

KIC 012104951

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})
012104951-01	OBS	No	4.736637	133.041531	5.8	0.915	9.0	0.5	3.25	8517	0.91	9197.98
012104951-02	OBS	No	4.736641	132.178490	128.1	15.000	8.3	-1.0	3.25	8517	3.74	9197.97
012104951-03	OBS	No	4.735983	135.699605	26.0	30.715	8.7	9.2	3.25	8517	1.73	9199.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012104951-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
012104951-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
012104951-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—SAME_NTL_PERIOD

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

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

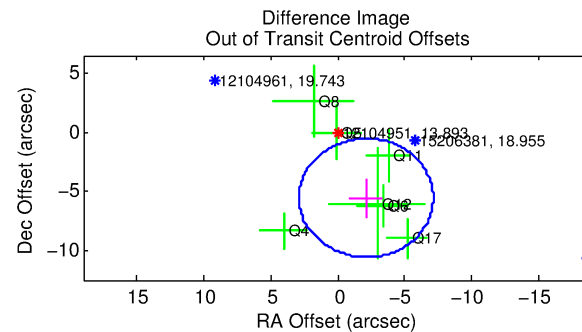
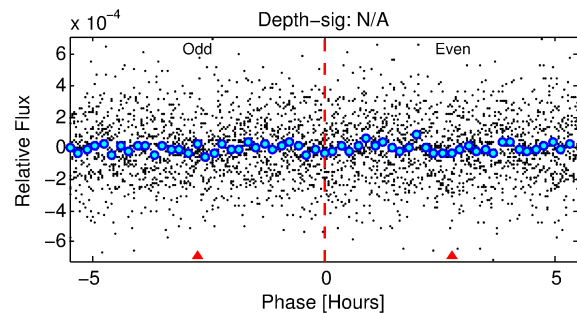
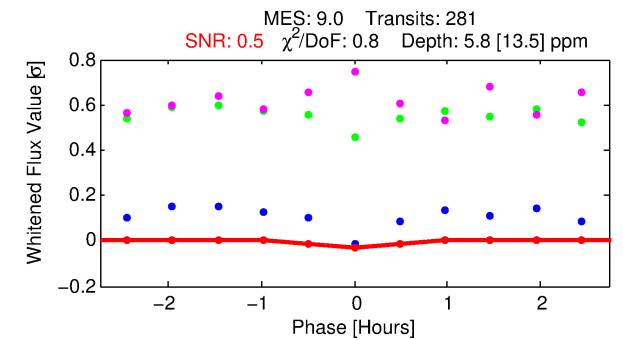
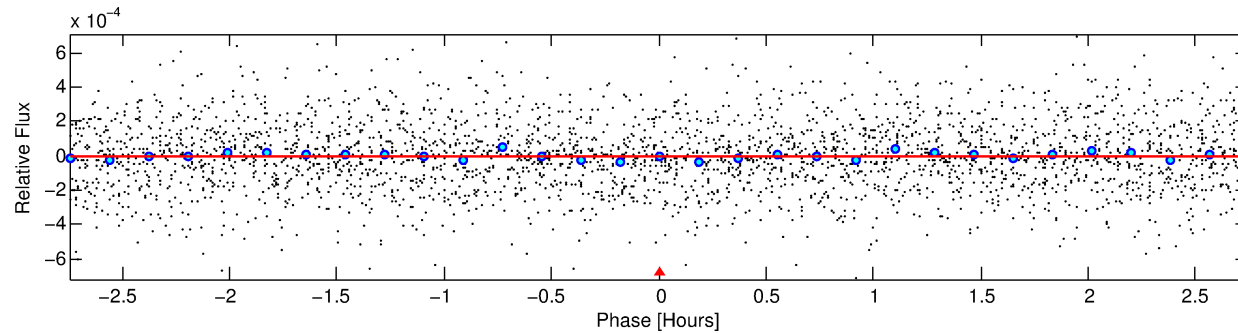
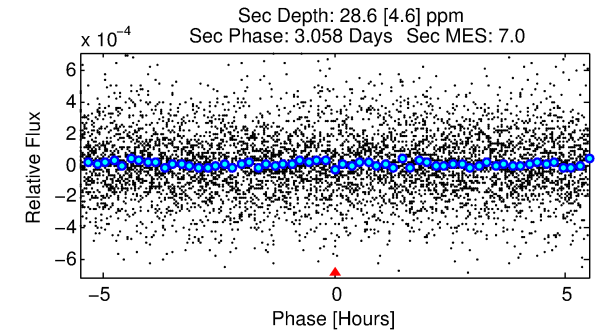
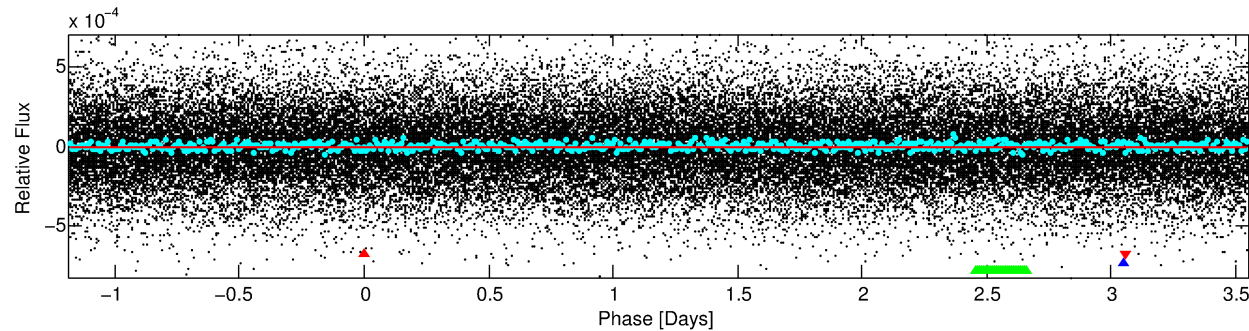
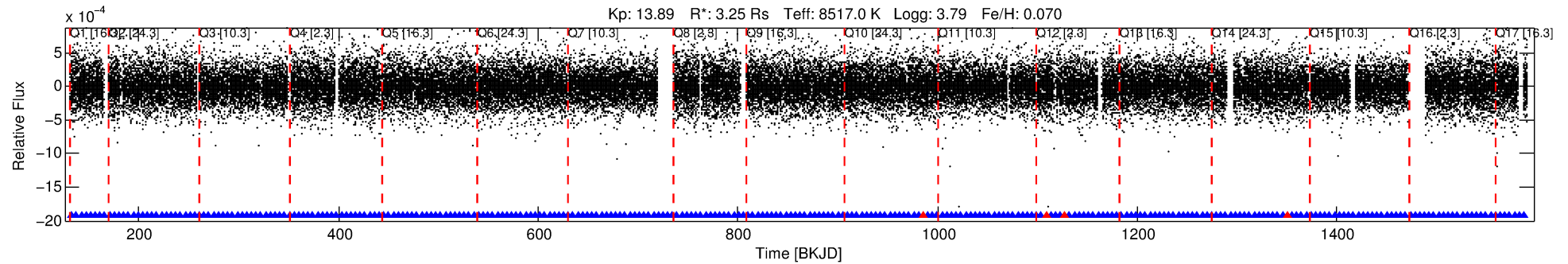
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012104951-01

No Significant Match Found

DV One-Page Summary

KIC: 12104951 Candidate: 1 of 3 Period: 4.737 d



DV Fit Results:

Period = 4.73664 [0.00034] d
Epoch = 133.0415 [0.0447] BKJD
Rp/R* = 0.0026 [0.0047]
a/R* = 18.10 [167.55]
b = 0.89 [2.14]
Seff = 9197.98 [6180.45]
Teq = 2497 [419] K
Rp = 0.91 [1.71] Re
a = 0.0737 [0.0306] AU
Ag = 102.18 [377.55] [0.27σ]
Teffp = 12275 [11180] K [0.87σ]

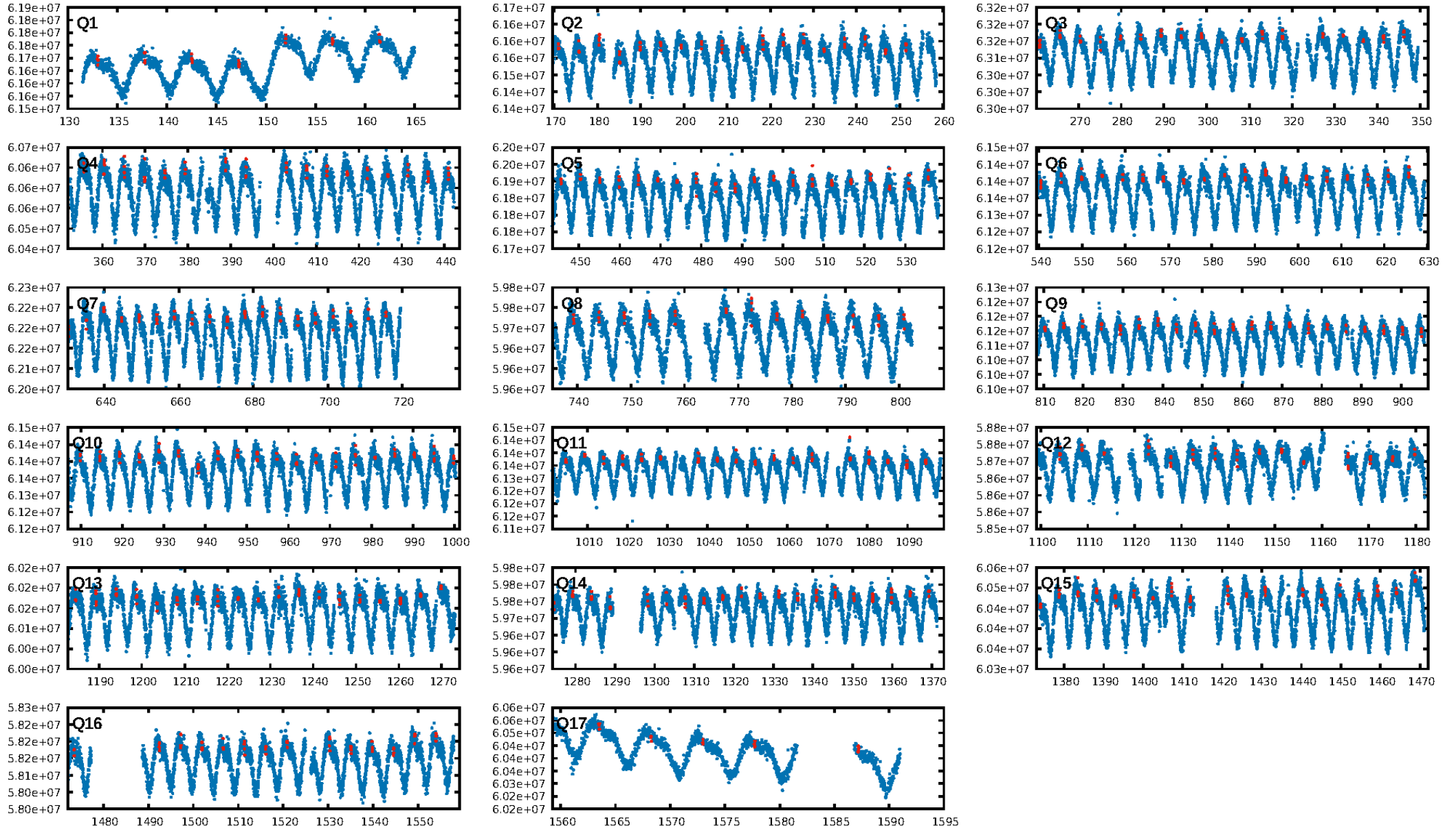
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.44e-36
RollingBand-fgt: 0.99 [265/269]
GhostDiagnostic-chr: -0.9947
Centroid-sig: 48.1%
Centroid-so: 18.807 arcsec [0.69σ]
OotOffset-rm: 5.952 arcsec [3.56σ]
KicOffset-rm: 5.976 arcsec [3.51σ]
OotOffset-st: 1/1/3/2 [7]
KicOffset-st: 1/1/3/2 [7]
DiffImageQuality-fgm: 0.00 [0/7]
DiffImageOverlap-fno: 1.00 [17/17]

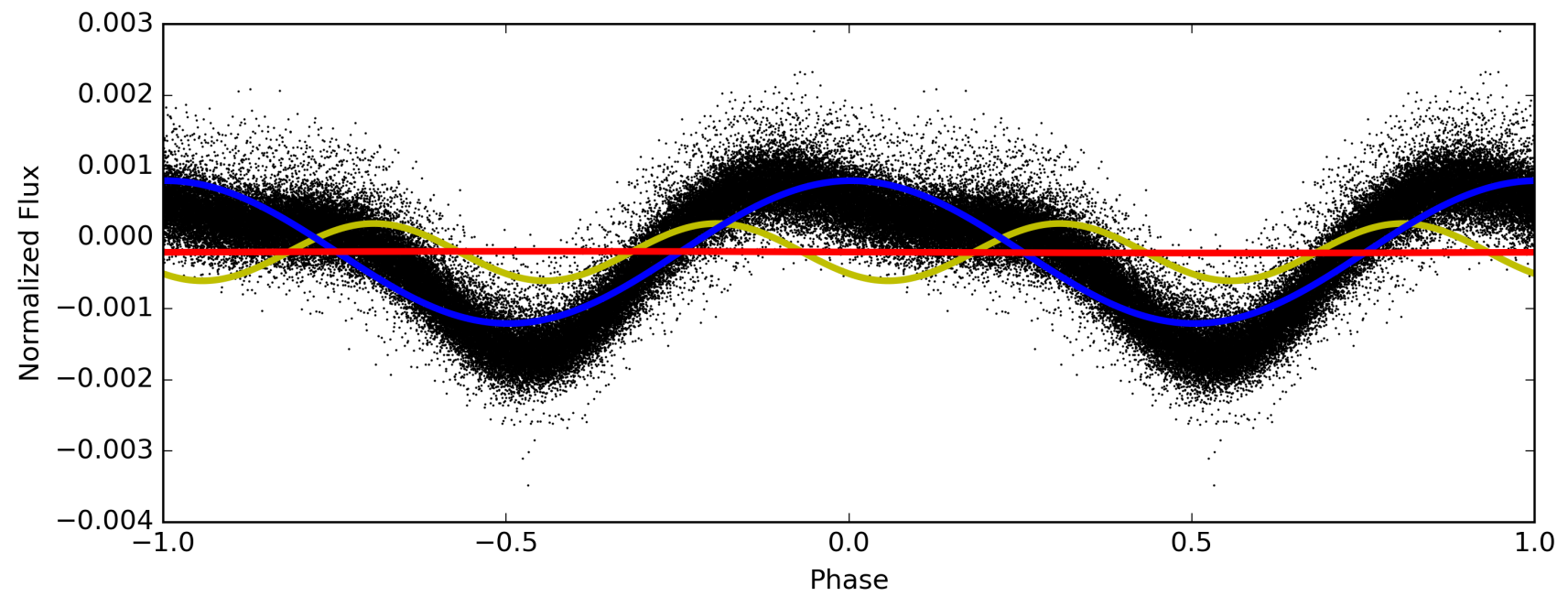
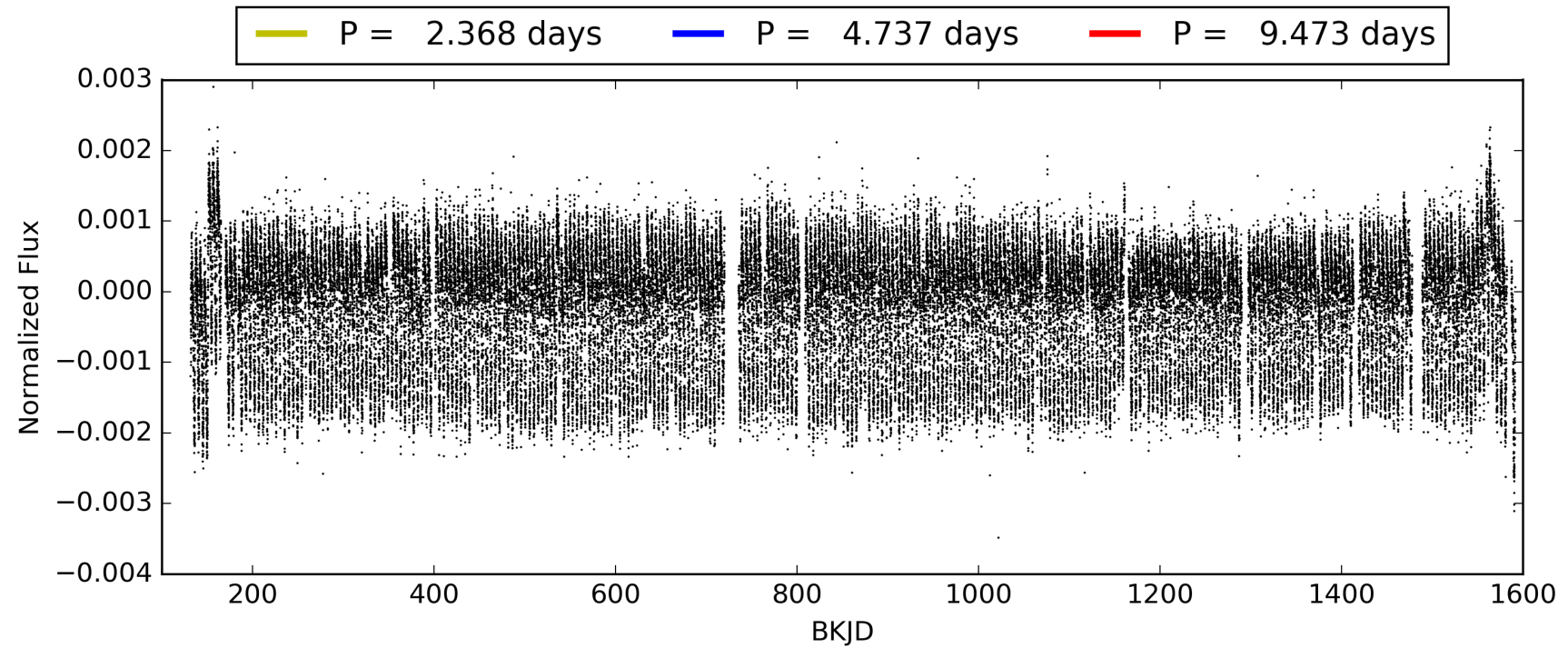
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:14:41 Z

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

TCE 012104951-01, PDC Light Curves

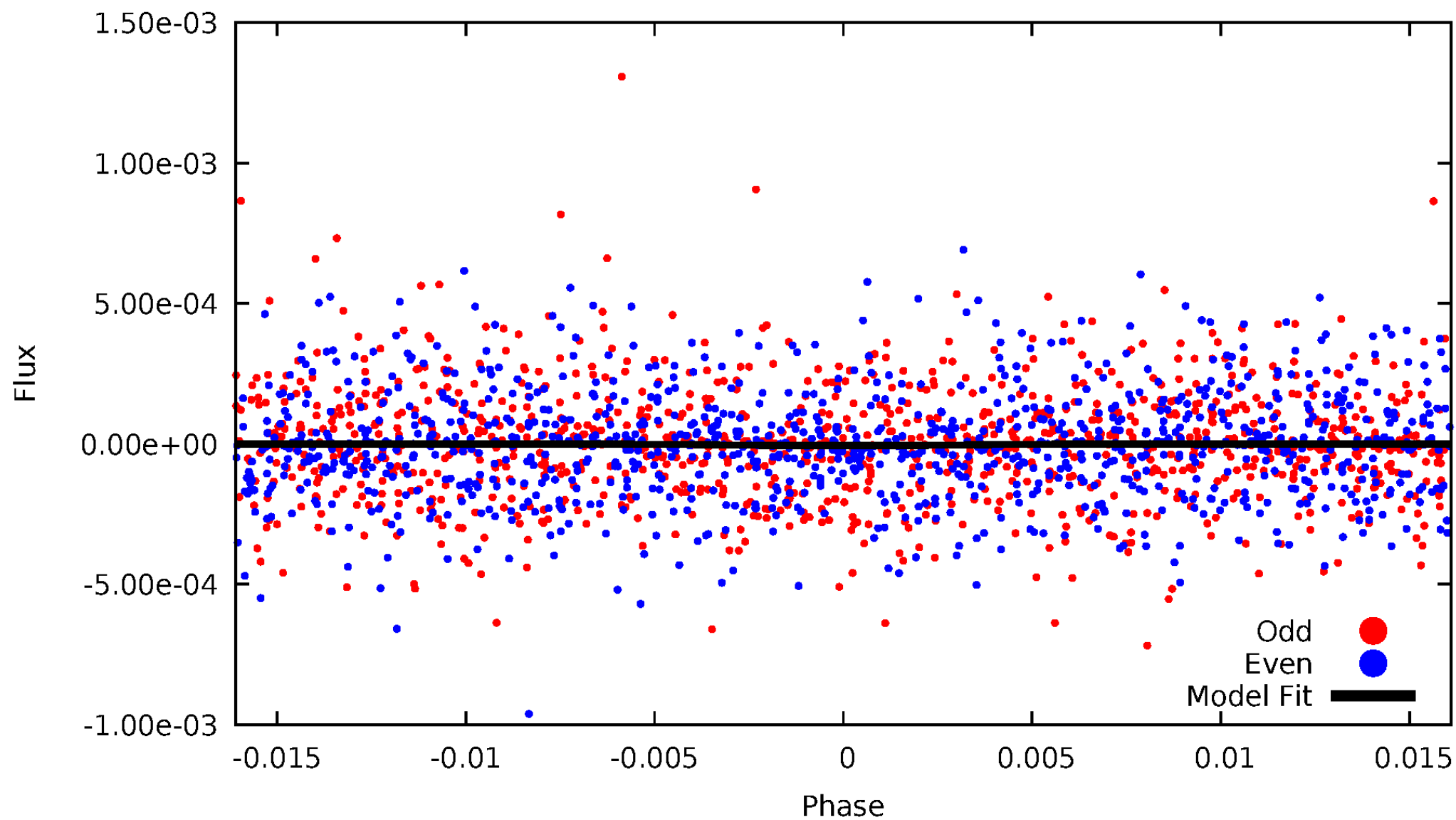


TCE 012104951-01



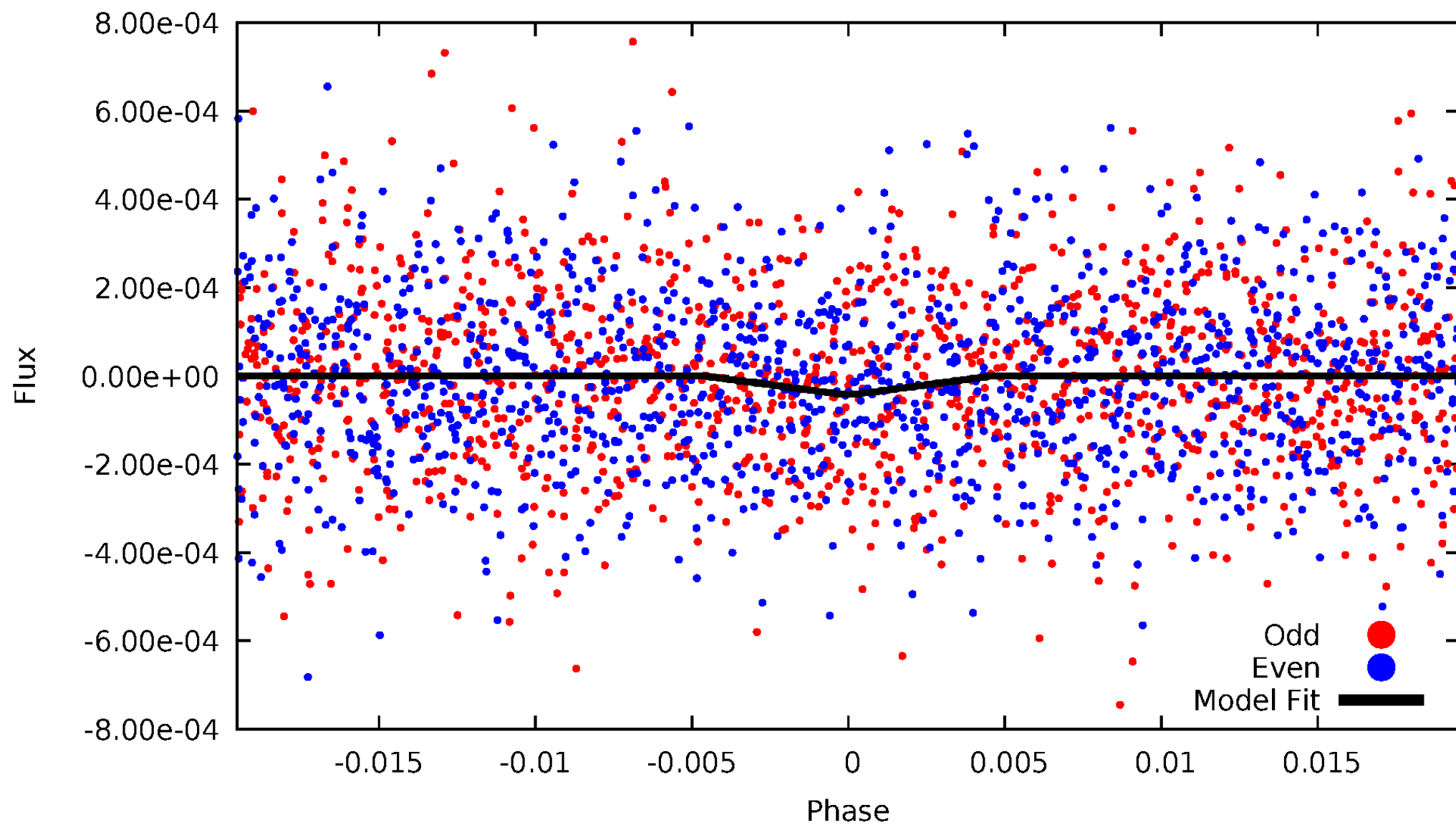
DV Odd/Even

TCE 012104951-01

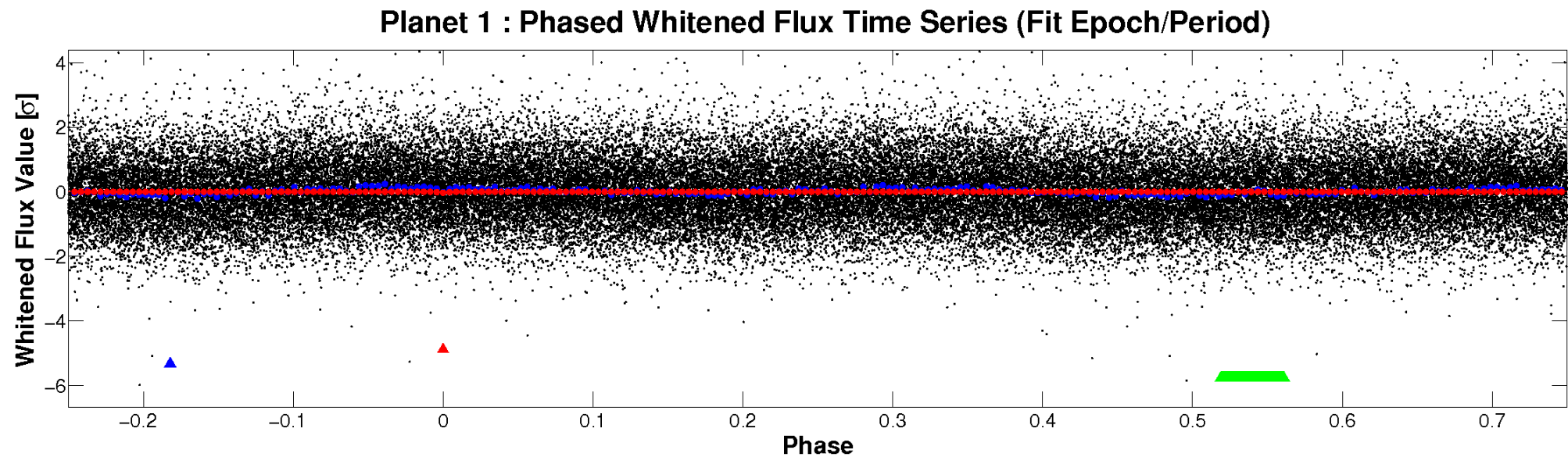
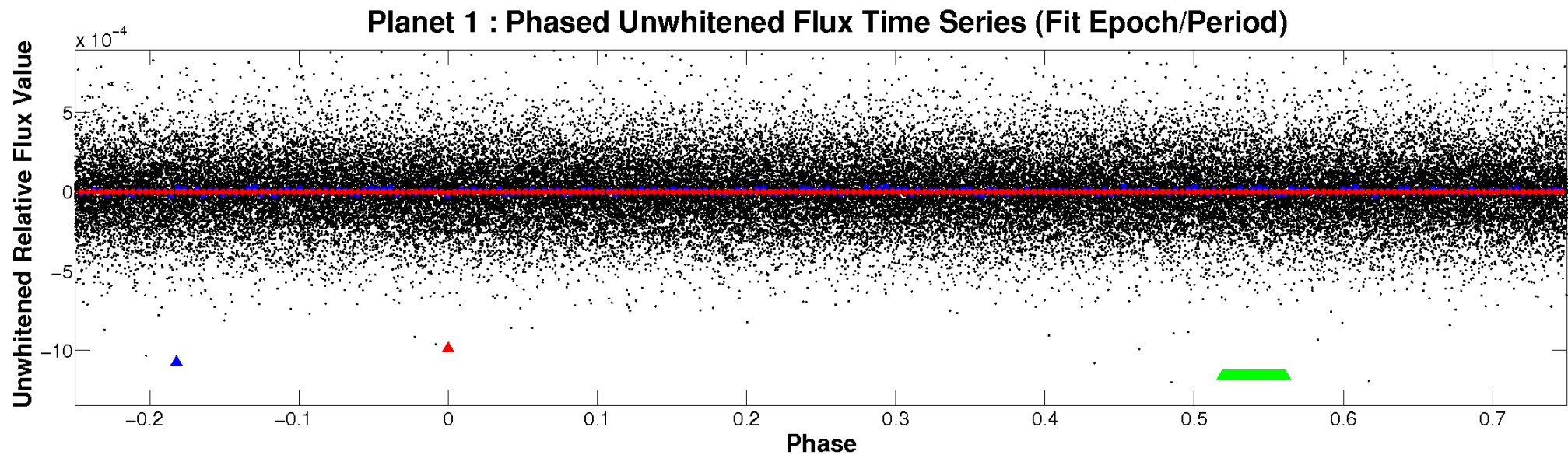


ALT Odd/Even

TCE 012104951-01

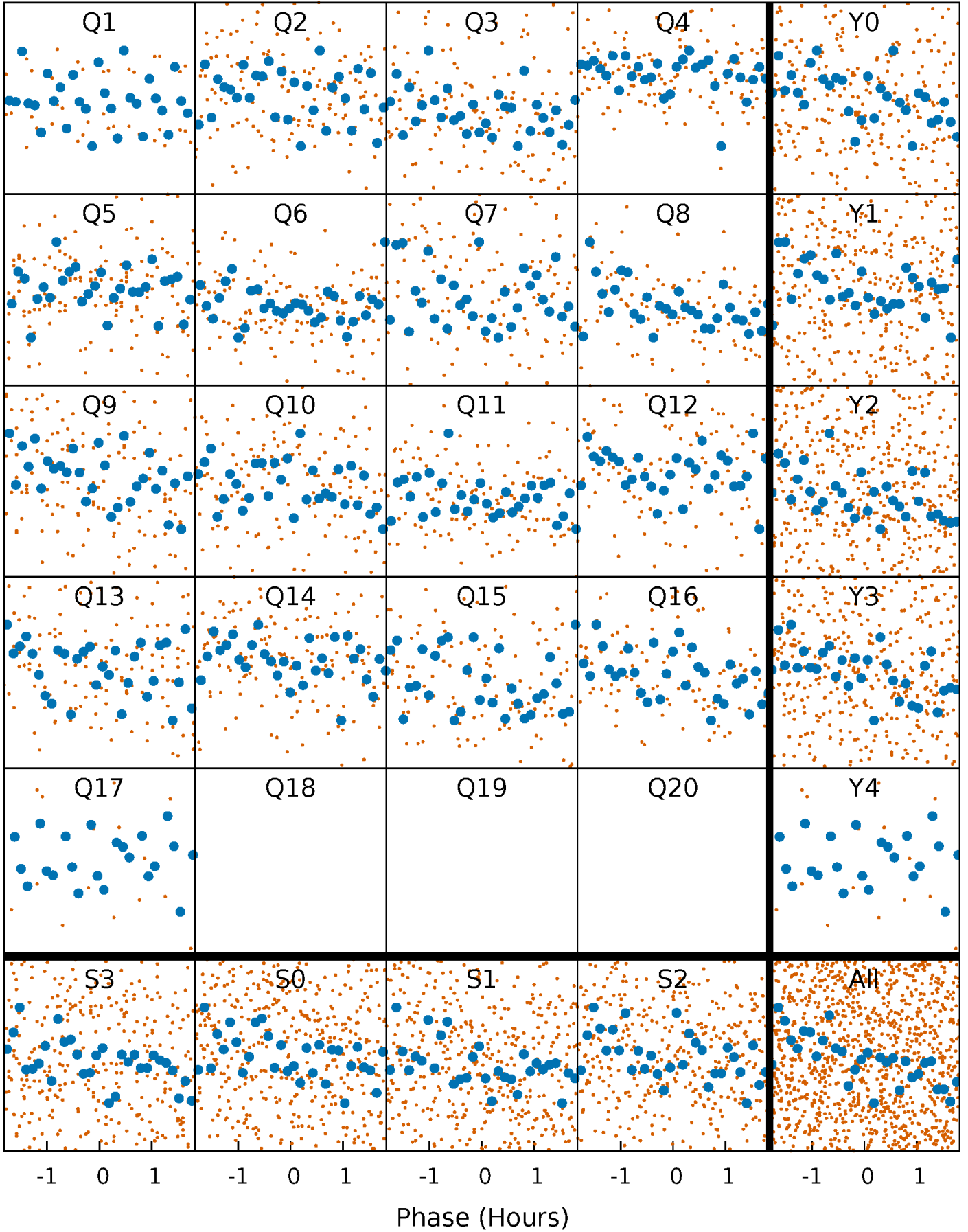


Non-Whitened Vs. Whitened Light Curve



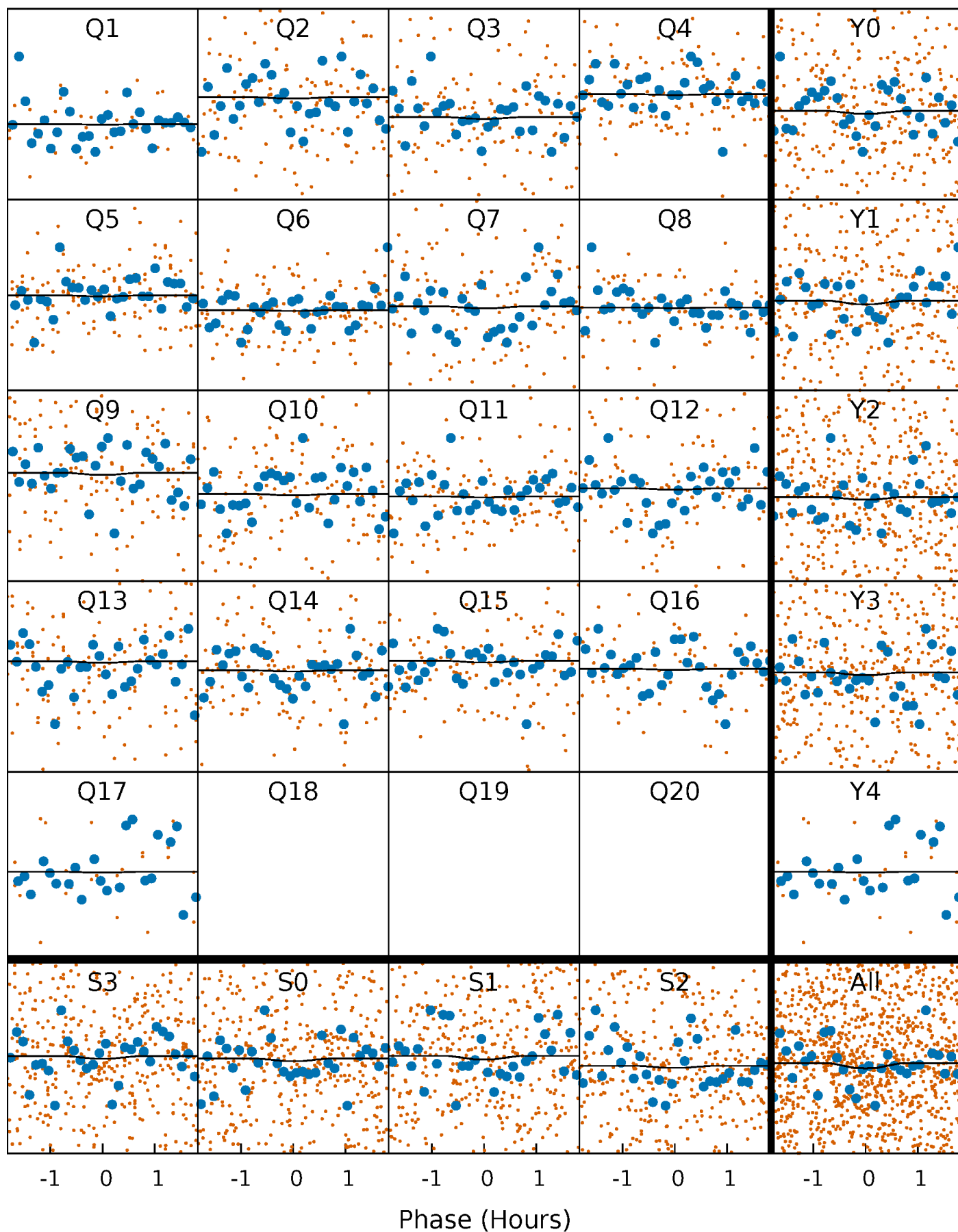
PDC Quarter-Phased Transit Curves

TCE 012104951-01 P= 4.736637 Days $T_0=133.041531$ (BKJD)



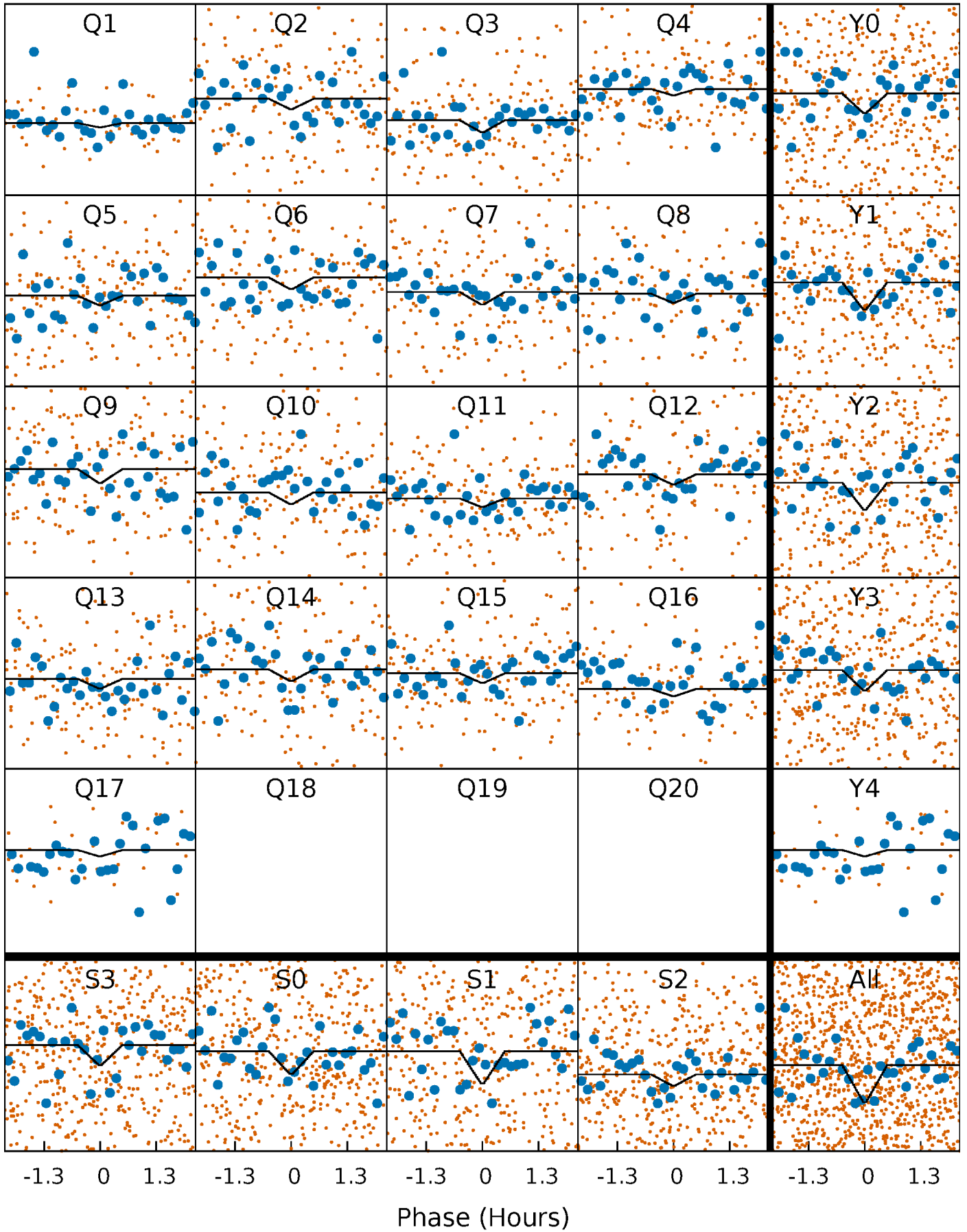
DV Quarter-Phased Transit Curves

TCE 012104951-01 P= 4.736637 Days $T_0=133.041531$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

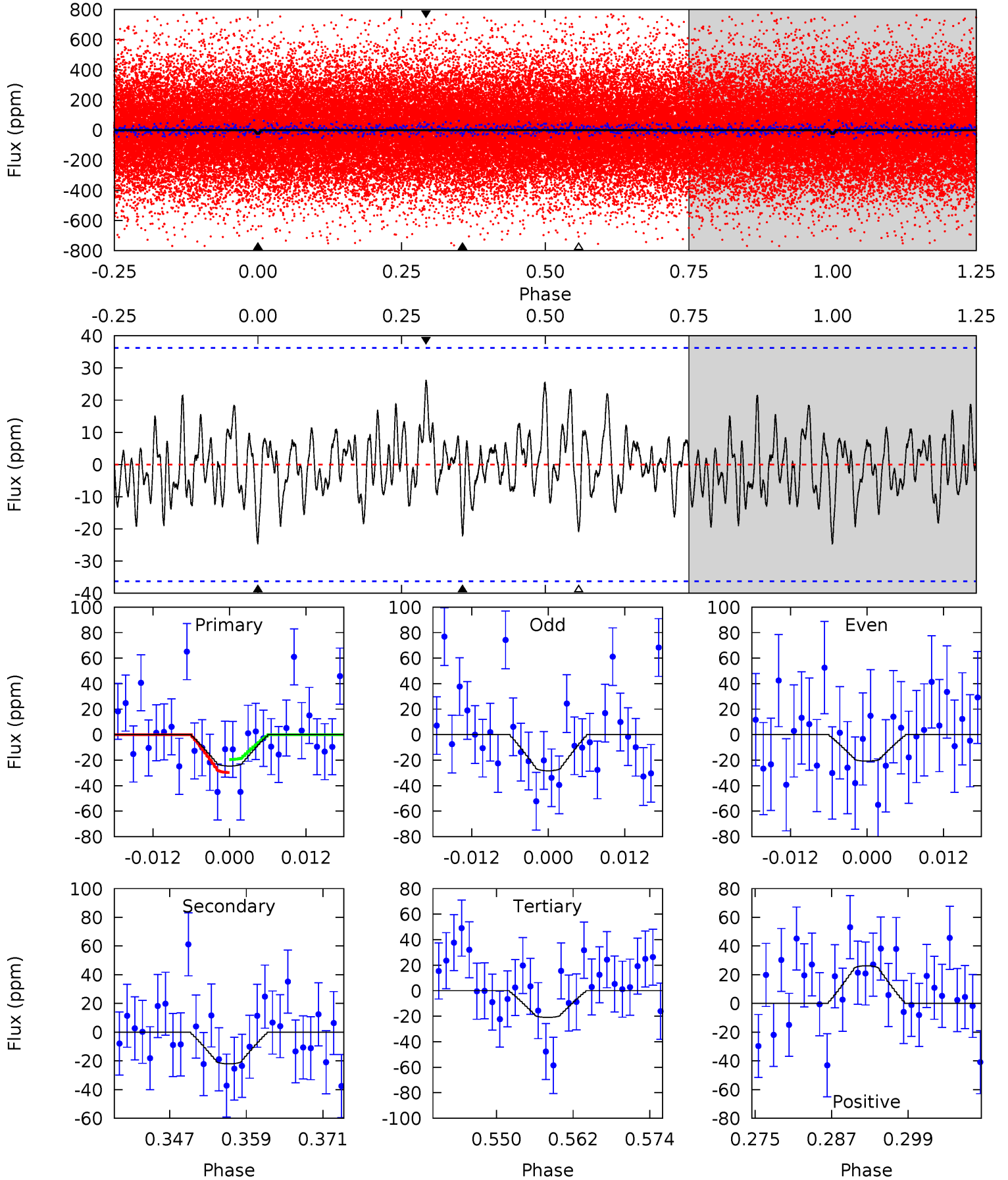
TCE 012104951-01 P= 4.736641 Days $T_0=133.038351$ (BKJD)



DV Model-Shift Uniqueness Test

012104951-01, P = 4.736637 Days, E = 128.304894 Days

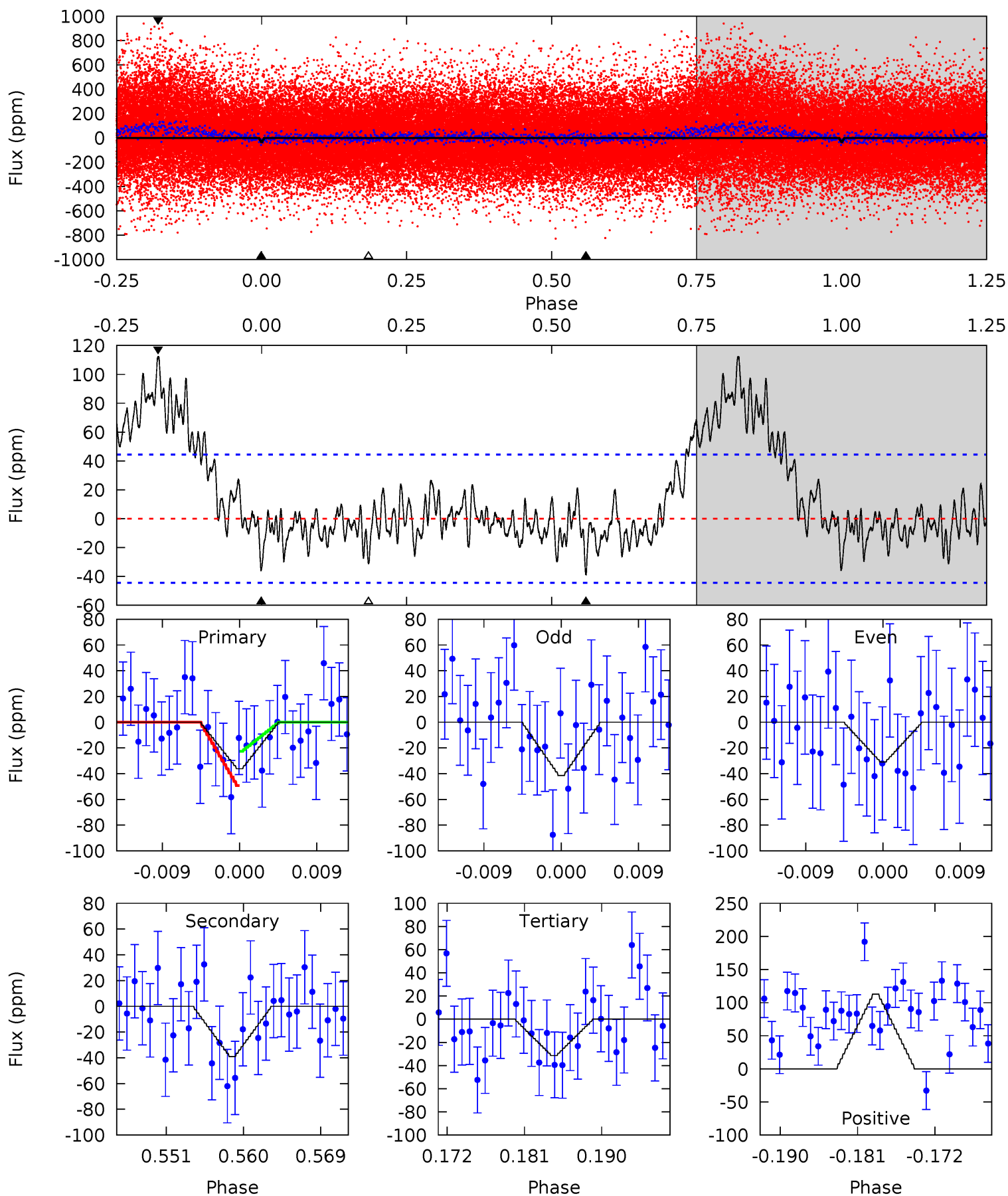
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.39	3.04	2.88	3.62	4.99	2.51	1.13	0.50	-0.23	0.16	-0.58	0.52	1.07	0.52	0.70



Alt Model-Shift Uniqueness Test

012104951-01, P = 4.736641 Days, E = 128.301710 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.11	4.44	3.57	12.8	5.05	2.61	3.47	0.55	-8.71	0.87	-8.38	0.59	1.32	0.74	1.51



Stellar Parameters For KIC 012104951

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8517^{+234}_{-401}	$3.789^{+0.371}_{-0.159}$	$0.070^{+0.300}_{-0.500}$	$3.254^{+0.986}_{-1.478}$	$2.372^{+0.328}_{-0.765}$	$0.097^{+0.314}_{-0.044}$
	+3%/-5%	+10%/-4%	+429%/-714%	+30%/-45%	+14%/-32%	+324%/-45%
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 012104951-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-22 ± 7	$1.37^{+1.38}_{-0.92}$	3395^{+299}_{-413}	8855^{+16732}_{-2853}	34^{+277}_{-25}
Alt.	-39 ± 9	$2.25^{+1.60}_{-1.33}$	3422^{+311}_{-405}	7971^{+7040}_{-2048}	22^{+105}_{-15}

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

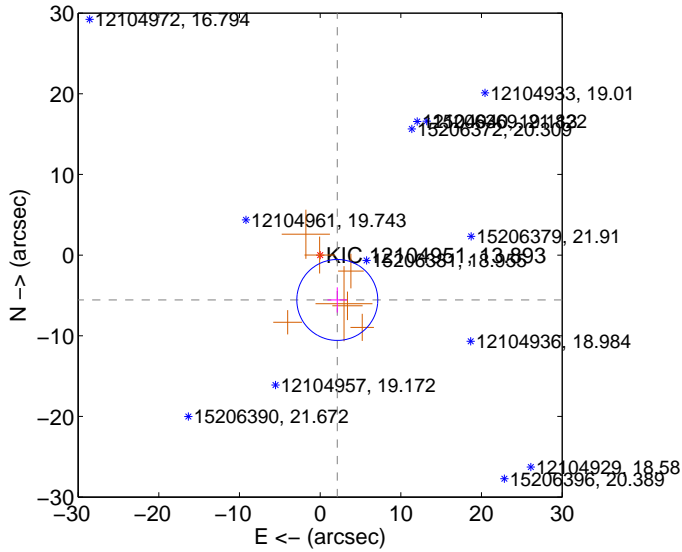
Supplemental centroid analysis for 012104951-01. Kepler magnitude: 13.89. Transit SNR 0.52

There are 0 quarters with good PRF difference image offsets

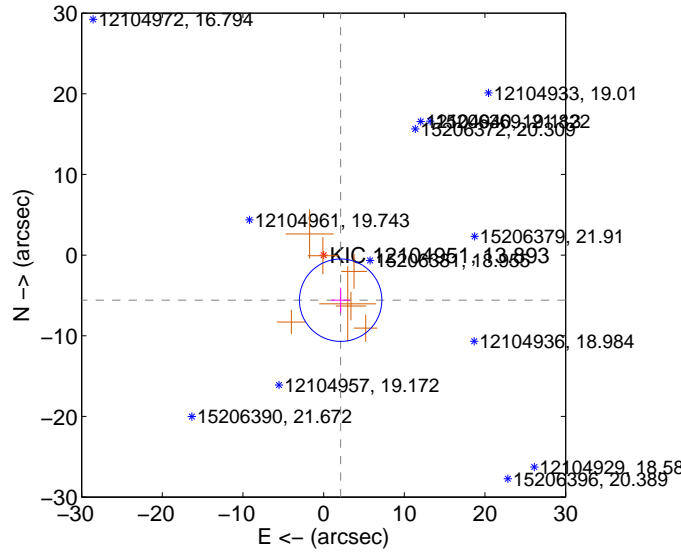
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.952 ± 1.672	3.56	-2.126 ± 1.219	-5.559 ± 1.557
PRF-fit source offset from KIC position	5.976 ± 1.702	3.51	-2.110 ± 1.176	-5.591 ± 1.557
photometric centroid source offset	18.81 ± 27.23	0.69	-8.42 ± 26.41	16.81 ± 27.43

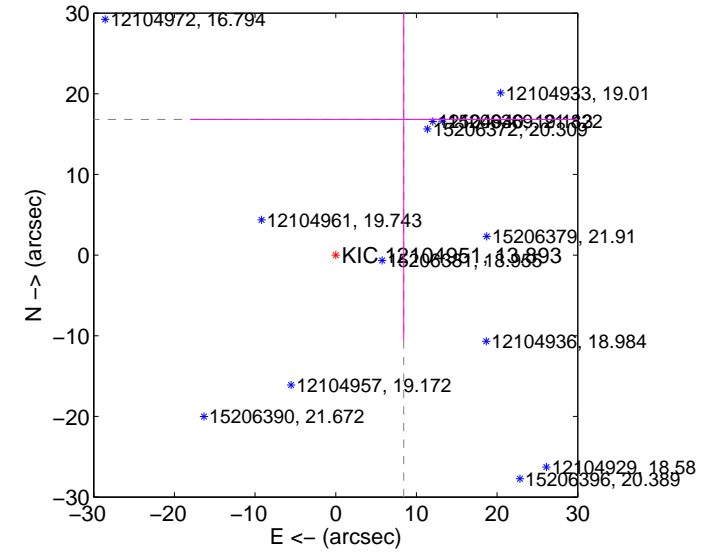
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

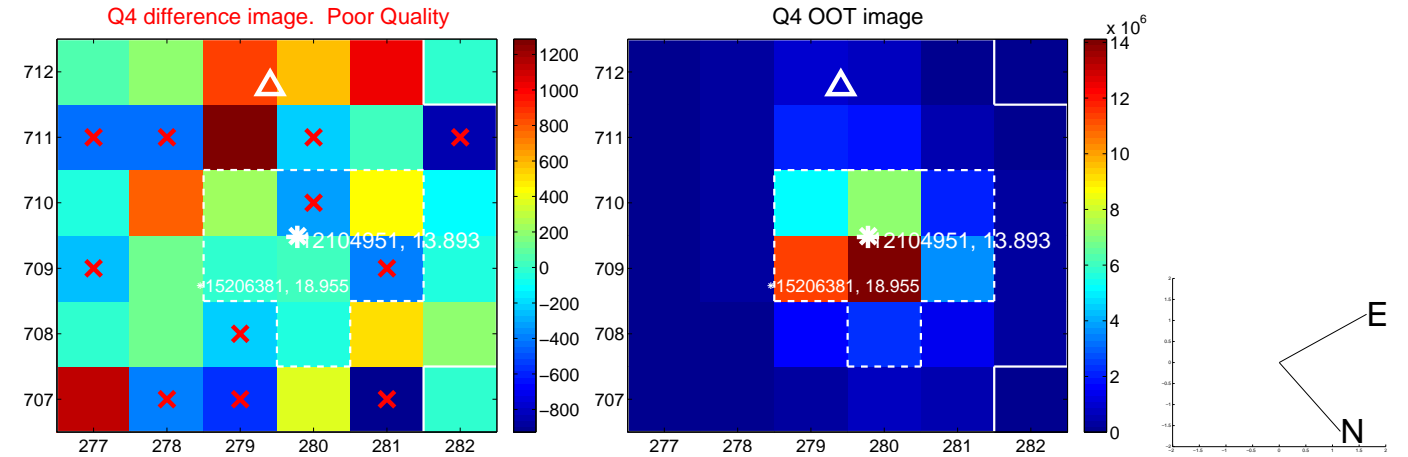
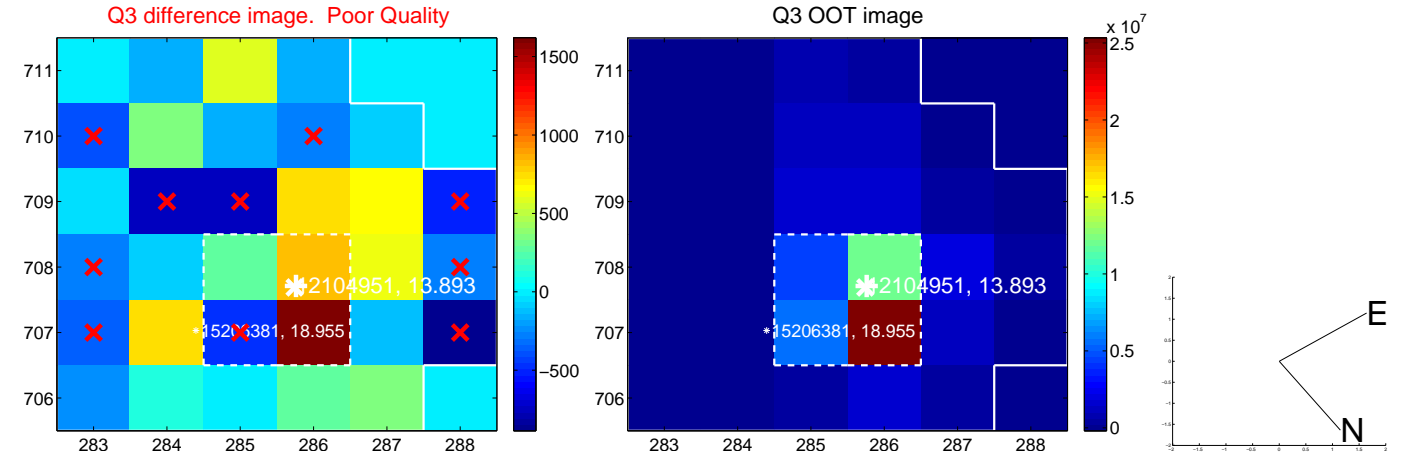
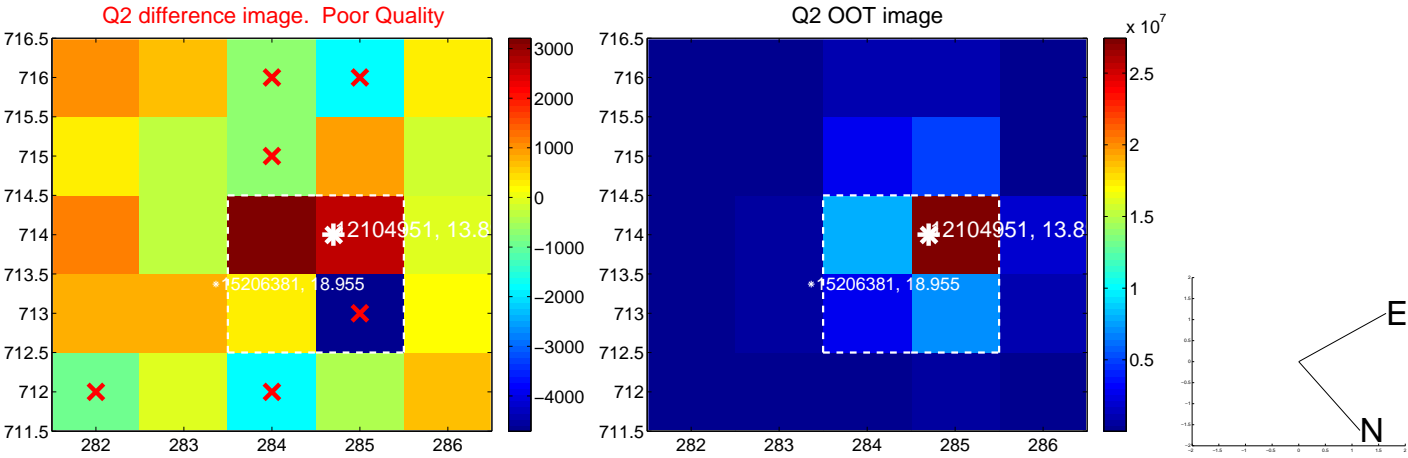
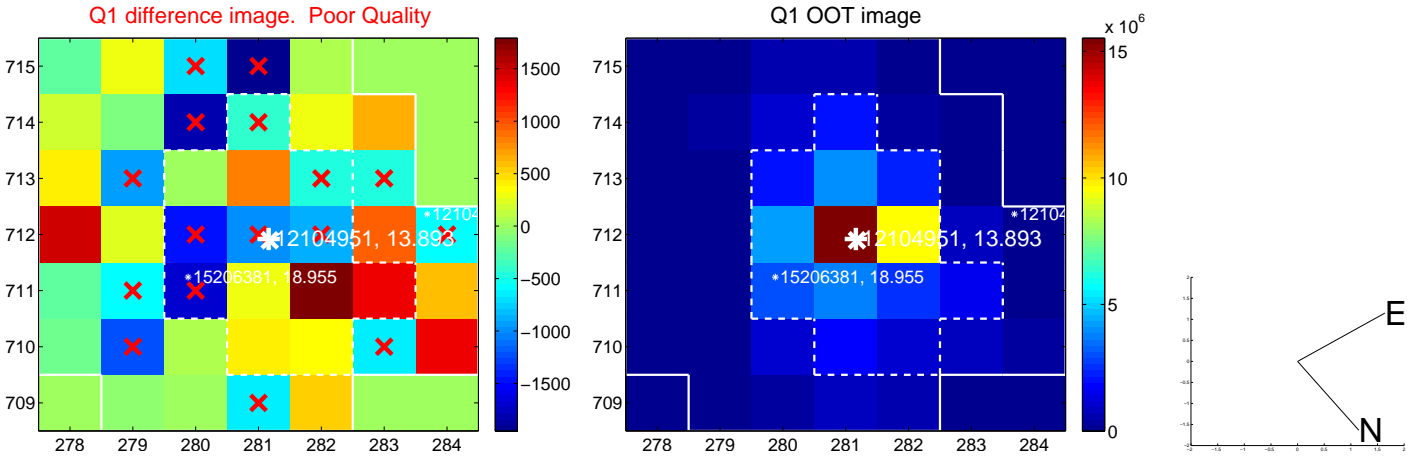


offset from photometric centroids

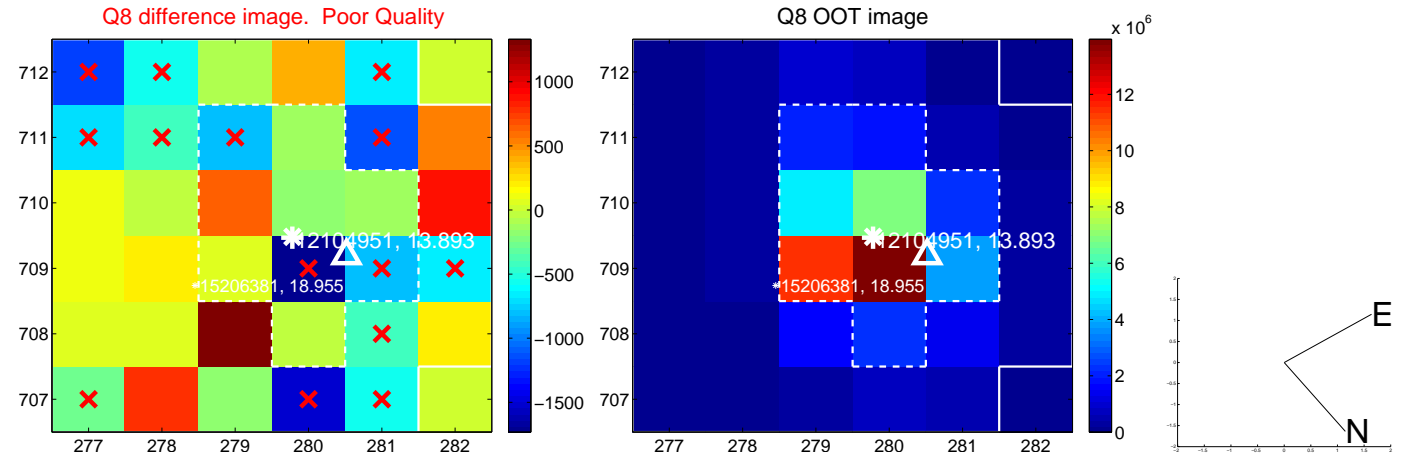
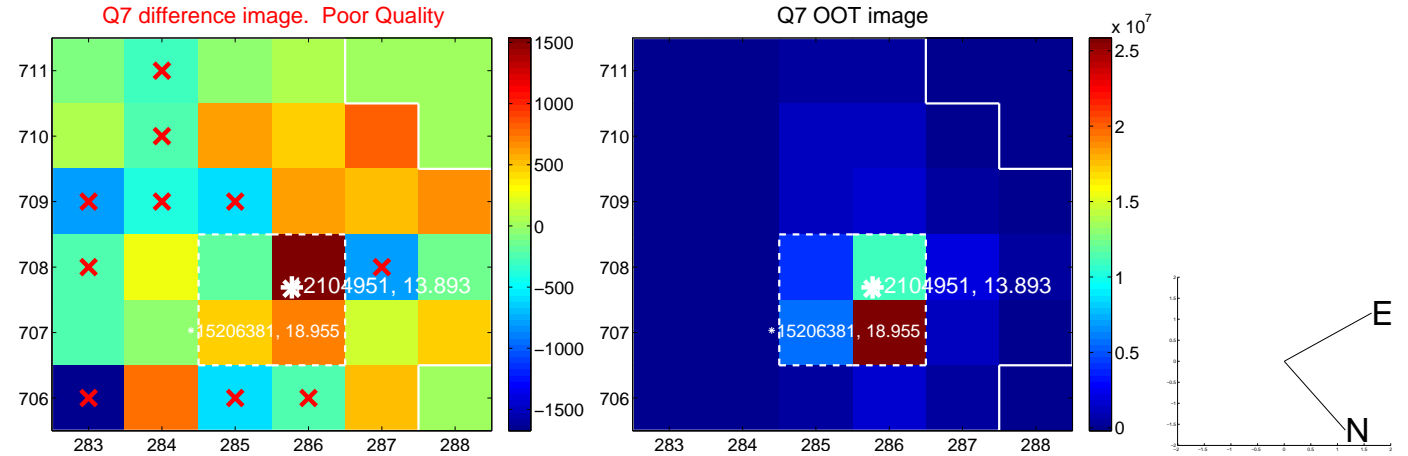
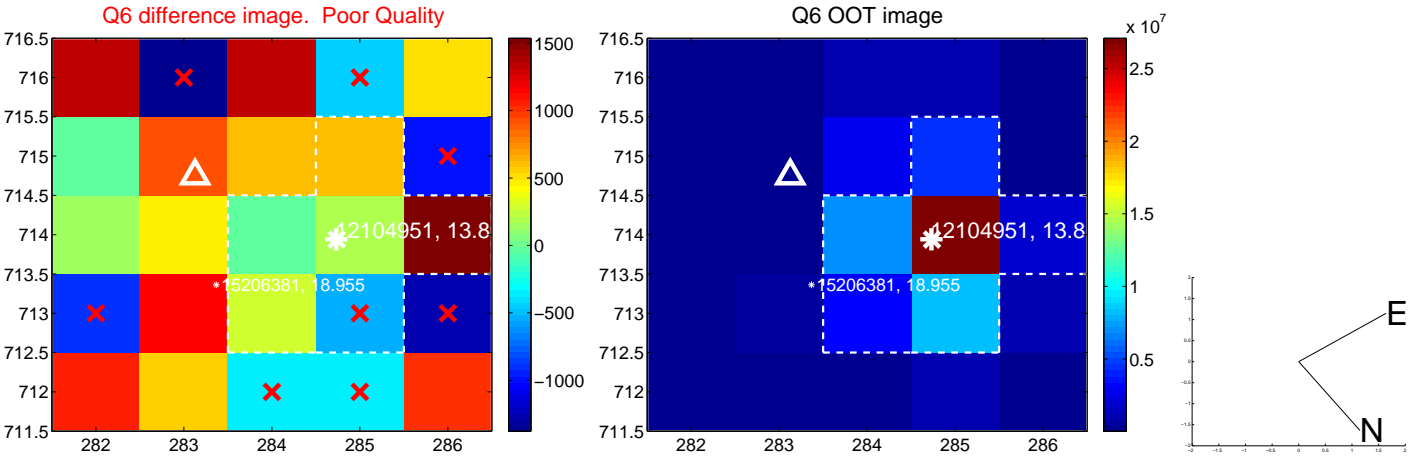
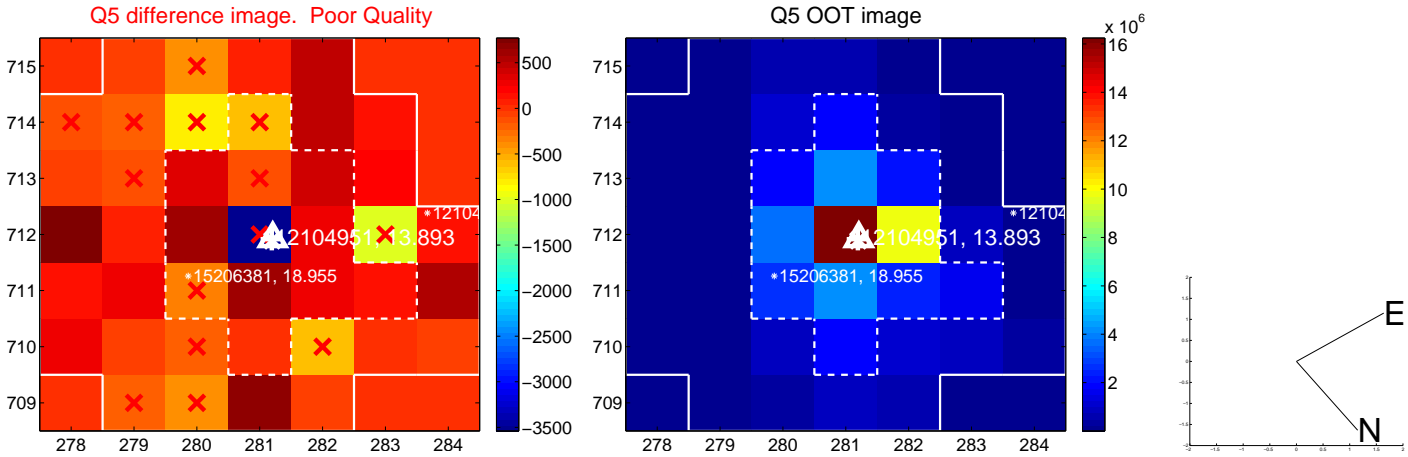


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

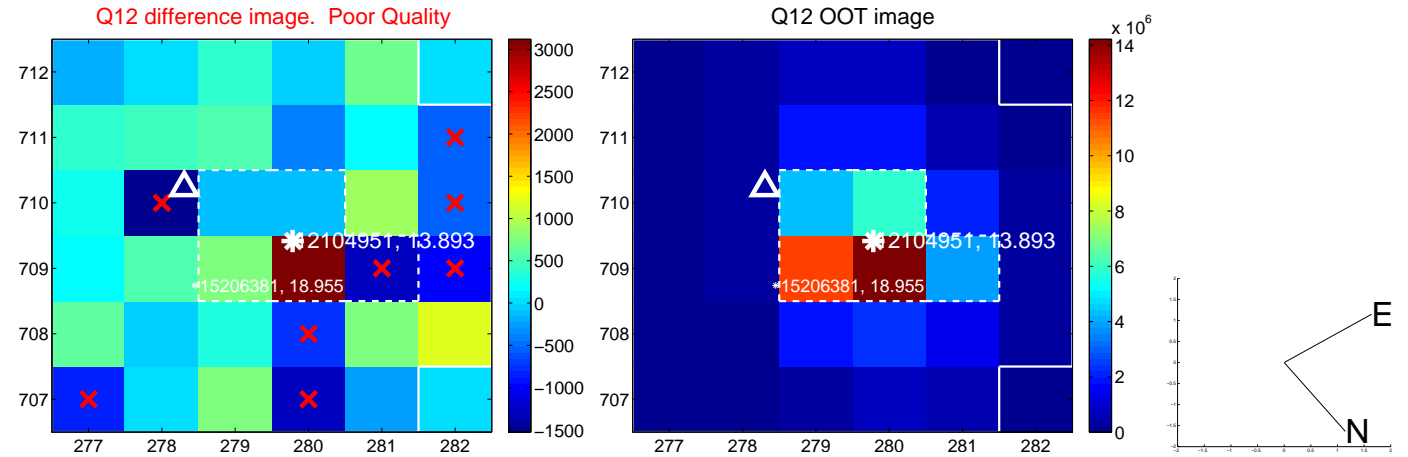
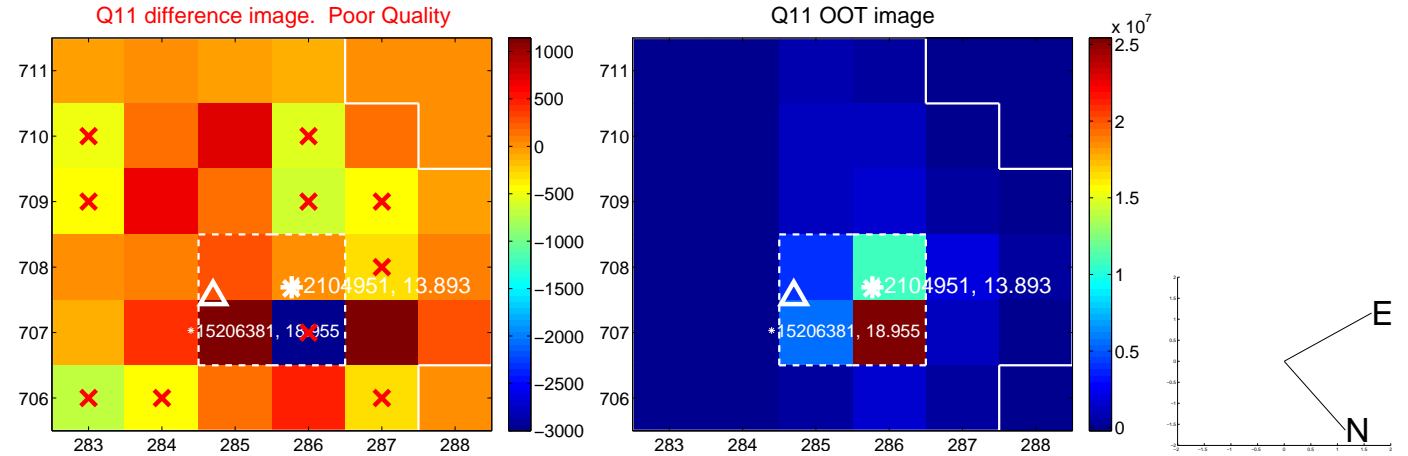
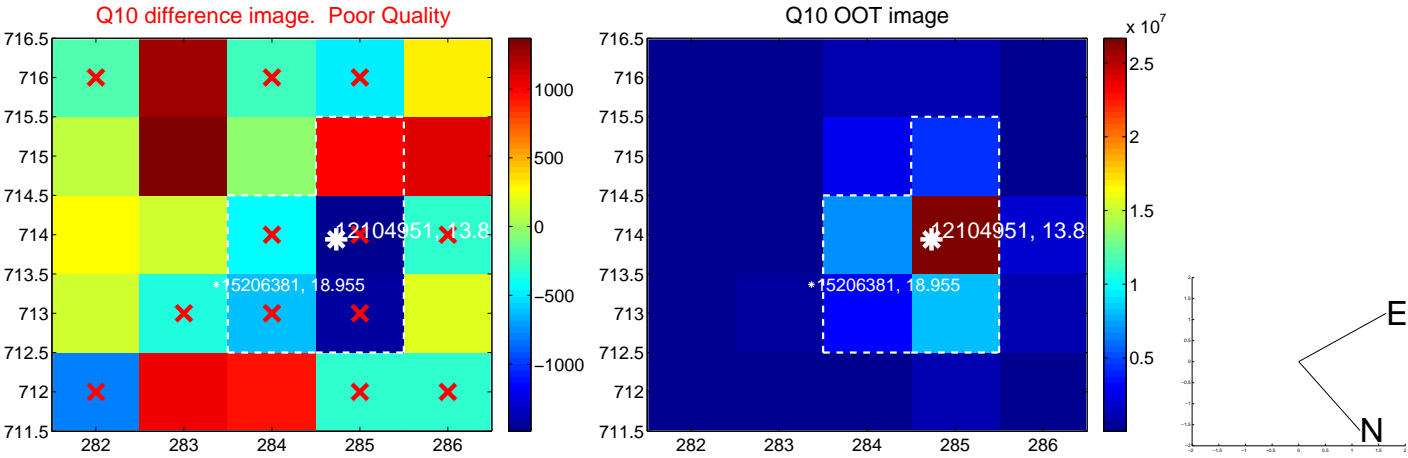
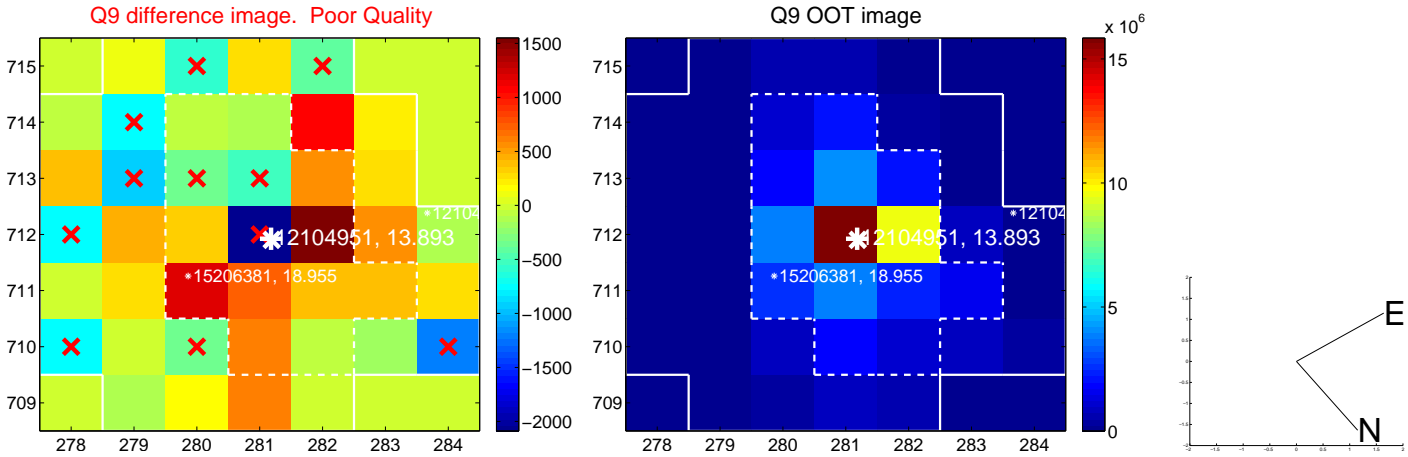
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



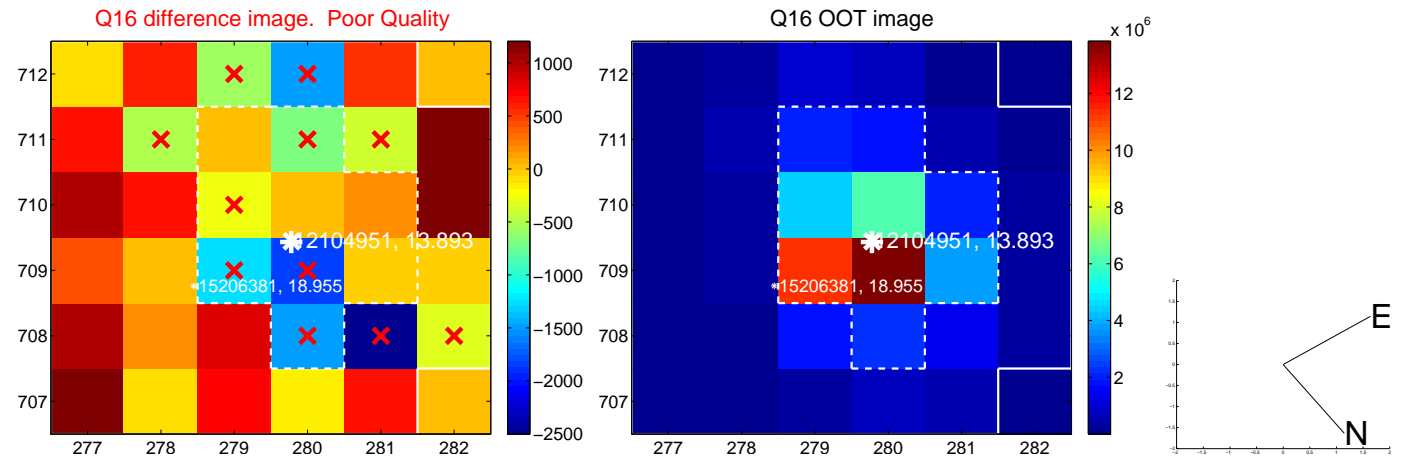
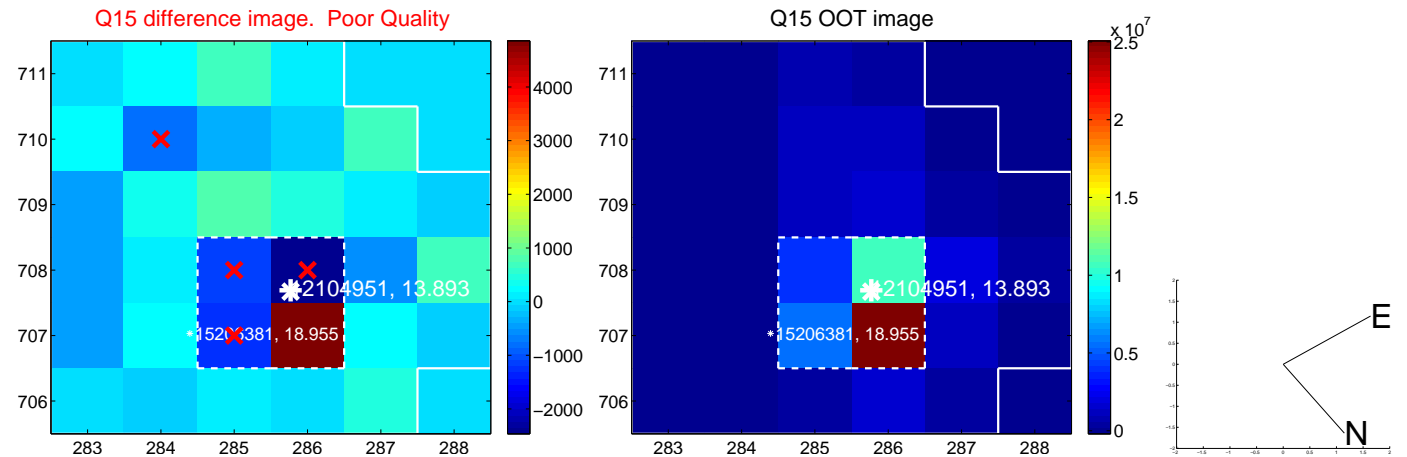
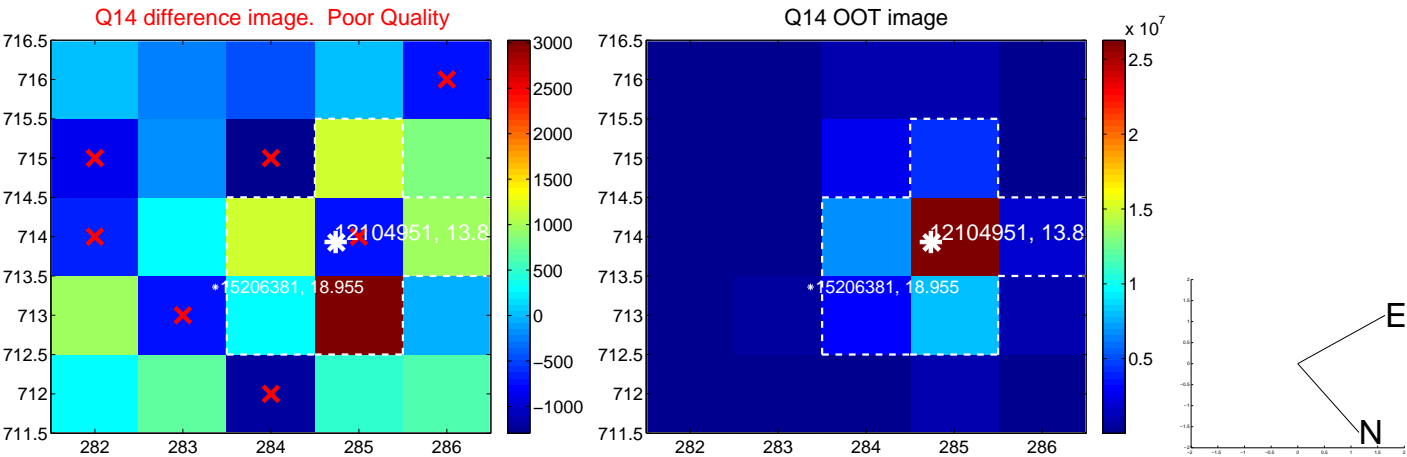
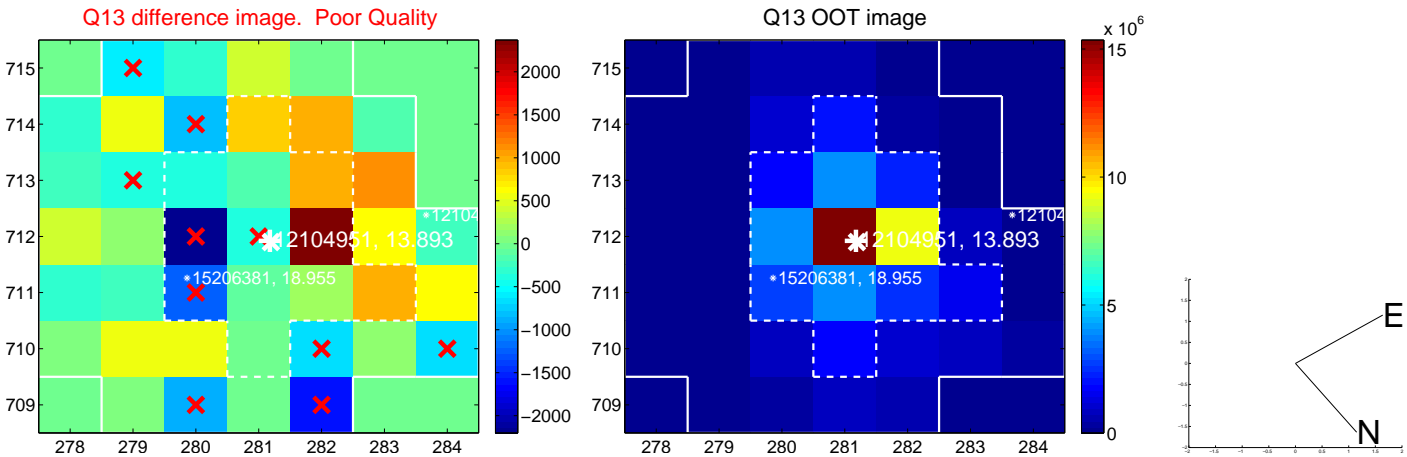
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

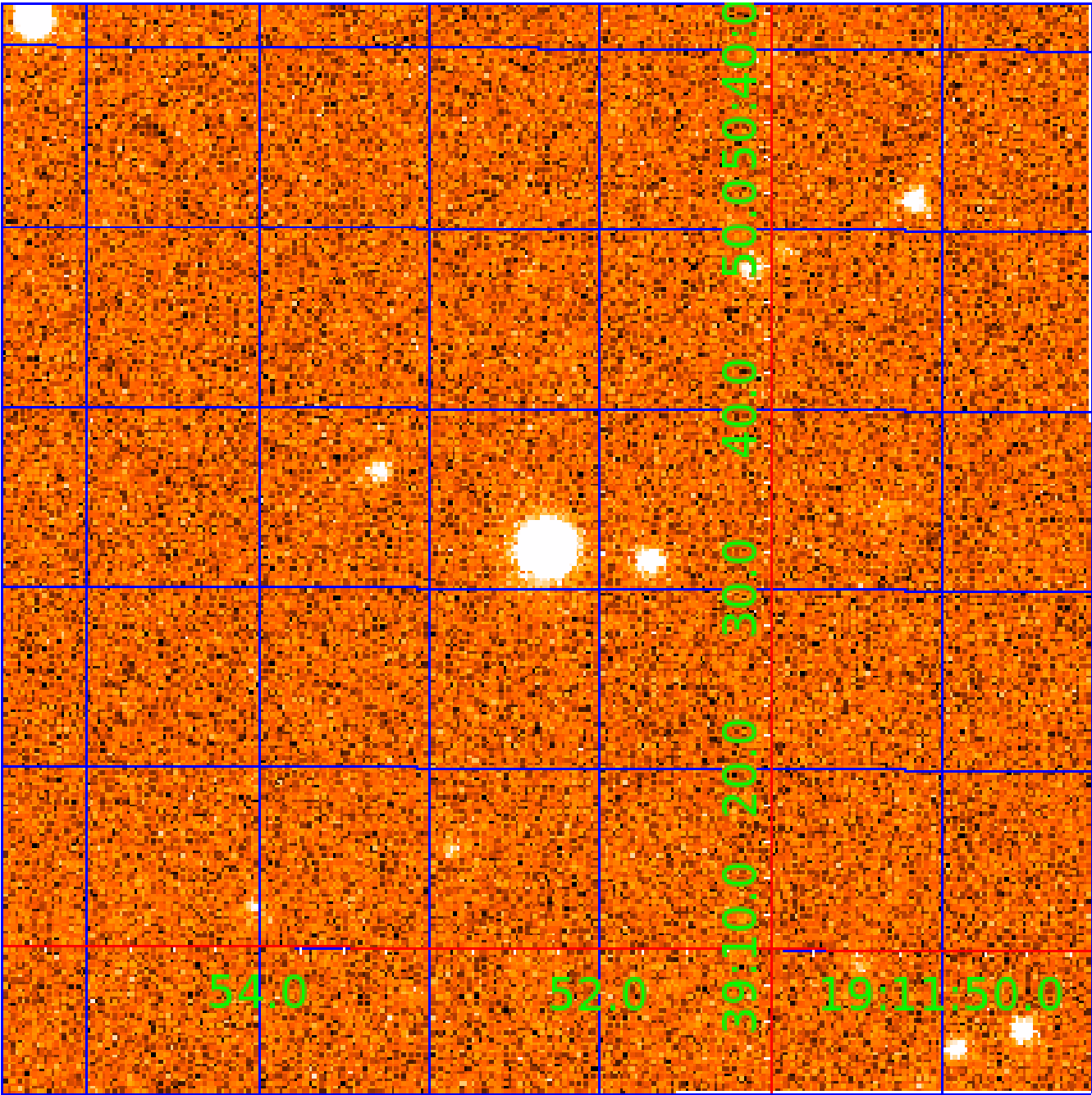


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012104951

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})
012104951-01	OBS	No	4.736637	133.041531	5.8	0.915	9.0	0.5	3.25	8517	0.91	9197.98
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Robovetter Results

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012104951-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
012104951-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—SAME_NTL_PERIOD

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

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

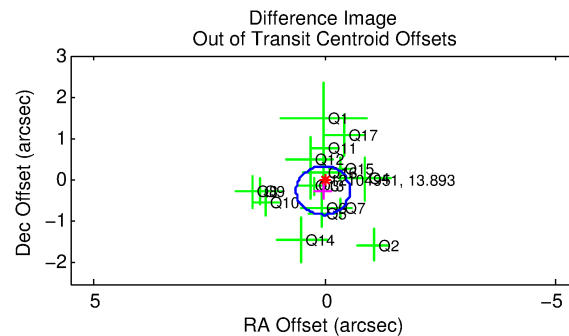
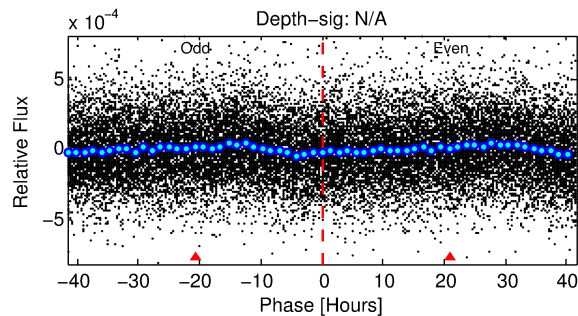
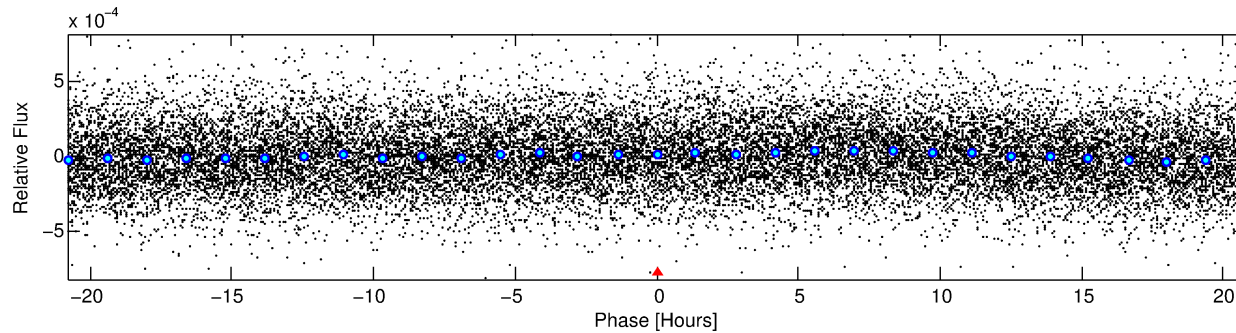
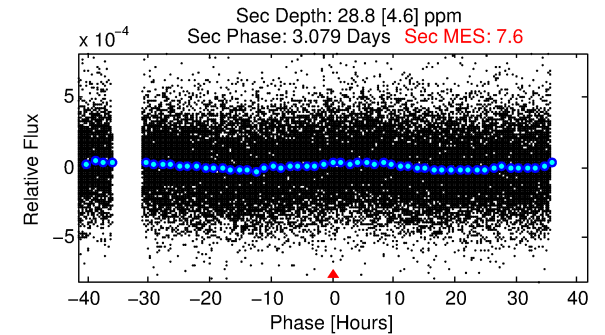
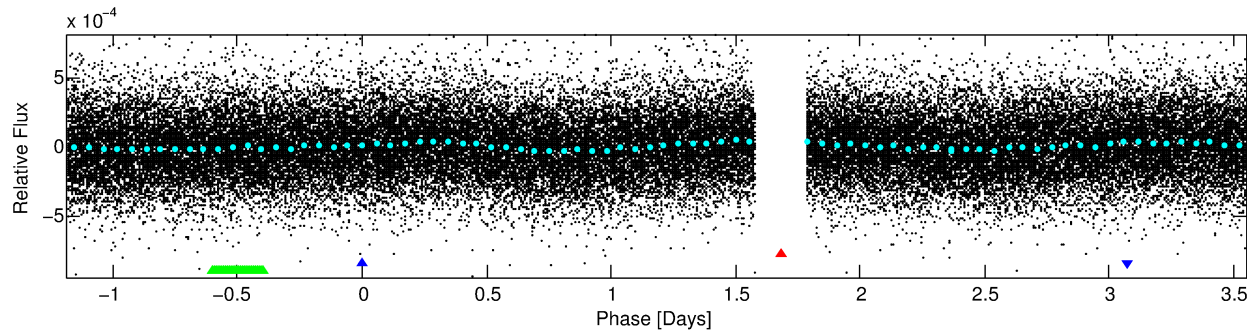
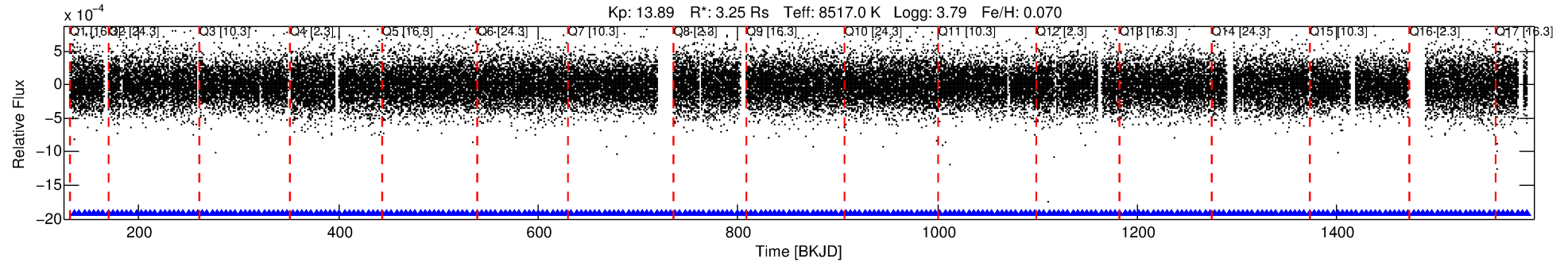
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012104951-02

No Significant Match Found

DV One-Page Summary

KIC: 12104951 Candidate: 2 of 3 Period: 4.737 d



TPS TCE Results:

Period = 4.73664 d
Epoch = 132.1785 BKJD

DV fit results are unavailable

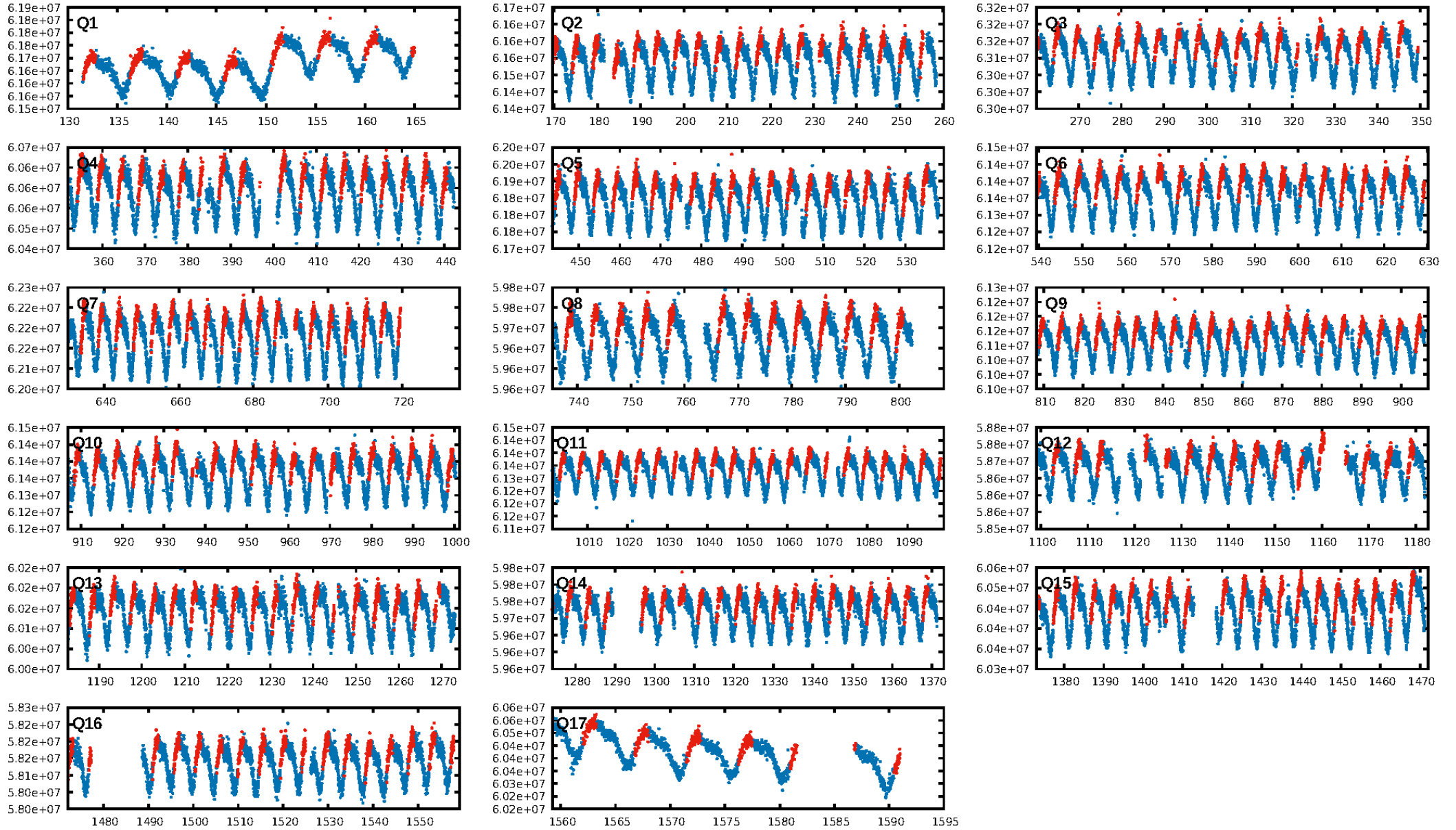
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.79e-32
RollingBand-fgt: 1.00 [272/272]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.253 arcsec [1.30 σ]
KicOffset-rm: 0.311 arcsec [1.52 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

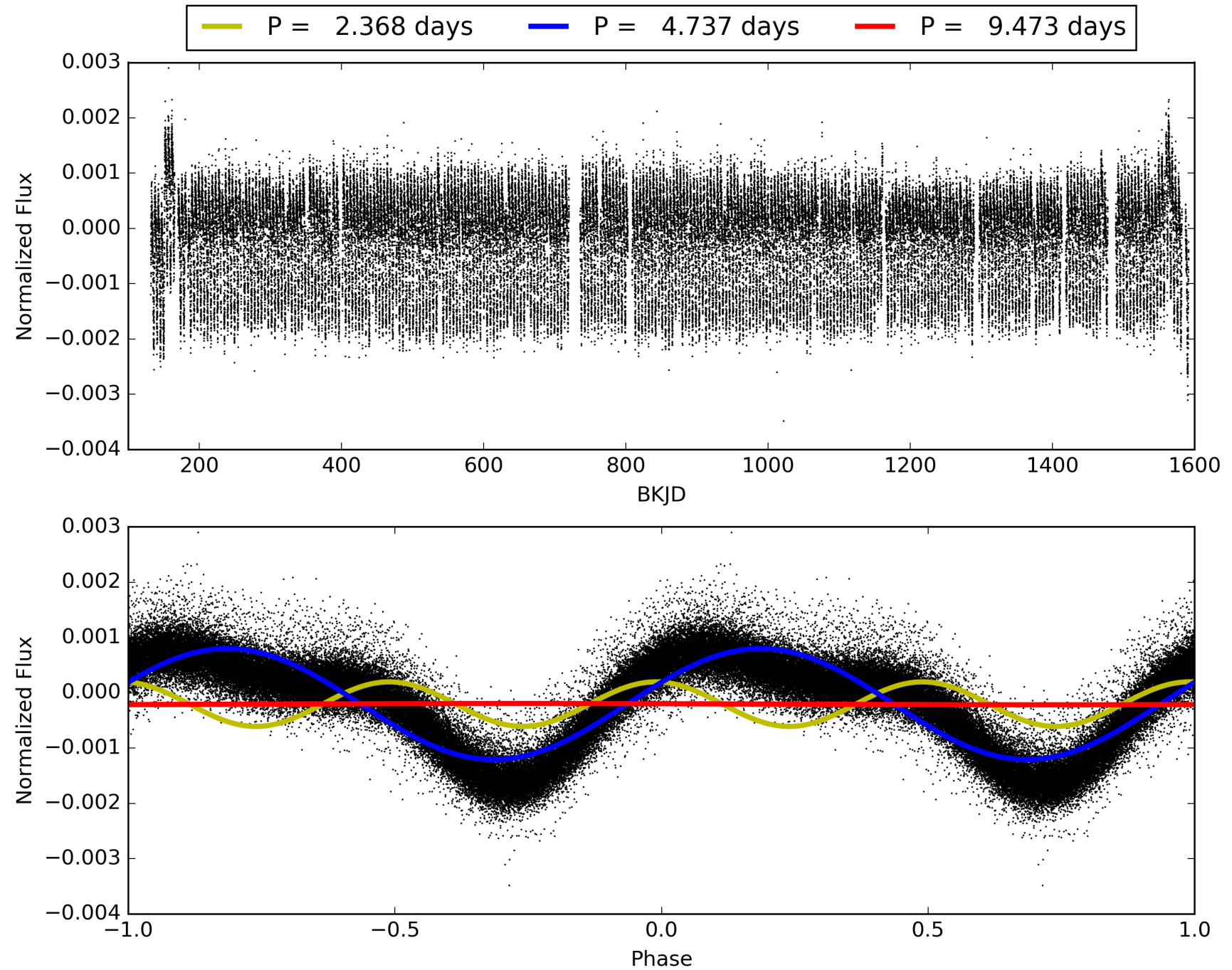
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:14:48 Z

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

TCE 012104951-02, PDC Light Curves

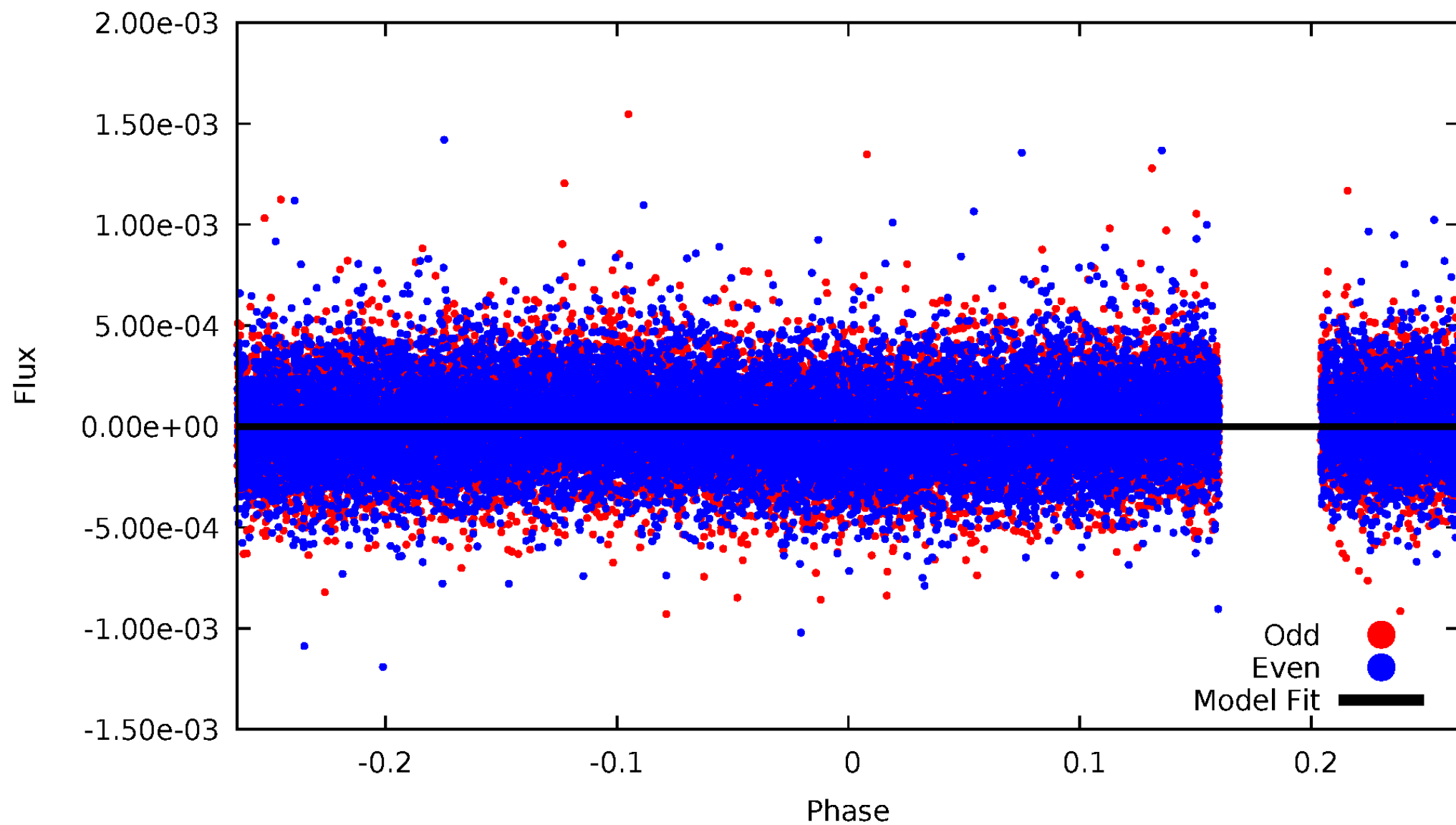


TCE 012104951-02



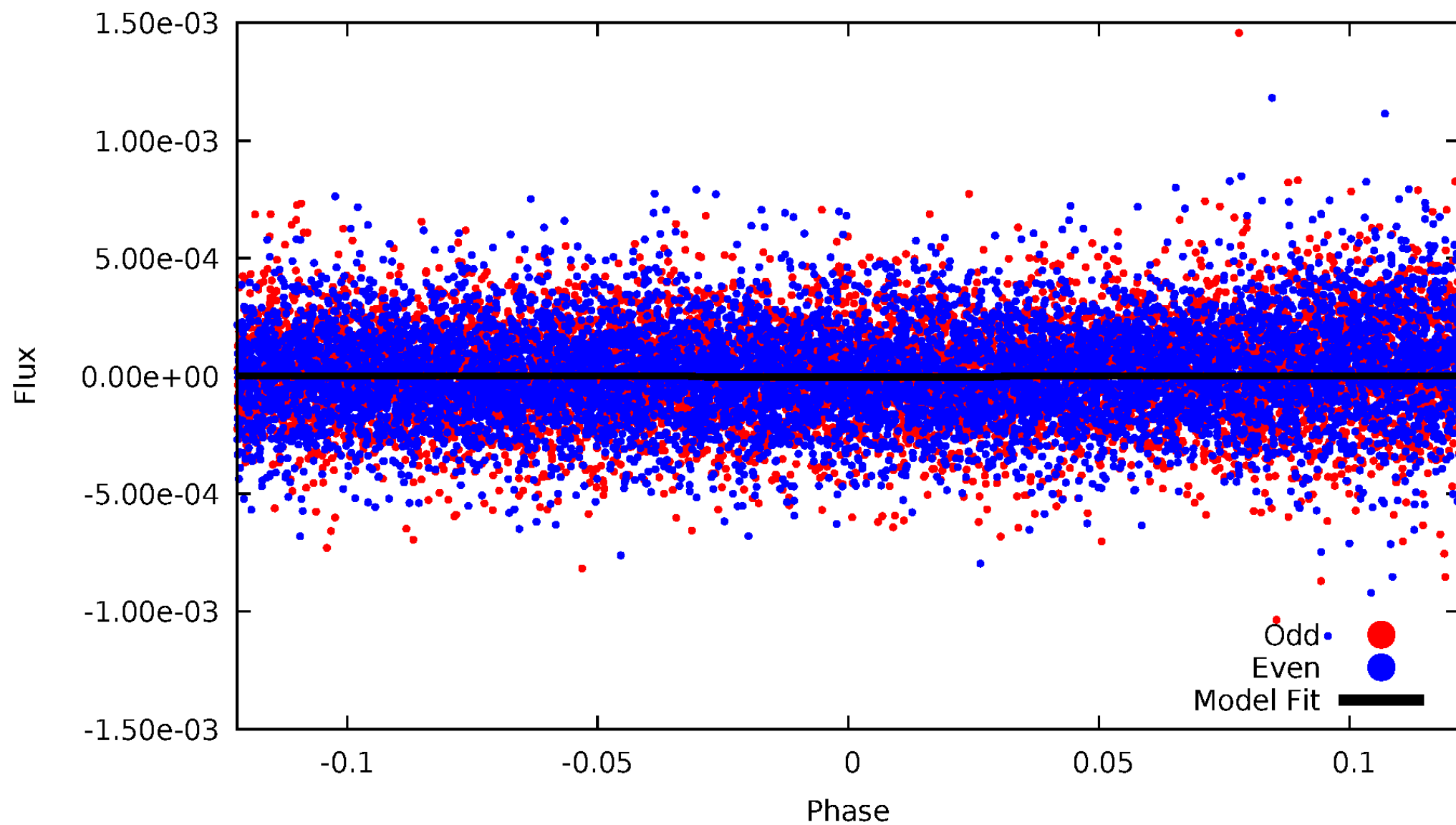
DV Odd/Even

TCE 012104951-02



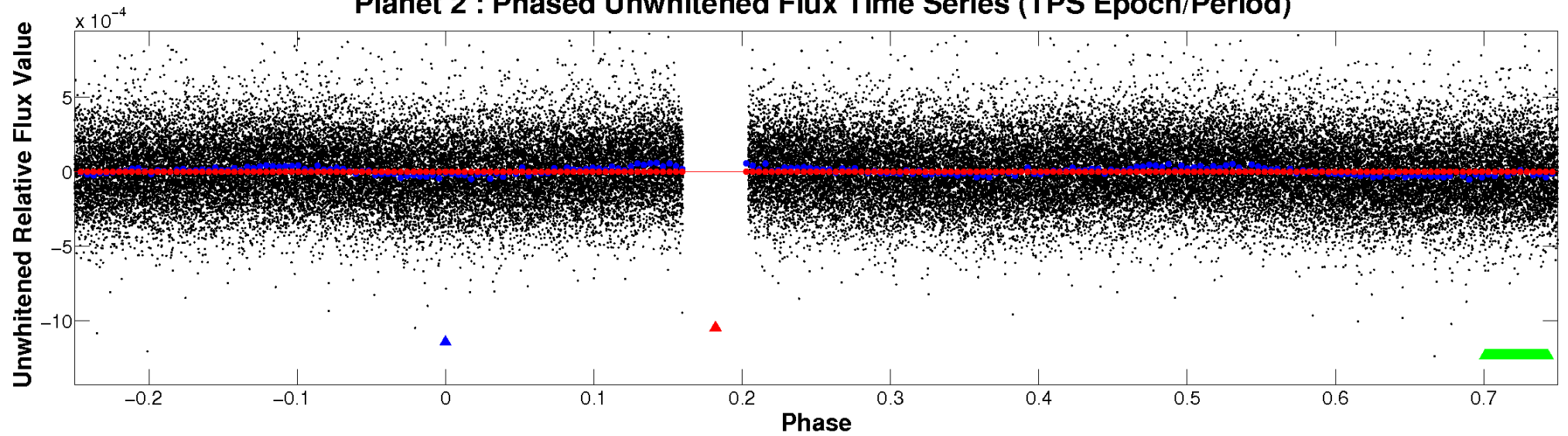
ALT Odd/Even

TCE 012104951-02

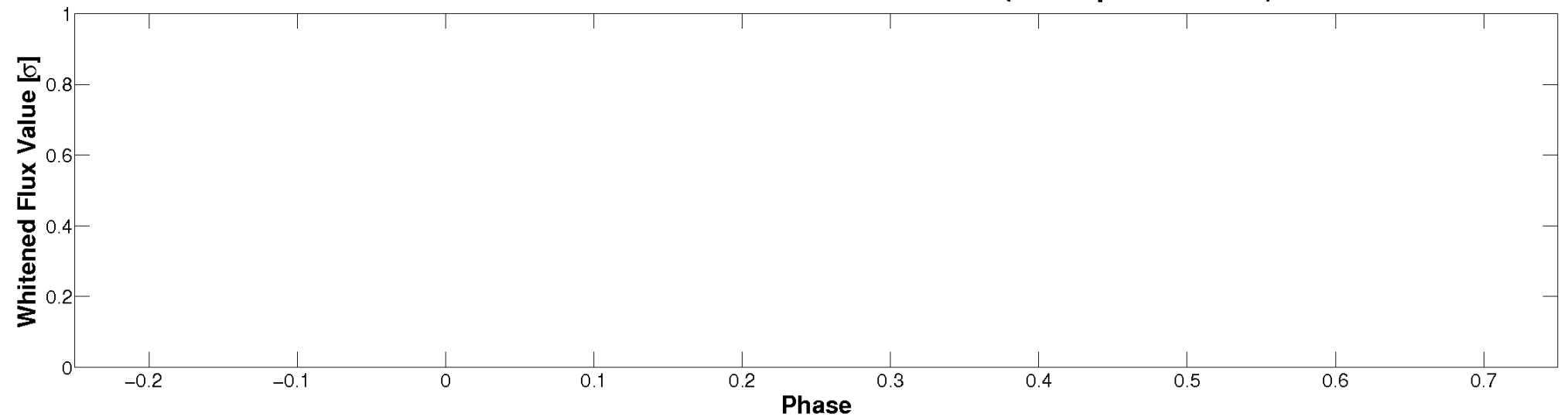


Non-Whitened Vs. Whitened Light Curve

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

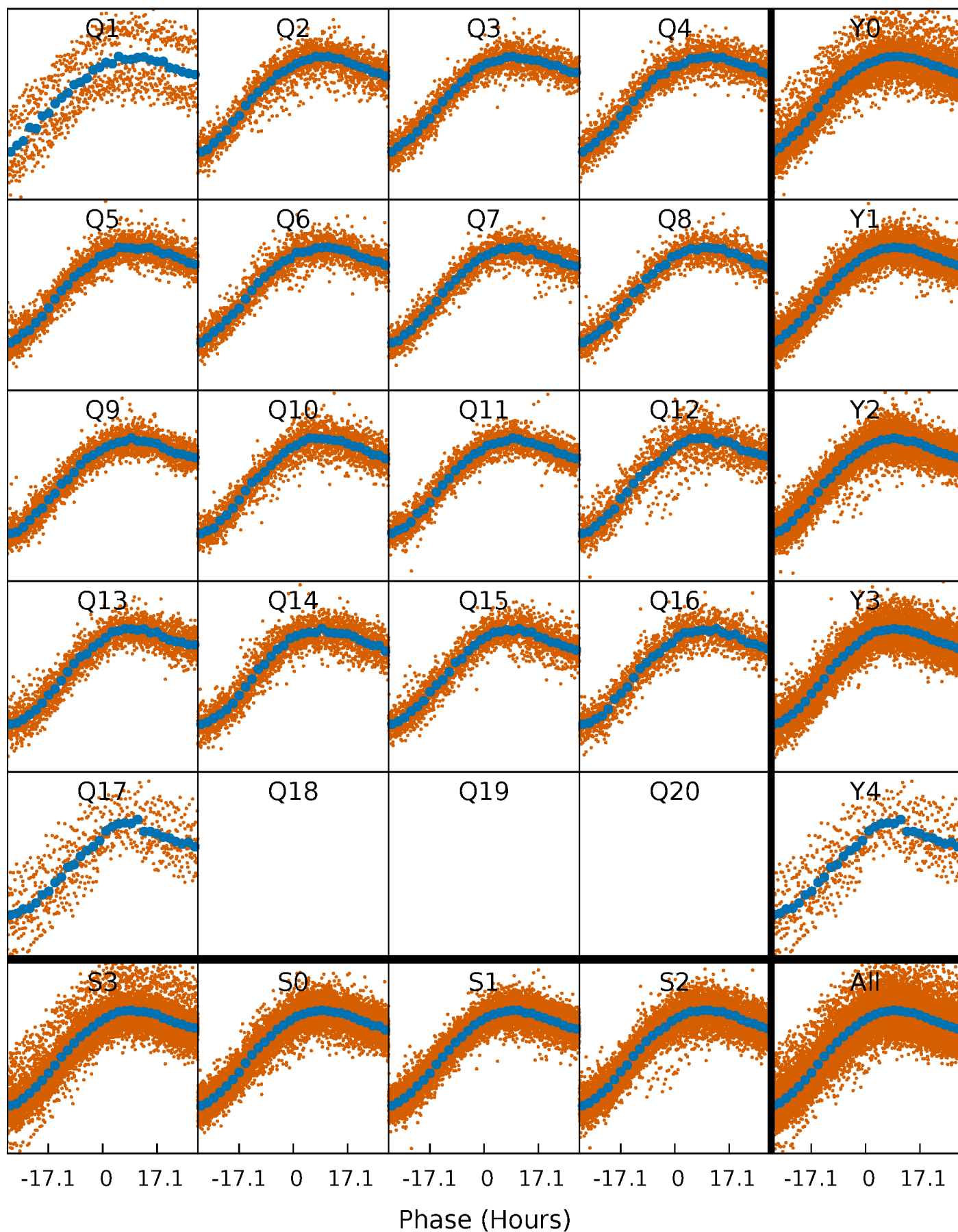


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



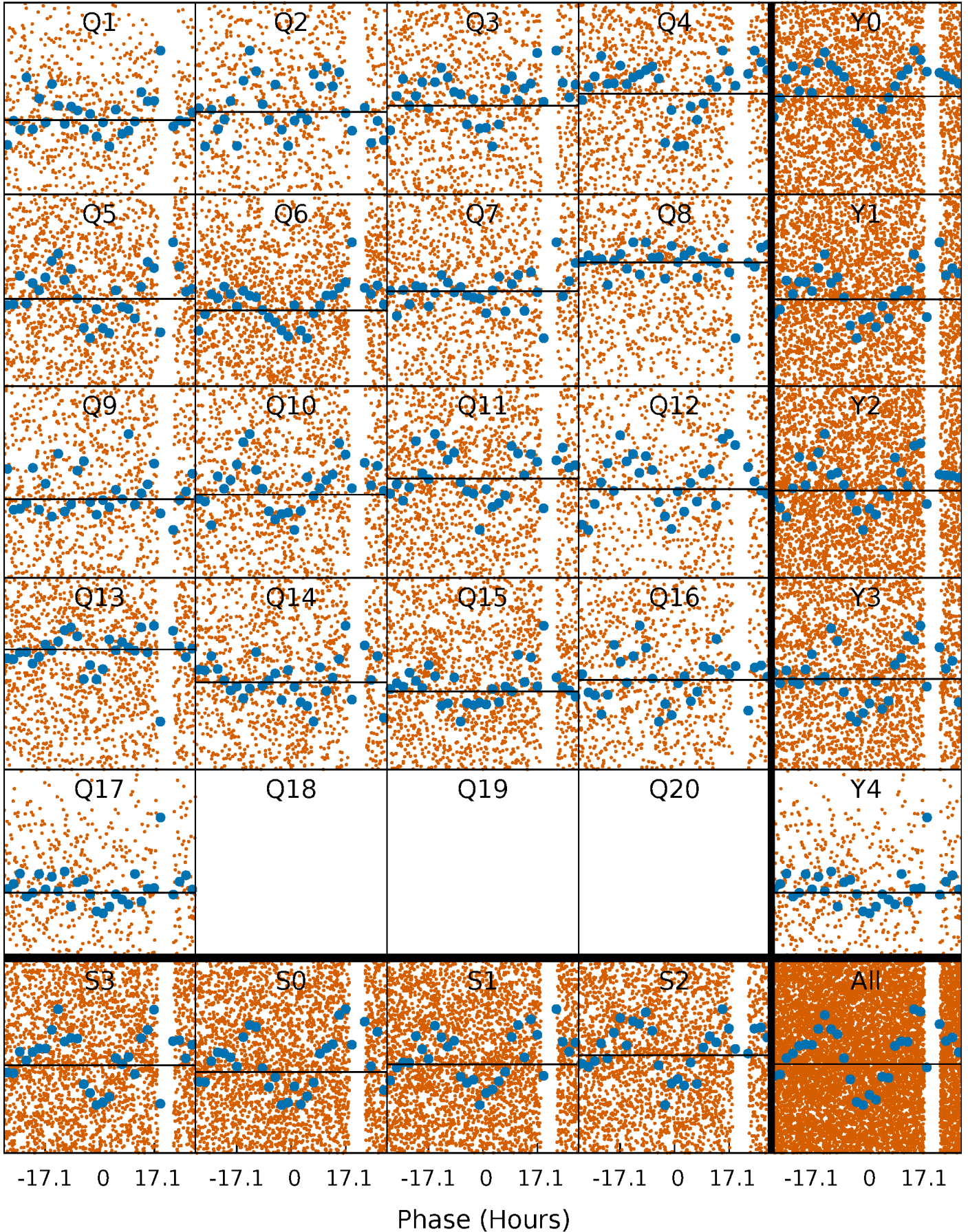
PDC Quarter-Phased Transit Curves

TCE 012104951-02 P= 4.736641 Days $T_0=132.178490$ (BKJD)



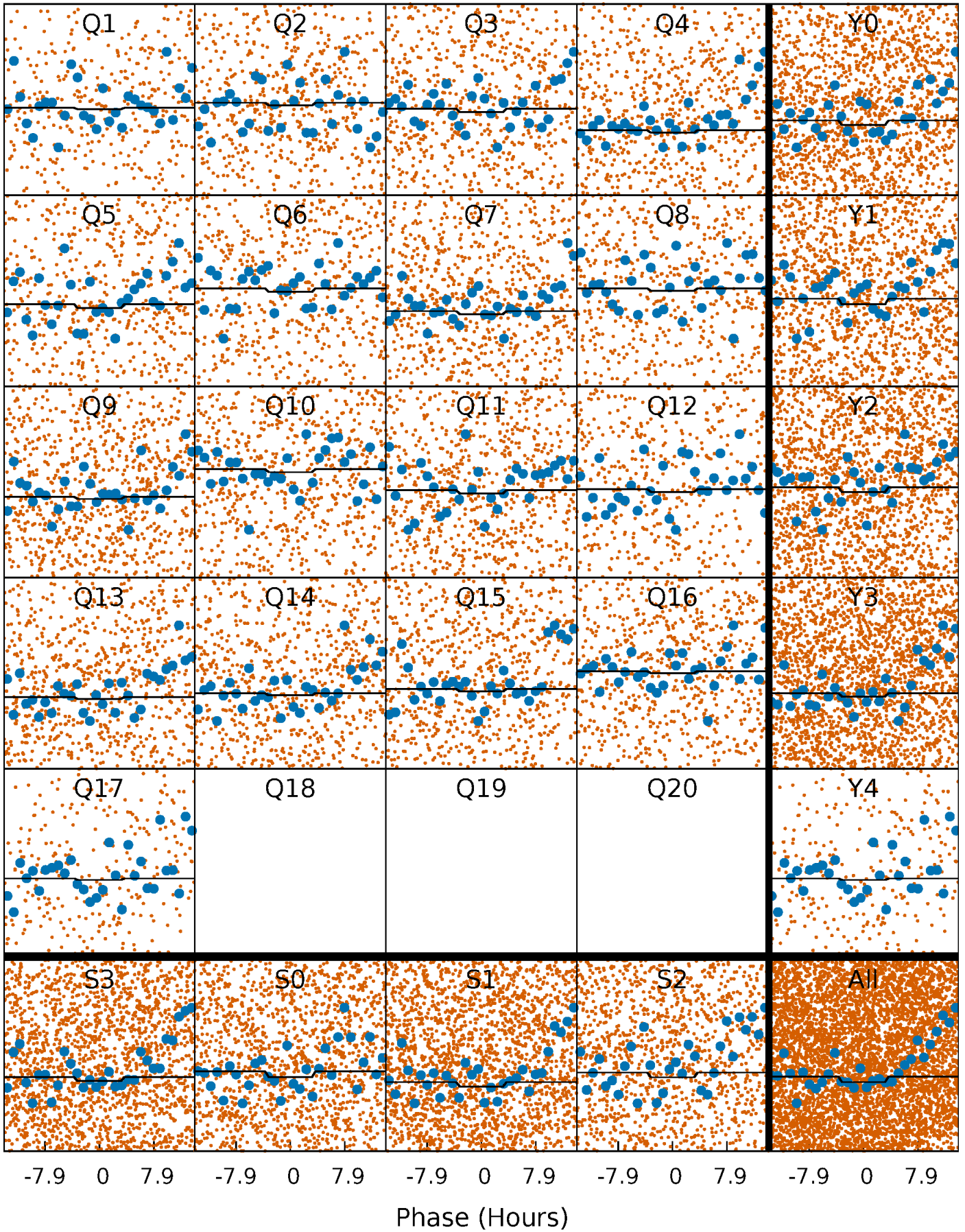
DV Quarter-Phased Transit Curves

TCE 012104951-02 P= 4.736641 Days $T_0=132.178490$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

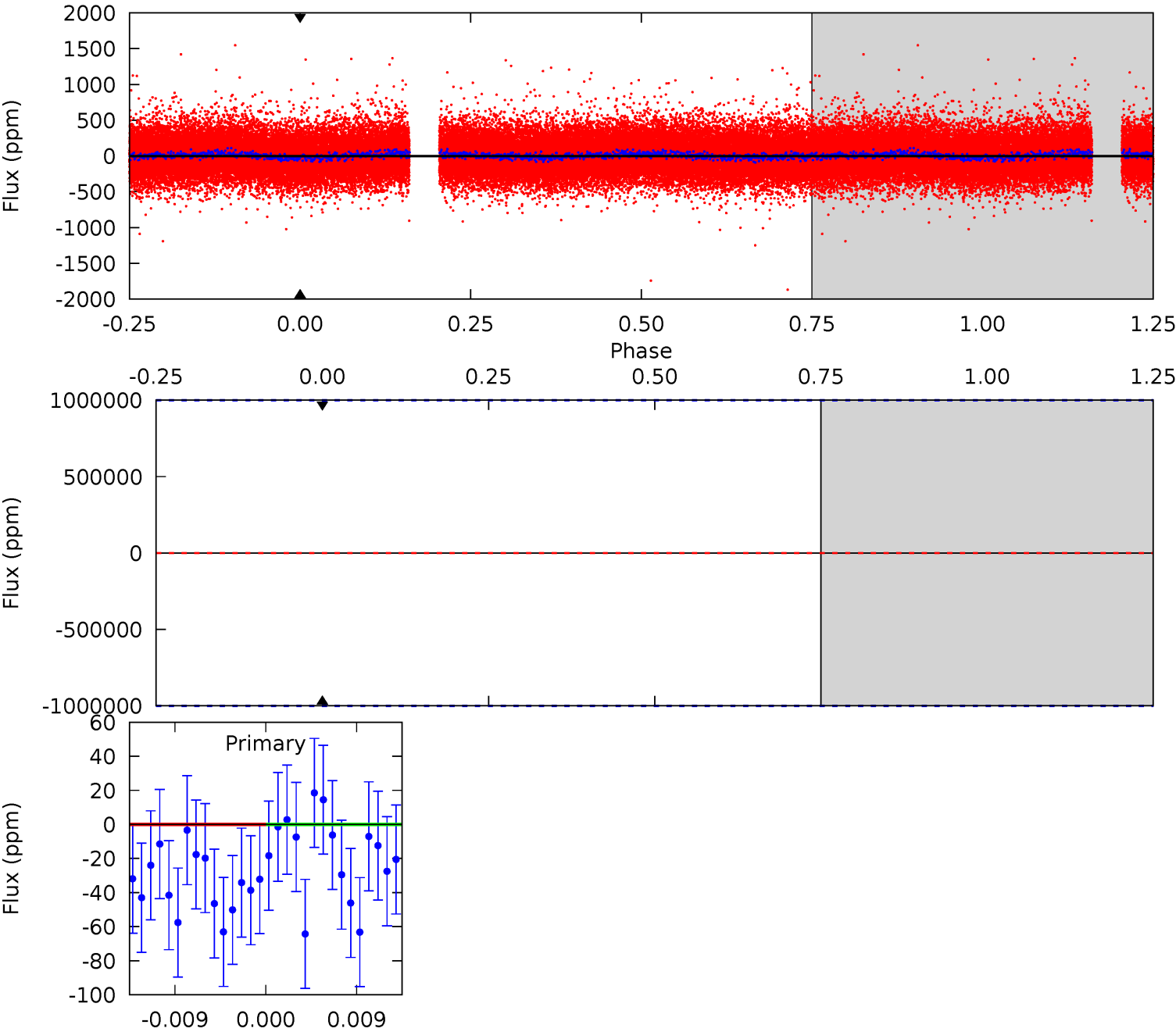
TCE 012104951-02 P= 4.736641 Days $T_0=136.095790$ (BKJD)



DV Model-Shift Uniqueness Test

012104951-02, P = 4.736641 Days, E = 127.441849 Days

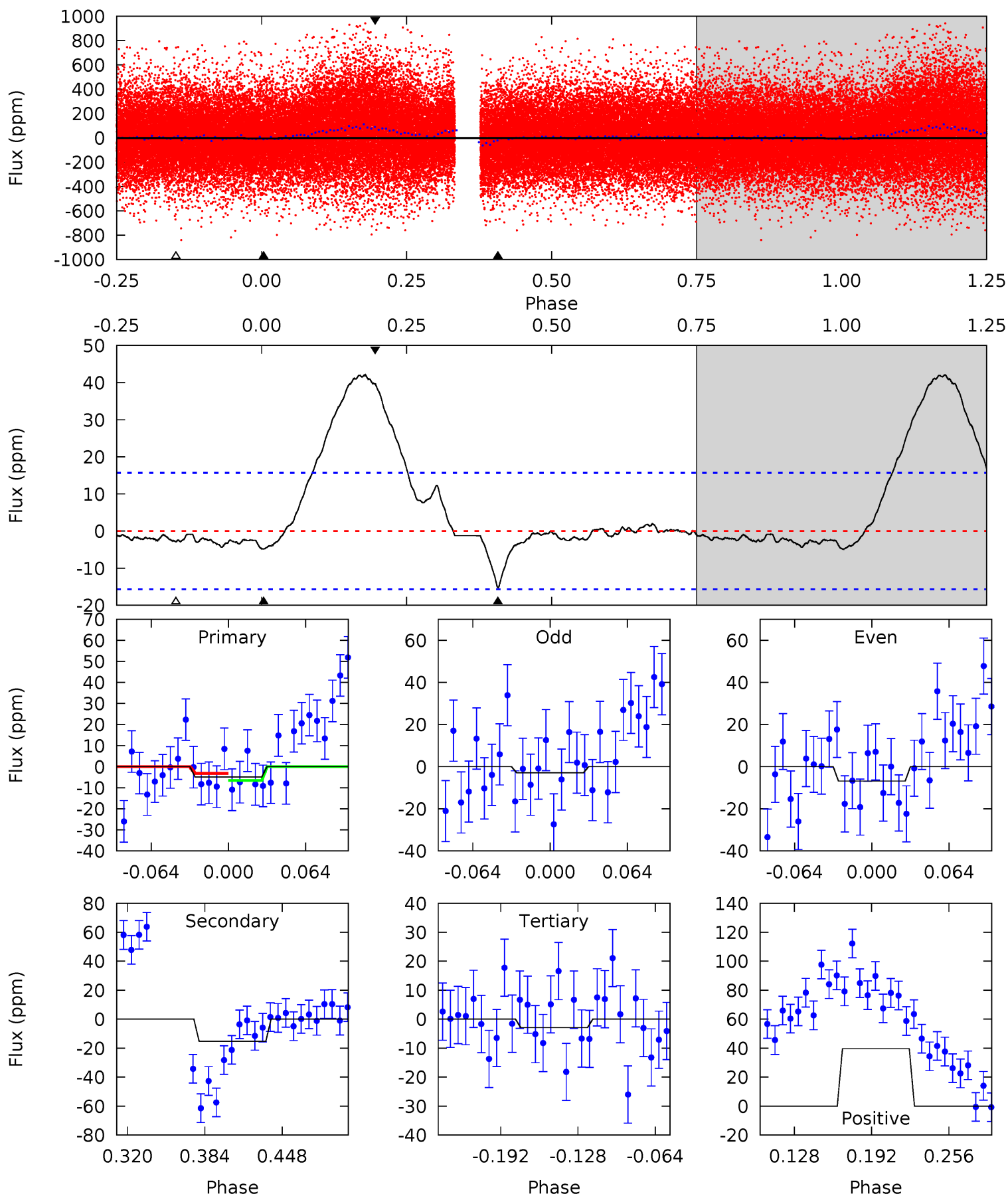
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

012104951-02, P = 4.736641 Days, E = 131.359149 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.44	4.52	0.87	11.8	4.66	1.85	4.14	0.58	-10.3	3.65	-7.27	0.59	0.88	0.73	0.48



Stellar Parameters For KIC 012104951

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8517^{+234}_{-401}	$3.789^{+0.371}_{-0.159}$	$0.070^{+0.300}_{-0.500}$	$3.254^{+0.986}_{-1.478}$	$2.372^{+0.328}_{-0.765}$	$0.097^{+0.314}_{-0.044}$
	+3%/-5%	+10%/-4%	+429%/-714%	+30%/-45%	+14%/-32%	+324%/-45%
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 012104951-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$23.66^{+28.83}_{-17.16}$	3392^{+312}_{-403}	4533^{+59016}_{-59733}	$2.138^{+1124.294}_{-971.956}$
Alt.	-15 ± 3	$21.54^{+27.15}_{-15.48}$	3396^{+301}_{-370}	-3008^{+6796}_{-303}	$0.088^{+1.041}_{-0.069}$

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 $A_{obs} \gg 1.0$

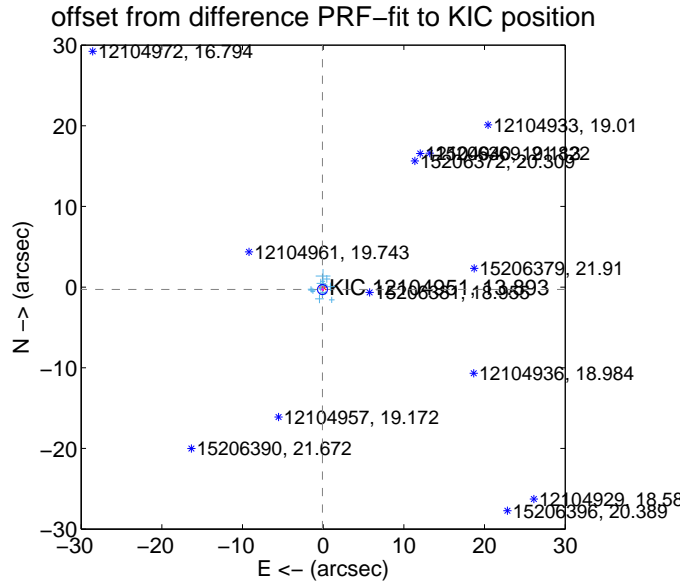
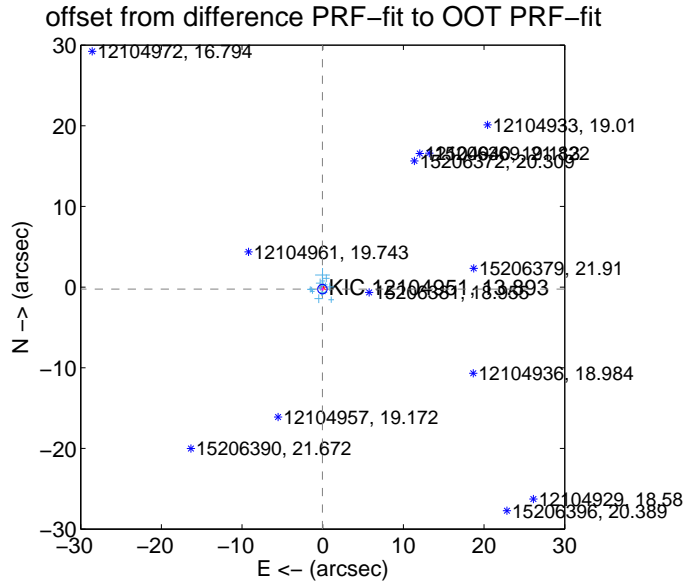
DV Centroid Data

Supplemental centroid analysis for 012104951-02. Kepler magnitude: 13.89. Transit SNR -1.00

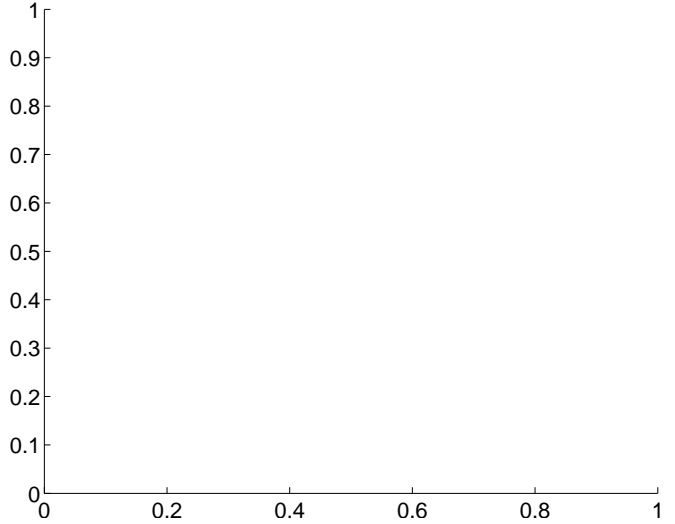
There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.253 ± 0.194	1.30	0.038 ± 0.166	-0.250 ± 0.193
PRF-fit source offset from KIC position	0.311 ± 0.204	1.52	0.089 ± 0.182	-0.298 ± 0.201
photometric centroid source offset	—	—	—	—

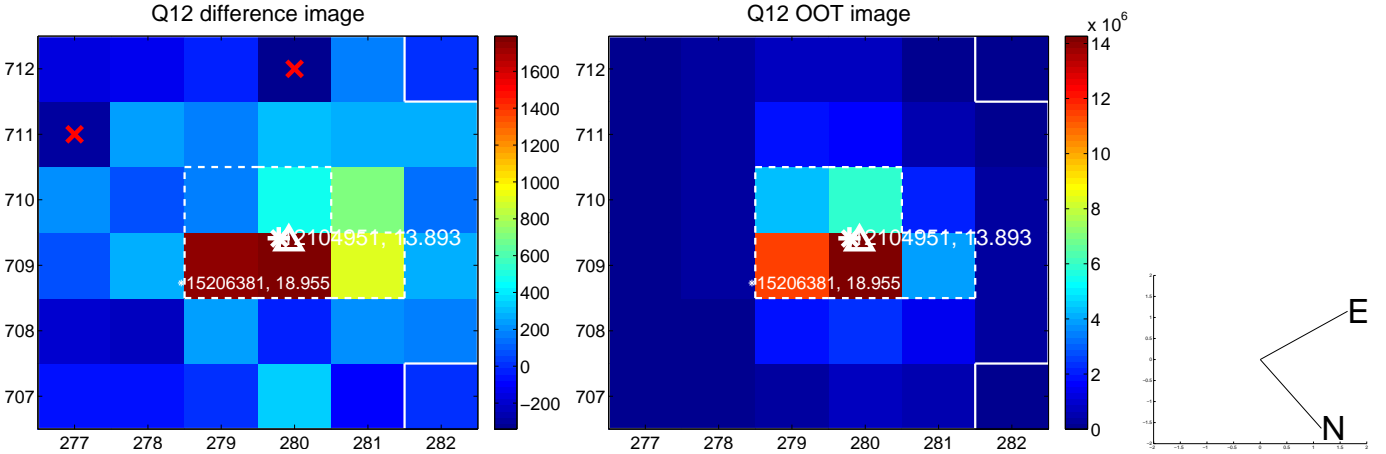
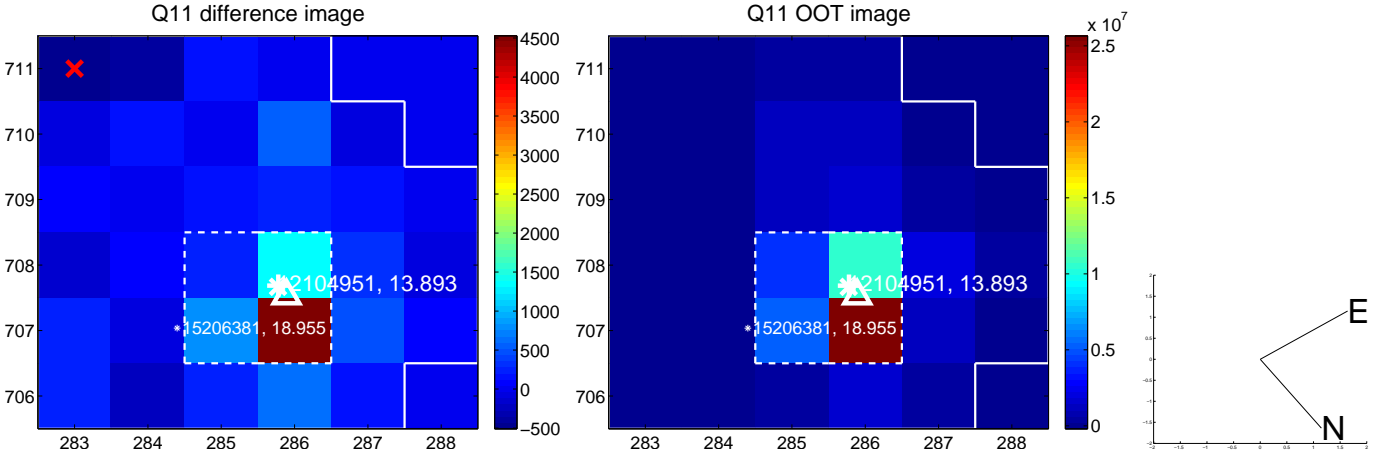
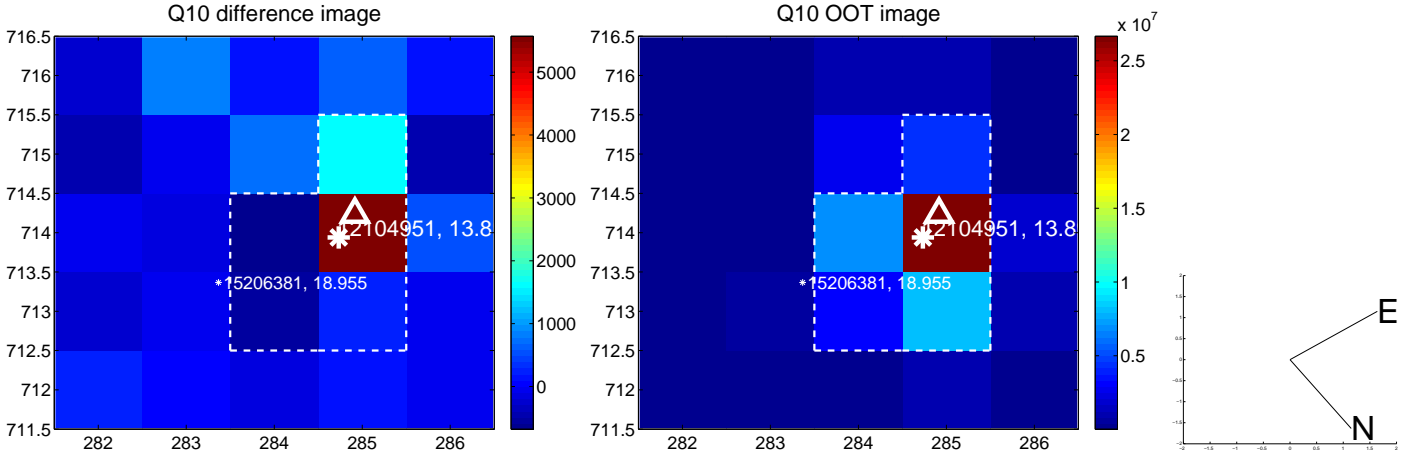
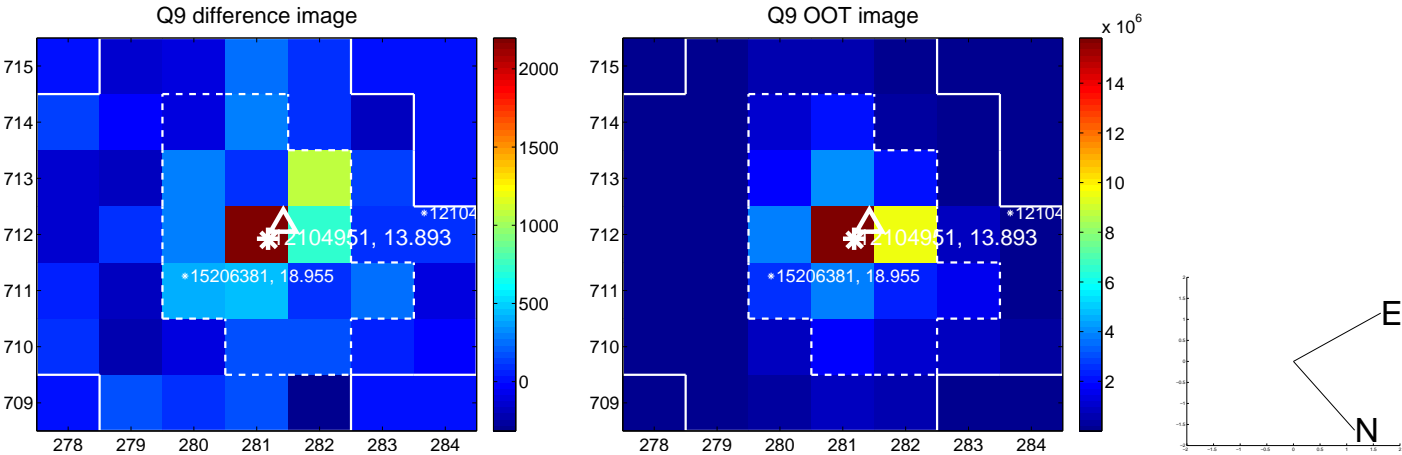


There are no photometric centroids

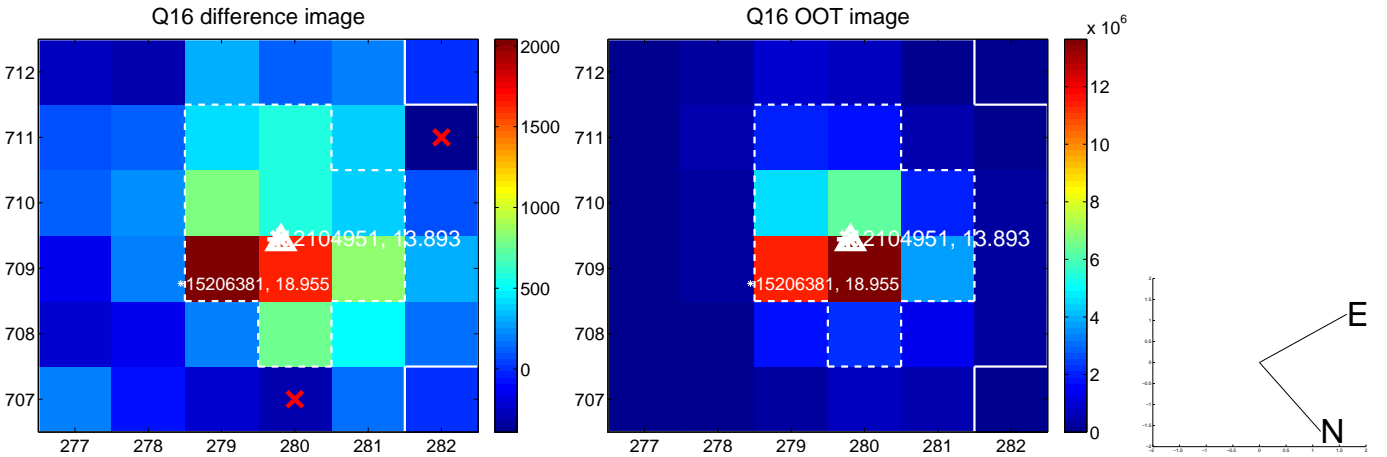
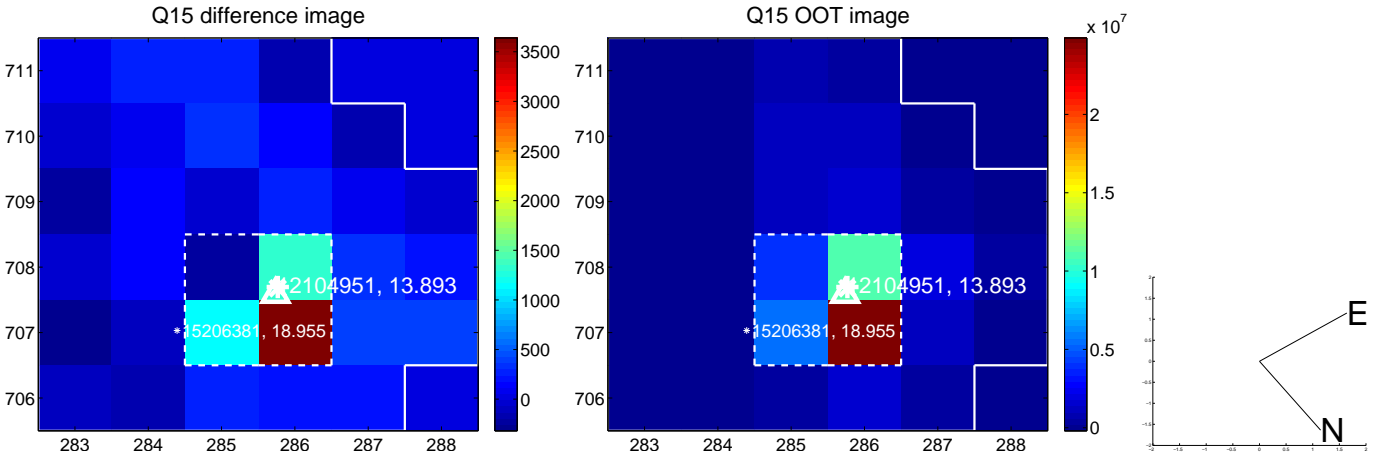
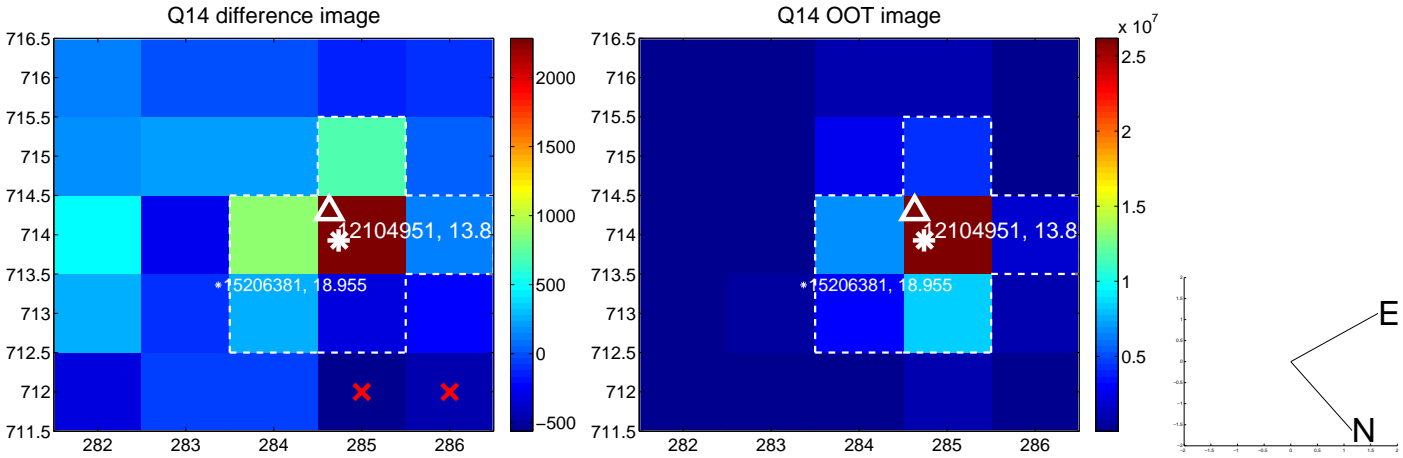
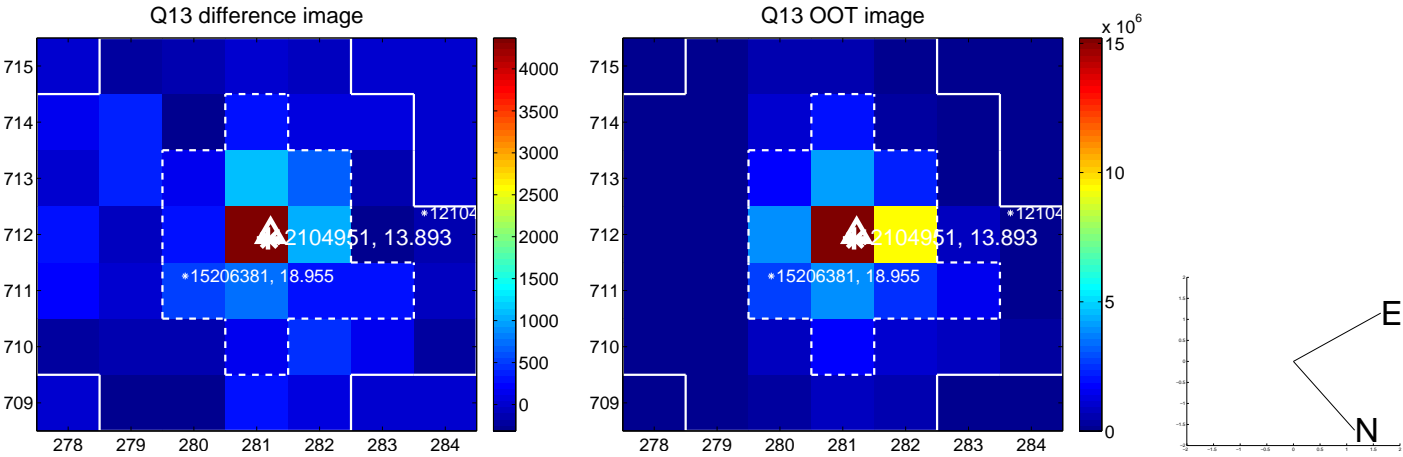


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

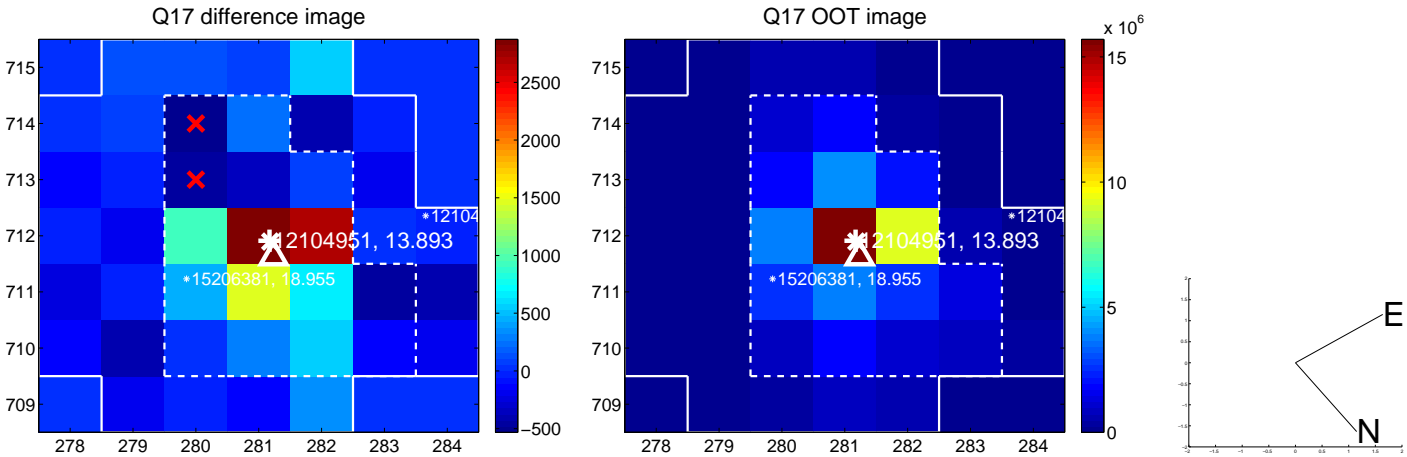
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



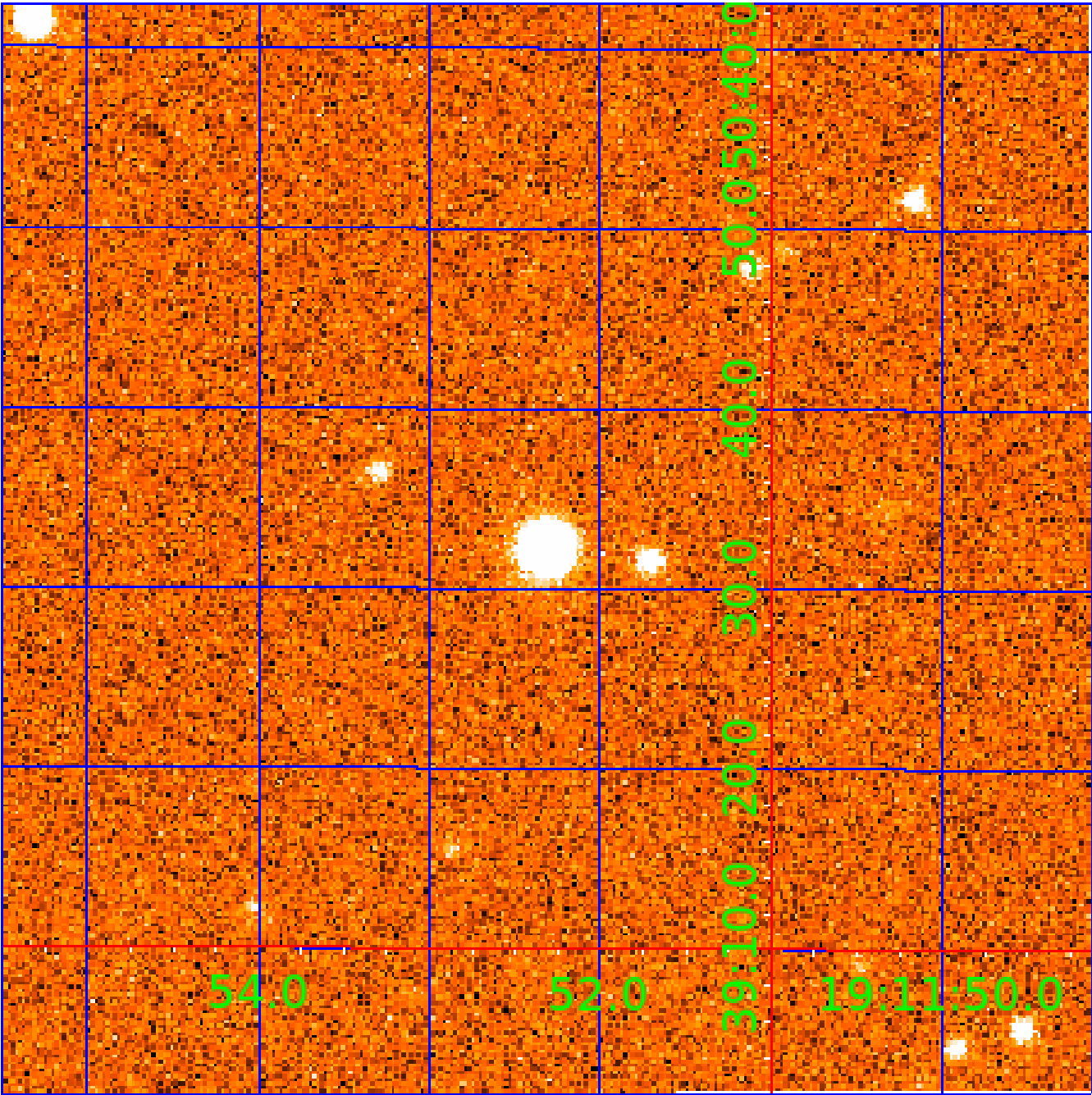
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 012104951

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})
012104951-01	OBS	No	4.736637	133.041531	5.8	0.915	9.0	0.5	3.25	8517	0.91	9197.98
012104951-02	OBS	No	4.736641	132.178490	128.1	15.000	8.3	-1.0	3.25	8517	3.74	9197.97
012104951-03	OBS	No	4.735983	135.699605	26.0	30.715	8.7	9.2	3.25	8517	1.73	9199.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012104951-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
012104951-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
012104951-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—SAME_NTL_PERIOD

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

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

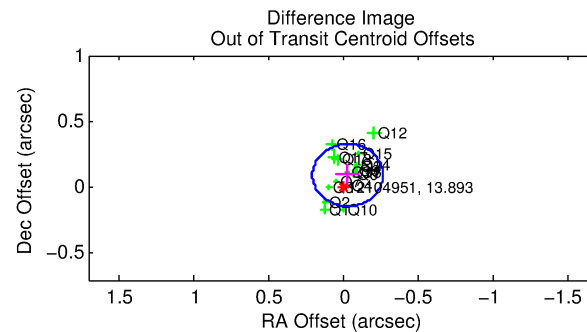
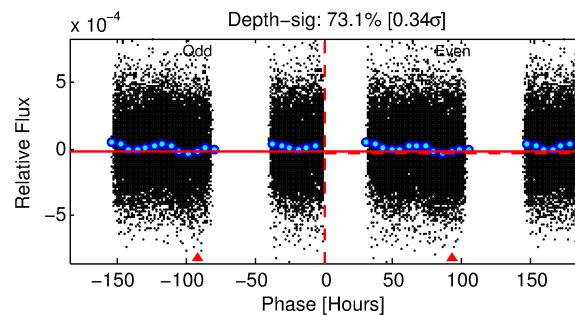
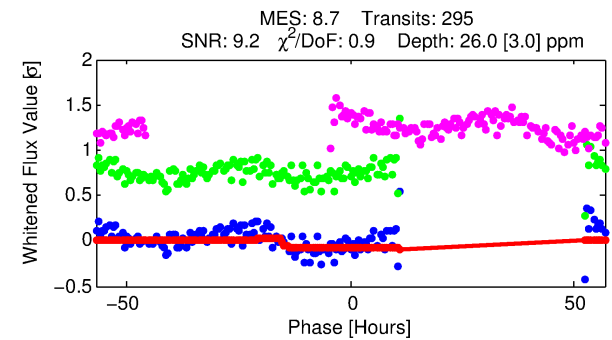
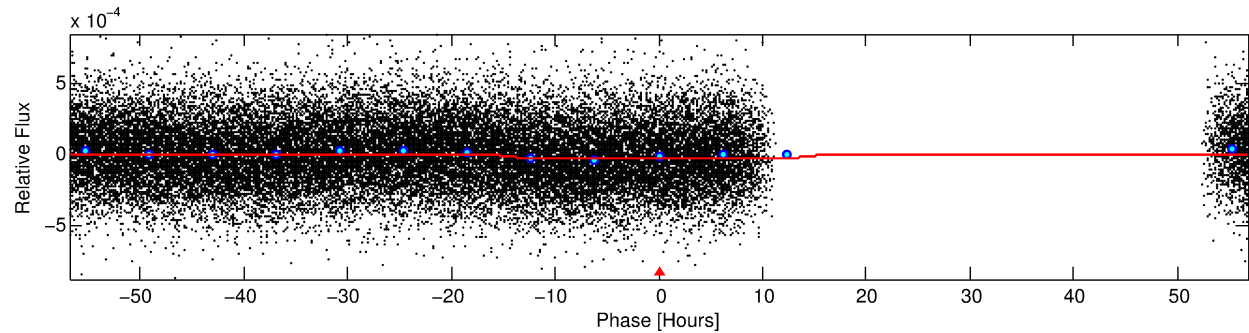
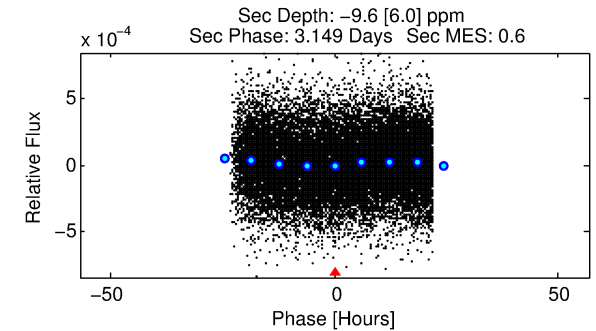
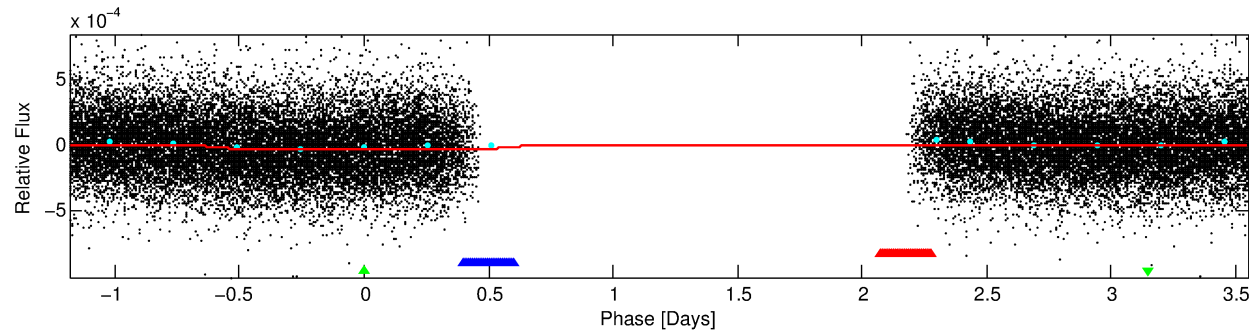
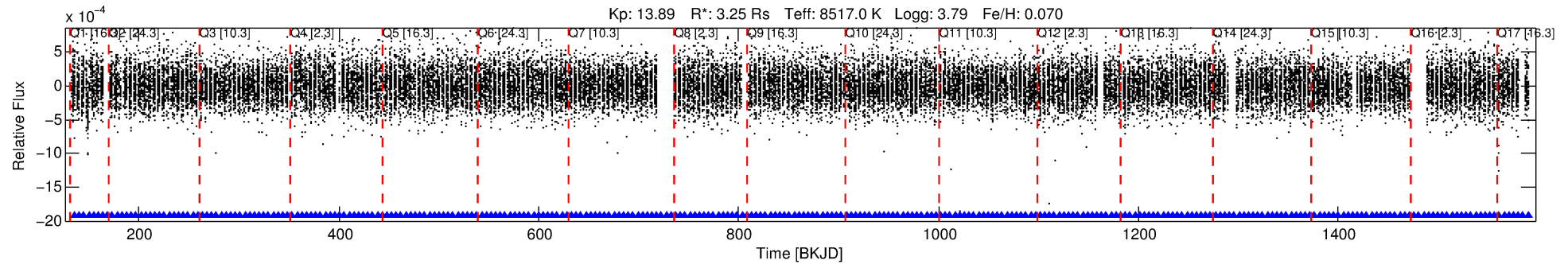
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012104951-03

No Significant Match Found

DV One-Page Summary

KIC: 12104951 Candidate: 3 of 3 Period: 4.736 d



DV Fit Results:

Period = 4.73598 [0.00021] d
Epoch = 135.6996 [0.1073] BKJD
Rp/R* = 0.0049 [0.0003]
a/R* = 1.25 [0.12]
b = 0.54 [0.11]
Seff = 9199.67 [6181.59]
Teff = 2497 [420] K
Rp = 1.73 [0.79] Re
a = 0.0737 [0.0306] AU
Ag = N/A
Teffp = N/A

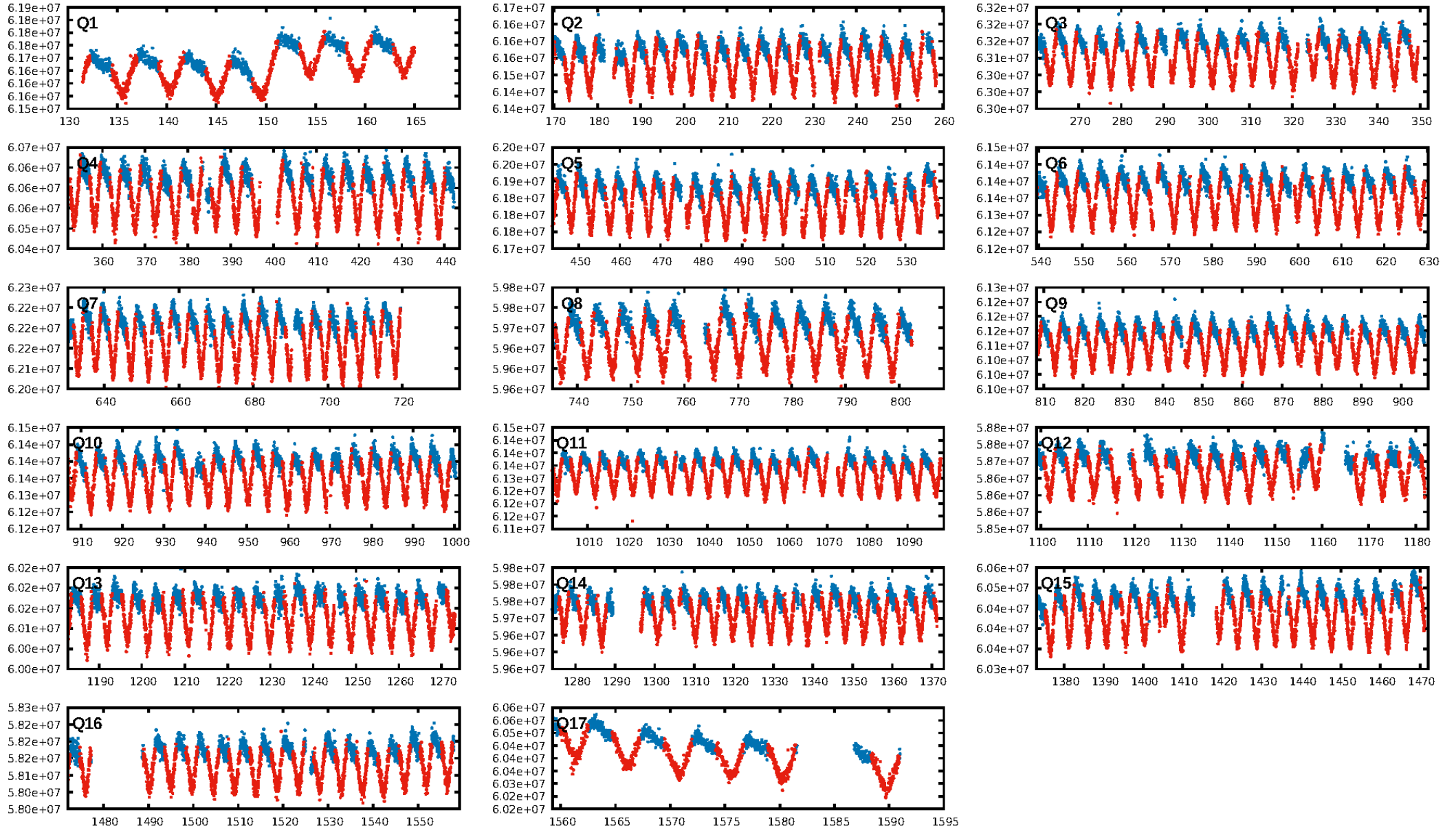
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.86e-35
RollingBand-fgt: 1.00 [282/282]
GhostDiagnostic-chr: 1.12
Centroid-sig: 0.5%
Centroid-so: 2.772 arcsec [2.48σ]
OotOffset-rm: 0.099 arcsec [1.27σ]
KicOffset-rm: 0.051 arcsec [0.66σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

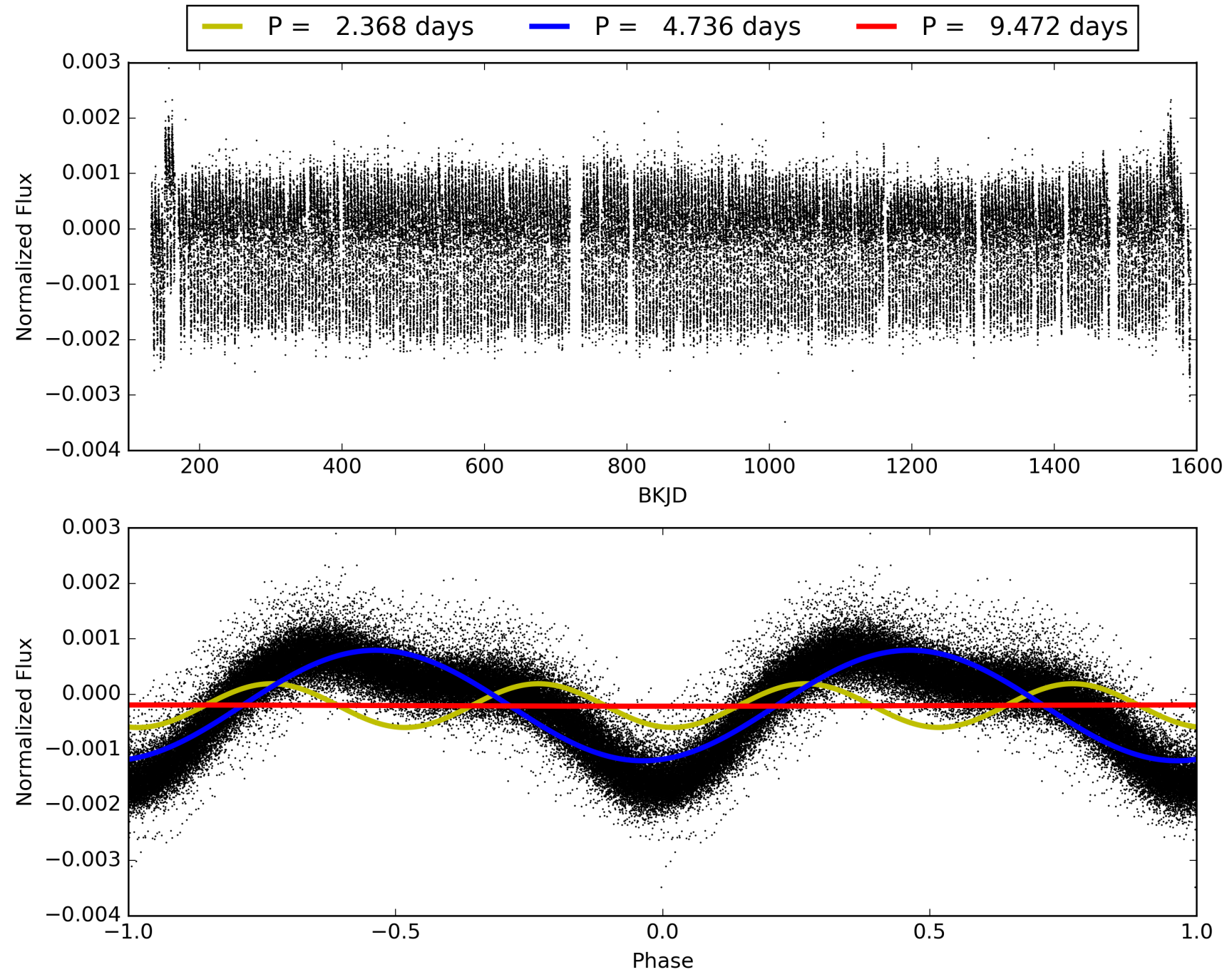
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:15:00 Z

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

TCE 012104951-03, PDC Light Curves

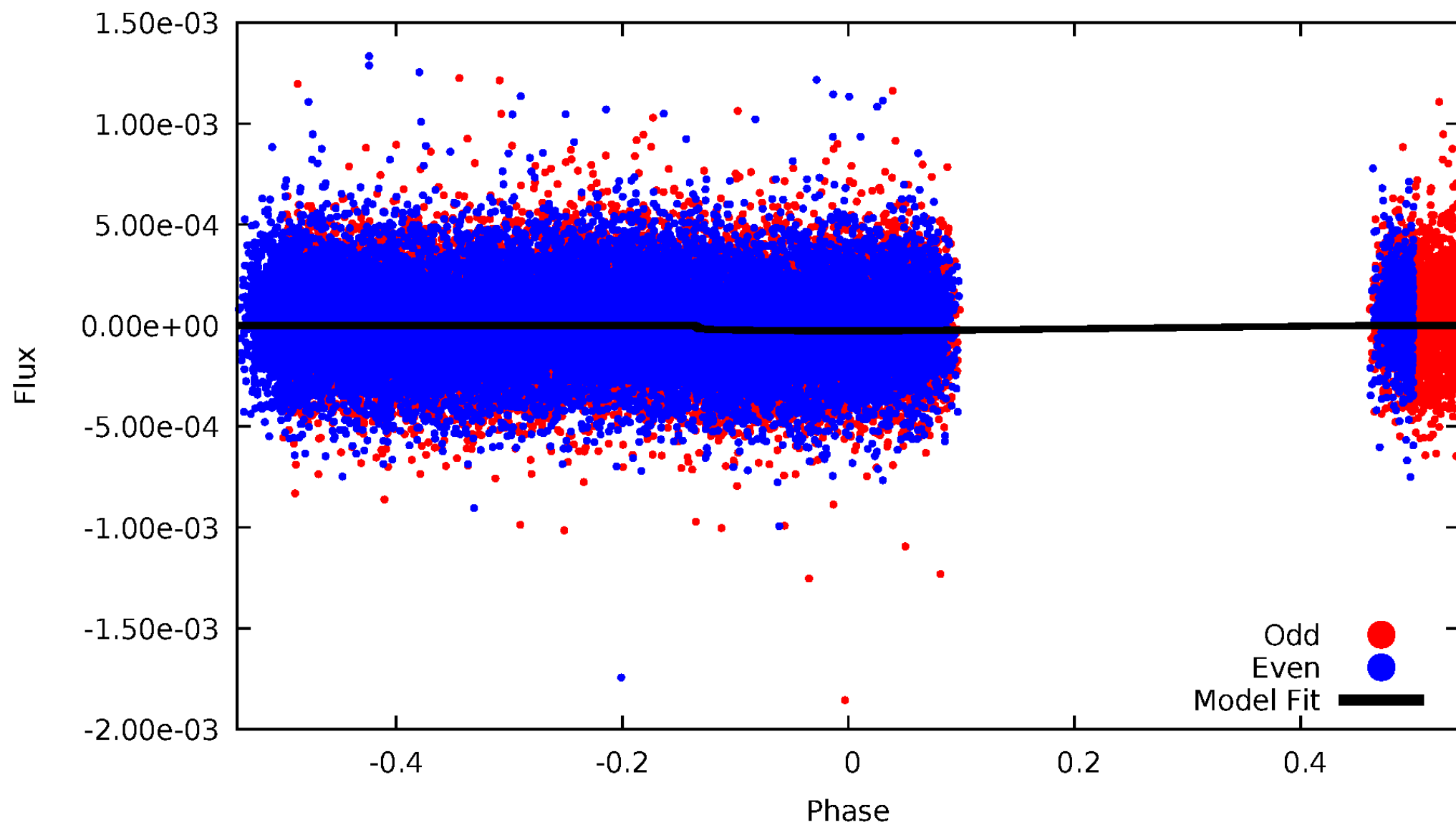


TCE 012104951-03



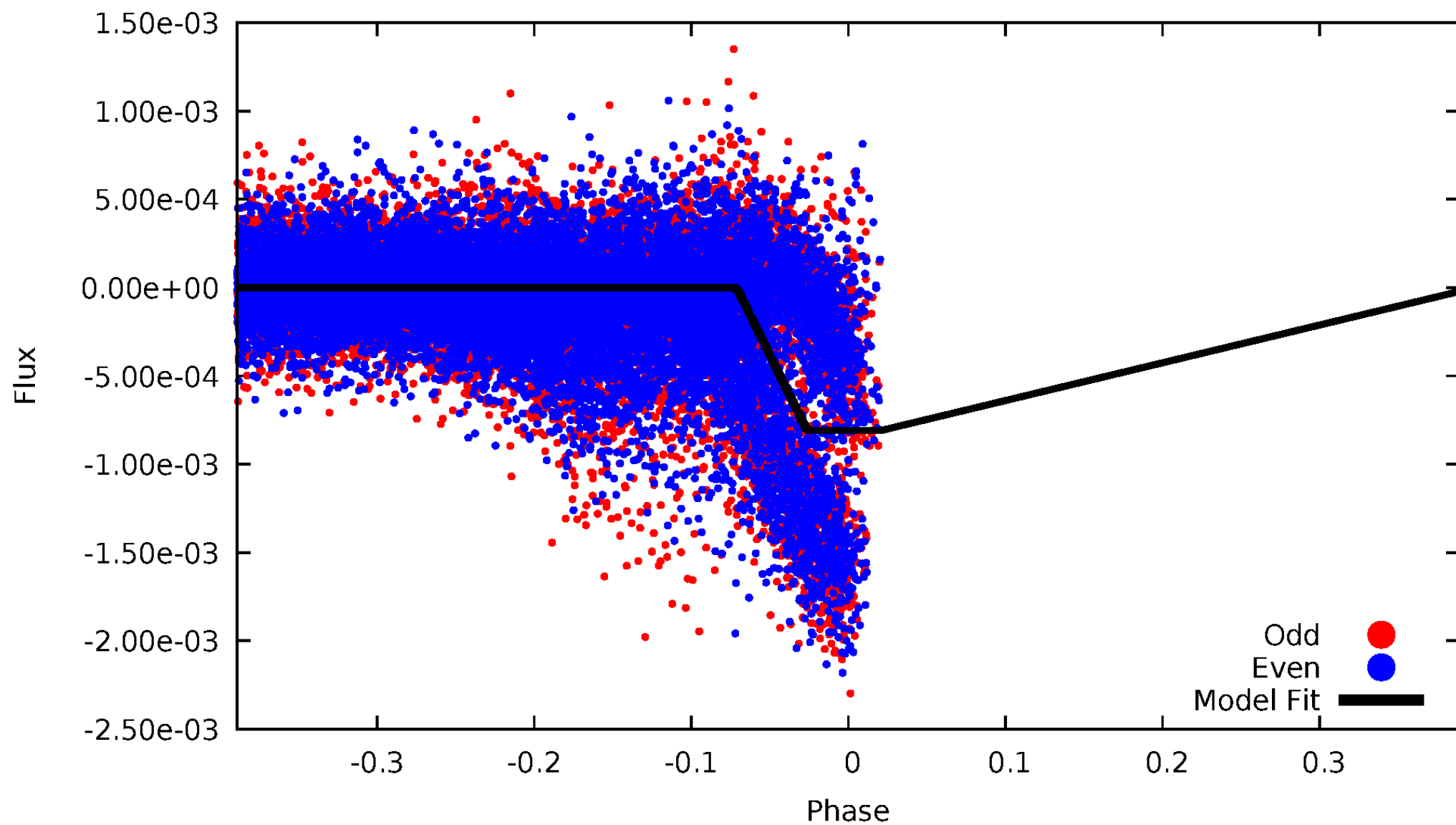
DV Odd/Even

TCE 012104951-03



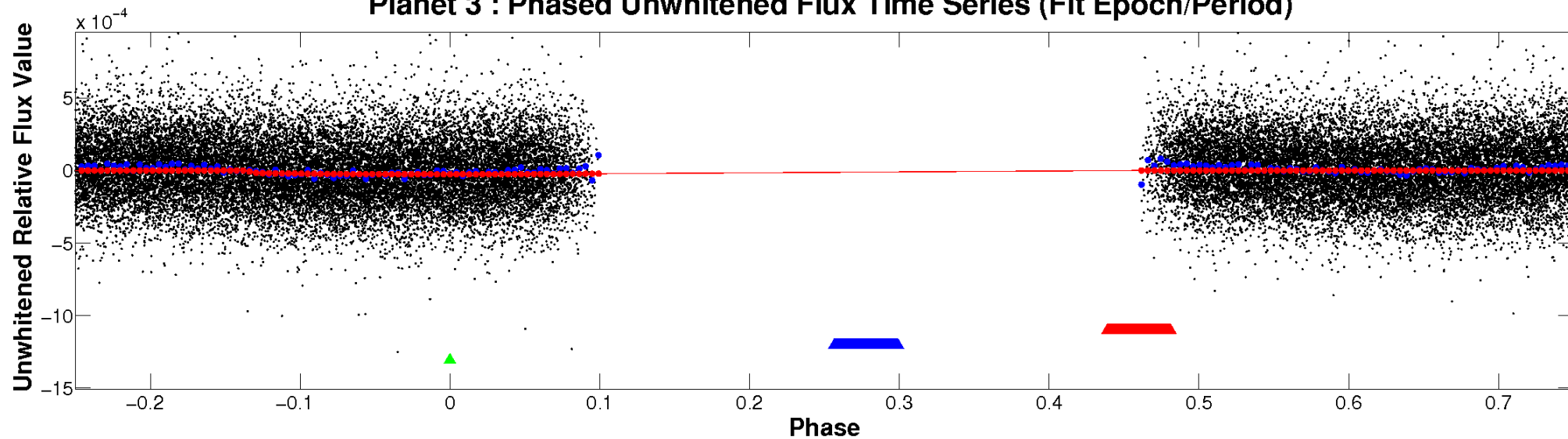
ALT Odd/Even

TCE 012104951-03

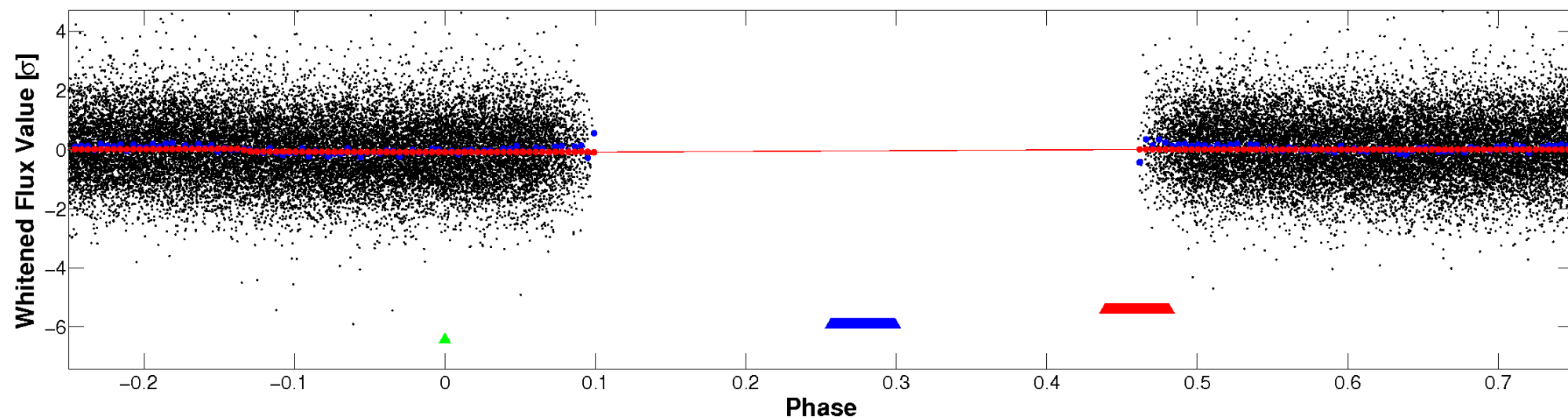


Non-Whitened Vs. Whitened Light Curve

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

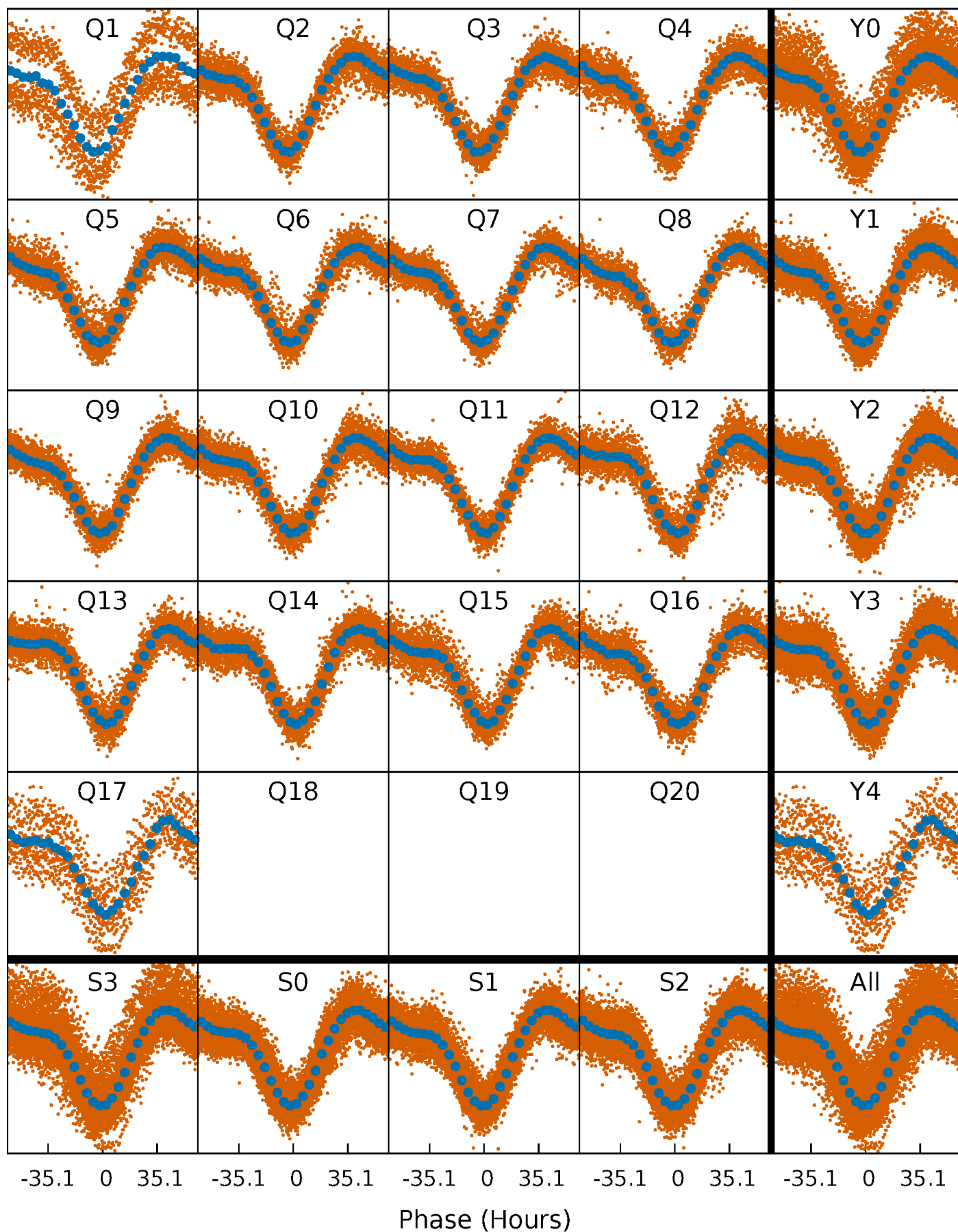


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



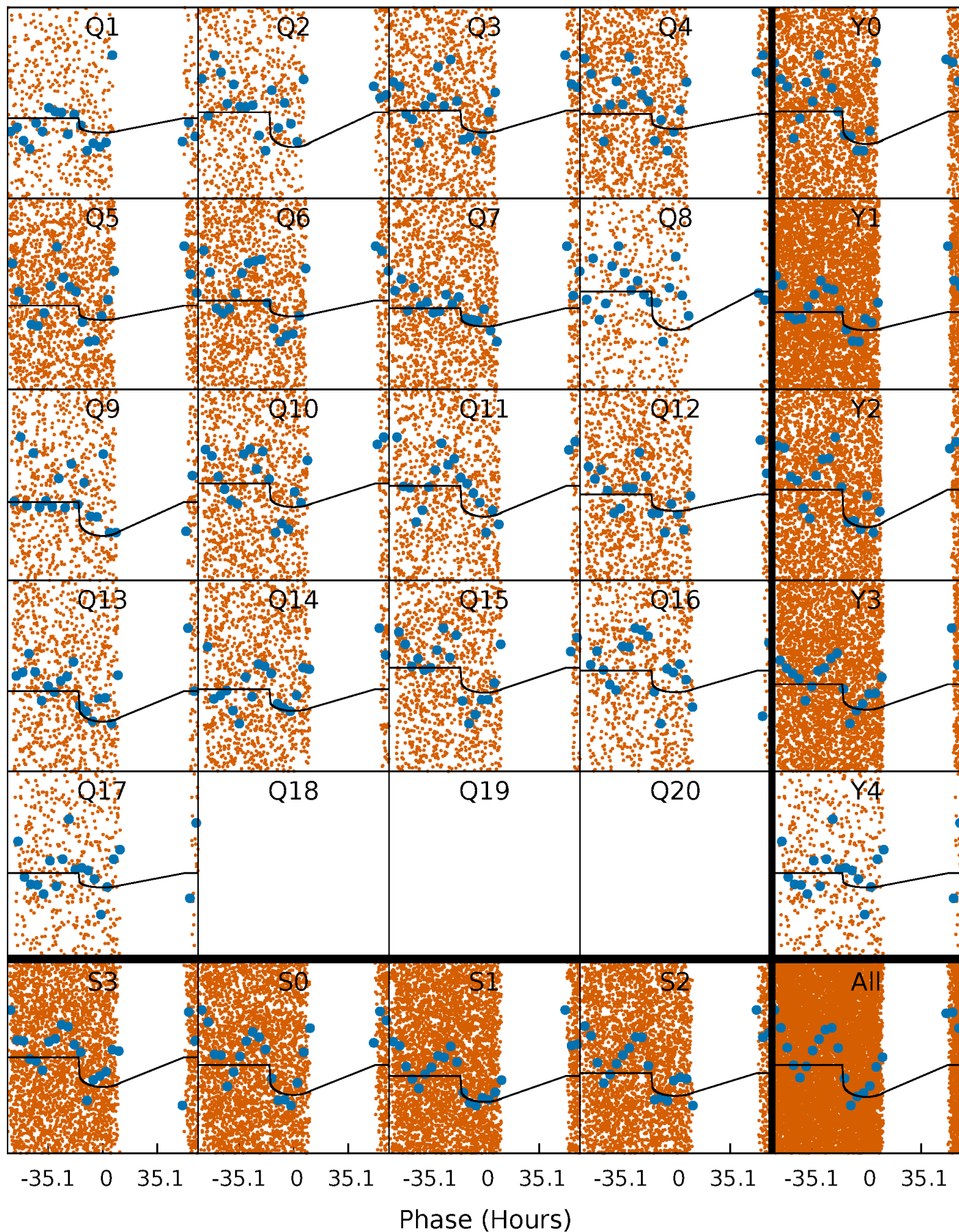
PDC Quarter-Phased Transit Curves

TCE 012104951-03 P= 4.735983 Days $T_0=135.699605$ (BKJD)



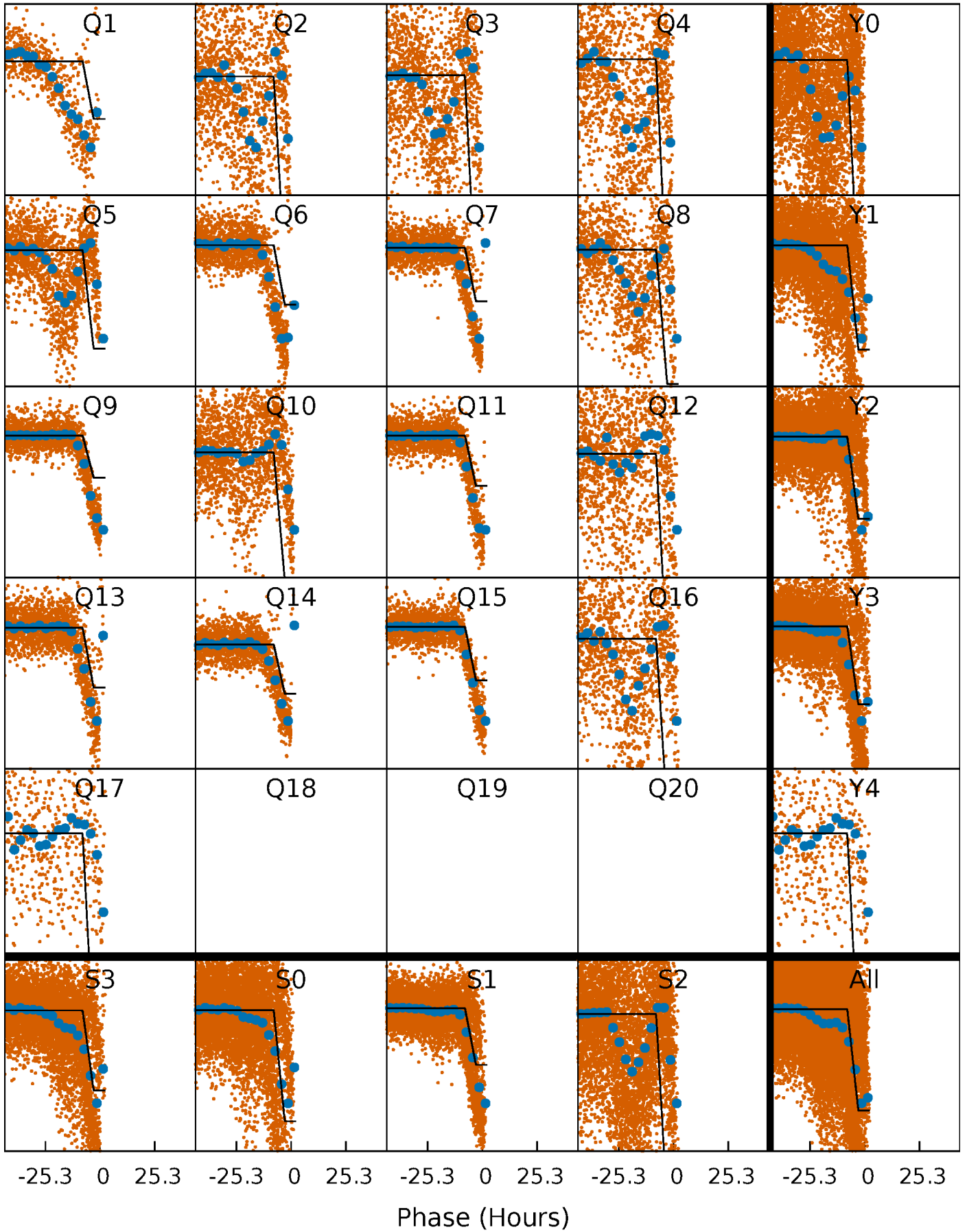
DV Quarter-Phased Transit Curves

TCE 012104951-03 P= 4.735983 Days $T_0=135.699605$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

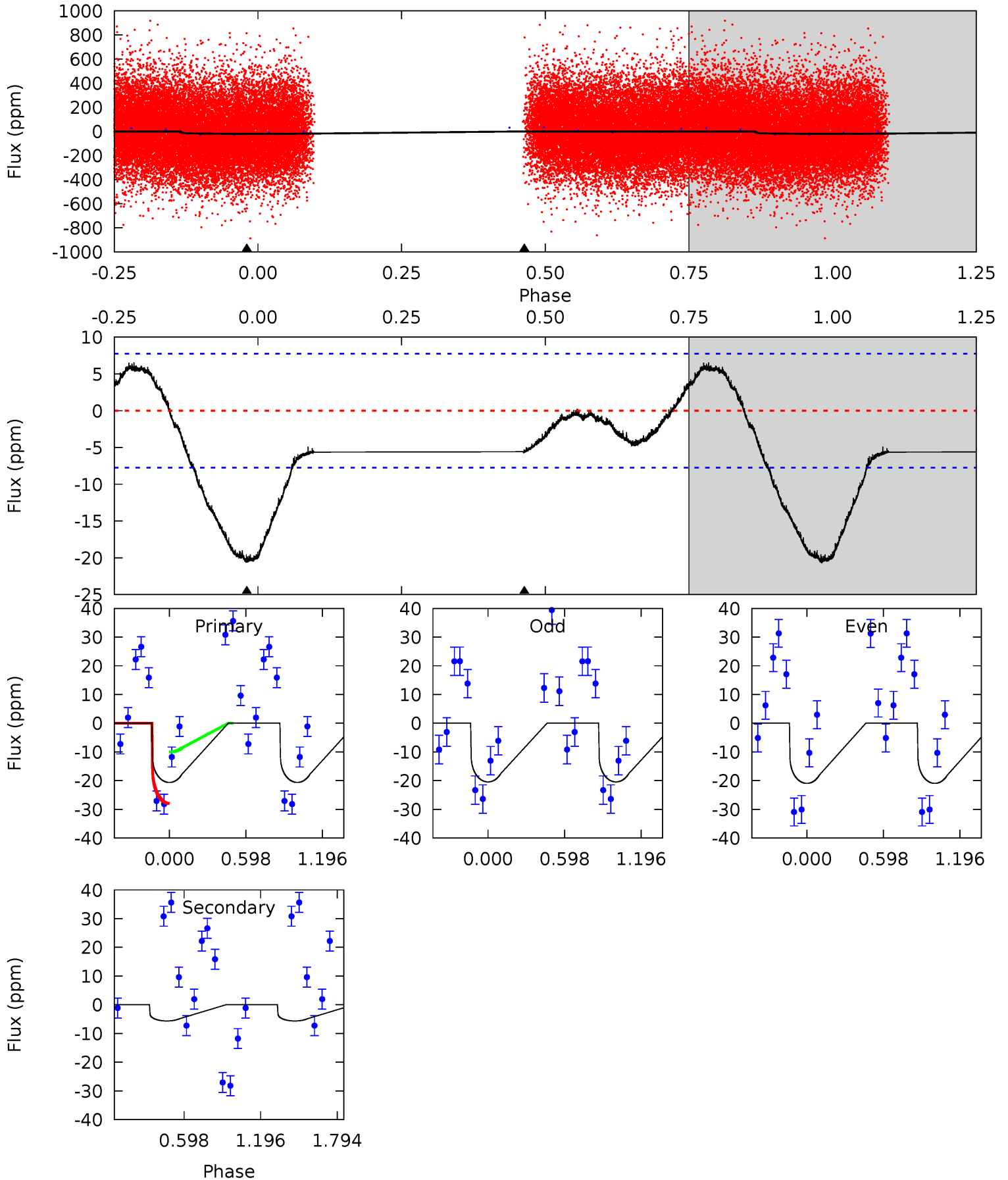
TCE 012104951-03 P= 4.736236 Days $T_0=135.993695$ (BKJD)



DV Model-Shift Uniqueness Test

012104951-03, P = 4.735983 Days, E = 130.963622 Days

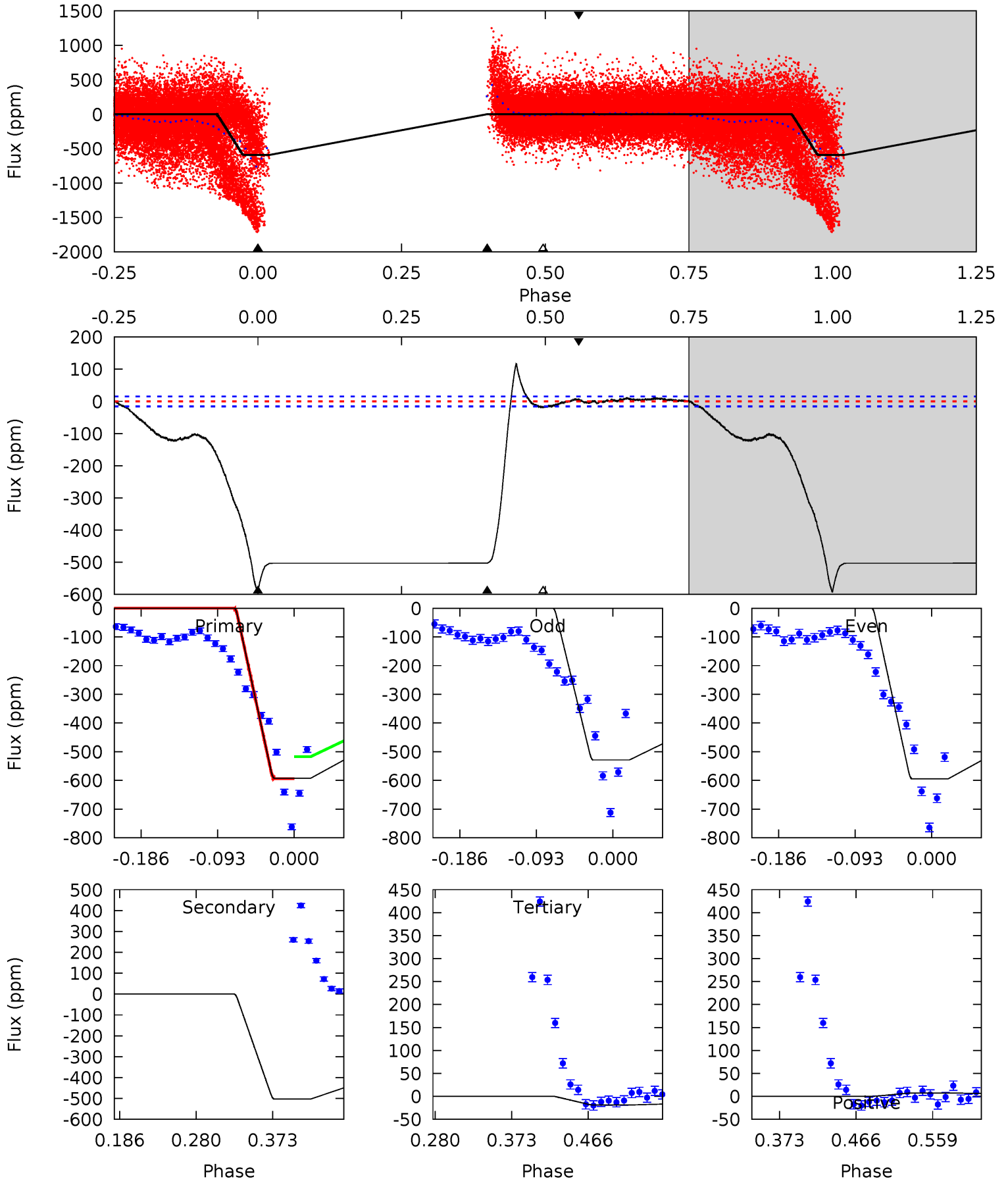
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	3.04	0	0	4.17	0.53	1.64	11.1	11.1	3.04	3.04	0.14	0.88	0.24	4.73



Alt Model-Shift Uniqueness Test

012104951-03, P = 4.736236 Days, E = 131.257459 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
174.2	147.9	5.54	2.14	4.58	1.68	12.0	168.7	172.1	142.3	145.7	9.55	3.08	0.17	2.68



Stellar Parameters For KIC 012104951

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8517^{+234}_{-401}	$3.789^{+0.371}_{-0.159}$	$0.070^{+0.300}_{-0.500}$	$3.254^{+0.986}_{-1.478}$	$2.372^{+0.328}_{-0.765}$	$0.097^{+0.314}_{-0.044}$
	+3%/-5%	+10%/-4%	+429%/-714%	+30%/-45%	+14%/-32%	+324%/-45%
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 012104951-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 2	$1.68^{+0.30}_{-0.41}$	3409^{+295}_{-403}	5631^{+497}_{-536}	$6.013^{+4.051}_{-2.398}$
Alt.	-503 ± 3	$9.90^{+1.63}_{-2.31}$	3432^{+273}_{-379}	7316^{+192}_{-304}	15^{+9}_{-4}

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

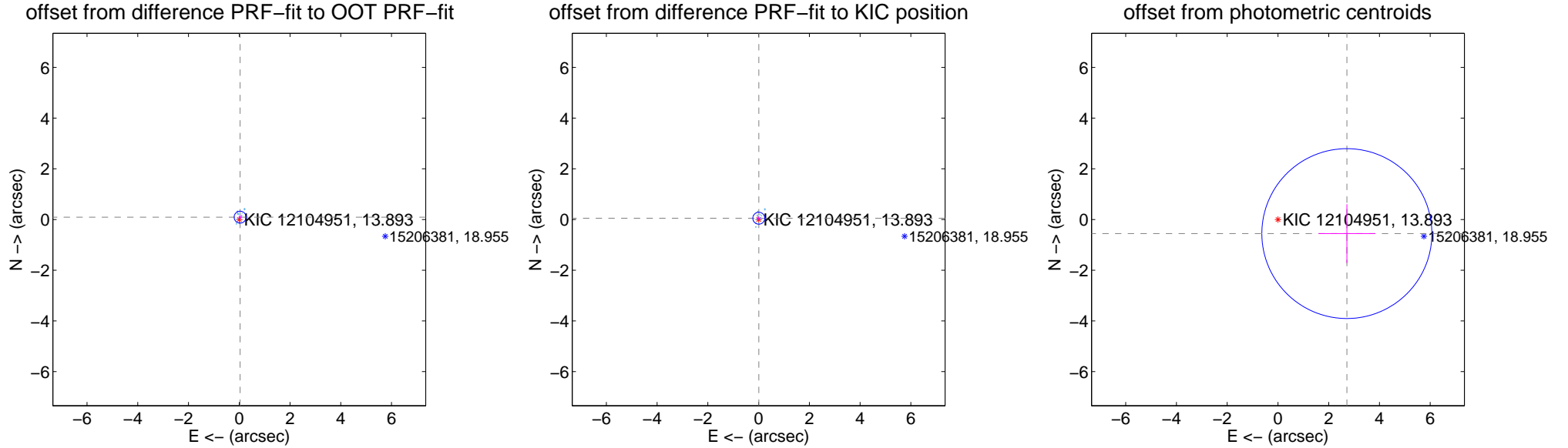
DV Centroid Data

Supplemental centroid analysis for 012104951-03. Kepler magnitude: 13.89. Transit SNR 9.16

There are 17 quarters with good PRF difference image offsets

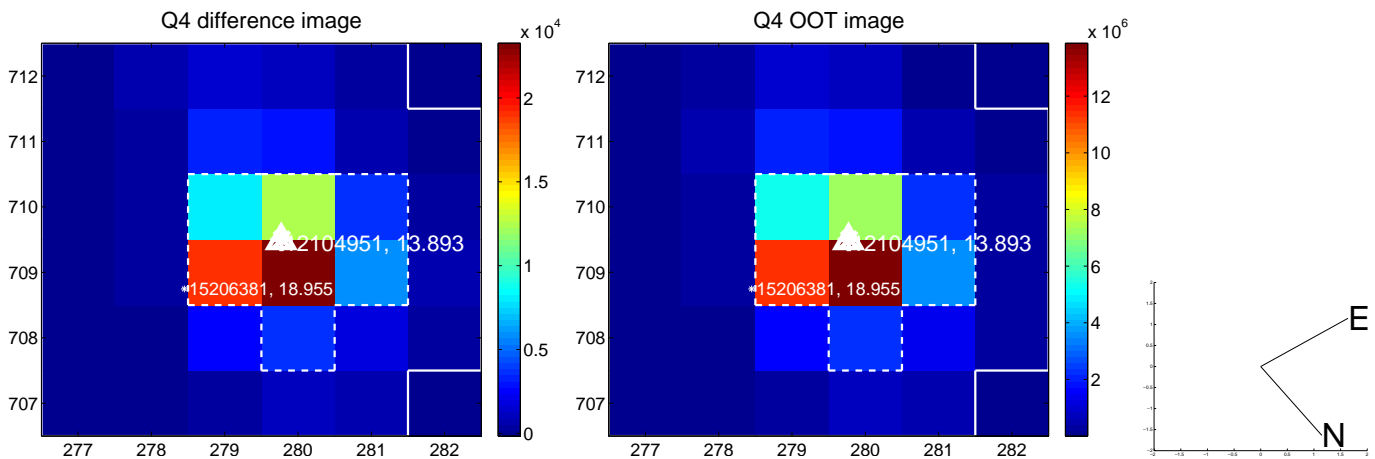
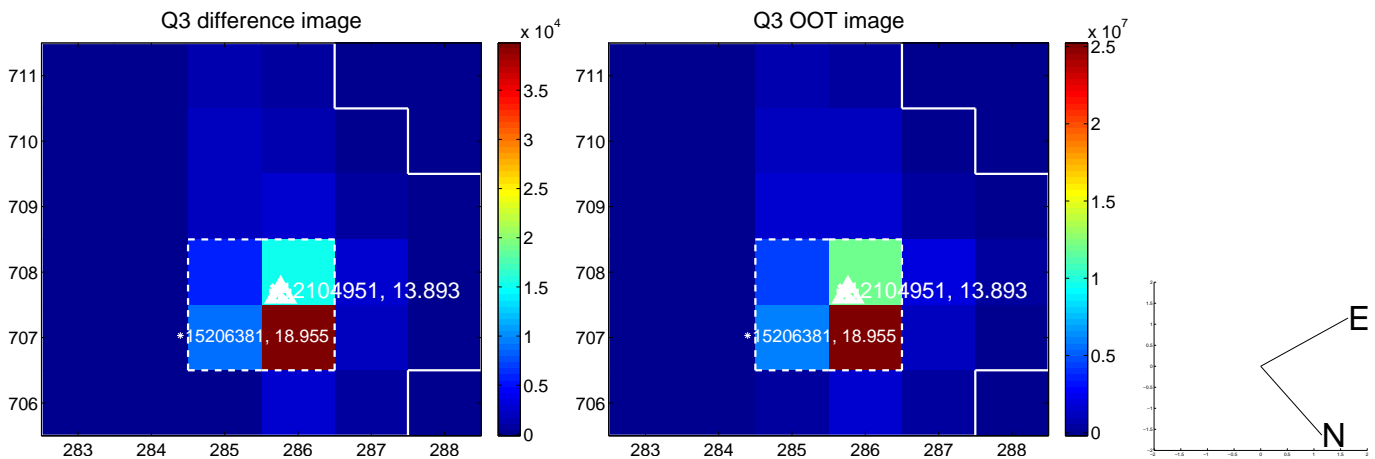
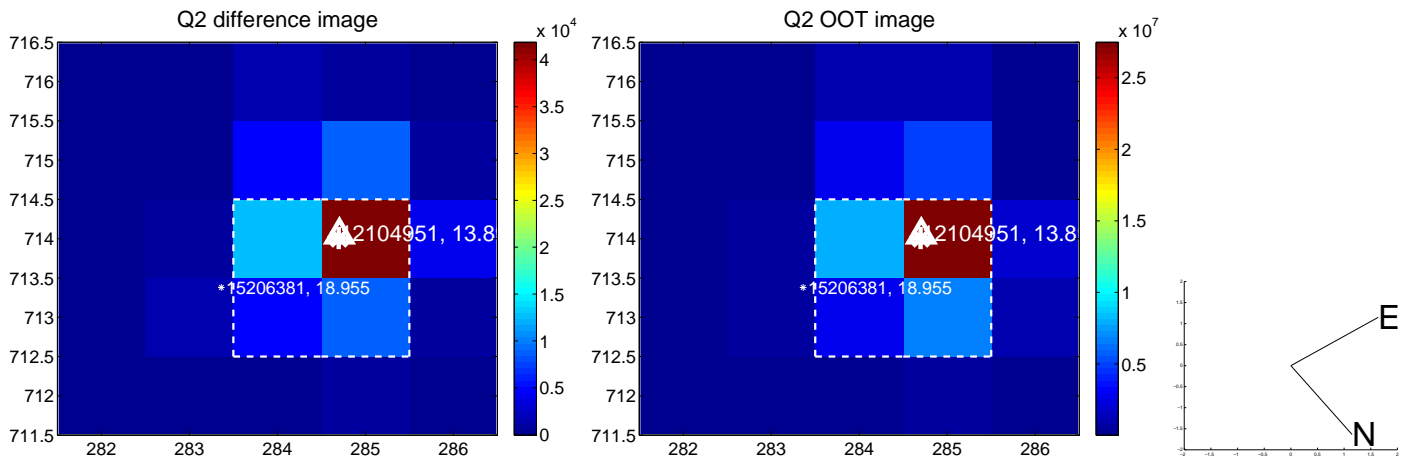
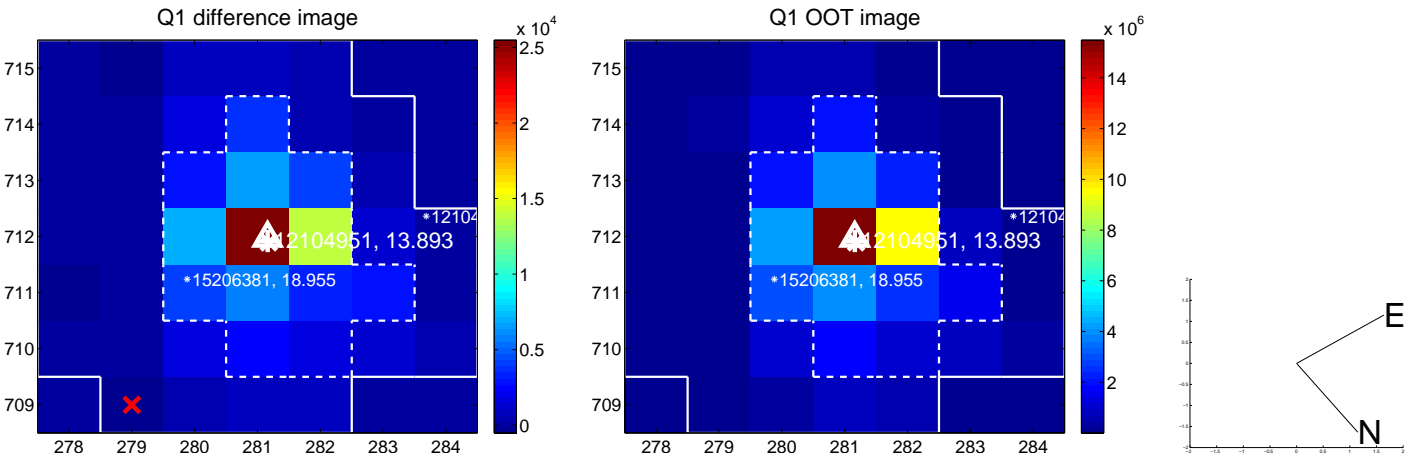
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.099 ± 0.078	1.27	-0.033 ± 0.071	0.093 ± 0.077
PRF-fit source offset from KIC position	0.051 ± 0.078	0.66	-0.007 ± 0.070	0.051 ± 0.077
photometric centroid source offset	2.77 ± 1.12	2.48	-2.72 ± 1.11	-0.56 ± 1.16

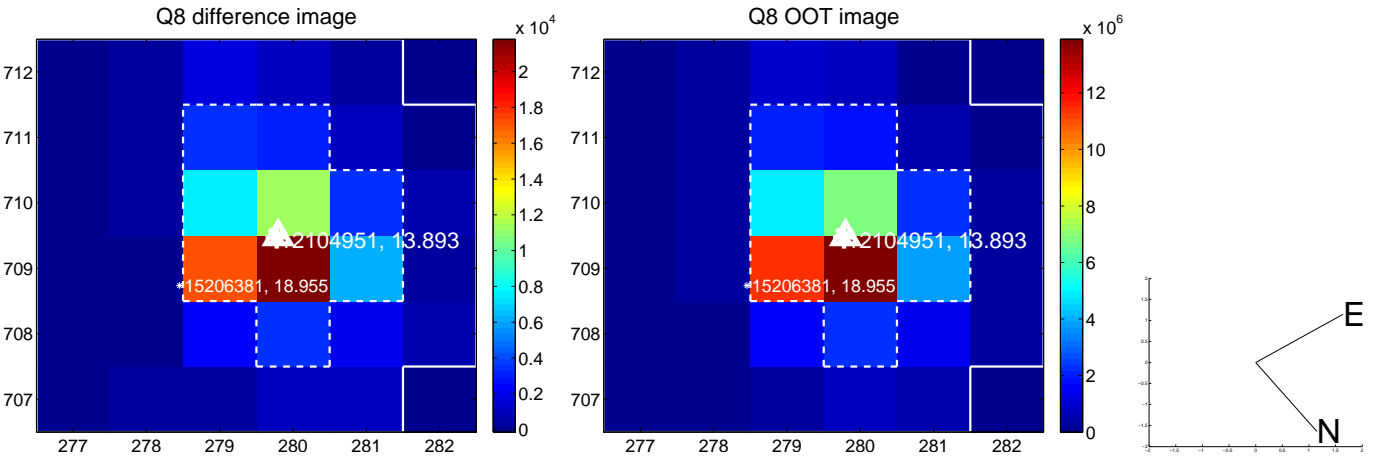
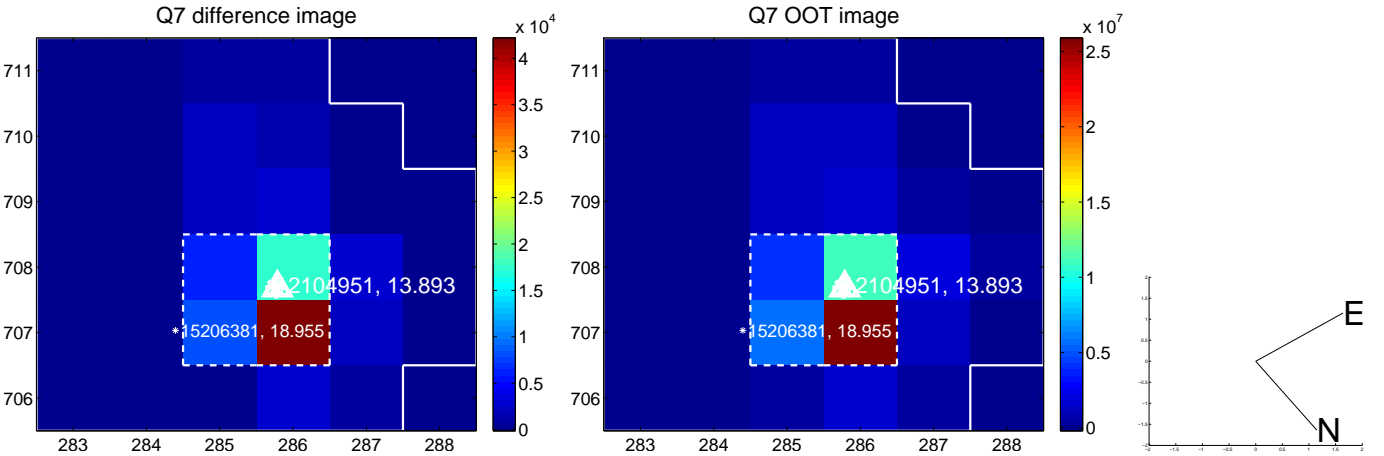
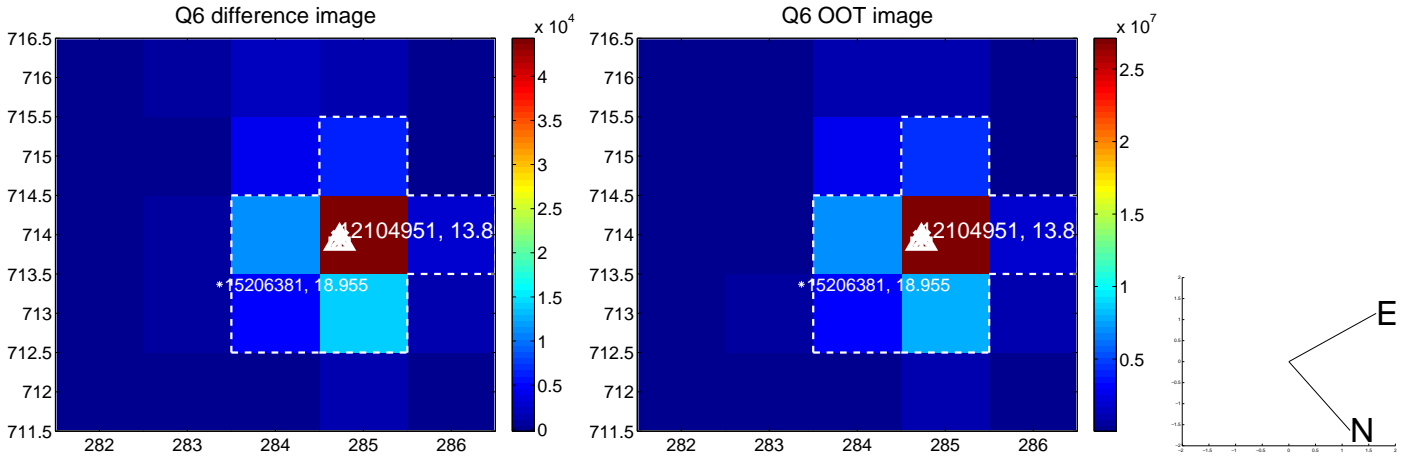
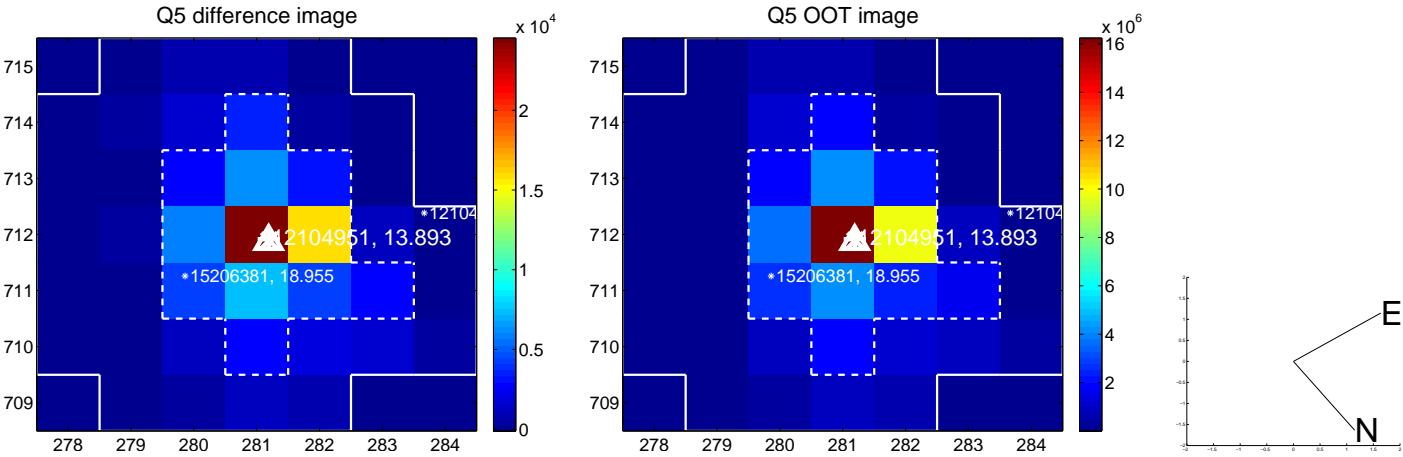


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

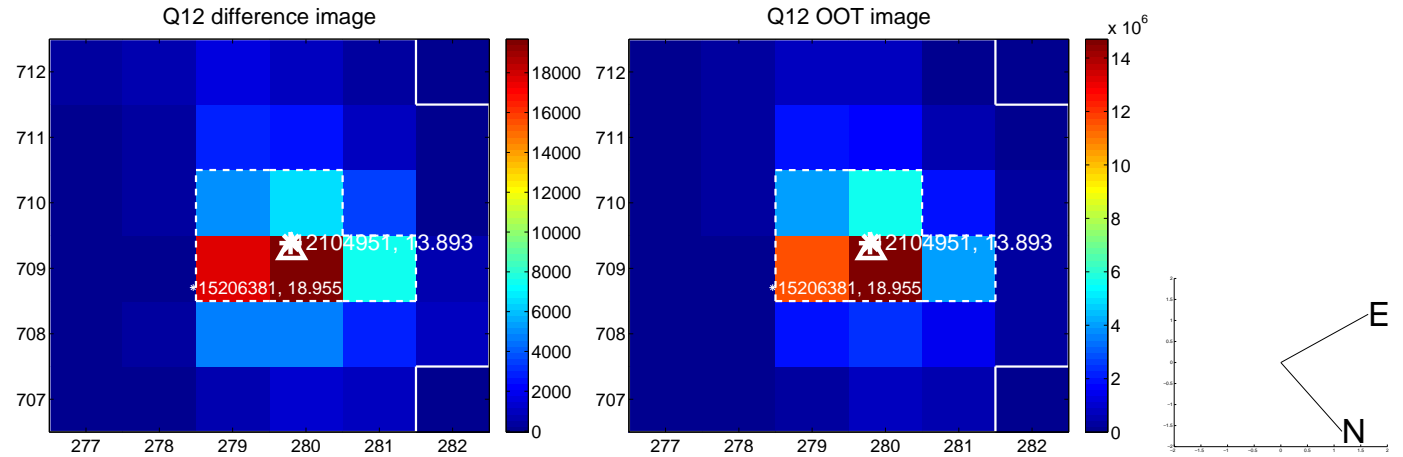
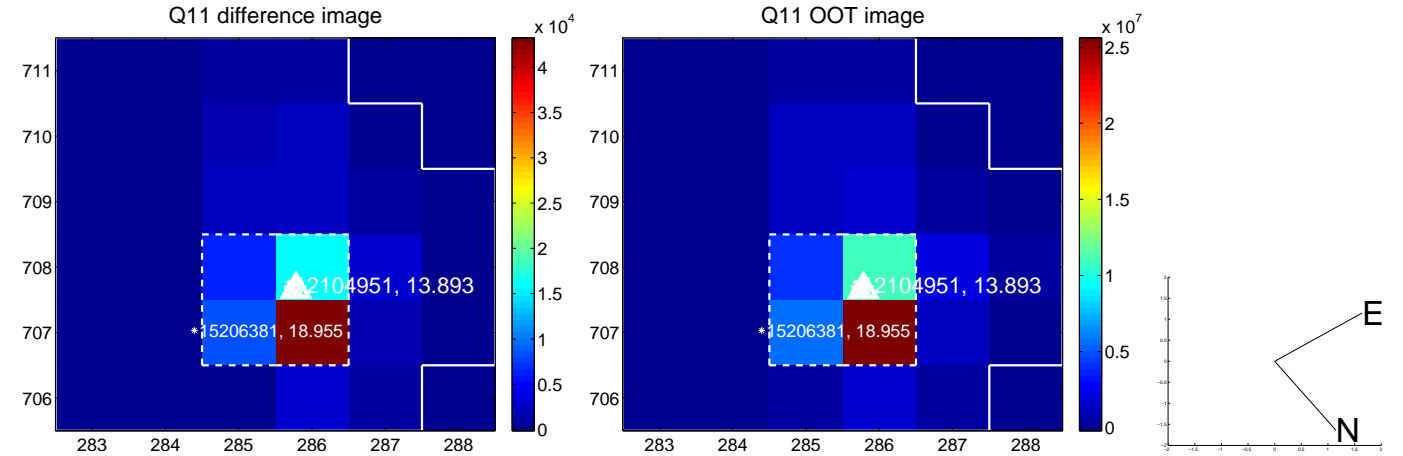
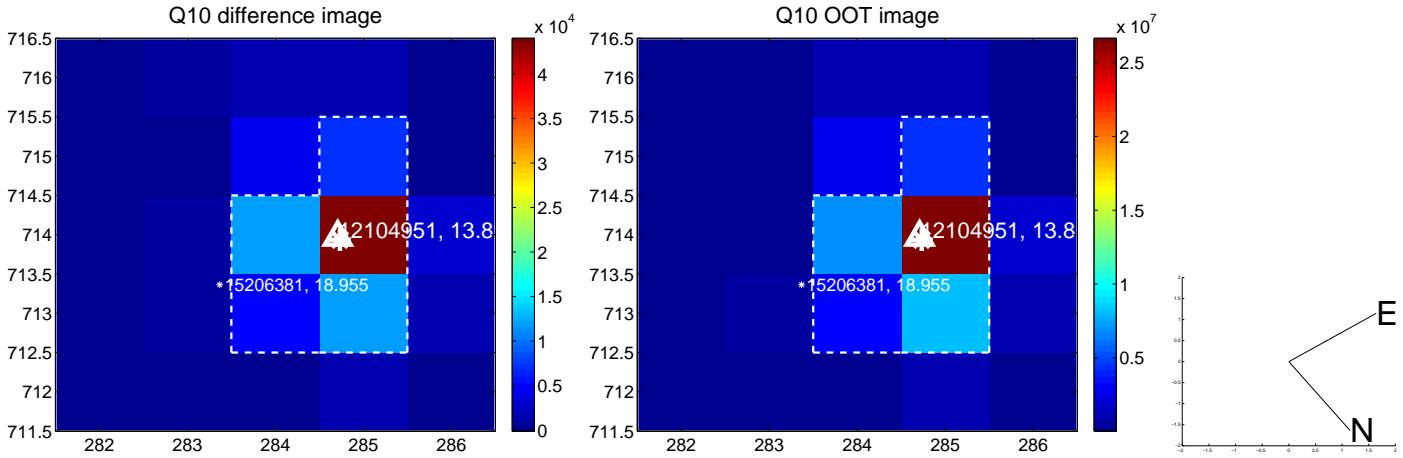
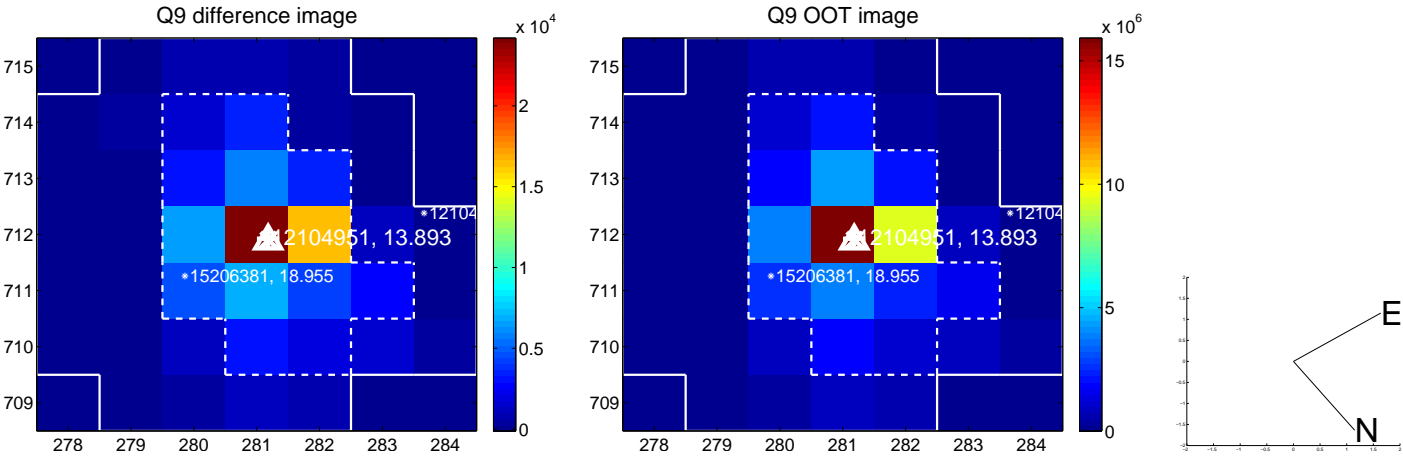
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



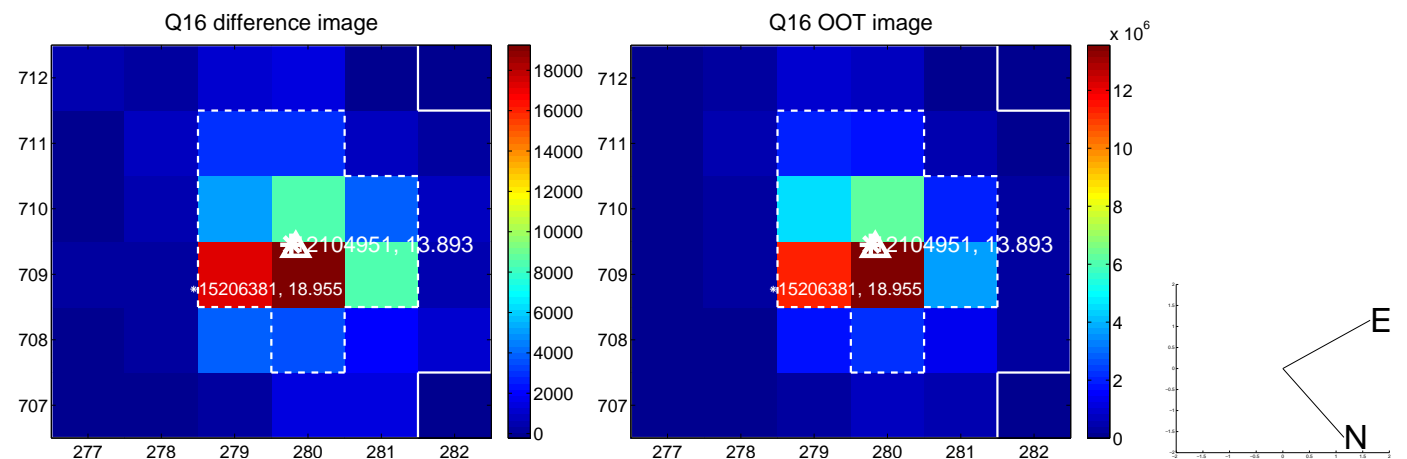
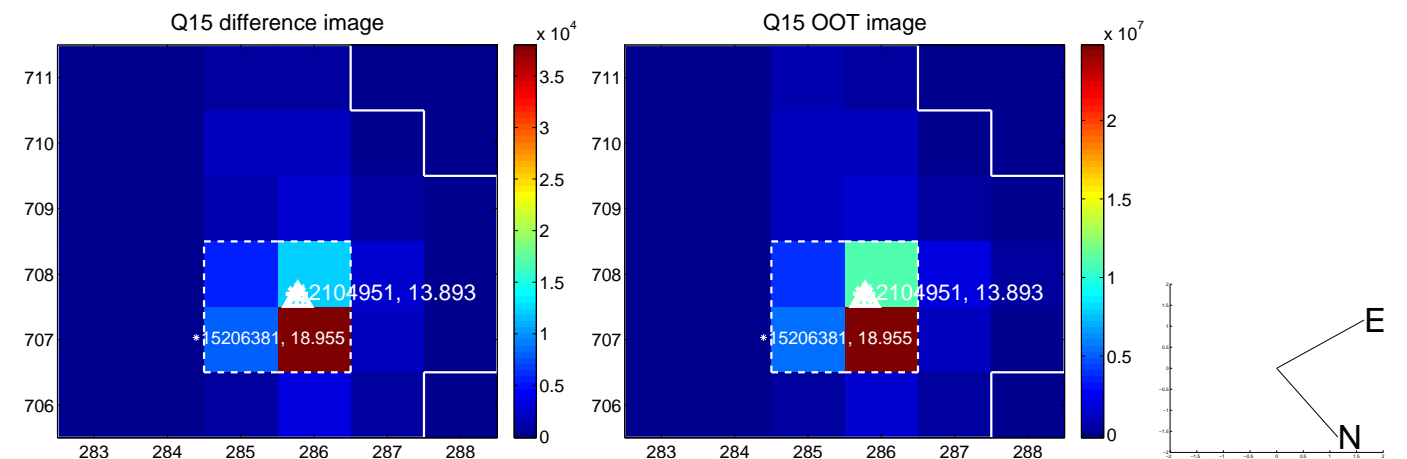
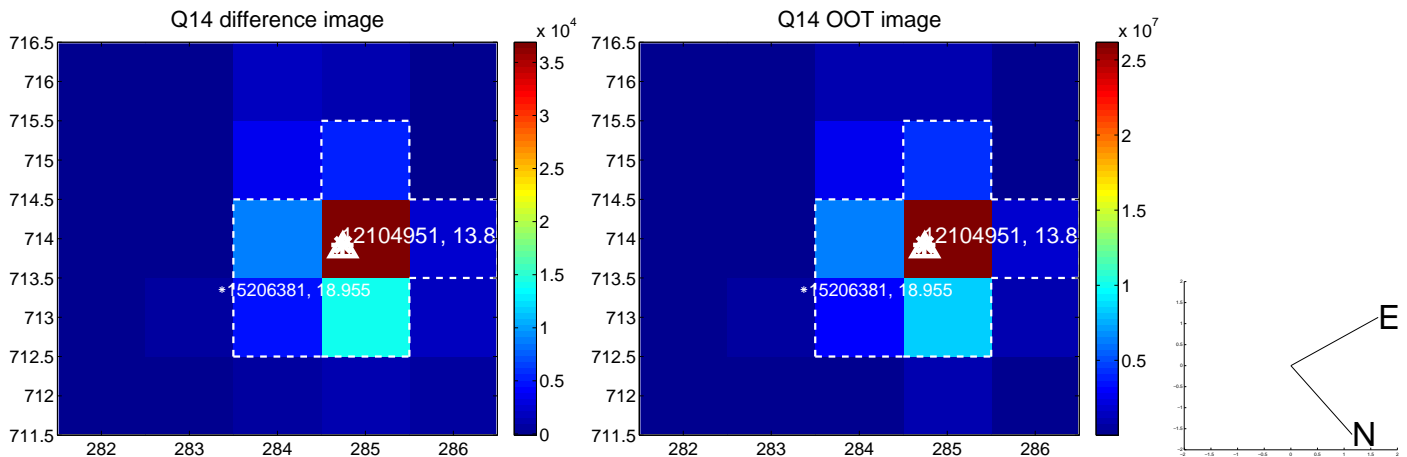
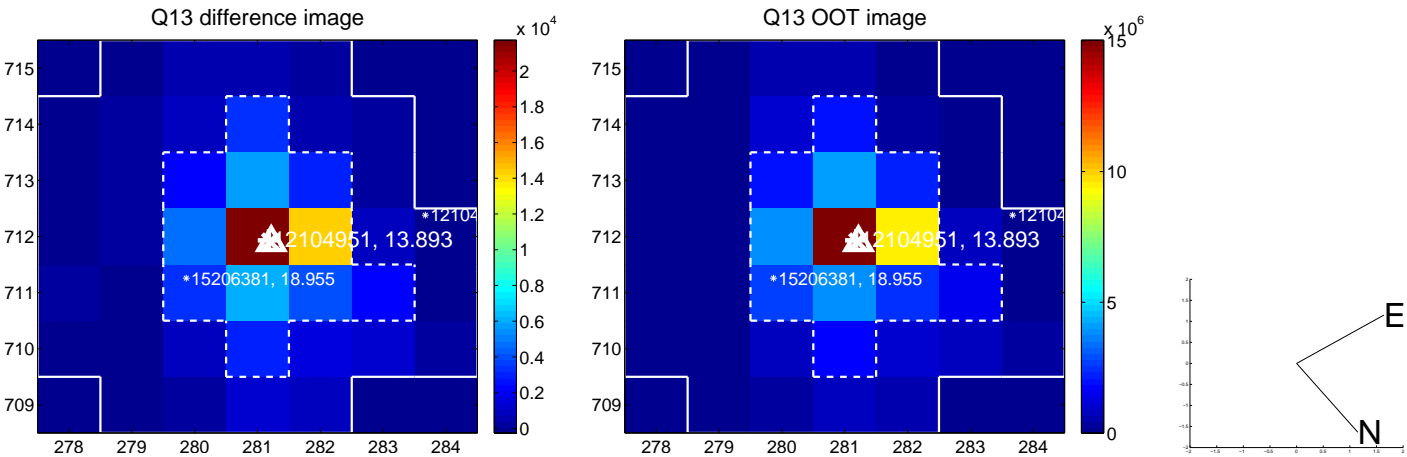
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

