

KIC 011303090

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})
011303090-01	OBS	No	0.713645	131.536881	14.2	2.575	8.2	8.2	2.34	7682	1.02	52956.68
011303090-02	OBS	No	153.539631	155.734041	111.4	8.443	7.6	5.4	2.34	7682	2.87	41.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011303090-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011303090-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

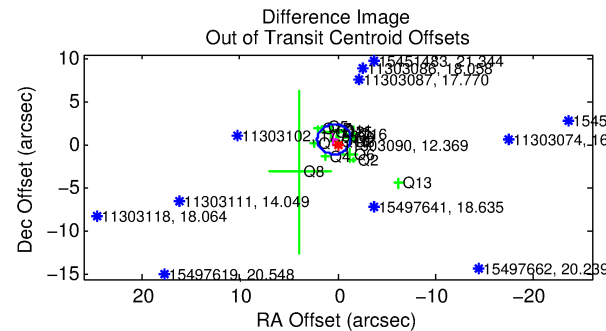
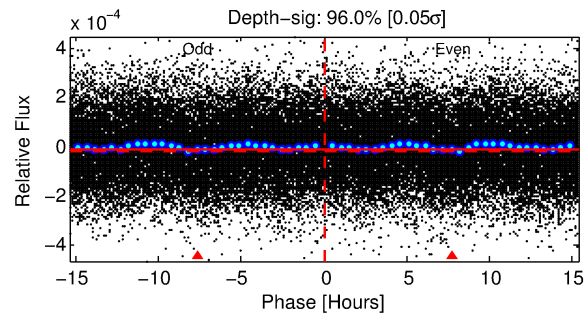
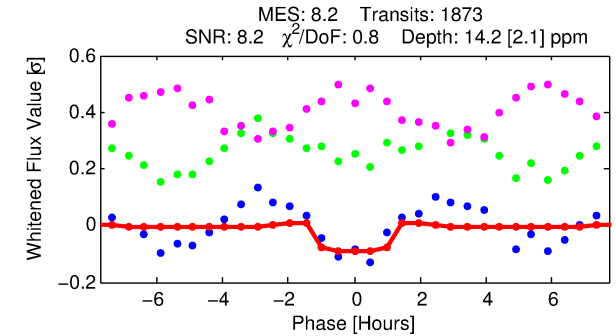
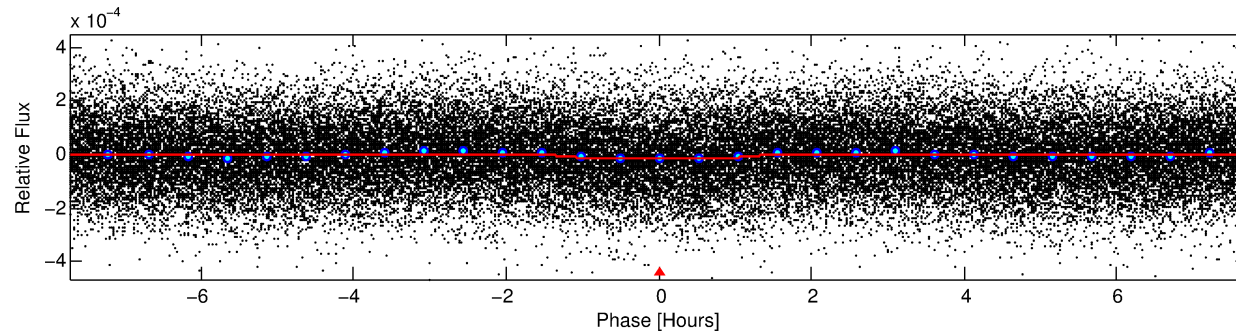
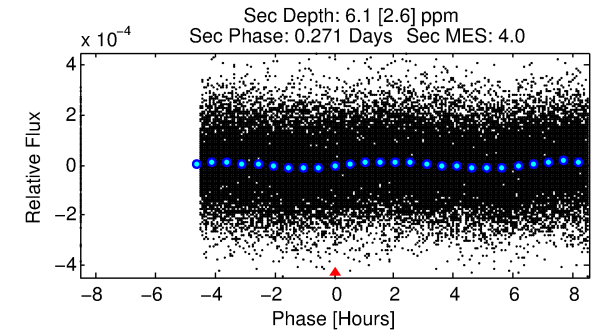
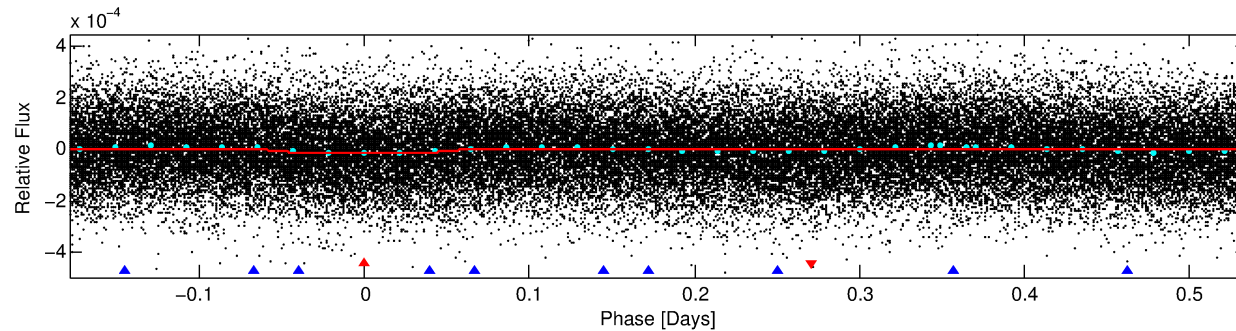
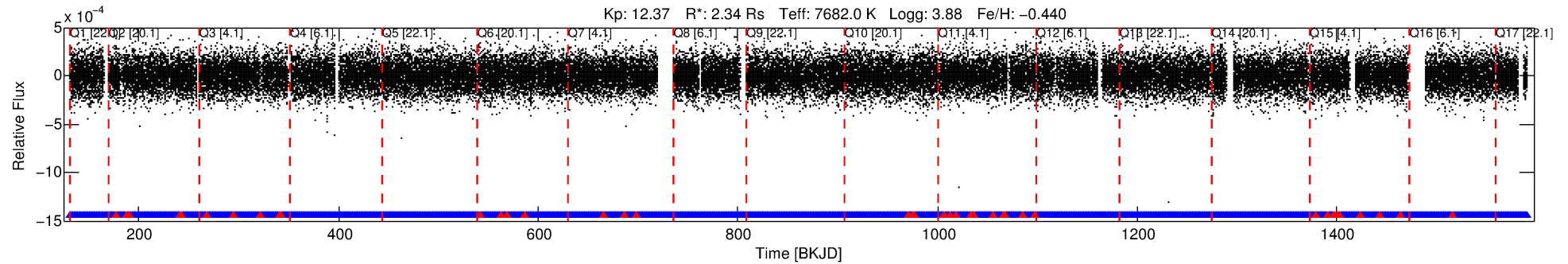
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011303090-01

No Significant Match Found

DV One-Page Summary

KIC: 11303090 Candidate: 1 of 2 Period: 0.714 d



DV Fit Results:

Period = 0.71365 [0.00001] d
Epoch = 131.5369 [0.0031] BKJD
Rp/R* = 0.0040 [0.0012]
a/R* = 1.33 [1.07]
b = 0.90 [0.40]
Seff = 52956.68 [32309.20]
Teq = 3868 [590] K
Rp = 1.02 [0.50] Re
a = 0.0179 [0.0066] AU
Ag = 1.04 [0.97] [0.04σ]
Teffp = 6032 [1136] K [1.69σ]

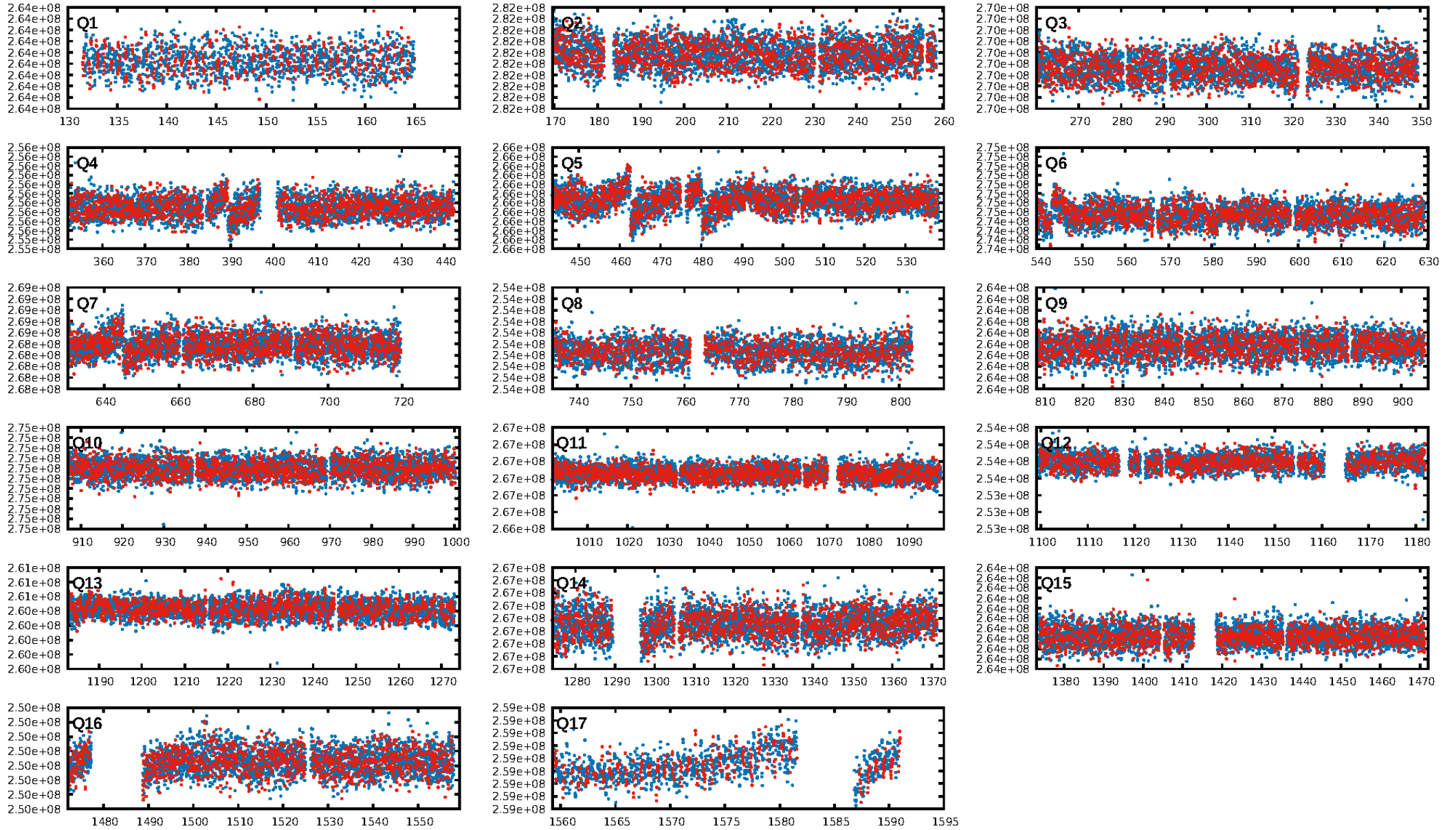
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [415.51σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.81e-12
RollingBand-fgt: 0.98 [1748/1789]
GhostDiagnostic-chr: 1.037
Centroid-sig: 15.3%
Centroid-so: 1.477 arcsec [1.66σ]
OotOffset-rm: 0.781 arcsec [1.35σ]
OotOffset-st: 3/3/4/5 [15]
KicOffset-rm: 0.822 arcsec [1.38σ]
KicOffset-st: 3/3/4/5 [15]
DiffImageQuality-fgm: 0.73 [11/15]
DiffImageOverlap-fno: 1.00 [17/17]

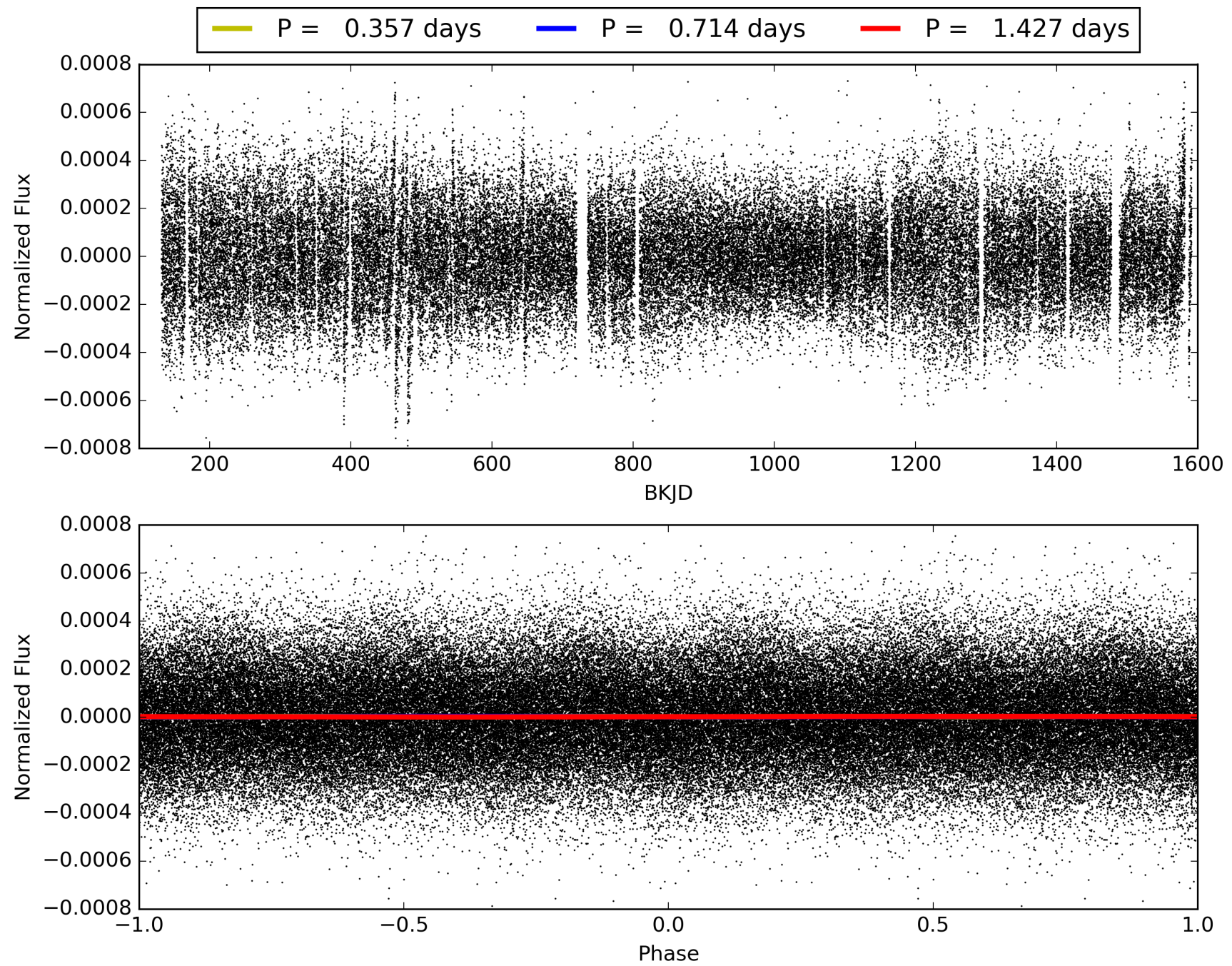
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:46:23 Z

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

TCE 011303090-01, PDC Light Curves

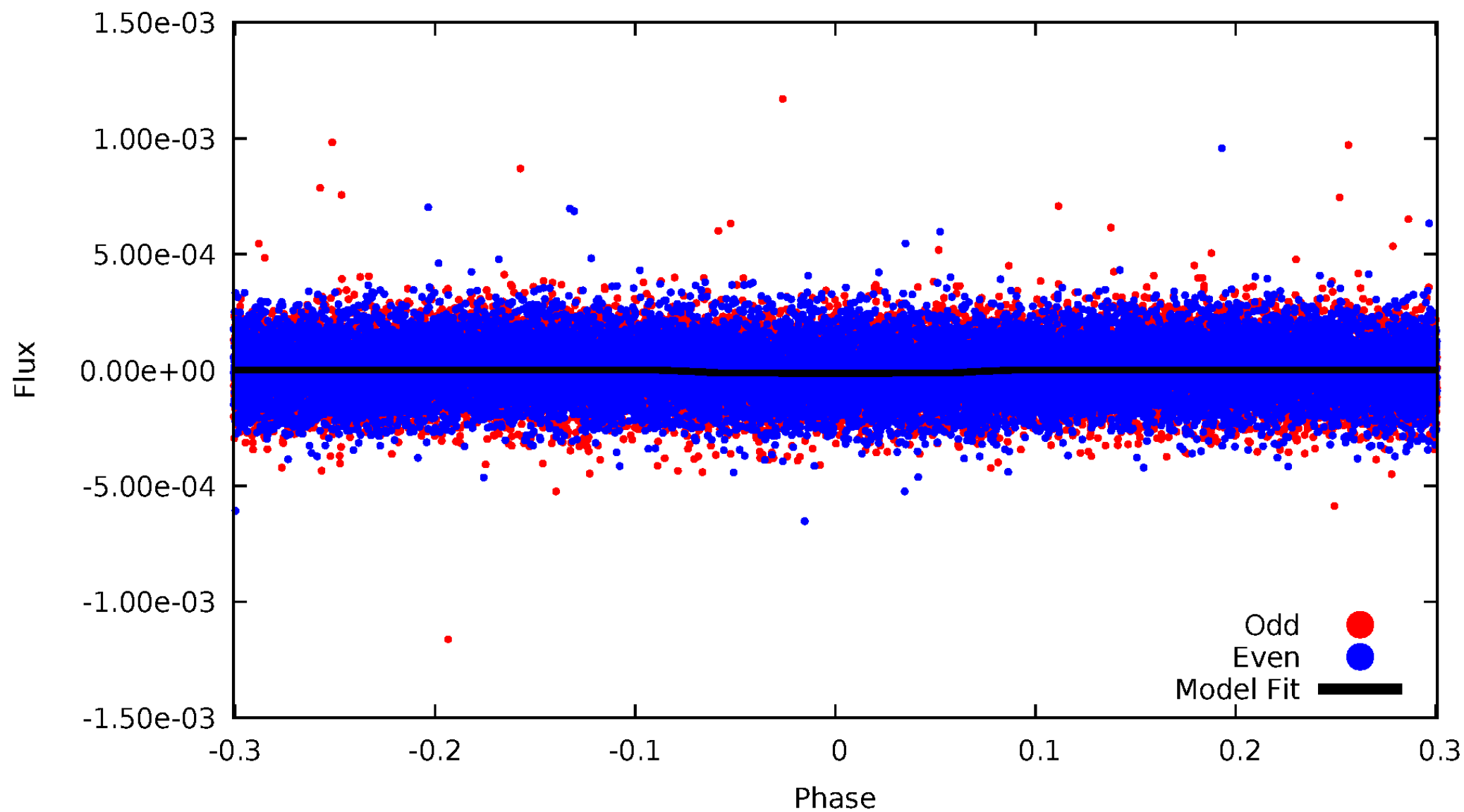


TCE 011303090-01



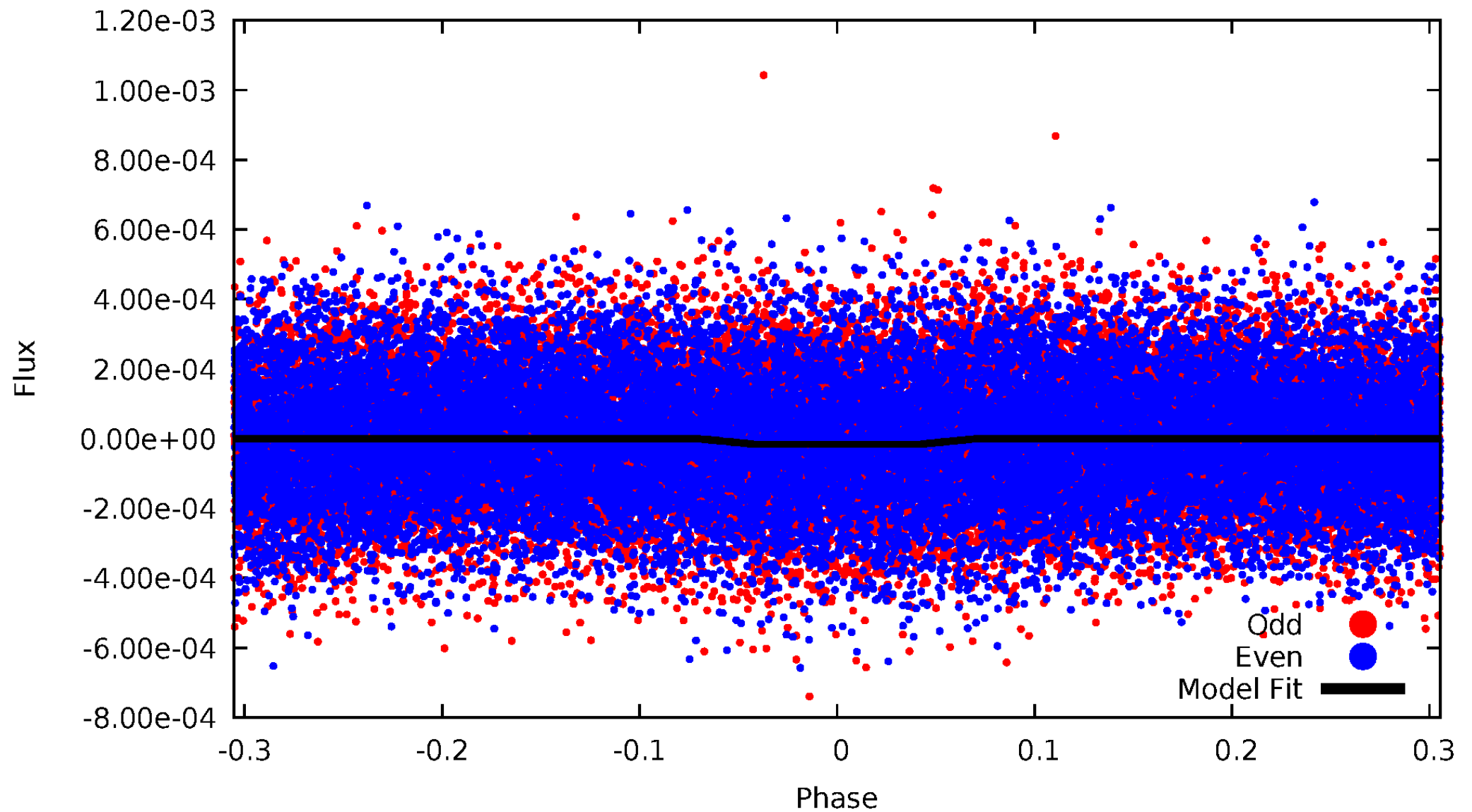
DV Odd/Even

TCE 011303090-01

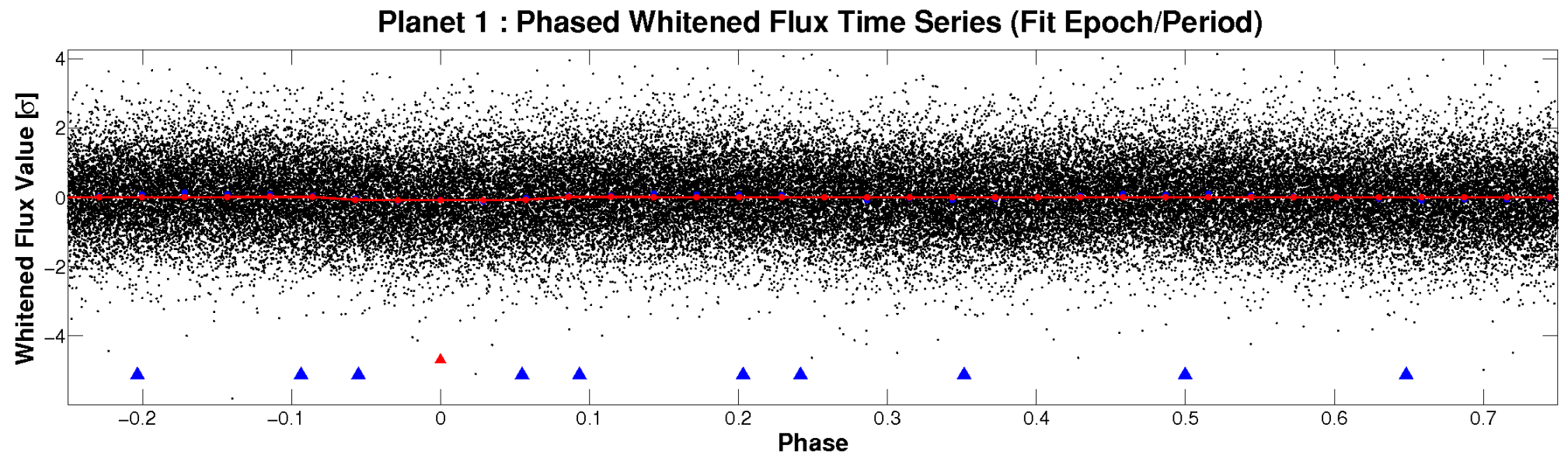
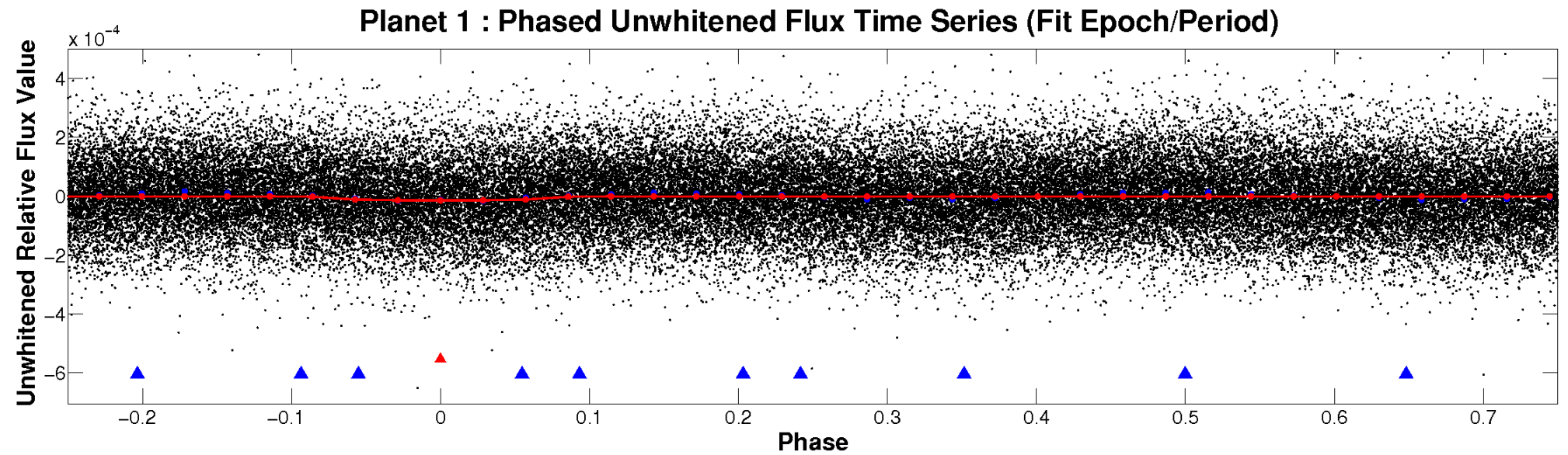


ALT Odd/Even

TCE 011303090-01

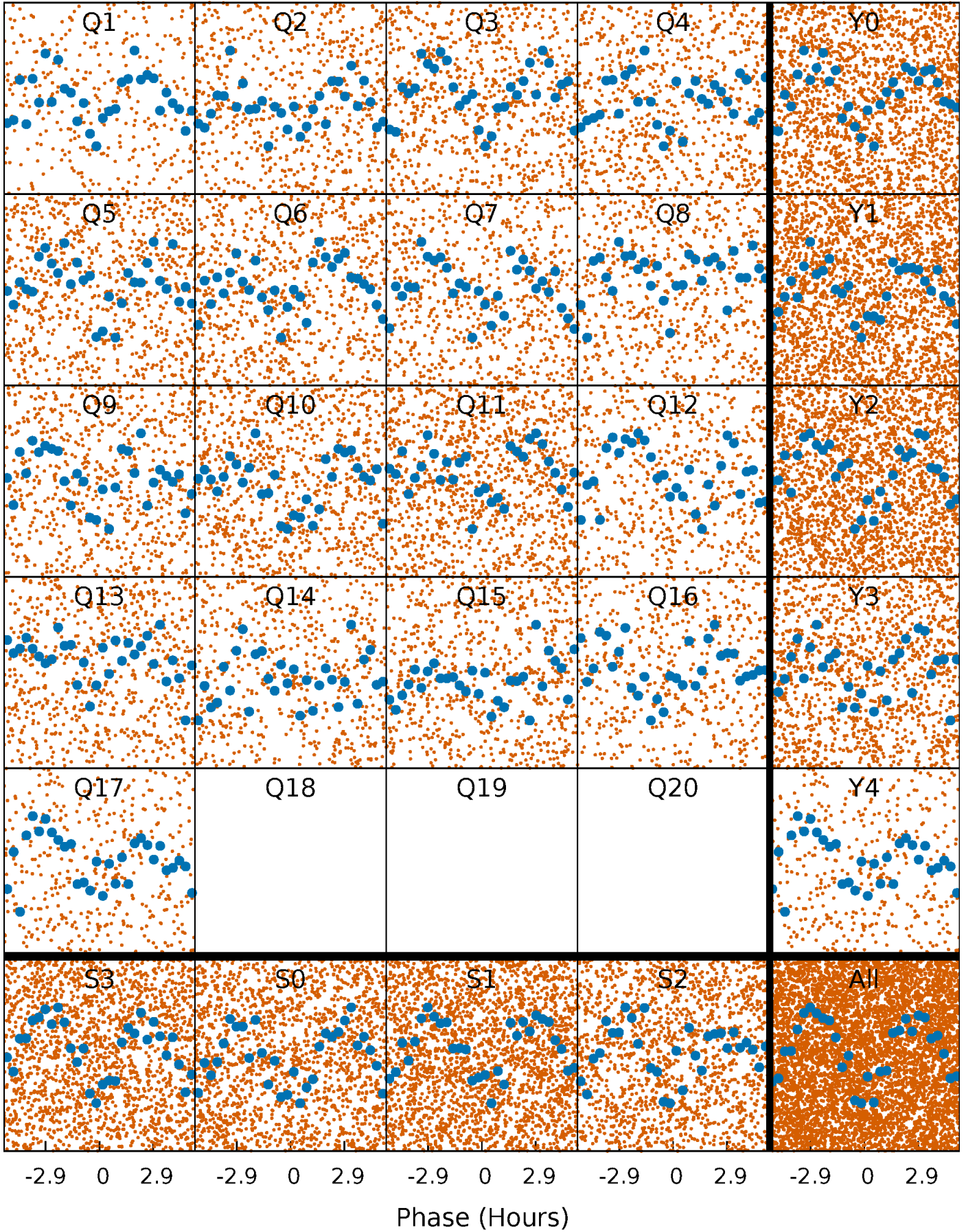


Non-Whitened Vs. Whitened Light Curve



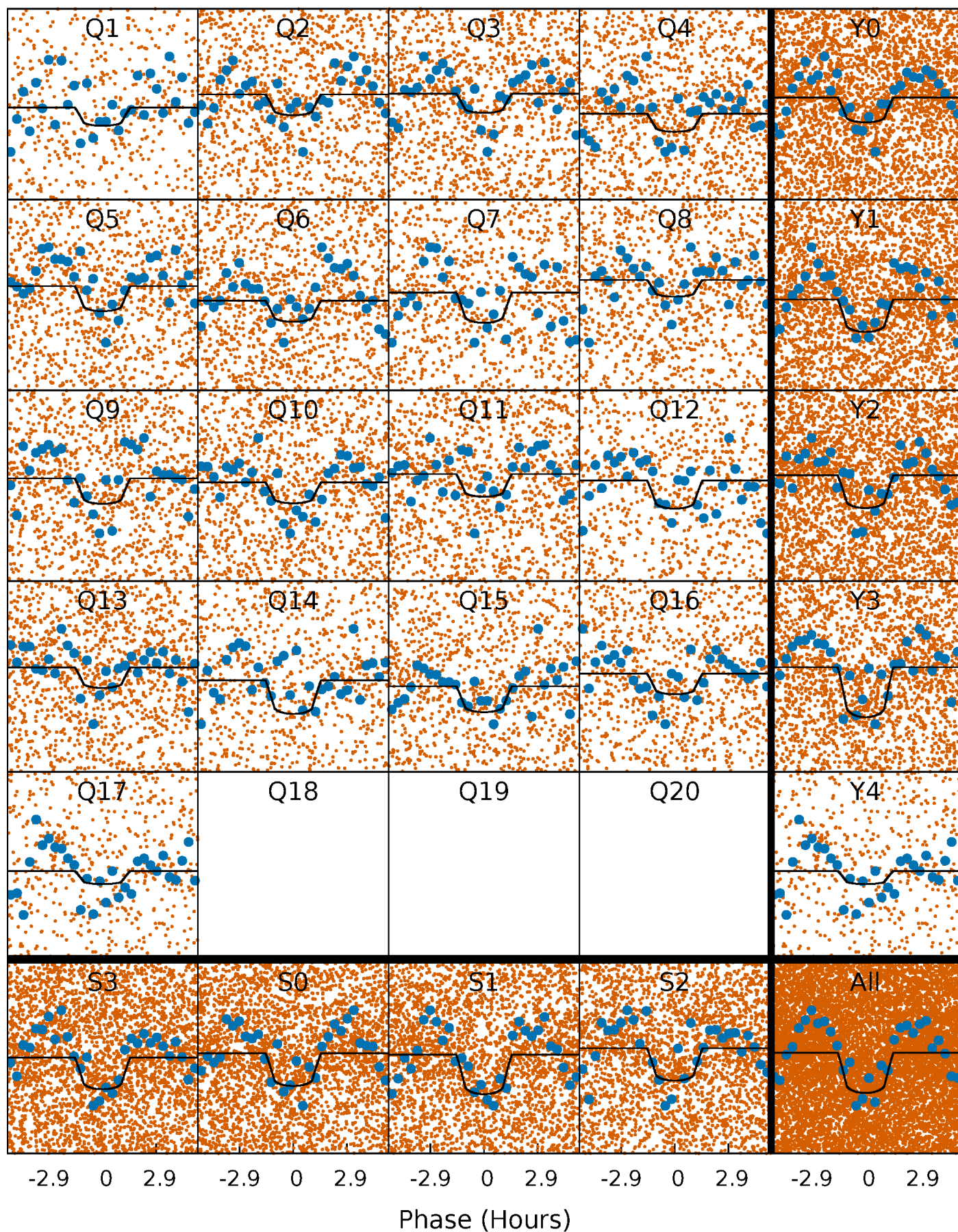
PDC Quarter-Phased Transit Curves

TCE 011303090-01 P= 0.713645 Days $T_0=131.536880$ (BKJD)



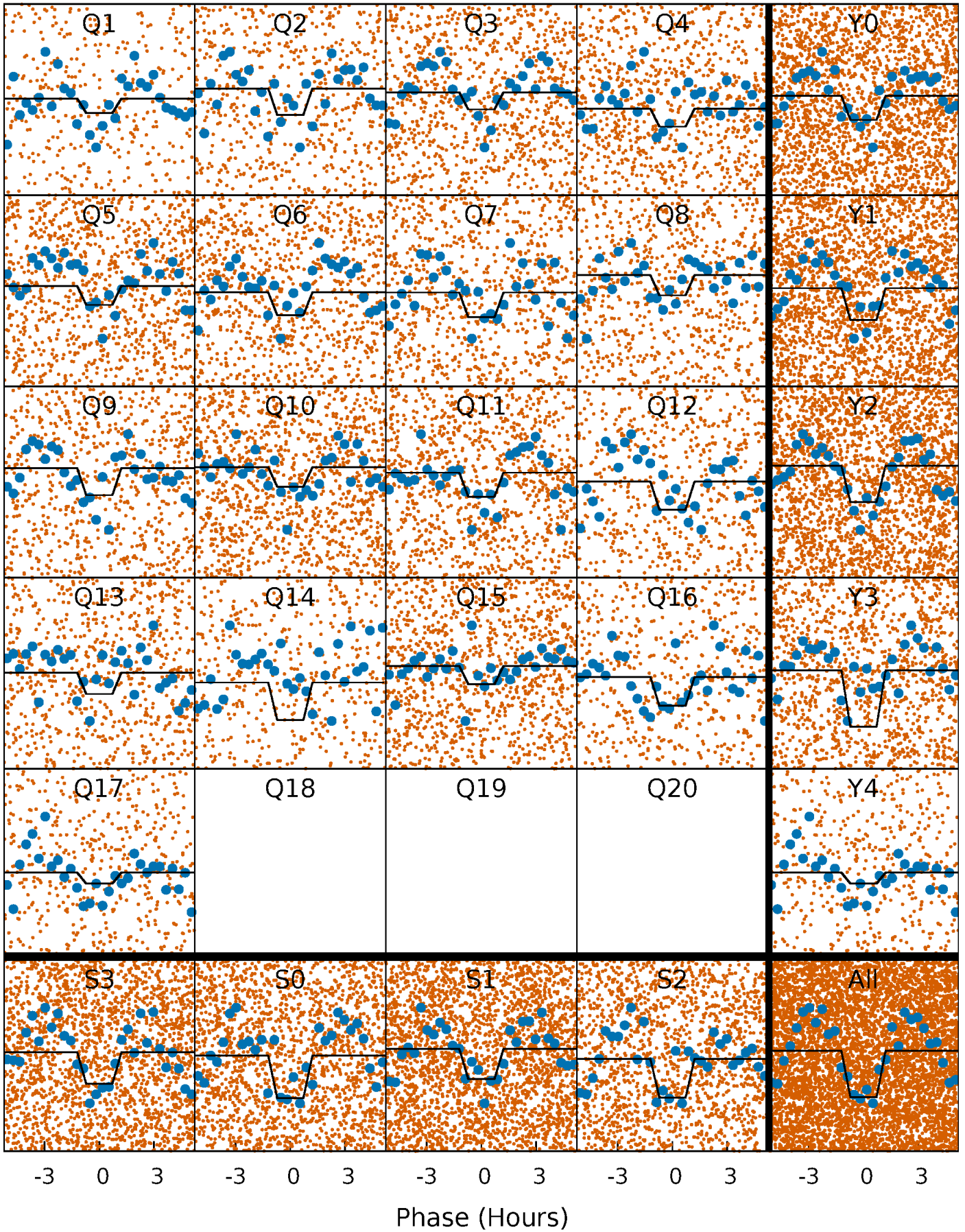
DV Quarter-Phased Transit Curves

TCE 011303090-01 P= 0.713645 Days $T_0=131.536880$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

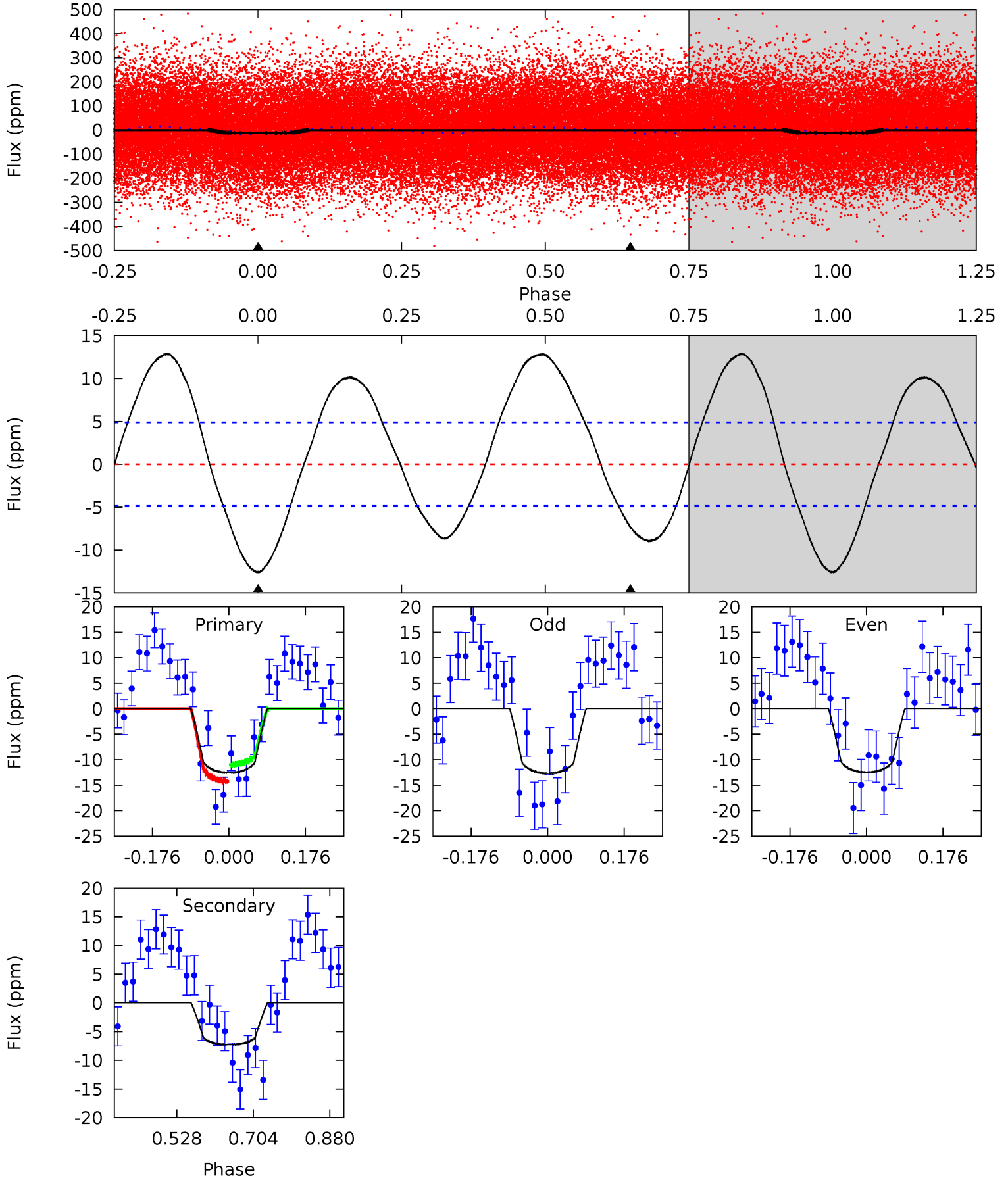
TCE 011303090-01 P= 0.713649 Days $T_0=131.537356$ (BKJD)



DV Model-Shift Uniqueness Test

011303090-01, $P = 0.713645$ Days, $E = 130.823235$ Days

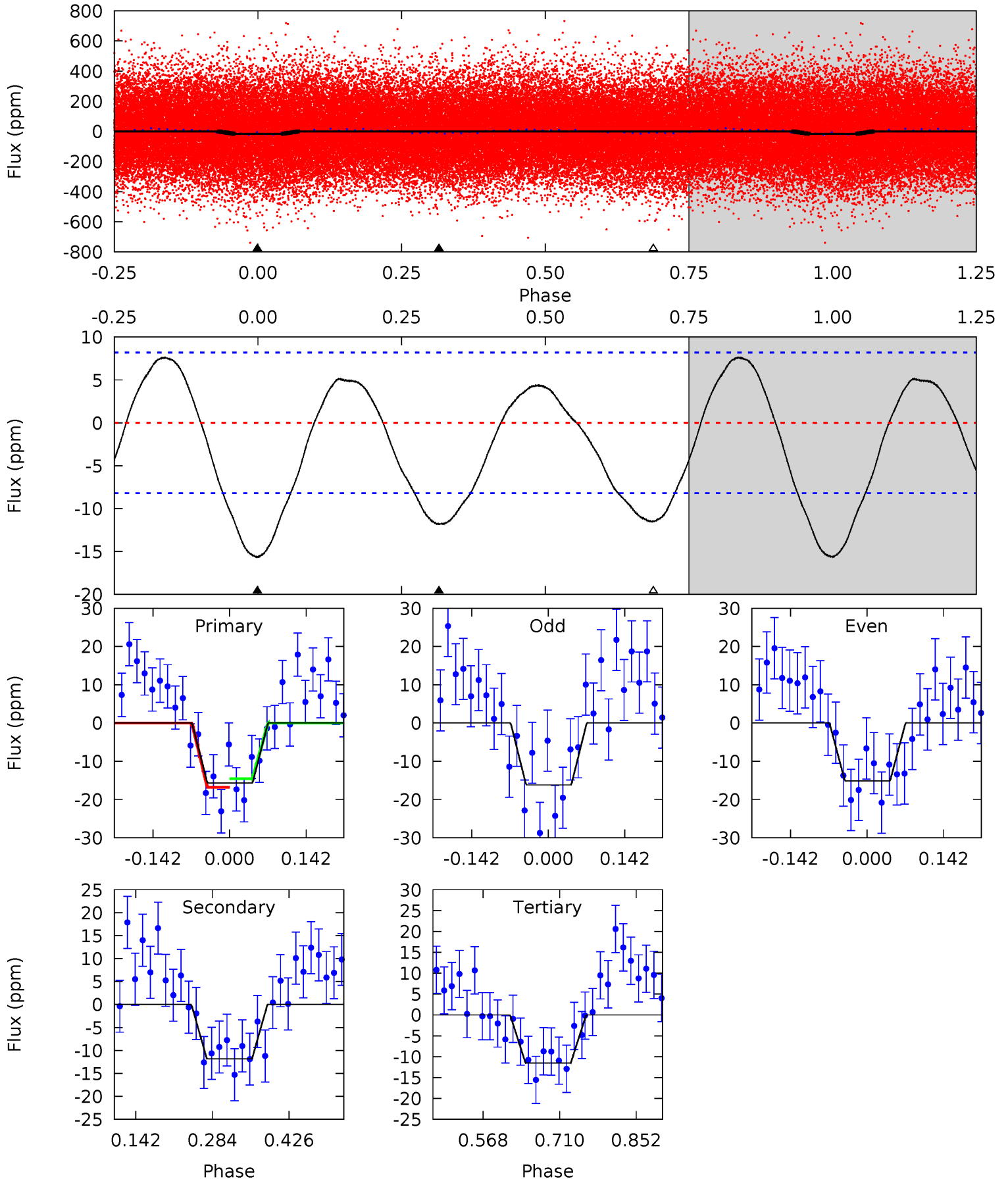
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	6.66	0	0	4.44	1.35	5.98	11.5	11.5	6.66	6.66	0.10	0.93	0.51	1.51



Alt Model-Shift Uniqueness Test

011303090-01, P = 0.713649 Days, E = 130.823707 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.59	6.48	6.32	0	4.49	1.47	3.47	2.27	8.59	0.16	6.48	0.28	1.17	0.33	0.61



Stellar Parameters For KIC 011303090

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7682^{+239}_{-319}	$3.880^{+0.345}_{-0.115}$	$-0.440^{+0.250}_{-0.300}$	$2.337^{+0.478}_{-0.888}$	$1.512^{+0.217}_{-0.265}$	$0.167^{+0.456}_{-0.060}$
	+3%/-4%	+9%/-3%	+57%/-68%	+20%/-38%	+14%/-18%	+273%/-36%
Source	KIC0	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 011303090-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-7 ± 1	$0.97^{+0.36}_{-0.32}$	5273^{+370}_{-481}	5755^{+1482}_{-936}	$1.368^{+1.730}_{-0.629}$
Alt.	-12 ± 2	$0.96^{+0.37}_{-0.31}$	5284^{+402}_{-529}	6647^{+1790}_{-1040}	$2.260^{+2.633}_{-1.112}$

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 $A_{obs} \gg 1.0$

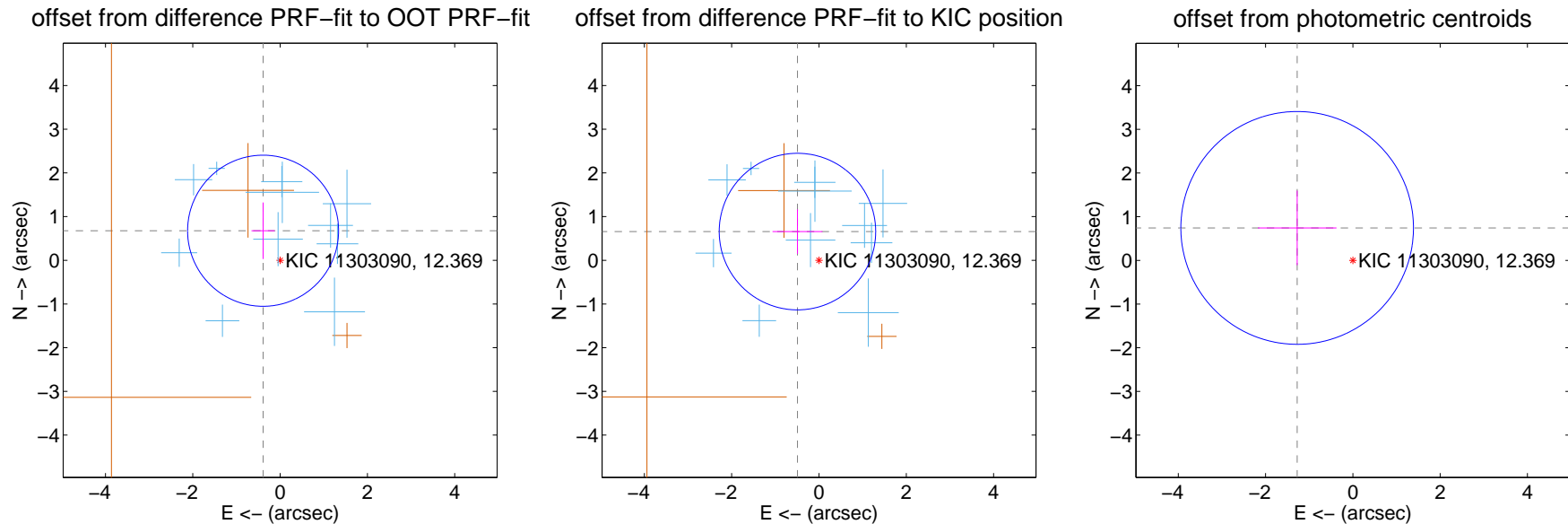
DV Centroid Data

Supplemental centroid analysis for 011303090-01. Kepler magnitude: 12.37. Transit SNR 8.21

There are 11 quarters with good PRF difference image offsets

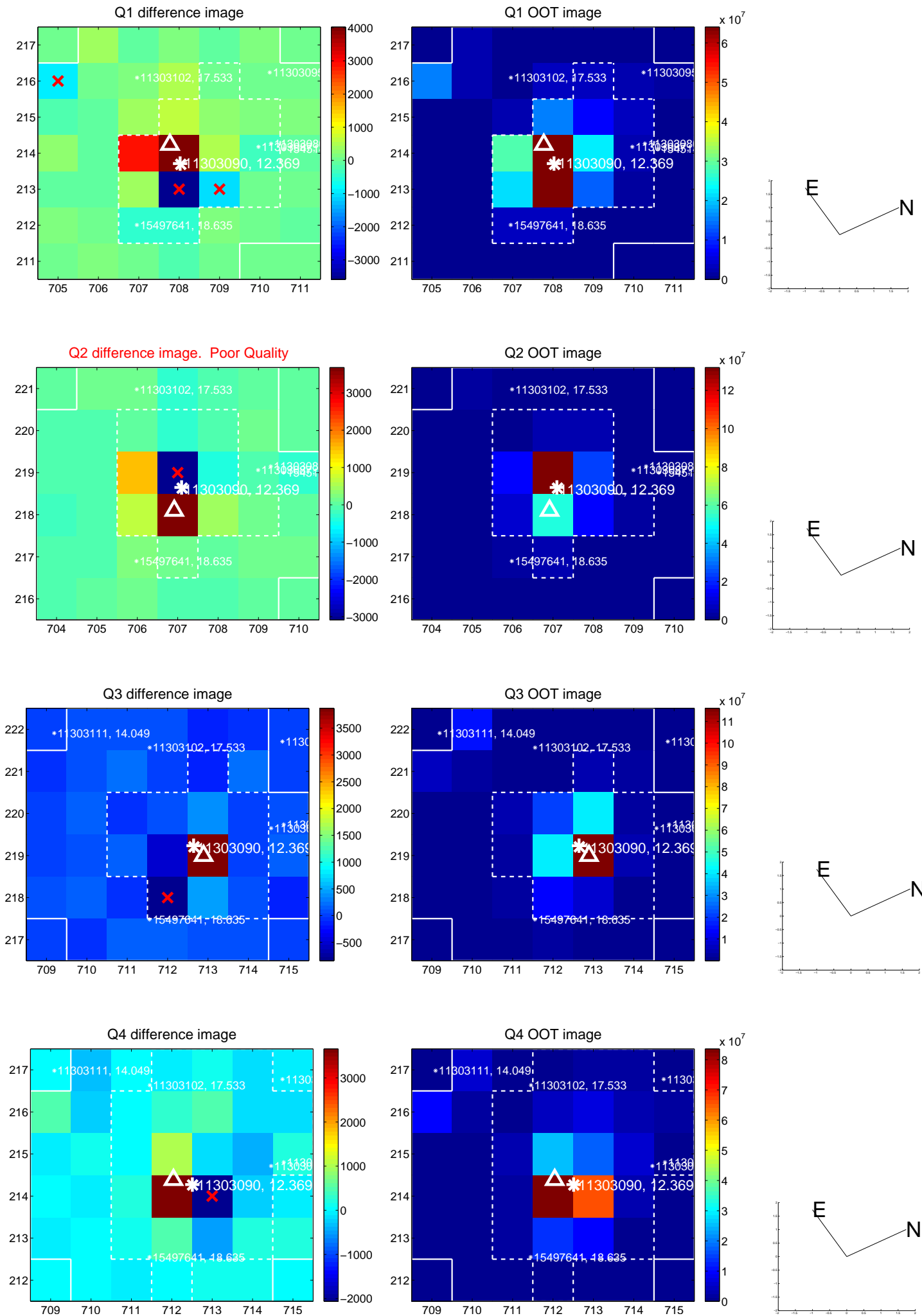
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.781 ± 0.576	1.35	0.390 ± 0.265	0.677 ± 0.647
PRF-fit source offset from KIC position	0.822 ± 0.597	1.38	0.493 ± 0.572	0.657 ± 0.508
photometric centroid source offset	1.48 ± 0.89	1.66	1.28 ± 0.90	0.74 ± 0.85

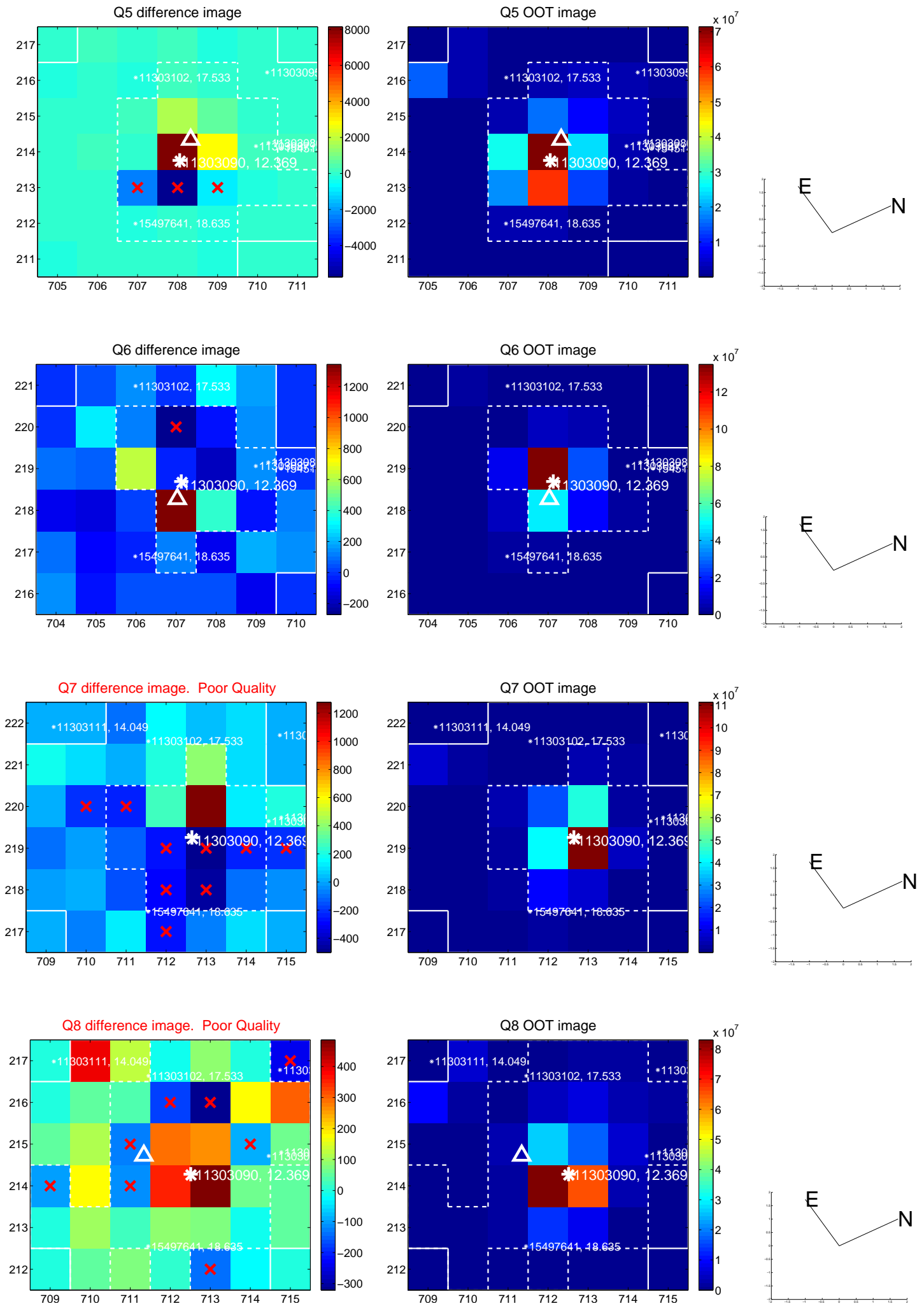


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

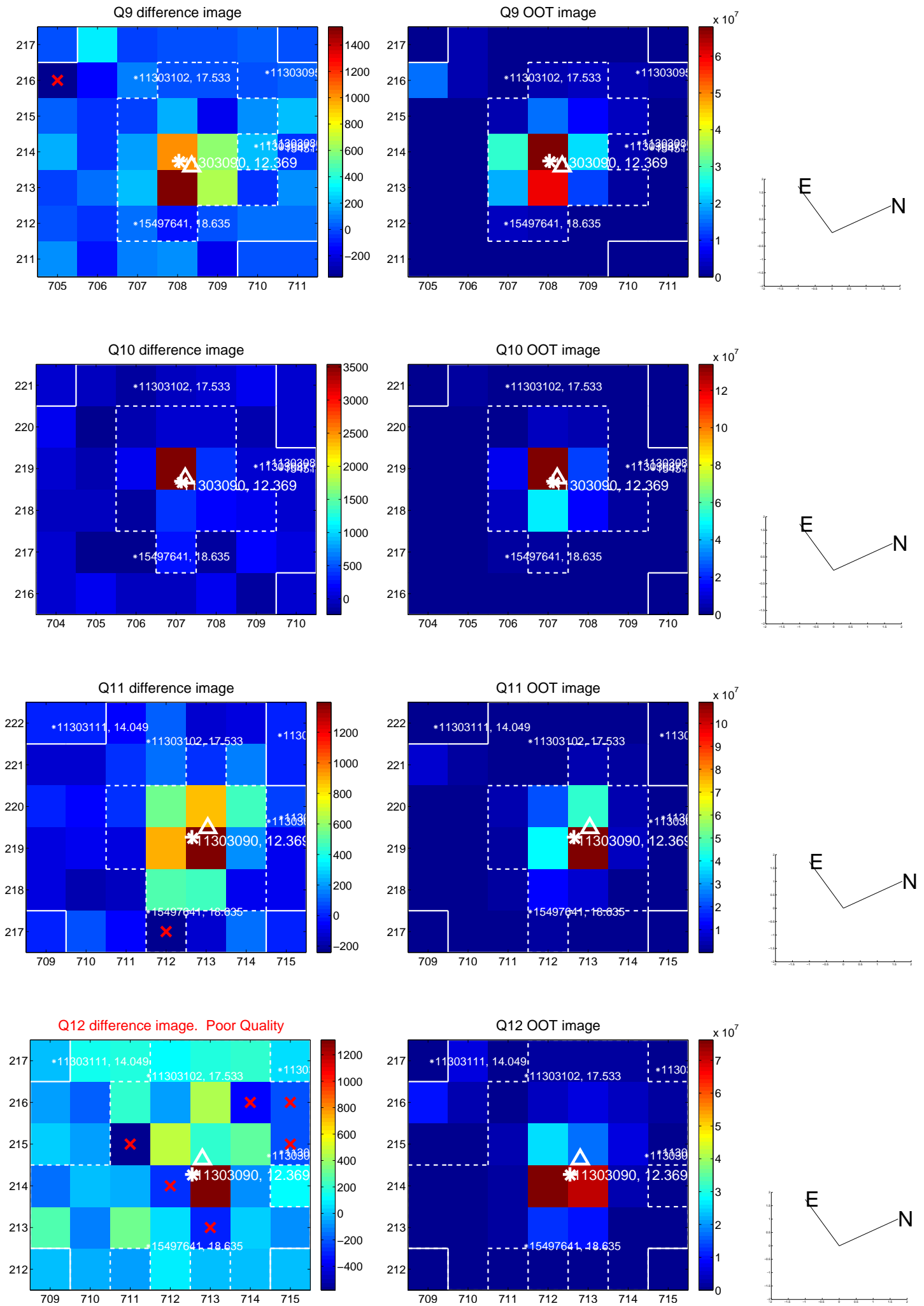
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



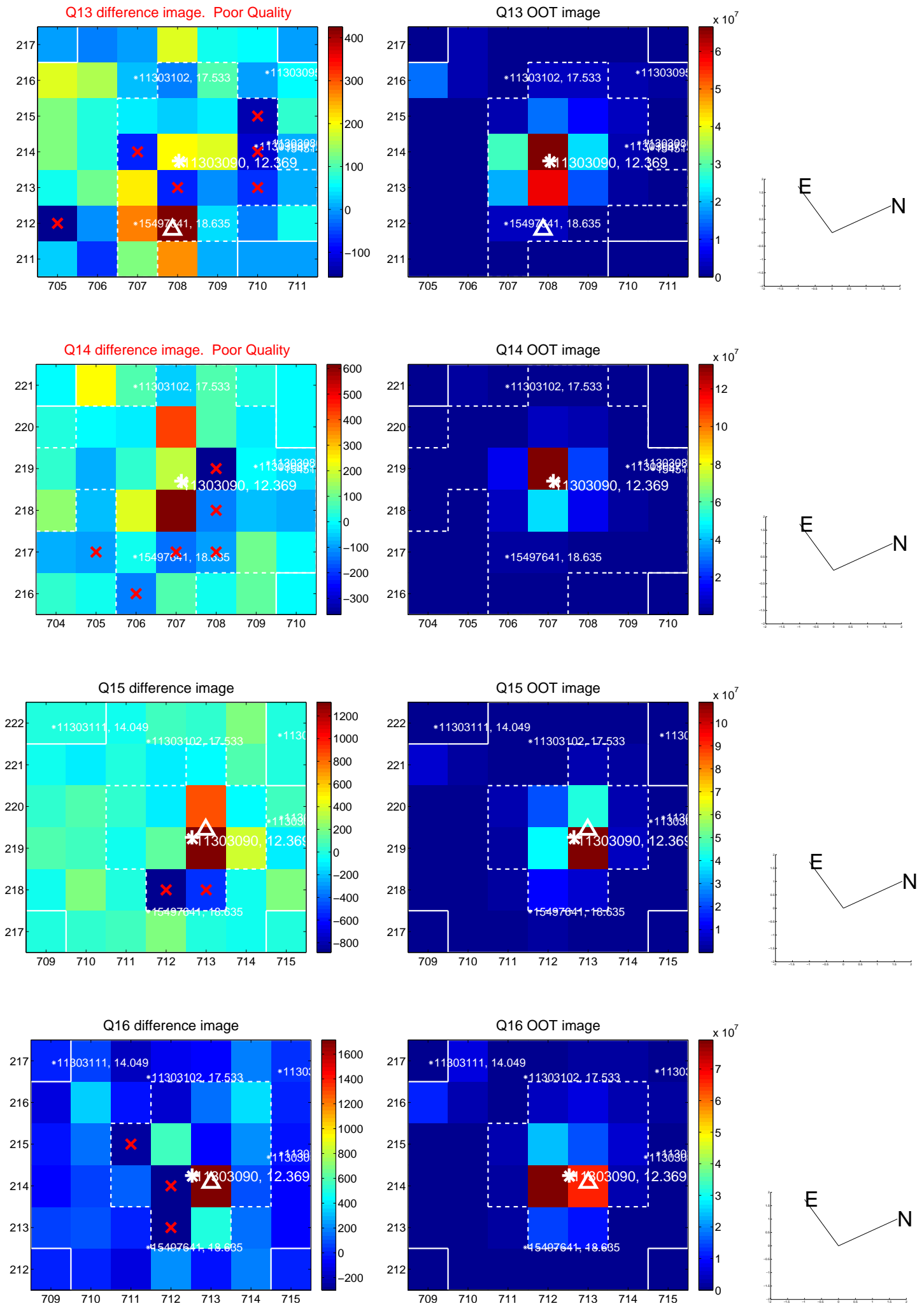
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



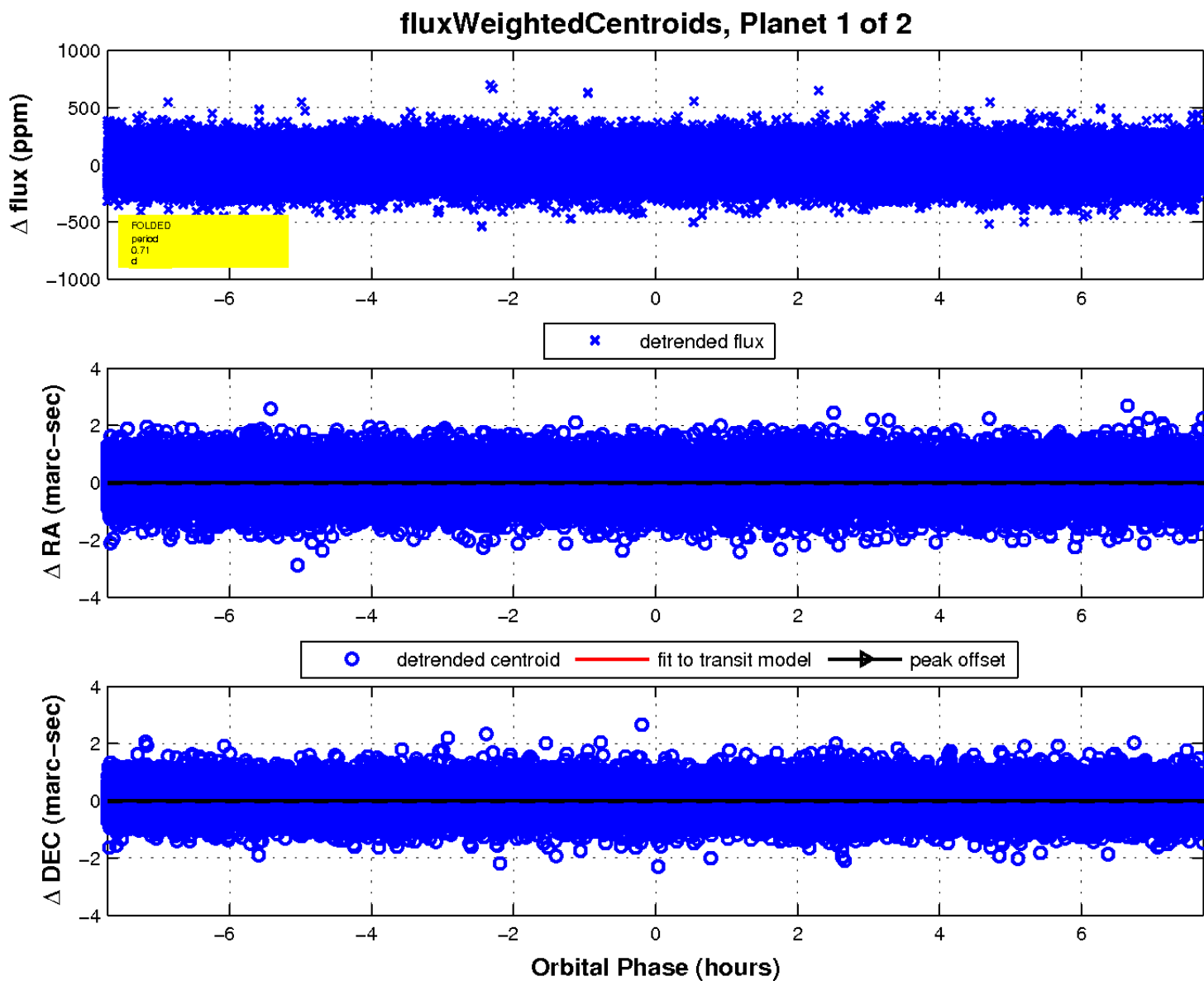
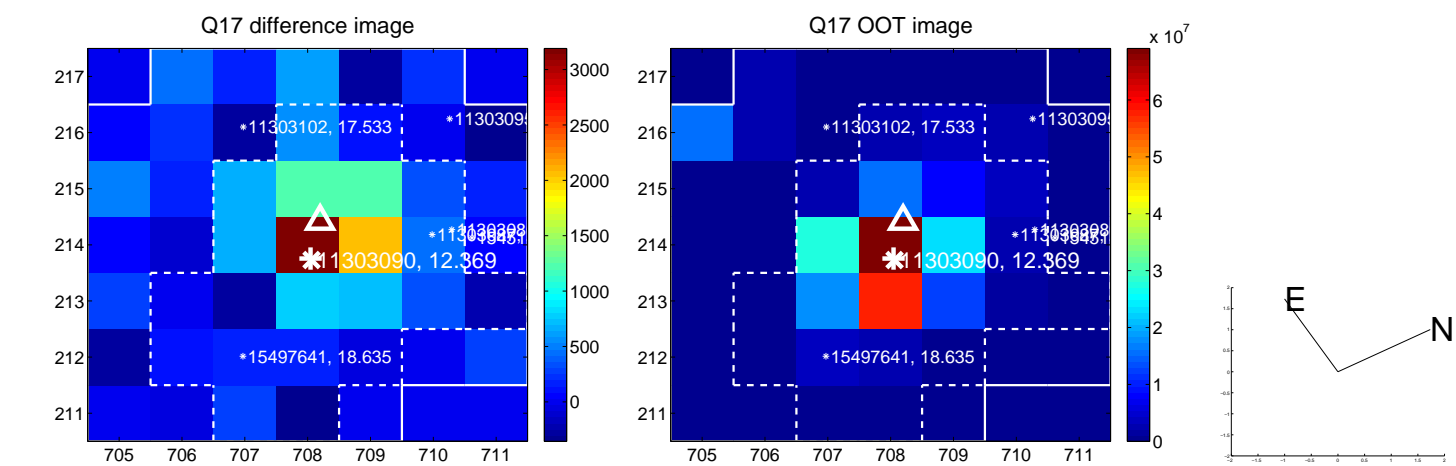
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



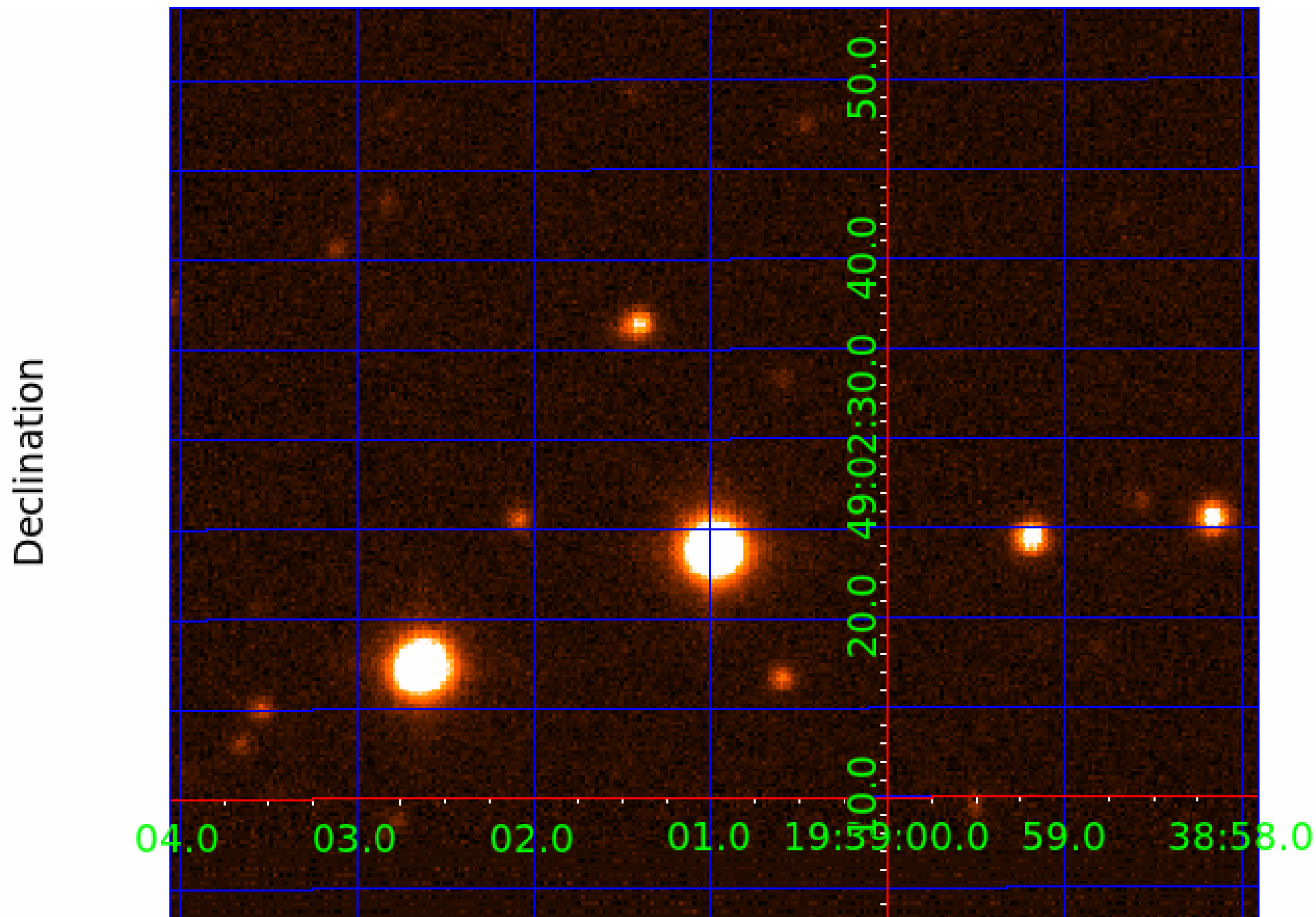
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011303090

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})
011303090-01	OBS	No	0.713645	131.536881	14.2	2.575	8.2	8.2	2.34	7682	1.02	52956.68
011303090-02	OBS	No	153.539631	155.734041	111.4	8.443	7.6	5.4	2.34	7682	2.87	41.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011303090-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011303090-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

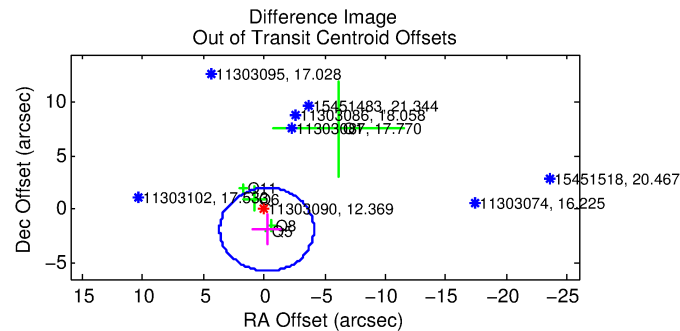
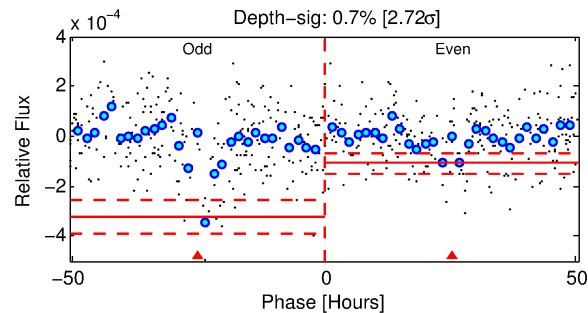
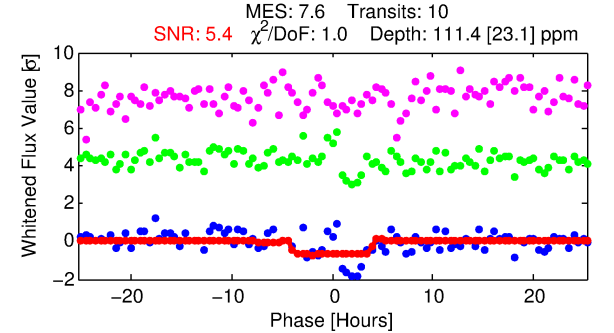
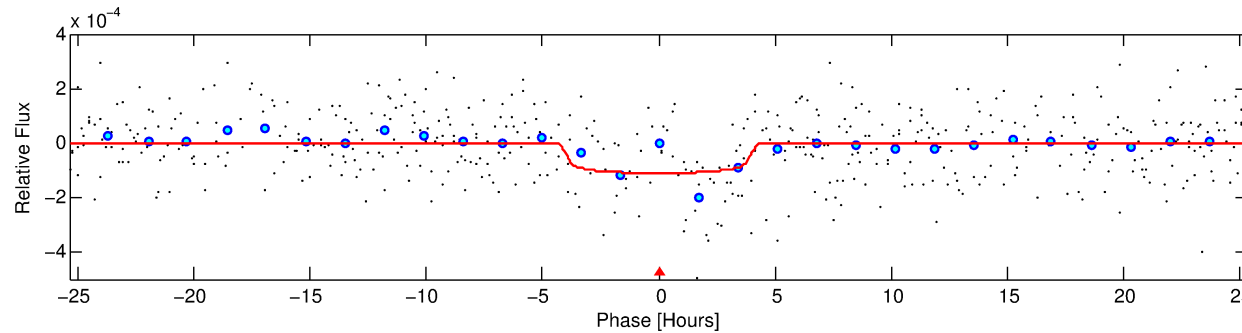
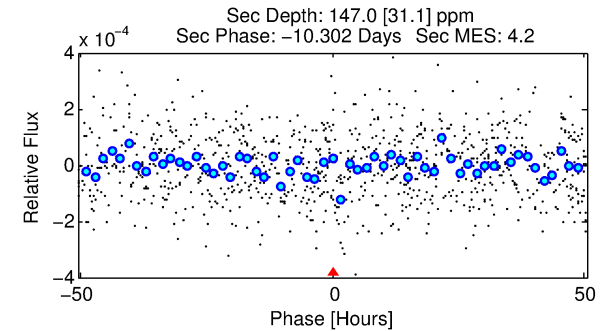
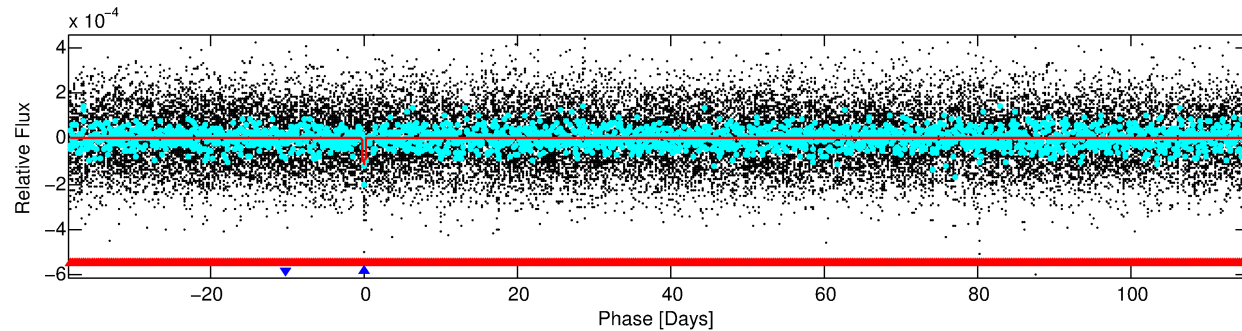
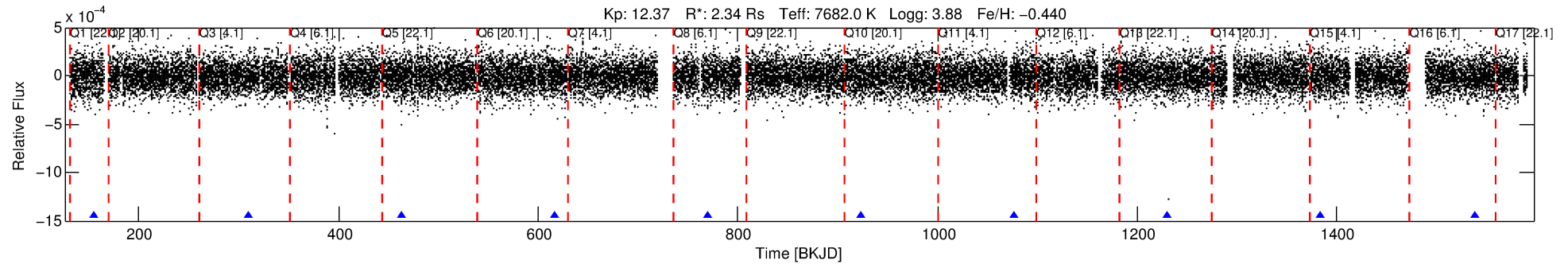
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011303090-02

No Significant Match Found

DV One-Page Summary

KIC: 11303090 Candidate: 2 of 2 Period: 153.540 d



DV Fit Results:

Period = 153.53963 [0.00455] d
Epoch = 155.7340 [0.0276] BKJD
Rp/R* = 0.0112 [0.0041]
a/R* = 64.25 [141.14]
b = 0.90 [0.47]
Seff = 41.08 [25.06]
Teq = 646 [98] K
Rp = 2.86 [1.51] Re
a = 0.6441 [0.2360] AU
Ag = 4088.47 [3923.25] [1.04σ]
Teffp = 7981 [1550] K [4.72σ]

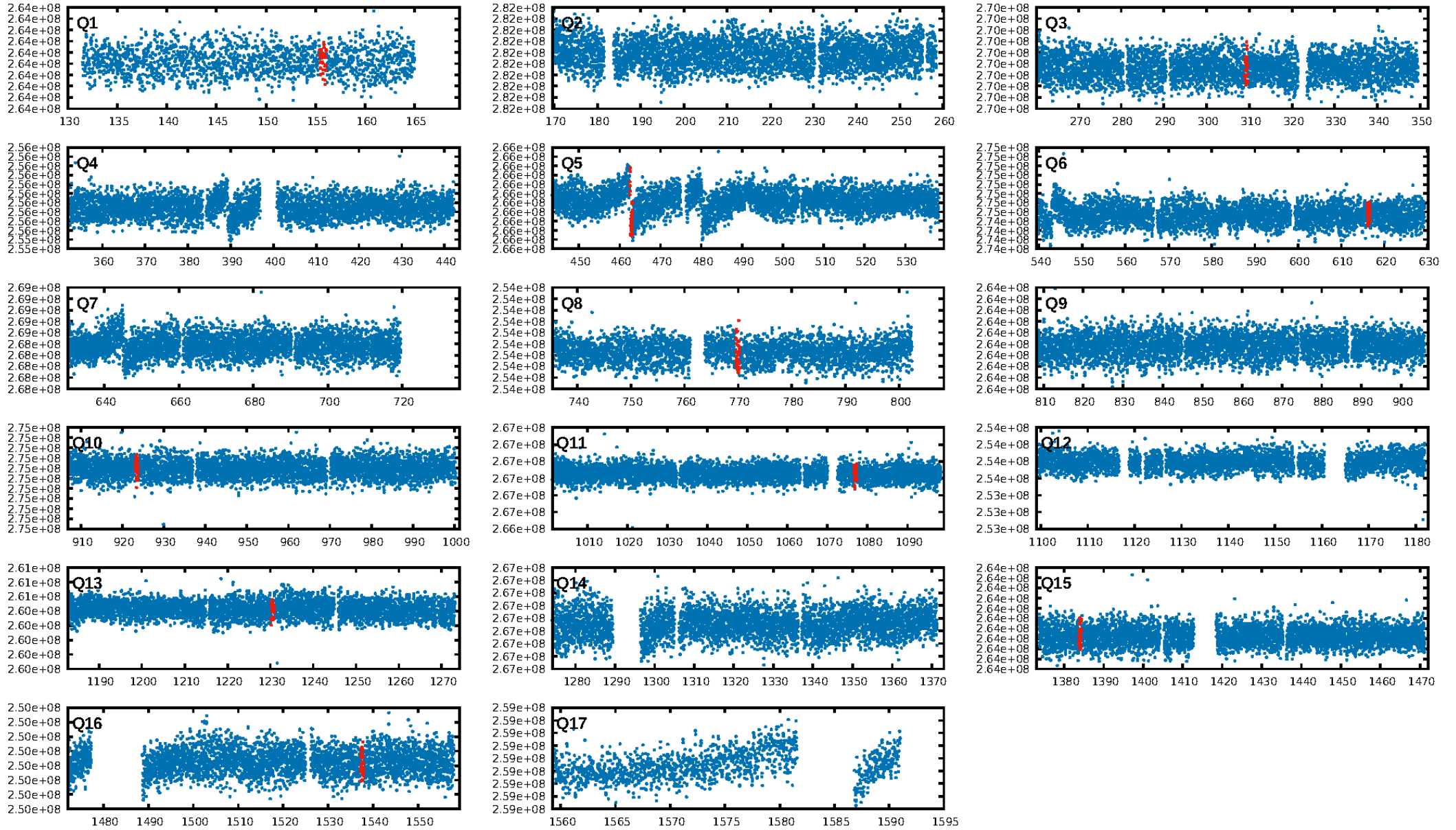
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [415.51σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 7.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.56e-10
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 0.3614
Centroid-sig: 79.3%
Centroid-so: 0.405 arcsec [0.41σ]
OotOffset-rm: 1.889 arcsec [1.46σ]
KicOffset-rm: 1.874 arcsec [1.28σ]
OotOffset-st: 1/1/1/2 [5]
KicOffset-st: 1/1/1/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.00 [0/10]

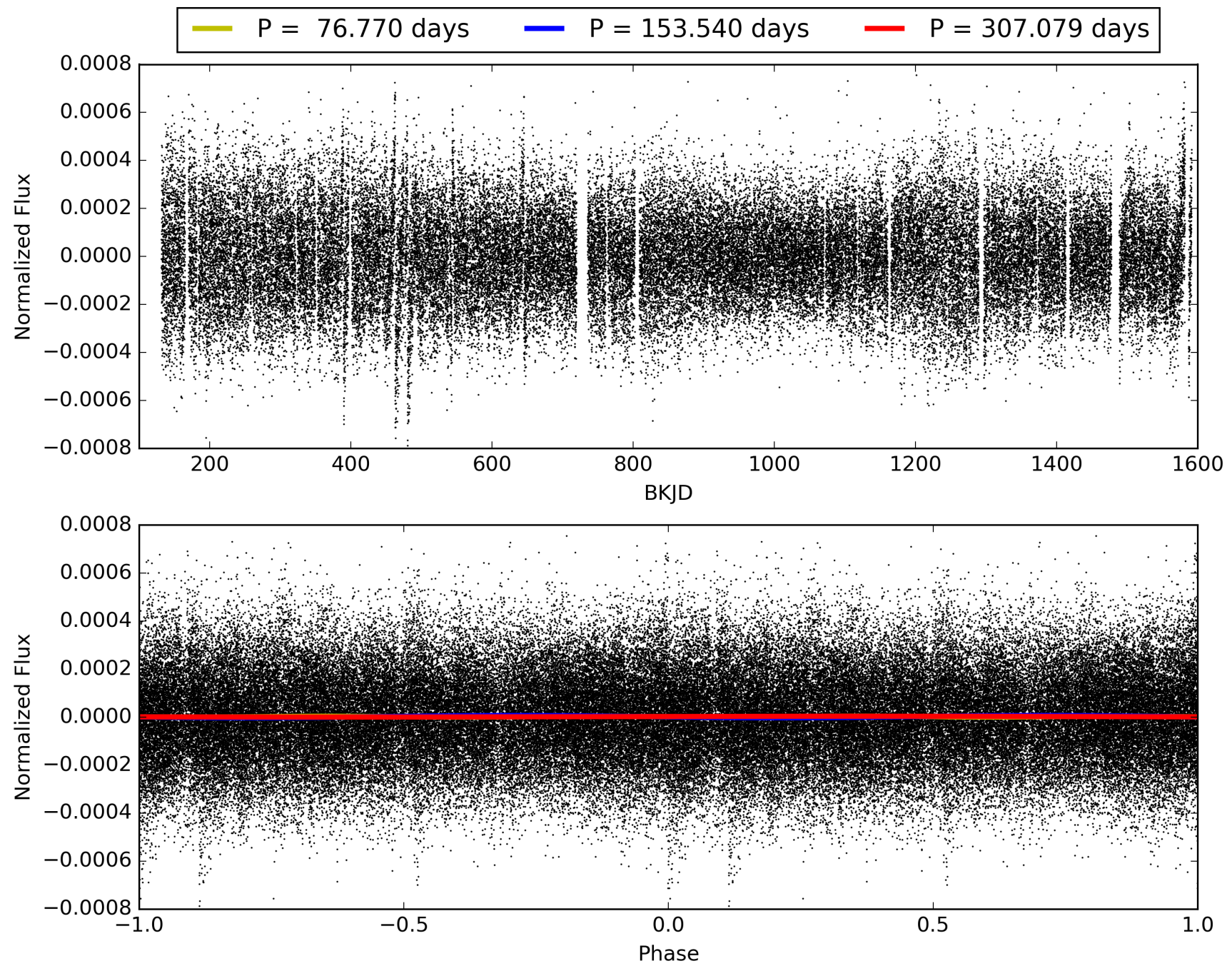
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:46:34 Z

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

TCE 011303090-02, PDC Light Curves

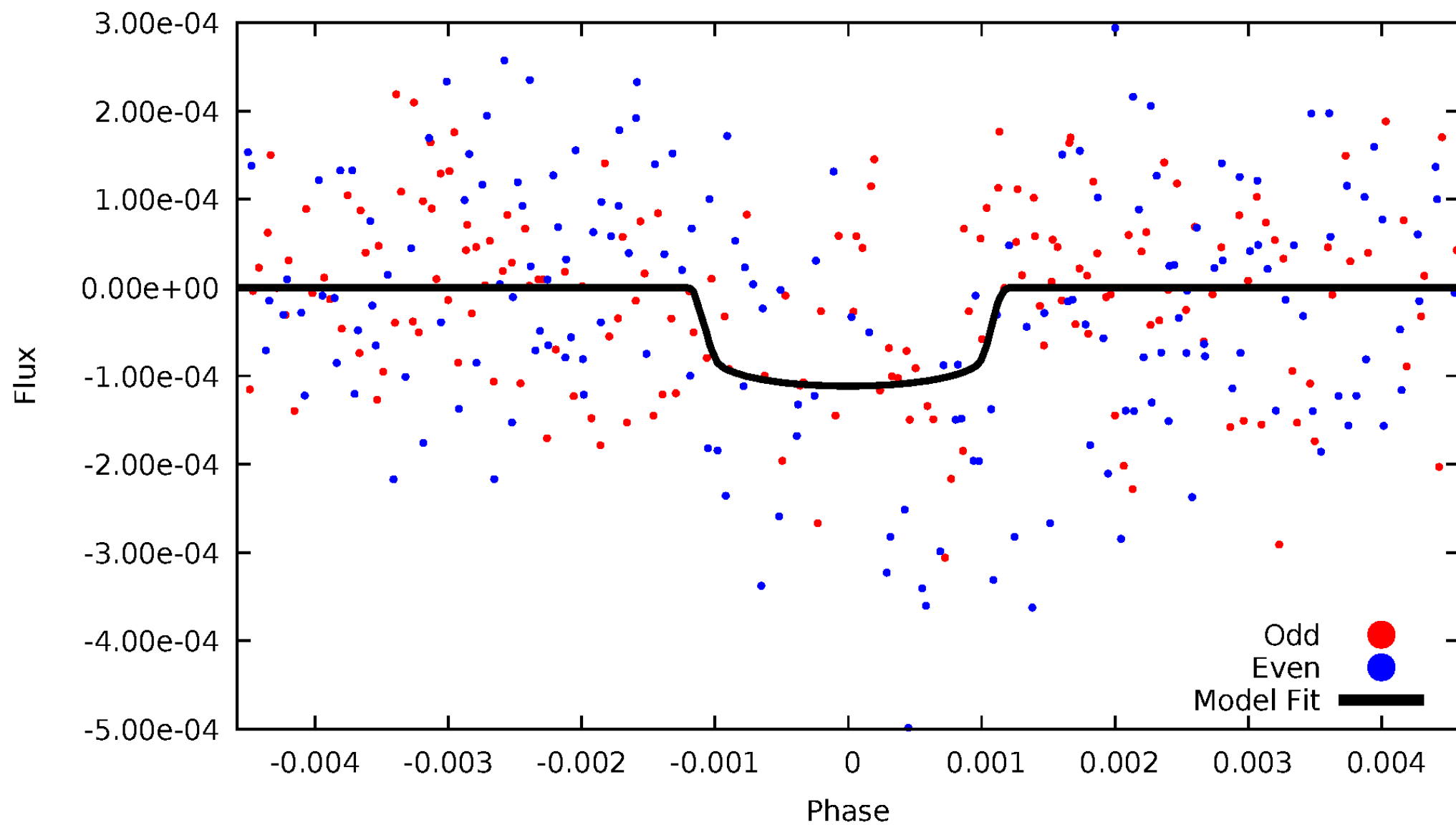


TCE 011303090-02



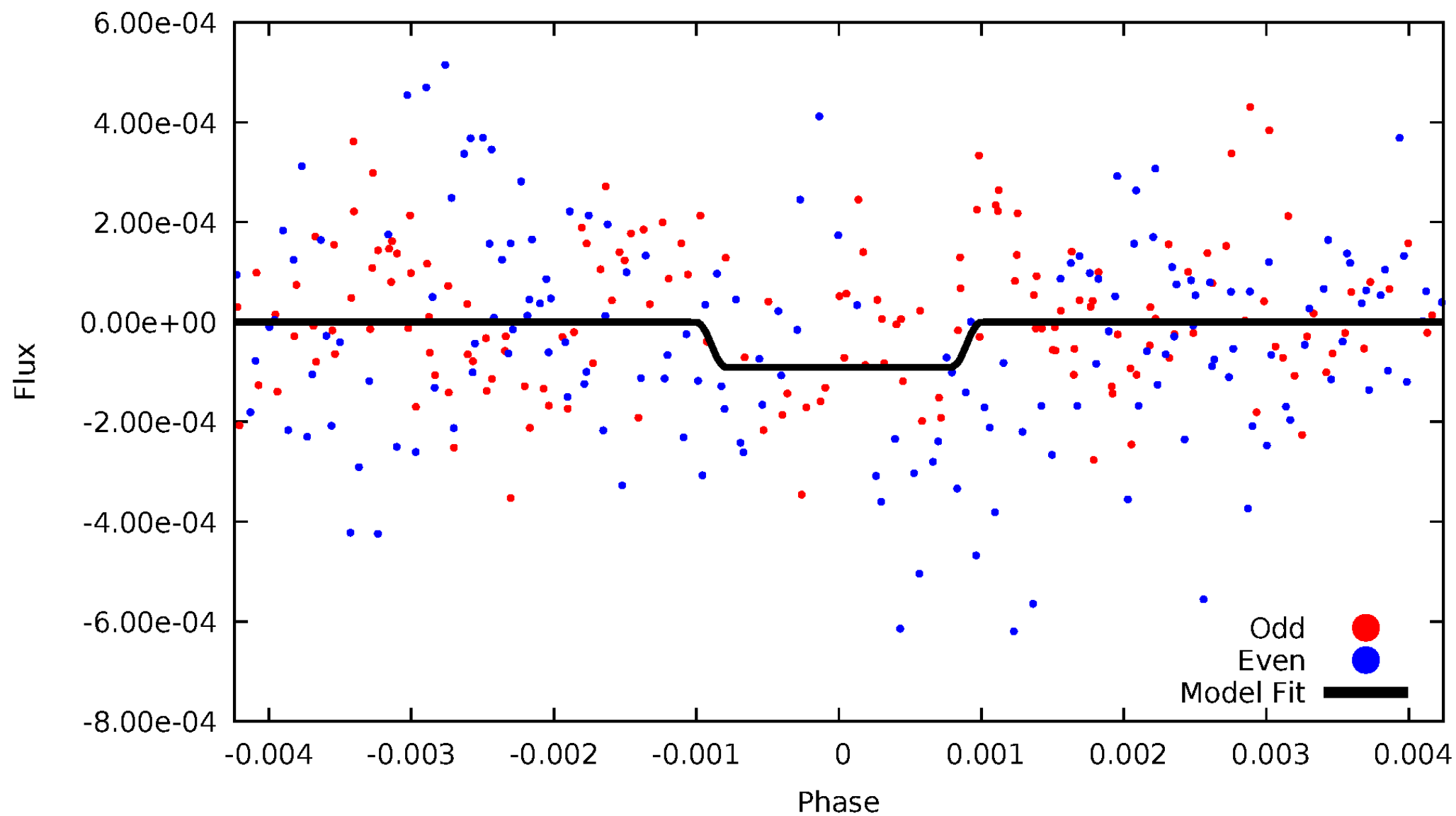
DV Odd/Even

TCE 011303090-02



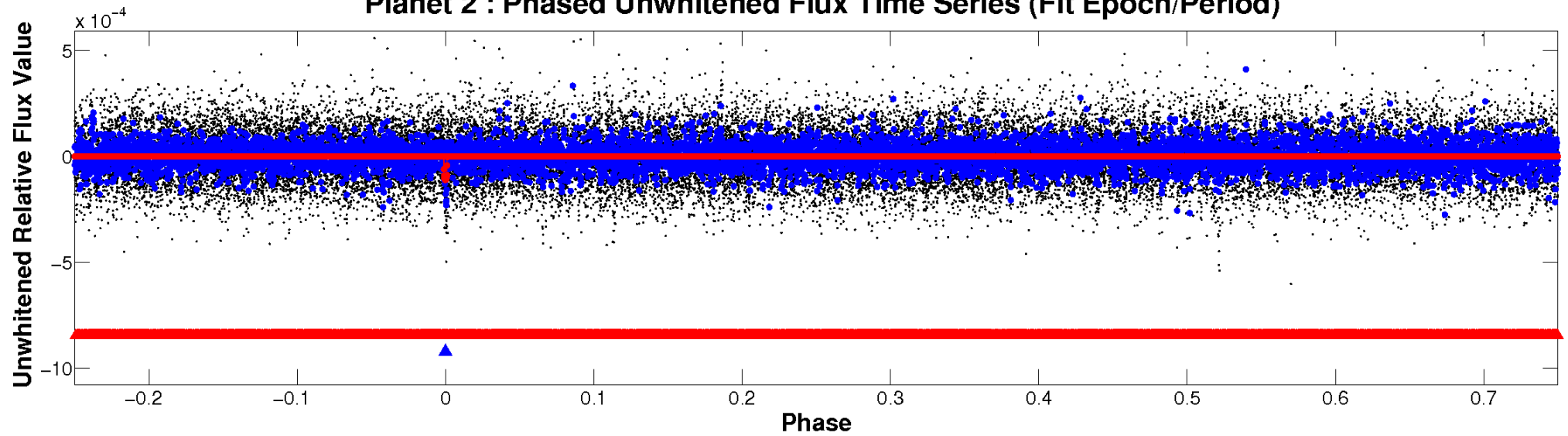
ALT Odd/Even

TCE 011303090-02

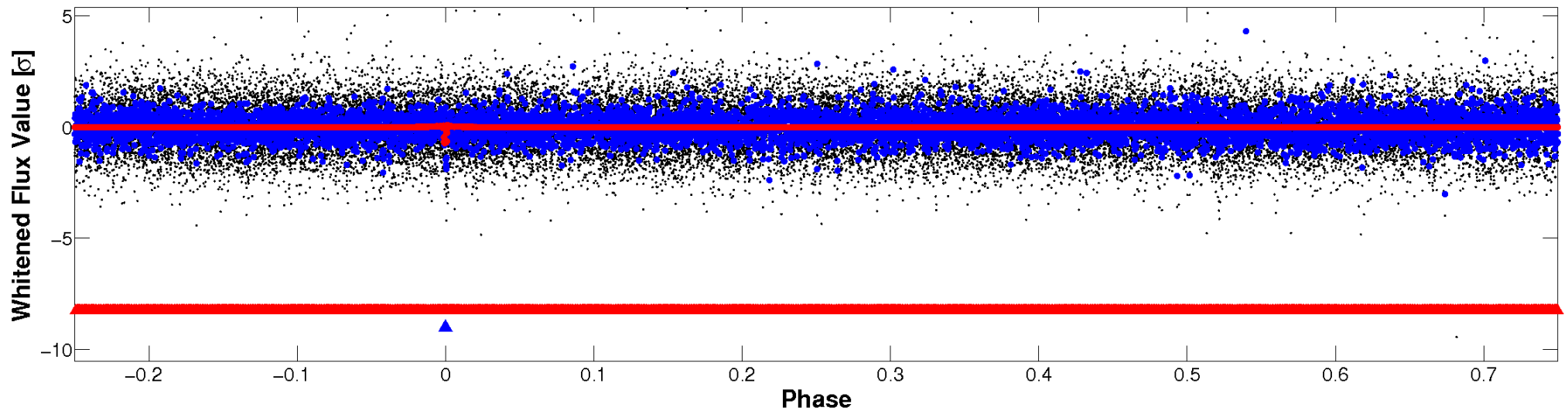


Non-Whitened Vs. Whitened Light Curve

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

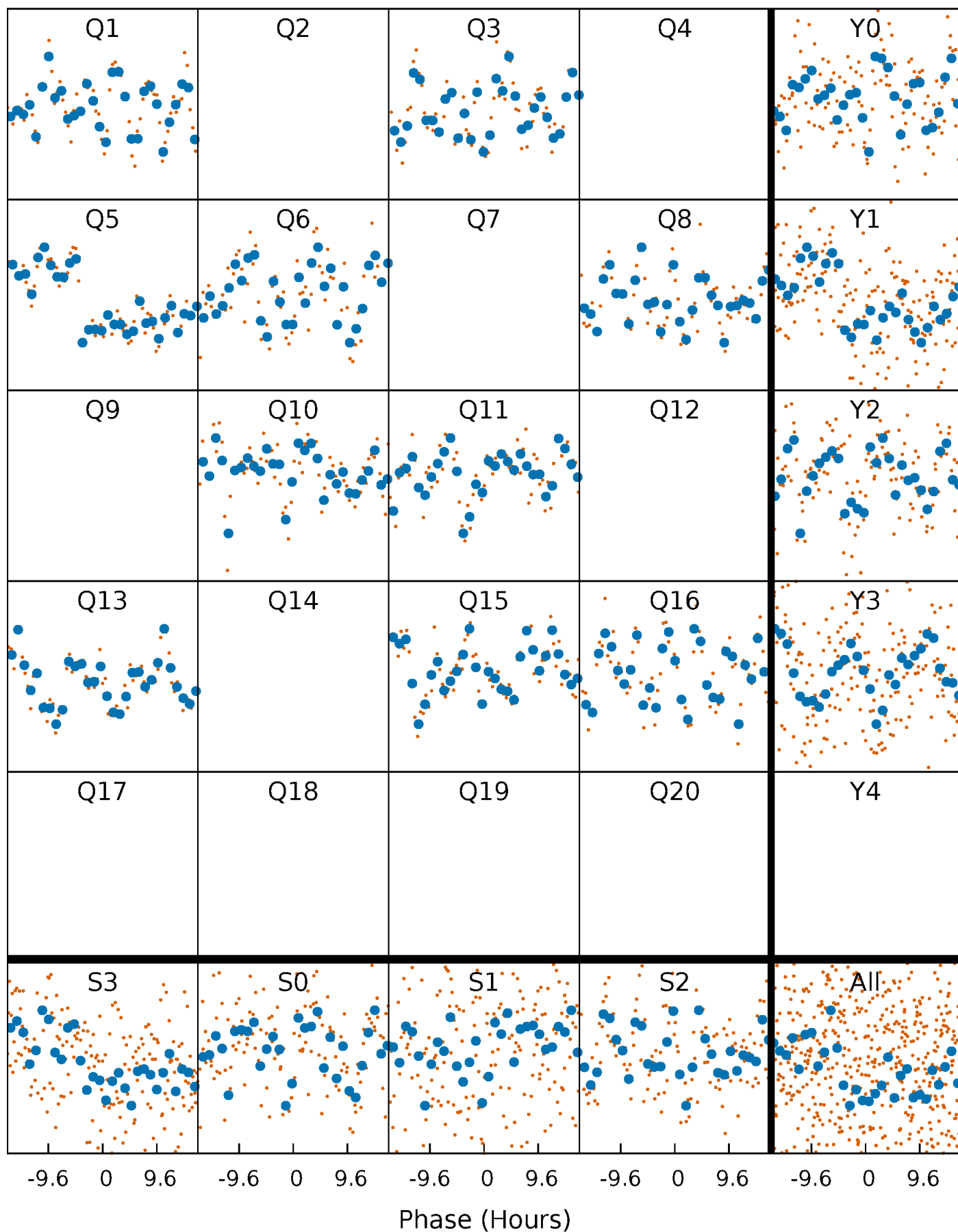


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



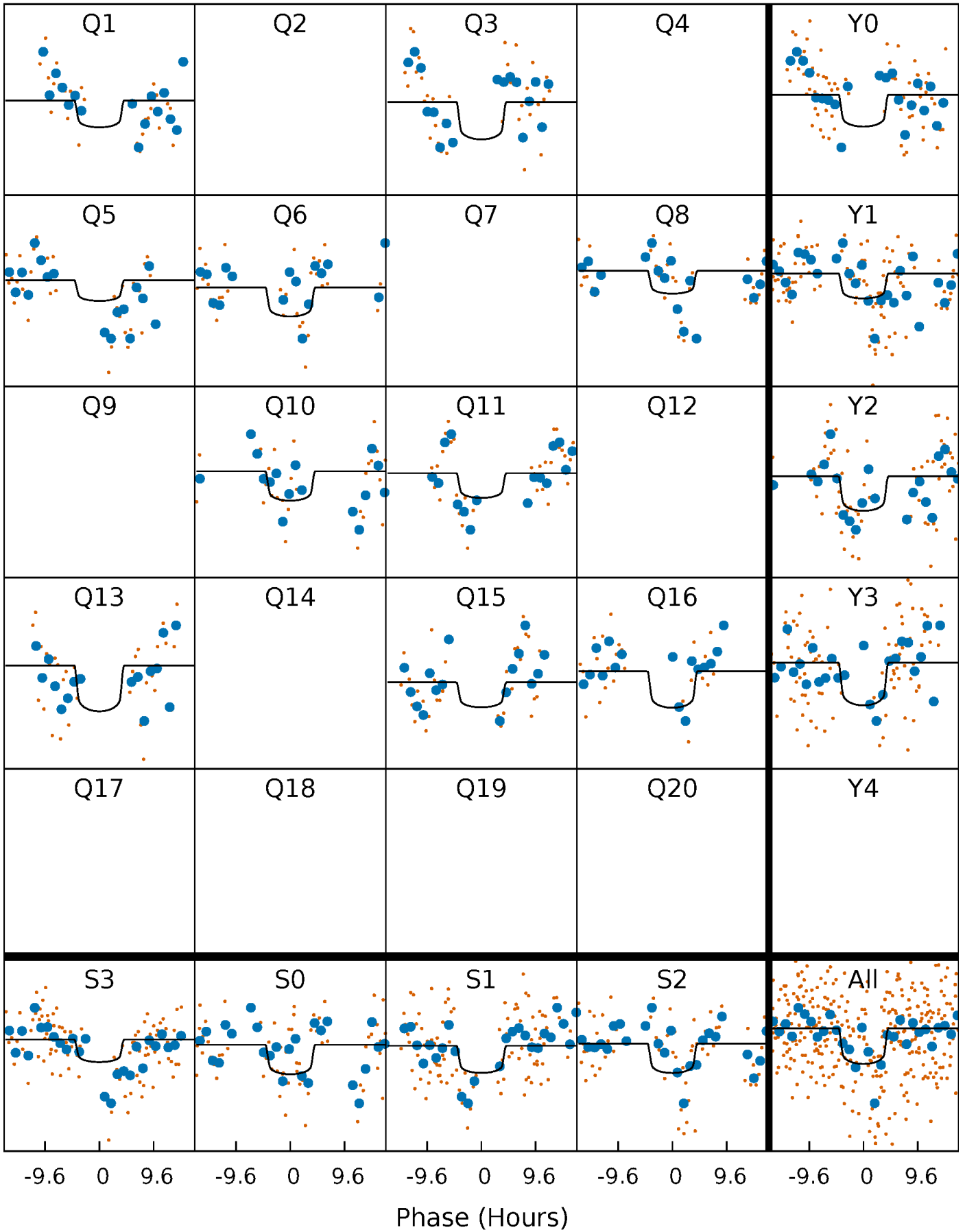
PDC Quarter-Phased Transit Curves

TCE 011303090-02 P=153.539631 Days $T_0=155.734041$ (BKJD)



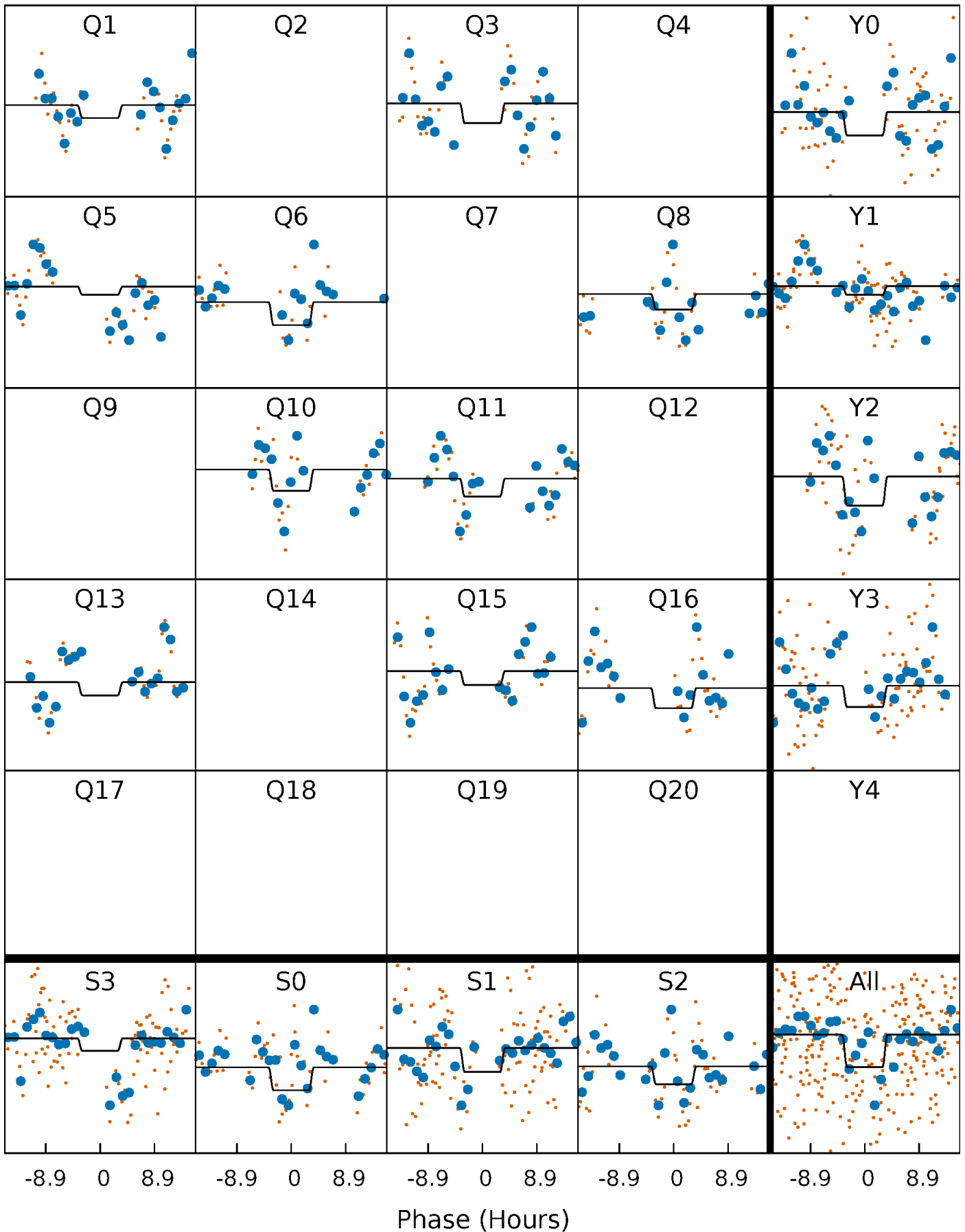
DV Quarter-Phased Transit Curves

TCE 011303090-02 P=153.539631 Days $T_0=155.734041$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

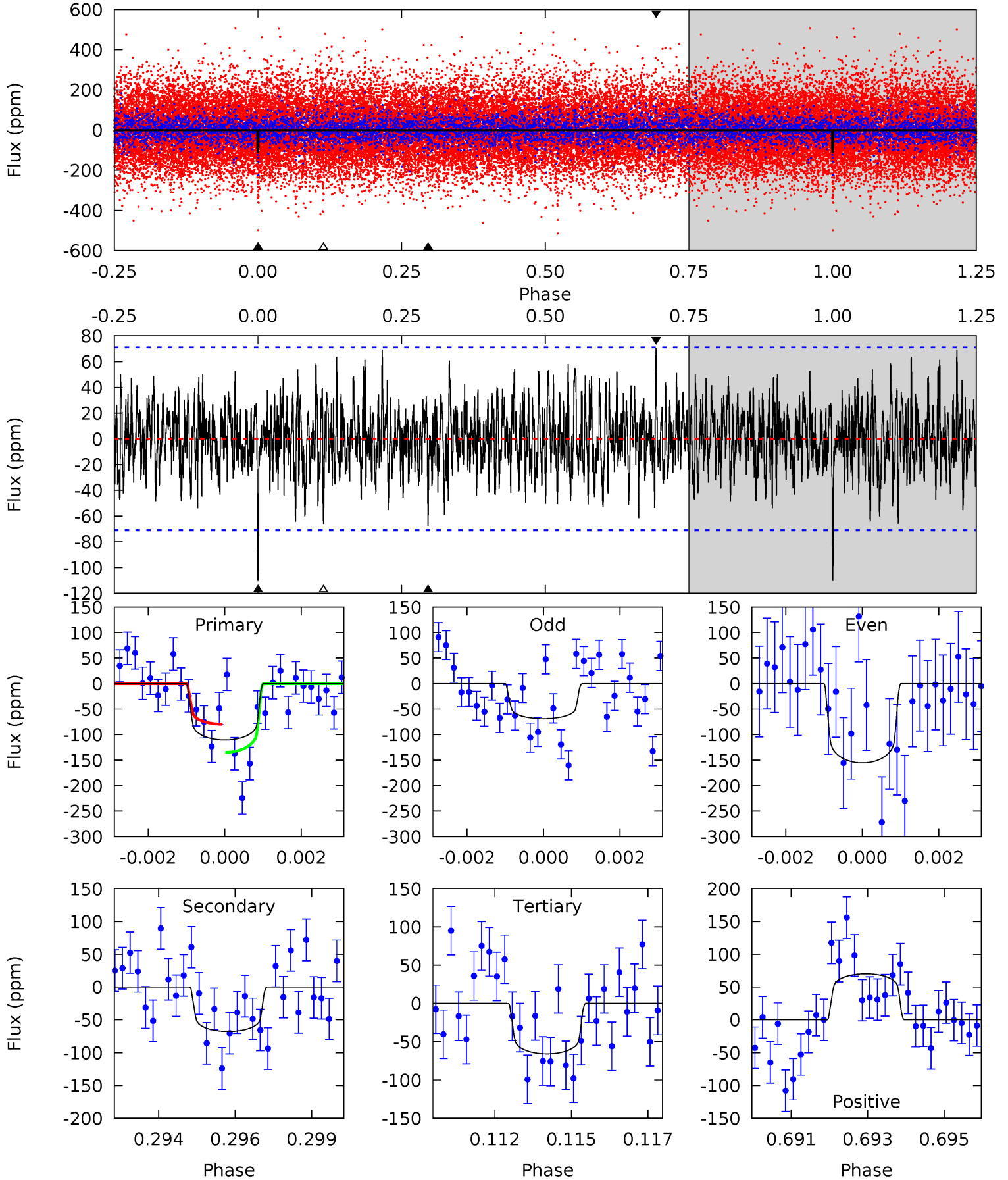
TCE 011303090-02 P=153.540418 Days $T_0=155.735170$ (BKJD)



DV Model-Shift Uniqueness Test

011303090-02, P = 153.539631 Days, E = 2.194410 Days

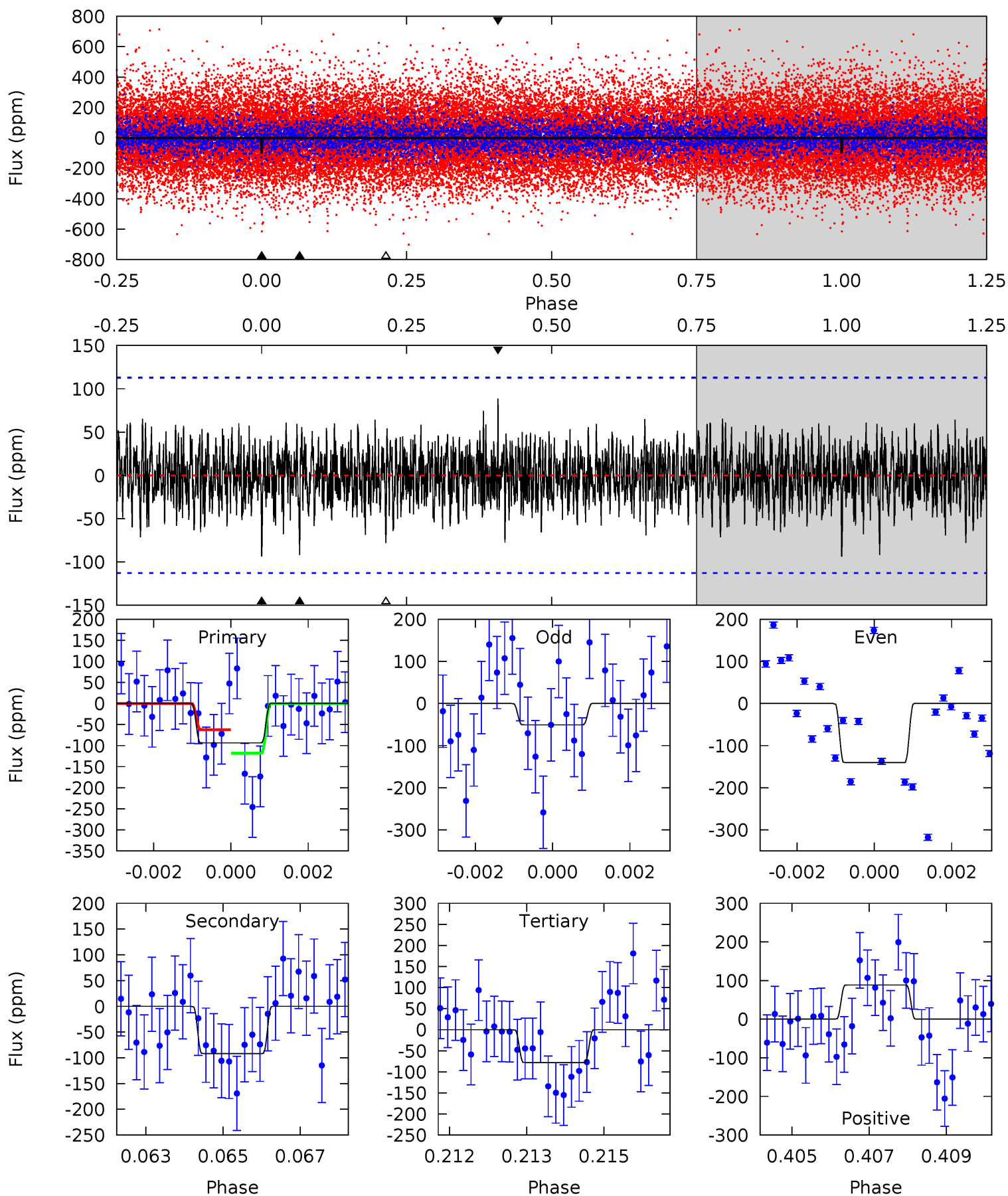
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.24	5.05	4.91	5.23	5.29	3.04	1.58	3.33	3.00	0.14	-0.18	3.23	1.37	0.39	2.04



Alt Model-Shift Uniqueness Test

011303090-02, P = 153.540418 Days, E = 2.194752 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.42	4.33	3.68	4.19	5.33	3.09	1.12	0.74	0.23	0.65	0.15	2.12	1.06	0.49	1.32



Stellar Parameters For KIC 011303090

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7682^{+239}_{-319}	$3.880^{+0.345}_{-0.115}$	$-0.440^{+0.250}_{-0.300}$	$2.337^{+0.478}_{-0.888}$	$1.512^{+0.217}_{-0.265}$	$0.167^{+0.456}_{-0.060}$
	+3%/-4%	+9%/-3%	+57%/-68%	+20%/-38%	+14%/-18%	+273%/-36%
Source	KIC0	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 011303090-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-68 ± 13	$2.65^{+1.20}_{-1.04}$	878^{+66}_{-80}	6461^{+1890}_{-986}	2209^{+3467}_{-1165}
Alt.	-92 ± 21	$2.31^{+1.18}_{-0.99}$	882^{+62}_{-83}	7484^{+3224}_{-1367}	3865^{+8445}_{-2226}

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

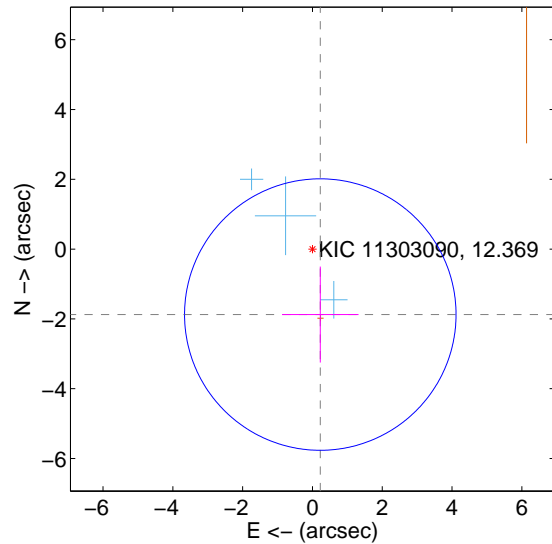
Supplemental centroid analysis for 011303090-02. Kepler magnitude: 12.37. Transit SNR 5.42

There are 3 quarters with good PRF difference image offsets

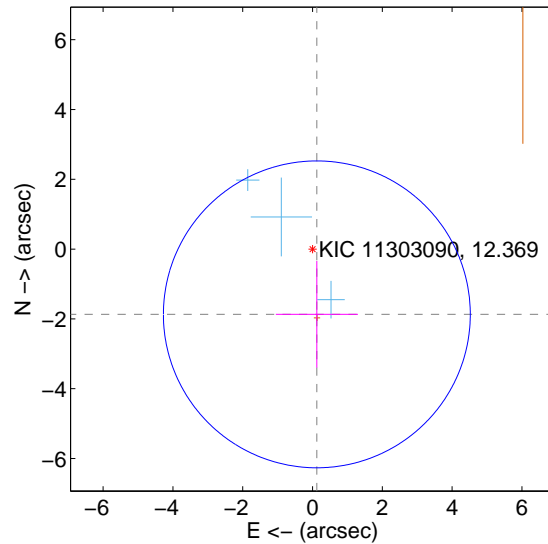
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.889 ± 1.296	1.46	-0.225 ± 1.097	-1.876 ± 1.375
PRF-fit source offset from KIC position	1.874 ± 1.465	1.28	-0.124 ± 1.176	-1.870 ± 1.530
photometric centroid source offset	0.40 ± 0.99	0.41	0.26 ± 0.99	-0.31 ± 0.99

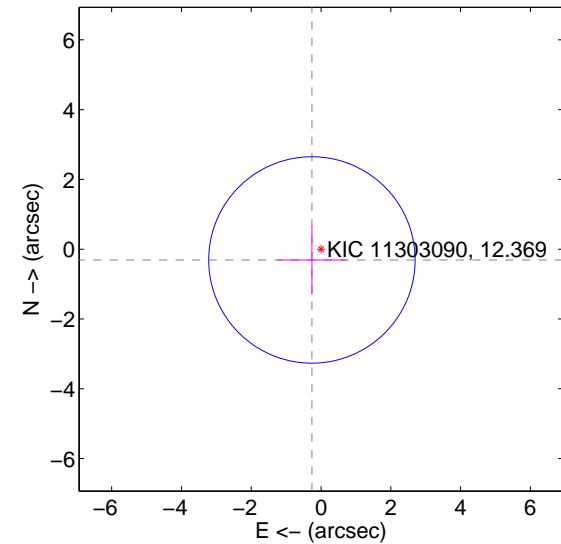
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

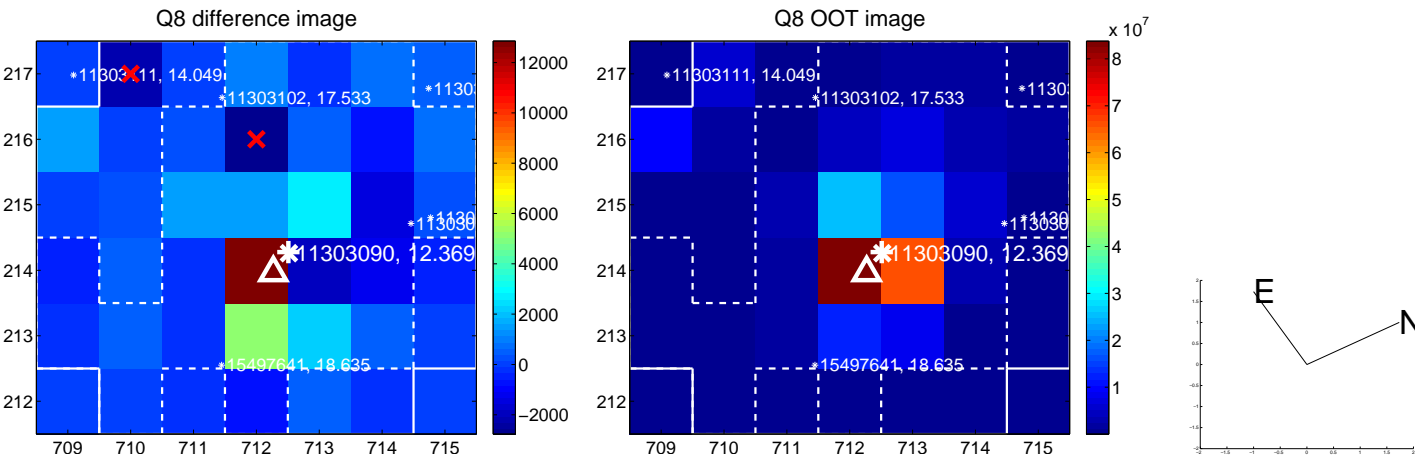
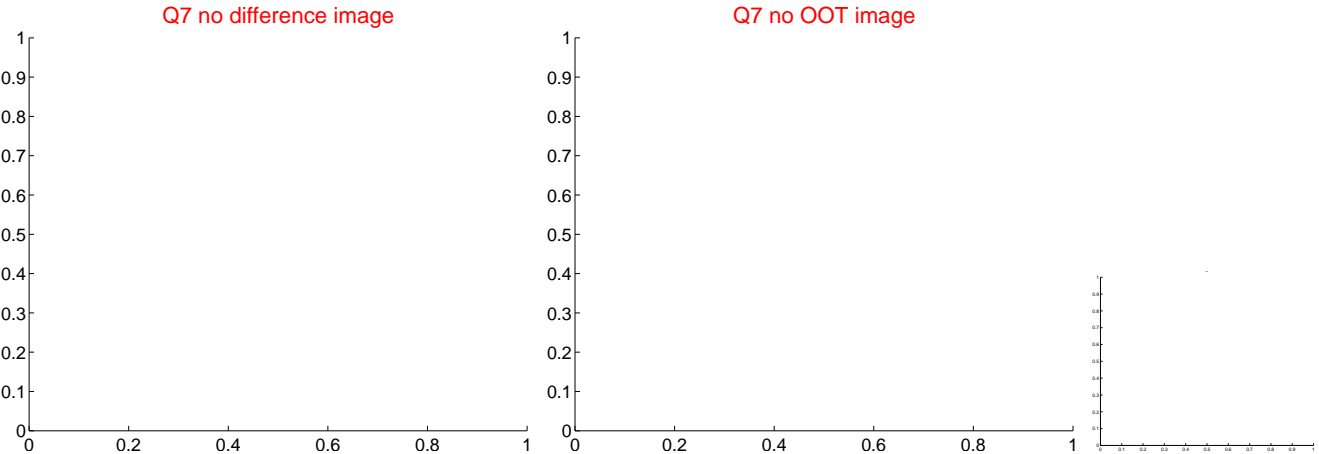
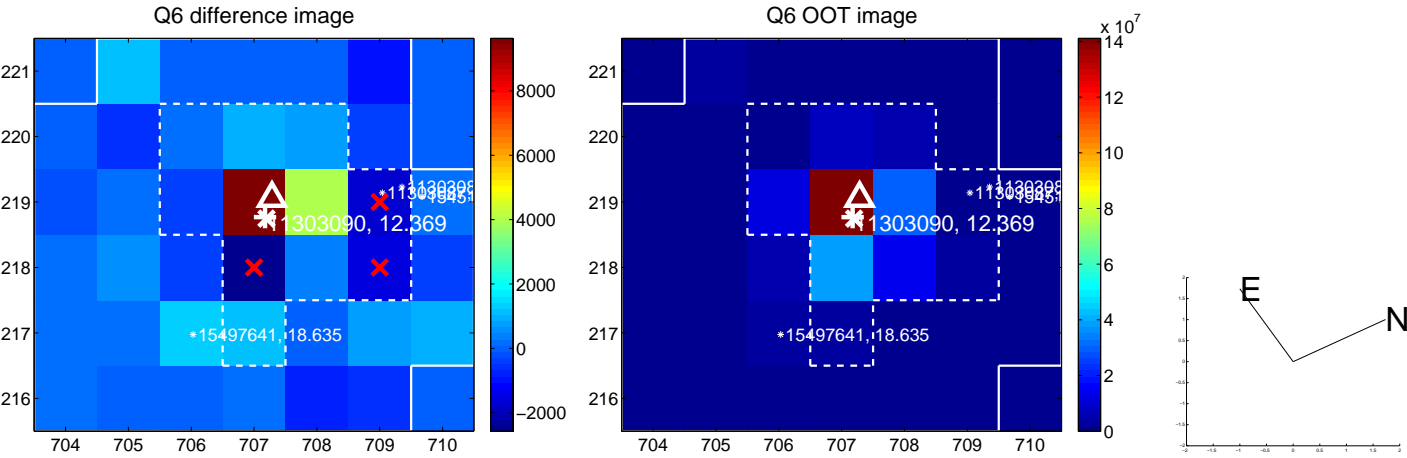
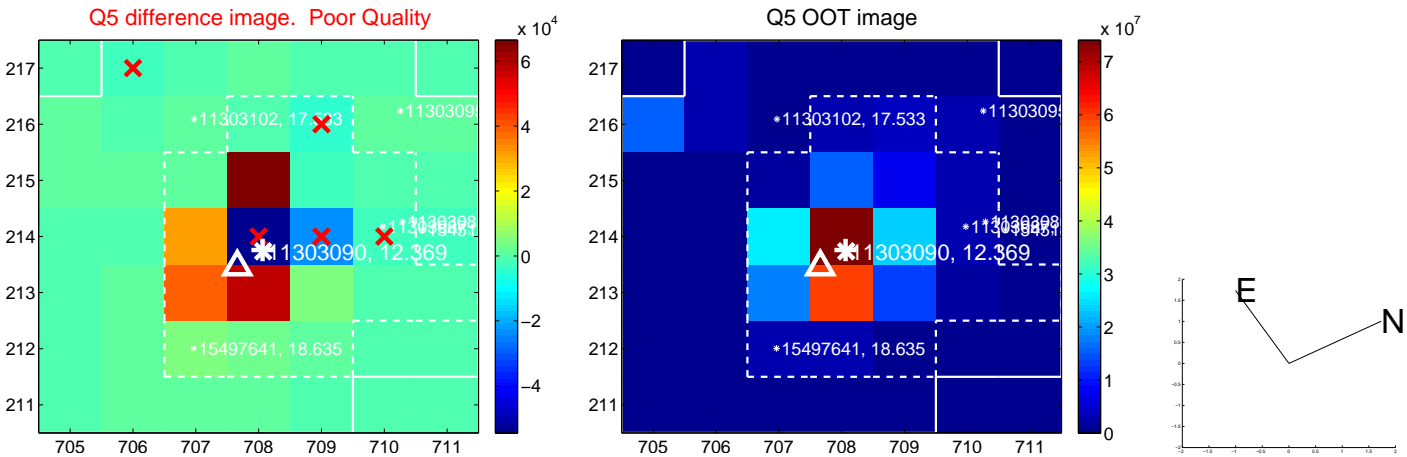


offset from photometric centroids



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.

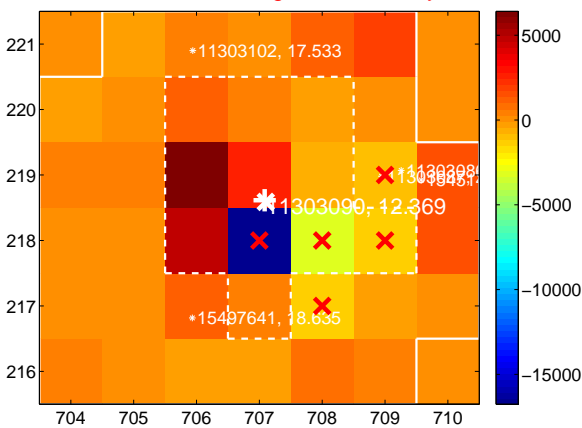
Q9 no difference image



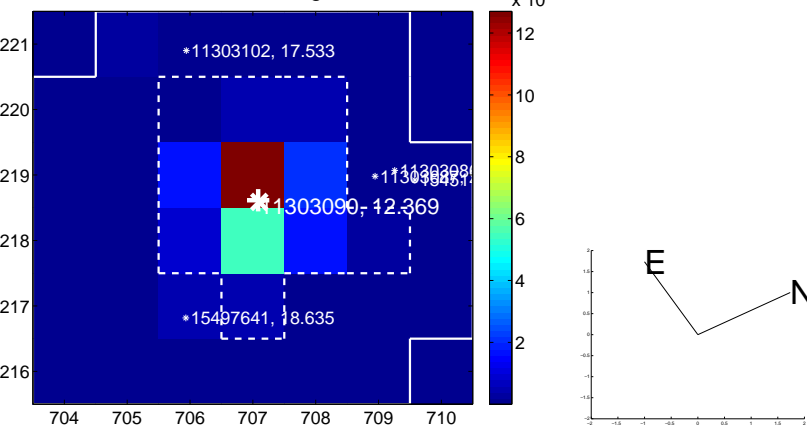
Q9 no OOT image



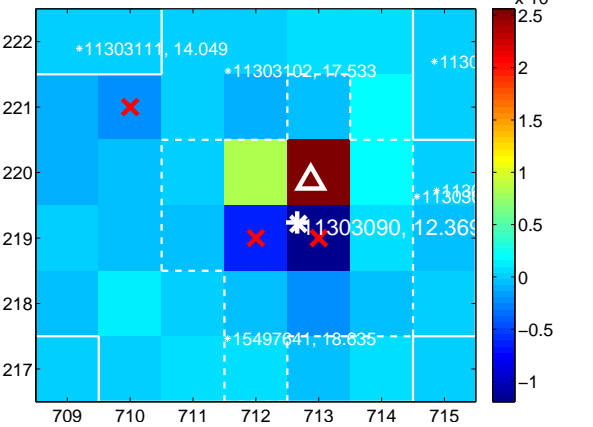
Q10 difference image. Poor Quality



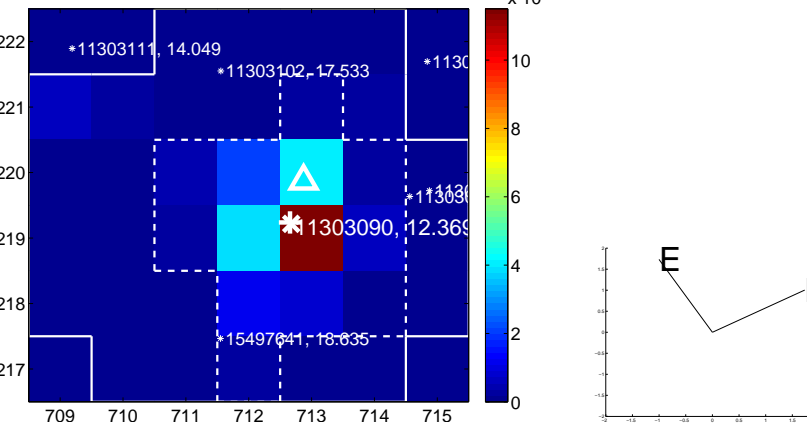
Q10 OOT image



Q11 difference image



Q11 OOT image



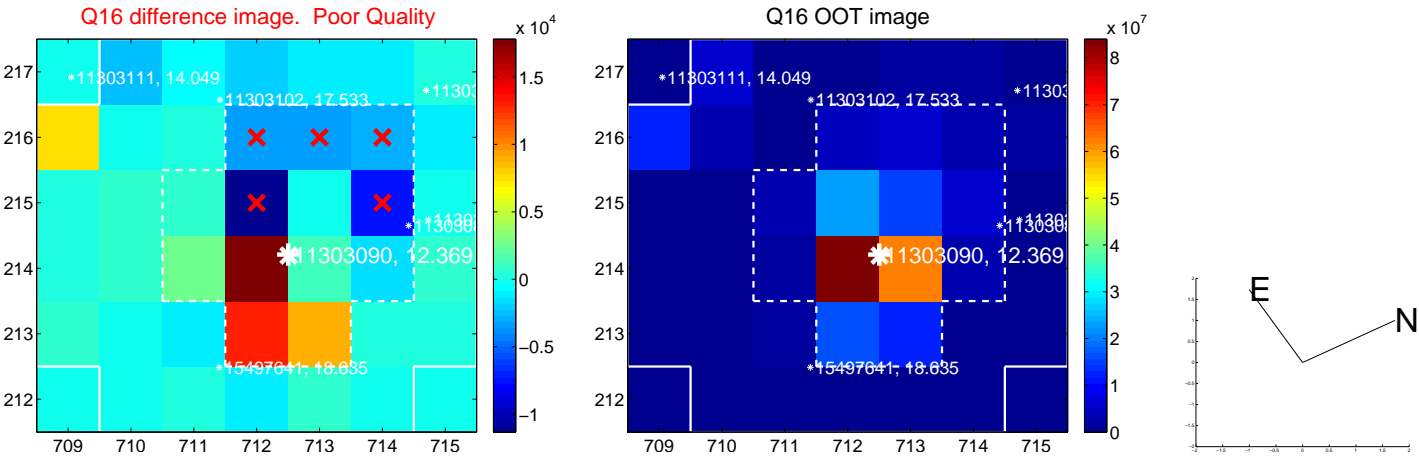
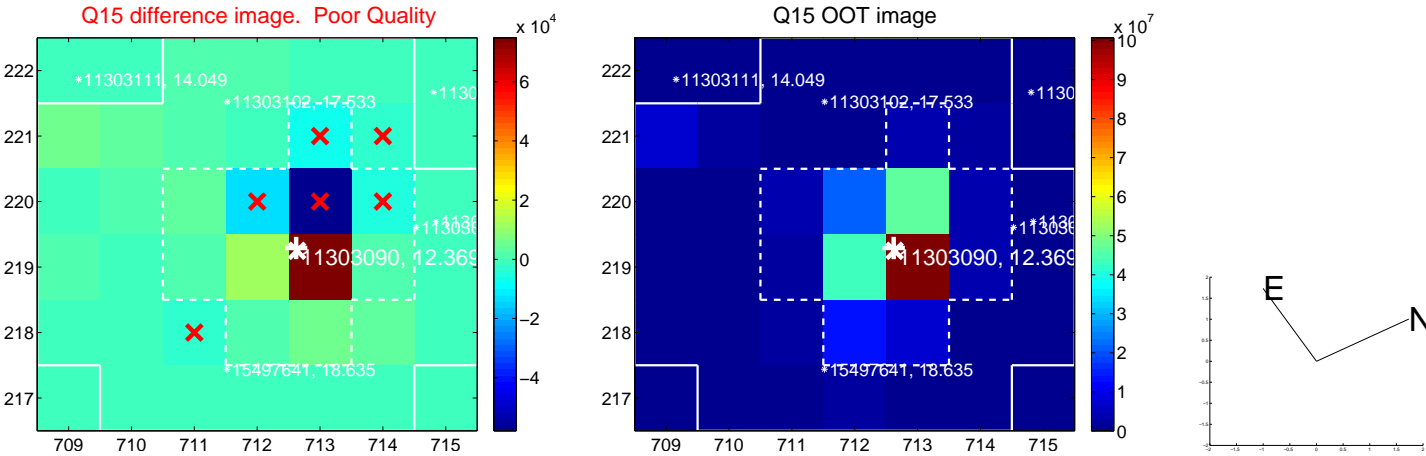
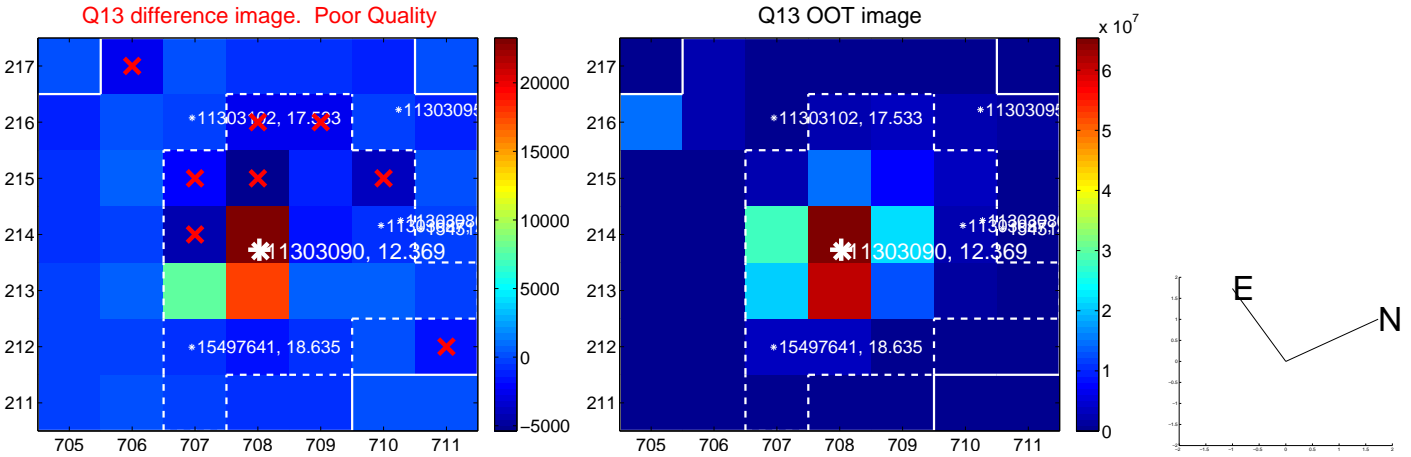
Q12 no difference image



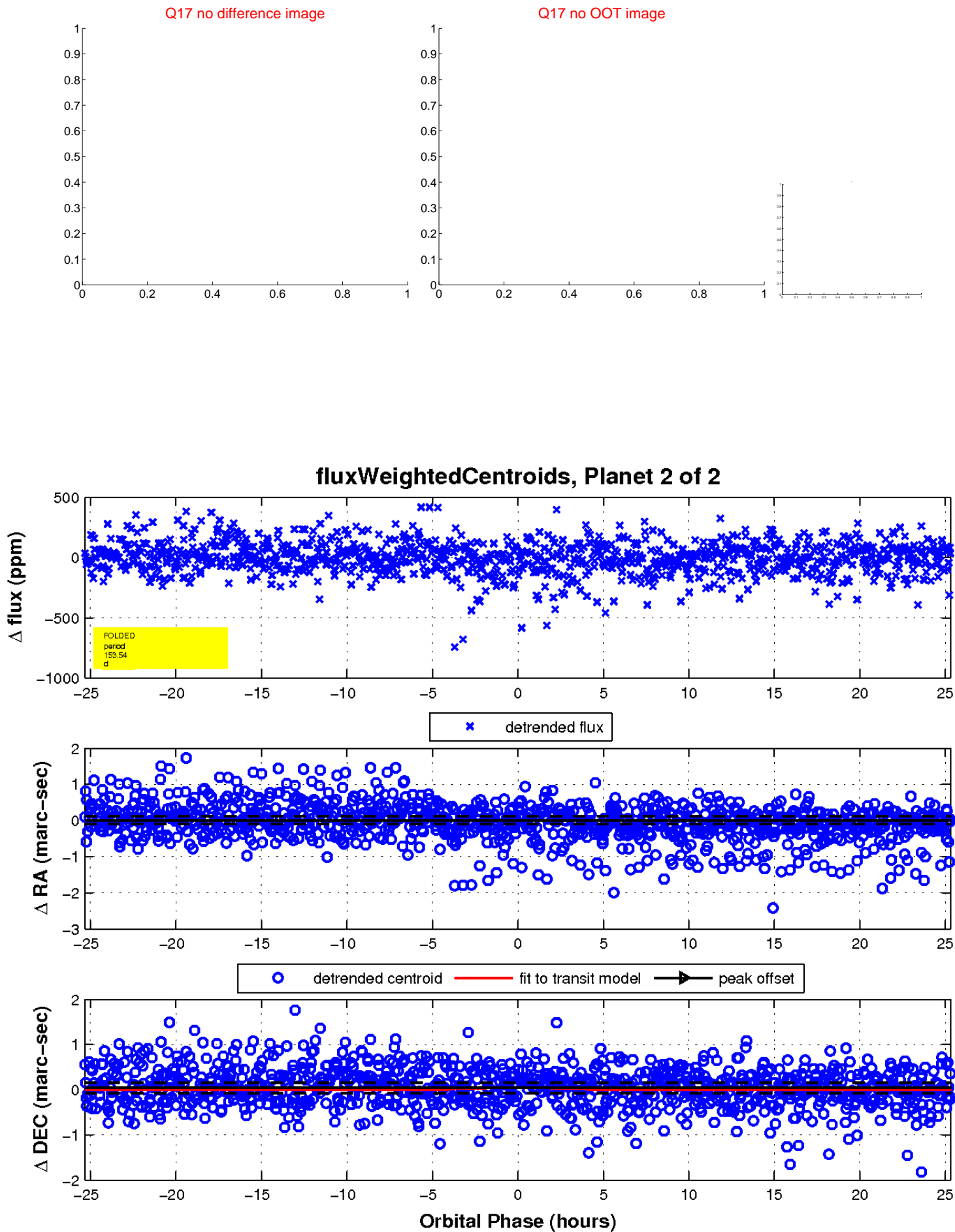
Q12 no OOT image



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

