

KIC 009182355

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})
009182355-01	OBS	No	2.329359	132.391777	4.1	12.845	9.4	9.6	3.34	7932	0.68	20789.99
009182355-02	OBS	No	472.683008	294.560409	96.6	23.073	10.3	8.9	3.34	7932	4.29	17.43
009182355-03	OBS	No	219.404624	329.484182	71.2	13.828	11.1	8.6	3.34	7932	3.24	48.51
009182355-04	OBS	No	105.137118	178.379901	44.7	7.122	7.9	8.9	3.34	7932	2.50	129.37

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009182355-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009182355-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009182355-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009182355-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

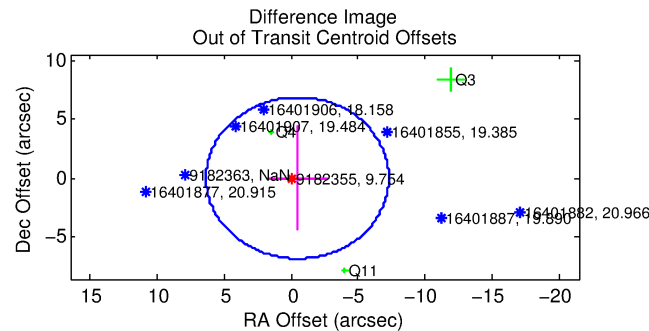
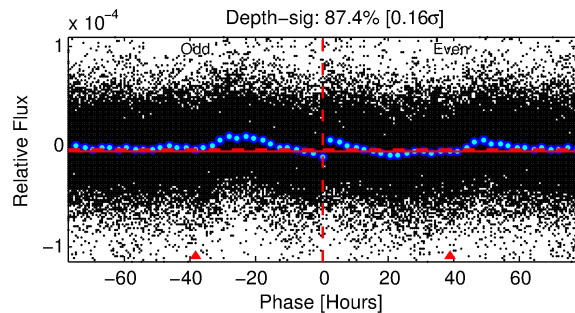
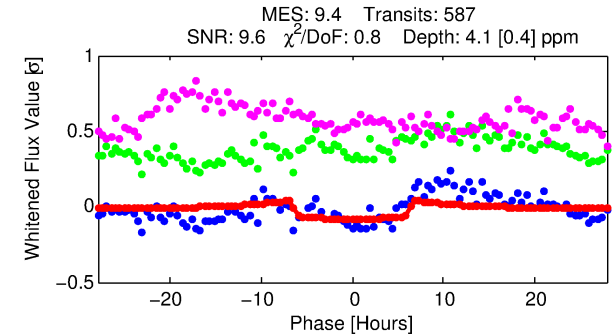
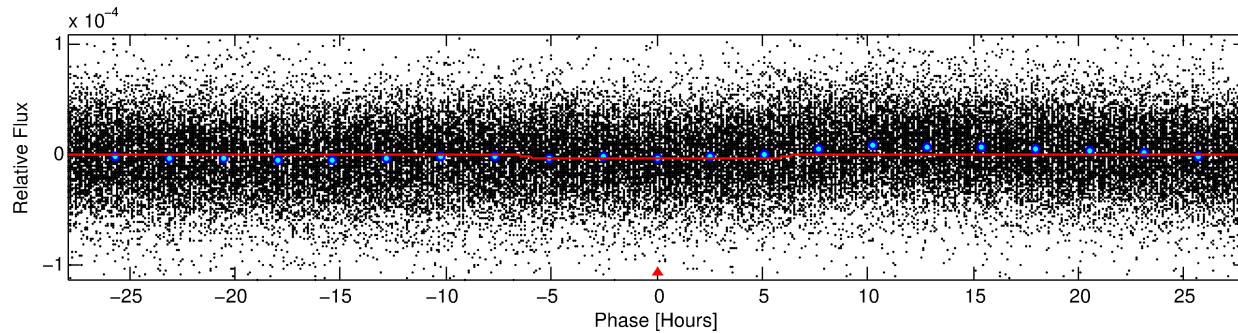
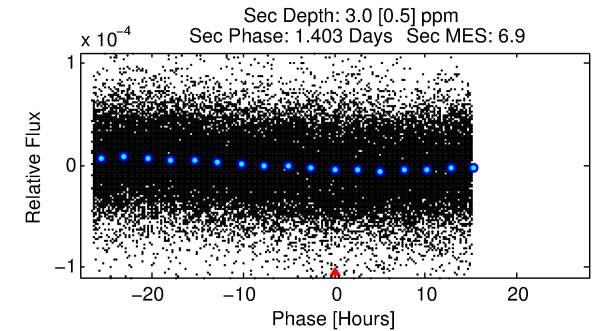
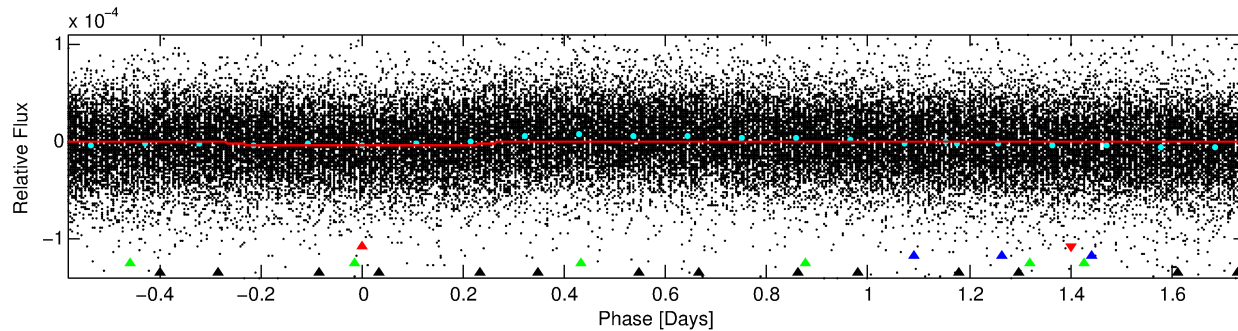
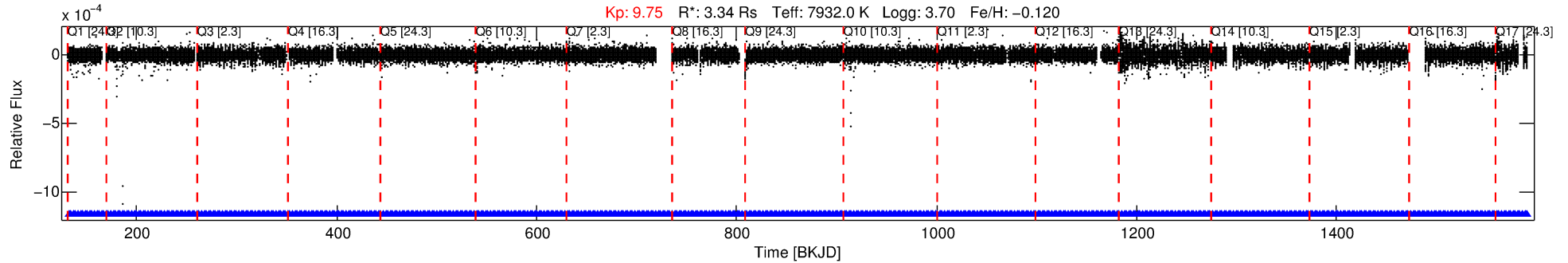
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009182355-01

No Significant Match Found

DV One-Page Summary

KIC: 9182355 Candidate: 1 of 4 Period: 2.329 d



DV Fit Results:

Period = 2.32936 [0.00003] d
Epoch = 132.3918 [0.0066] BKJD
Rp/R* = 0.0019 [0.0009]
a/R* = 1.50 [2.27]
b = 0.22 [11.84]
Seff = 20789.98 [15445.31]
Teq = 3062 [569] K
Rp = 0.68 [0.46] Re
a = 0.0436 [0.0198] AU
Ag = 6.87 [8.40] [0.70σ]
Teffp = 7665 [1912] K [2.31σ]

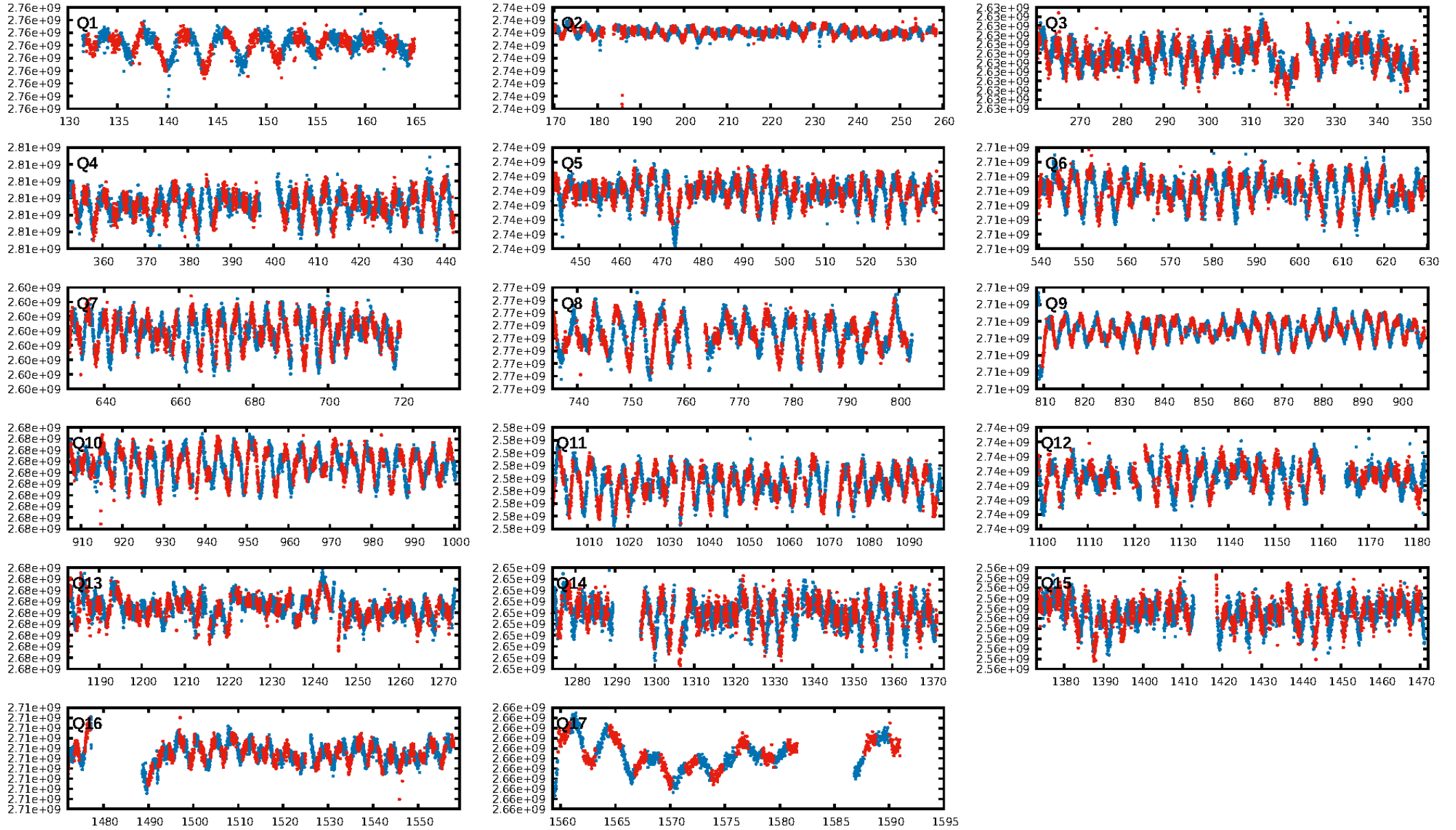
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [167.99σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.68e-11
RollingBand-fgt: 1.00 [560/560]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.468 arcsec [0.21σ]
KicOffset-rm: 0.950 arcsec [0.66σ]
OotOffset-st: 0/2/1/0 [3]
KicOffset-st: 0/2/1/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [17/17]

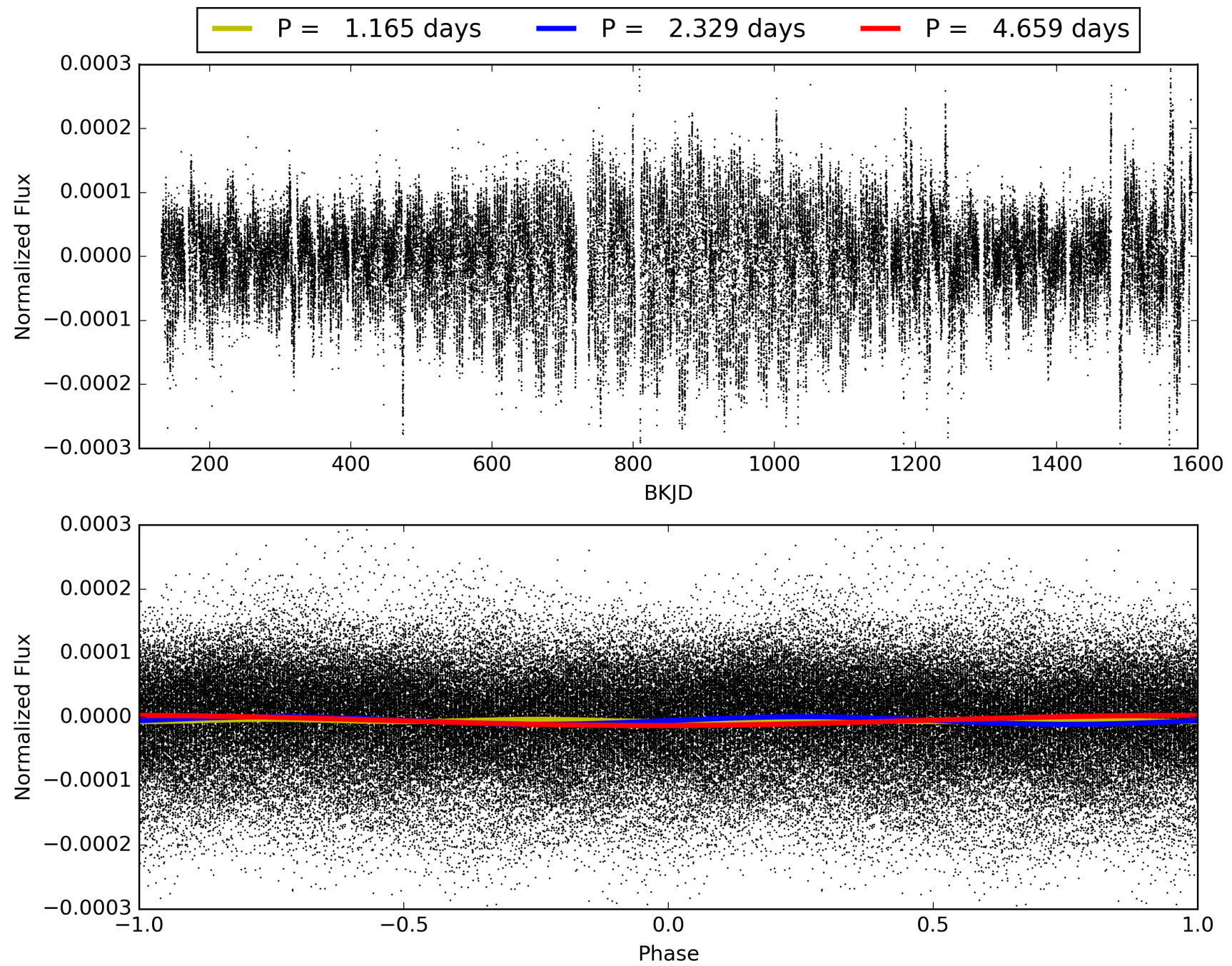
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:15:21 Z

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

TCE 009182355-01, PDC Light Curves

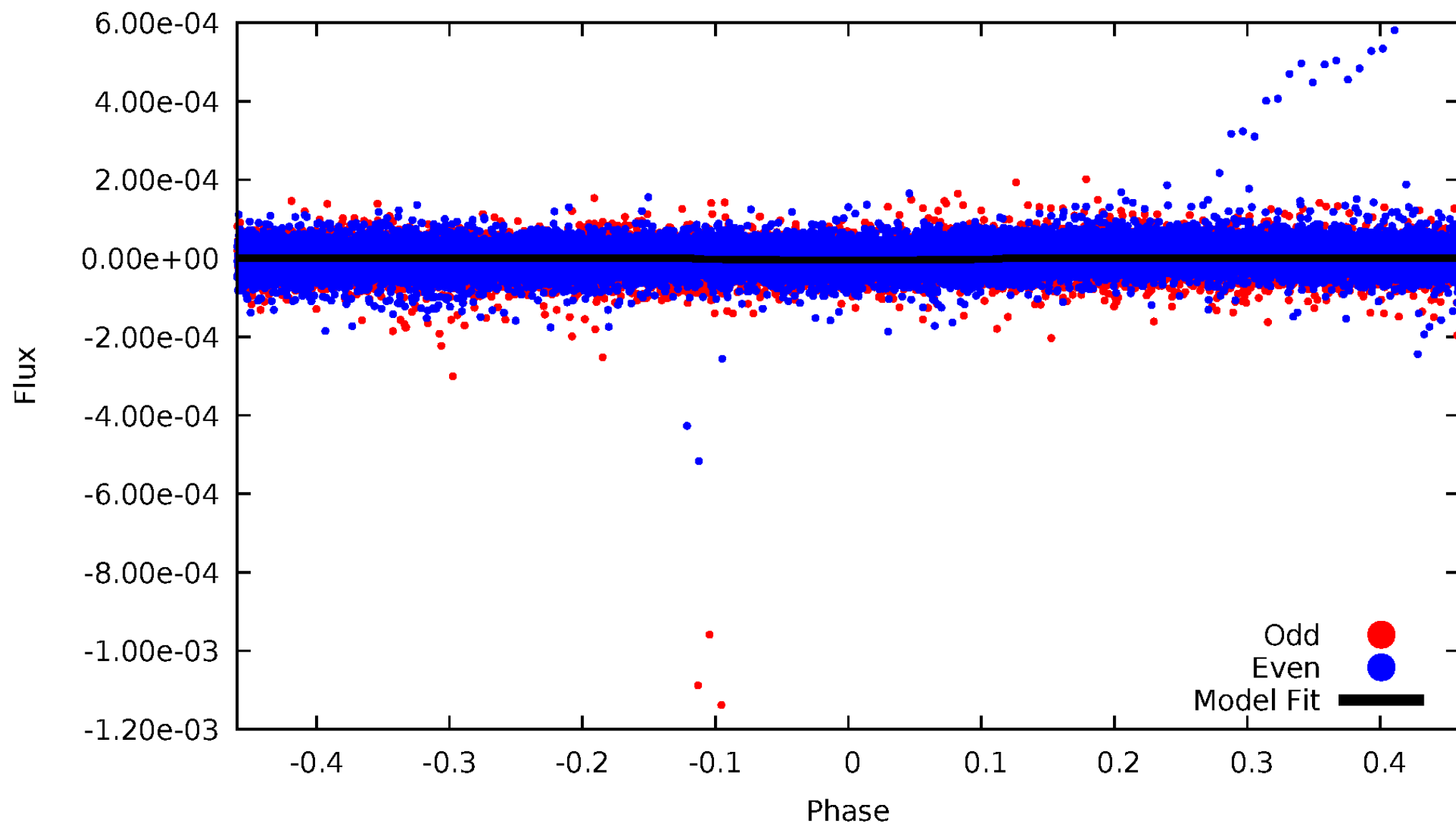


TCE 009182355-01



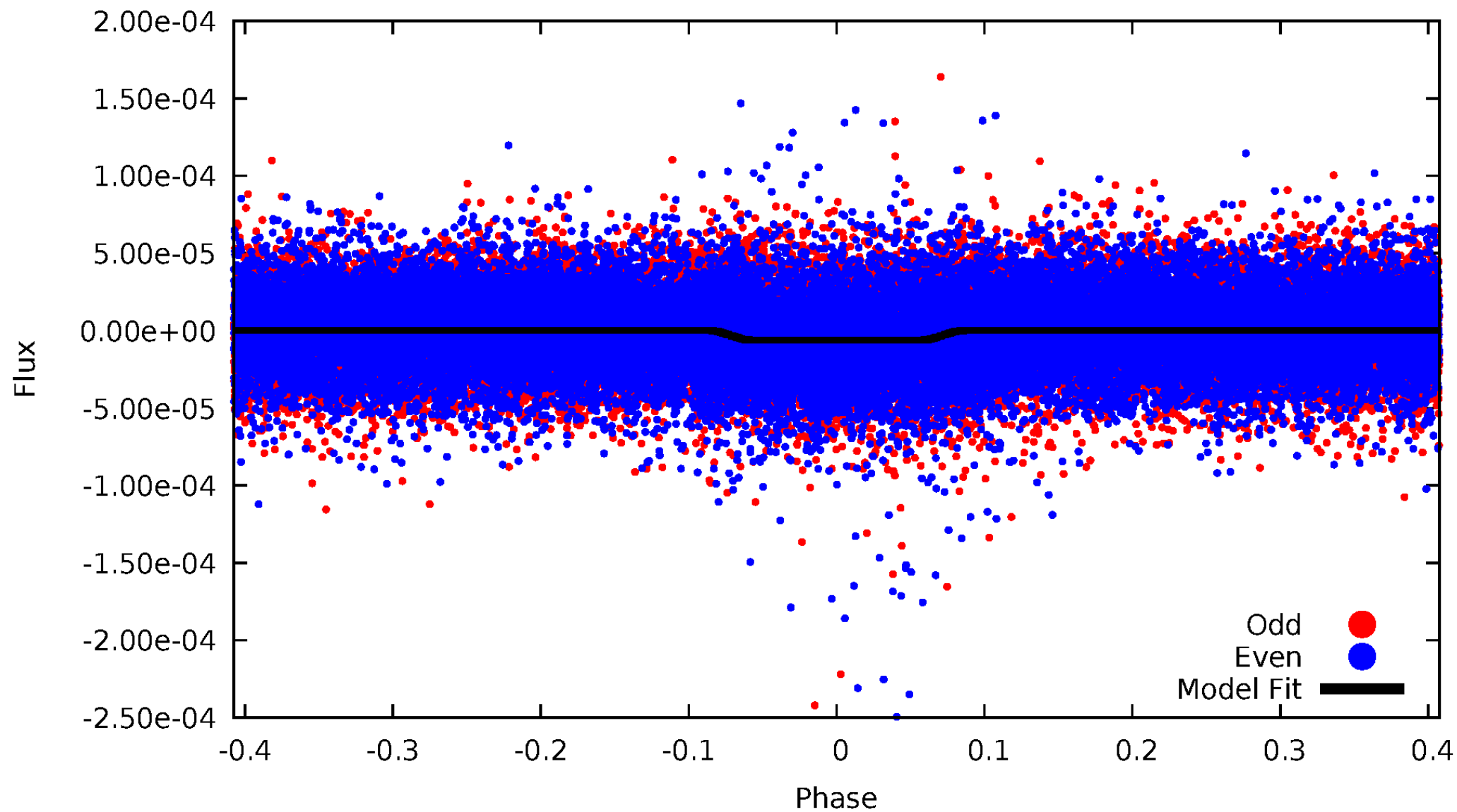
DV Odd/Even

TCE 009182355-01



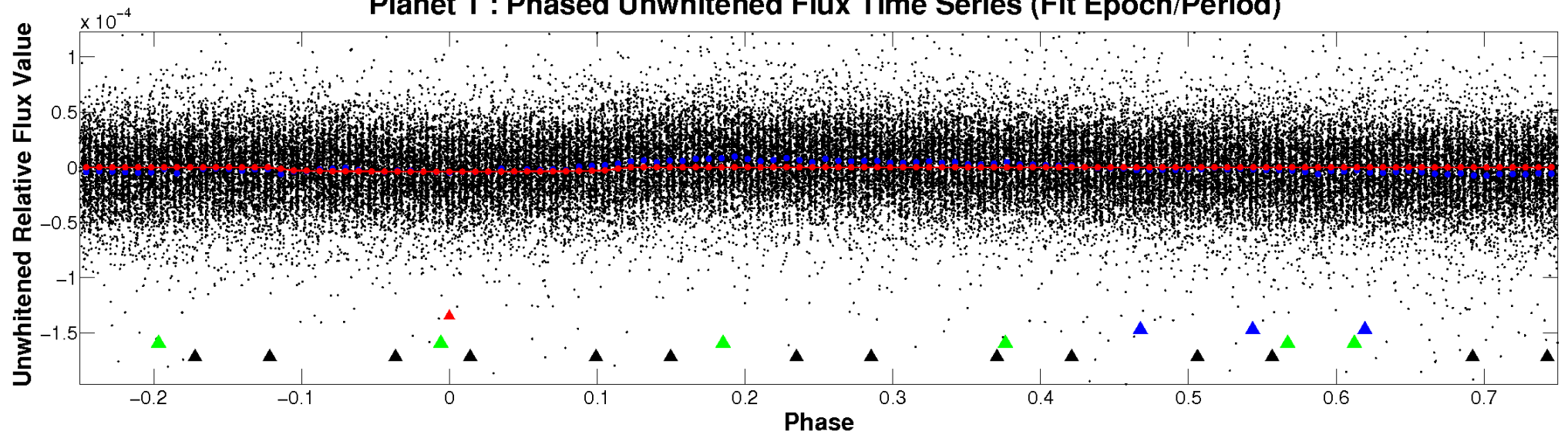
ALT Odd/Even

TCE 009182355-01

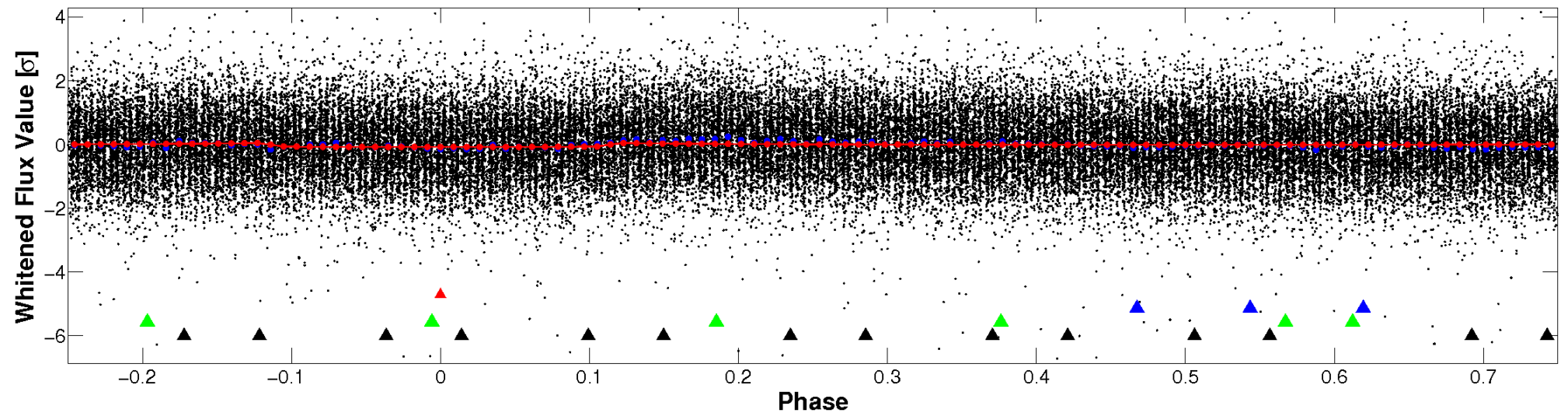


Non-Whitened Vs. Whitened Light Curve

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

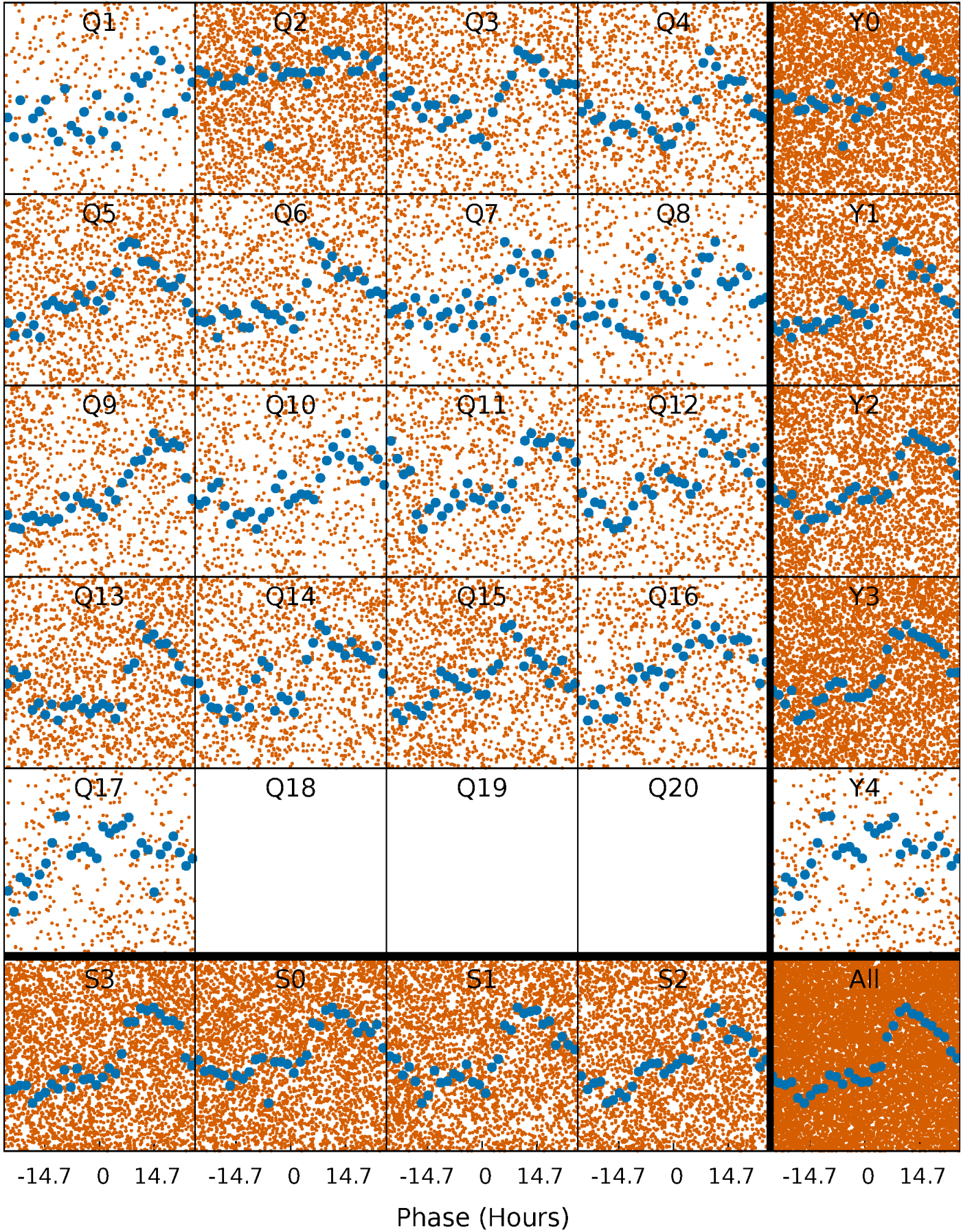


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



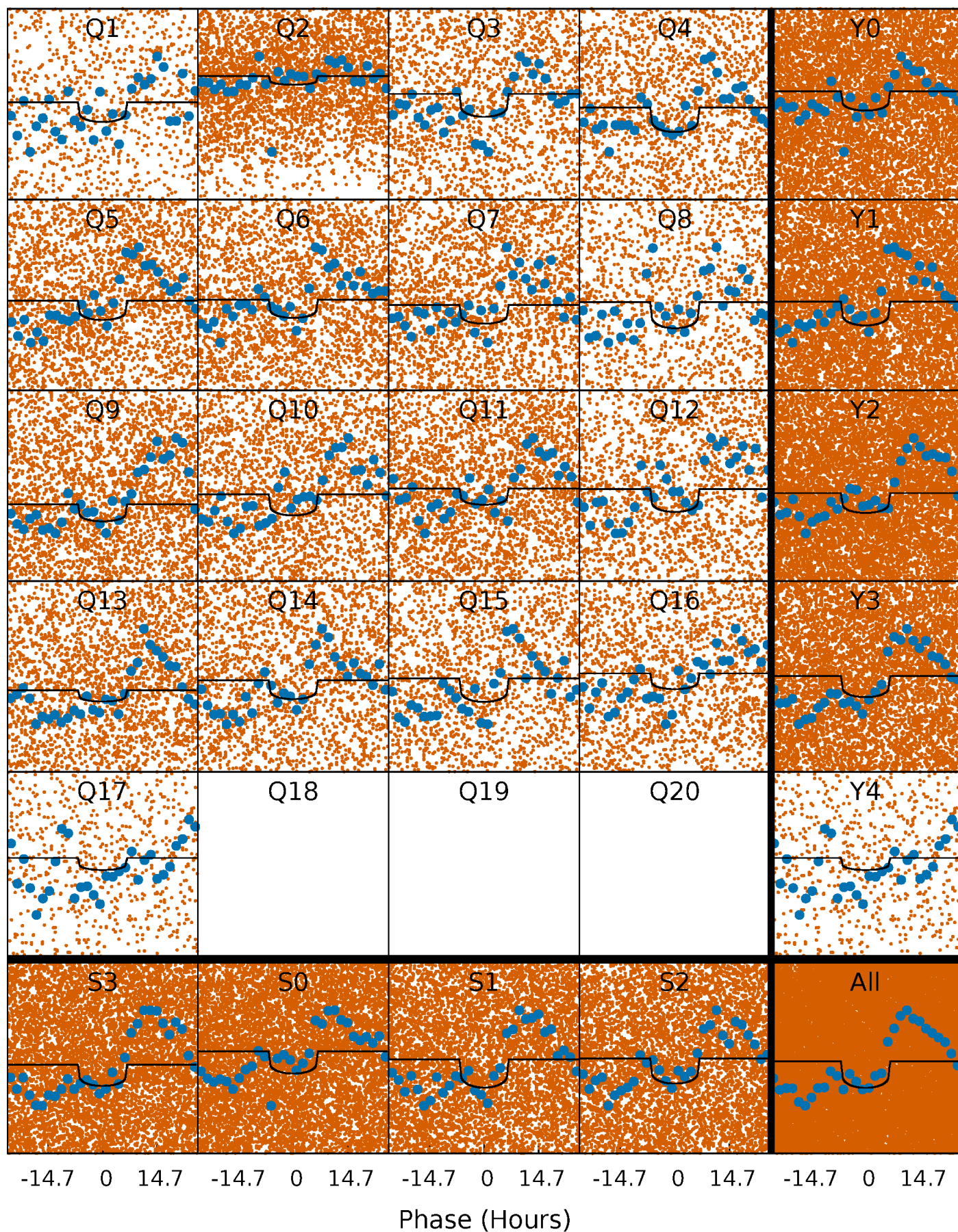
PDC Quarter-Phased Transit Curves

TCE 009182355-01 P= 2.329359 Days $T_0=132.391777$ (BKJD)



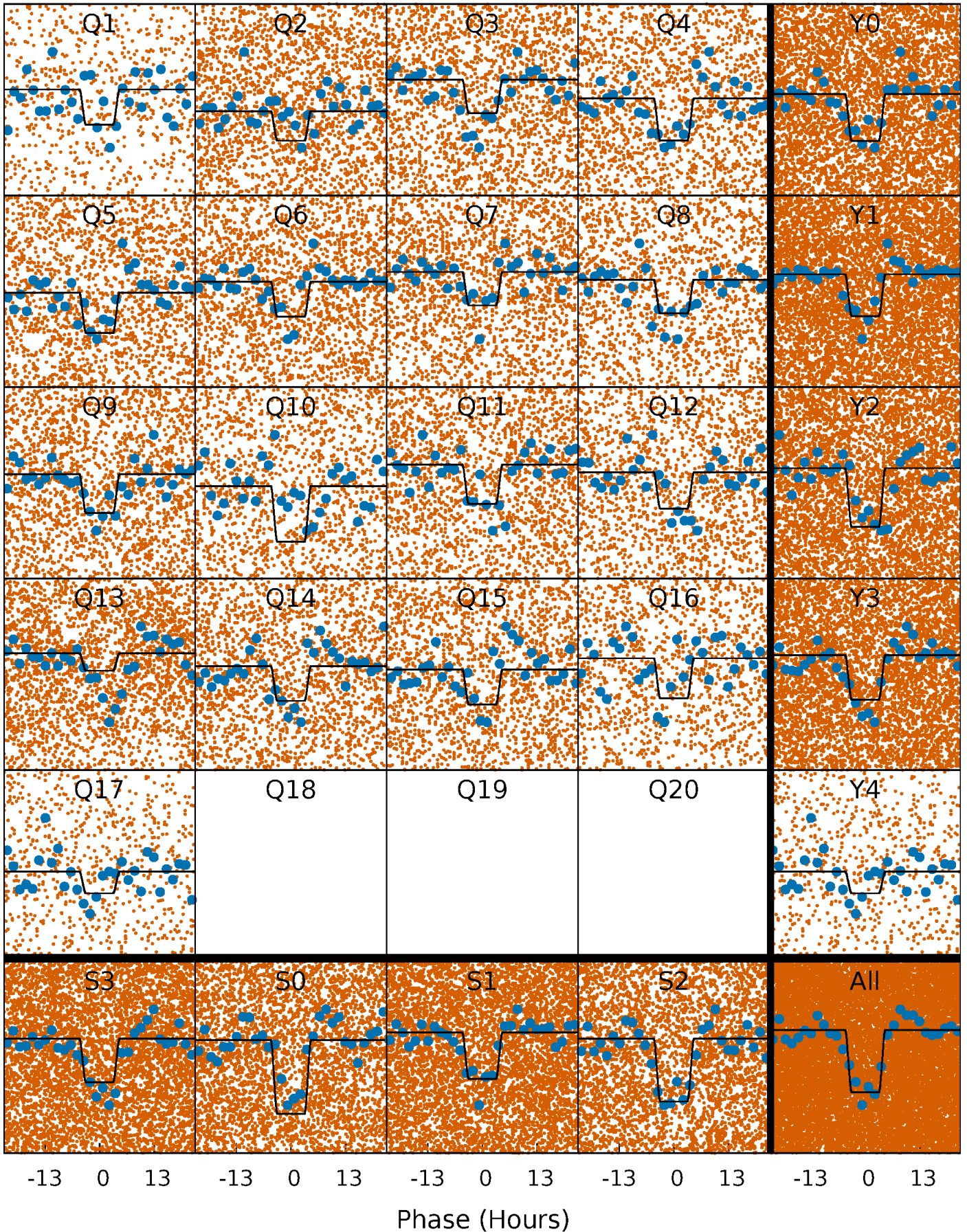
DV Quarter-Phased Transit Curves

TCE 009182355-01 P= 2.329359 Days $T_0=132.391777$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

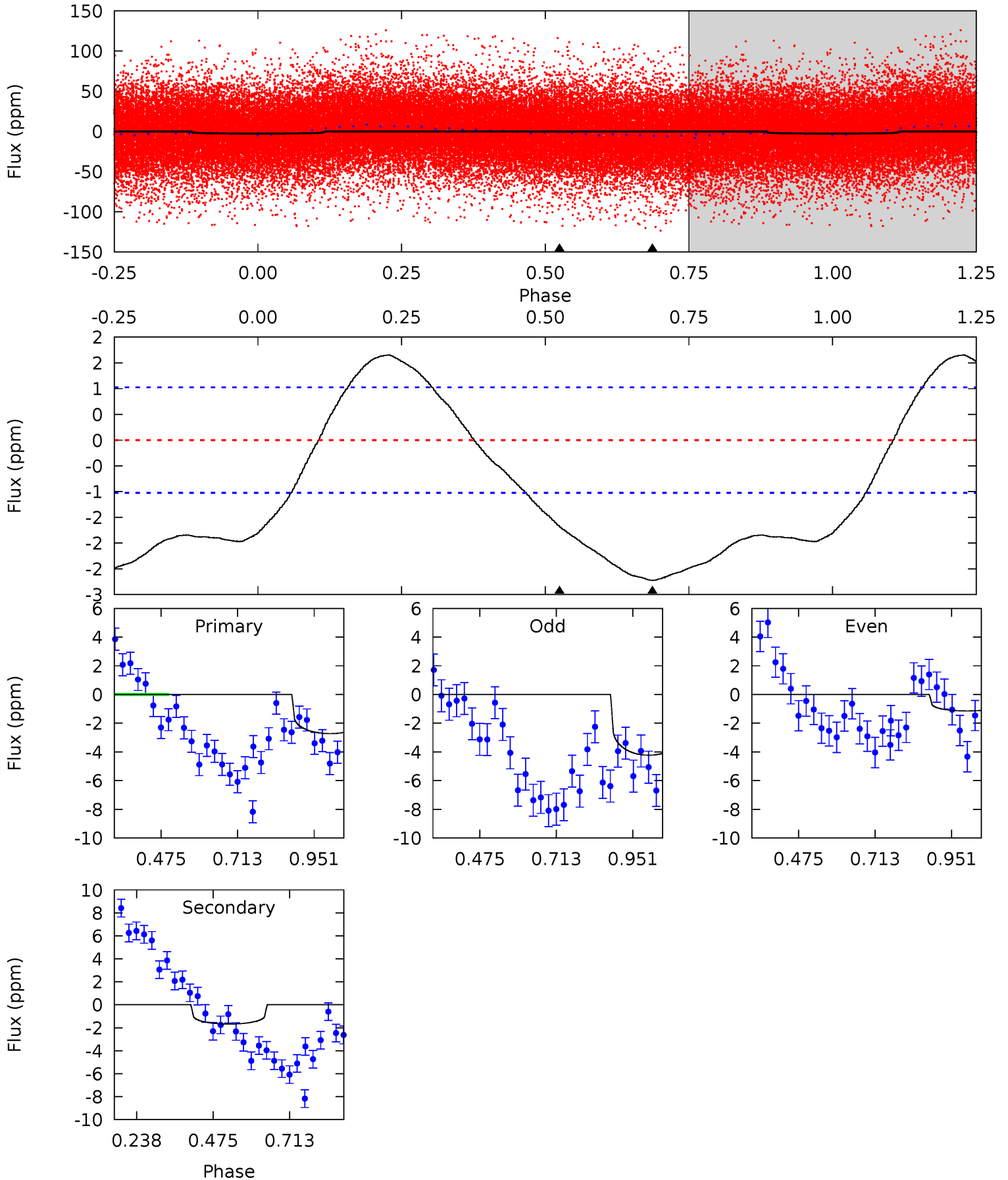
TCE 009182355-01 P= 2.329273 Days $T_0=132.473066$ (BKJD)



DV Model-Shift Uniqueness Test

009182355-01, P = 2.329359 Days, E = 130.062418 Days

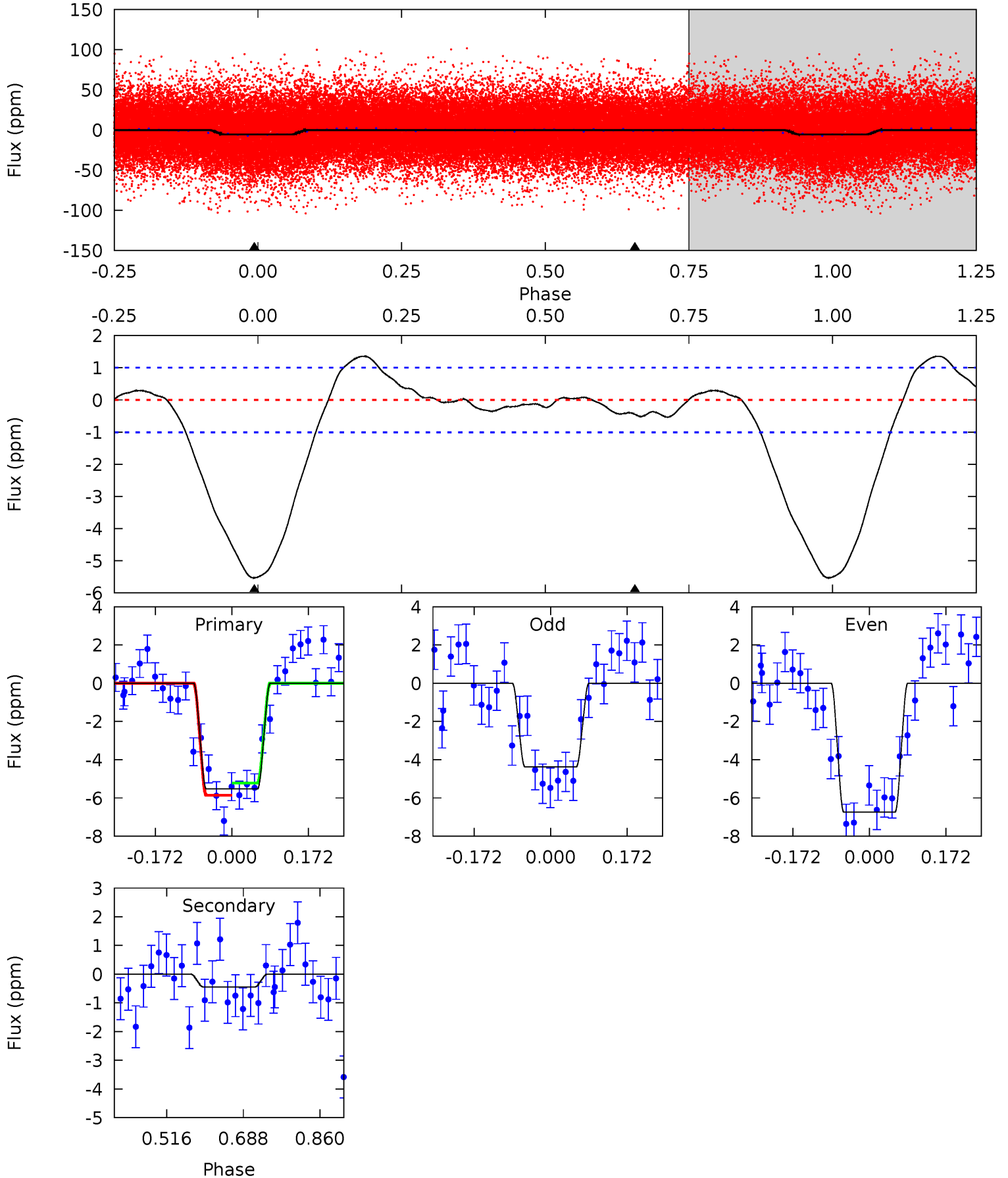
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	7.17	0	0	4.38	1.18	6.00	11.6	11.6	7.17	7.17	6.61	2.57	0.38	1.98



Alt Model-Shift Uniqueness Test

009182355-01, P = 2.329273 Days, E = 130.143793 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.5	1.98	0	0	4.45	1.37	2.33	24.5	24.5	1.98	1.98	5.22	1.29	0.20	1.42



Stellar Parameters For KIC 009182355

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7932^{+219}_{-329}	$3.700^{+0.424}_{-0.079}$	$-0.120^{+0.200}_{-0.350}$	$3.339^{+0.681}_{-1.590}$	$2.038^{+0.341}_{-0.511}$	$0.077^{+0.329}_{-0.027}$
	+3%/-4%	+11%/-2%	+167%/-292%	+20%/-48%	+17%/-25%	+426%/-35%
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 009182355-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2 ± 0	$0.61^{+0.35}_{-0.30}$	4095^{+311}_{-495}	6139^{+3061}_{-1081}	$4.670^{+13.318}_{-2.763}$
Alt.	-0 ± 0	$0.80^{+0.38}_{-0.34}$	4069^{+334}_{-474}	3781^{+1138}_{-6650}	$0.682^{+1.393}_{-0.437}$

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

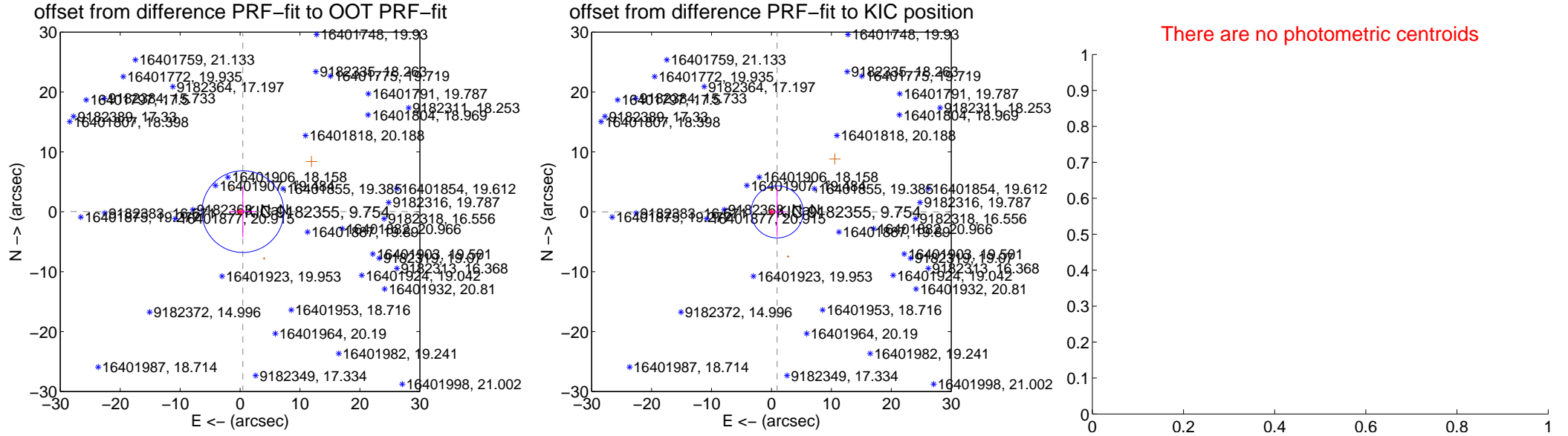
DV Centroid Data

Supplemental centroid analysis for 009182355-01. **Kepler magnitude: 9.75.** Transit SNR 9.63

There are 0 quarters with good PRF difference image offsets

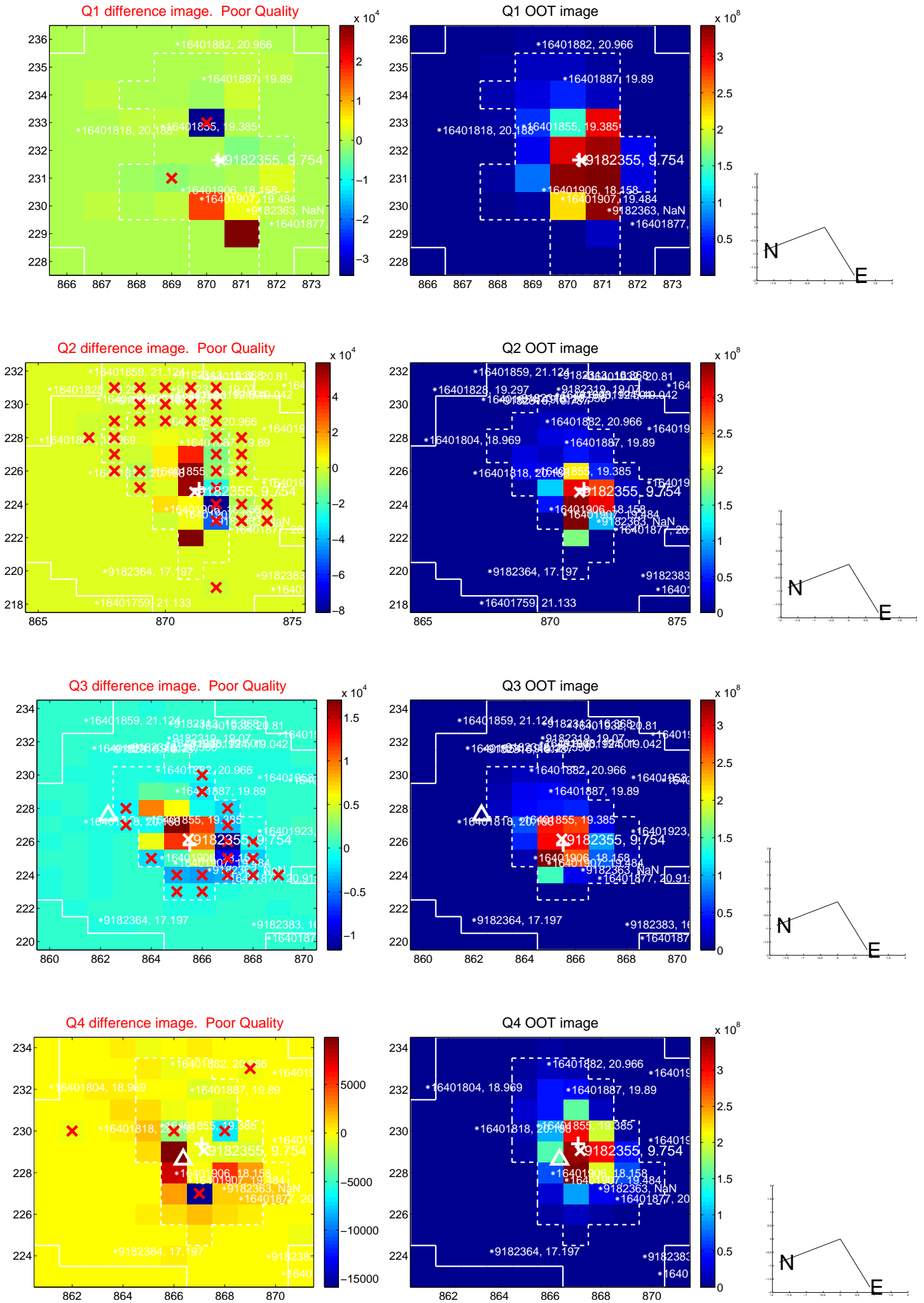
The direct PRF centroid is offset from the target star catalog position by about 1.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.468 ± 2.274	0.21	-0.467 ± 2.256	0.036 ± 4.300
PRF-fit source offset from KIC position	0.950 ± 1.448	0.66	-0.950 ± 1.447	-0.014 ± 4.103
photometric centroid source offset	—	—	—	—

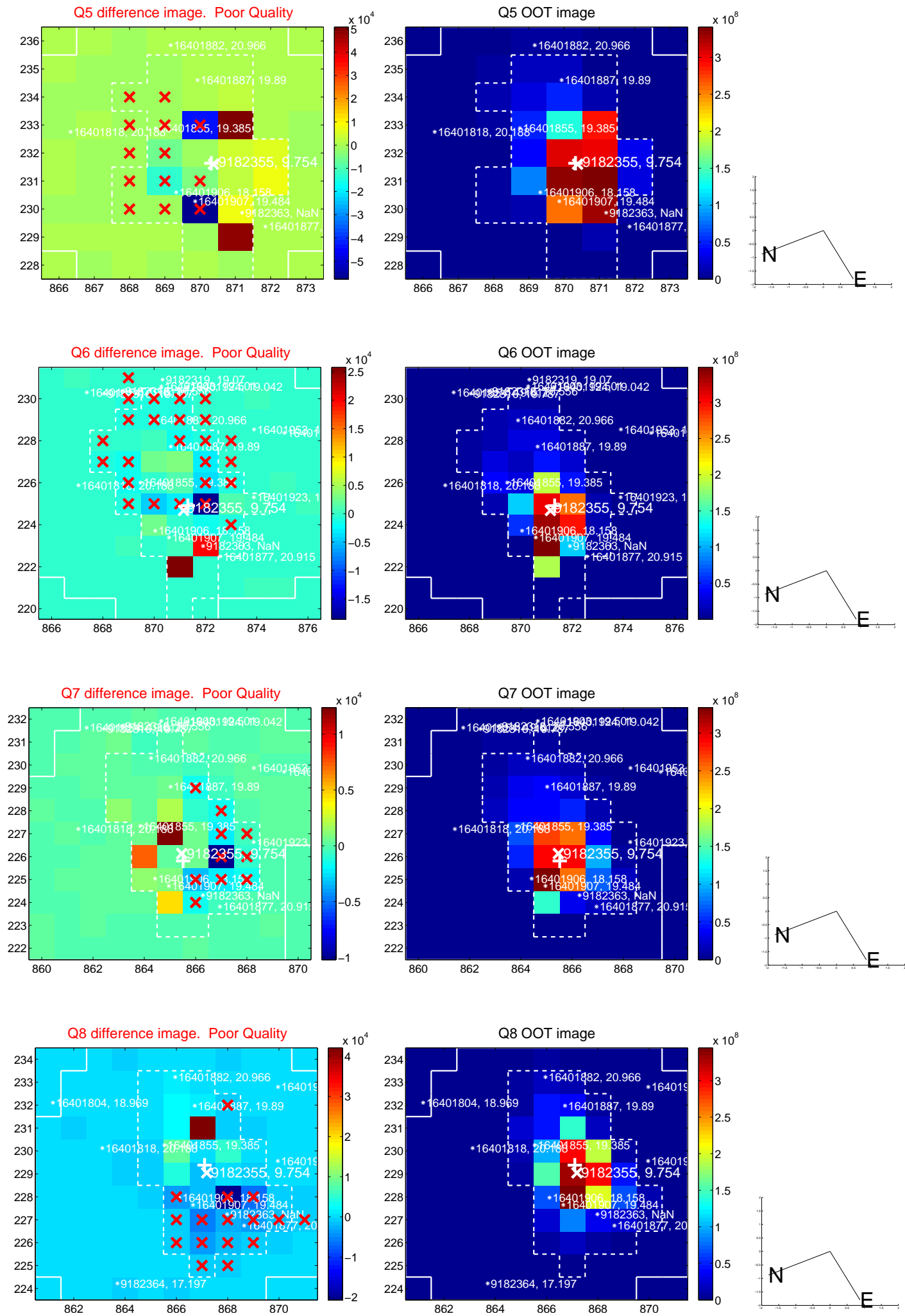


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

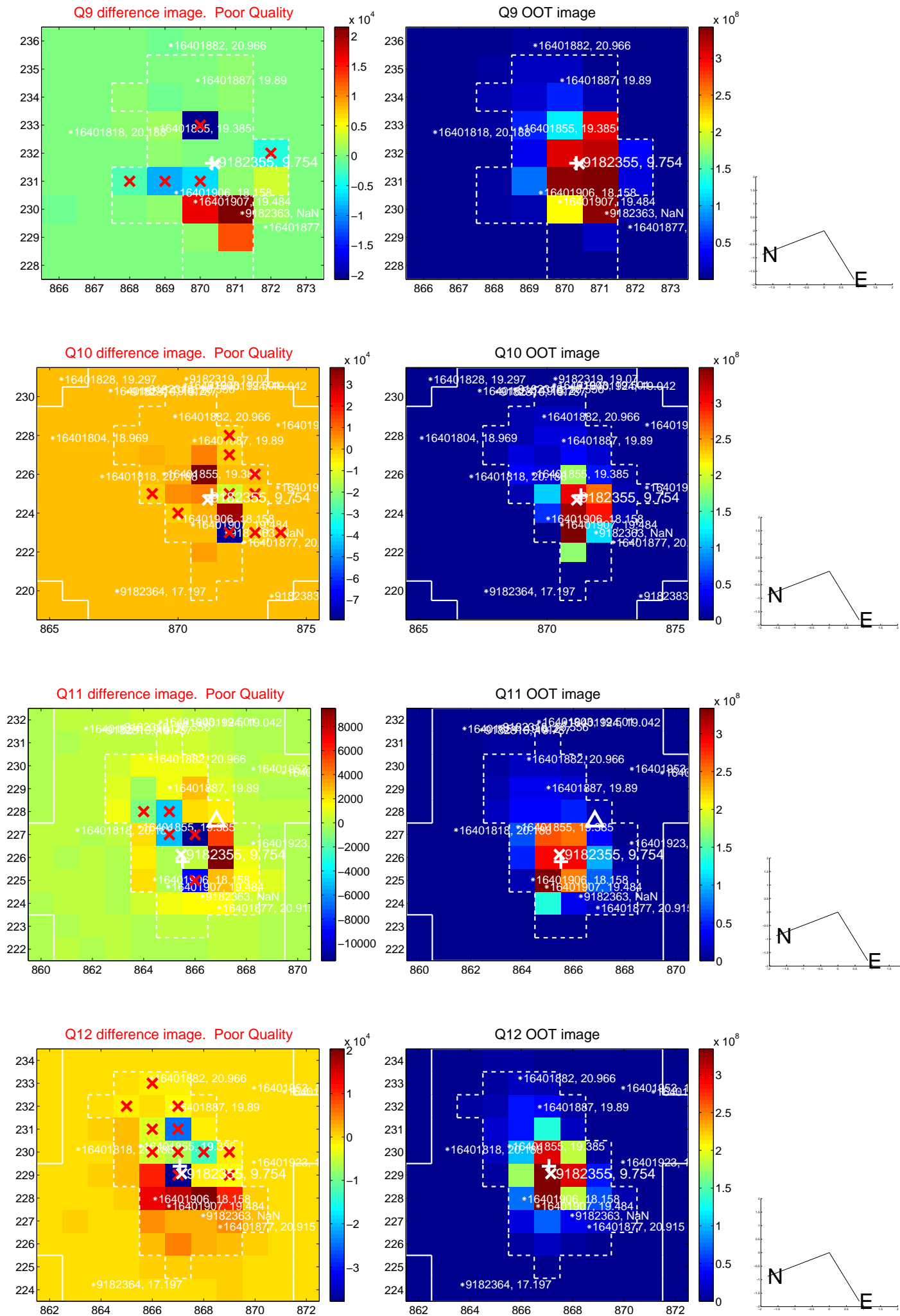
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



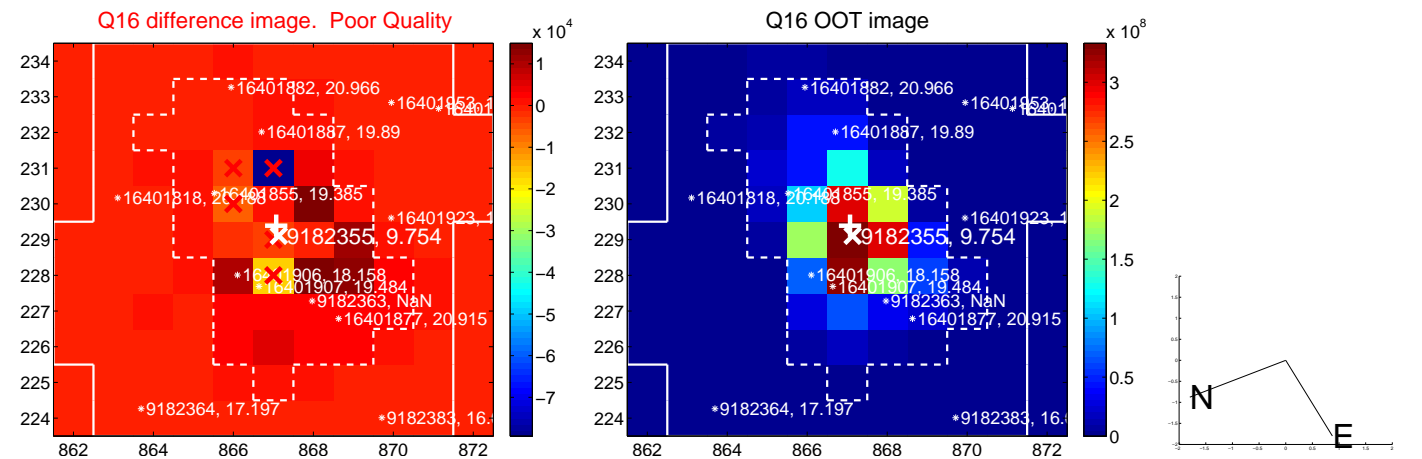
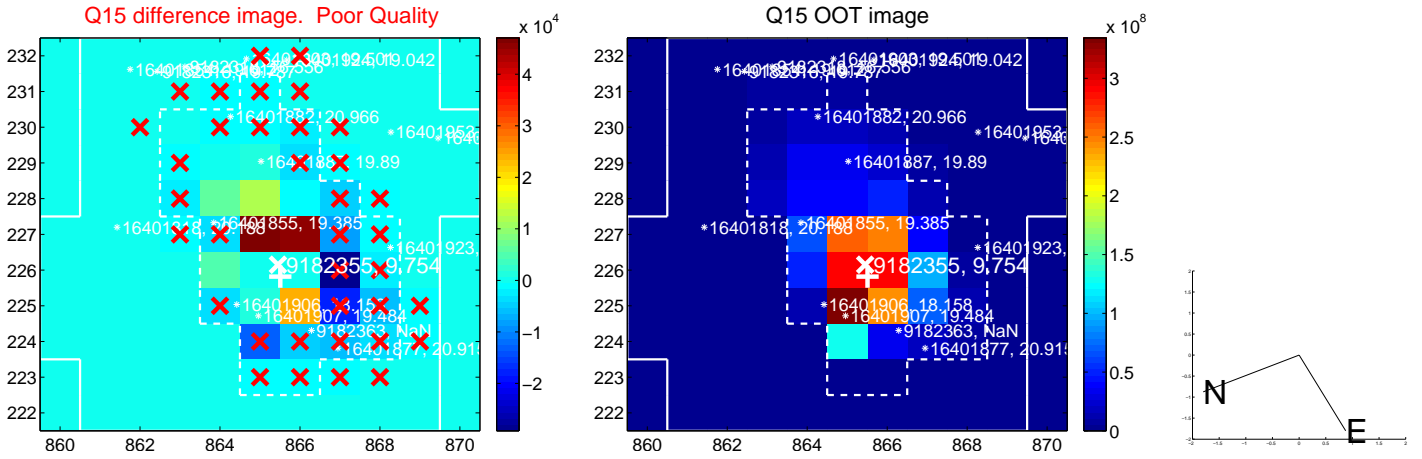
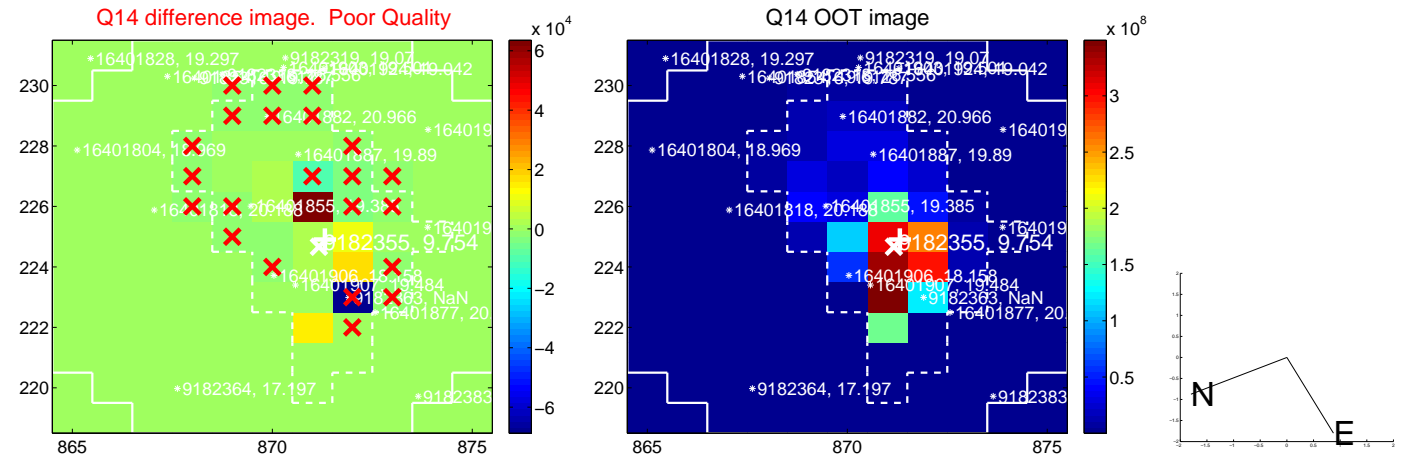
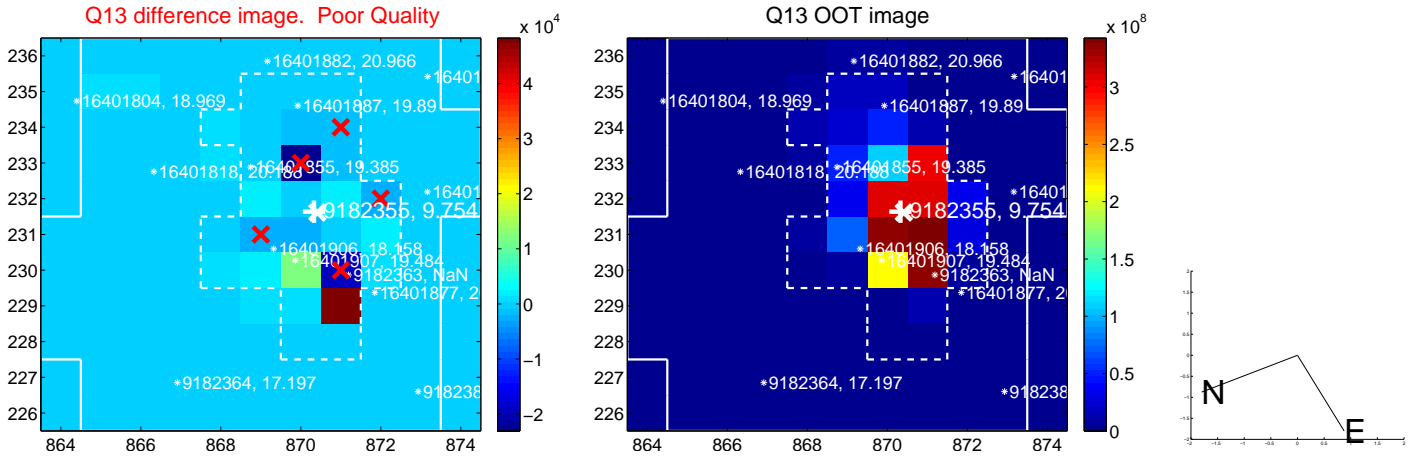
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



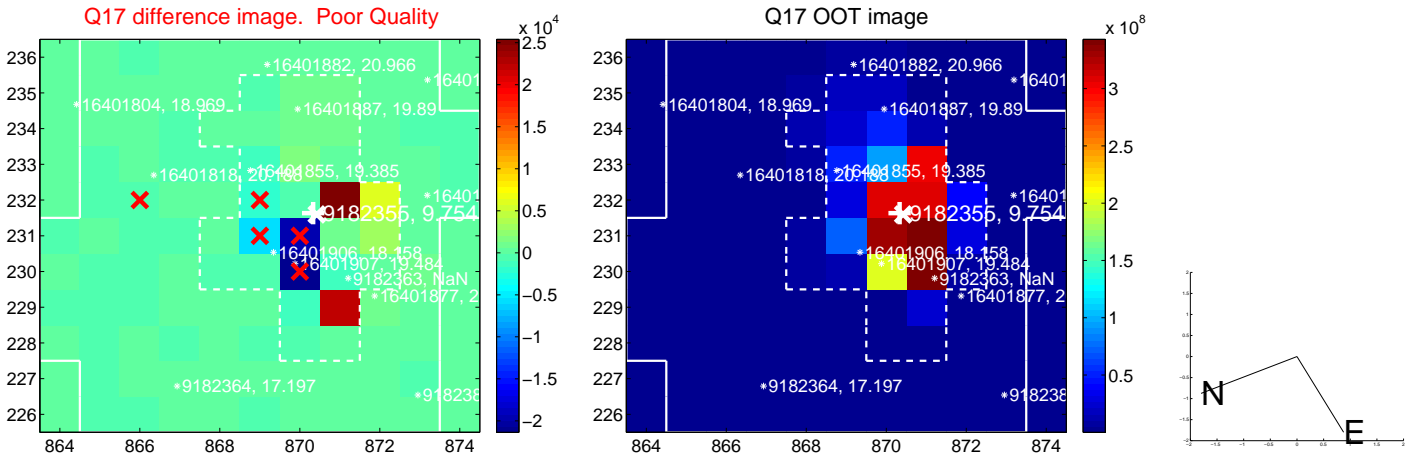
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

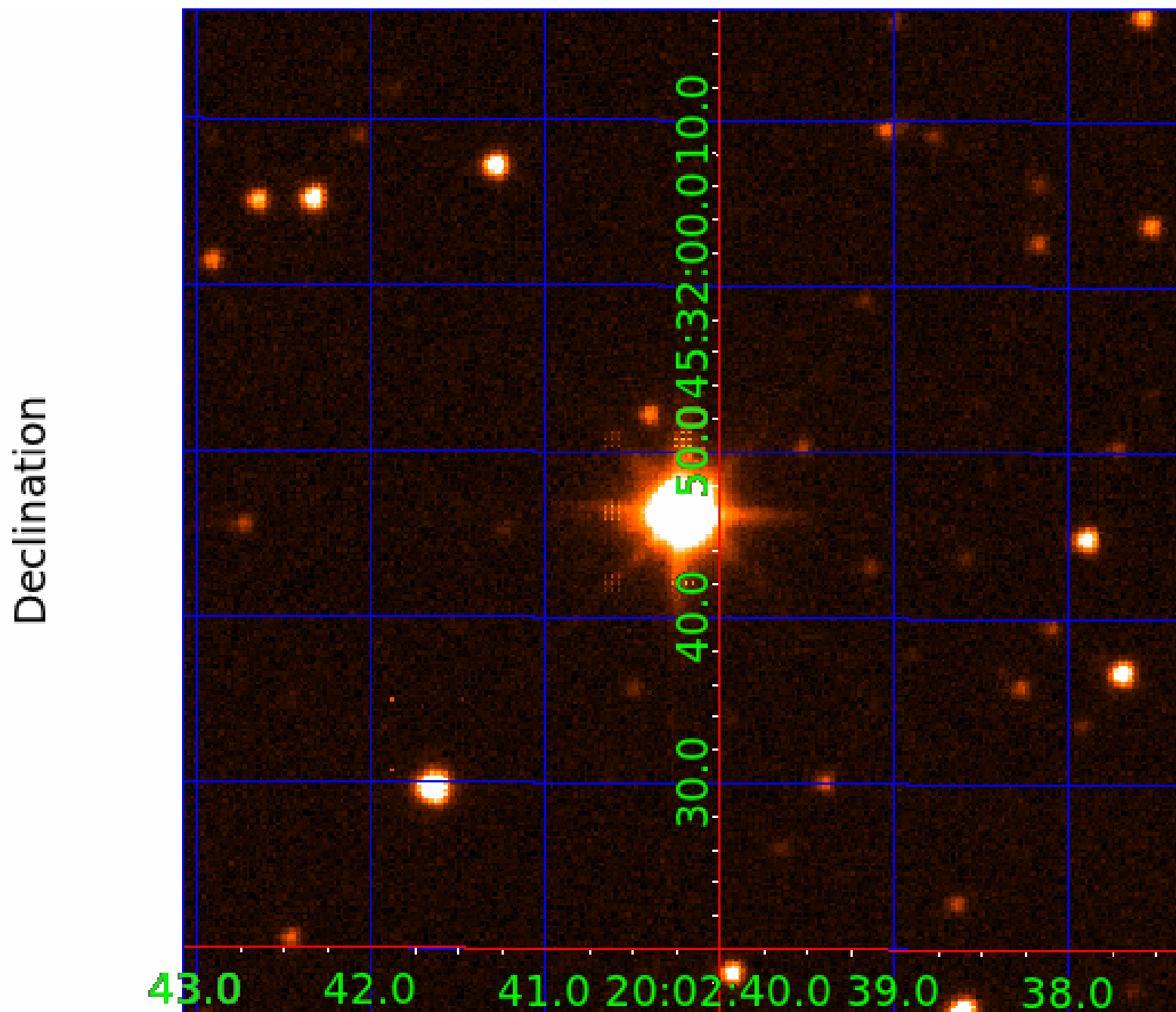


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



KIC 009182355

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})
009182355-01	OBS	No	2.329359	132.391777	4.1	12.845	9.4	9.6	3.34	7932	0.68	20789.99
009182355-02	OBS	No	472.683008	294.560409	96.6	23.073	10.3	8.9	3.34	7932	4.29	17.43
009182355-03	OBS	No	219.404624	329.484182	71.2	13.828	11.1	8.6	3.34	7932	3.24	48.51
009182355-04	OBS	No	105.137118	178.379901	44.7	7.122	7.9	8.9	3.34	7932	2.50	129.37

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009182355-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009182355-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009182355-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009182355-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

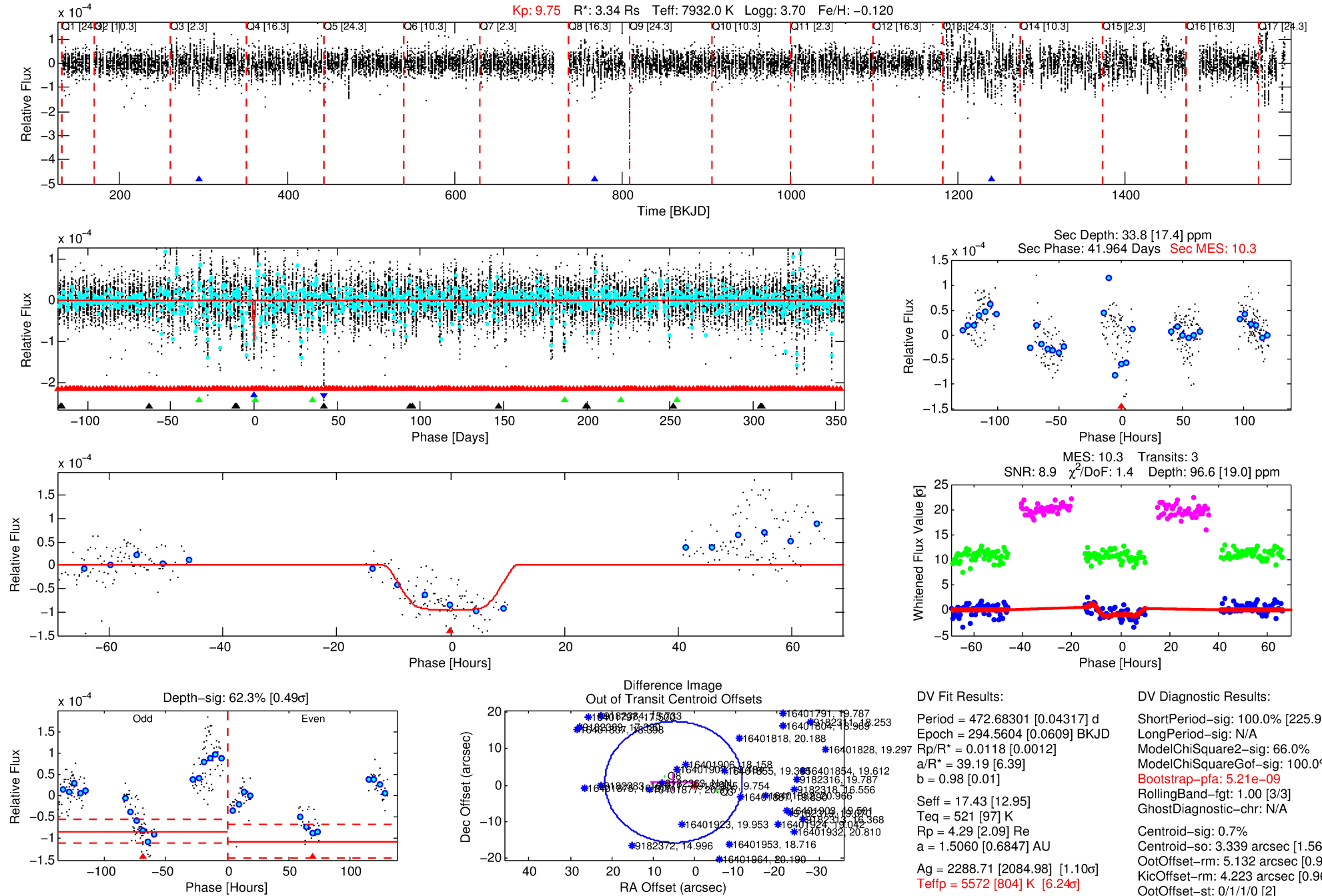
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009182355-02

No Significant Match Found

DV One-Page Summary

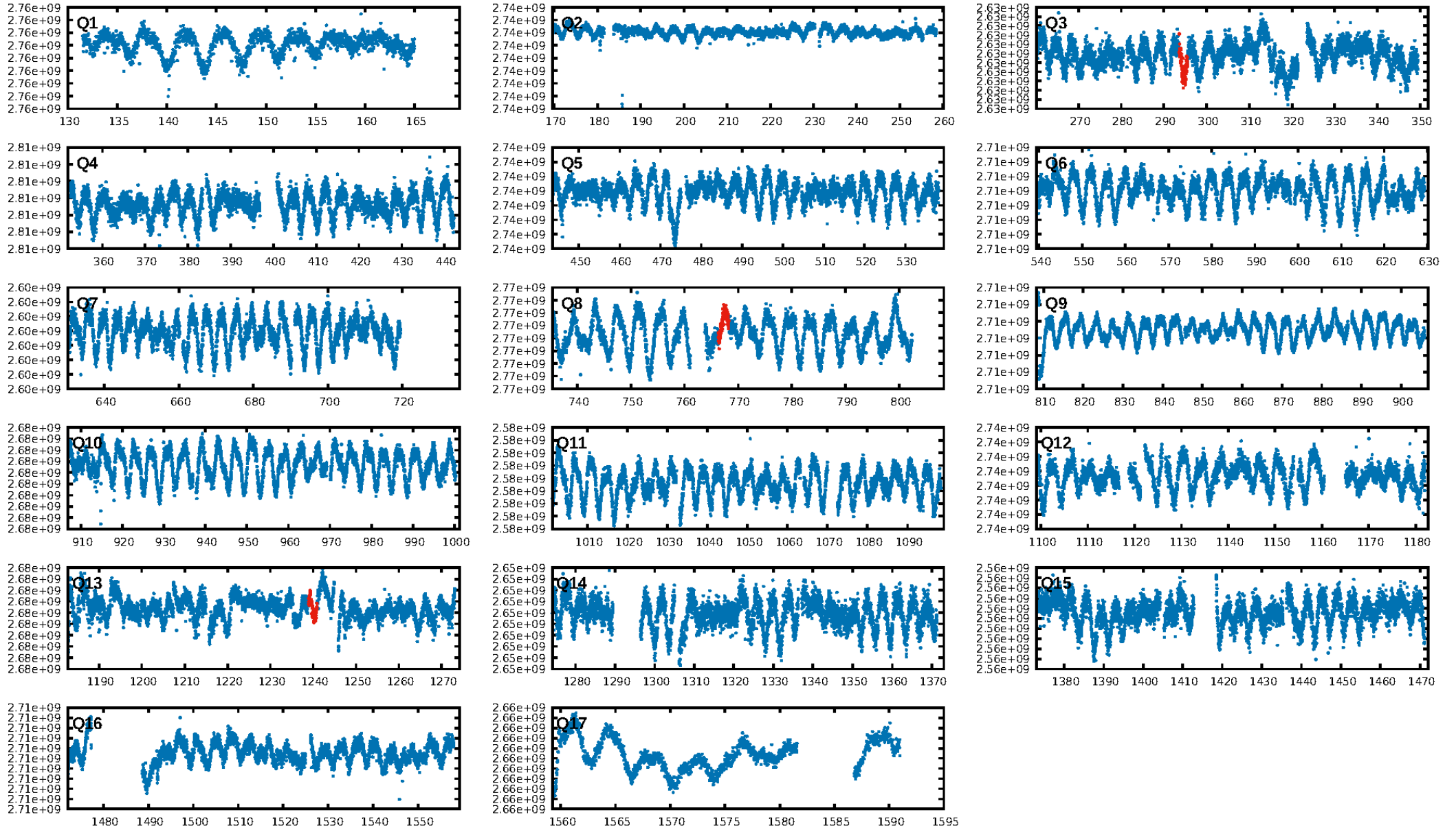
KIC: 9182355 Candidate: 2 of 4 Period: 472.683 d



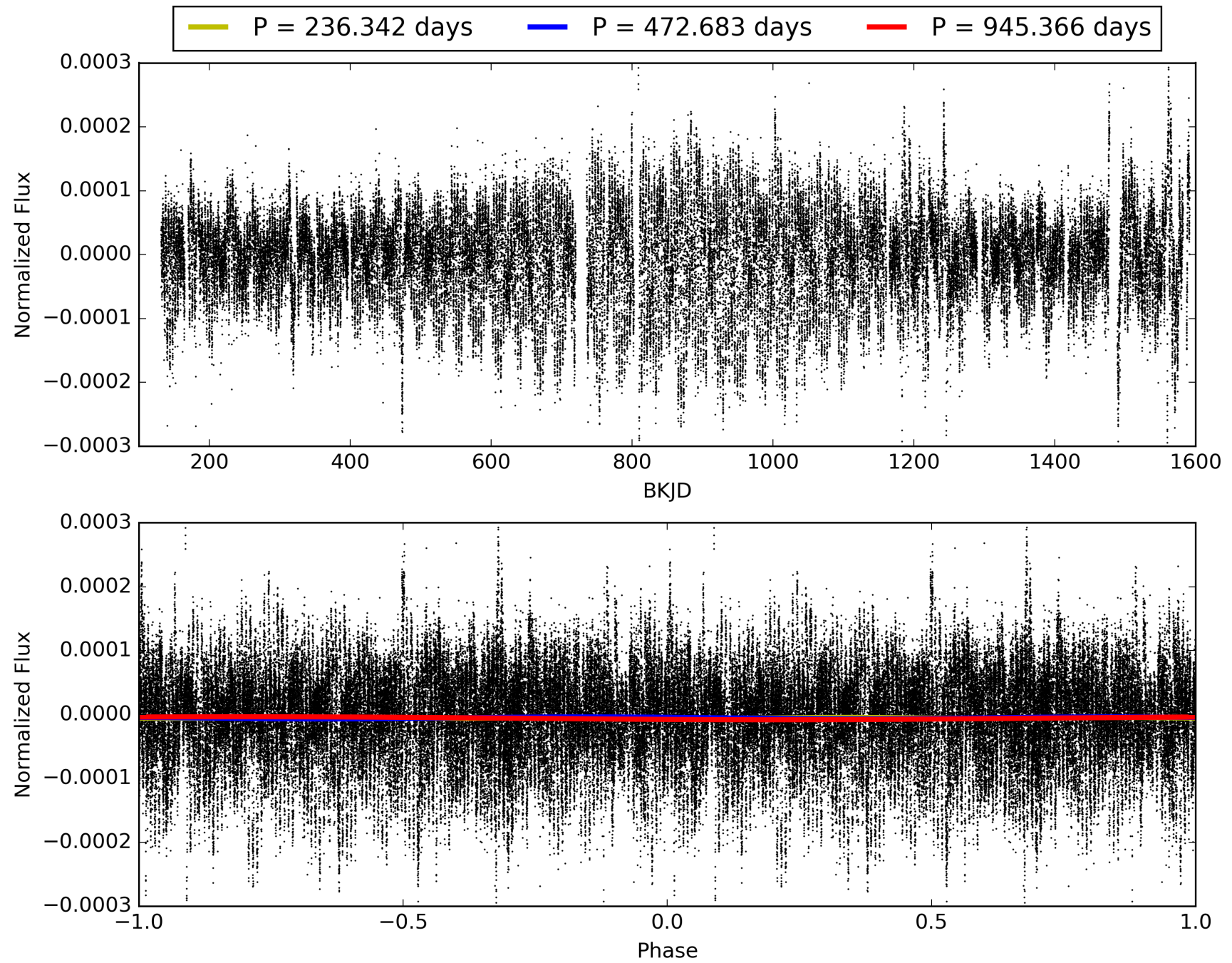
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:15:32 Z

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

TCE 009182355-02, PDC Light Curves

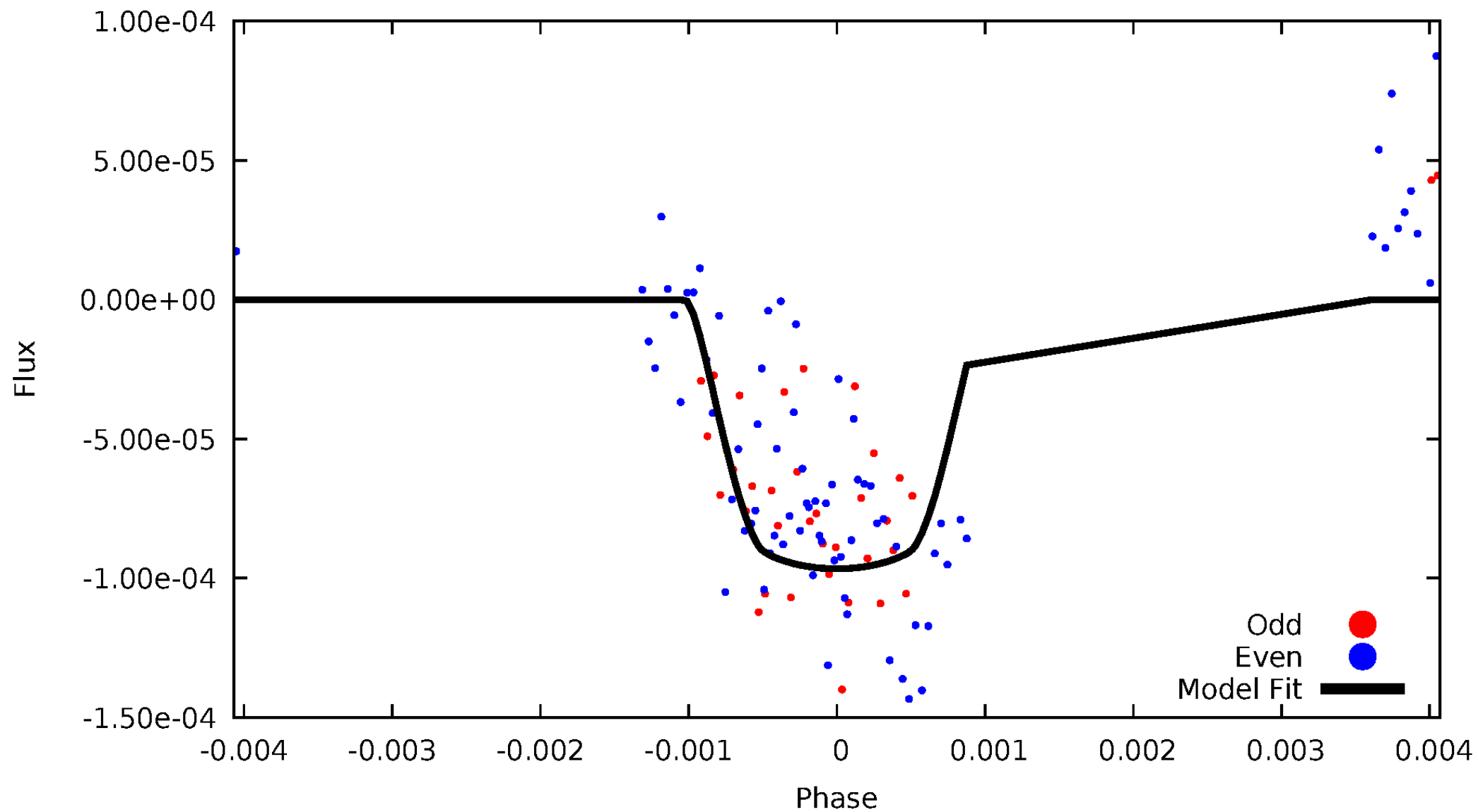


TCE 009182355-02



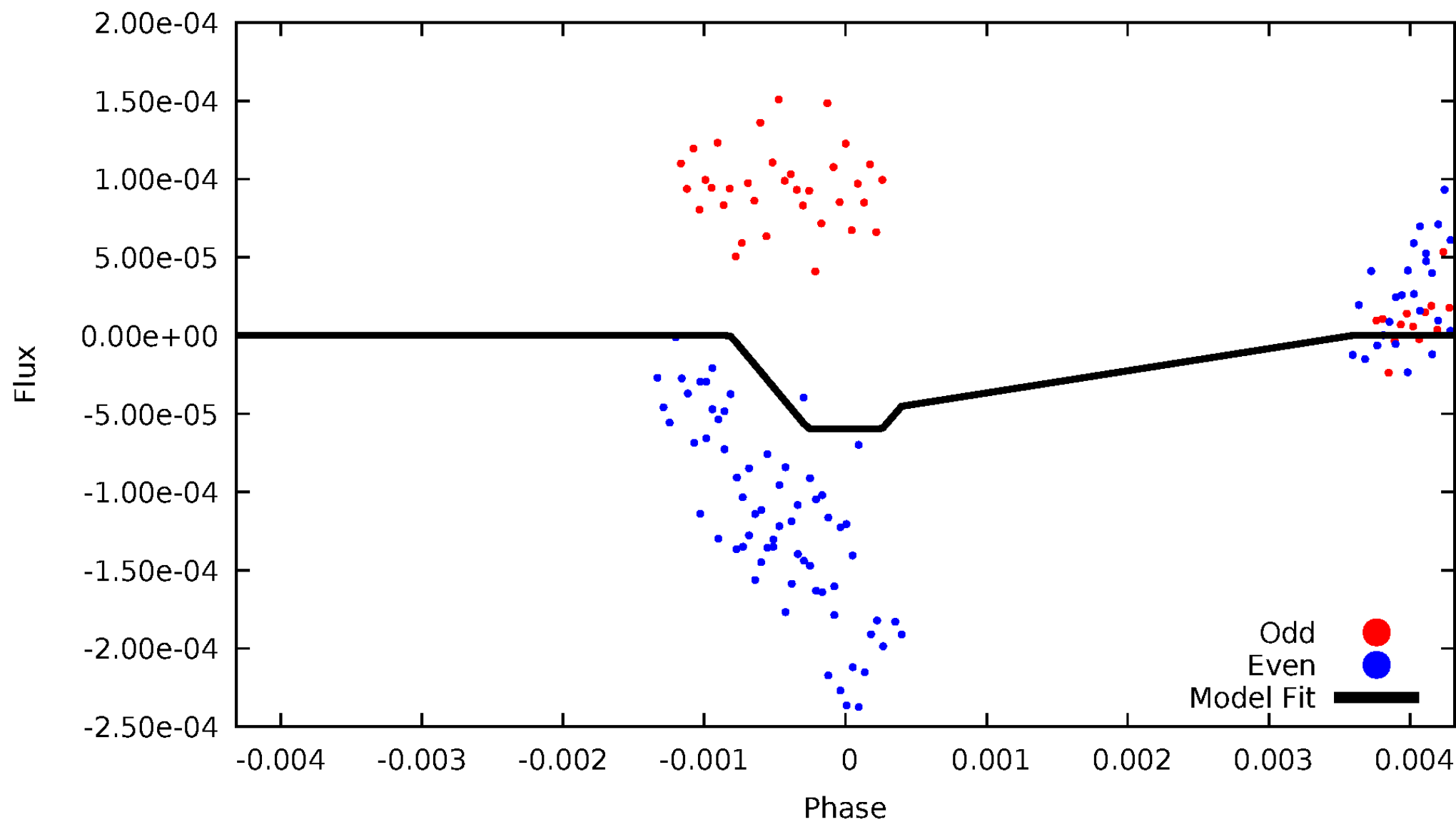
DV Odd/Even

TCE 009182355-02



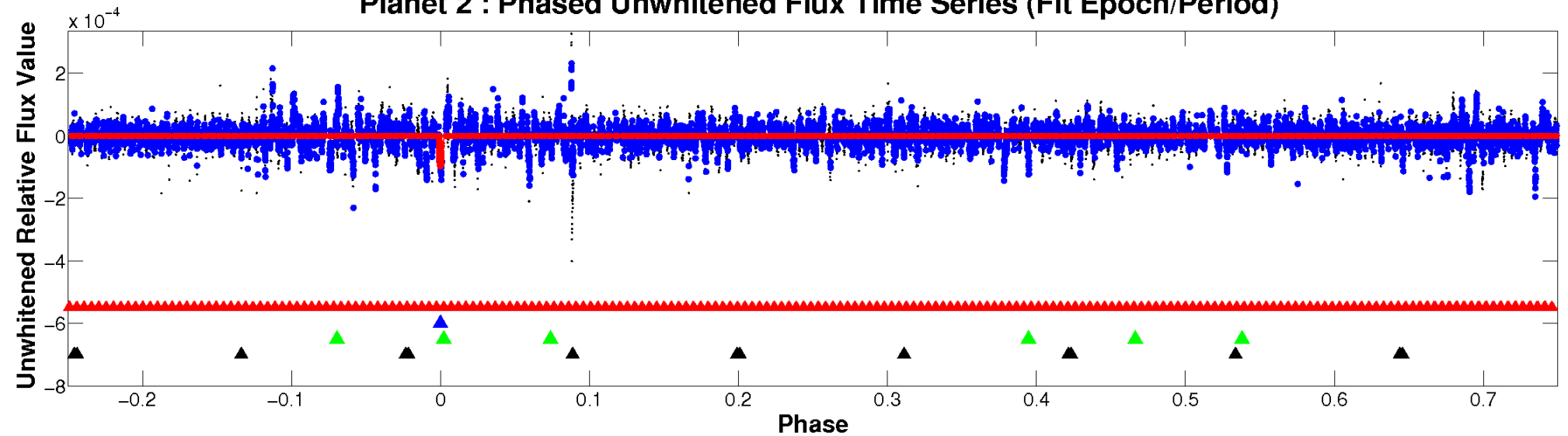
ALT Odd/Even

TCE 009182355-02

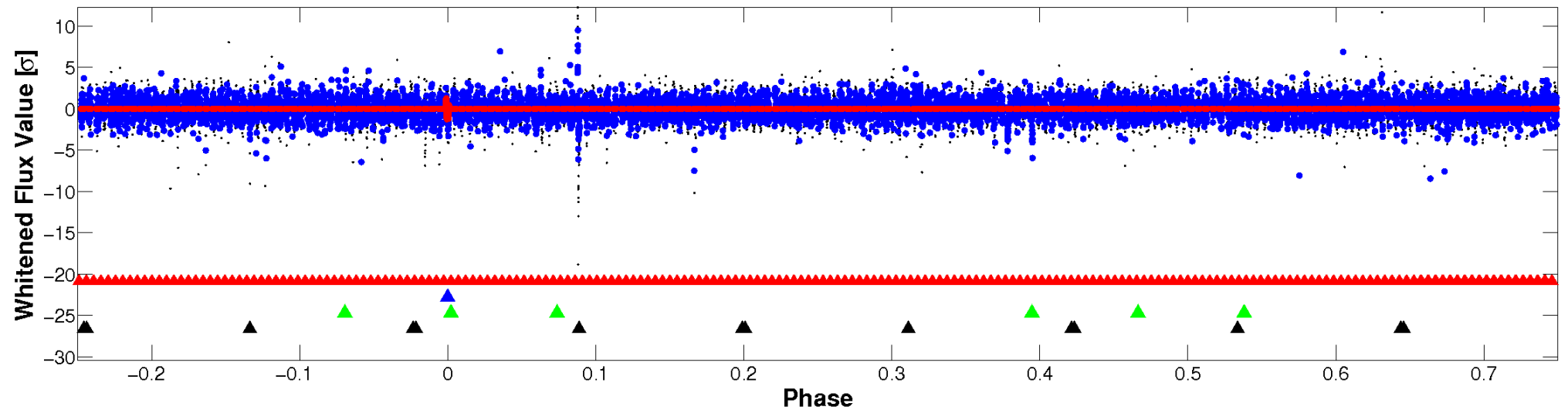


Non-Whitened Vs. Whitened Light Curve

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



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



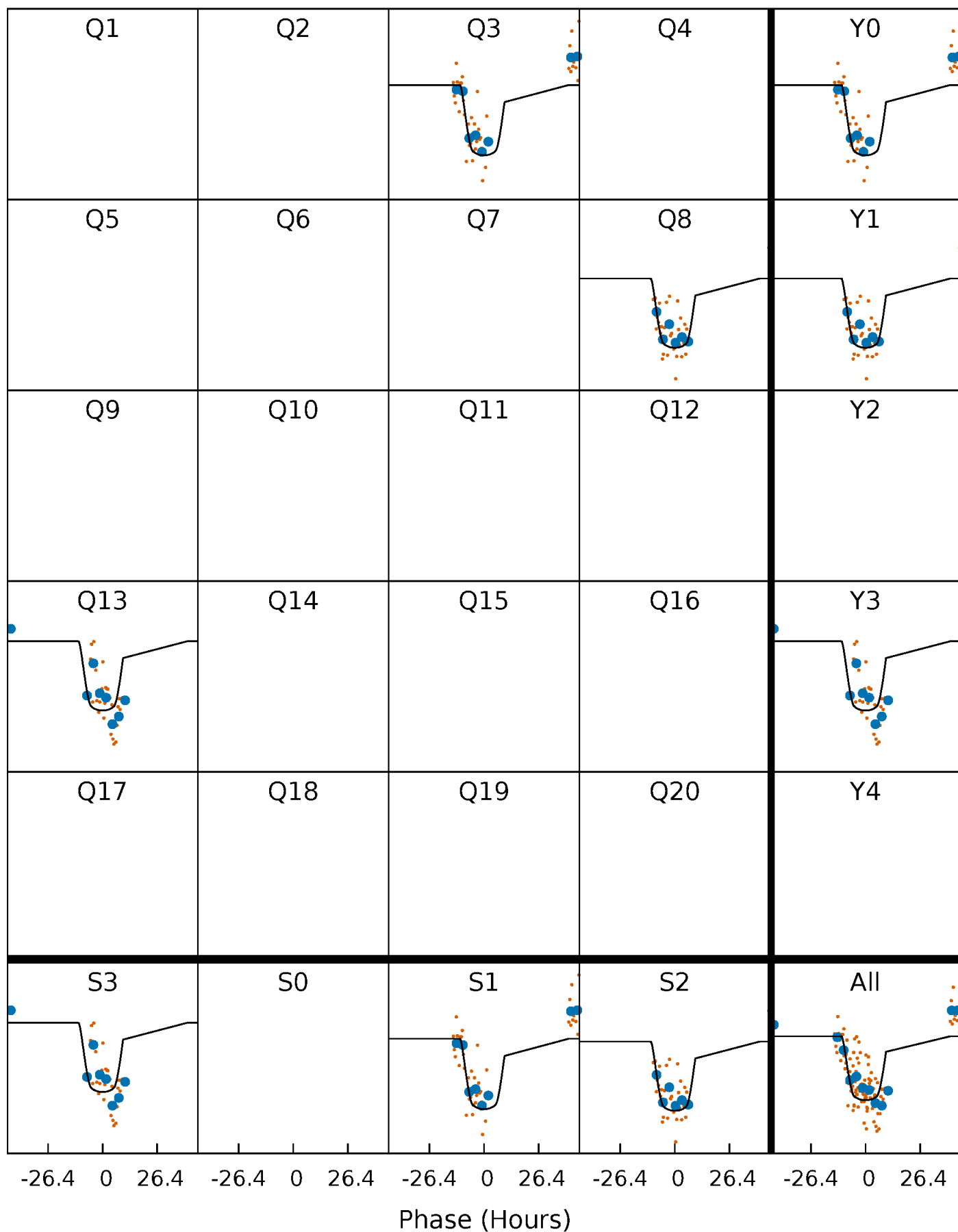
PDC Quarter-Phased Transit Curves

TCE 009182355-02 P=472.683008 Days $T_0=294.560409$ (BKJD)



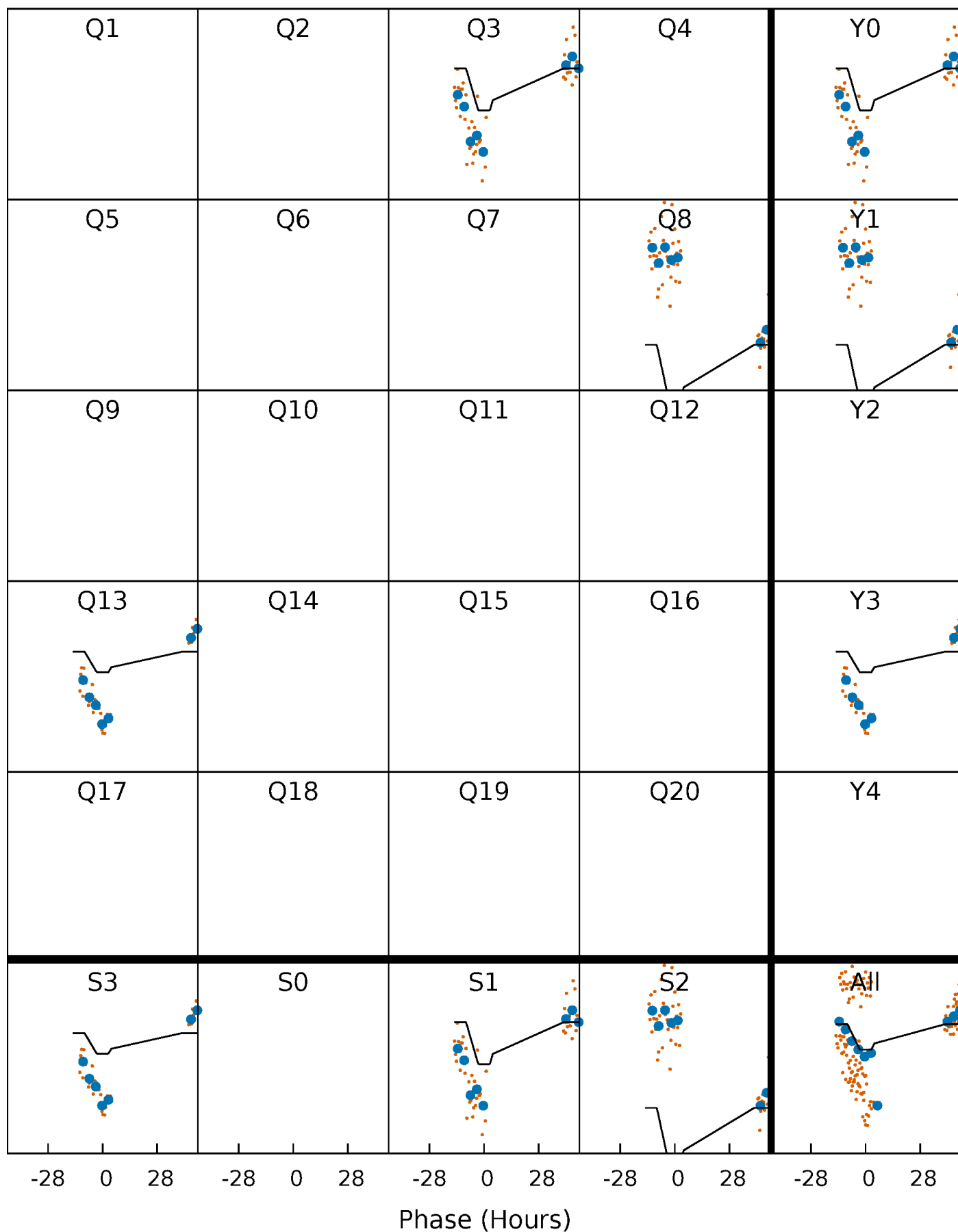
DV Quarter-Phased Transit Curves

TCE 009182355-02 $P=472.683008$ Days $T_0=294.560409$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

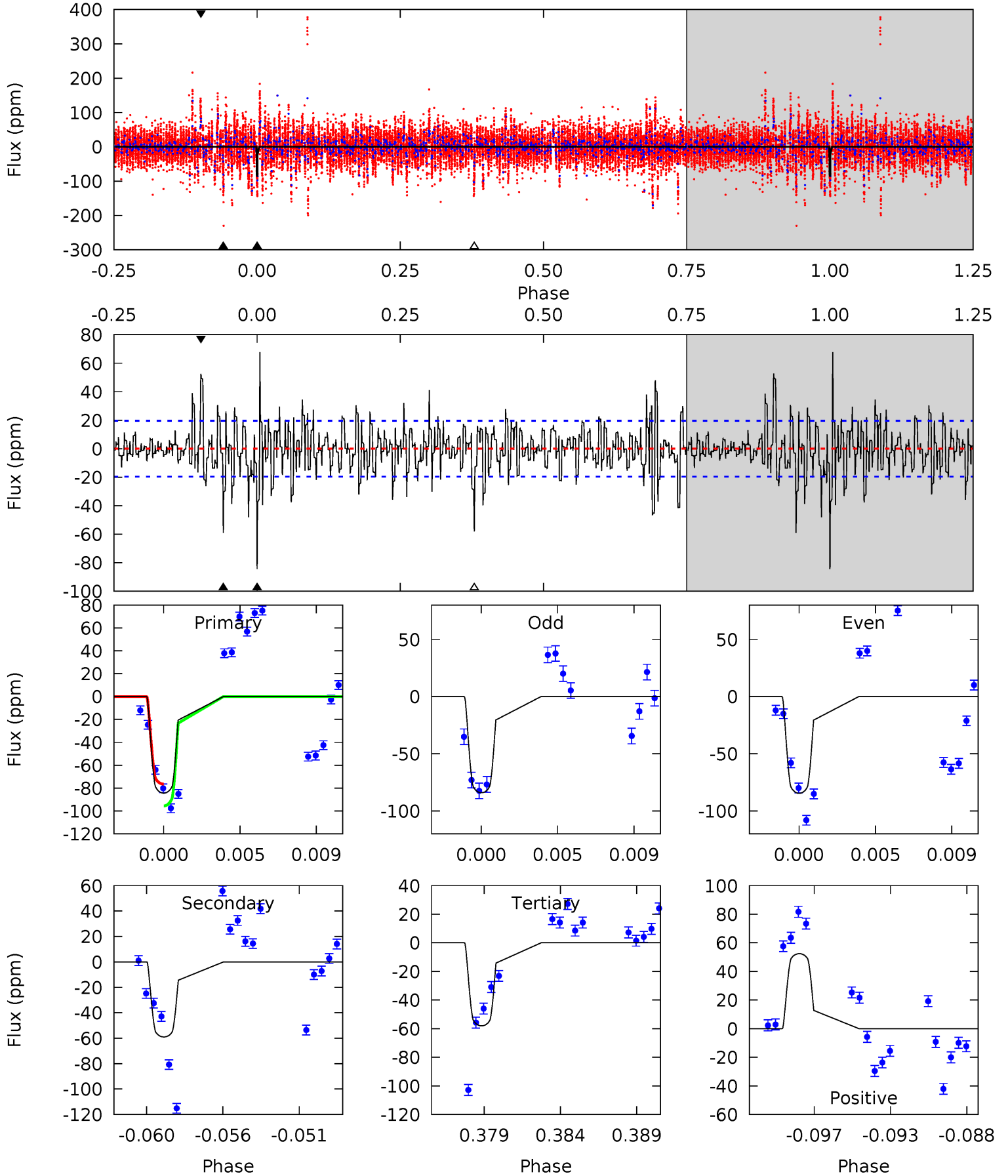
TCE 009182355-02 P=472.791711 Days $T_0=294.569389$ (BKJD)



DV Model-Shift Uniqueness Test

009182355-02, P = 472.683008 Days, E = 294.560409 Days

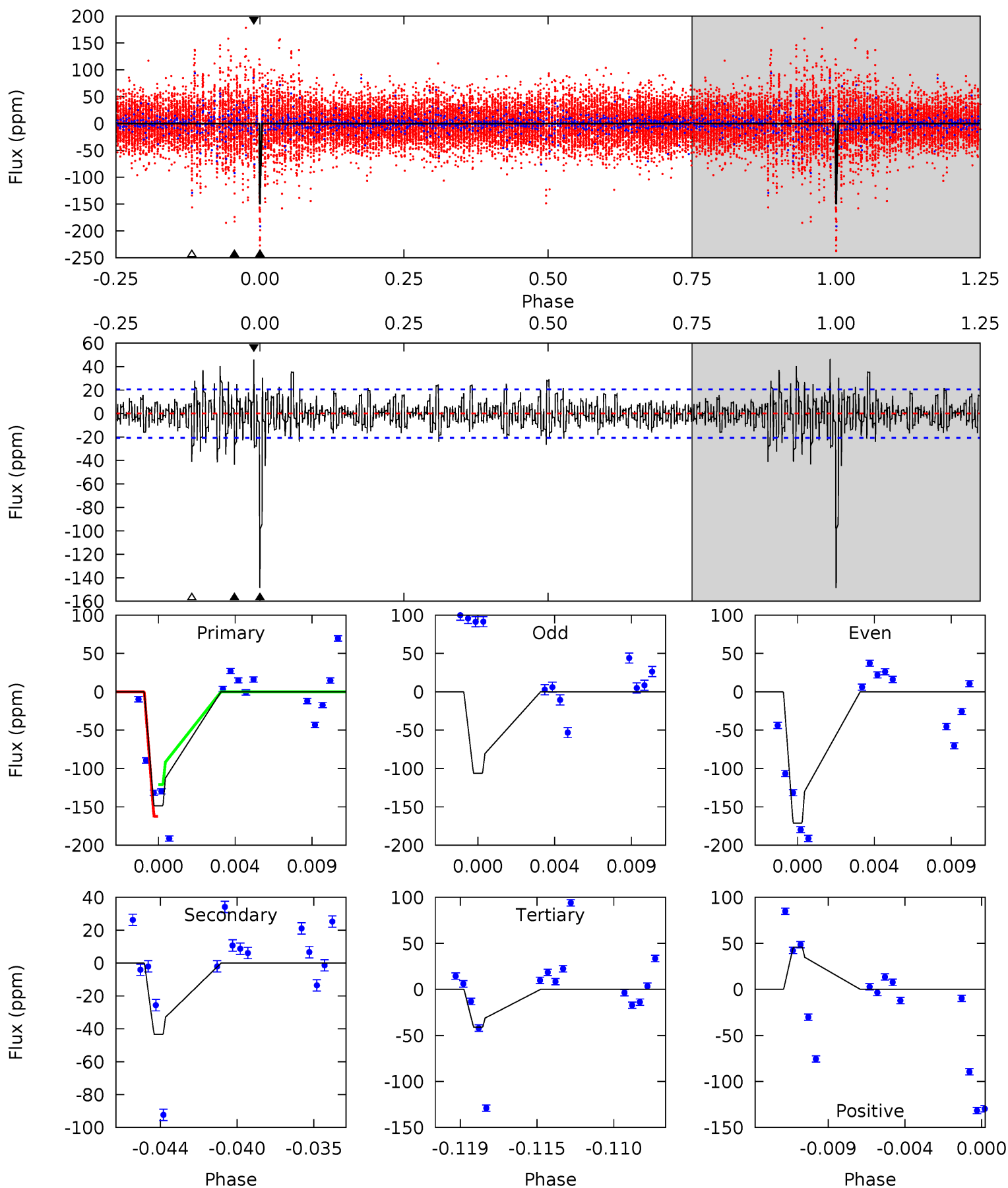
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.3	15.6	15.3	13.9	5.17	2.83	3.55	6.96	8.45	0.26	1.74	0.06	1.00	0.45	2.44



Alt Model-Shift Uniqueness Test

009182355-02, P = 472.791711 Days, E = 294.569389 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.3	10.9	10.3	11.5	5.18	2.85	2.20	27.0	25.8	0.58	-0.63	9.44	0.59	0.24	4.68



Stellar Parameters For KIC 009182355

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7932^{+219}_{-329}	$3.700^{+0.424}_{-0.079}$	$-0.120^{+0.200}_{-0.350}$	$3.339^{+0.681}_{-1.590}$	$2.038^{+0.341}_{-0.511}$	$0.077^{+0.329}_{-0.027}$
	+3%/-4%	+11%/-2%	+167%/-292%	+20%/-48%	+17%/-25%	+426%/-35%
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 009182355-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-59 ± 4	$4.00^{+0.83}_{-0.99}$	699^{+55}_{-81}	6194^{+418}_{-338}	4676^{+3087}_{-1382}
Alt.	-43 ± 4	$2.58^{+0.67}_{-0.69}$	700^{+48}_{-86}	7202^{+766}_{-582}	8210^{+6644}_{-2798}

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 $A_{obs} \gg 1.0$

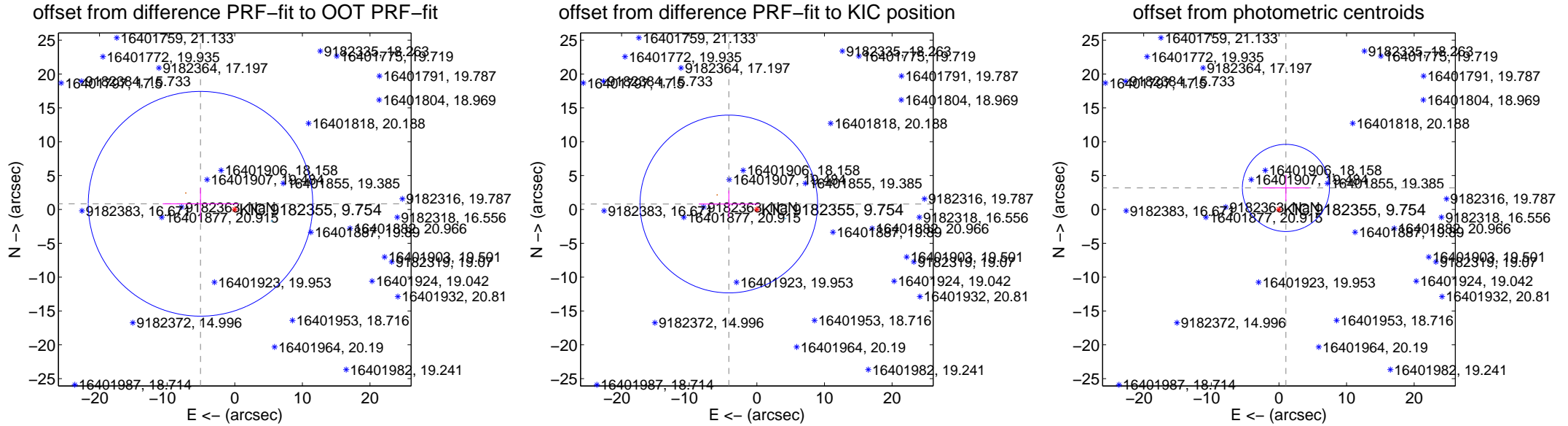
DV Centroid Data

Supplemental centroid analysis for 009182355-02. **Kepler magnitude: 9.75.** Transit SNR 8.87

There are 1 quarters with good PRF difference image offsets

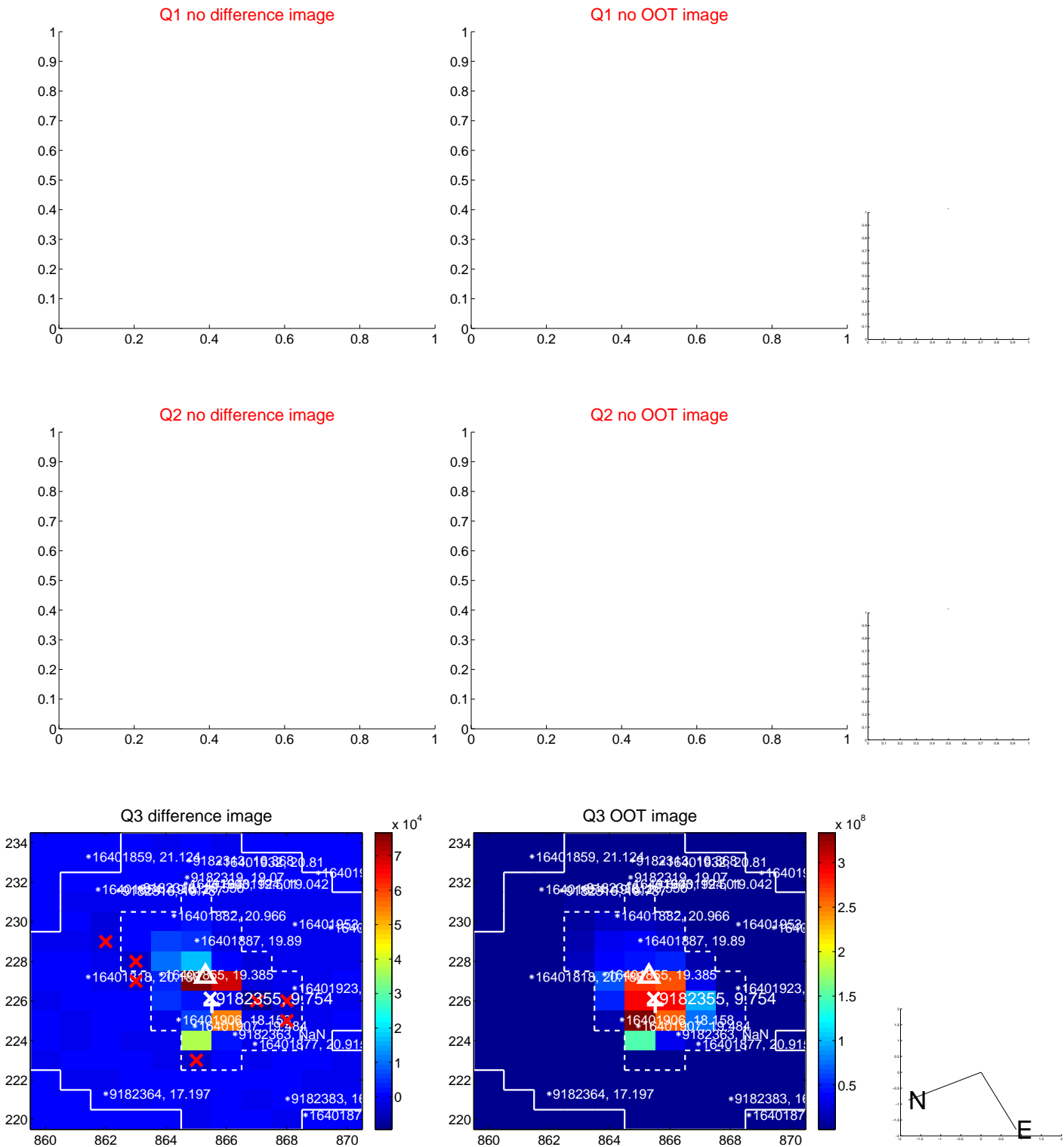
The direct PRF centroid is offset from the target star catalog position by about 1.40 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.132 ± 5.533	0.93	5.064 ± 5.594	0.832 ± 2.359
PRF-fit source offset from KIC position	4.223 ± 4.377	0.96	4.146 ± 4.442	0.802 ± 1.978
photometric centroid source offset	3.34 ± 2.15	1.56	-1.03 ± 3.43	3.18 ± 1.96

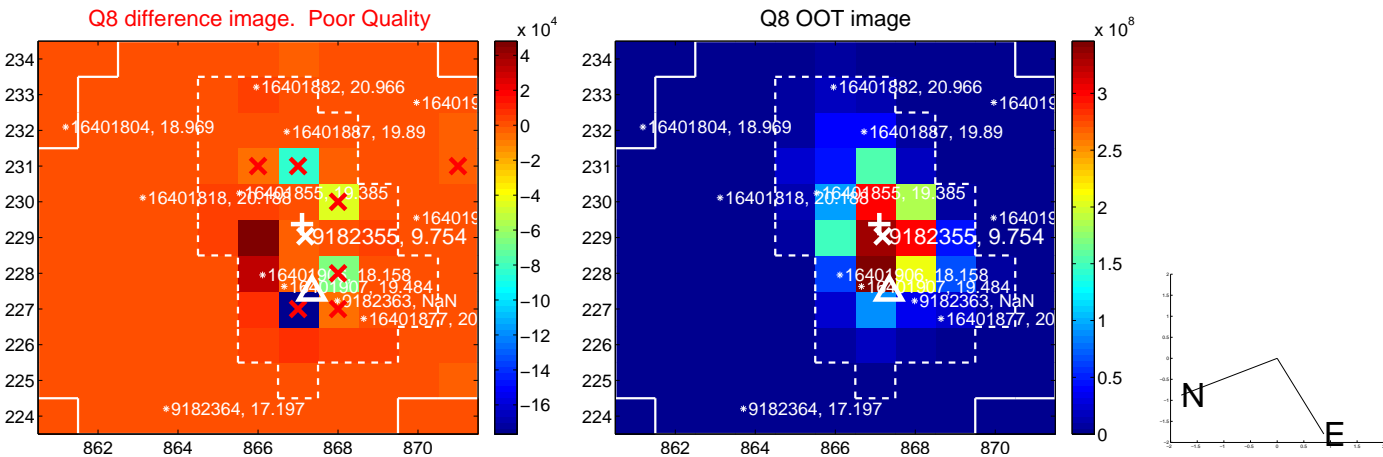
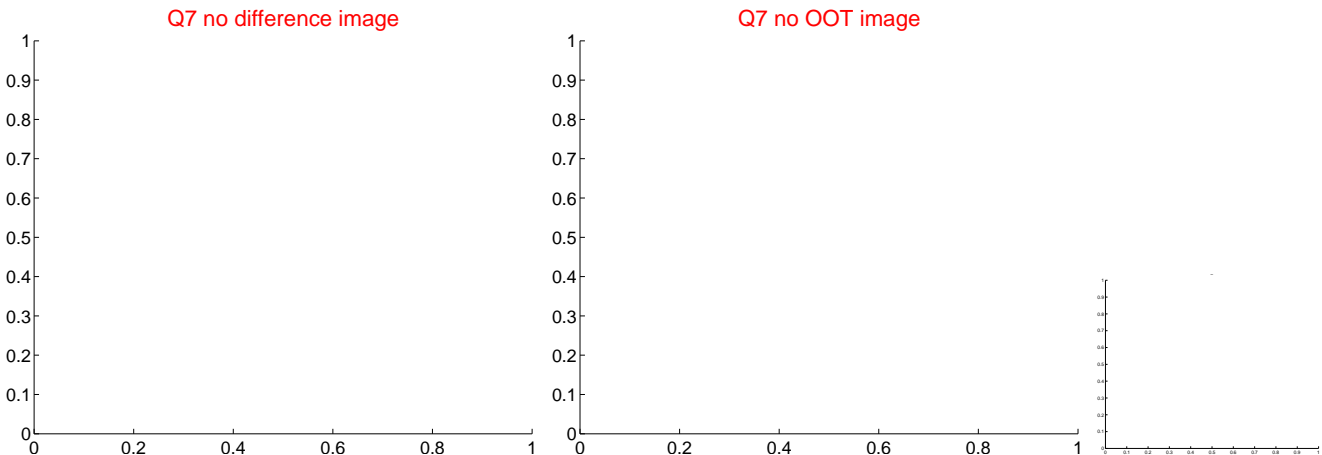
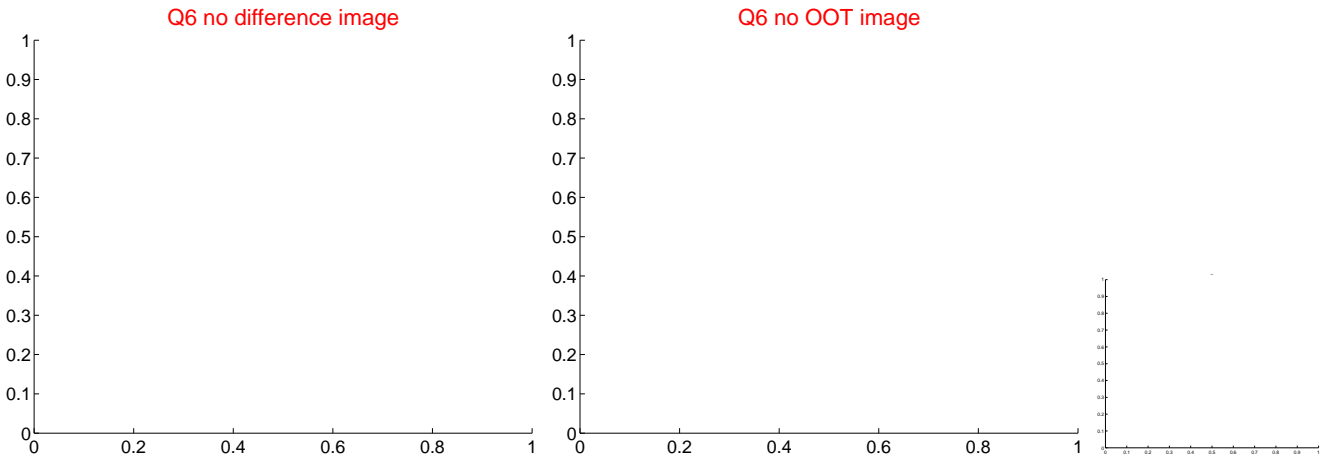
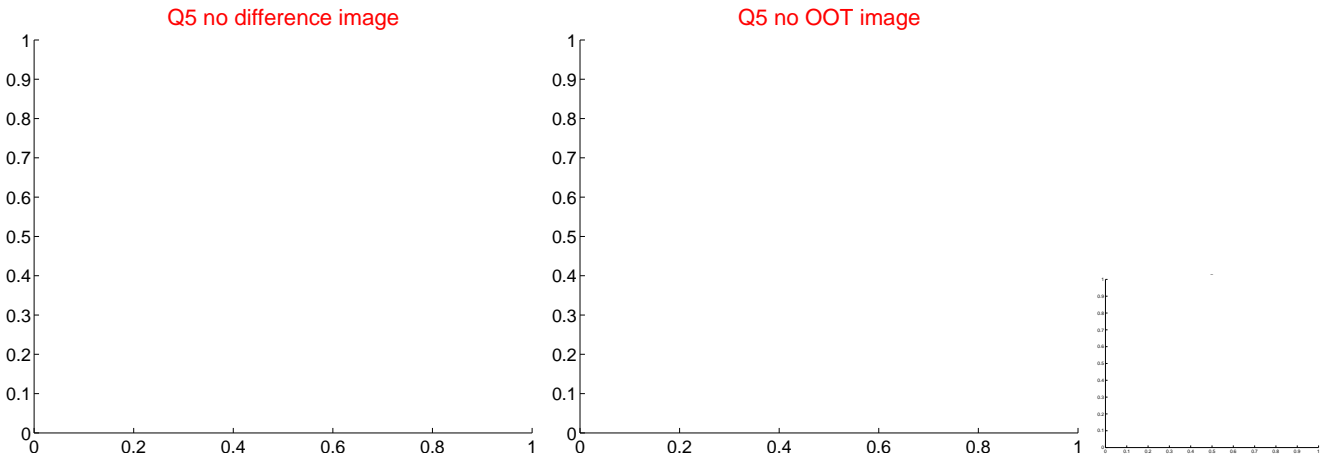


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



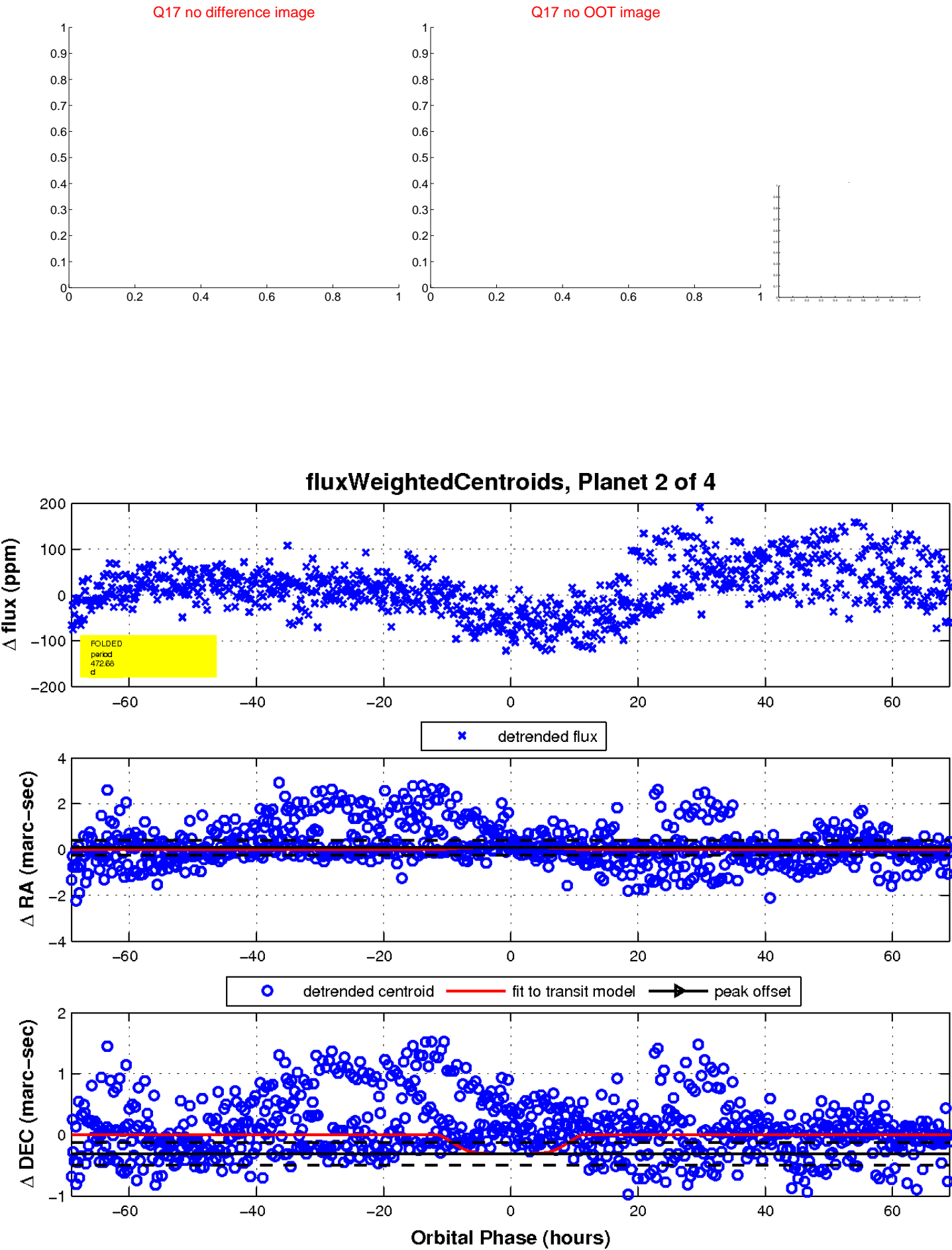
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



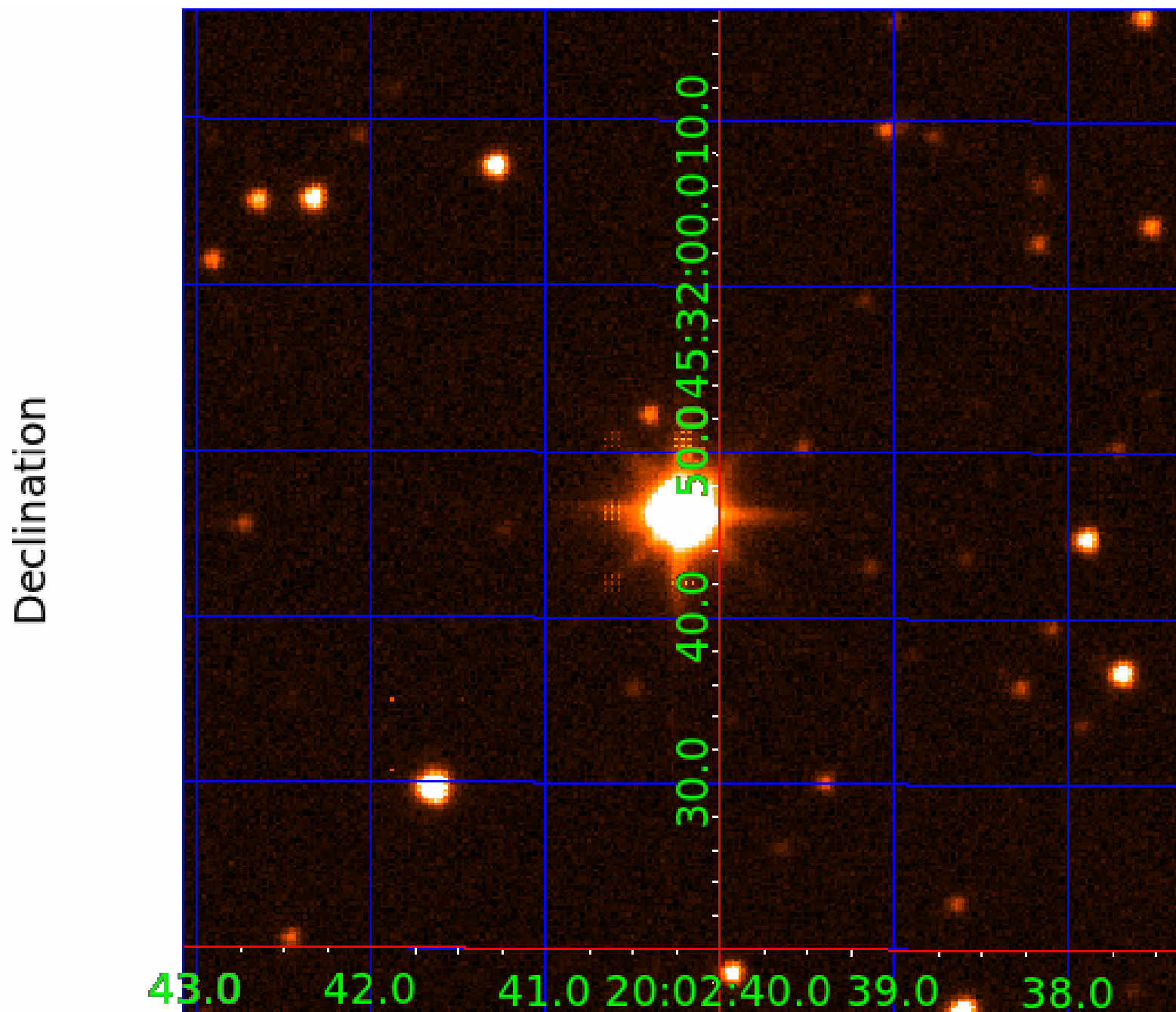
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009182355

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})
009182355-01	OBS	No	2.329359	132.391777	4.1	12.845	9.4	9.6	3.34	7932	0.68	20789.99
009182355-02	OBS	No	472.683008	294.560409	96.6	23.073	10.3	8.9	3.34	7932	4.29	17.43
009182355-03	OBS	No	219.404624	329.484182	71.2	13.828	11.1	8.6	3.34	7932	3.24	48.51
009182355-04	OBS	No	105.137118	178.379901	44.7	7.122	7.9	8.9	3.34	7932	2.50	129.37

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009182355-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009182355-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009182355-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009182355-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

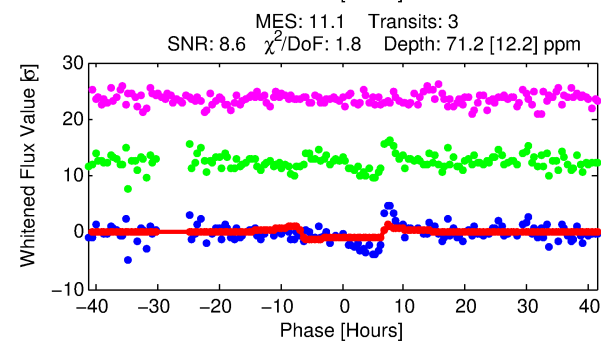
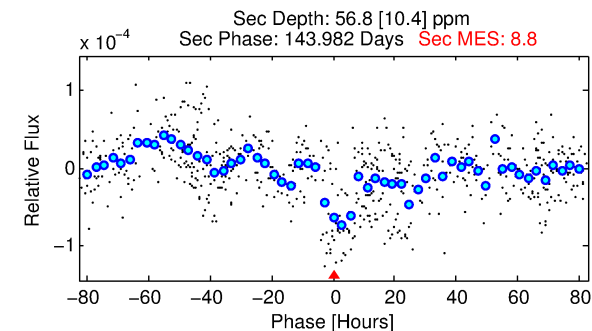
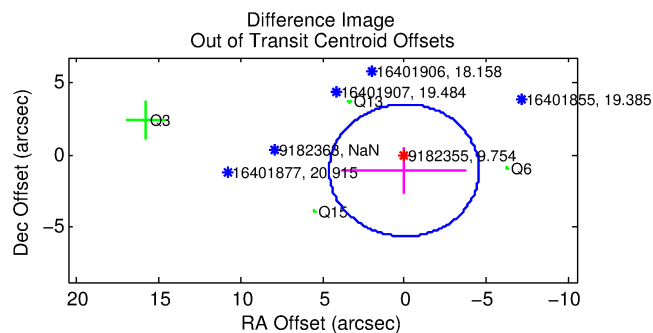
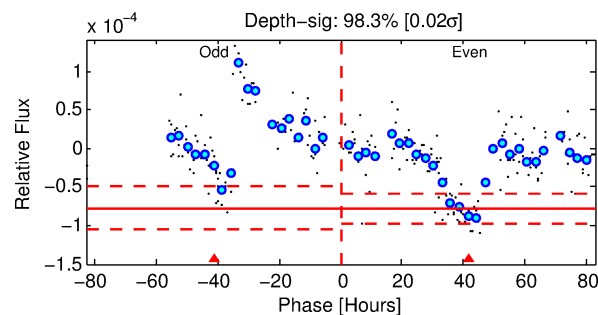
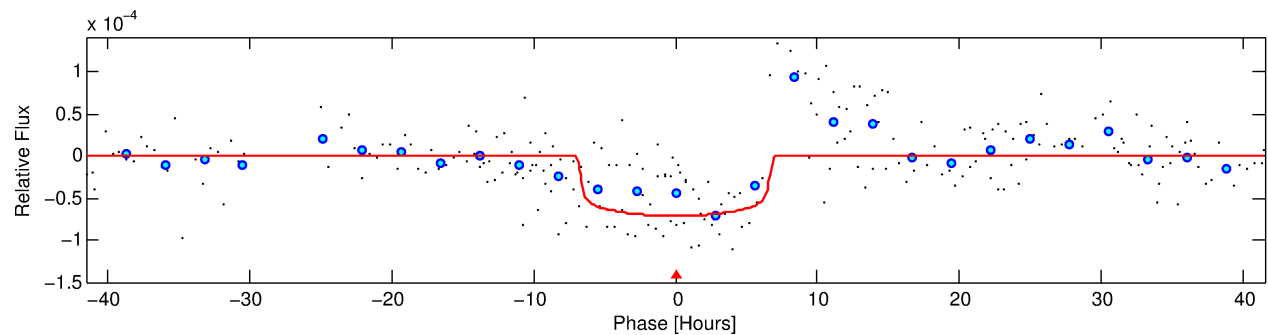
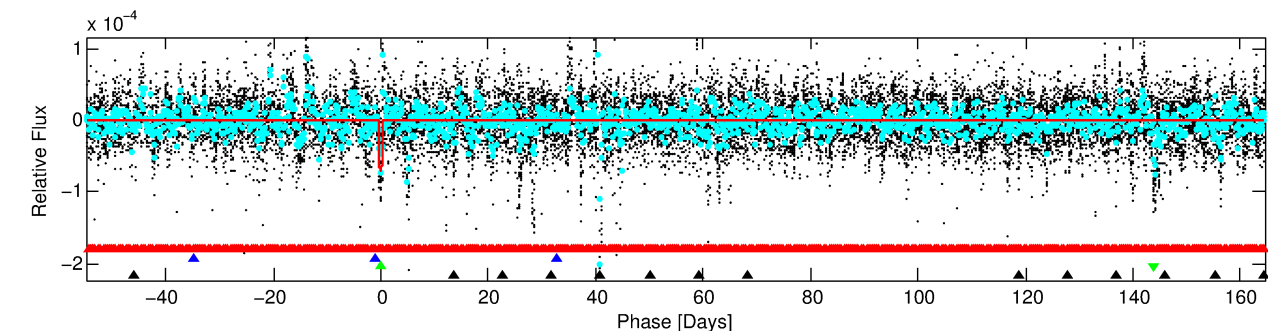
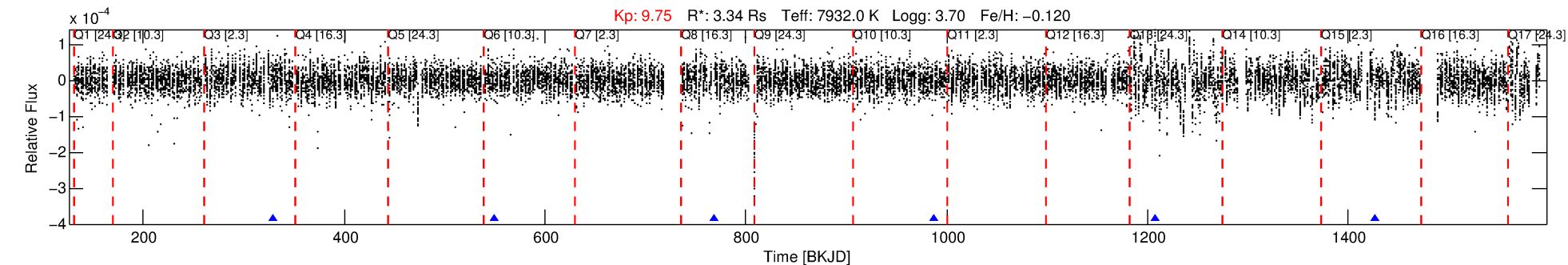
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009182355-03

No Significant Match Found

DV One-Page Summary

KIC: 9182355 Candidate: 3 of 4 Period: 219.405 d



DV Fit Results:

Period = 219.40462 [0.00445] d
Epoch = 329.4842 [0.0167] BKJD
Rp/R* = 0.0089 [0.0024]
a/R* = 59.54 [88.55]
b = 0.88 [0.38]
Seff = 48.51 [36.04]
Teff = 673 [125] K
Rp = 3.24 [1.77] Re
a = 0.9028 [0.4105] AU
Ag = 2430.45 [2232.40] [1.09 σ]
Teffp = 7305 [1076] K [6.13 σ]

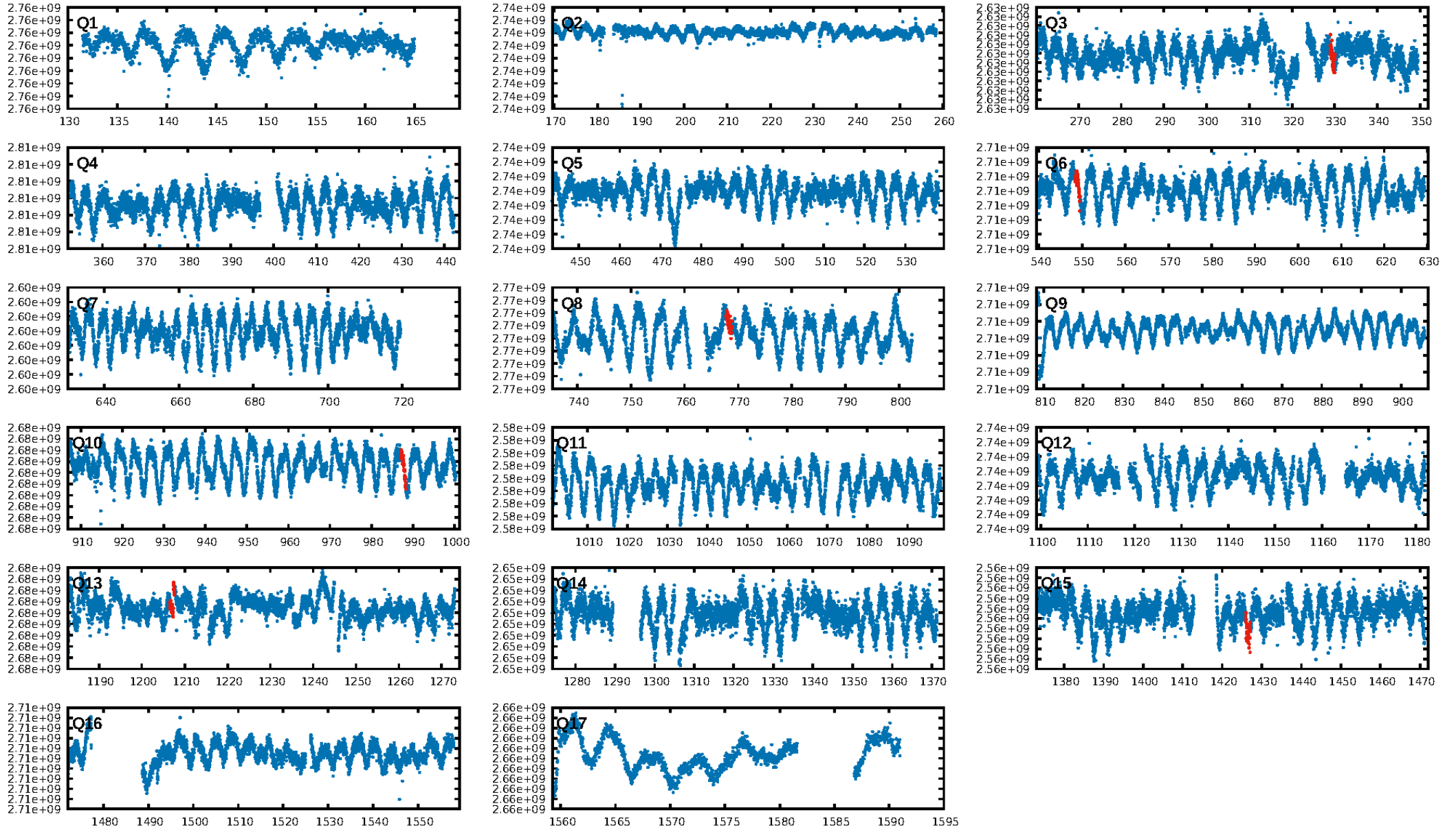
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [176.31 σ]
LongPeriod-sig: 100.0% [225.98 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 61.2%
Bootstrap-pfa: 3.08e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 59.1%
Centroid-so: 0.963 arcsec [0.47 σ]
OotOffset-rm: 1.042 arcsec [0.69 σ]
KicOffset-rm: 1.866 arcsec [1.01 σ]
OotOffset-st: 1/2/0/1 [4]
KicOffset-st: 1/2/0/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.00 [0/6]

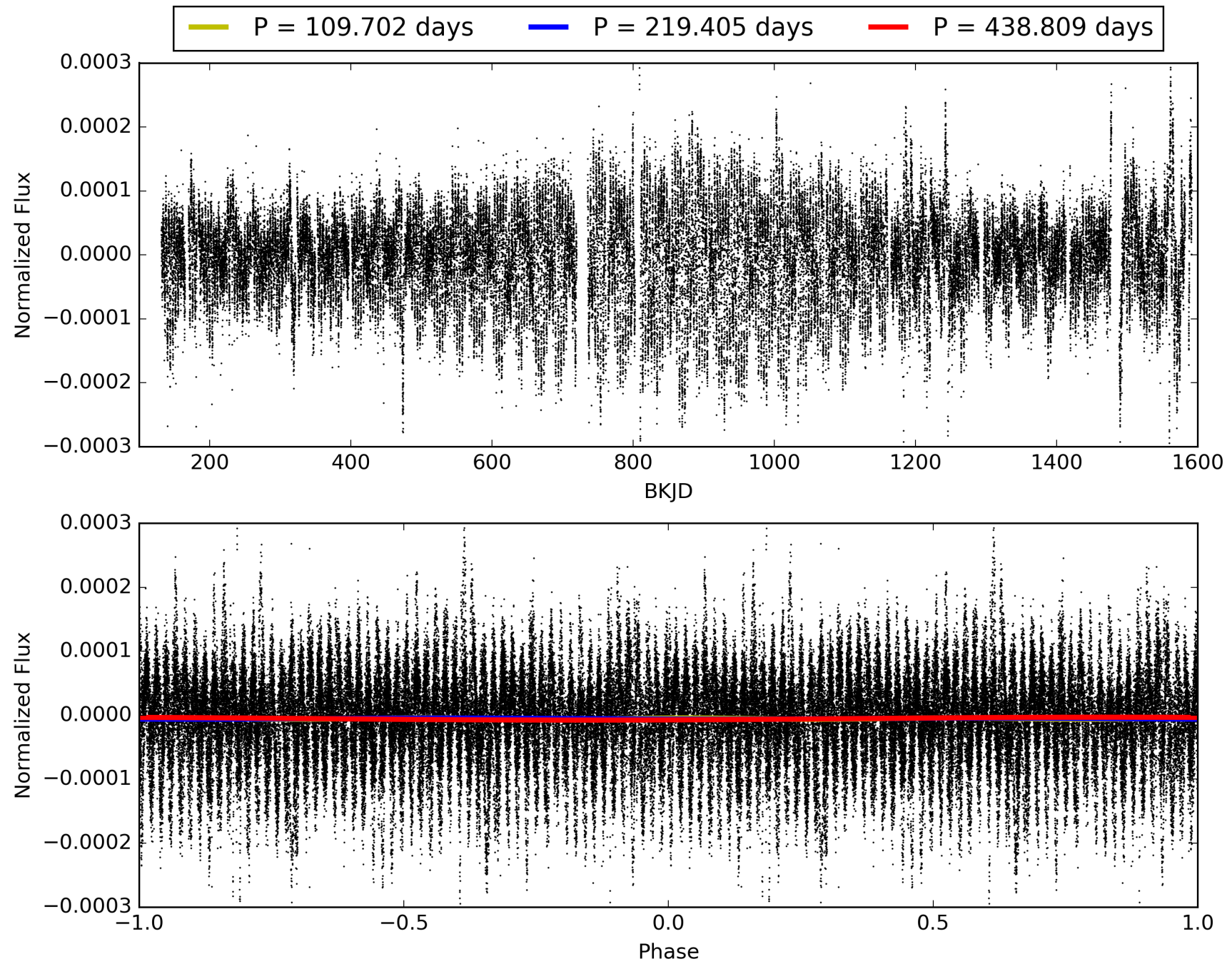
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:15:37 Z

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

TCE 009182355-03, PDC Light Curves

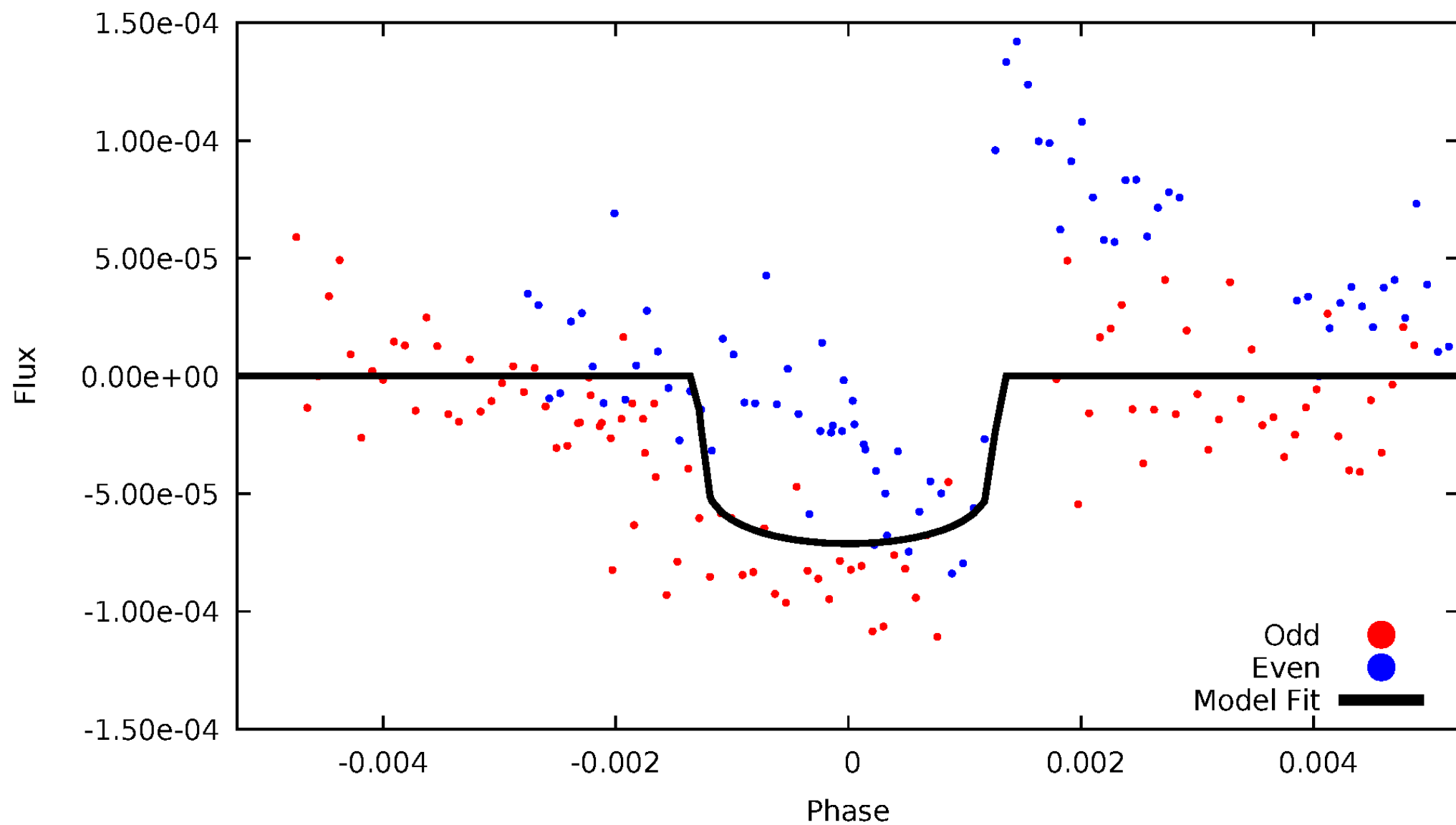


TCE 009182355-03



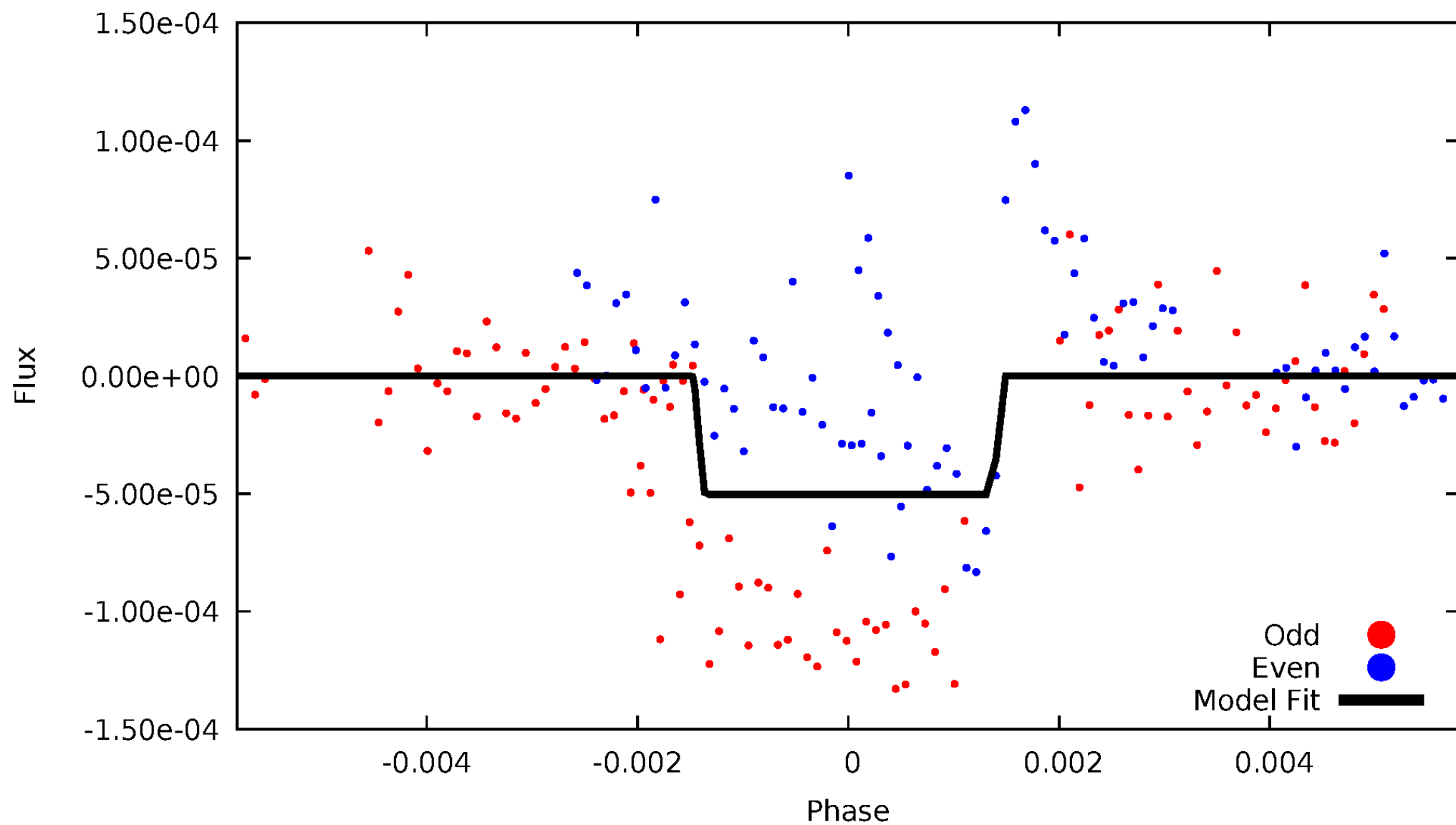
DV Odd/Even

TCE 009182355-03



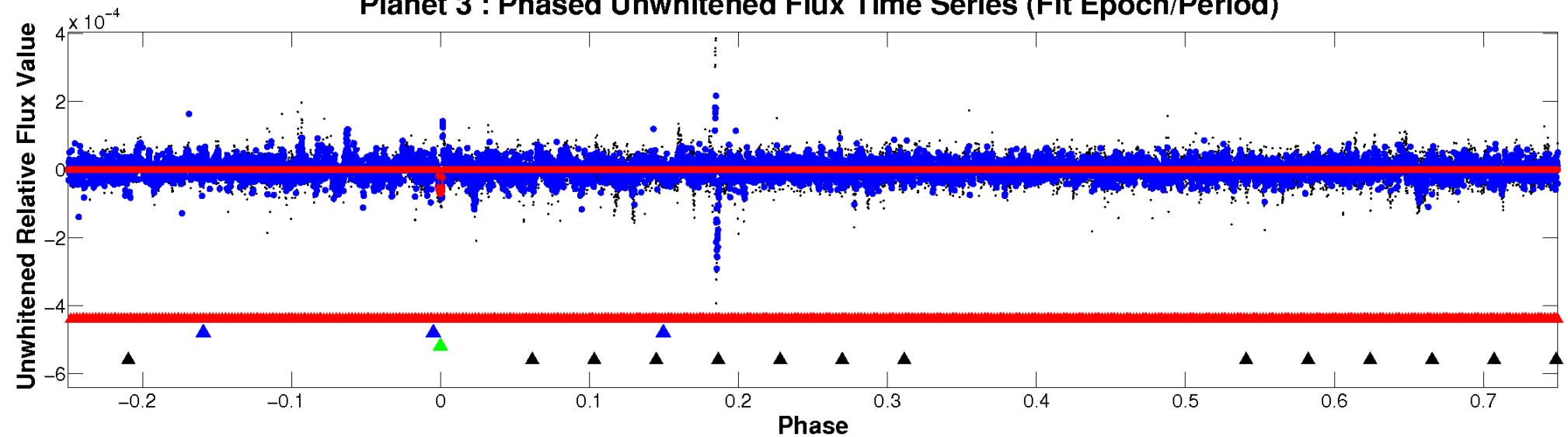
ALT Odd/Even

TCE 009182355-03

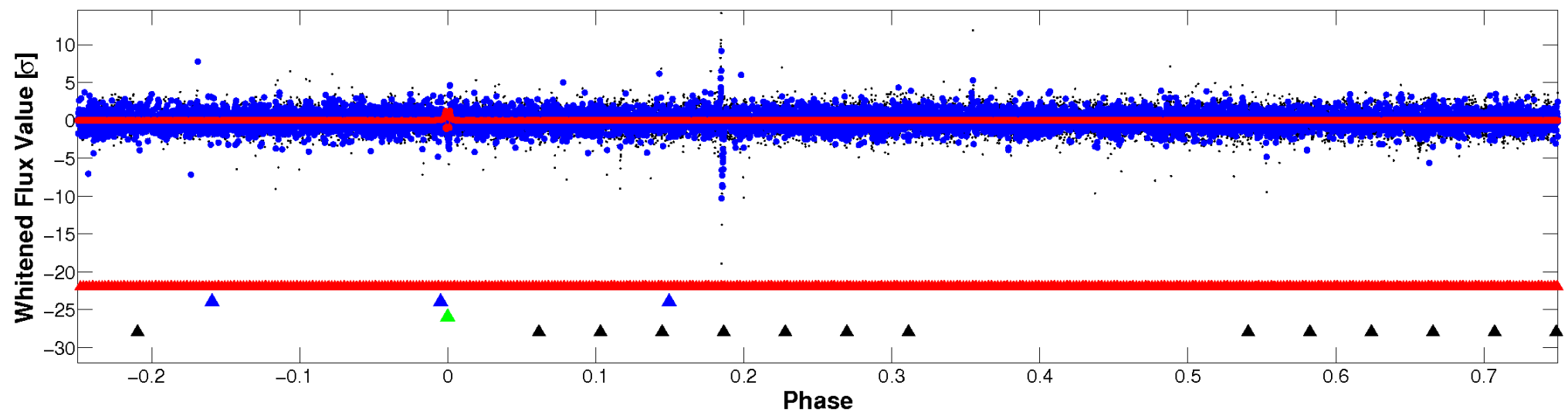


Non-Whitened Vs. Whitened Light Curve

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

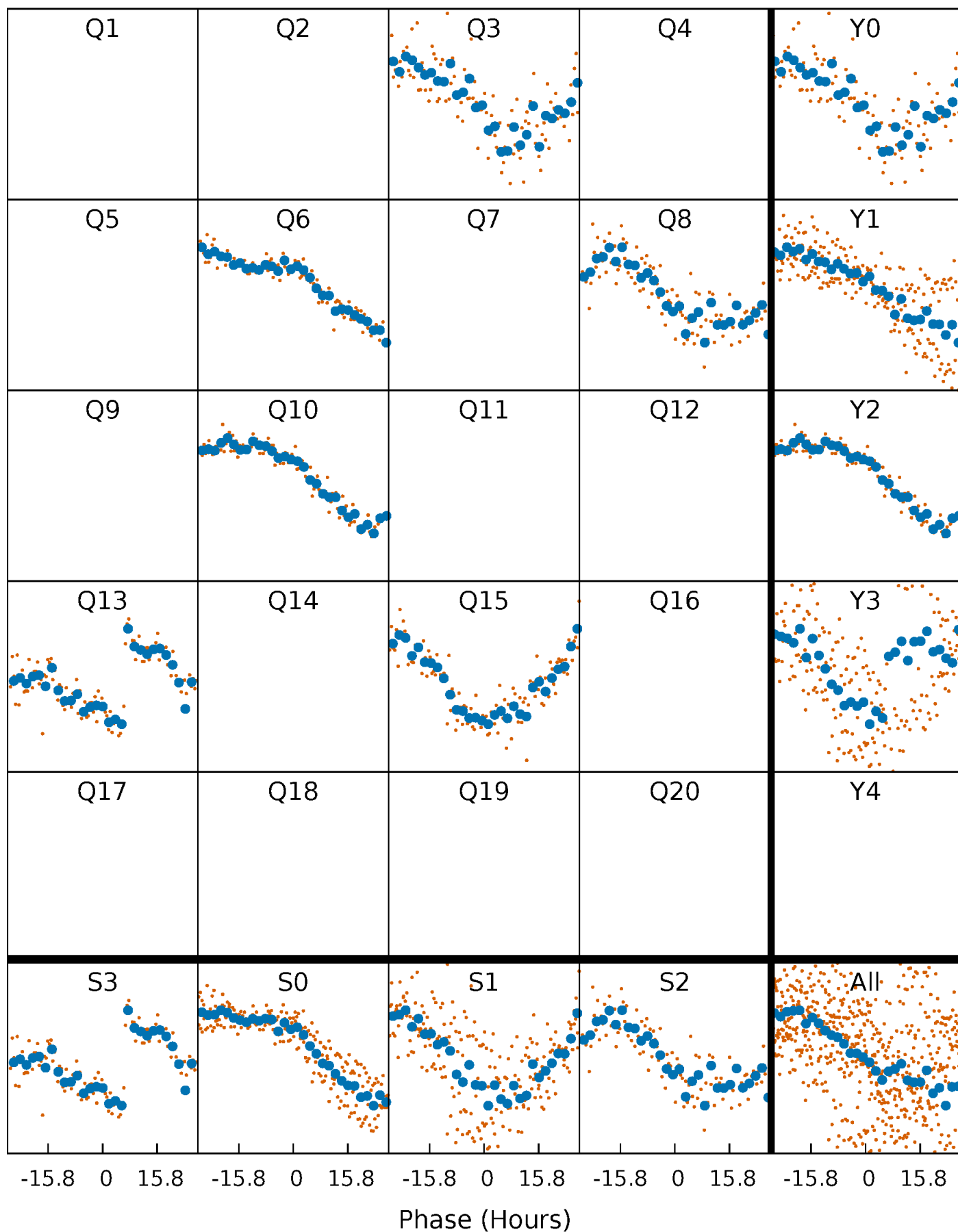


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



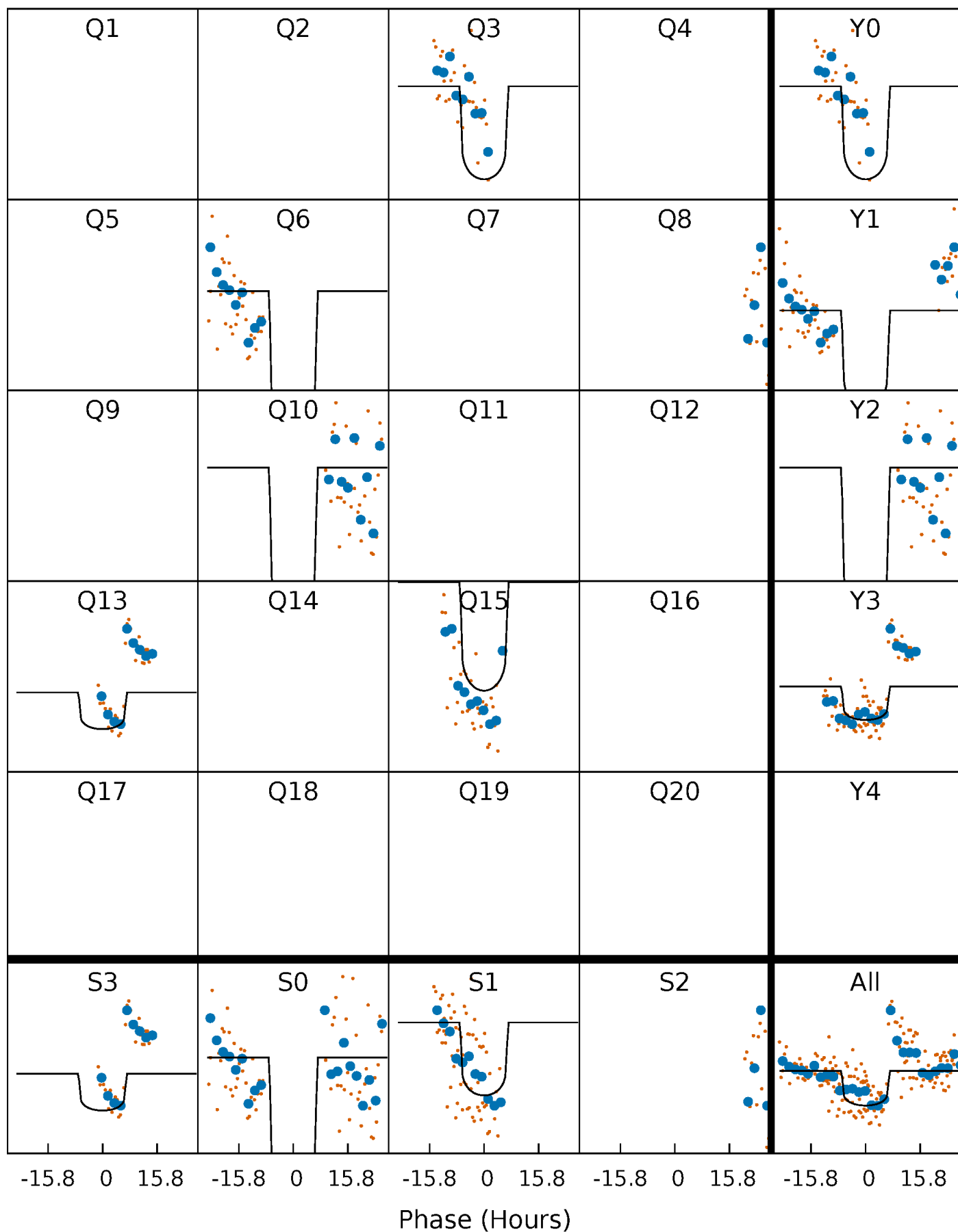
PDC Quarter-Phased Transit Curves

TCE 009182355-03 P=219.404624 Days $T_0=329.484182$ (BKJD)



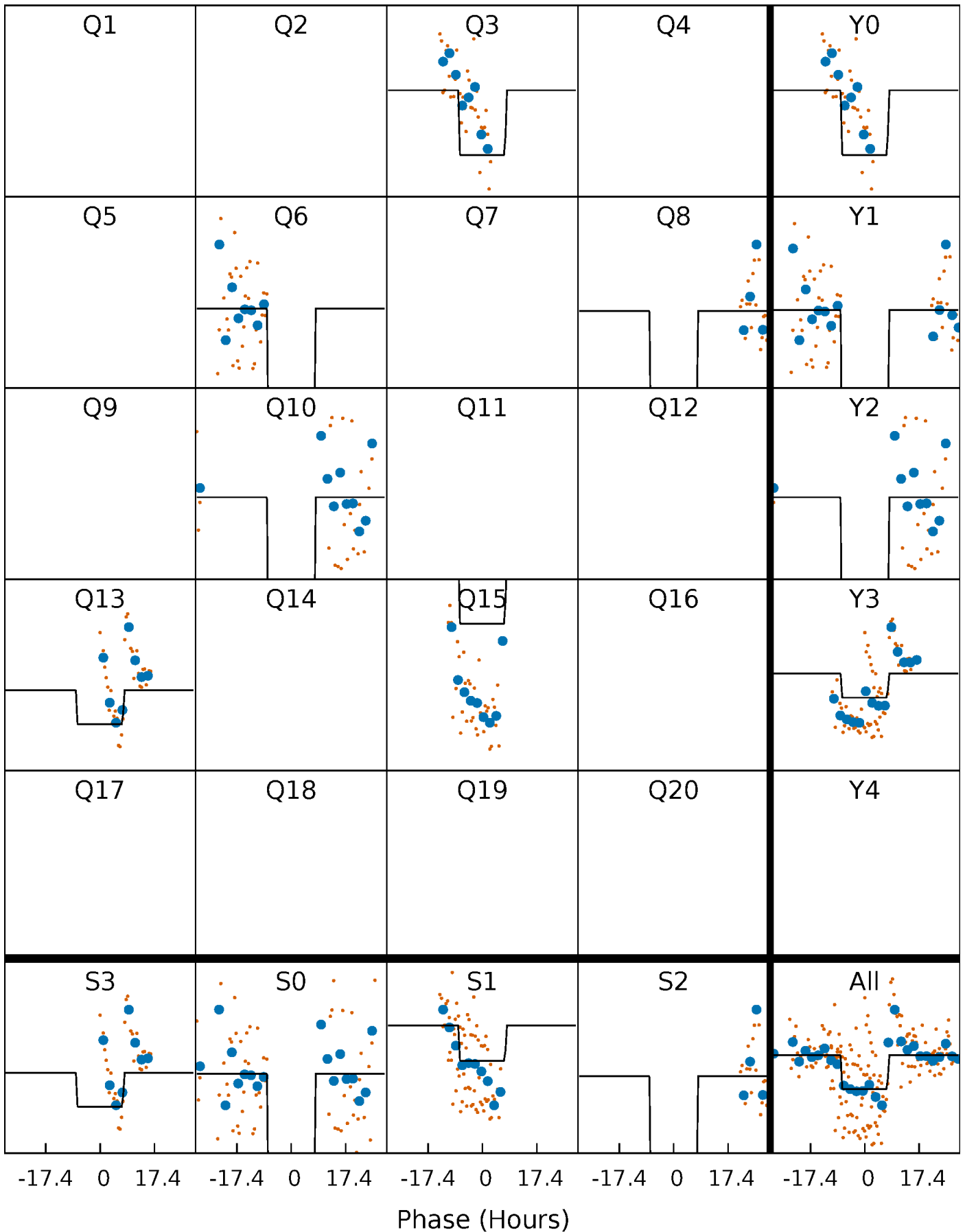
DV Quarter-Phased Transit Curves

TCE 009182355-03 $P=219.404624$ Days $T_0=329.484182$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

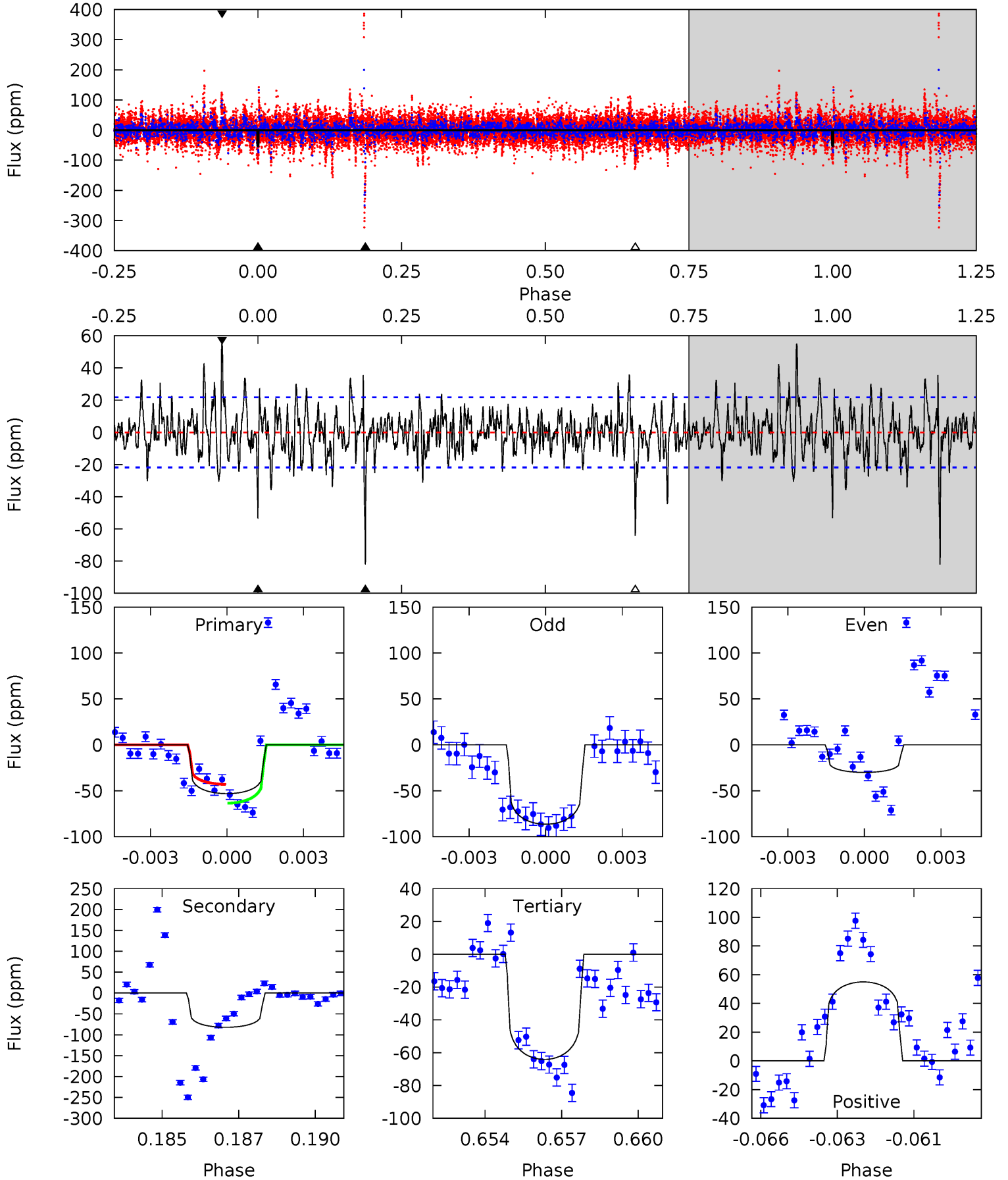
TCE 009182355-03 P=219.401945 Days $T_0=329.444529$ (BKJD)



DV Model-Shift Uniqueness Test

009182355-03, P = 219.404624 Days, E = 110.079558 Days

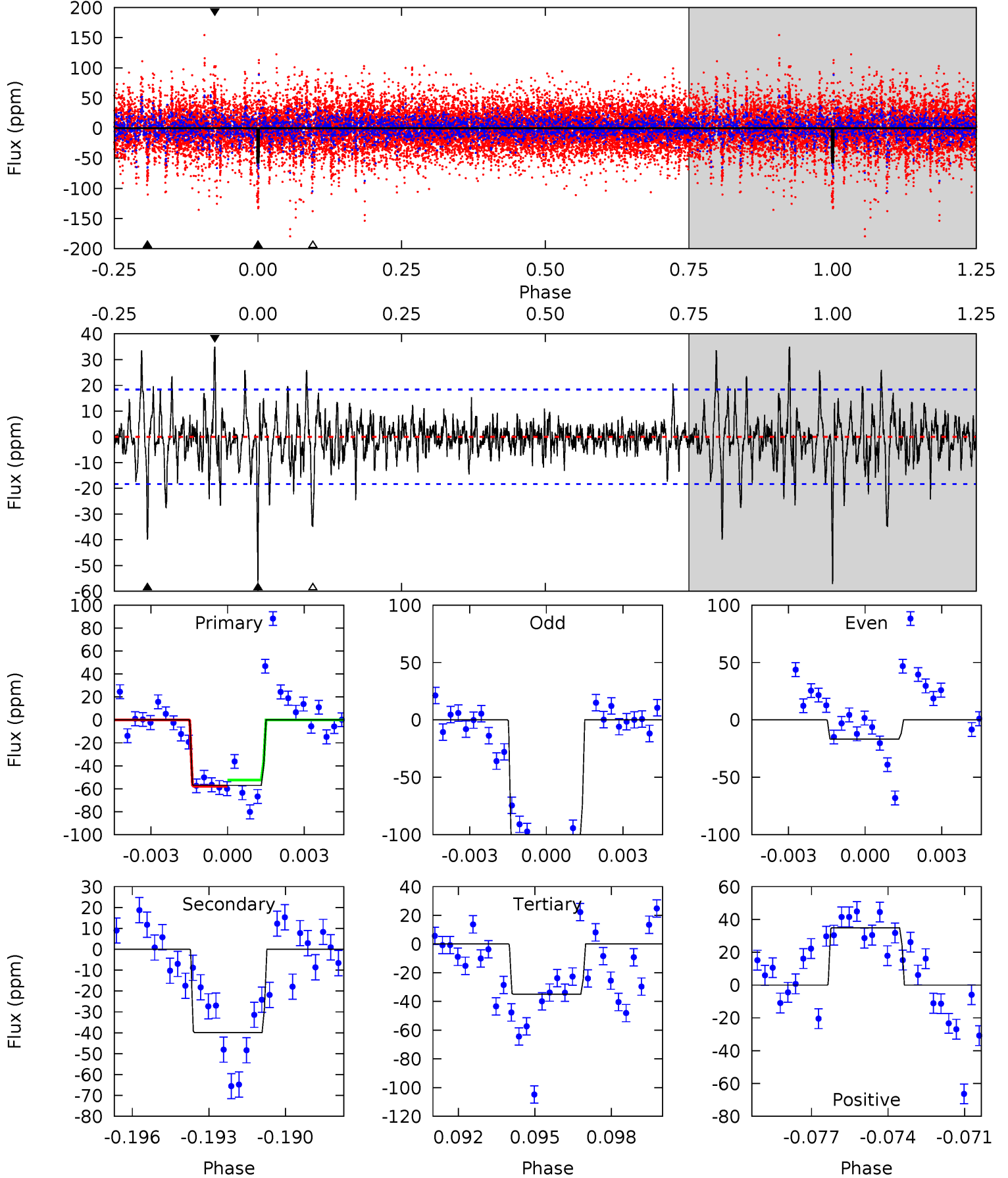
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	19.9	15.5	13.3	5.28	3.01	2.92	-2.66	-0.45	4.35	6.56	6.75	1.19	0.40	2.52



Alt Model-Shift Uniqueness Test

009182355-03, P = 219.401945 Days, E = 110.042584 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	11.4	10.0	10.0	5.25	2.97	2.04	6.35	6.35	1.42	1.42	12.7	2.35	0.38	0.79



Stellar Parameters For KIC 009182355

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7932^{+219}_{-329}	$3.700^{+0.424}_{-0.079}$	$-0.120^{+0.200}_{-0.350}$	$3.339^{+0.681}_{-1.590}$	$2.038^{+0.341}_{-0.511}$	$0.077^{+0.329}_{-0.027}$
	+3%/-4%	+11%/-2%	+167%/-292%	+20%/-48%	+17%/-25%	+426%/-35%
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 009182355-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-82 ± 4	$2.87^{+1.01}_{-0.96}$	902^{+65}_{-111}	7994^{+1840}_{-1028}	4500^{+5248}_{-2018}
Alt.	-40 ± 3	$2.28^{+0.98}_{-0.85}$	900^{+71}_{-110}	7378^{+2330}_{-1121}	3504^{+5045}_{-1813}

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

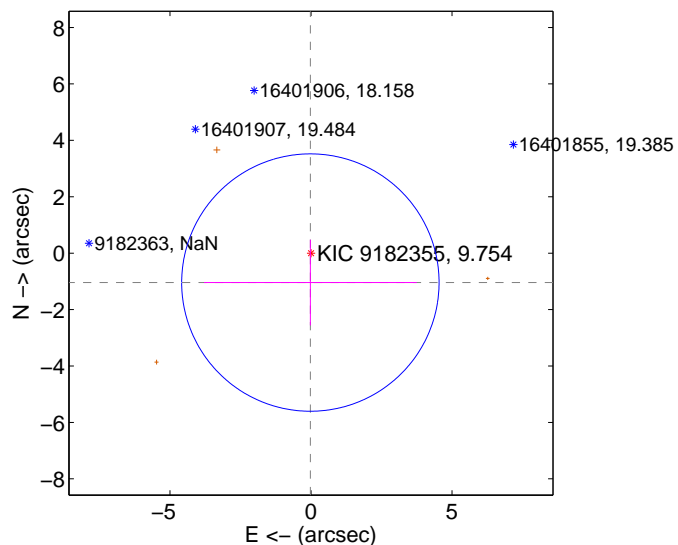
Supplemental centroid analysis for 009182355-03. **Kepler magnitude: 9.75.** Transit SNR 8.56

There are 0 quarters with good PRF difference image offsets

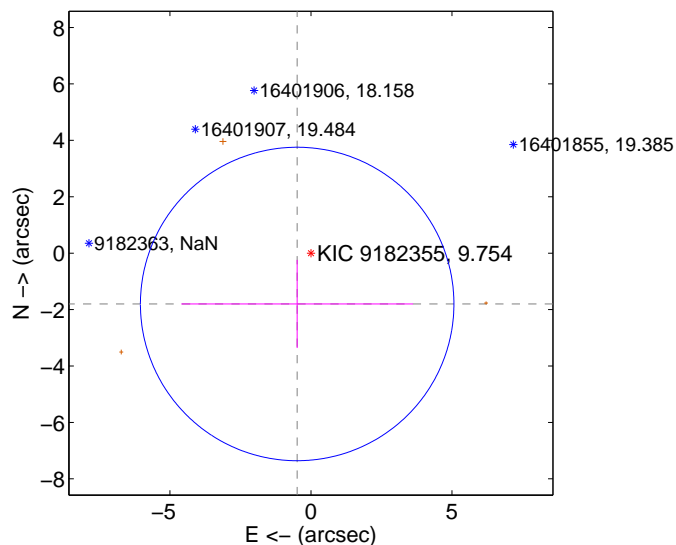
The direct PRF centroid is offset from the target star catalog position by about 1.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.042 ± 1.521	0.69	0.022 ± 3.772	-1.042 ± 1.519
PRF-fit source offset from KIC position	1.866 ± 1.852	1.01	0.488 ± 4.109	-1.801 ± 1.563
photometric centroid source offset	0.96 ± 2.06	0.47	0.57 ± 2.67	0.78 ± 1.65

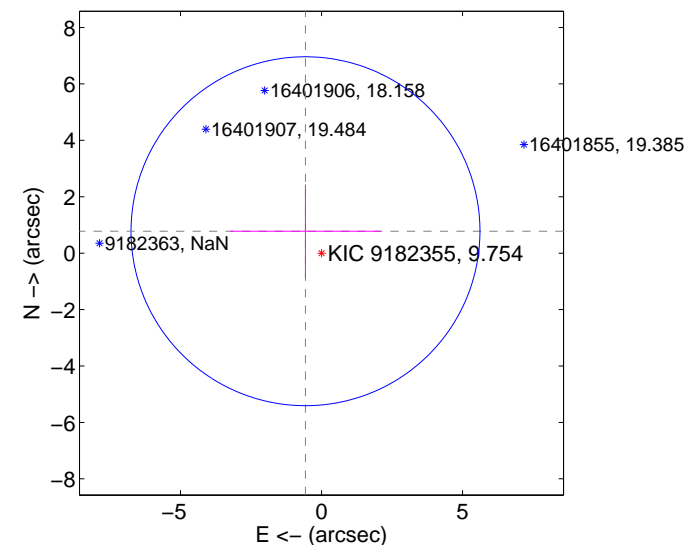
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

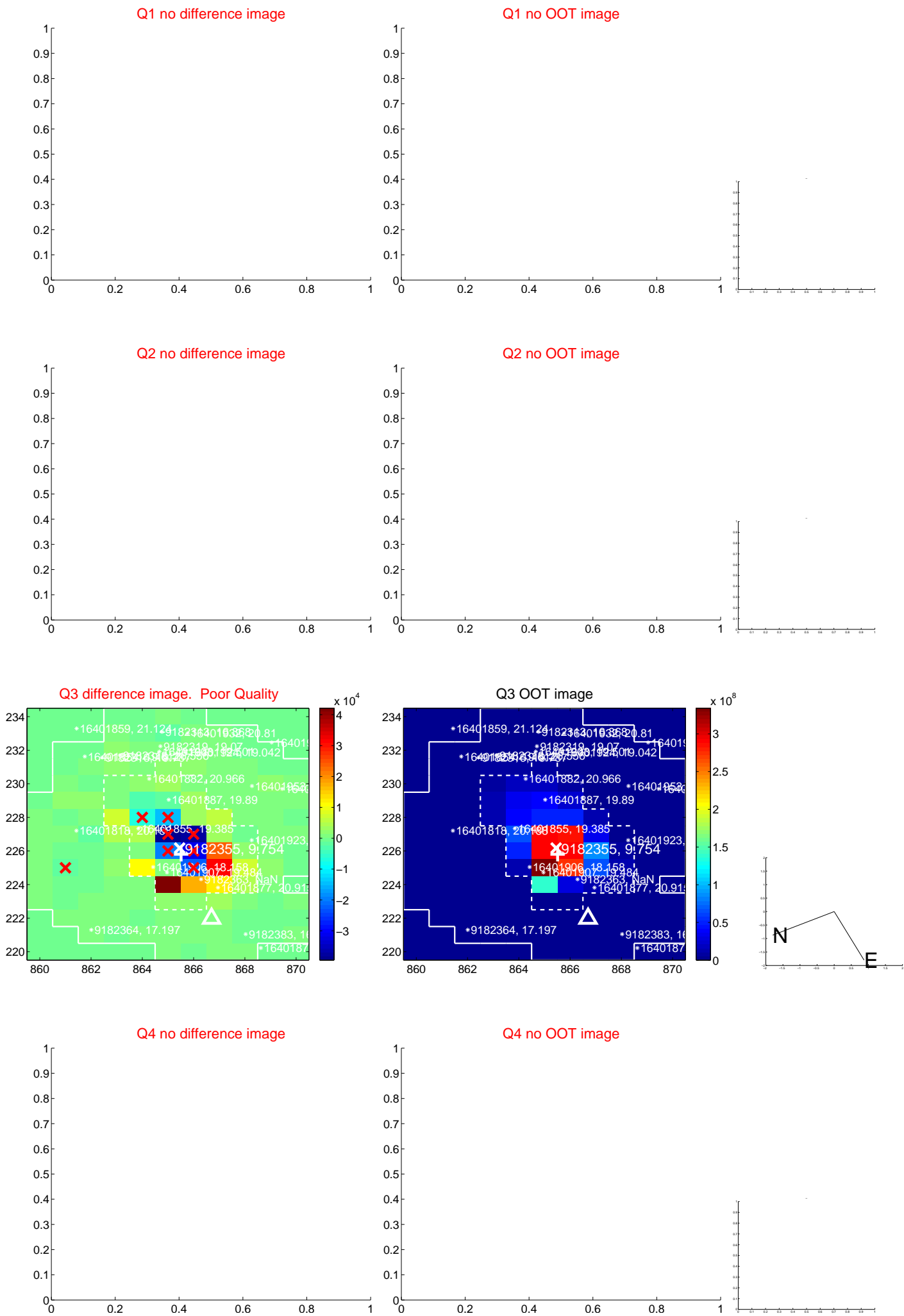


offset from photometric centroids

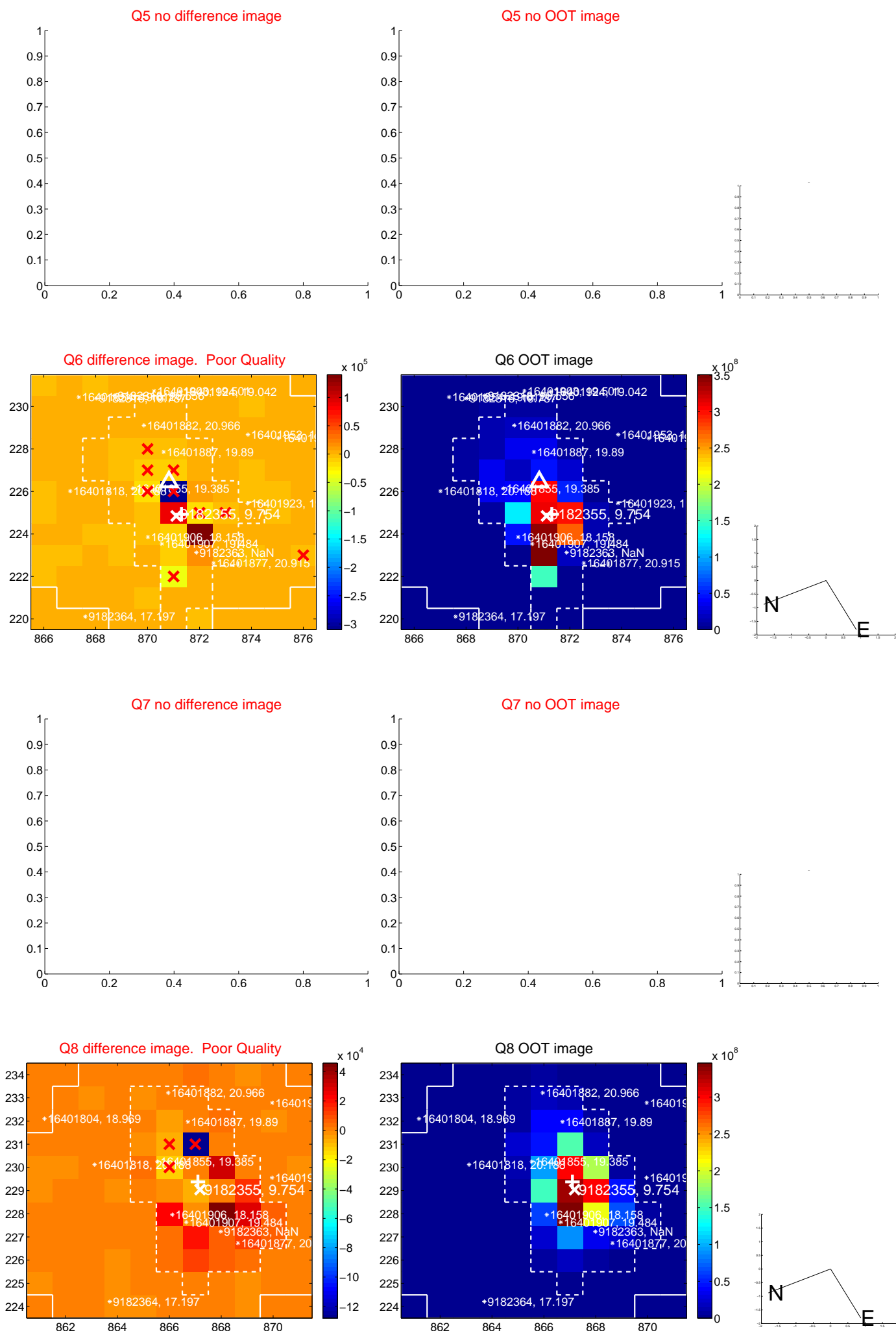


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

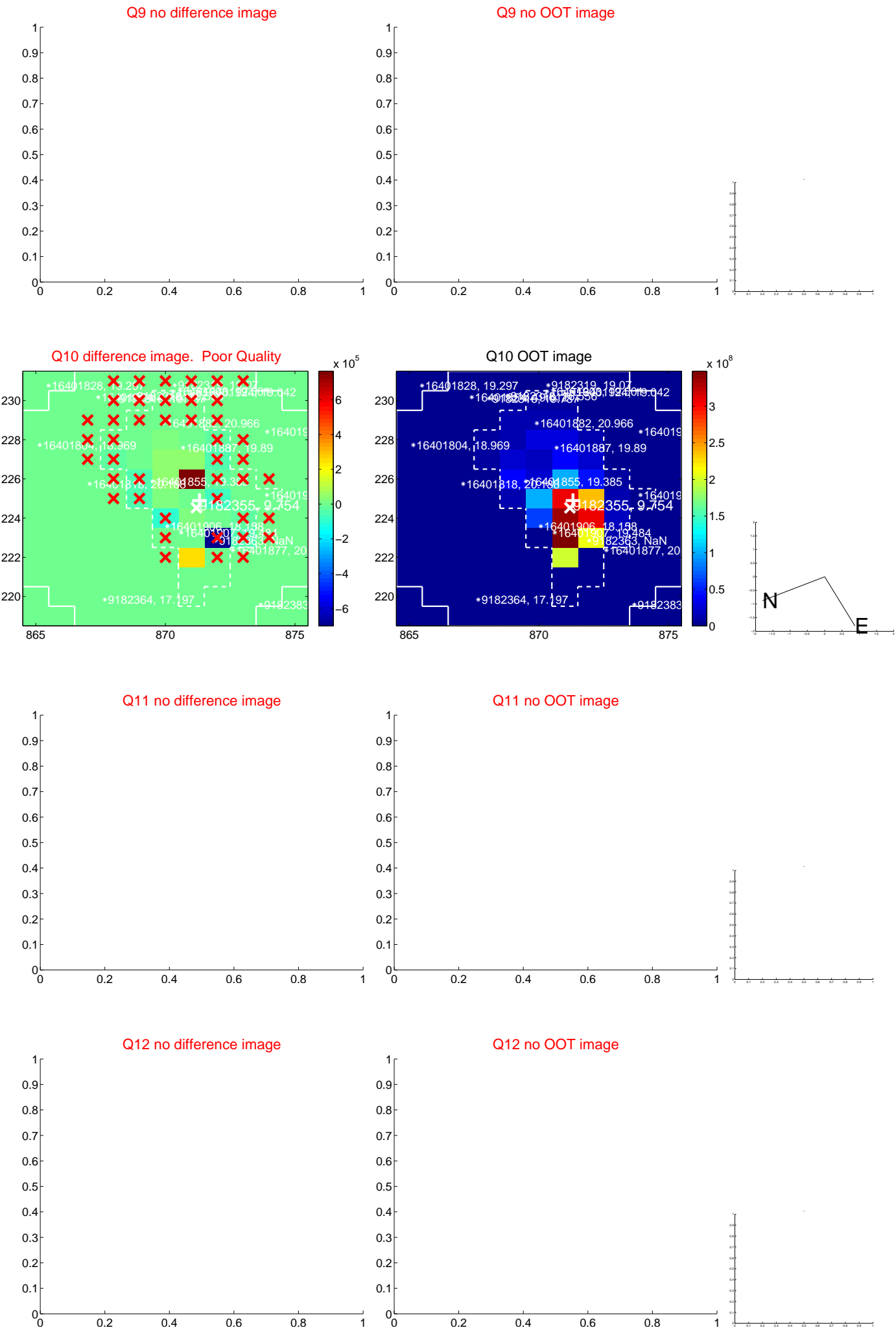
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



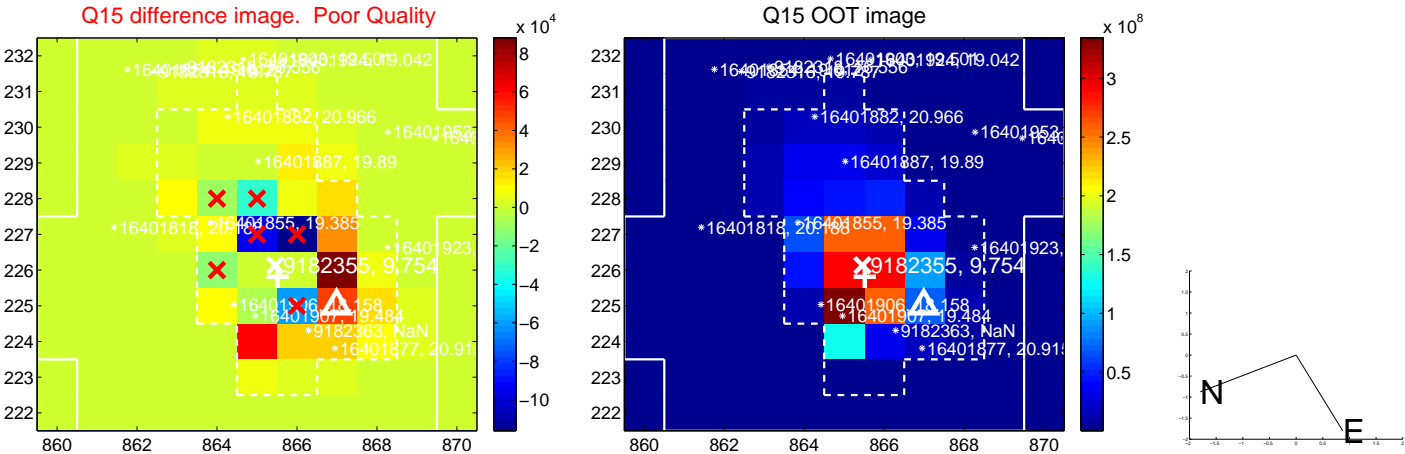
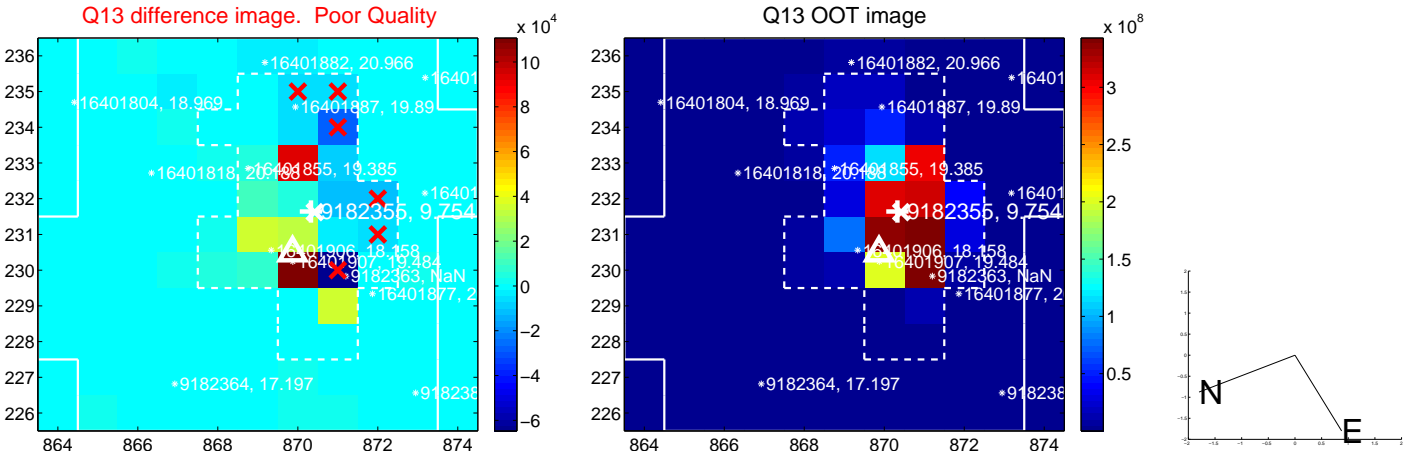
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



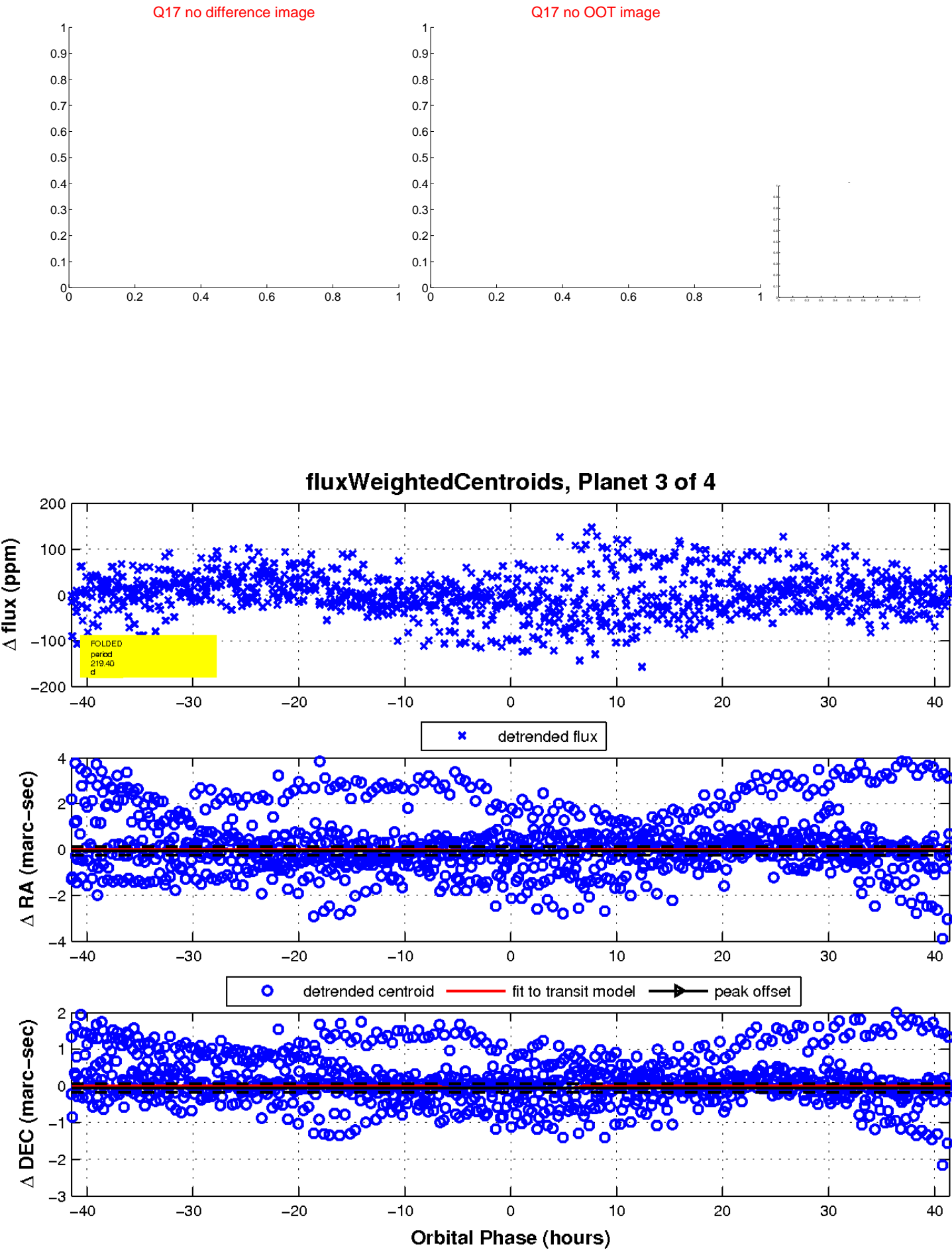
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



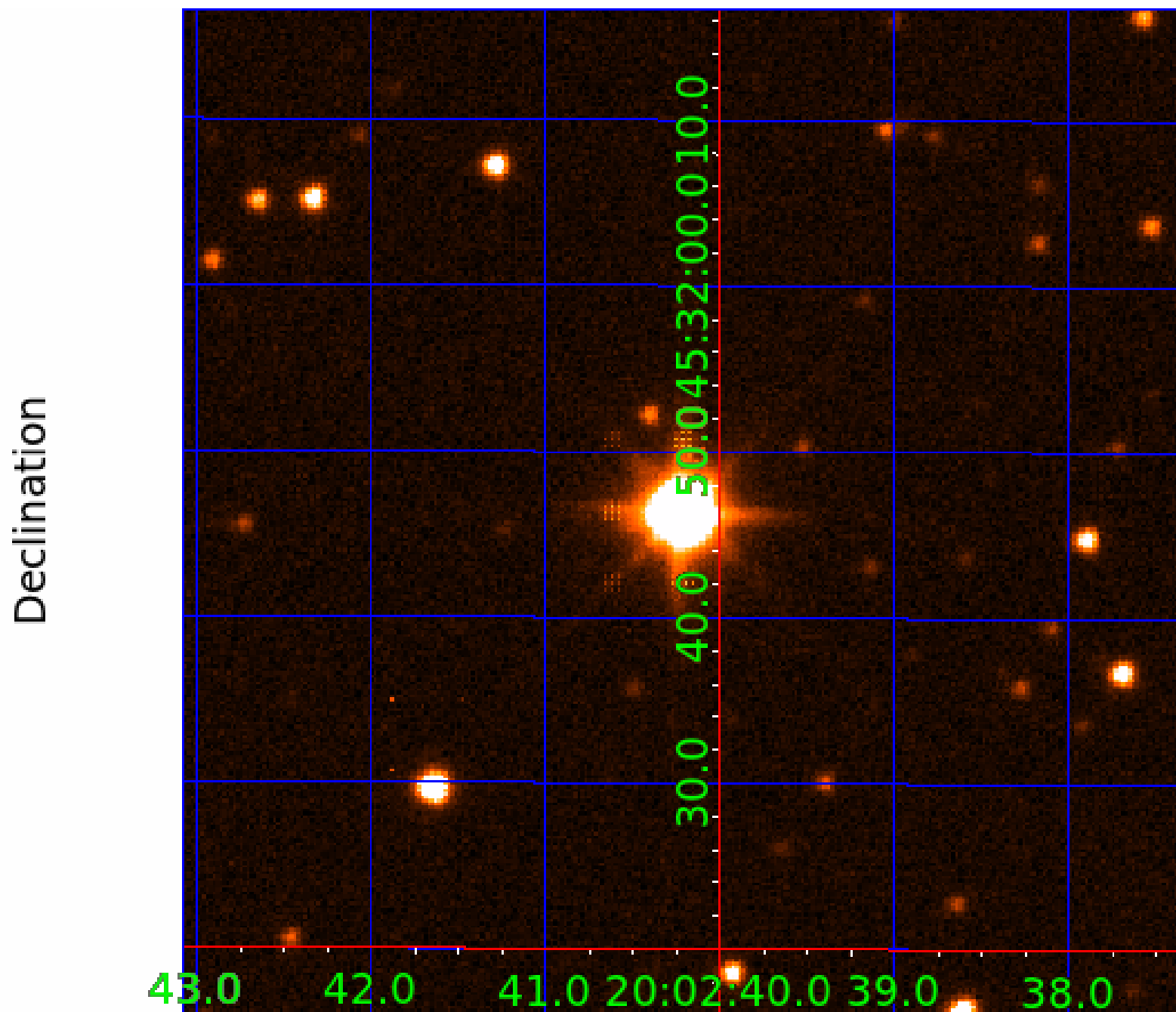
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009182355

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})
009182355-01	OBS	No	2.329359	132.391777	4.1	12.845	9.4	9.6	3.34	7932	0.68	20789.99
009182355-02	OBS	No	472.683008	294.560409	96.6	23.073	10.3	8.9	3.34	7932	4.29	17.43
009182355-03	OBS	No	219.404624	329.484182	71.2	13.828	11.1	8.6	3.34	7932	3.24	48.51
009182355-04	OBS	No	105.137118	178.379901	44.7	7.122	7.9	8.9	3.34	7932	2.50	129.37

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009182355-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009182355-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009182355-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009182355-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

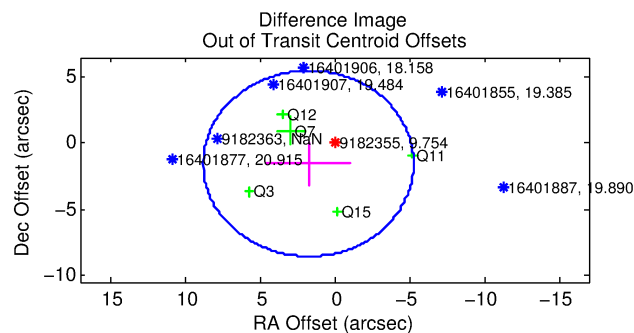
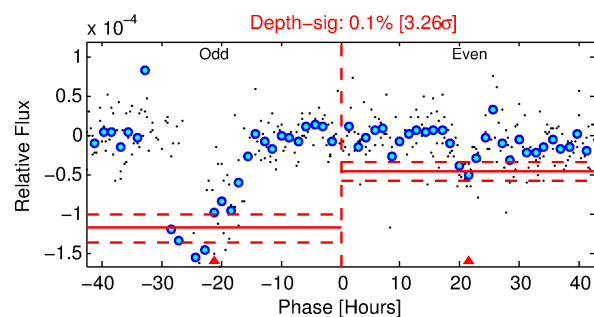
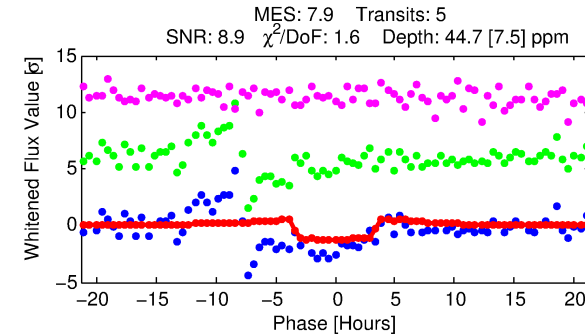
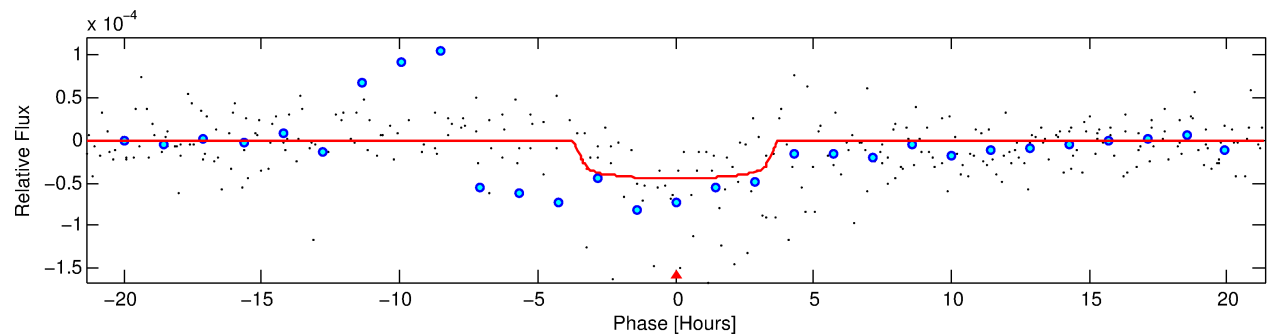
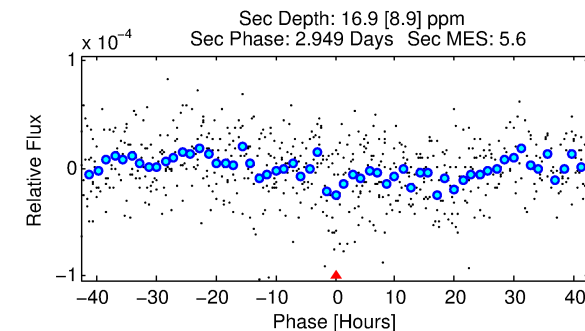
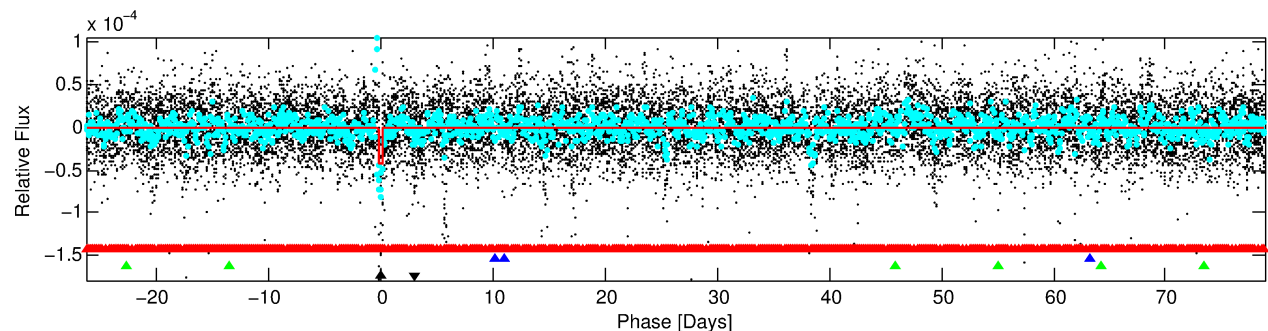
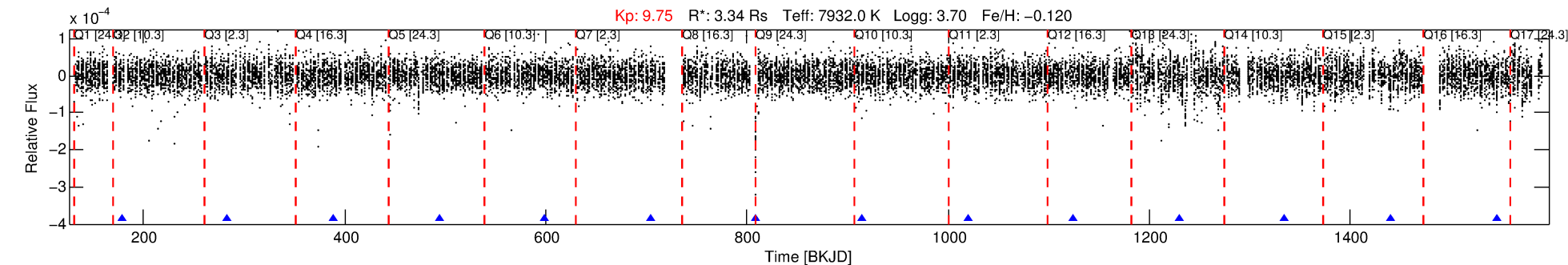
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009182355-04

No Significant Match Found

DV One-Page Summary

KIC: 9182355 Candidate: 4 of 4 Period: 105.137 d



DV Fit Results:

Period = 105.13712 [0.00219] d
Epoch = 178.3799 [0.0194] BKJD
Rp/R* = 0.0068 [0.0036]
a/R* = 64.31 [200.06]
b = 0.83 [1.17]
Seff = 129.37 [96.11]
Teq = 860 [160] K
Rp = 2.50 [1.77] Re
a = 0.5529 [0.2513] AU
Ag = 455.83 [629.31] [0.72σ]
Teff = 6144 [1823] K [2.89σ]

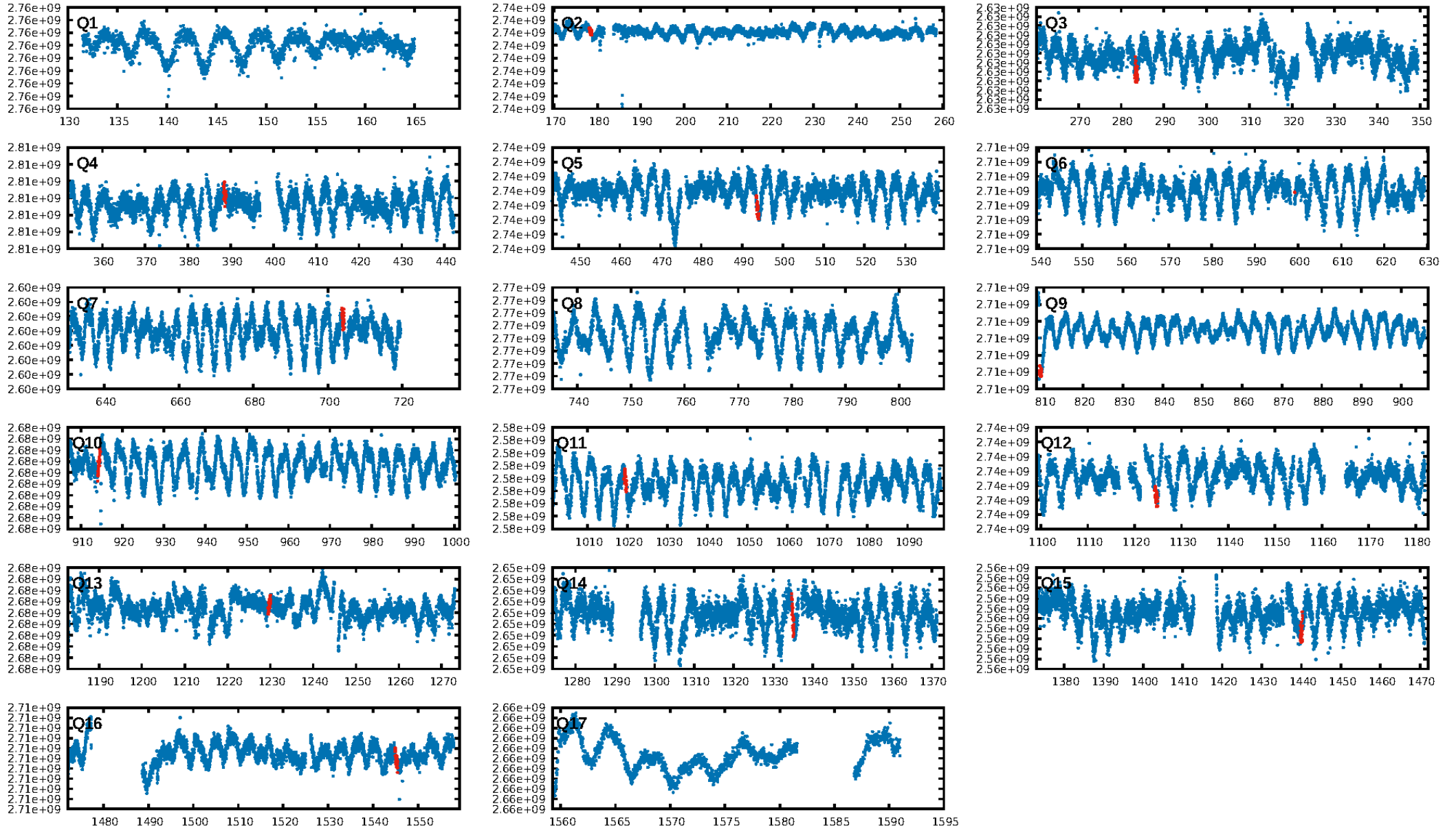
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [167.99σ]
LongPeriod-sig: 100.0% [176.31σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 70.2%
Bootstrap-pfa: 2.52e-08
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.1%
Centroid-so: 4.550 arcsec [2.14σ]
OotOffset-rm: 2.318 arcsec [0.99σ]
KicOffset-rm: 2.081 arcsec [1.30σ]
OotOffset-st: 0/4/1/0 [5]
KicOffset-st: 0/4/1/0 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 0.25 [3/12]

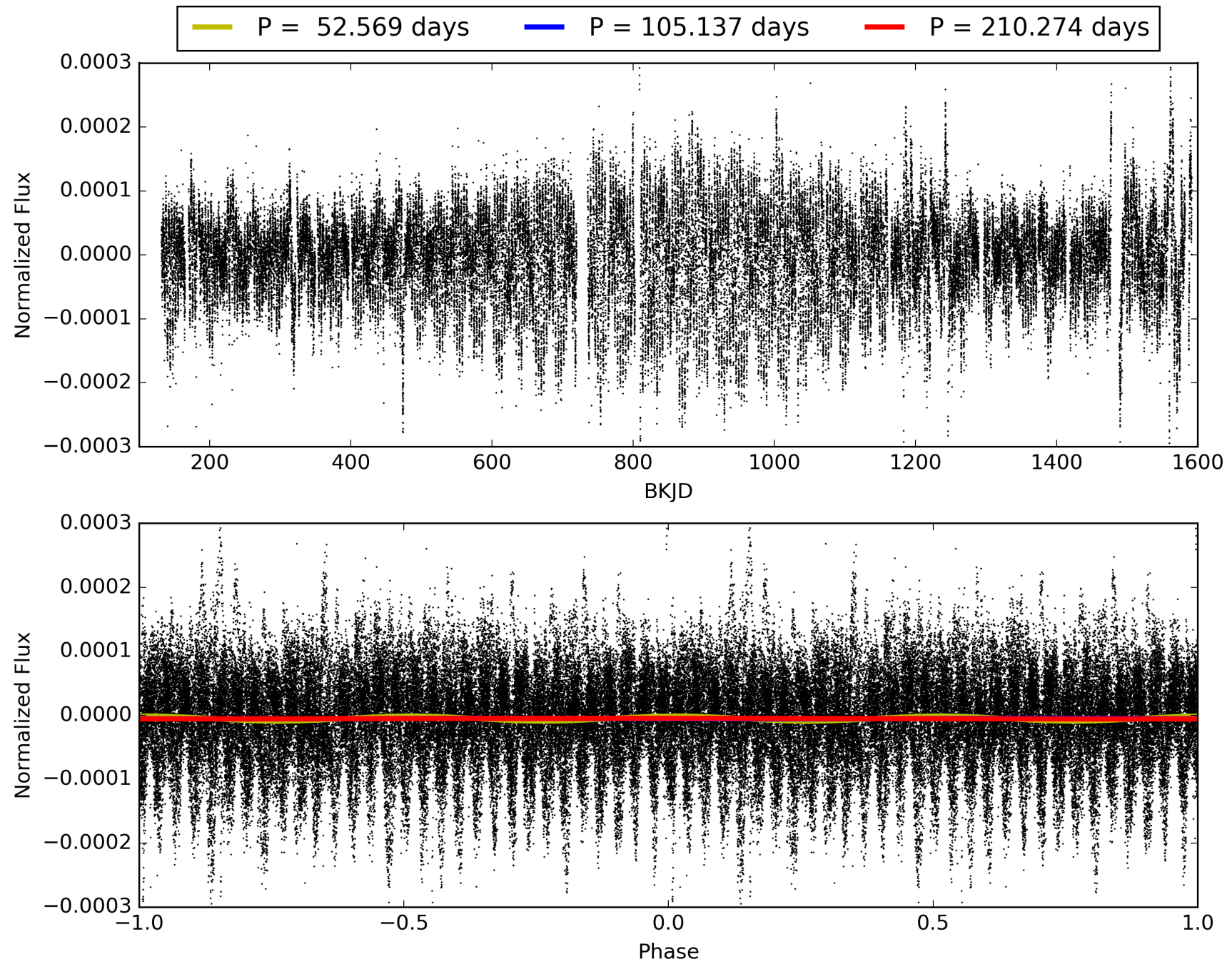
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:15:41 Z

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

TCE 009182355-04, PDC Light Curves

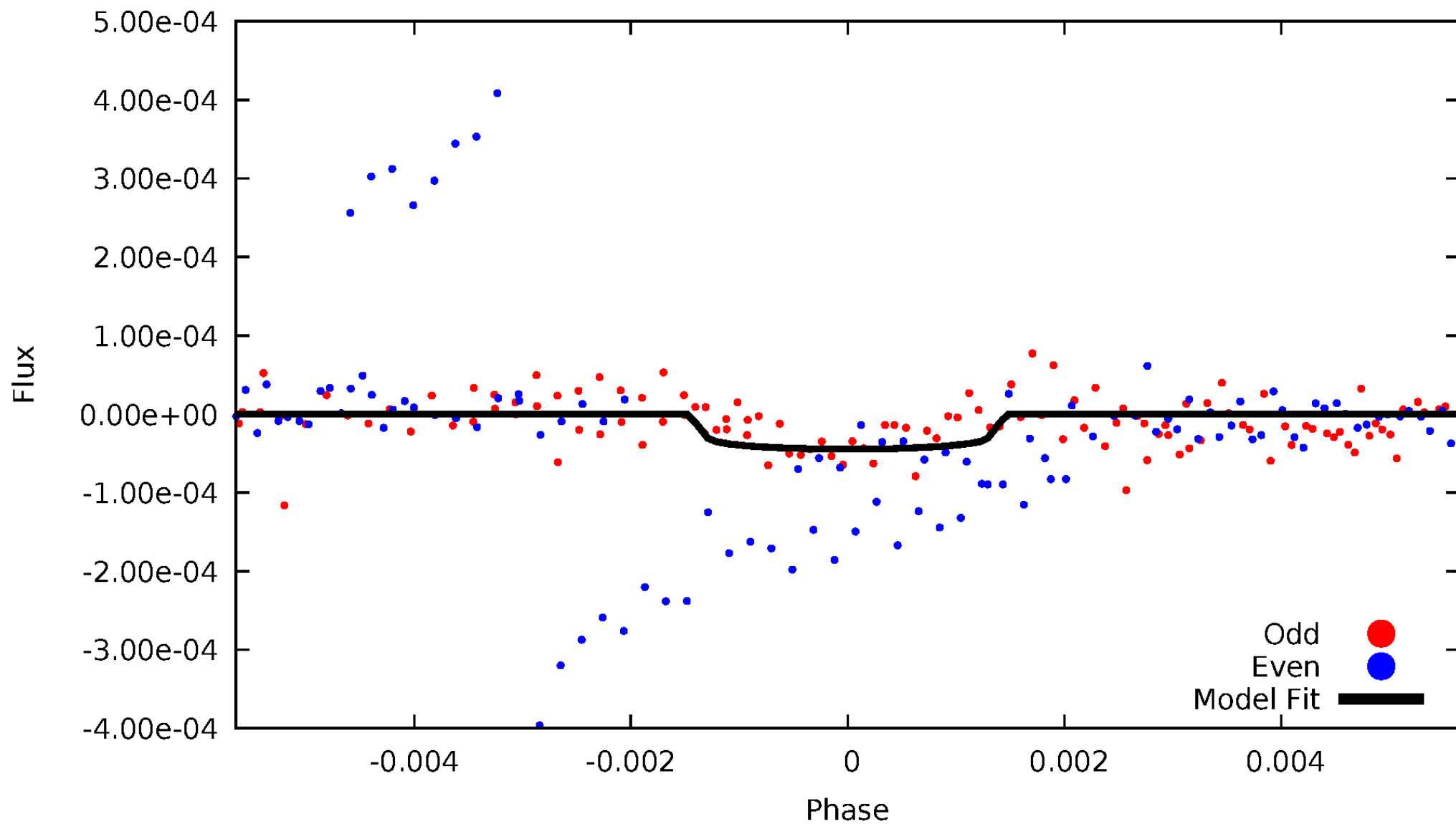


TCE 009182355-04



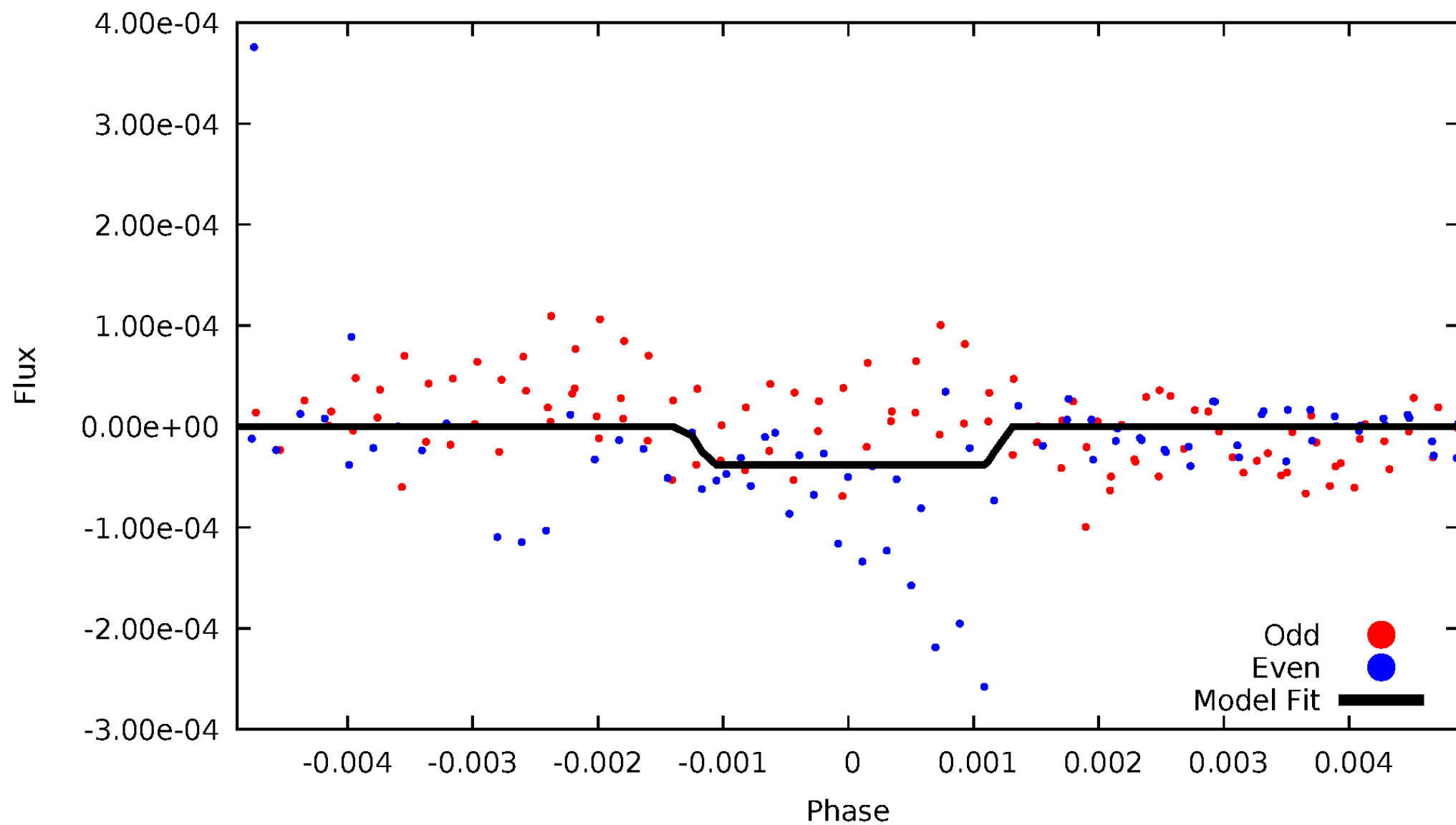
DV Odd/Even

TCE 009182355-04



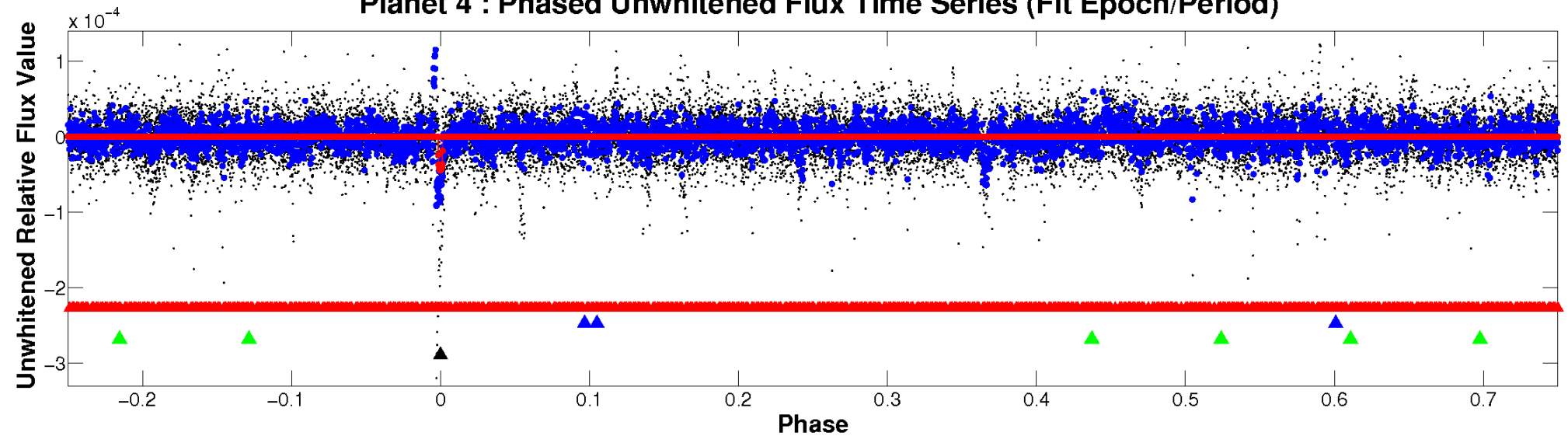
ALT Odd/Even

TCE 009182355-04

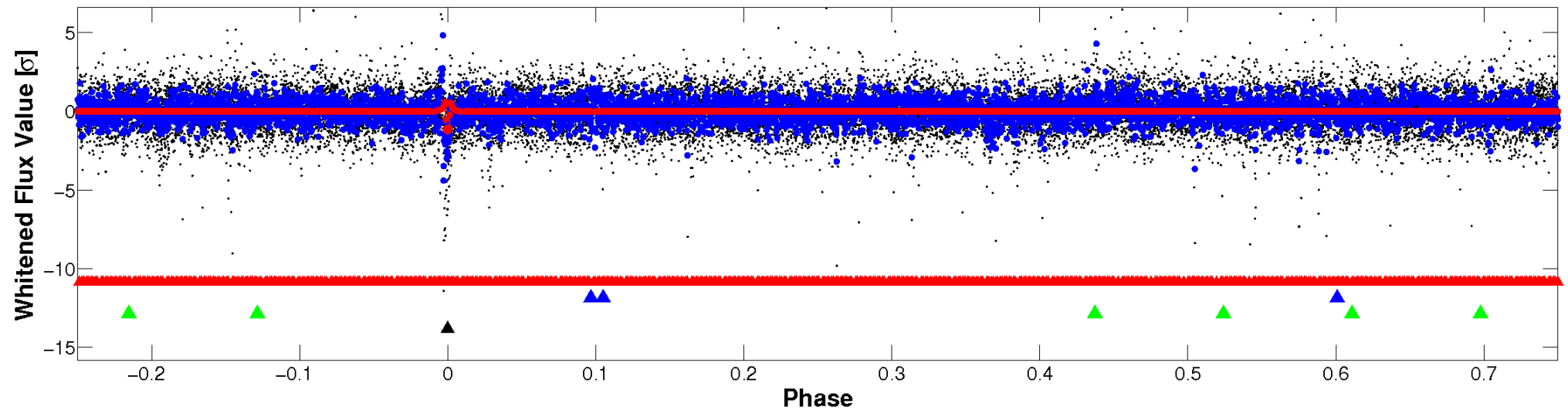


Non-Whitened Vs. Whitened Light Curve

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

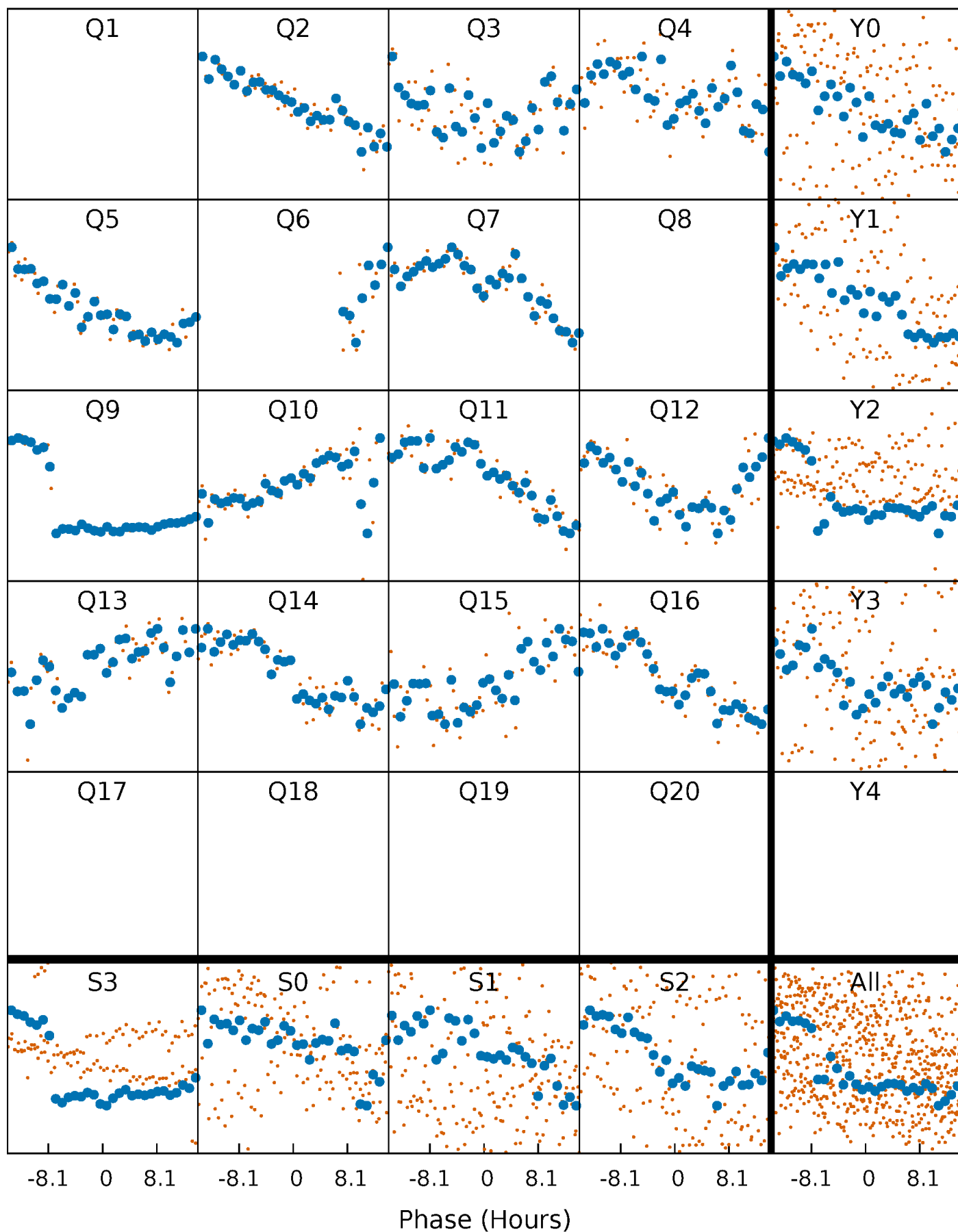


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



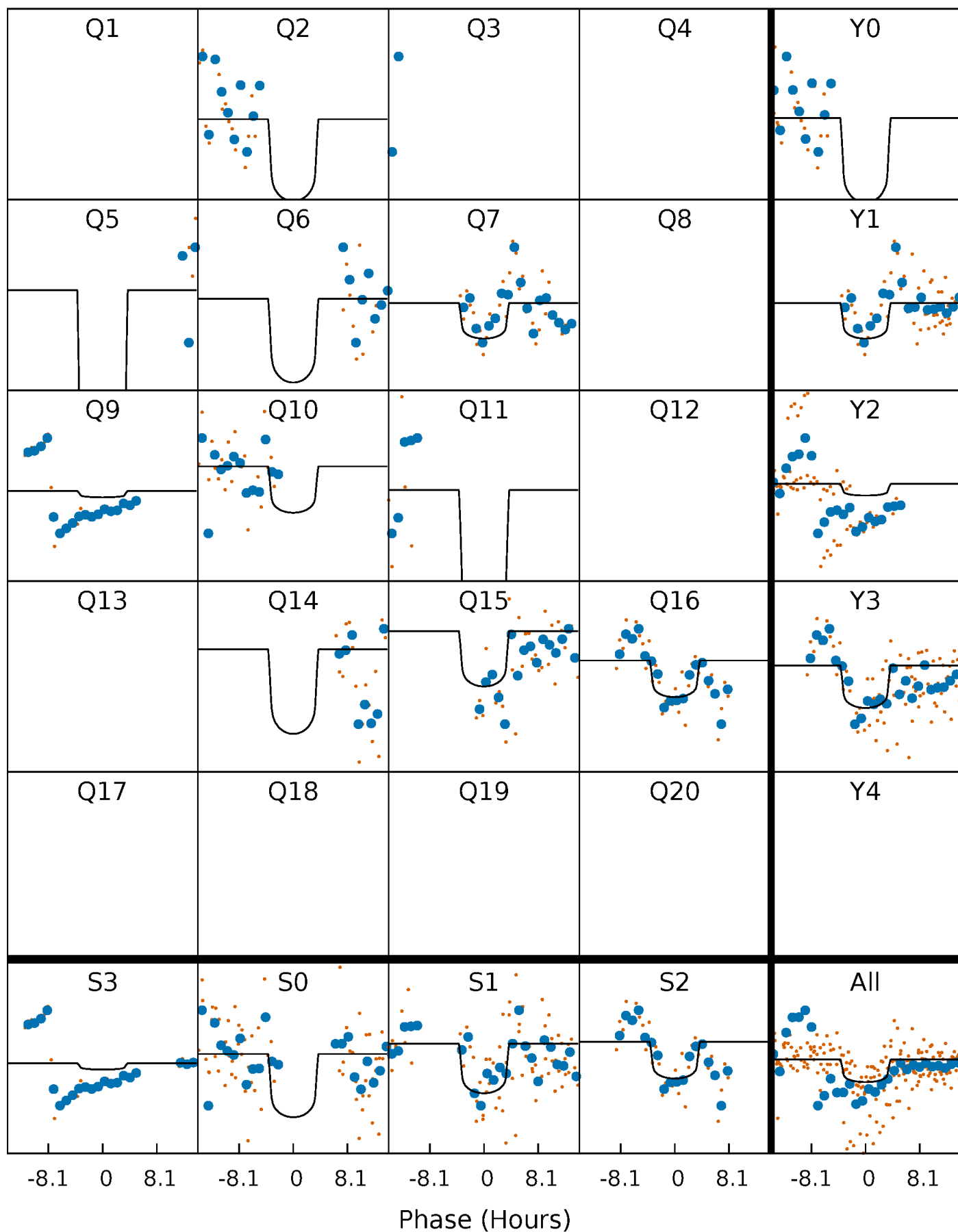
PDC Quarter-Phased Transit Curves

TCE 009182355-04 P=105.137118 Days $T_0=178.379901$ (BKJD)



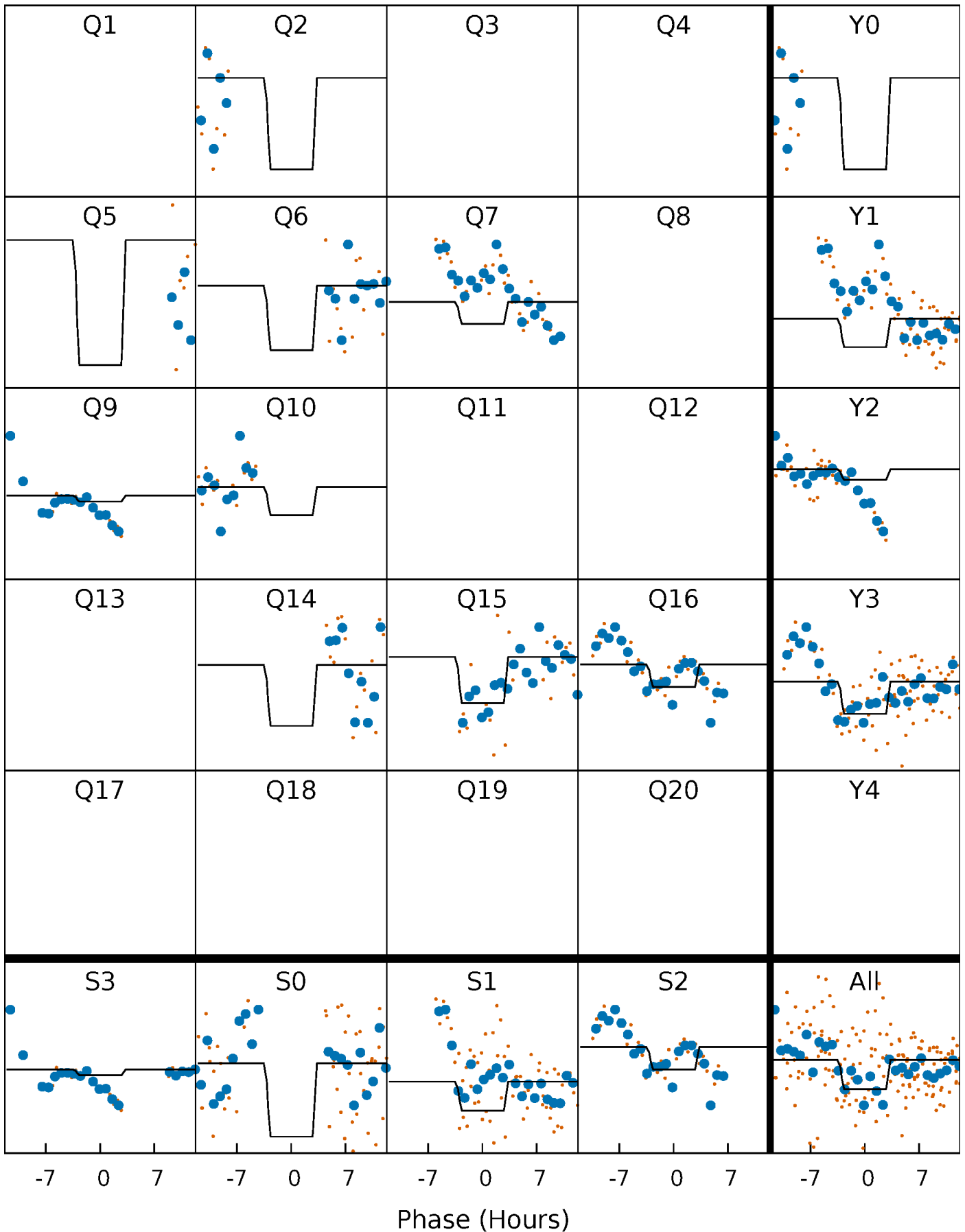
DV Quarter-Phased Transit Curves

TCE 009182355-04 P=105.137118 Days $T_0=178.379901$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

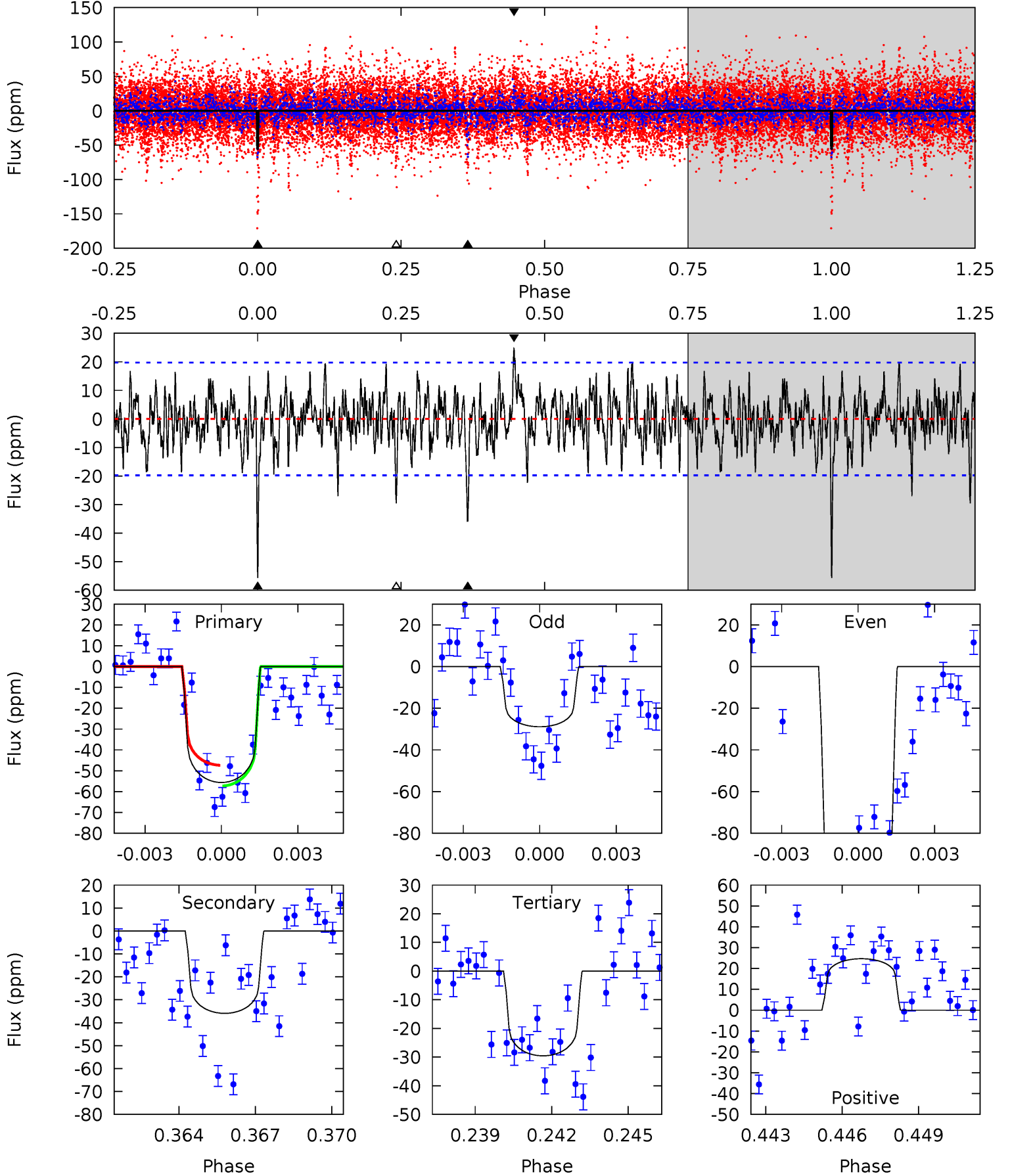
TCE 009182355-04 P=105.133259 Days $T_0=178.500867$ (BKJD)



DV Model-Shift Uniqueness Test

009182355-04, P = 105.137118 Days, E = 73.242783 Days

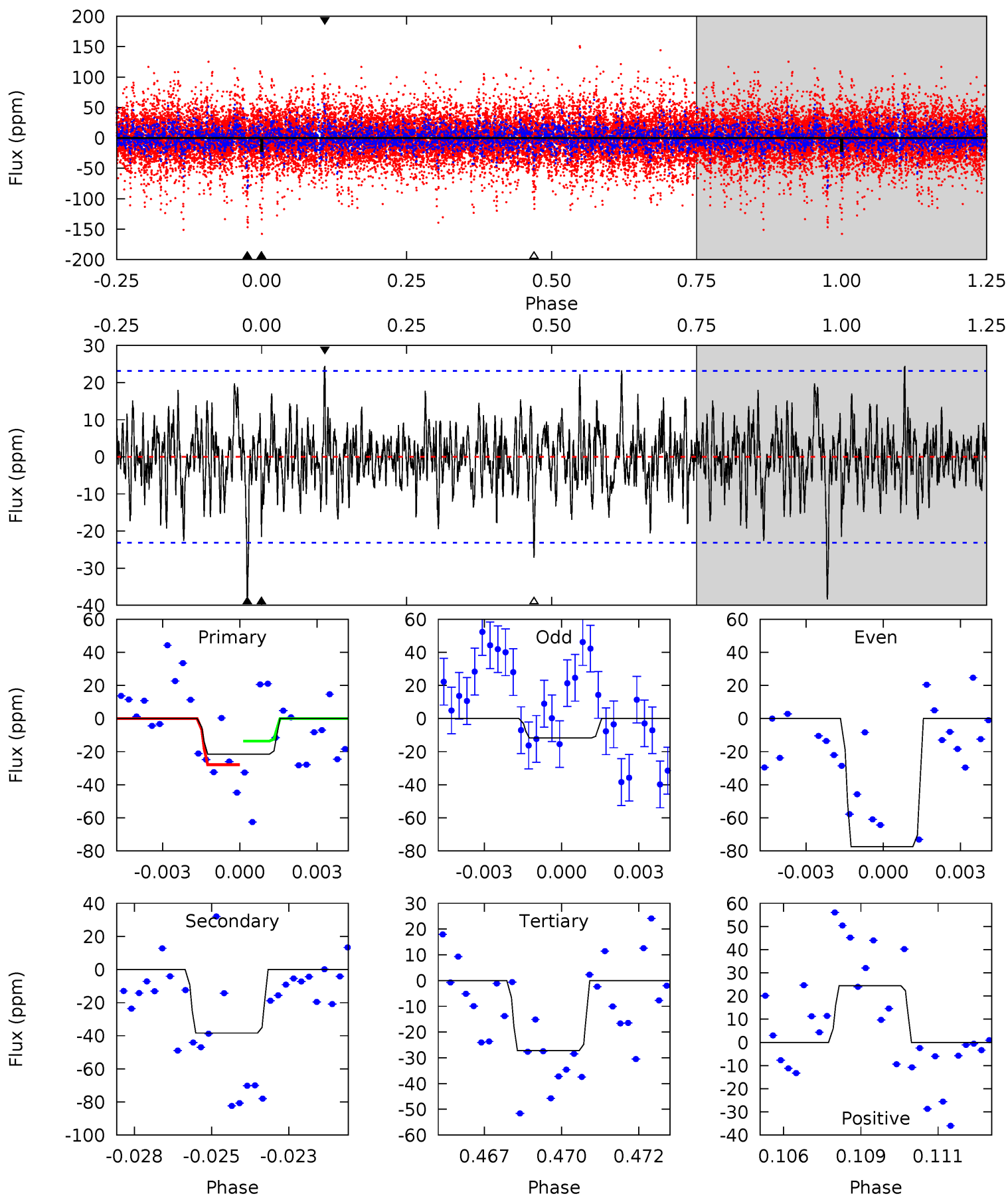
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	9.57	7.87	6.58	5.26	2.98	1.96	6.94	8.24	1.70	2.99	12.2	1.45	0.31	1.29



Alt Model-Shift Uniqueness Test

009182355-04, P = 105.133259 Days, E = 73.367608 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.91	8.77	6.21	5.58	5.28	3.02	1.54	-1.30	-0.67	2.56	3.18	7.49	1.14	0.39	1.63



Stellar Parameters For KIC 009182355

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7932^{+219}_{-329}	$3.700^{+0.424}_{-0.079}$	$-0.120^{+0.200}_{-0.350}$	$3.339^{+0.681}_{-1.590}$	$2.038^{+0.341}_{-0.511}$	$0.077^{+0.329}_{-0.027}$
	+3%/-4%	+11%/-2%	+167%/-292%	+20%/-48%	+17%/-25%	+426%/-35%
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 009182355-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-36 ± 4	$2.20^{+1.30}_{-1.08}$	1147^{+92}_{-129}	7305^{+3746}_{-1511}	1241^{+3427}_{-760}
Alt.	-38 ± 4	$2.10^{+1.22}_{-1.13}$	1156^{+88}_{-140}	7675^{+5240}_{-1531}	1467^{+5303}_{-891}

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

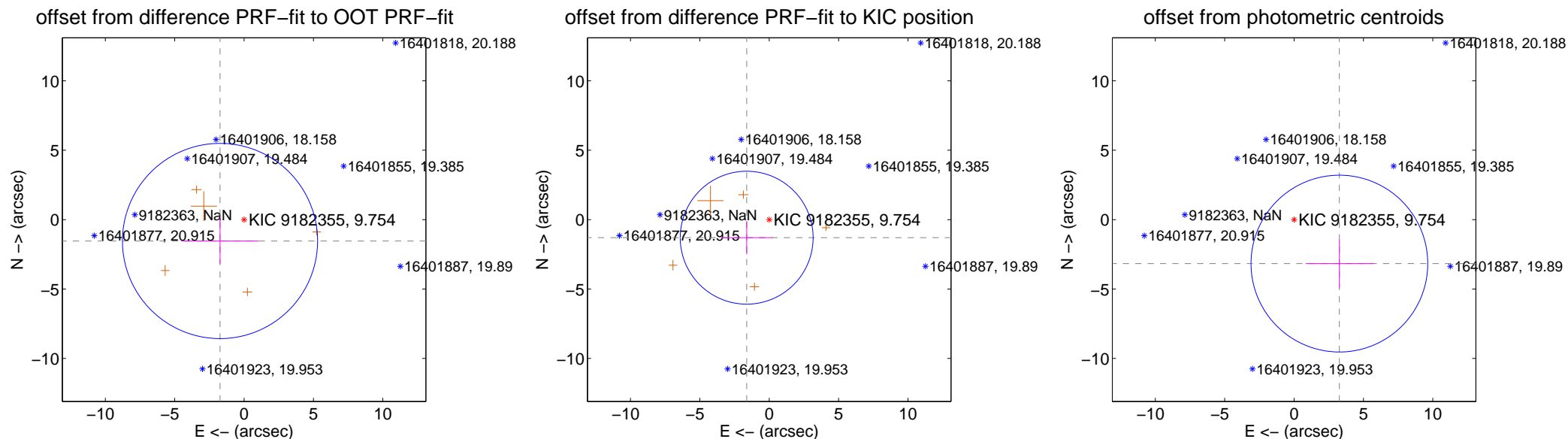
DV Centroid Data

Supplemental centroid analysis for 009182355-04. **Kepler magnitude: 9.75.** Transit SNR 8.92

There are 0 quarters with good PRF difference image offsets

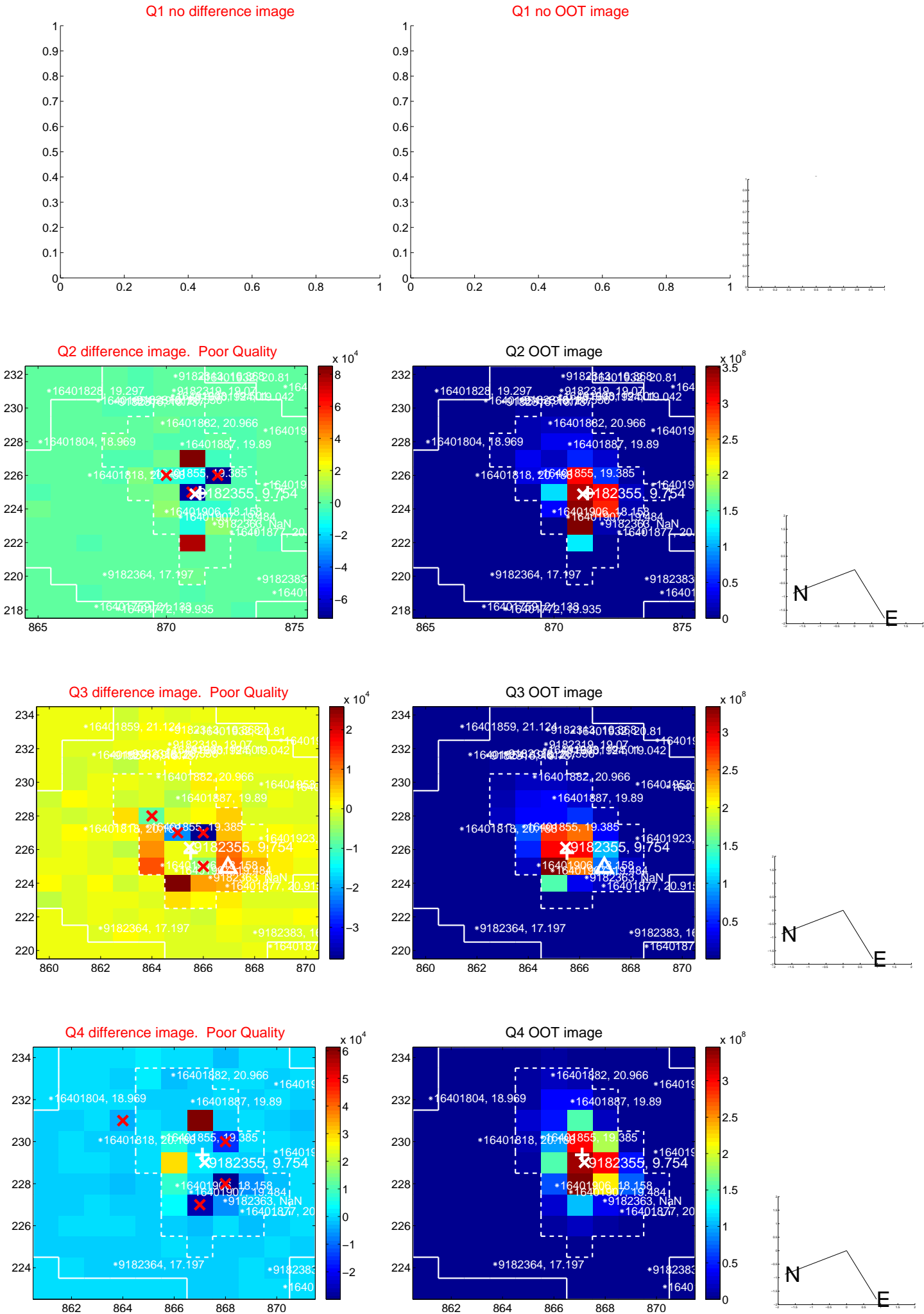
The direct PRF centroid is offset from the target star catalog position by about 1.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.318 ± 2.343	0.99	1.734 ± 2.771	-1.539 ± 1.647
PRF-fit source offset from KIC position	2.081 ± 1.596	1.30	1.624 ± 1.869	-1.302 ± 1.187
photometric centroid source offset	4.55 ± 2.12	2.14	-3.27 ± 2.43	-3.17 ± 1.73

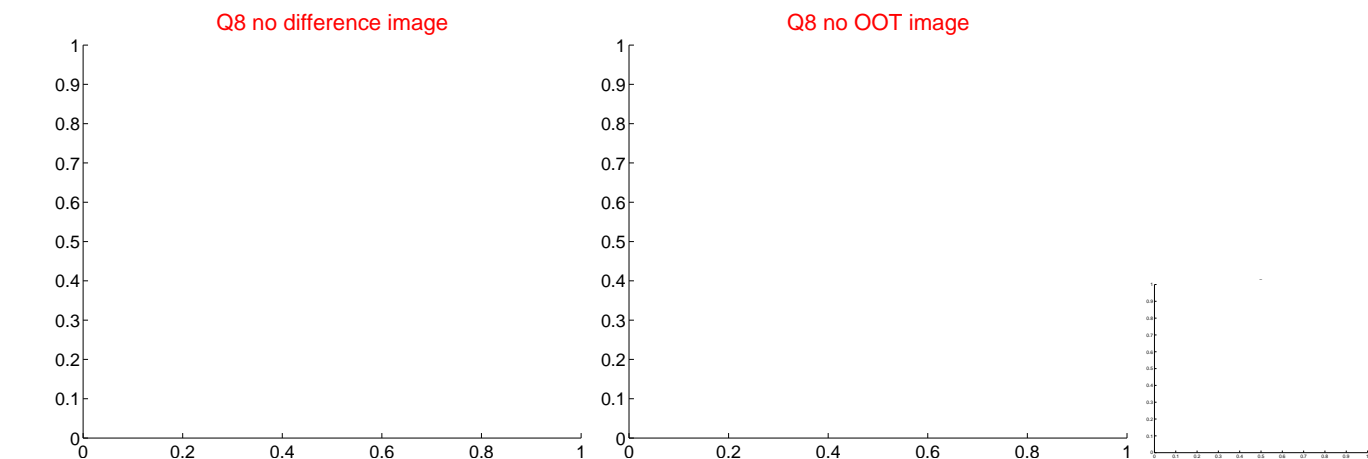
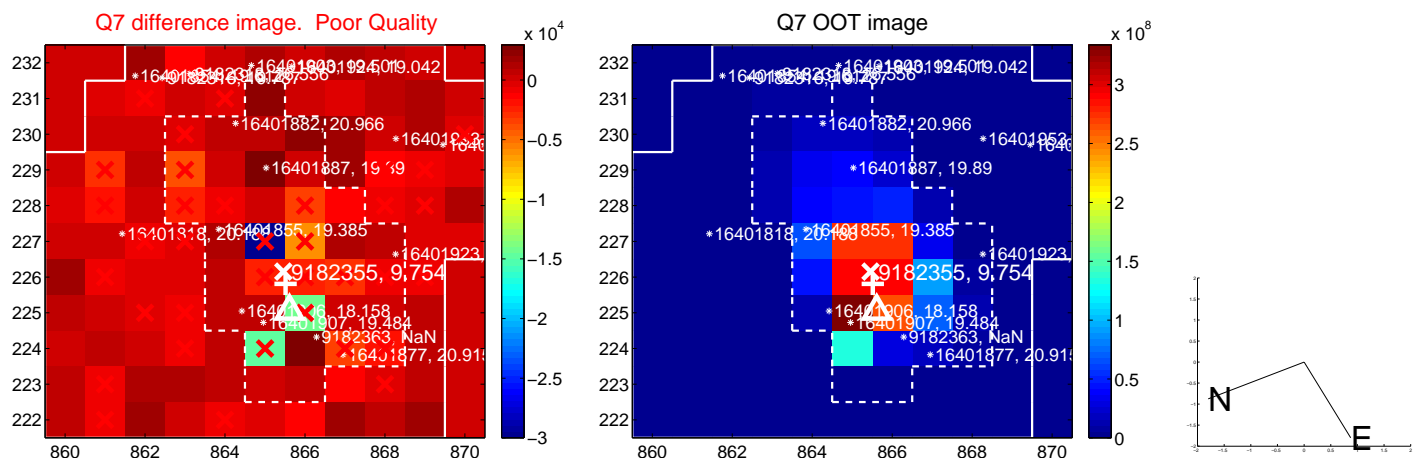
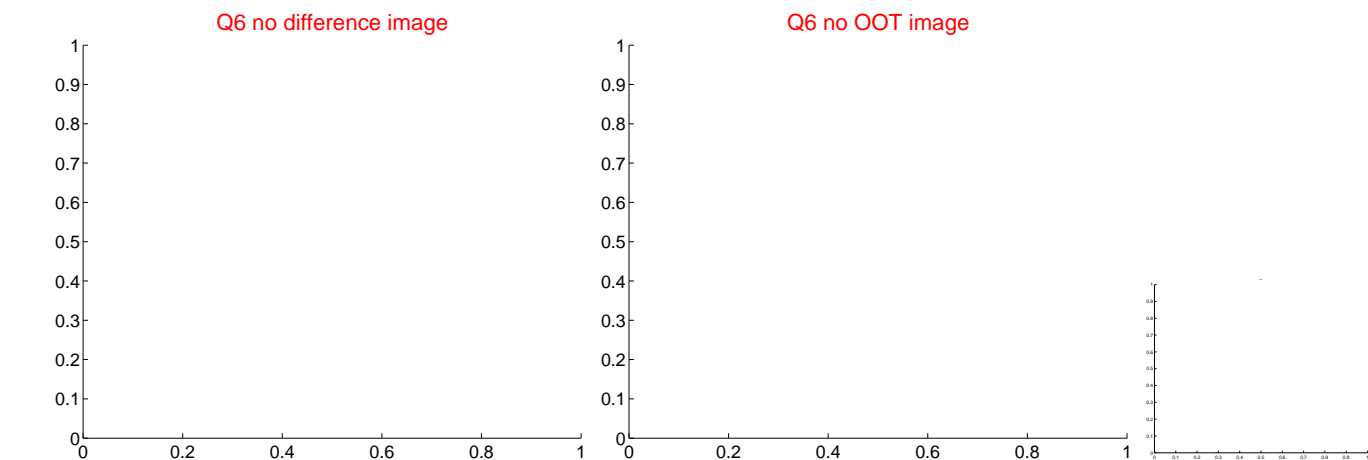
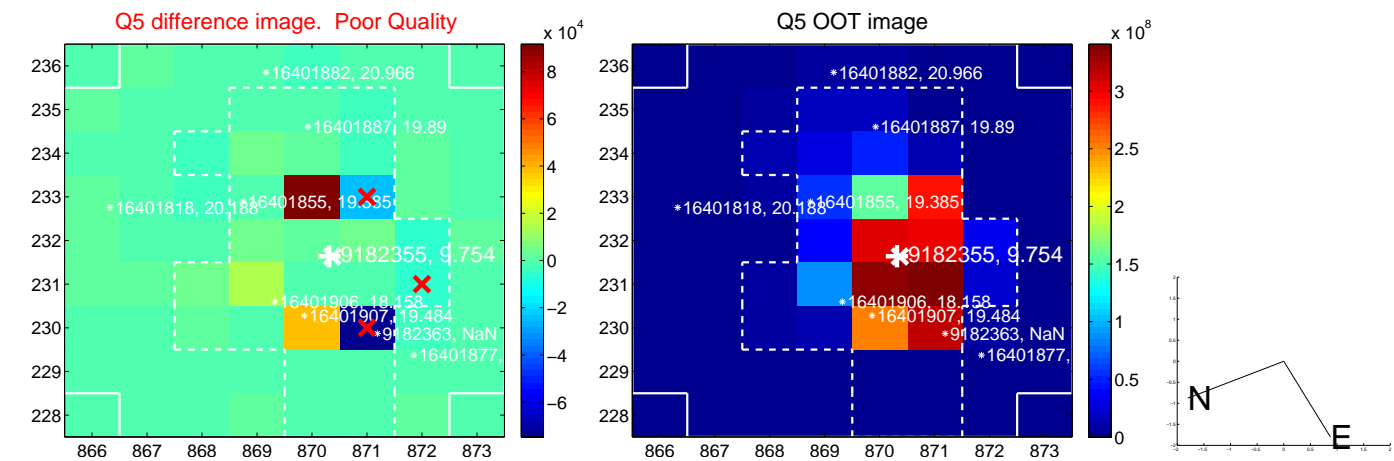


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

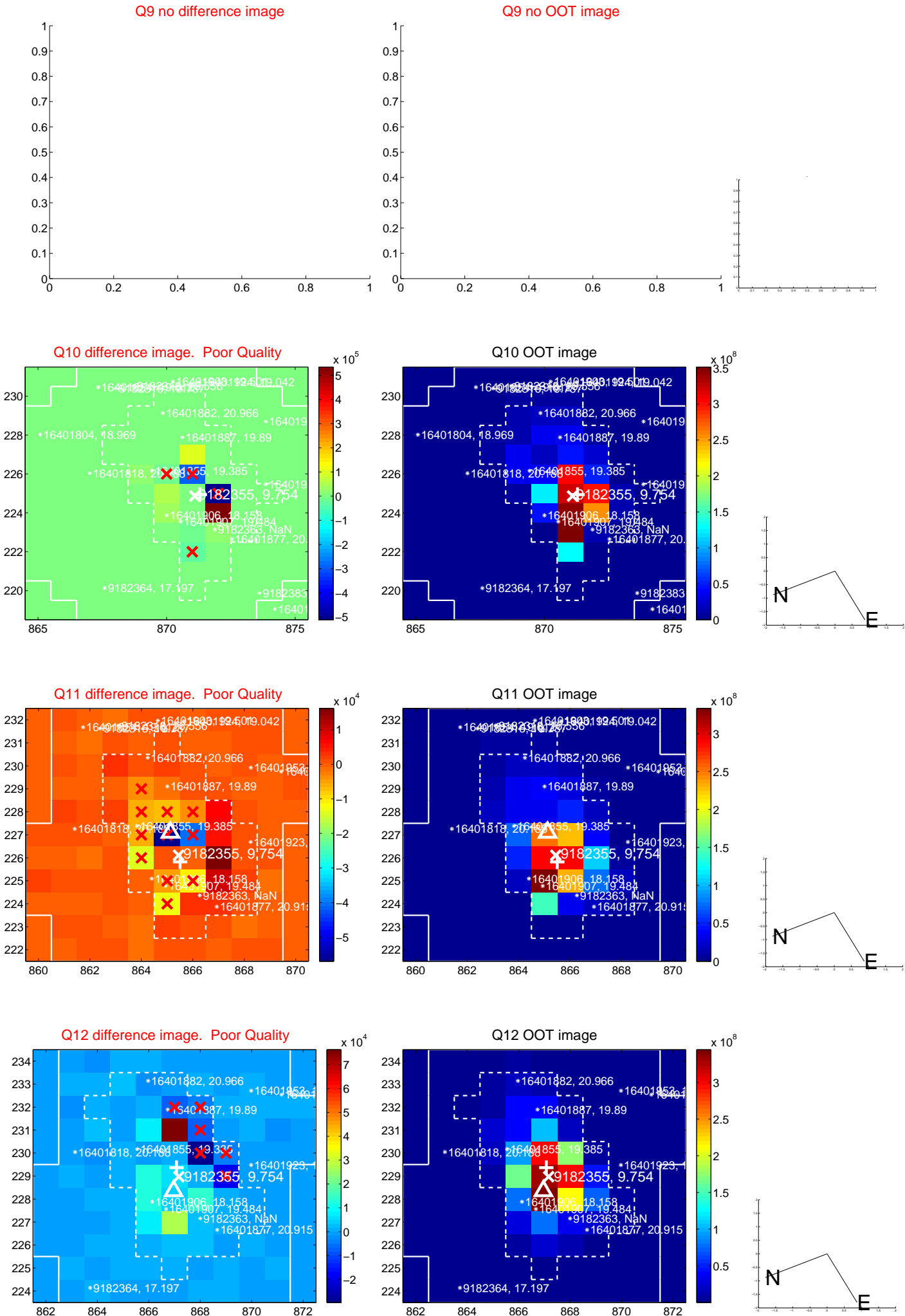
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



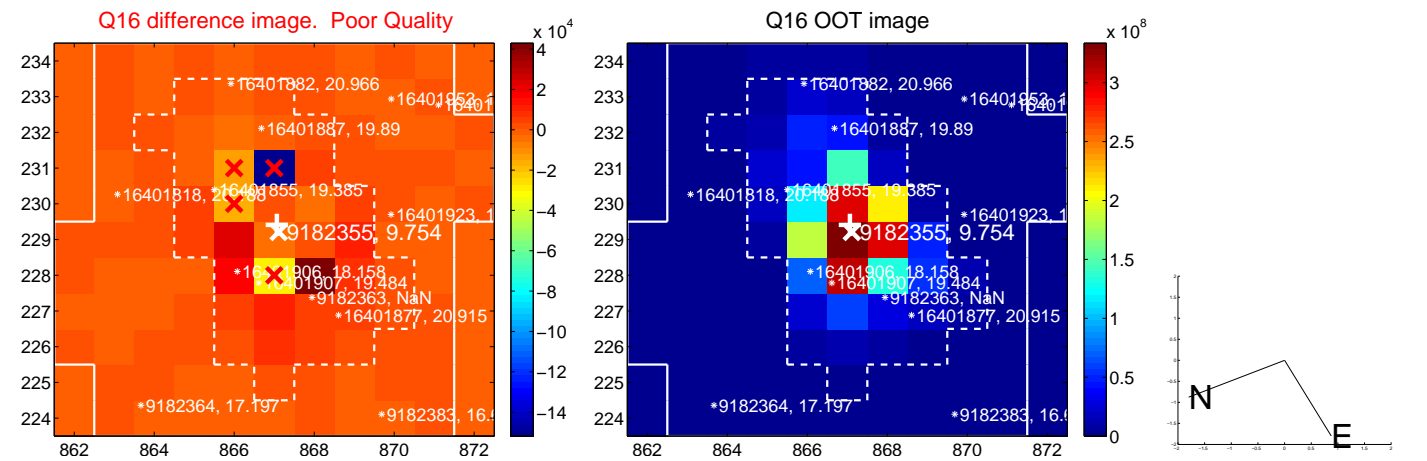
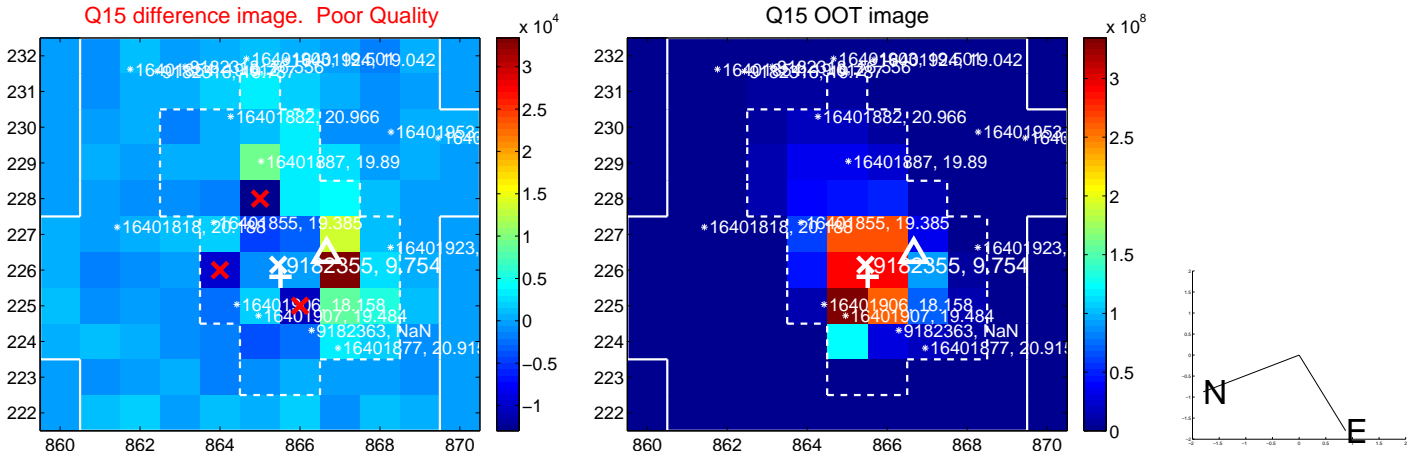
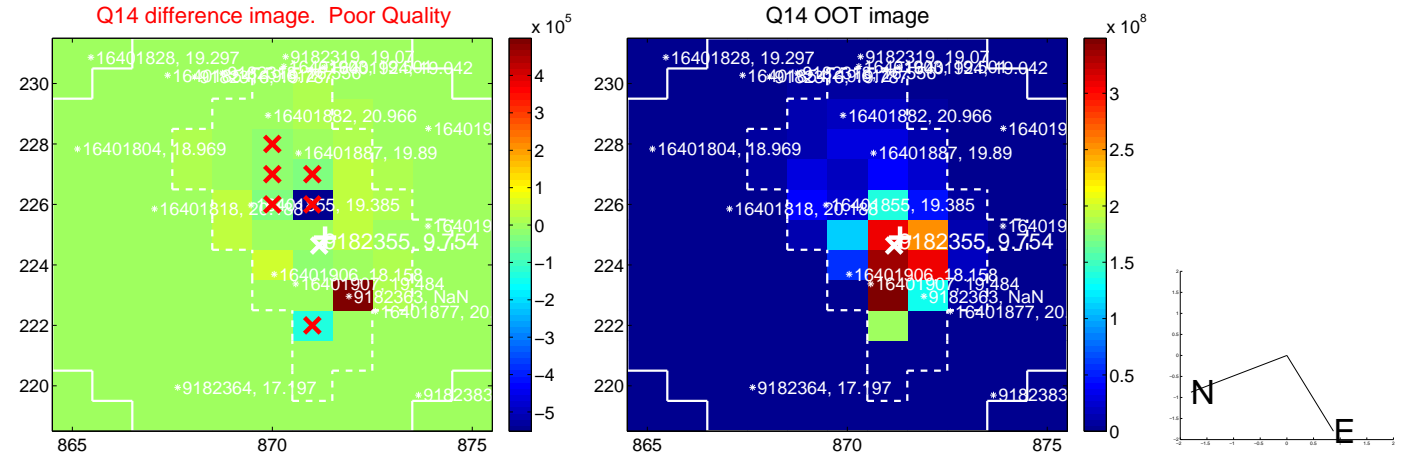
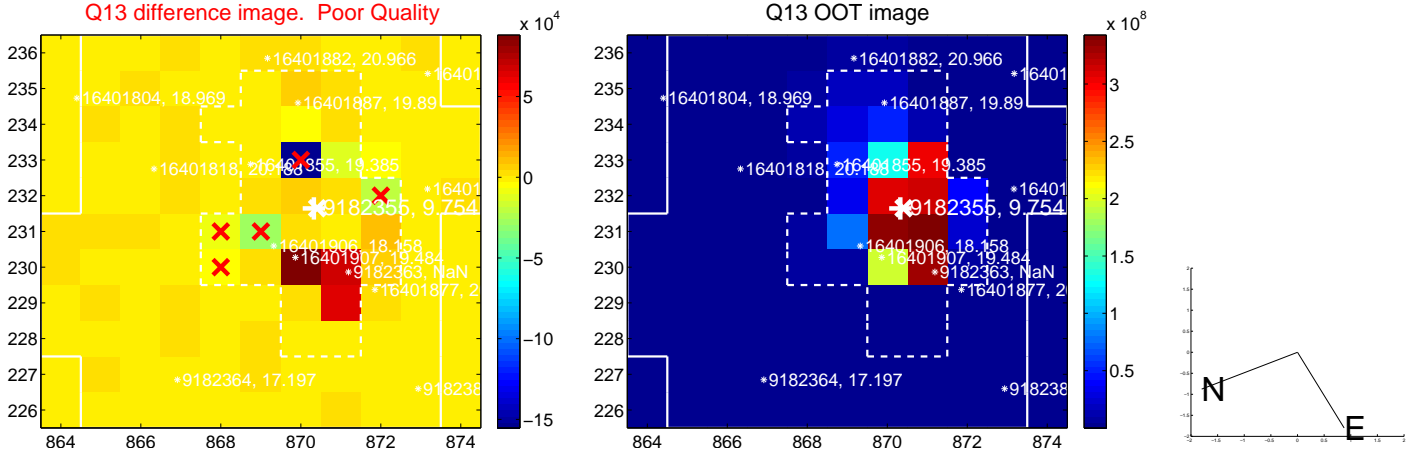
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



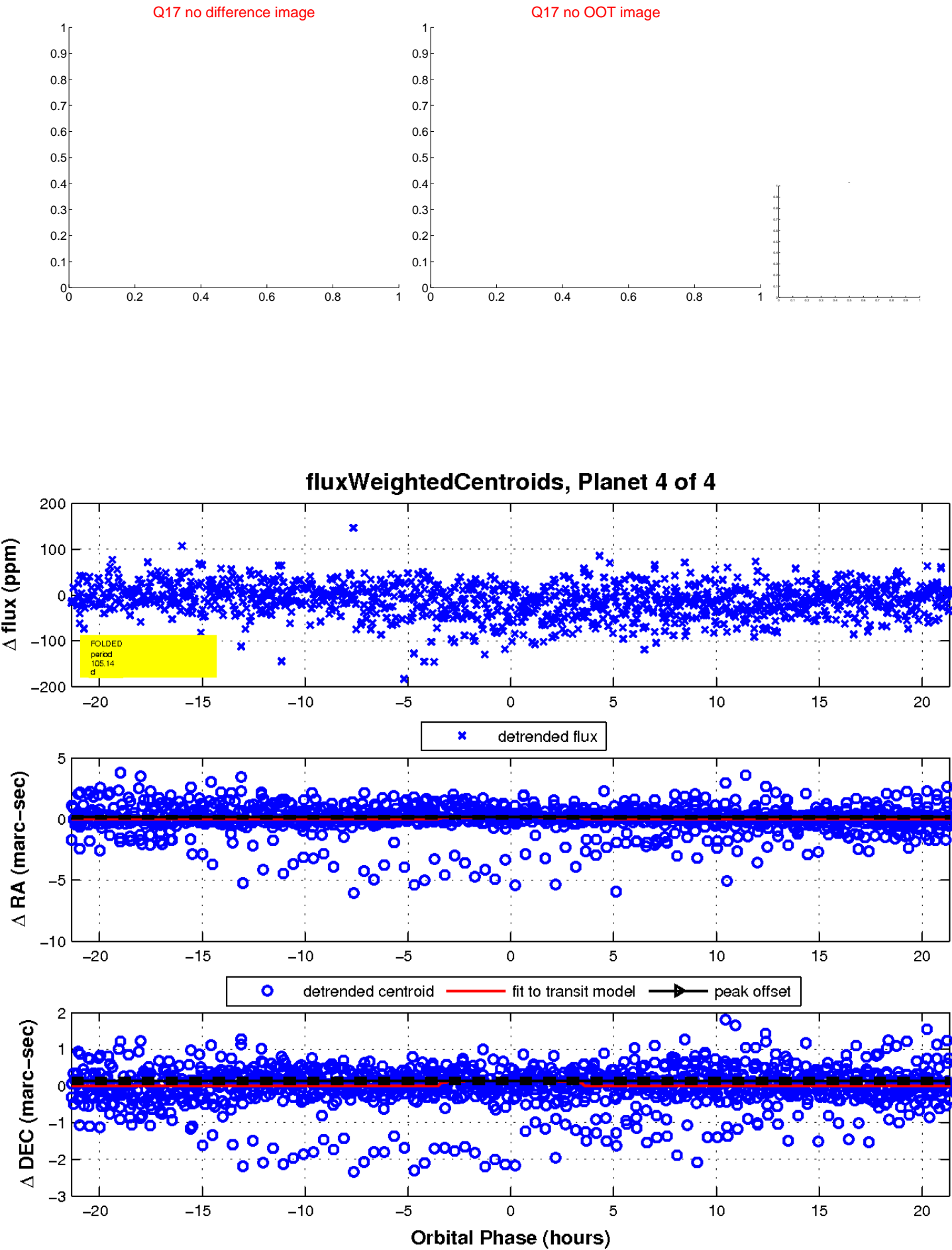
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

