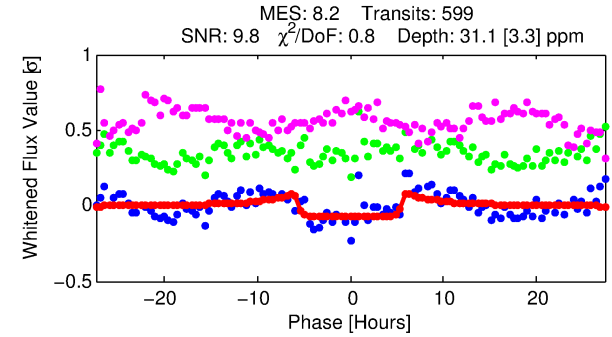
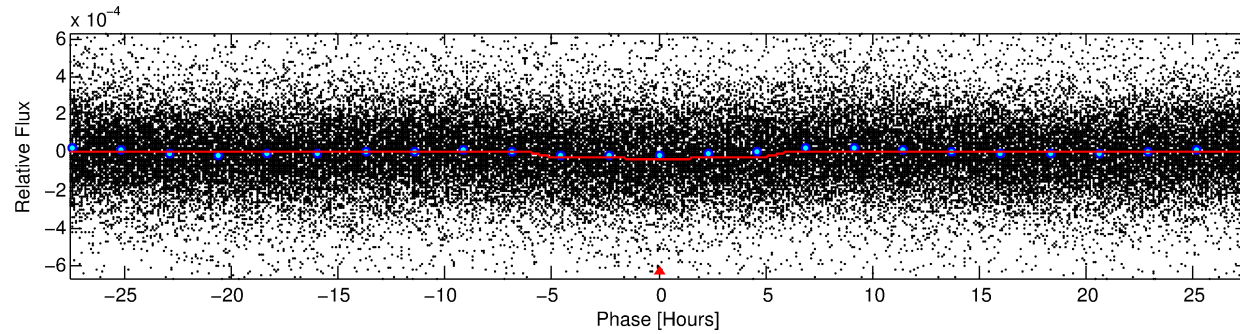
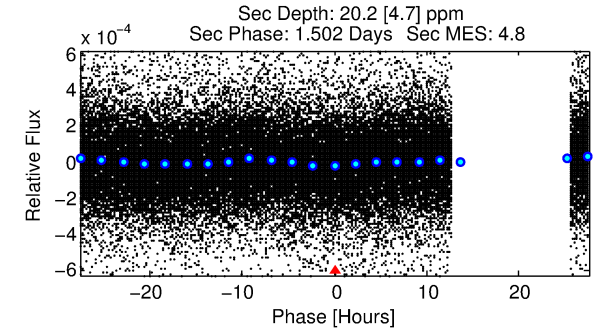
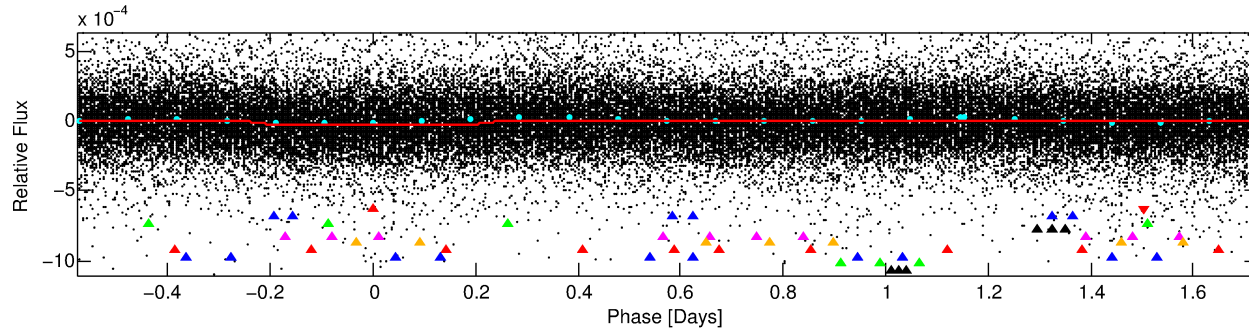
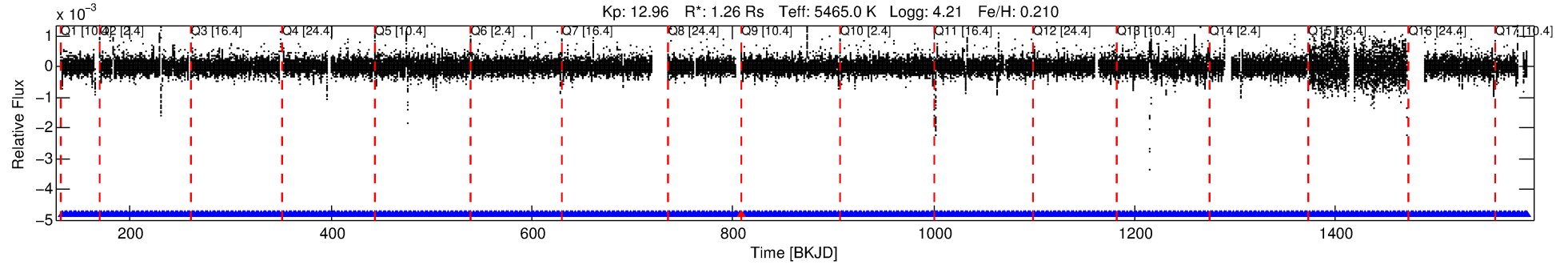
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002303102-01

No Significant Match Found

DV One-Page Summary

KIC: 2303102 Candidate: 1 of 10 Period: 2.299 d



DV Fit Results:

Period = 2.29888 [0.00003] d
Epoch = 132.9742 [0.0057] BKJD
Rp/R* = 0.0054 [0.0018]
a/R* = 1.40 [0.91]
b = 0.67 [1.08]
Seff = 1137.95 [544.27]
Teq = 1481 [177] K
Rp = 0.74 [0.32] Re
a = 0.0333 [0.0094] AU
Ag = 22.47 [19.06] [1.13σ]
Teffp = 4985 [899] K [3.83σ]

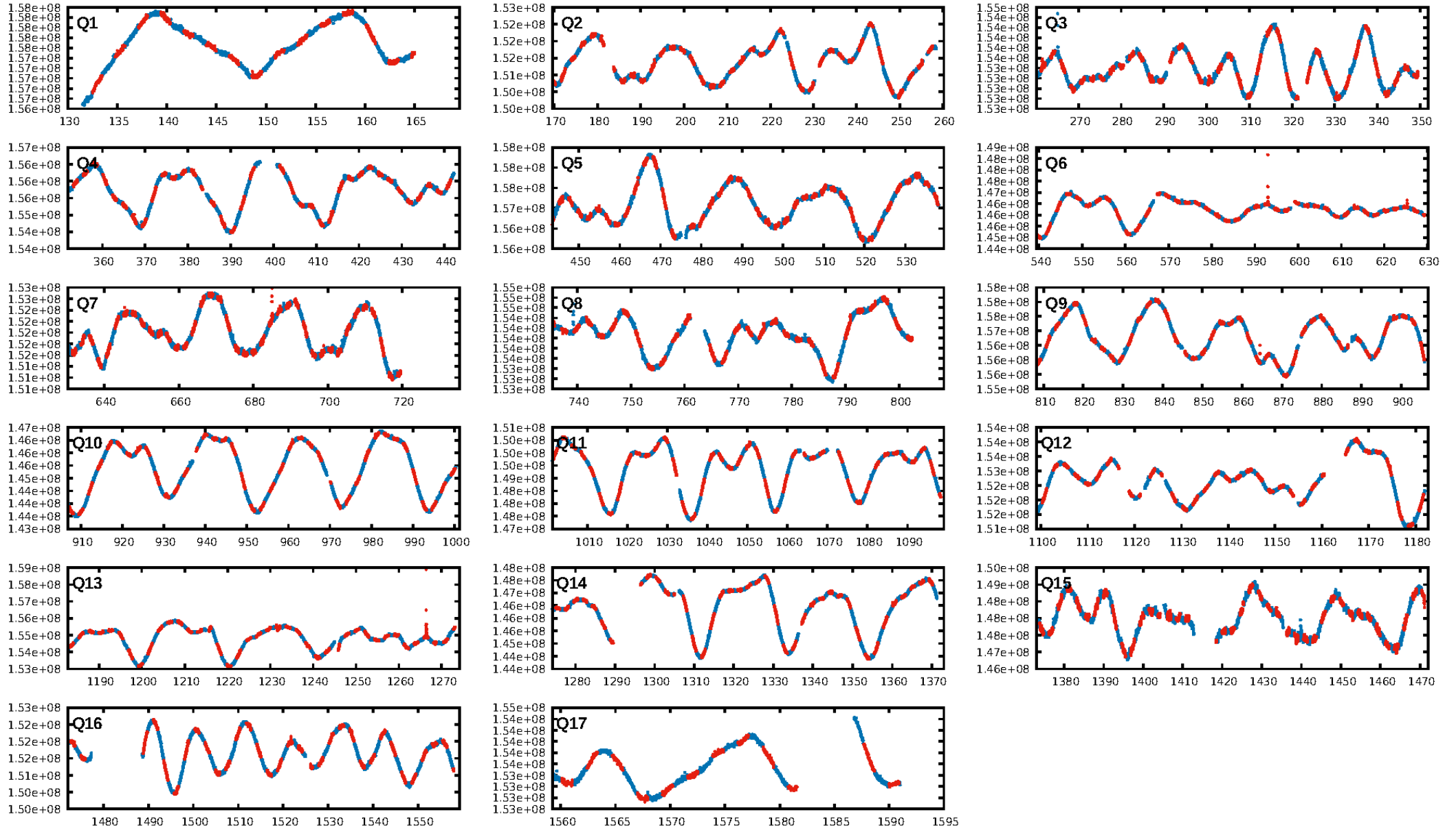
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [211.59σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [571/572]
GhostDiagnostic-chr: 2.638
Centroid-sig: 0.0%
Centroid-so: 2.036 arcsec [2.78σ]
OotOffset-rm: 0.986 arcsec [0.78σ]
KicOffset-rm: 1.036 arcsec [0.79σ]
OotOffset-st: 2/4/4/1 [11]
KicOffset-st: 2/4/4/1 [11]
DiffImageQuality-fgm: 0.27 [3/11]
DiffImageOverlap-fno: 1.00 [17/17]

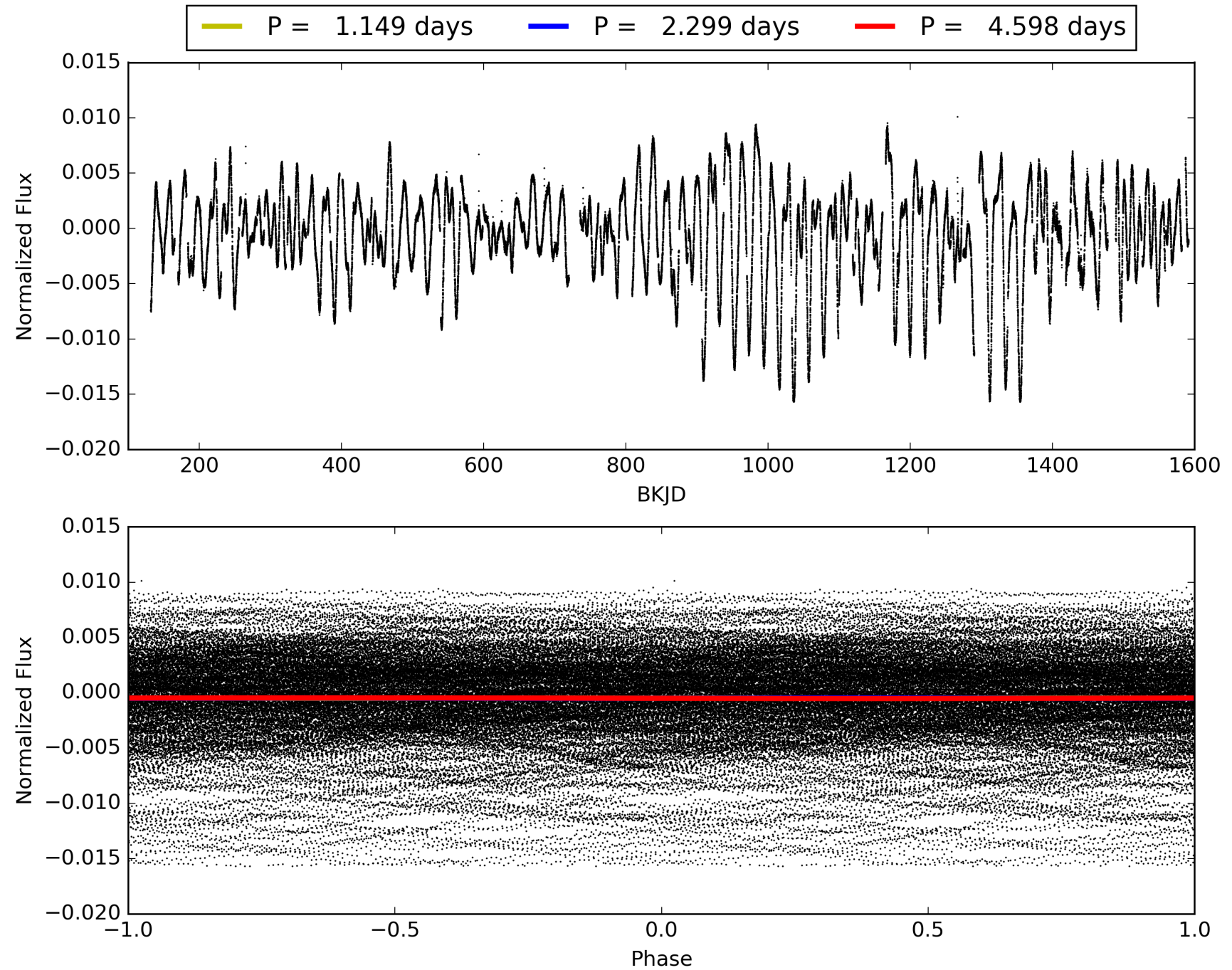
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:09:49 Z

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

TCE 002303102-01, PDC Light Curves

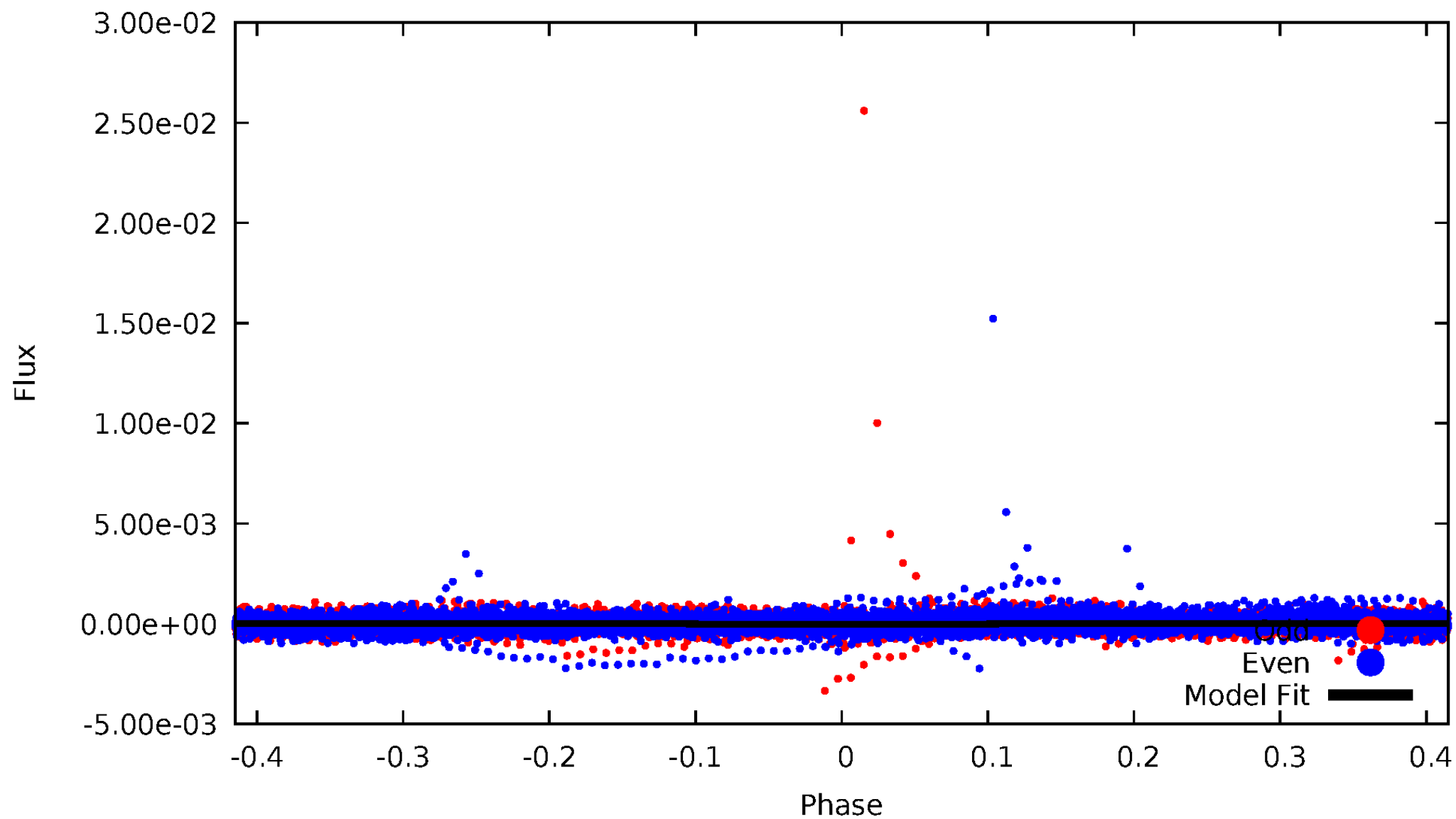


TCE 002303102-01



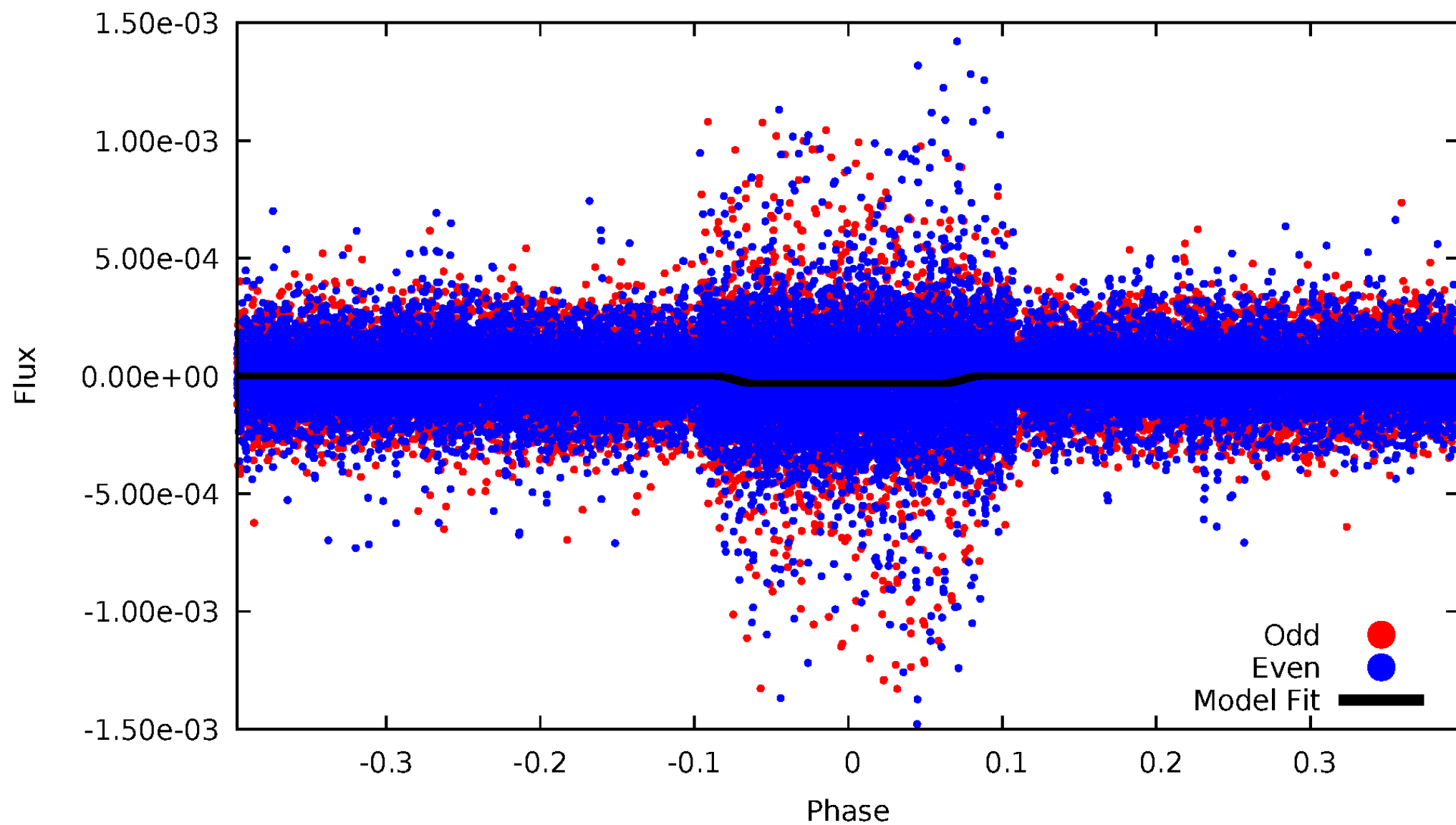
DV Odd/Even

TCE 002303102-01



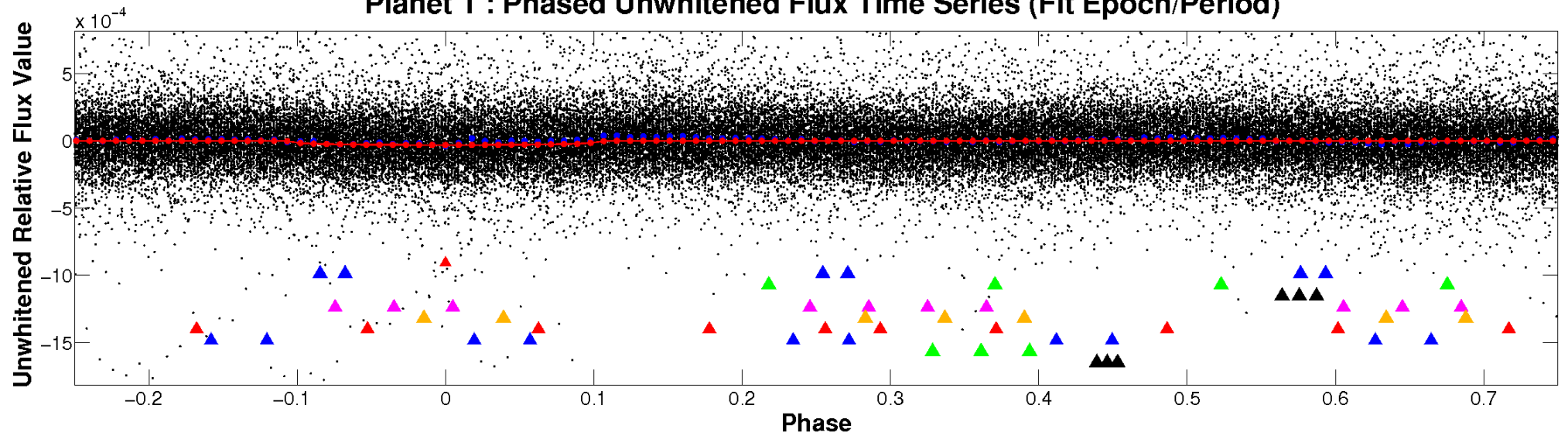
ALT Odd/Even

TCE 002303102-01

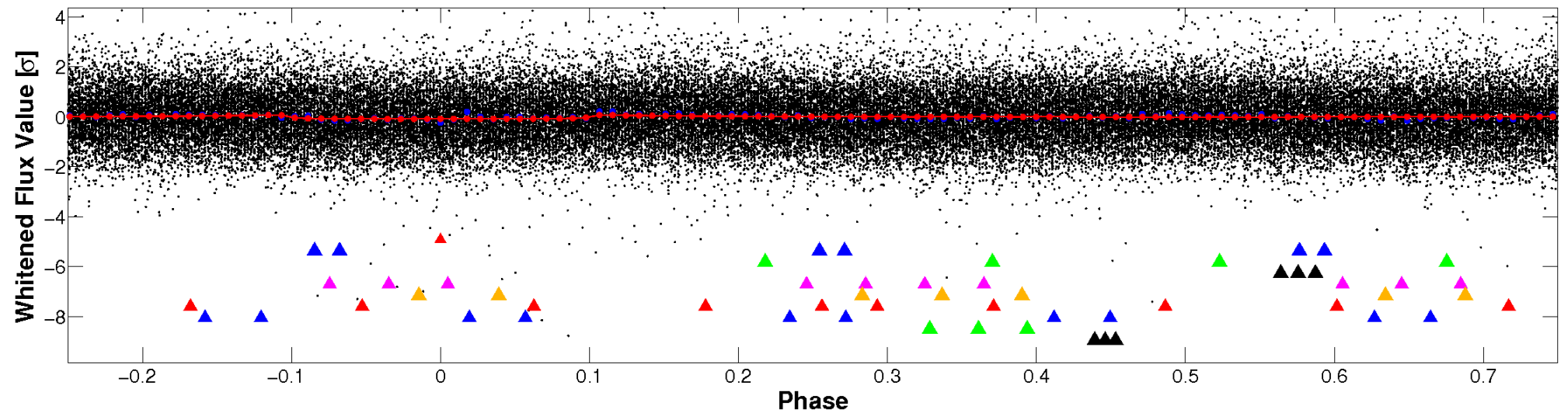


Non-Whitened Vs. Whitened Light Curve

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

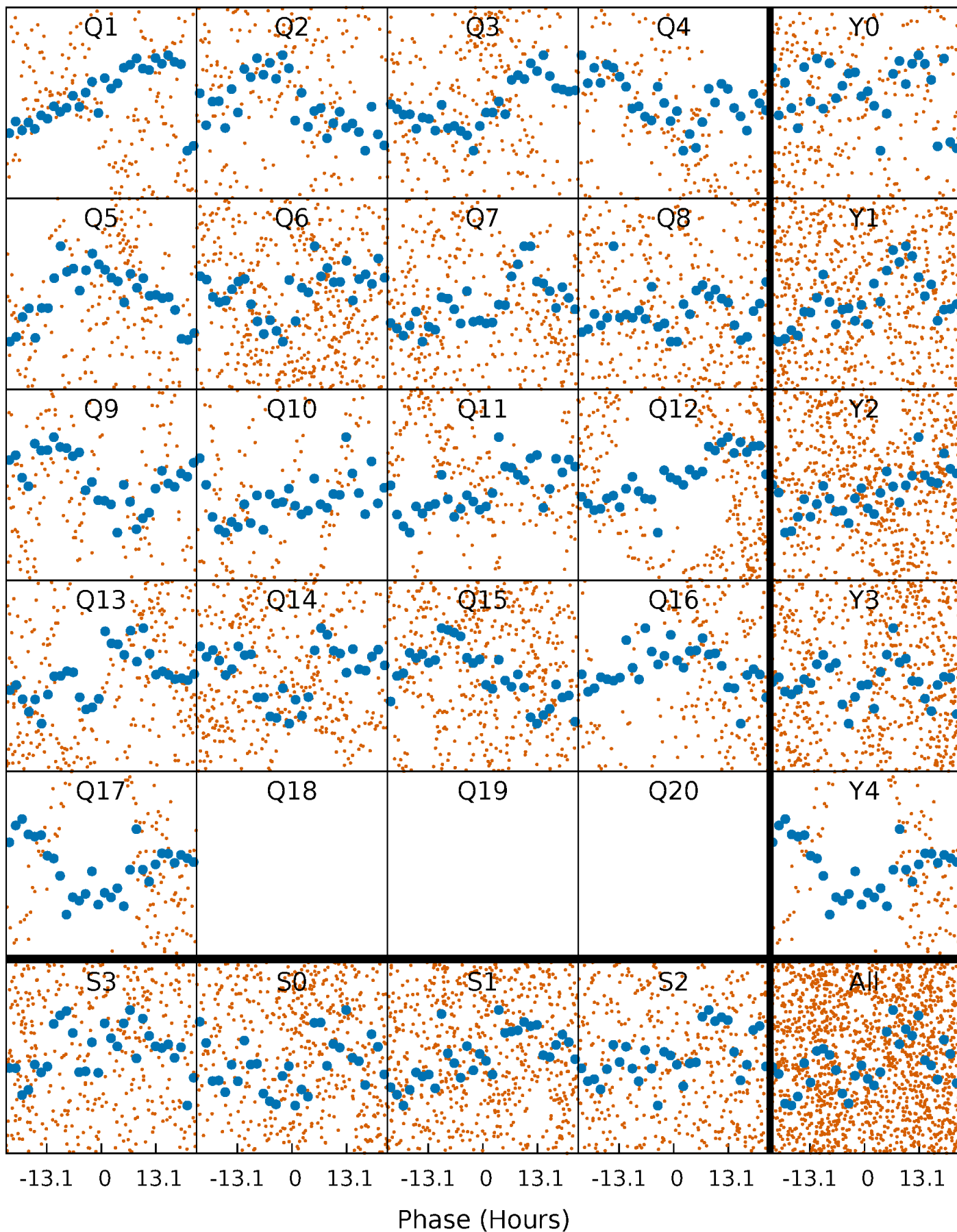


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



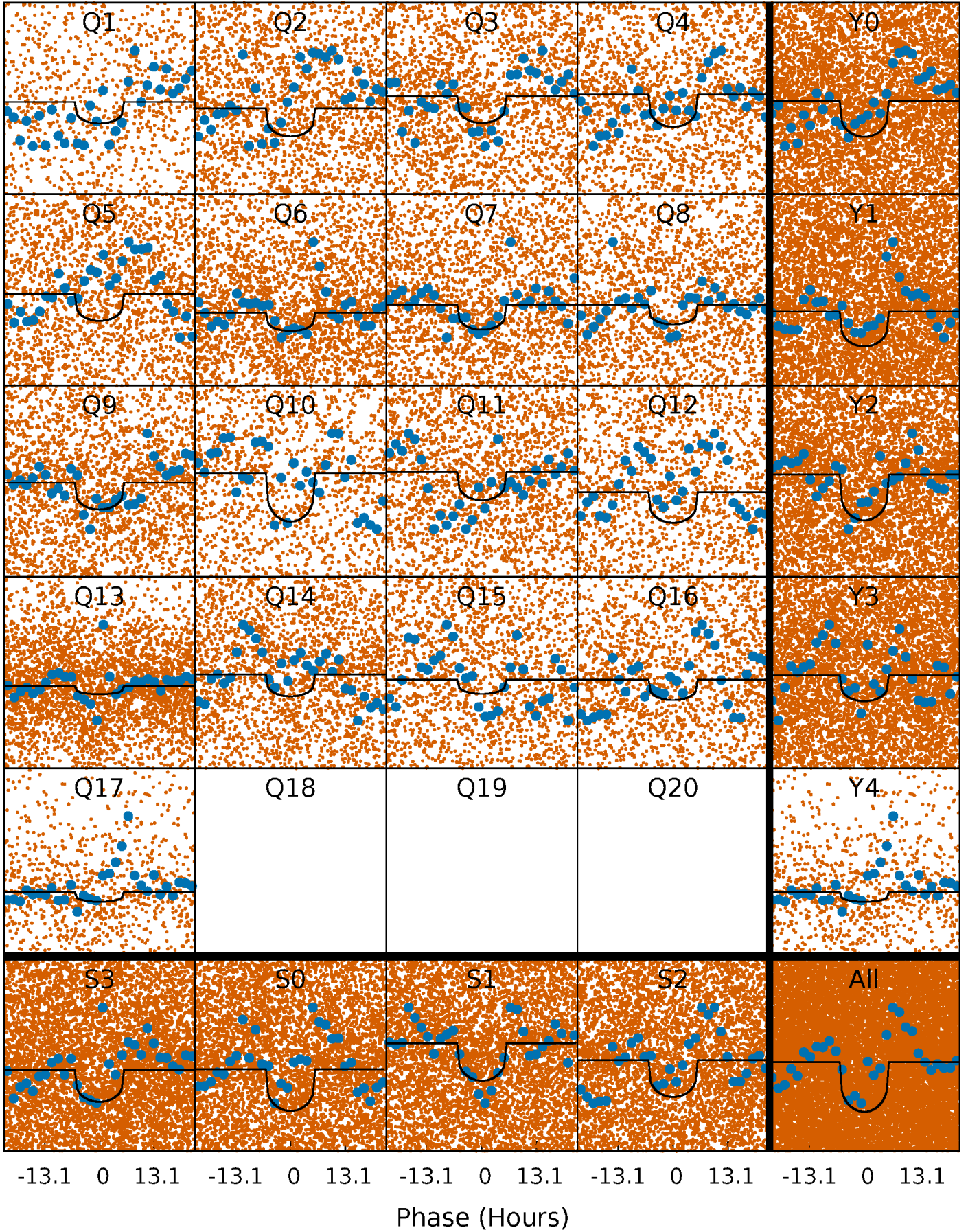
PDC Quarter-Phased Transit Curves

TCE 002303102-01 P= 2.298875 Days $T_0=132.974167$ (BKJD)



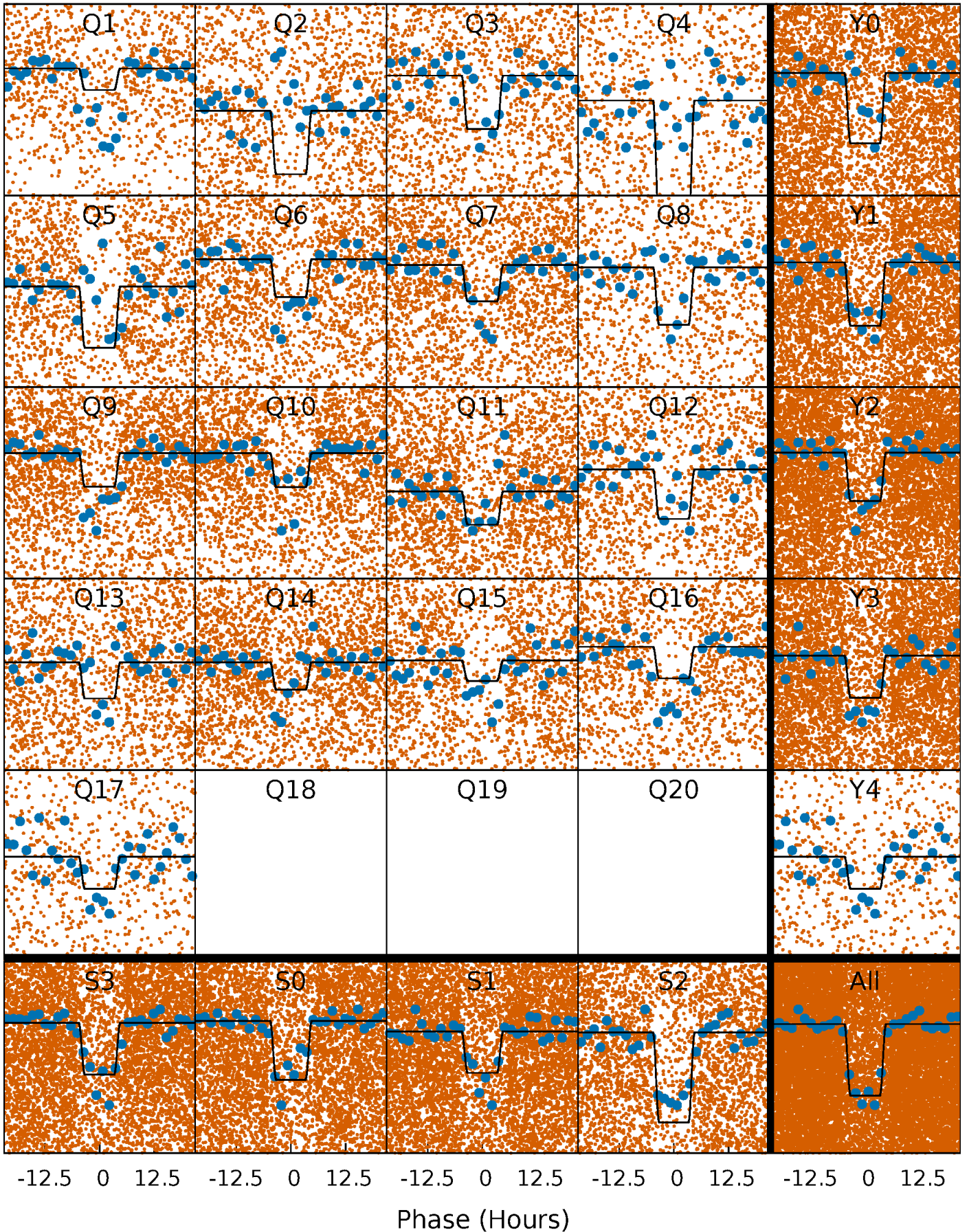
DV Quarter-Phased Transit Curves

TCE 002303102-01 P= 2.298875 Days $T_0=132.974167$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

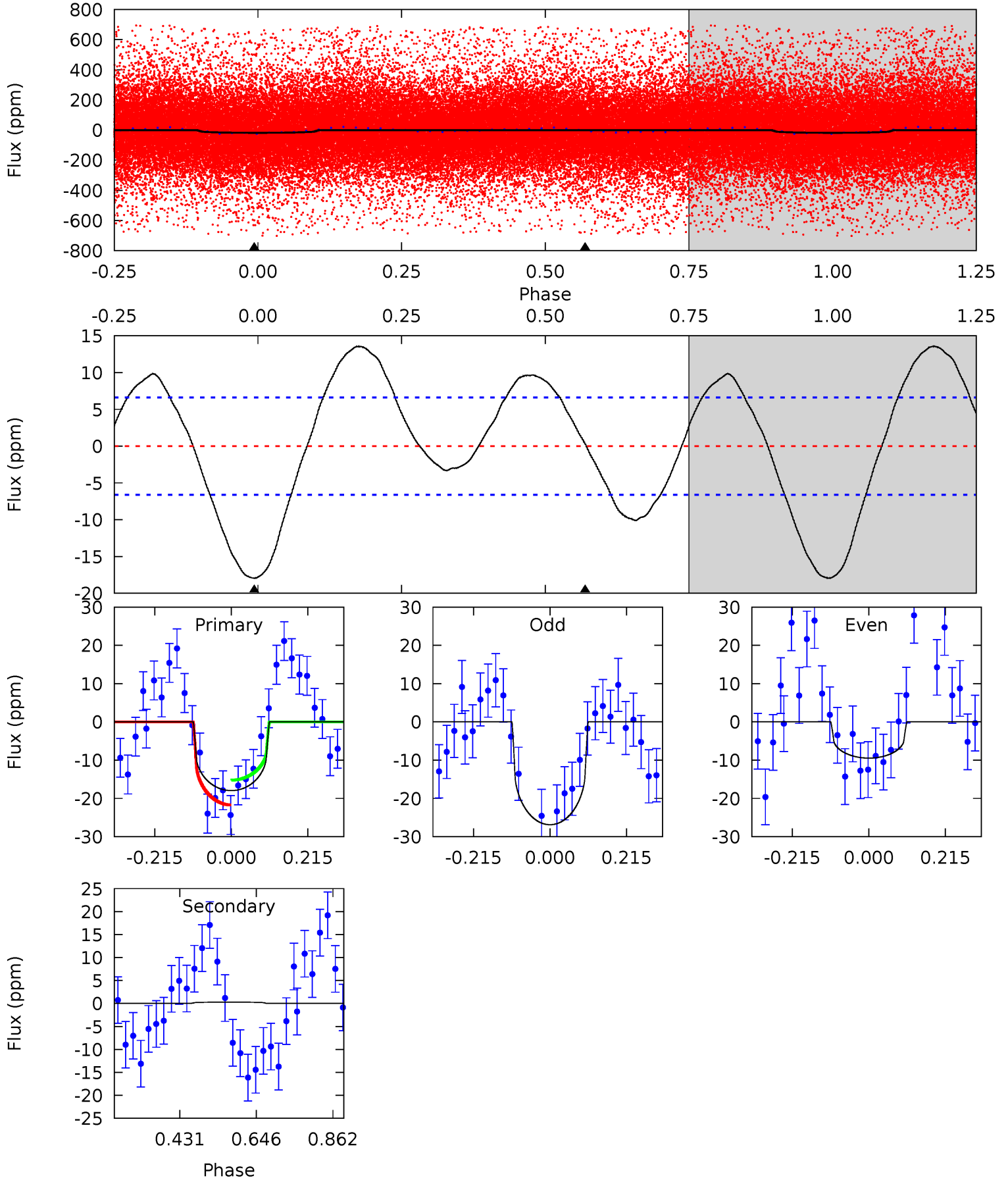
TCE 002303102-01 P= 2.298580 Days $T_0=133.033499$ (BKJD)



DV Model-Shift Uniqueness Test

002303102-01, P = 2.298875 Days, E = 130.675292 Days

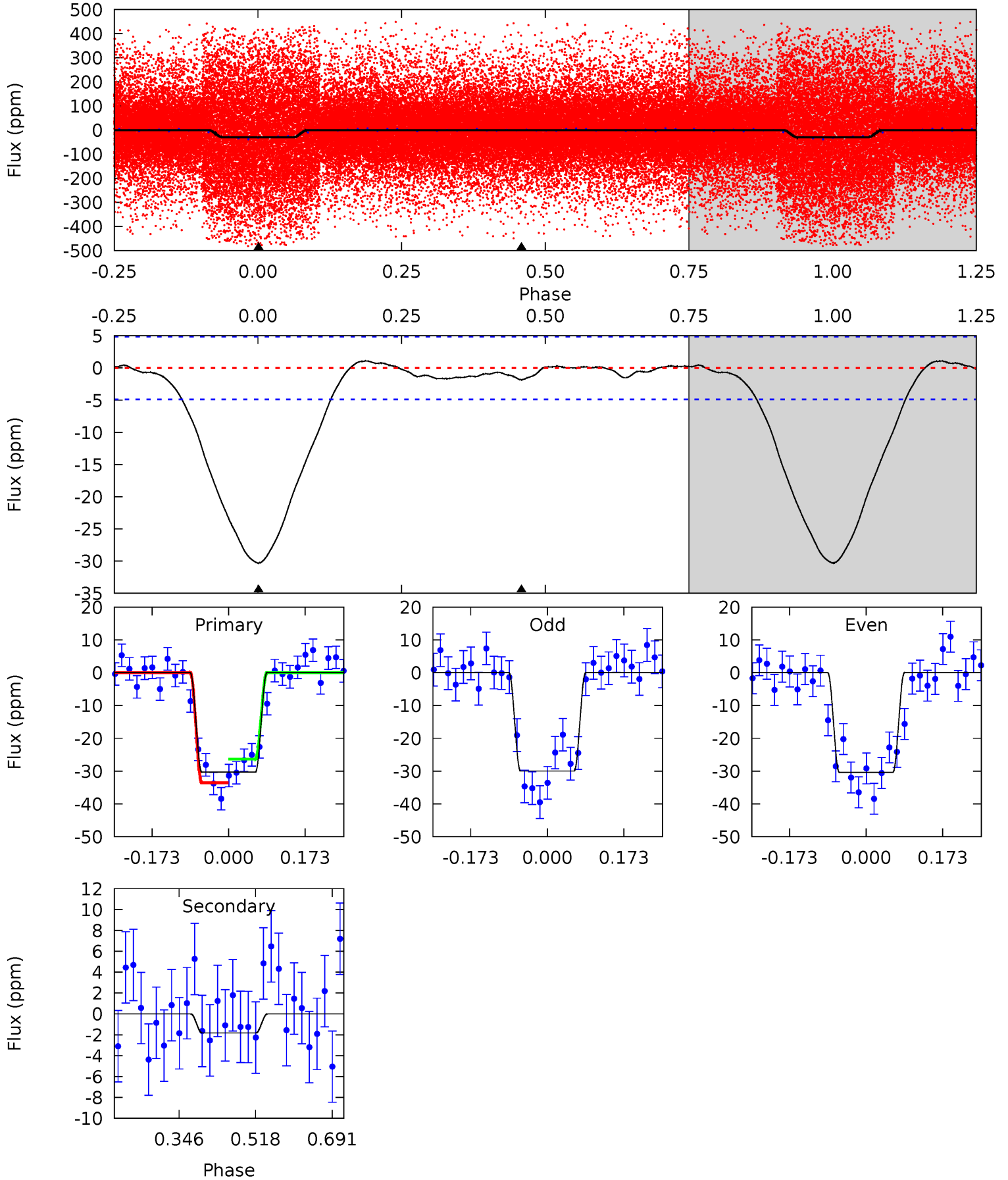
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	-0.19	0	0	4.40	1.24	3.15	11.9	11.9	-0.19	-0.19	5.72	0.48	0.43	2.13



Alt Model-Shift Uniqueness Test

002303102-01, P = 2.298580 Days, E = 130.734919 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.5	1.66	0	0	4.45	1.36	0.63	27.5	27.5	1.66	1.66	0.17	1.18	0.03	3.30



Stellar Parameters For KIC 002303102

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5465^{+164}_{-147}	$4.209^{+0.276}_{-0.184}$	$0.210^{+0.200}_{-0.250}$	$1.257^{+0.352}_{-0.352}$	$0.932^{+0.090}_{-0.074}$	$0.661^{+1.131}_{-0.326}$
	+3%/-3%	+7%/-4%	+95%/-119%	+28%/-28%	+10%/-8%	+171%/-49%
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 002303102-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 2	$0.71^{+0.30}_{-0.22}$	2060^{+161}_{-168}	-2788^{+5810}_{-657}	$-0.328^{+1.809}_{-2.099}$
Alt.	-2 ± 1	$0.74^{+0.29}_{-0.25}$	2057^{+161}_{-156}	3164^{+529}_{-561}	$1.981^{+2.765}_{-1.346}$

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

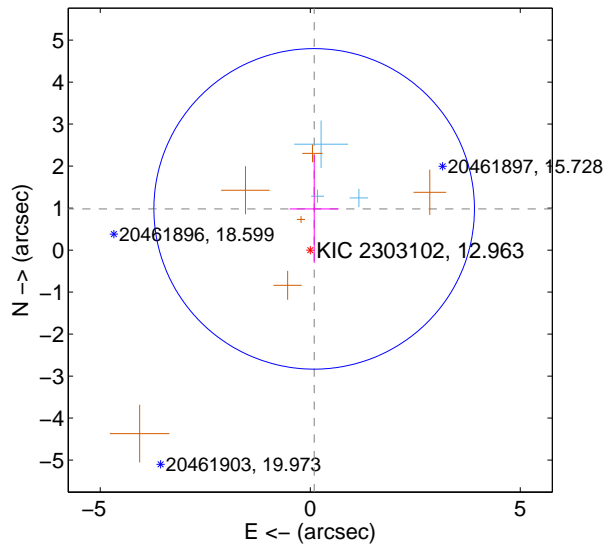
Supplemental centroid analysis for 002303102-01. Kepler magnitude: 12.96. Transit SNR 9.75

There are 3 quarters with good PRF difference image offsets

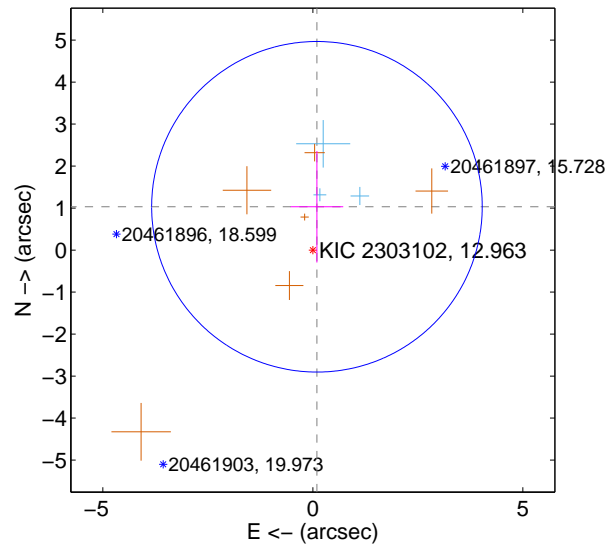
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.986 ± 1.272	0.78	-0.093 ± 0.583	0.981 ± 1.285
PRF-fit source offset from KIC position	1.036 ± 1.312	0.79	-0.098 ± 0.627	1.031 ± 1.327
photometric centroid source offset	2.04 ± 0.73	2.78	1.46 ± 0.66	1.42 ± 0.80

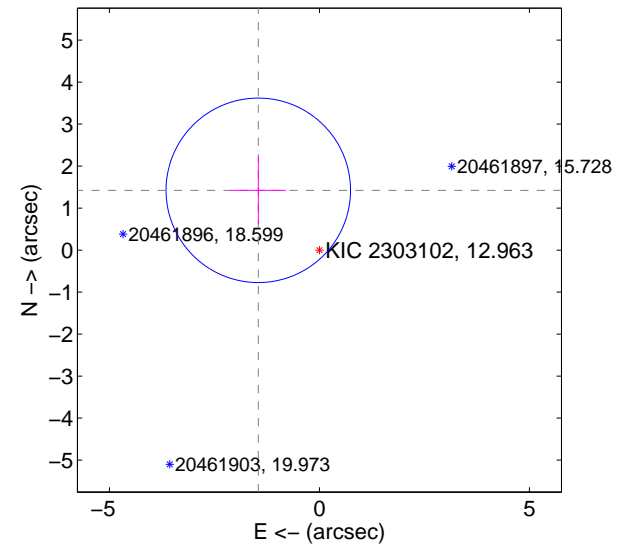
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

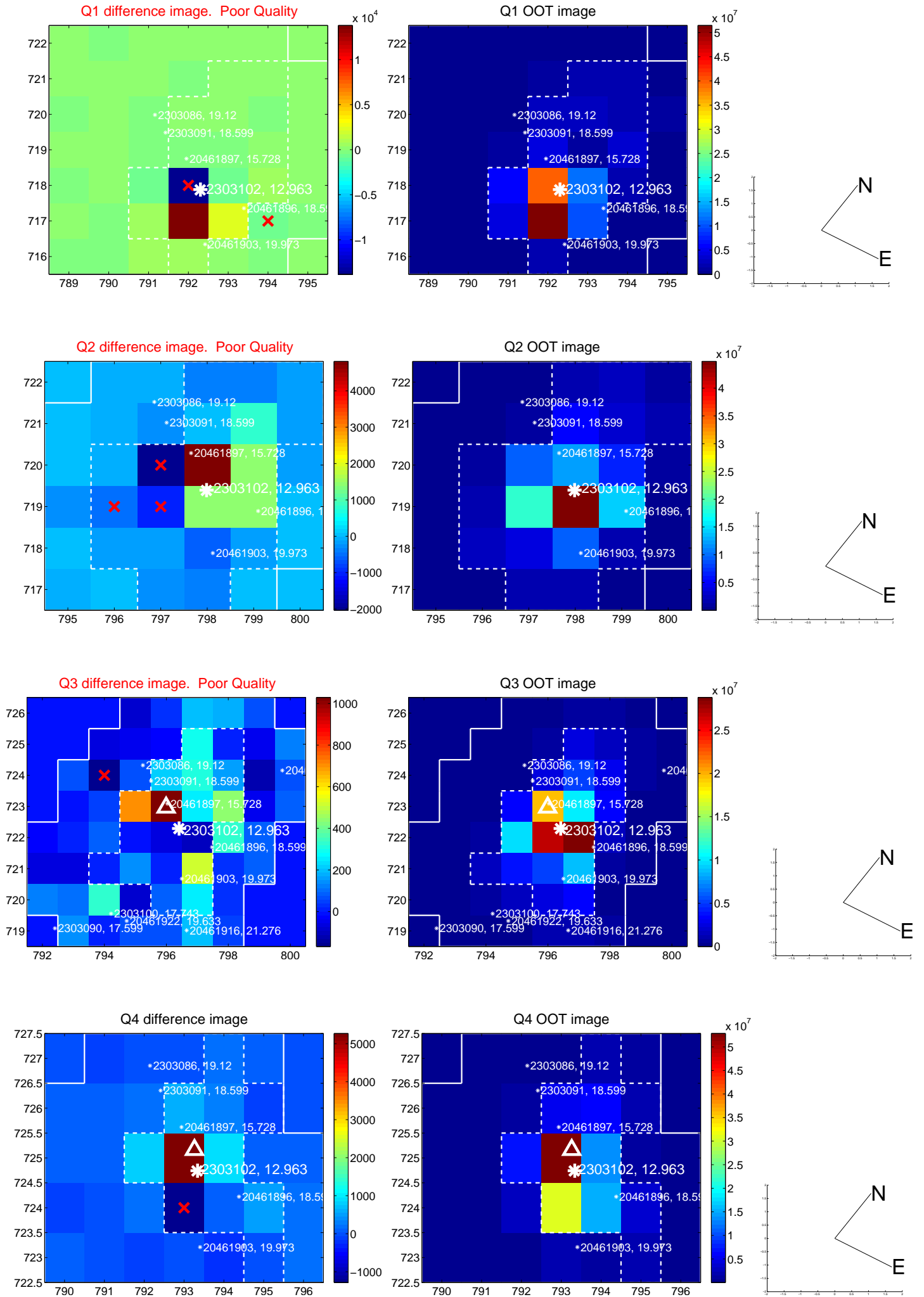


offset from photometric centroids

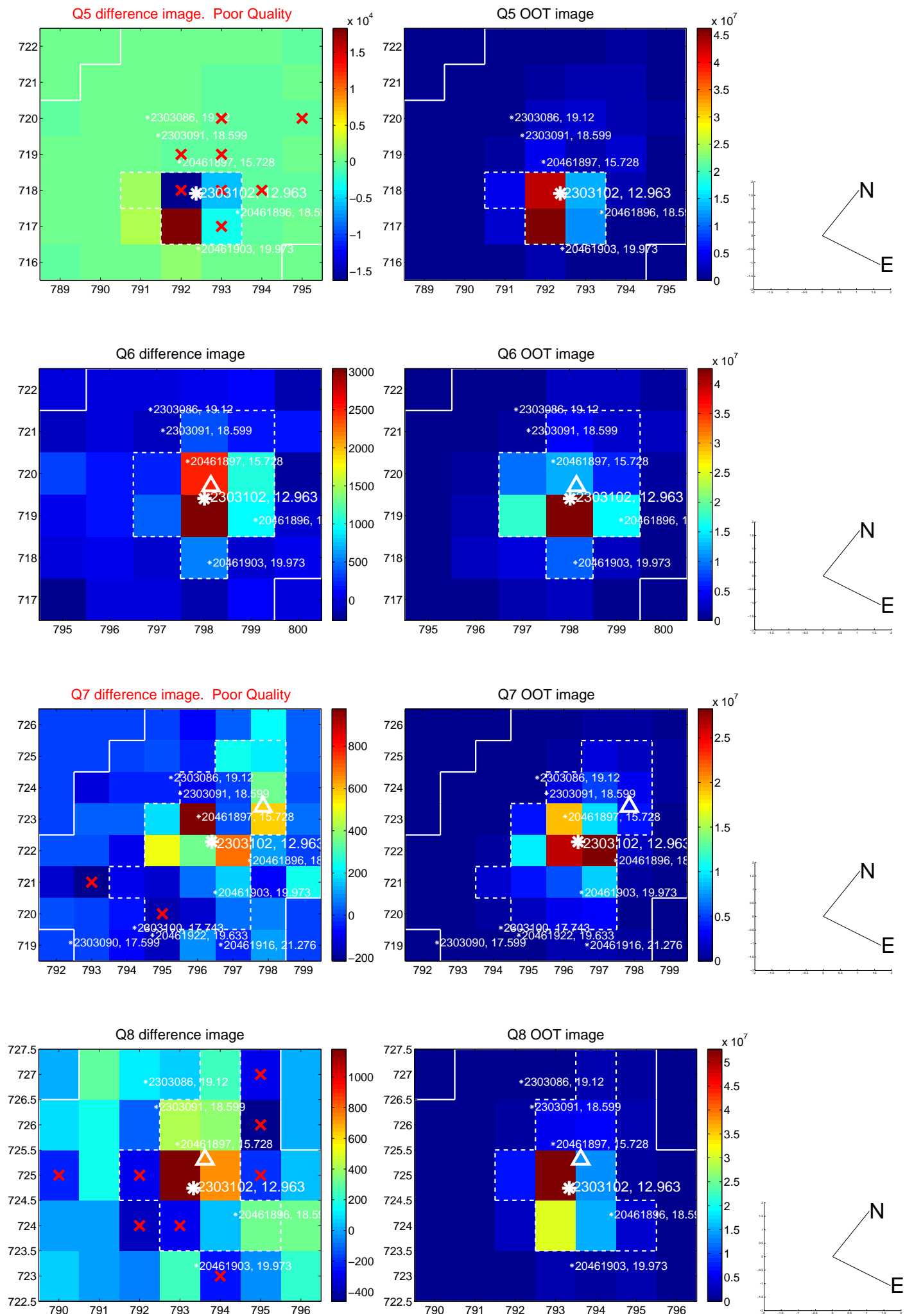


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

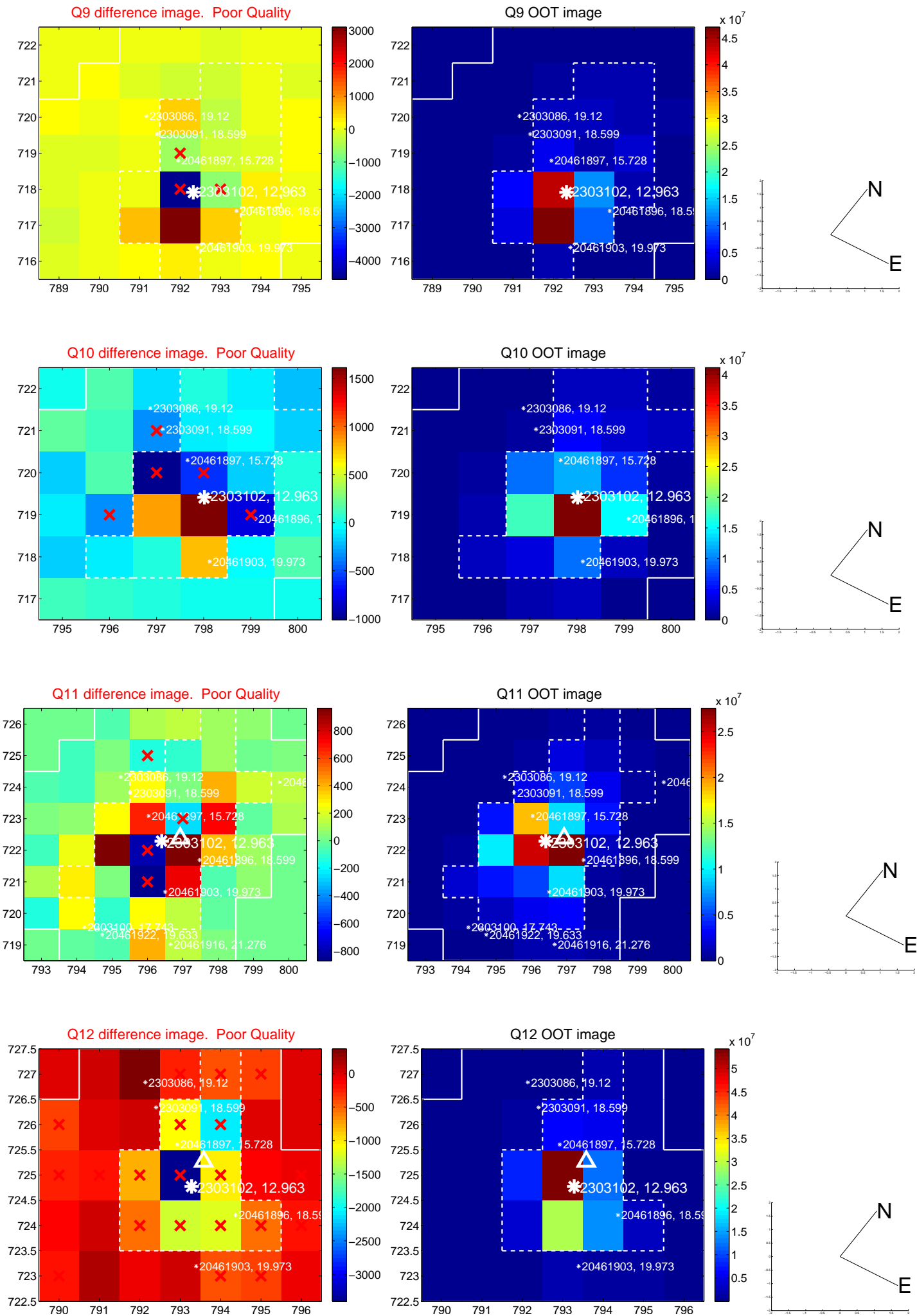
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



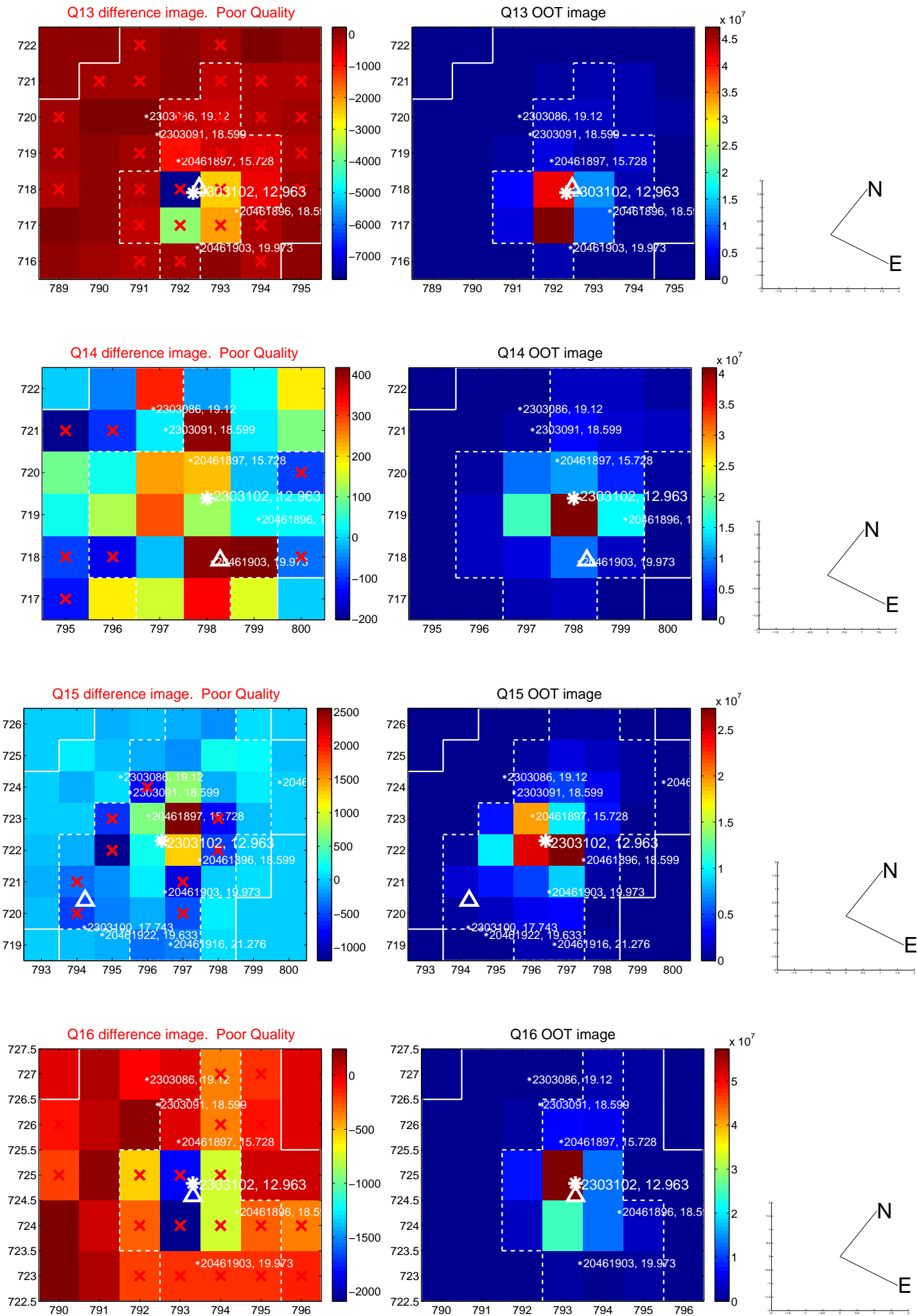
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



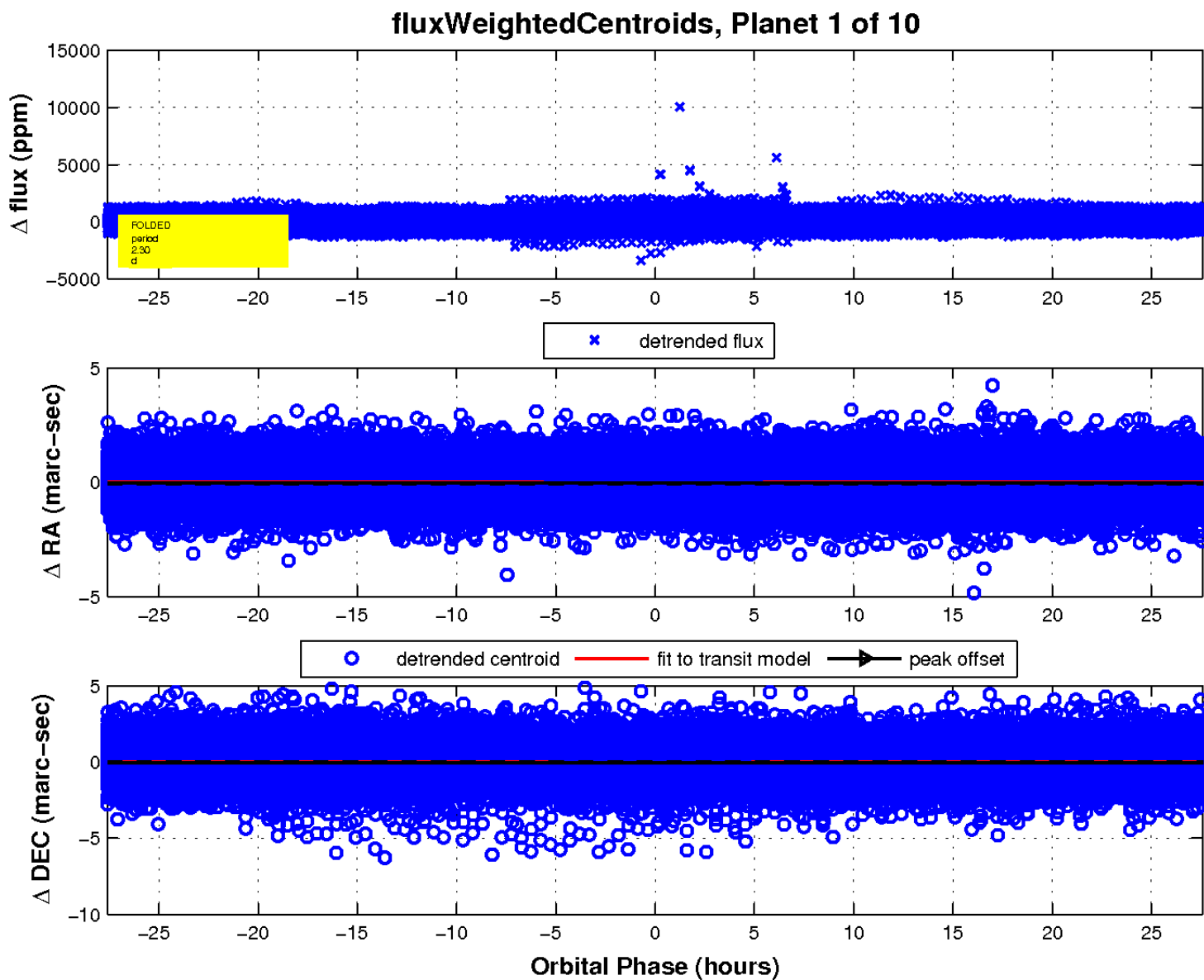
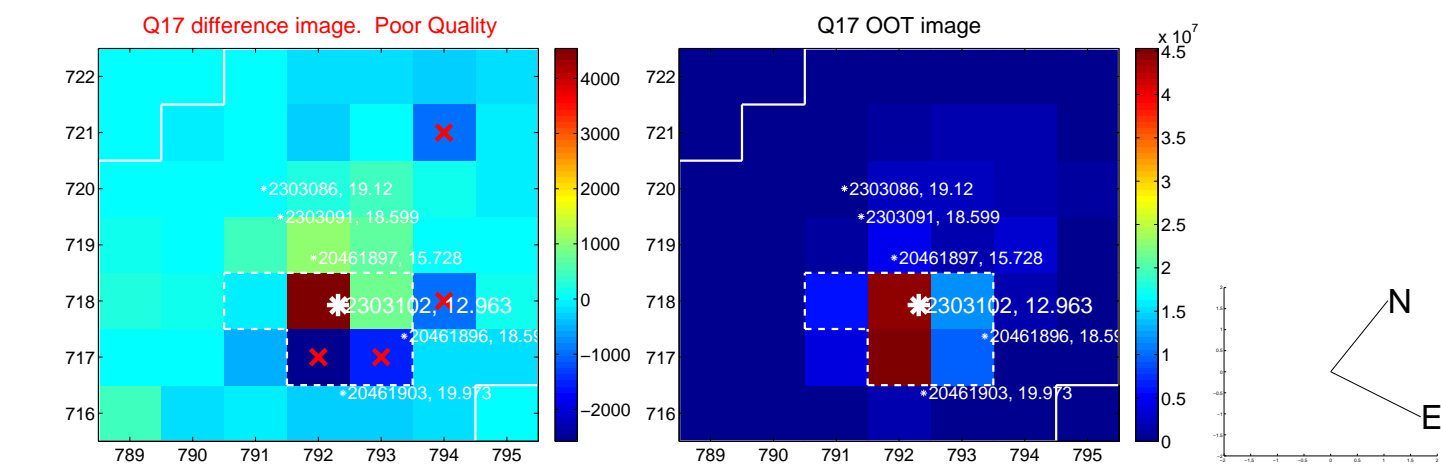
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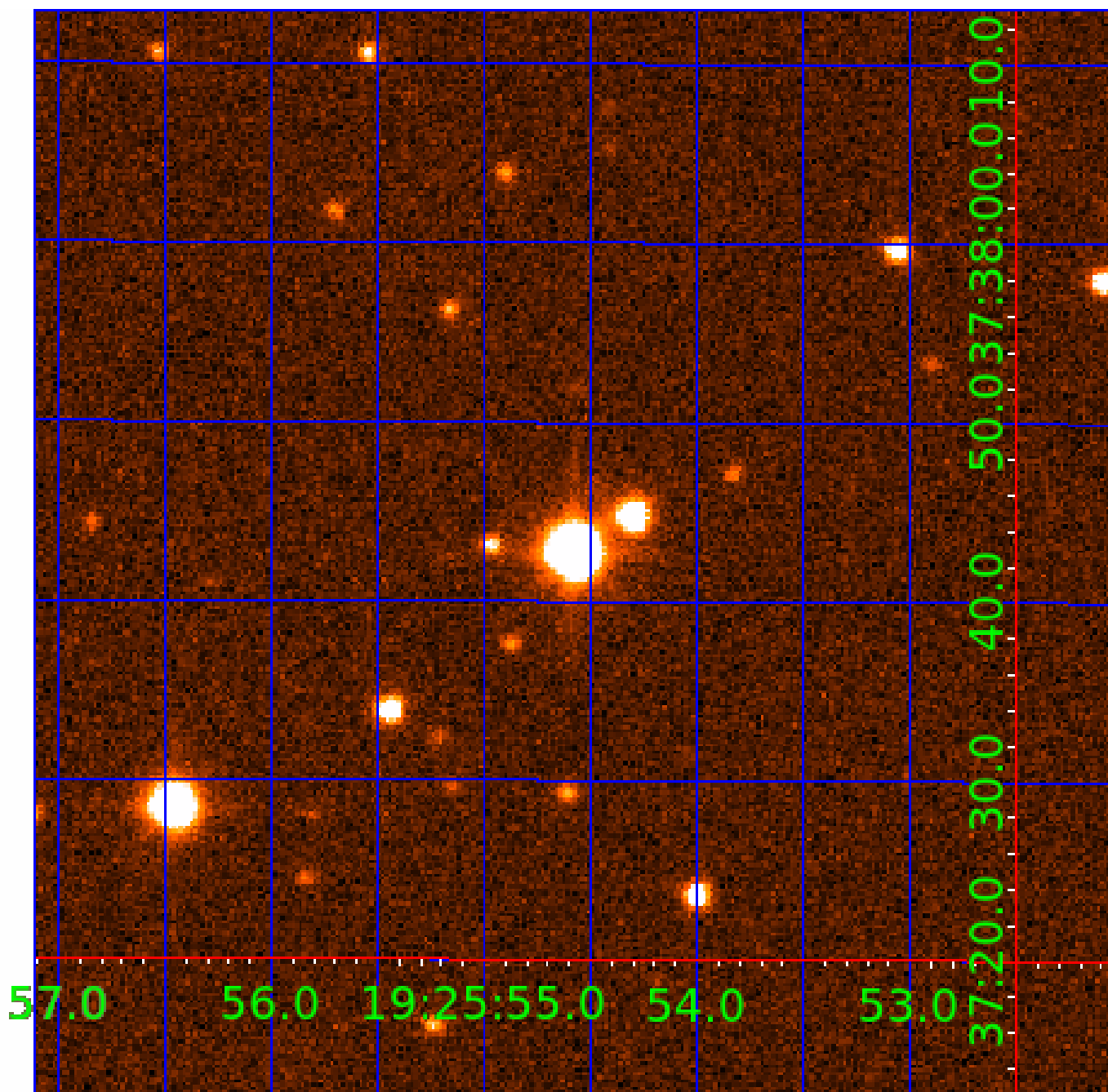


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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002303102-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
002303102-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
002303102-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
002303102-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
002303102-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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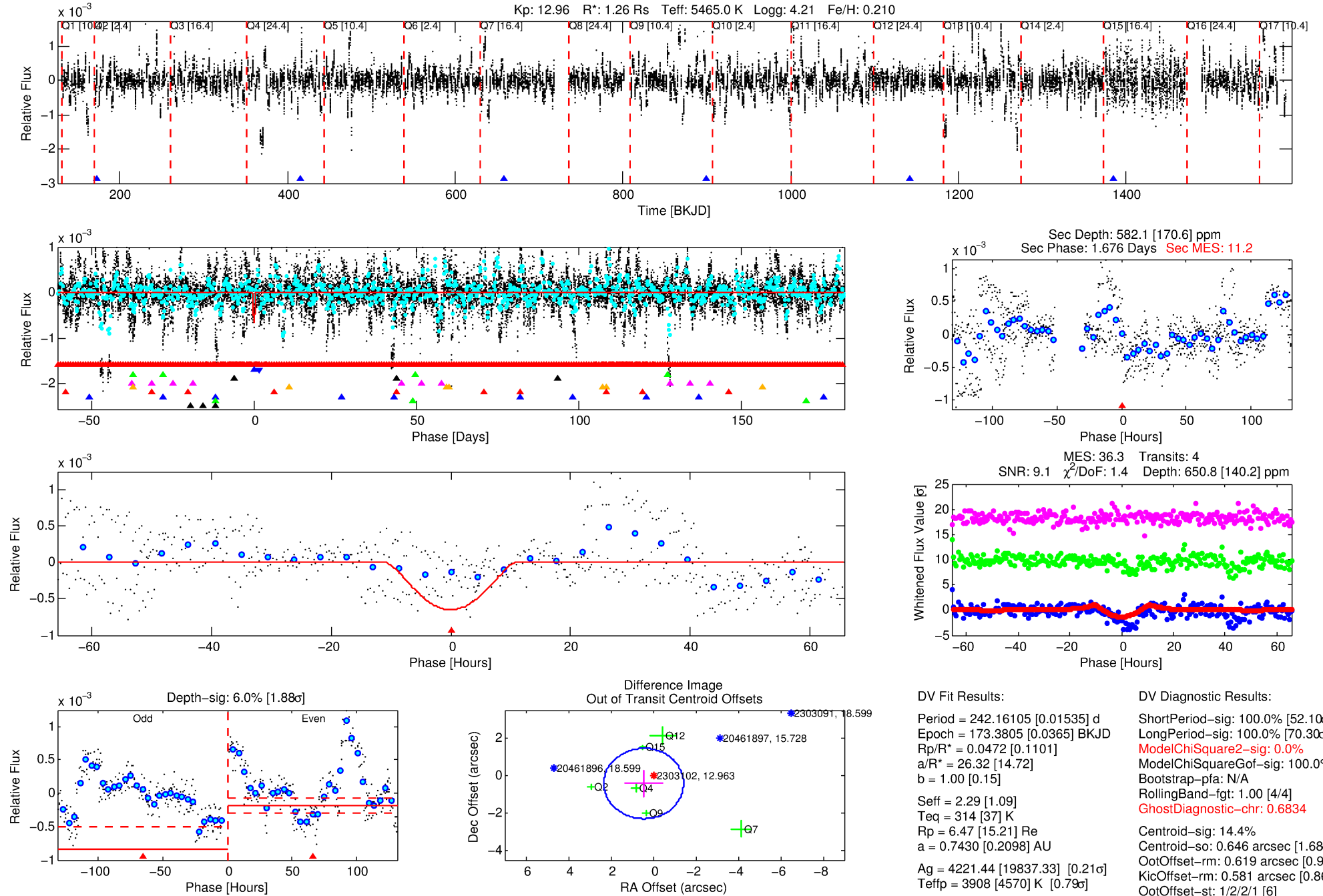
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002303102-02

No Significant Match Found

DV One-Page Summary

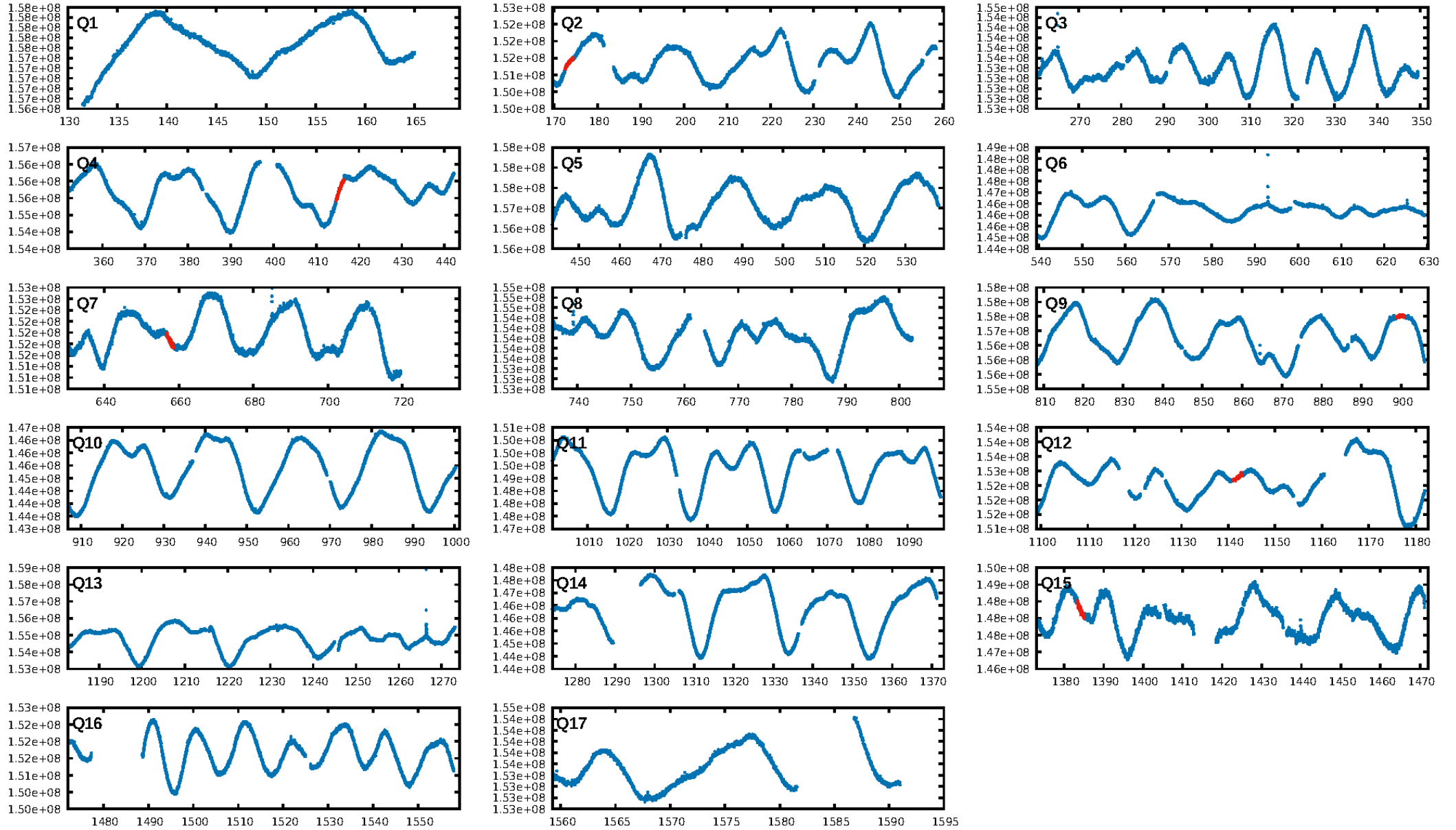
KIC: 2303102 Candidate: 2 of 10 Period: 242.161 d



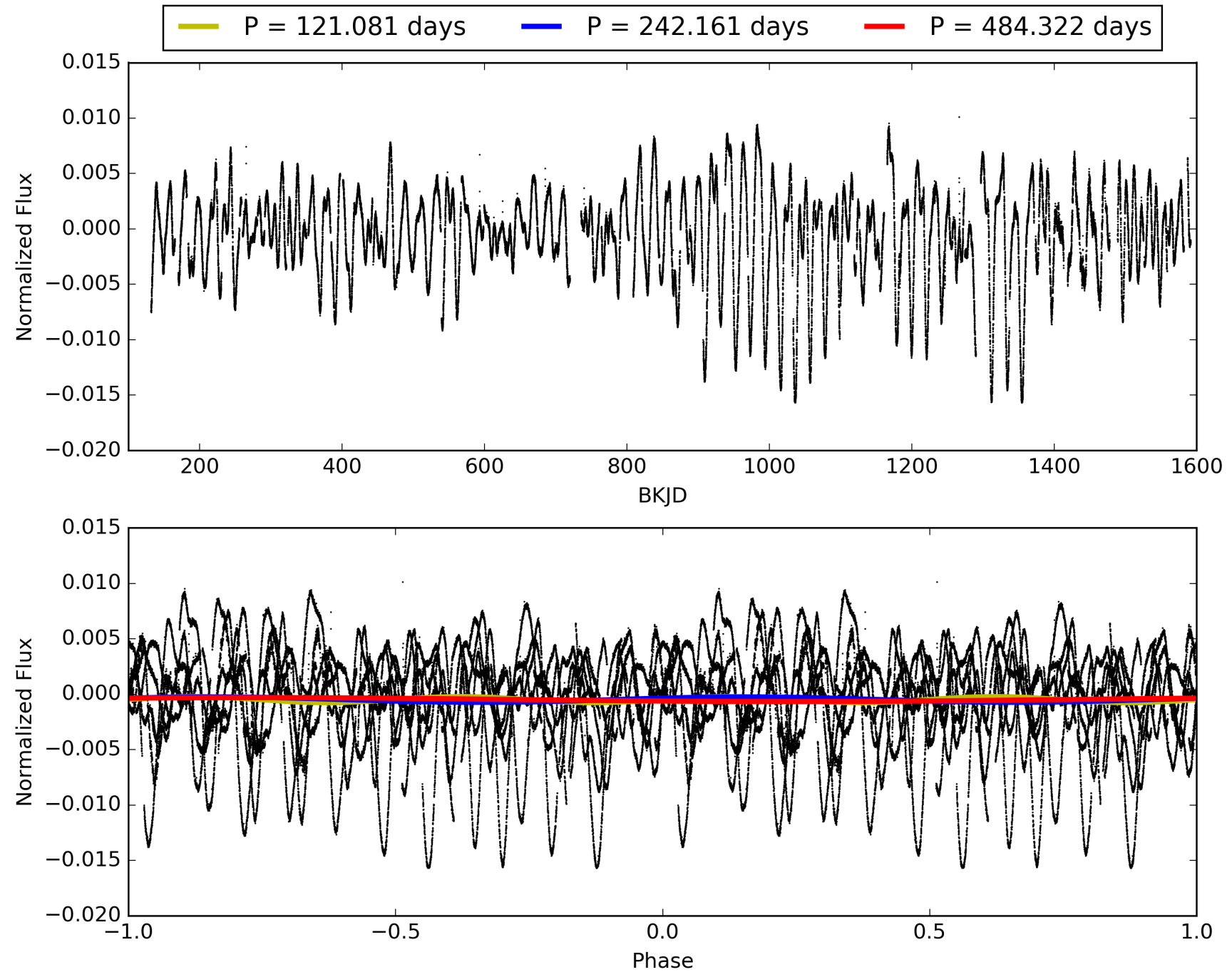
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:10:00 Z

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

TCE 002303102-02, PDC Light Curves

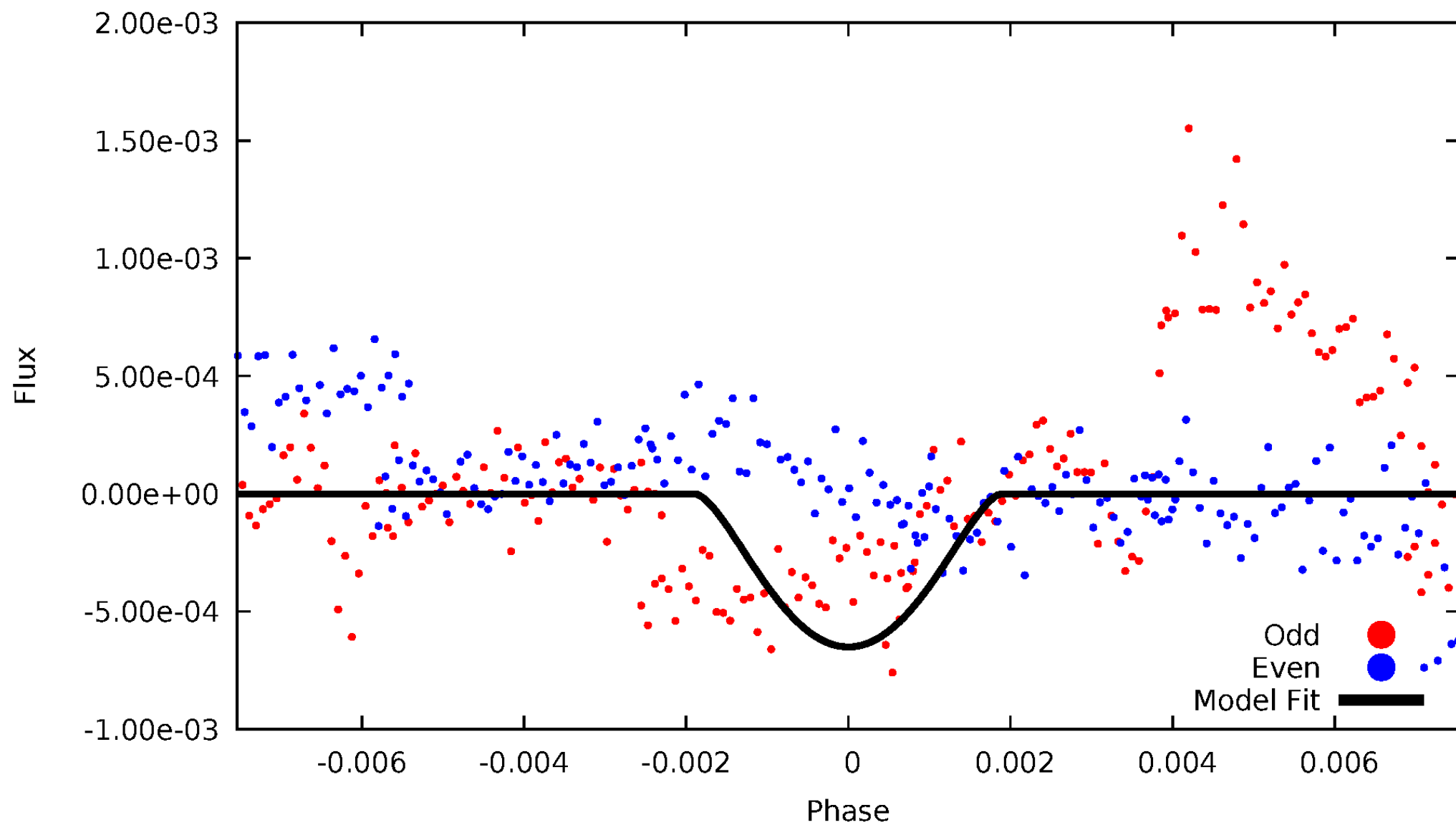


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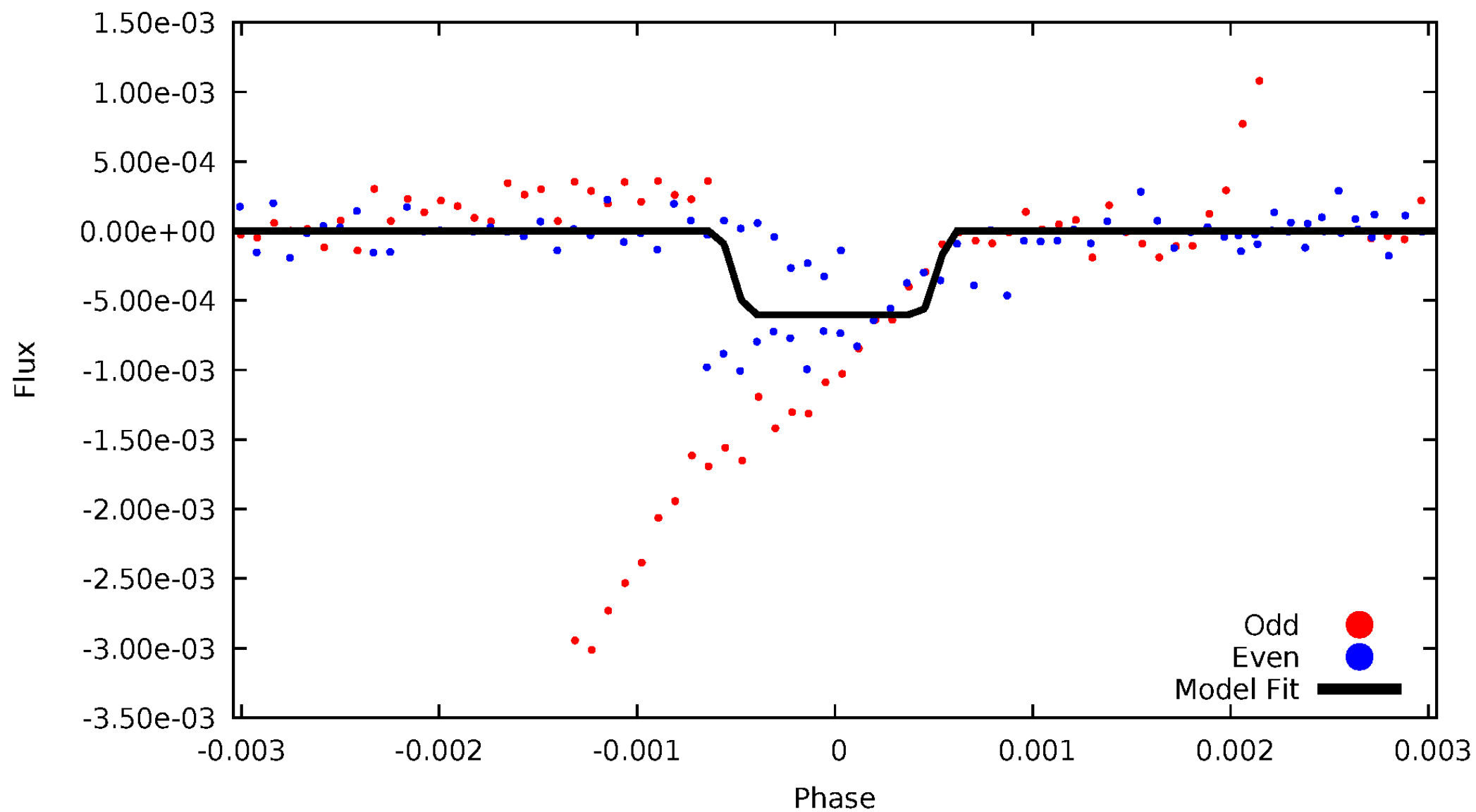
DV Odd/Even

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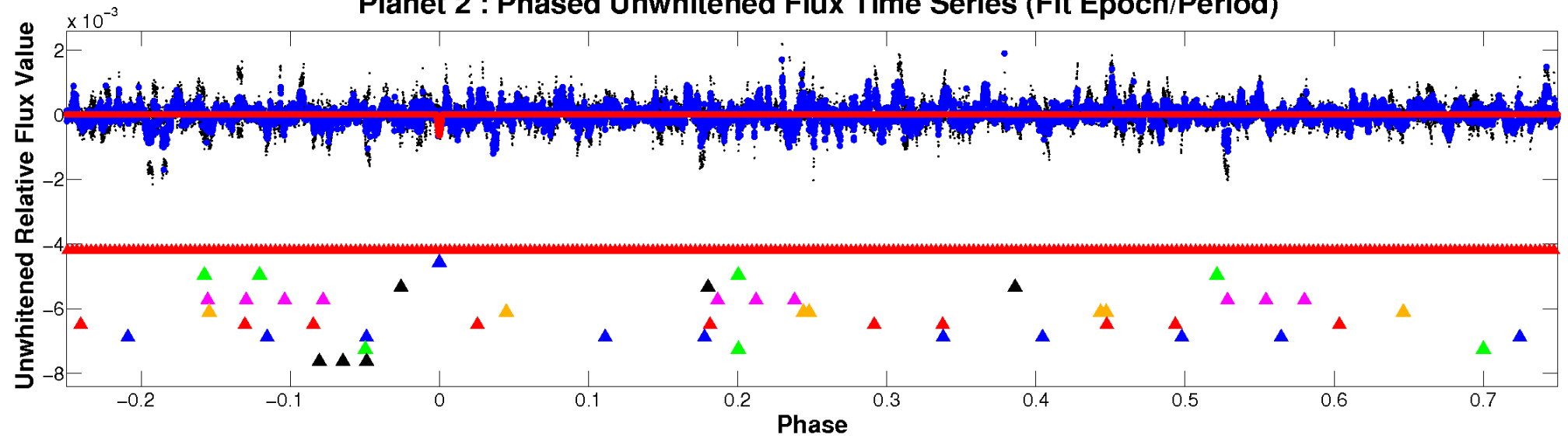
ALT Odd/Even

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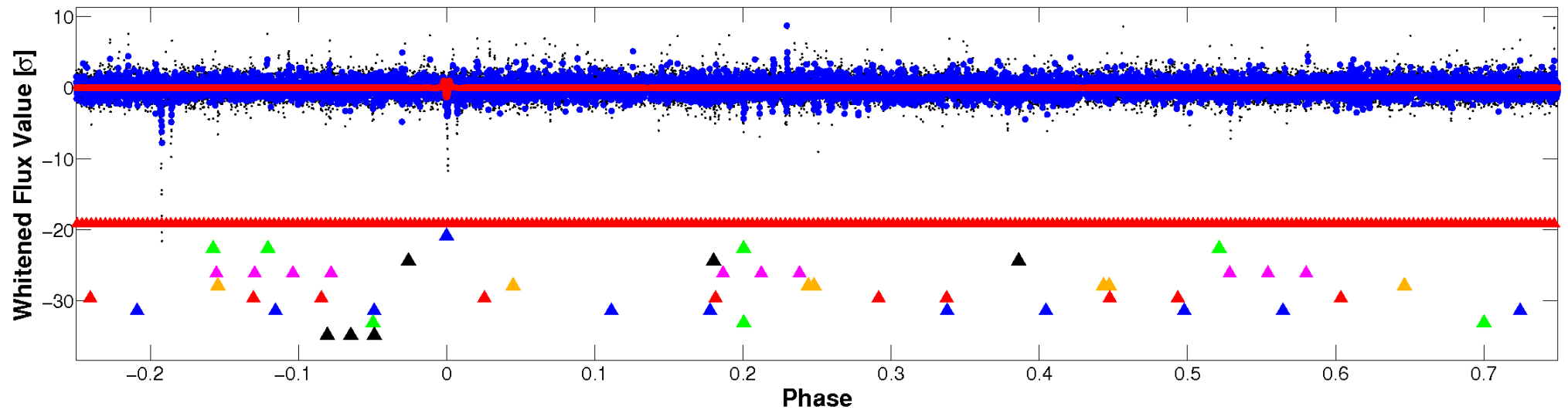


Non-Whitened Vs. Whitened Light Curve

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

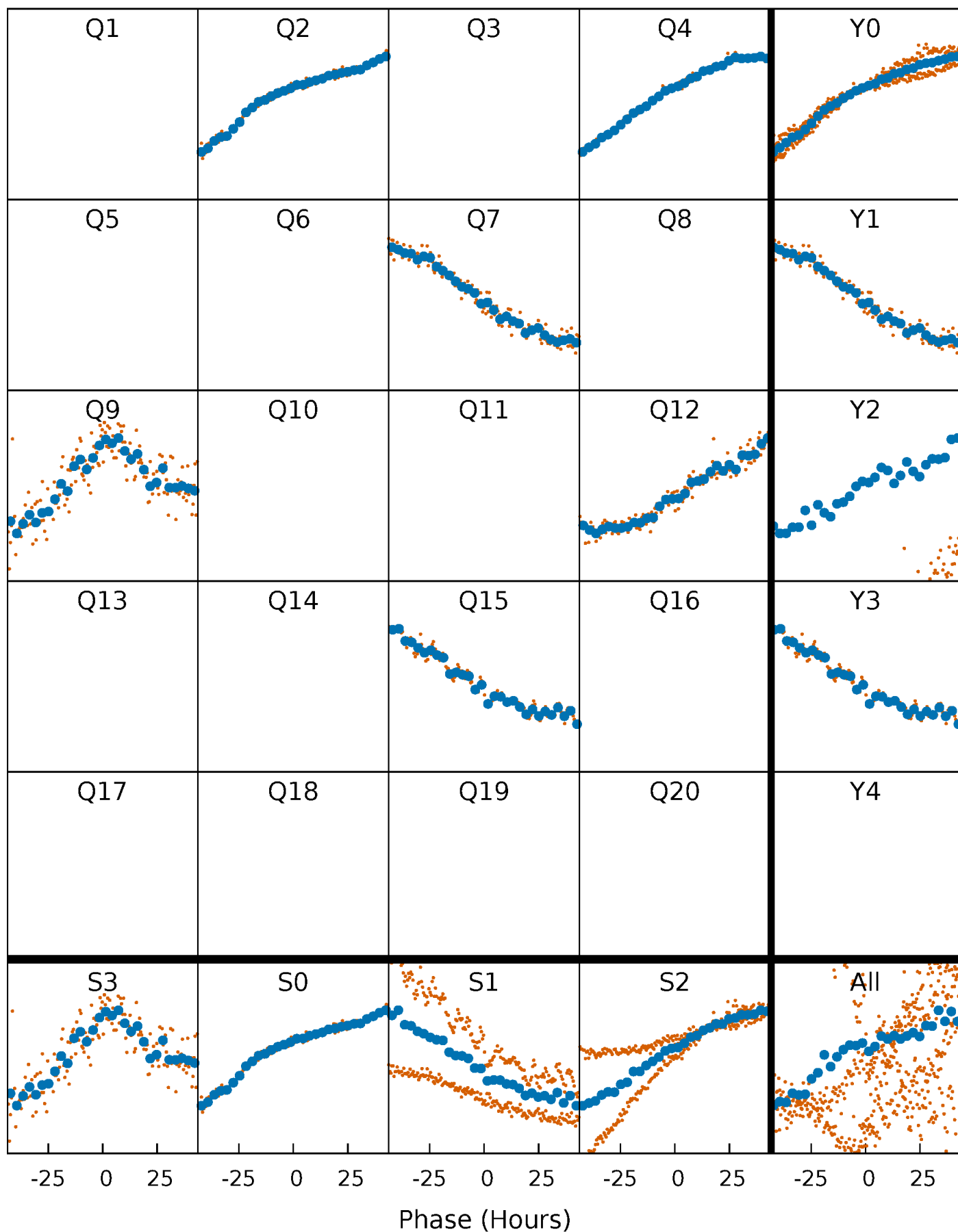


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



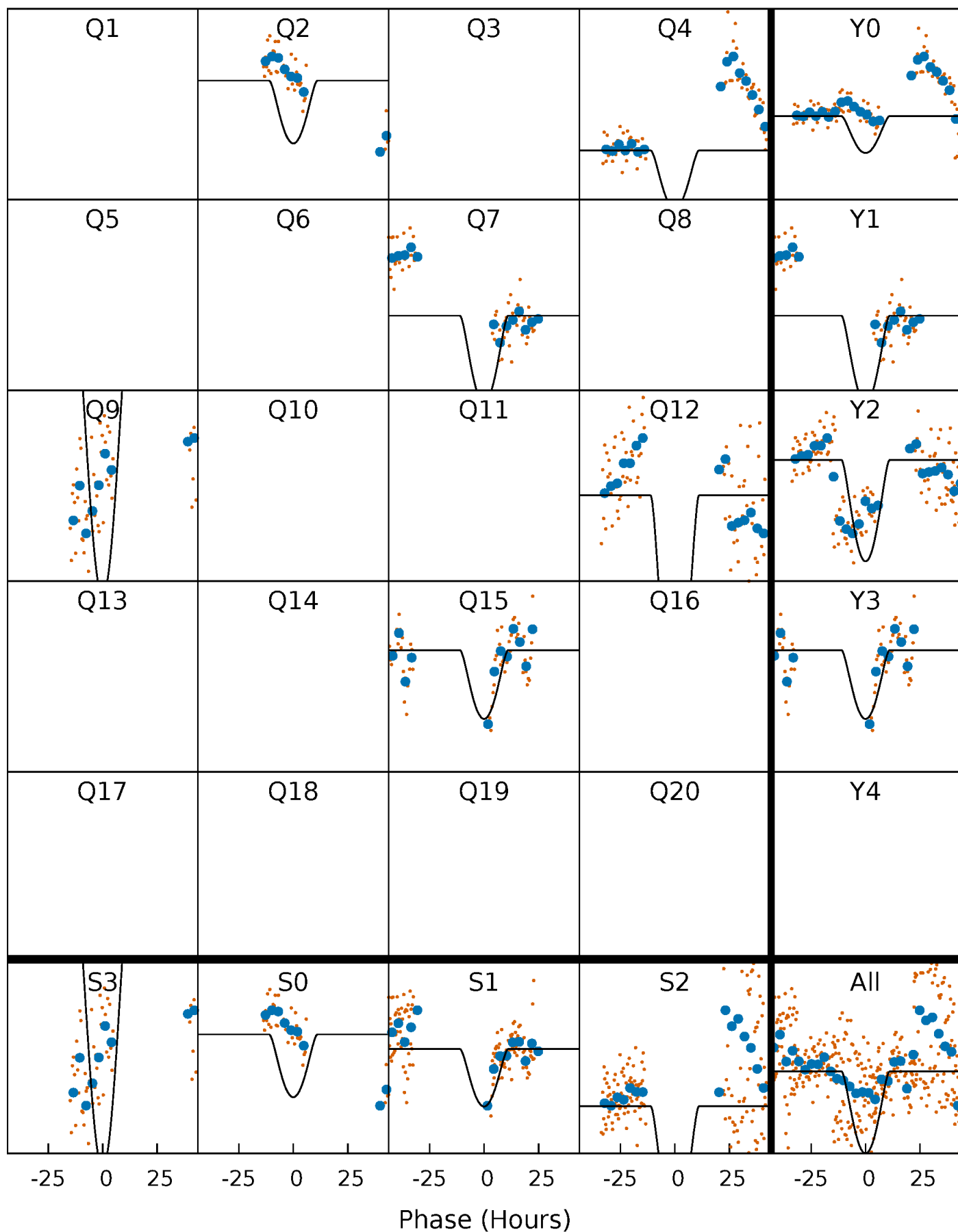
PDC Quarter-Phased Transit Curves

TCE 002303102-02 P=242.161051 Days $T_0=173.380485$ (BKJD)



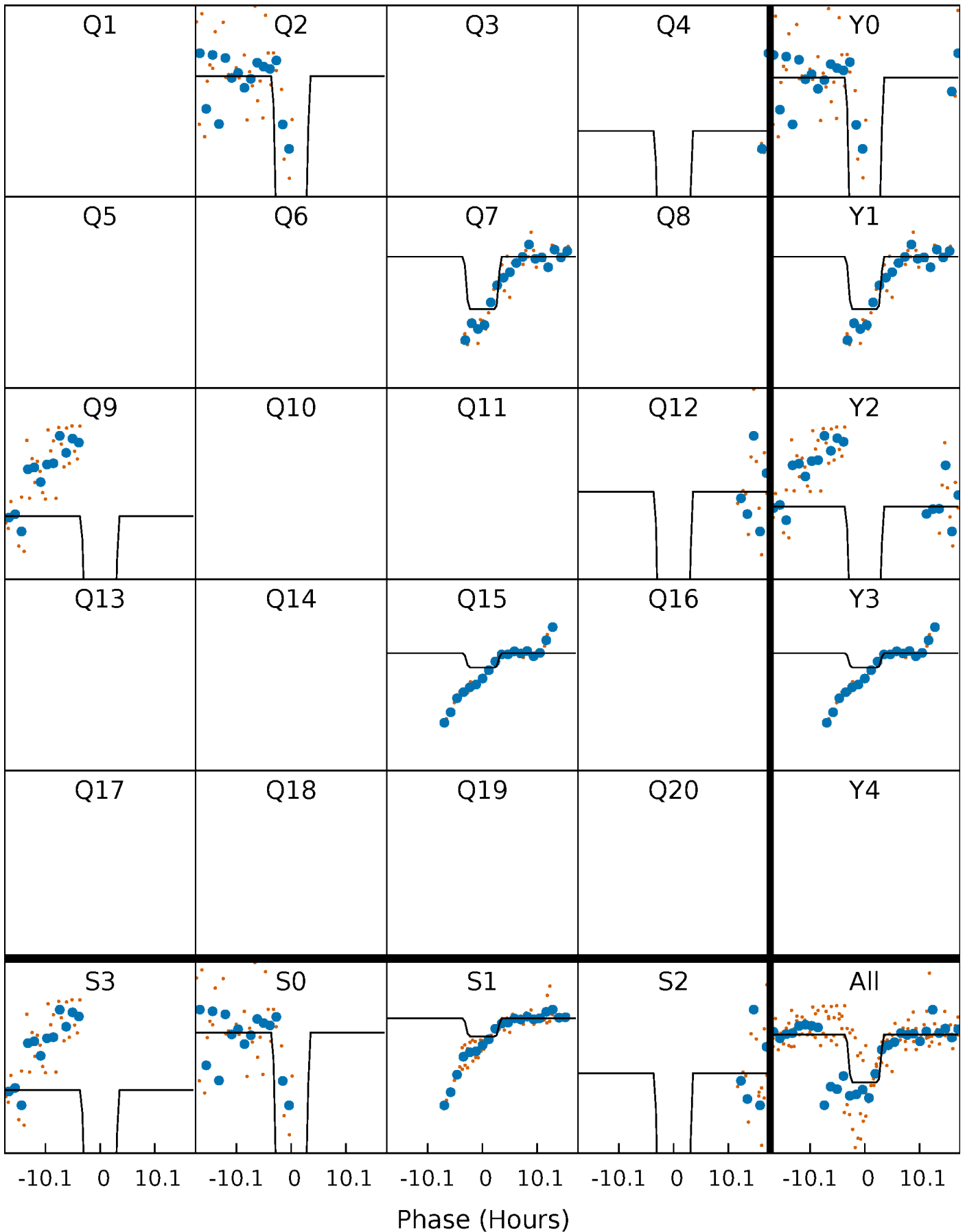
DV Quarter-Phased Transit Curves

TCE 002303102-02 P=242.161051 Days $T_0=173.380485$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

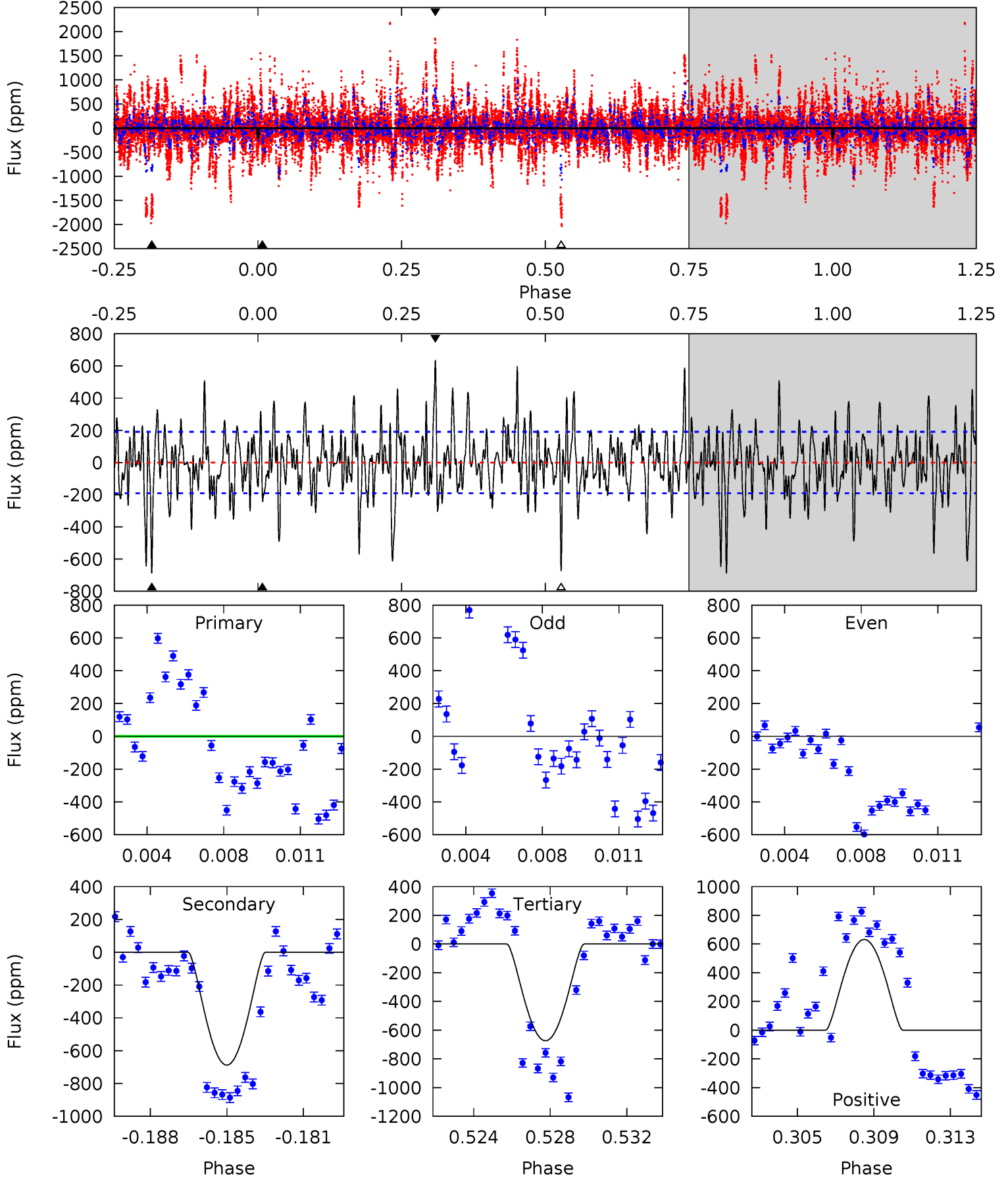
TCE 002303102-02 P=242.198987 Days $T_0=173.620669$ (BKJD)



DV Model-Shift Uniqueness Test

002303102-02, P = 242.161051 Days, E = 173.380485 Days

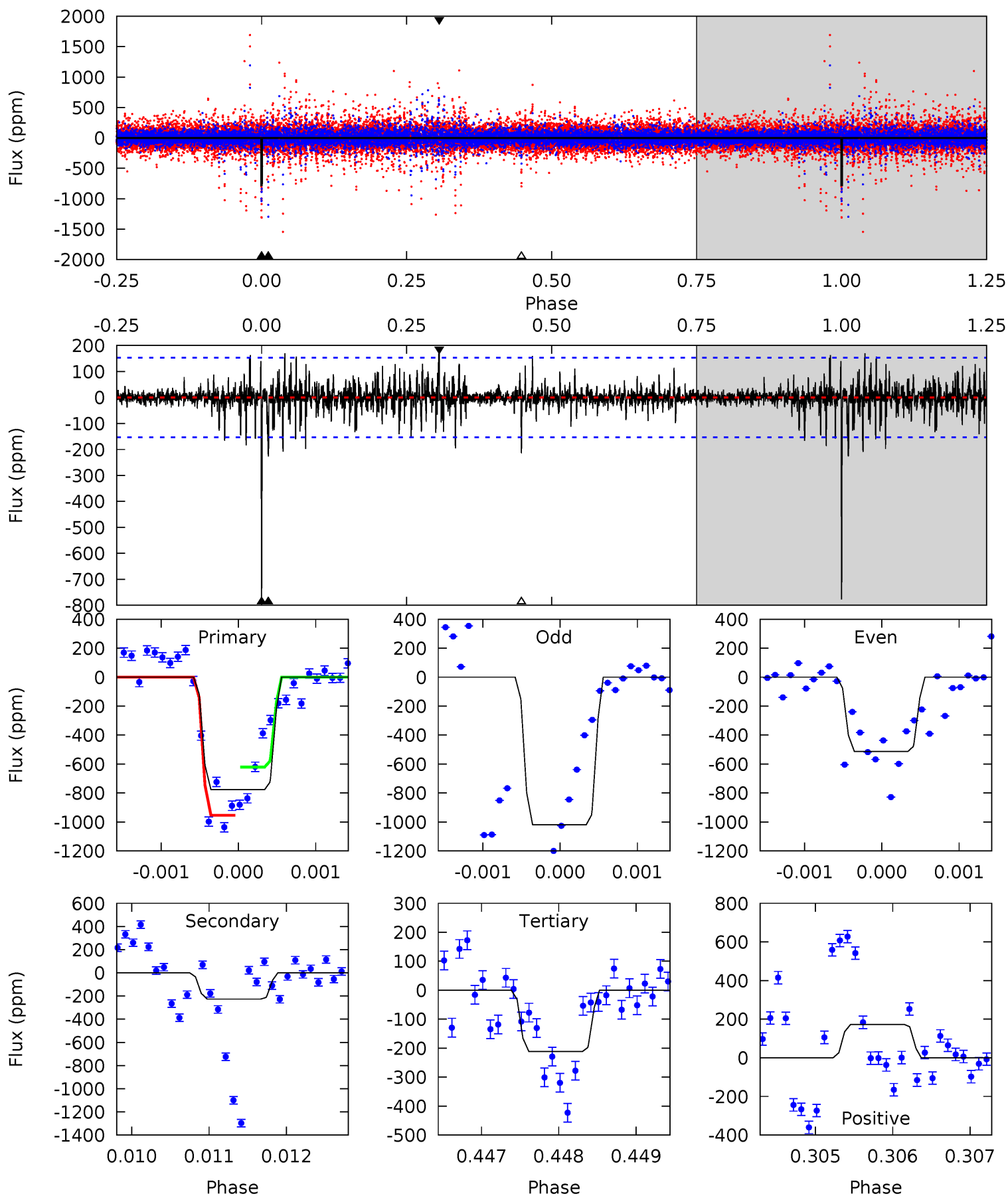
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.76	18.8	18.4	17.2	5.21	2.90	4.46	-12.6	-11.5	0.39	1.54	5.58	0.80	0.48	0.48



Alt Model-Shift Uniqueness Test

002303102-02, P = 242.198987 Days, E = 173.620669 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.6	8.03	7.51	6.13	5.43	3.26	1.18	20.1	21.4	0.53	1.90	8.74	0.86	0.18	5.79



Stellar Parameters For KIC 002303102

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5465^{+164}_{-147}	$4.209^{+0.276}_{-0.184}$	$0.210^{+0.200}_{-0.250}$	$1.257^{+0.352}_{-0.352}$	$0.932^{+0.090}_{-0.074}$	$0.661^{+1.131}_{-0.326}$
	+3%/-3%	+7%/-4%	+95%/-119%	+28%/-28%	+10%/-8%	+171%/-49%
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 002303102-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-688 ± 37	$13.17^{+12.77}_{-8.59}$	435^{+37}_{-34}	3387^{+1480}_{-593}	1195^{+8643}_{-878}
Alt.	-226 ± 28	$11.29^{+11.78}_{-7.98}$	436^{+31}_{-39}	2999^{+1439}_{-525}	566^{+5904}_{-442}

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

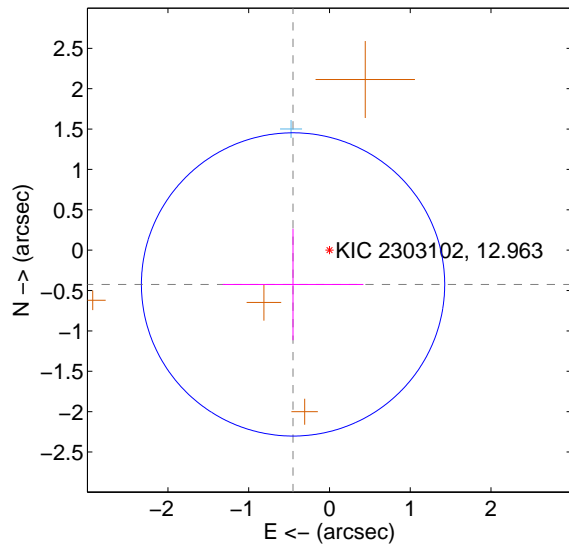
Supplemental centroid analysis for 002303102-02. Kepler magnitude: 12.96. Transit SNR 9.11

There are 1 quarters with good PRF difference image offsets

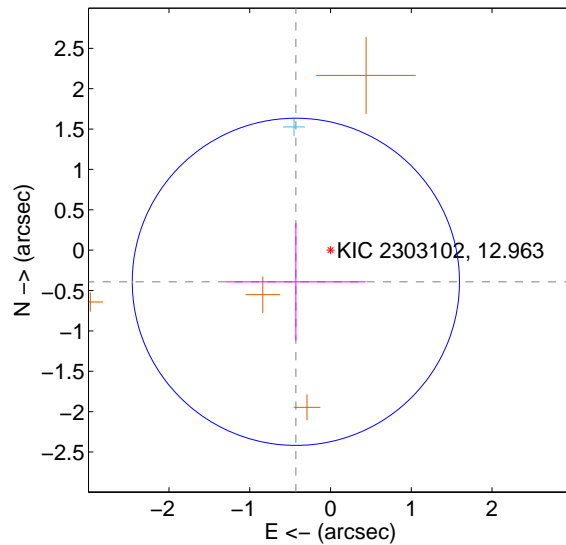
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.619 ± 0.626	0.99	0.451 ± 0.872	-0.424 ± 0.691
PRF-fit source offset from KIC position	0.581 ± 0.675	0.86	0.429 ± 0.866	-0.392 ± 0.726
photometric centroid source offset	0.65 ± 0.39	1.68	0.54 ± 0.35	-0.35 ± 0.47

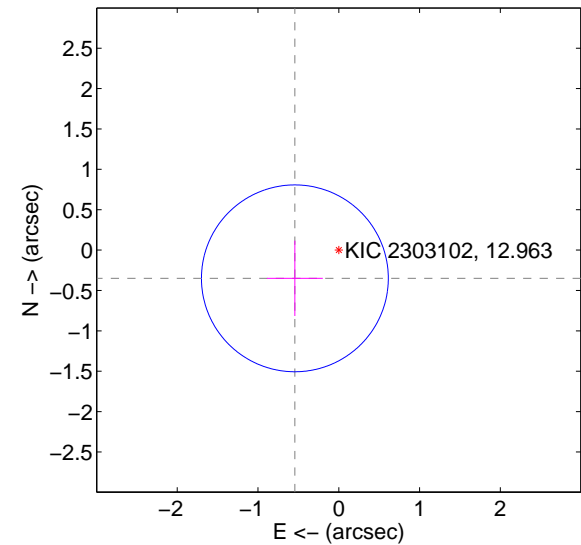
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

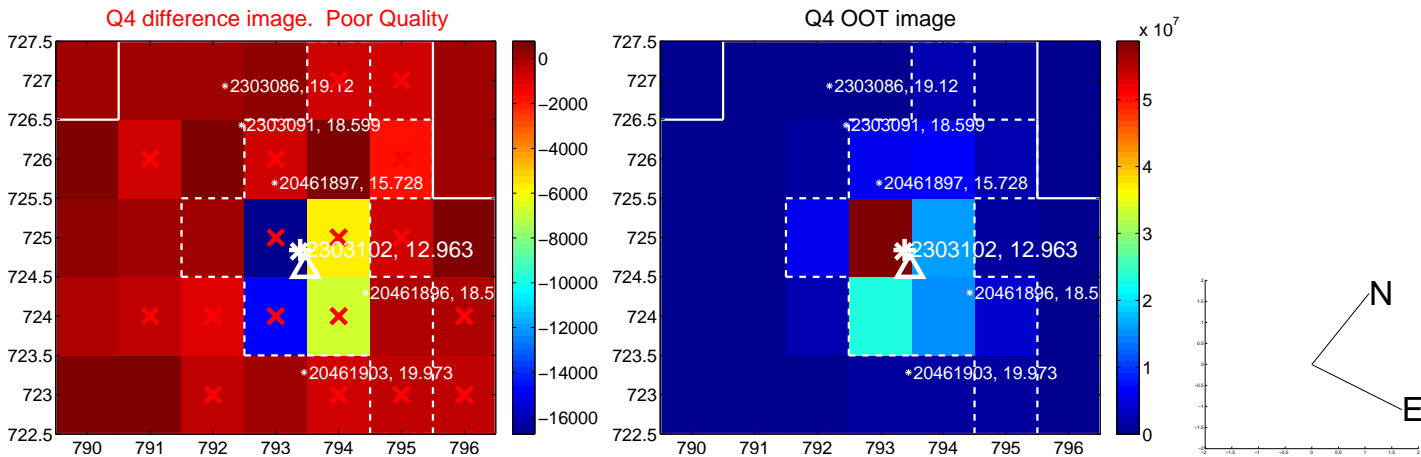
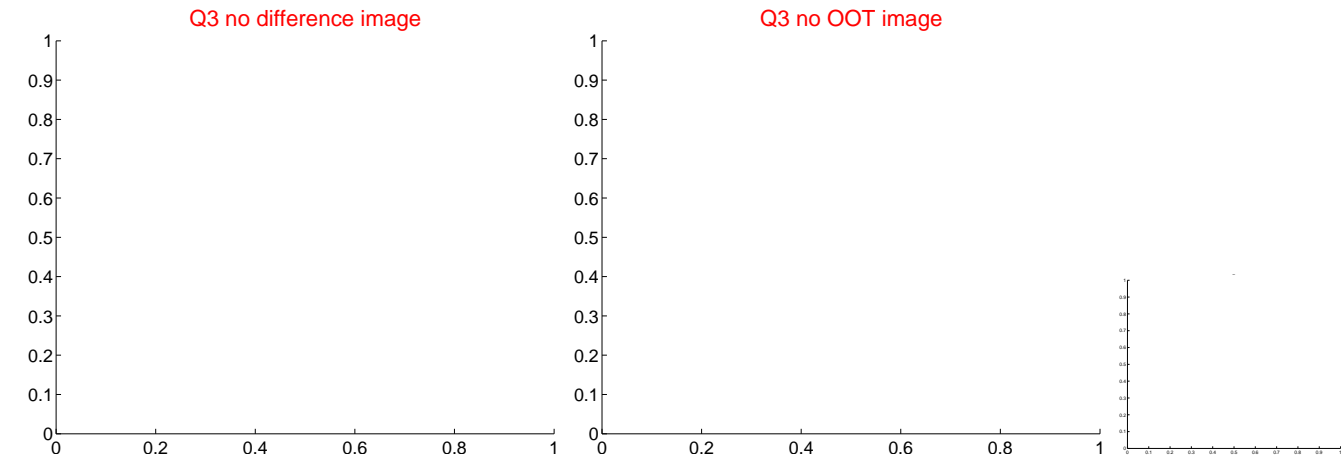
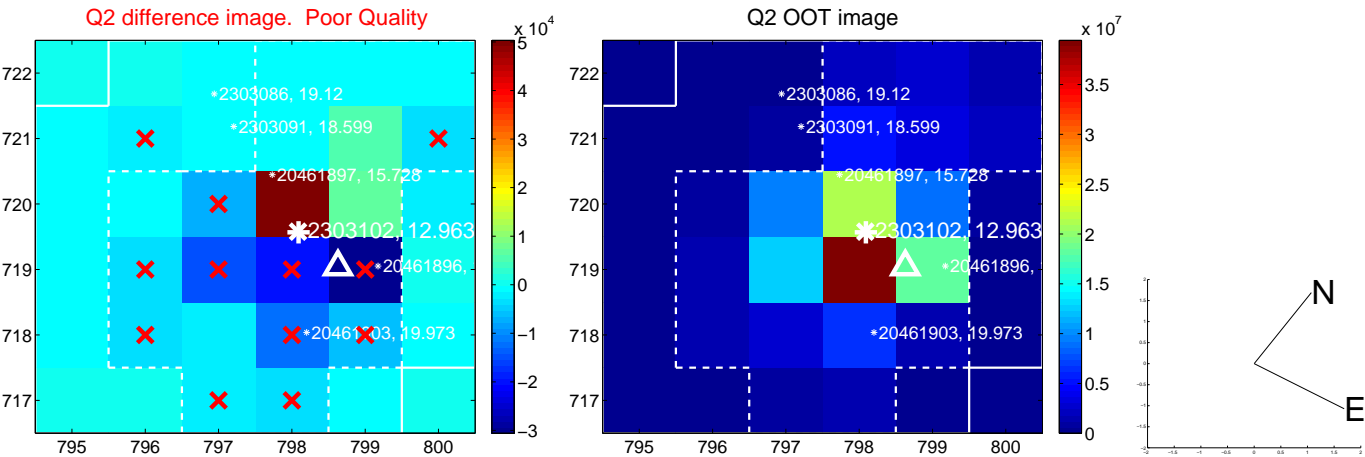
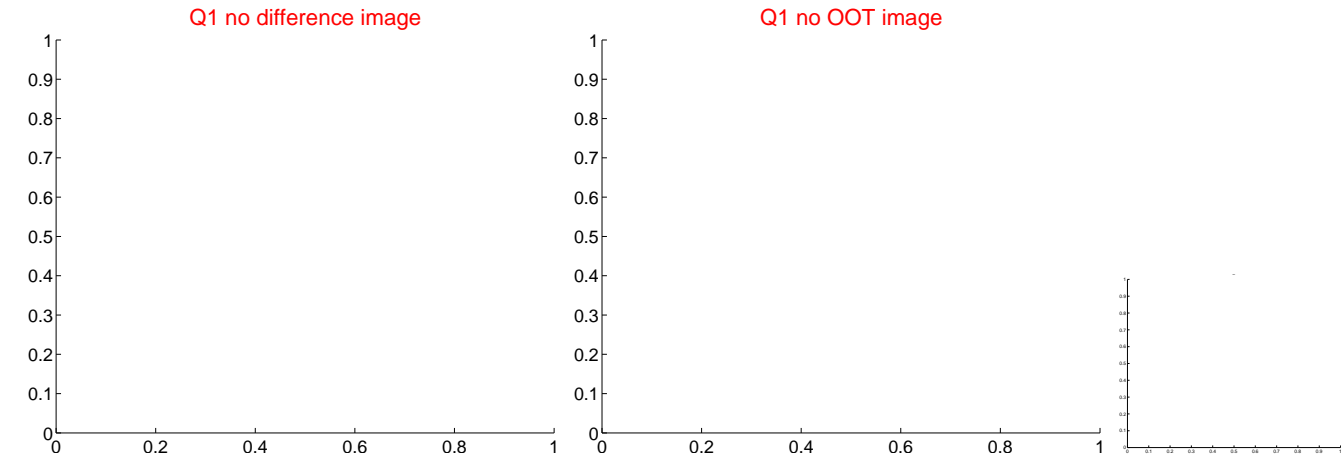


offset from photometric centroids



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.

Q5 no difference image



Q5 no OOT image



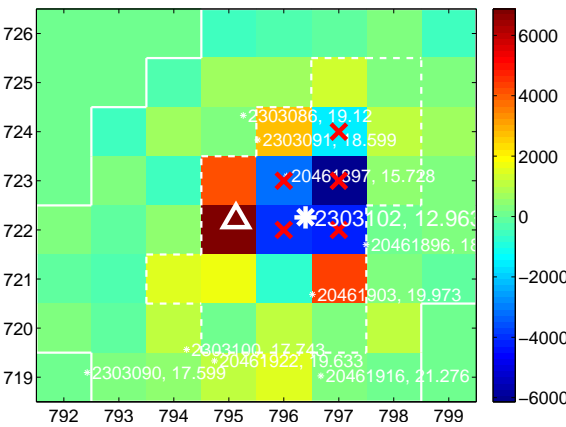
Q6 no difference image



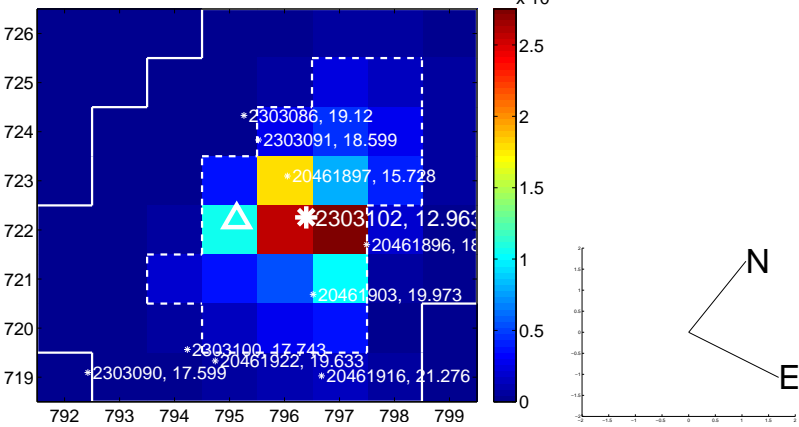
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



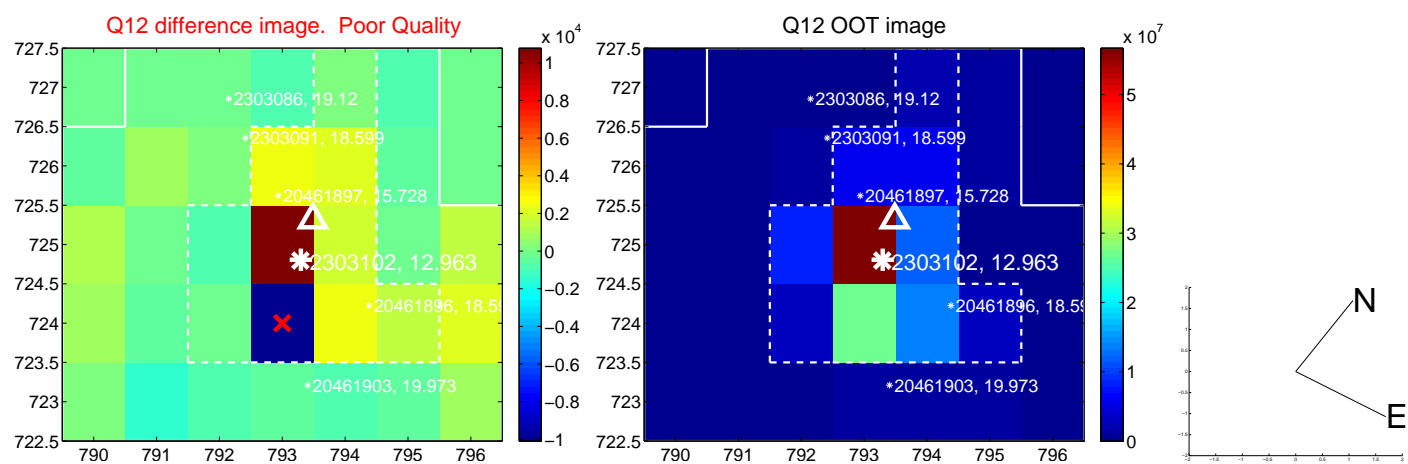
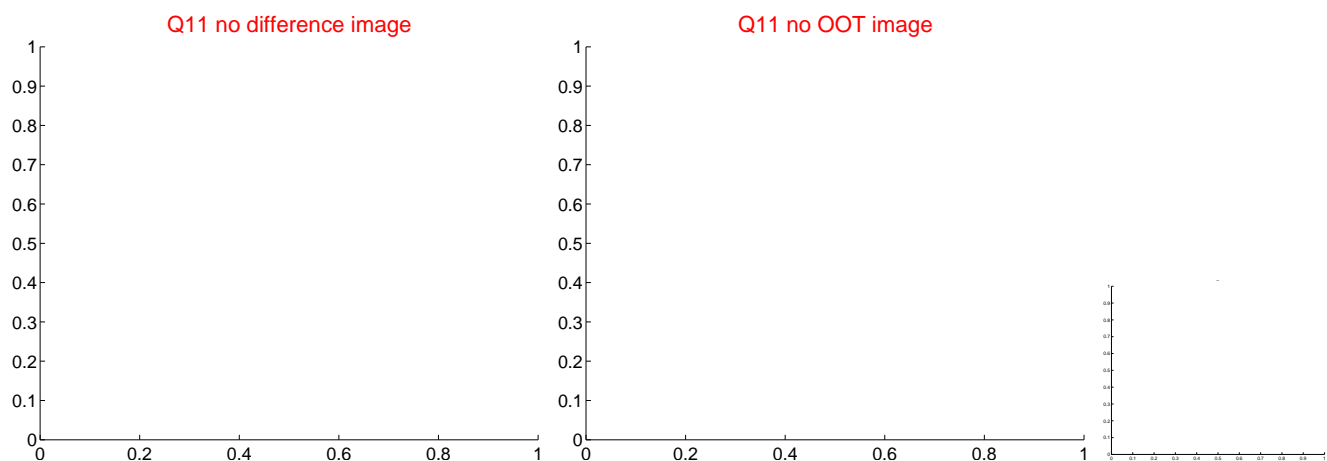
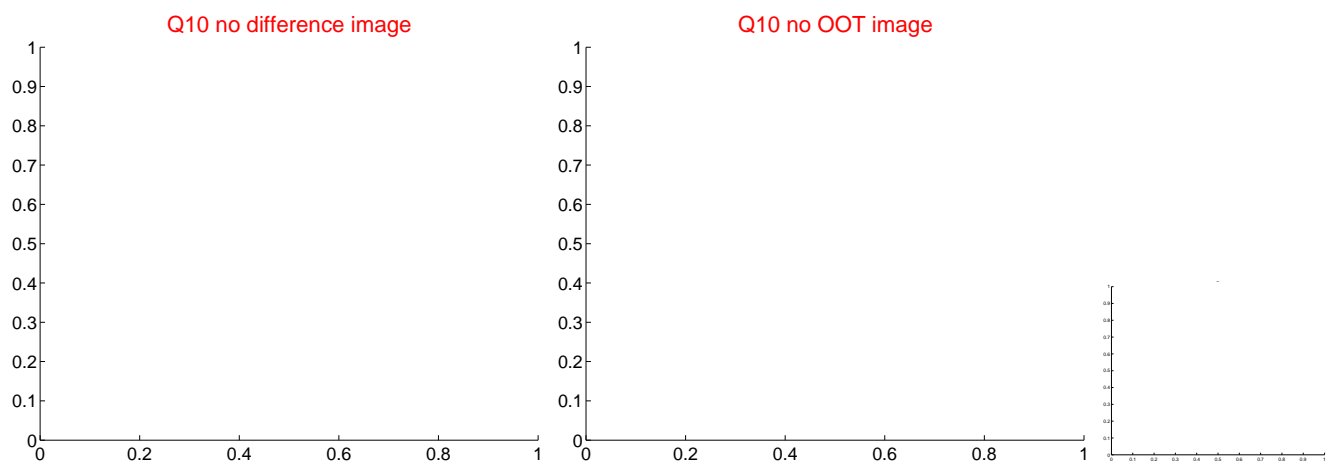
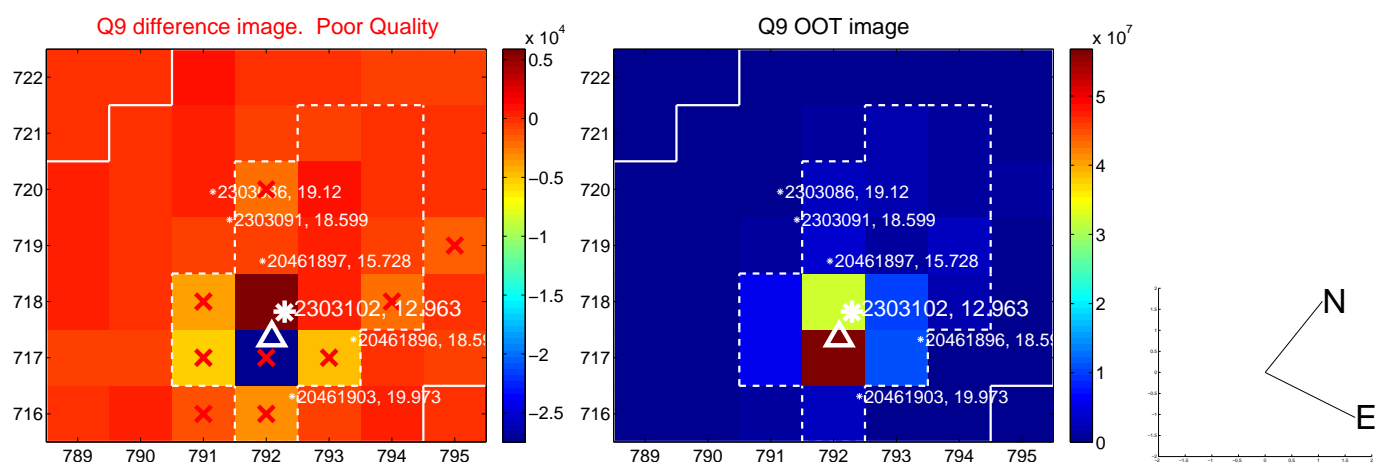
Q8 no difference image



Q8 no OOT image

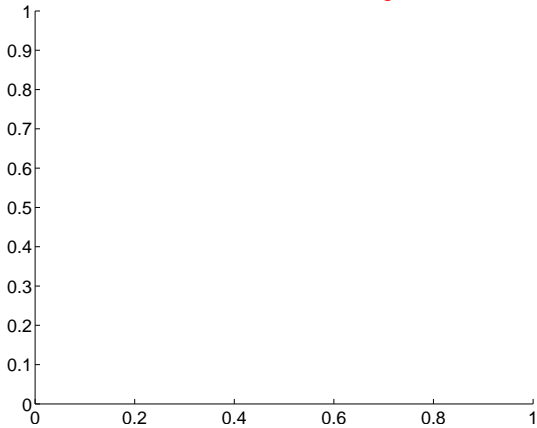


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

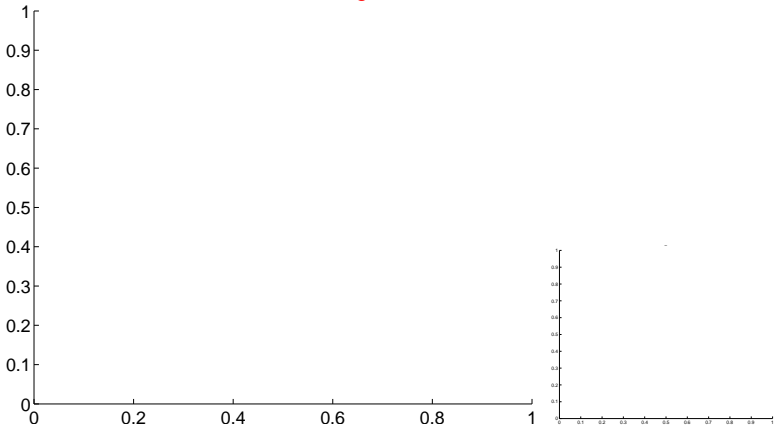


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

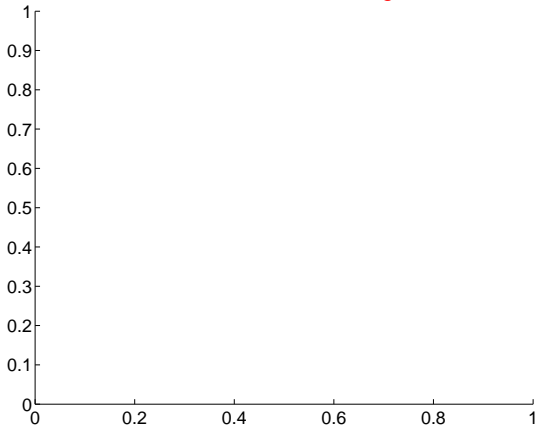
Q13 no difference image



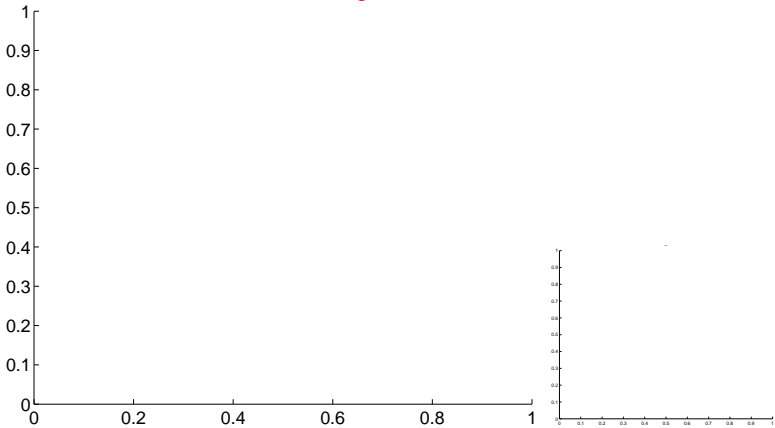
Q13 no OOT image



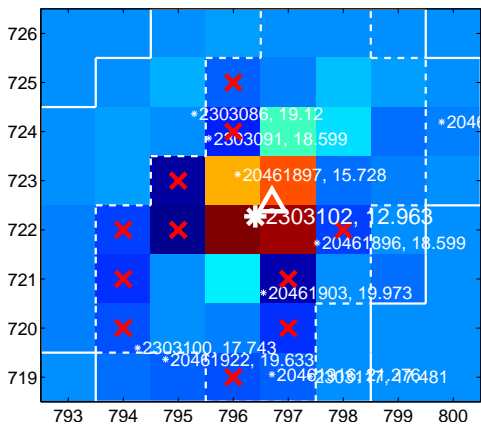
Q14 no difference image



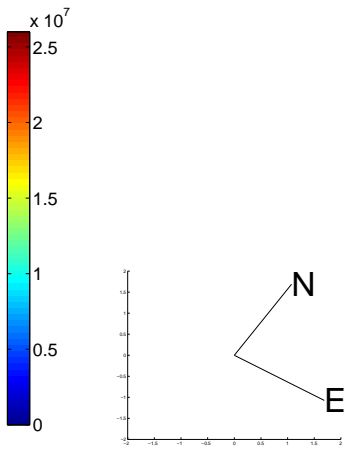
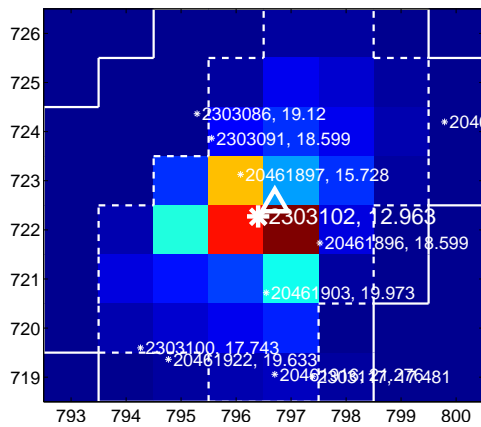
Q14 no OOT image



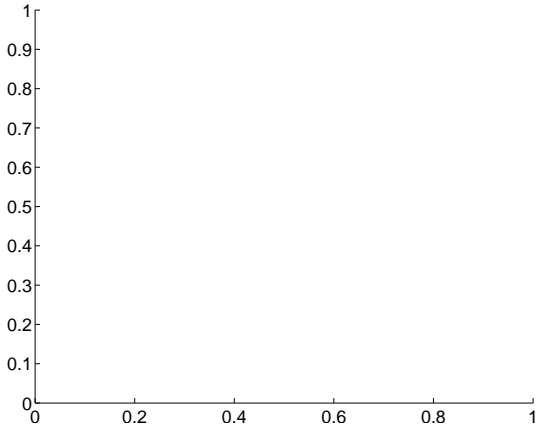
Q15 difference image



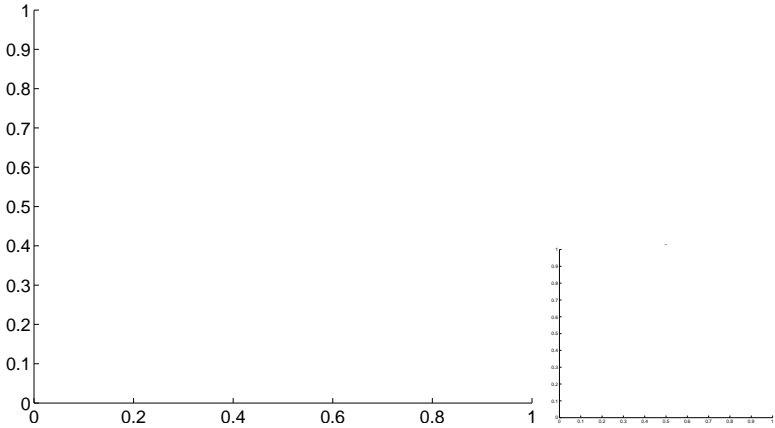
Q15 OOT image



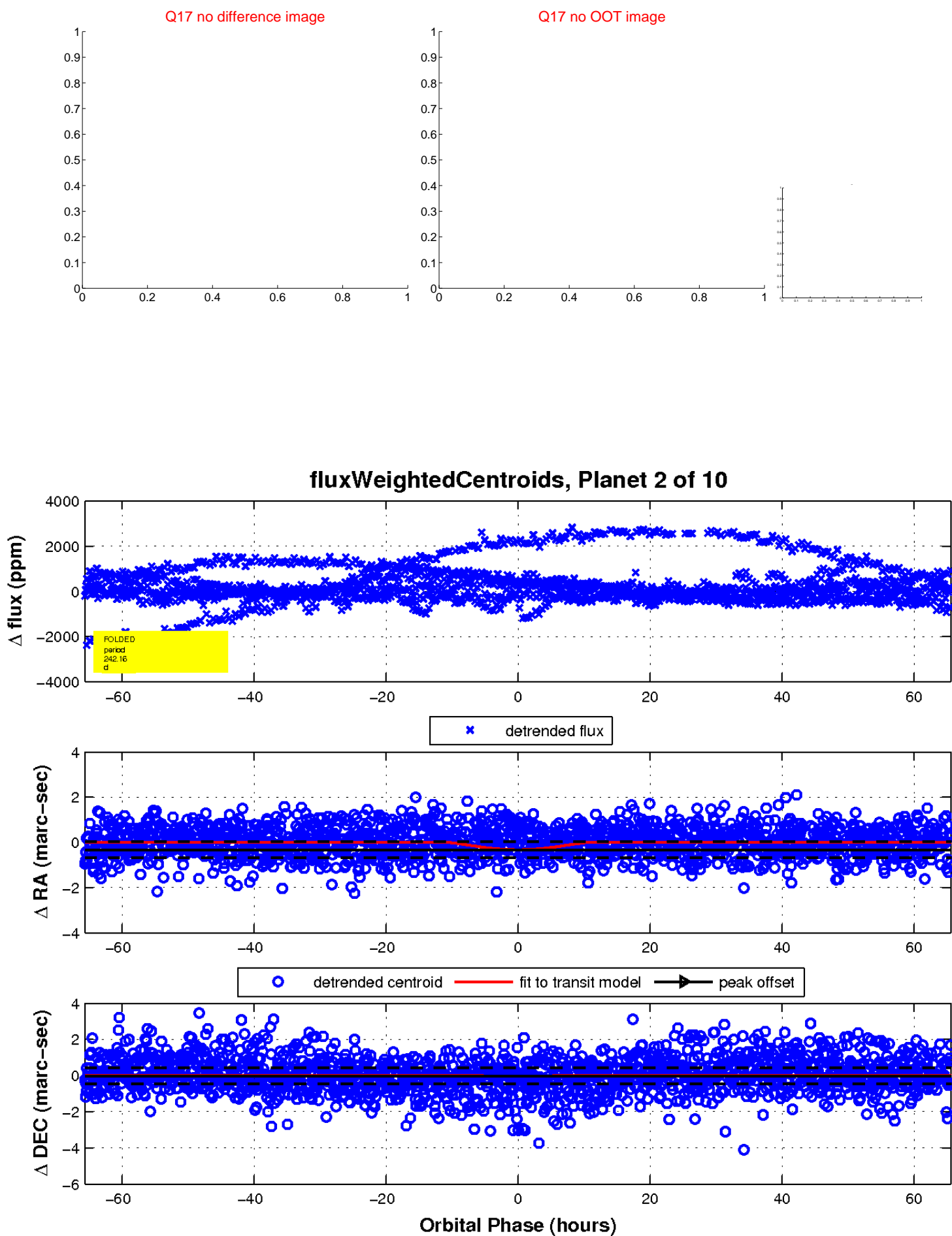
Q16 no difference image



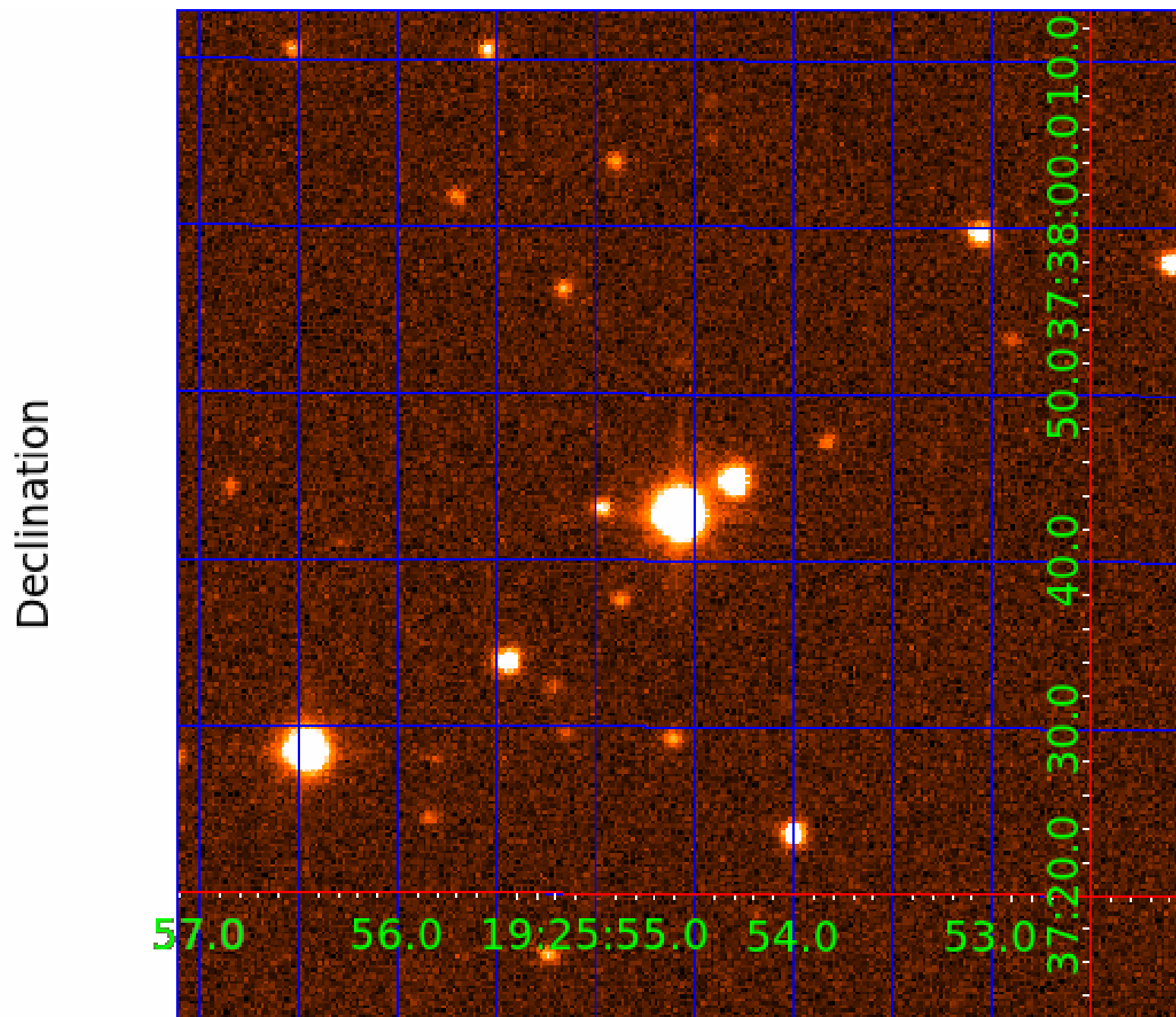
Q16 no OOT image



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



UKIRT Image



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})
002303102-01	OBS	No	2.298875	132.974167	31.1	11.443	8.2	9.8	1.26	5465	0.74	1137.95
002303102-02	OBS	No	242.161051	173.380485	650.8	21.893	36.3	9.1	1.26	5465	6.47	2.29
002303102-03	OBS	No	319.894193	386.351543	393.4	15.000	19.9	-1.0	1.26	5465	2.44	1.58
002303102-04	OBS	No	434.460665	509.040892	576.8	13.180	19.1	12.4	1.26	5465	3.47	1.05
002303102-05	OBS	No	159.358266	154.502554	141.2	22.045	16.9	3.5	1.26	5465	1.61	4.00
002303102-07	OBS	No	139.966466	243.994110	322.2	10.625	13.4	8.3	1.26	5465	2.38	4.75
002303102-08	OBS	No	148.524623	145.415390	297.7	1.235	12.9	4.6	1.26	5465	2.38	4.39
002303102-09	OBS	No	544.908556	342.926822	523.6	5.000	12.9	-1.0	1.26	5465	2.82	0.78
002303102-10	OBS	No	480.480981	161.570218	309.9	15.557	11.5	6.9	1.26	5465	2.61	0.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002303102-01	OBS	FP	0.00	1	0	0	0	LPP_DV
002303102-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
002303102-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
002303102-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
002303102-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
002303102-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

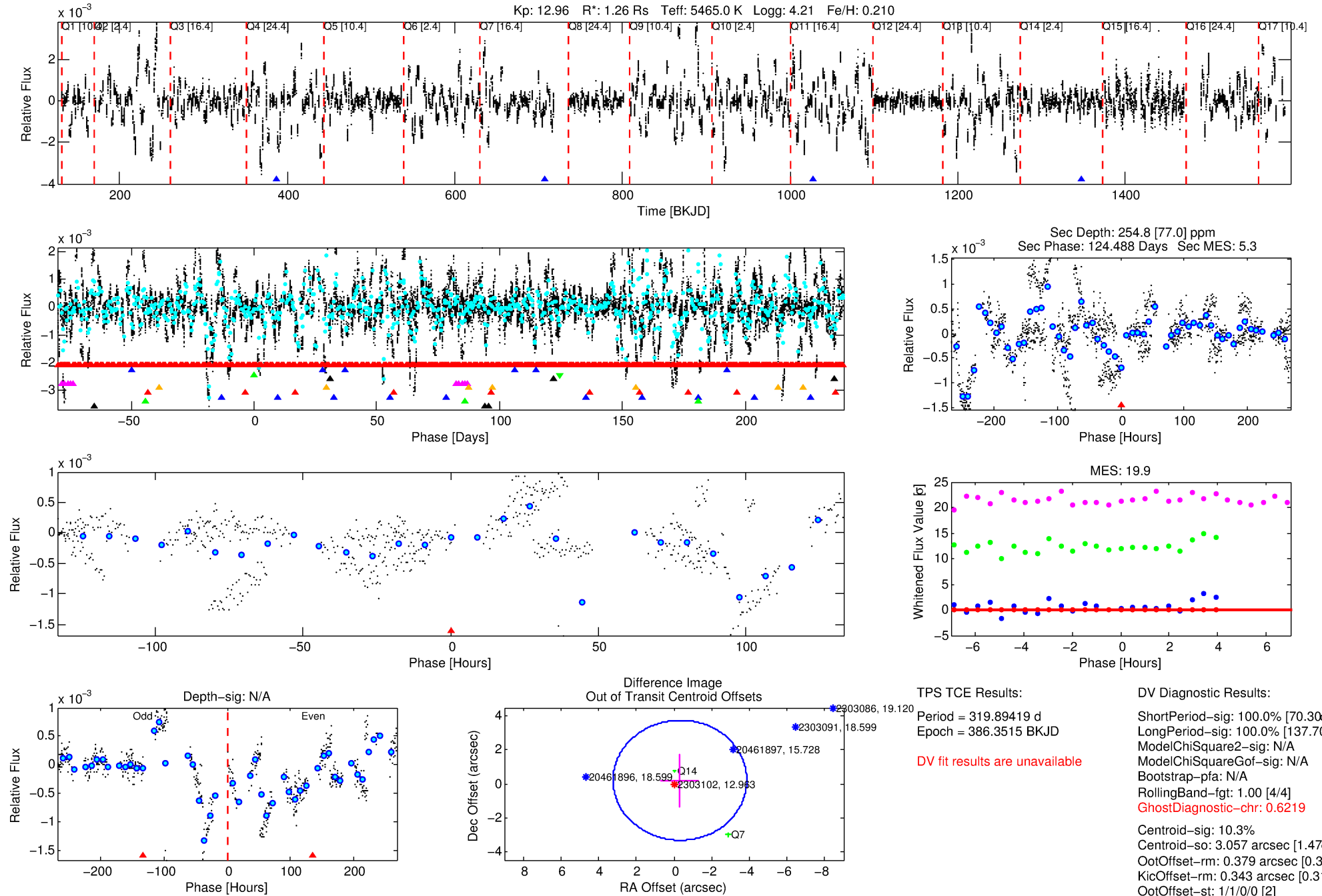
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002303102-03

No Significant Match Found

DV One-Page Summary

KIC: 2303102 Candidate: 3 of 10 Period: 319.894 d



TPS TCE Results:

Period = 319.89419 d
Epoch = 386.3515 BKJD

DV fit results are unavailable

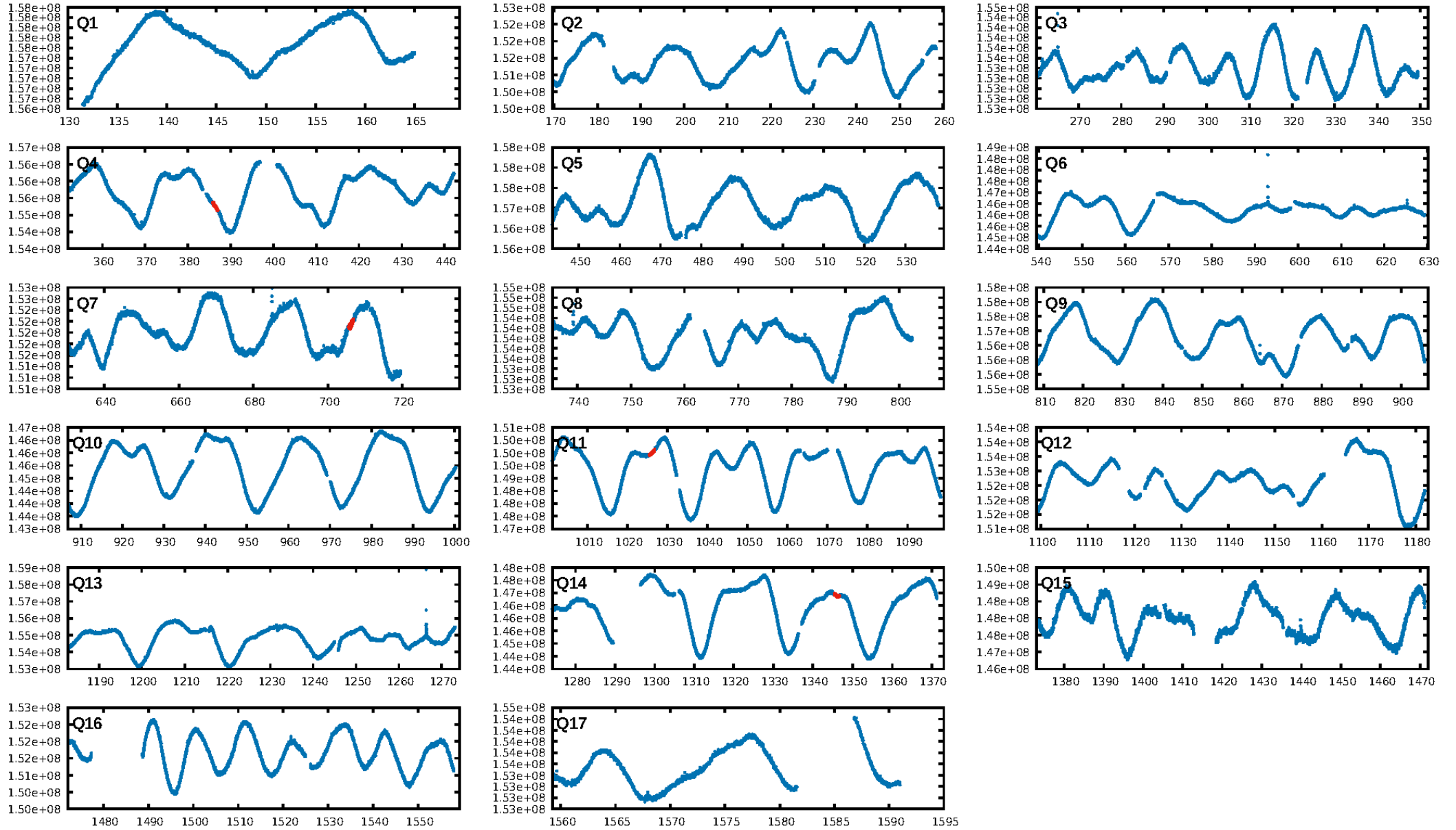
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [70.30 σ]
LongPeriod-sig: 100.0% [137.70 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.6219
Centroid-sig: 10.3%
Centroid-so: 3.057 arcsec [1.47 σ]
OotOffset-rm: 0.379 arcsec [0.32 σ]
KicOffset-rm: 0.343 arcsec [0.31 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/2]

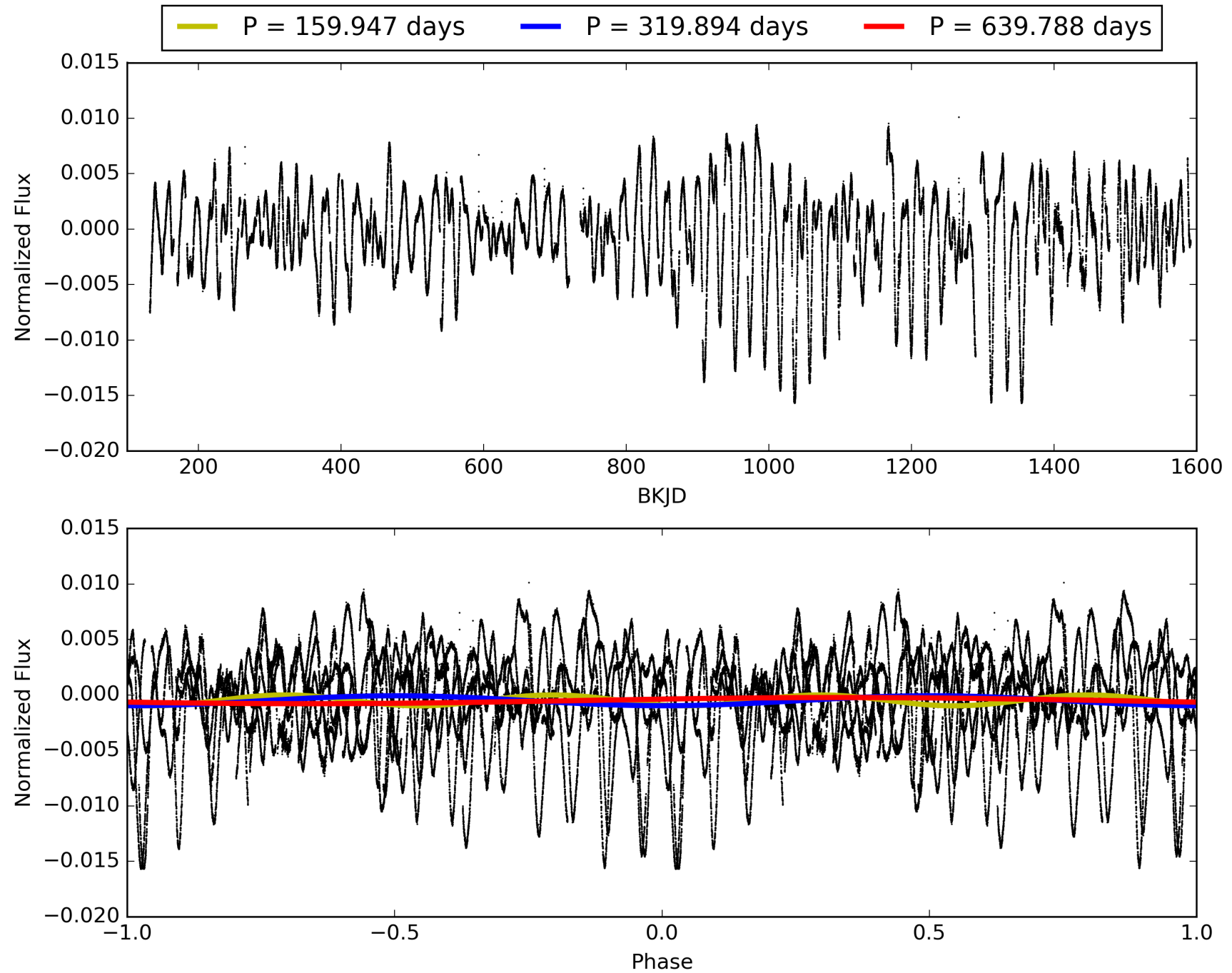
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:10:05 Z

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

TCE 002303102-03, PDC Light Curves

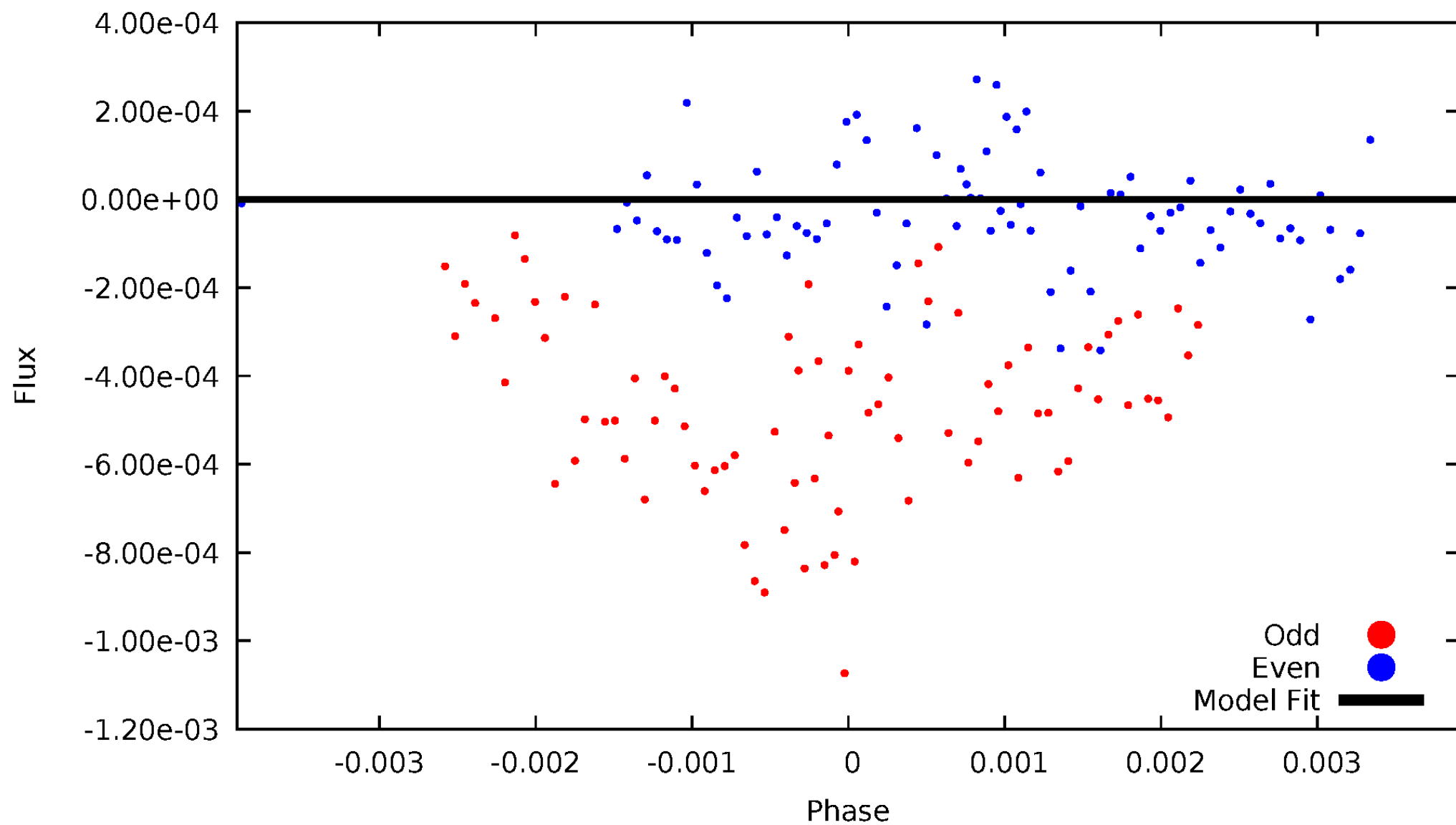


TCE 002303102-03



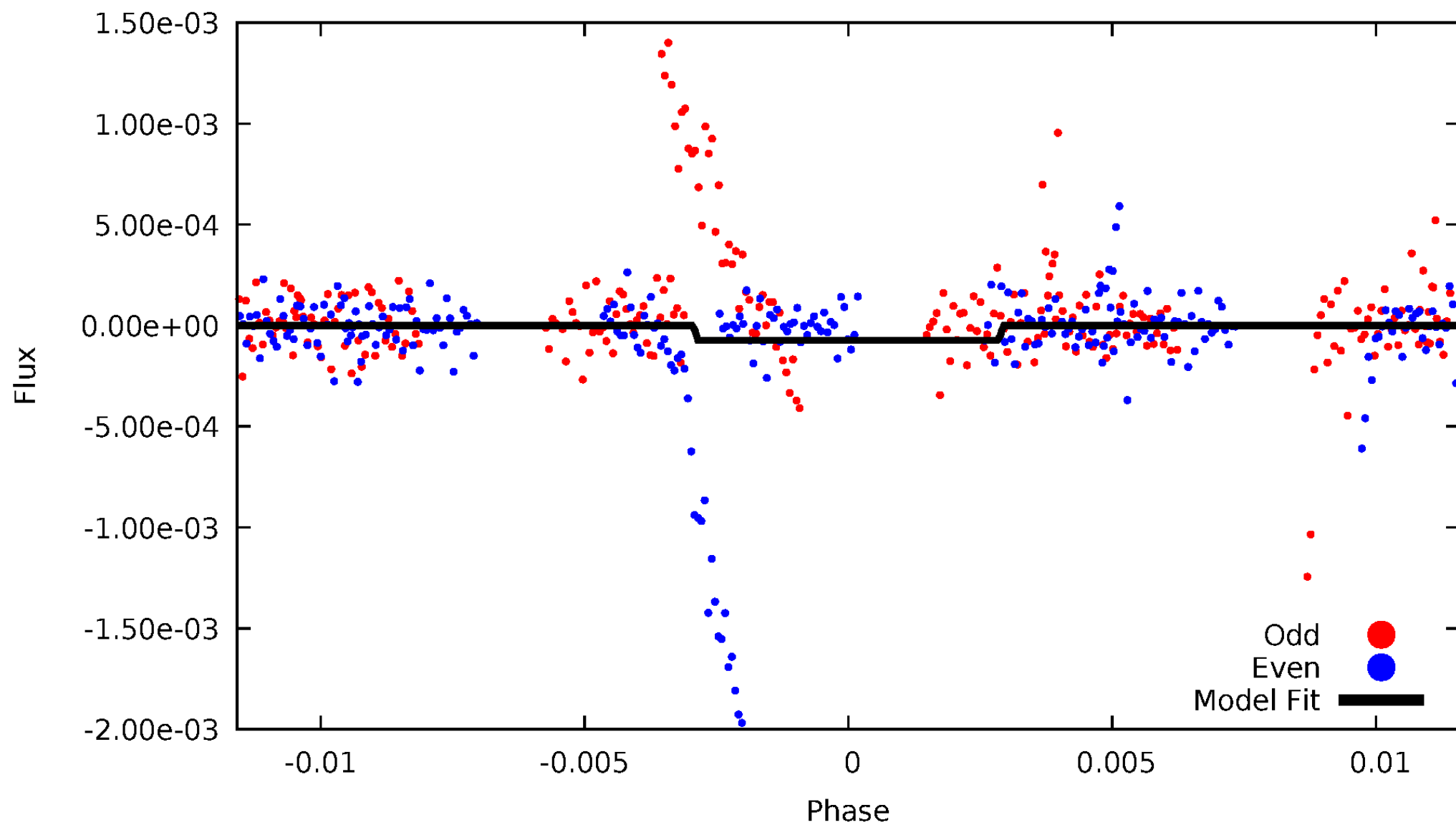
DV Odd/Even

TCE 002303102-03

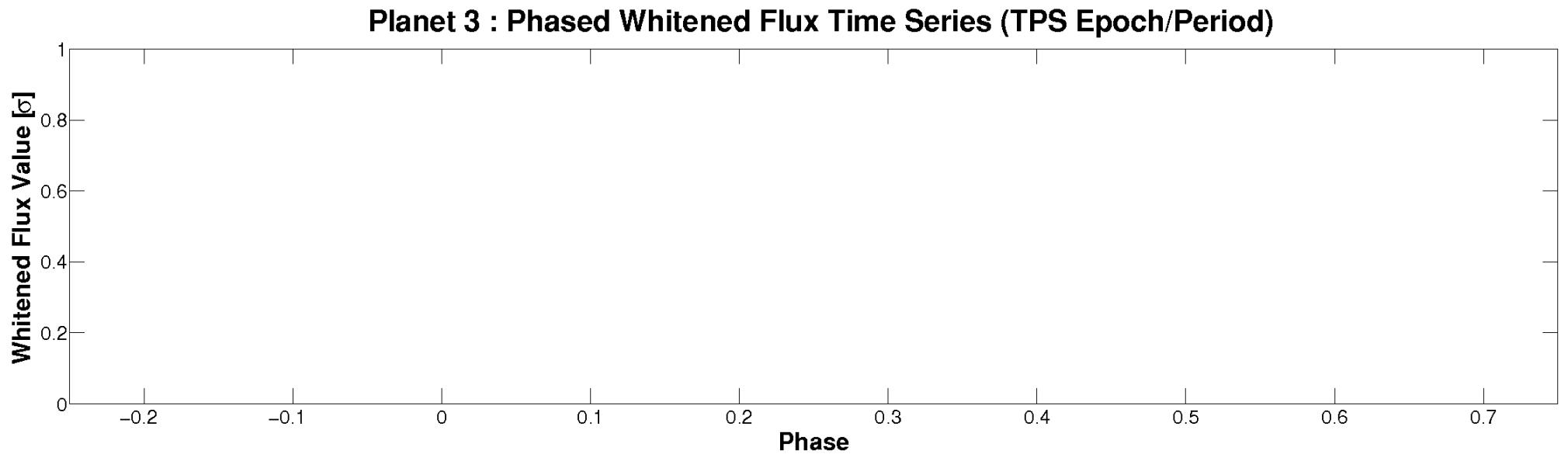
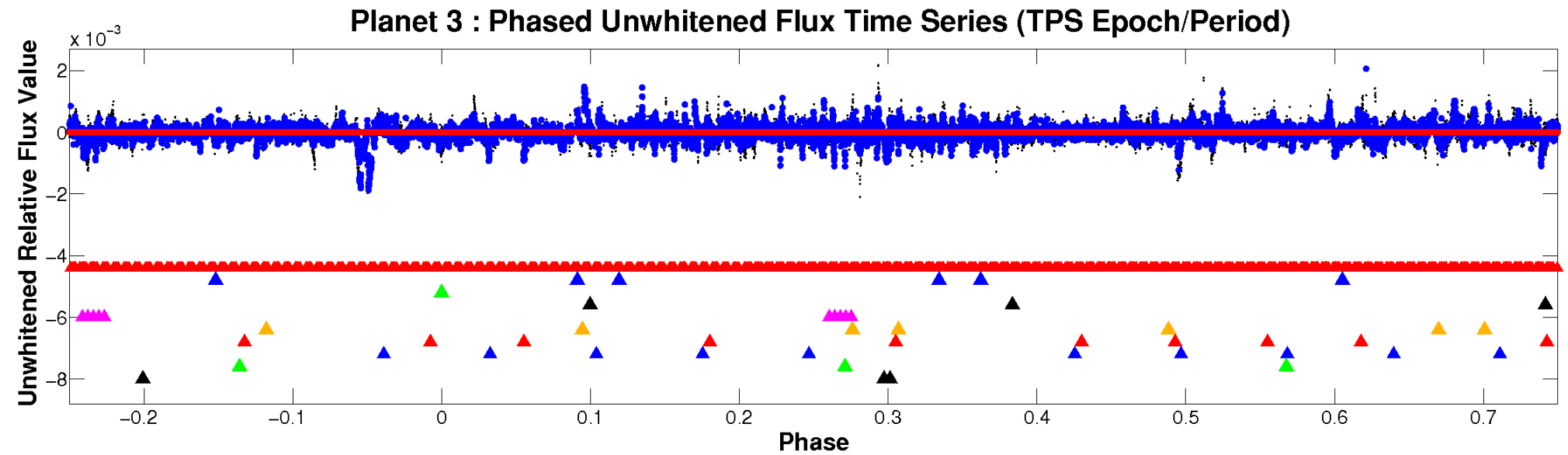


ALT Odd/Even

TCE 002303102-03

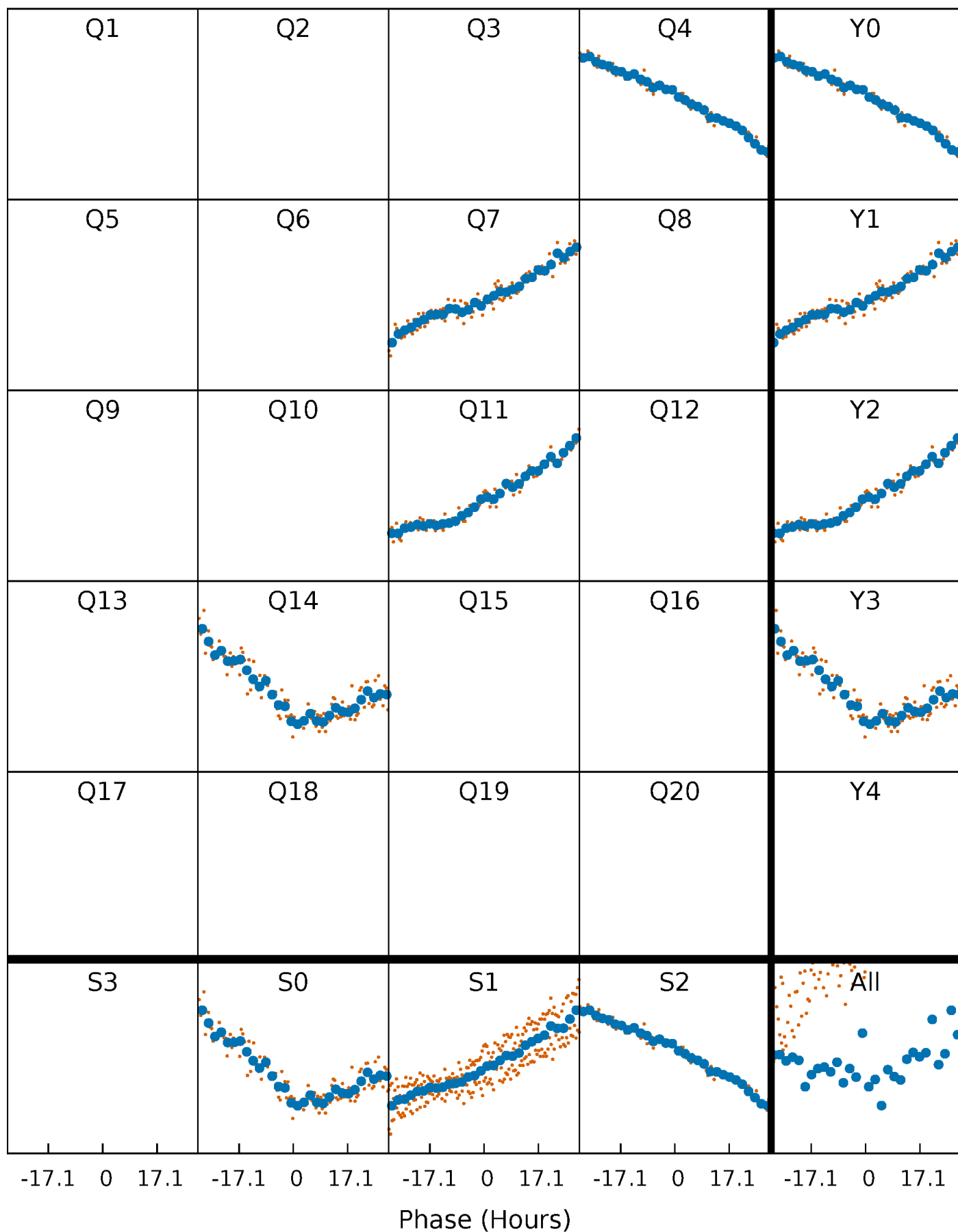


Non-Whitened Vs. Whitened Light Curve



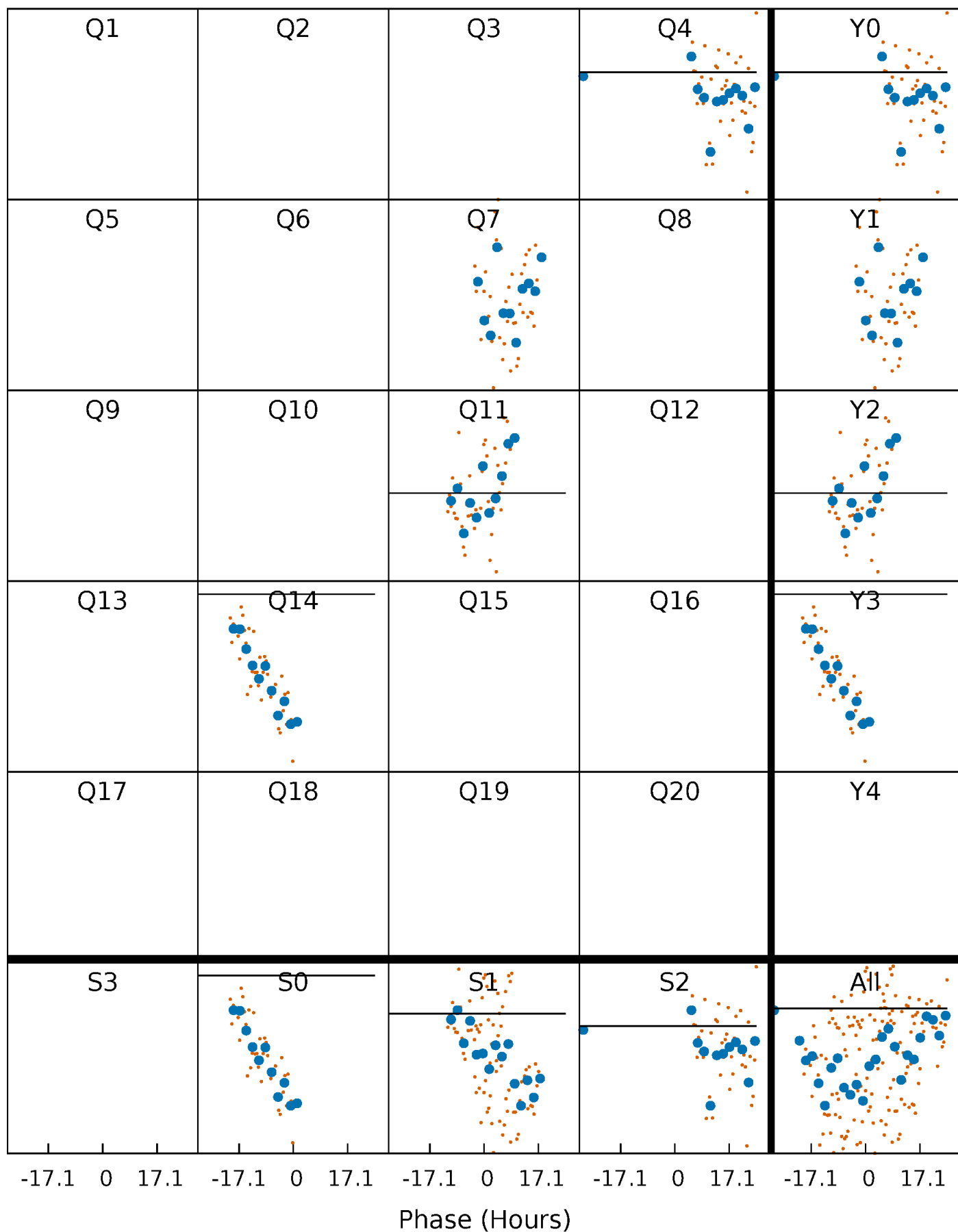
PDC Quarter-Phased Transit Curves

TCE 002303102-03 $P=319.894193$ Days $T_0=386.351543$ (BKJD)



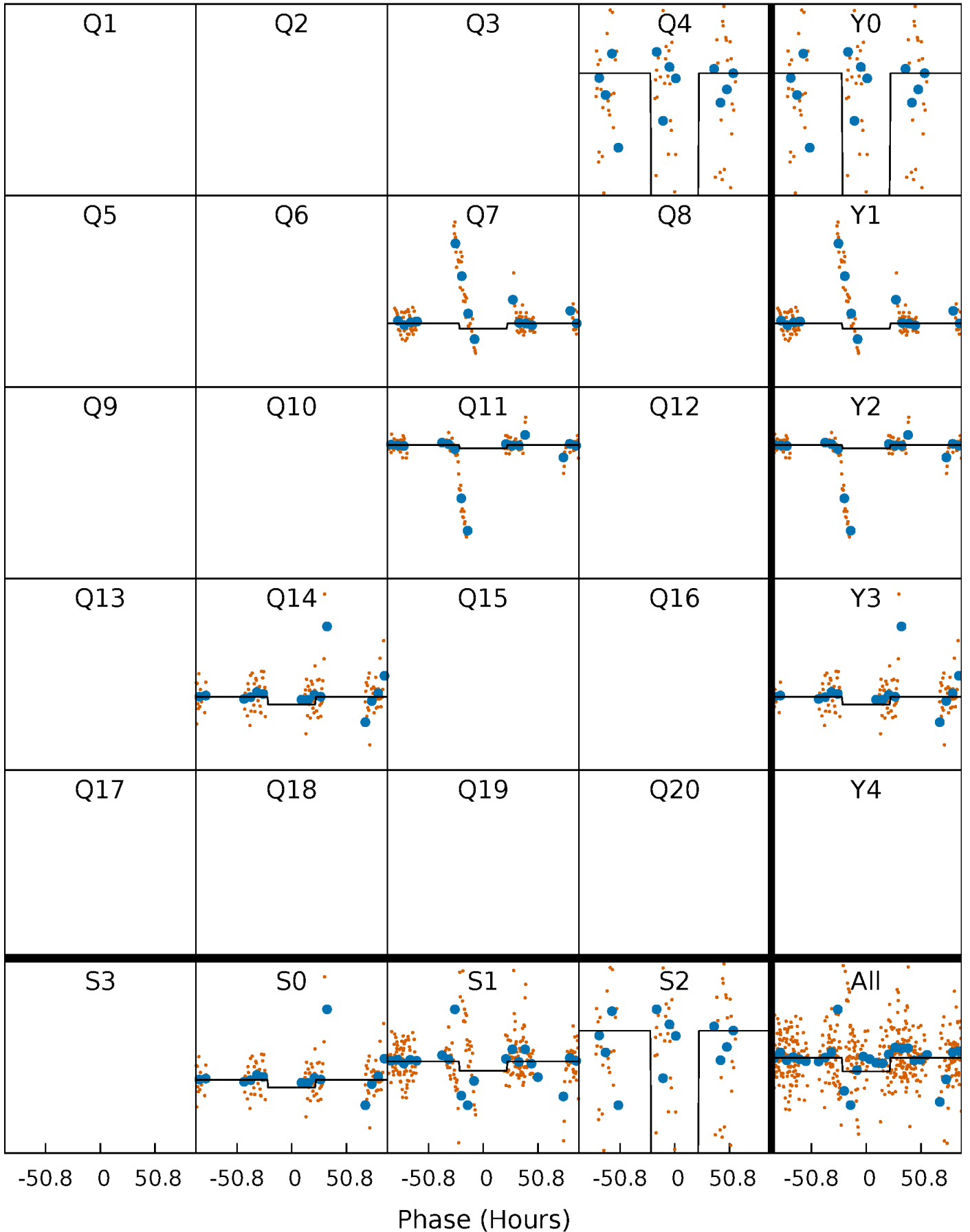
DV Quarter-Phased Transit Curves

TCE 002303102-03 P=319.894193 Days $T_0=386.351543$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

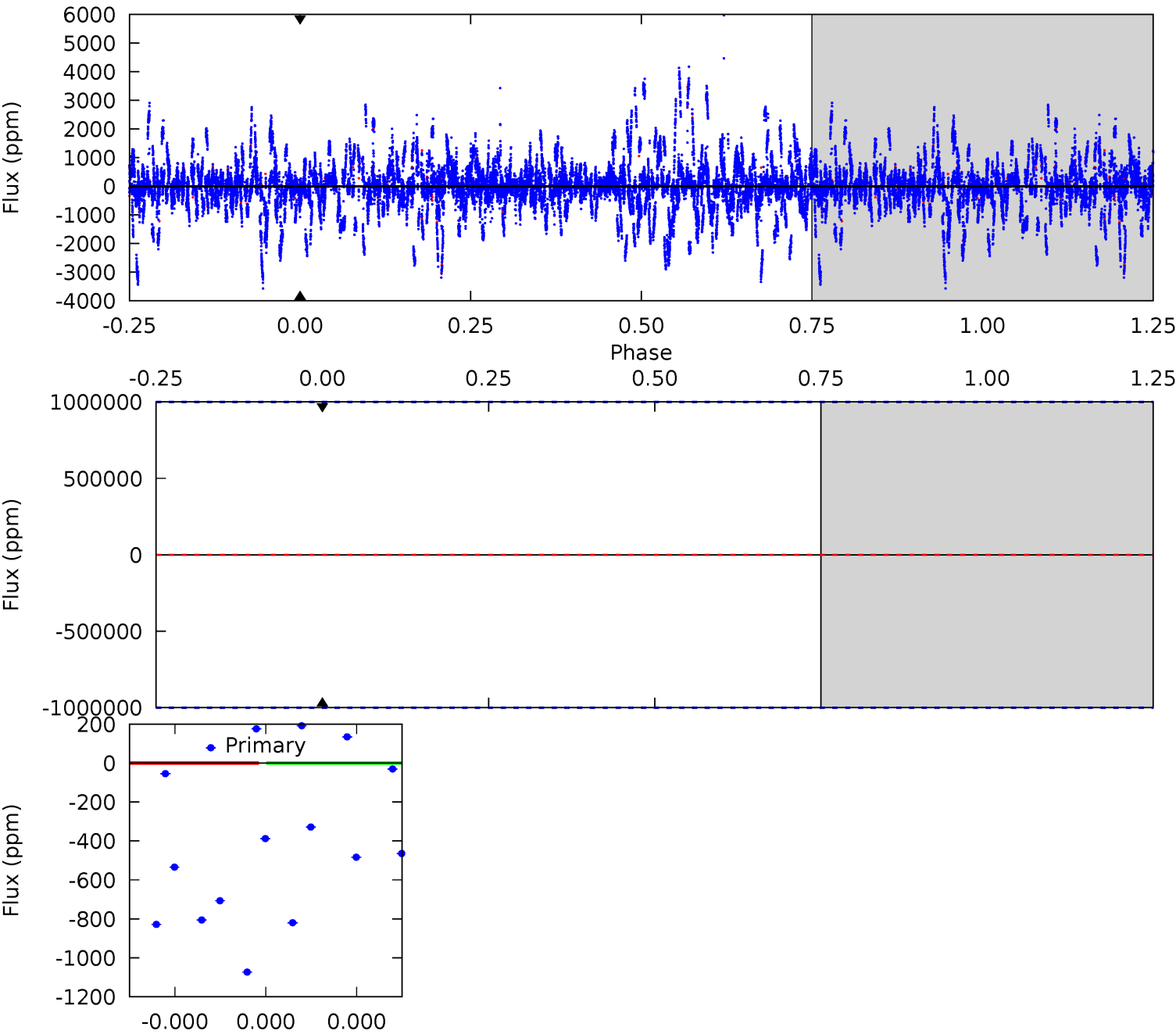
TCE 002303102-03 $P=319.894193$ Days $T_0=387.361537$ (BKJD)



DV Model-Shift Uniqueness Test

002303102-03, P = 319.894193 Days, E = 66.457350 Days

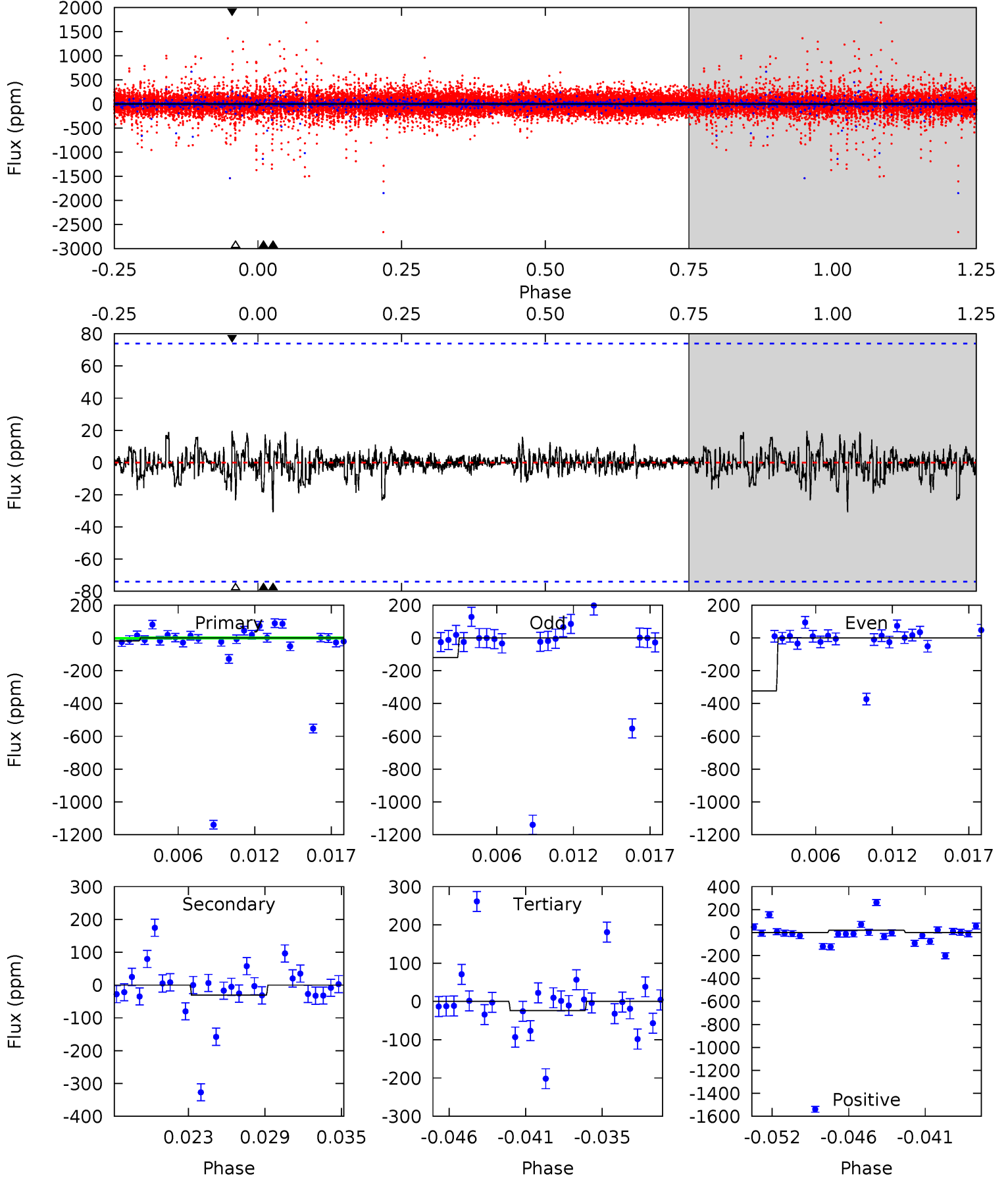
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

002303102-03, P = 319.894193 Days, E = 67.467344 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.29	2.14	1.63	1.36	5.13	2.76	0.34	-0.34	-0.07	0.51	0.78	6.81	52.8	0.39	0.67



Stellar Parameters For KIC 002303102

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5465^{+164}_{-147}	$4.209^{+0.276}_{-0.184}$	$0.210^{+0.200}_{-0.250}$	$1.257^{+0.352}_{-0.352}$	$0.932^{+0.090}_{-0.074}$	$0.661^{+1.131}_{-0.326}$
	+3%/-3%	+7%/-4%	+95%/-119%	+28%/-28%	+10%/-8%	+171%/-49%
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 002303102-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$9.82^{+11.45}_{-7.14}$	397^{+35}_{-36}	3925^{+14445}_{-21747}	$4919^{+810130}_{-770159}$
Alt.	-31 ± 14	$9.83^{+10.14}_{-6.96}$	396^{+34}_{-33}	2365^{+926}_{-351}	139^{+1431}_{-111}

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

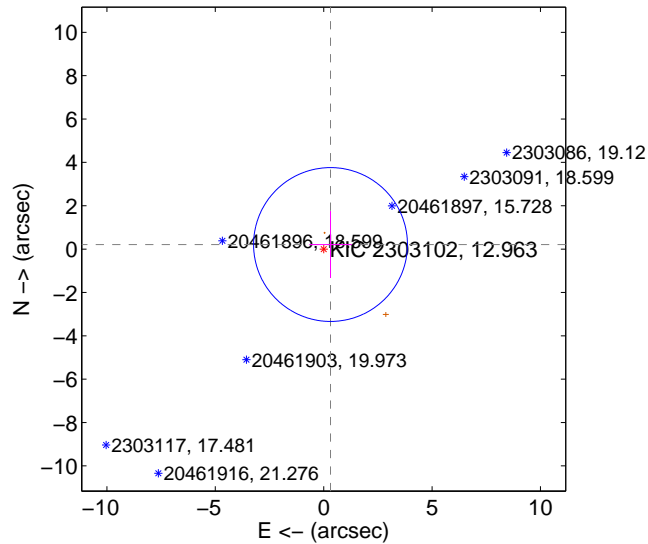
Supplemental centroid analysis for 002303102-03. Kepler magnitude: 12.96. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

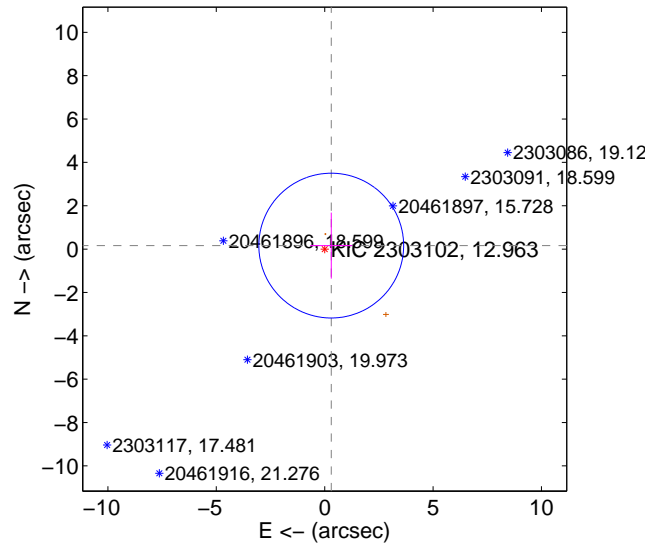
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.379 ± 1.183	0.32	-0.315 ± 0.978	0.211 ± 1.543
PRF-fit source offset from KIC position	0.343 ± 1.113	0.31	-0.303 ± 0.967	0.161 ± 1.519
photometric centroid source offset	3.06 ± 2.08	1.47	3.05 ± 2.08	-0.15 ± 2.72

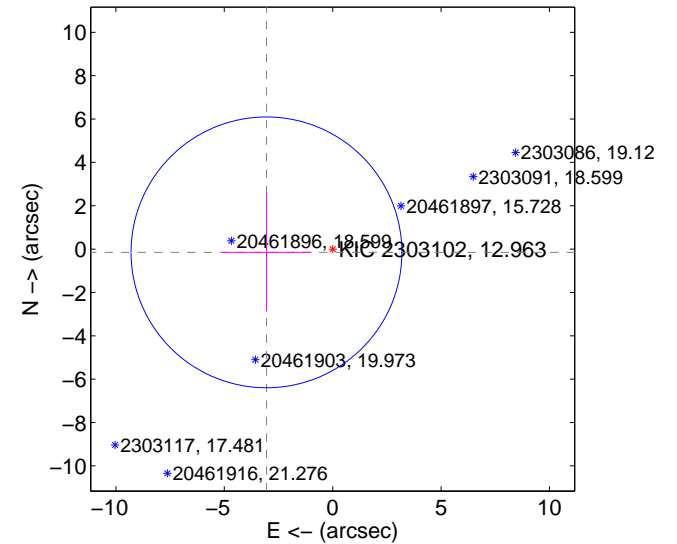
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

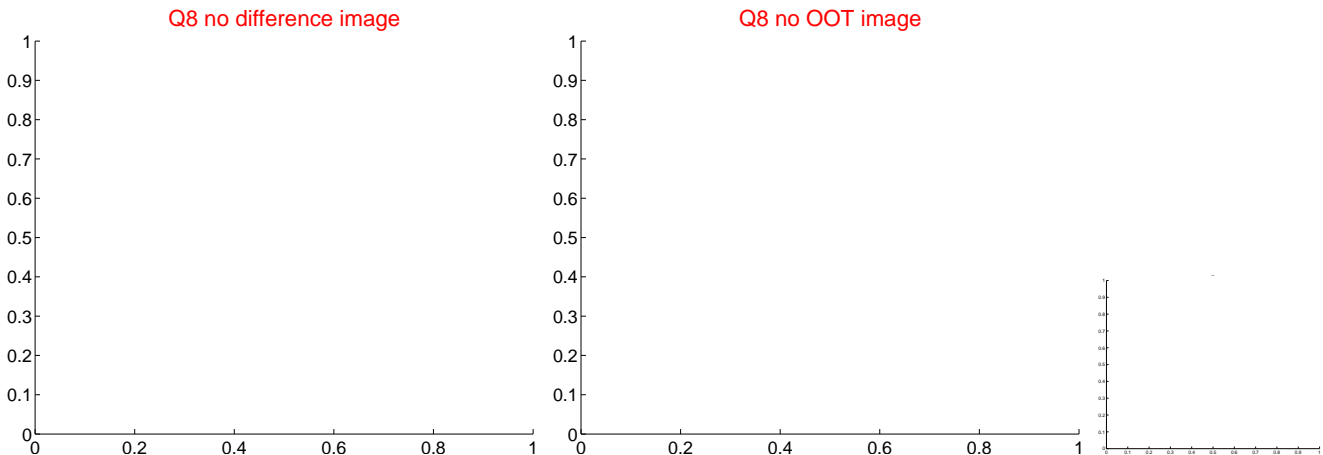
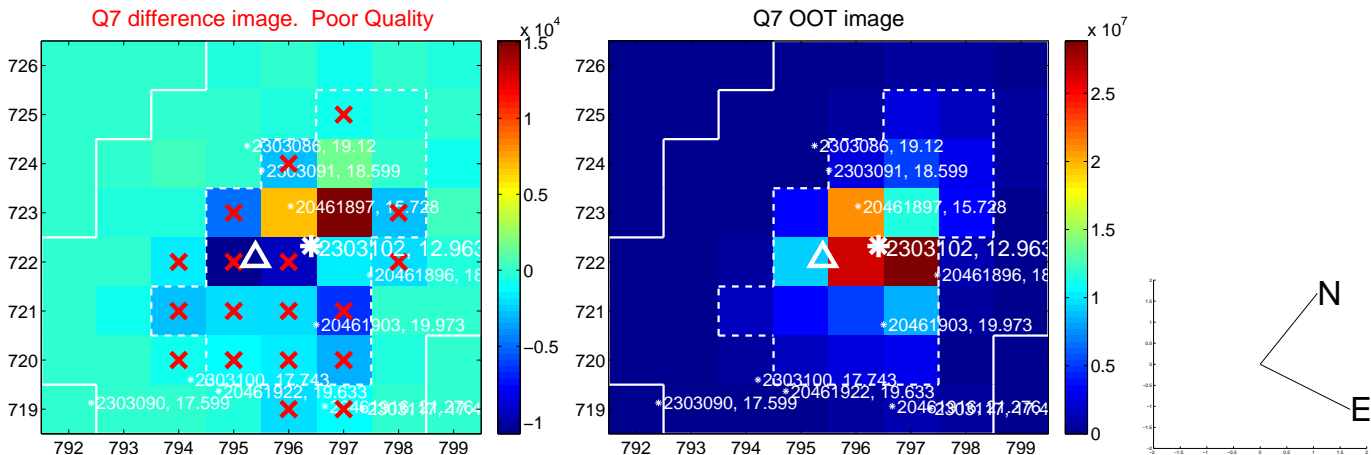
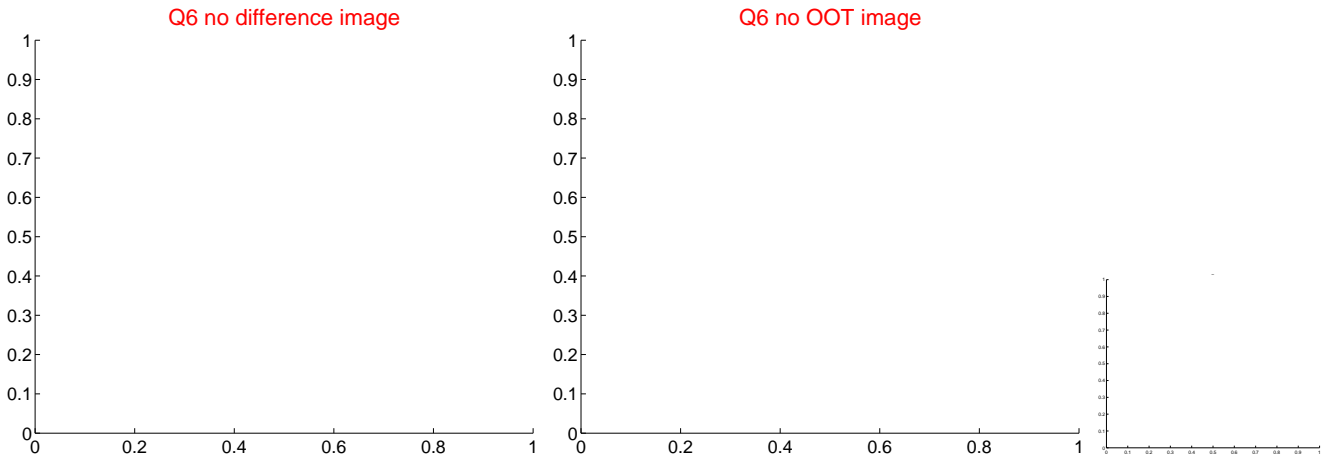
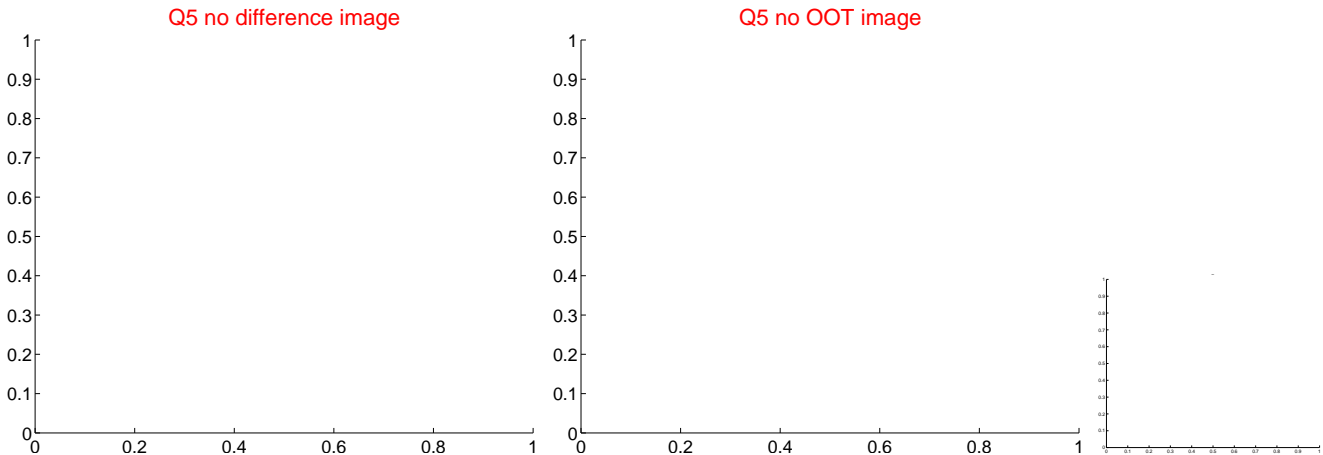


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



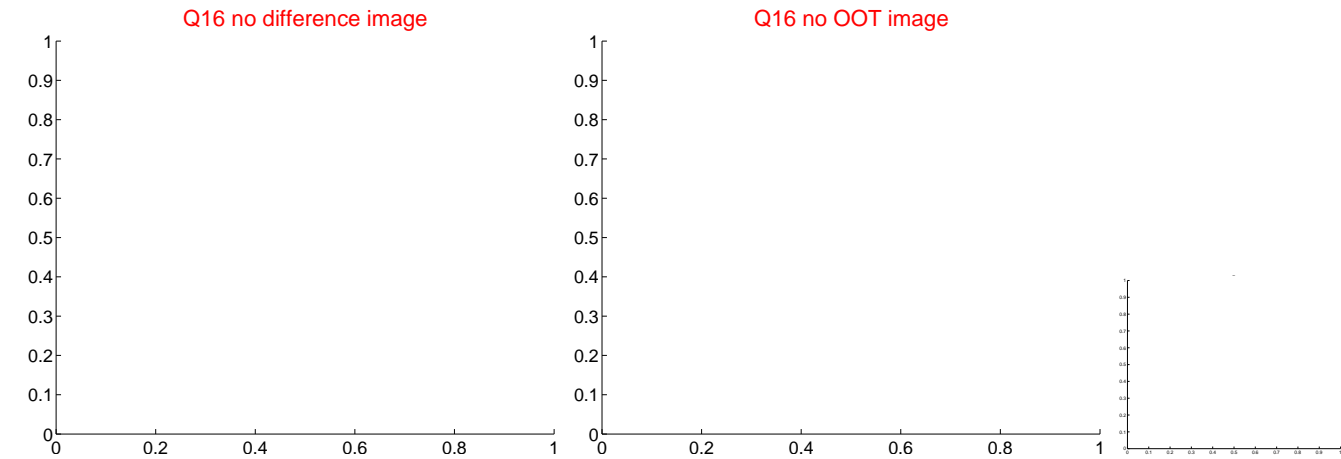
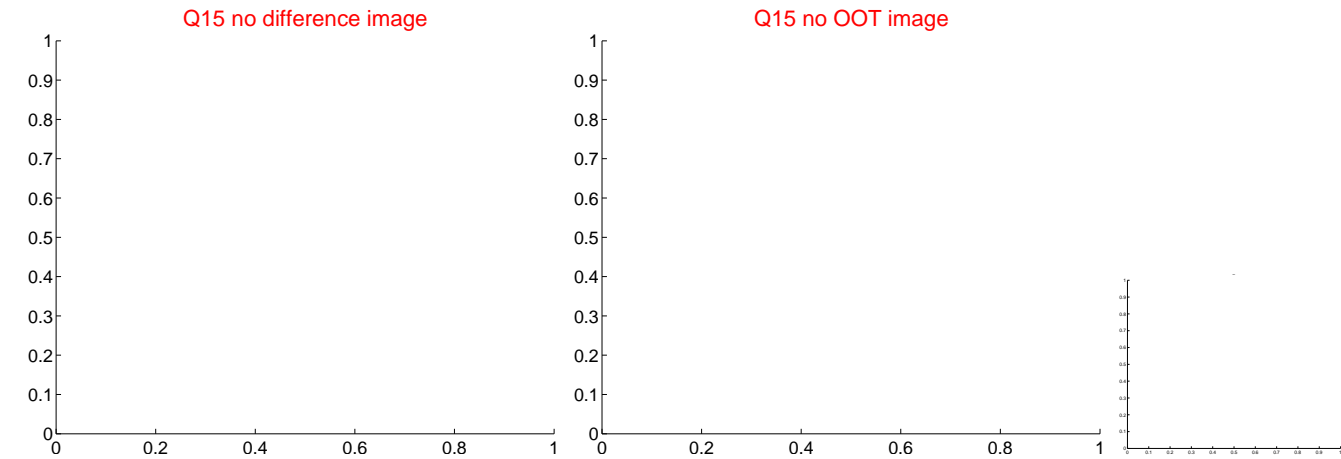
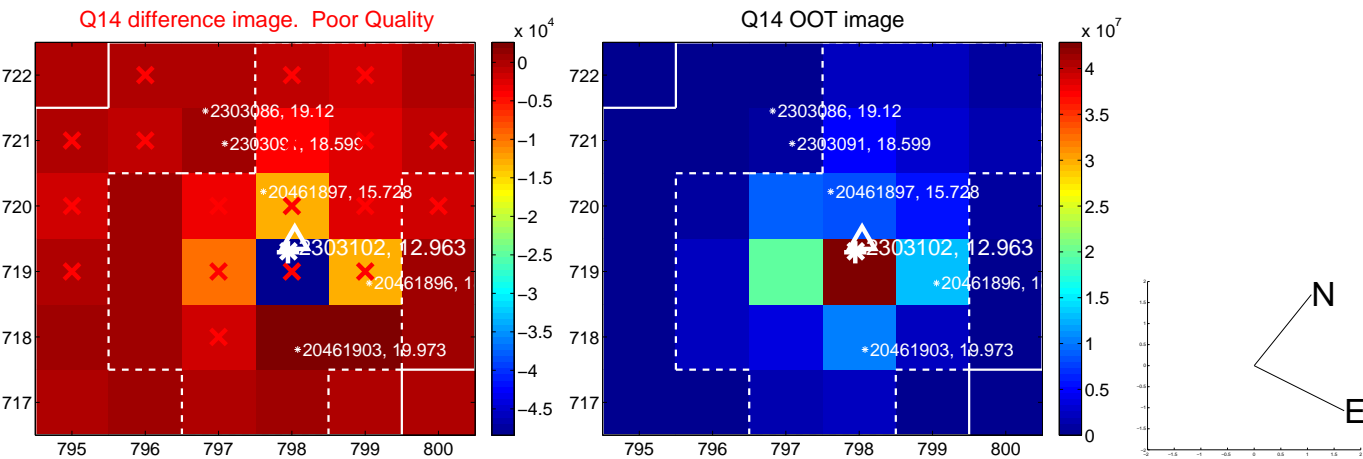
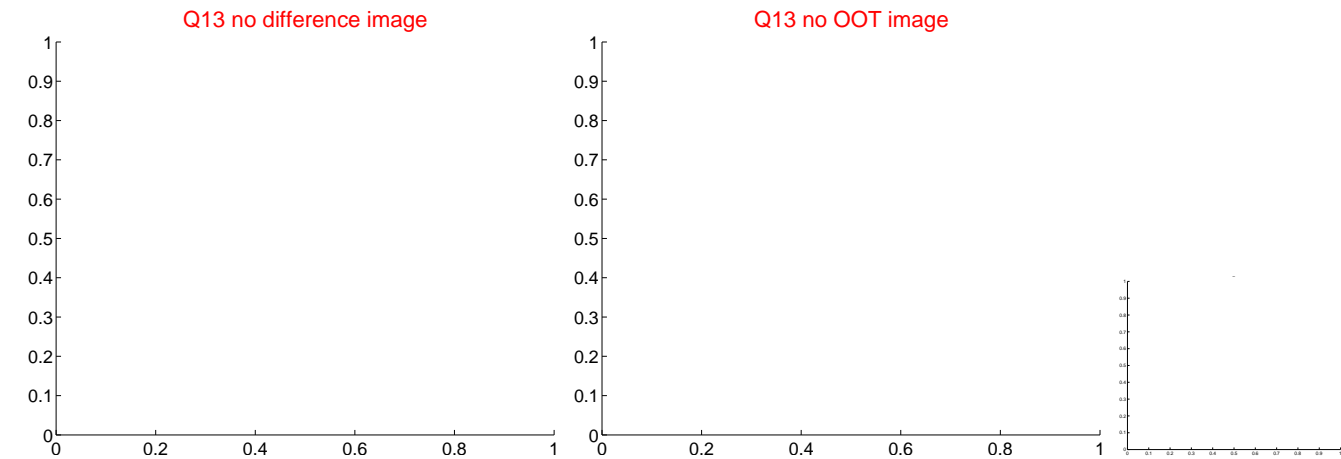
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



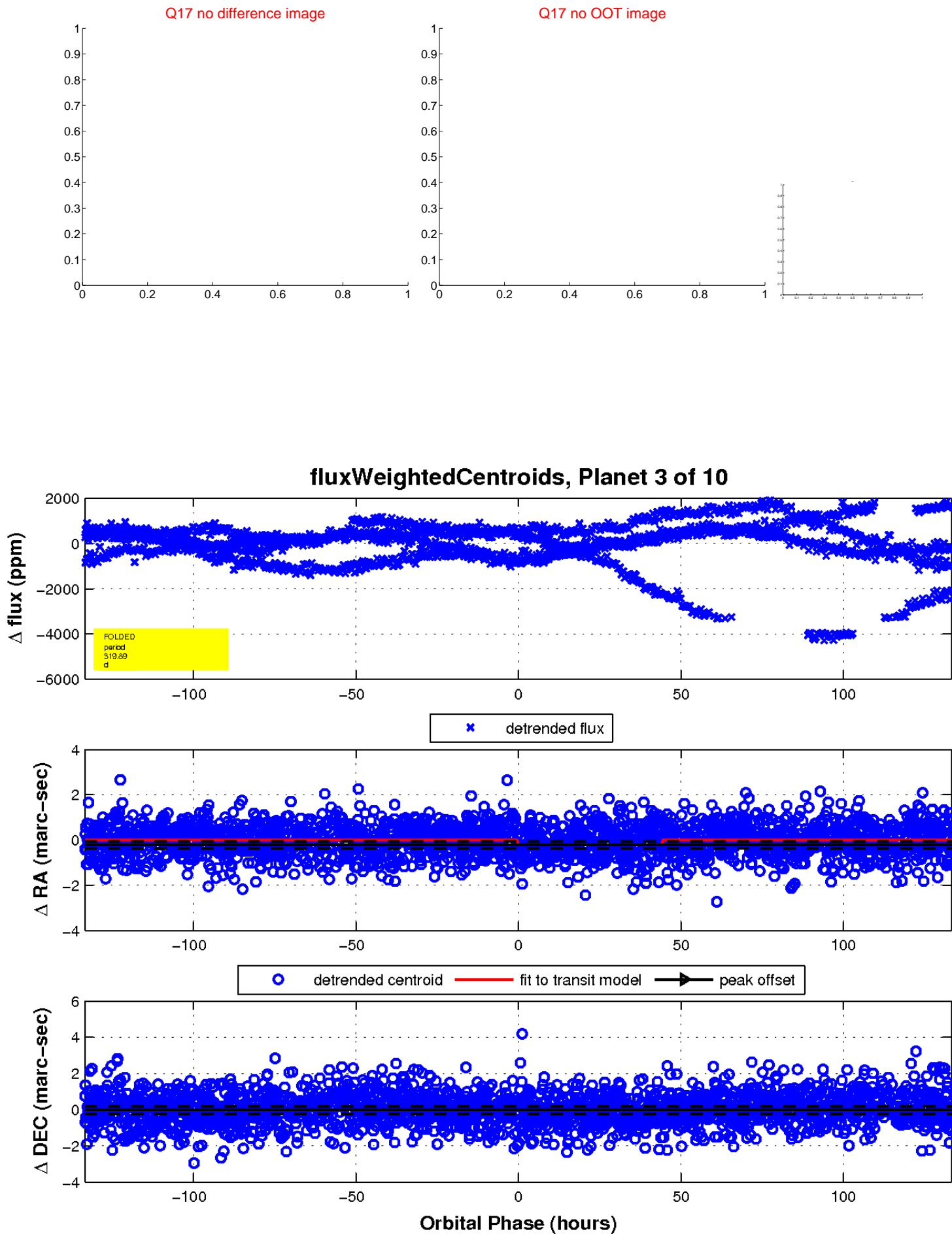
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

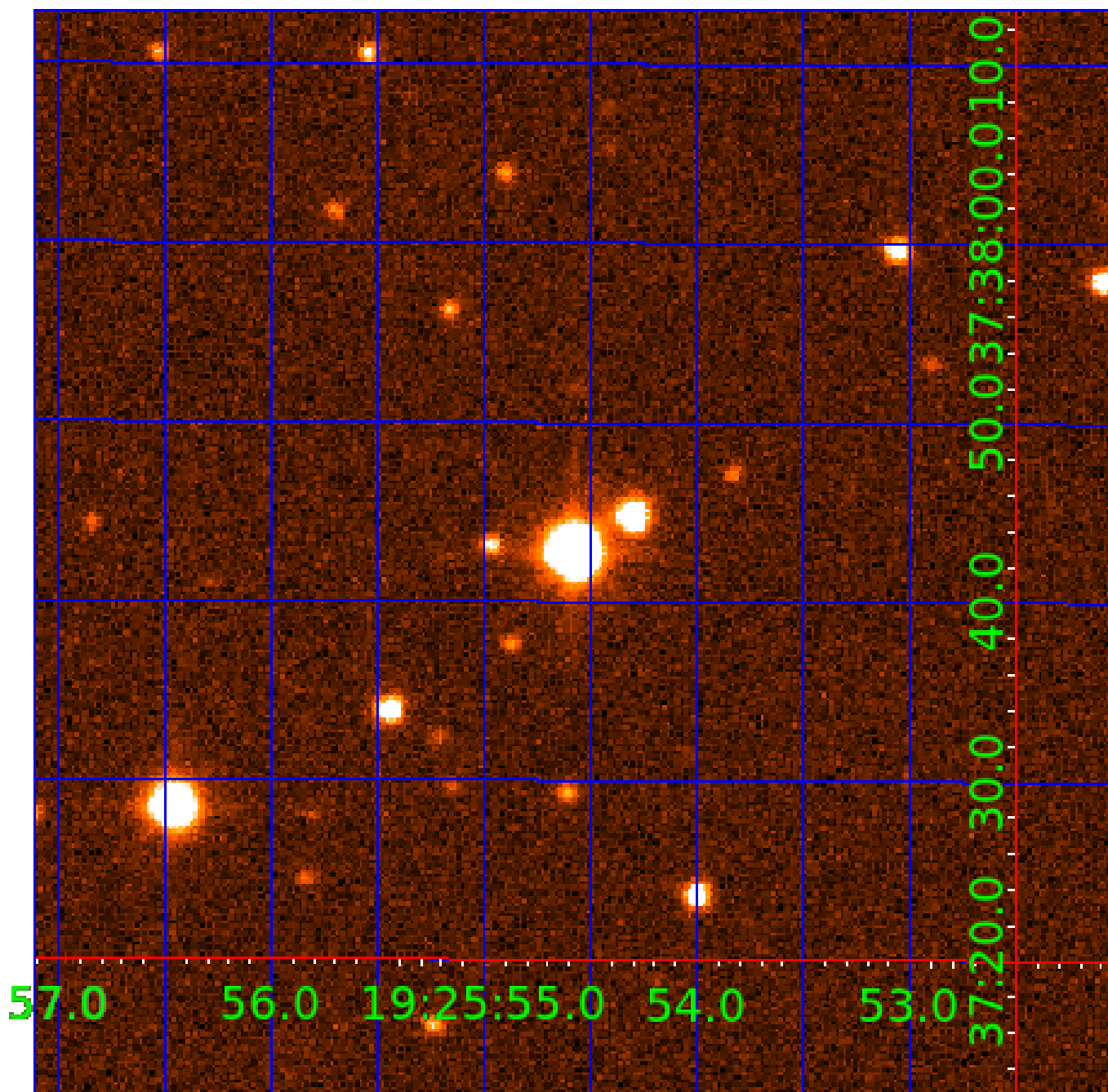


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
002303102-01	OBS	No	2.298875	132.974167	31.1	11.443	8.2	9.8	1.26	5465	0.74	1137.95
002303102-02	OBS	No	242.161051	173.380485	650.8	21.893	36.3	9.1	1.26	5465	6.47	2.29
002303102-03	OBS	No	319.894193	386.351543	393.4	15.000	19.9	-1.0	1.26	5465	2.44	1.58
002303102-04	OBS	No	434.460665	509.040892	576.8	13.180	19.1	12.4	1.26	5465	3.47	1.05
002303102-05	OBS	No	159.358266	154.502554	141.2	22.045	16.9	3.5	1.26	5465	1.61	4.00
002303102-07	OBS	No	139.966466	243.994110	322.2	10.625	13.4	8.3	1.26	5465	2.38	4.75
002303102-08	OBS	No	148.524623	145.415390	297.7	1.235	12.9	4.6	1.26	5465	2.38	4.39
002303102-09	OBS	No	544.908556	342.926822	523.6	5.000	12.9	-1.0	1.26	5465	2.82	0.78
002303102-10	OBS	No	480.480981	161.570218	309.9	15.557	11.5	6.9	1.26	5465	2.61	0.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002303102-01	OBS	FP	0.00	1	0	0	0	LPP_DV
002303102-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
002303102-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
002303102-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
002303102-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
002303102-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

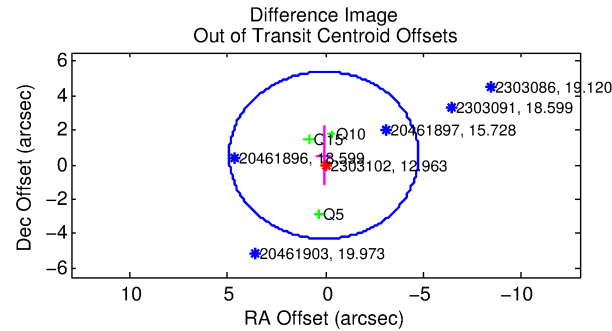
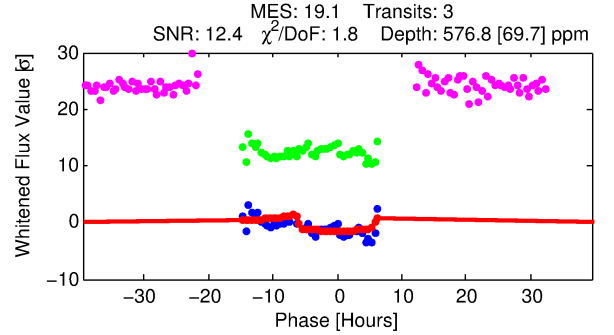
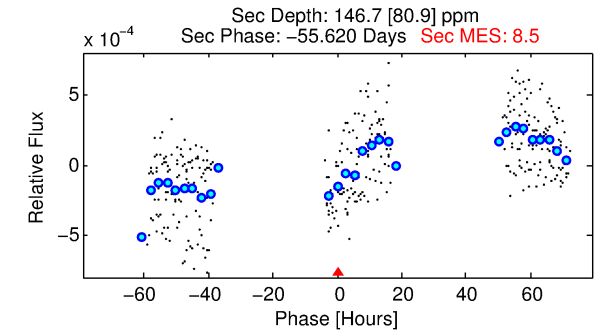
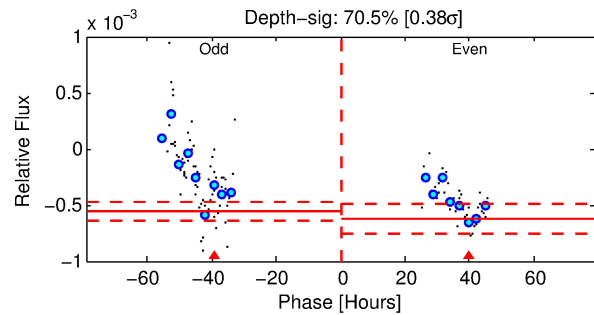
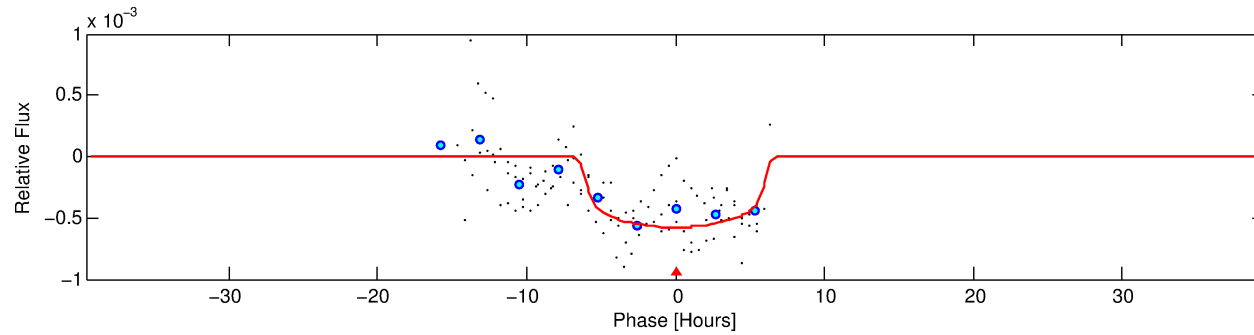
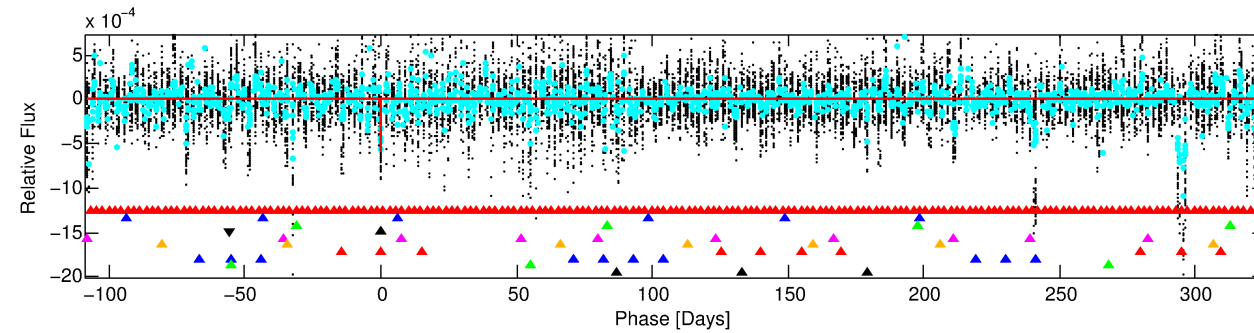
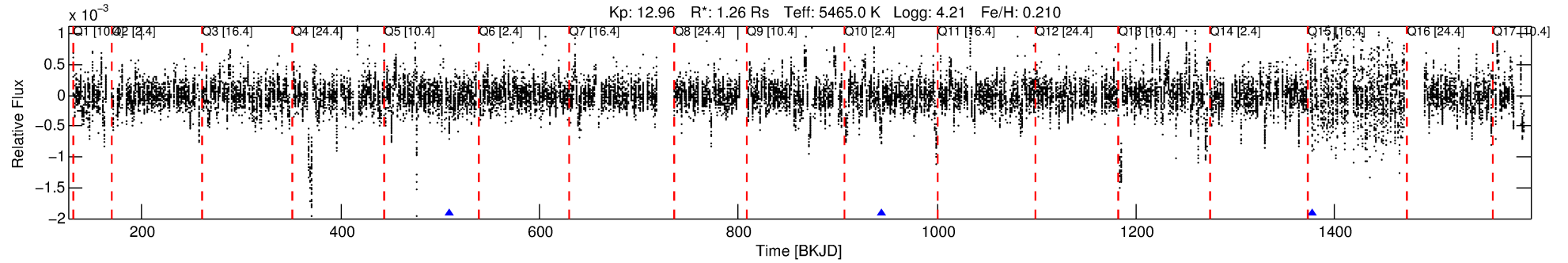
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002303102-04

No Significant Match Found

DV One-Page Summary

KIC: 2303102 Candidate: 4 of 10 Period: 434.461 d



DV Fit Results:

Period = 434.46066 [0.01151] d
Epoch = 509.0409 [0.0146] BKJD
Rp/R* = 0.0253 [0.0028]
a/R* = 144.98 [52.81]
b = 0.85 [0.12]
Seff = 1.05 [0.50]
Teff = 258 [31] K
Rp = 3.47 [1.04] Re
a = 1.0970 [0.3098] AU
Ag = 8073.89 [6080.85] [1.33σ]
Teffp = 3782 [573] K [6.14σ]

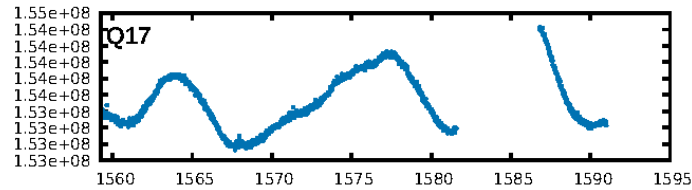
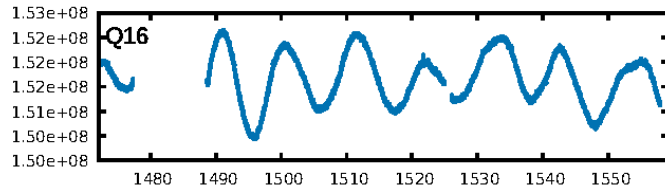
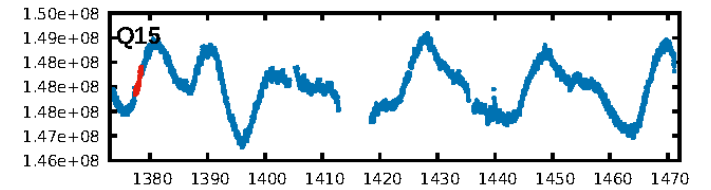
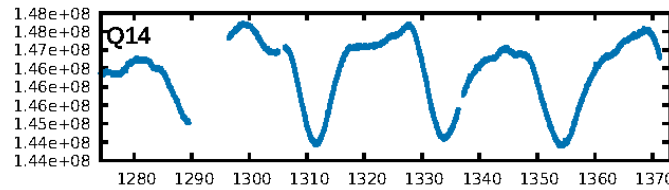
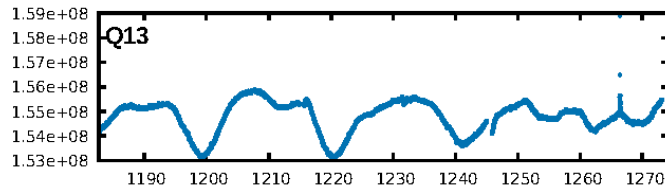
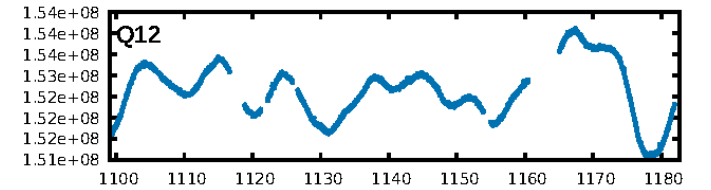
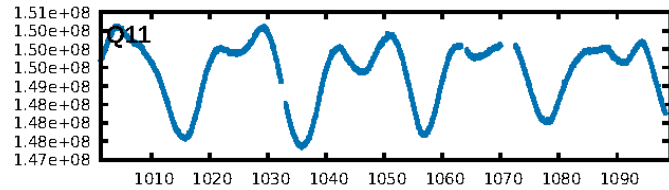
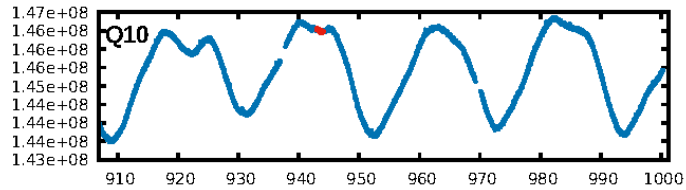
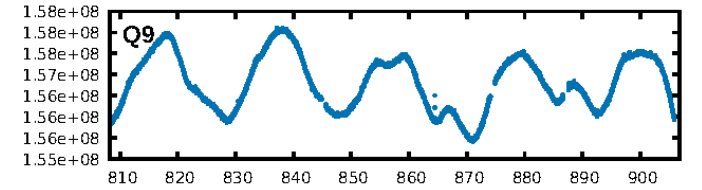
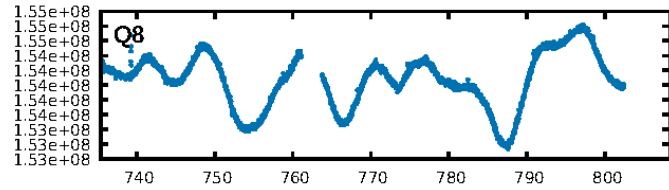
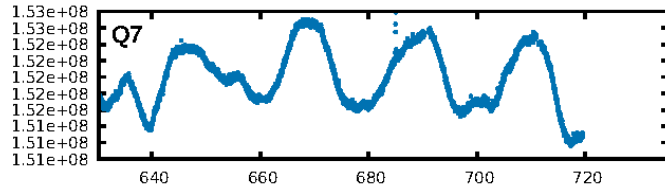
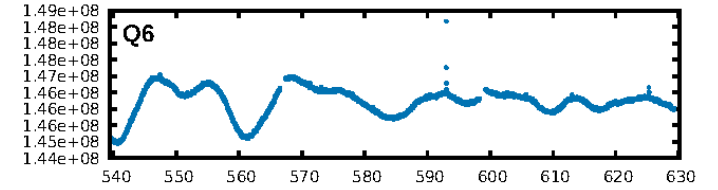
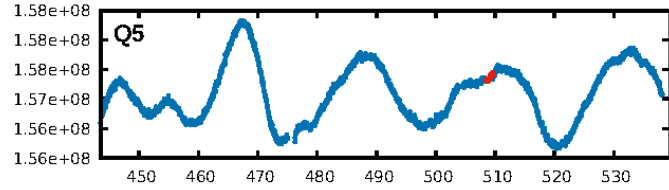
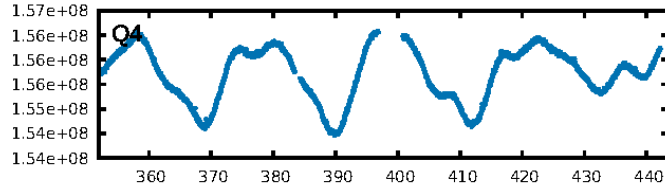
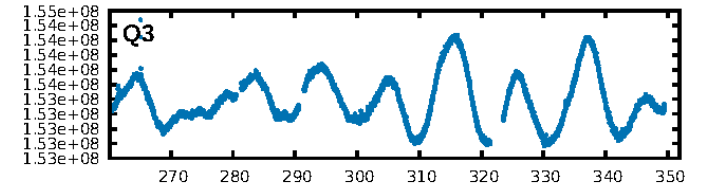
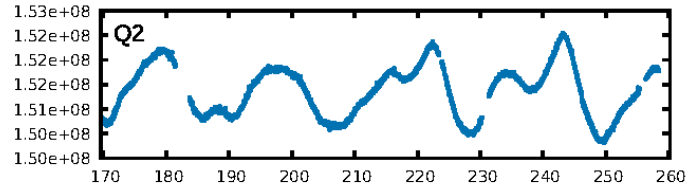
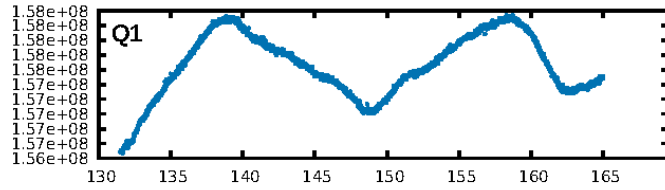
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [137.70σ]
LongPeriod-sig: 100.0% [54.17σ]
ModelChiSquare2-sig: 14.5%
ModelChiSquareGof-sig: 24.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 36.52
Centroid-sig: 7.6%
Centroid-so: 0.964 arcsec [1.67σ]
OotOffset-rm: 0.545 arcsec [0.34σ]
KicOffset-rm: 0.563 arcsec [0.35σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.00 [0/3]

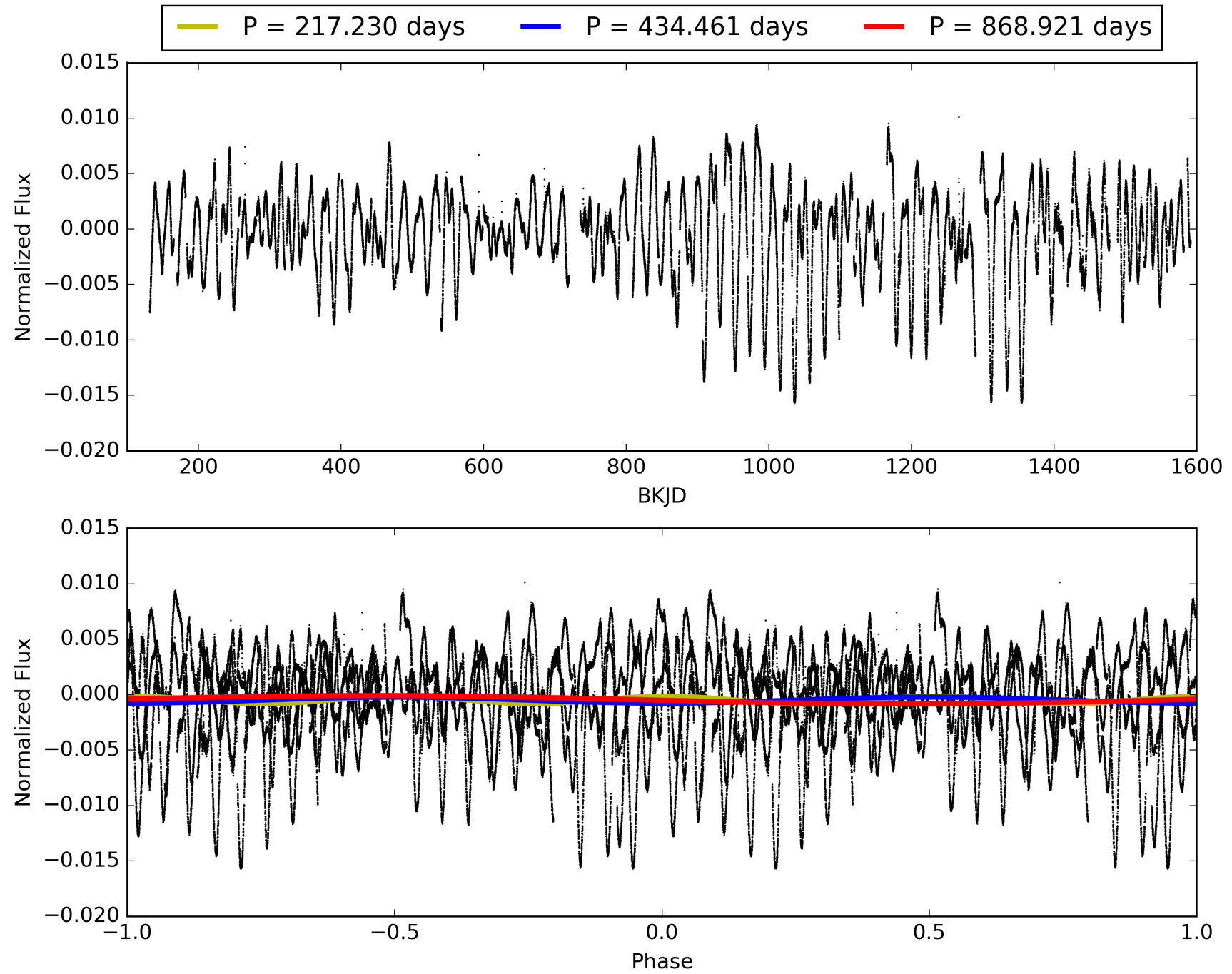
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:10:11 Z

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

TCE 002303102-04, PDC Light Curves

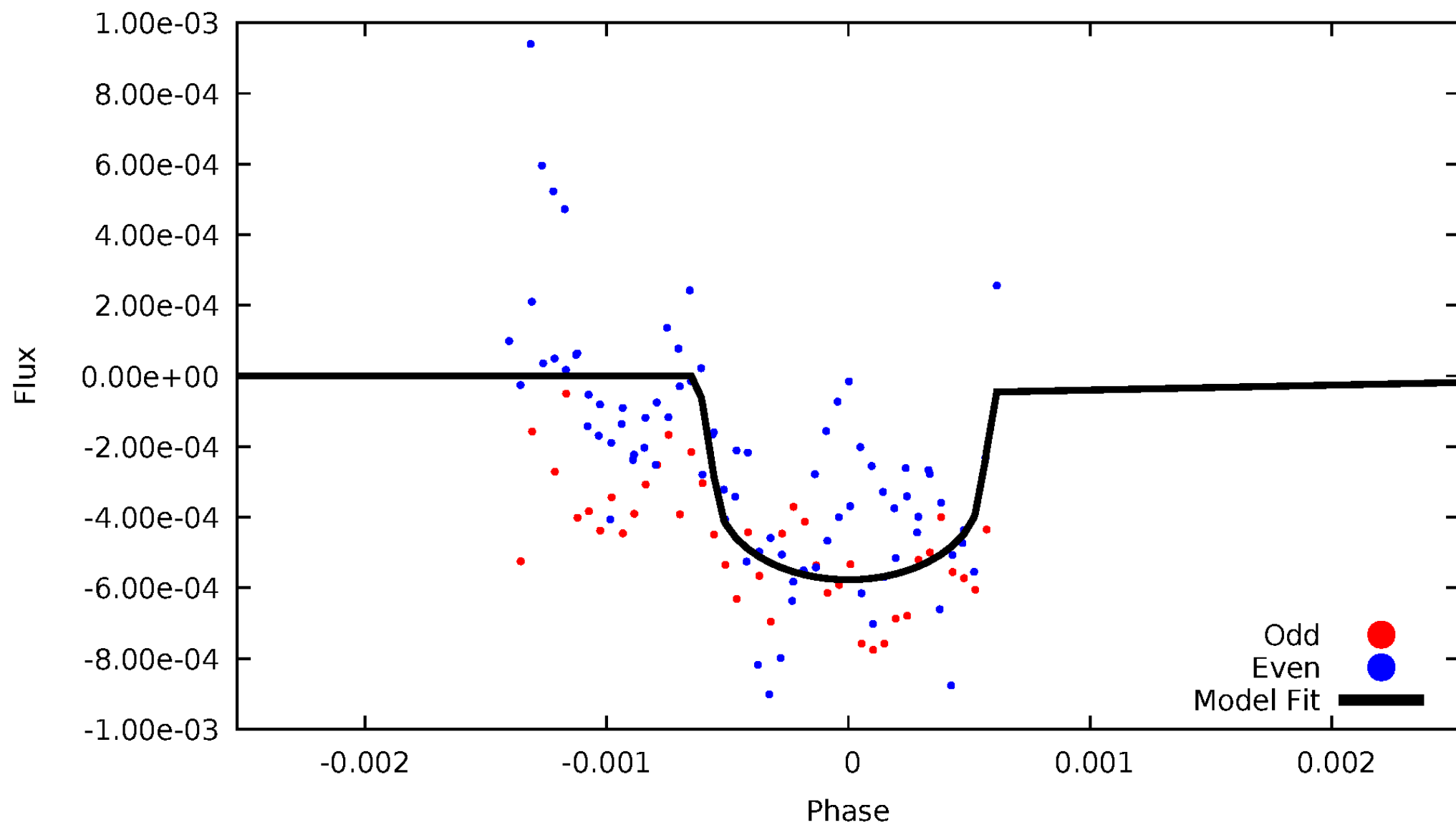


TCE 002303102-04



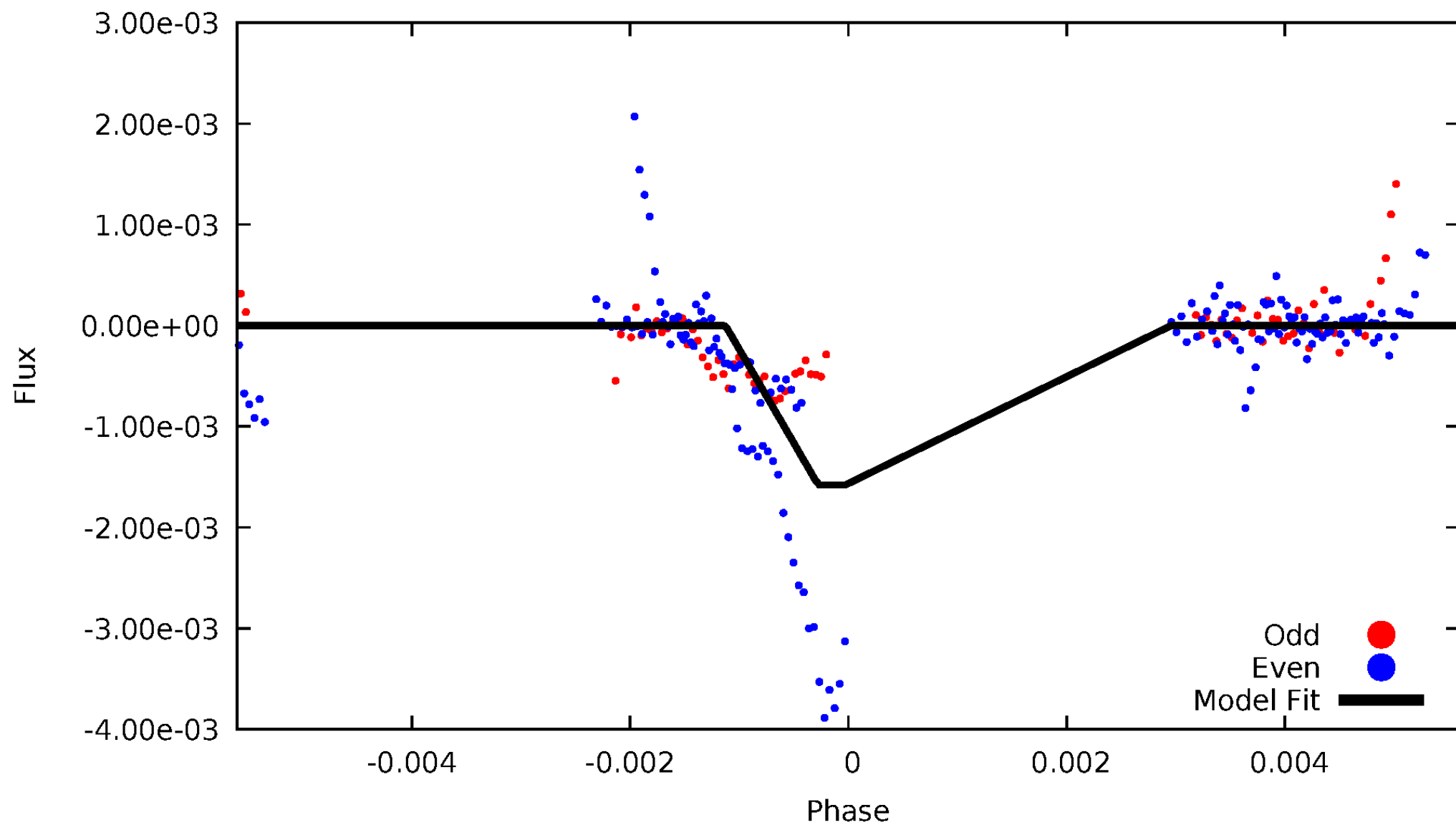
DV Odd/Even

TCE 002303102-04



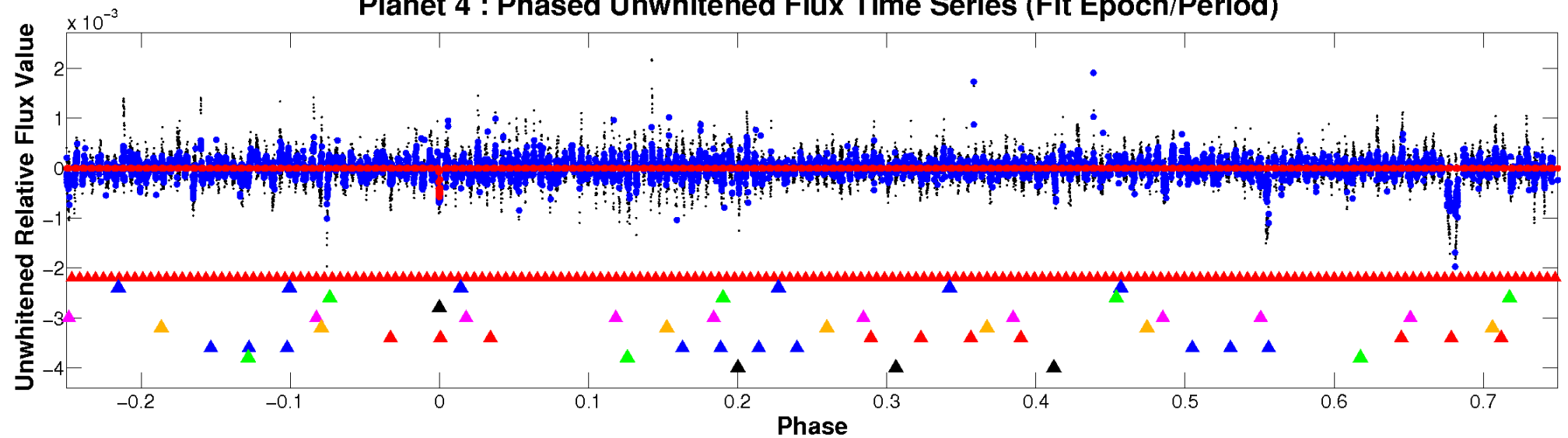
ALT Odd/Even

TCE 002303102-04

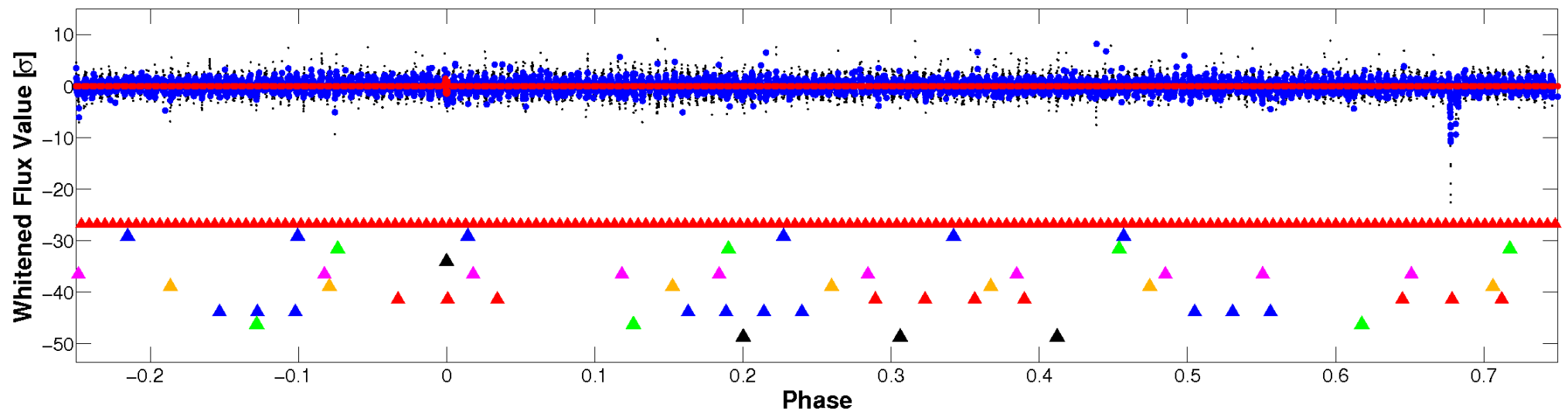


Non-Whitened Vs. Whitened Light Curve

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

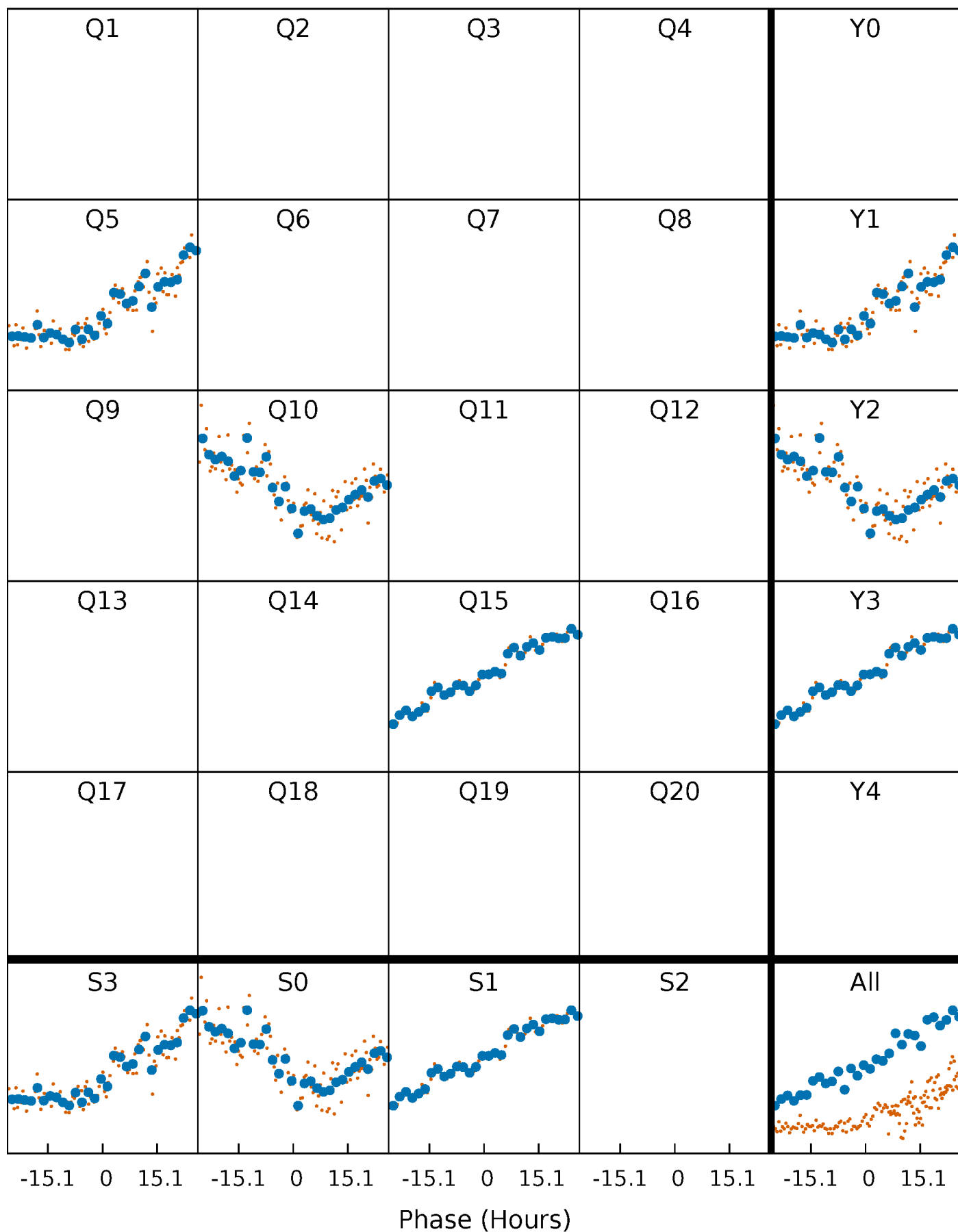


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



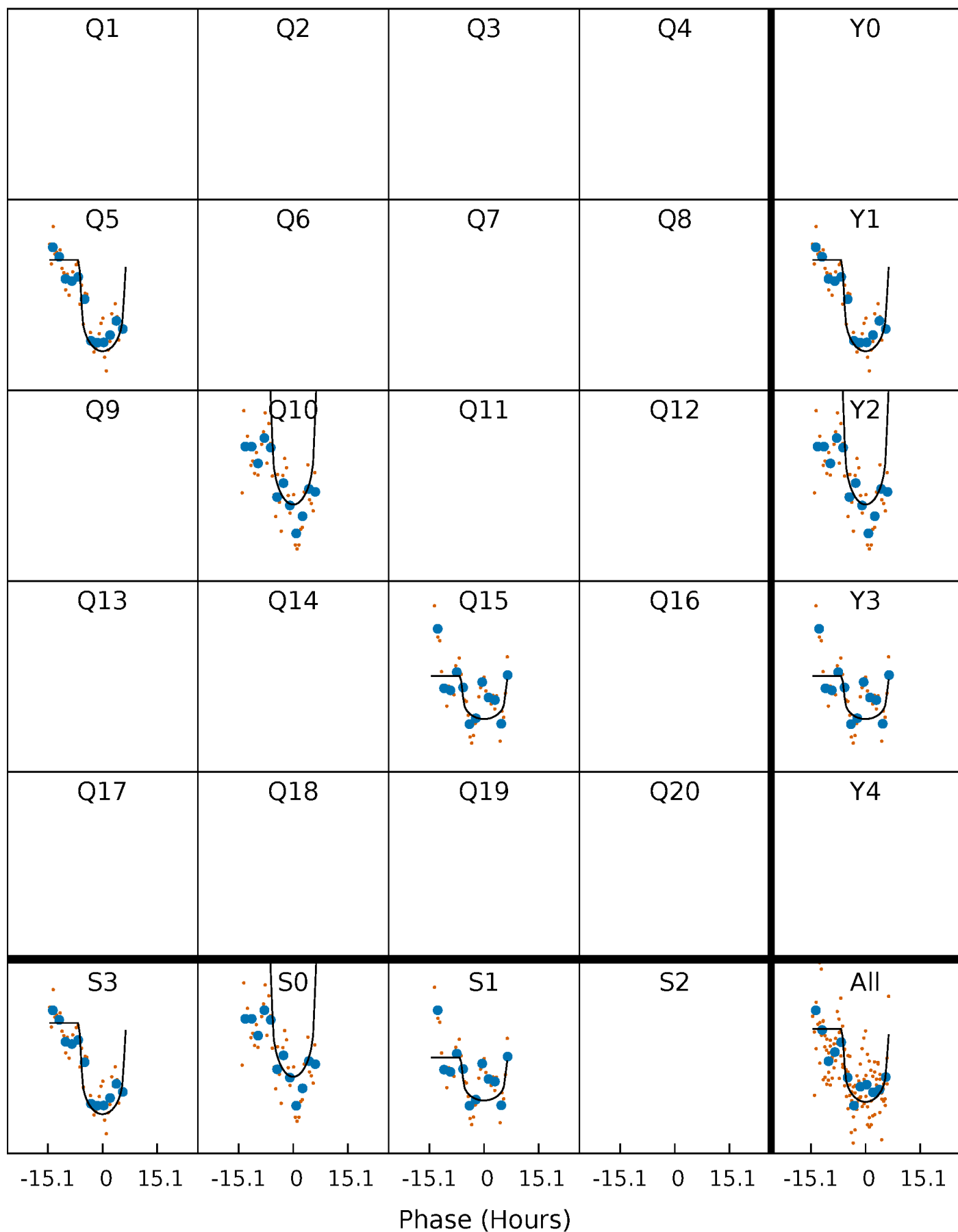
PDC Quarter-Phased Transit Curves

TCE 002303102-04 $P=434.460665$ Days $T_0=509.040892$ (BKJD)



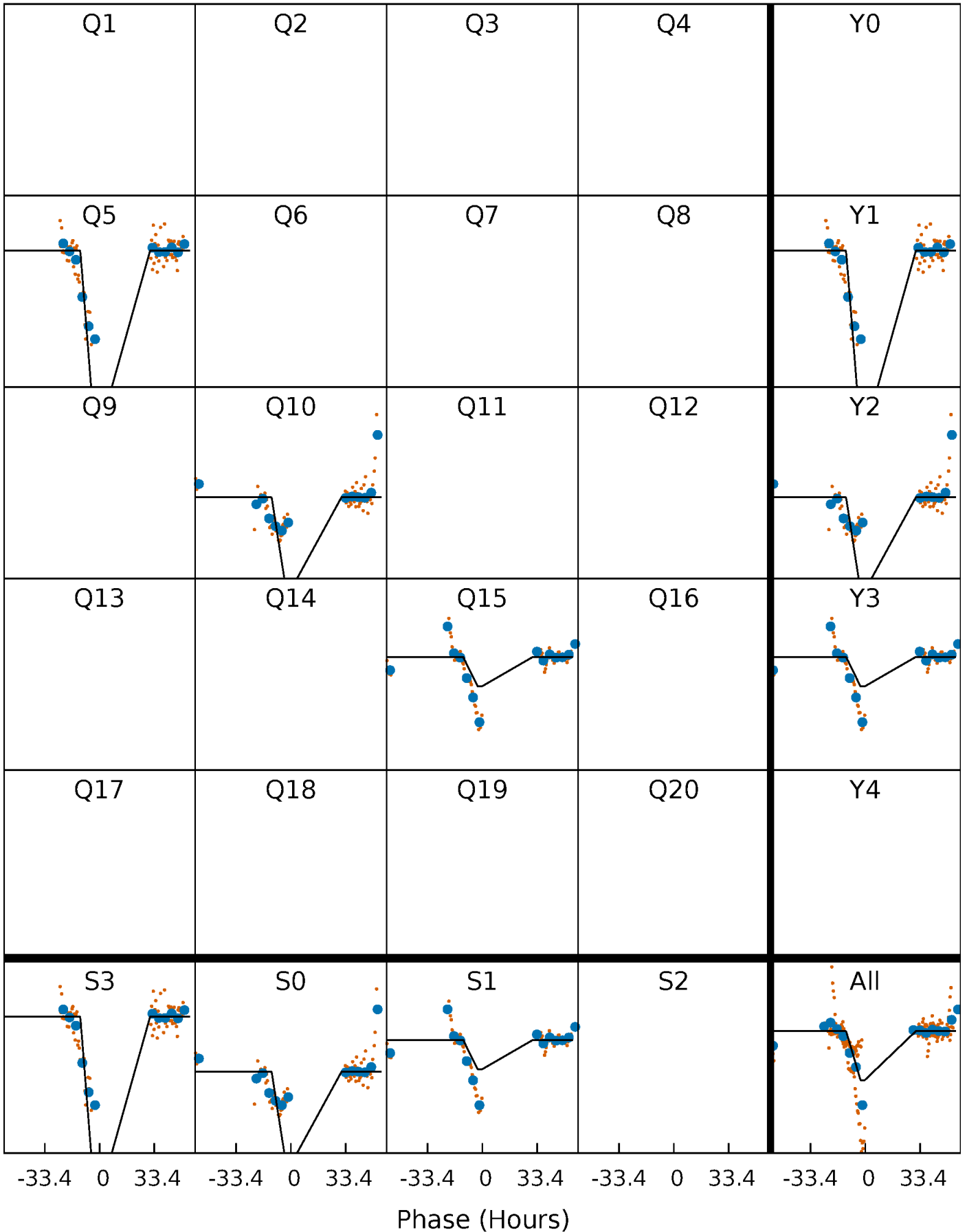
DV Quarter-Phased Transit Curves

TCE 002303102-04 $P=434.460665$ Days $T_0=509.040892$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

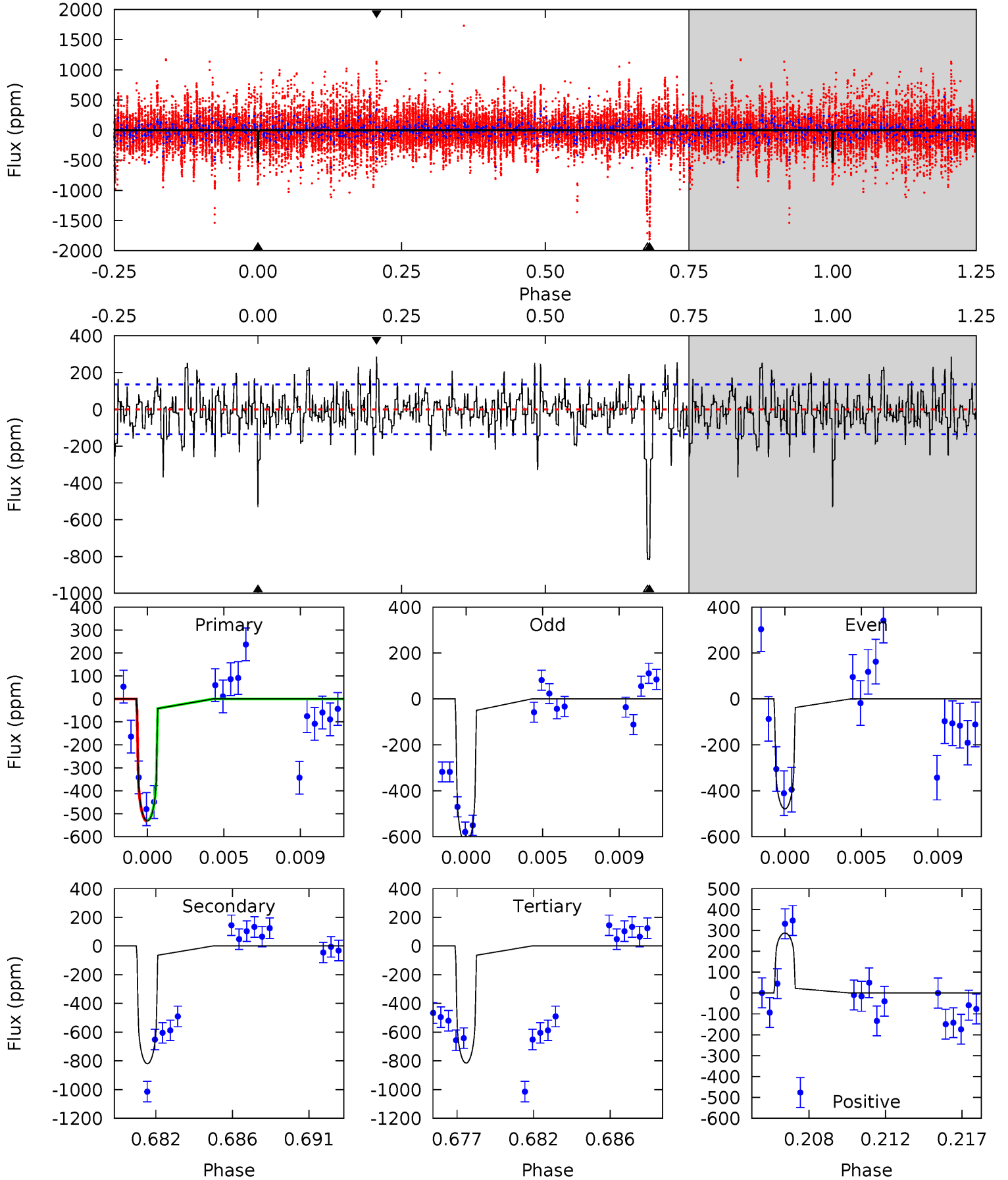
TCE 002303102-04 $P=434.403863$ Days $T_0=509.434805$ (BKJD)



DV Model-Shift Uniqueness Test

002303102-04, P = 434.460665 Days, E = 74.580227 Days

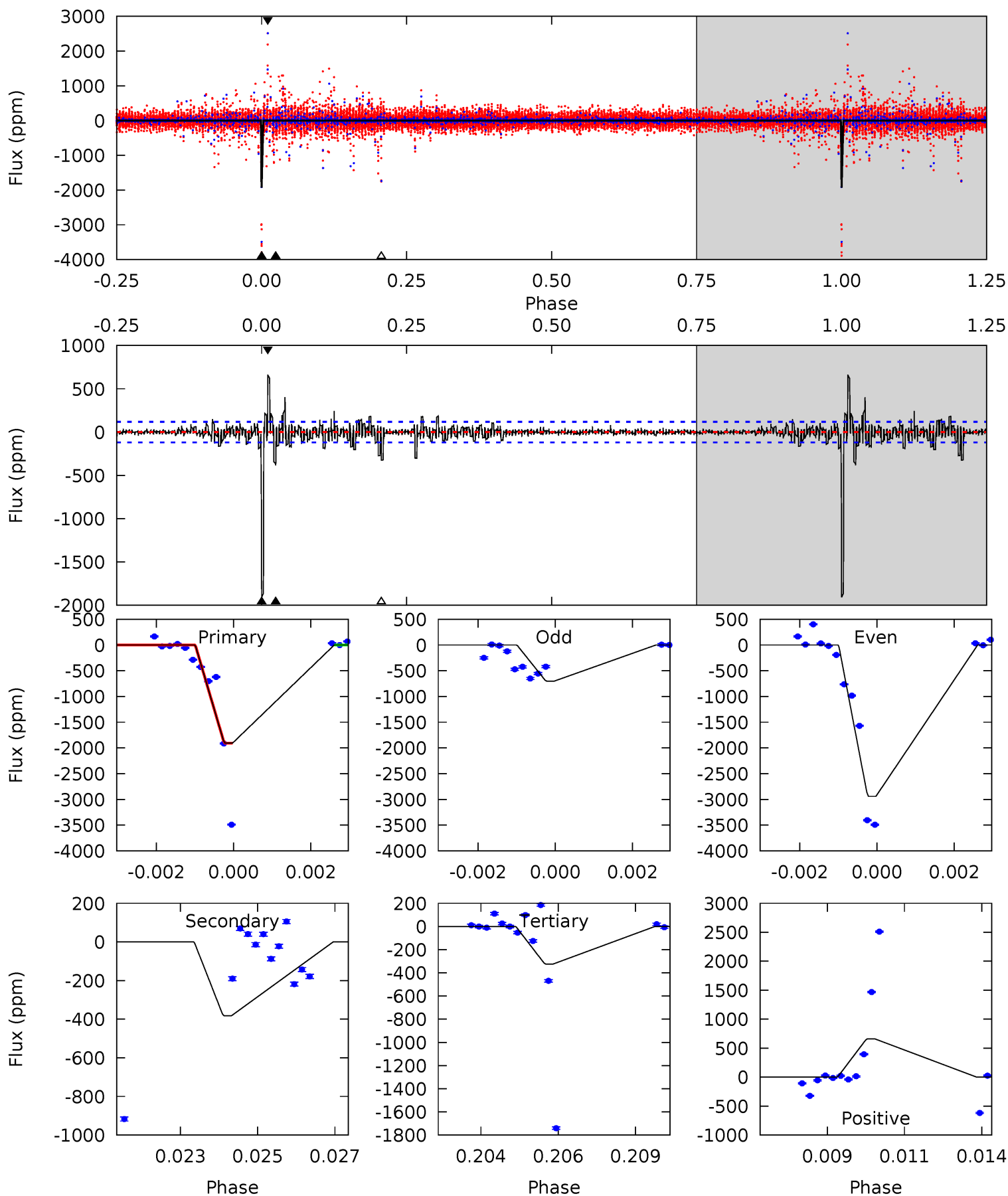
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	31.3	31.1	11.0	5.18	2.84	3.76	-10.8	9.31	0.16	20.3	2.81	1.08	0.26	0.09



Alt Model-Shift Uniqueness Test

002303102-04, P = 434.403863 Days, E = 75.030942 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
85.6	17.2	14.6	29.7	5.30	3.05	2.60	71.1	56.0	2.62	-12.5	48.8	0	0.26	0



Stellar Parameters For KIC 002303102

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5465^{+164}_{-147}	$4.209^{+0.276}_{-0.184}$	$0.210^{+0.200}_{-0.250}$	$1.257^{+0.352}_{-0.352}$	$0.932^{+0.090}_{-0.074}$	$0.661^{+1.131}_{-0.326}$
	+3%/-3%	+7%/-4%	+95%/-119%	+28%/-28%	+10%/-8%	+171%/-49%
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 002303102-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-820 ± 26	$3.42^{+0.68}_{-0.66}$	359^{+28}_{-31}	5806^{+384}_{-331}	46968^{+24438}_{-14653}
Alt.	-382 ± 22	$5.36^{+0.92}_{-0.88}$	358^{+29}_{-28}	4109^{+141}_{-141}	8723^{+4029}_{-2315}

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

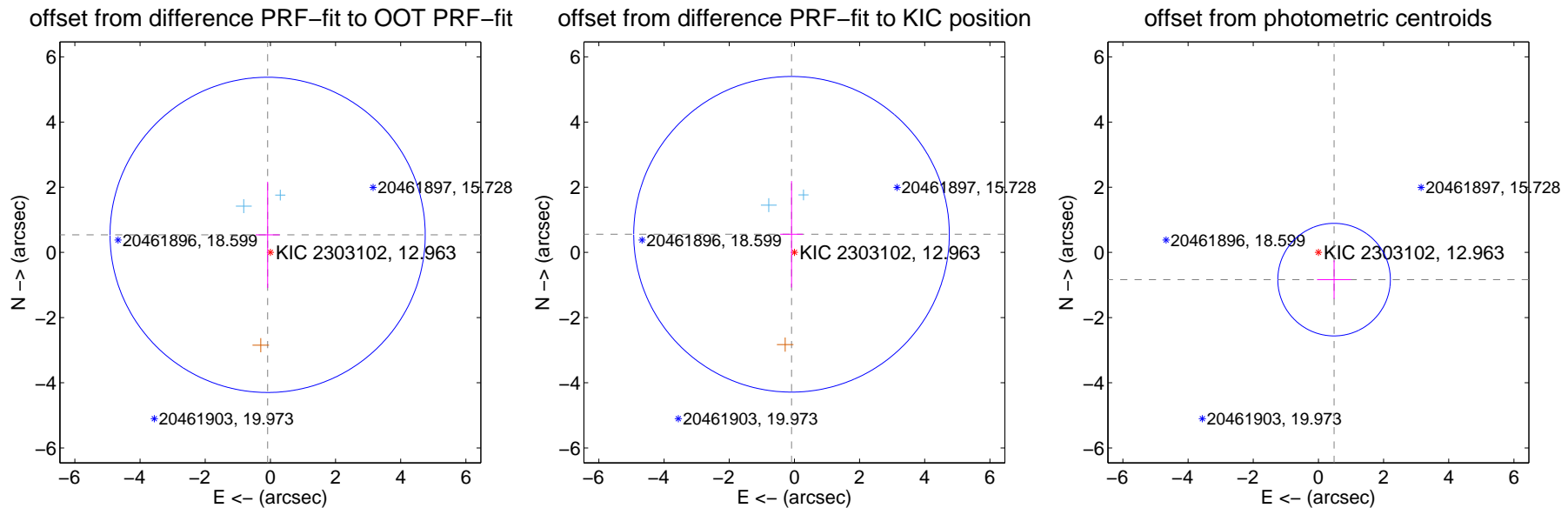
DV Centroid Data

Supplemental centroid analysis for 002303102-04. Kepler magnitude: 12.96. Transit SNR 12.45

There are 2 quarters with good PRF difference image offsets

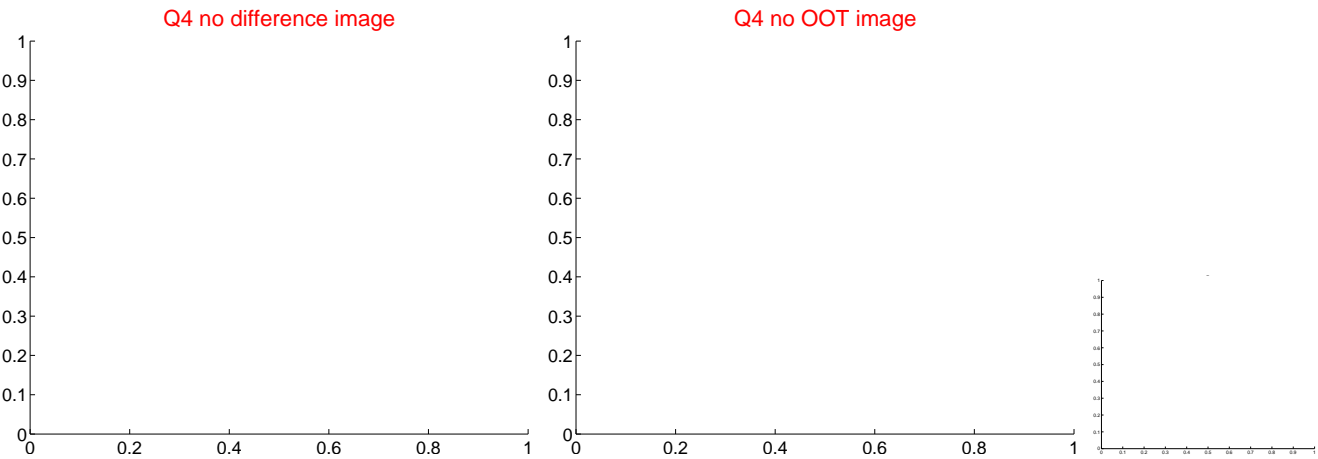
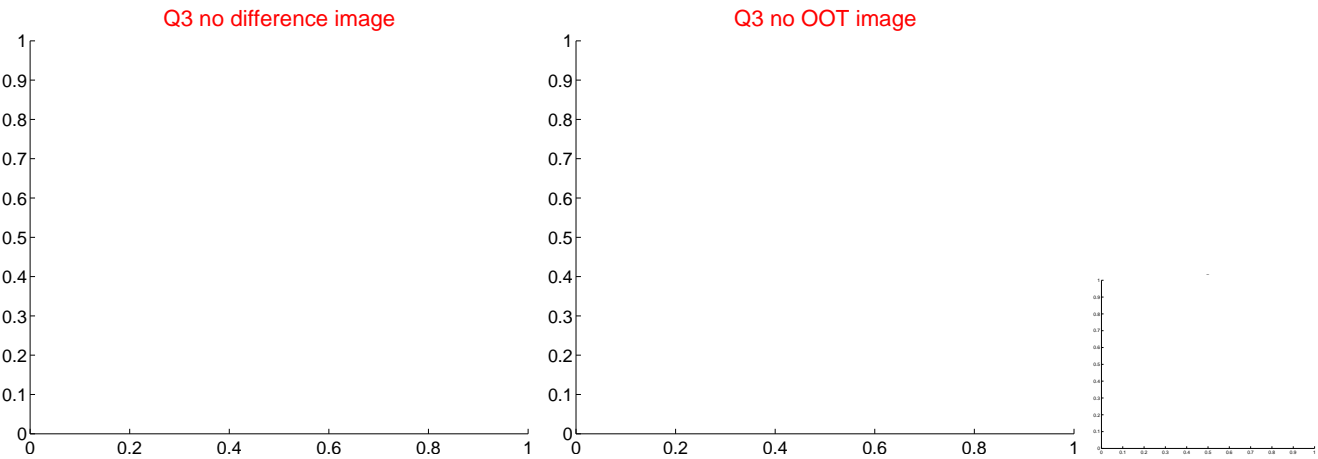
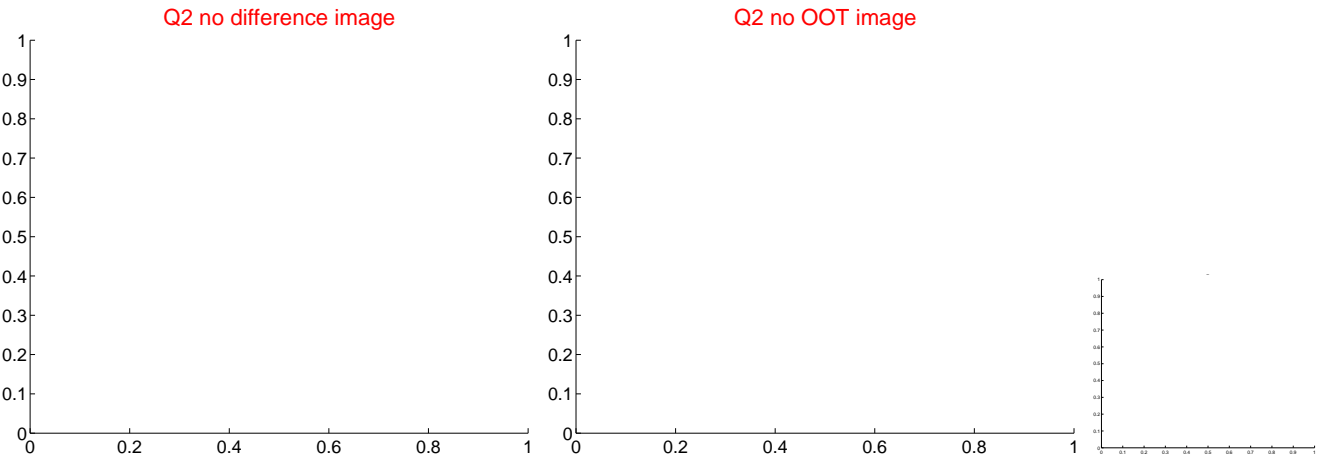
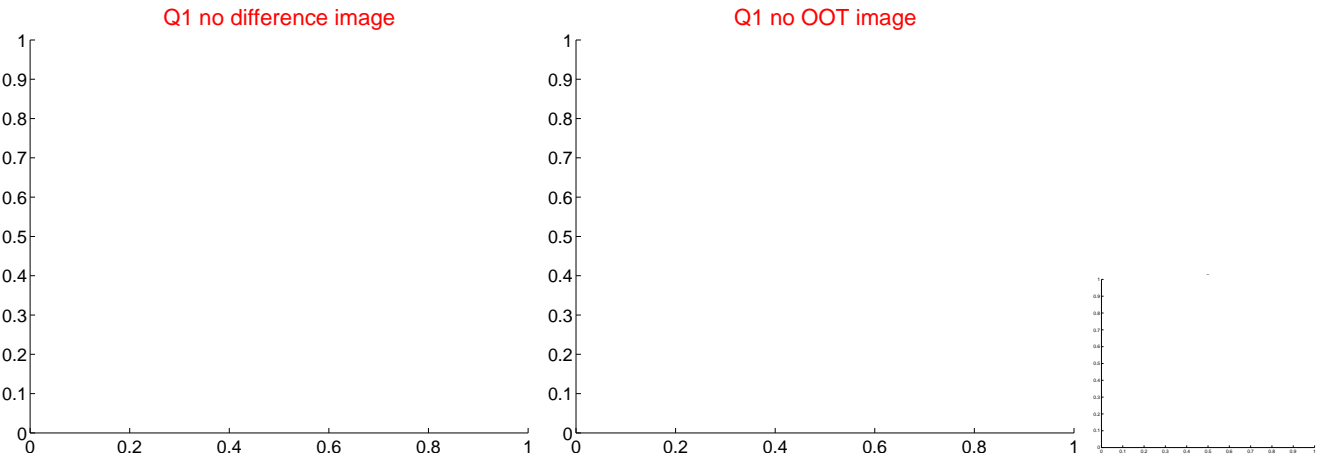
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.545 ± 1.612	0.34	0.084 ± 0.366	0.539 ± 1.631
PRF-fit source offset from KIC position	0.563 ± 1.614	0.35	0.088 ± 0.348	0.556 ± 1.633
photometric centroid source offset	0.96 ± 0.58	1.67	-0.48 ± 0.52	-0.84 ± 0.59

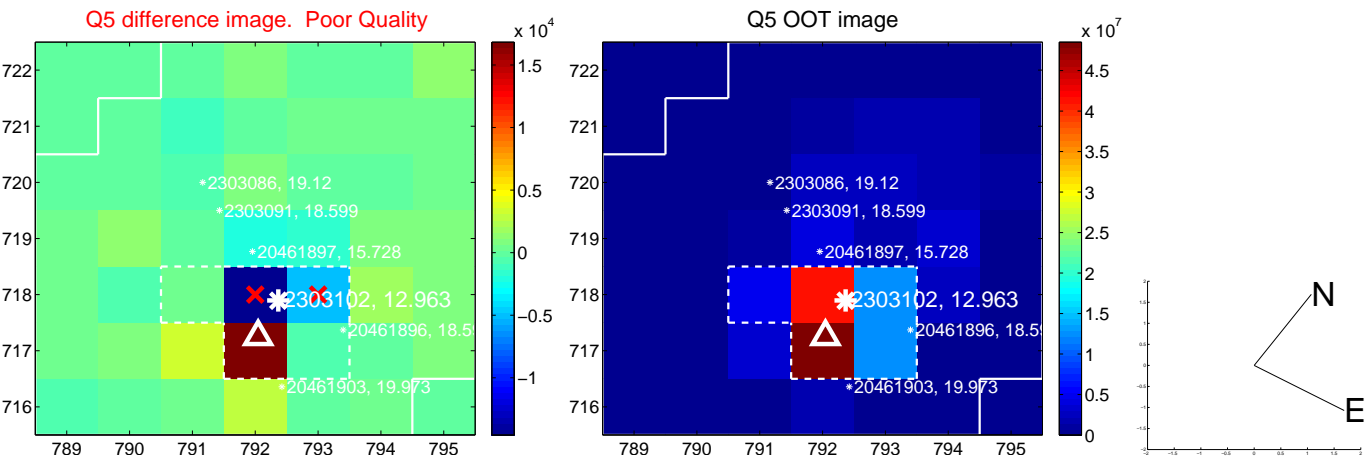


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

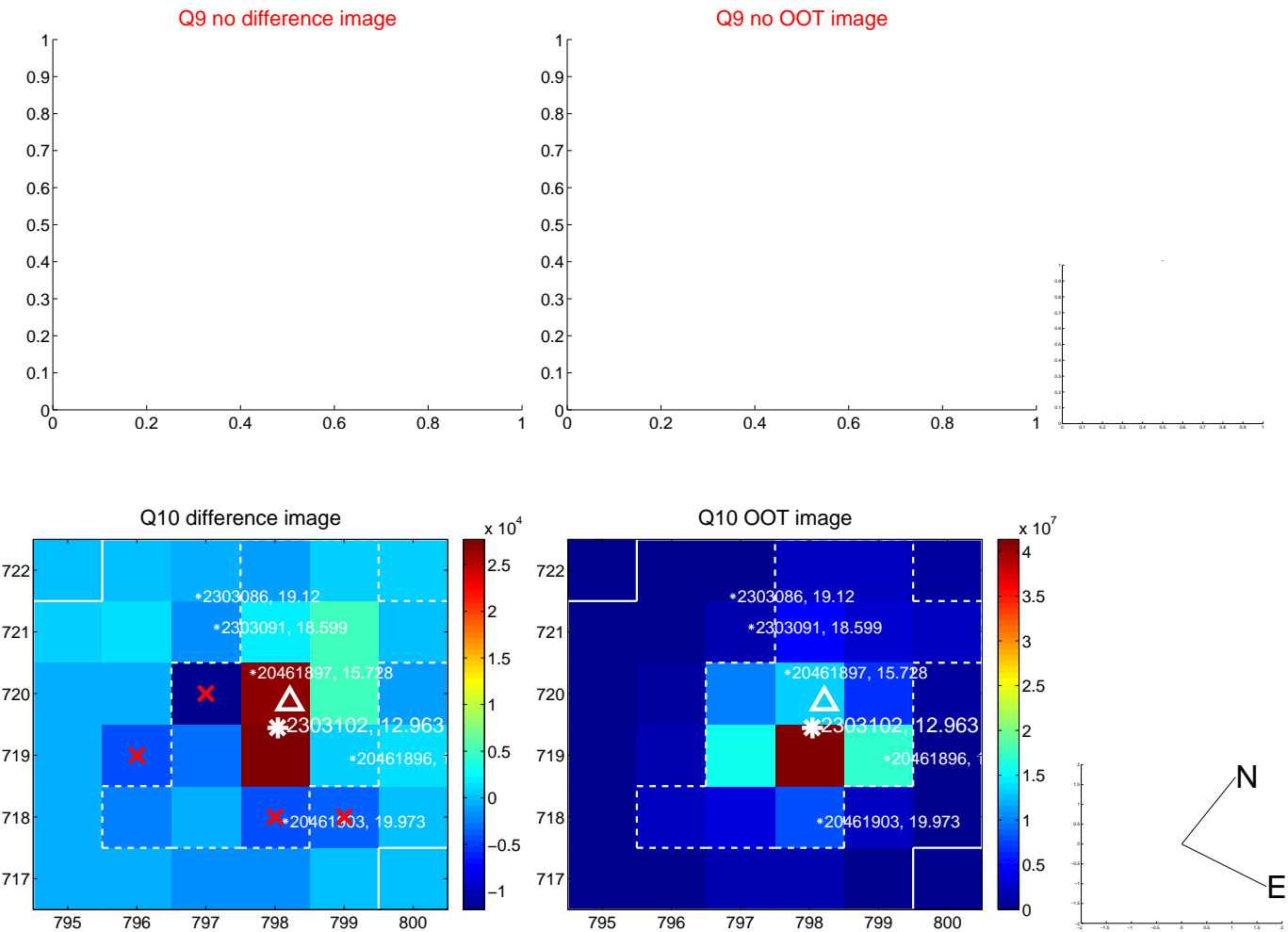
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

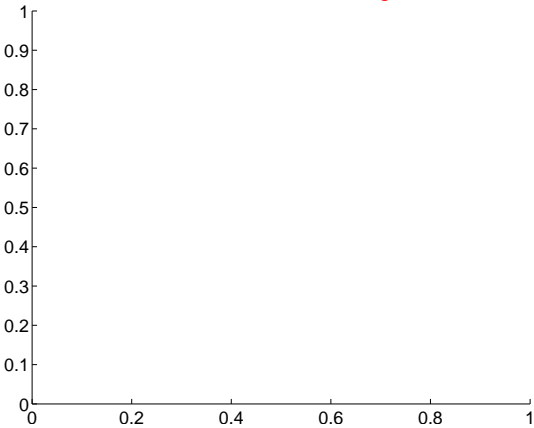


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

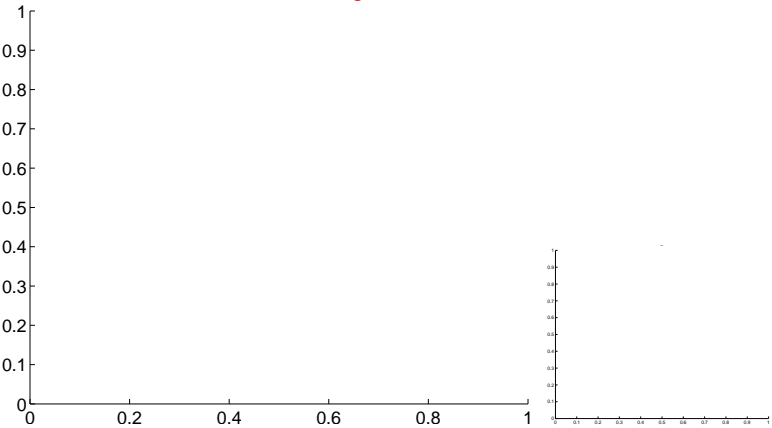


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

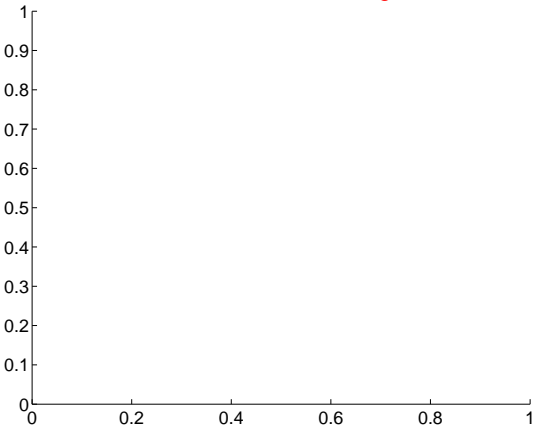
Q13 no difference image



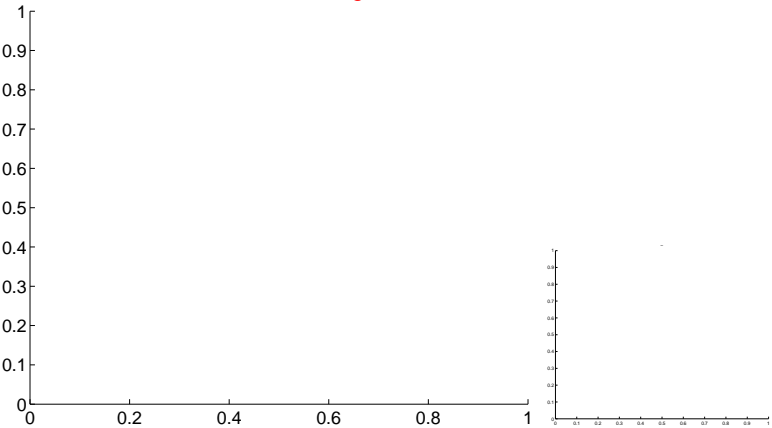
Q13 no OOT image



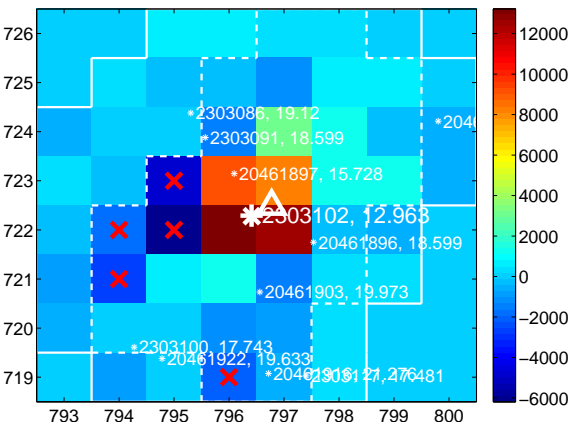
Q14 no difference image



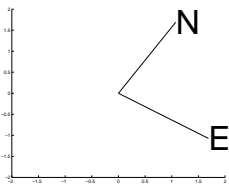
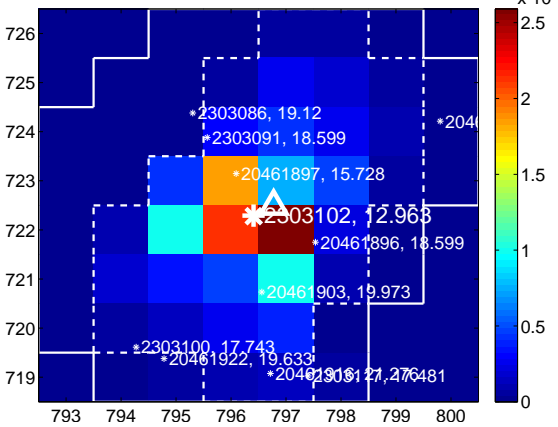
Q14 no OOT image



Q15 difference image



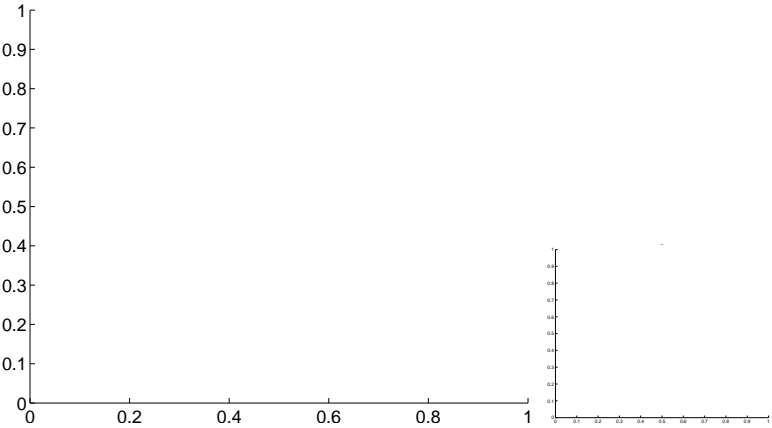
Q15 OOT image



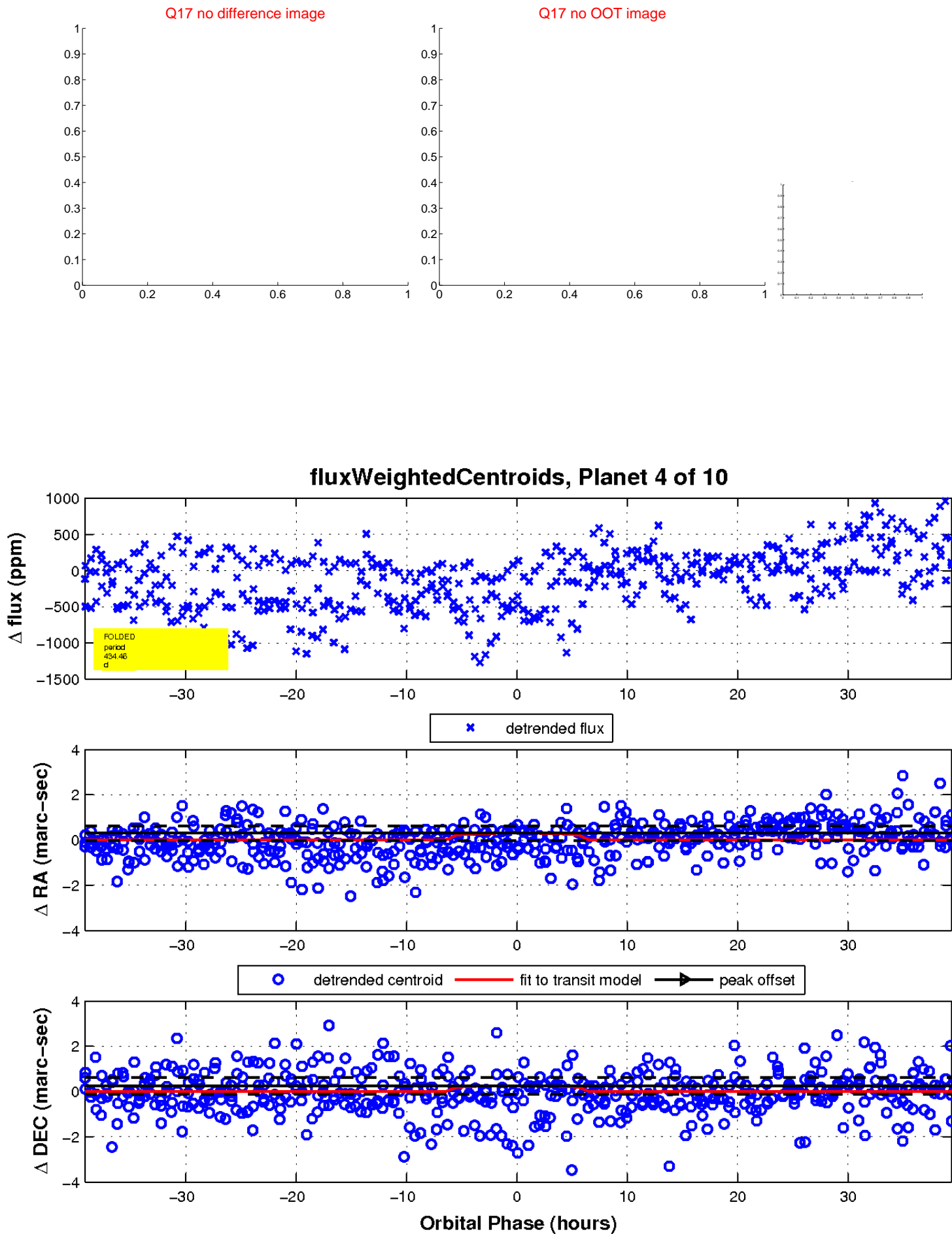
Q16 no difference image



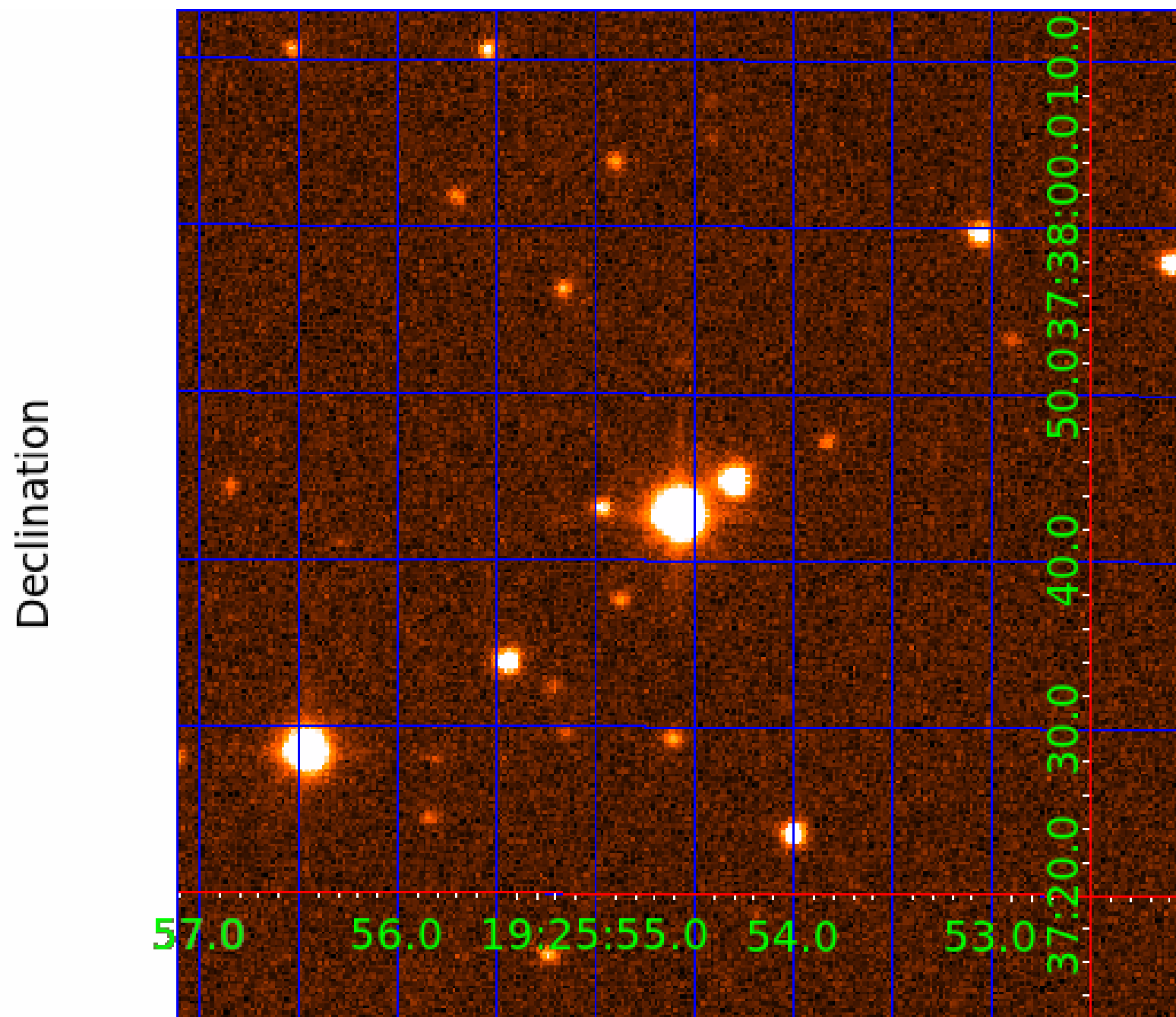
Q16 no OOT image



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



UKIRT Image



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})
002303102-01	OBS	No	2.298875	132.974167	31.1	11.443	8.2	9.8	1.26	5465	0.74	1137.95
002303102-02	OBS	No	242.161051	173.380485	650.8	21.893	36.3	9.1	1.26	5465	6.47	2.29
002303102-03	OBS	No	319.894193	386.351543	393.4	15.000	19.9	-1.0	1.26	5465	2.44	1.58
002303102-04	OBS	No	434.460665	509.040892	576.8	13.180	19.1	12.4	1.26	5465	3.47	1.05
002303102-05	OBS	No	159.358266	154.502554	141.2	22.045	16.9	3.5	1.26	5465	1.61	4.00
002303102-07	OBS	No	139.966466	243.994110	322.2	10.625	13.4	8.3	1.26	5465	2.38	4.75
002303102-08	OBS	No	148.524623	145.415390	297.7	1.235	12.9	4.6	1.26	5465	2.38	4.39
002303102-09	OBS	No	544.908556	342.926822	523.6	5.000	12.9	-1.0	1.26	5465	2.82	0.78
002303102-10	OBS	No	480.480981	161.570218	309.9	15.557	11.5	6.9	1.26	5465	2.61	0.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002303102-01	OBS	FP	0.00	1	0	0	0	LPP_DV
002303102-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
002303102-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
002303102-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
002303102-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
002303102-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

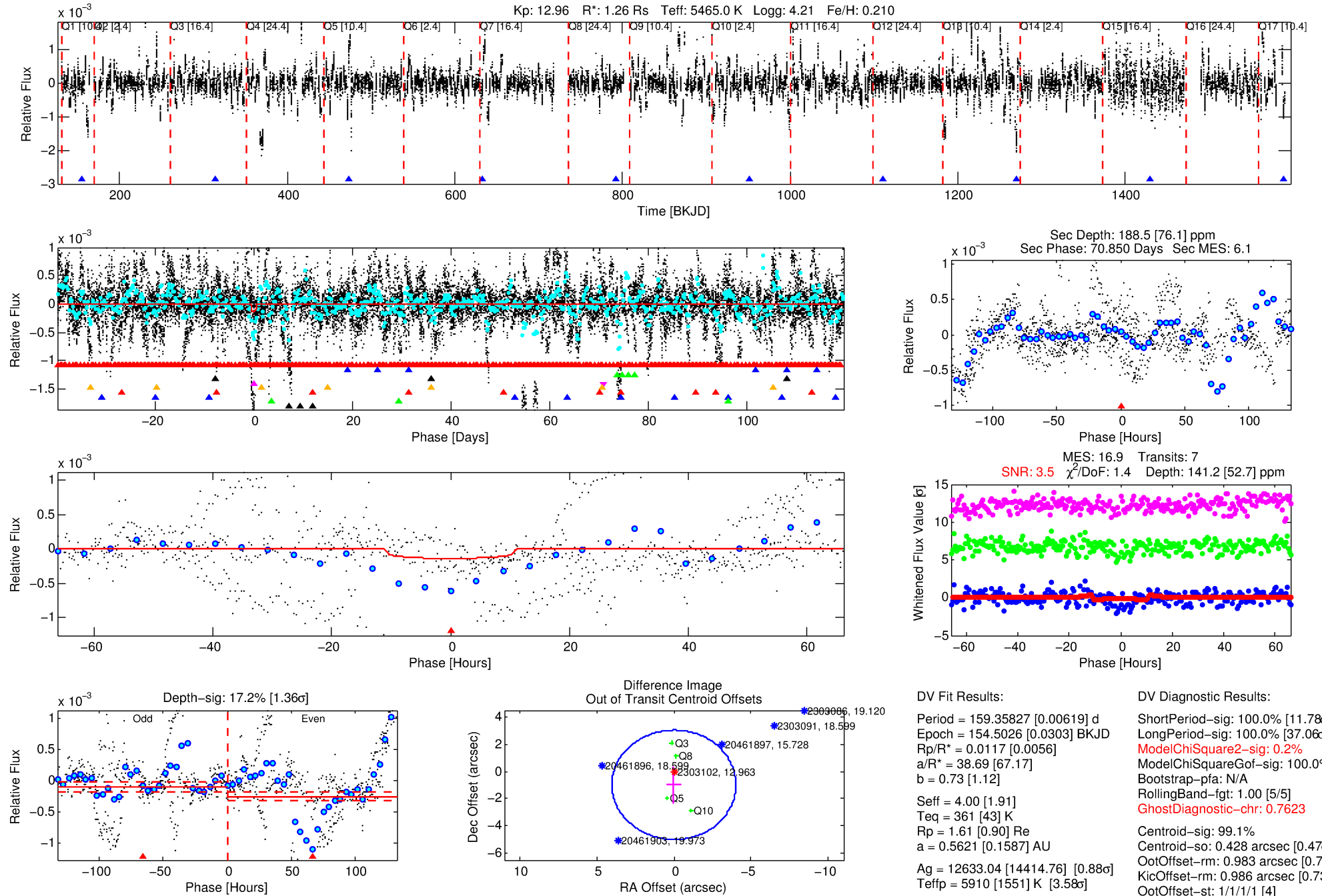
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002303102-05

No Significant Match Found

DV One-Page Summary

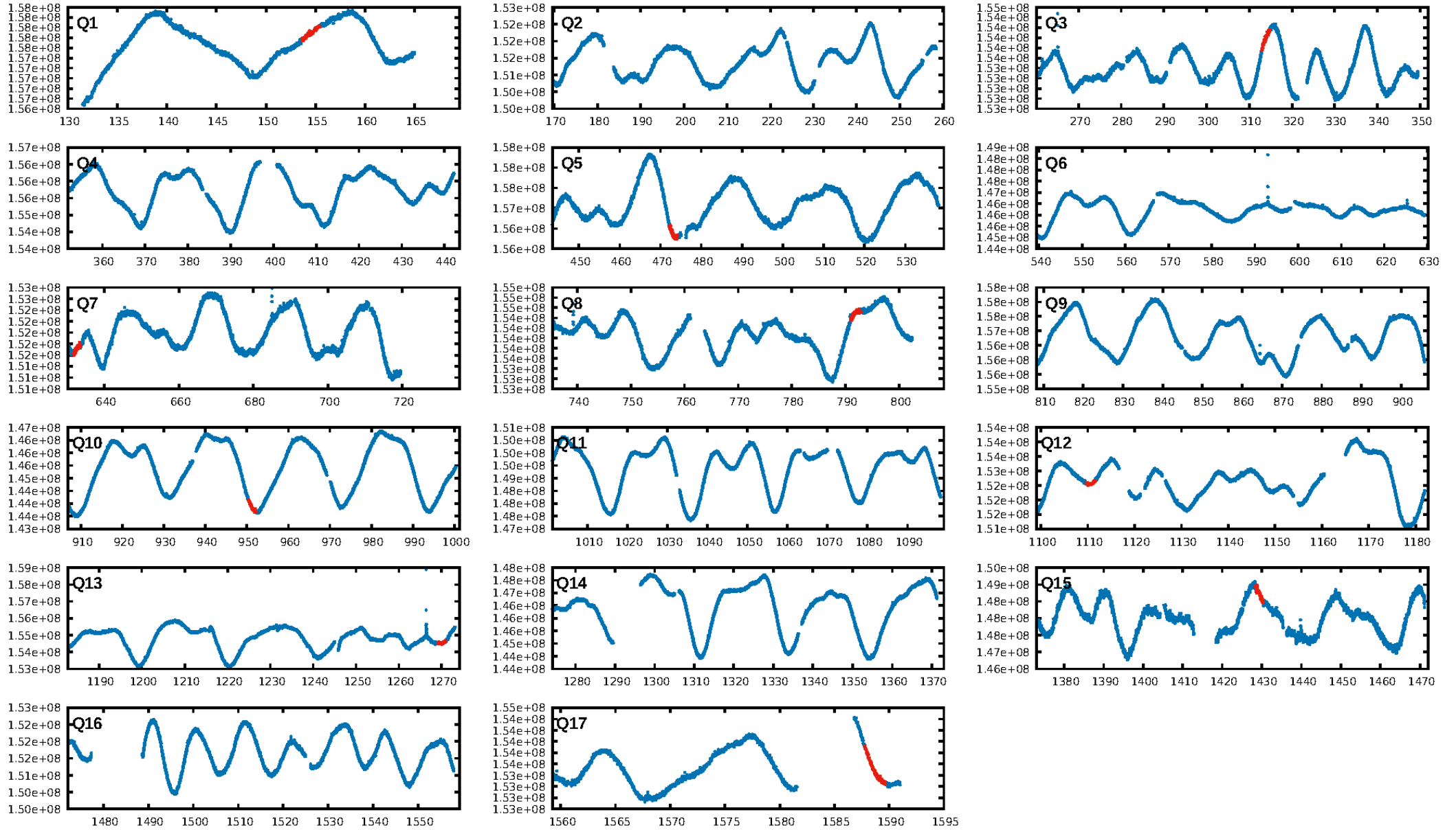
KIC: 2303102 Candidate: 5 of 10 Period: 159.358 d



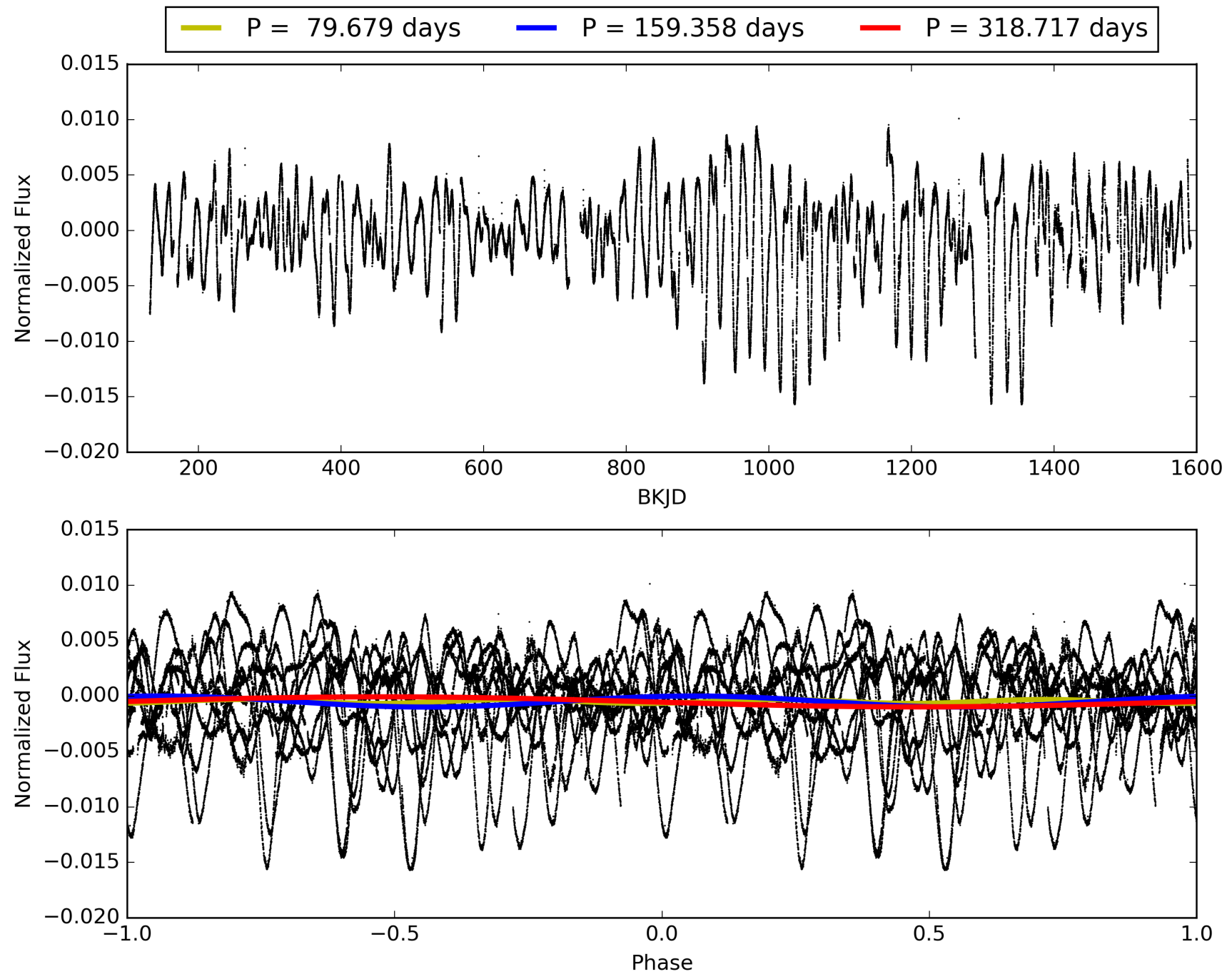
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:10:15 Z

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

TCE 002303102-05, PDC Light Curves

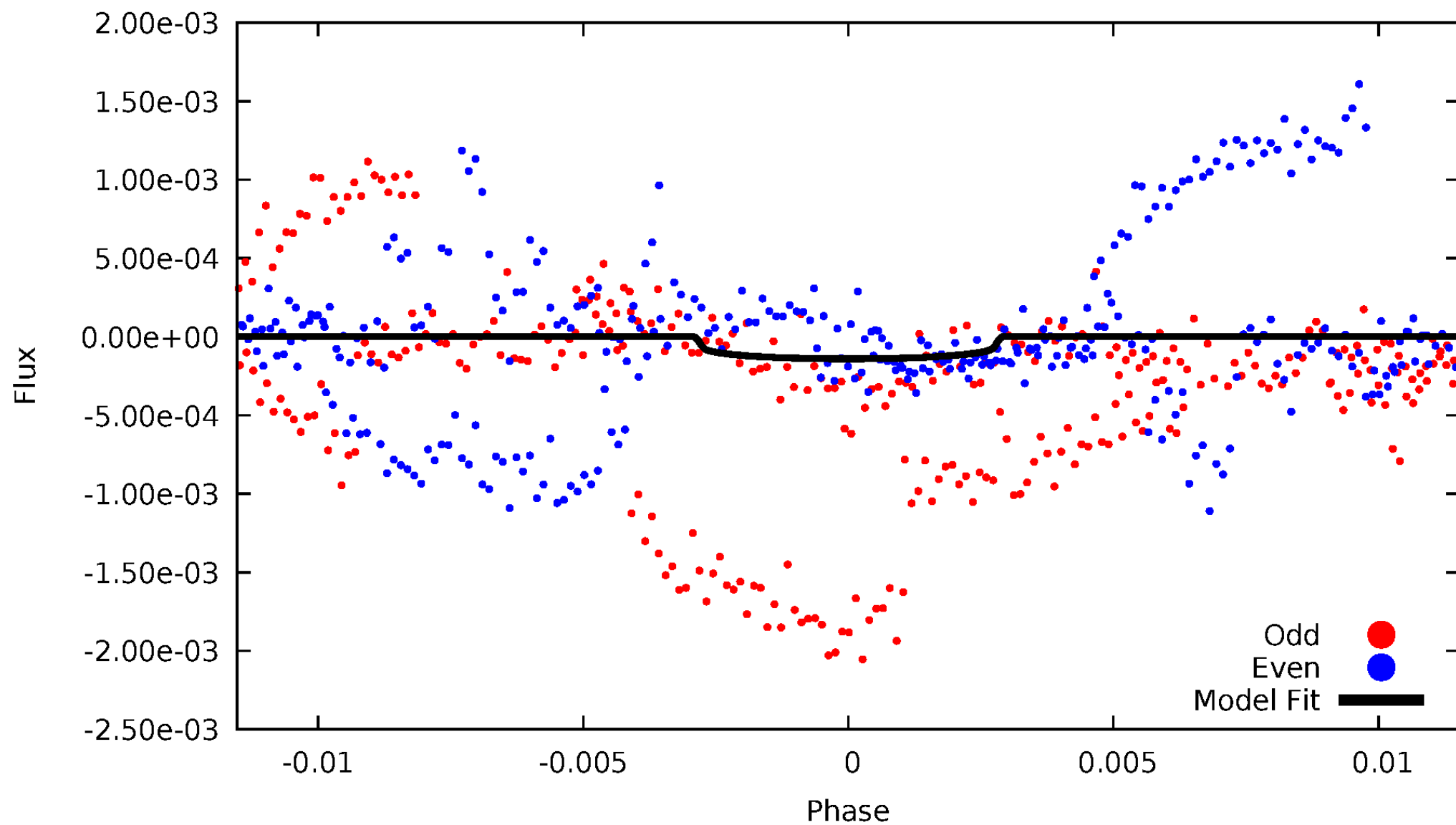


TCE 002303102-05



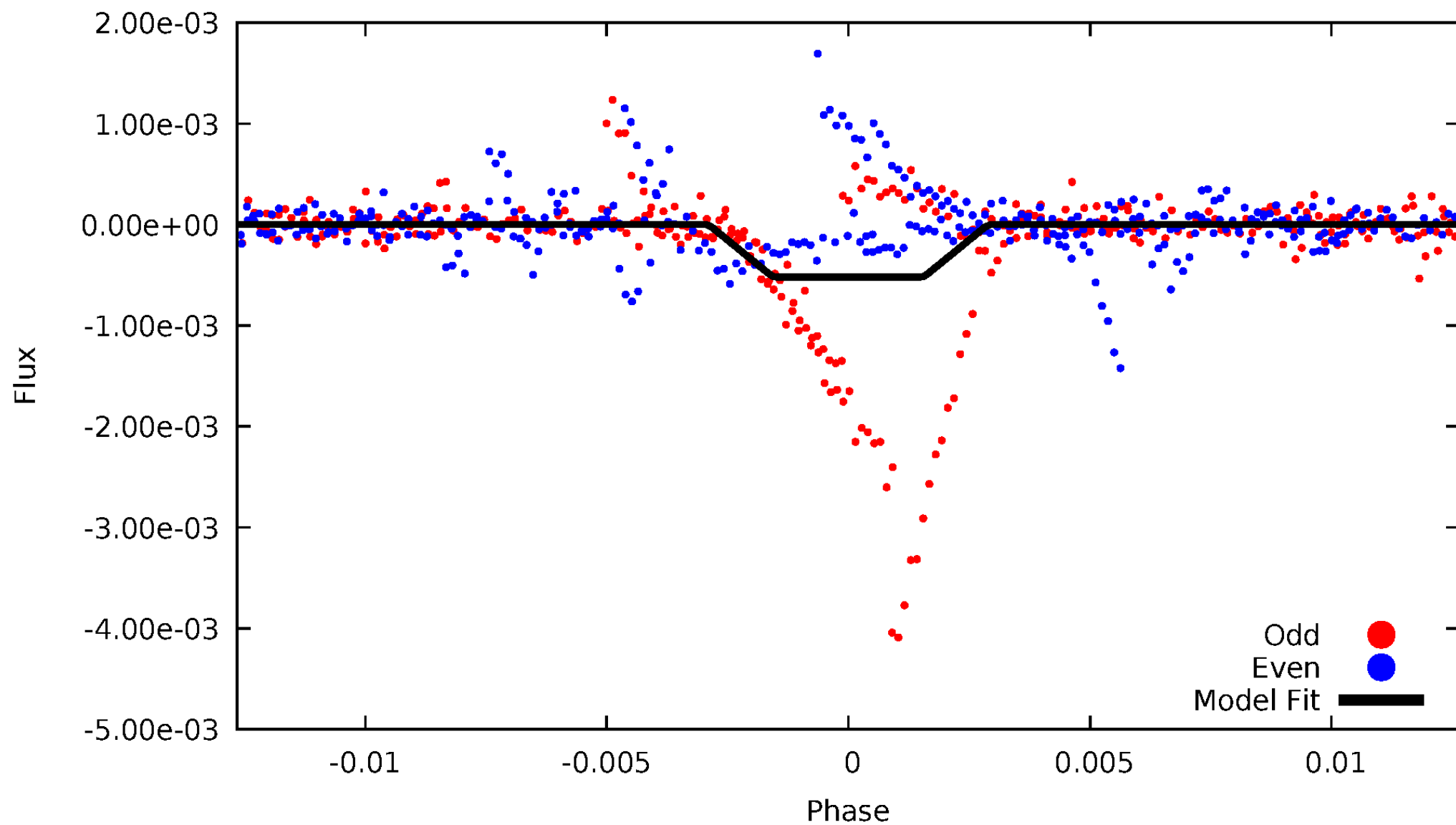
DV Odd/Even

TCE 002303102-05



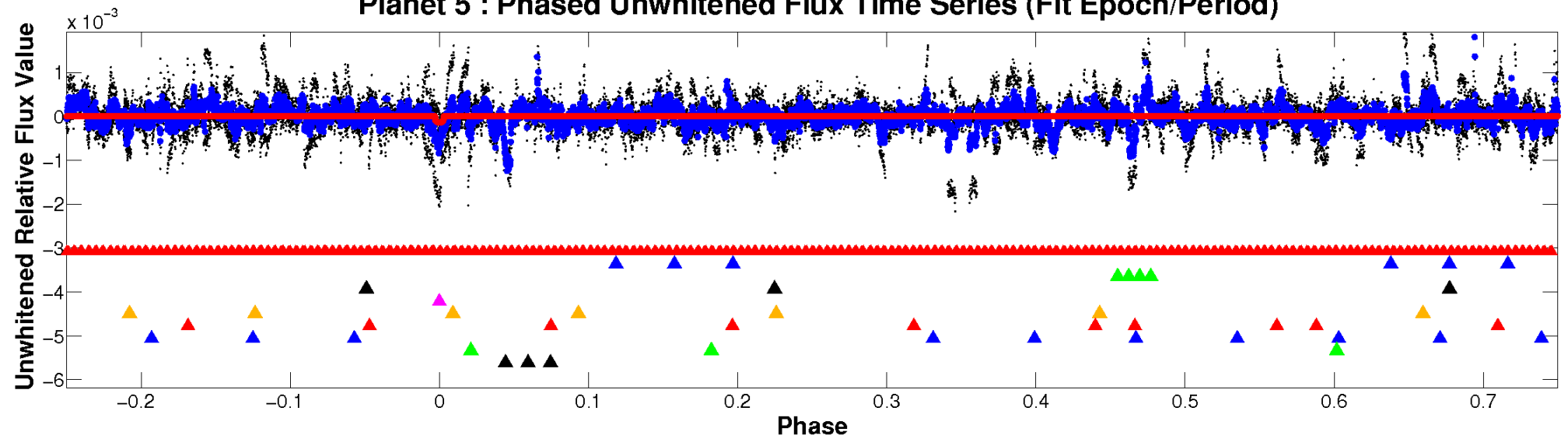
ALT Odd/Even

TCE 002303102-05

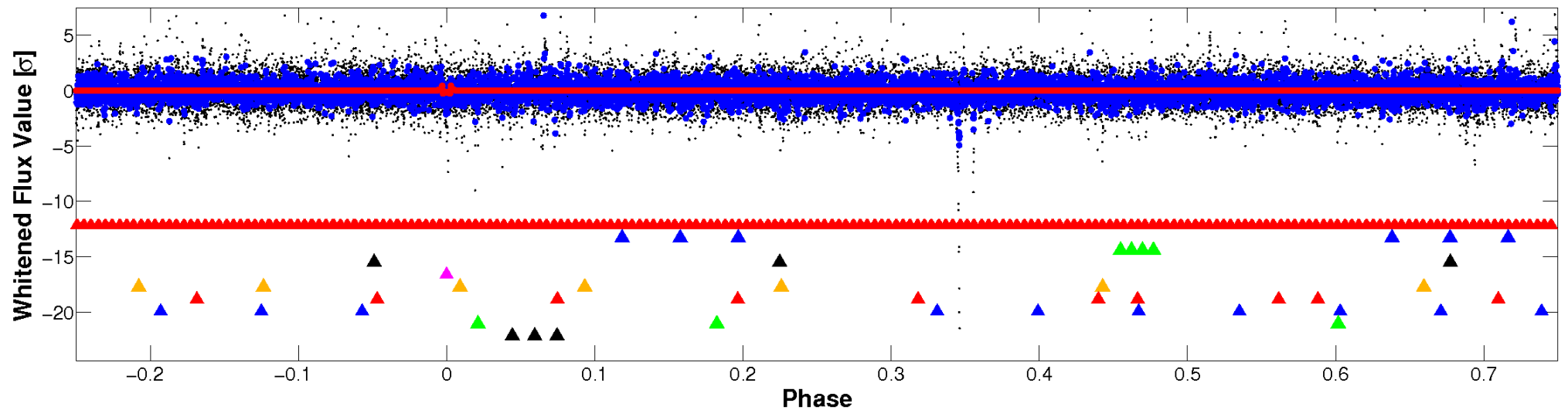


Non-Whitened Vs. Whitened Light Curve

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

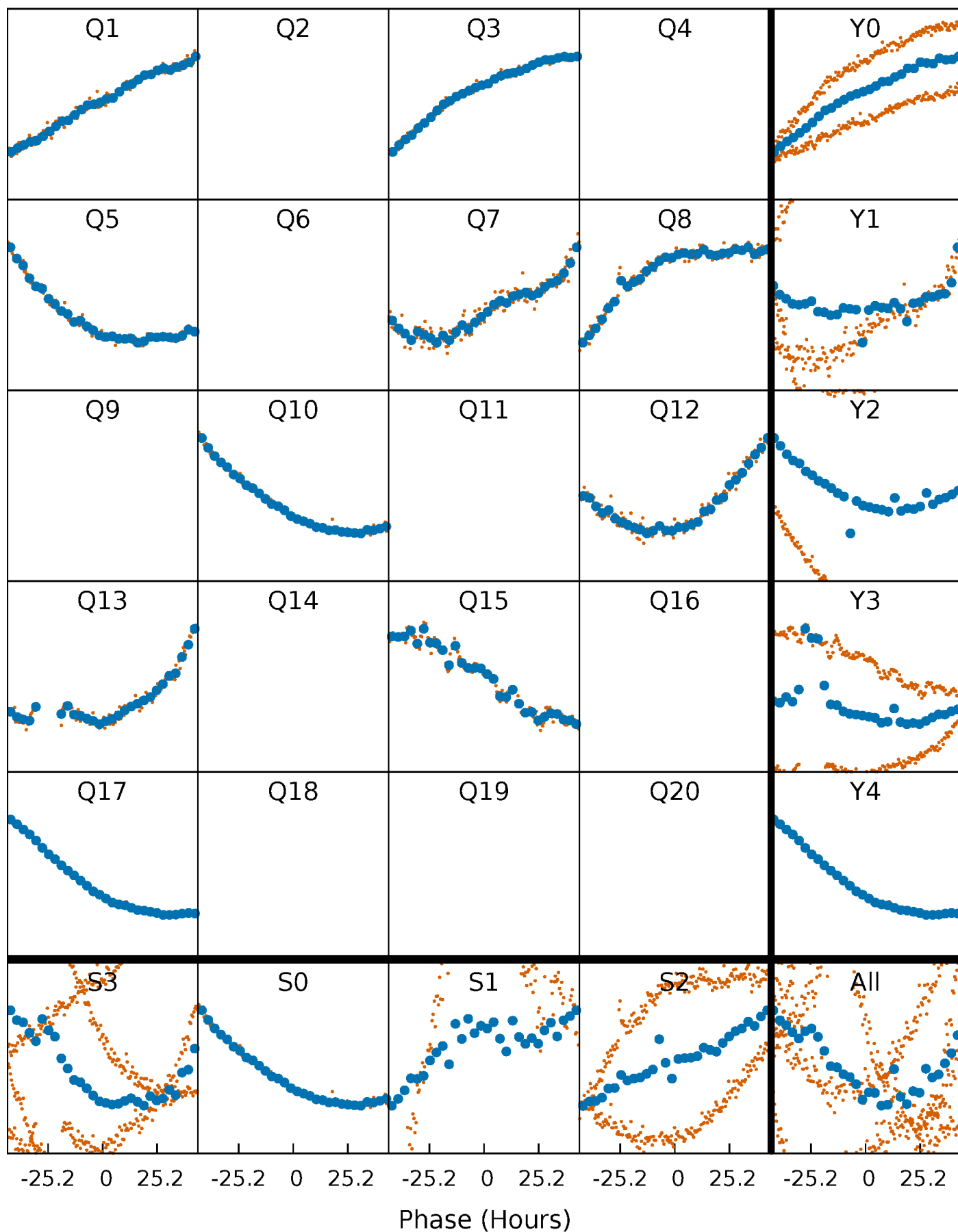


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



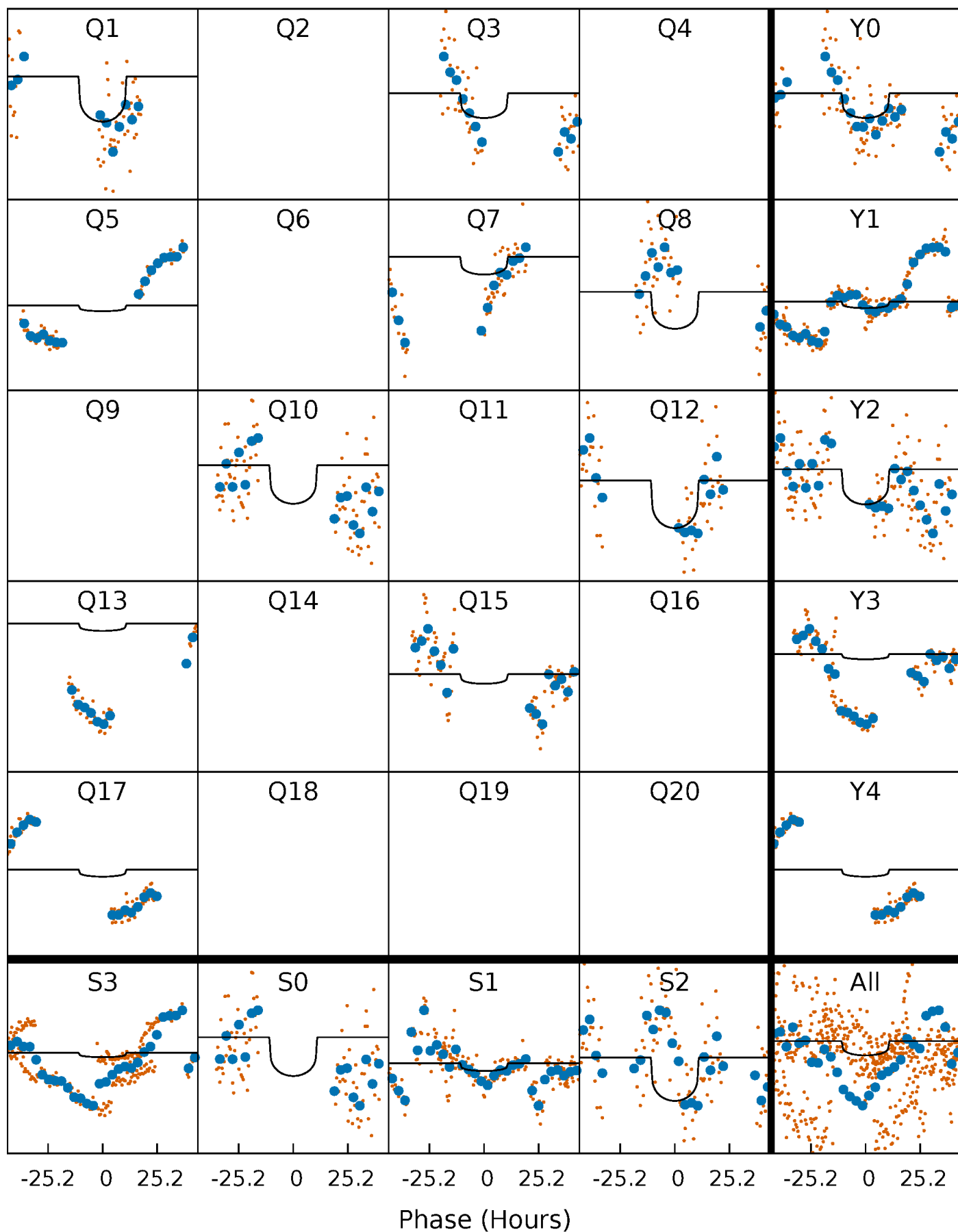
PDC Quarter-Phased Transit Curves

TCE 002303102-05 $P=159.358266$ Days $T_0=154.502554$ (BKJD)



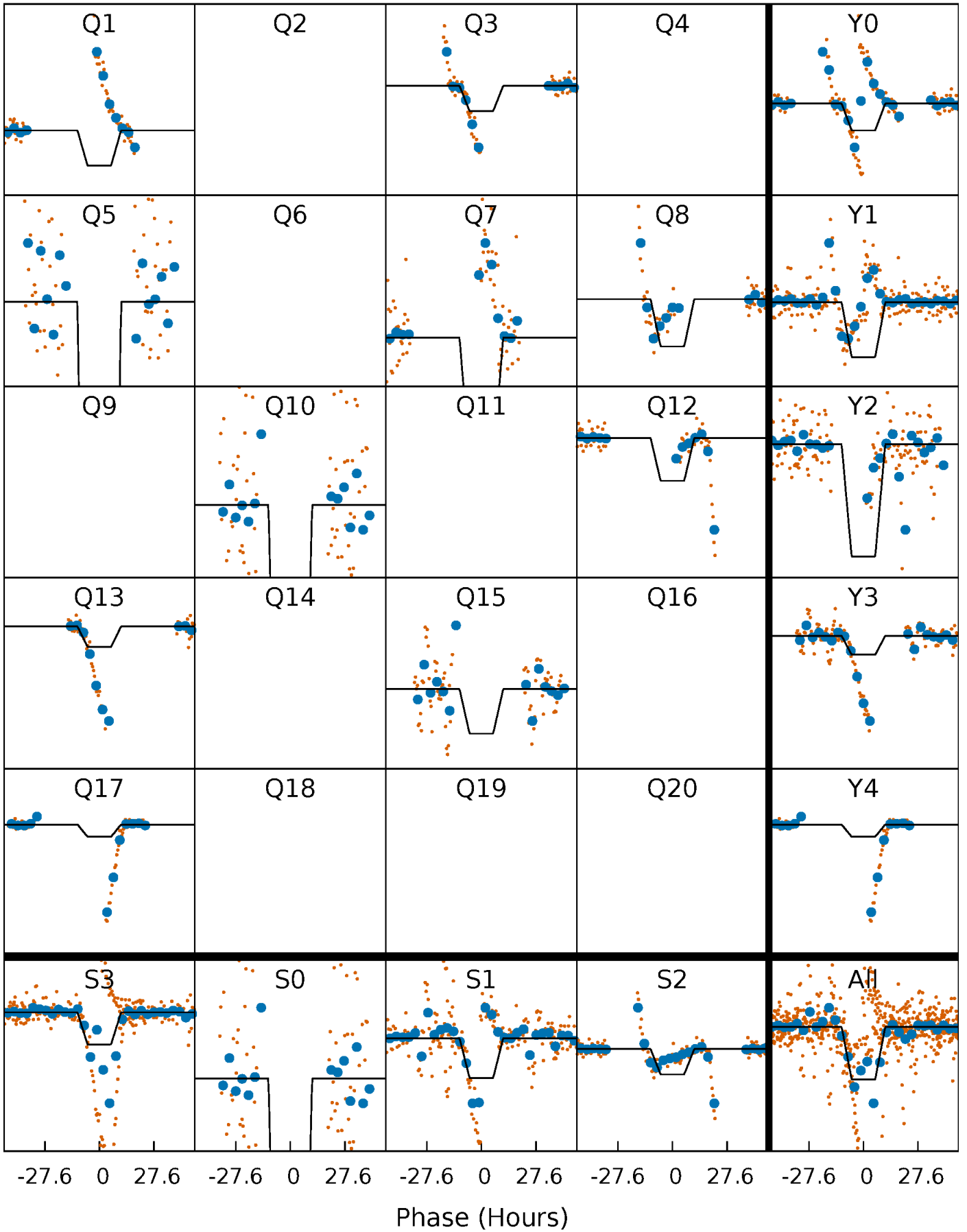
DV Quarter-Phased Transit Curves

TCE 002303102-05 $P=159.358266$ Days $T_0=154.502554$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

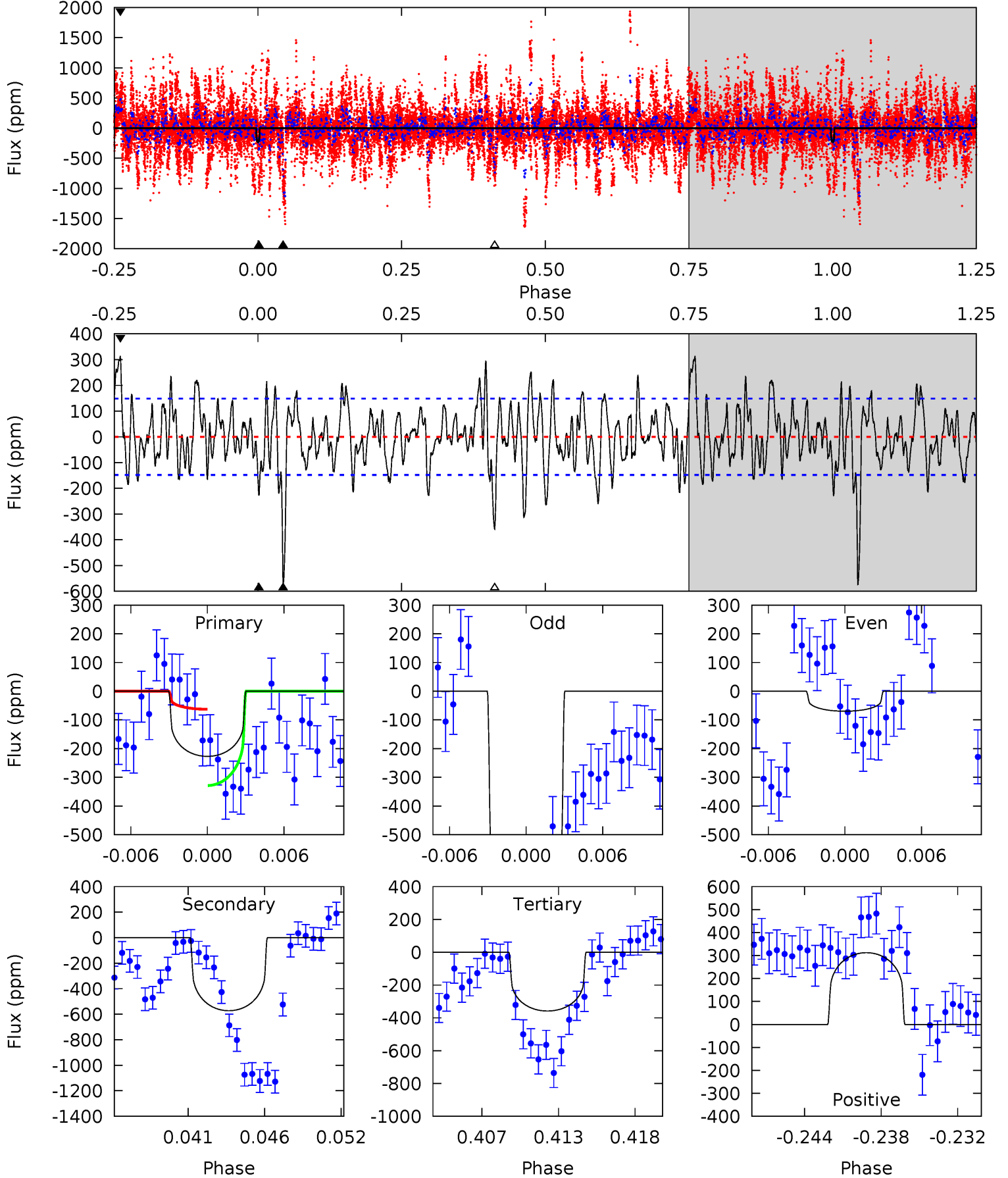
TCE 002303102-05 $P=159.361334$ Days $T_0=154.500160$ (BKJD)



DV Model-Shift Uniqueness Test

002303102-05, P = 159.358266 Days, E = 154.502554 Days

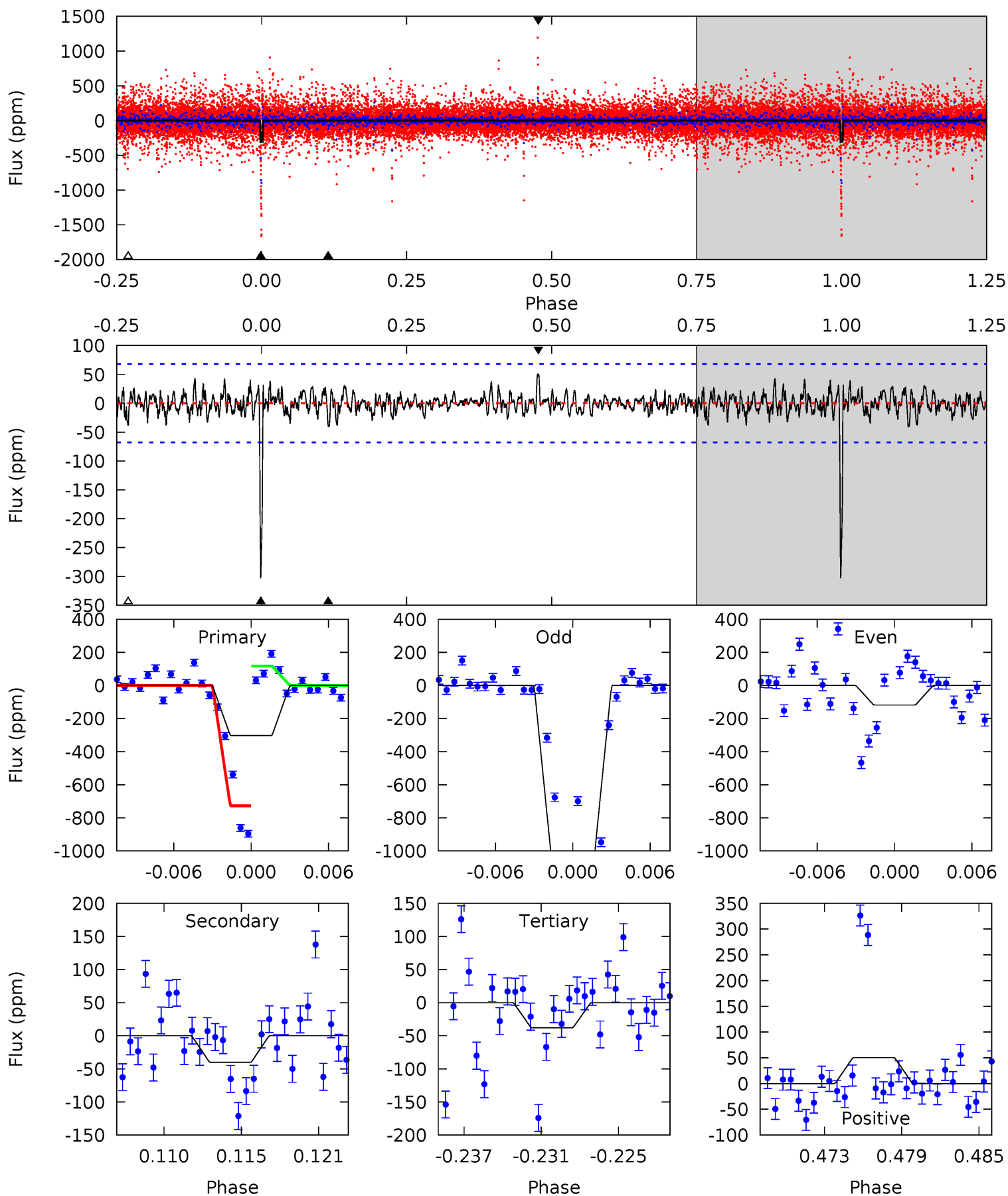
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.87	19.8	12.4	10.8	5.13	2.76	3.56	-4.54	-2.95	7.42	9.01	15.5	2.87	0.35	4.51



Alt Model-Shift Uniqueness Test

002303102-05, P = 159.361334 Days, E = 154.500160 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	3.02	2.88	3.80	5.13	2.76	0.95	20.0	19.1	0.15	-0.78	33.1	2.94	0.14	23.2



Stellar Parameters For KIC 002303102

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5465^{+164}_{-147}	$4.209^{+0.276}_{-0.184}$	$0.210^{+0.200}_{-0.250}$	$1.257^{+0.352}_{-0.352}$	$0.932^{+0.090}_{-0.074}$	$0.661^{+1.131}_{-0.326}$
	+3%/-3%	+7%/-4%	+95%/-119%	+28%/-28%	+10%/-8%	+171%/-49%
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 002303102-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-572 ± 29	$1.56^{+0.90}_{-0.77}$	503^{+38}_{-43}	8077^{+4986}_{-1755}	$40737^{+120285}_{-23988}$
Alt.	-40 ± 13	$3.03^{+1.01}_{-0.93}$	502^{+40}_{-43}	3385^{+397}_{-299}	737^{+850}_{-363}

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 $A_{obs} \gg 1.0$

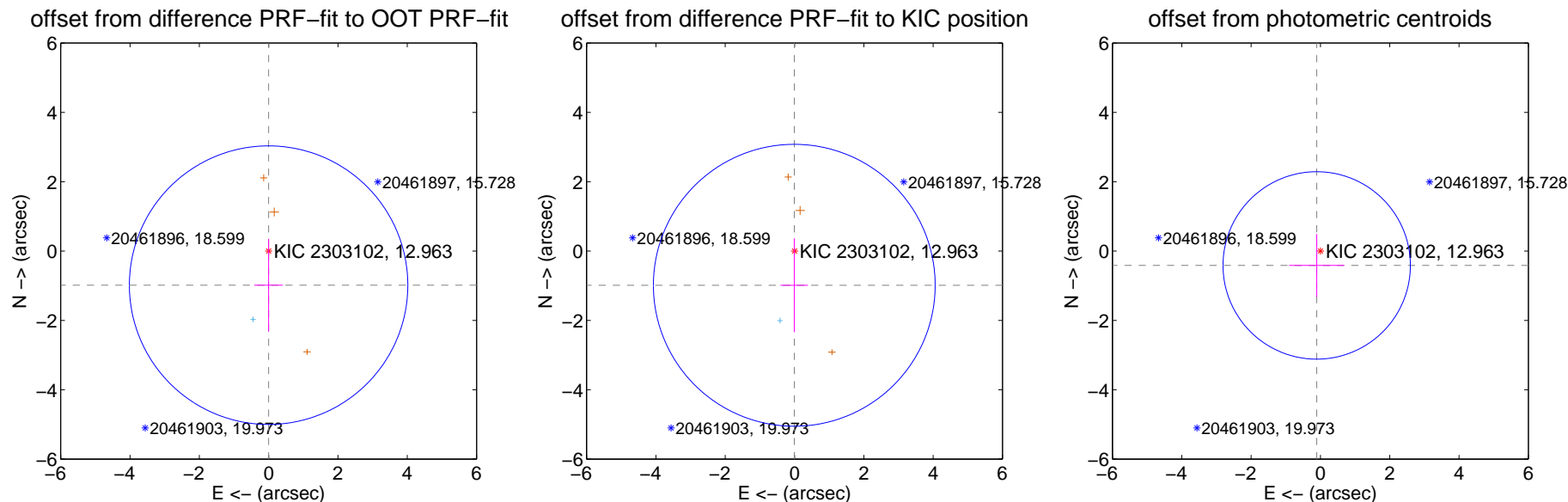
DV Centroid Data

Supplemental centroid analysis for 002303102-05. Kepler magnitude: 12.96. Transit SNR 3.48

There are 1 quarters with good PRF difference image offsets

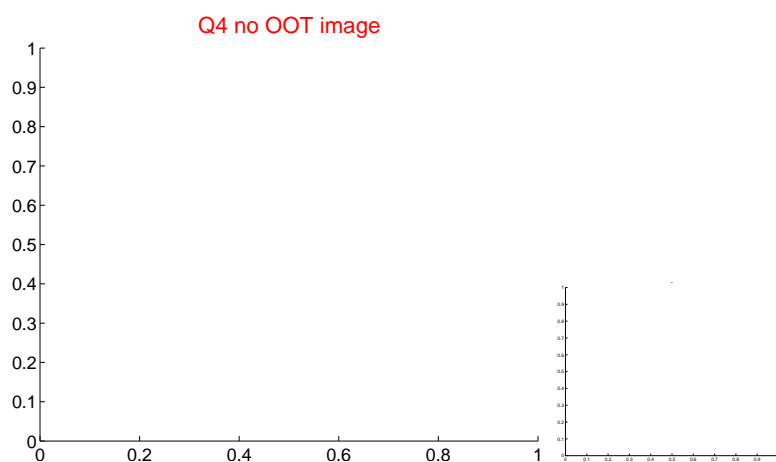
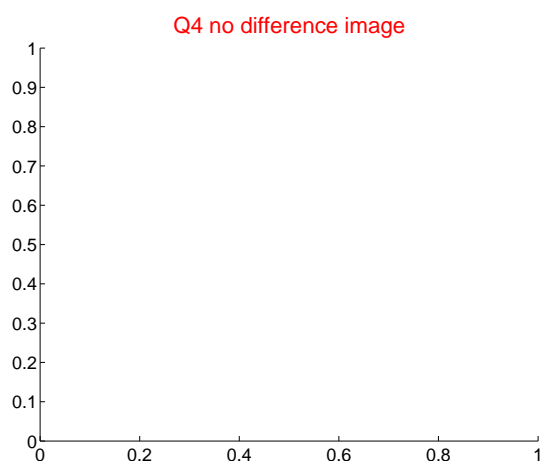
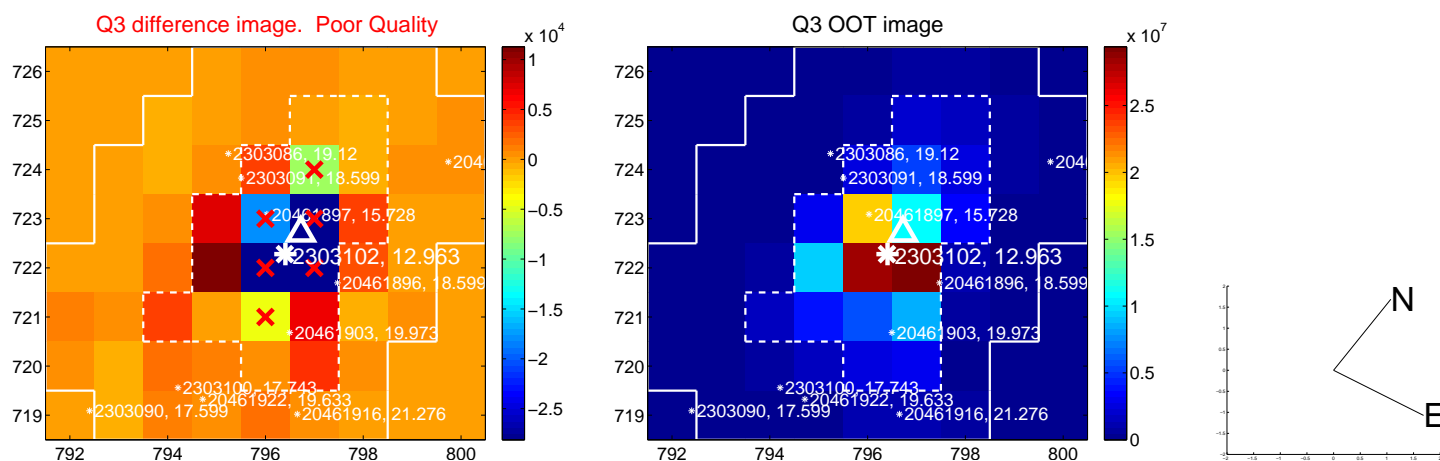
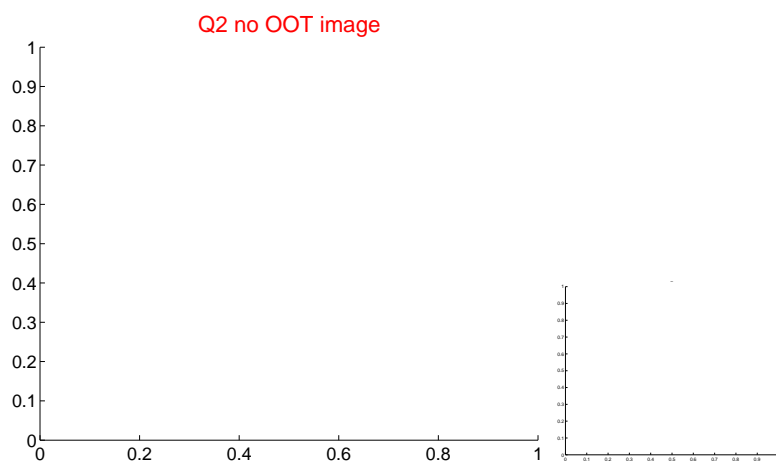
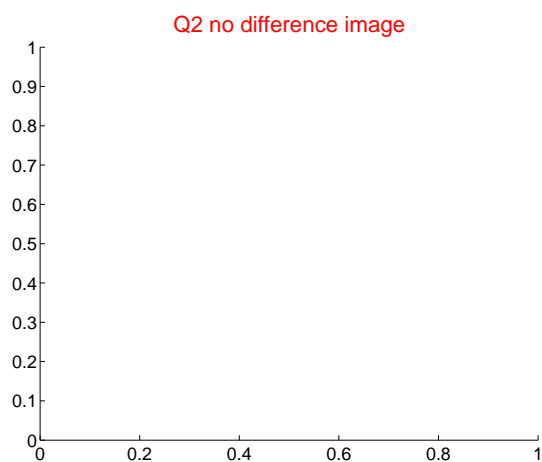
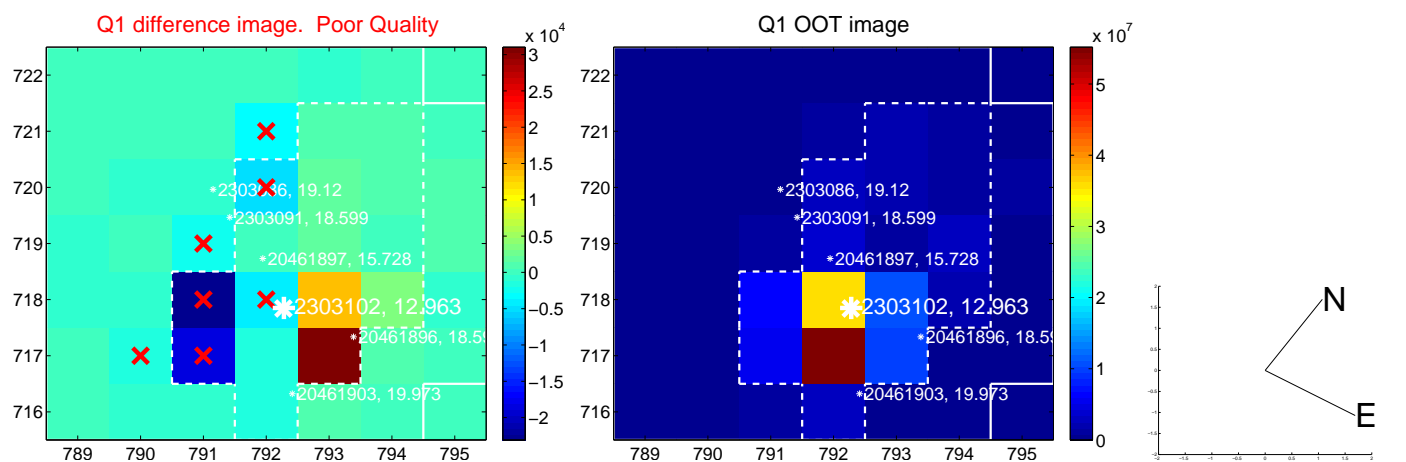
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.983 ± 1.339	0.73	0.002 ± 0.411	-0.983 ± 1.339
PRF-fit source offset from KIC position	0.986 ± 1.355	0.73	0.007 ± 0.396	-0.986 ± 1.355
photometric centroid source offset	0.43 ± 0.90	0.47	0.11 ± 0.79	-0.41 ± 0.91

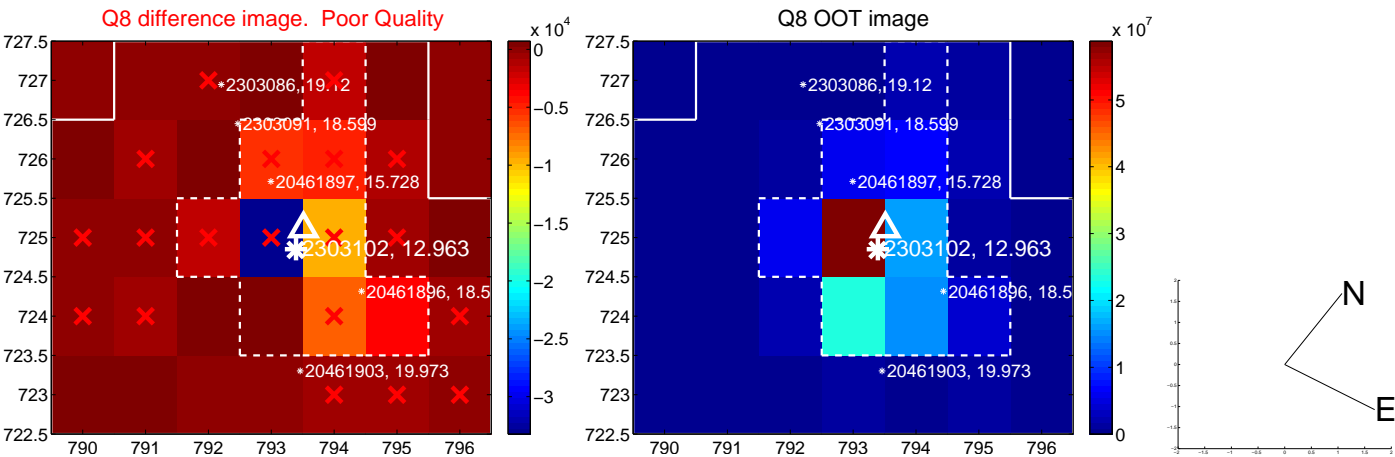
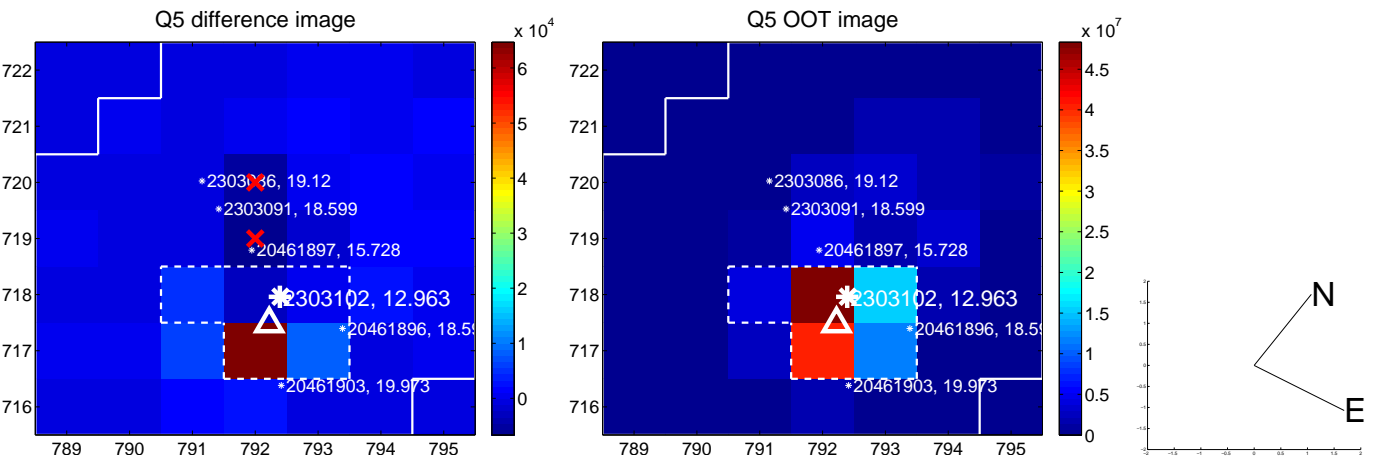


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

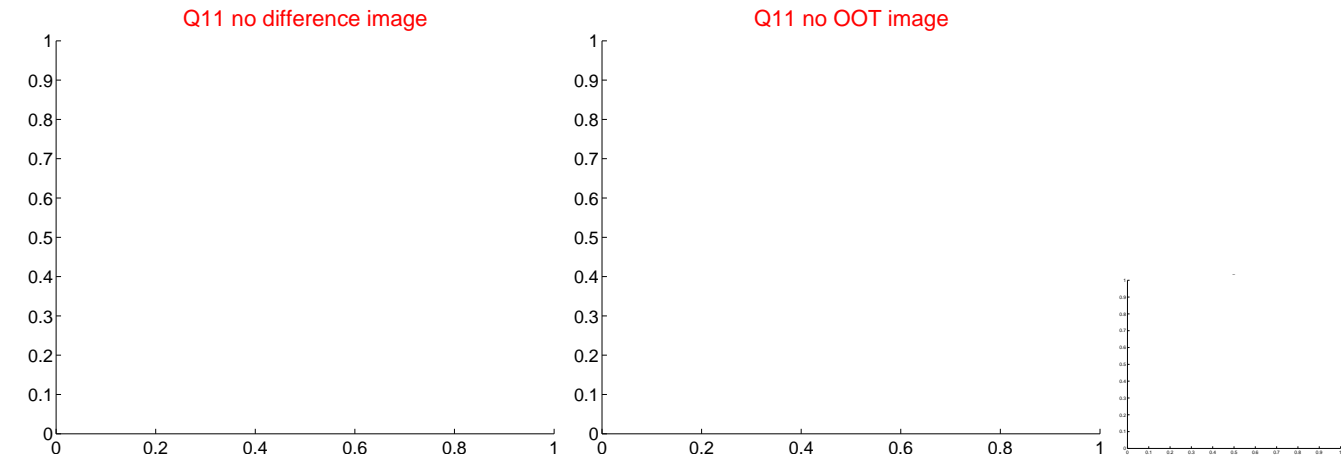
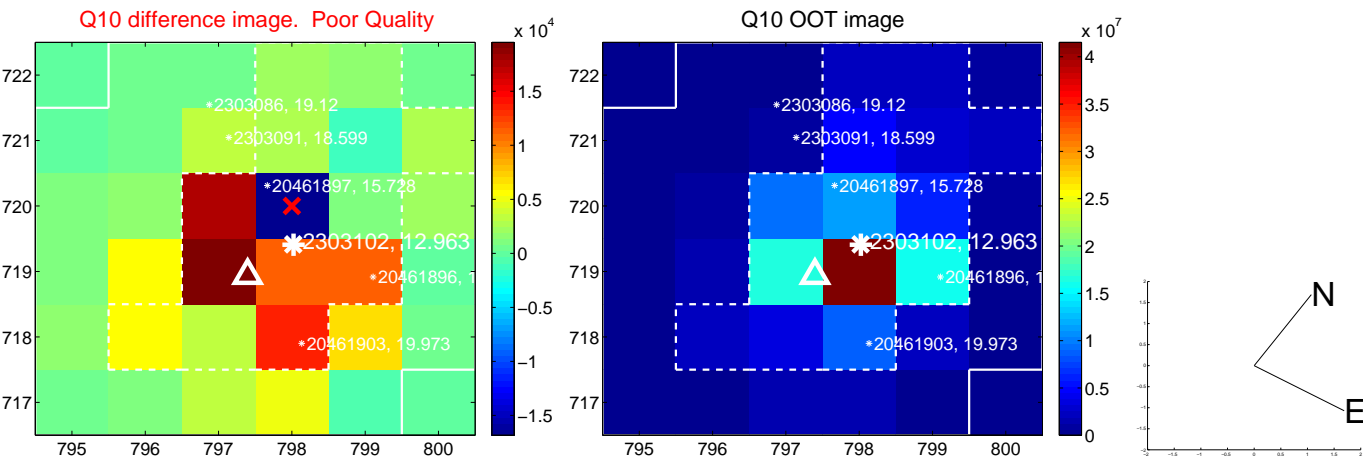
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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.

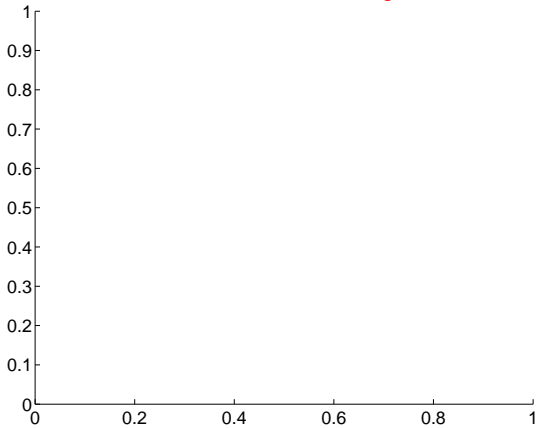
Q13 no difference image



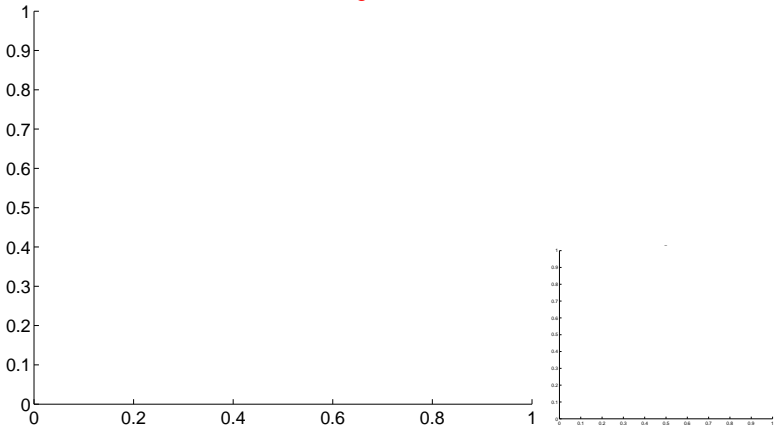
Q13 no OOT image



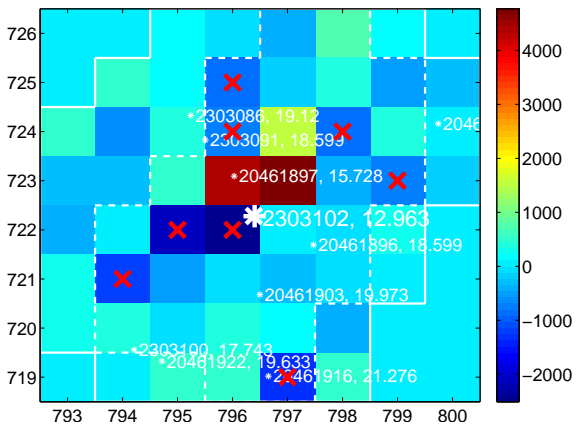
Q14 no difference image



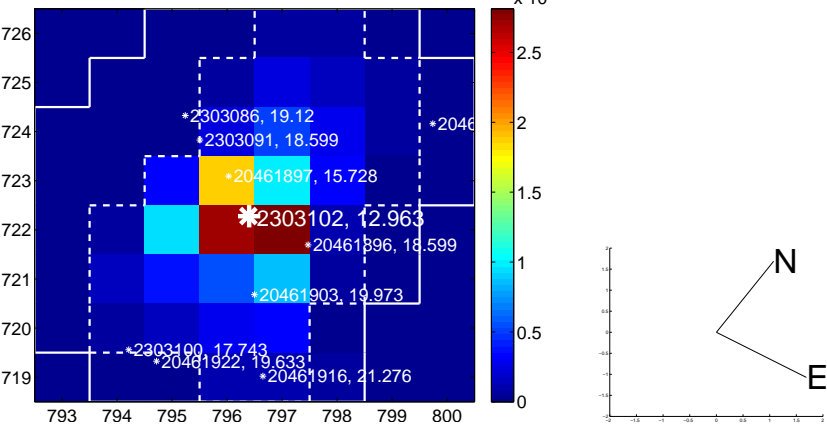
Q14 no OOT image



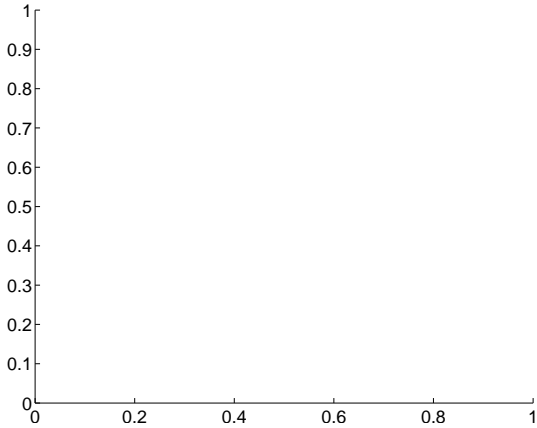
Q15 difference image. Poor Quality



Q15 OOT image



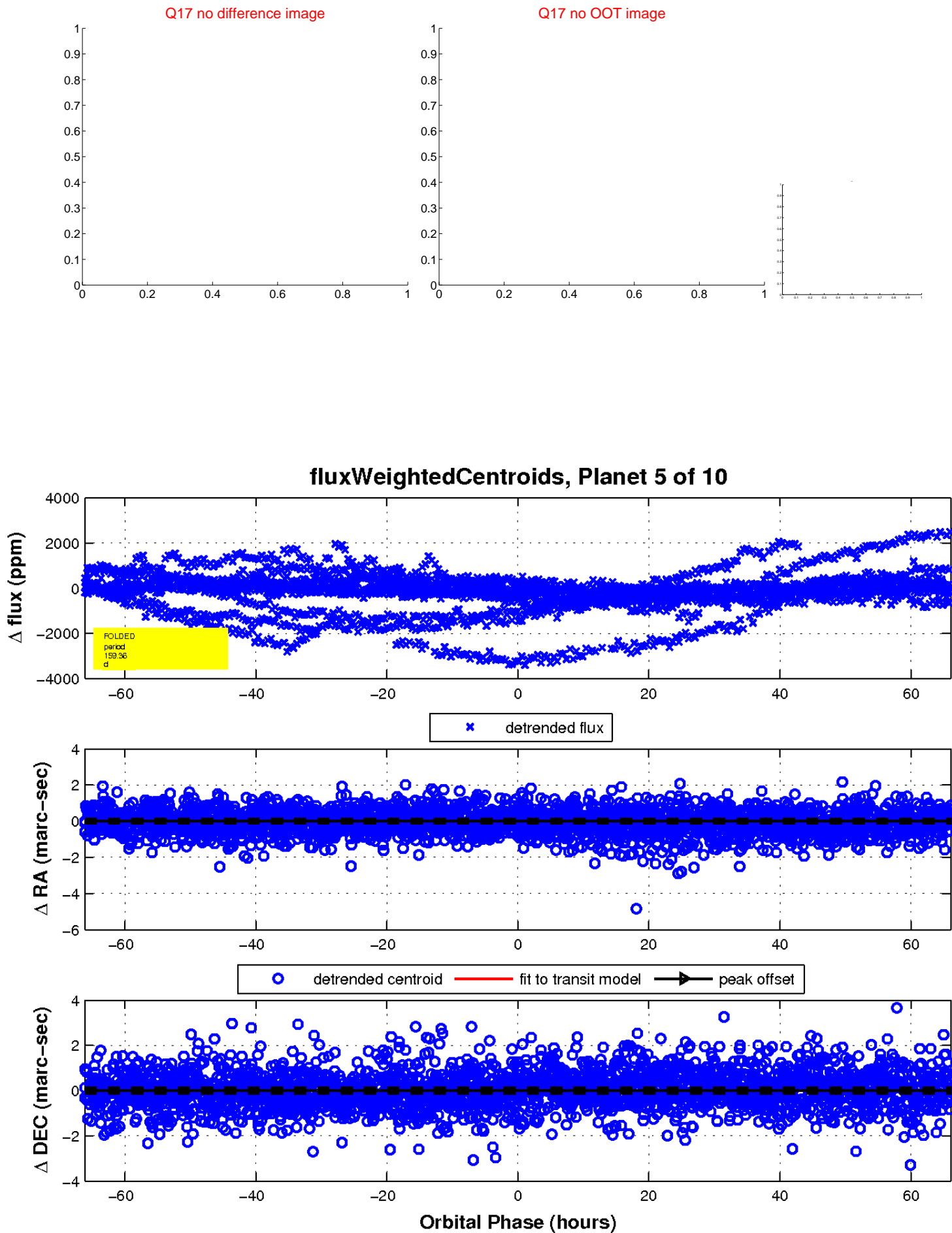
Q16 no difference image



Q16 no OOT image

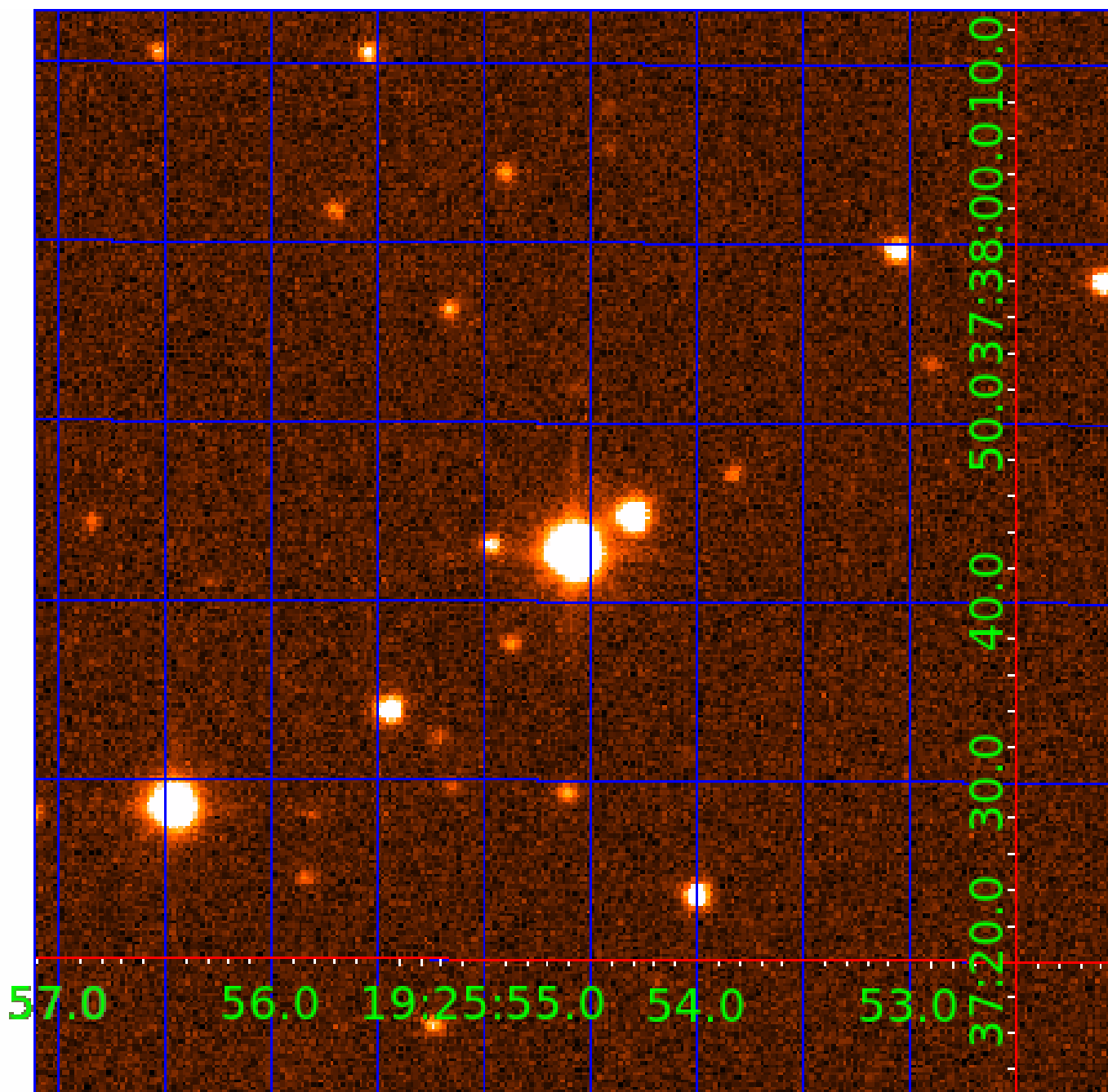


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
002303102-01	OBS	No	2.298875	132.974167	31.1	11.443	8.2	9.8	1.26	5465	0.74	1137.95
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002303102-03	OBS	No	319.894193	386.351543	393.4	15.000	19.9	-1.0	1.26	5465	2.44	1.58
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002303102-08	OBS	No	148.524623	145.415390	297.7	1.235	12.9	4.6	1.26	5465	2.38	4.39
002303102-09	OBS	No	544.908556	342.926822	523.6	5.000	12.9	-1.0	1.26	5465	2.82	0.78
002303102-10	OBS	No	480.480981	161.570218	309.9	15.557	11.5	6.9	1.26	5465	2.61	0.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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002303102-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
002303102-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
002303102-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
002303102-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
002303102-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

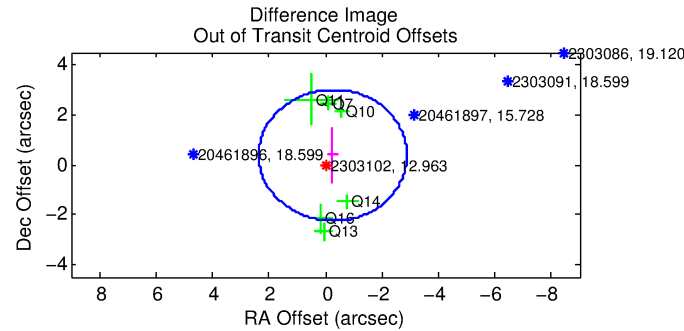
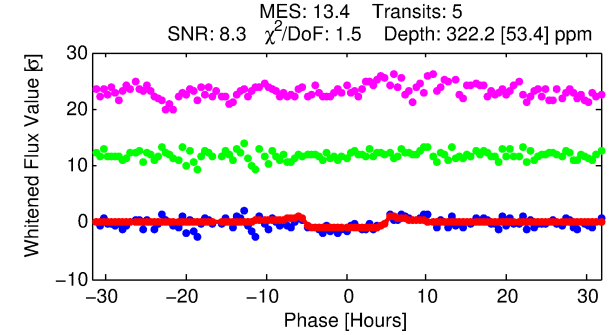
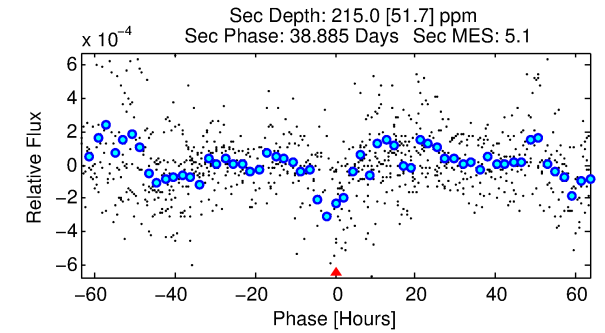
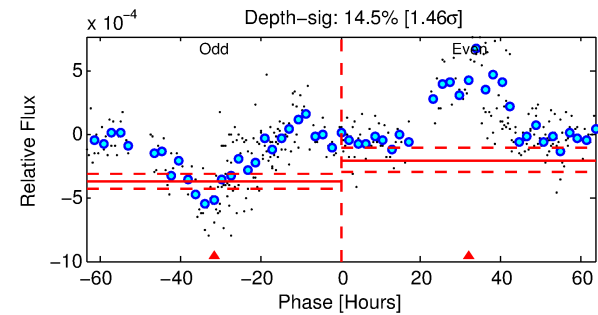
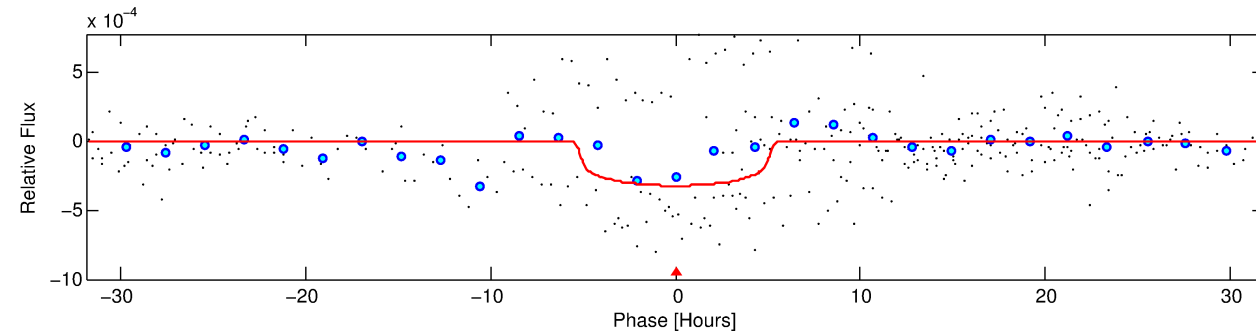
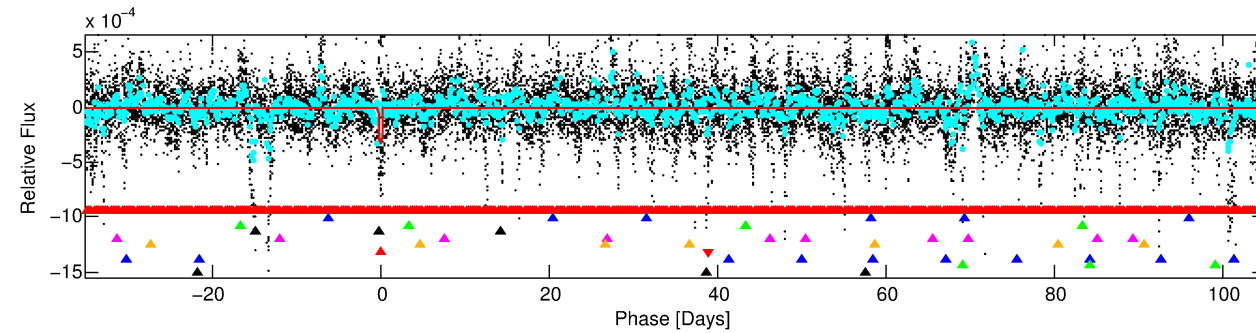
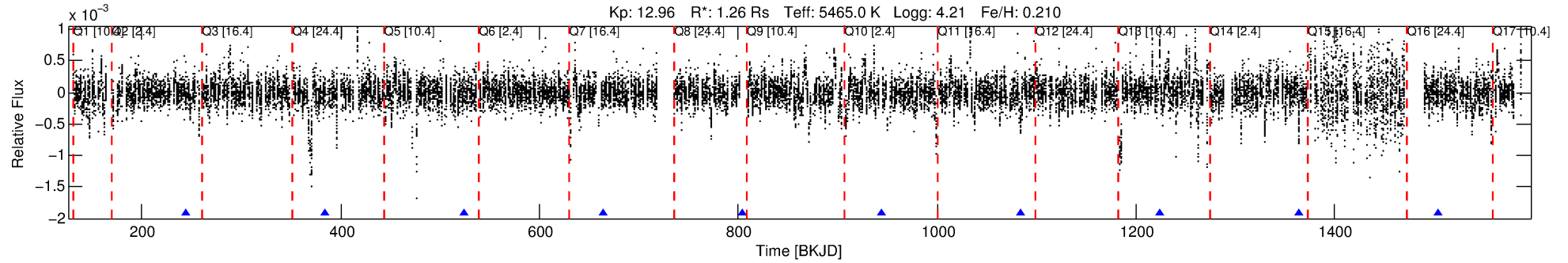
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002303102-07

No Significant Match Found

DV One-Page Summary

KIC: 2303102 Candidate: 7 of 10 Period: 139.966 d



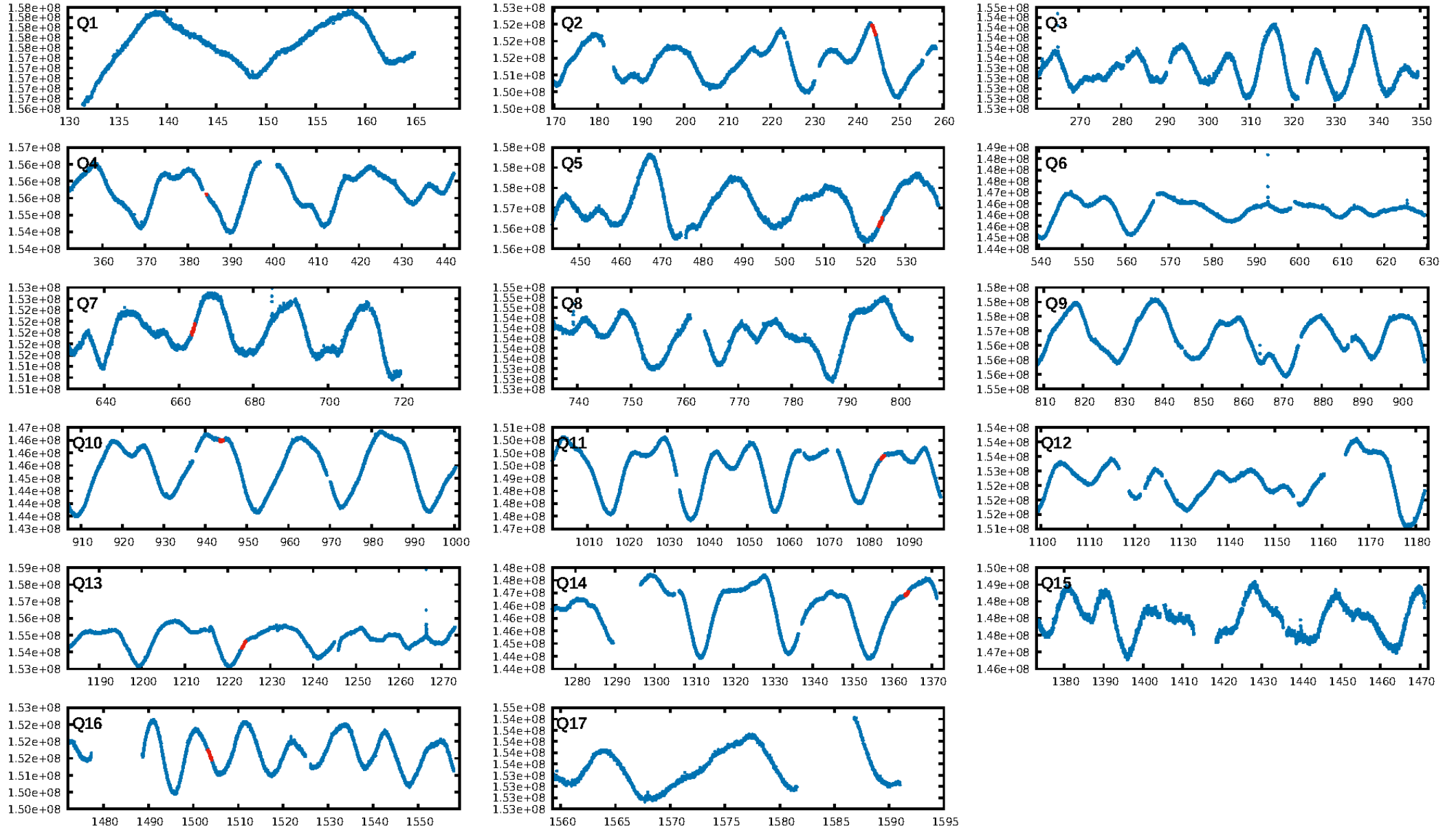
DV Fit Results:

Period = 139.96647 [0.00221] d
Epoch = 243.9941 [0.0153] BKJD
Rp/R* = 0.0173 [0.0161]
a/R* = 77.67 [284.60]
b = 0.66 [3.15]
Seff = 4.75 [2.27]
Teff = 376 [45] K
Rp = 2.38 [2.30] Re
a = 0.5155 [0.1456] AU
Ag = 5562.29 [10717.56] [0.52 σ]
Teffp = 5027 [2355] K [1.97 σ]

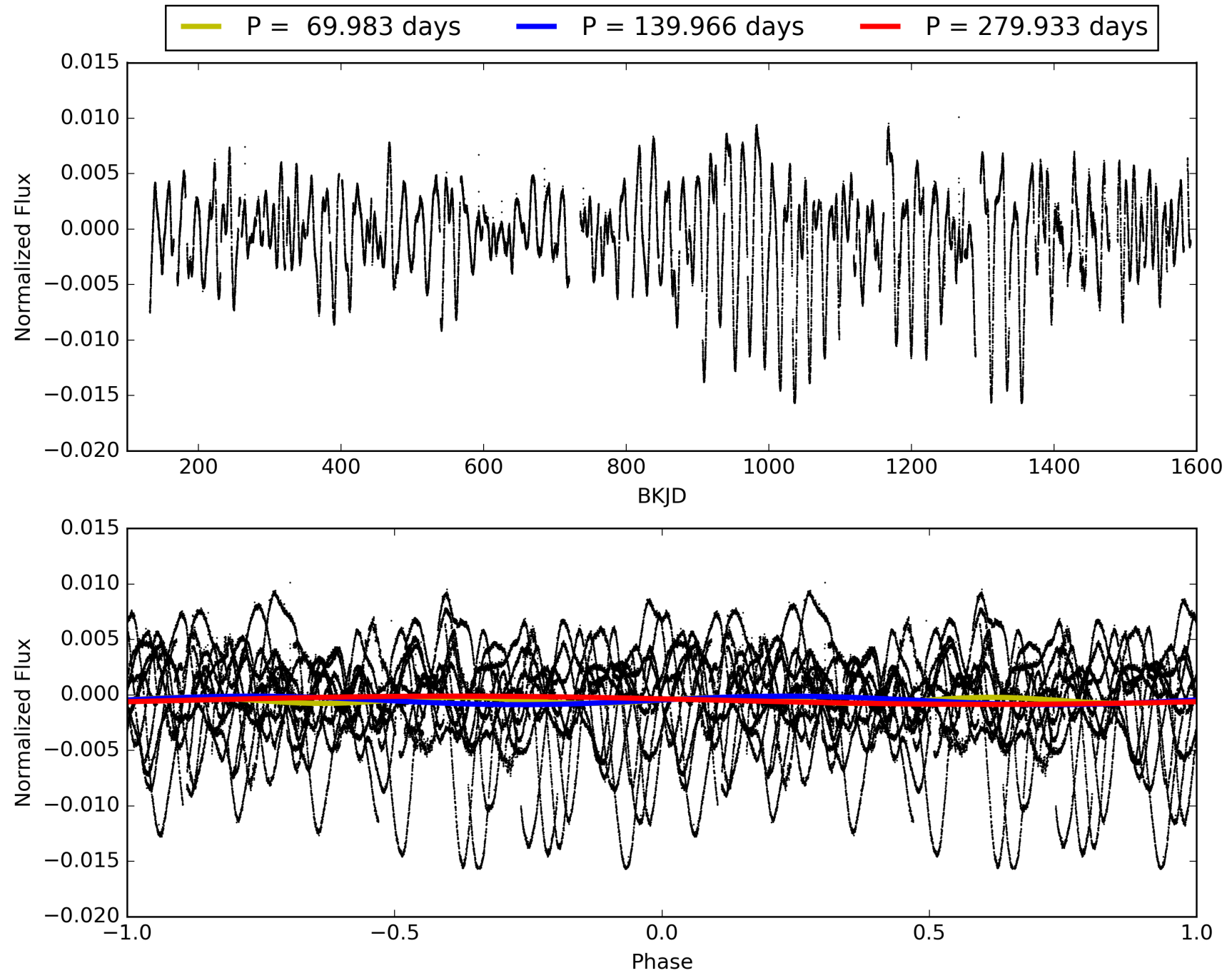
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [211.59 σ]
LongPeriod-sig: 100.0% [19.20 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.3658
Centroid-sig: 12.4%
Centroid-so: 0.815 arcsec [1.33 σ]
OotOffset-rm: 0.455 arcsec [0.52 σ]
KicOffset-rm: 0.416 arcsec [0.48 σ]
OotOffset-st: 2/2/1/1 [6]
KicOffset-st: 2/2/1/1 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 0.12 [1/8]

TCE 002303102-07, PDC Light Curves

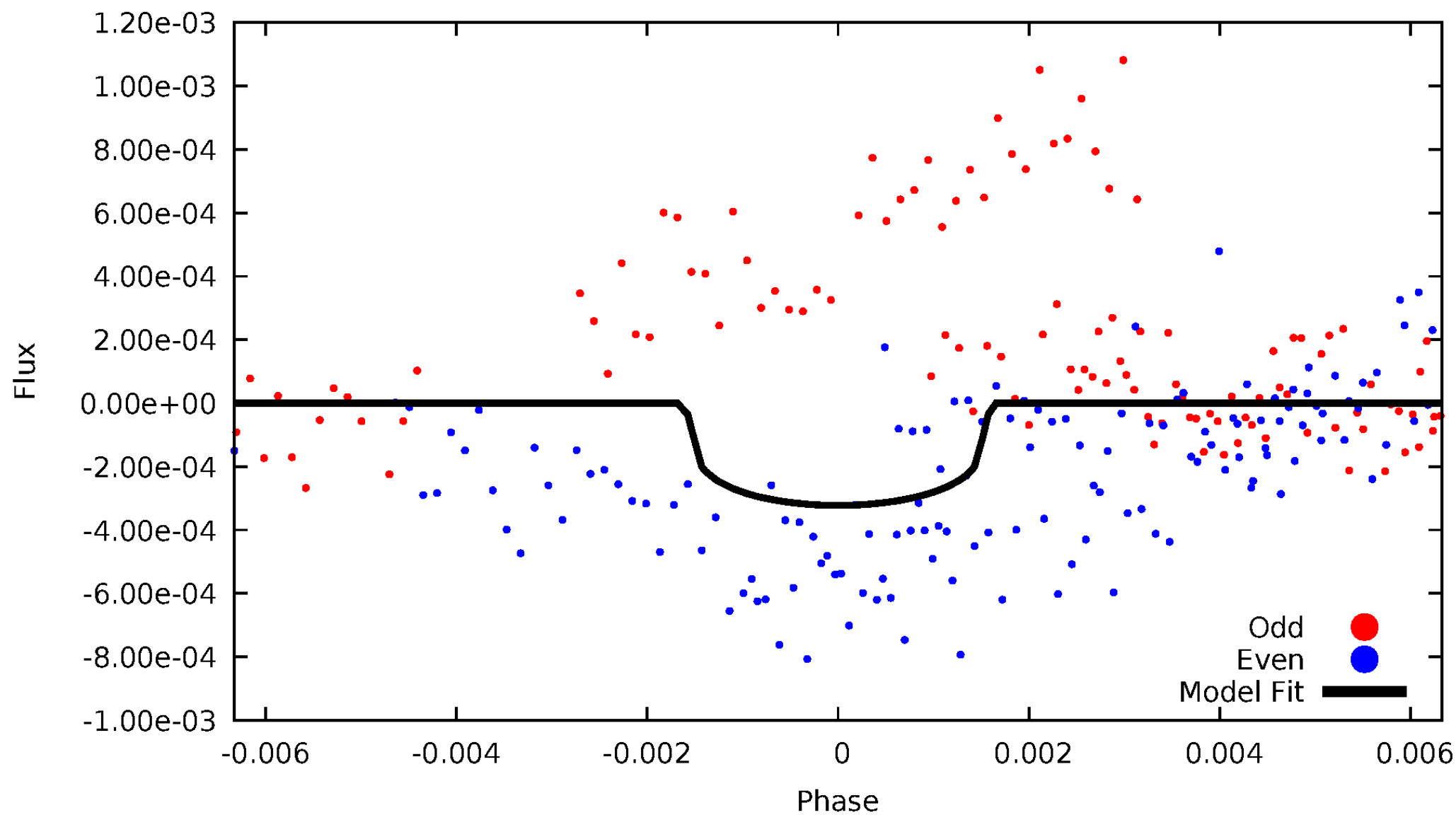


TCE 002303102-07



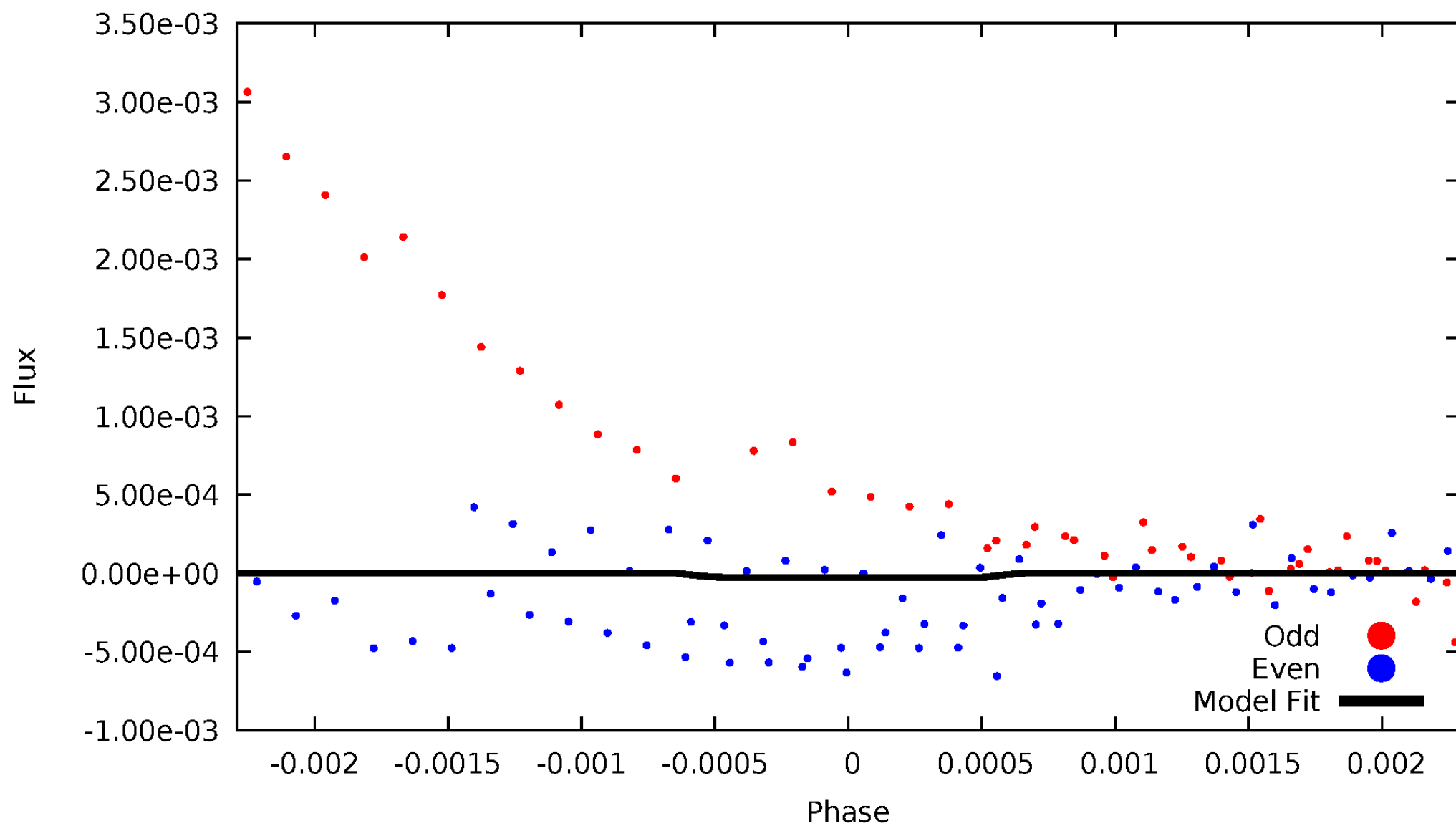
DV Odd/Even

TCE 002303102-07



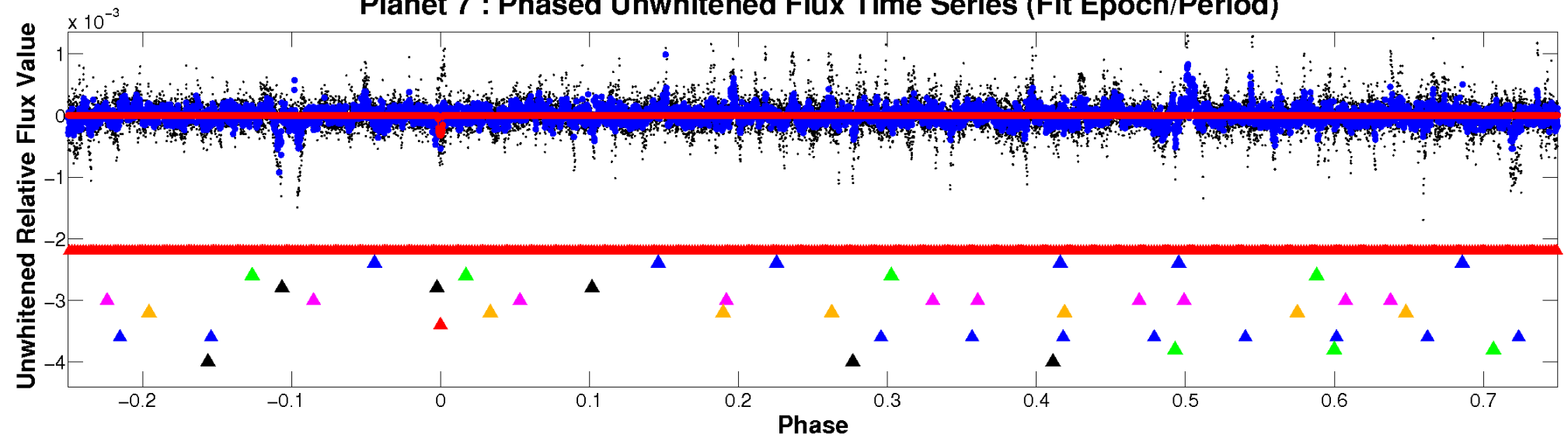
ALT Odd/Even

TCE 002303102-07

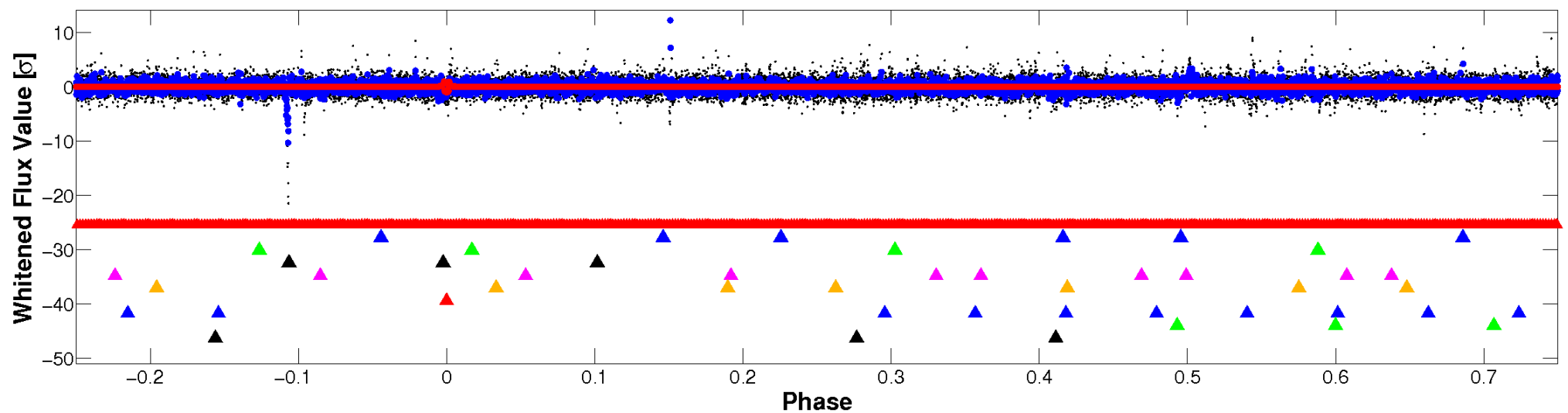


Non-Whitened Vs. Whitened Light Curve

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

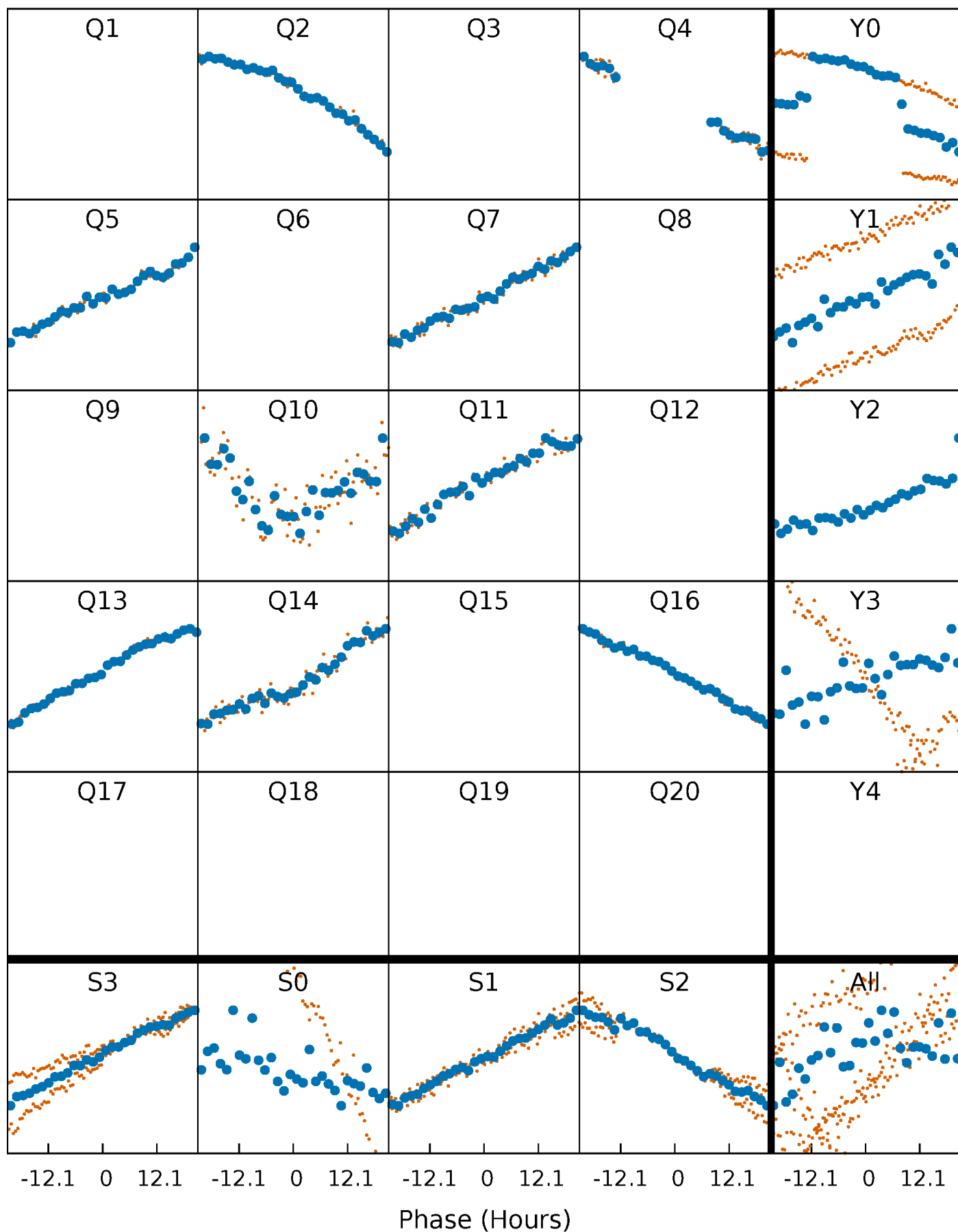


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



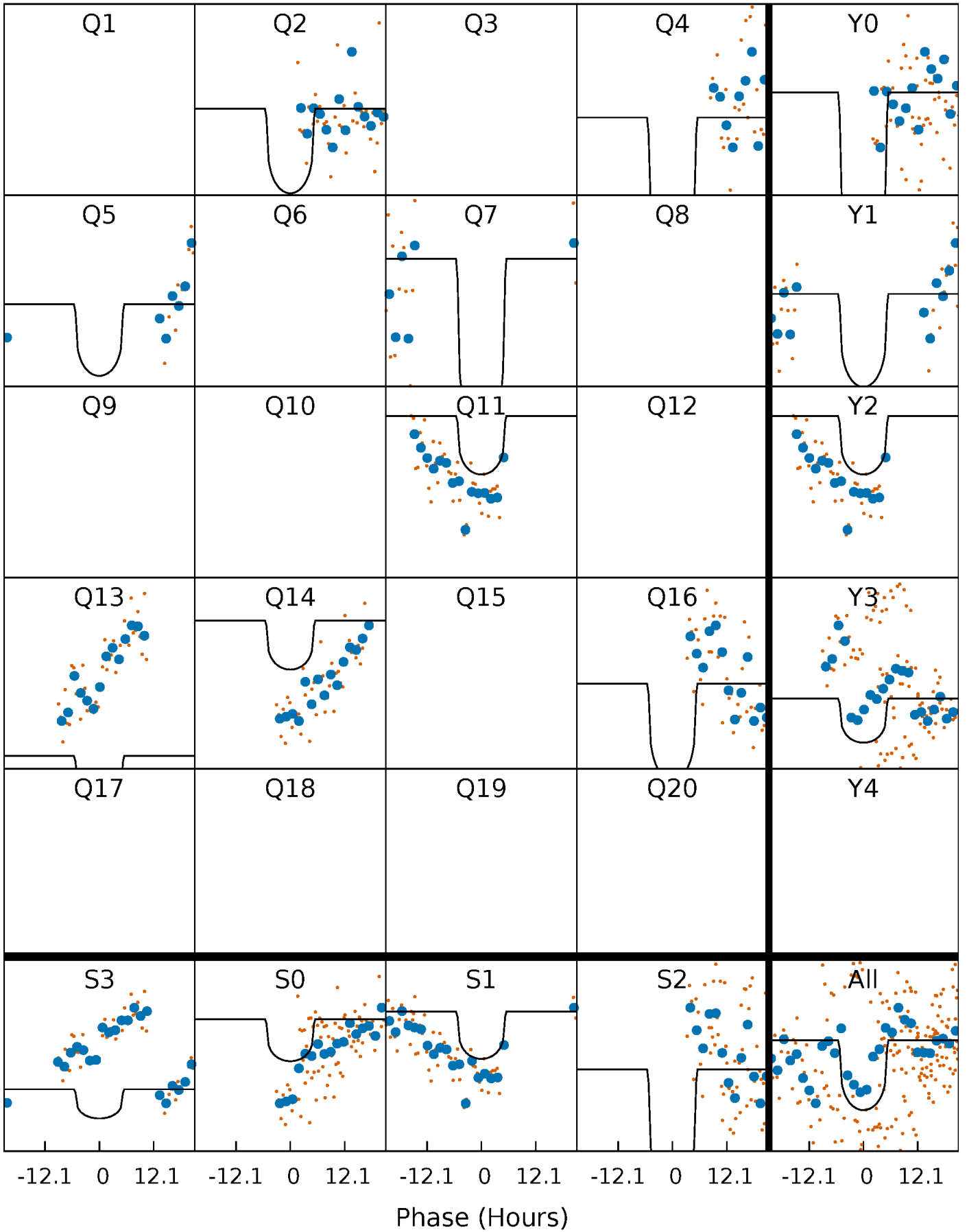
PDC Quarter-Phased Transit Curves

TCE 002303102-07 $P=139.966466$ Days $T_0=243.994110$ (BKJD)



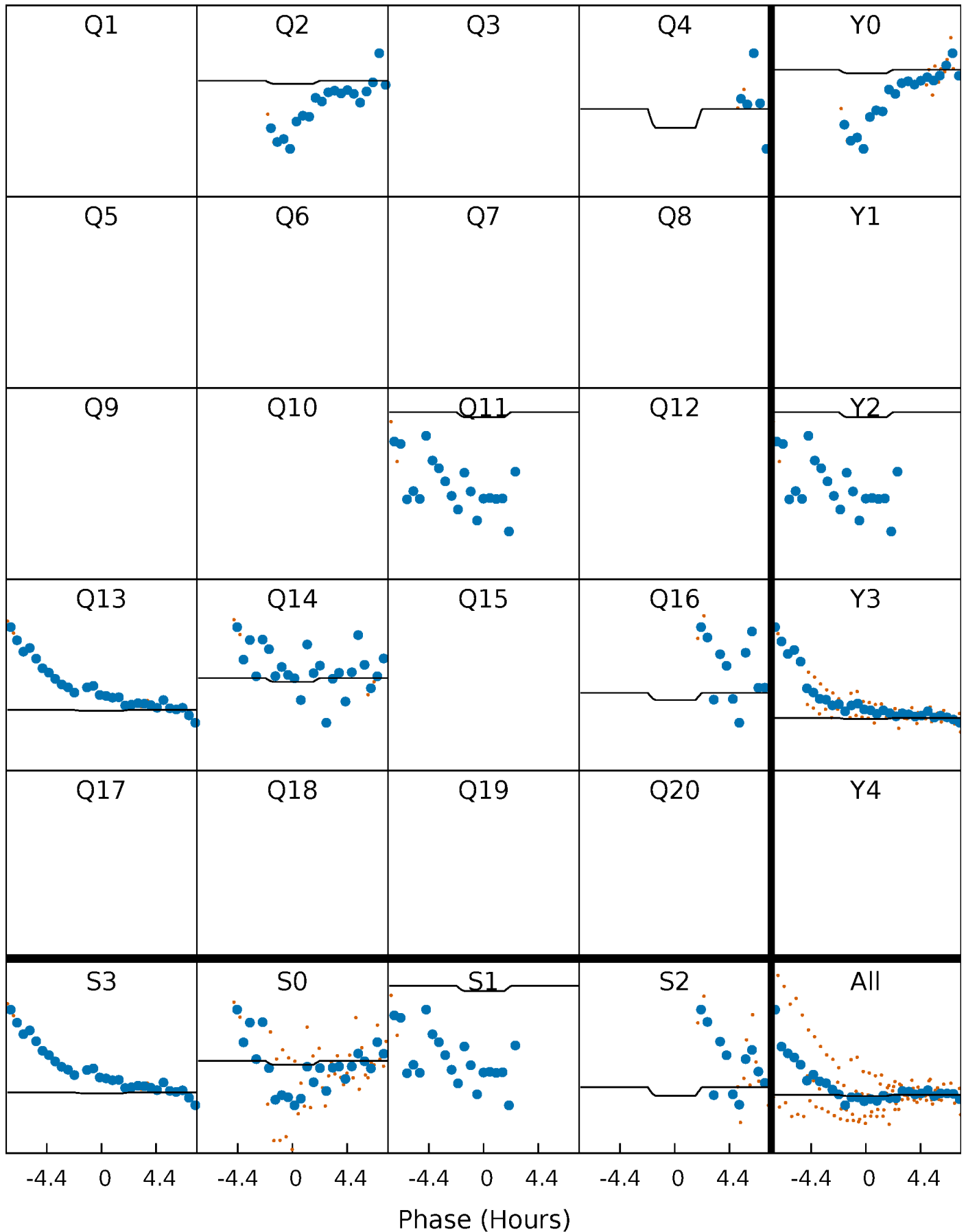
DV Quarter-Phased Transit Curves

TCE 002303102-07 $P=139.966466$ Days $T_0=243.994110$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

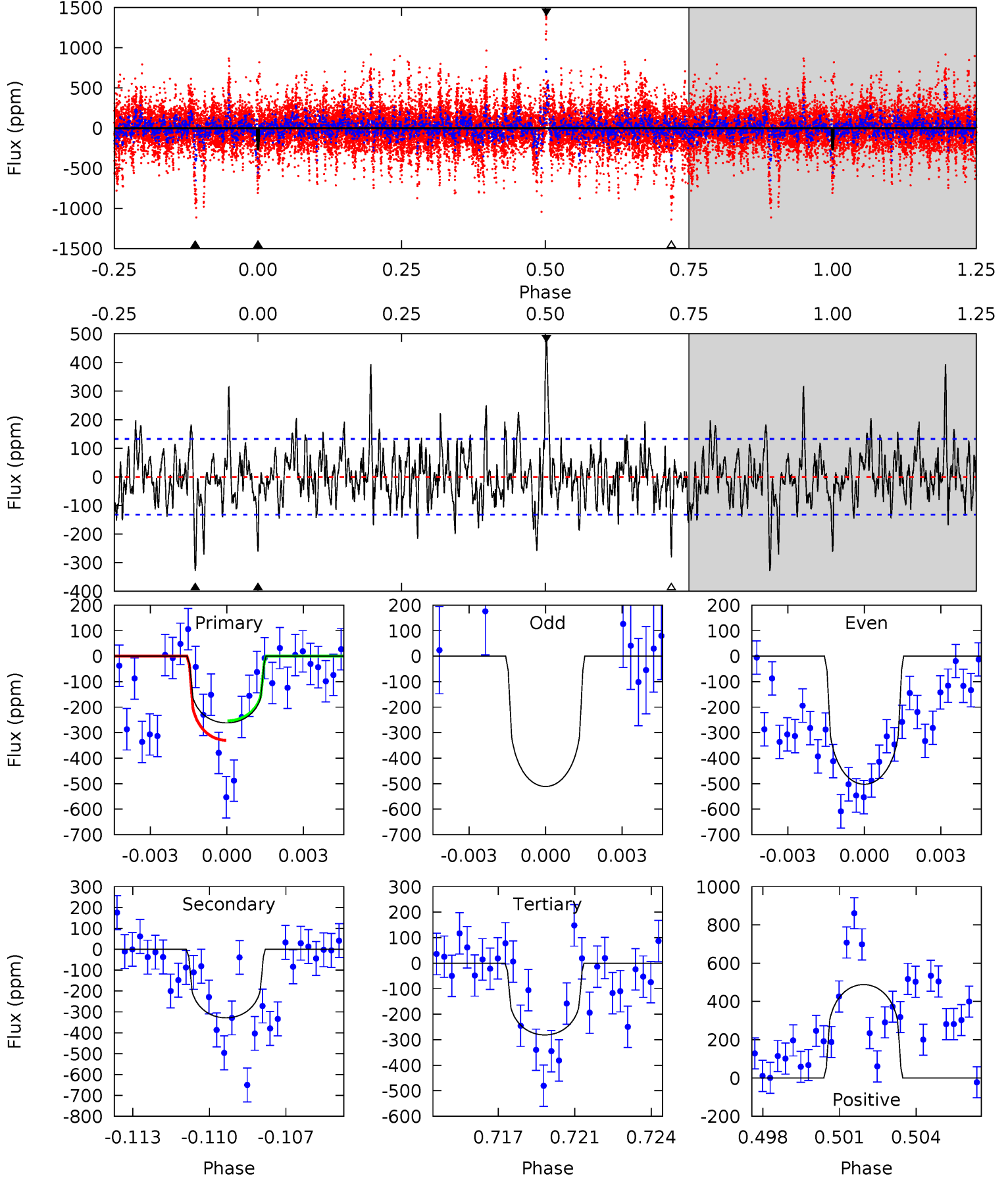
TCE 002303102-07 P=139.956264 Days $T_0=244.145298$ (BKJD)



DV Model-Shift Uniqueness Test

002303102-07, P = 139.966466 Days, E = 104.027644 Days

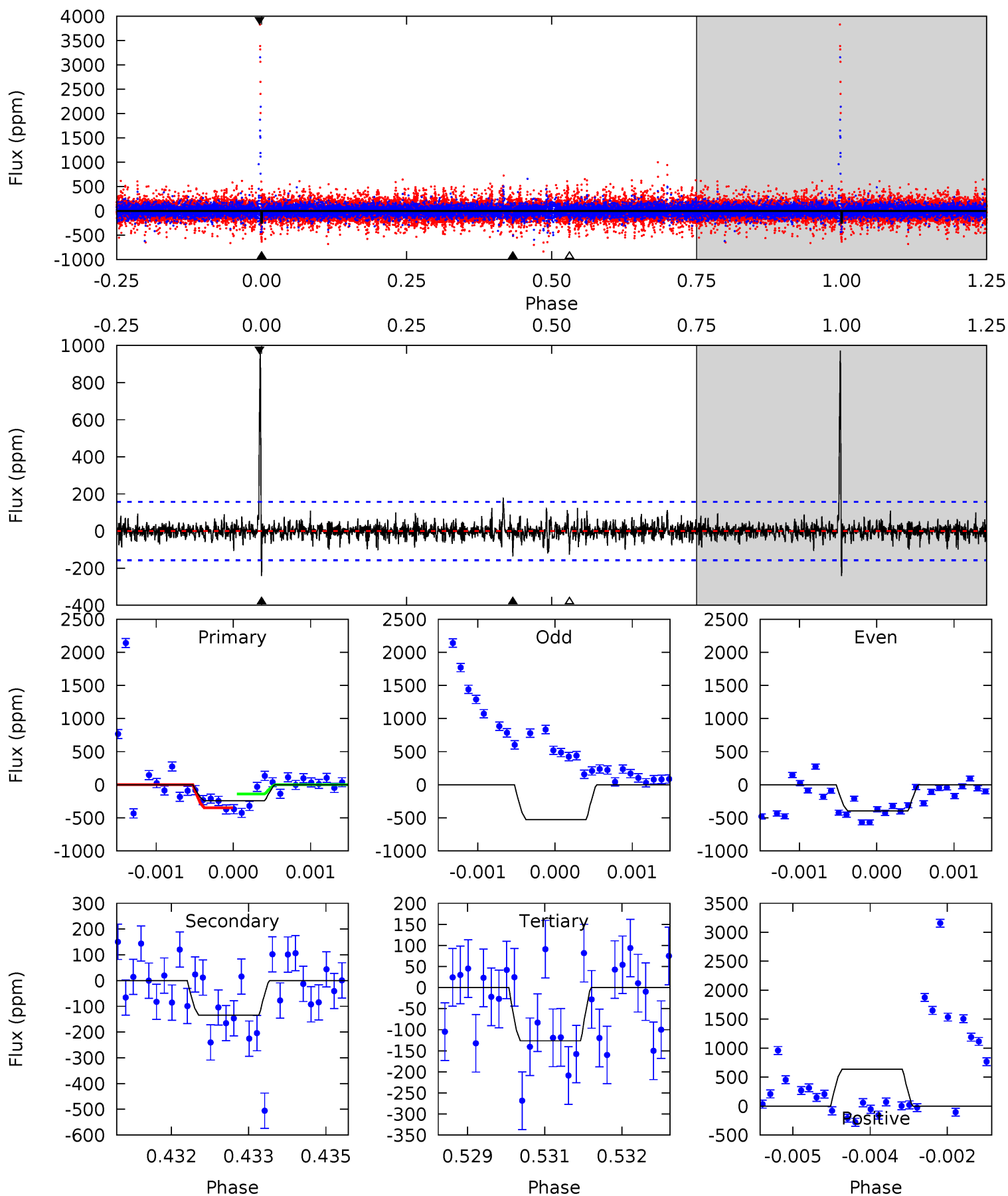
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	13.0	11.1	19.3	5.24	2.94	3.23	-0.76	-8.96	1.87	-6.32	0.17	1.97	0.60	1.47



Alt Model-Shift Uniqueness Test

002303102-07, P = 139.956264 Days, E = 104.189034 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.32	4.62	4.35	21.9	5.41	3.23	1.41	3.97	-13.6	0.27	-17.3	2.08	0.47	0.80	3.59



Stellar Parameters For KIC 002303102

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5465^{+164}_{-147}	$4.209^{+0.276}_{-0.184}$	$0.210^{+0.200}_{-0.250}$	$1.257^{+0.352}_{-0.352}$	$0.932^{+0.090}_{-0.074}$	$0.661^{+1.131}_{-0.326}$
	+3%/-3%	+7%/-4%	+95%/-119%	+28%/-28%	+10%/-8%	+171%/-49%
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 002303102-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-329 ± 25	$2.65^{+2.24}_{-1.63}$	525^{+43}_{-44}	5230^{+3511}_{-1079}	6834^{+40661}_{-4842}
Alt.	-134 ± 29	$1.72^{+1.69}_{-1.18}$	523^{+43}_{-43}	5182^{+5119}_{-1236}	6390^{+59784}_{-4745}

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 $A_{obs} \gg 1.0$

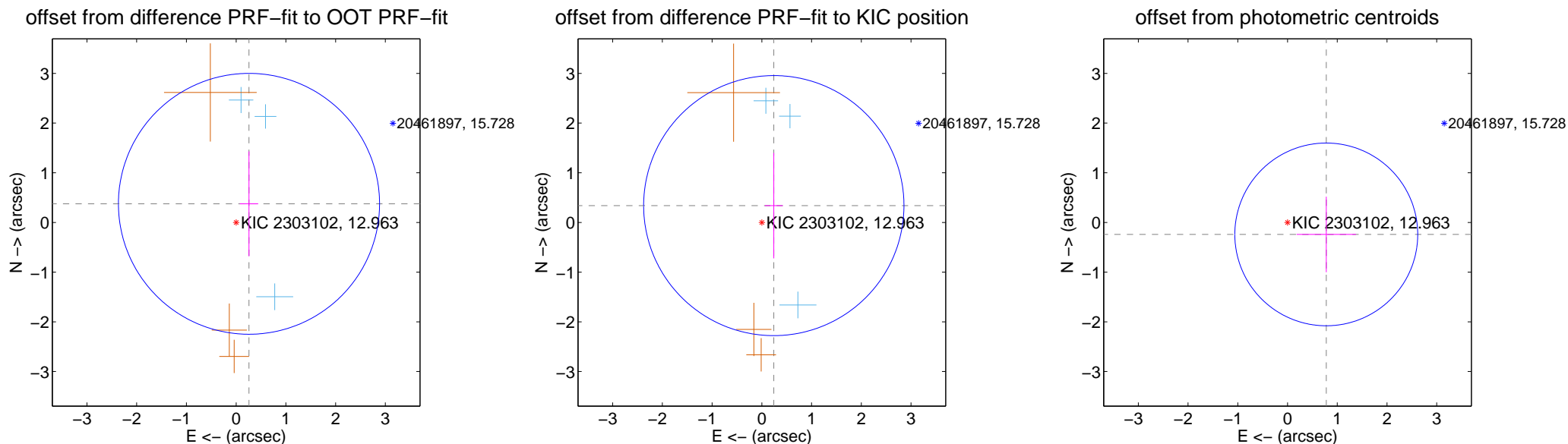
DV Centroid Data

Supplemental centroid analysis for 002303102-07. Kepler magnitude: 12.96. Transit SNR 8.33

There are 3 quarters with good PRF difference image offsets

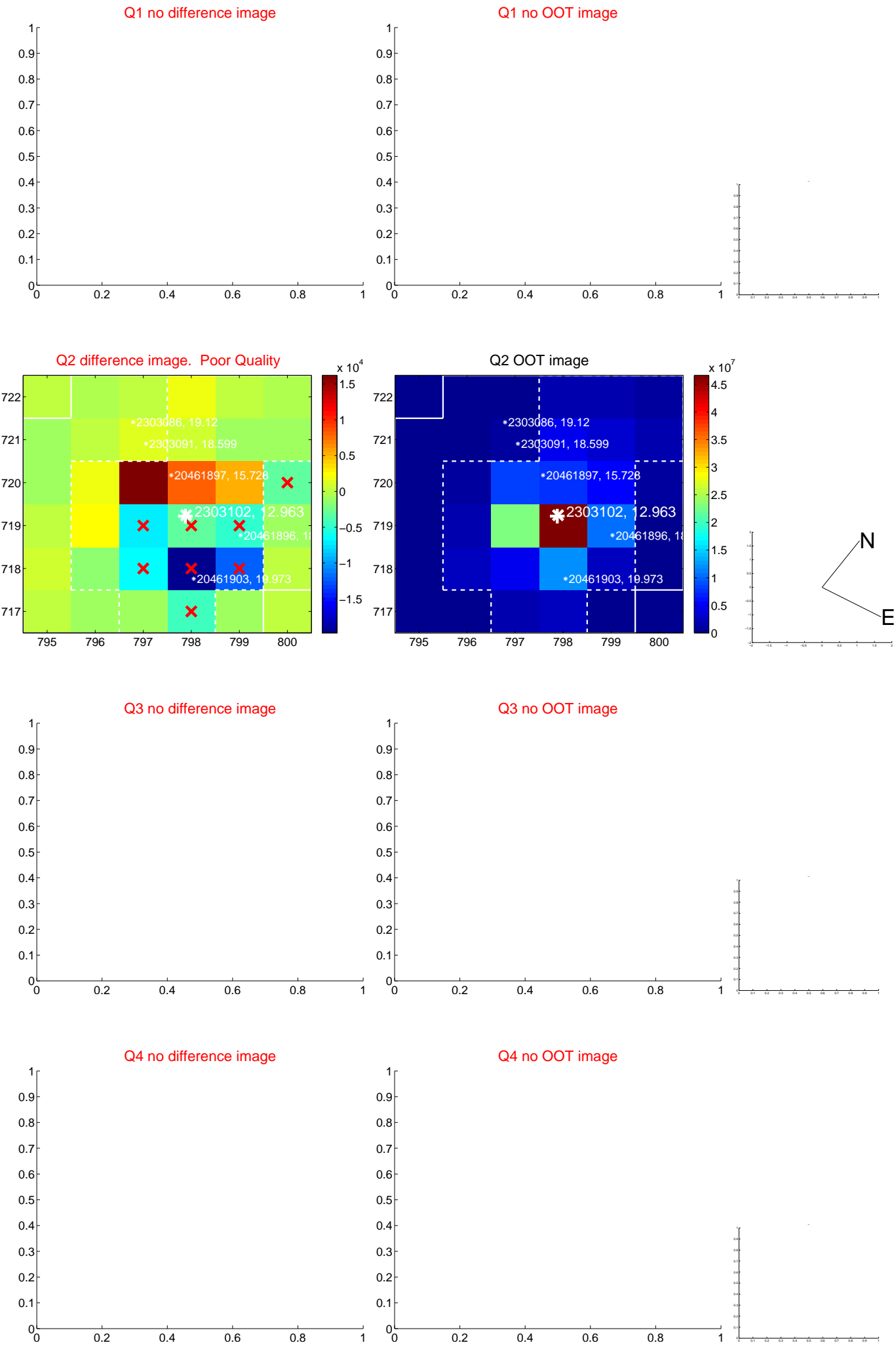
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.455 ± 0.875	0.52	-0.258 ± 0.185	0.375 ± 1.055
PRF-fit source offset from KIC position	0.416 ± 0.872	0.48	-0.241 ± 0.181	0.339 ± 1.062
photometric centroid source offset	0.82 ± 0.61	1.33	-0.78 ± 0.60	-0.24 ± 0.76

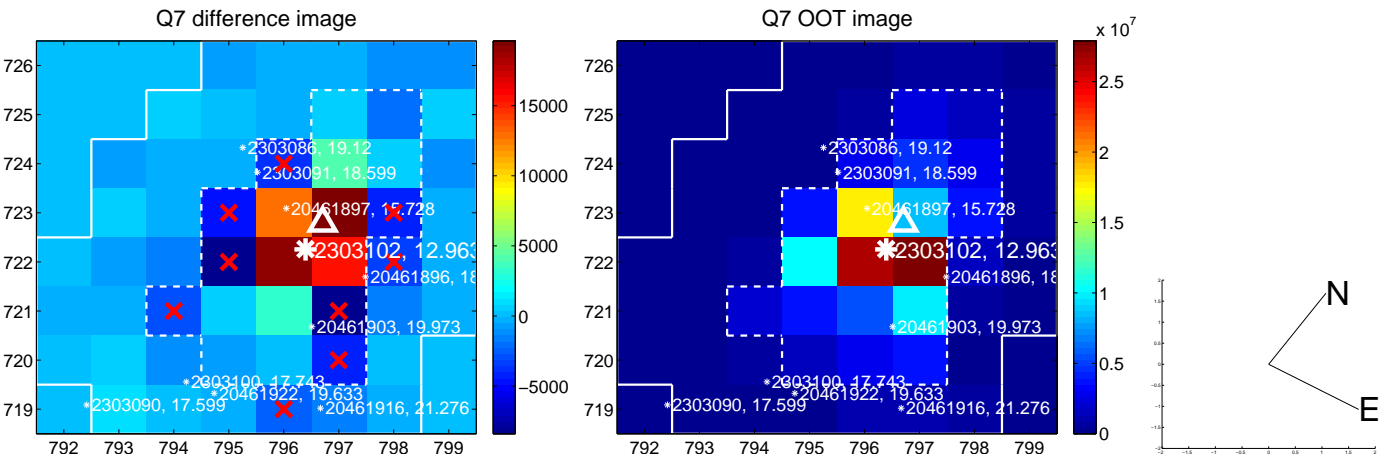
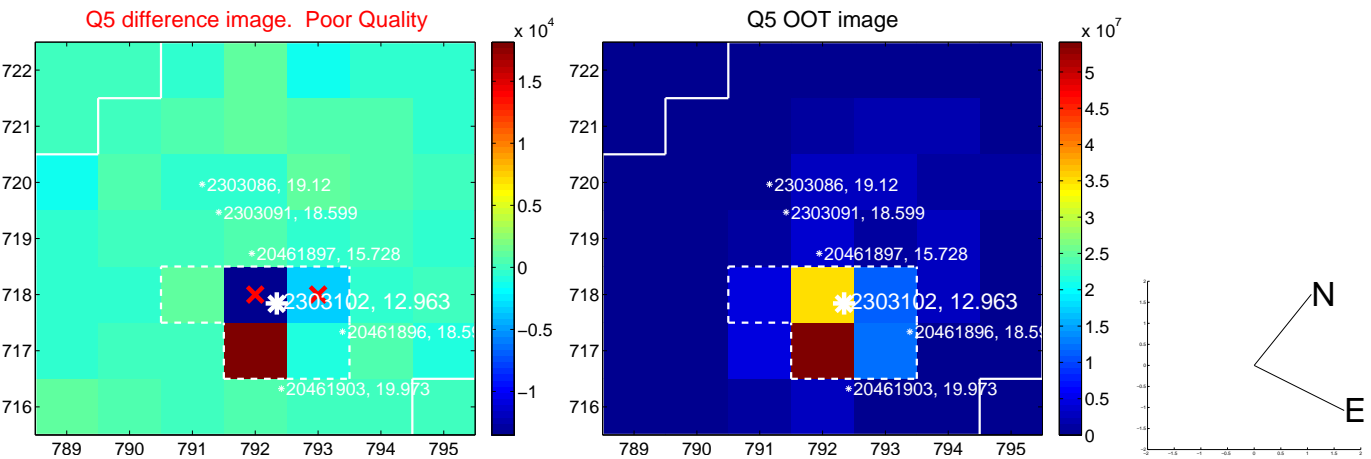


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

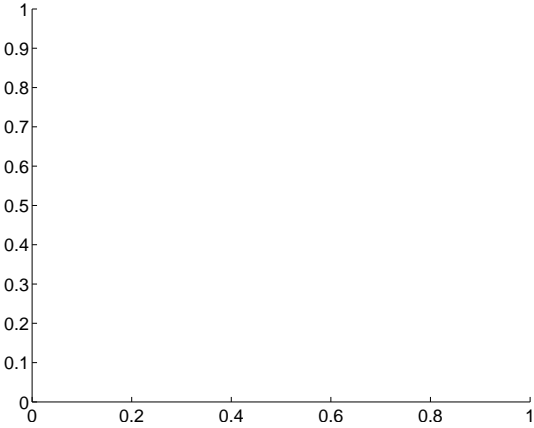


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

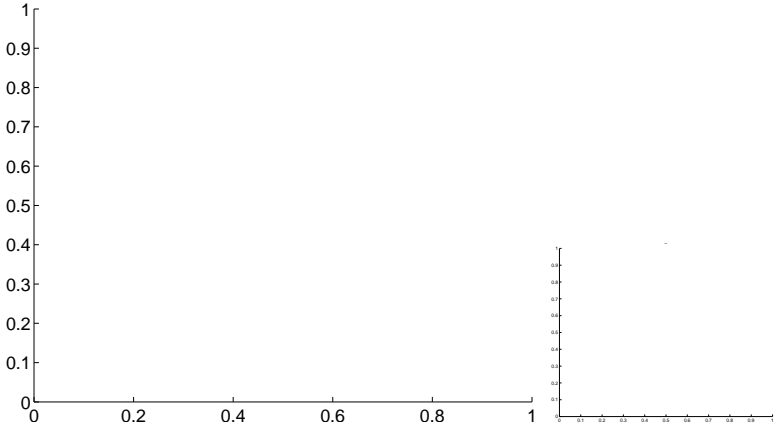


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

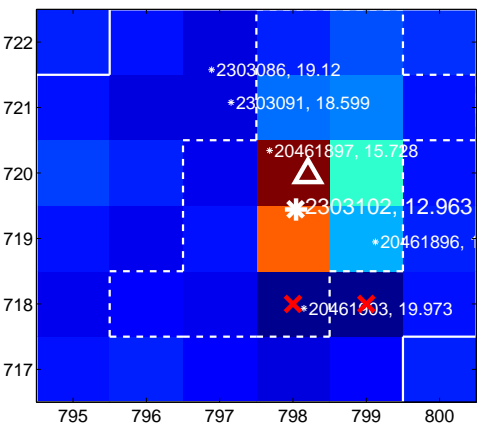
Q9 no difference image



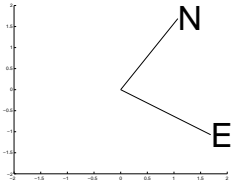
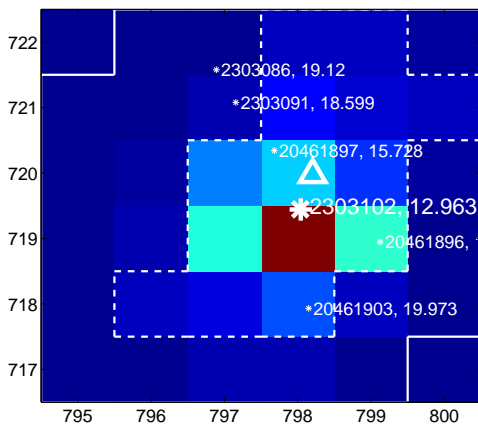
Q9 no OOT image



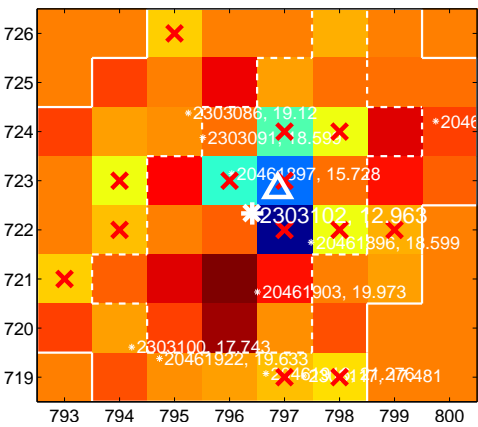
Q10 difference image



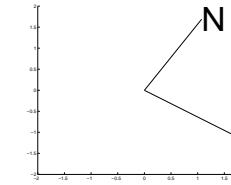
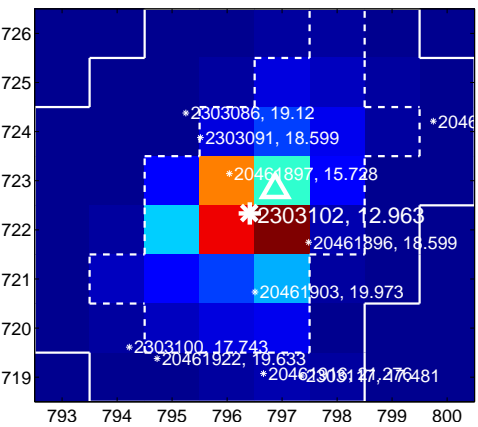
Q10 OOT image



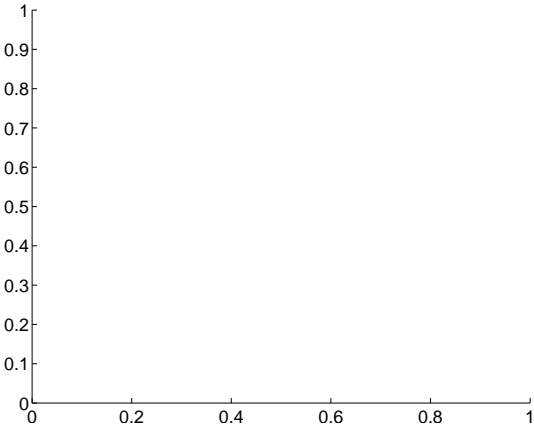
Q11 difference image. Poor Quality



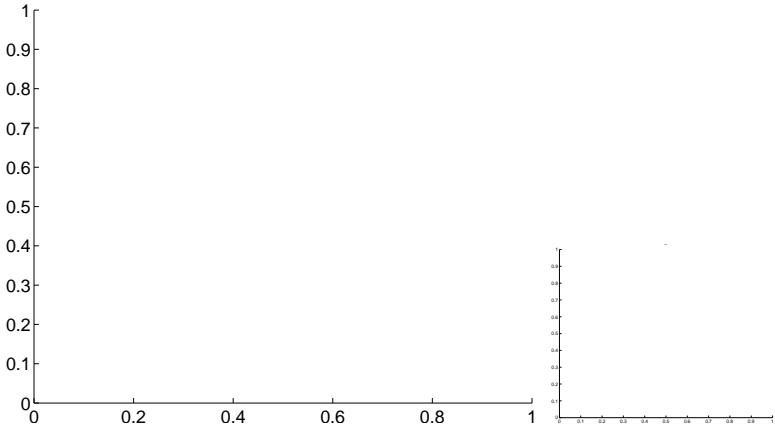
Q11 OOT image



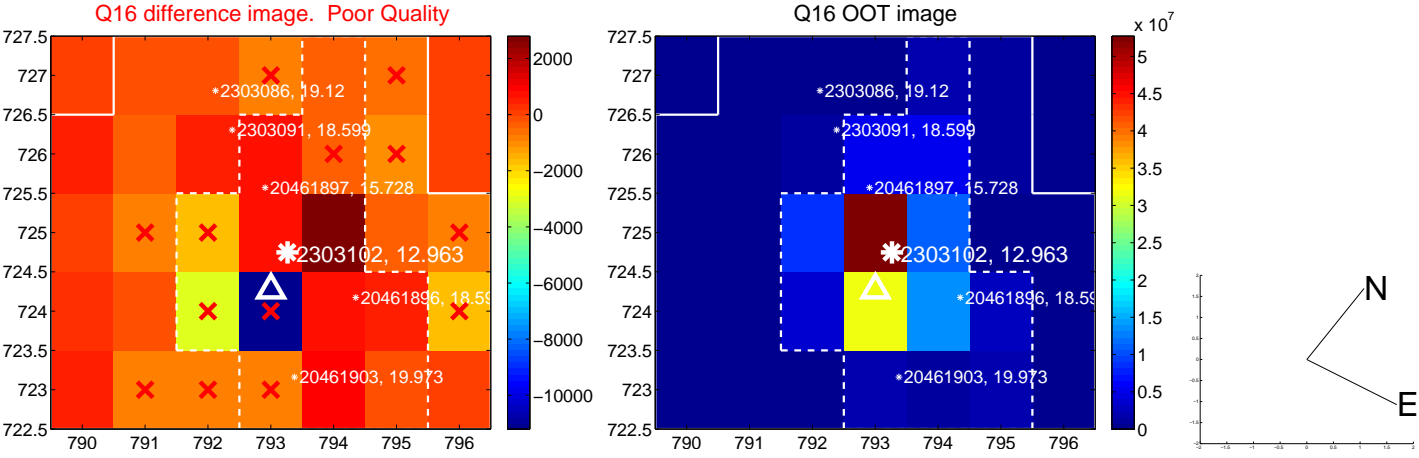
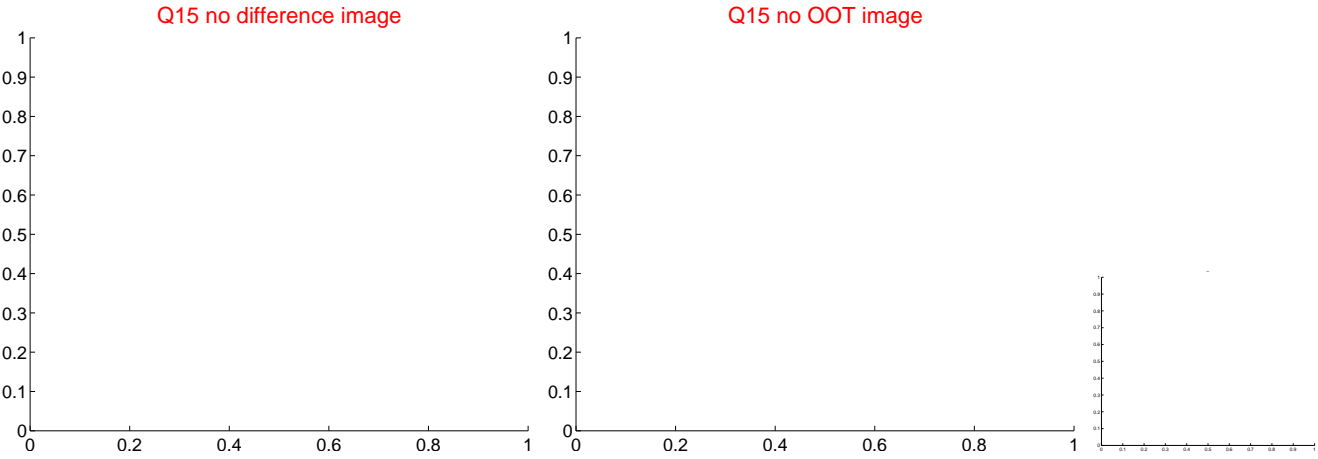
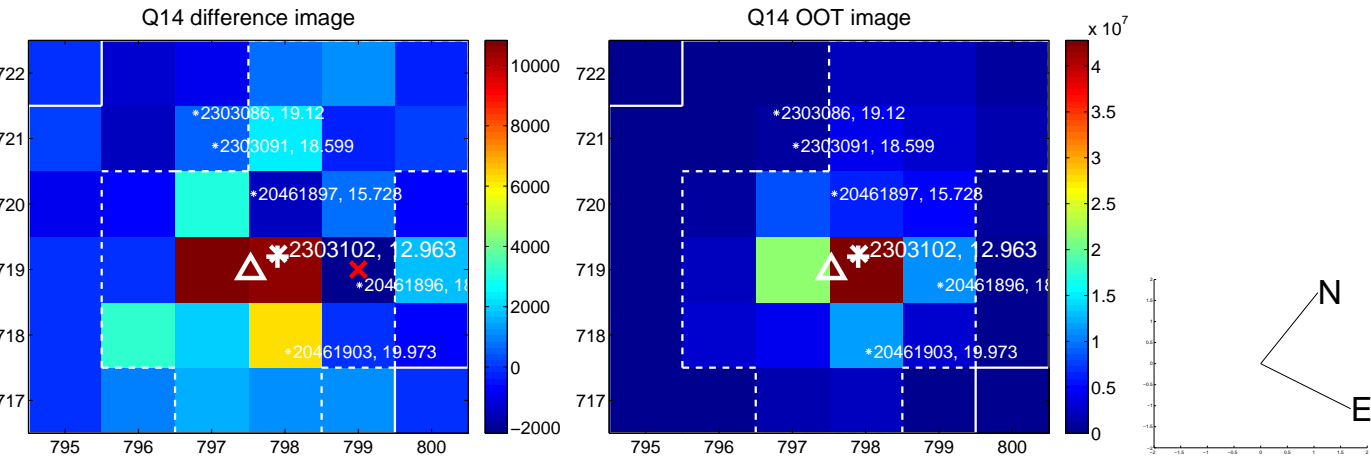
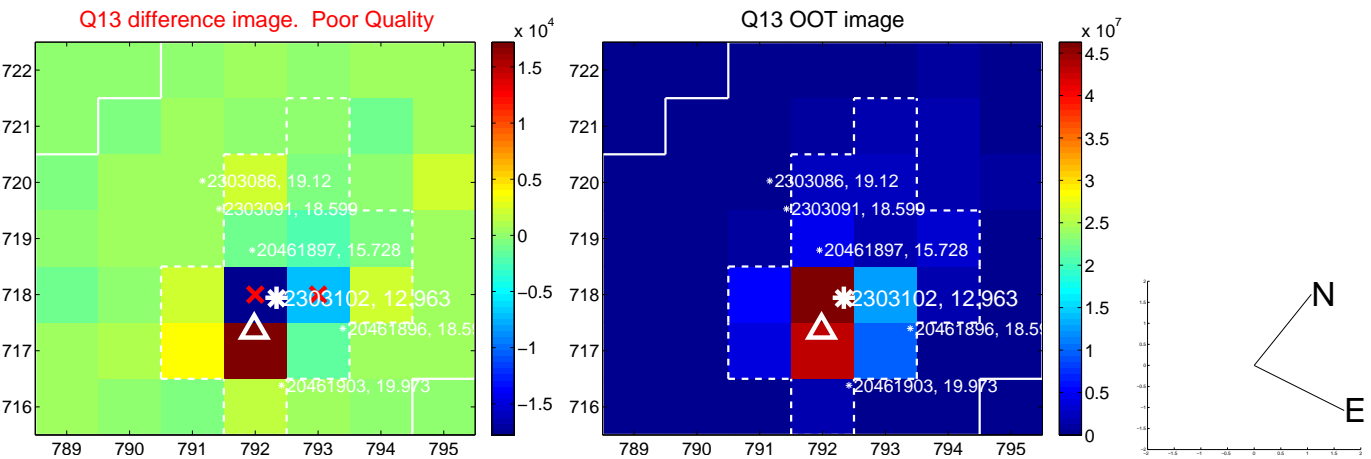
Q12 no difference image



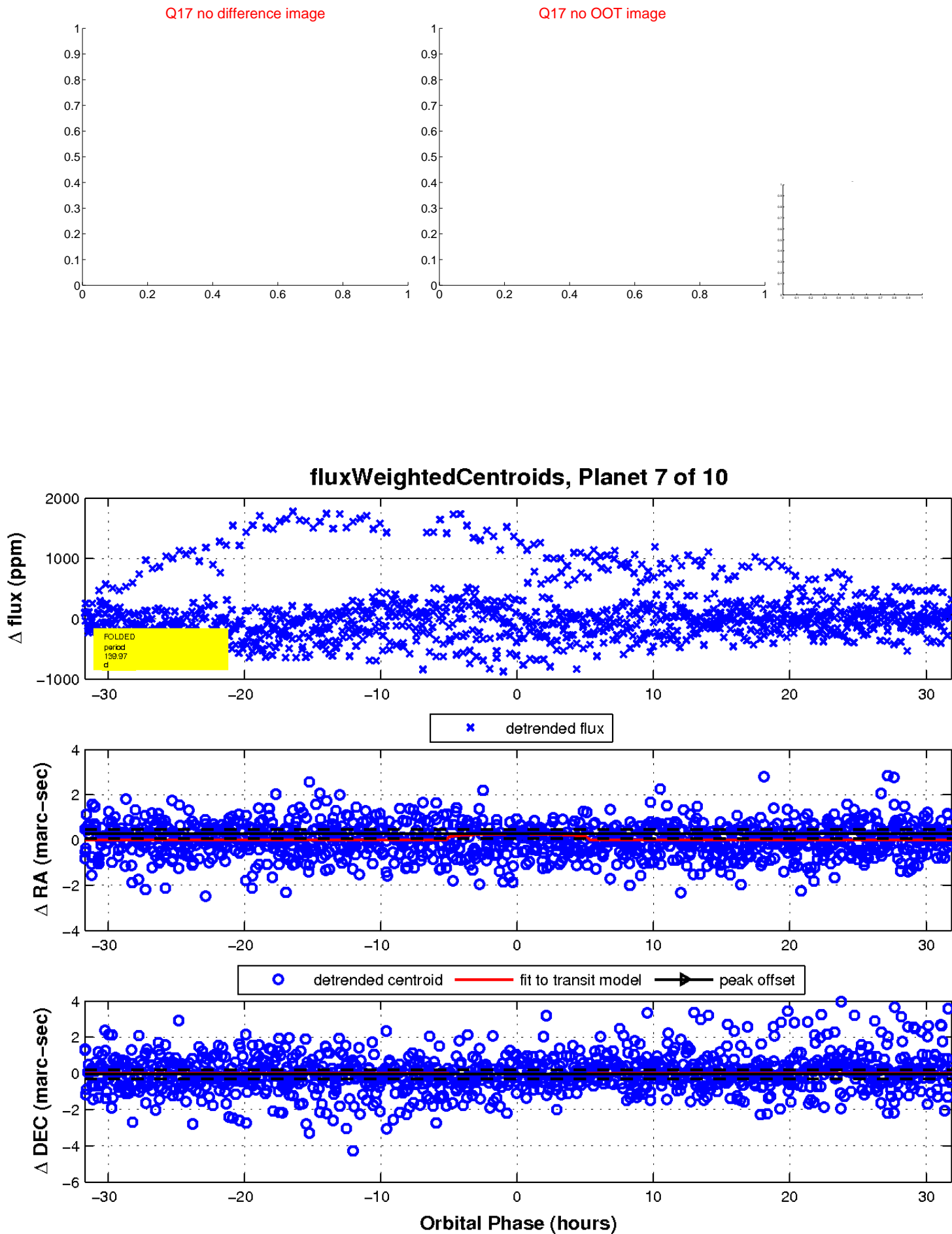
Q12 no OOT image



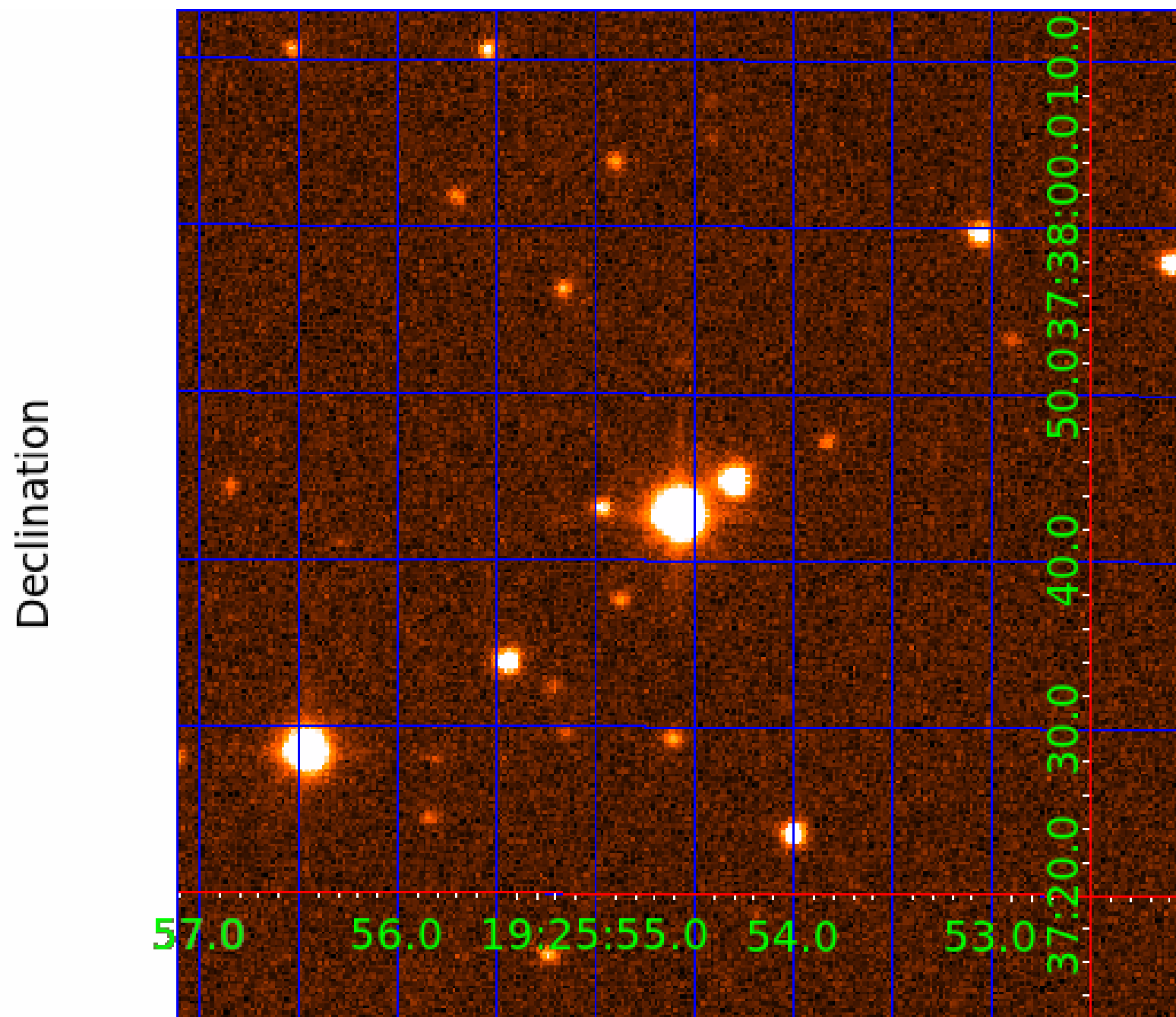
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



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})
002303102-01	OBS	No	2.298875	132.974167	31.1	11.443	8.2	9.8	1.26	5465	0.74	1137.95
002303102-02	OBS	No	242.161051	173.380485	650.8	21.893	36.3	9.1	1.26	5465	6.47	2.29
002303102-03	OBS	No	319.894193	386.351543	393.4	15.000	19.9	-1.0	1.26	5465	2.44	1.58
002303102-04	OBS	No	434.460665	509.040892	576.8	13.180	19.1	12.4	1.26	5465	3.47	1.05
002303102-05	OBS	No	159.358266	154.502554	141.2	22.045	16.9	3.5	1.26	5465	1.61	4.00
002303102-07	OBS	No	139.966466	243.994110	322.2	10.625	13.4	8.3	1.26	5465	2.38	4.75
002303102-08	OBS	No	148.524623	145.415390	297.7	1.235	12.9	4.6	1.26	5465	2.38	4.39
002303102-09	OBS	No	544.908556	342.926822	523.6	5.000	12.9	-1.0	1.26	5465	2.82	0.78
002303102-10	OBS	No	480.480981	161.570218	309.9	15.557	11.5	6.9	1.26	5465	2.61	0.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002303102-01	OBS	FP	0.00	1	0	0	0	LPP_DV
002303102-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
002303102-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
002303102-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
002303102-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
002303102-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

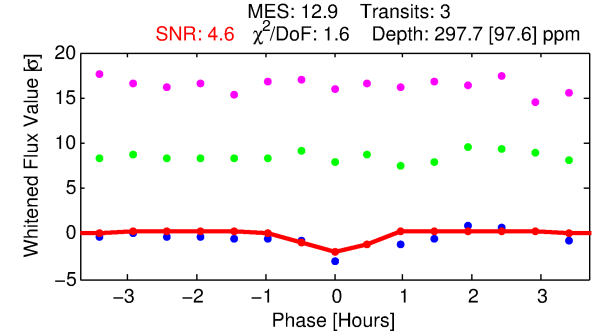
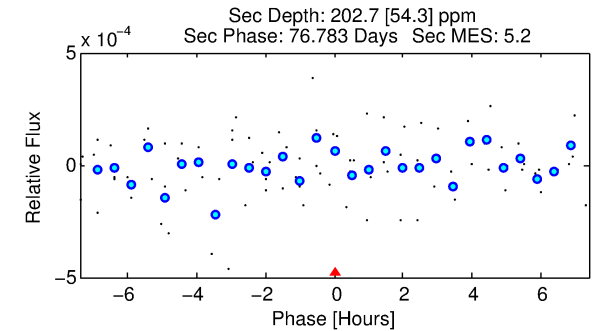
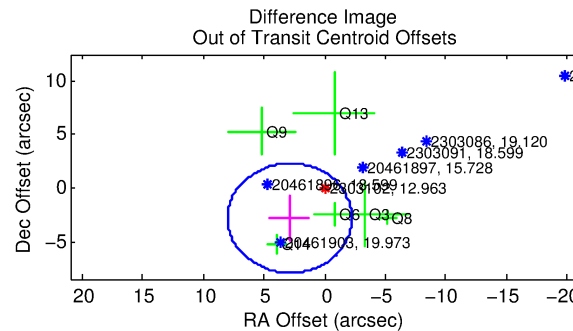
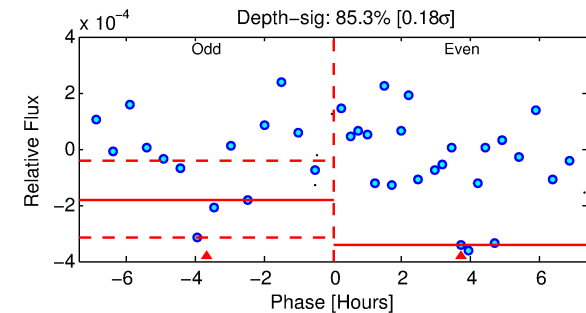
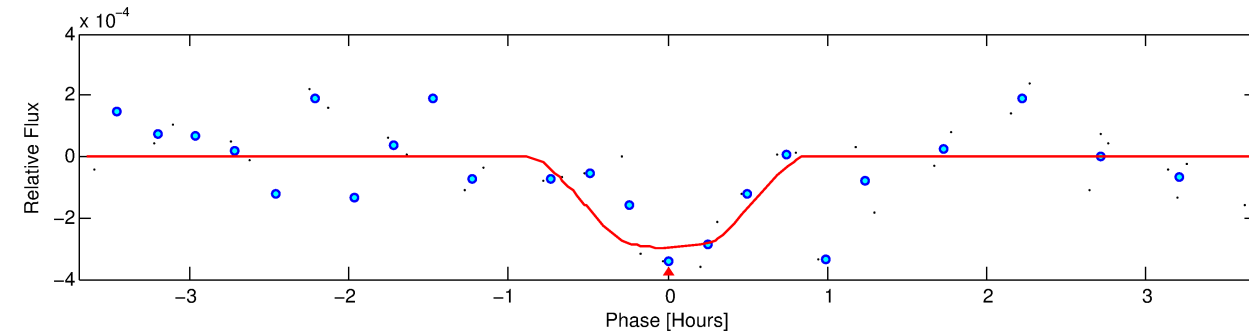
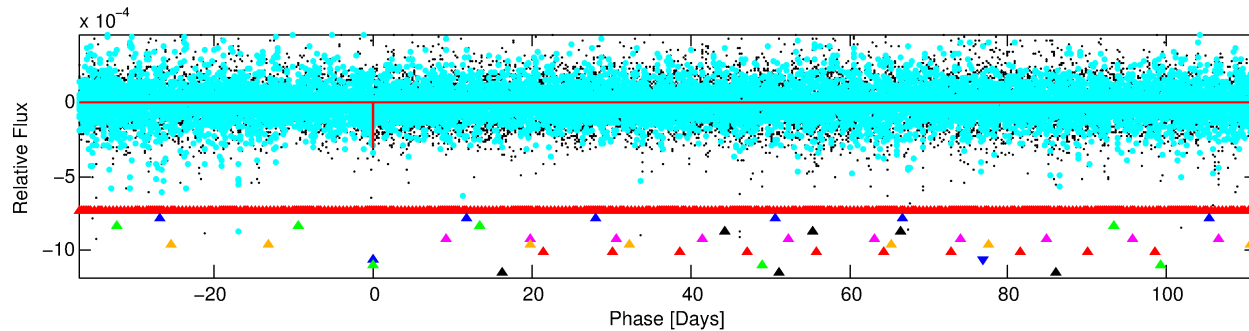
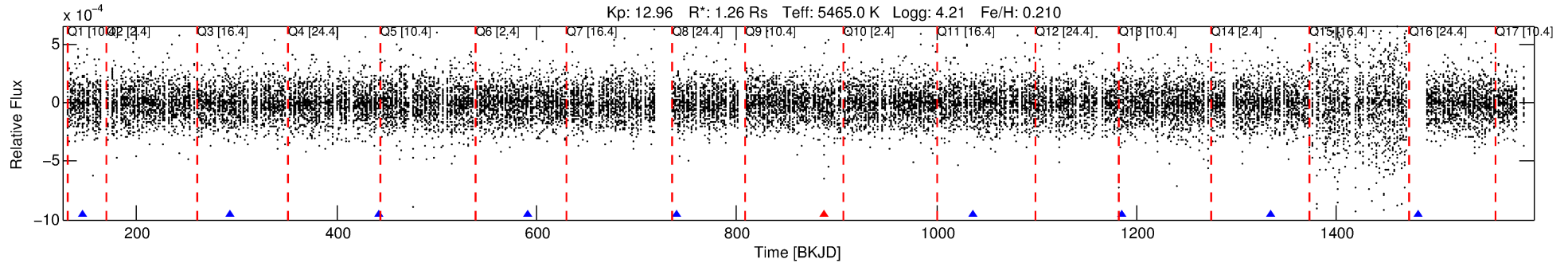
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002303102-08

No Significant Match Found

DV One-Page Summary

KIC: 2303102 Candidate: 8 of 10 Period: 148.525 d



DV Fit Results:

Period = 148.52462 [0.00209] d
Epoch = 145.4154 [0.0106] BKJD
Rp/R* = 0.0173 [0.0400]
a/R* = 632.68 [5823.04]
b = 0.75 [5.53]
Seff = 4.39 [2.10]
Teff = 369 [44] K
Rp = 2.37 [5.53] Re
a = 0.5364 [0.1514] AU
Ag = 5686.52 [26460.14] [0.21 σ]
Teffp = 4955 [5738] K [0.80 σ]

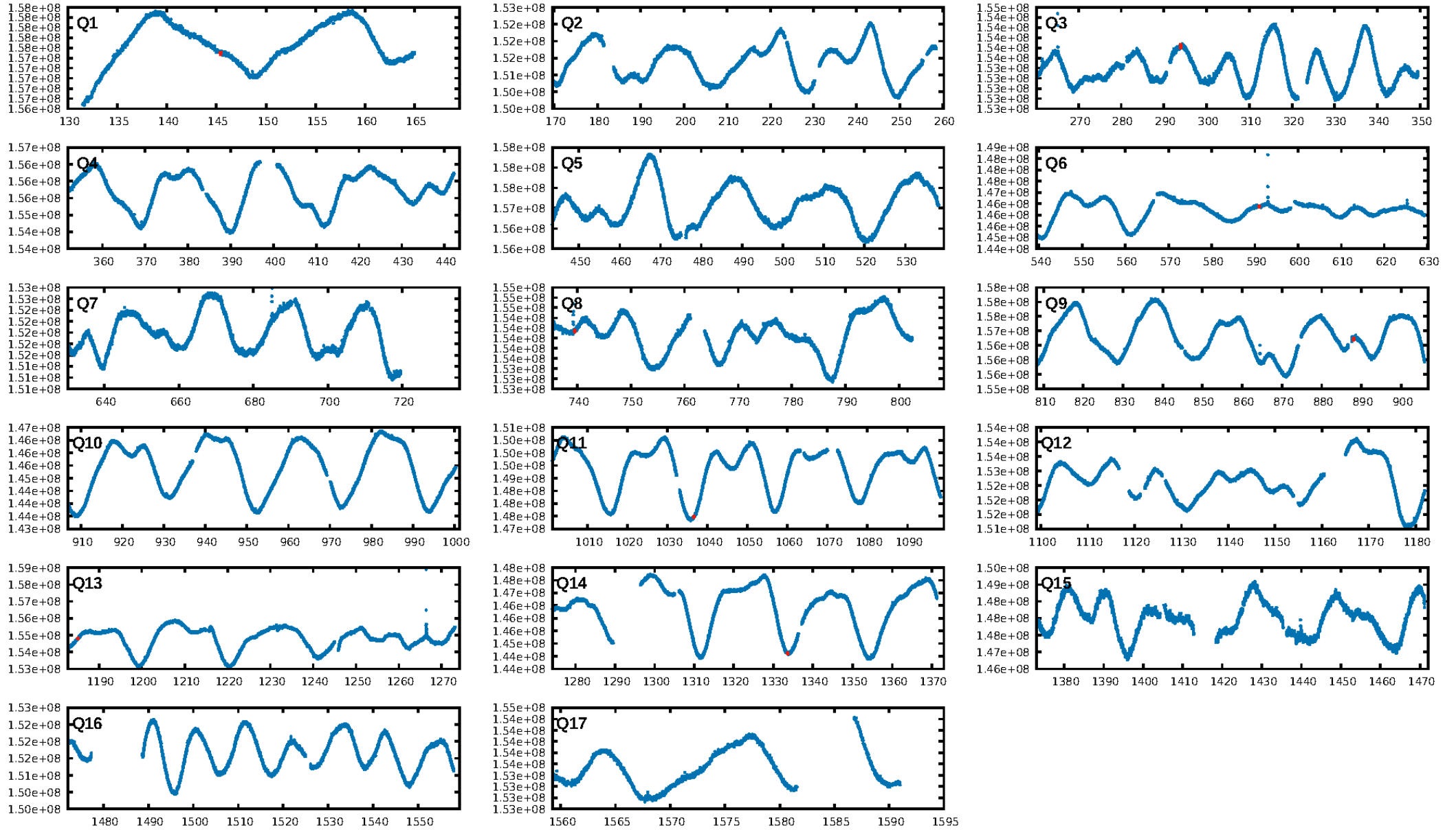
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [19.20 σ]
LongPeriod-sig: 100.0% [11.78 σ]
ModelChiSquare2-sig: 9.5%
ModelChiSquareGoF-sig: 80.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.50 [1/2]
GhostDiagnostic-chr: 0.6086
Centroid-sig: 18.1%
Centroid-so: 1.558 arcsec [0.71 σ]
OotOffset-rm: 4.025 arcsec [2.36 σ]
OotOffset-st: 2/1/1/2 [6]
KicOffset-rm: 4.057 arcsec [2.52 σ]
KicOffset-st: 2/1/1/2 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.50 [4/8]

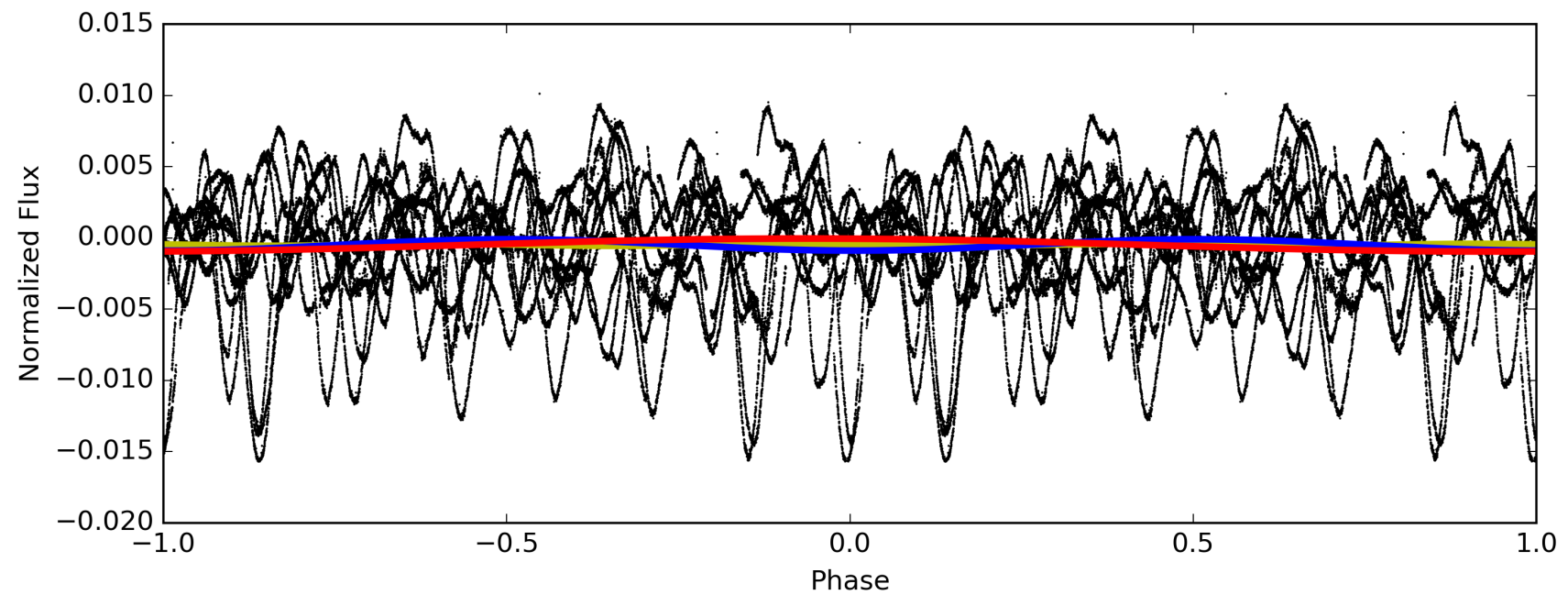
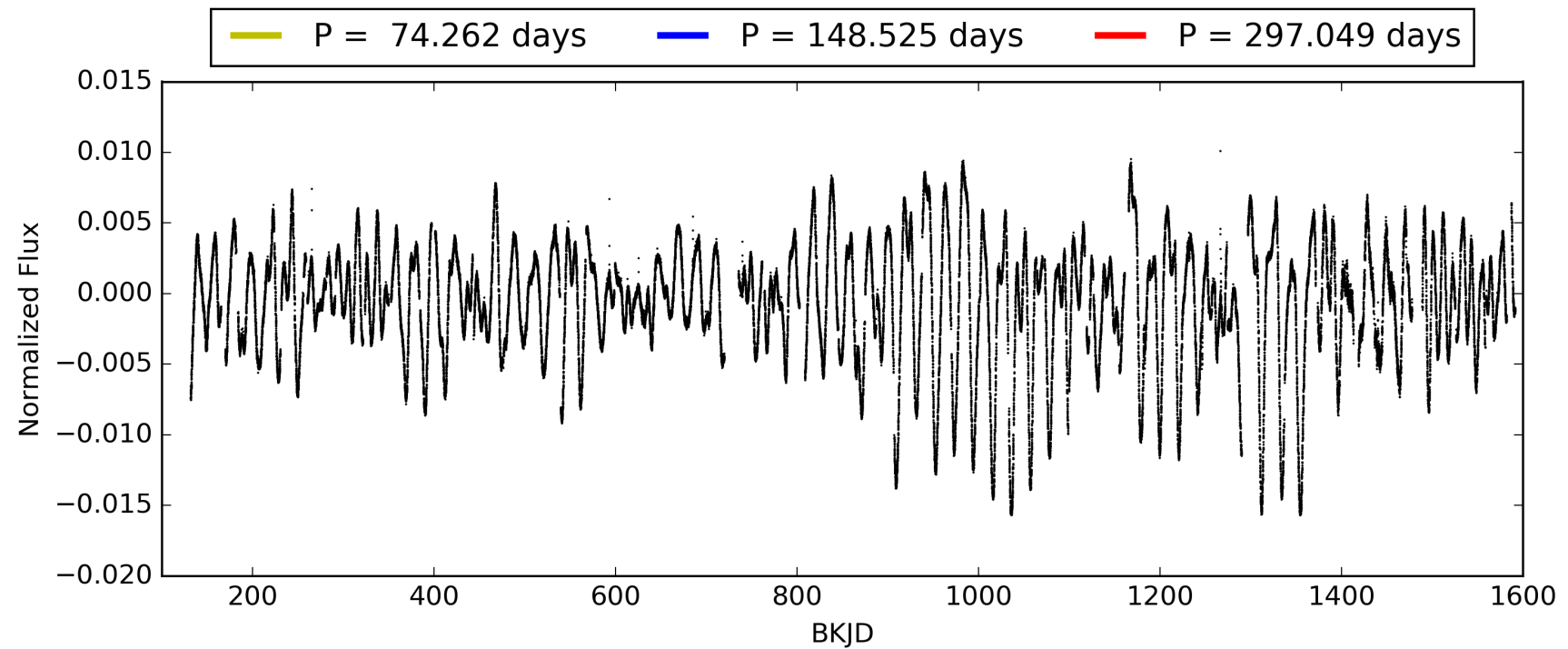
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:10:34 Z

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

TCE 002303102-08, PDC Light Curves

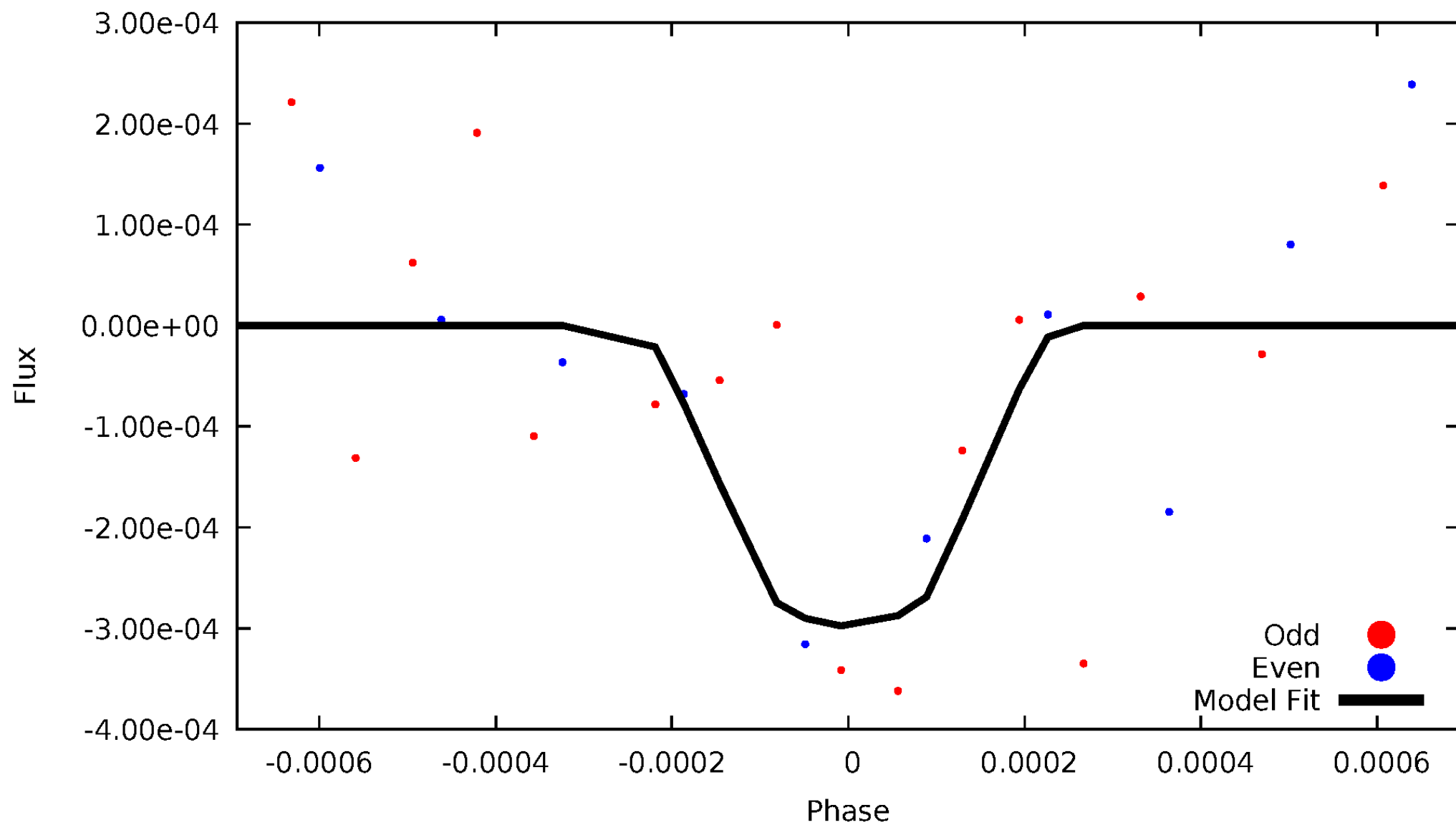


TCE 002303102-08



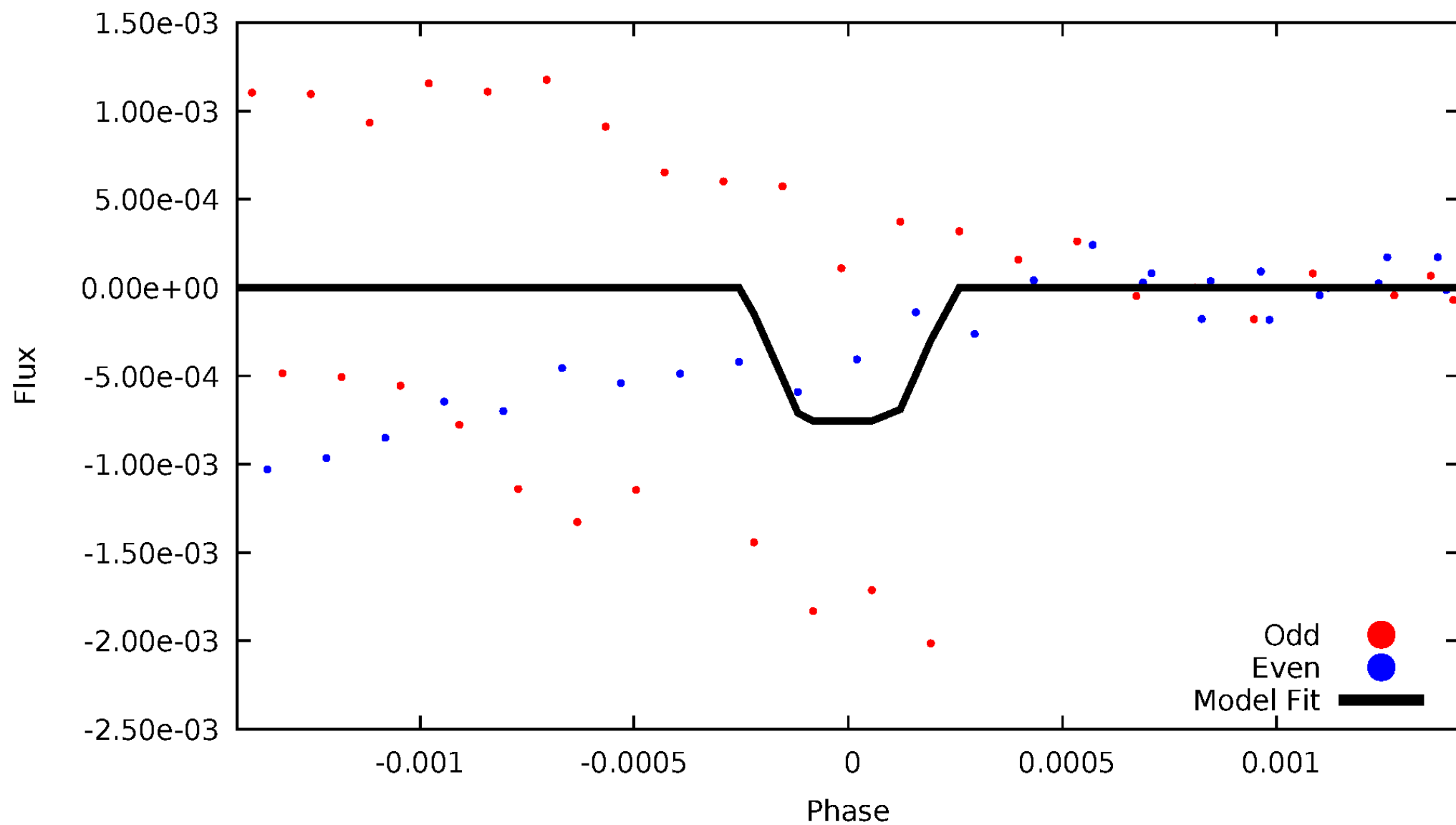
DV Odd/Even

TCE 002303102-08



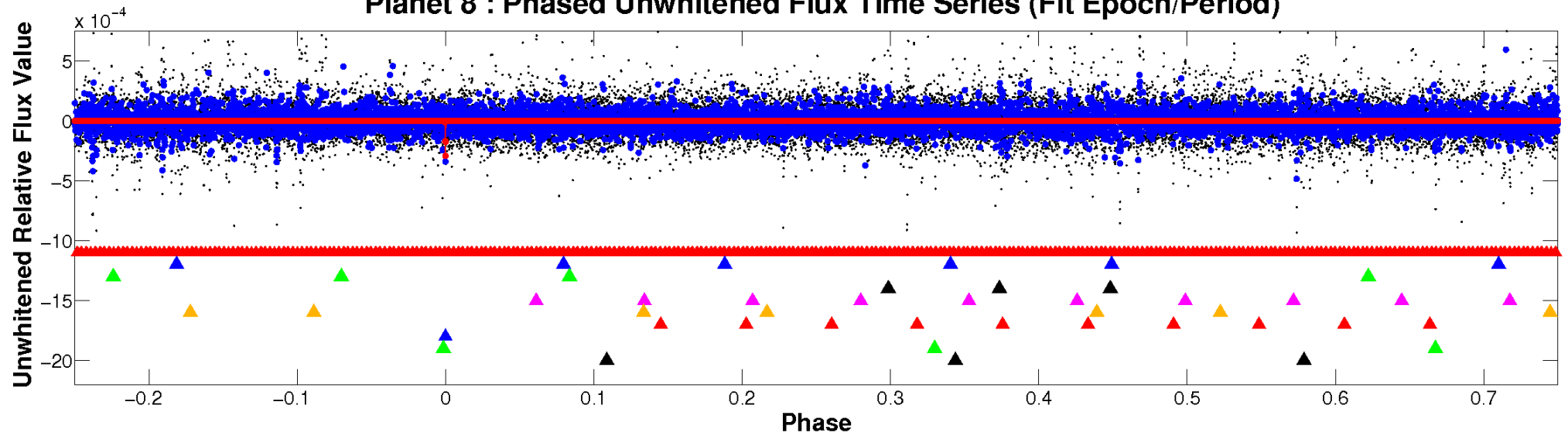
ALT Odd/Even

TCE 002303102-08

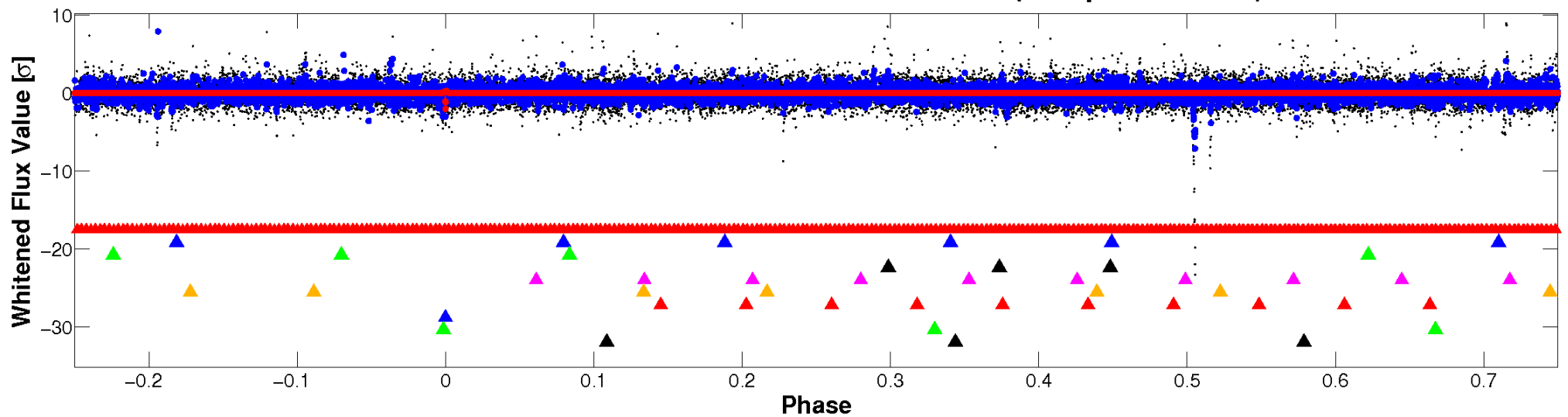


Non-Whitened Vs. Whitened Light Curve

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

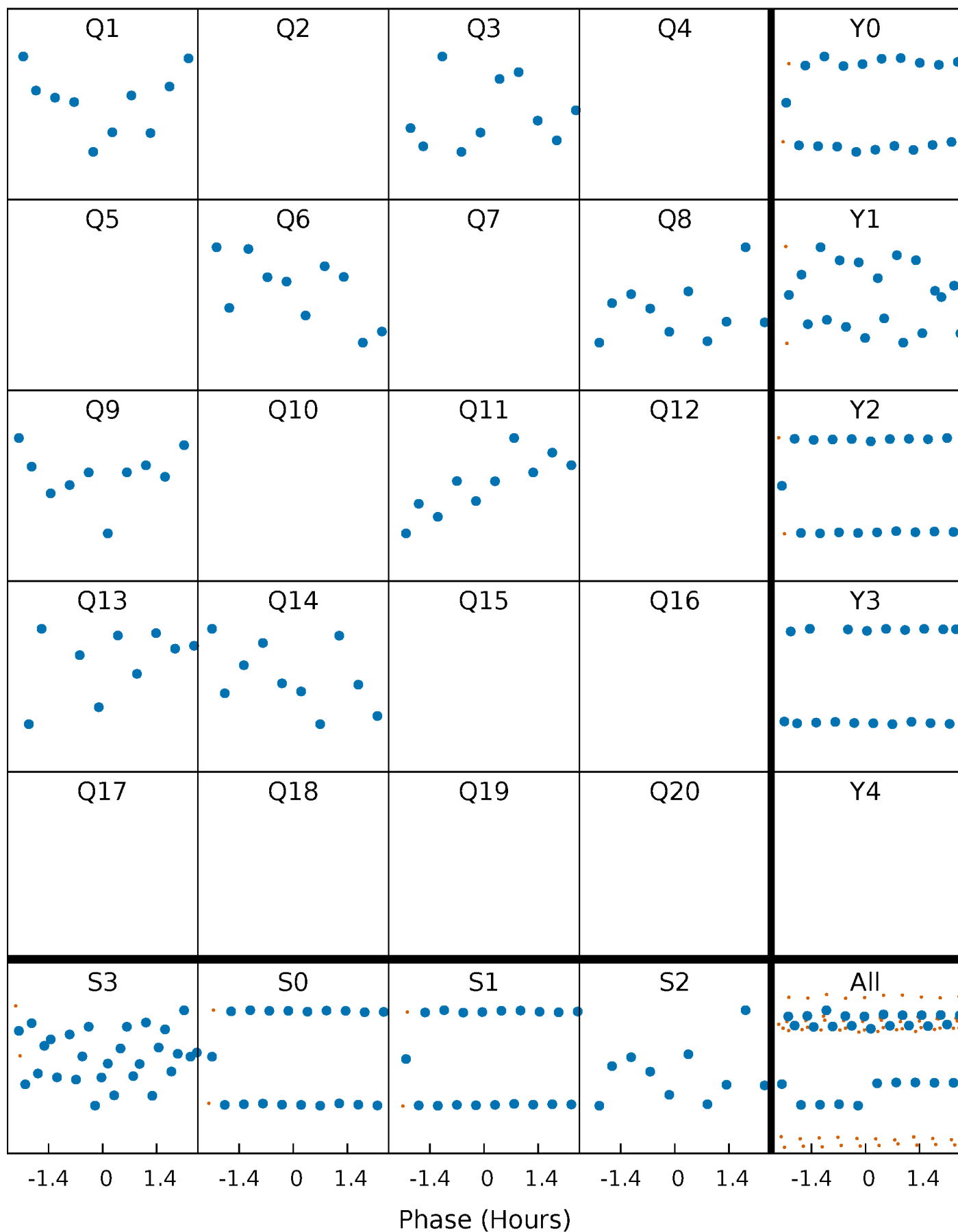


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



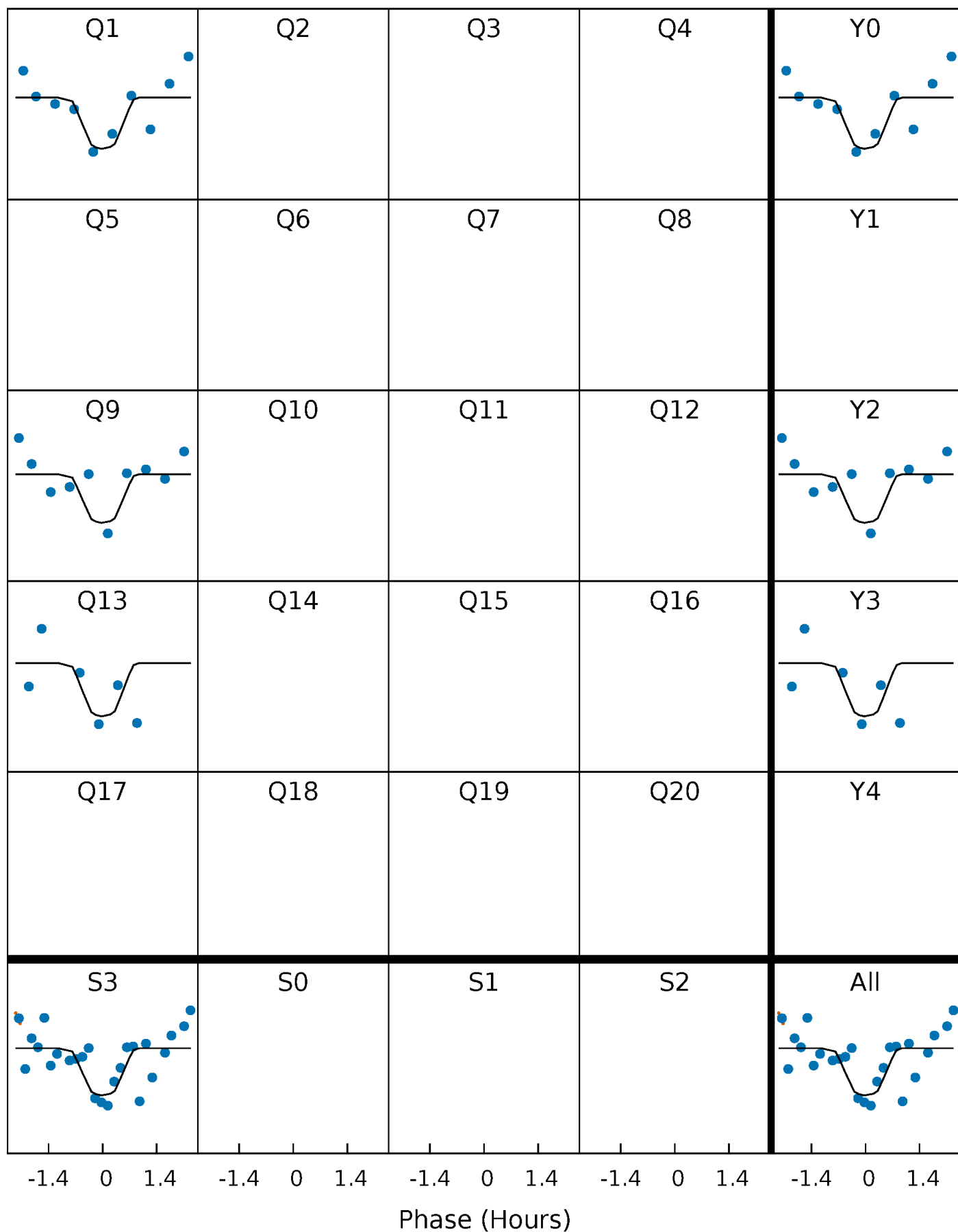
PDC Quarter-Phased Transit Curves

TCE 002303102-08 P=148.524623 Days $T_0=145.415390$ (BKJD)



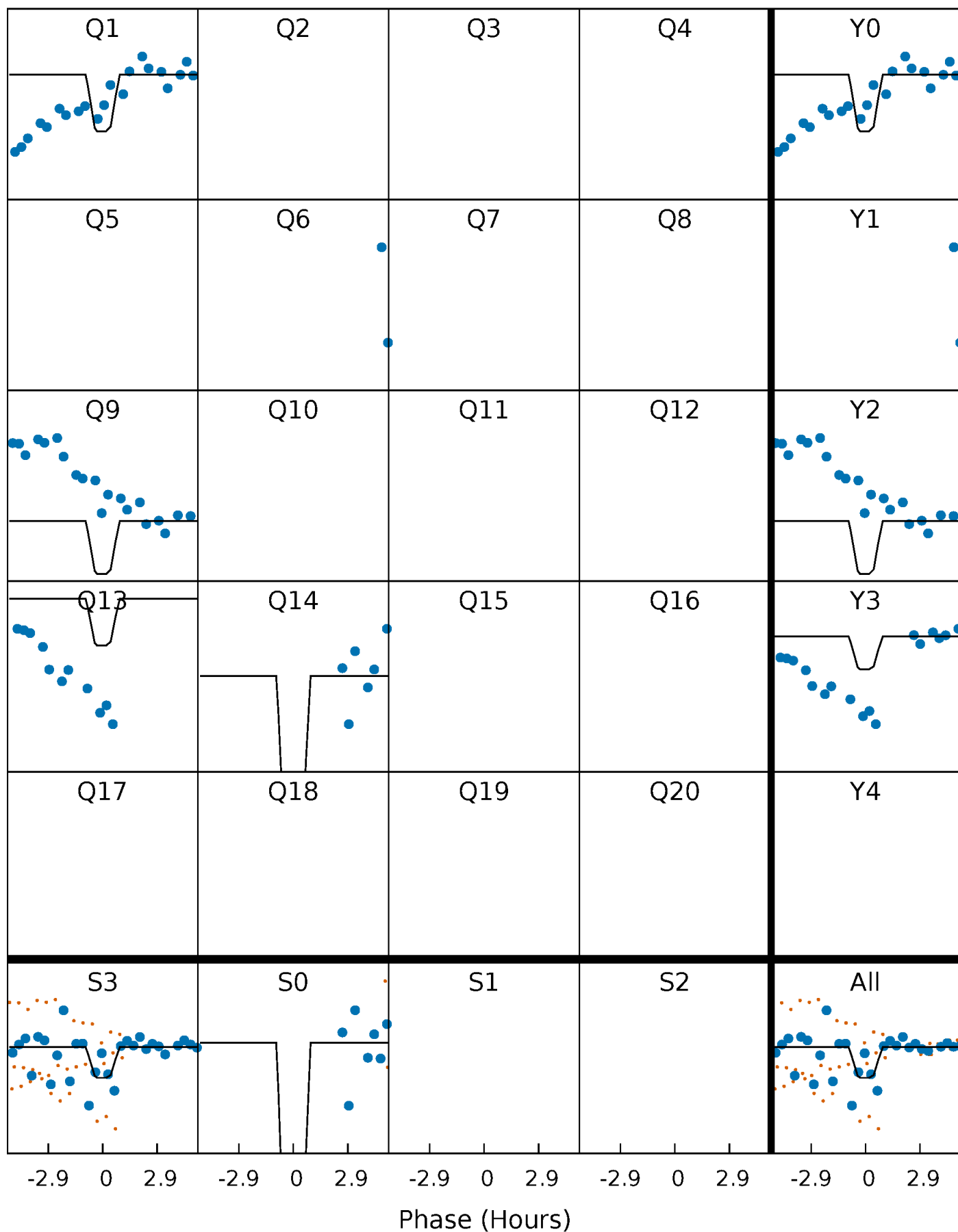
DV Quarter-Phased Transit Curves

TCE 002303102-08 $P=148.524623$ Days $T_0=145.415390$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

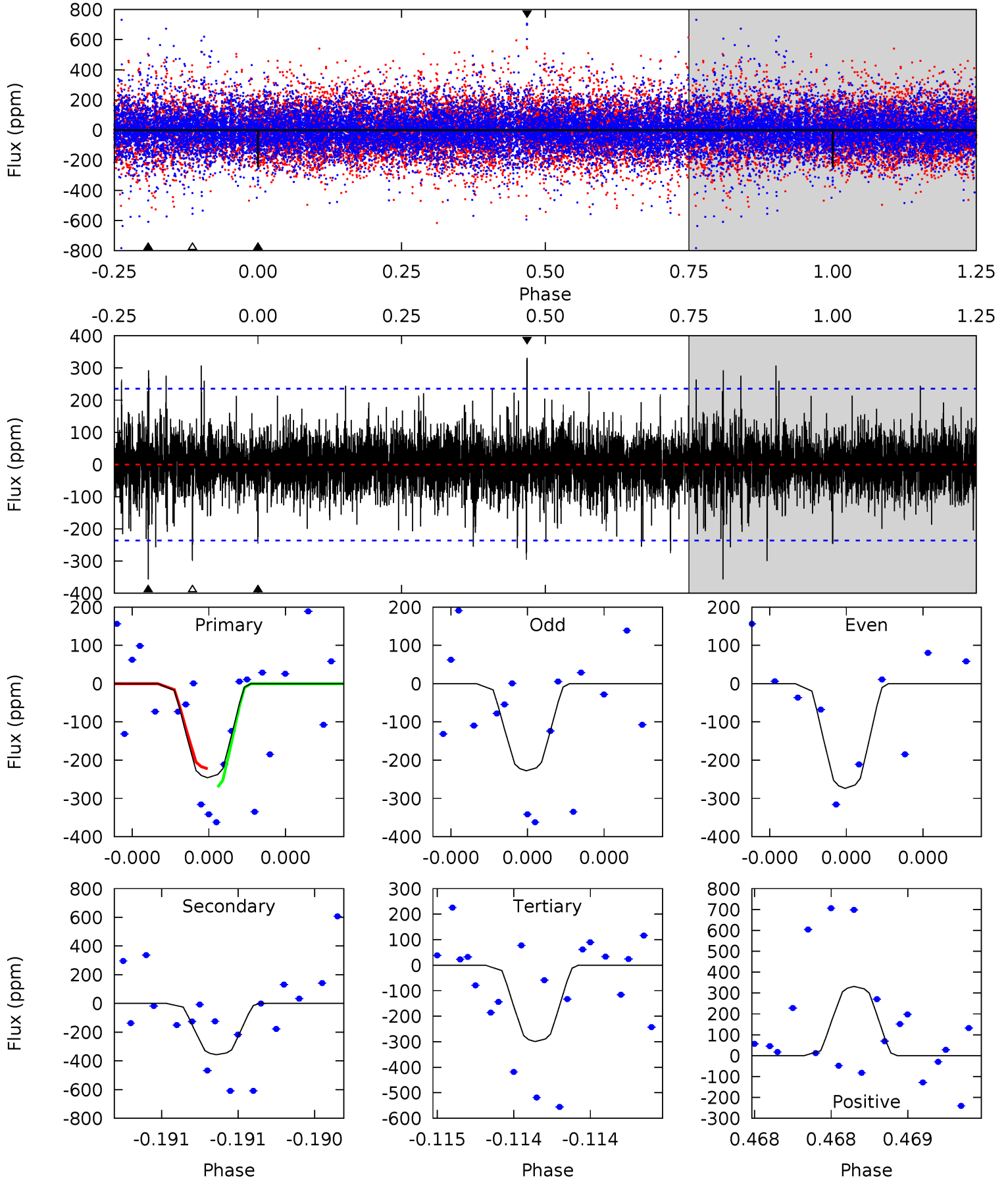
TCE 002303102-08 P=148.524736 Days $T_0=145.425605$ (BKJD)



DV Model-Shift Uniqueness Test

002303102-08, P = 148.524623 Days, E = 145.415390 Days

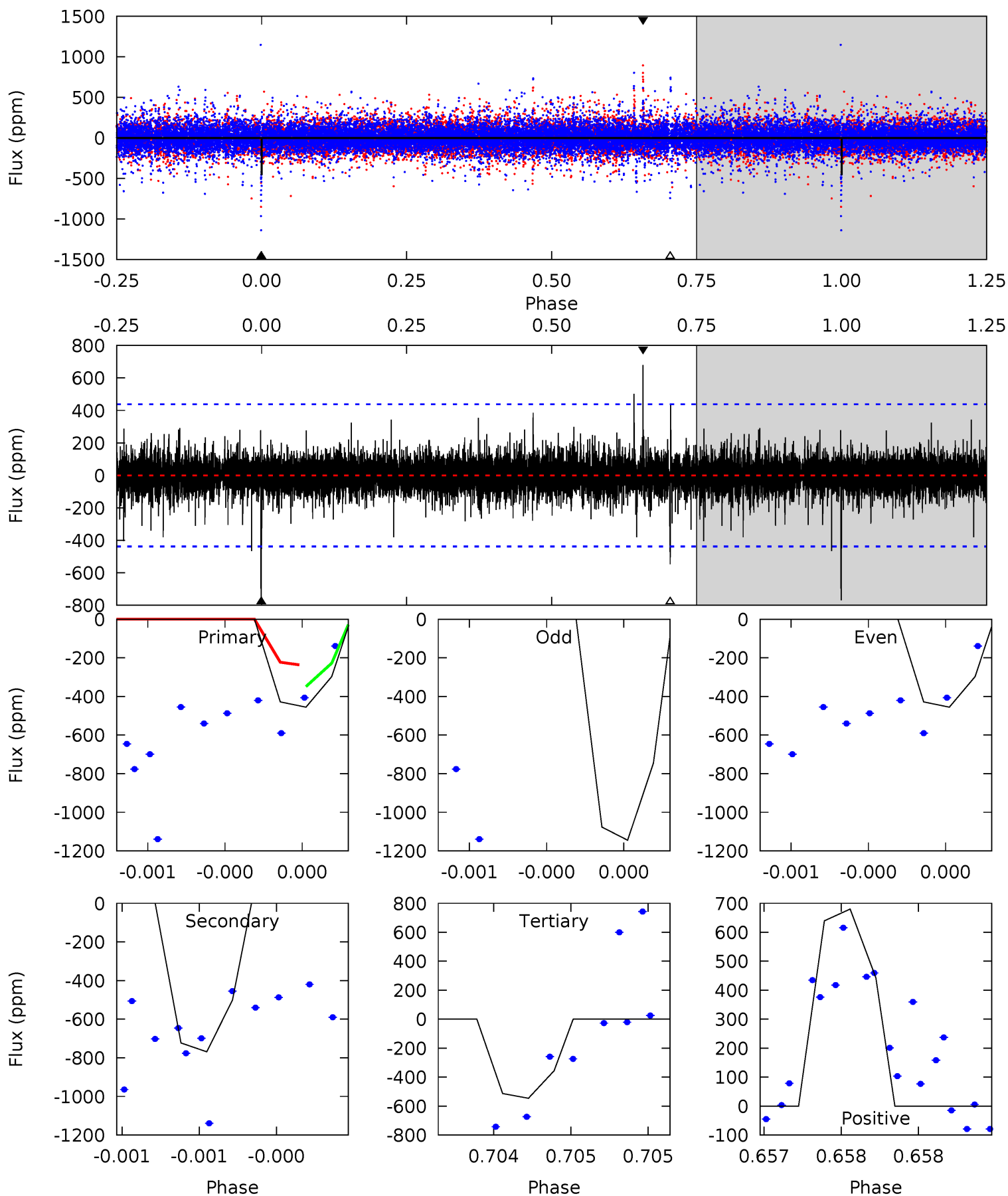
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.82	8.44	7.08	7.84	5.58	3.49	1.45	-1.26	-2.02	1.36	0.60	0.52	0.93	0.48	0.57



Alt Model-Shift Uniqueness Test

002303102-08, P = 148.524736 Days, E = 145.425605 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.83	9.85	6.99	8.71	5.61	3.53	0.96	-1.16	-2.88	2.85	1.14	5.42	1.61	0.47	0.83



Stellar Parameters For KIC 002303102

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5465^{+164}_{-147}	$4.209^{+0.276}_{-0.184}$	$0.210^{+0.200}_{-0.250}$	$1.257^{+0.352}_{-0.352}$	$0.932^{+0.090}_{-0.074}$	$0.661^{+1.131}_{-0.326}$
	+3%/-3%	+7%/-4%	+95%/-119%	+28%/-28%	+10%/-8%	+171%/-49%
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 002303102-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-357 ± 42	$4.36^{+4.68}_{-2.93}$	516^{+39}_{-45}	4393^{+3013}_{-992}	2926^{+25890}_{-2243}
Alt.	-769 ± 78	$5.19^{+4.96}_{-3.31}$	513^{+44}_{-45}	4769^{+2890}_{-1031}	4597^{+28359}_{-3414}

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 $A_{obs} \gg 1.0$

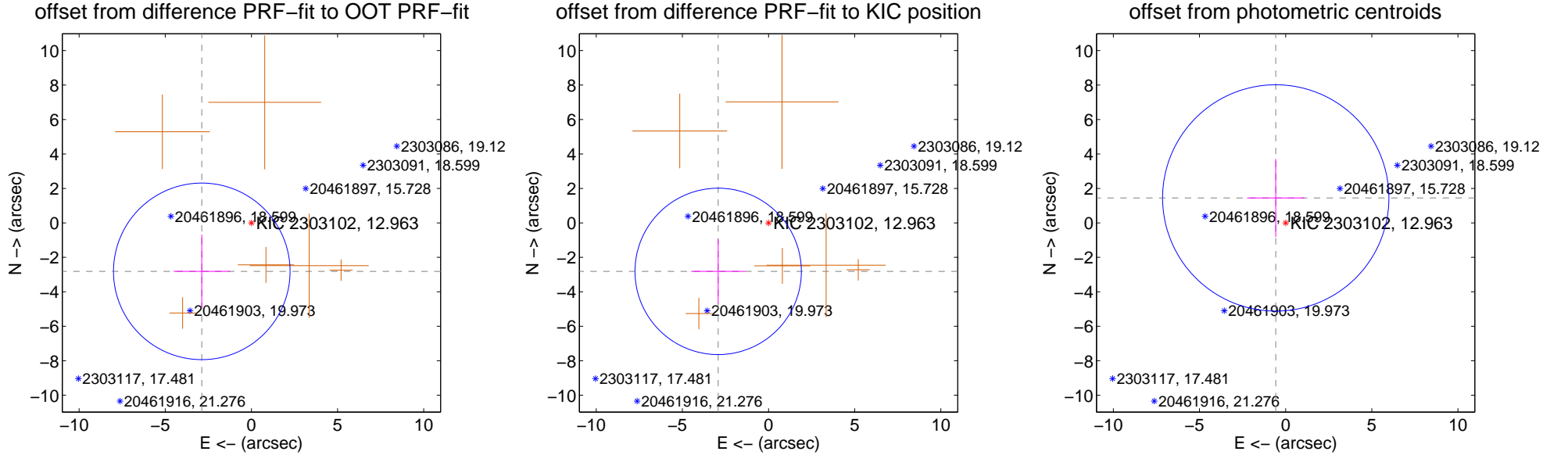
DV Centroid Data

Supplemental centroid analysis for 002303102-08. Kepler magnitude: 12.96. Transit SNR 4.58

There are 0 quarters with good PRF difference image offsets

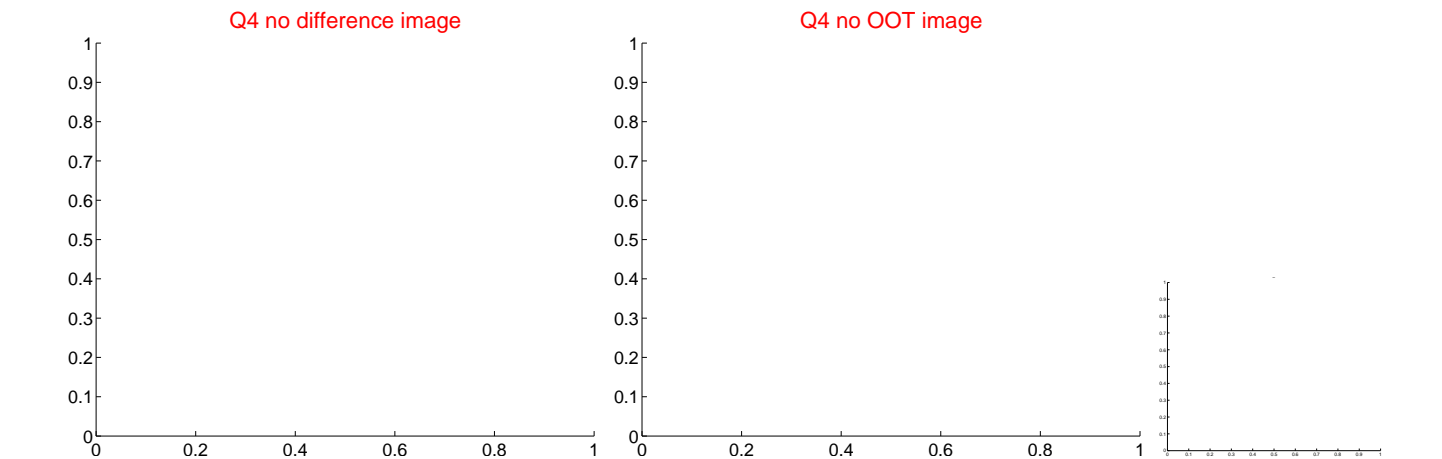
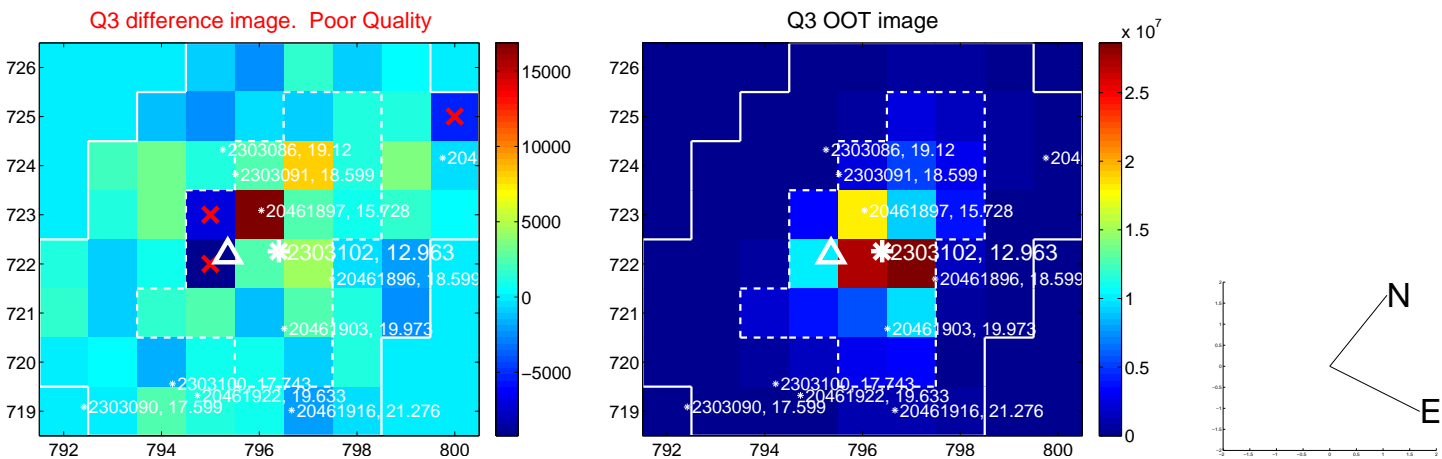
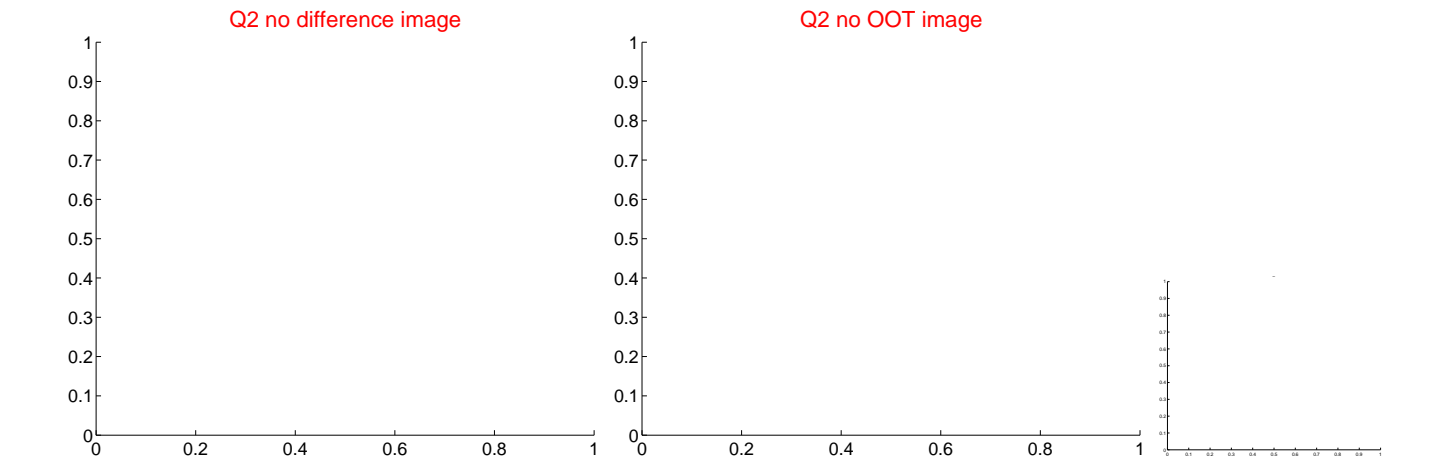
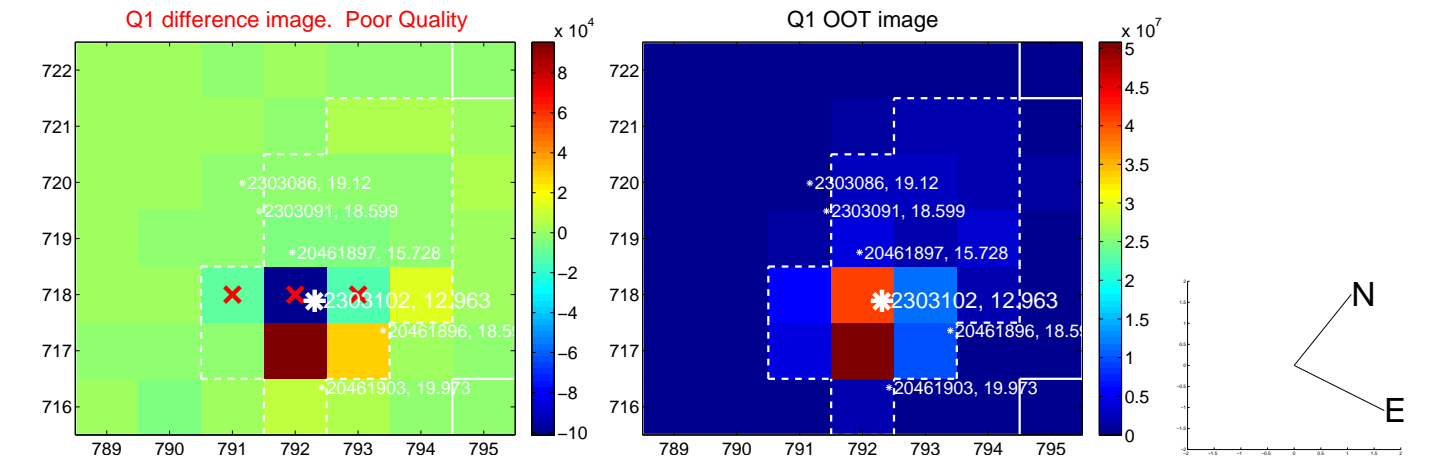
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.025 ± 1.708	2.36	2.881 ± 1.631	-2.812 ± 2.128
PRF-fit source offset from KIC position	4.057 ± 1.609	2.52	2.922 ± 1.567	-2.814 ± 1.860
photometric centroid source offset	1.56 ± 2.19	0.71	0.57 ± 1.66	1.45 ± 2.26

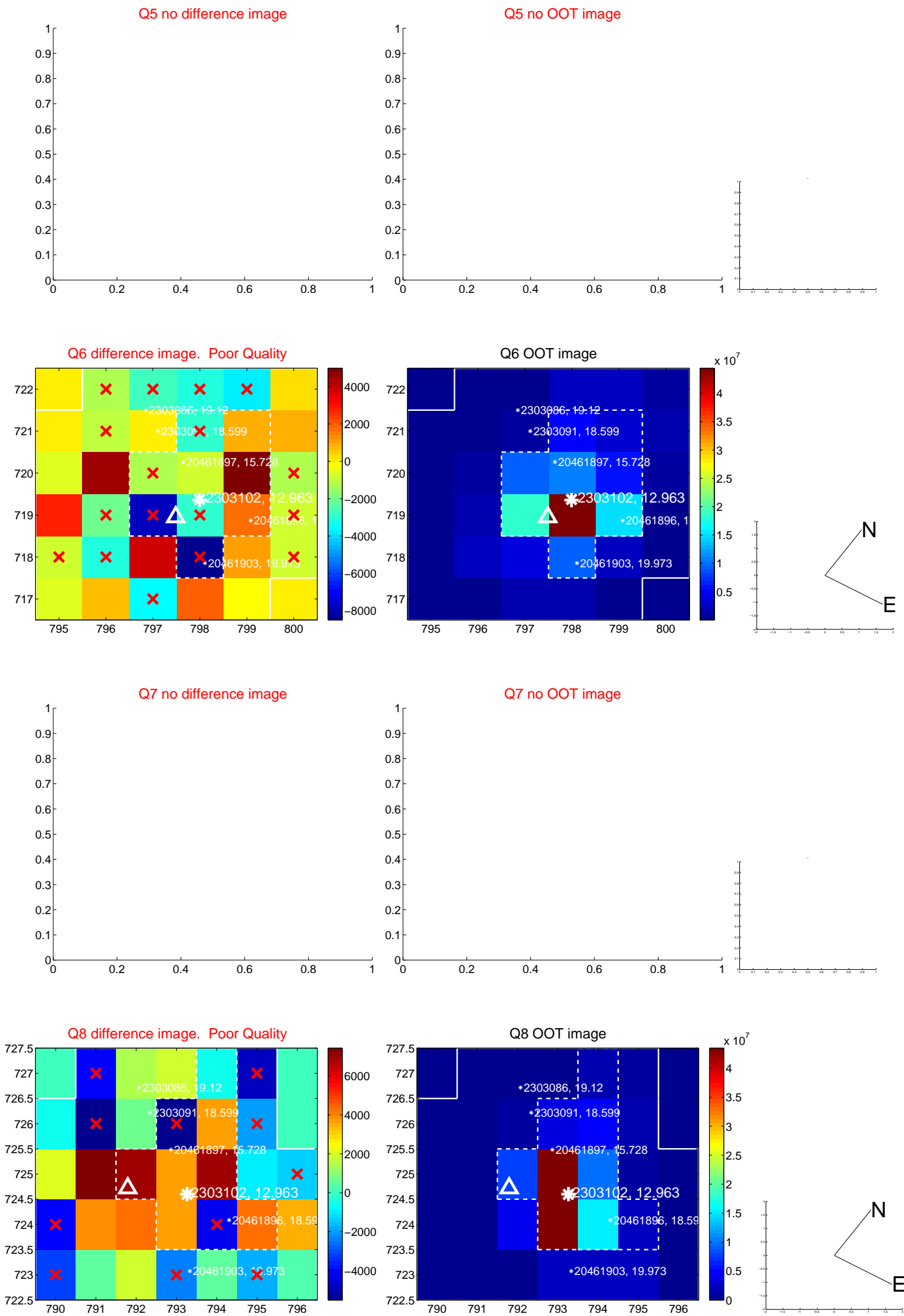


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

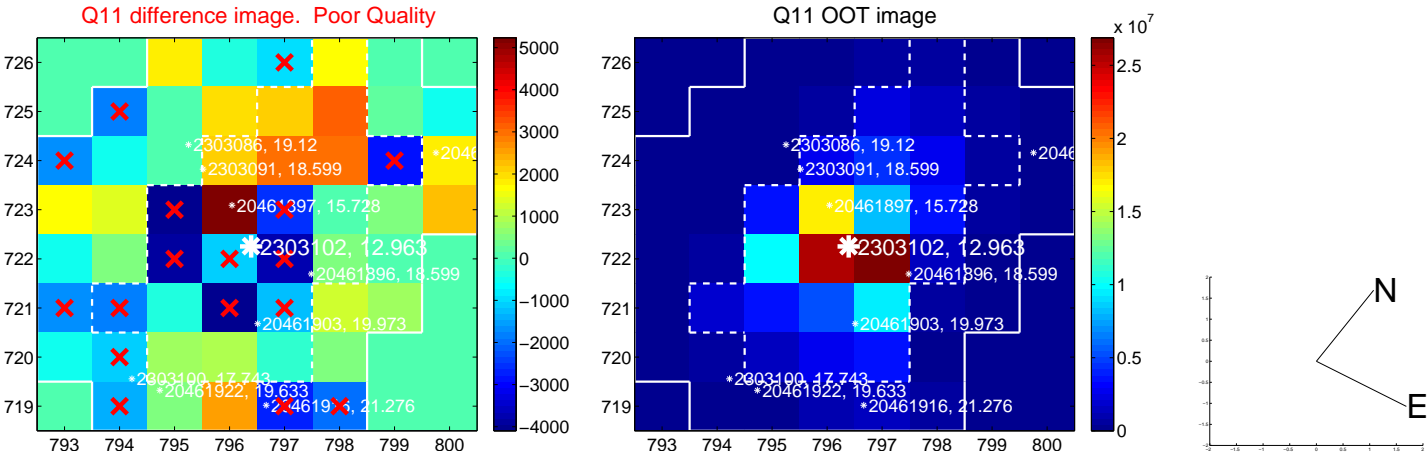
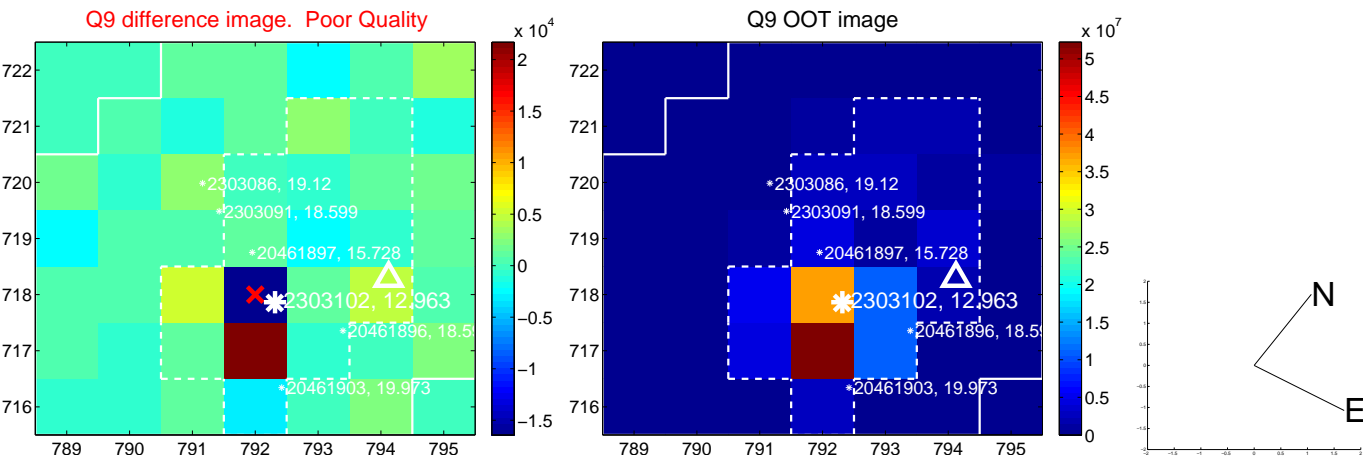
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



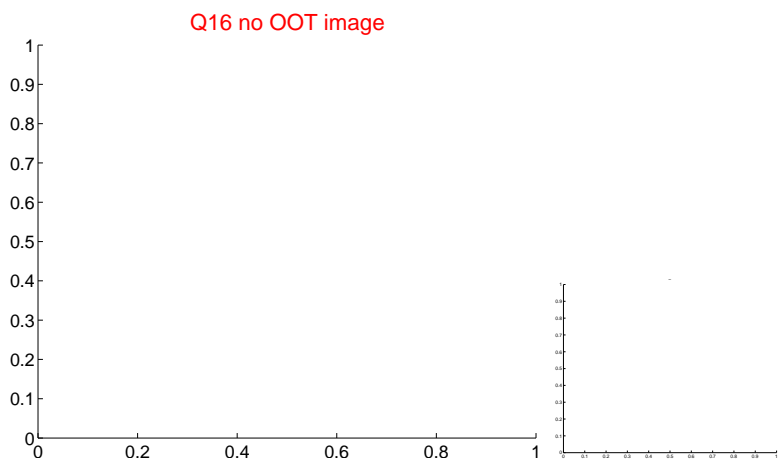
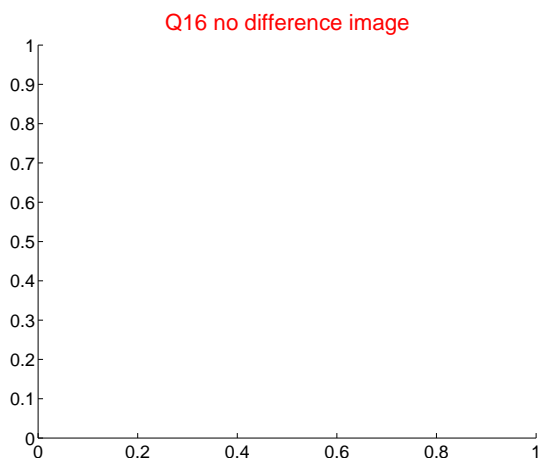
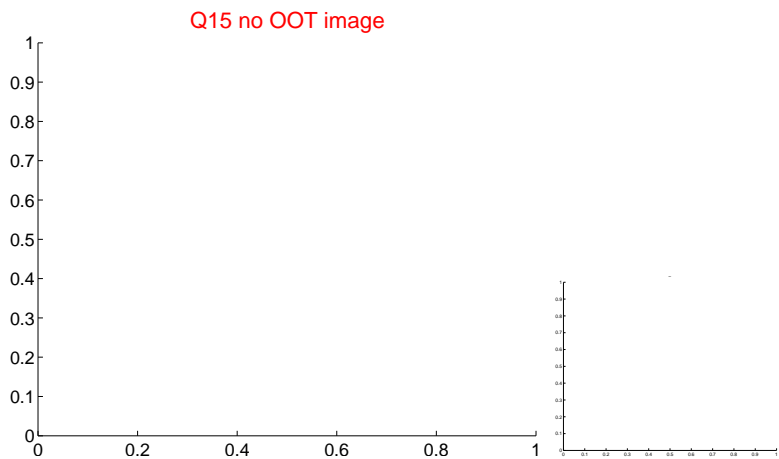
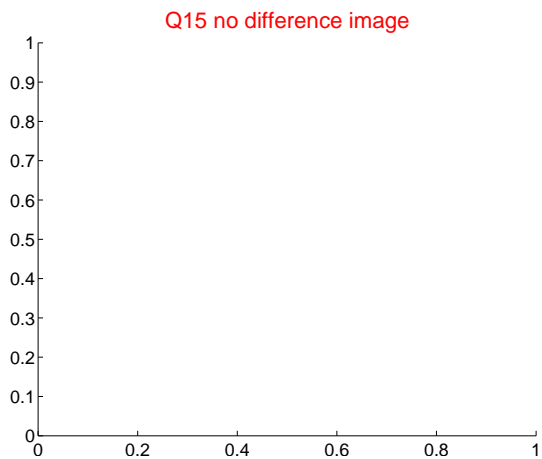
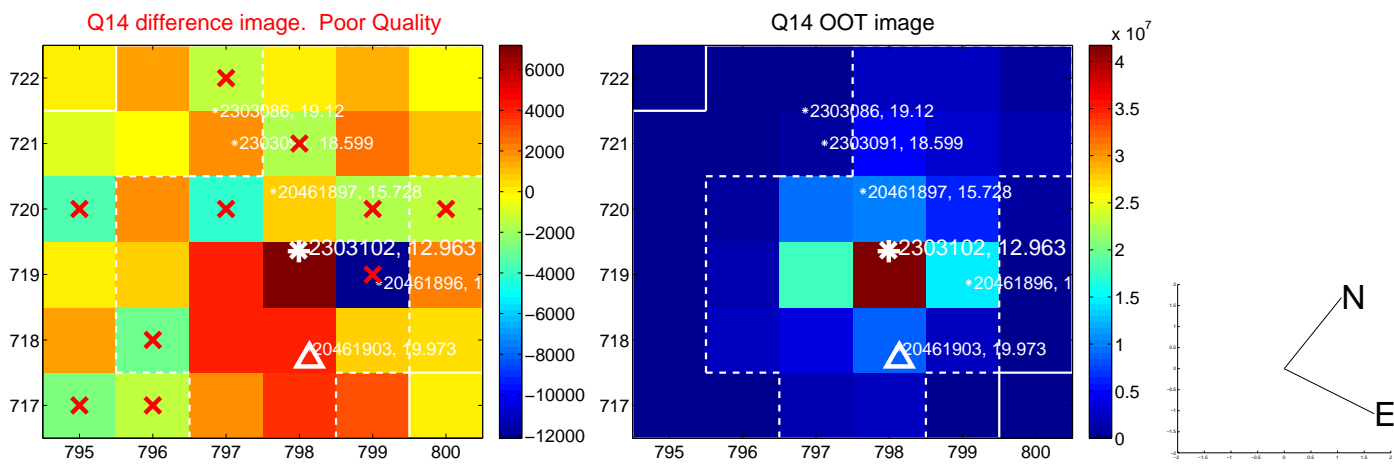
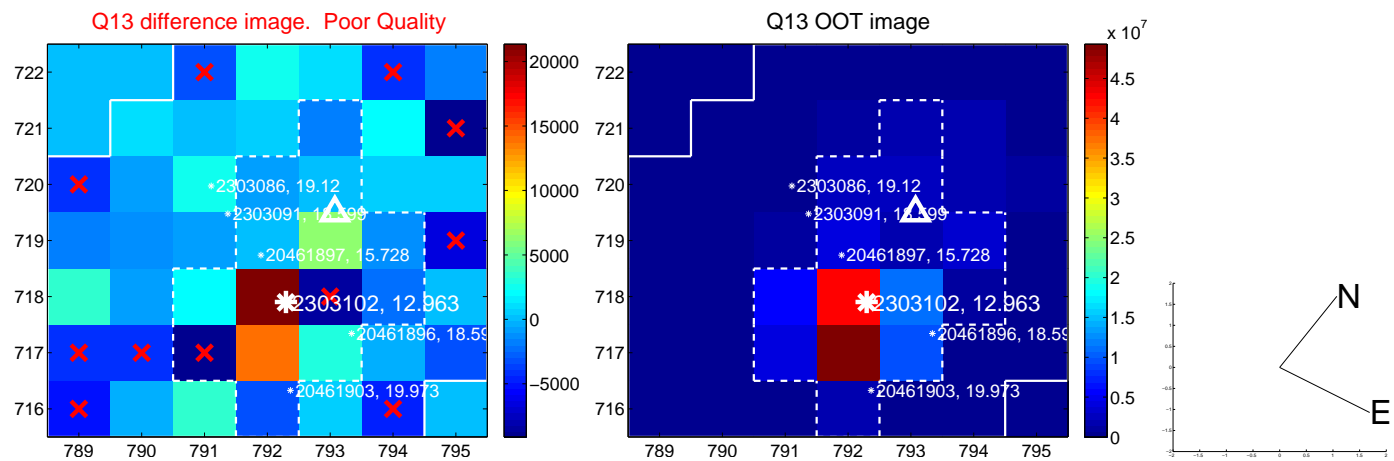
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



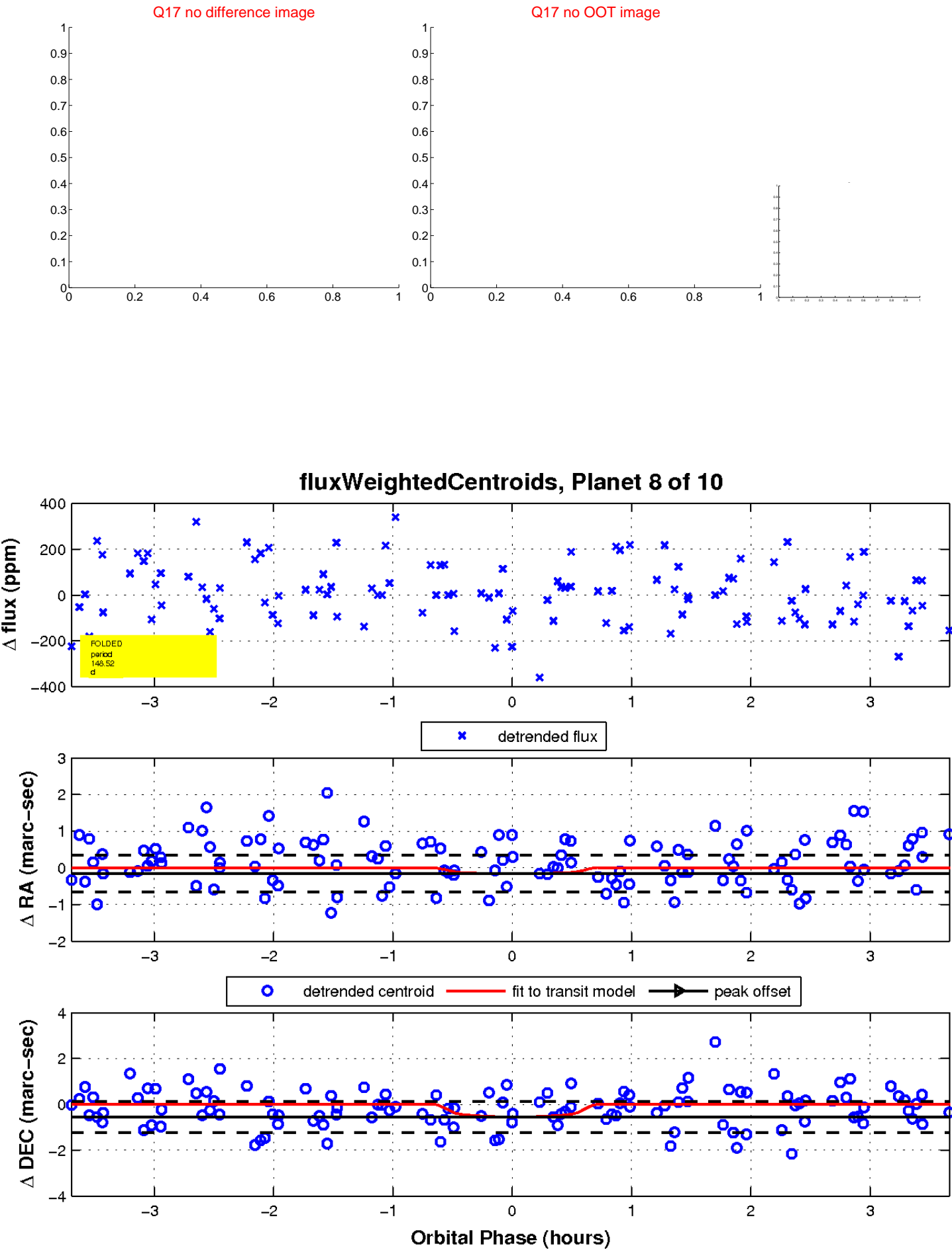
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



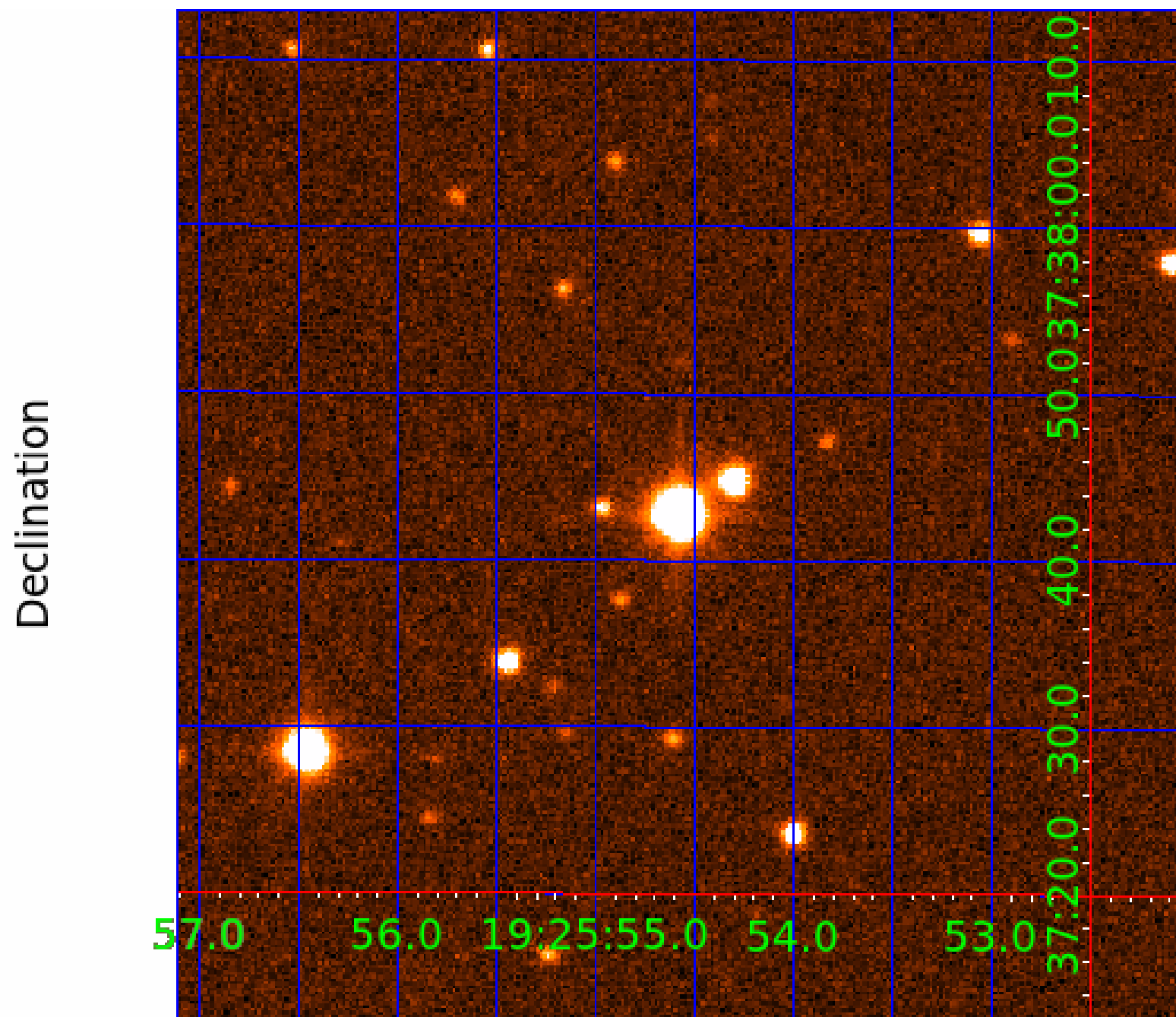
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



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})
002303102-01	OBS	No	2.298875	132.974167	31.1	11.443	8.2	9.8	1.26	5465	0.74	1137.95
002303102-02	OBS	No	242.161051	173.380485	650.8	21.893	36.3	9.1	1.26	5465	6.47	2.29
002303102-03	OBS	No	319.894193	386.351543	393.4	15.000	19.9	-1.0	1.26	5465	2.44	1.58
002303102-04	OBS	No	434.460665	509.040892	576.8	13.180	19.1	12.4	1.26	5465	3.47	1.05
002303102-05	OBS	No	159.358266	154.502554	141.2	22.045	16.9	3.5	1.26	5465	1.61	4.00
002303102-07	OBS	No	139.966466	243.994110	322.2	10.625	13.4	8.3	1.26	5465	2.38	4.75
002303102-08	OBS	No	148.524623	145.415390	297.7	1.235	12.9	4.6	1.26	5465	2.38	4.39
002303102-09	OBS	No	544.908556	342.926822	523.6	5.000	12.9	-1.0	1.26	5465	2.82	0.78
002303102-10	OBS	No	480.480981	161.570218	309.9	15.557	11.5	6.9	1.26	5465	2.61	0.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002303102-01	OBS	FP	0.00	1	0	0	0	LPP_DV
002303102-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
002303102-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
002303102-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
002303102-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
002303102-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

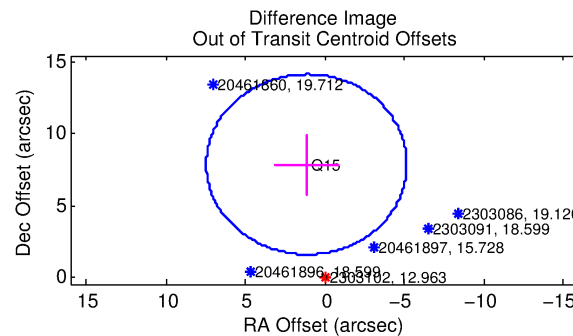
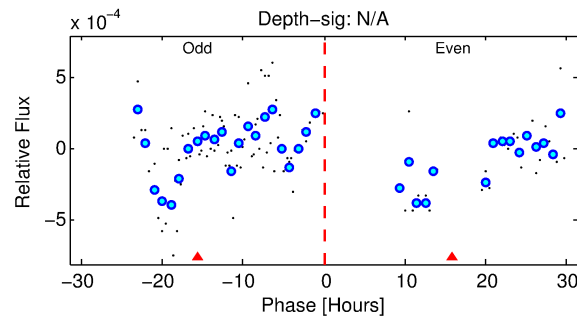
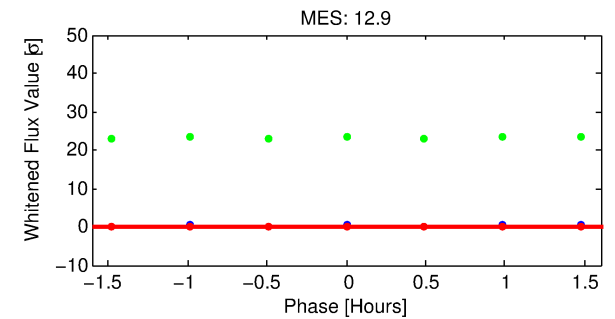
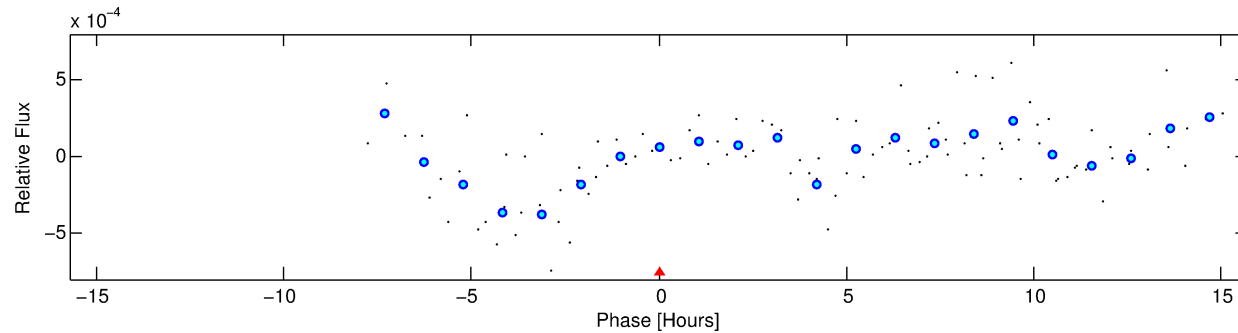
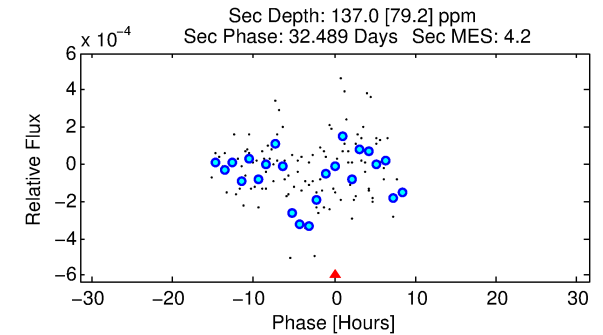
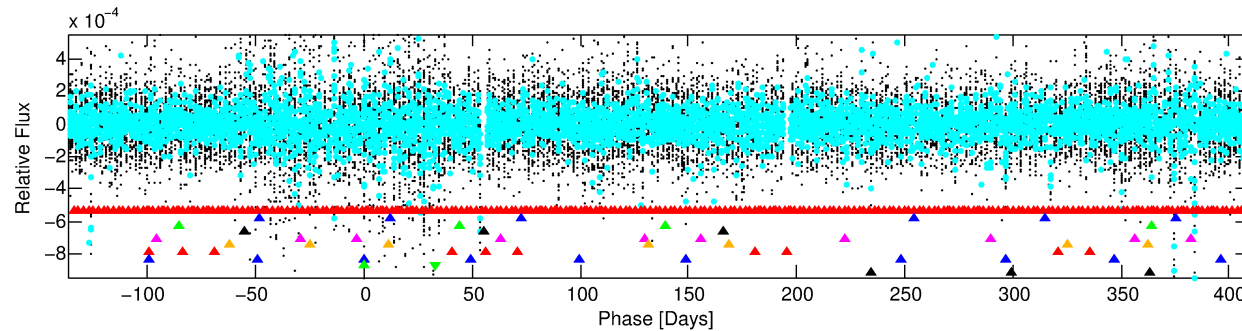
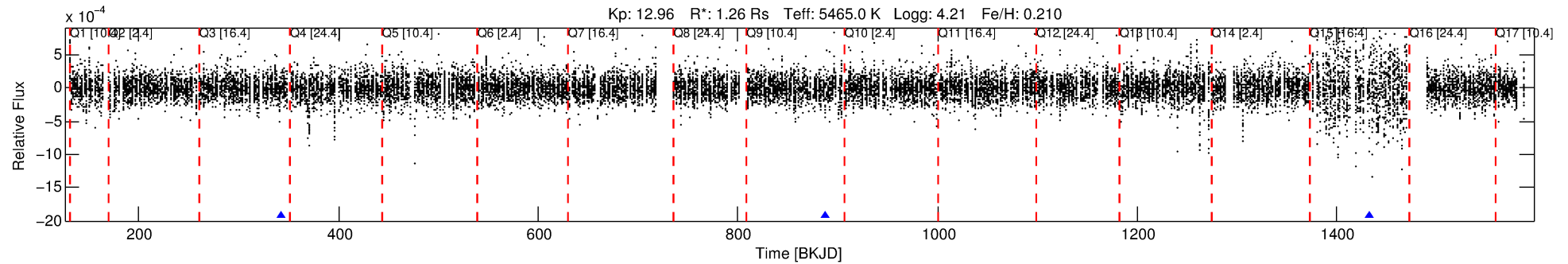
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002303102-09

No Significant Match Found

DV One-Page Summary

KIC: 2303102 Candidate: 9 of 10 Period: 544.909 d



TPS TCE Results:

Period = 544.90856 d
Epoch = 342.9268 BKJD

DV fit results are unavailable

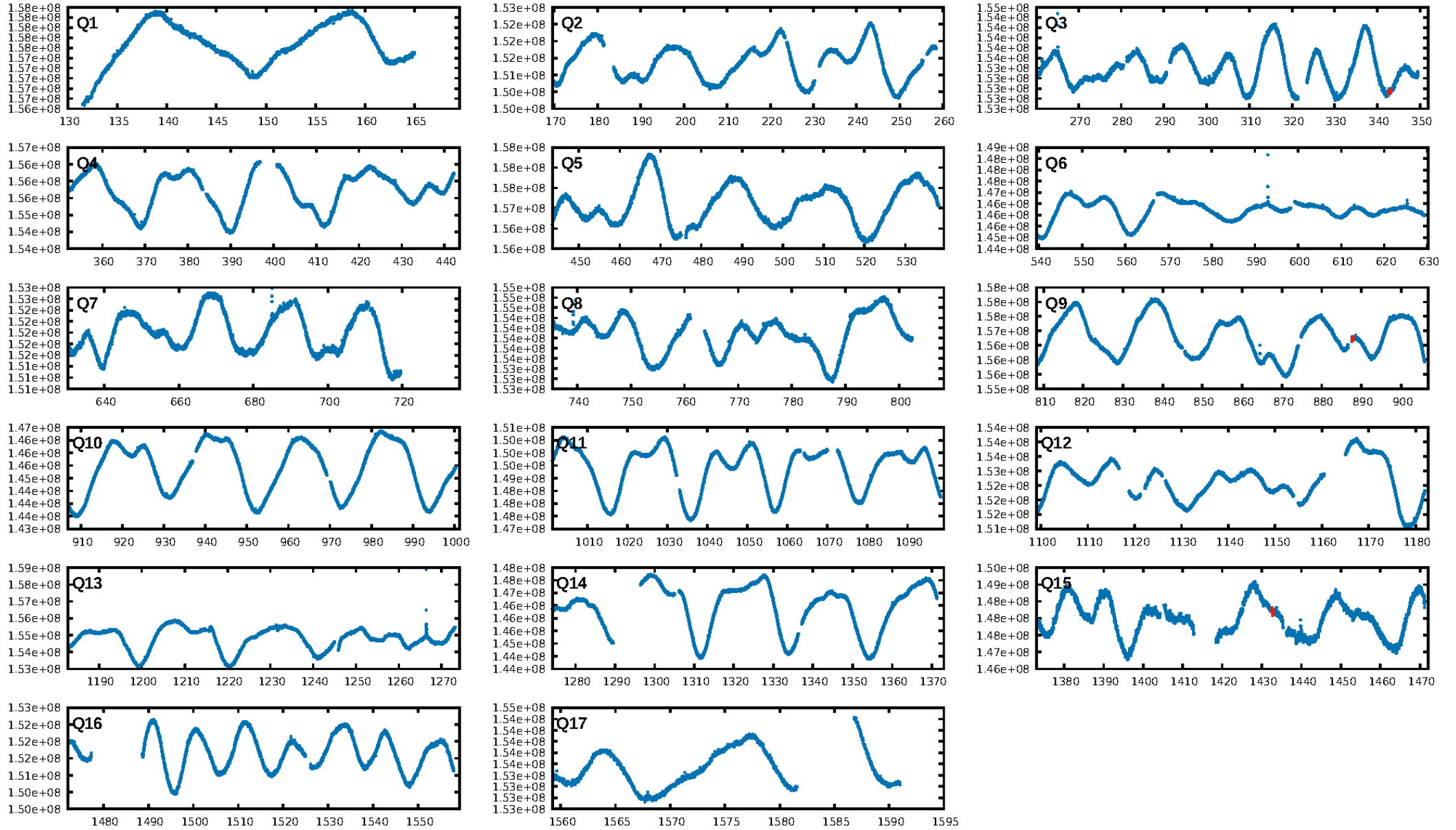
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [94.62σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.05055
Centroid-sig: 9.3%
Centroid-so: 66.970 arcsec [1.22σ]
OotOffset-rm: 7.960 arcsec [3.78σ]
KicOffset-rm: 7.988 arcsec [3.80σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.67 [2/3]

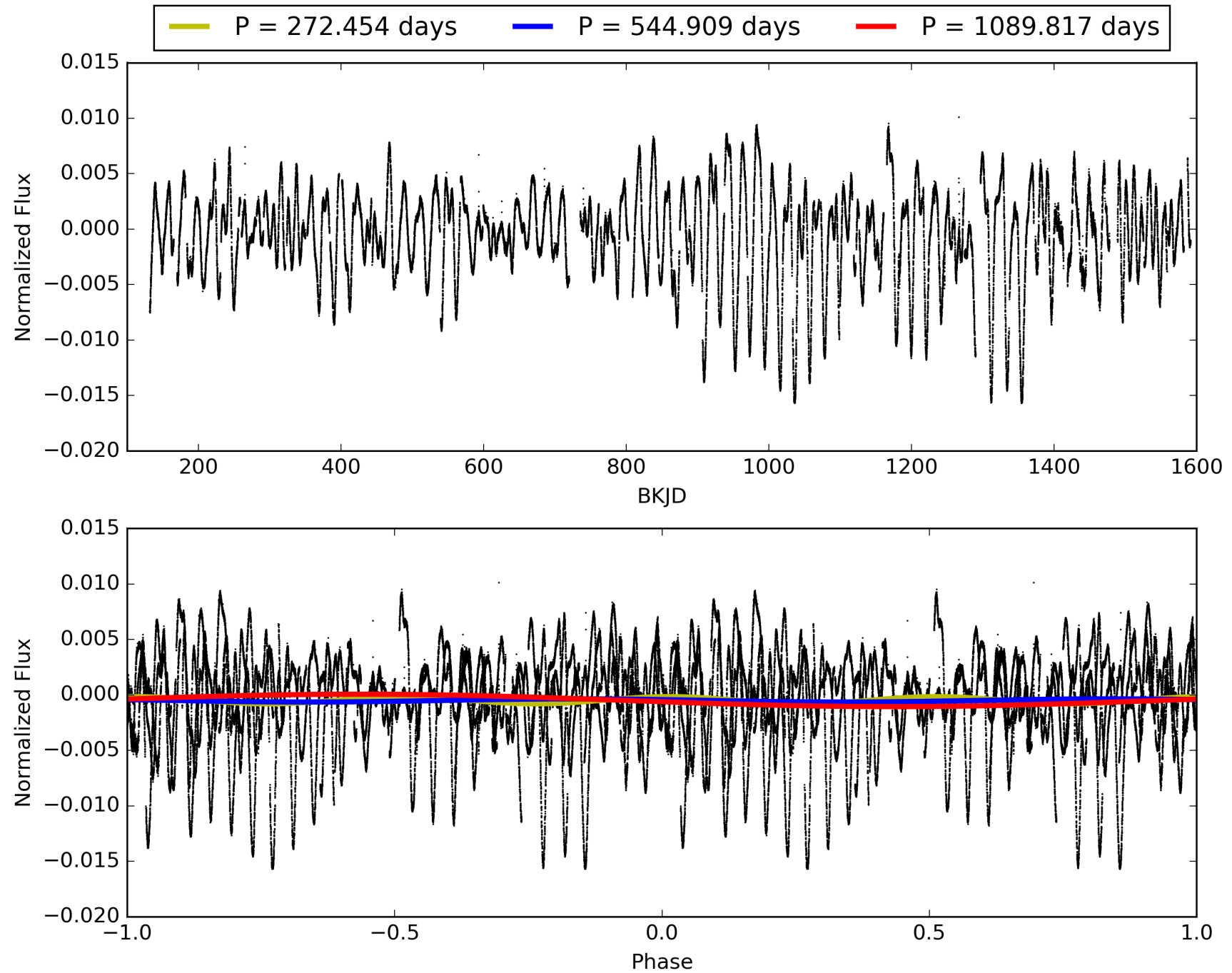
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:10:42 Z

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TCE 002303102-09, PDC Light Curves

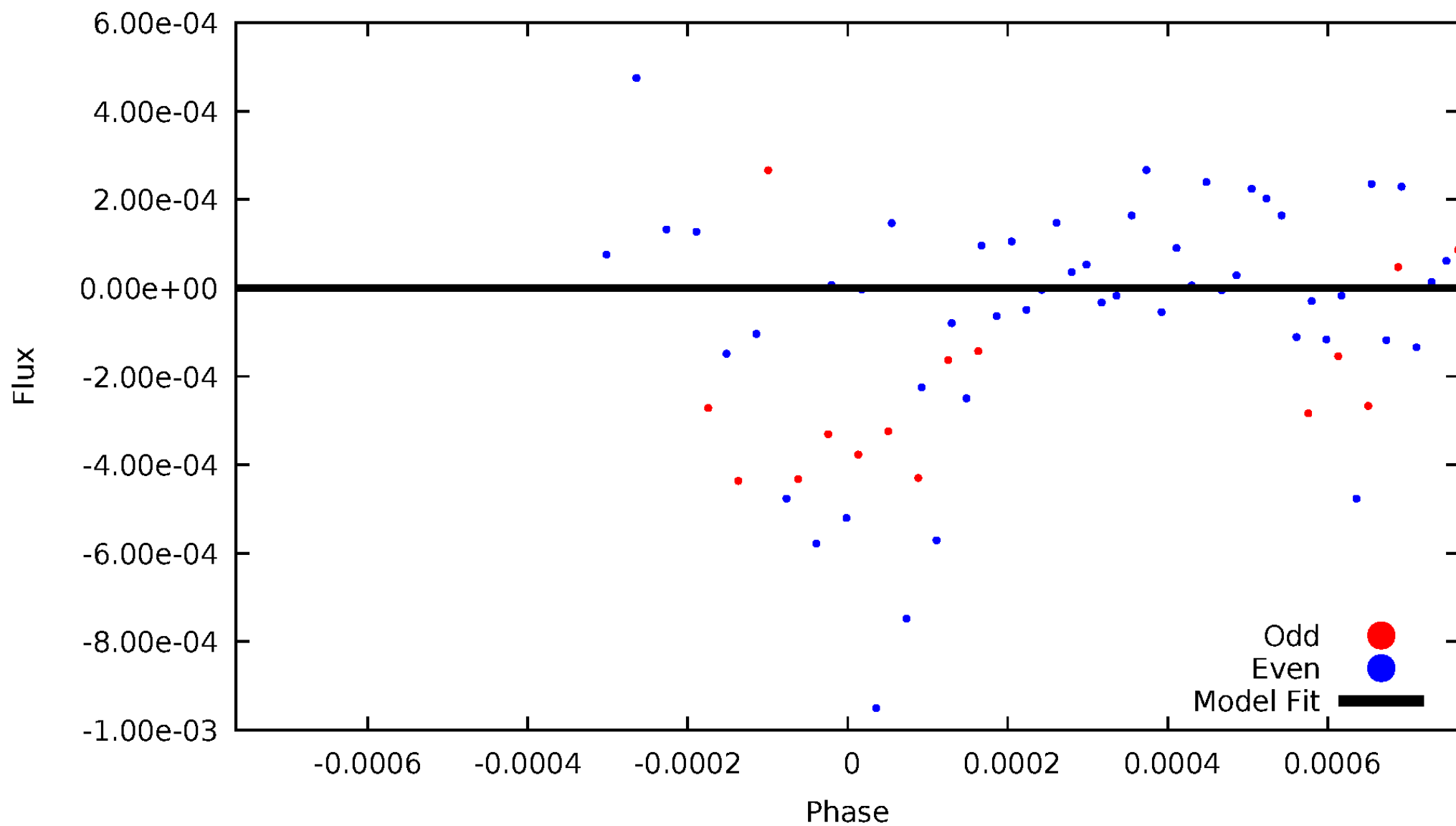


TCE 002303102-09



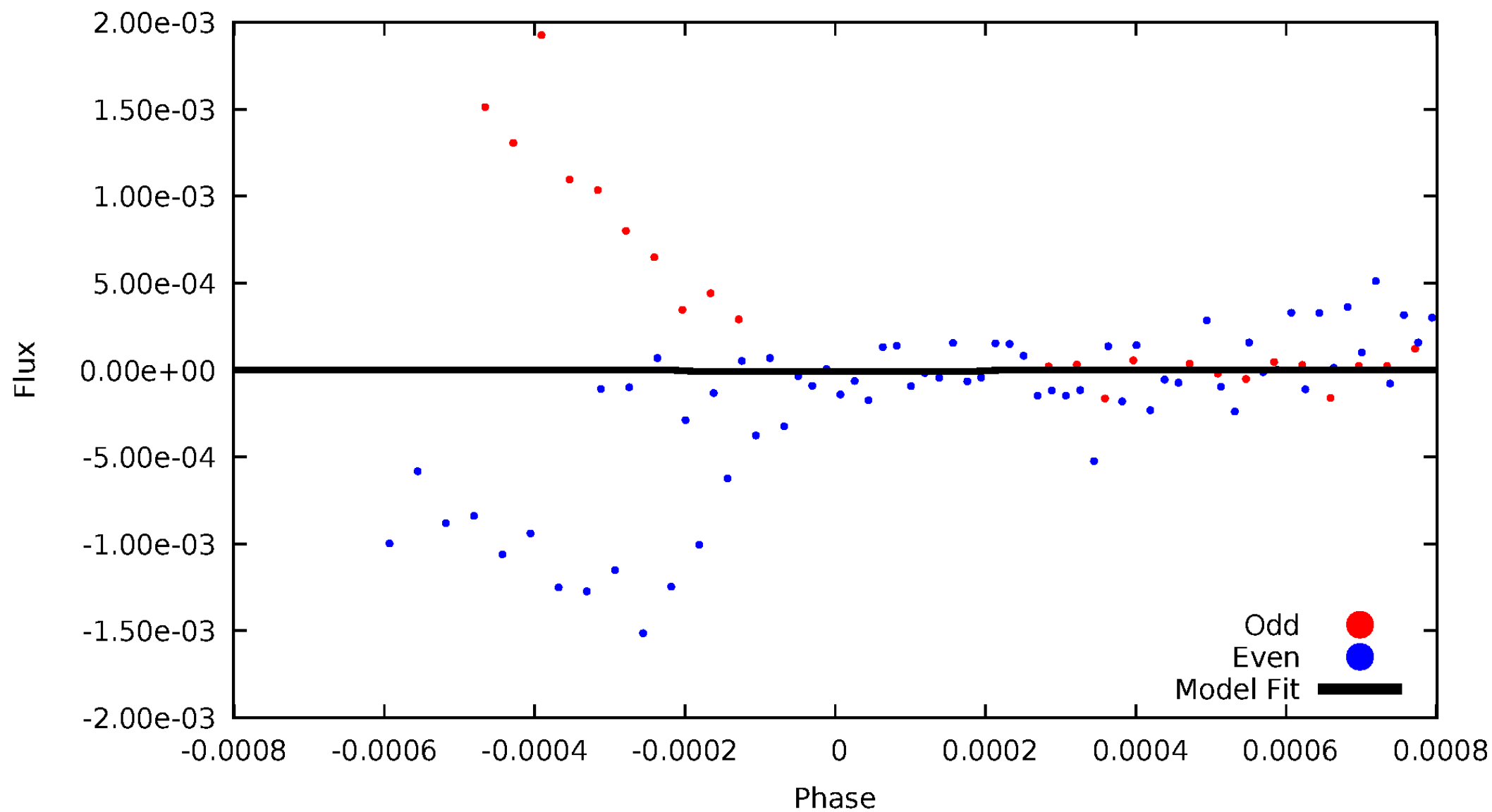
DV Odd/Even

TCE 002303102-09

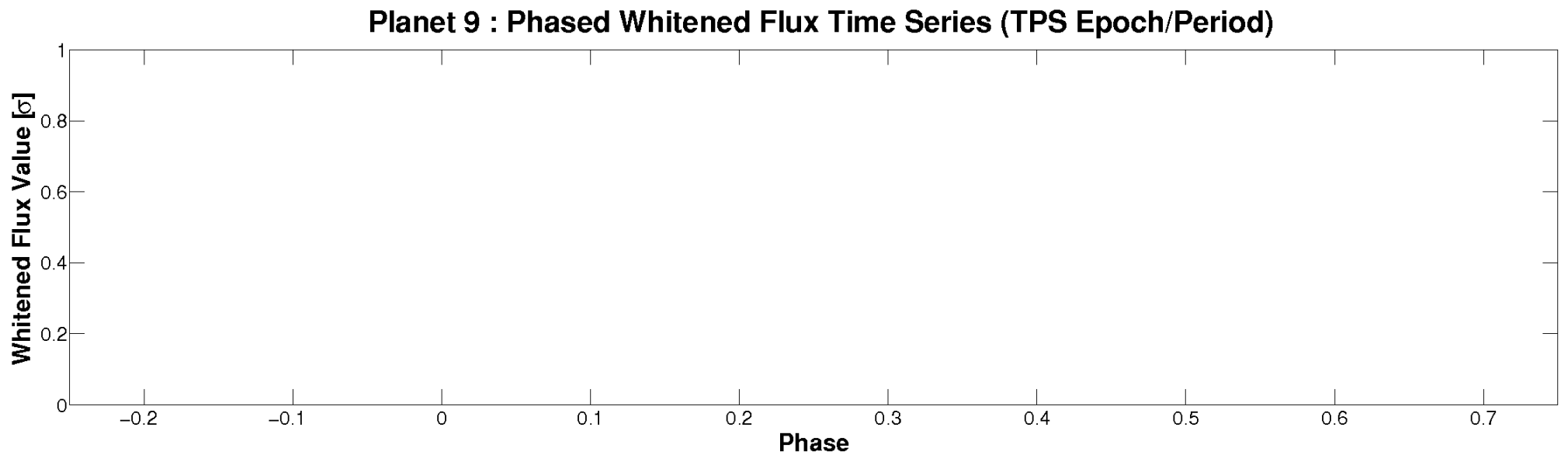
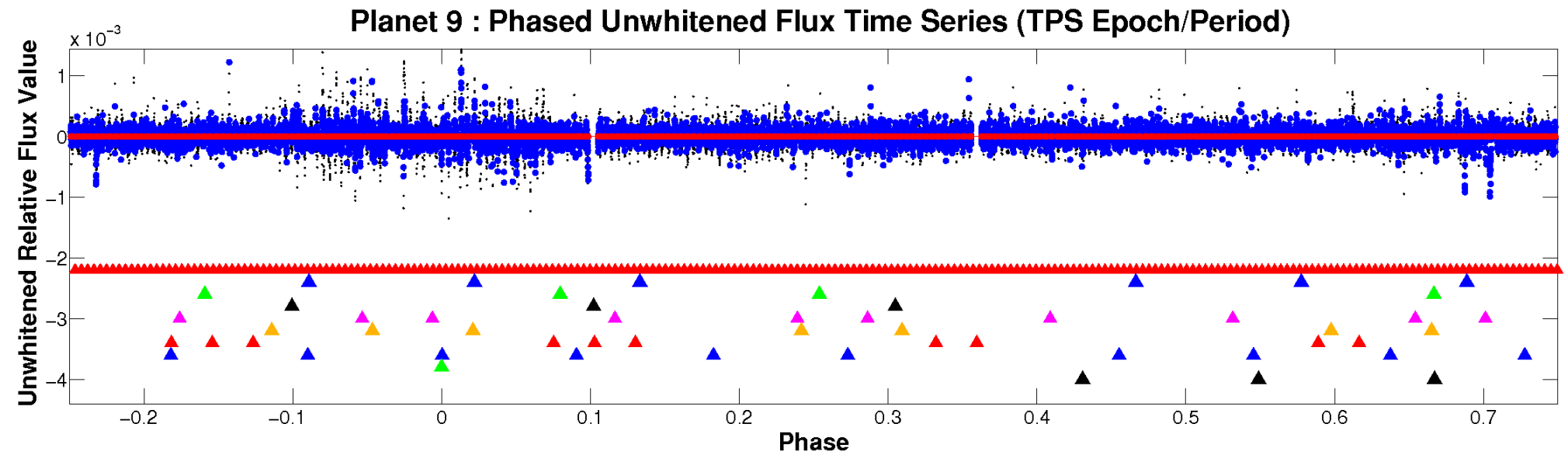


ALT Odd/Even

TCE 002303102-09

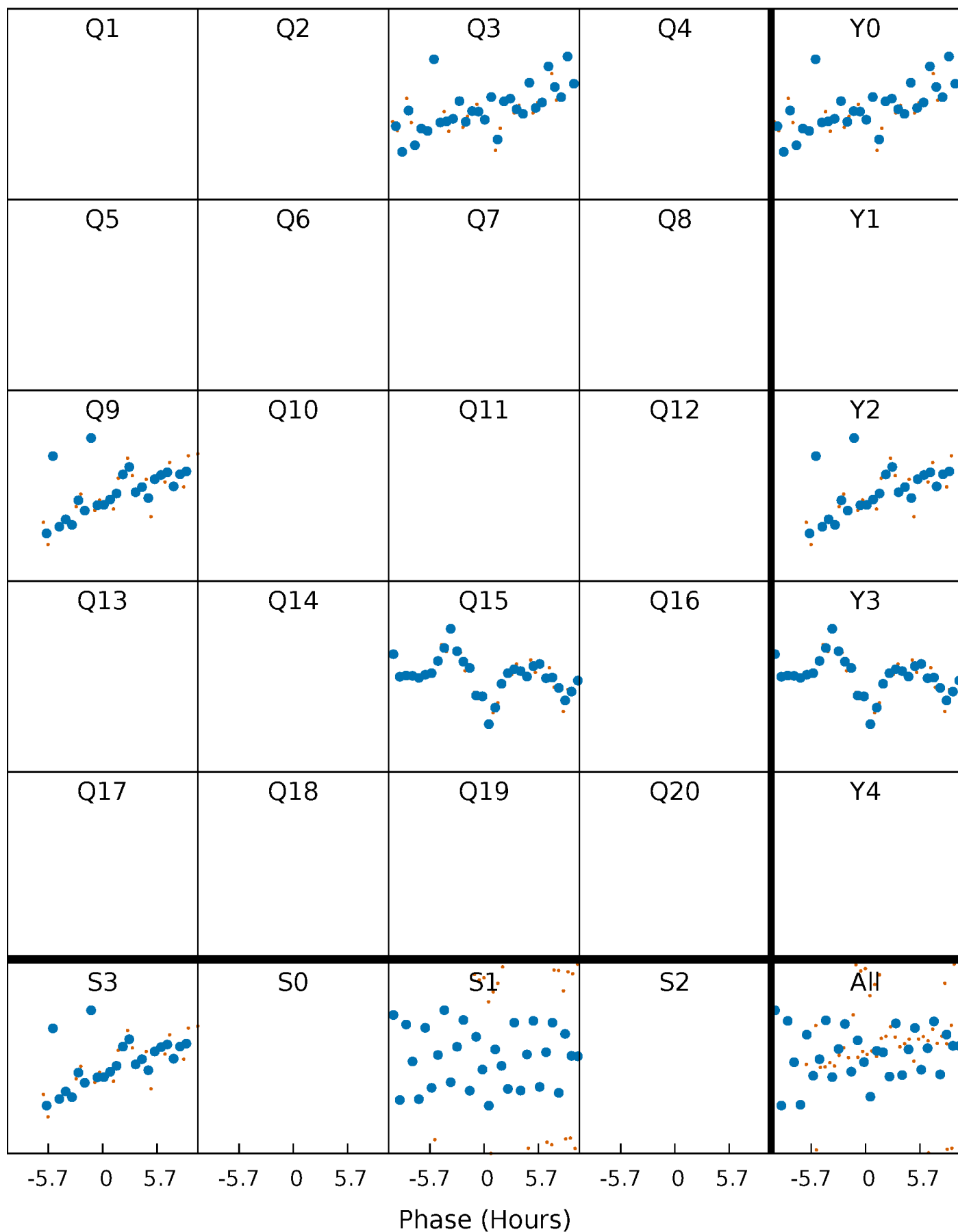


Non-Whitened Vs. Whitened Light Curve



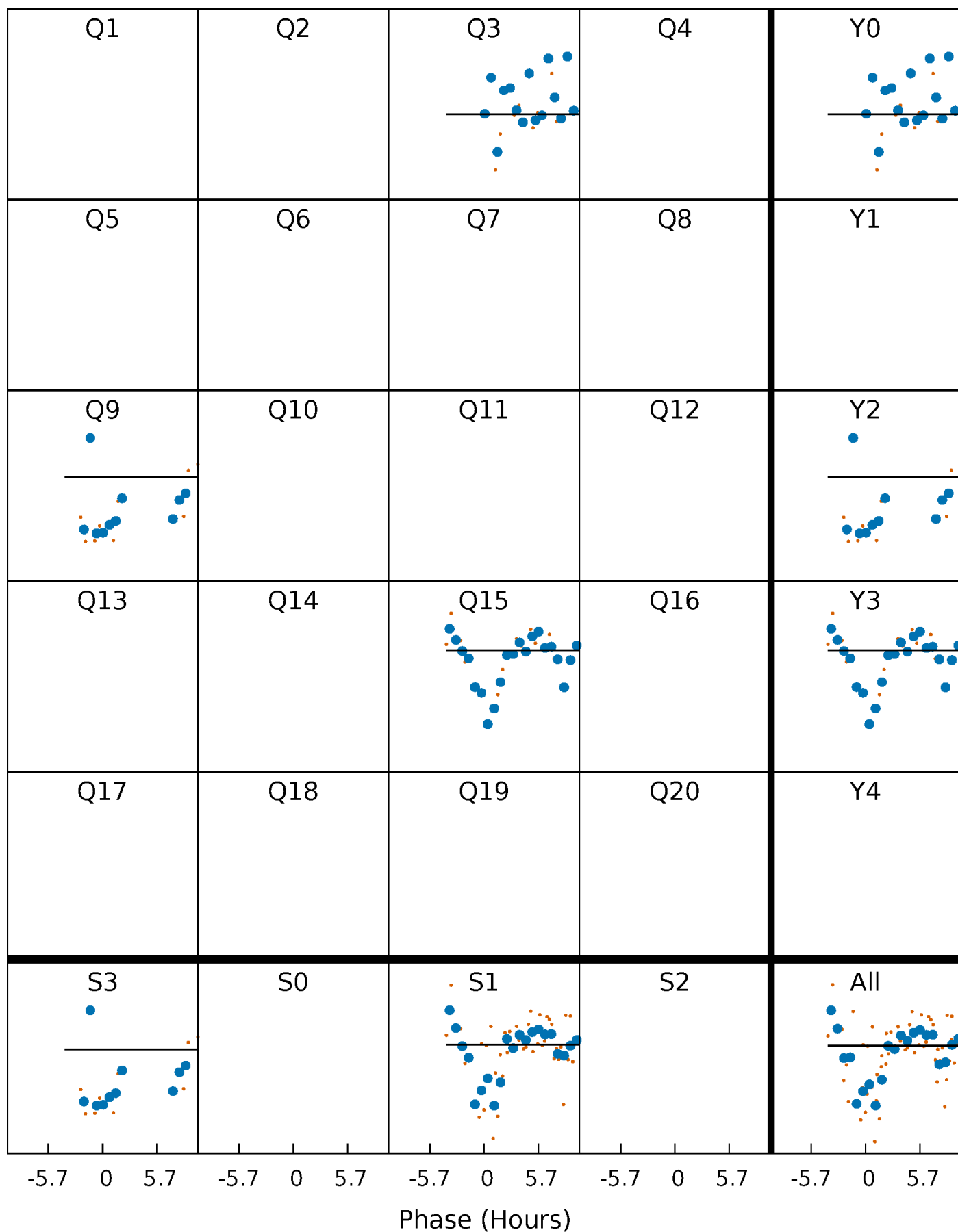
PDC Quarter-Phased Transit Curves

TCE 002303102-09 P=544.908556 Days $T_0=342.926822$ (BKJD)



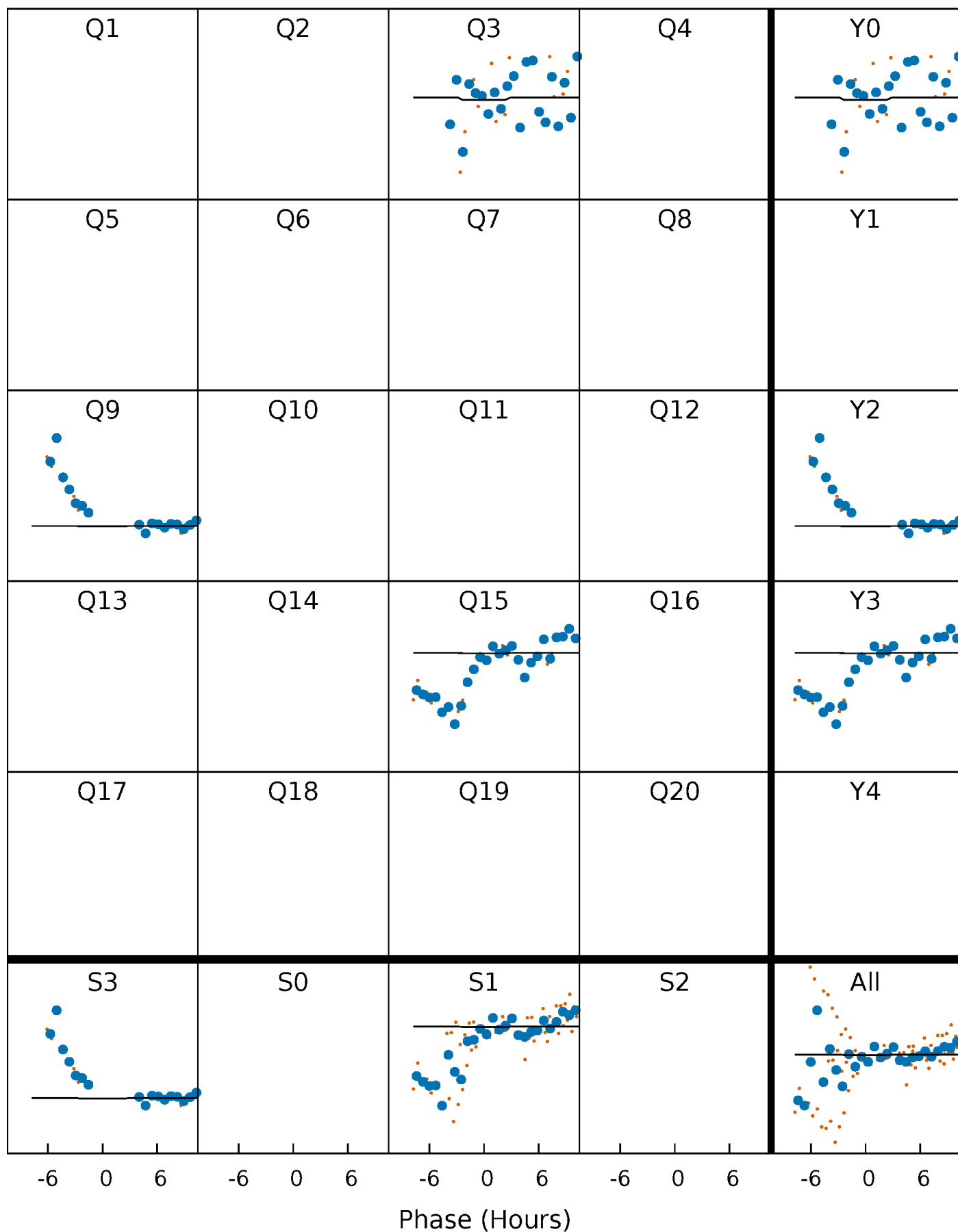
DV Quarter-Phased Transit Curves

TCE 002303102-09 $P=544.908556$ Days $T_0=342.926822$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

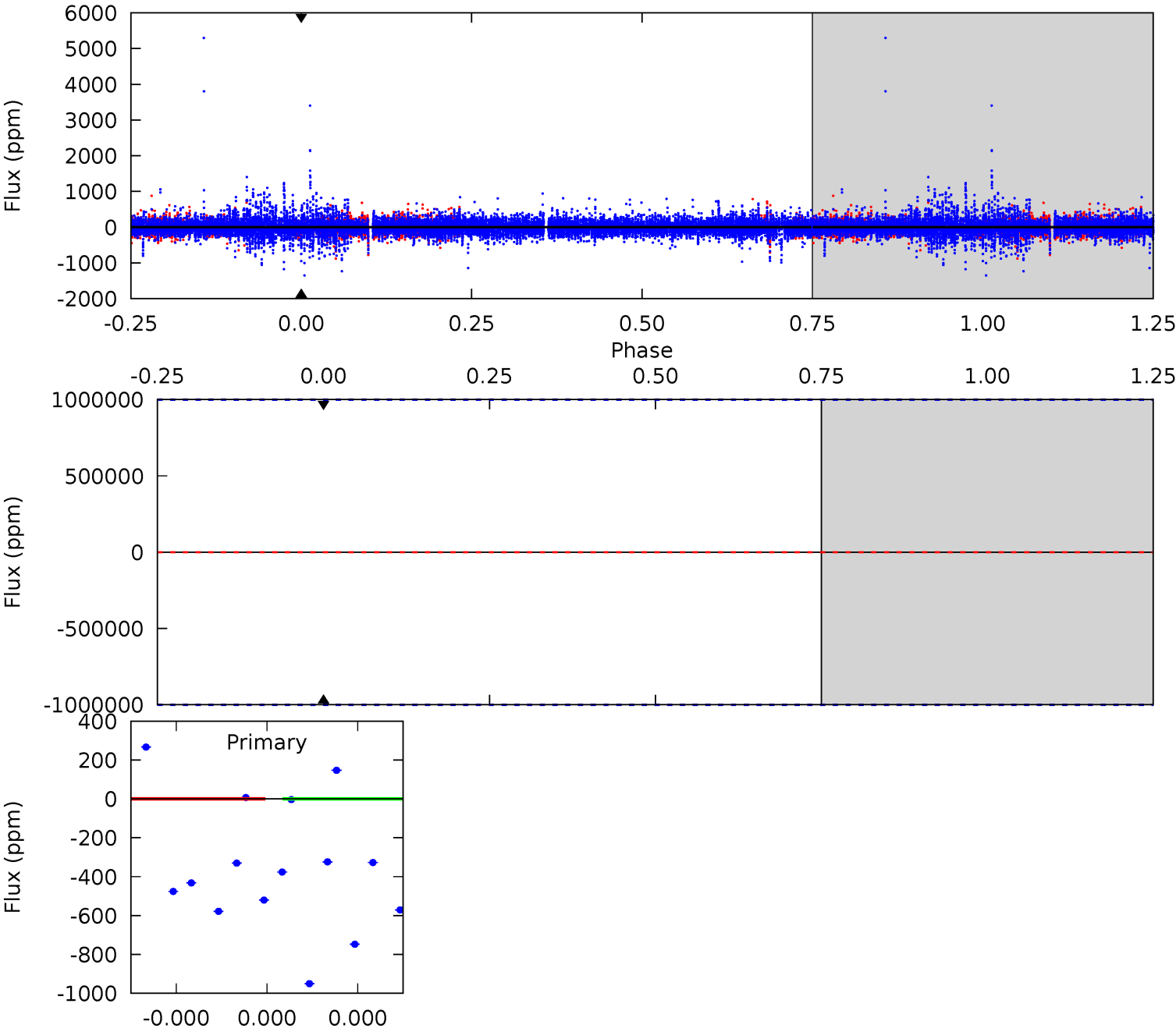
TCE 002303102-09 $P=544.908556$ Days $T_0=343.085682$ (BKJD)



DV Model-Shift Uniqueness Test

002303102-09, P = 544.908556 Days, E = 342.926822 Days

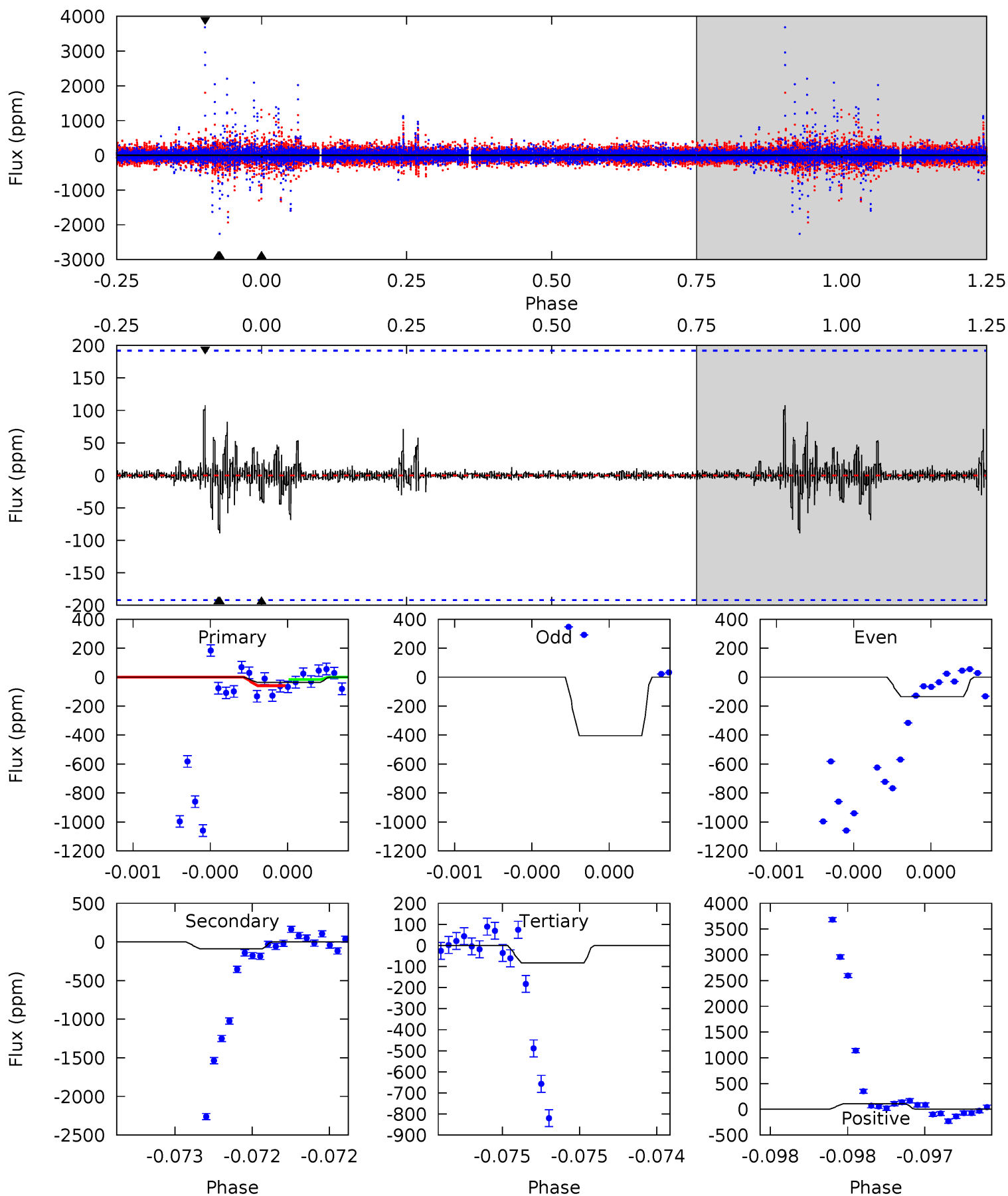
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

002303102-09, P = 544.908556 Days, E = 343.085682 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.07	2.59	2.41	3.15	5.60	3.53	0.24	-1.34	-2.08	0.18	-0.55	2.92	-1.54	0.55	0.61



Stellar Parameters For KIC 002303102

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5465^{+164}_{-147}	$4.209^{+0.276}_{-0.184}$	$0.210^{+0.200}_{-0.250}$	$1.257^{+0.352}_{-0.352}$	$0.932^{+0.090}_{-0.074}$	$0.661^{+1.131}_{-0.326}$
	+3%/-3%	+7%/-4%	+95%/-119%	+28%/-28%	+10%/-8%	+171%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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Secondary Eclipse Parameters for KIC 002303102-09 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$9.69^{+10.85}_{-6.65}$	334^{+26}_{-29}	2499^{+17975}_{-22370}	$634^{+1854002}_{-1723784}$
Alt.	-89 ± 34	$9.43^{+10.44}_{-6.26}$	334^{+28}_{-30}	2743^{+1045}_{-465}	894^{+6098}_{-711}

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 $A_{obs} \gg 1.0$

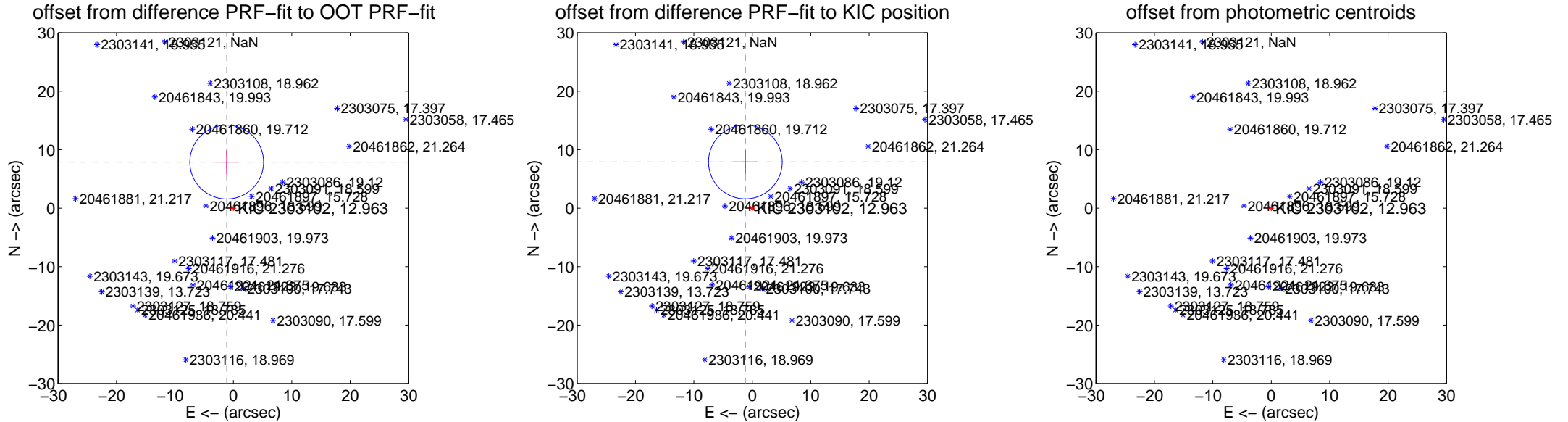
DV Centroid Data

Supplemental centroid analysis for 002303102-09. Kepler magnitude: 12.96. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.960 ± 2.104	3.78	1.135 ± 1.960	7.879 ± 2.106
PRF-fit source offset from KIC position	7.988 ± 2.103	3.80	1.185 ± 1.960	7.900 ± 2.106
photometric centroid source offset	66.98 ± 54.75	1.22	48.15 ± 42.58	-46.55 ± 65.31



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

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

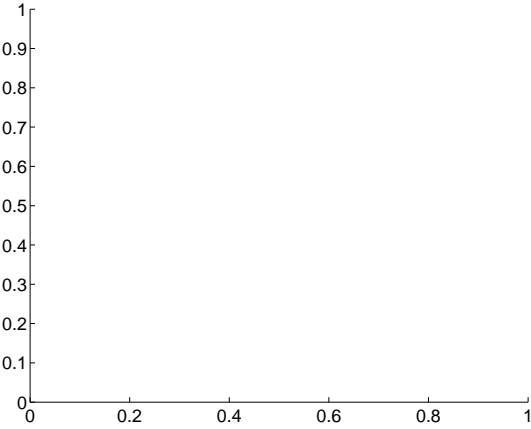
Q1 no difference image



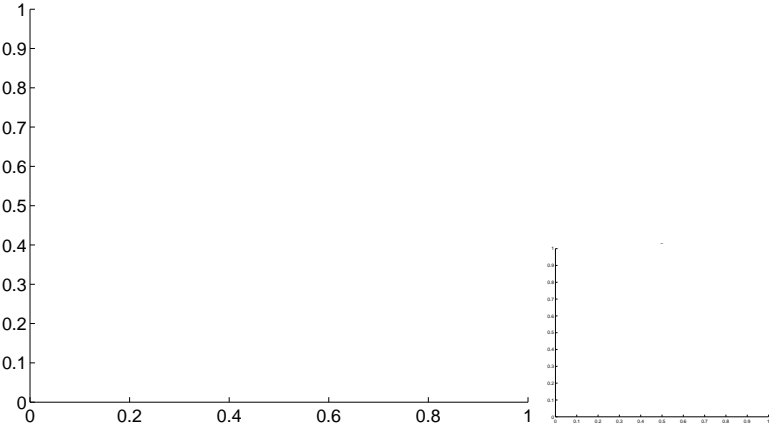
Q1 no OOT image



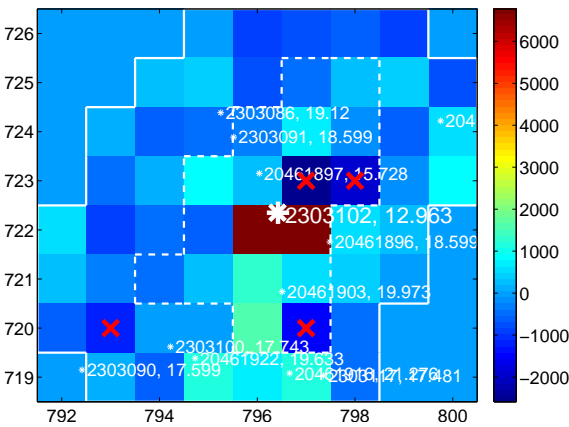
Q2 no difference image



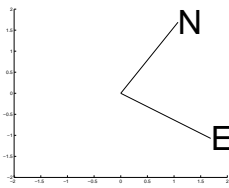
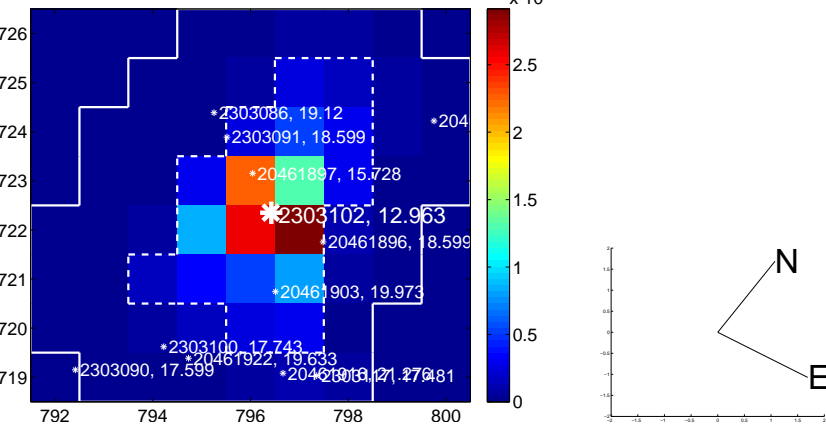
Q2 no OOT image



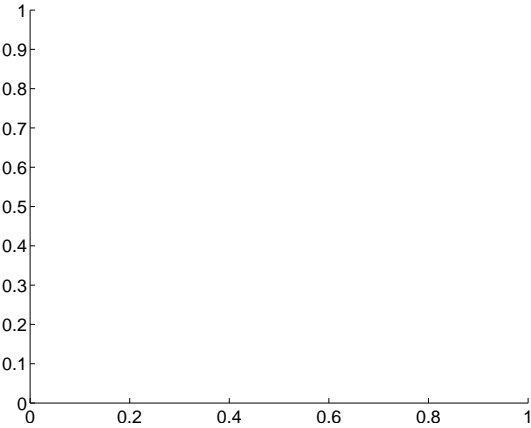
Q3 difference image. Poor Quality



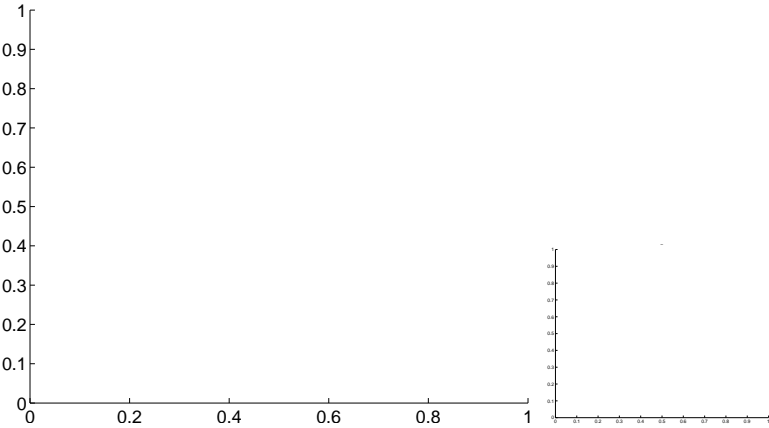
Q3 OOT image



Q4 no difference image



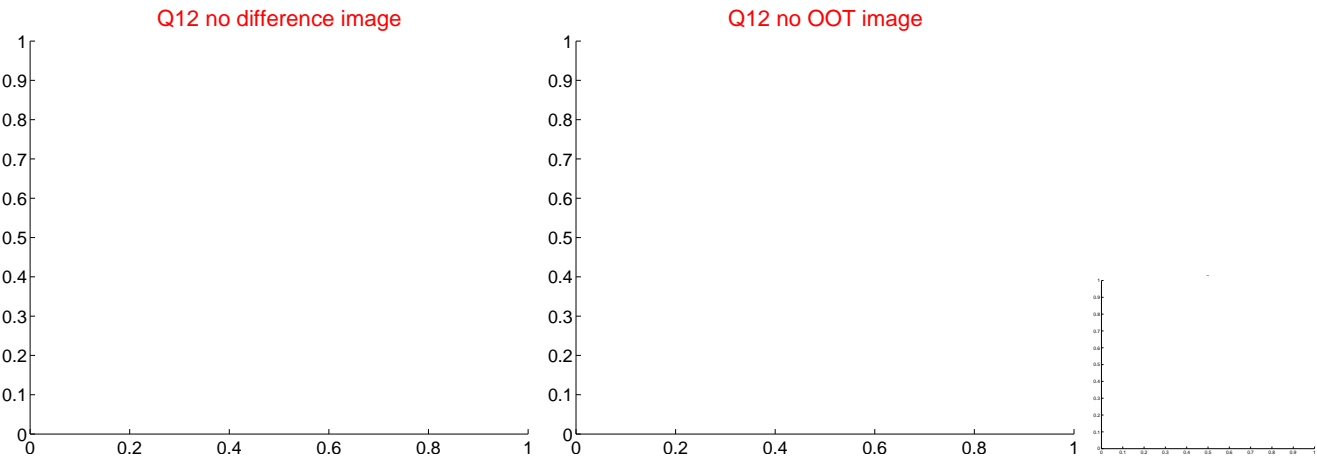
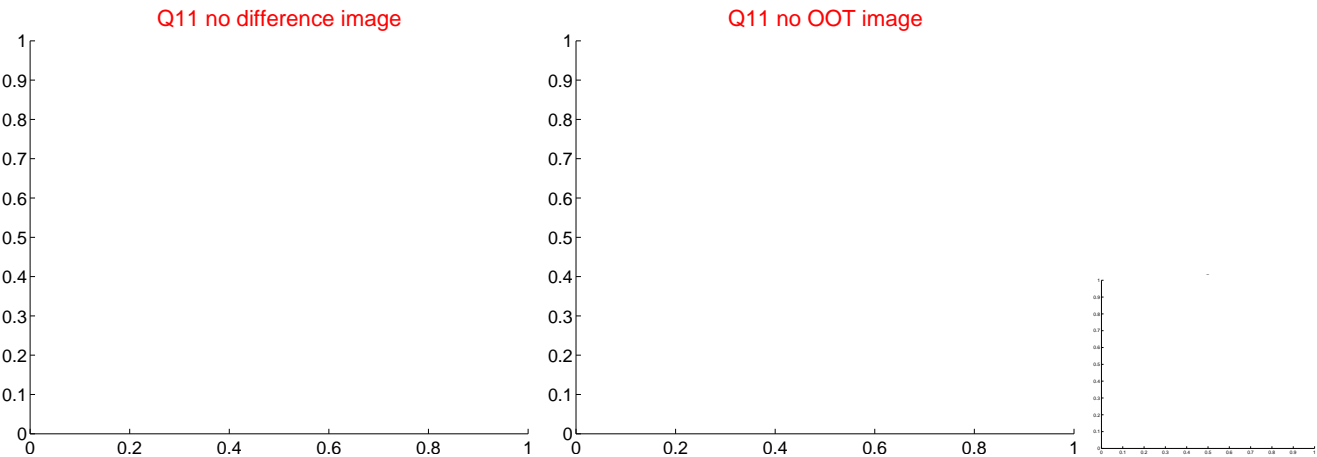
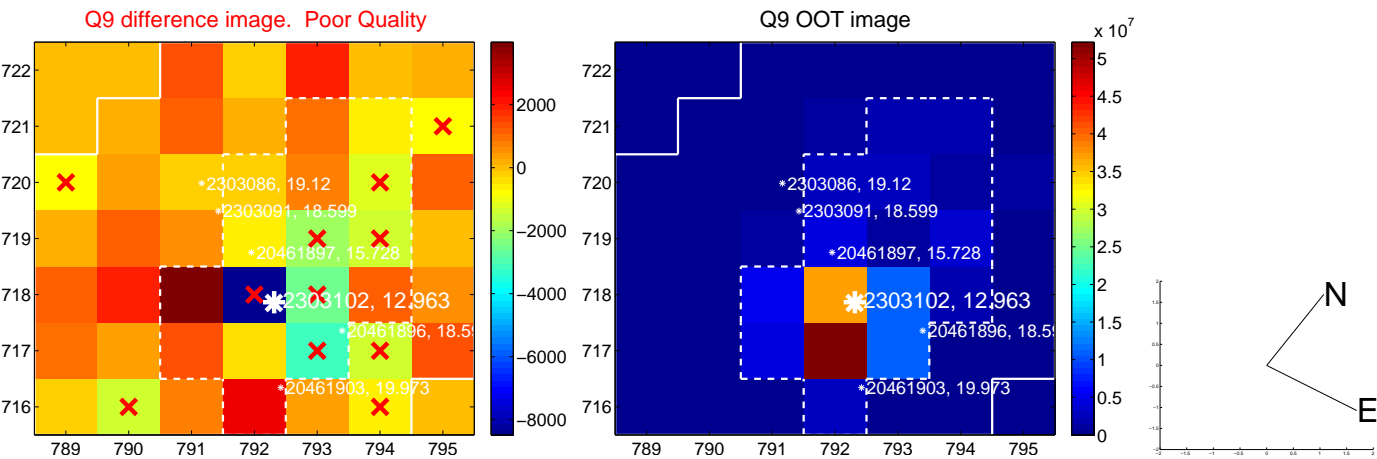
Q4 no OOT image



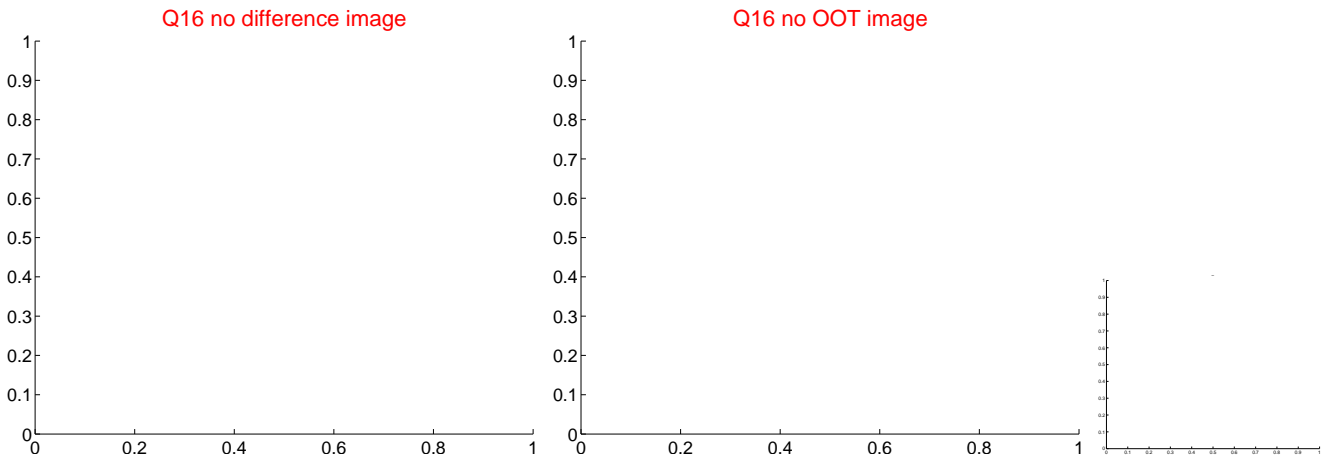
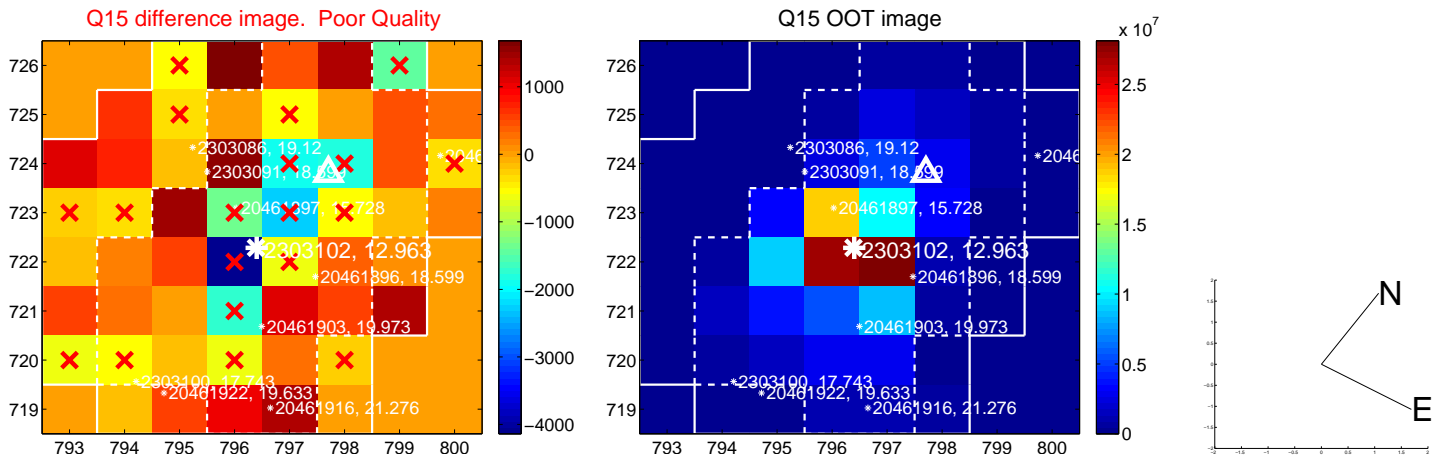
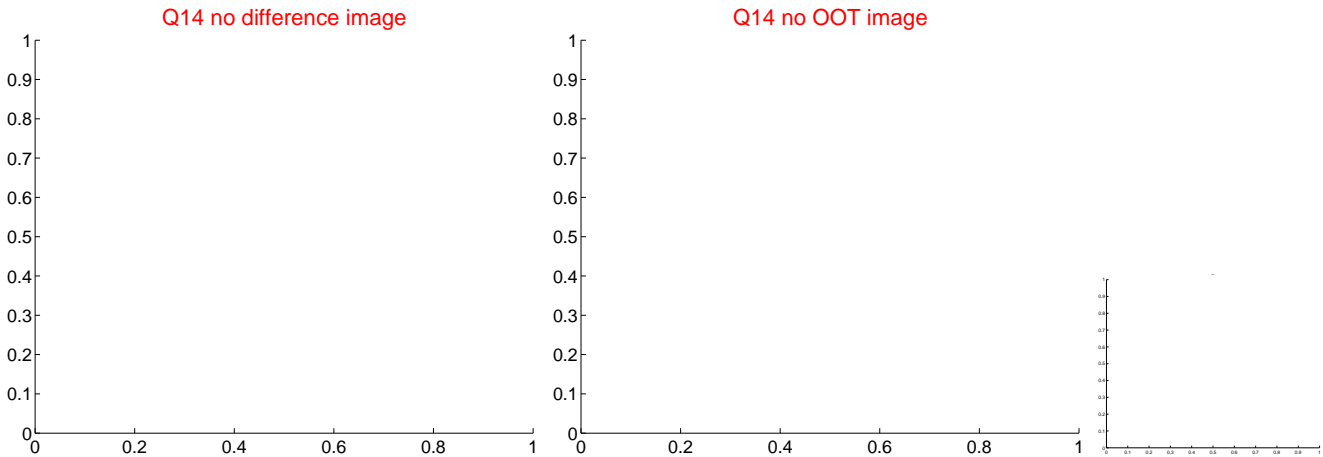
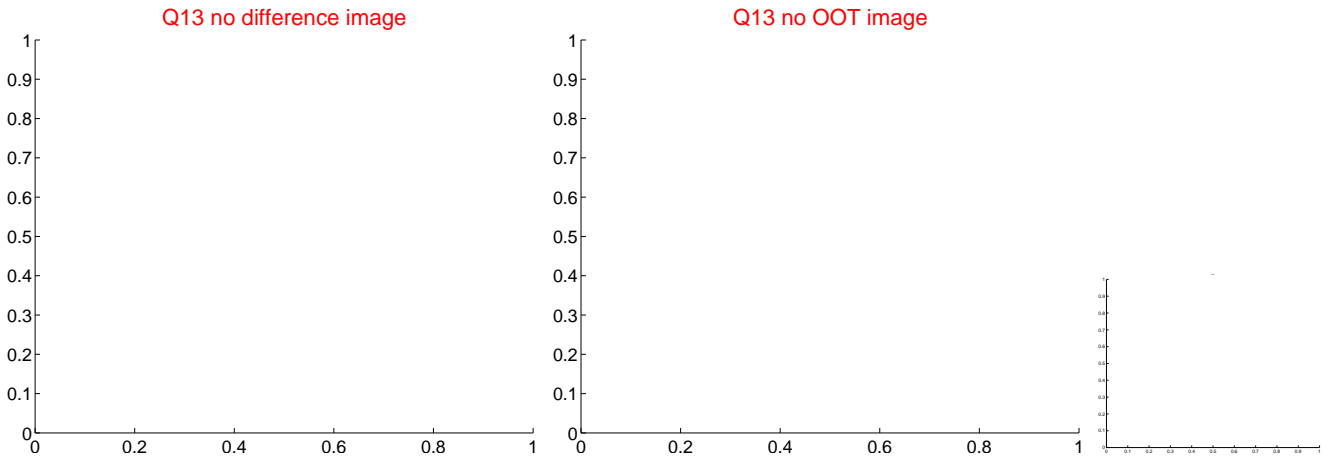
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



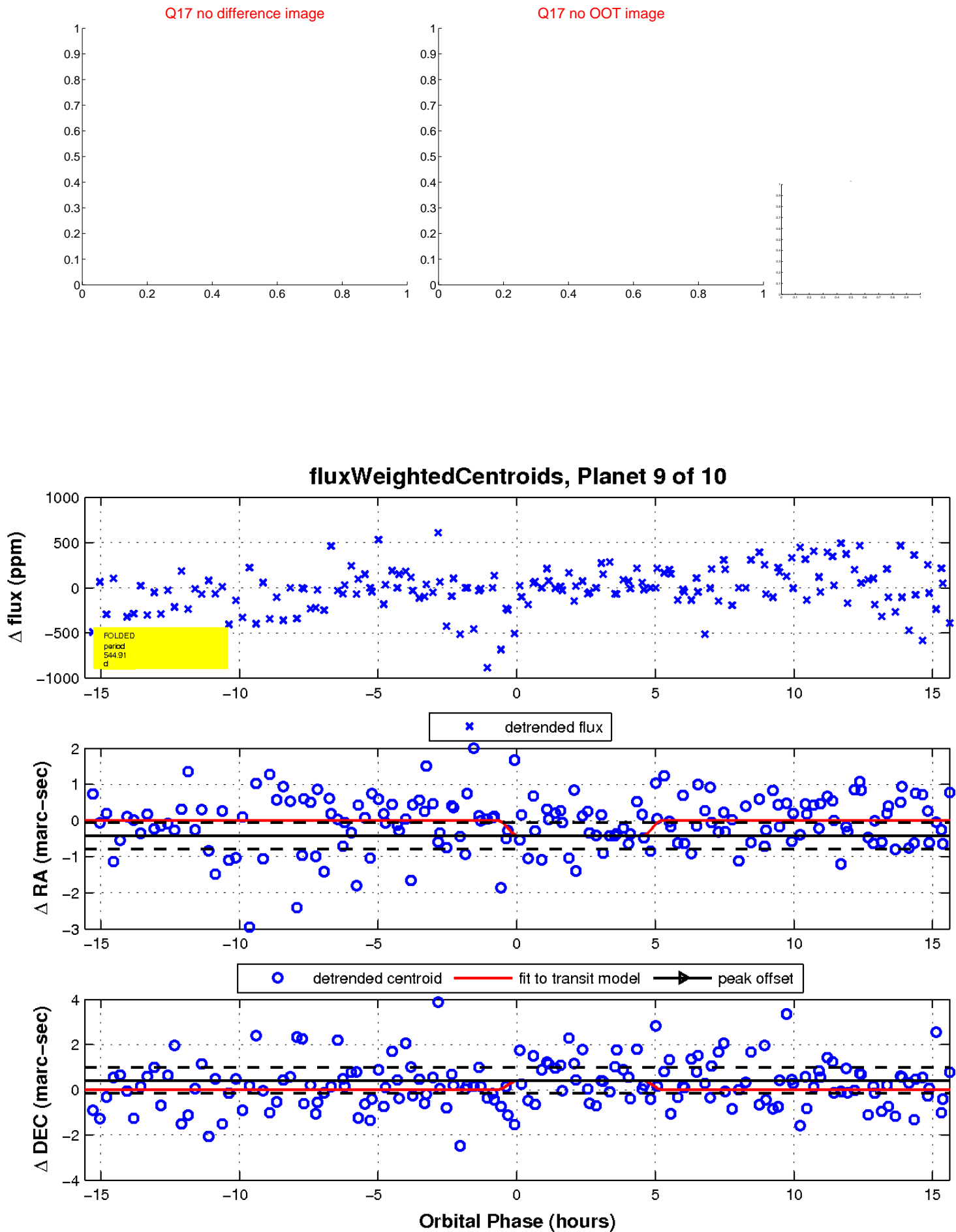
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

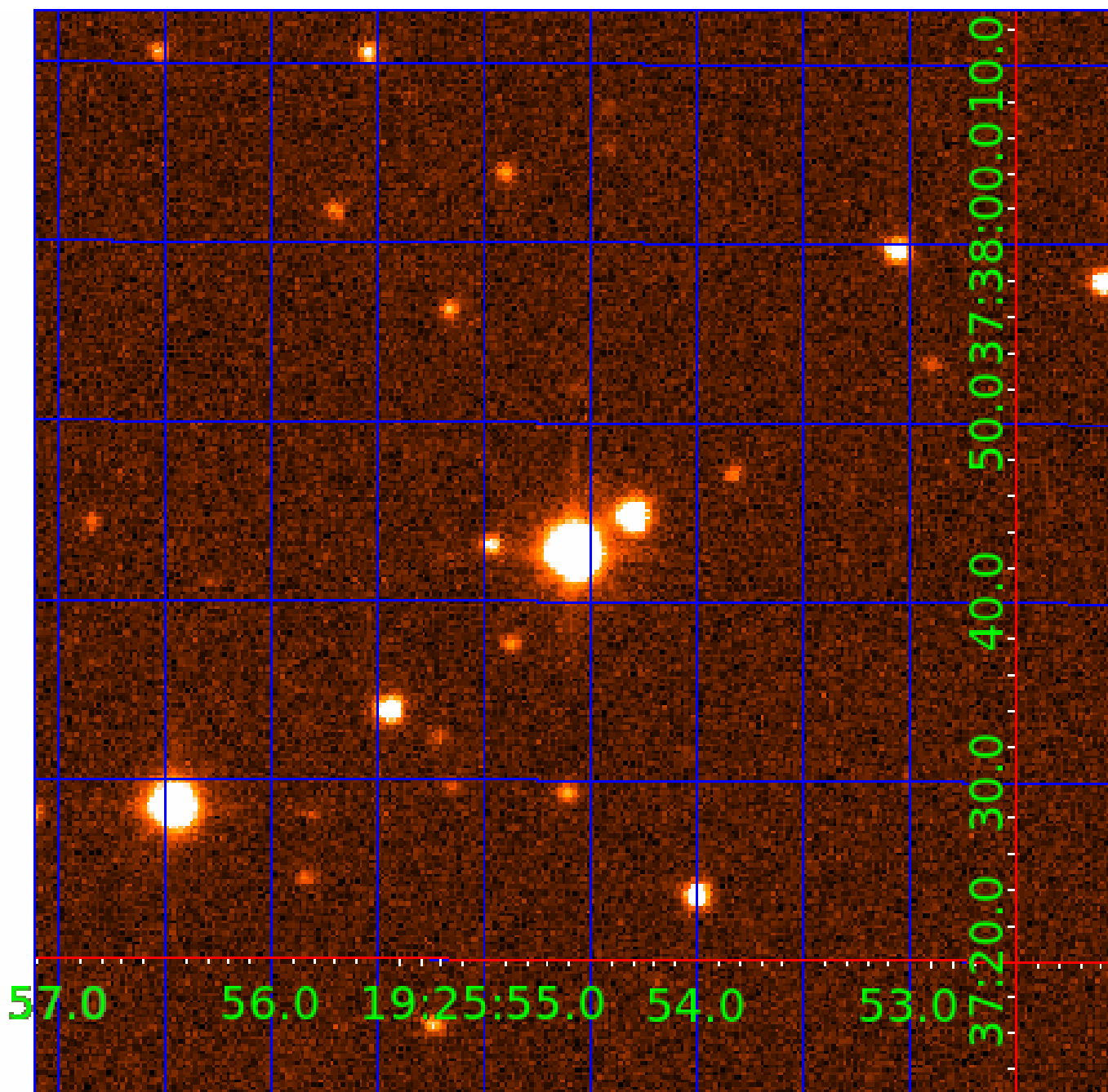


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
002303102-01	OBS	No	2.298875	132.974167	31.1	11.443	8.2	9.8	1.26	5465	0.74	1137.95
002303102-02	OBS	No	242.161051	173.380485	650.8	21.893	36.3	9.1	1.26	5465	6.47	2.29
002303102-03	OBS	No	319.894193	386.351543	393.4	15.000	19.9	-1.0	1.26	5465	2.44	1.58
002303102-04	OBS	No	434.460665	509.040892	576.8	13.180	19.1	12.4	1.26	5465	3.47	1.05
002303102-05	OBS	No	159.358266	154.502554	141.2	22.045	16.9	3.5	1.26	5465	1.61	4.00
002303102-07	OBS	No	139.966466	243.994110	322.2	10.625	13.4	8.3	1.26	5465	2.38	4.75
002303102-08	OBS	No	148.524623	145.415390	297.7	1.235	12.9	4.6	1.26	5465	2.38	4.39
002303102-09	OBS	No	544.908556	342.926822	523.6	5.000	12.9	-1.0	1.26	5465	2.82	0.78
002303102-10	OBS	No	480.480981	161.570218	309.9	15.557	11.5	6.9	1.26	5465	2.61	0.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002303102-01	OBS	FP	0.00	1	0	0	0	LPP_DV
002303102-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
002303102-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
002303102-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
002303102-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002303102-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
002303102-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

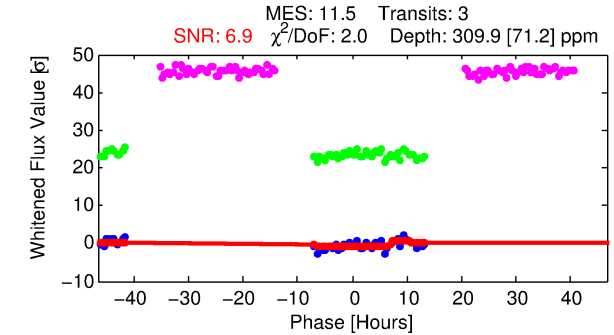
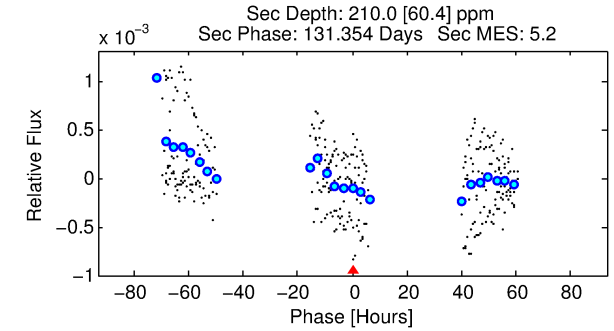
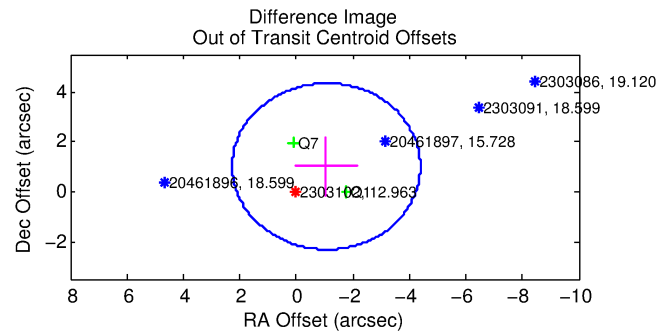
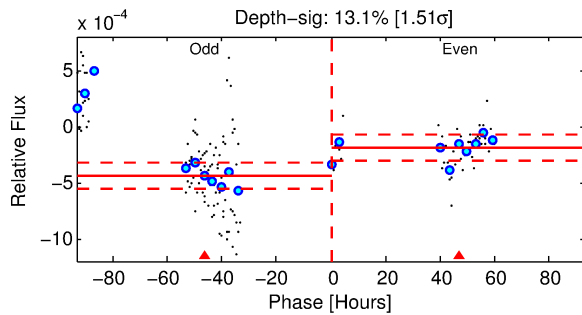
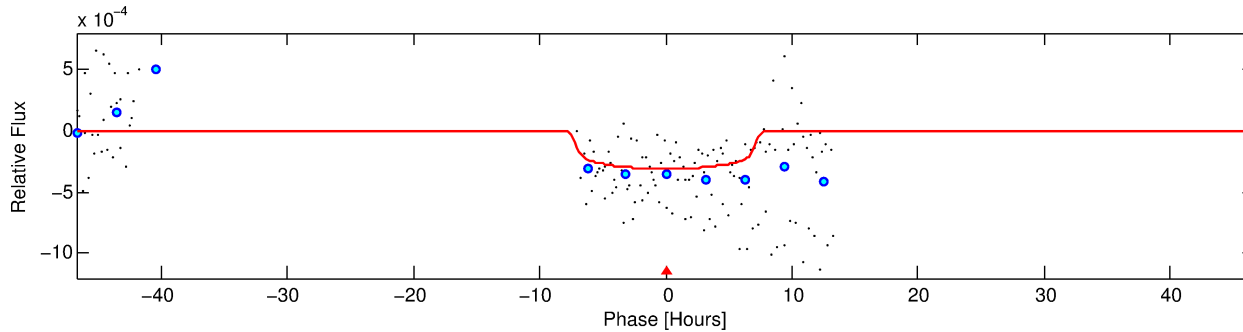
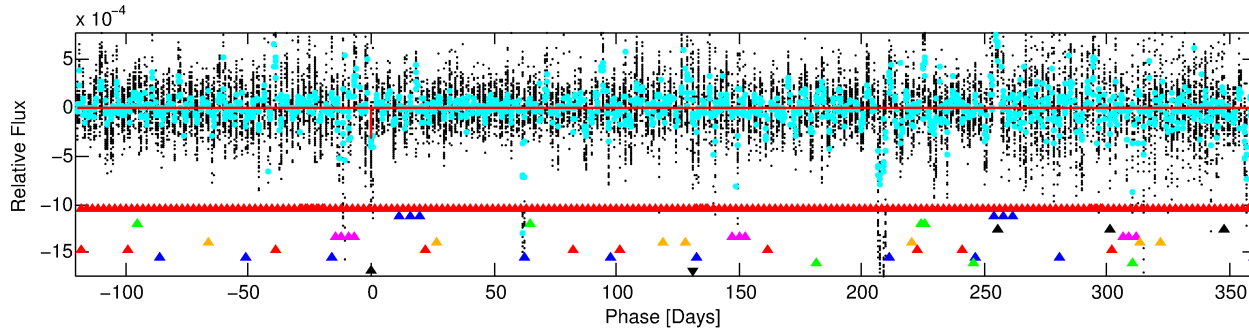
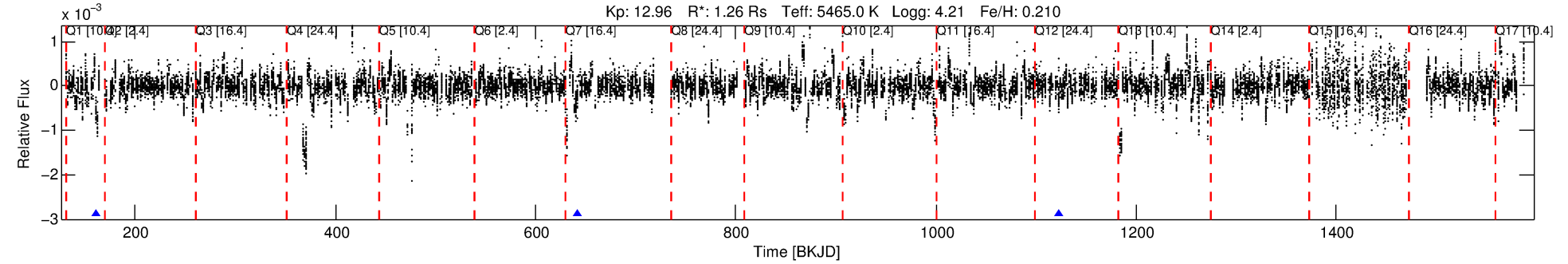
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002303102-10

No Significant Match Found

DV One-Page Summary

KIC: 2303102 Candidate: 10 of 10 Period: 480.481 d



DV Fit Results:

Period = 480.48098 [0.02095] d
Epoch = 161.5702 [0.0307] BKJD
Rp/R* = 0.0191 [0.0041]
a/R* = 120.22 [89.31]
b = 0.88 [0.18]
Seff = 0.92 [0.44]
Teq = 250 [30] K
Rp = 2.61 [0.93] Re
a = 1.1732 [0.3313] AU
Ag = 23270.48 [16193.42] [1.44 σ]
Teffp = 4766 [635] K [7.10 σ]

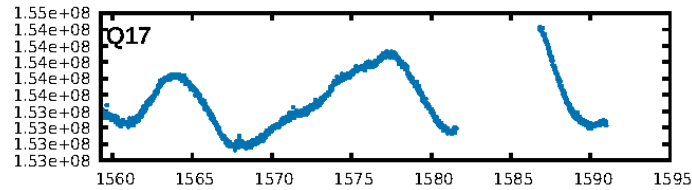
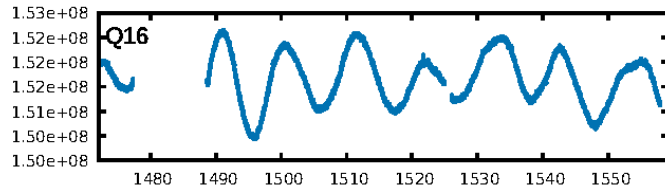
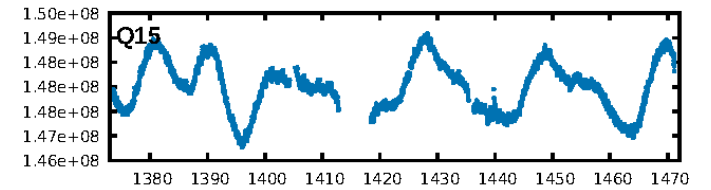
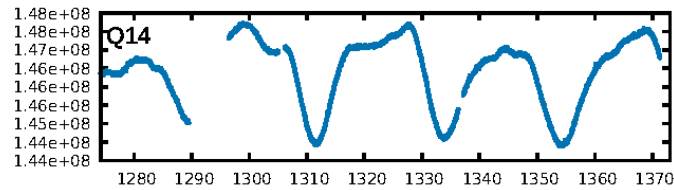
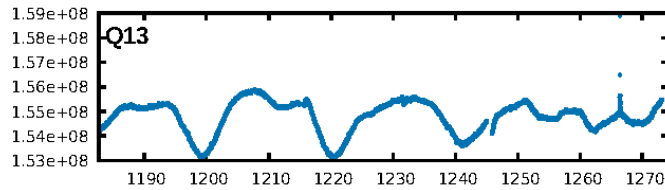
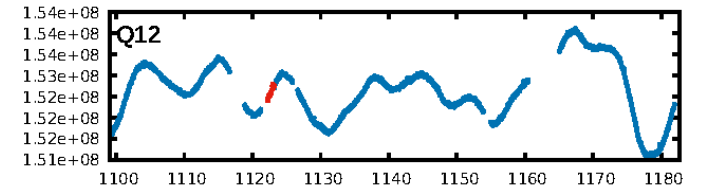
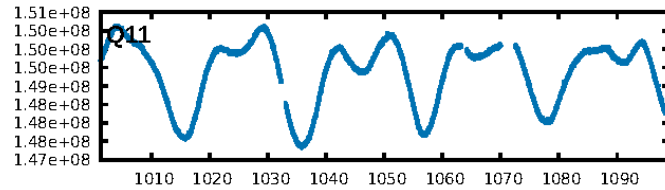
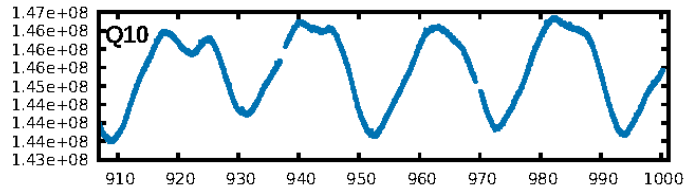
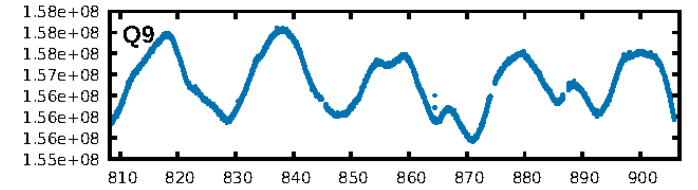
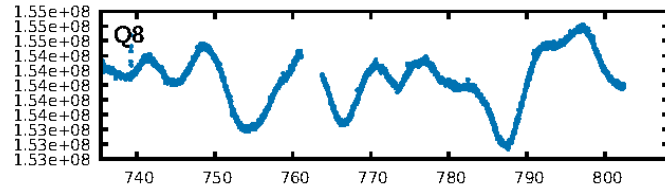
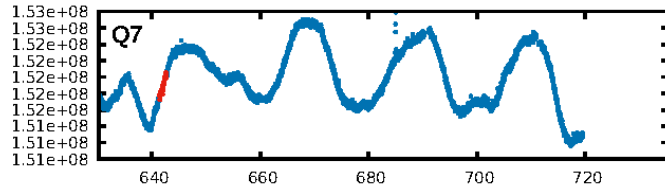
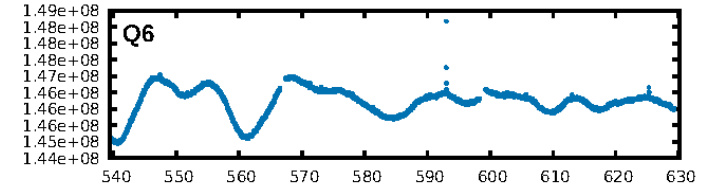
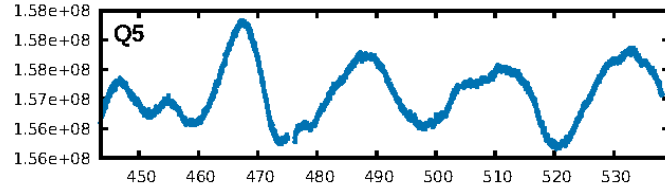
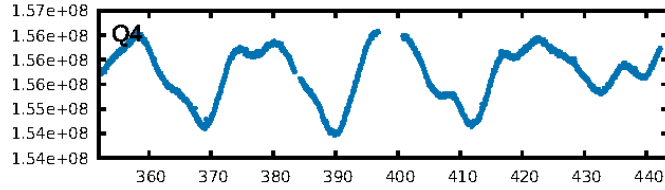
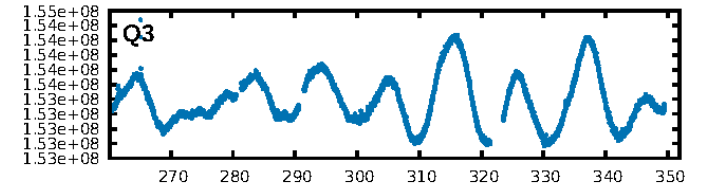
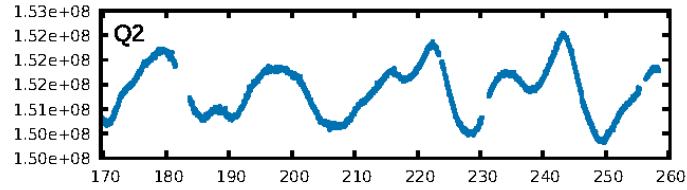
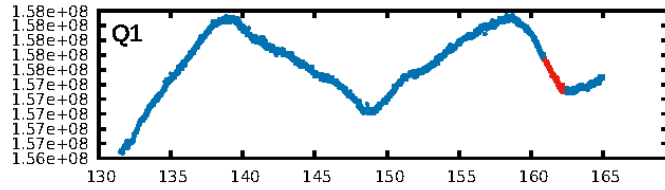
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [54.17 σ]
LongPeriod-sig: 100.0% [94.62 σ]
ModelChiSquare2-sig: 5.8%
ModelChiSquareGof-sig: 15.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.307
Centroid-sig: 12.0%
Centroid-so: 0.864 arcsec [0.94 σ]
OotOffset-rm: 1.464 arcsec [1.32 σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-rm: 1.480 arcsec [1.36 σ]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/2]

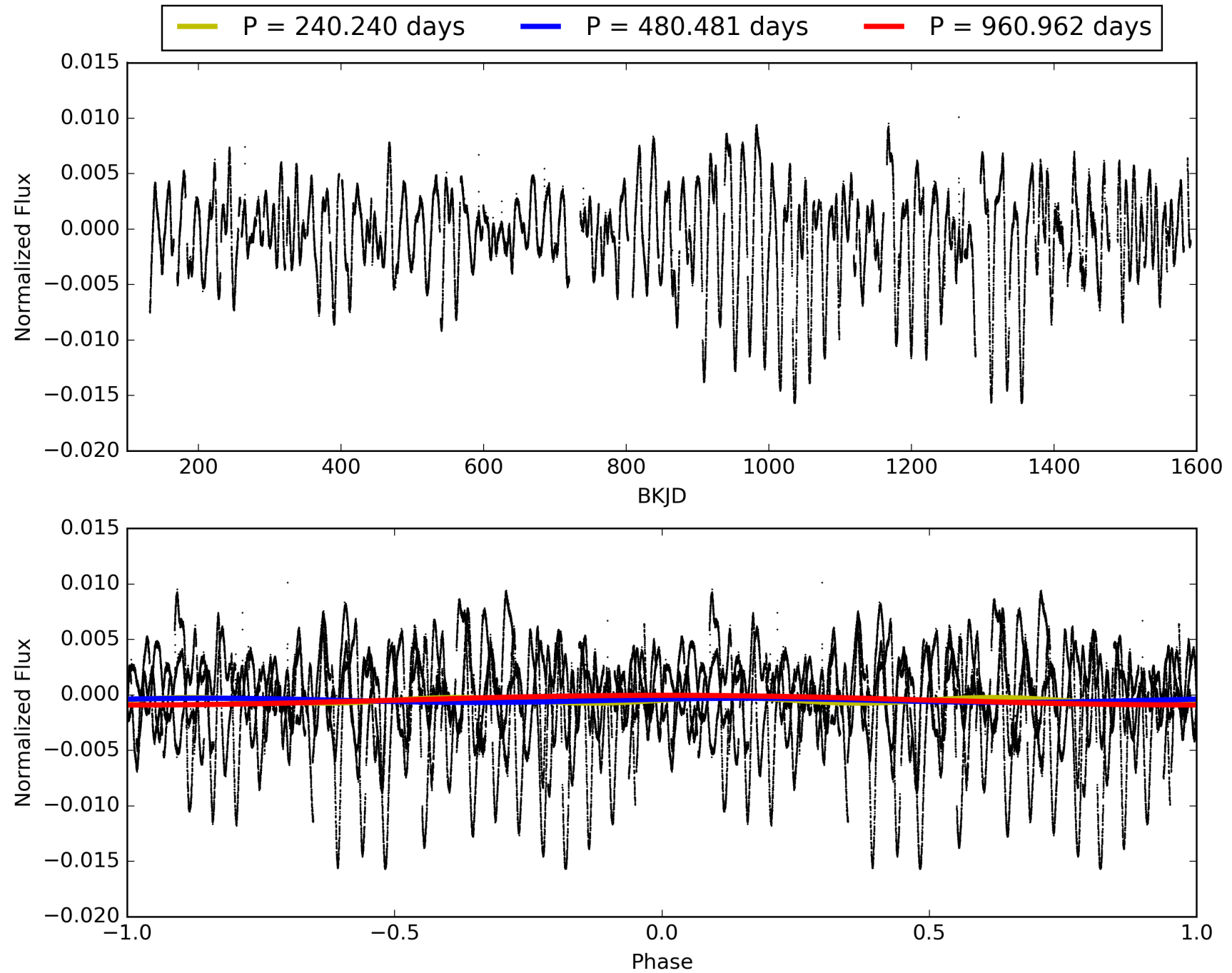
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:10:47 Z

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

TCE 002303102-10, PDC Light Curves

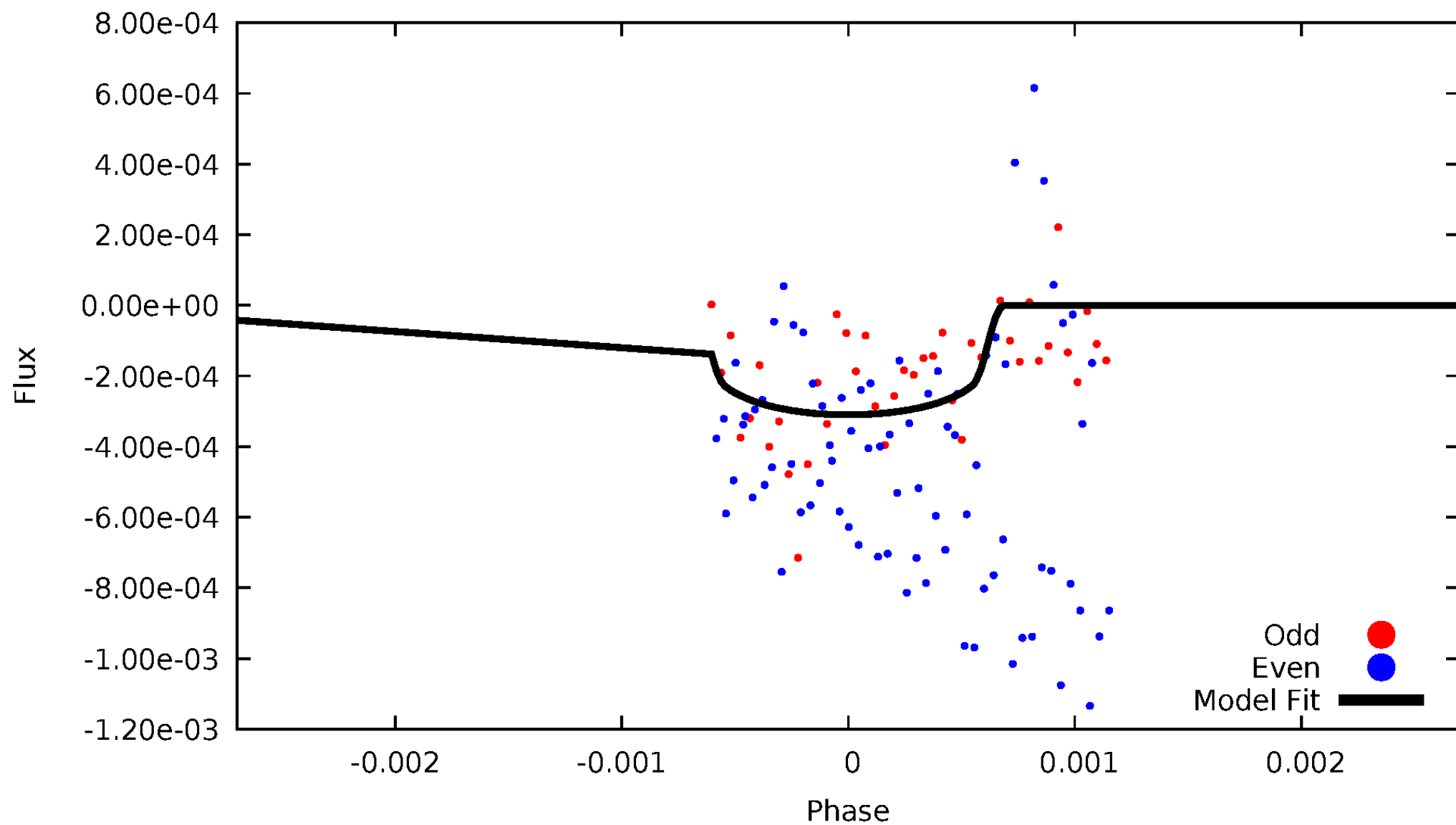


TCE 002303102-10



DV Odd/Even

TCE 002303102-10

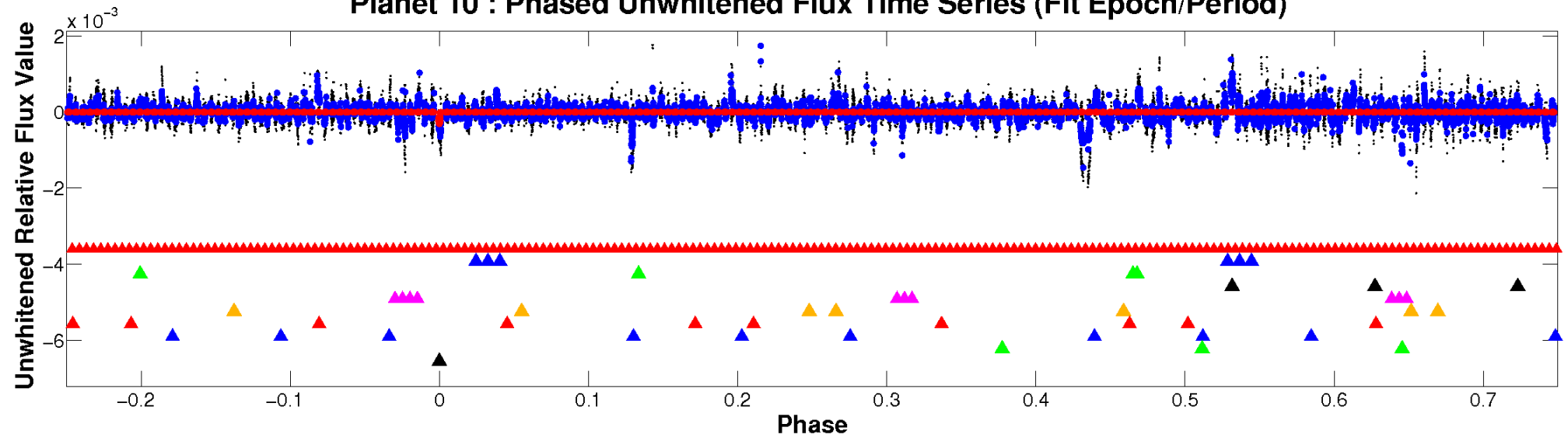


ALT Odd/Even

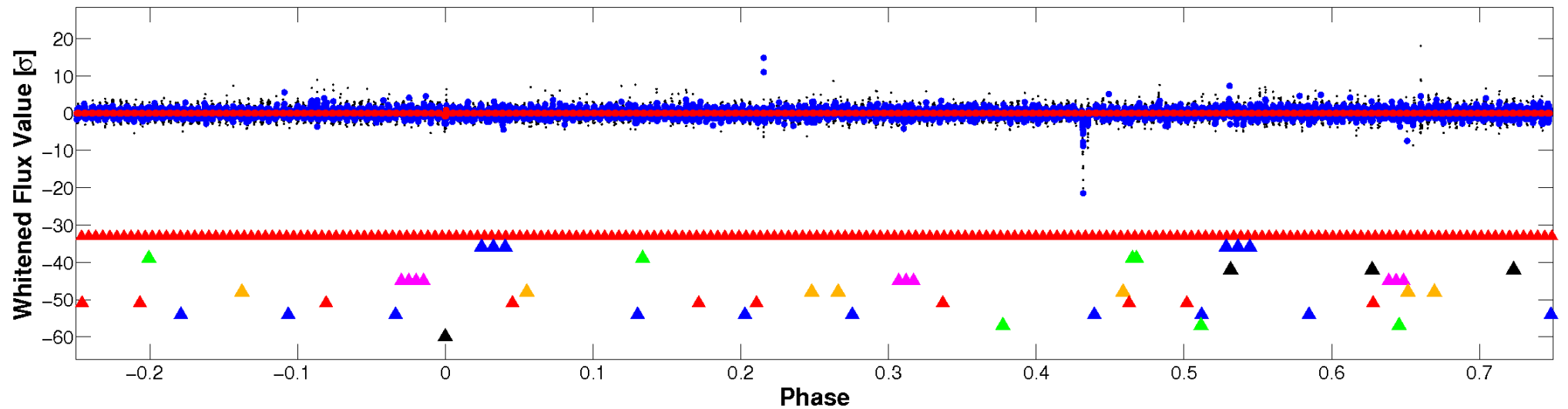
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

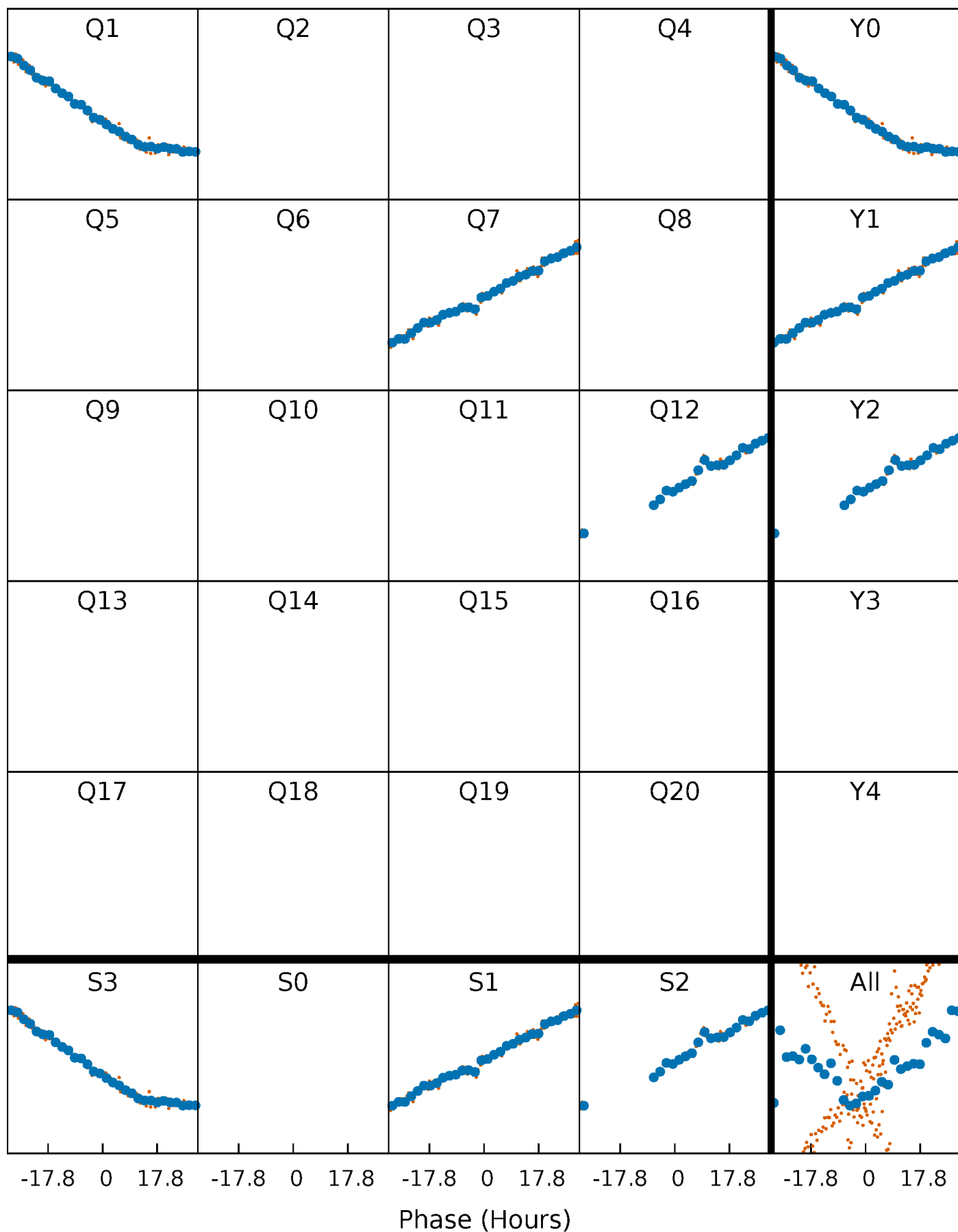


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



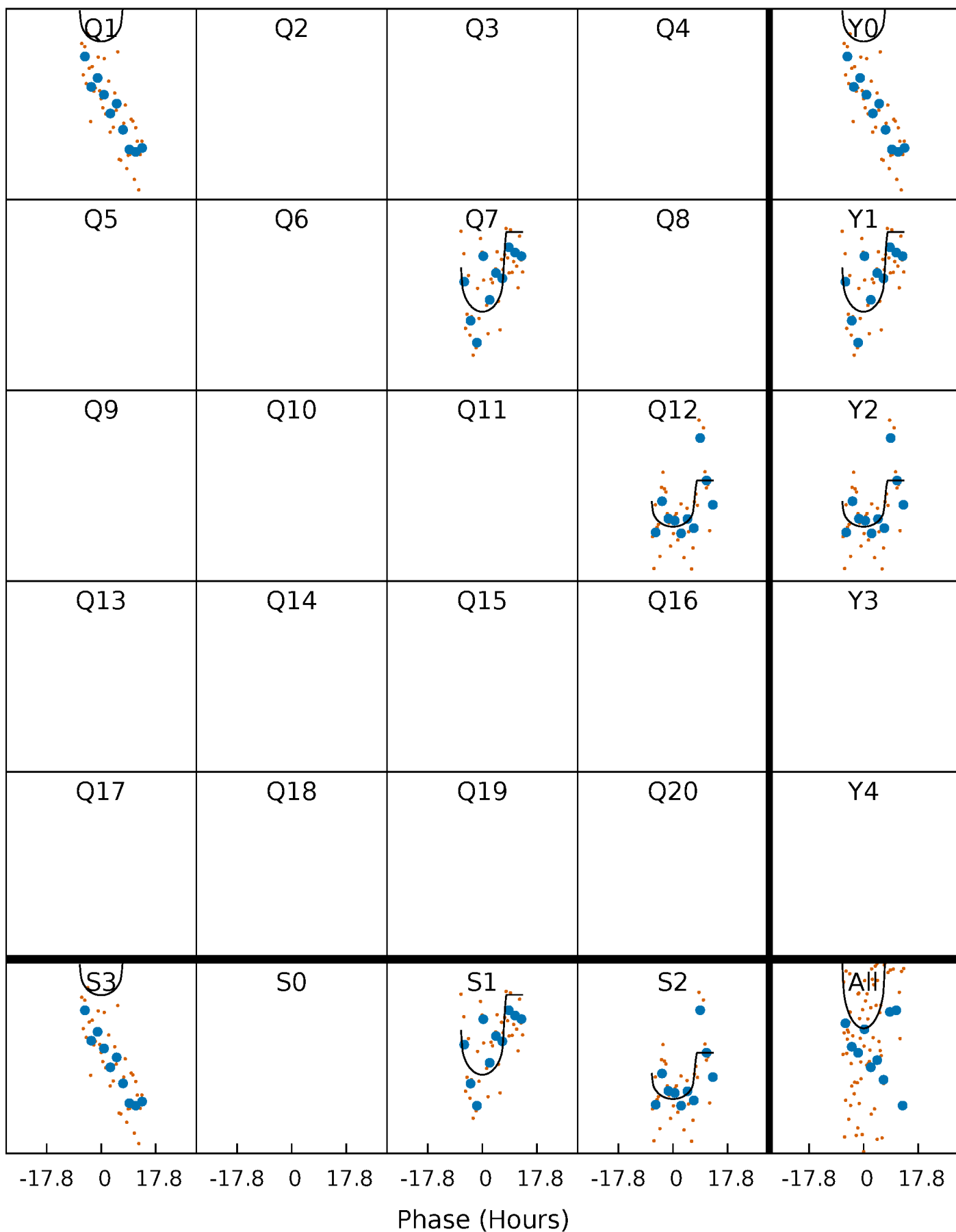
PDC Quarter-Phased Transit Curves

TCE 002303102-10 P=480.480981 Days $T_0=161.570218$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 002303102-10 $P=480.480981$ Days $T_0=161.570218$ (BKJD)

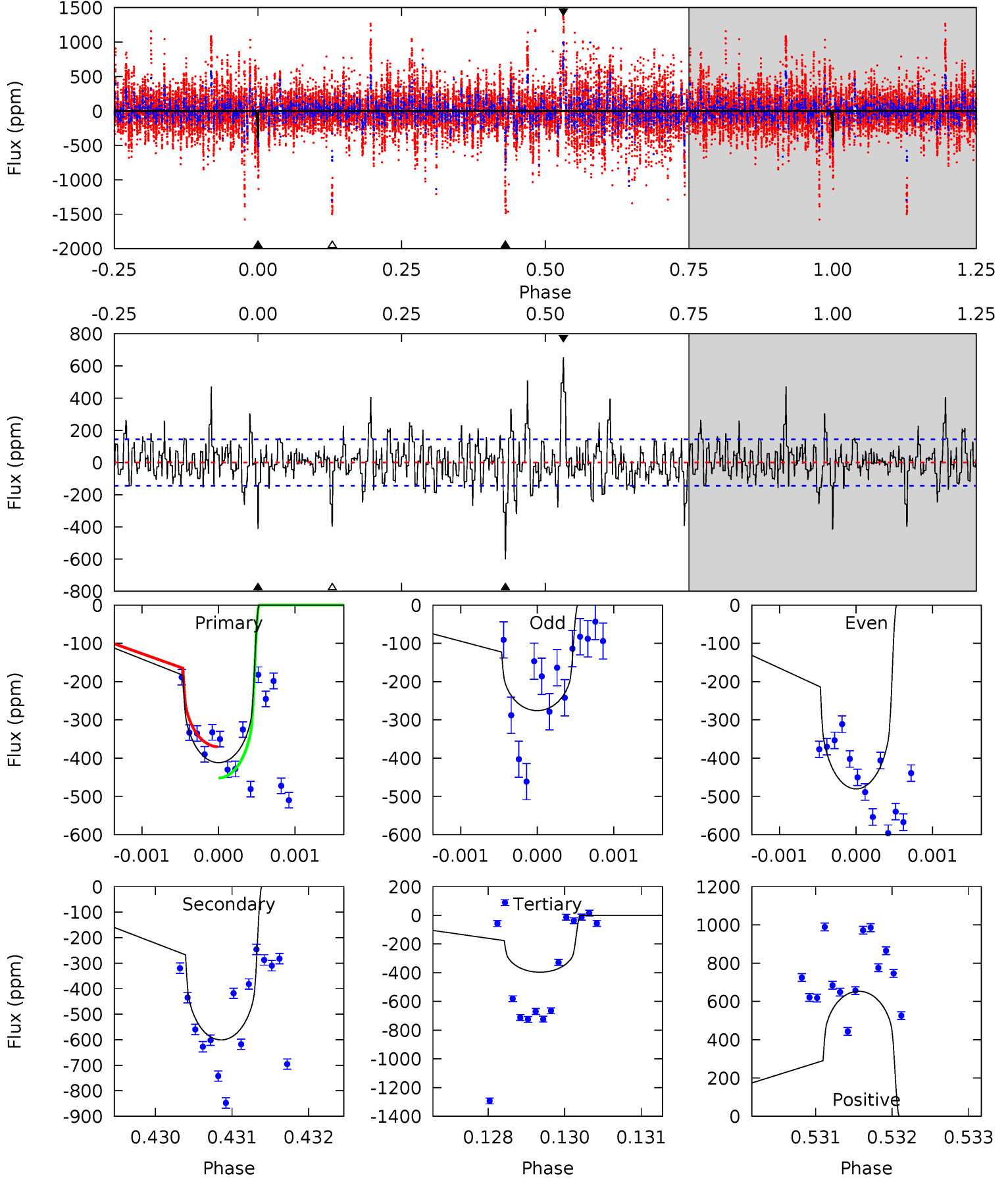


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

002303102-10, P = 480.480981 Days, E = 161.570218 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	22.5	14.8	24.5	5.40	3.22	4.20	0.59	-9.05	7.66	-1.97	3.38	1.31	0.52	1.53



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 002303102

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5465^{+164}_{-147}	$4.209^{+0.276}_{-0.184}$	$0.210^{+0.200}_{-0.250}$	$1.257^{+0.352}_{-0.352}$	$0.932^{+0.090}_{-0.074}$	$0.661^{+1.131}_{-0.326}$
	+3%/-3%	+7%/-4%	+95%/-119%	+28%/-28%	+10%/-8%	+171%/-49%
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 002303102-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-601 ± 27	$2.58^{+0.81}_{-0.69}$	348^{+27}_{-28}	6147^{+941}_{-600}	69105^{+59289}_{-28956}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

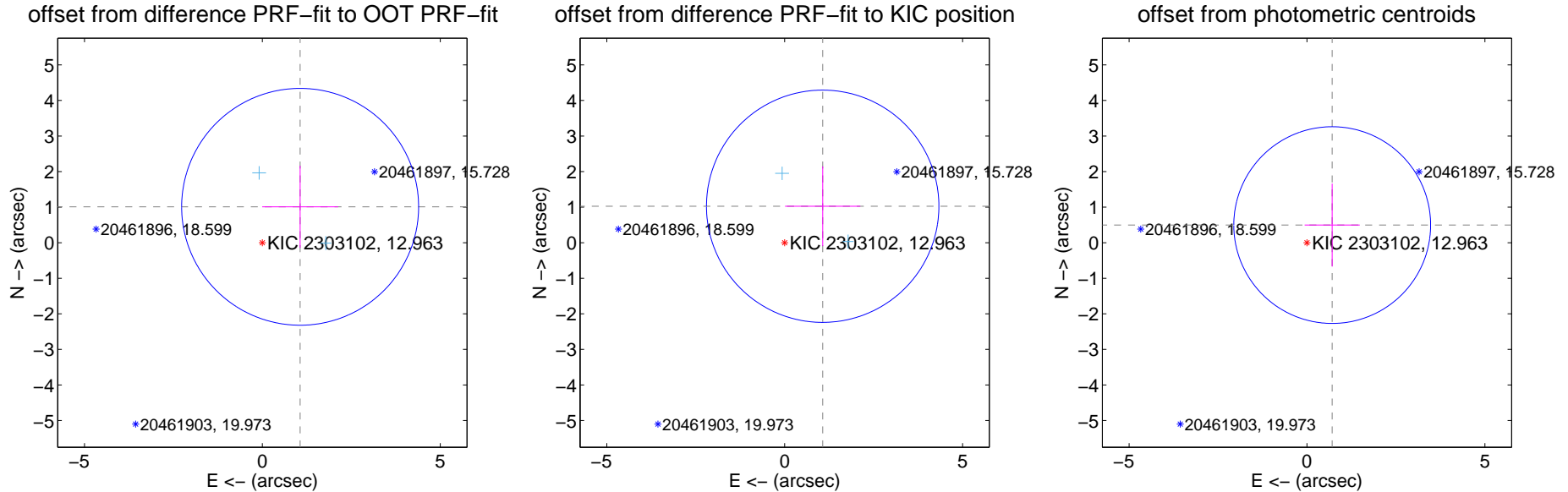
DV Centroid Data

Supplemental centroid analysis for 002303102-10. Kepler magnitude: 12.96. Transit SNR 6.86

There are 2 quarters with good PRF difference image offsets

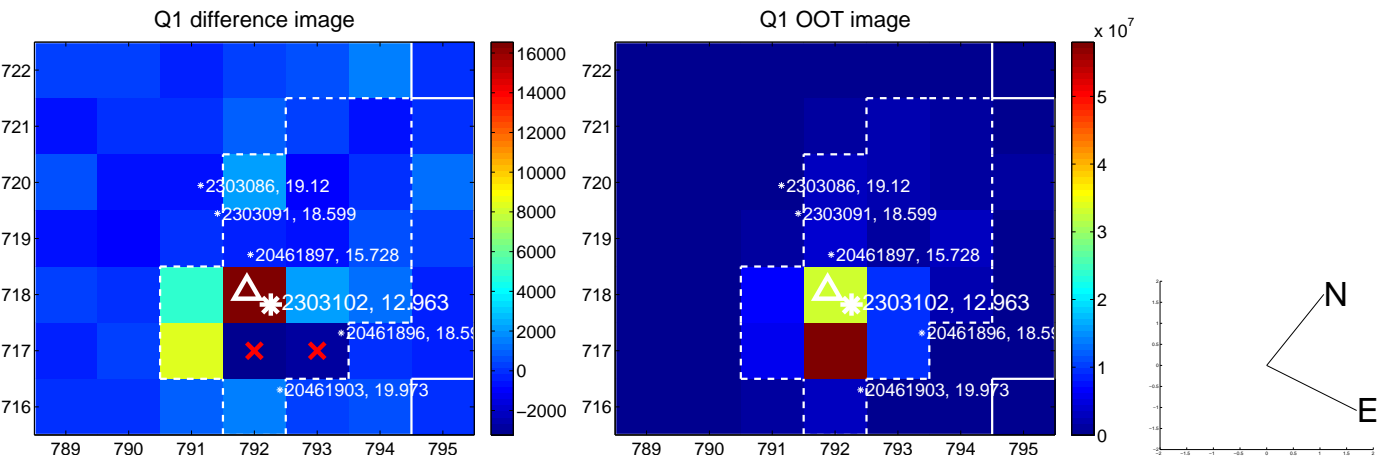
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.464 ± 1.110	1.32	-1.060 ± 1.067	1.009 ± 1.156
PRF-fit source offset from KIC position	1.480 ± 1.089	1.36	-1.068 ± 1.057	1.025 ± 1.122
photometric centroid source offset	0.86 ± 0.92	0.94	-0.71 ± 0.77	0.50 ± 1.17



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

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



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

Q5 no difference image



Q5 no OOT image



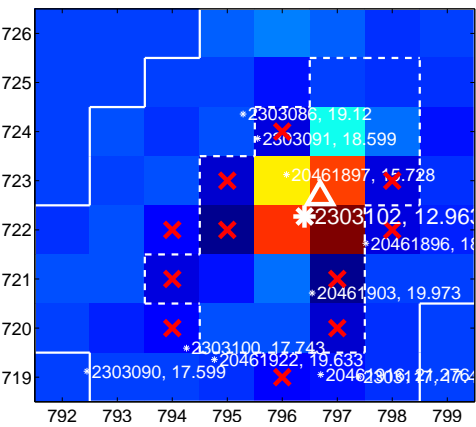
Q6 no difference image



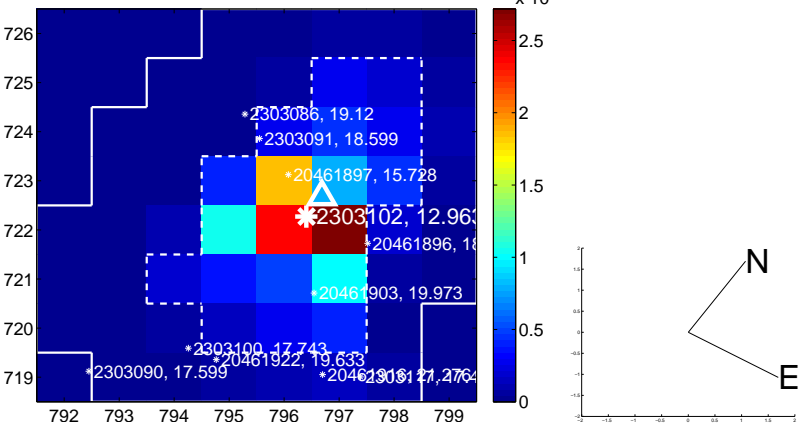
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image



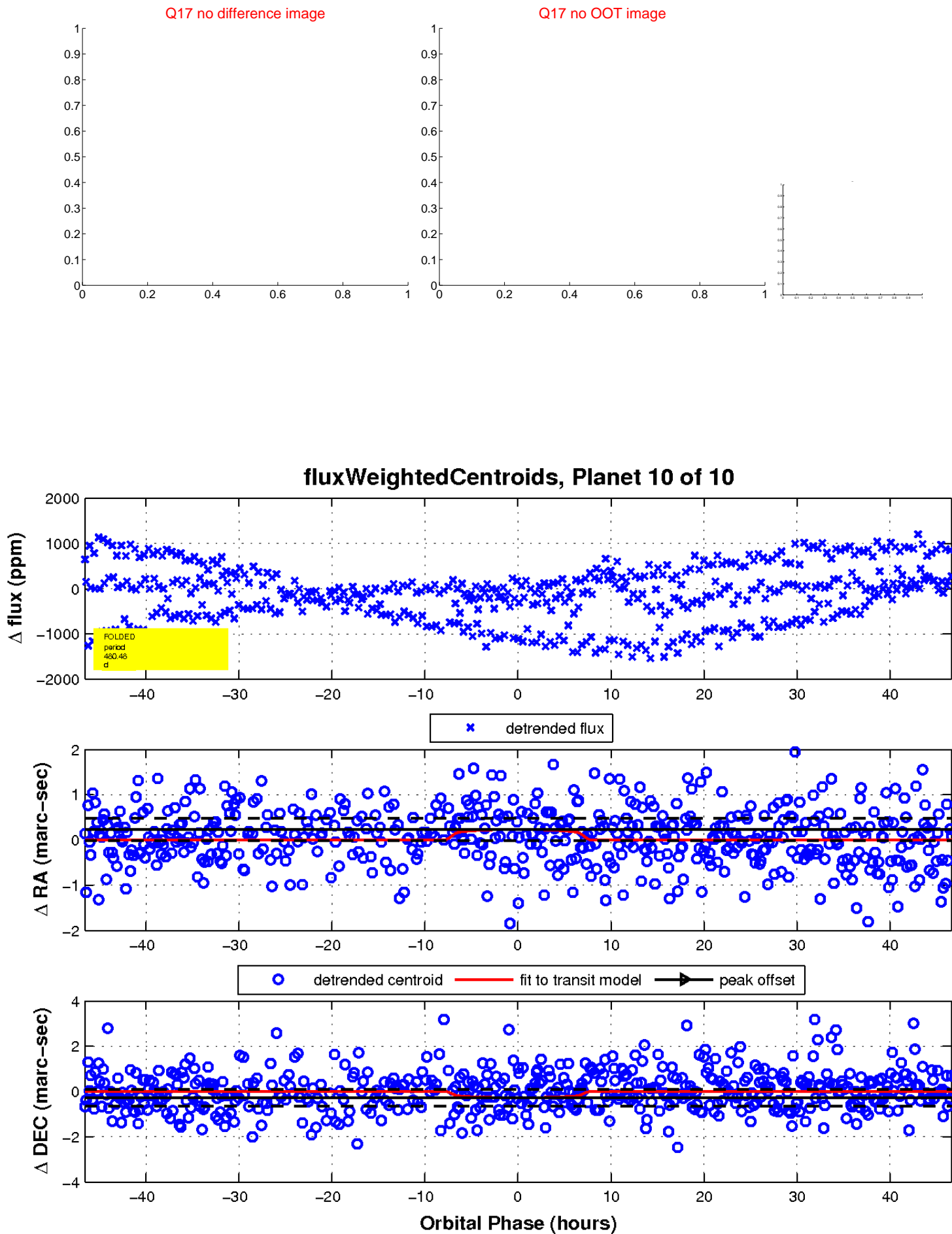
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

