

KIC 008330575

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})
008330575-01	OBS	7020.01	0.957072	131.777318	45014.1	3.639	9399.9	4800.9	1.47	6367	35.80	8404.75
008330575-02	OBS	No	210.818457	329.919033	619.8	22.087	18.3	7.7	1.47	6367	3.79	6.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008330575-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_ODDEVEN_DV—CENT_KIC_POS
008330575-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

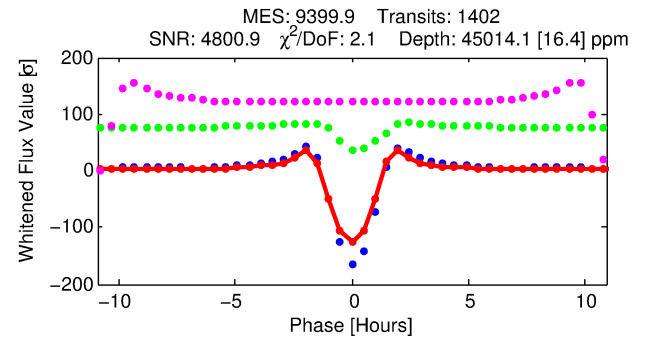
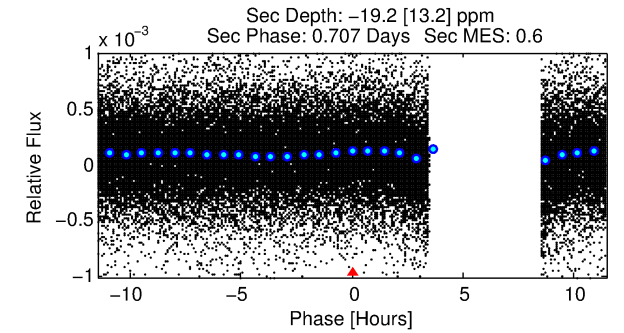
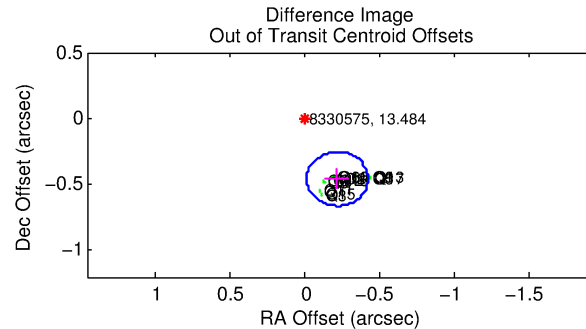
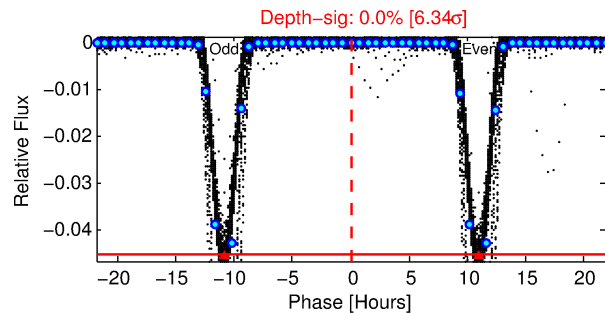
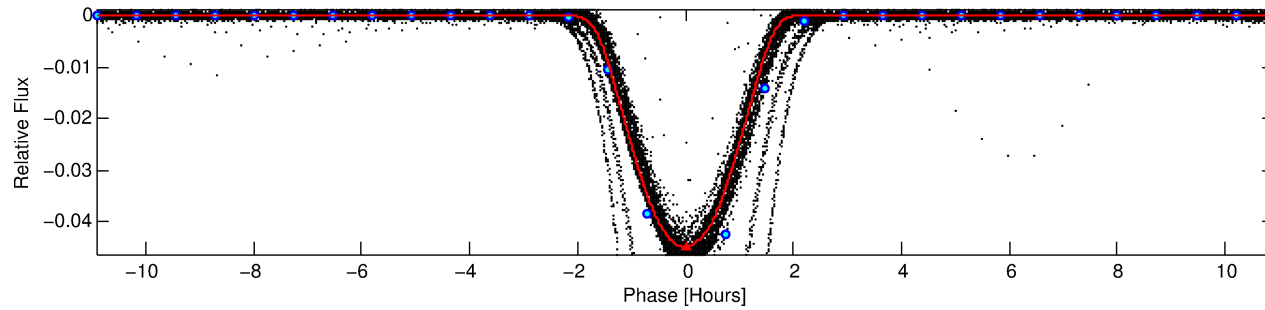
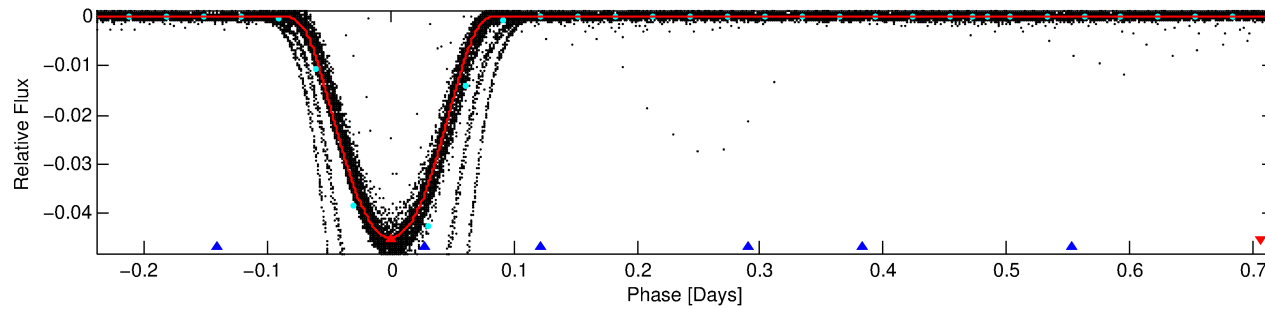
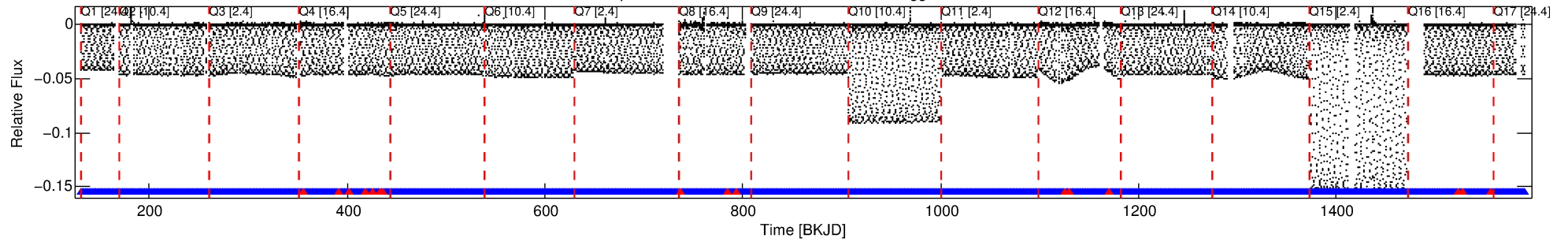
Ephemeris Match Information For 008330575-01

No Significant Match Found

DV One-Page Summary

KIC: 8330575 Candidate: 1 of 2 Period: 0.957 d
KOI: K07020.01 Corr: 0.969

Kp: 13.48 R*: 1.47 Rs Teff: 6367.0 K Logg: 4.13 Fe/H: -0.340



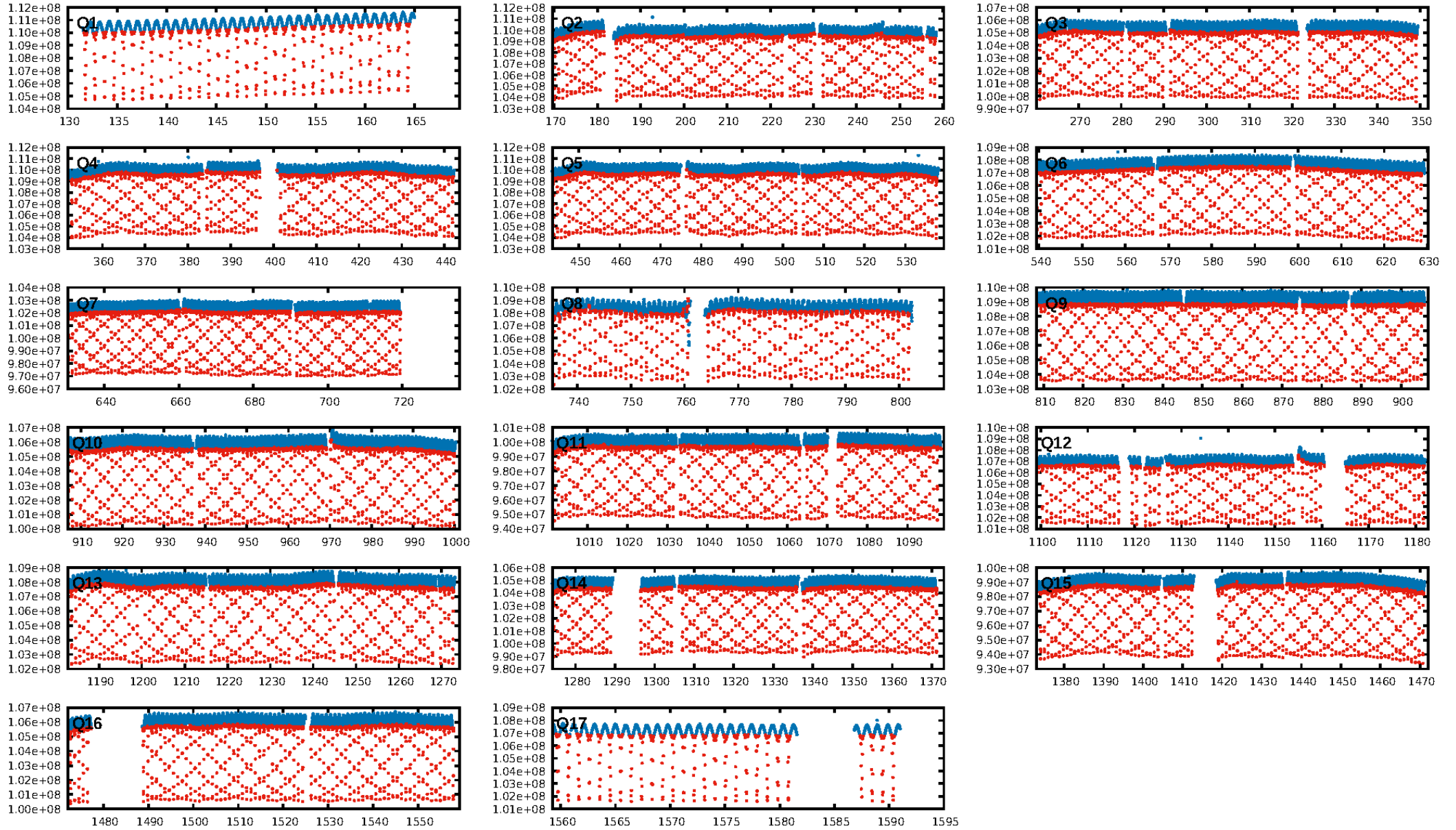
DV Fit Results:

Period = 0.95707 [0.00000] d
Epoch = 131.7773 [0.0000] BKJD
Rp/R* = 0.2235 [0.0002]
a/R* = 2.09 [0.00]
b = 0.81 [0.00]
Seff = 8404.75 [3768.52]
Teq = 2442 [274] K
Rp = 35.80 [9.80] Re
a = 0.0194 [0.0052] AU
Ag = N/A
Teffp = N/A

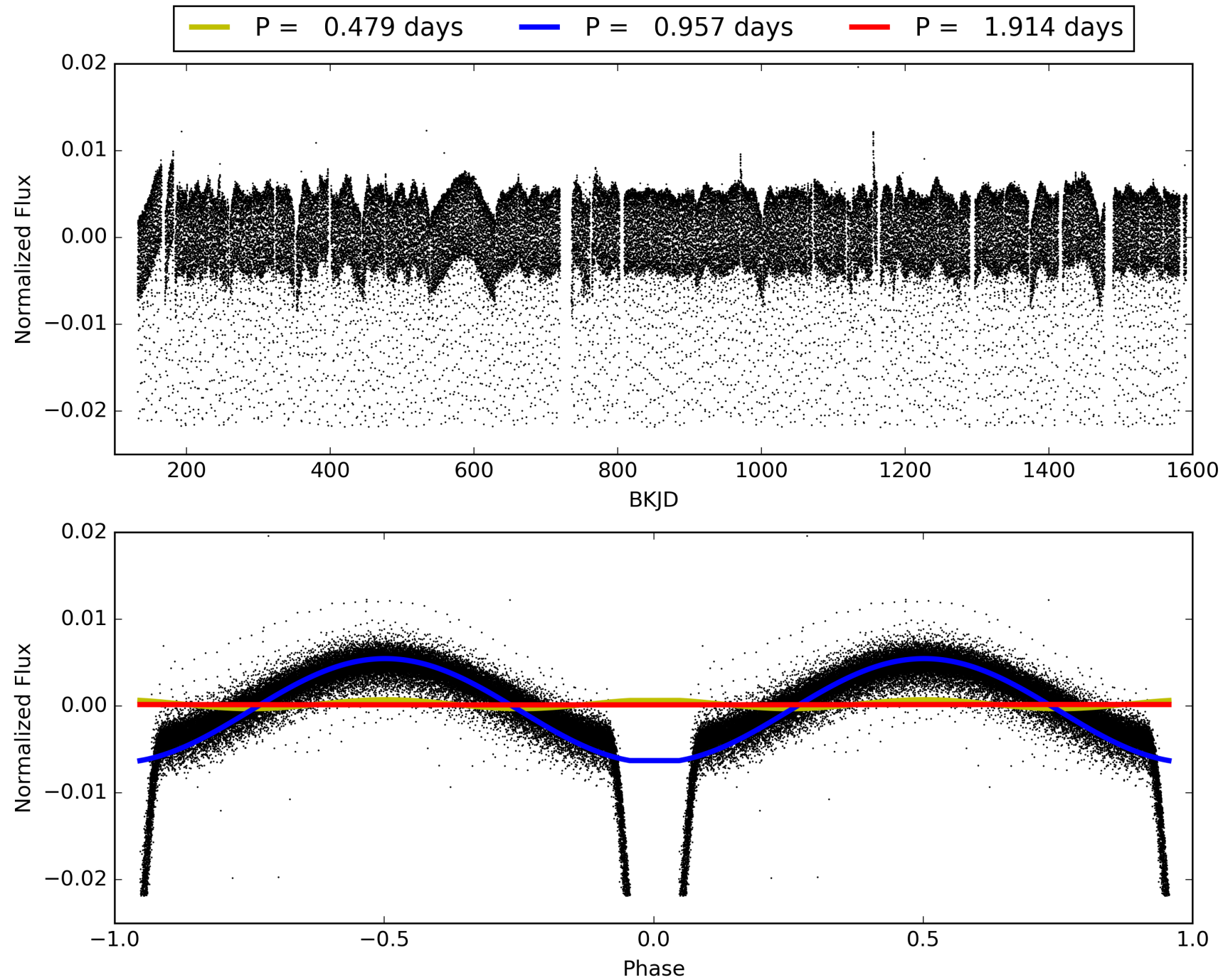
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [225.01σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [1324/1340]
GhostDiagnostic-chr: 3.024
Centroid-sig: N/A
Centroid-so: 0.746 arcsec [668.34σ]
OotOffset-rm: 0.509 arcsec [7.45σ]
KicOffset-rm: 0.092 arcsec [1.36σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008330575-01, PDC Light Curves

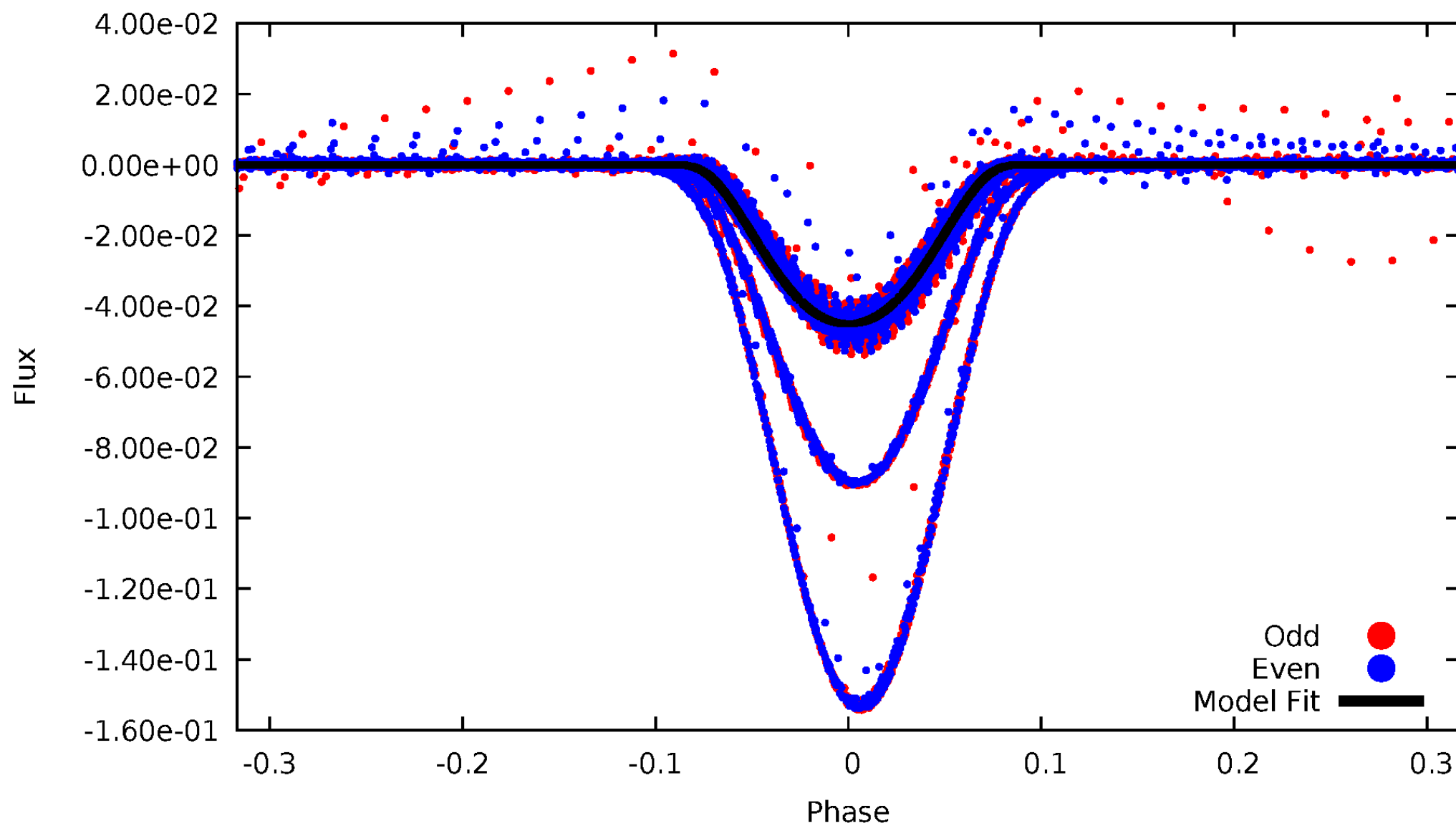


TCE 008330575-01



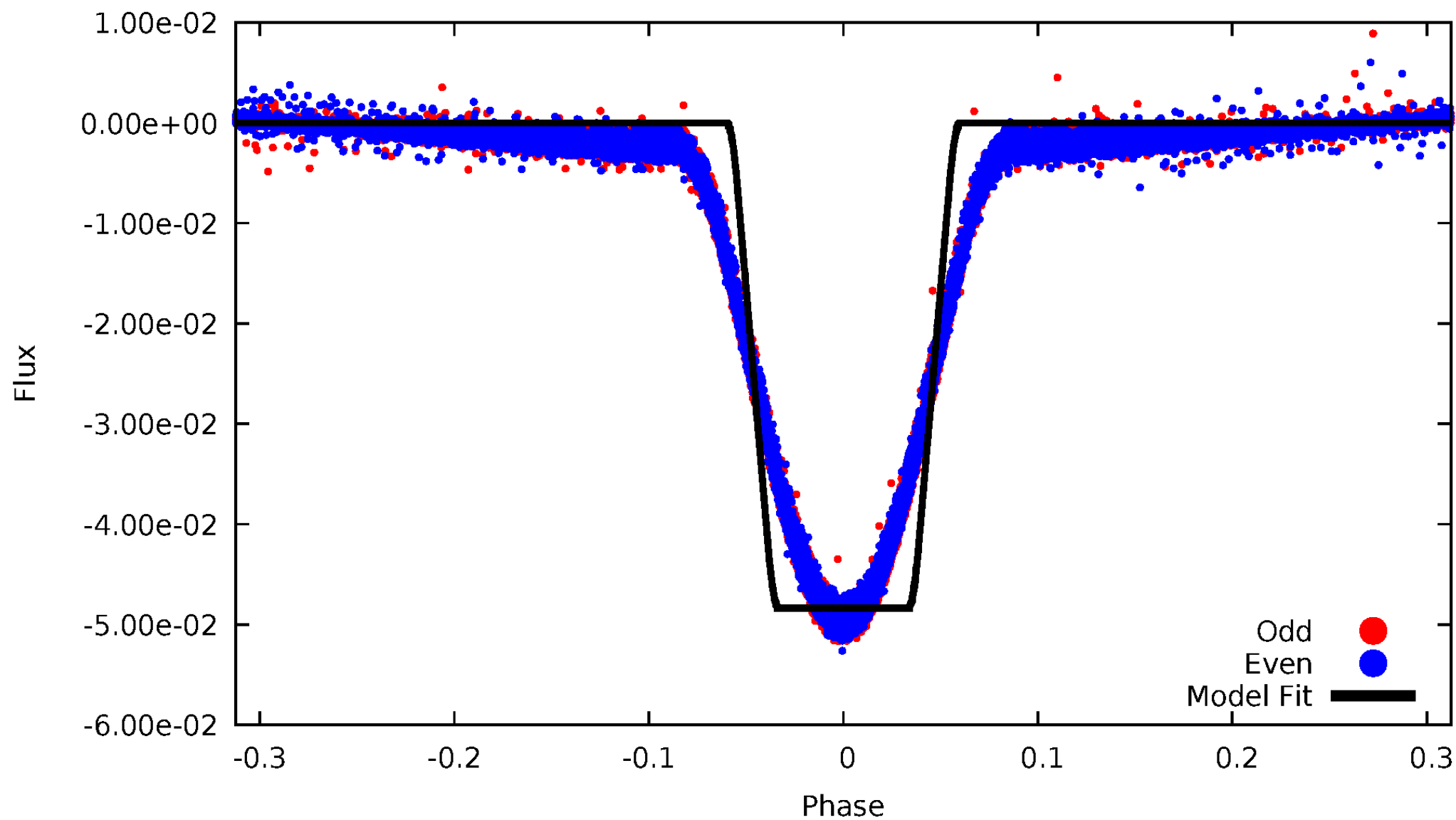
DV Odd/Even

TCE 008330575-01



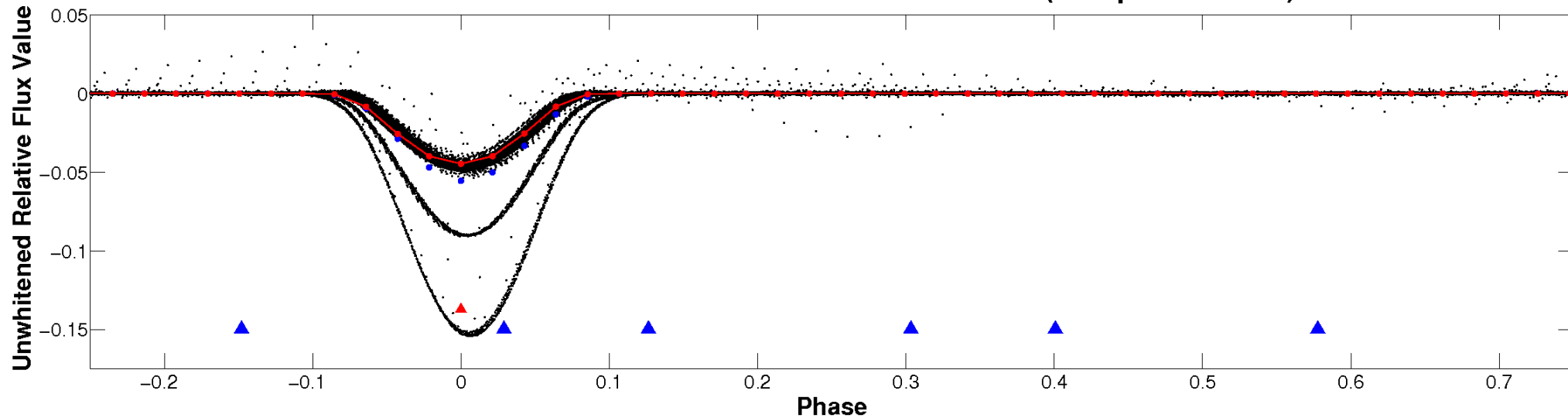
ALT Odd/Even

TCE 008330575-01

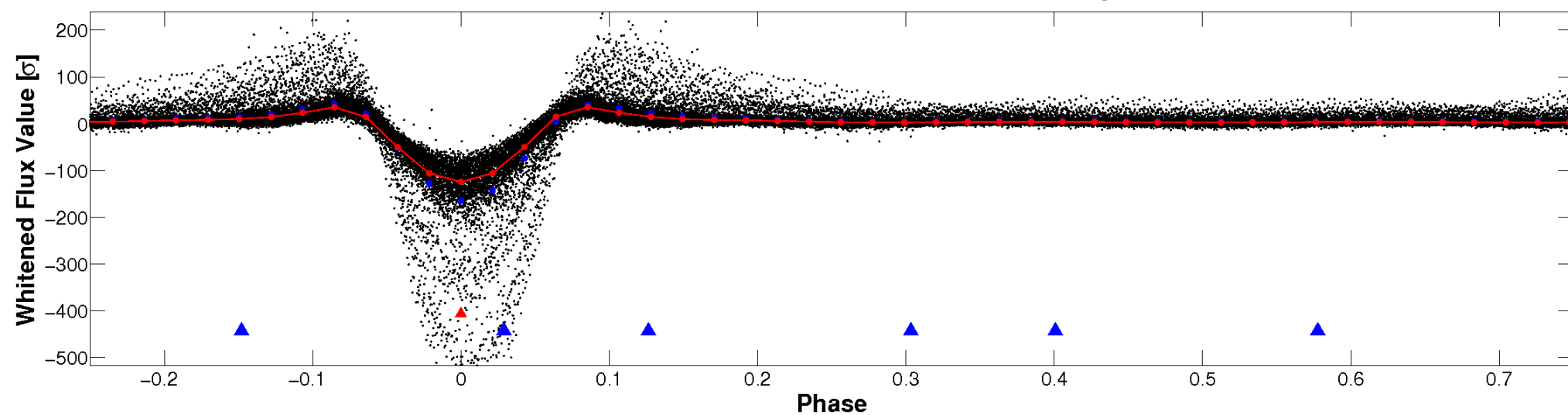


Non-Whitened Vs. Whitened Light Curve

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

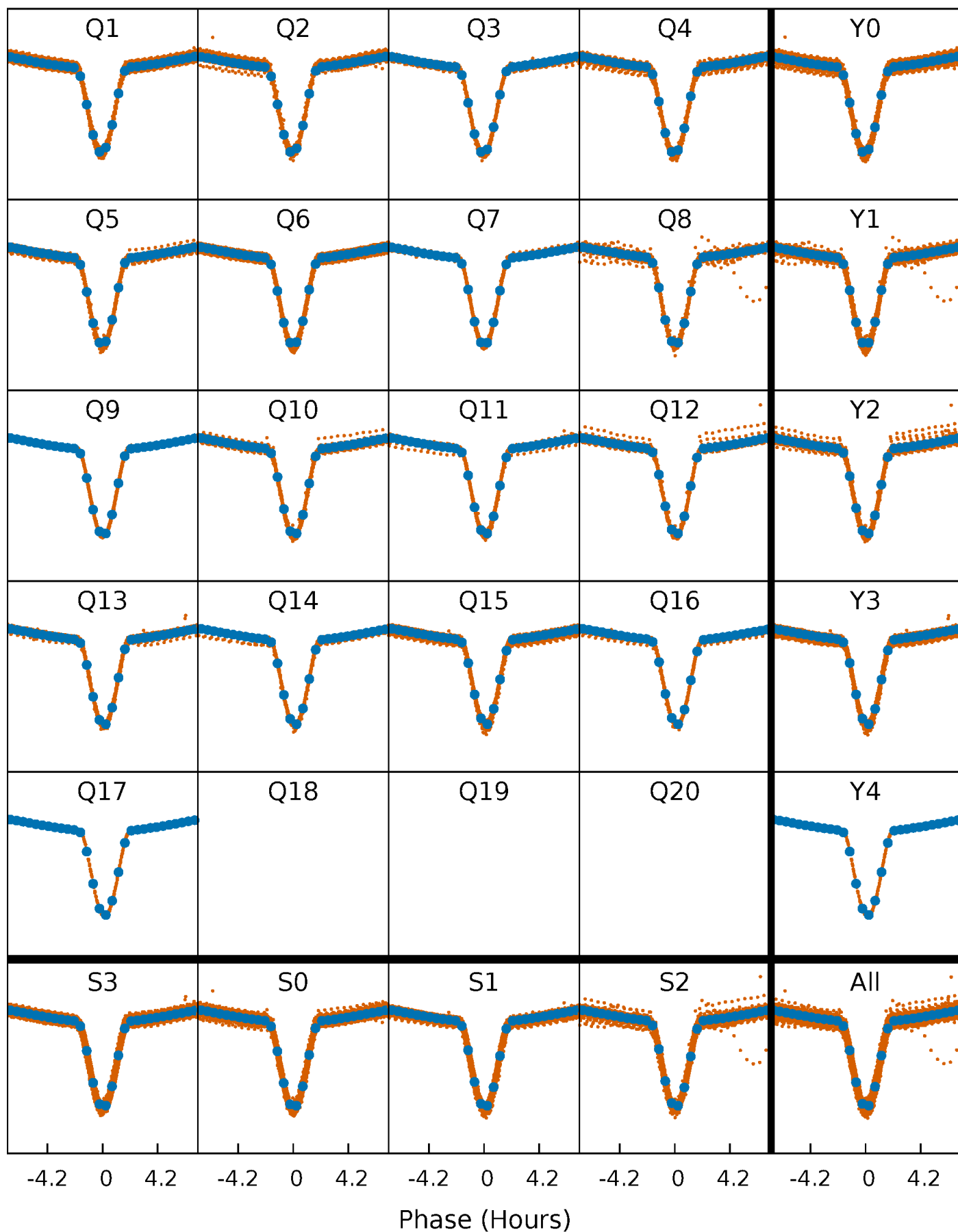


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



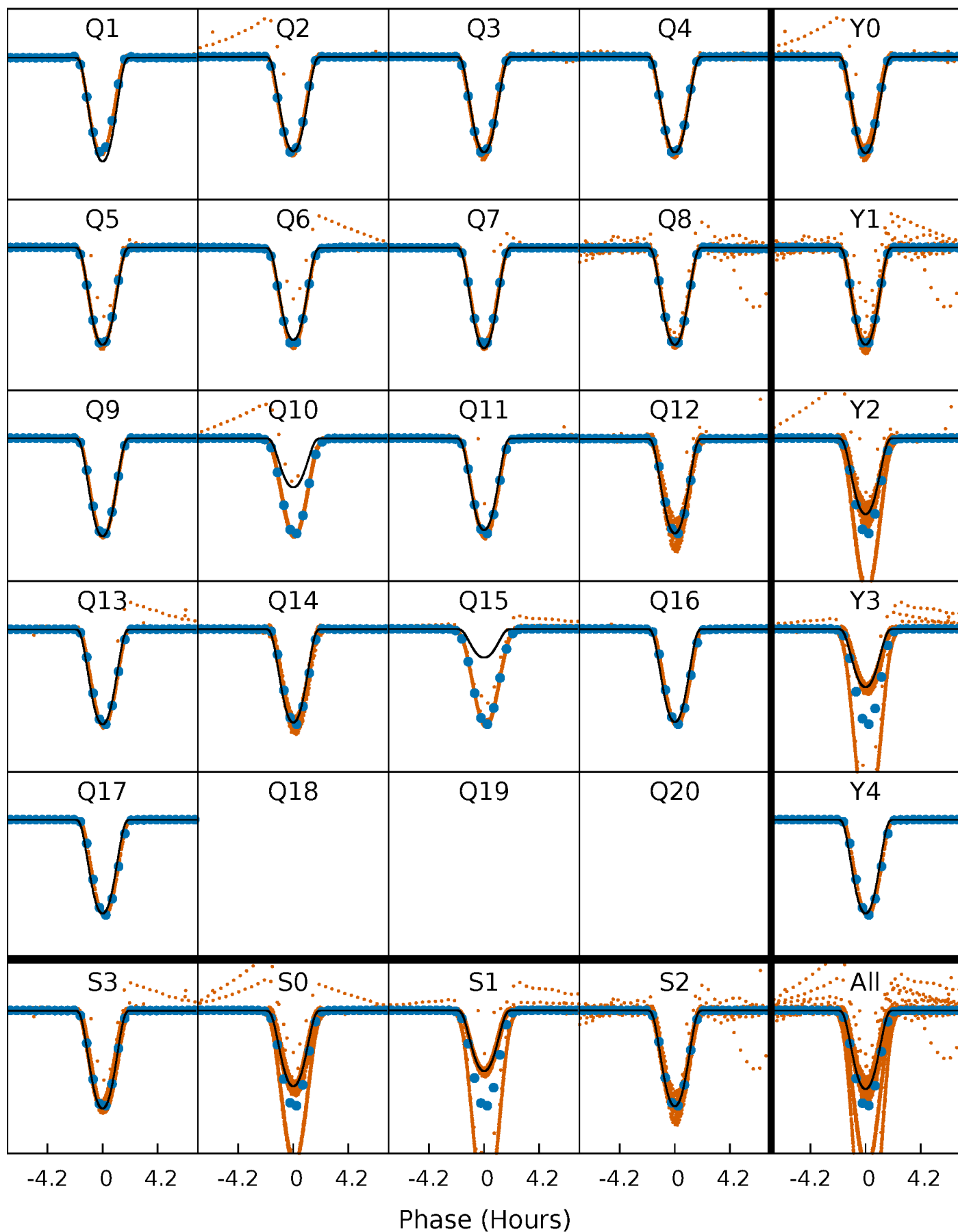
PDC Quarter-Phased Transit Curves

TCE 008330575-01 P= 0.957072 Days $T_0=131.777318$ (BKJD)



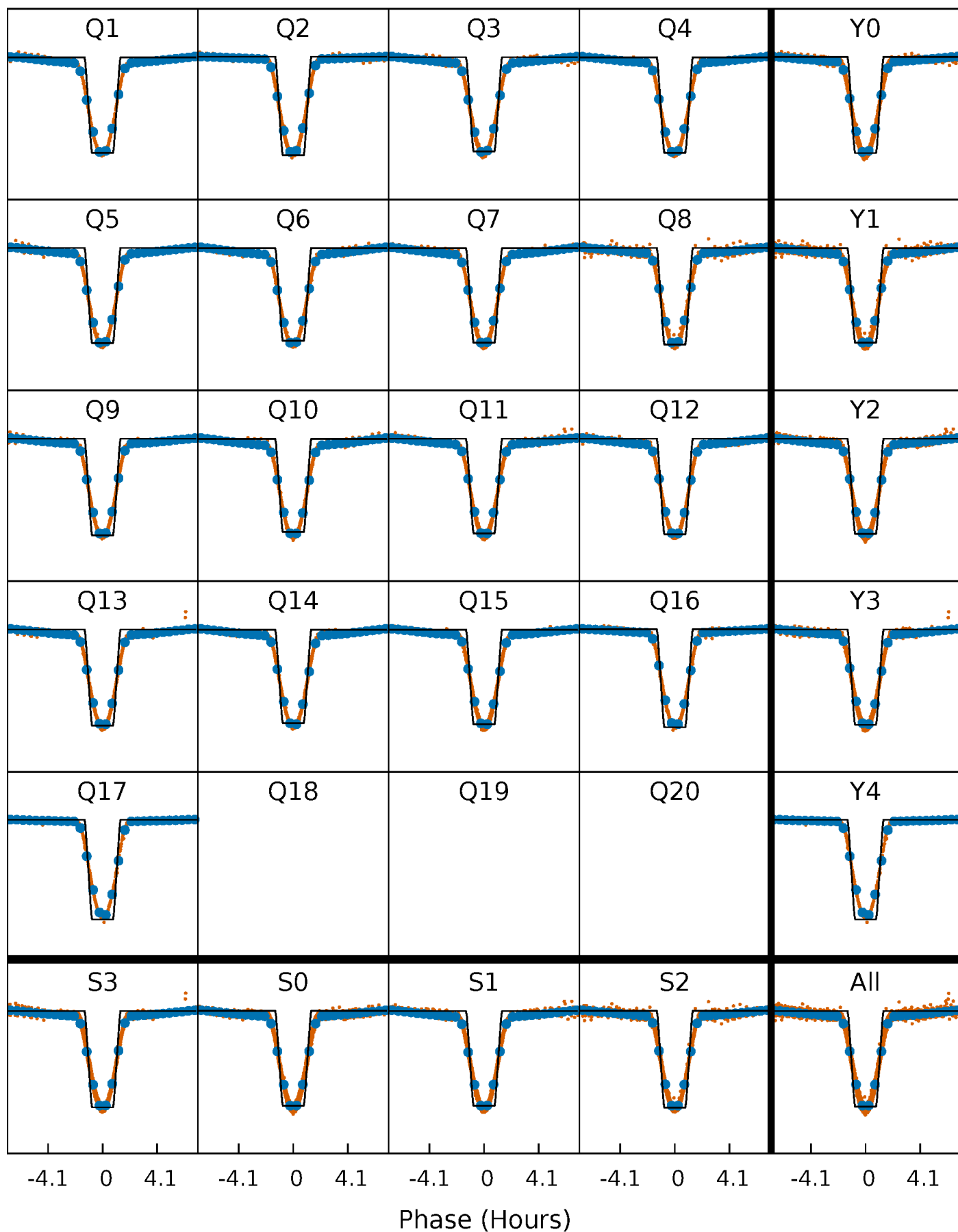
DV Quarter-Phased Transit Curves

TCE 008330575-01 P= 0.957072 Days $T_0=131.777318$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

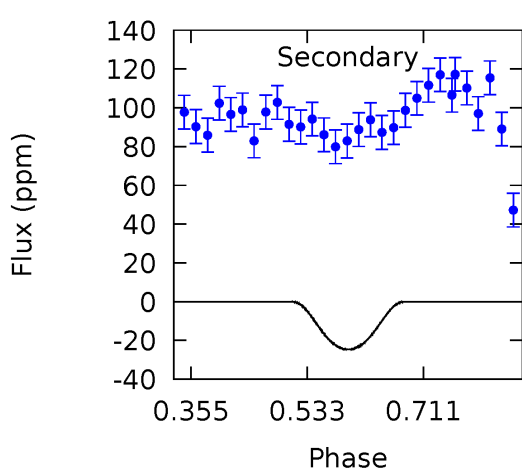
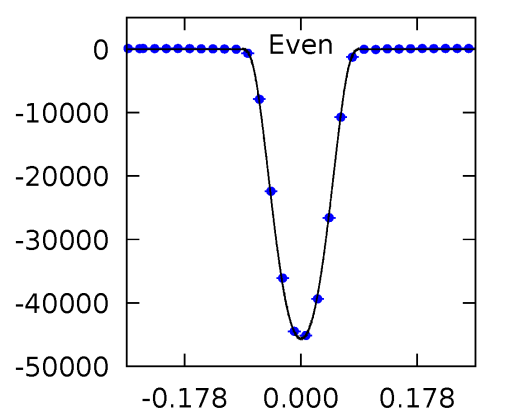
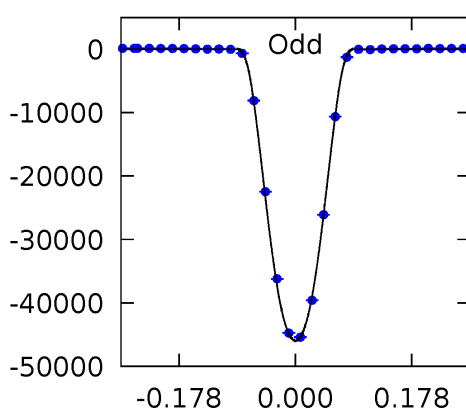
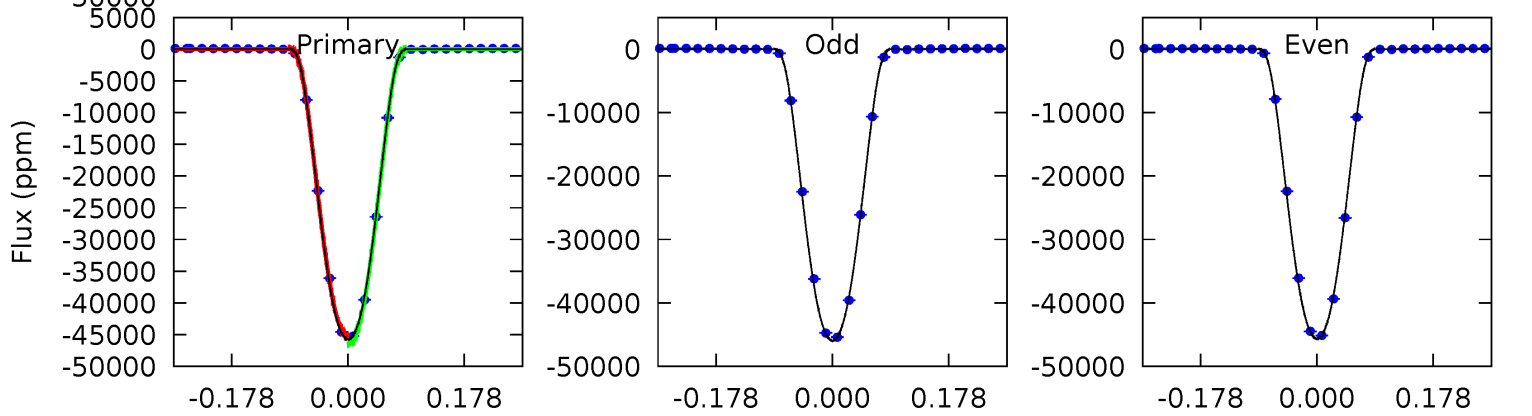
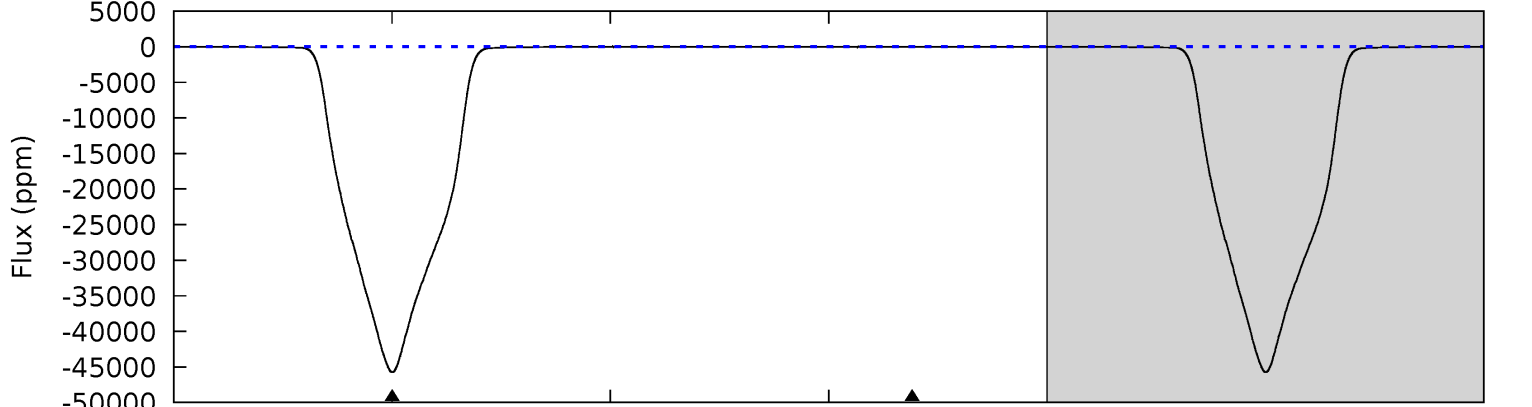
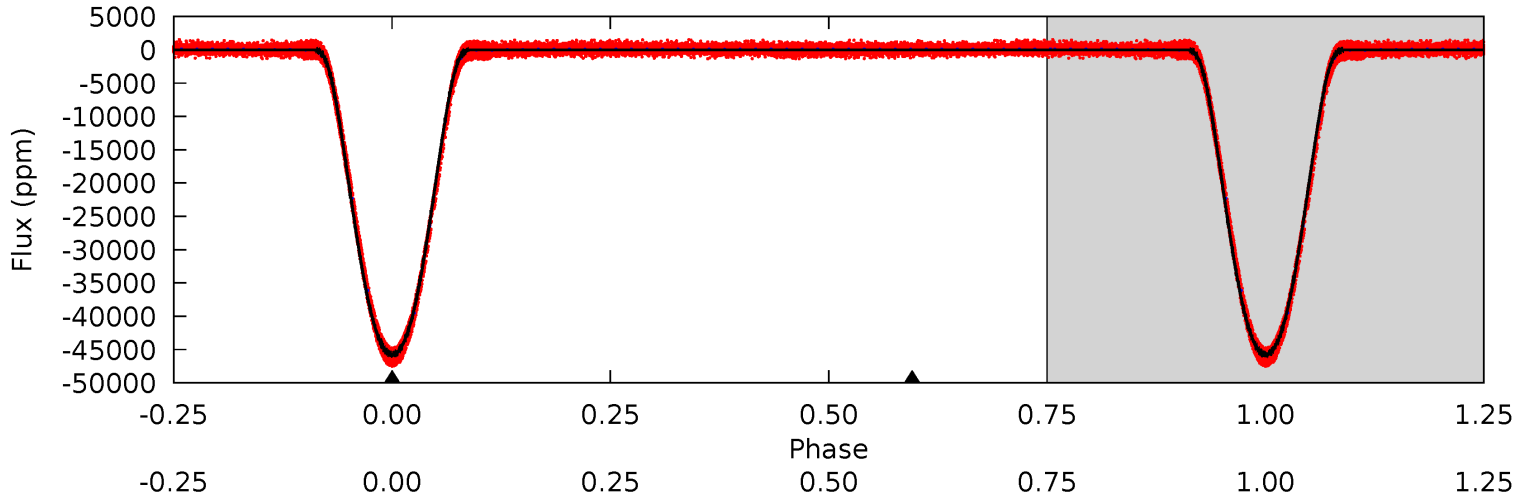
TCE 008330575-01 P= 0.957077 Days $T_0=131.775053$ (BKJD)



DV Model-Shift Uniqueness Test

008330575-01, P = 0.957072 Days, E = 130.820246 Days

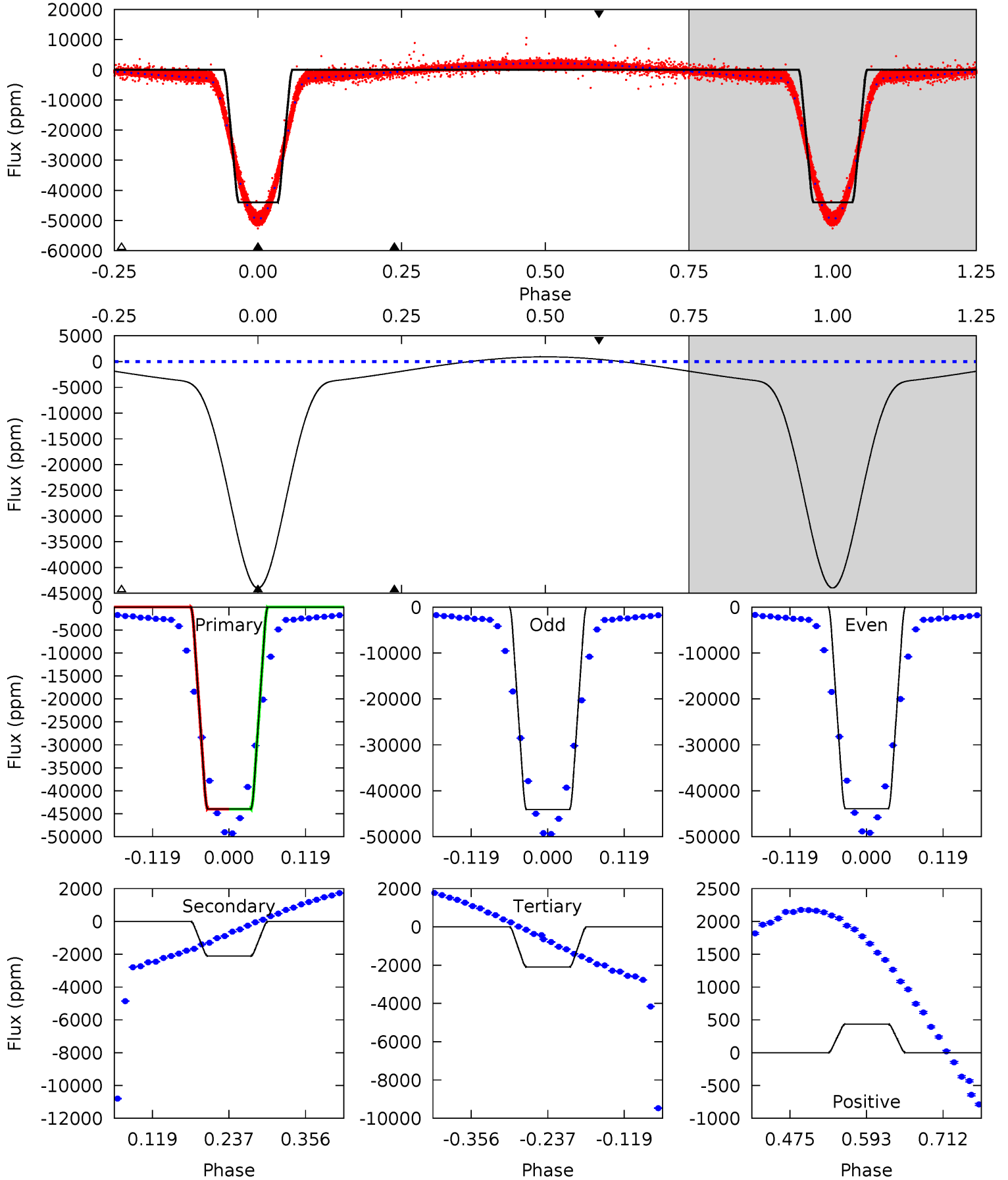
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10082	5.43	0	0	4.44	1.35	1.27	10082	10082	5.43	5.43	30.7	1.22	0.00	0



Alt Model-Shift Uniqueness Test

008330575-01, P = 0.957077 Days, E = 130.817976 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2269	108.6	107.9	22.5	4.53	1.56	78.7	2161	2246	0.74	86.1	5.77	1.00	0.02	0.64



Stellar Parameters For KIC 008330575

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6367^{+175}_{-214}	$4.133^{+0.252}_{-0.168}$	$-0.340^{+0.300}_{-0.300}$	$1.468^{+0.402}_{-0.402}$	$1.066^{+0.177}_{-0.145}$	$0.475^{+0.730}_{-0.223}$
	+3%/-3%	+6%/-4%	+88%/-88%	+27%/-27%	+17%/-14%	+154%/-47%
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 008330575-01 / KOI 7020.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-25 ± 5	$35.31^{+5.58}_{-5.60}$	3371^{+265}_{-277}	-3307^{+167}_{-164}	$0.004^{+0.002}_{-0.001}$
Alt.	-2106 ± 19	$35.24^{+5.49}_{-4.99}$	3393^{+258}_{-246}	2628^{+326}_{-5146}	$0.355^{+0.122}_{-0.083}$

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

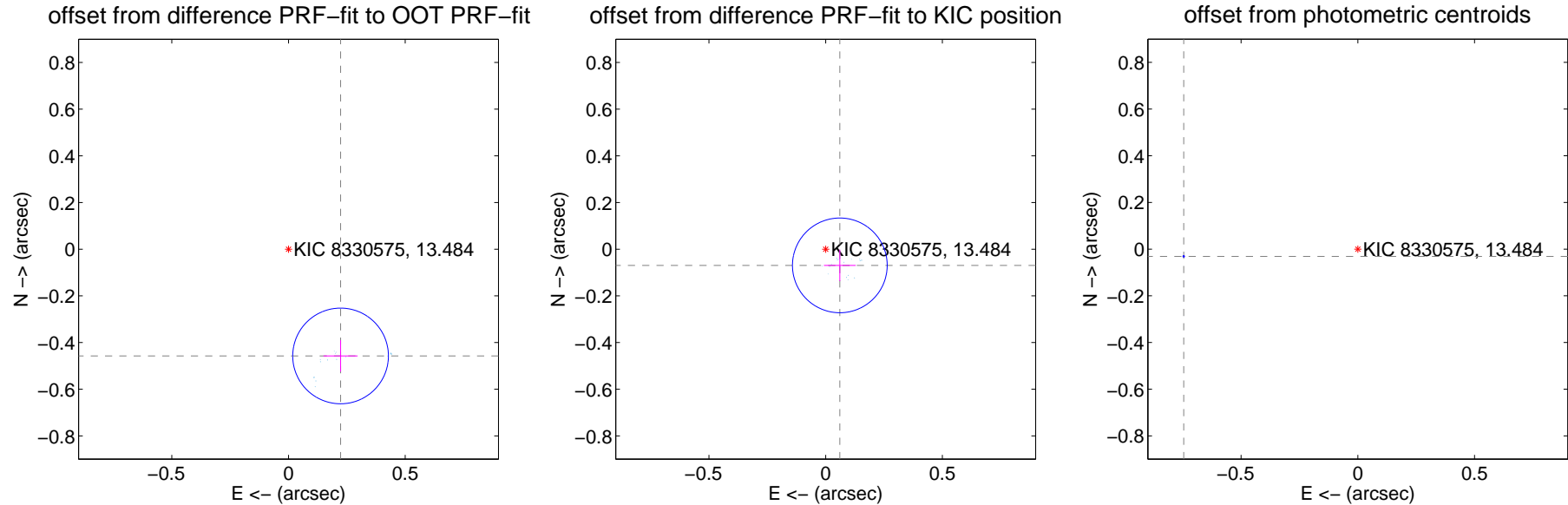
DV Centroid Data

Supplemental centroid analysis for 008330575-01. Kepler magnitude: 13.48. Transit SNR 4800.94

There are 17 quarters with good PRF difference image offsets

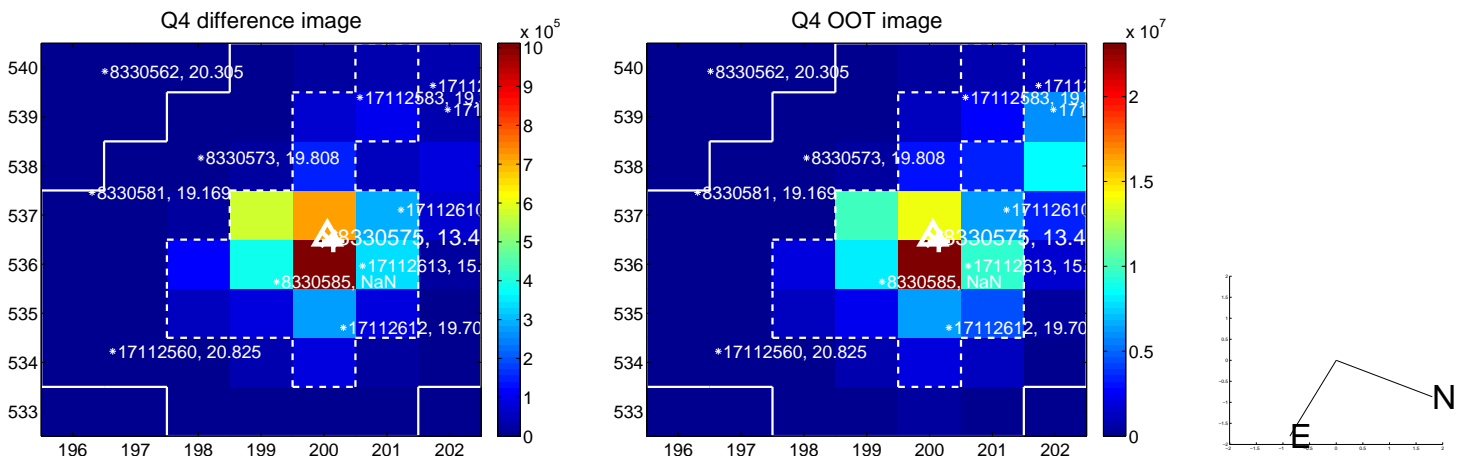
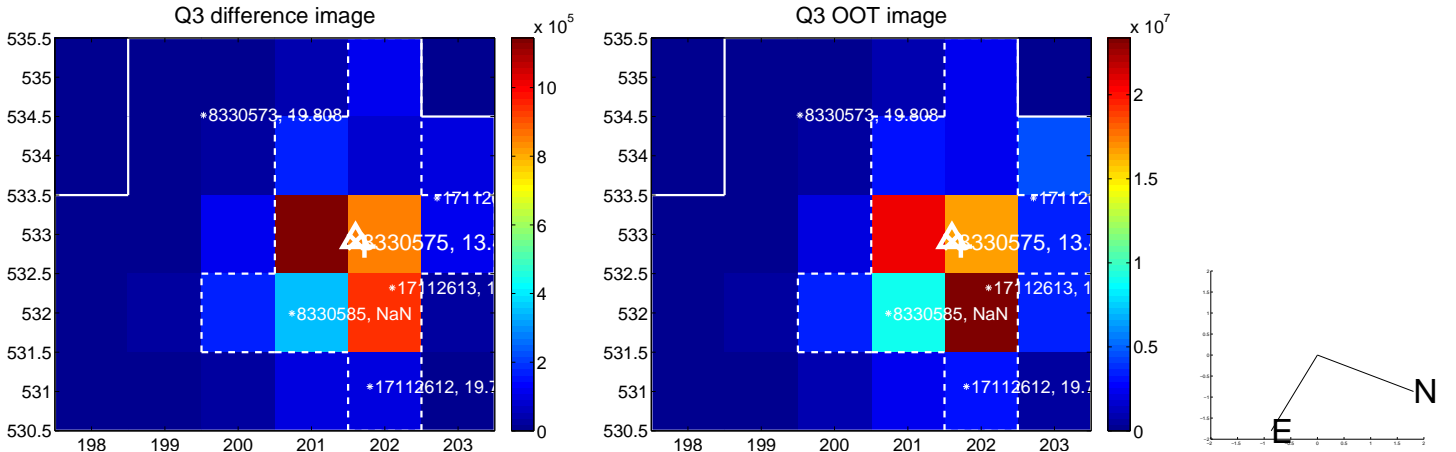
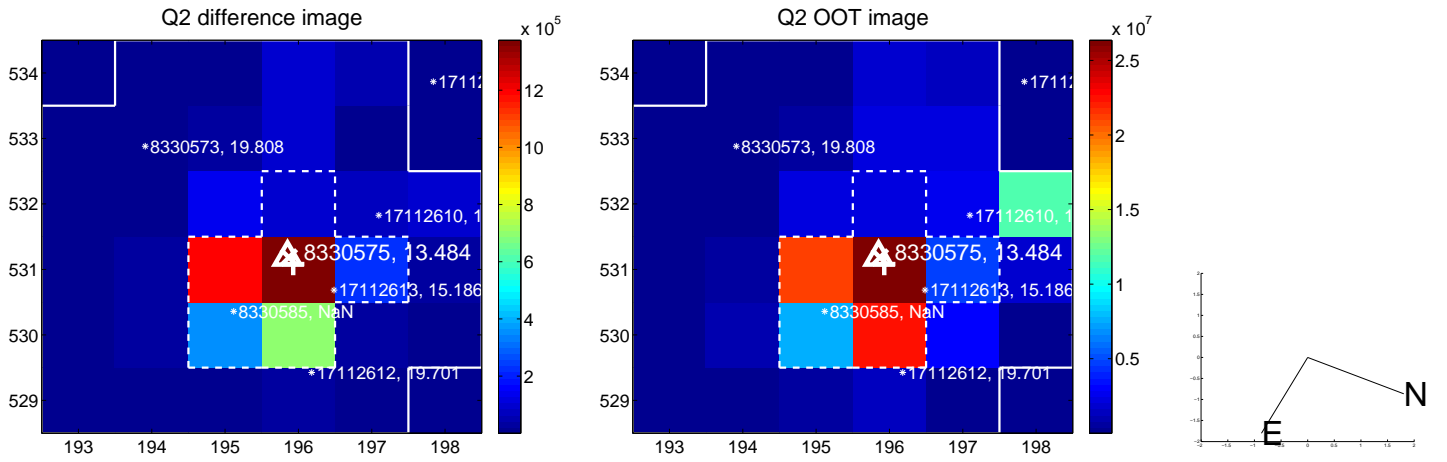
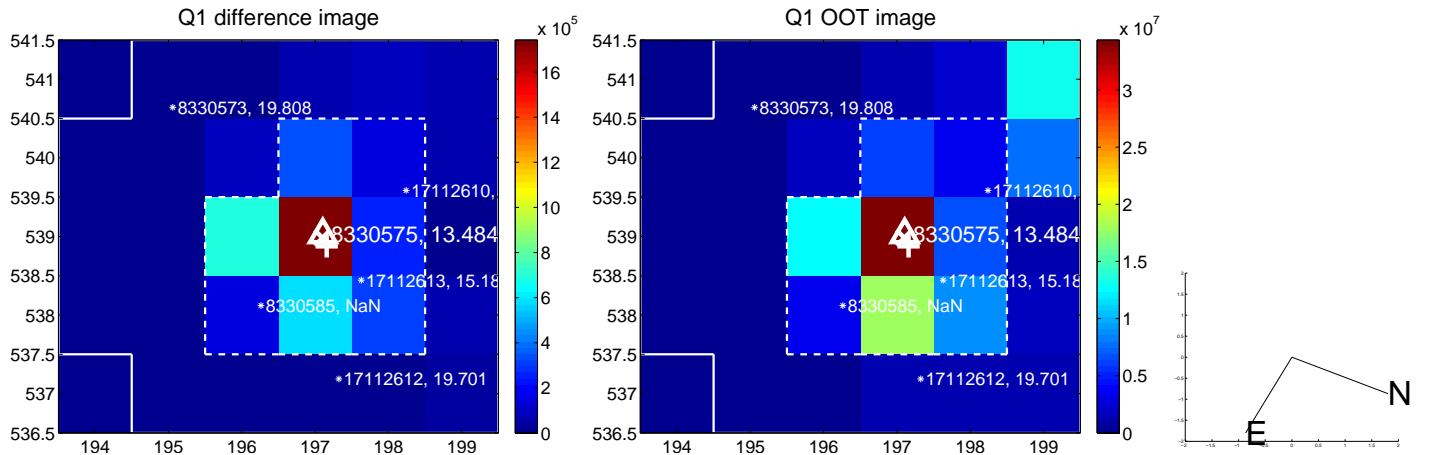
The direct PRF centroid is offset from the target star catalog position by about 0.49 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.509 ± 0.068	7.45	-0.223 ± 0.073	-0.457 ± 0.067
PRF-fit source offset from KIC position	0.092 ± 0.068	1.36	-0.061 ± 0.068	-0.069 ± 0.067
photometric centroid source offset	0.75 ± 0.00	668.34	0.75 ± 0.00	-0.03 ± 0.00

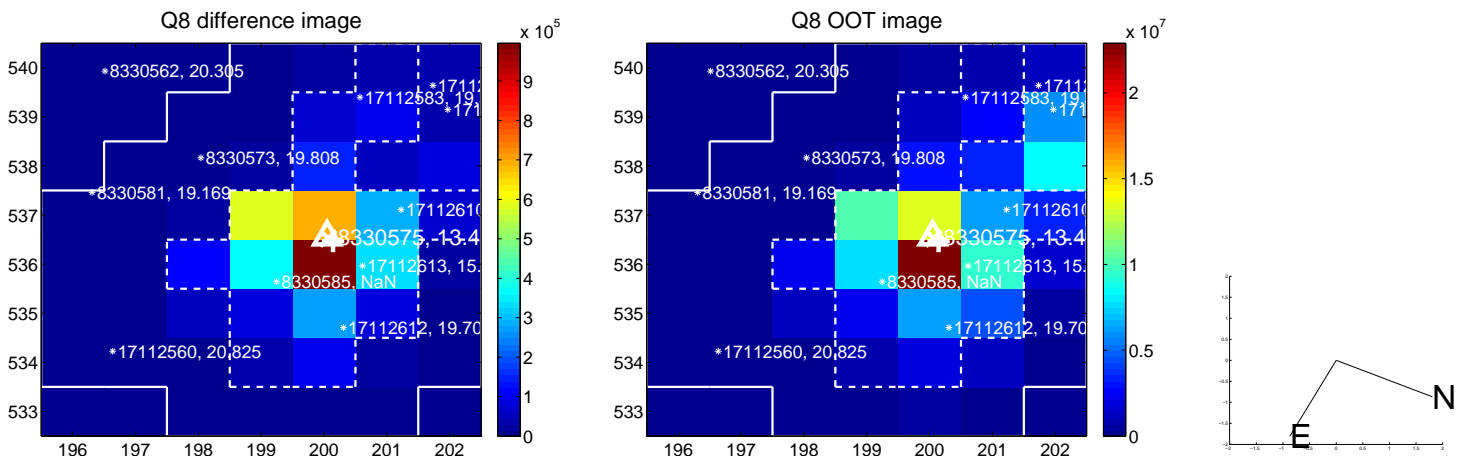
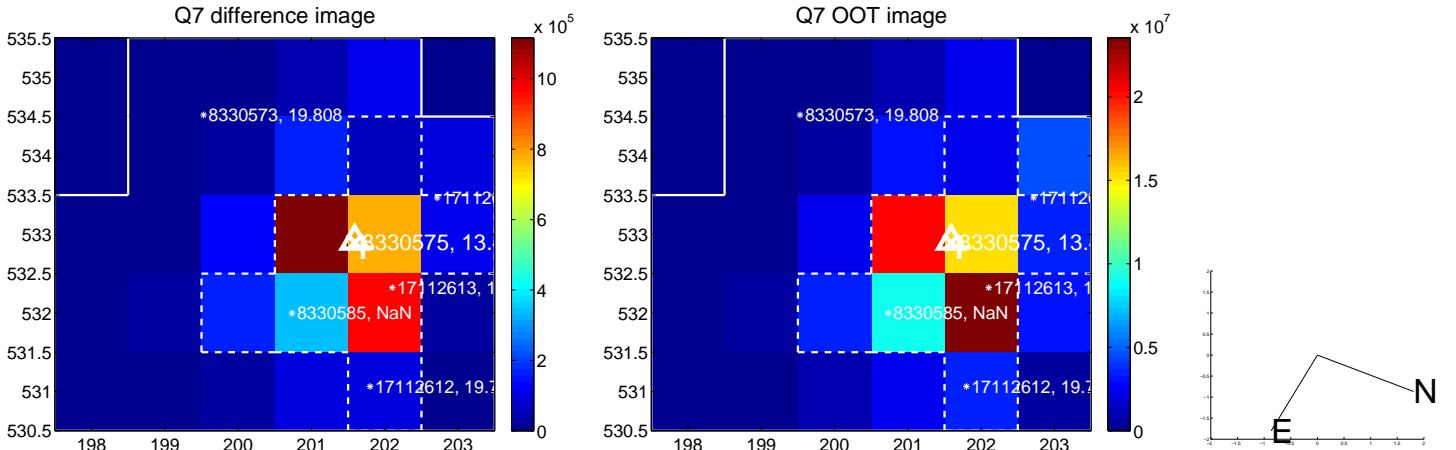
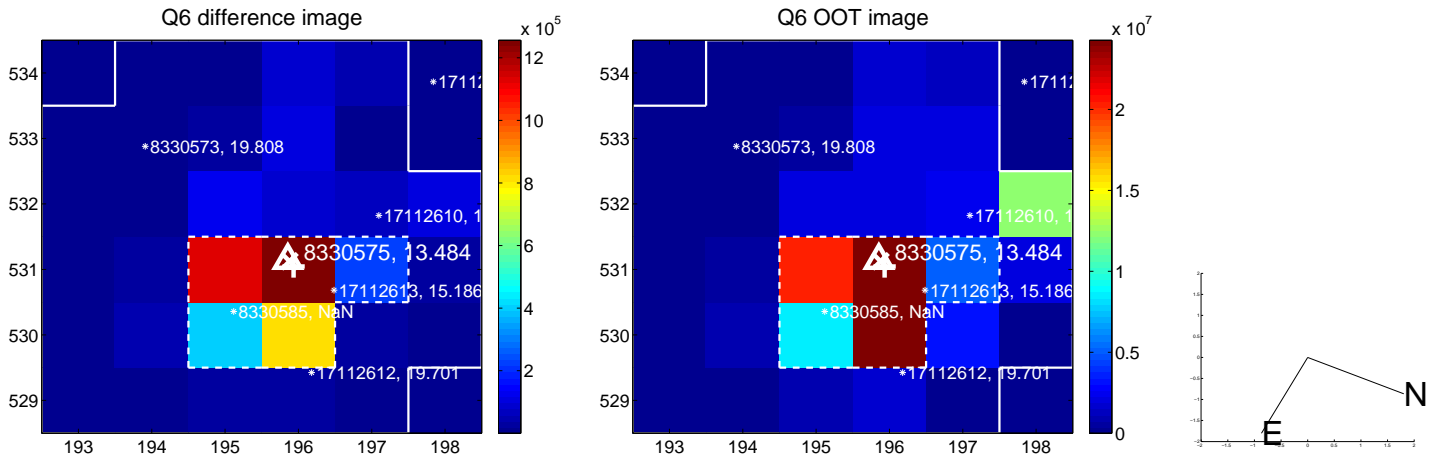
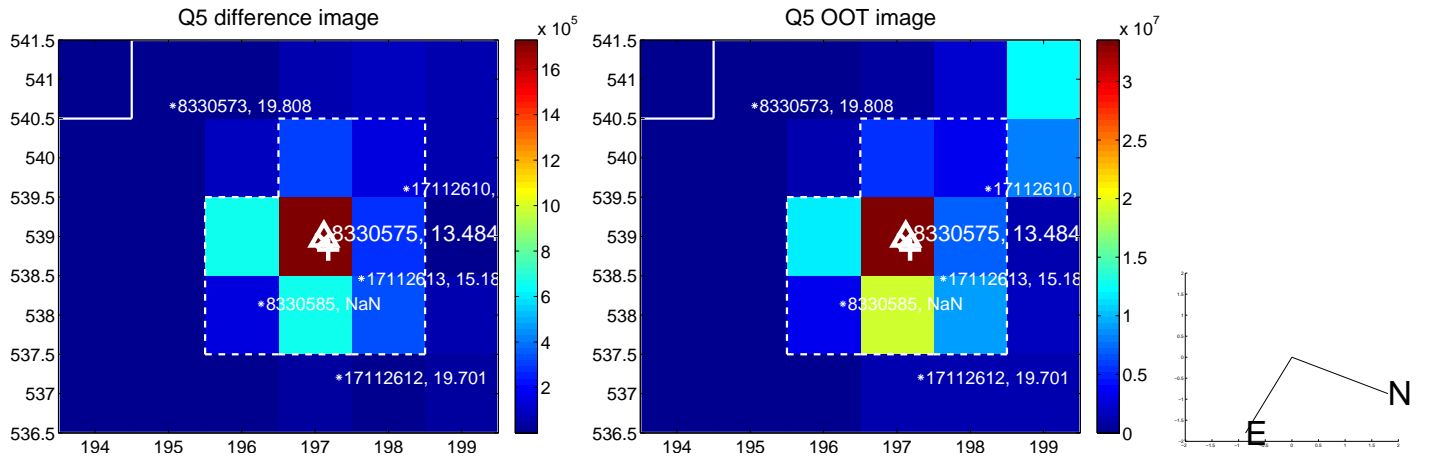


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

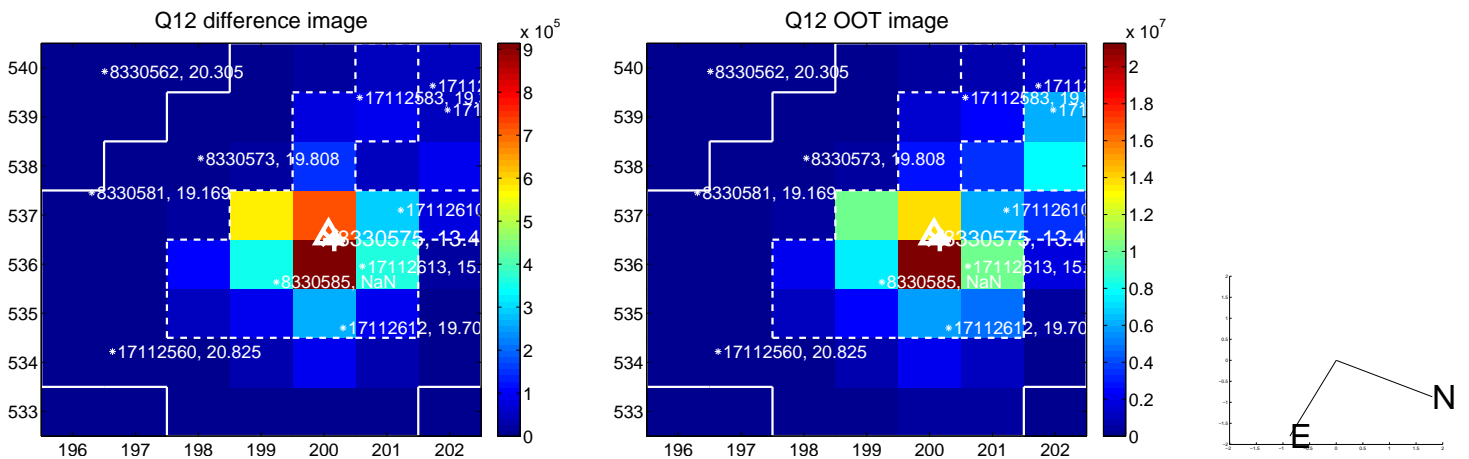
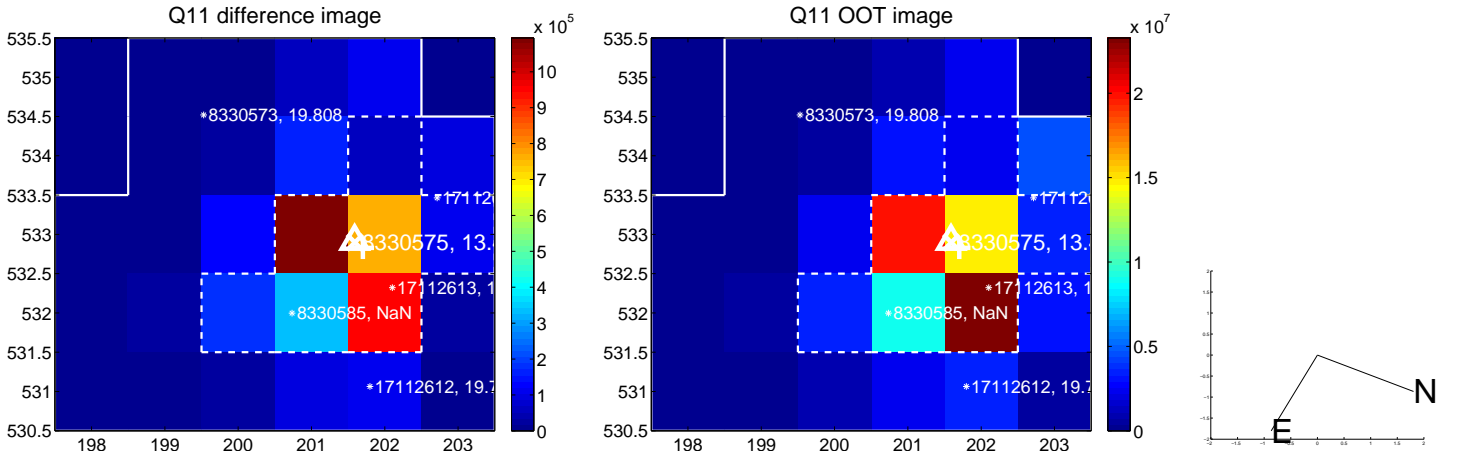
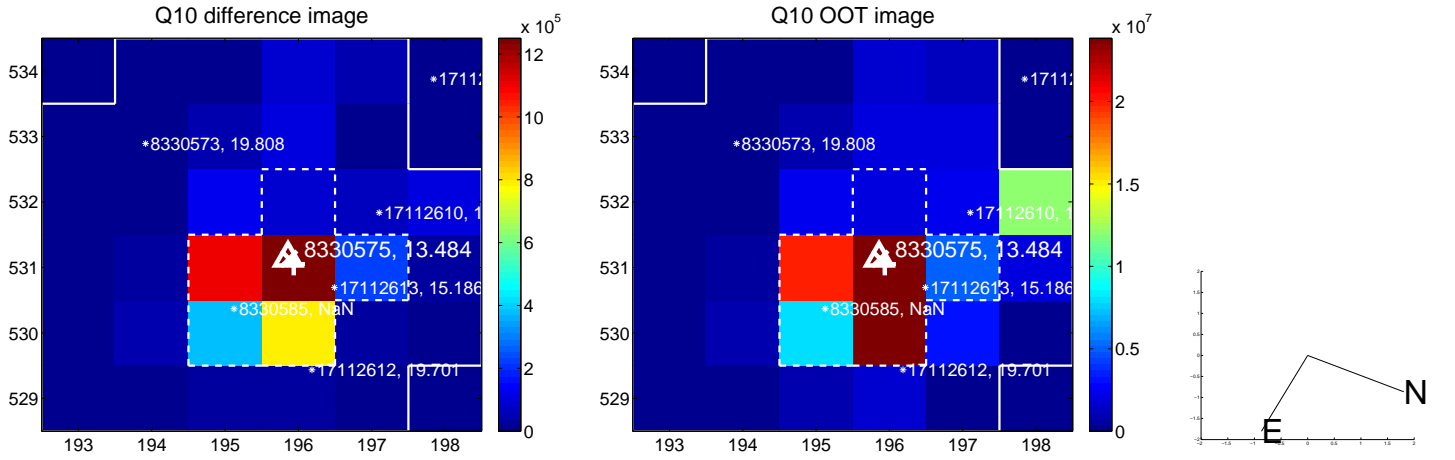
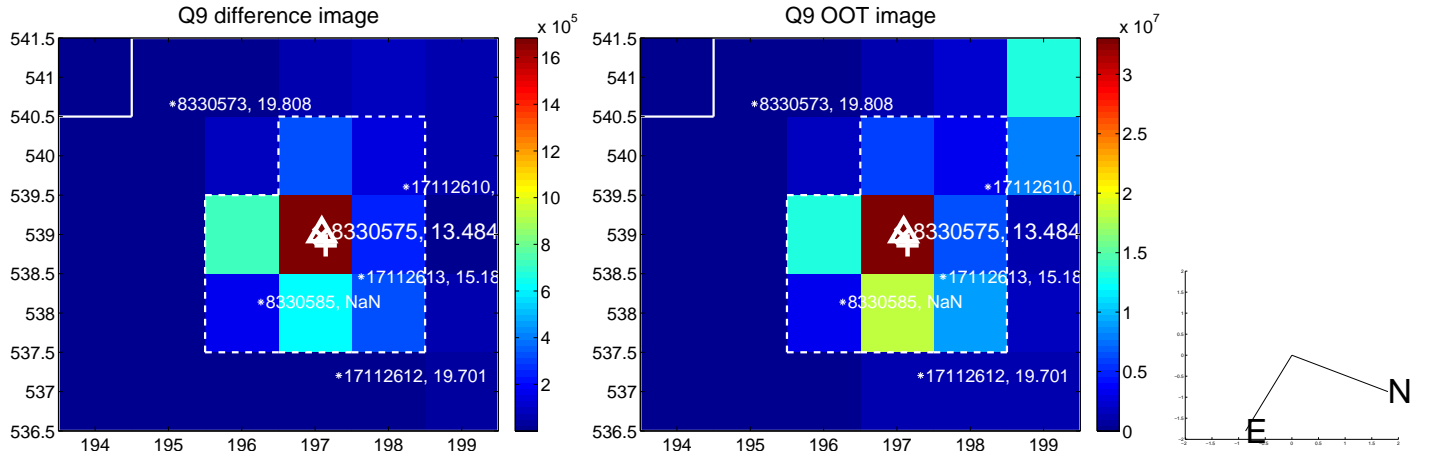
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



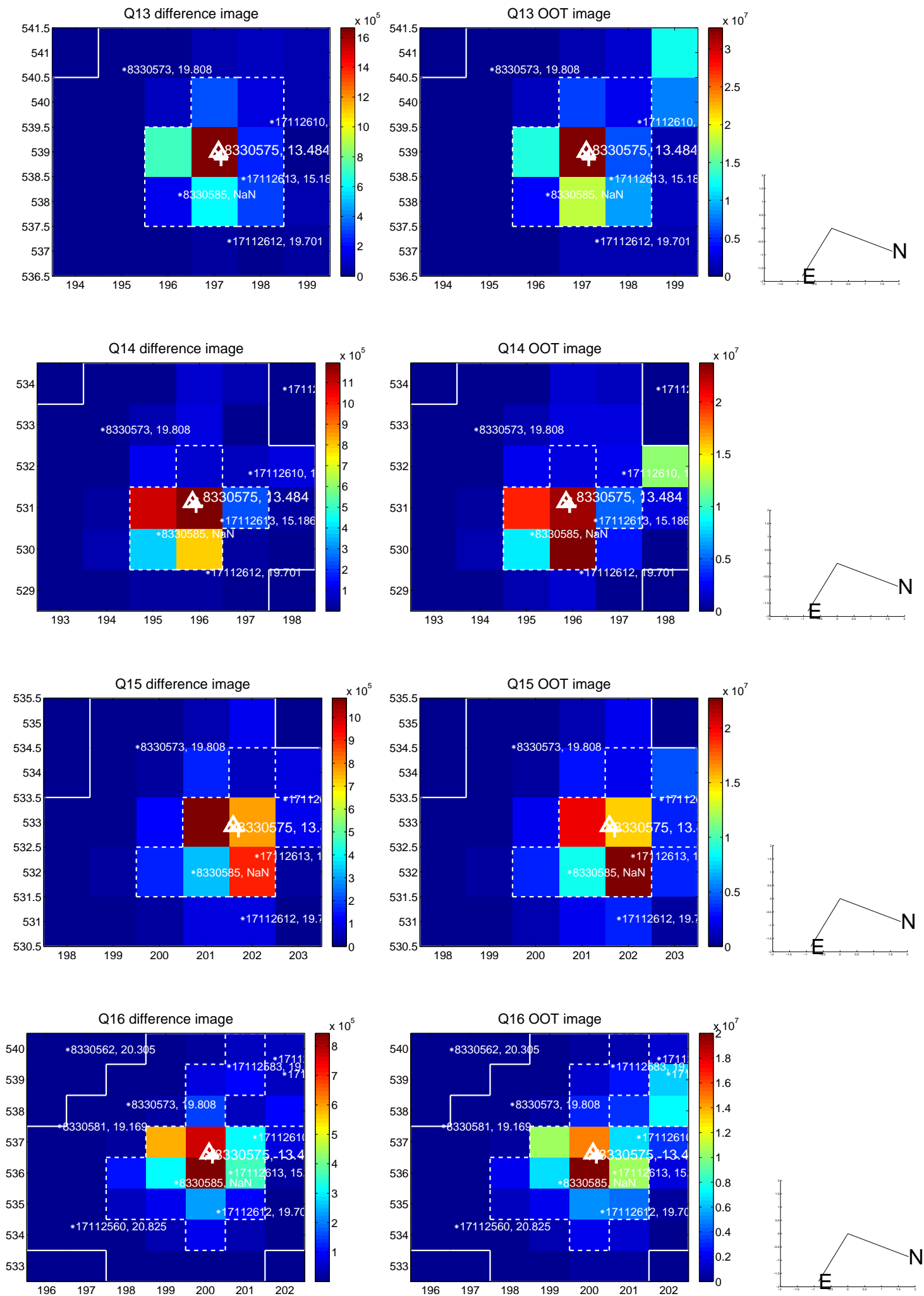
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



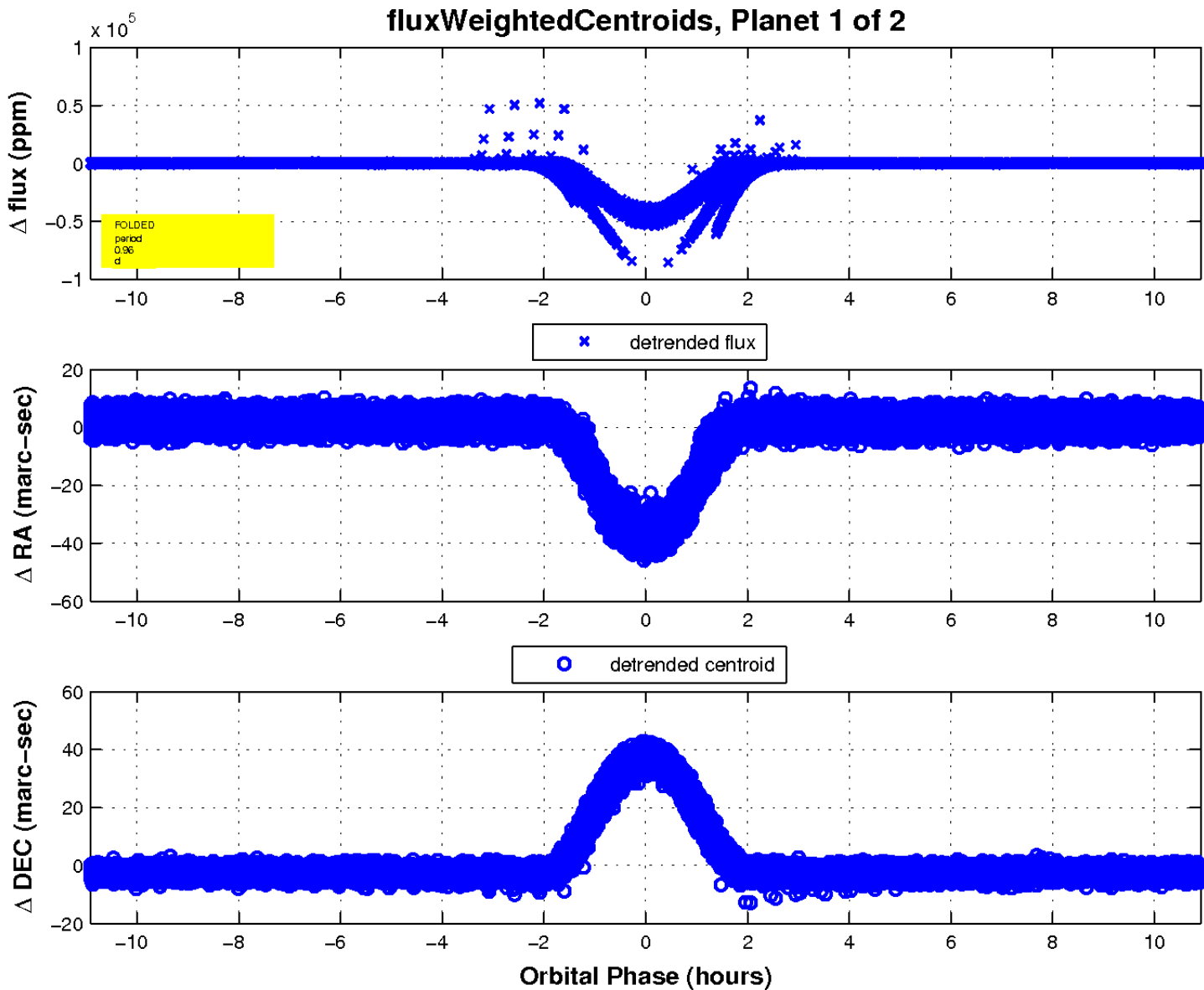
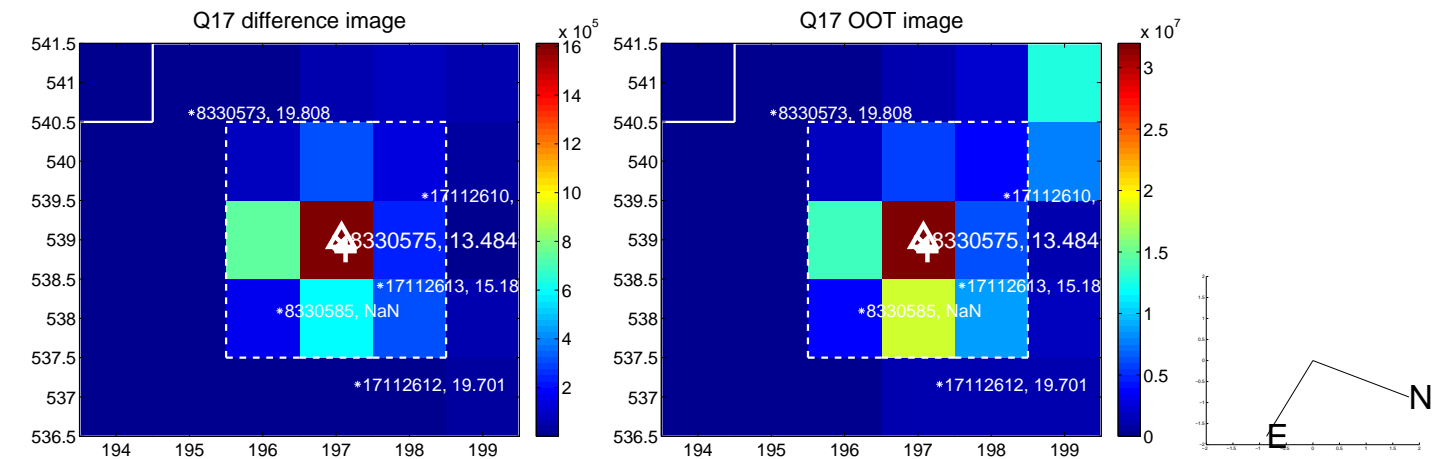
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

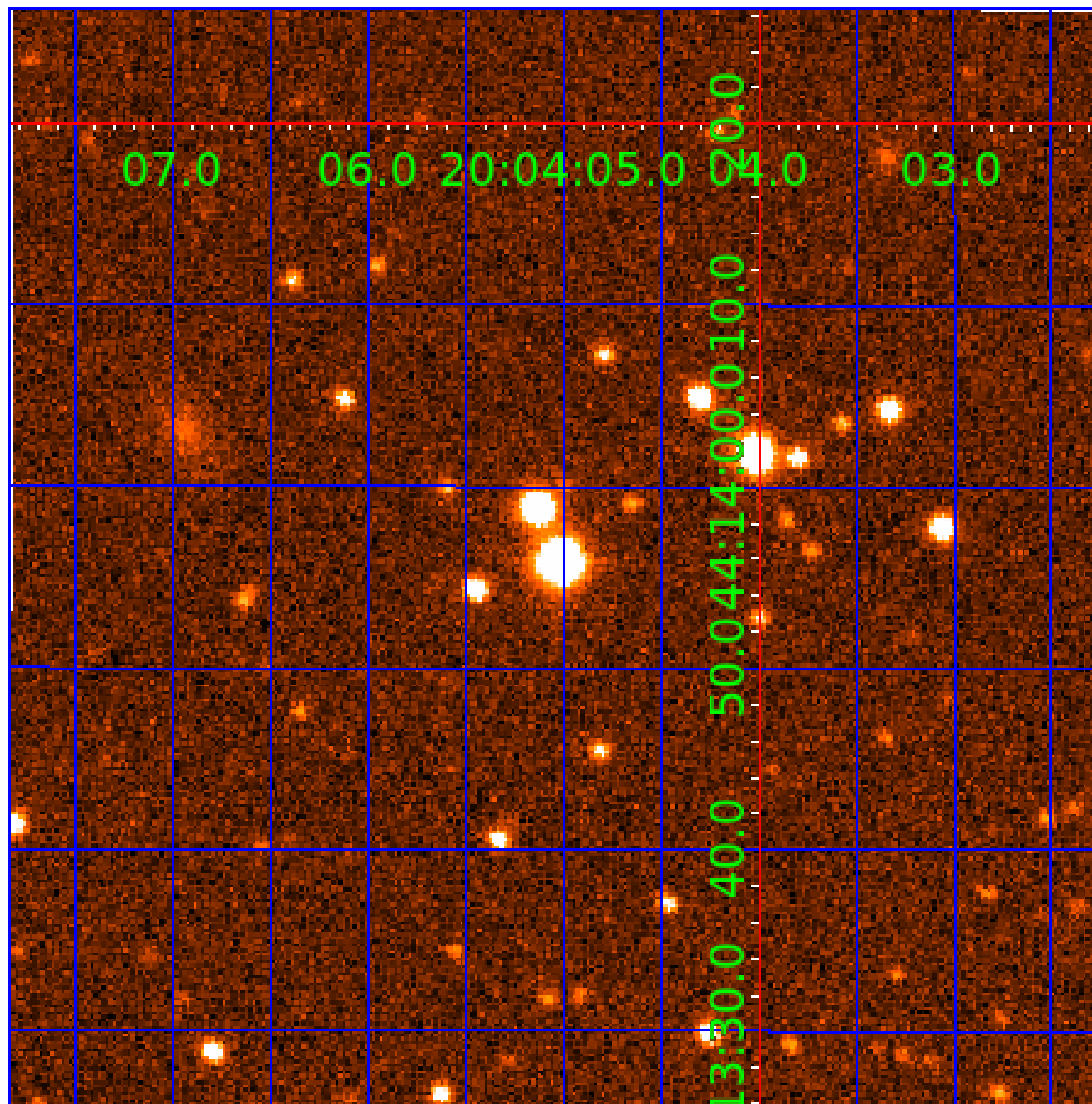


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008330575

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})
008330575-01	OBS	7020.01	0.957072	131.777318	45014.1	3.639	9399.9	4800.9	1.47	6367	35.80	8404.75
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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008330575-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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 008330575-02

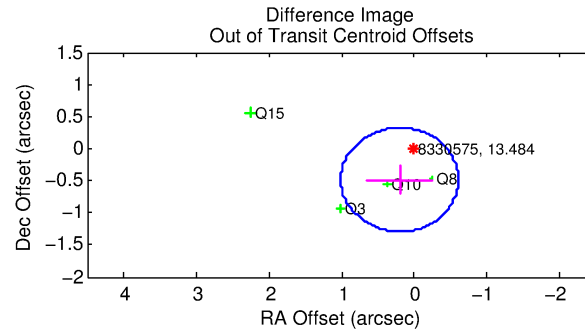
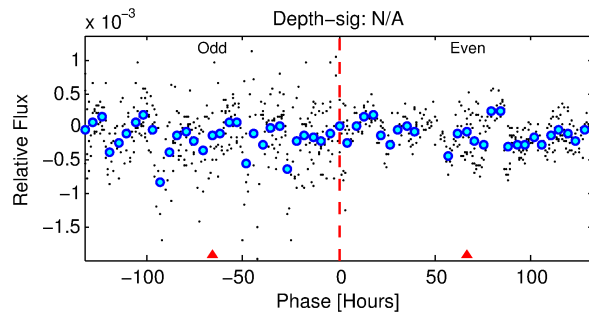
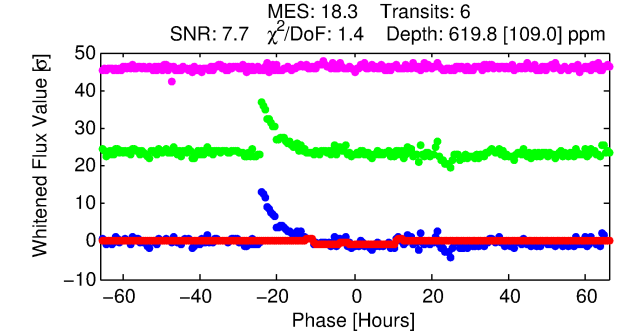
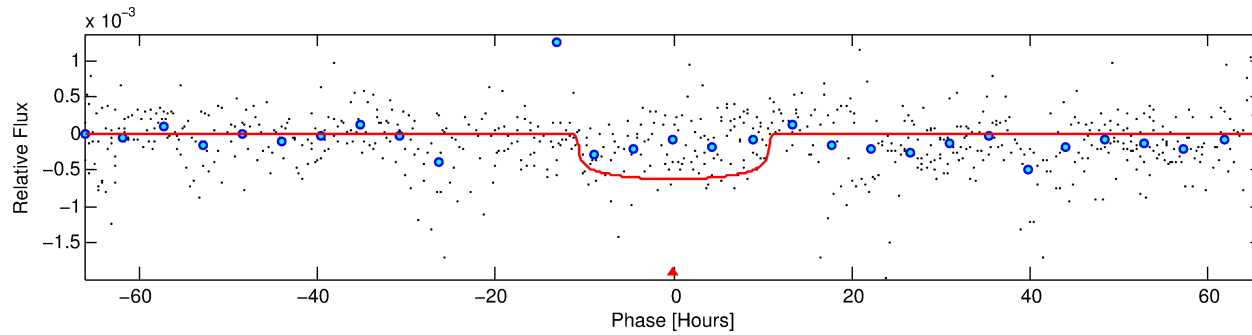
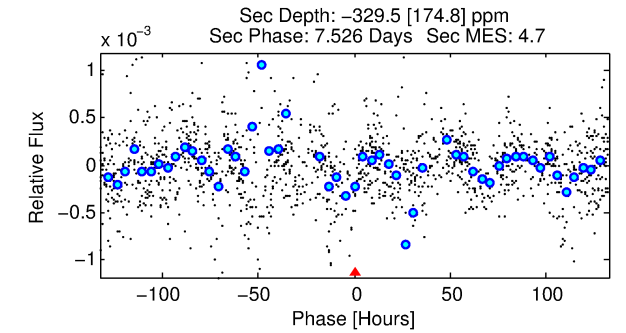
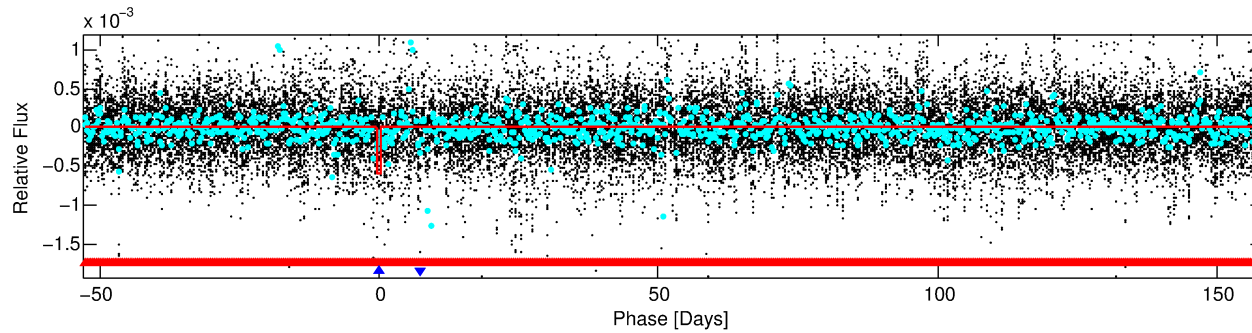
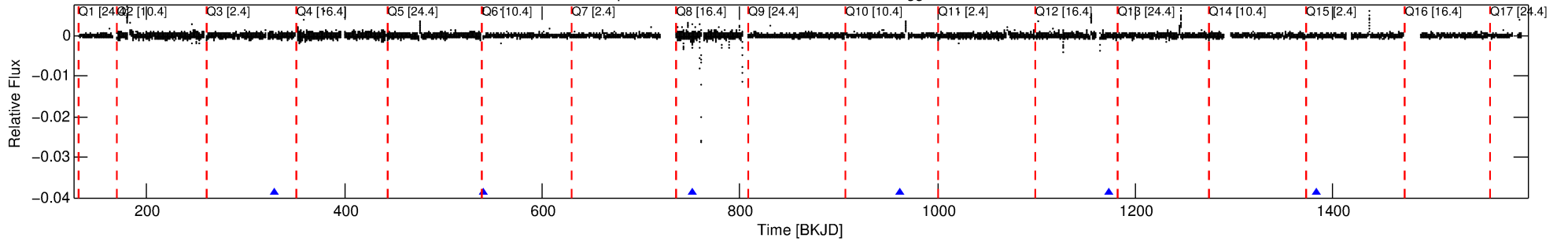
No Significant Match Found

DV One-Page Summary

KIC: 8330575 Candidate: 2 of 2 Period: 210.818 d

KOI: K07020 Corr: No Ephemeris Match

Kp: 13.48 R*: 1.47 Rs Teff: 6367.0 K Logg: 4.13 Fe/H: -0.340



DV Fit Results:

Period = 210.81846 [0.00663] d
Epoch = 329.9190 [0.0199] BKJD
Rp/R* = 0.0237 [0.0045]
a/R* = 63.39 [52.35]
b = 0.54 [1.08]
Seff = 6.32 [2.83]
Teq = 404 [45] K
Rp = 3.79 [1.26] Re
a = 0.7087 [0.1885] AU
Ag = N/A
Teffp = N/A

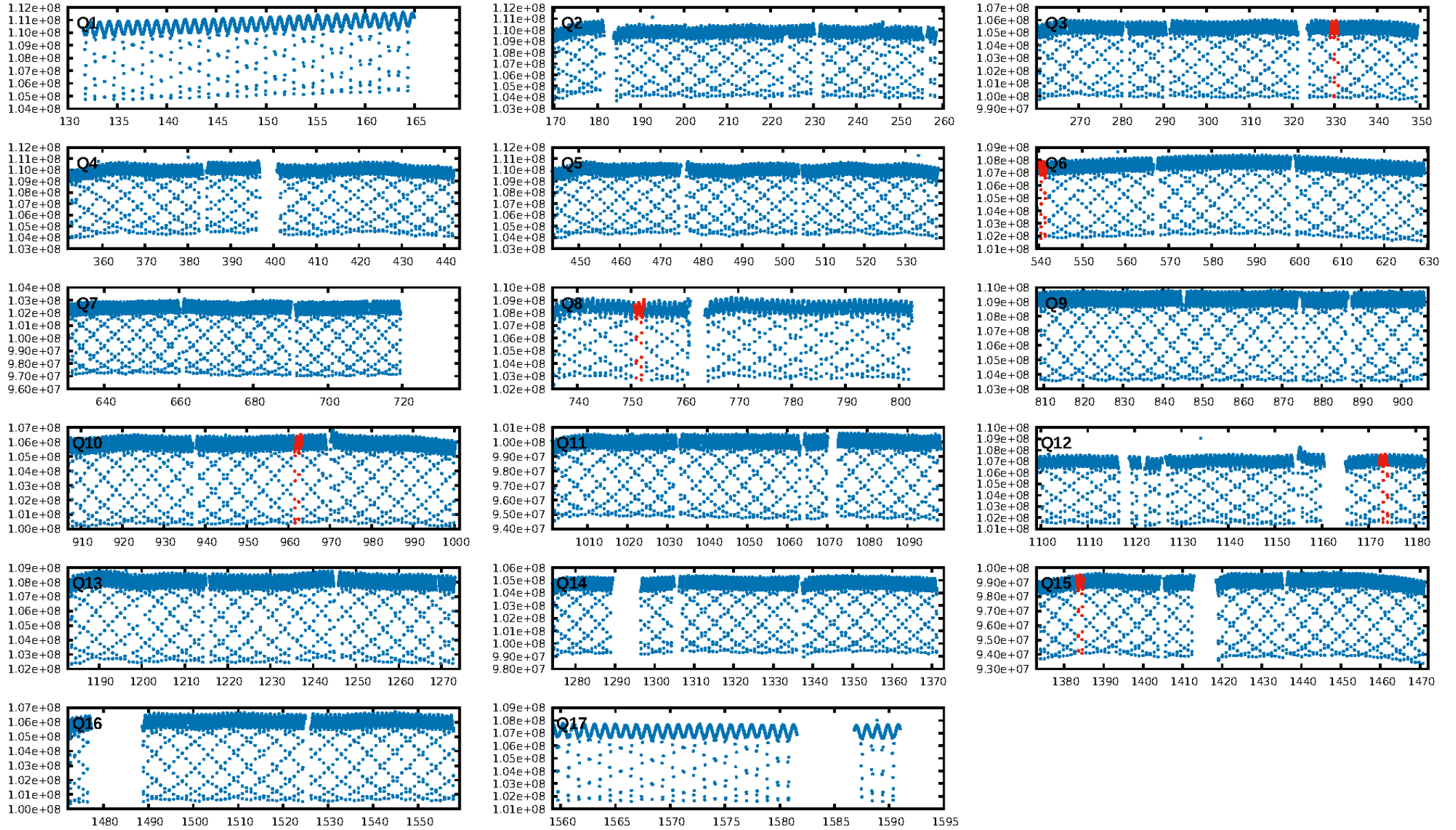
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [225.01σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.99e-15
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 1.406
Centroid-sig: N/A
Centroid-so: 5.122 arcsec [6.19σ]
OotOffset-rm: 0.525 arcsec [1.95σ]
KicOffset-rm: 0.270 arcsec [0.64σ]
OotOffset-st: 1/2/1/0 [4]
KicOffset-st: 1/2/1/0 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.00 [0/4]

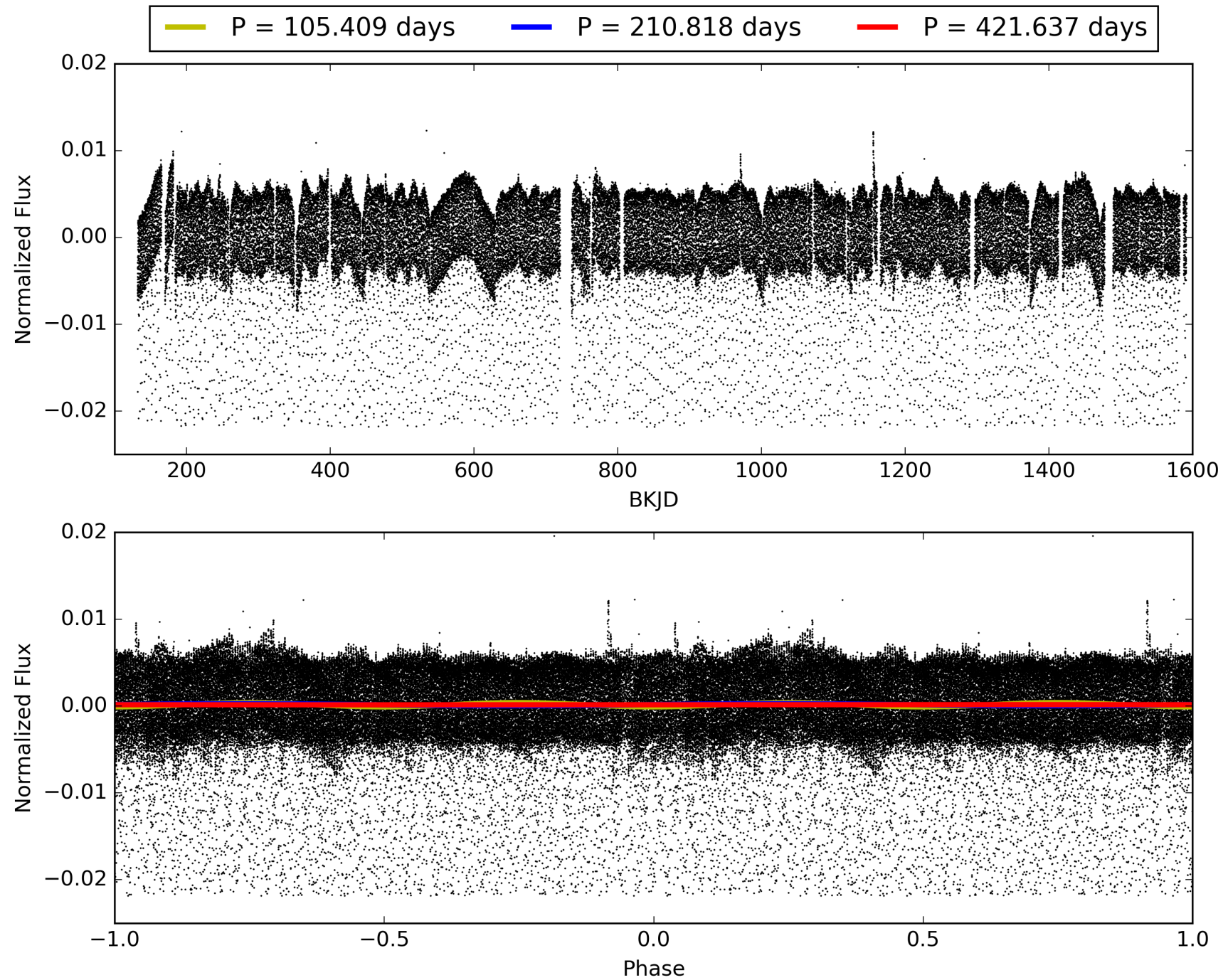
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008330575-02, PDC Light Curves

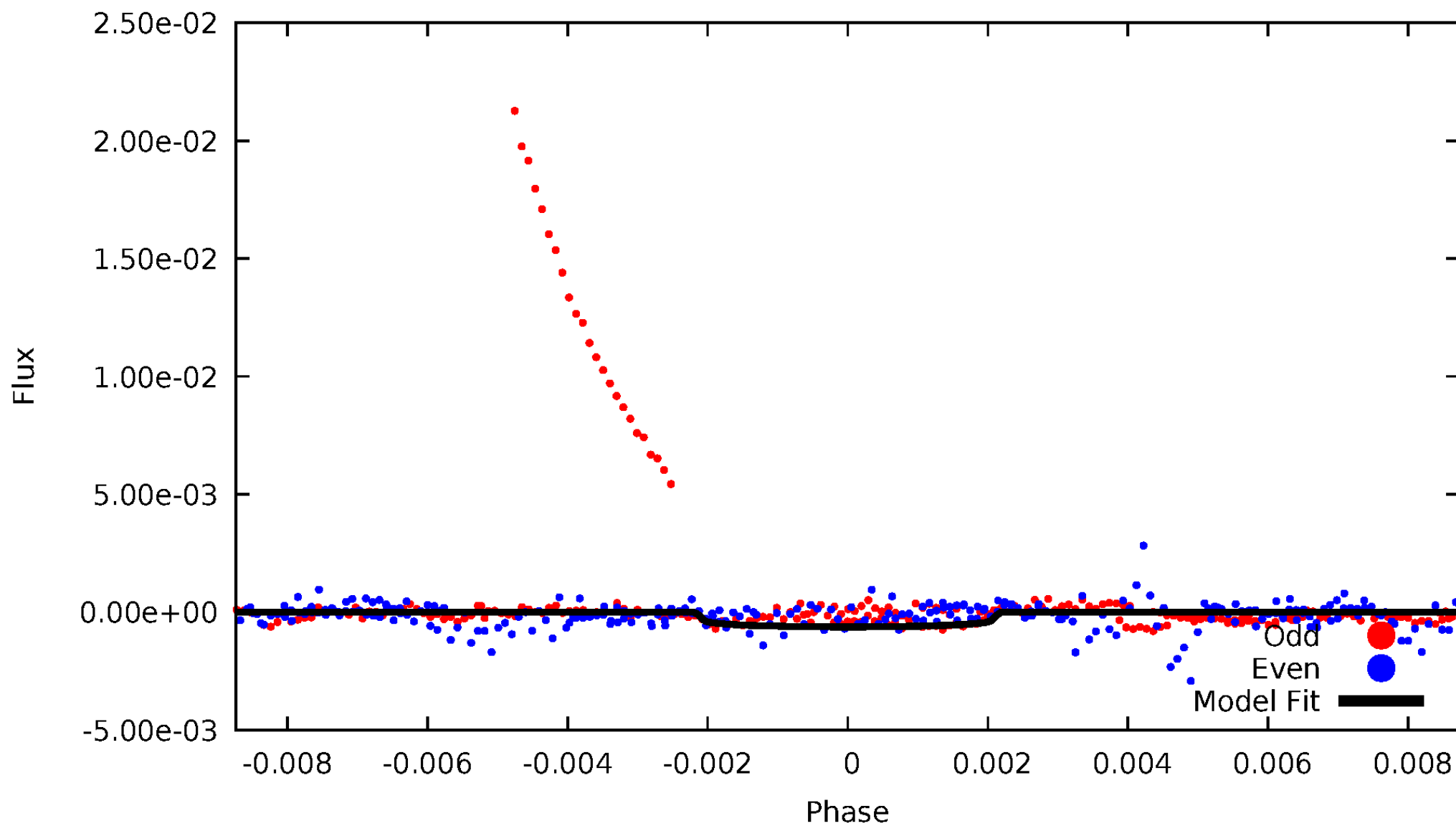


TCE 008330575-02



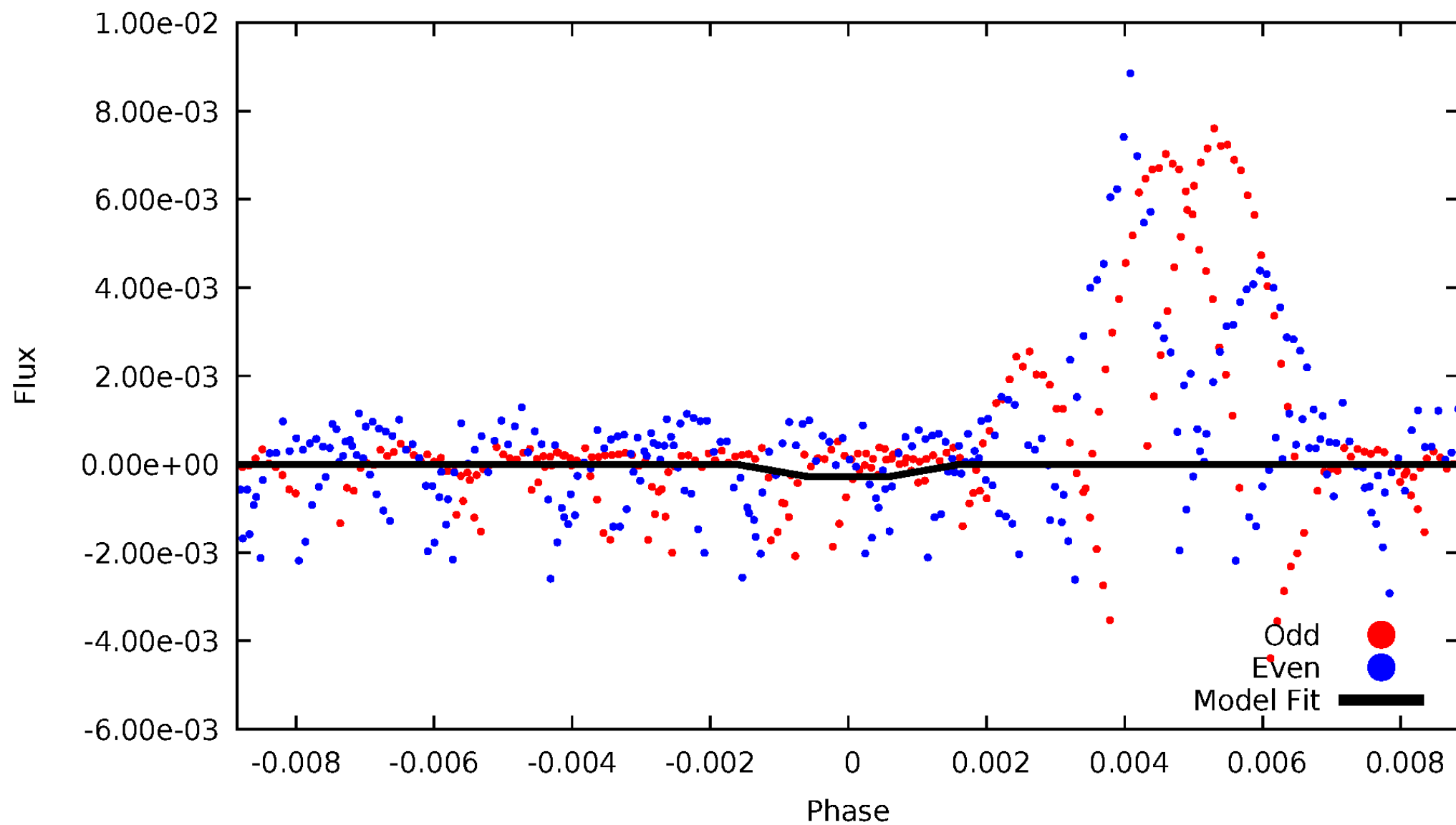
DV Odd/Even

TCE 008330575-02



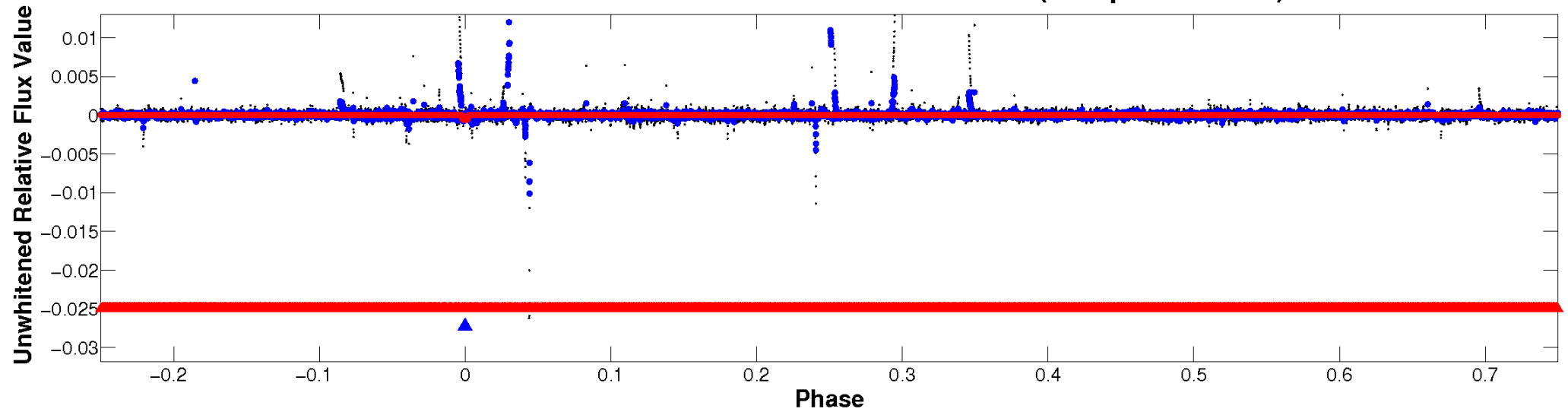
ALT Odd/Even

TCE 008330575-02

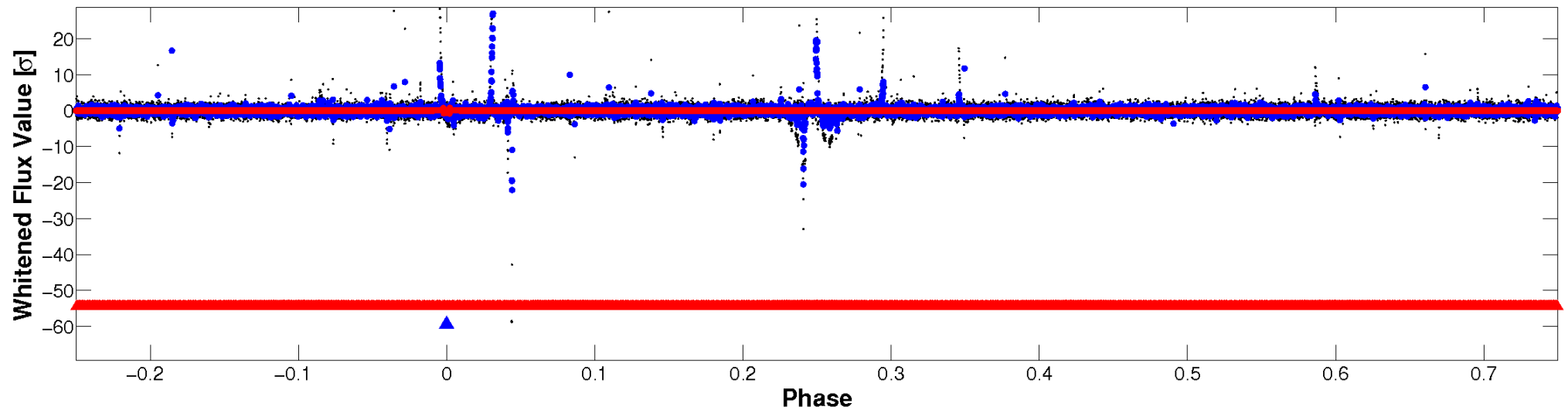


Non-Whitened Vs. Whitened Light Curve

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

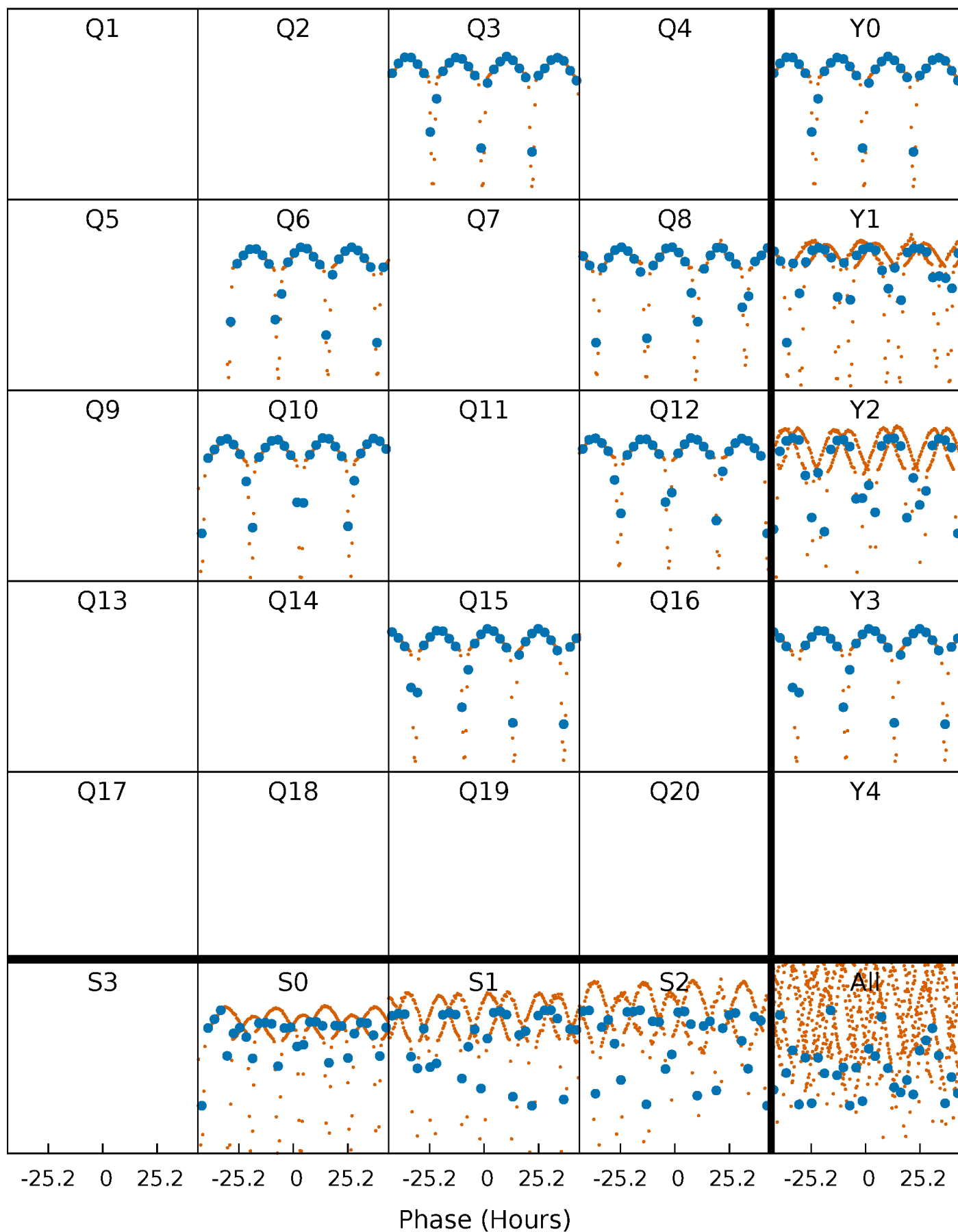


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



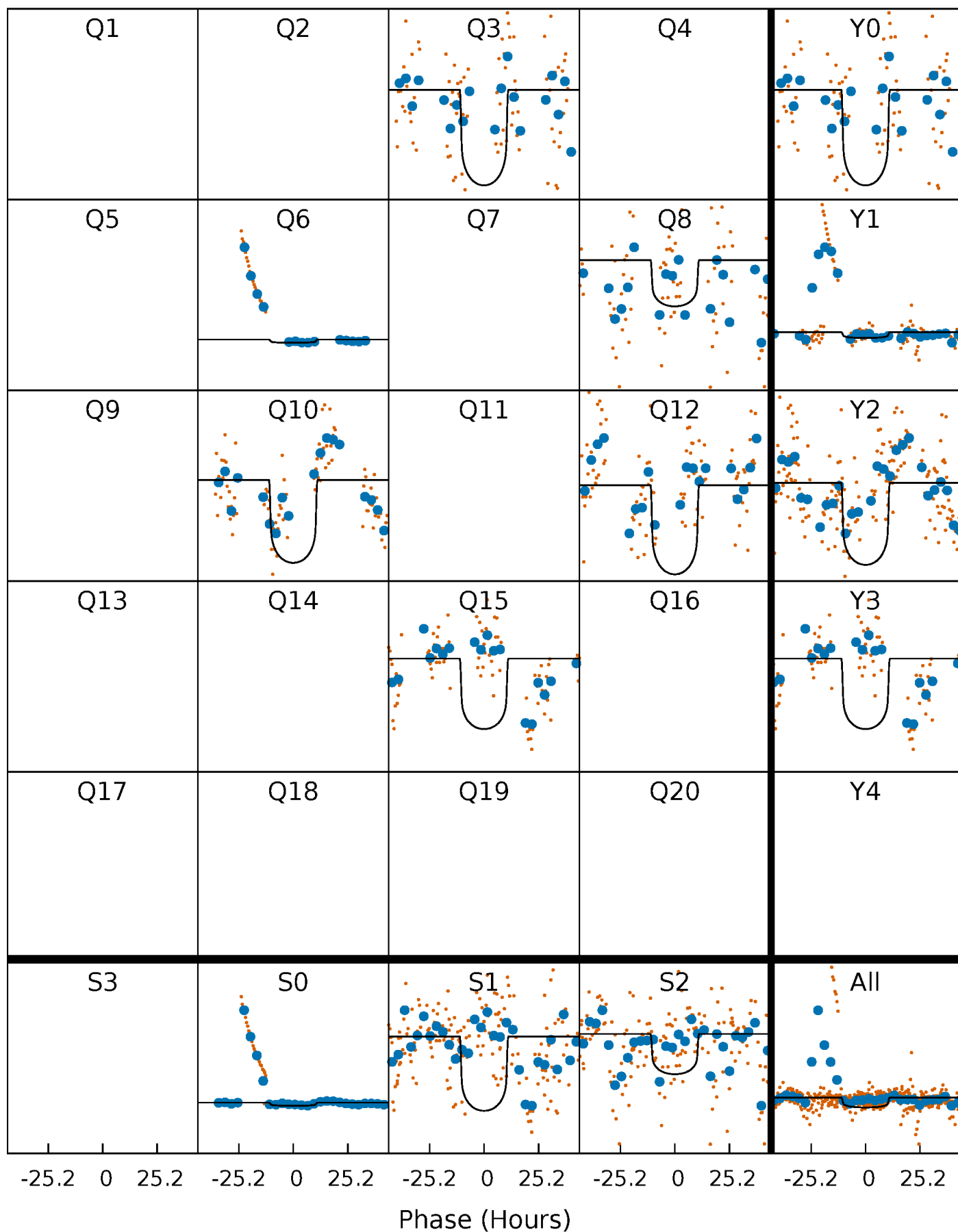
PDC Quarter-Phased Transit Curves

TCE 008330575-02 P=210.818457 Days $T_0=329.919033$ (BKJD)



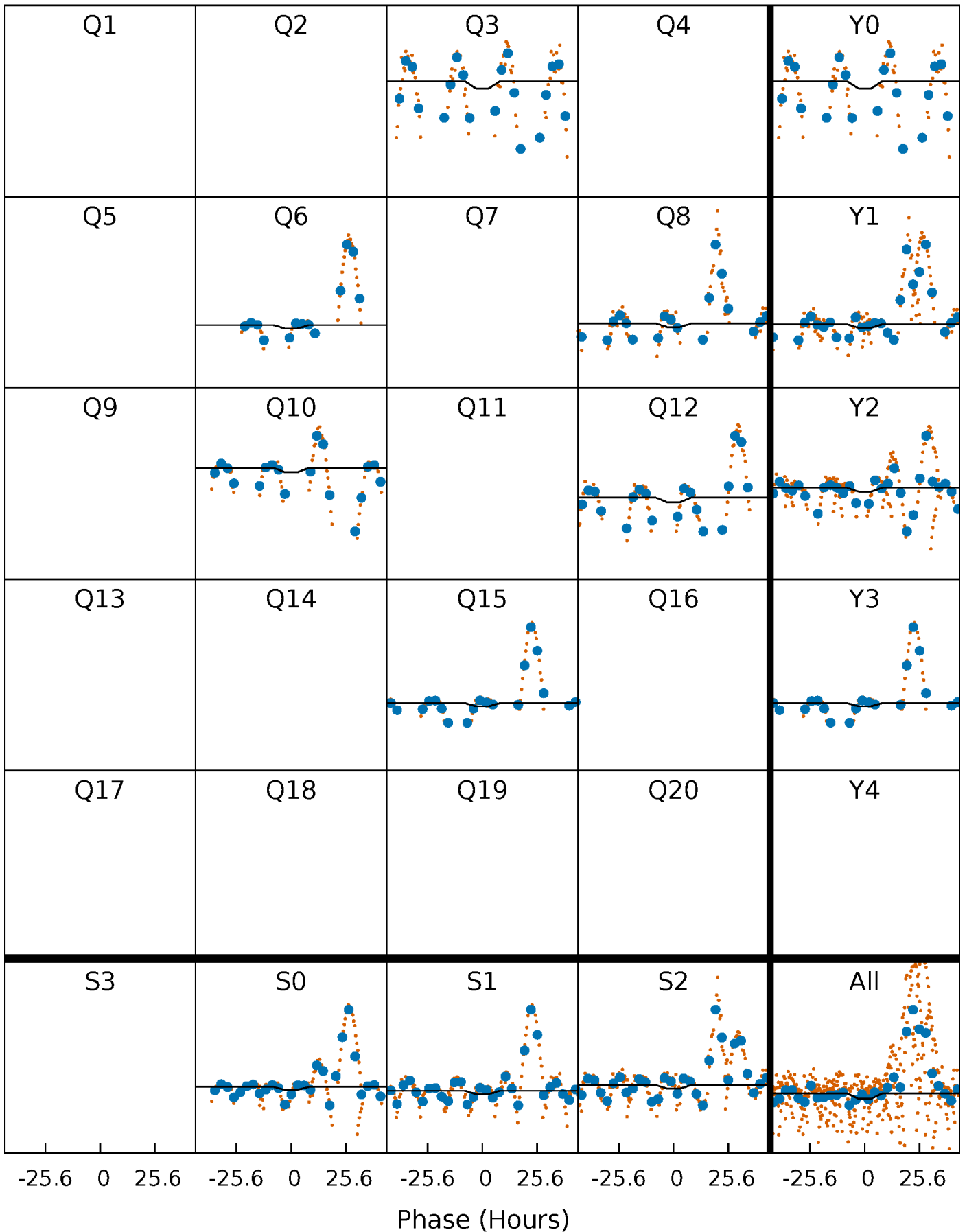
DV Quarter-Phased Transit Curves

TCE 008330575-02 P=210.818457 Days $T_0=329.919033$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

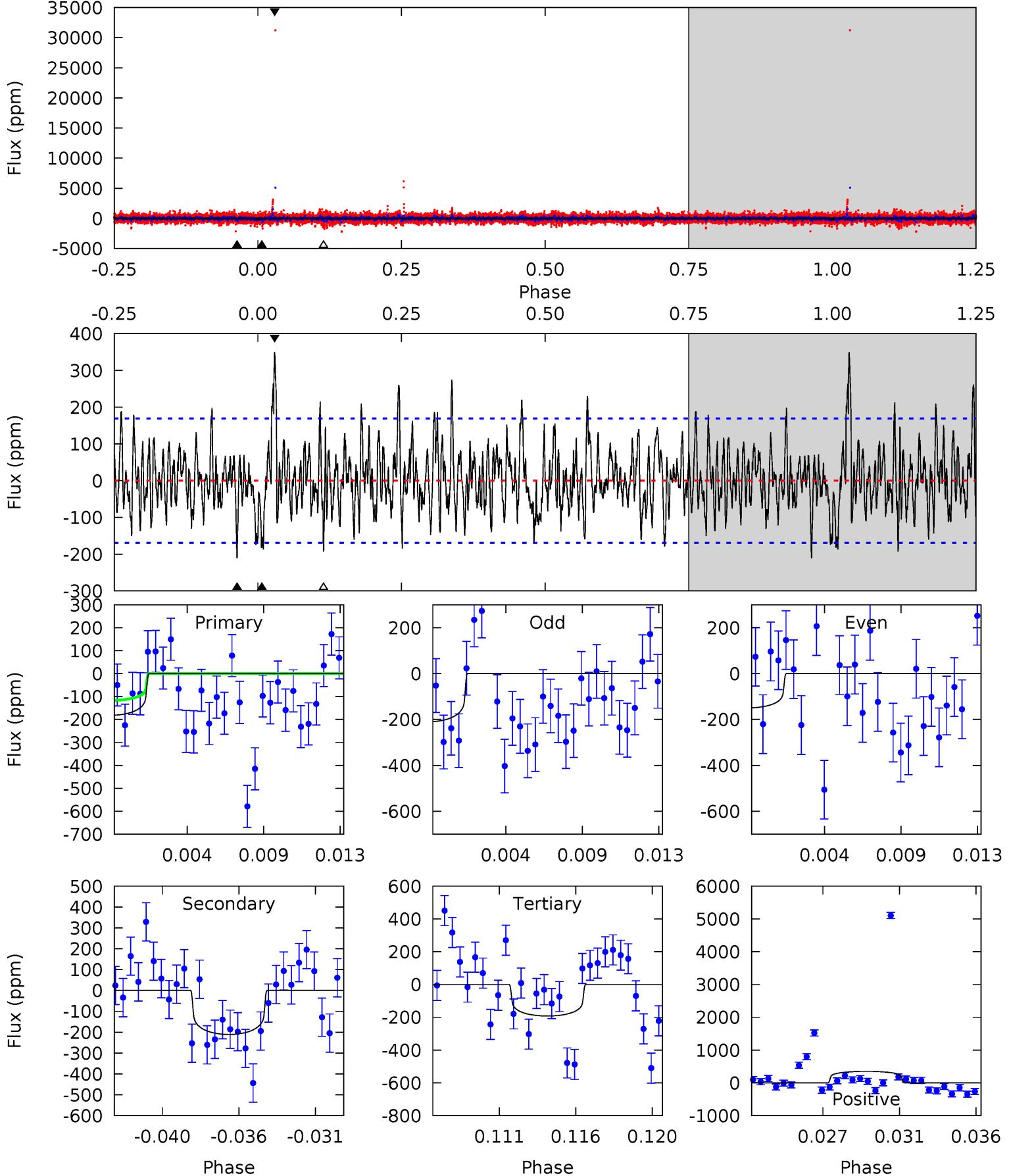
TCE 008330575-02 P=210.840283 Days $T_0=329.903572$ (BKJD)



DV Model-Shift Uniqueness Test

008330575-02, P = 210.818457 Days, E = 119.100576 Days

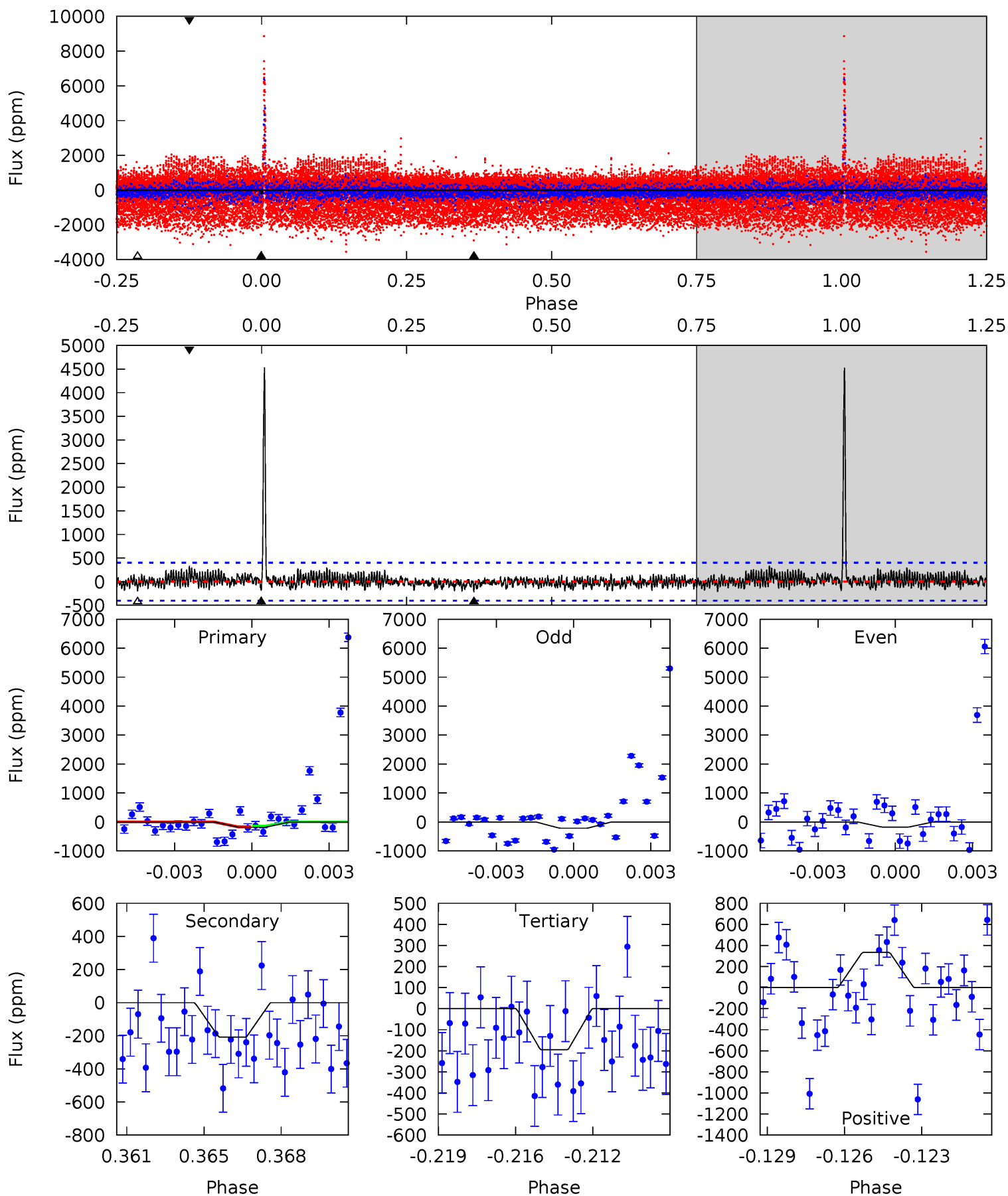
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.56	6.46	5.89	10.7	5.18	2.84	2.30	-0.33	-5.14	0.57	-4.23	0.41	0.93	0.62	2.40



Alt Model-Shift Uniqueness Test

008330575-02, P = 210.840283 Days, E = 119.063289 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.40	2.71	2.55	4.34	5.23	2.94	2.74	-0.15	-1.94	0.17	-1.63	0.26	3.17	0.96	0.19



Stellar Parameters For KIC 008330575

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6367^{+175}_{-214}	$4.133^{+0.252}_{-0.168}$	$-0.340^{+0.300}_{-0.300}$	$1.468^{+0.402}_{-0.402}$	$1.066^{+0.177}_{-0.145}$	$0.475^{+0.730}_{-0.223}$
	+3%/-3%	+6%/-4%	+88%/-88%	+27%/-27%	+17%/-14%	+154%/-47%
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 008330575-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-211 ± 33	$3.77^{+1.02}_{-0.84}$	560^{+46}_{-41}	5024^{+554}_{-393}	3980^{+3024}_{-1509}
Alt.	-209 ± 77	$2.68^{+0.92}_{-0.78}$	559^{+45}_{-44}	5766^{+1160}_{-728}	7507^{+8535}_{-3696}

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

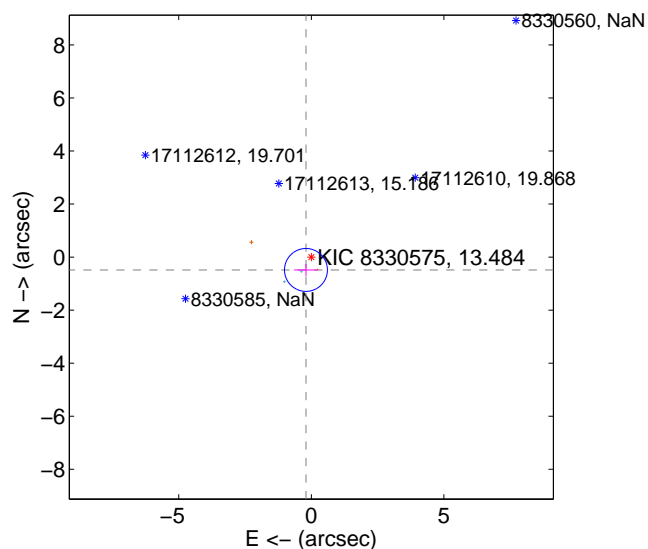
Supplemental centroid analysis for 008330575-02. Kepler magnitude: 13.48. Transit SNR 7.68

There are 2 quarters with good PRF difference image offsets

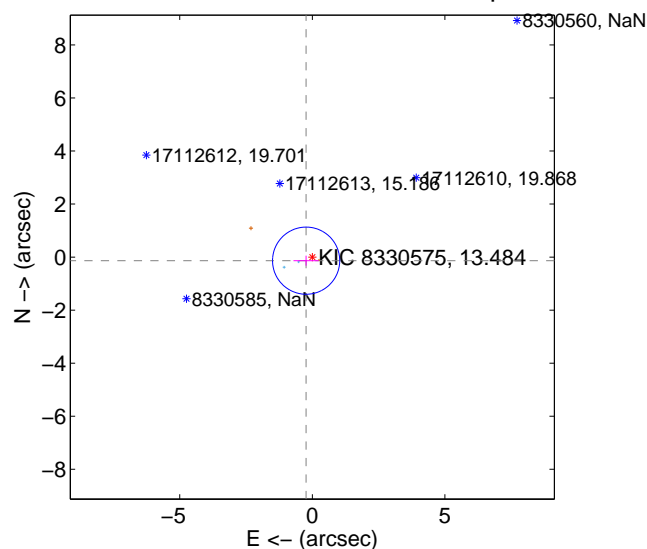
The direct PRF centroid is offset from the target star catalog position by about 0.53 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.525 ± 0.270	1.95	0.202 ± 0.448	-0.484 ± 0.224
PRF-fit source offset from KIC position	0.270 ± 0.422	0.64	0.233 ± 0.475	-0.135 ± 0.188
photometric centroid source offset	5.12 ± 0.83	6.19	5.04 ± 0.83	-0.92 ± 0.70

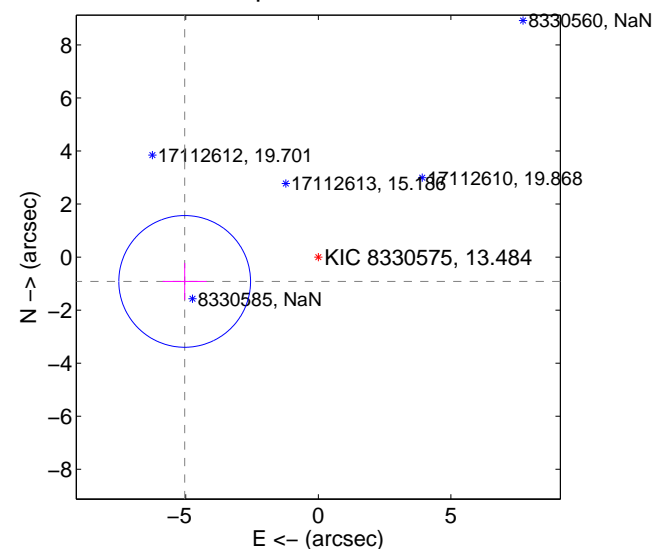
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



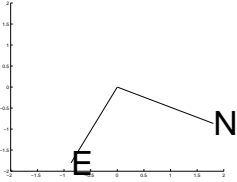
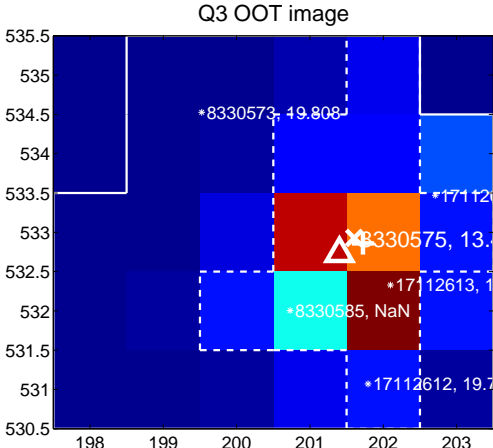
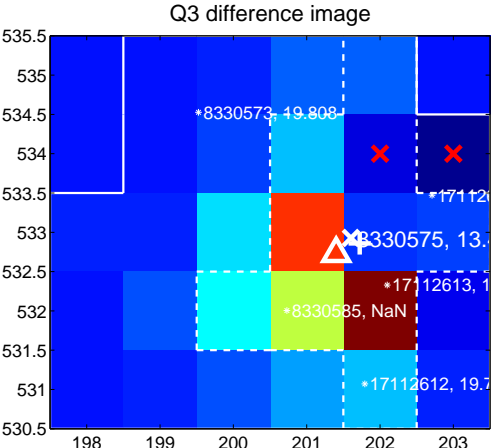
Q1 no OOT image



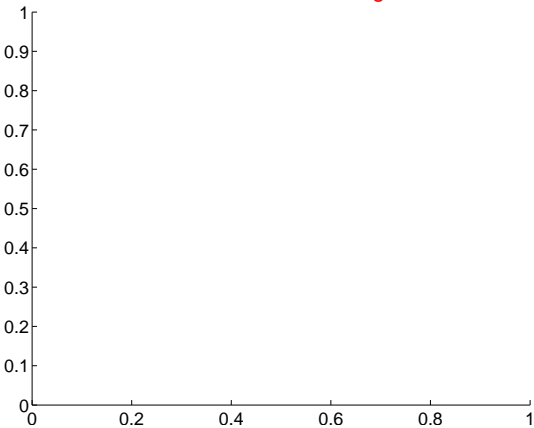
Q2 no difference image



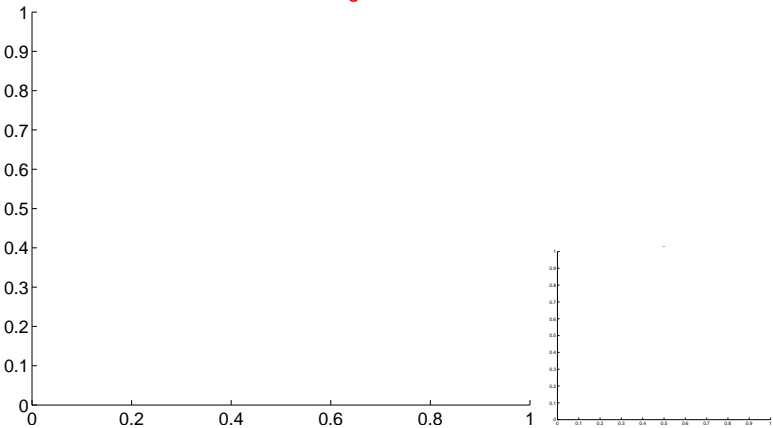
Q2 no OOT image



Q4 no difference image



Q4 no OOT image

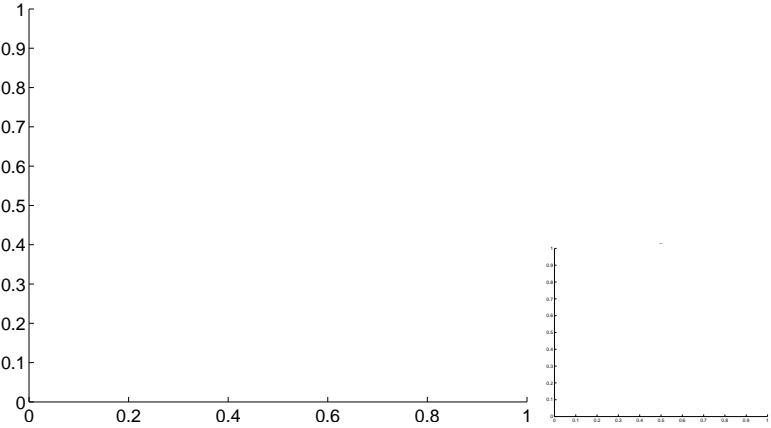


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

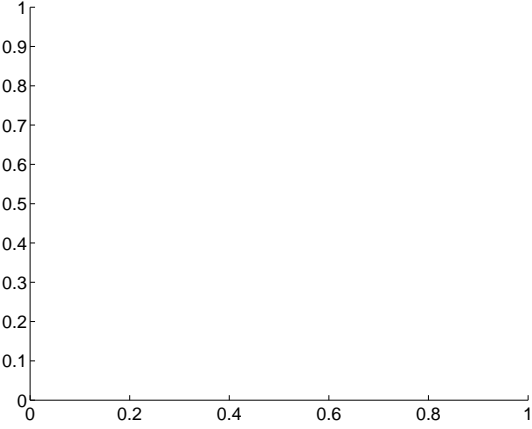
Q5 no difference image



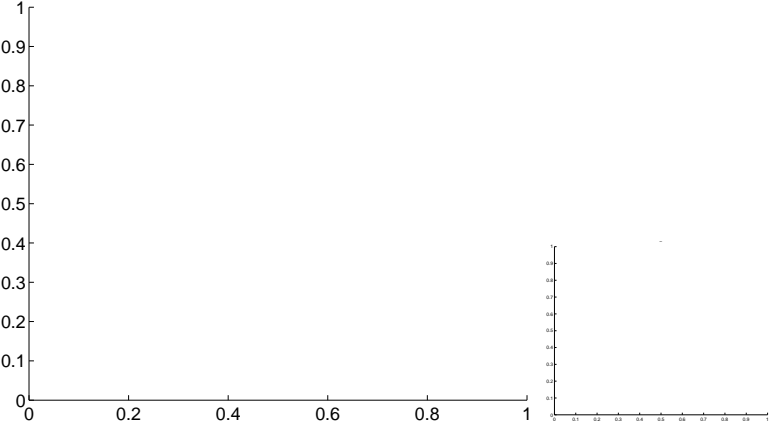
Q5 no OOT image



Q6 no difference image



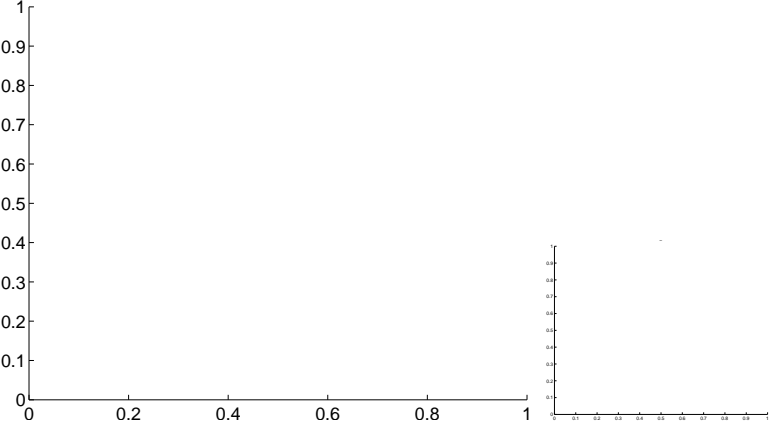
Q6 no OOT image



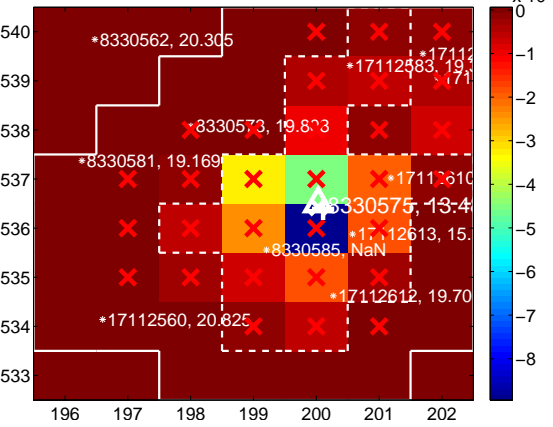
Q7 no difference image



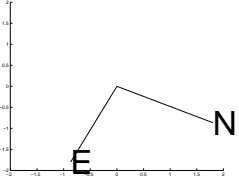
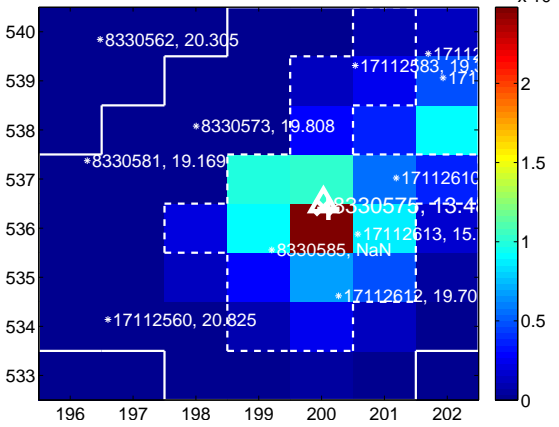
Q7 no OOT image



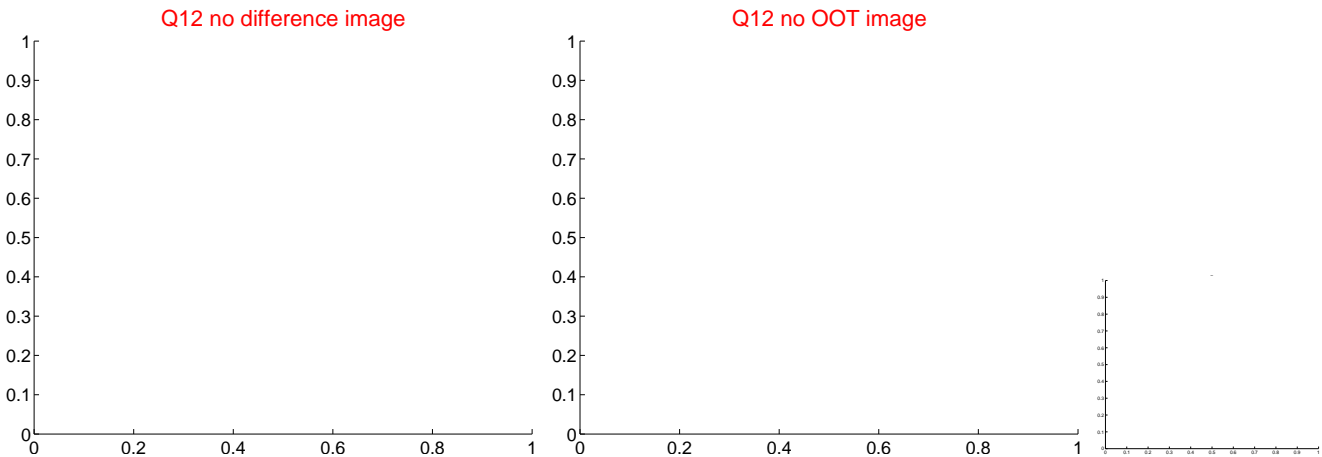
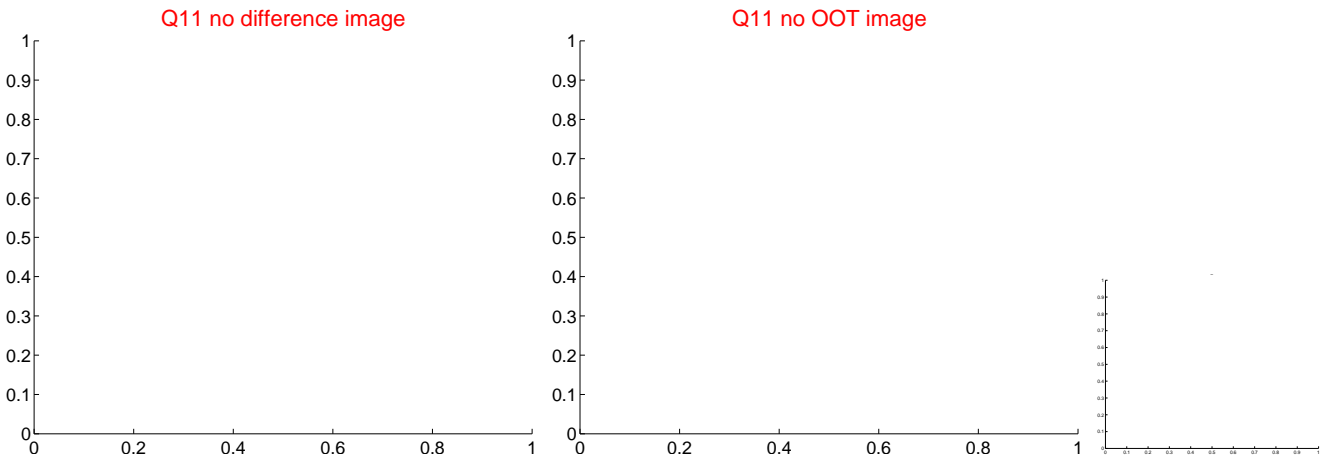
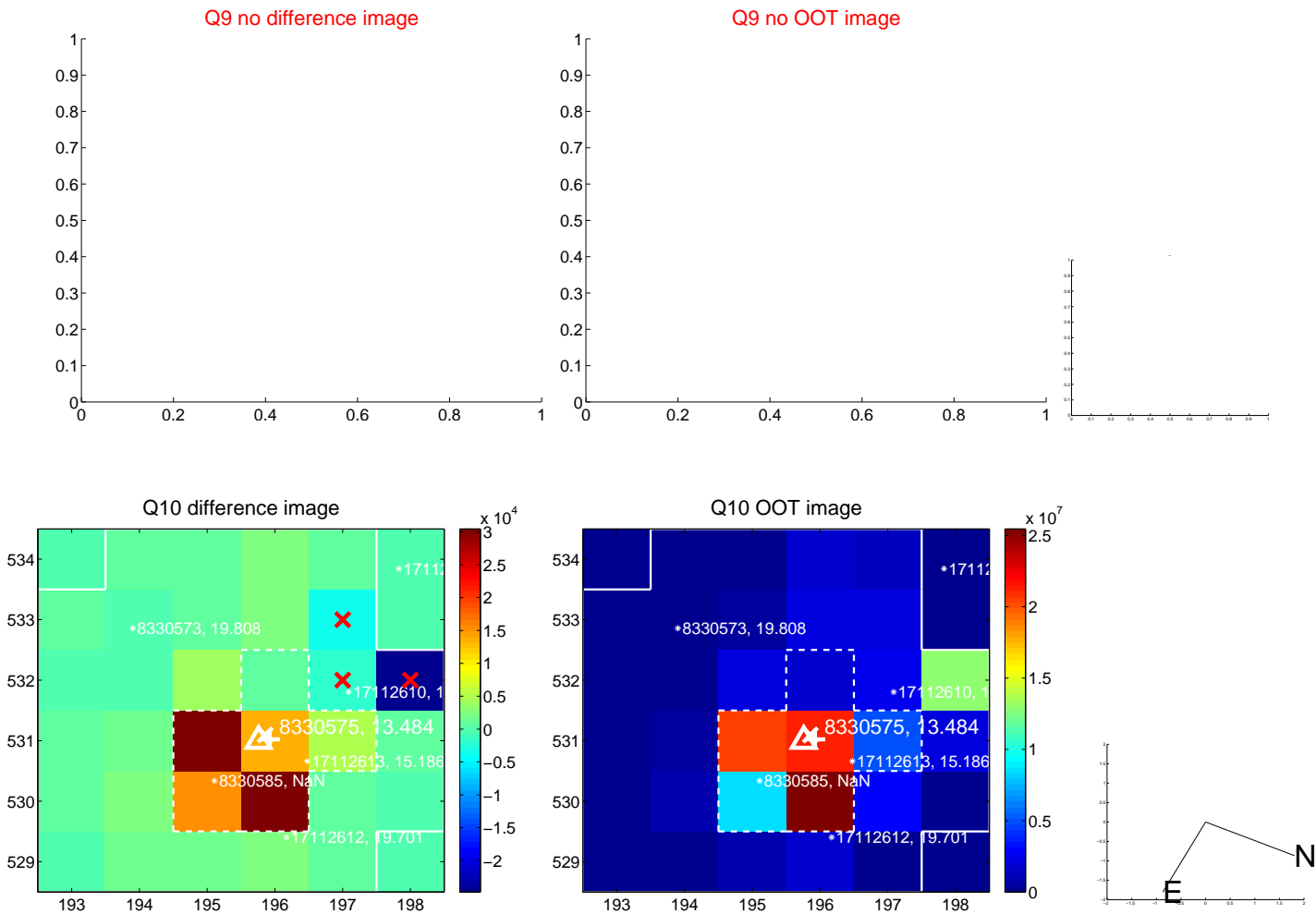
Q8 difference image. Poor Quality



Q8 OOT image



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.

Q13 no difference image



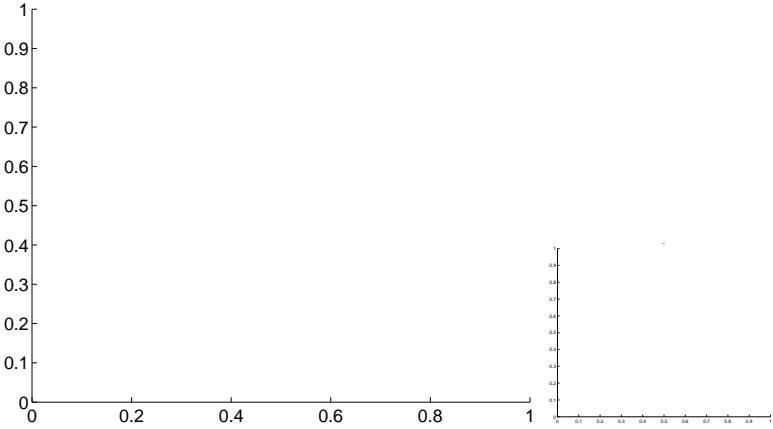
Q13 no OOT image



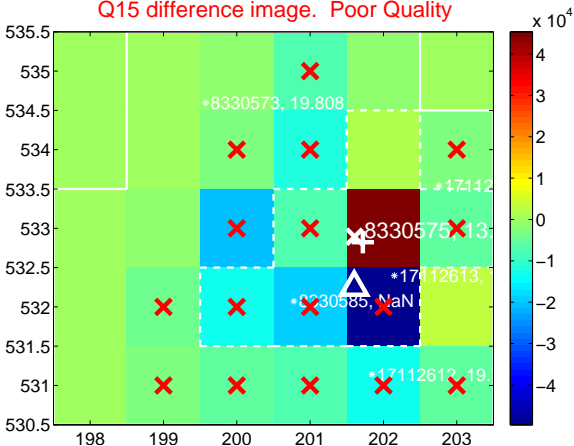
Q14 no difference image



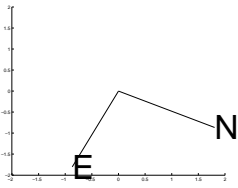
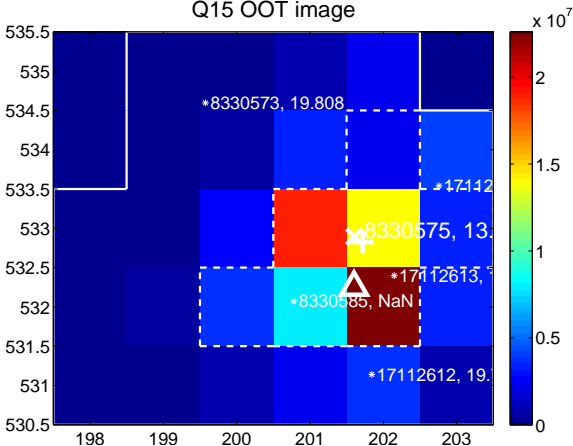
Q14 no OOT image



Q15 difference image. Poor Quality



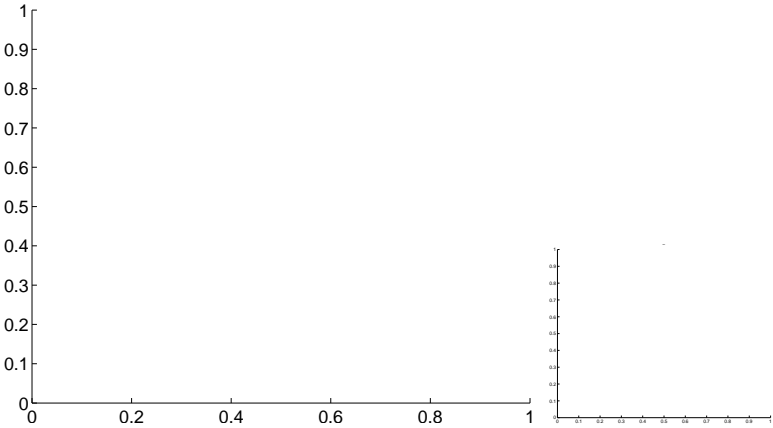
Q15 OOT image



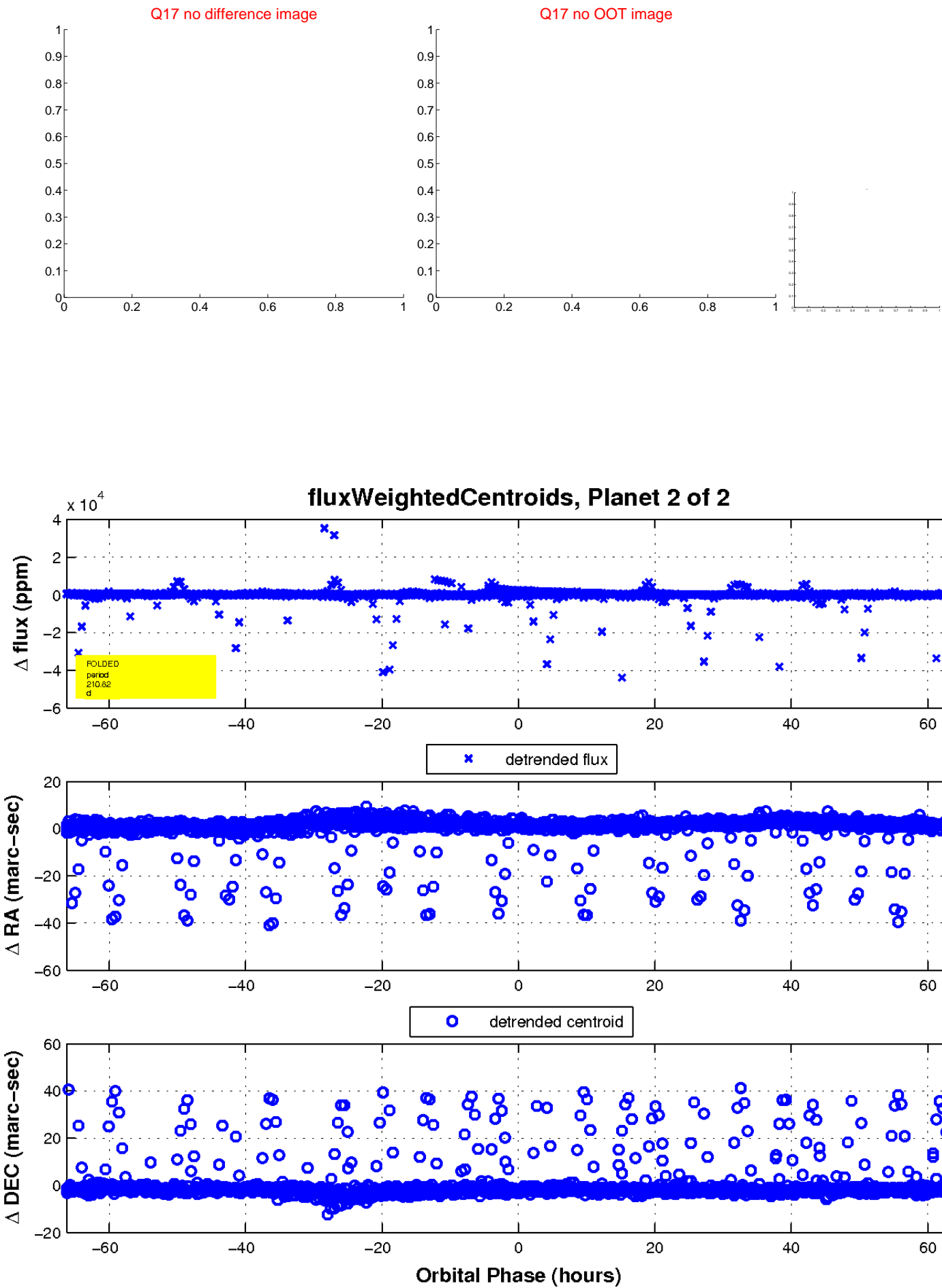
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

