

KIC 009701423

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})
009701423-01	OBS	No	2.869284	133.233187	7.2	15.744	10.6	10.7	1.09	6563	0.30	1182.56
009701423-02	OBS	No	459.083746	140.136256	84.2	10.671	20.2	8.6	1.09	6563	1.17	1.36
009701423-03	OBS	No	164.591880	182.844388	74.4	7.397	8.1	7.9	1.09	6563	1.10	5.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009701423-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_SATURATED
009701423-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009701423-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_POS_DV—CENT_SATURATED

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

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

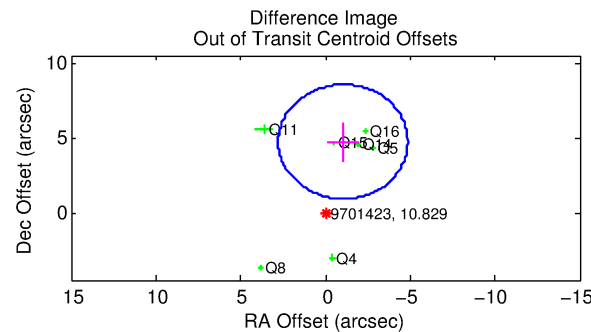
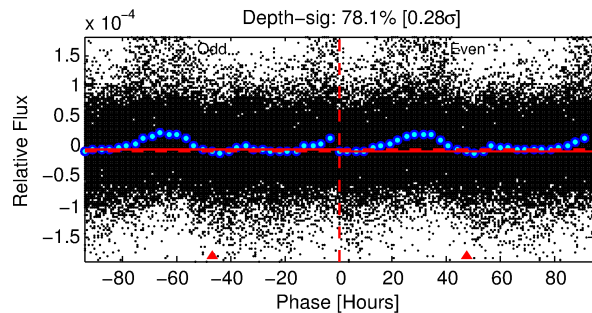
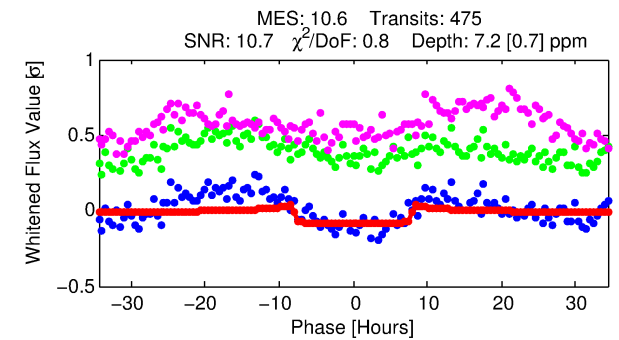
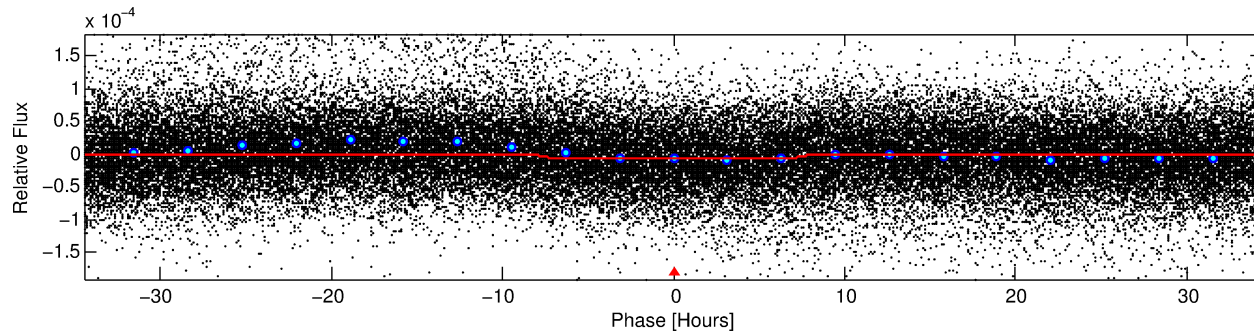
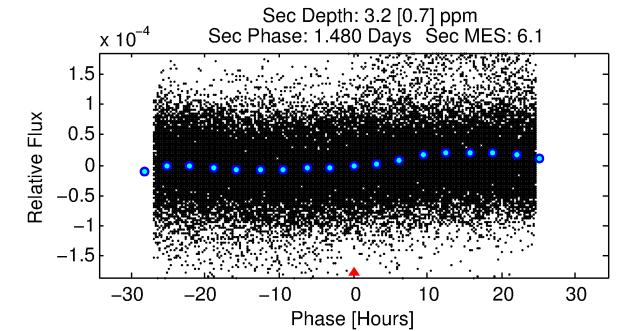
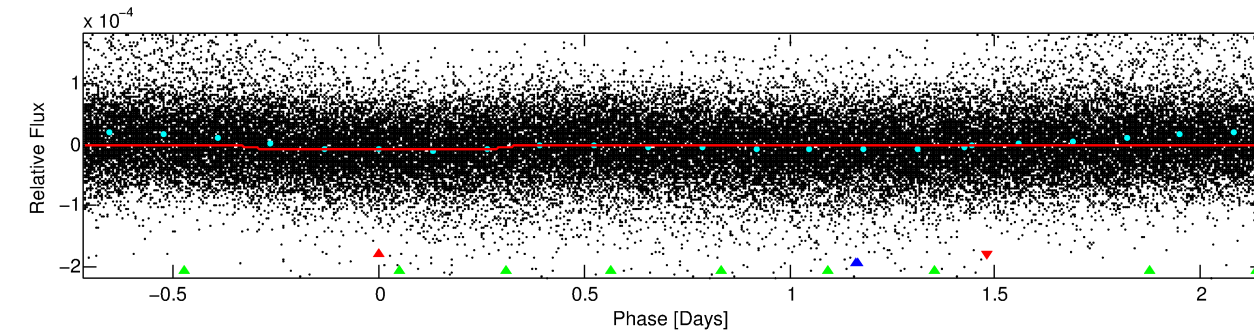
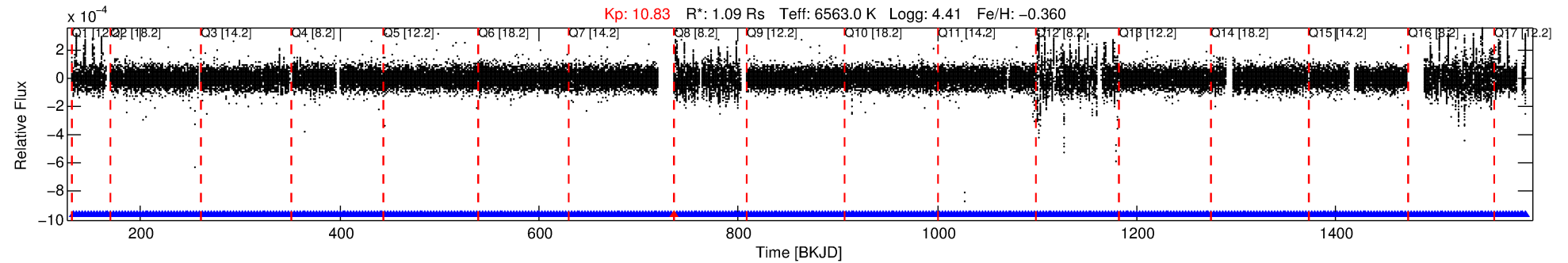
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009701423-01

No Significant Match Found

DV One-Page Summary

KIC: 9701423 Candidate: 1 of 3 Period: 2.869 d



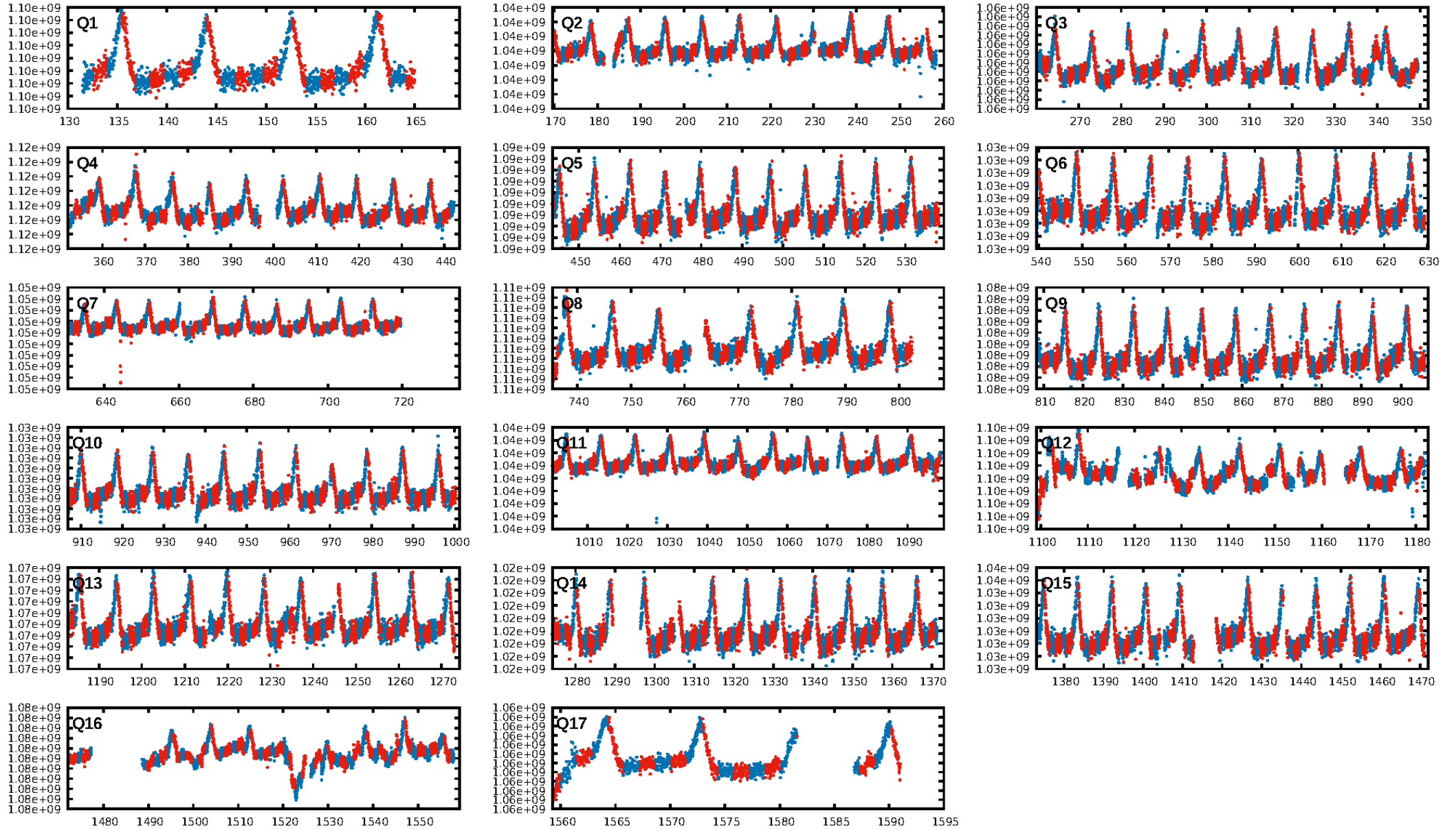
DV Fit Results:

Period = 2.86928 [0.00004] d
Epoch = 133.2332 [0.0083] BKJD
Rp/R* = 0.0025 [0.0013]
a/R* = 1.49 [2.31]
b = 0.29 [9.00]
Seff = 1182.56 [337.30]
Teff = 1495 [107] K
Rp = 0.30 [0.17] Re
a = 0.0409 [0.0072] AU
Ag = 33.11 [36.17] [0.89σ]
Teffp = 5546 [1478] K [2.73σ]

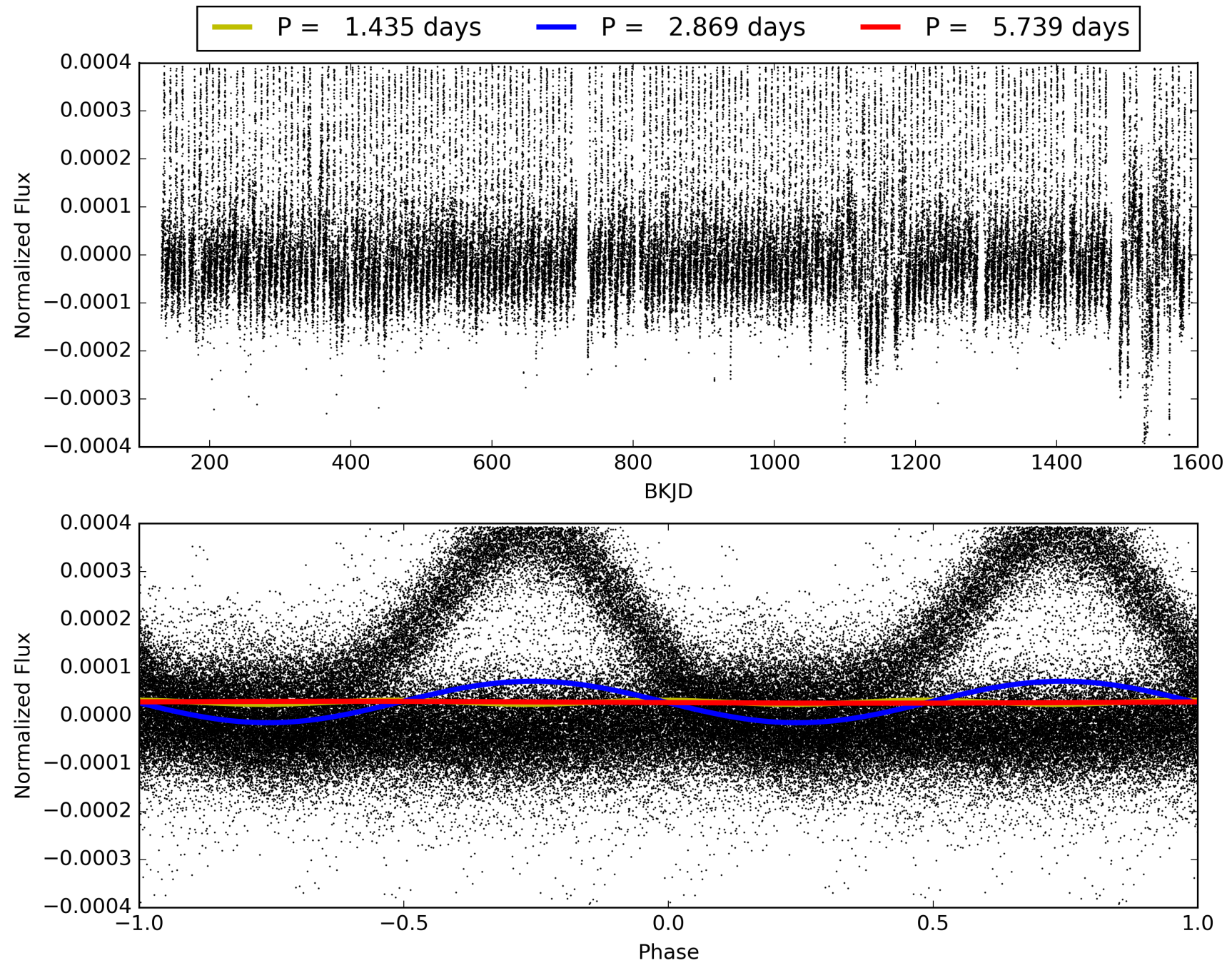
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [223.13σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.69e-12
RollingBand-fgt: 1.00 [452/453]
GhostDiagnostic-chr: -0.41
Centroid-sig: 0.7%
Centroid-so: 5.274 arcsec [2.19σ]
OotOffset-rm: 4.843 arcsec [3.80σ]
KicOffset-rm: 4.598 arcsec [3.50σ]
OotOffset-st: 1/2/3/1 [7]
KicOffset-st: 1/2/3/1 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009701423-01, PDC Light Curves

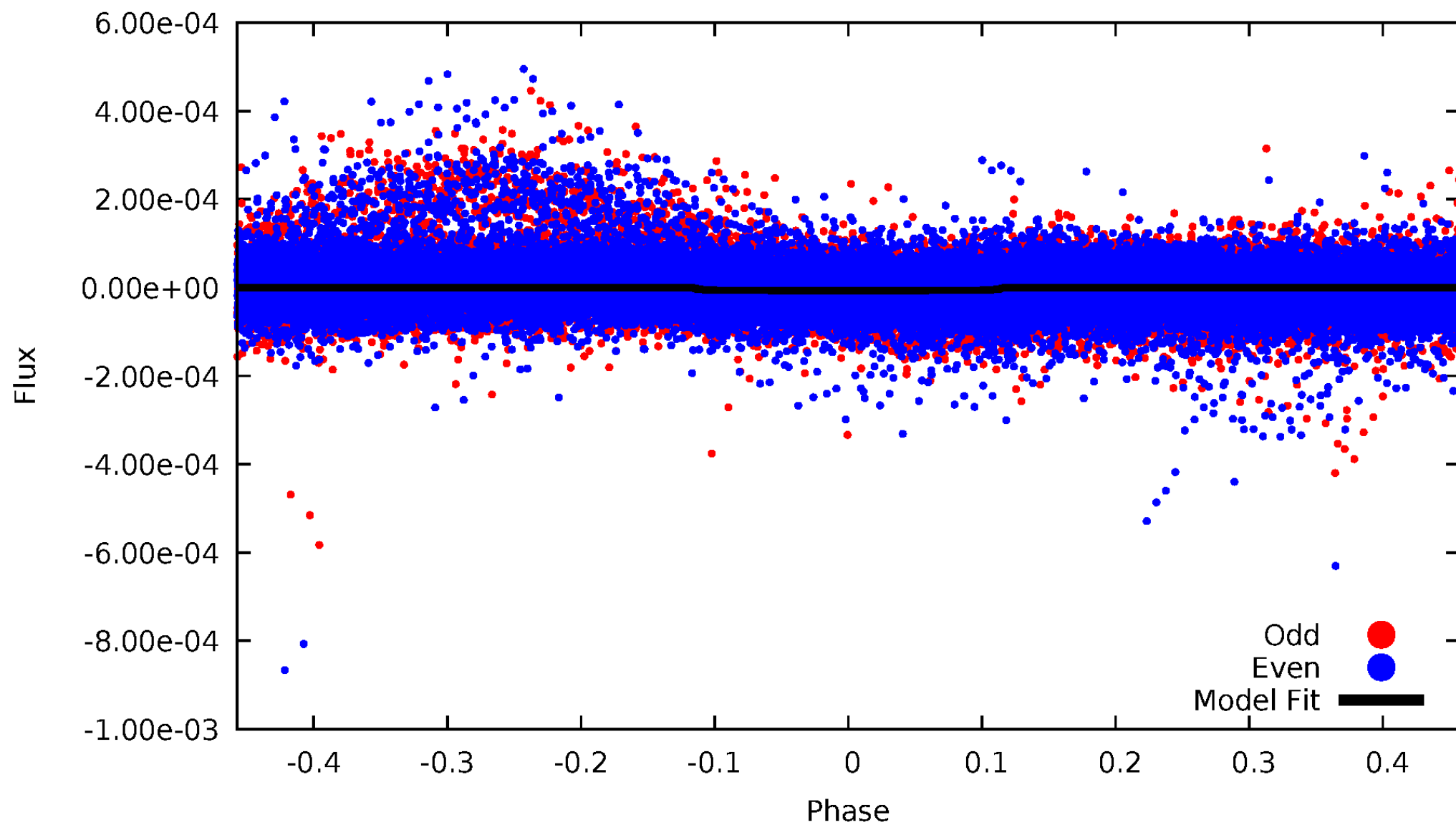


TCE 009701423-01



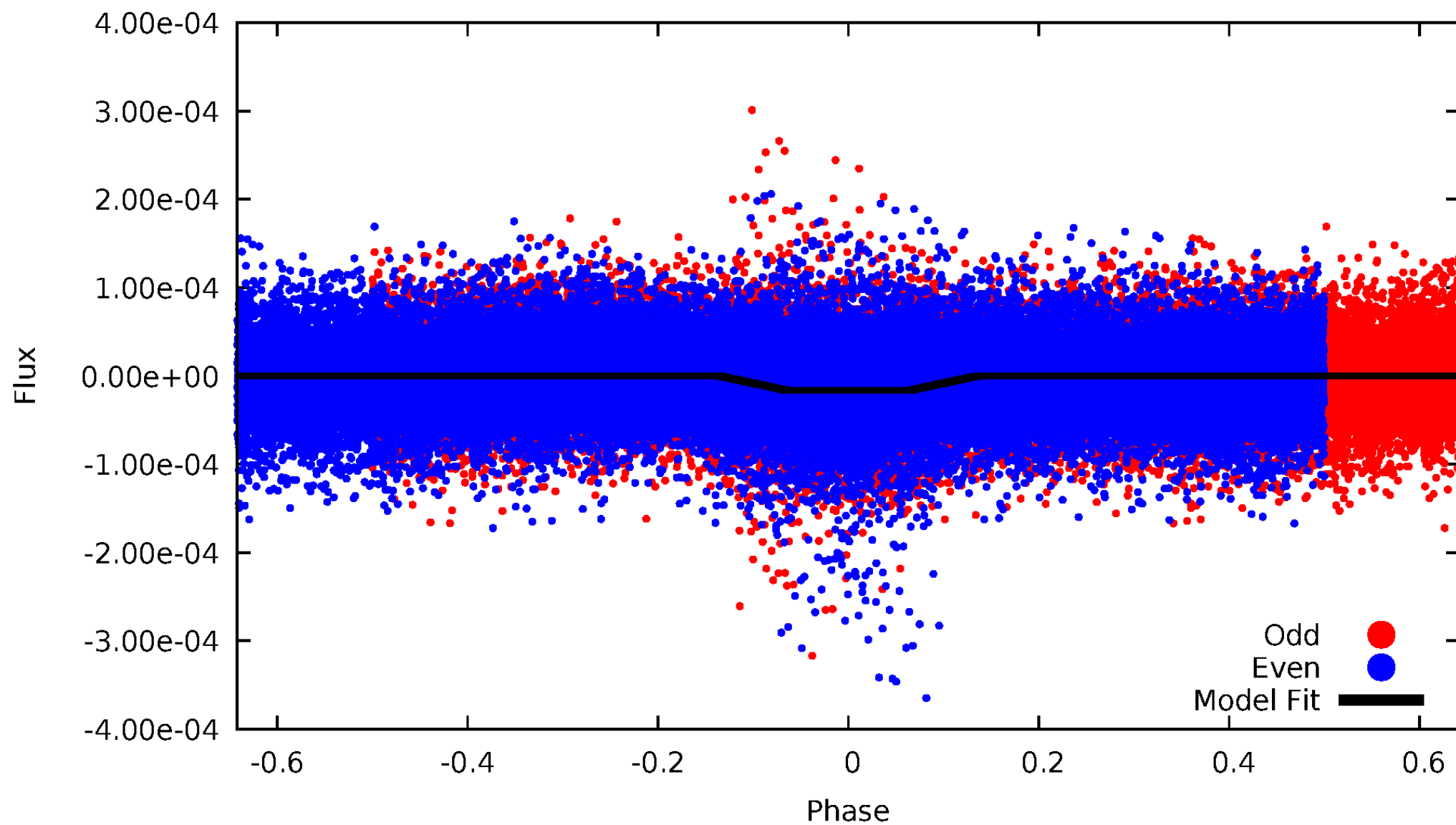
DV Odd/Even

TCE 009701423-01



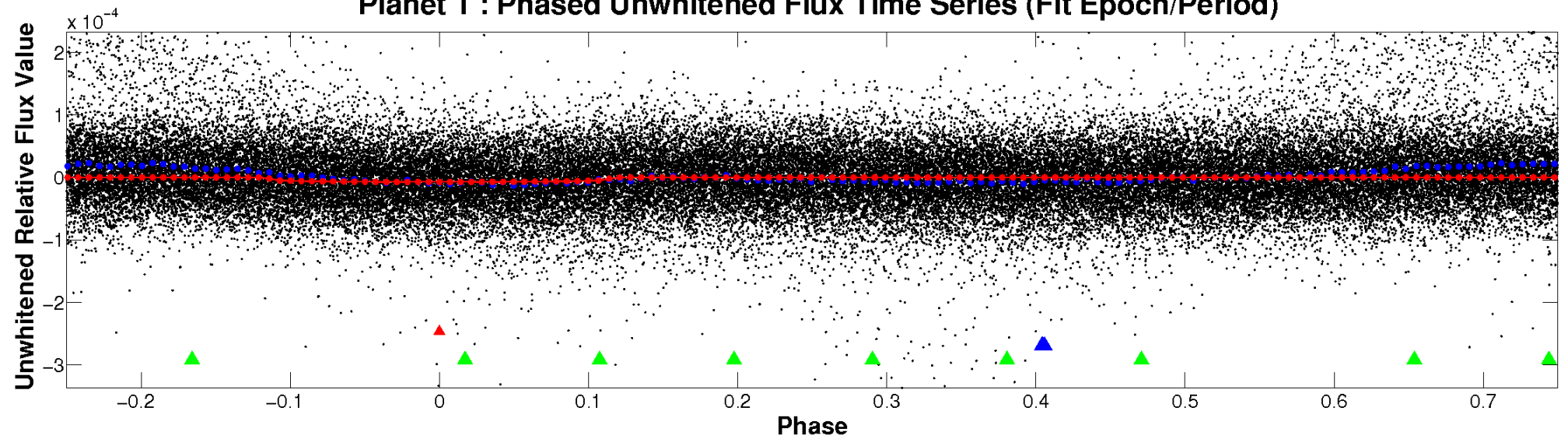
ALT Odd/Even

TCE 009701423-01

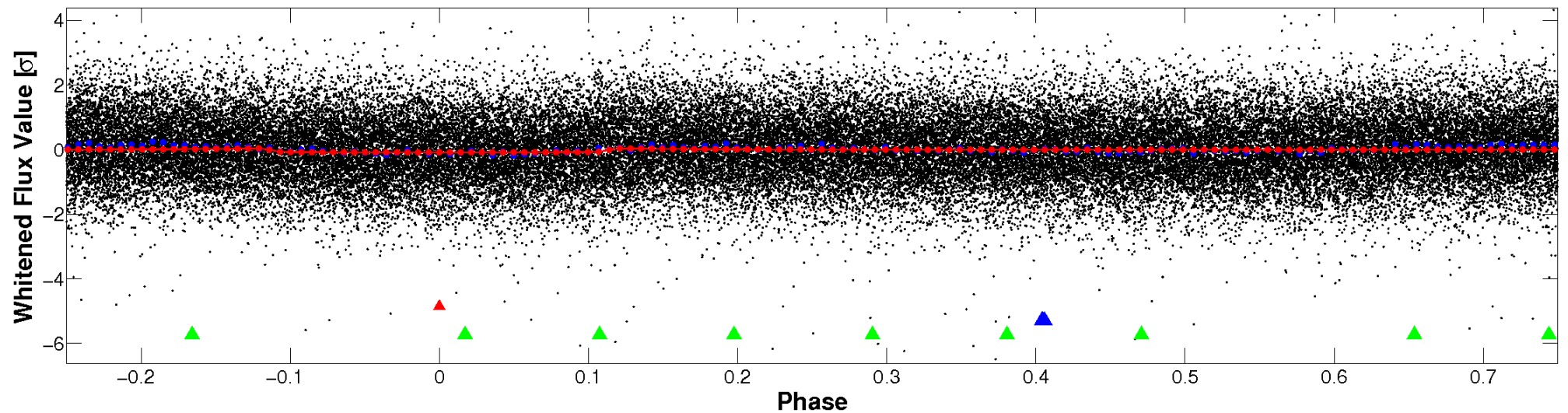


Non-Whitened Vs. Whitened Light Curve

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

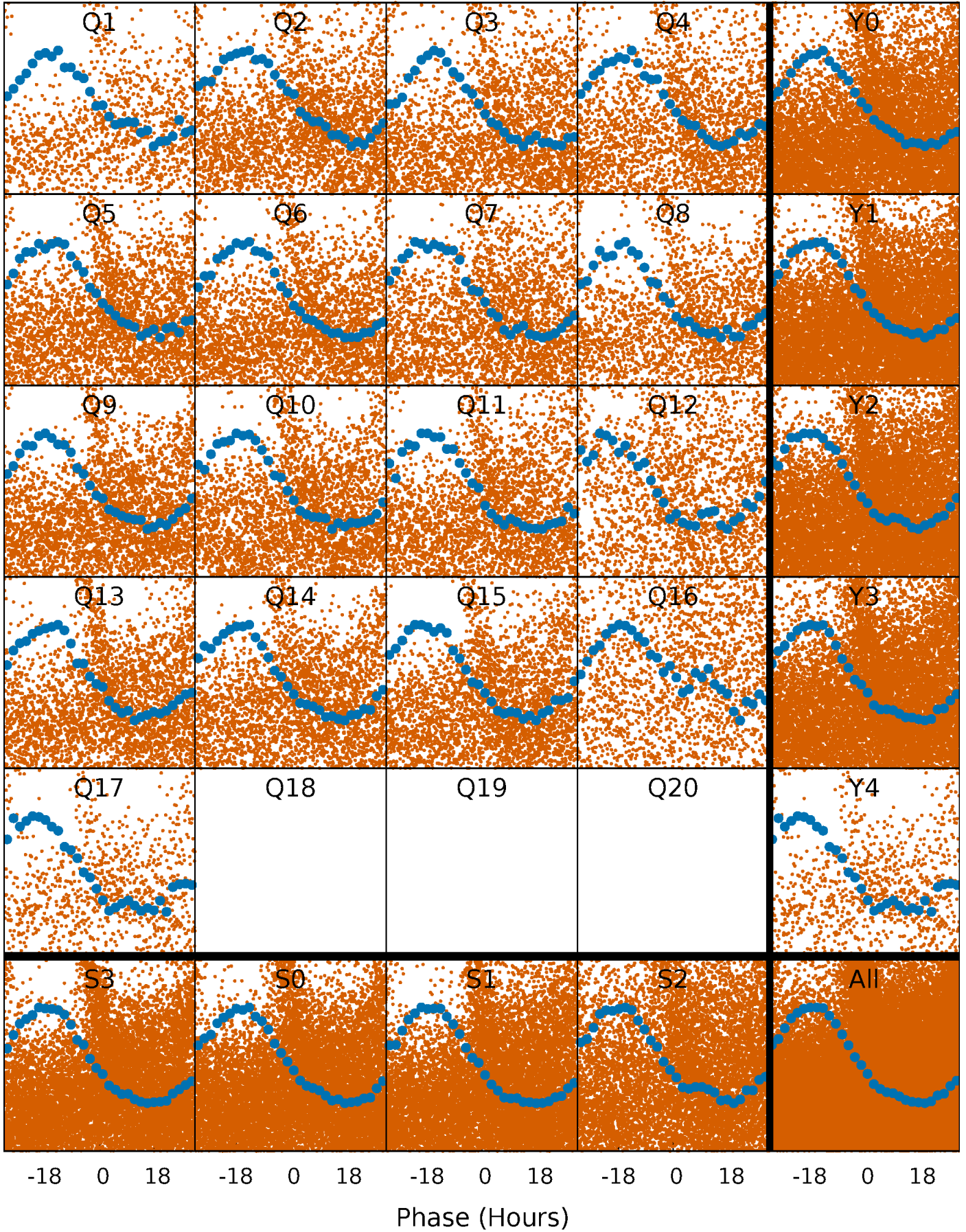


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



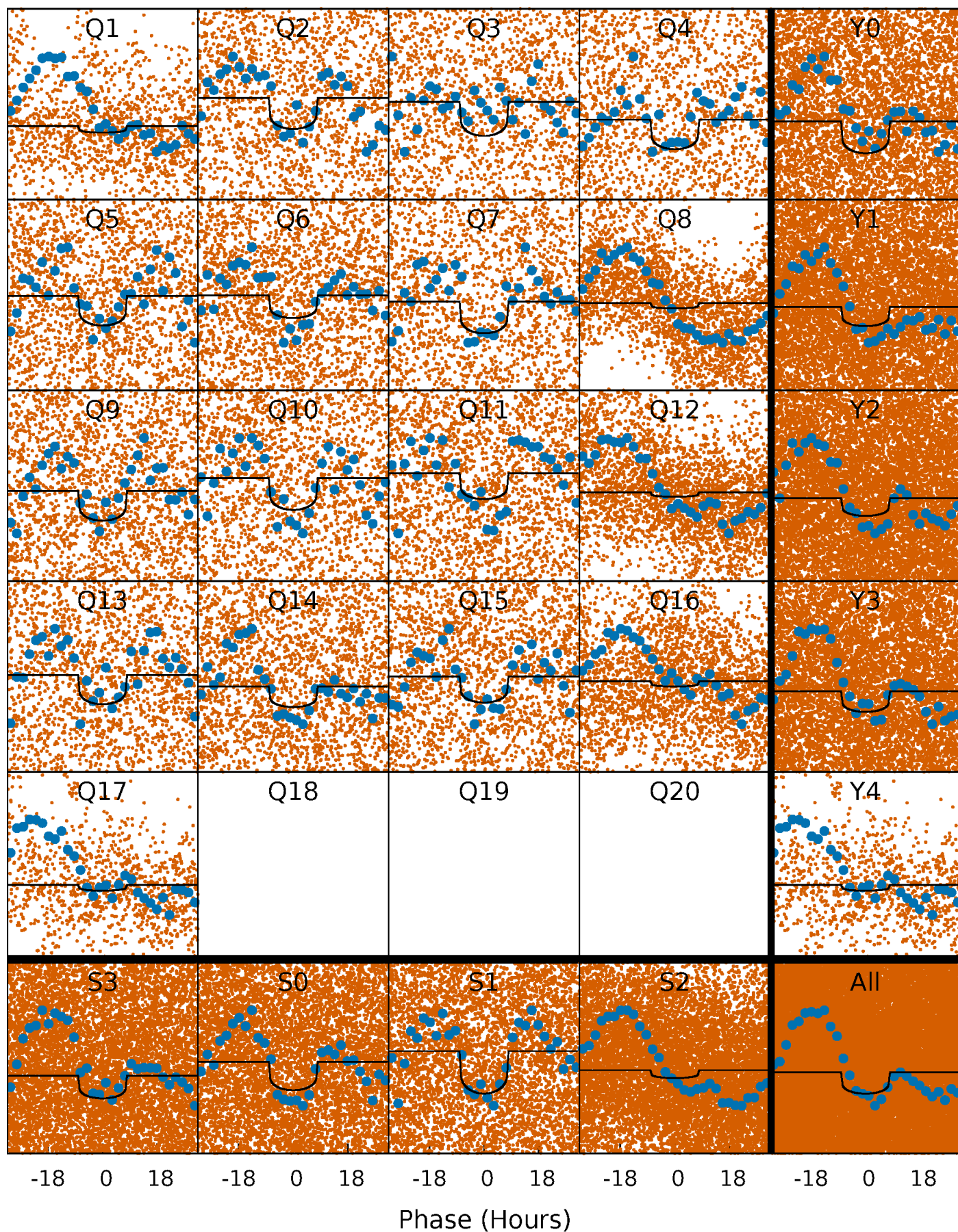
PDC Quarter-Phased Transit Curves

TCE 009701423-01 P= 2.869284 Days $T_0=133.233187$ (BKJD)



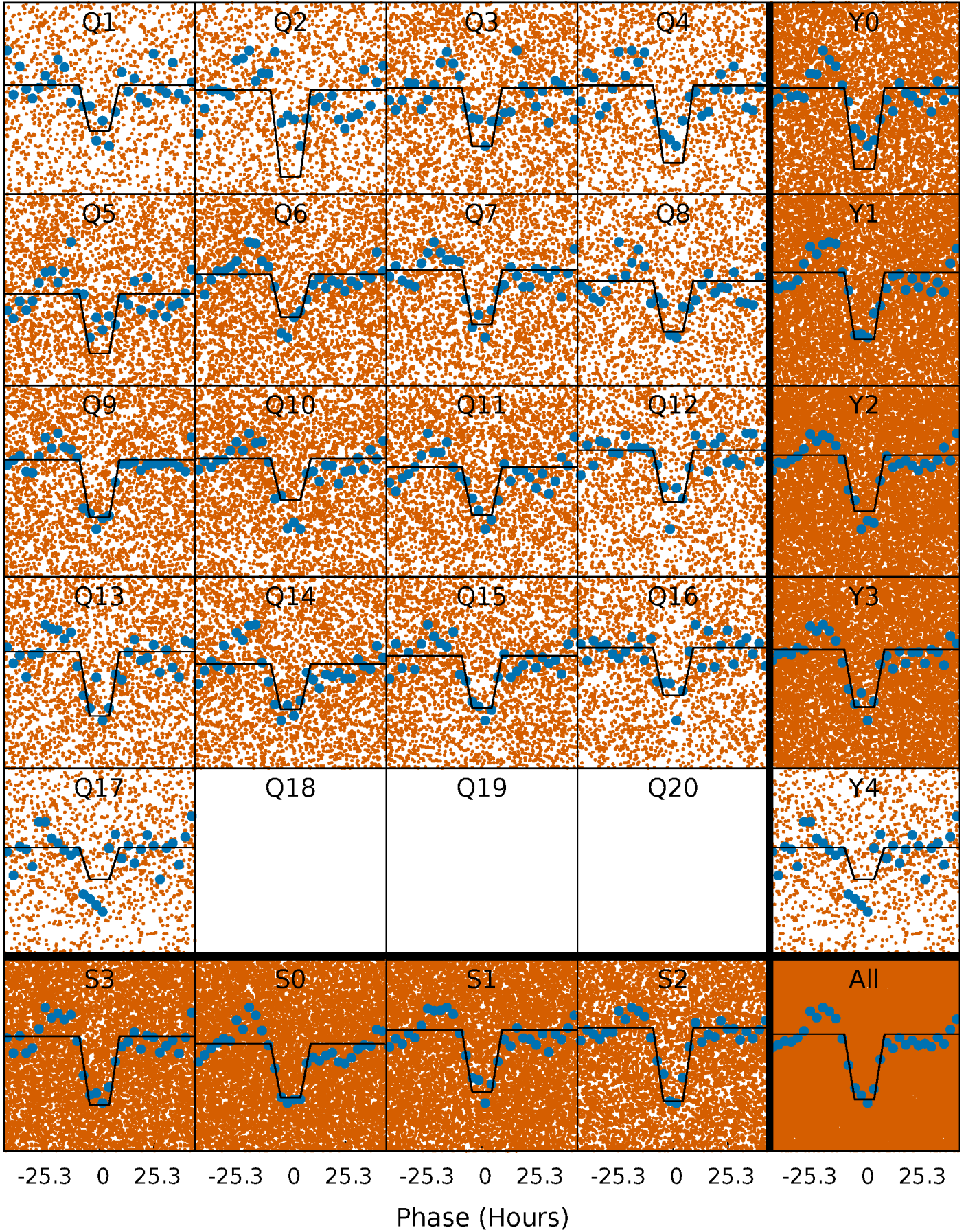
DV Quarter-Phased Transit Curves

TCE 009701423-01 P= 2.869284 Days $T_0=133.233187$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

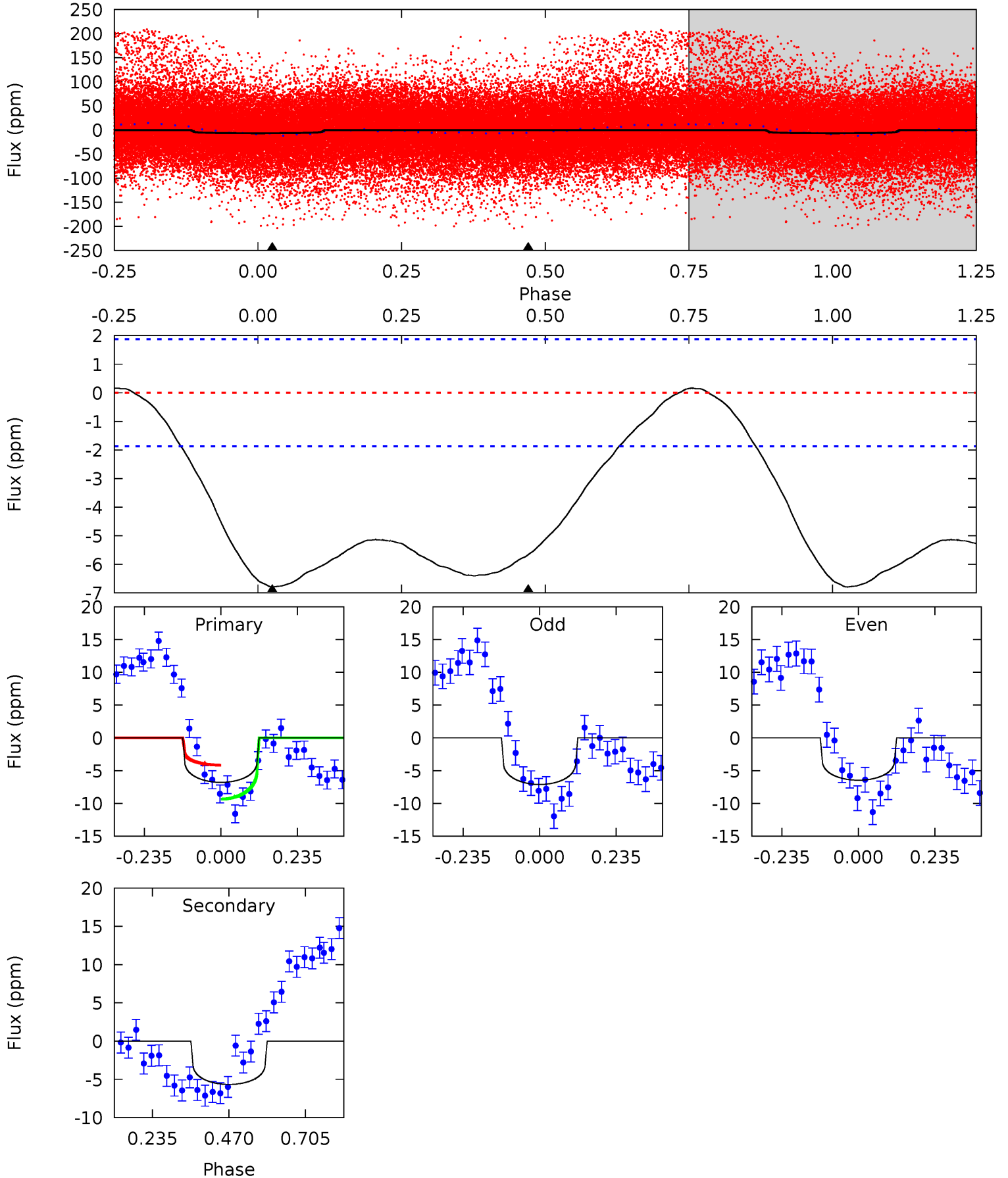
TCE 009701423-01 P= 2.869438 Days $T_0=133.246563$ (BKJD)



DV Model-Shift Uniqueness Test

009701423-01, P = 2.869284 Days, E = 130.363903 Days

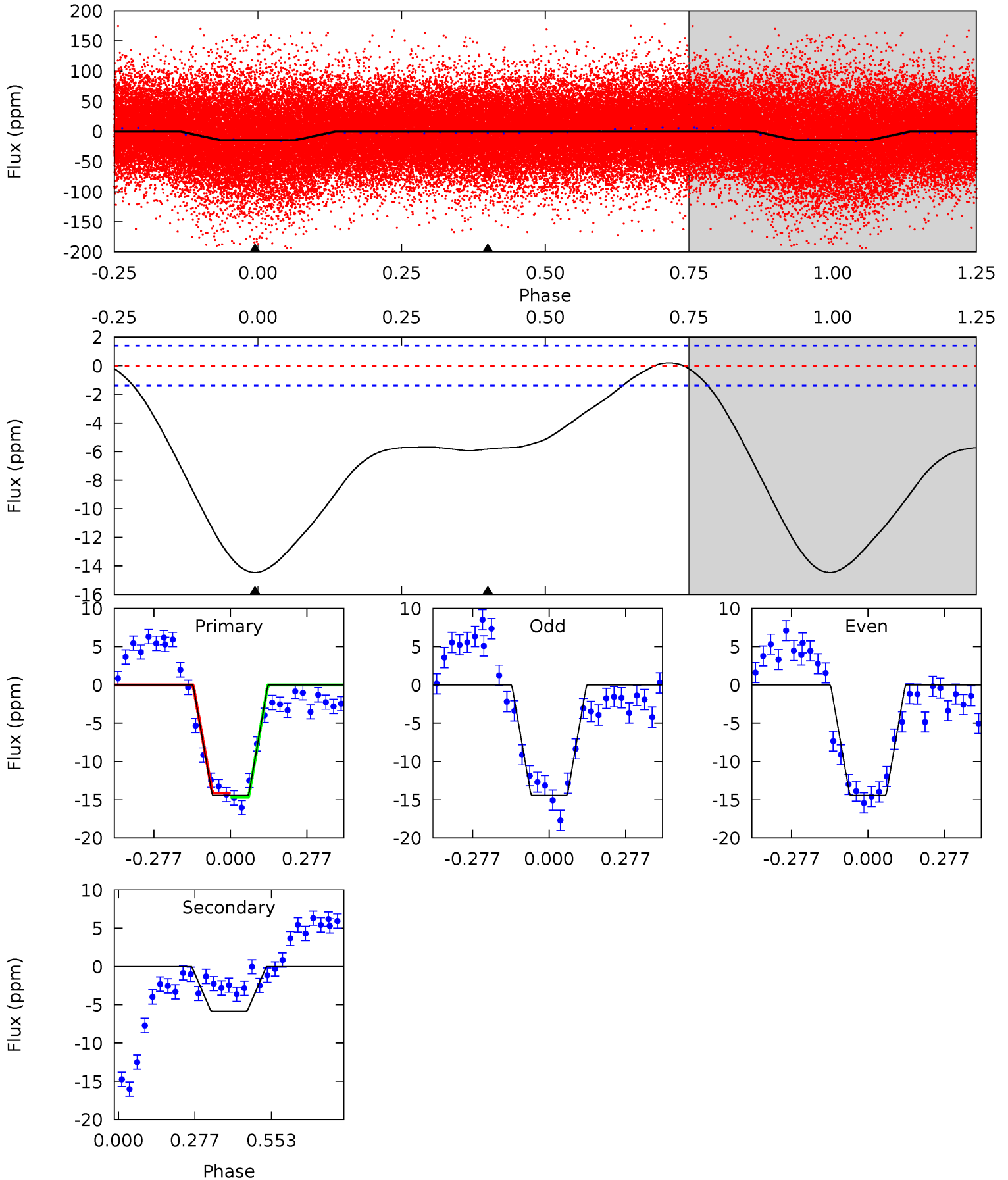
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	13.2	0	0	4.38	1.19	0.42	15.9	15.9	13.2	13.2	0.77	1.08	0.02	6.55



Alt Model-Shift Uniqueness Test

009701423-01, P = 2.869438 Days, E = 130.377125 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.9	18.1	0	0	4.35	1.09	1.08	44.9	44.9	18.1	18.1	0.02	1.43	0.01	0.82



Stellar Parameters For KIC 009701423

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6563^{+147}_{-180}	$4.407^{+0.063}_{-0.147}$	$-0.360^{+0.250}_{-0.300}$	$1.091^{+0.222}_{-0.120}$	$1.108^{+0.122}_{-0.149}$	$1.202^{+0.324}_{-0.487}$
	+2%/-3%	+1%/-3%	+69%/-83%	+20%/-11%	+11%/-13%	+27%/-41%
Source	PHO1	FLK73	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 009701423-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-6 ± 0	$0.31^{+0.16}_{-0.15}$	2117^{+110}_{-99}	6298^{+3091}_{-1113}	53^{+146}_{-31}
Alt.	-6 ± 0	$0.48^{+0.17}_{-0.15}$	2114^{+119}_{-90}	5153^{+1010}_{-594}	22^{+26}_{-10}

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

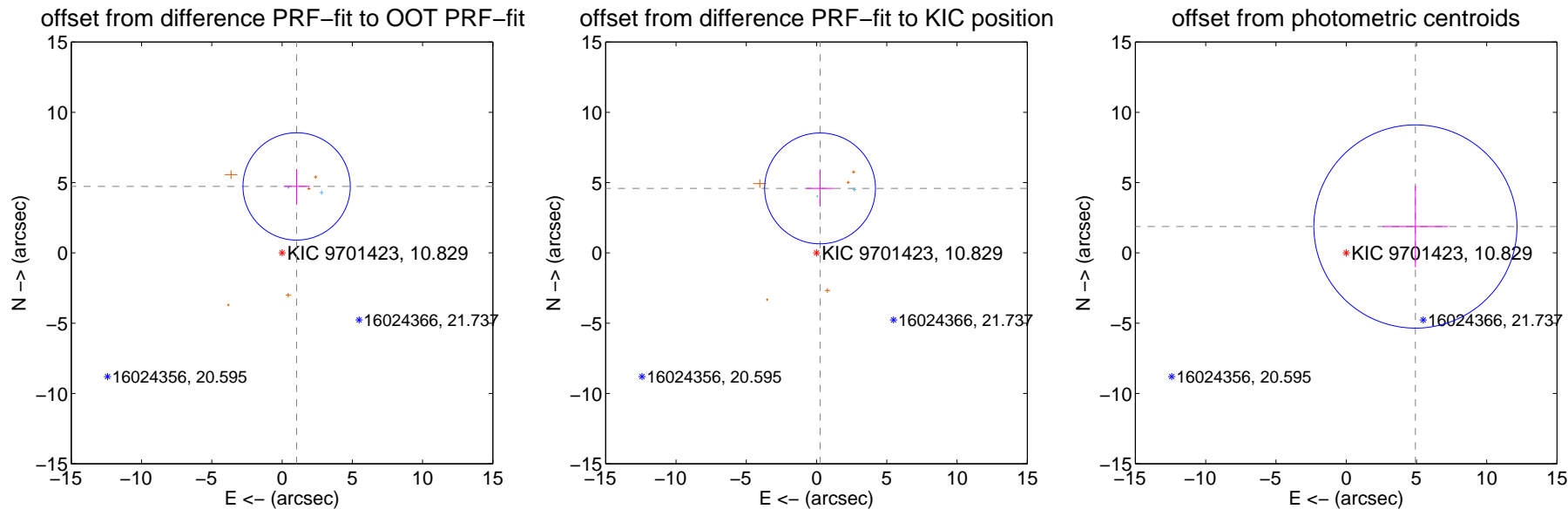
DV Centroid Data

Supplemental centroid analysis for 009701423-01. **Kepler magnitude: 10.83.** Transit SNR 10.68

There are 2 quarters with good PRF difference image offsets

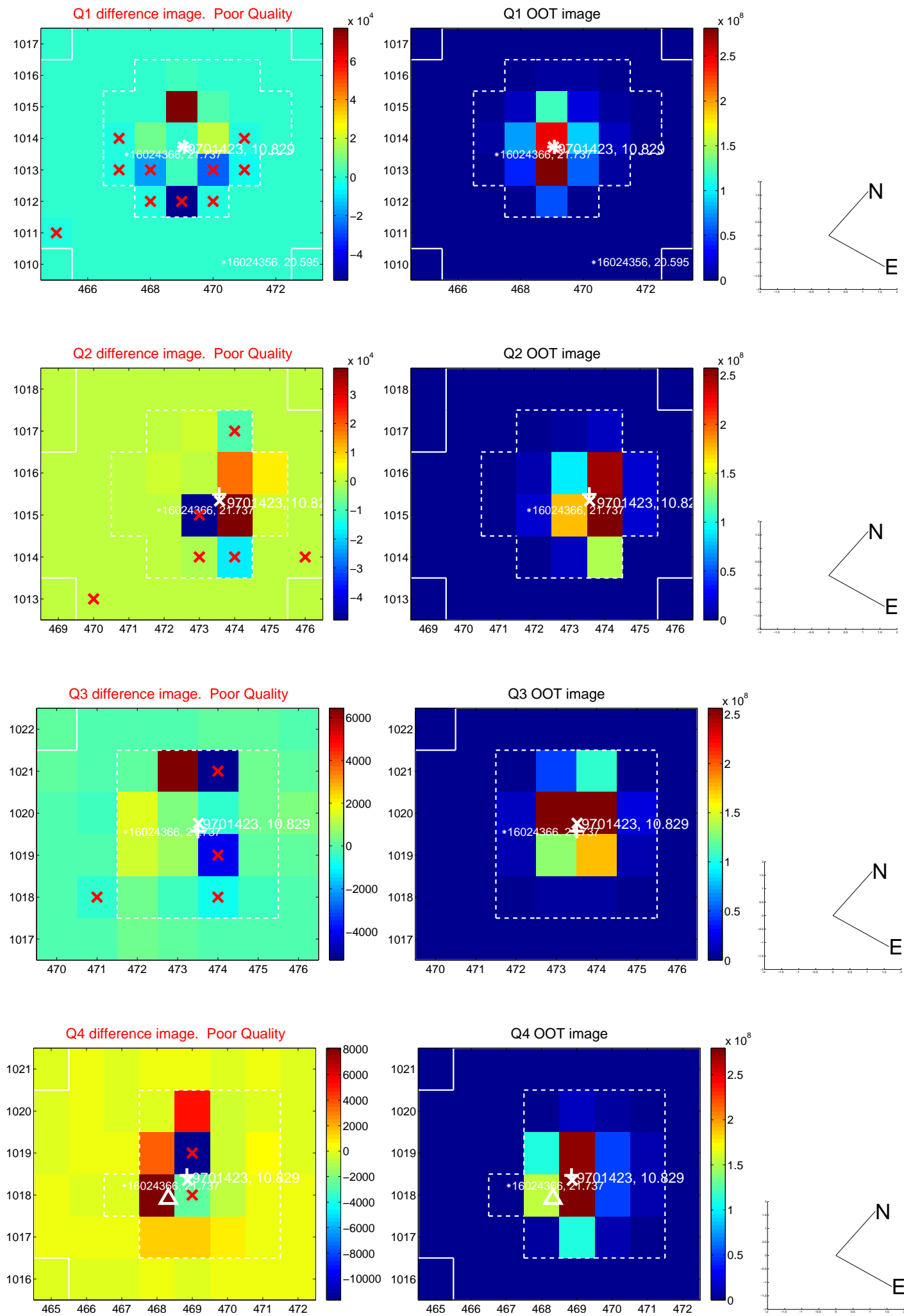
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.843 ± 1.273	3.80	-1.037 ± 0.925	4.731 ± 1.231
PRF-fit source offset from KIC position	4.598 ± 1.315	3.50	-0.249 ± 0.949	4.591 ± 1.298
photometric centroid source offset	5.27 ± 2.41	2.19	-4.93 ± 2.33	1.88 ± 2.90

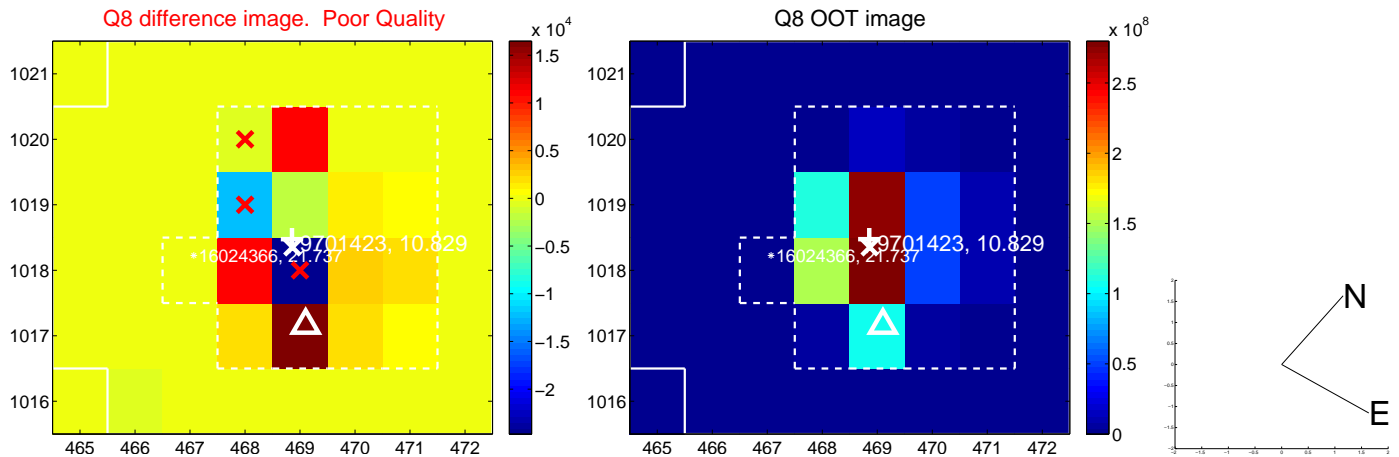
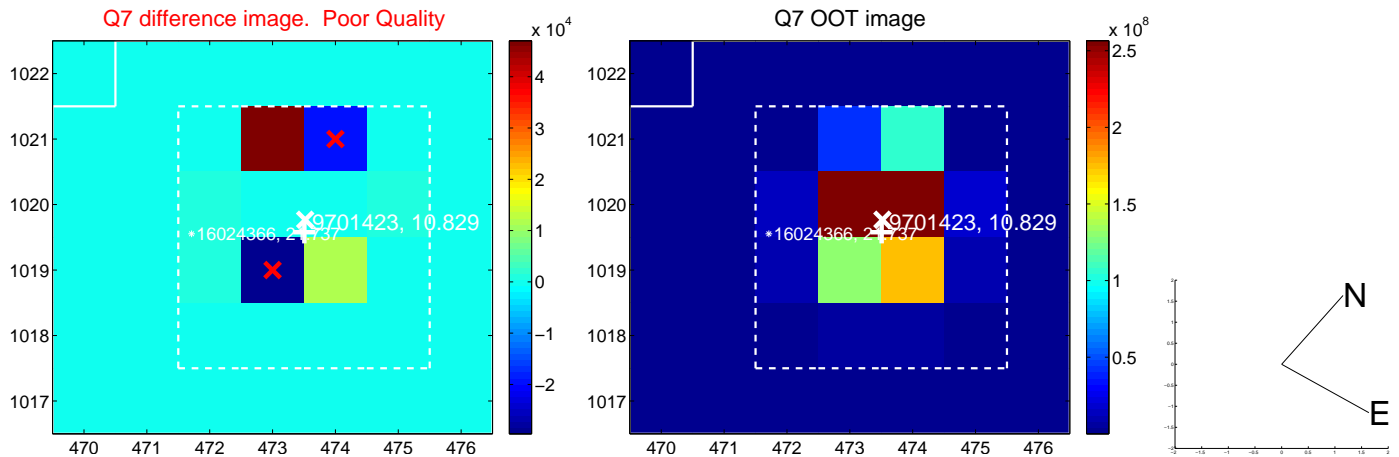
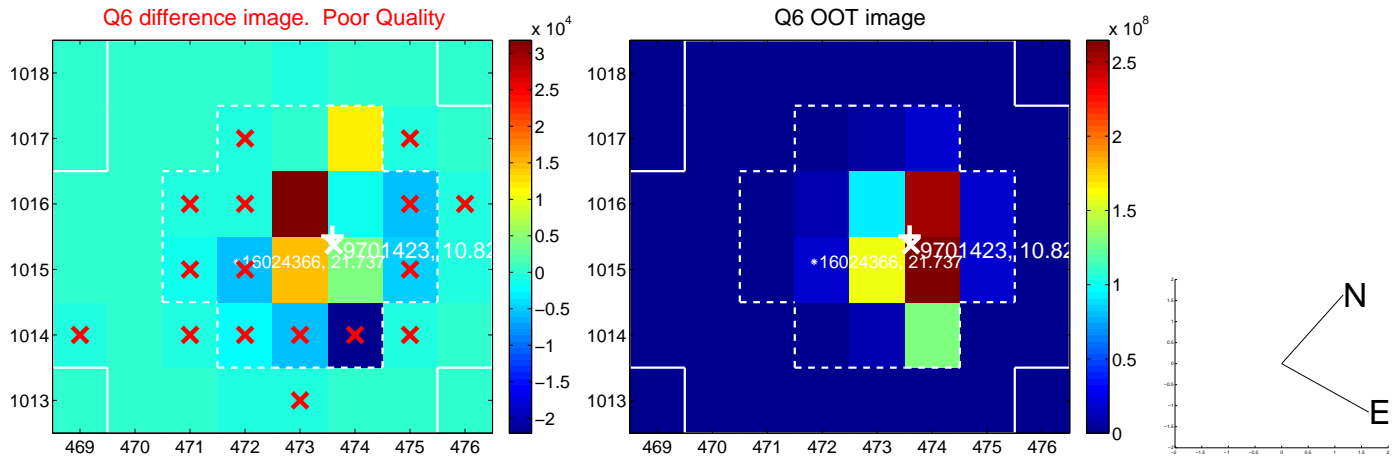
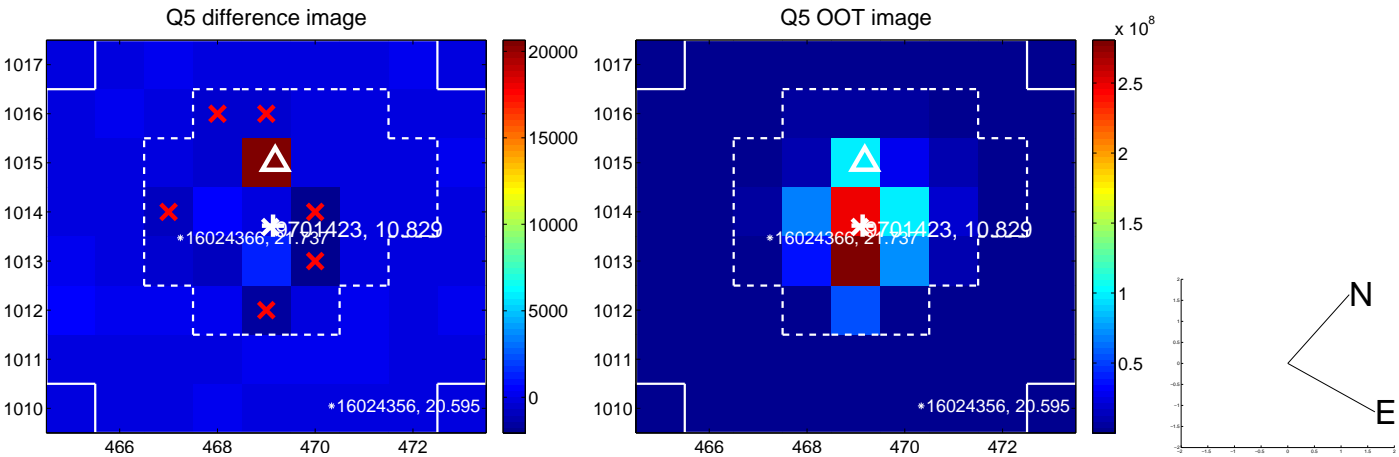


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

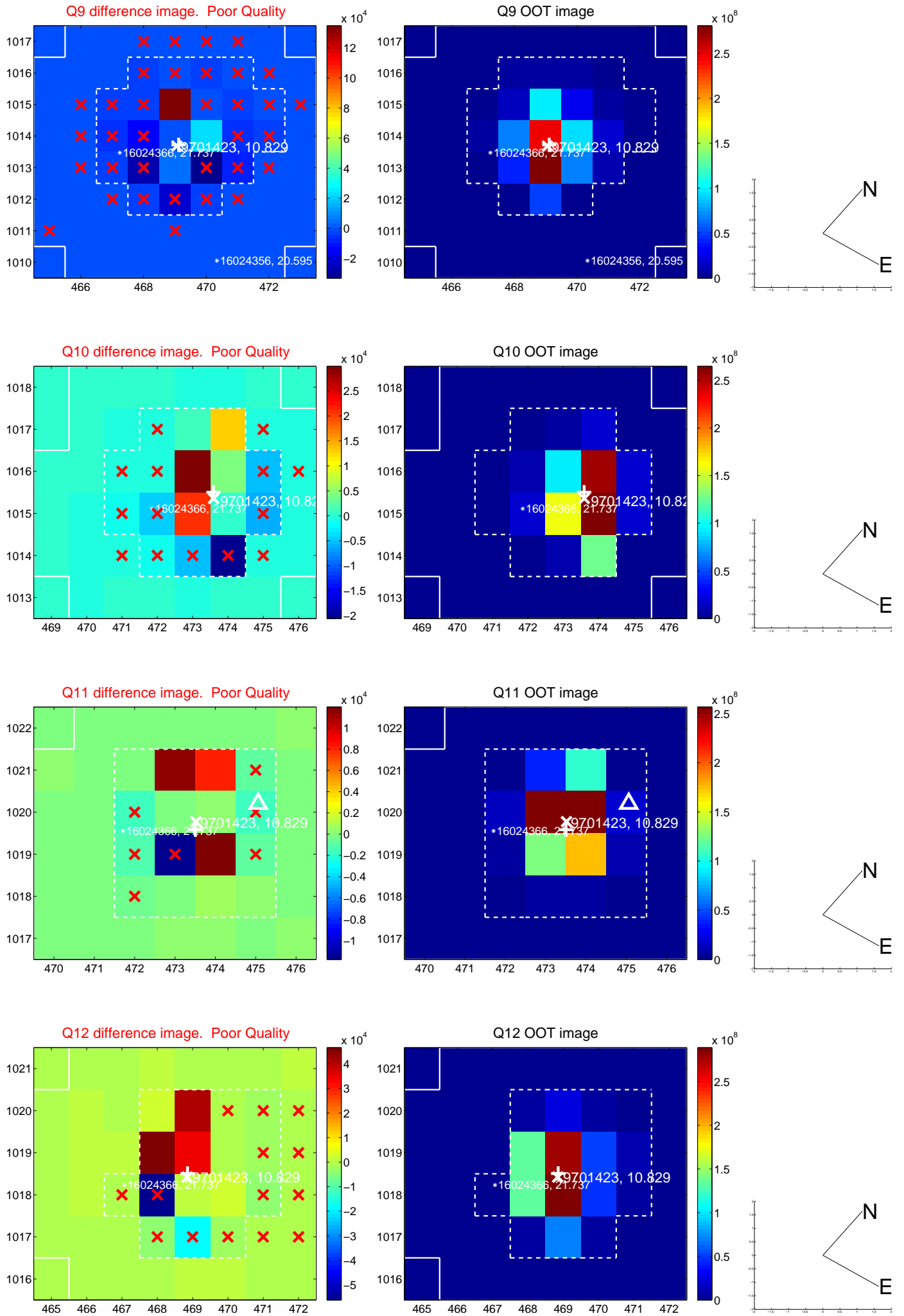
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



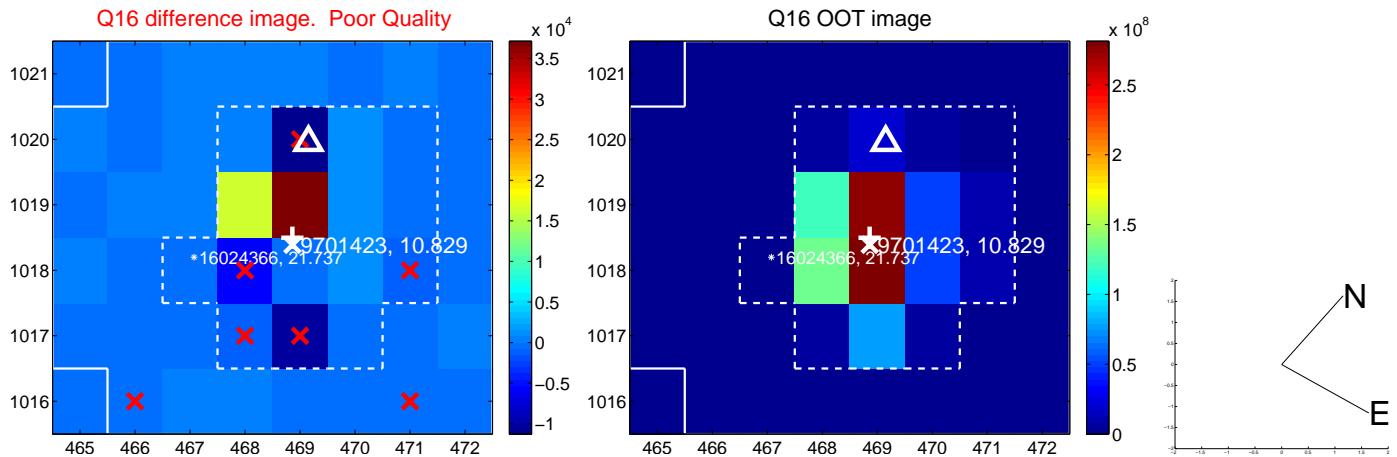
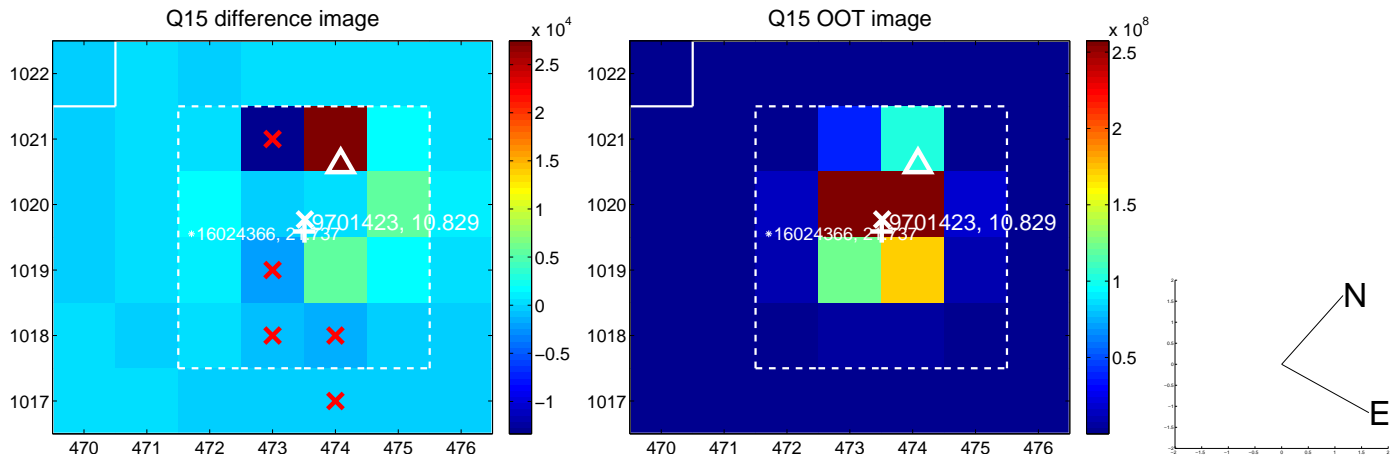
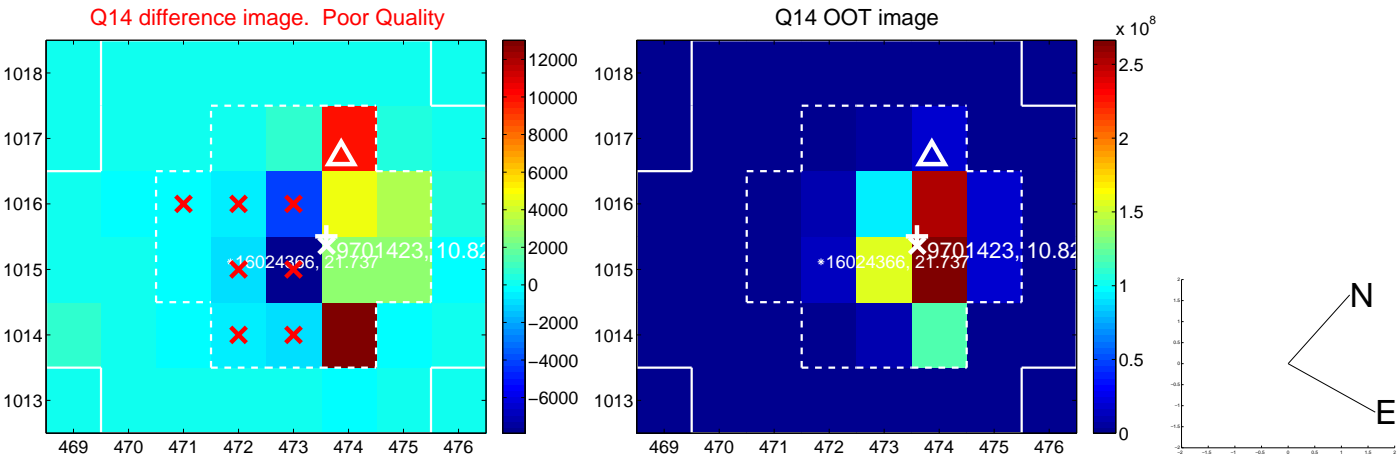
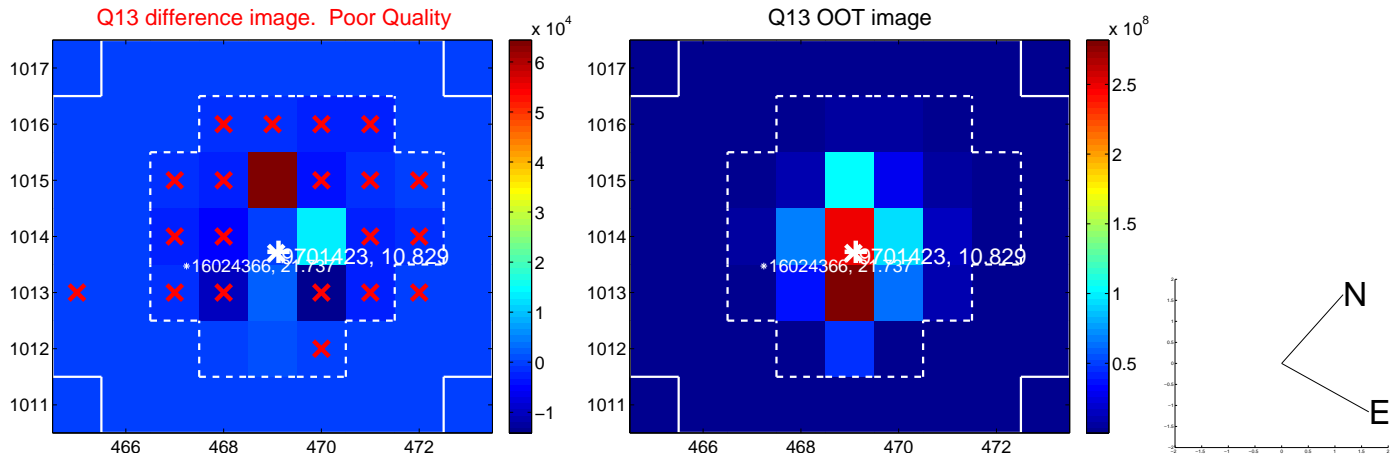
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



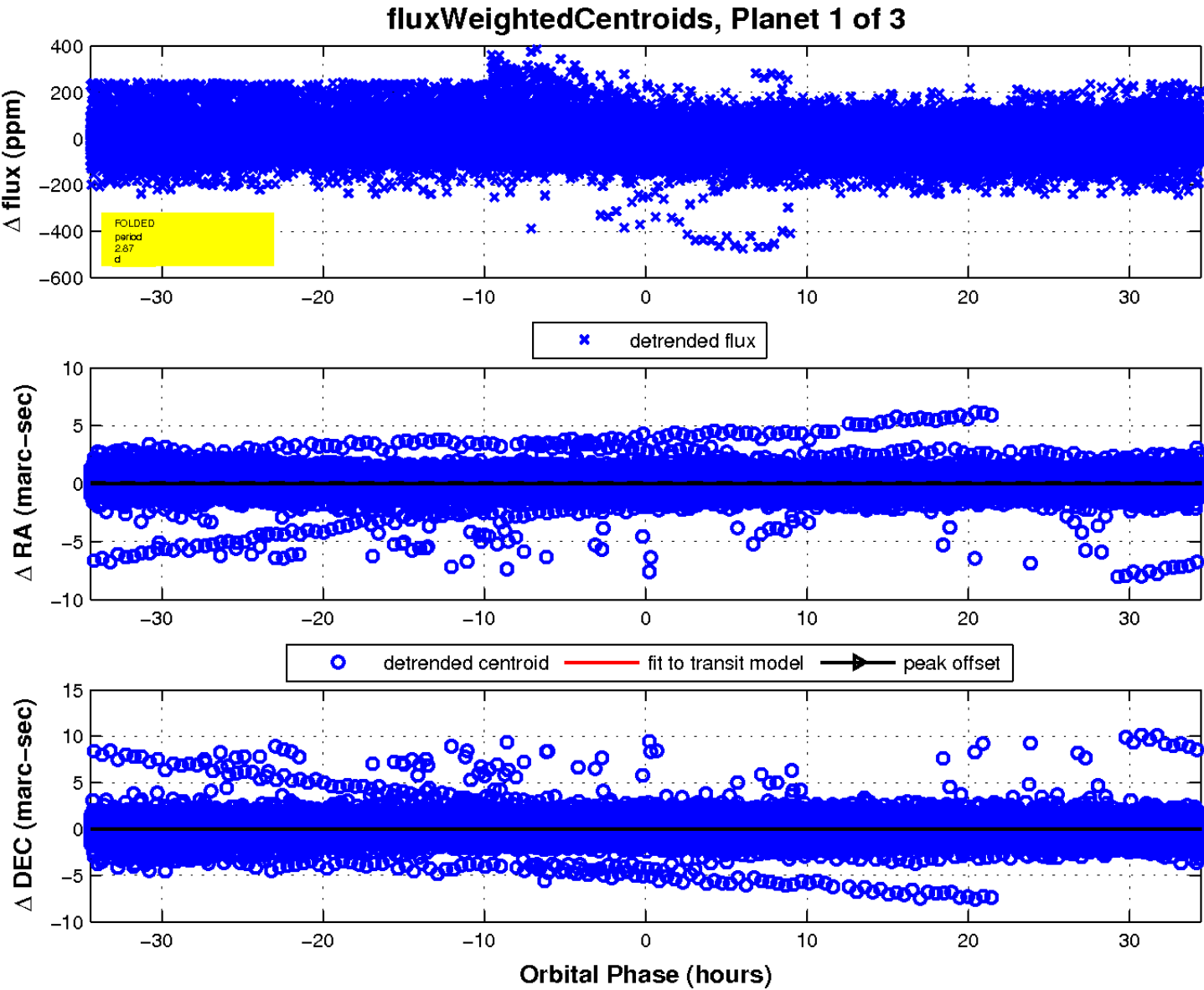
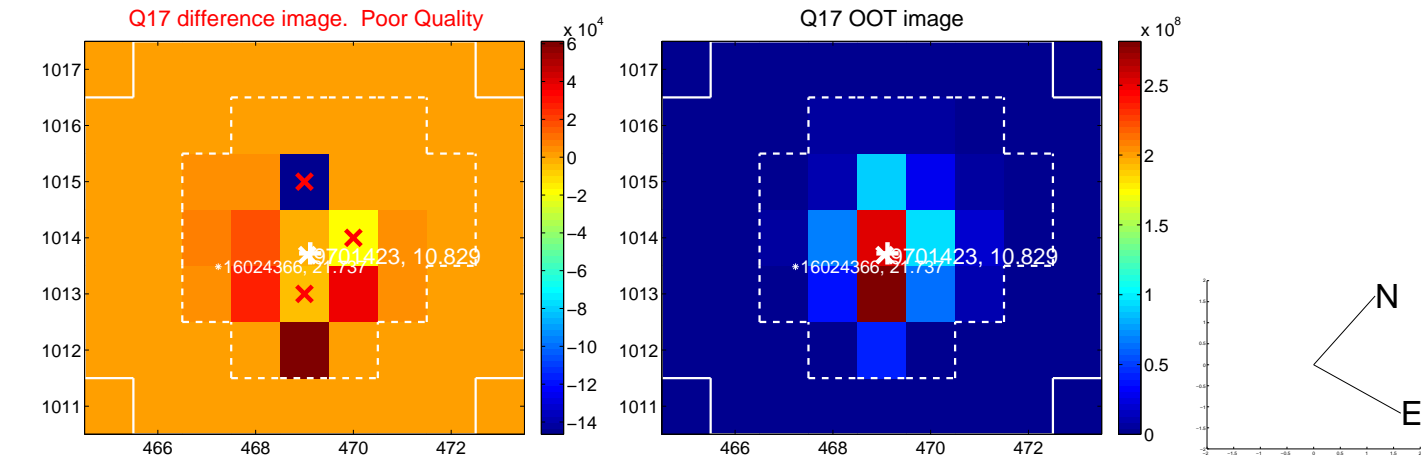
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

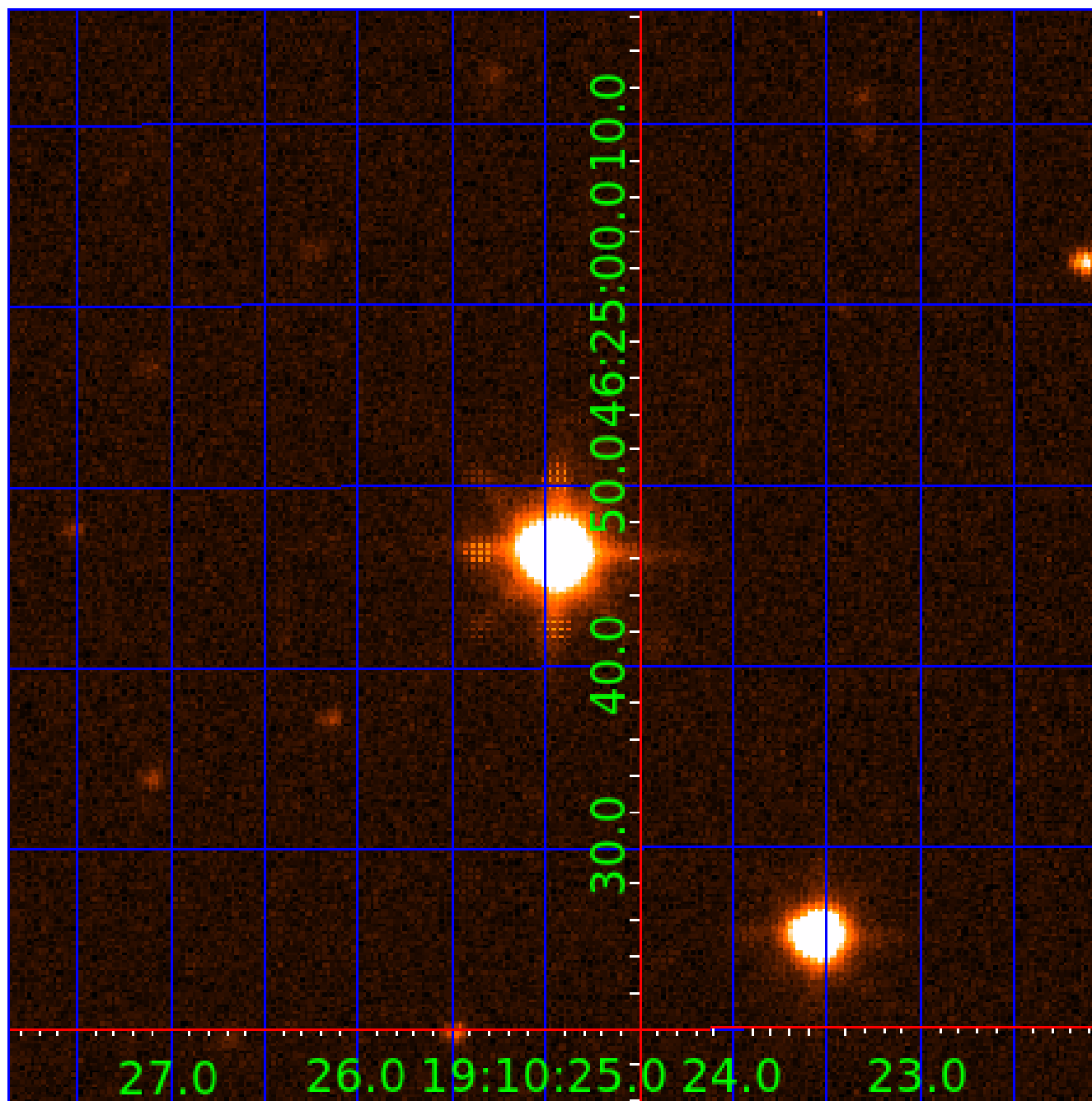


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009701423

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})
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009701423-03	OBS	No	164.591880	182.844388	74.4	7.397	8.1	7.9	1.09	6563	1.10	5.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009701423-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_SATURATED
009701423-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009701423-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_POS_DV—CENT_SATURATED

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

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

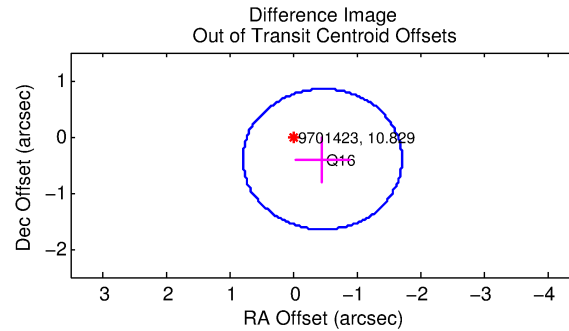
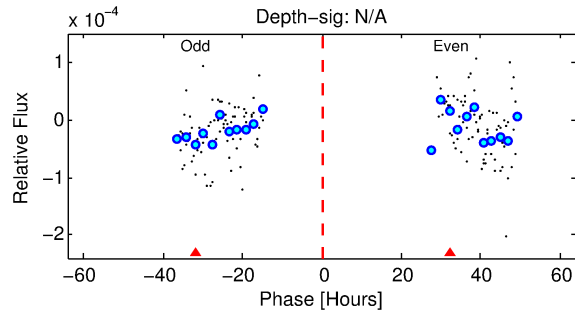
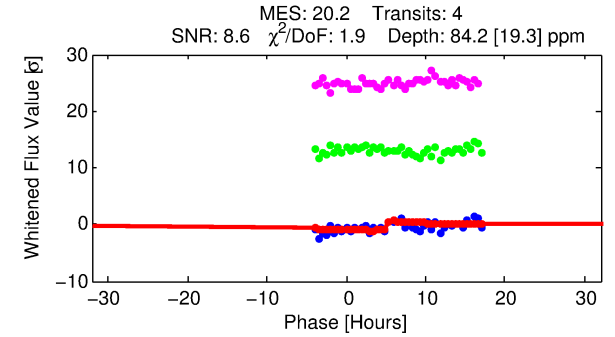
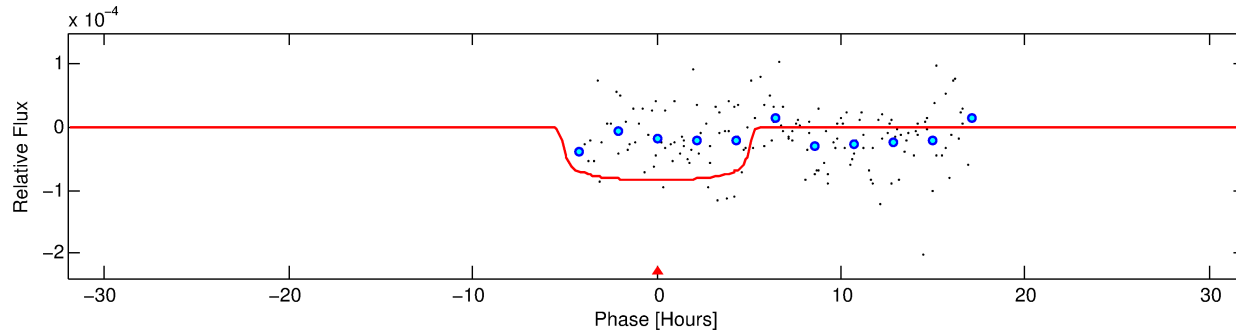
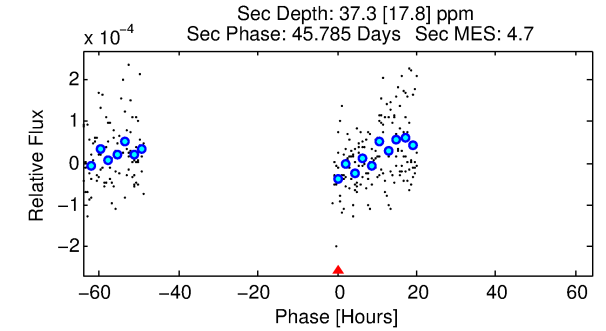
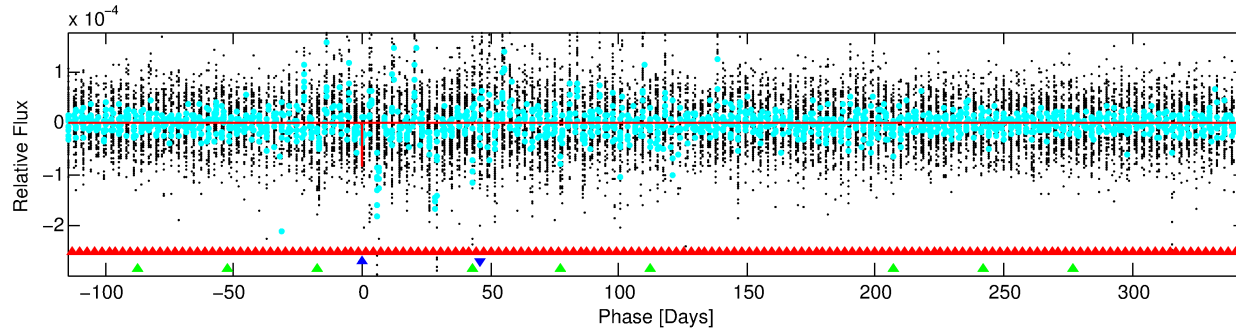
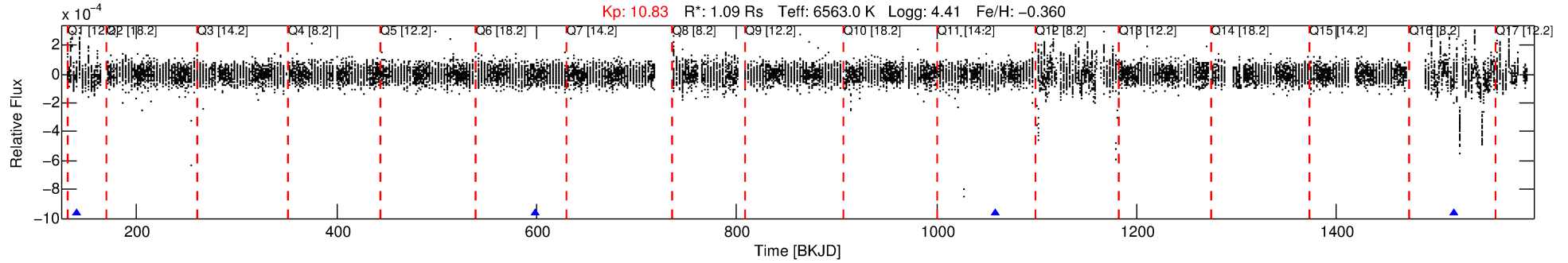
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009701423-02

No Significant Match Found

DV One-Page Summary

KIC: 9701423 Candidate: 2 of 3 Period: 459.084 d



DV Fit Results:

Period = 459.08375 [0.01258] d
Epoch = 140.1363 [0.0841] BKJD
Rp/R* = 0.0098 [0.0035]
a/R* = 152.11 [303.30]
b = 0.90 [0.36]
Seff = 1.36 [0.39]
Teq = 275 [20] K
Rp = 1.16 [0.48] Re
a = 1.2055 [0.2127] AU
Ag = 21981.71 [19645.81] [1.12σ]
Teffp = 5185 [1116] K [4.40σ]

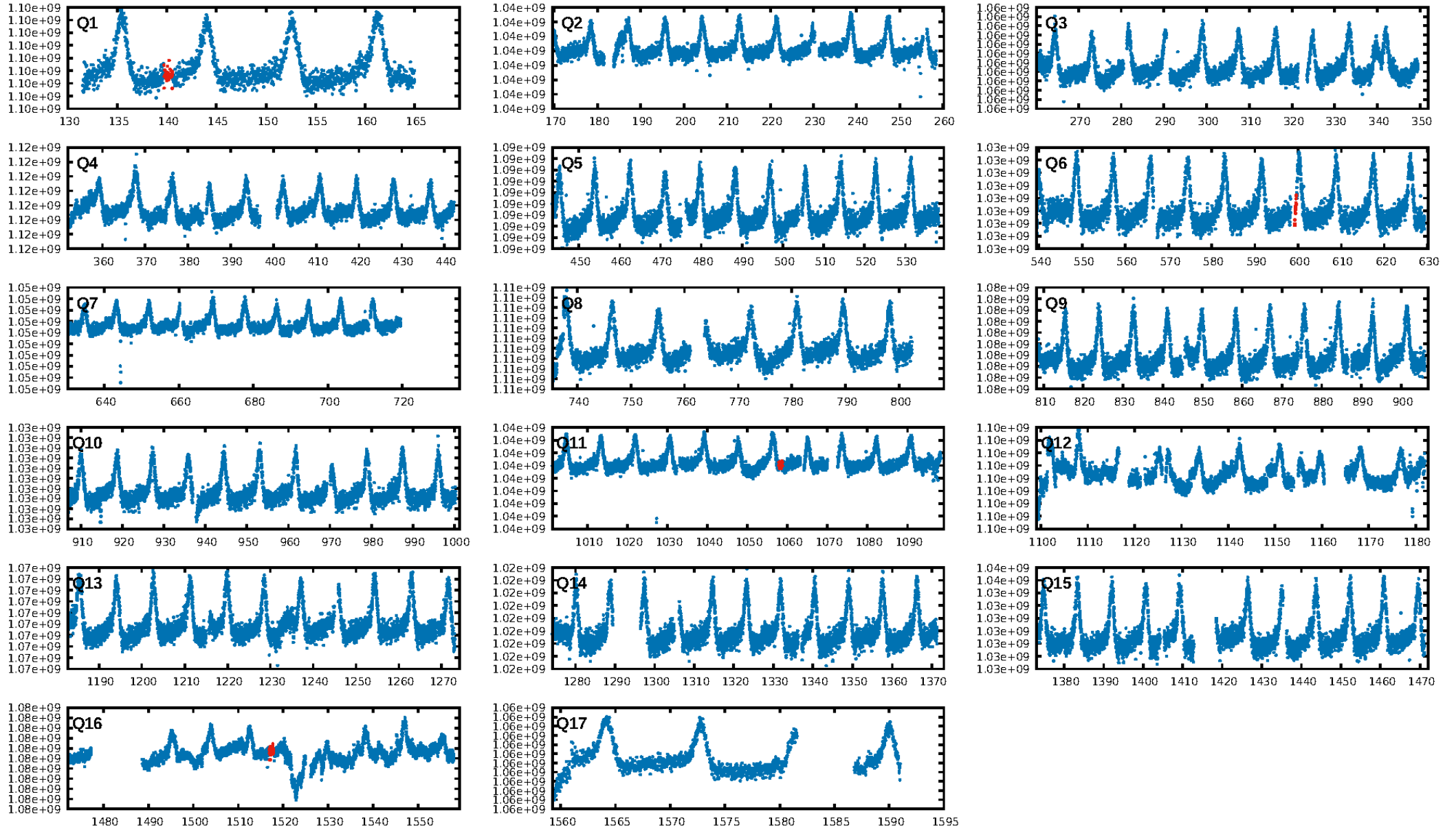
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [544.35σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 37.9%
Bootstrap-pfa: 2.22e-20
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7767
Centroid-sig: 20.1%
Centroid-so: 3.136 arcsec [1.11σ]
OotOffset-rm: 0.618 arcsec [1.48σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-rm: 0.672 arcsec [1.57σ]
KicOffset-st: 0/0/1/0 [1]
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DiffImageOverlap-fno: 1.00 [3/3]

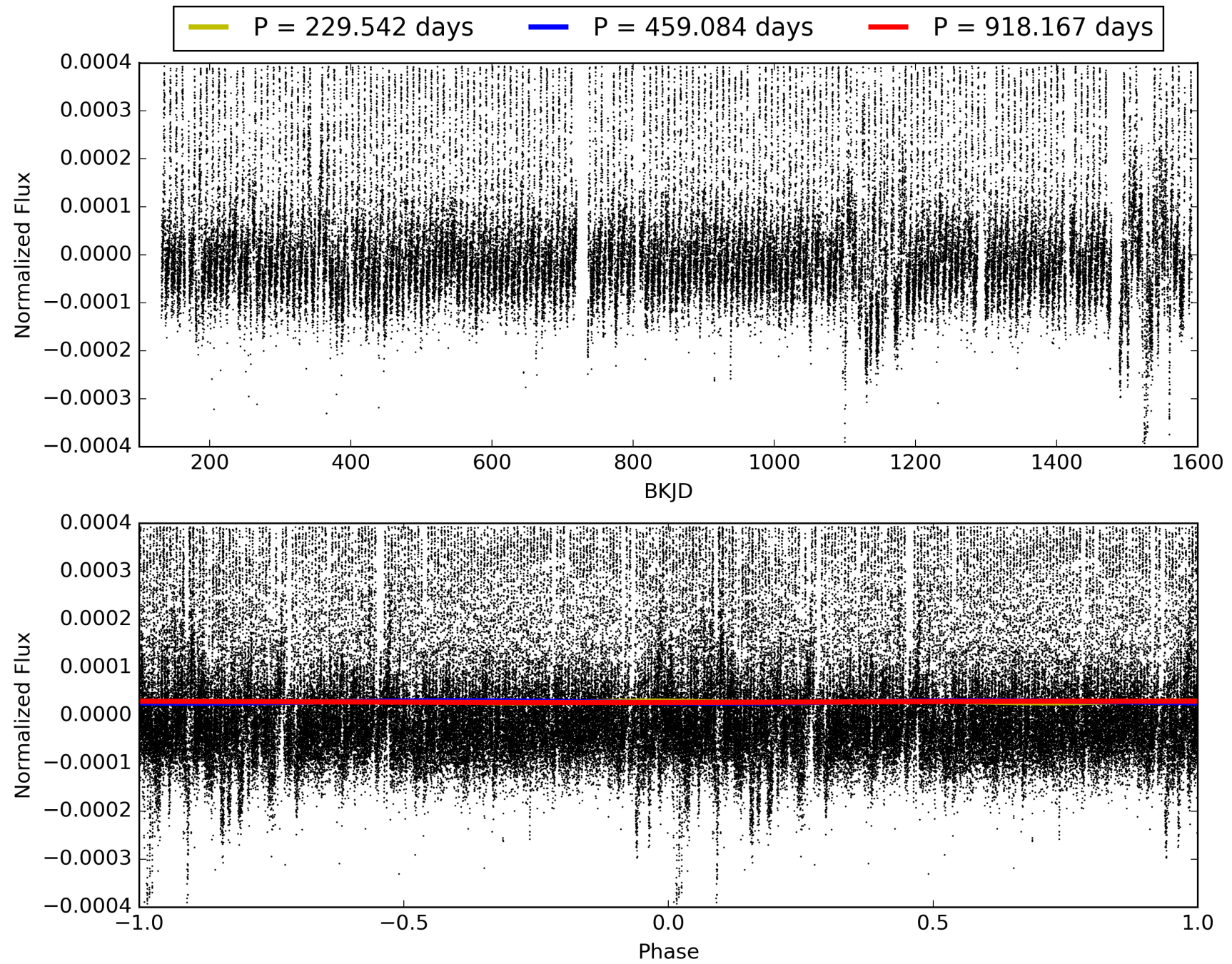
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:21:06 Z

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

TCE 009701423-02, PDC Light Curves

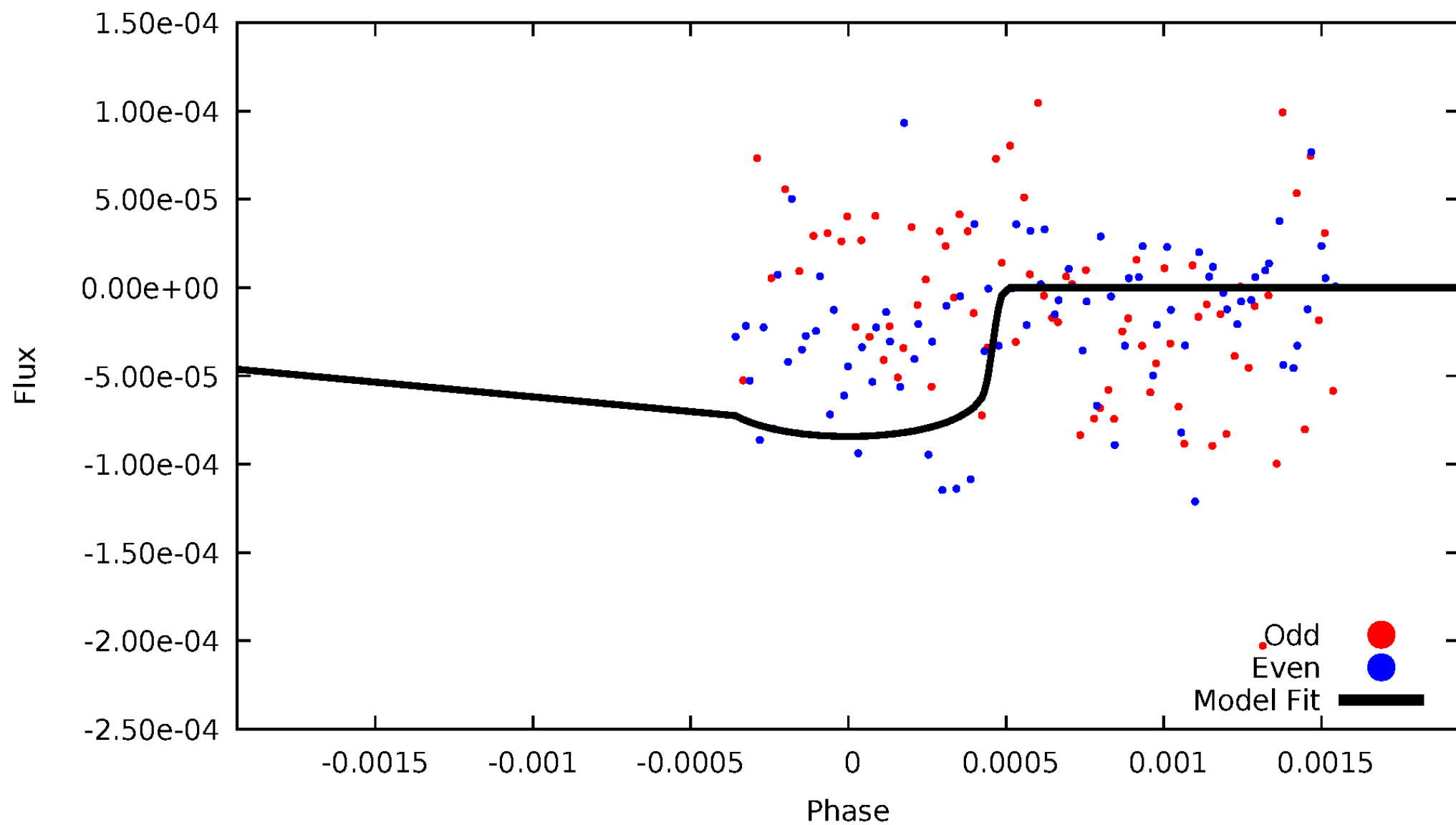


TCE 009701423-02



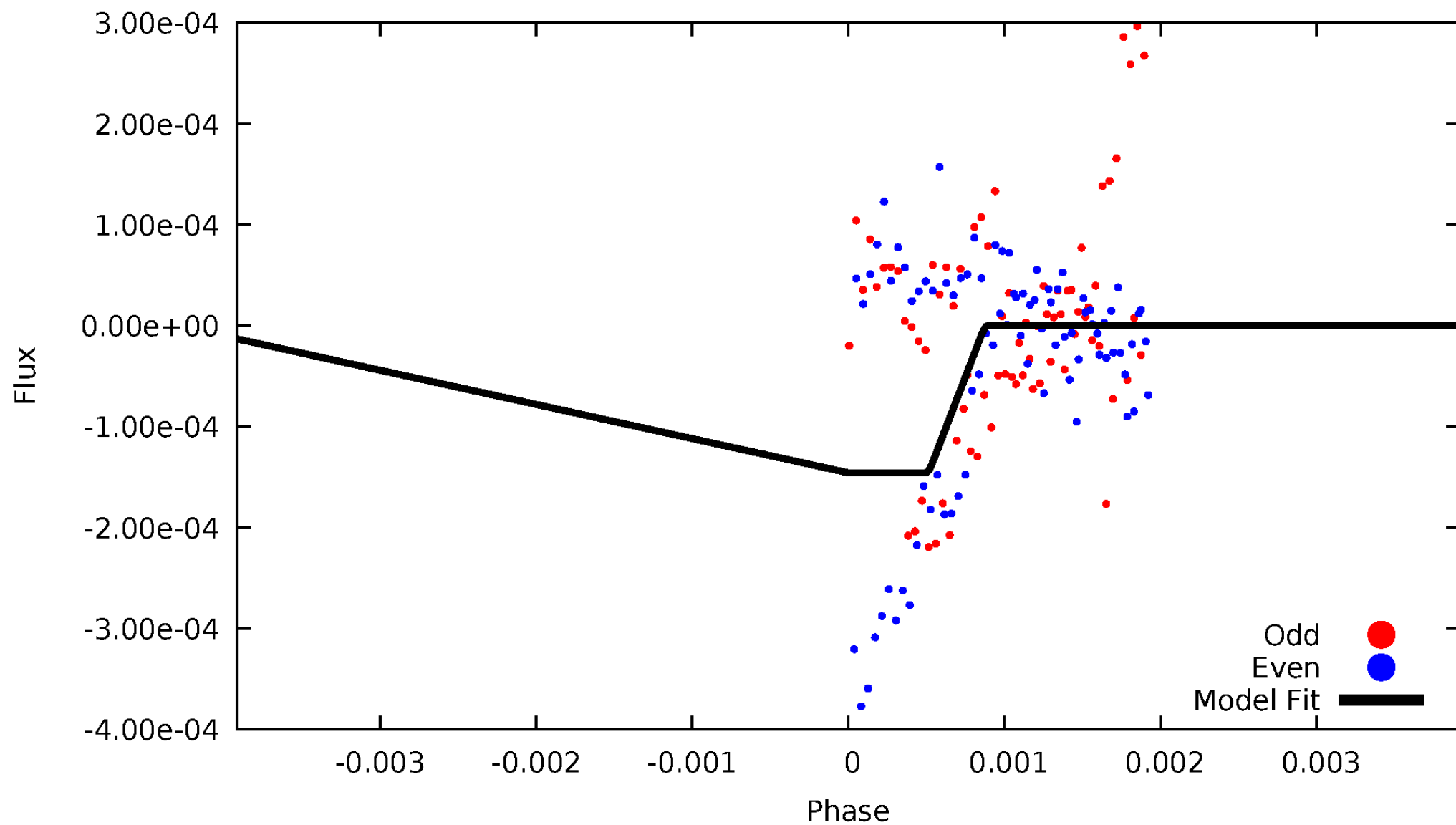
DV Odd/Even

TCE 009701423-02



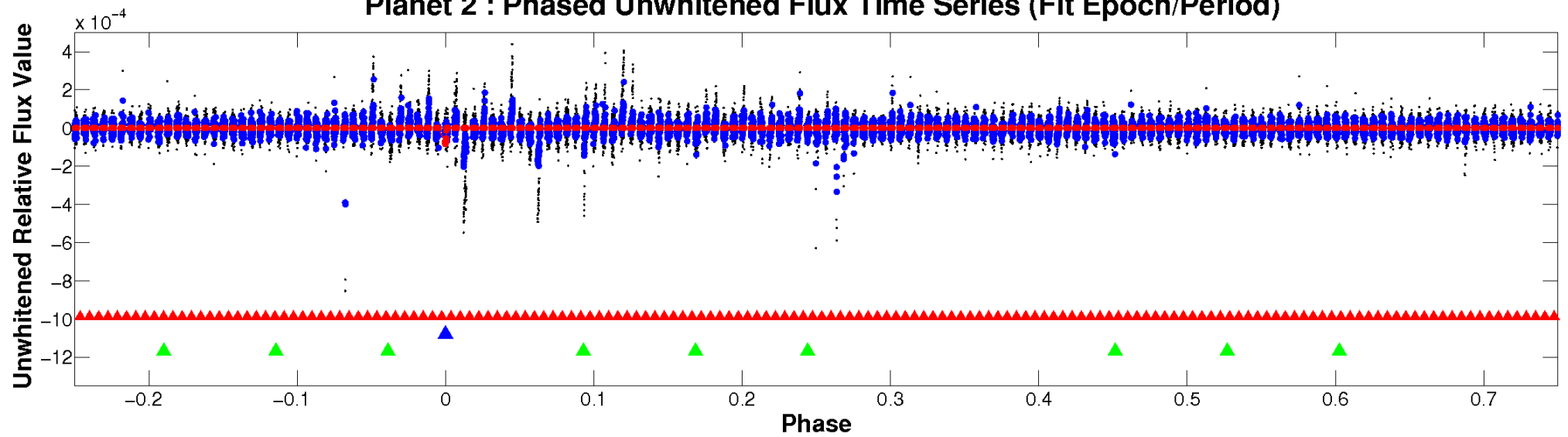
ALT Odd/Even

TCE 009701423-02

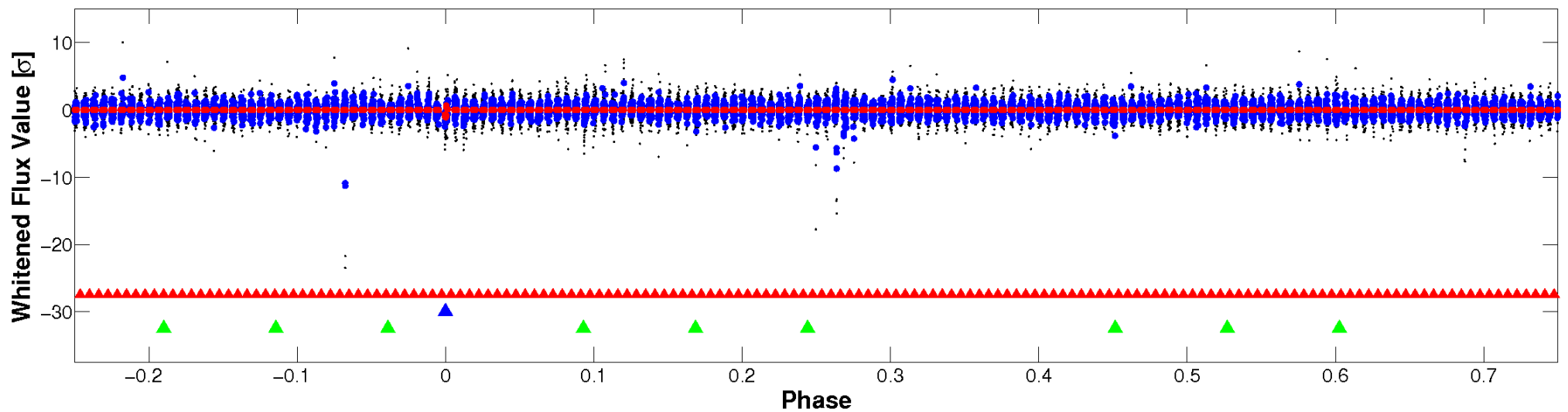


Non-Whitened Vs. Whitened Light Curve

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

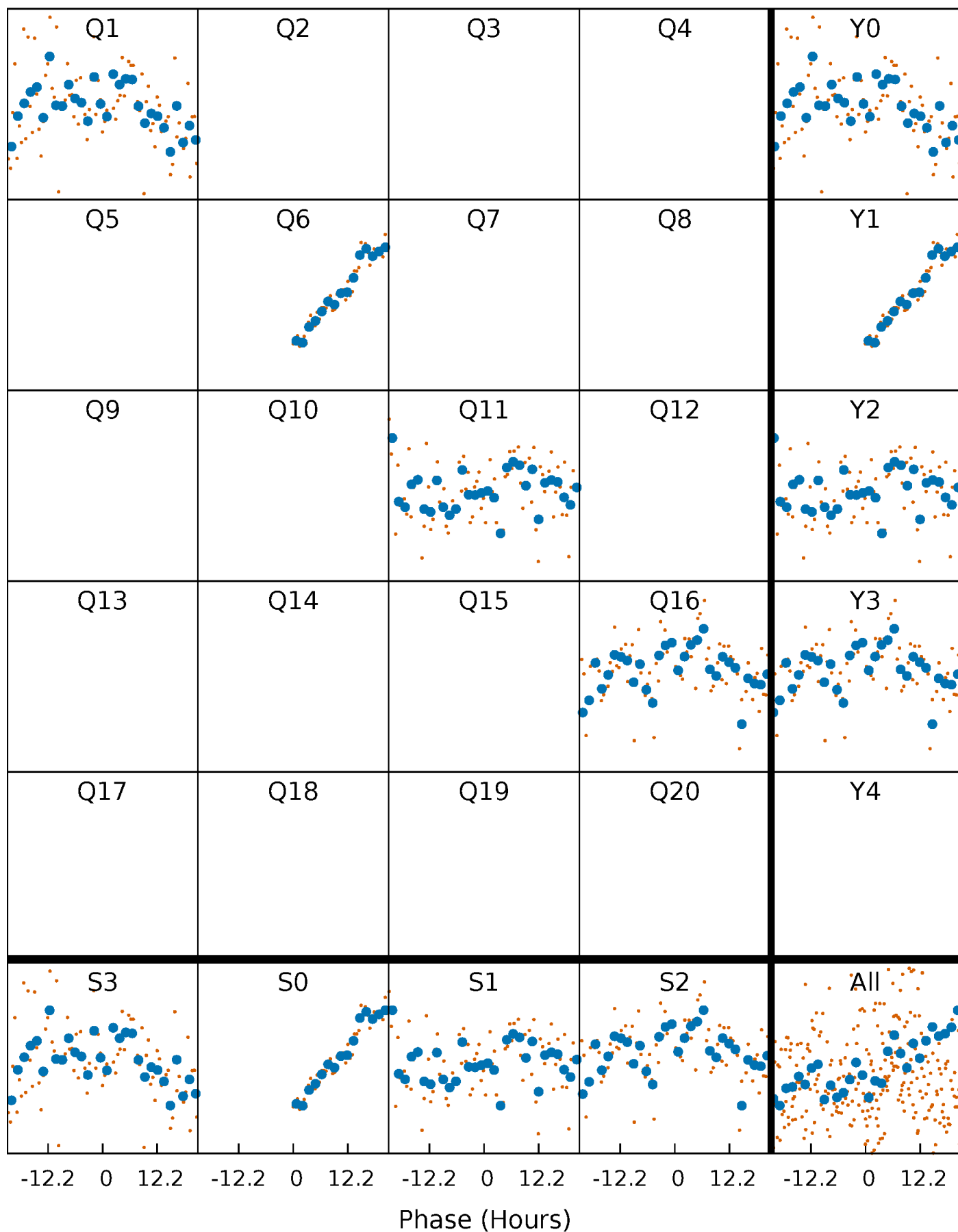


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



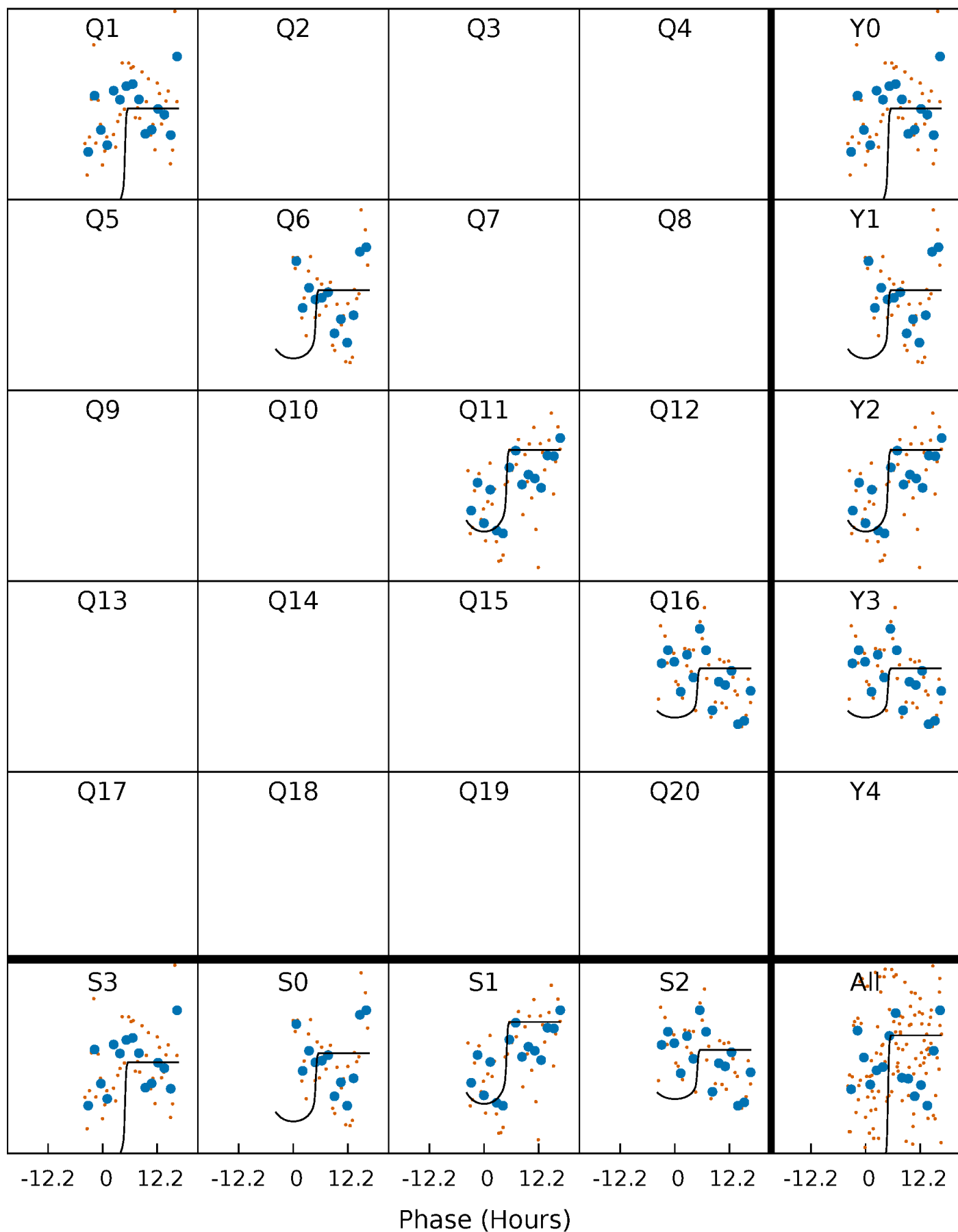
PDC Quarter-Phased Transit Curves

TCE 009701423-02 P=459.083746 Days $T_0=140.136256$ (BKJD)



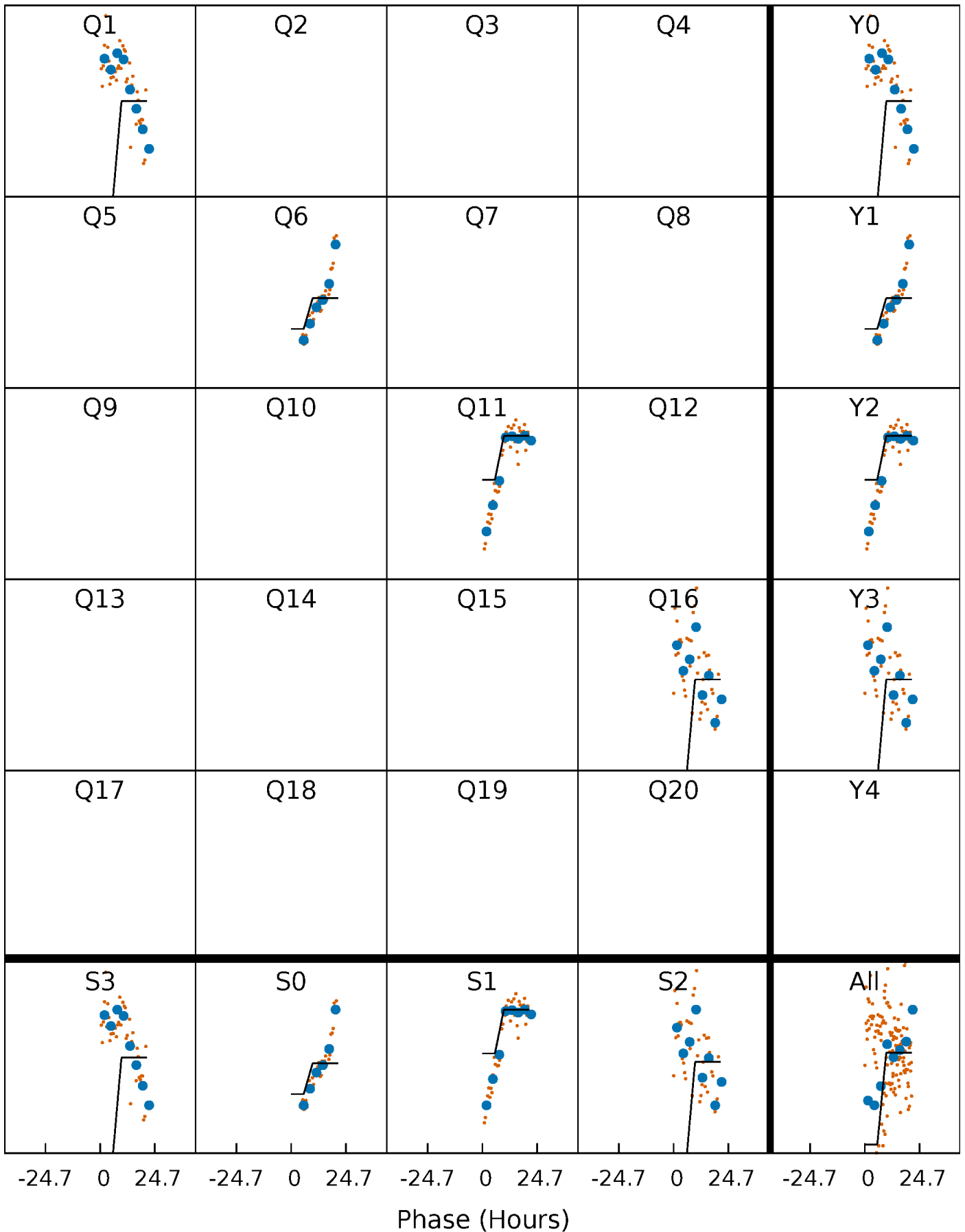
DV Quarter-Phased Transit Curves

TCE 009701423-02 P=459.083746 Days $T_0=140.136256$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

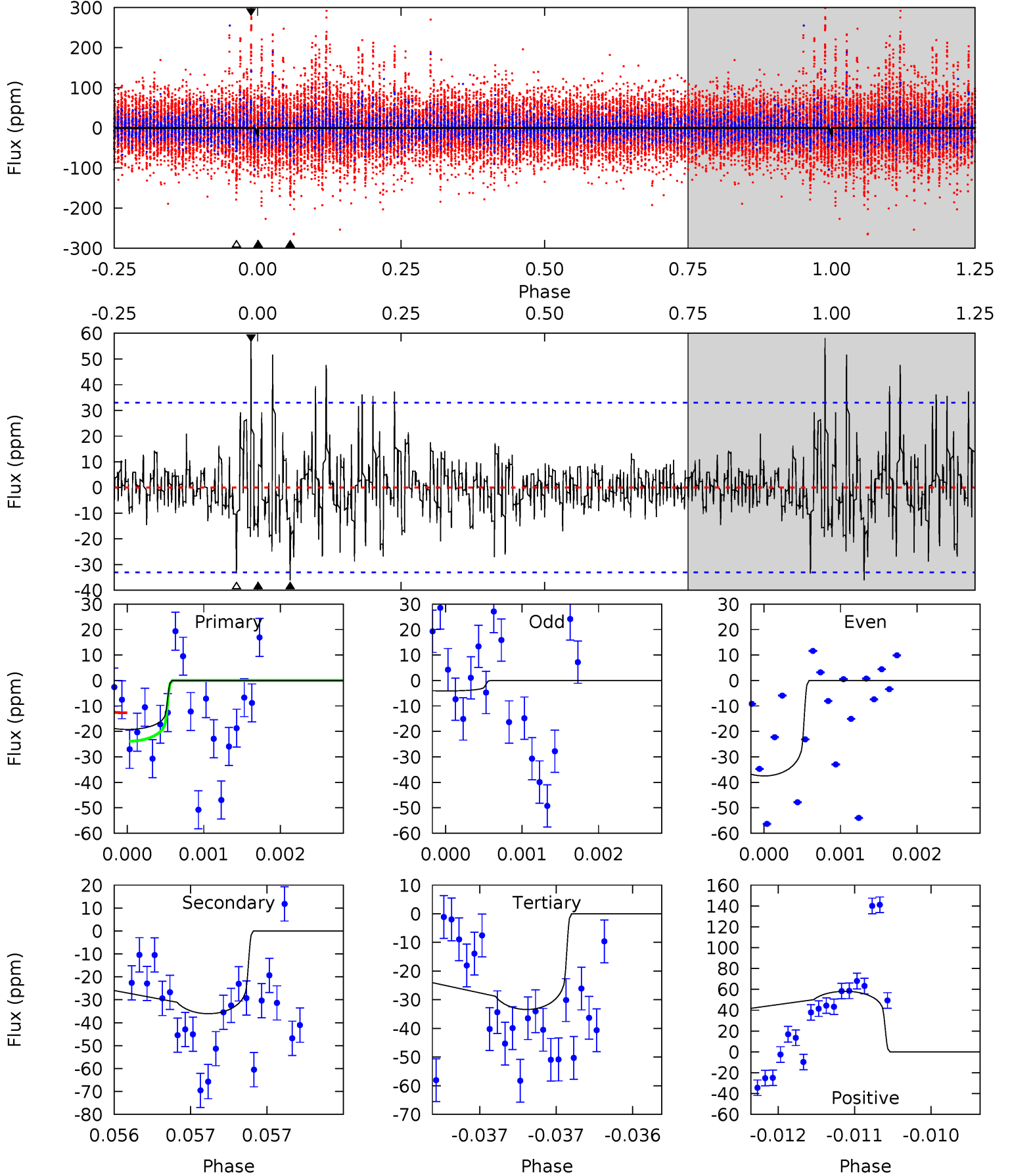
TCE 009701423-02 P=459.094415 Days $T_0=139.948708$ (BKJD)



DV Model-Shift Uniqueness Test

009701423-02, P = 459.083746 Days, E = 140.136256 Days

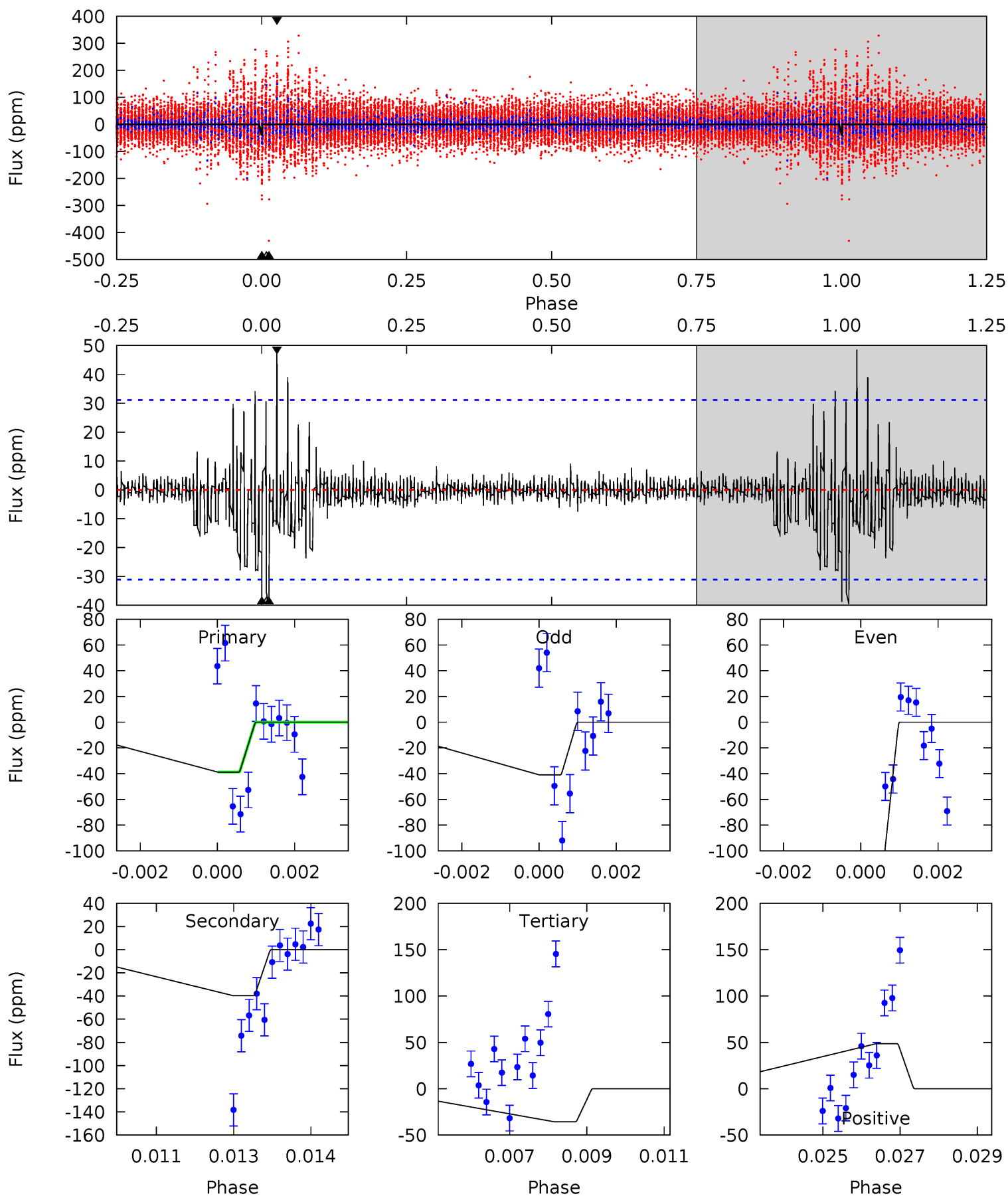
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.19	5.99	5.54	9.64	5.48	3.33	1.65	-2.35	-6.45	0.45	-3.66	2.41	5.05	0.62	0.92



Alt Model-Shift Uniqueness Test

009701423-02, P = 459.094415 Days, E = 139.948708 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.67	6.81	6.14	8.35	5.35	3.12	1.06	0.53	-1.68	0.67	-1.54	5.98	1.06	0.55	0



Stellar Parameters For KIC 009701423

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6563^{+147}_{-180}	$4.407^{+0.063}_{-0.147}$	$-0.360^{+0.250}_{-0.300}$	$1.091^{+0.222}_{-0.120}$	$1.108^{+0.122}_{-0.149}$	$1.202^{+0.324}_{-0.487}$
	+2%/-3%	+1%/-3%	+69%/-83%	+20%/-11%	+11%/-13%	+27%/-41%
Source	PHO1	FLK73	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 009701423-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-36 ± 6	$1.19^{+0.46}_{-0.40}$	389^{+19}_{-15}	5138^{+1143}_{-591}	19350^{+26686}_{-8943}
Alt.	-40 ± 6	$1.47^{+0.46}_{-0.43}$	390^{+19}_{-17}	4840^{+769}_{-486}	14475^{+14294}_{-6286}

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

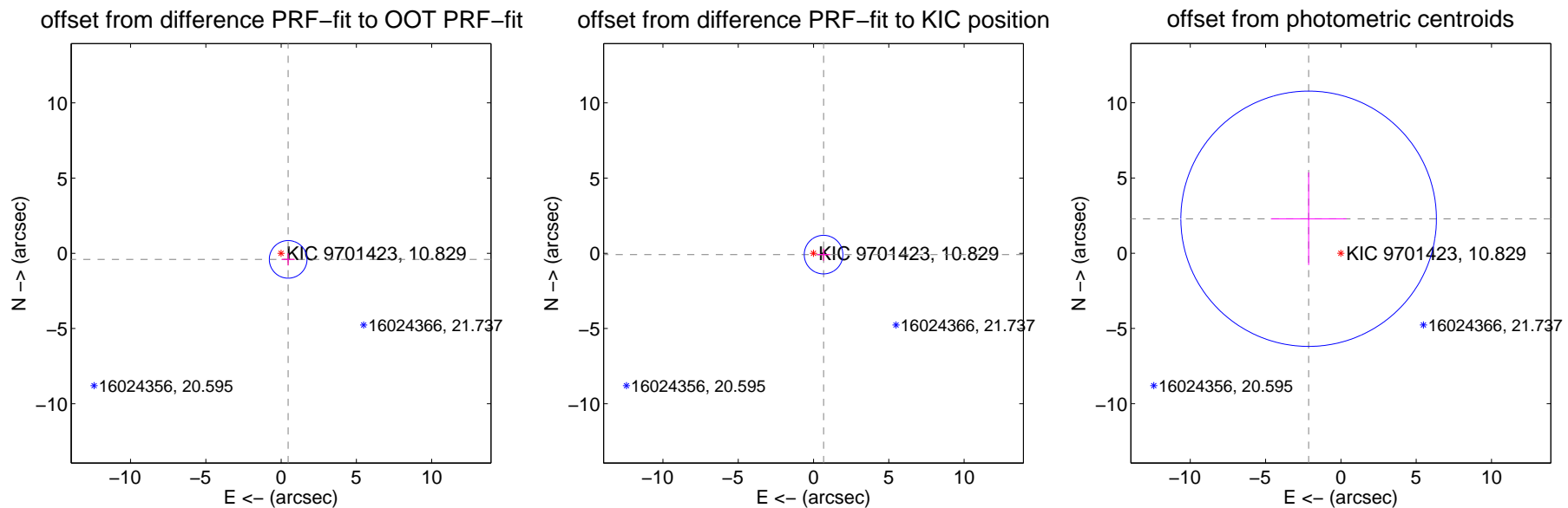
DV Centroid Data

Supplemental centroid analysis for 009701423-02. **Kepler magnitude: 10.83.** Transit SNR 8.58

There are 0 quarters with good PRF difference image offsets

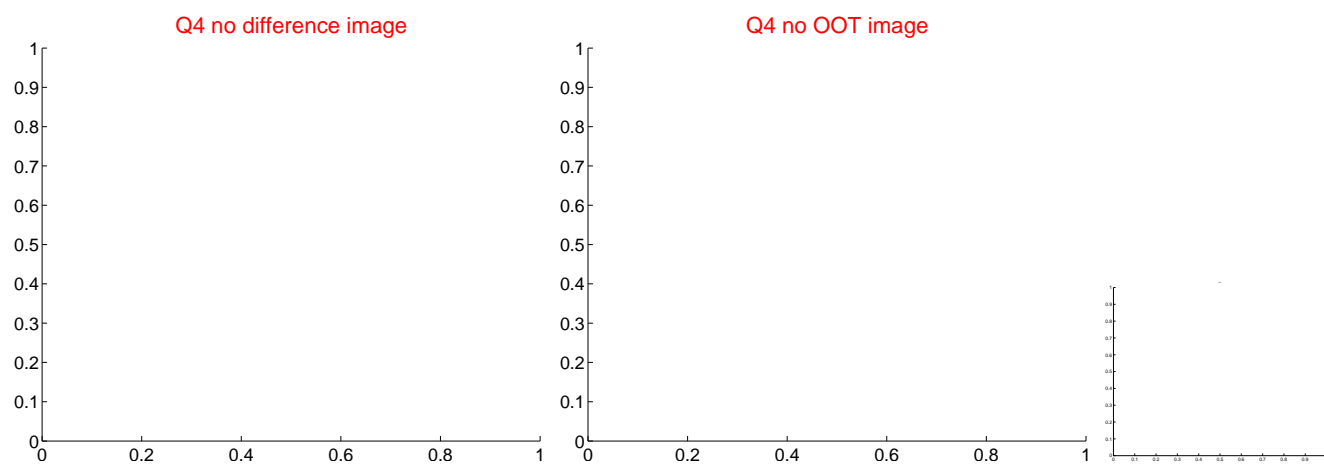
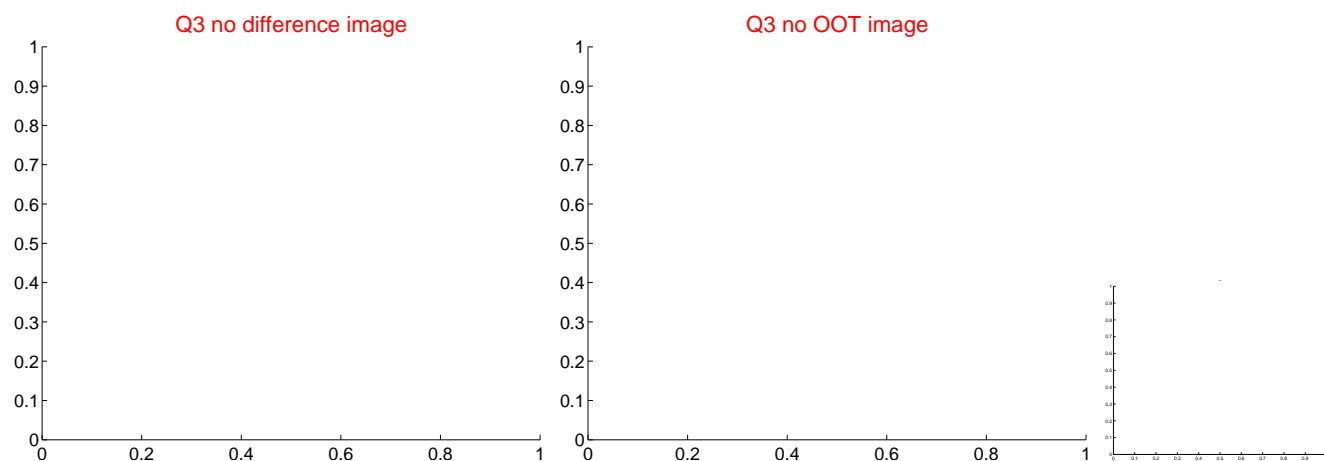
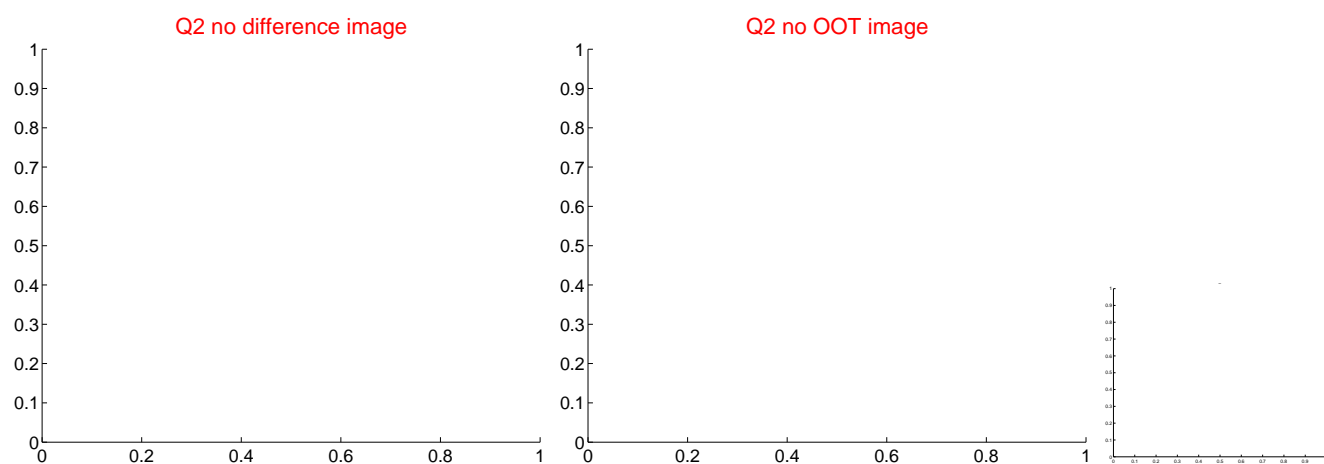
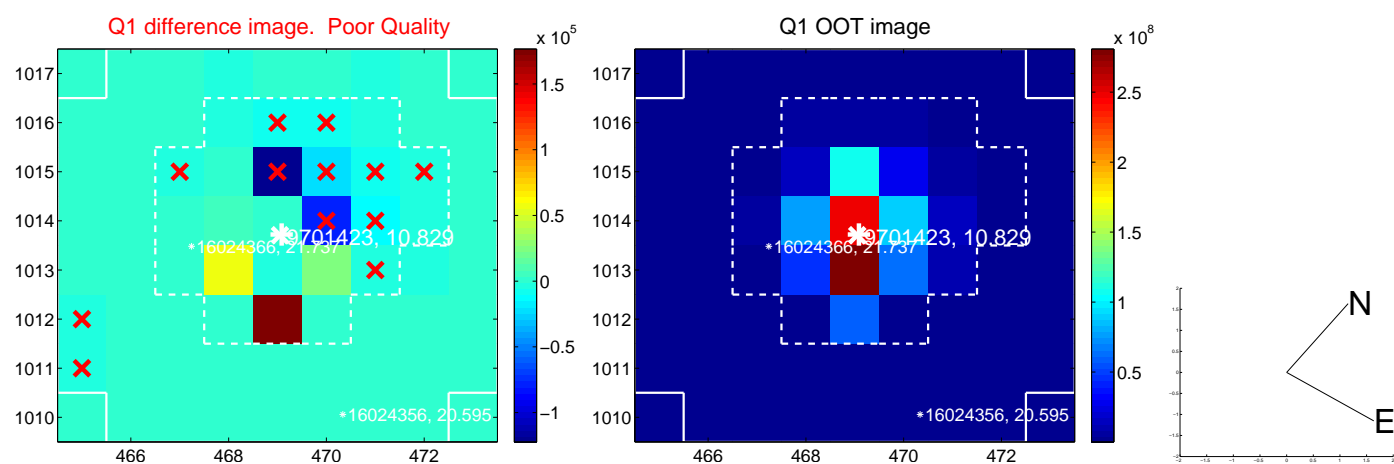
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.618 ± 0.417	1.48	-0.467 ± 0.428	-0.405 ± 0.402
PRF-fit source offset from KIC position	0.672 ± 0.428	1.57	-0.667 ± 0.428	-0.088 ± 0.402
photometric centroid source offset	3.14 ± 2.83	1.11	2.14 ± 2.51	2.29 ± 3.08

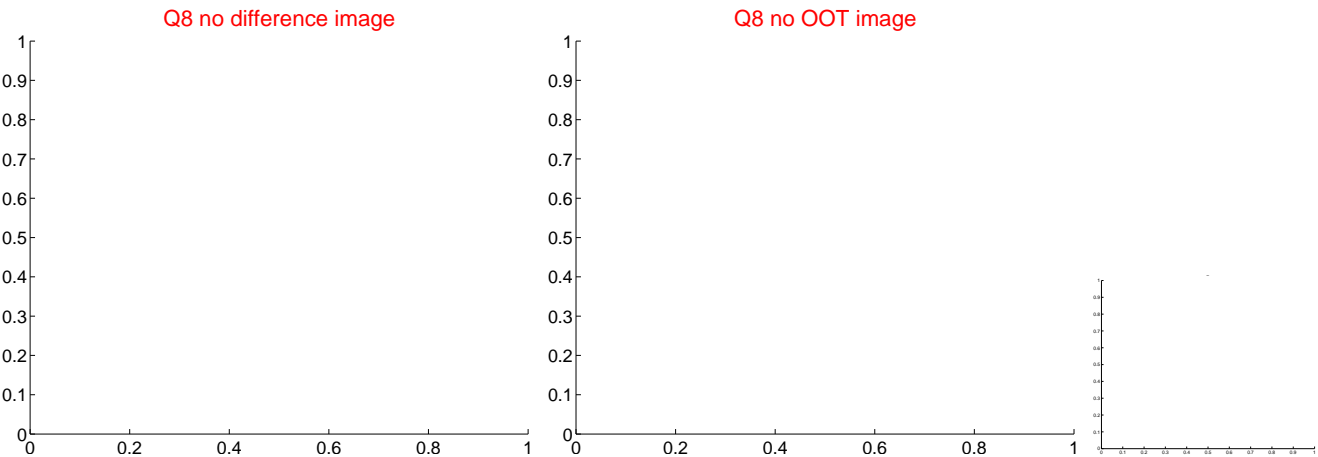
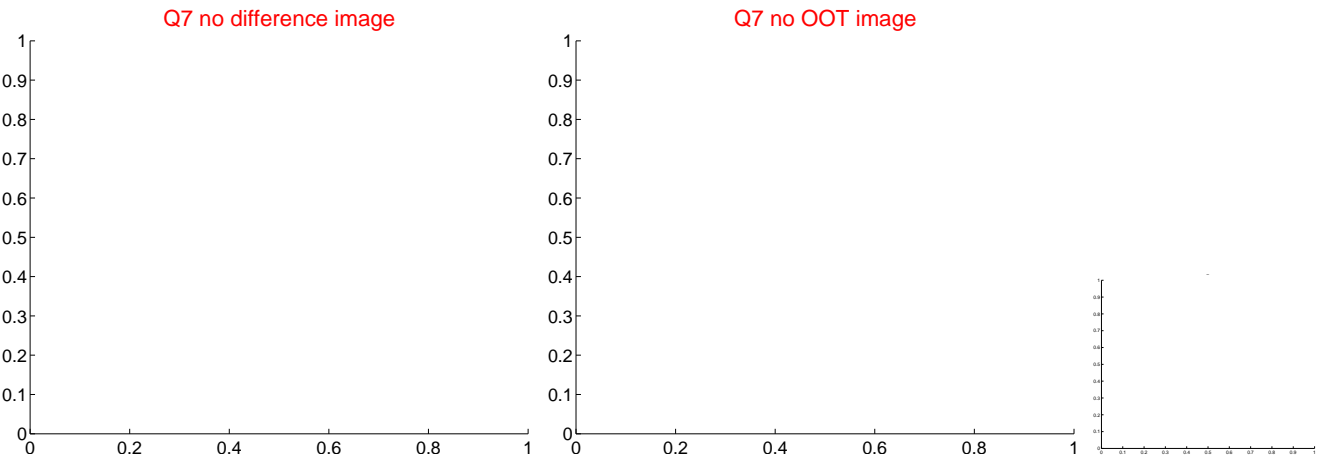
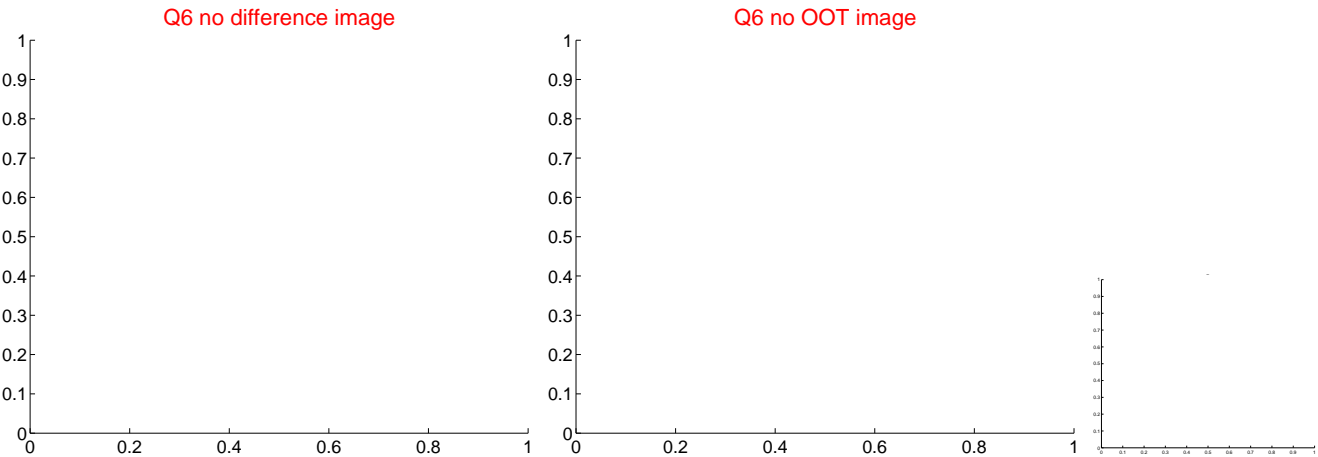
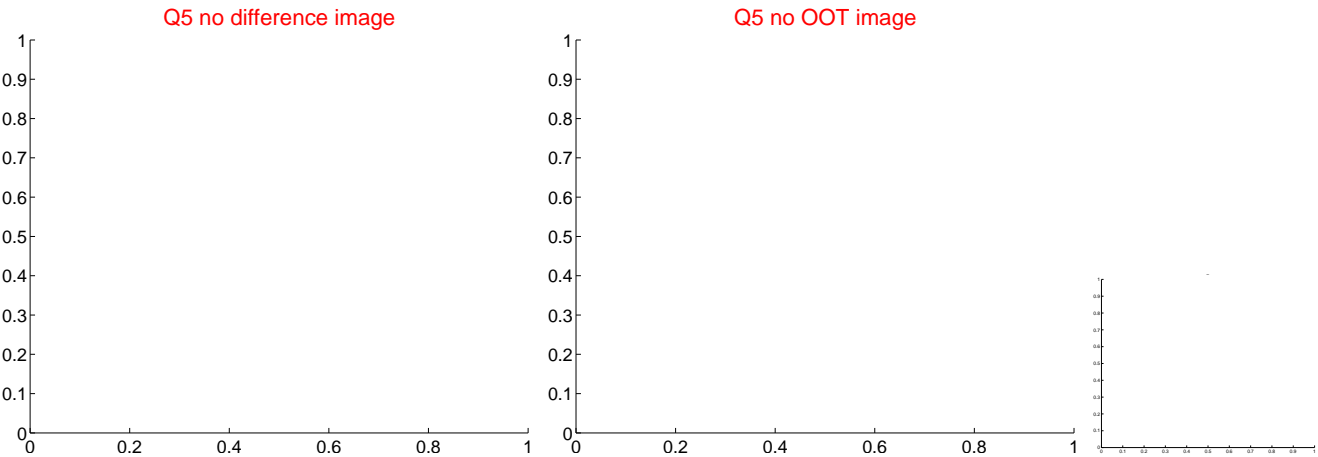


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

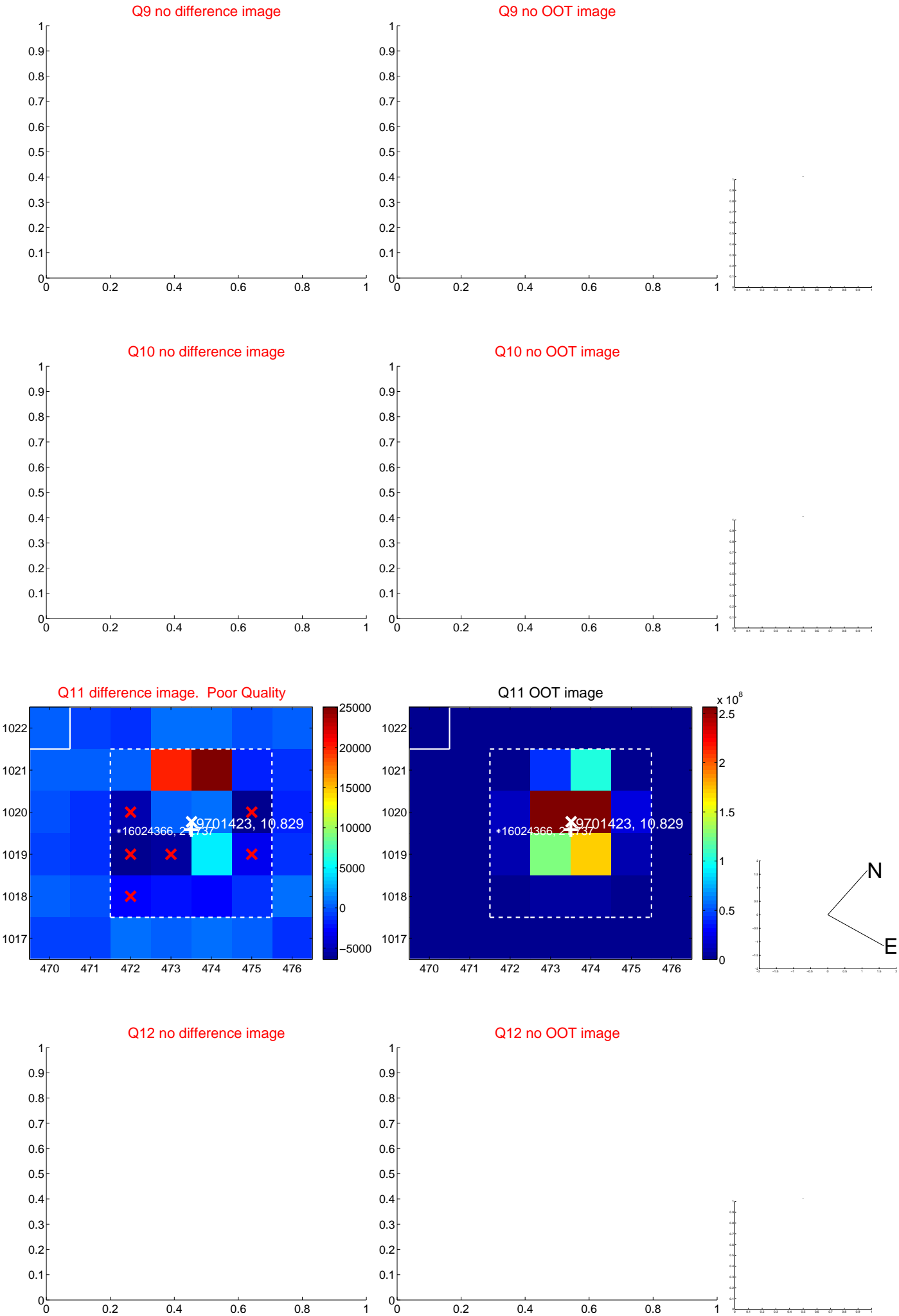
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



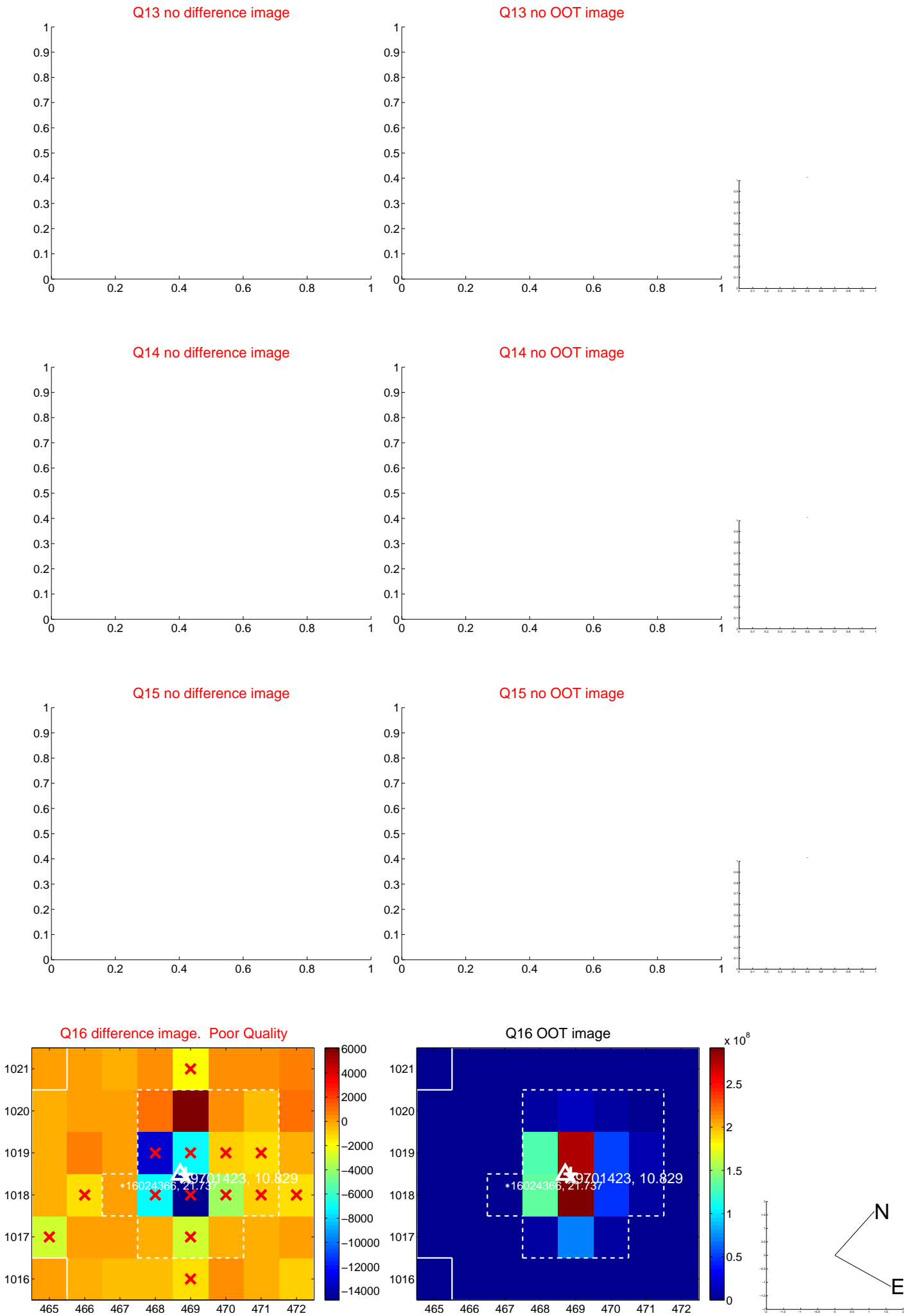
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



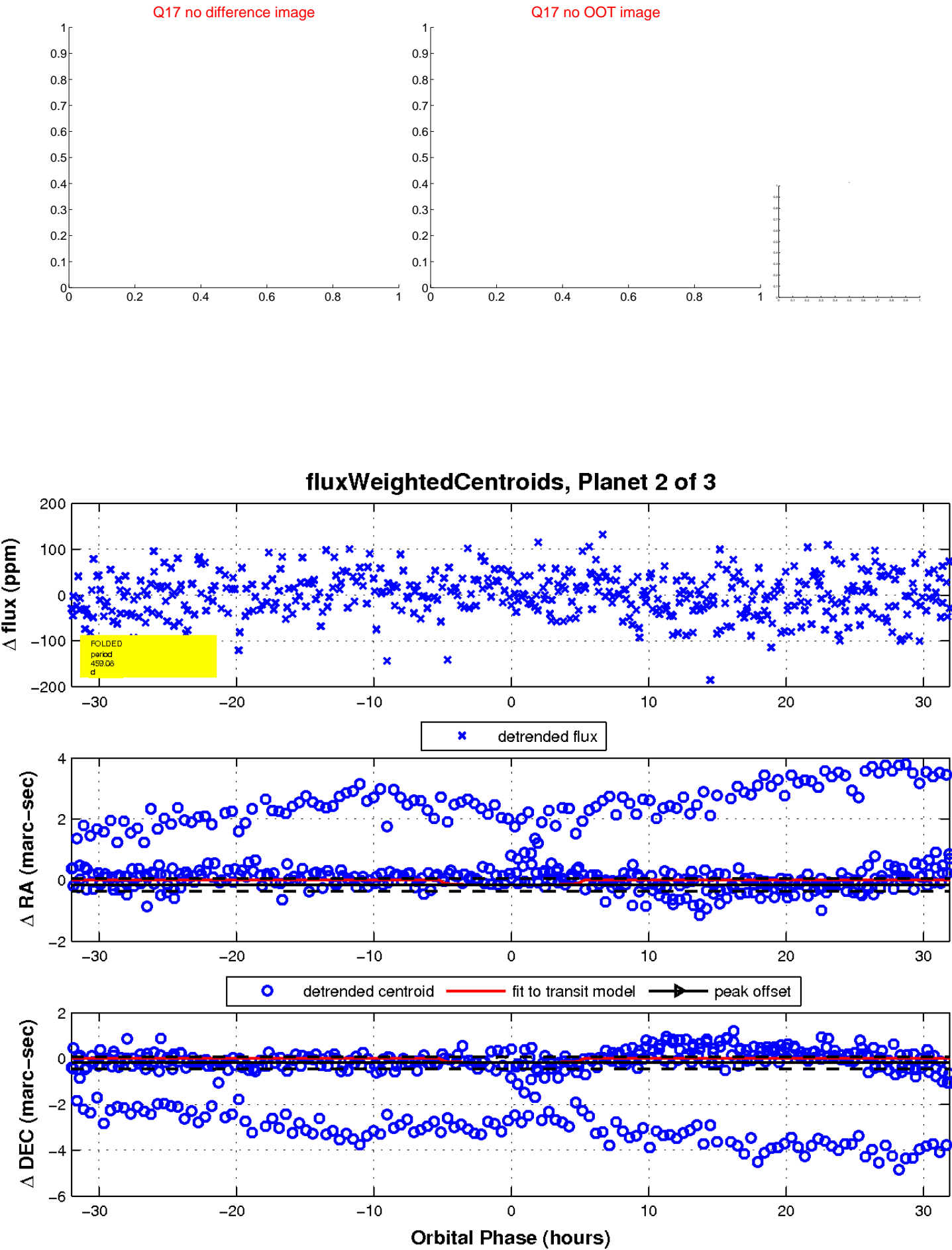
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

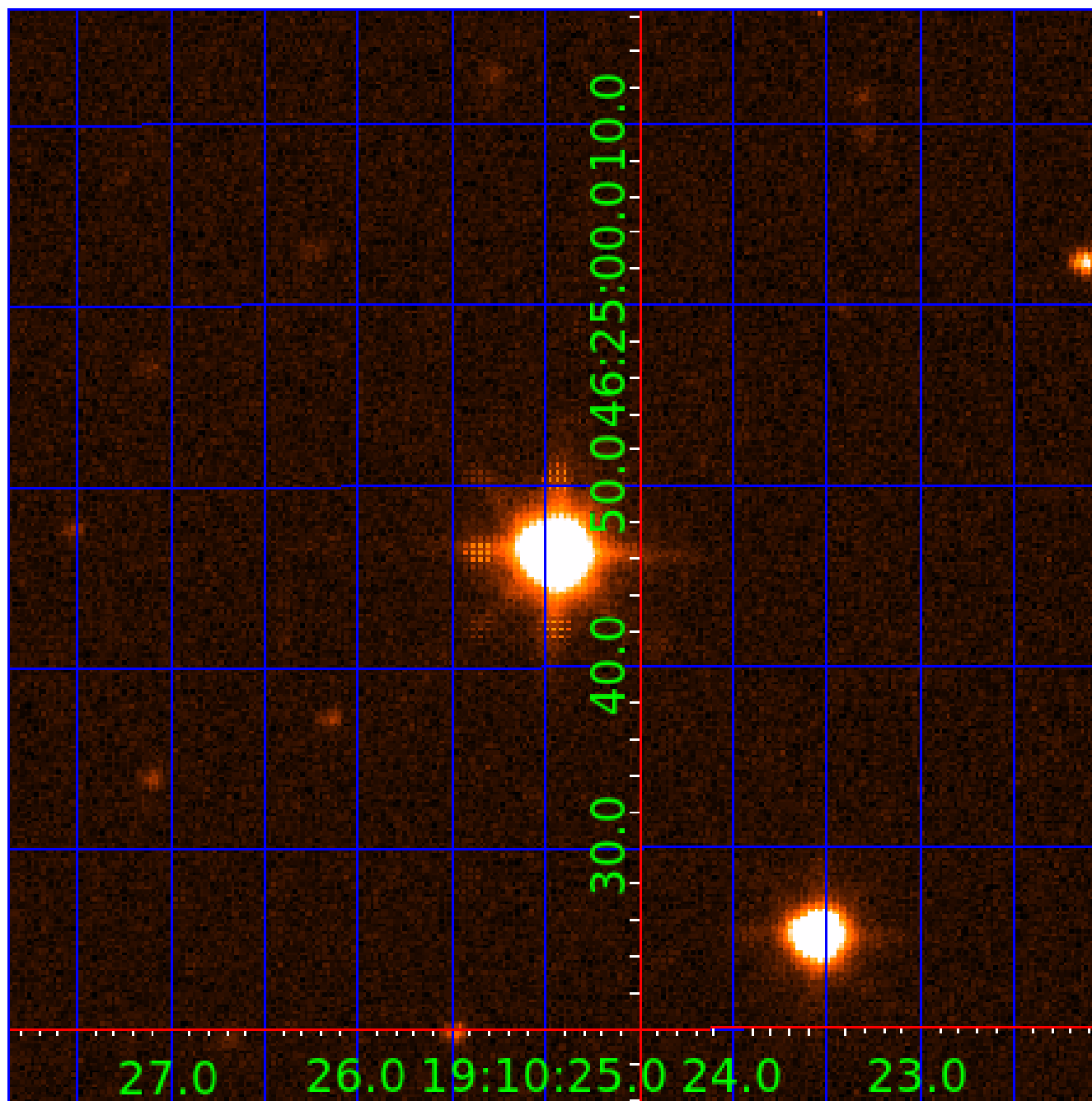


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009701423

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})
009701423-01	OBS	No	2.869284	133.233187	7.2	15.744	10.6	10.7	1.09	6563	0.30	1182.56
009701423-02	OBS	No	459.083746	140.136256	84.2	10.671	20.2	8.6	1.09	6563	1.17	1.36
009701423-03	OBS	No	164.591880	182.844388	74.4	7.397	8.1	7.9	1.09	6563	1.10	5.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009701423-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_SATURATED
009701423-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009701423-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_POS_DV—CENT_SATURATED

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

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

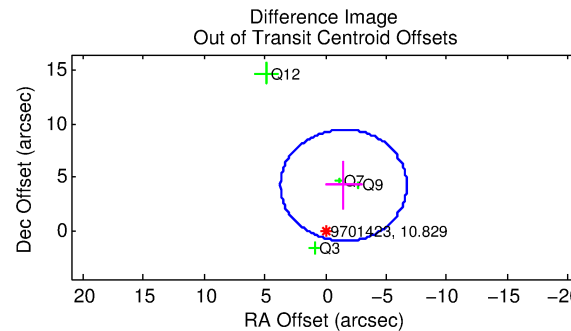
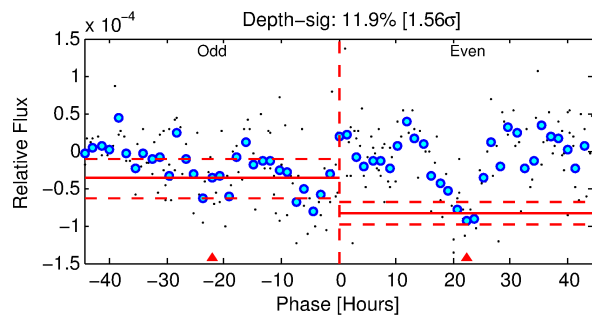
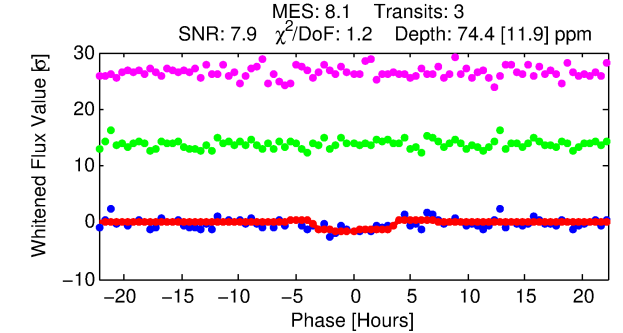
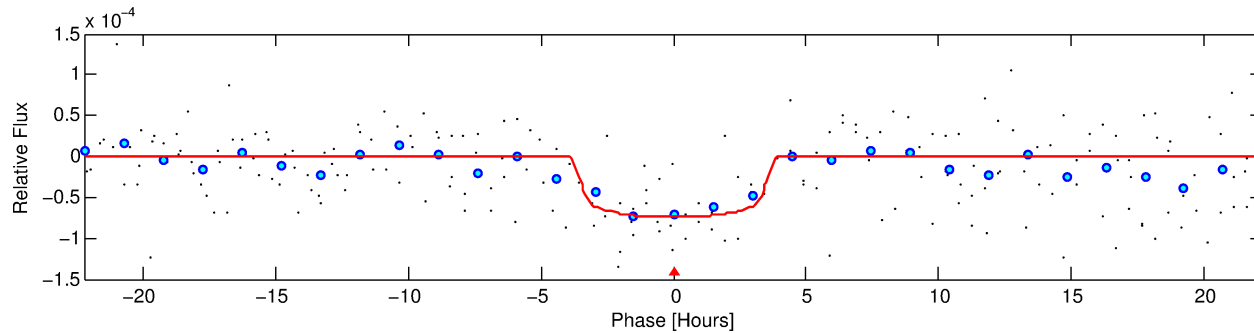
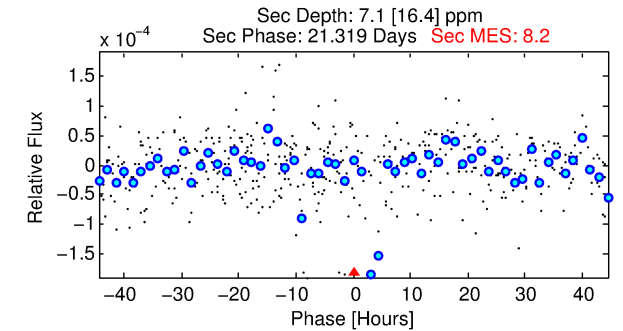
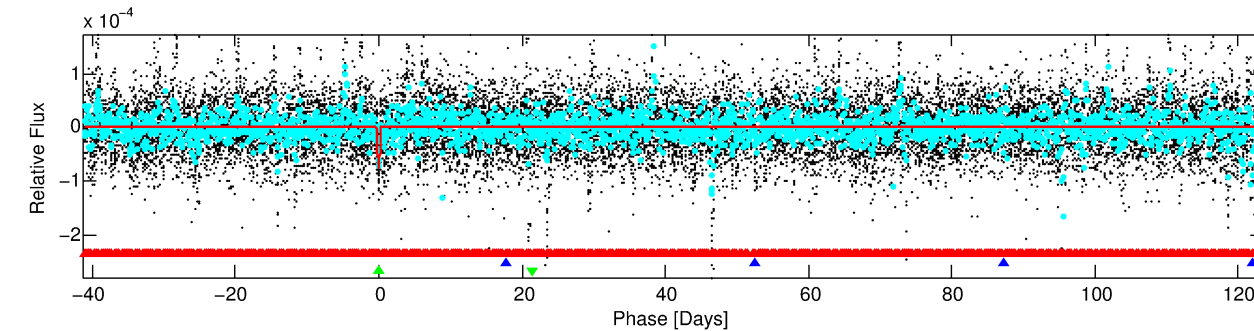
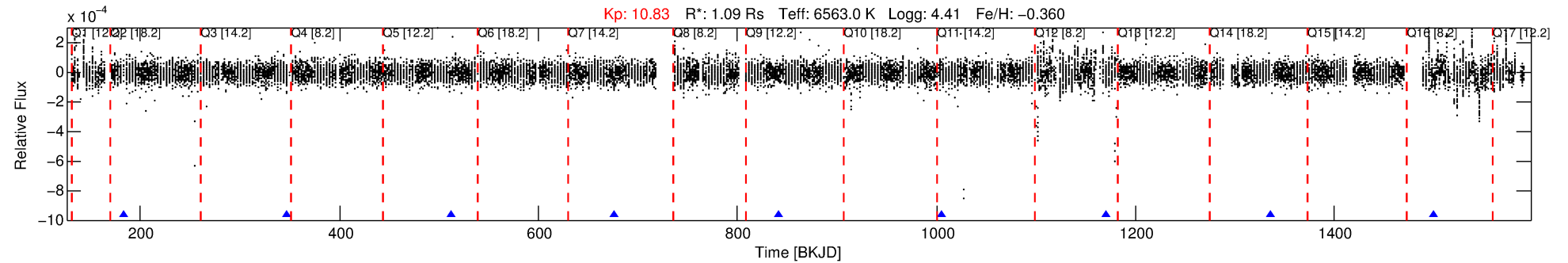
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009701423-03

No Significant Match Found

DV One-Page Summary

KIC: 9701423 Candidate: 3 of 3 Period: 164.592 d



DV Fit Results:

Period = 164.59188 [0.00460] d
Epoch = 182.8444 [0.0181] BKJD
Rp/R* = 0.0092 [0.0097]
a/R* = 78.17 [486.86]
b = 0.90 [1.36]
Seff = 5.35 [1.52]
Teq = 388 [28] K
Rp = 1.10 [1.18] Re
a = 0.6084 [0.1073] AU
Ag = 1206.04 [3774.38] [0.32σ]
Teffp = 3533 [2756] K [1.14σ]

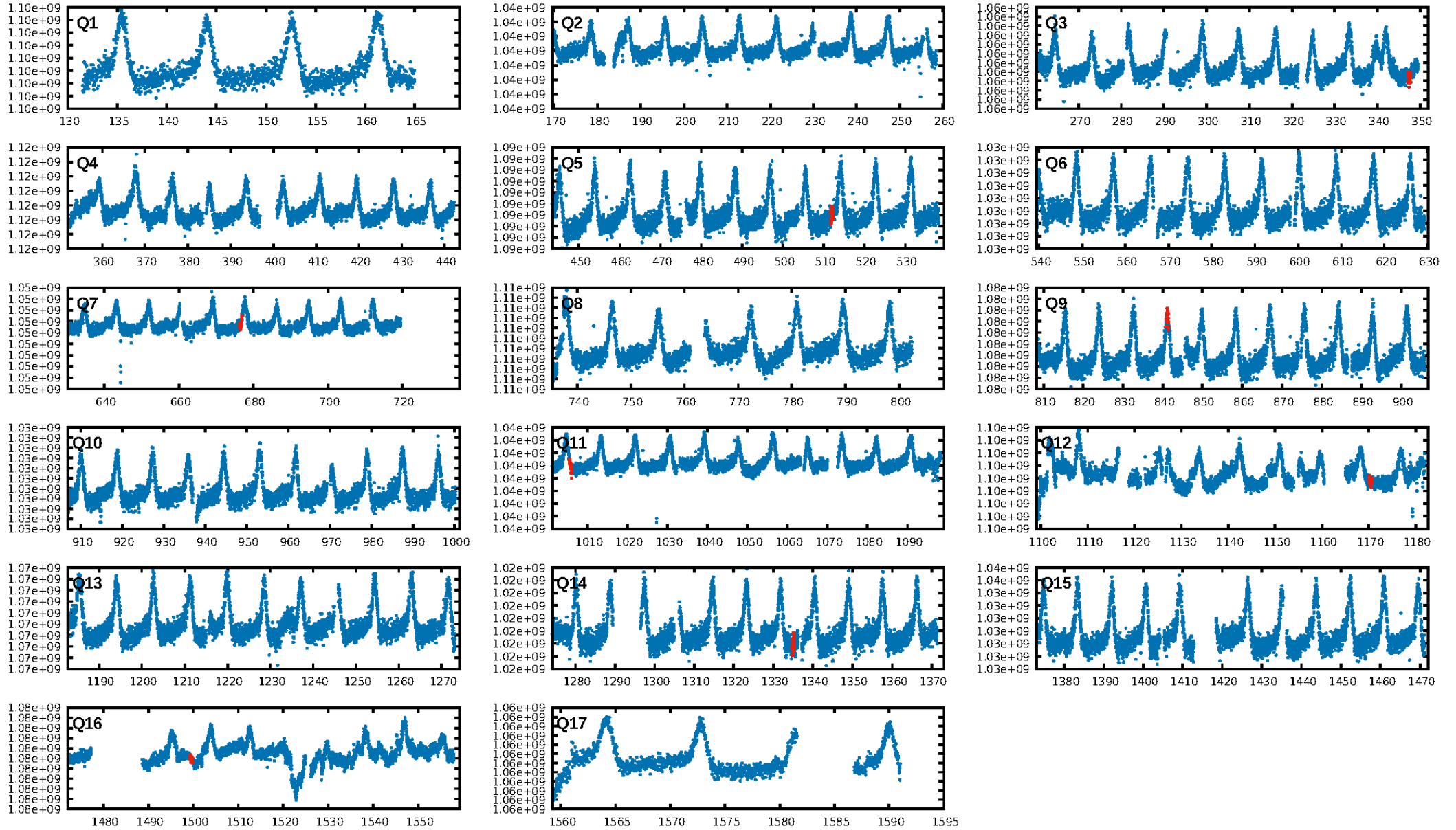
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [223.13σ]
LongPeriod-sig: 100.0% [544.35σ]
ModelChiSquare2-sig: 40.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.59e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -6.526
Centroid-sig: 60.0%
Centroid-so: 0.928 arcsec [0.44σ]
OotOffset-rm: 4.506 arcsec [2.59σ]
KicOffset-rm: 4.273 arcsec [1.27σ]
OotOffset-st: 0/2/1/1 [4]
KicOffset-st: 0/2/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.38 [3/8]

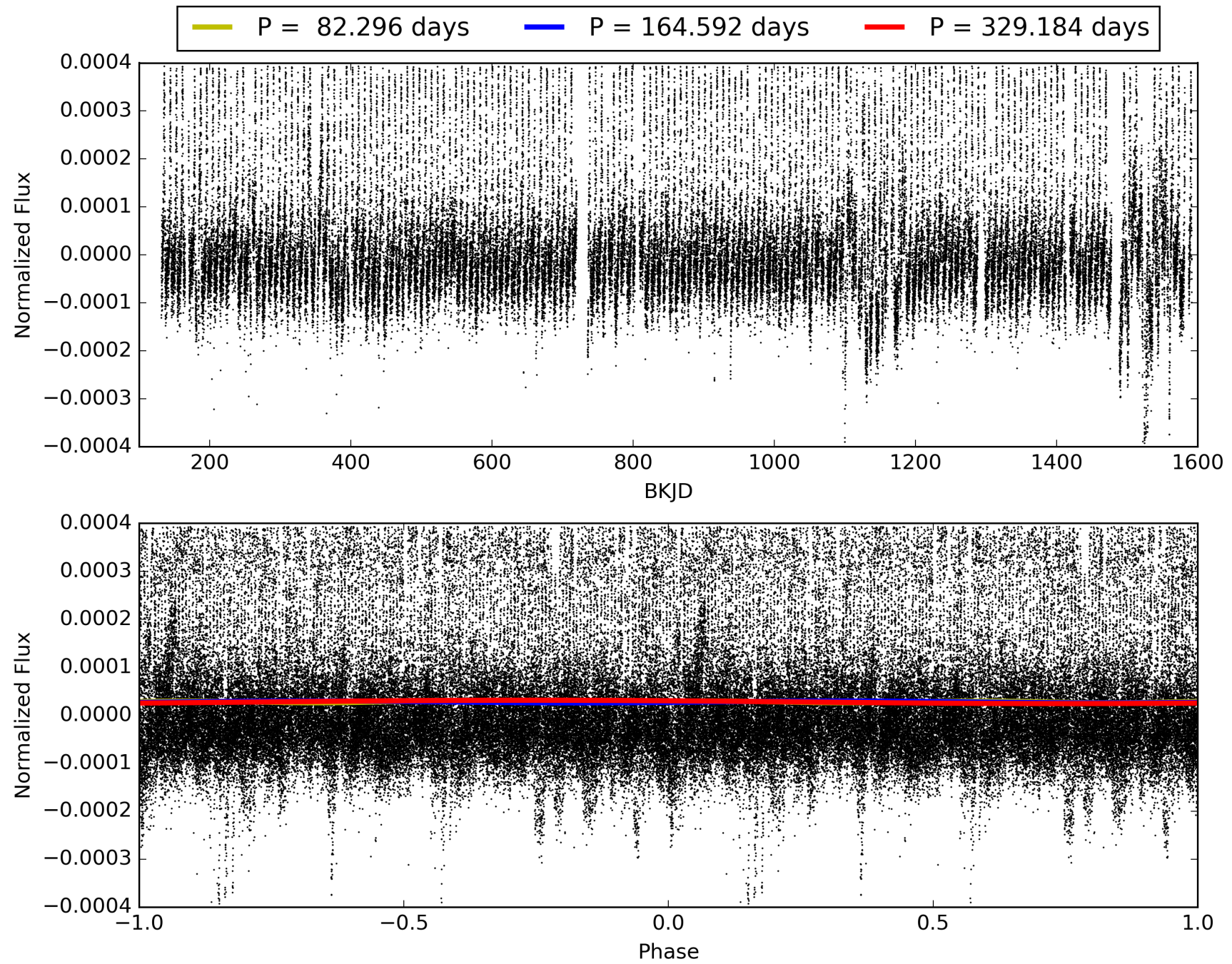
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:21:10 Z

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

TCE 009701423-03, PDC Light Curves

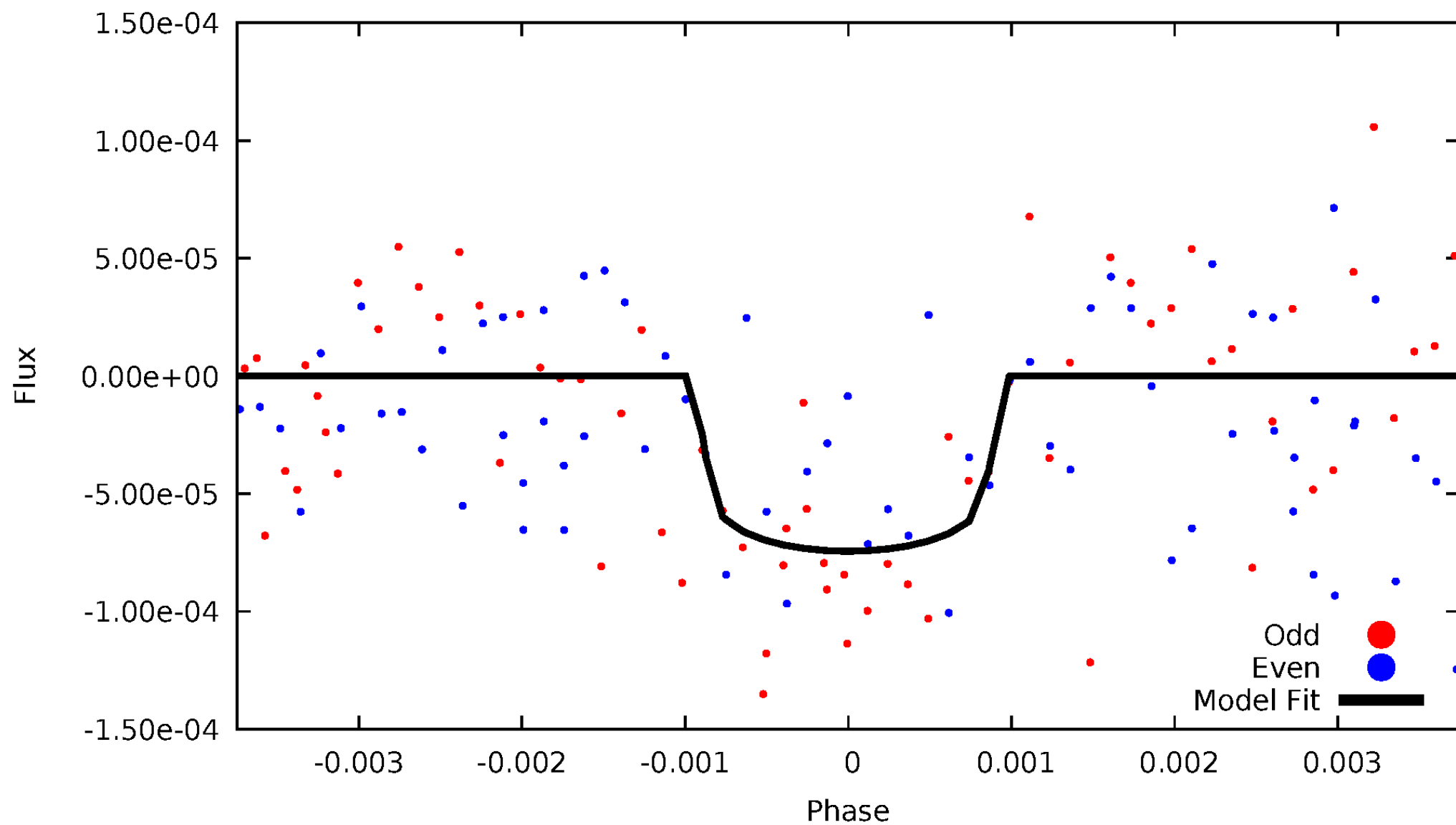


TCE 009701423-03



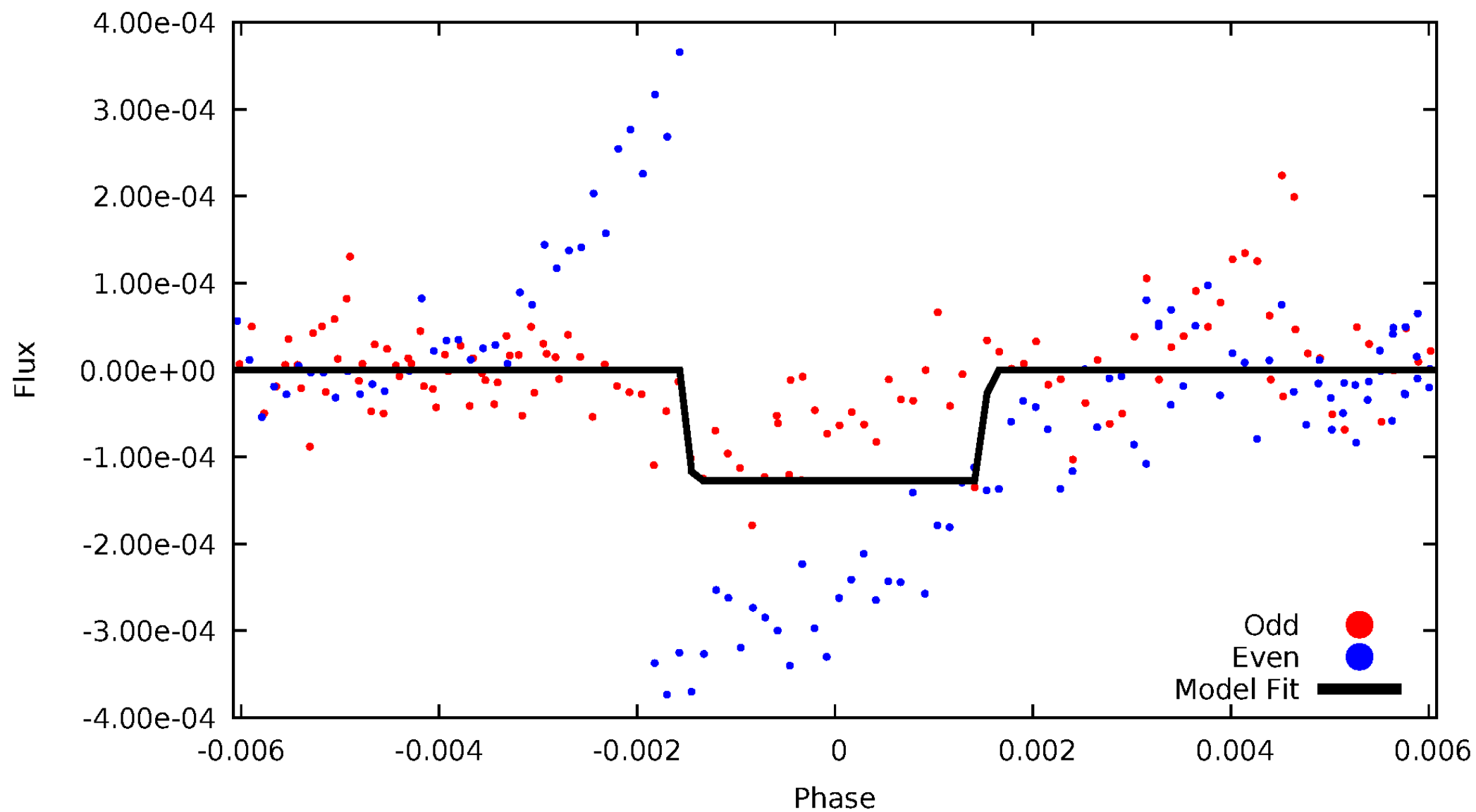
DV Odd/Even

TCE 009701423-03

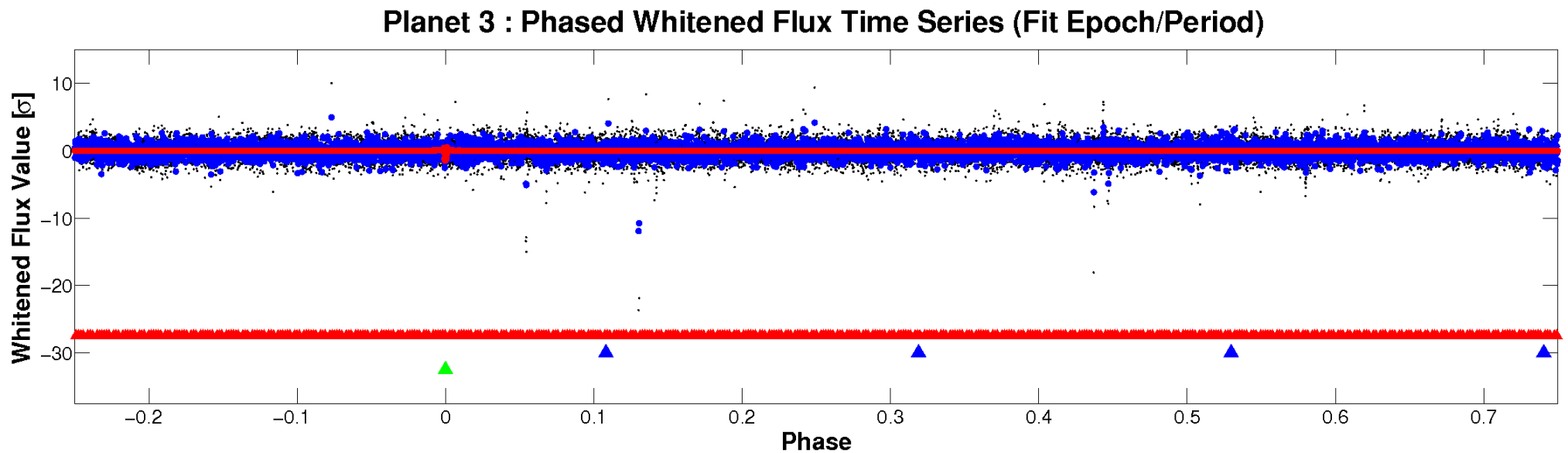
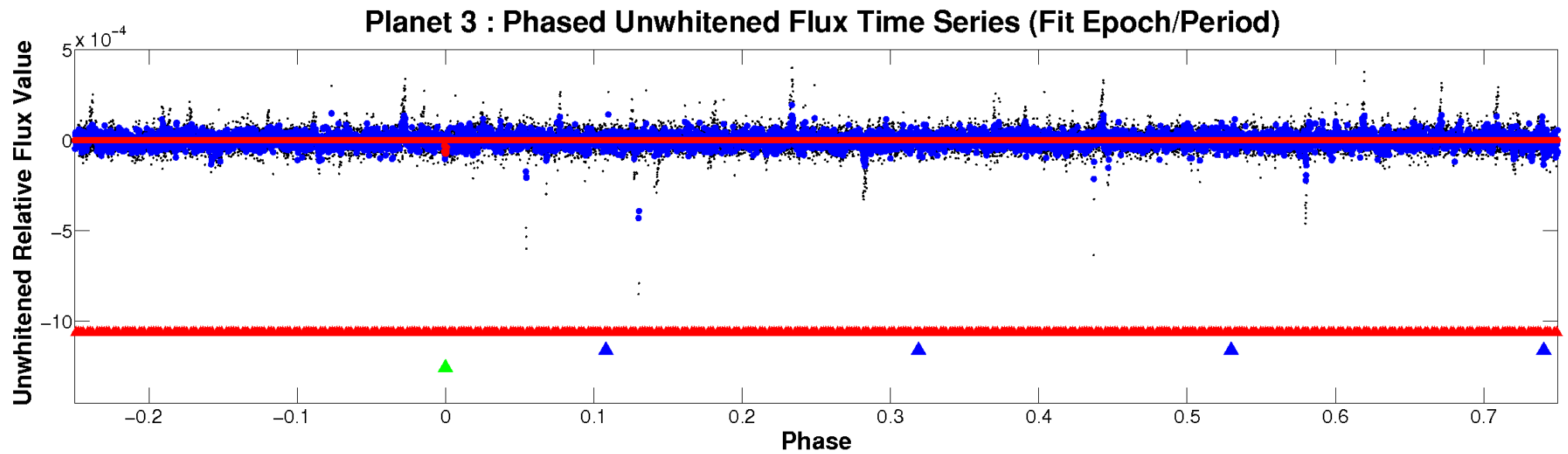


ALT Odd/Even

TCE 009701423-03

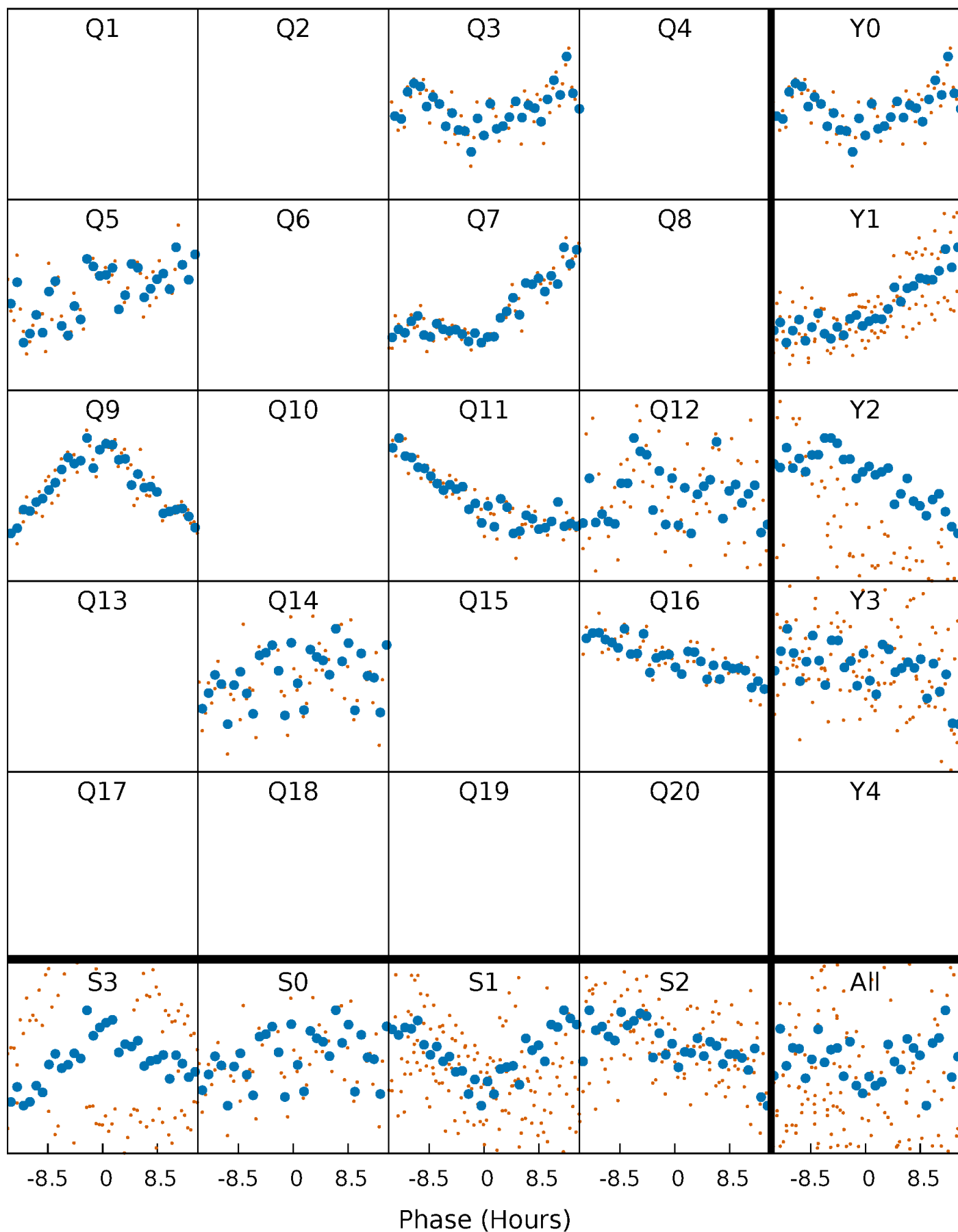


Non-Whitened Vs. Whitened Light Curve



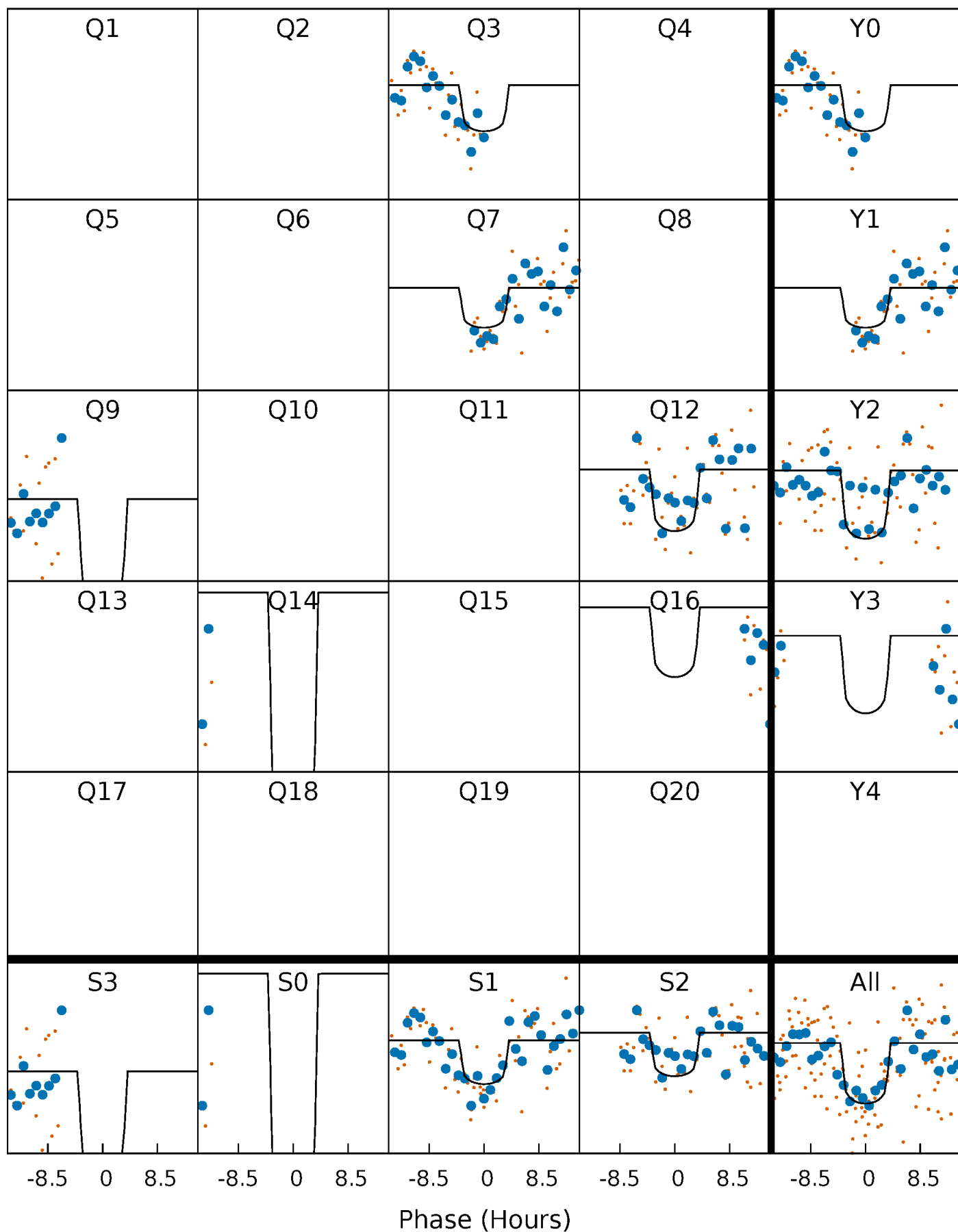
PDC Quarter-Phased Transit Curves

TCE 009701423-03 P=164.591880 Days $T_0=182.844388$ (BKJD)



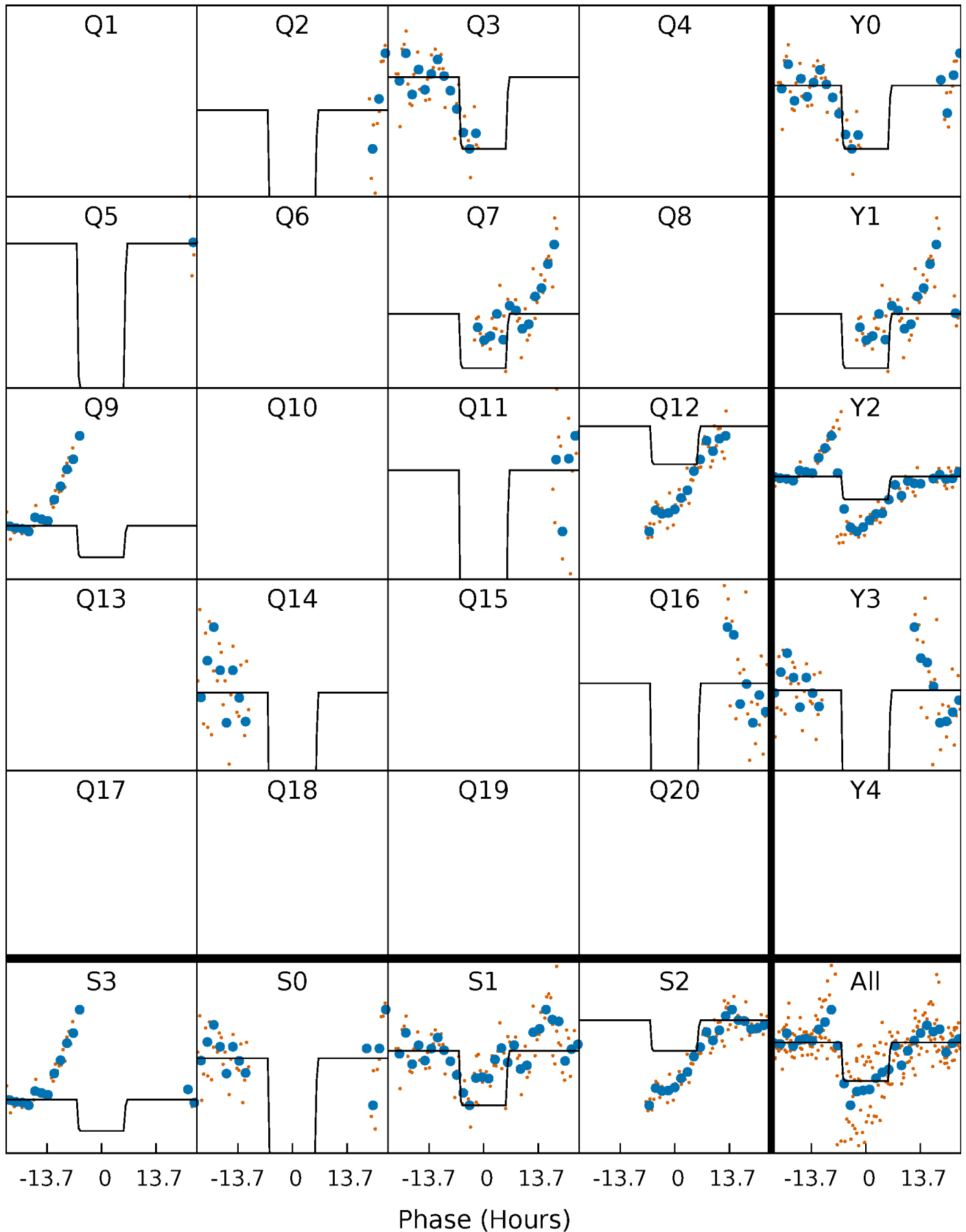
DV Quarter-Phased Transit Curves

TCE 009701423-03 P=164.591880 Days $T_0=182.844388$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

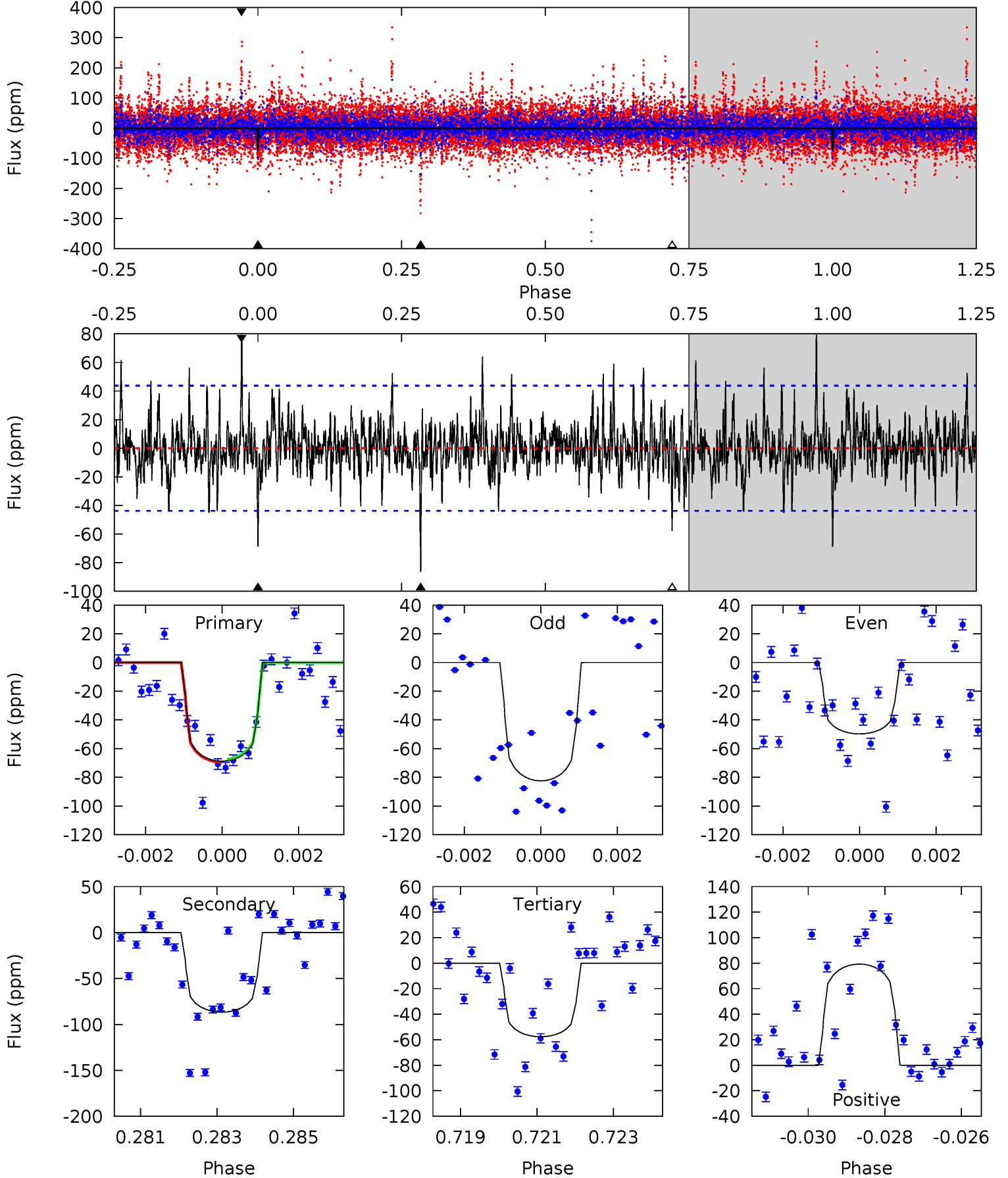
TCE 009701423-03 P=164.571892 Days $T_0=182.915943$ (BKJD)



DV Model-Shift Uniqueness Test

009701423-03, P = 164.591880 Days, E = 18.252508 Days

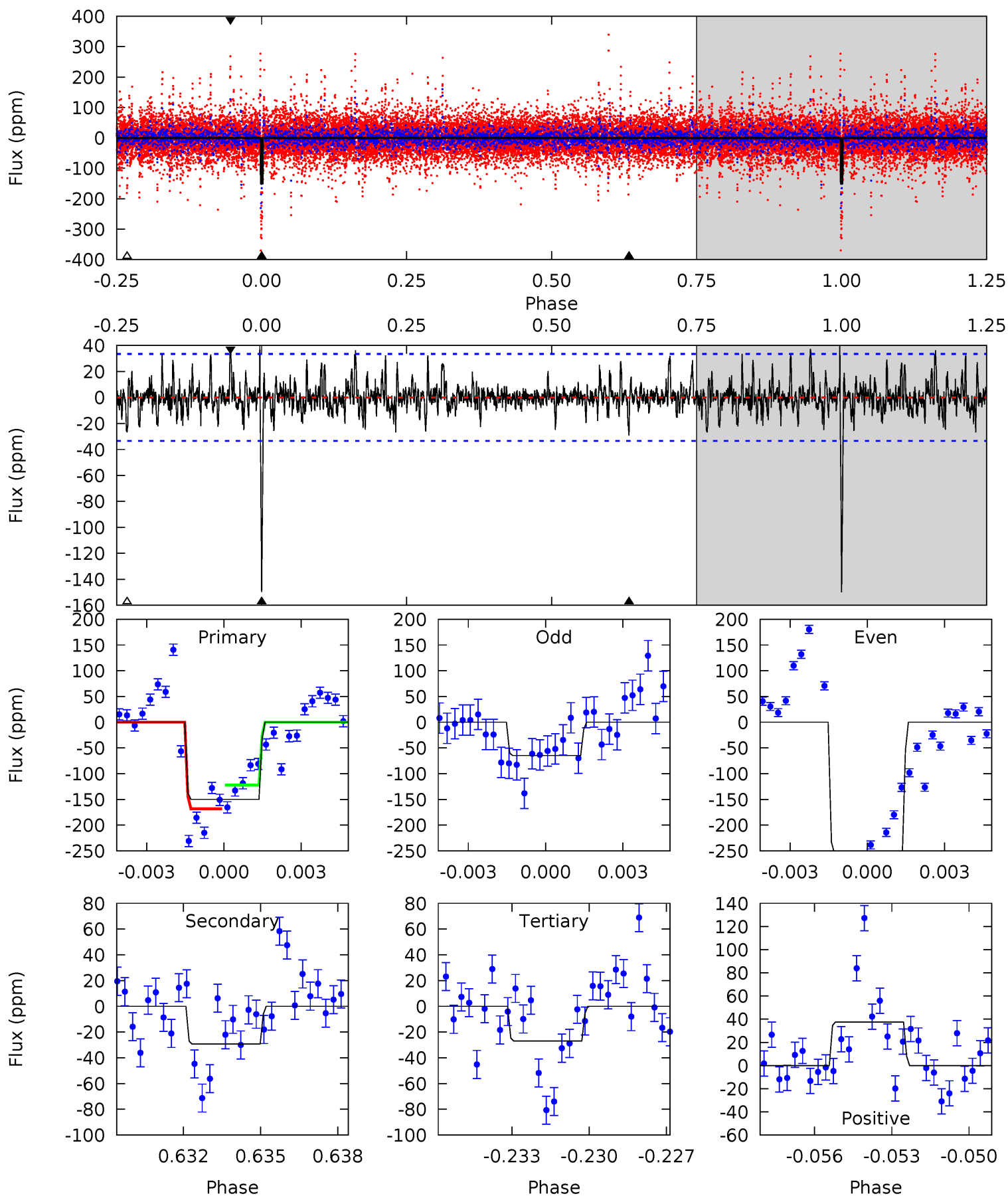
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.40	10.6	7.04	9.68	5.34	3.11	1.82	1.36	-1.29	3.53	0.89	1.87	0.90	0.48	0.12



Alt Model-Shift Uniqueness Test

009701423-03, P = 164.571892 Days, E = 18.344051 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.5	4.60	4.22	5.89	5.25	2.96	1.31	19.3	17.6	0.38	-1.29	14.8	1.20	0.21	3.58



Stellar Parameters For KIC 009701423

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6563^{+147}_{-180}	$4.407^{+0.063}_{-0.147}$	$-0.360^{+0.250}_{-0.300}$	$1.091^{+0.222}_{-0.120}$	$1.108^{+0.122}_{-0.149}$	$1.202^{+0.324}_{-0.487}$
	+2%/-3%	+1%/-3%	+69%/-83%	+20%/-11%	+11%/-13%	+27%/-41%
Source	PHO1	FLK73	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 009701423-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-87 ± 8	$1.42^{+1.07}_{-0.93}$	547^{+28}_{-23}	5872^{+5135}_{-1283}	8763^{+58631}_{-5941}
Alt.	-29 ± 6	$1.54^{+1.06}_{-0.95}$	547^{+30}_{-23}	4437^{+2570}_{-766}	2360^{+15509}_{-1525}

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

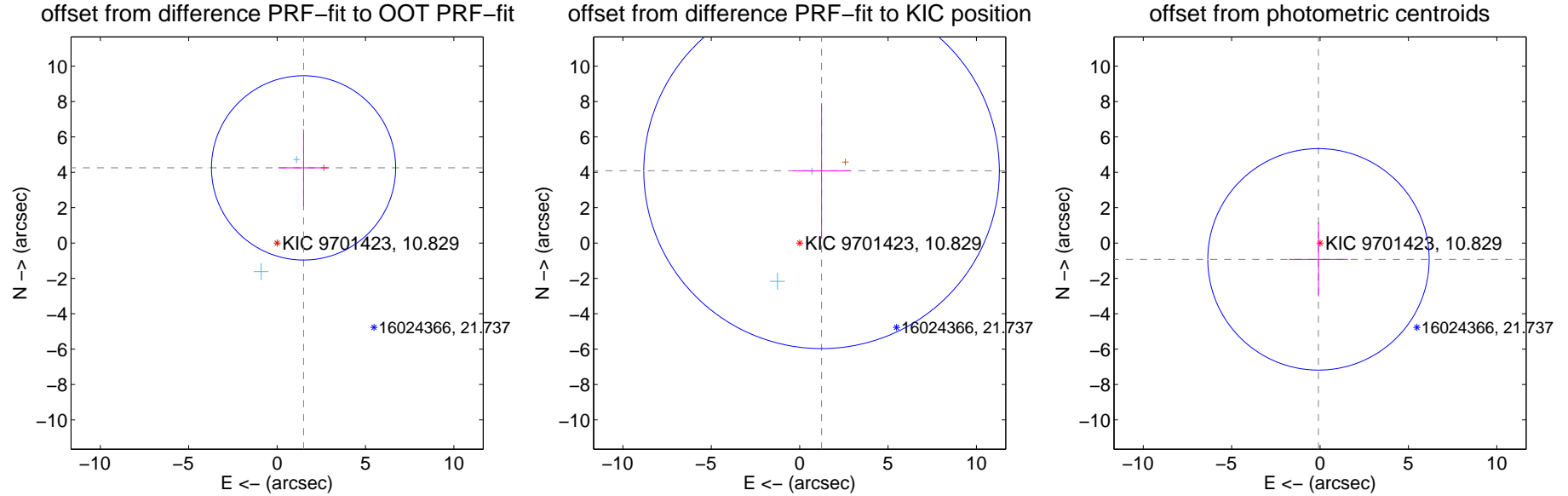
DV Centroid Data

Supplemental centroid analysis for 009701423-03. **Kepler magnitude: 10.83.** Transit SNR 7.86

There are 2 quarters with good PRF difference image offsets

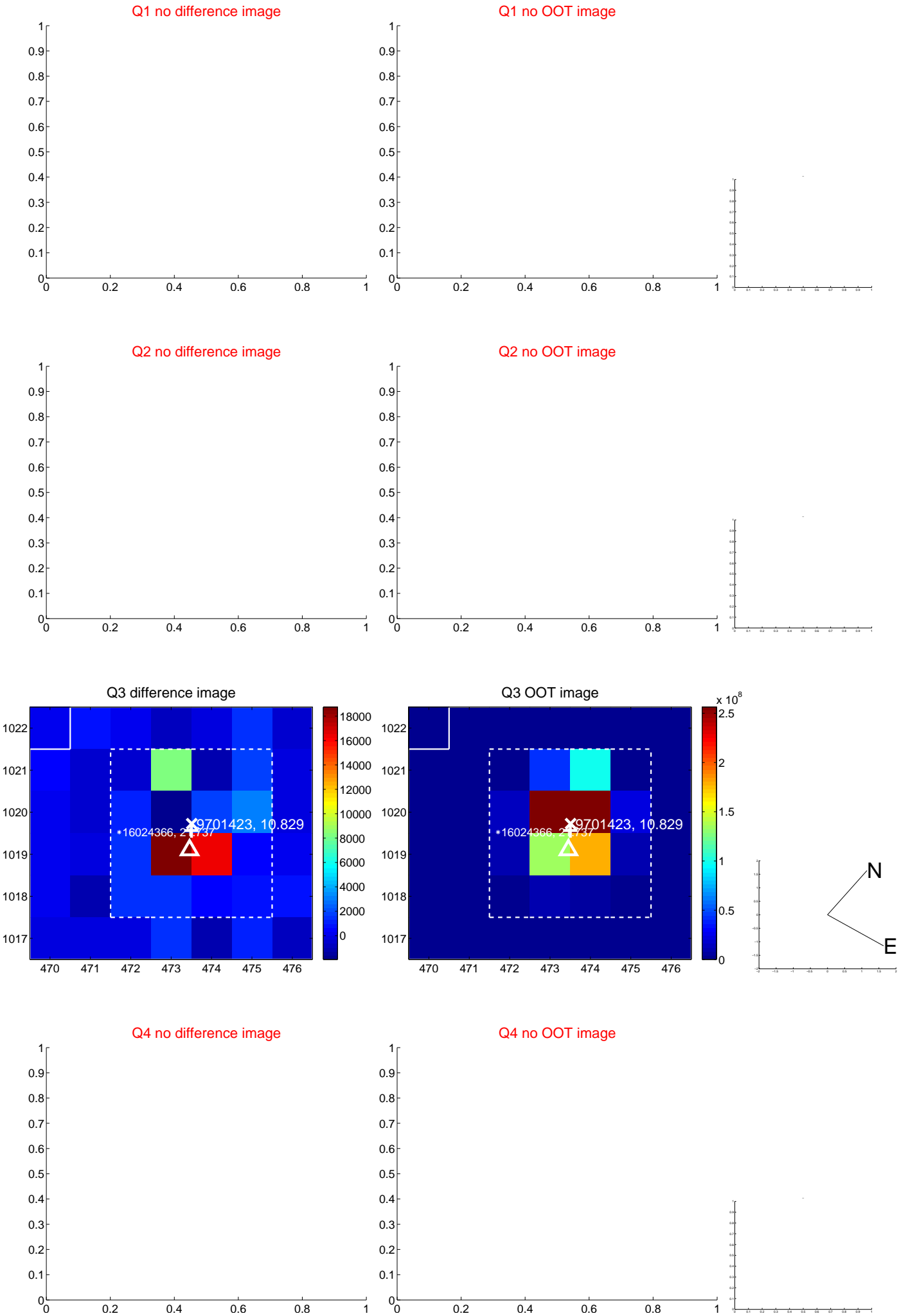
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.506 ± 1.737	2.59	-1.497 ± 1.441	4.250 ± 2.169
PRF-fit source offset from KIC position	4.273 ± 3.353	1.27	-1.239 ± 1.625	4.089 ± 3.817
photometric centroid source offset	0.93 ± 2.09	0.44	0.09 ± 1.67	-0.92 ± 2.09

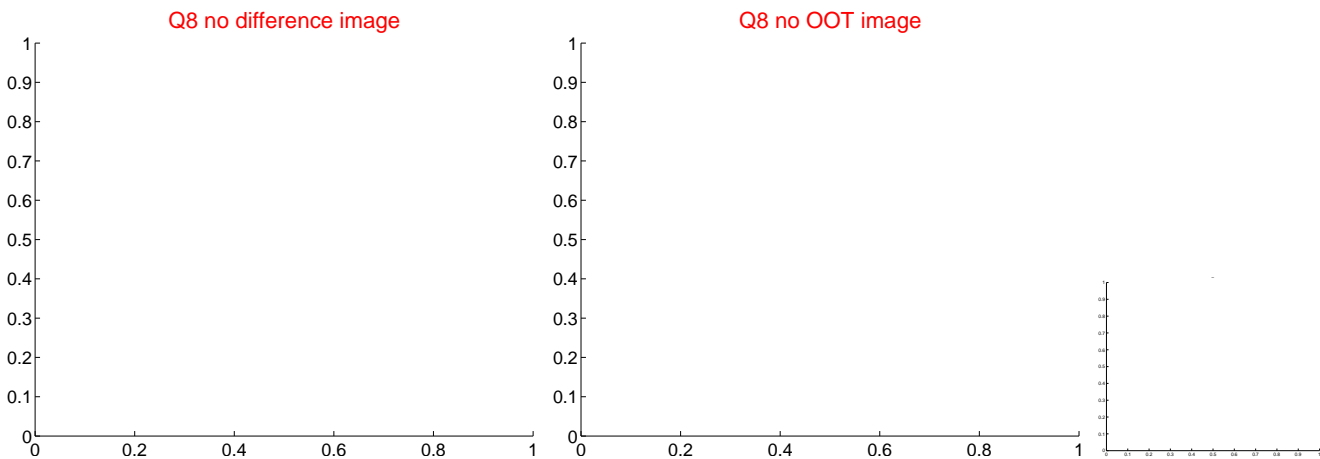
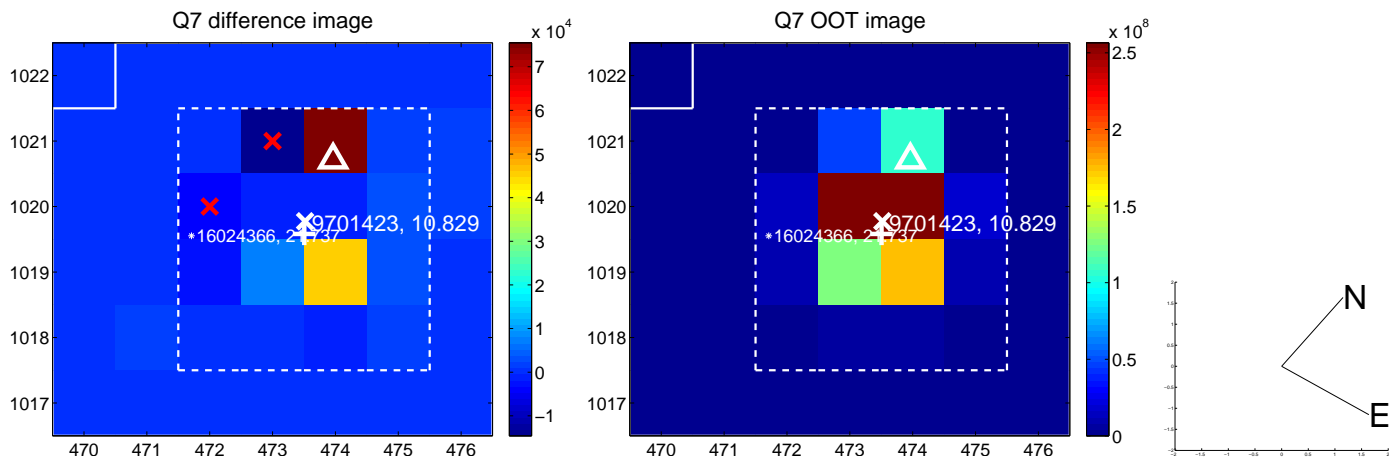
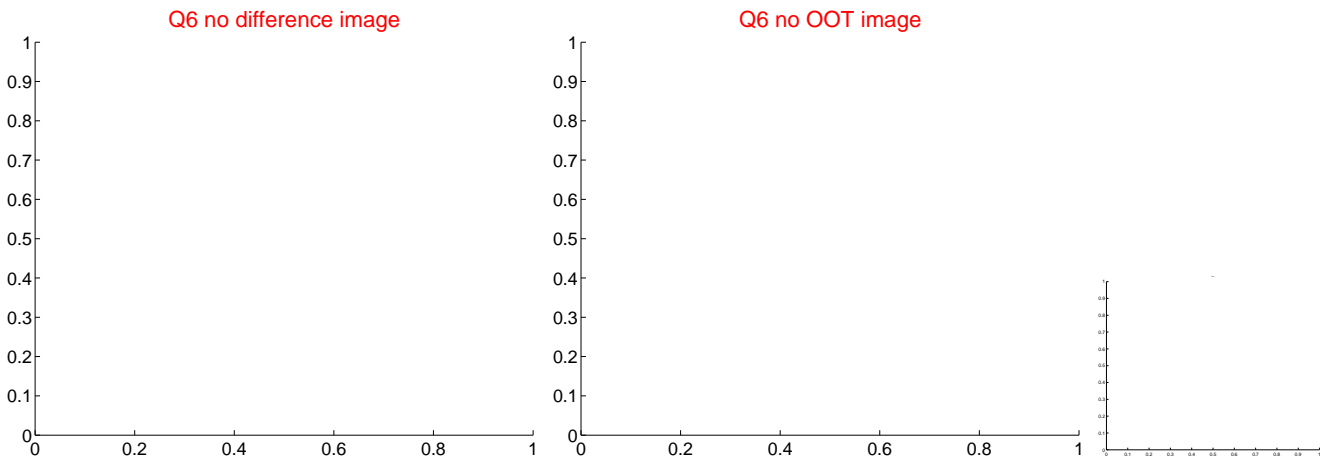
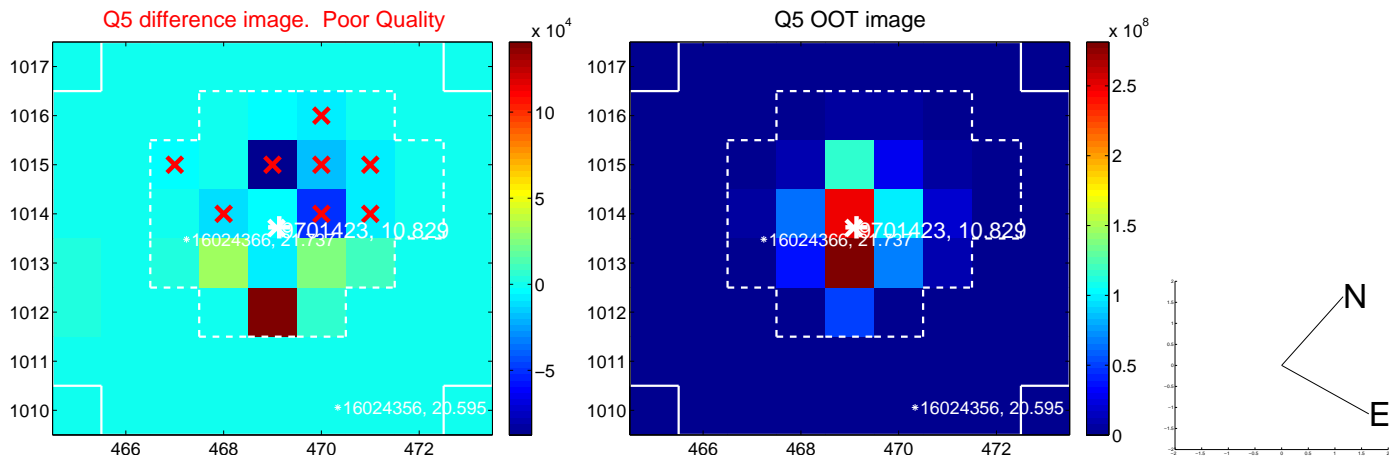


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

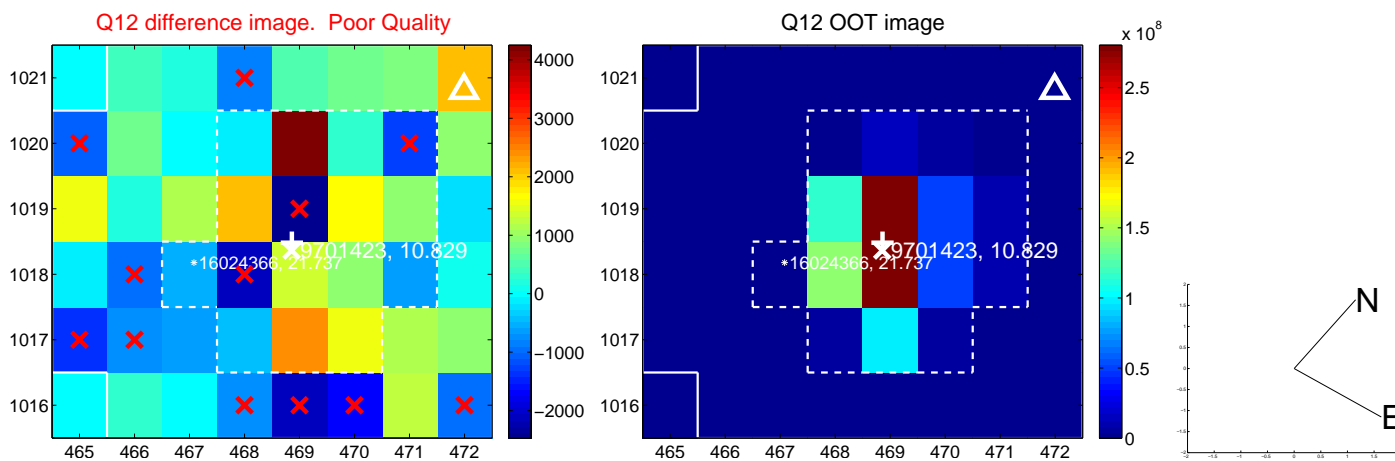
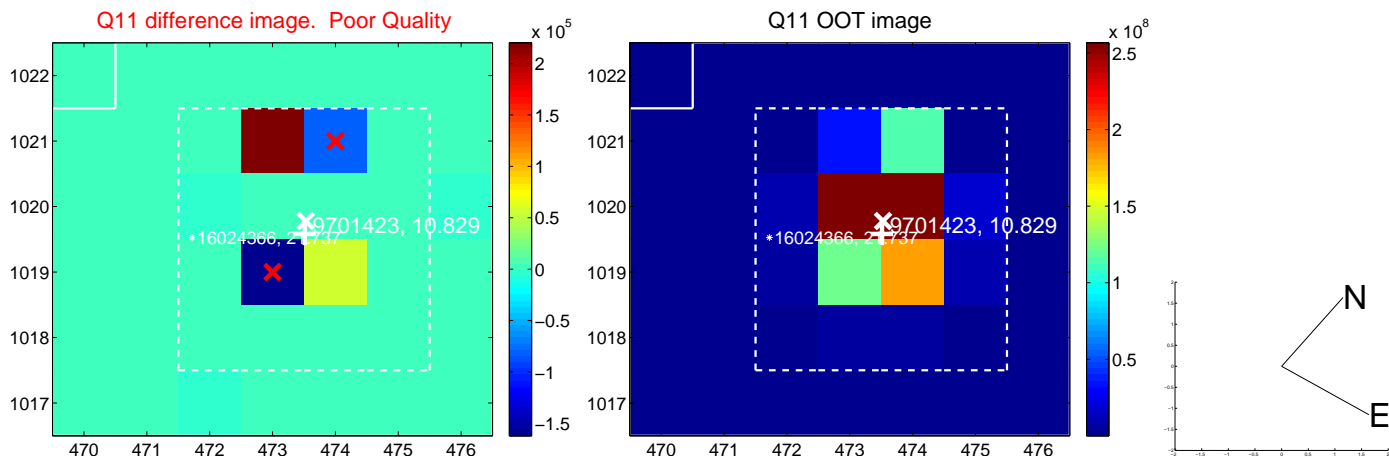
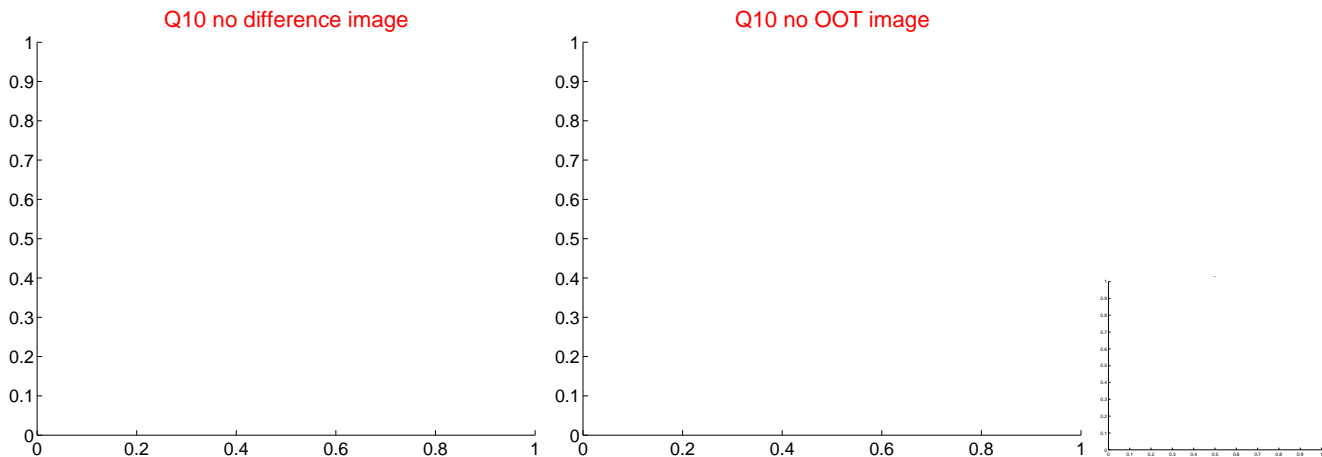
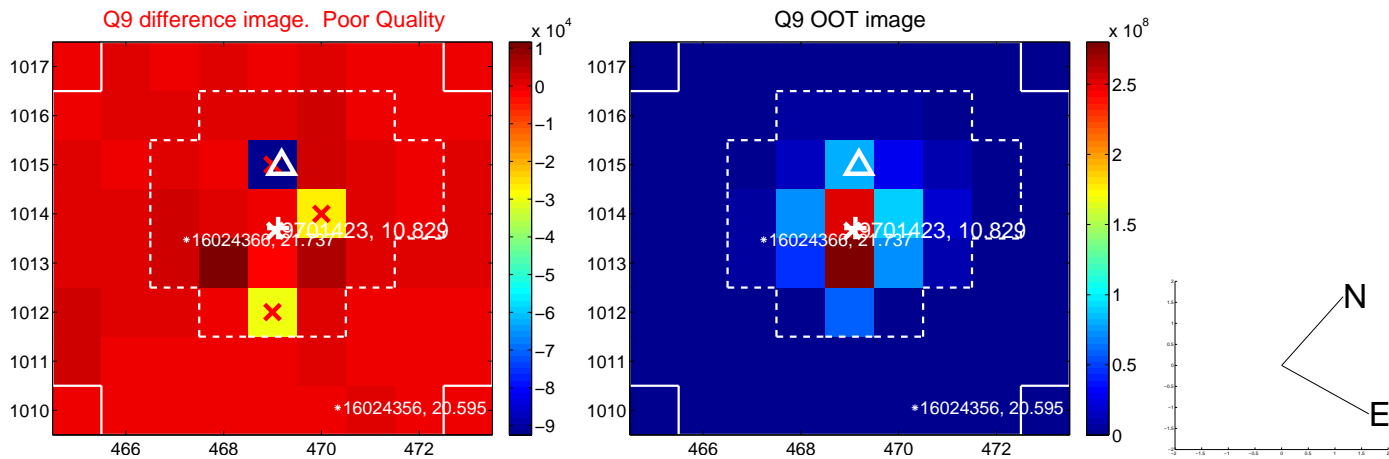
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

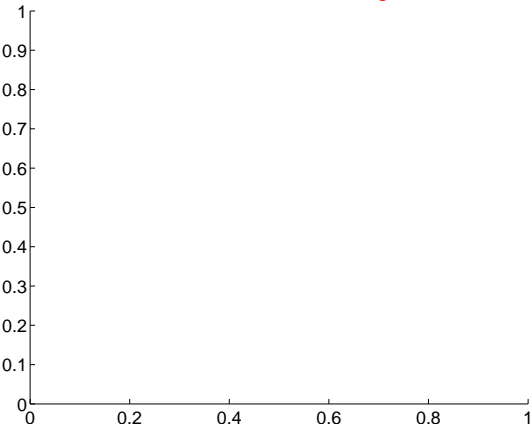


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

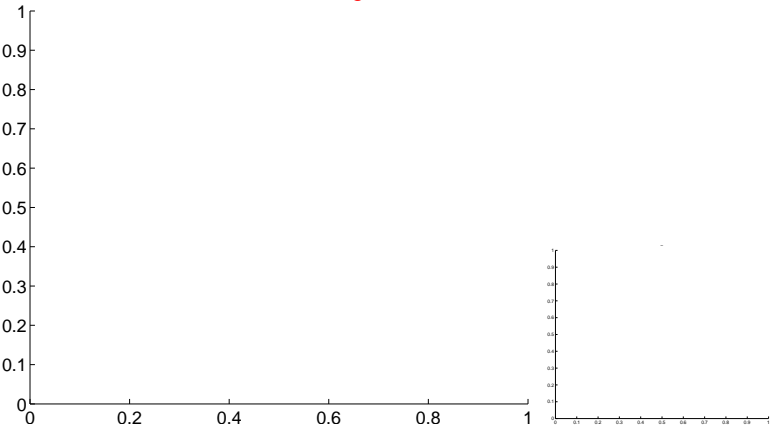


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

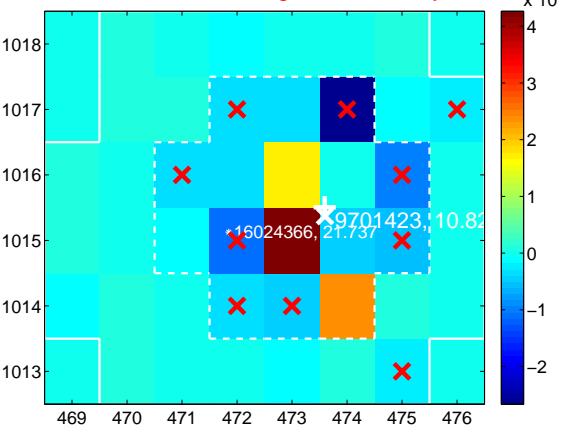
Q13 no difference image



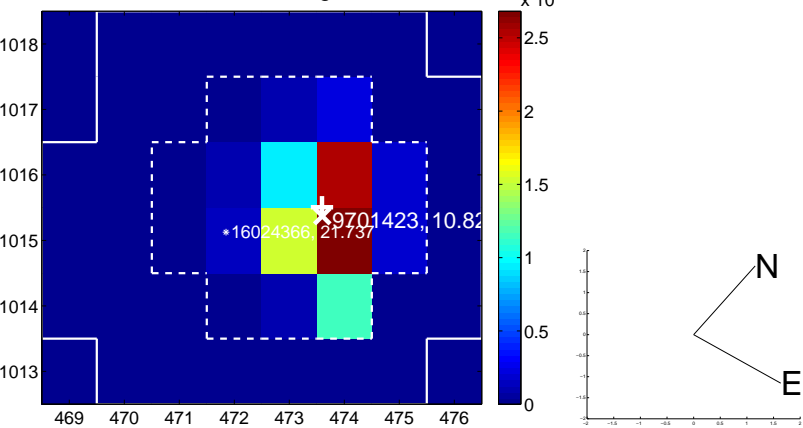
Q13 no OOT image



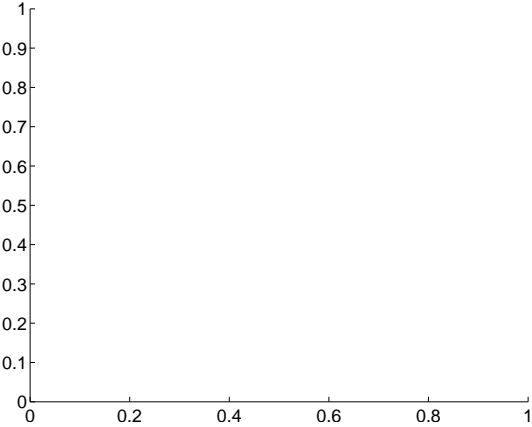
Q14 difference image. Poor Quality



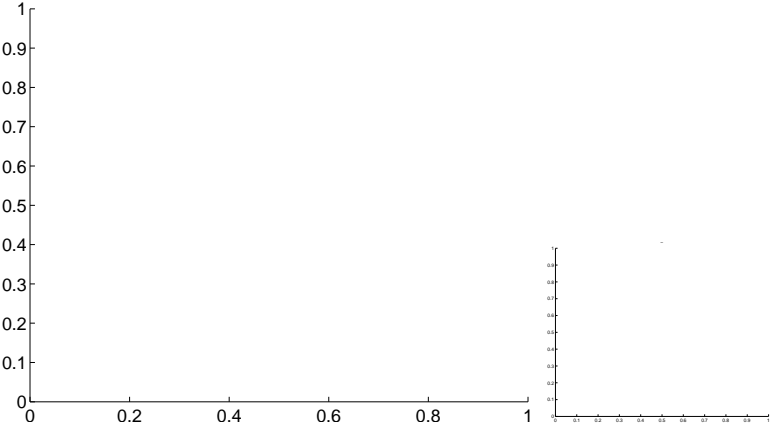
Q14 OOT image



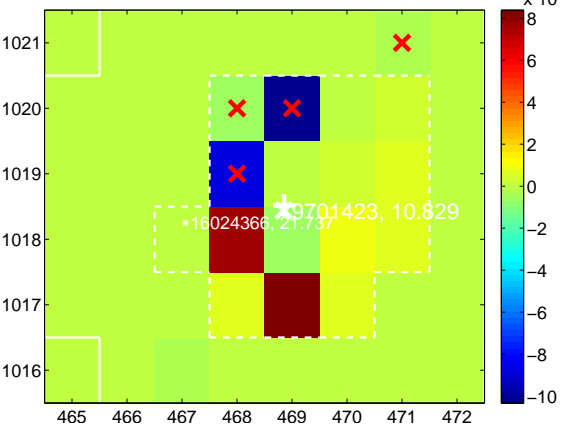
Q15 no difference image



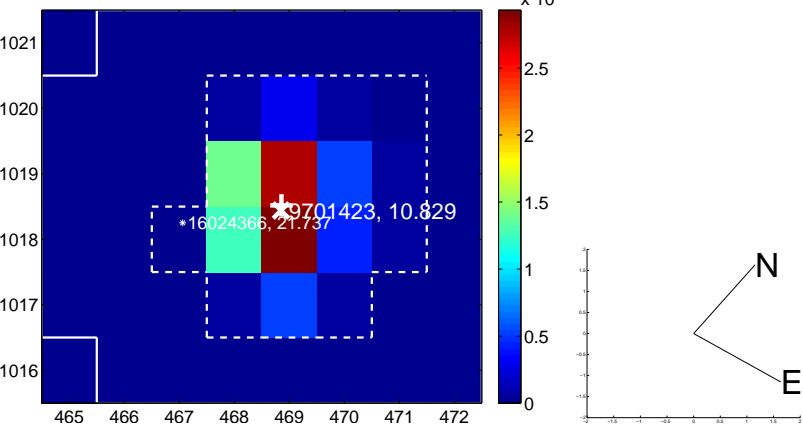
Q15 no OOT image



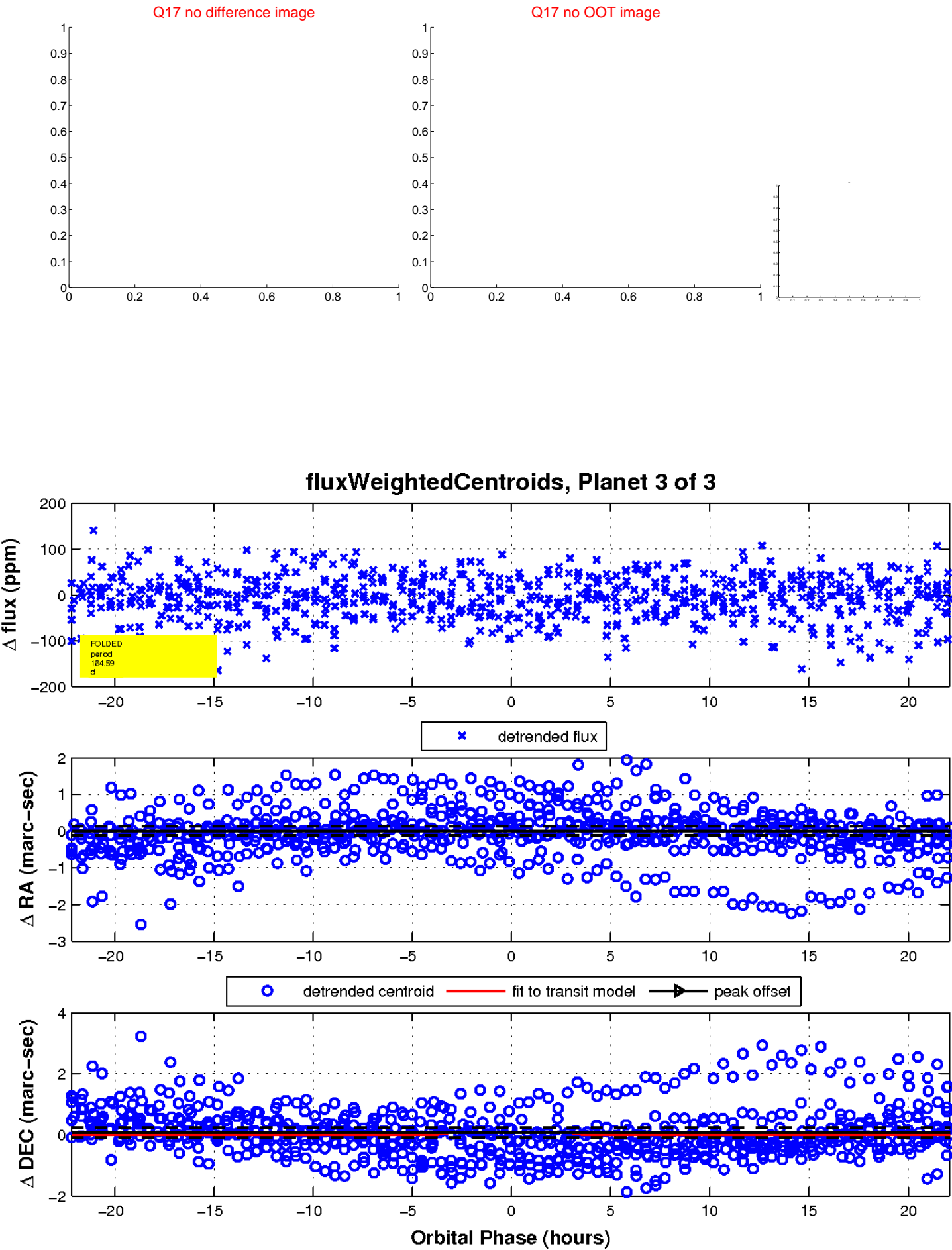
Q16 difference image. Poor Quality



Q16 OOT image



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



UKIRT Image

Declination

