

KIC 005395490

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})
005395490-01	OBS	No	533.527666	388.991547	2277.4	3.860	11.6	7.8	0.70	5374	3.41	0.28
005395490-02	OBS	No	414.756071	287.607579	2301.3	5.157	11.5	6.9	0.70	5374	3.39	0.40
005395490-03	OBS	No	1.863776	132.049393	249.7	13.752	11.2	9.2	0.70	5374	1.10	532.04
005395490-04	OBS	No	29.033403	144.577080	4046.1	2.109	14.5	8.4	0.70	5374	8.46	13.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005395490-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005395490-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV
005395490-03	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005395490-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

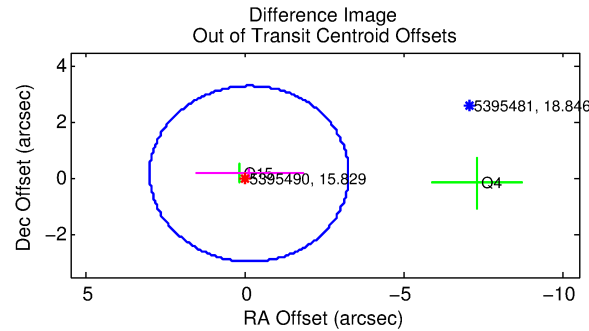
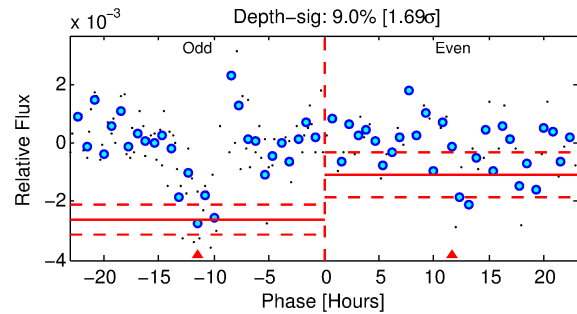
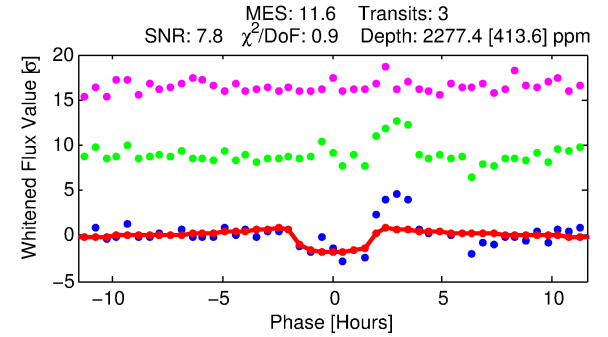
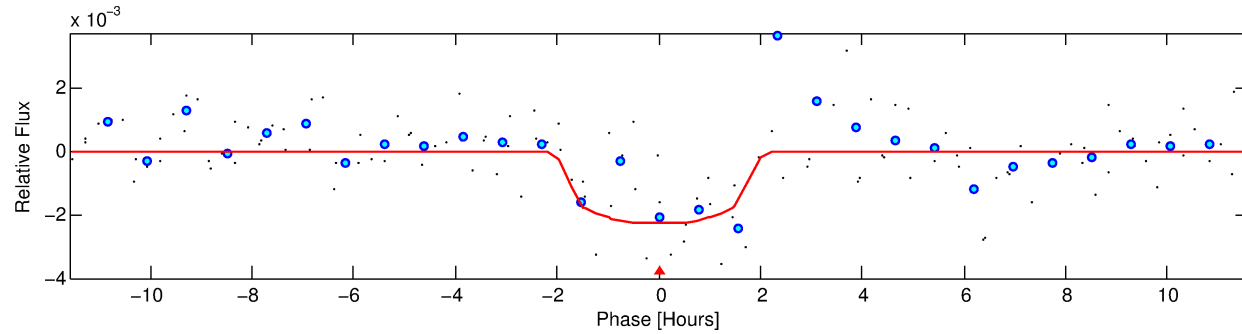
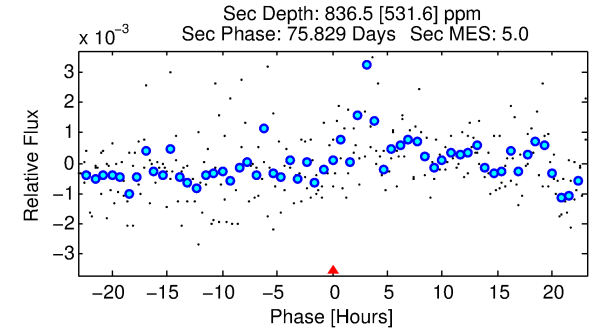
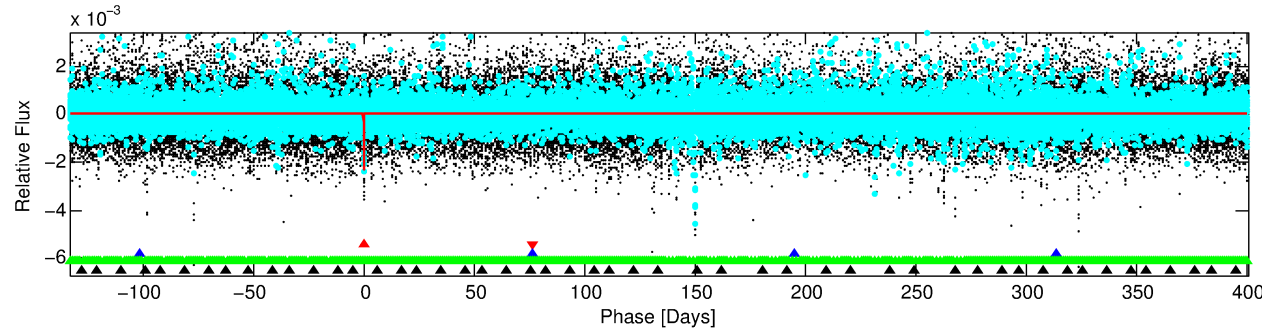
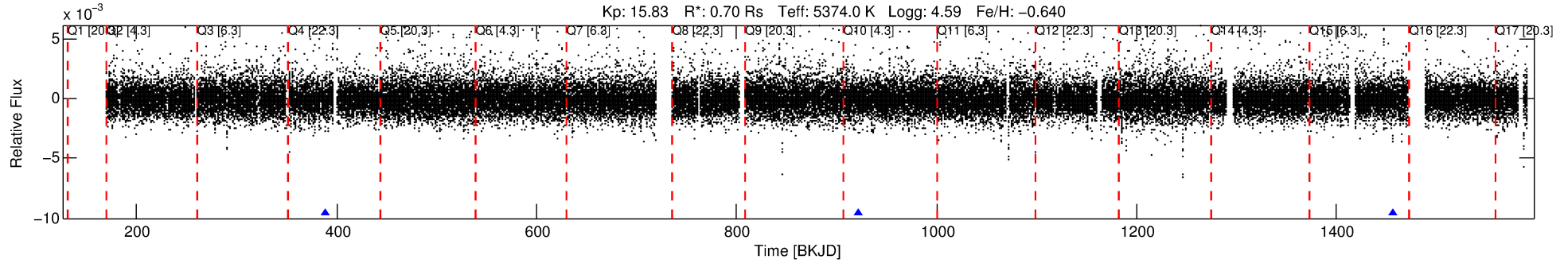
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005395490-01

No Significant Match Found

DV One-Page Summary

KIC: 5395490 Candidate: 1 of 4 Period: 533.528 d



DV Fit Results:

Period = 533.52767 [0.00636] d
Epoch = 388.9915 [0.0096] BKJD
Rp/R* = 0.0444 [0.3214]
a/R* = 993.50 [30690.90]
b = 0.45 [54.84]
Seff = 0.28 [0.05]
Teq = 186 [9] K
Rp = 3.41 [24.69] Re
a = 1.1460 [0.1159] AU
Ag = 52040.39 [754869.28] [0.07σ]
Teffp = 4339 [15736] K [0.26σ]

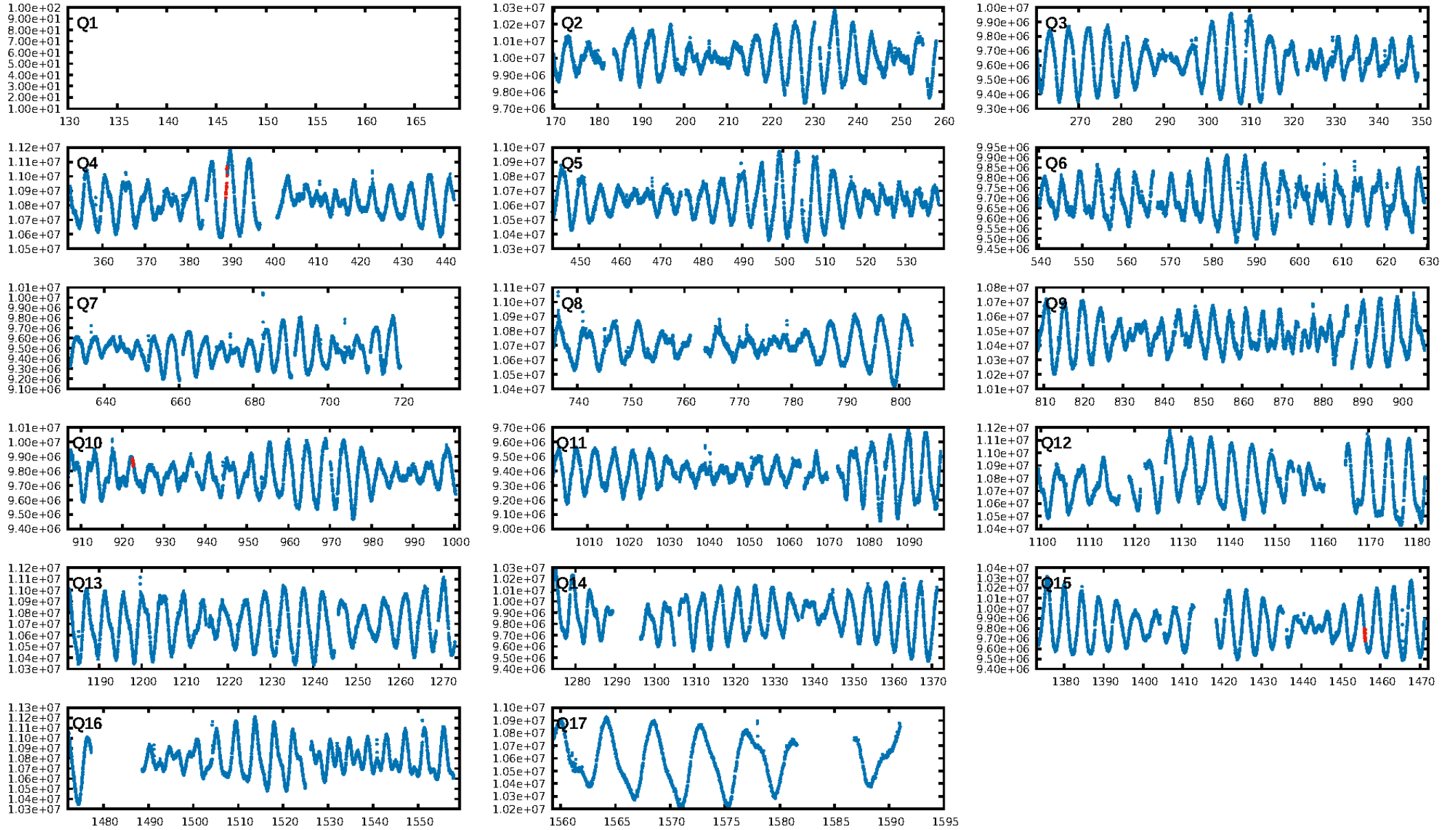
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [442.50σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 4.5%
ModelChiSquareGof-sig: 79.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.8313
Centroid-sig: 94.2%
Centroid-so: 0.749 arcsec [0.57σ]
OotOffset-rm: 0.217 arcsec [0.21σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: 0.125 arcsec [0.09σ]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.33 [1/3]

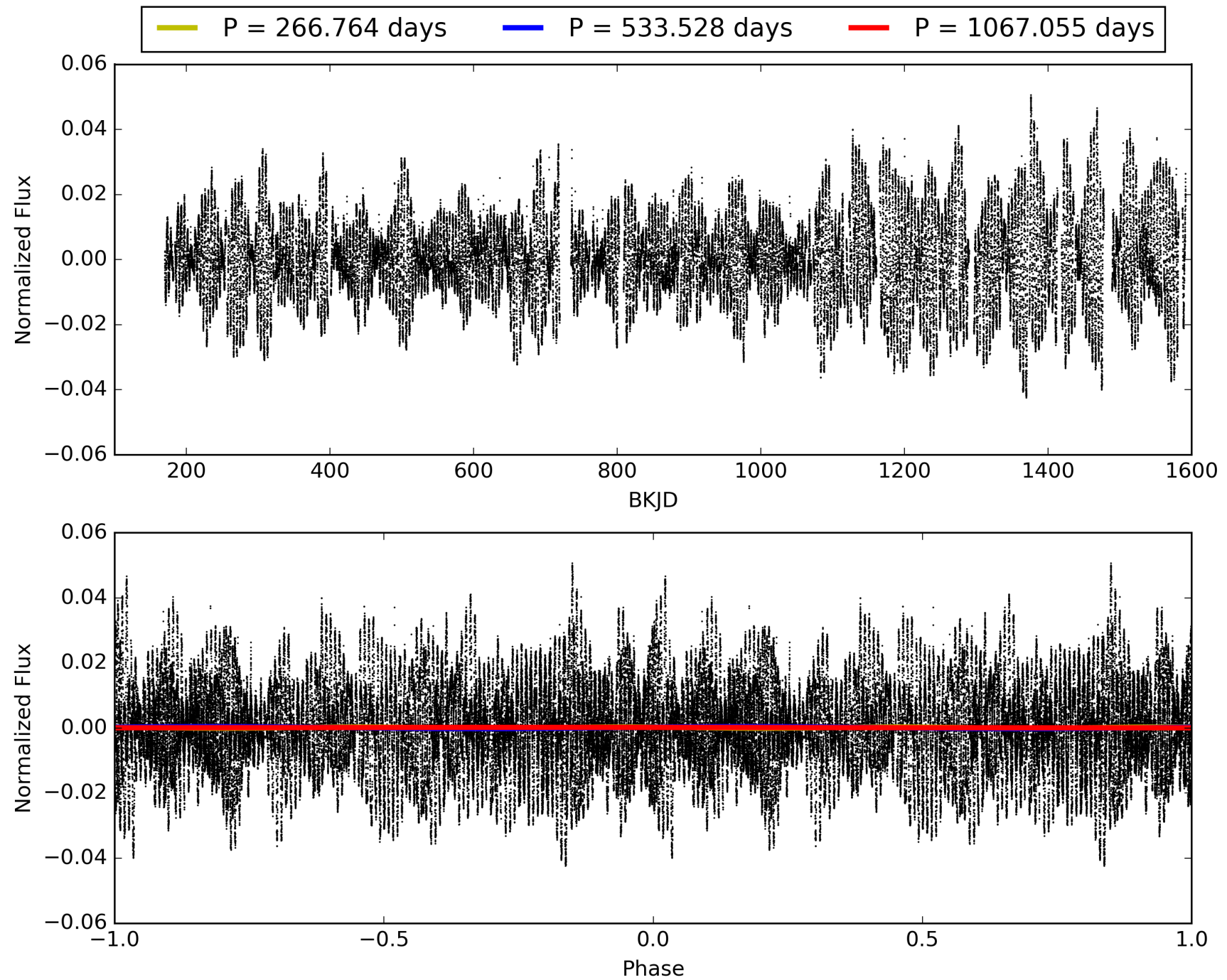
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:09:56 Z

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

TCE 005395490-01, PDC Light Curves

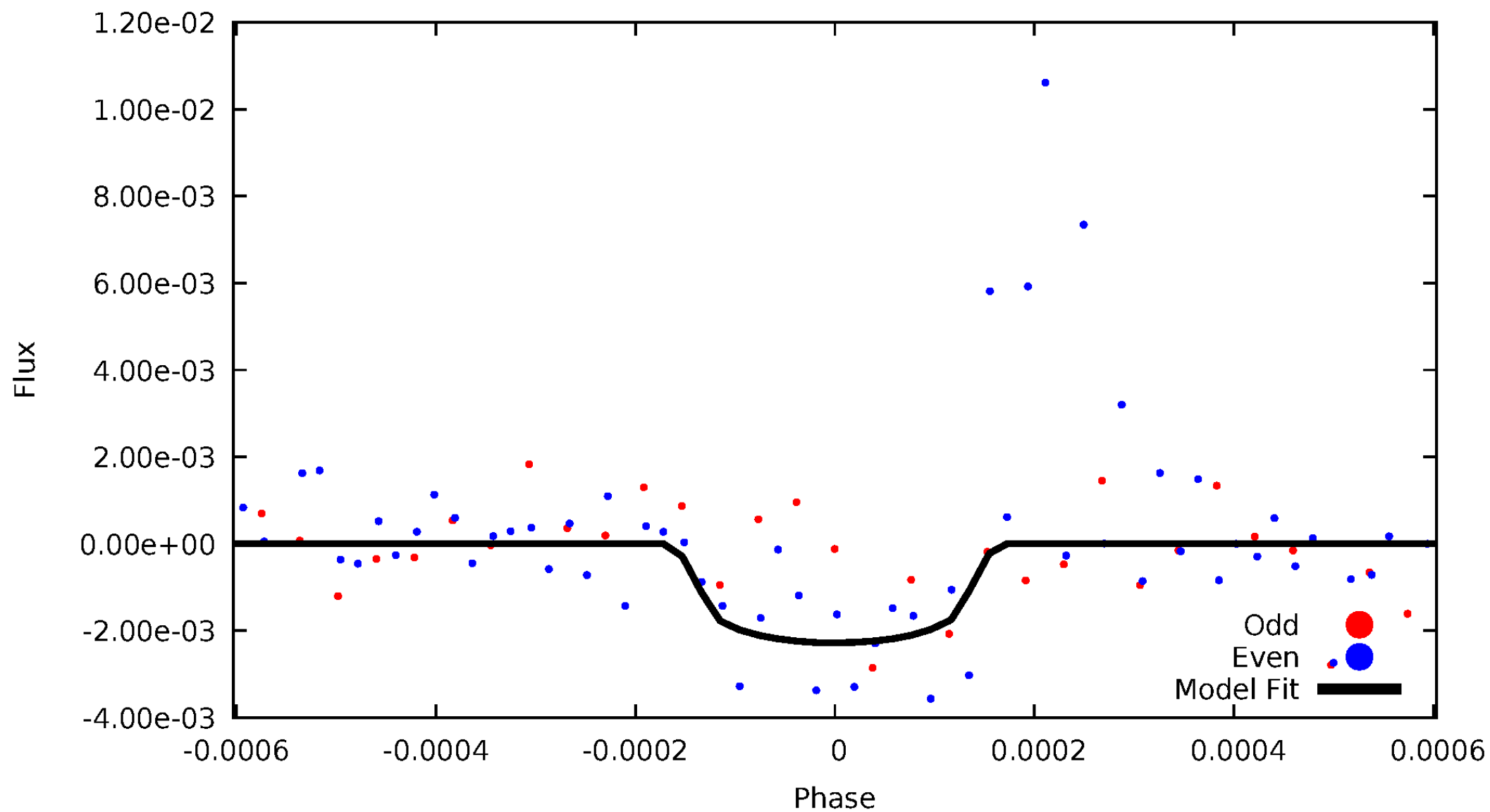


TCE 005395490-01



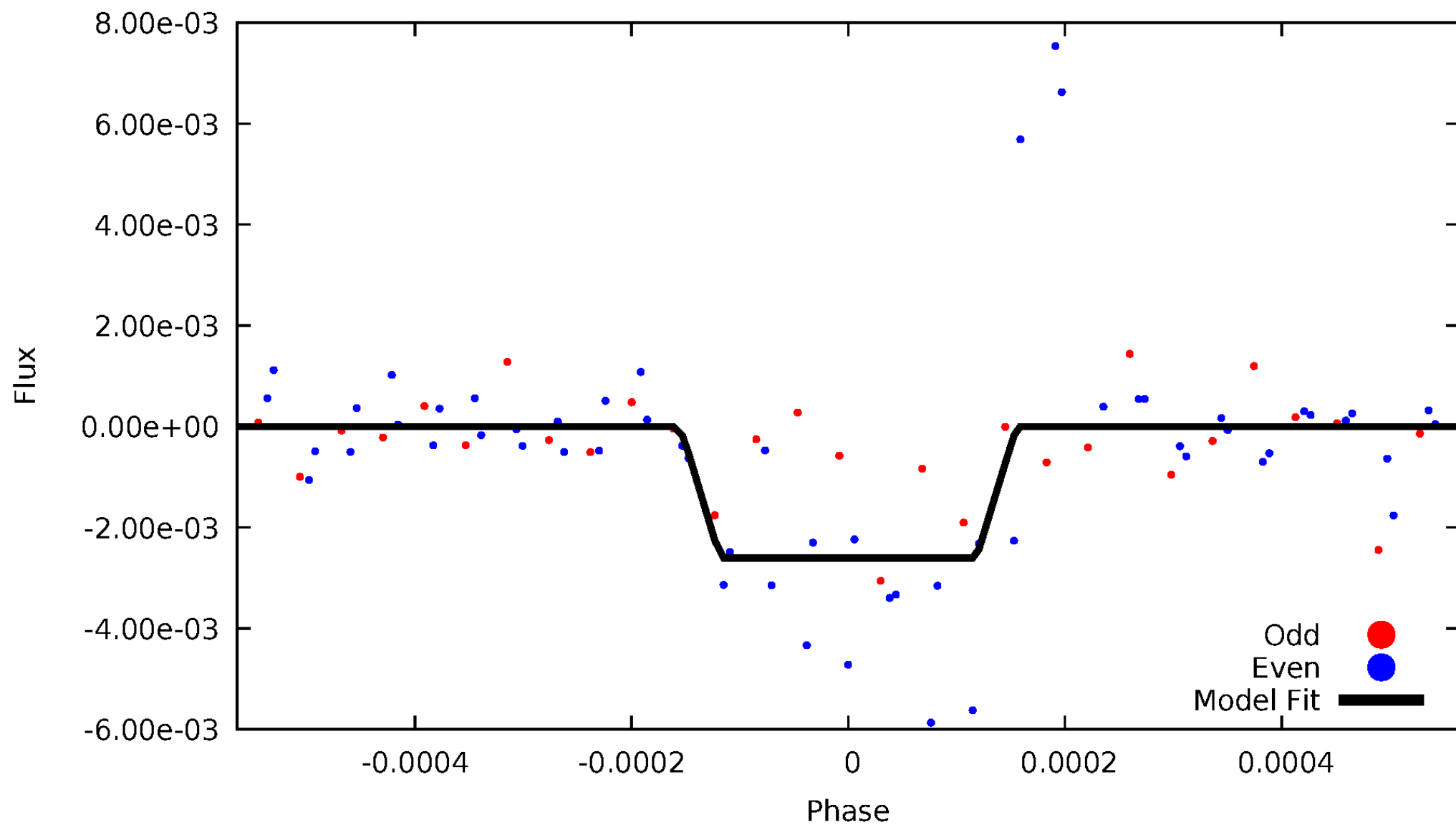
DV Odd/Even

TCE 005395490-01



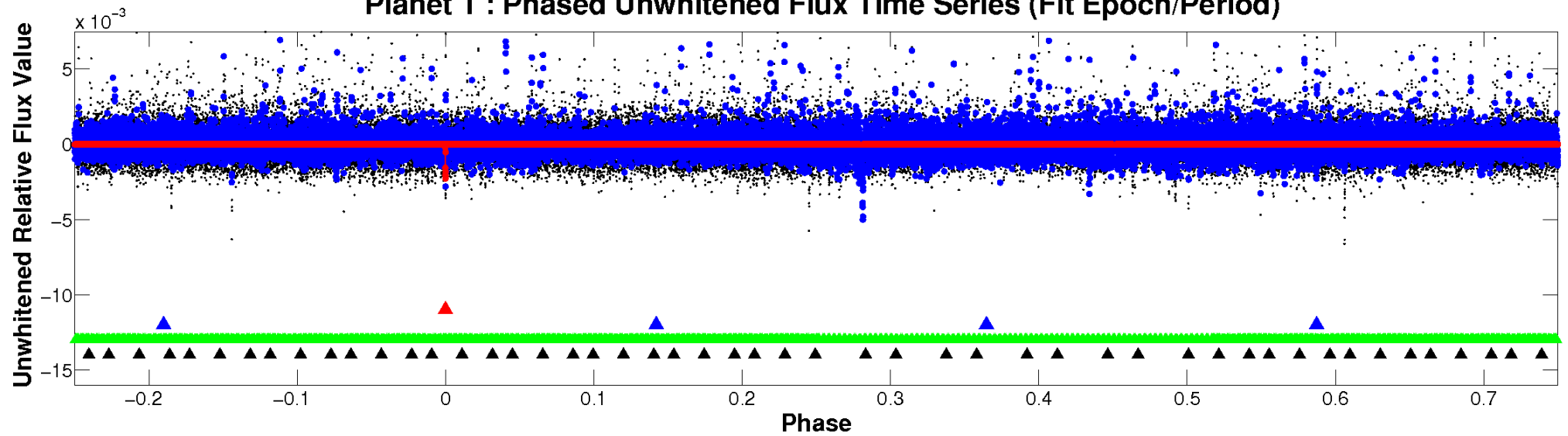
ALT Odd/Even

TCE 005395490-01

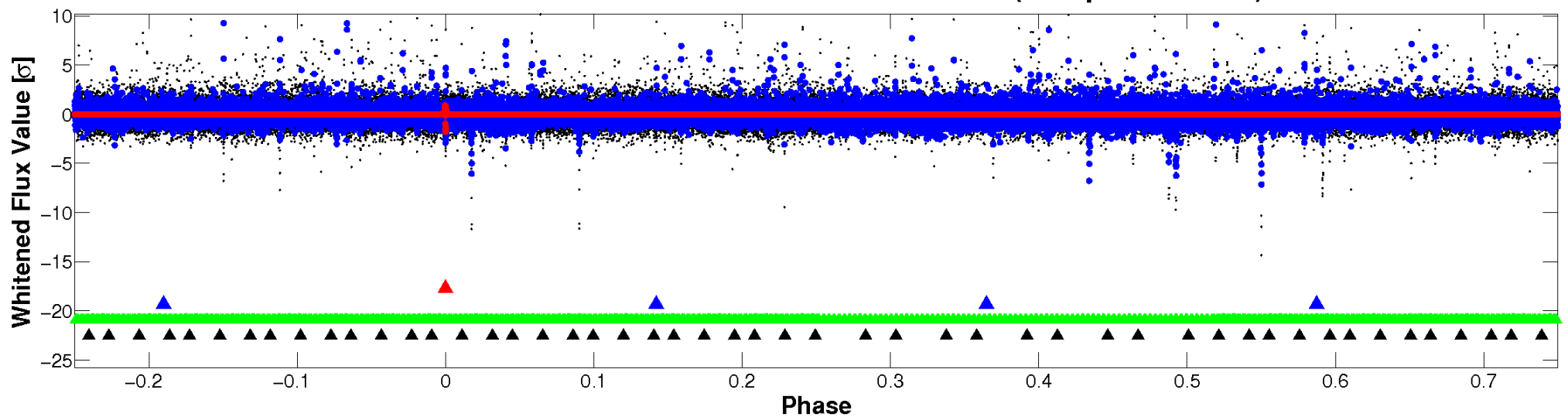


Non-Whitened Vs. Whitened Light Curve

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

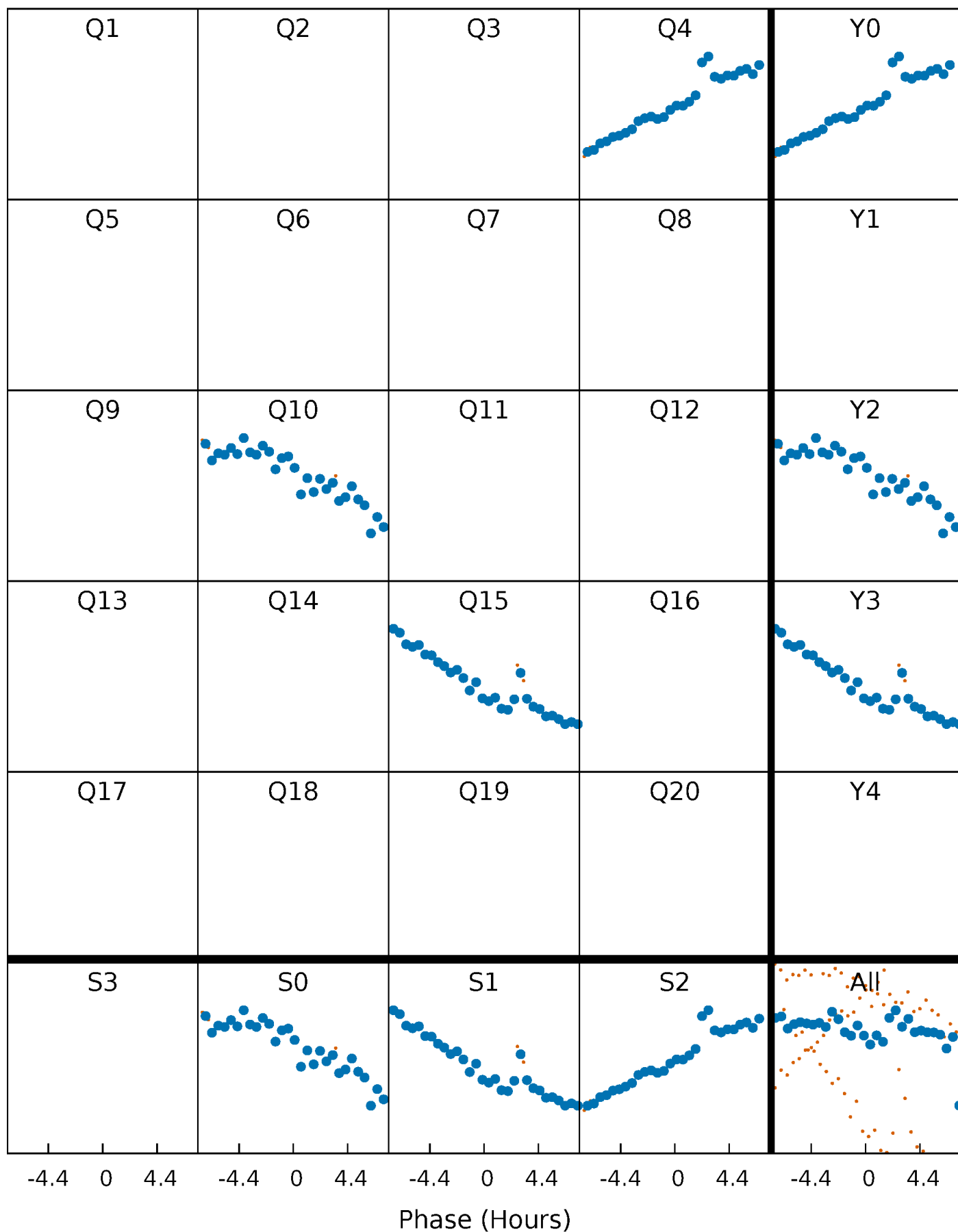


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



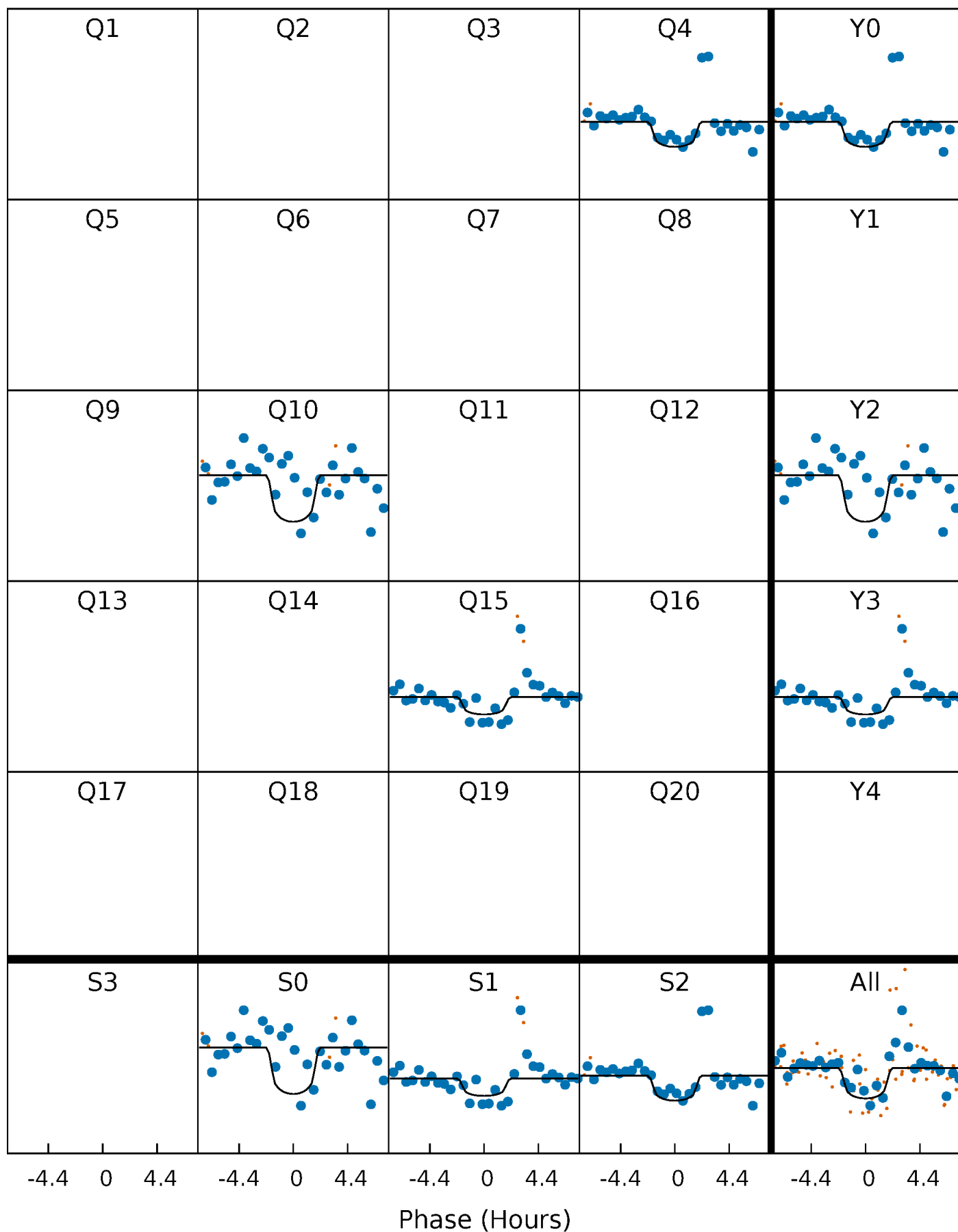
PDC Quarter-Phased Transit Curves

TCE 005395490-01 P=533.527666 Days $T_0=388.991547$ (BKJD)



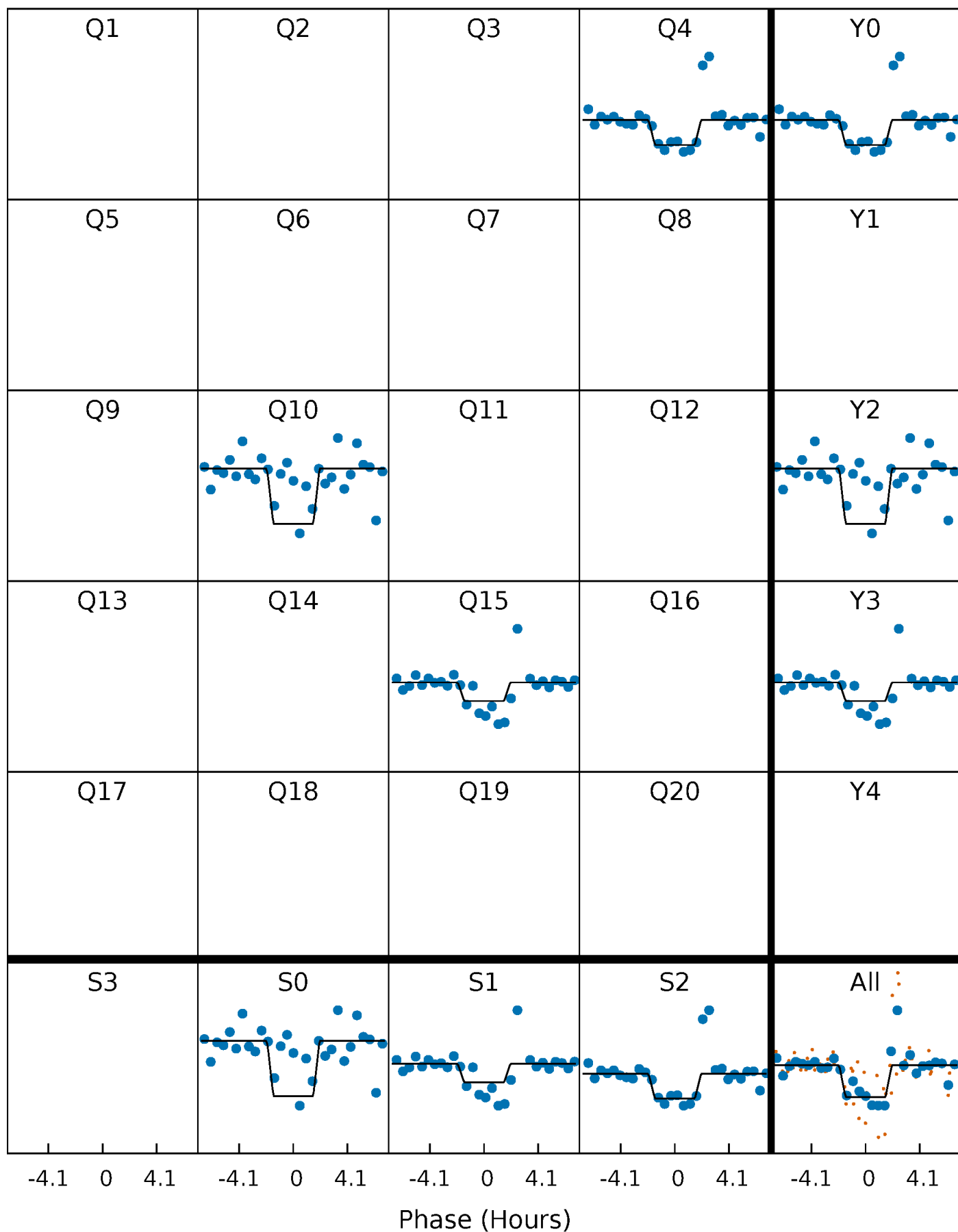
DV Quarter-Phased Transit Curves

TCE 005395490-01 P=533.527666 Days $T_0=388.991547$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

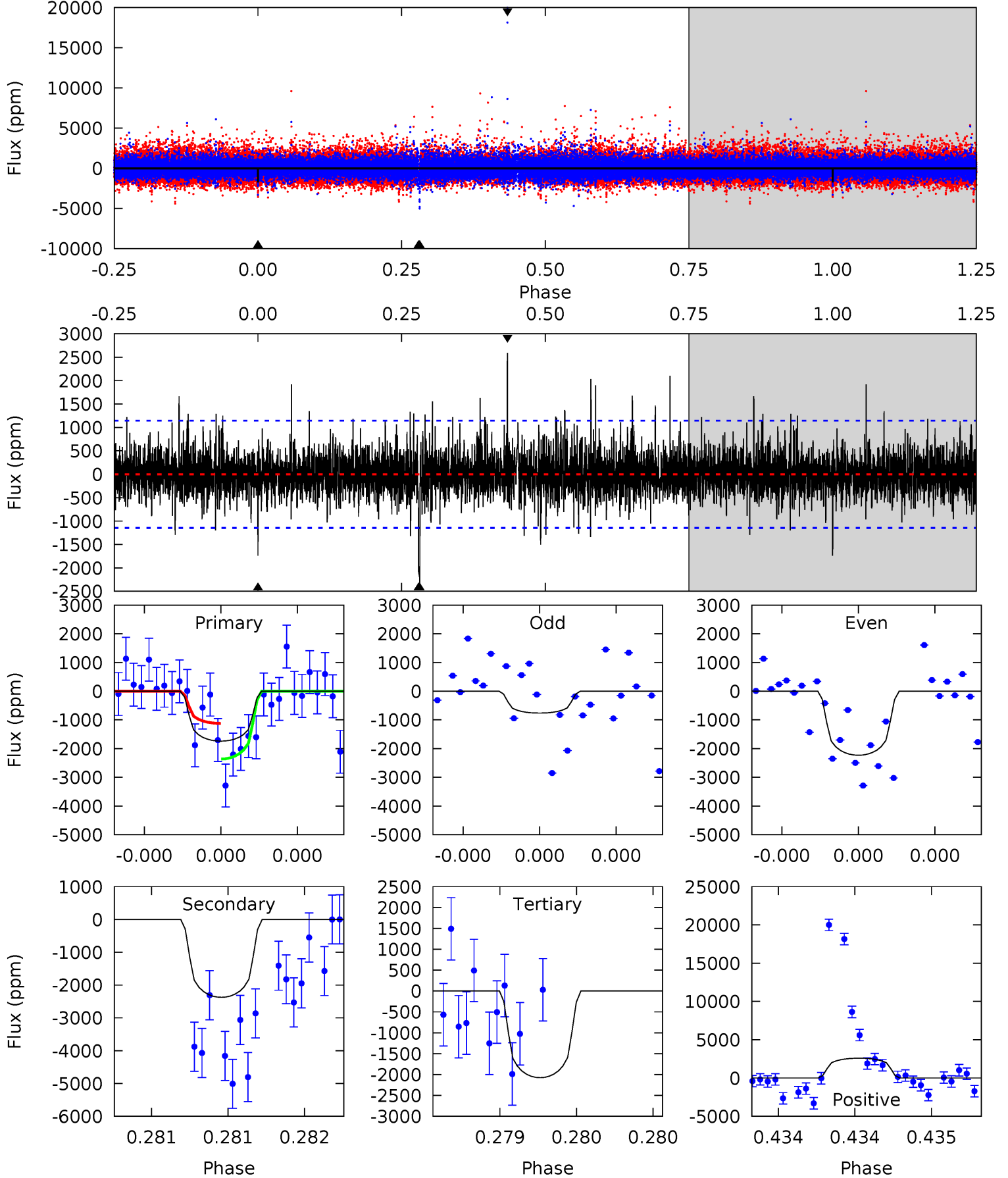
TCE 005395490-01 P=533.533874 Days $T_0=388.989677$ (BKJD)



DV Model-Shift Uniqueness Test

005395490-01, P = 533.527666 Days, E = 388.991547 Days

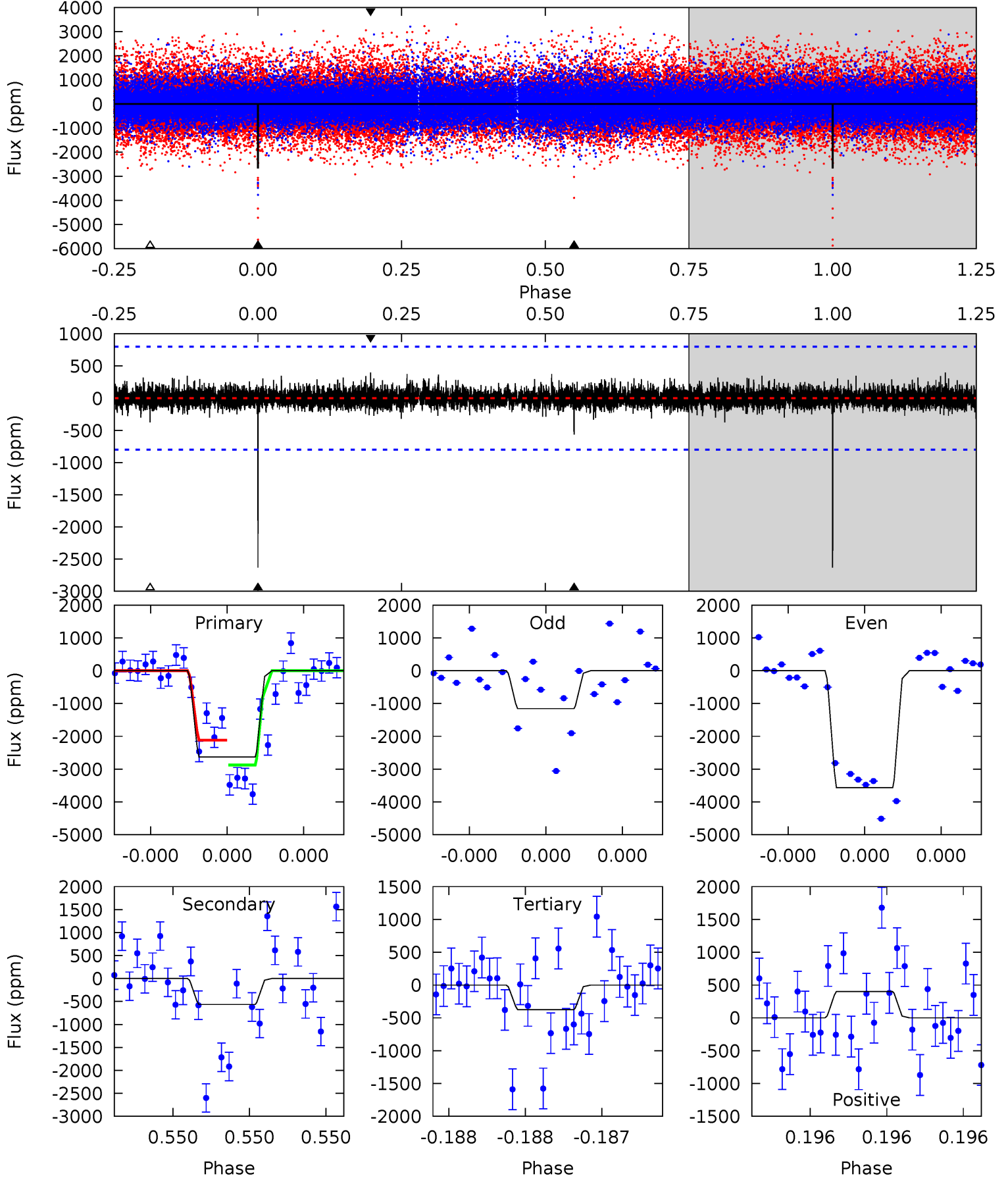
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.58	11.7	10.2	12.8	5.65	3.60	1.66	-1.65	-4.19	1.47	-1.07	2.93	1.06	0.52	3.08



Alt Model-Shift Uniqueness Test

005395490-01, P = 533.533874 Days, E = 388.989677 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	4.00	2.64	2.83	5.65	3.60	0.55	16.0	15.8	1.36	1.16	7.81	0.95	0.13	2.56



Stellar Parameters For KIC 005395490

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5374^{+177}_{-160}	$4.591^{+0.065}_{-0.071}$	$-0.640^{+0.350}_{-0.300}$	$0.704^{+0.090}_{-0.065}$	$0.705^{+0.084}_{-0.045}$	$2.844^{+0.812}_{-0.685}$
	+3%/-3%	+1%/-2%	+55%/-47%	+13%/-9%	+12%/-6%	+29%/-24%
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 005395490-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2374 ± 203	$19.17^{+19.19}_{-13.37}$	260^{+12}_{-10}	3025^{+1458}_{-501}	4680^{+47337}_{-3487}
Alt.	-565 ± 141	$18.00^{+19.05}_{-12.62}$	260^{+11}_{-10}	2542^{+1061}_{-408}	1267^{+13403}_{-1002}

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 $A_{obs} \gg 1.0$

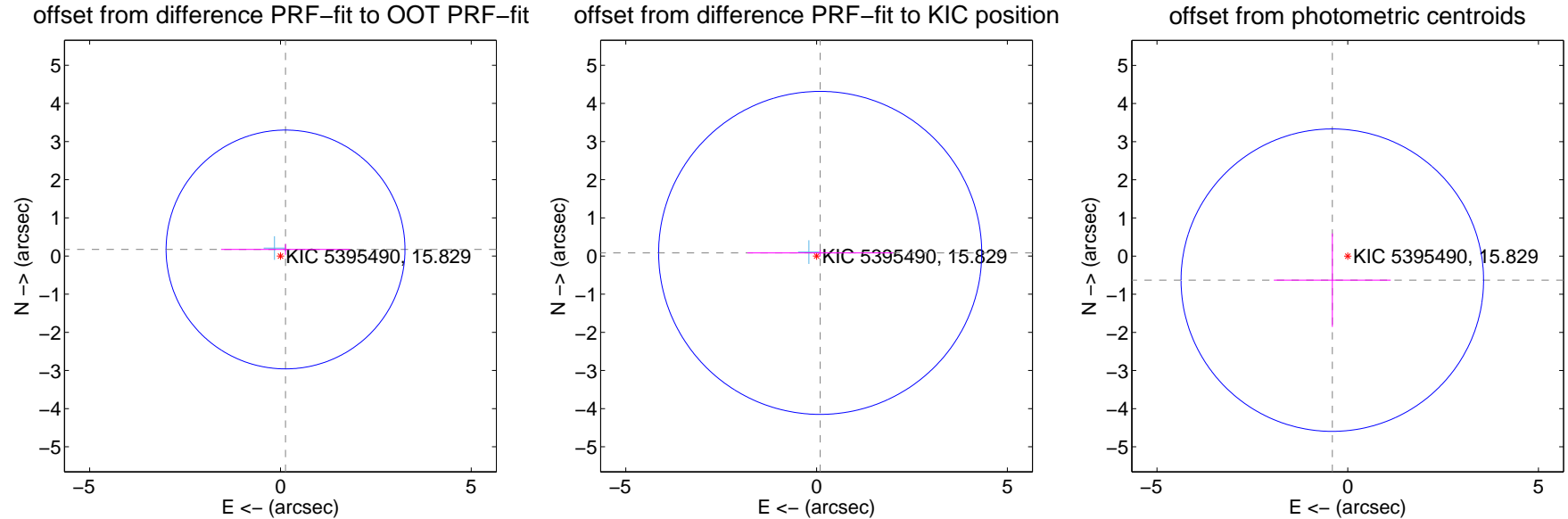
DV Centroid Data

Supplemental centroid analysis for 005395490-01. Kepler magnitude: 15.83. Transit SNR 7.76

There are 1 quarters with good PRF difference image offsets

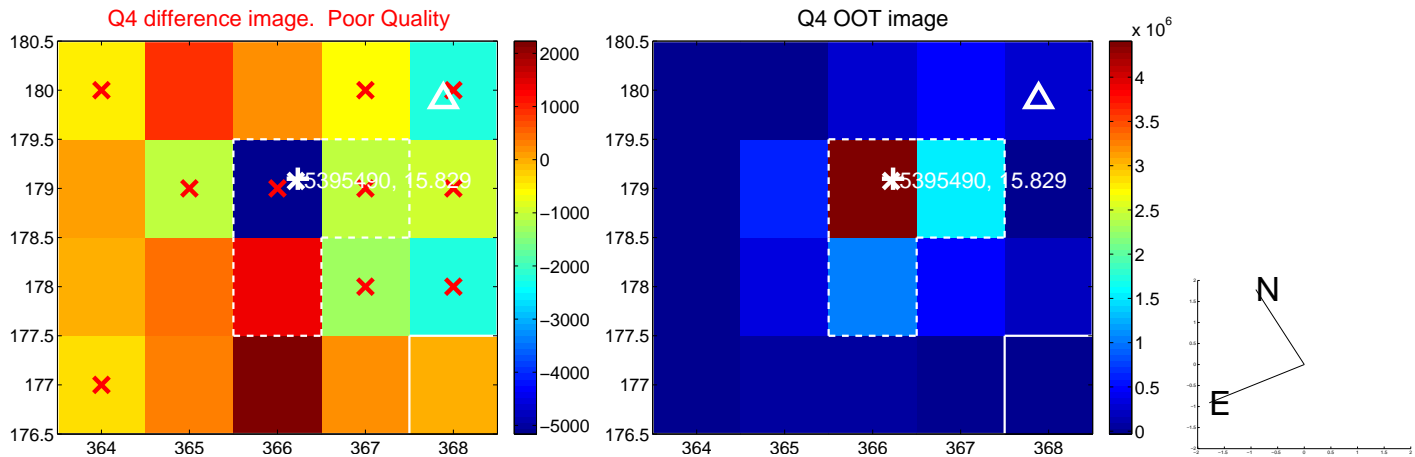
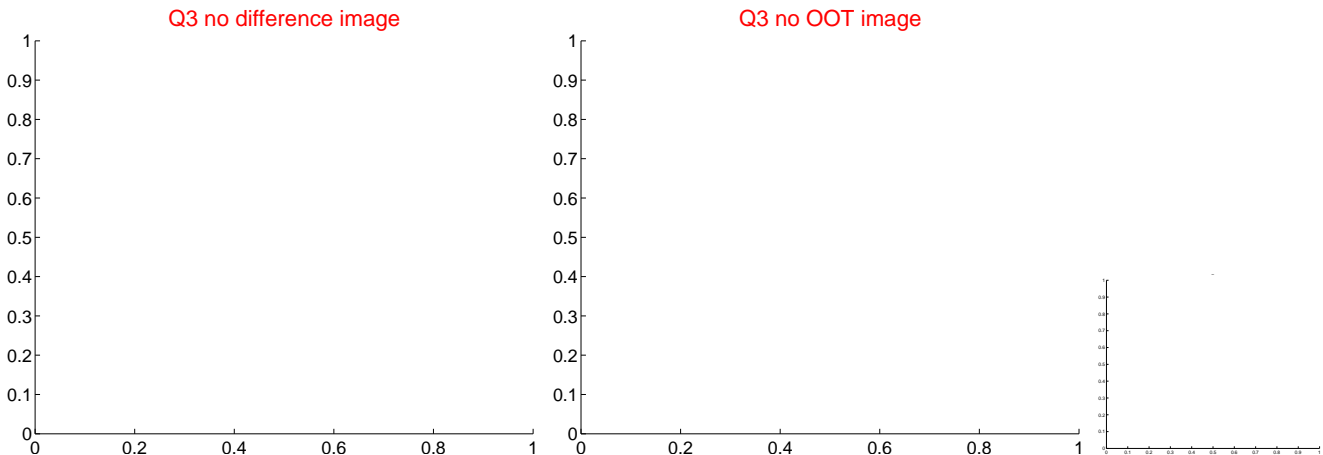
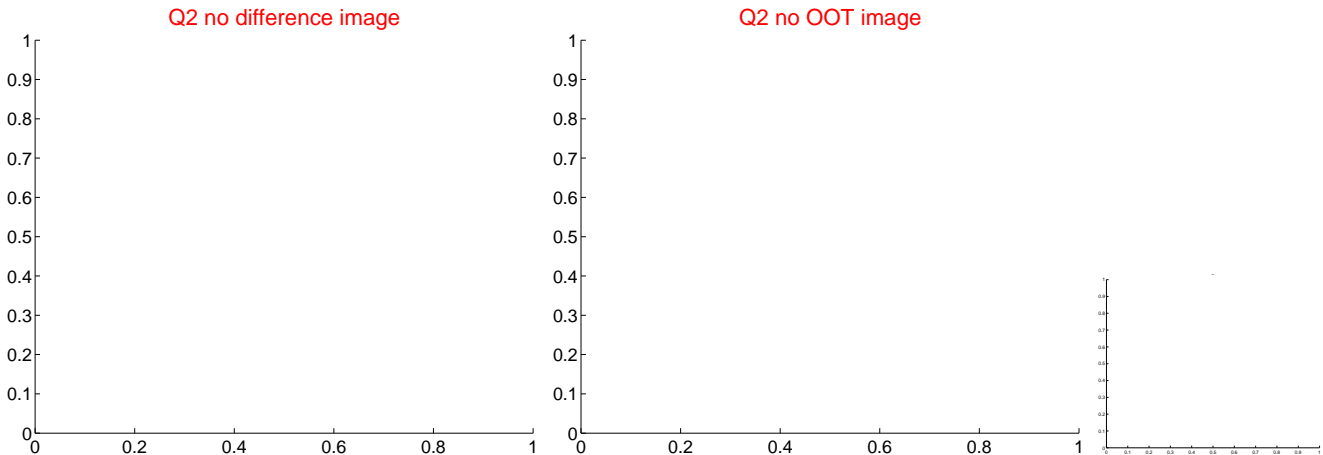
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.217 ± 1.043	0.21	-0.133 ± 1.691	0.172 ± 0.142
PRF-fit source offset from KIC position	0.125 ± 1.411	0.09	-0.094 ± 1.909	0.082 ± 0.083
photometric centroid source offset	0.75 ± 1.32	0.57	0.40 ± 1.53	-0.63 ± 1.22

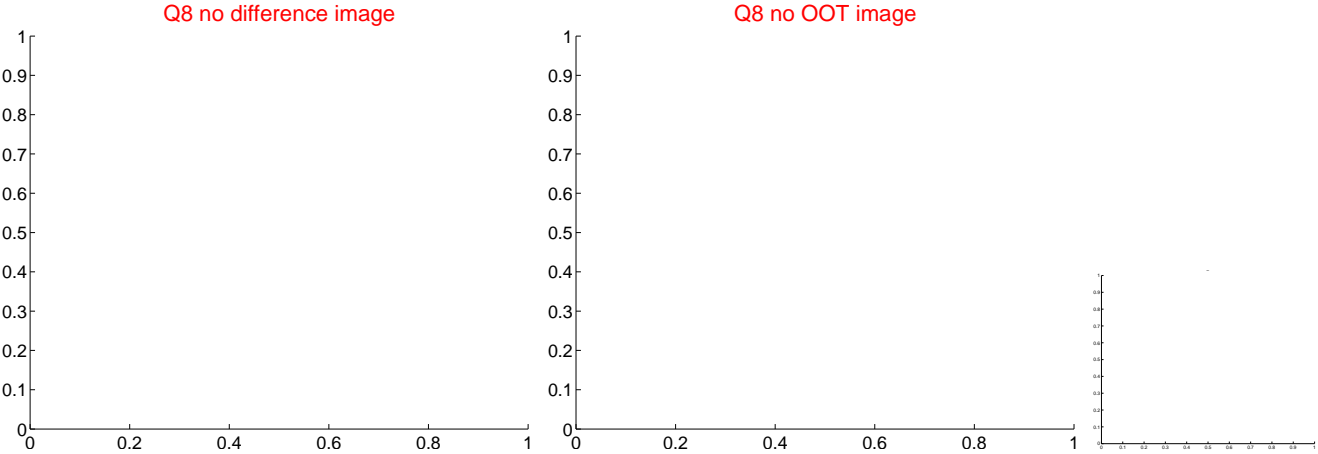
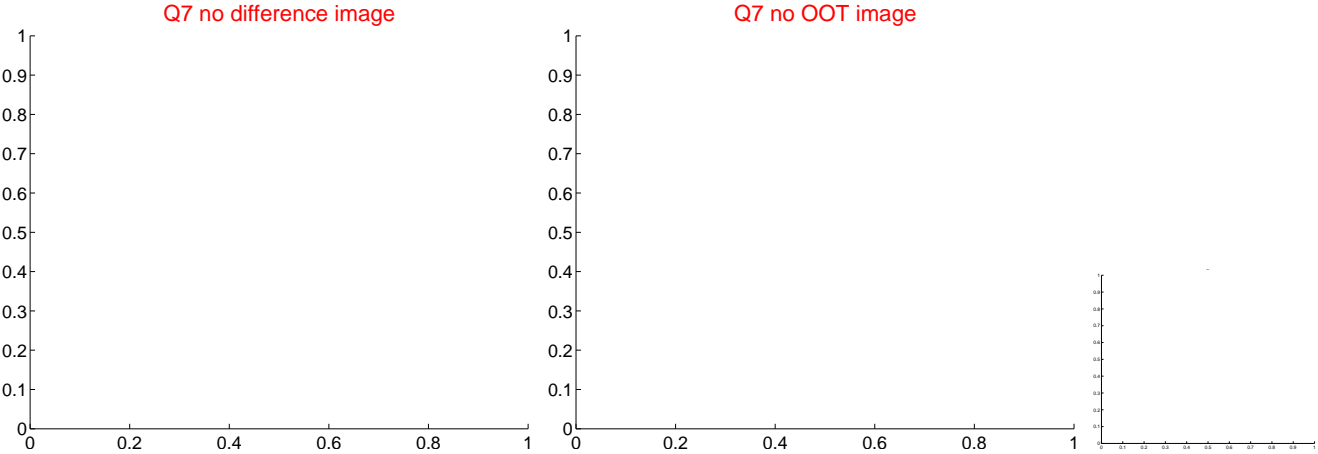
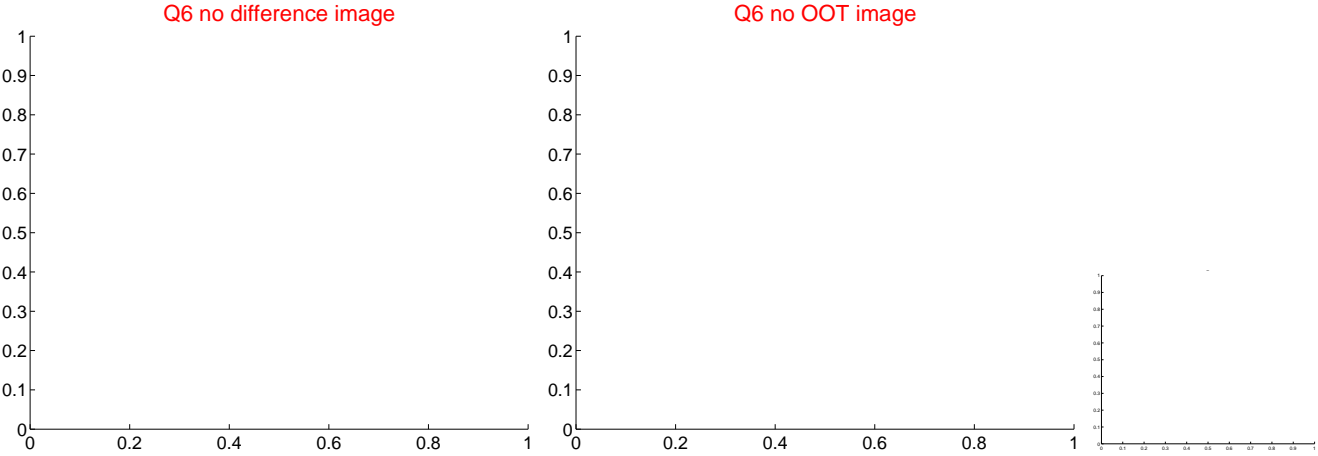


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

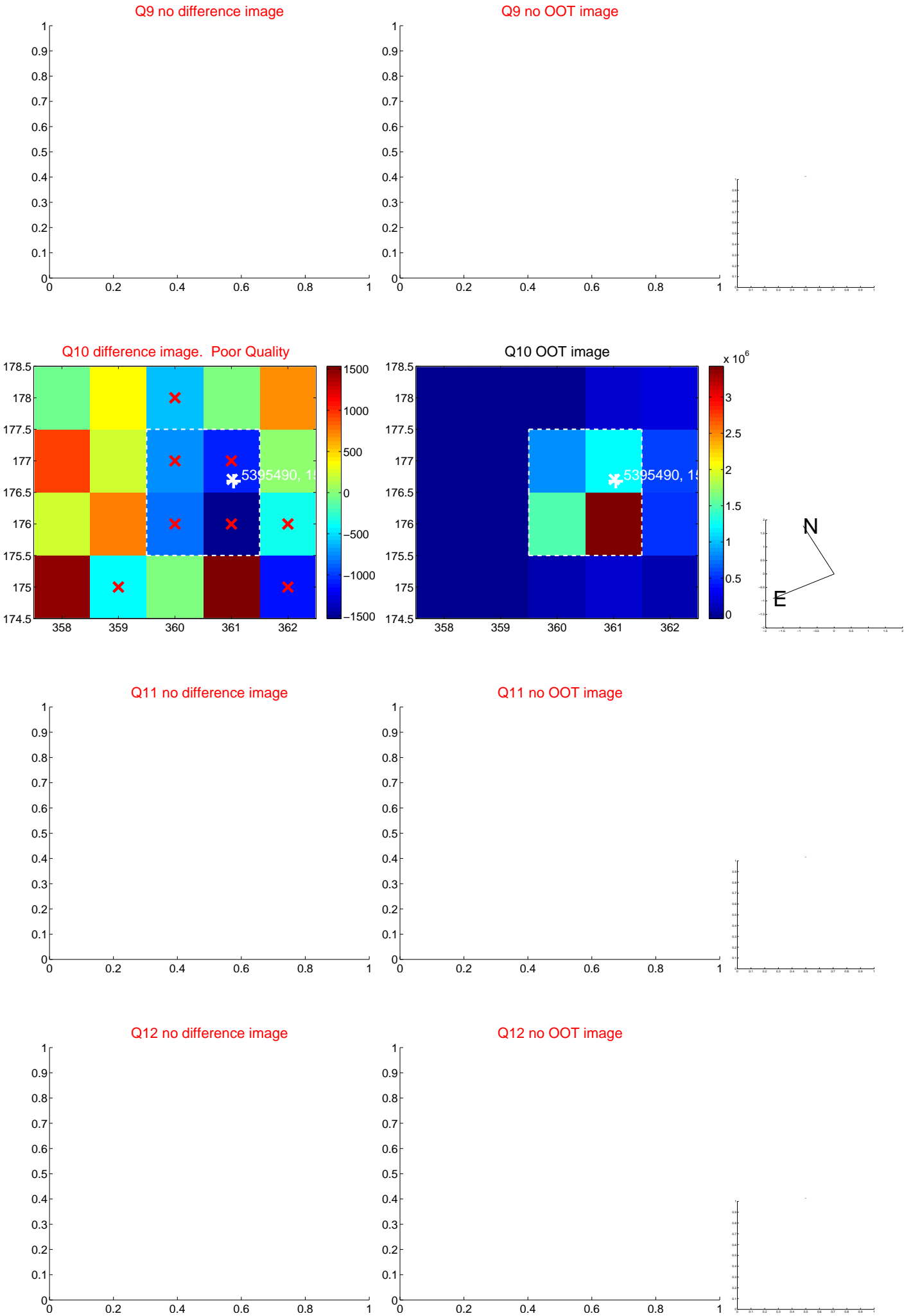
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



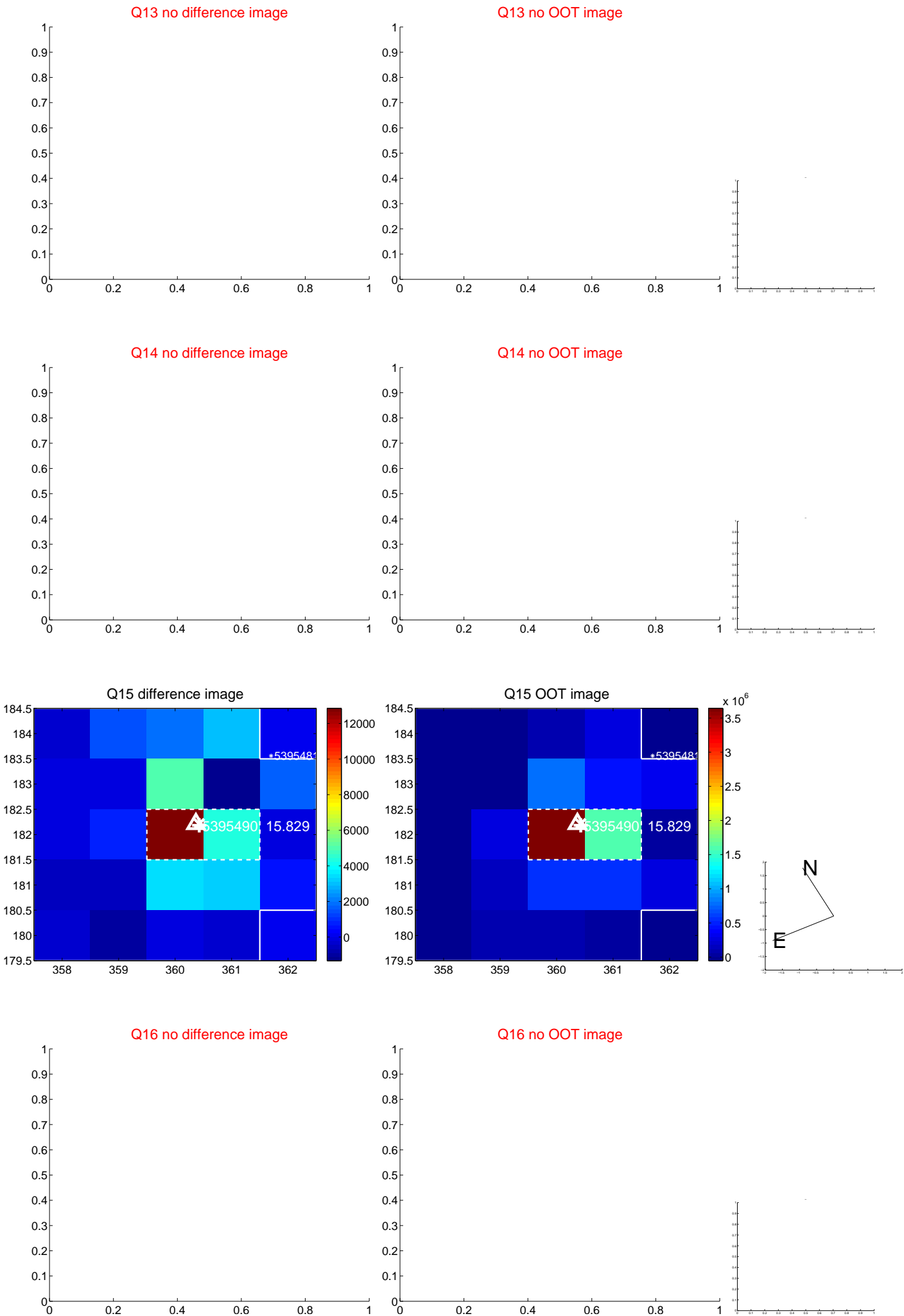
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



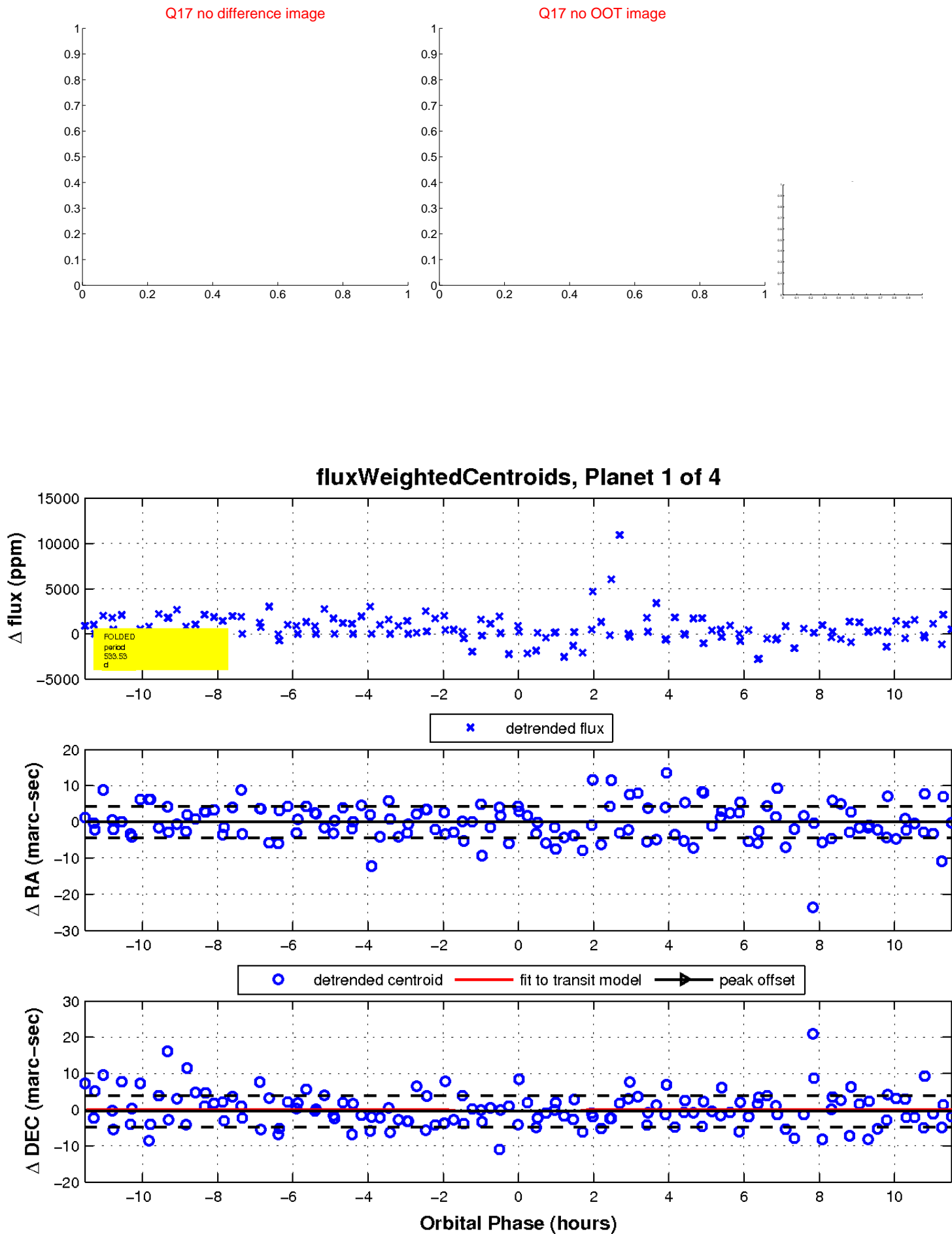
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



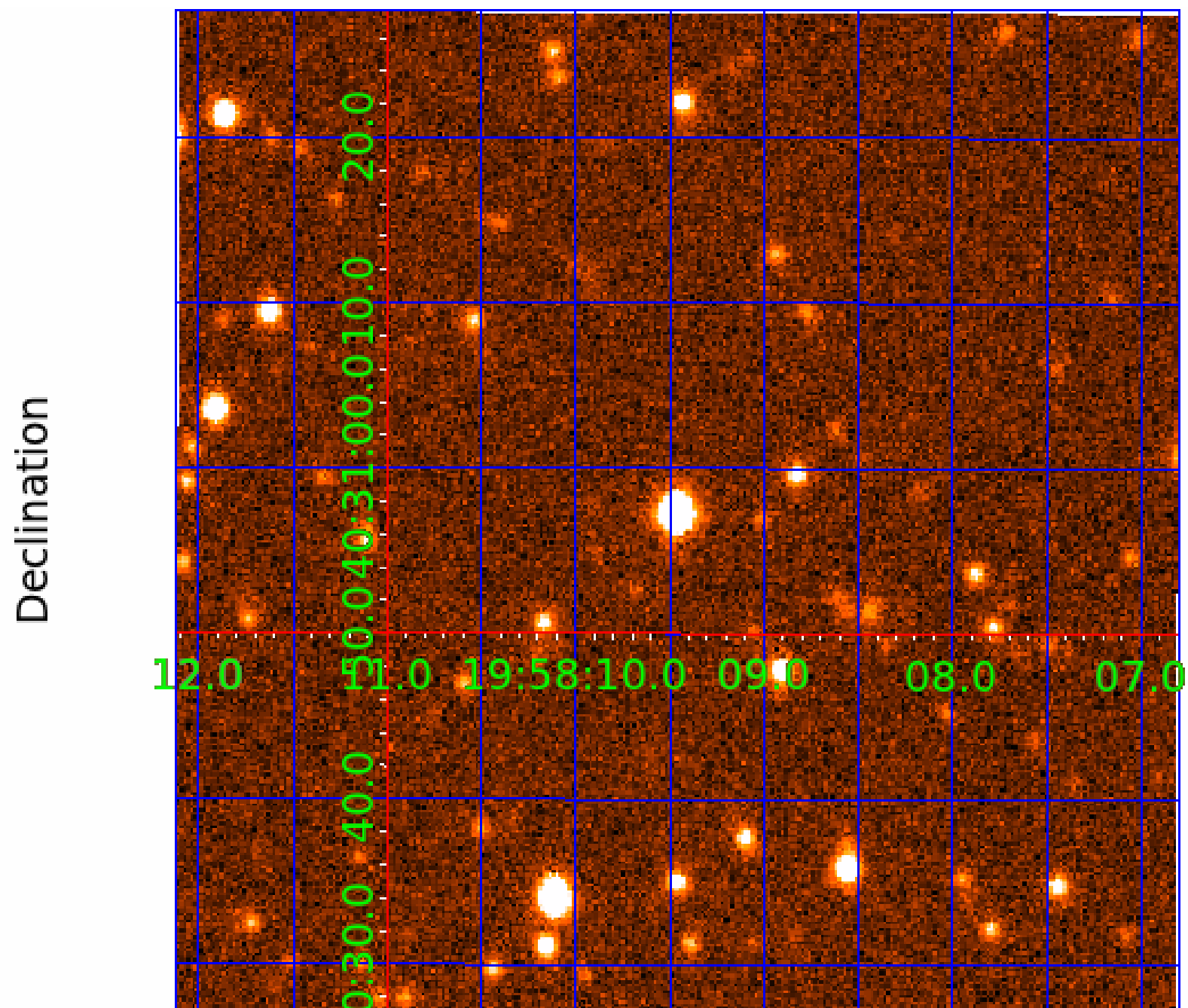
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005395490

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})
005395490-01	OBS	No	533.527666	388.991547	2277.4	3.860	11.6	7.8	0.70	5374	3.41	0.28
005395490-02	OBS	No	414.756071	287.607579	2301.3	5.157	11.5	6.9	0.70	5374	3.39	0.40
005395490-03	OBS	No	1.863776	132.049393	249.7	13.752	11.2	9.2	0.70	5374	1.10	532.04
005395490-04	OBS	No	29.033403	144.577080	4046.1	2.109	14.5	8.4	0.70	5374	8.46	13.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005395490-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005395490-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV
005395490-03	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005395490-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

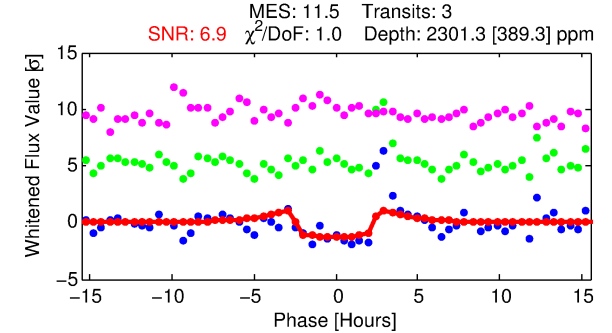
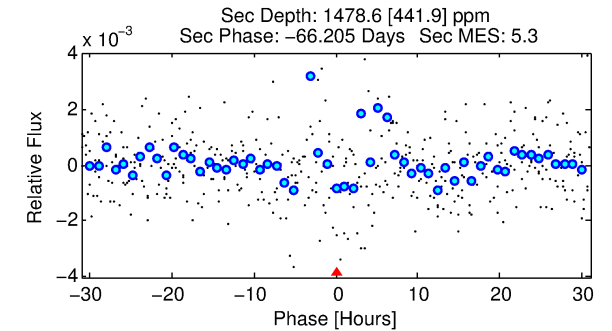
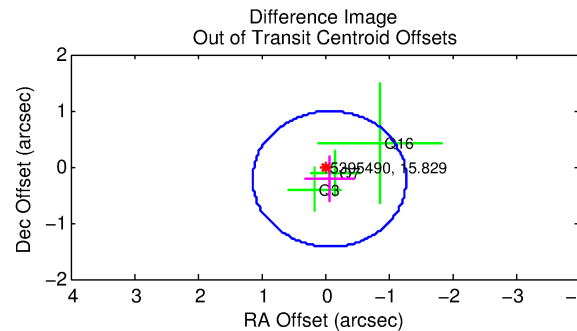
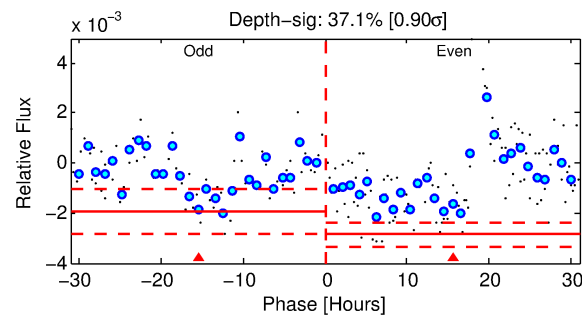
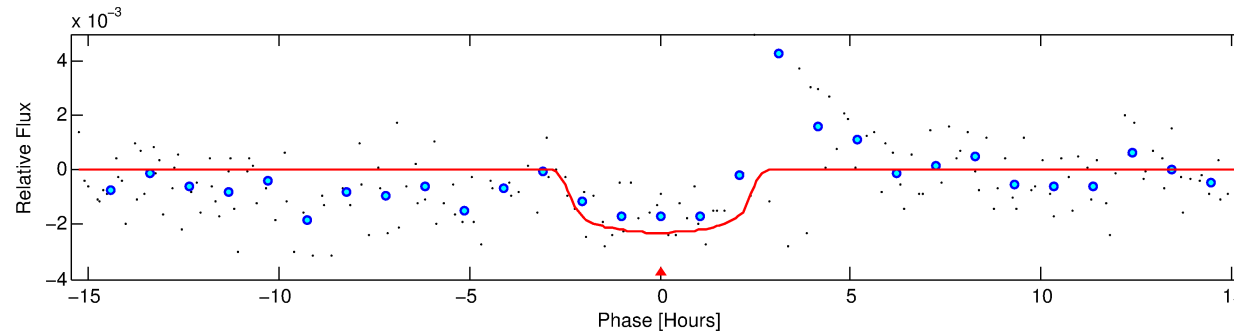
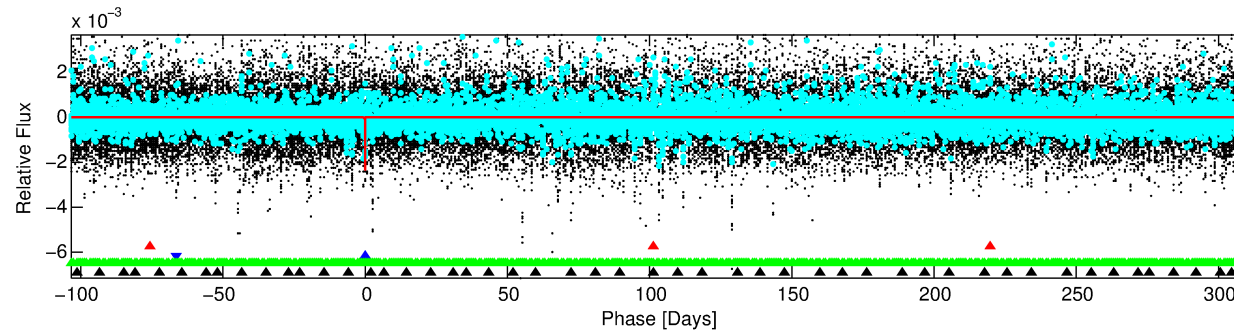
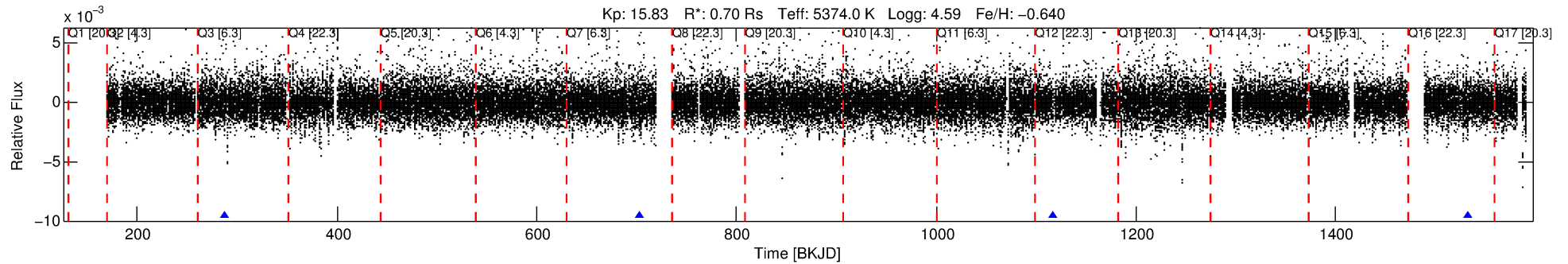
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005395490-02

No Significant Match Found

DV One-Page Summary

KIC: 5395490 Candidate: 2 of 4 Period: 414.756 d



DV Fit Results:

Period = 414.75607 [0.00482] d
Epoch = 287.6076 [0.0084] BKJD
Rp/R* = 0.0441 [0.0411]
a/R* = 602.24 [2354.08]
b = 0.36 [9.53]
Seff = 0.39 [0.08]
Teq = 202 [10] K
Rp = 3.39 [3.19] Re
a = 0.9689 [0.0980] AU
Ag = 66487.72 [125895.60] [0.53 σ]
Teffp = 5017 [2374] K [2.03 σ]

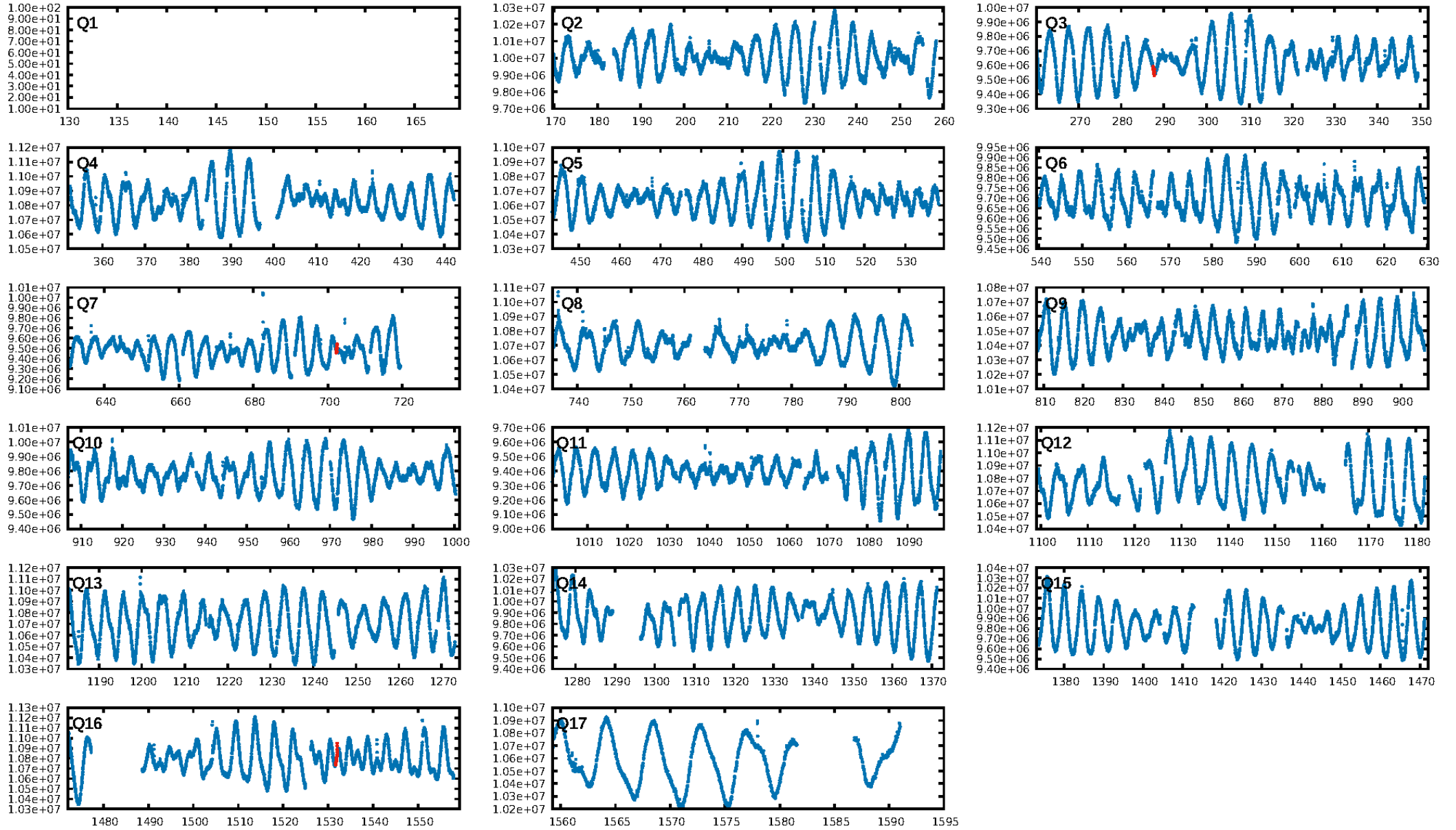
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1661.53 σ]
LongPeriod-sig: 100.0% [442.50 σ]
ModelChiSquare2-sig: 5.1%
ModelChiSquareGof-sig: 95.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7126
Centroid-sig: 68.1%
Centroid-so: 1.096 arcsec [0.93 σ]
OotOffset-rm: 0.232 arcsec [0.58 σ]
OotOffset-st: 0/2/1/0 [3]
KicOffset-rm: 0.291 arcsec [0.72 σ]
KicOffset-st: 0/2/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.33 [1/3]

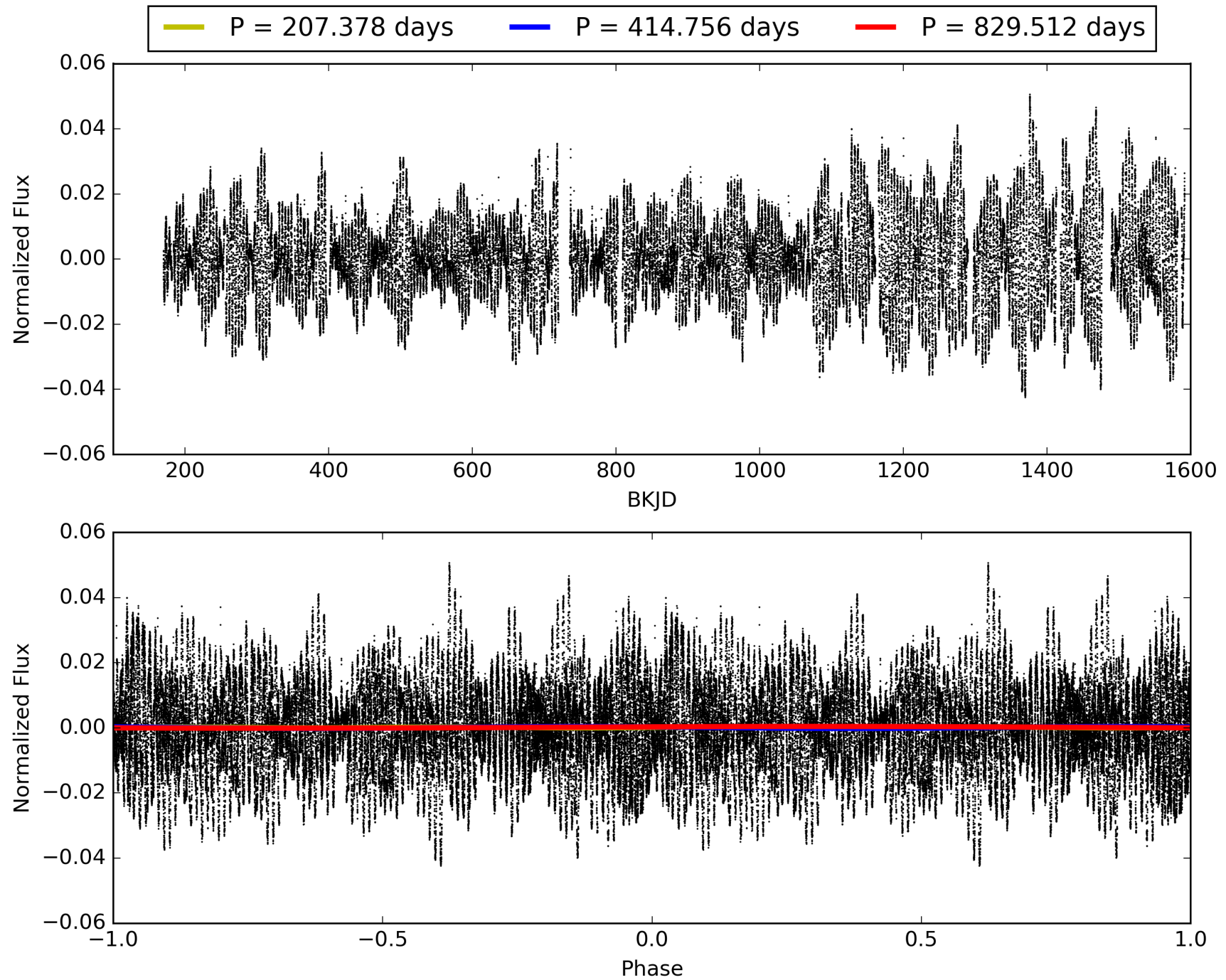
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:10:10 Z

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

TCE 005395490-02, PDC Light Curves

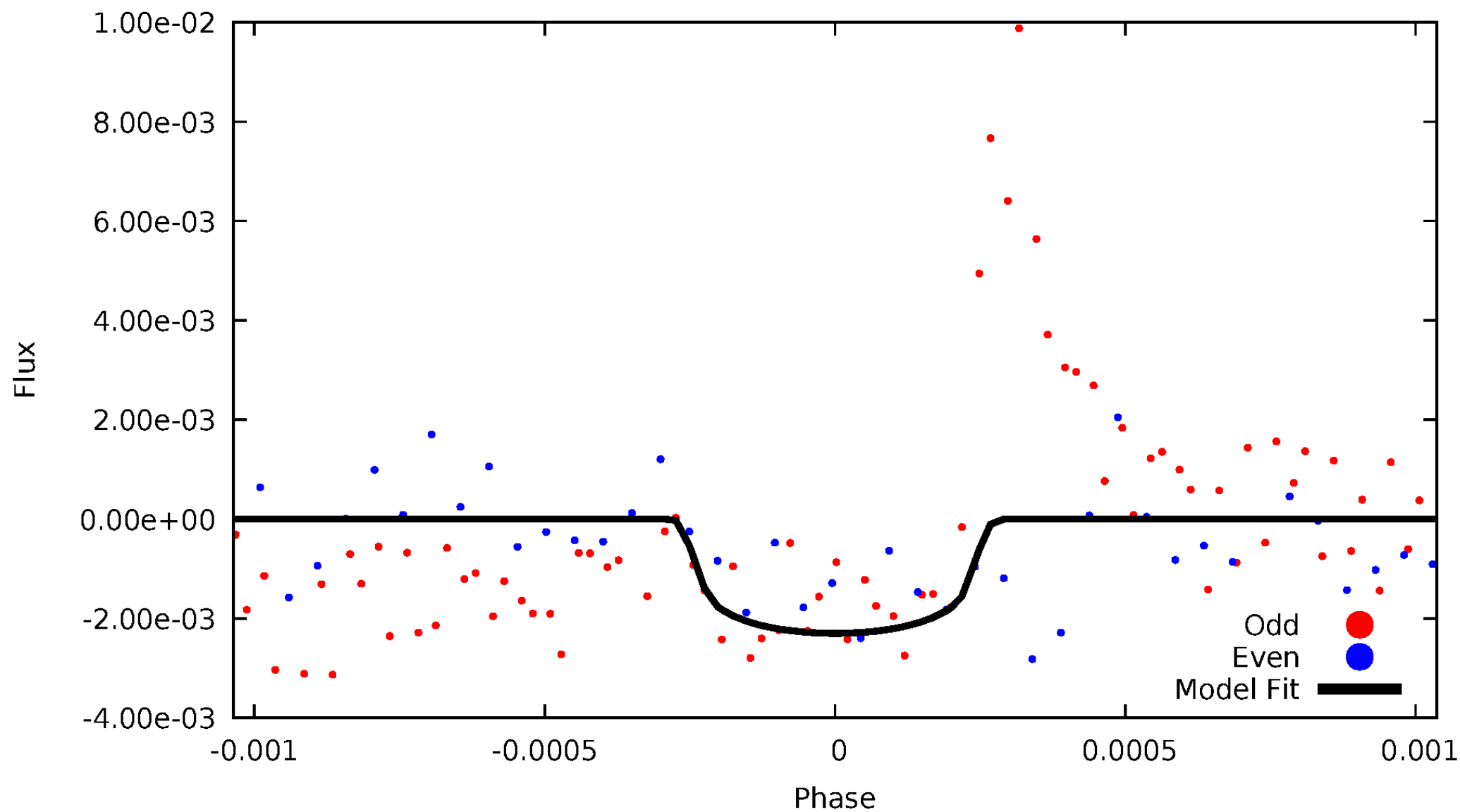


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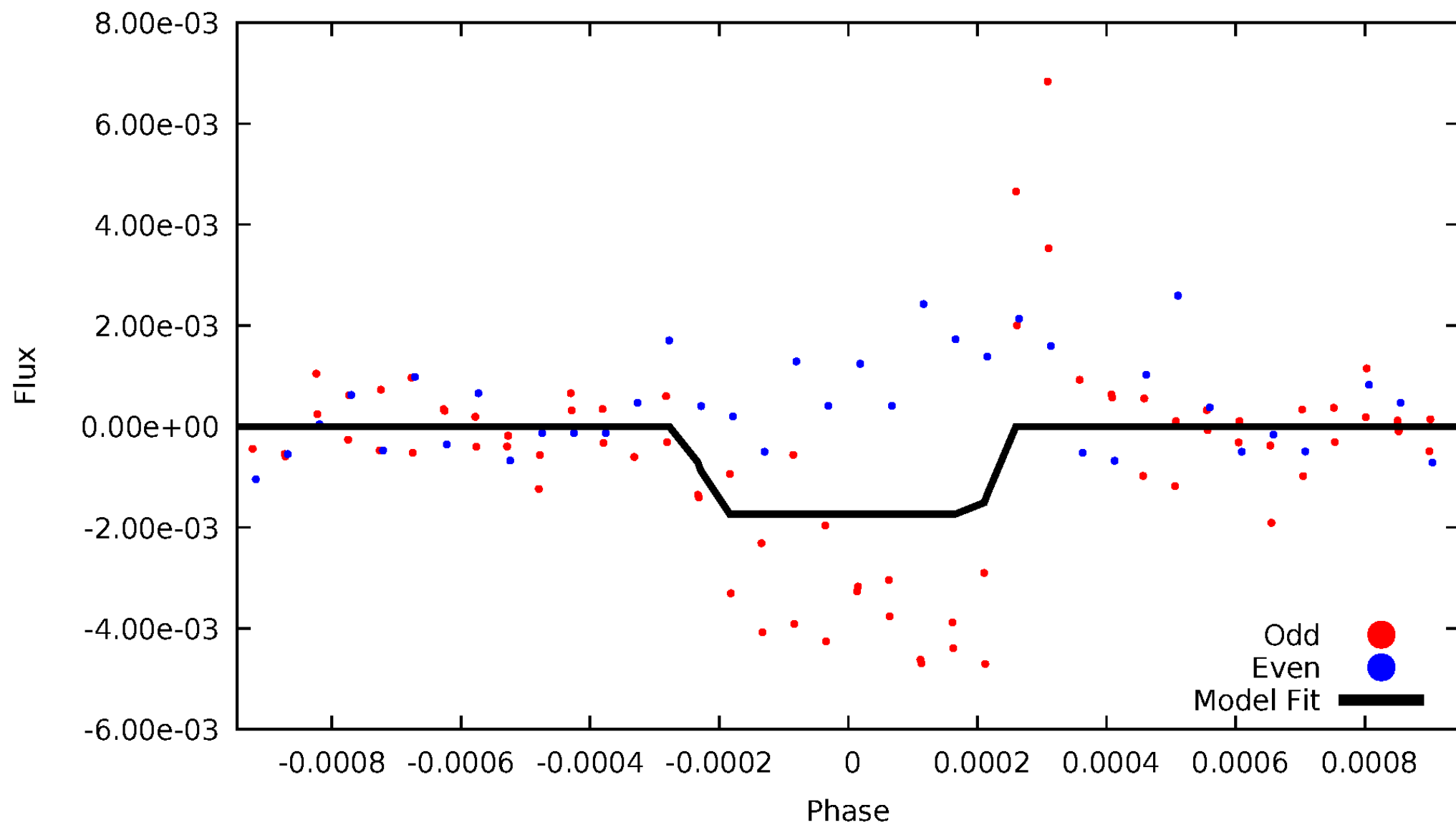
DV Odd/Even

TCE 005395490-02



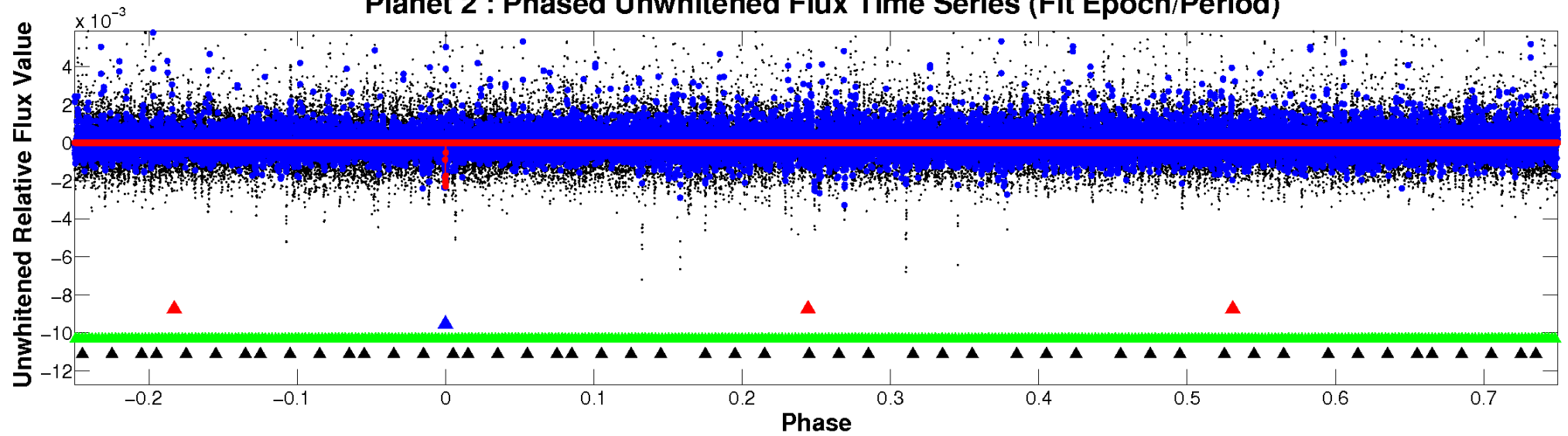
ALT Odd/Even

TCE 005395490-02

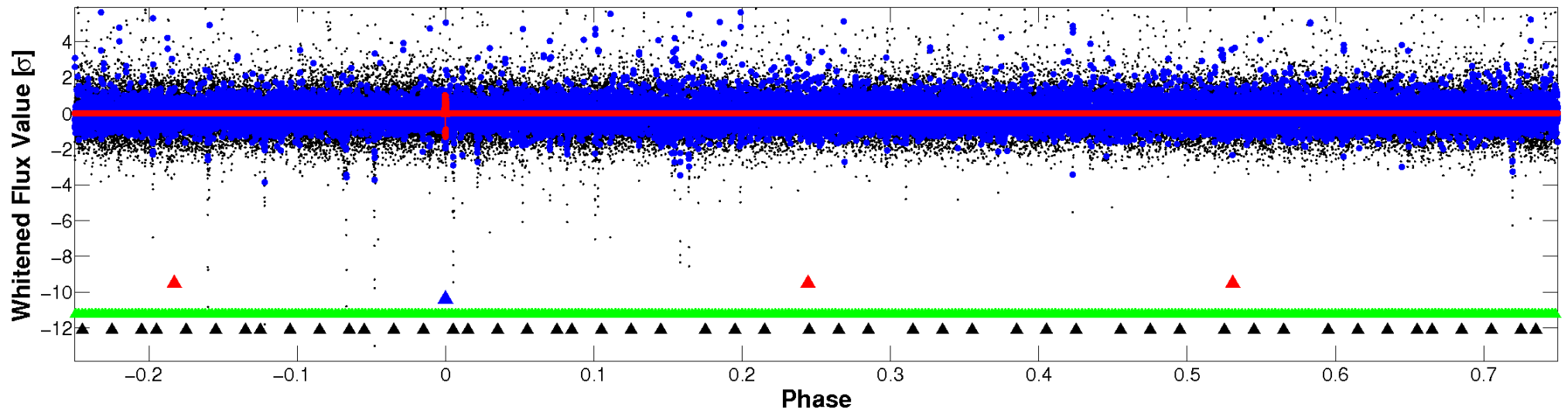


Non-Whitened Vs. Whitened Light Curve

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

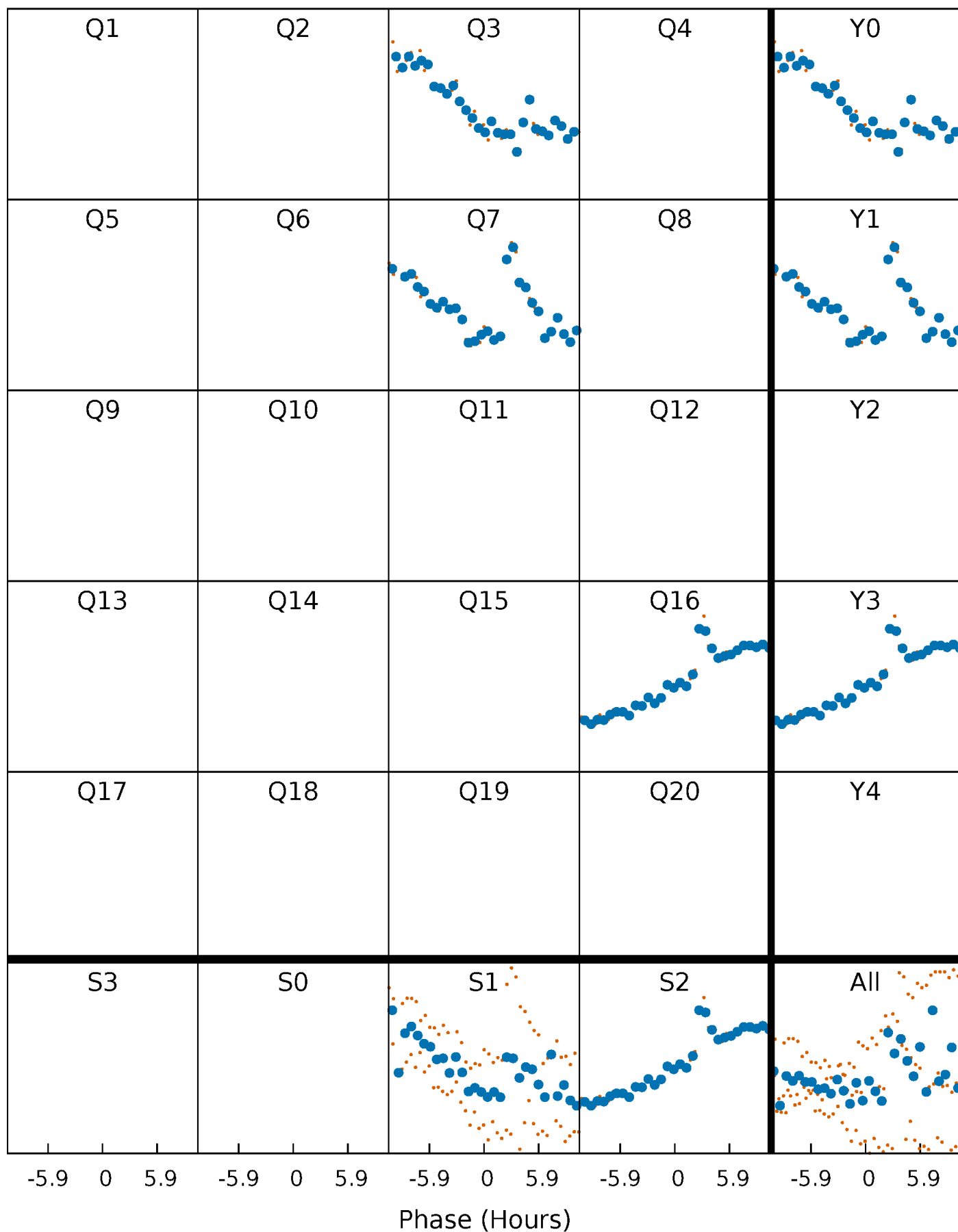


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



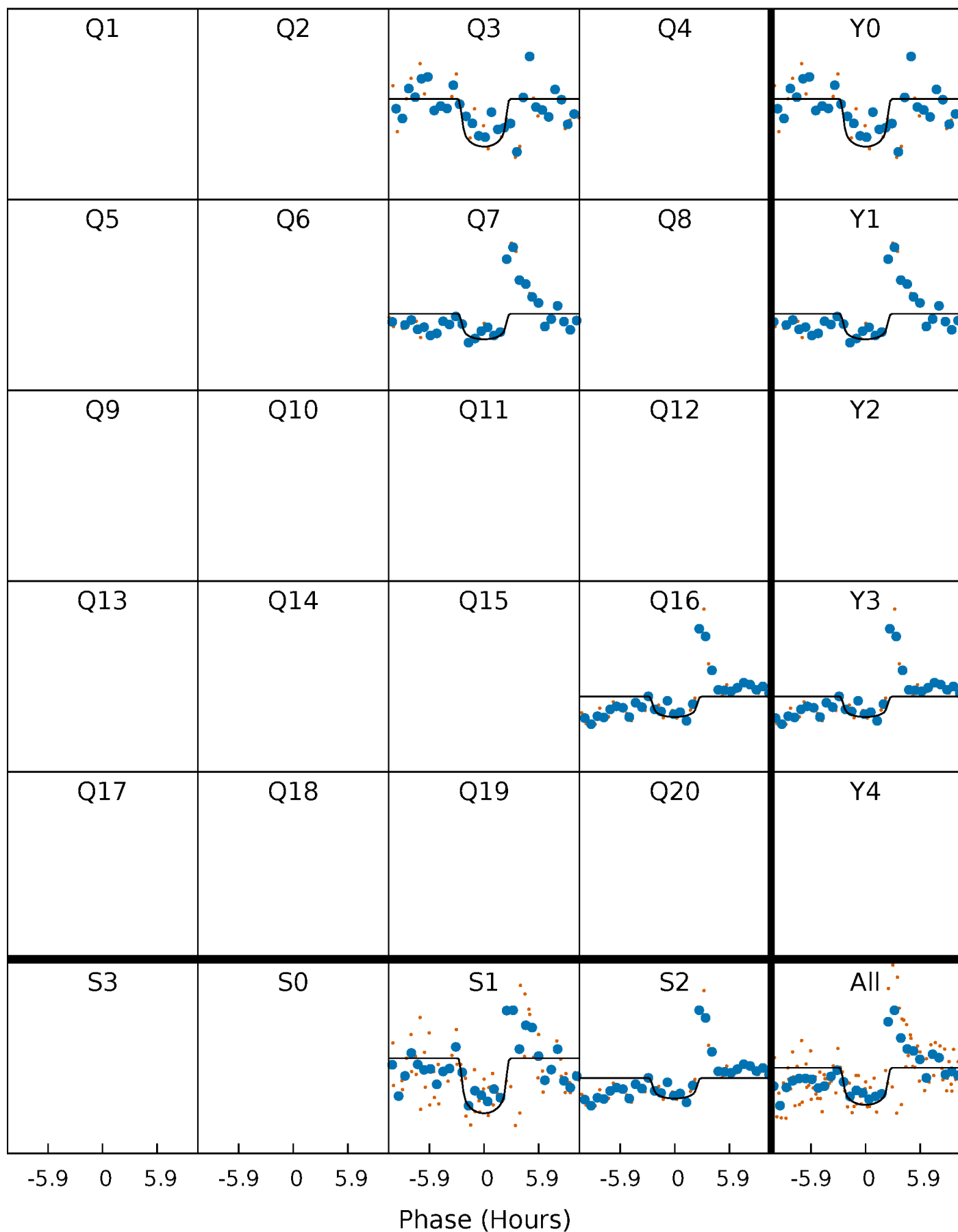
PDC Quarter-Phased Transit Curves

TCE 005395490-02 $P=414.756071$ Days $T_0=287.607579$ (BKJD)



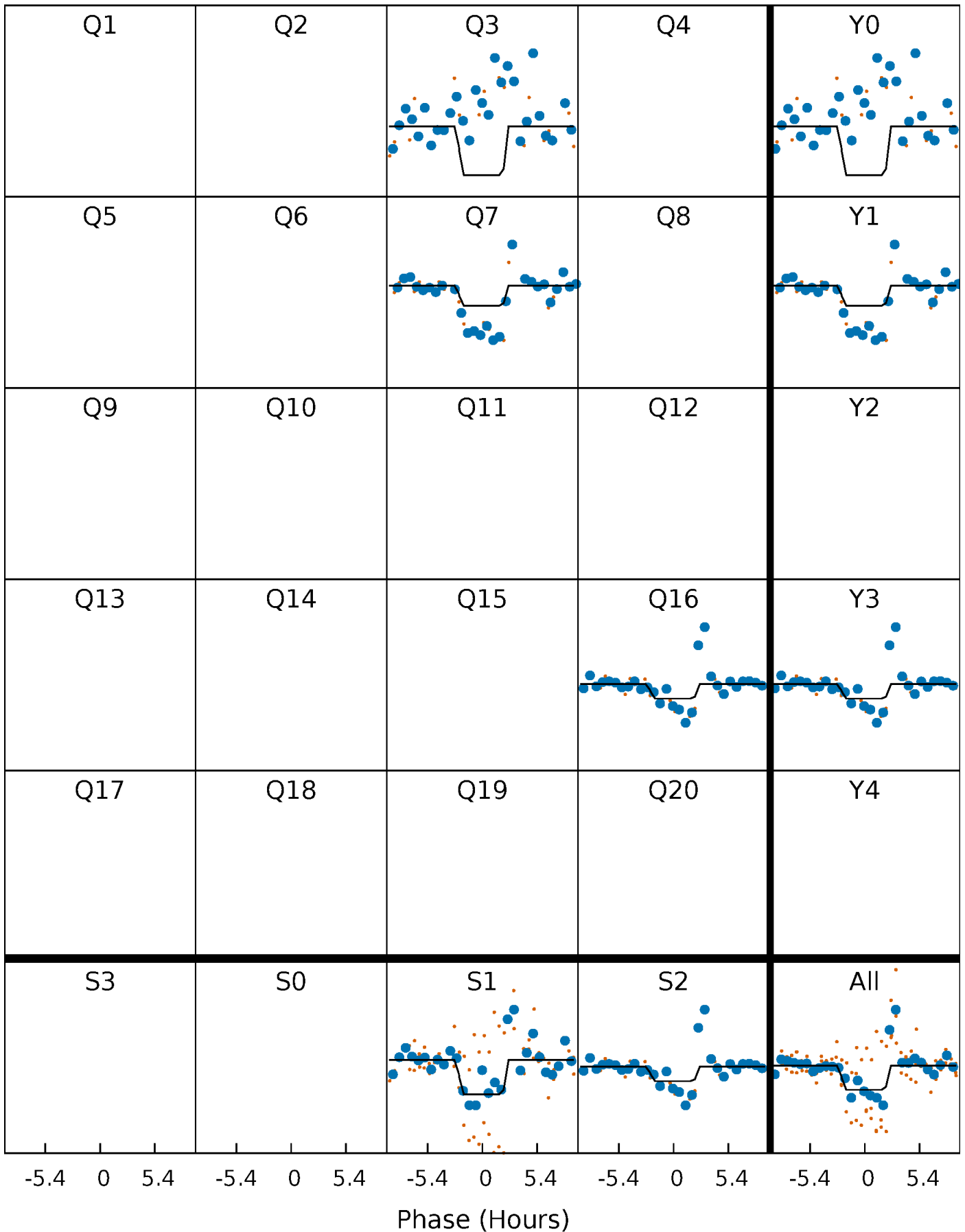
DV Quarter-Phased Transit Curves

TCE 005395490-02 $P=414.756071$ Days $T_0=287.607579$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

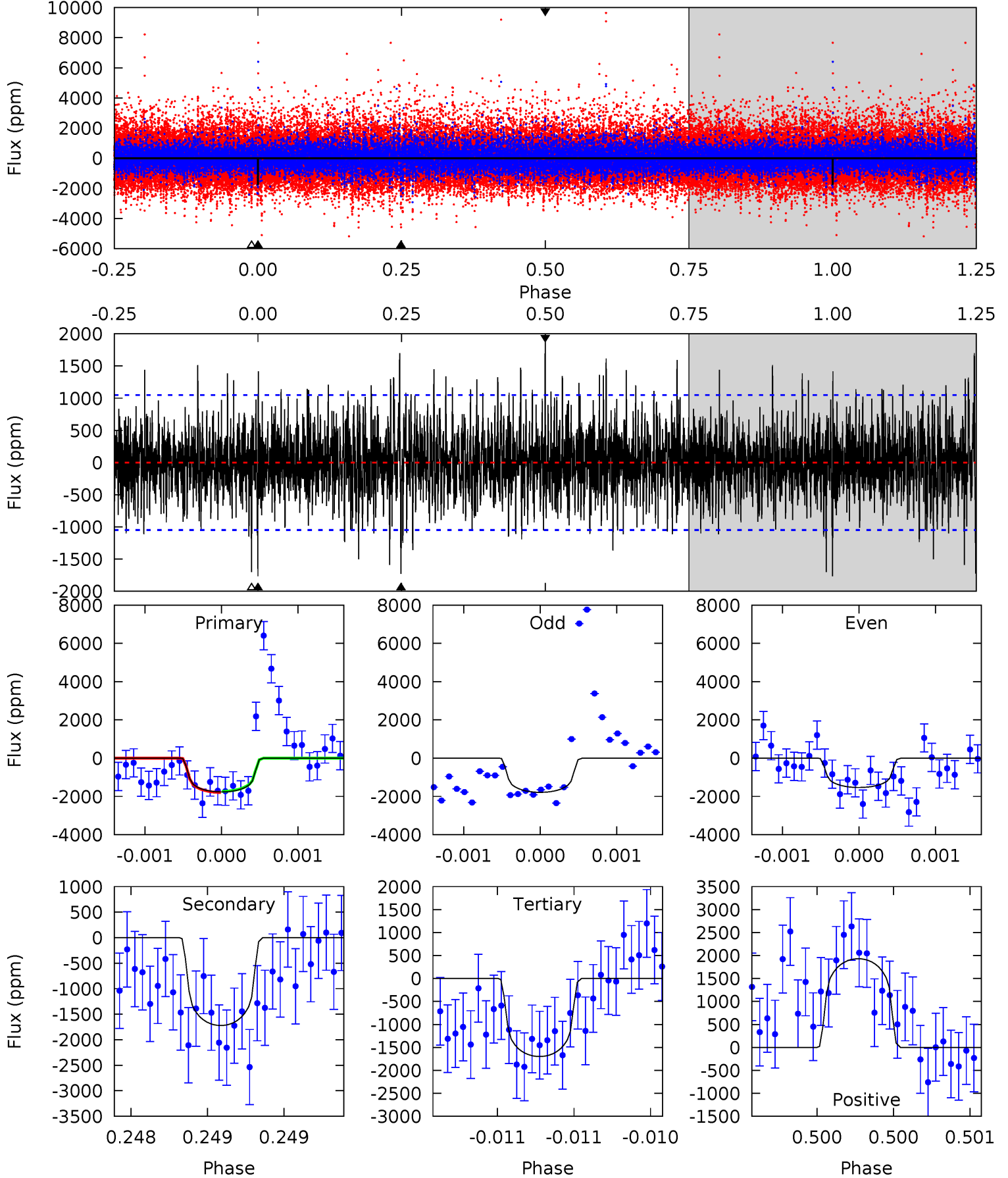
TCE 005395490-02 $P=414.760401$ Days $T_0=287.597915$ (BKJD)



DV Model-Shift Uniqueness Test

005395490-02, P = 414.756071 Days, E = 287.607579 Days

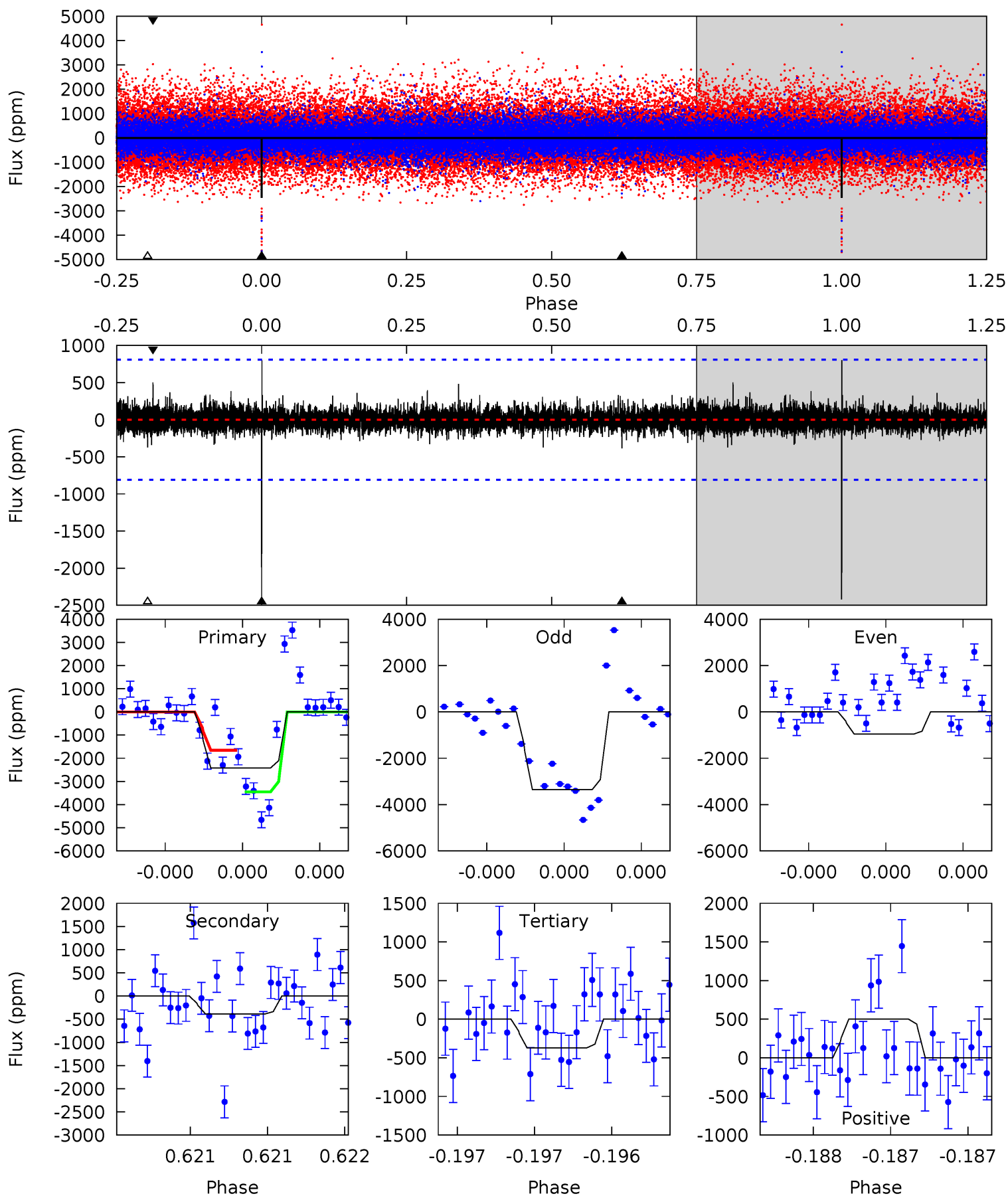
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.35	9.12	9.00	10.2	5.56	3.46	2.16	0.35	-0.88	0.12	-1.11	0.62	0.99	0.52	0.15



Alt Model-Shift Uniqueness Test

005395490-02, P = 414.760401 Days, E = 287.597915 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	2.67	2.57	3.47	5.59	3.51	0.57	14.2	13.3	0.10	-0.80	8.60	0.72	0.25	6.08



Stellar Parameters For KIC 005395490

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5374^{+177}_{-160}	$4.591^{+0.065}_{-0.071}$	$-0.640^{+0.350}_{-0.300}$	$0.704^{+0.090}_{-0.065}$	$0.705^{+0.084}_{-0.045}$	$2.844^{+0.812}_{-0.685}$
	+3%/-3%	+1%/-2%	+55%/-47%	+13%/-9%	+12%/-6%	+29%/-24%
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 005395490-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1722 ± 189	$4.00^{+2.93}_{-2.56}$	283^{+12}_{-11}	4881^{+3177}_{-911}	$57046^{+374194}_{-37811}$
Alt.	-386 ± 145	$3.86^{+3.10}_{-2.28}$	284^{+12}_{-11}	3714^{+1591}_{-654}	12684^{+66633}_{-9021}

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 $A_{obs} \gg 1.0$

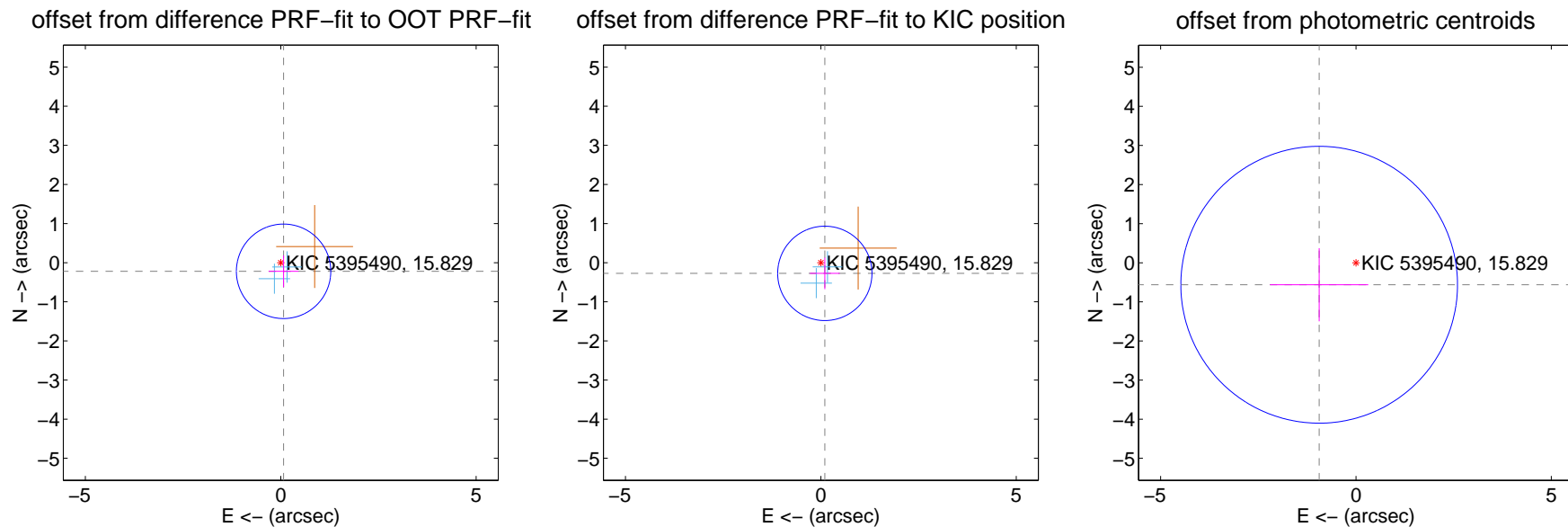
DV Centroid Data

Supplemental centroid analysis for 005395490-02. Kepler magnitude: 15.83. Transit SNR 6.91

There are 2 quarters with good PRF difference image offsets

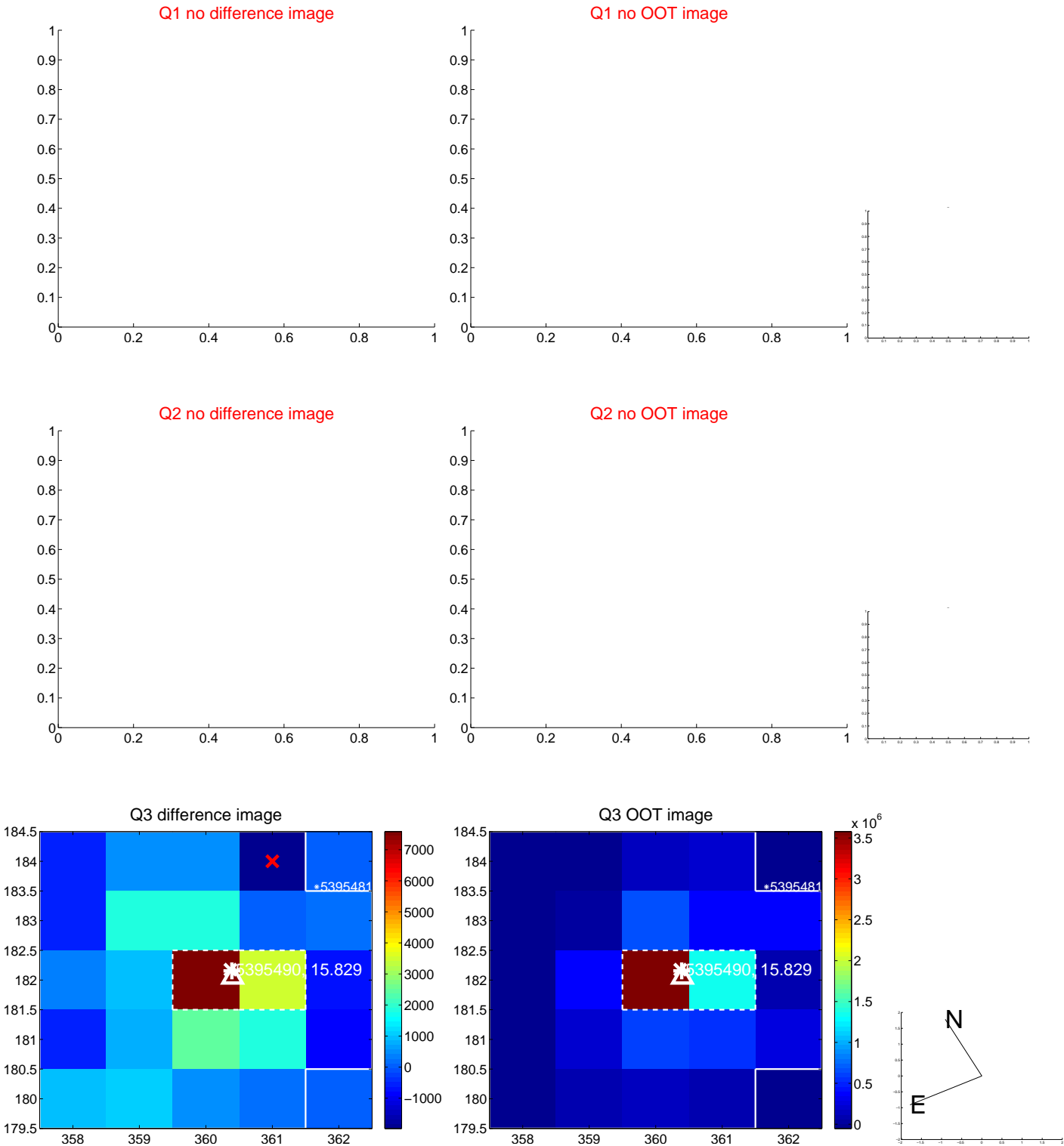
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.232 ± 0.403	0.58	-0.072 ± 0.382	-0.220 ± 0.405
PRF-fit source offset from KIC position	0.291 ± 0.402	0.72	-0.101 ± 0.382	-0.273 ± 0.405
photometric centroid source offset	1.10 ± 1.18	0.93	0.94 ± 1.26	-0.56 ± 0.94

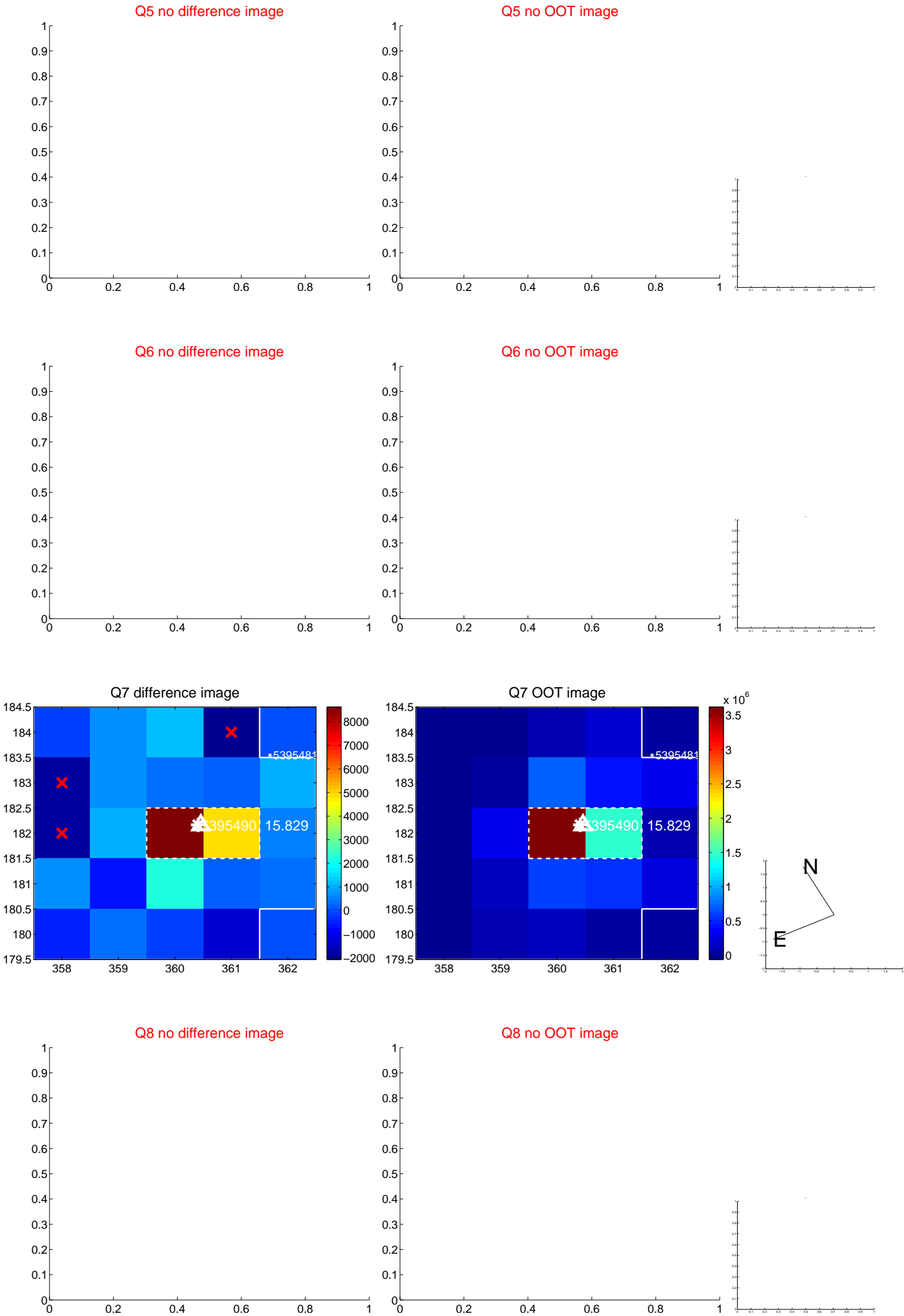


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



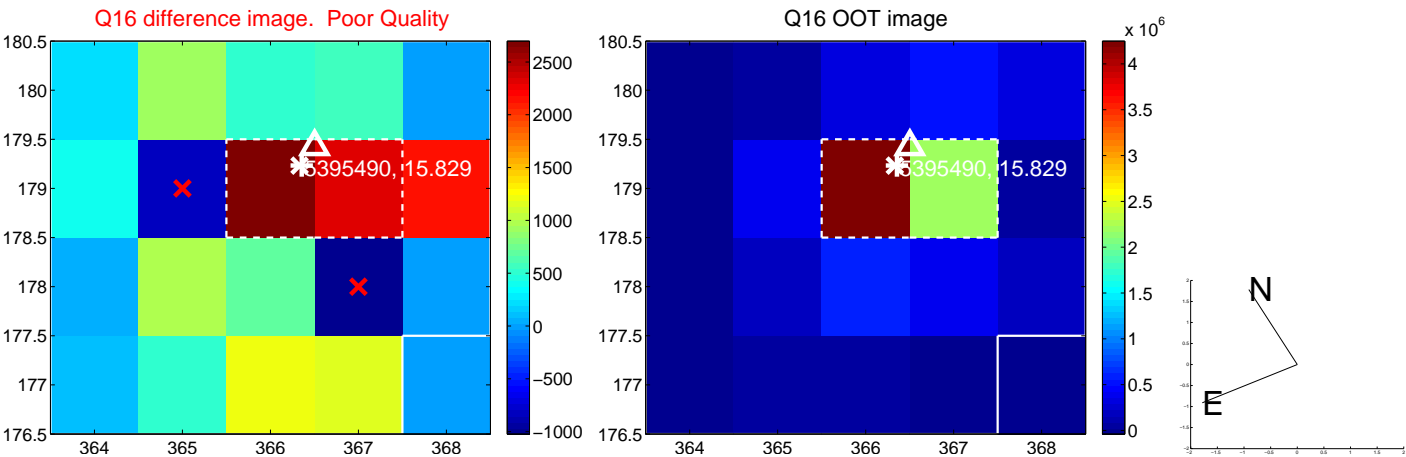
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



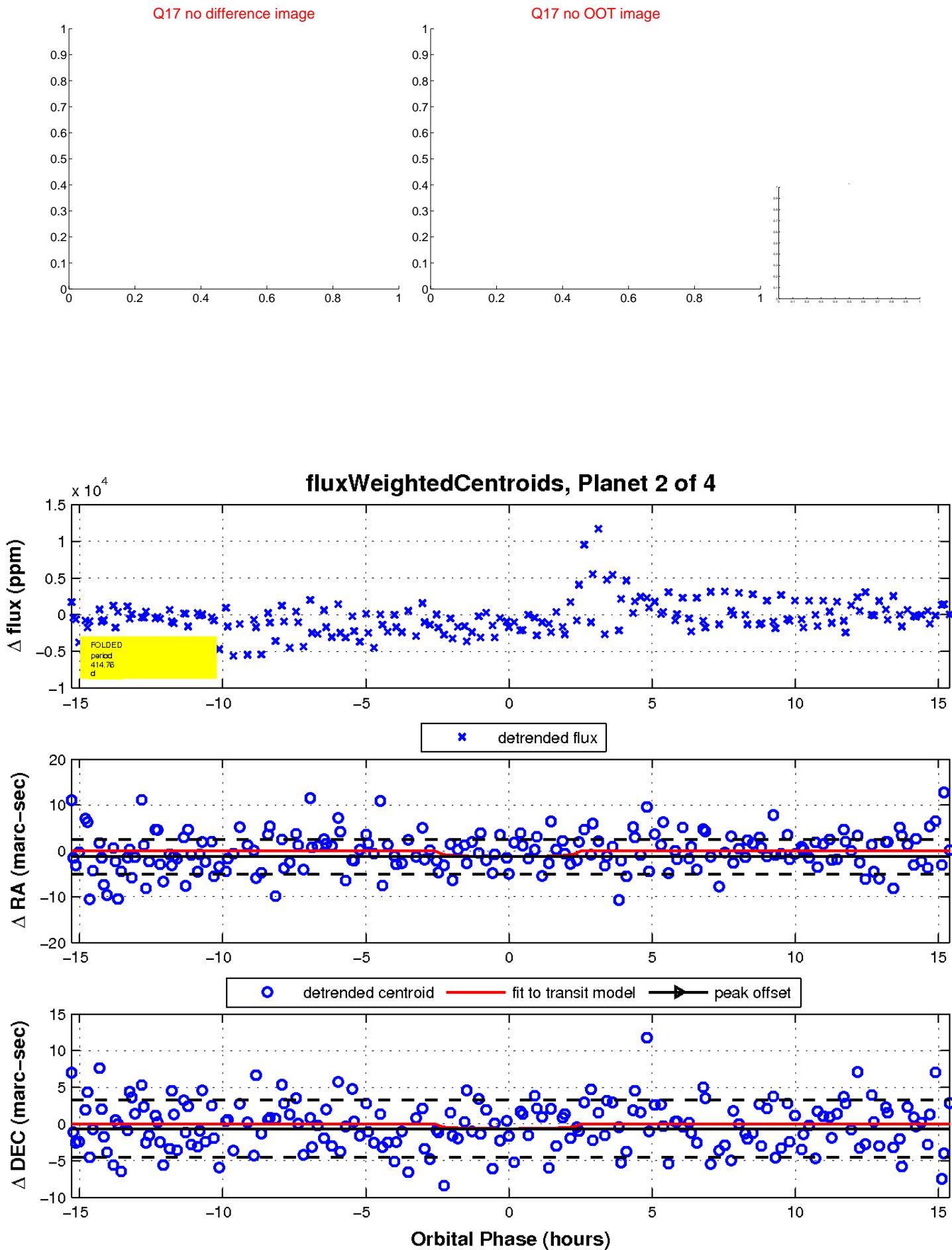
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

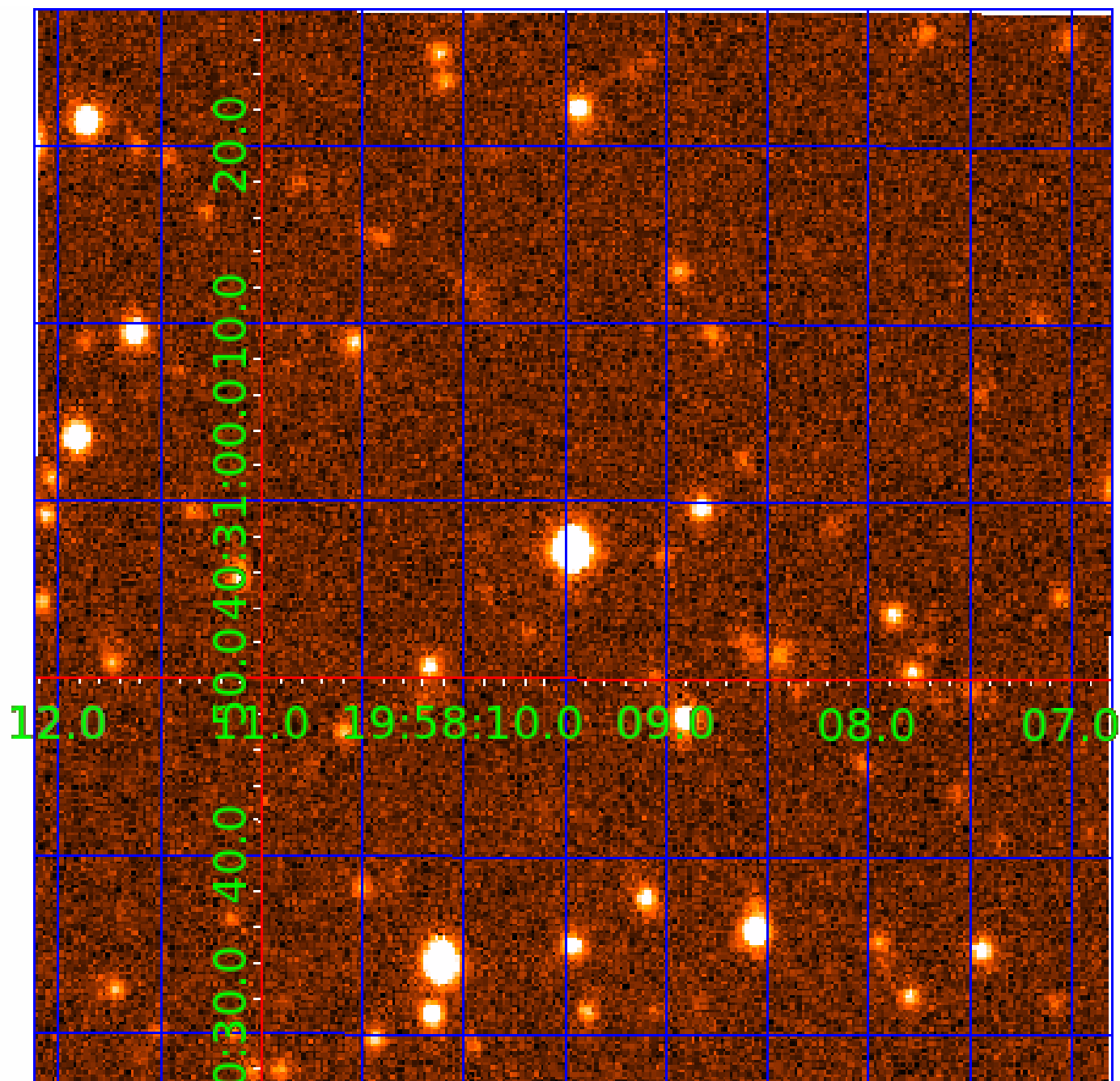


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005395490

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})
005395490-01	OBS	No	533.527666	388.991547	2277.4	3.860	11.6	7.8	0.70	5374	3.41	0.28
005395490-02	OBS	No	414.756071	287.607579	2301.3	5.157	11.5	6.9	0.70	5374	3.39	0.40
005395490-03	OBS	No	1.863776	132.049393	249.7	13.752	11.2	9.2	0.70	5374	1.10	532.04
005395490-04	OBS	No	29.033403	144.577080	4046.1	2.109	14.5	8.4	0.70	5374	8.46	13.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005395490-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005395490-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV
005395490-03	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005395490-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

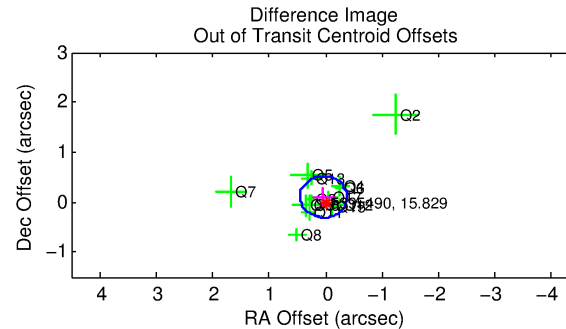
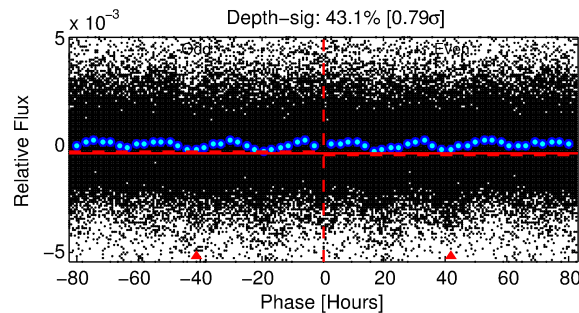
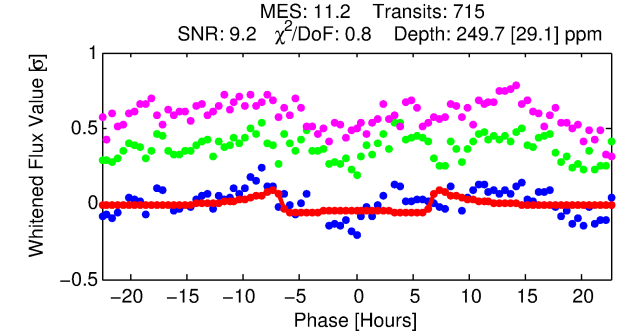
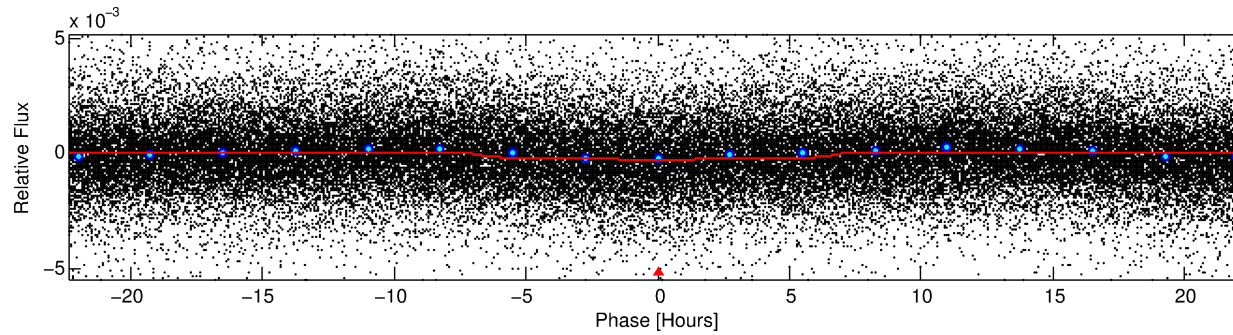
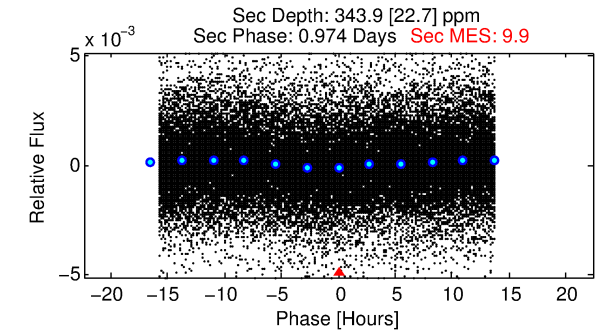
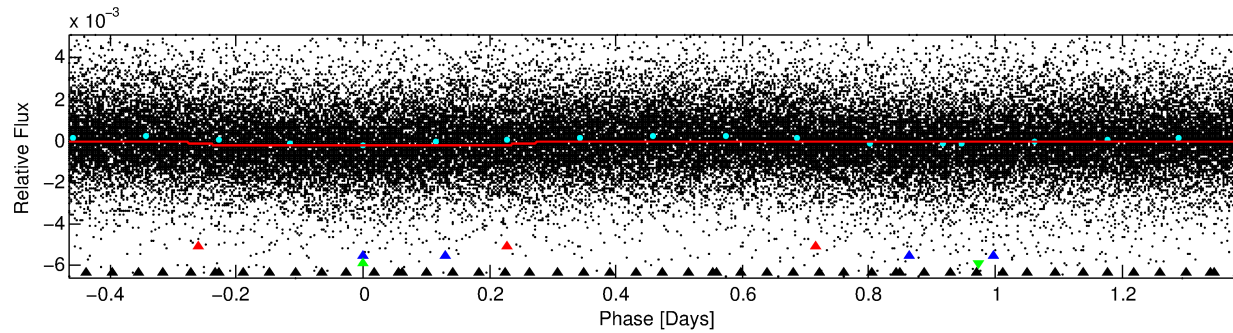
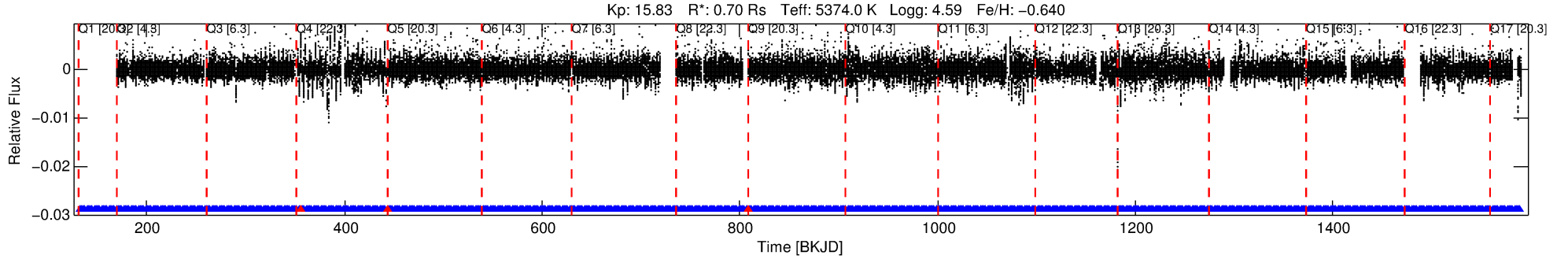
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005395490-03

No Significant Match Found

DV One-Page Summary

KIC: 5395490 Candidate: 3 of 4 Period: 1.864 d



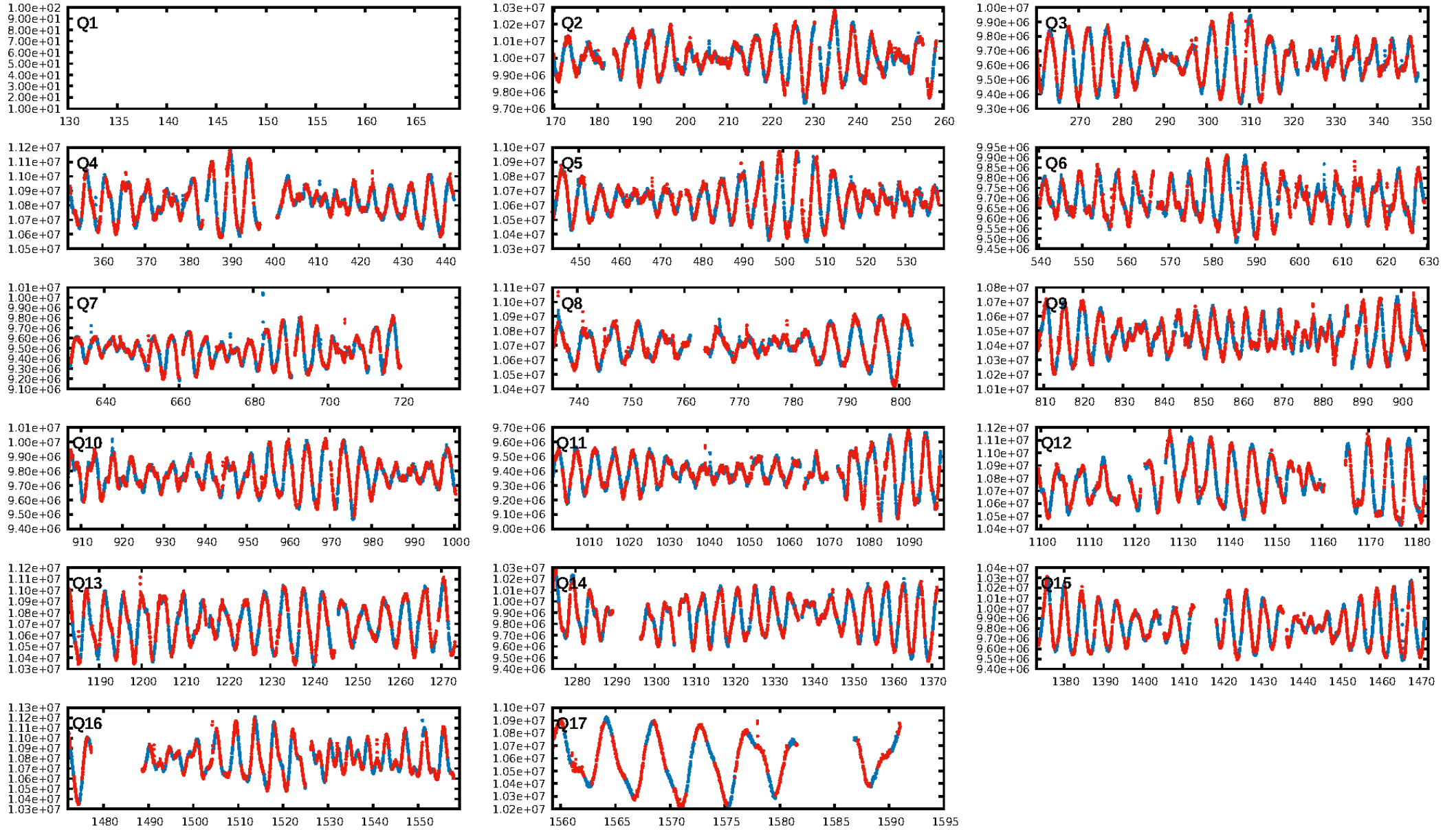
DV Fit Results:

Period = 1.86378 [0.00002] d
Epoch = 132.0494 [0.0046] BKJD
Rp/R* = 0.0143 [0.0075]
a/R* = 1.23 [0.94]
b = 0.00 [935.07]
Seff = 532.04 [101.64]
Teq = 1225 [58] K
Rp = 1.10 [0.59] Re
a = 0.0264 [0.0027] AU
Ag = 109.17 [115.56] [0.94σ]
Teffp = 6120 [1618] K [3.02σ]

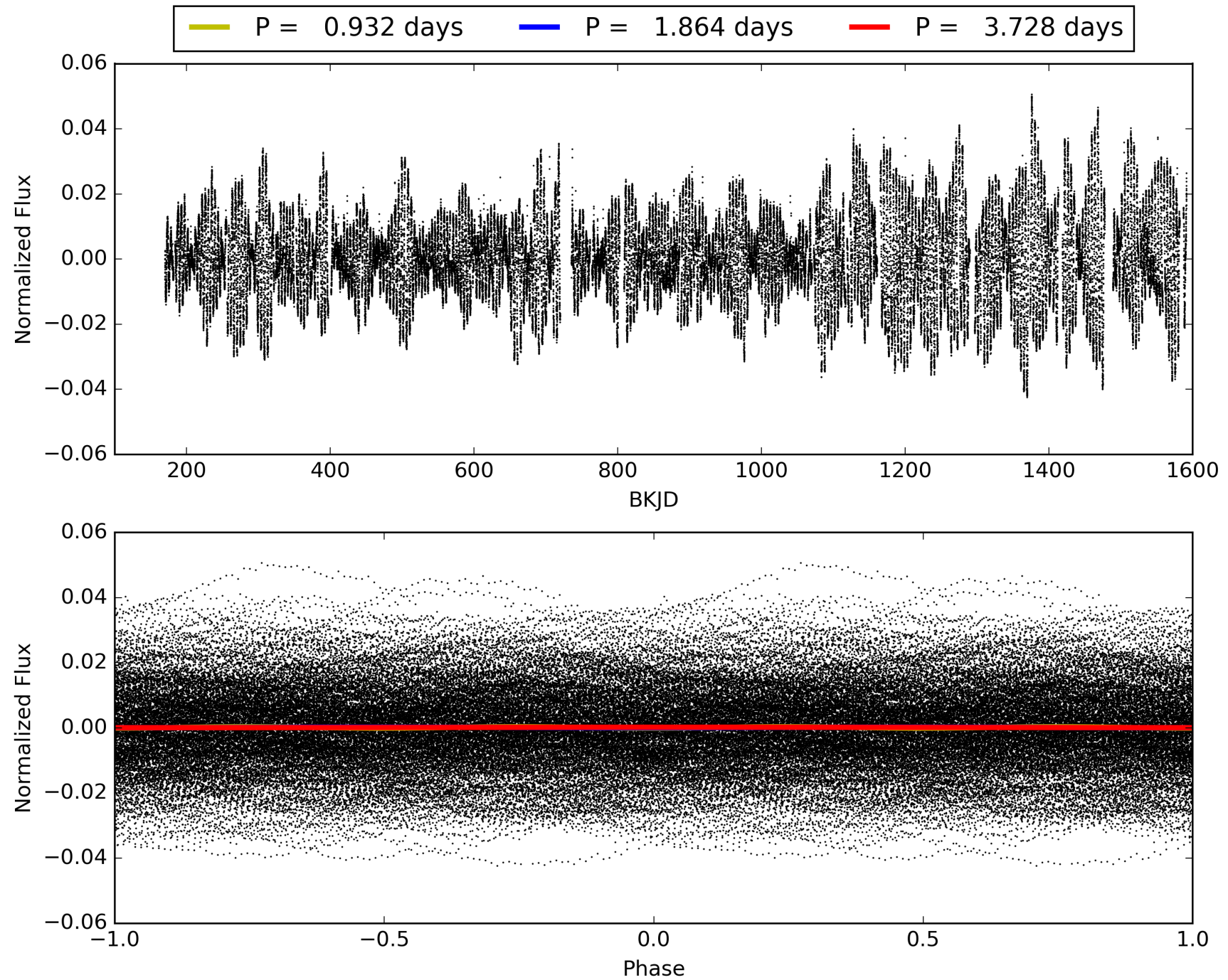
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [46.87σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [698/701]
GhostDiagnostic-chr: 0.2021
Centroid-sig: 0.0%
Centroid-so: 2.262 arcsec [3.85σ]
OotOffset-rm: 0.112 arcsec [0.81σ]
OotOffset-st: 2/4/4/4 [14]
KicOffset-rm: 0.030 arcsec [0.20σ]
KicOffset-st: 2/4/4/4 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 005395490-03, PDC Light Curves

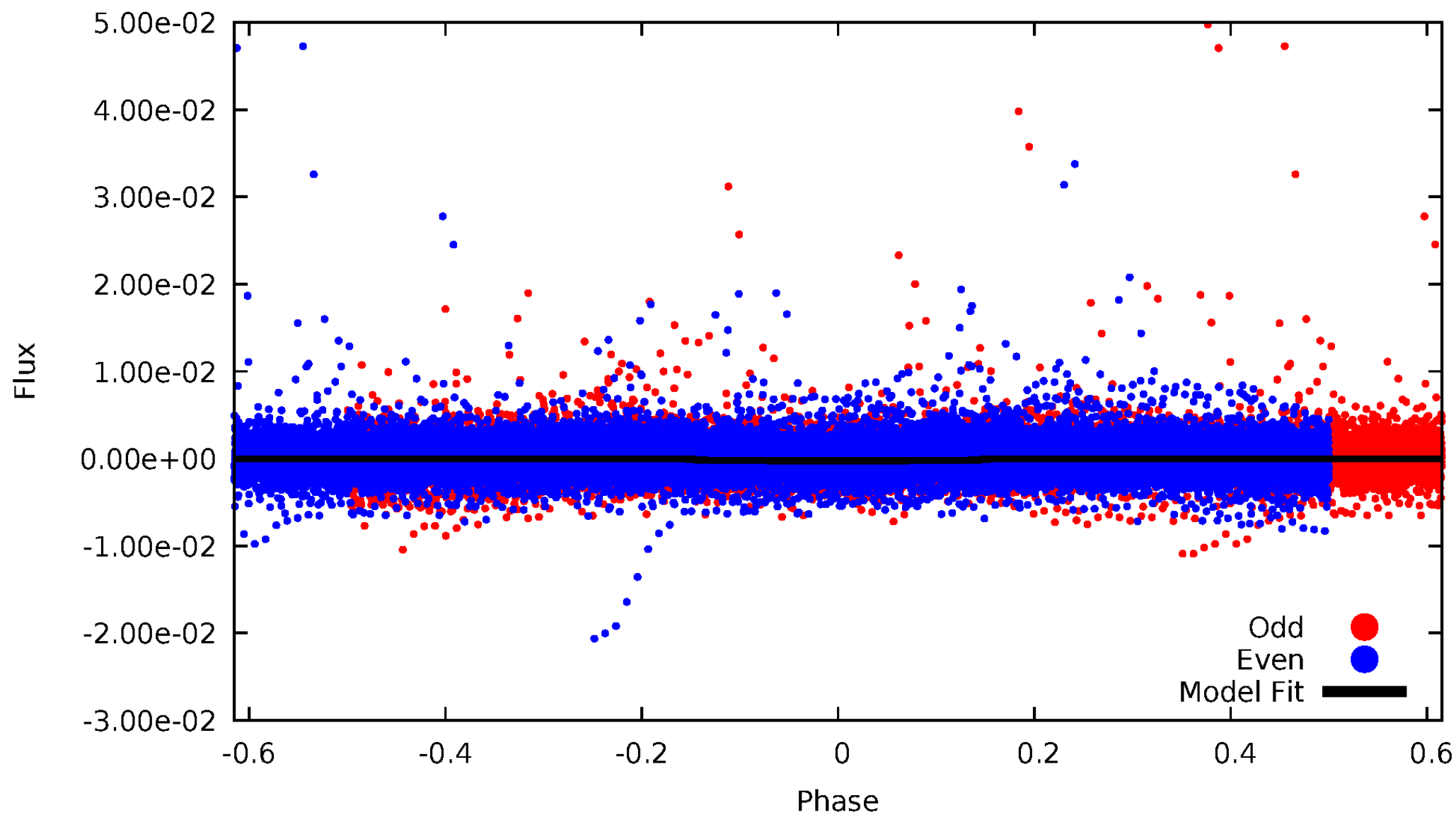


TCE 005395490-03



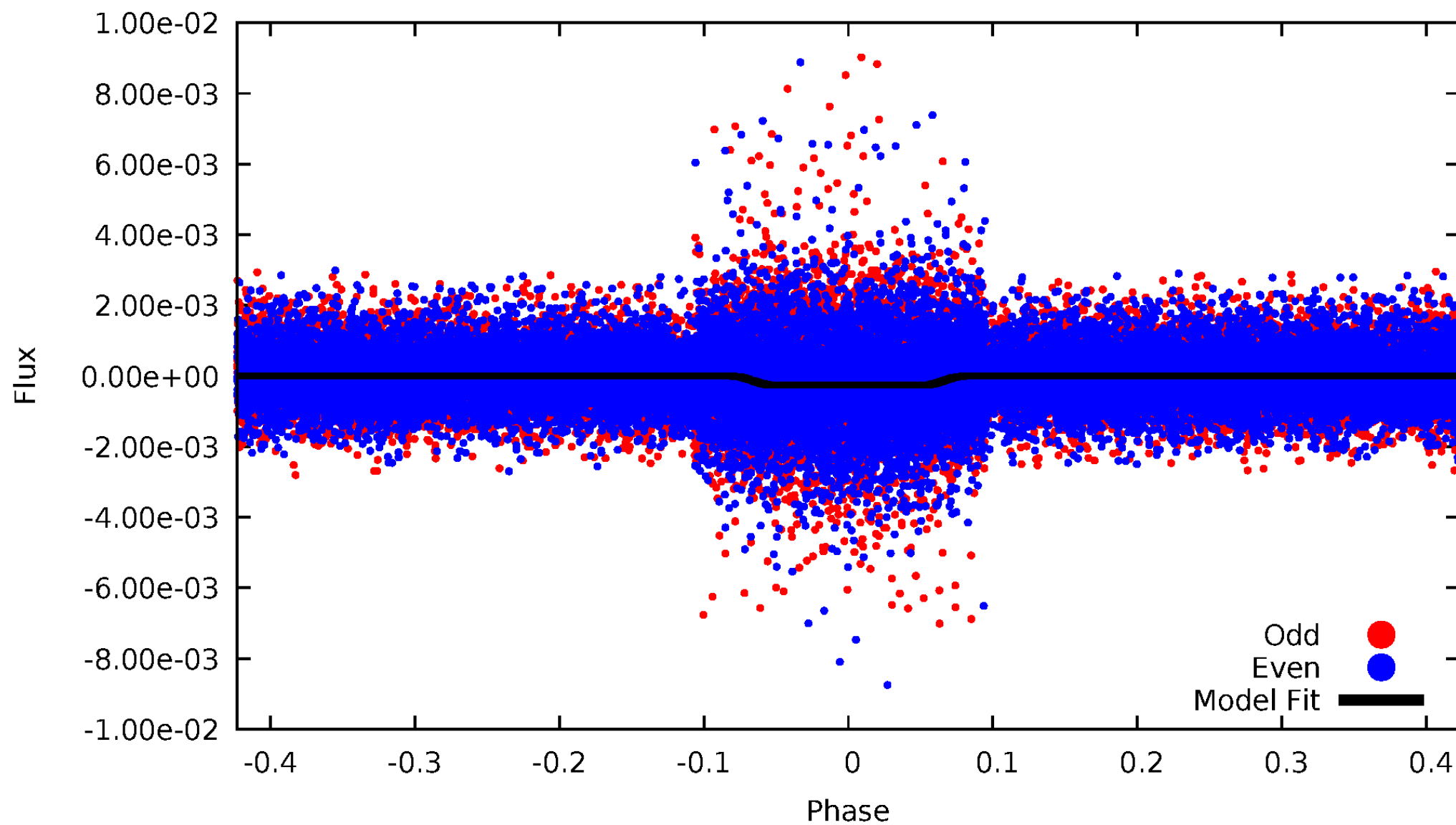
DV Odd/Even

TCE 005395490-03



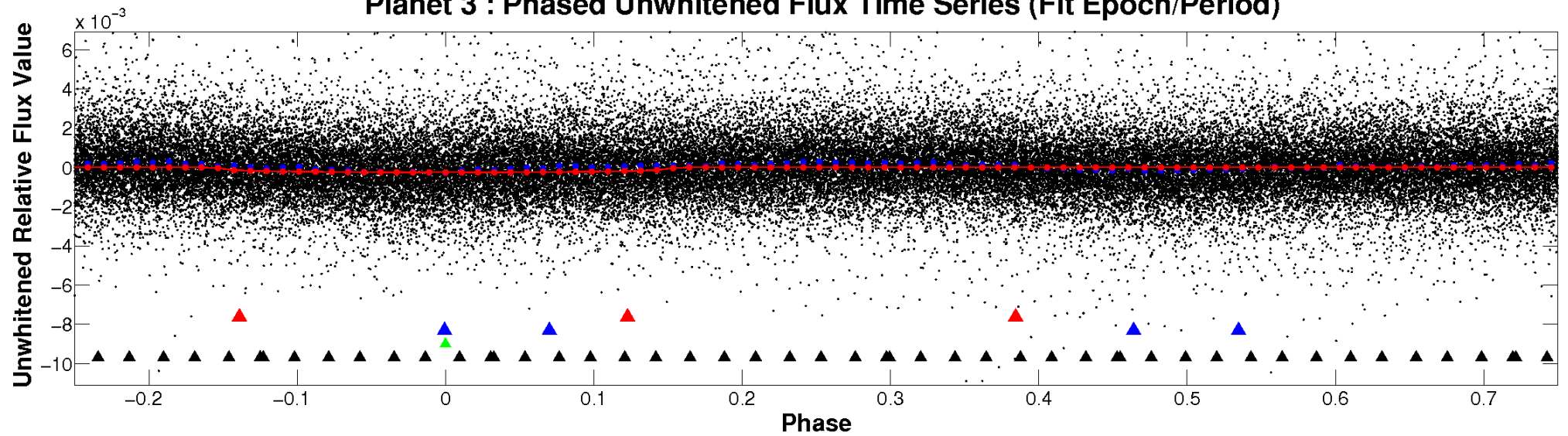
ALT Odd/Even

TCE 005395490-03

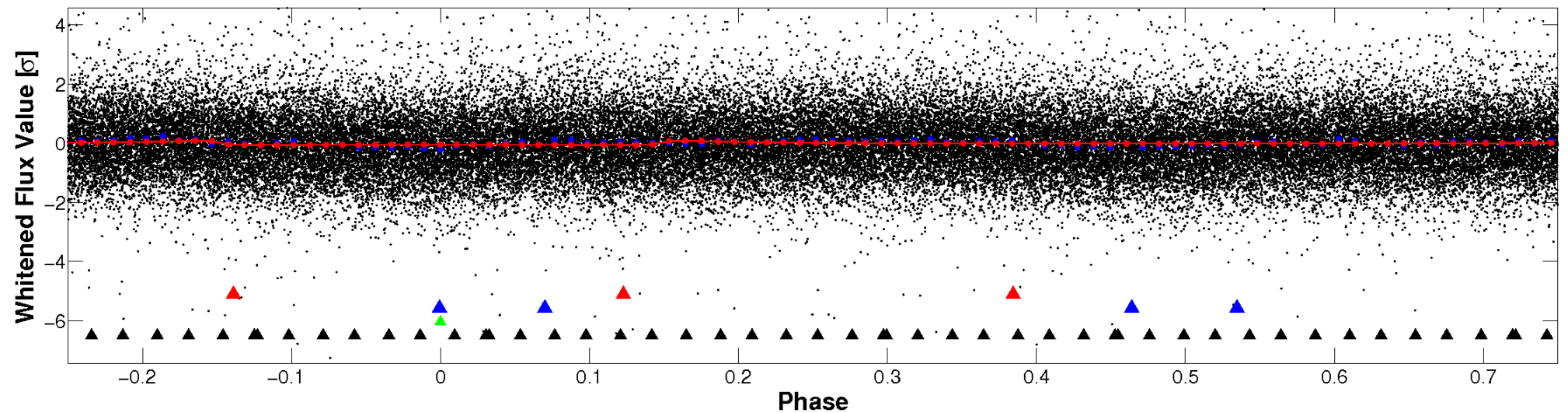


Non-Whitened Vs. Whitened Light Curve

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

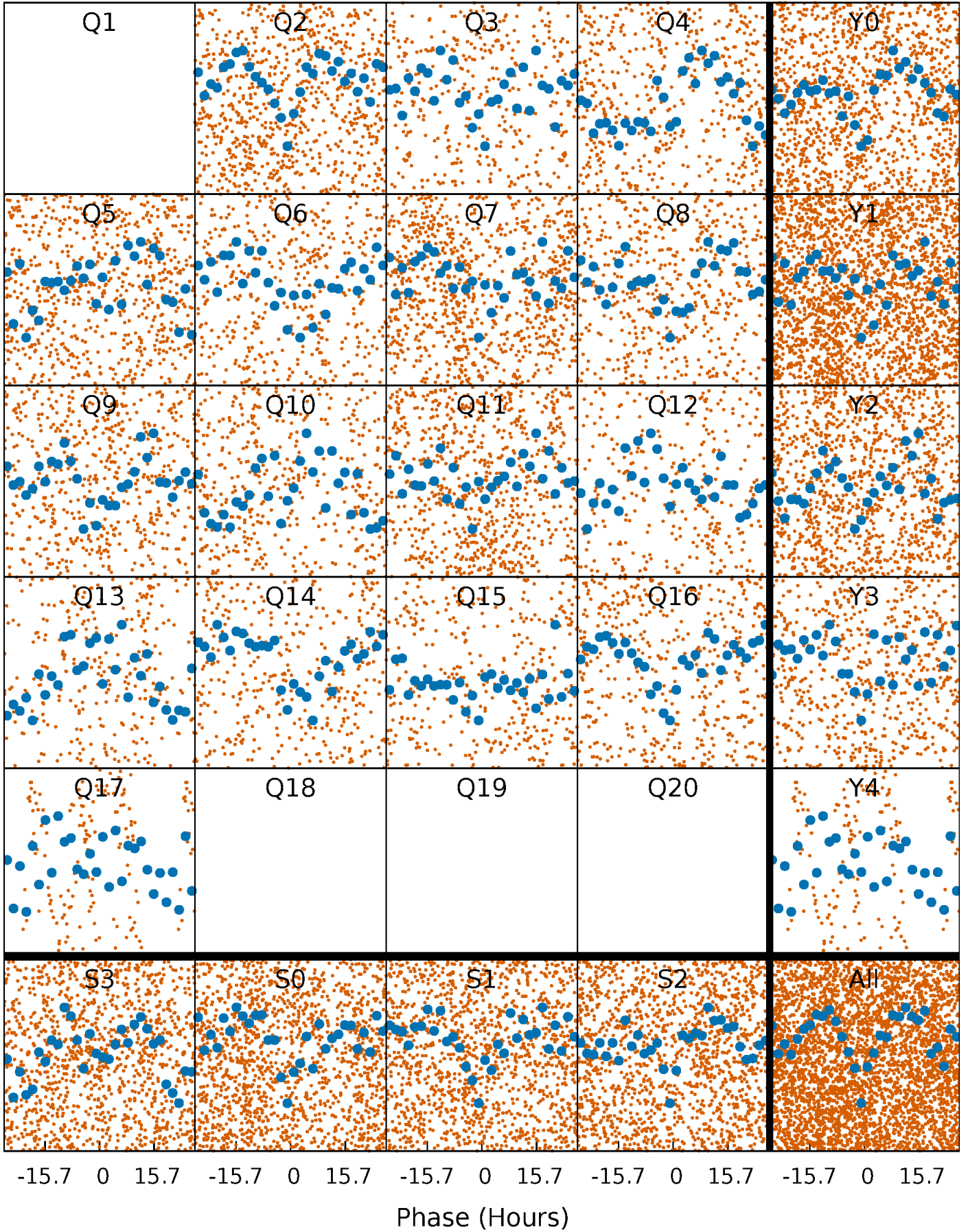


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



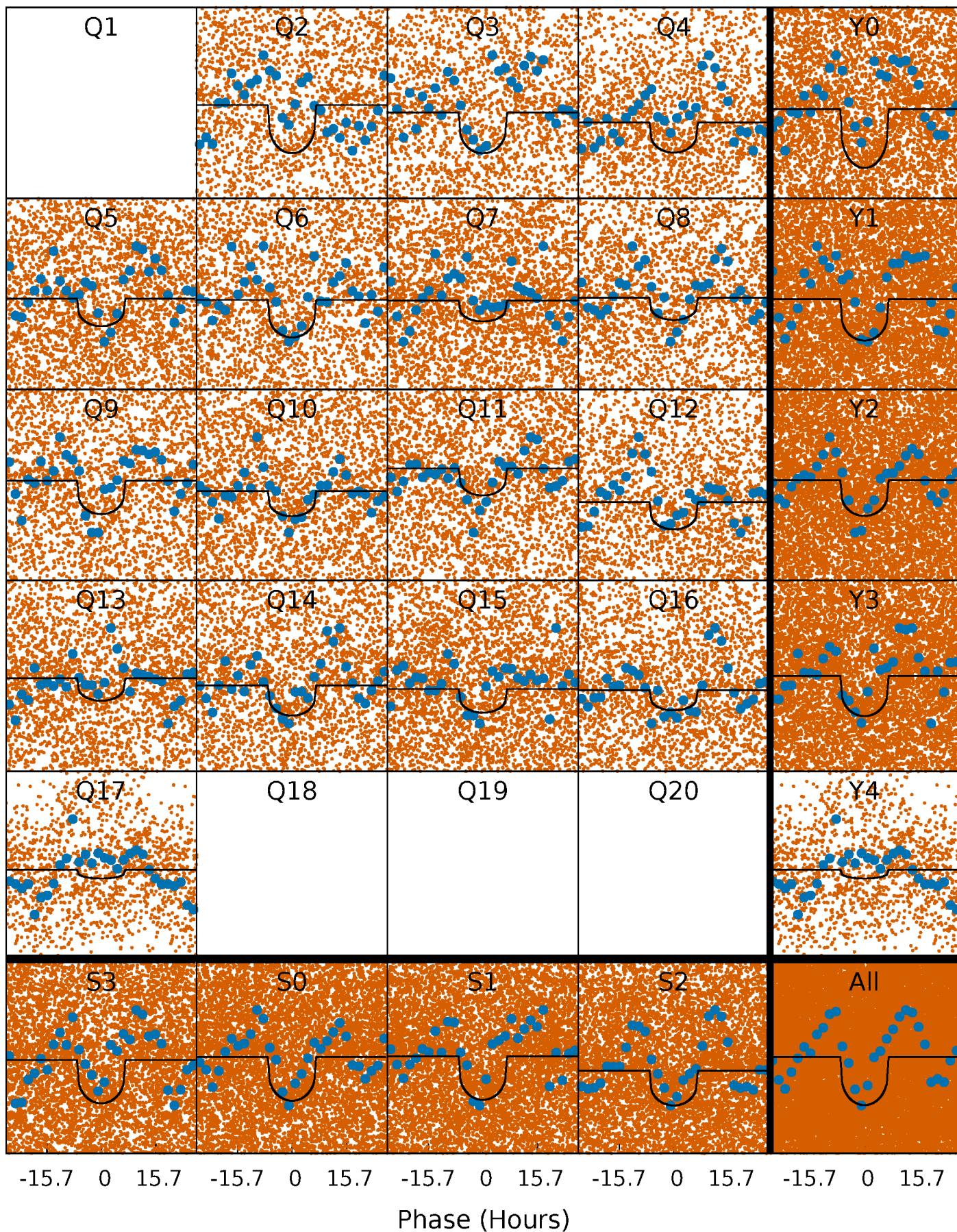
PDC Quarter-Phased Transit Curves

TCE 005395490-03 P= 1.863776 Days $T_0=132.049393$ (BKJD)



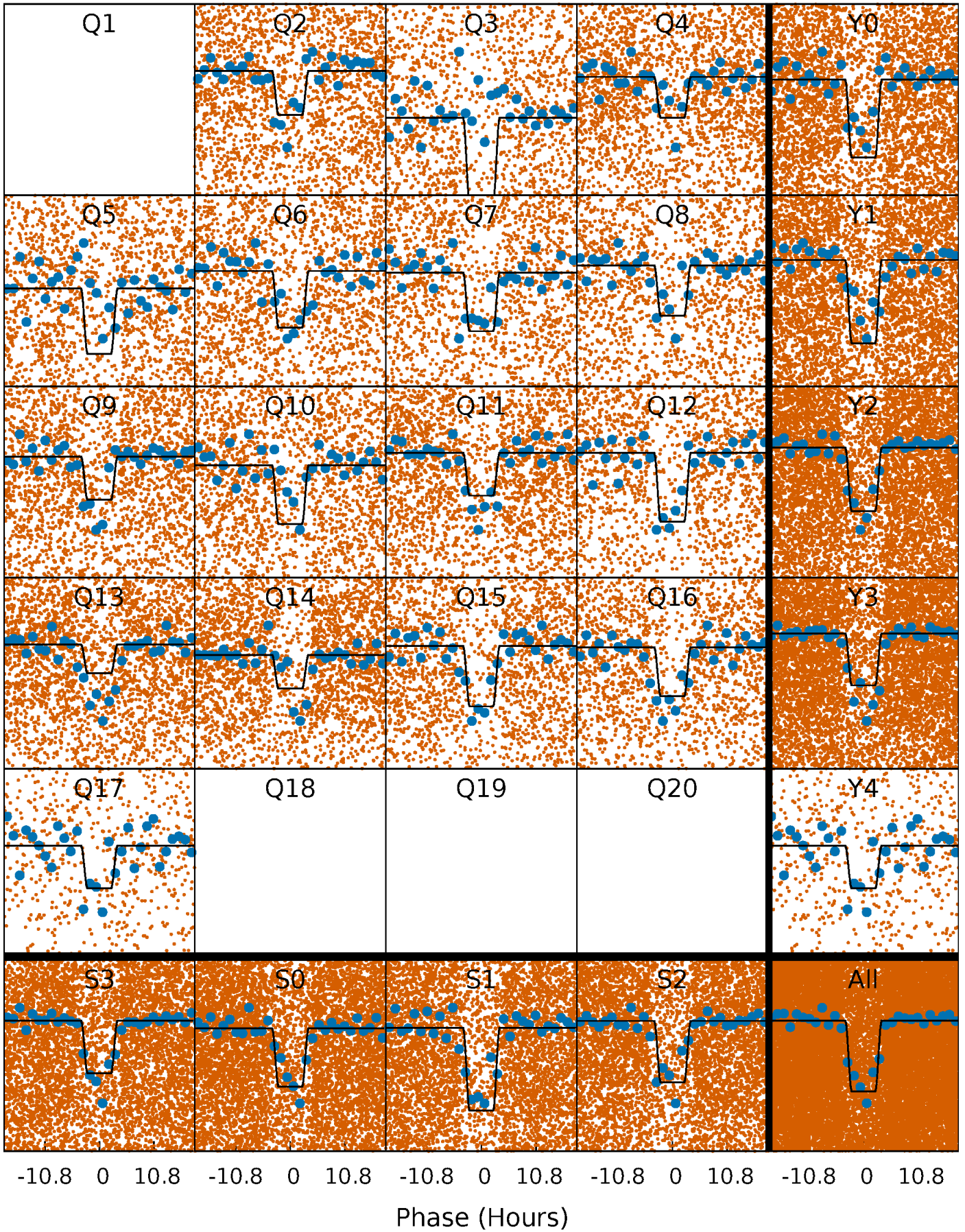
DV Quarter-Phased Transit Curves

TCE 005395490-03 P= 1.863776 Days $T_0=132.049393$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

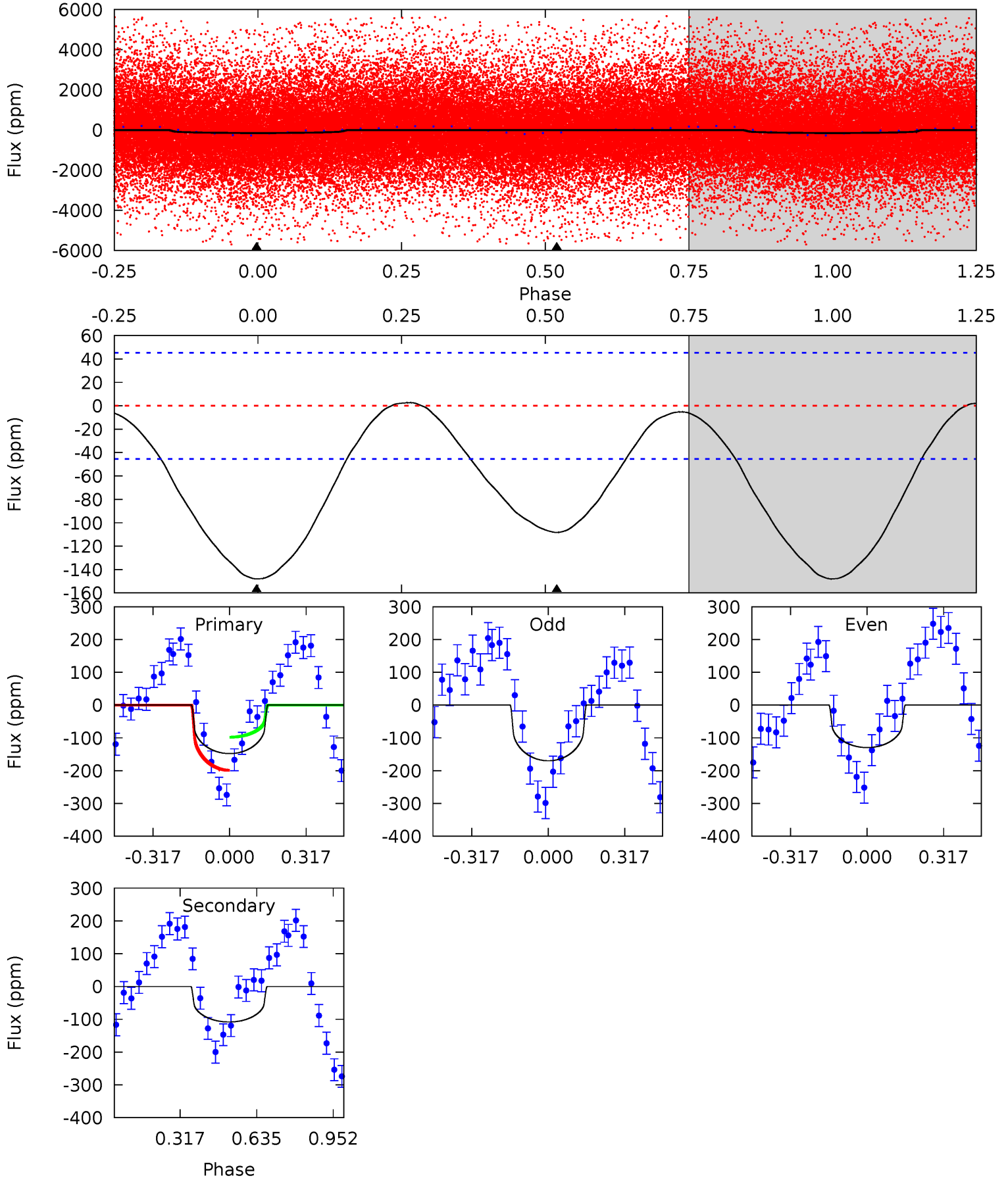
TCE 005395490-03 P= 1.863595 Days $T_0=132.053794$ (BKJD)



DV Model-Shift Uniqueness Test

005395490-03, P = 1.863776 Days, E = 132.049393 Days

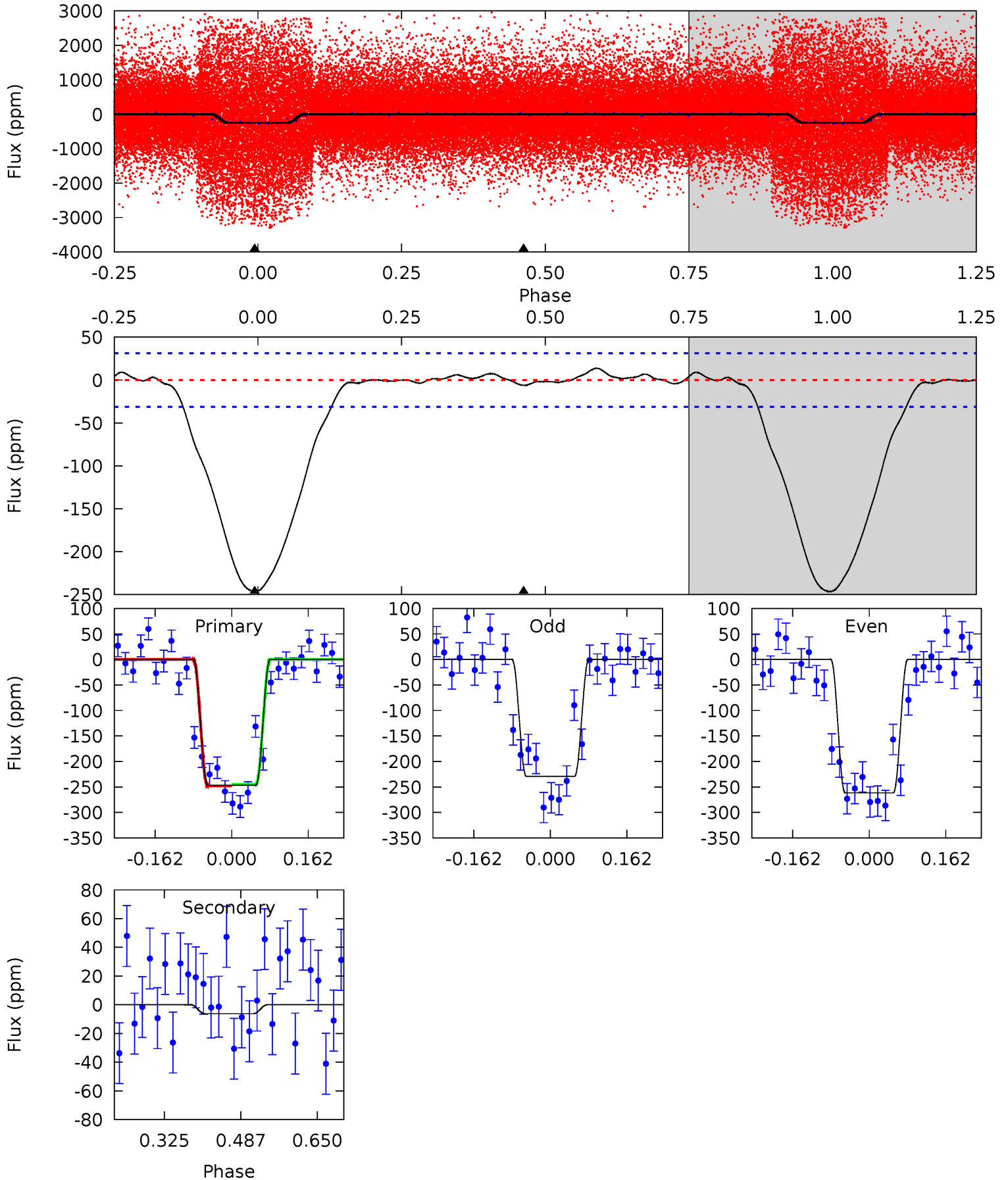
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	10.3	0	0	4.32	1.00	0.44	14.1	14.1	10.3	10.3	1.93	0.39	0.02	4.81



Alt Model-Shift Uniqueness Test

005395490-03, P = 1.863595 Days, E = 132.053794 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.3	0.89	0	0	4.46	1.40	0.45	35.3	35.3	0.89	0.89	2.30	1.03	0.05	0.23



Stellar Parameters For KIC 005395490

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5374^{+177}_{-160}	$4.591^{+0.065}_{-0.071}$	$-0.640^{+0.350}_{-0.300}$	$0.704^{+0.090}_{-0.065}$	$0.705^{+0.084}_{-0.045}$	$2.844^{+0.812}_{-0.685}$
	+3%/-3%	+1%/-2%	+55%/-47%	+13%/-9%	+12%/-6%	+29%/-24%
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 005395490-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-108 ± 11	$1.09^{+0.61}_{-0.51}$	1714^{+73}_{-66}	4776^{+1455}_{-790}	37^{+88}_{-23}
Alt.	-6 ± 7	$1.24^{+0.59}_{-0.53}$	1716^{+73}_{-68}	2732^{+637}_{-5120}	$1.445^{+4.227}_{-1.526}$

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 $A_{obs} \gg 1.0$

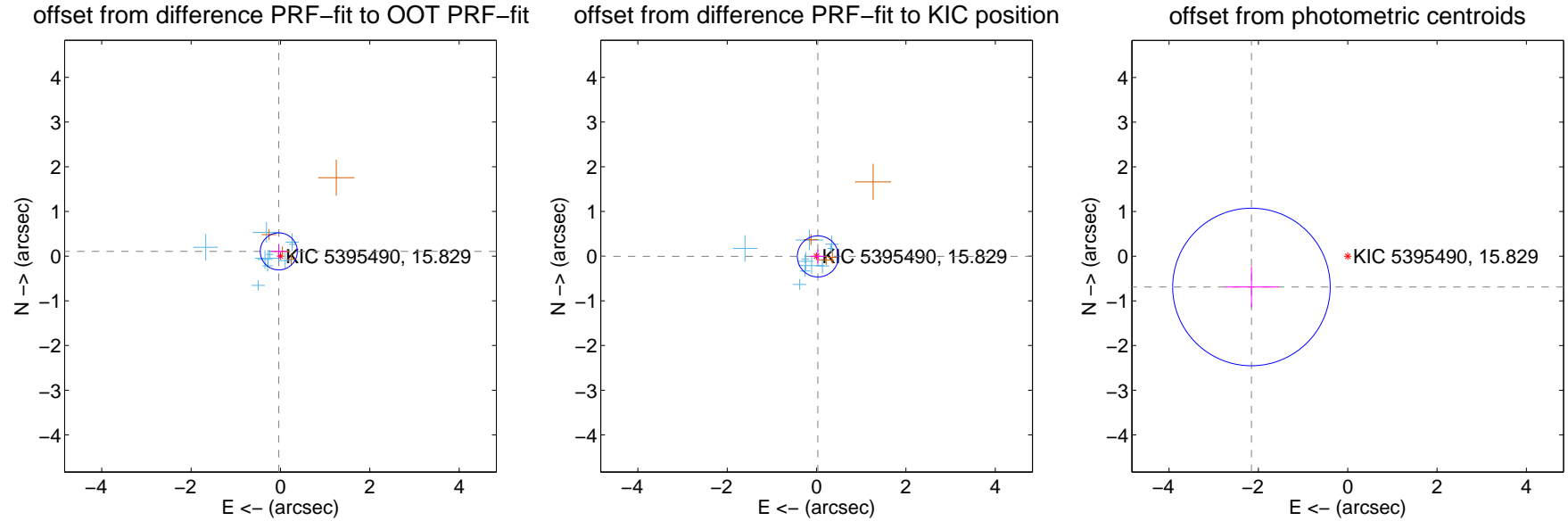
DV Centroid Data

Supplemental centroid analysis for 005395490-03. Kepler magnitude: 15.83. Transit SNR 9.23

There are 10 quarters with good PRF difference image offsets

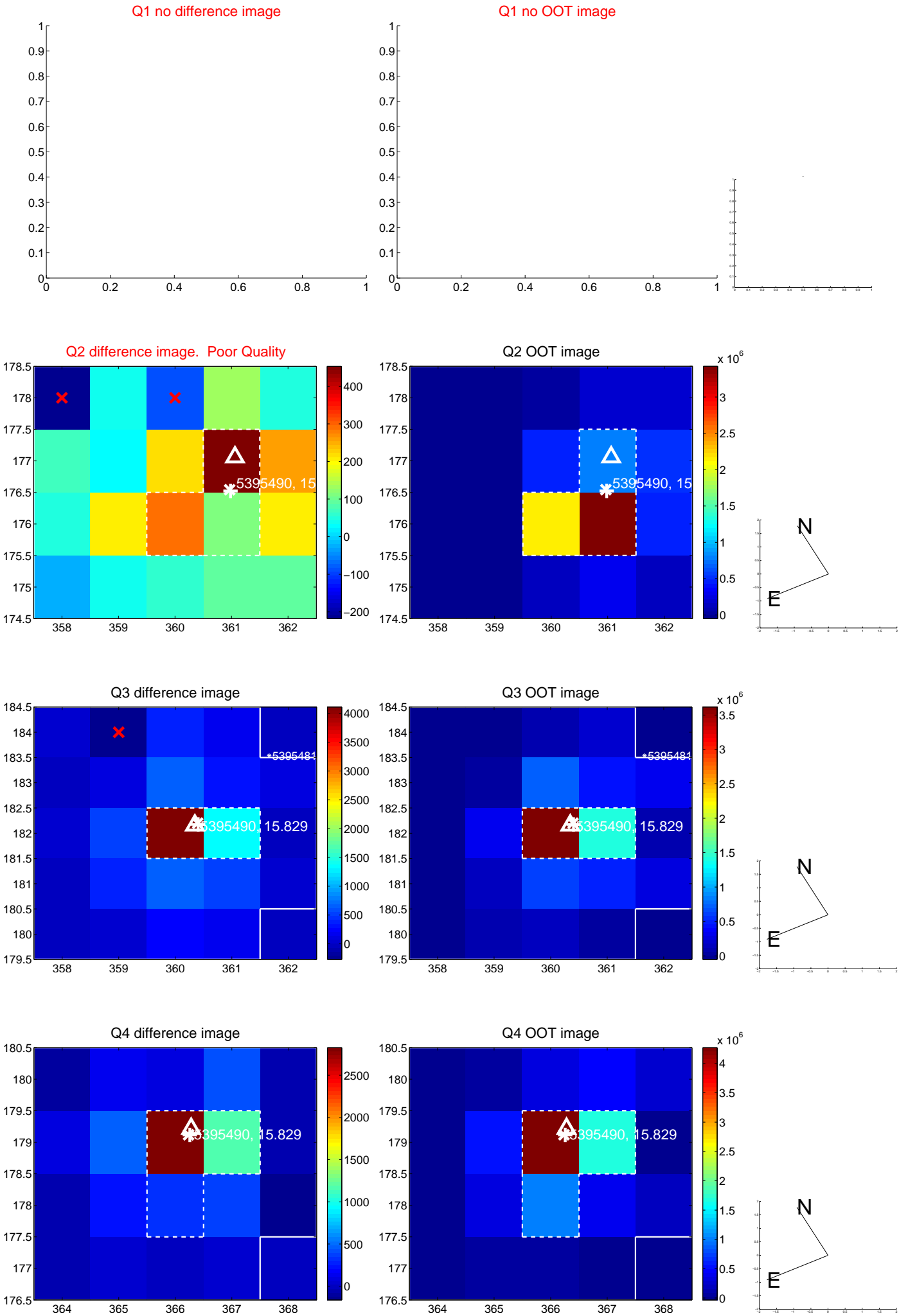
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.112 ± 0.138	0.81	0.037 ± 0.178	0.106 ± 0.166
PRF-fit source offset from KIC position	0.030 ± 0.153	0.20	-0.030 ± 0.165	-0.006 ± 0.155
photometric centroid source offset	2.26 ± 0.59	3.85	2.15 ± 0.60	-0.69 ± 0.46

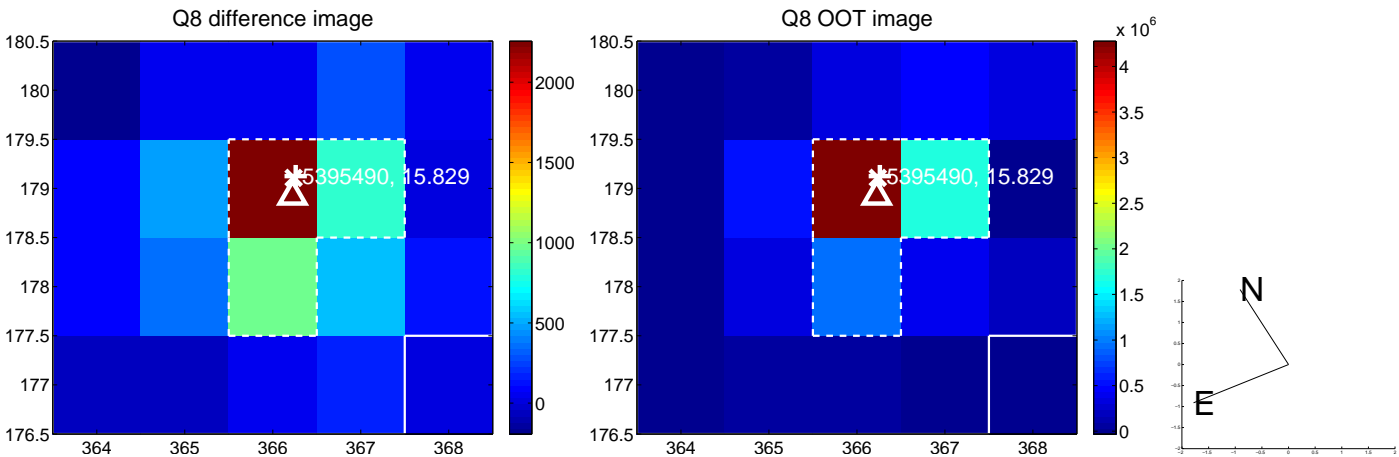
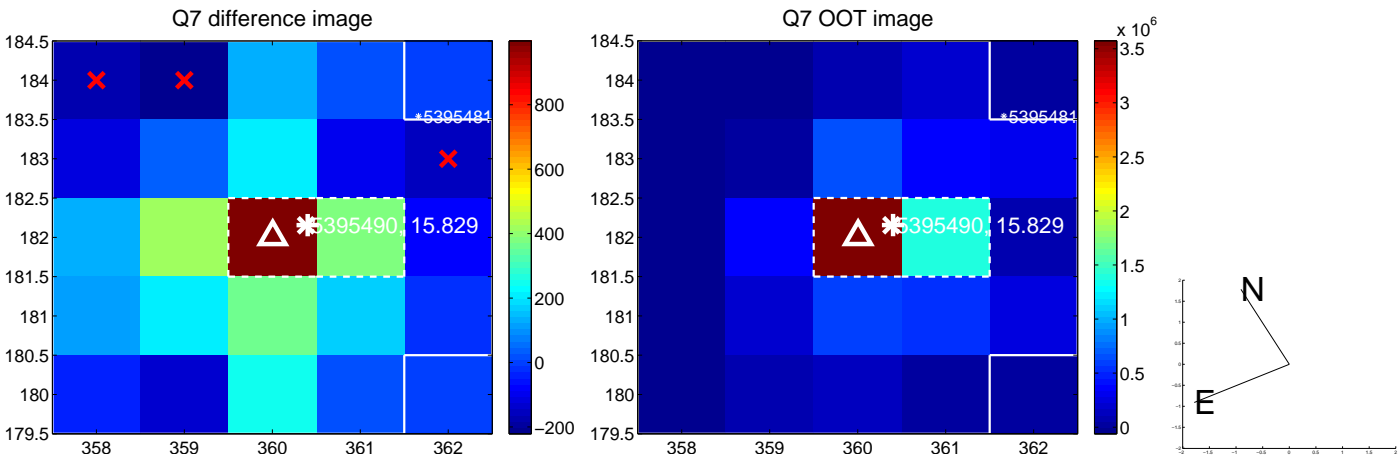
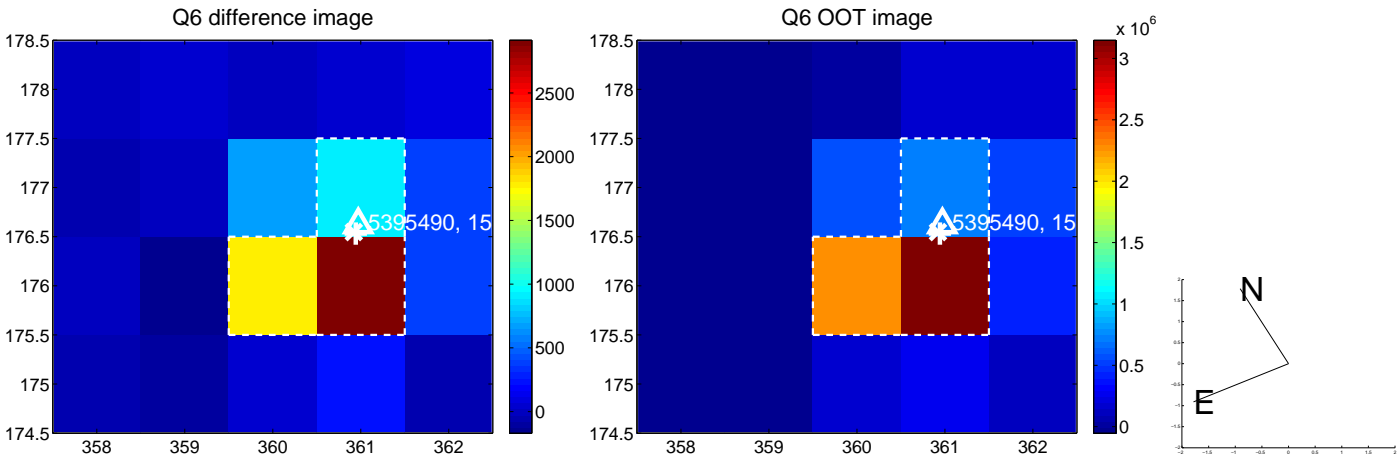
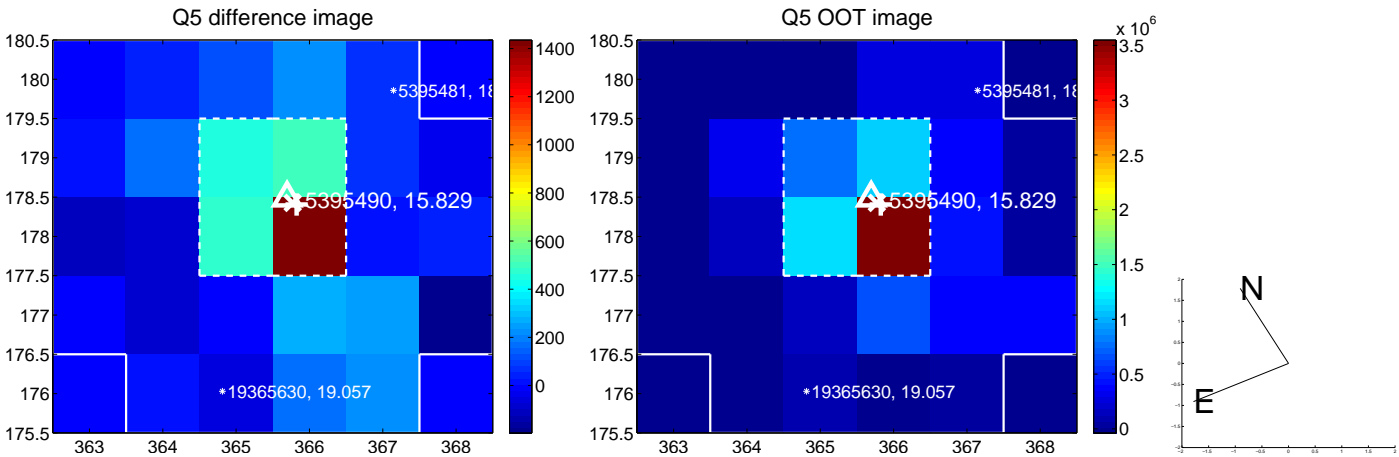


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

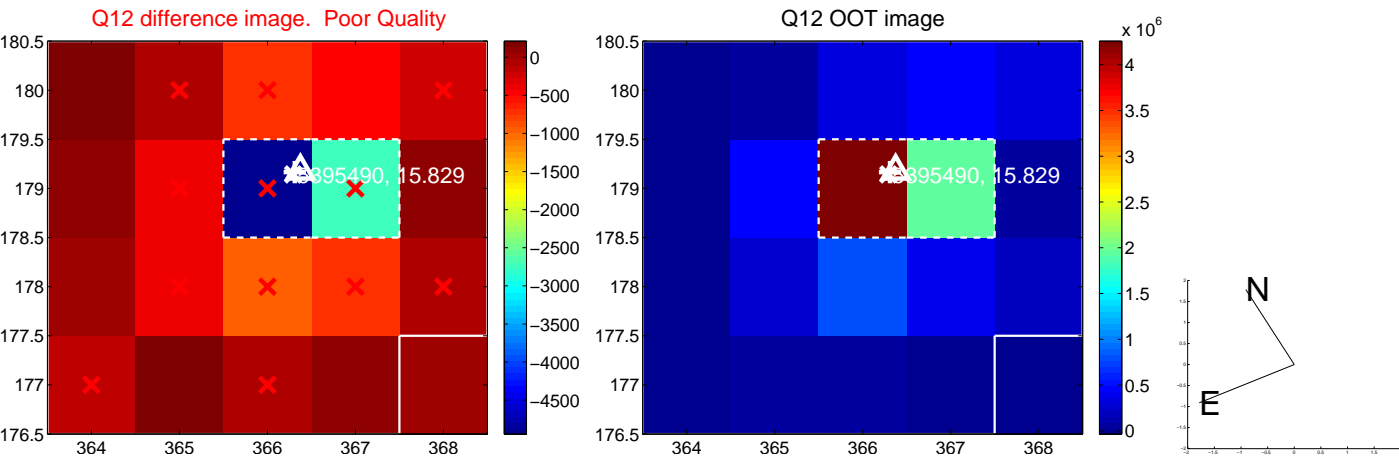
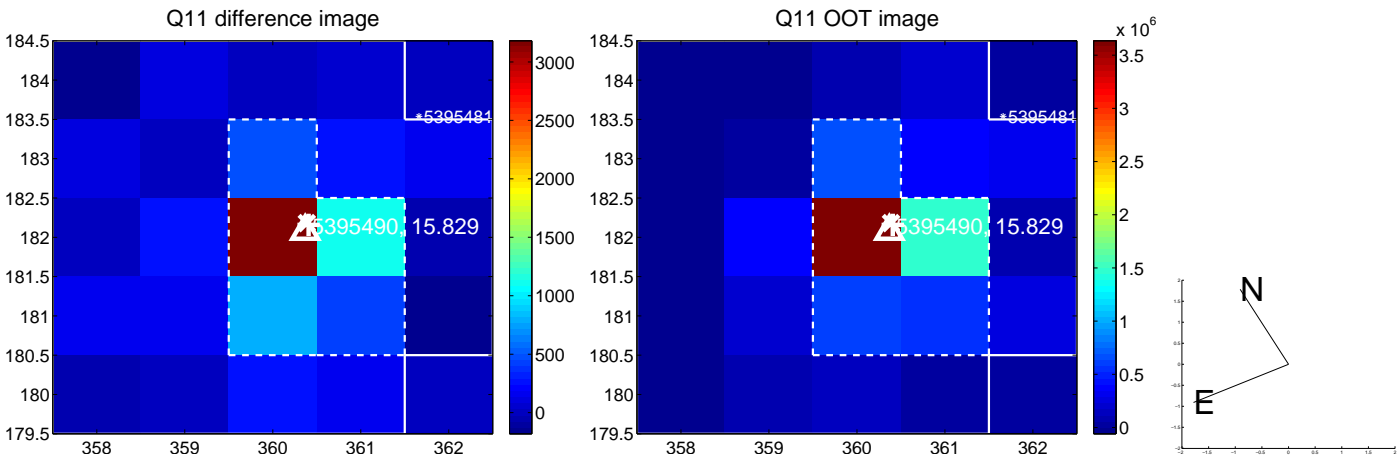
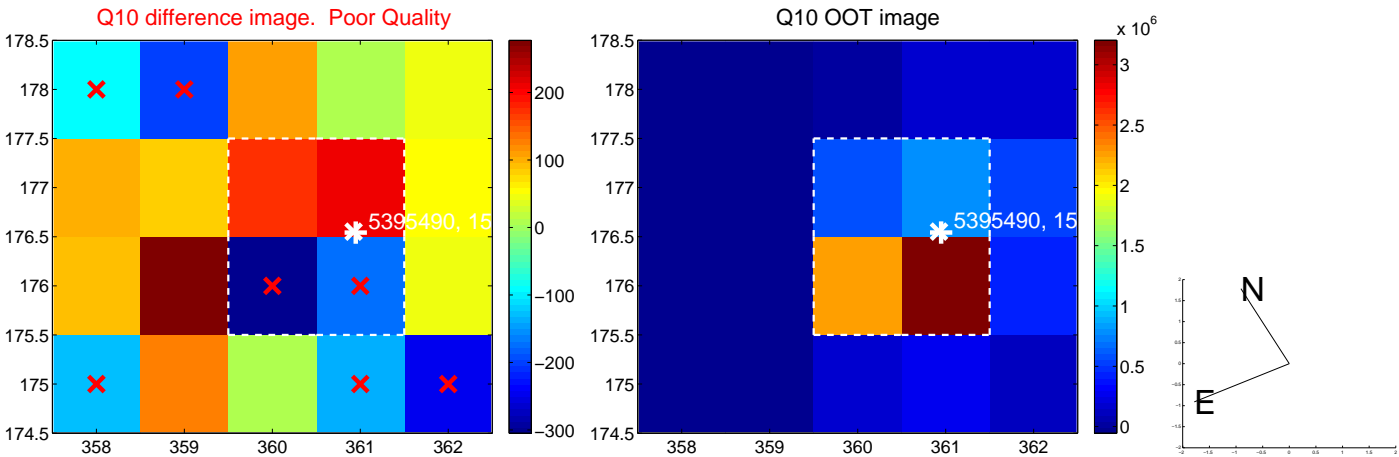
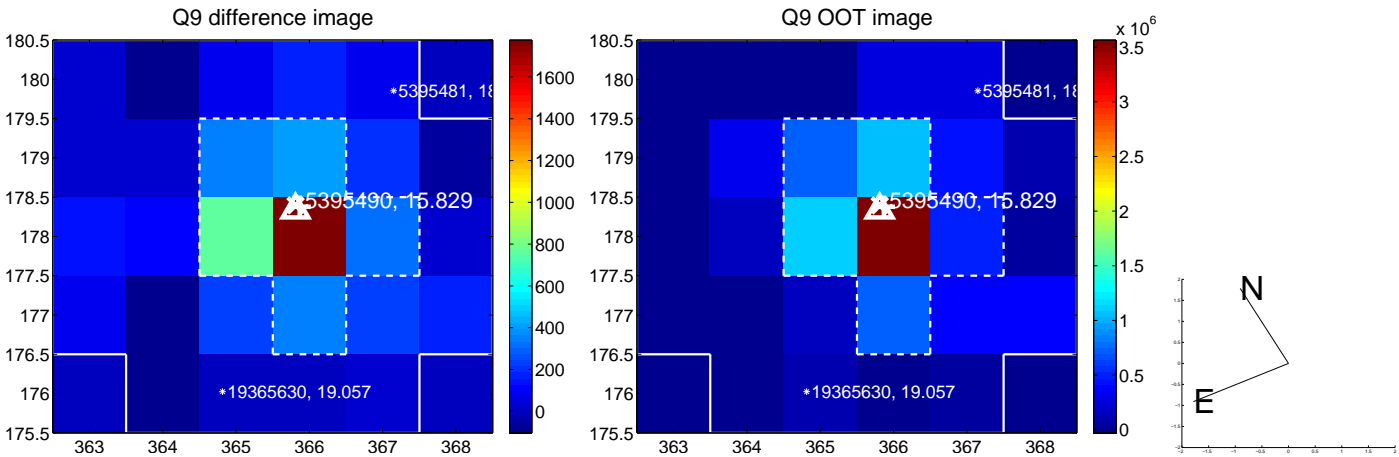
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



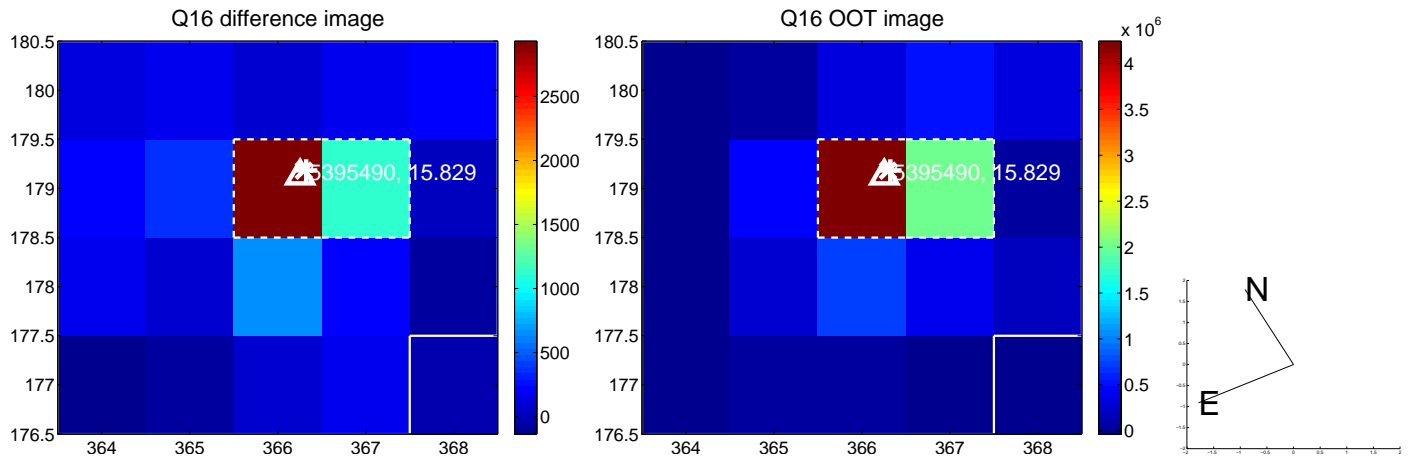
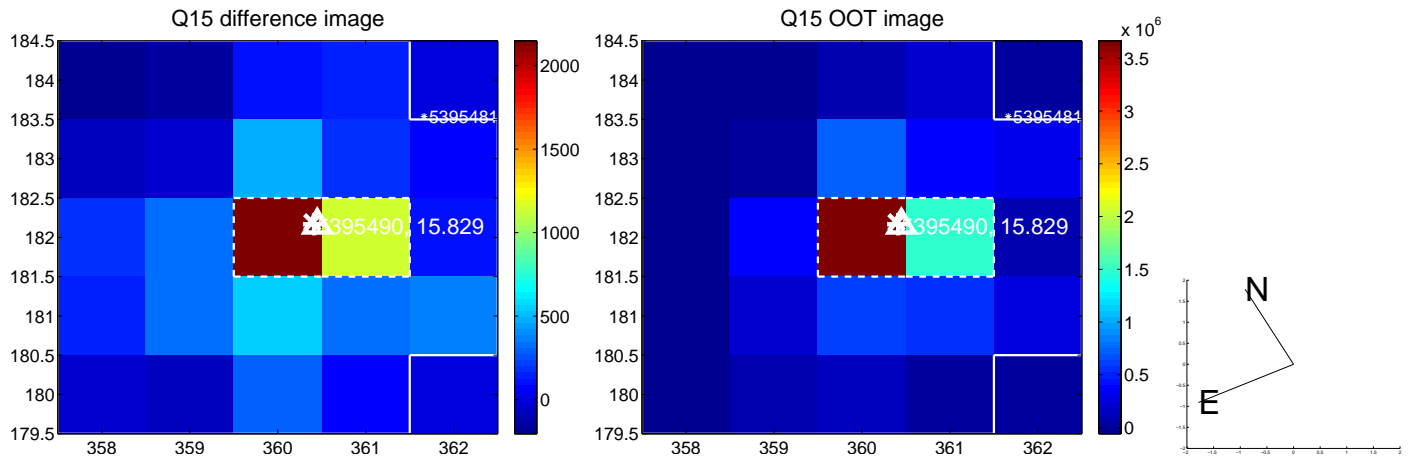
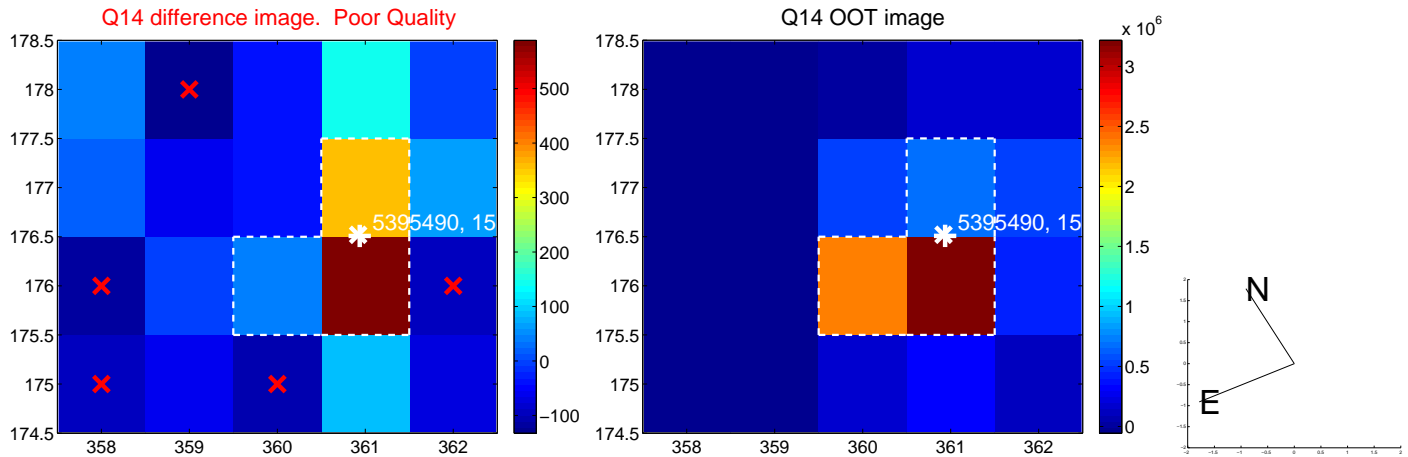
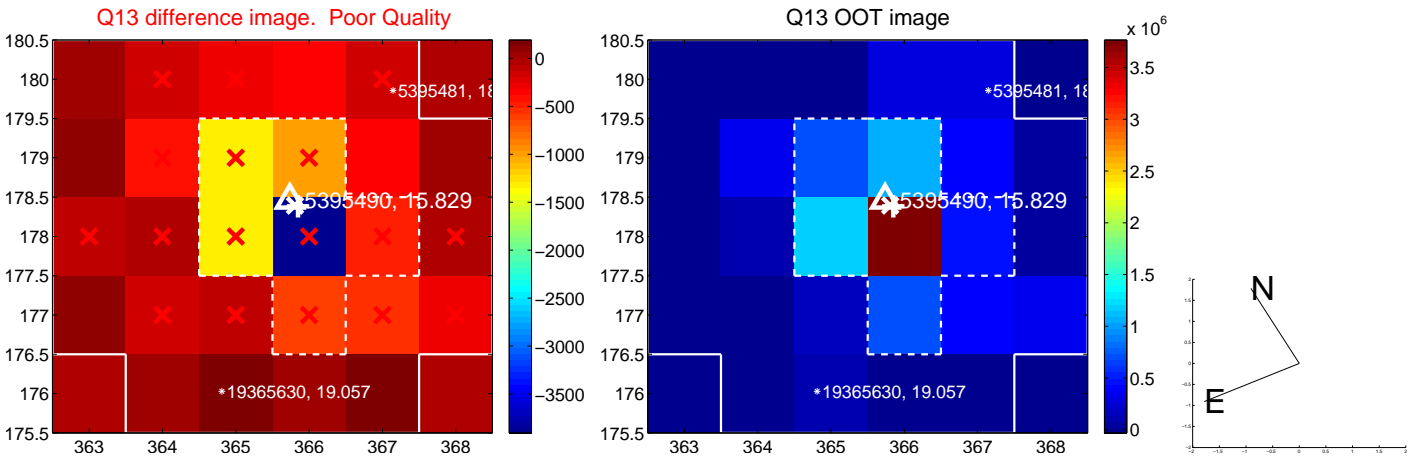
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



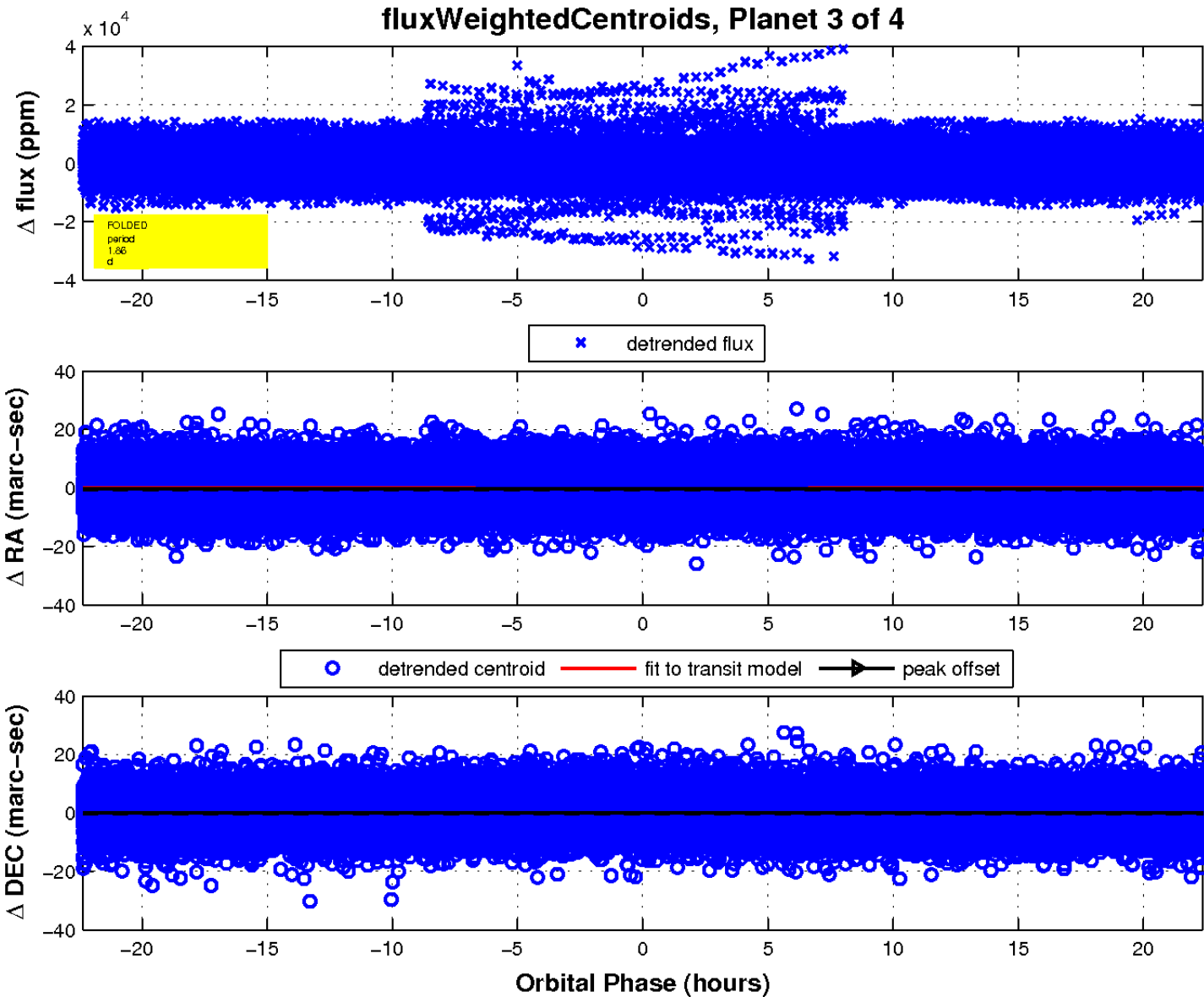
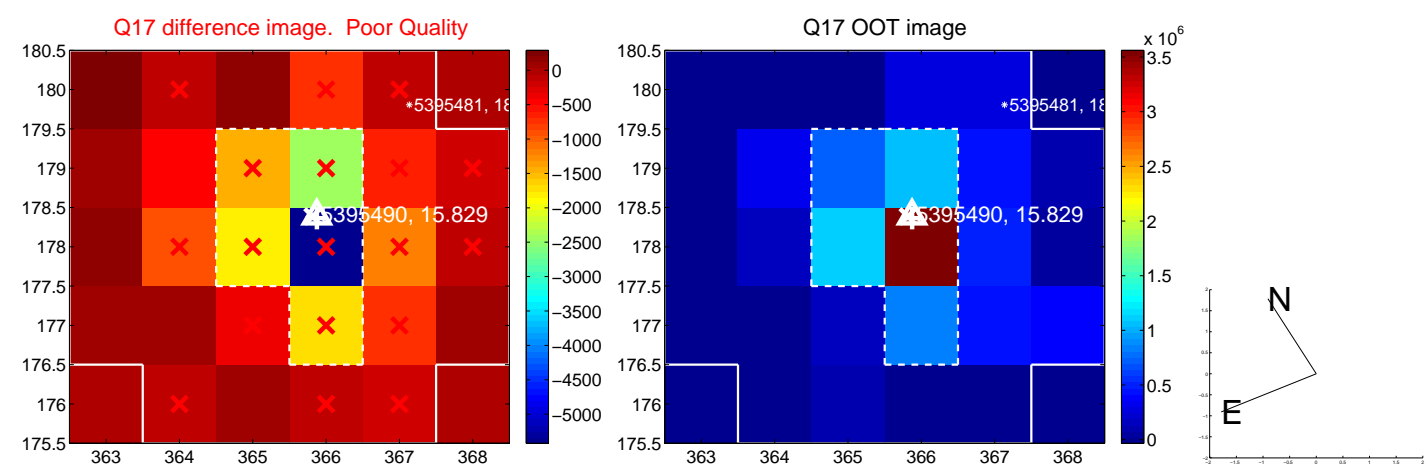
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

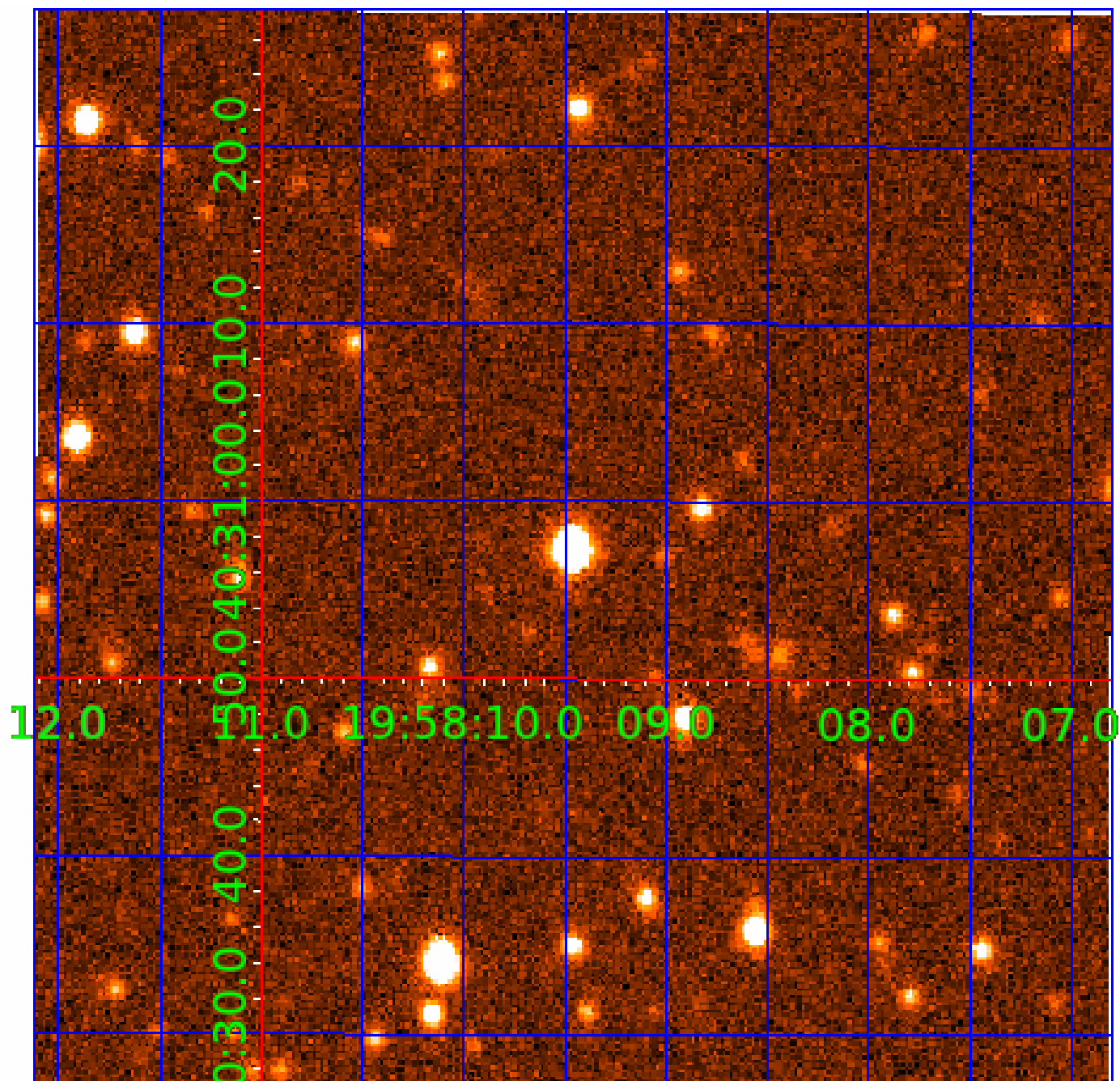


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005395490

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})
005395490-01	OBS	No	533.527666	388.991547	2277.4	3.860	11.6	7.8	0.70	5374	3.41	0.28
005395490-02	OBS	No	414.756071	287.607579	2301.3	5.157	11.5	6.9	0.70	5374	3.39	0.40
005395490-03	OBS	No	1.863776	132.049393	249.7	13.752	11.2	9.2	0.70	5374	1.10	532.04
005395490-04	OBS	No	29.033403	144.577080	4046.1	2.109	14.5	8.4	0.70	5374	8.46	13.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005395490-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005395490-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV
005395490-03	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005395490-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

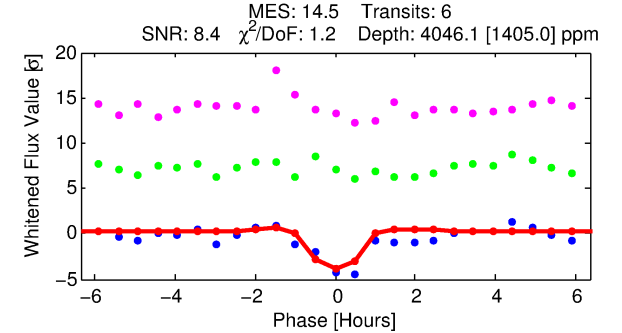
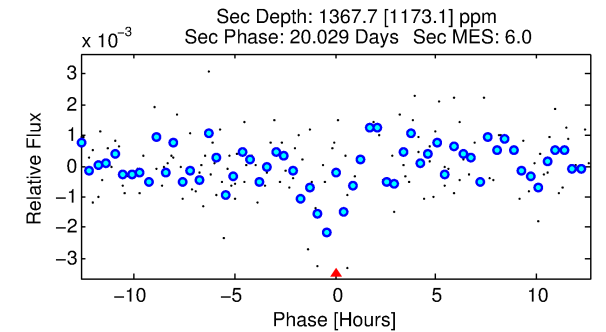
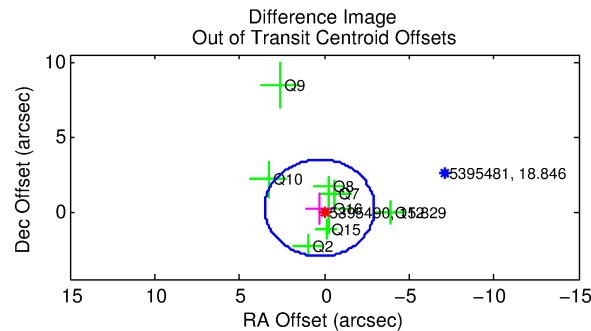
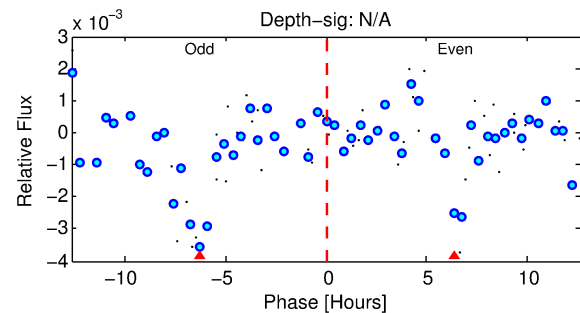
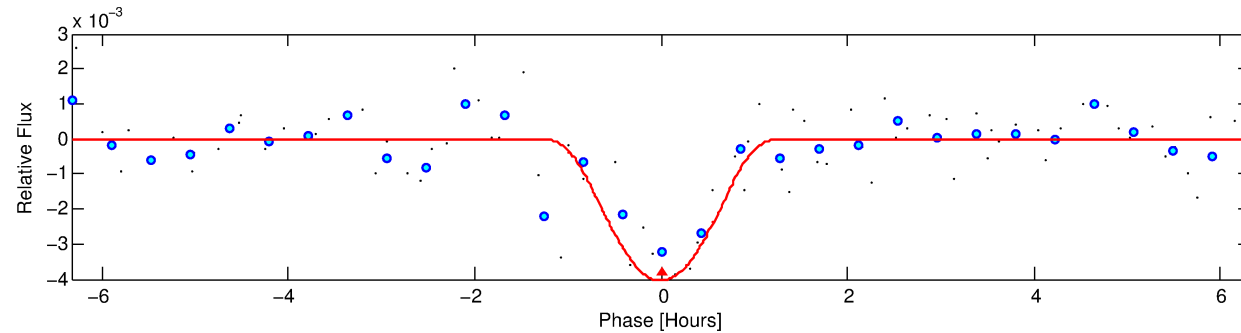
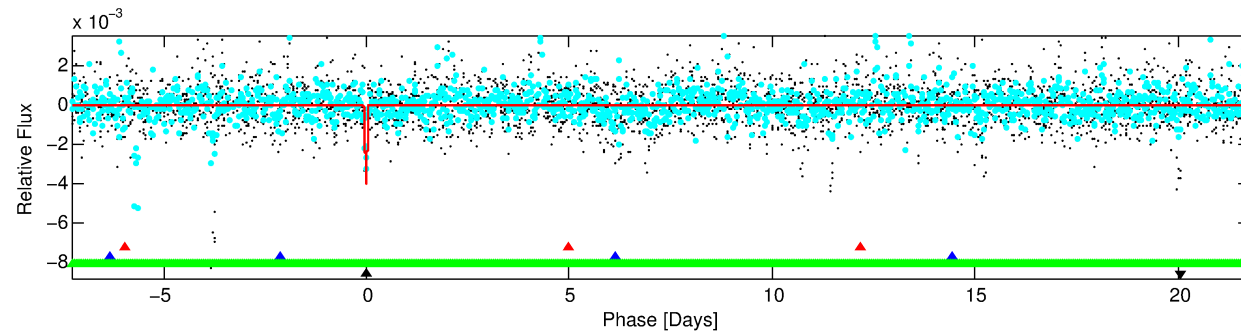
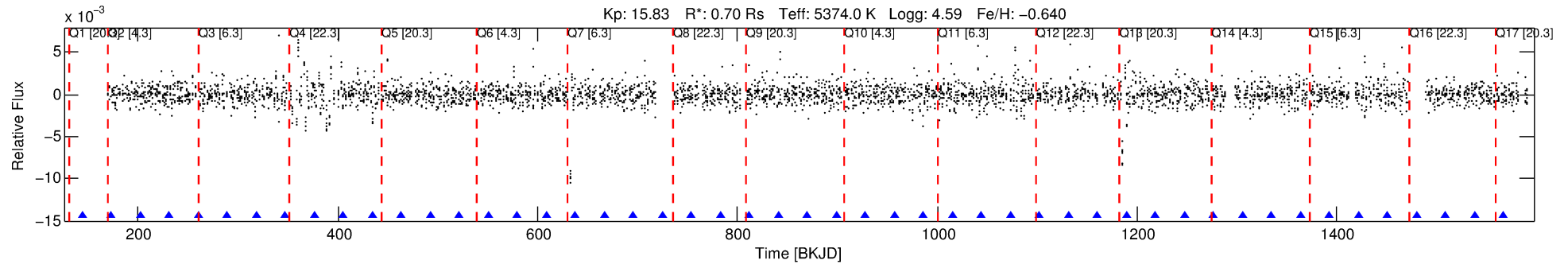
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005395490-04

No Significant Match Found

DV One-Page Summary

KIC: 5395490 Candidate: 4 of 4 Period: 29.033 d



DV Fit Results:

Period = 29.03340 [0.00024] d
Epoch = 144.5771 [0.0057] BKJD
Rp/R* = 0.1101 [0.9257]
a/R* = 50.79 [79.31]
b = 1.00 [1.28]
Seff = 13.68 [2.61]
Teq = 490 [23] K
Rp = 8.46 [71.12] Re
a = 0.1646 [0.0166] AU
Ag = 284.73 [4793.19] [0.06] σ
Teffp = 3114 [13107] K [0.20] σ

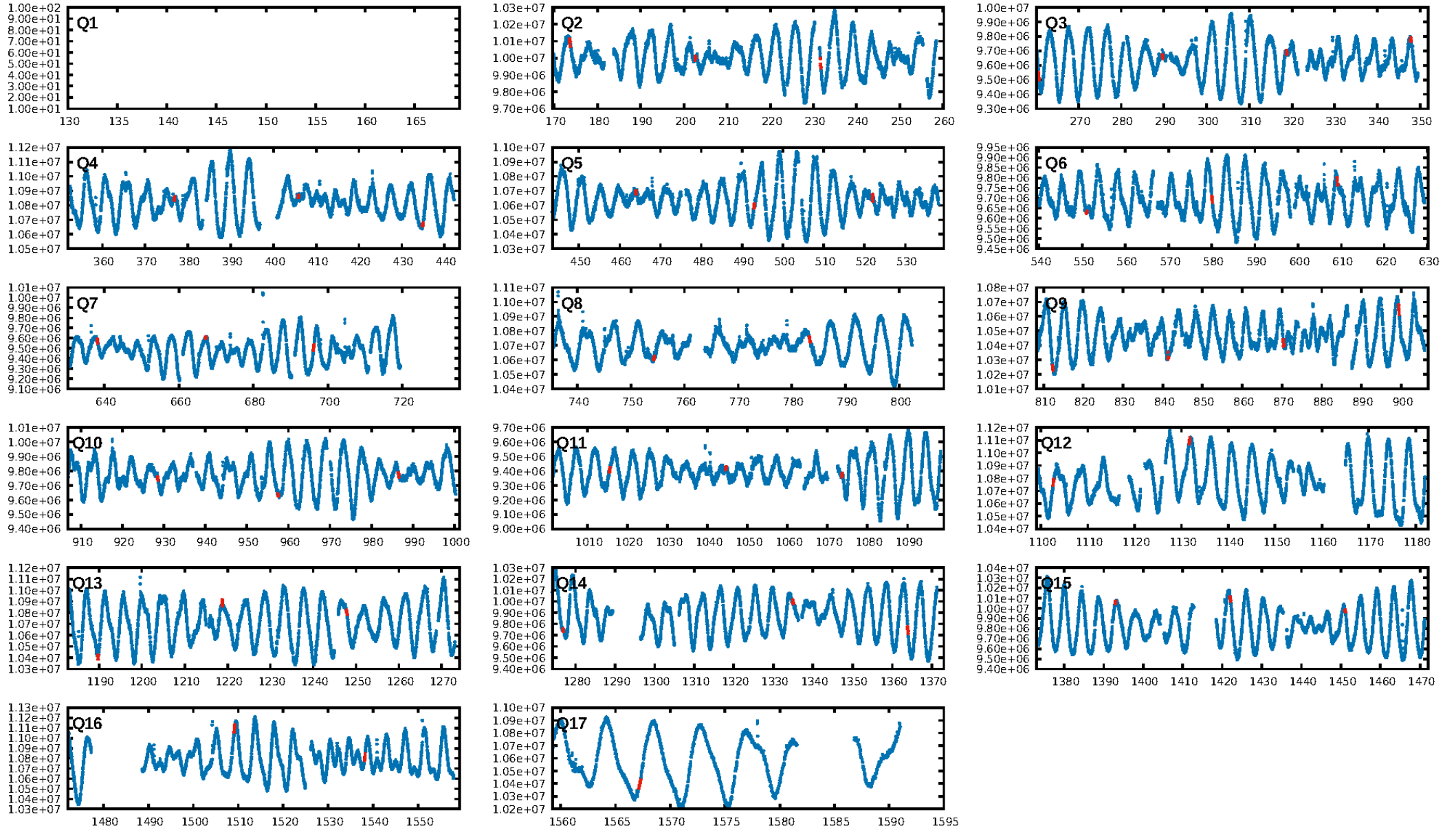
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.87] σ
LongPeriod-sig: 100.0% [1661.53] σ
ModelChiSquare2-sig: 26.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.611
Centroid-sig: 0.0%
Centroid-so: 0.791 arcsec [2.17] σ
OotOffset-rm: 0.368 arcsec [0.34] σ
OotOffset-st: 2/2/3/1 [8]
KicOffset-rm: 0.264 arcsec [0.23] σ
KicOffset-st: 2/2/3/1 [8]
DiffImageQuality-fgm: 0.00 [0/8]
DiffImageOverlap-fno: 0.94 [15/16]

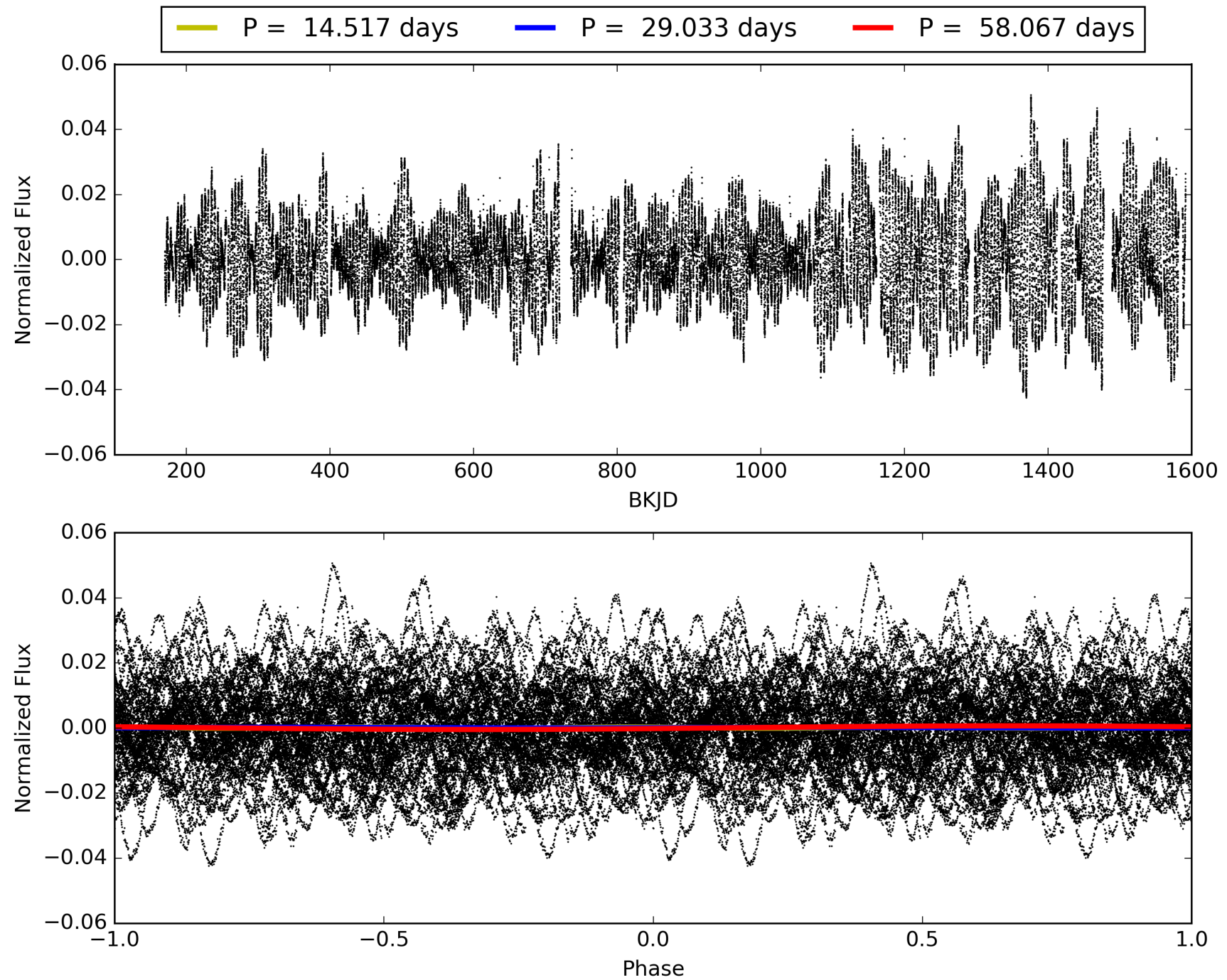
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:10:31 Z

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

TCE 005395490-04, PDC Light Curves

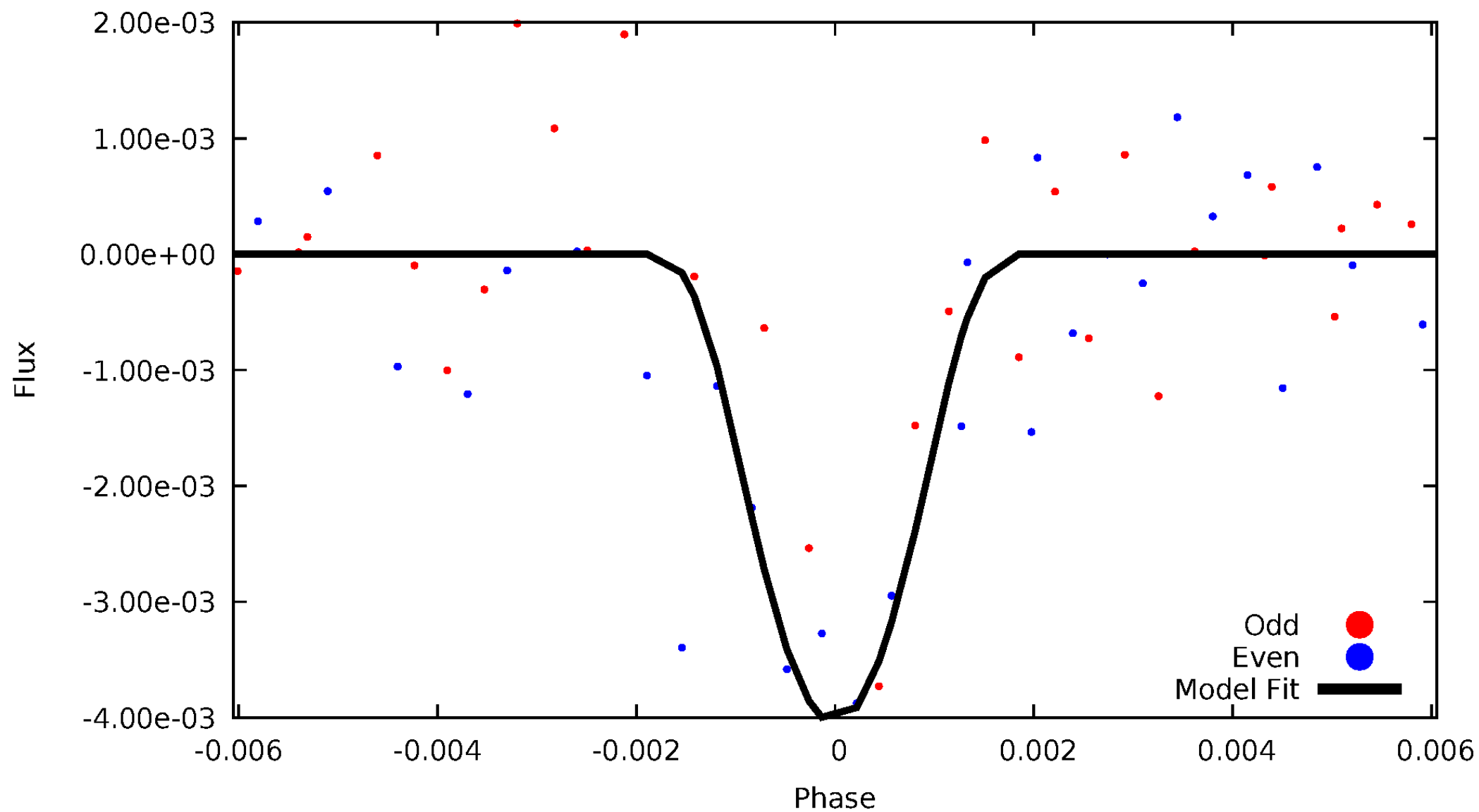


TCE 005395490-04



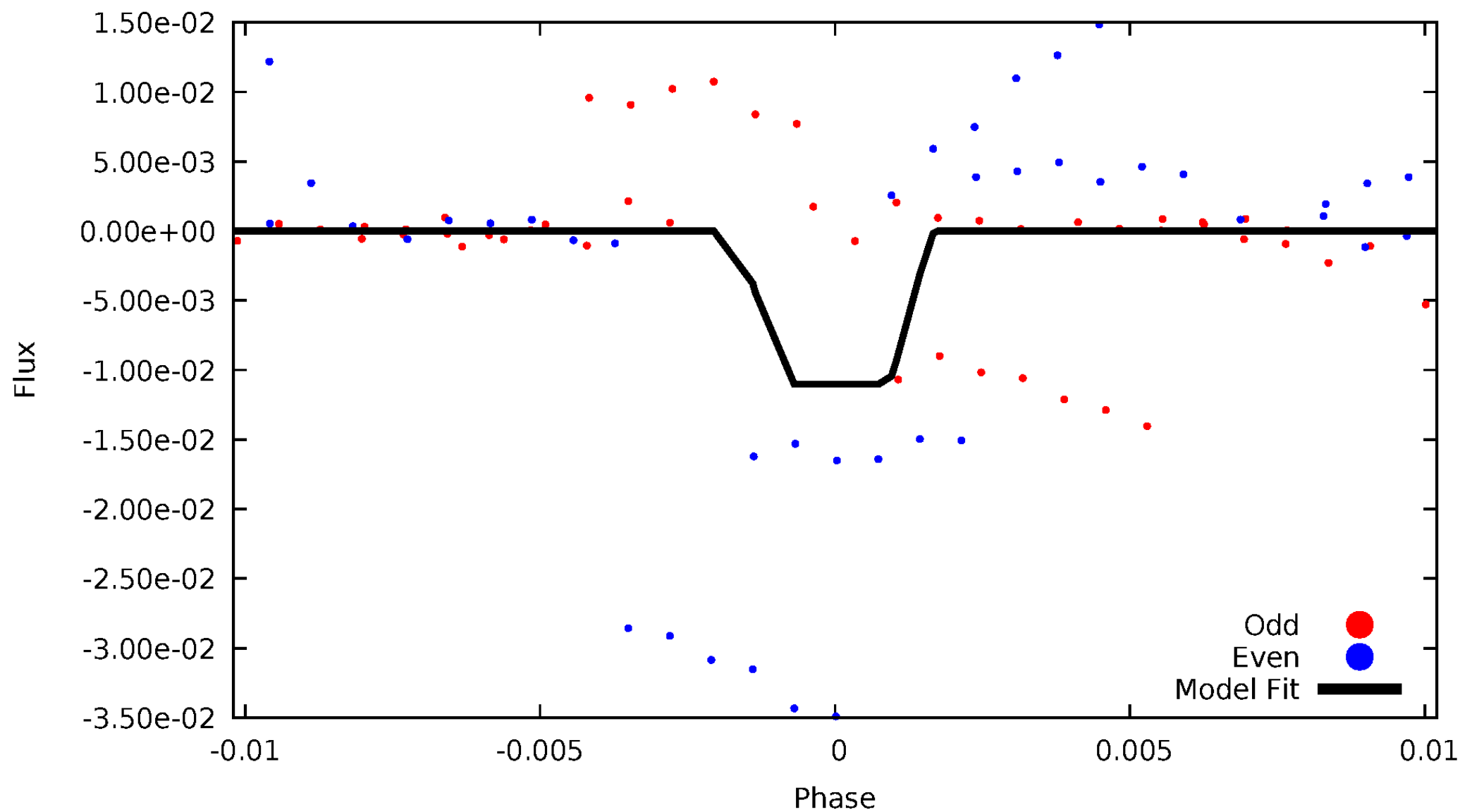
DV Odd/Even

TCE 005395490-04



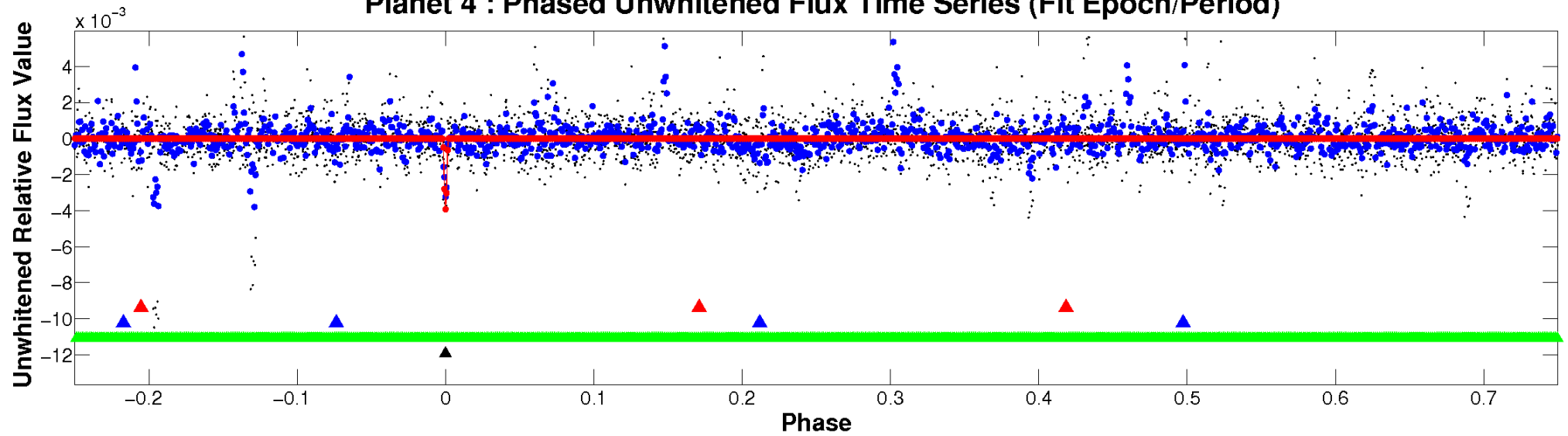
ALT Odd/Even

TCE 005395490-04

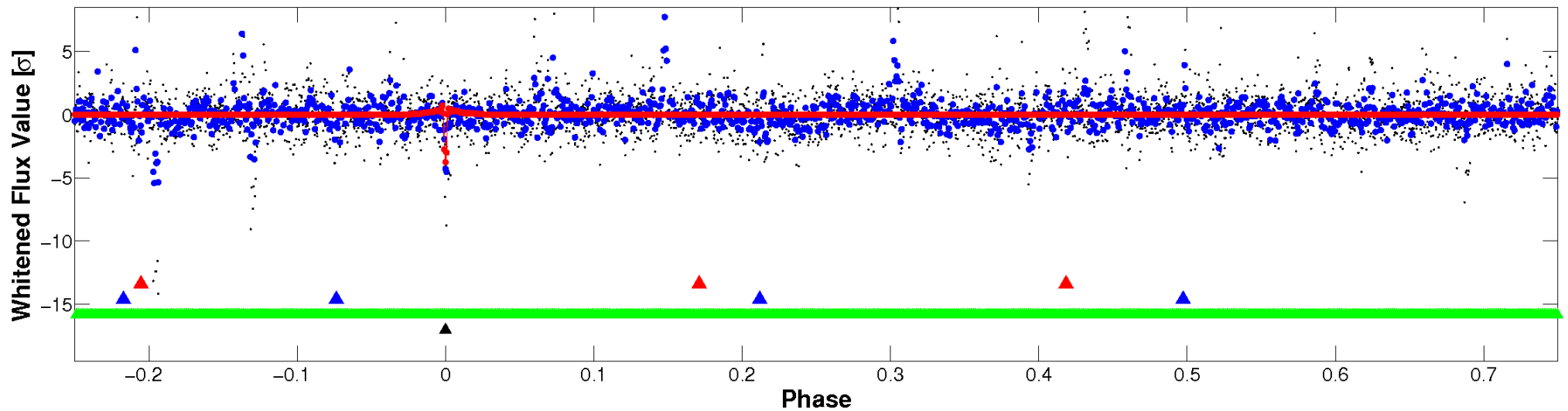


Non-Whitened Vs. Whitened Light Curve

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

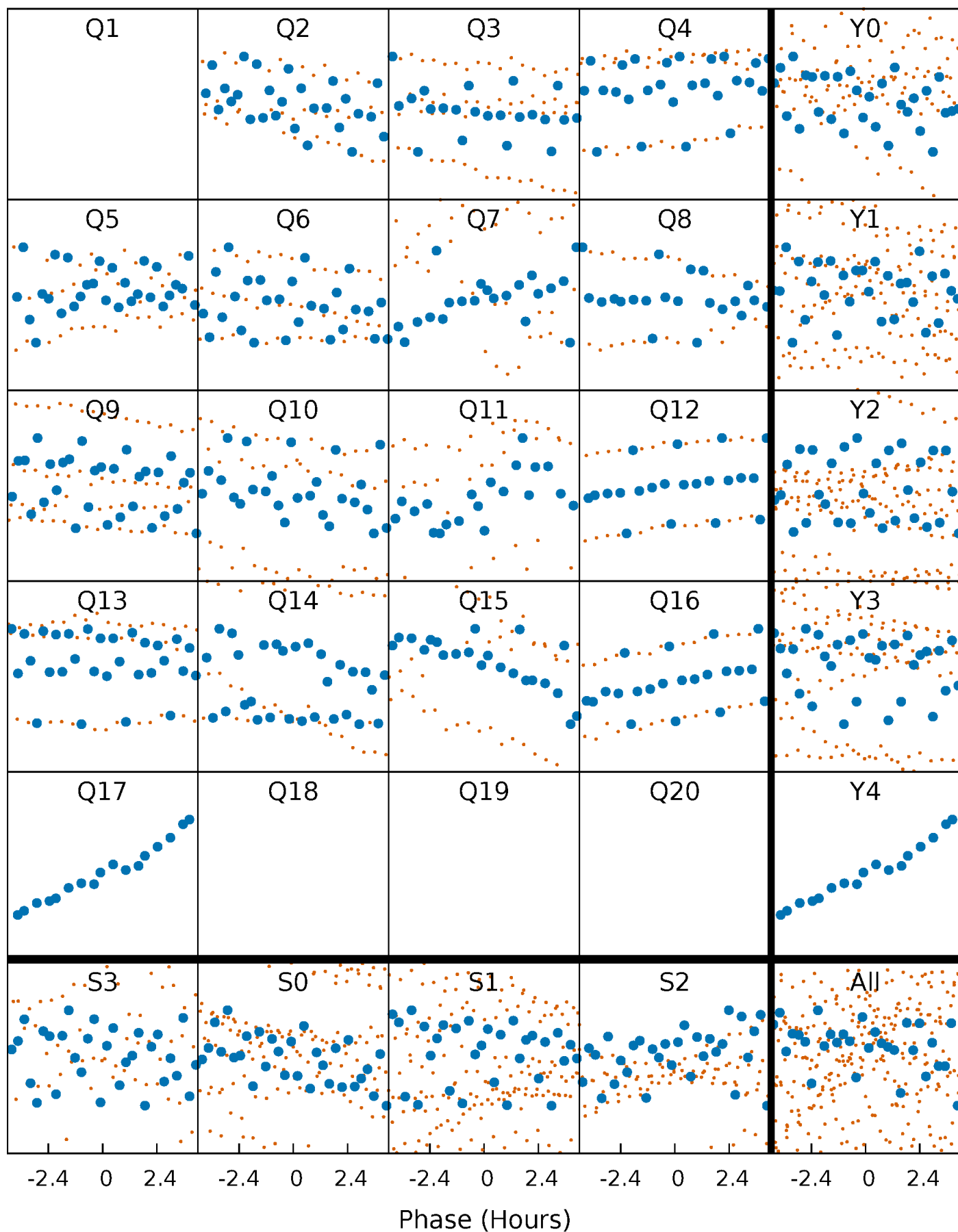


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



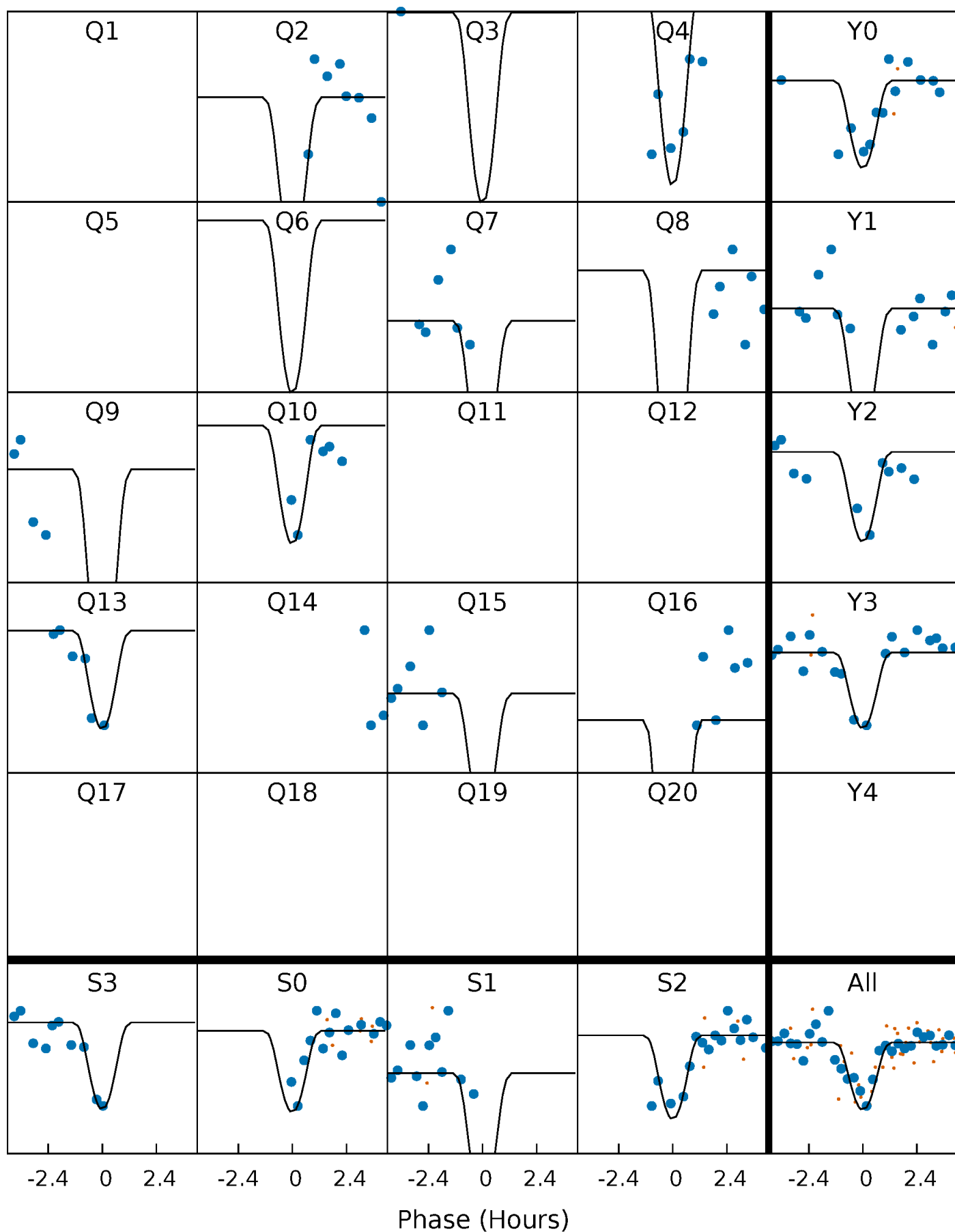
PDC Quarter-Phased Transit Curves

TCE 005395490-04 P= 29.033403 Days $T_0=144.577080$ (BKJD)



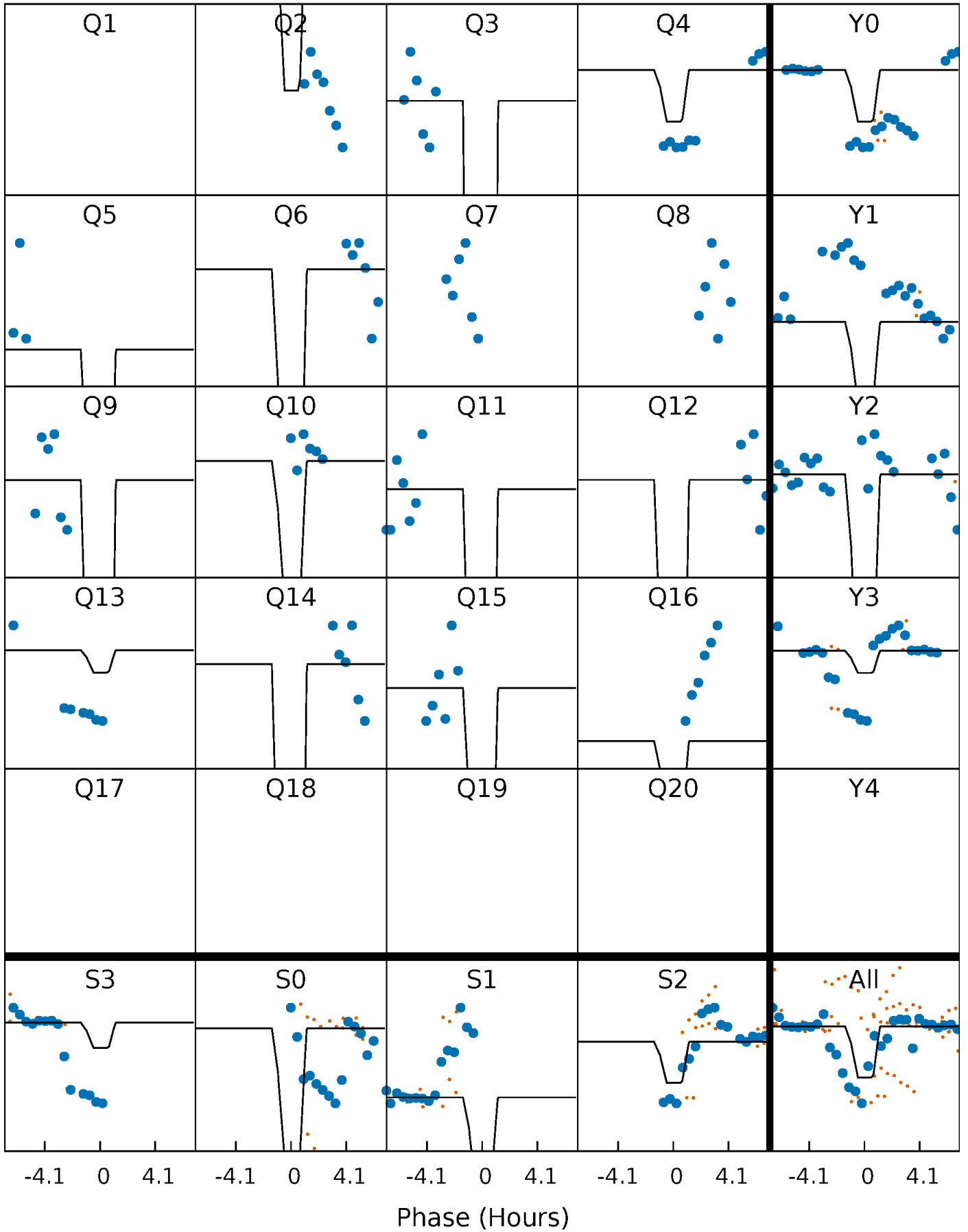
DV Quarter-Phased Transit Curves

TCE 005395490-04 P= 29.033403 Days $T_0=144.577080$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

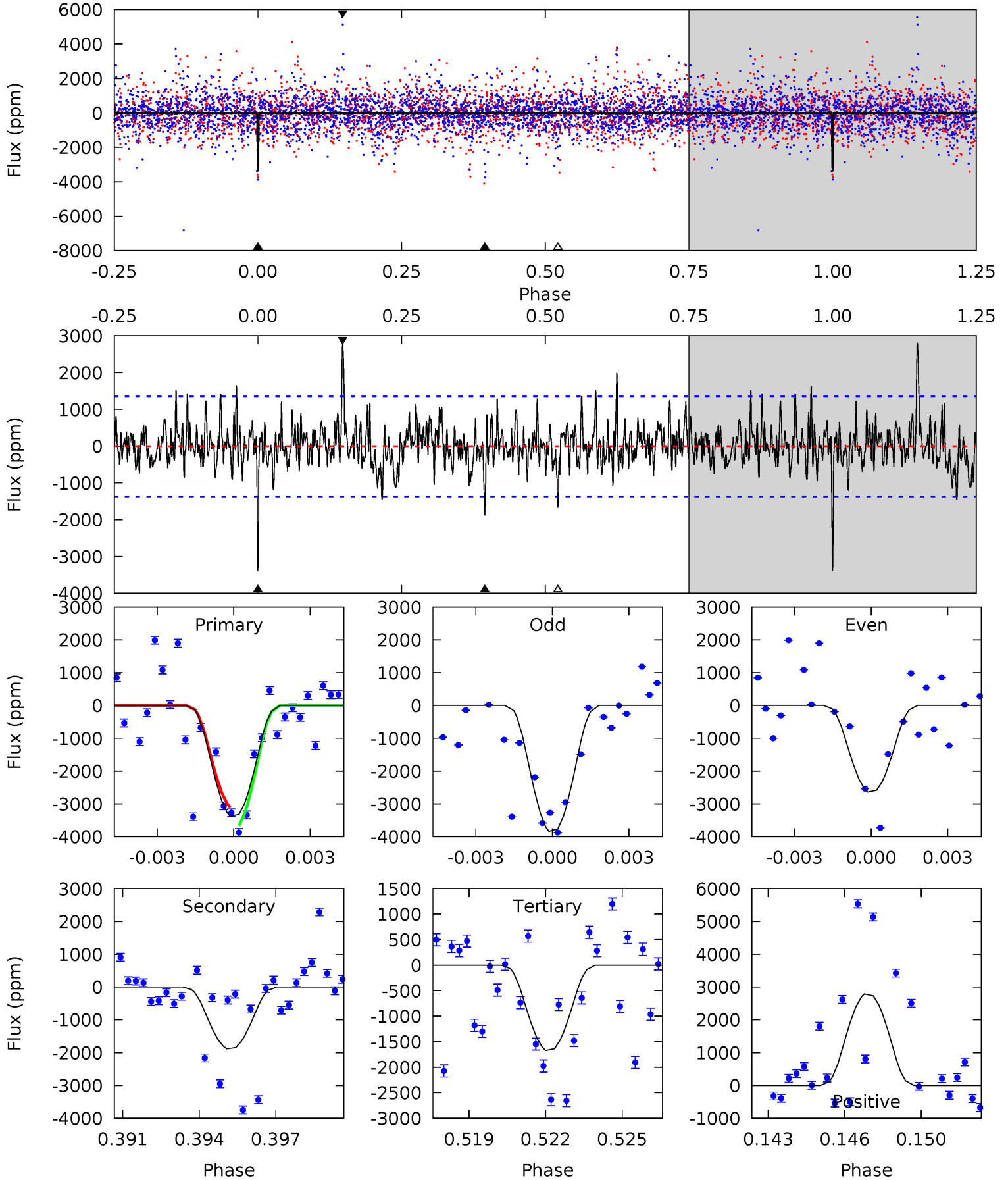
TCE 005395490-04 P= 29.033815 Days $T_0=144.568186$ (BKJD)



DV Model-Shift Uniqueness Test

005395490-04, P = 29.033403 Days, E = 144.577080 Days

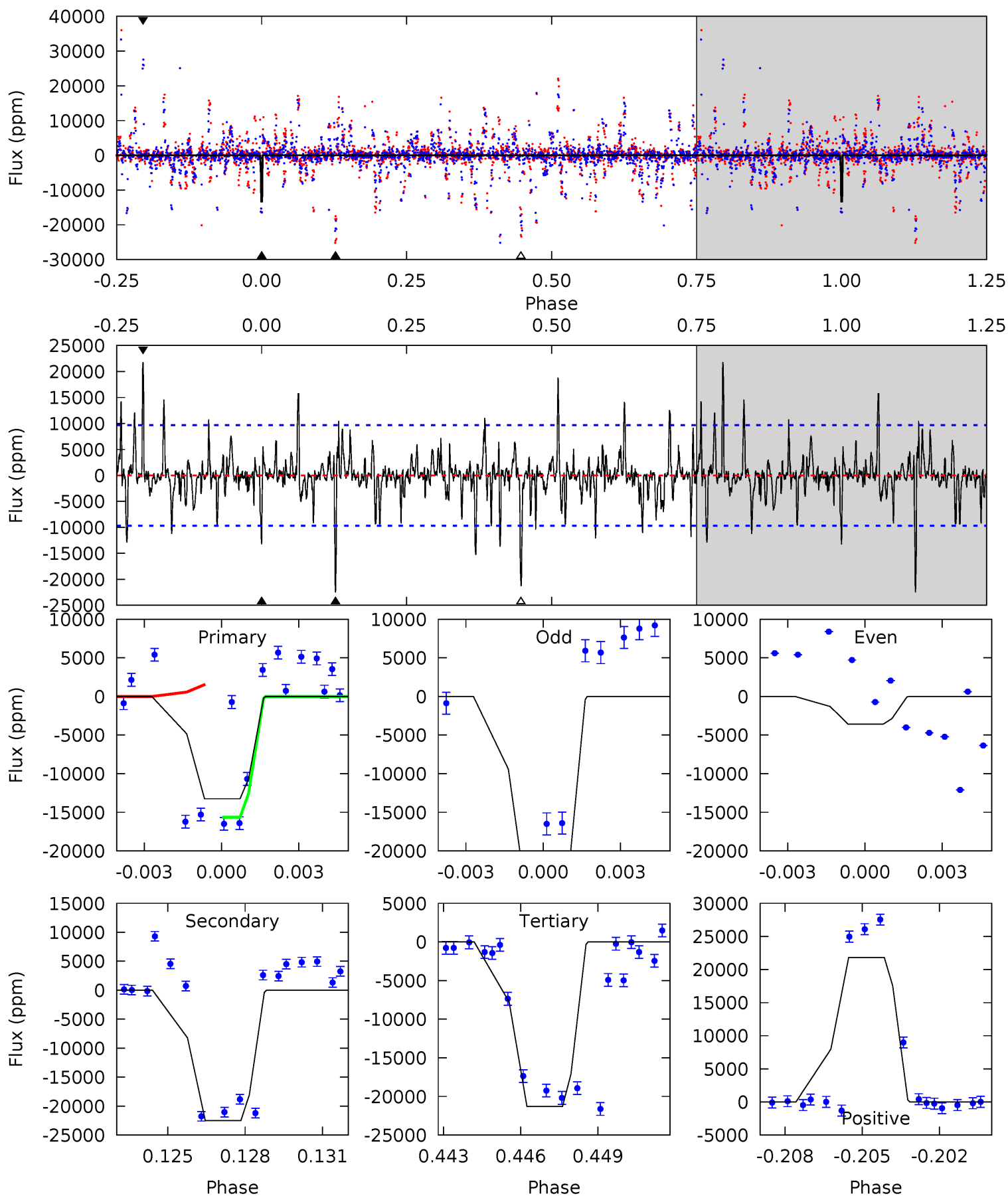
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	7.23	6.42	10.7	5.25	2.96	1.80	6.59	2.28	0.81	-3.49	2.05	0.87	0.45	1.08



Alt Model-Shift Uniqueness Test

005395490-04, P = 29.033815 Days, E = 144.568186 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.19	12.2	11.5	11.8	5.25	2.96	1.82	-4.36	-4.65	0.65	0.37	4.76	-8.40	0.49	0



Stellar Parameters For KIC 005395490

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5374^{+177}_{-160}	$4.591^{+0.065}_{-0.071}$	$-0.640^{+0.350}_{-0.300}$	$0.704^{+0.090}_{-0.065}$	$0.705^{+0.084}_{-0.045}$	$2.844^{+0.812}_{-0.685}$
	+3%/-3%	+1%/-2%	+55%/-47%	+13%/-9%	+12%/-6%	+29%/-24%
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 005395490-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1882 ± 260	$50.00^{+54.08}_{-34.97}$	688^{+30}_{-29}	2283^{+862}_{-345}	11^{+121}_{-9}
Alt.	-22494 ± 1844	$53.99^{+55.90}_{-39.38}$	688^{+29}_{-27}	3123^{+1785}_{-544}	123^{+1549}_{-93}

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

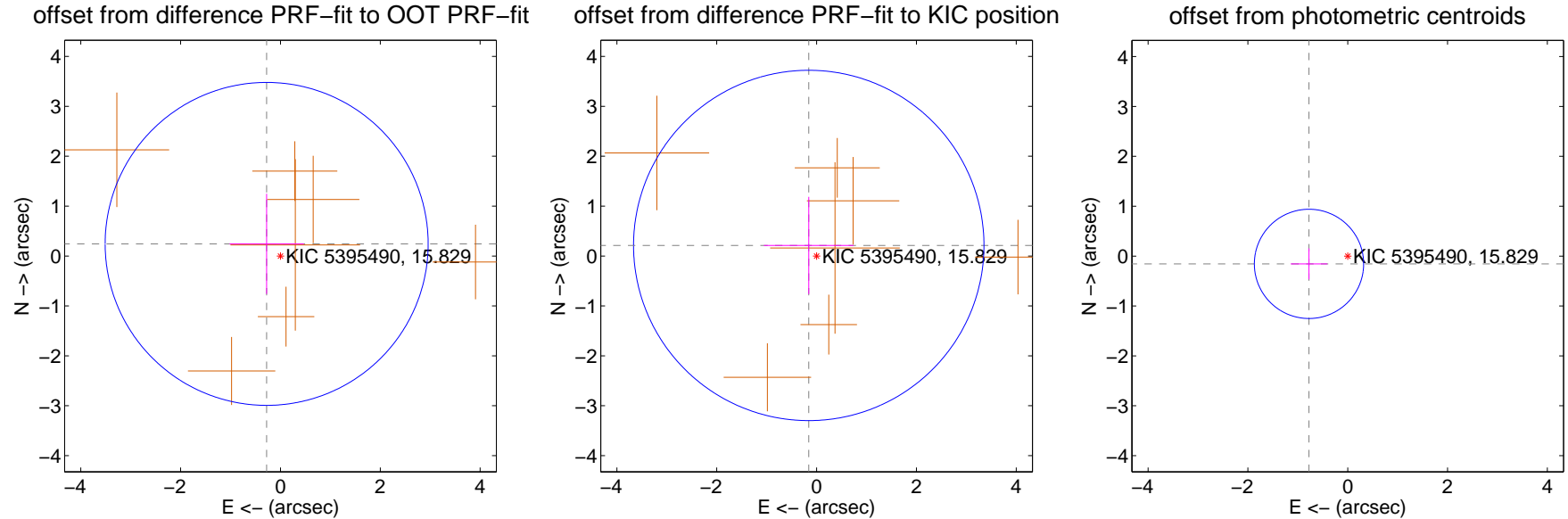
DV Centroid Data

Supplemental centroid analysis for 005395490-04. Kepler magnitude: 15.83. Transit SNR 8.40

There are 0 quarters with good PRF difference image offsets

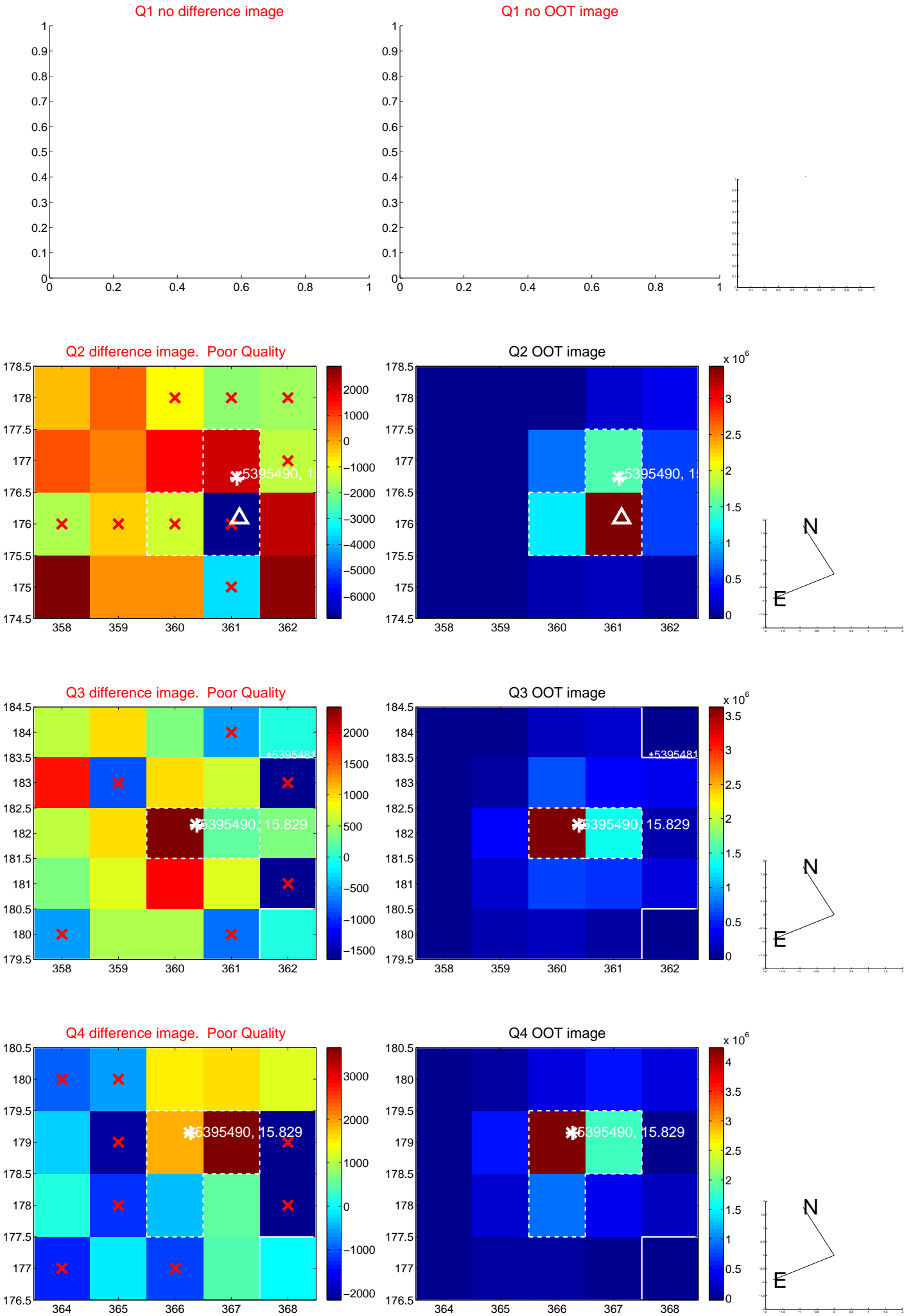
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.368 ± 1.079	0.34	0.277 ± 0.744	0.243 ± 1.004
PRF-fit source offset from KIC position	0.264 ± 1.170	0.23	0.157 ± 0.899	0.212 ± 0.975
photometric centroid source offset	0.79 ± 0.37	2.17	0.78 ± 0.37	-0.16 ± 0.31

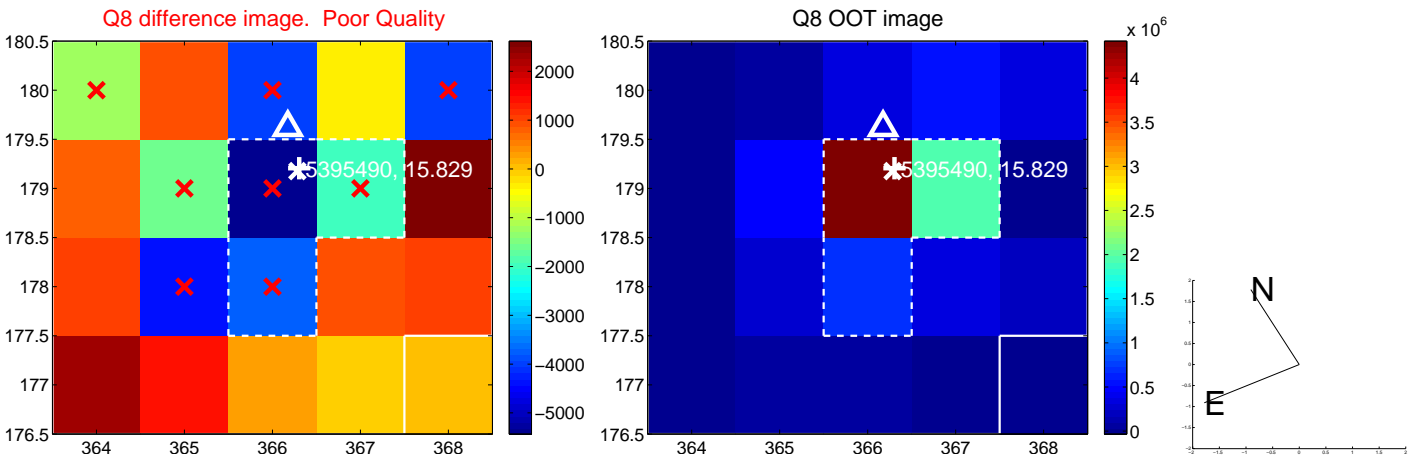
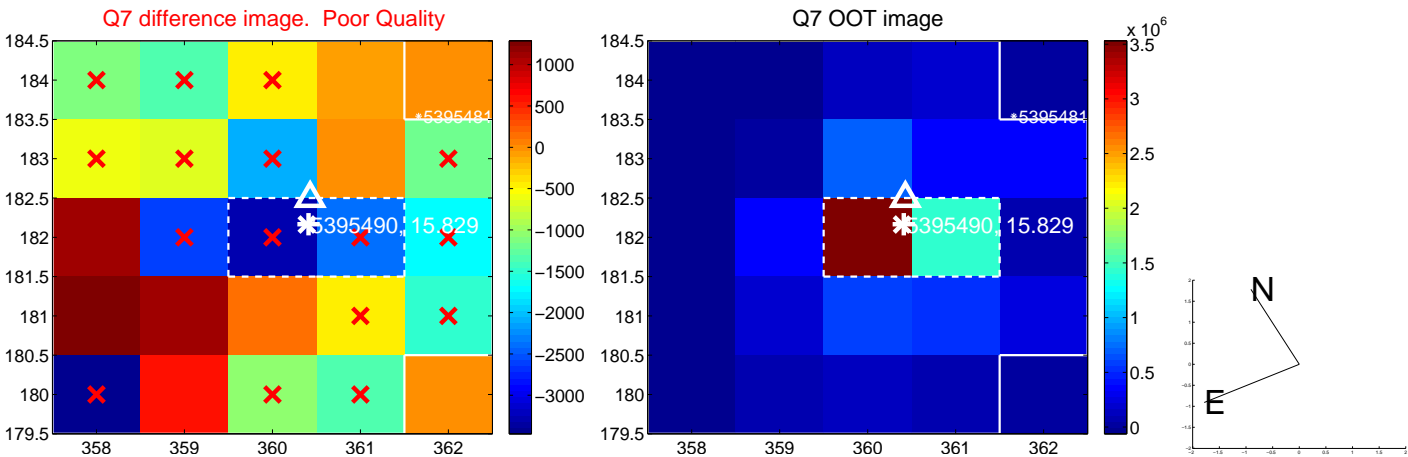
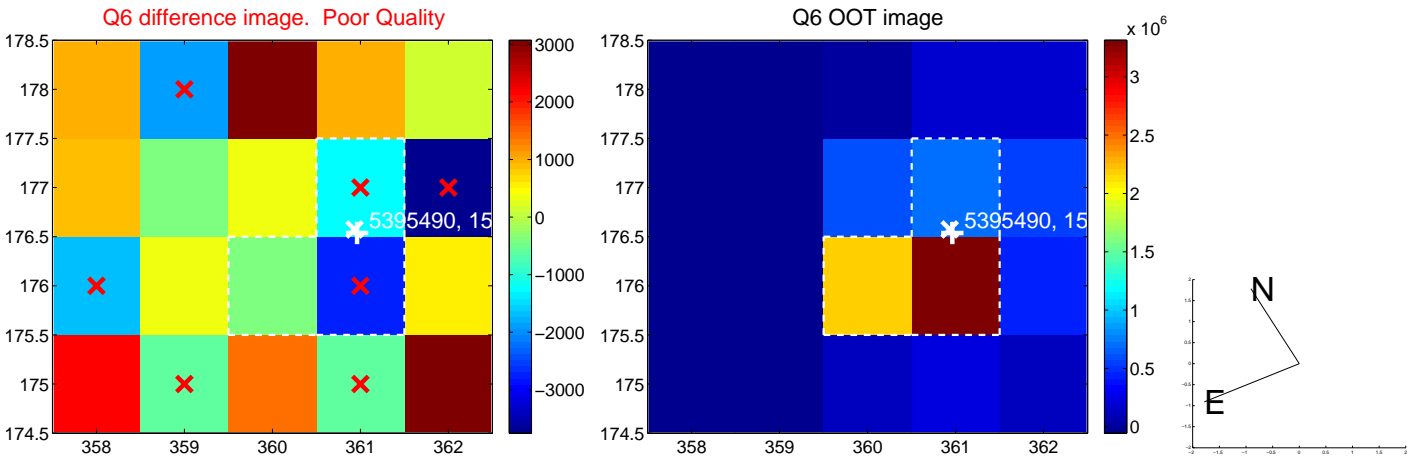
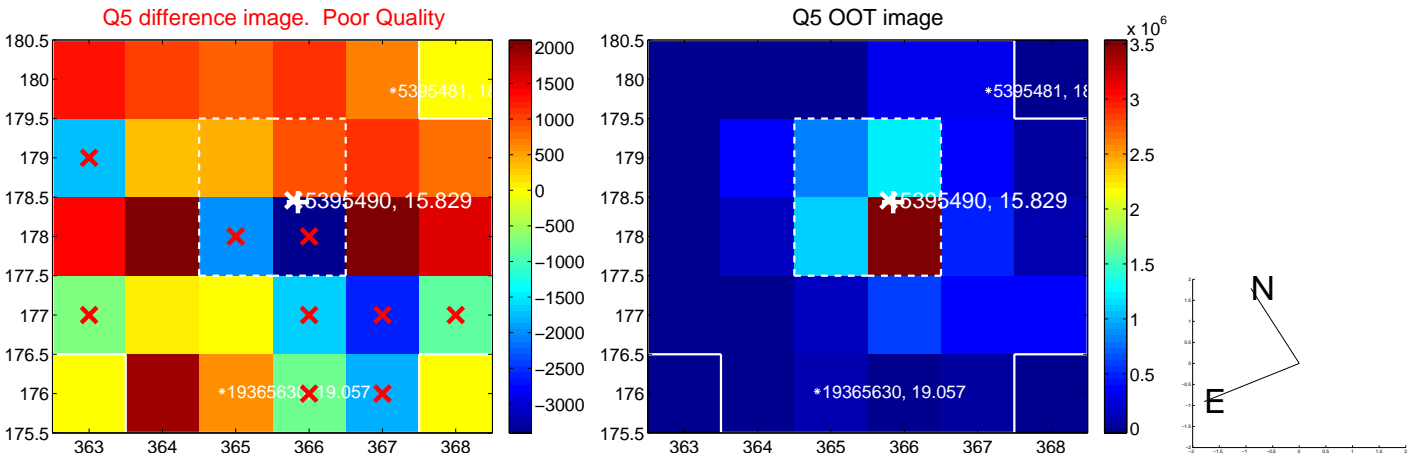


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

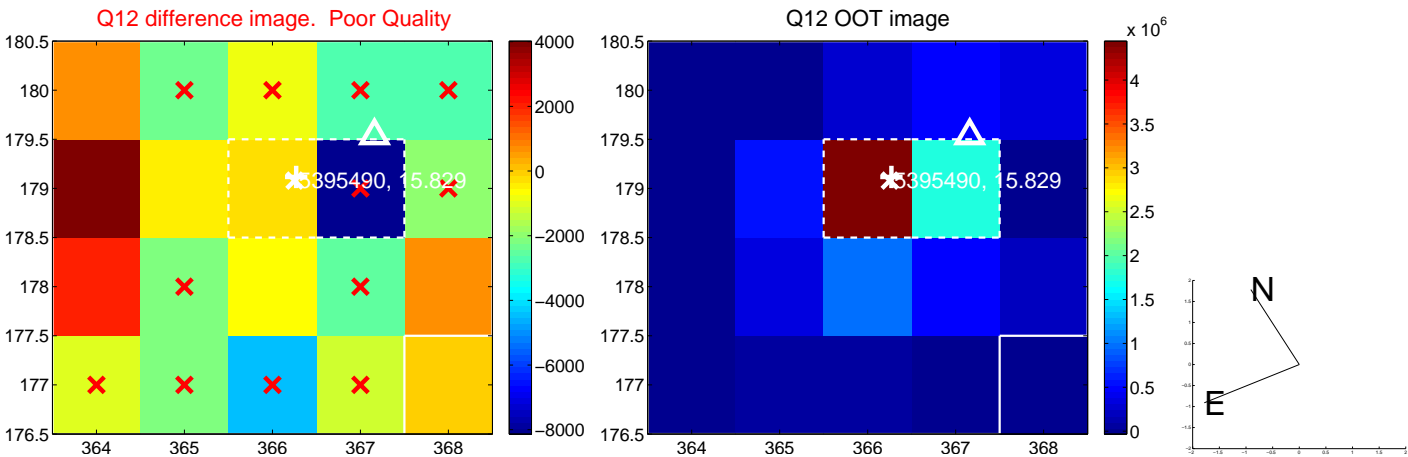
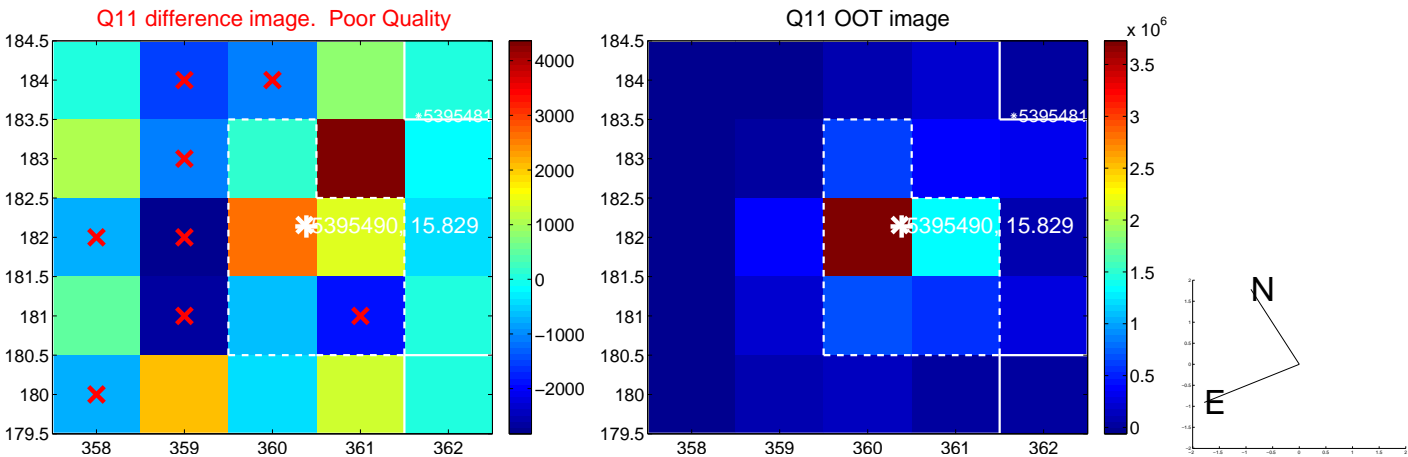
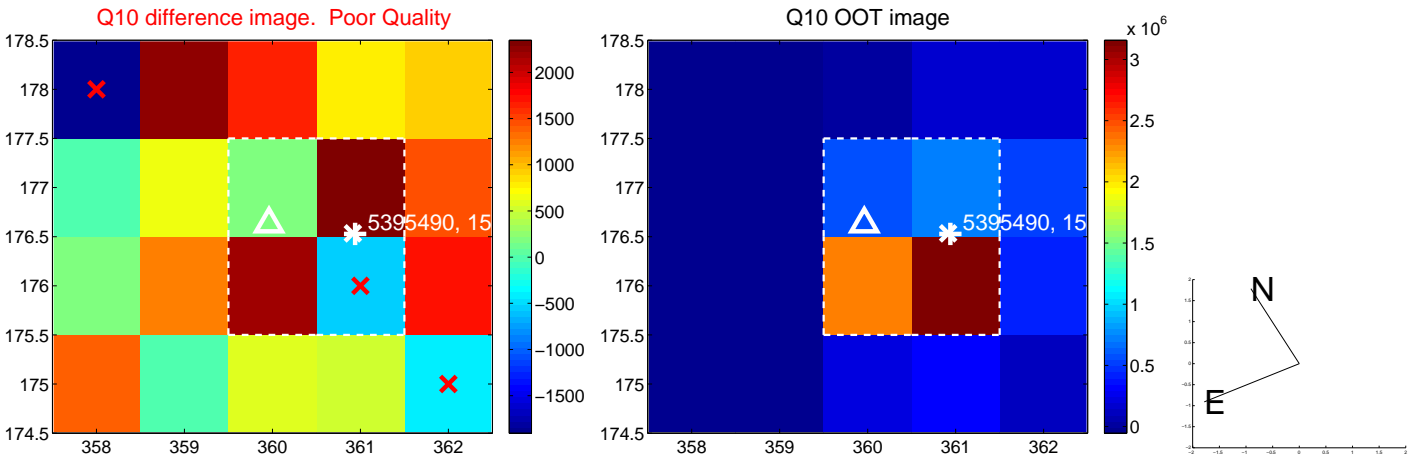
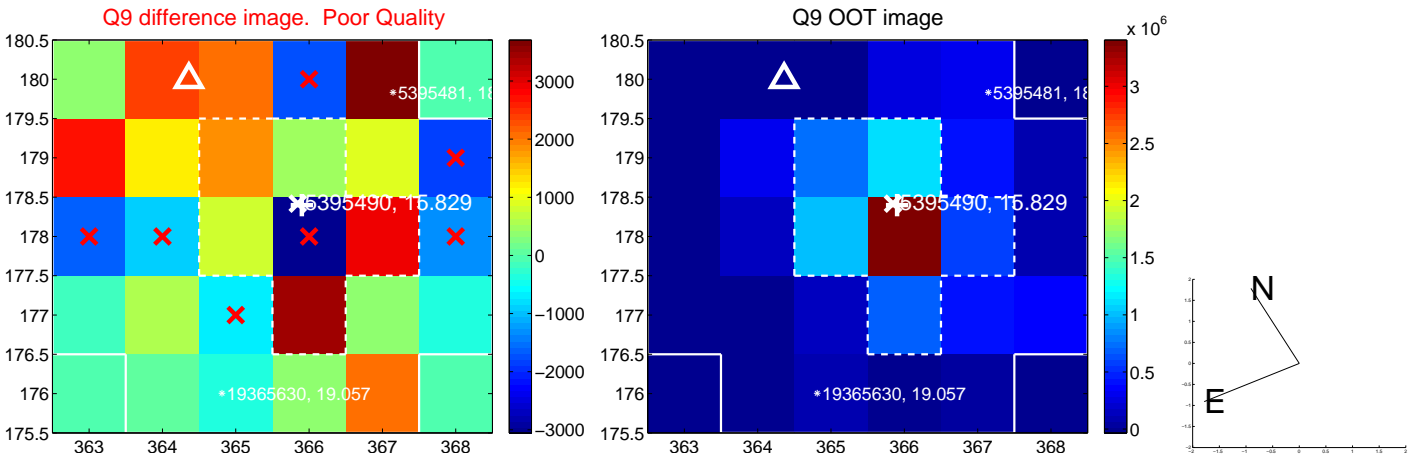
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



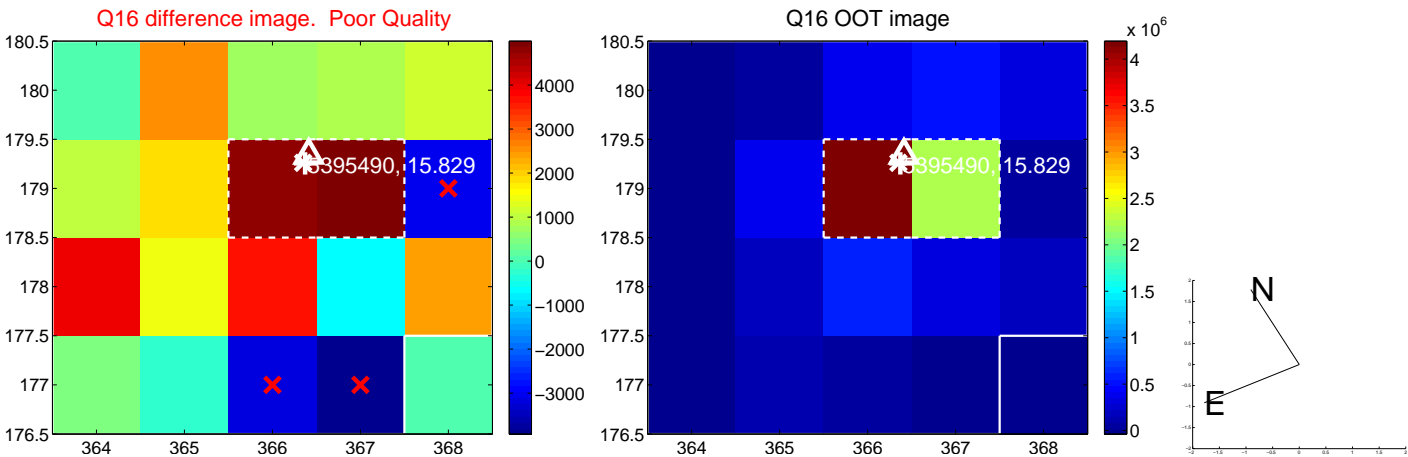
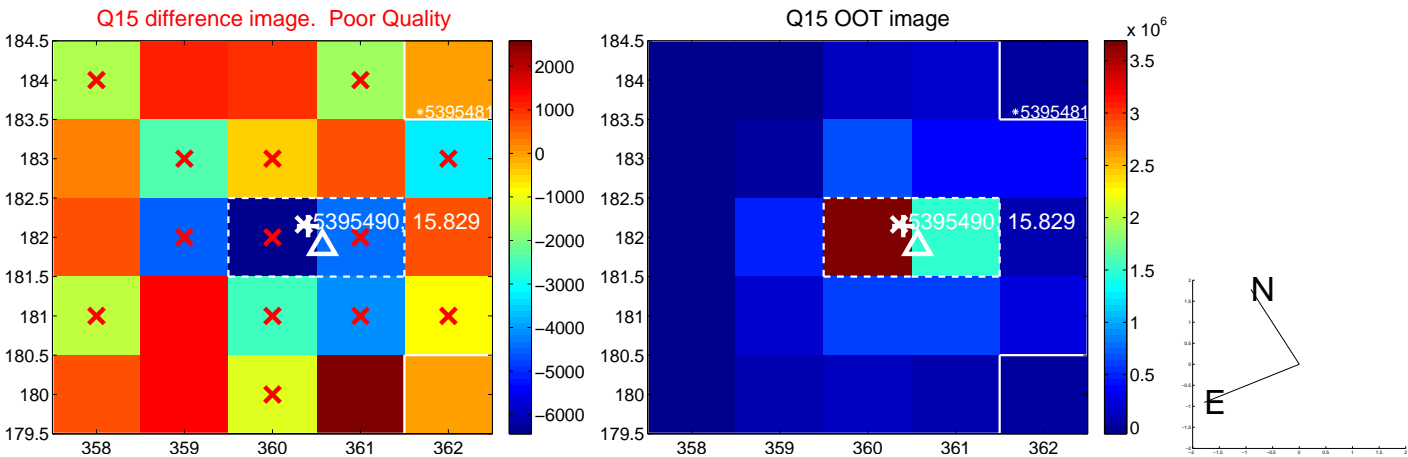
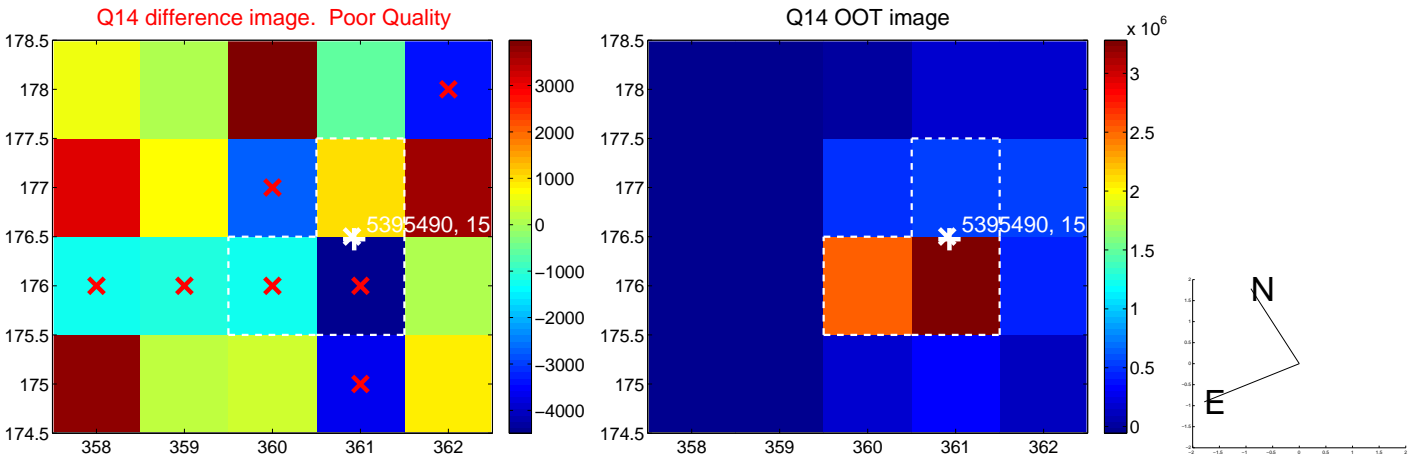
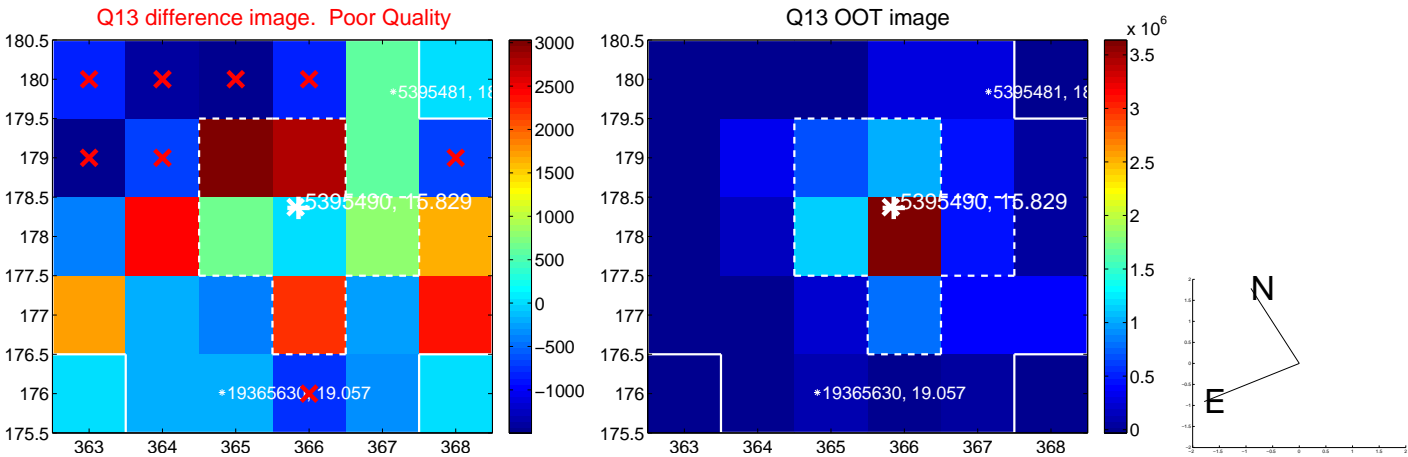
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



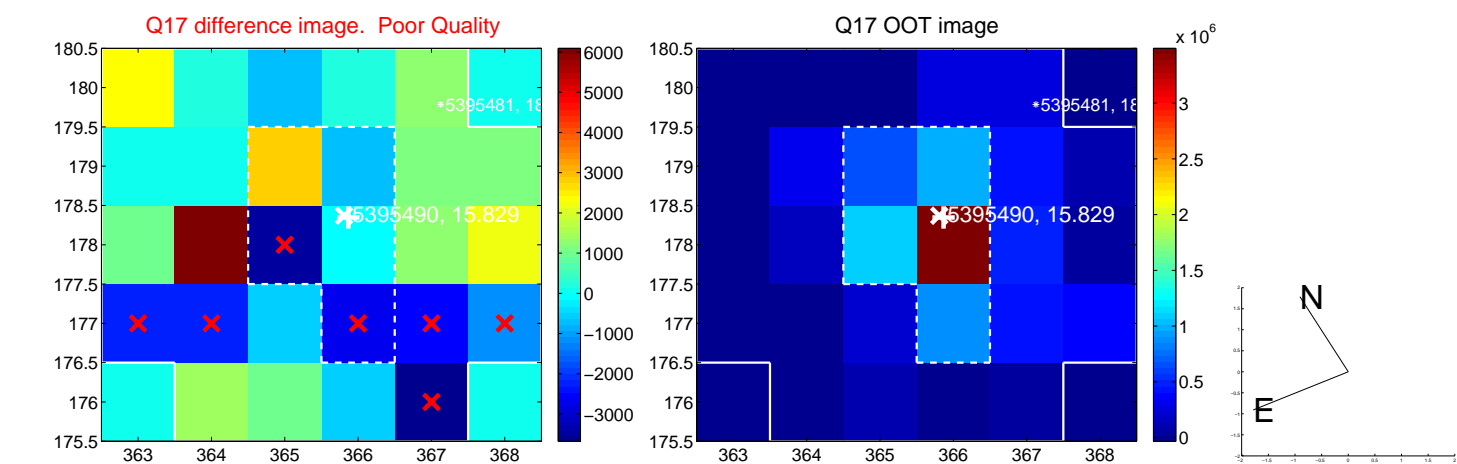
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



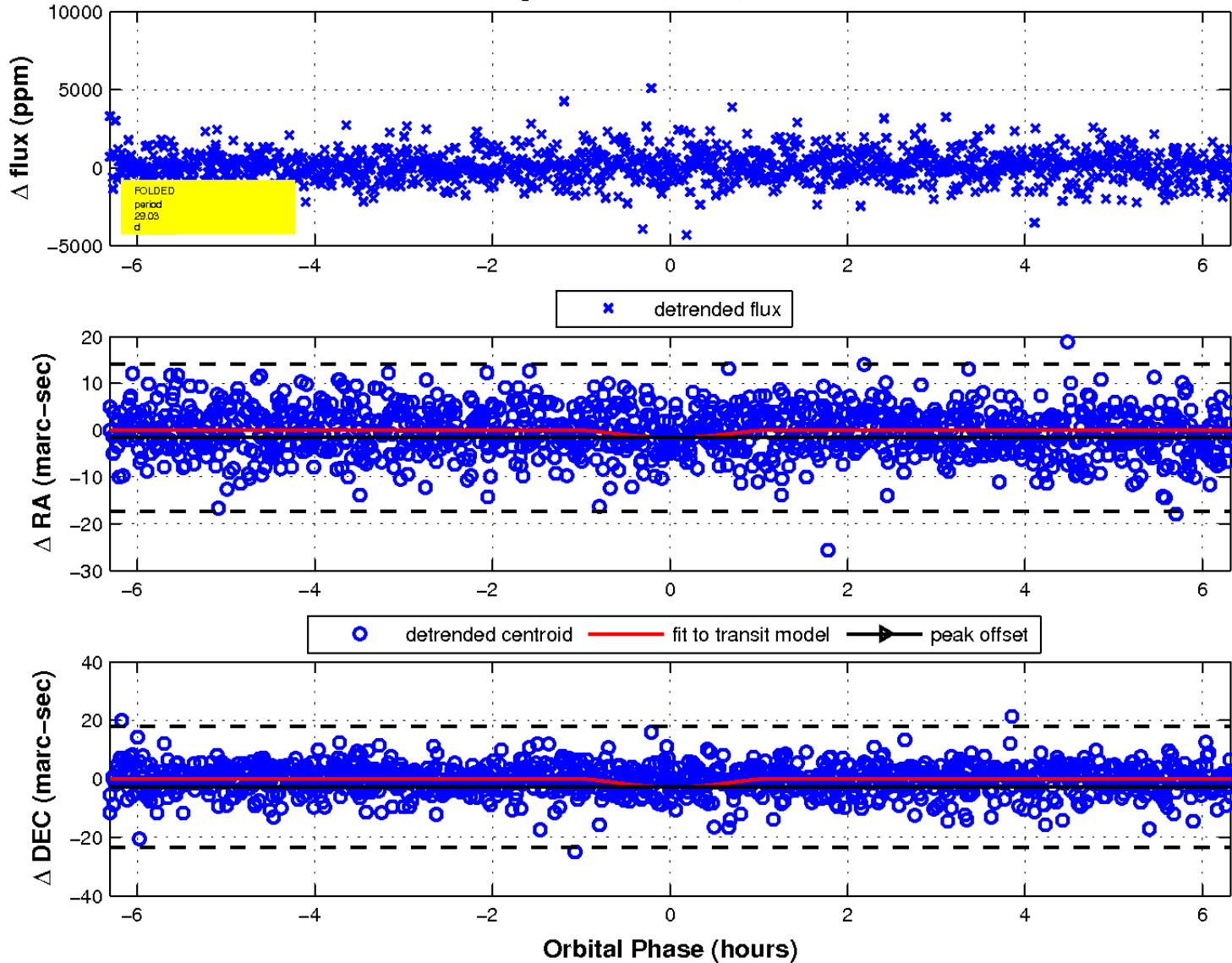
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

