

KIC 009083354

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})
009083354-01	OBS	No	1.133313	131.538277	3469.0	3.000	11.9	-1.0	0.56	3923	3.24	214.15
009083354-02	OBS	No	143.437575	177.995380	3842.5	2.500	10.6	-1.0	0.56	3923	3.41	0.34
009083354-03	OBS	No	0.905471	132.018849	506.2	3.719	8.3	8.7	0.56	3923	2.60	288.86
009083354-04	OBS	No	71.175129	176.657308	6471.0	10.043	9.0	6.3	0.56	3923	4.41	0.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009083354-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
009083354-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
009083354-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009083354-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—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

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

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

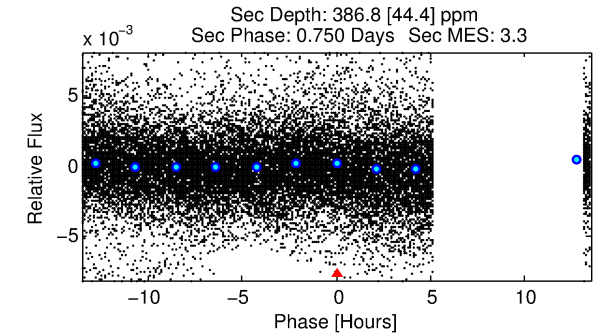
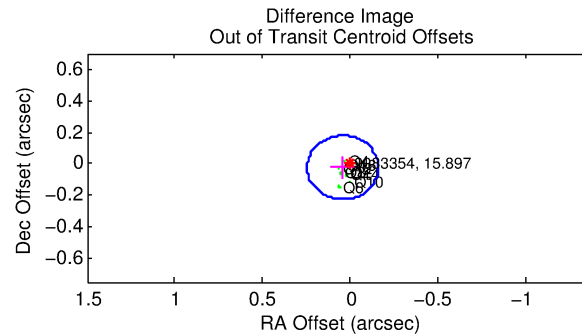
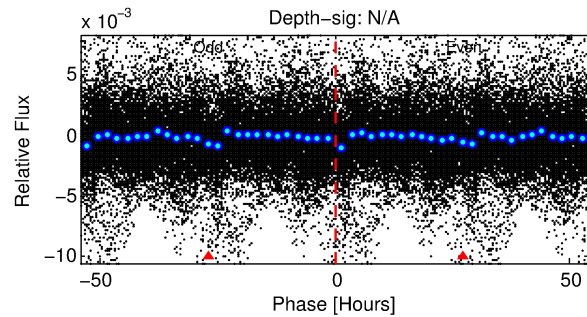
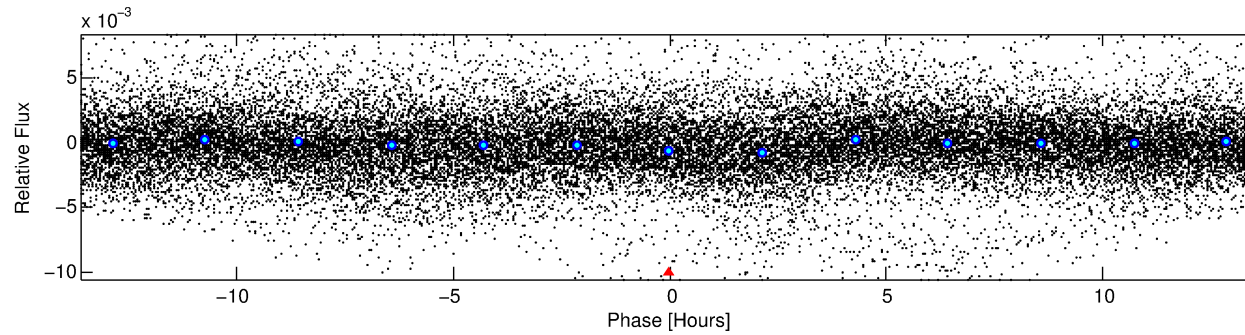
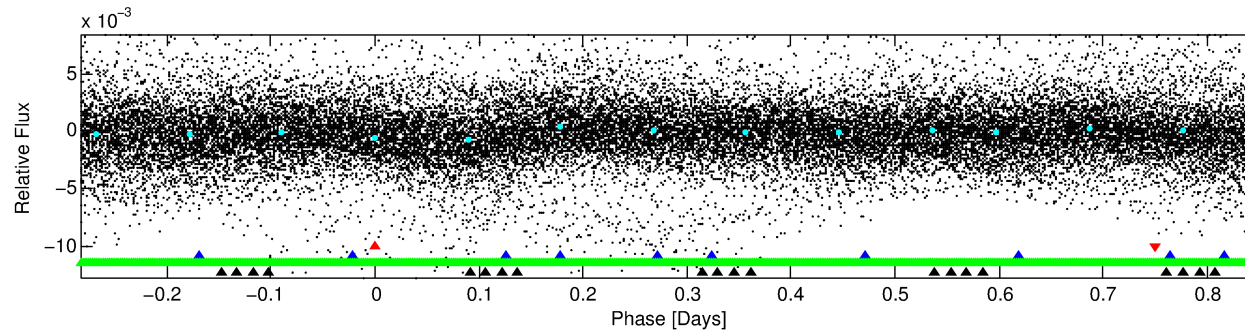
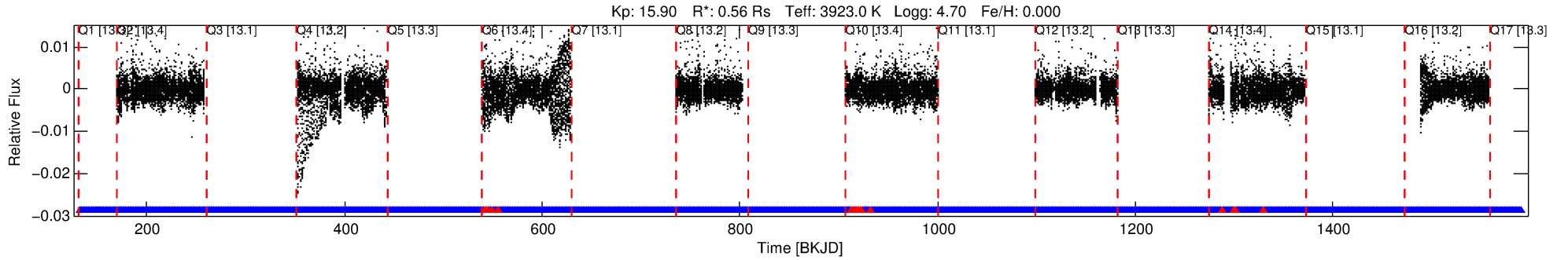
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009083354-01

No Significant Match Found

DV One-Page Summary

KIC: 9083354 Candidate: 1 of 4 Period: 1.133 d



TPS TCE Results:

Period = 1.13331 d
Epoch = 131.5383 BKJD

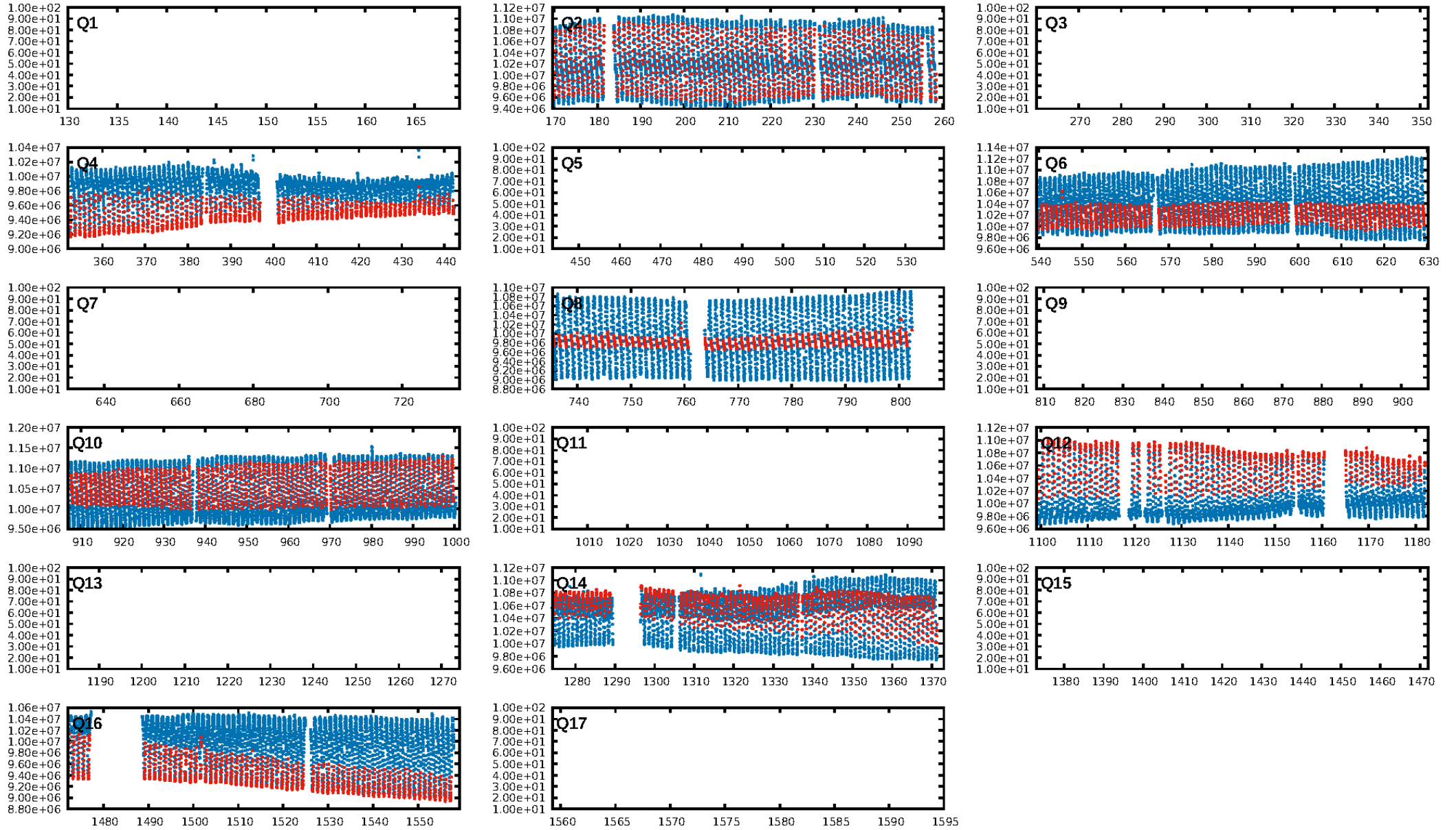
DV fit results are unavailable

DV Diagnostic Results:

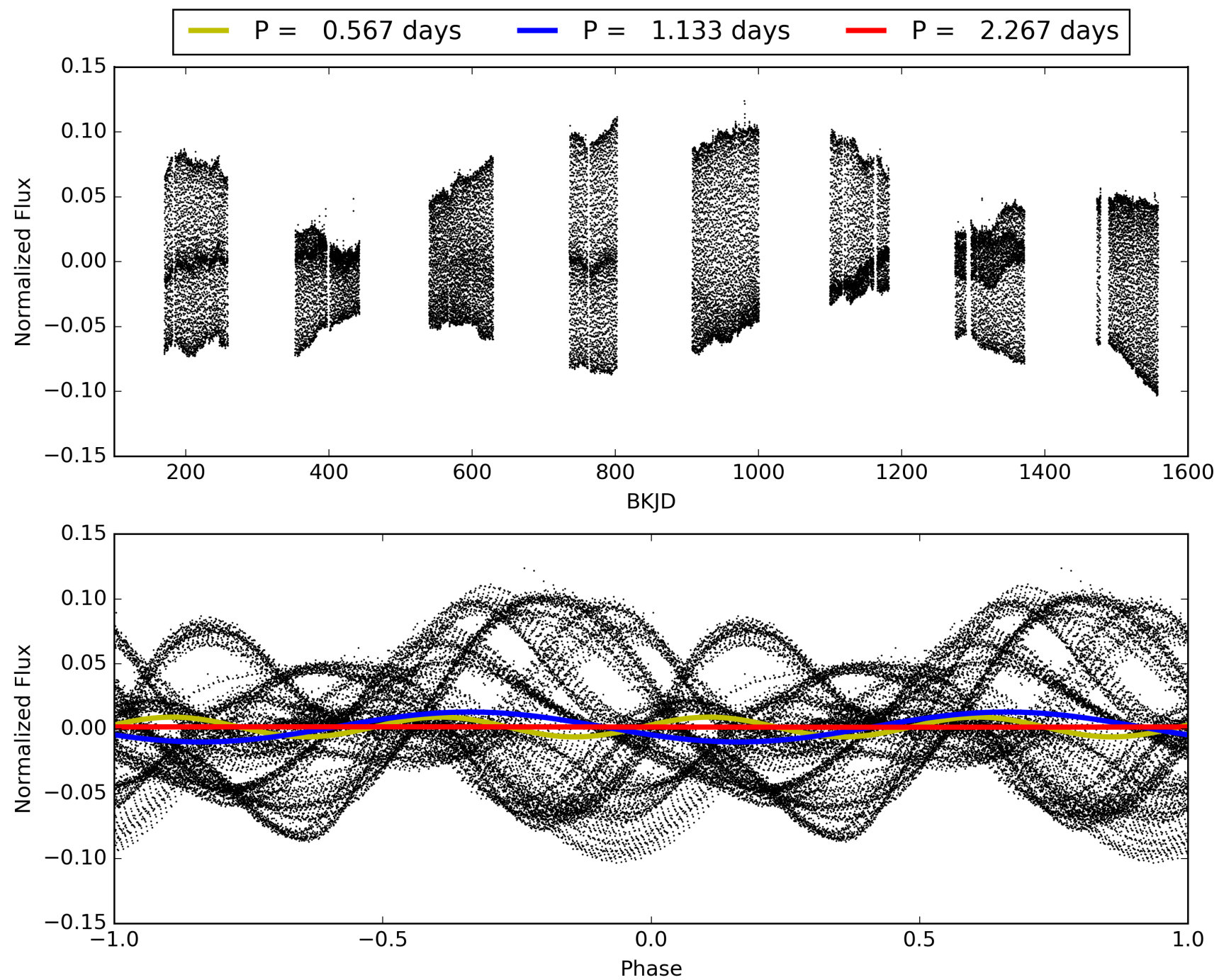
ShortPeriod-sig: 74.8% [1.14 σ]
LongPeriod-sig: 100.0% [160.39 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.06e-24
RollingBand-fgt: 0.97 [563/582]
GhostDiagnostic-chr: -1.36

Centroid-sig: N/A
Centroid-so: 0.226 arcsec [2.90 σ]
OotOffset-rm: 0.050 arcsec [0.73 σ]
KicOffset-rm: 0.174 arcsec [2.46 σ]
OotOffset-st: 4/0/4/0 [8]
KicOffset-st: 4/0/4/0 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 0.00 [0/8]

TCE 009083354-01, PDC Light Curves

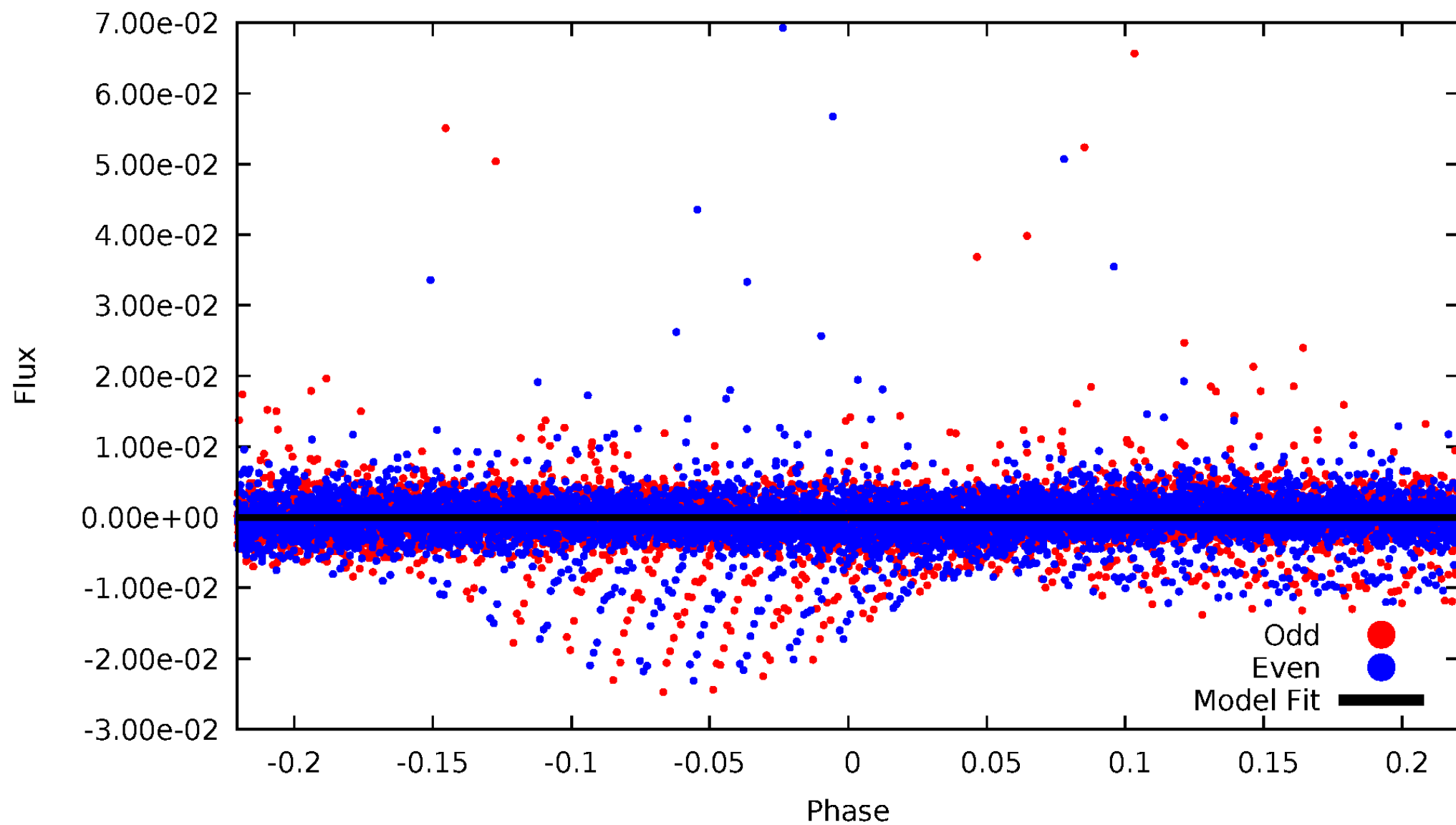


TCE 009083354-01



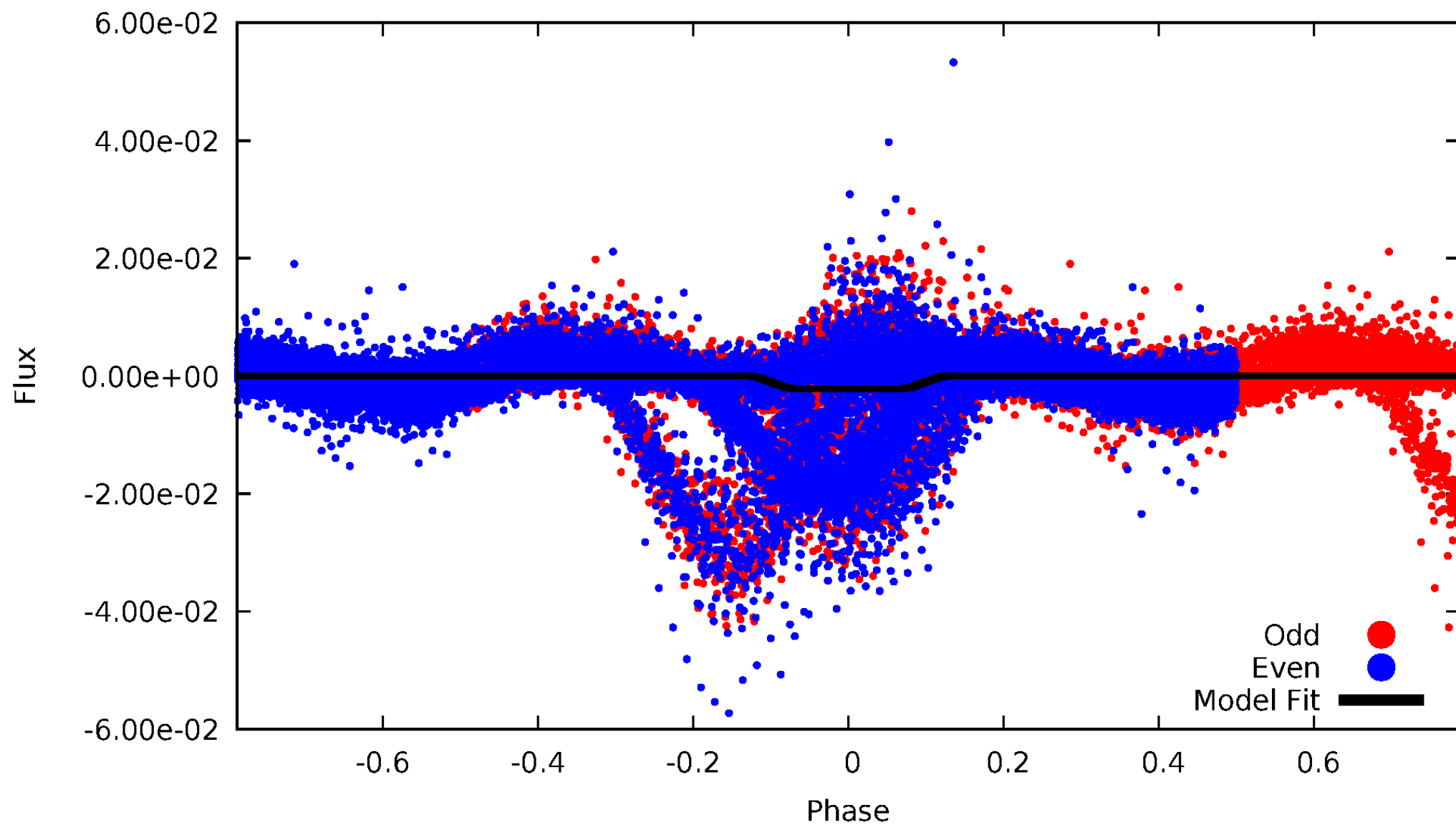
DV Odd/Even

TCE 009083354-01

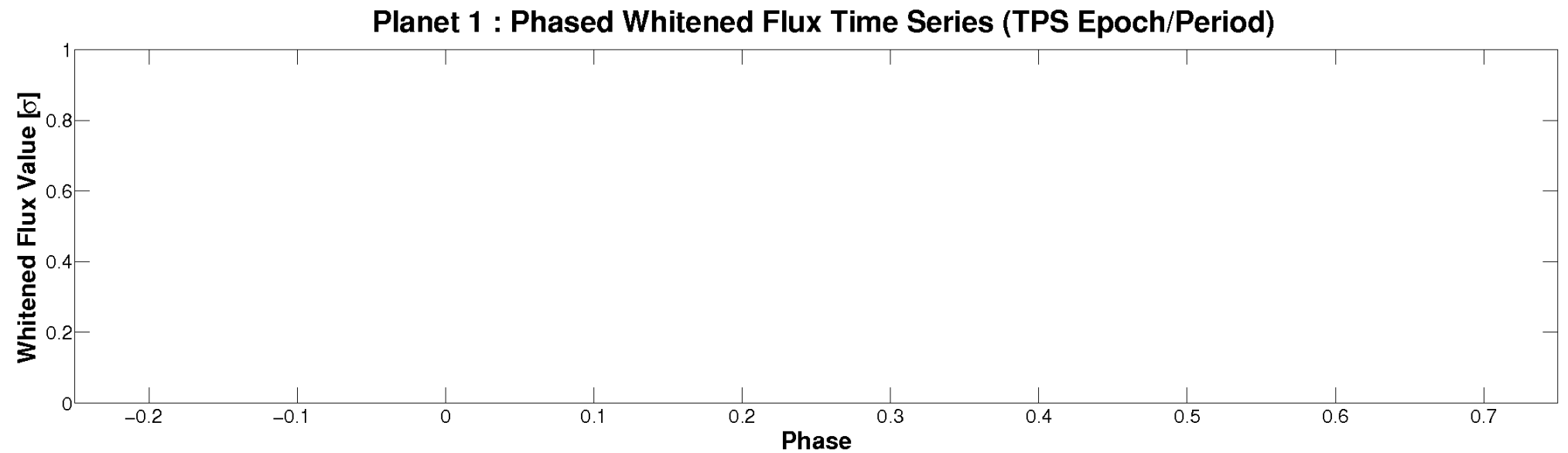
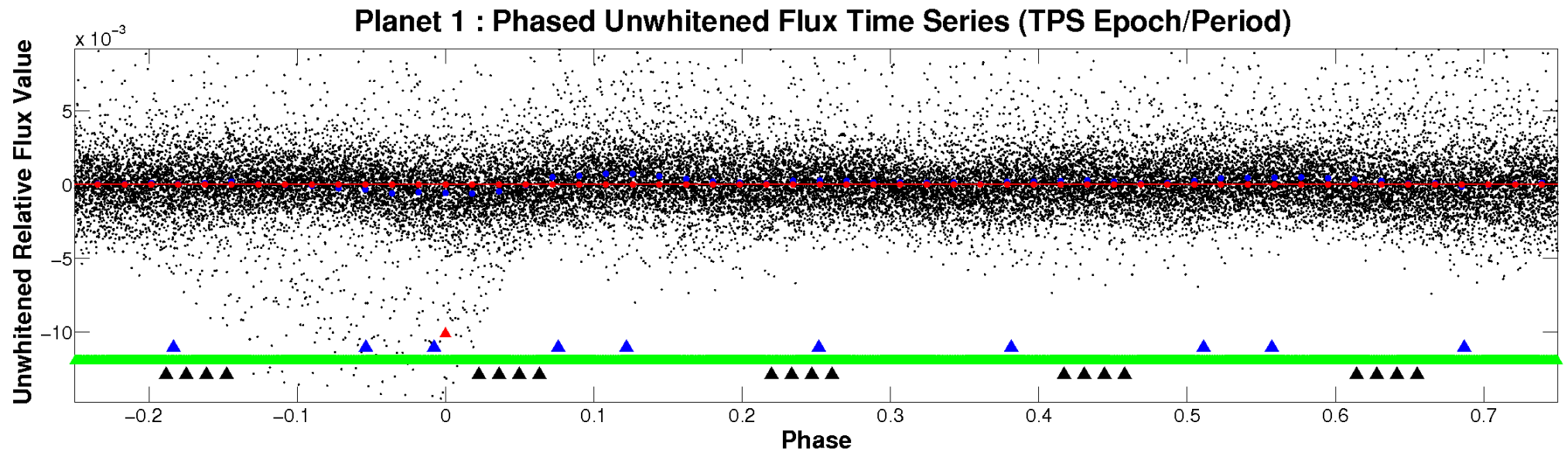


ALT Odd/Even

TCE 009083354-01

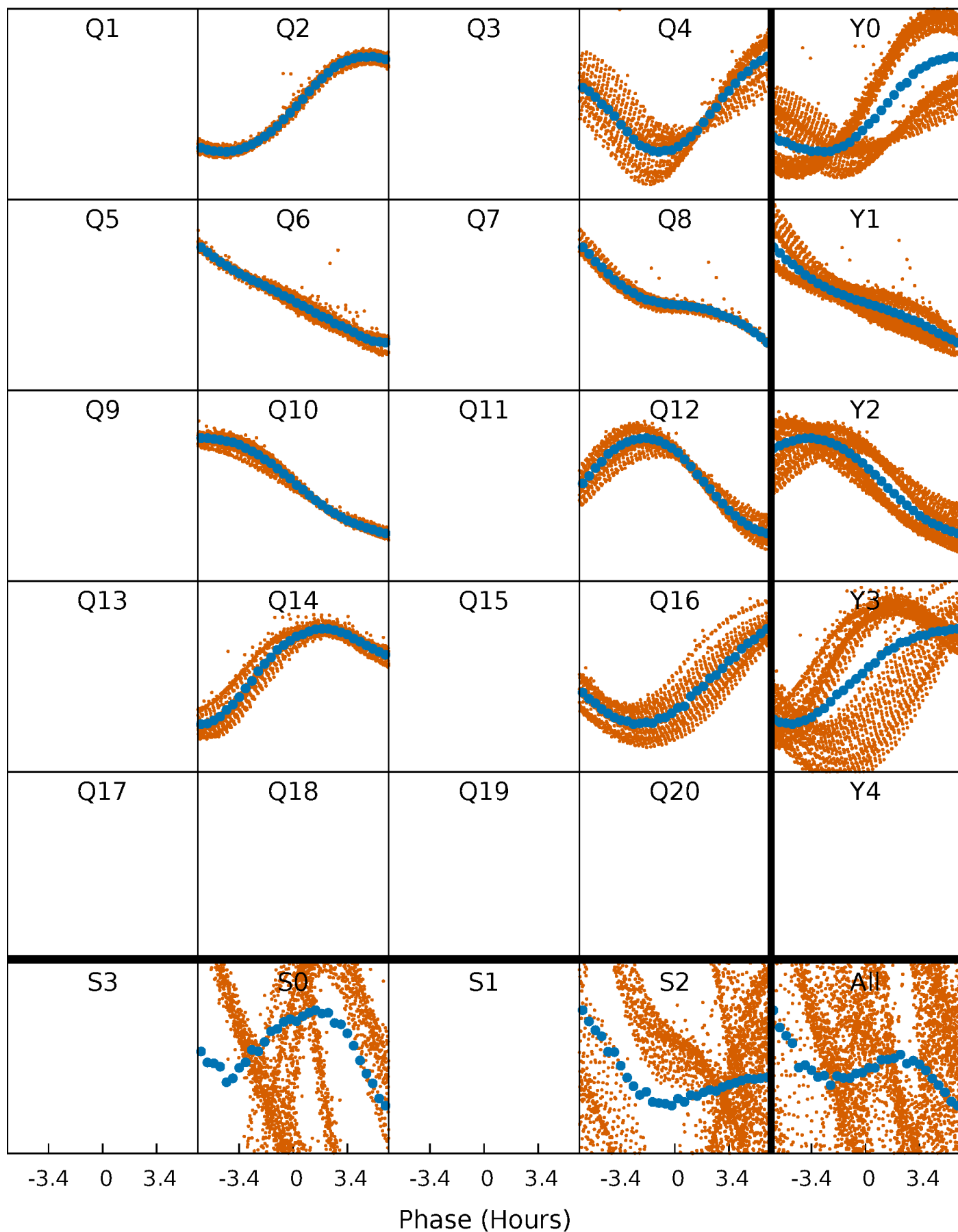


Non-Whitened Vs. Whitened Light Curve



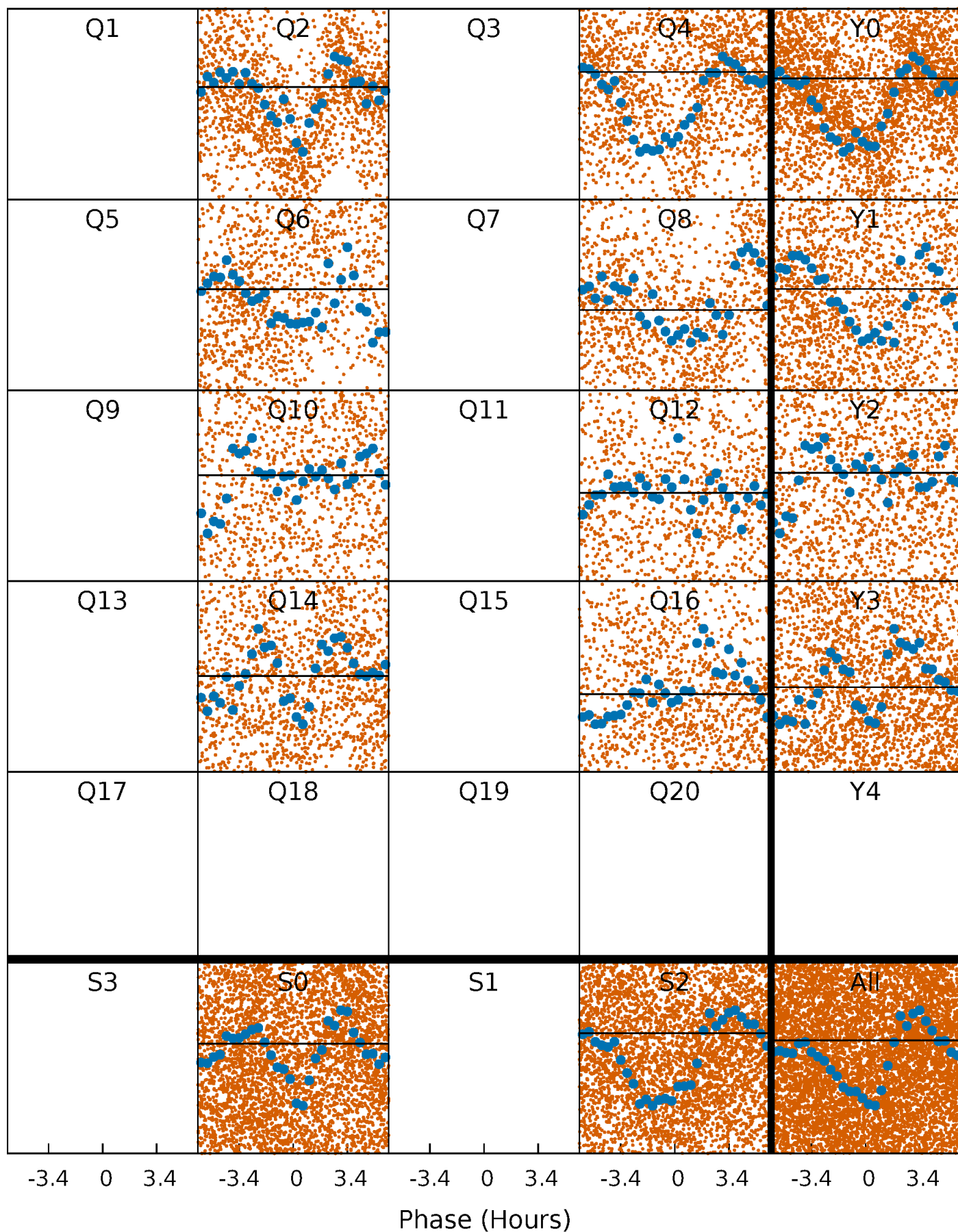
PDC Quarter-Phased Transit Curves

TCE 009083354-01 P= 1.133313 Days $T_0=131.538277$ (BKJD)



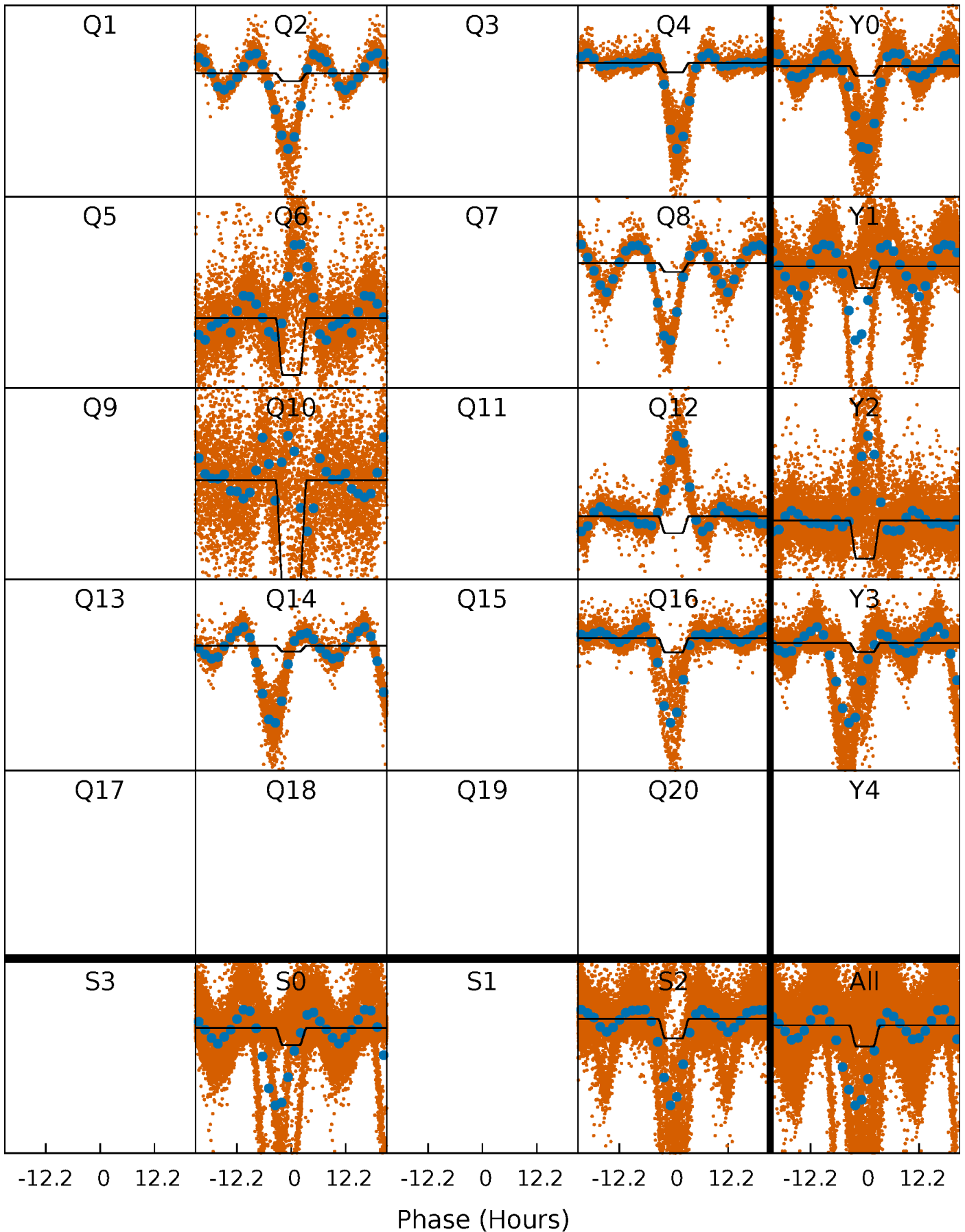
DV Quarter-Phased Transit Curves

TCE 009083354-01 P= 1.133313 Days $T_0=131.538277$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

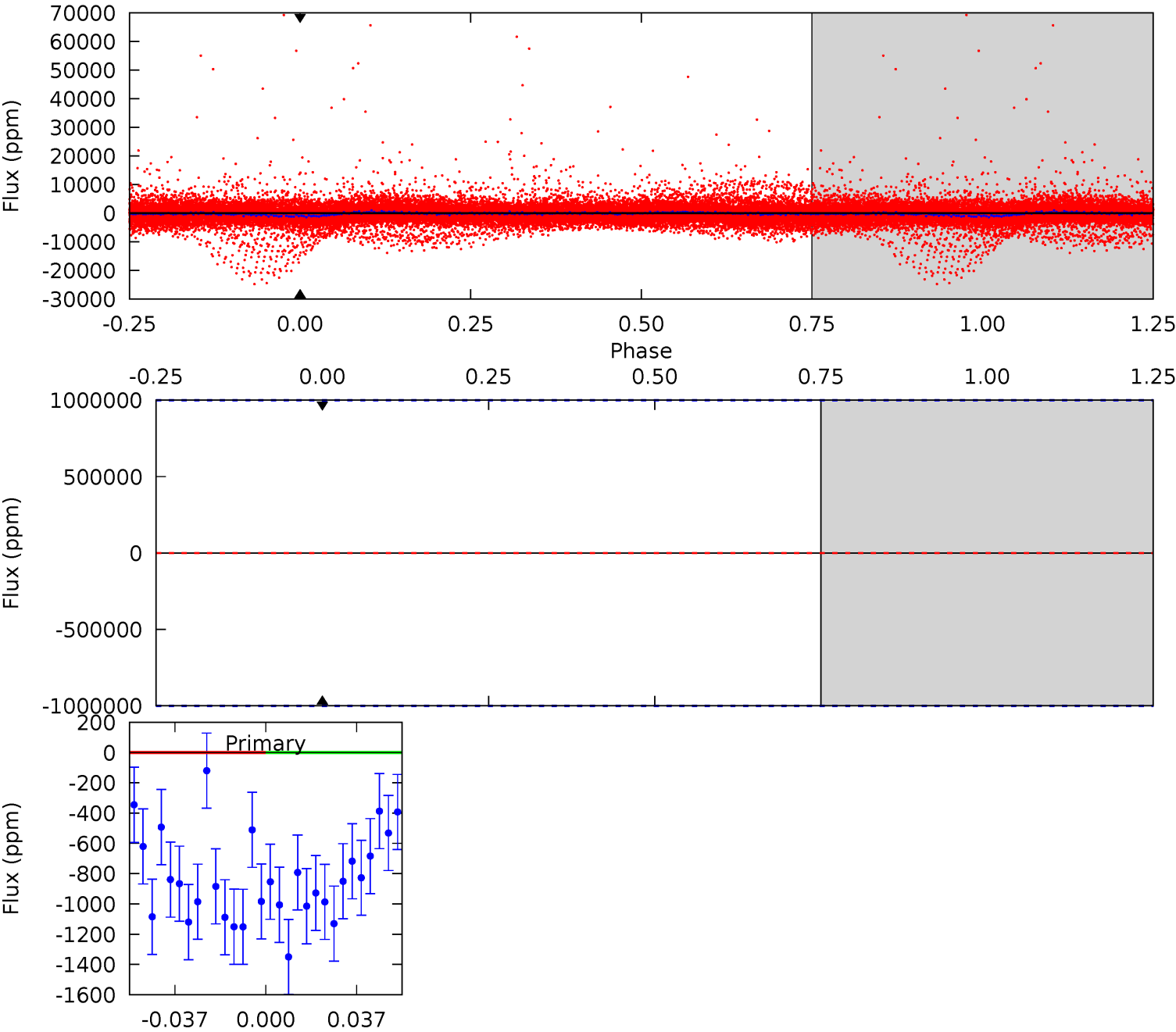
TCE 009083354-01 P= 1.133313 Days $T_0=132.606209$ (BKJD)



DV Model-Shift Uniqueness Test

009083354-01, P = 1.133313 Days, E = 131.538277 Days

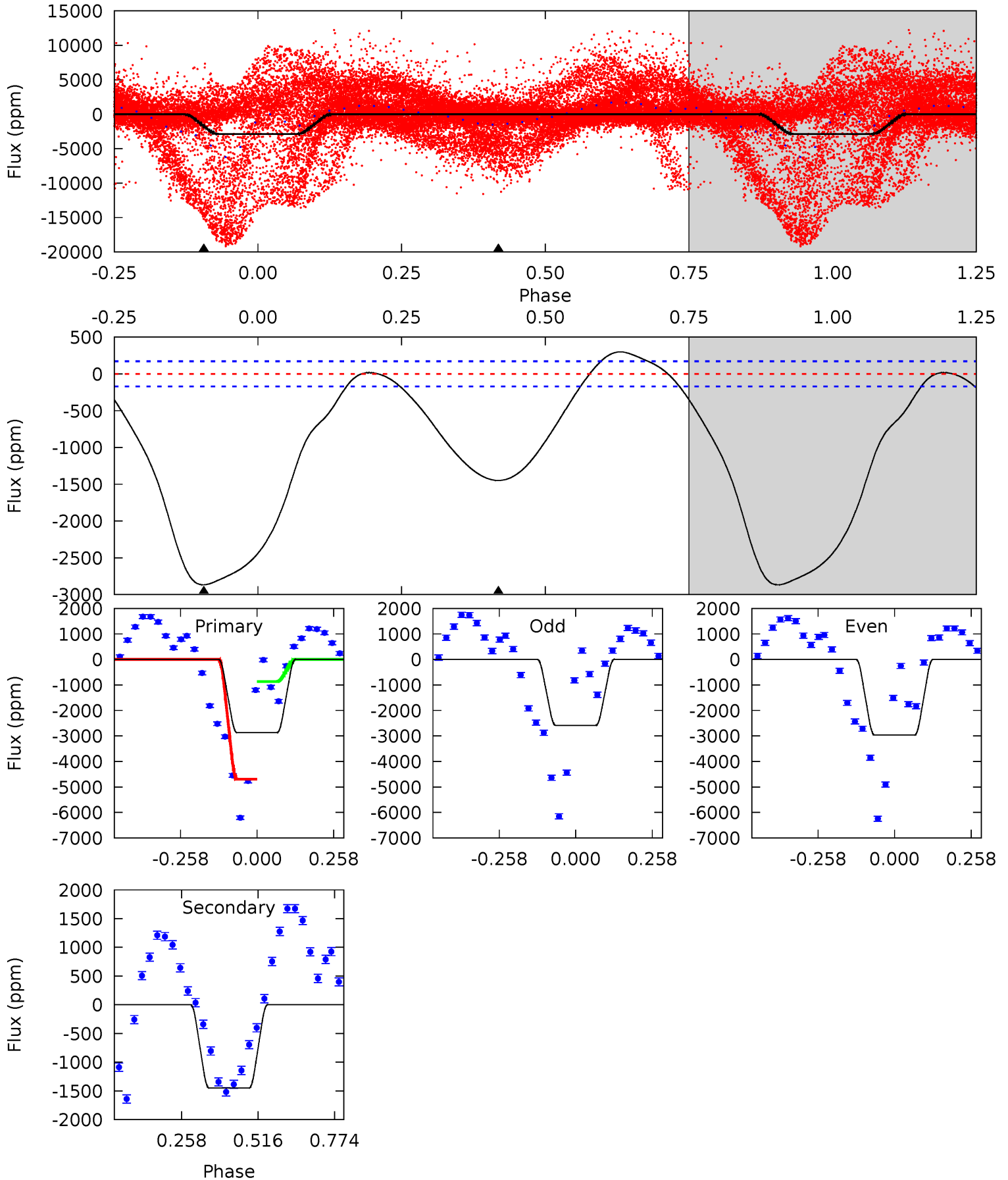
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009083354-01, P = 1.133313 Days, E = 132.606209 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.0	36.9	0	0	4.36	1.13	5.37	73.0	73.0	36.9	36.9	4.77	1.11	0.09	0



Stellar Parameters For KIC 009083354

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3923^{+62}_{-62}	$4.698^{+0.022}_{-0.018}$	$0.000^{+0.100}_{-0.100}$	$0.562^{+0.020}_{-0.024}$	$0.576^{+0.023}_{-0.025}$	$4.558^{+0.463}_{-0.319}$
	+2%/-2%	+0%/-0%	+inf%/-inf%	+4%/-4%	+4%/-4%	+10%/-7%
Source	PHO2	PHO2	PHO2	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009083354-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$5.70^{+5.18}_{-3.61}$	1361^{+24}_{-24}	3371^{+4367}_{-10584}	19^{+910}_{-748}
Alt.	-1449 ± 39	$5.58^{+5.05}_{-3.75}$	1362^{+23}_{-24}	2990^{+1248}_{-516}	$8.248^{+66.967}_{-6.016}$

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

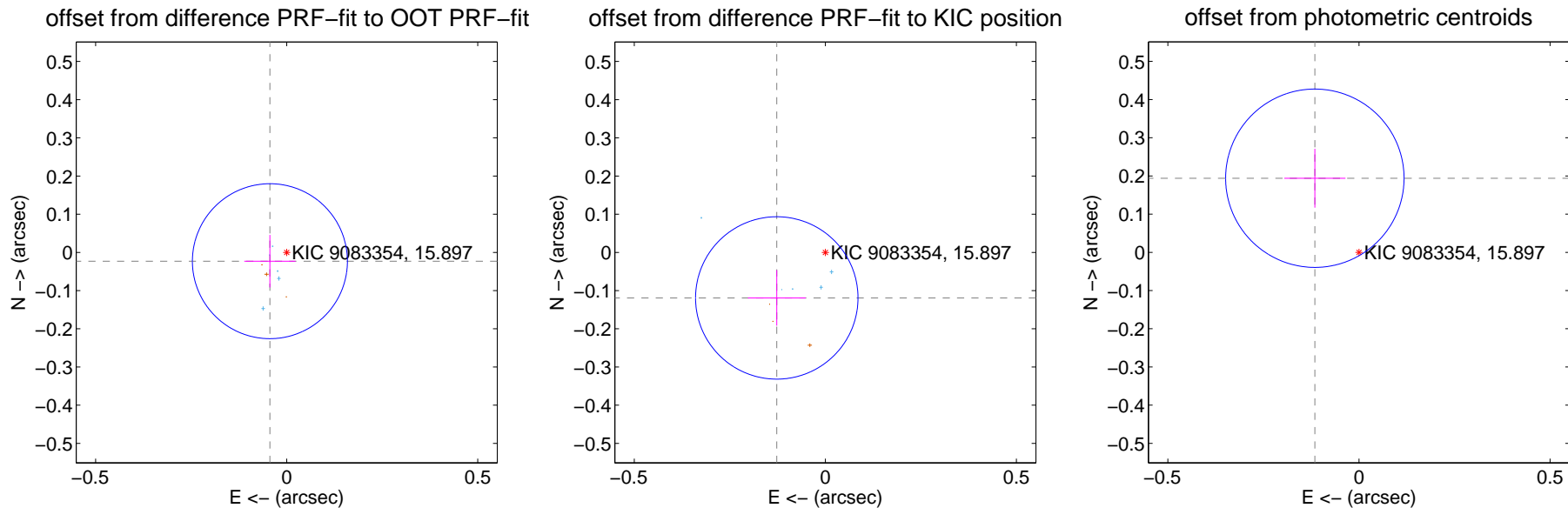
DV Centroid Data

Supplemental centroid analysis for 009083354-01. Kepler magnitude: 15.90. Transit SNR -1.00

There are 5 quarters with good PRF difference image offsets

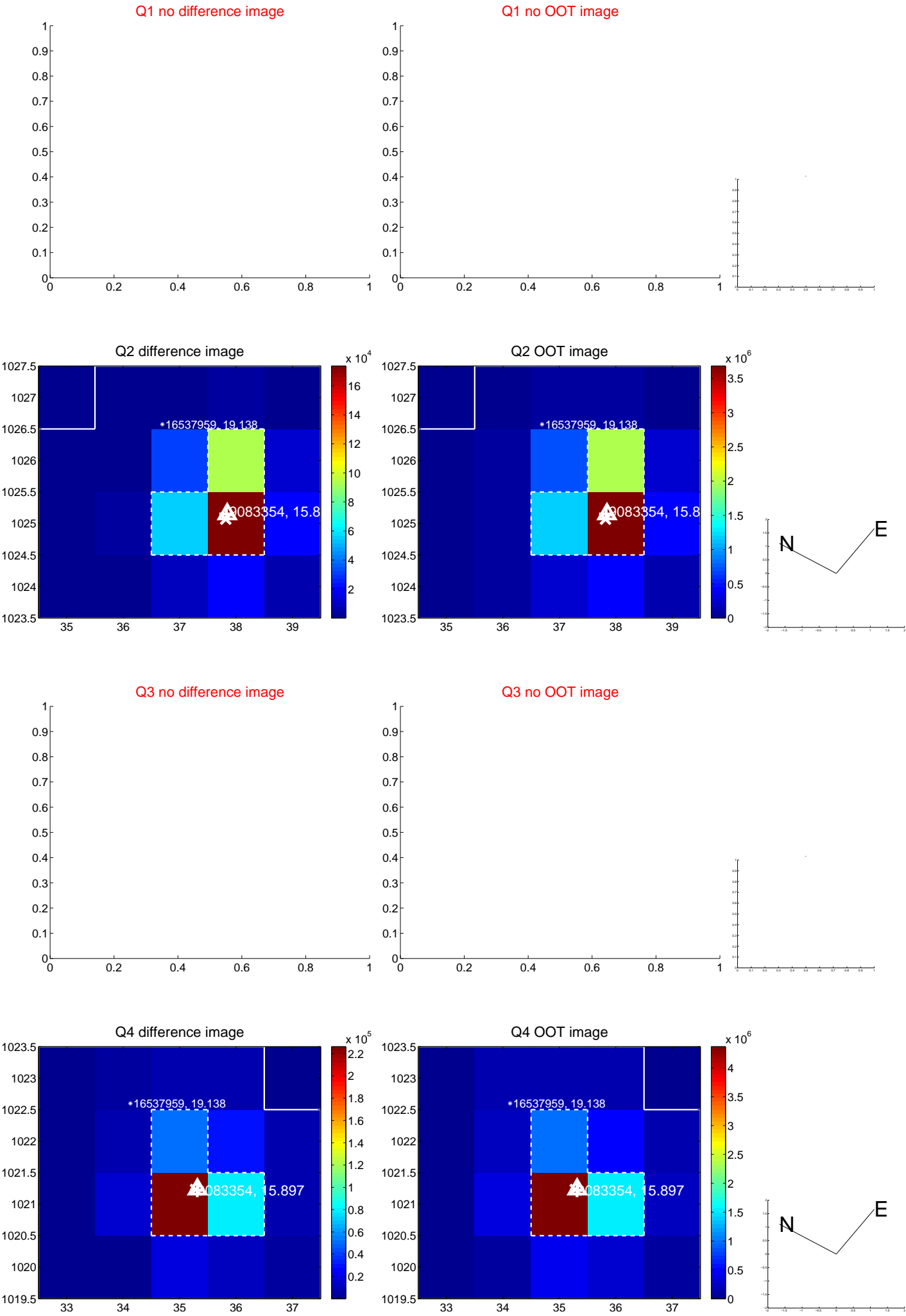
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.050 ± 0.068	0.73	0.044 ± 0.067	-0.023 ± 0.069
PRF-fit source offset from KIC position	0.174 ± 0.071	2.46	0.127 ± 0.076	-0.119 ± 0.073
photometric centroid source offset	0.23 ± 0.08	2.90	0.12 ± 0.08	0.19 ± 0.08

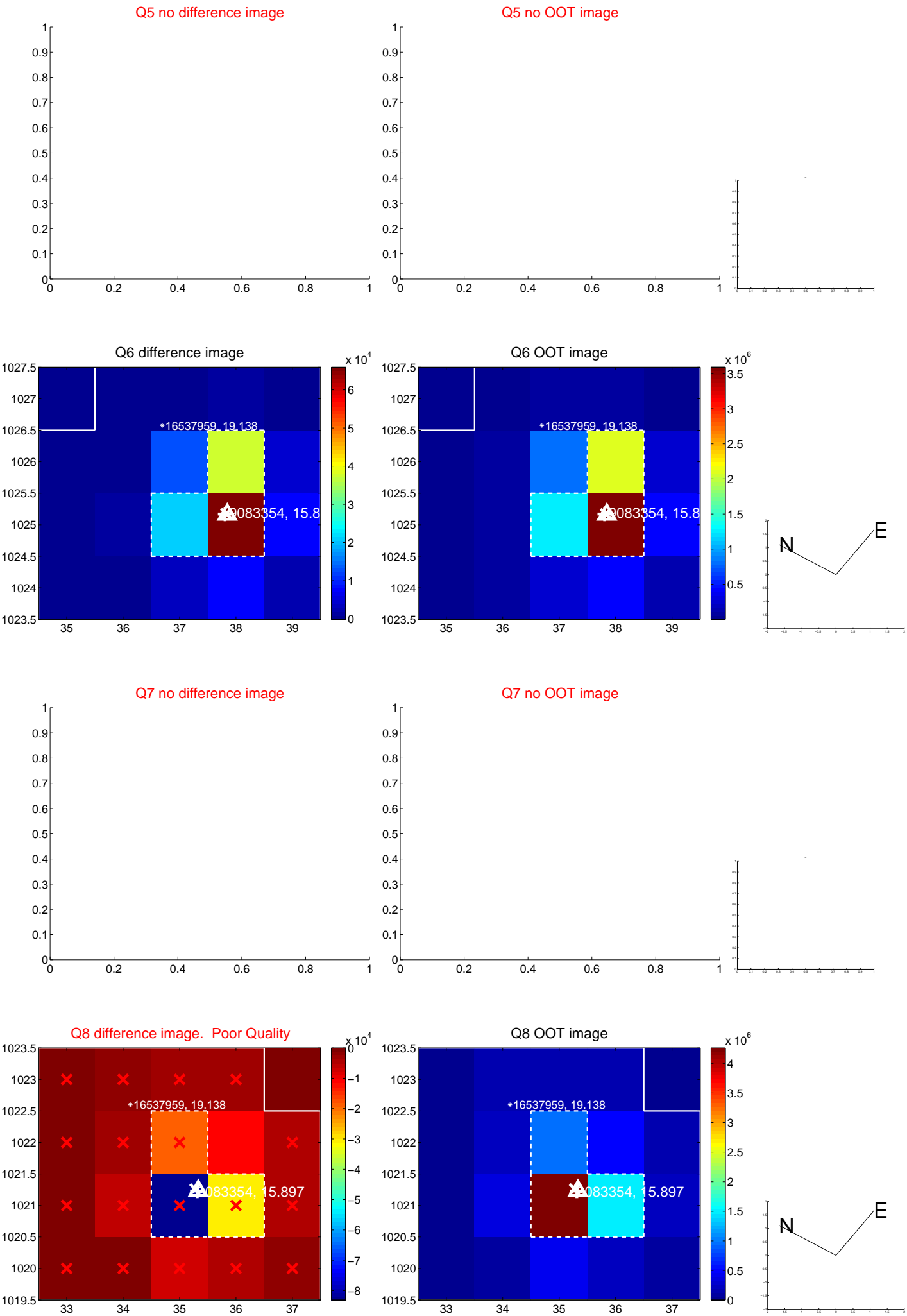


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

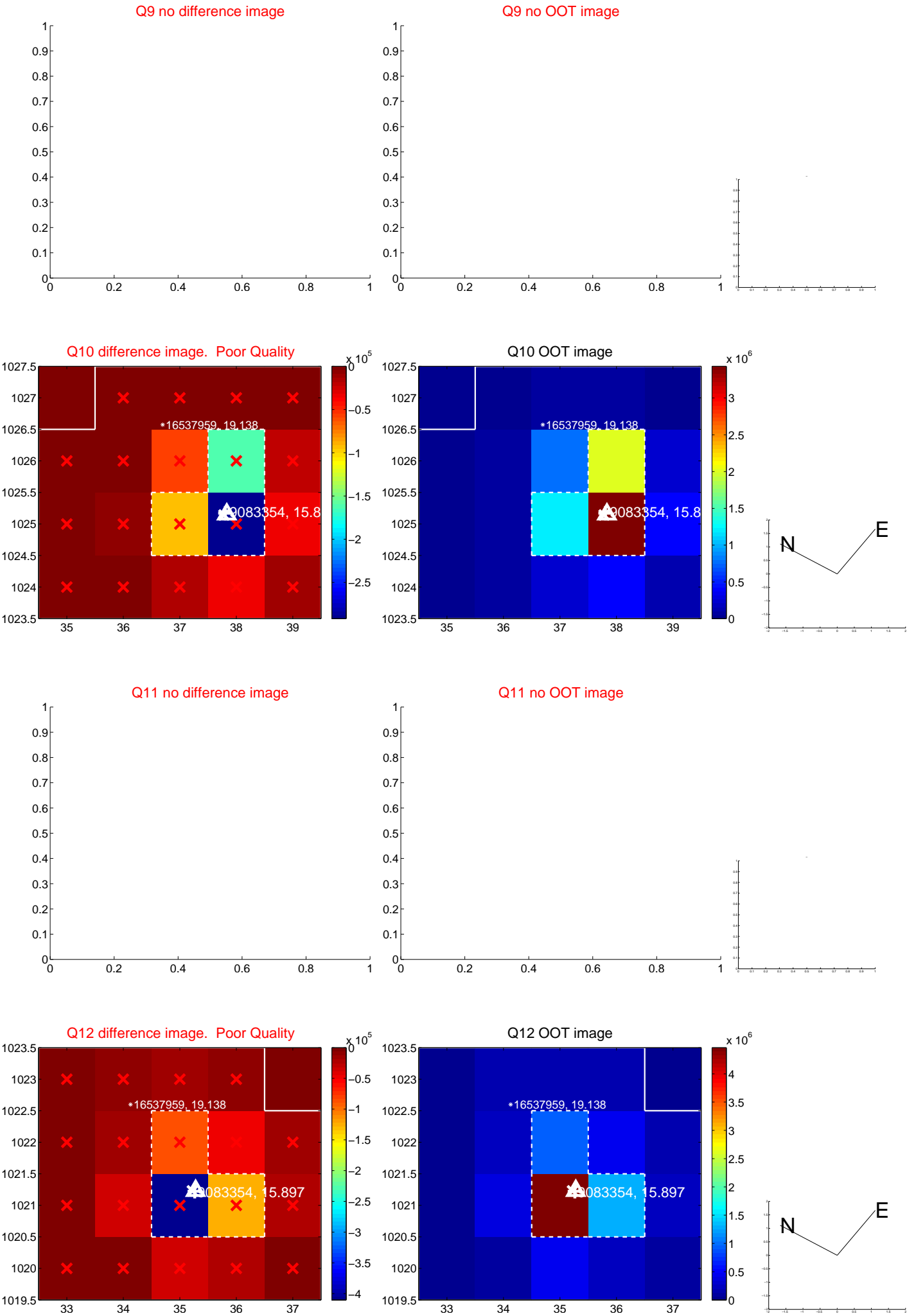
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



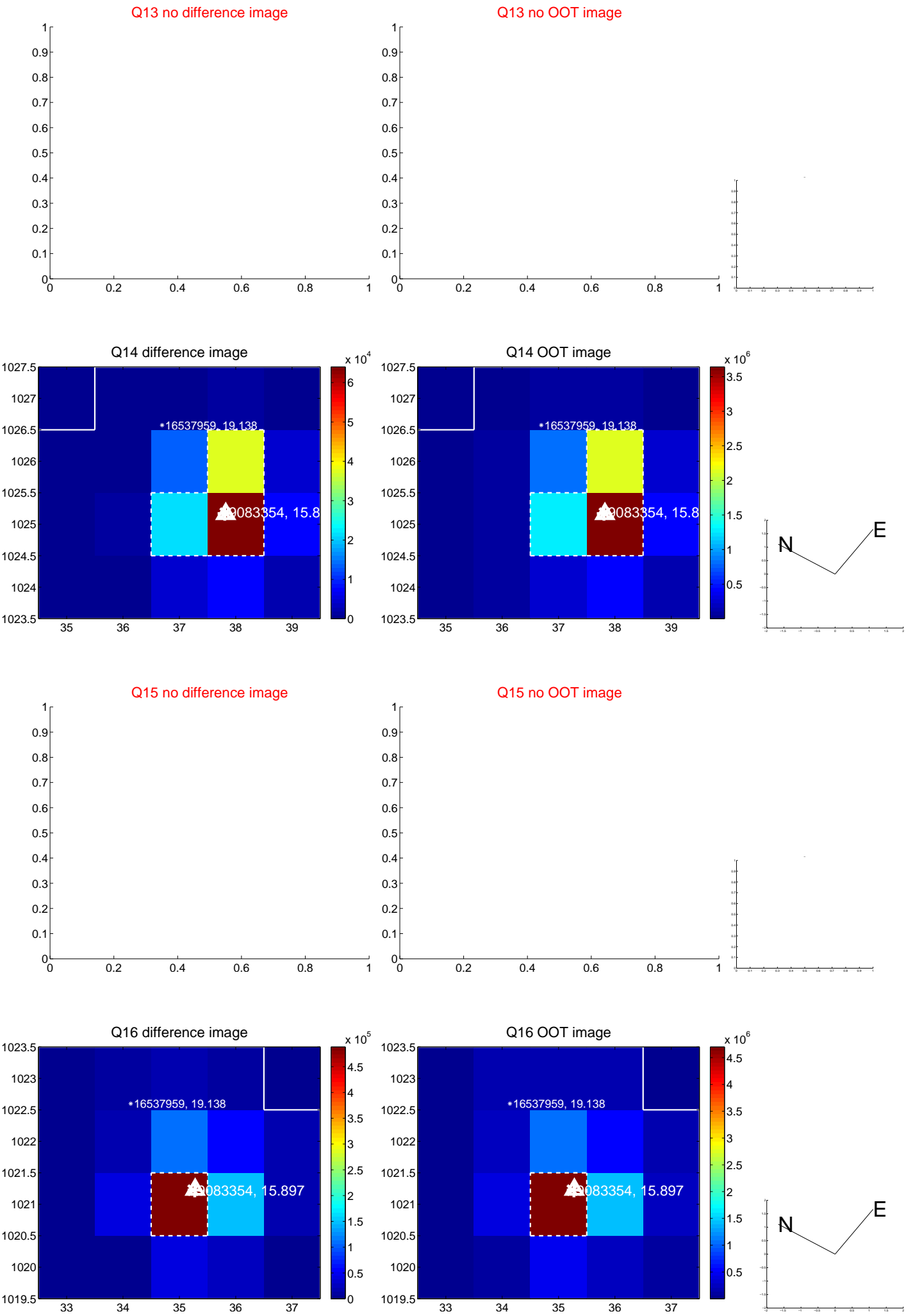
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



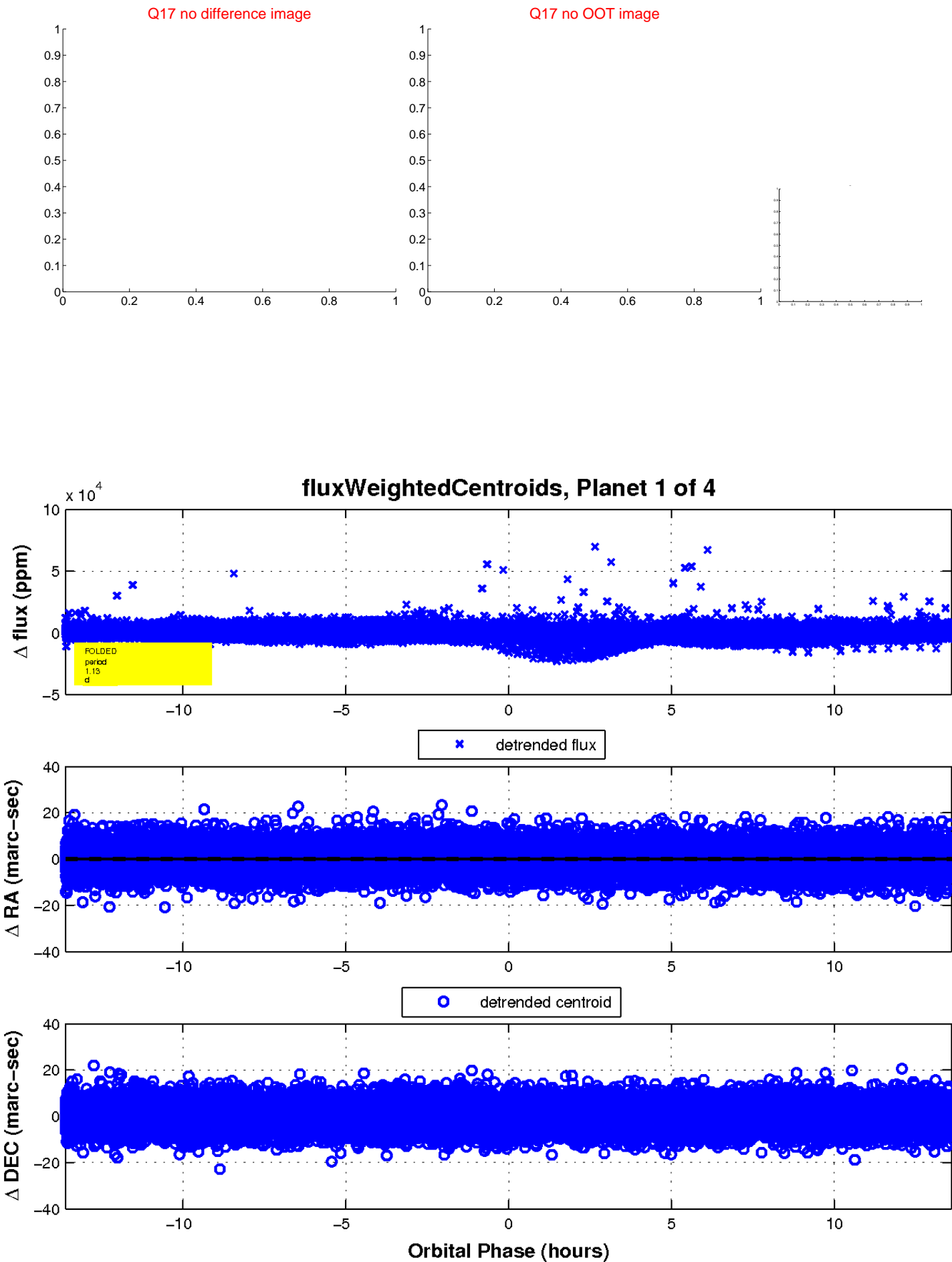
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

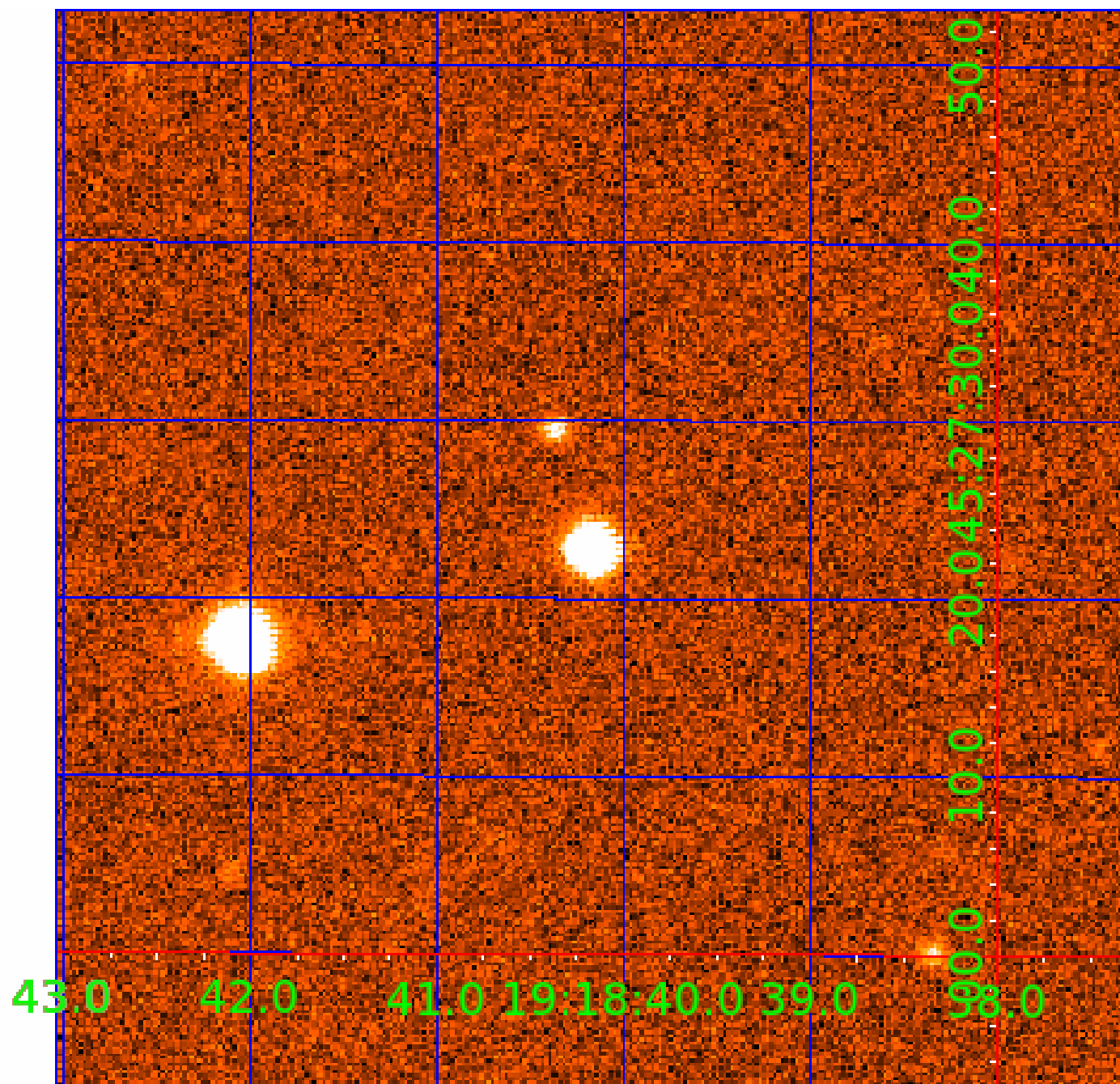


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009083354

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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009083354-04	OBS	No	71.175129	176.657308	6471.0	10.043	9.0	6.3	0.56	3923	4.41	0.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009083354-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
009083354-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
009083354-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009083354-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—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

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

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

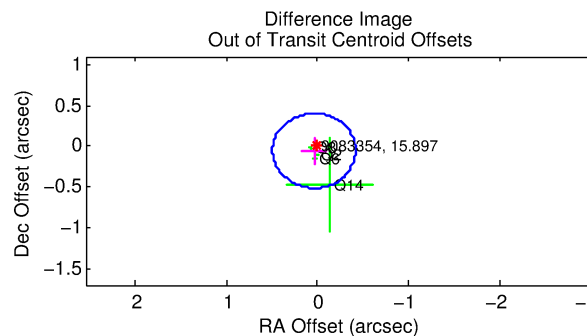
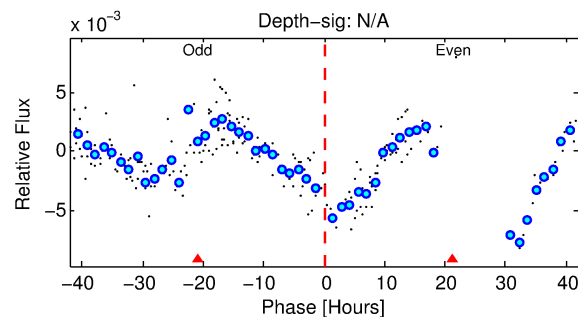
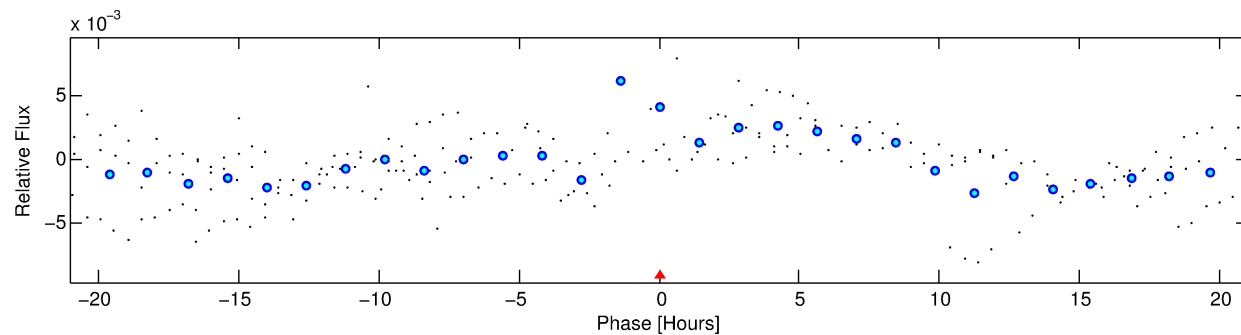
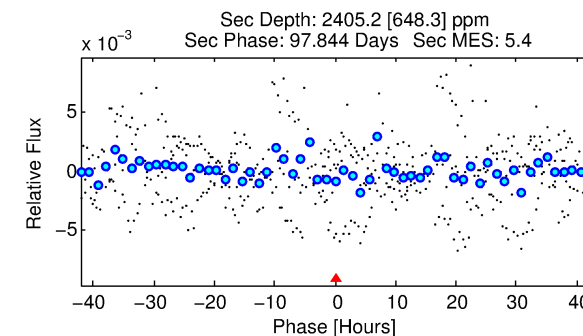
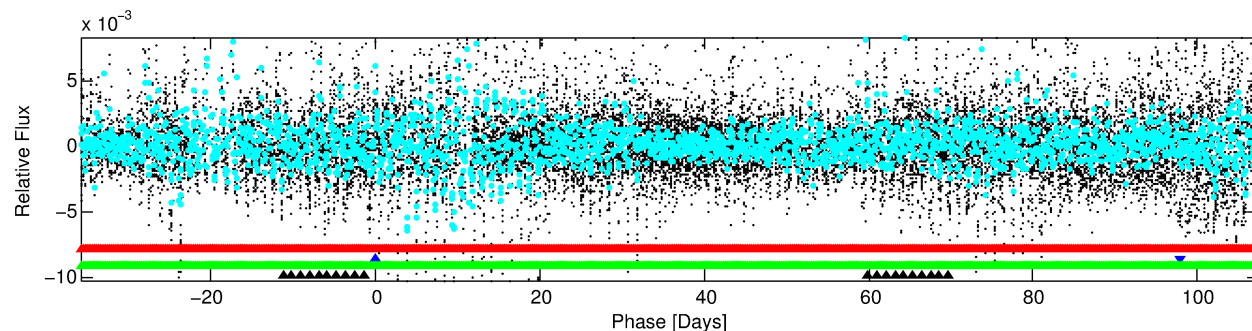
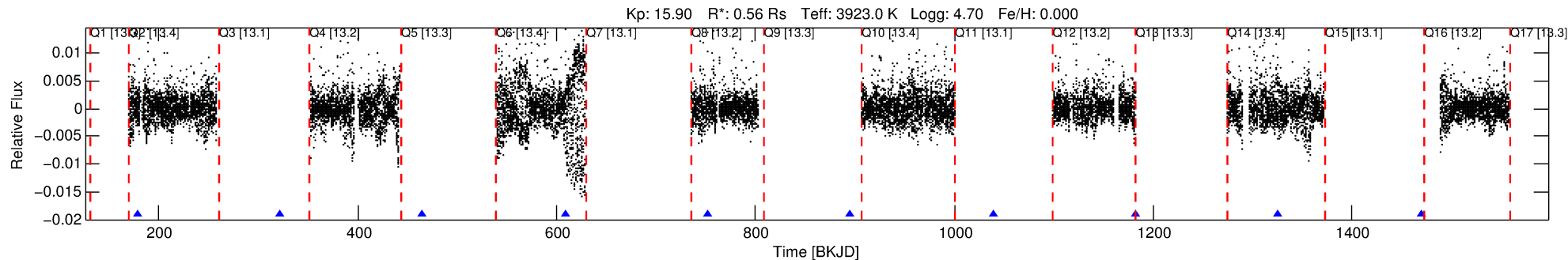
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009083354-02

No Significant Match Found

DV One-Page Summary

KIC: 9083354 Candidate: 2 of 4 Period: 143.438 d



TPS TCE Results:

Period = 143.43757 d
Epoch = 177.9954 BKJD

DV fit results are unavailable

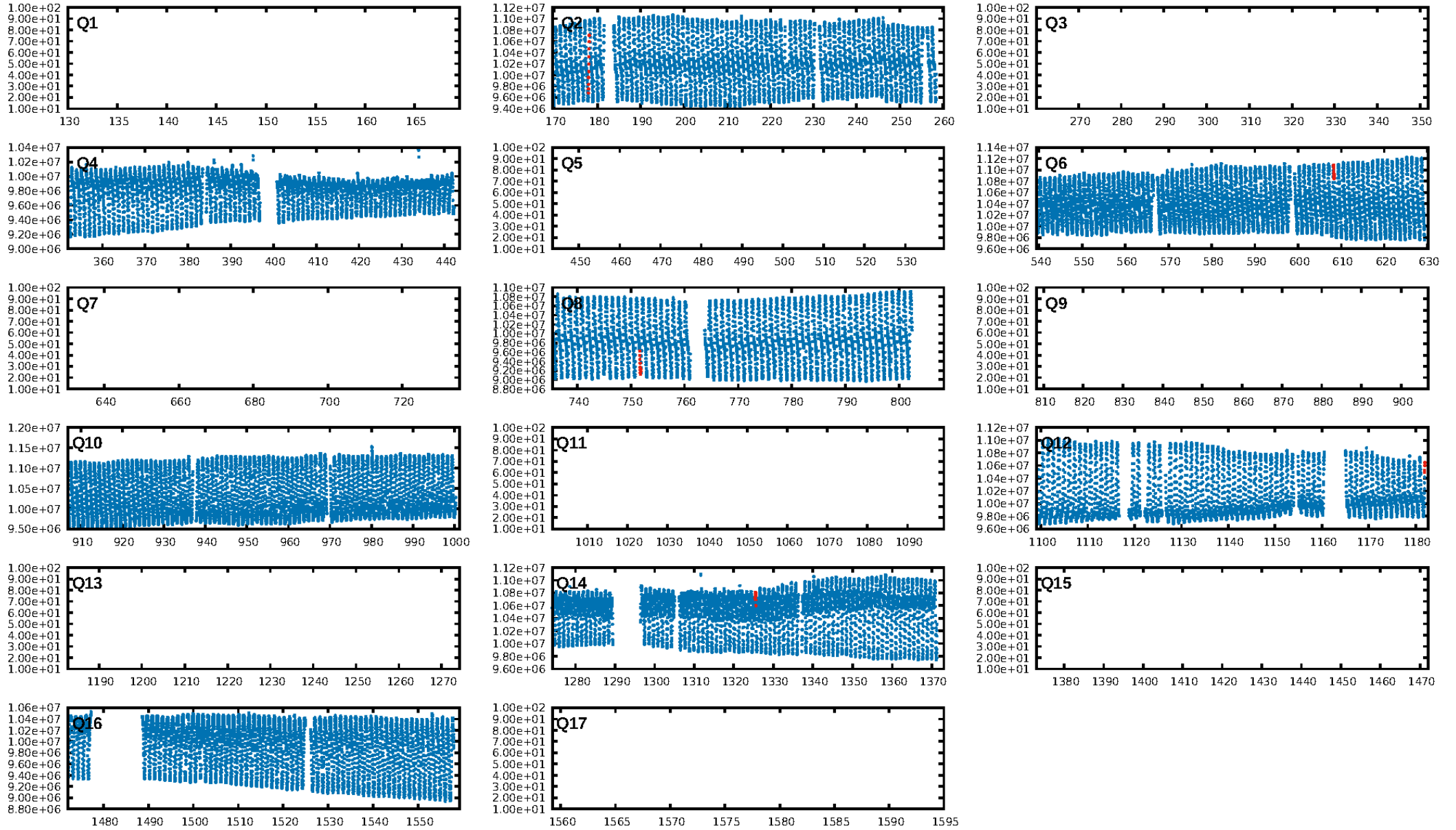
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [167.58 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.45e-14
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.09533
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.066 arcsec [0.44 σ]
KicOffset-rm: 0.207 arcsec [1.40 σ]
OotOffset-st: 3/0/1/0 [4]
KicOffset-st: 3/0/1/0 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.00 [0/4]

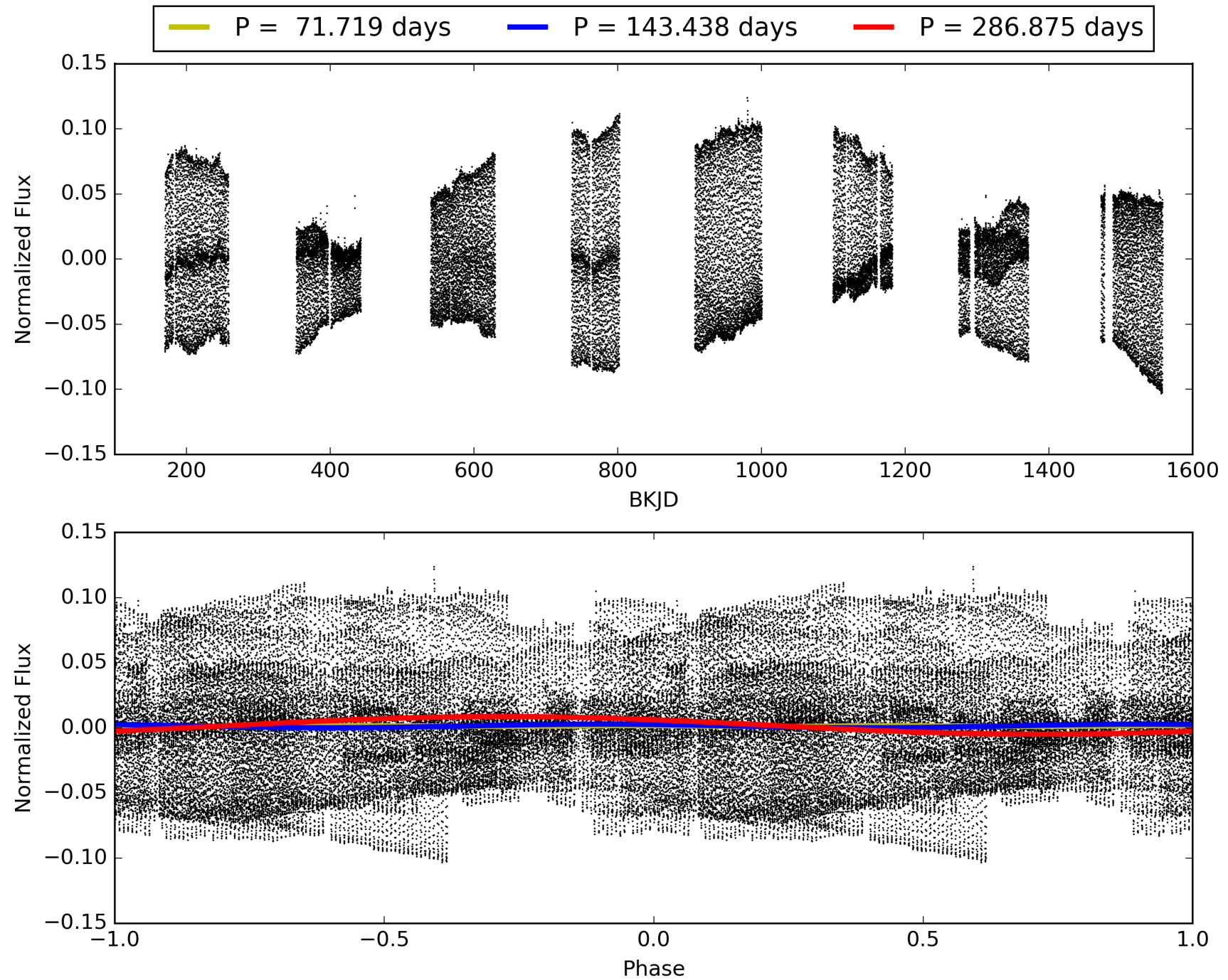
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:41:30 Z

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

TCE 009083354-02, PDC Light Curves

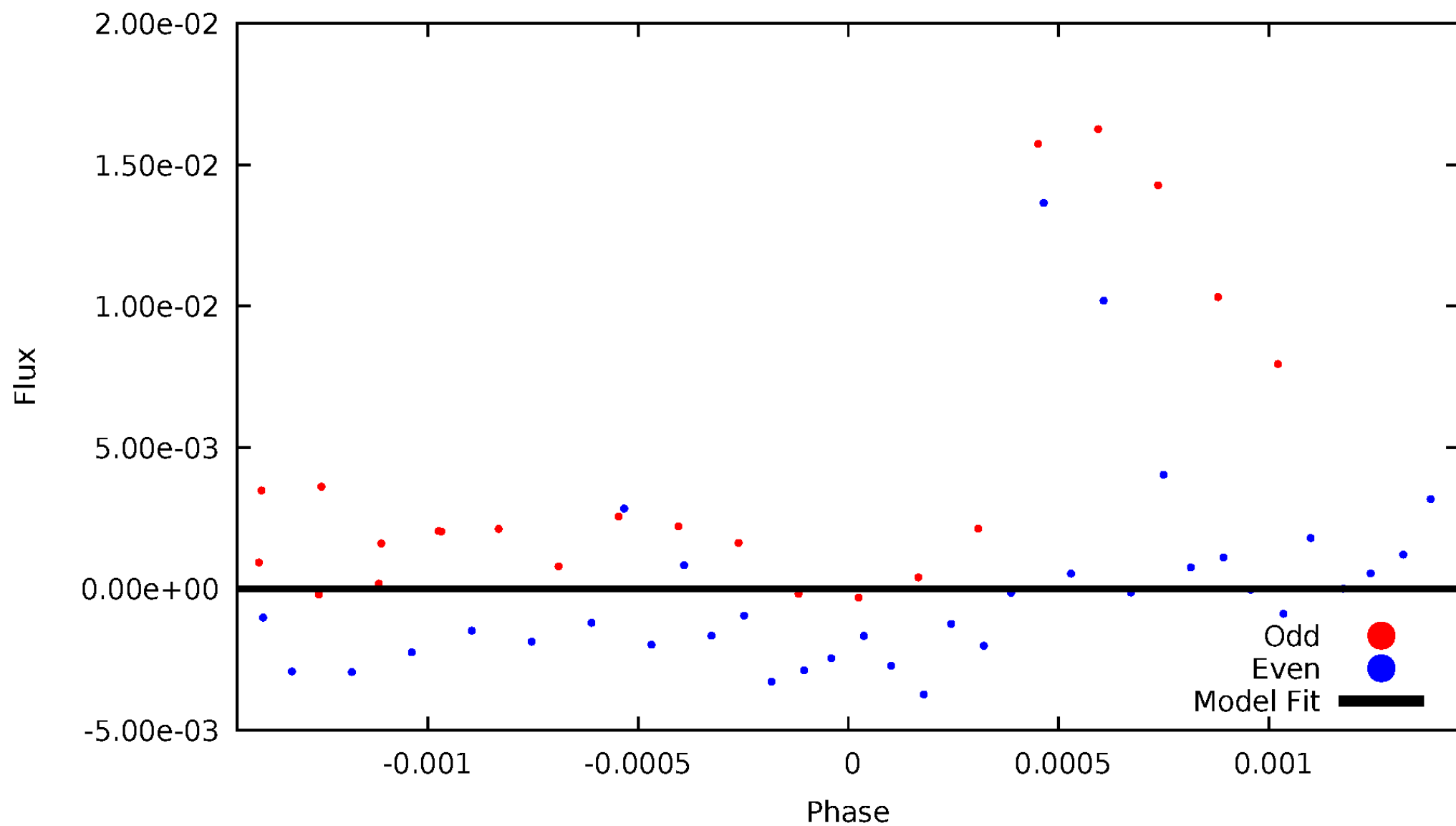


TCE 009083354-02



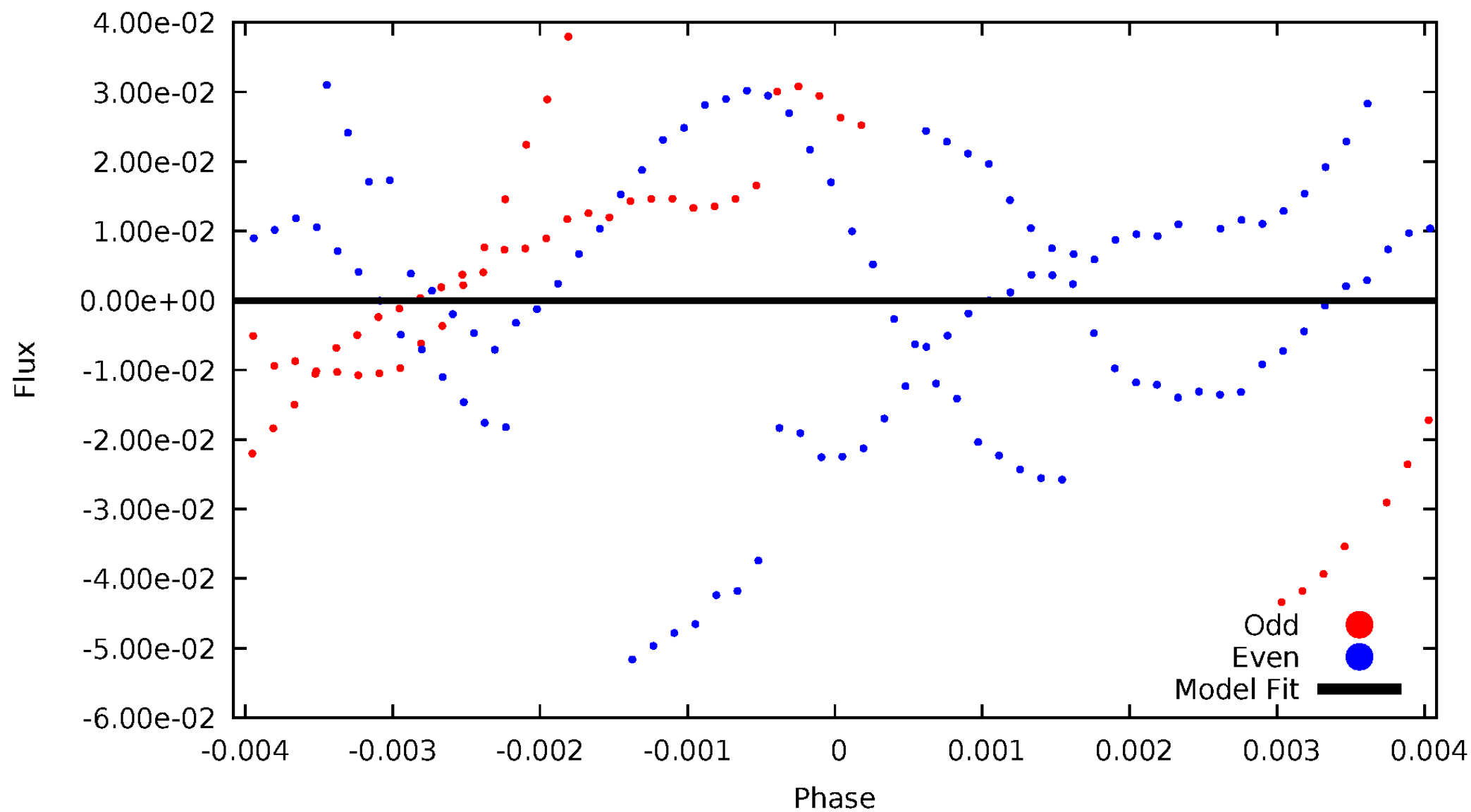
DV Odd/Even

TCE 009083354-02



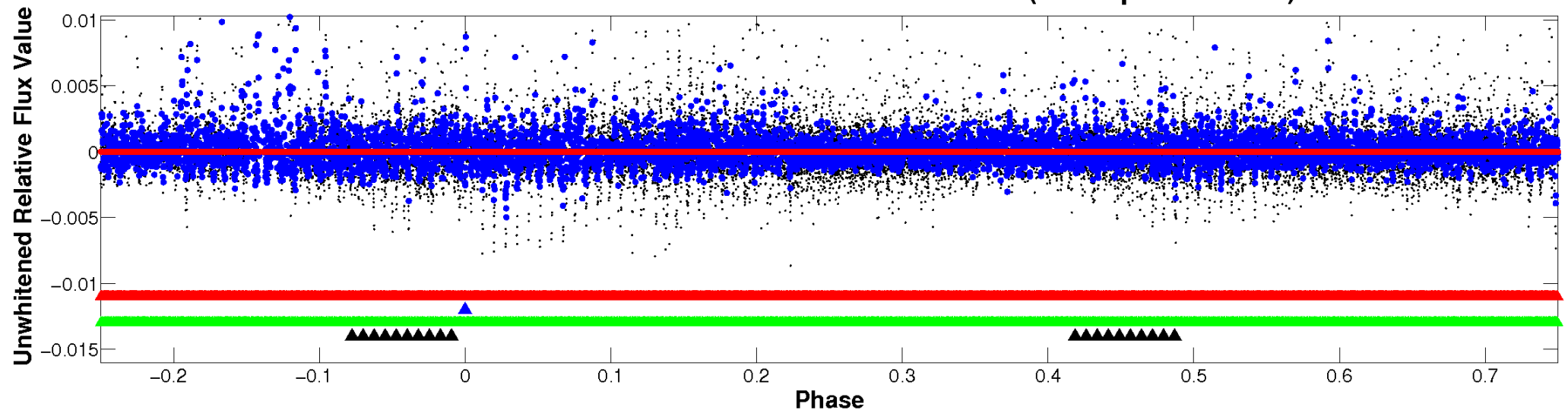
ALT Odd/Even

TCE 009083354-02

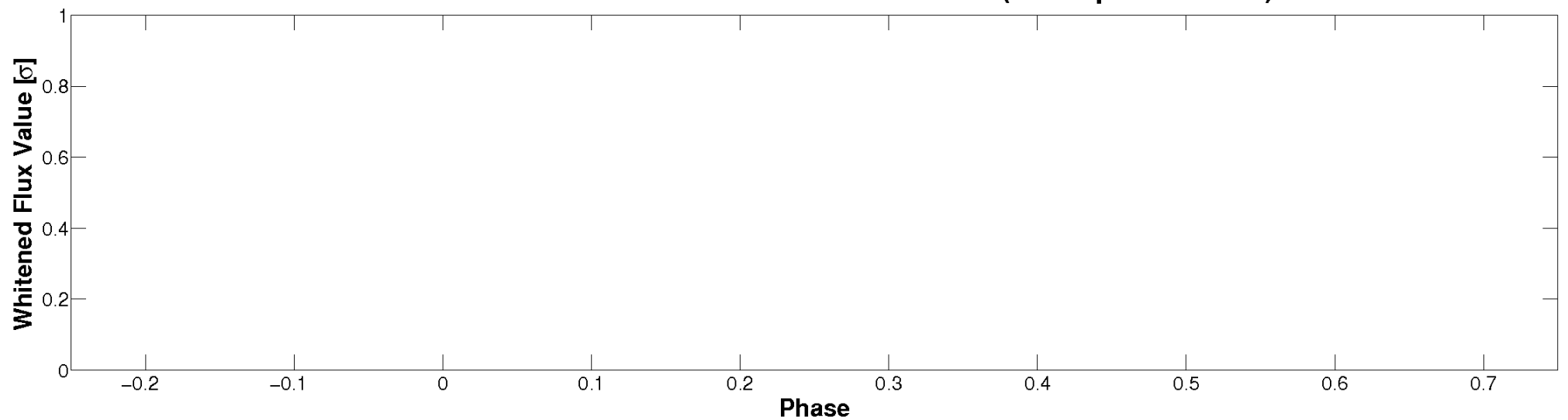


Non-Whitened Vs. Whitened Light Curve

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

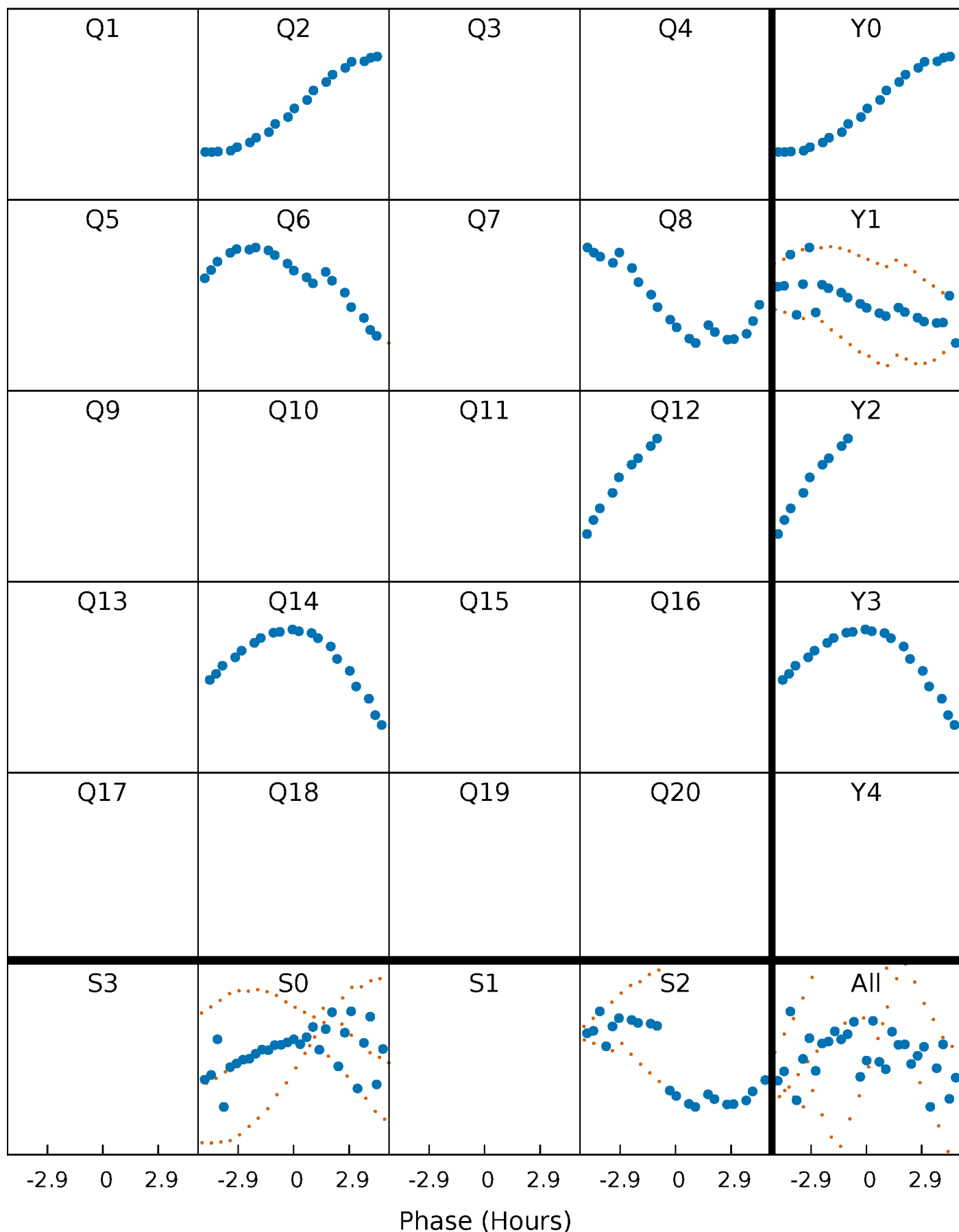


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



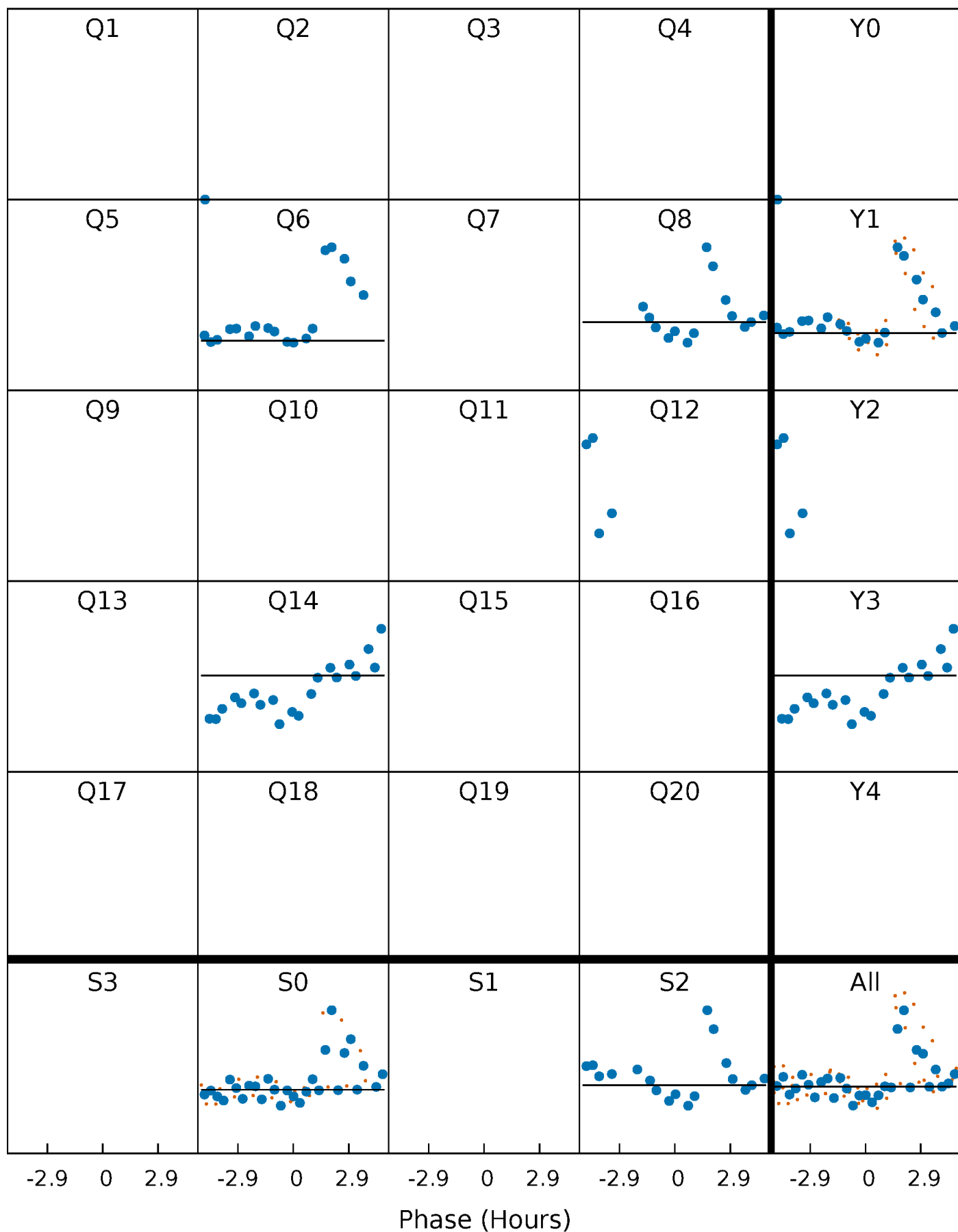
PDC Quarter-Phased Transit Curves

TCE 009083354-02 P=143.437575 Days $T_0=177.995380$ (BKJD)



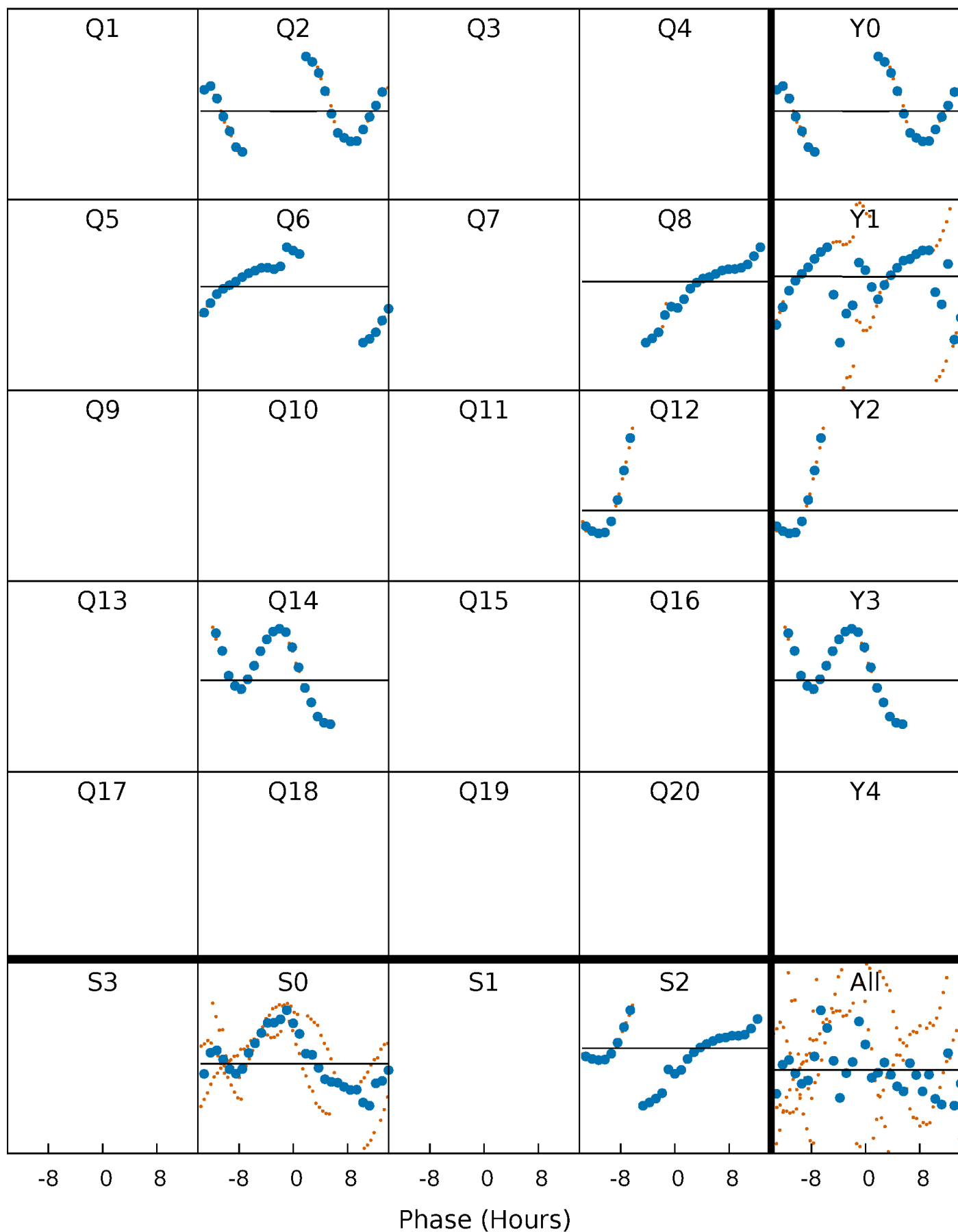
DV Quarter-Phased Transit Curves

TCE 009083354-02 $P=143.437575$ Days $T_0=177.995380$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

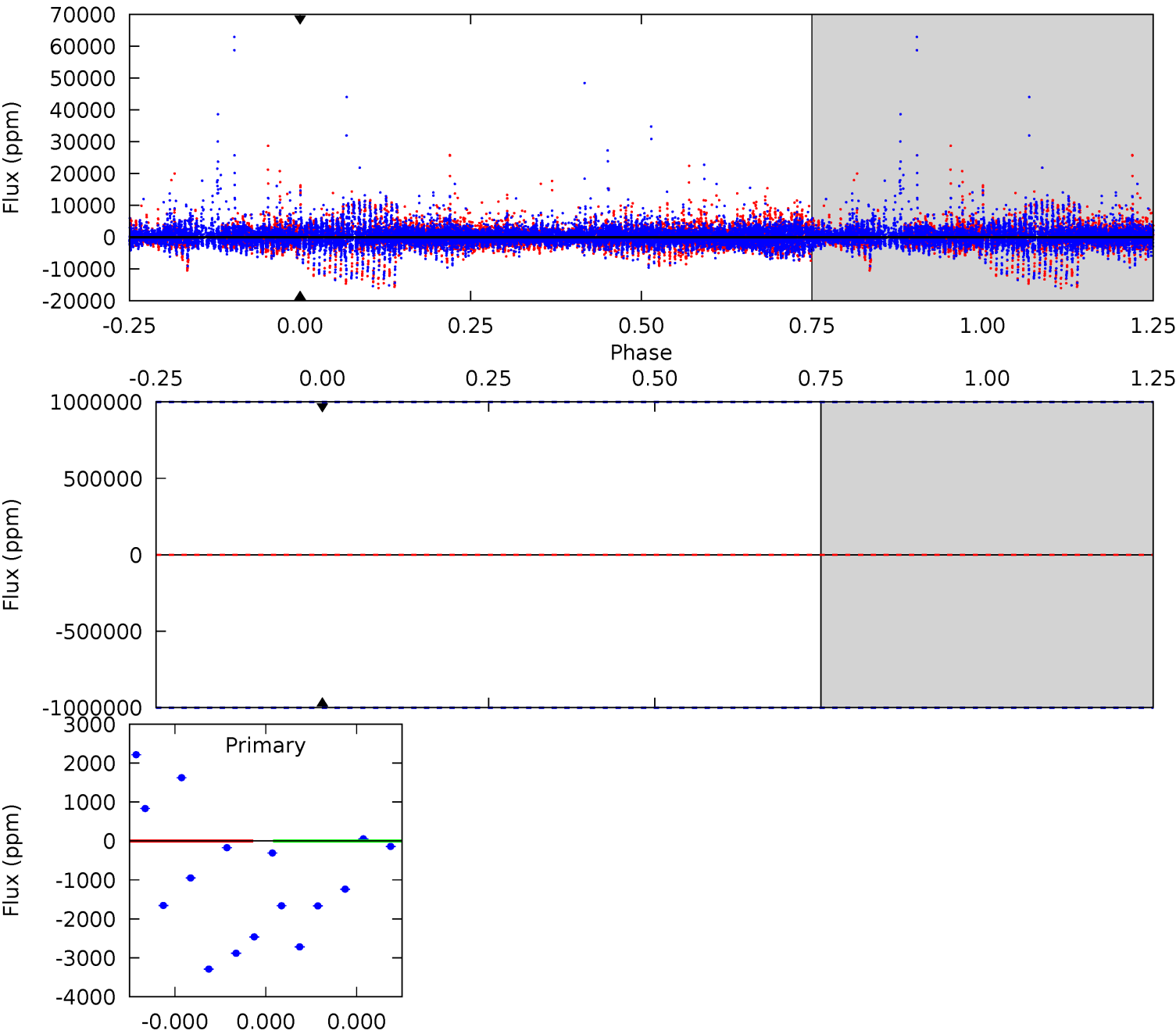
TCE 009083354-02 P=143.437575 Days $T_0=178.115985$ (BKJD)



DV Model-Shift Uniqueness Test

009083354-02, P = 143.437575 Days, E = 34.557805 Days

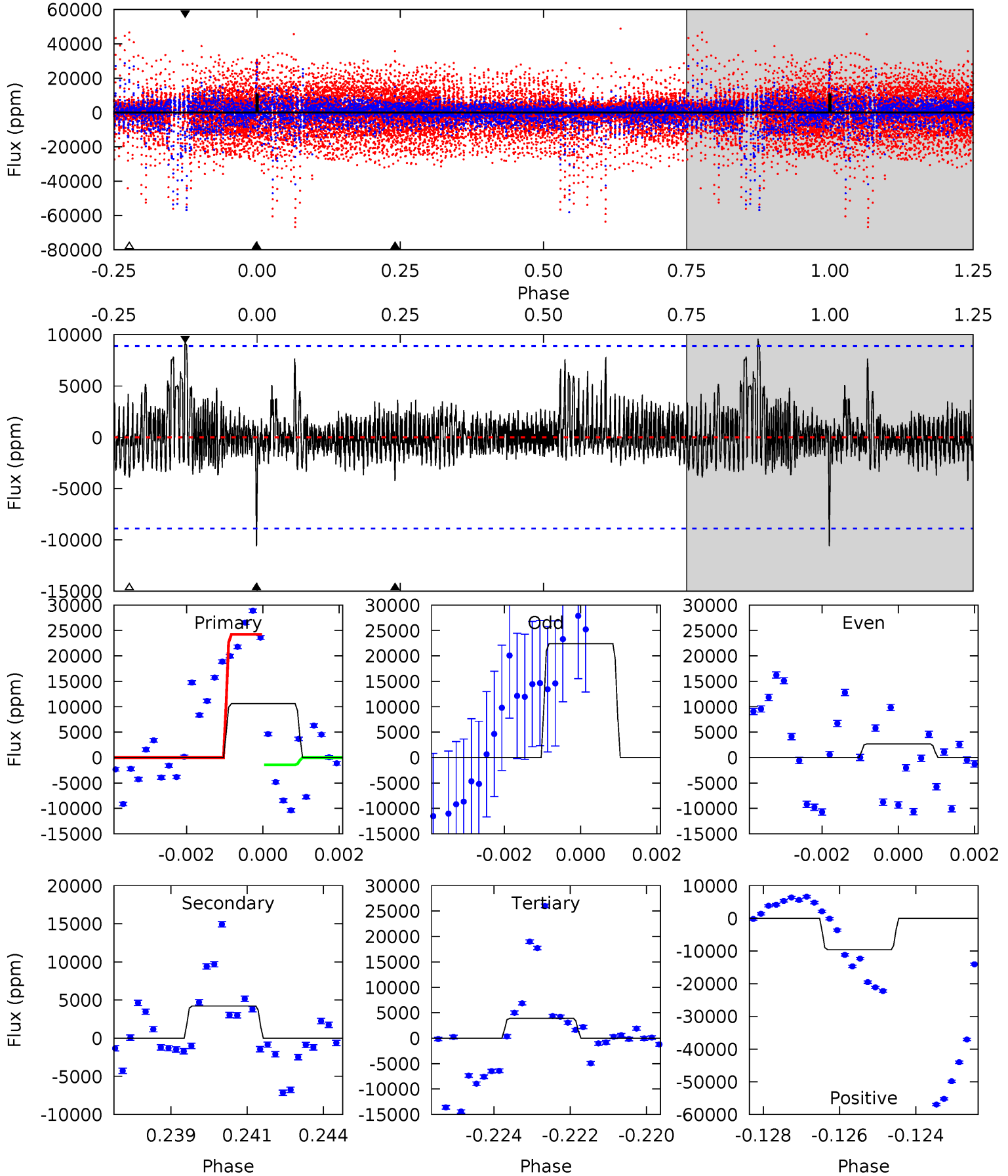
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009083354-02, P = 143.437575 Days, E = 34.678410 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.34	2.53	2.33	5.73	5.31	3.07	1.02	4.01	0.61	0.20	-3.20	4.64	0.53	0.47	7.02



Stellar Parameters For KIC 009083354

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3923^{+62}_{-62}	$4.698^{+0.022}_{-0.018}$	$0.000^{+0.100}_{-0.100}$	$0.562^{+0.020}_{-0.024}$	$0.576^{+0.023}_{-0.025}$	$4.558^{+0.463}_{-0.319}$
	+2%/-2%	+0%/-0%	+inf%/-inf%	+4%/-4%	+4%/-4%	+10%/-7%
Source	PHO2	PHO2	PHO2	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009083354-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$5.73^{+5.50}_{-3.87}$	271^{+5}_{-5}	-3250^{+11031}_{-4368}	$-9466.759^{+642953.602}_{-554837.586}$
Alt.	-4227 ± 1673	$4.20^{+4.67}_{-2.93}$	271^{+5}_{-5}	3819^{+2426}_{-813}	$24237^{+238862}_{-19069}$

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

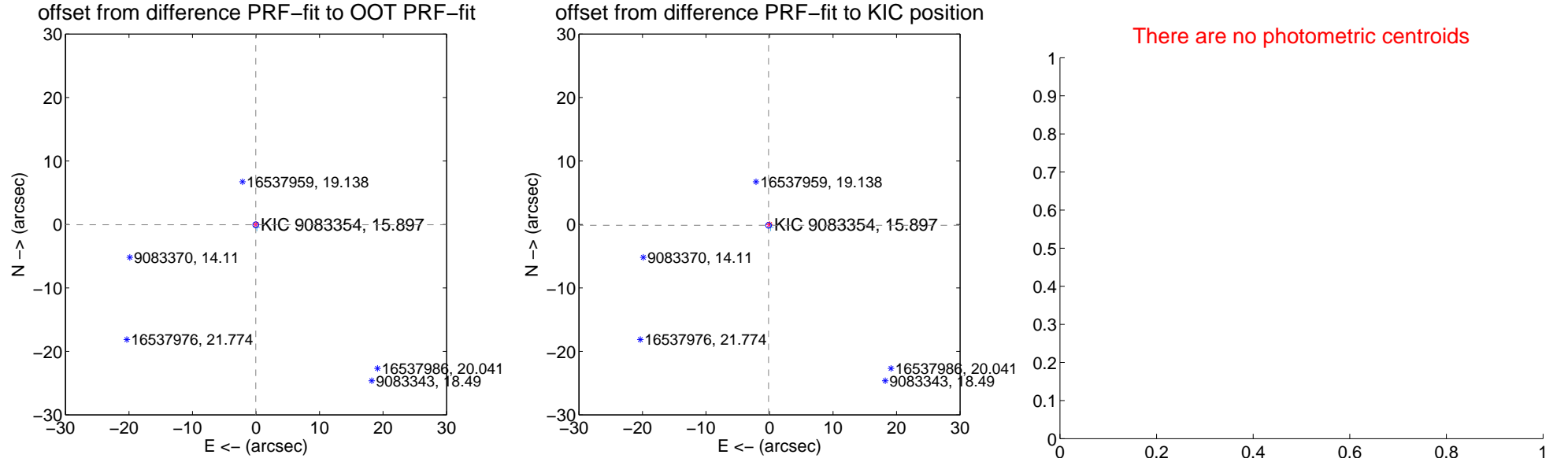
DV Centroid Data

Supplemental centroid analysis for 009083354-02. Kepler magnitude: 15.90. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

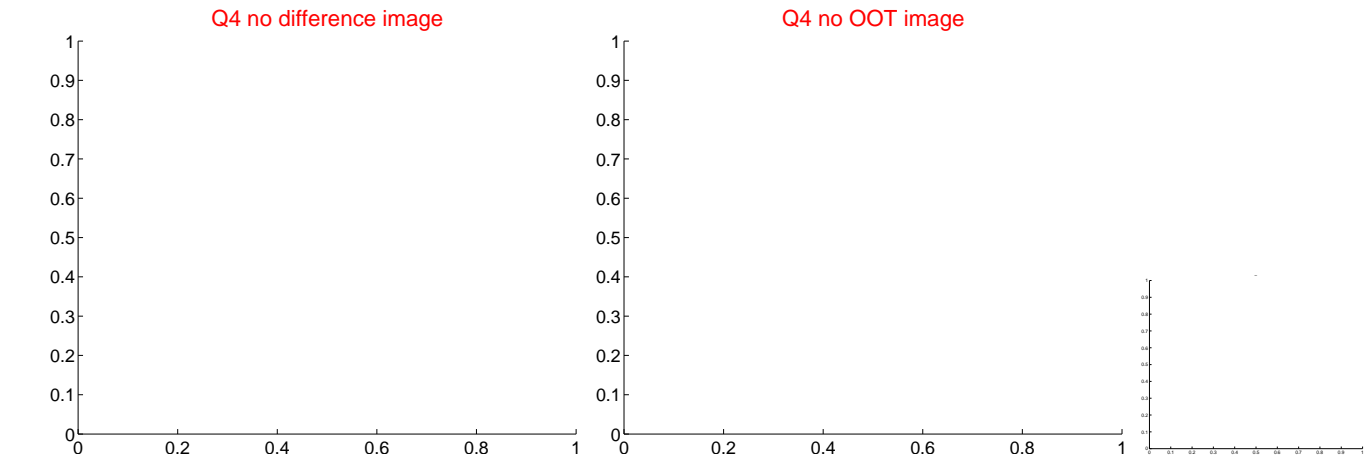
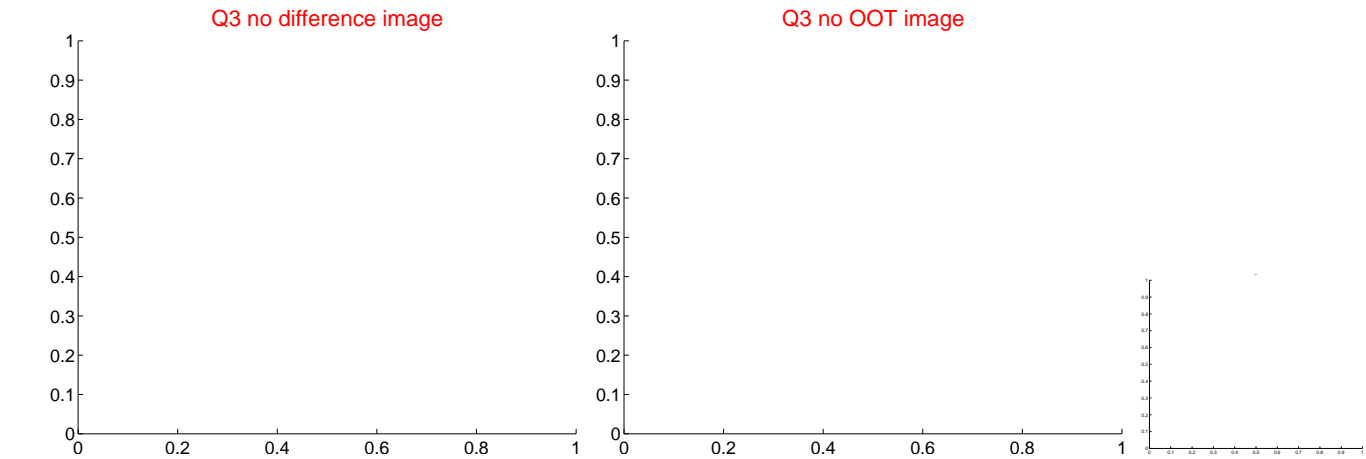
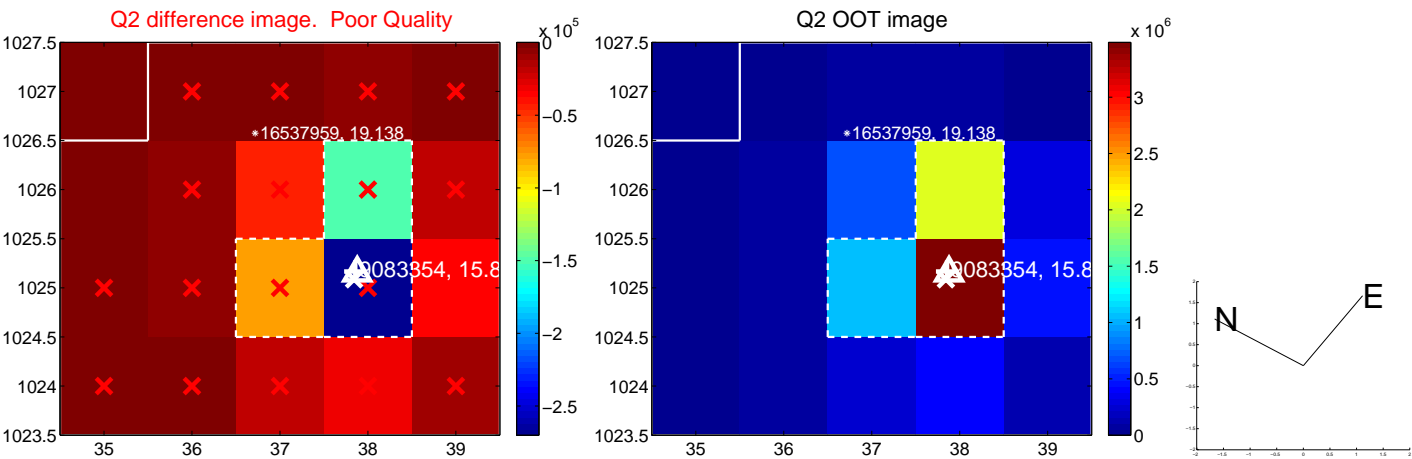
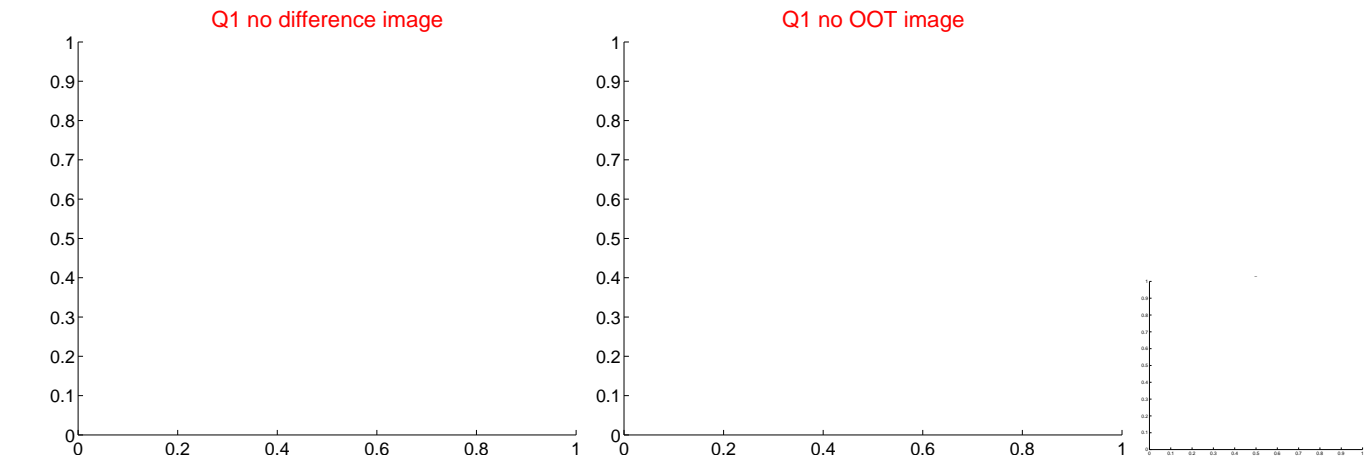
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.066 ± 0.152	0.44	0.038 ± 0.138	-0.054 ± 0.159
PRF-fit source offset from KIC position	0.207 ± 0.148	1.40	0.152 ± 0.138	-0.141 ± 0.159
photometric centroid source offset	—	—	—	—

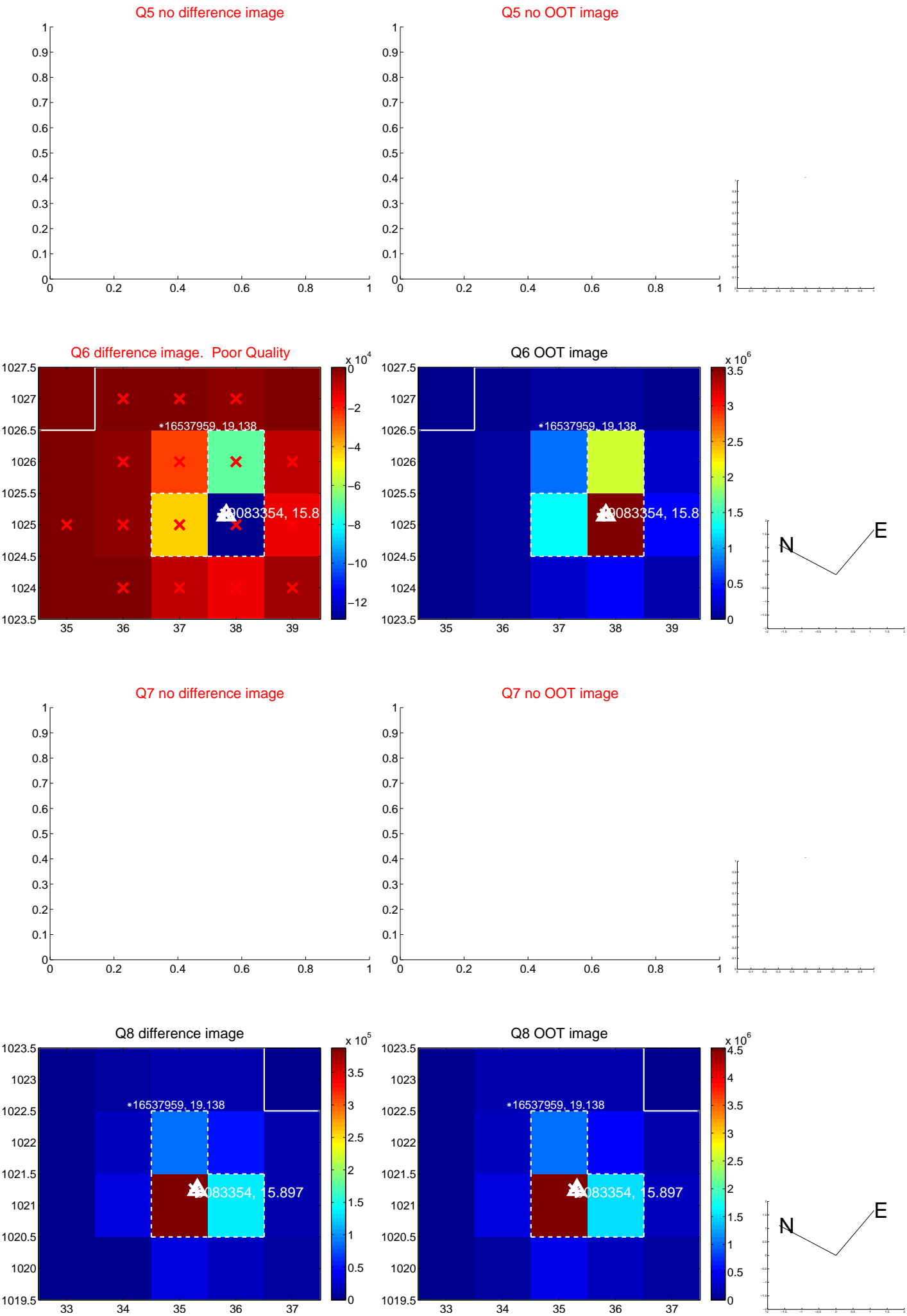


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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



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

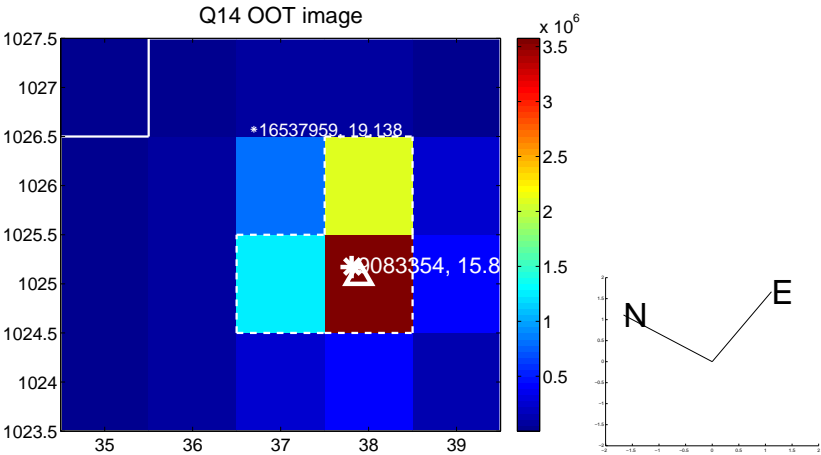
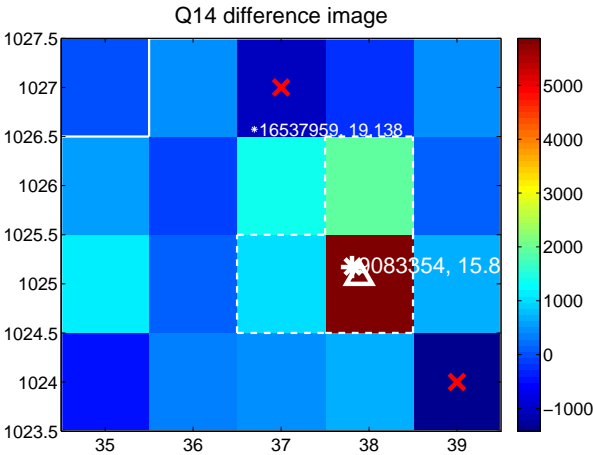


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

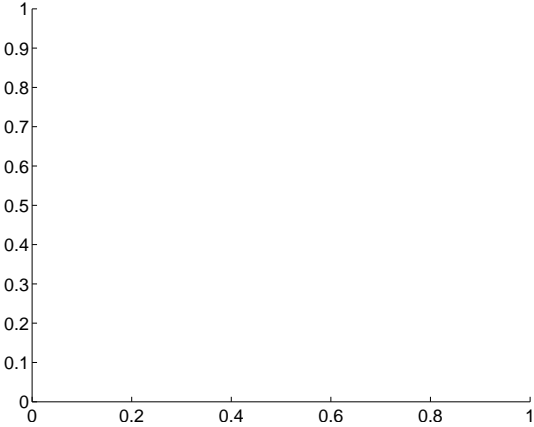
Q13 no difference image



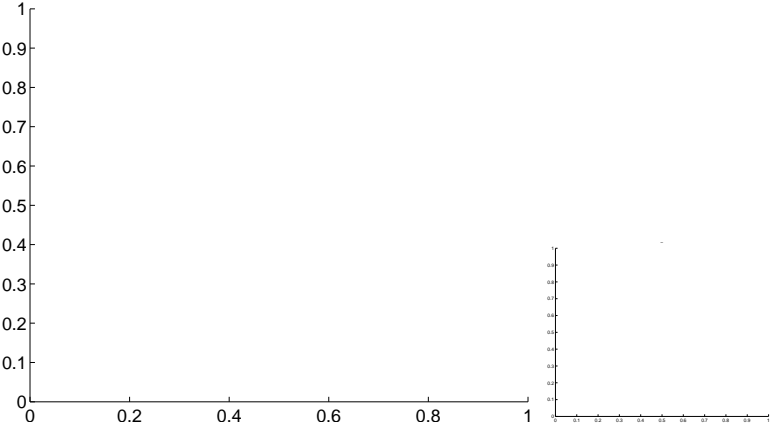
Q13 no OOT image



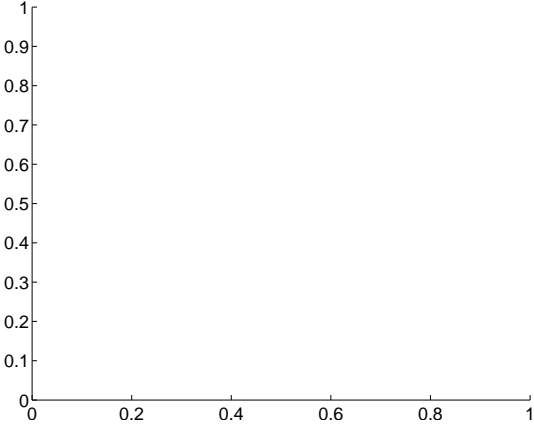
Q15 no difference image



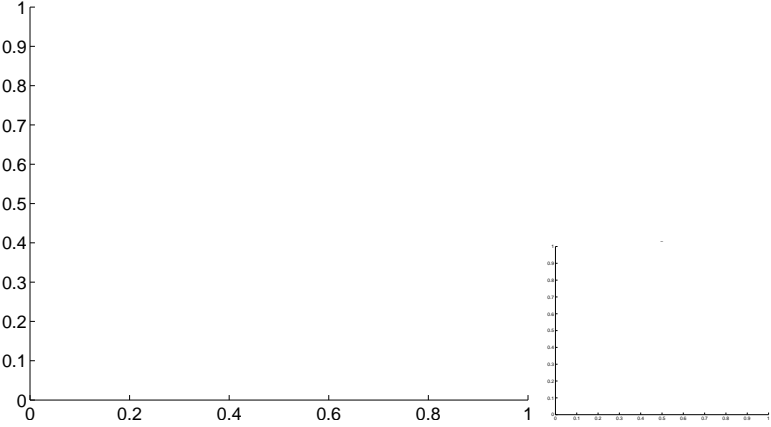
Q15 no OOT image



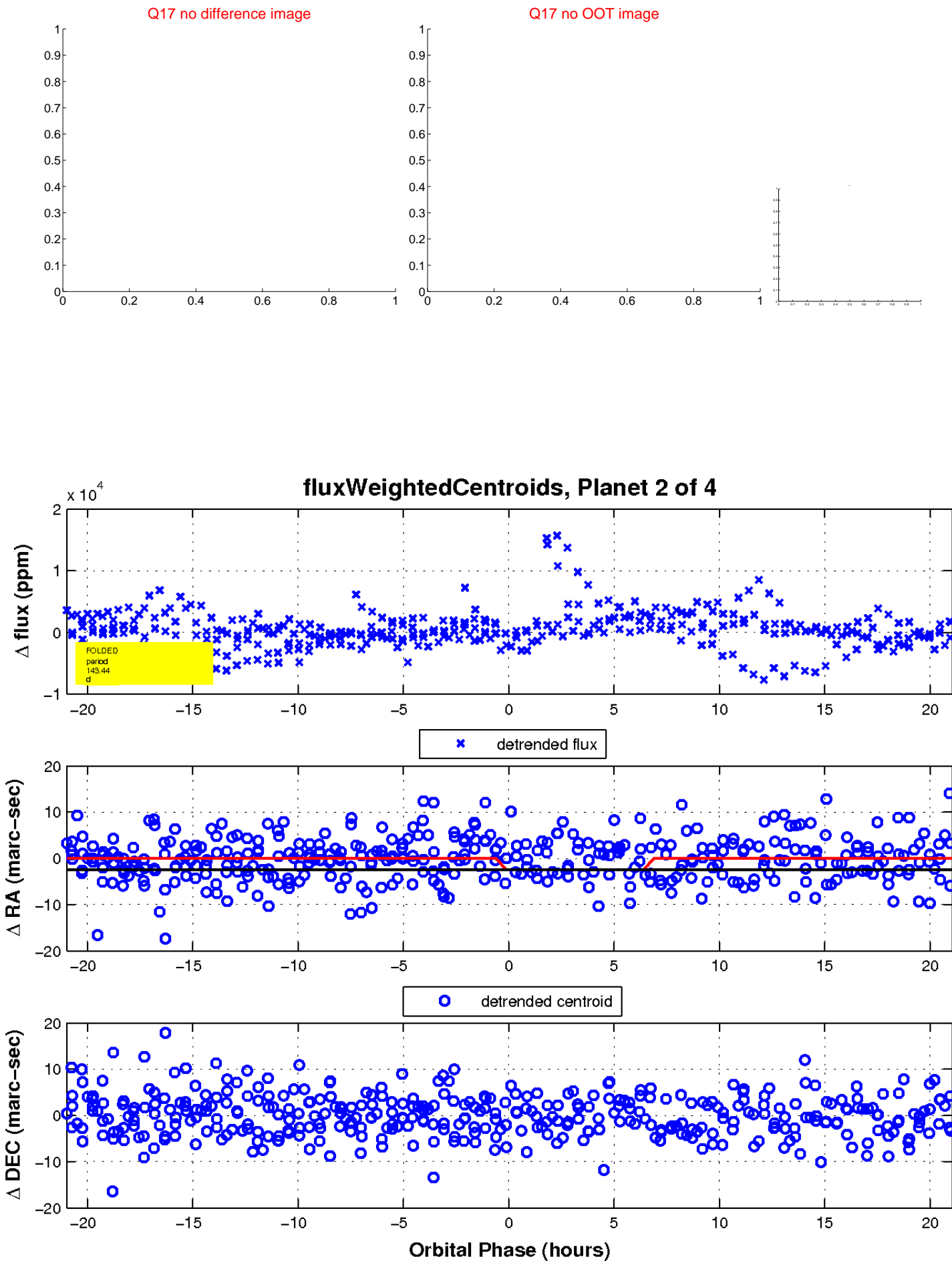
Q16 no difference image



Q16 no OOT image

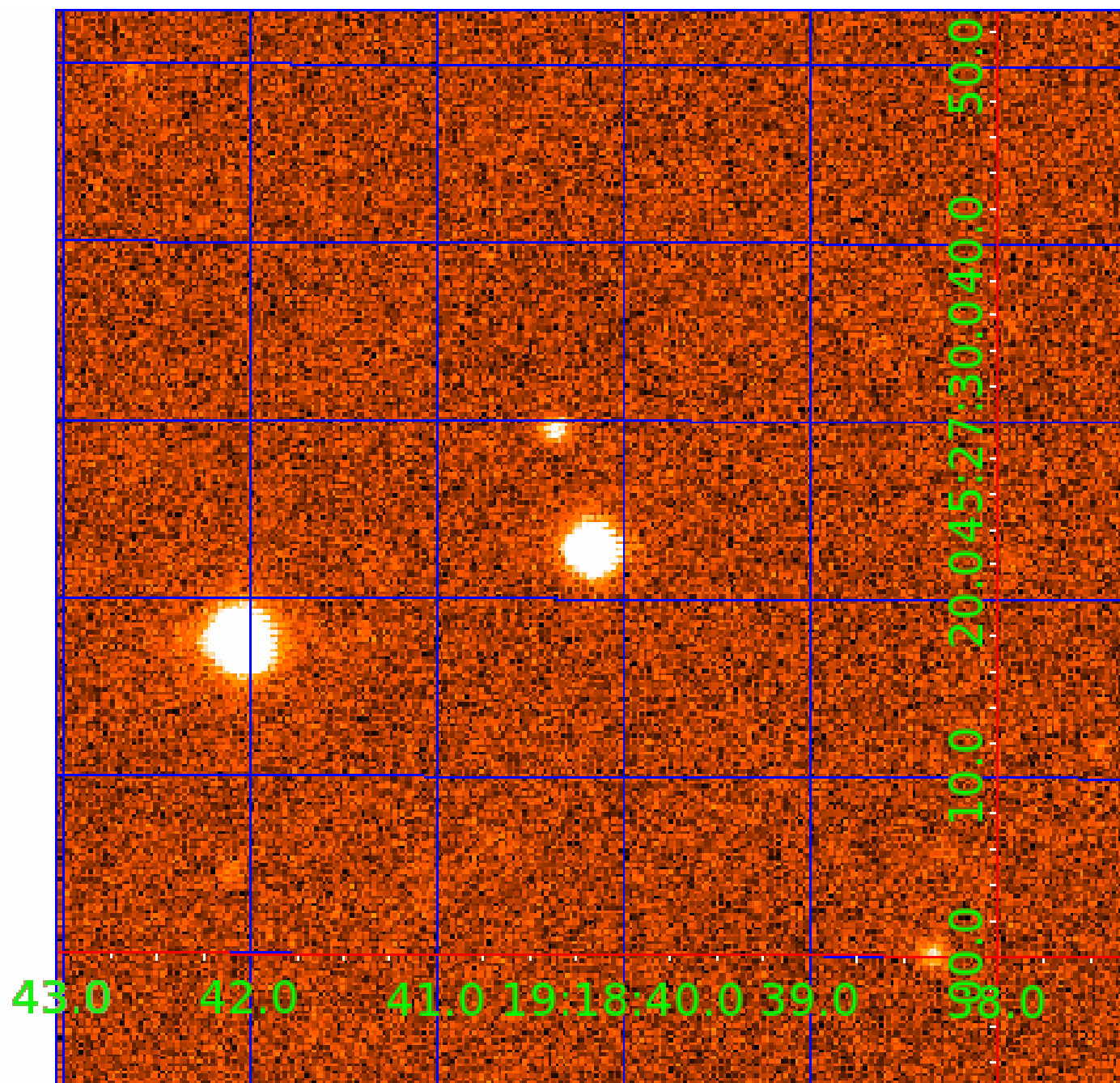


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009083354

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})
009083354-01	OBS	No	1.133313	131.538277	3469.0	3.000	11.9	-1.0	0.56	3923	3.24	214.15
009083354-02	OBS	No	143.437575	177.995380	3842.5	2.500	10.6	-1.0	0.56	3923	3.41	0.34
009083354-03	OBS	No	0.905471	132.018849	506.2	3.719	8.3	8.7	0.56	3923	2.60	288.86
009083354-04	OBS	No	71.175129	176.657308	6471.0	10.043	9.0	6.3	0.56	3923	4.41	0.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009083354-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
009083354-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
009083354-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009083354-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—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

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

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

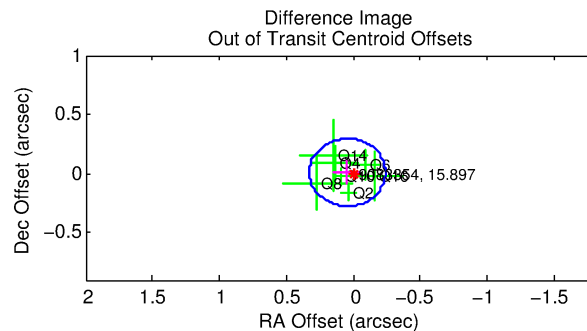
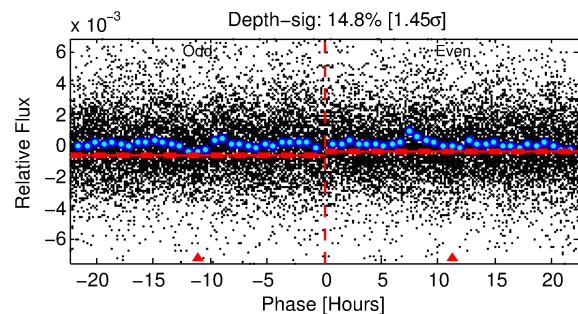
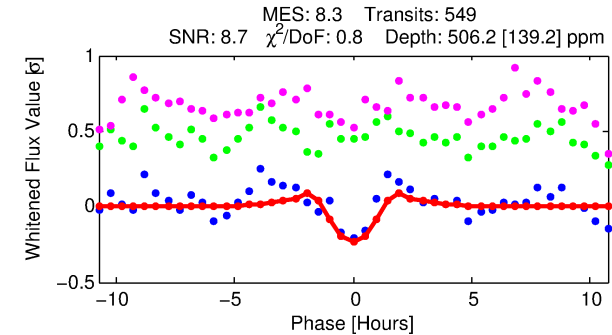
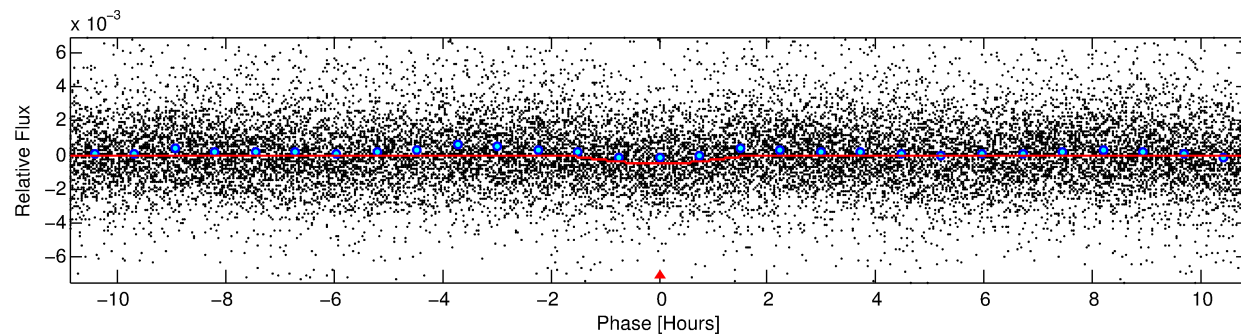
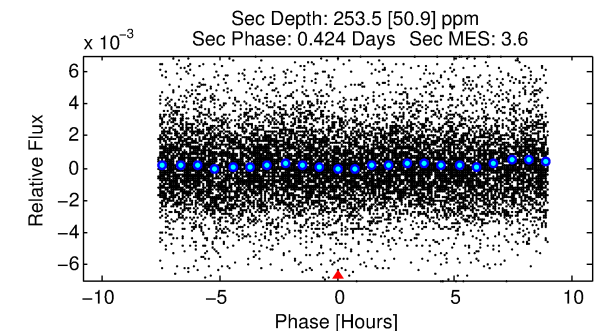
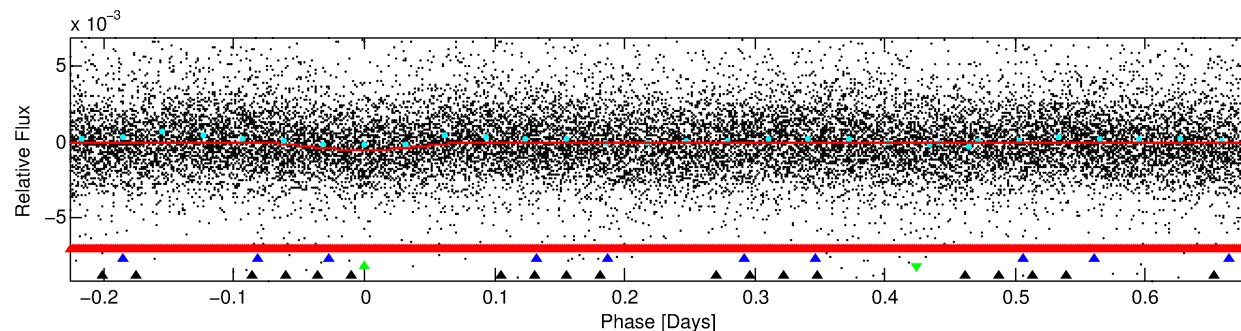
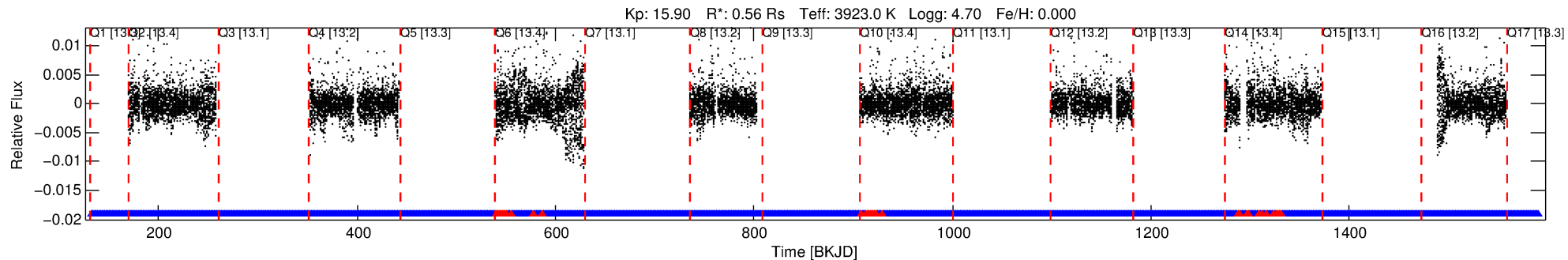
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009083354-03

No Significant Match Found

DV One-Page Summary

KIC: 9083354 Candidate: 3 of 4 Period: 0.905 d



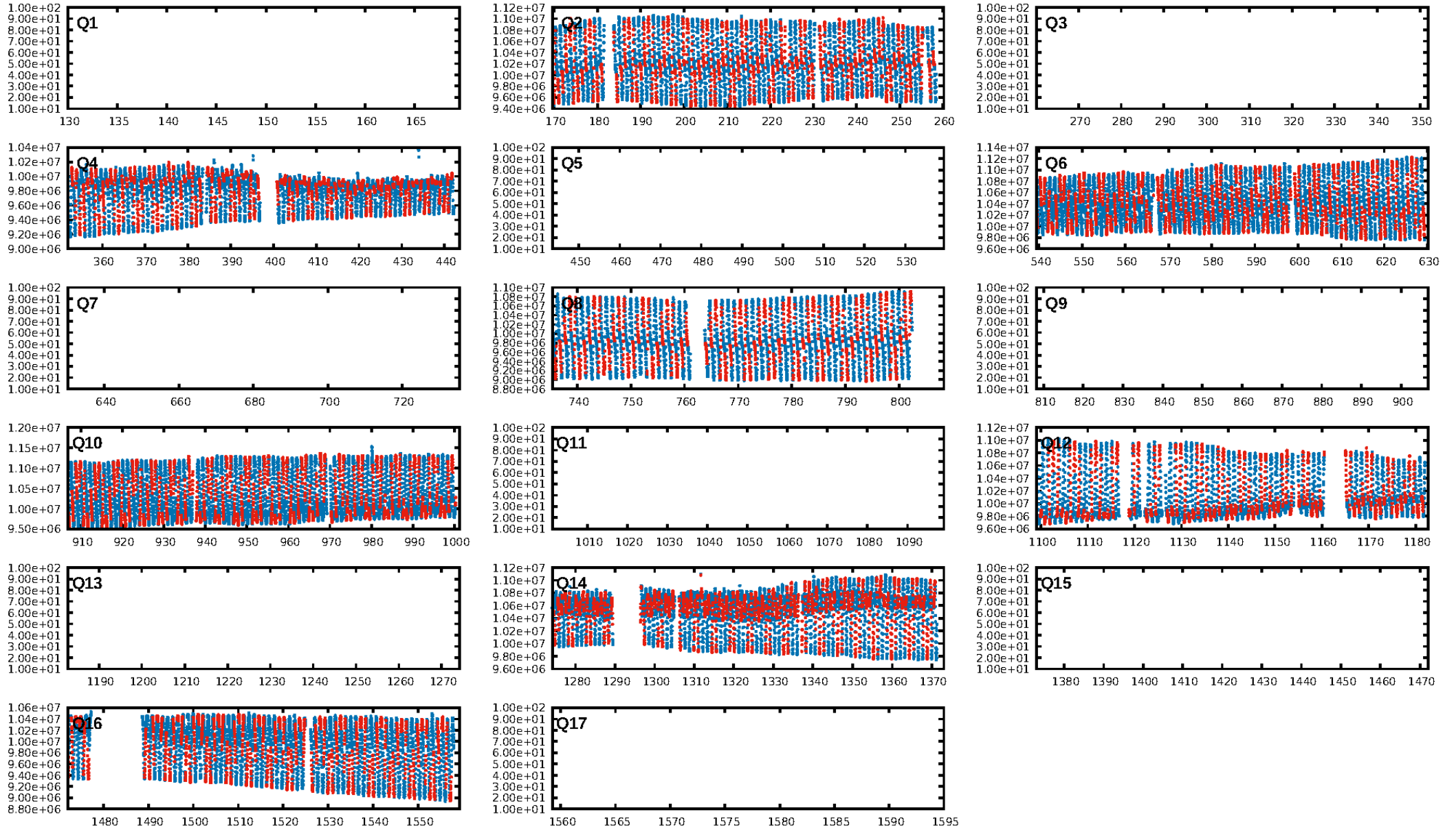
DV Fit Results:

Period = 0.90547 [0.00001] d
Epoch = 132.0188 [0.0035] BKJD
Rp/R* = 0.0425 [0.0982]
a/R* = 1.15 [0.04]
b = 1.00 [0.15]
Seff = 288.86 [22.28]
Teq = 1051 [20] K
Rp = 2.61 [6.02] Re
a = 0.0152 [0.0005] AU
Ag = 4.77 [22.06] [0.17σ]
Teff = 2402 [2778] K [0.49σ]

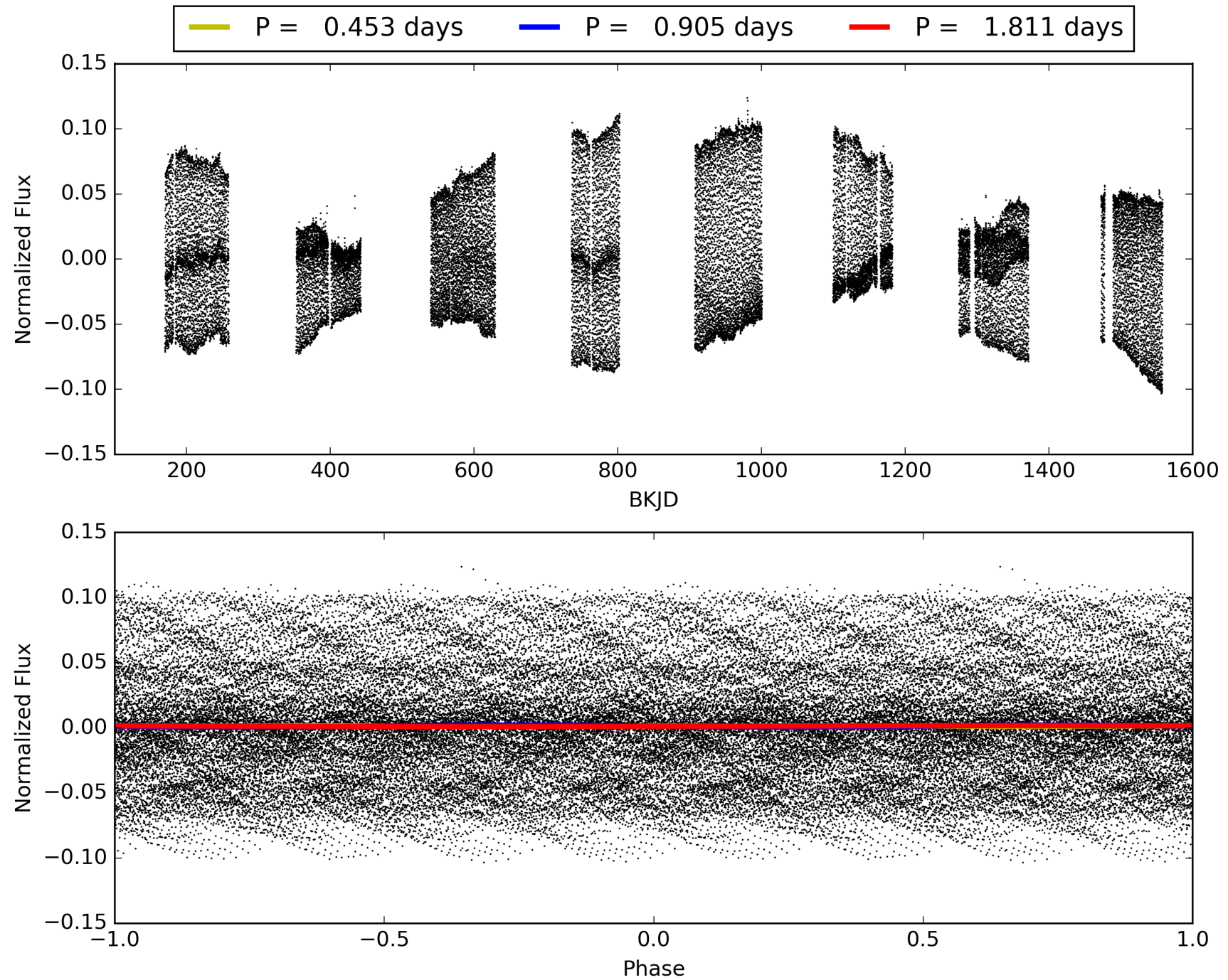
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 74.8% [1.14σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.55e-15
RollingBand-fgt: 0.93 [513/549]
GhostDiagnostic-chr: -0.6828
Centroid-sig: N/A
Centroid-so: 1.226 arcsec [2.40σ]
OotOffset-rm: 0.048 arcsec [0.51σ]
KicOffset-rm: 0.215 arcsec [2.27σ]
OotOffset-st: 4/0/3/0 [7]
KicOffset-st: 4/0/3/0 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.00 [0/8]

TCE 009083354-03, PDC Light Curves

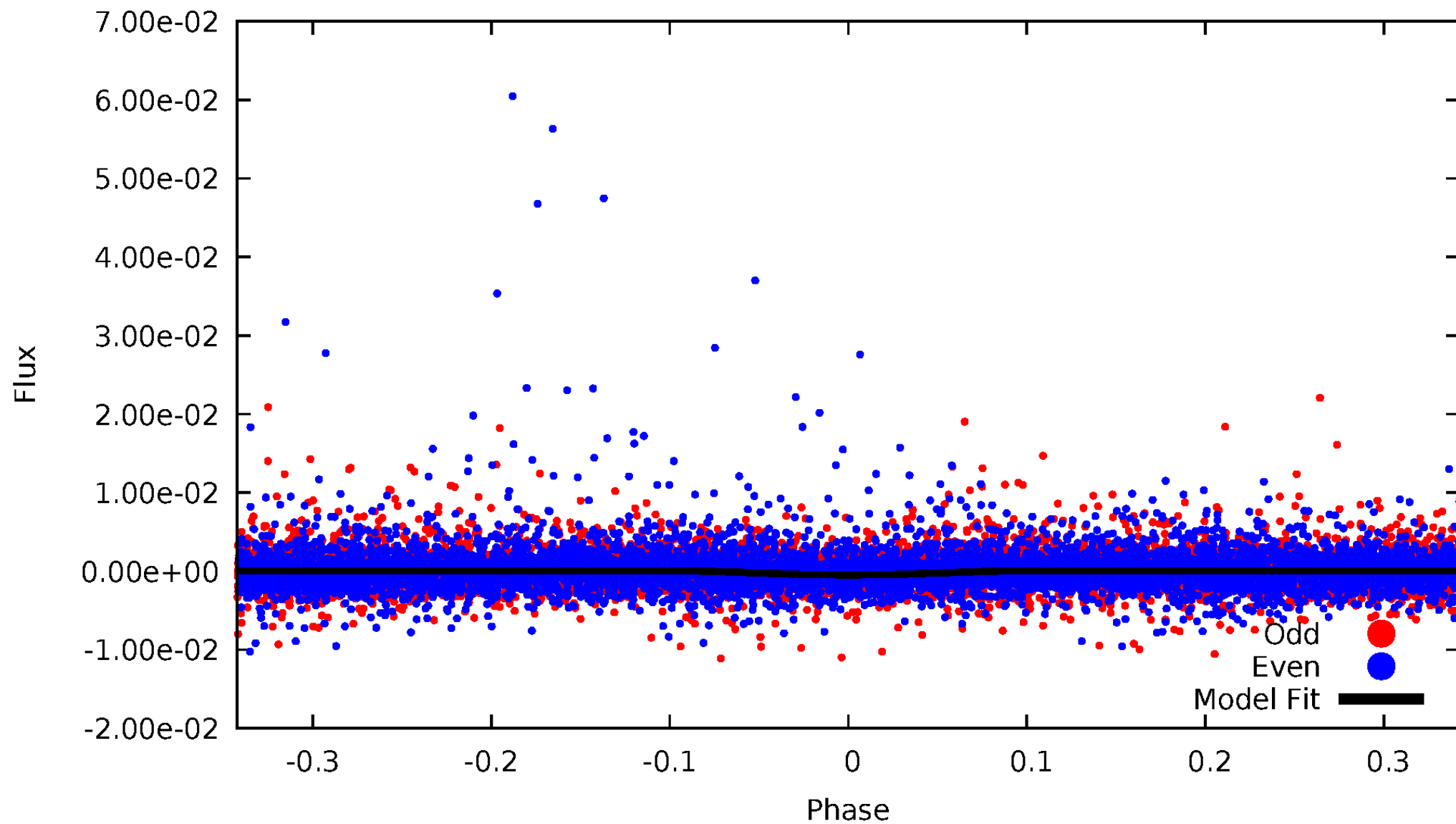


TCE 009083354-03



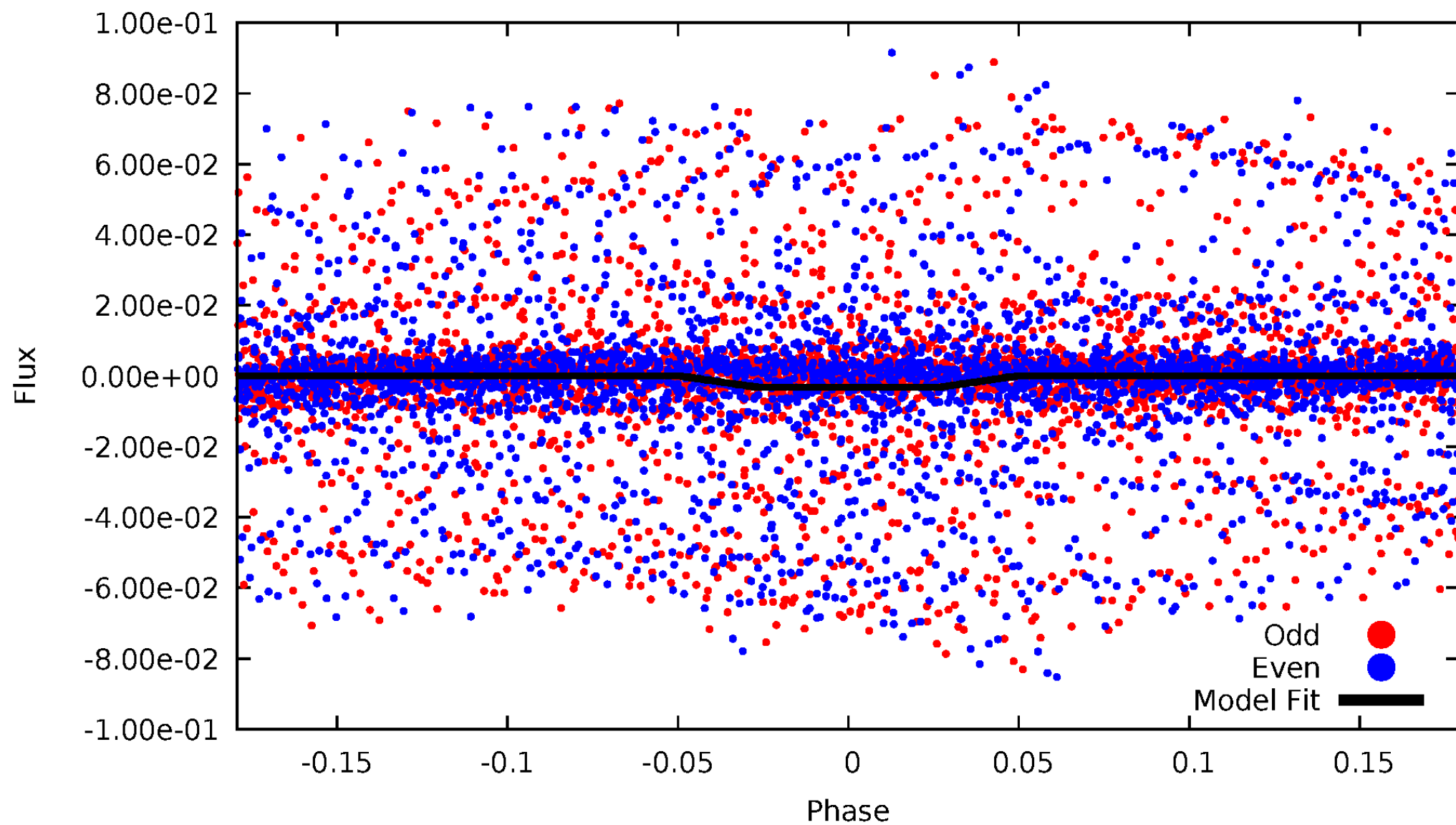
DV Odd/Even

TCE 009083354-03



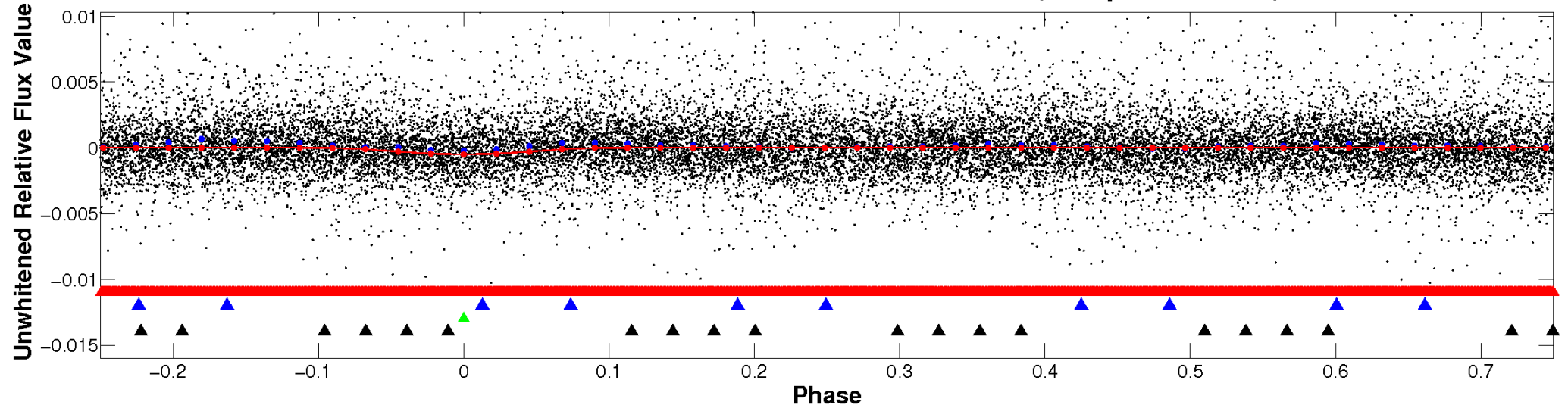
ALT Odd/Even

TCE 009083354-03

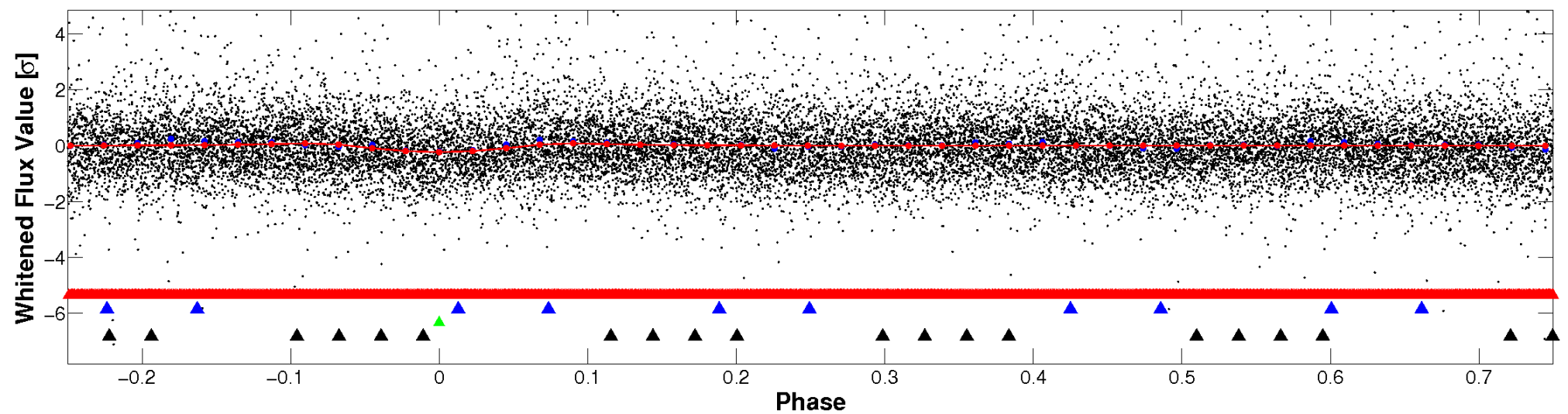


Non-Whitened Vs. Whitened Light Curve

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

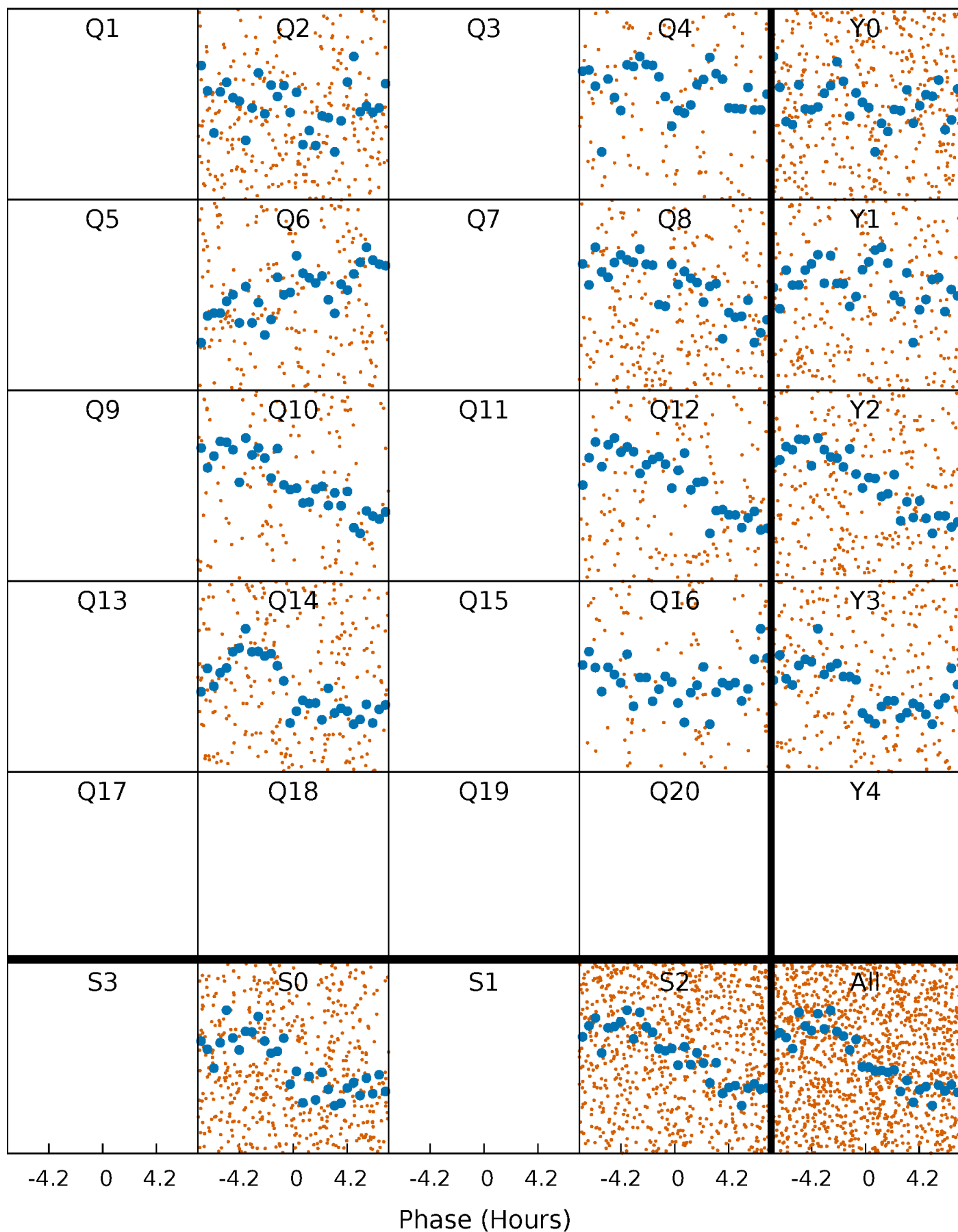


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



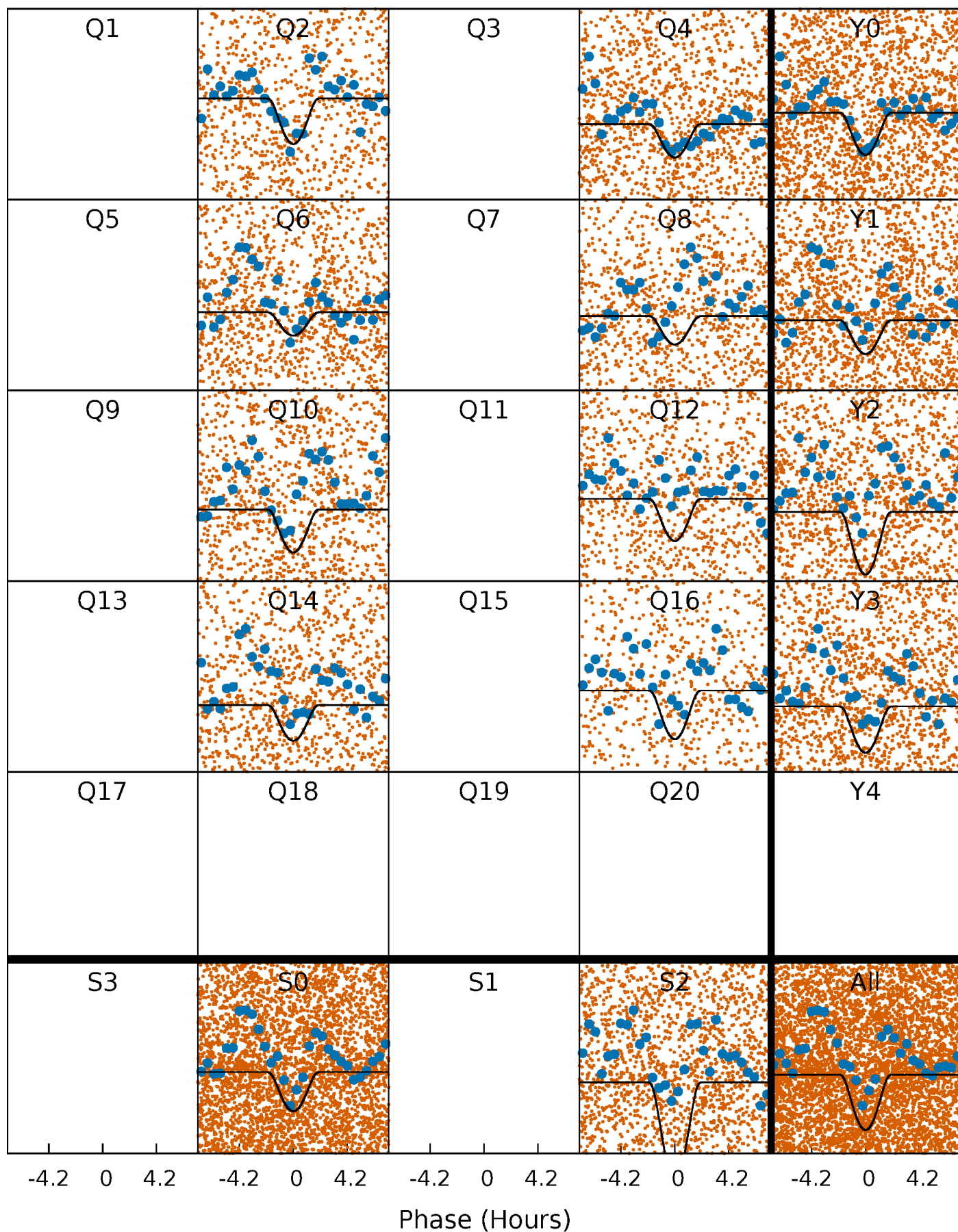
PDC Quarter-Phased Transit Curves

TCE 009083354-03 P= 0.905471 Days $T_0=132.018849$ (BKJD)



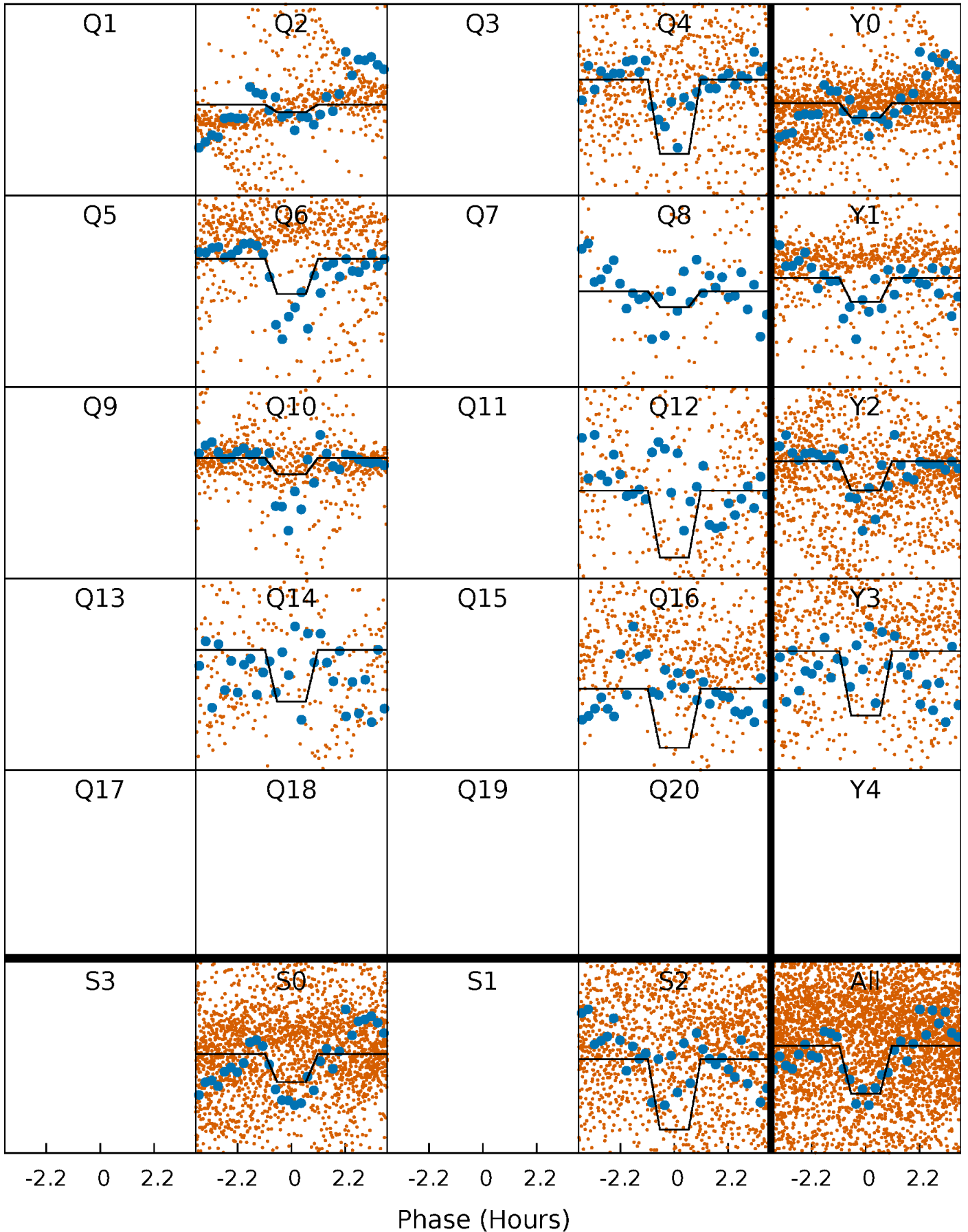
DV Quarter-Phased Transit Curves

TCE 009083354-03 $P = 0.905471$ Days $T_0 = 132.018849$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

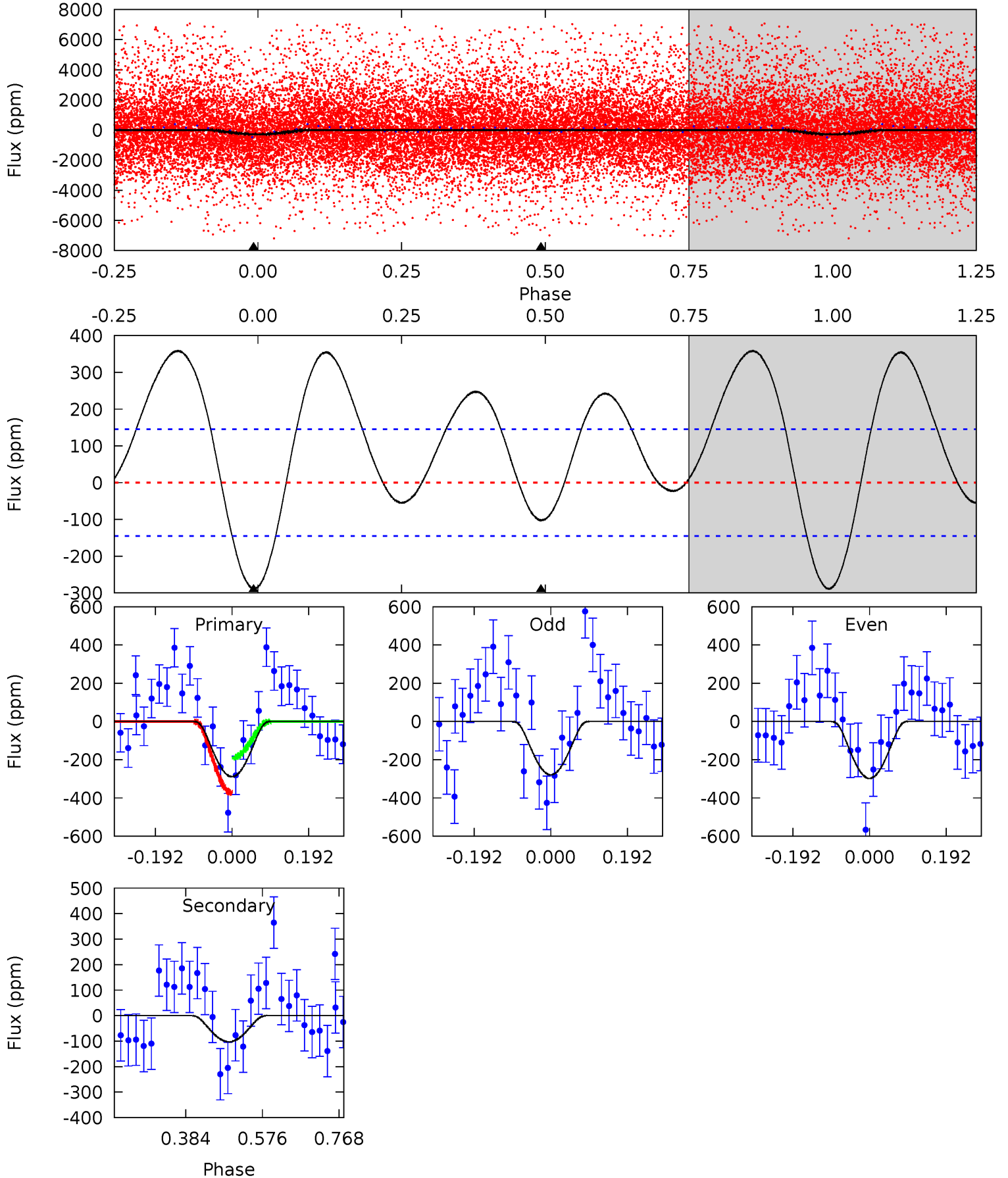
TCE 009083354-03 P= 0.905460 Days $T_0=132.014527$ (BKJD)



DV Model-Shift Uniqueness Test

009083354-03, P = 0.905471 Days, E = 132.018849 Days

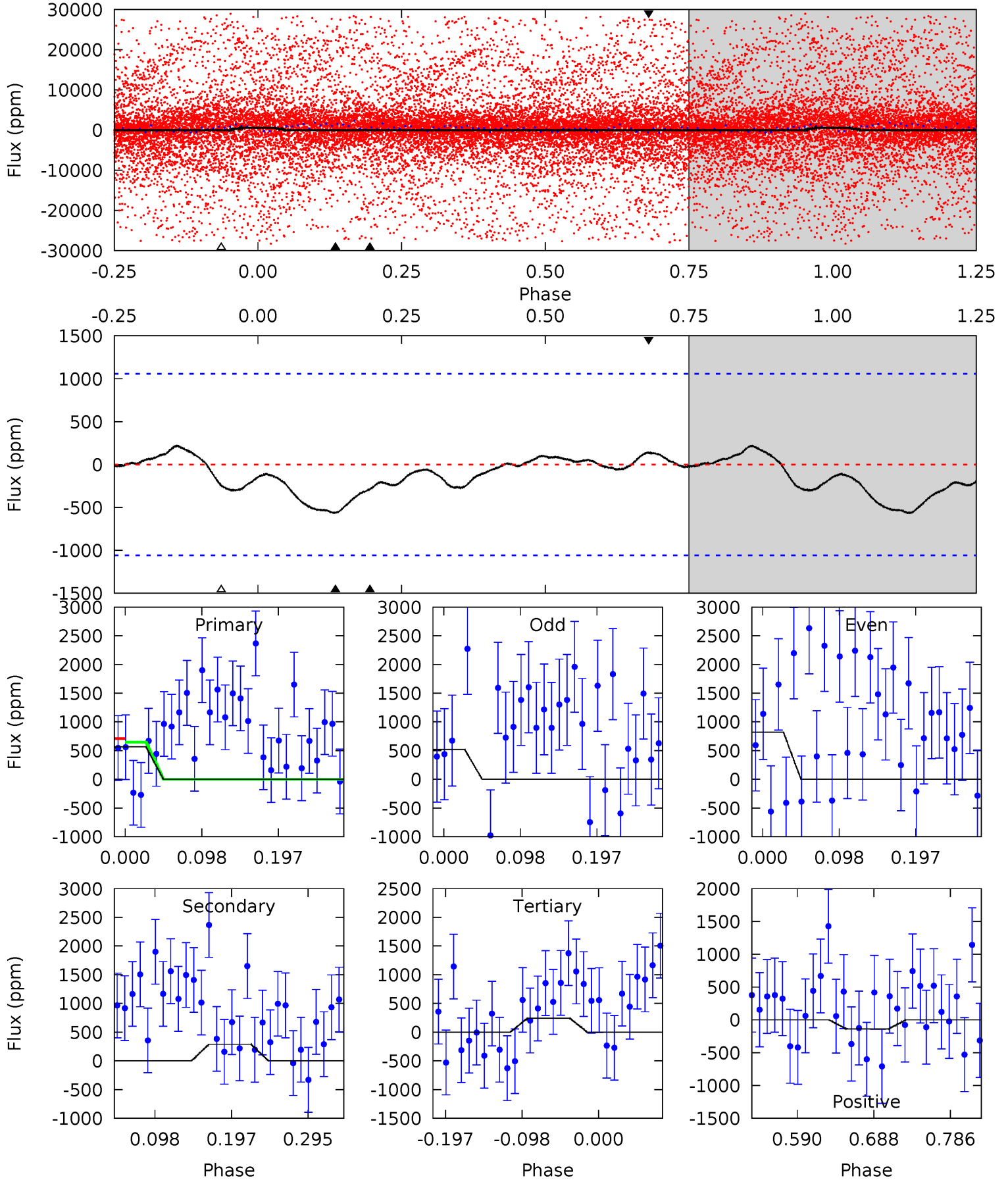
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.79	3.13	0	0	4.43	1.30	1.83	8.79	8.79	3.13	3.13	0.29	0.18	0.55	2.81



Alt Model-Shift Uniqueness Test

009083354-03, P = 0.905460 Days, E = 132.014527 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.44	1.25	1.05	0.60	4.57	1.65	0.54	1.39	1.84	0.20	0.65	0.66	-6.44	0.28	0.14



Stellar Parameters For KIC 009083354

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3923^{+62}_{-62}	$4.698^{+0.022}_{-0.018}$	$0.000^{+0.100}_{-0.100}$	$0.562^{+0.020}_{-0.024}$	$0.576^{+0.023}_{-0.025}$	$4.558^{+0.463}_{-0.319}$
	+2%/-2%	+0%/-0%	+inf%/-inf%	+4%/-4%	+4%/-4%	+10%/-7%
Source	PHO2	PHO2	PHO2	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009083354-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-103 ± 33	$5.29^{+4.79}_{-3.58}$	1467^{+27}_{-25}	1964^{+895}_{-3948}	$0.464^{+3.934}_{-0.352}$
Alt.	-289 ± 232	$5.87^{+5.15}_{-3.98}$	1467^{+27}_{-26}	2224^{+867}_{-4230}	$0.857^{+7.080}_{-0.764}$

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

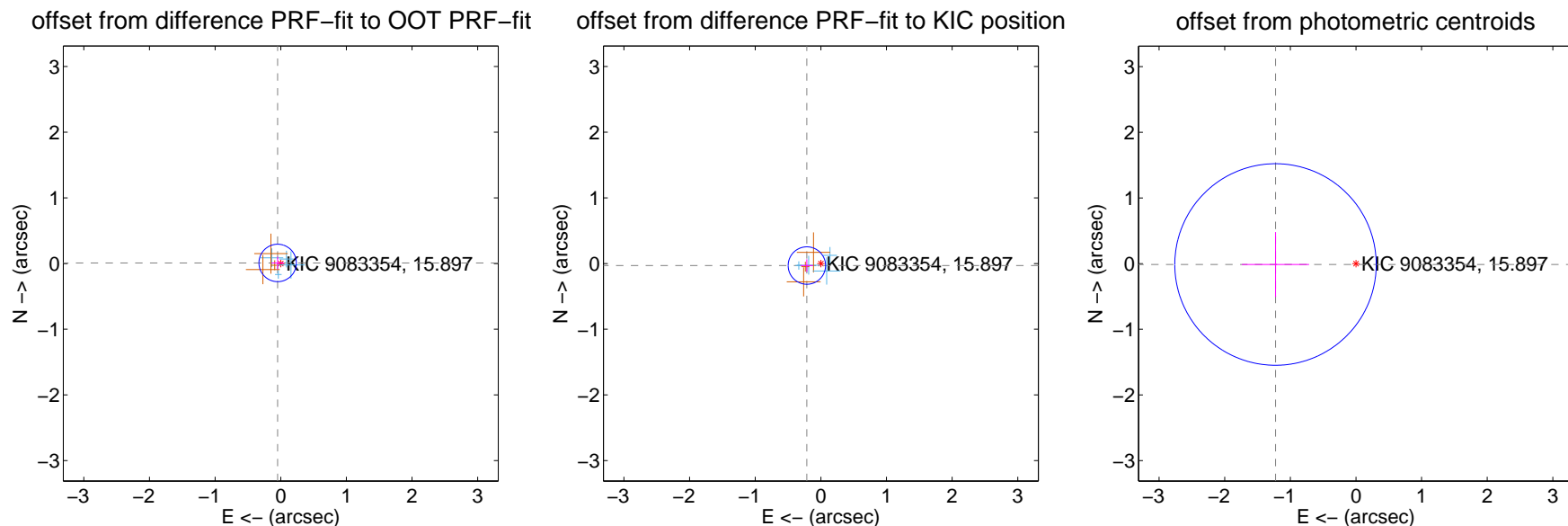
DV Centroid Data

Supplemental centroid analysis for 009083354-03. Kepler magnitude: 15.90. Transit SNR 8.71

There are 4 quarters with good PRF difference image offsets

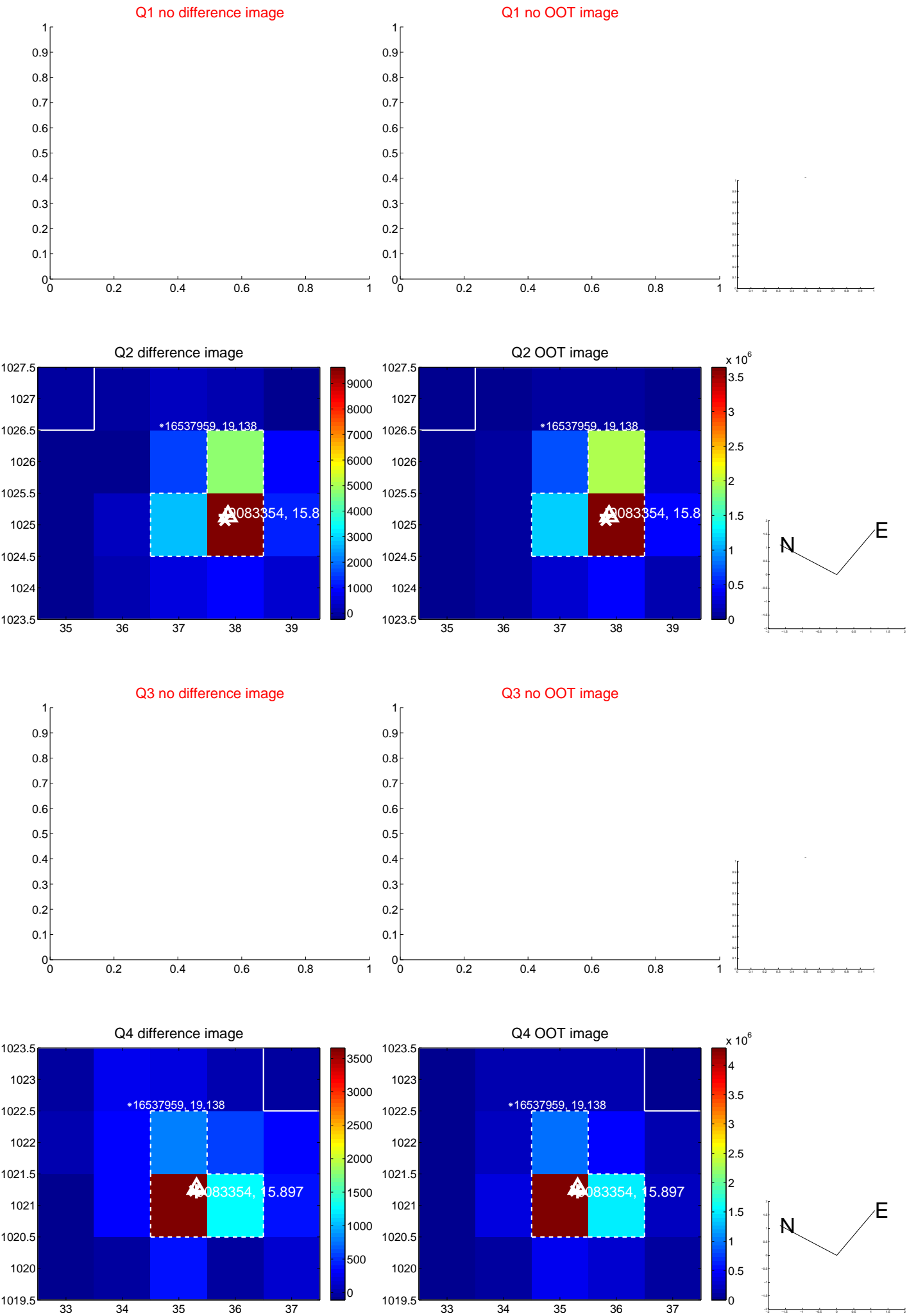
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.048 ± 0.095	0.51	0.047 ± 0.095	0.009 ± 0.096
PRF-fit source offset from KIC position	0.215 ± 0.095	2.27	0.213 ± 0.095	-0.030 ± 0.096
photometric centroid source offset	1.23 ± 0.51	2.40	1.23 ± 0.51	-0.01 ± 0.49

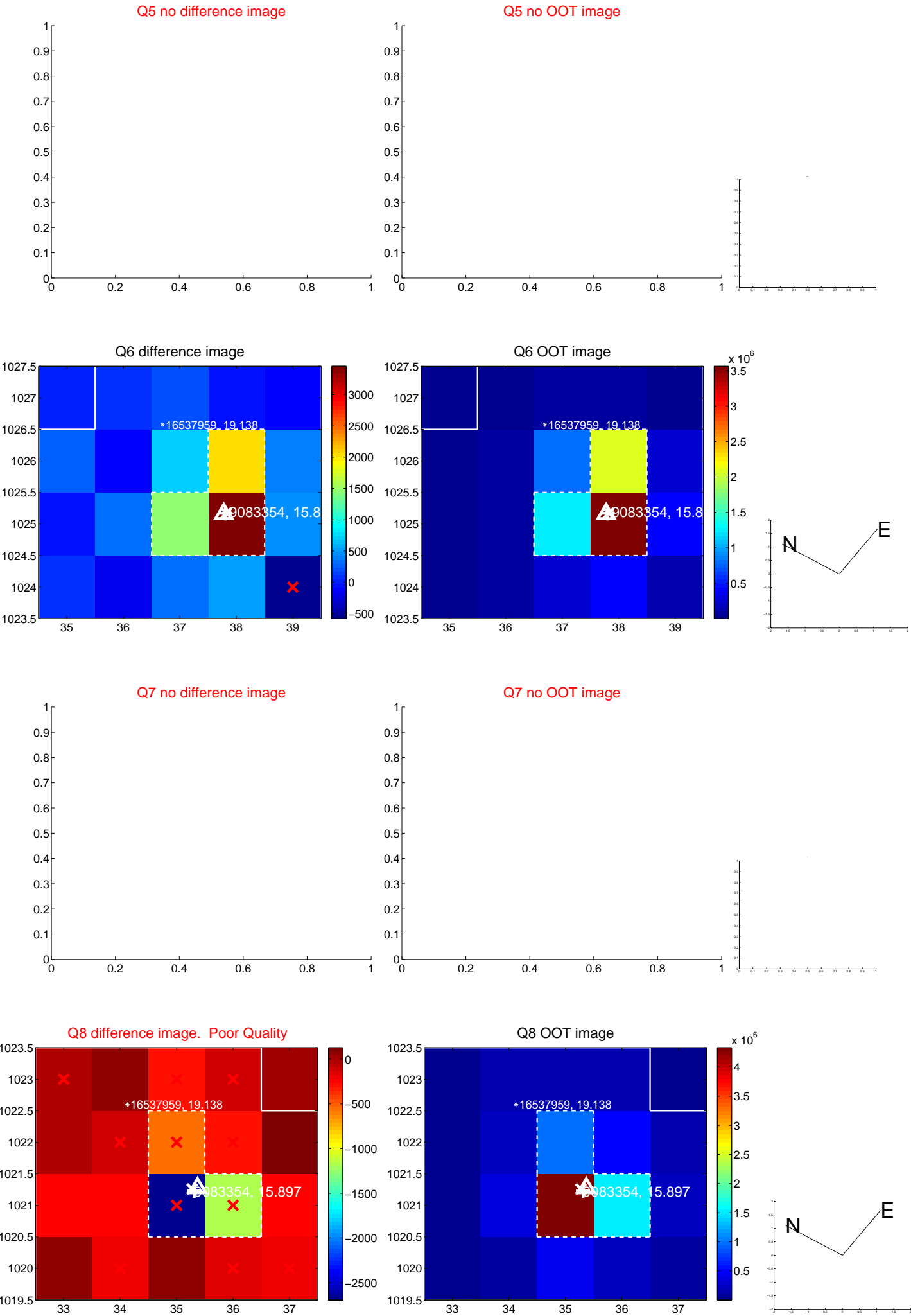


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

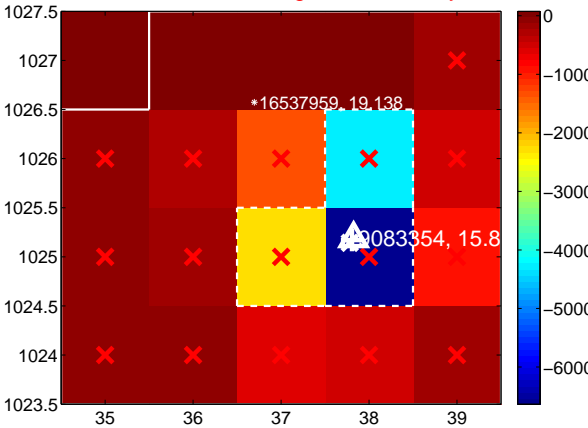
Q9 no difference image



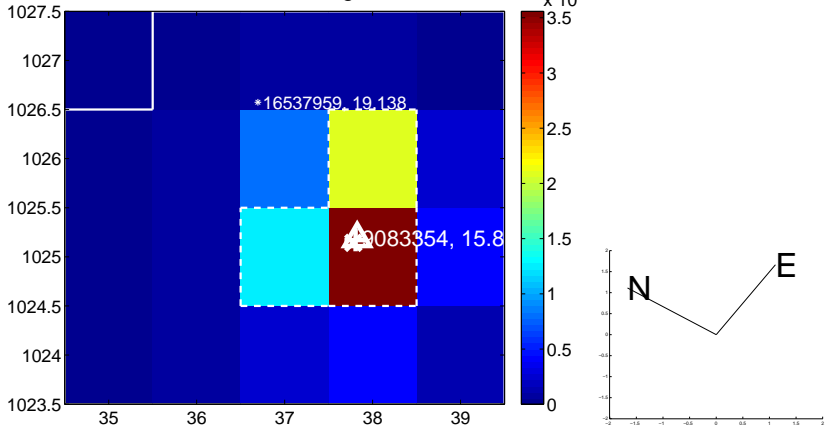
Q9 no OOT image



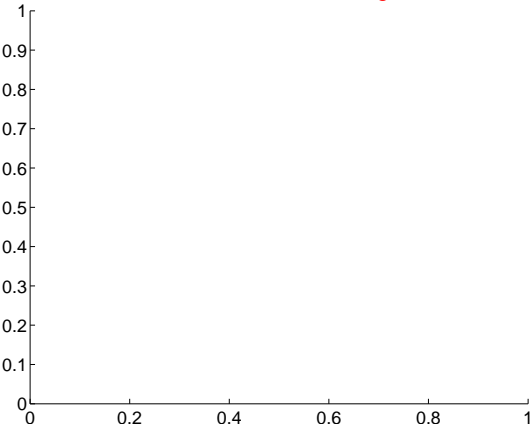
Q10 difference image. Poor Quality



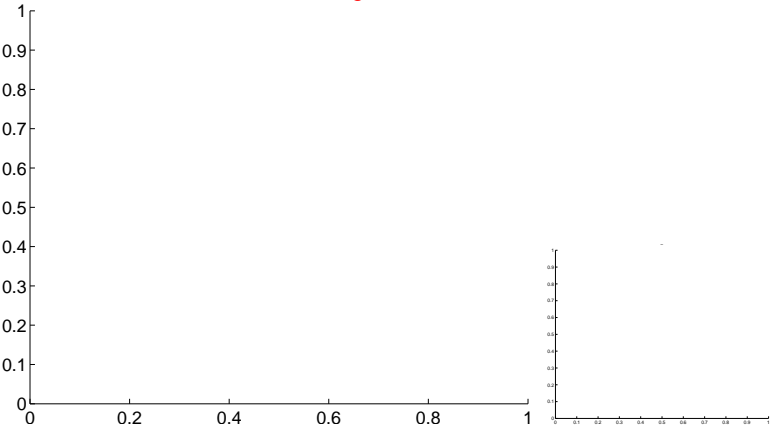
Q10 OOT image



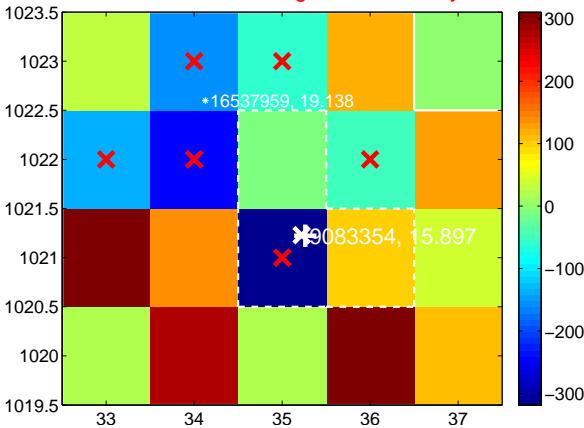
Q11 no difference image



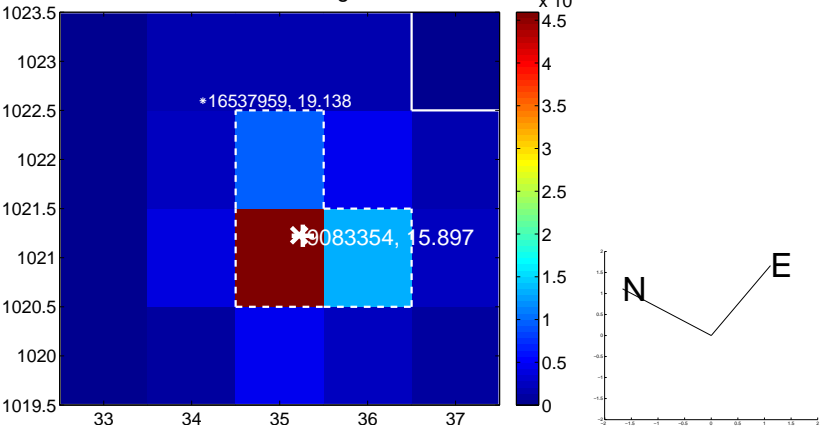
Q11 no OOT image



Q12 difference image. Poor Quality

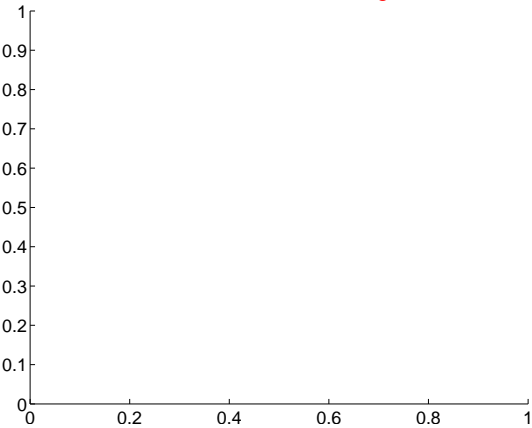


Q12 OOT image



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

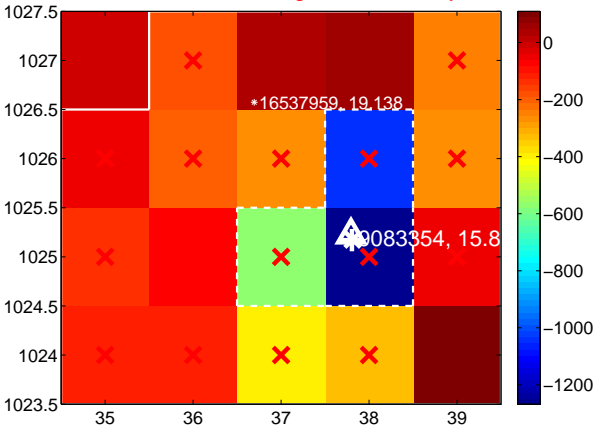
Q13 no difference image



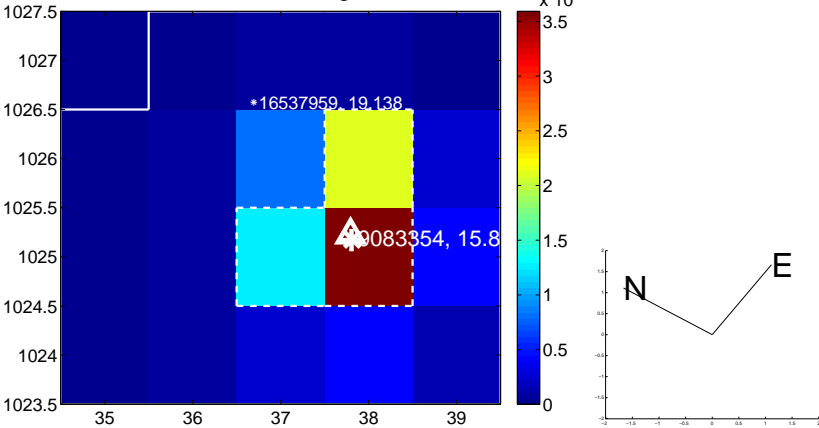
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



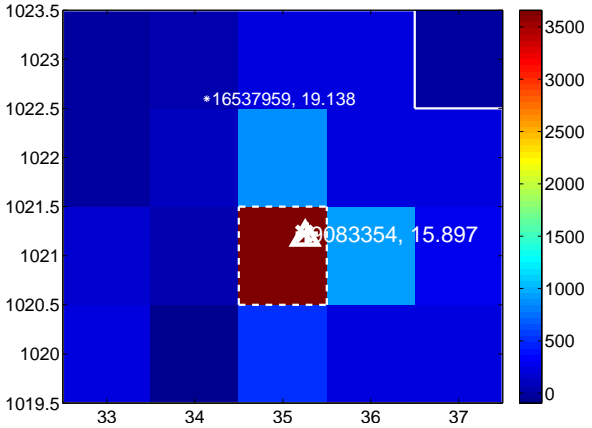
Q15 no difference image



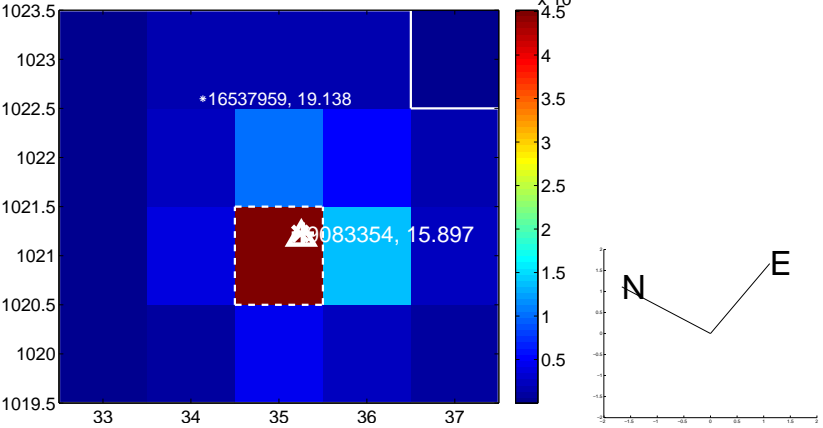
Q15 no OOT image



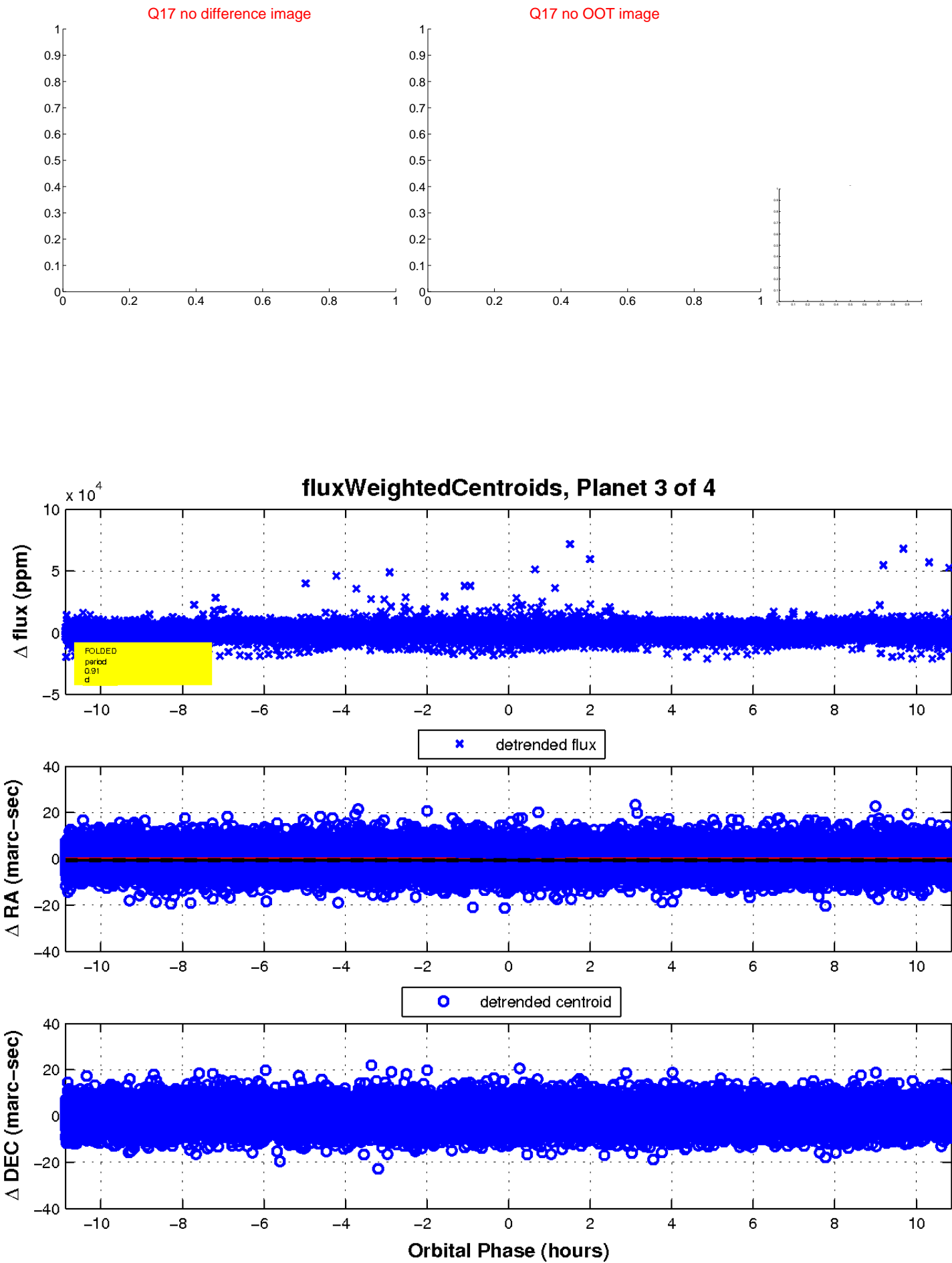
Q16 difference image



Q16 OOT image

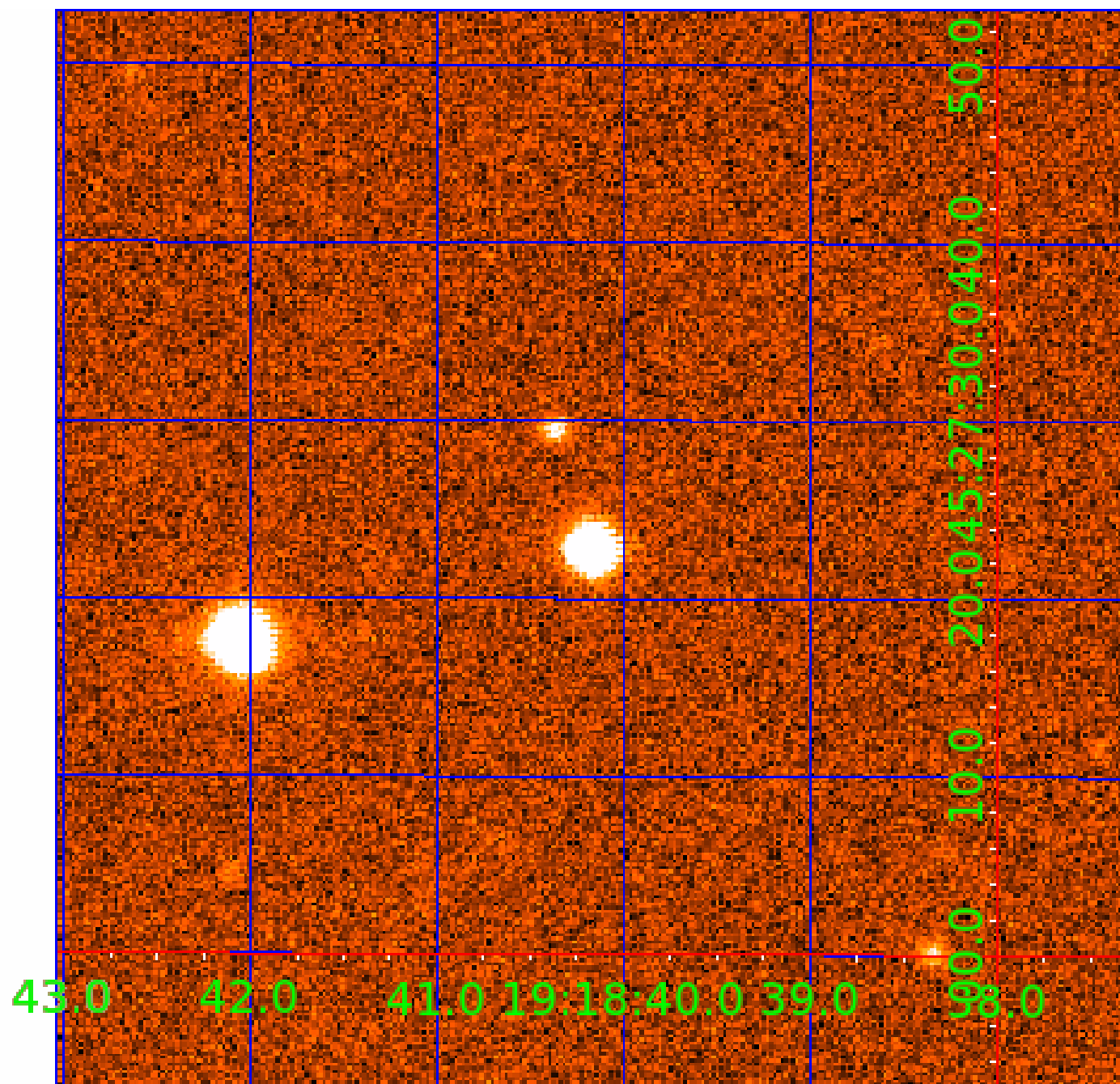


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009083354

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})
009083354-01	OBS	No	1.133313	131.538277	3469.0	3.000	11.9	-1.0	0.56	3923	3.24	214.15
009083354-02	OBS	No	143.437575	177.995380	3842.5	2.500	10.6	-1.0	0.56	3923	3.41	0.34
009083354-03	OBS	No	0.905471	132.018849	506.2	3.719	8.3	8.7	0.56	3923	2.60	288.86
009083354-04	OBS	No	71.175129	176.657308	6471.0	10.043	9.0	6.3	0.56	3923	4.41	0.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009083354-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
009083354-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
009083354-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009083354-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—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

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

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

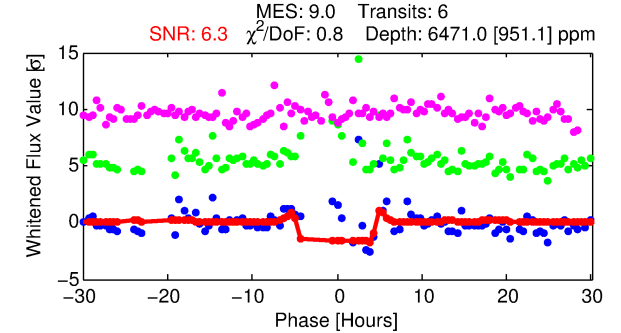
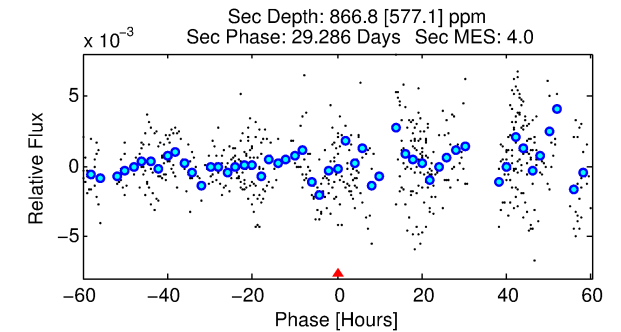
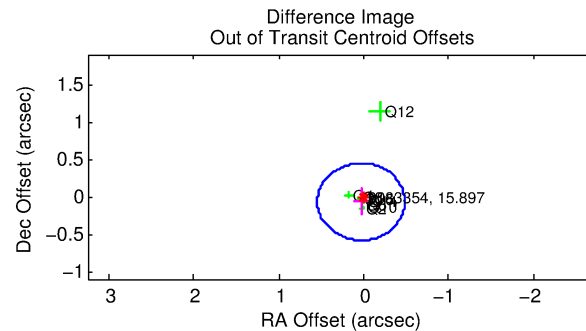
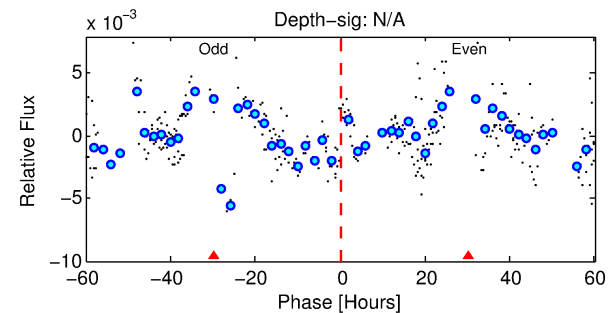
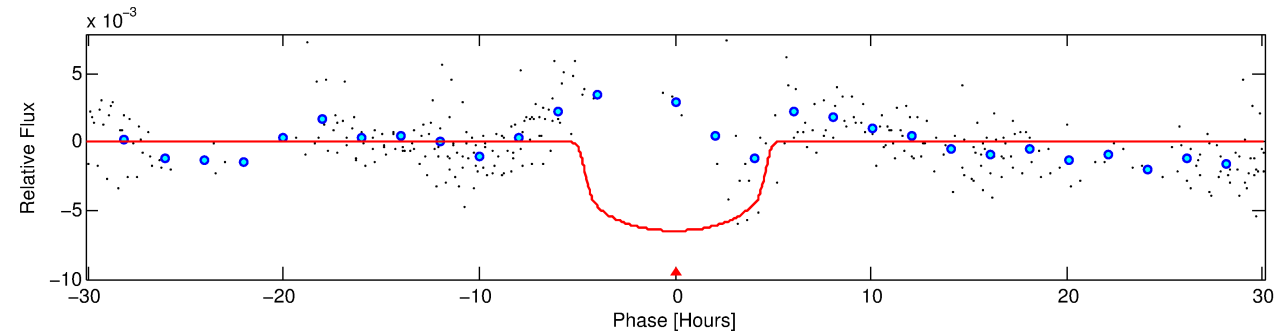
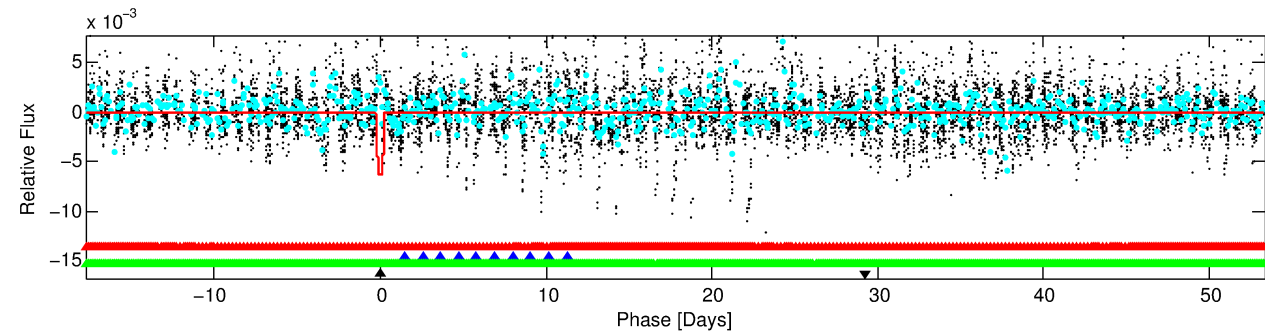
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009083354-04

No Significant Match Found

KIC: 9083354 Candidate: 4 of 4 Period: 71.175 d

KIC: 9083354 Candidate: 4 of 4 Period: 71.175 d



Period = 71.17513 [0.00110] d
Epoch = 176.6573 [0.0083] BKJD
Rp/R* = 0.0719 [0.0183]
a/R* = 58.04 [46.30]
b = 0.00 [183.32]
Seff = 0.86 [0.07]
Teq = 245 [5] K
Rp = 4.41 [1.14] Re
a = 0.2795 [0.0093] AU
Ag = 1914.67 [1606.80] [1.19σ]
Teff = 2510 [527] K [4.29σ]

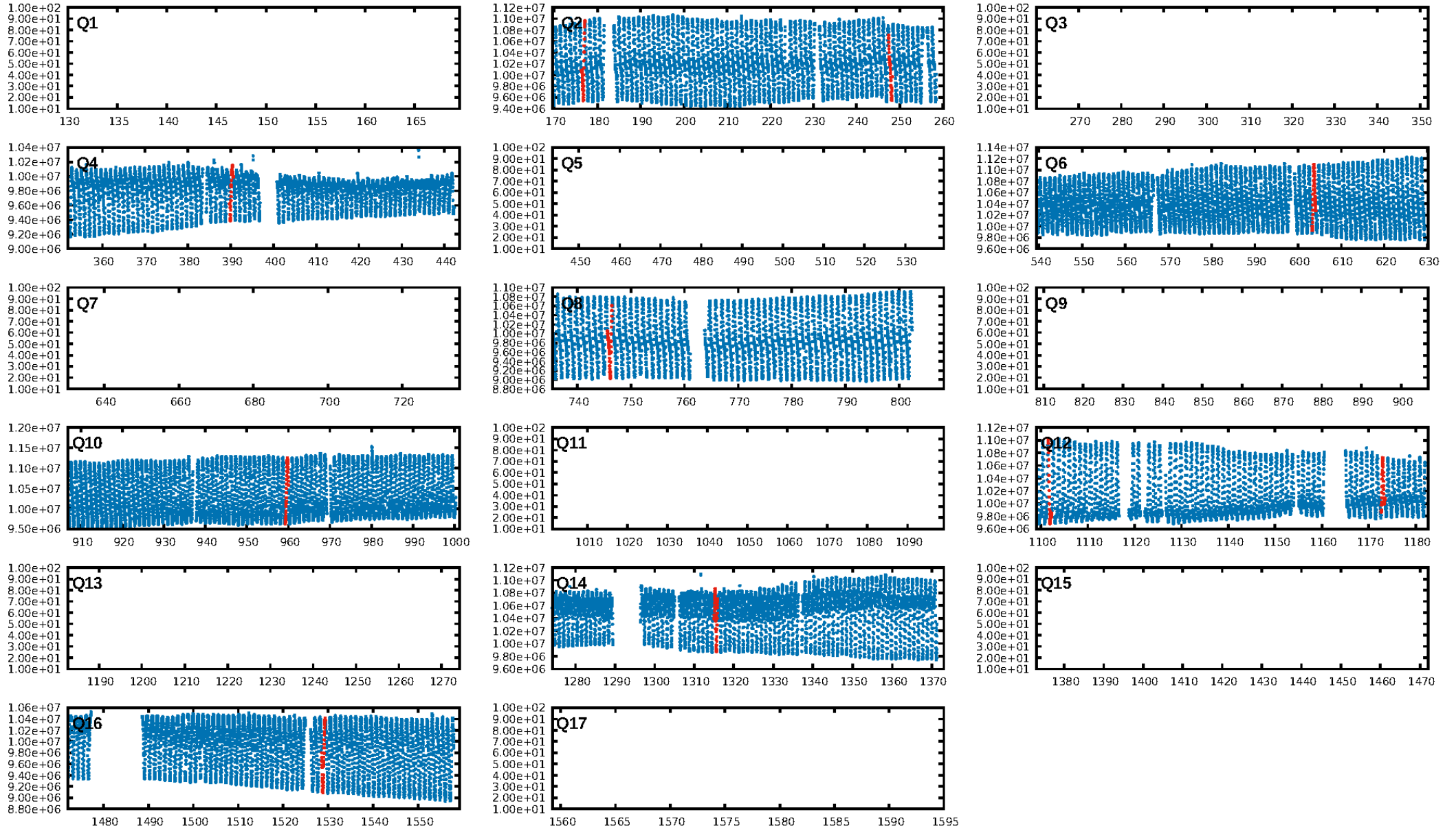
ShortPeriod-sig: 100.0% [160.39σ]
 LongPeriod-sig: 100.0% [167.58σ]
 ModelChiSquare2-sig: 12.9%
 ModelChiSquareGof-sig: 100.0%
 Bootstrap-pfa: 6.21e-13
 RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -1.2

Centroid-sig: N/A
 Centroid-so: 0.034 arcsec [0.21σ]
 OotOffset-rm: 0.075 arcsec [0.44σ]
 KicOffset-rm: 0.128 arcsec [0.94σ]
 OotOffset-st: 4/0/4/0 [8]
 KicOffset-st: 4/0/4/0 [8]
 DiffImageQuality-fgm: 0.62 [5/8]
 DiffImageOverlap-fno: 0.00 [0/8]

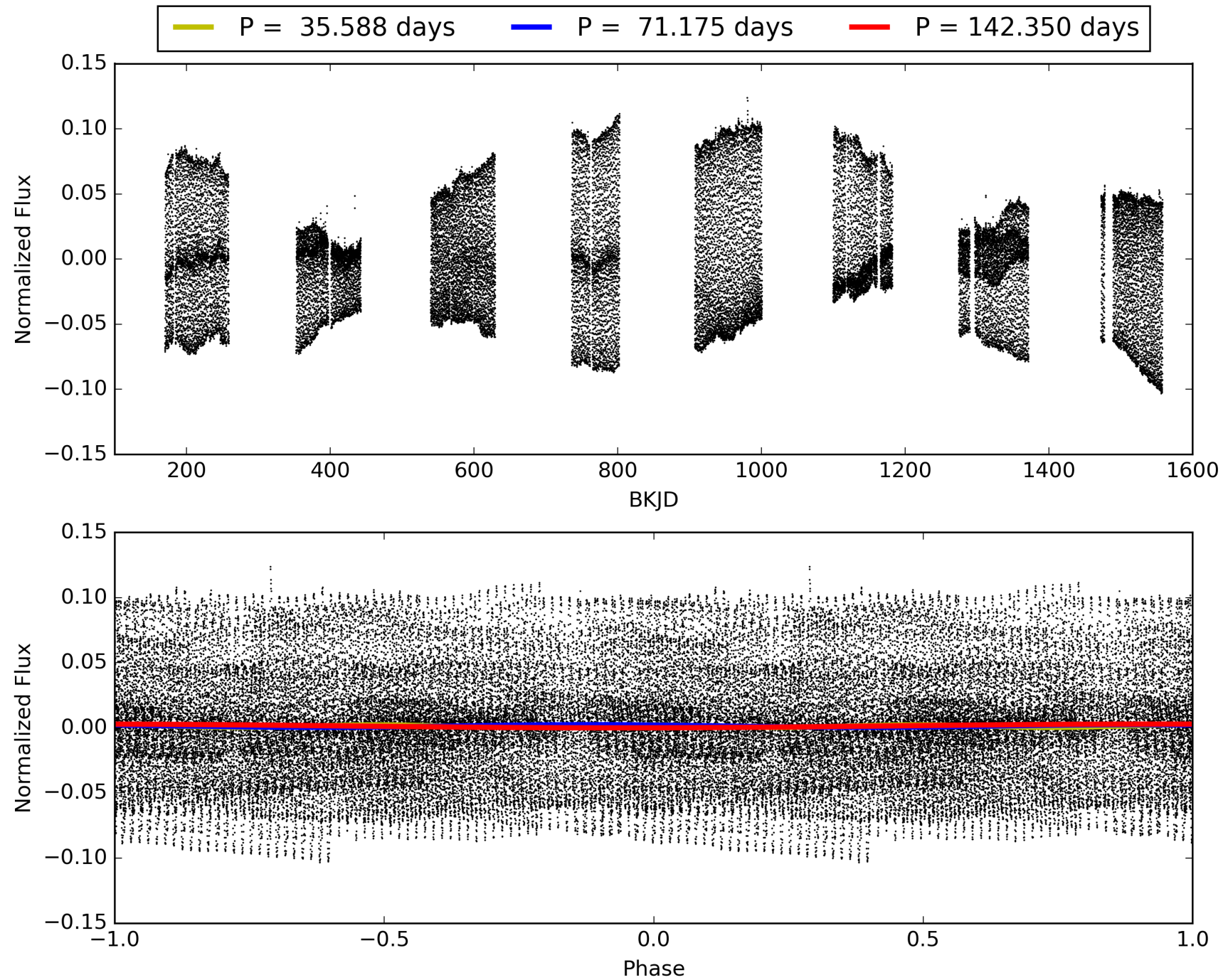
Software Revision: [svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958](https://murzim.repo.soc/tags/release/9.3.42@60958) -- Date Generated: 31-Jan-2016 15:41:42 Z

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

TCE 009083354-04, PDC Light Curves

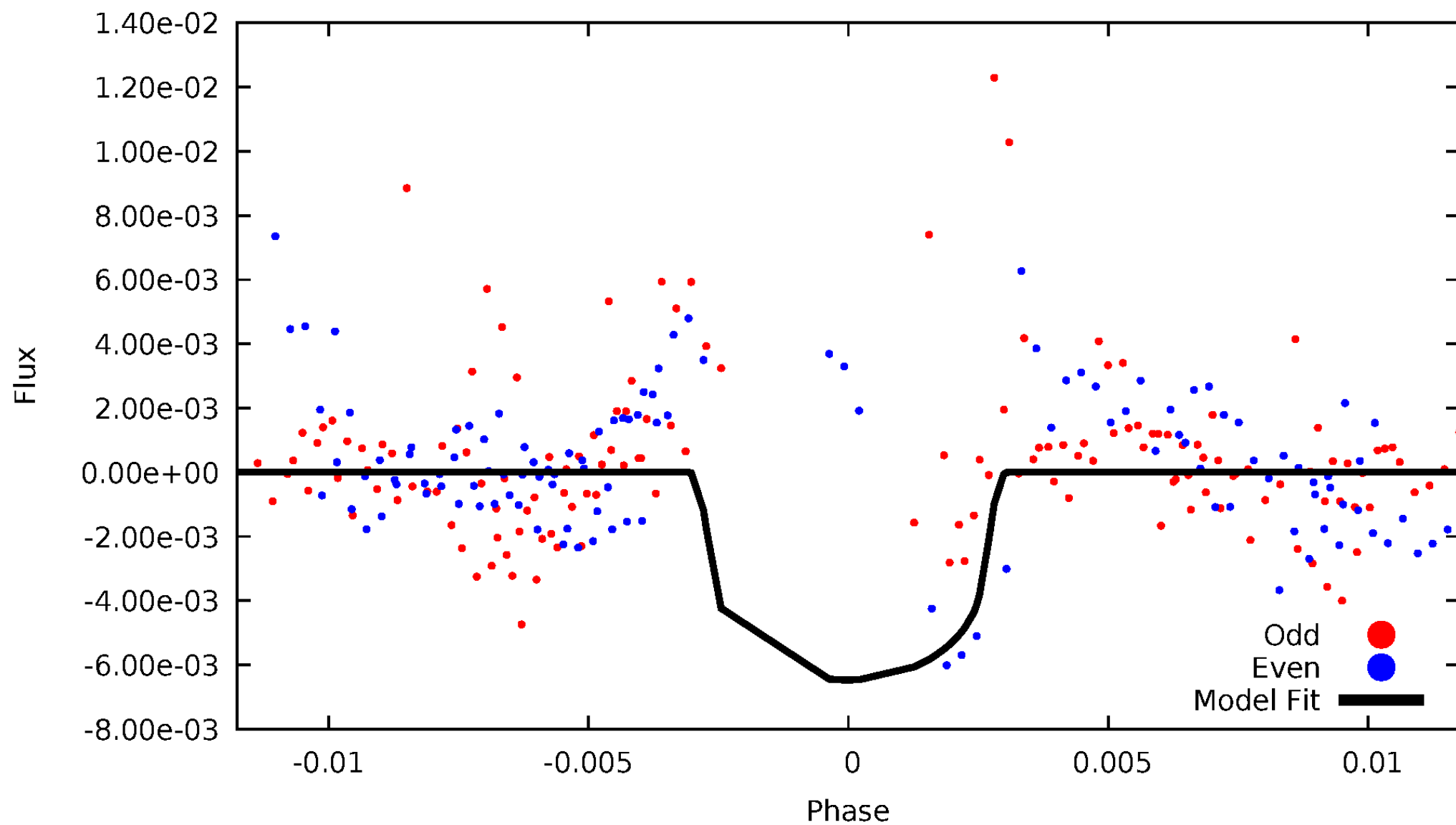


TCE 009083354-04



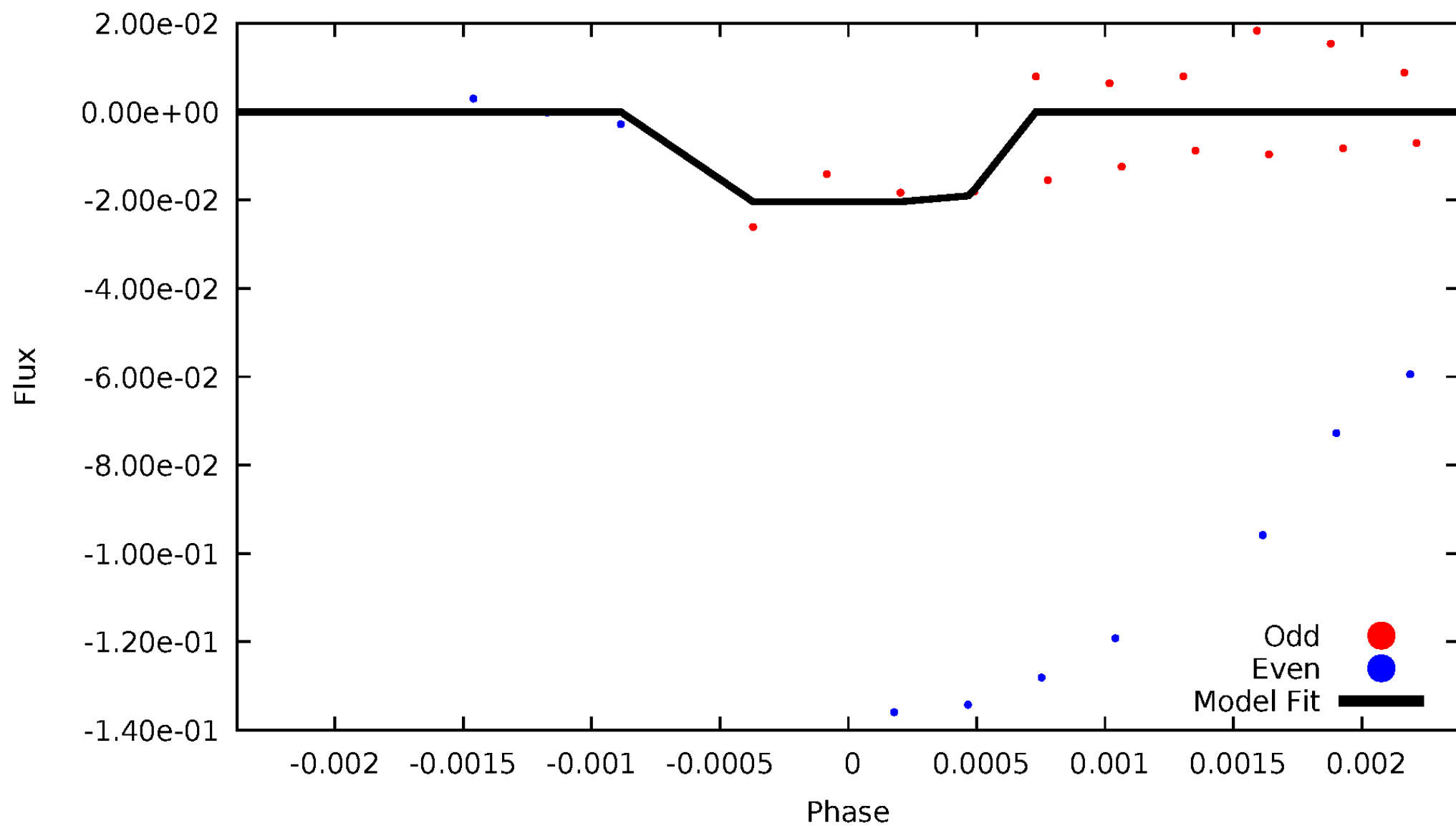
DV Odd/Even

TCE 009083354-04



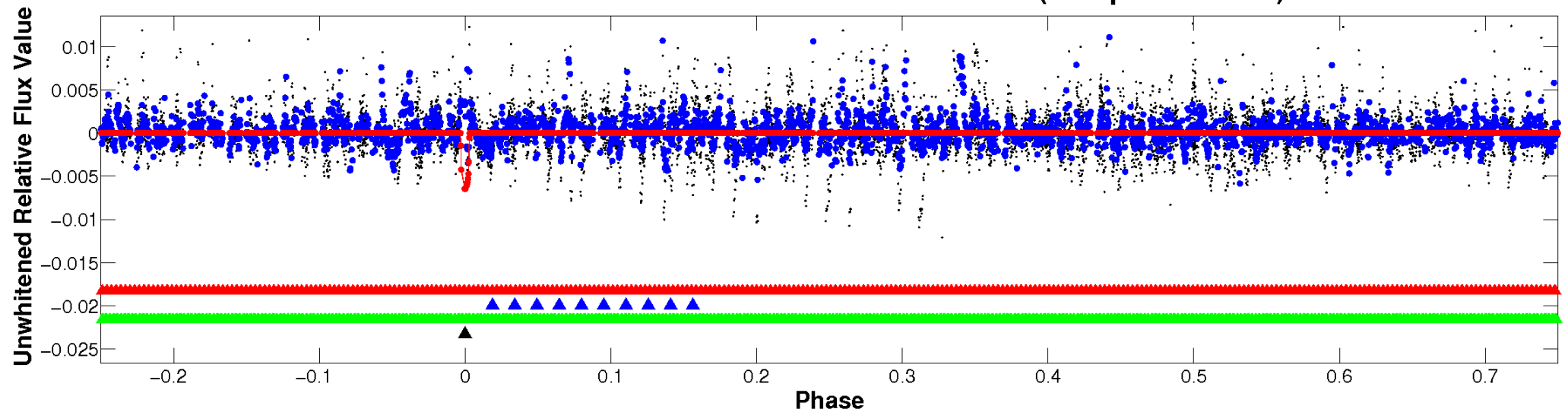
ALT Odd/Even

TCE 009083354-04

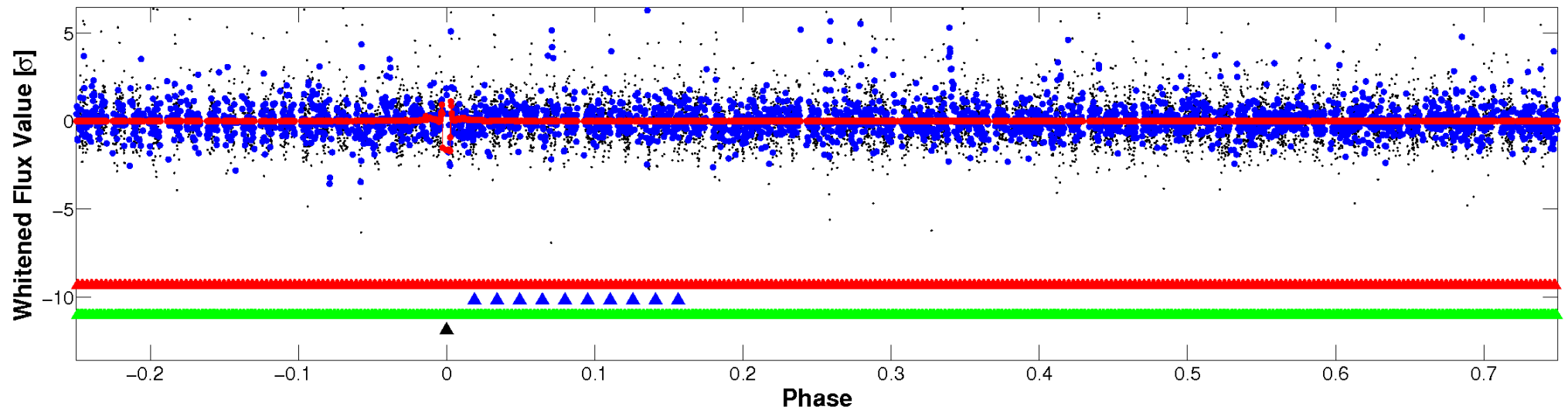


Non-Whitened Vs. Whitened Light Curve

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

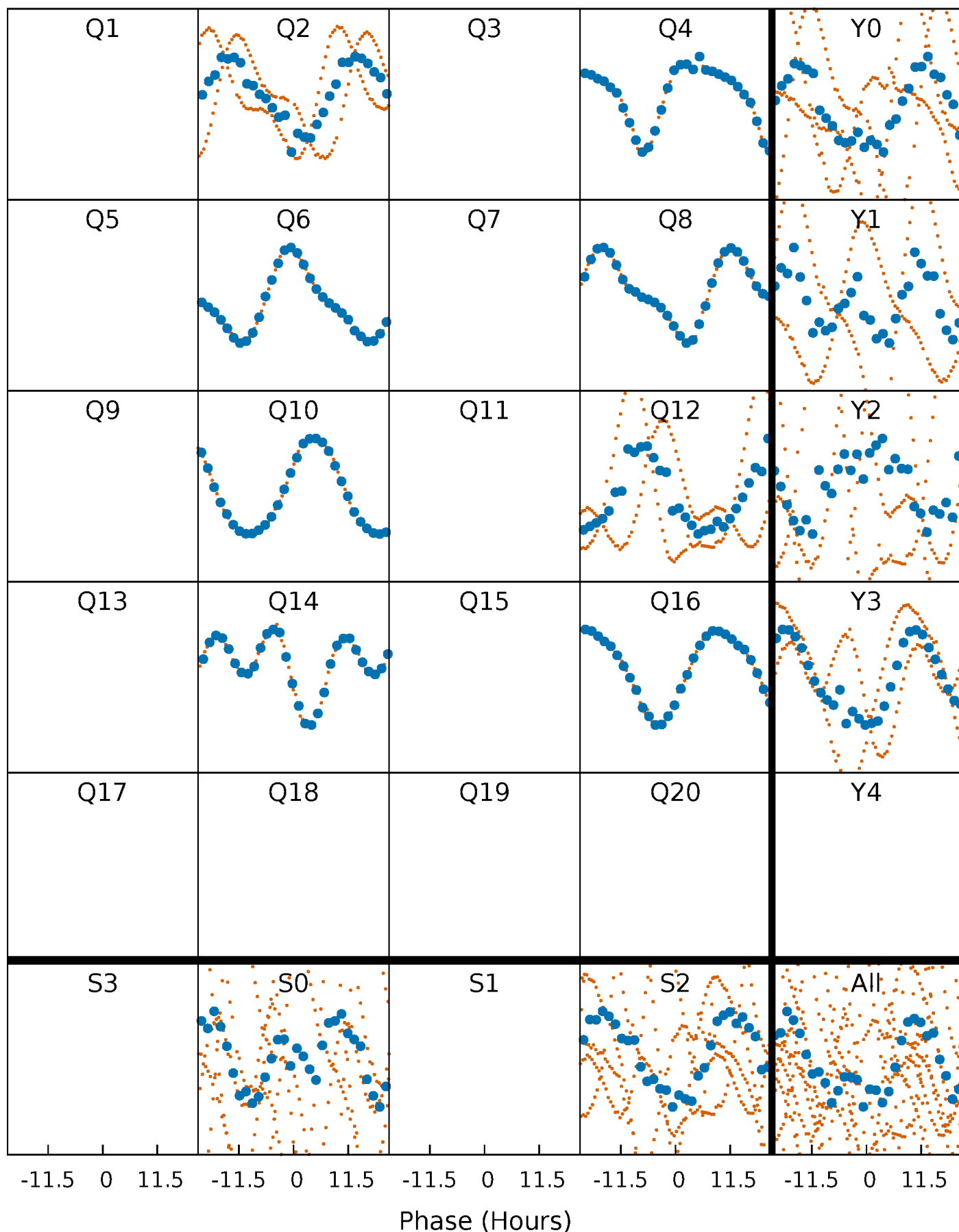


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



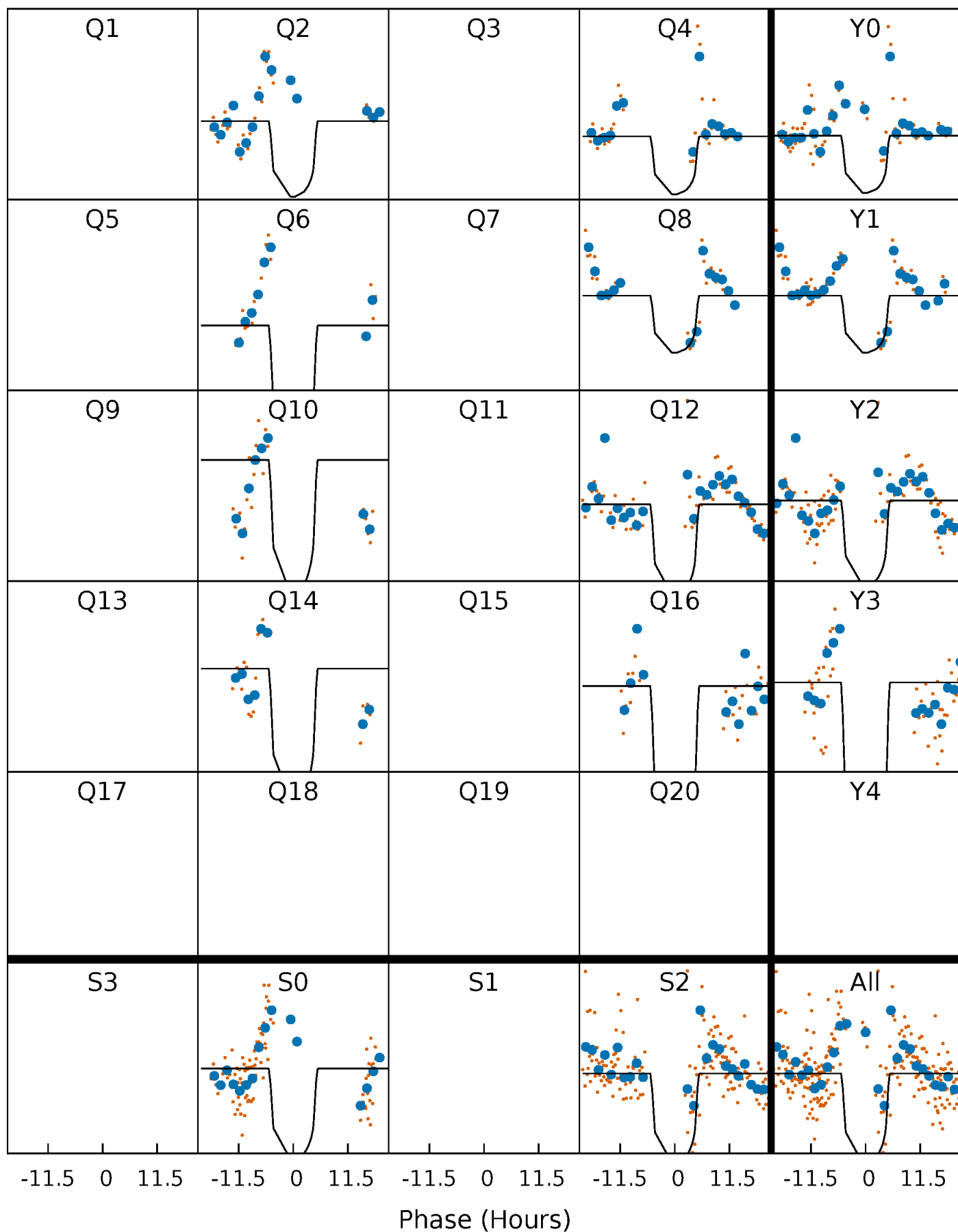
PDC Quarter-Phased Transit Curves

TCE 009083354-04 P= 71.175129 Days $T_0=176.657308$ (BKJD)



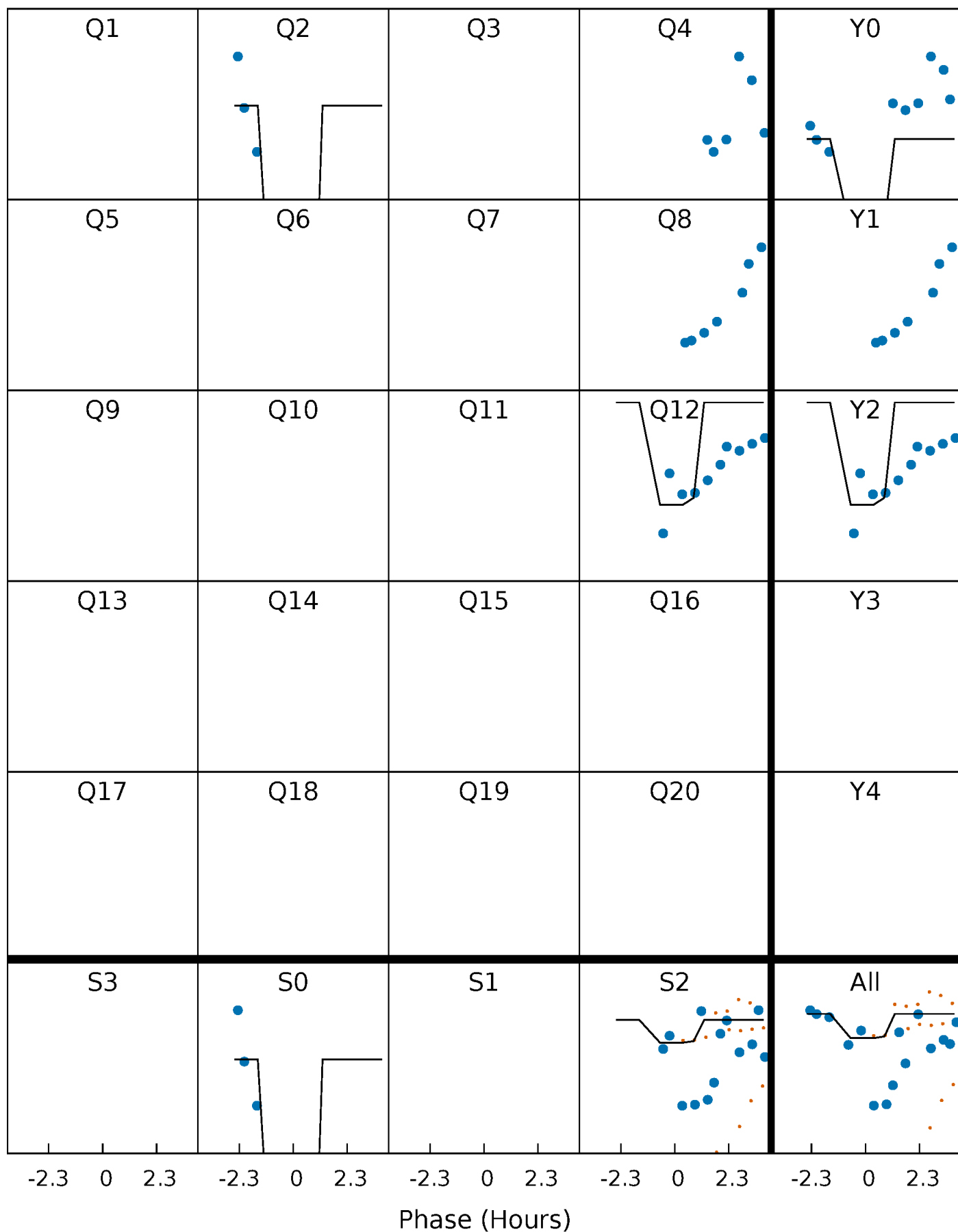
DV Quarter-Phased Transit Curves

TCE 009083354-04 $P = 71.175129$ Days $T_0 = 176.657308$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

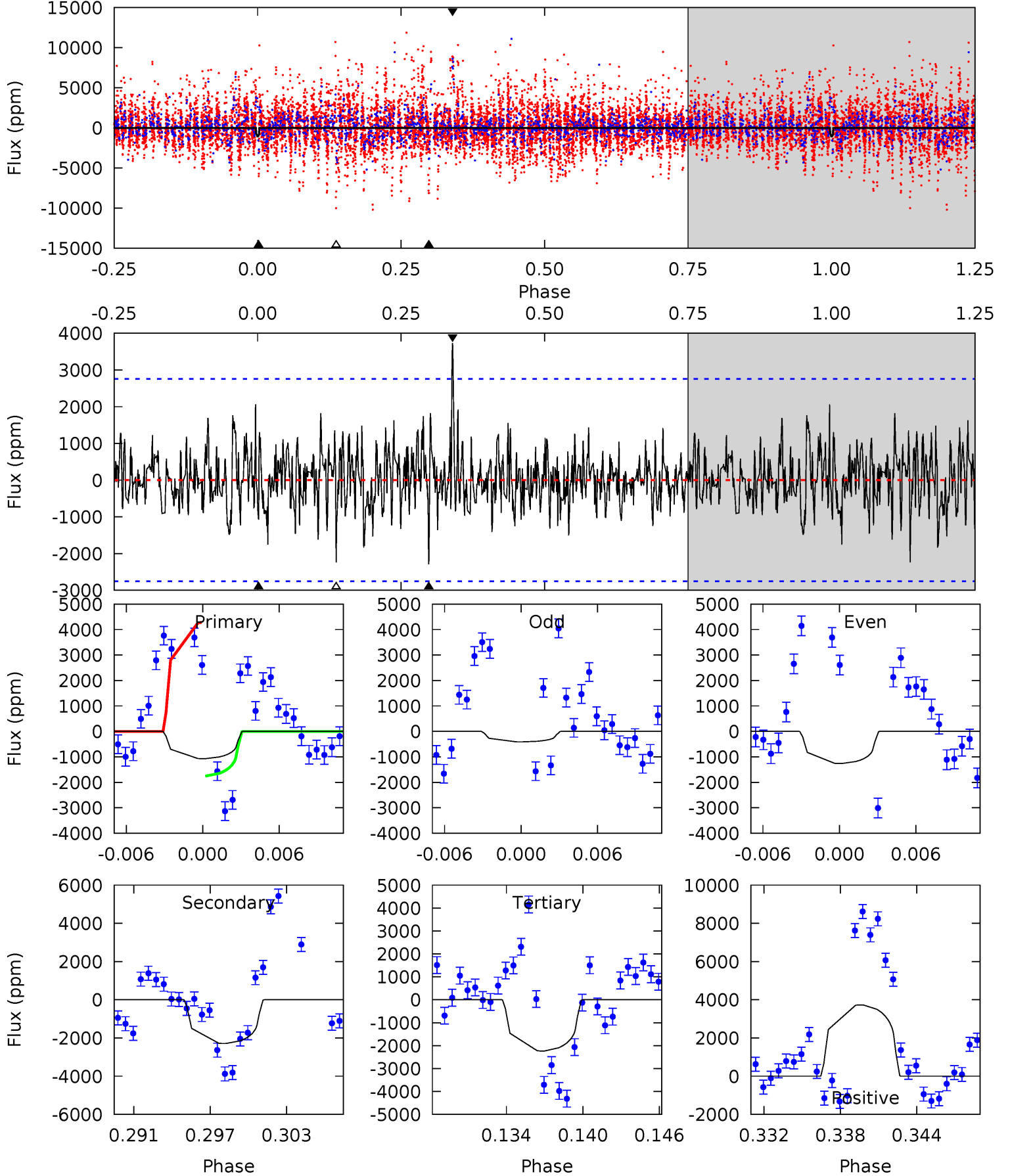
TCE 009083354-04 P= 71.178106 Days $T_0=176.735083$ (BKJD)



DV Model-Shift Uniqueness Test

009083354-04, P = 71.175129 Days, E = 105.482179 Days

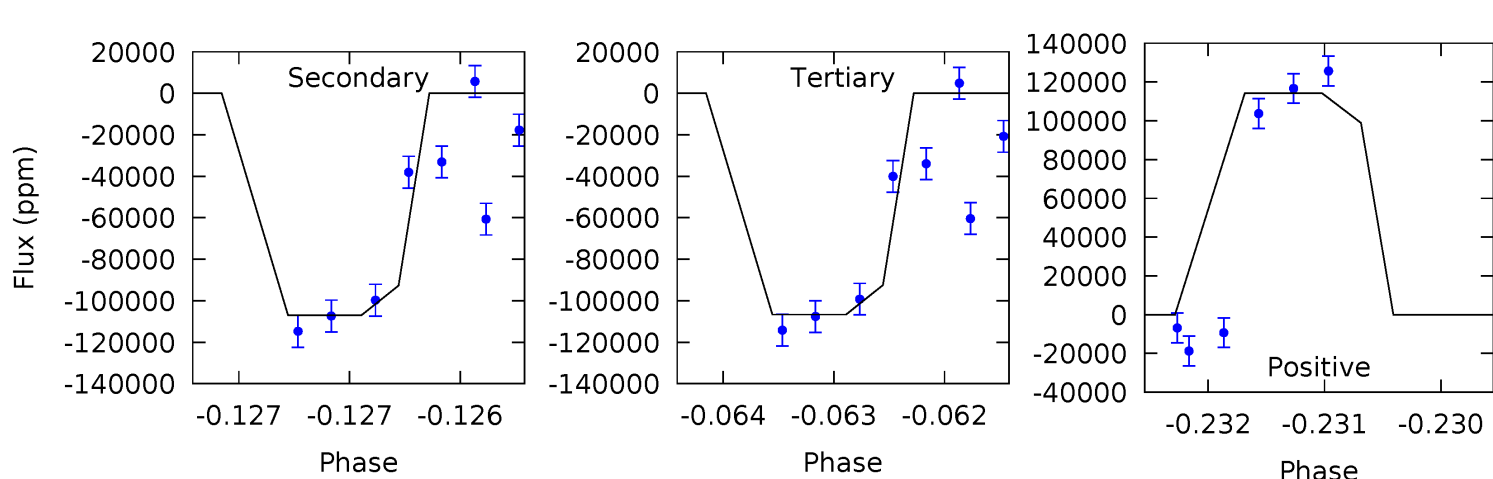
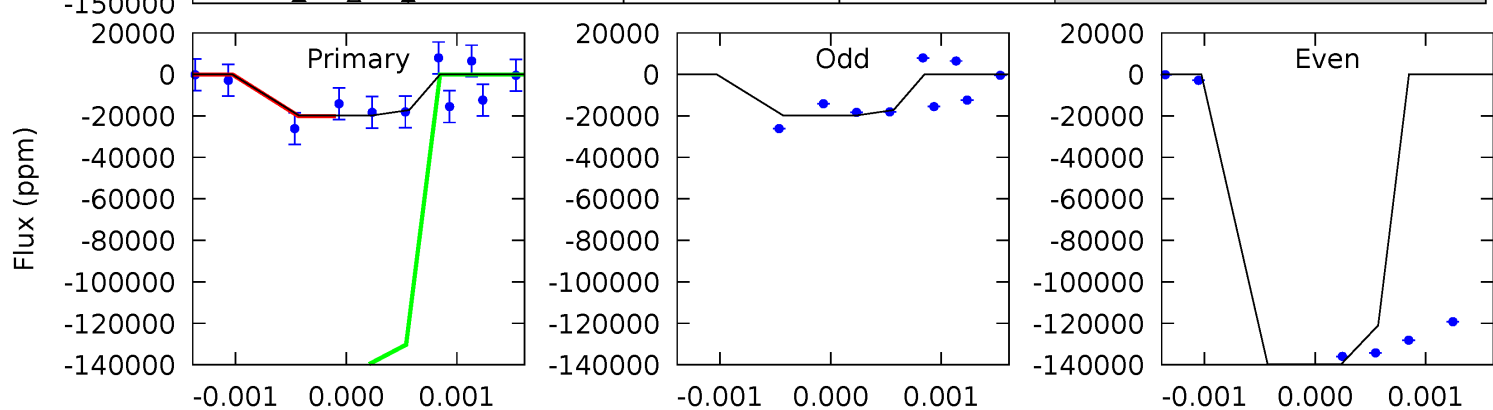
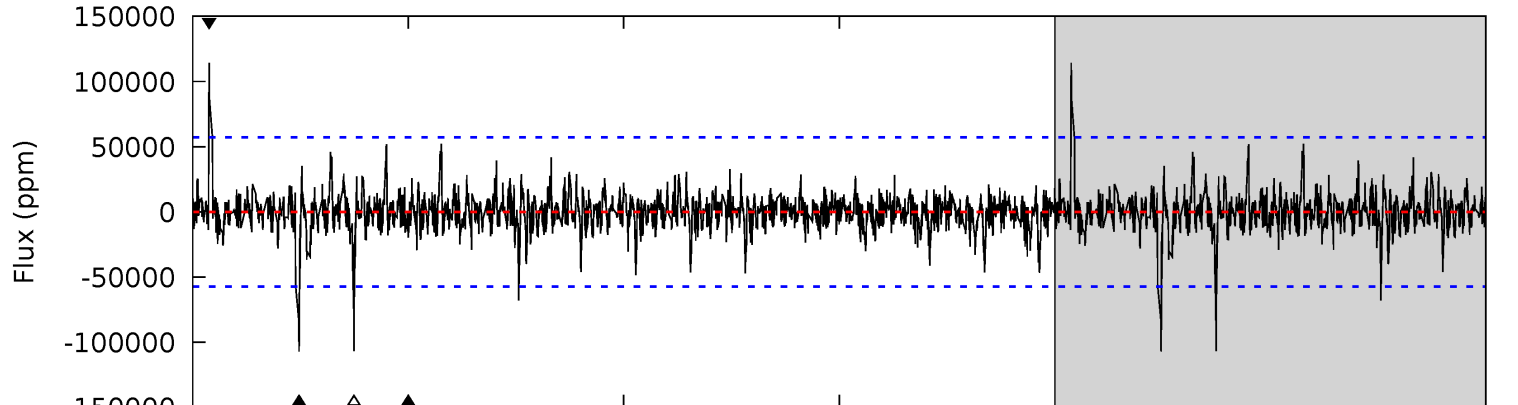
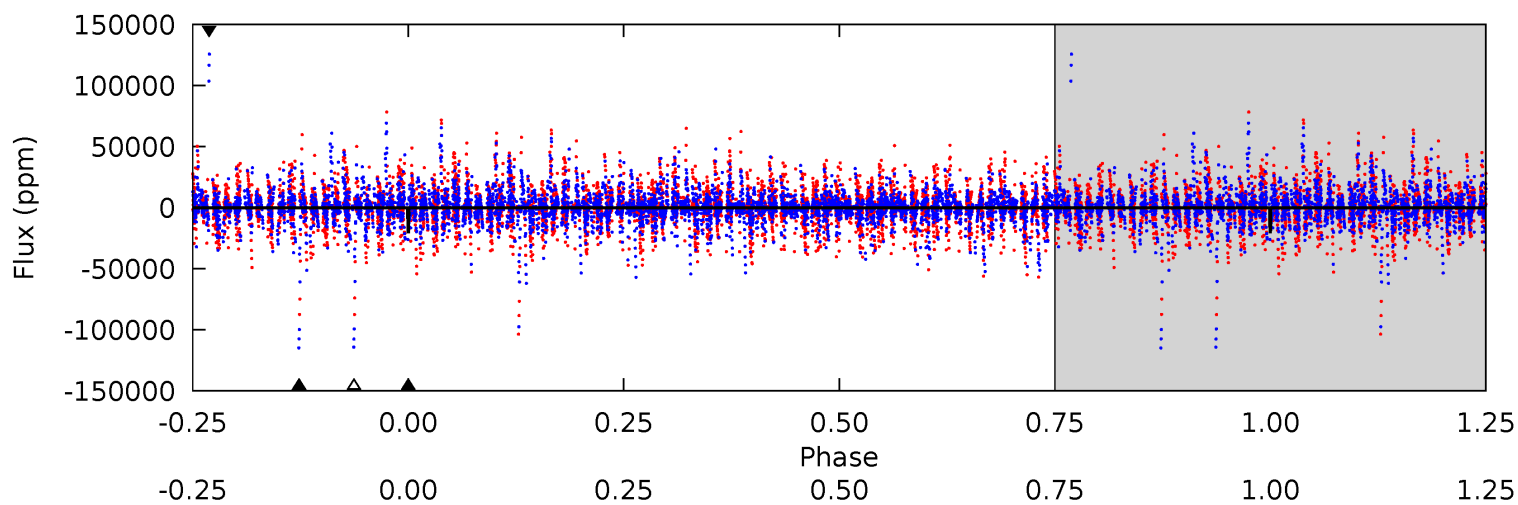
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.99	4.26	4.16	6.95	5.13	2.76	1.11	-2.17	-4.96	0.10	-2.69	0.74	0.48	0.62	2.14



Alt Model-Shift Uniqueness Test

009083354-04, P = 71.178106 Days, E = 105.556977 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.89	10.2	10.2	10.9	5.48	3.33	0.92	-8.33	-9.04	0.02	-0.69	6.23	1.00	0.52	6.75



Stellar Parameters For KIC 009083354

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3923^{+62}_{-62}	$4.698^{+0.022}_{-0.018}$	$0.000^{+0.100}_{-0.100}$	$0.562^{+0.020}_{-0.024}$	$0.576^{+0.023}_{-0.025}$	$4.558^{+0.463}_{-0.319}$
	+2%/-2%	+0%/-0%	+inf%/-inf%	+4%/-4%	+4%/-4%	+10%/-7%
Source	PHO2	PHO2	PHO2	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009083354-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2290 ± 537	$4.40^{+1.15}_{-1.19}$	343^{+6}_{-6}	3438^{+391}_{-276}	5161^{+4753}_{-2102}
Alt.	-106939 ± 10440	$8.70^{+1.14}_{-1.08}$	343^{+6}_{-6}	5615^{+432}_{-354}	67969^{+24995}_{-15819}

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 $A_{obs} \gg 1.0$

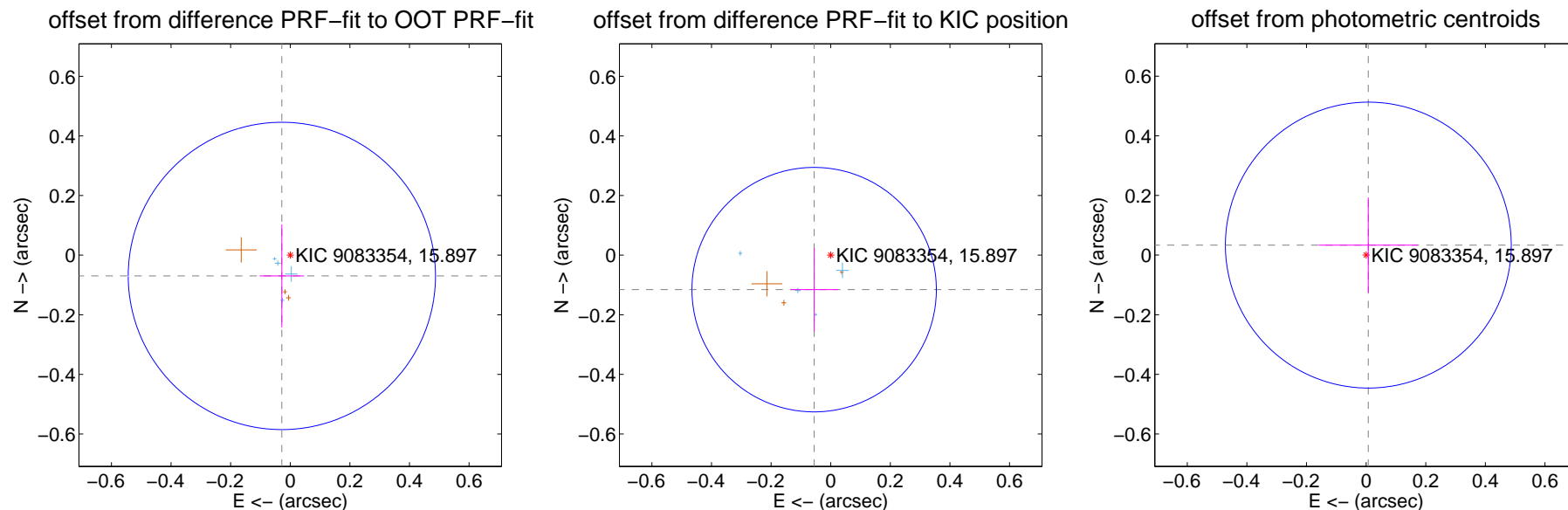
DV Centroid Data

Supplemental centroid analysis for 009083354-04. Kepler magnitude: 15.90. Transit SNR 6.30

There are 5 quarters with good PRF difference image offsets

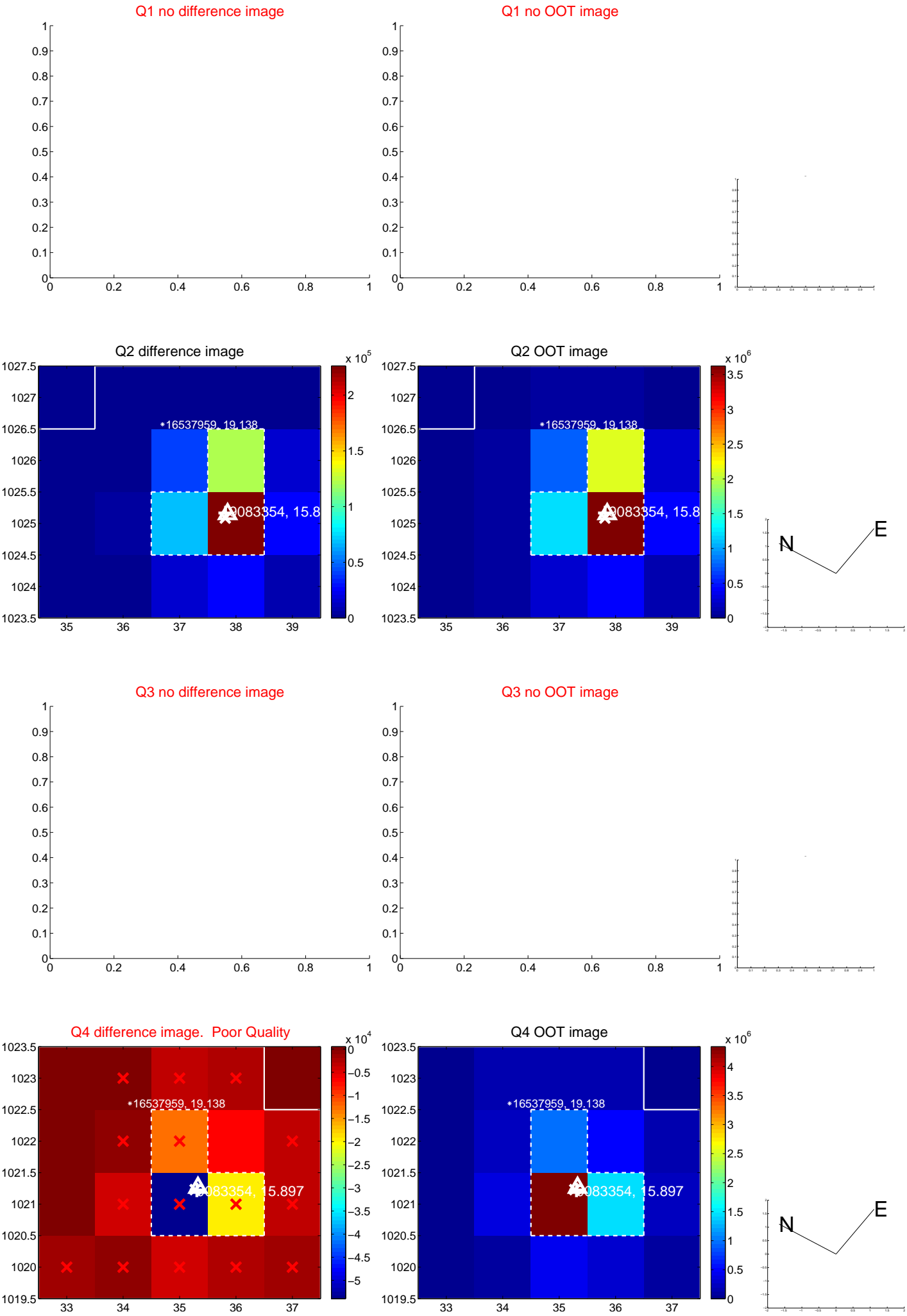
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.075 ± 0.172	0.44	0.028 ± 0.075	-0.070 ± 0.173
PRF-fit source offset from KIC position	0.128 ± 0.137	0.94	0.056 ± 0.079	-0.116 ± 0.140
photometric centroid source offset	0.03 ± 0.16	0.21	-0.01 ± 0.17	0.03 ± 0.16

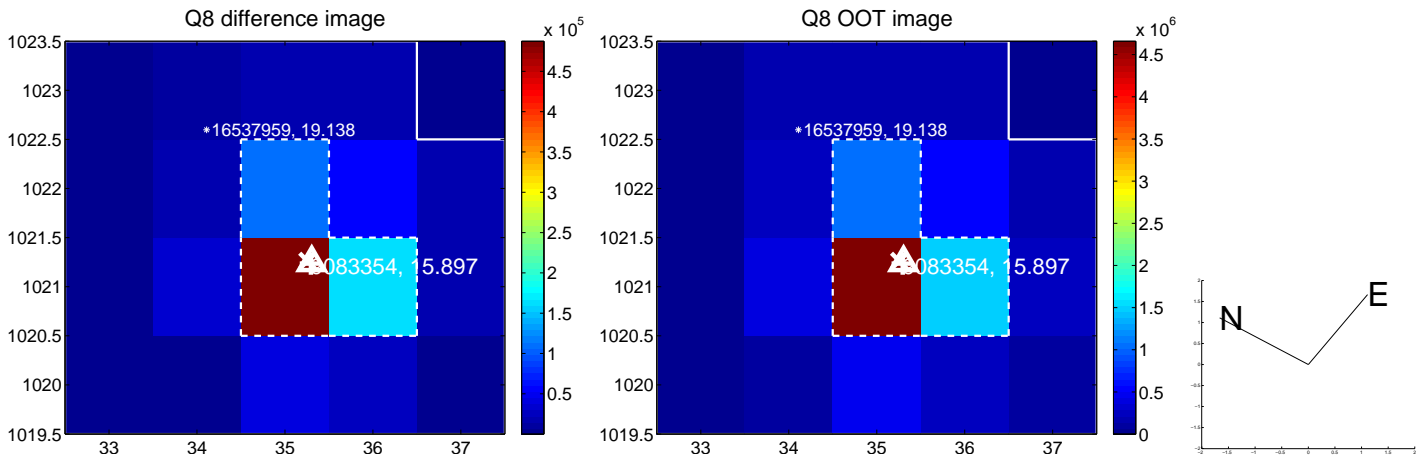
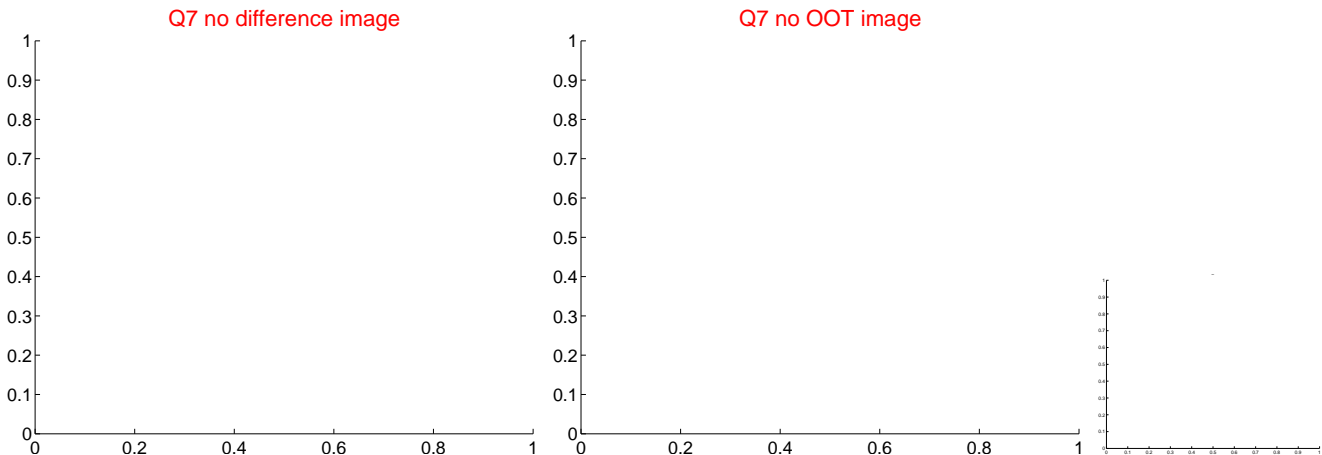
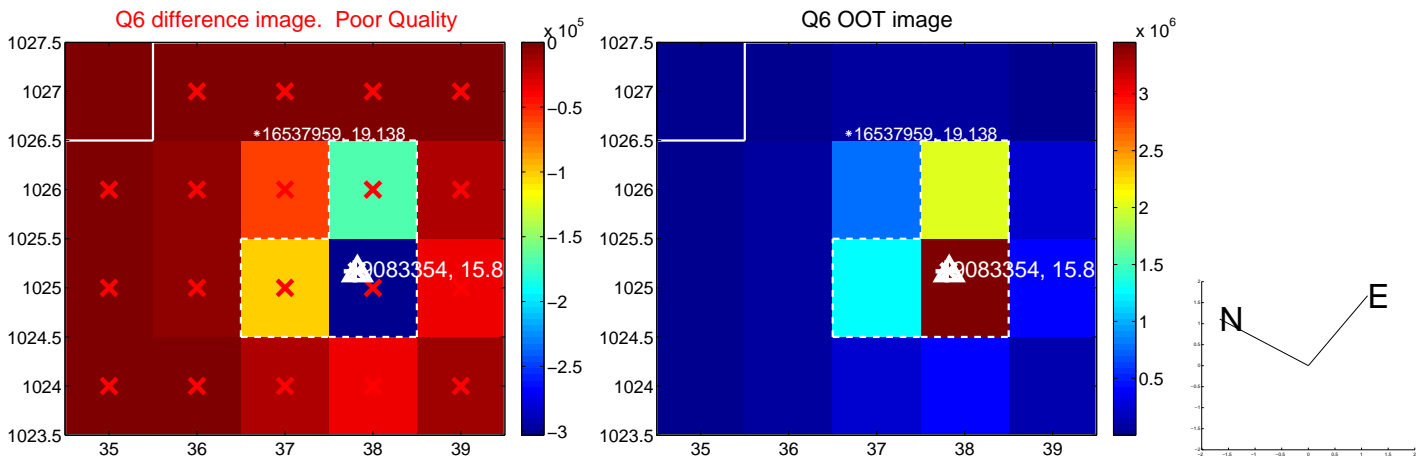
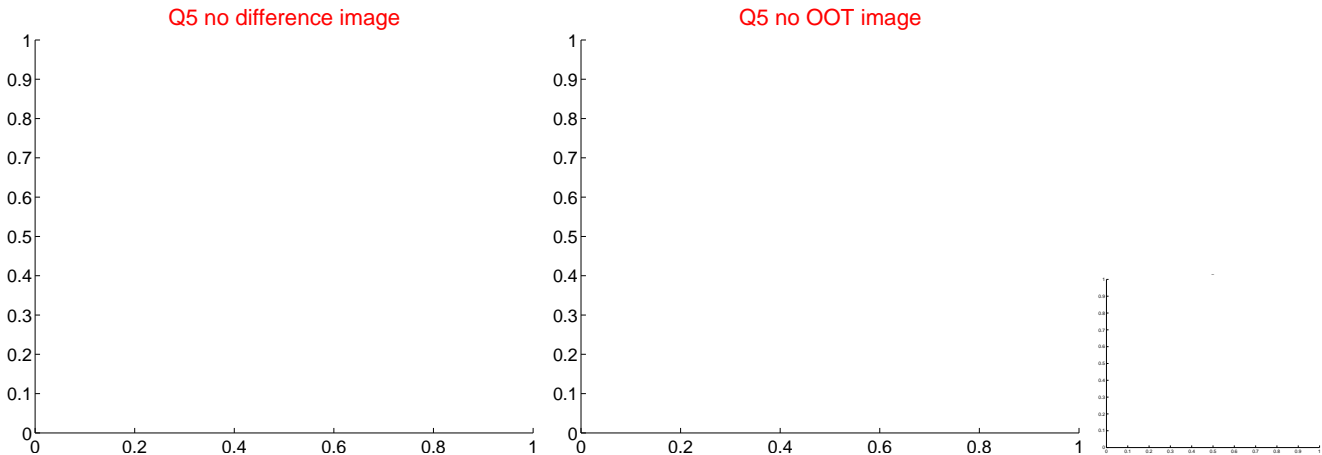


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

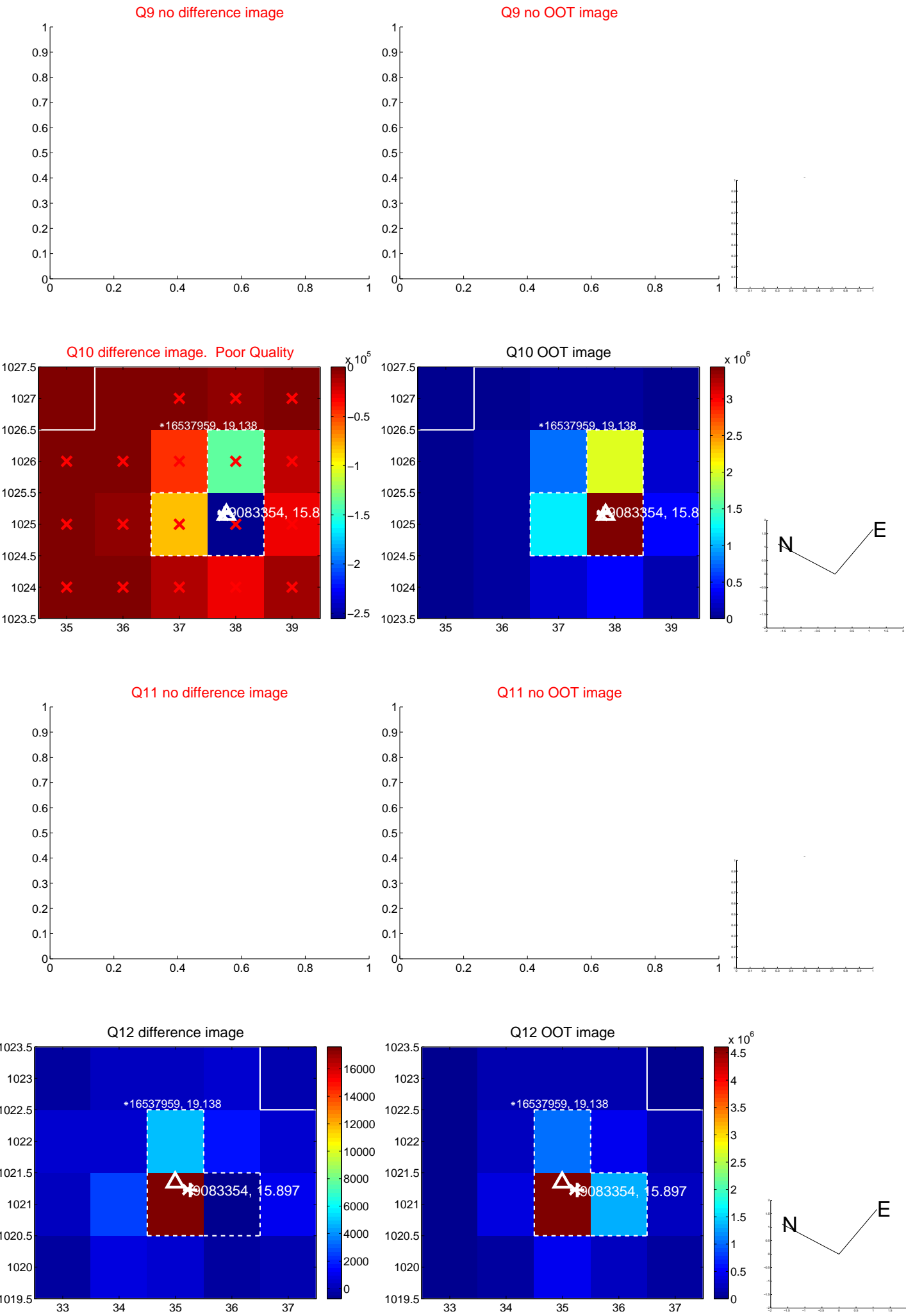
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



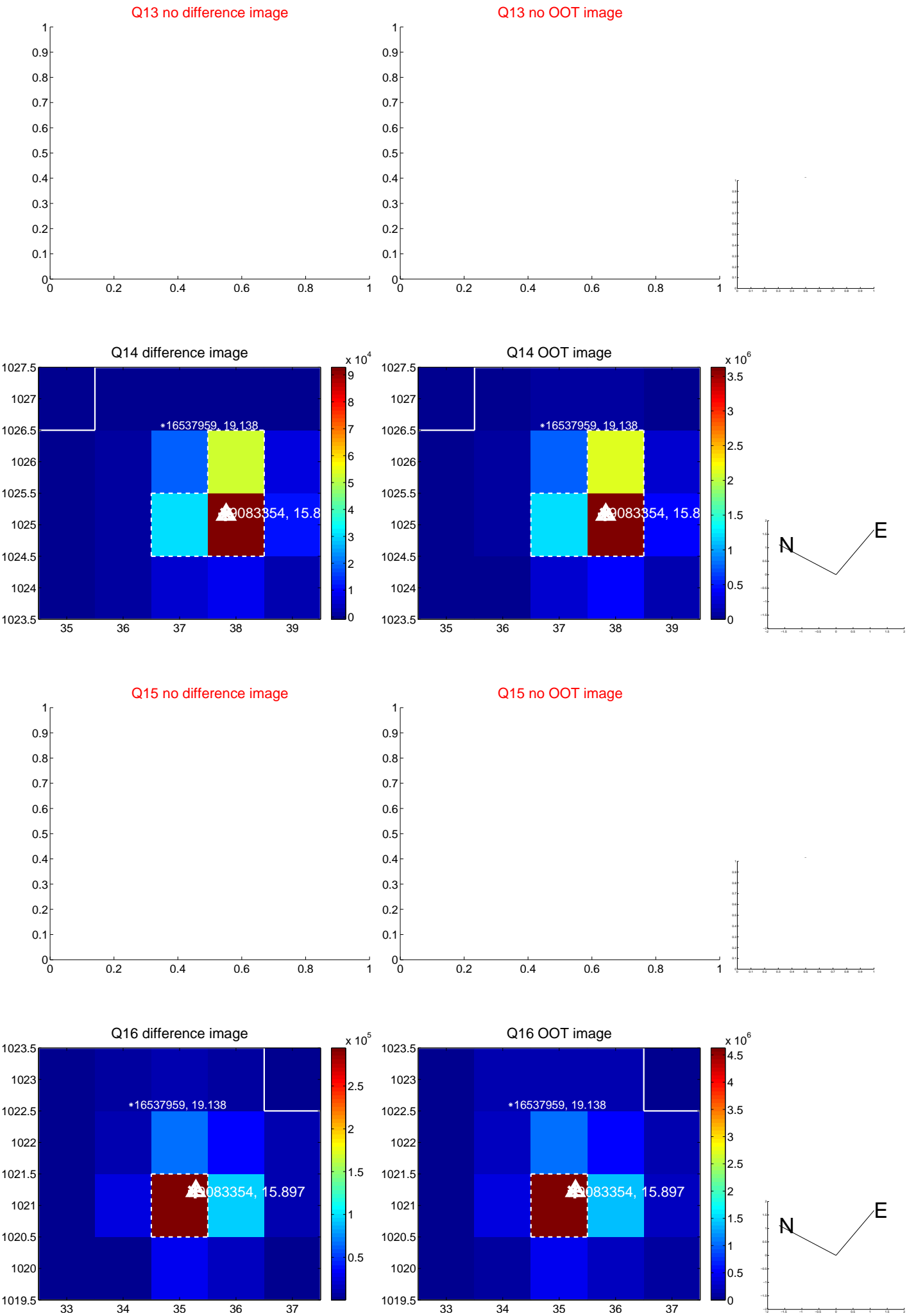
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



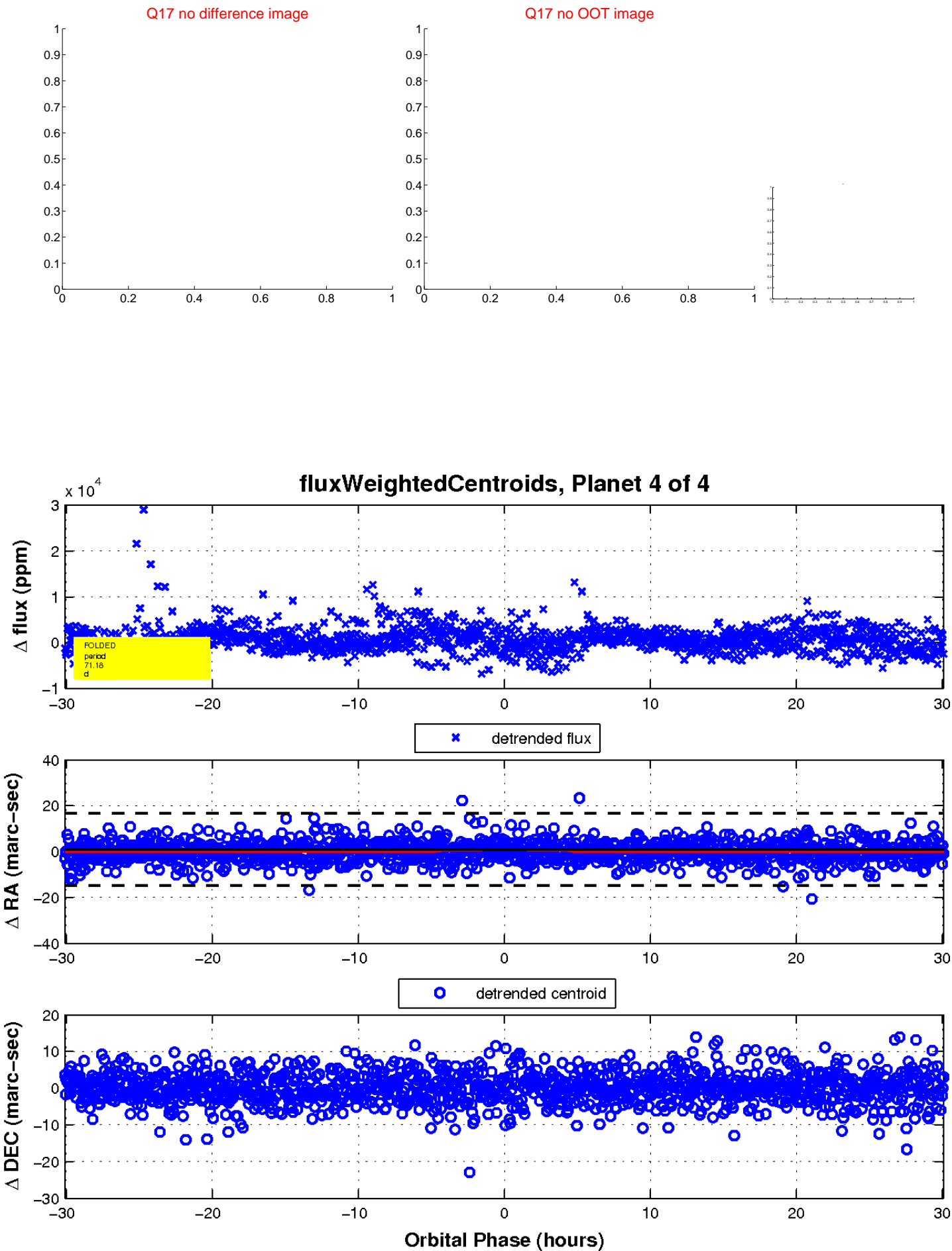
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

