

KIC 003218637

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})
003218637-01	OBS	No	0.503818	131.710926	17.7	1.105	7.9	4.4	2.88	7421	1.41	93284.45
003218637-02	OBS	No	0.685336	132.114727	26.1	2.530	10.6	1.3	2.88	7421	1.61	61892.34
003218637-03	OBS	No	205.469610	315.290510	3779.0	3.458	9.1	10.1	2.88	7421	31.83	30.84
003218637-04	OBS	No	78.930239	209.673660	2700.2	7.580	8.6	8.3	2.88	7421	27.04	110.45
003218637-05	OBS	No	61.713157	179.127833	3112.2	4.832	8.3	9.1	2.88	7421	28.93	153.34
003218637-06	OBS	No	245.863405	301.283227	64.4	6.000	8.9	-1.0	2.88	7421	2.35	24.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003218637-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003218637-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
003218637-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—CENT_SATURATED
003218637-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

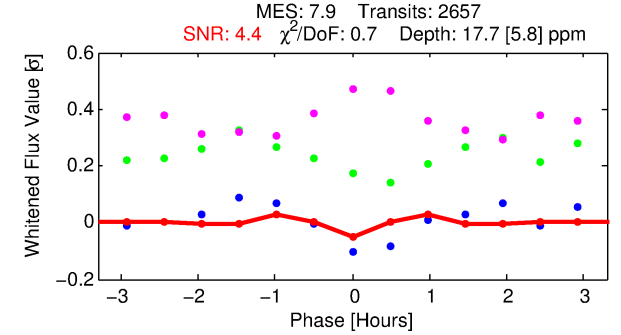
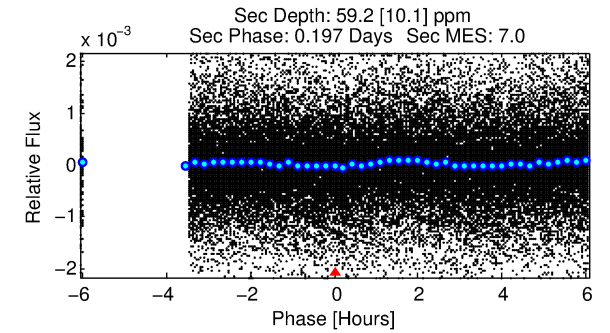
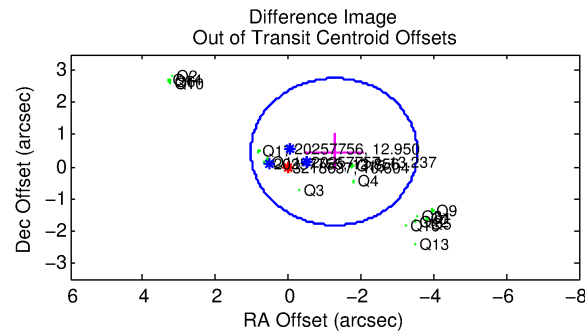
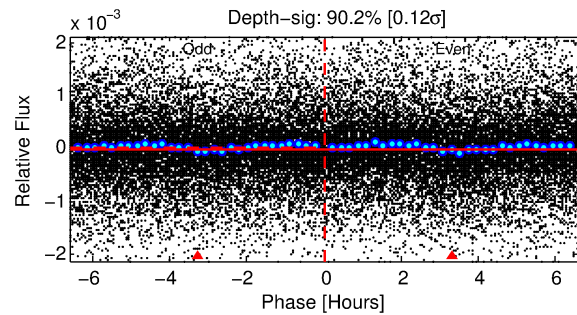
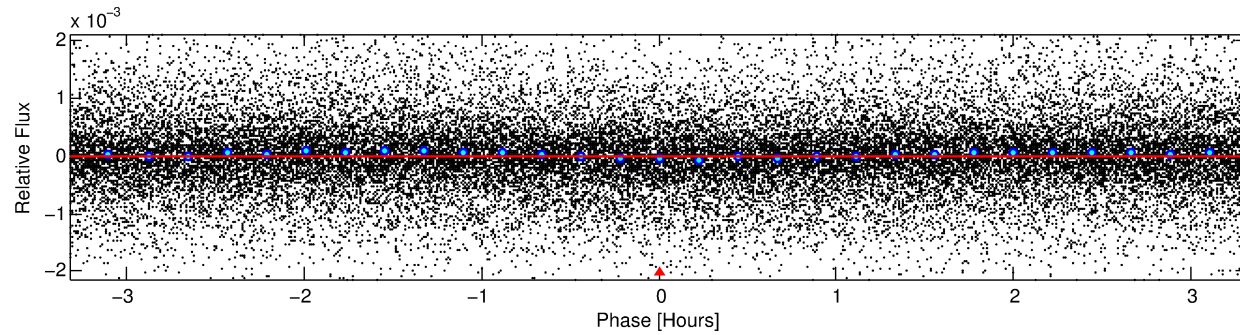
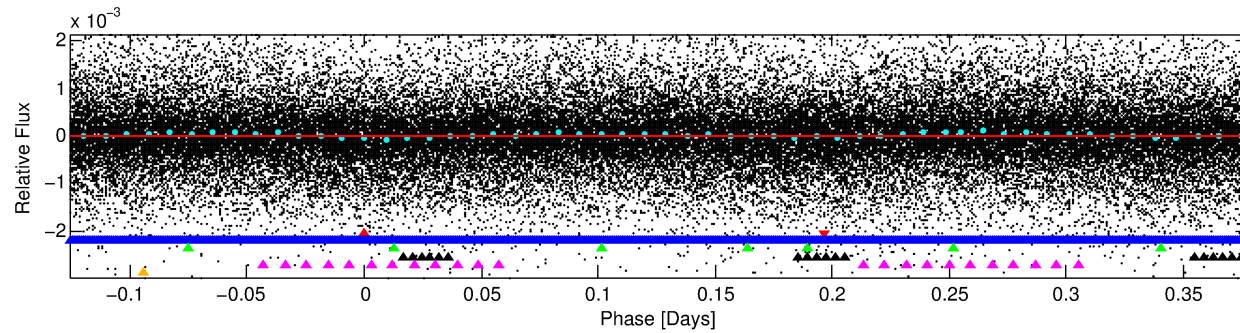
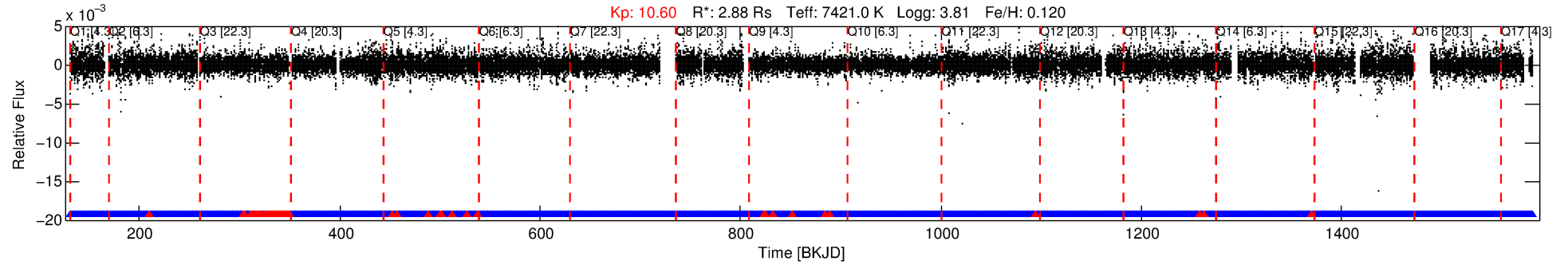
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003218637-01

No Significant Match Found

DV One-Page Summary

KIC: 3218637 Candidate: 1 of 6 Period: 0.504 d



DV Fit Results:

Period = 0.50382 [0.00003] d
Epoch = 131.7109 [0.0020] BKJD
Rp/R* = 0.0045 [0.0010]
a/R* = 1.84 [1.40]
b = 0.90 [0.24]
Seff = 93284.45 [55948.37]
Teq = 4456 [668] K
Rp = 1.41 [0.65] Re
a = 0.0156 [0.0057] AU
Ag = 3.98 [3.01] [0.99σ]
Teffp = 9732 [1277] K [3.66σ]

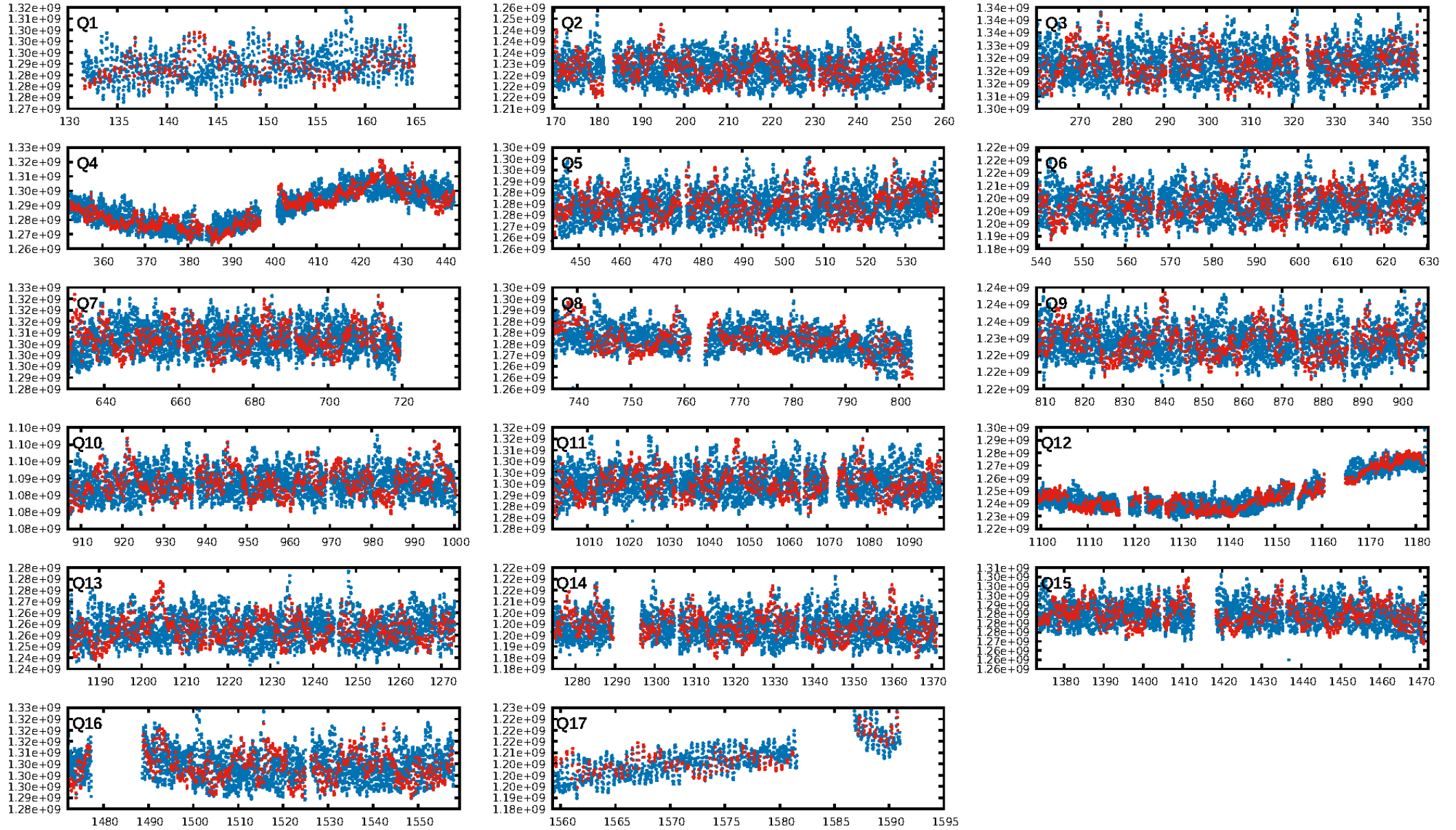
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 88.5% [1.58σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [2471/2538]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 2.279 arcsec [1.87σ]
OotOffset-rm: 1.343 arcsec [1.76σ]
KicOffset-rm: 1.311 arcsec [1.92σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.44 [7/16]
DiffImageOverlap-fno: 1.00 [17/17]

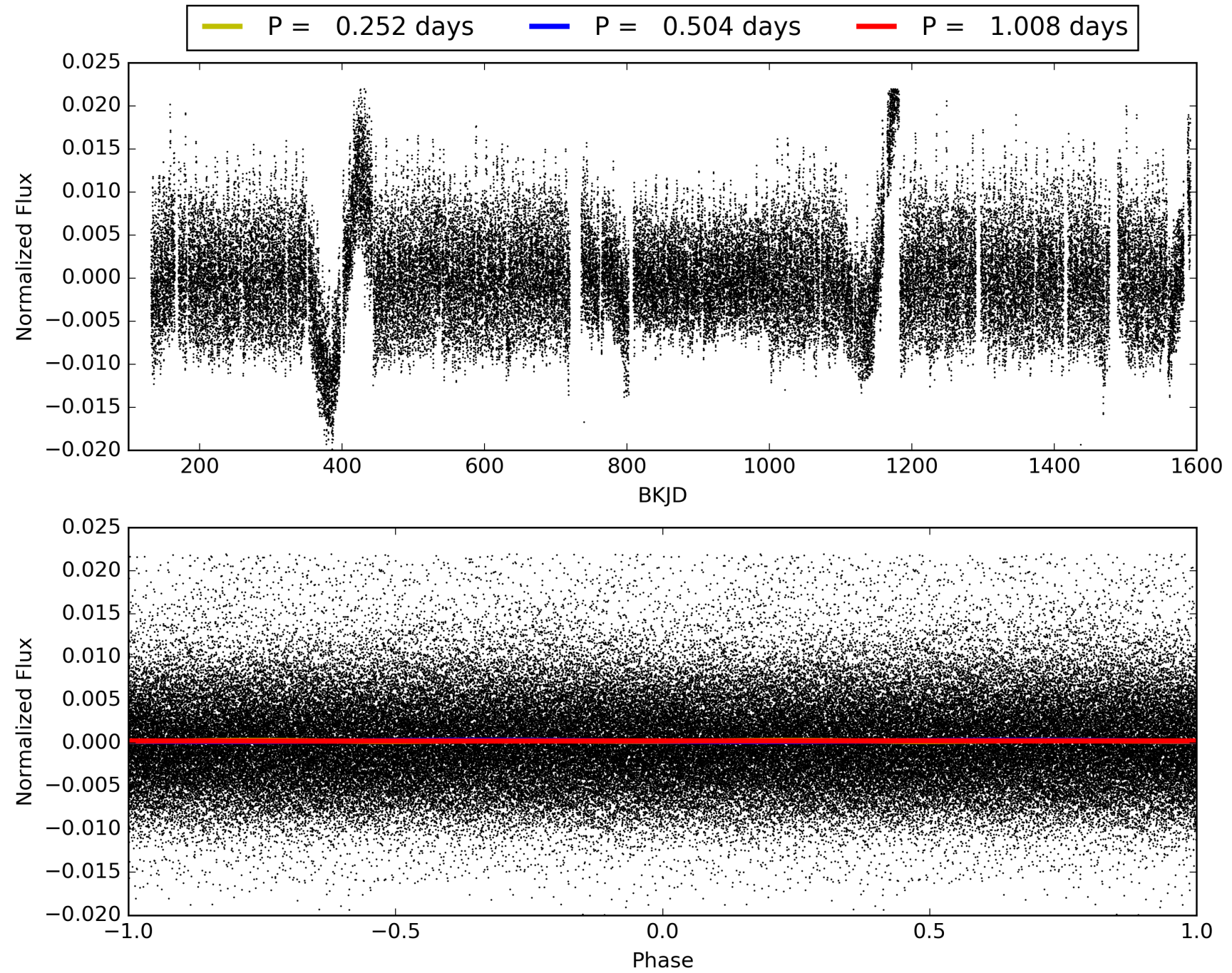
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 003218637-01, PDC Light Curves

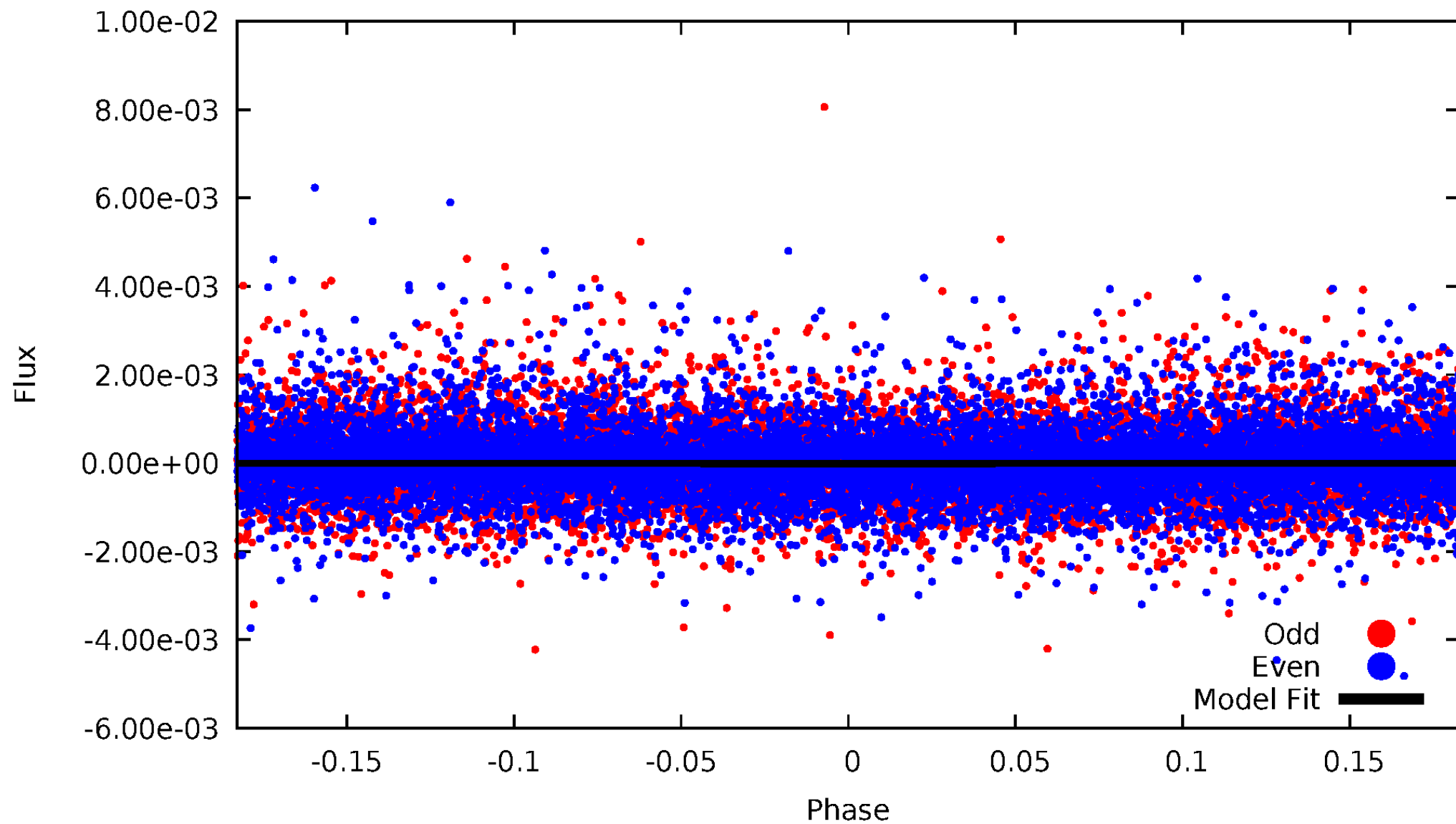


TCE 003218637-01



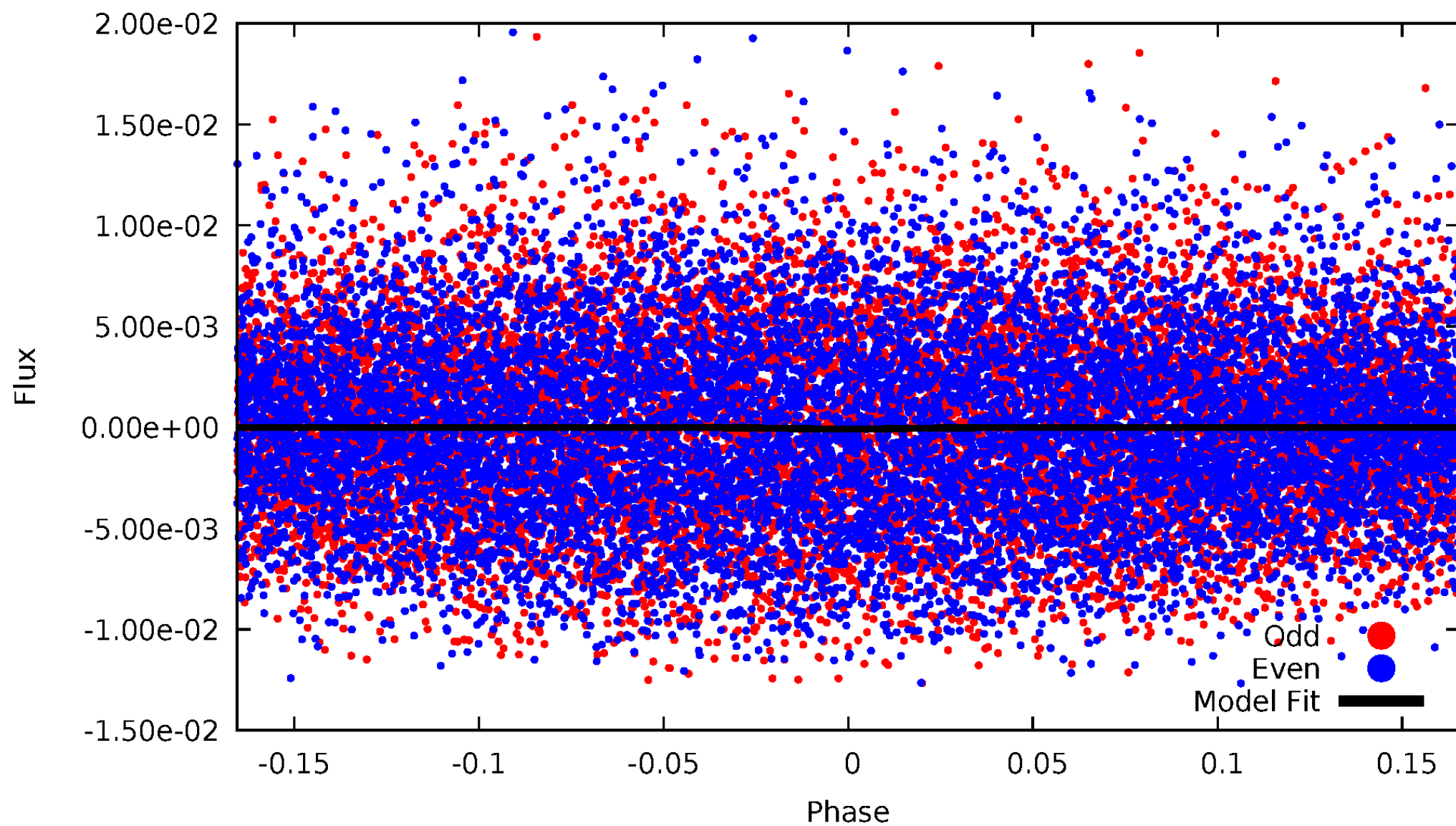
DV Odd/Even

TCE 003218637-01



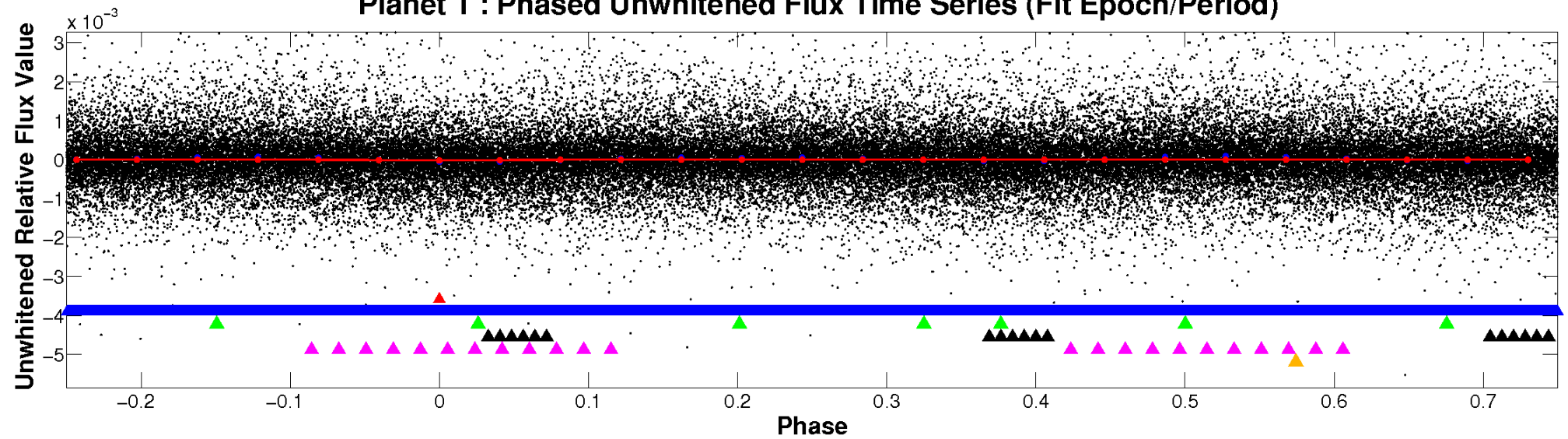
ALT Odd/Even

TCE 003218637-01



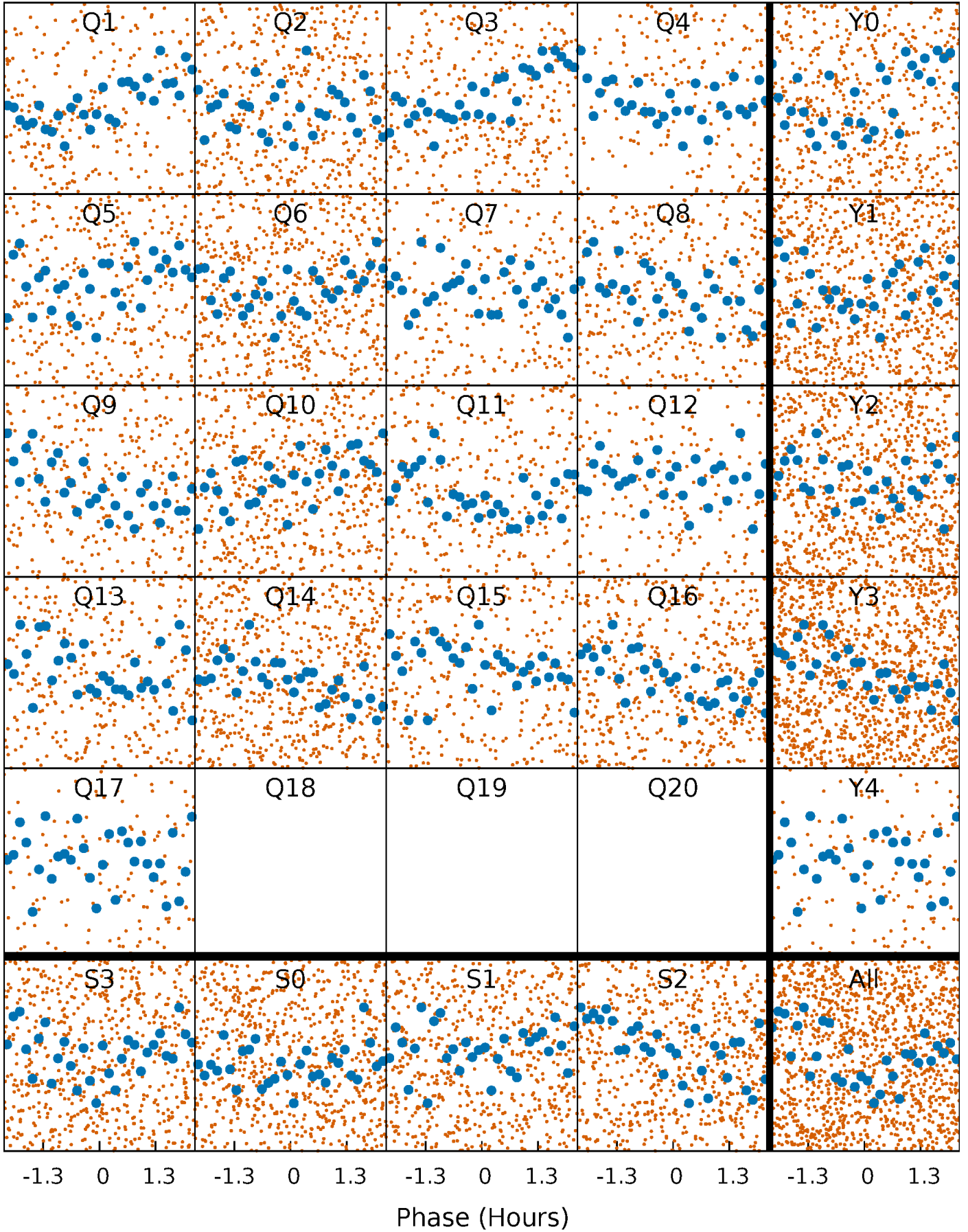
Non-Whitened Vs. Whitened Light Curve

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



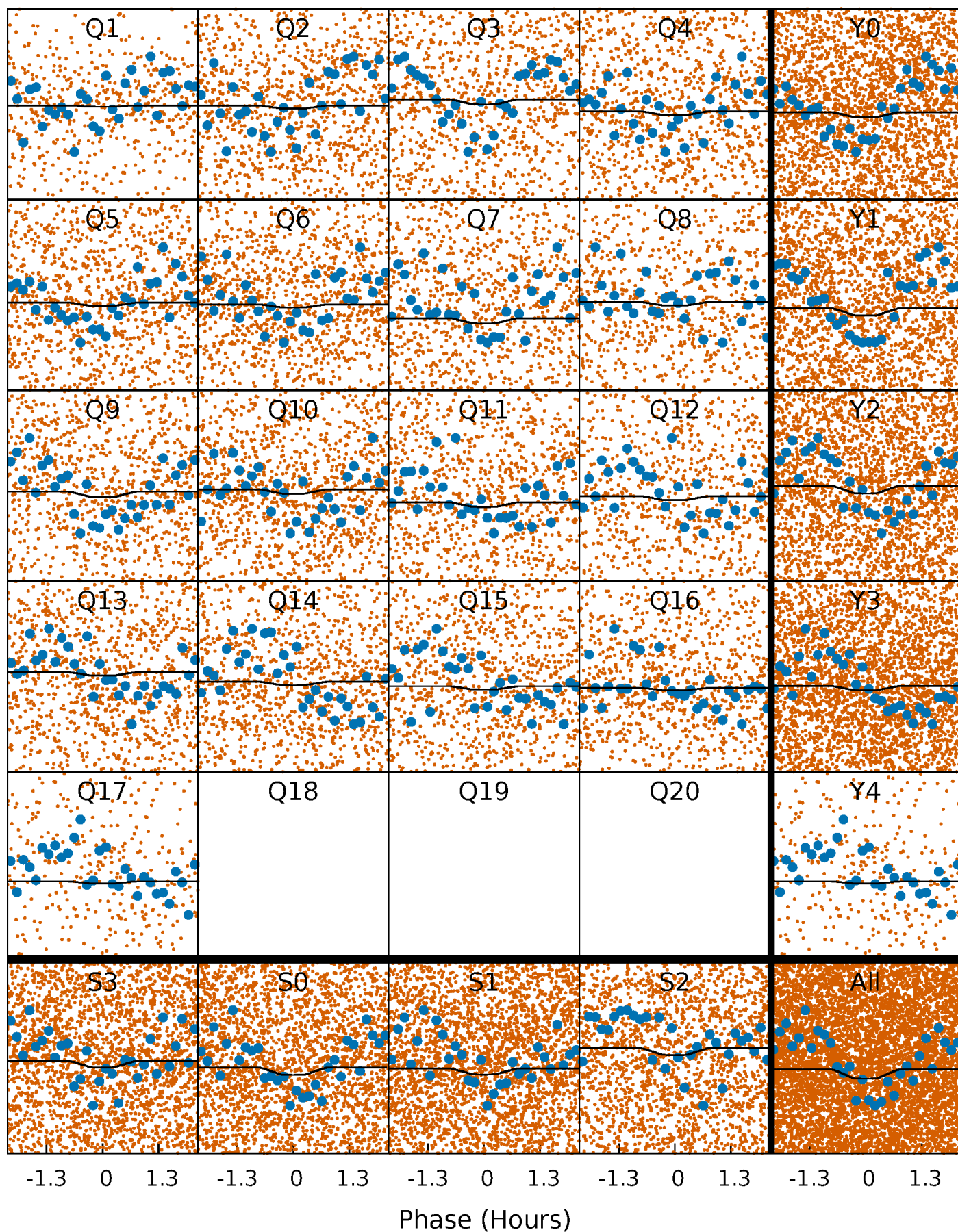
PDC Quarter-Phased Transit Curves

TCE 003218637-01 P= 0.503818 Days $T_0=131.710926$ (BKJD)



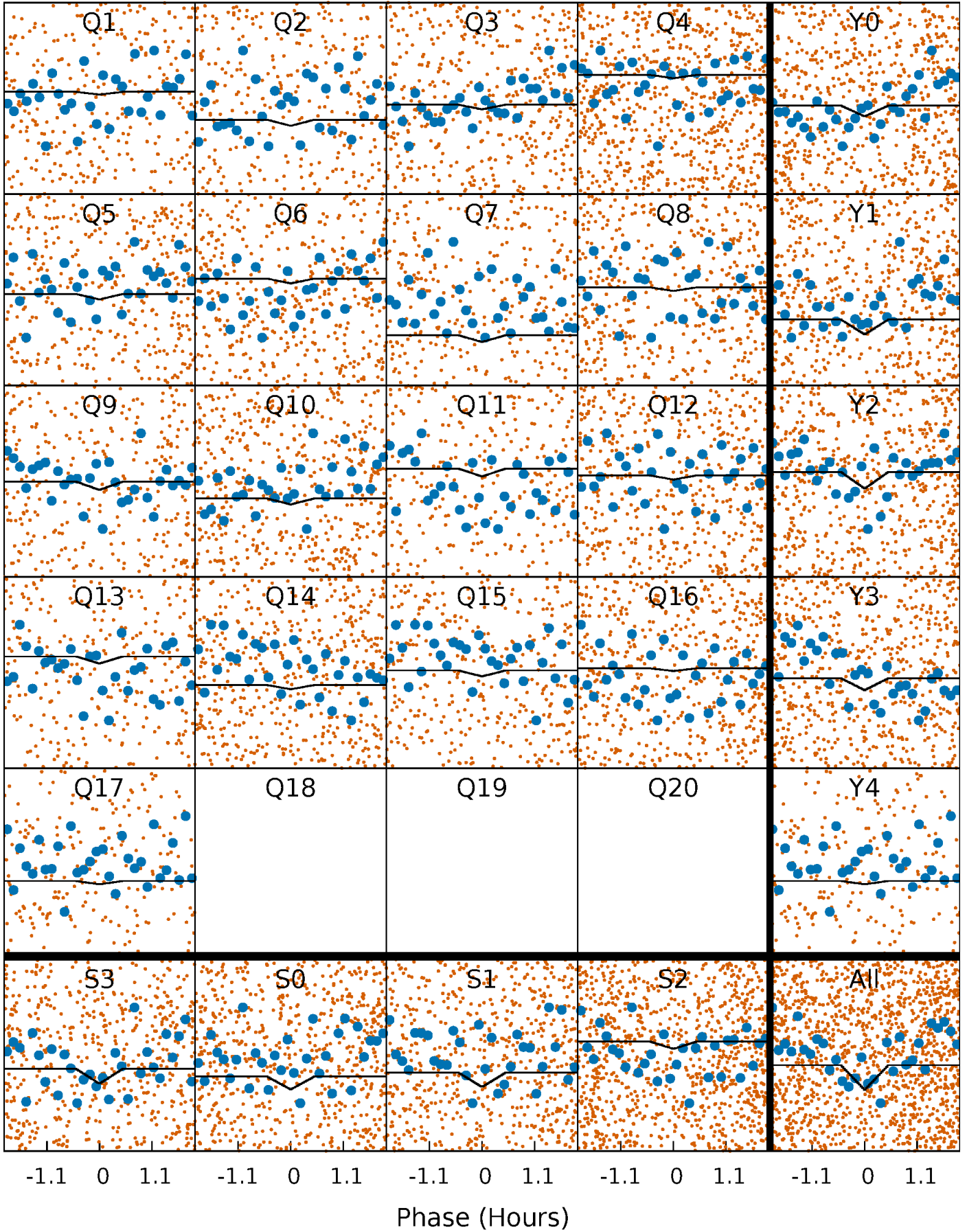
DV Quarter-Phased Transit Curves

TCE 003218637-01 P= 0.503818 Days $T_0=131.710926$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

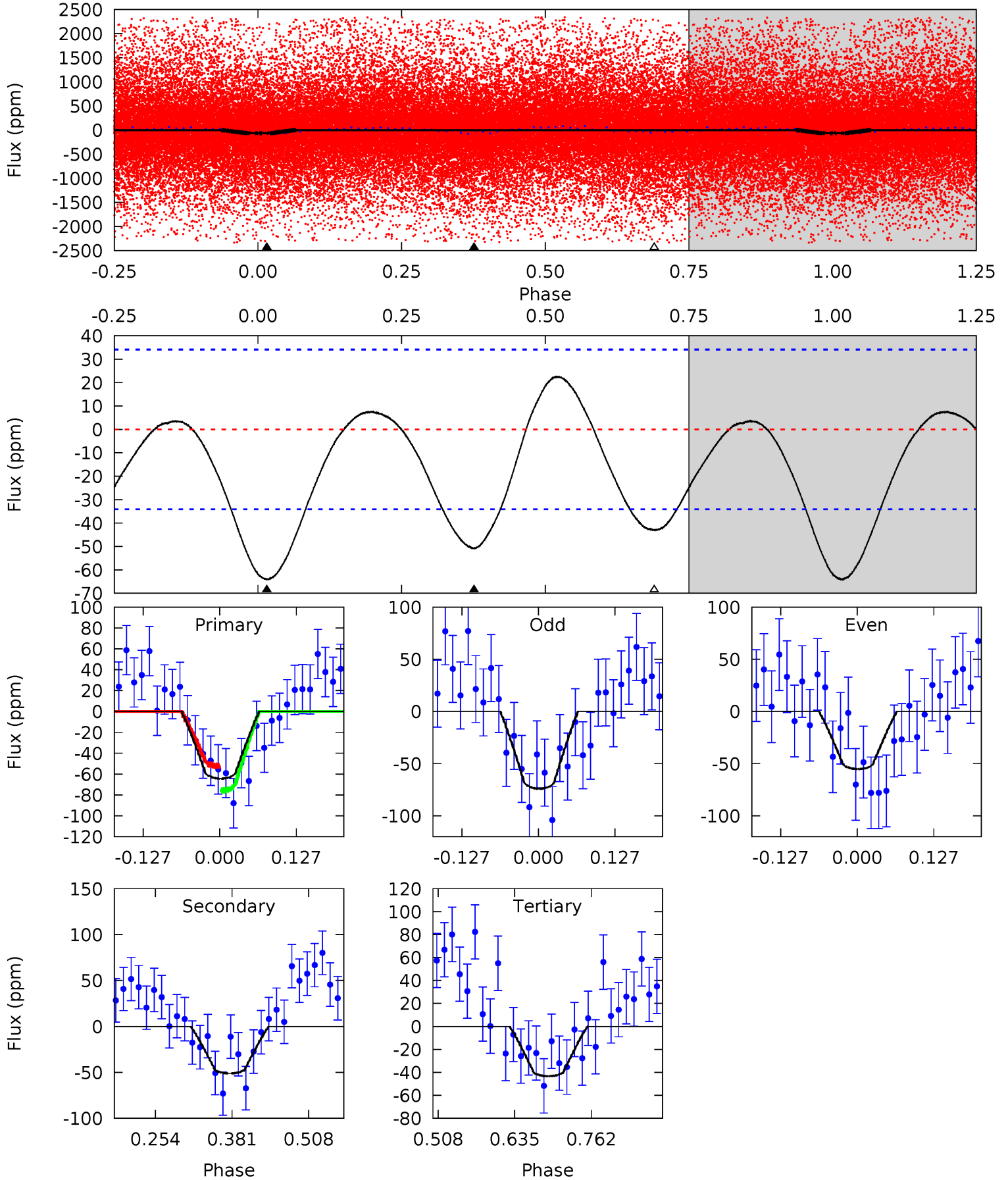
TCE 003218637-01 P= 0.503829 Days $T_0=131.703960$ (BKJD)



DV Model-Shift Uniqueness Test

003218637-01, P = 0.503818 Days, E = 131.207108 Days

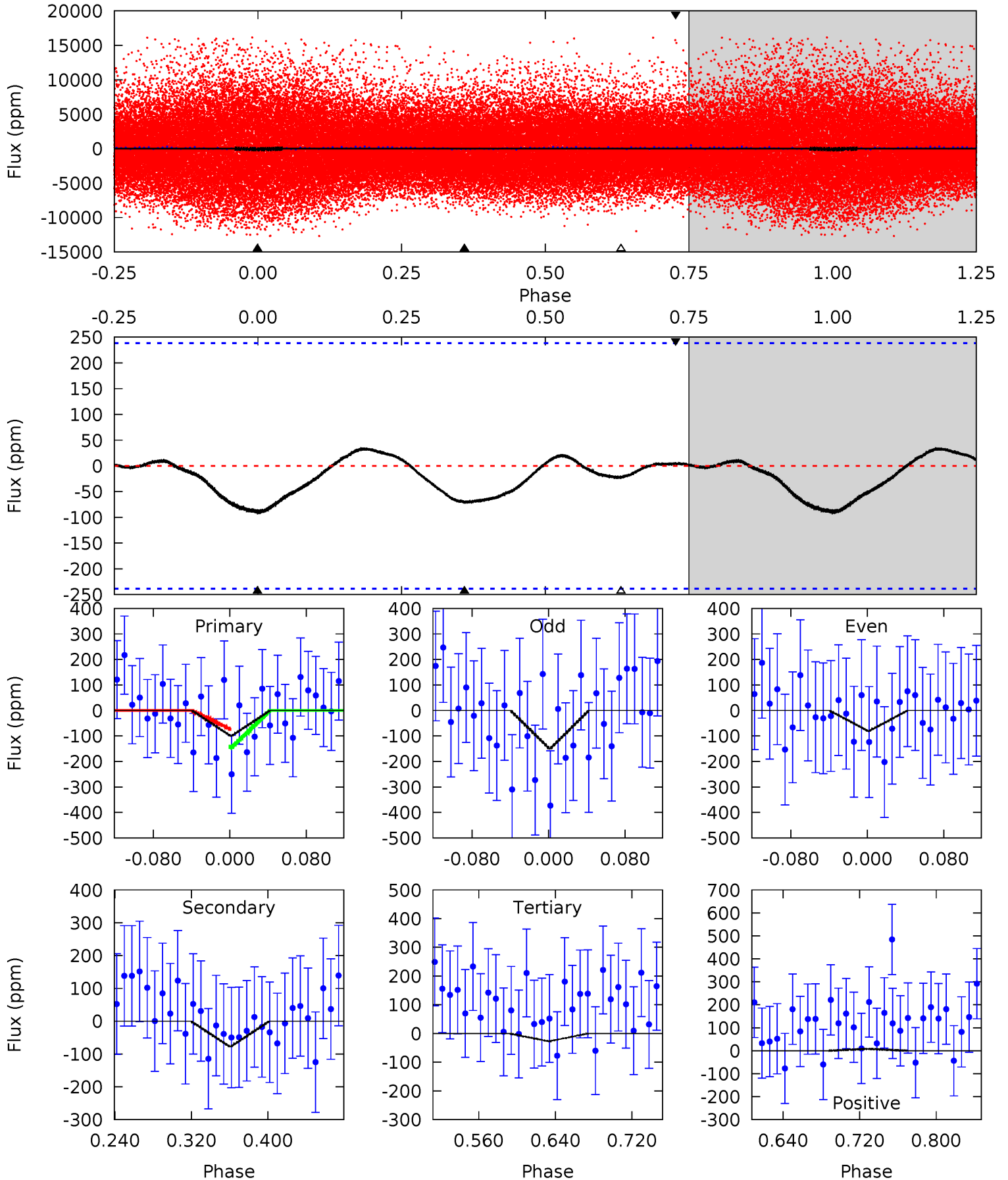
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.52	6.77	5.74	0	4.51	1.53	2.57	2.79	8.52	1.04	6.77	1.25	1.06	0.26	1.57



Alt Model-Shift Uniqueness Test

003218637-01, P = 0.503829 Days, E = 131.200131 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.82	1.42	0.49	0.14	4.61	1.75	0.35	1.33	1.68	0.92	1.28	0.63	0.28	0.28	0.73



Stellar Parameters For KIC 003218637

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7421^{+206}_{-335}	$3.815^{+0.330}_{-0.110}$	$0.120^{+0.200}_{-0.350}$	$2.885^{+0.493}_{-1.149}$	$1.985^{+0.089}_{-0.503}$	$0.116^{+0.293}_{-0.040}$
	+3%/-5%	+9%/-3%	+167%/-292%	+17%/-40%	+4%/-25%	+252%/-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 003218637-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-51 ± 8	$1.30^{+0.41}_{-0.39}$	6085^{+435}_{-643}	9744^{+2263}_{-1559}	$3.893^{+3.870}_{-1.632}$
Alt.	-73 ± 52	$2.83^{+0.53}_{-0.58}$	6097^{+422}_{-630}	6356^{+1542}_{-2758}	$1.178^{+1.185}_{-0.835}$

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 $A_{obs} \gg 1.0$

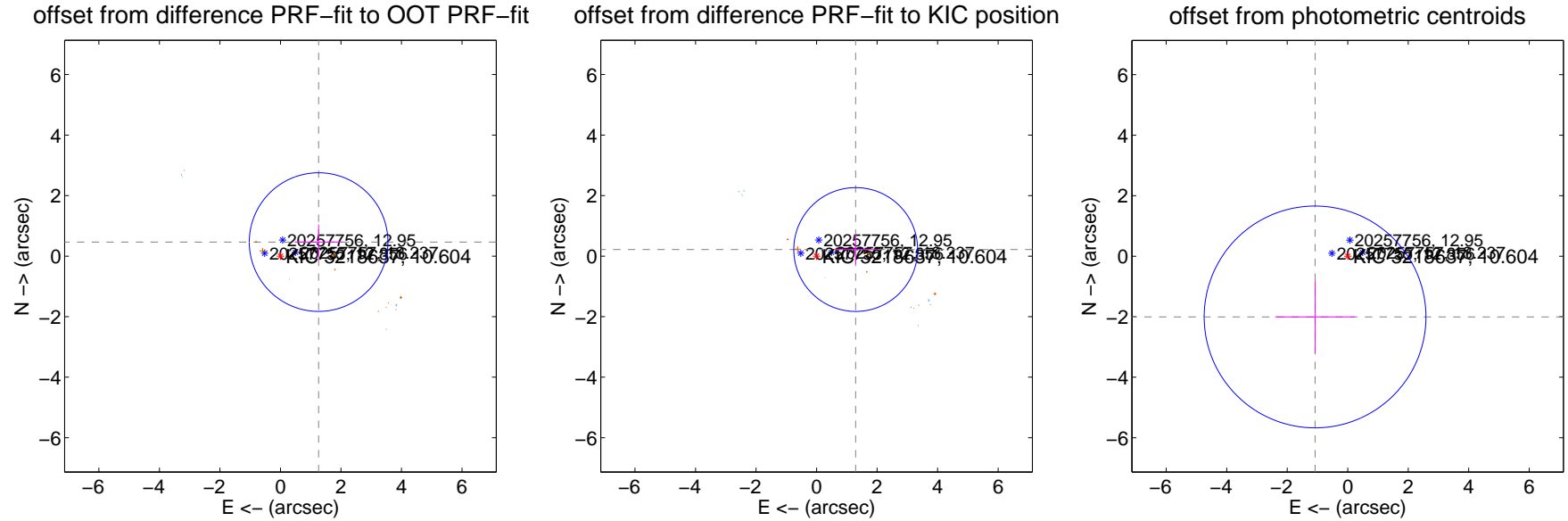
DV Centroid Data

Supplemental centroid analysis for 003218637-01. **Kepler magnitude: 10.60.** Transit SNR 4.39

There are 7 quarters with good PRF difference image offsets

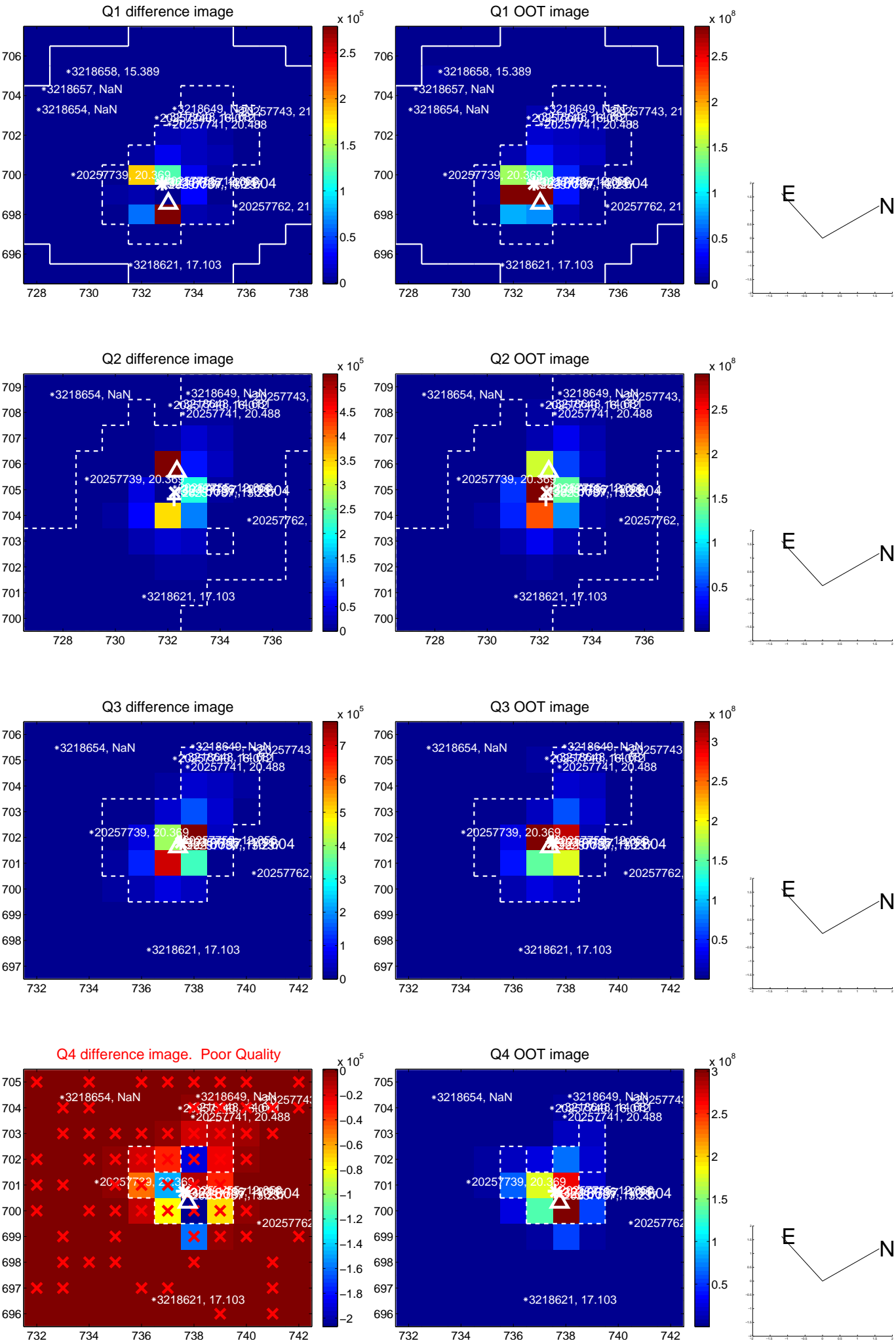
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.343 ± 0.763	1.76	-1.260 ± 0.785	0.464 ± 0.578
PRF-fit source offset from KIC position	1.311 ± 0.682	1.92	-1.293 ± 0.687	0.218 ± 0.487
photometric centroid source offset	2.28 ± 1.22	1.87	1.08 ± 1.31	-2.01 ± 1.19

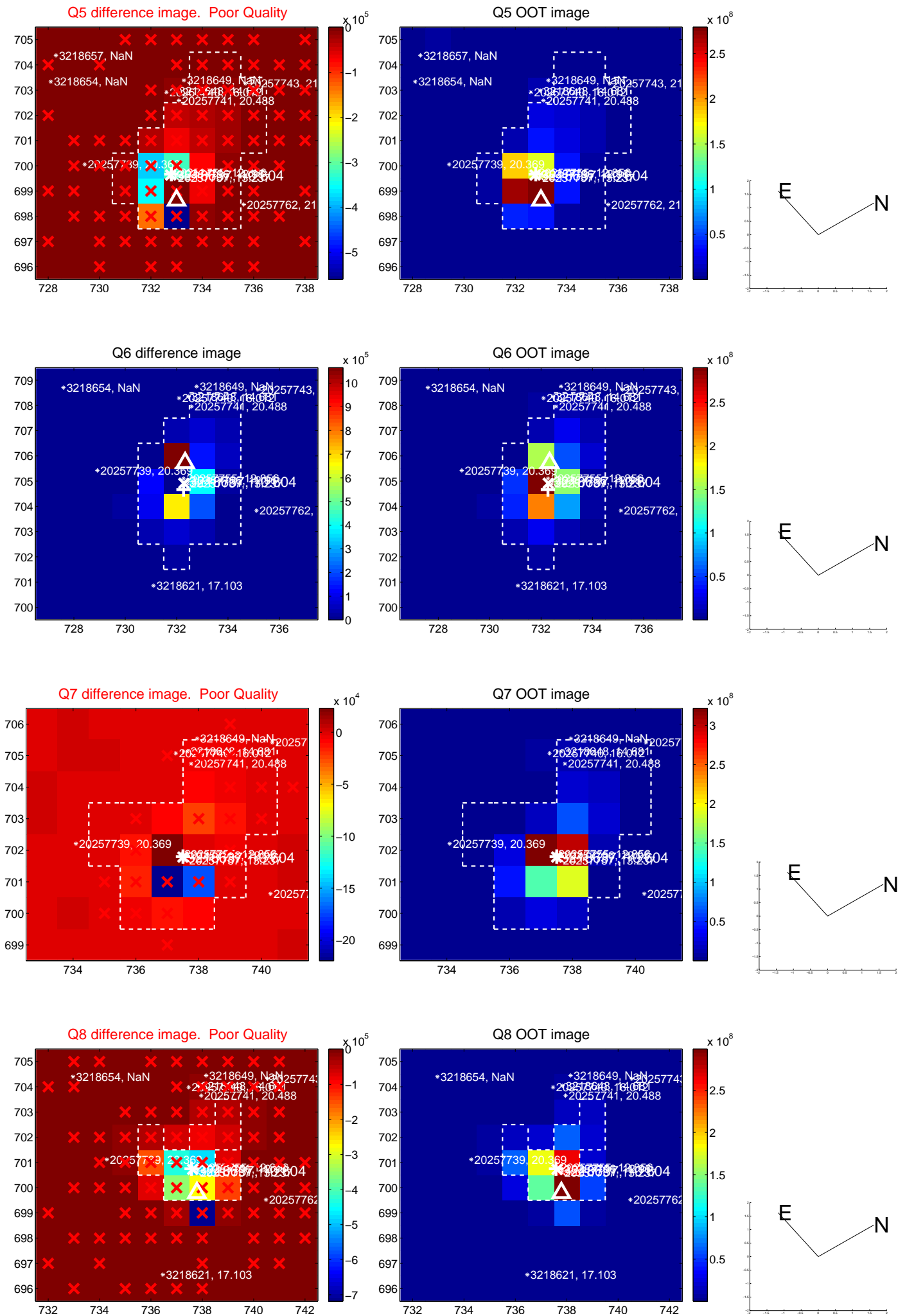


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

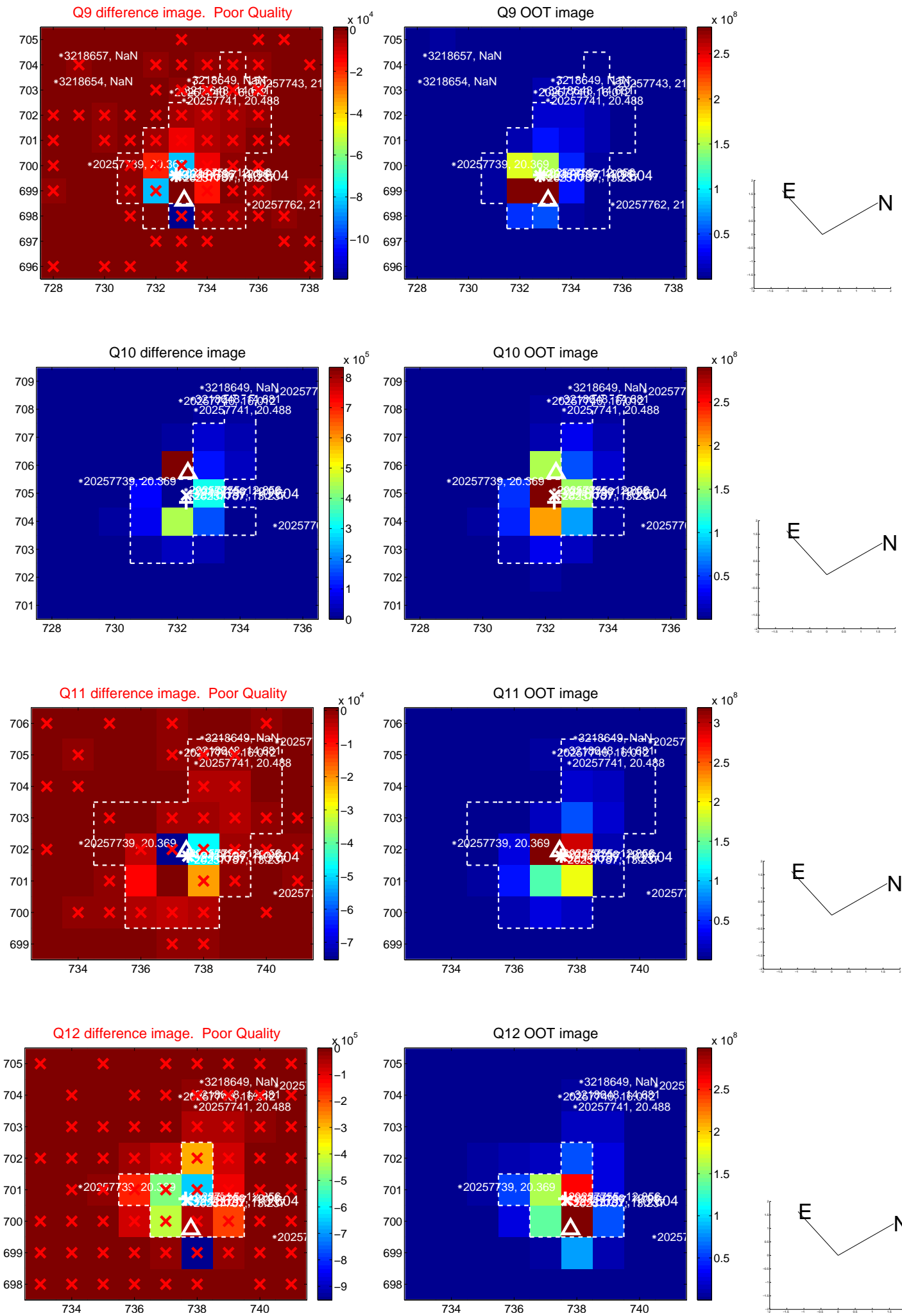
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



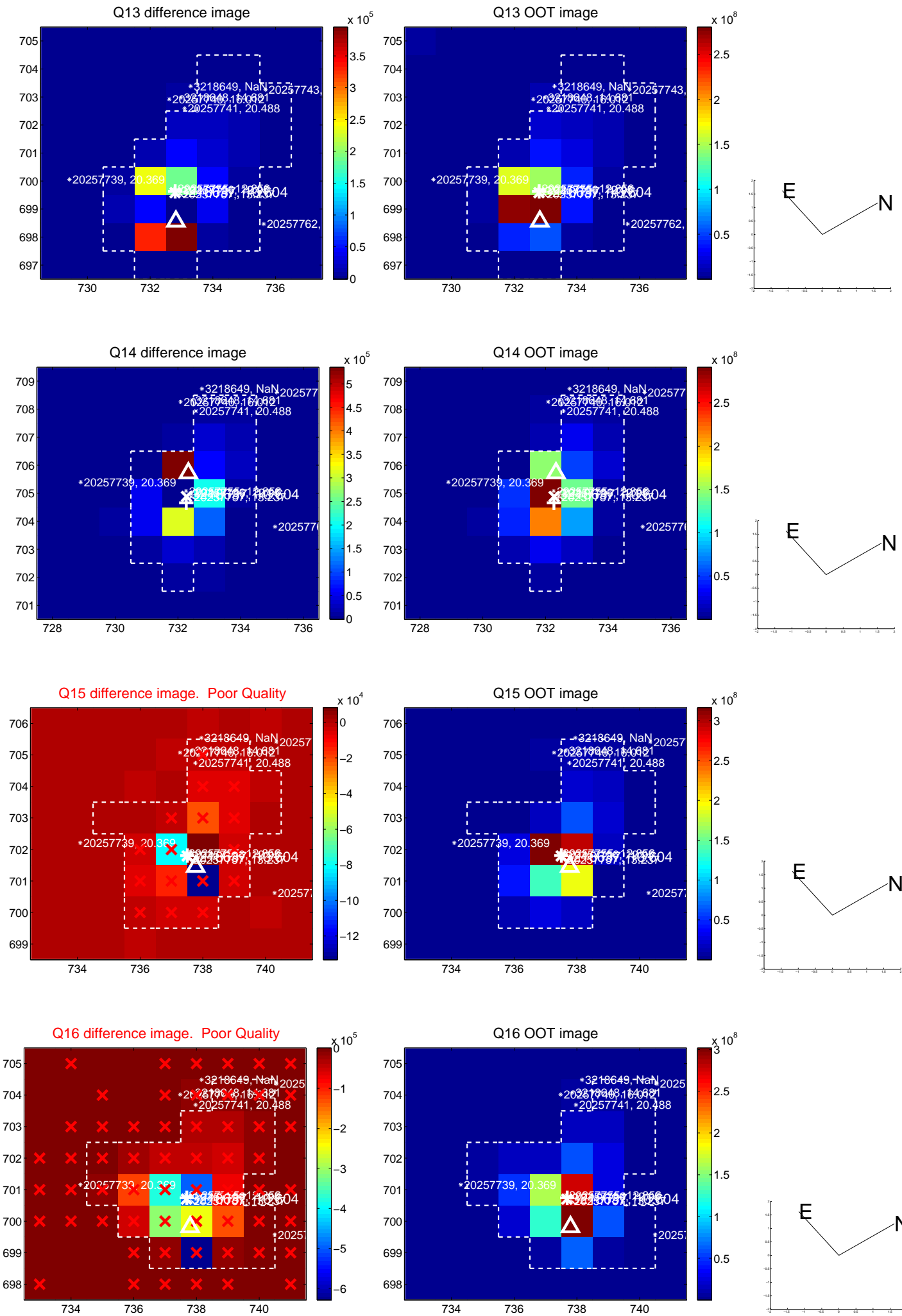
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



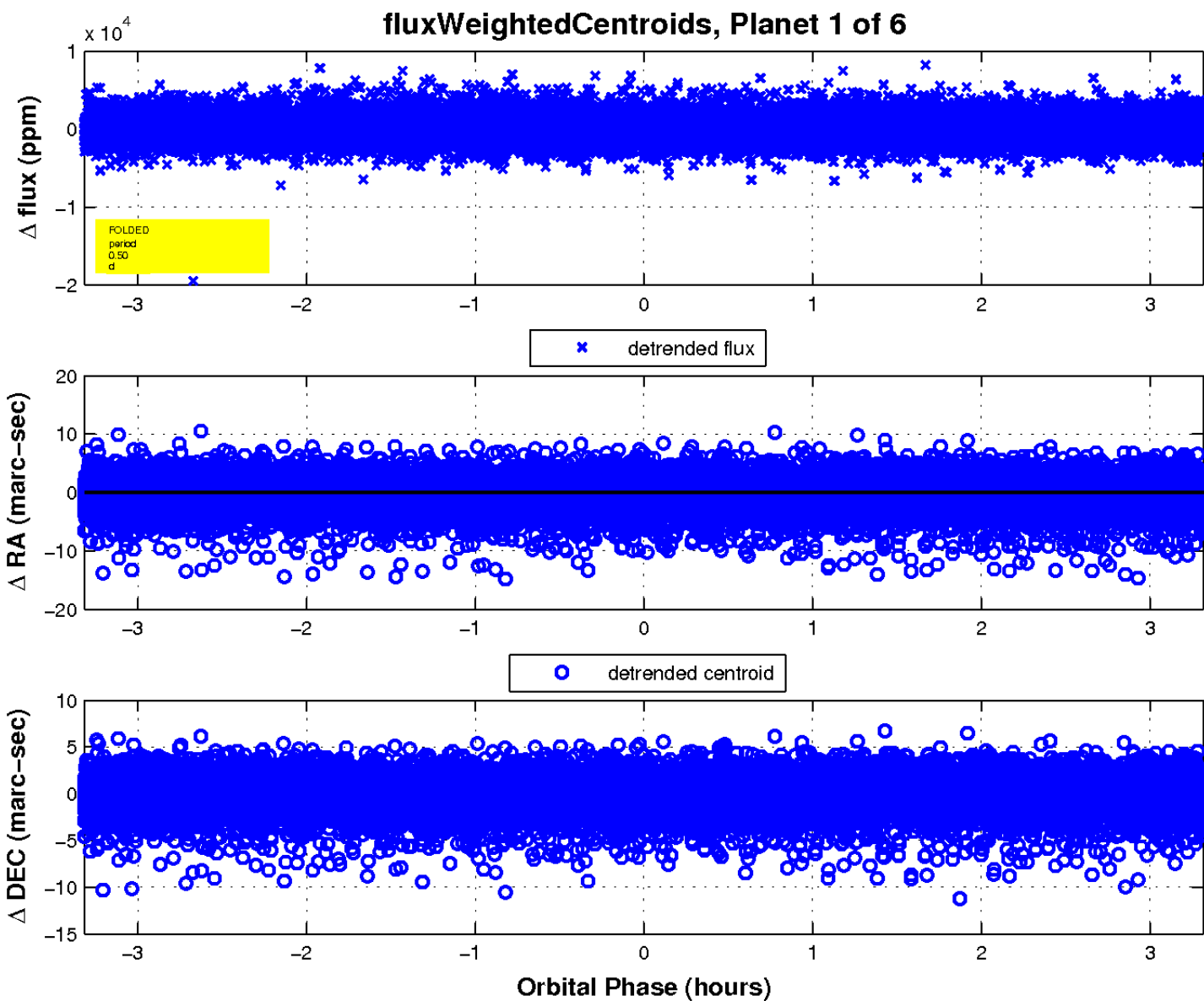
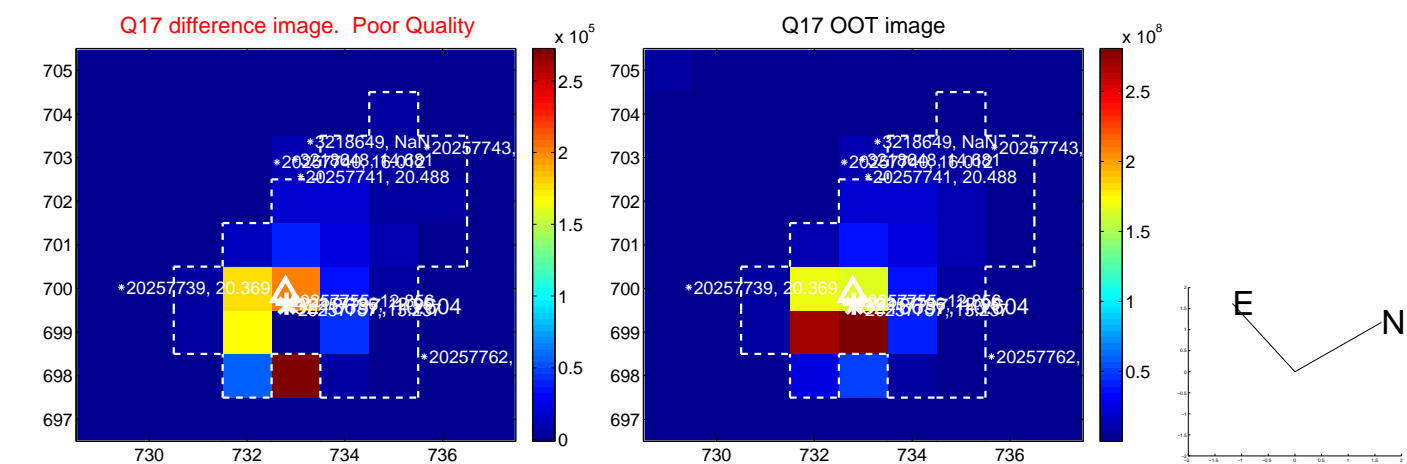
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



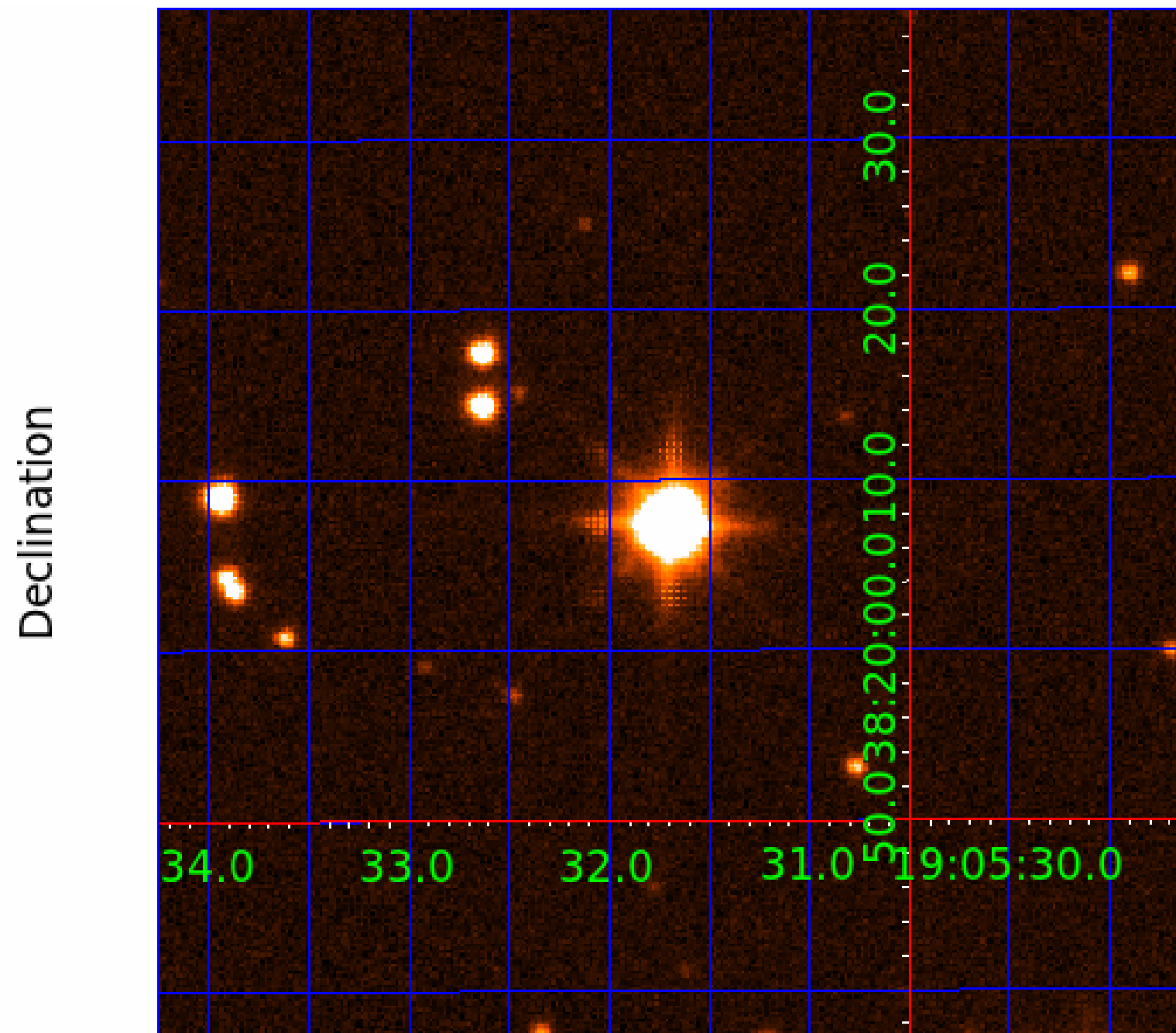
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003218637

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})
003218637-01	OBS	No	0.503818	131.710926	17.7	1.105	7.9	4.4	2.88	7421	1.41	93284.45
003218637-02	OBS	No	0.685336	132.114727	26.1	2.530	10.6	1.3	2.88	7421	1.61	61892.34
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003218637-05	OBS	No	61.713157	179.127833	3112.2	4.832	8.3	9.1	2.88	7421	28.93	153.34
003218637-06	OBS	No	245.863405	301.283227	64.4	6.000	8.9	-1.0	2.88	7421	2.35	24.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003218637-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003218637-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
003218637-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—CENT_SATURATED
003218637-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

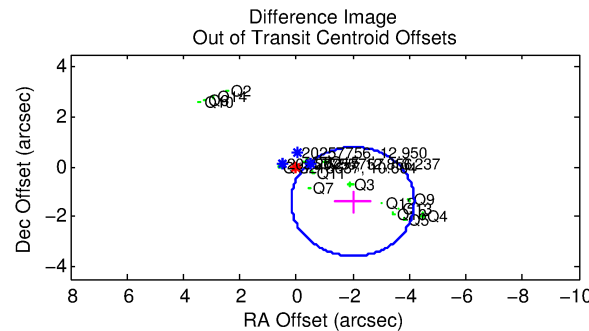
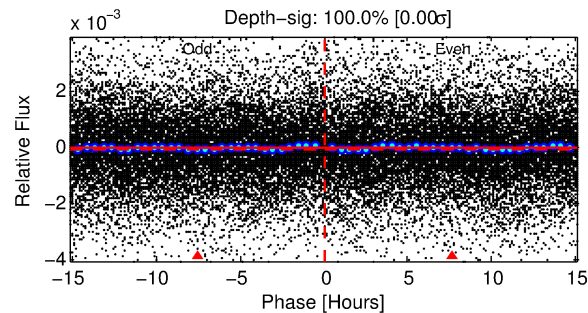
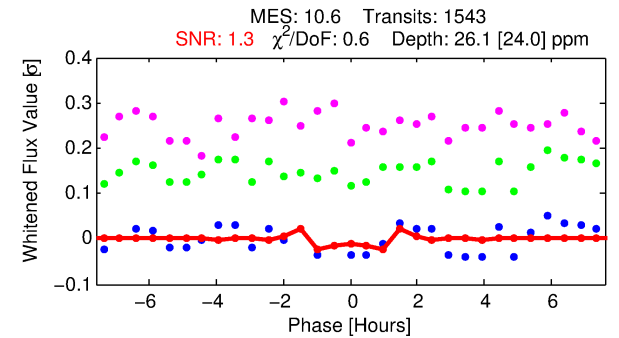
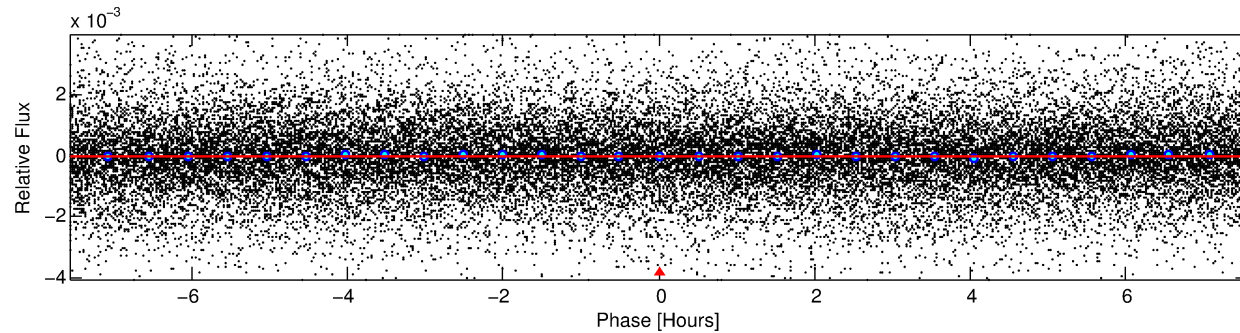
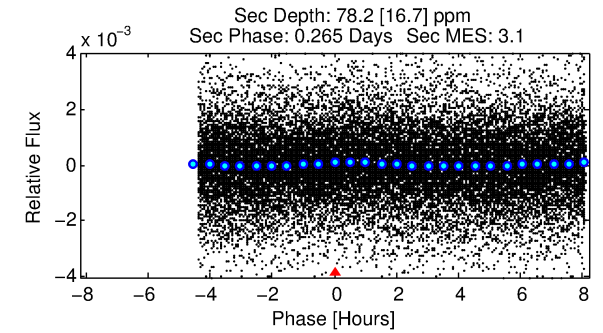
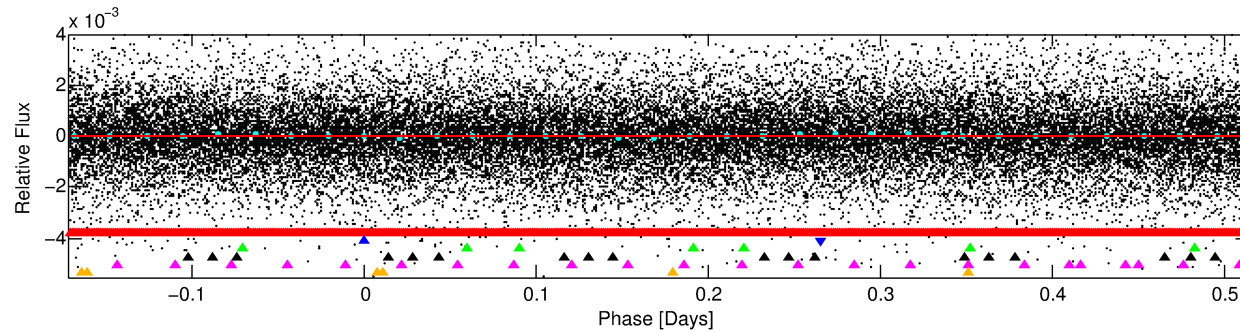
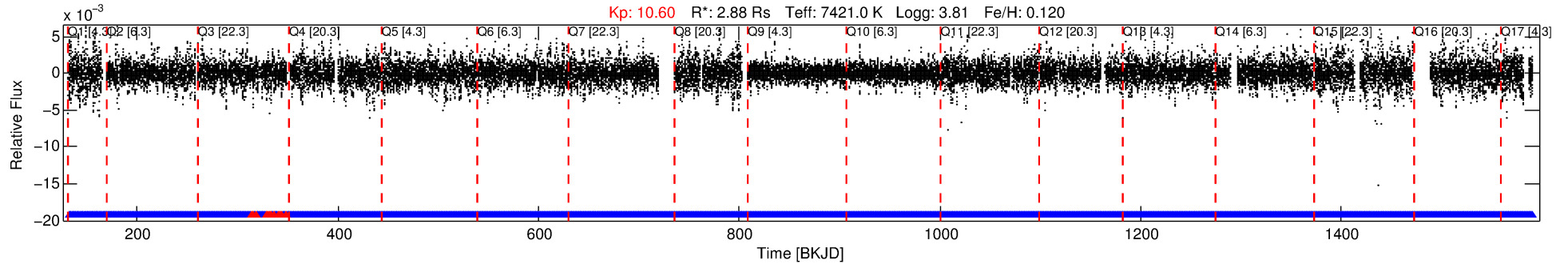
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003218637-02

No Significant Match Found

DV One-Page Summary

KIC: 3218637 Candidate: 2 of 6 Period: 0.685 d



DV Fit Results:

Period = 0.68534 [0.00007] d
Epoch = 132.1147 [0.0074] BKJD
Rp/R* = 0.0051 [0.0033]
a/R* = 1.61 [2.89]
b = 0.76 [1.65]
Seff = 61892.34 [37120.61]
Teq = 4022 [603] K
Rp = 1.61 [1.23] Re
a = 0.0191 [0.0070] AU
Ag = 6.10 [8.80] [0.58σ]
Teffp = 9772 [3268] K [1.73σ]

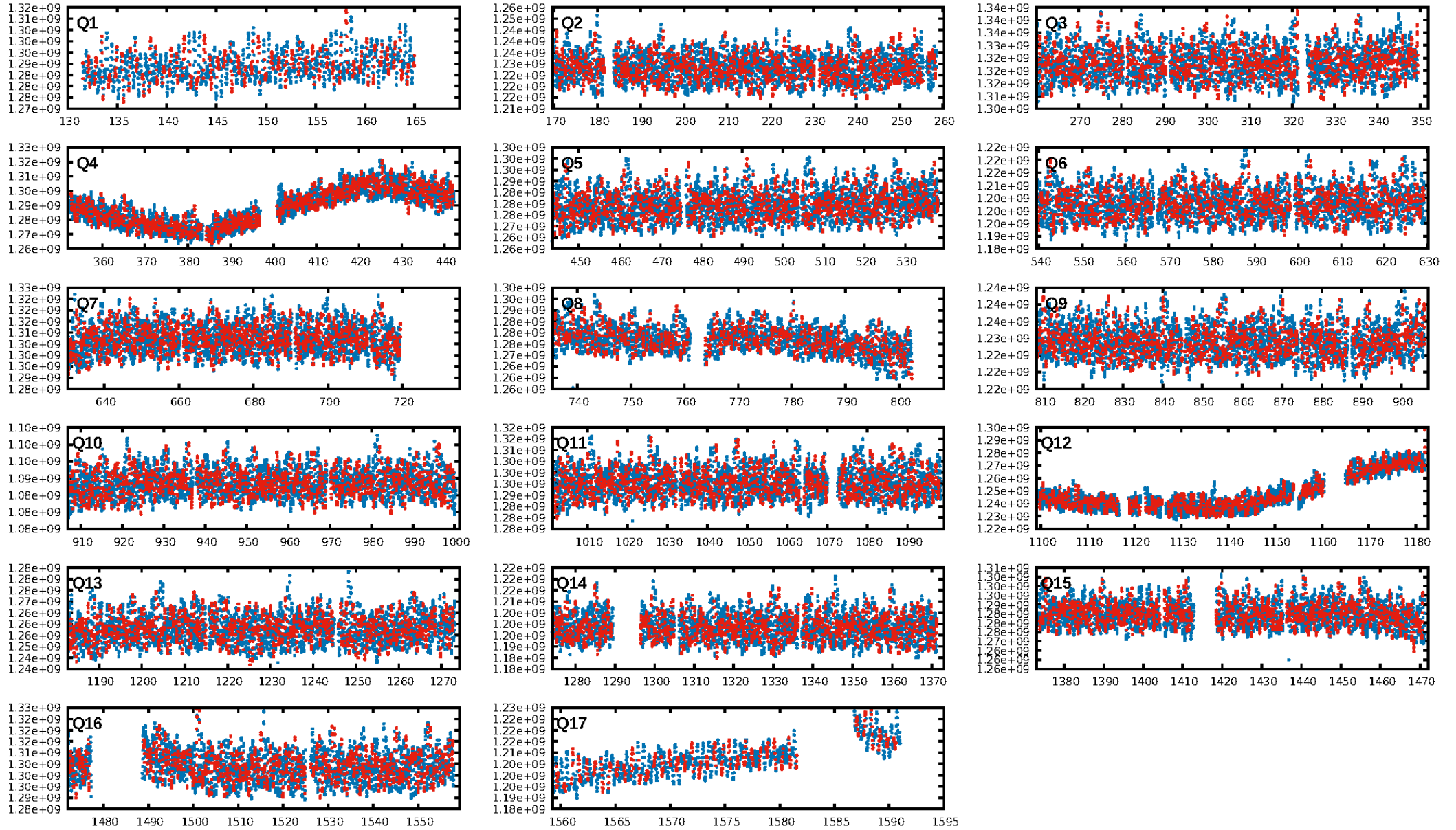
DV Diagnostic Results:

ShortPeriod-sig: 88.5% [1.58σ]
LongPeriod-sig: 100.0% [268.56σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1461/1474]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.954 arcsec [0.85σ]
OotOffset-rm: 2.443 arcsec [3.36σ]
KicOffset-rm: 2.228 arcsec [3.15σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 0.00 [0/17]

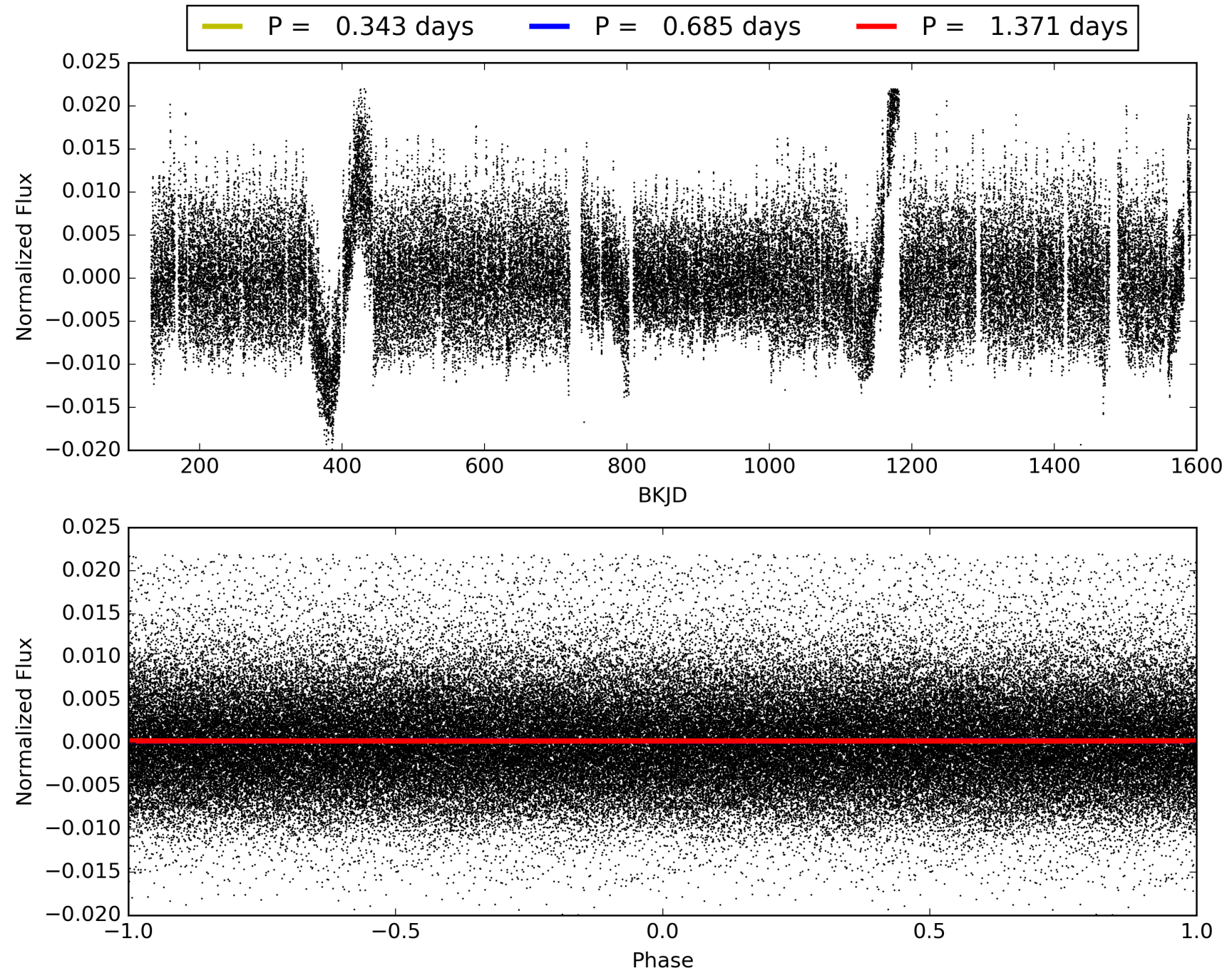
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 003218637-02, PDC Light Curves

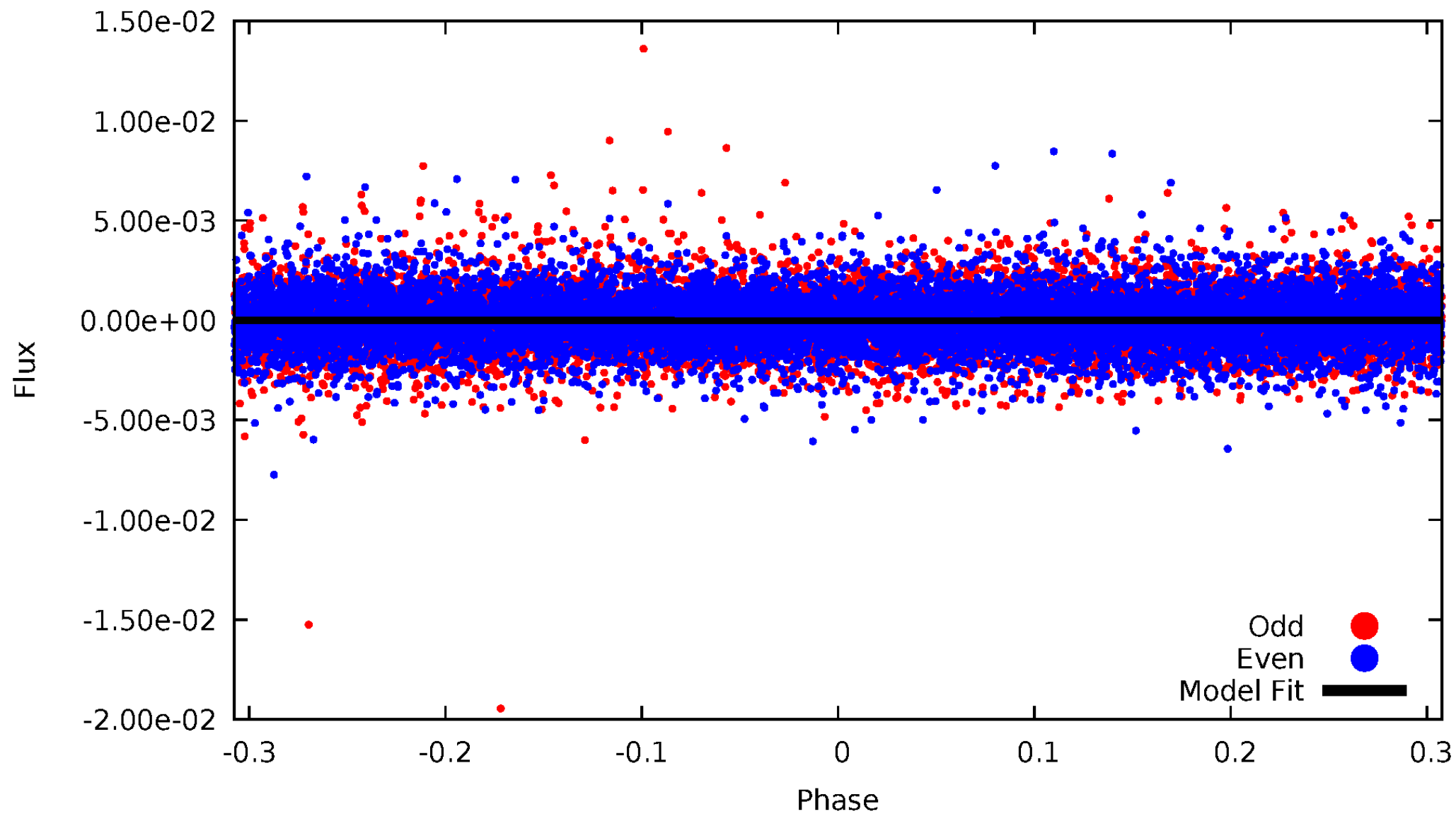


TCE 003218637-02



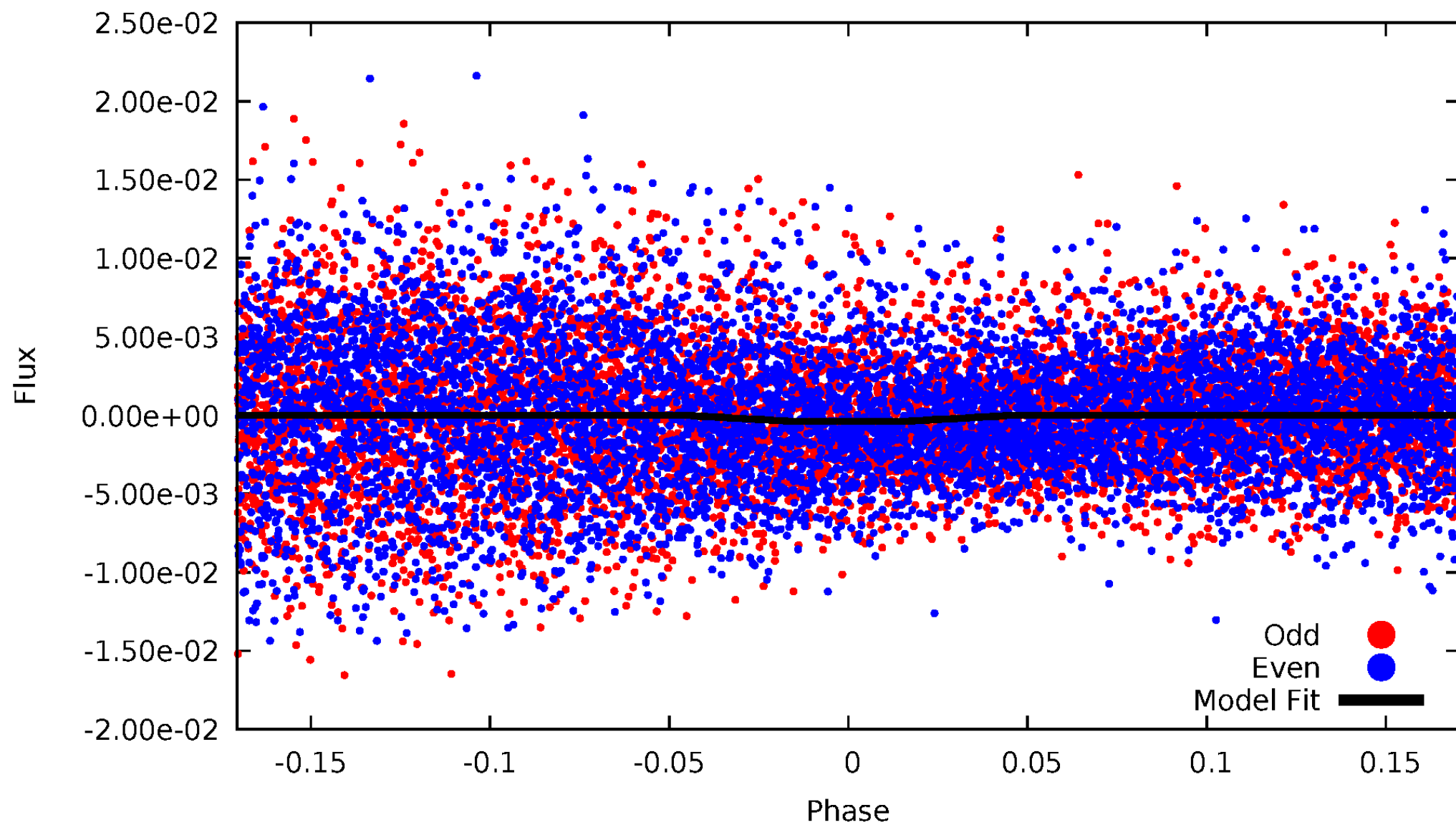
DV Odd/Even

TCE 003218637-02



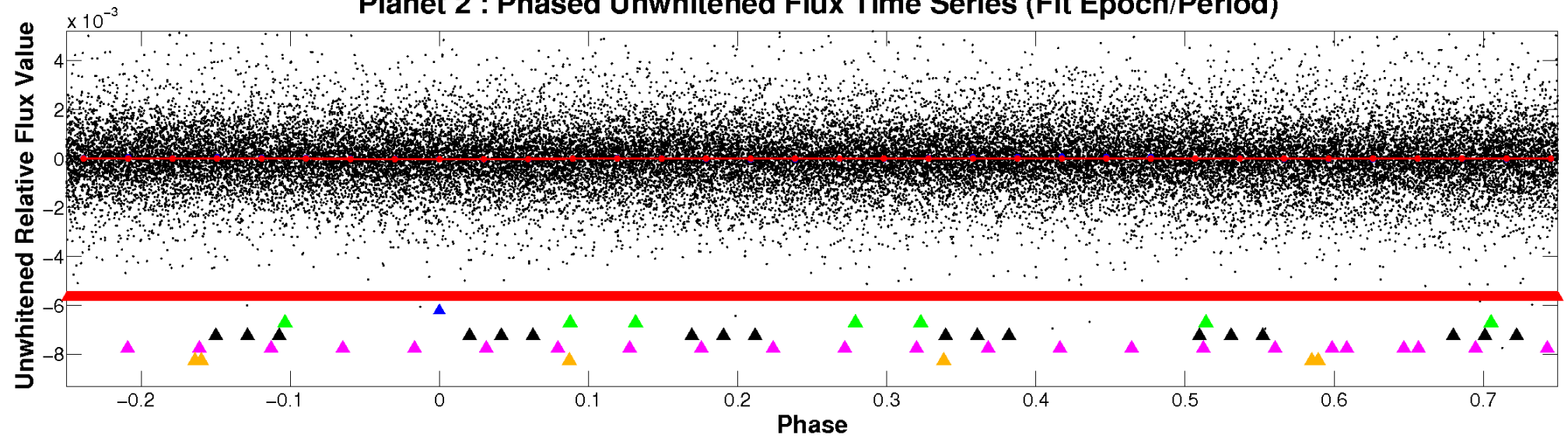
ALT Odd/Even

TCE 003218637-02

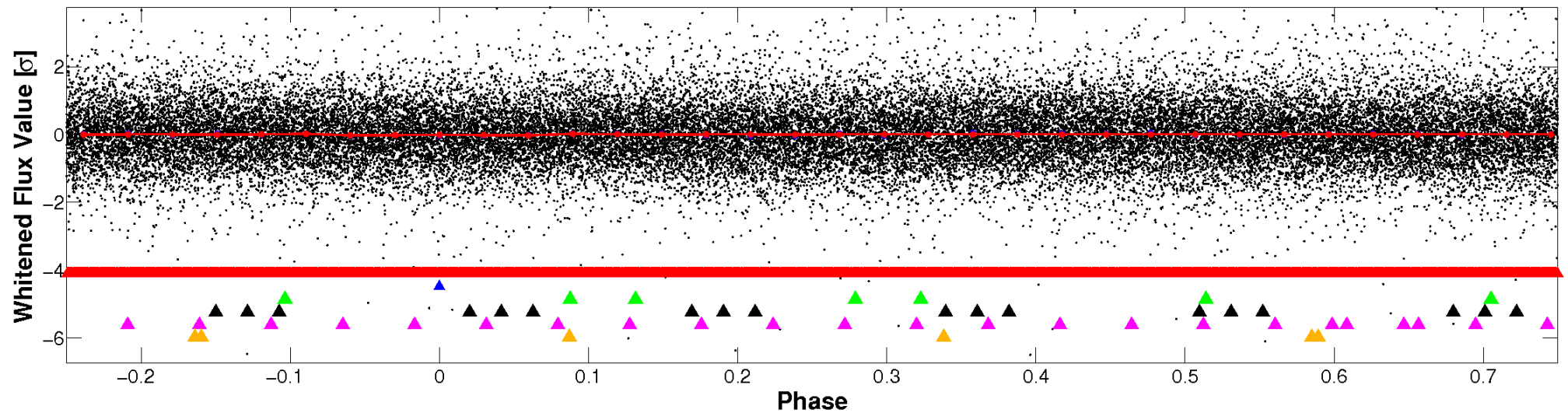


Non-Whitened Vs. Whitened Light Curve

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

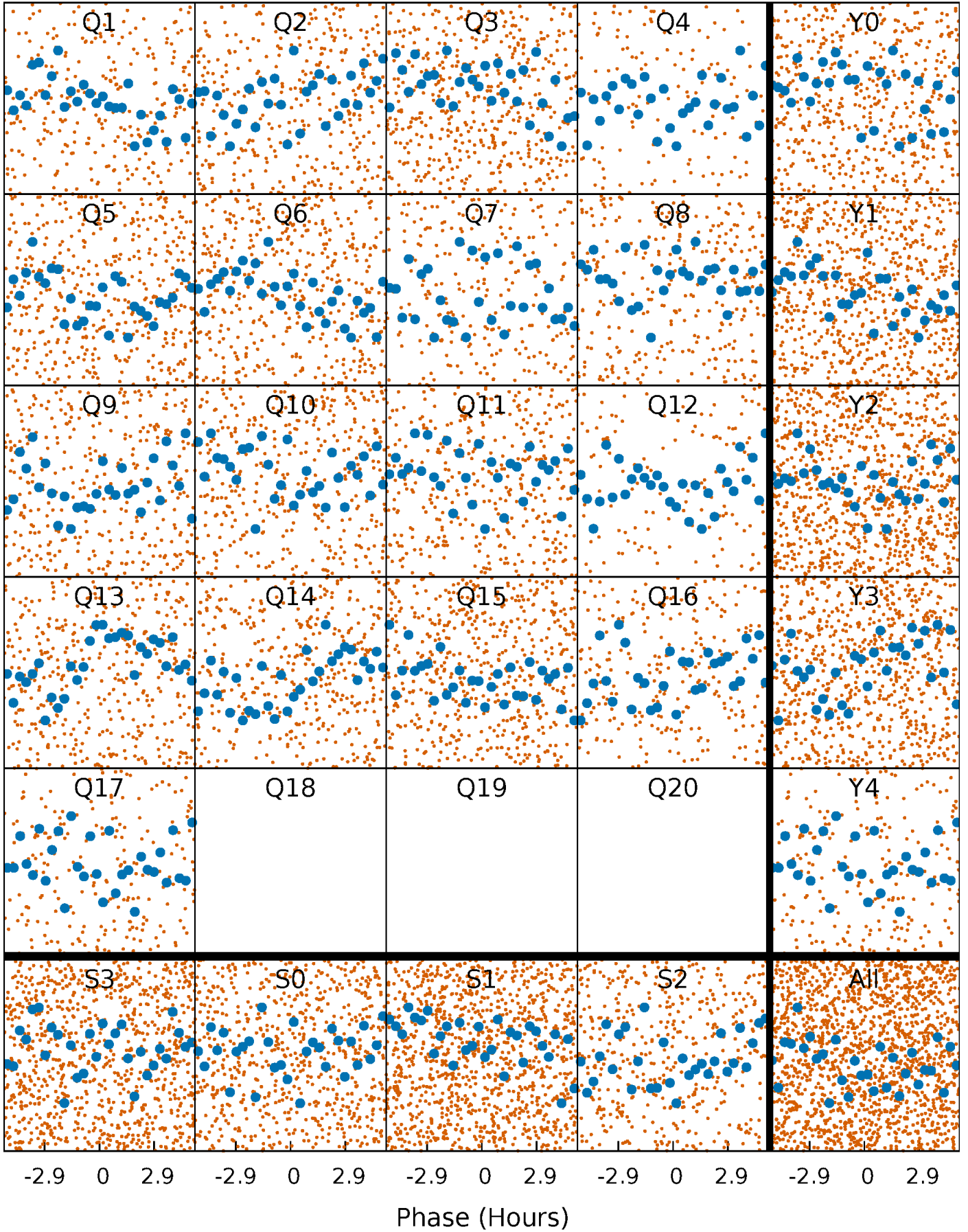


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



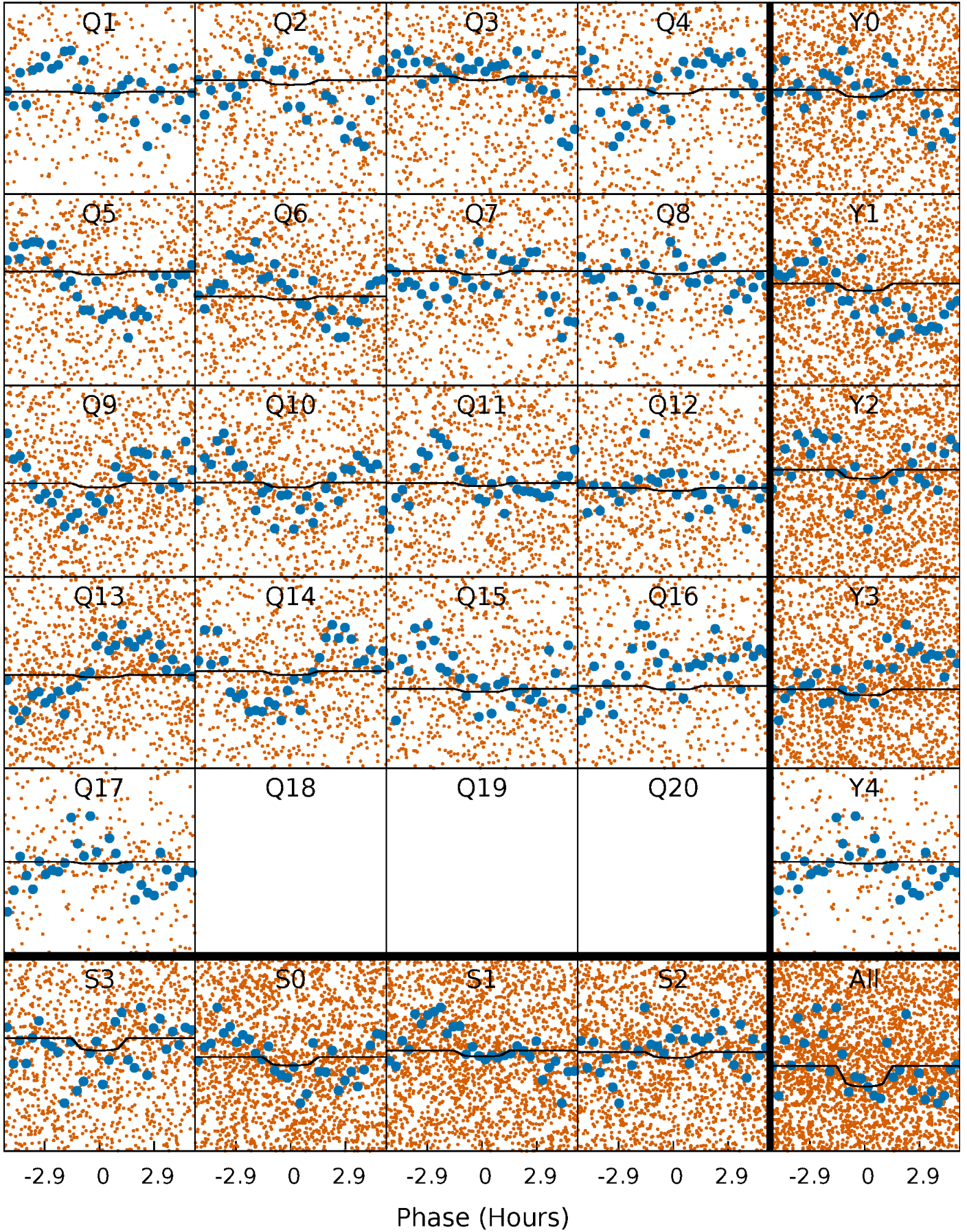
PDC Quarter-Phased Transit Curves

TCE 003218637-02 P= 0.685336 Days $T_0=132.114727$ (BKJD)



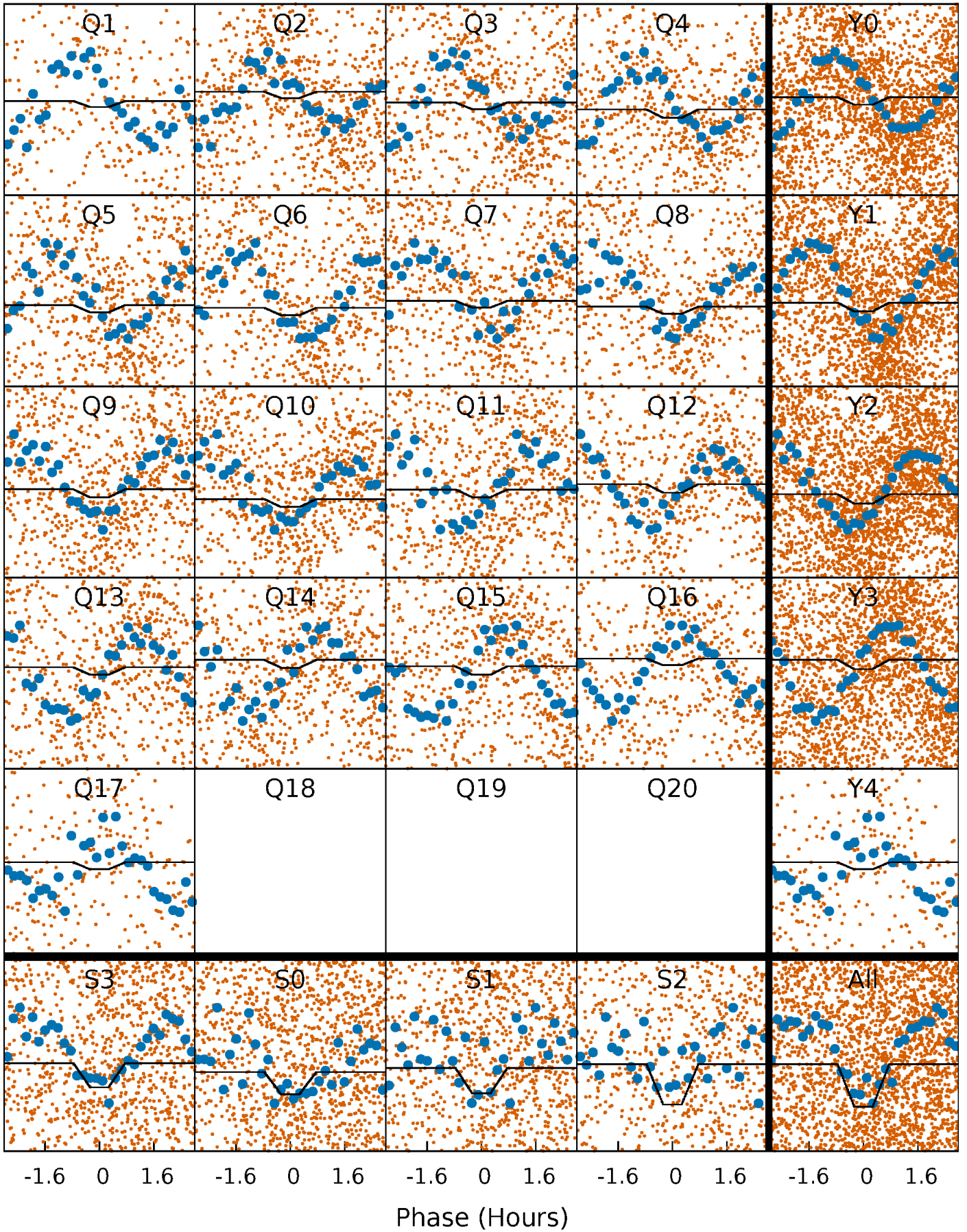
DV Quarter-Phased Transit Curves

TCE 003218637-02 P= 0.685336 Days $T_0=132.114727$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

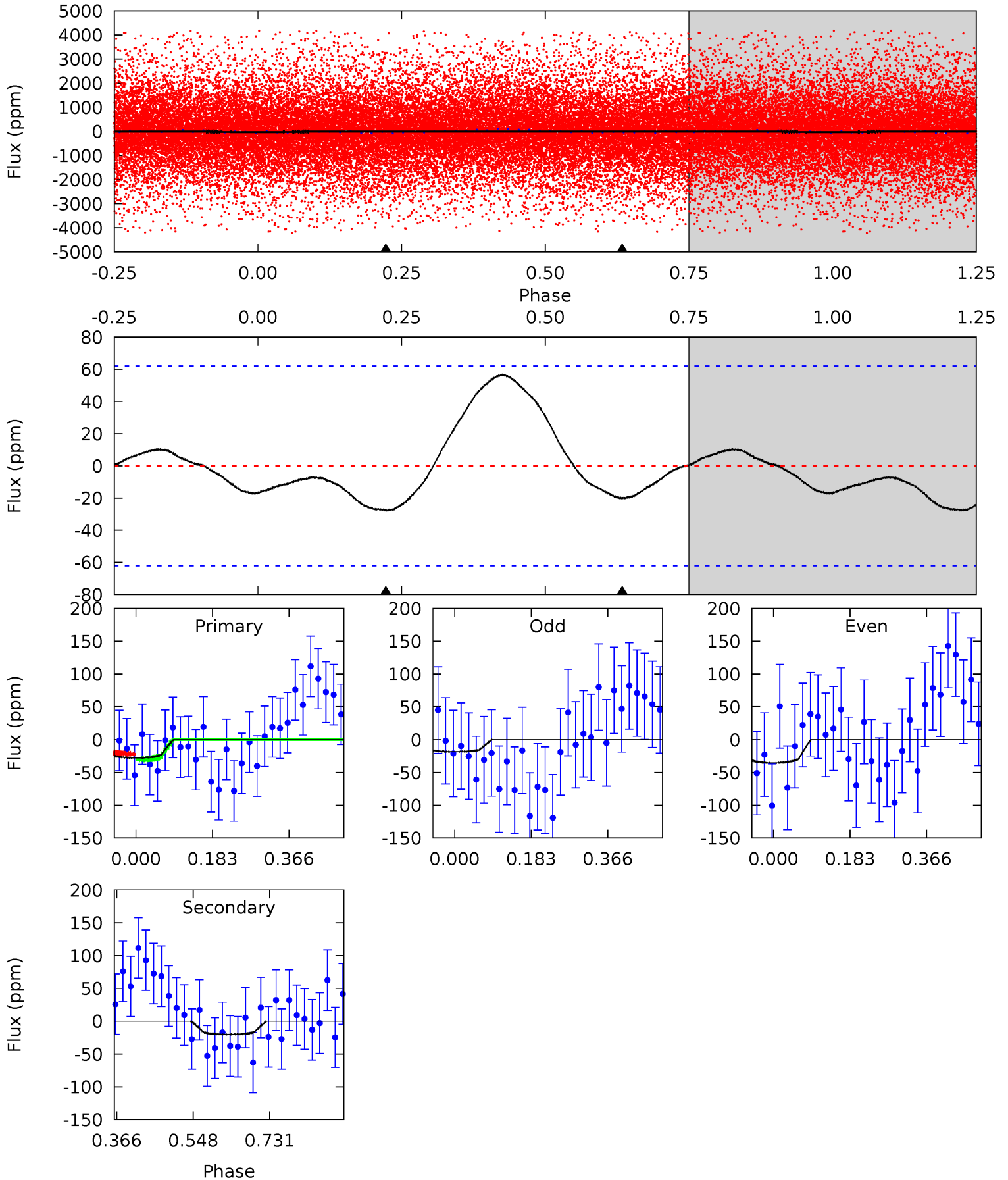
TCE 003218637-02 P= 0.685733 Days $T_0=132.079808$ (BKJD)



DV Model-Shift Uniqueness Test

003218637-02, P = 0.685336 Days, E = 131.429391 Days

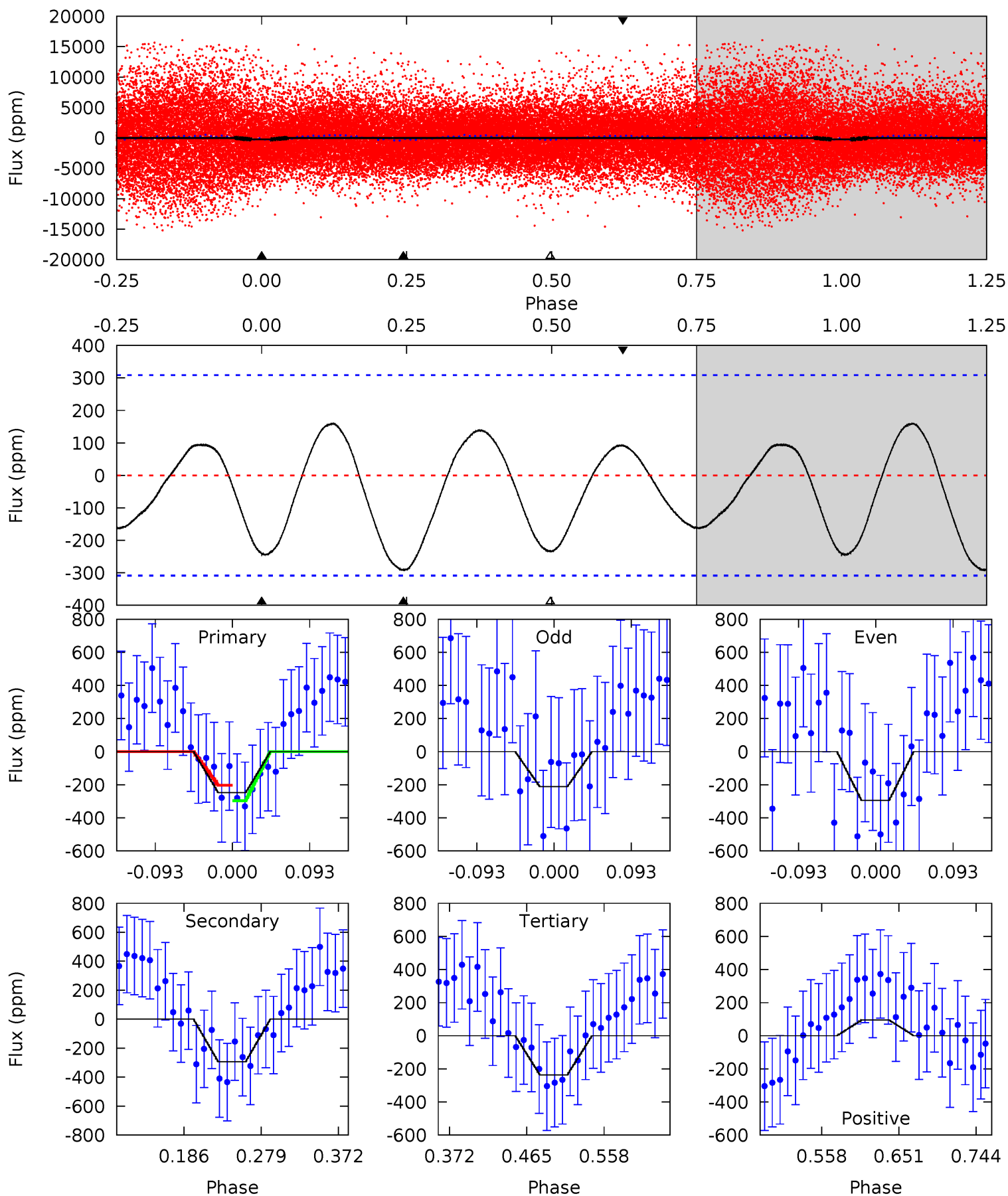
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.00	1.44	0	0	4.44	1.33	1.72	2.00	2.00	1.44	1.44	0.62	10.6	0.67	0.31



Alt Model-Shift Uniqueness Test

003218637-02, P = 0.685733 Days, E = 131.394075 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.68	4.36	3.51	1.41	4.58	1.68	1.72	0.18	2.28	0.86	2.96	0.62	0.52	0.35	0.69



Stellar Parameters For KIC 003218637

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7421^{+206}_{-335}	$3.815^{+0.330}_{-0.110}$	$0.120^{+0.200}_{-0.350}$	$2.885^{+0.493}_{-1.149}$	$1.985^{+0.089}_{-0.503}$	$0.116^{+0.293}_{-0.040}$
	+3%/-5%	+9%/-3%	+167%/-292%	+17%/-40%	+4%/-25%	+252%/-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 003218637-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-20 ± 14	$1.53^{+1.01}_{-0.89}$	5485^{+366}_{-546}	5894^{+5121}_{-9286}	$1.307^{+7.302}_{-1.060}$
Alt.	-294 ± 67	$5.80^{+1.41}_{-1.40}$	5484^{+391}_{-527}	6472^{+1003}_{-784}	$1.718^{+1.401}_{-0.669}$

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 $A_{obs} \gg 1.0$

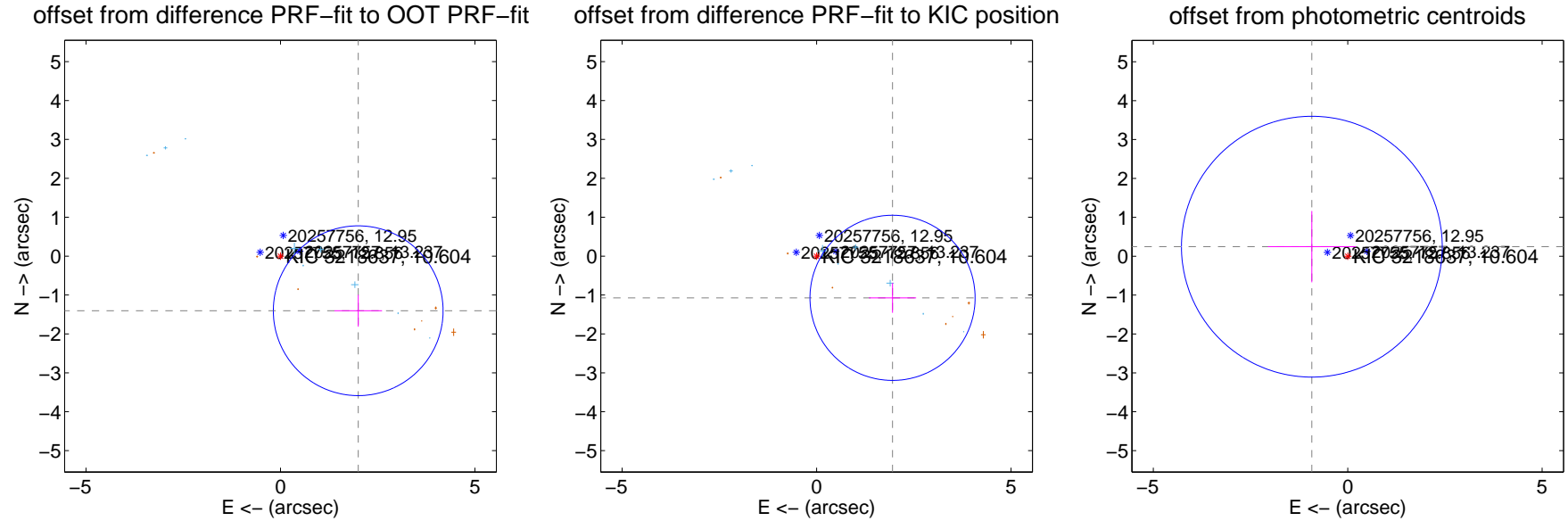
DV Centroid Data

Supplemental centroid analysis for 003218637-02. **Kepler magnitude: 10.60.** Transit SNR 1.31

There are 9 quarters with good PRF difference image offsets

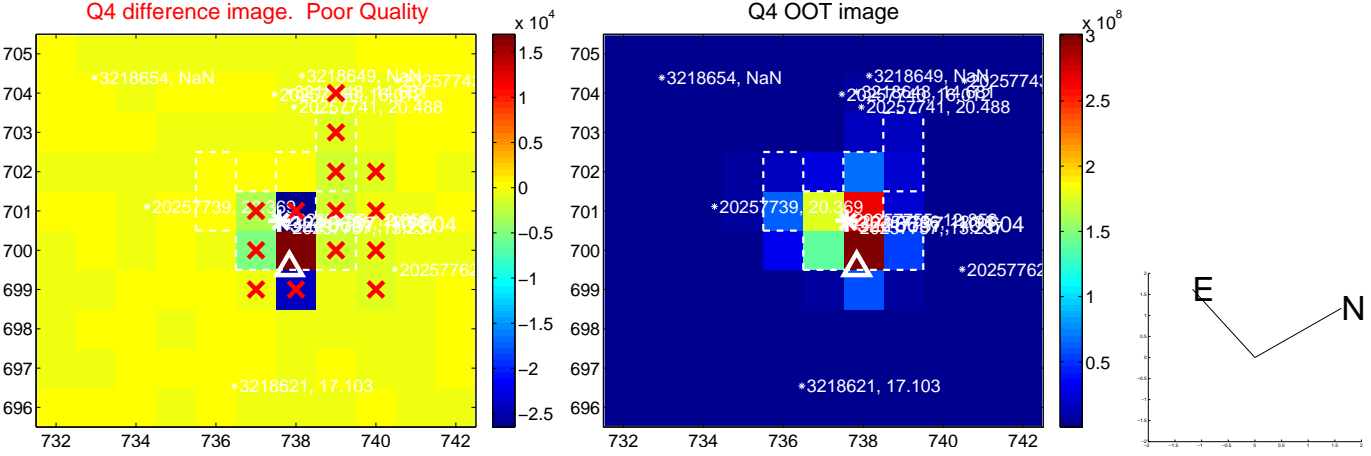
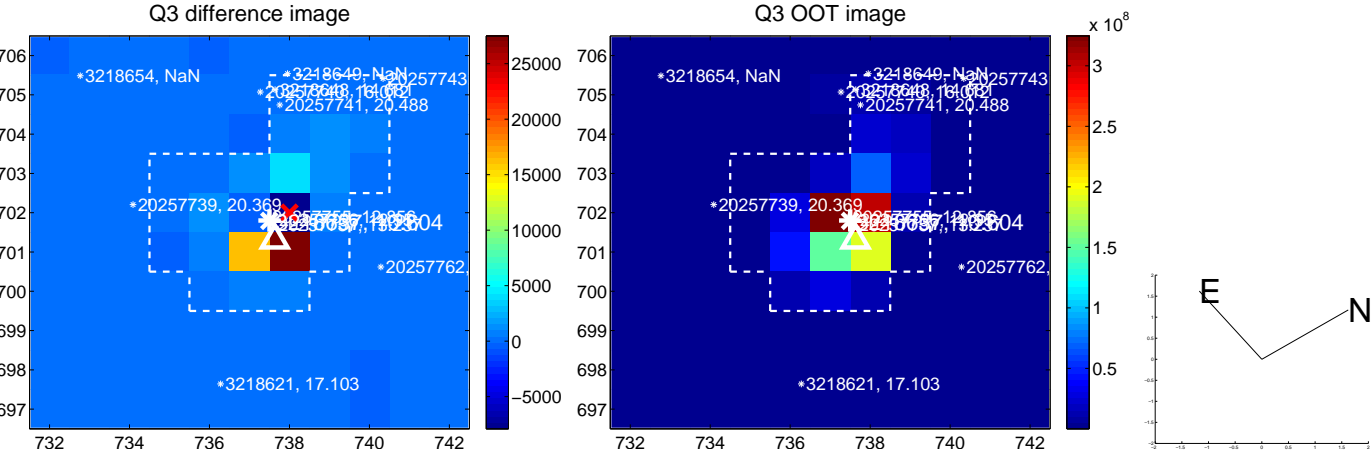
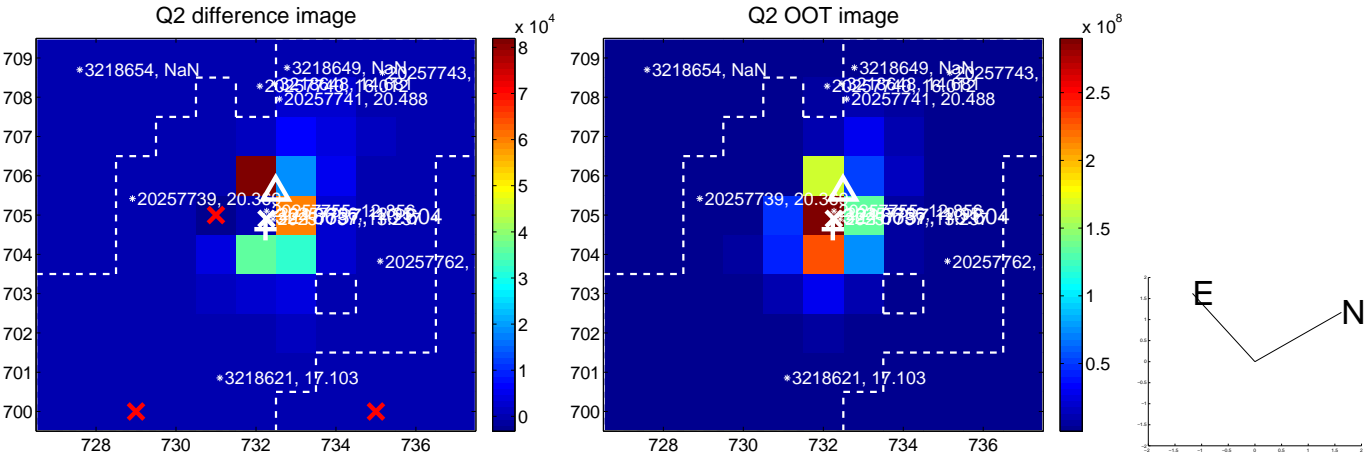
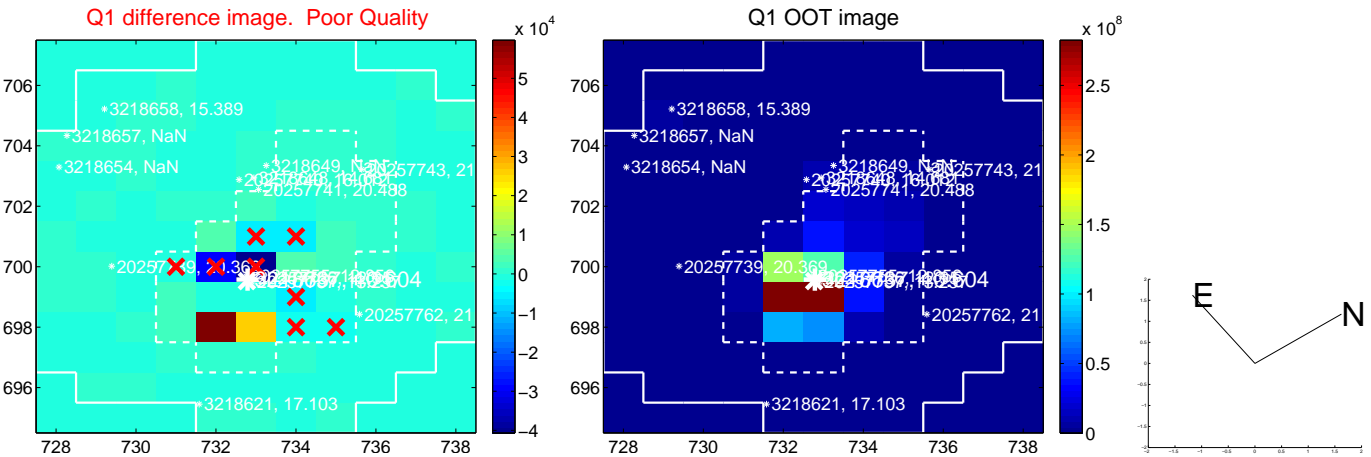
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.443 ± 0.727	3.36	-2.000 ± 0.612	-1.404 ± 0.410
PRF-fit source offset from KIC position	2.228 ± 0.708	3.15	-1.954 ± 0.607	-1.072 ± 0.384
photometric centroid source offset	0.95 ± 1.12	0.85	0.92 ± 1.13	0.24 ± 0.92

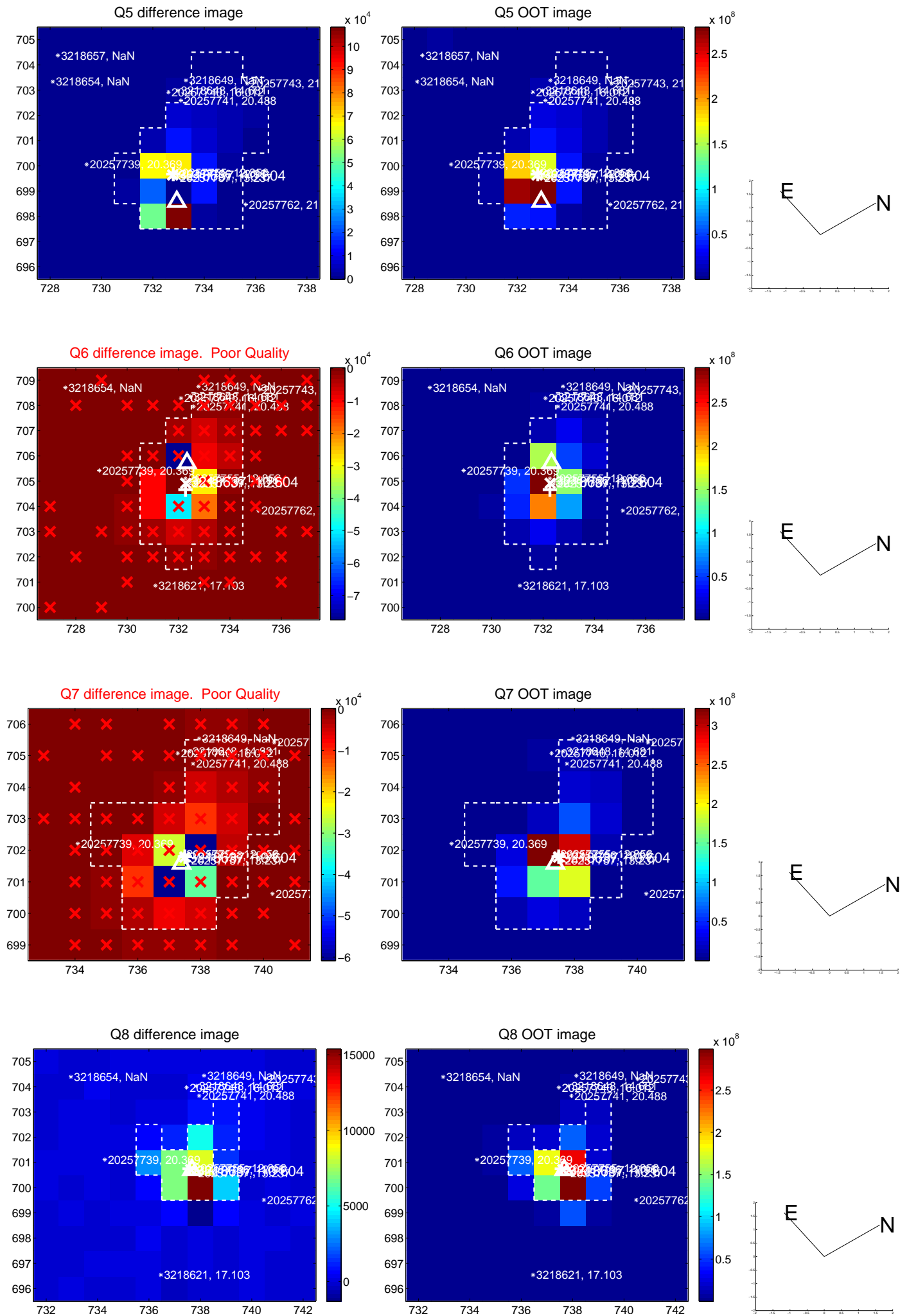


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

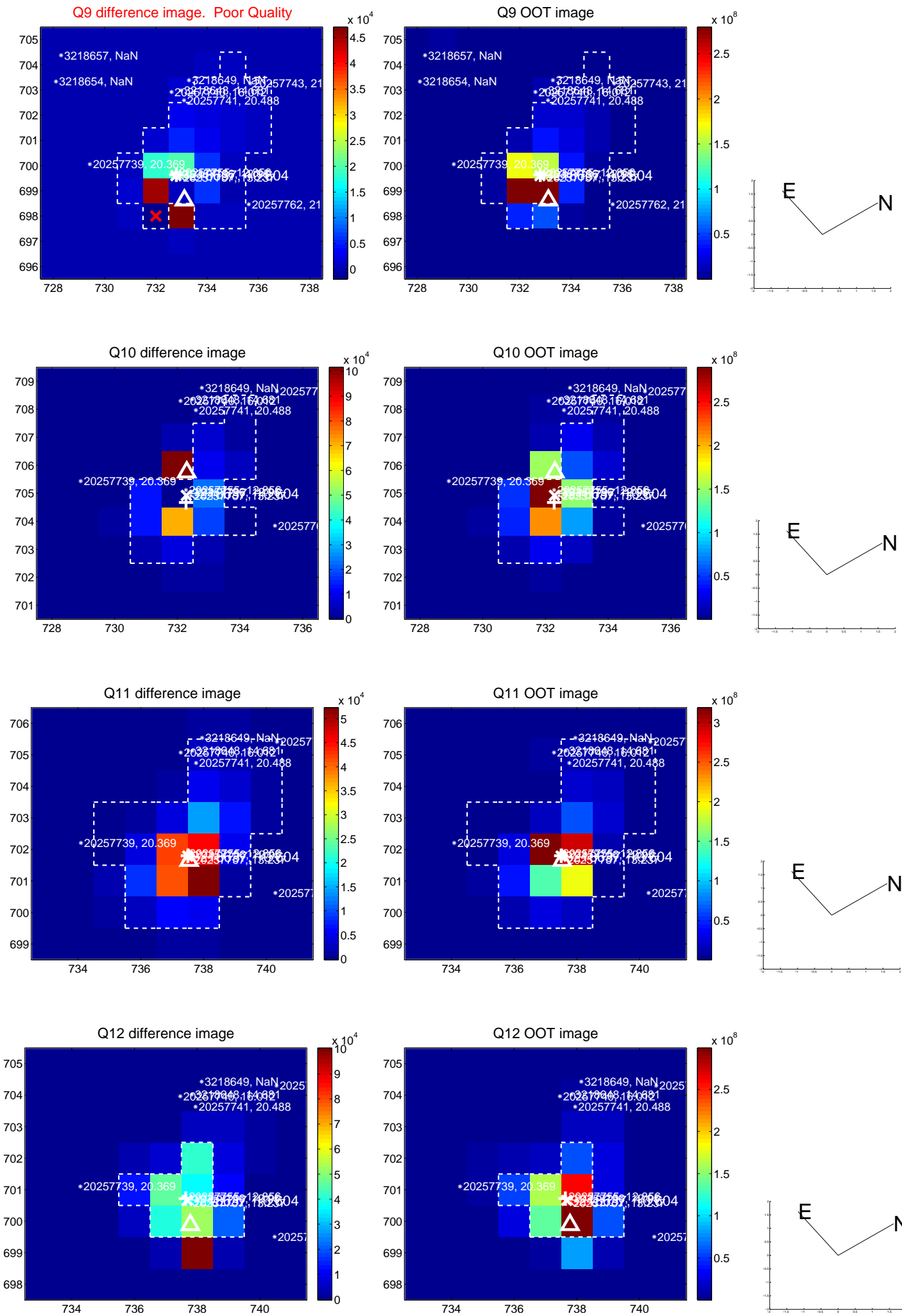
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



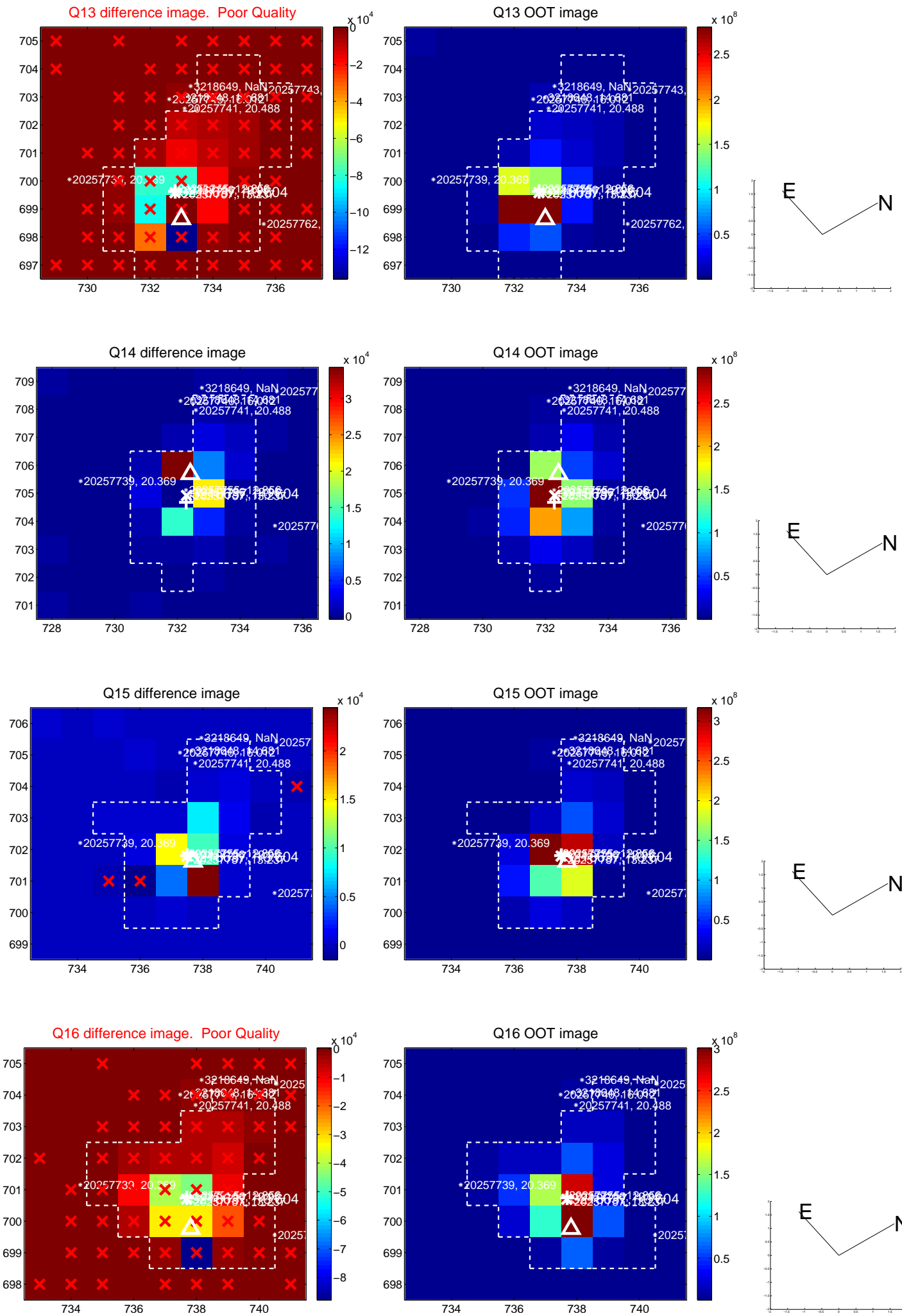
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



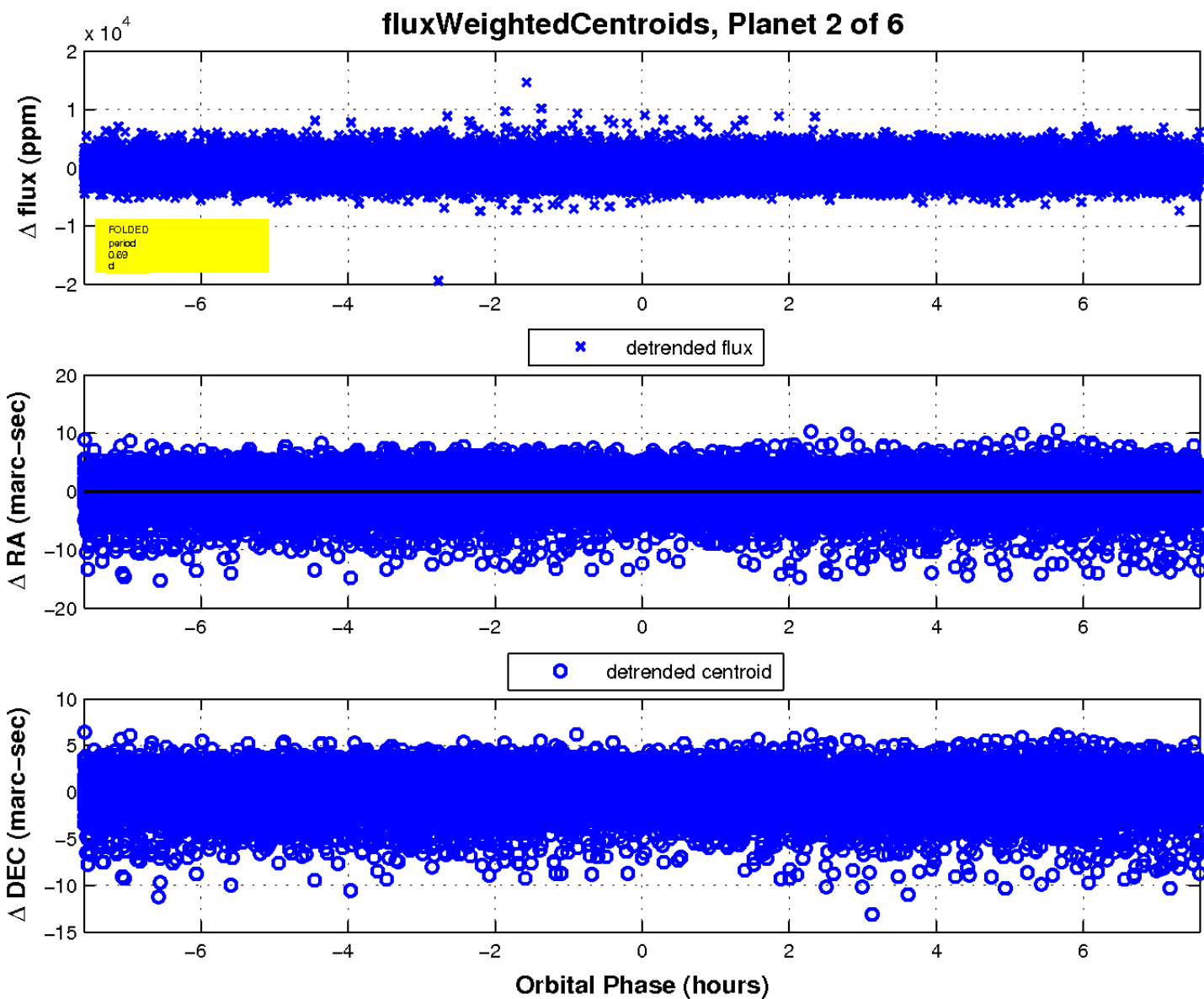
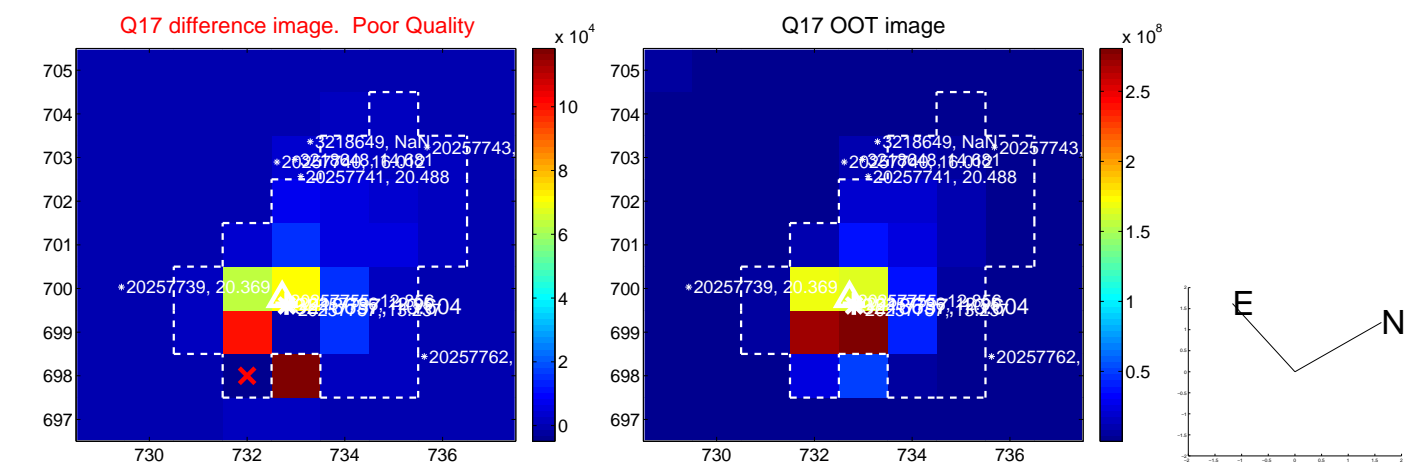
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



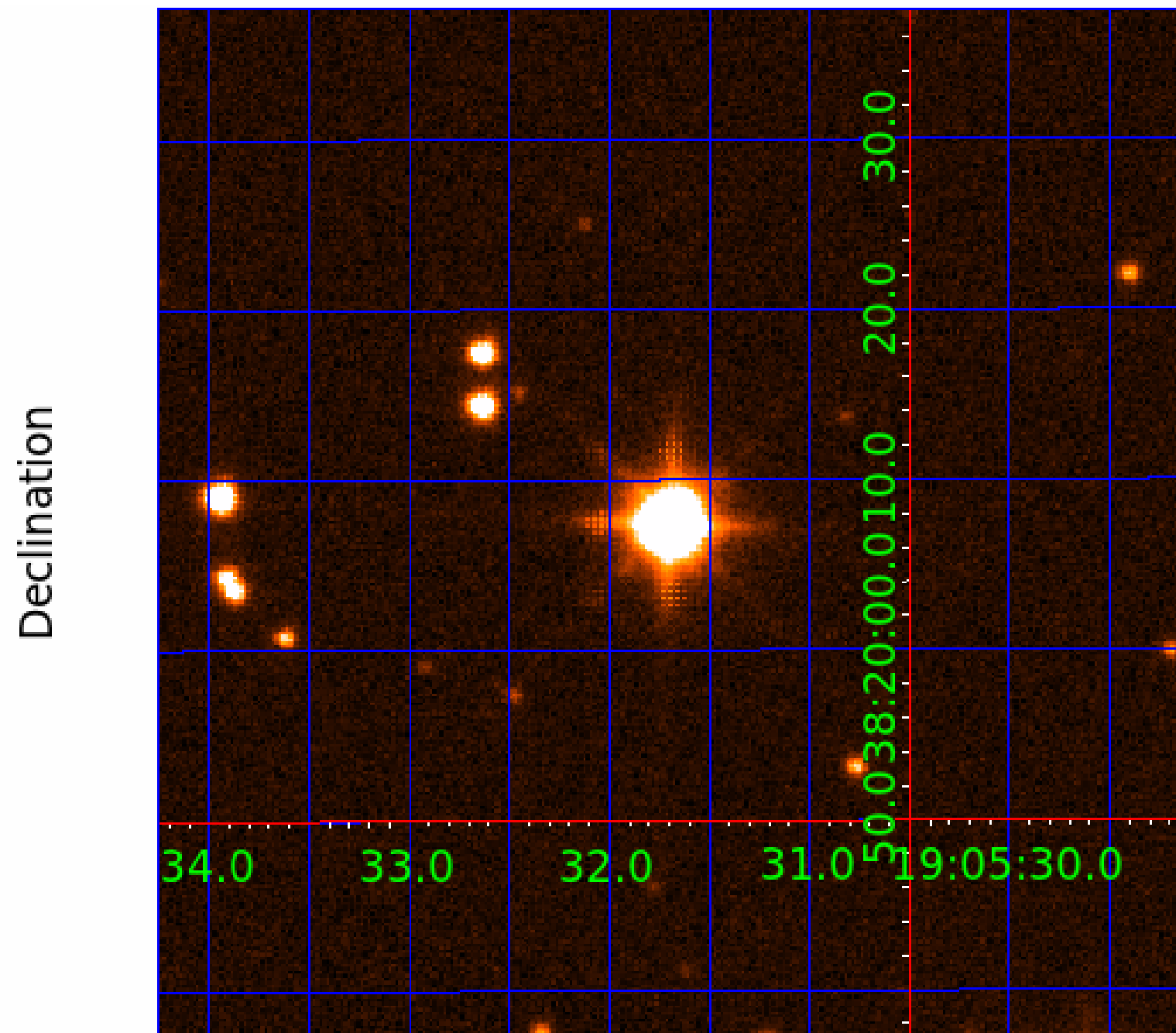
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003218637

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})
003218637-01	OBS	No	0.503818	131.710926	17.7	1.105	7.9	4.4	2.88	7421	1.41	93284.45
003218637-02	OBS	No	0.685336	132.114727	26.1	2.530	10.6	1.3	2.88	7421	1.61	61892.34
003218637-03	OBS	No	205.469610	315.290510	3779.0	3.458	9.1	10.1	2.88	7421	31.83	30.84
003218637-04	OBS	No	78.930239	209.673660	2700.2	7.580	8.6	8.3	2.88	7421	27.04	110.45
003218637-05	OBS	No	61.713157	179.127833	3112.2	4.832	8.3	9.1	2.88	7421	28.93	153.34
003218637-06	OBS	No	245.863405	301.283227	64.4	6.000	8.9	-1.0	2.88	7421	2.35	24.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003218637-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003218637-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
003218637-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—CENT_SATURATED
003218637-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

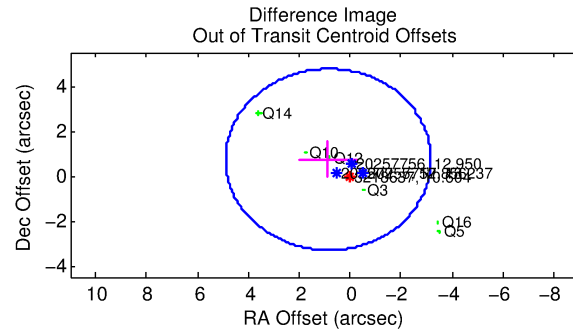
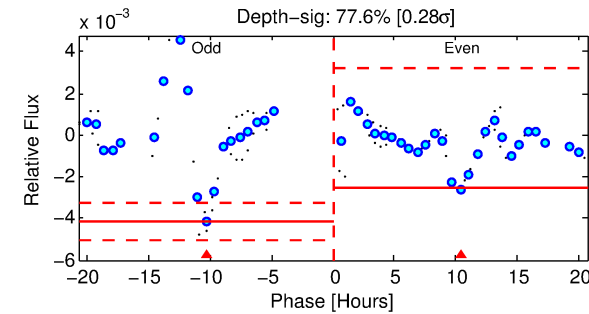
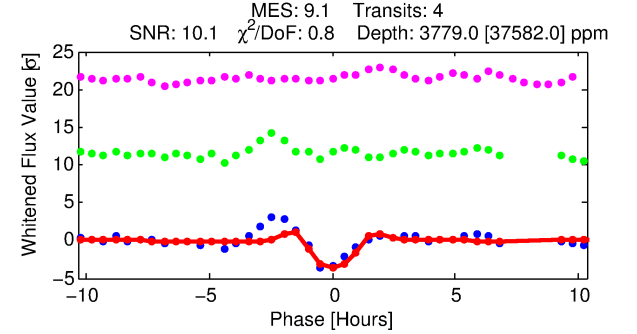
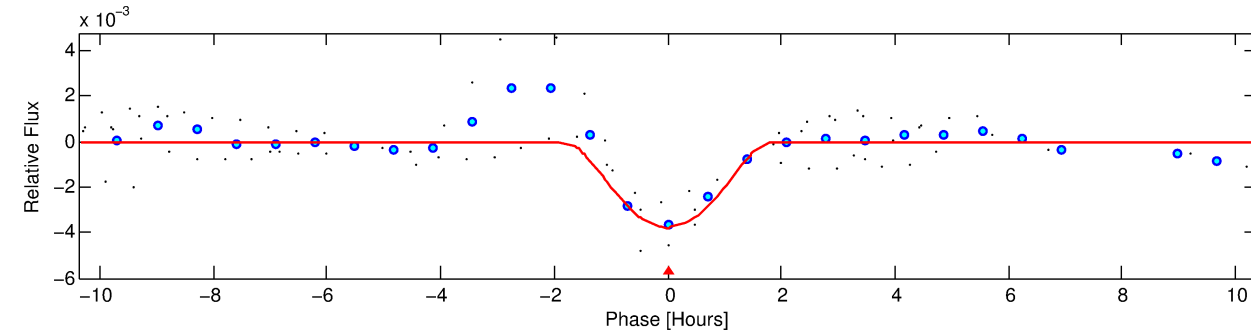
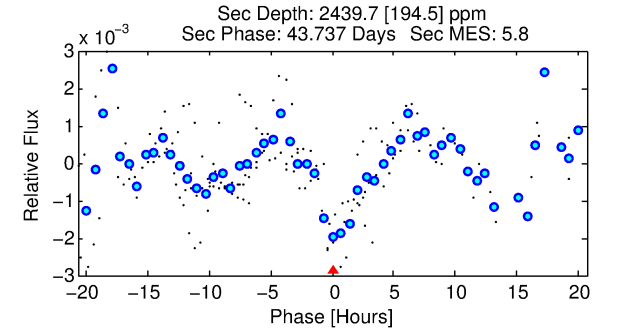
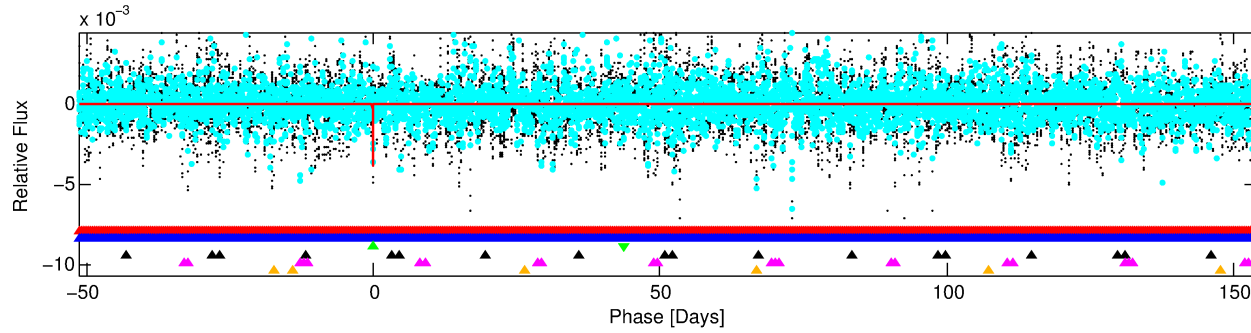
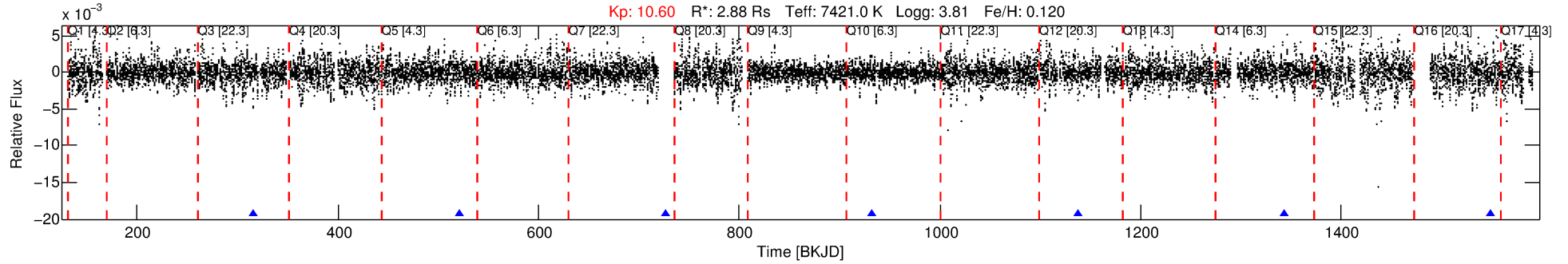
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003218637-03

No Significant Match Found

DV One-Page Summary

KIC: 3218637 Candidate: 3 of 6 Period: 205.470 d



DV Fit Results:

Period = 205.46961 [0.00182] d
Epoch = 315.2905 [0.0068] BKJD
Rp/R* = 0.1011 [0.2176]
a/R* = 209.19 [94.63]
b = 1.00 [0.99]
Seff = 30.84 [18.50]
Teq = 601 [90] K
Rp = 31.83 [69.67] Re
a = 0.8563 [0.3142] AU
Ag = 971.33 [4218.32] [0.23σ]
Teffp = 5187 [5587] K [0.82σ]

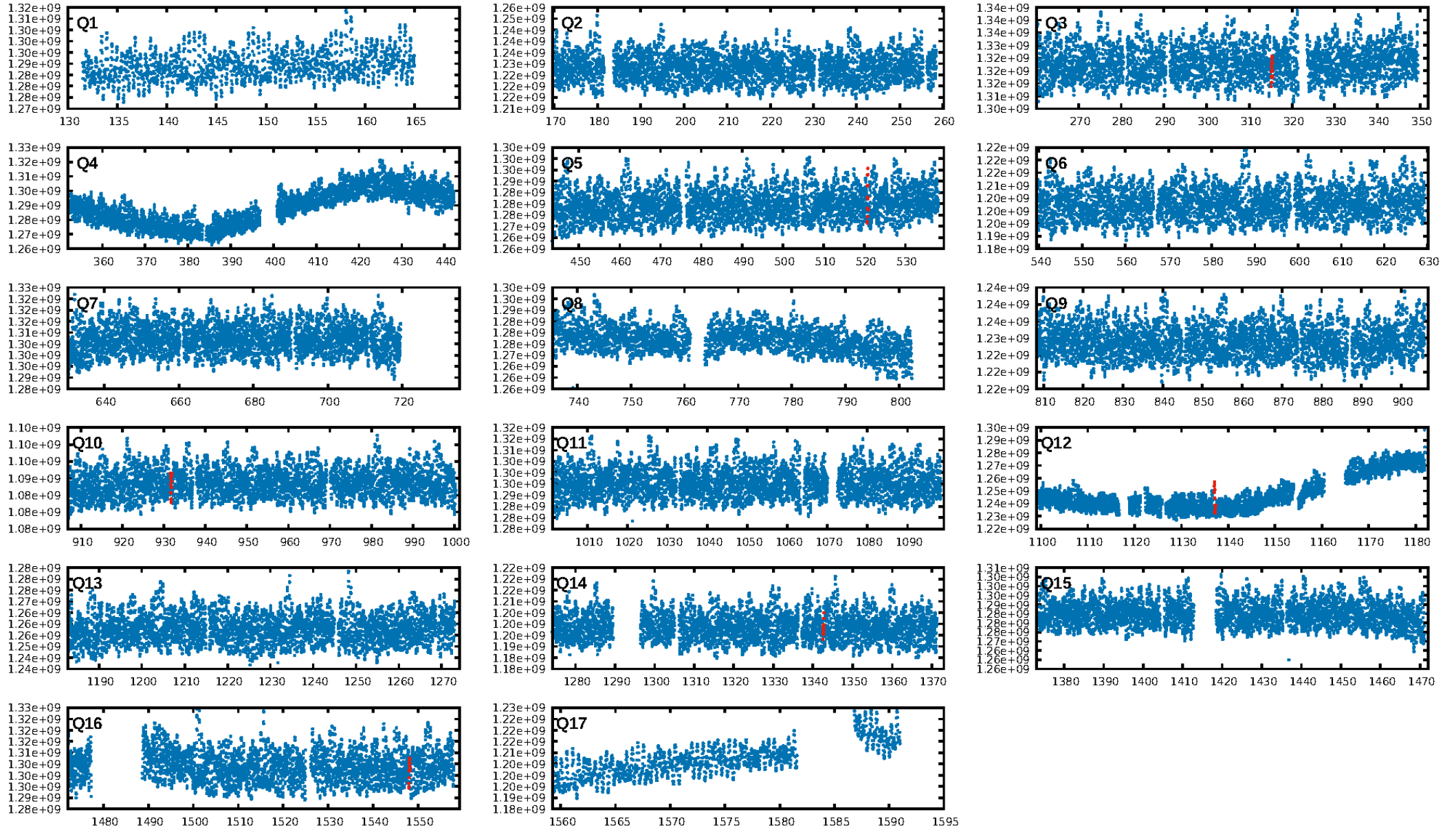
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [364.50σ]
LongPeriod-sig: 100.0% [139.98σ]
ModelChiSquare2-sig: 23.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.505 arcsec [2.20σ]
OotOffset-rm: 1.125 arcsec [0.84σ]
KicOffset-rm: 1.224 arcsec [1.76σ]
OotOffset-st: 2/1/2/1 [6]
KicOffset-st: 2/1/2/1 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.00 [0/6]

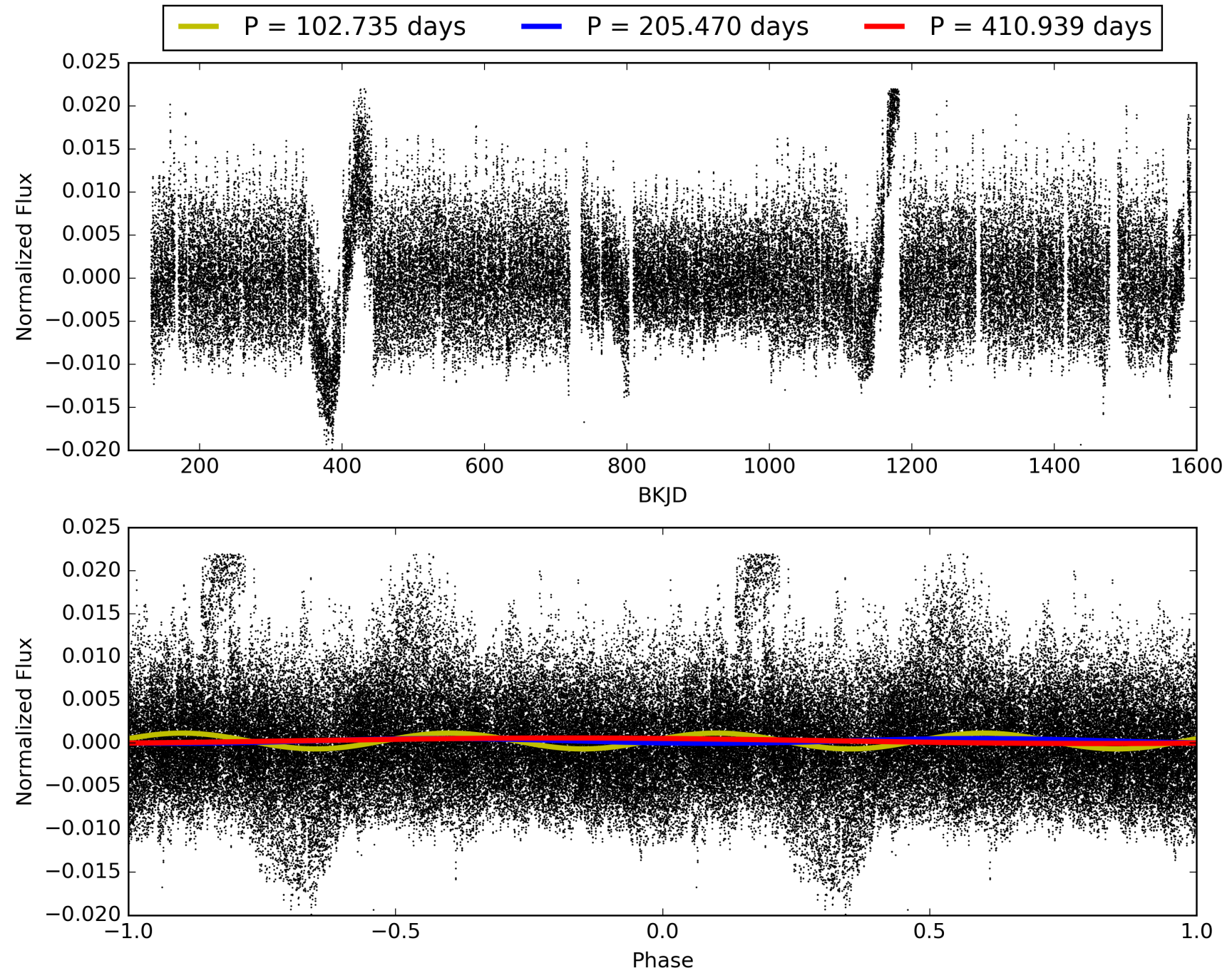
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:44:03 Z

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

TCE 003218637-03, PDC Light Curves

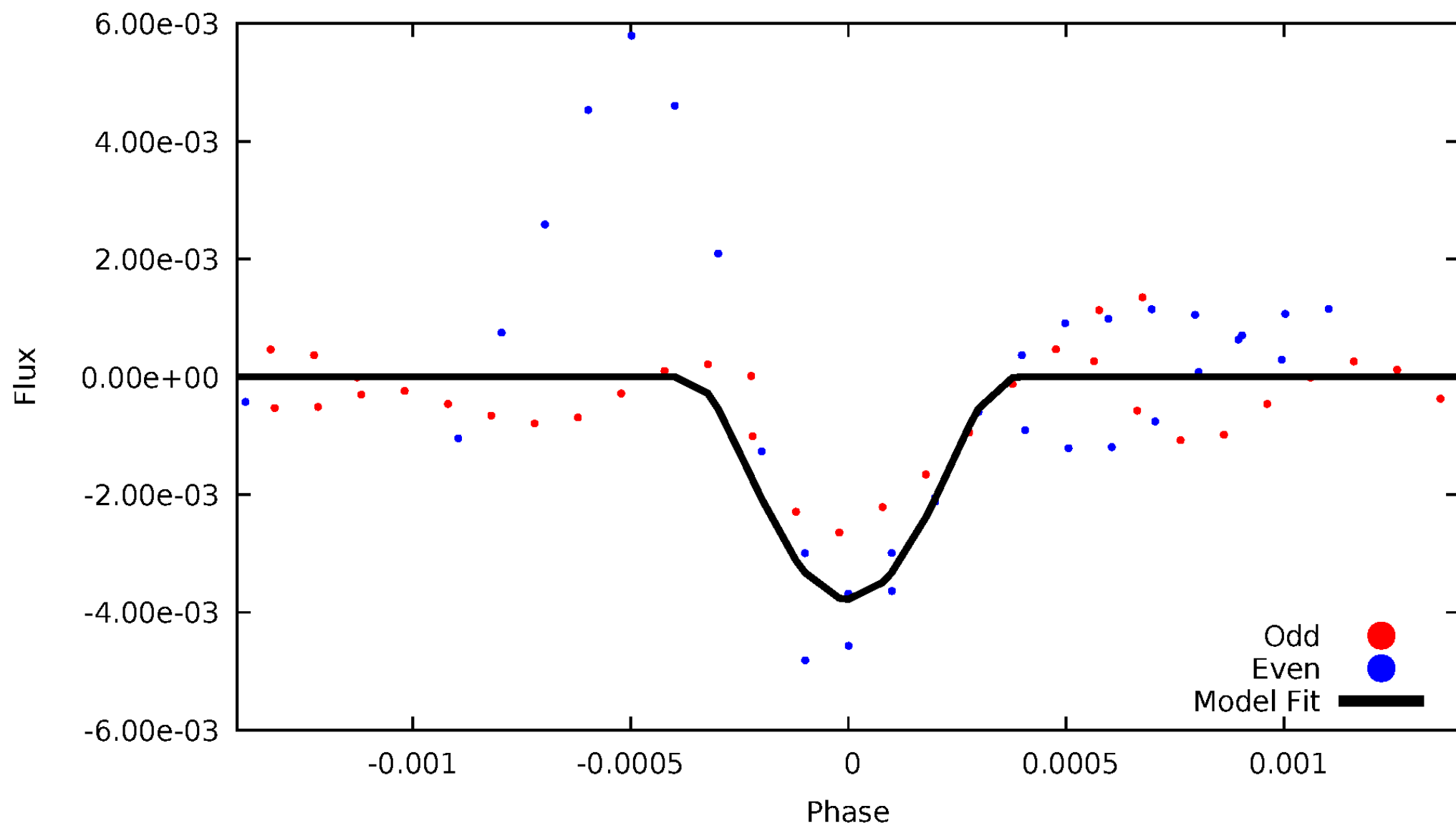


TCE 003218637-03



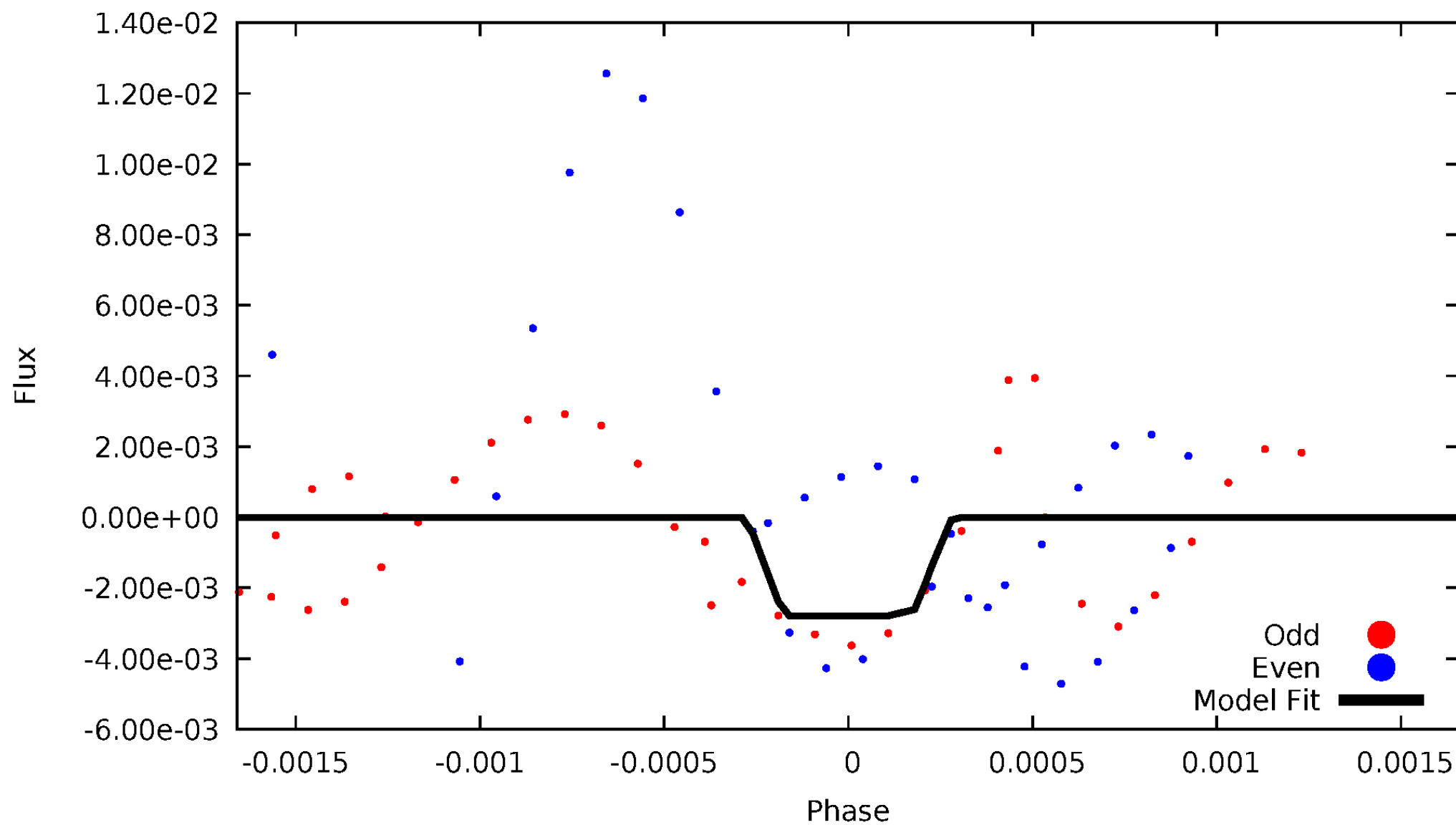
DV Odd/Even

TCE 003218637-03



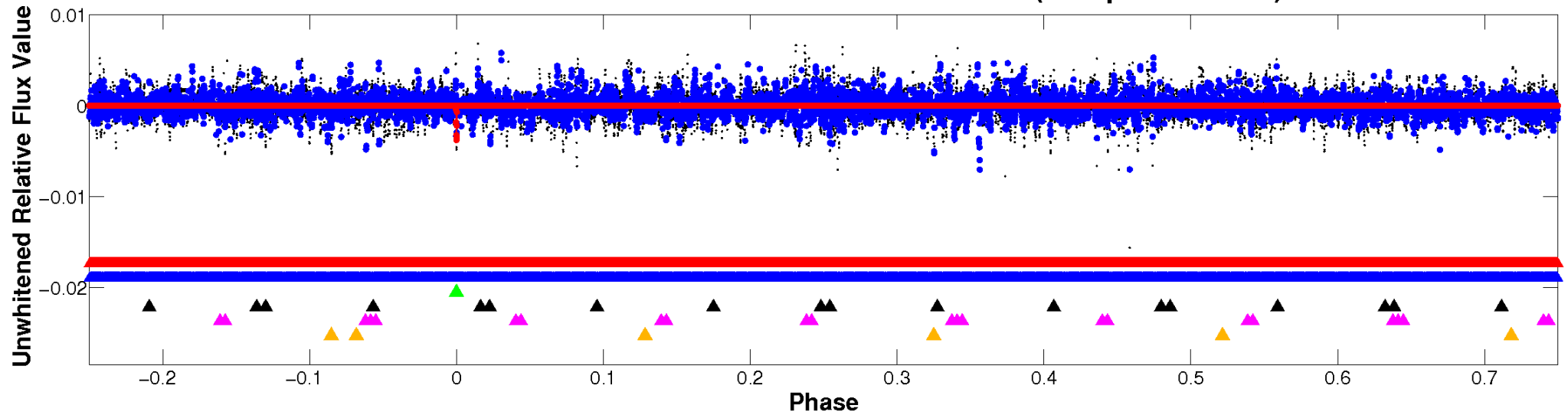
ALT Odd/Even

TCE 003218637-03

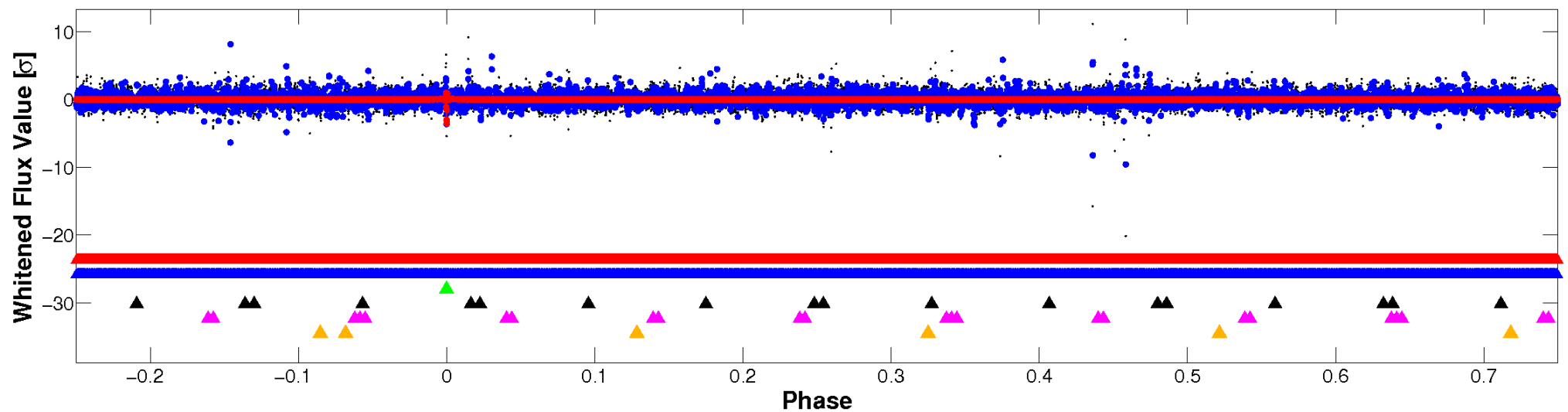


Non-Whitened Vs. Whitened Light Curve

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

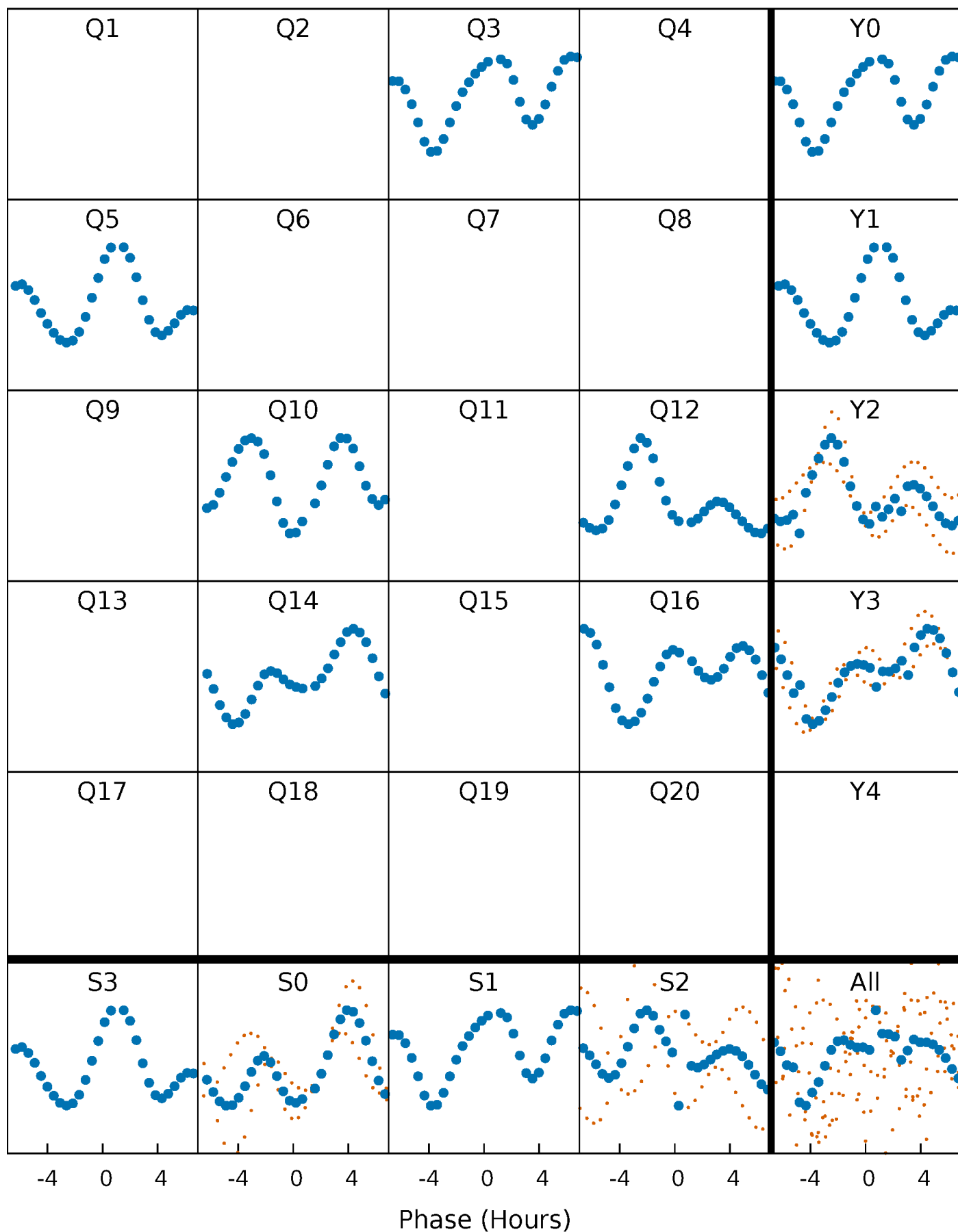


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



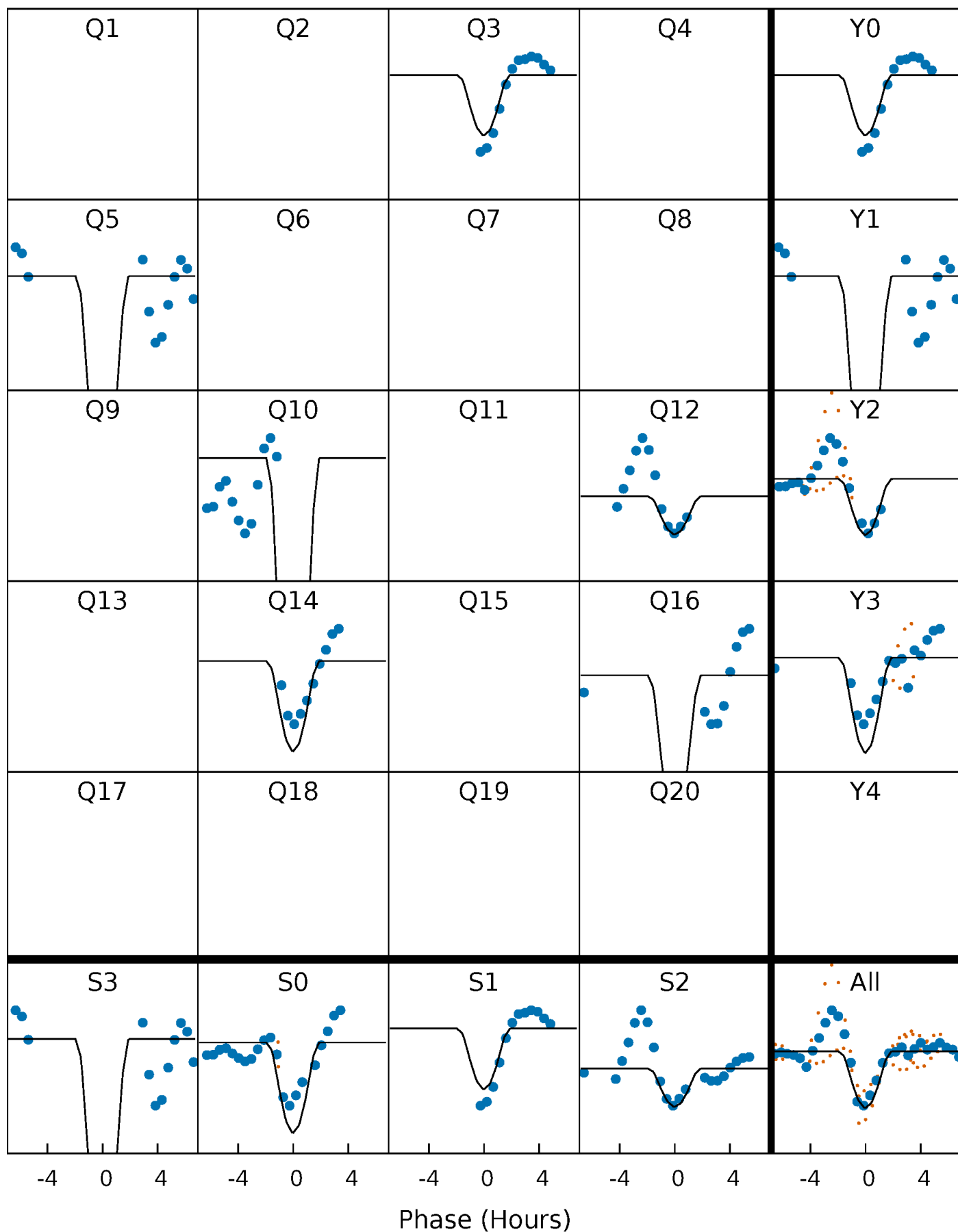
PDC Quarter-Phased Transit Curves

TCE 003218637-03 $P=205.469610$ Days $T_0=315.290510$ (BKJD)



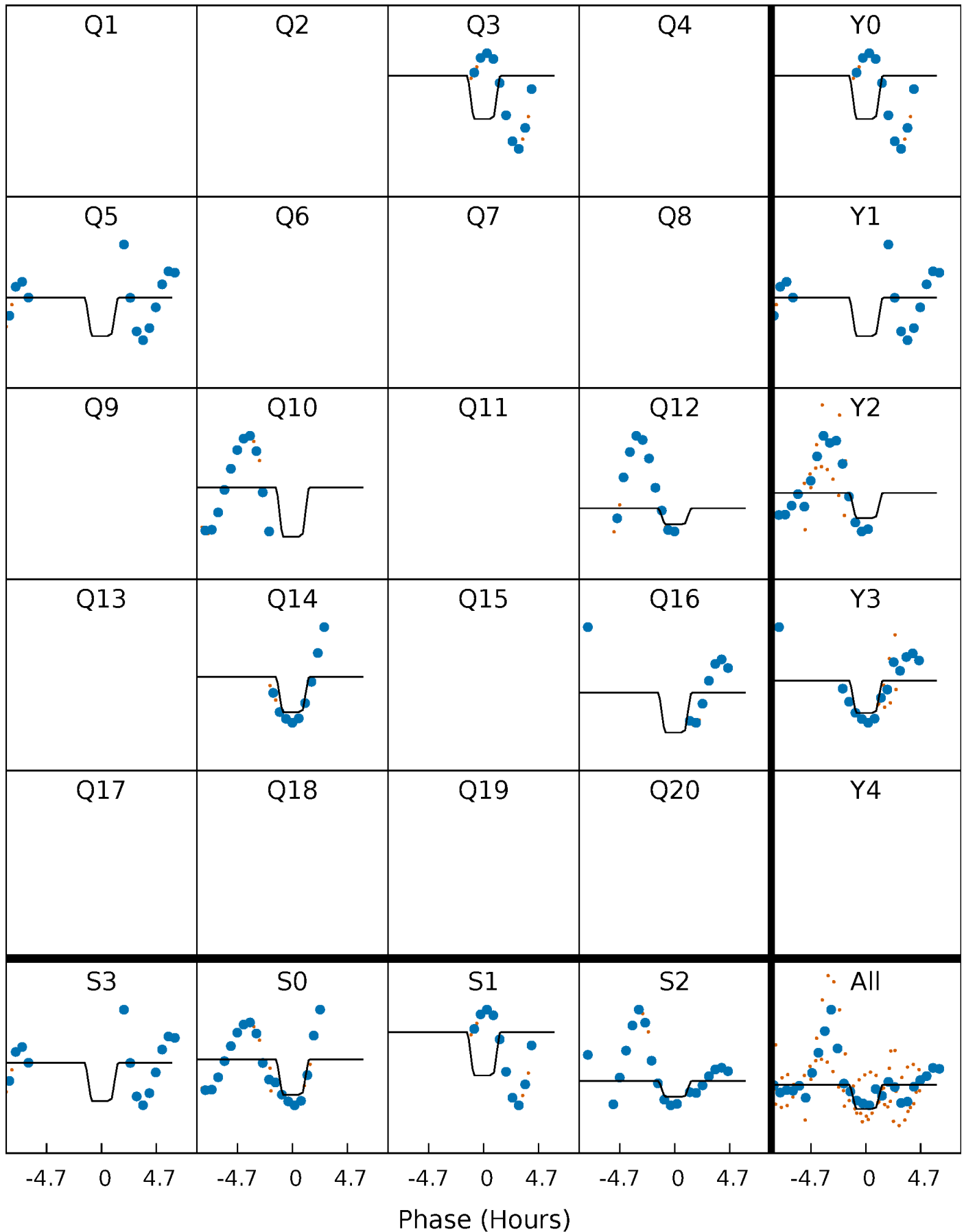
DV Quarter-Phased Transit Curves

TCE 003218637-03 $P=205.469610$ Days $T_0=315.290510$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

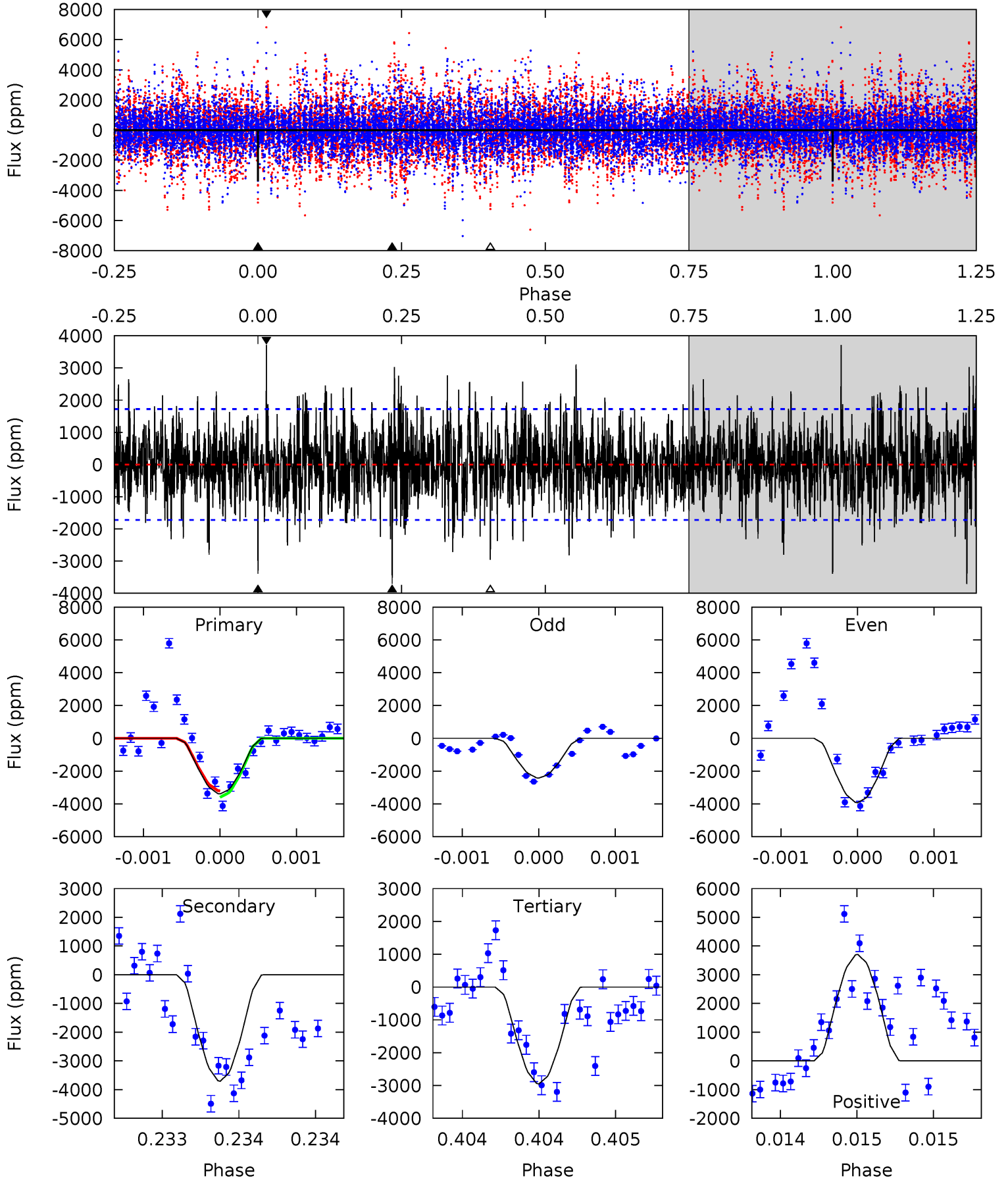
TCE 003218637-03 P=205.471680 Days $T_0=315.314991$ (BKJD)



DV Model-Shift Uniqueness Test

003218637-03, P = 205.469610 Days, E = 109.820900 Days

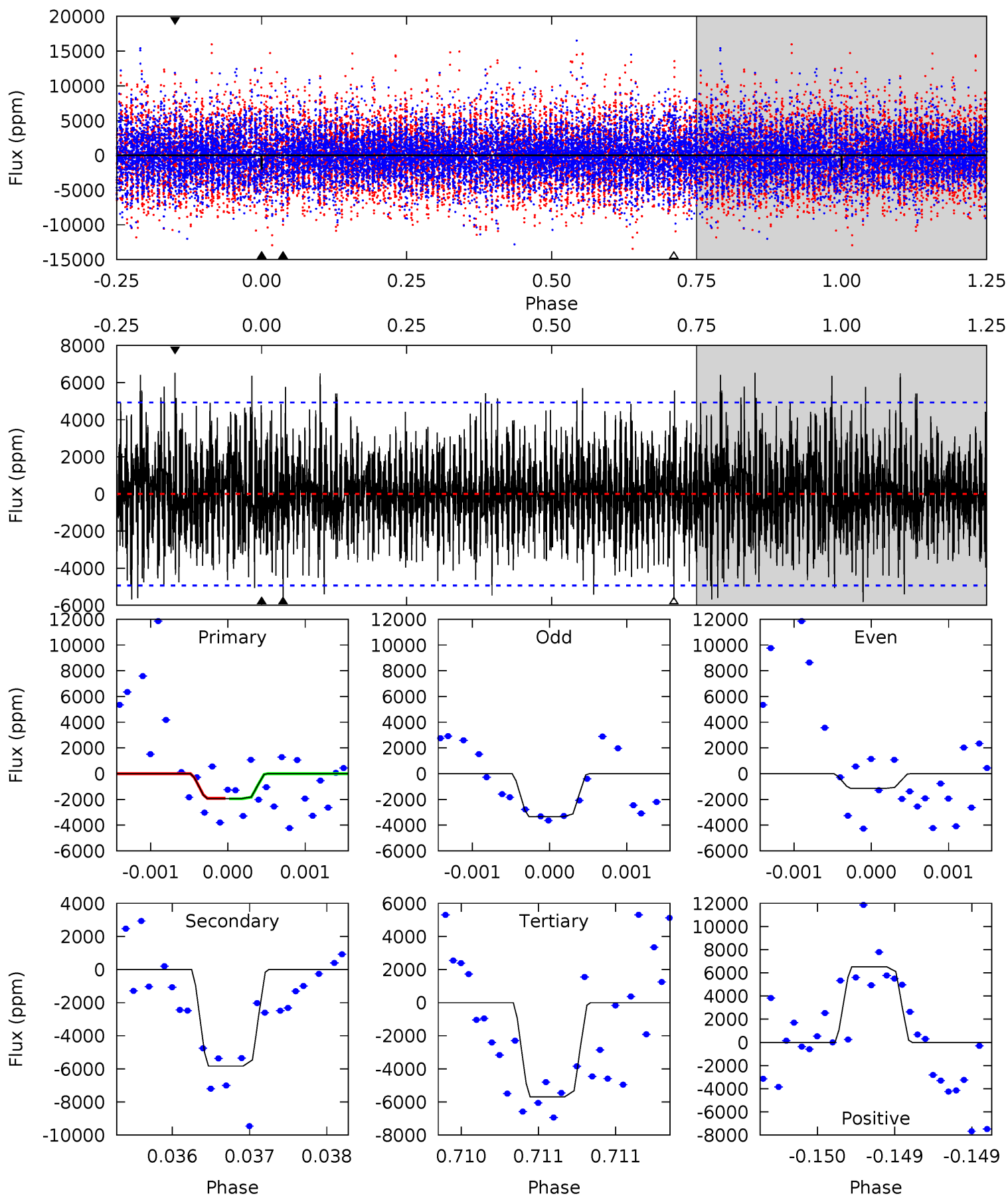
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	11.9	9.46	11.9	5.51	3.39	2.64	1.41	-1.02	2.43	-0.00	2.37	0.88	0.50	0.63



Alt Model-Shift Uniqueness Test

003218637-03, P = 205.471680 Days, E = 109.843311 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.17	6.55	6.39	7.33	5.54	3.43	2.16	-4.22	-5.16	0.16	-0.78	1.14	0.62	0.53	0.02



Stellar Parameters For KIC 003218637

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7421^{+206}_{-335}	$3.815^{+0.330}_{-0.110}$	$0.120^{+0.200}_{-0.350}$	$2.885^{+0.493}_{-1.149}$	$1.985^{+0.089}_{-0.503}$	$0.116^{+0.293}_{-0.040}$
	+3%/-5%	+9%/-3%	+167%/-292%	+17%/-40%	+4%/-25%	+252%/-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 003218637-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3710 ± 312	$58.56^{+50.70}_{-39.22}$	819^{+59}_{-79}	4273^{+2834}_{-831}	429^{+3450}_{-310}
Alt.	-5830 ± 890	$47.65^{+54.27}_{-32.91}$	825^{+54}_{-84}	5081^{+4652}_{-1287}	1008^{+9204}_{-794}

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

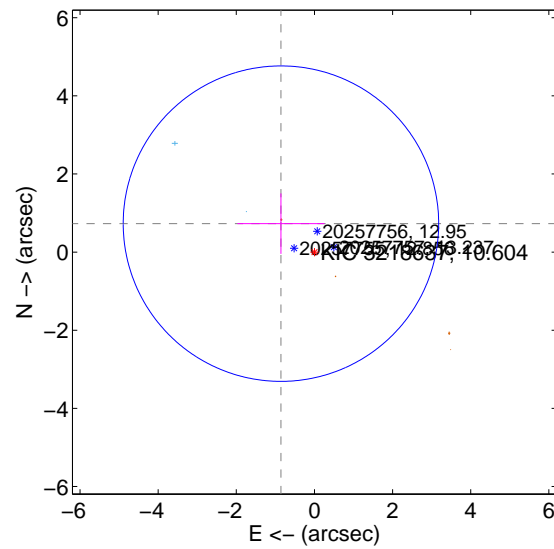
Supplemental centroid analysis for 003218637-03. **Kepler magnitude: 10.60.** Transit SNR 10.15

There are 2 quarters with good PRF difference image offsets

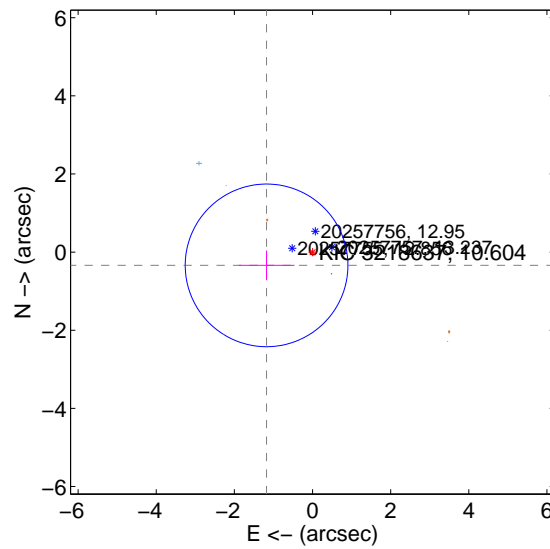
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.125 ± 1.346	0.84	0.858 ± 1.113	0.728 ± 0.774
PRF-fit source offset from KIC position	1.224 ± 0.694	1.76	1.176 ± 0.714	-0.340 ± 0.381
photometric centroid source offset	0.51 ± 0.23	2.20	0.49 ± 0.23	0.10 ± 0.19

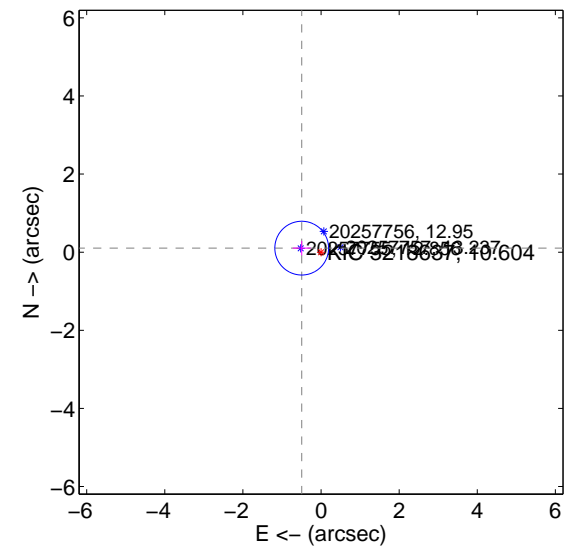
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

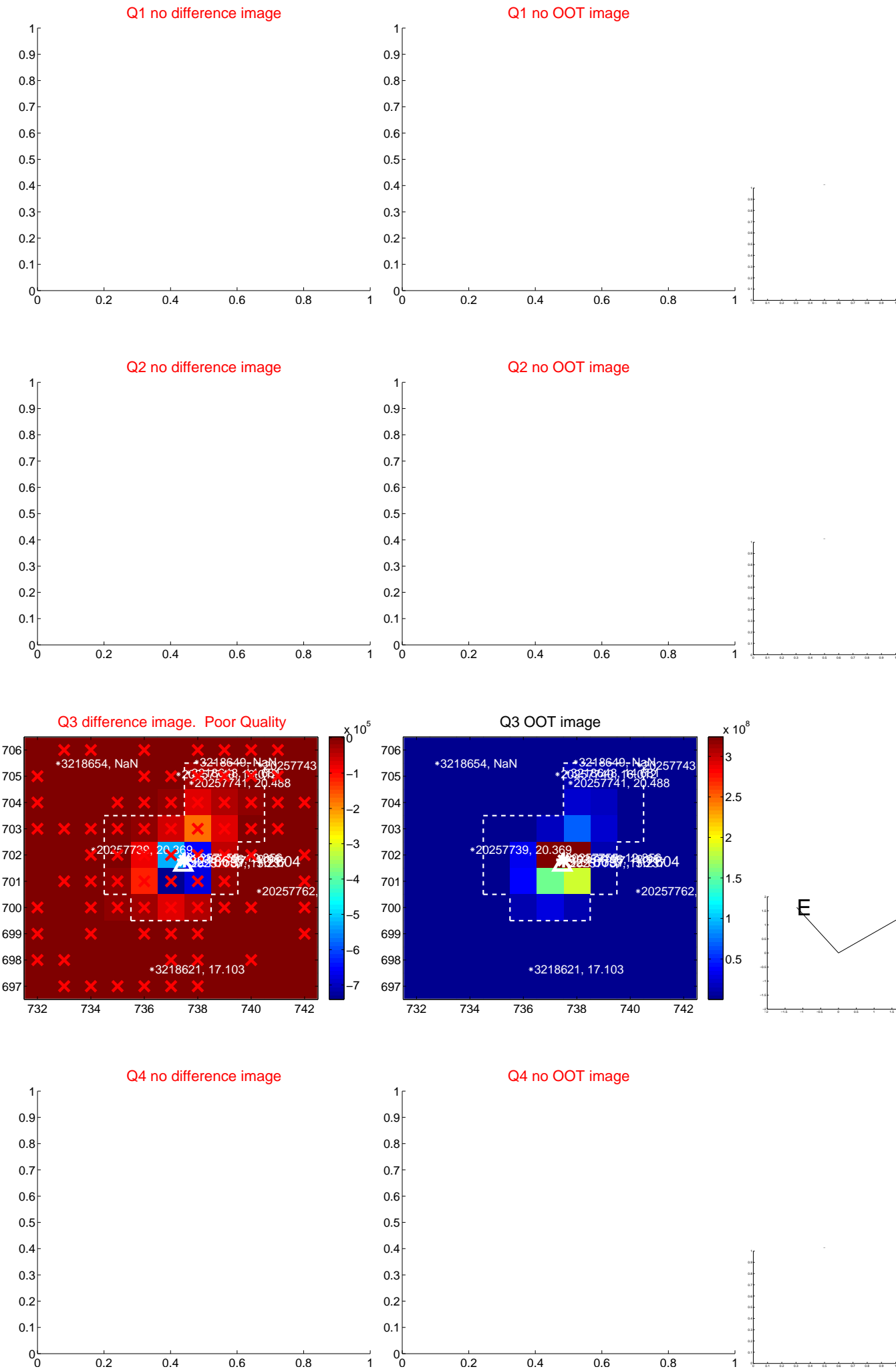


offset from photometric centroids

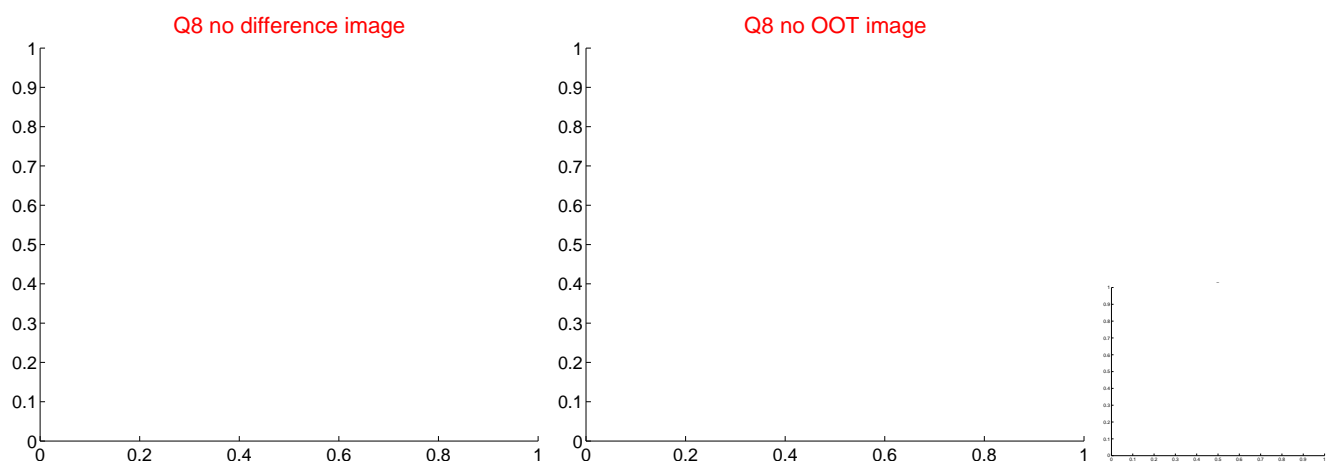
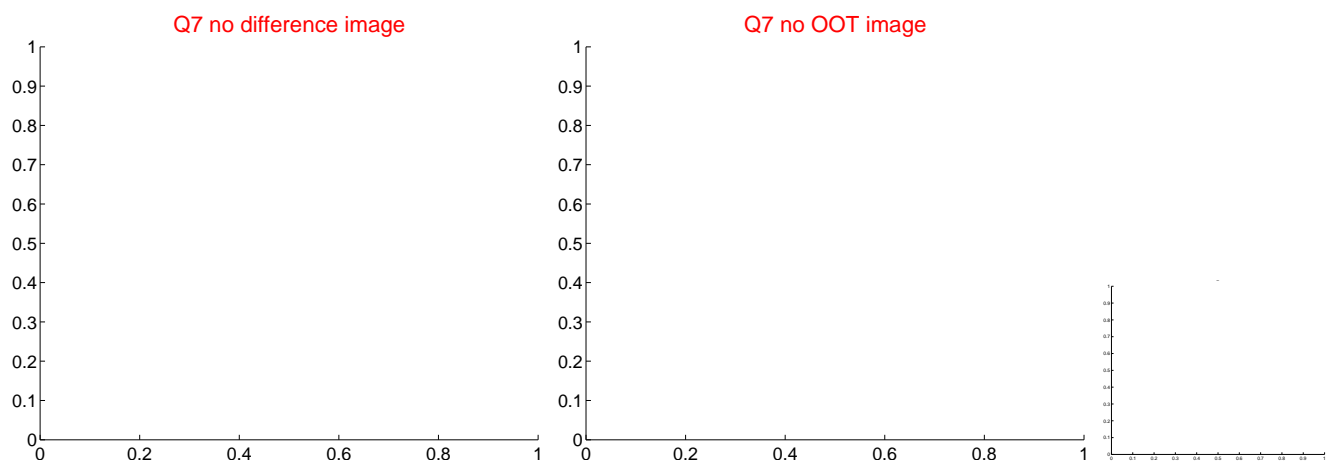
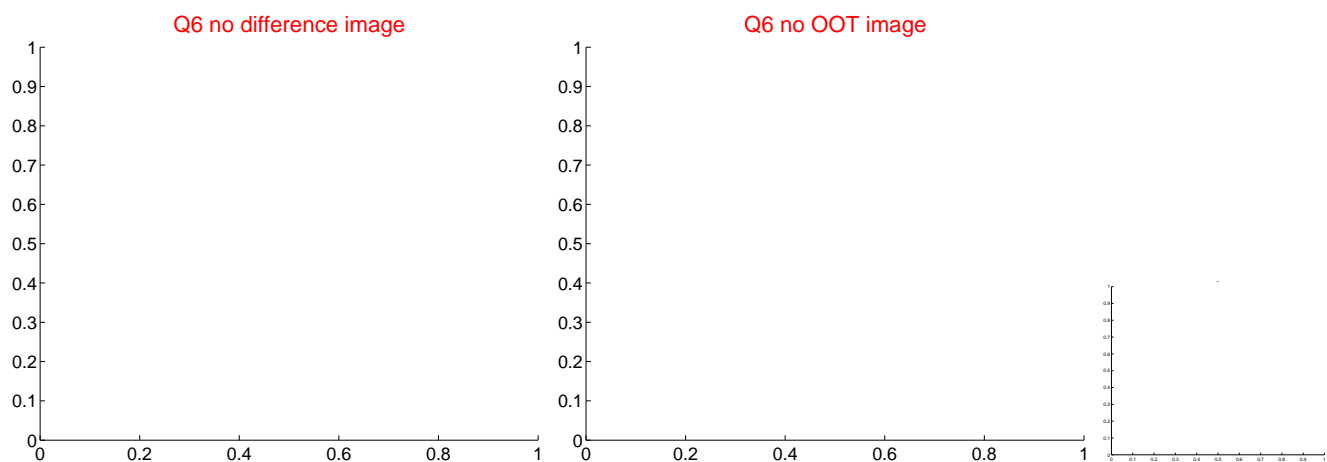
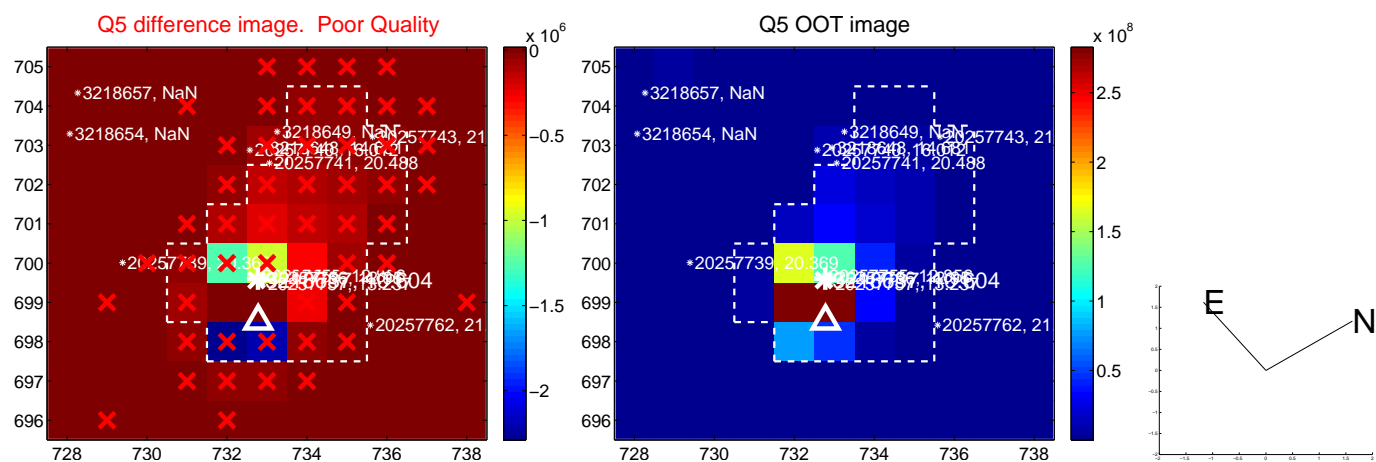


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

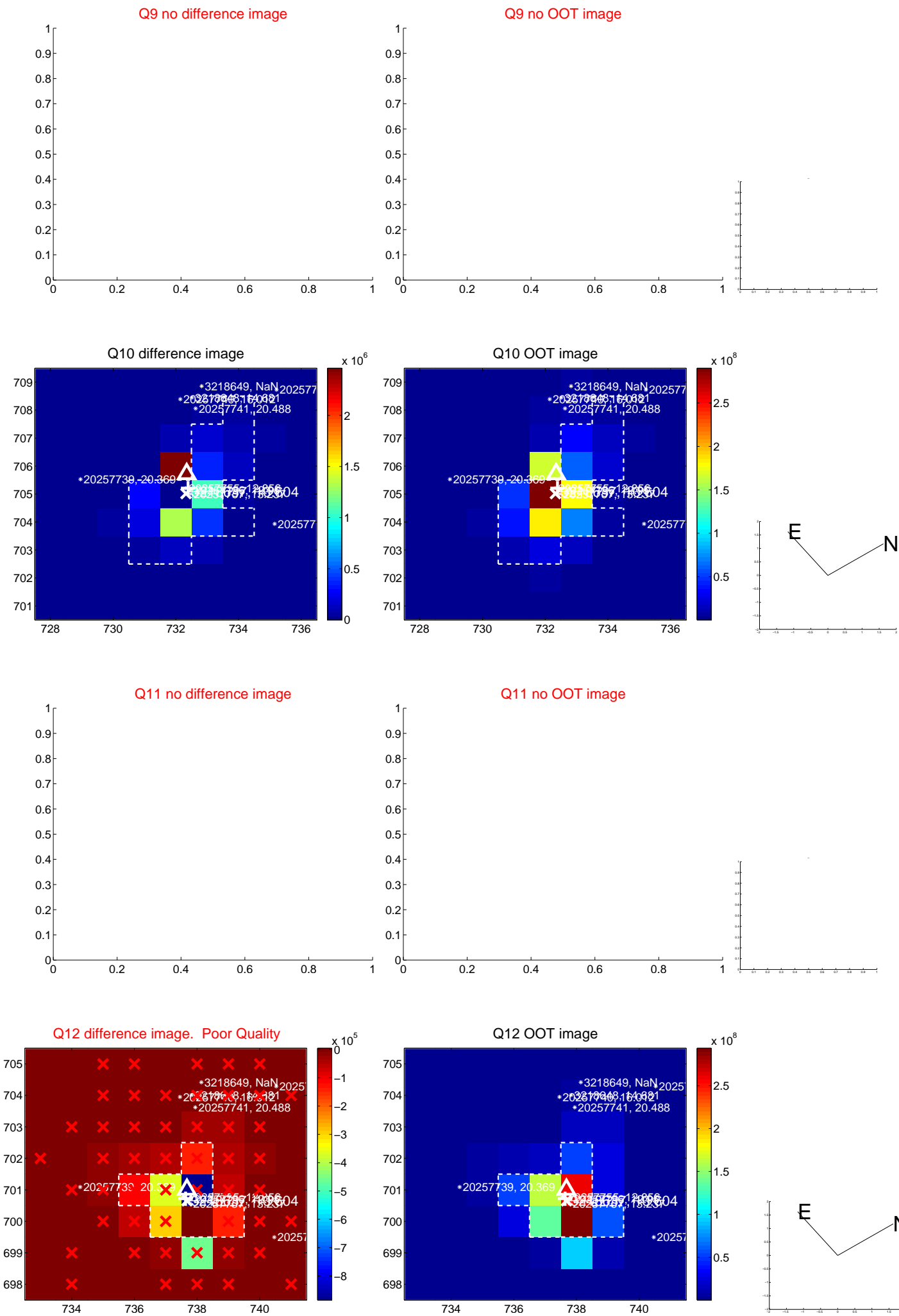
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



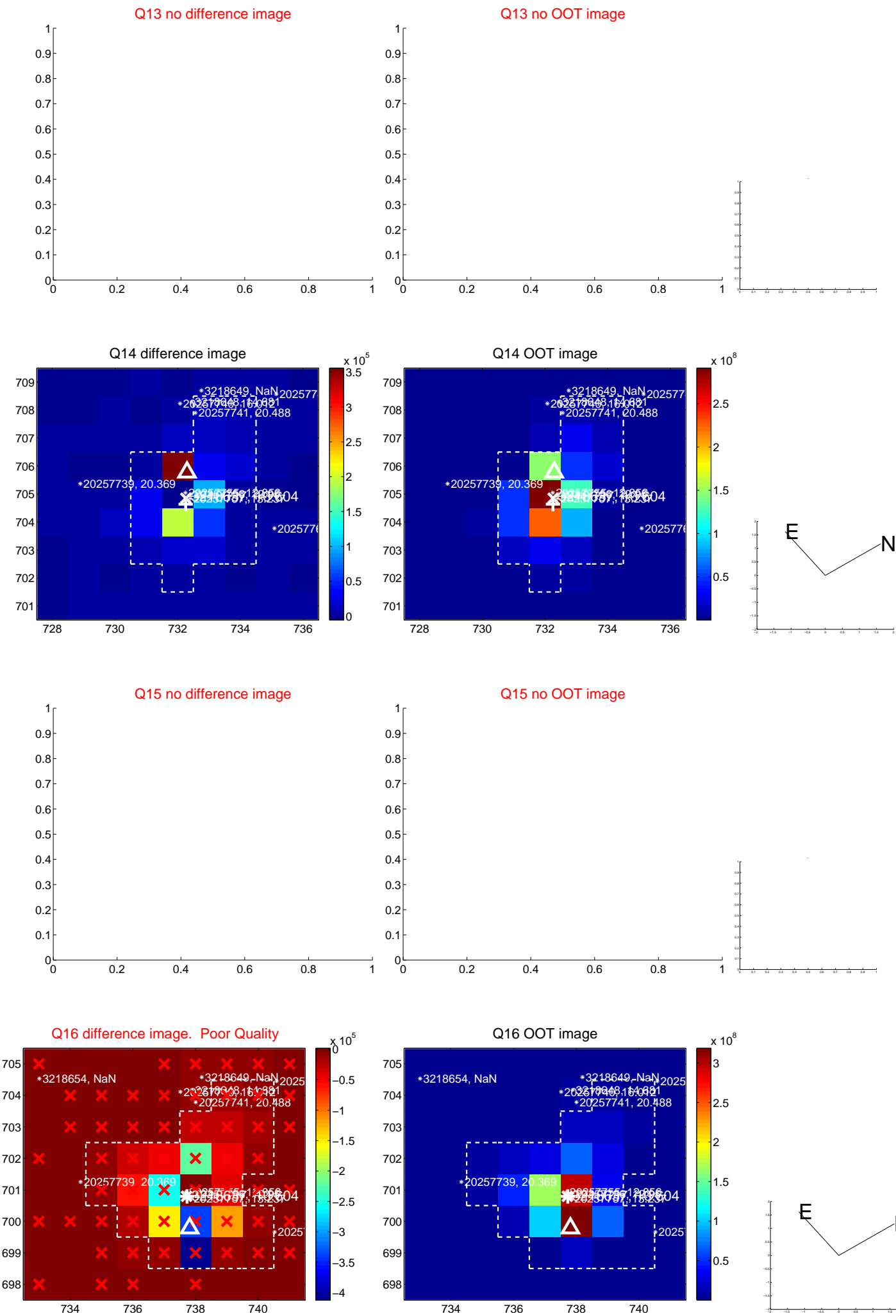
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



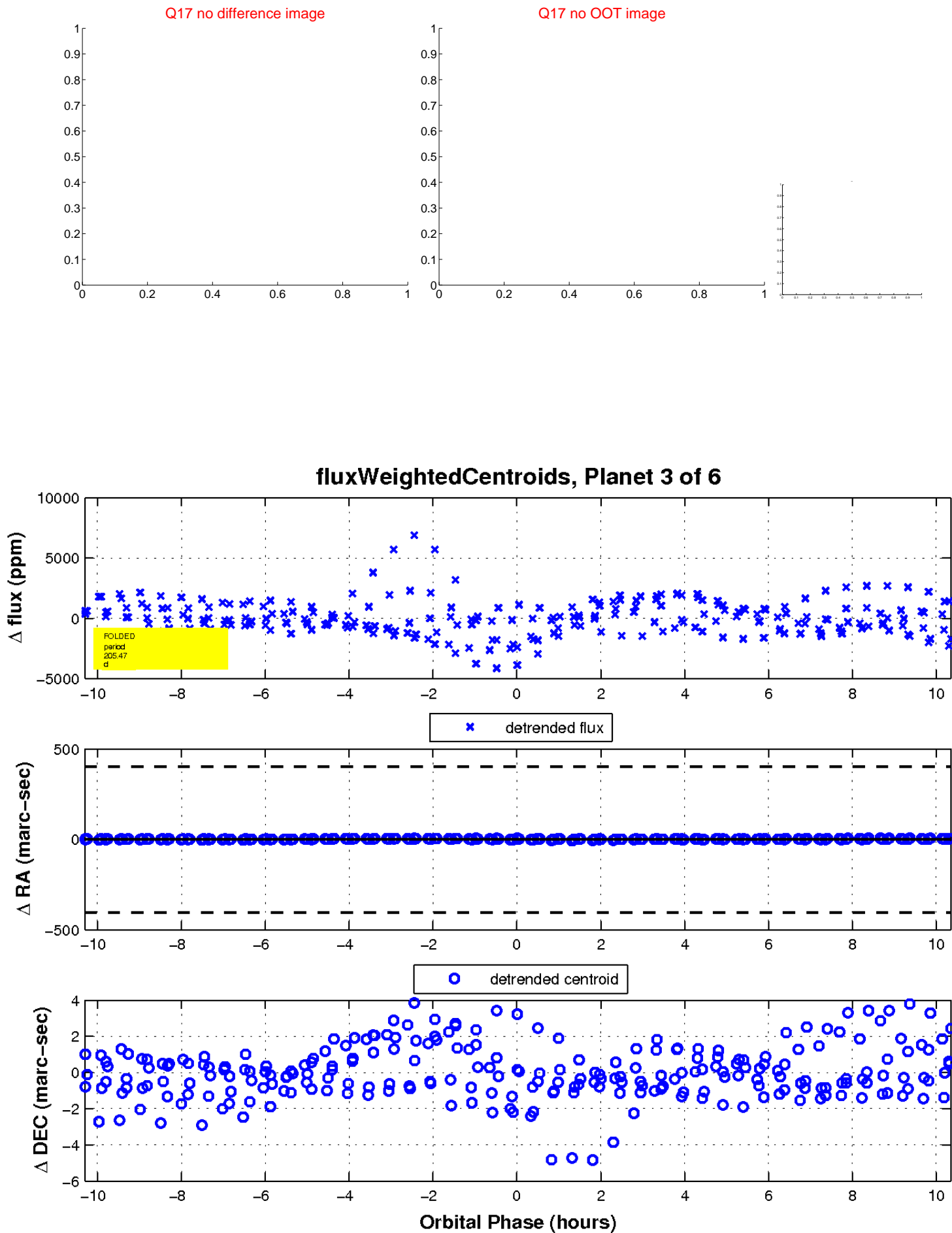
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



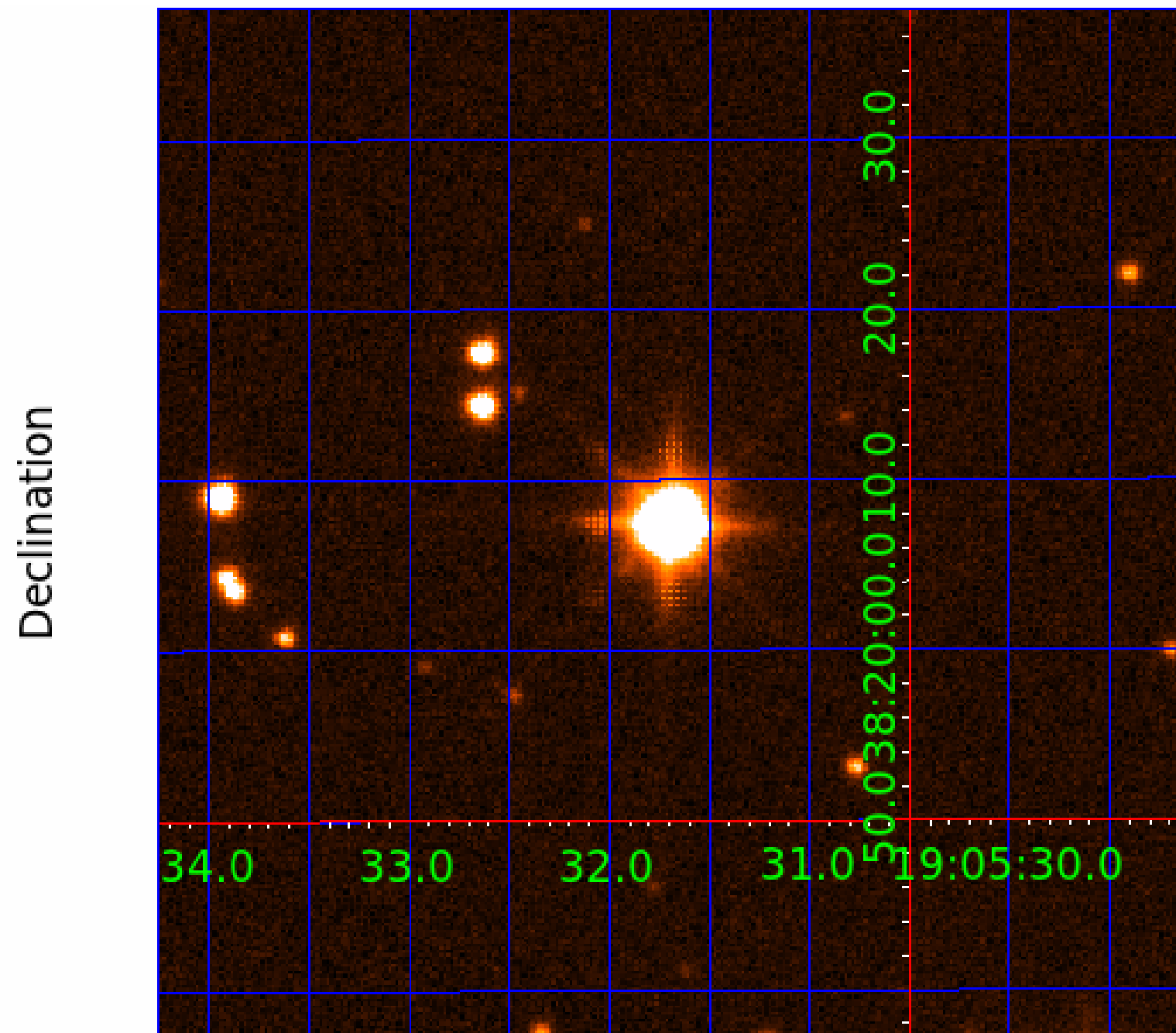
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003218637

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})
003218637-01	OBS	No	0.503818	131.710926	17.7	1.105	7.9	4.4	2.88	7421	1.41	93284.45
003218637-02	OBS	No	0.685336	132.114727	26.1	2.530	10.6	1.3	2.88	7421	1.61	61892.34
003218637-03	OBS	No	205.469610	315.290510	3779.0	3.458	9.1	10.1	2.88	7421	31.83	30.84
003218637-04	OBS	No	78.930239	209.673660	2700.2	7.580	8.6	8.3	2.88	7421	27.04	110.45
003218637-05	OBS	No	61.713157	179.127833	3112.2	4.832	8.3	9.1	2.88	7421	28.93	153.34
003218637-06	OBS	No	245.863405	301.283227	64.4	6.000	8.9	-1.0	2.88	7421	2.35	24.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003218637-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003218637-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
003218637-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—CENT_SATURATED
003218637-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

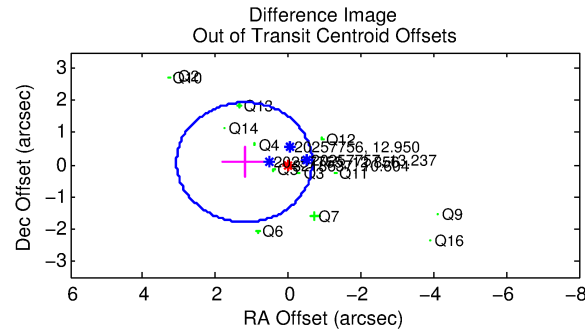
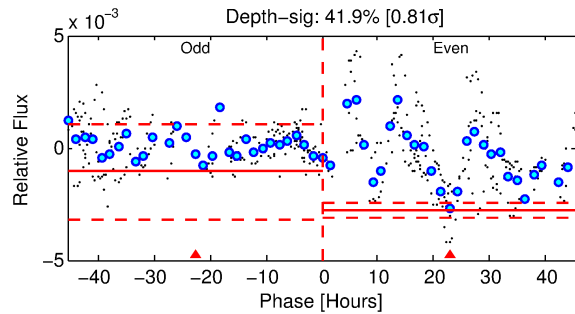
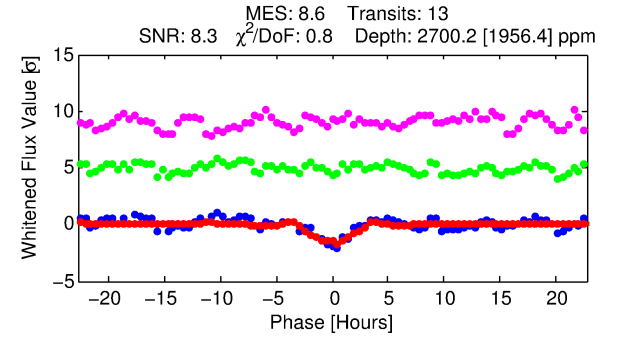
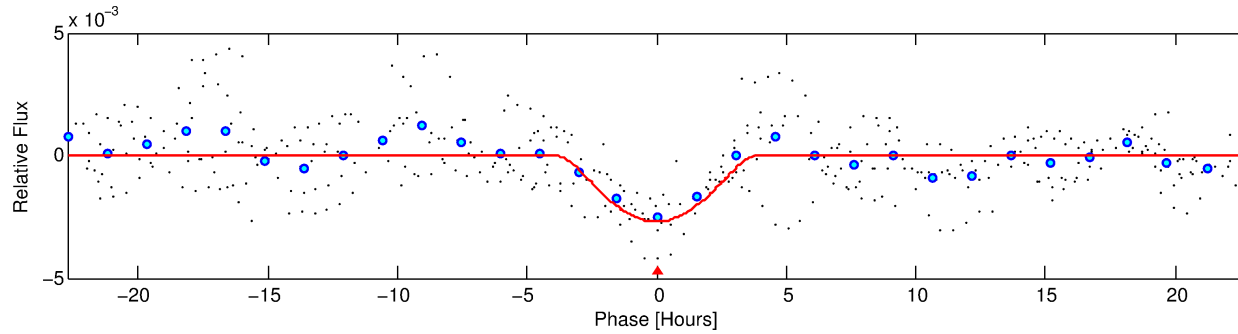
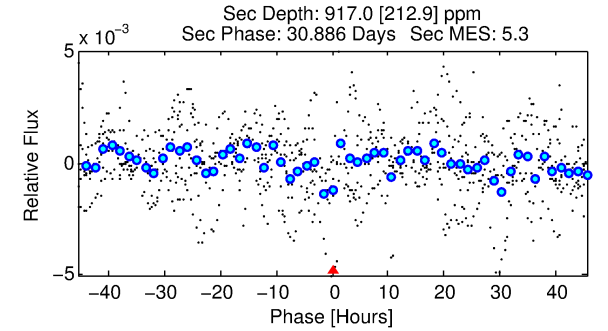
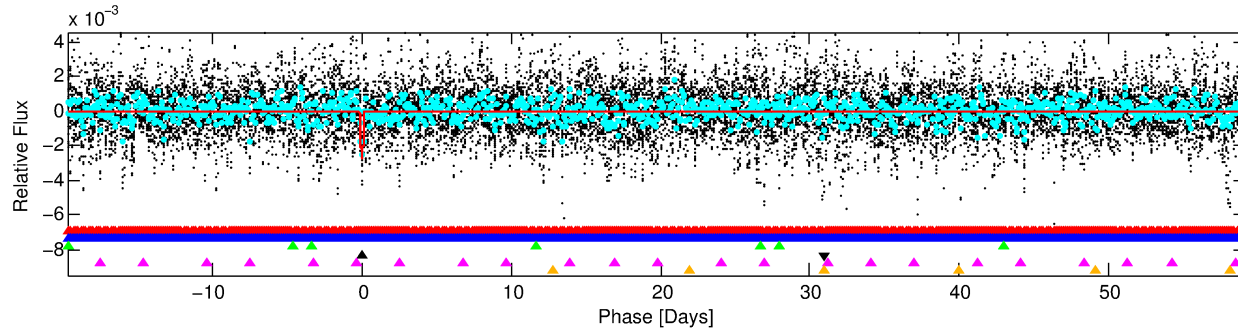
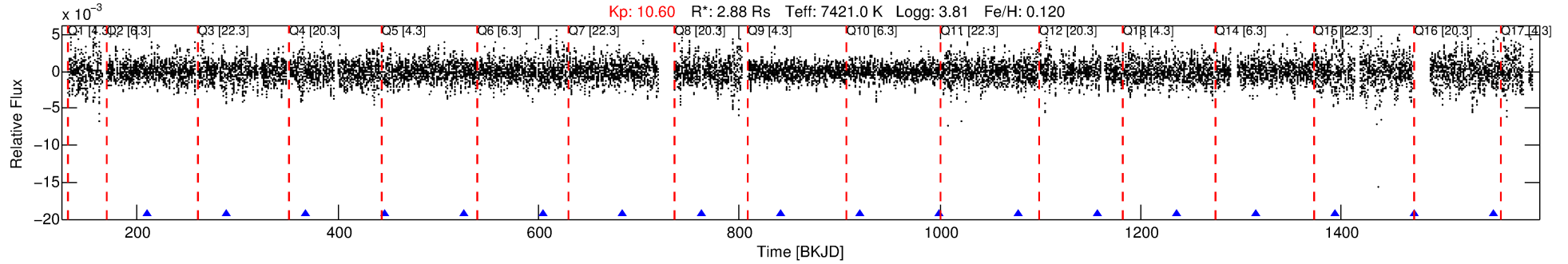
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003218637-04

No Significant Match Found

DV One-Page Summary

KIC: 3218637 Candidate: 4 of 6 Period: 78.930 d



DV Fit Results:

Period = 78.93024 [0.00176] d
Epoch = 209.6737 [0.0166] BKJD
Rp/R* = 0.0859 [0.1578]
a/R* = 33.69 [13.02]
b = 1.00 [0.19]
Seff = 110.45 [66.25]
Teq = 827 [124] K
Rp = 27.04 [50.83] Re
a = 0.4525 [0.1660] AU
Ag = 141.27 [526.34] [0.27σ]
Teffp = 4406 [4060] K [0.88σ]

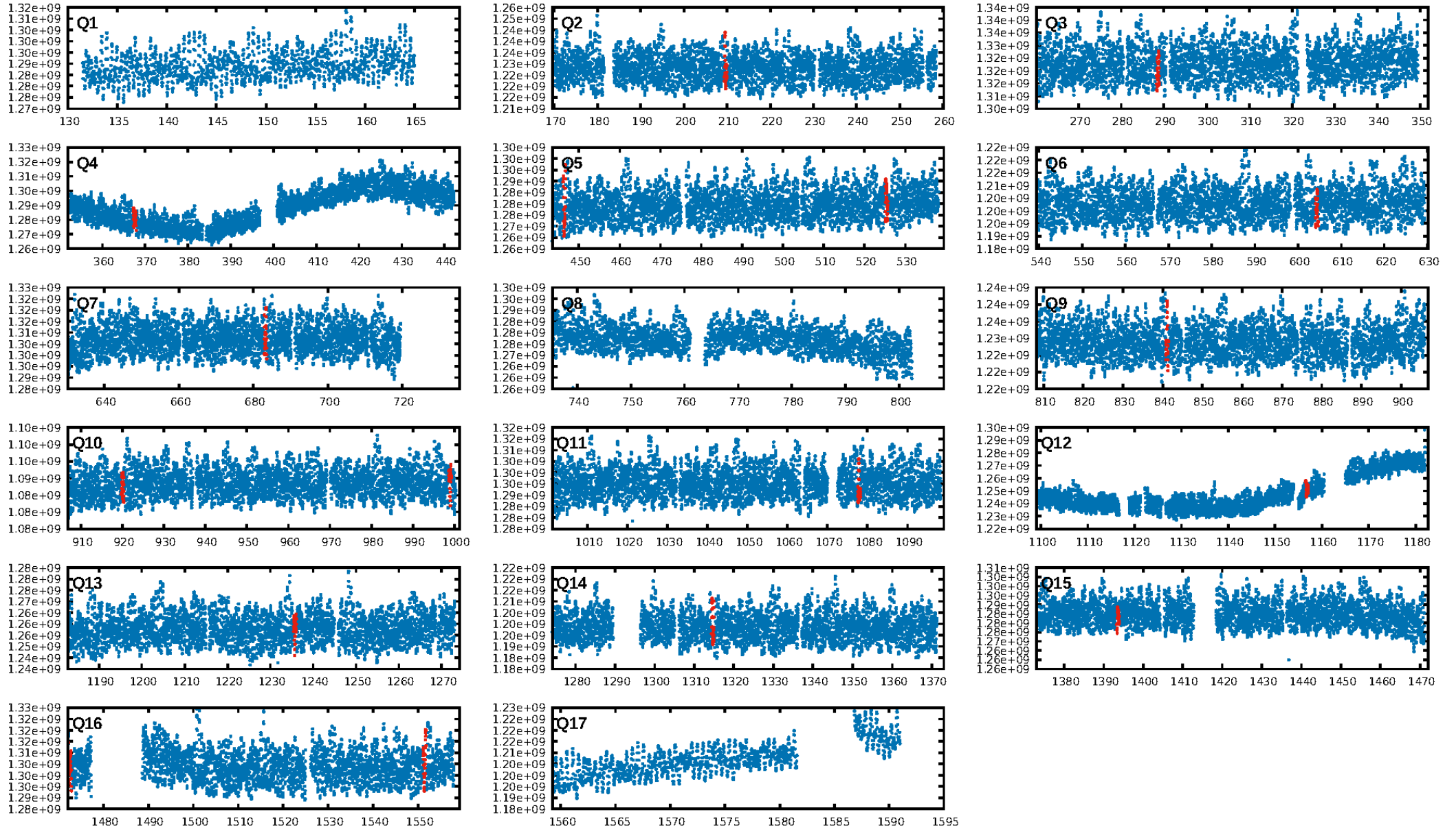
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [45.97σ]
LongPeriod-sig: 100.0% [364.50σ]
ModelChiSquare2-sig: 39.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.294 arcsec [1.88σ]
OotOffset-rm: 1.211 arcsec [1.95σ]
KicOffset-rm: 1.365 arcsec [2.09σ]
OotOffset-st: 4/3/3/3 [13]
KicOffset-st: 4/3/3/3 [13]
DiffImageQuality-fgm: 0.46 [6/13]
DiffImageOverlap-fno: 0.00 [0/13]

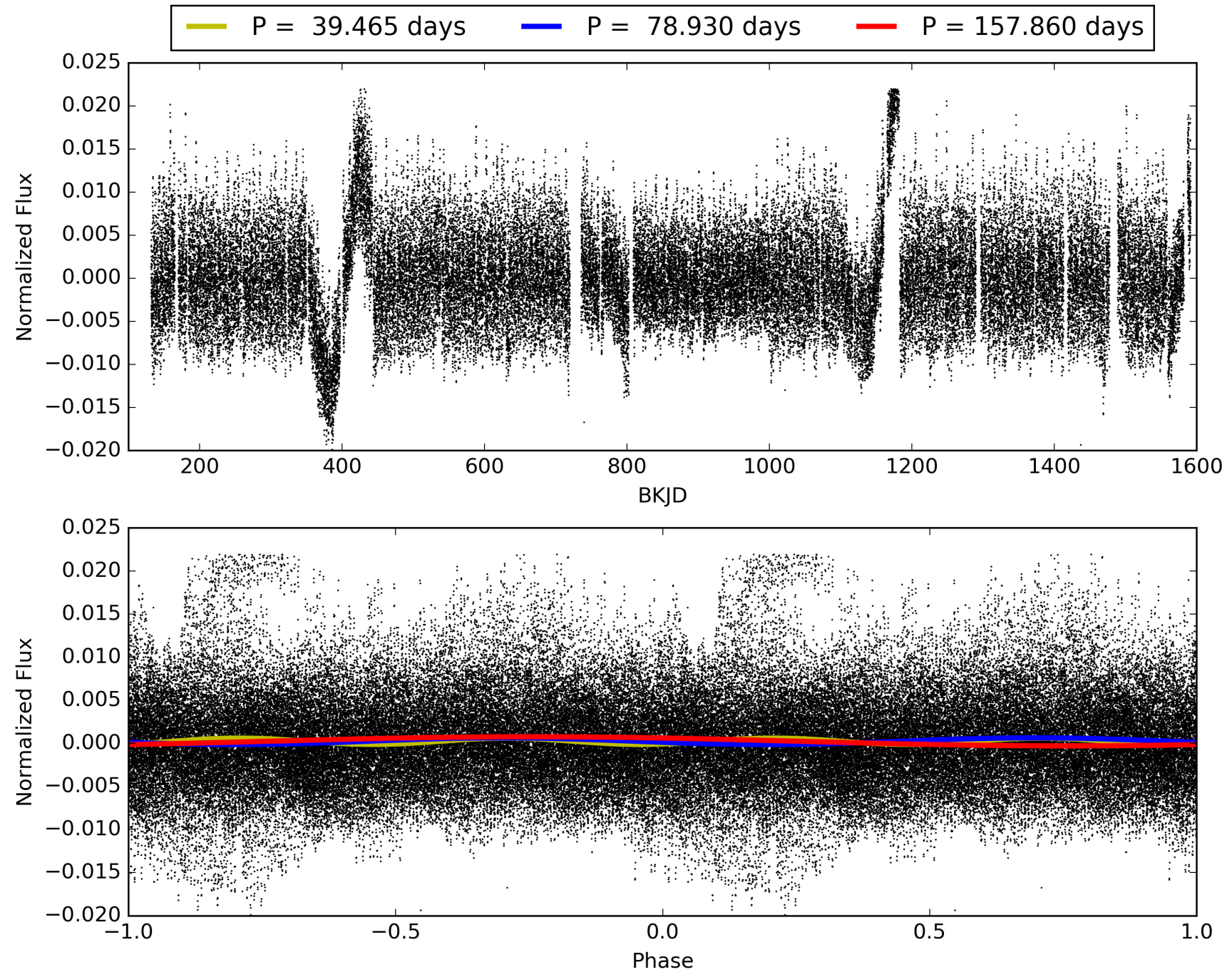
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:44:08 Z

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

TCE 003218637-04, PDC Light Curves

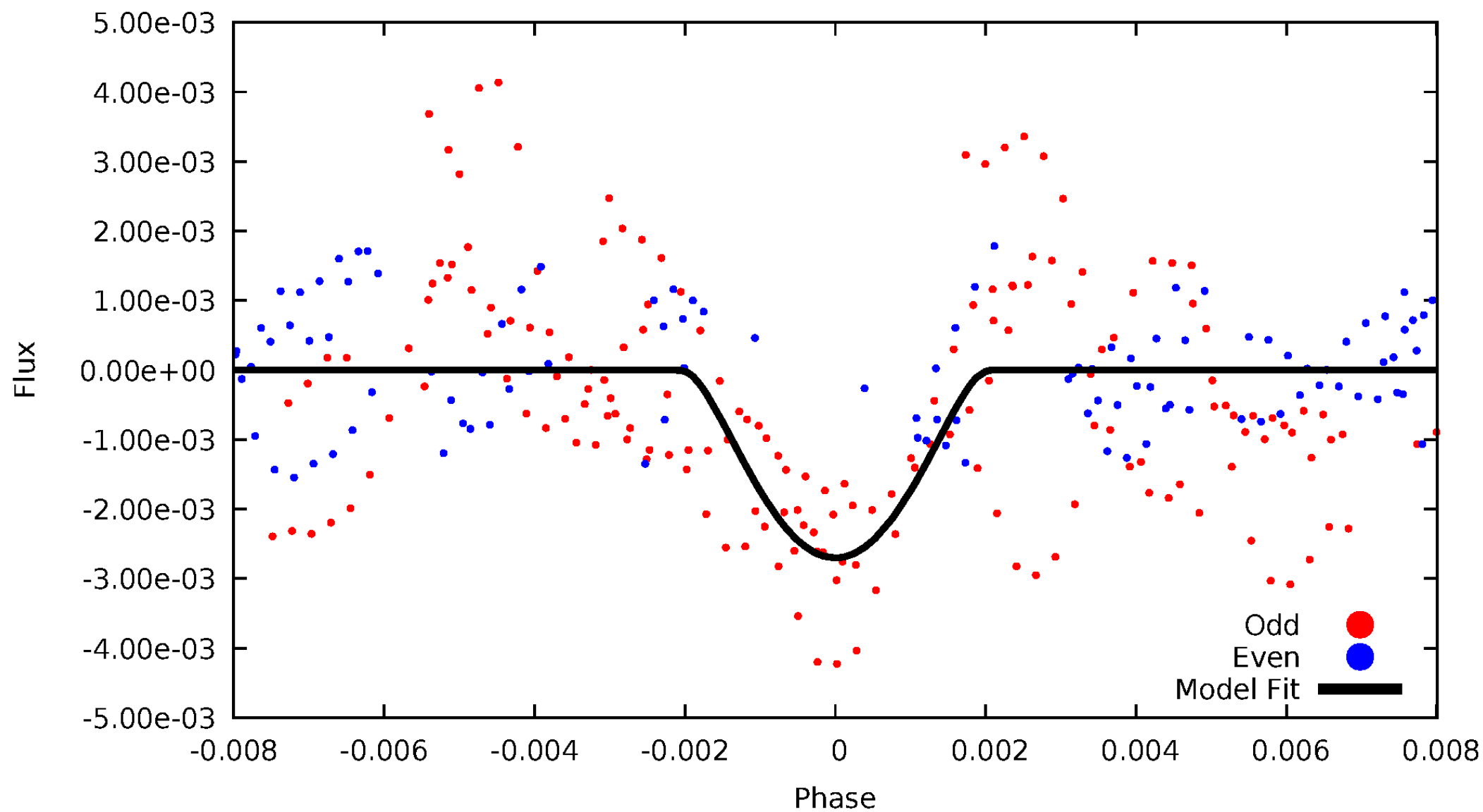


TCE 003218637-04



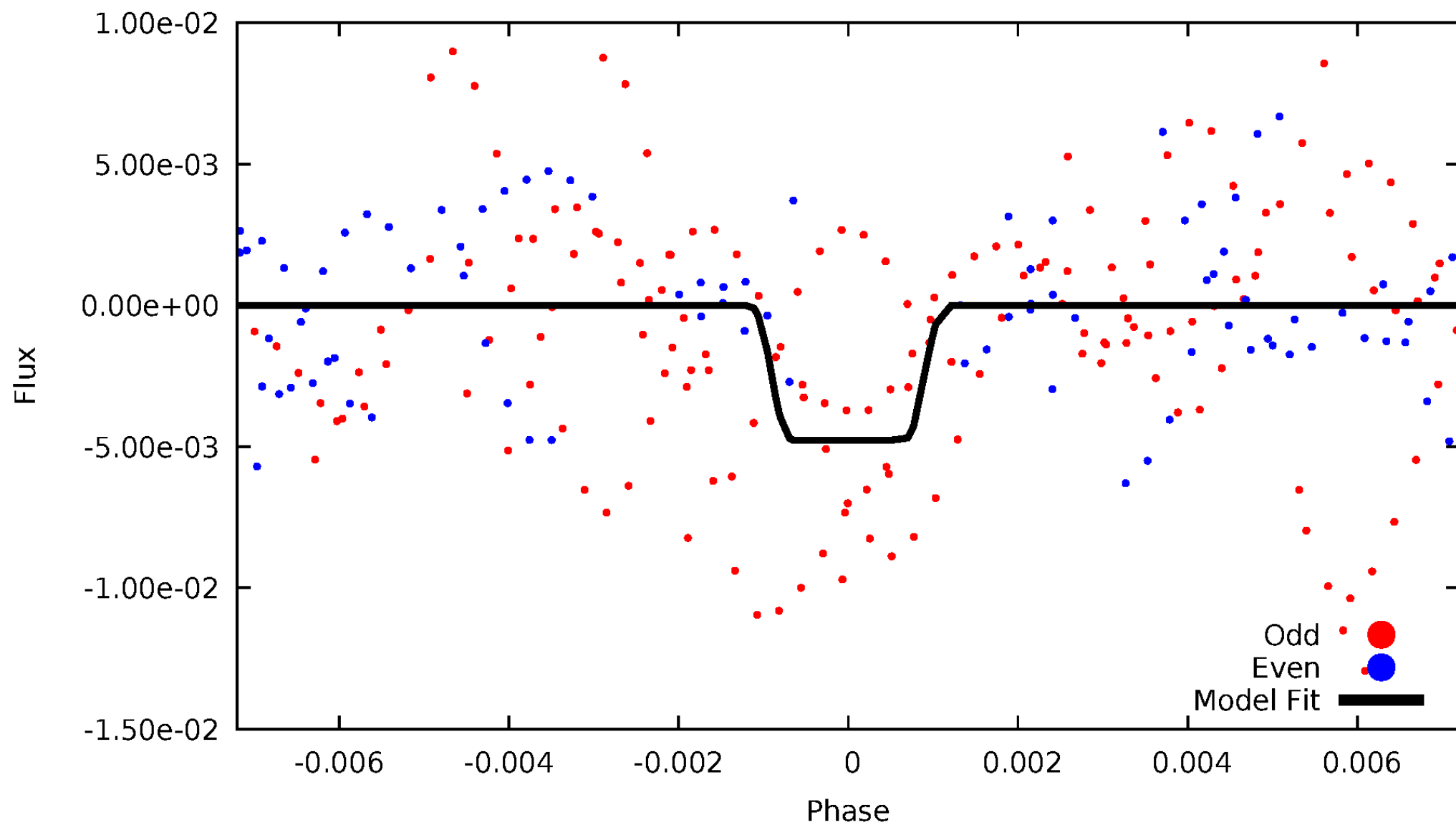
DV Odd/Even

TCE 003218637-04



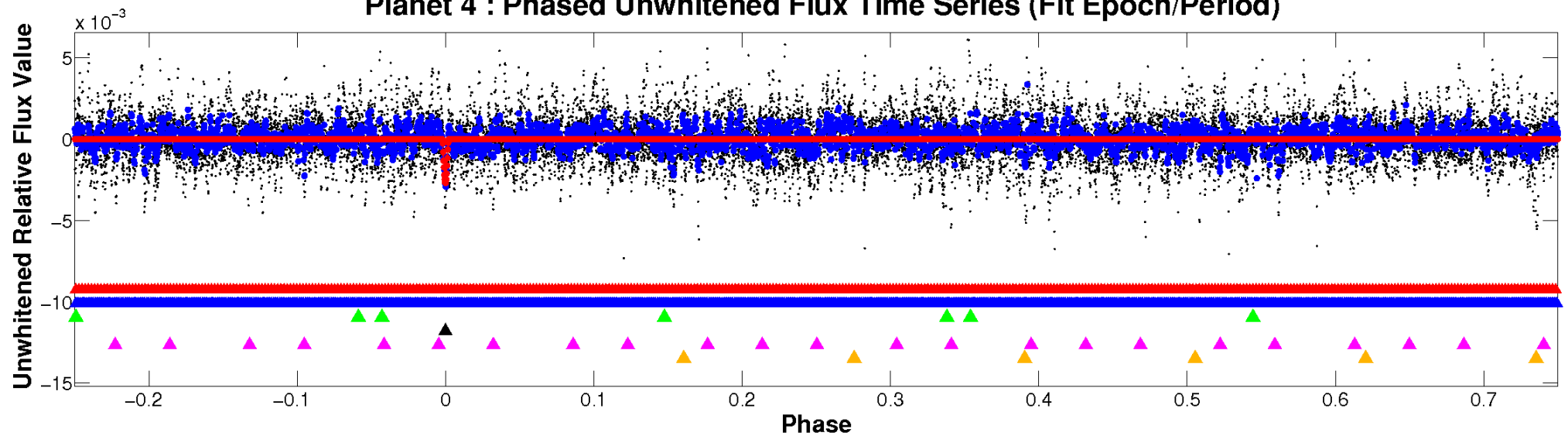
ALT Odd/Even

TCE 003218637-04

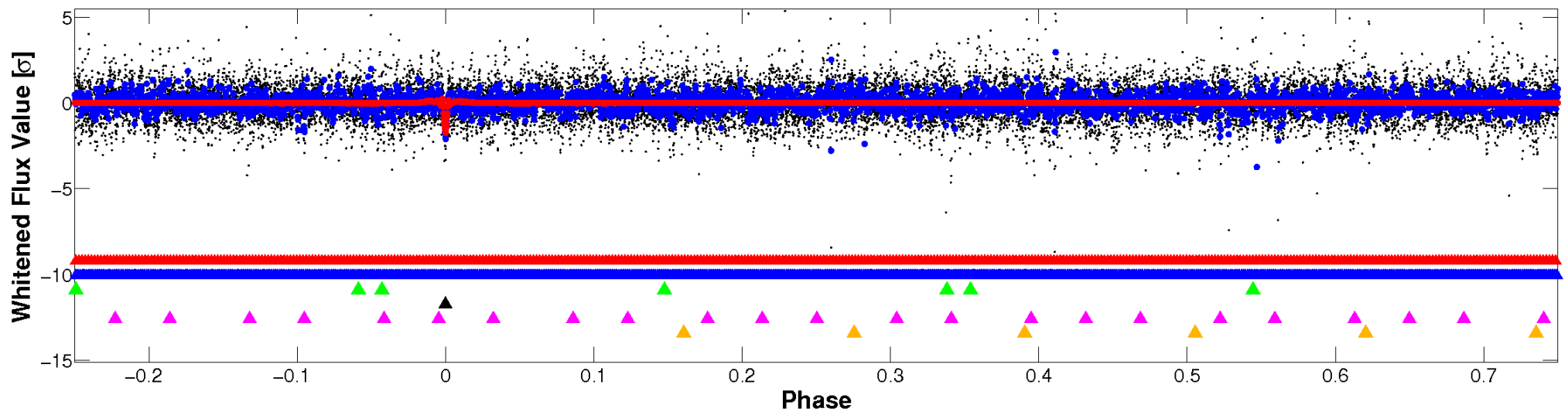


Non-Whitened Vs. Whitened Light Curve

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

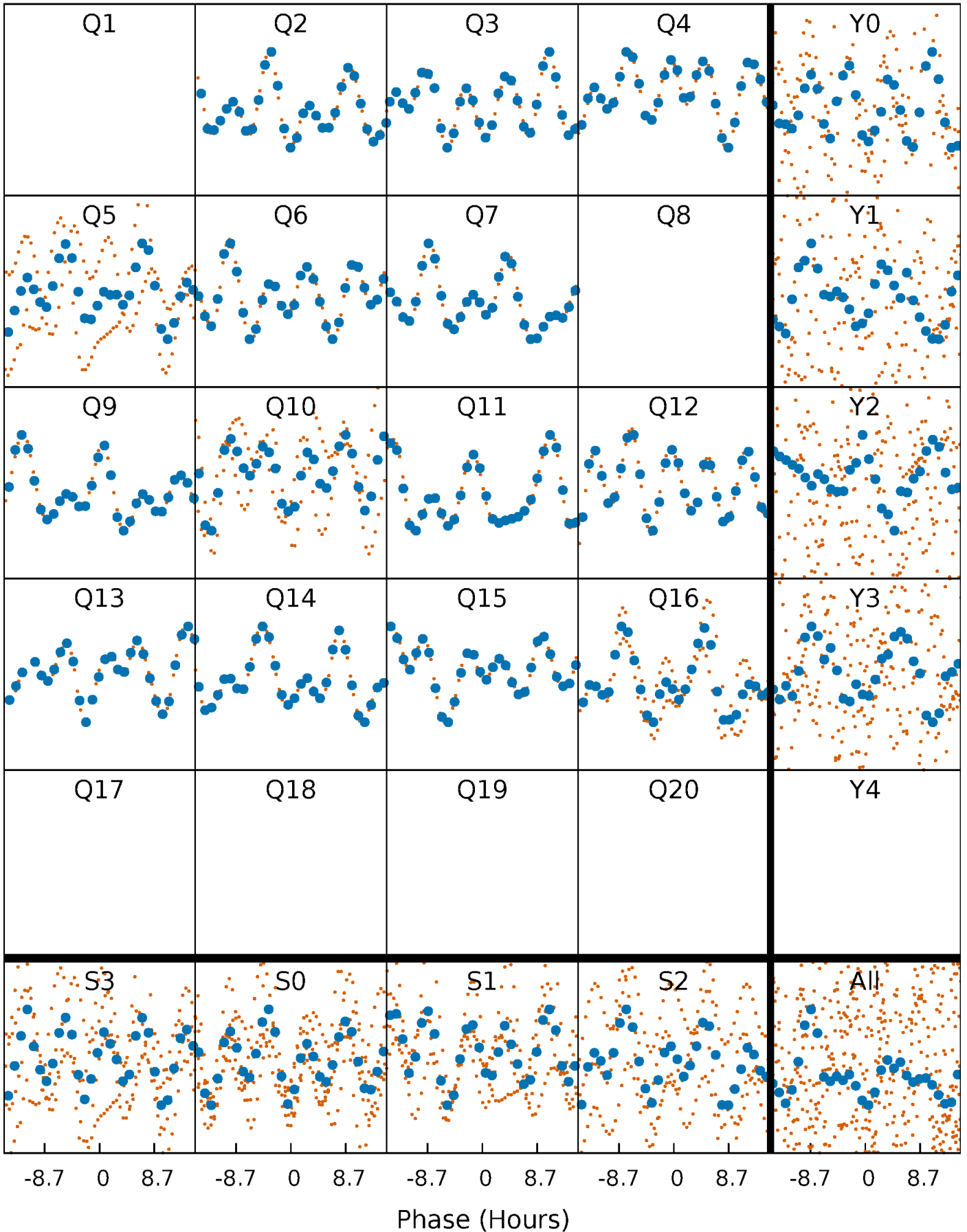


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



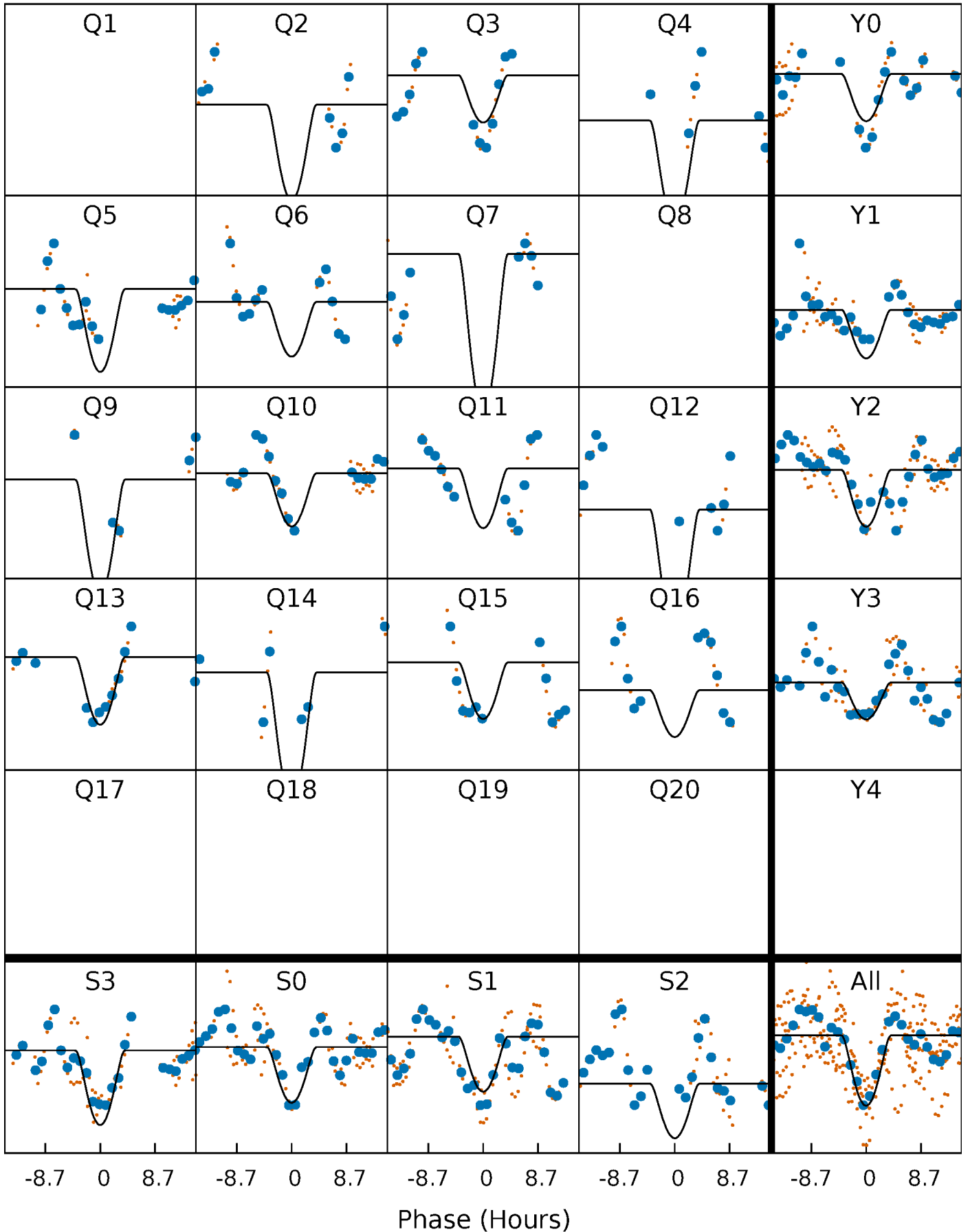
PDC Quarter-Phased Transit Curves

TCE 003218637-04 P= 78.930239 Days $T_0=209.673660$ (BKJD)



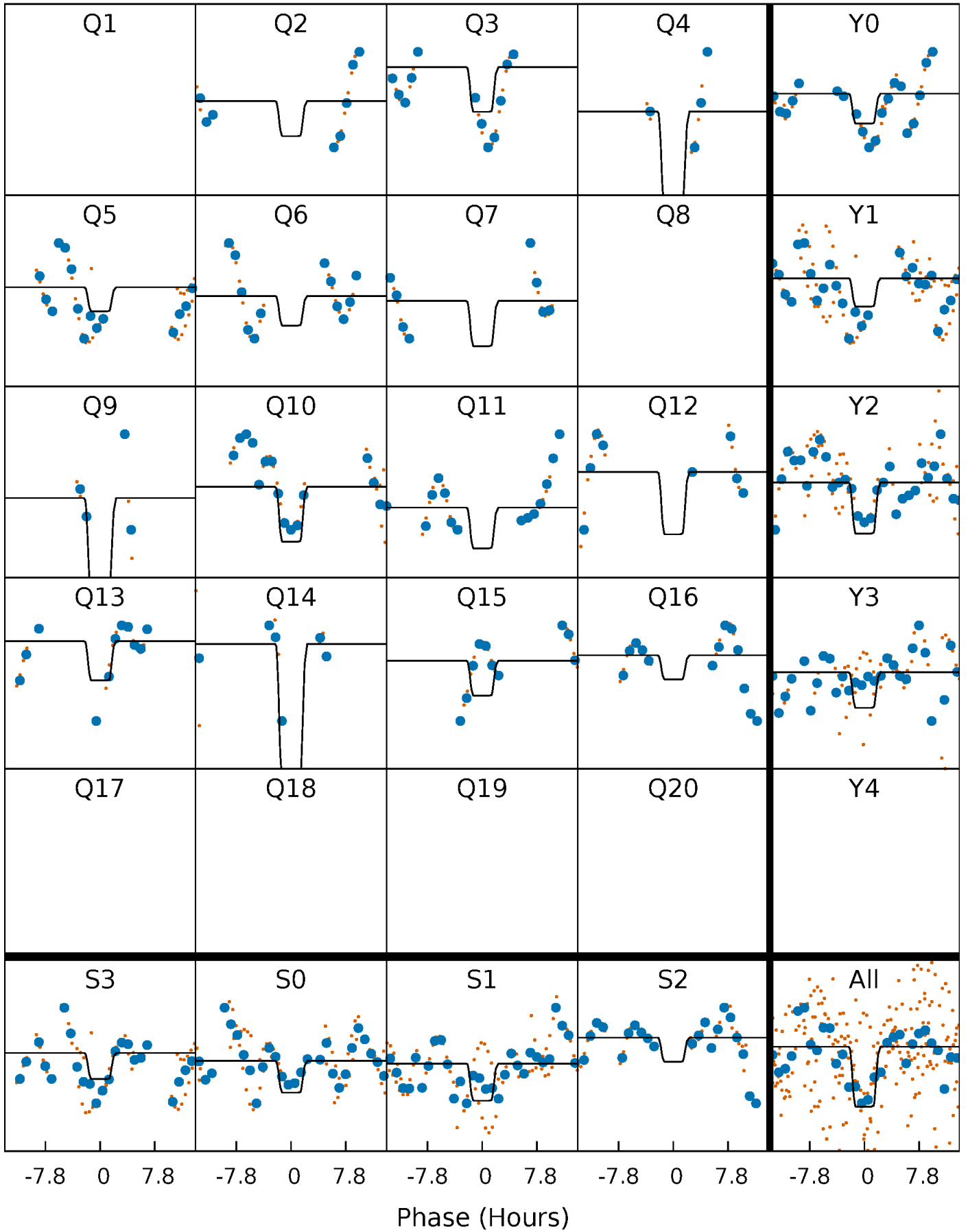
DV Quarter-Phased Transit Curves

TCE 003218637-04 P= 78.930239 Days $T_0=209.673660$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

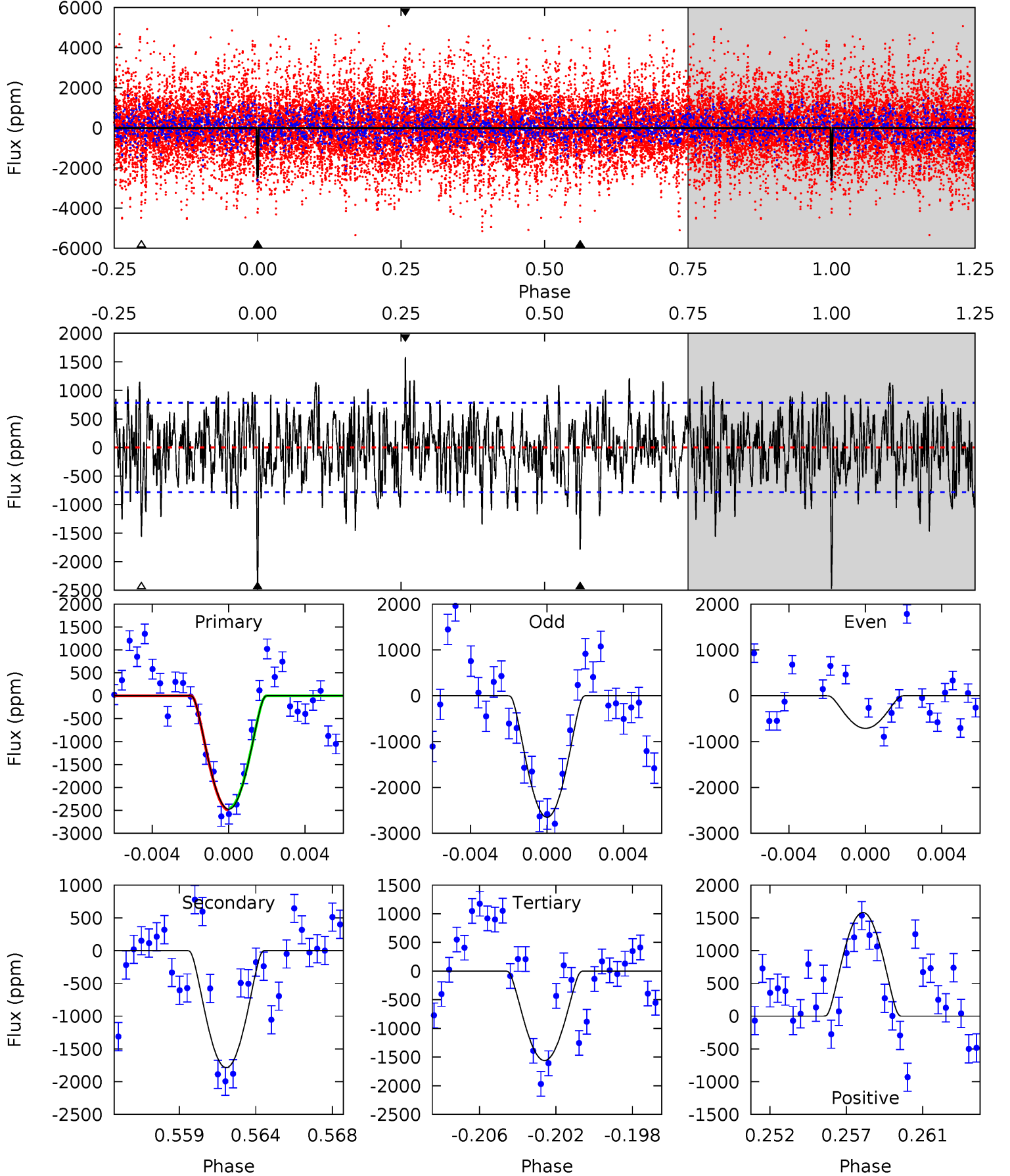
TCE 003218637-04 P= 78.925222 Days $T_0=209.660516$ (BKJD)



DV Model-Shift Uniqueness Test

003218637-04, P = 78.930239 Days, E = 130.743421 Days

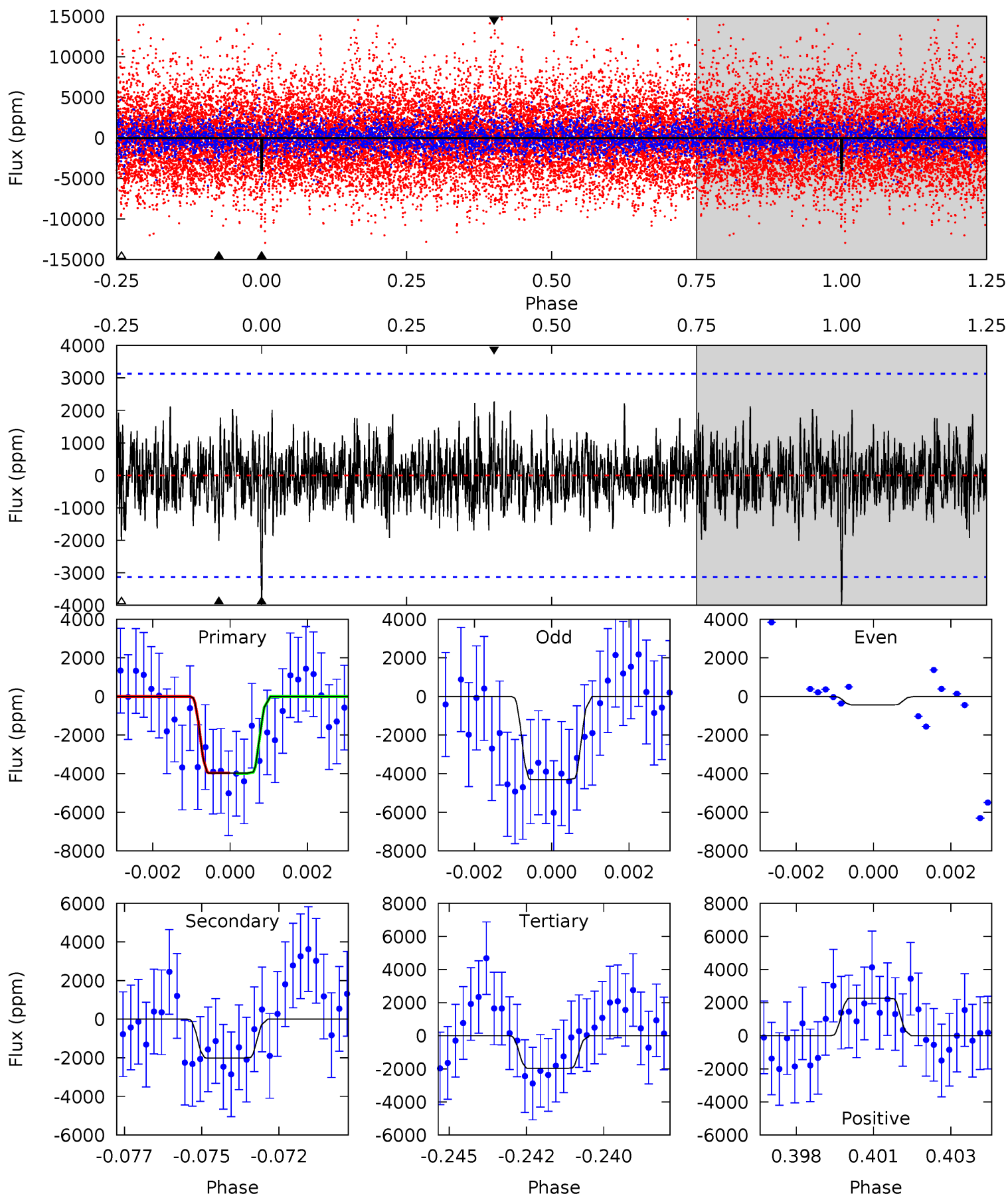
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	11.9	10.4	10.5	5.19	2.86	3.09	6.07	5.93	1.50	1.36	5.66	-0.51	0.39	0.12



Alt Model-Shift Uniqueness Test

003218637-04, P = 78.925222 Days, E = 130.735294 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.73	3.41	3.35	3.84	5.30	3.04	1.13	3.39	2.89	0.06	-0.43	1.78	0.96	0.36	0.02



Stellar Parameters For KIC 003218637

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7421^{+206}_{-335}	$3.815^{+0.330}_{-0.110}$	$0.120^{+0.200}_{-0.350}$	$2.885^{+0.493}_{-1.149}$	$1.985^{+0.089}_{-0.503}$	$0.116^{+0.293}_{-0.040}$
	+3%/-5%	+9%/-3%	+167%/-292%	+17%/-40%	+4%/-25%	+252%/-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 003218637-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1788 ± 151	$41.50^{+42.20}_{-26.89}$	1134^{+84}_{-121}	4210^{+2524}_{-854}	115^{+847}_{-87}
Alt.	-2012 ± 590	$39.63^{+38.97}_{-27.13}$	1122^{+90}_{-108}	4303^{+2879}_{-864}	137^{+1112}_{-104}

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

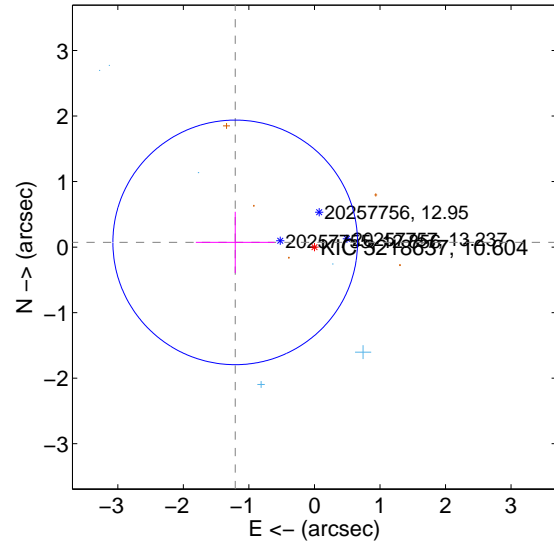
Supplemental centroid analysis for 003218637-04. **Kepler magnitude: 10.60.** Transit SNR 8.27

There are 6 quarters with good PRF difference image offsets

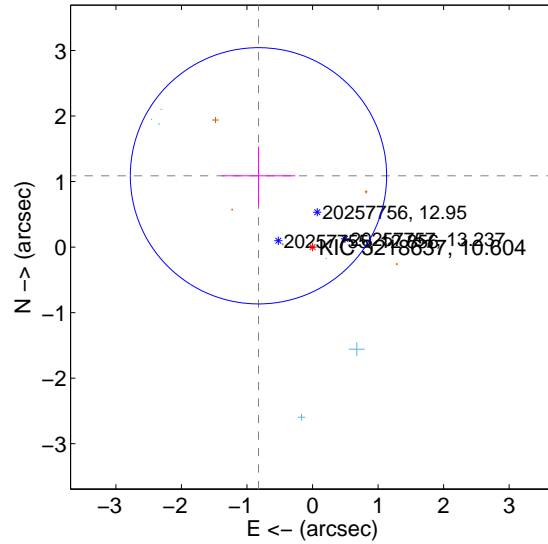
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.211 ± 0.622	1.95	1.209 ± 0.601	0.072 ± 0.467
PRF-fit source offset from KIC position	1.365 ± 0.652	2.09	0.825 ± 0.561	1.088 ± 0.446
photometric centroid source offset	0.29 ± 0.16	1.88	0.18 ± 0.19	0.23 ± 0.13

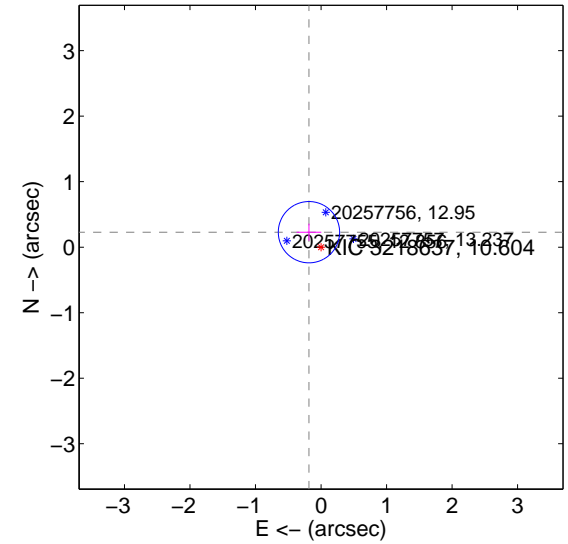
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

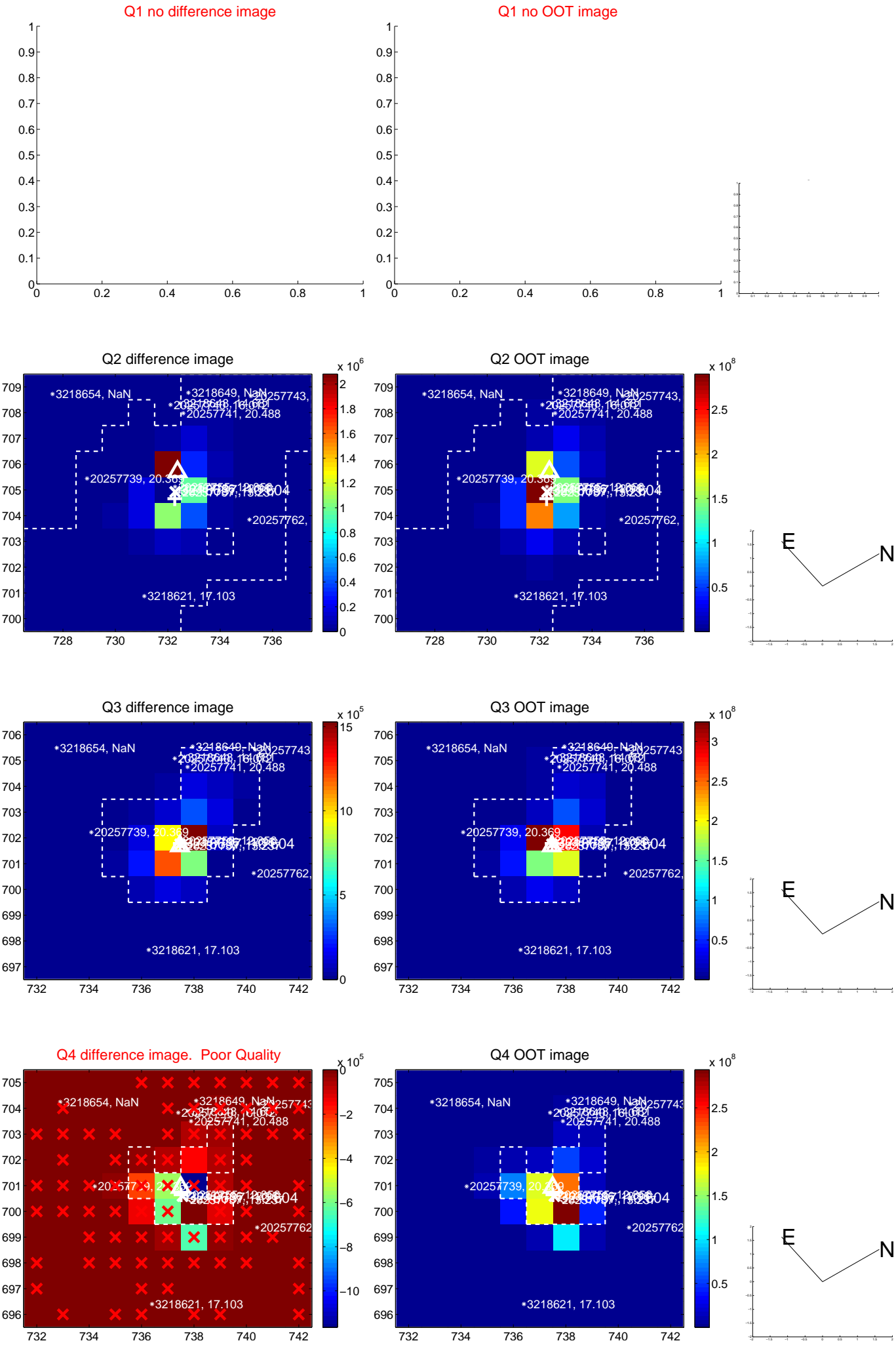


offset from photometric centroids

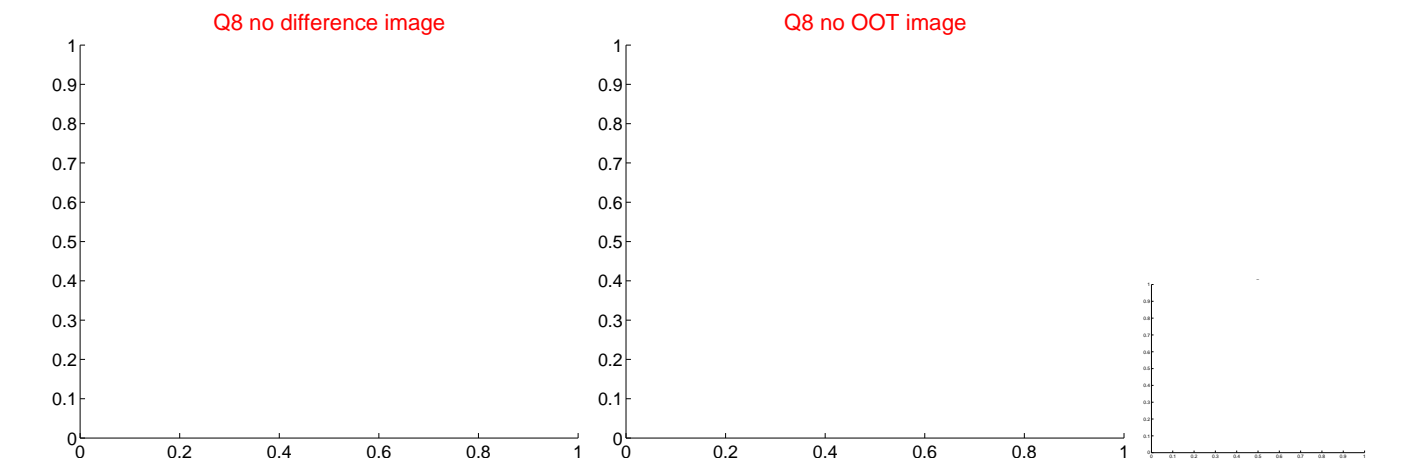
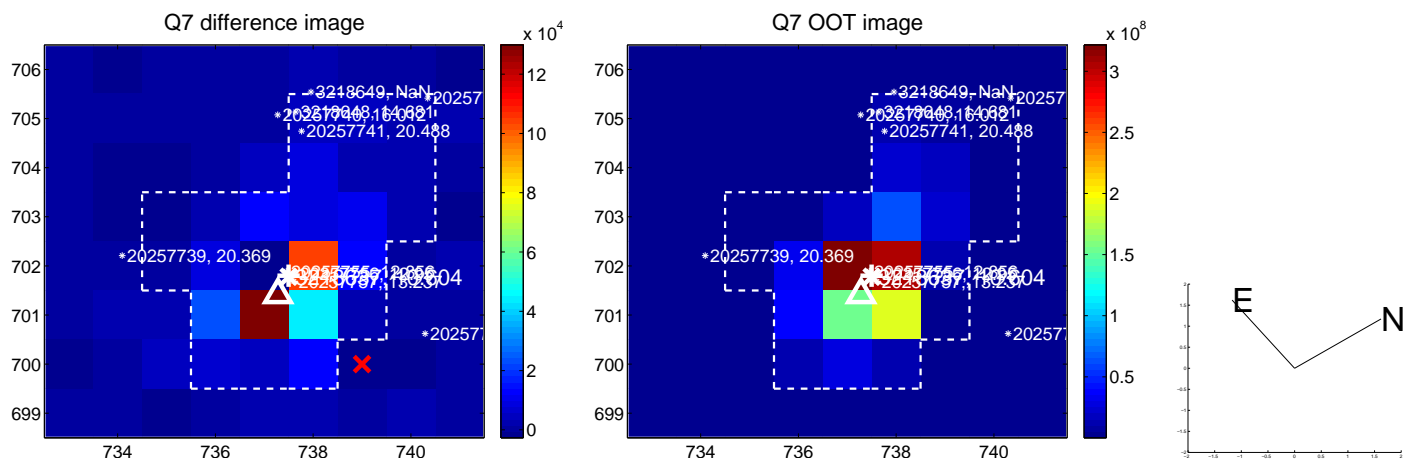
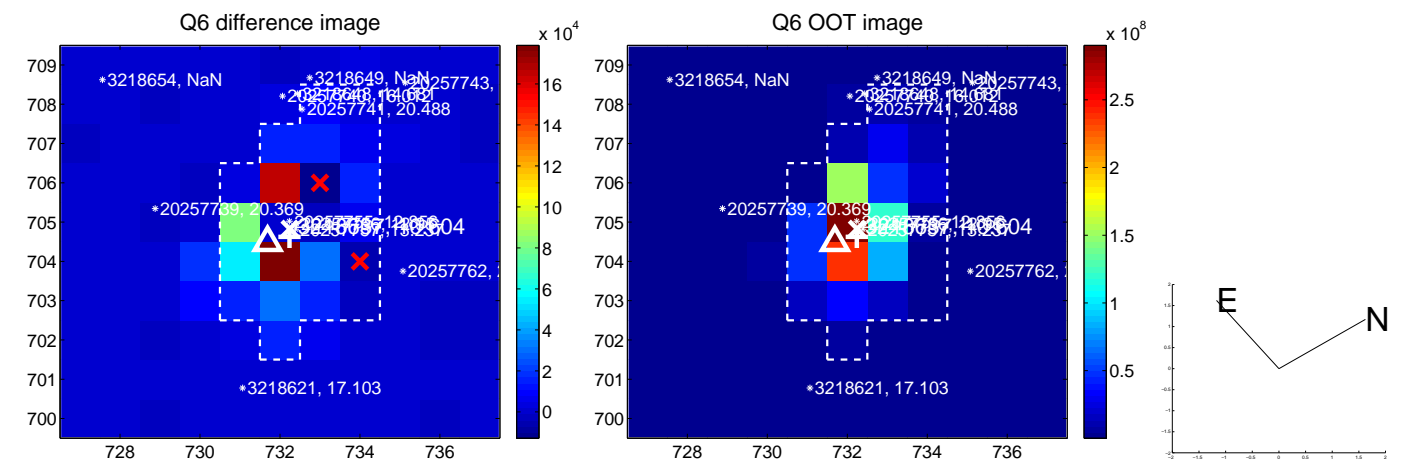
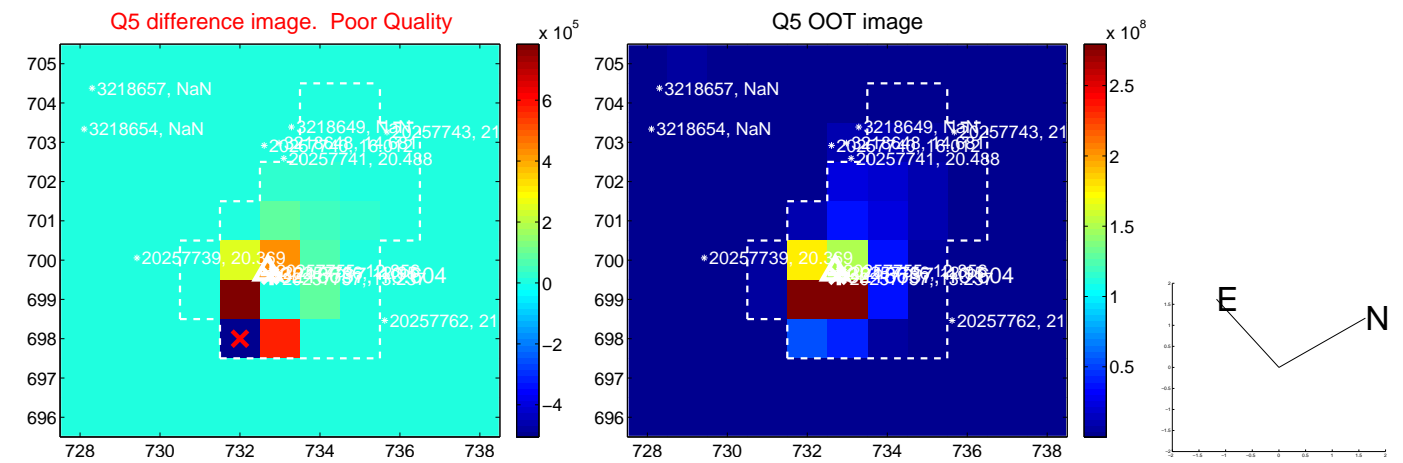


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

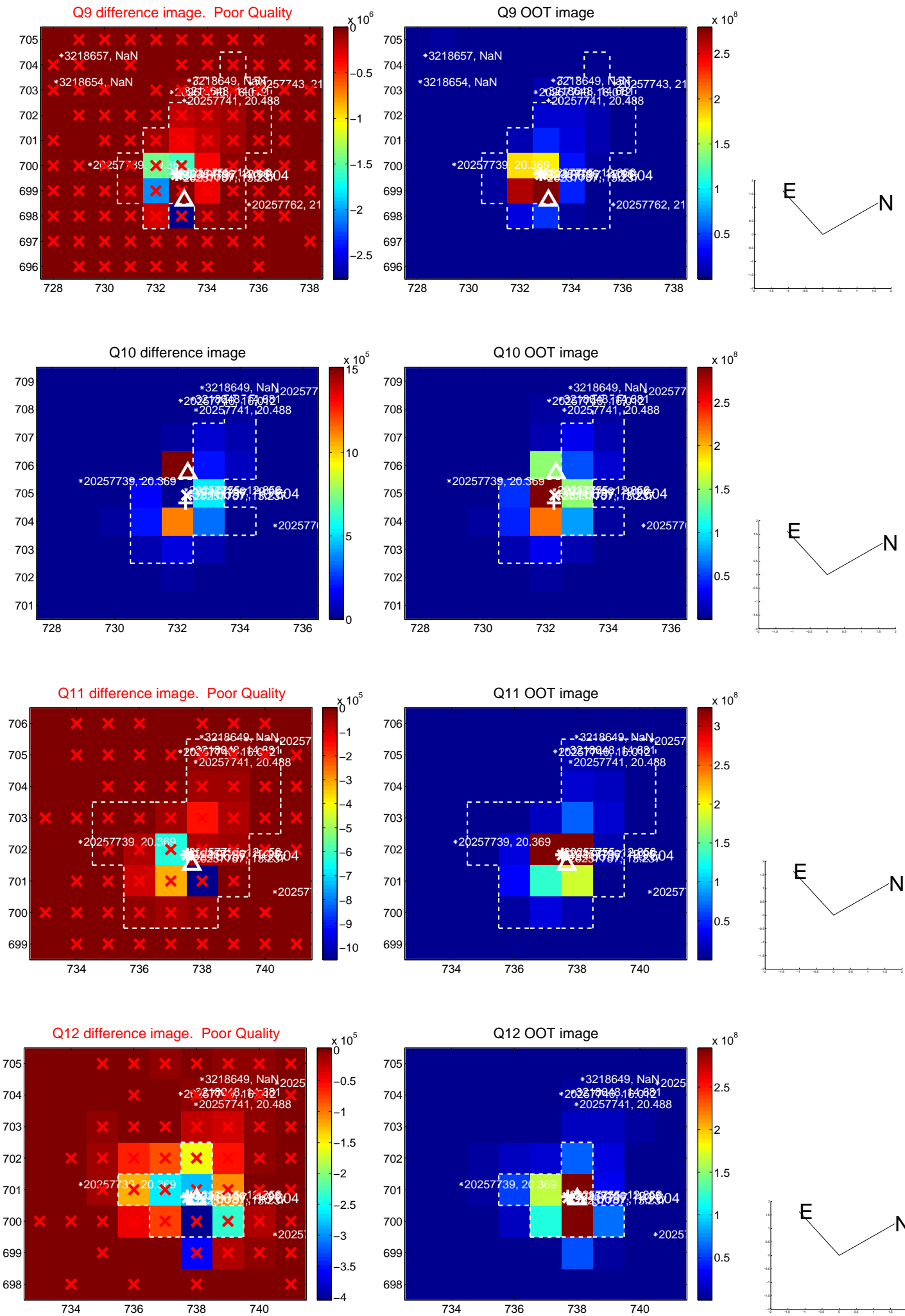
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



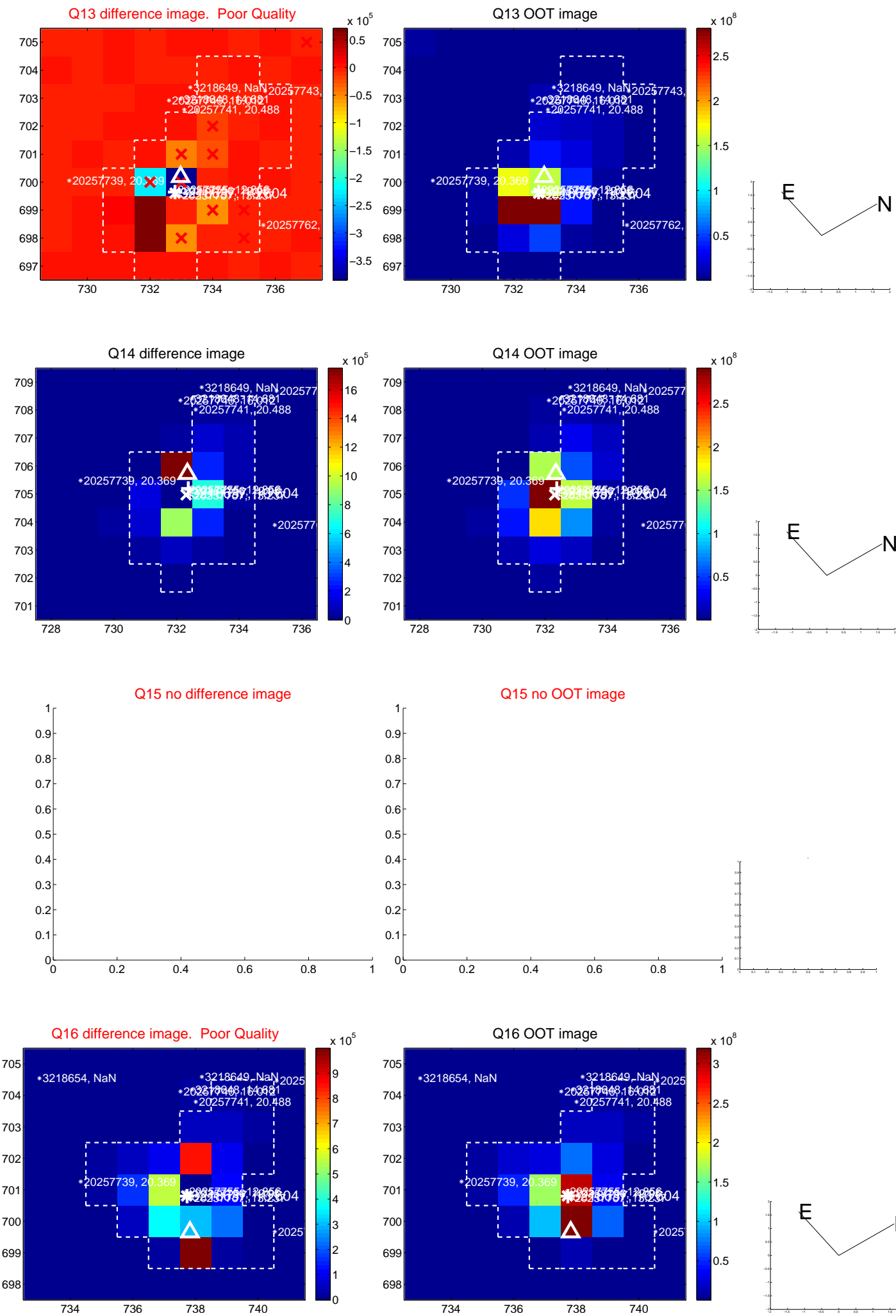
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



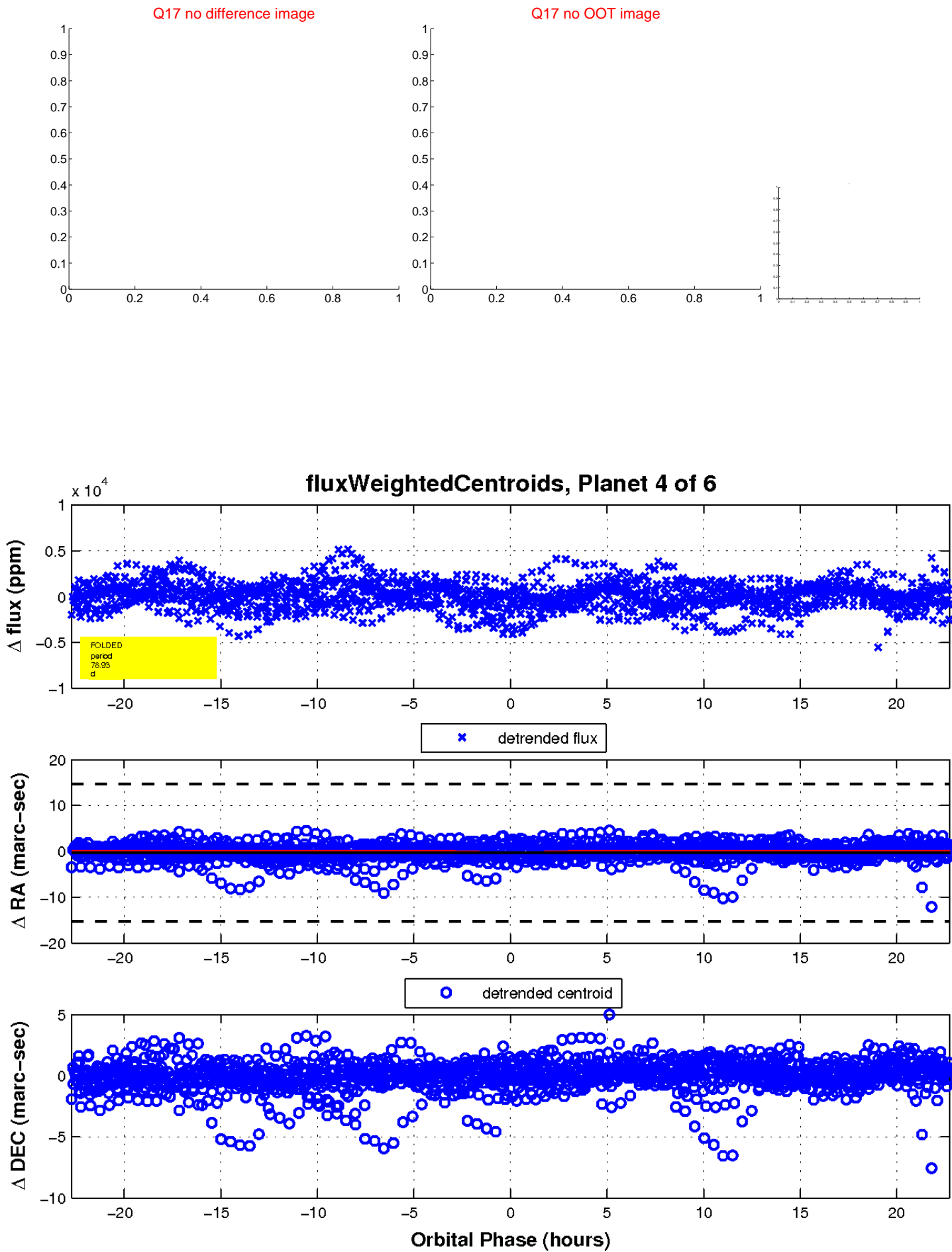
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



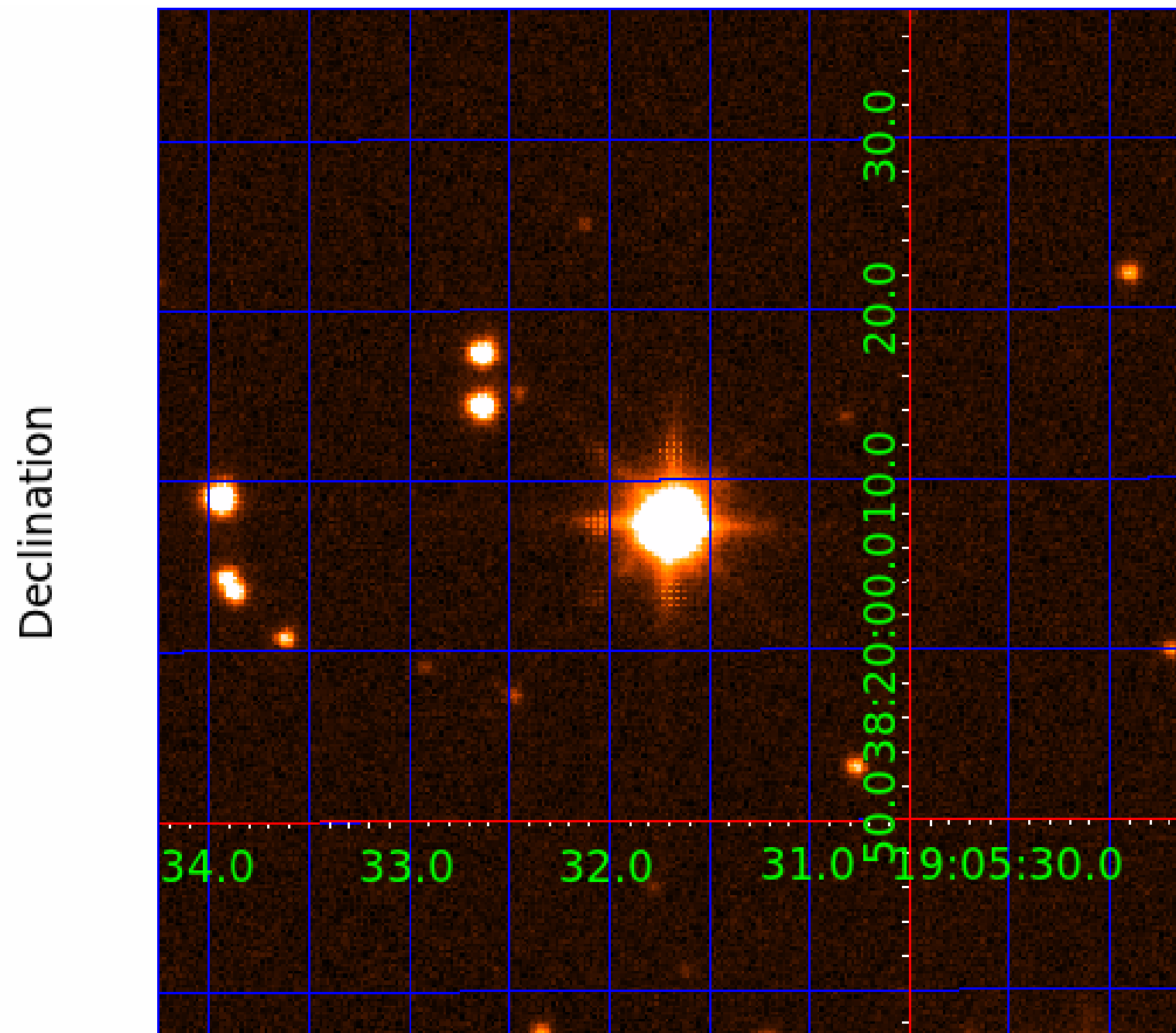
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003218637

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})
003218637-01	OBS	No	0.503818	131.710926	17.7	1.105	7.9	4.4	2.88	7421	1.41	93284.45
003218637-02	OBS	No	0.685336	132.114727	26.1	2.530	10.6	1.3	2.88	7421	1.61	61892.34
003218637-03	OBS	No	205.469610	315.290510	3779.0	3.458	9.1	10.1	2.88	7421	31.83	30.84
003218637-04	OBS	No	78.930239	209.673660	2700.2	7.580	8.6	8.3	2.88	7421	27.04	110.45
003218637-05	OBS	No	61.713157	179.127833	3112.2	4.832	8.3	9.1	2.88	7421	28.93	153.34
003218637-06	OBS	No	245.863405	301.283227	64.4	6.000	8.9	-1.0	2.88	7421	2.35	24.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003218637-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003218637-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
003218637-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—CENT_SATURATED
003218637-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

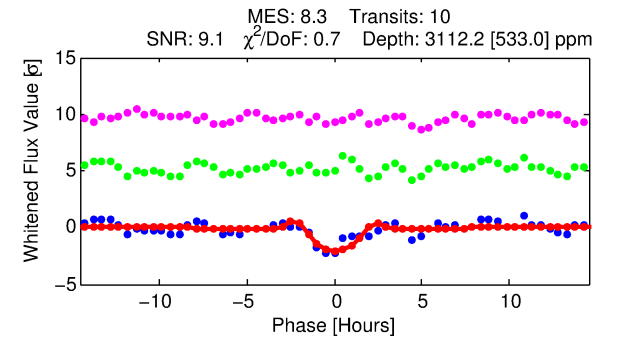
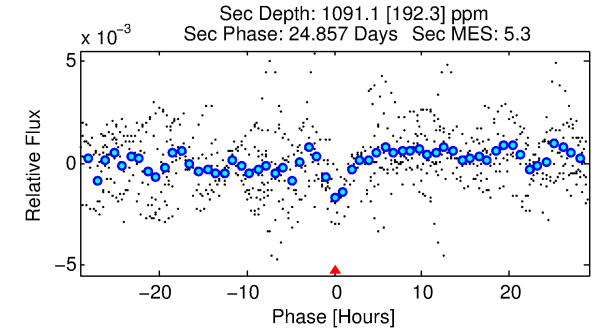
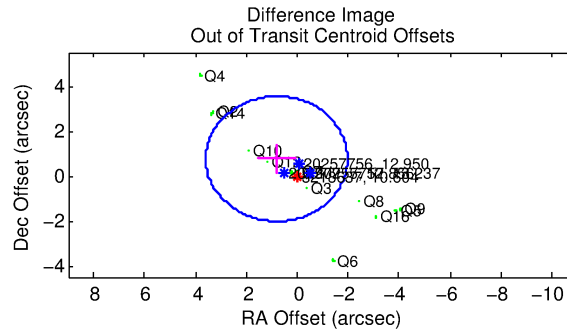
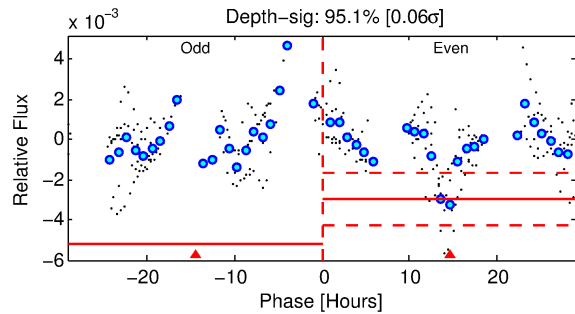
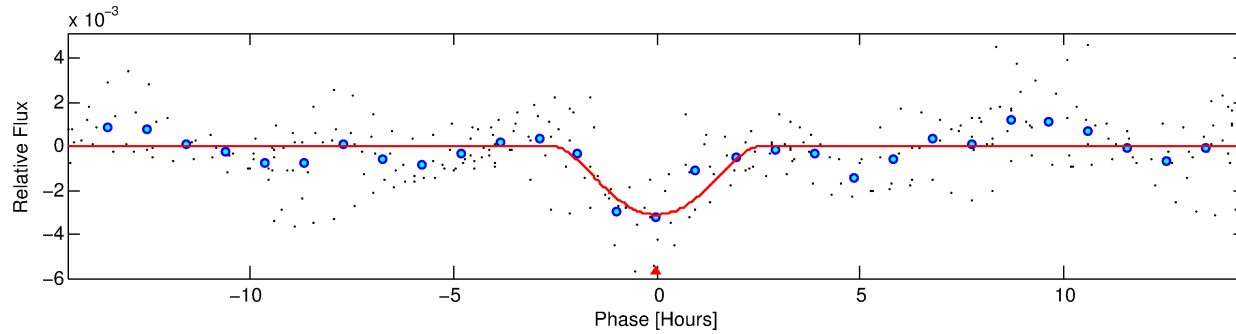
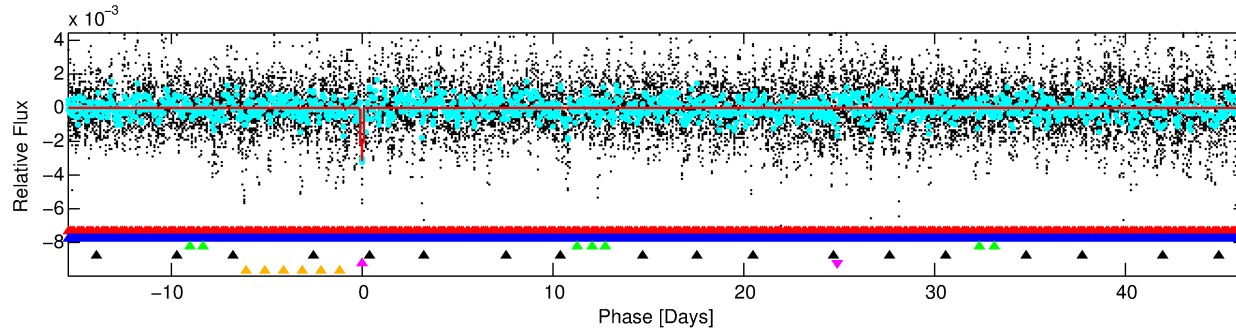
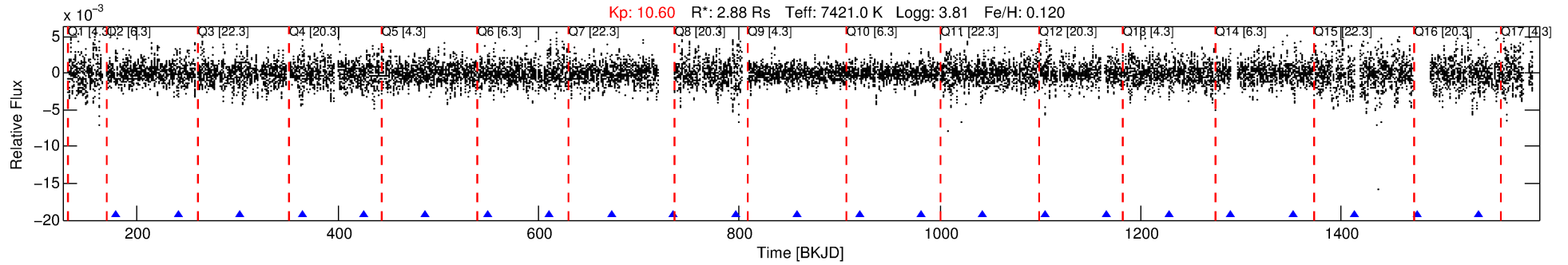
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003218637-05

No Significant Match Found

DV One-Page Summary

KIC: 3218637 Candidate: 5 of 6 Period: 61.713 d



DV Fit Results:

Period = 61.71316 [0.00055] d
Epoch = 179.1278 [0.0077] BKJD
Rp/R* = 0.0919 [0.1344]
a/R* = 42.83 [13.05]
b = 1.00 [0.20]
Seff = 153.35 [91.97]
Teq = 897 [135] K
Rp = 28.93 [43.85] Re
a = 0.3840 [0.1409] AU
Ag = 105.80 [315.95] [0.33σ]
Teffp = 4449 [3267] K [1.09σ]

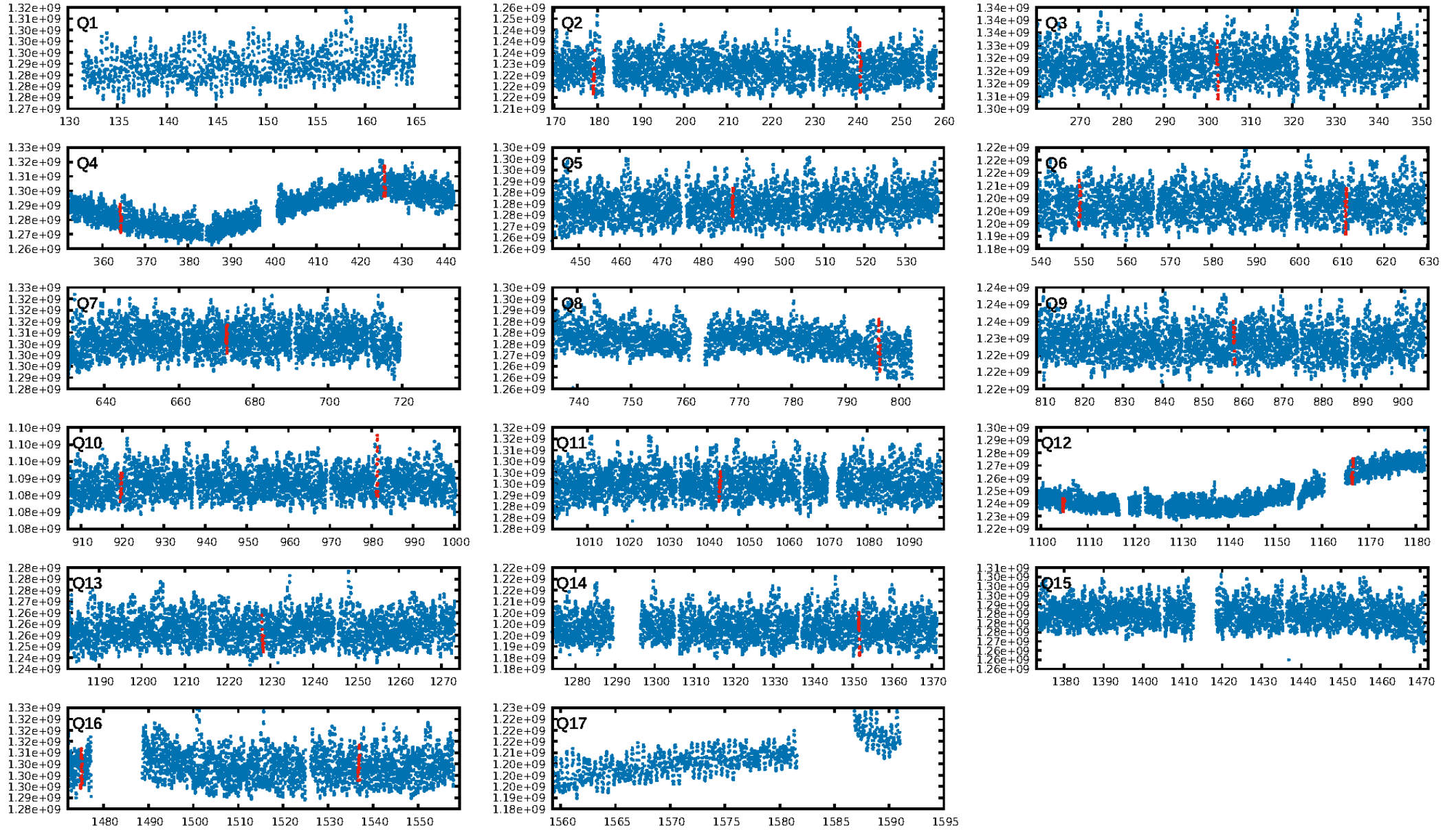
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [268.56σ]
LongPeriod-sig: 100.0% [45.97σ]
ModelChiSquare2-sig: 16.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.050 arcsec [0.51σ]
OotOffset-rm: 1.111 arcsec [1.20σ]
KicOffset-rm: 1.706 arcsec [2.08σ]
OotOffset-st: 4/3/4/2 [13]
KicOffset-st: 4/3/4/2 [13]
DiffImageQuality-fgm: 0.15 [2/13]
DiffImageOverlap-fno: 0.00 [0/13]

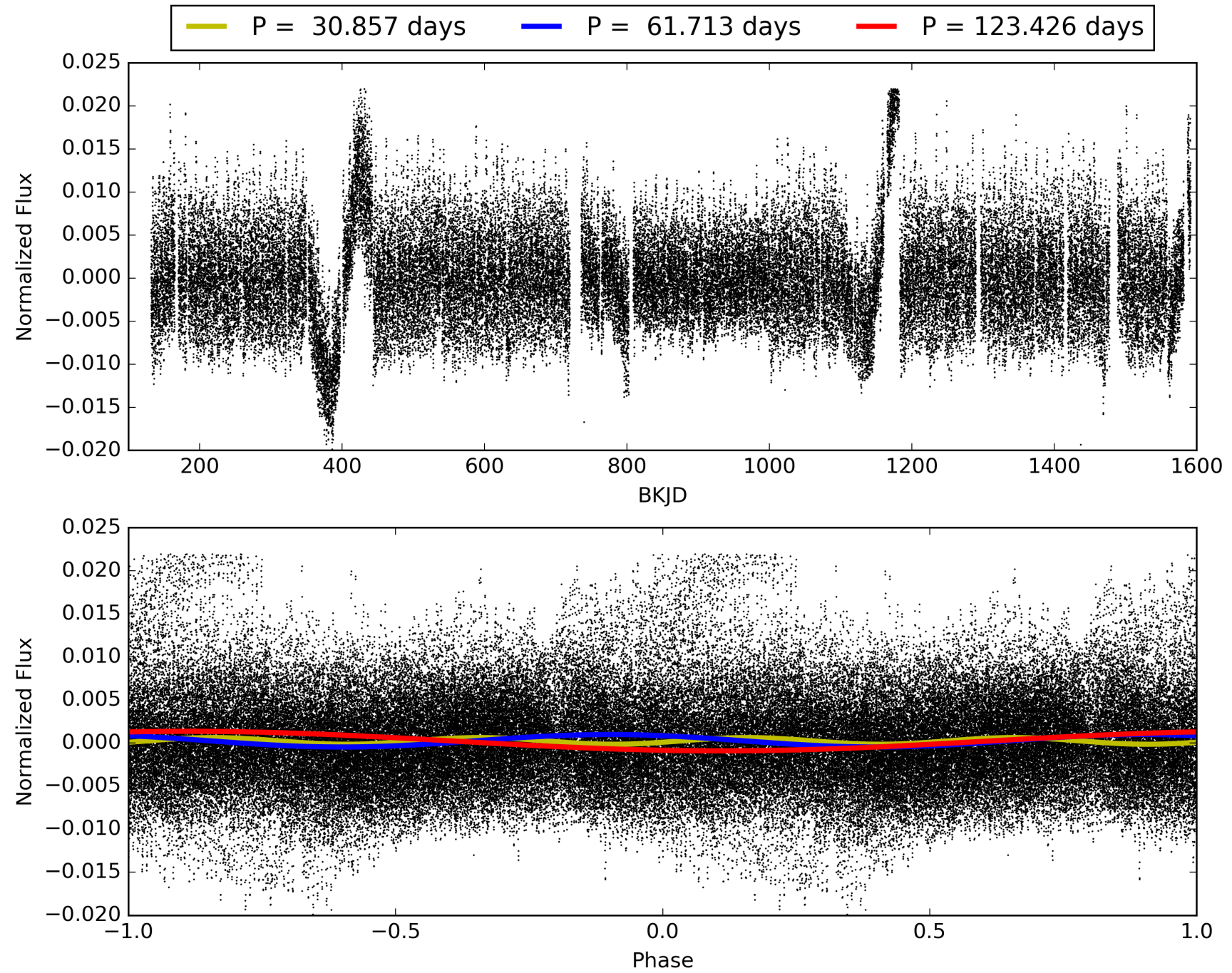
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:44:12 Z

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

TCE 003218637-05, PDC Light Curves

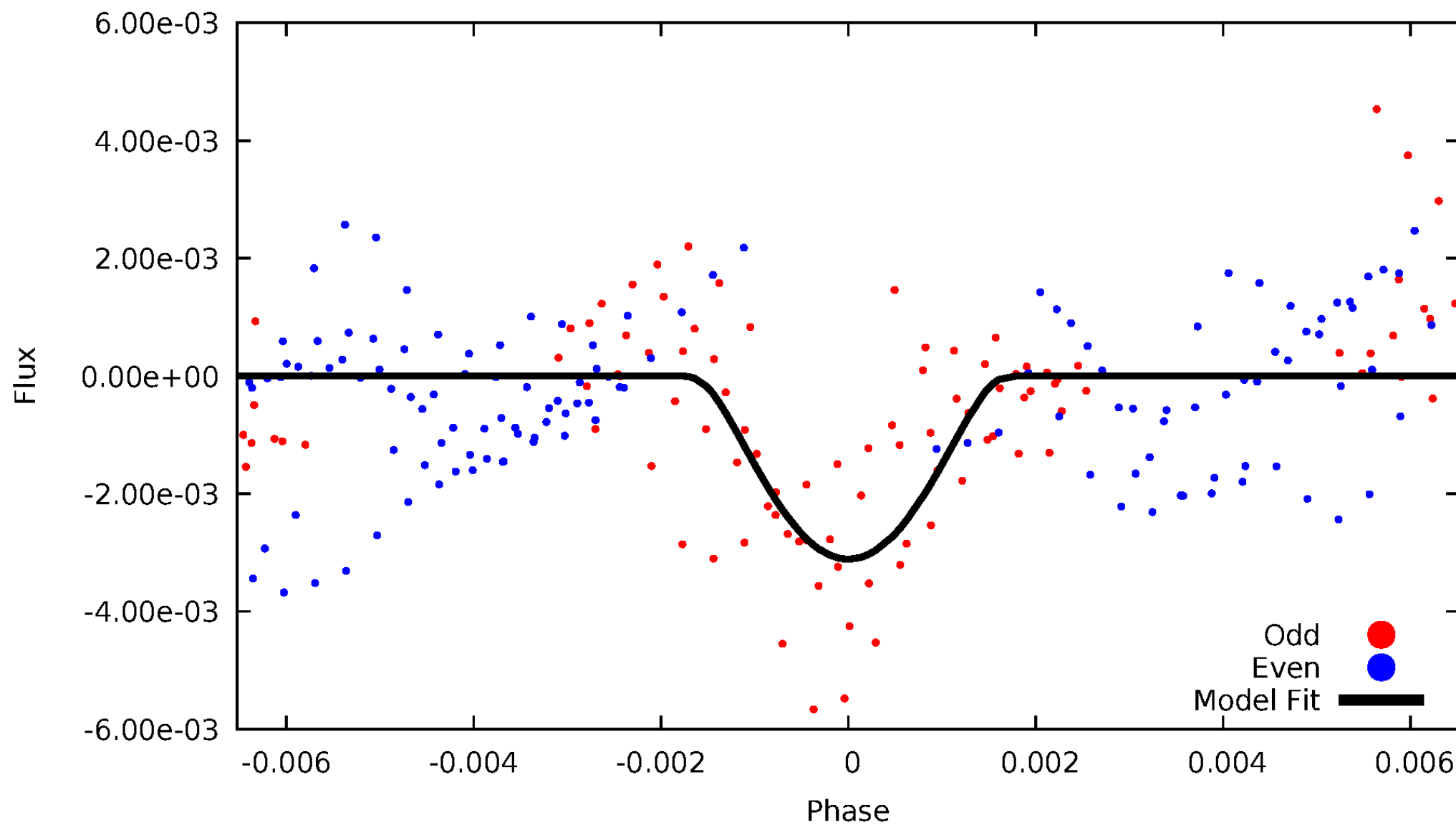


TCE 003218637-05



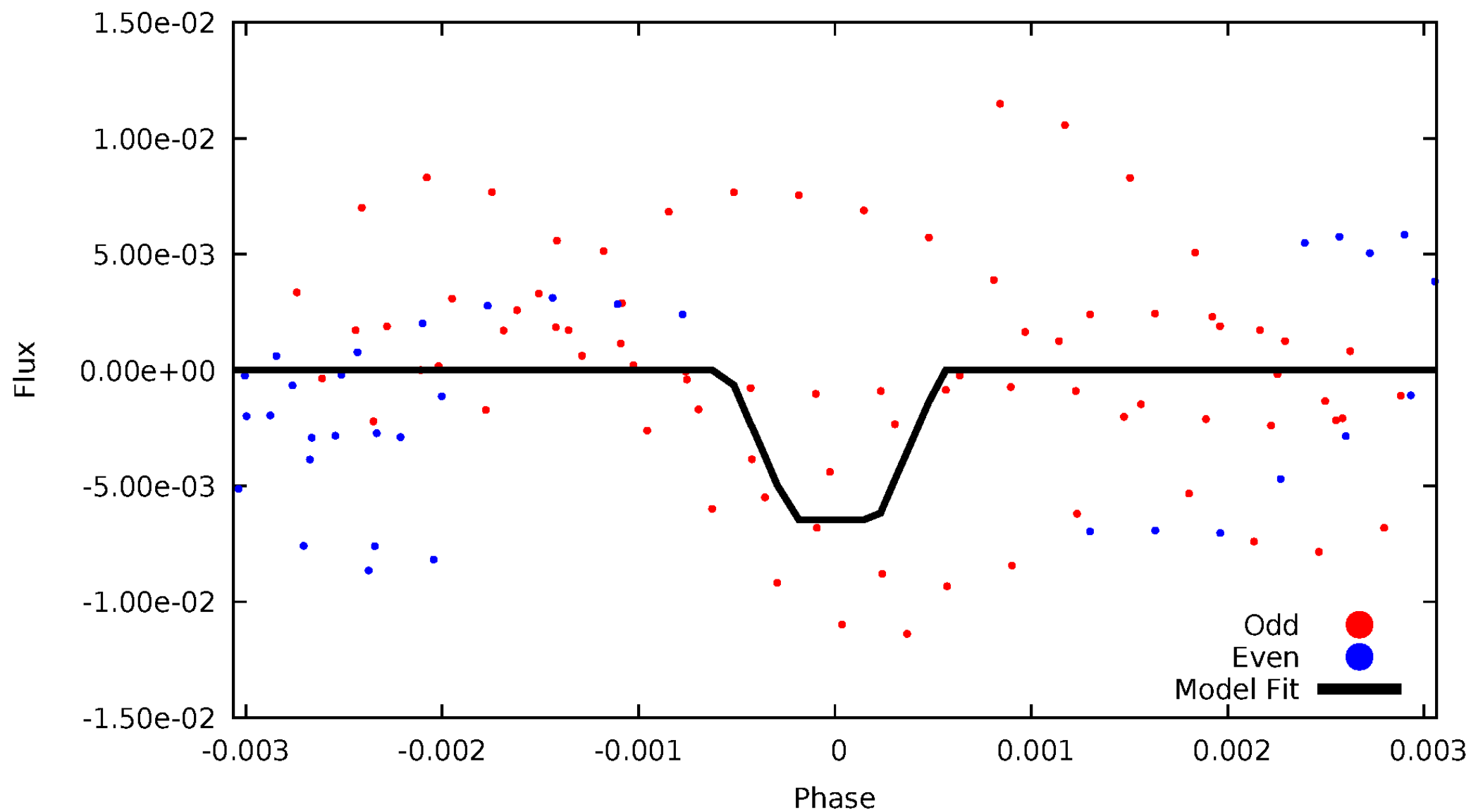
DV Odd/Even

TCE 003218637-05



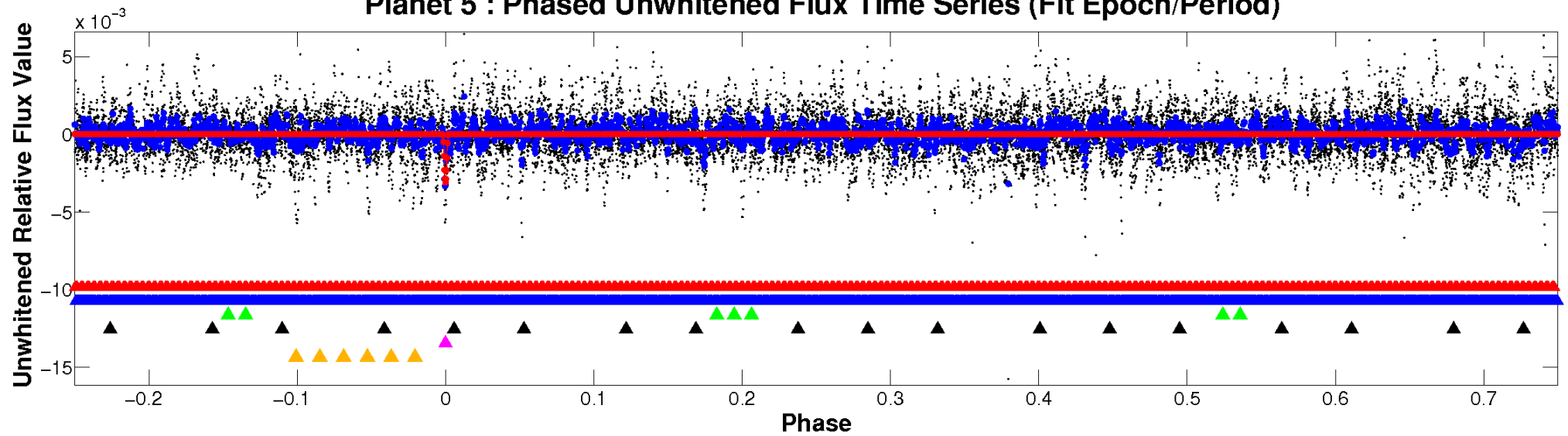
ALT Odd/Even

TCE 003218637-05

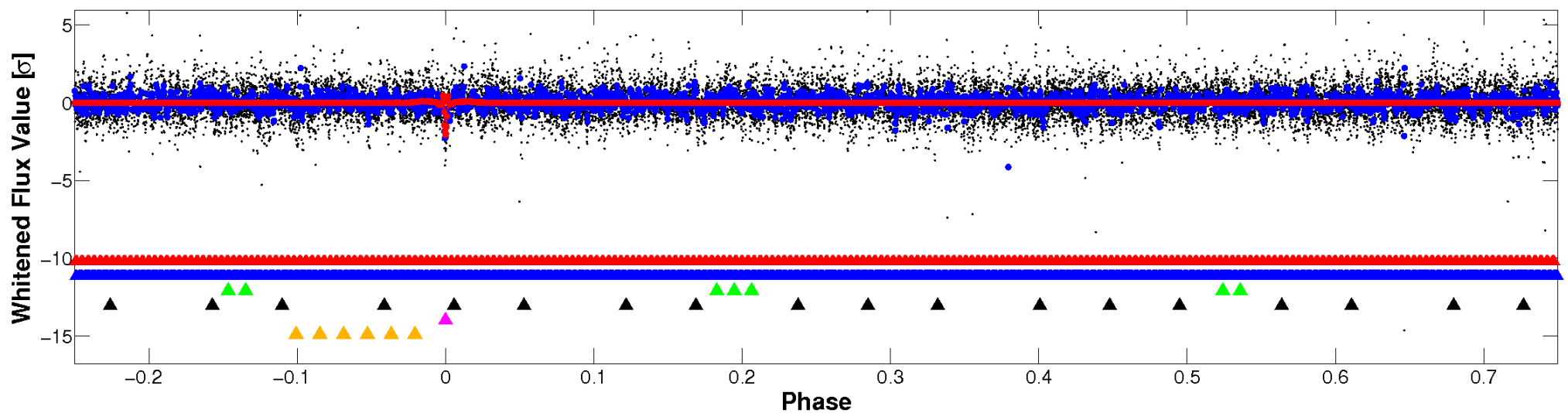


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

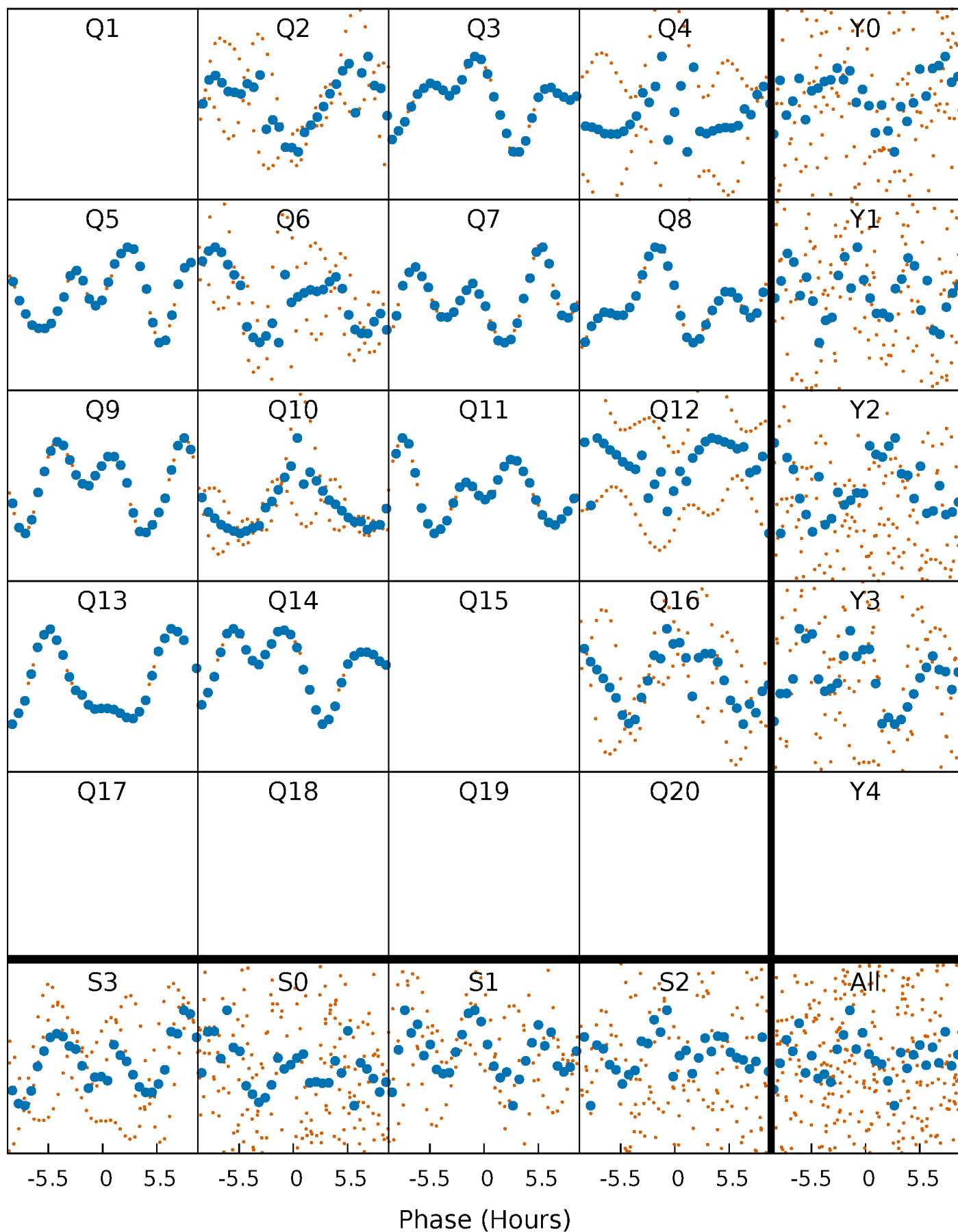


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



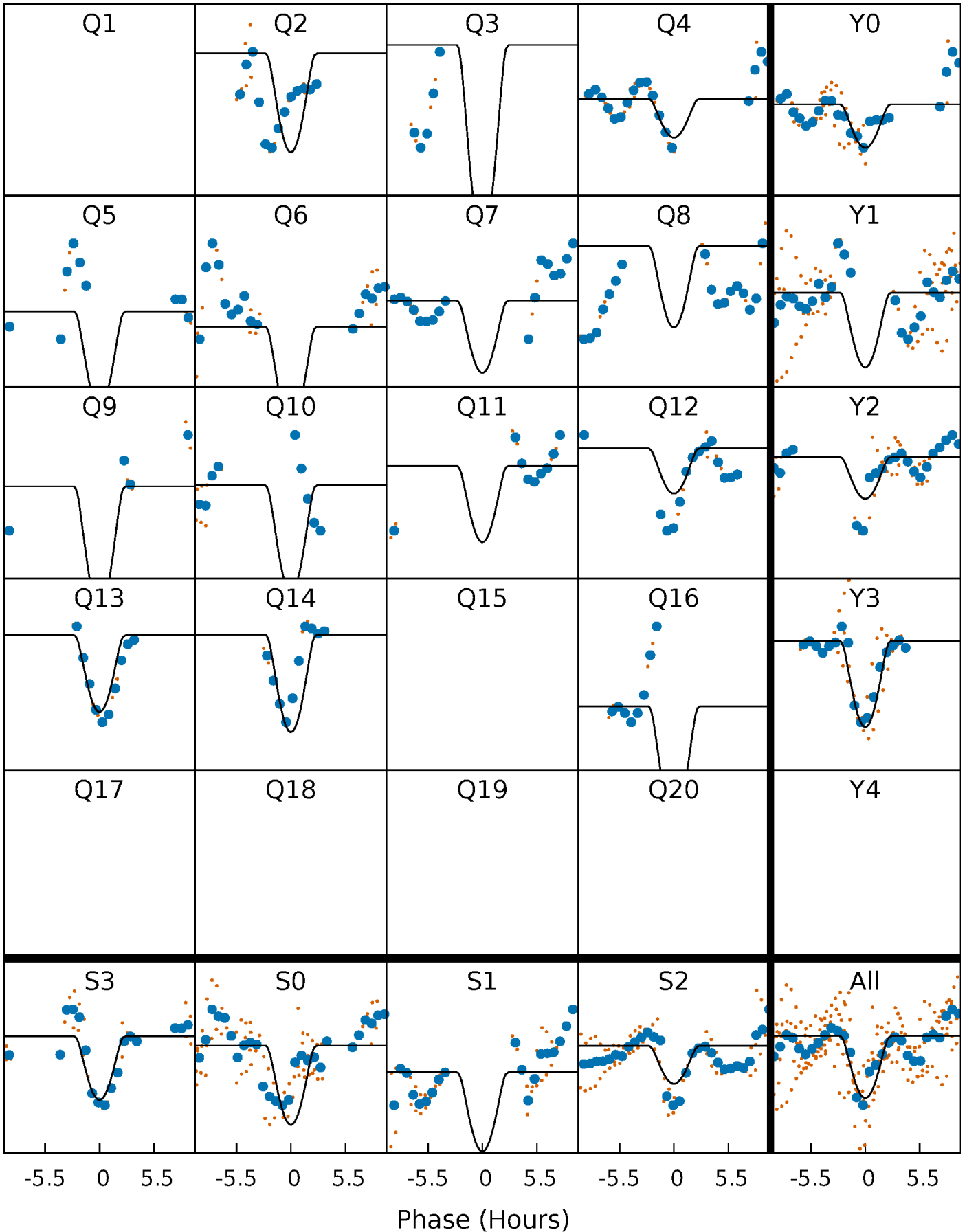
PDC Quarter-Phased Transit Curves

TCE 003218637-05 P= 61.713157 Days $T_0=179.127833$ (BKJD)



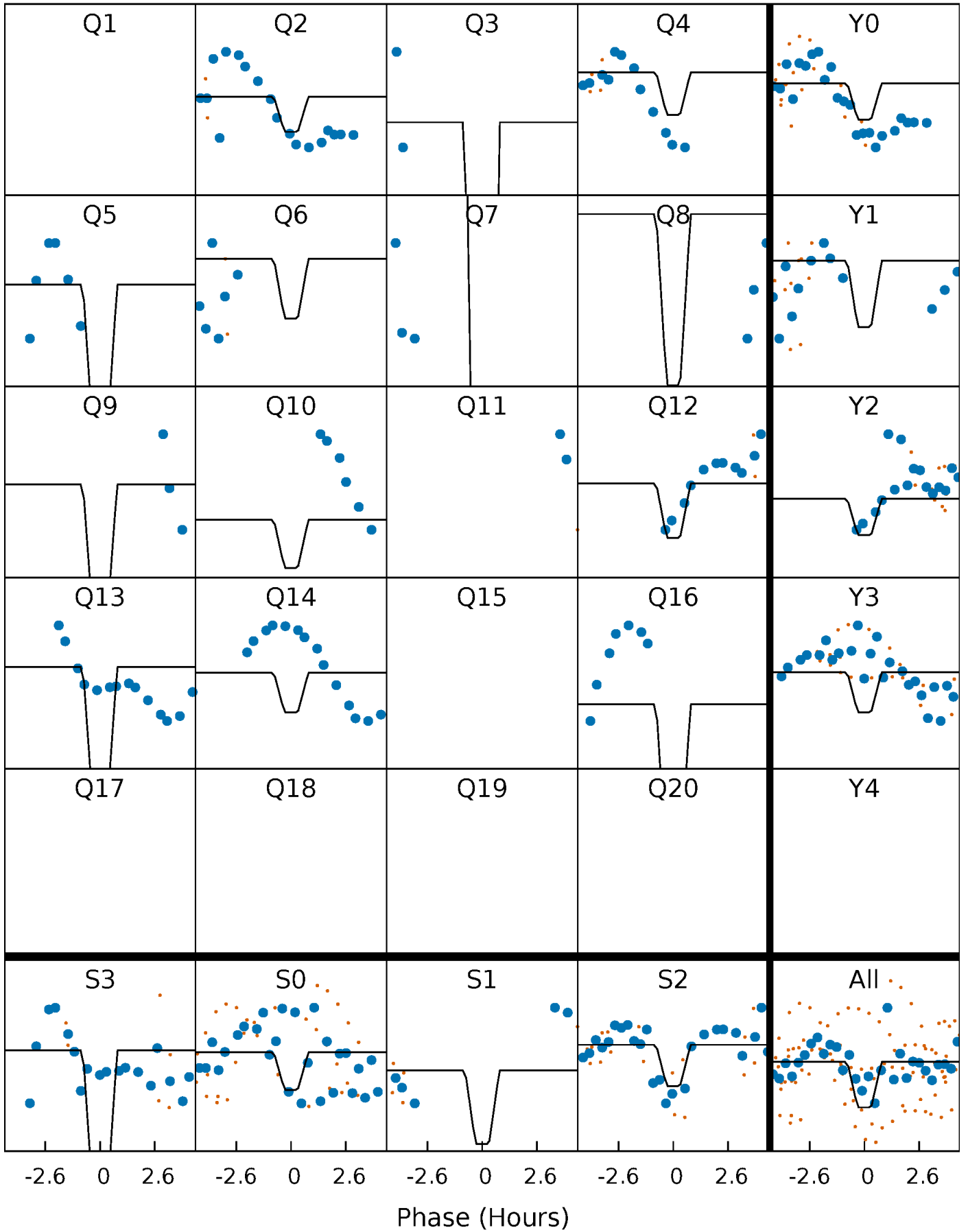
DV Quarter-Phased Transit Curves

TCE 003218637-05 P= 61.713157 Days $T_0=179.127833$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

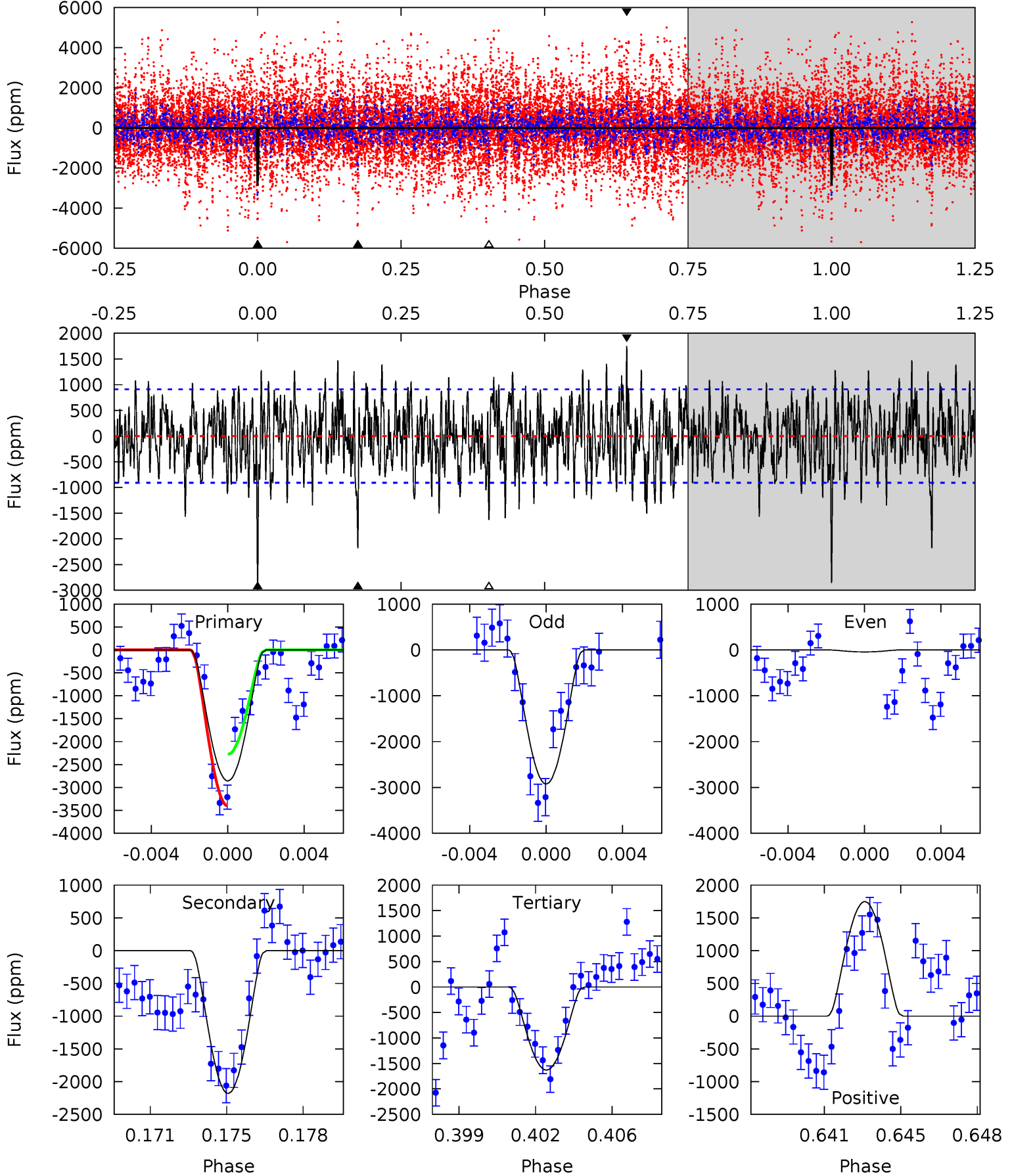
TCE 003218637-05 P= 61.713199 Days $T_0=179.105887$ (BKJD)



DV Model-Shift Uniqueness Test

003218637-05, P = 61.713157 Days, E = 117.414676 Days

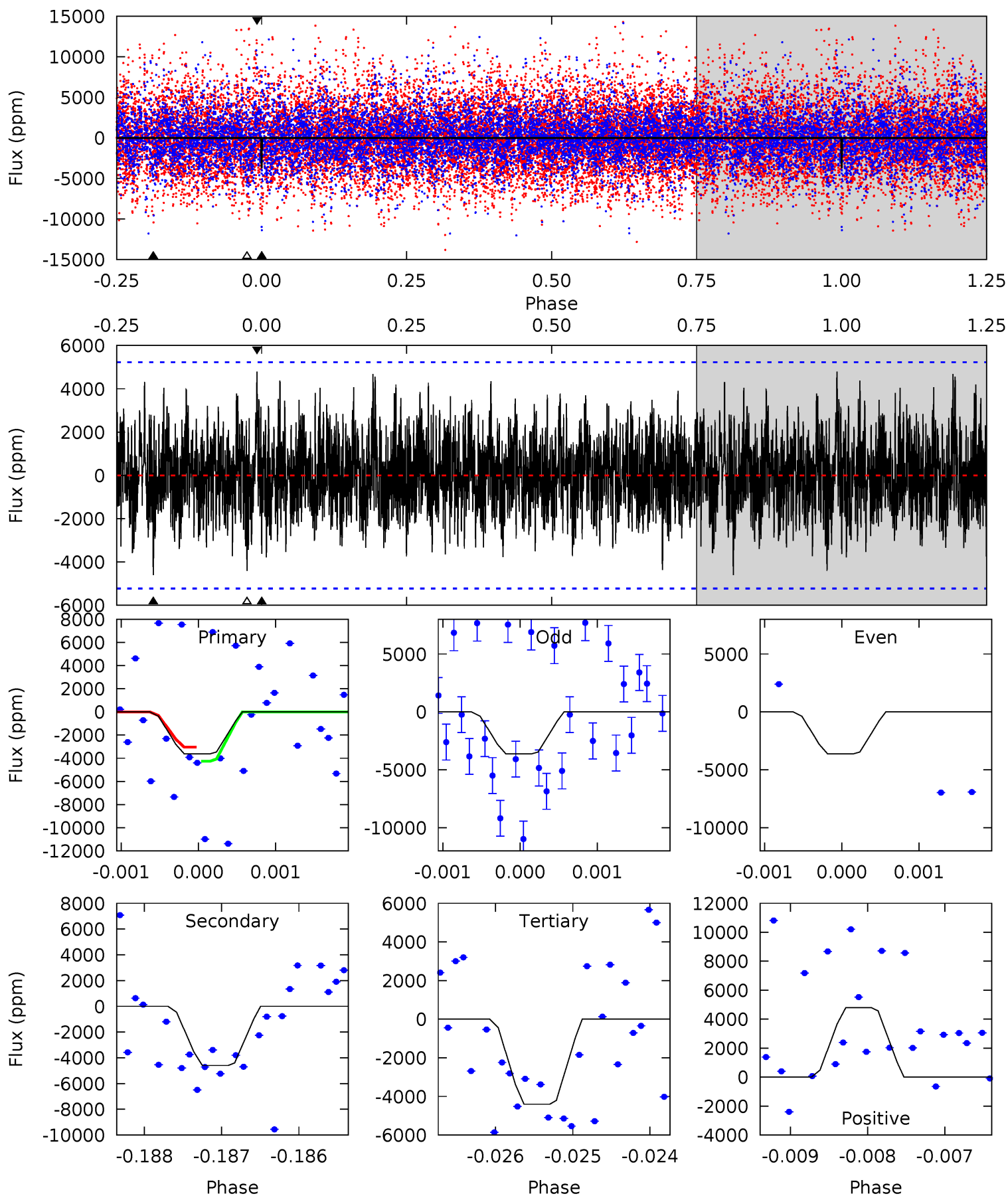
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	12.5	9.35	10.0	5.22	2.91	3.06	7.05	6.37	3.16	2.47	4.64	0.46	0.38	3.24



Alt Model-Shift Uniqueness Test

003218637-05, P = 61.713199 Days, E = 117.392688 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.78	4.80	4.60	5.00	5.45	3.29	1.58	-0.82	-1.22	0.20	-0.20	0	0.77	0.51	0.63



Stellar Parameters For KIC 003218637

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7421^{+206}_{-335}	$3.815^{+0.330}_{-0.110}$	$0.120^{+0.200}_{-0.350}$	$2.885^{+0.493}_{-1.149}$	$1.985^{+0.089}_{-0.503}$	$0.116^{+0.293}_{-0.040}$
	+3%/-5%	+9%/-3%	+167%/-292%	+17%/-40%	+4%/-25%	+252%/-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 003218637-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2180 ± 174	$36.49^{+36.49}_{-24.76}$	1217^{+84}_{-117}	4493^{+3061}_{-883}	126^{+1038}_{-93}
Alt.	-4599 ± 958	$35.43^{+35.86}_{-24.23}$	1227^{+86}_{-125}	5403^{+4901}_{-1284}	286^{+2515}_{-214}

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

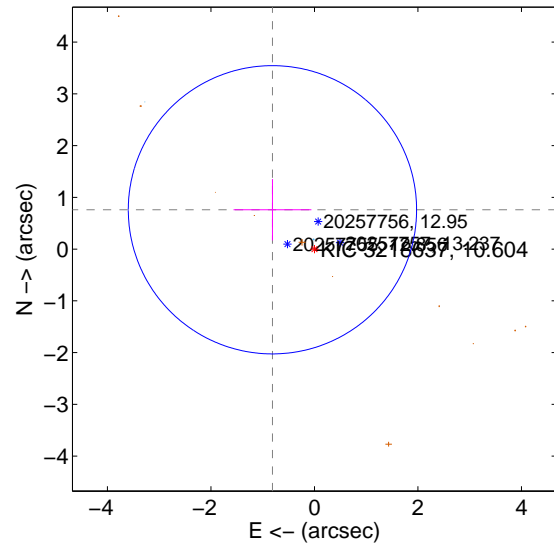
Supplemental centroid analysis for 003218637-05. **Kepler magnitude: 10.60.** Transit SNR 9.15

There are 2 quarters with good PRF difference image offsets

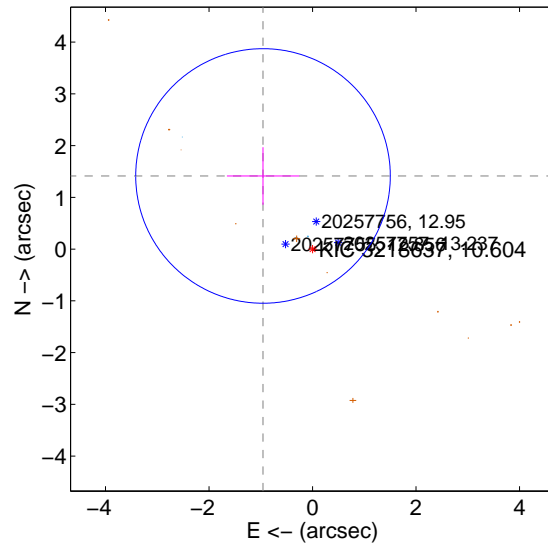
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.111 ± 0.928	1.20	0.811 ± 0.752	0.760 ± 0.593
PRF-fit source offset from KIC position	1.706 ± 0.820	2.08	0.956 ± 0.698	1.413 ± 0.555
photometric centroid source offset	0.05 ± 0.10	0.51	-0.01 ± 0.14	-0.05 ± 0.10

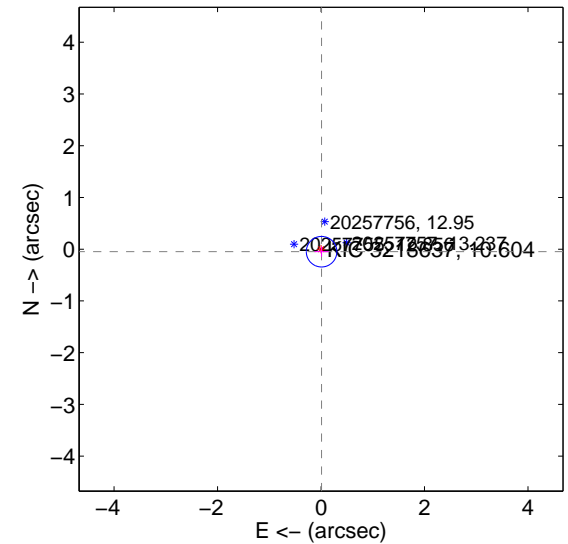
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

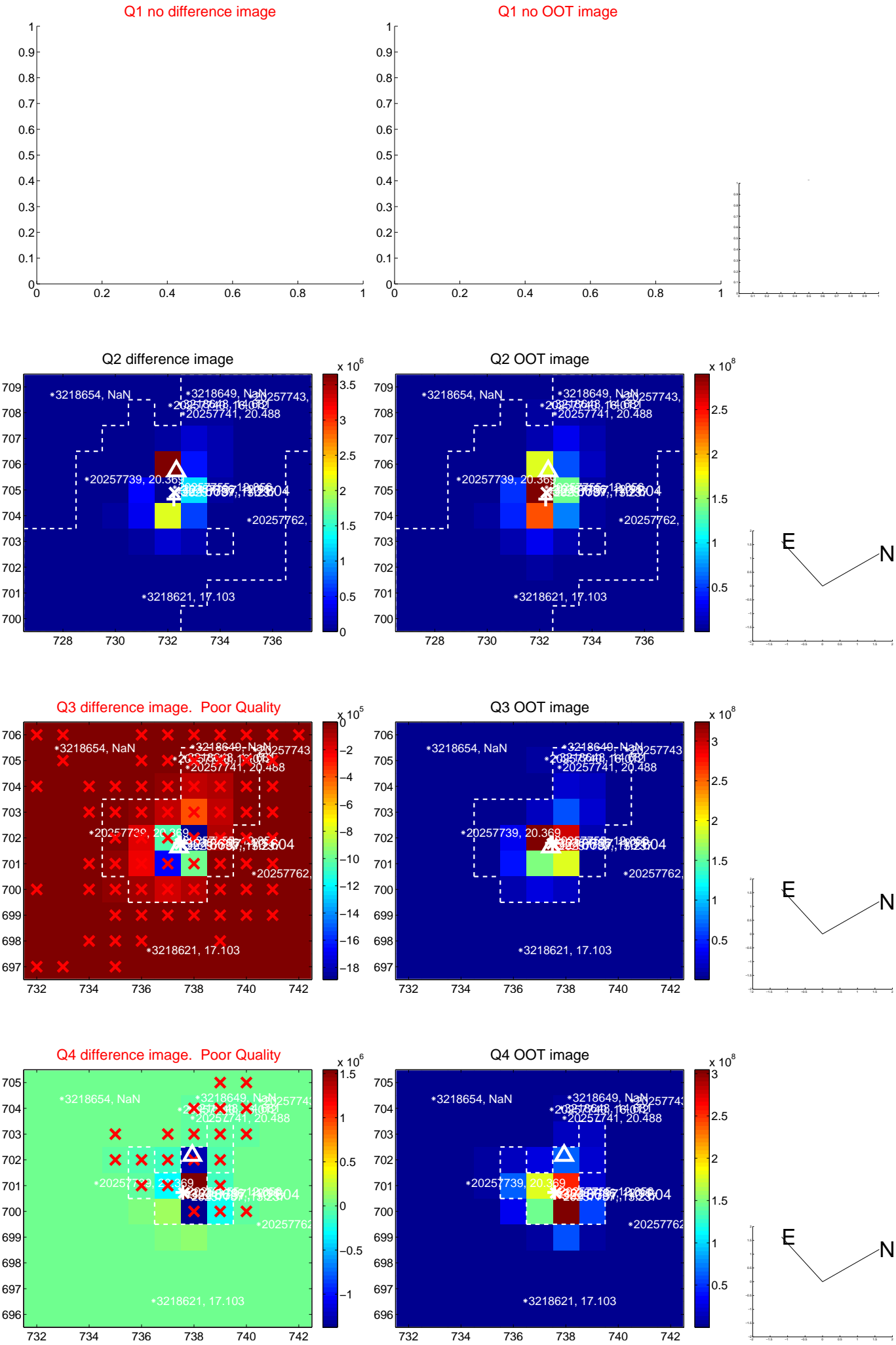


offset from photometric centroids

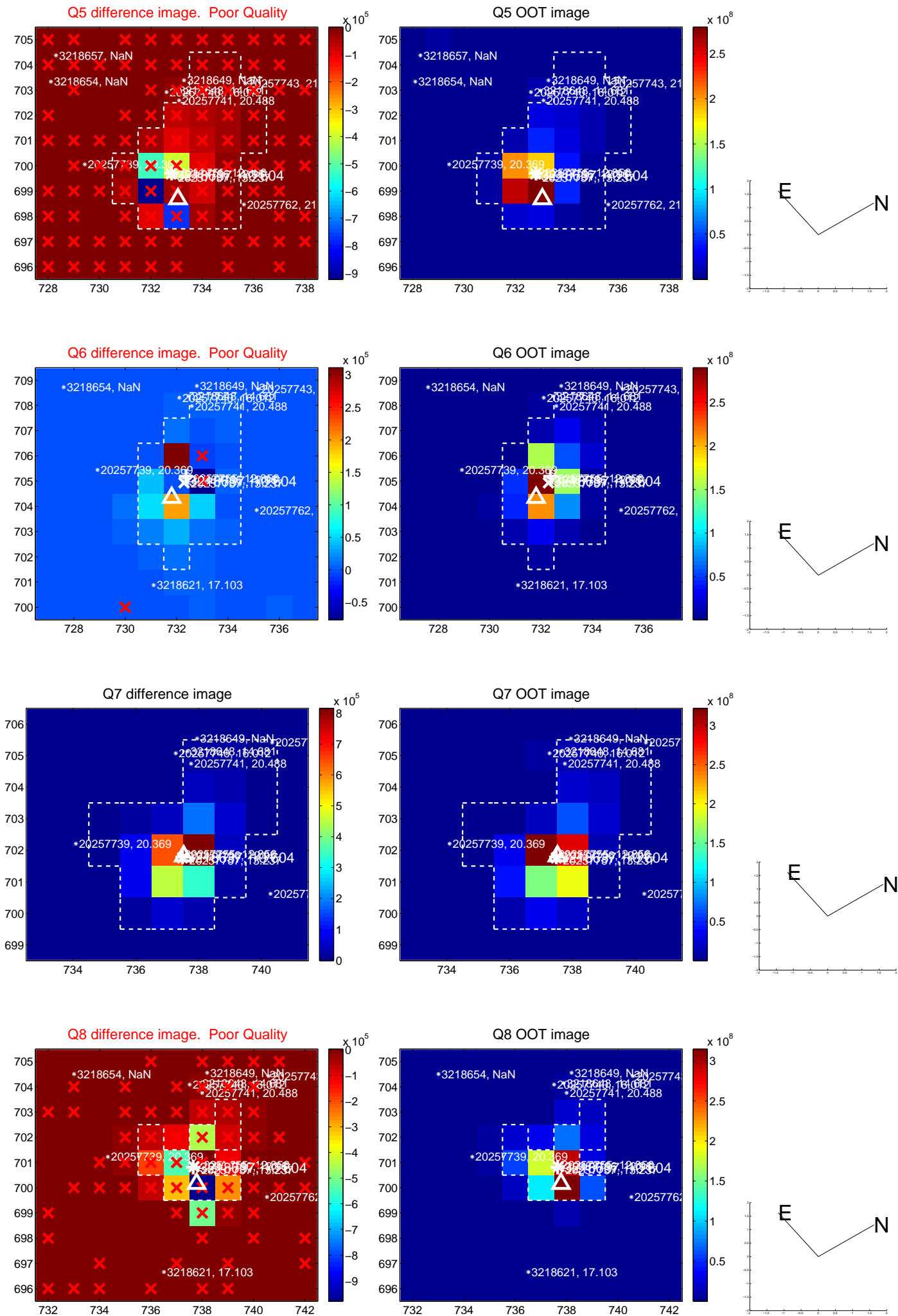


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

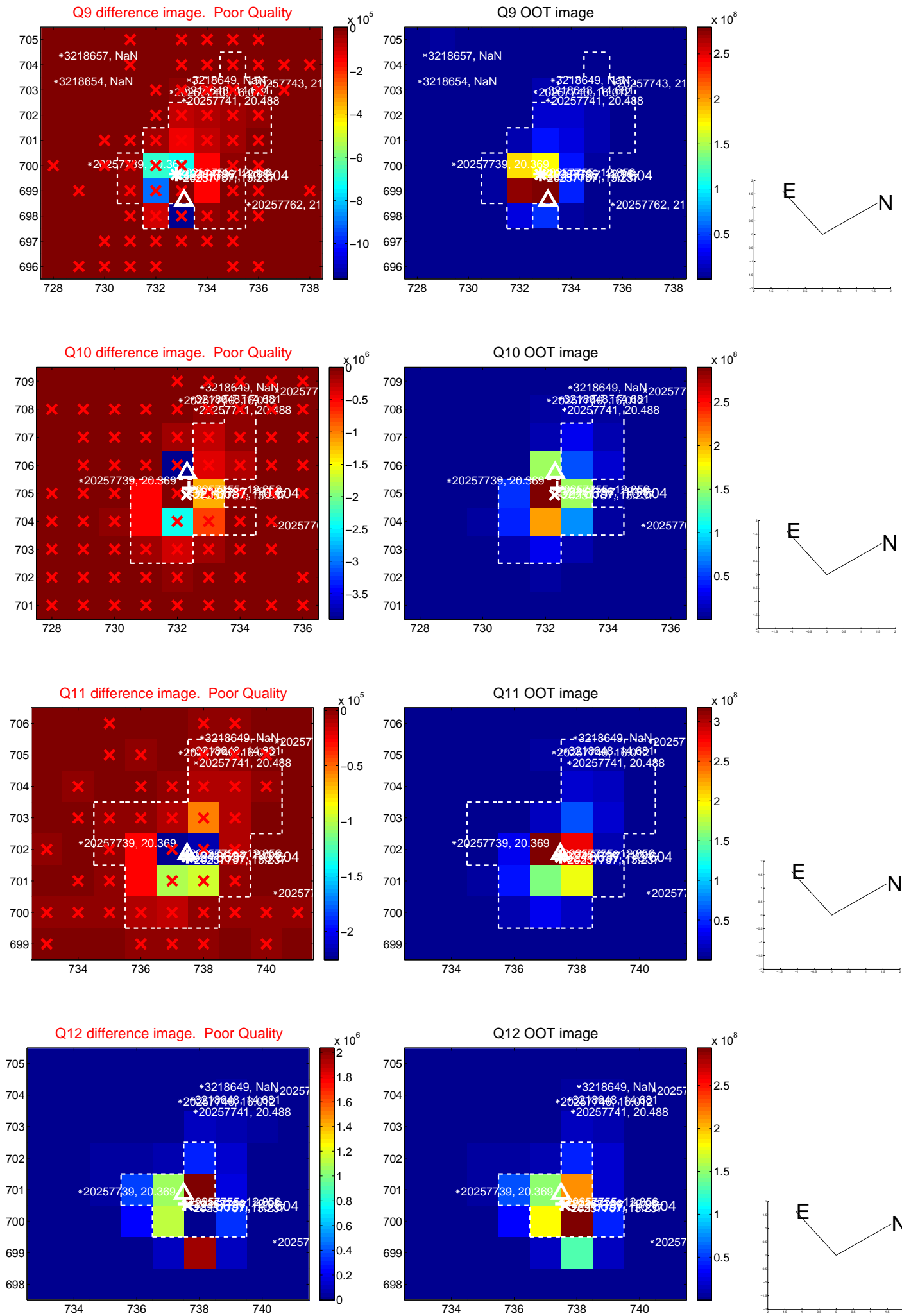
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



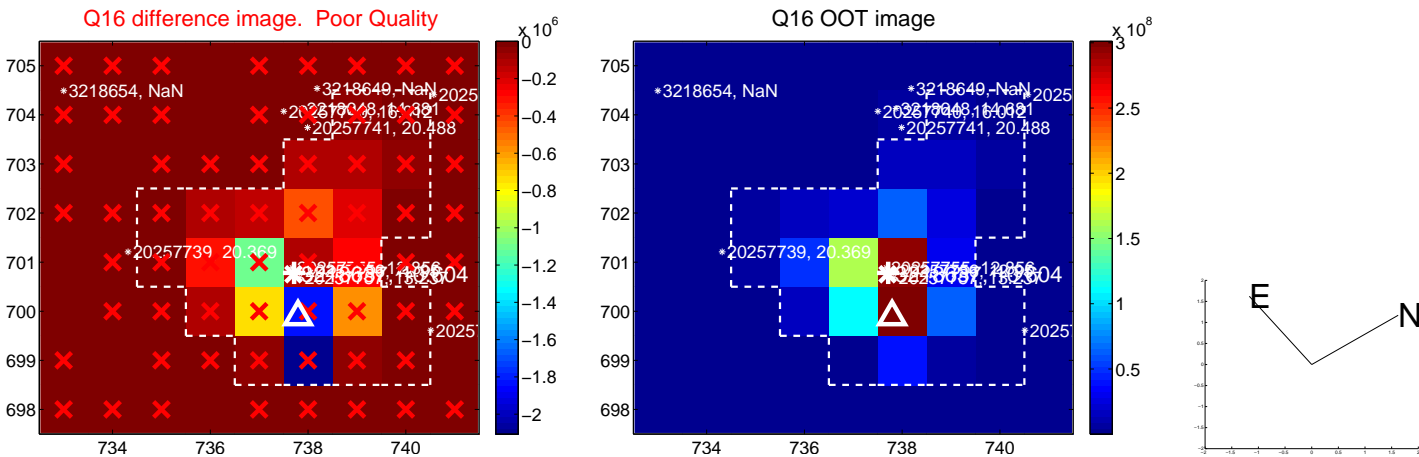
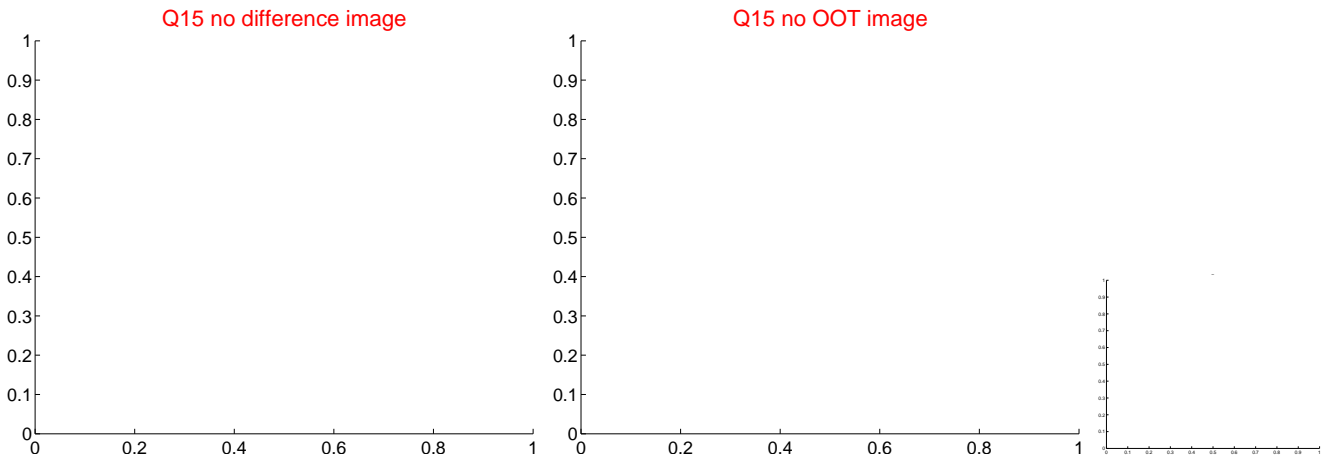
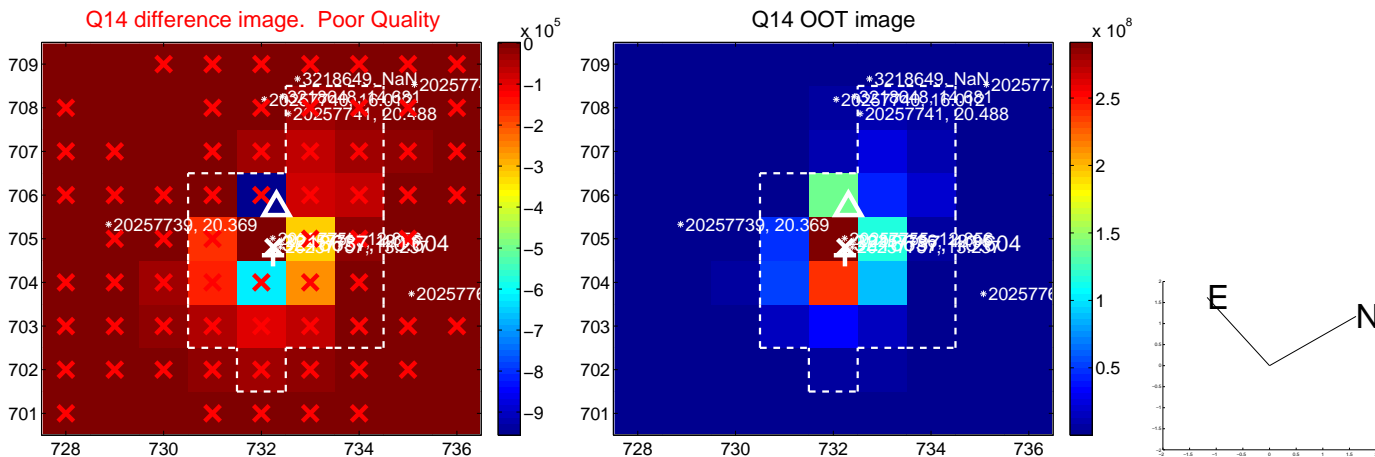
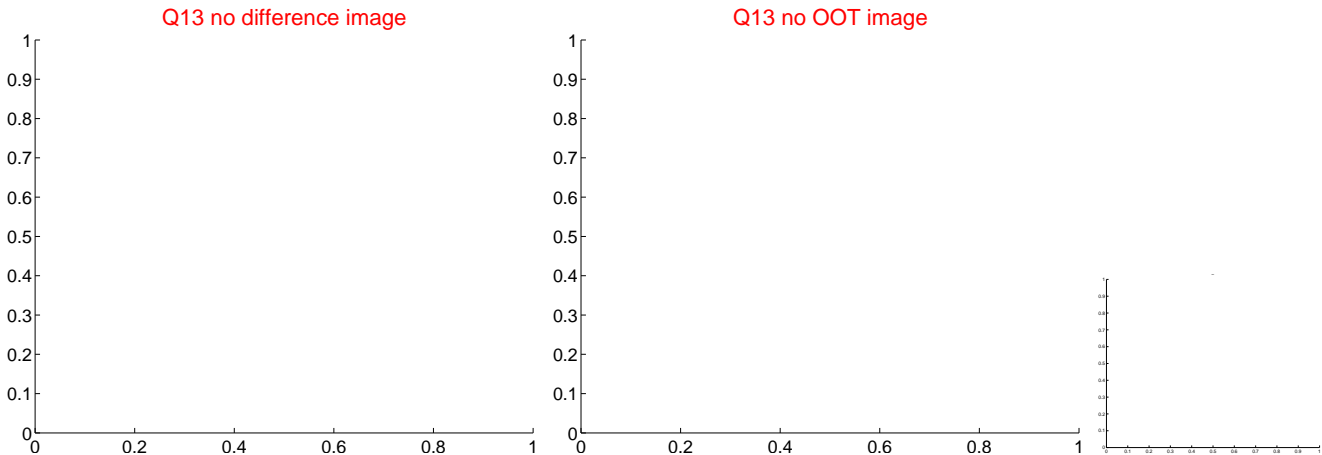
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



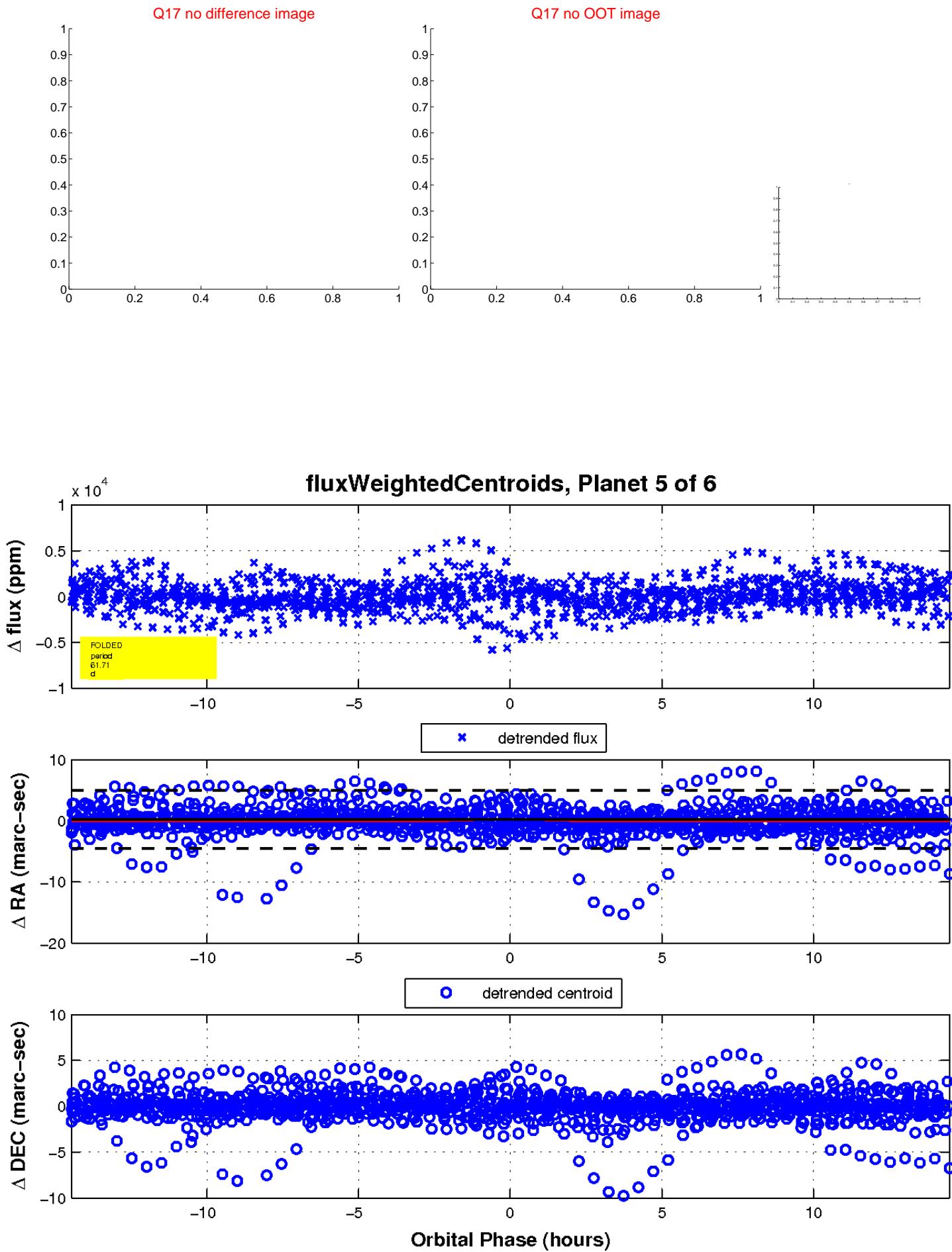
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



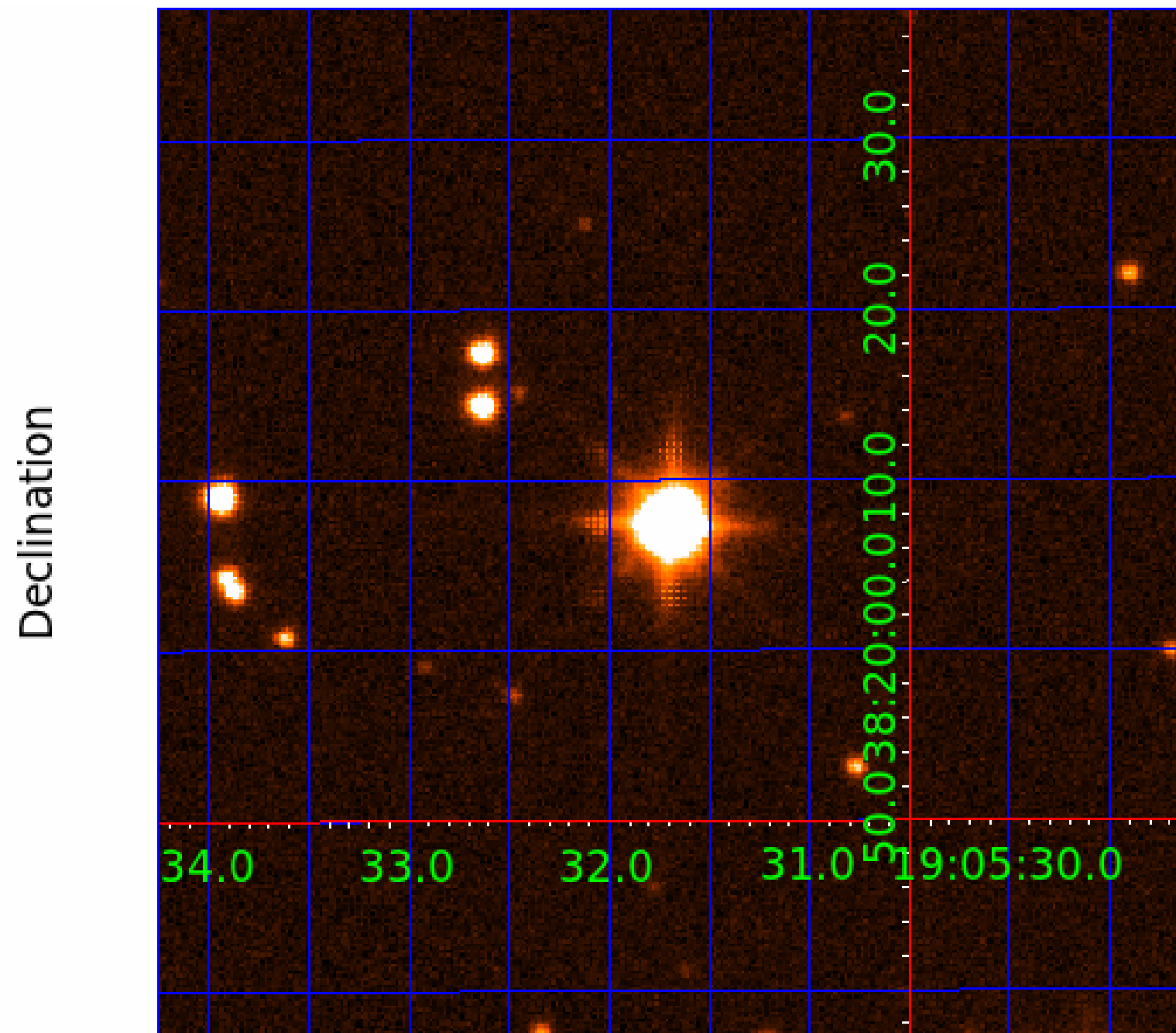
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003218637

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})
003218637-01	OBS	No	0.503818	131.710926	17.7	1.105	7.9	4.4	2.88	7421	1.41	93284.45
003218637-02	OBS	No	0.685336	132.114727	26.1	2.530	10.6	1.3	2.88	7421	1.61	61892.34
003218637-03	OBS	No	205.469610	315.290510	3779.0	3.458	9.1	10.1	2.88	7421	31.83	30.84
003218637-04	OBS	No	78.930239	209.673660	2700.2	7.580	8.6	8.3	2.88	7421	27.04	110.45
003218637-05	OBS	No	61.713157	179.127833	3112.2	4.832	8.3	9.1	2.88	7421	28.93	153.34
003218637-06	OBS	No	245.863405	301.283227	64.4	6.000	8.9	-1.0	2.88	7421	2.35	24.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003218637-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003218637-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
003218637-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—CENT_SATURATED
003218637-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003218637-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

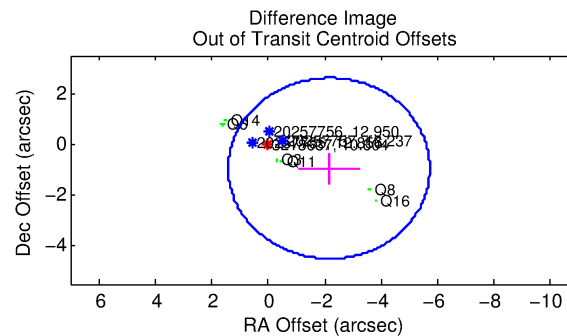
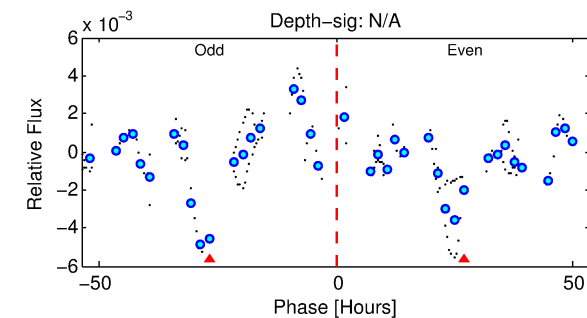
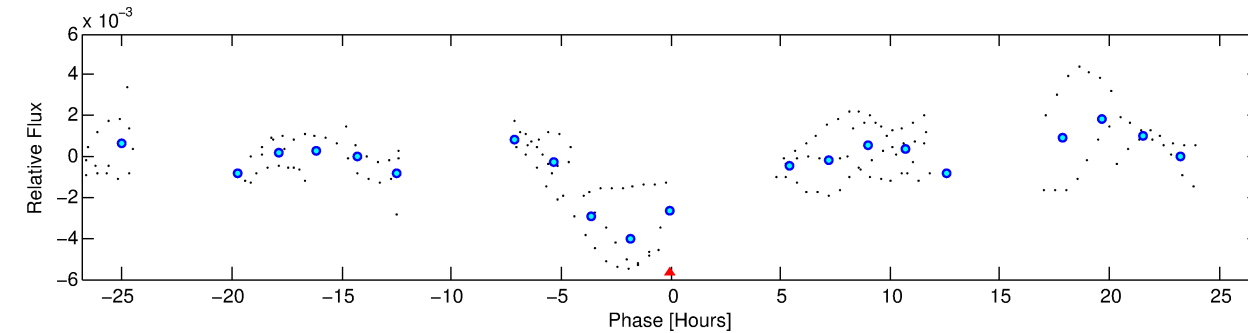
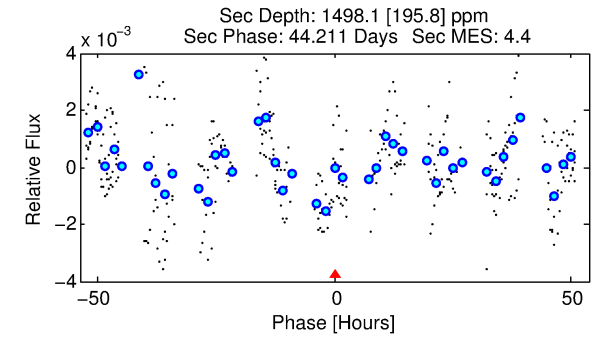
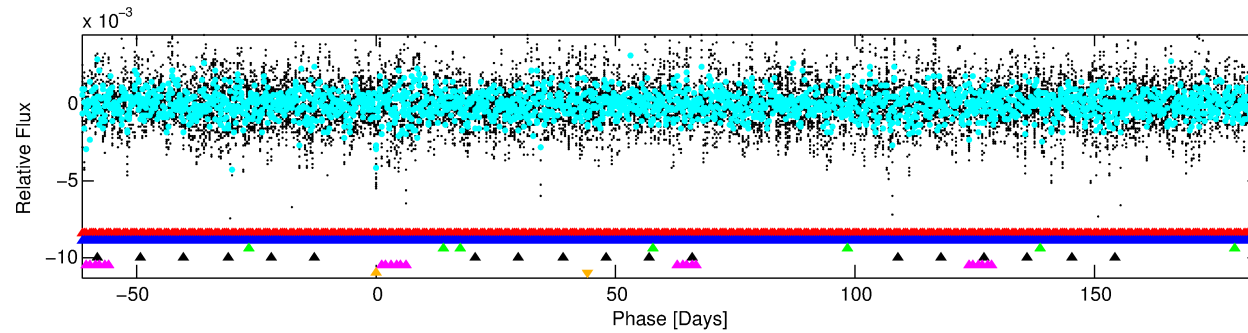
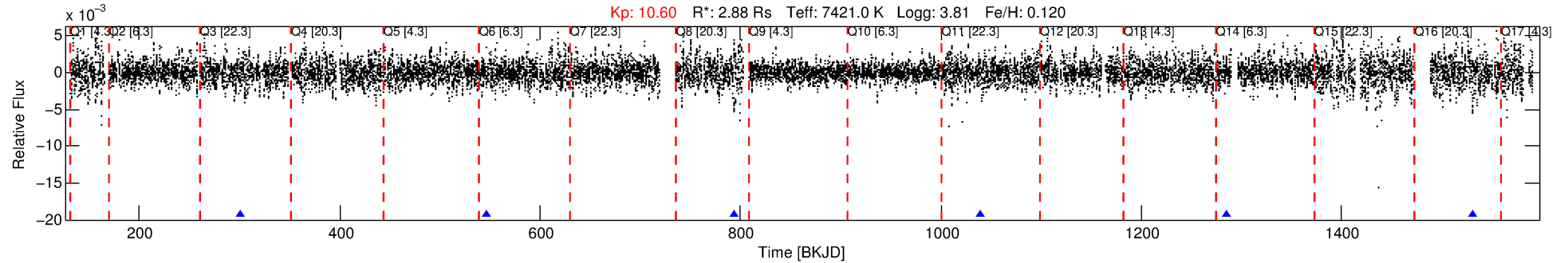
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003218637-06

No Significant Match Found

DV One-Page Summary

KIC: 3218637 Candidate: 6 of 6 Period: 245.863 d



TPS TCE Results:

Period = 245.86341 d
Epoch = 301.2832 BKJD

DV fit results are unavailable

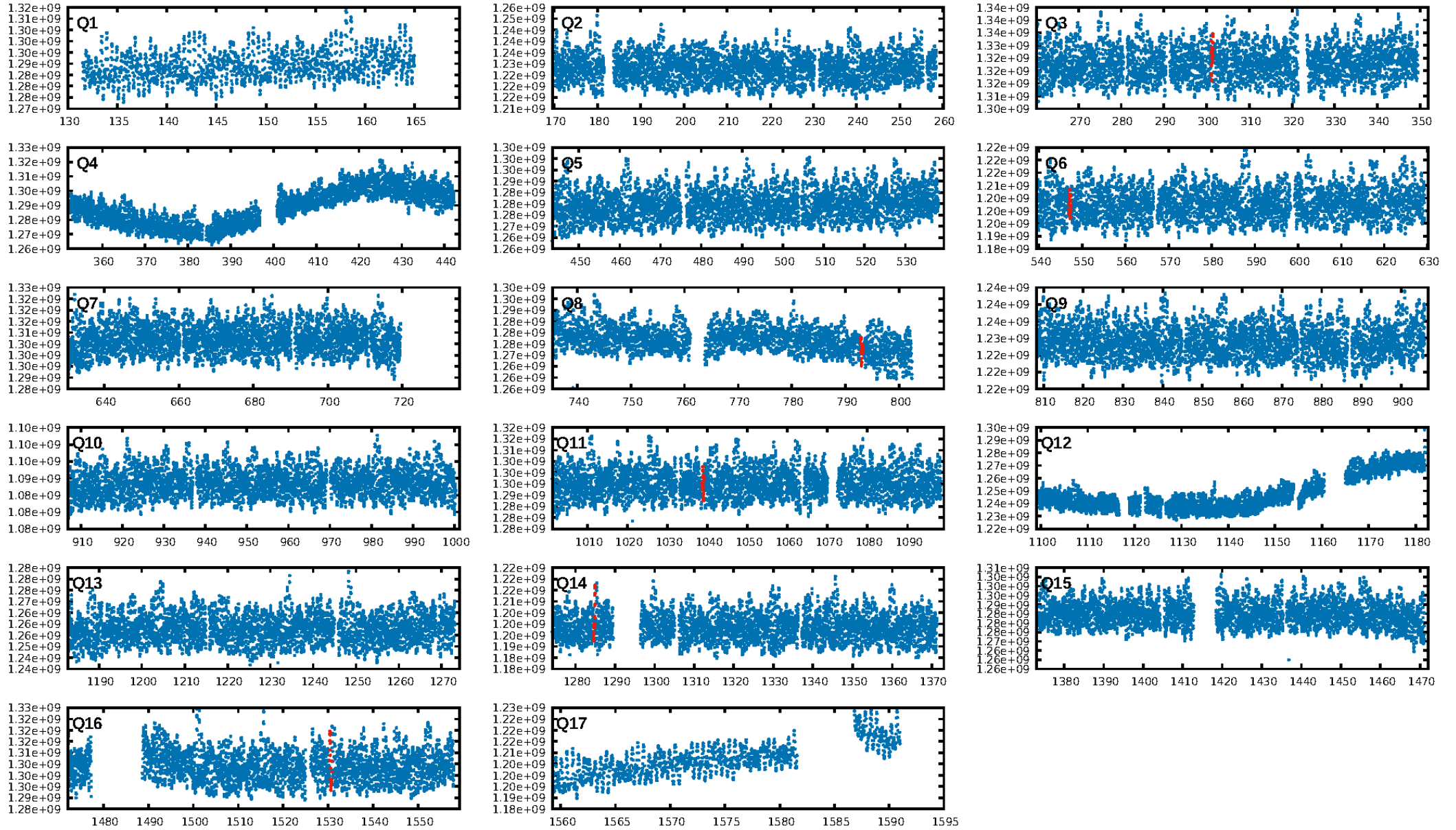
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [139.98 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.140 arcsec [1.85 σ]
OotOffset-rm: 2.355 arcsec [1.98 σ]
KicOffset-rm: 2.238 arcsec [2.12 σ]
OotOffset-st: 2/2/2/0 [6]
KicOffset-st: 2/2/2/0 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.00 [0/6]

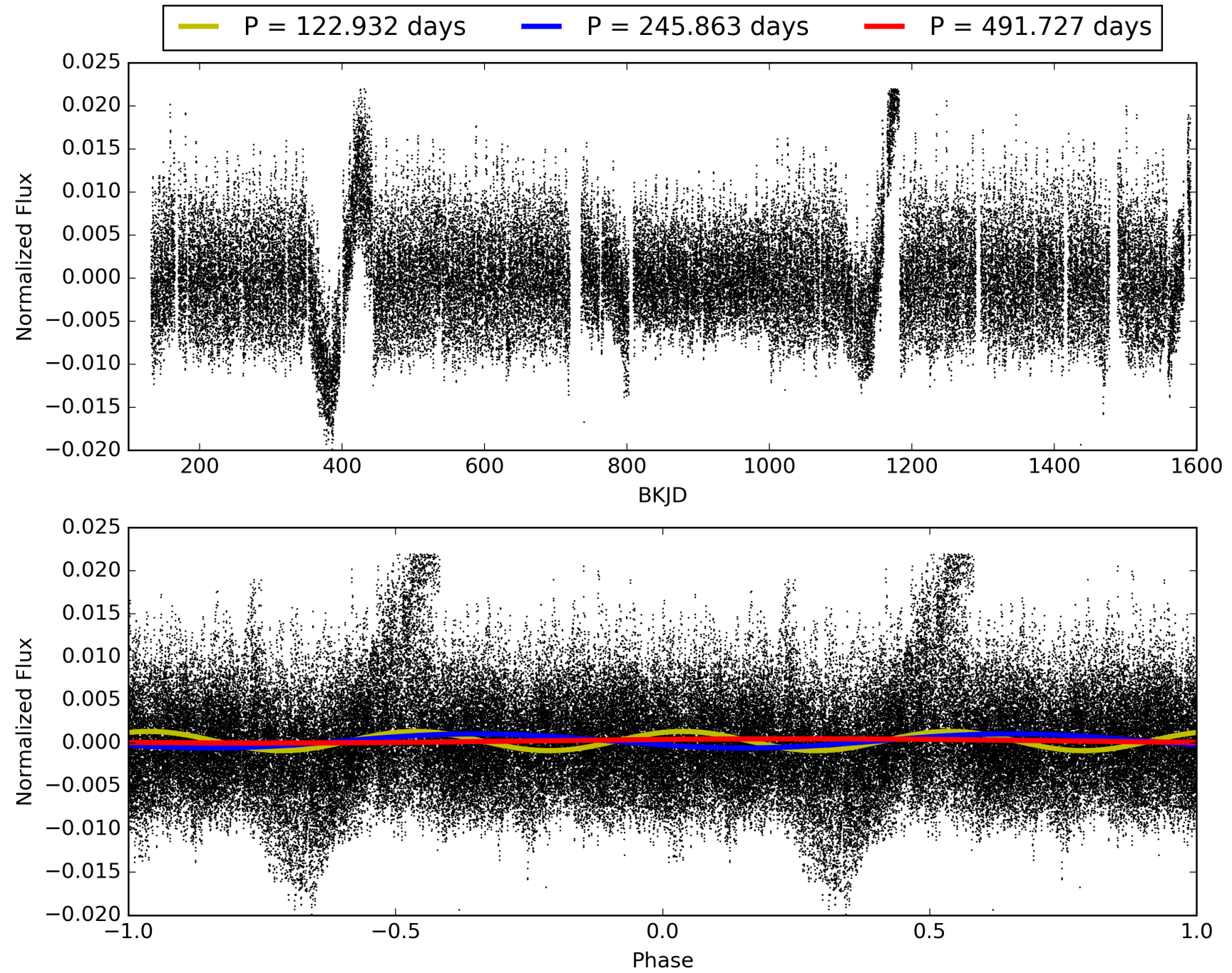
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:44:17 Z

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

TCE 003218637-06, PDC Light Curves

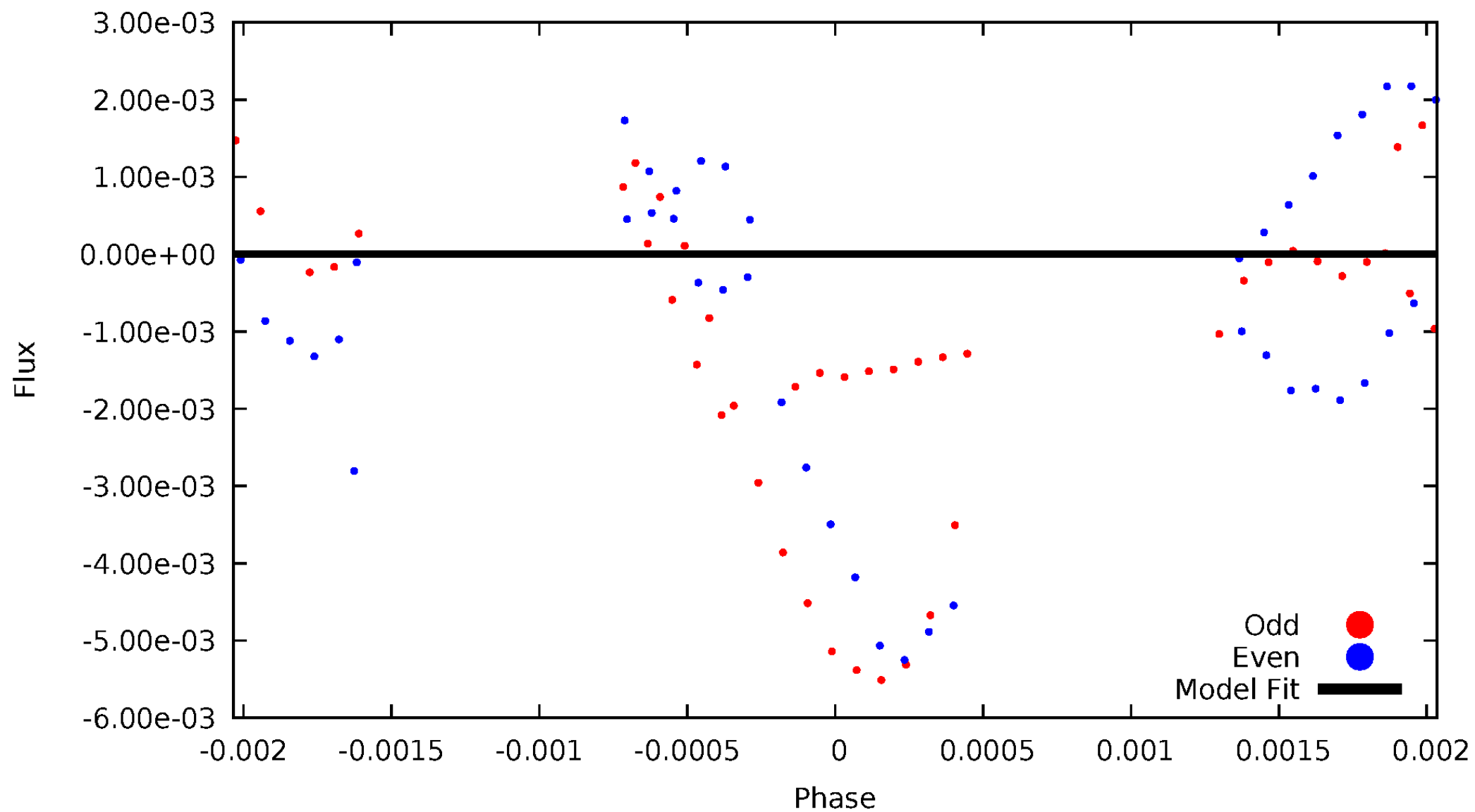


TCE 003218637-06



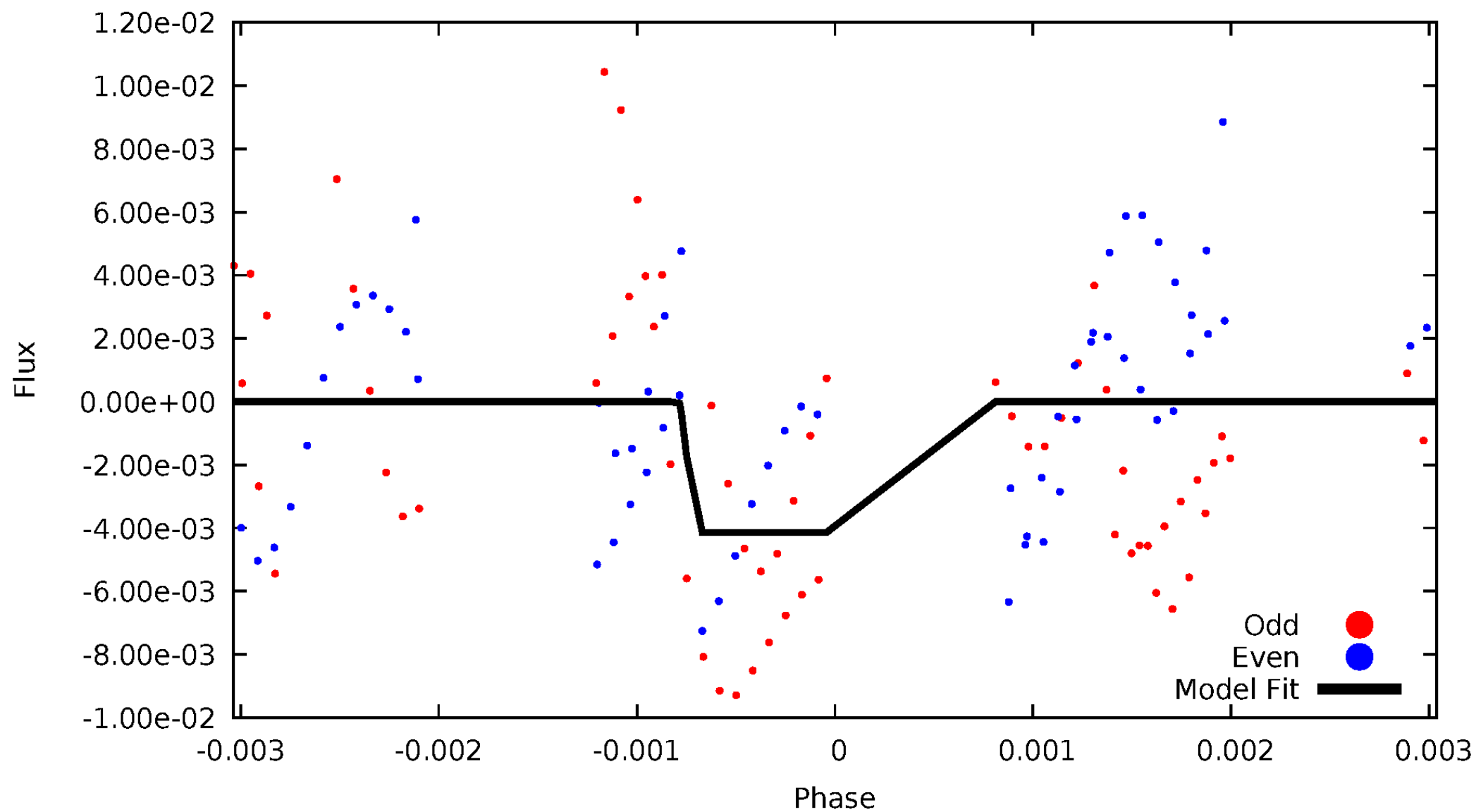
DV Odd/Even

TCE 003218637-06



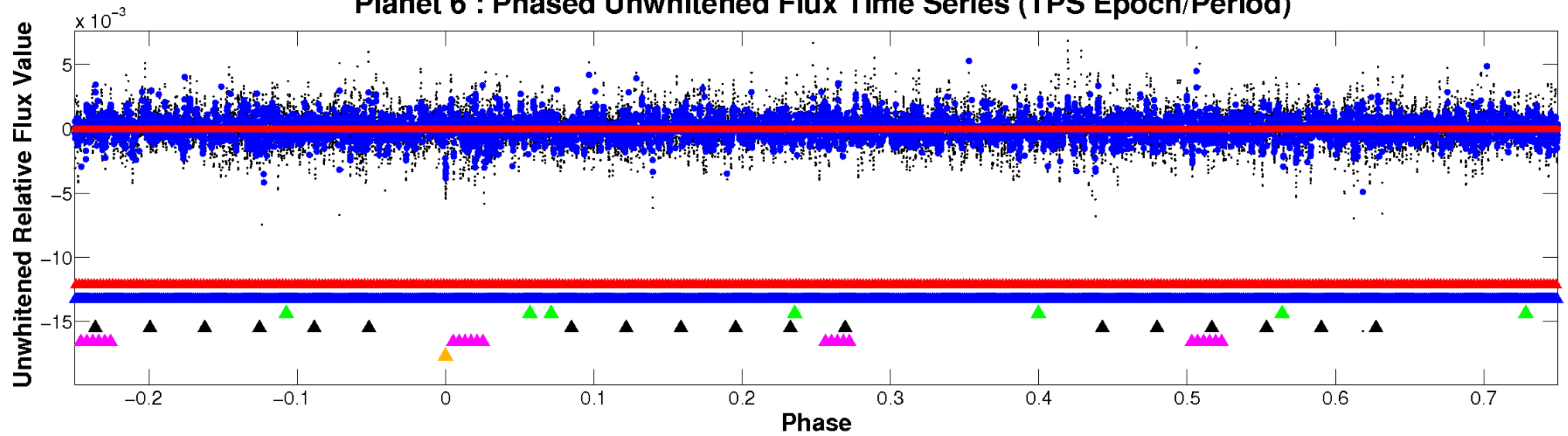
ALT Odd/Even

TCE 003218637-06

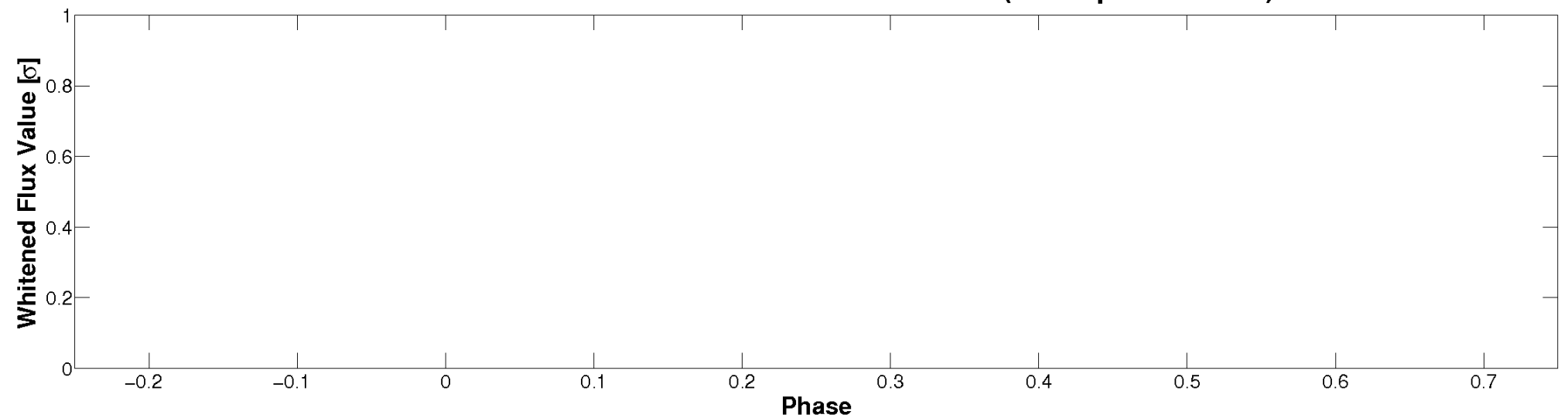


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

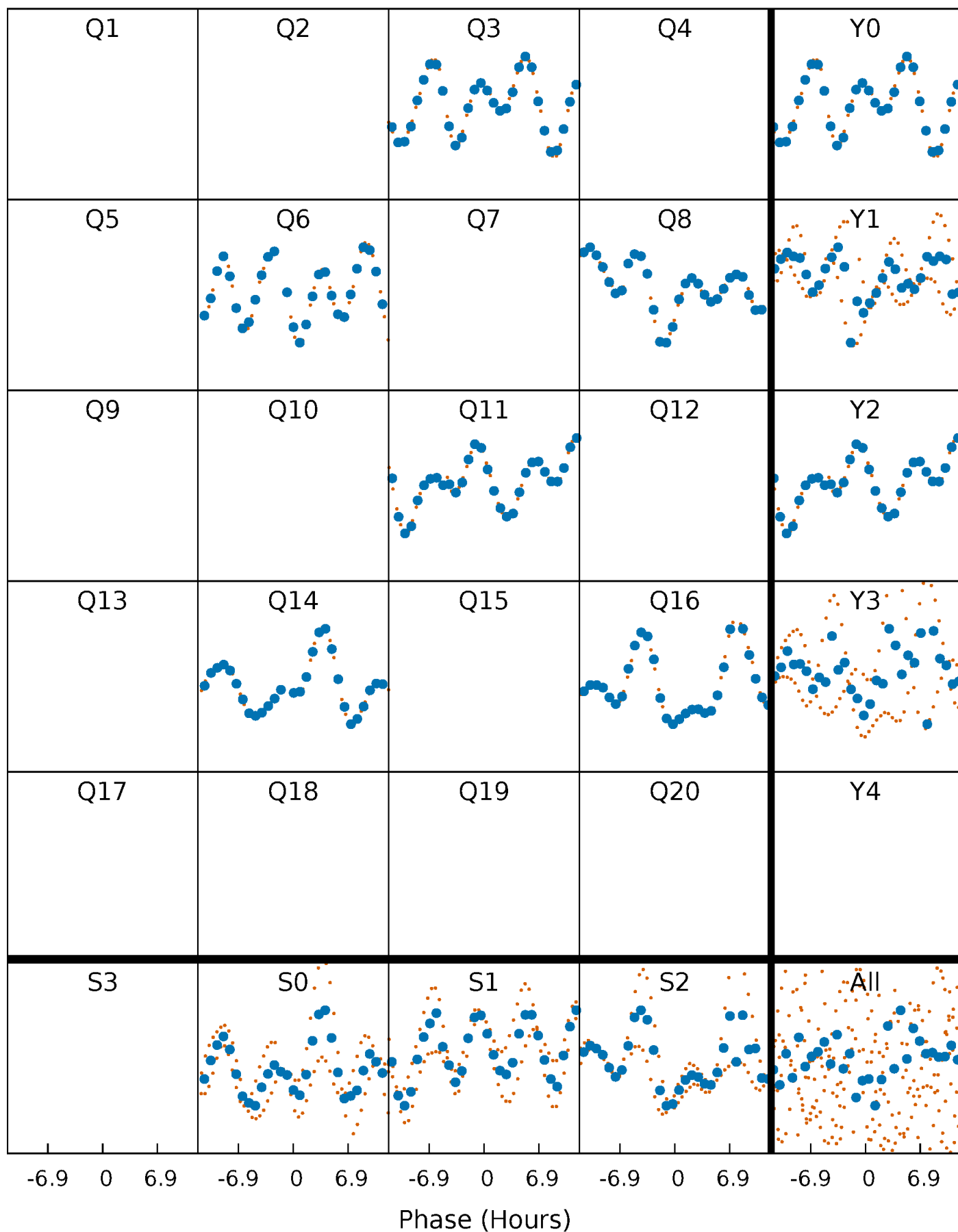


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



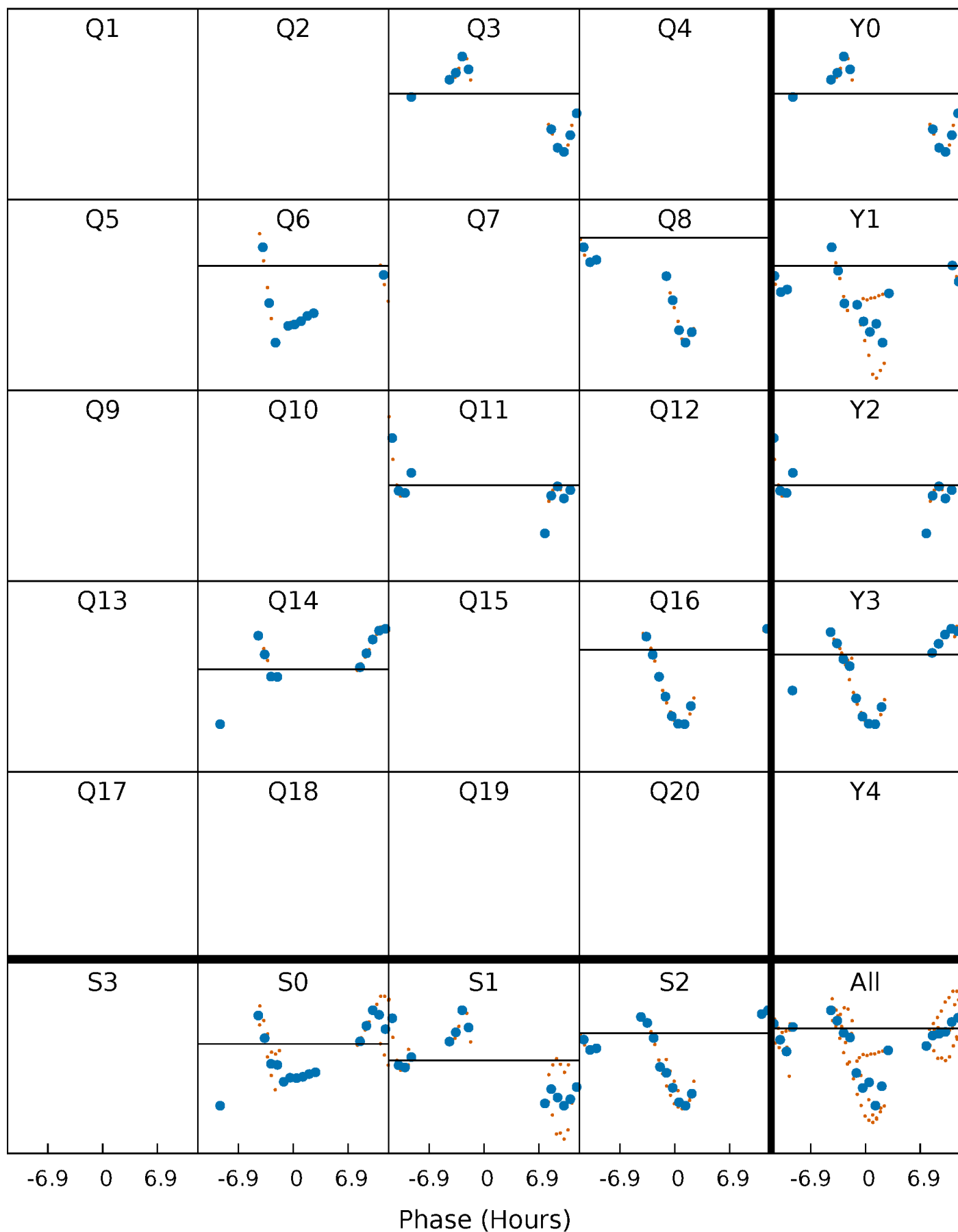
PDC Quarter-Phased Transit Curves

TCE 003218637-06 P=245.863405 Days $T_0=301.283227$ (BKJD)



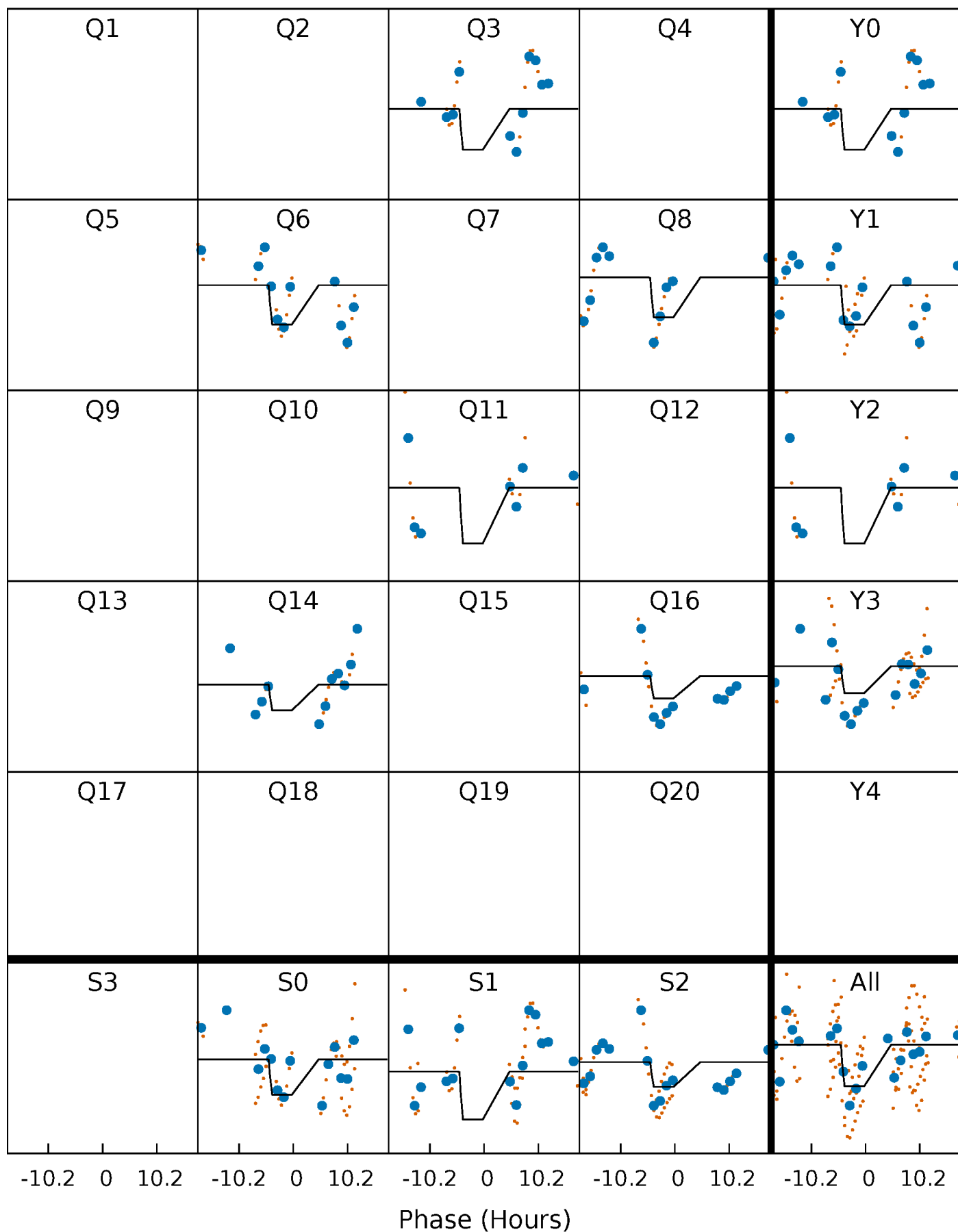
DV Quarter-Phased Transit Curves

TCE 003218637-06 P=245.863405 Days $T_0=301.283227$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

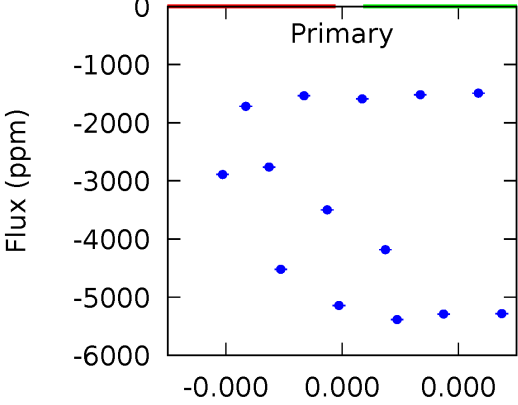
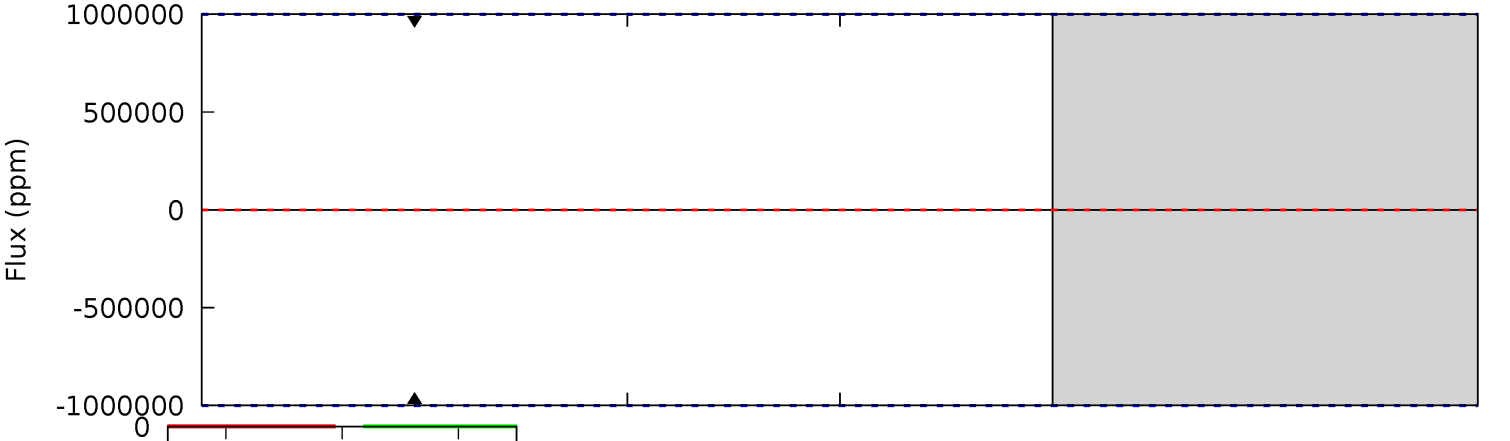
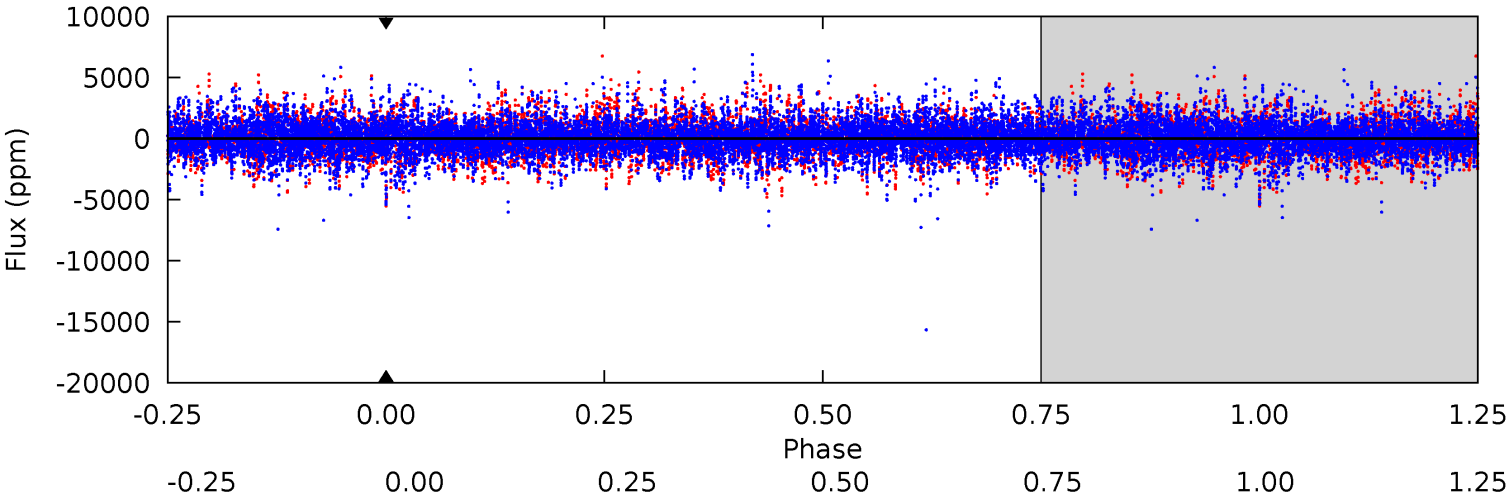
TCE 003218637-06 P=245.863405 Days $T_0=301.403225$ (BKJD)



DV Model-Shift Uniqueness Test

003218637-06, P = 245.863405 Days, E = 55.419822 Days

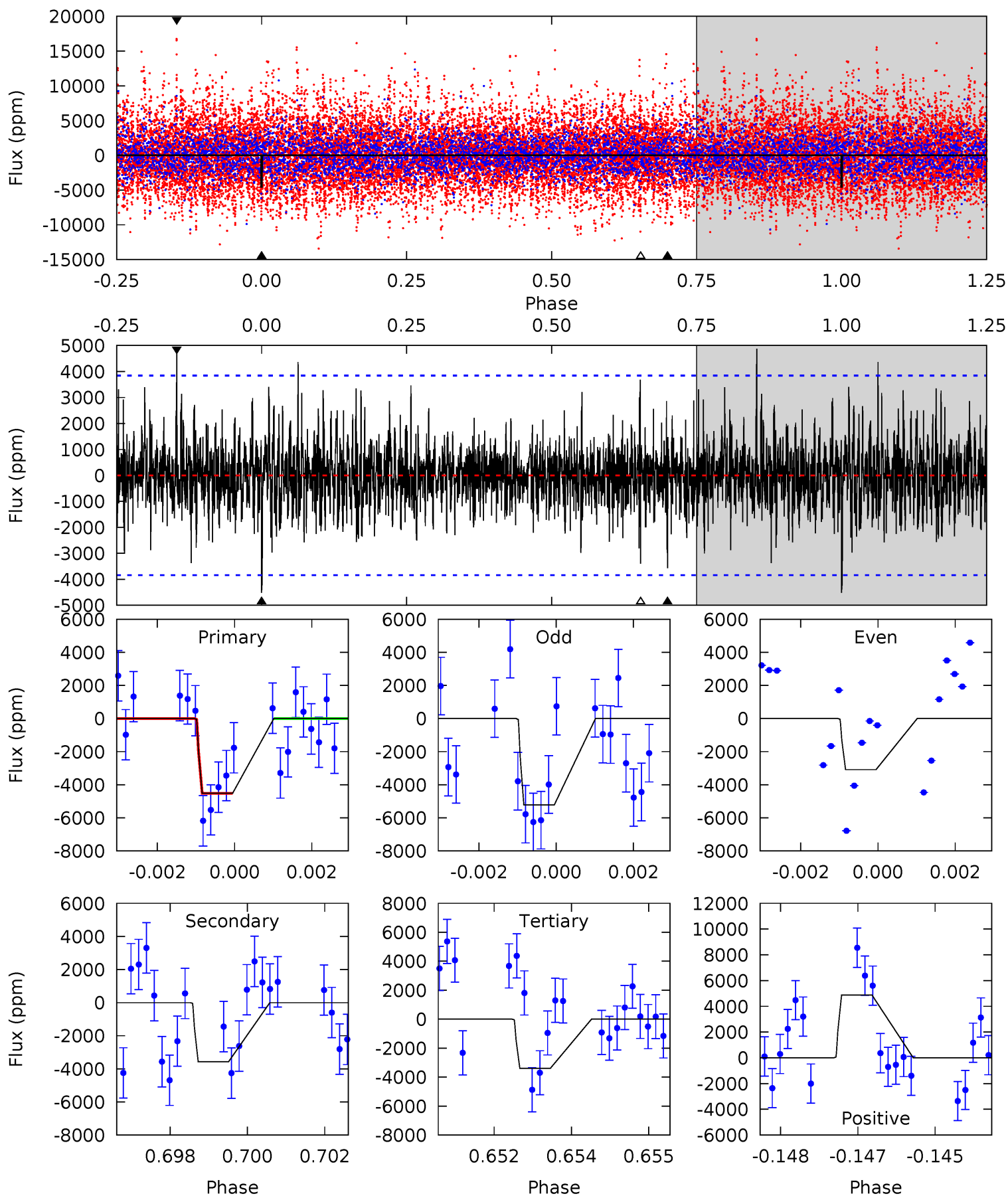
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

003218637-06, P = 245.863405 Days, E = 55.539820 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.32	4.98	4.75	6.81	5.37	3.16	1.35	1.56	-0.49	0.23	-1.83	1.42	0	0.52	0



Stellar Parameters For KIC 003218637

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7421^{+206}_{-335}	$3.815^{+0.330}_{-0.110}$	$0.120^{+0.200}_{-0.350}$	$2.885^{+0.493}_{-1.149}$	$1.985^{+0.089}_{-0.503}$	$0.116^{+0.293}_{-0.040}$
	+3%/-5%	+9%/-3%	+167%/-292%	+17%/-40%	+4%/-25%	+252%/-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 003218637-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$20.00^{+22.22}_{-13.49}$	776^{+56}_{-82}	4130^{+40873}_{-44615}	$313^{+219851}_{-209436}$
Alt.	-3565 ± 715	$27.41^{+27.53}_{-18.27}$	768^{+57}_{-84}	5705^{+5180}_{-1395}	2226^{+17915}_{-1635}

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 $A_{obs} \gg 1.0$

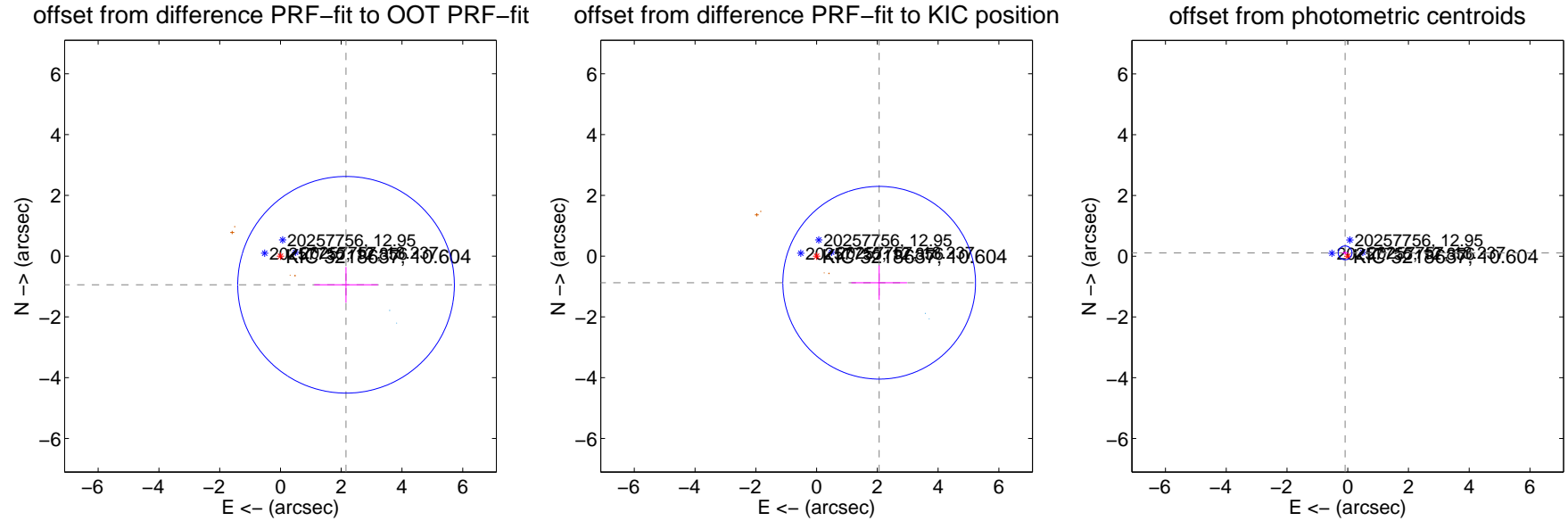
DV Centroid Data

Supplemental centroid analysis for 003218637-06. **Kepler magnitude: 10.60.** Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

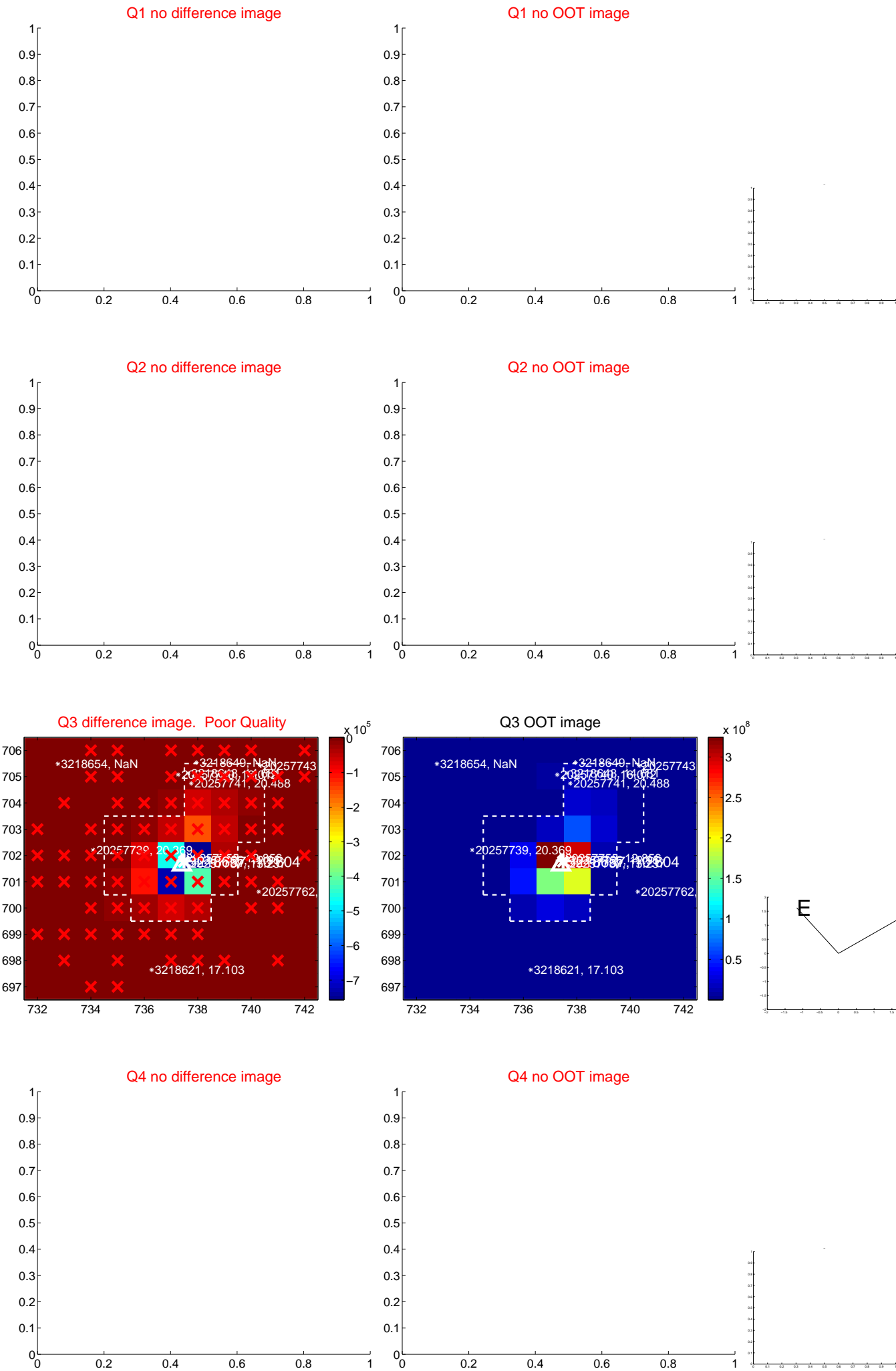
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.355 ± 1.188	1.98	-2.158 ± 1.047	-0.943 ± 0.586
PRF-fit source offset from KIC position	2.238 ± 1.057	2.12	-2.060 ± 0.915	-0.875 ± 0.564
photometric centroid source offset	0.14 ± 0.08	1.85	0.09 ± 0.09	0.11 ± 0.07

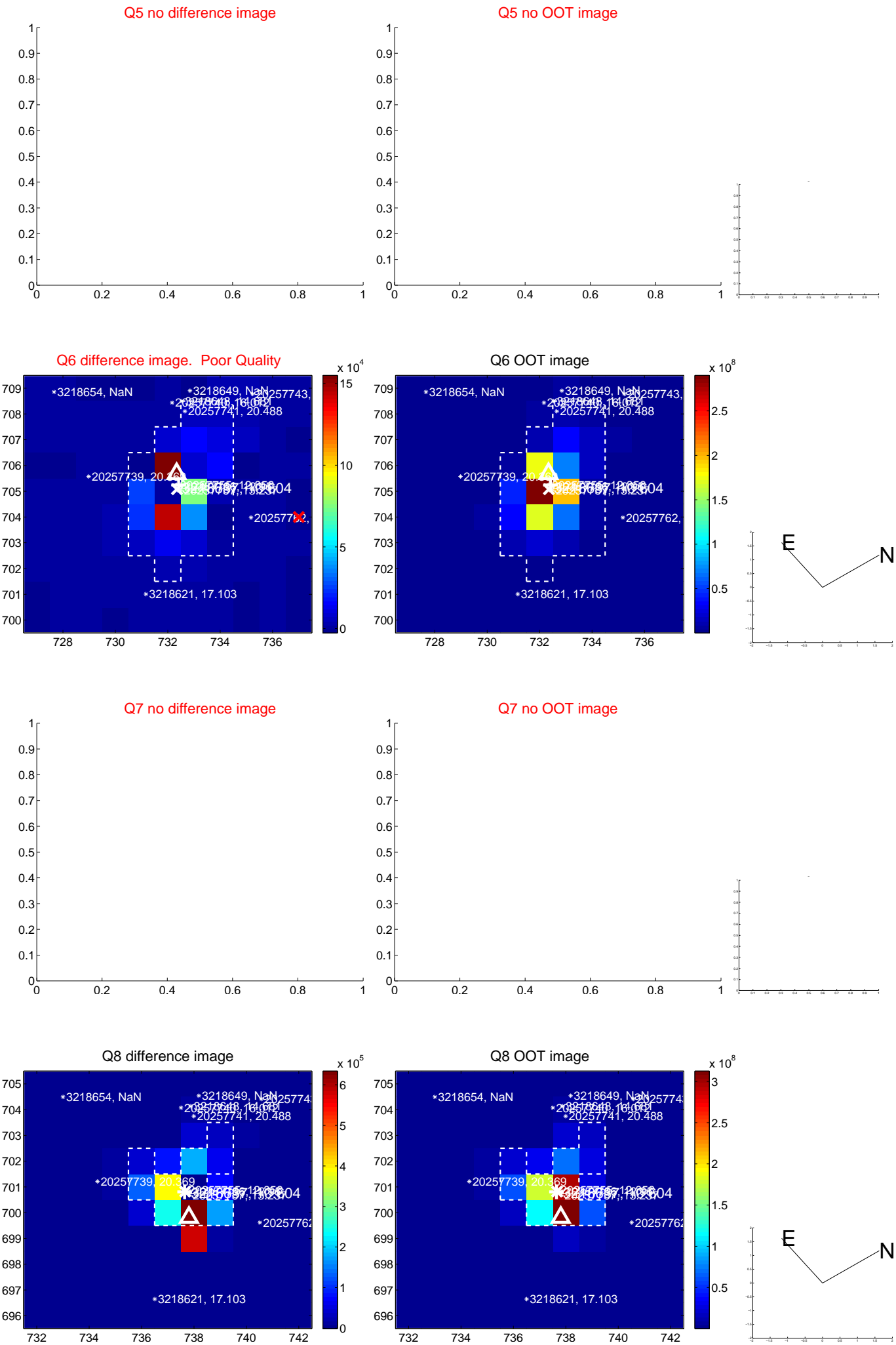


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

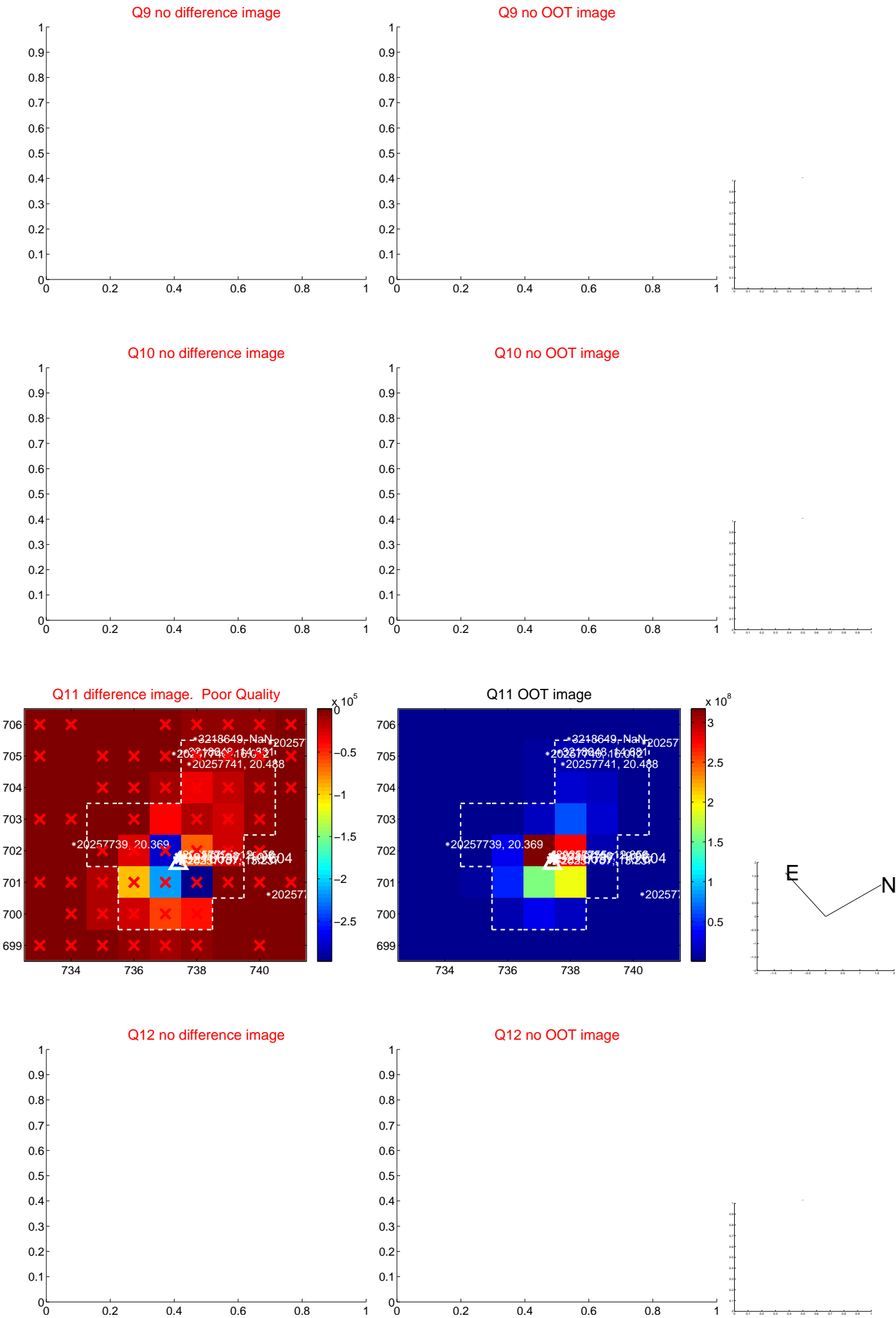
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



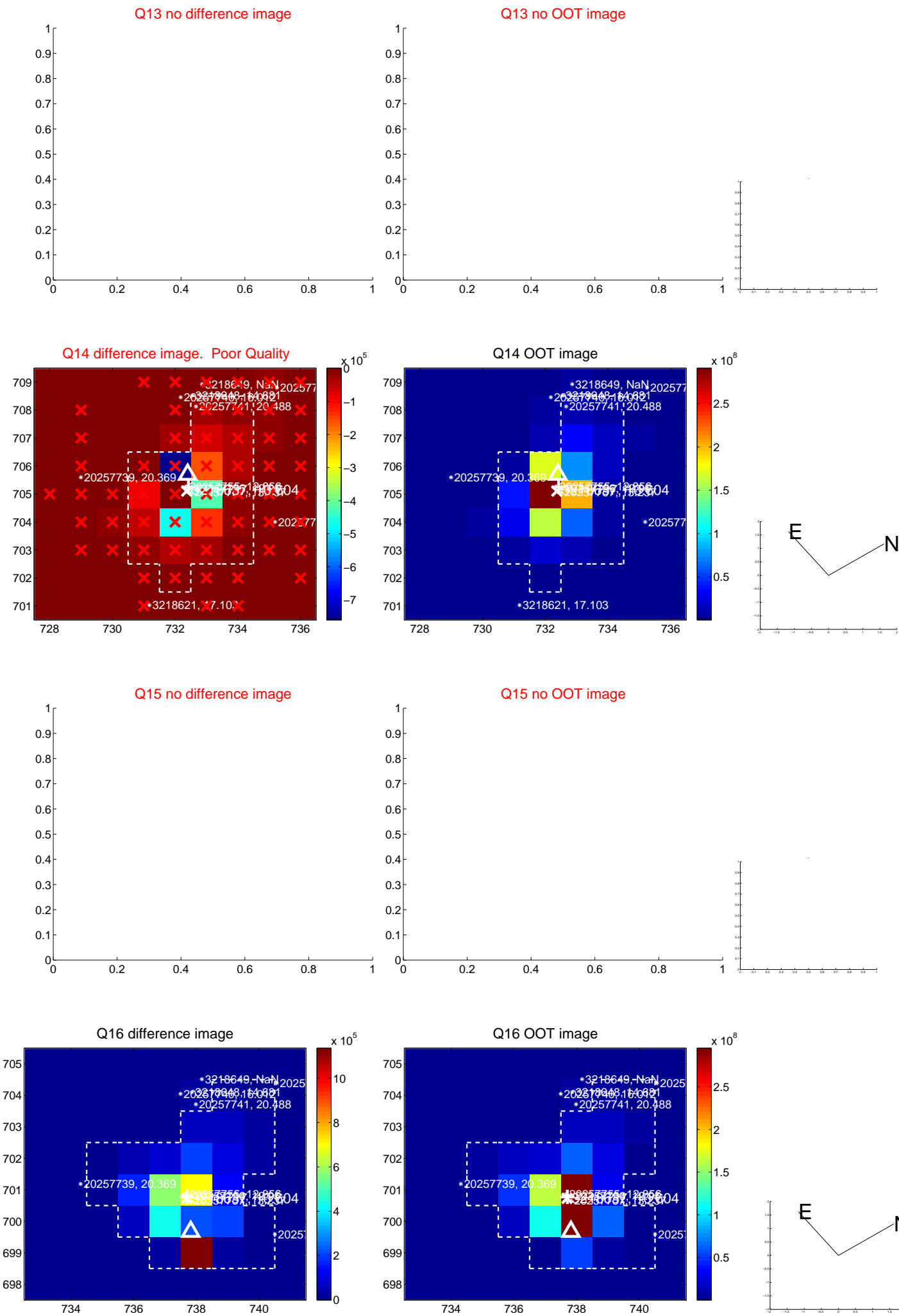
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



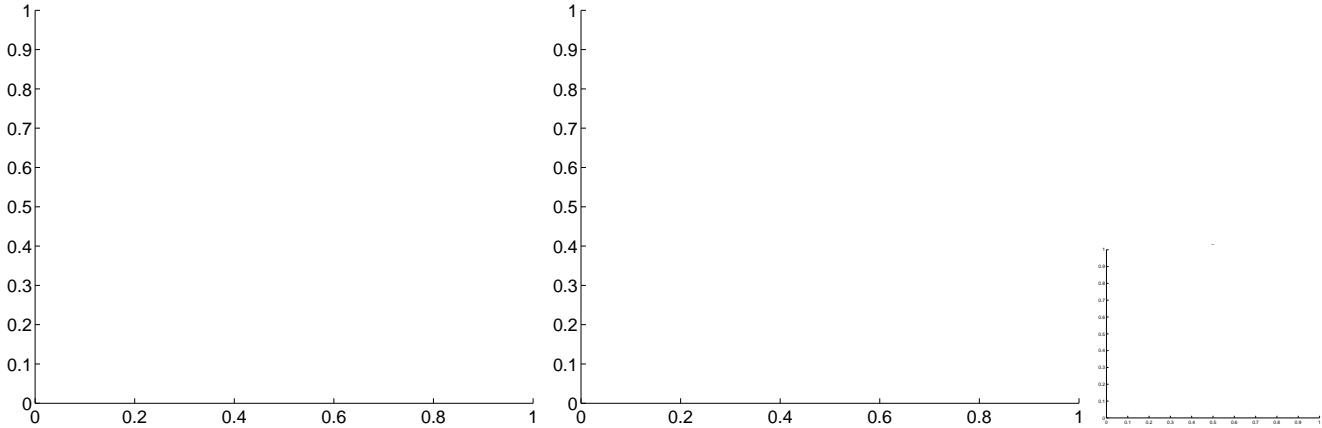
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



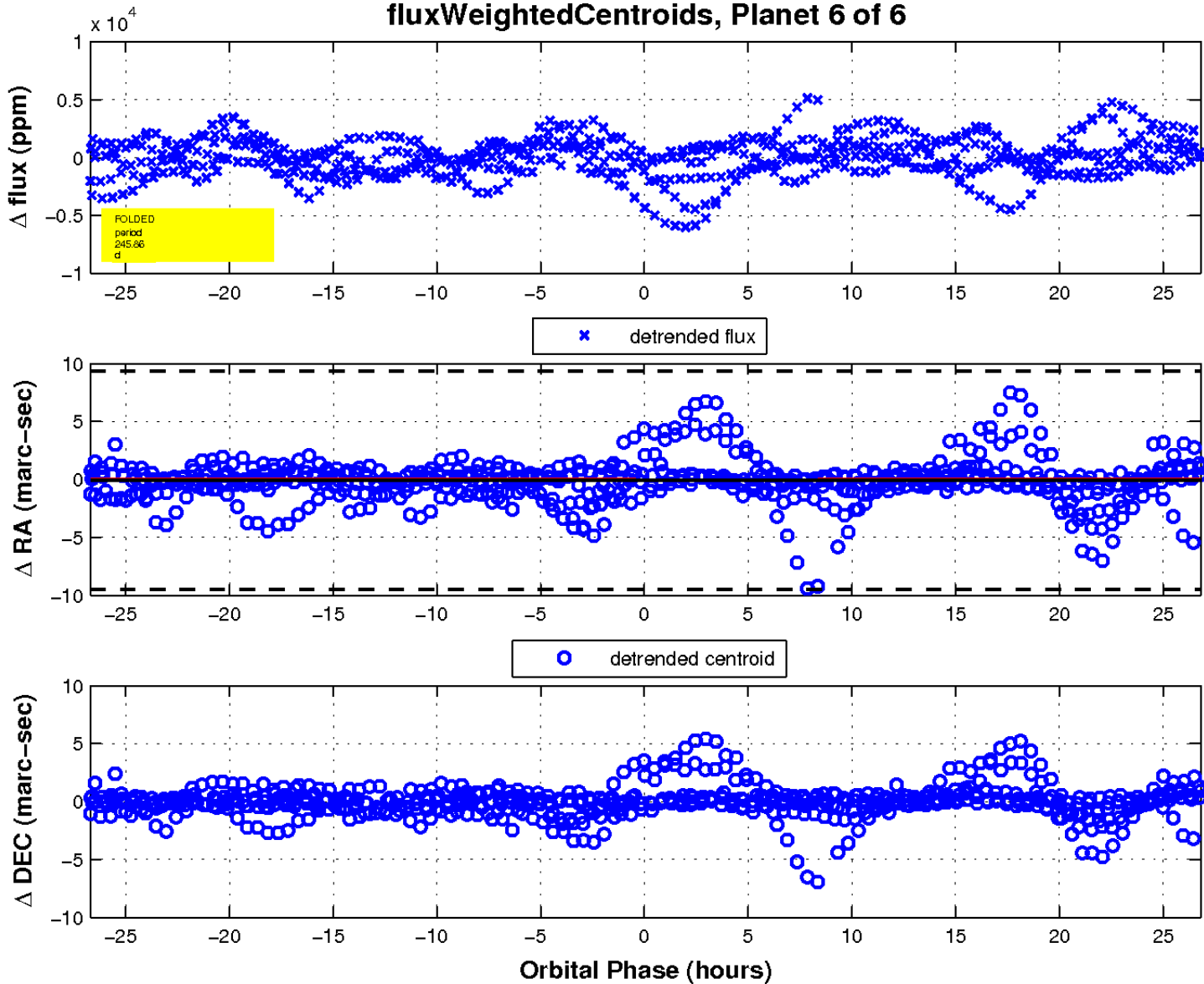
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image



fluxWeightedCentroids, Planet 6 of 6



UKIRT Image

