

KIC 009045002

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})
009045002-01	OBS	No	0.660478	131.976634	2.2	2.275	13.9	0.3	2.27	6190	0.40	27029.23
009045002-02	OBS	No	0.660386	131.873533	21.8	4.499	9.3	3.1	2.27	6190	1.06	27034.24
009045002-03	OBS	No	1.408973	132.058492	328.4	1.855	10.7	9.5	2.27	6190	4.34	9842.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009045002-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009045002-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
009045002-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

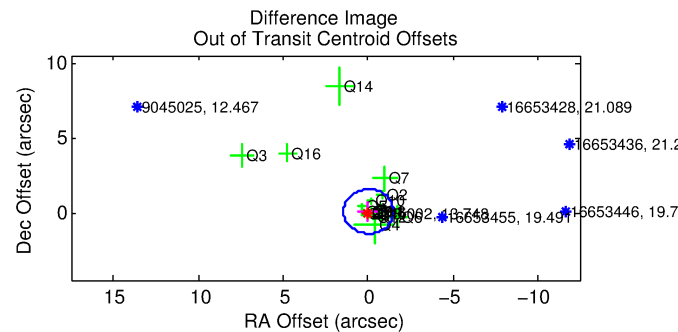
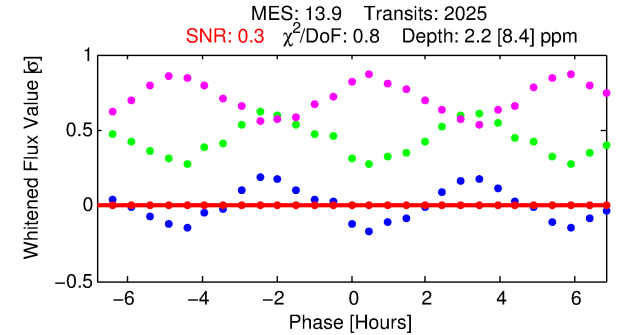
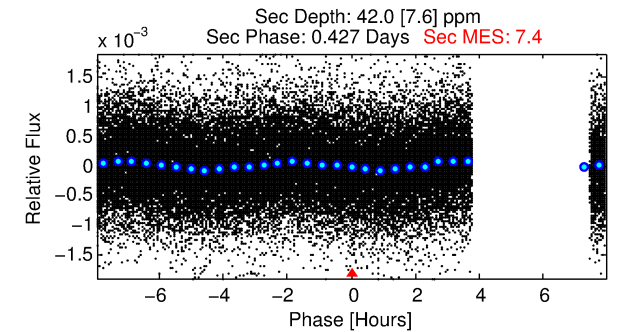
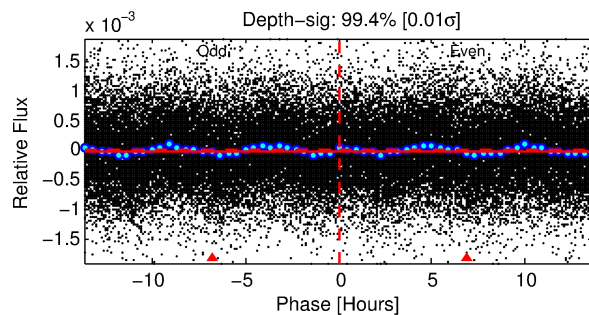
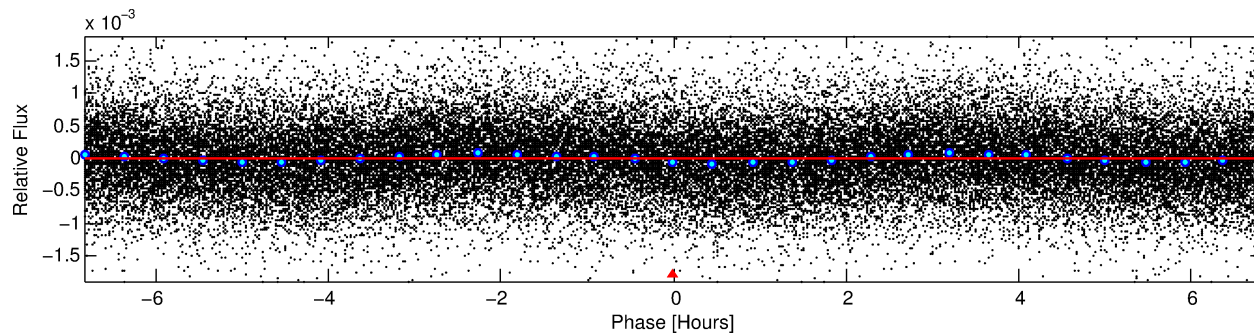
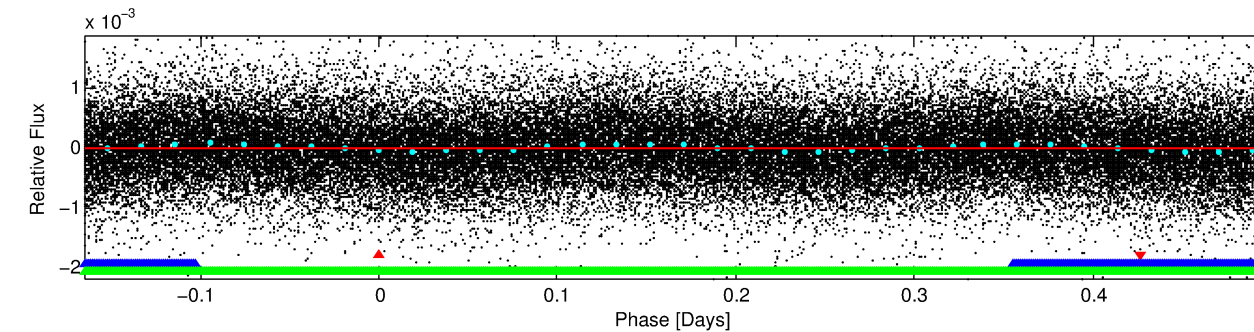
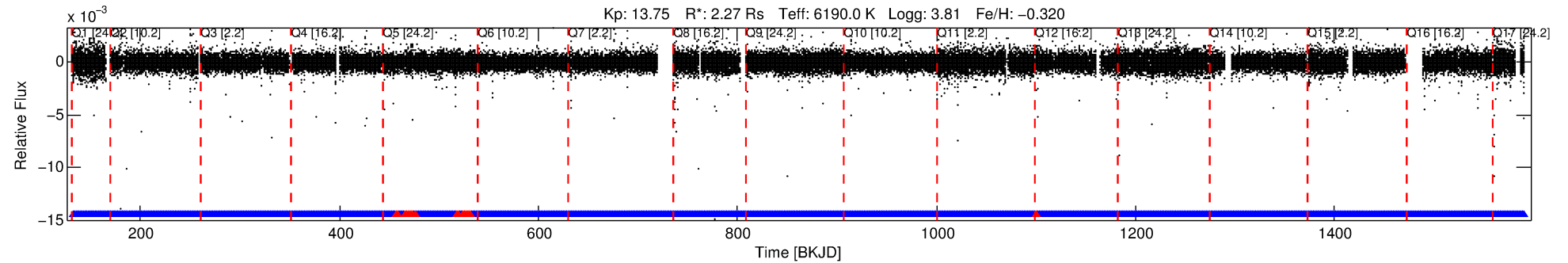
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009045002-01

No Significant Match Found

DV One-Page Summary

KIC: 9045002 Candidate: 1 of 3 Period: 0.660 d



DV Fit Results:

Period = 0.66048 [0.00028] d
Epoch = 131.9766 [0.0799] BKJD
Rp/R* = 0.0016 [0.0044]
a/R* = 1.36 [7.09]
b = 0.90 [2.51]
Seff = 27029.23 [23753.25]
Teff = 3270 [718] K
Rp = 0.40 [1.11] Re
a = 0.0159 [0.0083] AU
Ag = 37.26 [209.44] [0.17 σ]
Teffp = 12489 [17346] K [0.53 σ]

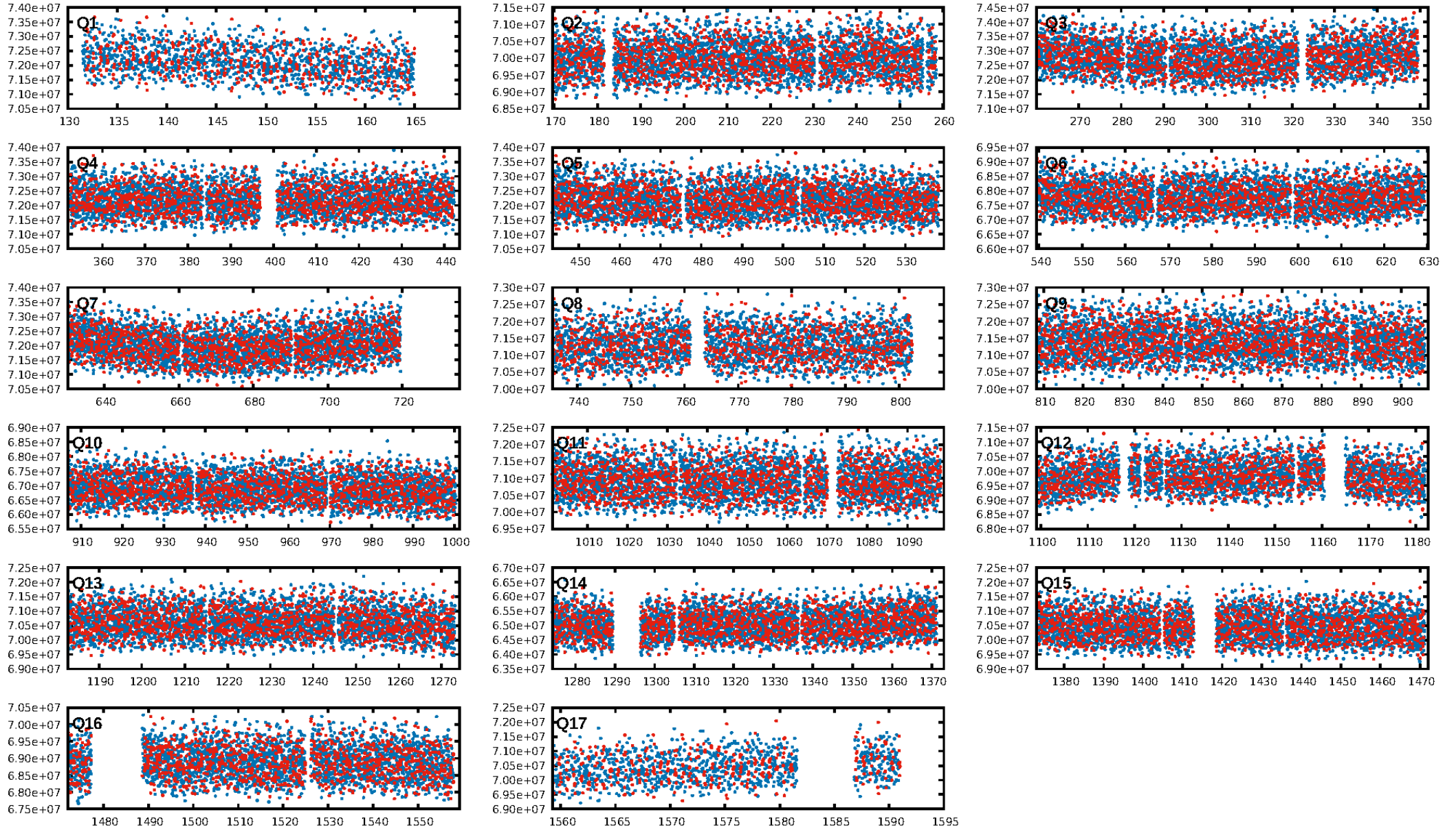
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [6.12 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.57e-13
RollingBand-fgt: 0.99 [1906/1933]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.075 arcsec [0.15 σ]
KicOffset-rm: 0.049 arcsec [0.12 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 0.00 [0/17]

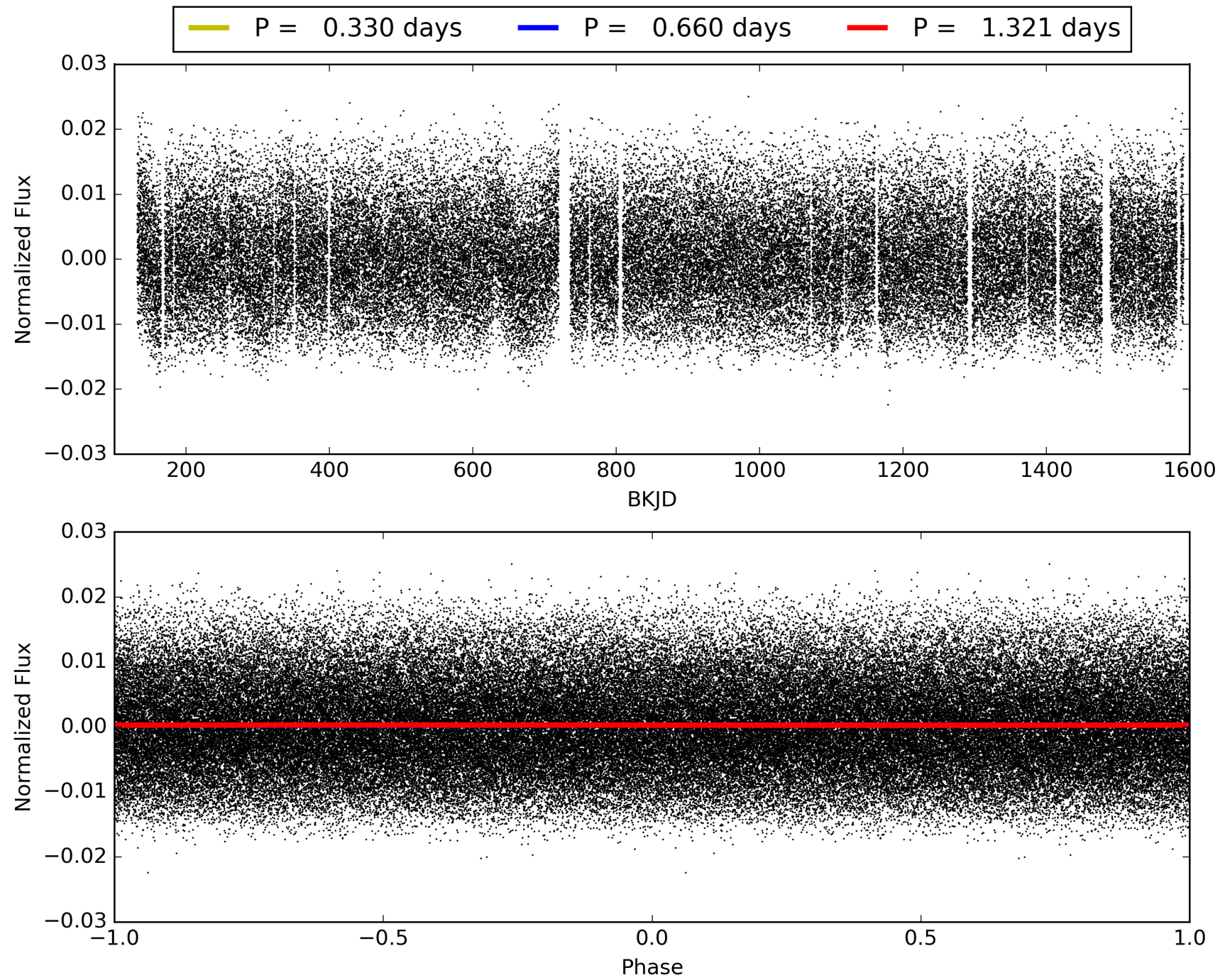
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009045002-01, PDC Light Curves

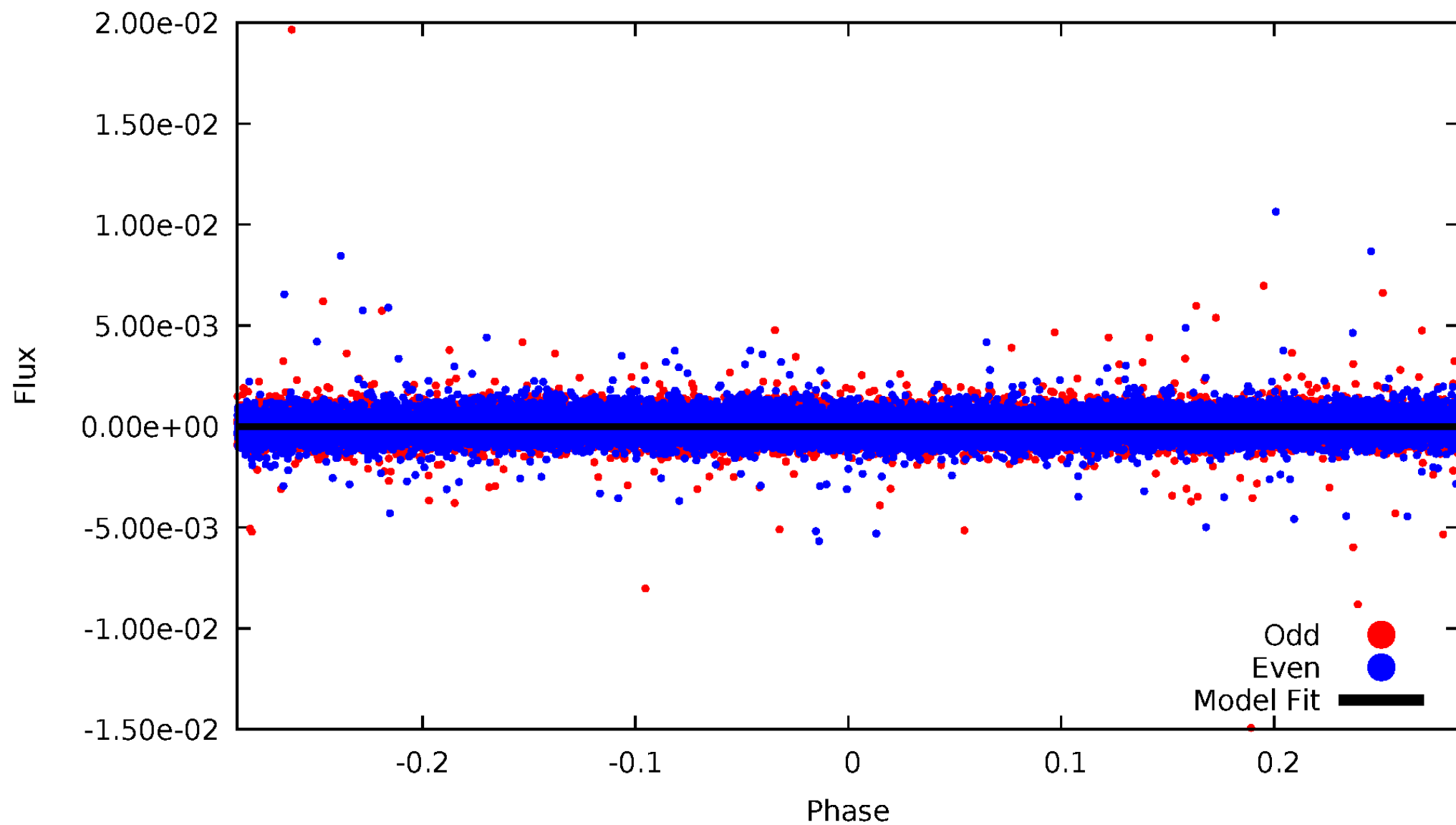


TCE 009045002-01



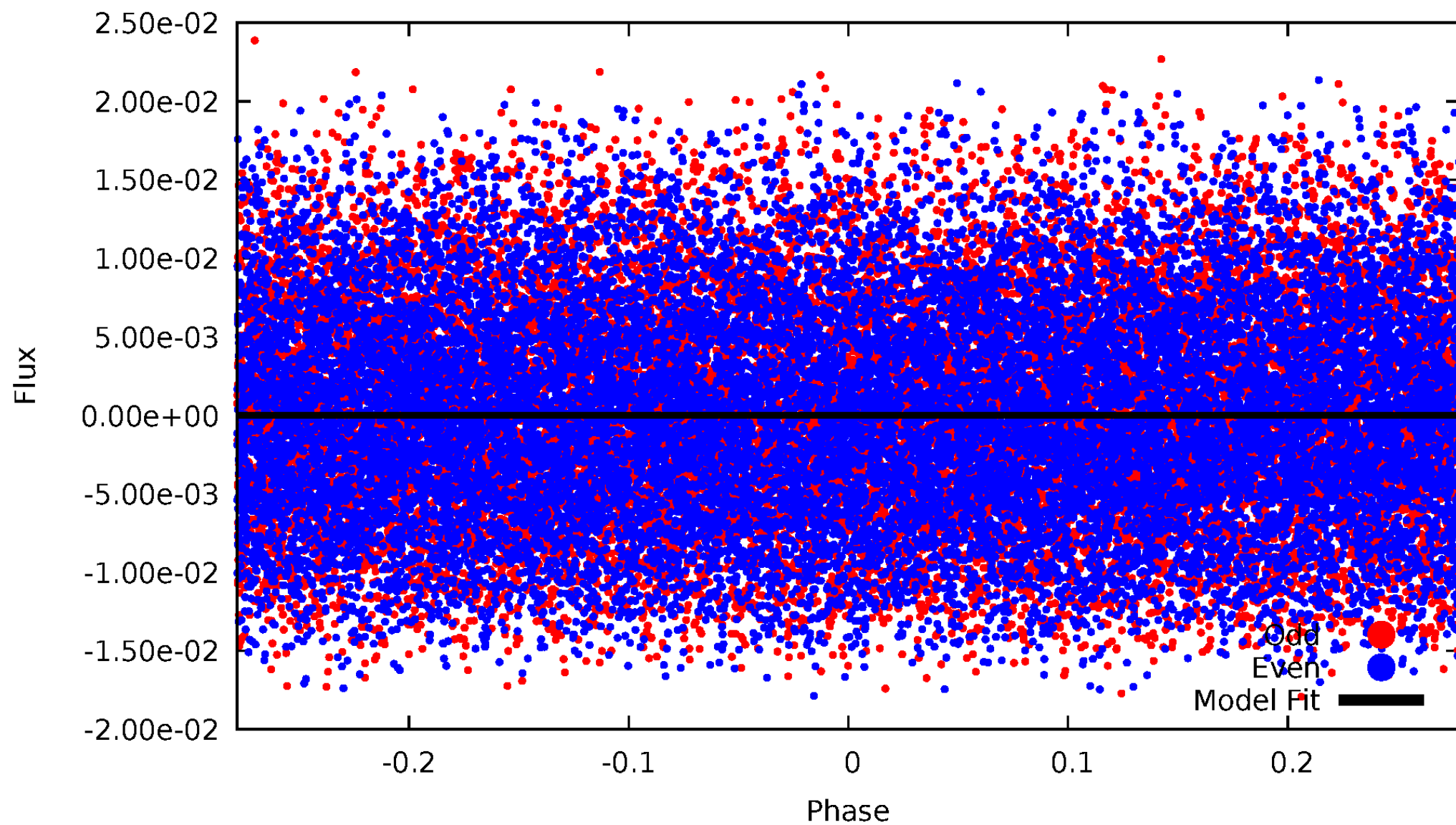
DV Odd/Even

TCE 009045002-01

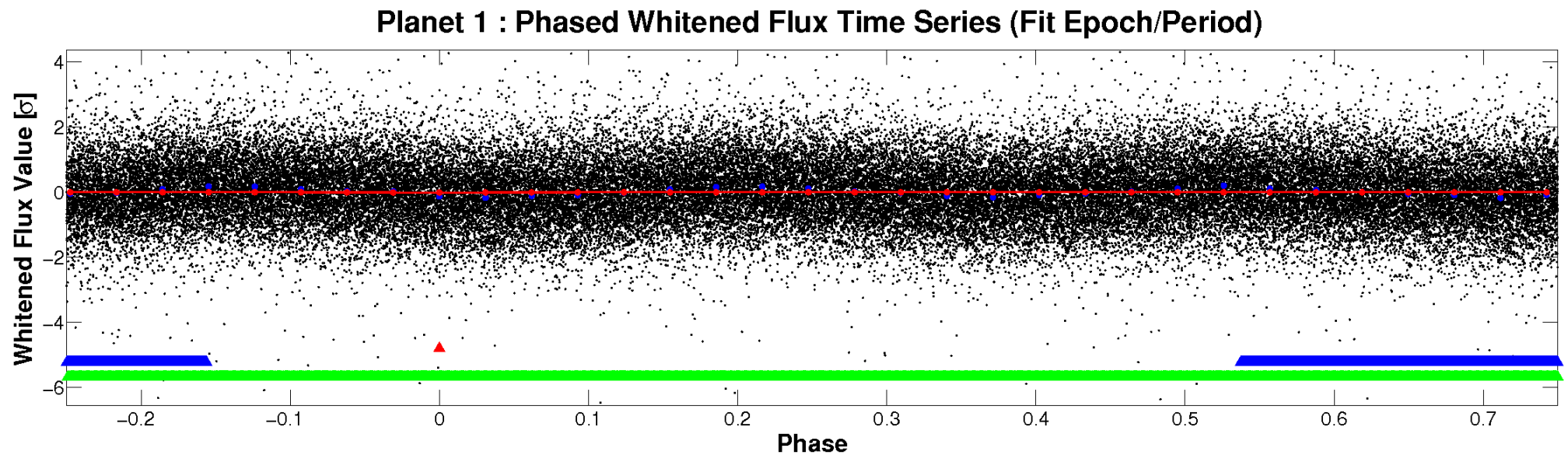
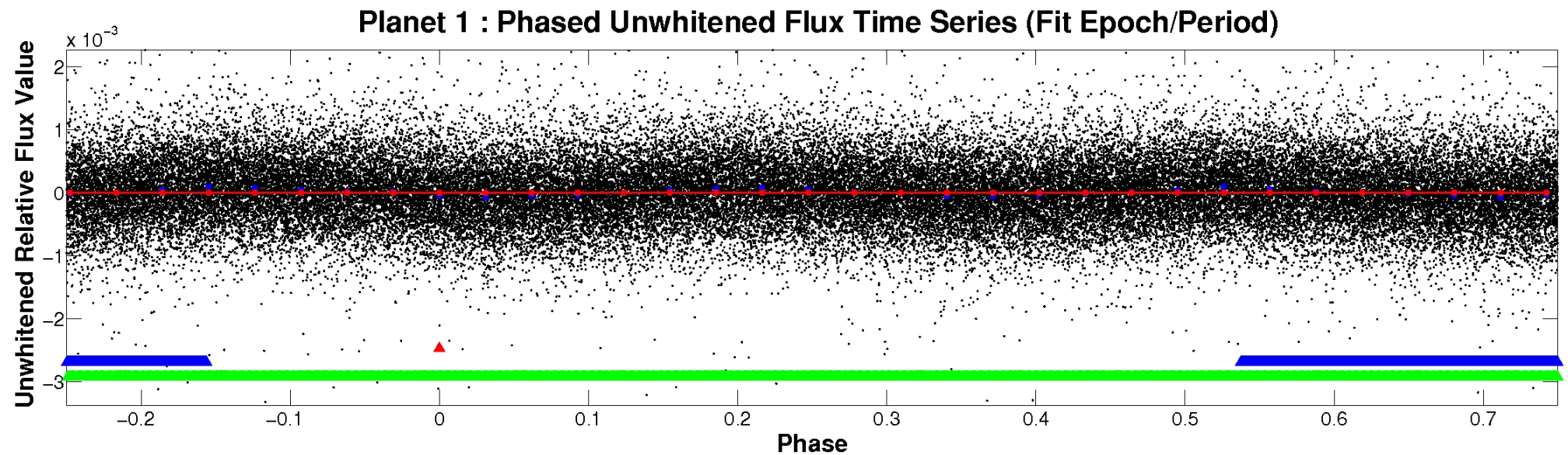


ALT Odd/Even

TCE 009045002-01

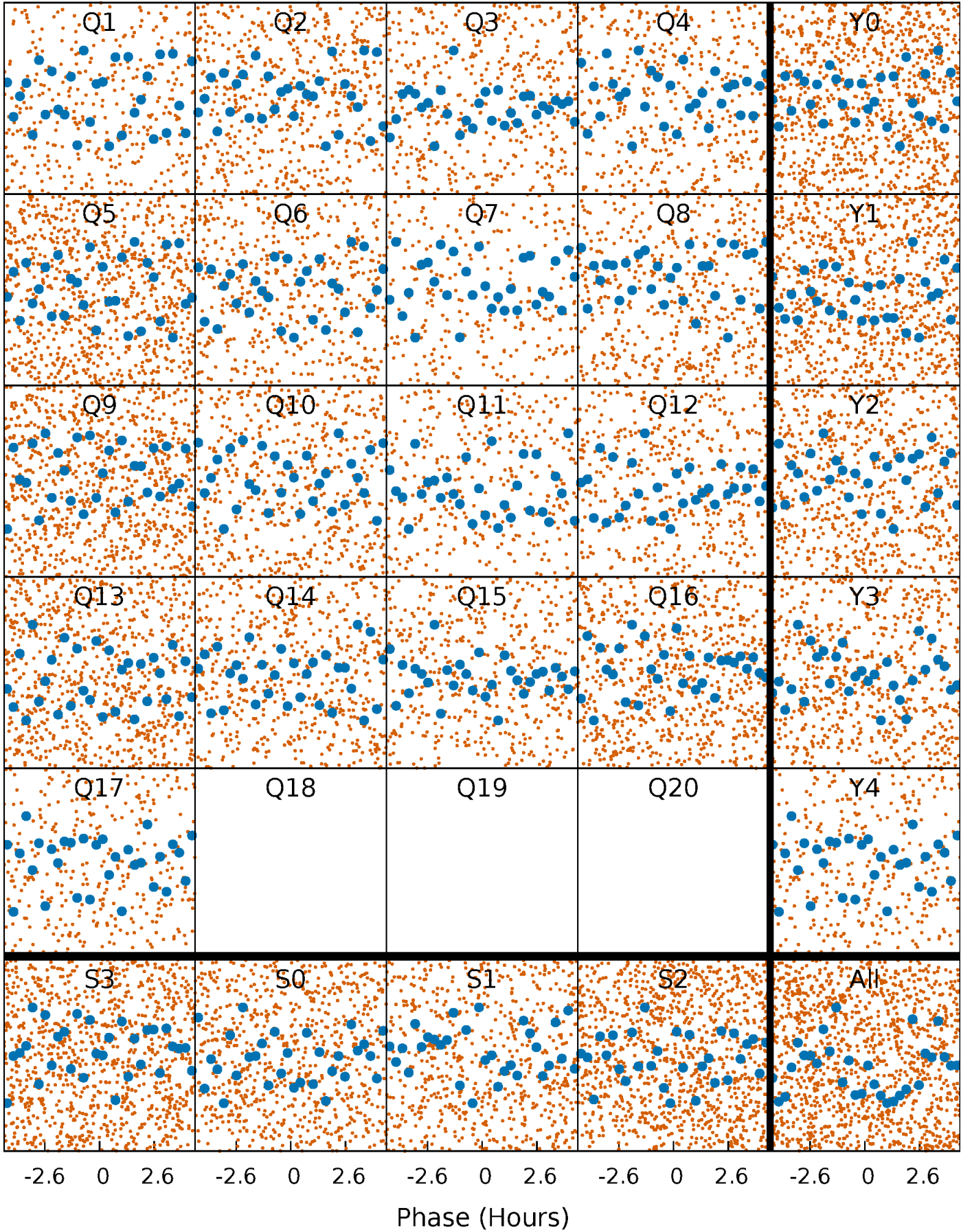


Non-Whitened Vs. Whitened Light Curve



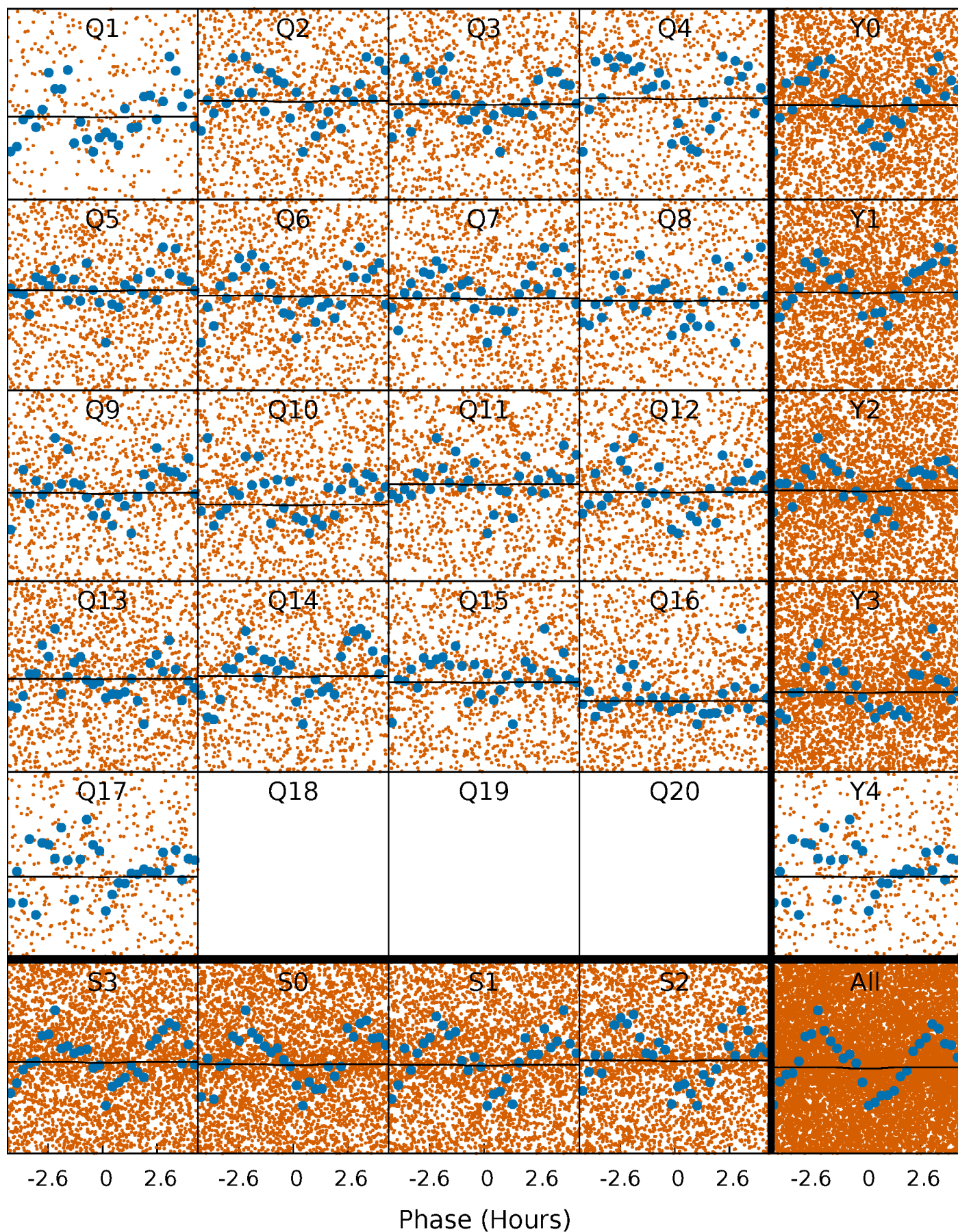
PDC Quarter-Phased Transit Curves

TCE 009045002-01 P= 0.660478 Days $T_0=131.976634$ (BKJD)



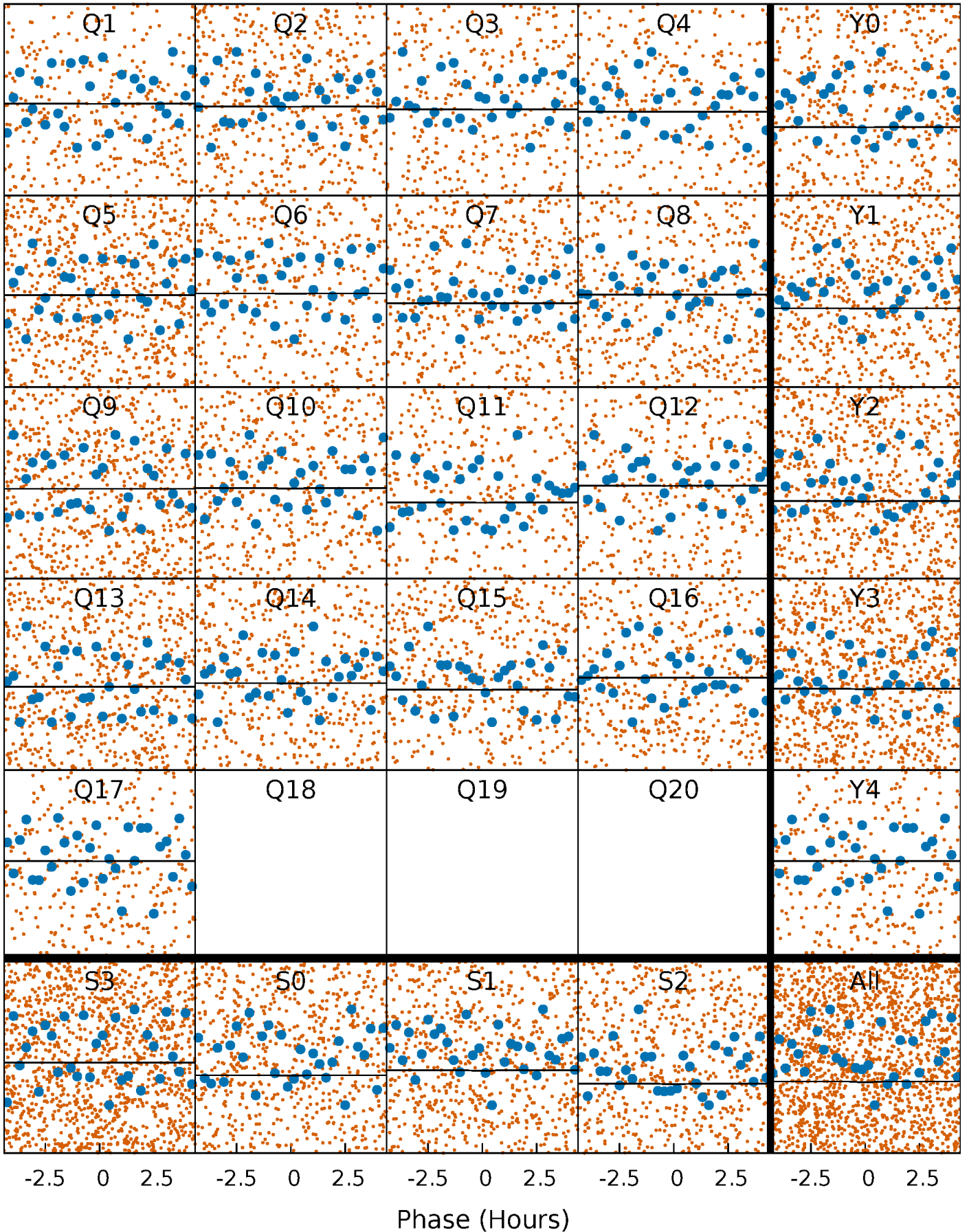
DV Quarter-Phased Transit Curves

TCE 009045002-01 P= 0.660478 Days $T_0=131.976634$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

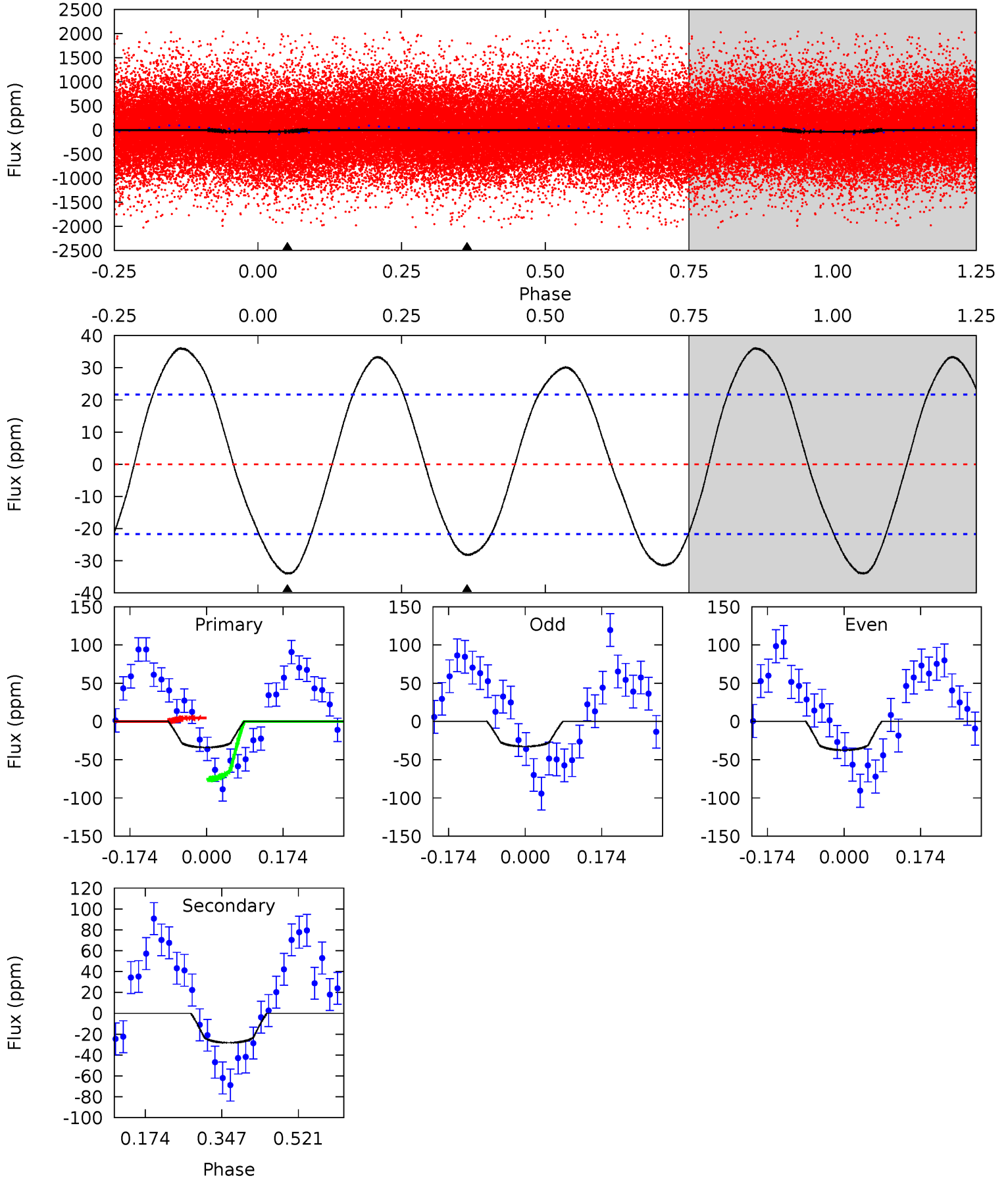
TCE 009045002-01 P= 0.660484 Days $T_0=131.974651$ (BKJD)



DV Model-Shift Uniqueness Test

009045002-01, P = 0.660478 Days, E = 131.316156 Days

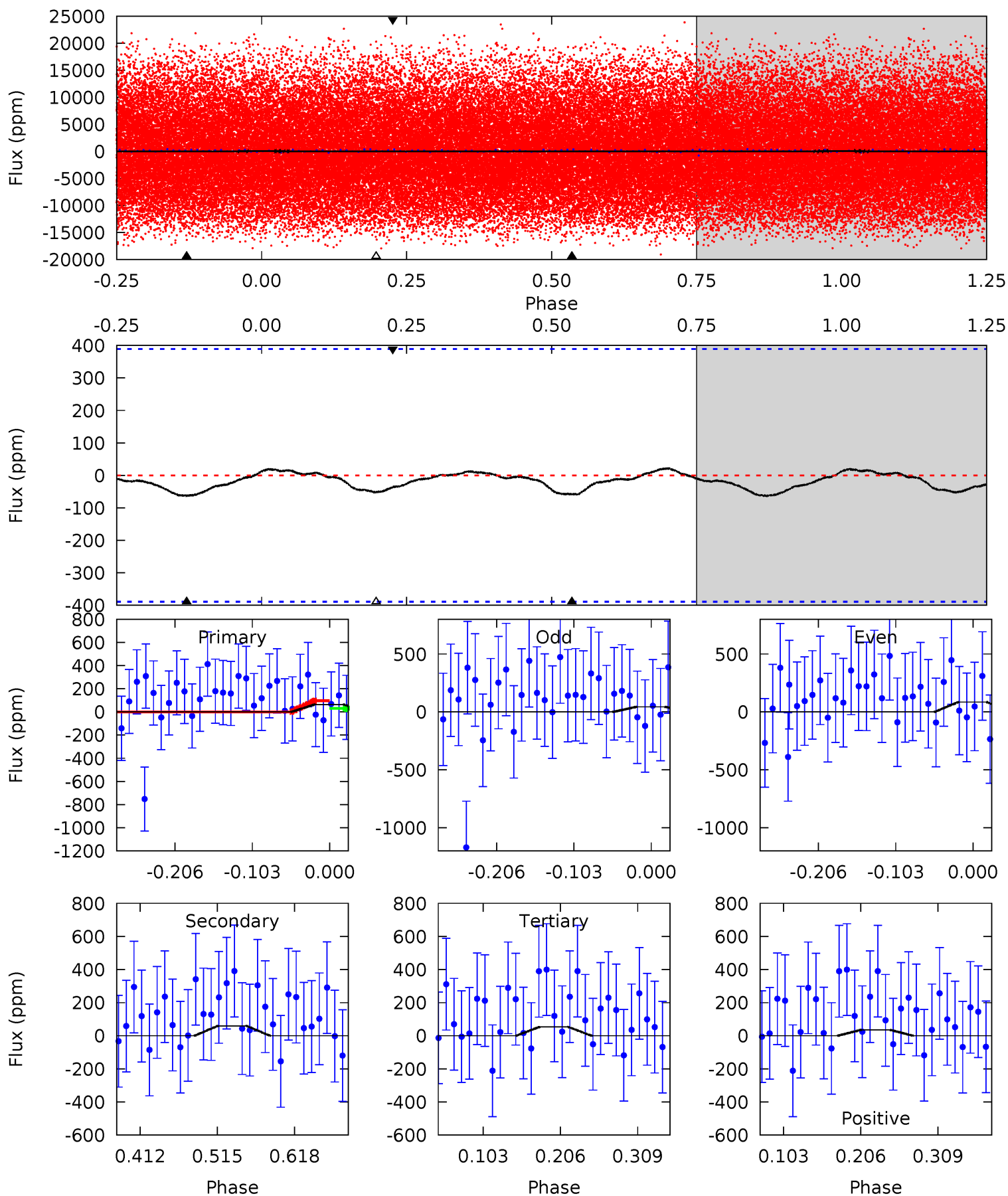
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.97	5.79	0	0	4.45	1.36	4.79	6.97	6.97	5.79	5.79	0.50	0.91	0.51	7.22



Alt Model-Shift Uniqueness Test

009045002-01, P = 0.660484 Days, E = 131.314167 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.75	0.70	0.62	-0.42	4.56	1.63	0.23	0.13	1.17	0.07	1.11	0.24	-3.18	0.26	0.39



Stellar Parameters For KIC 009045002

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6190^{+212}_{-212}	$3.811^{+0.520}_{-0.130}$	$-0.320^{+0.300}_{-0.300}$	$2.275^{+0.499}_{-1.164}$	$1.221^{+0.187}_{-0.280}$	$0.146^{+0.811}_{-0.053}$
	+3%/-3%	+14%/-3%	+94%/-94%	+22%/-51%	+15%/-23%	+555%/-36%
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 009045002-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-28 ± 5	$0.79^{+0.89}_{-0.55}$	4464^{+354}_{-629}	7462^{+13510}_{-2463}	$5.994^{+65.379}_{-4.687}$
Alt.	-59 ± 85	$0.79^{+0.86}_{-0.54}$	4449^{+358}_{-509}	8595^{+19331}_{-15566}	$8.737^{+108.814}_{-12.095}$

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

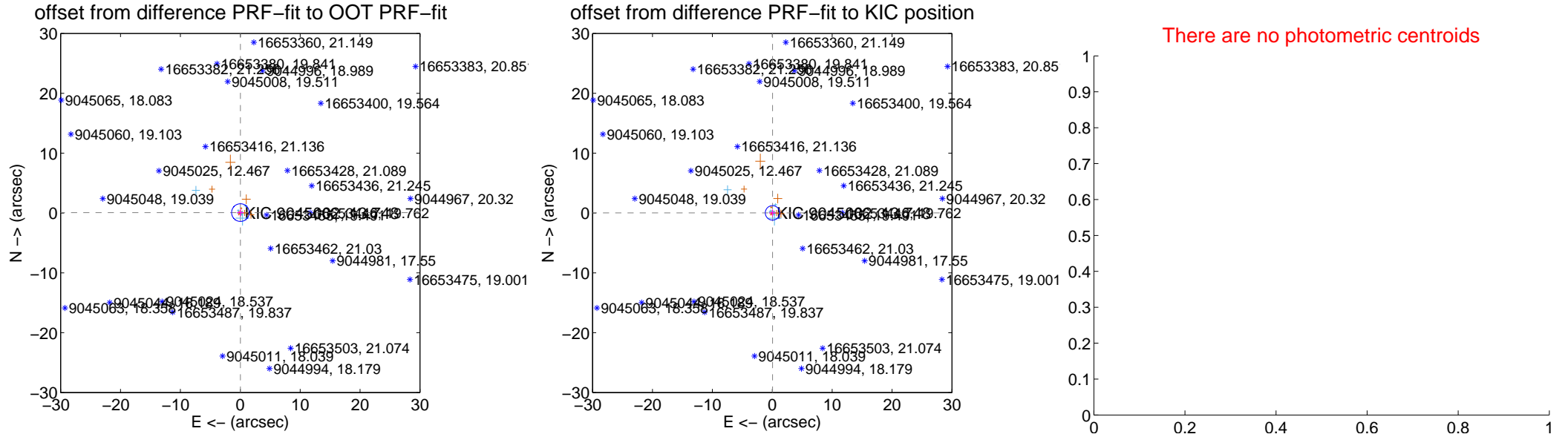
DV Centroid Data

Supplemental centroid analysis for 009045002-01. Kepler magnitude: 13.75. Transit SNR 0.35

There are 9 quarters with good PRF difference image offsets

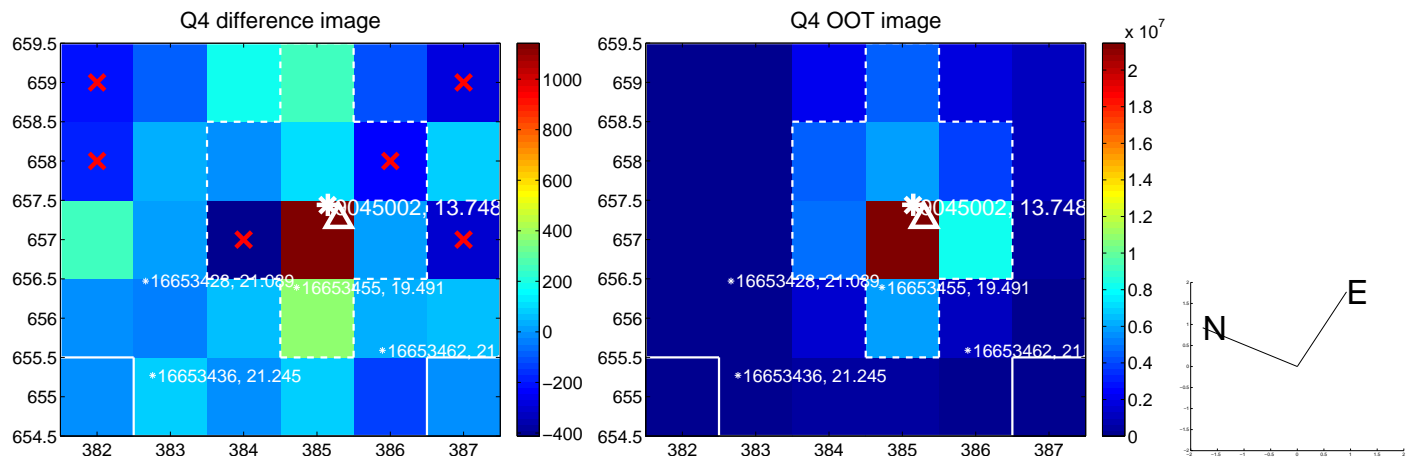
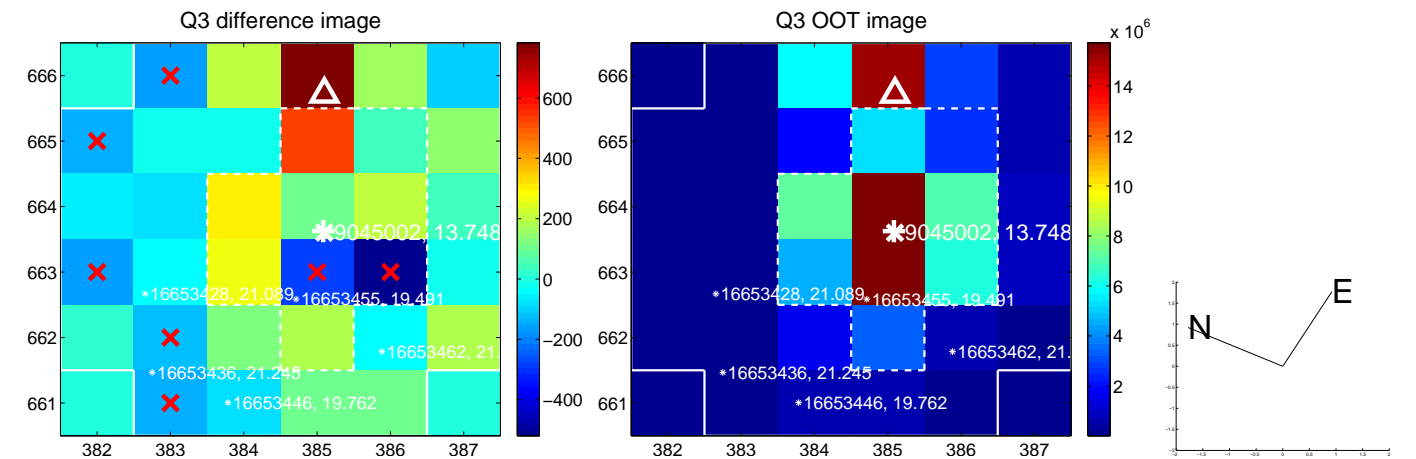
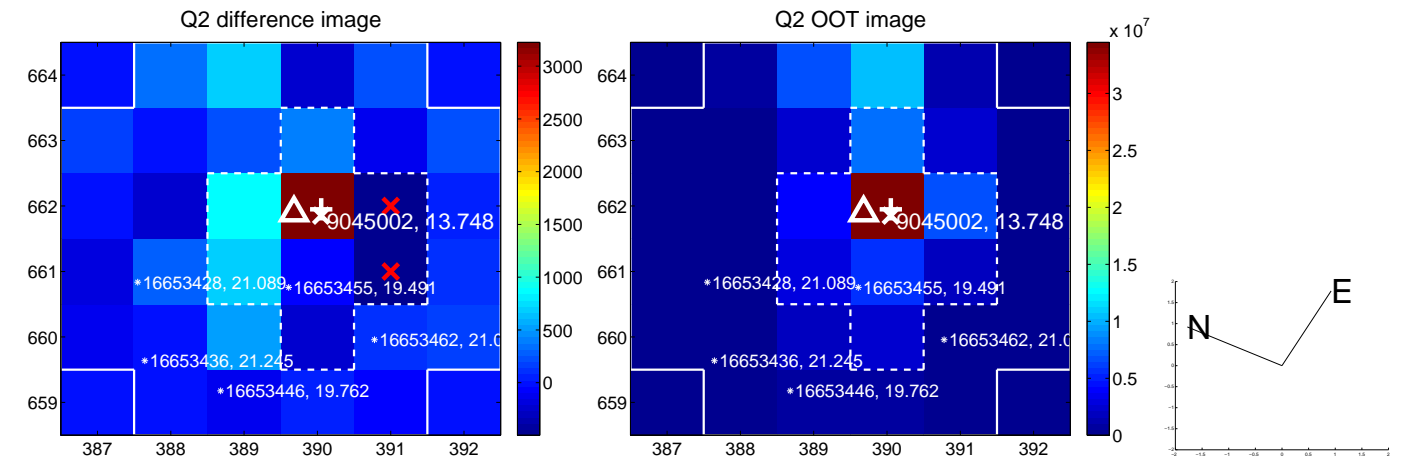
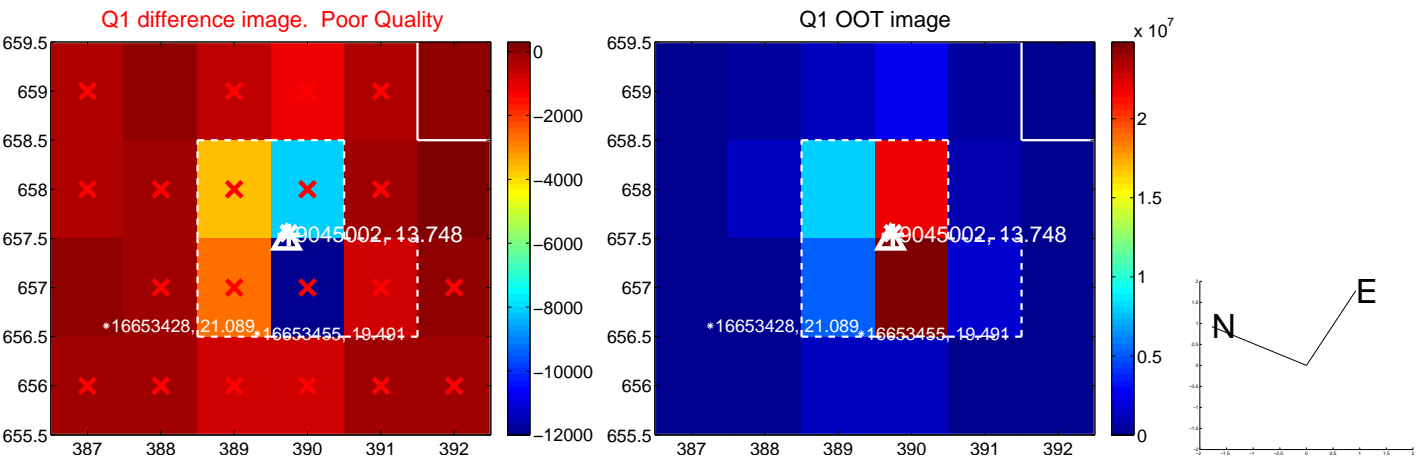
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.075 ± 0.492	0.15	-0.026 ± 0.556	0.071 ± 0.610
PRF-fit source offset from KIC position	0.049 ± 0.402	0.12	-0.044 ± 0.549	0.021 ± 0.562
photometric centroid source offset	—	—	—	—

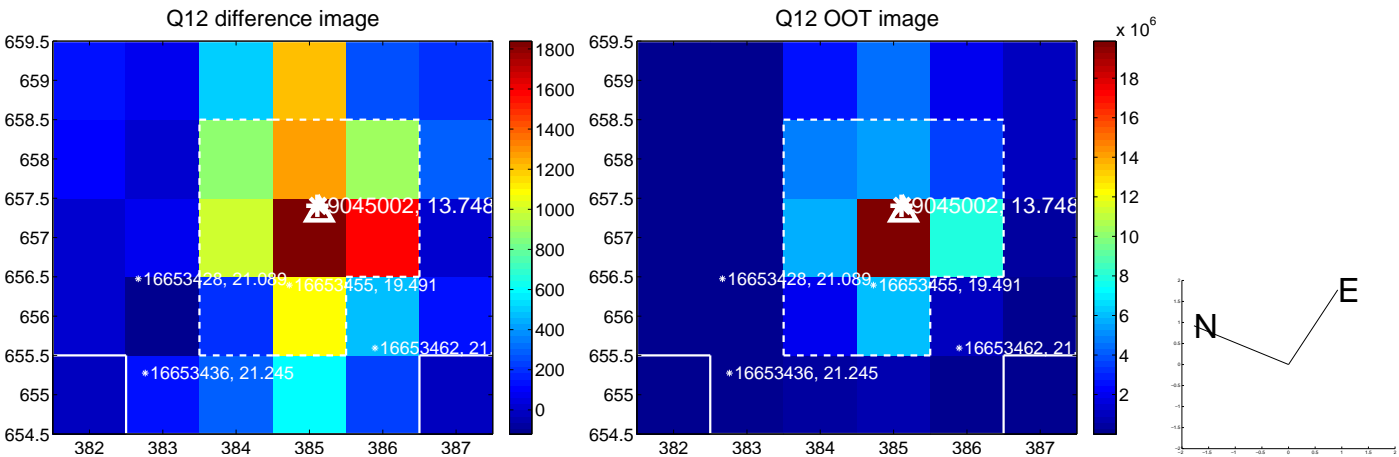
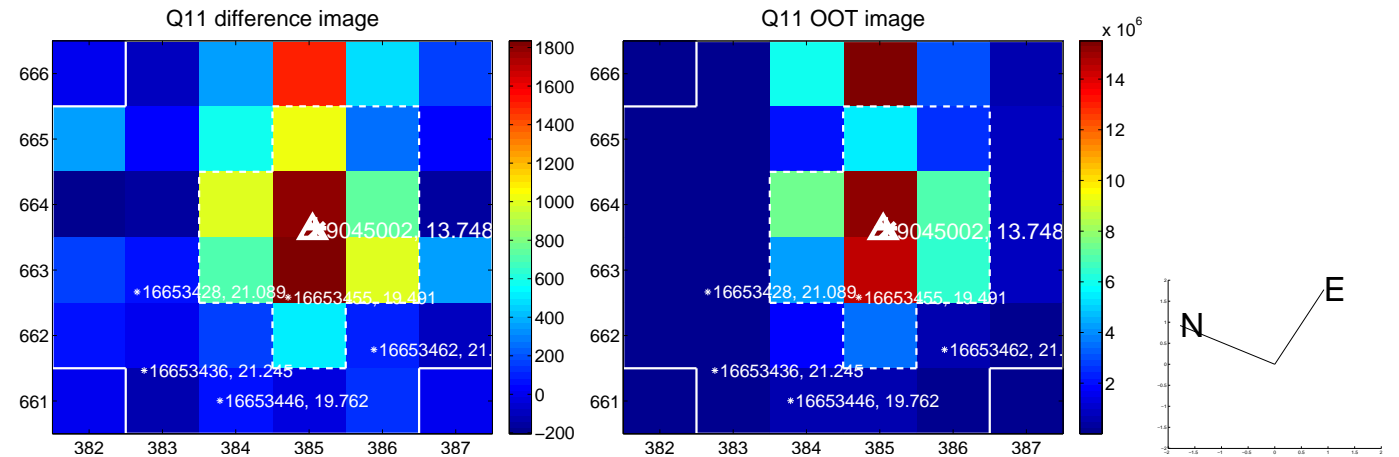
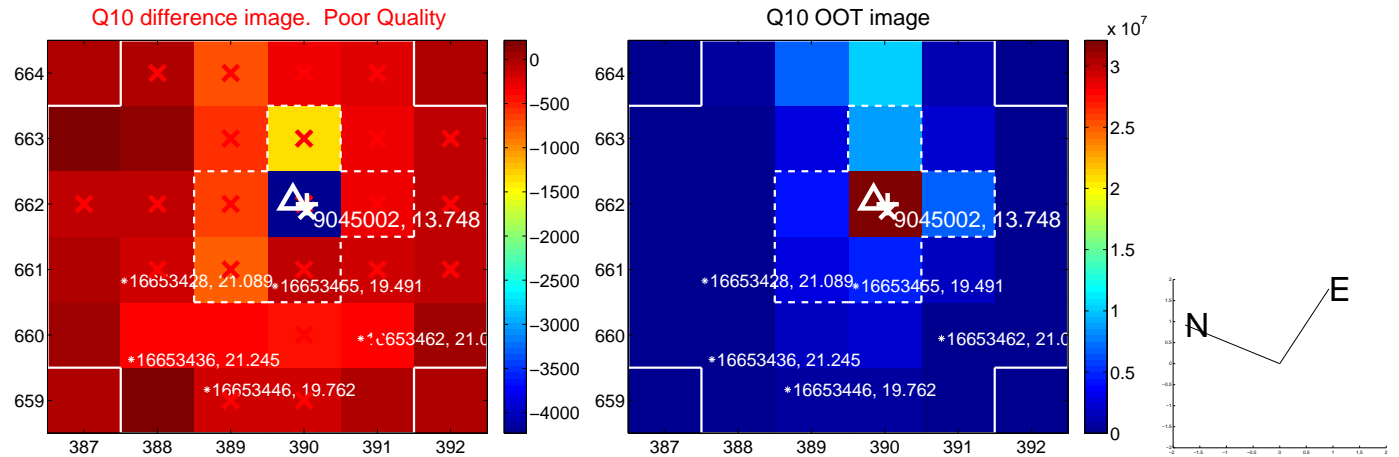
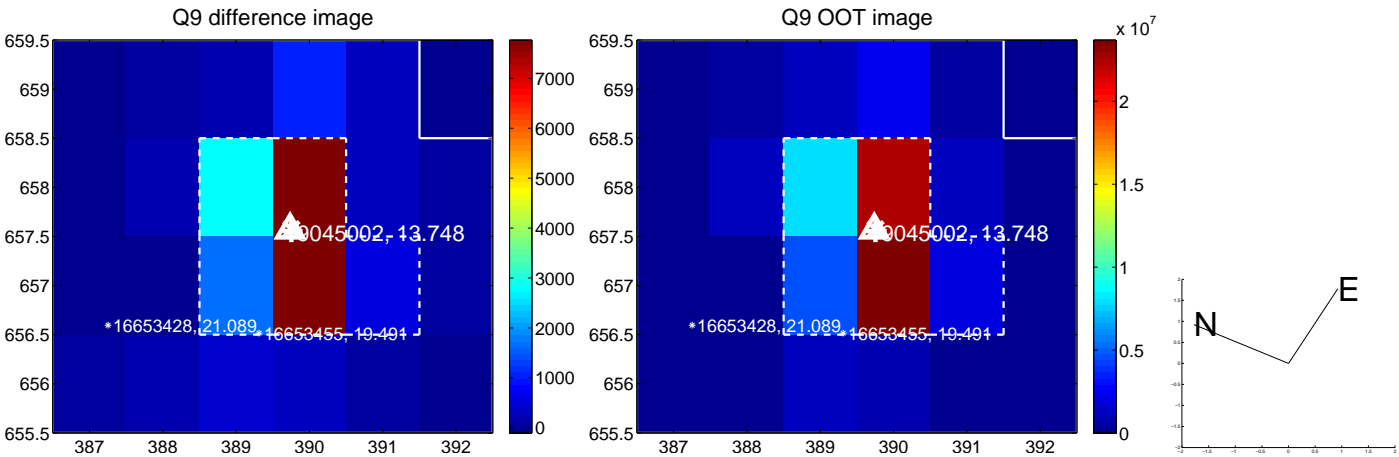


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

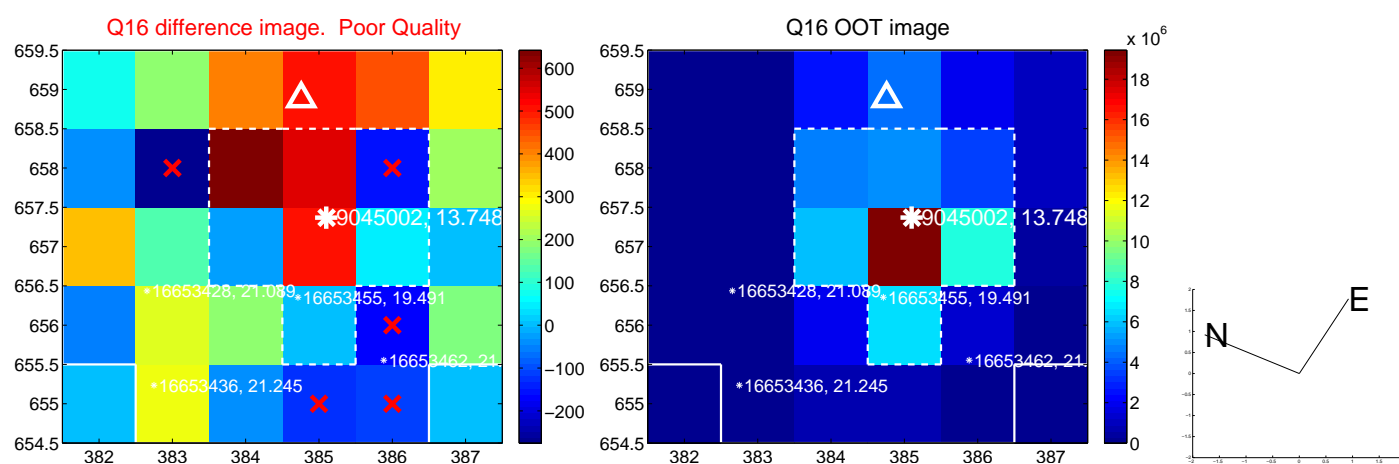
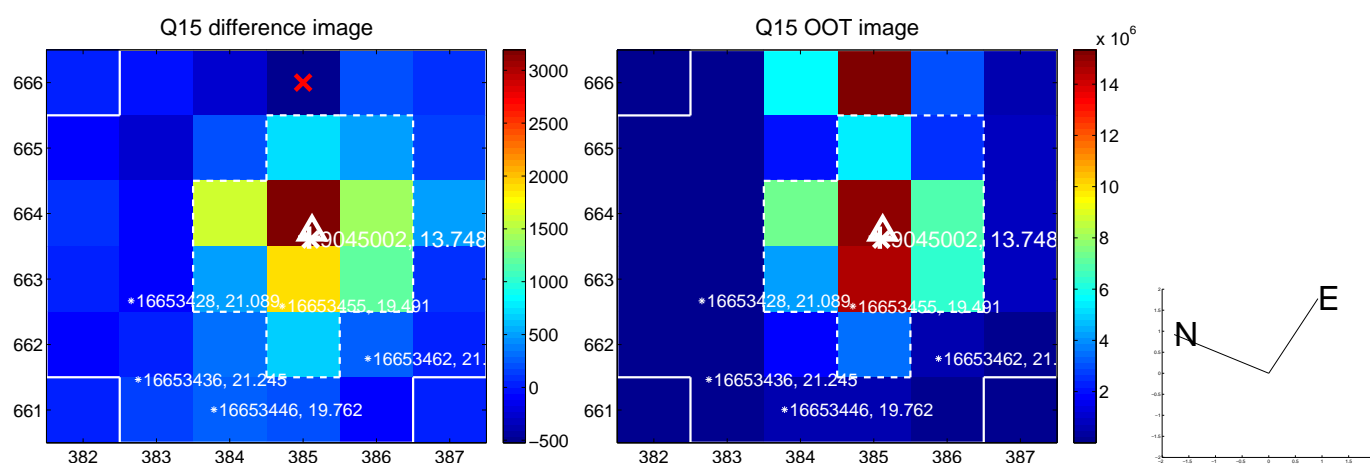
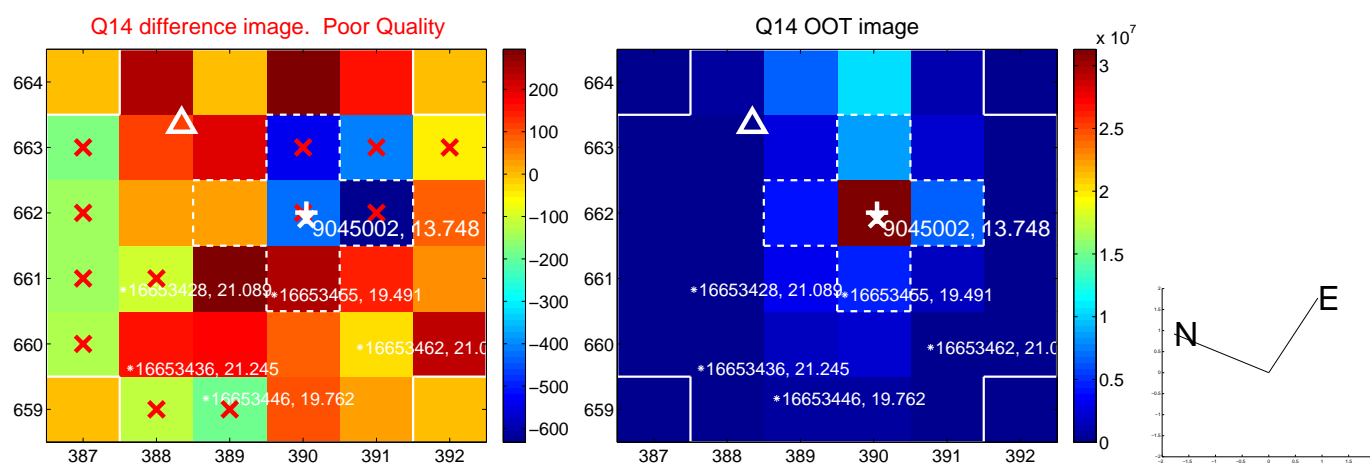
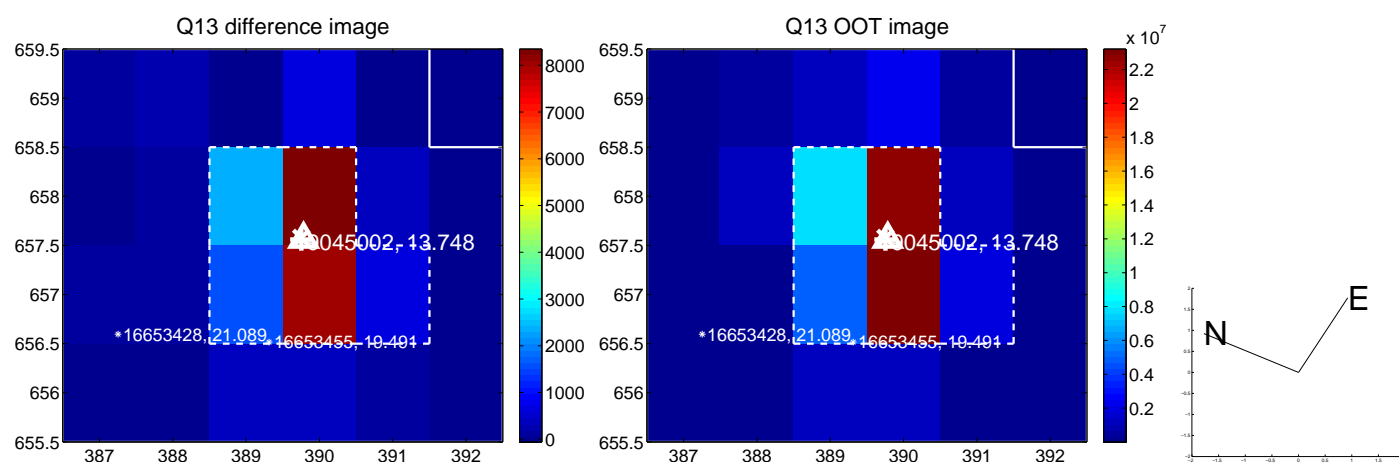
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



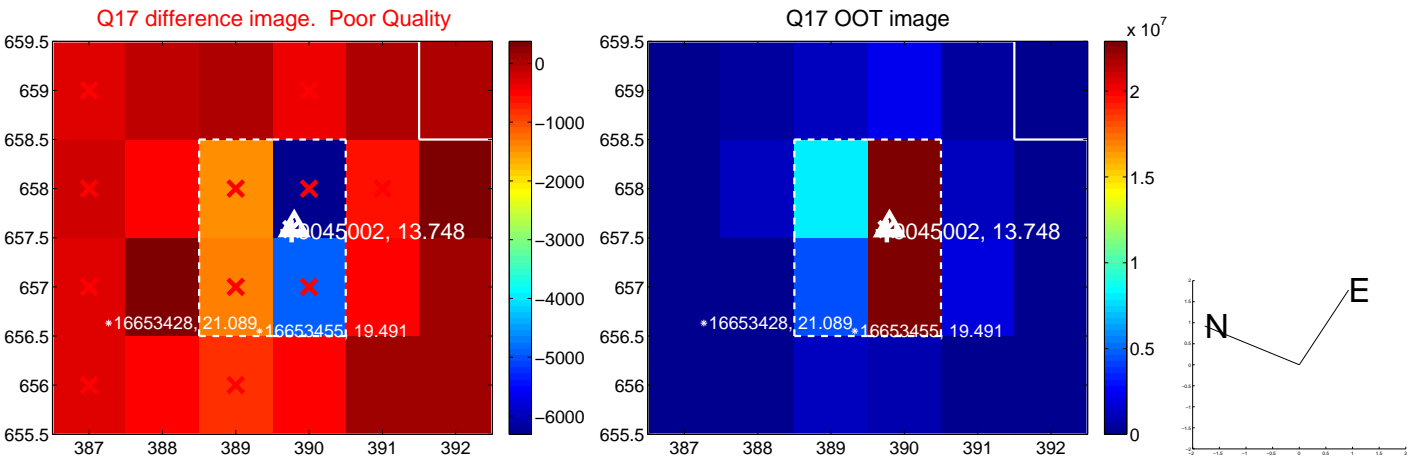
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



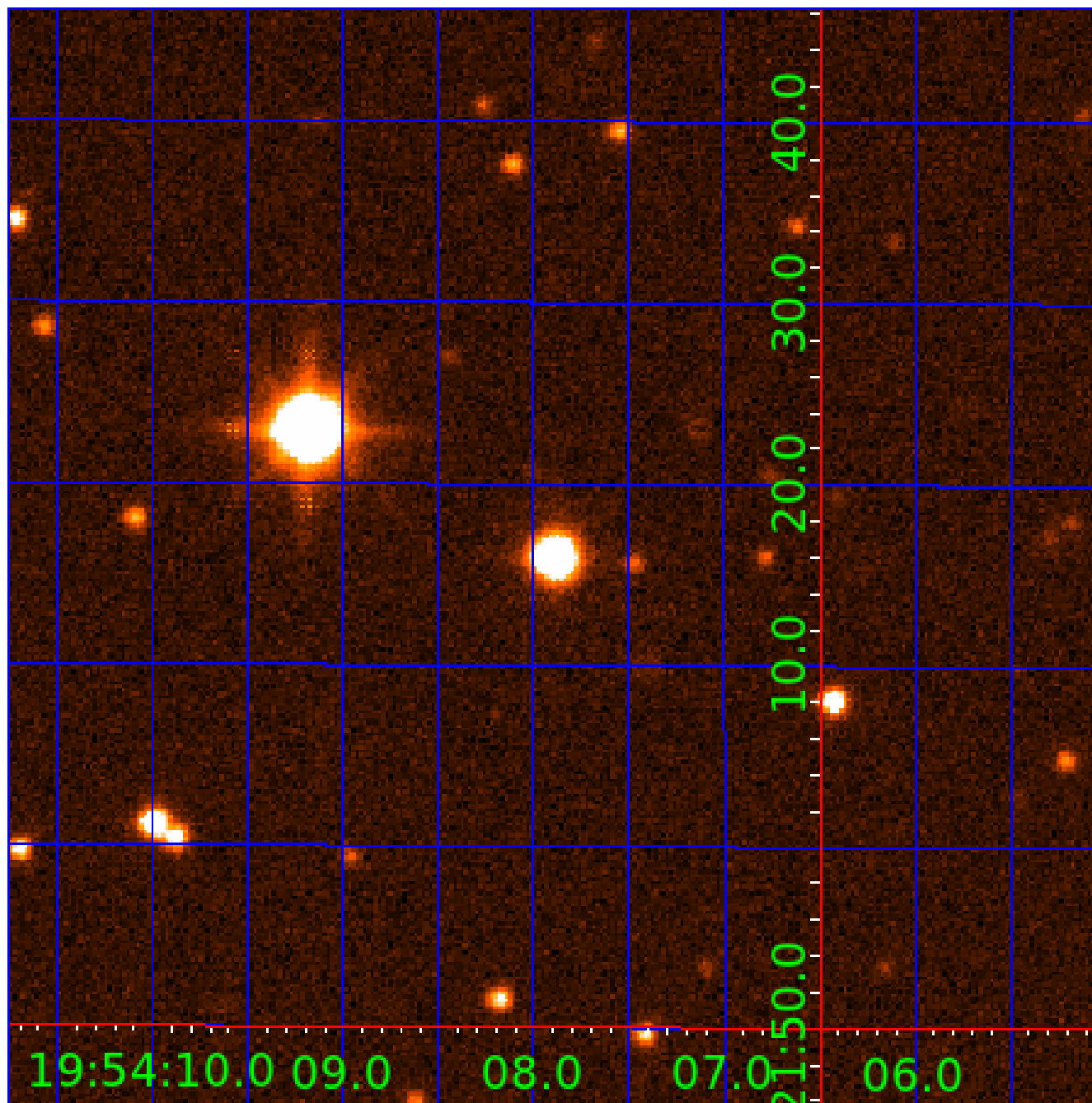
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 009045002

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})
009045002-01	OBS	No	0.660478	131.976634	2.2	2.275	13.9	0.3	2.27	6190	0.40	27029.23
009045002-02	OBS	No	0.660386	131.873533	21.8	4.499	9.3	3.1	2.27	6190	1.06	27034.24
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009045002-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009045002-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
009045002-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

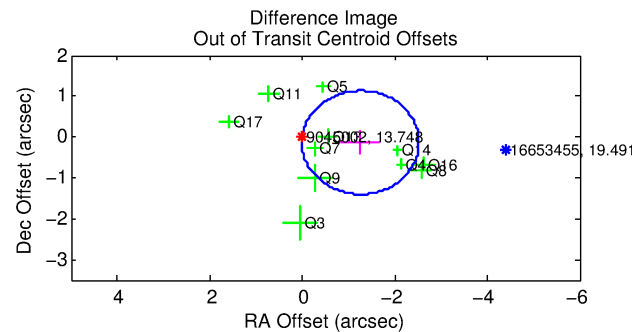
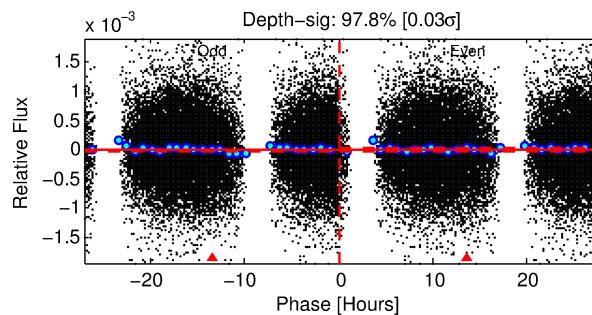
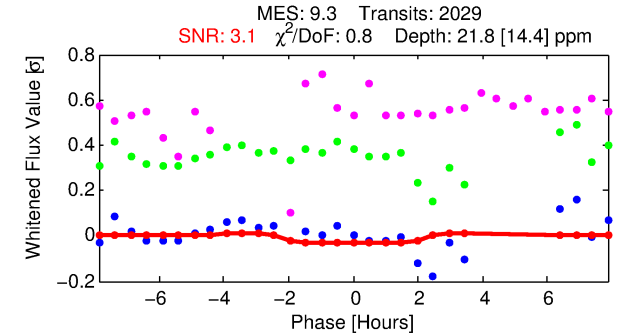
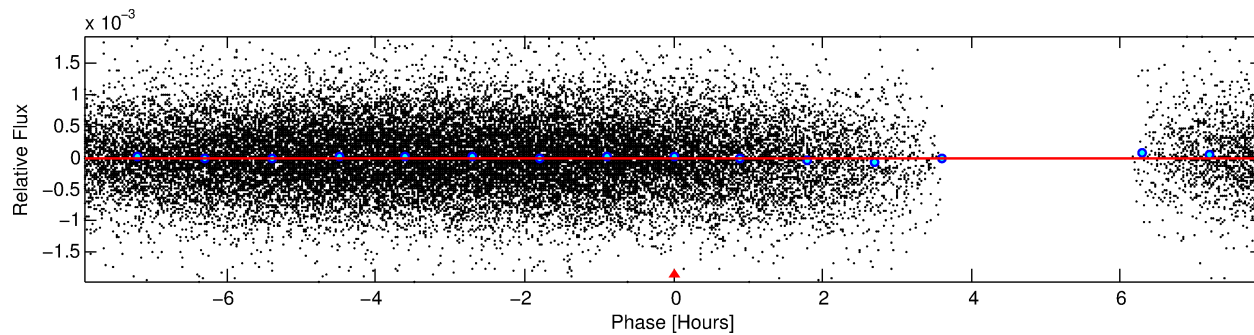
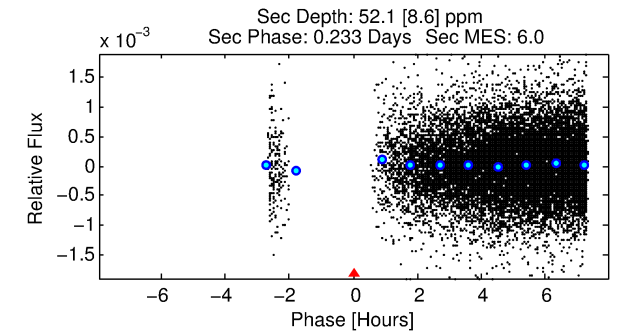
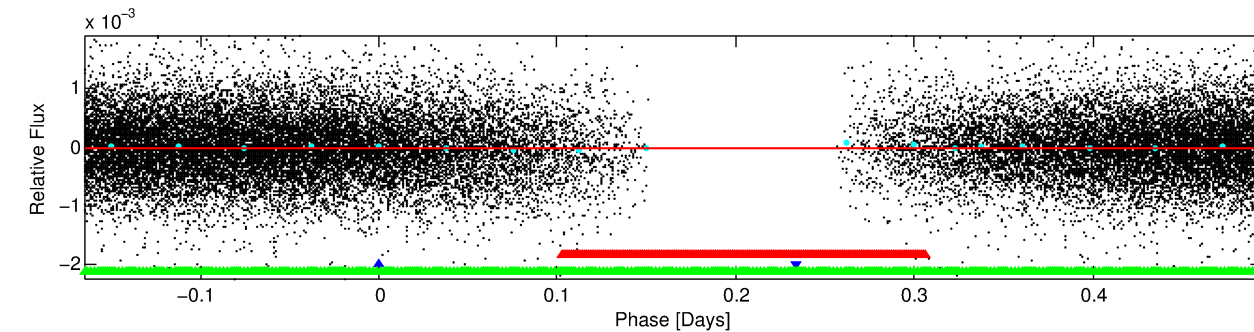
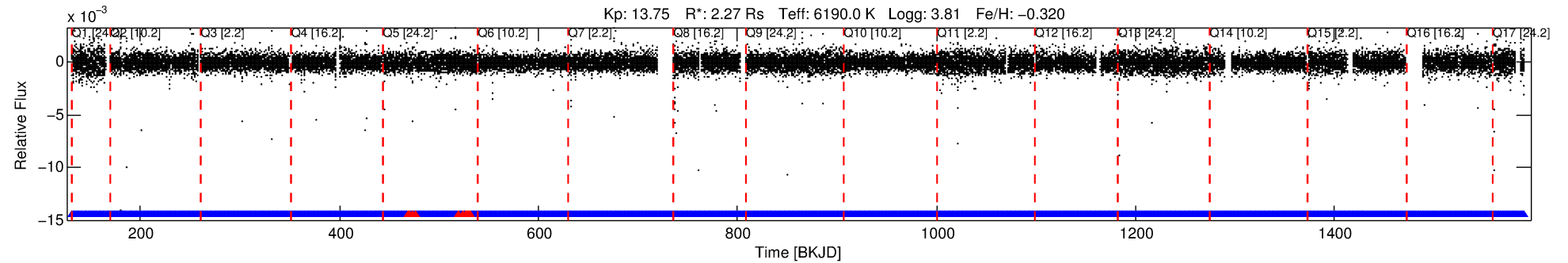
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009045002-02

No Significant Match Found

DV One-Page Summary

KIC: 9045002 Candidate: 2 of 3 Period: 0.660 d



DV Fit Results:

Period = 0.66039 [0.00006] d
Epoch = 131.8735 [0.0157] BKJD
Rp/R* = 0.0043 [0.0135]
a/R* = 1.29 [8.11]
b = 0.02 [1047.98]
Seff = 27034.24 [23757.64]
Teq = 3270 [718] K
Rp = 1.06 [3.41] Re
a = 0.0159 [0.0083] AU
Ag = 6.39 [40.78] [0.13σ]
Teffp = 8036 [12713] K [0.37σ]

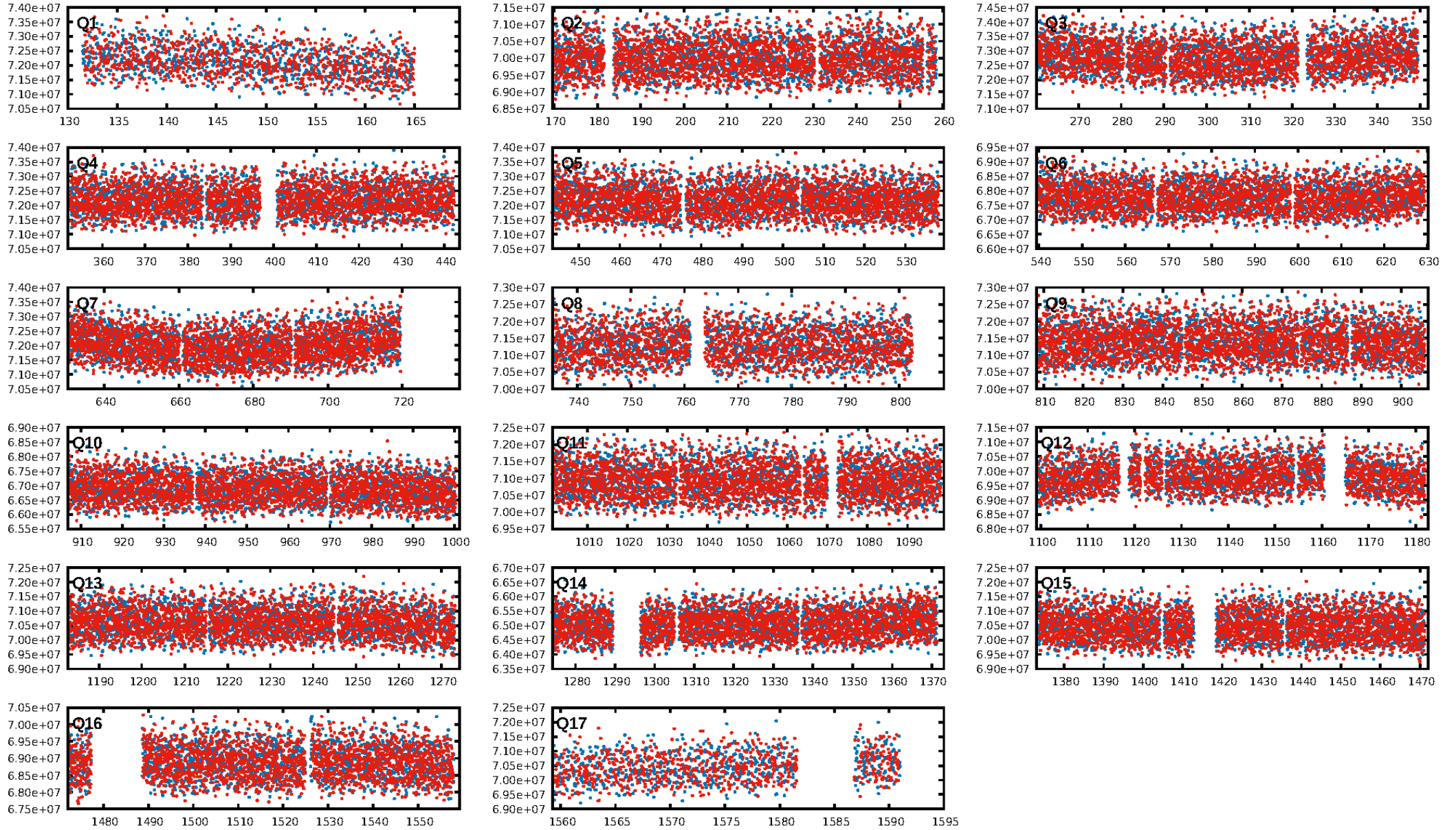
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.56e-07
RollingBand-fgt: 0.99 [1925/1938]
GhostDiagnostic-chr: -0.3402
Centroid-sig: 12.1%
Centroid-so: 2.604 arcsec [2.05σ]
OotOffset-rm: 1.261 arcsec [2.99σ]
KicOffset-rm: 1.171 arcsec [3.03σ]
OotOffset-st: 1/3/3/4 [11]
KicOffset-st: 1/3/3/4 [11]
DiffImageQuality-fgm: 0.45 [5/11]
DiffImageOverlap-fno: 0.00 [0/17]

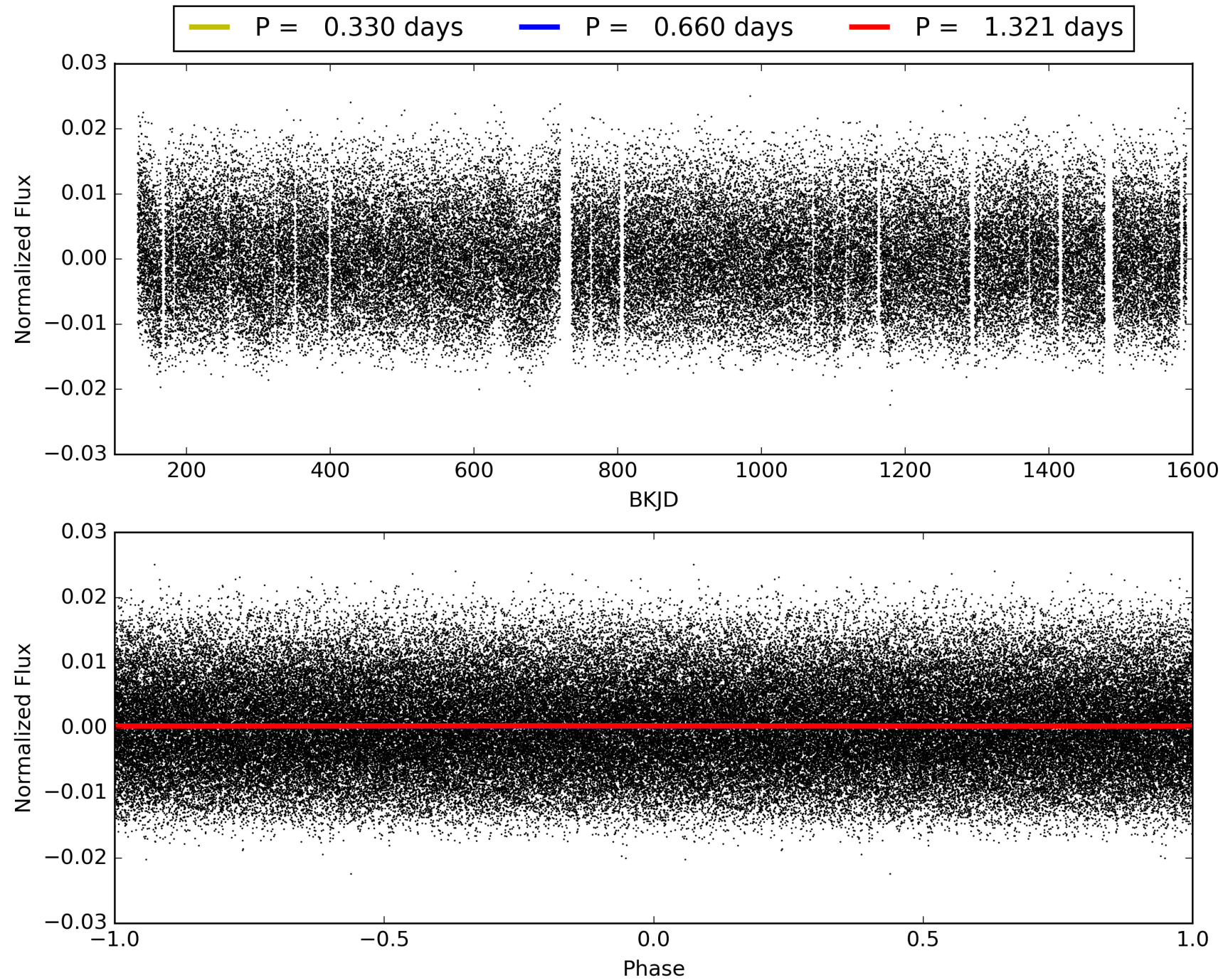
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:12:52 Z

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

TCE 009045002-02, PDC Light Curves

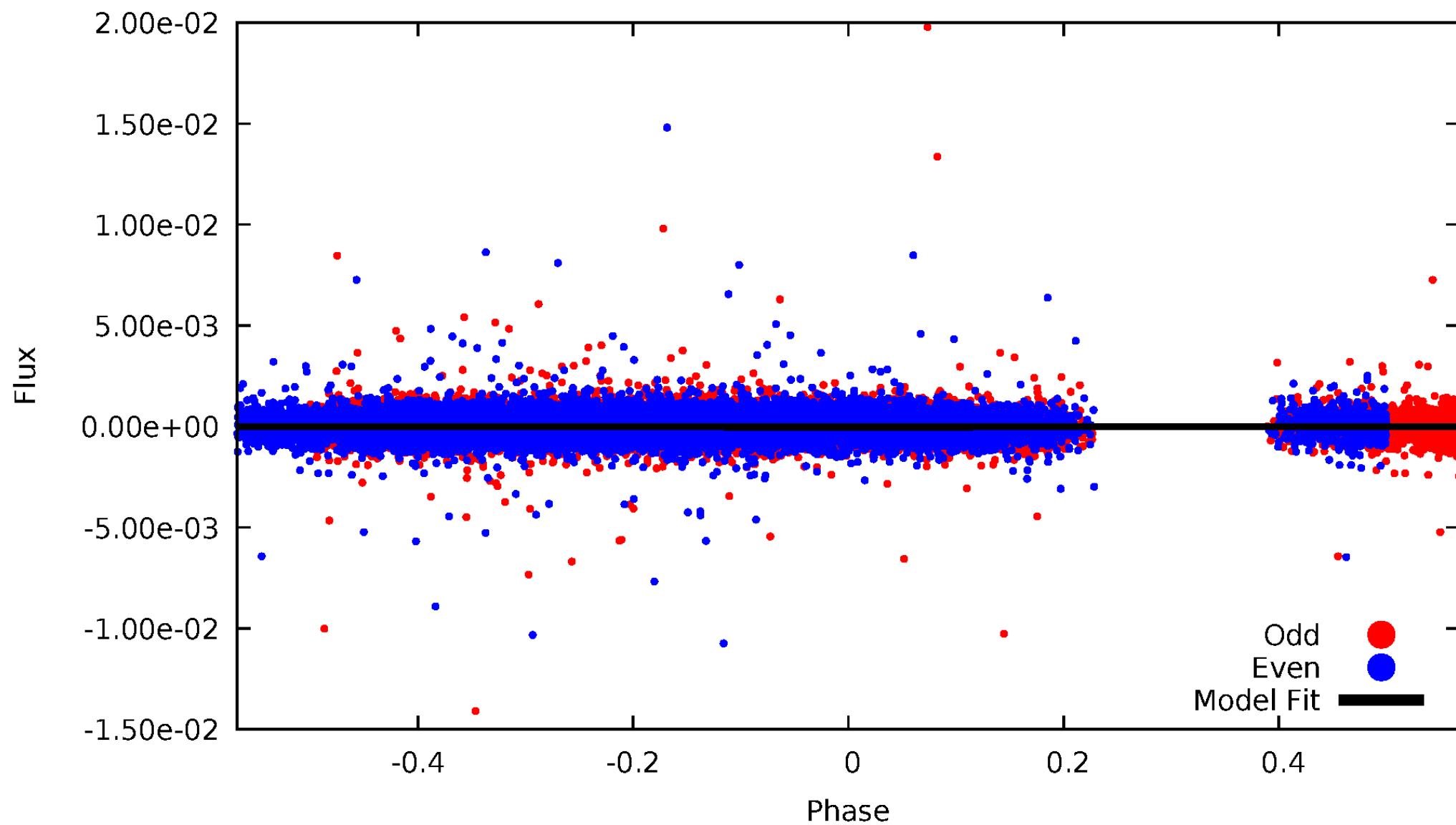


TCE 009045002-02



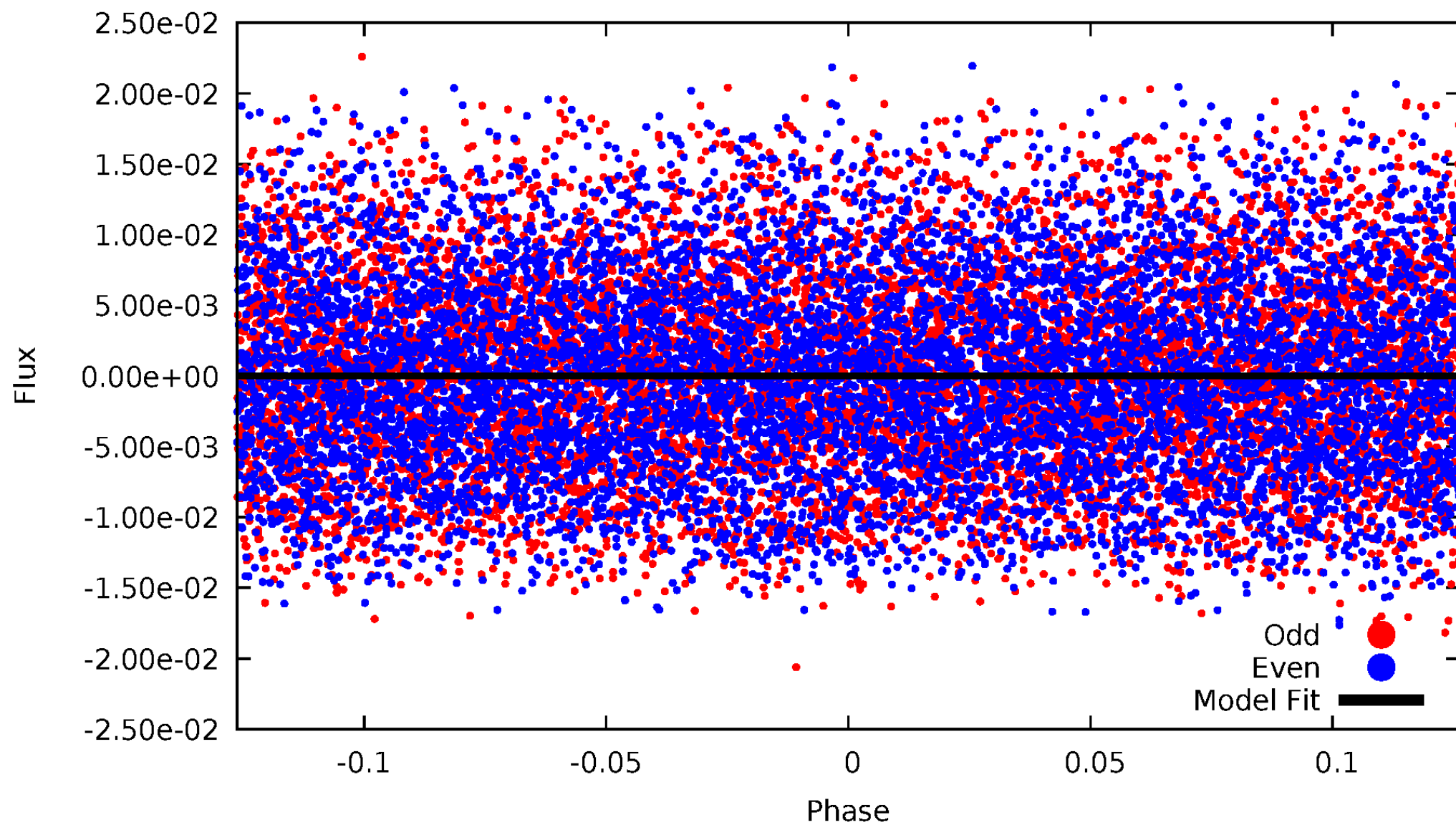
DV Odd/Even

TCE 009045002-02



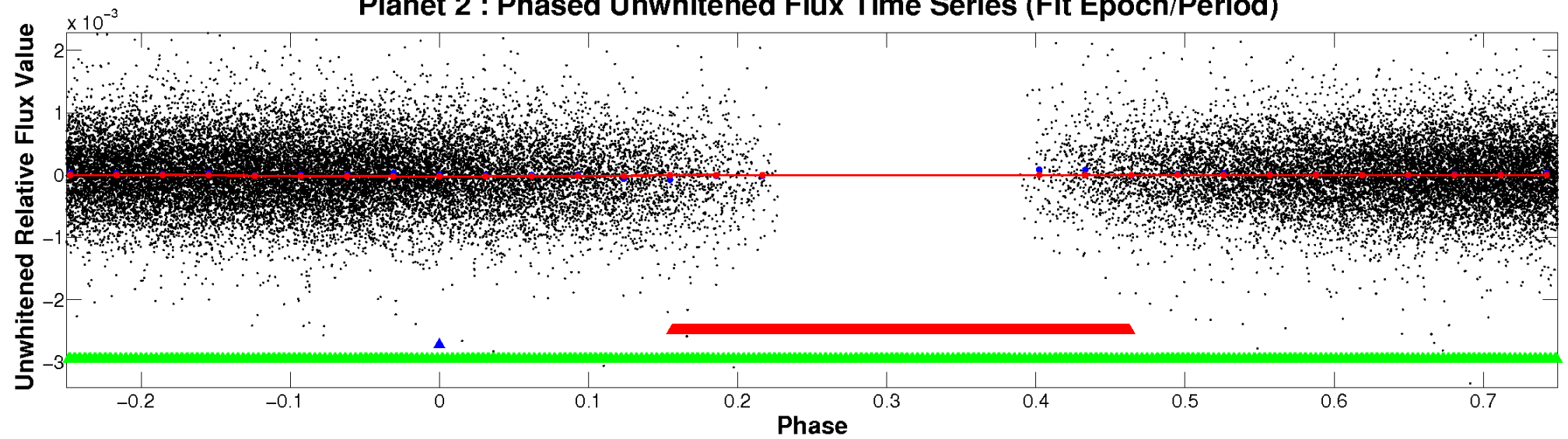
ALT Odd/Even

TCE 009045002-02

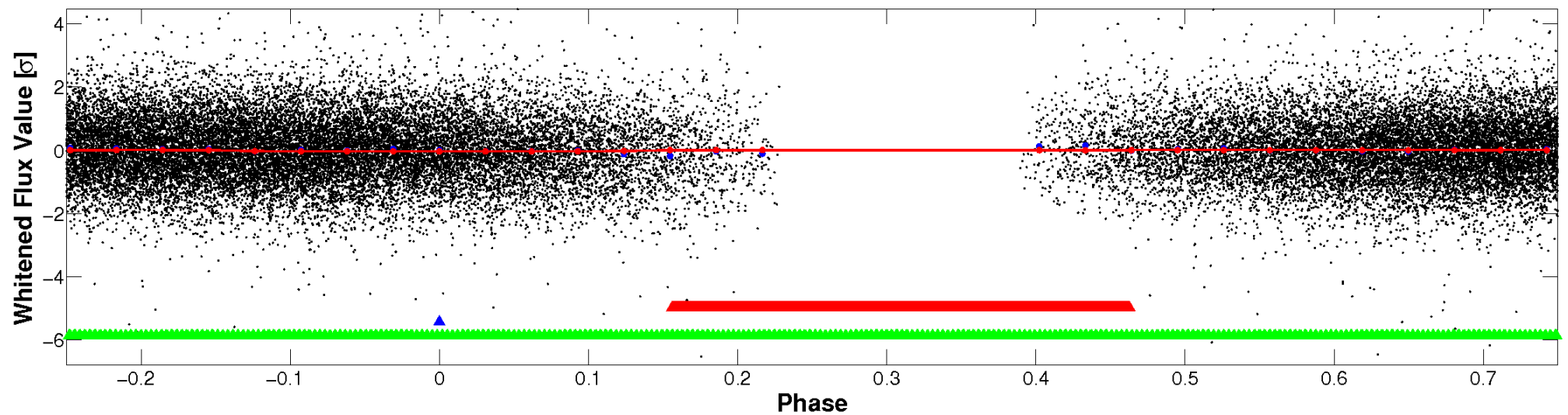


Non-Whitened Vs. Whitened Light Curve

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

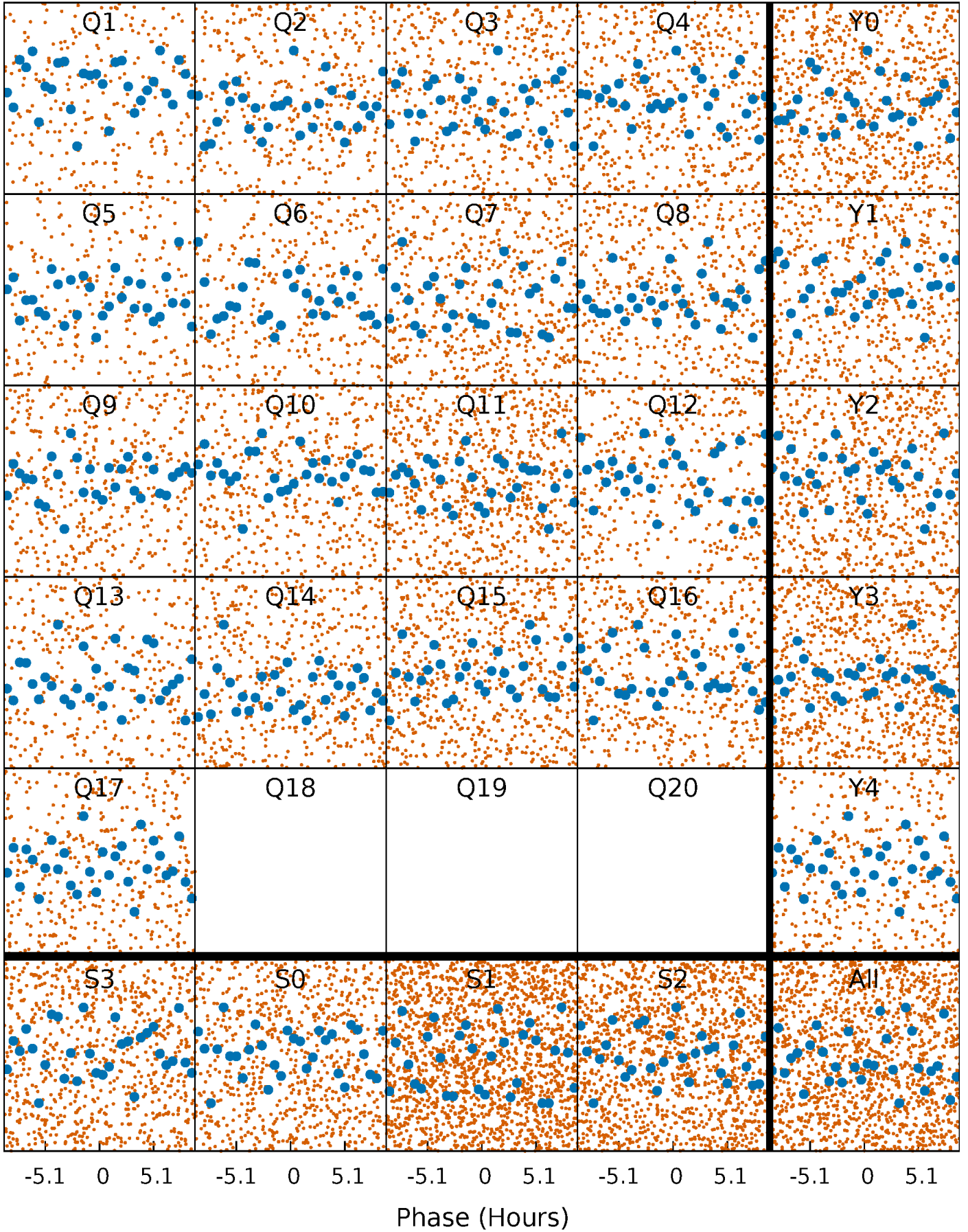


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



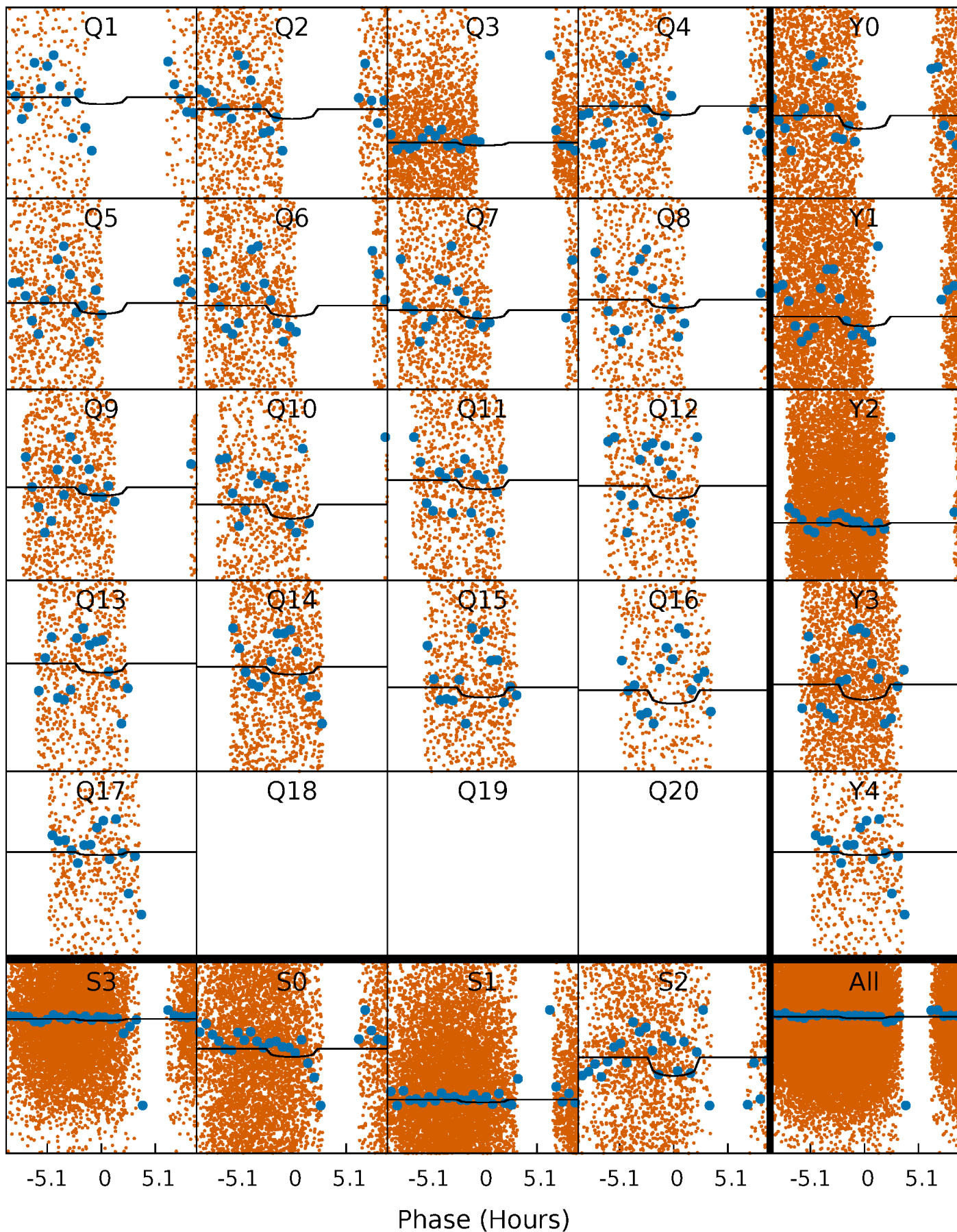
PDC Quarter-Phased Transit Curves

TCE 009045002-02 P= 0.660386 Days $T_0=131.873534$ (BKJD)



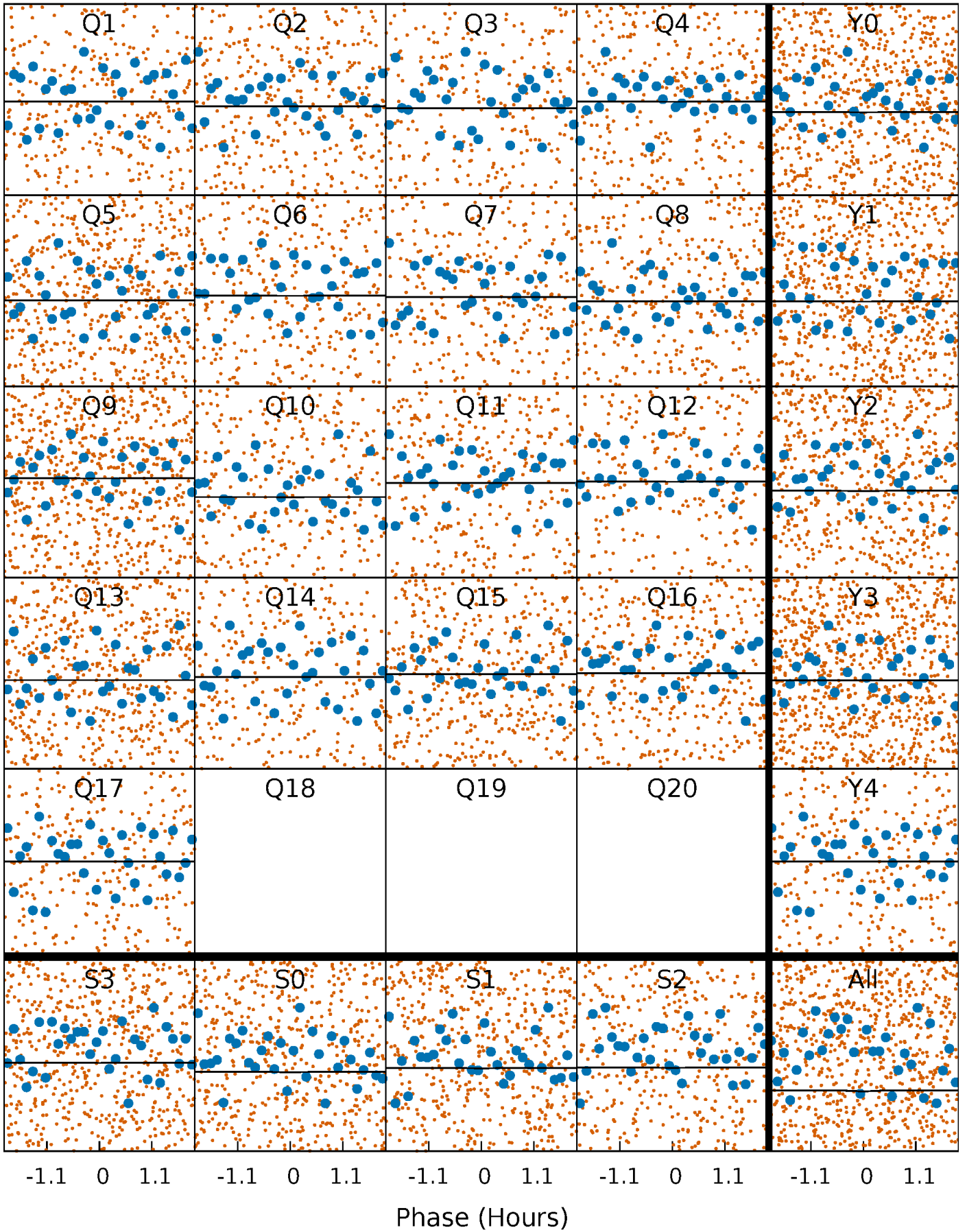
DV Quarter-Phased Transit Curves

TCE 009045002-02 P= 0.660386 Days $T_0=131.873534$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

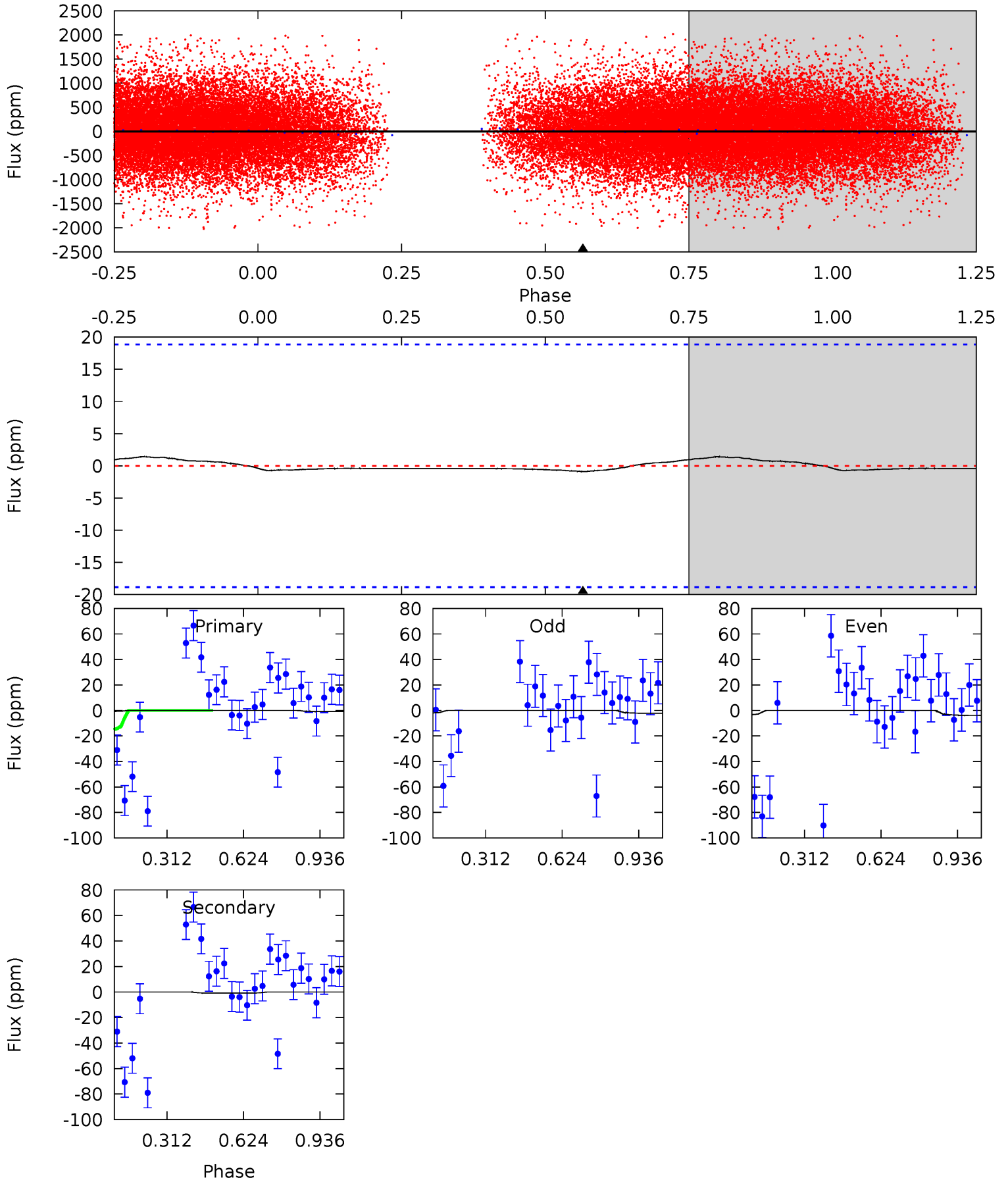
TCE 009045002-02 P= 0.660491 Days $T_0=131.677652$ (BKJD)



DV Model-Shift Uniqueness Test

009045002-02, P = 0.660386 Days, E = 131.213148 Days

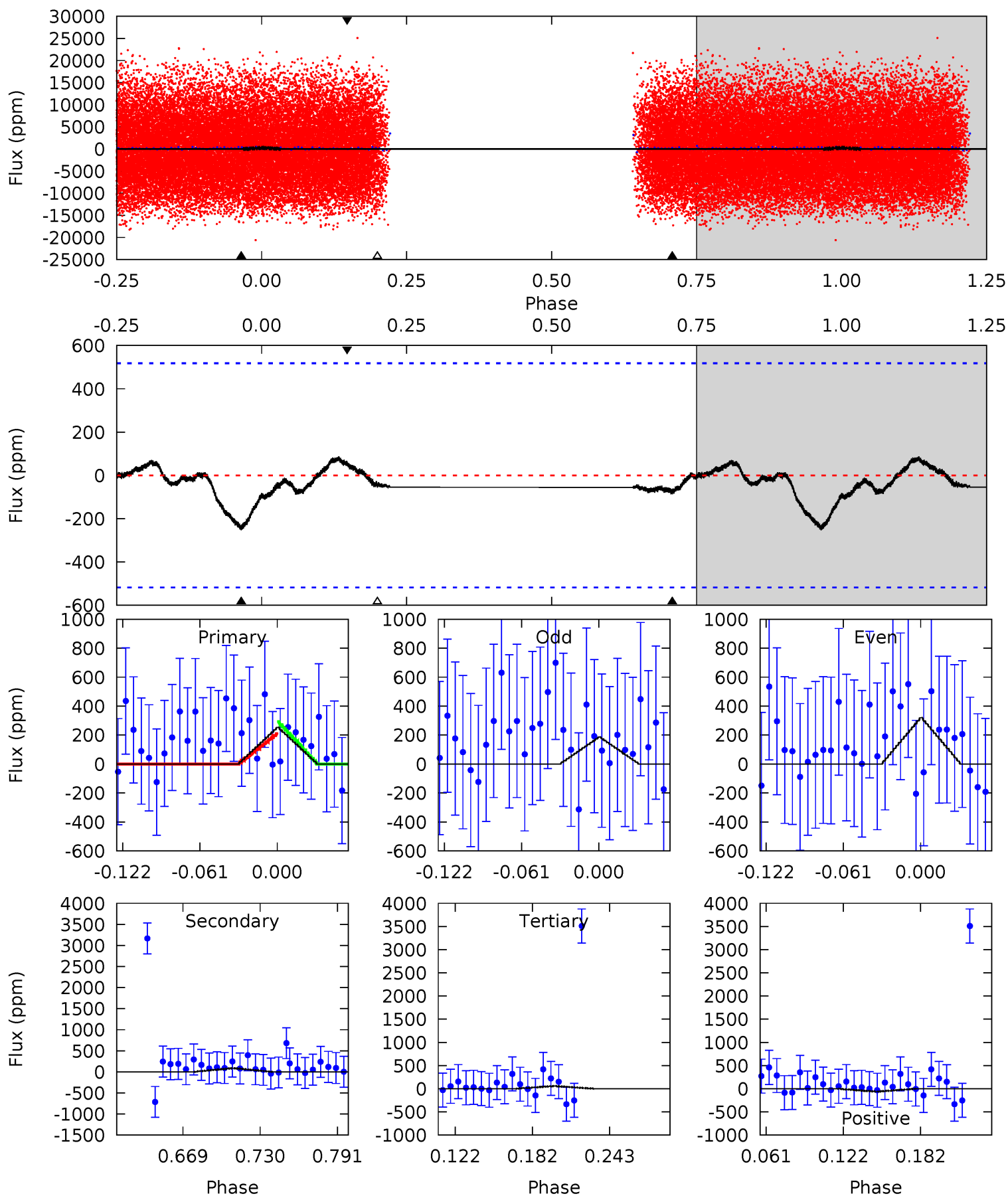
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.20	0.20	0	0	4.32	1.01	0.13	0.20	0.20	0.20	0.20	0.19	0.34	0.62	0.86



Alt Model-Shift Uniqueness Test

009045002-02, P = 0.660491 Days, E = 131.017161 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.28	0.79	0.51	0.56	4.67	1.87	0.37	1.77	1.72	0.28	0.22	0.61	4.20	0.26	0.36



Stellar Parameters For KIC 009045002

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6190^{+212}_{-212}	$3.811^{+0.520}_{-0.130}$	$-0.320^{+0.300}_{-0.300}$	$2.275^{+0.499}_{-1.164}$	$1.221^{+0.187}_{-0.280}$	$0.146^{+0.811}_{-0.053}$
	+3%/-3%	+14%/-3%	+94%/-94%	+22%/-51%	+15%/-23%	+555%/-36%
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 009045002-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1 ± 4	$2.36^{+2.79}_{-1.60}$	4448^{+356}_{-627}	-3943^{+1179}_{-409}	$0.007^{+0.248}_{-0.162}$
Alt.	-87 ± 111	$2.37^{+2.47}_{-1.63}$	4489^{+349}_{-589}	4982^{+5878}_{-9803}	$1.313^{+14.654}_{-1.849}$

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 $A_{obs} \gg 1.0$

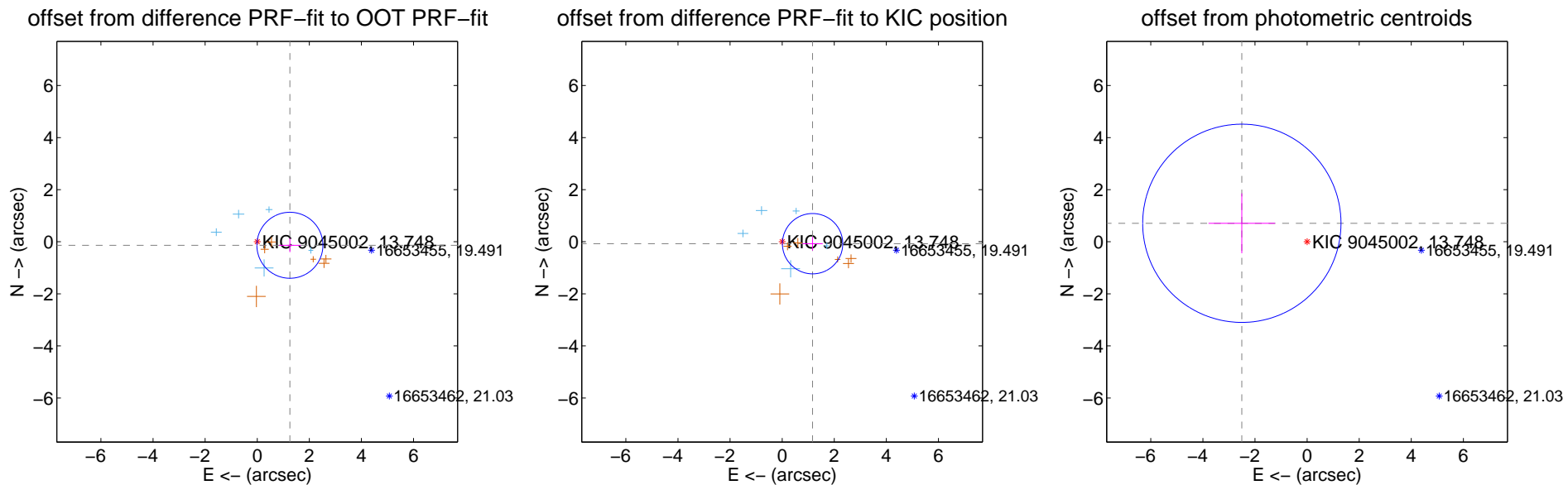
DV Centroid Data

Supplemental centroid analysis for 009045002-02. Kepler magnitude: 13.75. Transit SNR 3.15

There are 5 quarters with good PRF difference image offsets

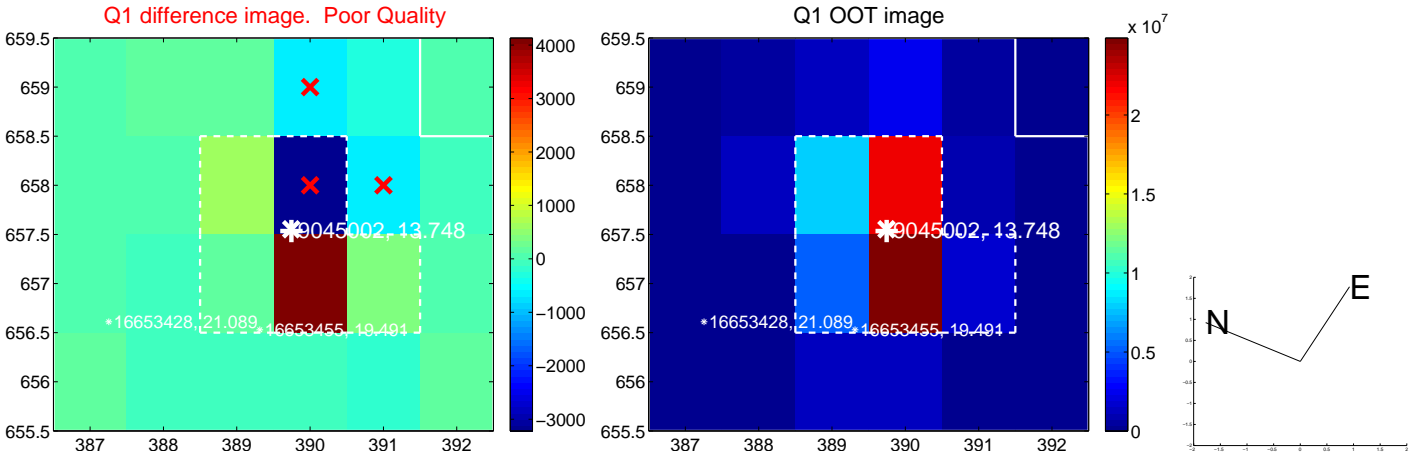
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.261 ± 0.422	2.99	-1.254 ± 0.416	-0.135 ± 0.265
PRF-fit source offset from KIC position	1.171 ± 0.386	3.03	-1.168 ± 0.387	-0.074 ± 0.264
photometric centroid source offset	2.60 ± 1.27	2.05	2.51 ± 1.28	0.71 ± 1.15

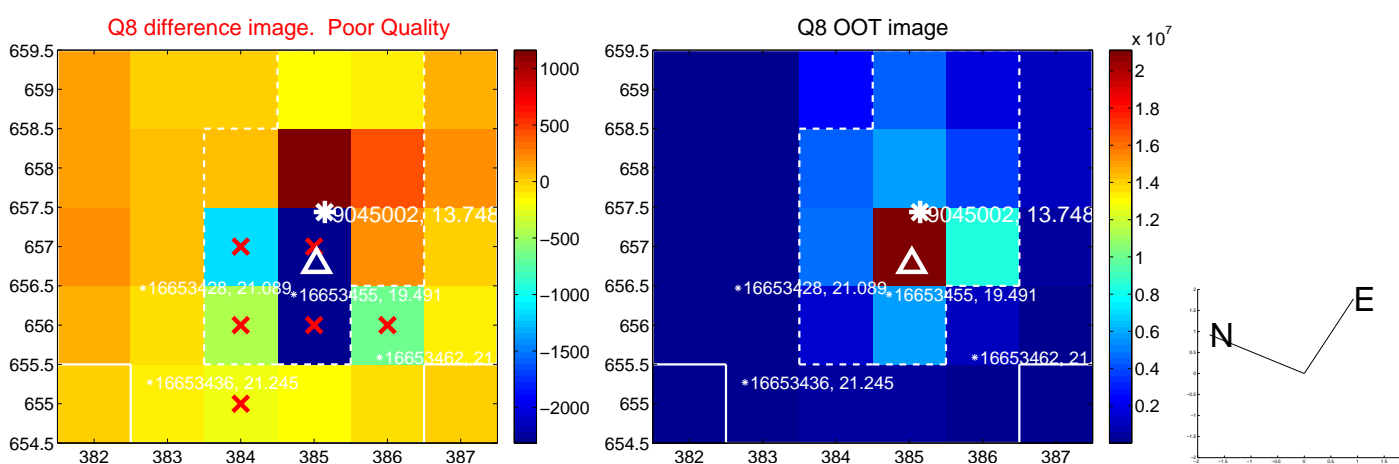
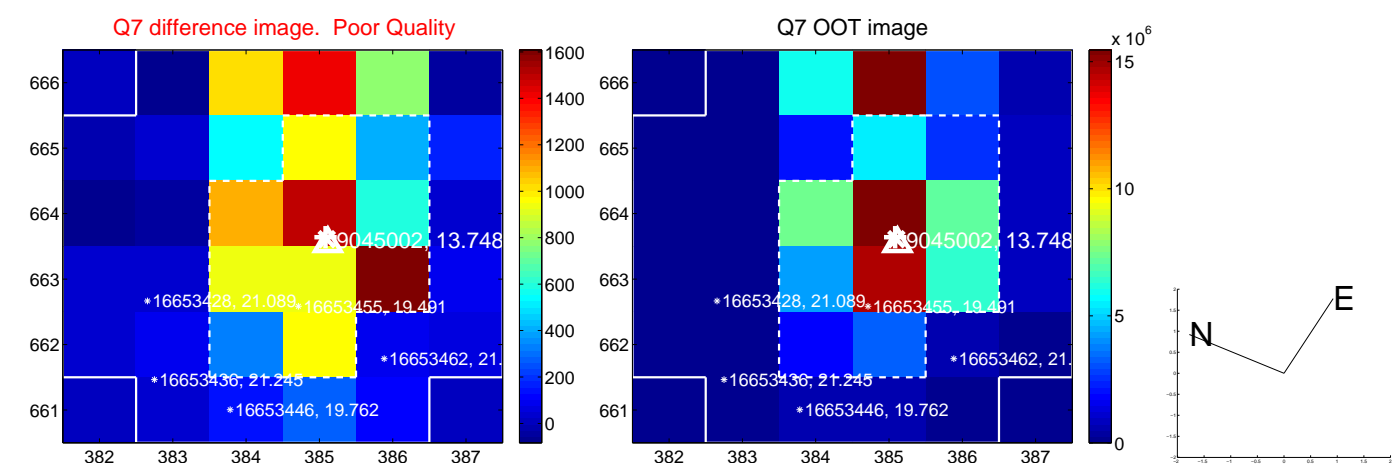
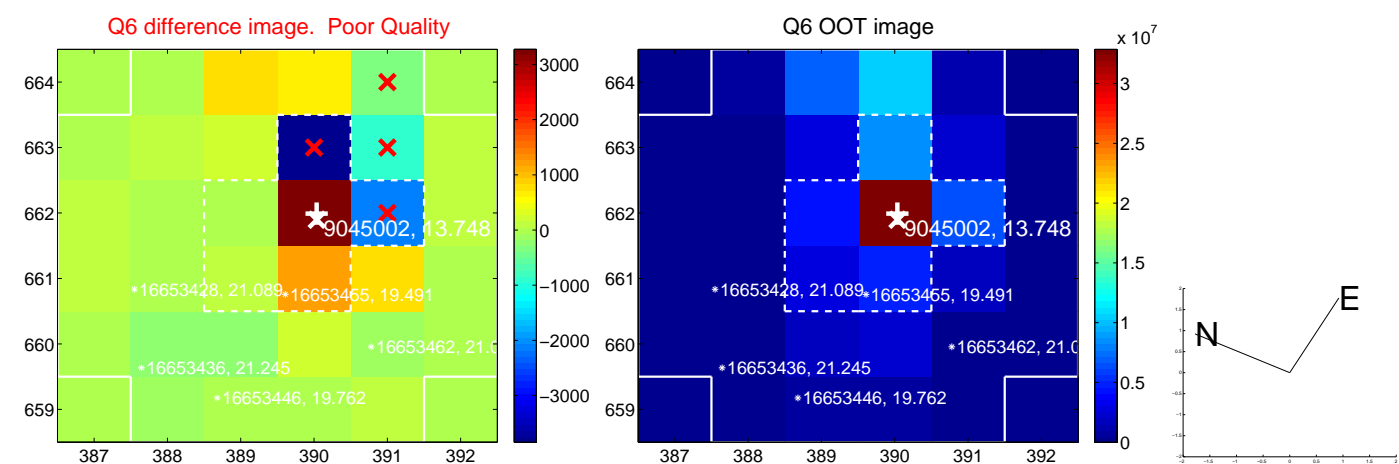
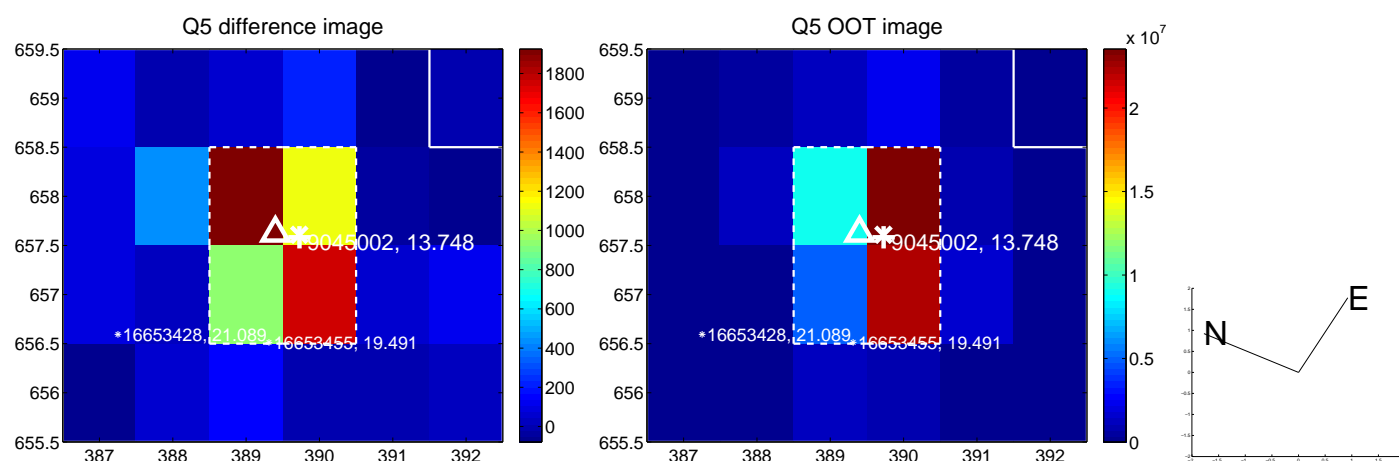


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

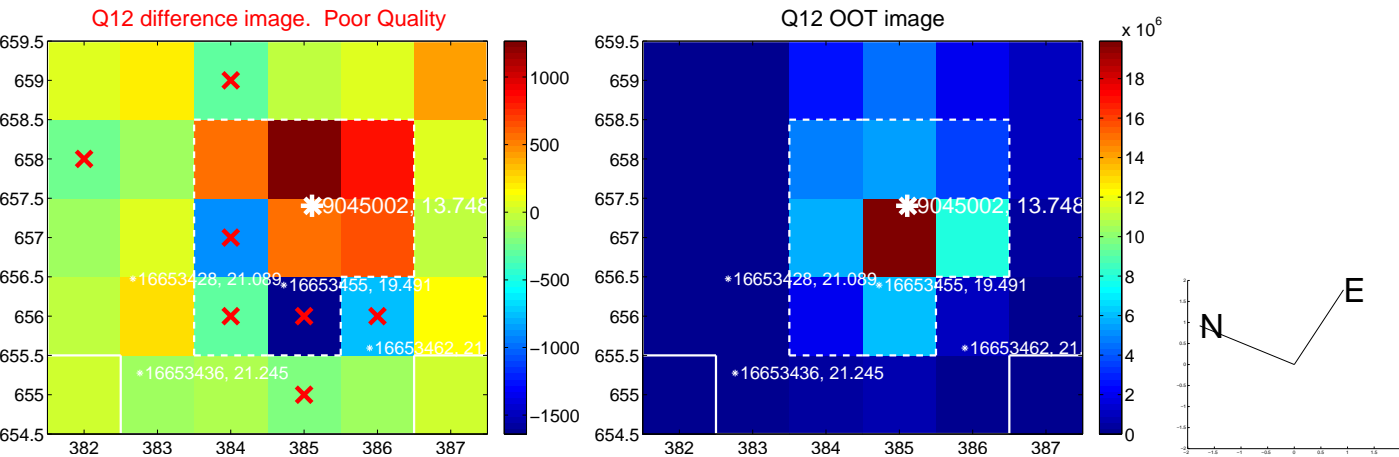
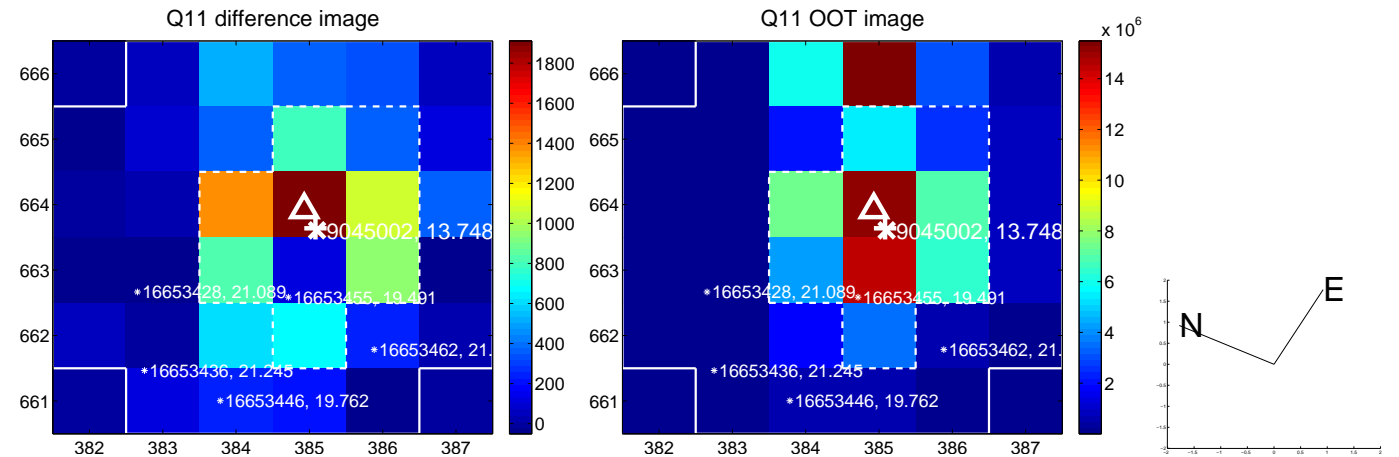
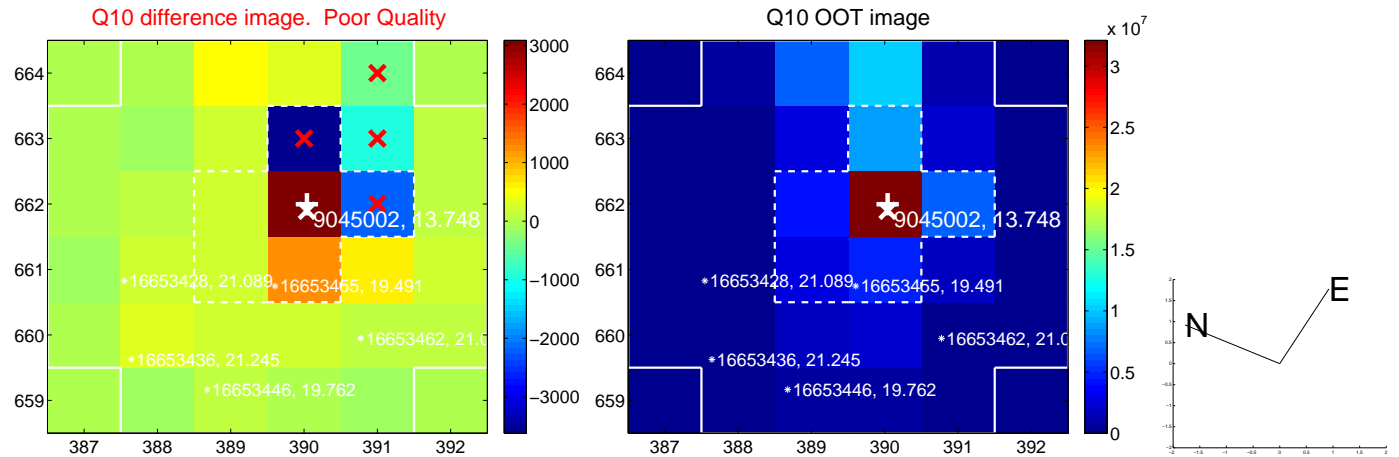
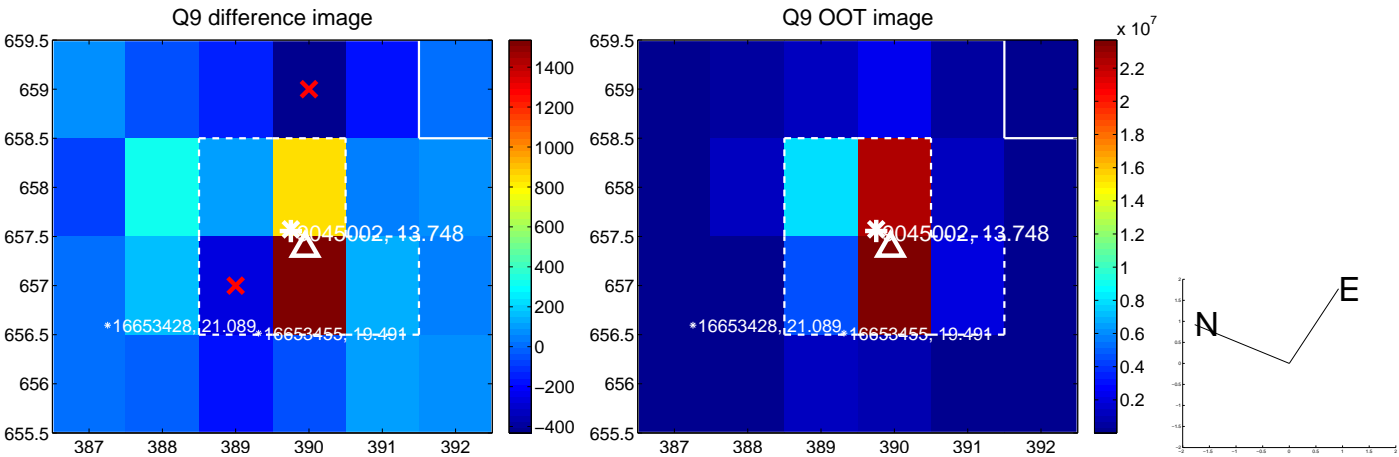
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



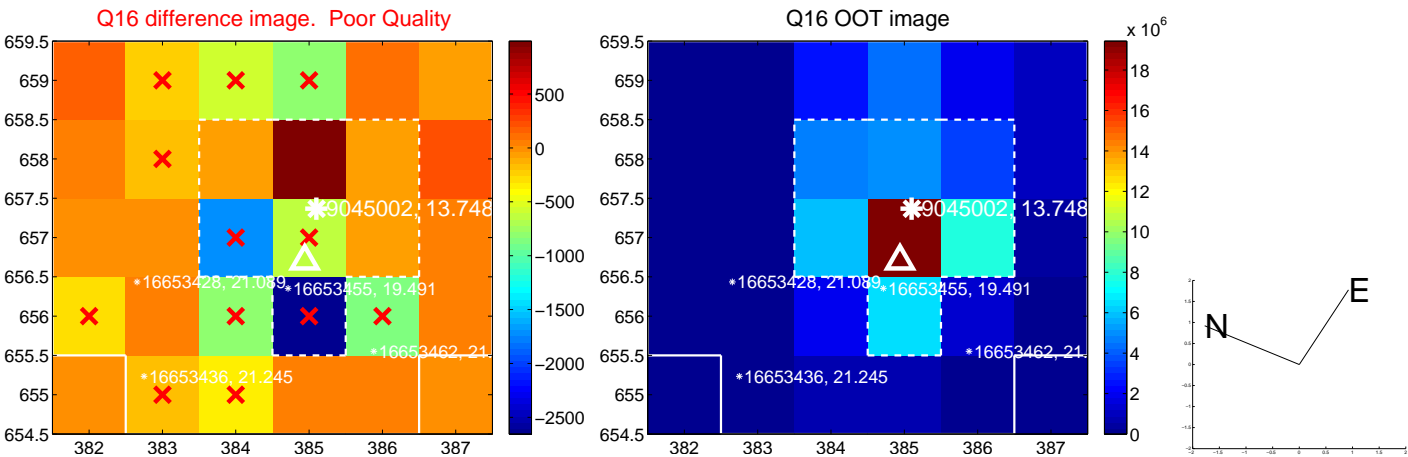
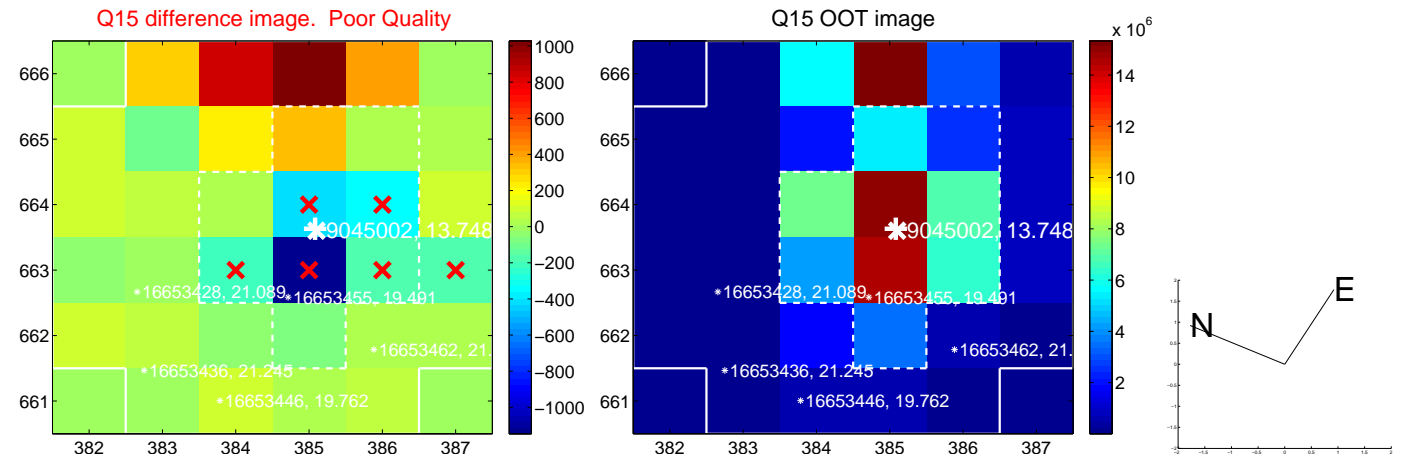
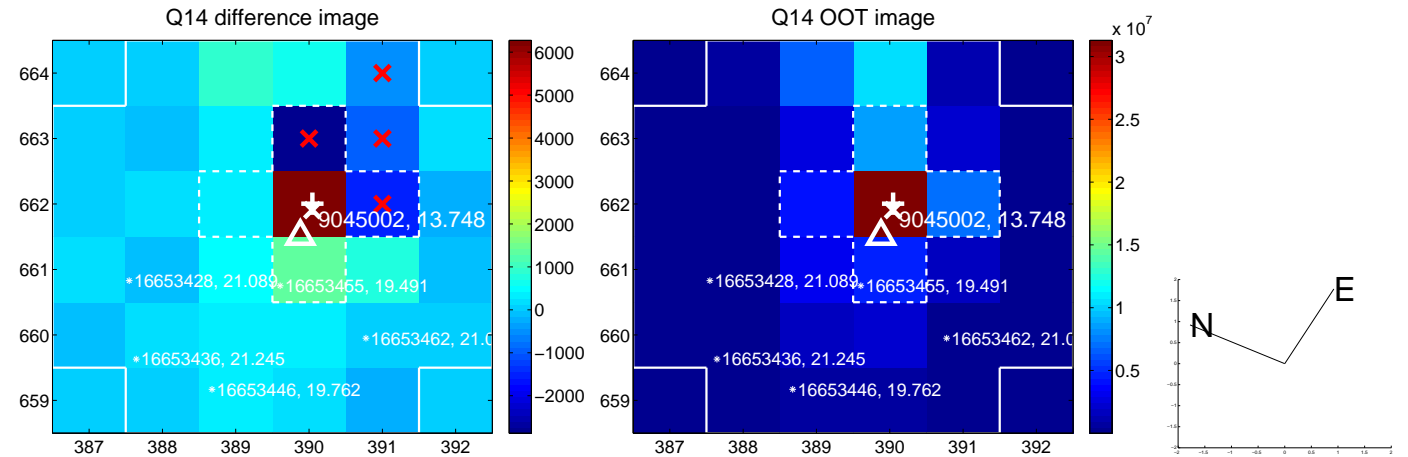
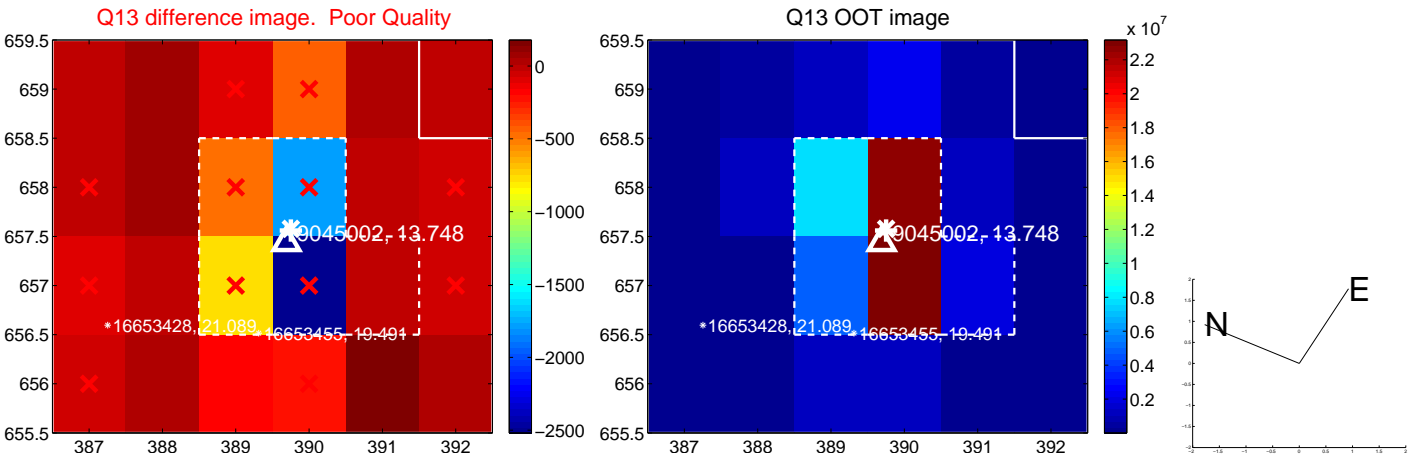
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



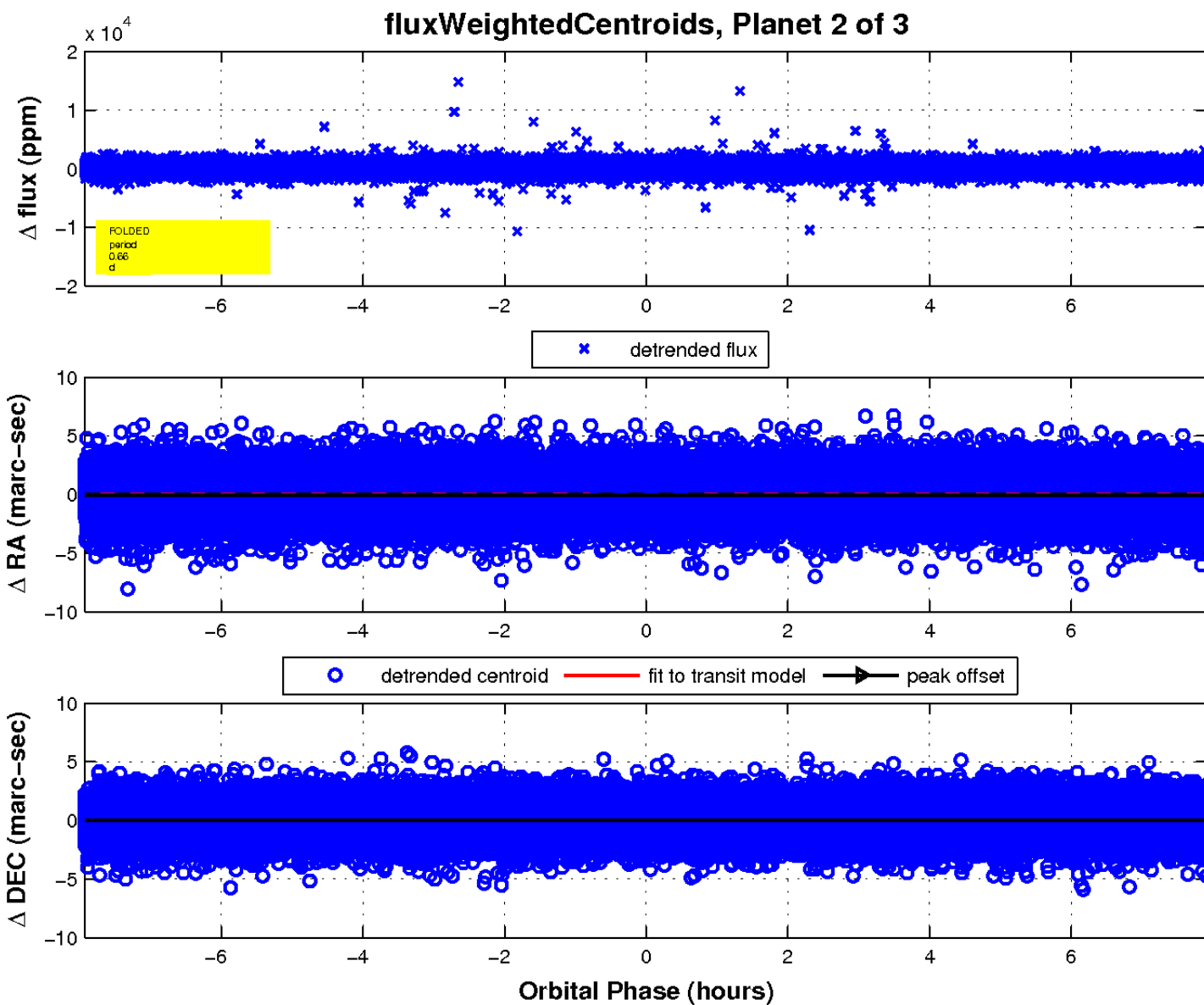
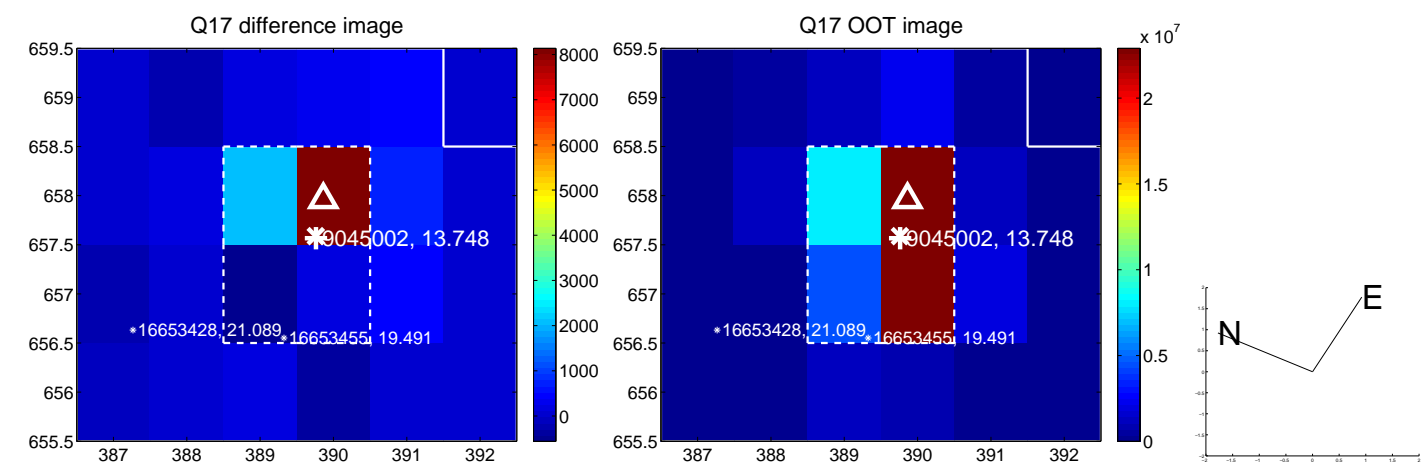
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

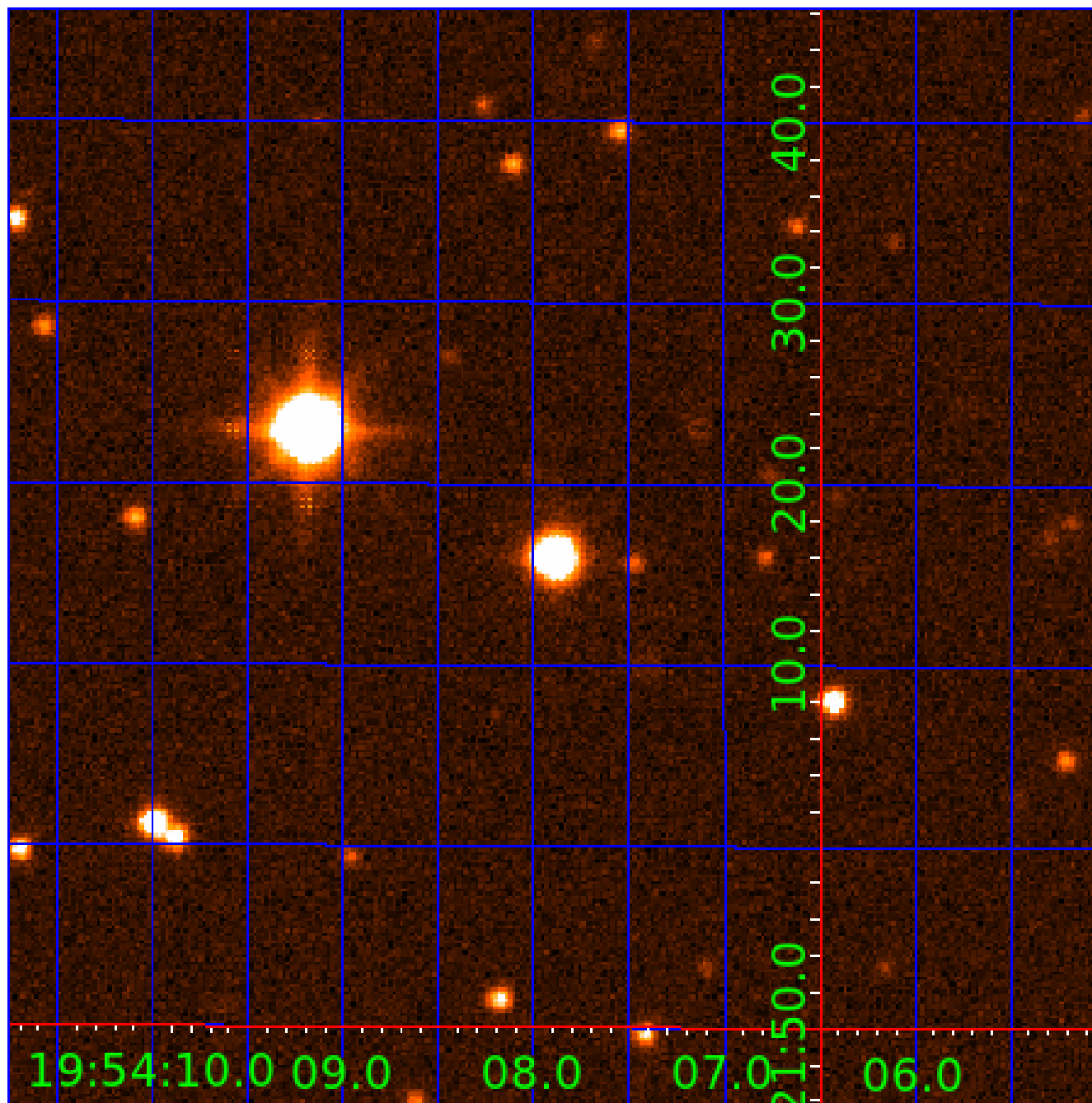


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009045002

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})
009045002-01	OBS	No	0.660478	131.976634	2.2	2.275	13.9	0.3	2.27	6190	0.40	27029.23
009045002-02	OBS	No	0.660386	131.873533	21.8	4.499	9.3	3.1	2.27	6190	1.06	27034.24
009045002-03	OBS	No	1.408973	132.058492	328.4	1.855	10.7	9.5	2.27	6190	4.34	9842.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009045002-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009045002-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
009045002-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

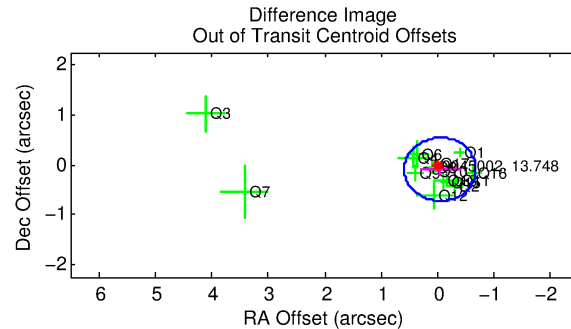
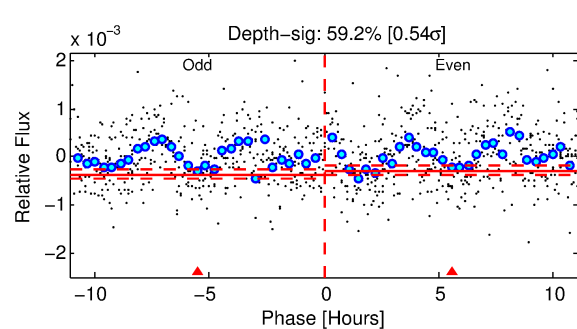
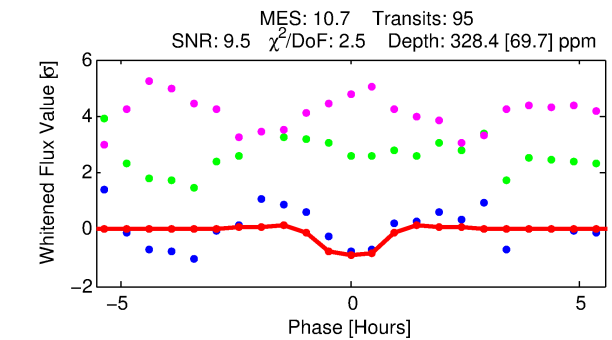
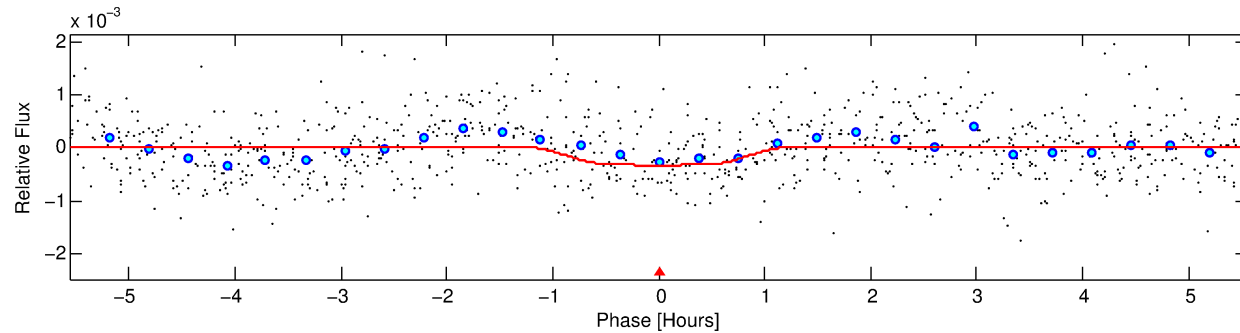
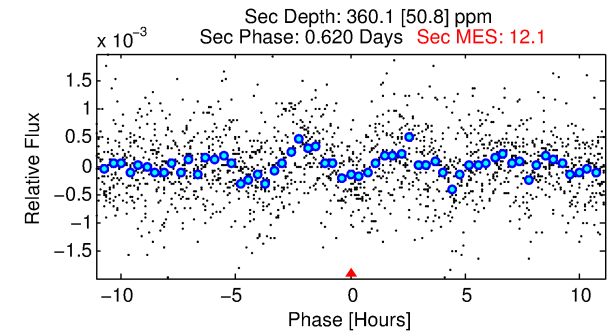
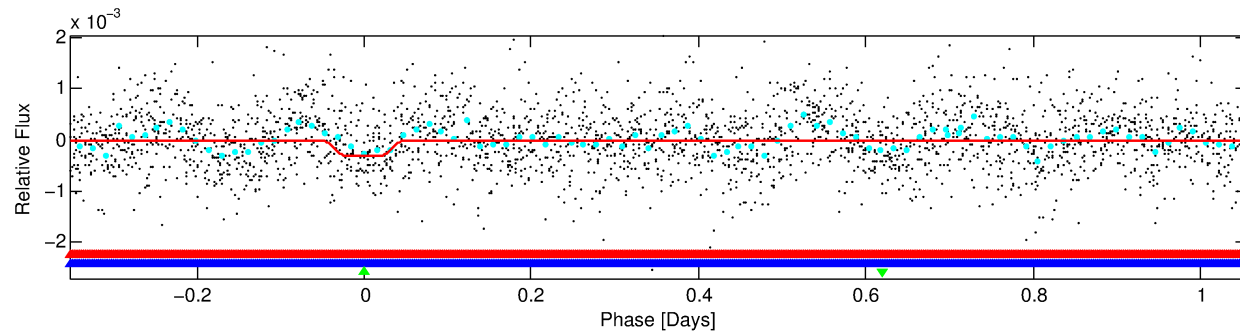
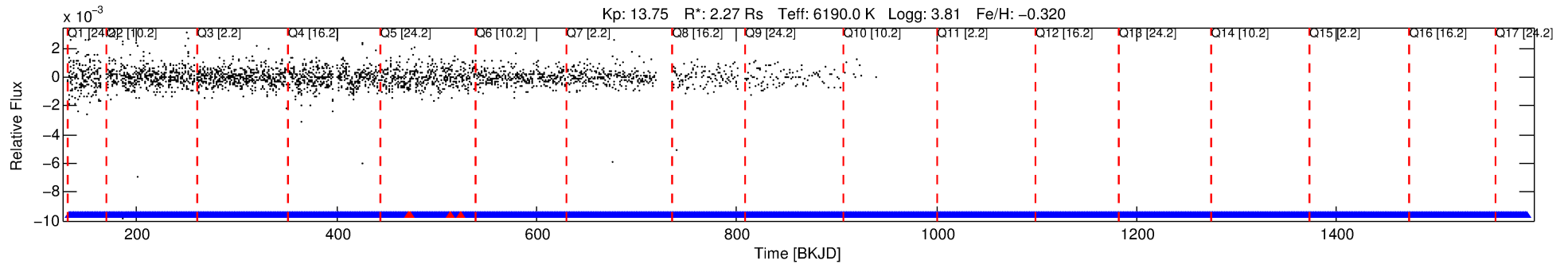
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009045002-03

No Significant Match Found

DV One-Page Summary

KIC: 9045002 Candidate: 3 of 3 Period: 1.409 d



DV Fit Results:

Period = 1.40897 [0.00003] d
Epoch = 132.0585 [0.0052] BKJD
Rp/R* = 0.0175 [0.0234]
a/R* = 4.75 [31.27]
b = 0.62 [6.94]
Seff = 9842.55 [8649.61]
Teq = 2540 [558] K
Rp = 4.34 [6.22] Re
a = 0.0263 [0.0138] AU
Ag = 7.28 [20.51] [0.31σ]
Teffp = 6450 [4329] K [0.90σ]

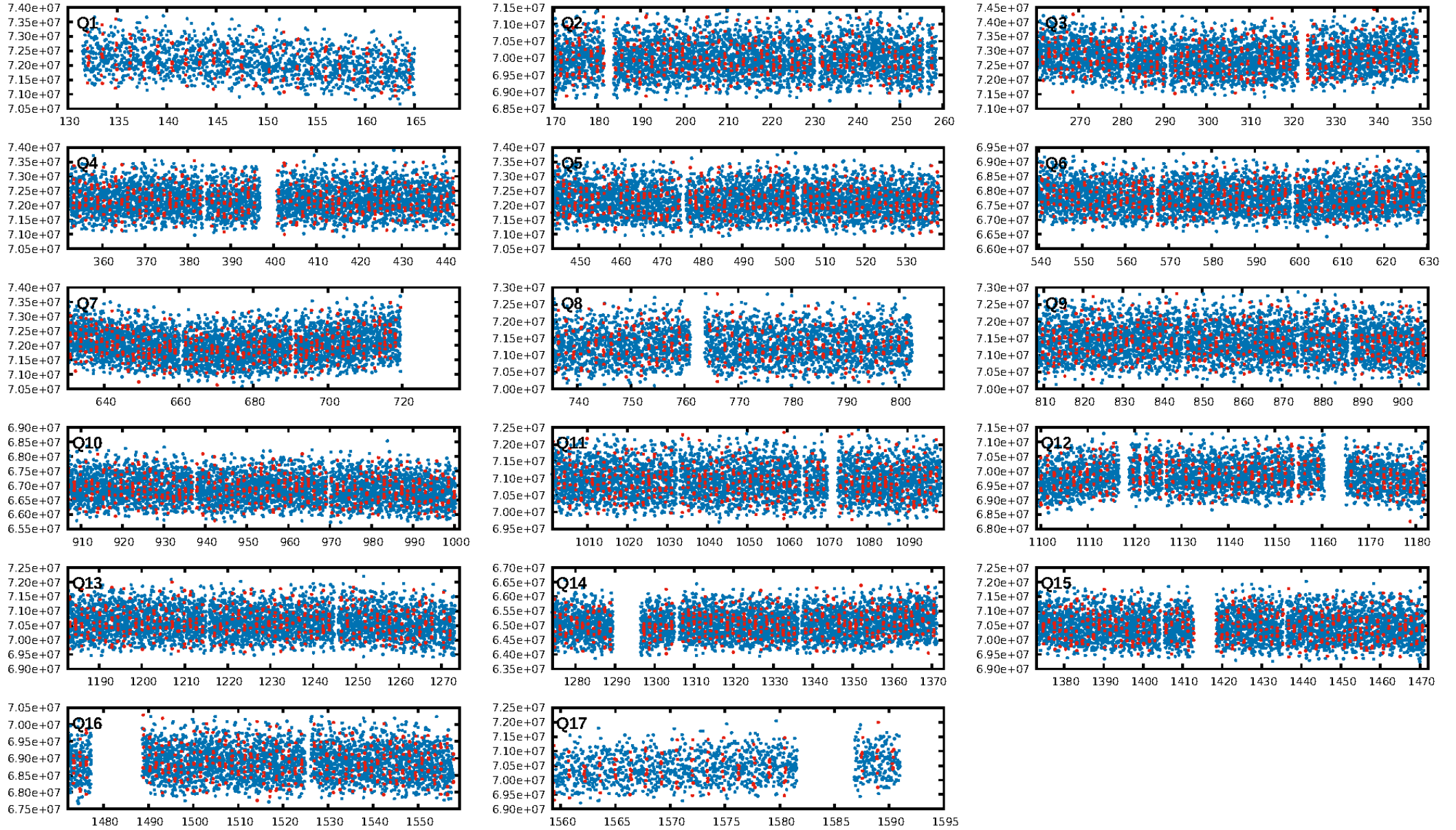
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.12σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.41e-10
RollingBand-fgt: 0.96 [85/89]
GhostDiagnostic-chr: 1.307
Centroid-sig: 0.5%
Centroid-so: 0.634 arcsec [3.33σ]
OotOffset-rm: 0.103 arcsec [0.49σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-rm: 0.050 arcsec [0.25σ]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.53 [8/15]
DiffImageOverlap-fno: 0.00 [0/17]

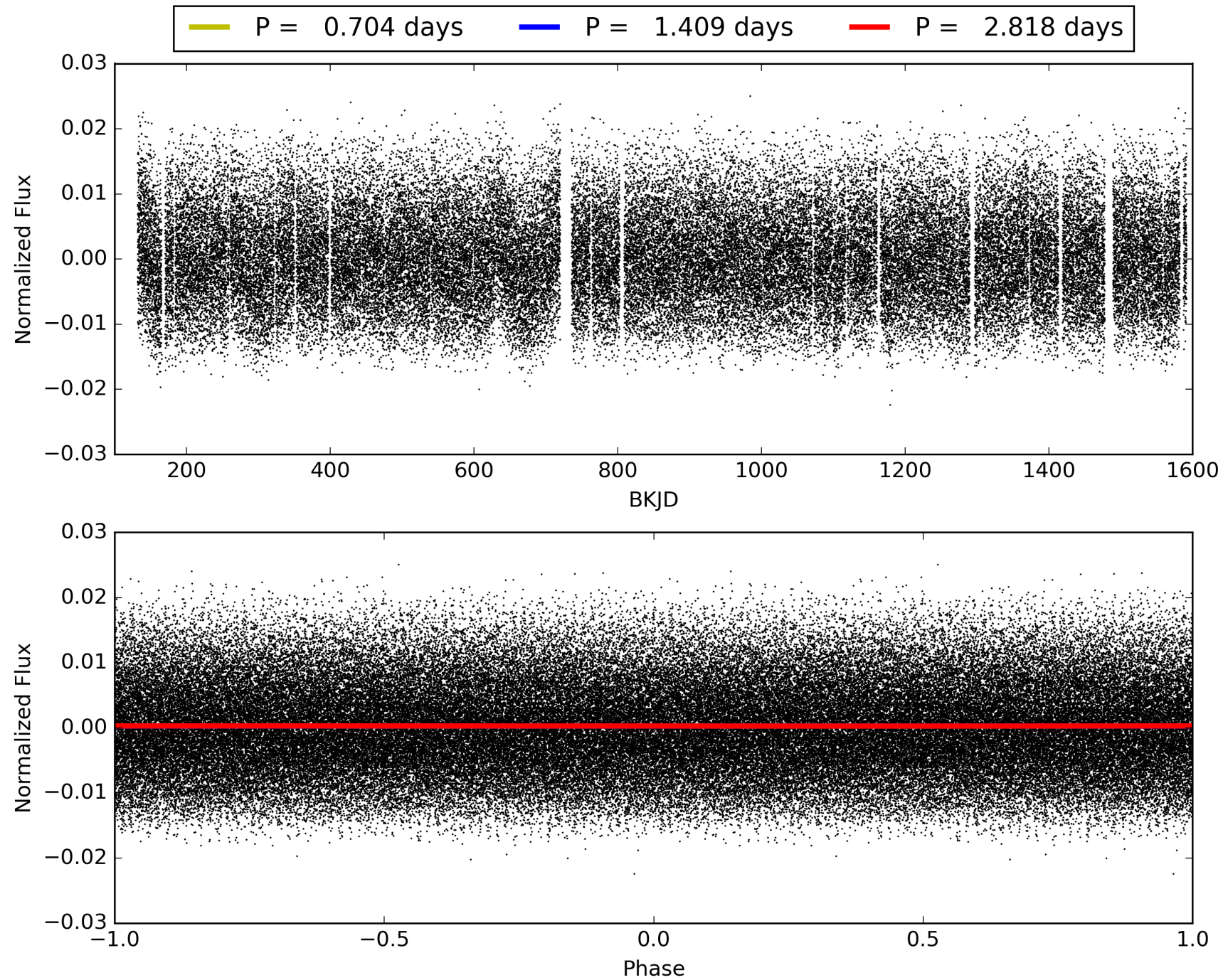
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:13:00 Z

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

TCE 009045002-03, PDC Light Curves

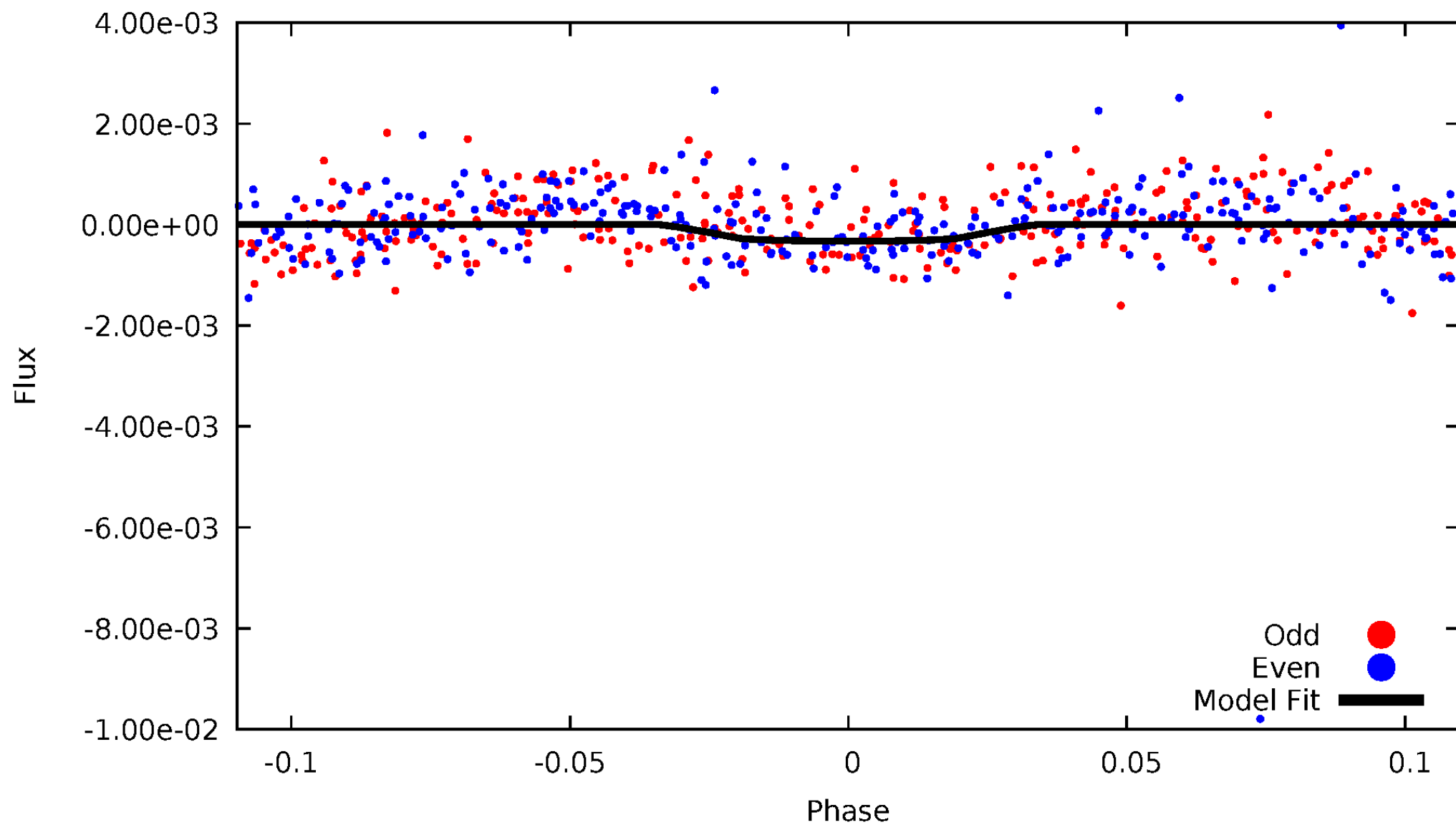


TCE 009045002-03



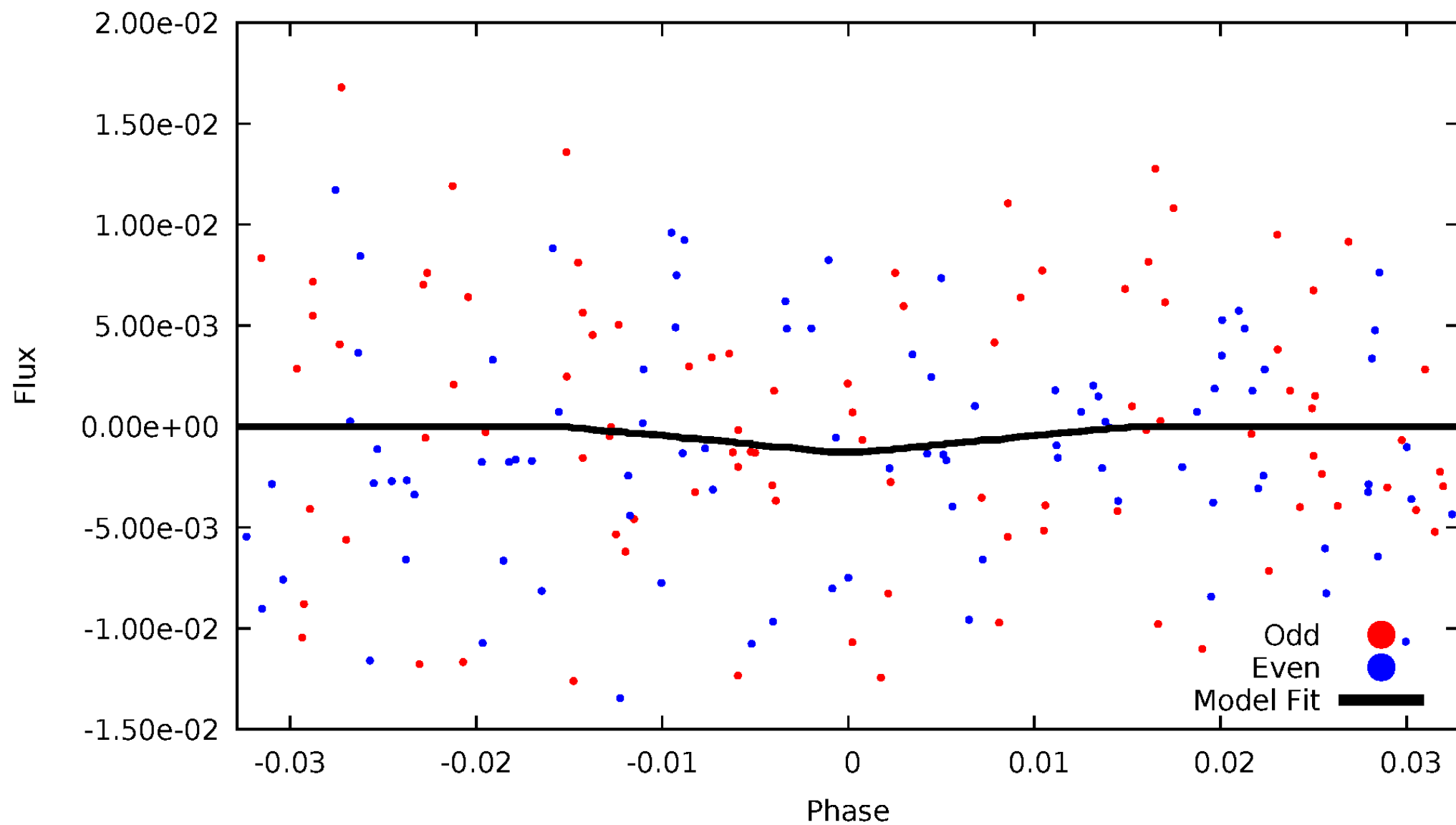
DV Odd/Even

TCE 009045002-03



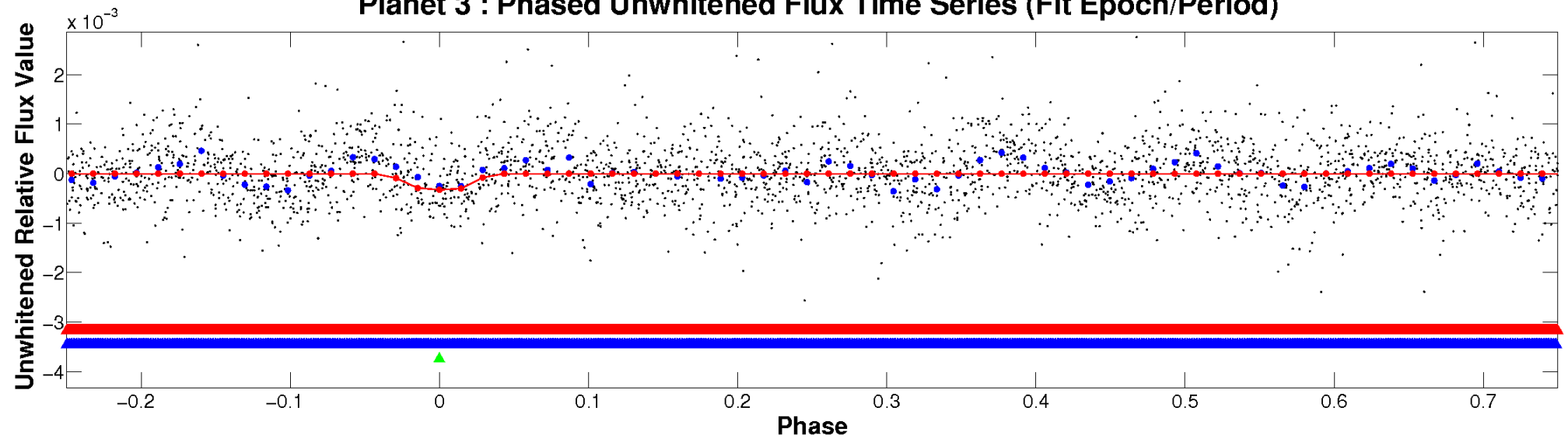
ALT Odd/Even

TCE 009045002-03

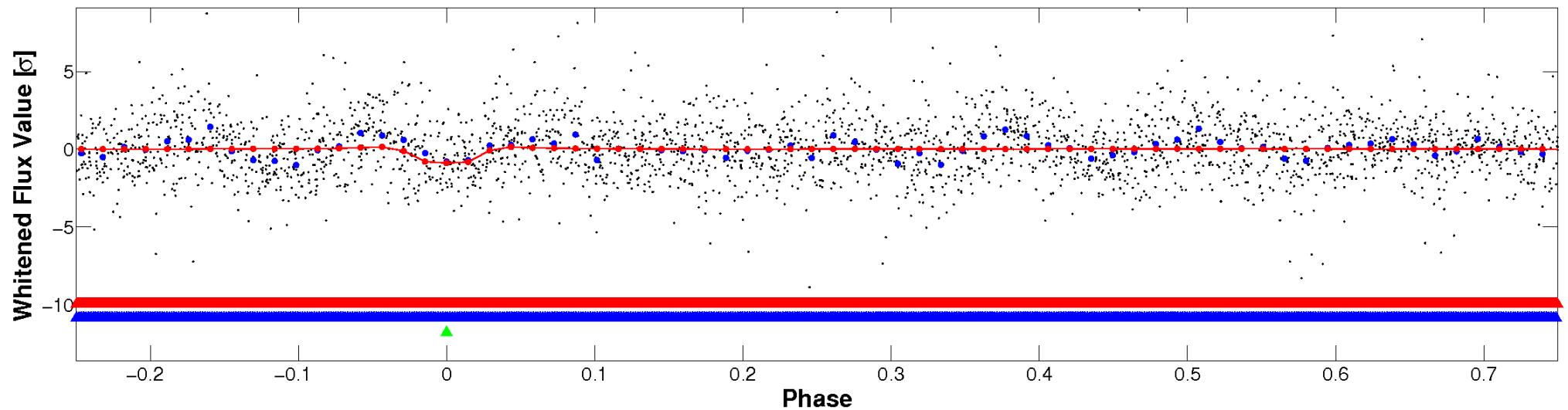


Non-Whitened Vs. Whitened Light Curve

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

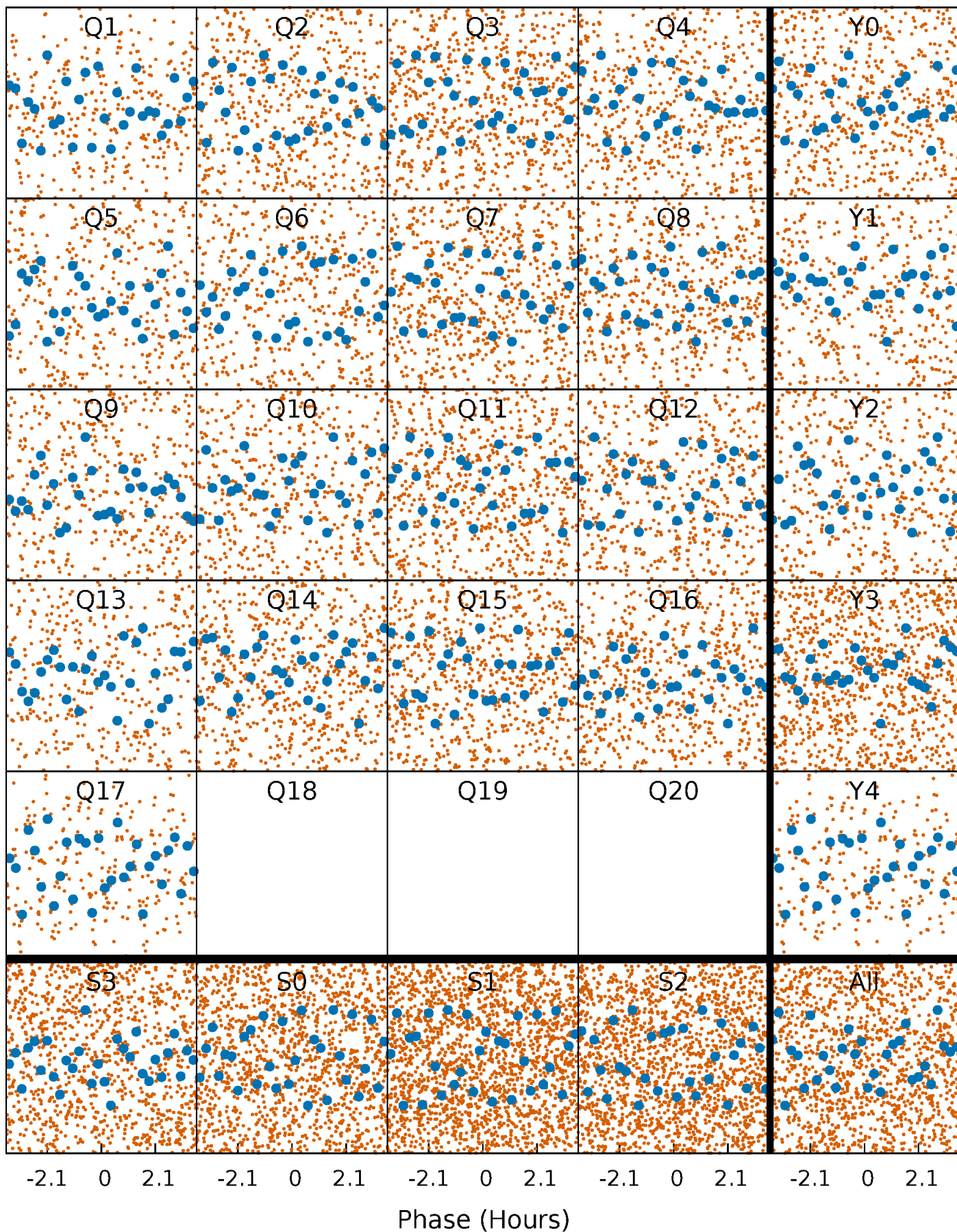


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



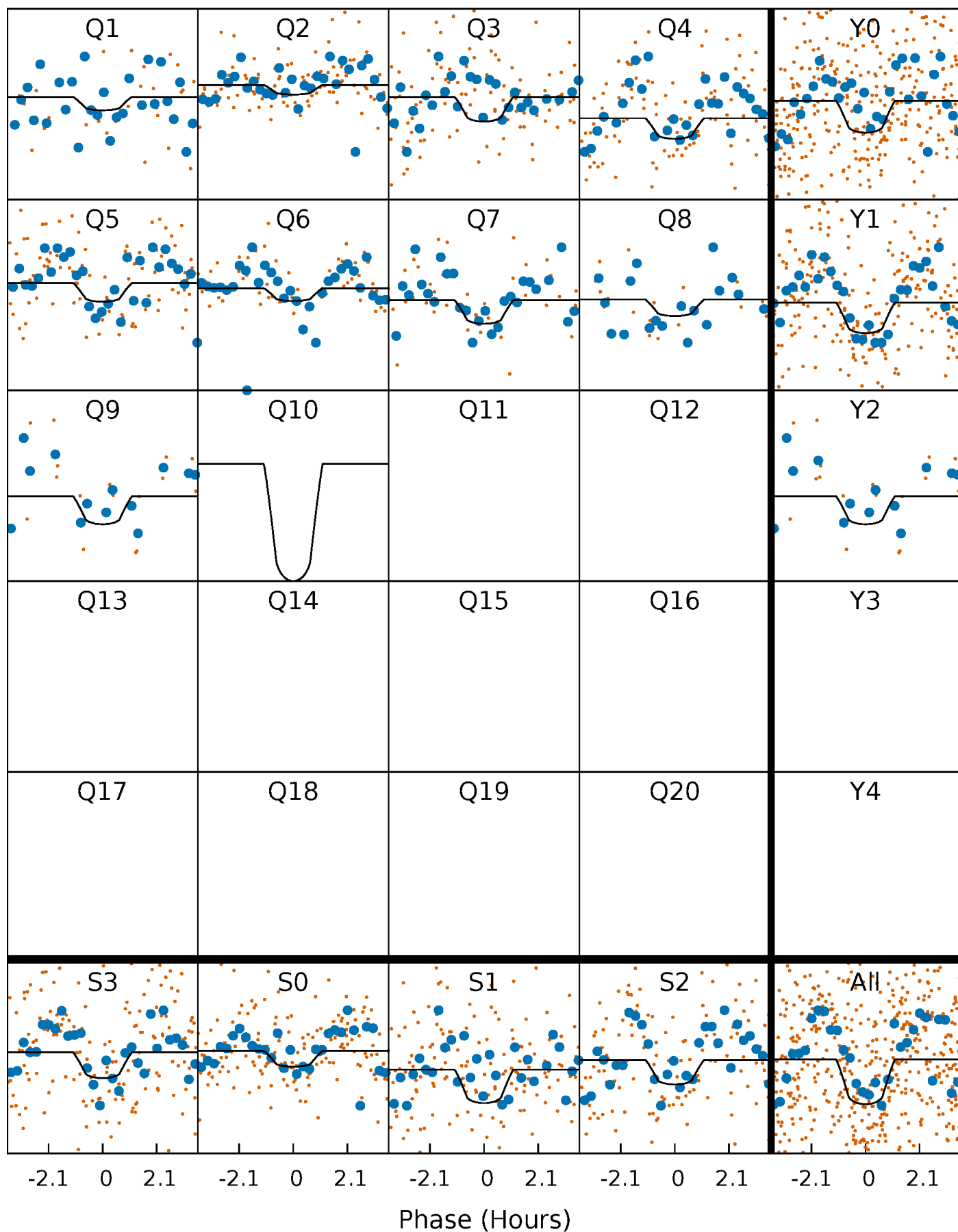
PDC Quarter-Phased Transit Curves

TCE 009045002-03 $P = 1.408973$ Days $T_0 = 132.058492$ (BKJD)



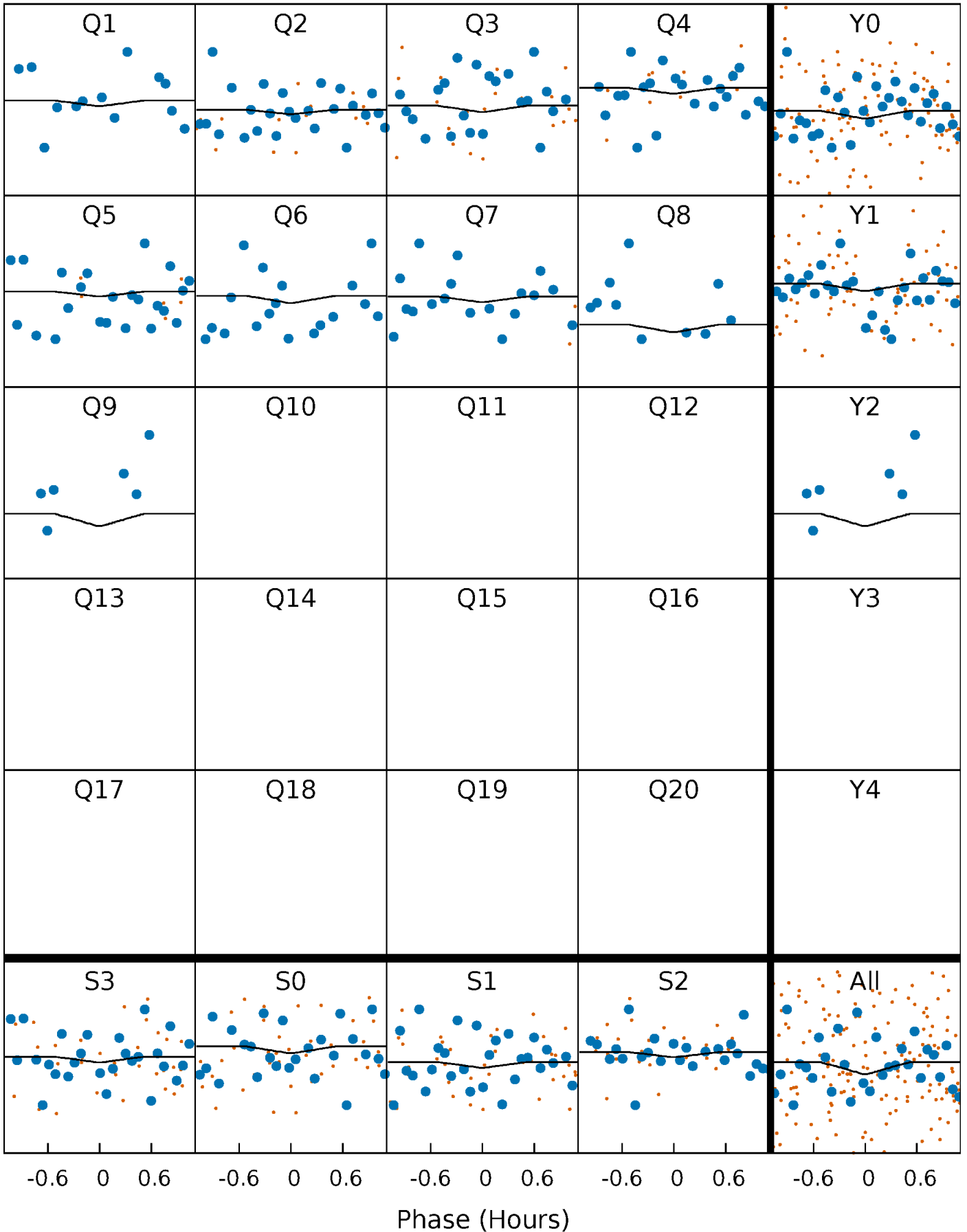
DV Quarter-Phased Transit Curves

TCE 009045002-03 $P = 1.408973$ Days $T_0 = 132.058492$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

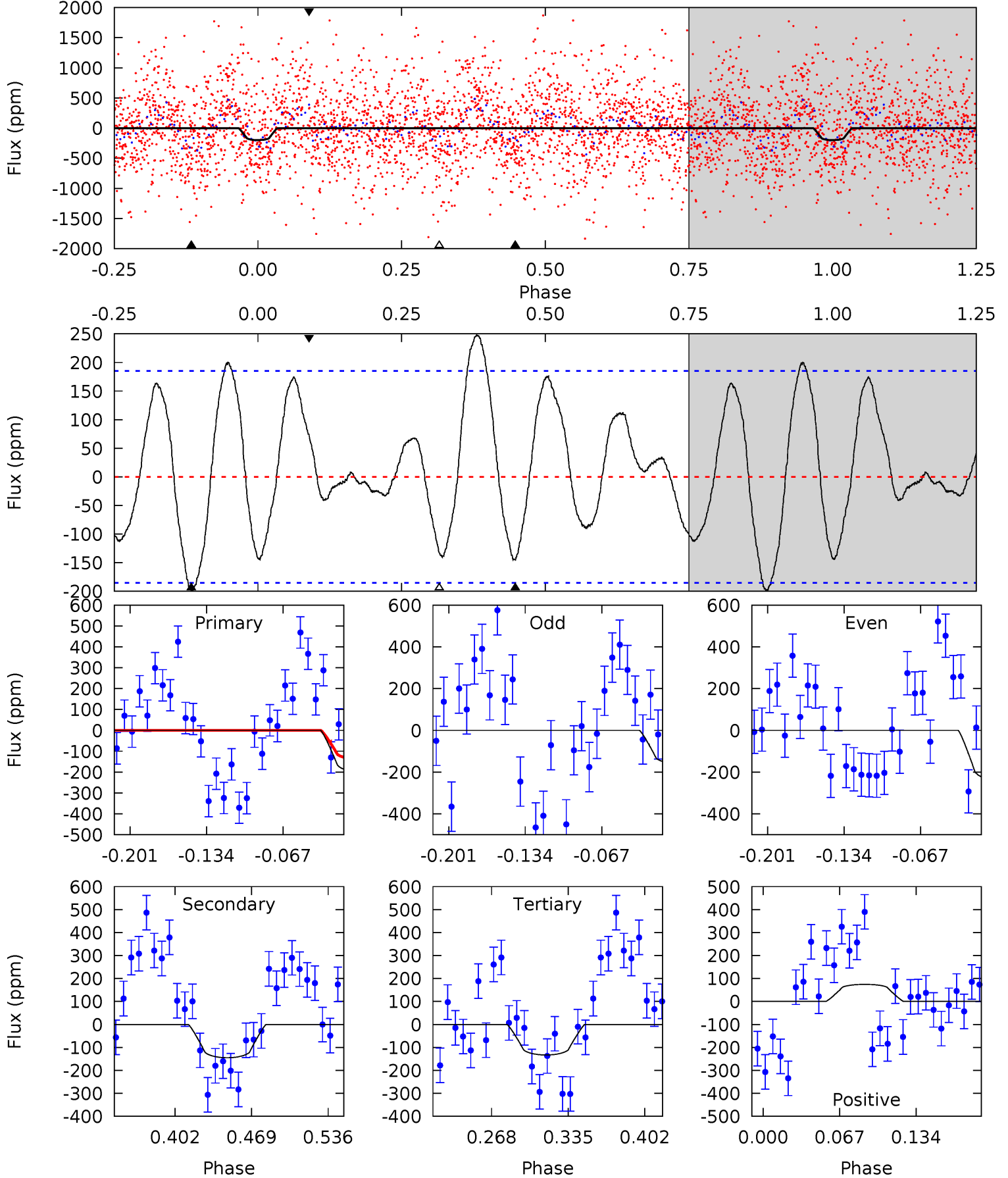
TCE 009045002-03 $P = 1.408894$ Days $T_0 = 132.093379$ (BKJD)



DV Model-Shift Uniqueness Test

009045002-03, P = 1.408973 Days, E = 130.649519 Days

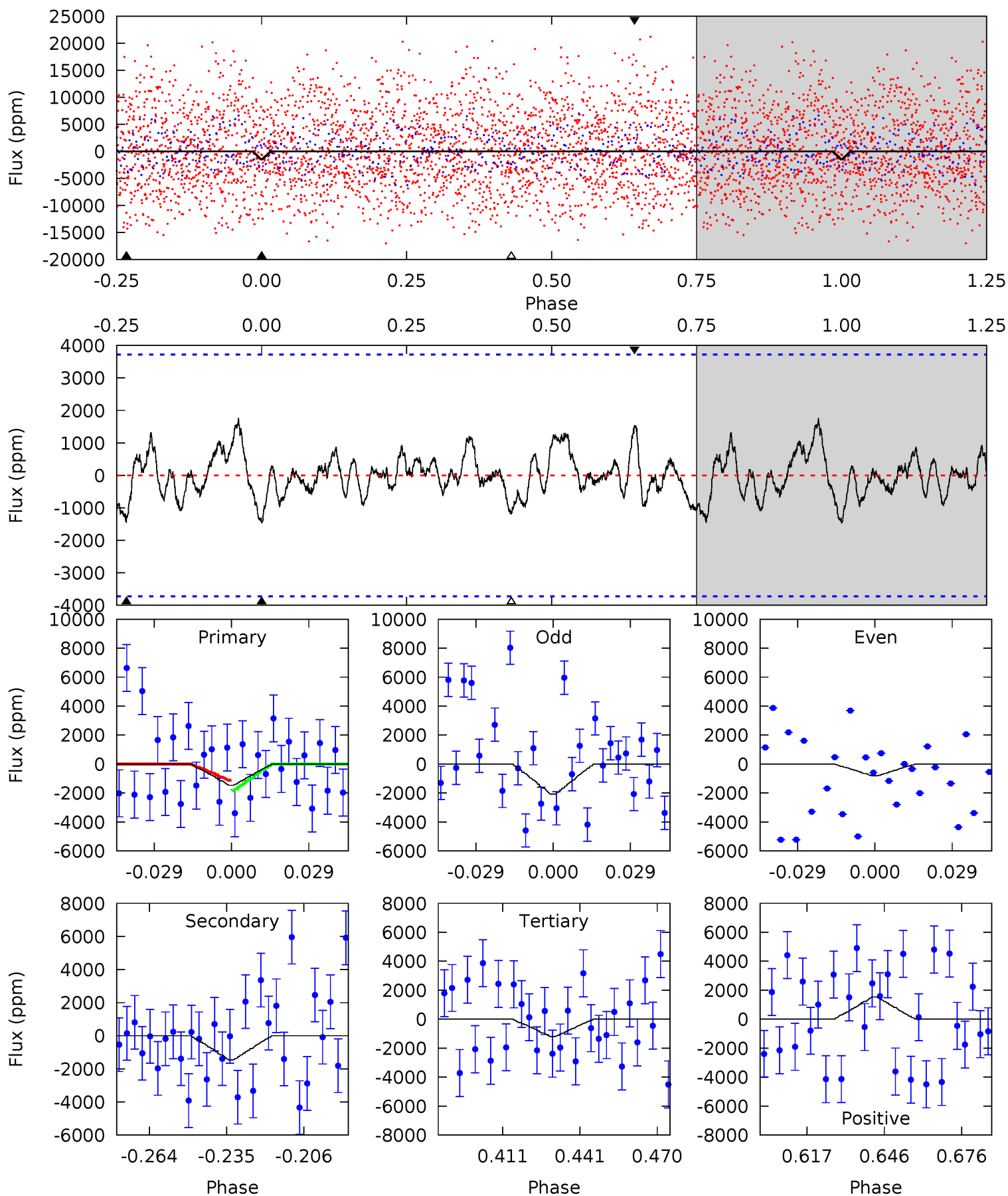
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.00	3.64	3.34	1.87	4.65	1.83	2.11	1.66	3.13	0.30	1.78	1.00	0.70	0.56	1.50



Alt Model-Shift Uniqueness Test

009045002-03, P = 1.408894 Days, E = 130.684485 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.89	1.88	1.55	1.98	4.82	2.18	0.75	0.35	-0.09	0.34	-0.10	0.82	10.9	0.55	0.46



Stellar Parameters For KIC 009045002

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6190^{+212}_{-212}	$3.811^{+0.520}_{-0.130}$	$-0.320^{+0.300}_{-0.300}$	$2.275^{+0.499}_{-1.164}$	$1.221^{+0.187}_{-0.280}$	$0.146^{+0.811}_{-0.053}$
	+3%/-3%	+14%/-3%	+94%/-94%	+22%/-51%	+15%/-23%	+555%/-36%
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 009045002-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-145 ± 40	$5.39^{+5.24}_{-3.70}$	3462^{+280}_{-446}	4321^{+3879}_{-1293}	$1.850^{+17.362}_{-1.403}$
Alt.	-1455 ± 773	$8.07^{+5.87}_{-4.76}$	3455^{+302}_{-492}	6142^{+4214}_{-1623}	$7.891^{+39.094}_{-5.894}$

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 $A_{obs} \gg 1.0$

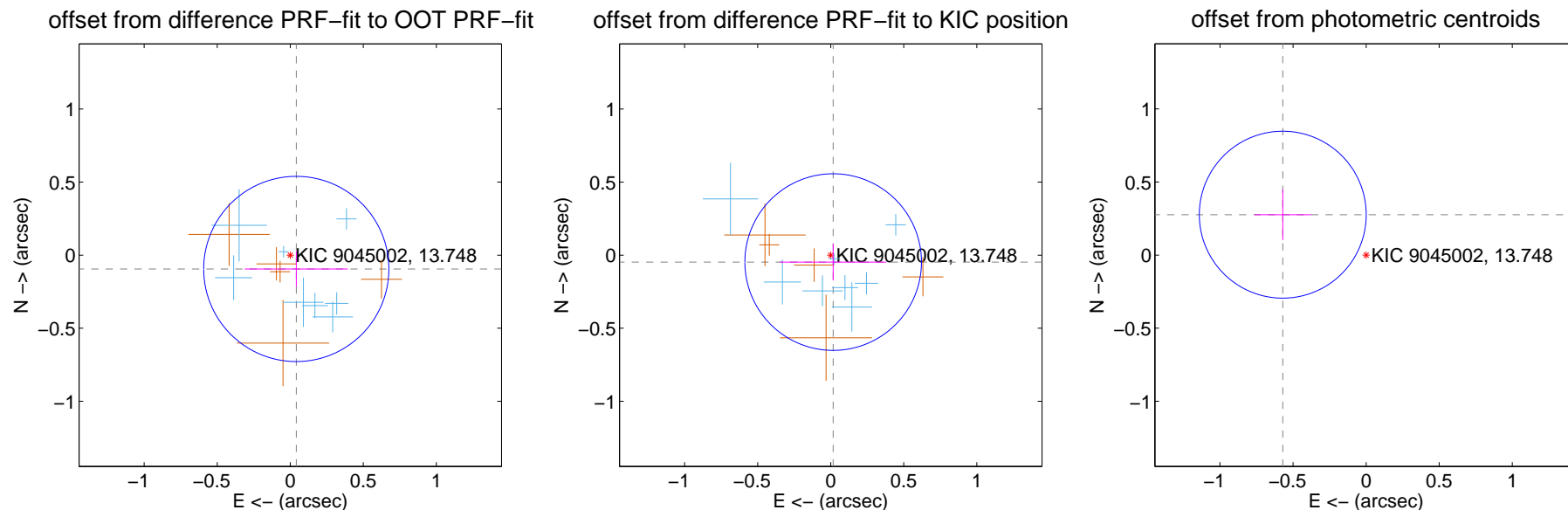
DV Centroid Data

Supplemental centroid analysis for 009045002-03. Kepler magnitude: 13.75. Transit SNR 9.55

There are 8 quarters with good PRF difference image offsets

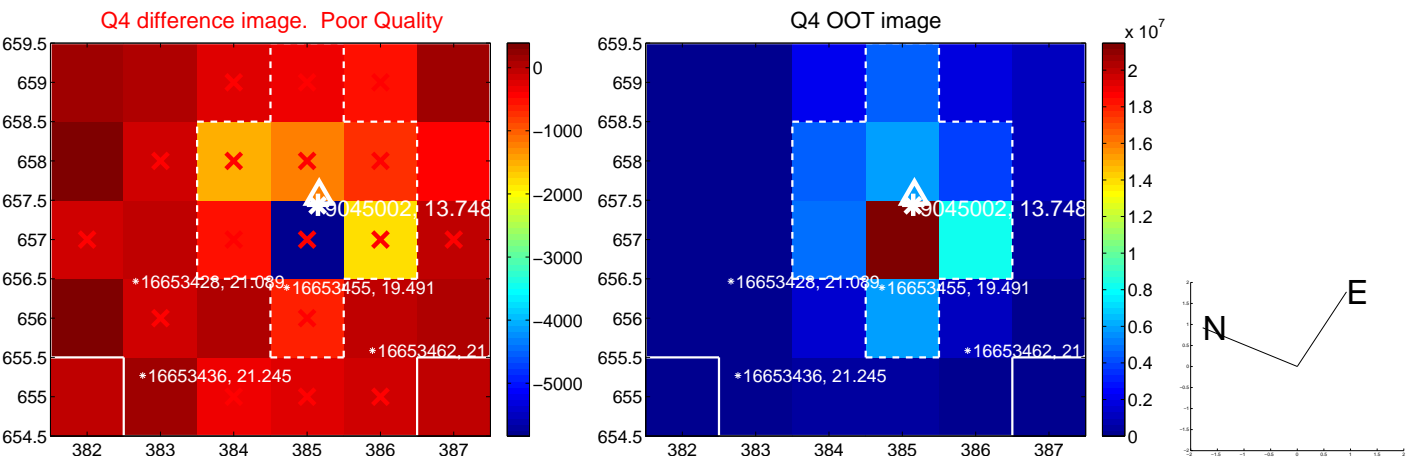
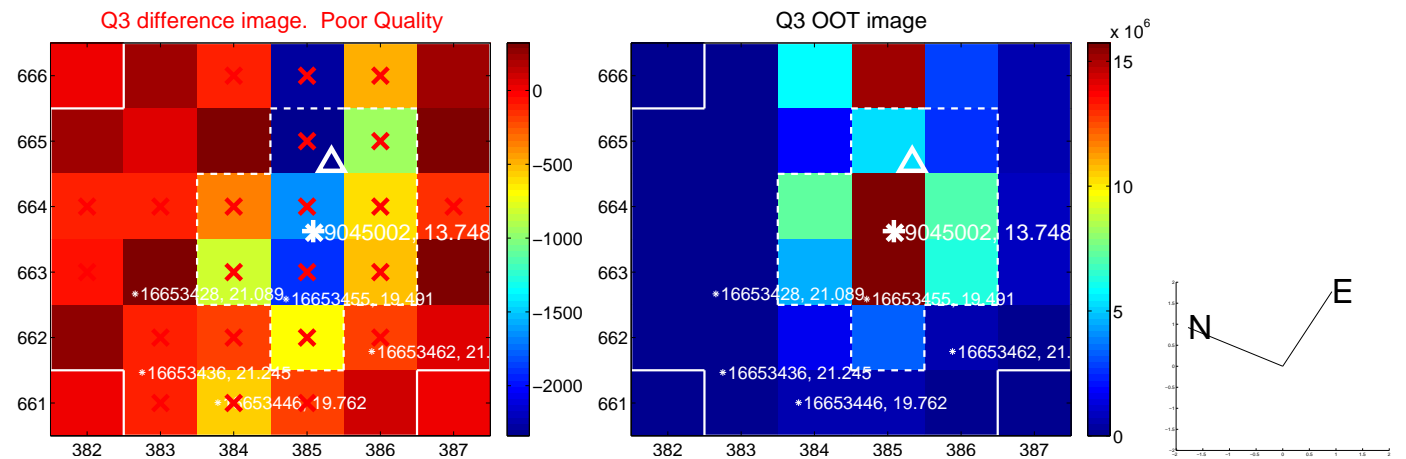
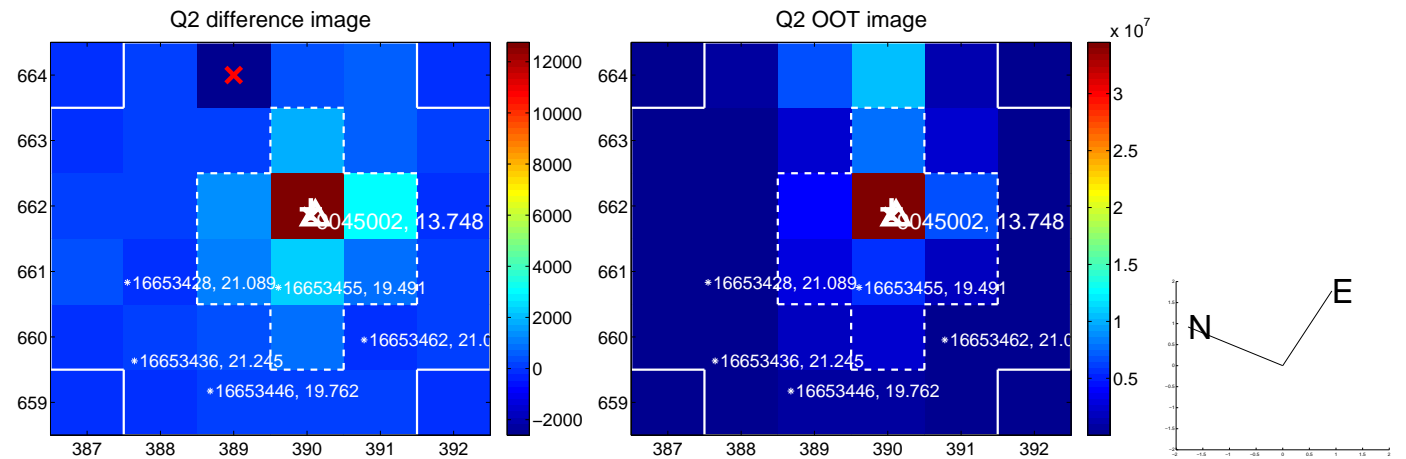
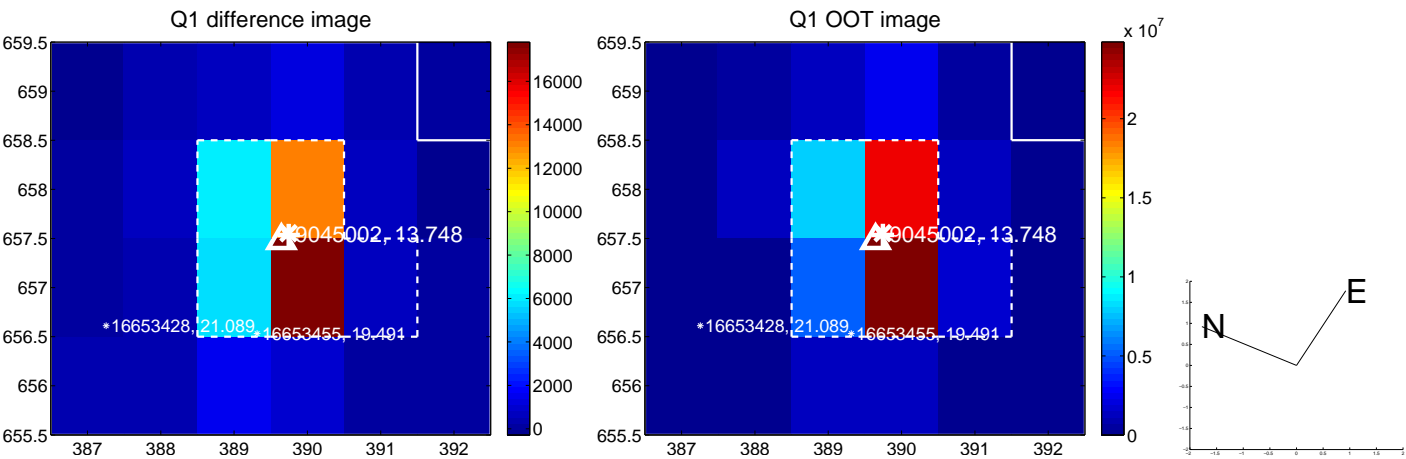
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.103 ± 0.211	0.49	-0.041 ± 0.353	-0.095 ± 0.121
PRF-fit source offset from KIC position	0.050 ± 0.201	0.25	-0.017 ± 0.365	-0.047 ± 0.125
photometric centroid source offset	0.63 ± 0.19	3.33	0.57 ± 0.19	0.28 ± 0.17

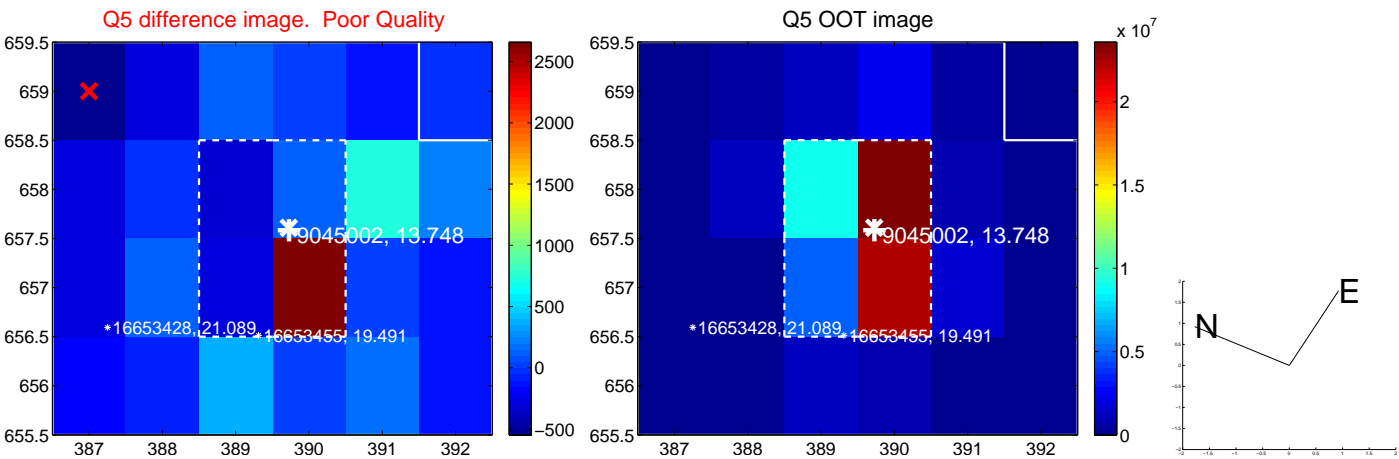


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

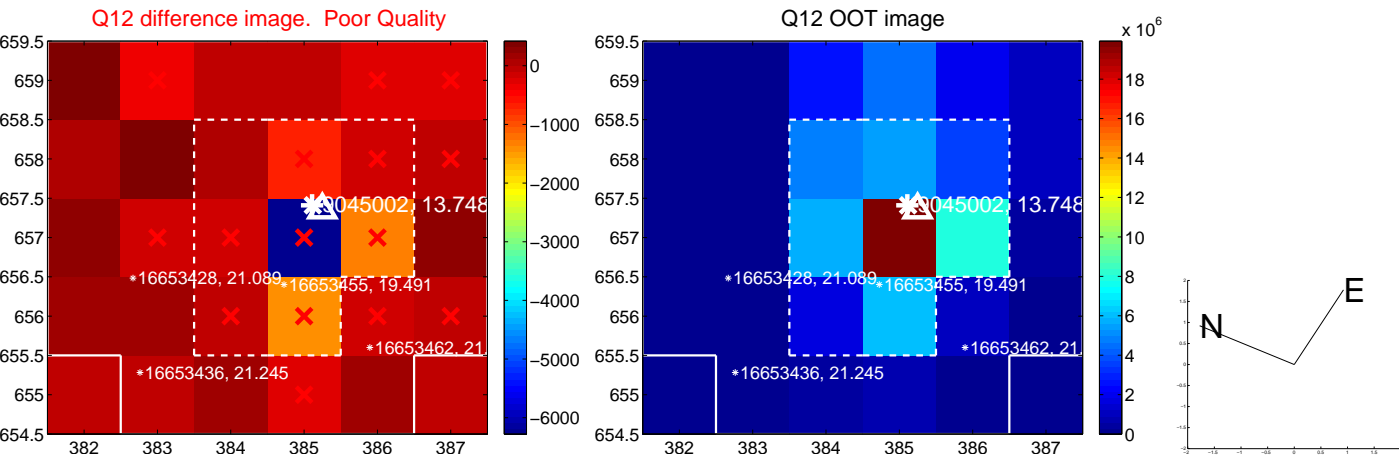
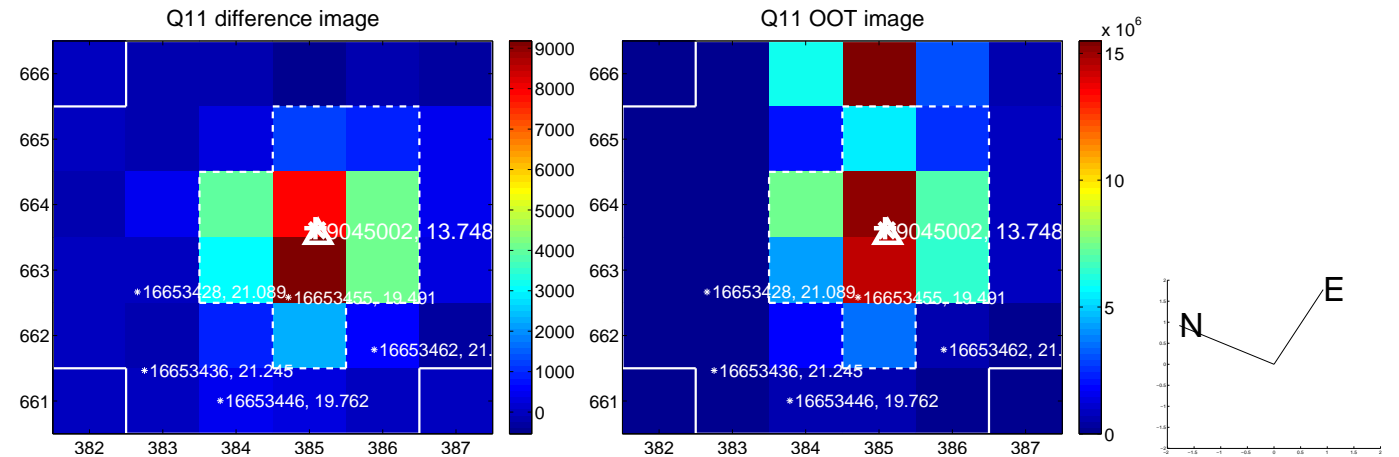
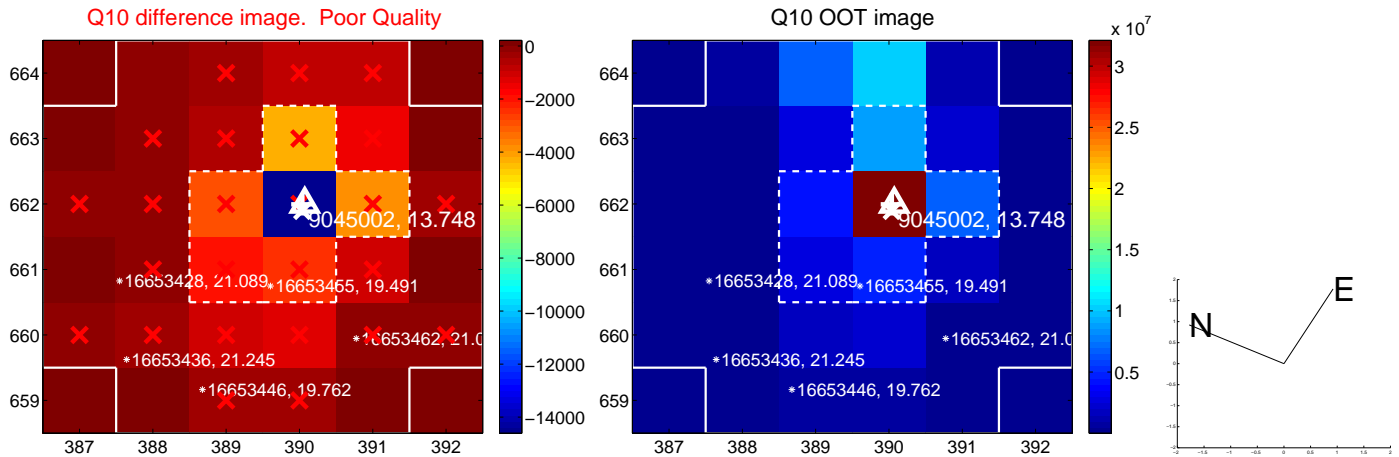
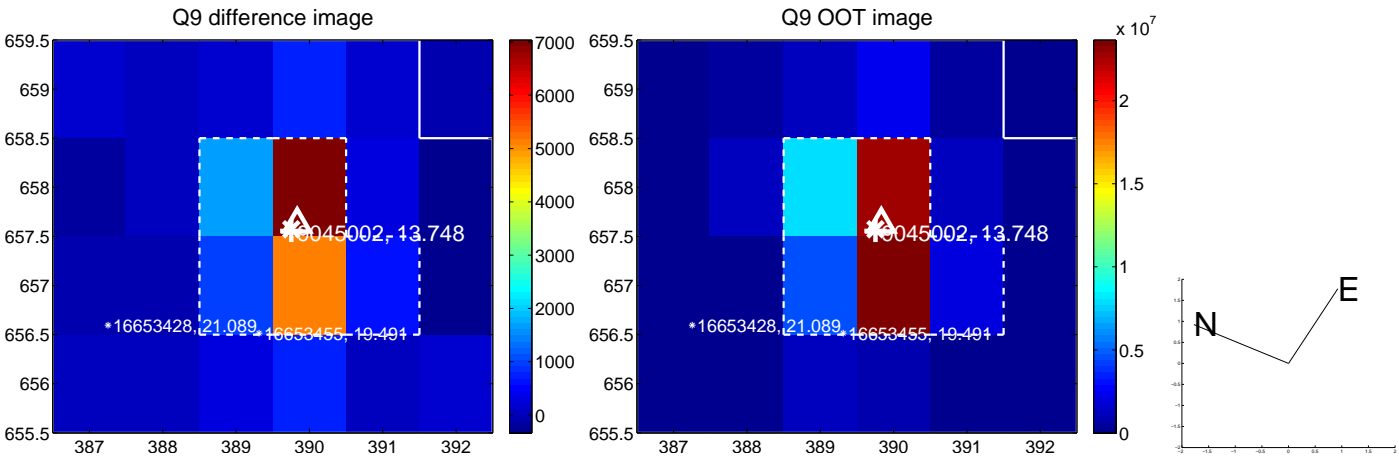
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



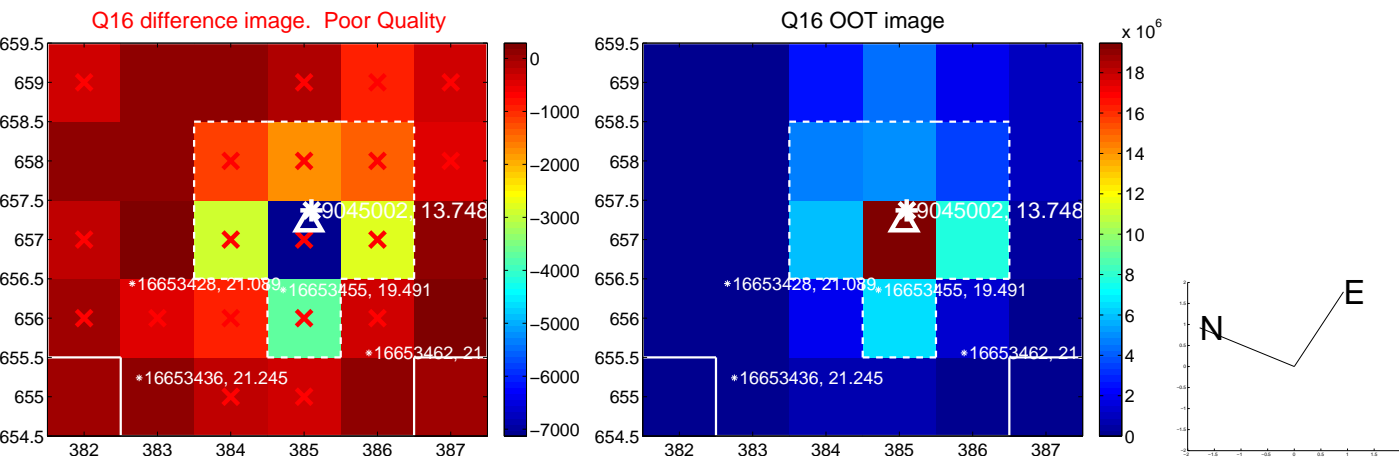
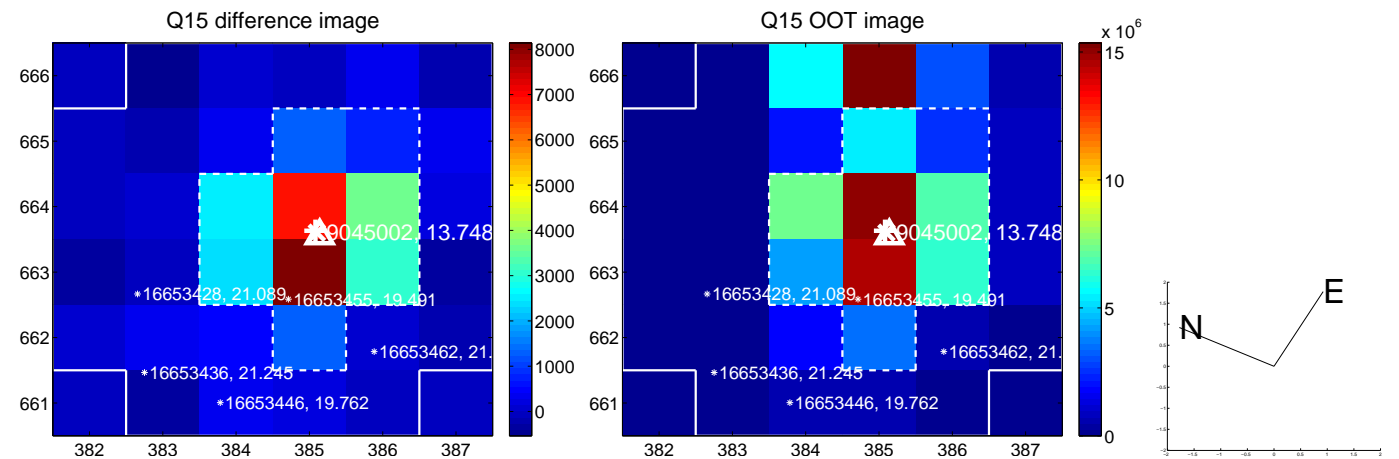
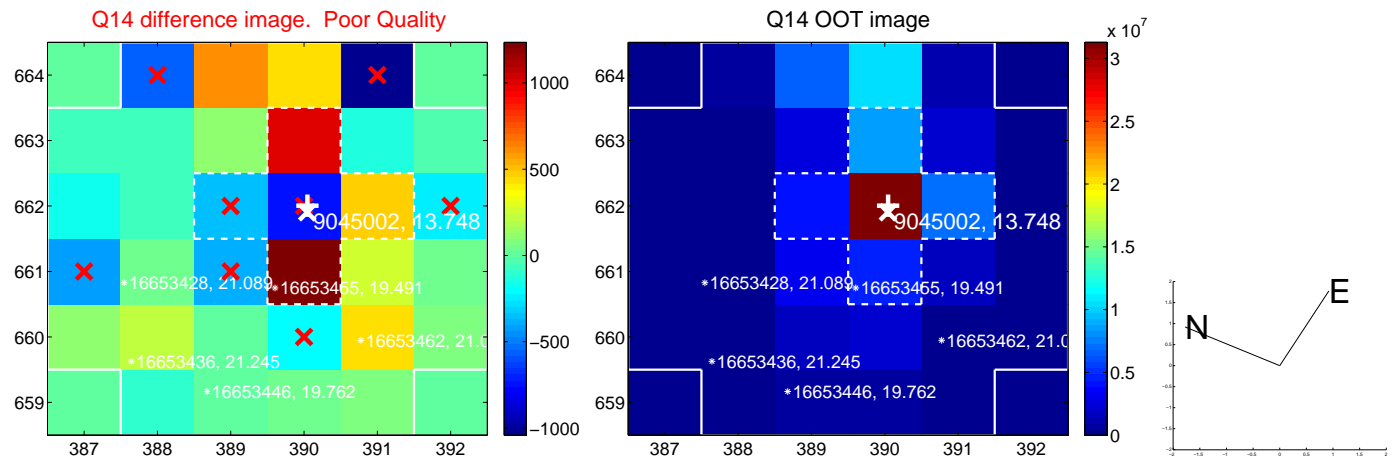
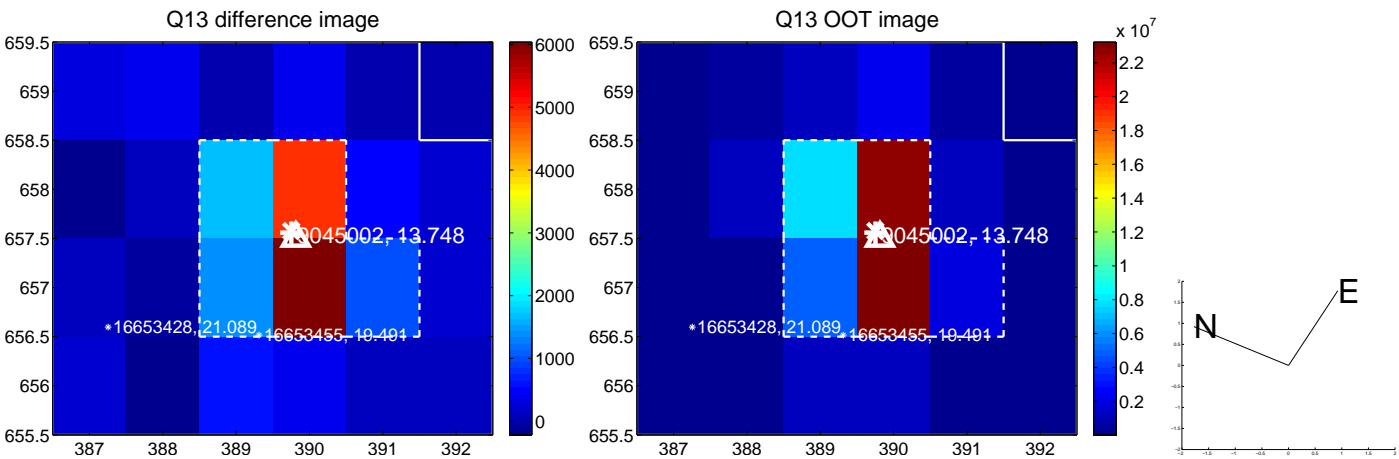
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



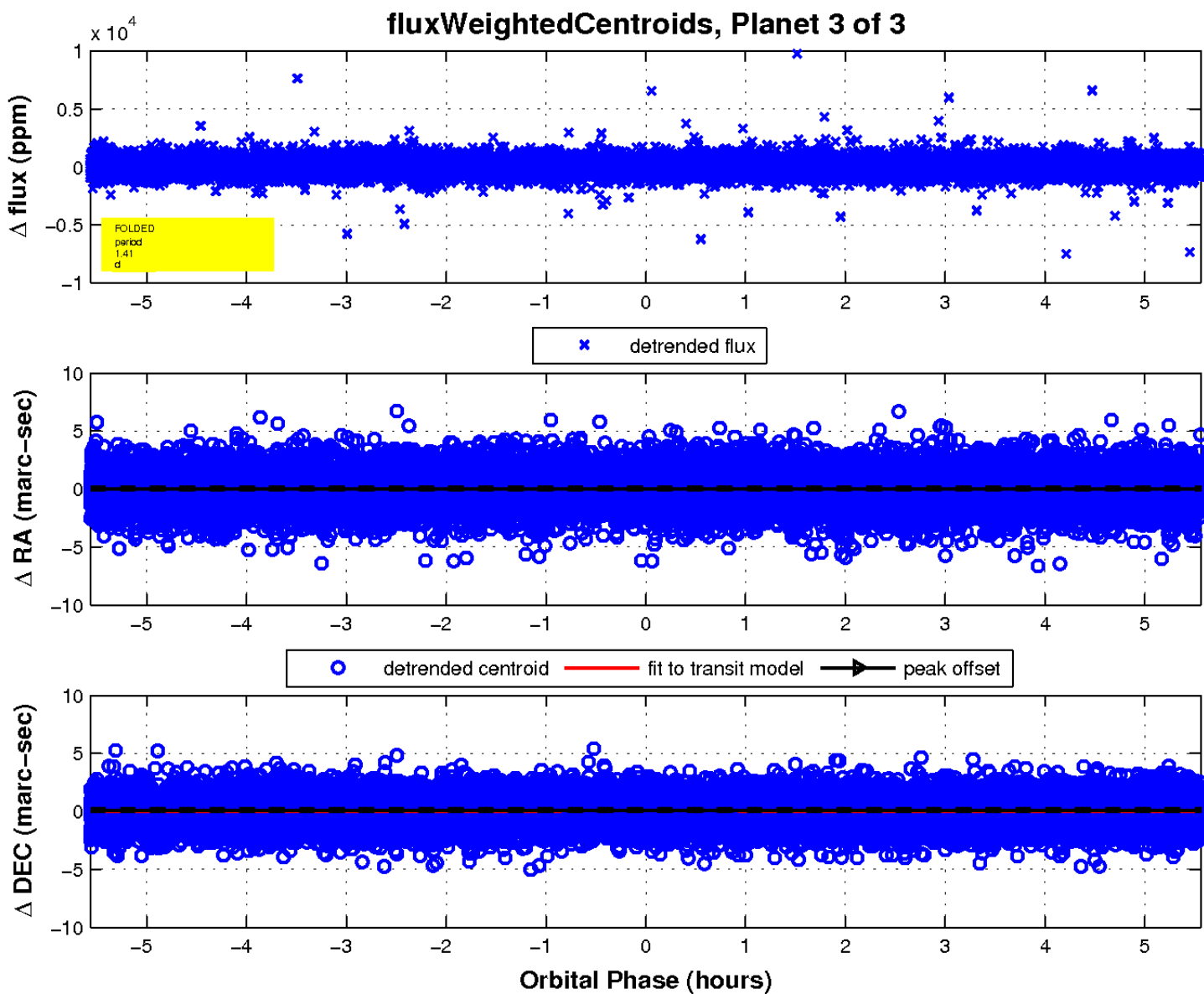
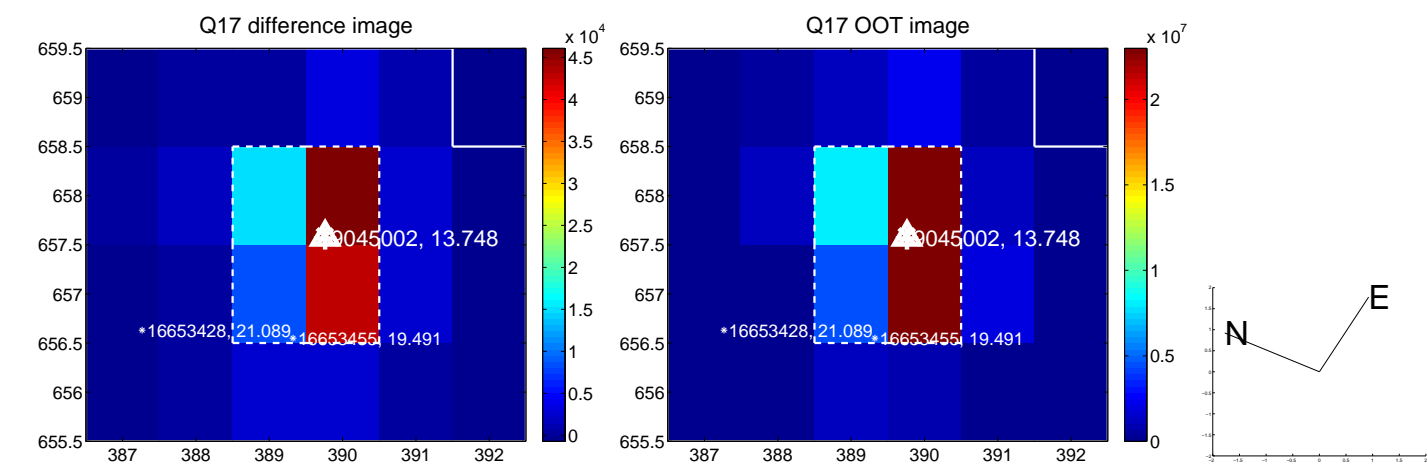
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

