

KIC 005689351

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})
005689351-01	OBS	0505.01	13.767106	133.510150	689.0	3.070	35.3	39.2	0.76	5001	2.46	29.59
005689351-02	OBS	0505.05	87.090728	187.315954	1119.4	6.729	31.2	31.2	0.76	5001	2.87	2.53
005689351-03	OBS	0505.03	3.250590	133.696199	206.9	2.279	20.3	22.5	0.76	5001	1.40	202.79
005689351-04	OBS	0505.04	8.348186	136.838888	304.2	3.255	20.0	22.0	0.76	5001	1.74	57.66
005689351-05	OBS	0505.02	6.195489	134.711926	252.4	2.949	18.1	20.3	0.76	5001	1.47	85.81
005689351-06	OBS	No	199.591596	203.553758	327.6	10.850	10.8	6.1	0.76	5001	1.54	0.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005689351-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT
005689351-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

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

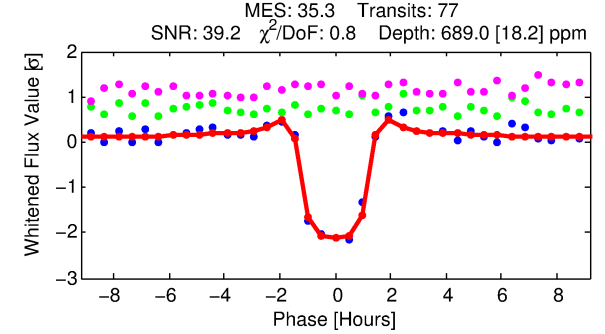
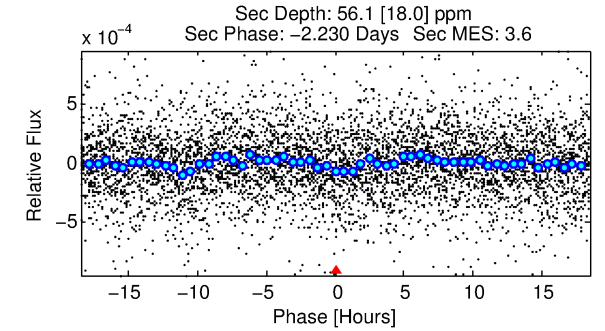
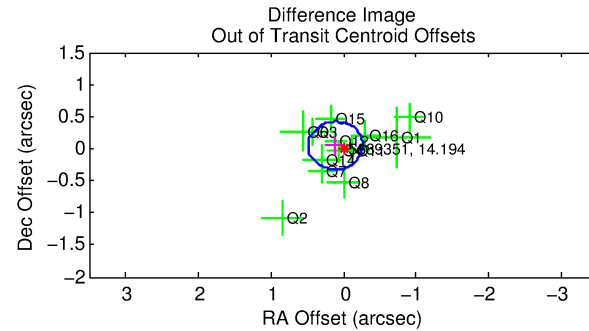
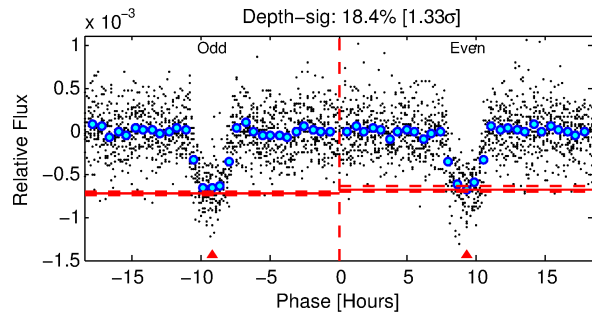
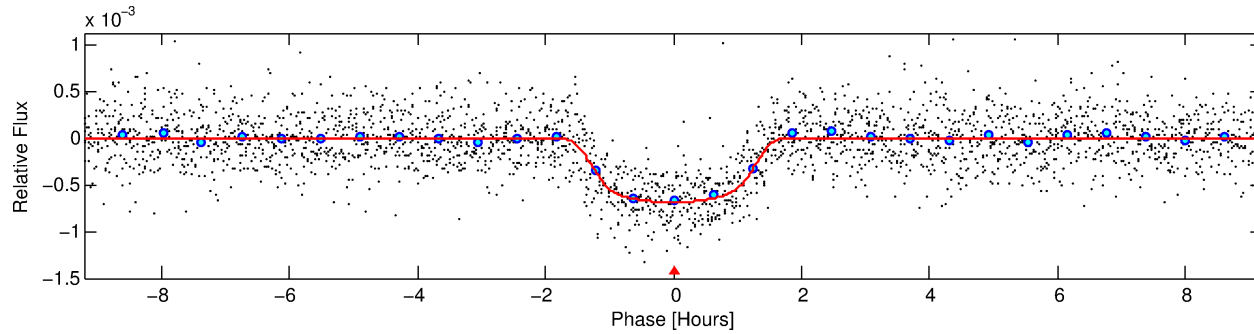
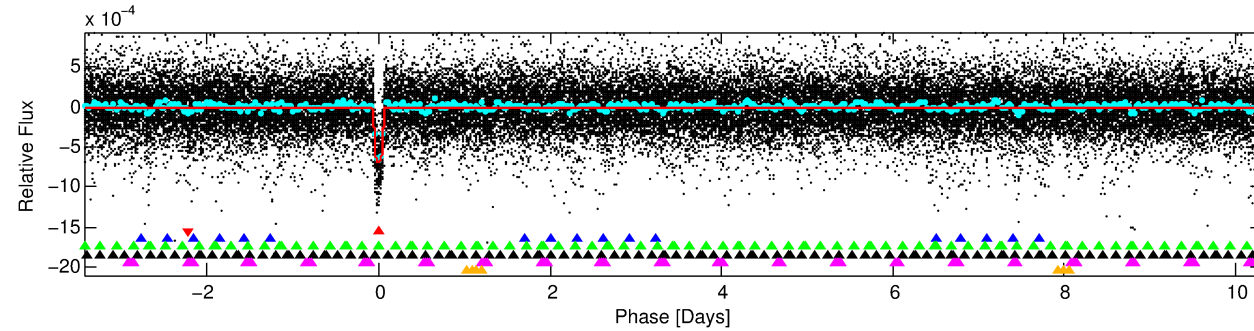
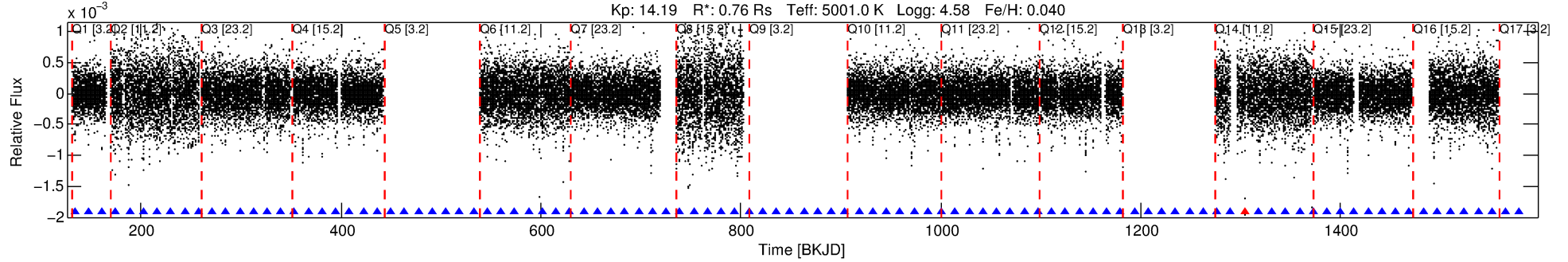
Ephemeris Match Information For 005689351-01

No Significant Match Found

DV One-Page Summary

KIC: 5689351 Candidate: 1 of 6 Period: 13.767 d
KOI: K00505.01 Name: Kepler-169e Corr: 0.988

Kp: 14.19 R*: 0.76 Rs Teff: 5001.0 K Logg: 4.58 Fe/H: 0.040



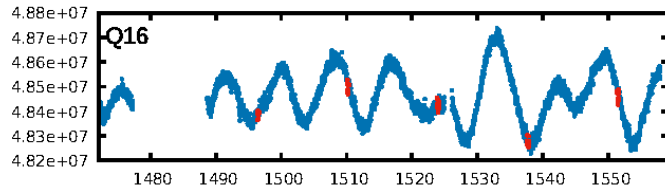
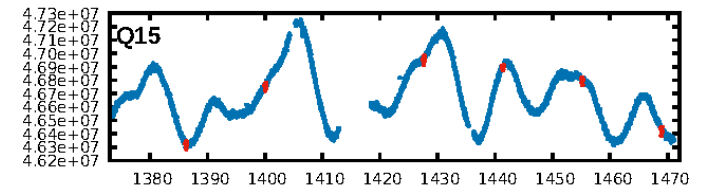
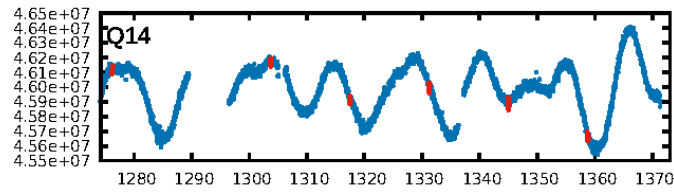
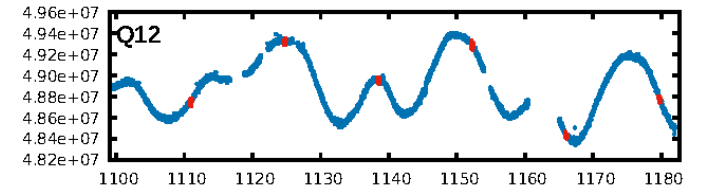
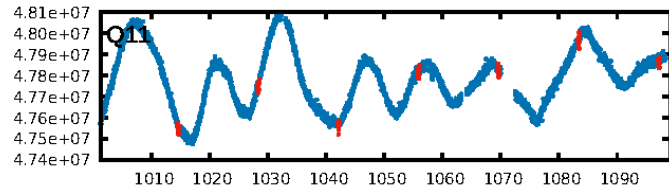
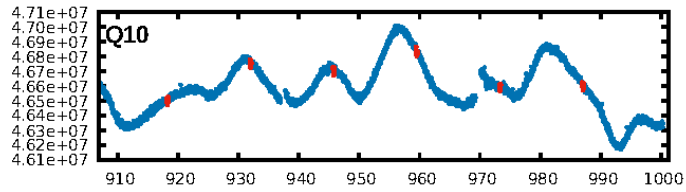
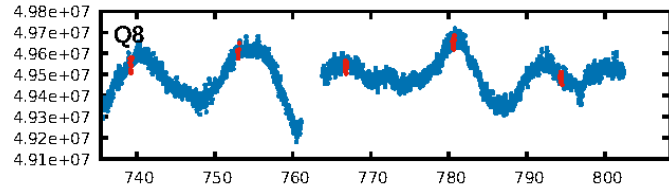
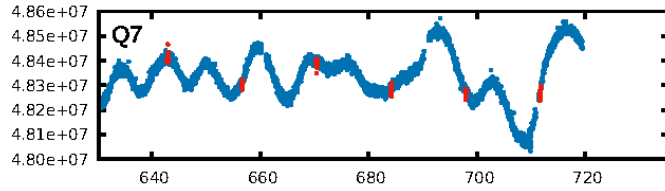
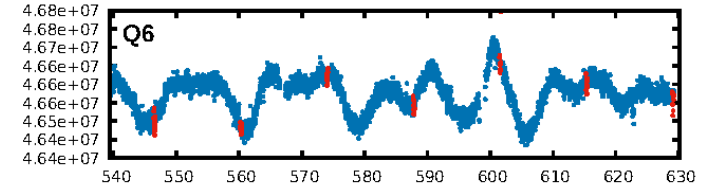
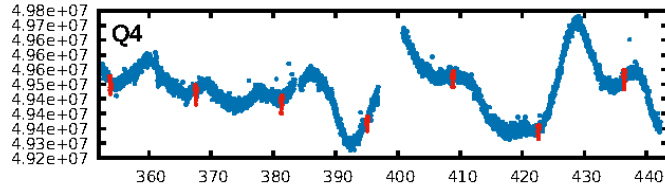
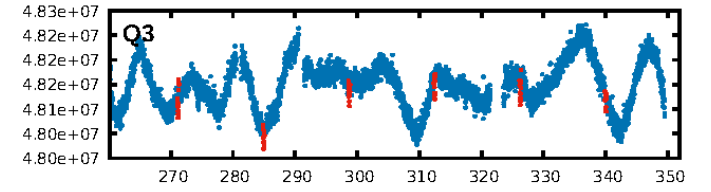
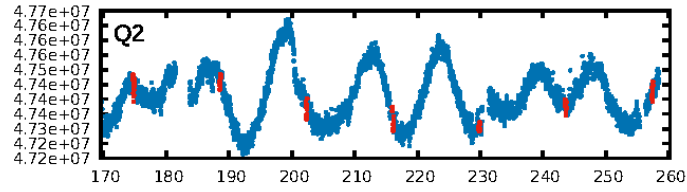
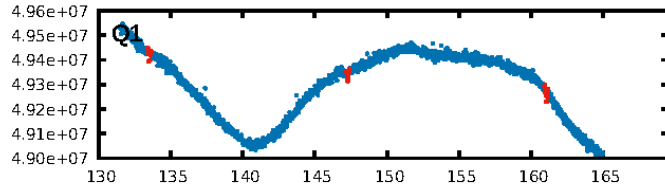
DV Fit Results:

Period = 13.76711 [0.00002] d
Epoch = 133.5101 [0.0014] BKJD
Rp/R* = 0.0297 [0.0016]
a/R* = 16.64 [3.22]
b = 0.91 [0.04]
Seff = 29.59 [3.42]
Teff = 595 [17] K
Rp = 2.46 [0.20] Re
a = 0.1046 [0.0057] AU
Ag = 55.85 [19.44] [2.82σ]
Teffp = 2514 [218] K [8.77σ]

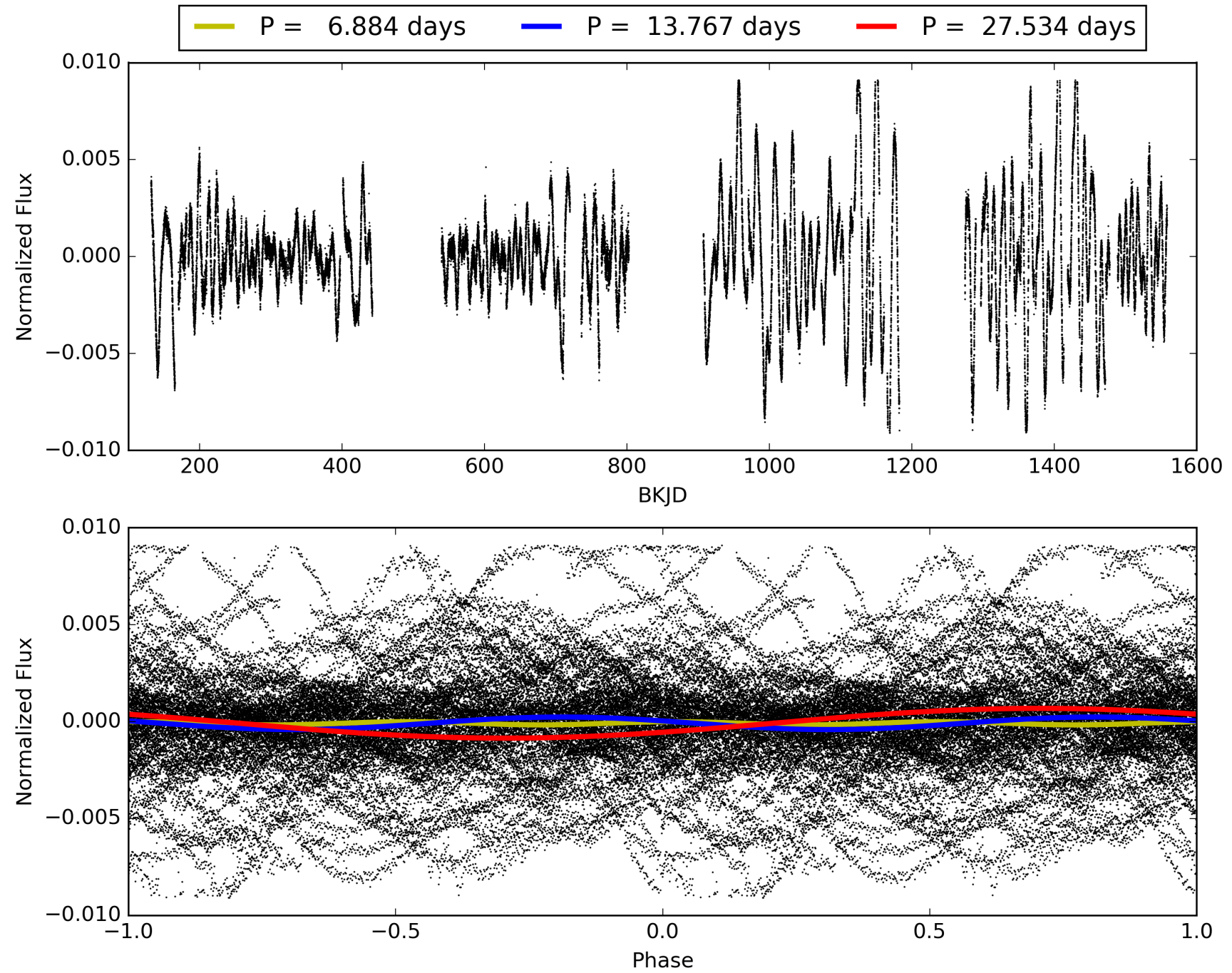
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [29.06σ]
LongPeriod-sig: 100.0% [237.93σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.25e-253
RollingBand-fgt: 0.99 [73/74]
GhostDiagnostic-chr: 10.12
Centroid-sig: 21.4%
Centroid-so: 0.288 arcsec [1.11σ]
OotOffset-rm: 0.121 arcsec [0.97σ]
KicOffset-rm: 0.270 arcsec [2.16σ]
OotOffset-st: 4/4/4/1 [13]
KicOffset-st: 4/4/4/1 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [13/13]

TCE 005689351-01, PDC Light Curves

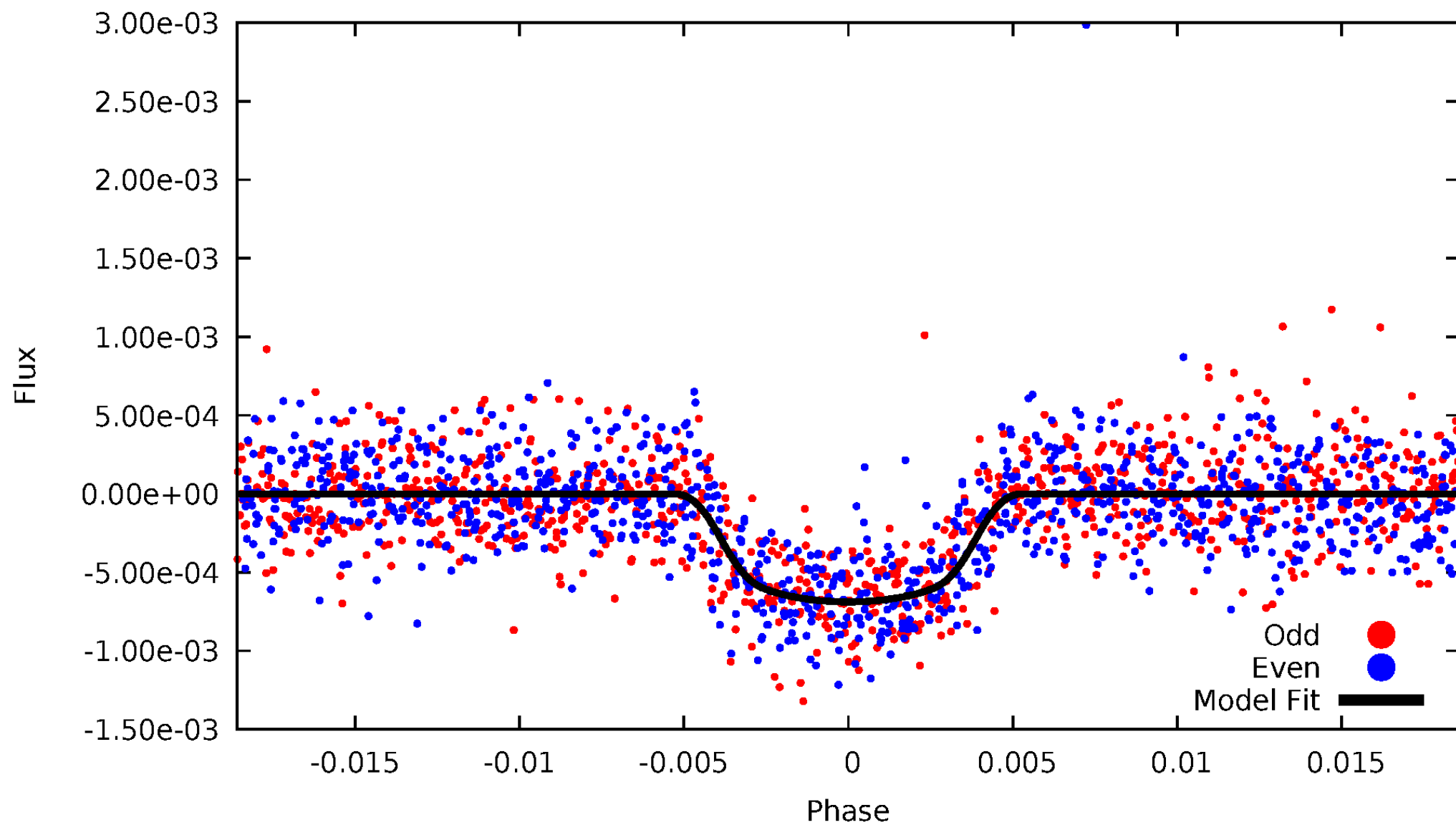


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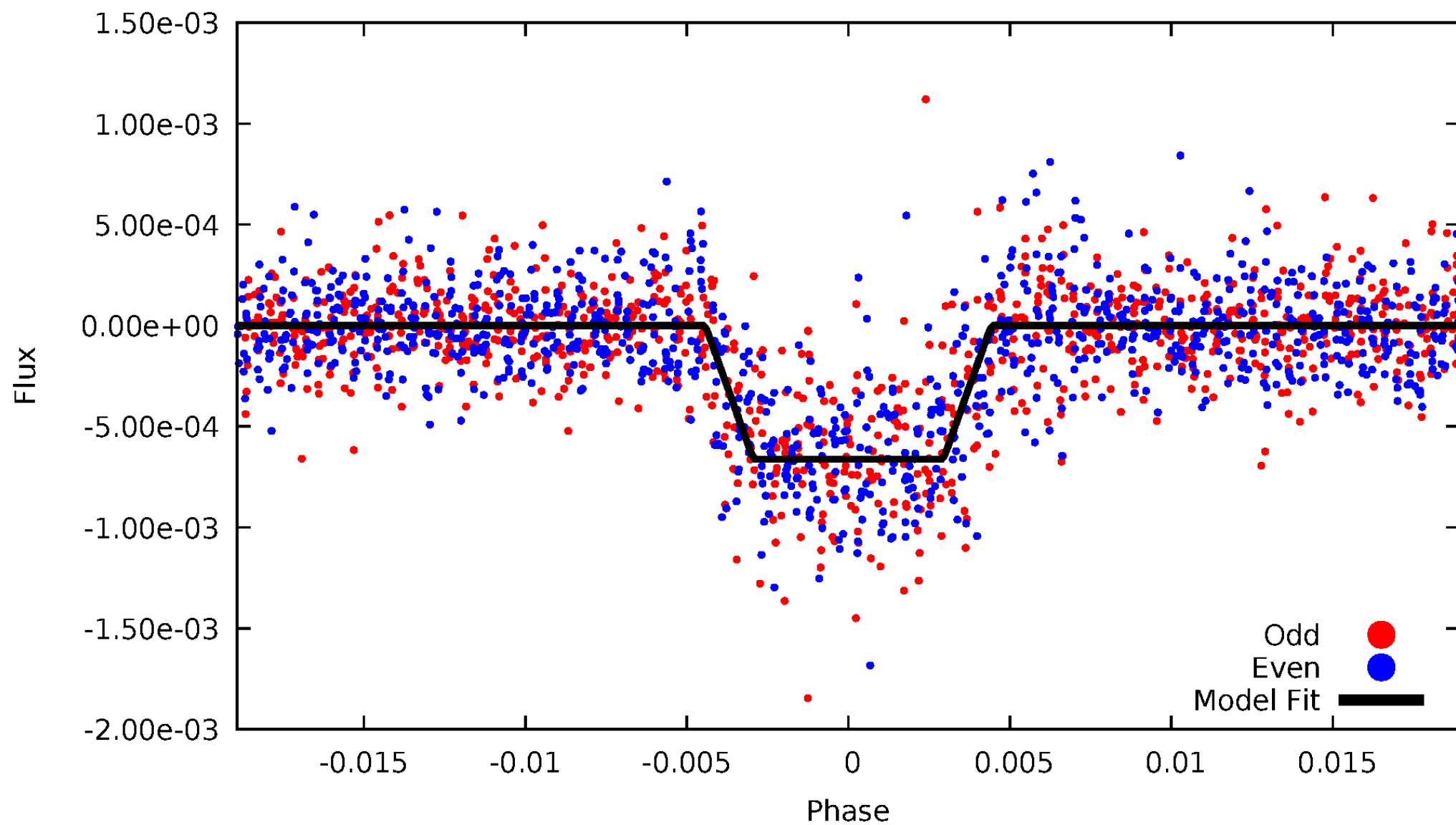
DV Odd/Even

TCE 005689351-01



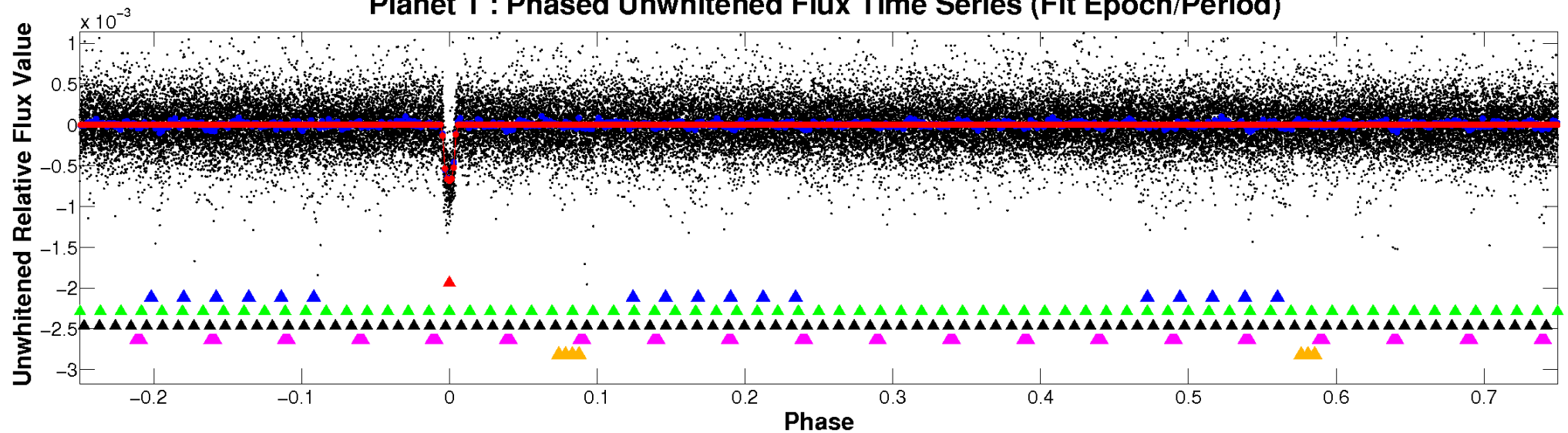
ALT Odd/Even

TCE 005689351-01

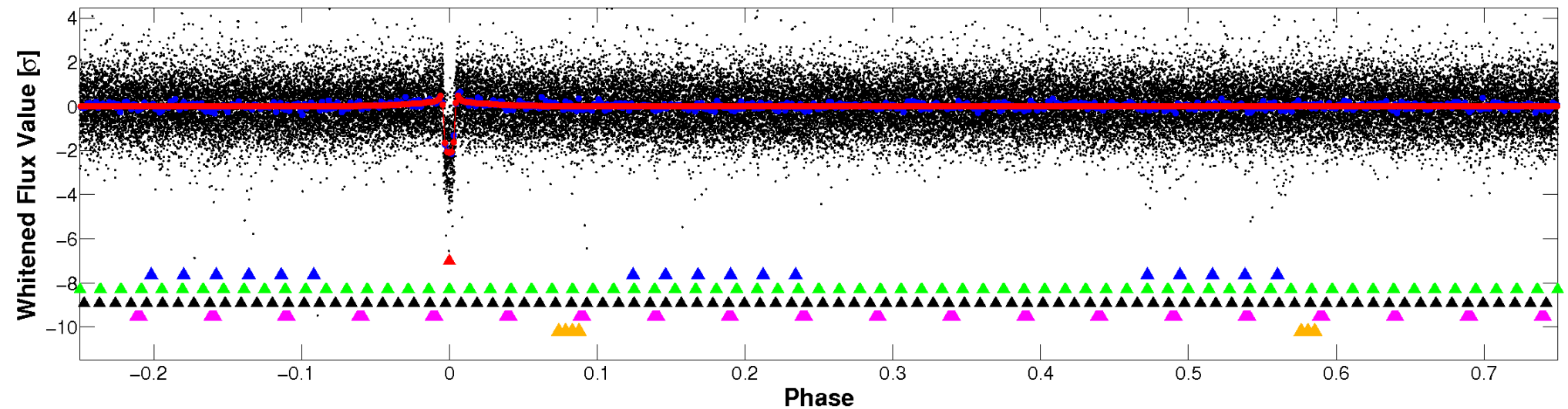


Non-Whitened Vs. Whitened Light Curve

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

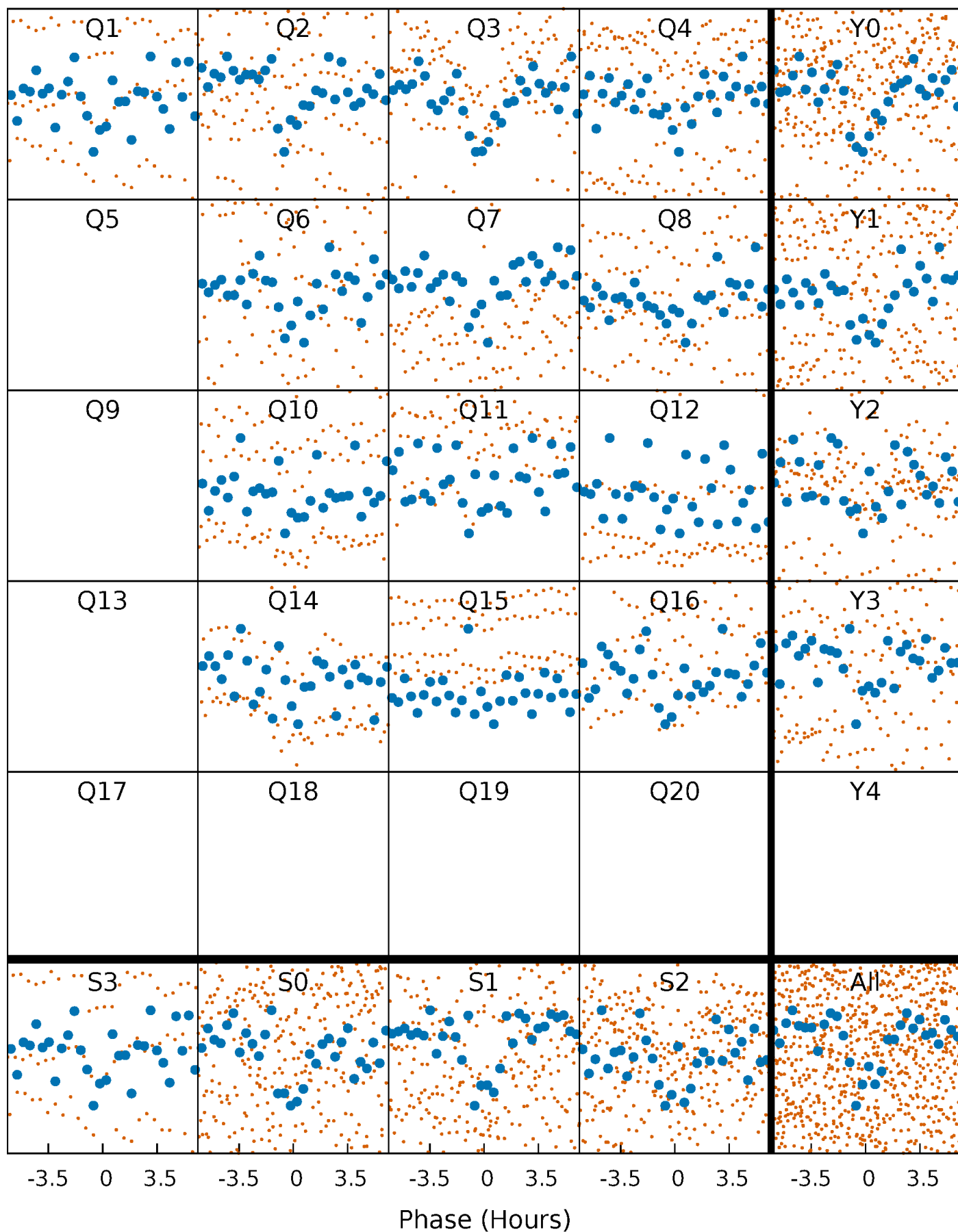


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



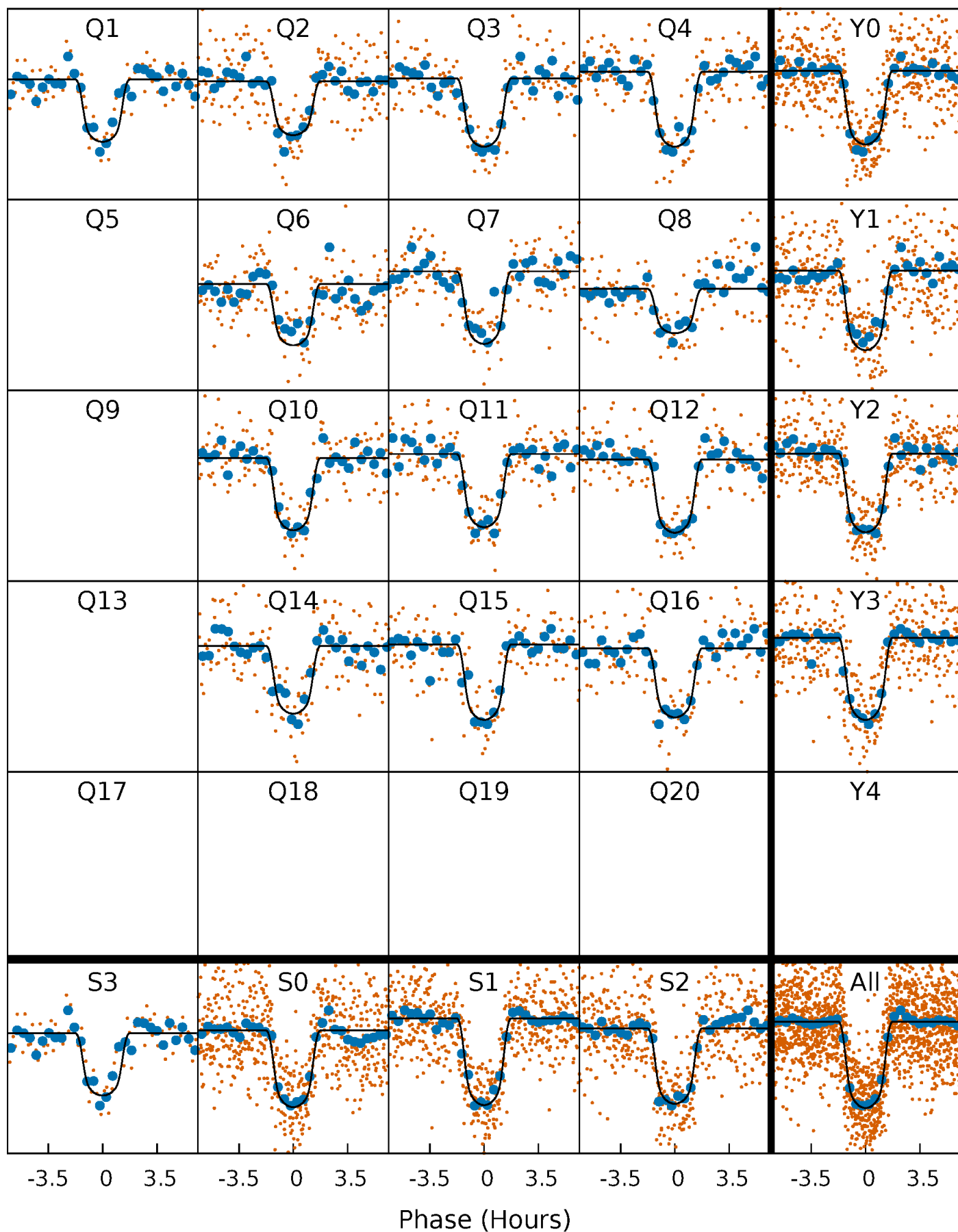
PDC Quarter-Phased Transit Curves

TCE 005689351-01 P= 13.767106 Days $T_0=133.510150$ (BKJD)



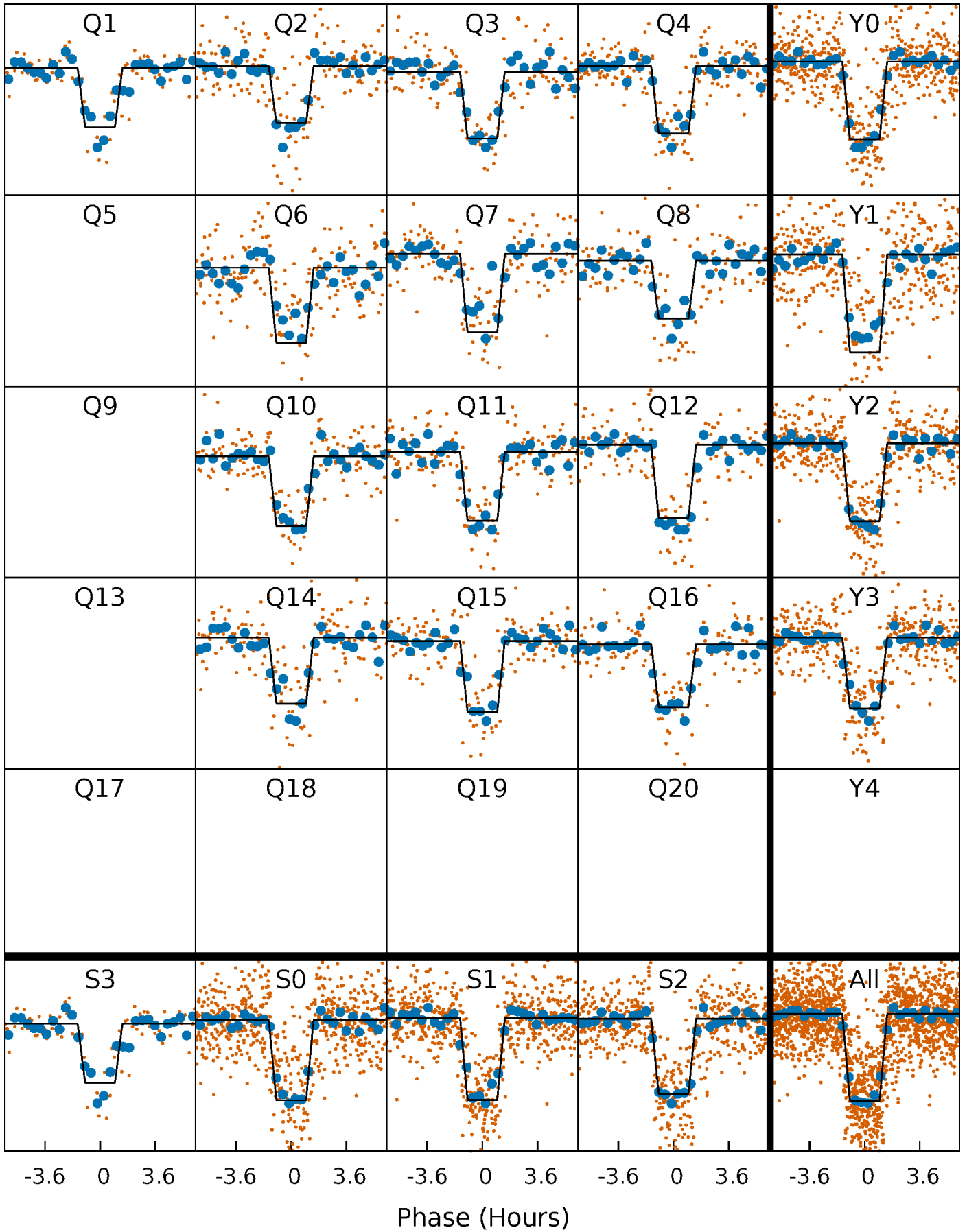
DV Quarter-Phased Transit Curves

TCE 005689351-01 P= 13.767106 Days $T_0=133.510150$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

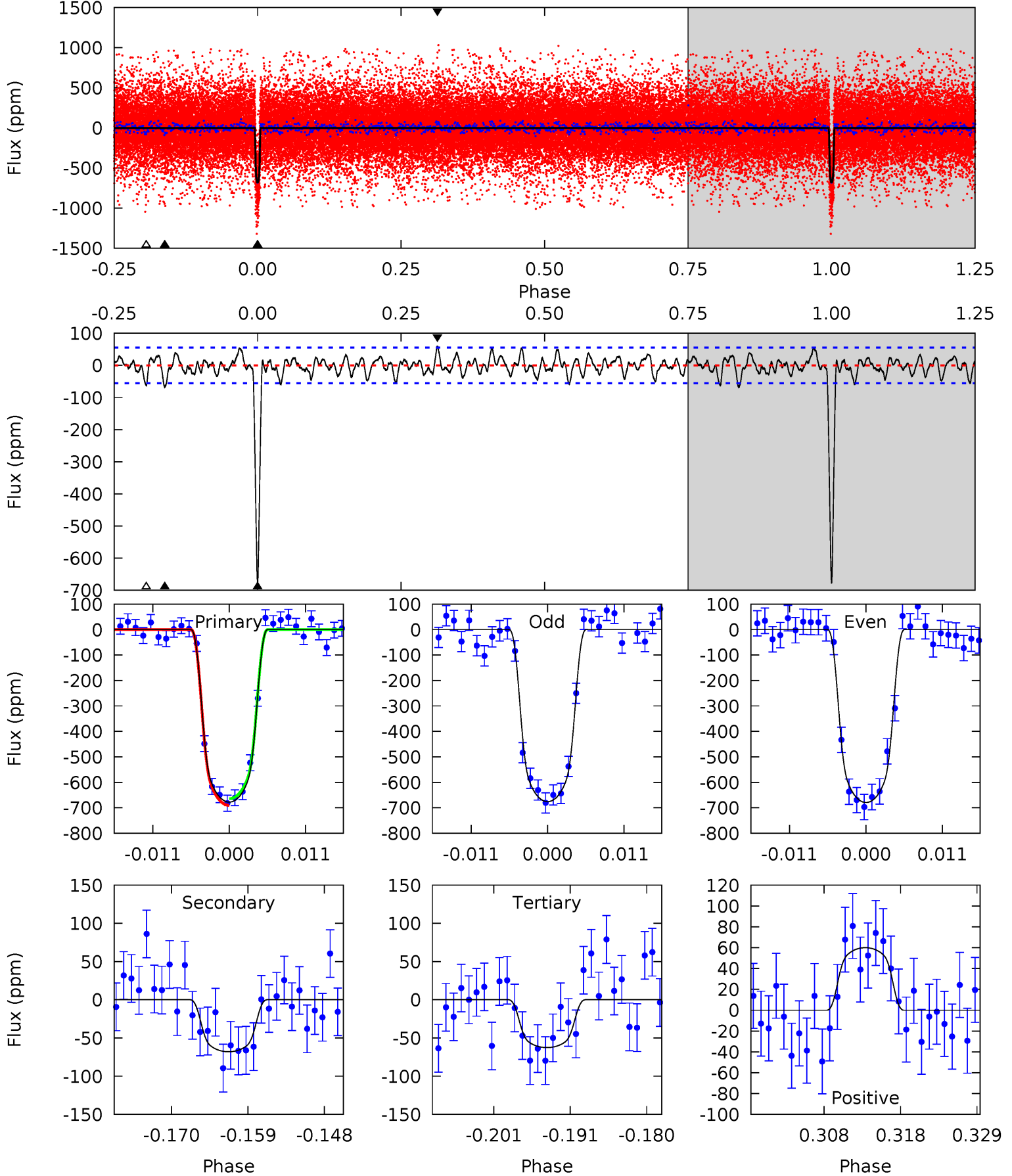
TCE 005689351-01 P= 13.767126 Days $T_0=133.508393$ (BKJD)



DV Model-Shift Uniqueness Test

005689351-01, $P = 13.767106$ Days, $E = 119.743044$ Days

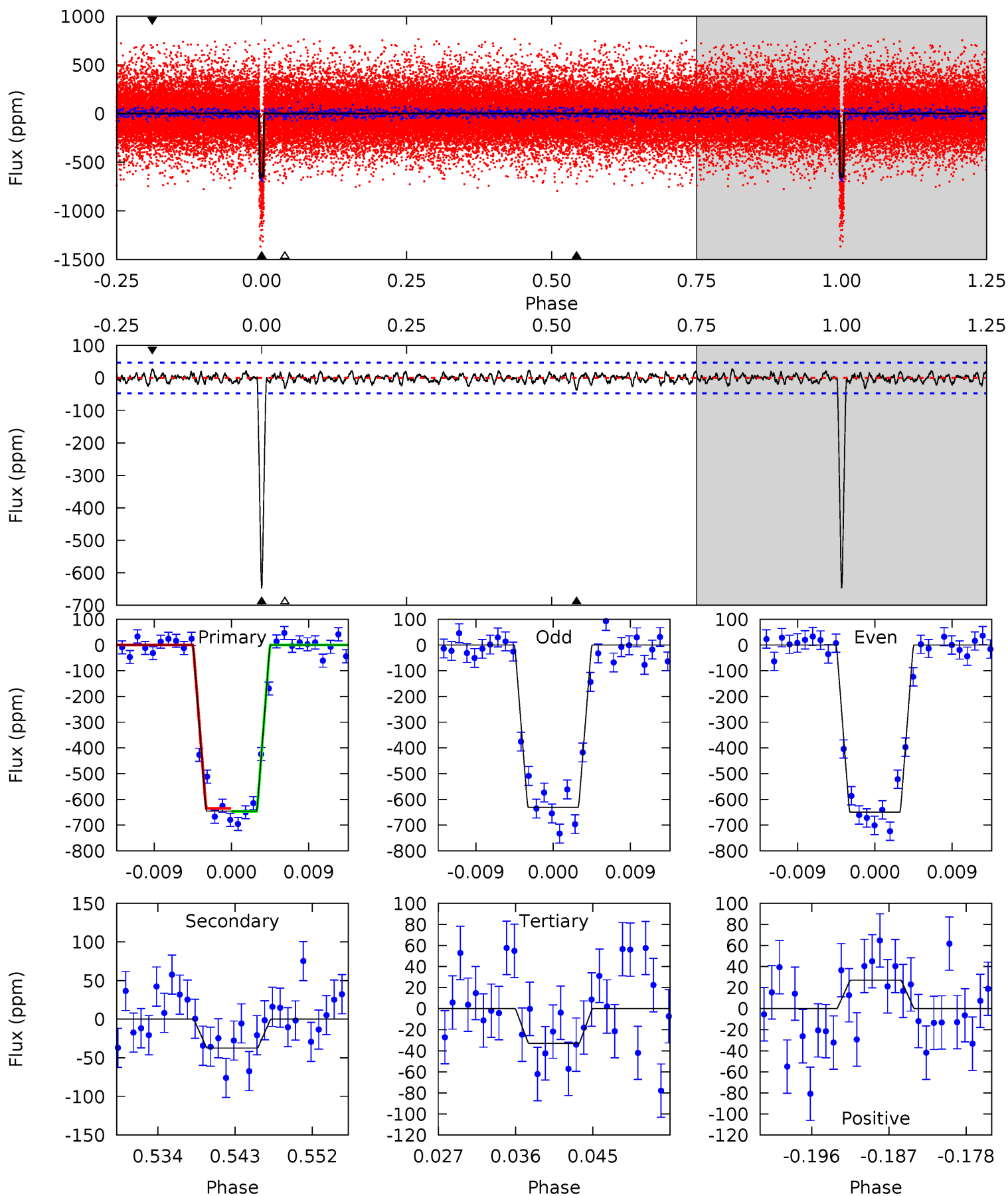
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
61.1	6.13	5.64	5.41	5.02	2.56	1.89	55.4	55.7	0.50	0.73	0.15	0.97	0.08	1.18



Alt Model-Shift Uniqueness Test

005689351-01, $P = 13.767126$ Days, $E = 119.741267$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
69.1	4.00	3.53	2.90	5.05	2.62	1.02	65.6	66.2	0.48	1.11	1.02	0.97	0.04	0.62



Stellar Parameters For KIC 005689351

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5001^{+99}_{-1}	$4.582^{+0.024}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.760^{+0.046}_{-0.034}$	$0.806^{+0.038}_{-0.046}$	$2.582^{+0.301}_{-0.394}$
	+2%/-0%	+1%/-1%	+375%/-375%	+6%/-4%	+5%/-6%	+12%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005689351-01 / KOI 0505.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-68 ± 11	$2.48^{+0.17}_{-0.16}$	832^{+22}_{-35}	3169^{+111}_{-118}	66^{+15}_{-12}
Alt.	-37 ± 9	$2.15^{+0.15}_{-0.15}$	832^{+21}_{-33}	3030^{+130}_{-148}	49^{+15}_{-13}

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 $A_{obs} \gg 1.0$

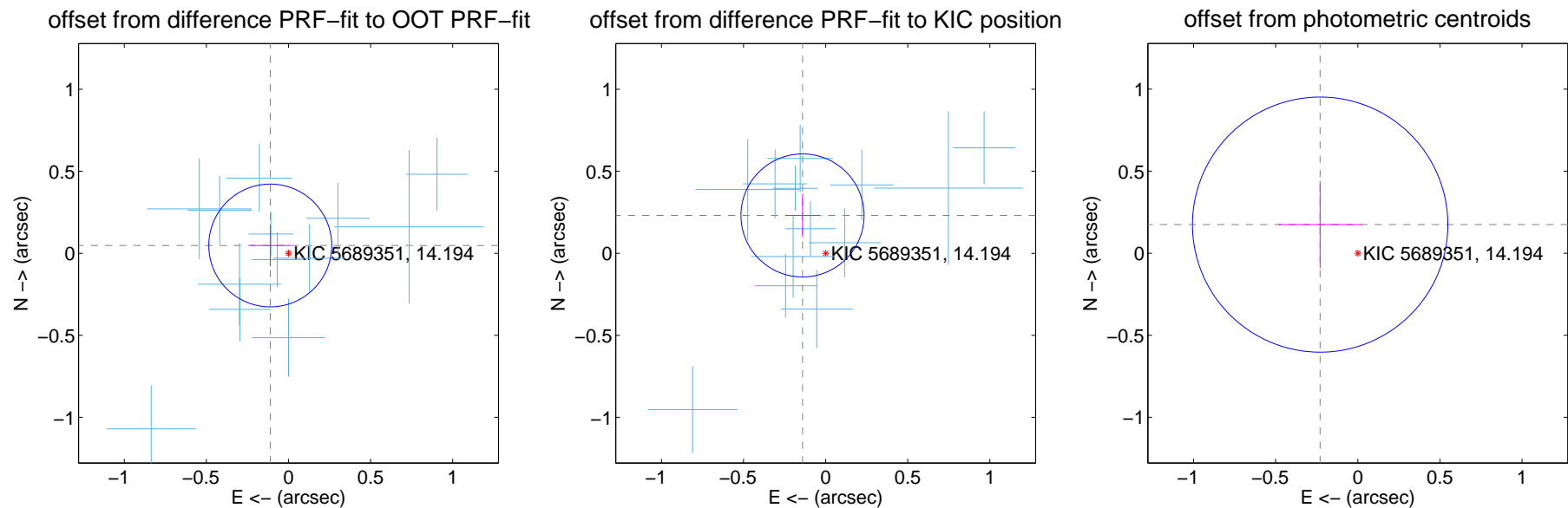
DV Centroid Data

Supplemental centroid analysis for 005689351-01. Kepler magnitude: 14.19. Transit SNR 39.21

There are 13 quarters with good PRF difference image offsets

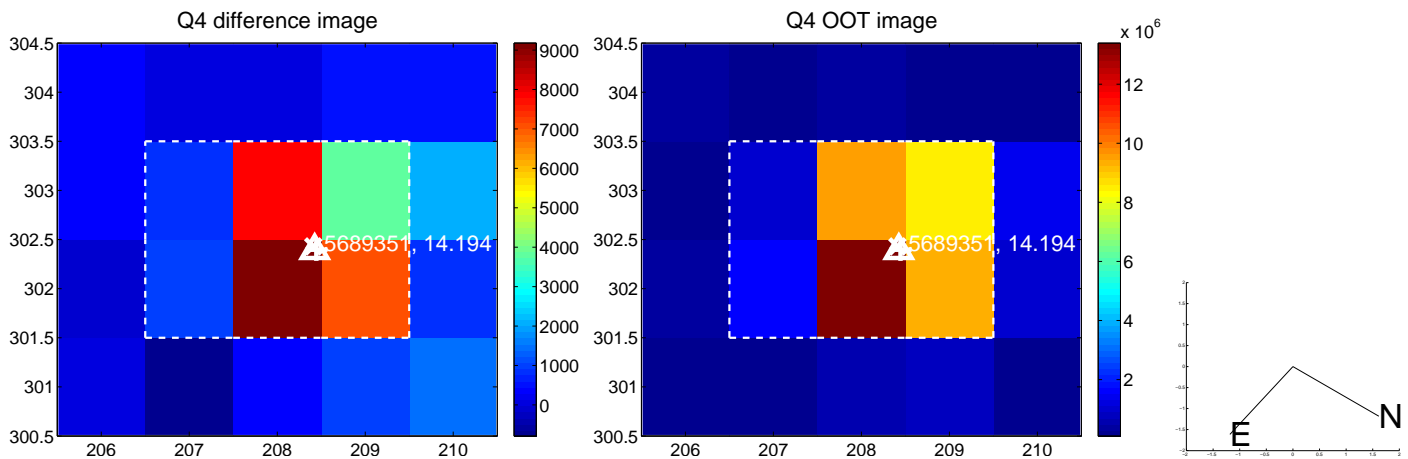
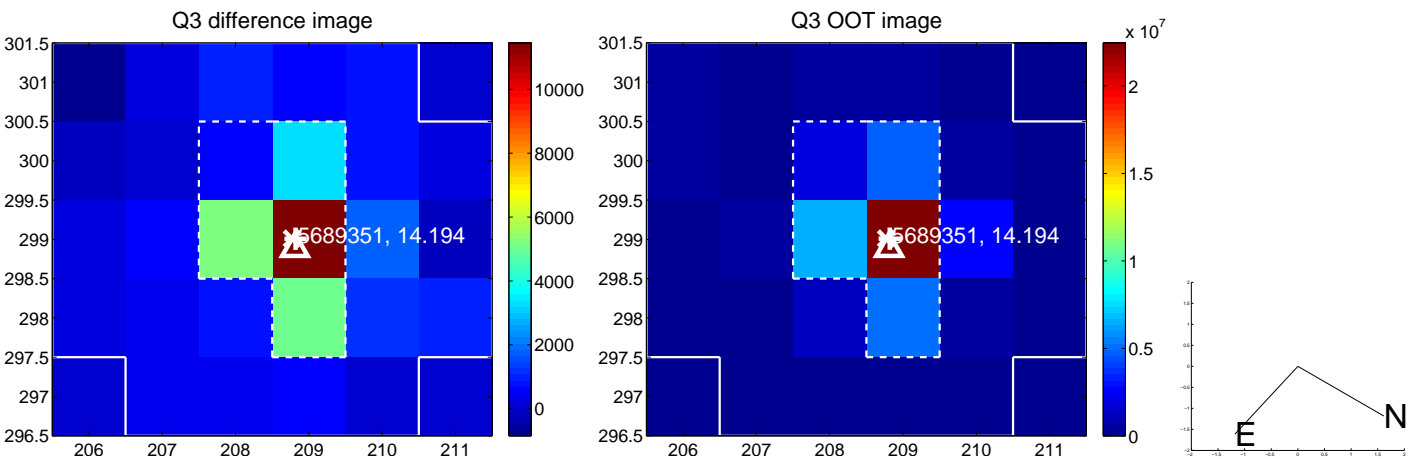
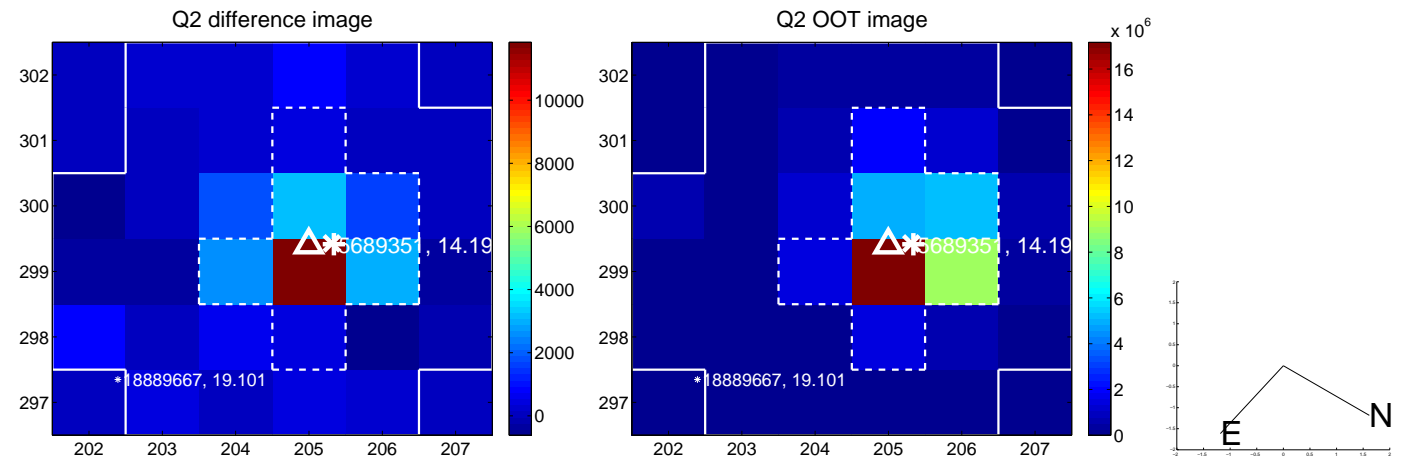
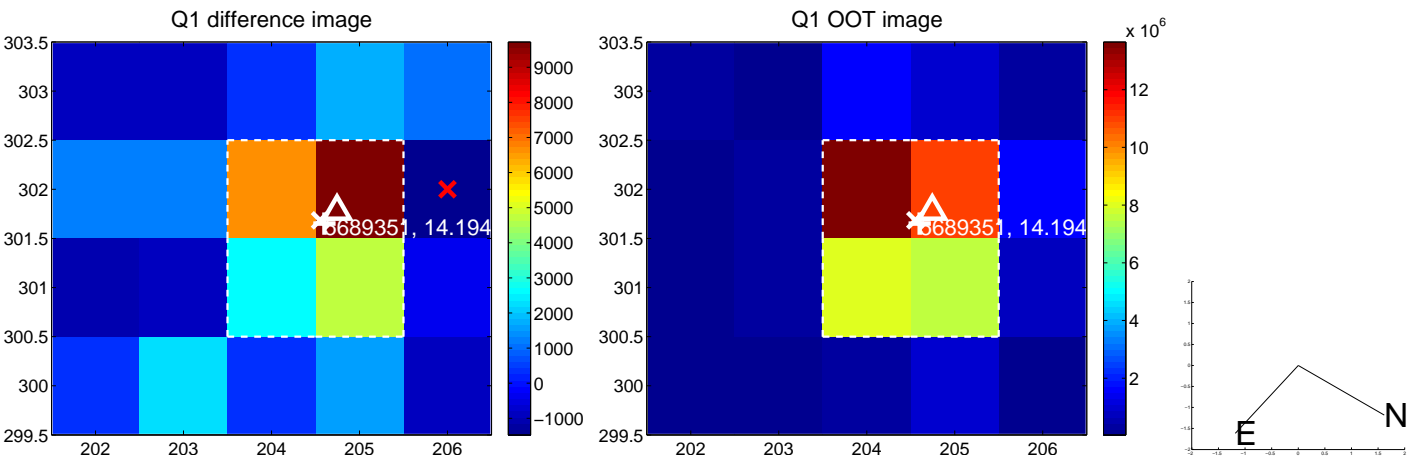
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.121 ± 0.125	0.97	0.111 ± 0.124	0.048 ± 0.128
PRF-fit source offset from KIC position	0.270 ± 0.125	2.16	0.141 ± 0.105	0.231 ± 0.132
photometric centroid source offset	0.29 ± 0.26	1.11	0.23 ± 0.26	0.17 ± 0.27

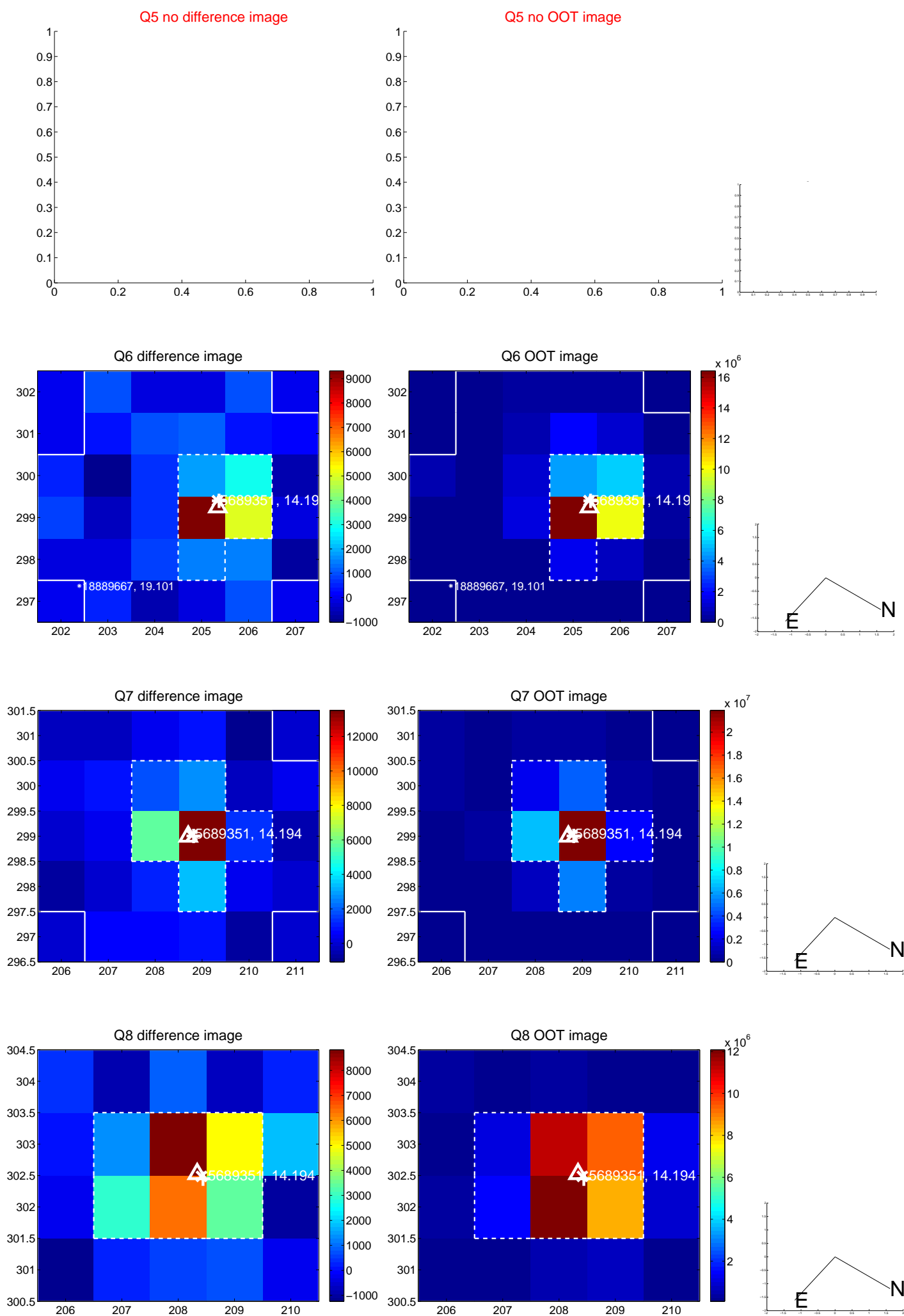


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

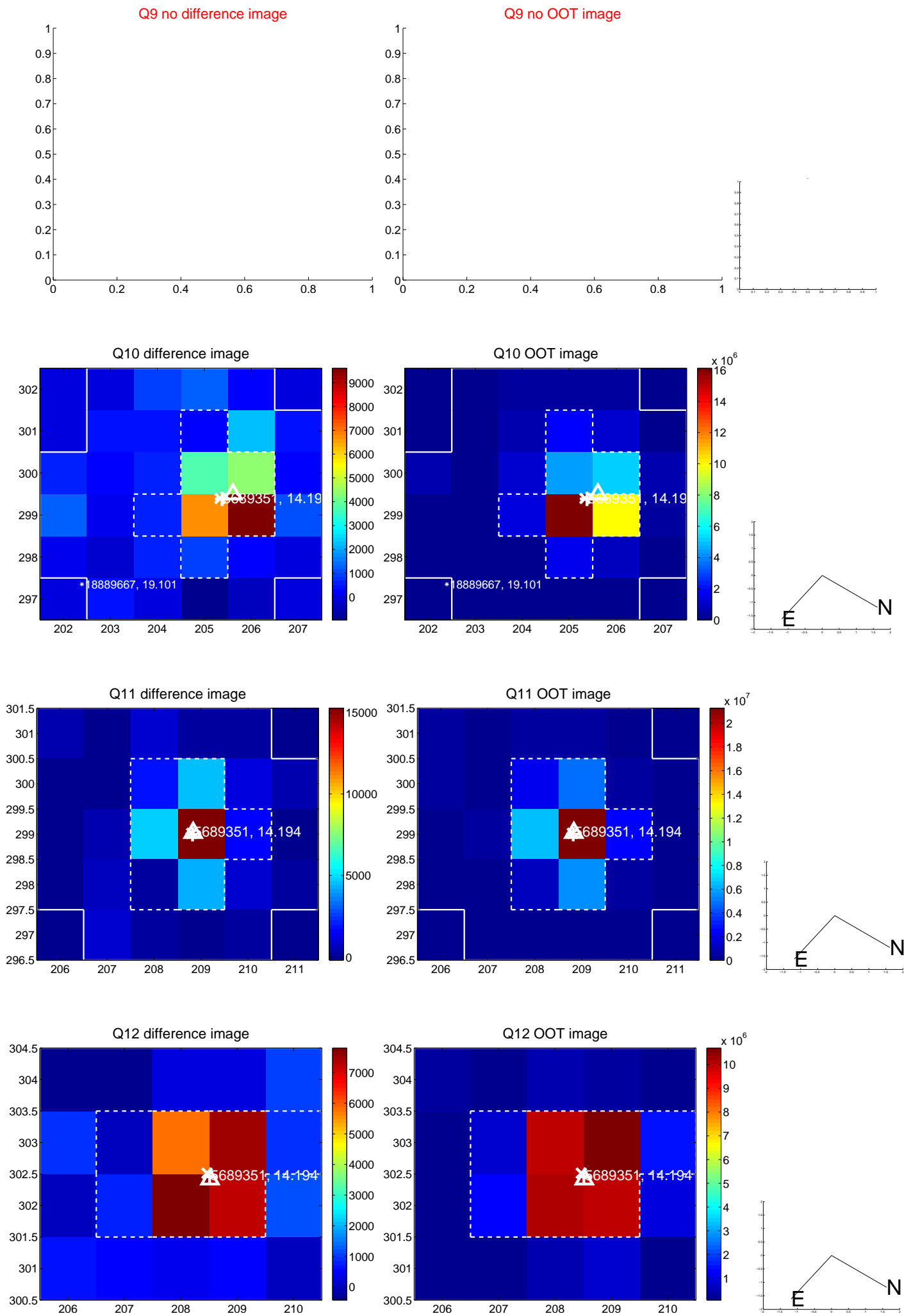
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



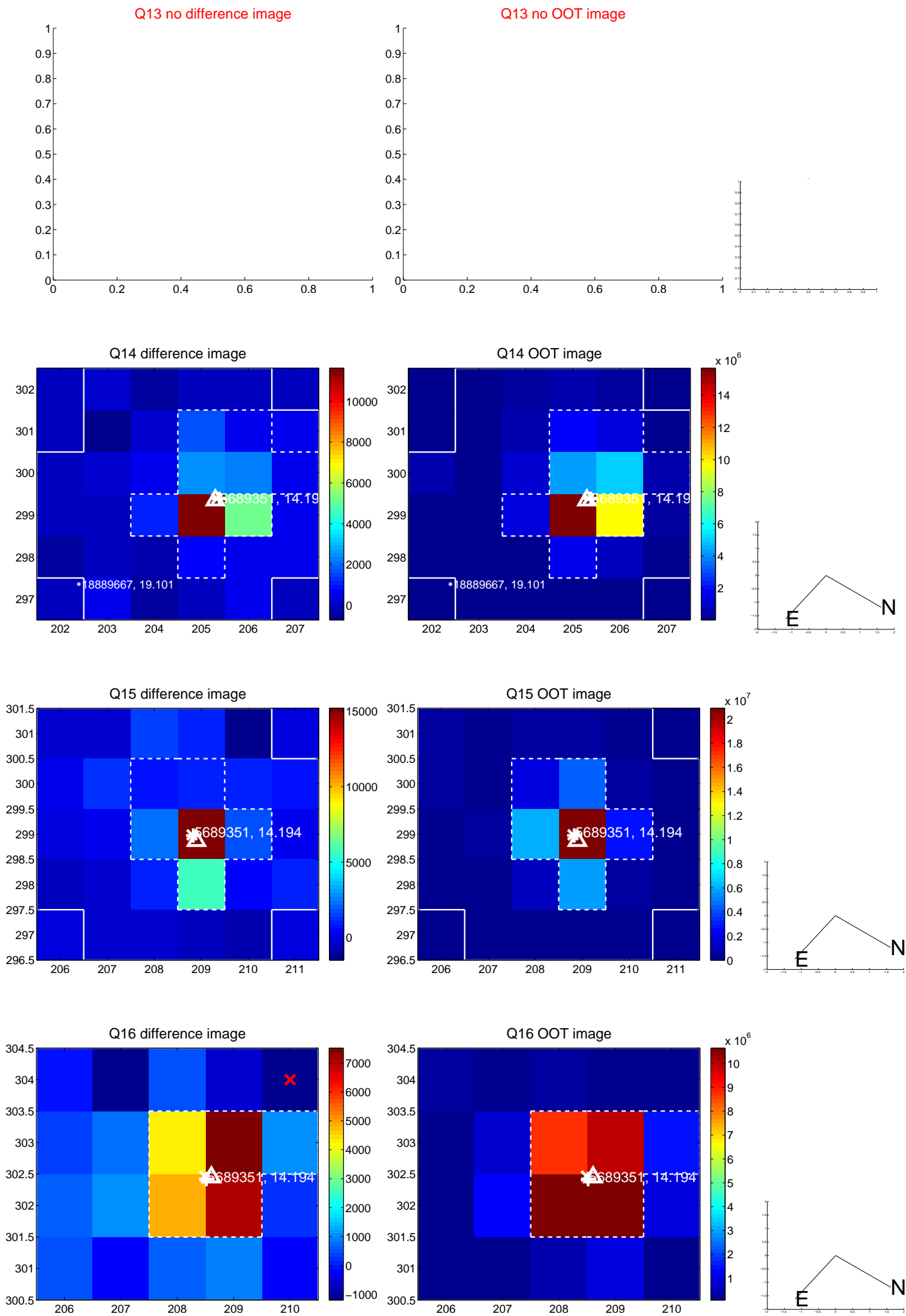
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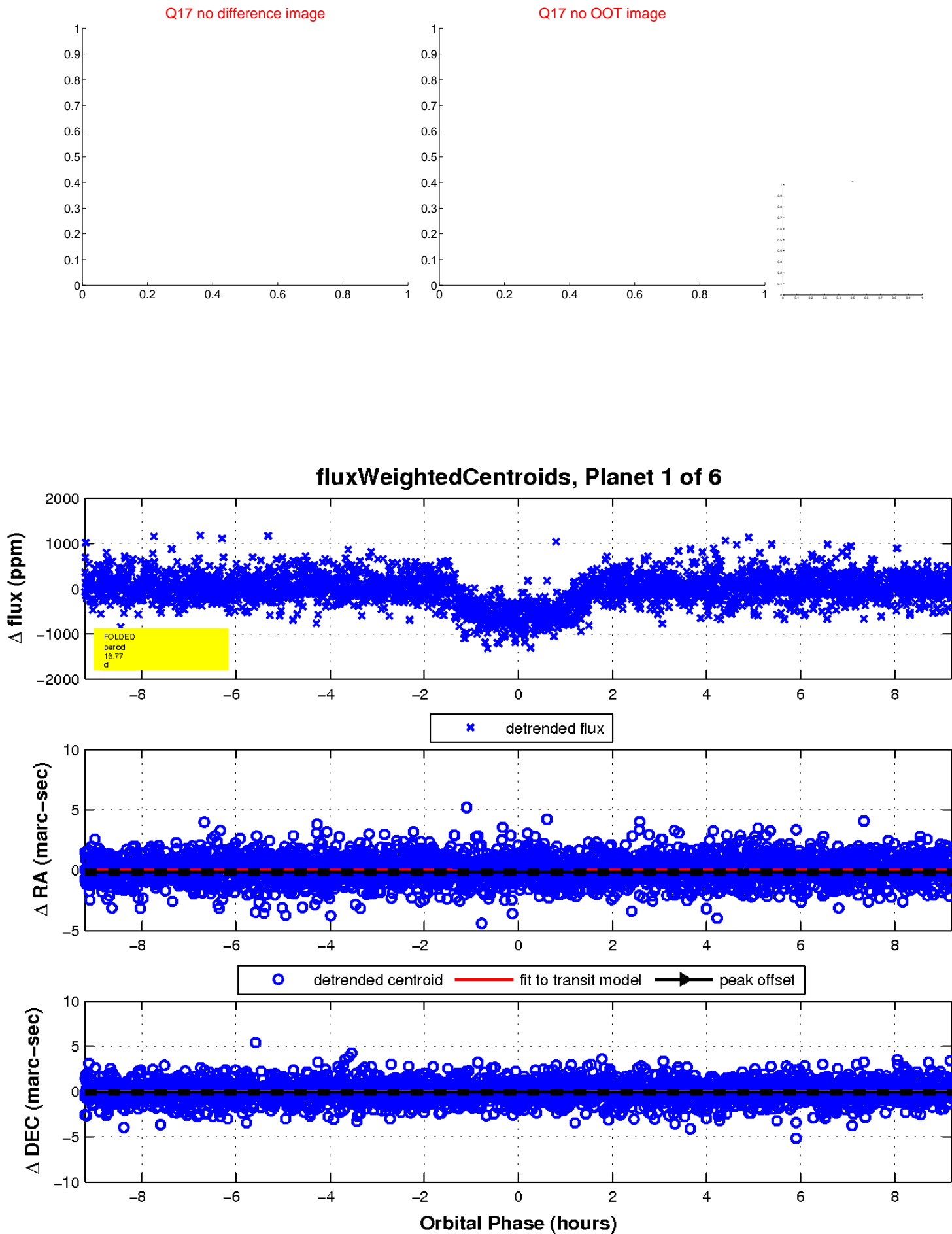
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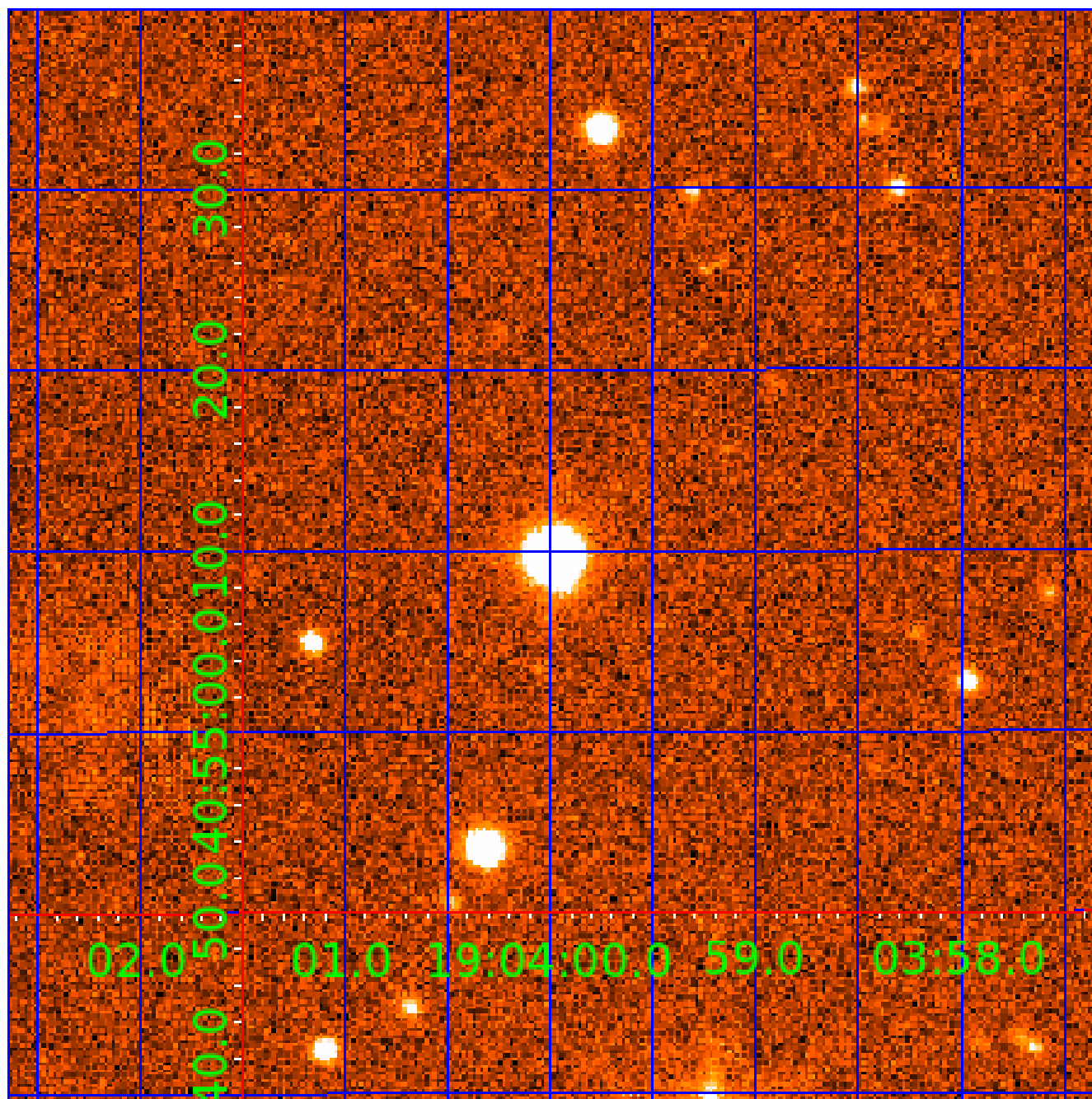


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UKIRT Image

Declination



KIC 005689351

Q1-17 DR25 TCE Parameters

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005689351-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT
005689351-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

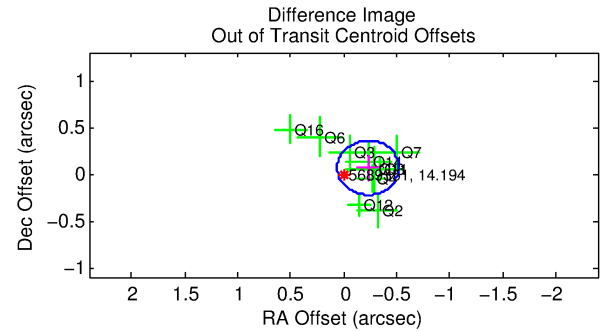
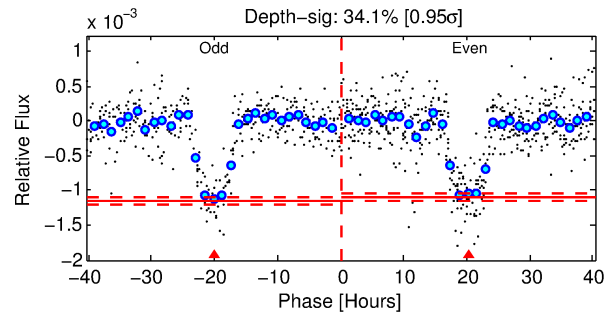
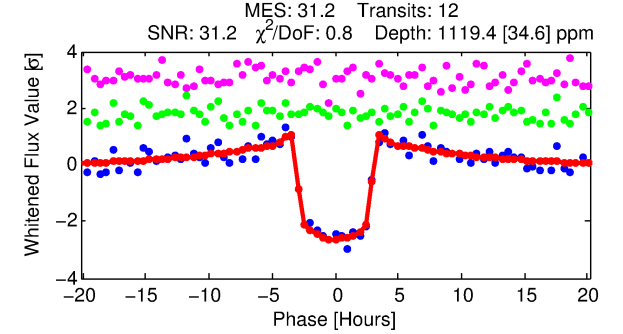
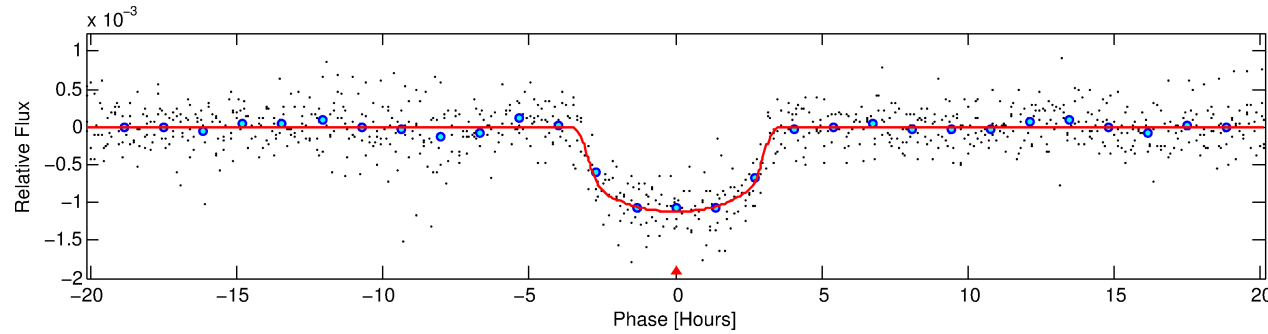
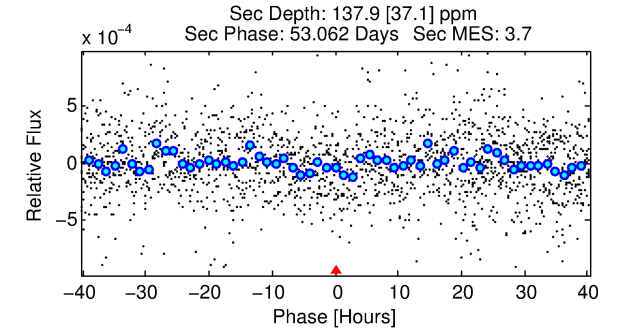
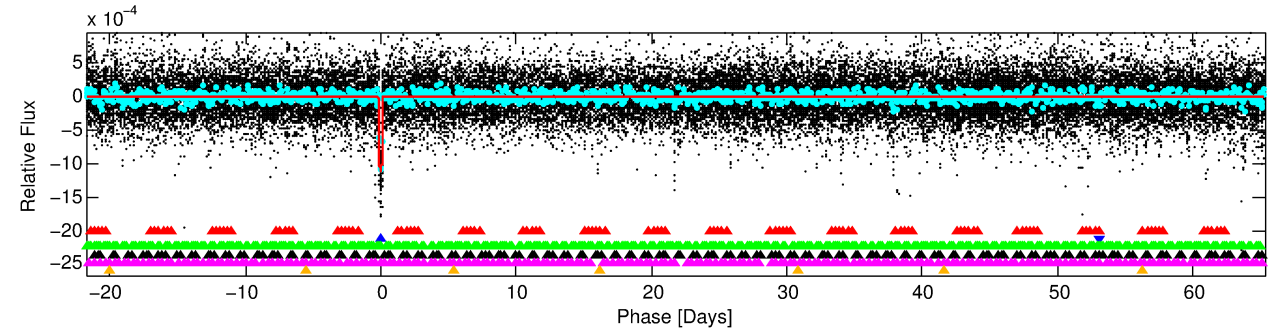
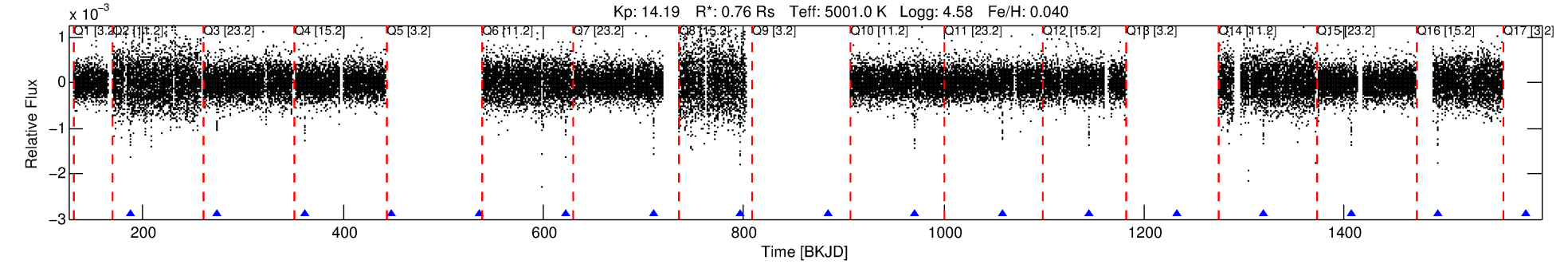
Ephemeris Match Information For 005689351-02

No Significant Match Found

DV One-Page Summary

KIC: 5689351 Candidate: 2 of 6 Period: 87.091 d
KOI: K00505.05 Name: Kepler-169f Corr: 0.963

Kp: 14.19 R*: 0.76 Rs Teff: 5001.0 K Logg: 4.58 Fe/H: 0.040



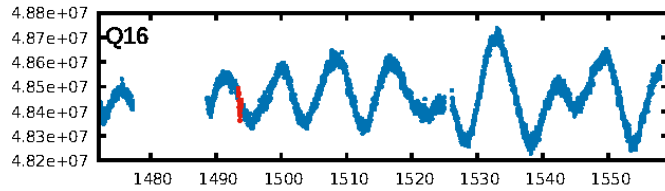
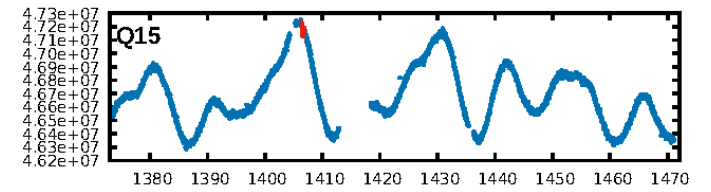
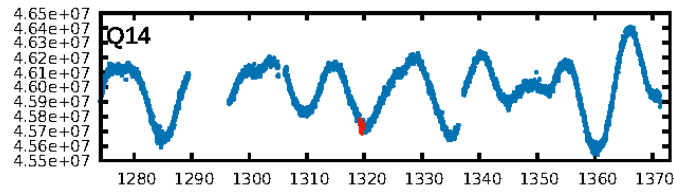
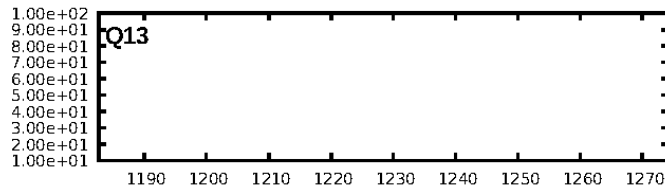
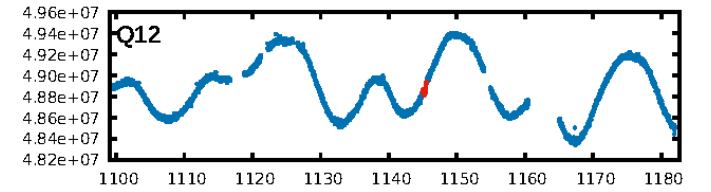
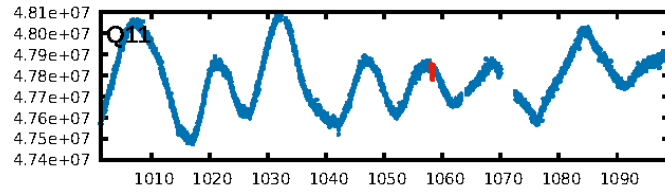
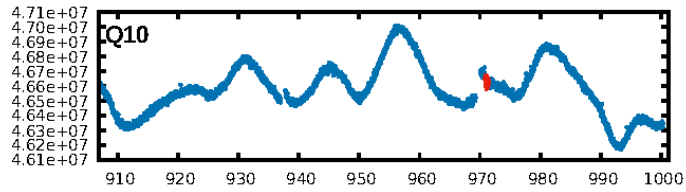
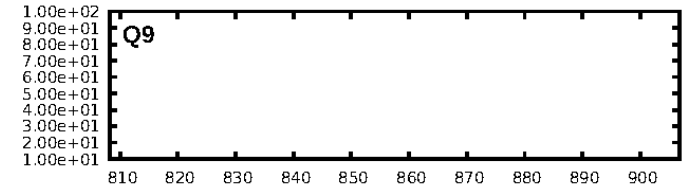
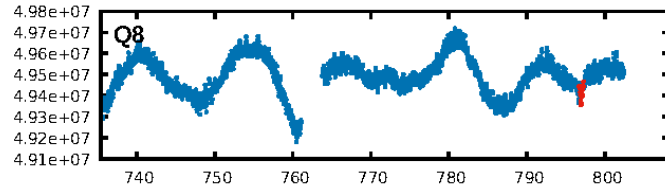
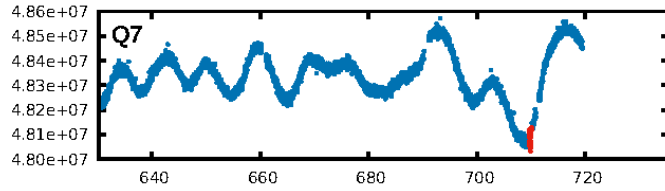
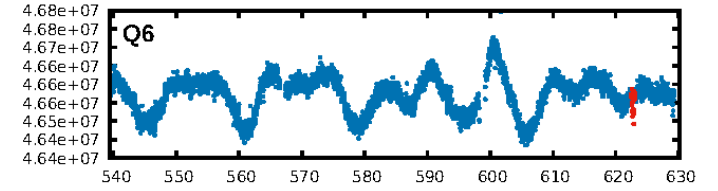
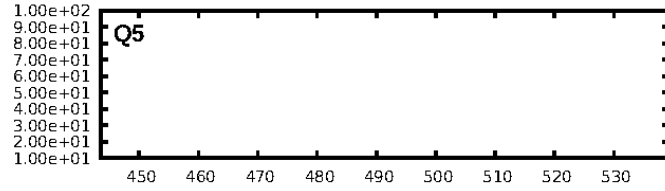
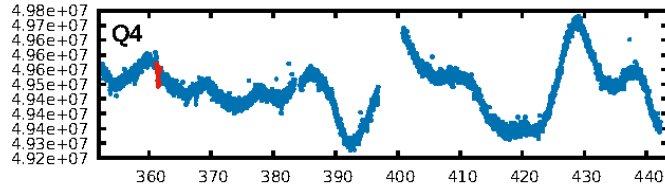
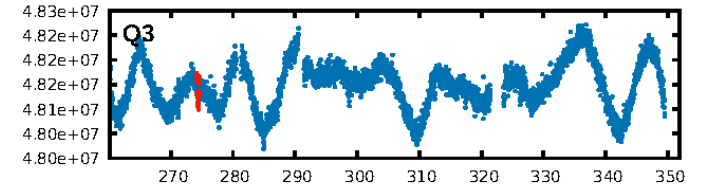
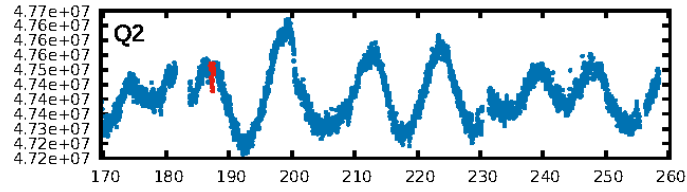
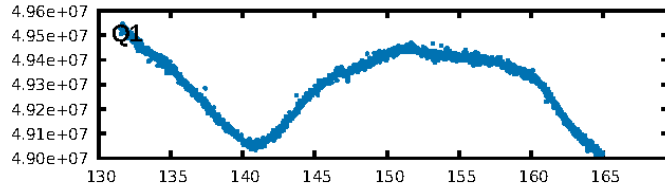
DV Fit Results:

Period = 87.09073 [0.00033] d
Epoch = 187.3160 [0.0031] BKJD
Rp/R* = 0.0346 [0.0023]
a/R* = 63.46 [14.75]
b = 0.81 [0.10]
Seff = 2.53 [0.29]
Teq = 322 [9] K
Rp = 2.87 [0.26] Re
a = 0.3577 [0.0195] AU
Ag = 1178.73 [368.56] [3.20 σ]
Teffp = 2913 [227] K [11.42 σ]

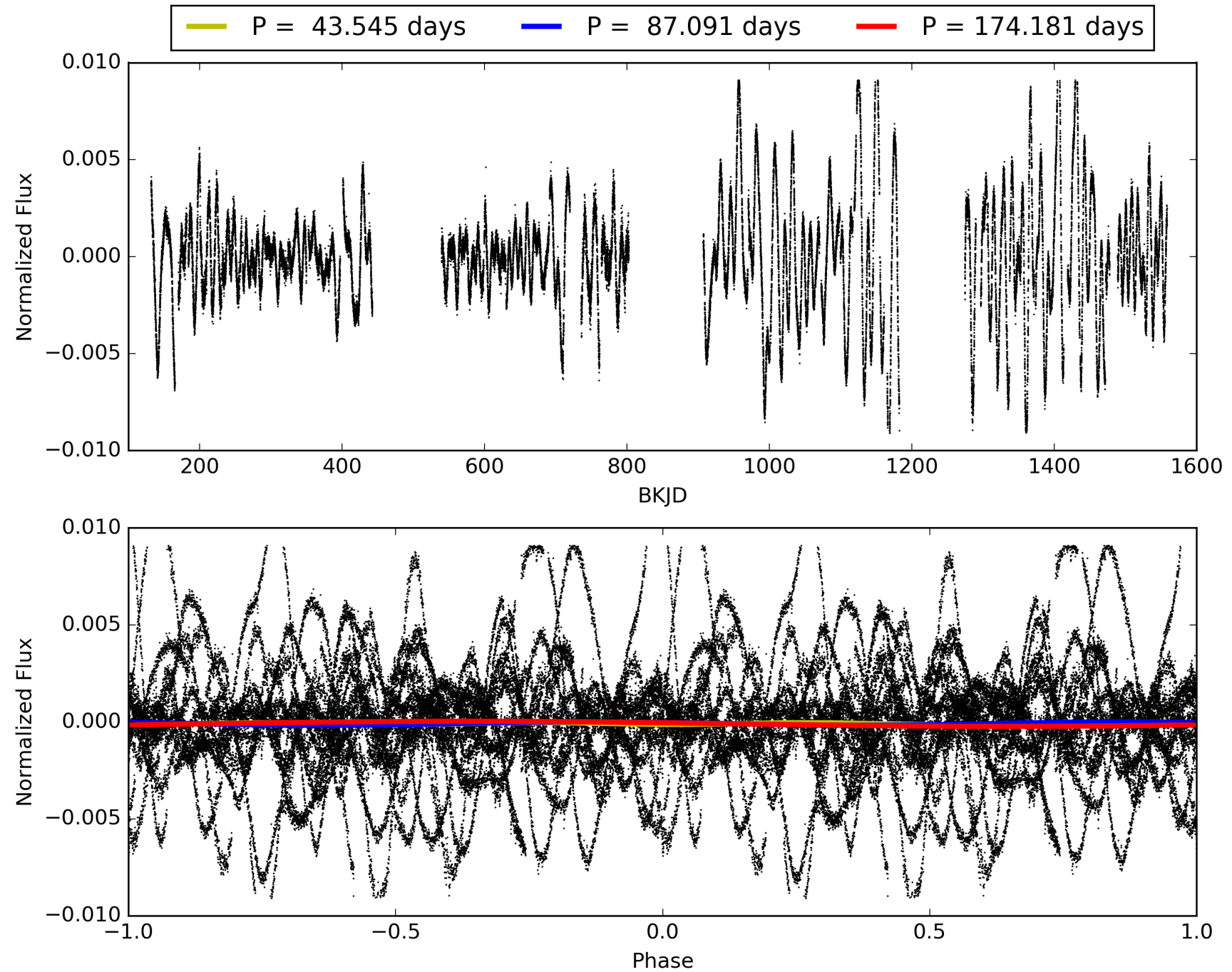
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [237.93 σ]
LongPeriod-sig: 100.0% [211.48 σ]
ModelChiSquare2-sig: 88.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.03e-154
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: 3.452
Centroid-sig: 95.6%
Centroid-so: 0.093 arcsec [0.33 σ]
OotOffset-rm: 0.241 arcsec [2.49 σ]
KicOffset-rm: 0.311 arcsec [2.84 σ]
OotOffset-st: 3/3/4/0 [10]
KicOffset-st: 3/3/4/0 [10]
DiffImageQuality-fgm: 1.00 [10/10]
DiffImageOverlap-fno: 0.60 [6/10]

TCE 005689351-02, PDC Light Curves

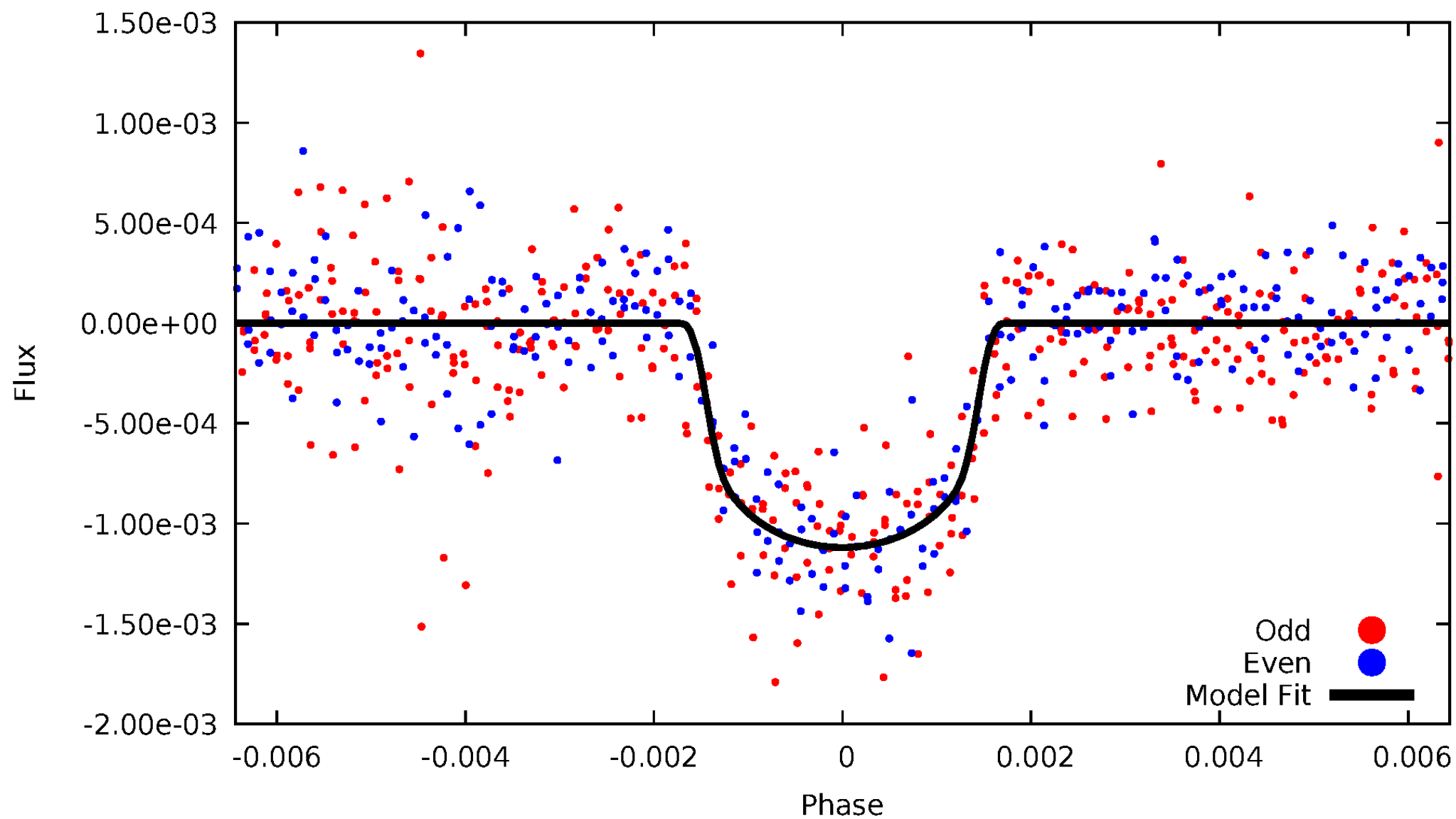


TCE 005689351-02



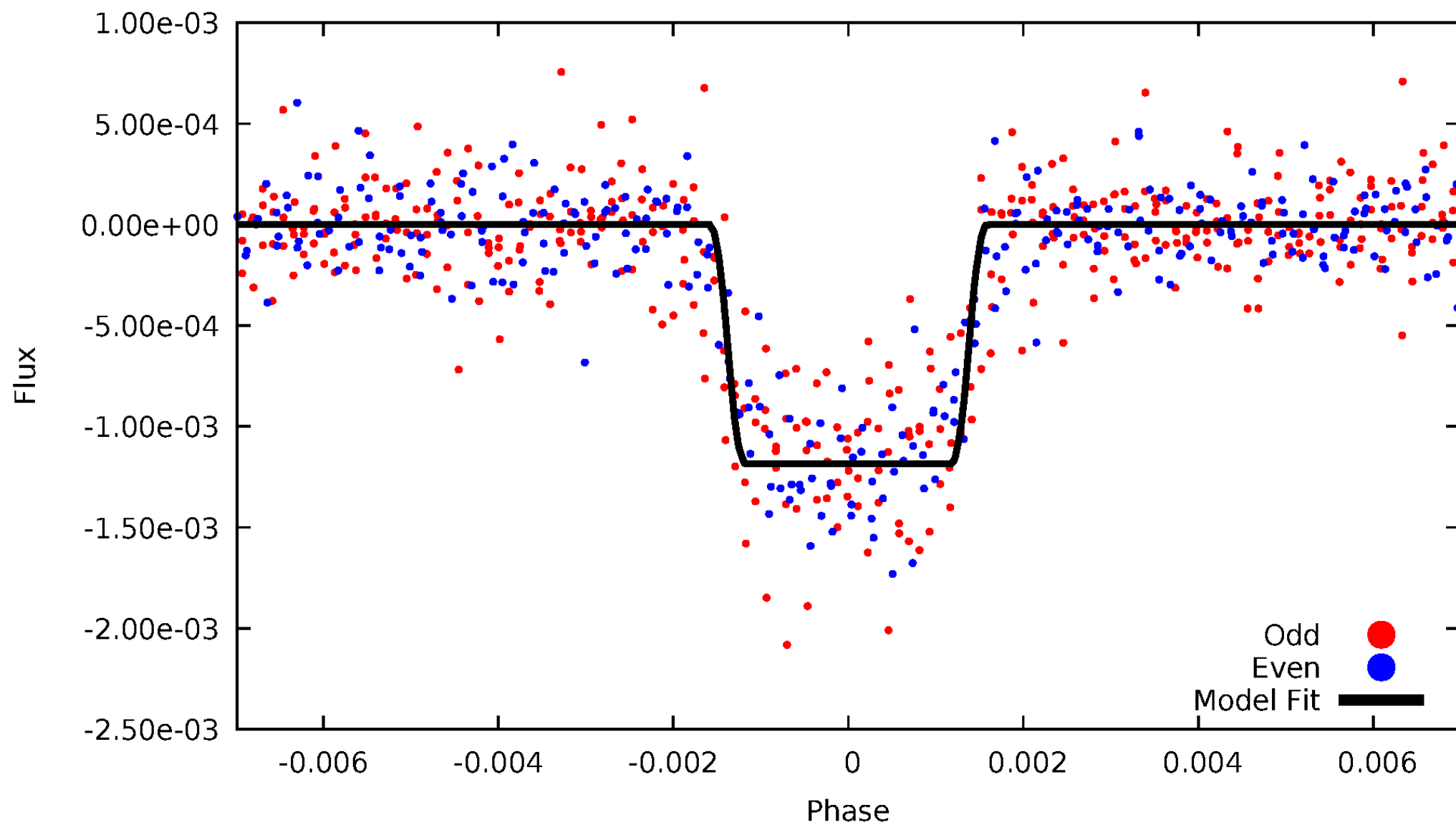
DV Odd/Even

TCE 005689351-02



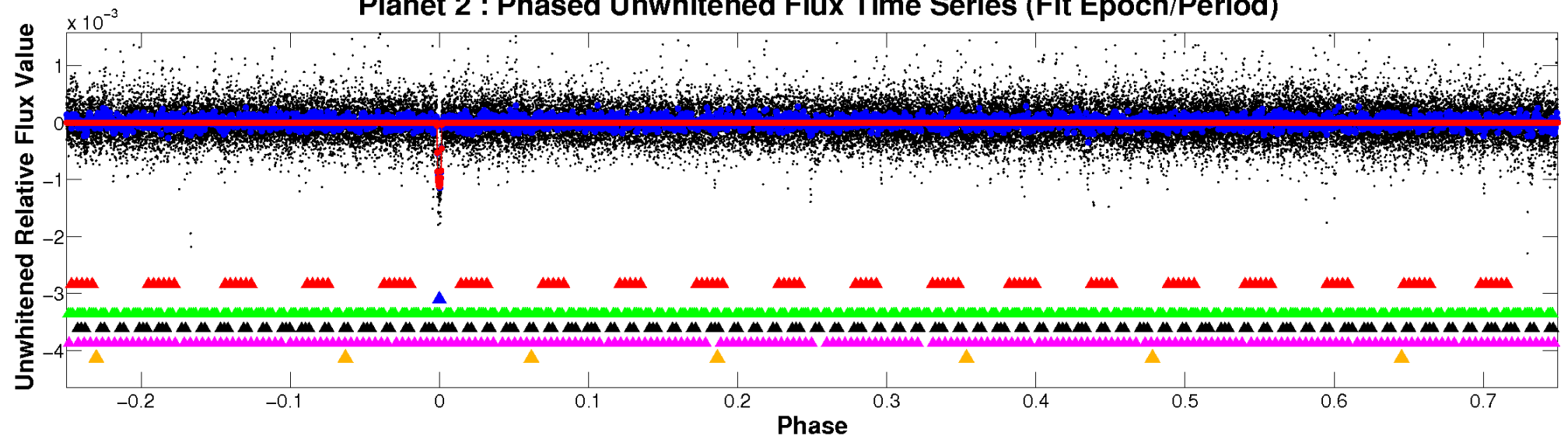
ALT Odd/Even

TCE 005689351-02

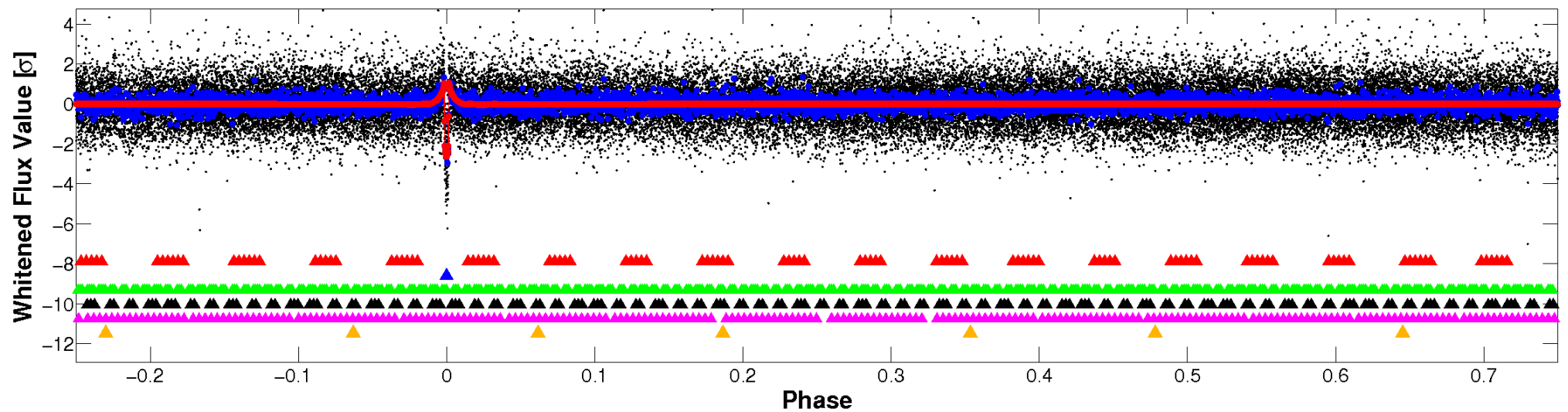


Non-Whitened Vs. Whitened Light Curve

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

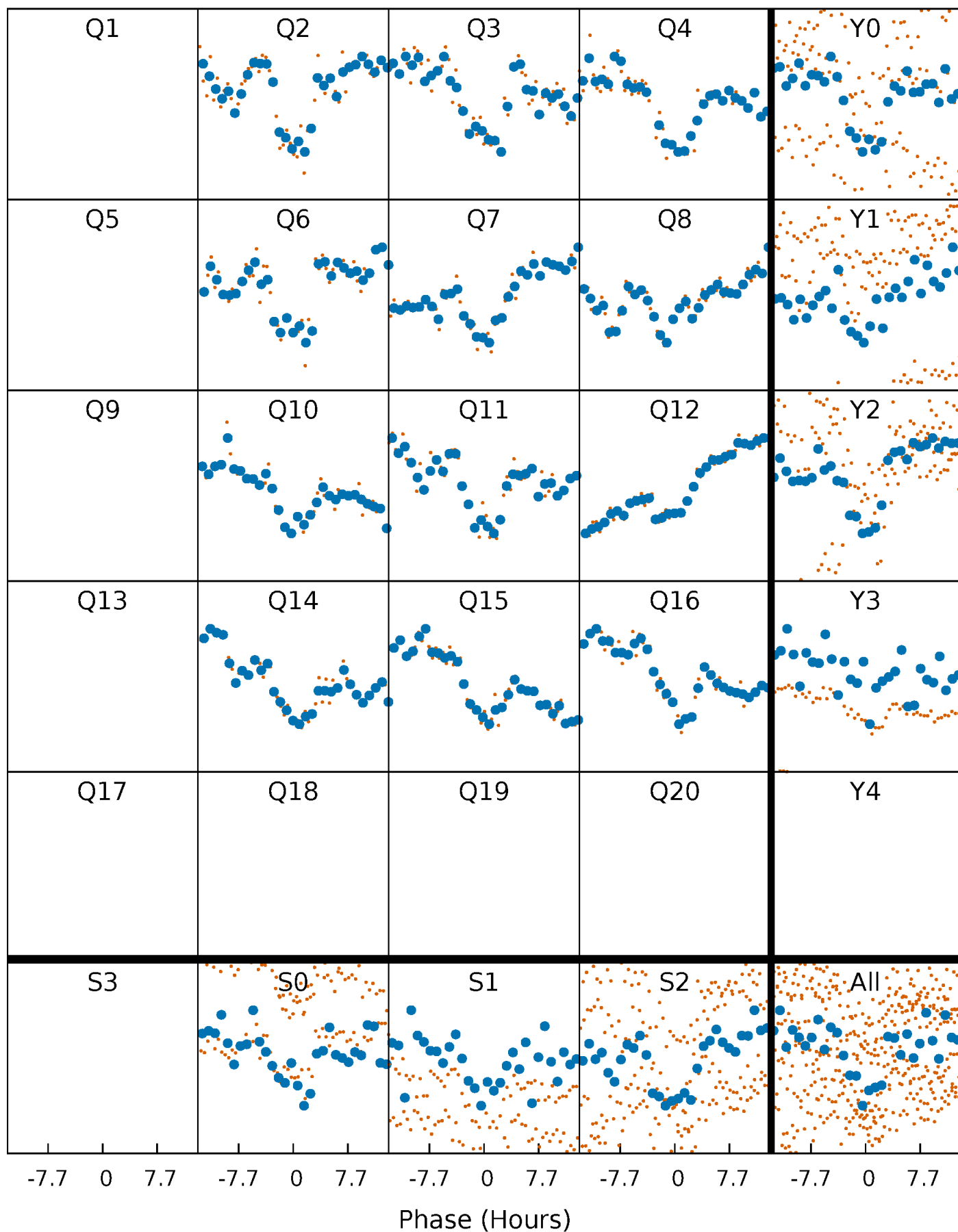


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



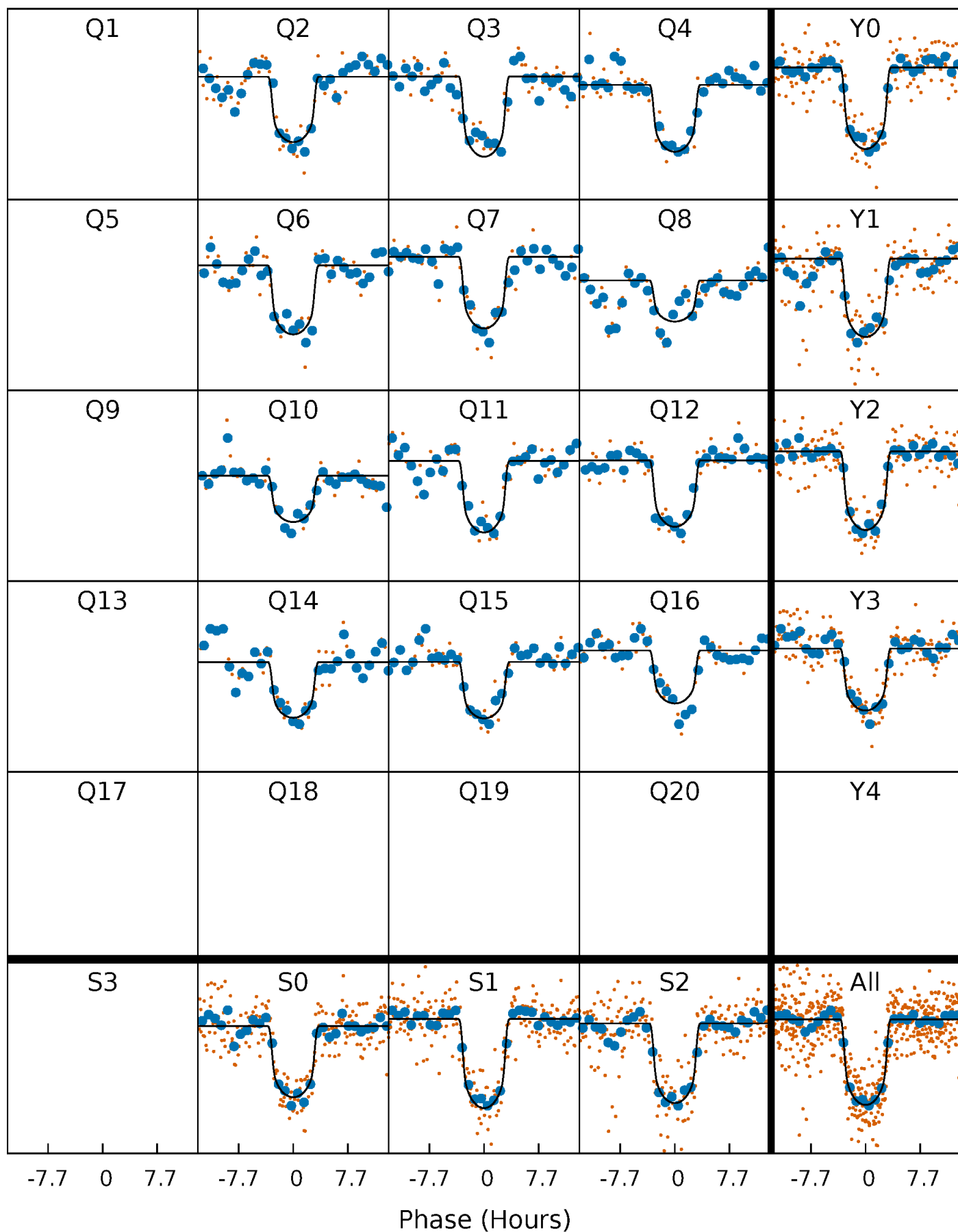
PDC Quarter-Phased Transit Curves

TCE 005689351-02 P= 87.090728 Days $T_0=187.315955$ (BKJD)



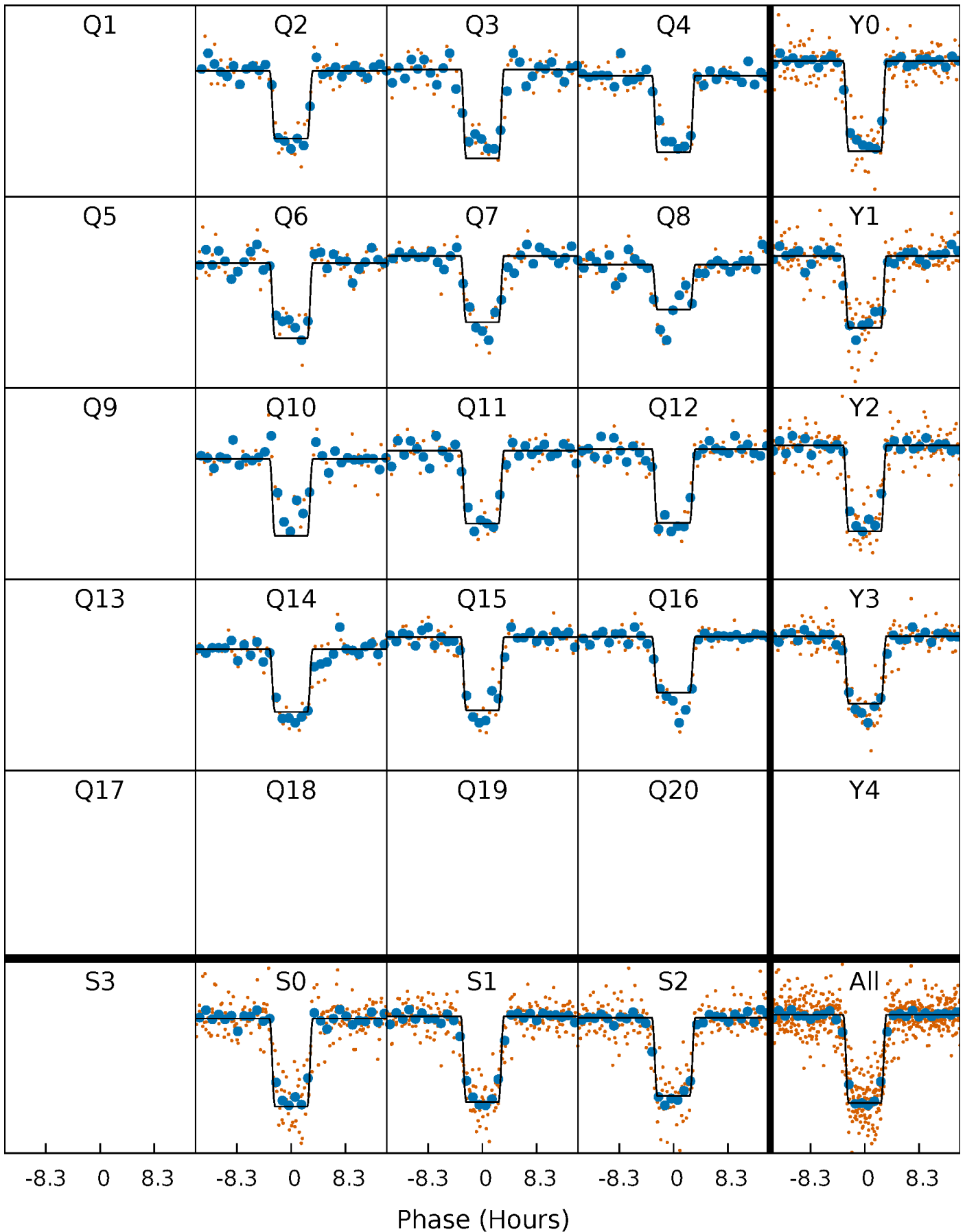
DV Quarter-Phased Transit Curves

TCE 005689351-02 P= 87.090728 Days $T_0=187.315955$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

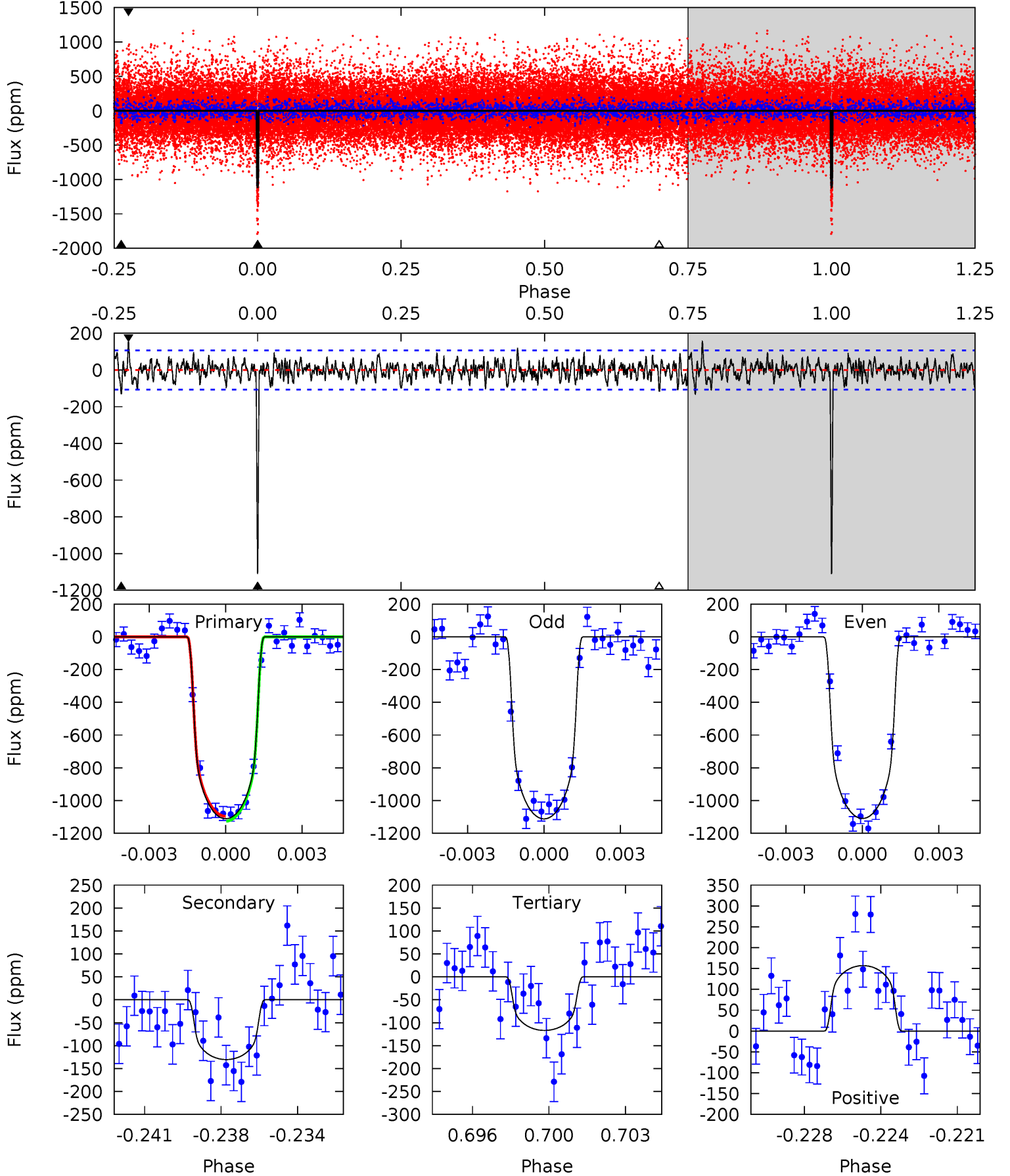
TCE 005689351-02 P= 87.090620 Days $T_0=187.315695$ (BKJD)



DV Model-Shift Uniqueness Test

005689351-02, P = 87.090728 Days, E = 100.225227 Days

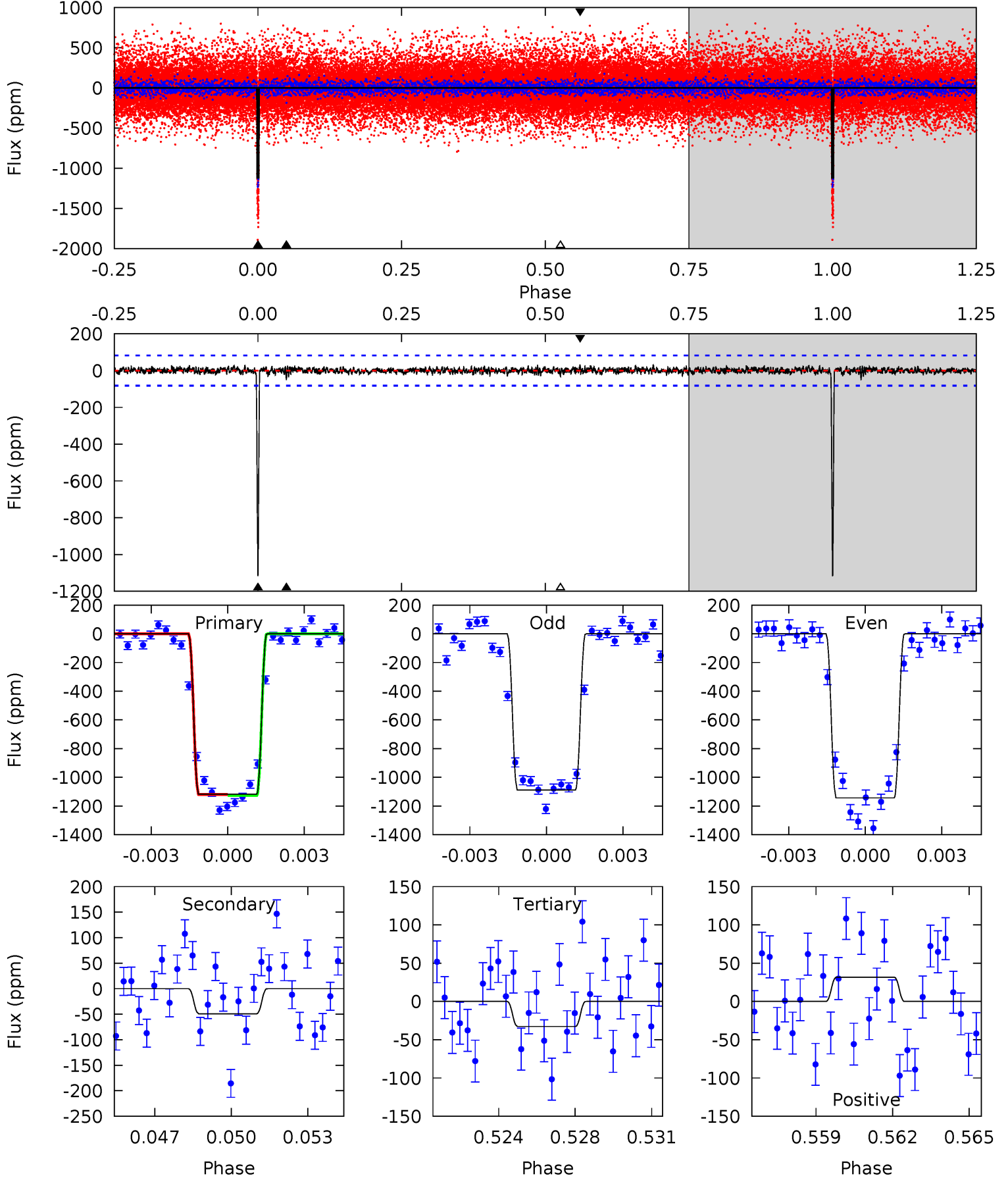
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.6	6.41	5.74	7.71	5.23	2.93	1.82	48.8	46.9	0.67	-1.30	0.06	1.00	0.12	0.75



Alt Model-Shift Uniqueness Test

005689351-02, P = 87.090620 Days, E = 100.225075 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
71.4	3.14	2.09	2.02	5.25	2.96	0.59	69.3	69.4	1.05	1.12	1.75	0.96	0.03	0.24



Stellar Parameters For KIC 005689351

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5001^{+99}_{-1}	$4.582^{+0.024}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.760^{+0.046}_{-0.034}$	$0.806^{+0.038}_{-0.046}$	$2.582^{+0.301}_{-0.394}$
	+2%/-0%	+1%/-1%	+375%/-375%	+6%/-4%	+5%/-6%	+12%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005689351-02 / KOI 0505.05

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-130 ± 20	$2.90^{+0.22}_{-0.22}$	450^{+12}_{-17}	3337^{+128}_{-127}	1091^{+269}_{-227}
Alt.	-49 ± 16	$2.88^{+0.21}_{-0.21}$	450^{+13}_{-17}	2897^{+151}_{-164}	413^{+156}_{-138}

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 $A_{obs} \gg 1.0$

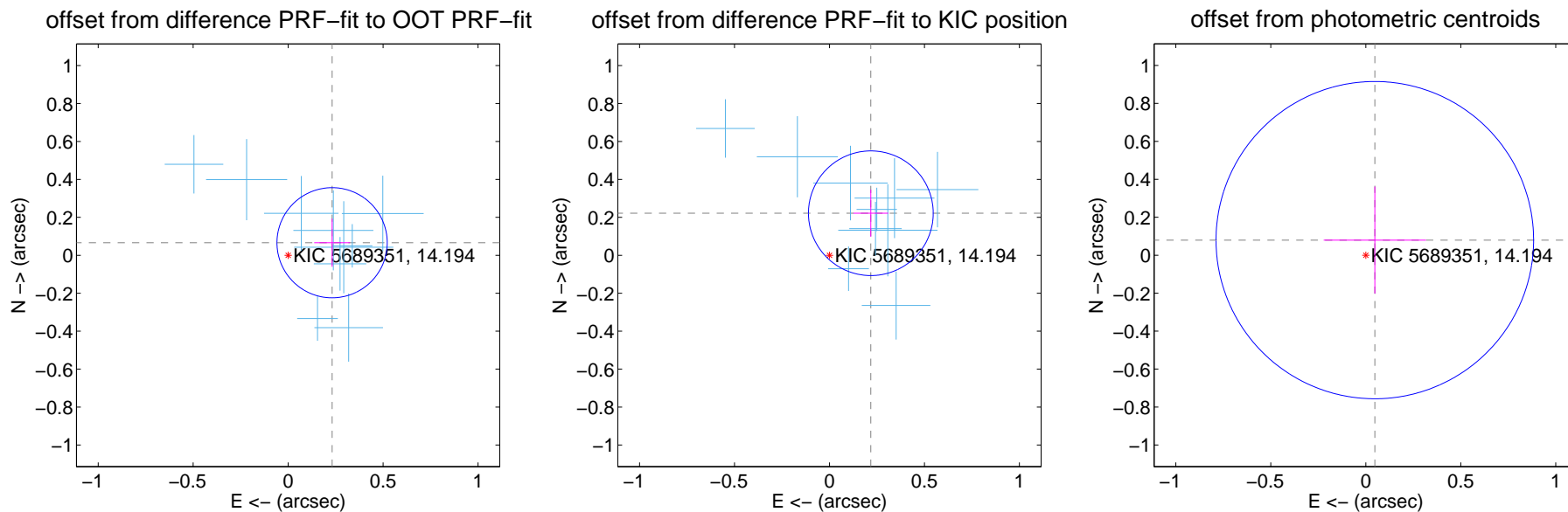
DV Centroid Data

Supplemental centroid analysis for 005689351-02. Kepler magnitude: 14.19. Transit SNR 31.15

There are 10 quarters with good PRF difference image offsets

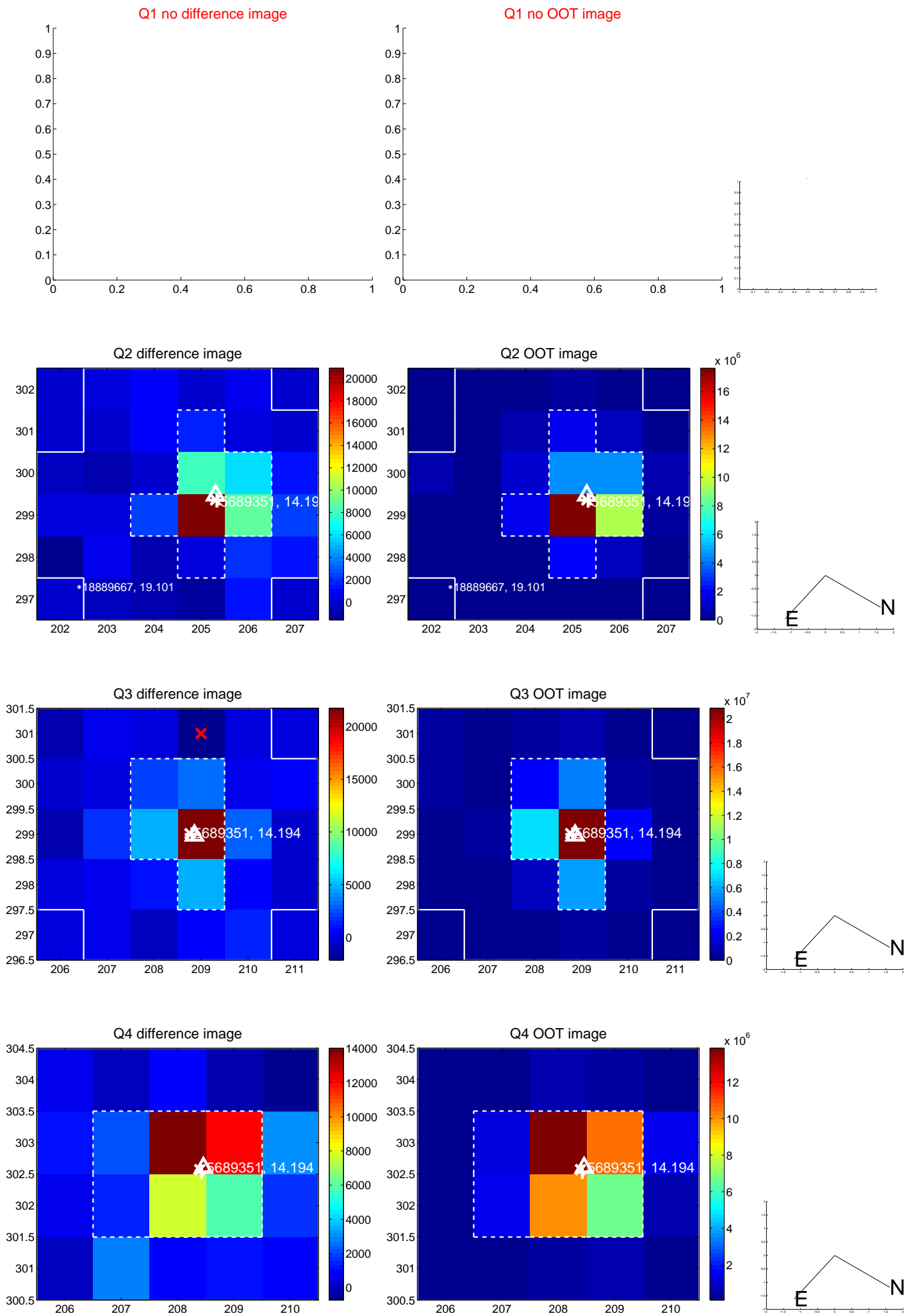
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.241 ± 0.097	2.49	-0.232 ± 0.094	0.066 ± 0.126
PRF-fit source offset from KIC position	0.311 ± 0.109	2.84	-0.218 ± 0.092	0.222 ± 0.124
photometric centroid source offset	0.09 ± 0.28	0.33	-0.05 ± 0.27	0.08 ± 0.28

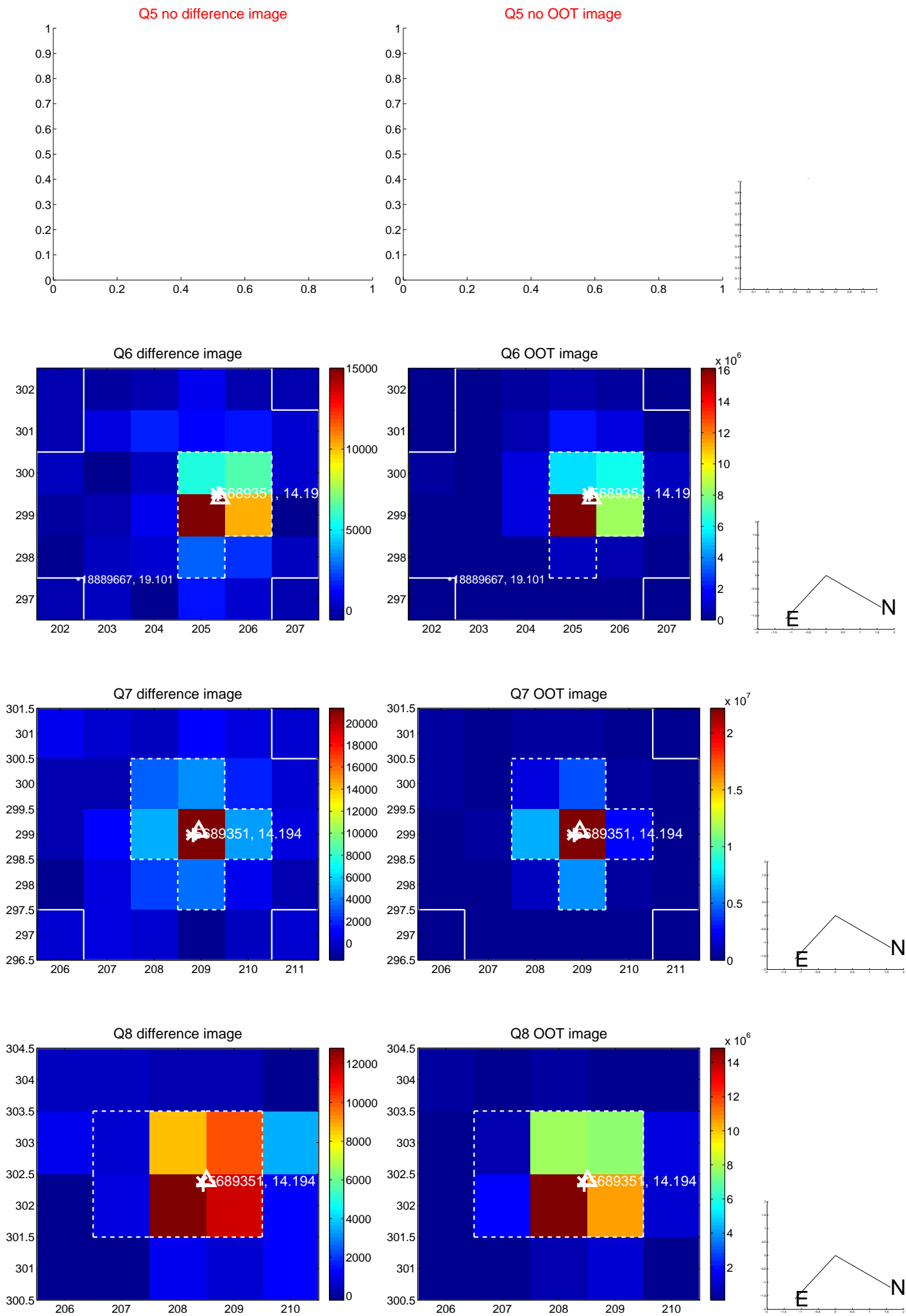


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

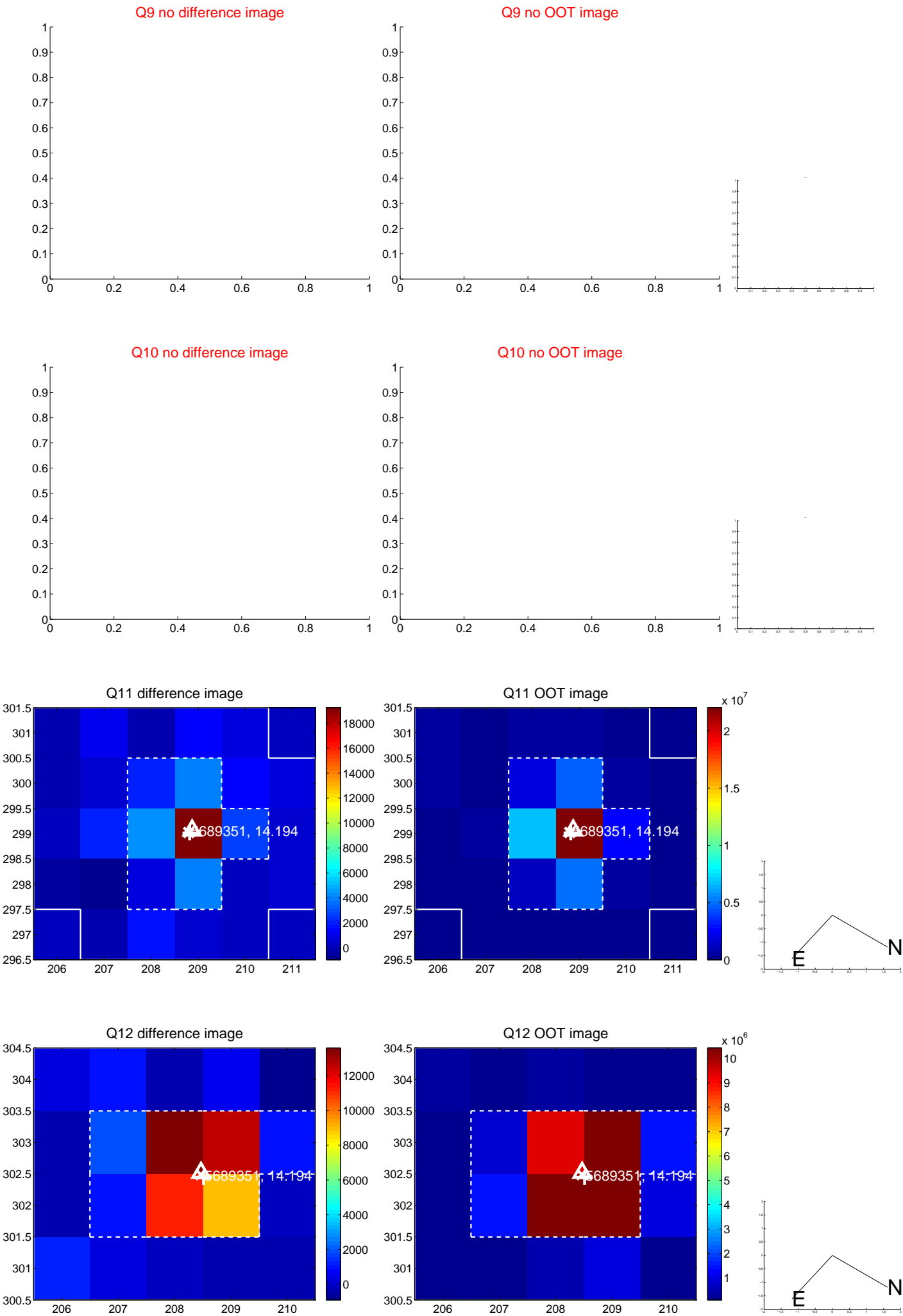
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

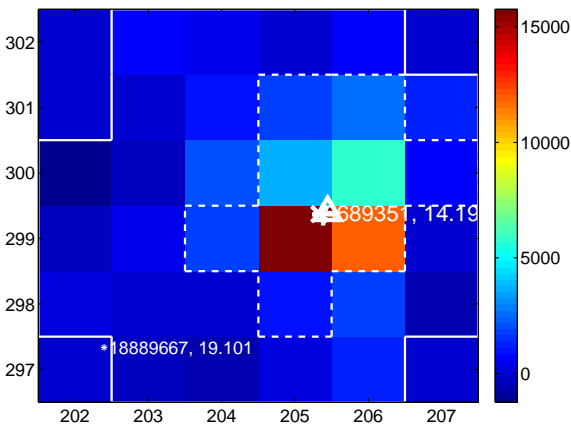
Q13 no difference image



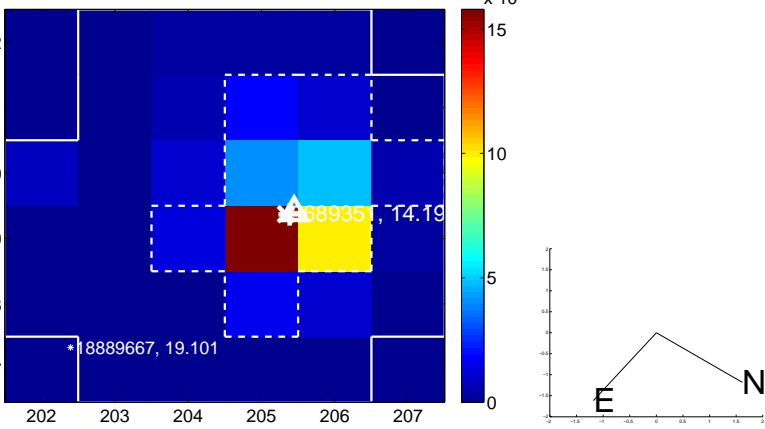
Q13 no OOT image



Q14 difference image



Q14 OOT image



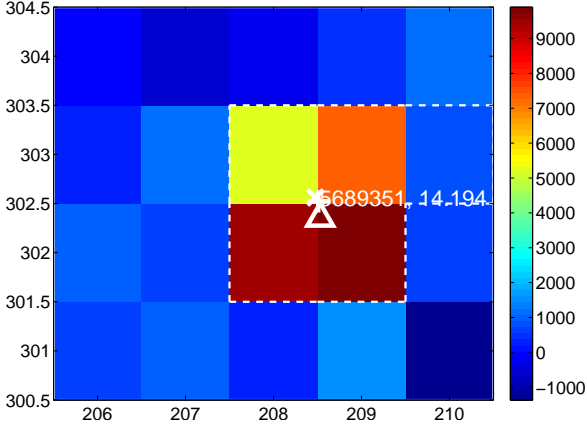
Q15 no difference image



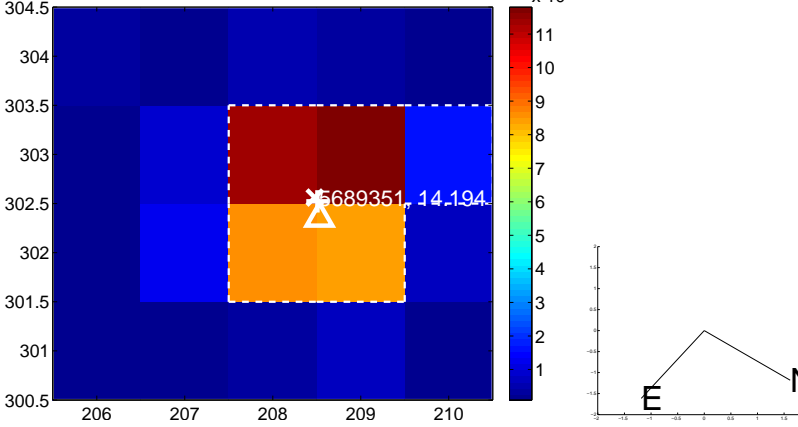
Q15 no OOT image



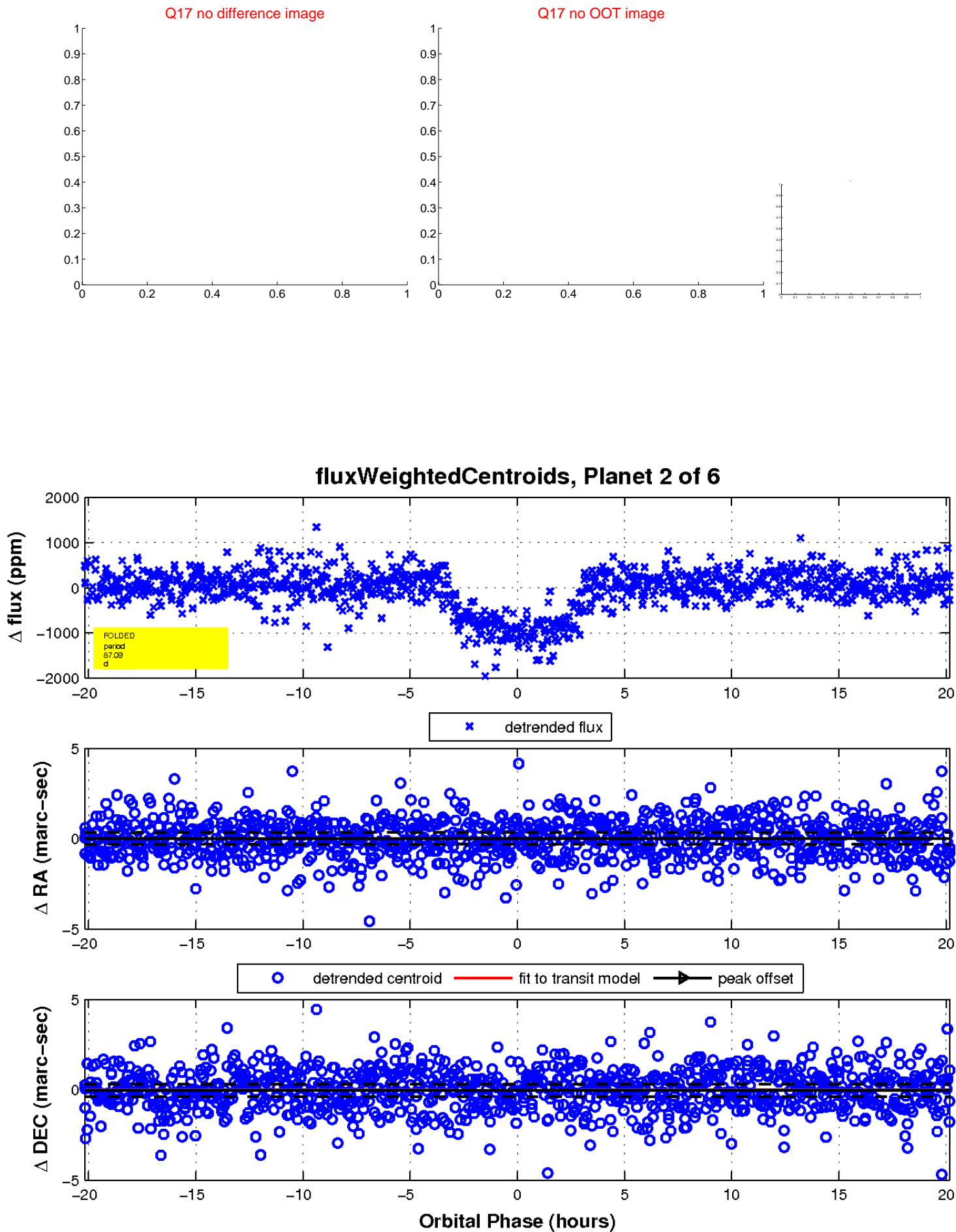
Q16 difference image



Q16 OOT image

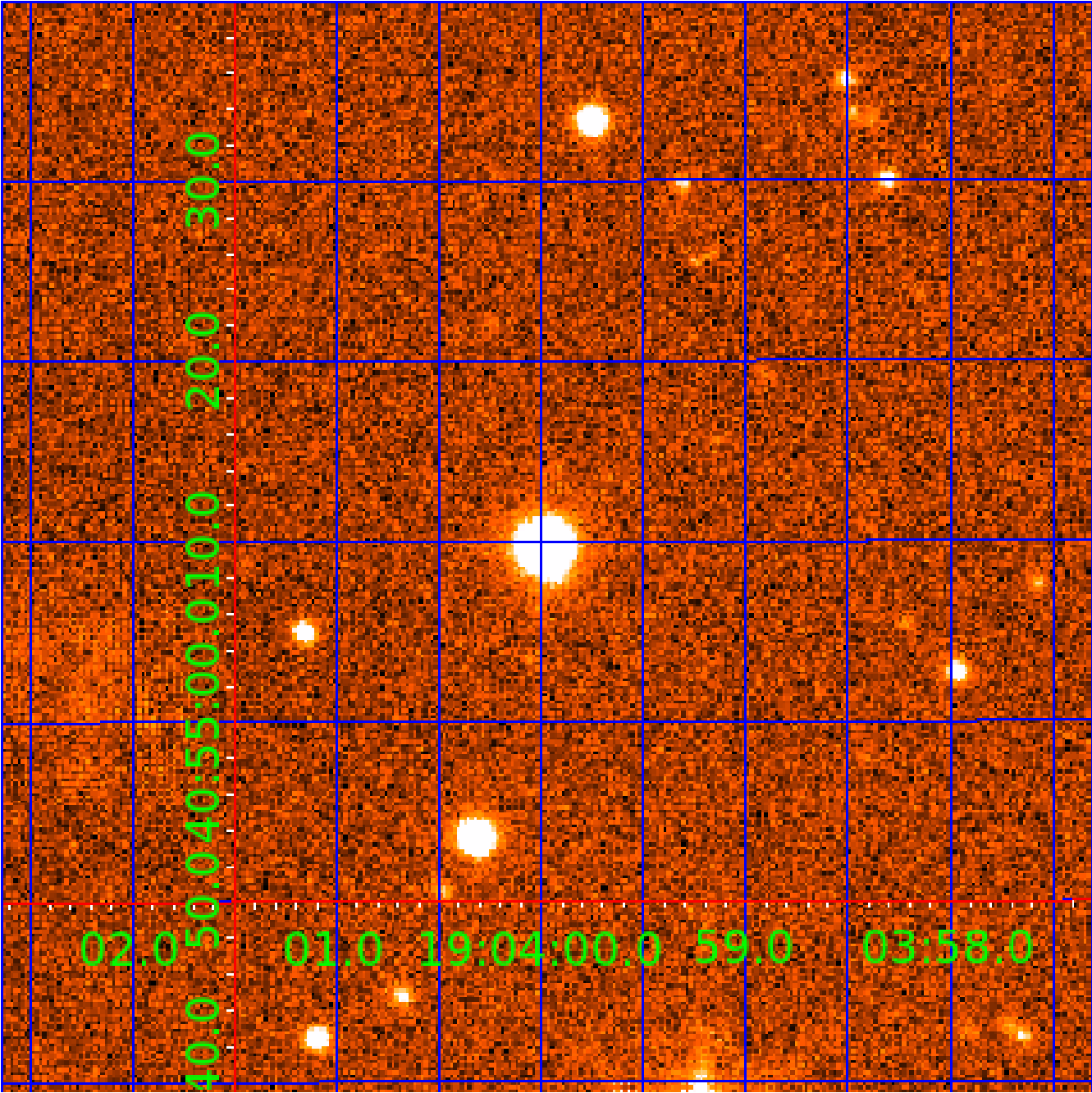


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005689351

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})
005689351-01	OBS	0505.01	13.767106	133.510150	689.0	3.070	35.3	39.2	0.76	5001	2.46	29.59
005689351-02	OBS	0505.05	87.090728	187.315954	1119.4	6.729	31.2	31.2	0.76	5001	2.87	2.53
005689351-03	OBS	0505.03	3.250590	133.696199	206.9	2.279	20.3	22.5	0.76	5001	1.40	202.79
005689351-04	OBS	0505.04	8.348186	136.838888	304.2	3.255	20.0	22.0	0.76	5001	1.74	57.66
005689351-05	OBS	0505.02	6.195489	134.711926	252.4	2.949	18.1	20.3	0.76	5001	1.47	85.81
005689351-06	OBS	No	199.591596	203.553758	327.6	10.850	10.8	6.1	0.76	5001	1.54	0.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005689351-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT
005689351-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

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

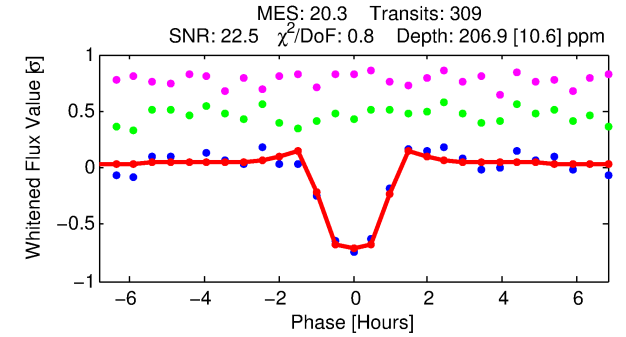
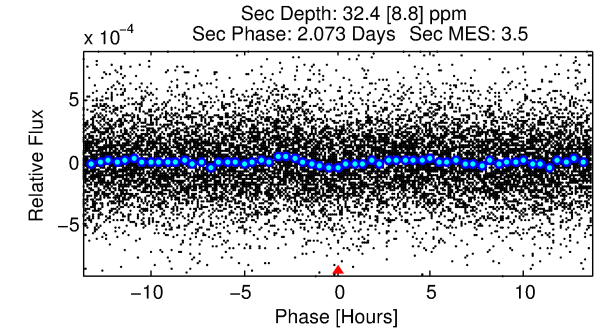
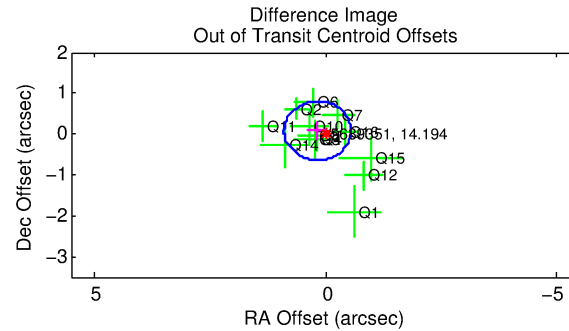
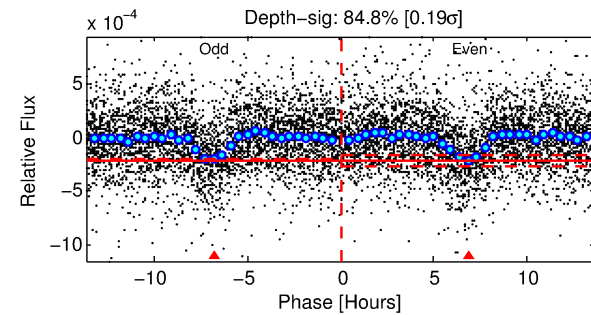
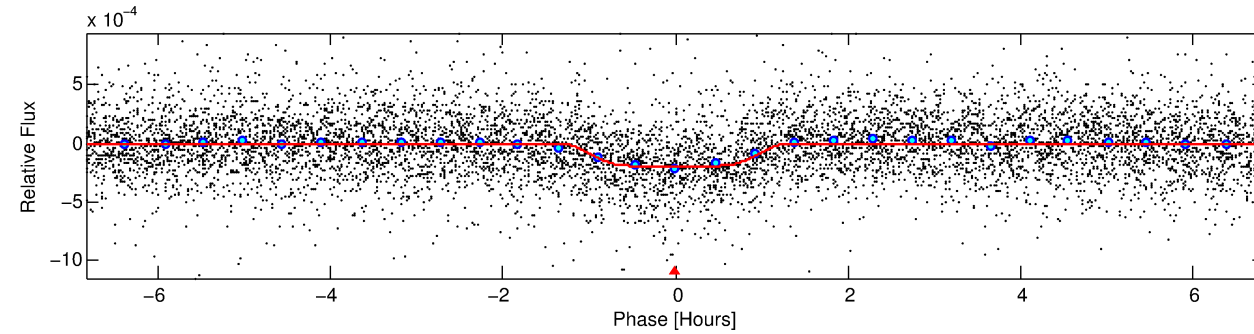
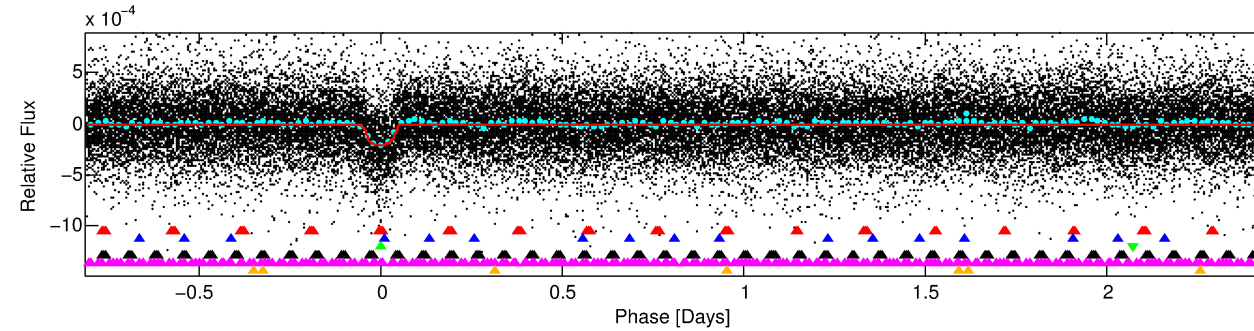
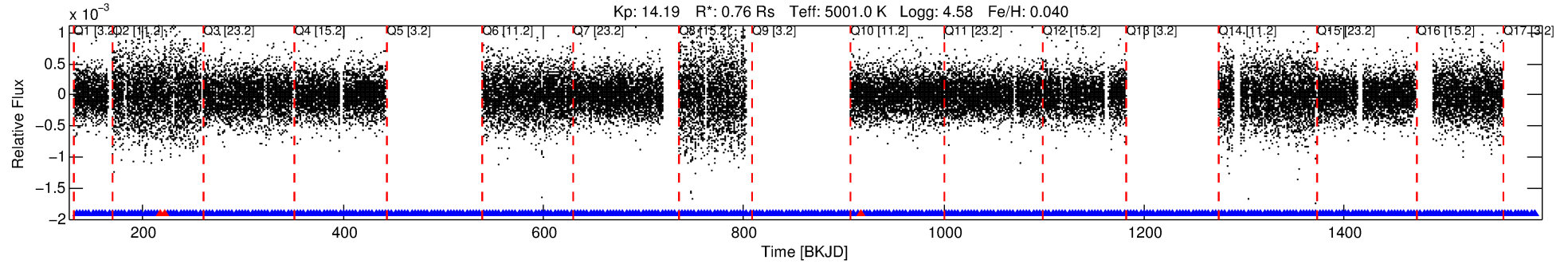
Ephemeris Match Information For 005689351-03

No Significant Match Found

DV One-Page Summary

KIC: 5689351 Candidate: 3 of 6 Period: 3.251 d
KOI: K00505.03 Name: Kepler-169b Corr: 0.969

Kp: 14.19 R*: 0.76 Rs Teff: 5001.0 K Logg: 4.58 Fe/H: 0.040



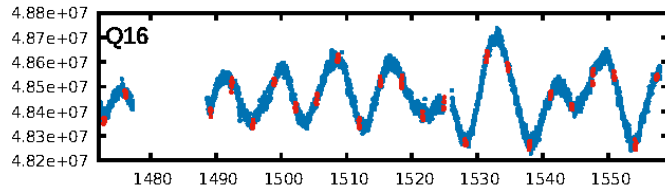
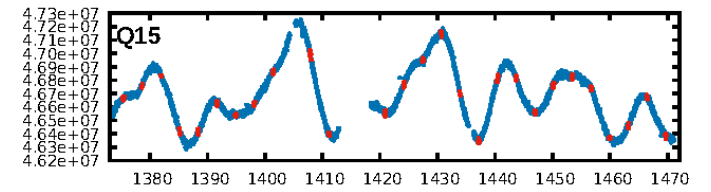
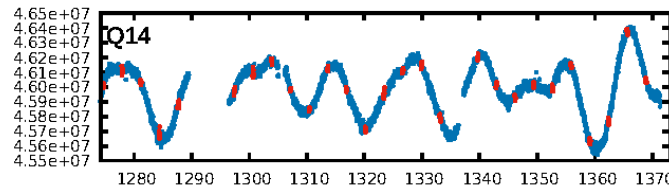
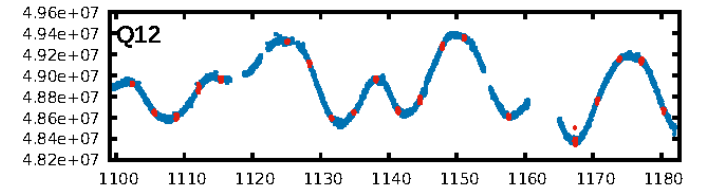
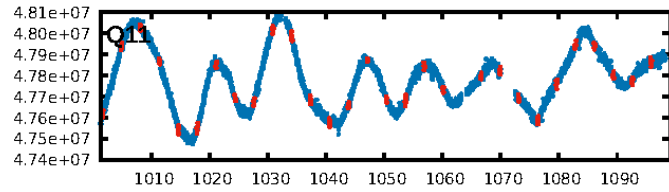
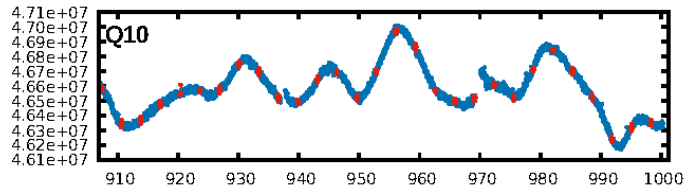
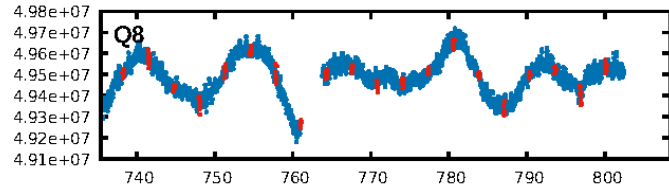
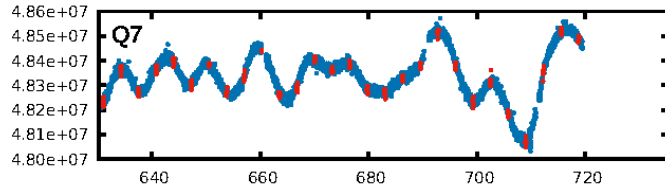
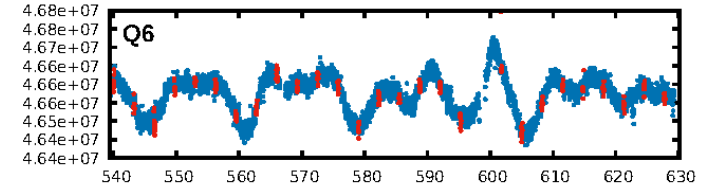
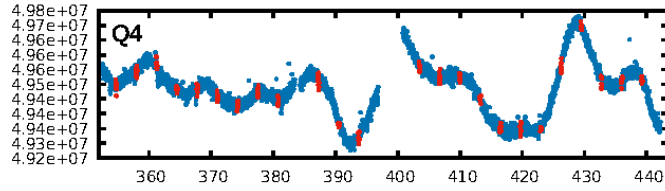
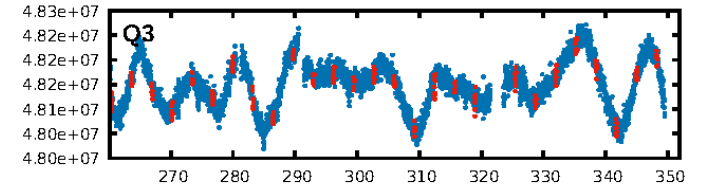
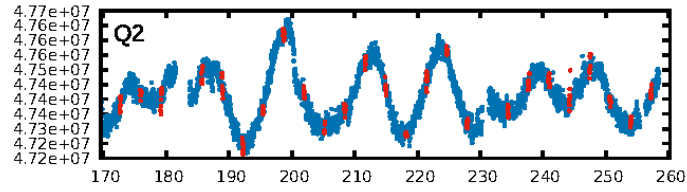
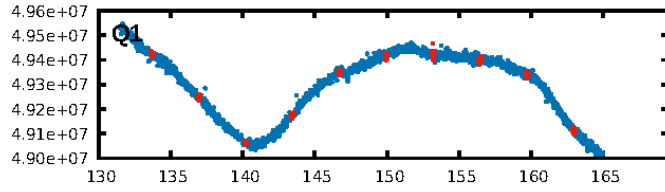
DV Fit Results:

Period = 3.25059 [0.00001] d
Epoch = 133.6962 [0.0014] BKJD
Rp/R* = 0.0169 [0.0030]
a/R* = 4.49 [3.14]
b = 0.93 [0.10]
Seff = 202.79 [23.41]
Teff = 962 [28] K
Rp = 1.40 [0.26] Re
a = 0.0400 [0.0022] AU
Ag = 14.52 [6.59] [2.05σ]
Teffp = 2904 [329] K [5.88σ]

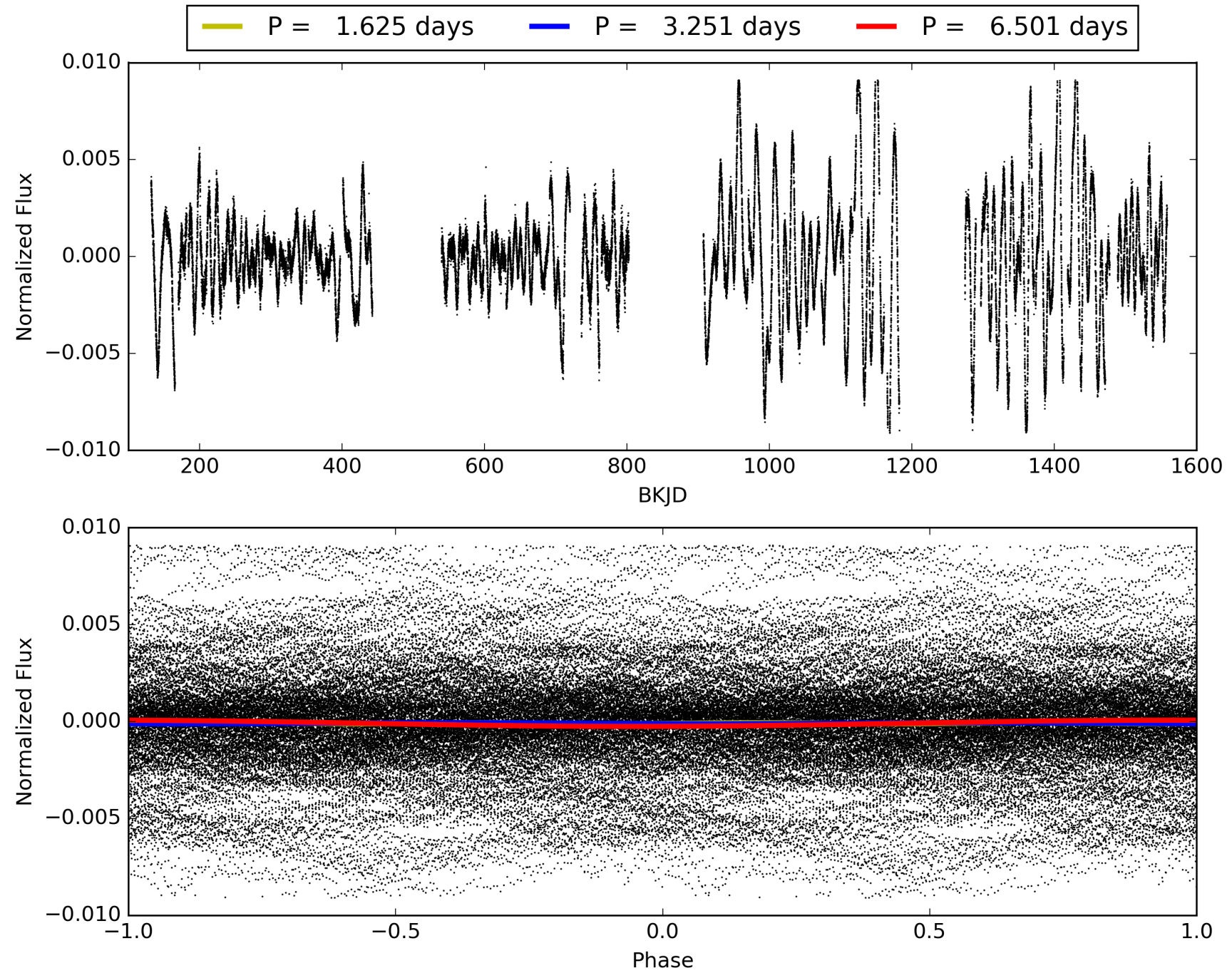
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [18.96σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.00e-86
RollingBand-fgt: 0.99 [296/299]
GhostDiagnostic-chr: 3.449
Centroid-sig: 7.1%
Centroid-so: 0.731 arcsec [1.53σ]
OotOffset-rm: 0.191 arcsec [0.80σ]
KicOffset-rm: 0.302 arcsec [1.37σ]
OotOffset-st: 4/4/4/1 [13]
KicOffset-st: 4/4/4/1 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [13/13]

TCE 005689351-03, PDC Light Curves

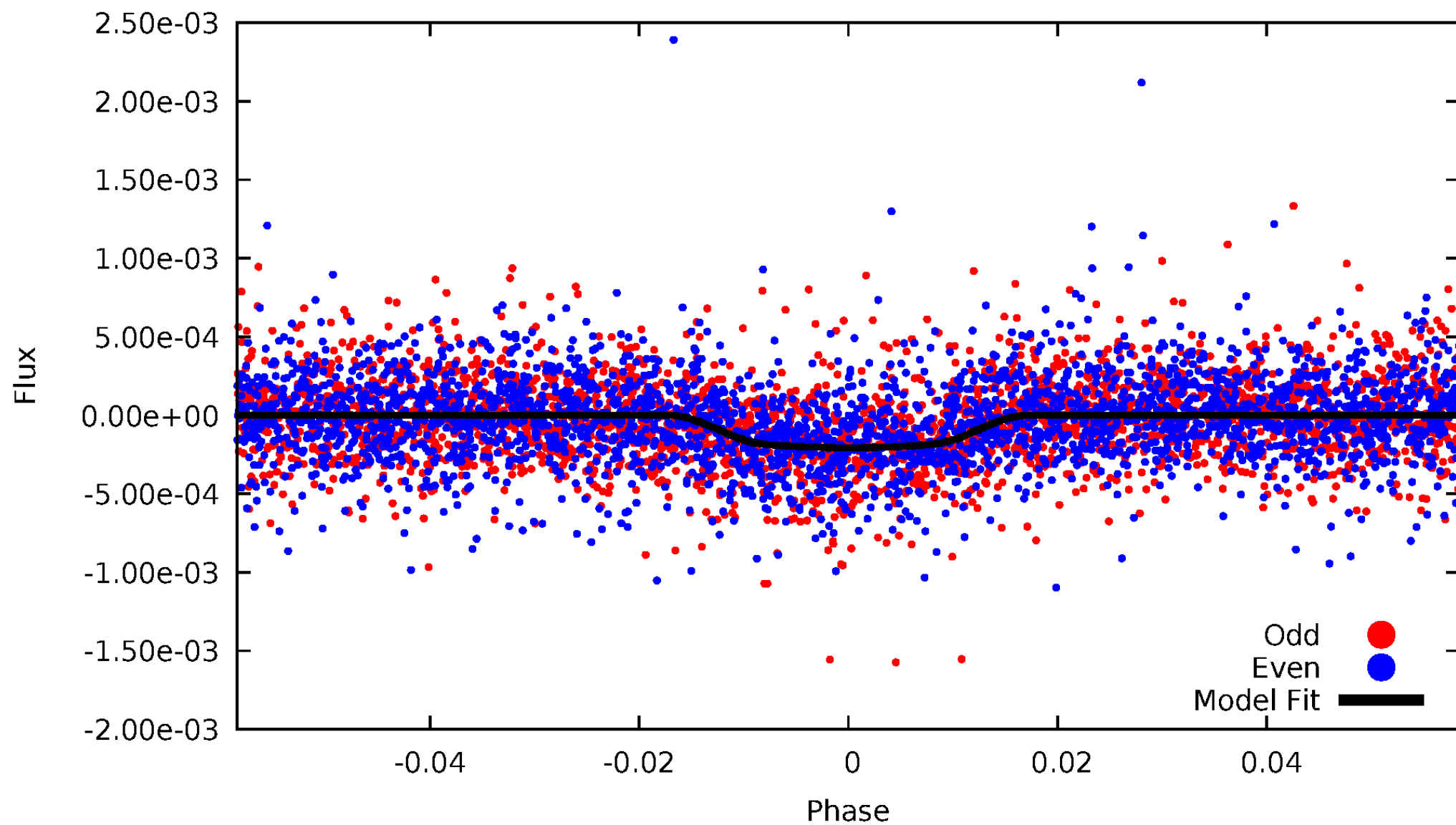


TCE 005689351-03



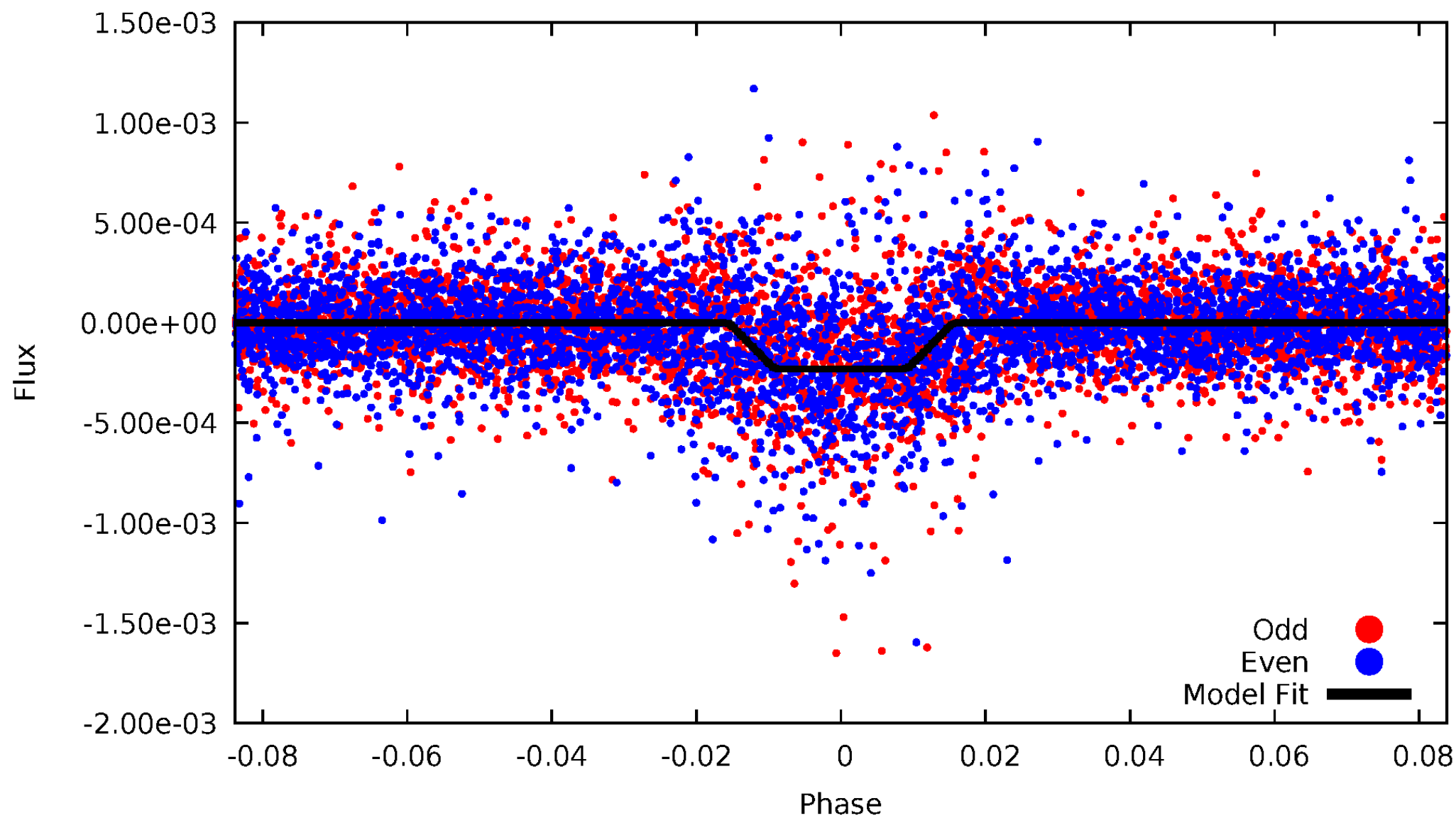
DV Odd/Even

TCE 005689351-03



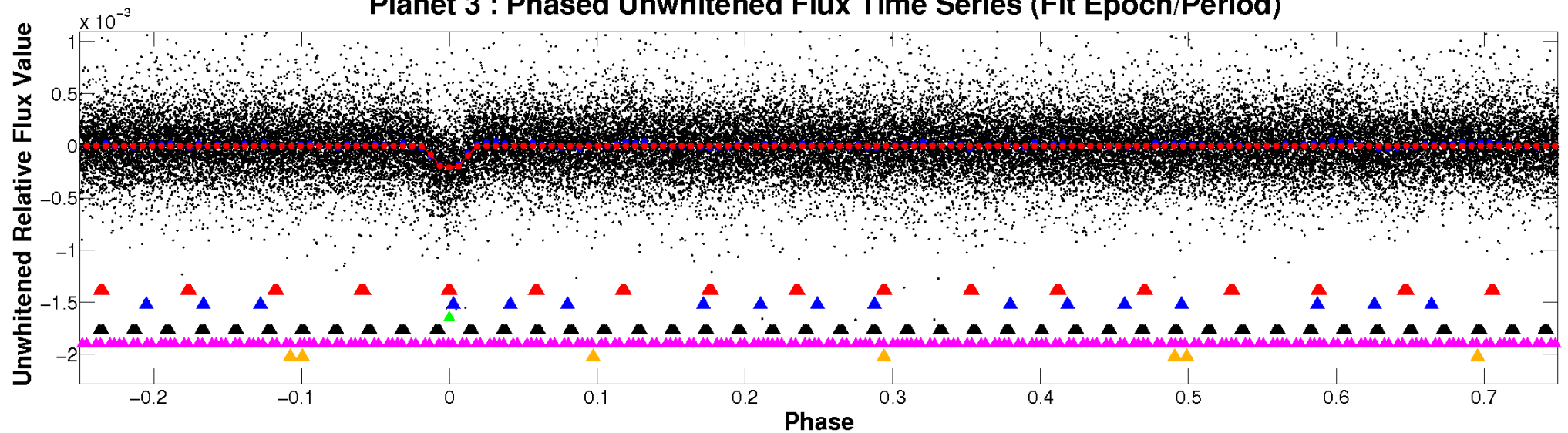
ALT Odd/Even

TCE 005689351-03

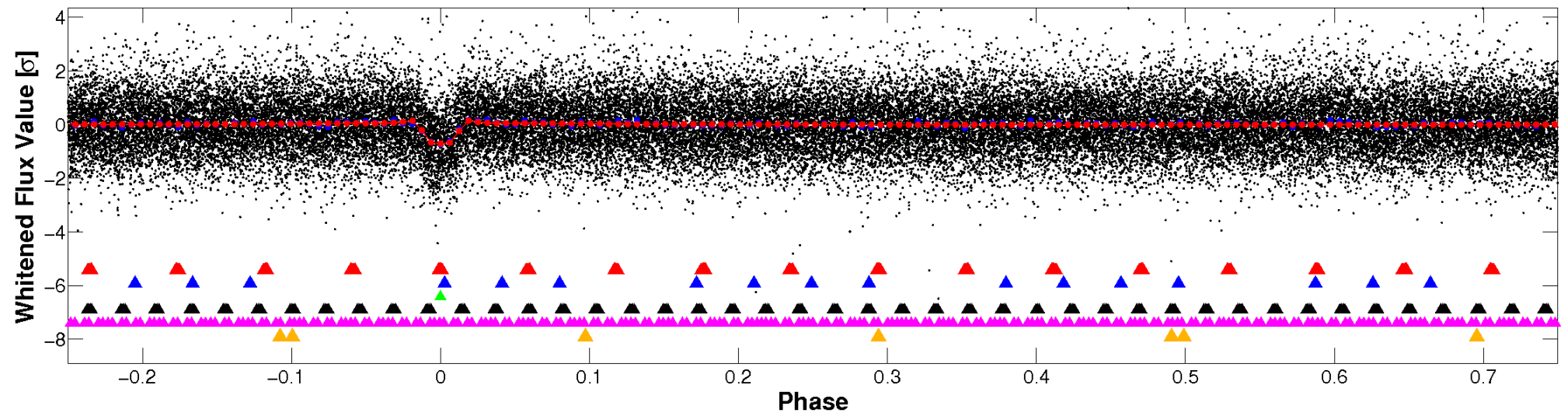


Non-Whitened Vs. Whitened Light Curve

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

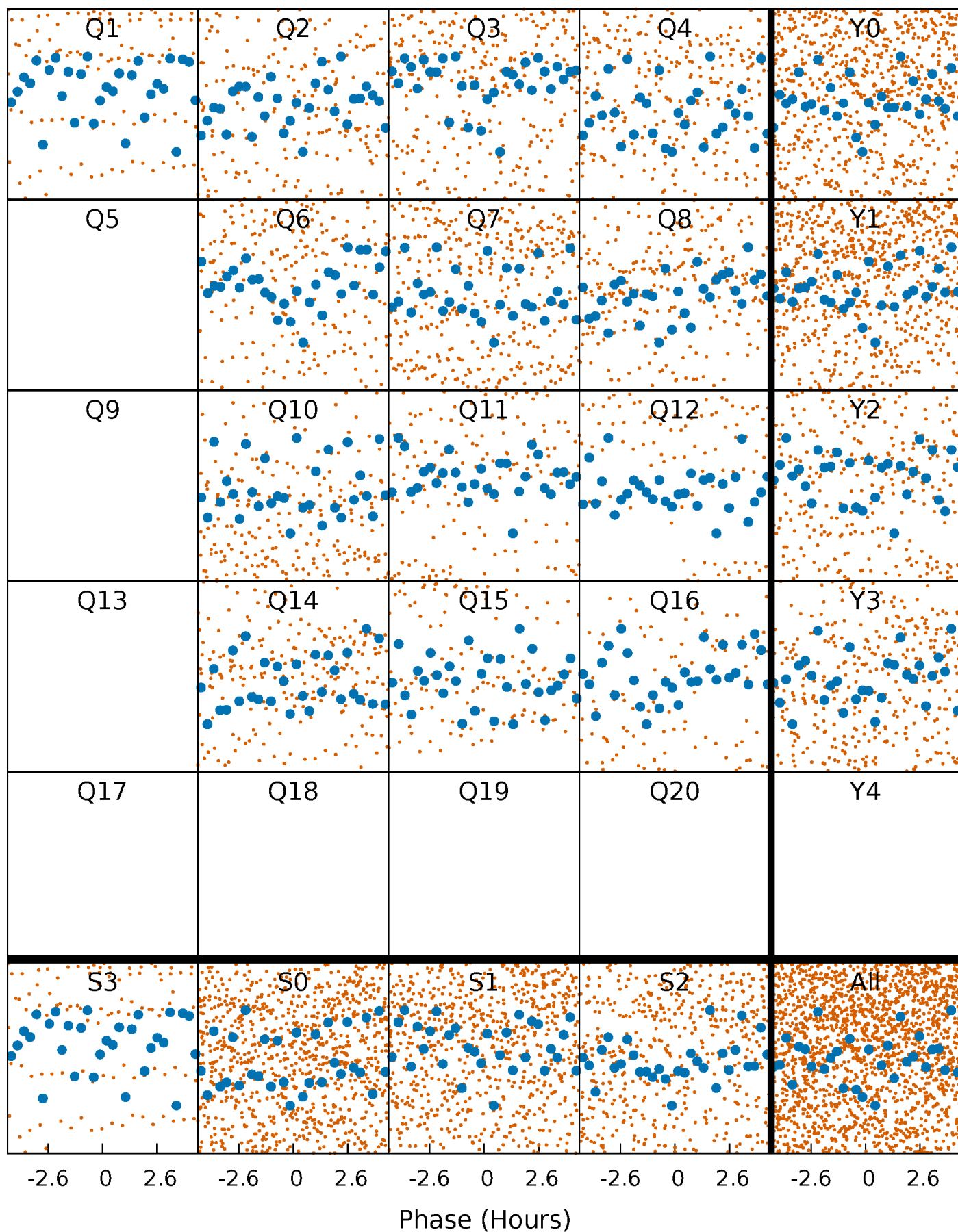


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



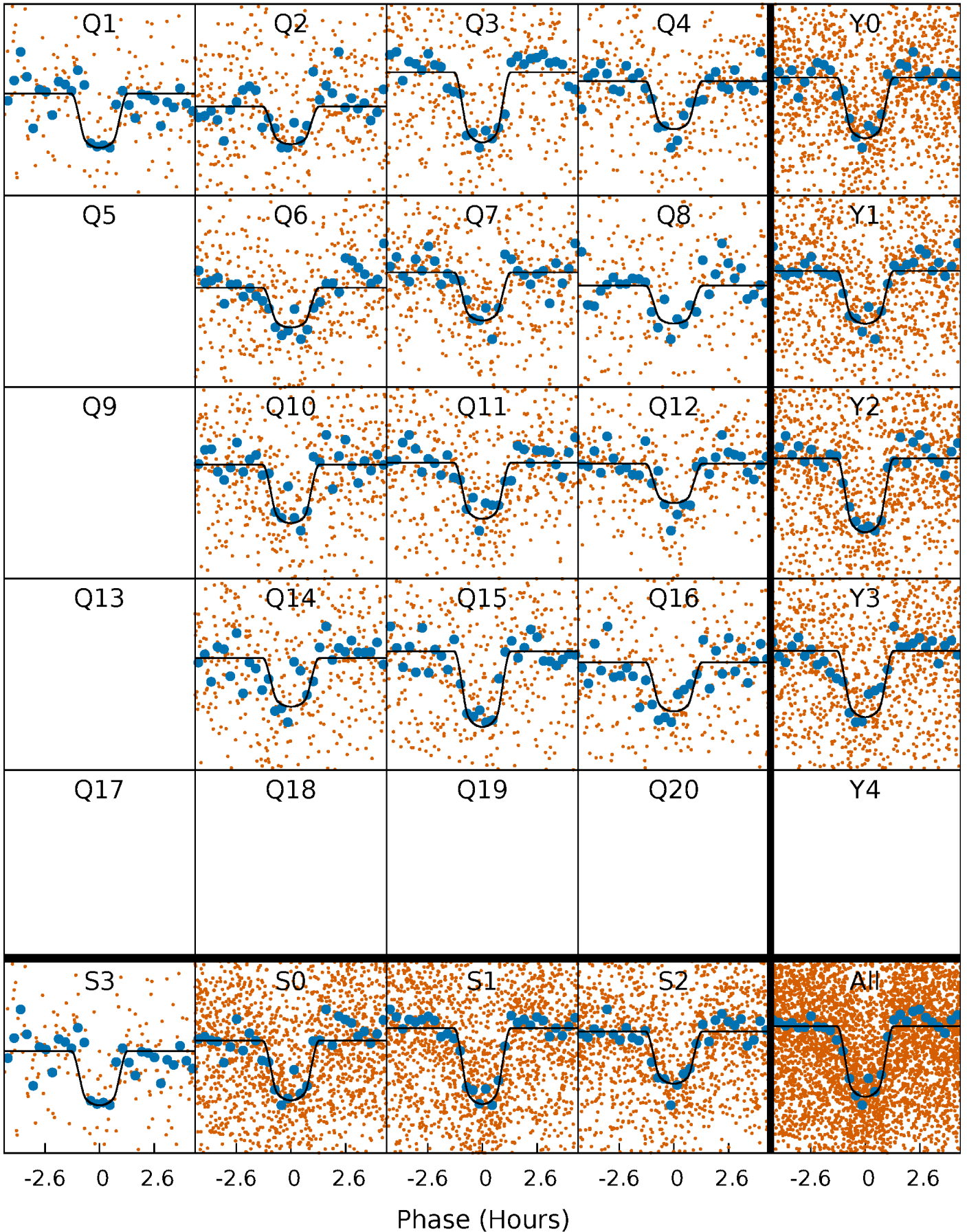
PDC Quarter-Phased Transit Curves

TCE 005689351-03 P= 3.250590 Days $T_0=133.696199$ (BKJD)



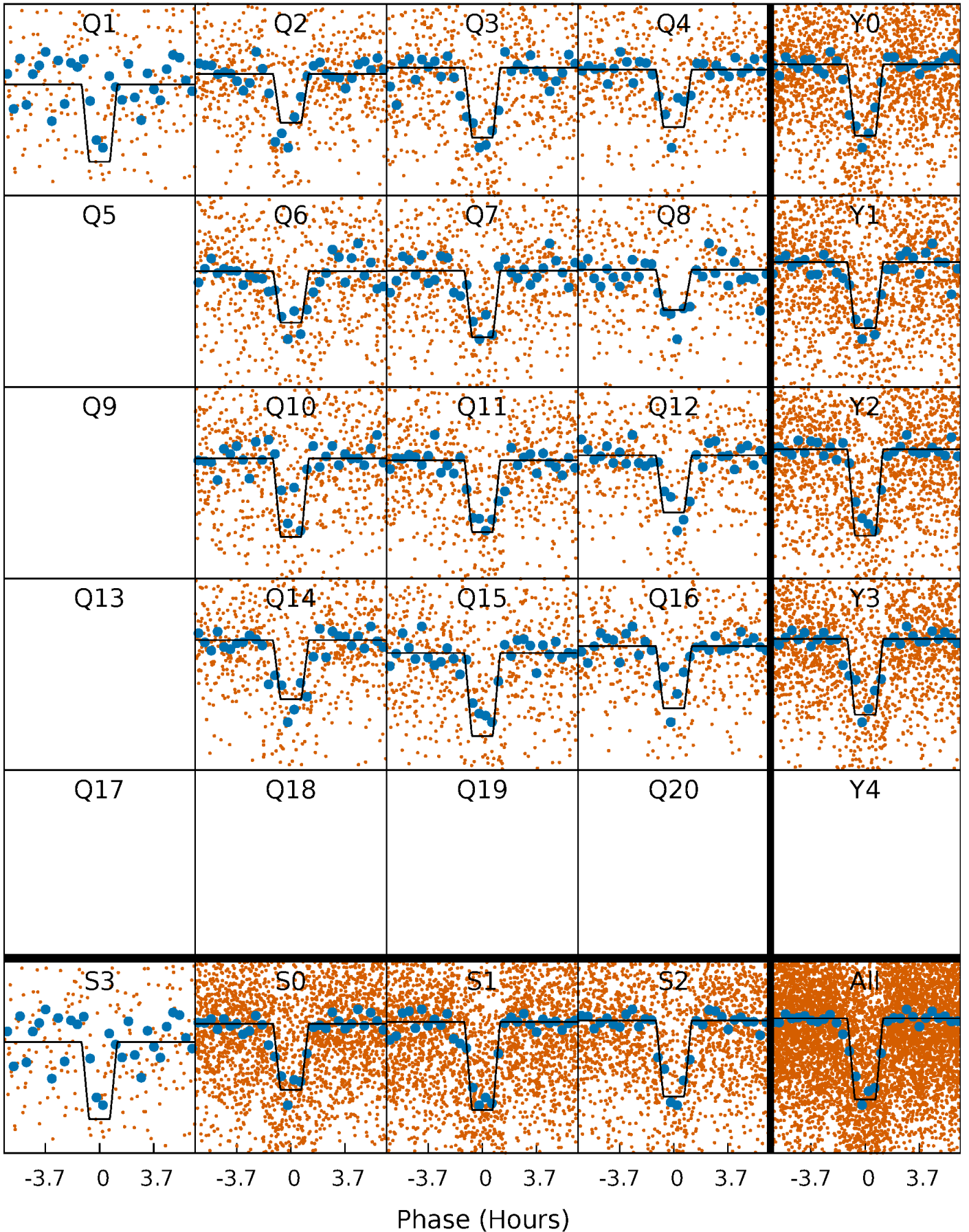
DV Quarter-Phased Transit Curves

TCE 005689351-03 P= 3.250590 Days $T_0=133.696199$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

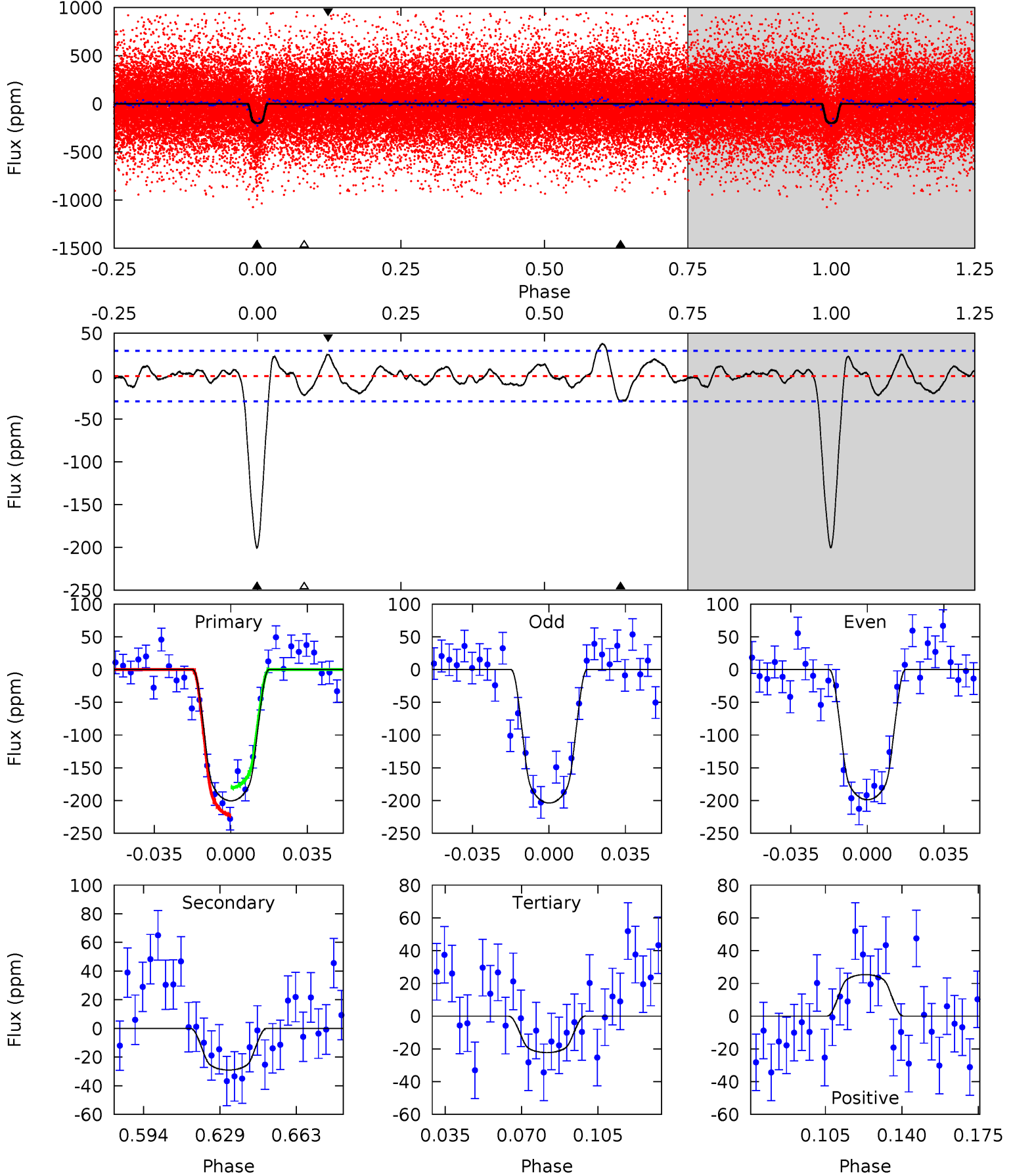
TCE 005689351-03 P= 3.250538 Days $T_0=133.702476$ (BKJD)



DV Model-Shift Uniqueness Test

005689351-03, P = 3.250590 Days, E = 130.445609 Days

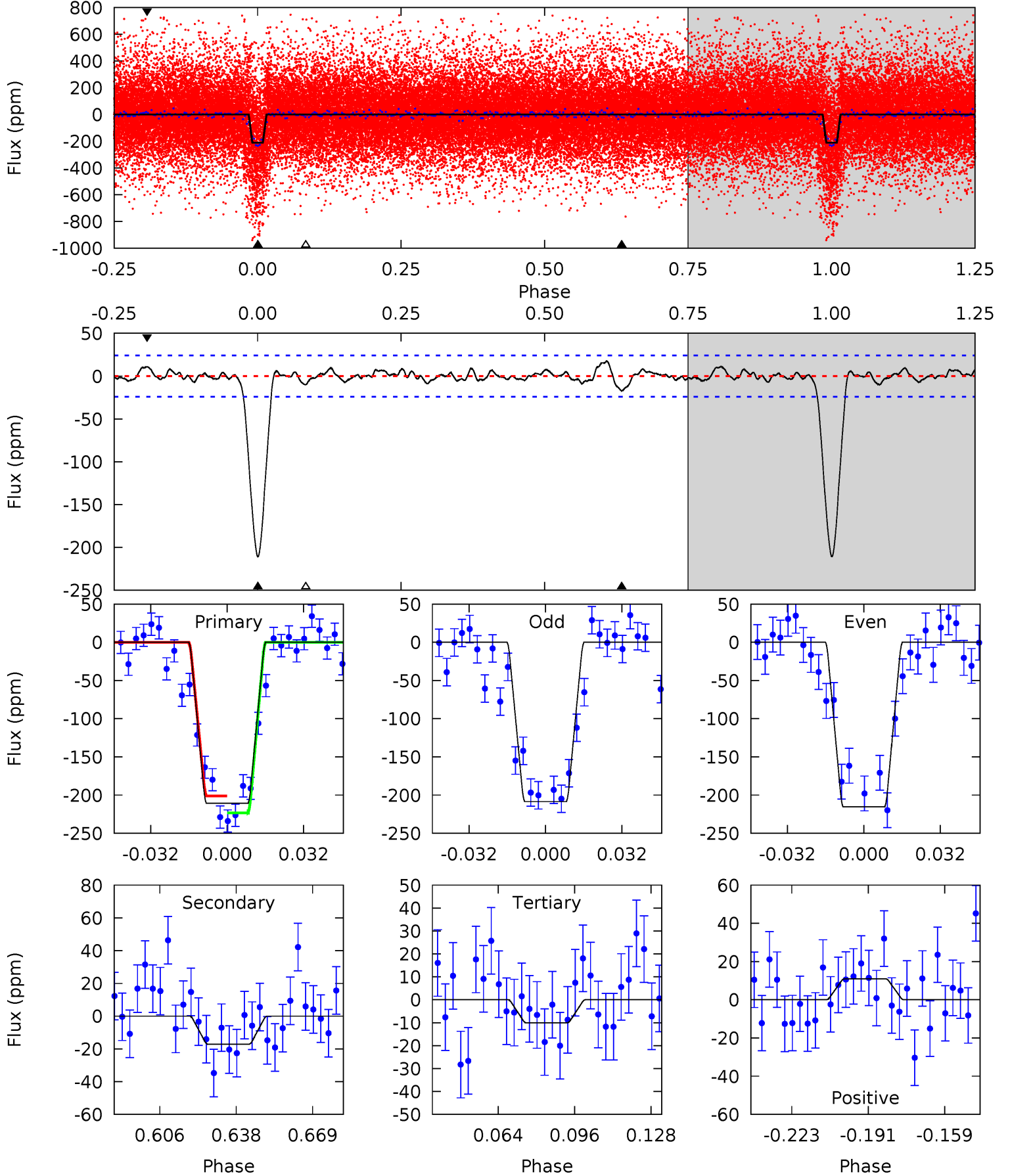
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.5	4.71	3.61	4.11	4.78	2.11	1.54	28.9	28.4	1.10	0.59	0.41	0.97	0.16	3.36



Alt Model-Shift Uniqueness Test

005689351-03, P = 3.250538 Days, E = 130.451938 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.0	3.41	2.00	2.19	4.80	2.15	0.88	40.0	39.8	1.41	1.22	0.68	1.07	0.08	2.21



Stellar Parameters For KIC 005689351

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5001^{+99}_{-1}	$4.582^{+0.024}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.760^{+0.046}_{-0.034}$	$0.806^{+0.038}_{-0.046}$	$2.582^{+0.301}_{-0.394}$
	+2%/-0%	+1%/-1%	+375%/-375%	+6%/-4%	+5%/-6%	+12%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005689351-03 / KOI 0505.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-29 ± 6	$1.40^{+0.26}_{-0.27}$	1348^{+36}_{-54}	3306^{+246}_{-211}	13^{+7}_{-4}
Alt.	-17 ± 5	$1.26^{+0.27}_{-0.22}$	1346^{+39}_{-49}	3140^{+246}_{-231}	$9.312^{+5.713}_{-3.629}$

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

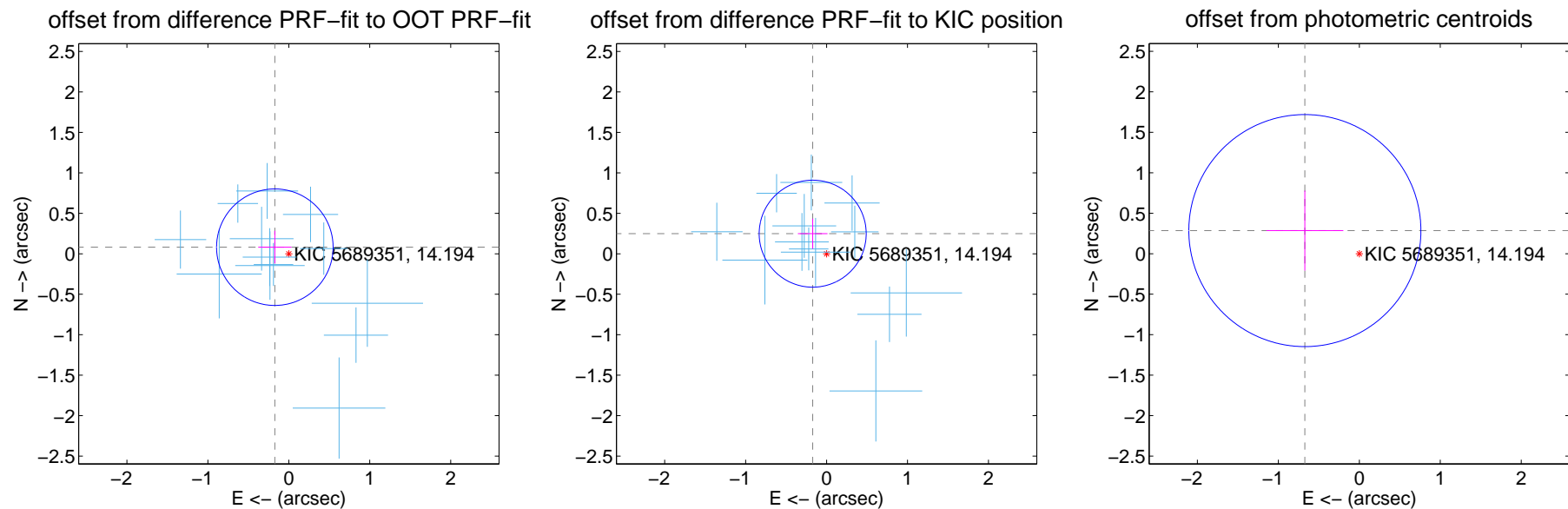
DV Centroid Data

Supplemental centroid analysis for 005689351-03. Kepler magnitude: 14.19. Transit SNR 22.53

There are 13 quarters with good PRF difference image offsets

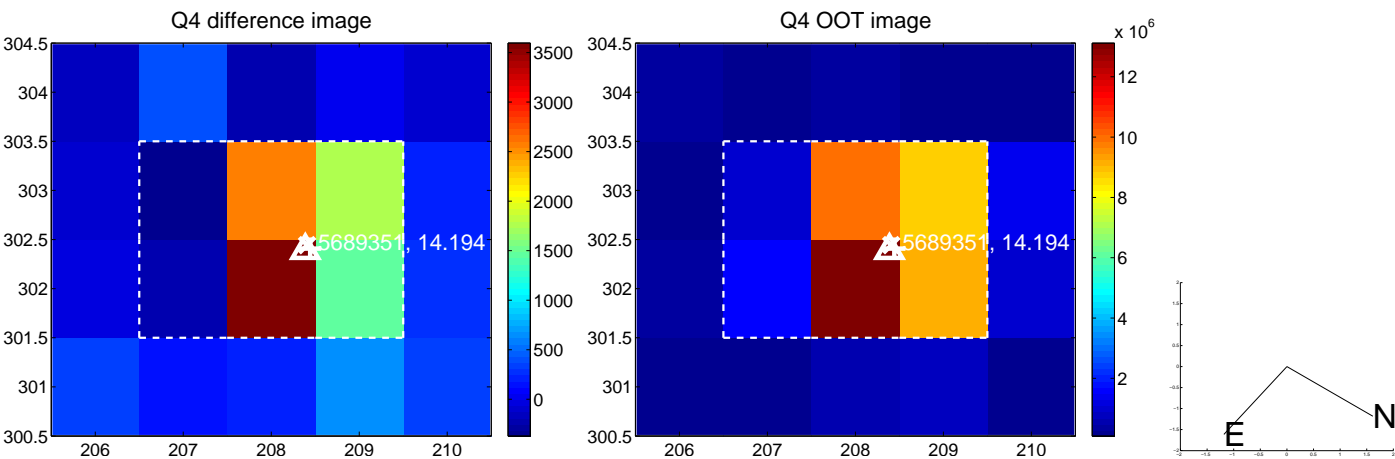
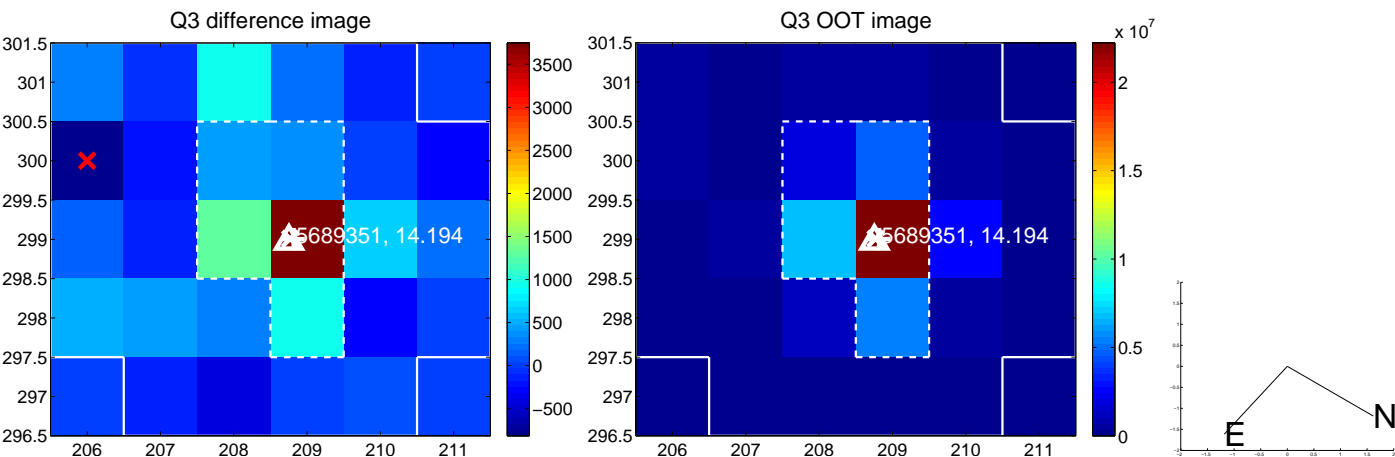
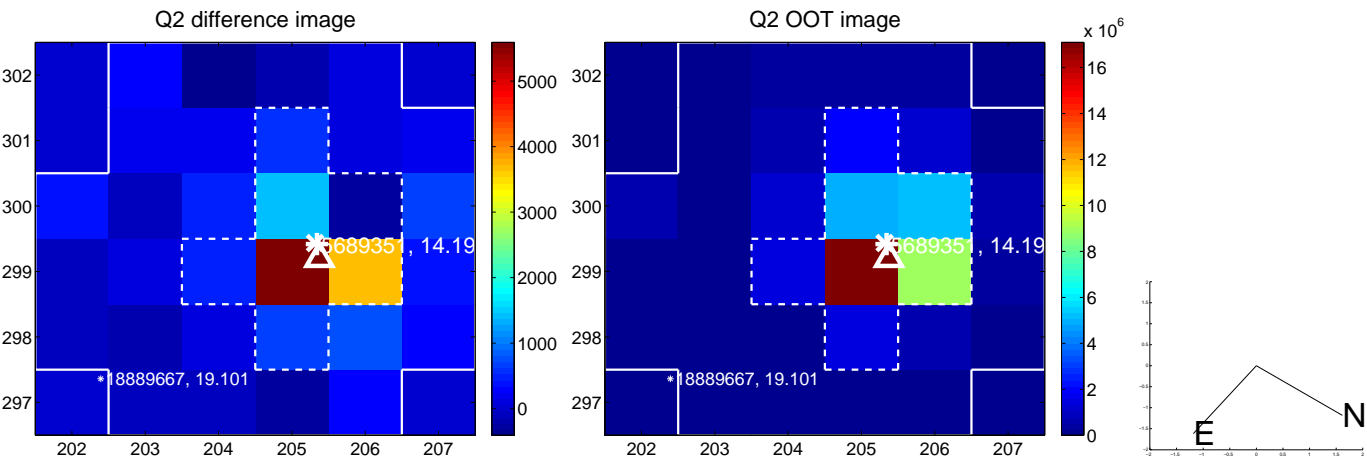
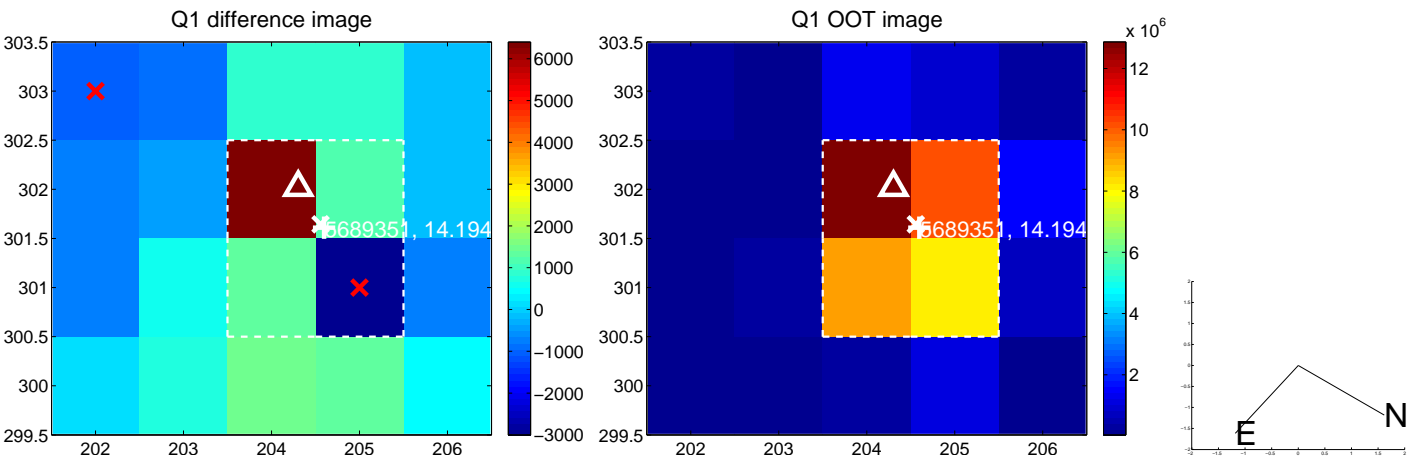
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.191 ± 0.240	0.80	0.173 ± 0.205	0.081 ± 0.202
PRF-fit source offset from KIC position	0.302 ± 0.220	1.37	0.172 ± 0.183	0.248 ± 0.186
photometric centroid source offset	0.73 ± 0.48	1.53	0.67 ± 0.47	0.29 ± 0.49

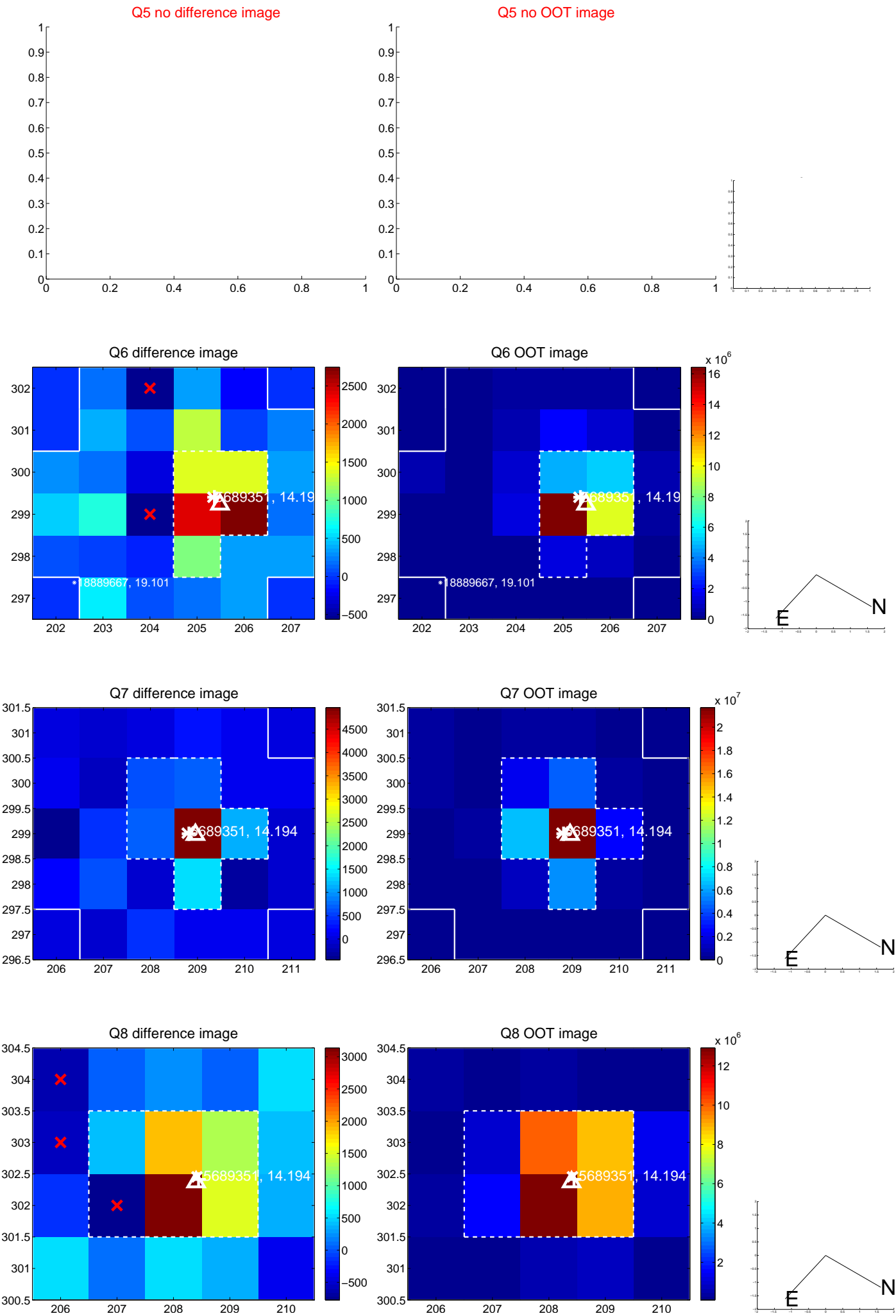


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

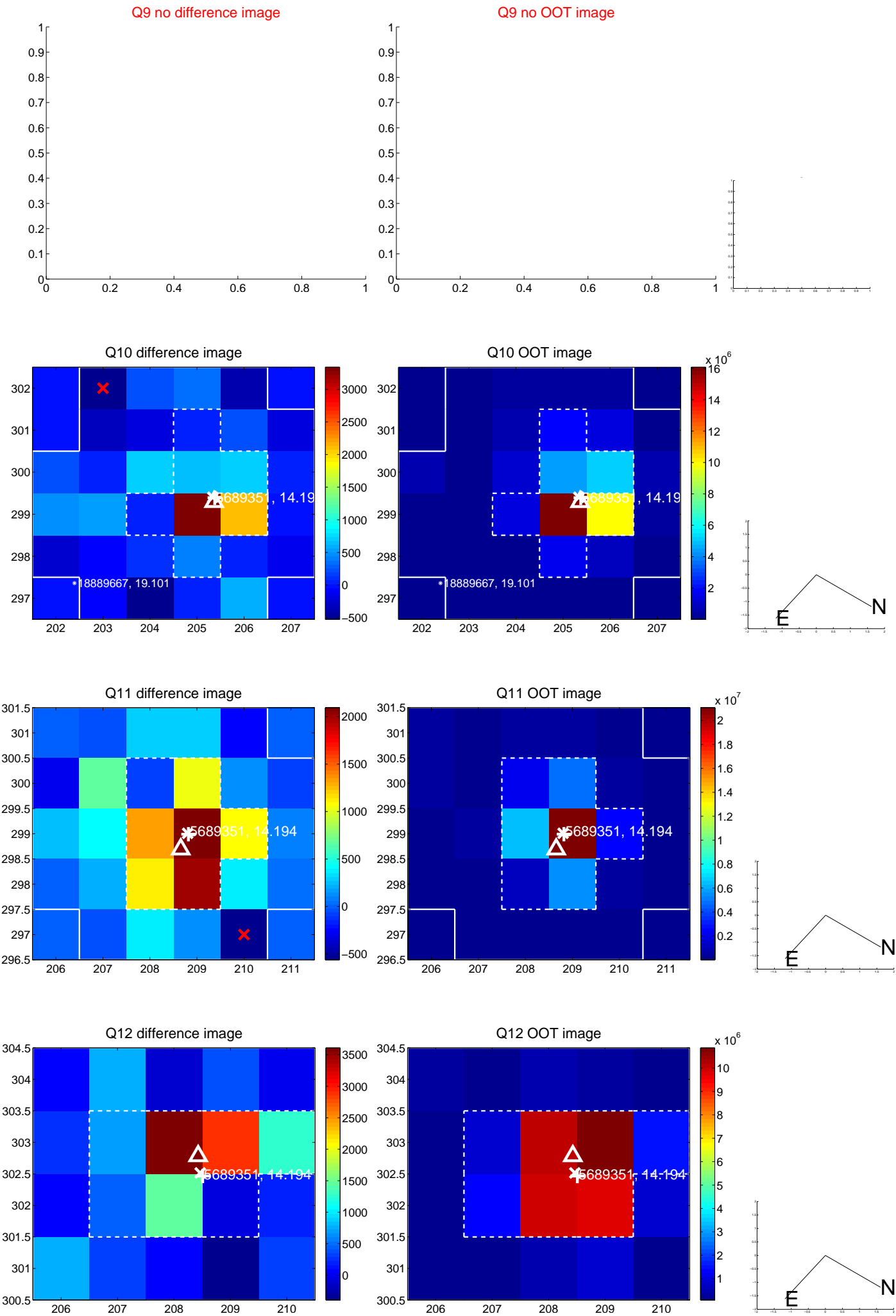
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



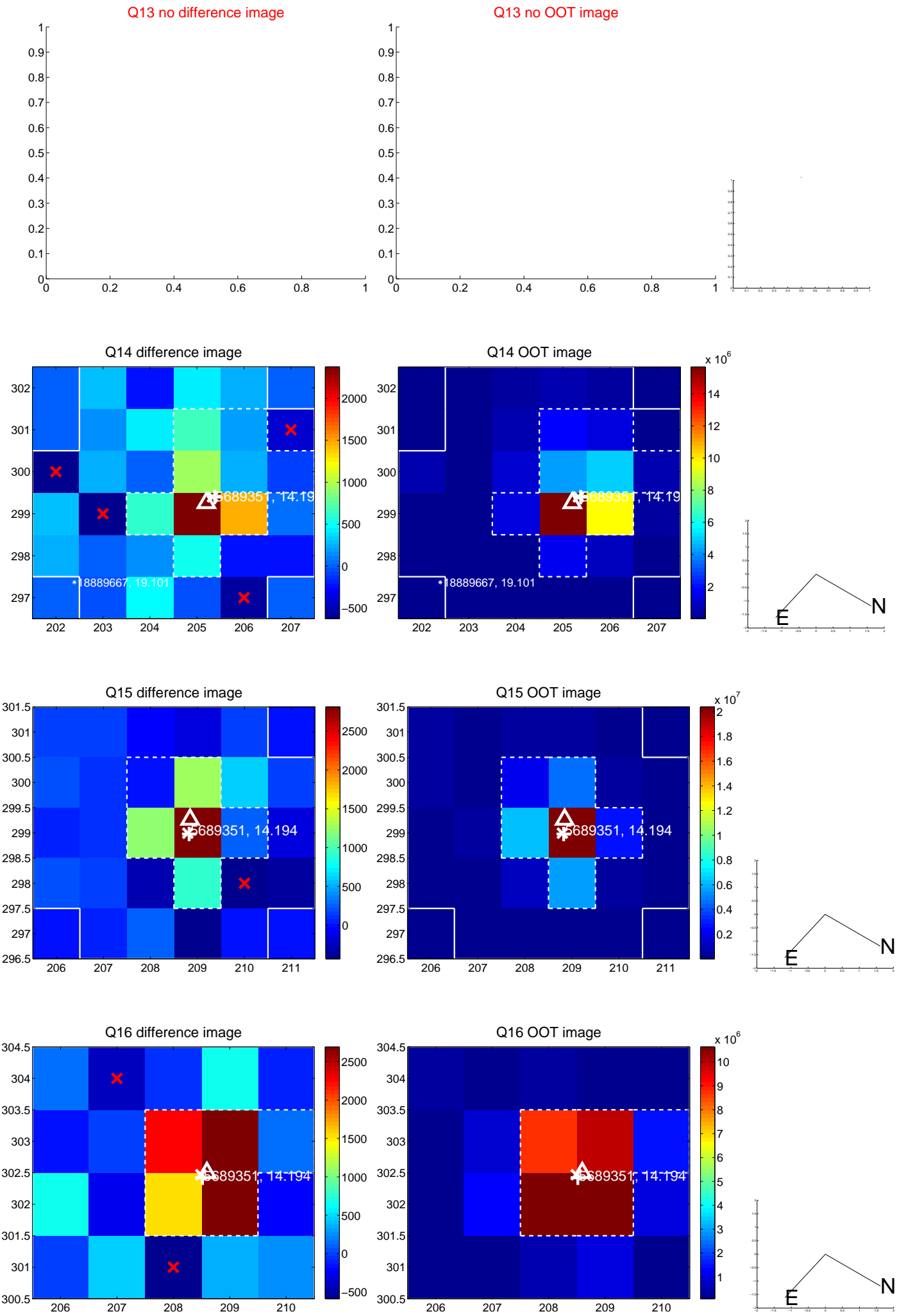
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



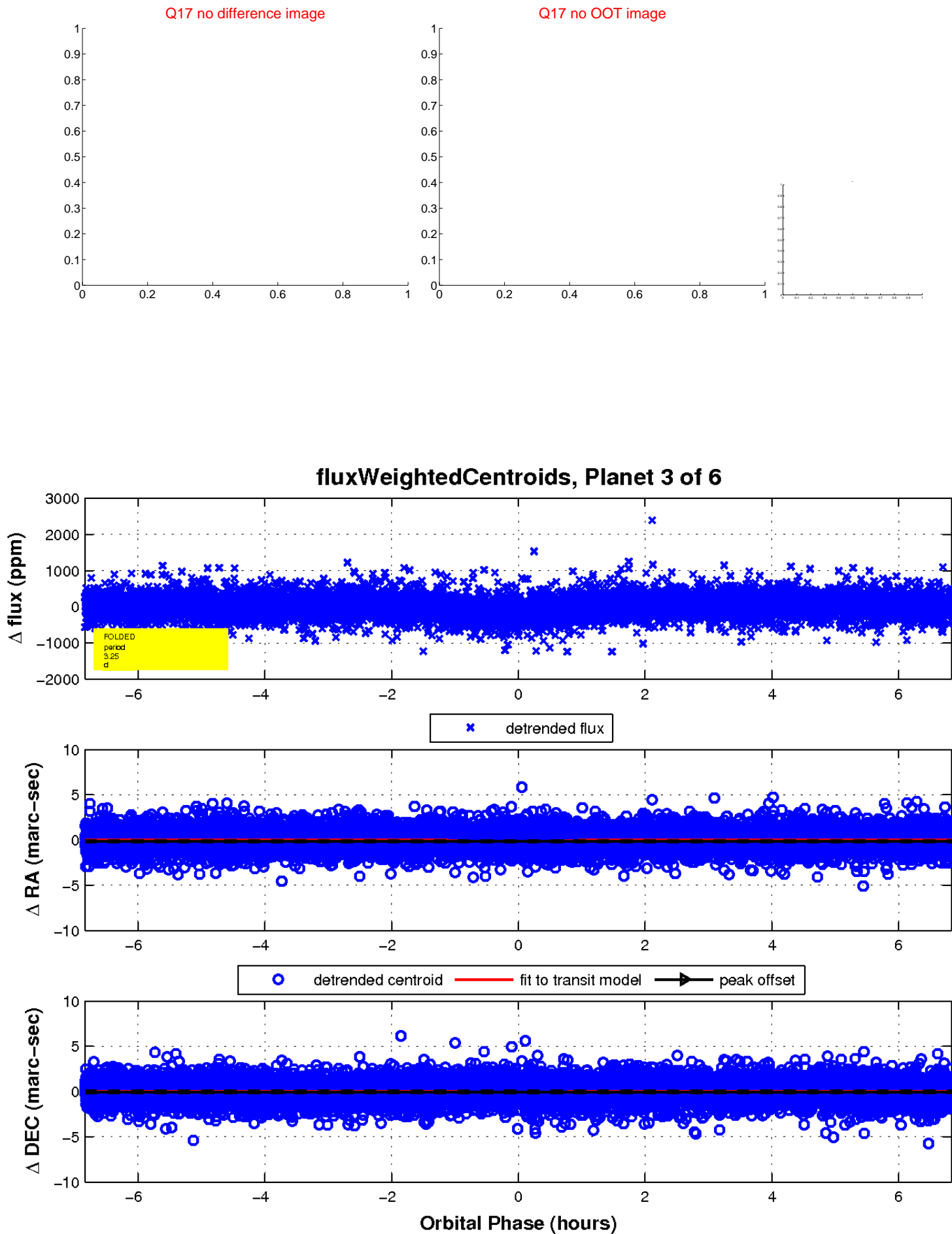
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

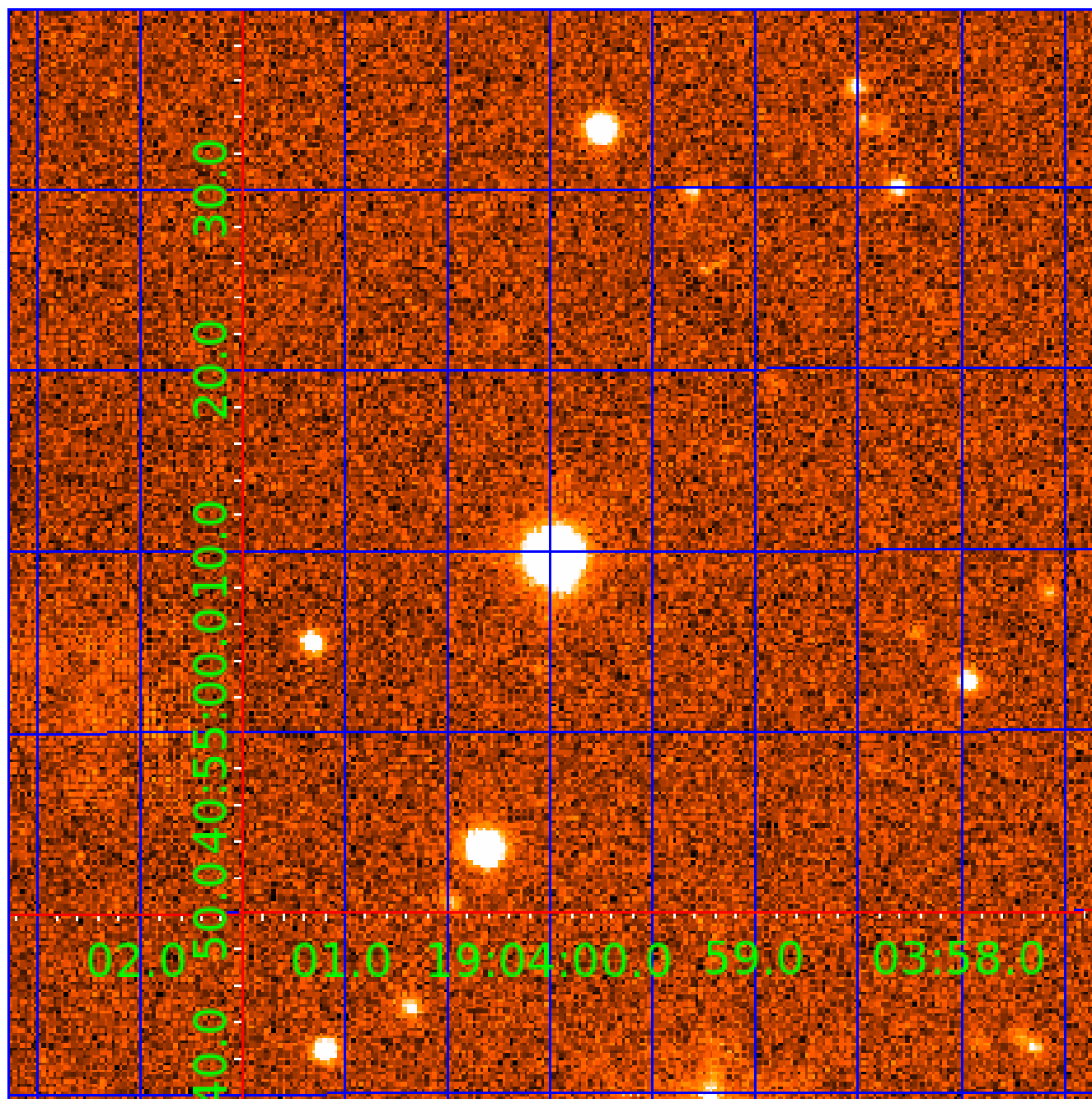


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005689351

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})
005689351-01	OBS	0505.01	13.767106	133.510150	689.0	3.070	35.3	39.2	0.76	5001	2.46	29.59
005689351-02	OBS	0505.05	87.090728	187.315954	1119.4	6.729	31.2	31.2	0.76	5001	2.87	2.53
005689351-03	OBS	0505.03	3.250590	133.696199	206.9	2.279	20.3	22.5	0.76	5001	1.40	202.79
005689351-04	OBS	0505.04	8.348186	136.838888	304.2	3.255	20.0	22.0	0.76	5001	1.74	57.66
005689351-05	OBS	0505.02	6.195489	134.711926	252.4	2.949	18.1	20.3	0.76	5001	1.47	85.81
005689351-06	OBS	No	199.591596	203.553758	327.6	10.850	10.8	6.1	0.76	5001	1.54	0.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005689351-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT
005689351-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

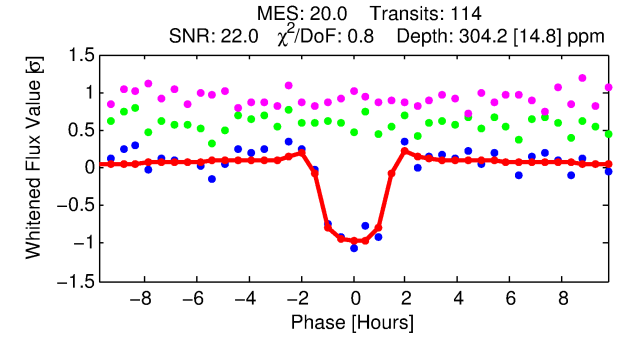
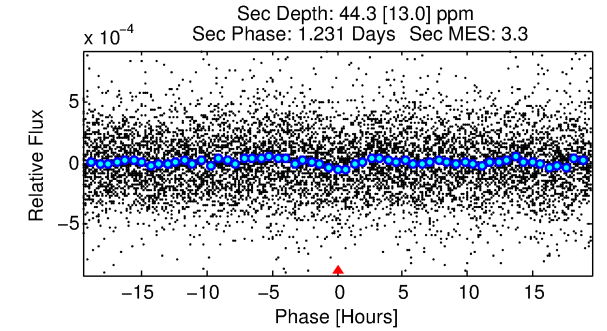
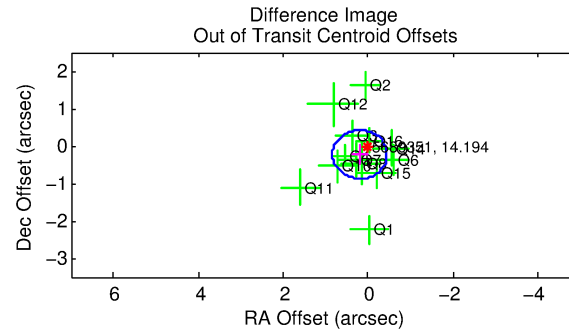
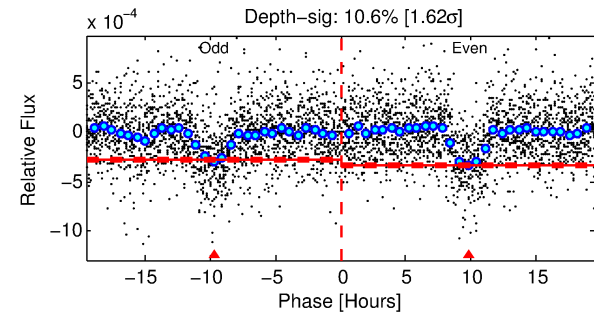
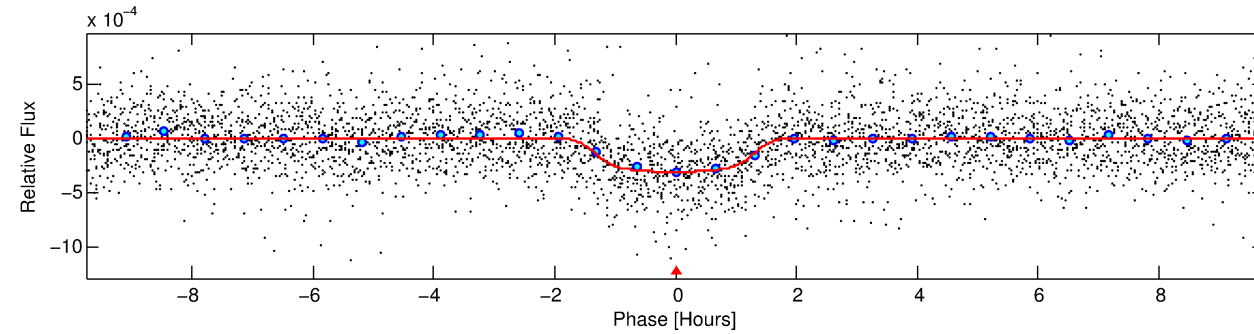
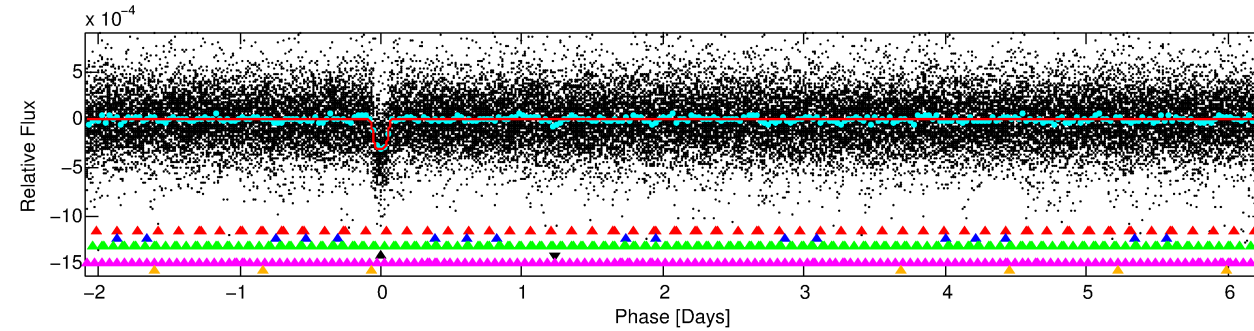
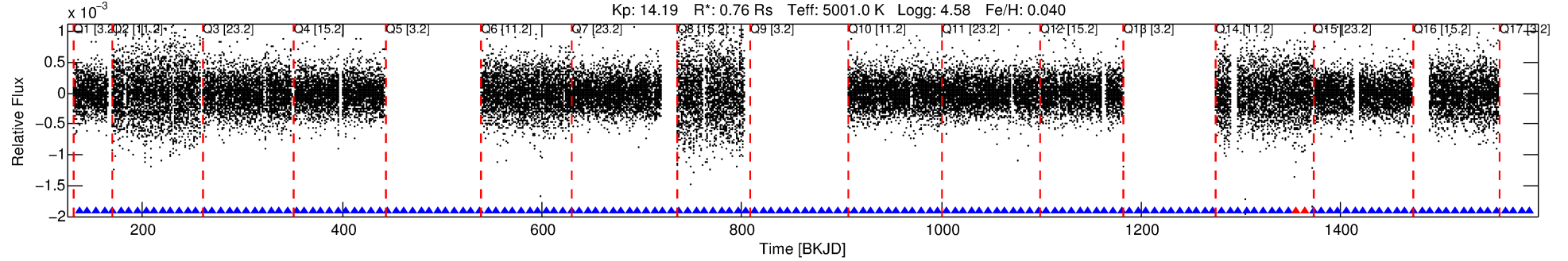
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005689351-04

No Significant Match Found

DV One-Page Summary

KIC: 5689351 Candidate: 4 of 6 Period: 8.348 d
KOI: K00505.04 Name: Kepler-169d Corr: 0.959



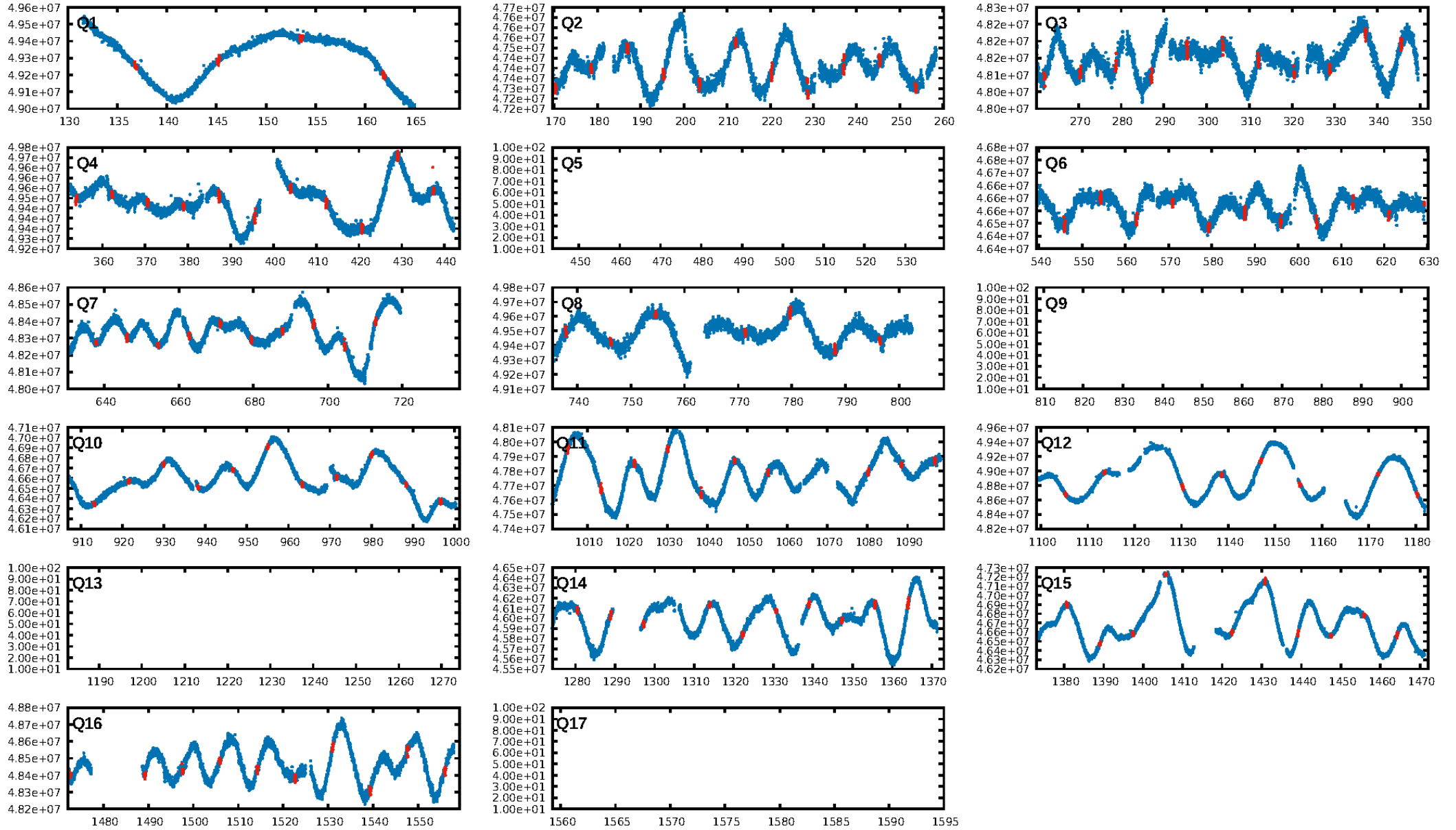
DV Fit Results:

Period = 8.34819 [0.00003] d
Epoch = 136.8389 [0.0026] BKJD
Rp/R* = 0.0210 [0.0014]
a/R* = 7.51 [1.92]
b = 0.95 [0.03]
Seff = 57.66 [6.66]
Teff = 703 [20] K
Rp = 1.74 [0.16] Re
a = 0.0749 [0.0041] AU
Ag = 45.31 [15.14] [2.93 σ]
Teffp = 2819 [235] K [8.99 σ]

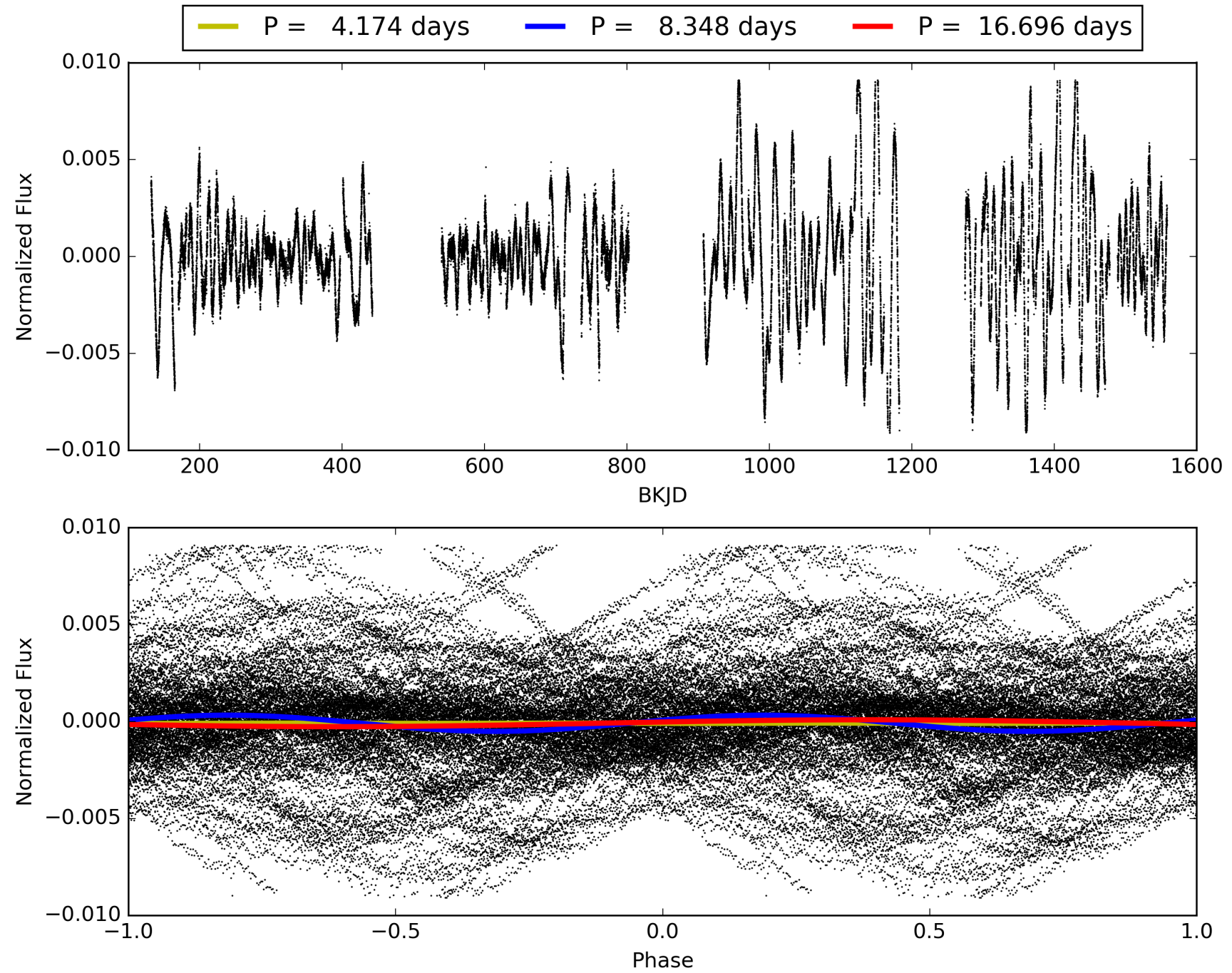
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.76 σ]
LongPeriod-sig: 100.0% [29.06 σ]
ModelChiSquare2-sig: 99.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.32e-83
RollingBand-fgt: 0.98 [108/110]
GhostDiagnostic-chr: 4.948
Centroid-sig: 54.3%
Centroid-so: 0.311 arcsec [0.68 σ]
OotOffset-rm: 0.299 arcsec [1.39 σ]
KicOffset-rm: 0.206 arcsec [1.04 σ]
OotOffset-st: 4/4/4/1 [13]
KicOffset-st: 4/4/4/1 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [13/13]

TCE 005689351-04, PDC Light Curves

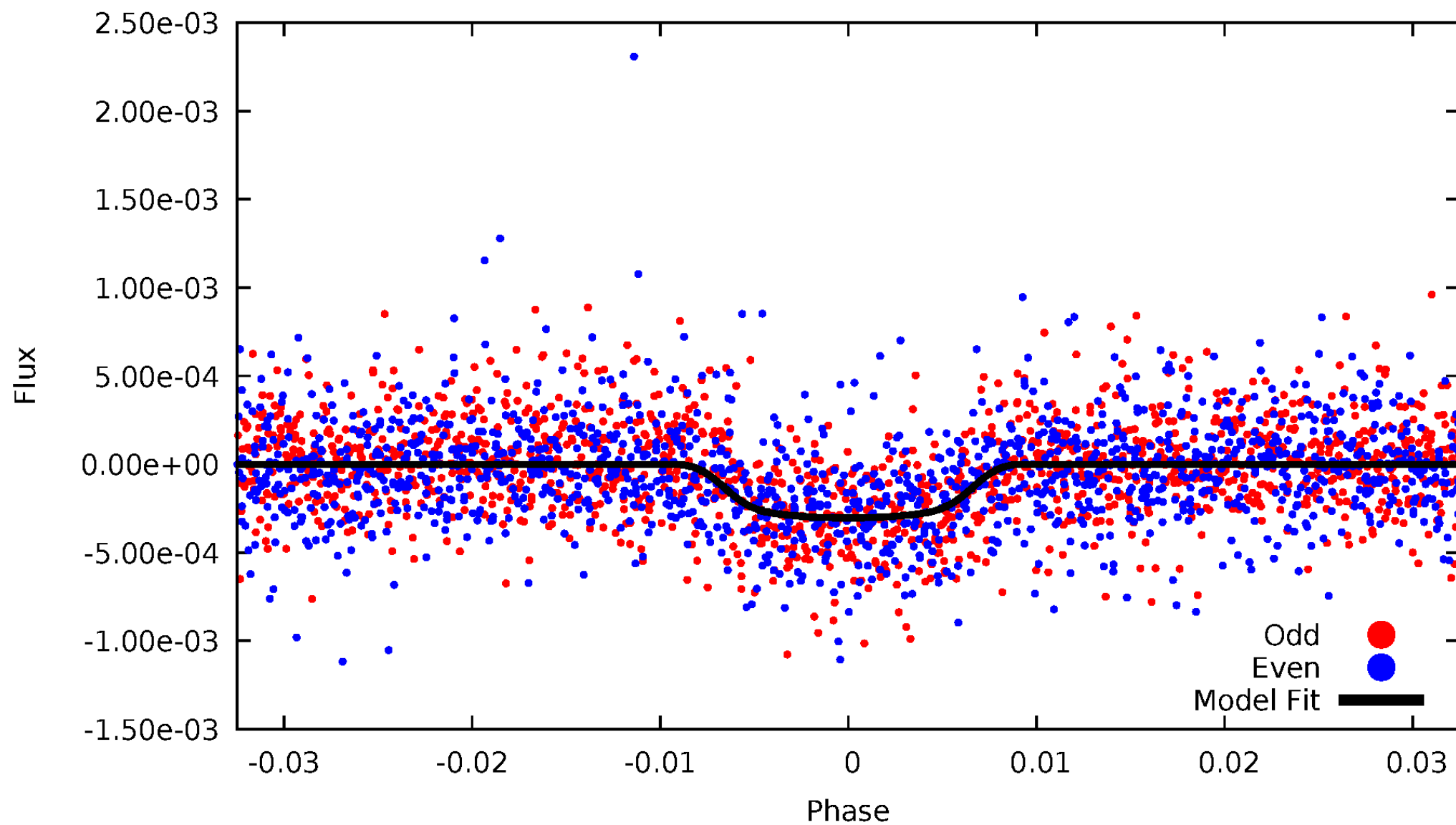


TCE 005689351-04



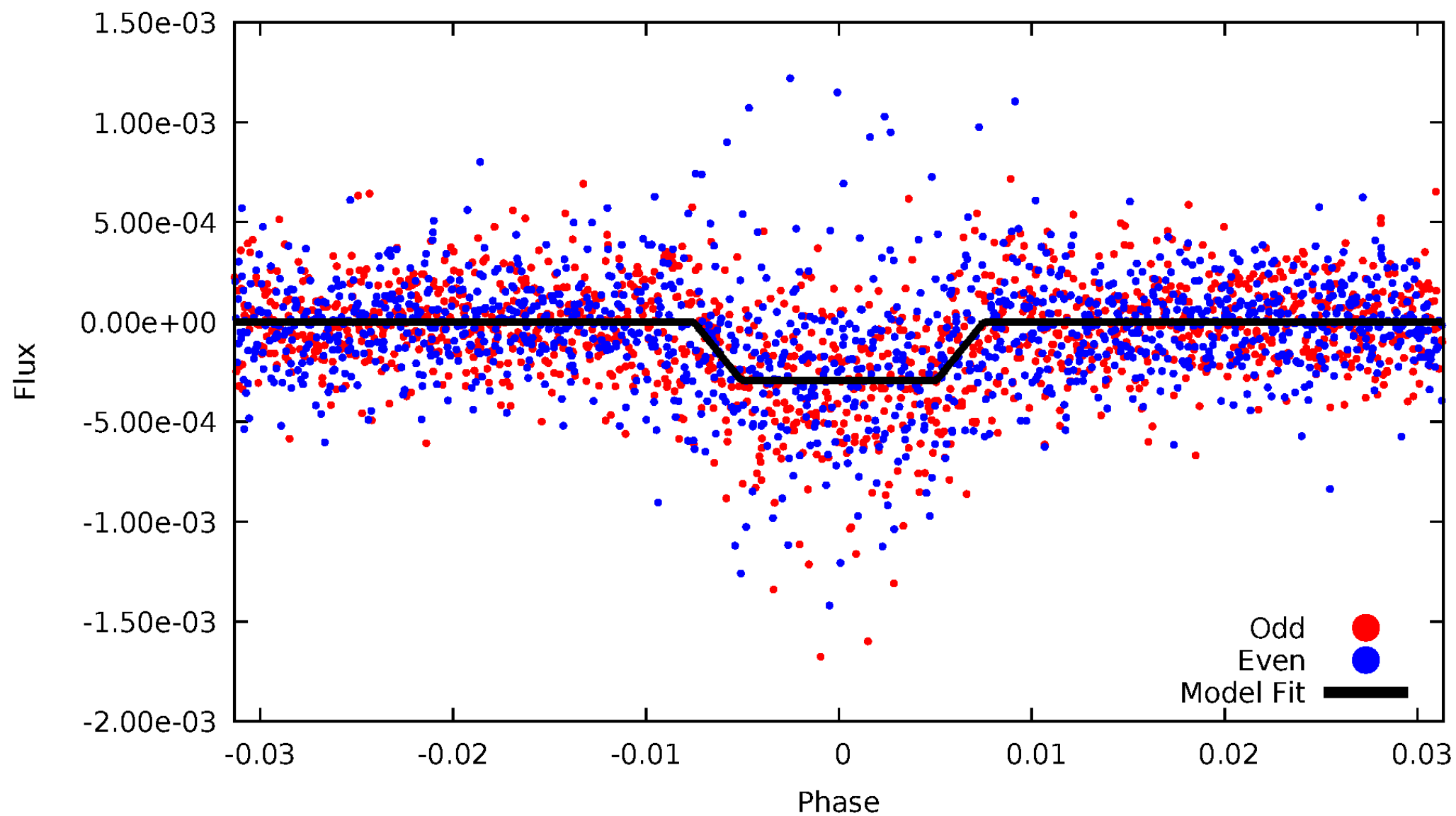
DV Odd/Even

TCE 005689351-04



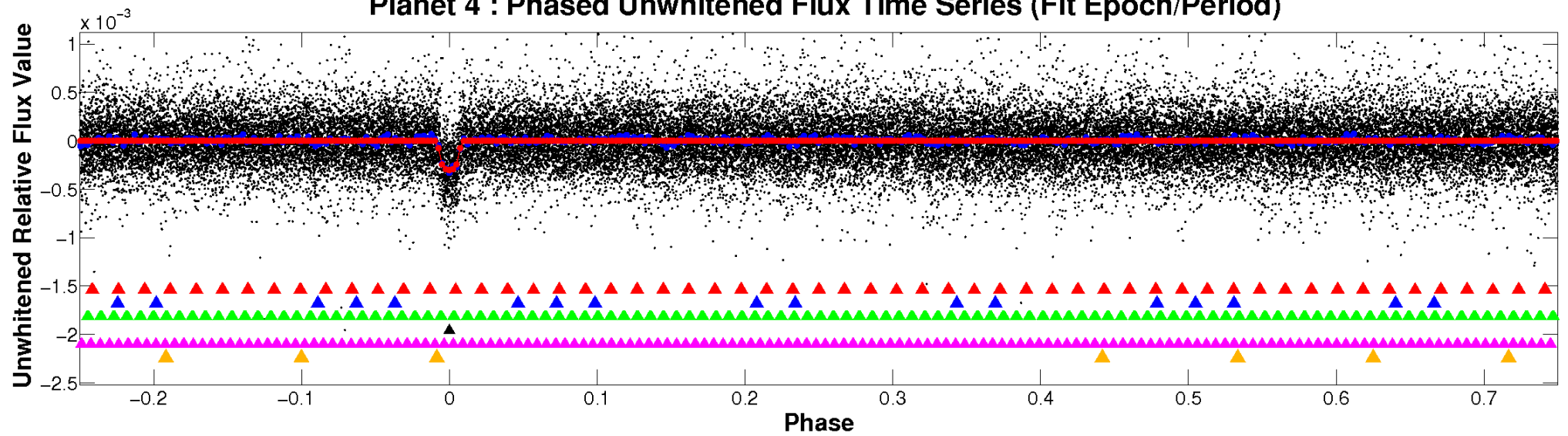
ALT Odd/Even

TCE 005689351-04

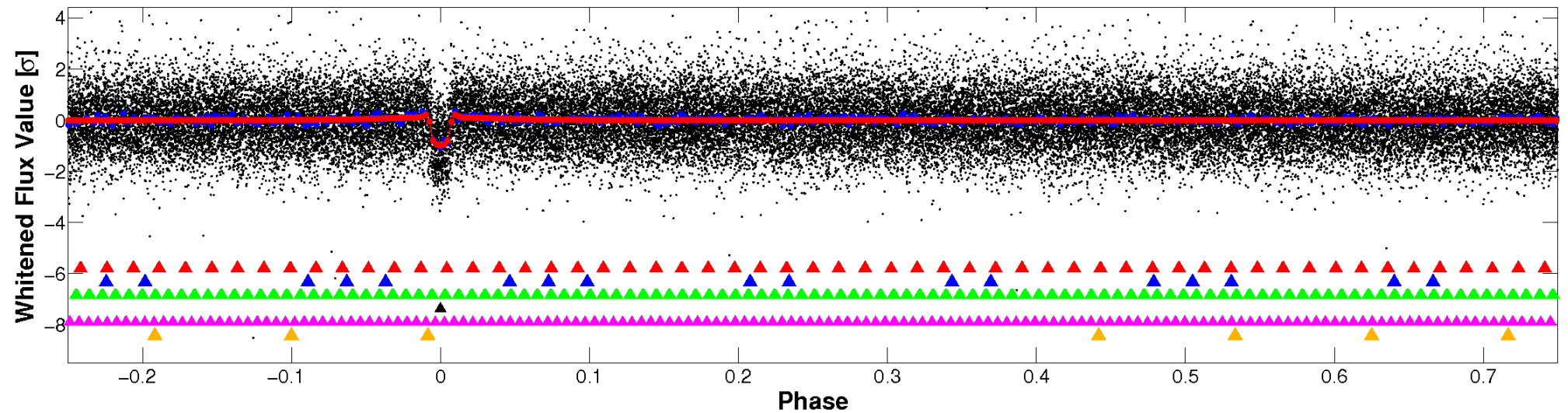


Non-Whitened Vs. Whitened Light Curve

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

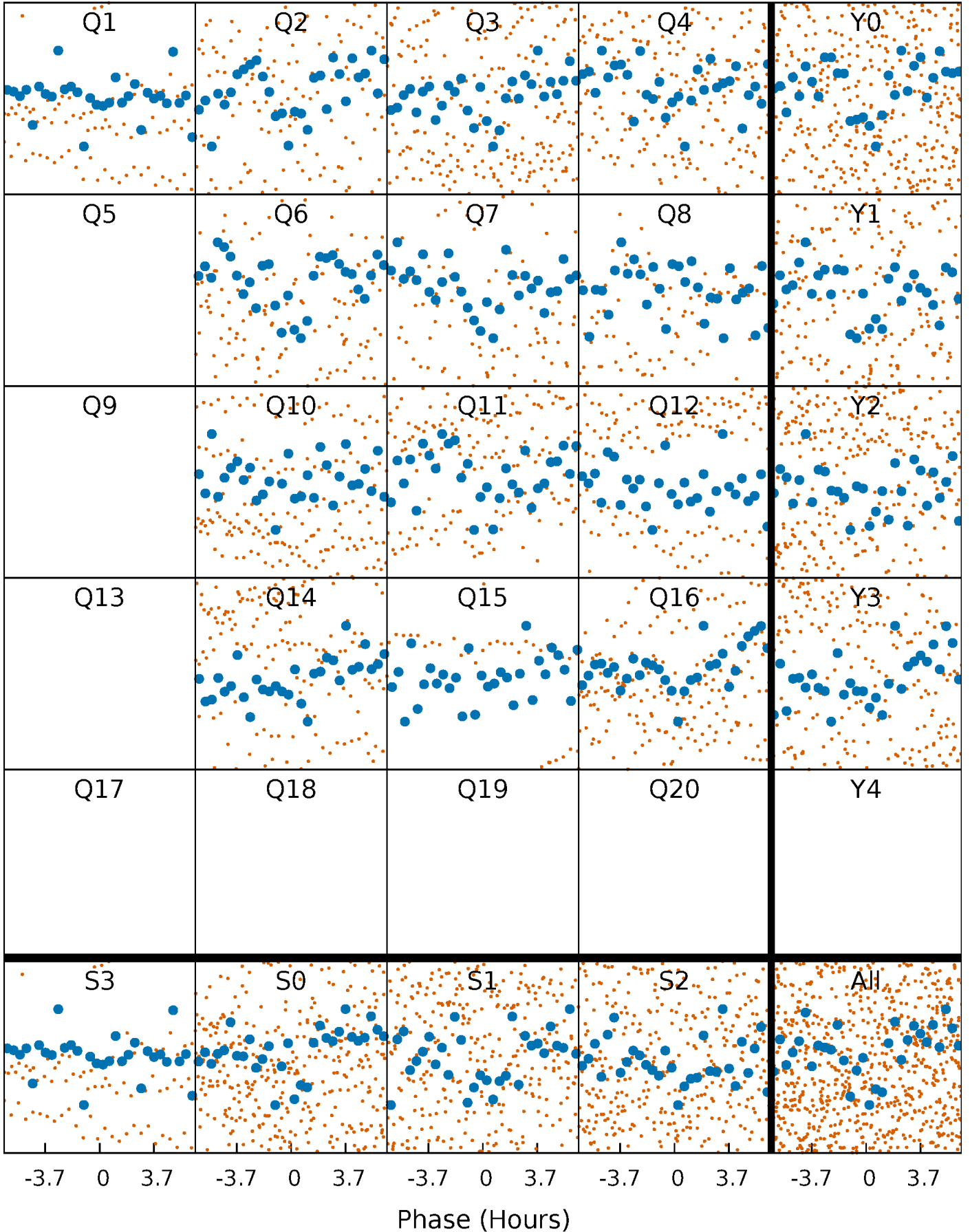


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



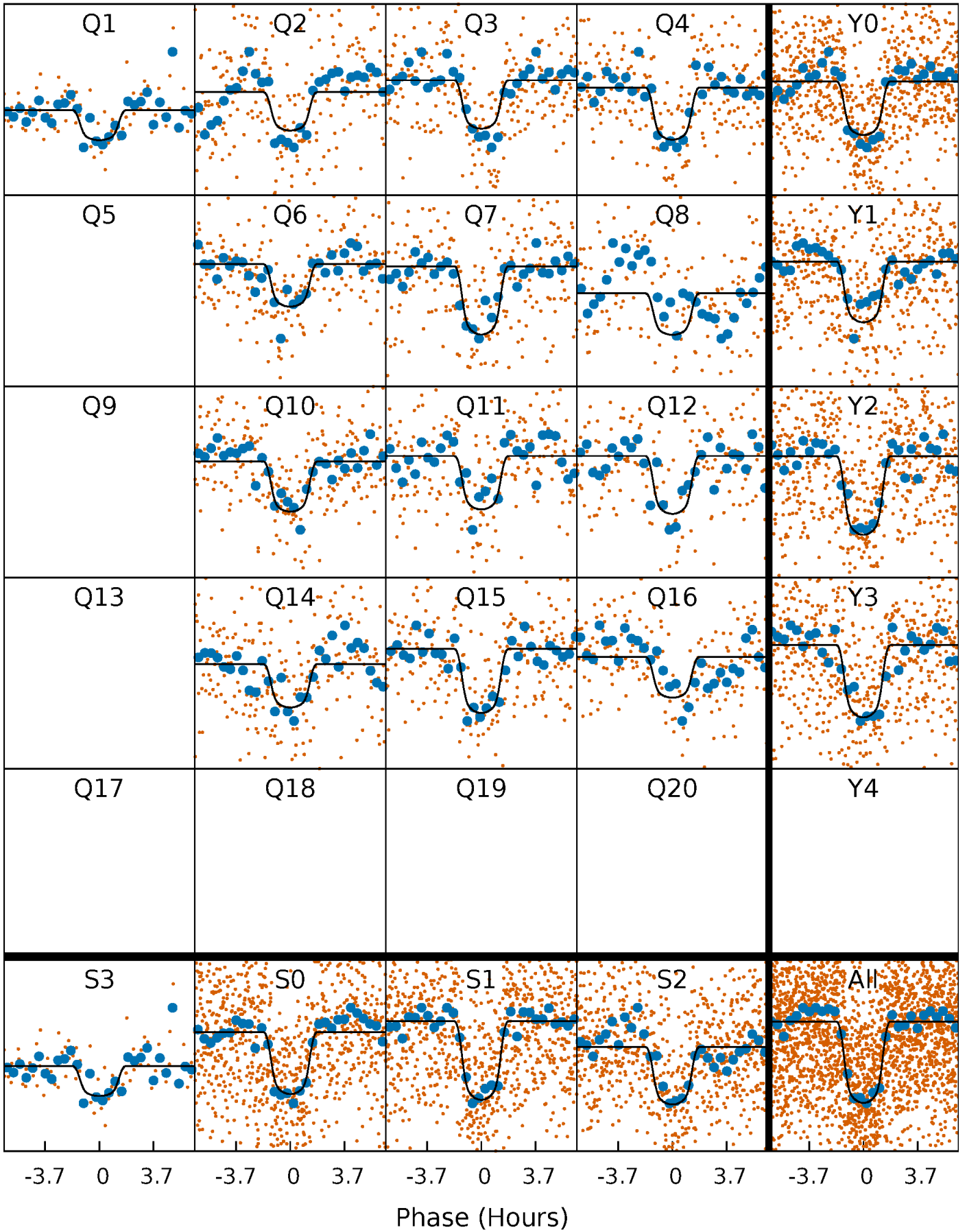
PDC Quarter-Phased Transit Curves

TCE 005689351-04 P= 8.348186 Days $T_0=136.838888$ (BKJD)



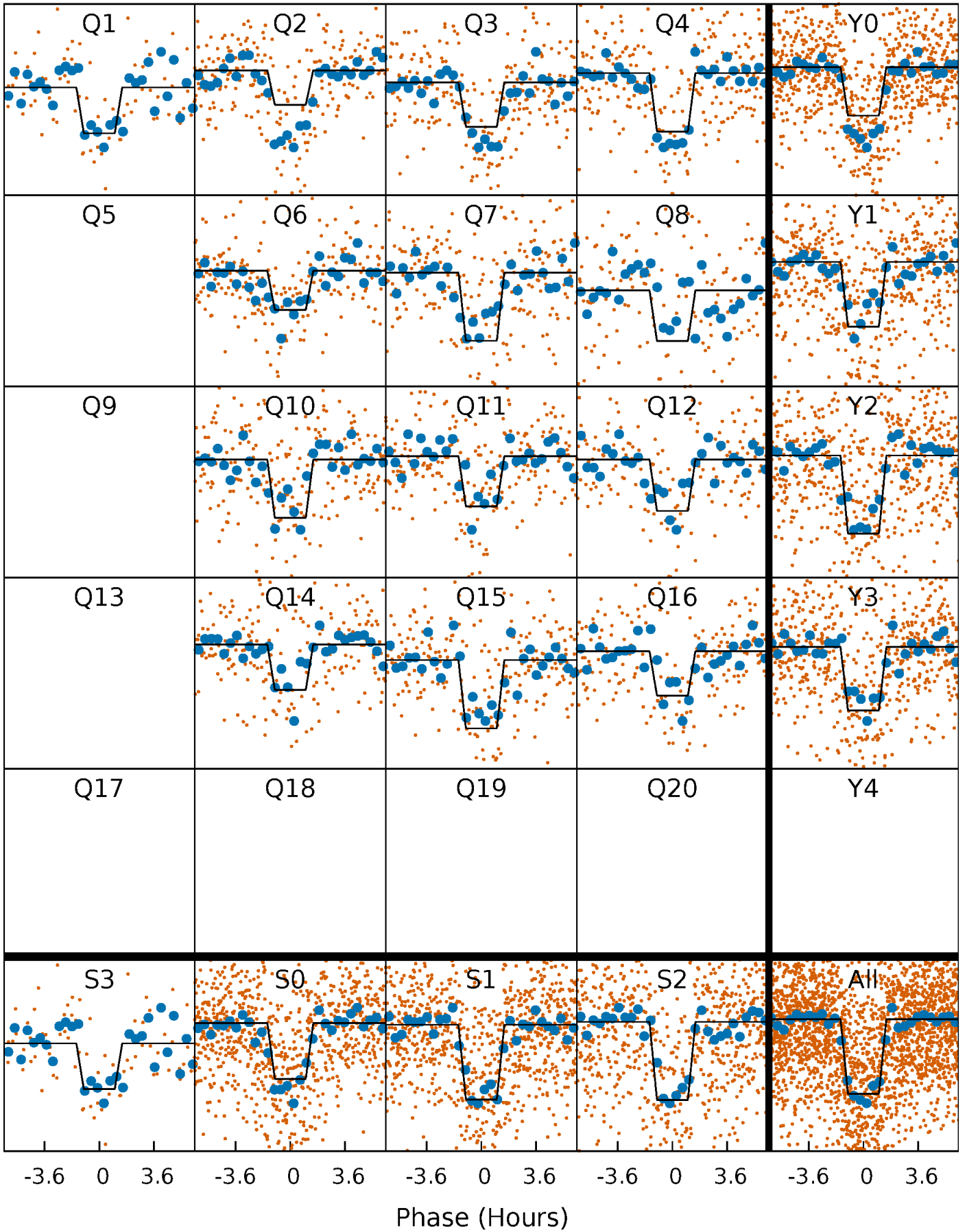
DV Quarter-Phased Transit Curves

TCE 005689351-04 P= 8.348186 Days $T_0=136.838888$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

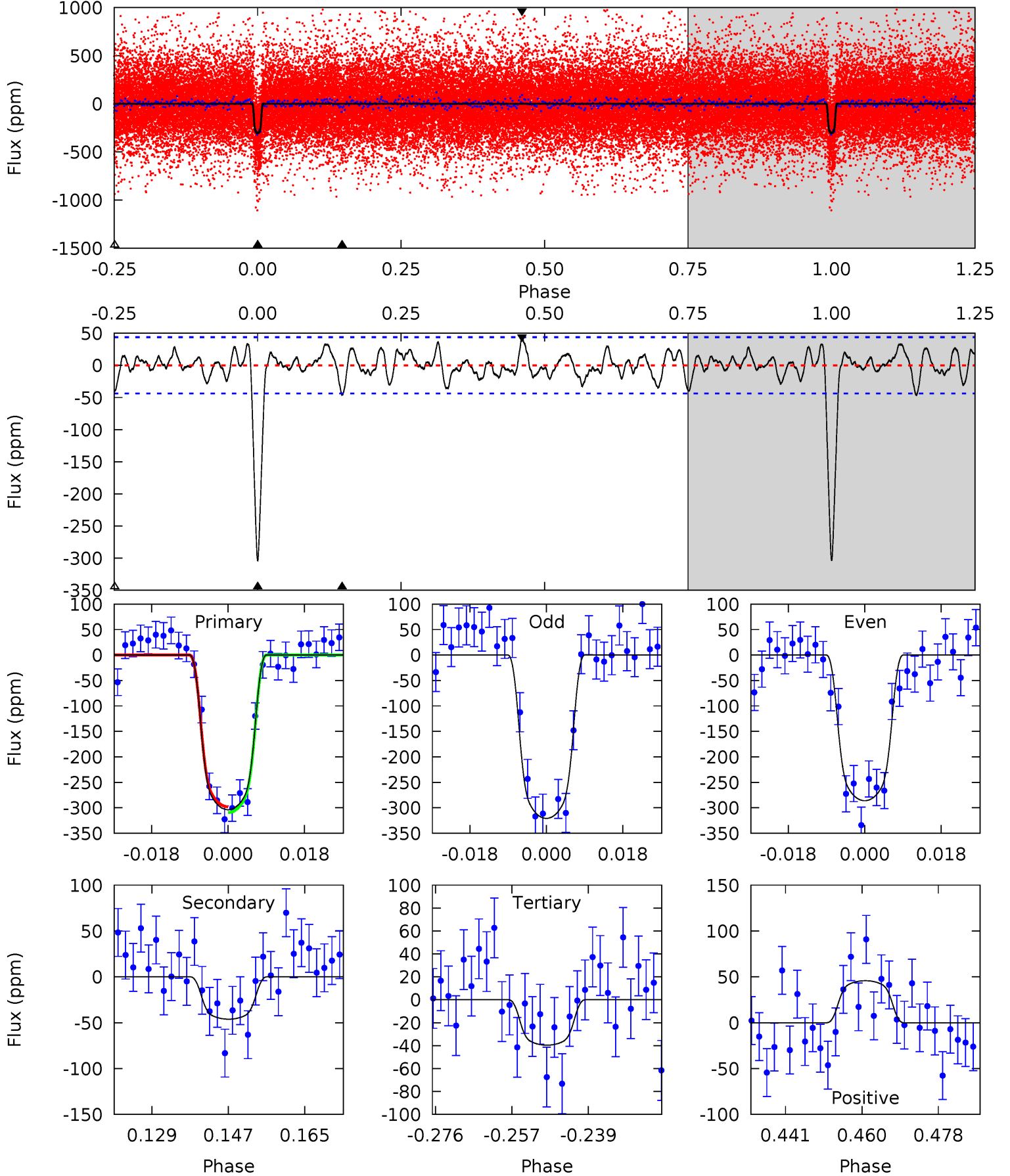
TCE 005689351-04 P= 8.348203 Days $T_0=136.838321$ (BKJD)



DV Model-Shift Uniqueness Test

005689351-04, P = 8.348186 Days, E = 128.490702 Days

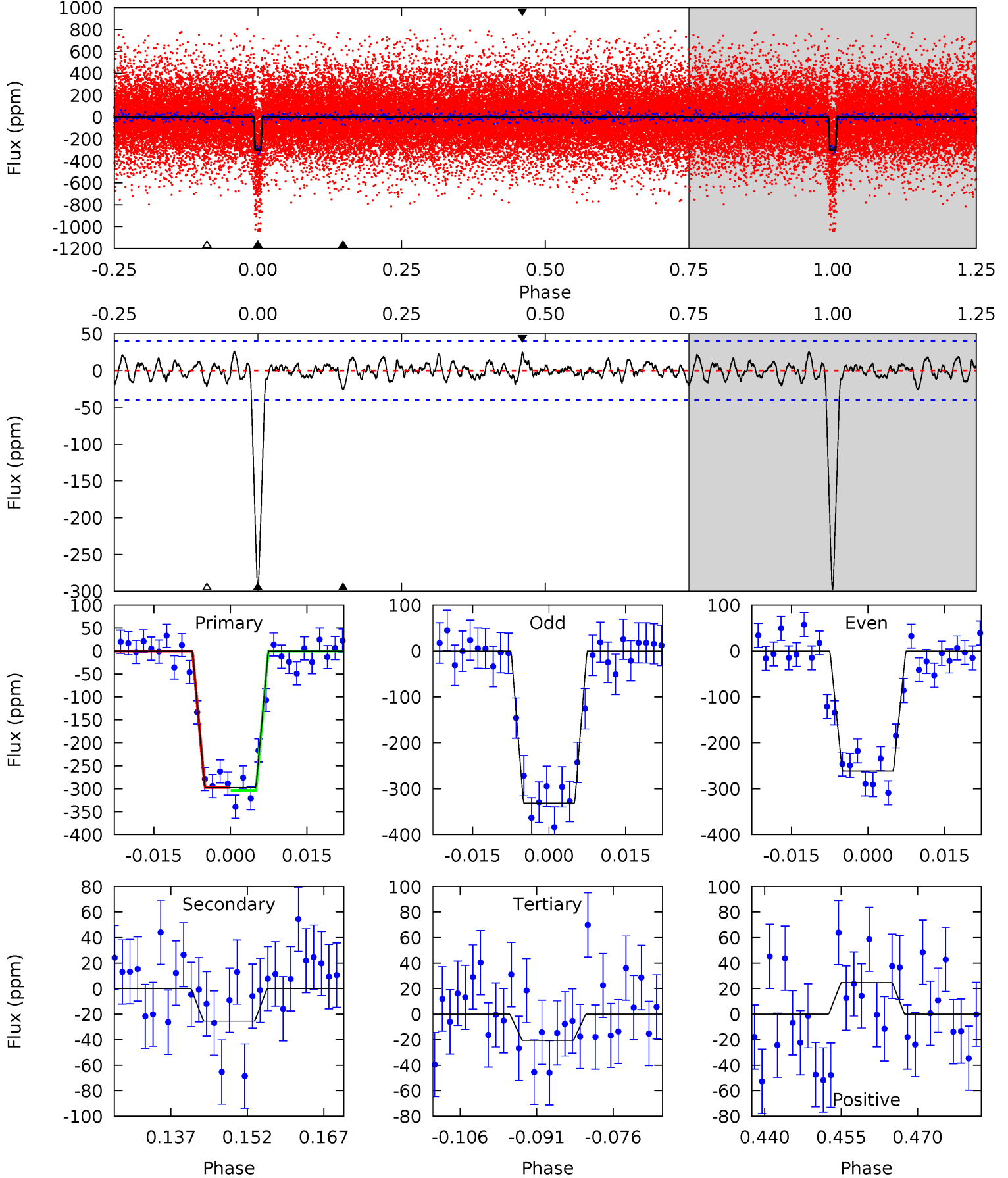
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.0	5.18	4.44	5.13	4.91	2.36	1.68	29.6	28.9	0.74	0.05	1.96	0.95	0.13	0.64



Alt Model-Shift Uniqueness Test

005689351-04, P = 8.348203 Days, E = 128.490118 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.4	3.12	2.53	3.05	4.95	2.43	1.01	33.9	33.4	0.59	0.07	4.31	1.03	0.08	0.40



Stellar Parameters For KIC 005689351

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5001^{+99}_{-1}	$4.582^{+0.024}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.760^{+0.046}_{-0.034}$	$0.806^{+0.038}_{-0.046}$	$2.582^{+0.301}_{-0.394}$
	+2%/-0%	+1%/-1%	+375%/-375%	+6%/-4%	+5%/-6%	+12%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005689351-04 / KOI 0505.04

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-46 ± 9	$1.76^{+0.12}_{-0.13}$	984^{+24}_{-39}	3320^{+132}_{-140}	46^{+11}_{-9}
Alt.	-25 ± 8	$1.42^{+0.14}_{-0.13}$	984^{+28}_{-37}	3233^{+181}_{-219}	39^{+14}_{-14}

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 $A_{obs} \gg 1.0$

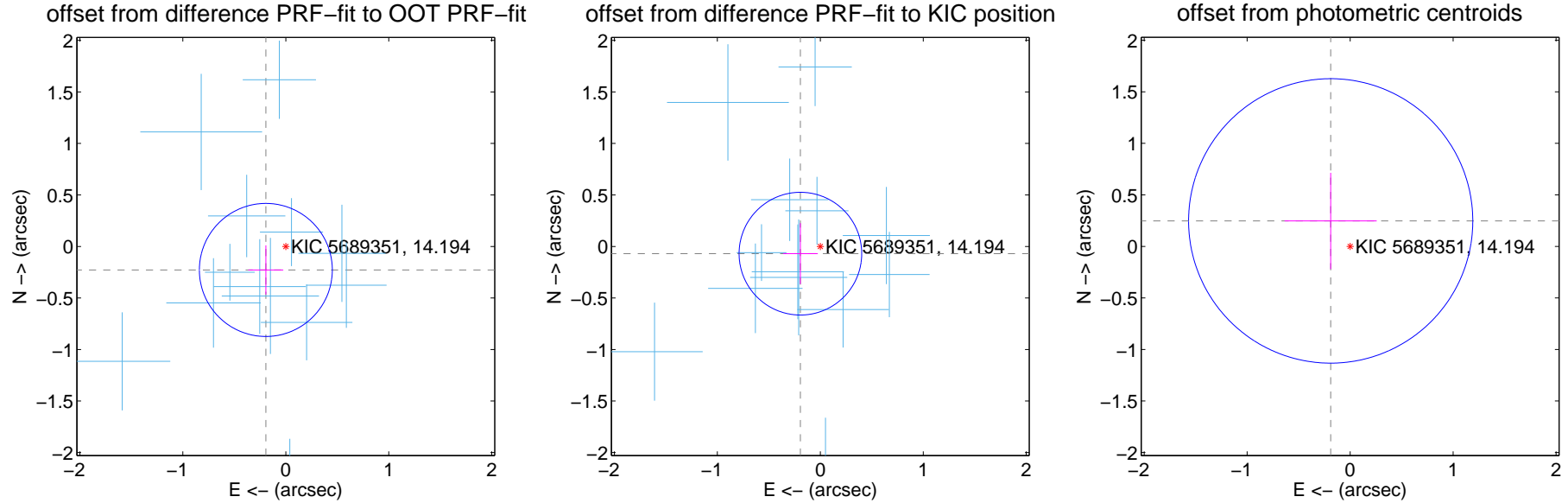
DV Centroid Data

Supplemental centroid analysis for 005689351-04. Kepler magnitude: 14.19. Transit SNR 21.95

There are 13 quarters with good PRF difference image offsets

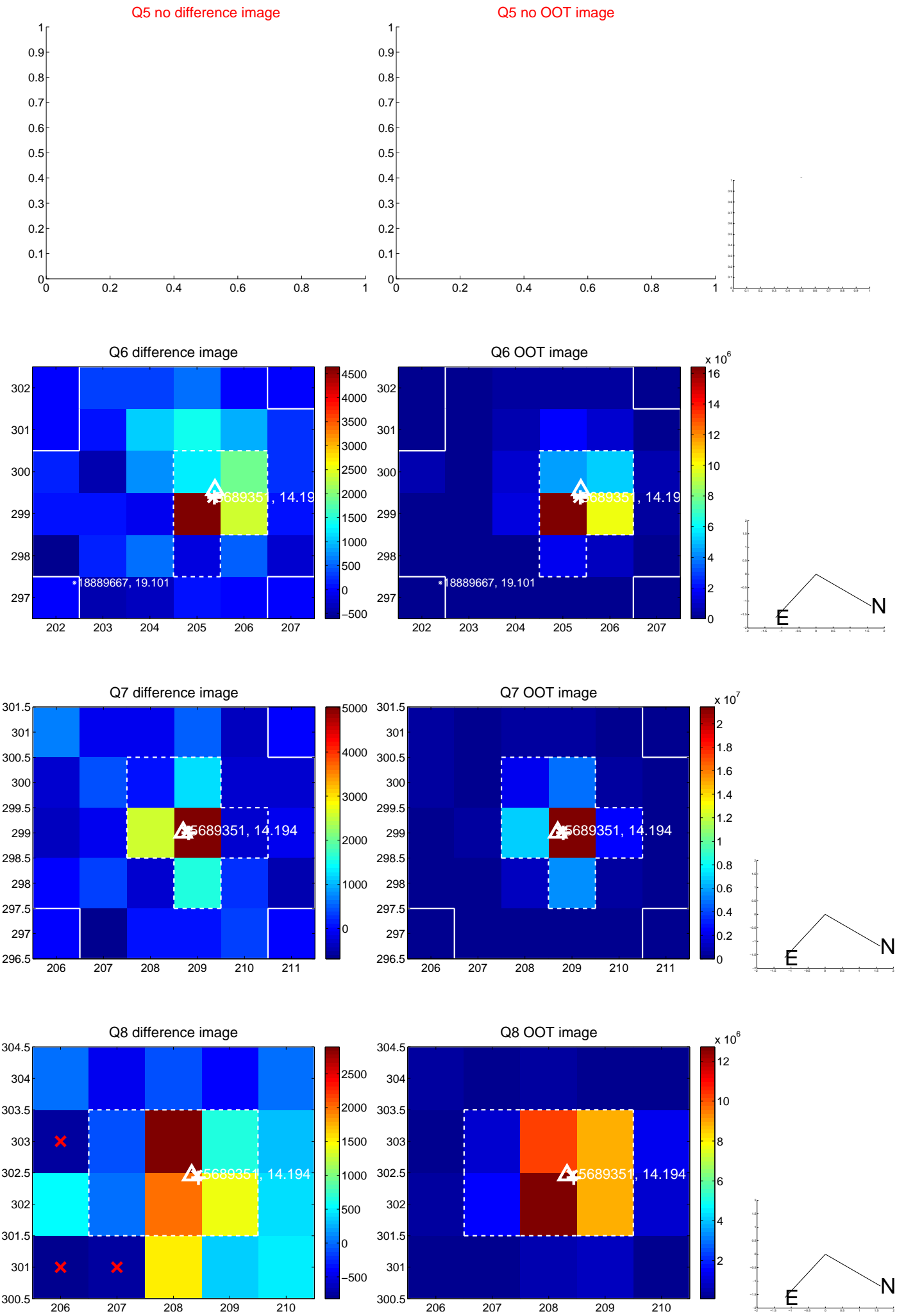
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.299 ± 0.215	1.39	0.194 ± 0.170	-0.228 ± 0.239
PRF-fit source offset from KIC position	0.206 ± 0.199	1.04	0.193 ± 0.169	-0.070 ± 0.296
photometric centroid source offset	0.31 ± 0.46	0.68	0.19 ± 0.45	0.25 ± 0.47

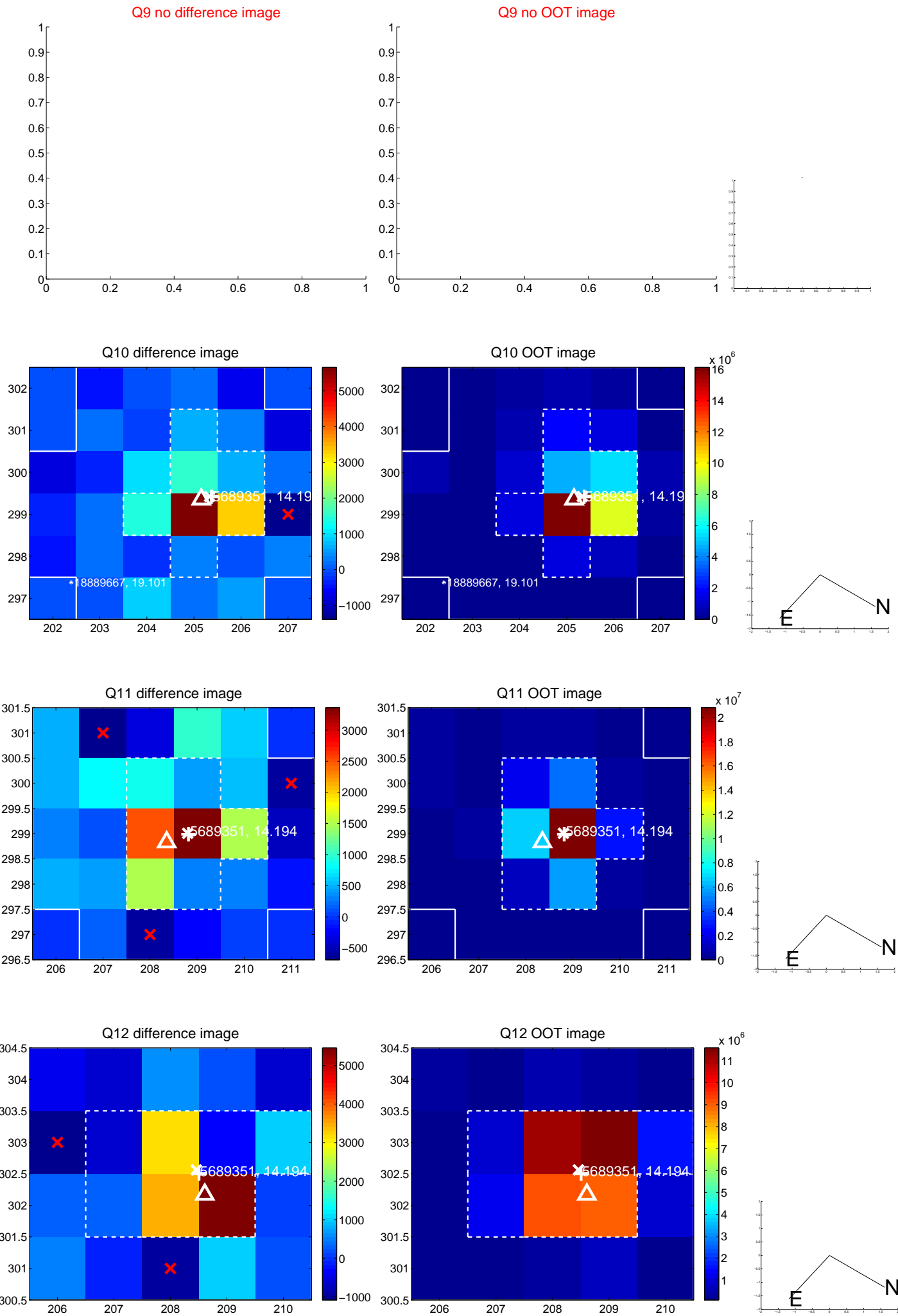


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

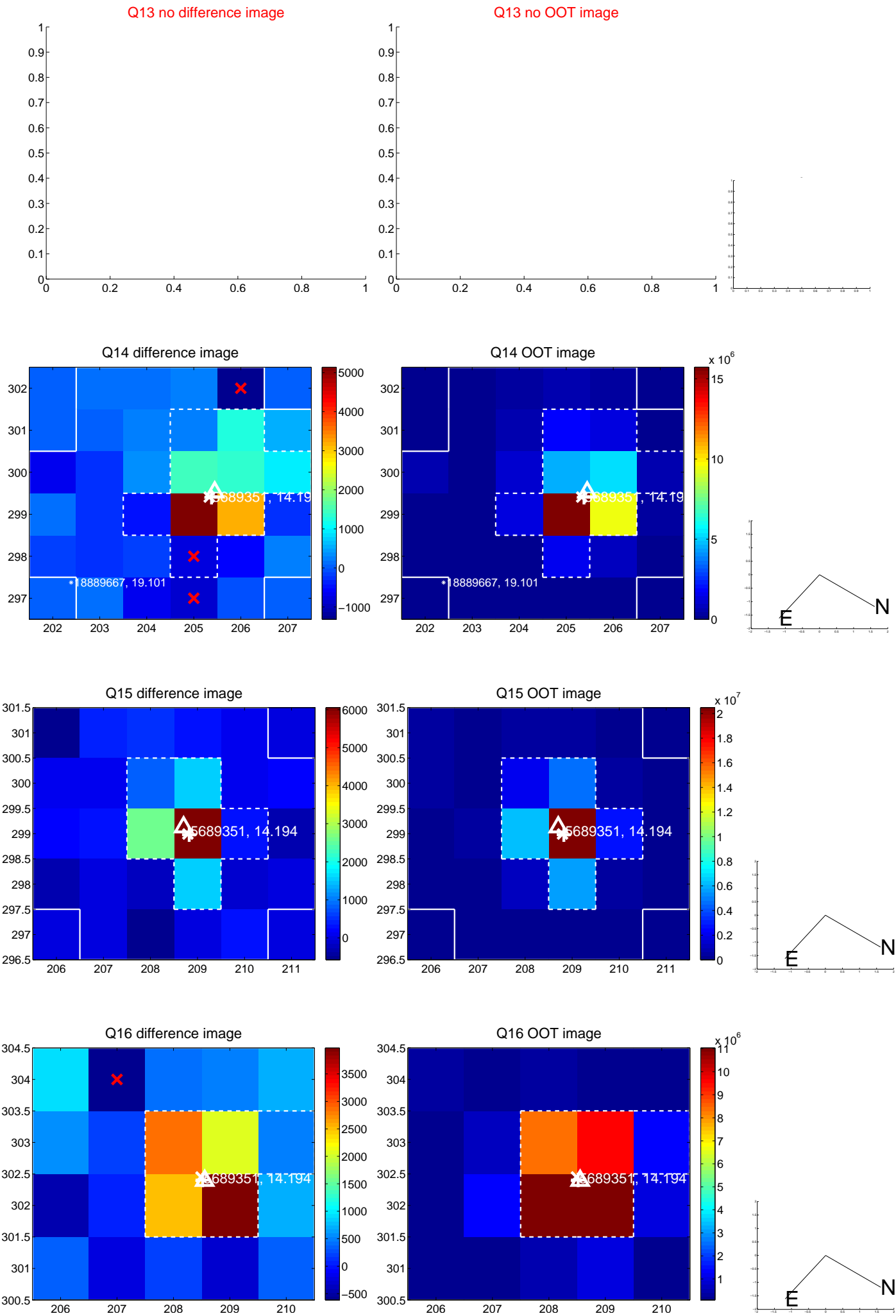
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



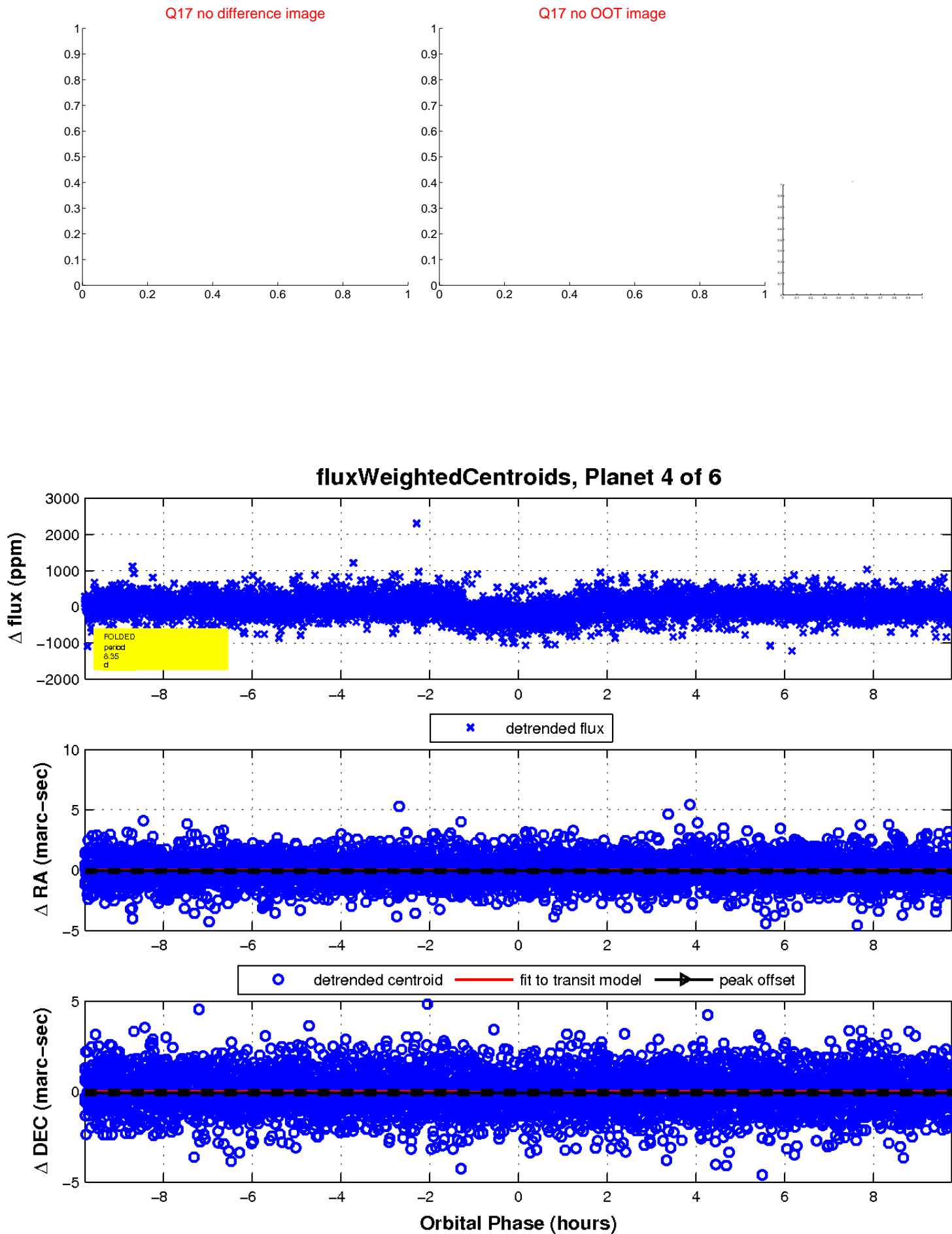
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

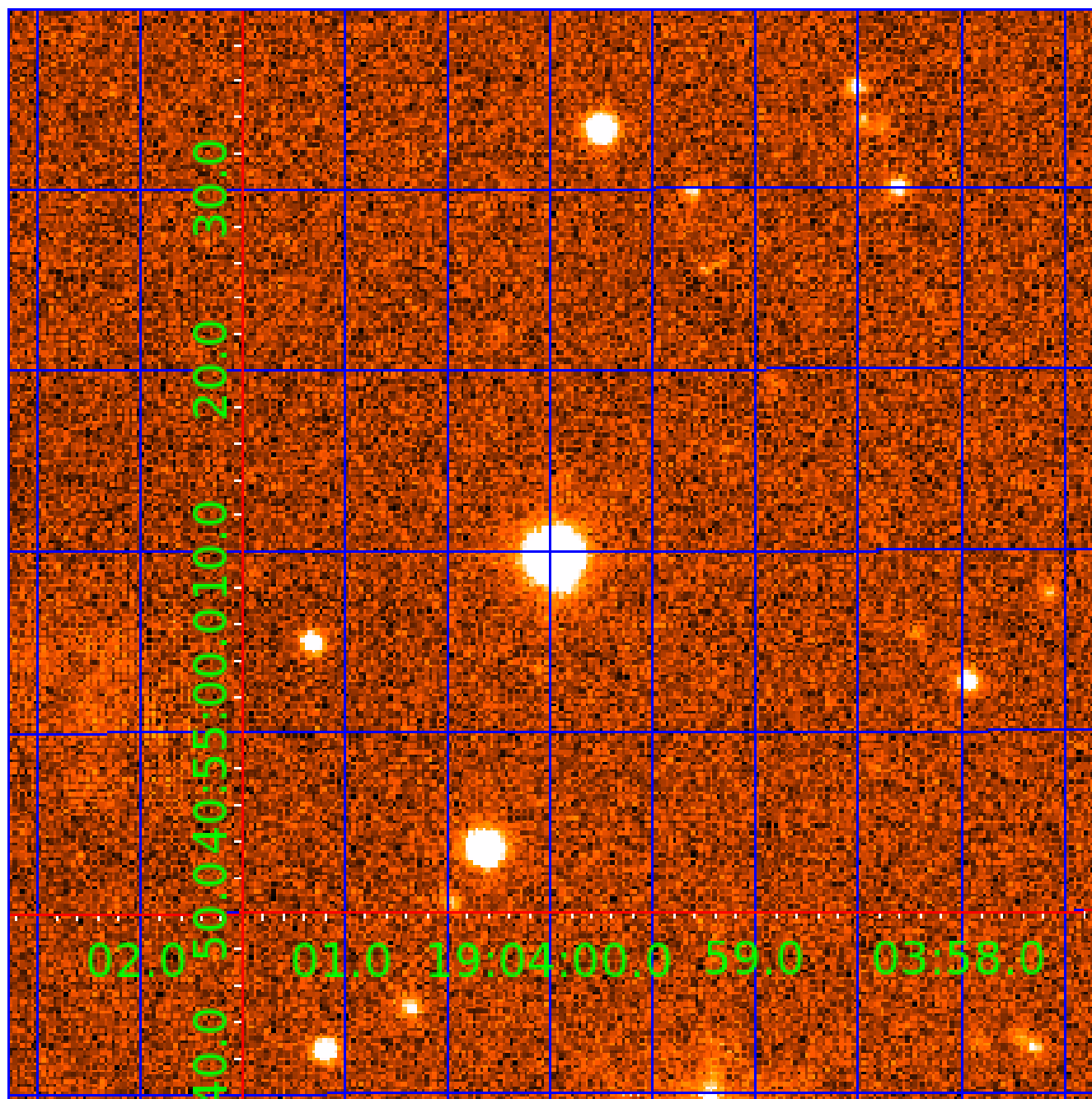


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005689351

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})
005689351-01	OBS	0505.01	13.767106	133.510150	689.0	3.070	35.3	39.2	0.76	5001	2.46	29.59
005689351-02	OBS	0505.05	87.090728	187.315954	1119.4	6.729	31.2	31.2	0.76	5001	2.87	2.53
005689351-03	OBS	0505.03	3.250590	133.696199	206.9	2.279	20.3	22.5	0.76	5001	1.40	202.79
005689351-04	OBS	0505.04	8.348186	136.838888	304.2	3.255	20.0	22.0	0.76	5001	1.74	57.66
005689351-05	OBS	0505.02	6.195489	134.711926	252.4	2.949	18.1	20.3	0.76	5001	1.47	85.81
005689351-06	OBS	No	199.591596	203.553758	327.6	10.850	10.8	6.1	0.76	5001	1.54	0.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005689351-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT
005689351-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

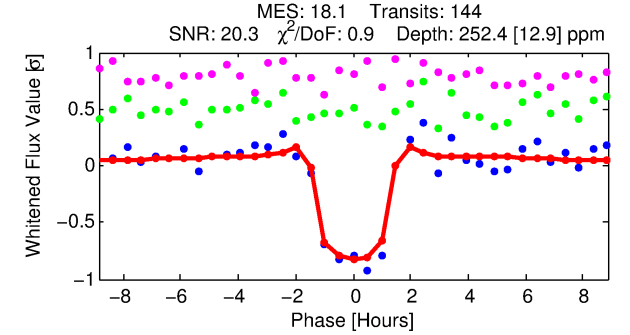
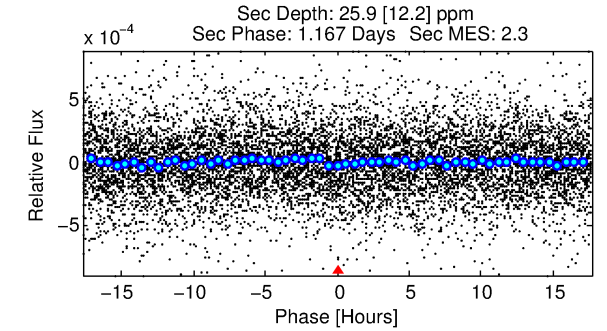
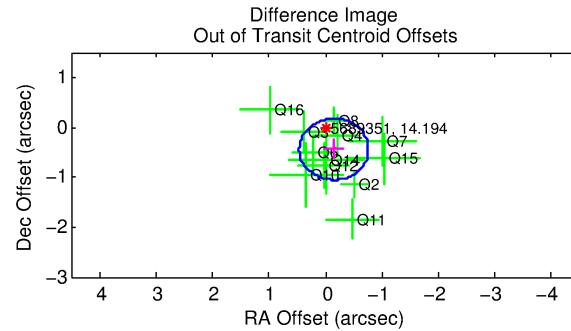
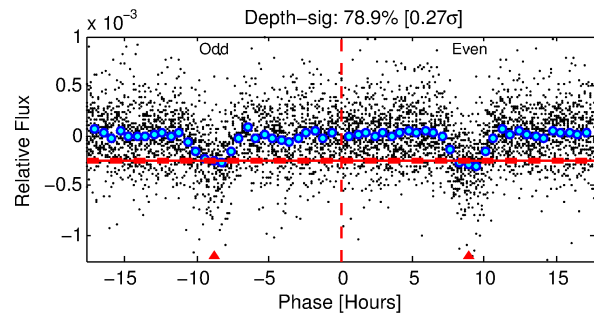
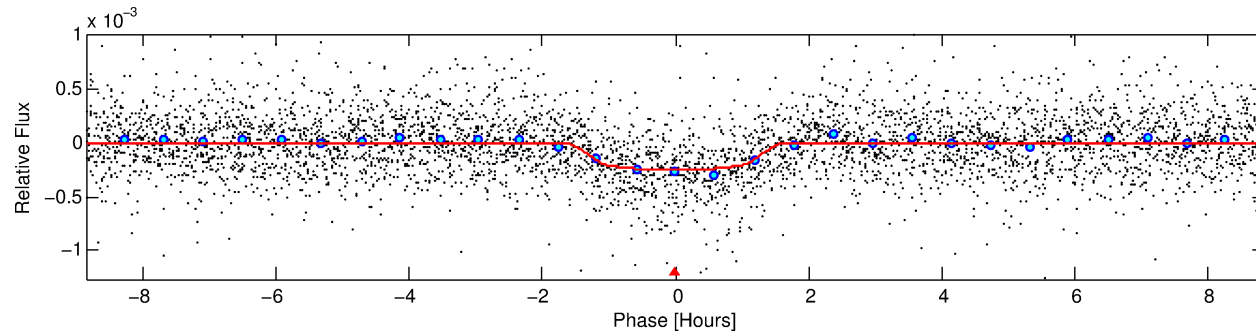
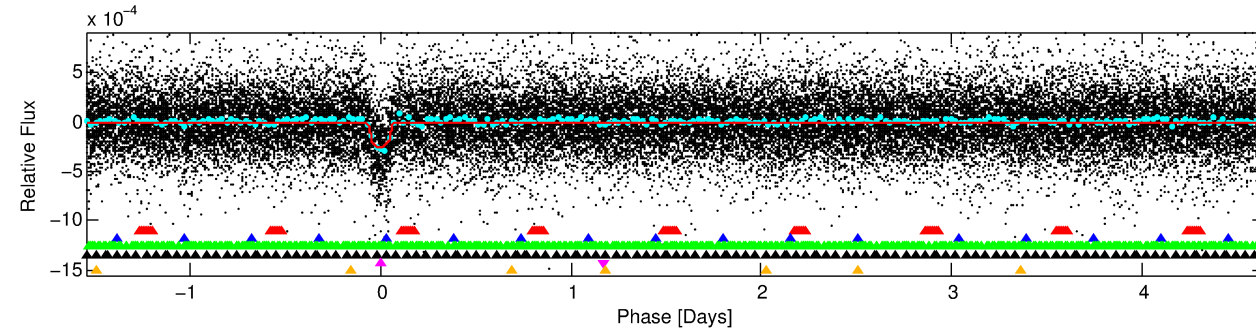
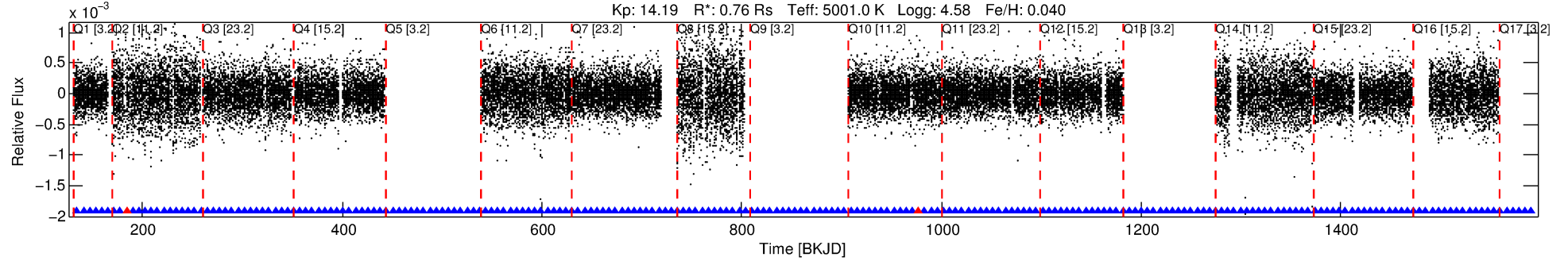
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005689351-05

No Significant Match Found

DV One-Page Summary

KIC: 5689351 Candidate: 5 of 6 Period: 6.195 d
KOI: K00505.02 Name: Kepler-169c Corr: 0.962



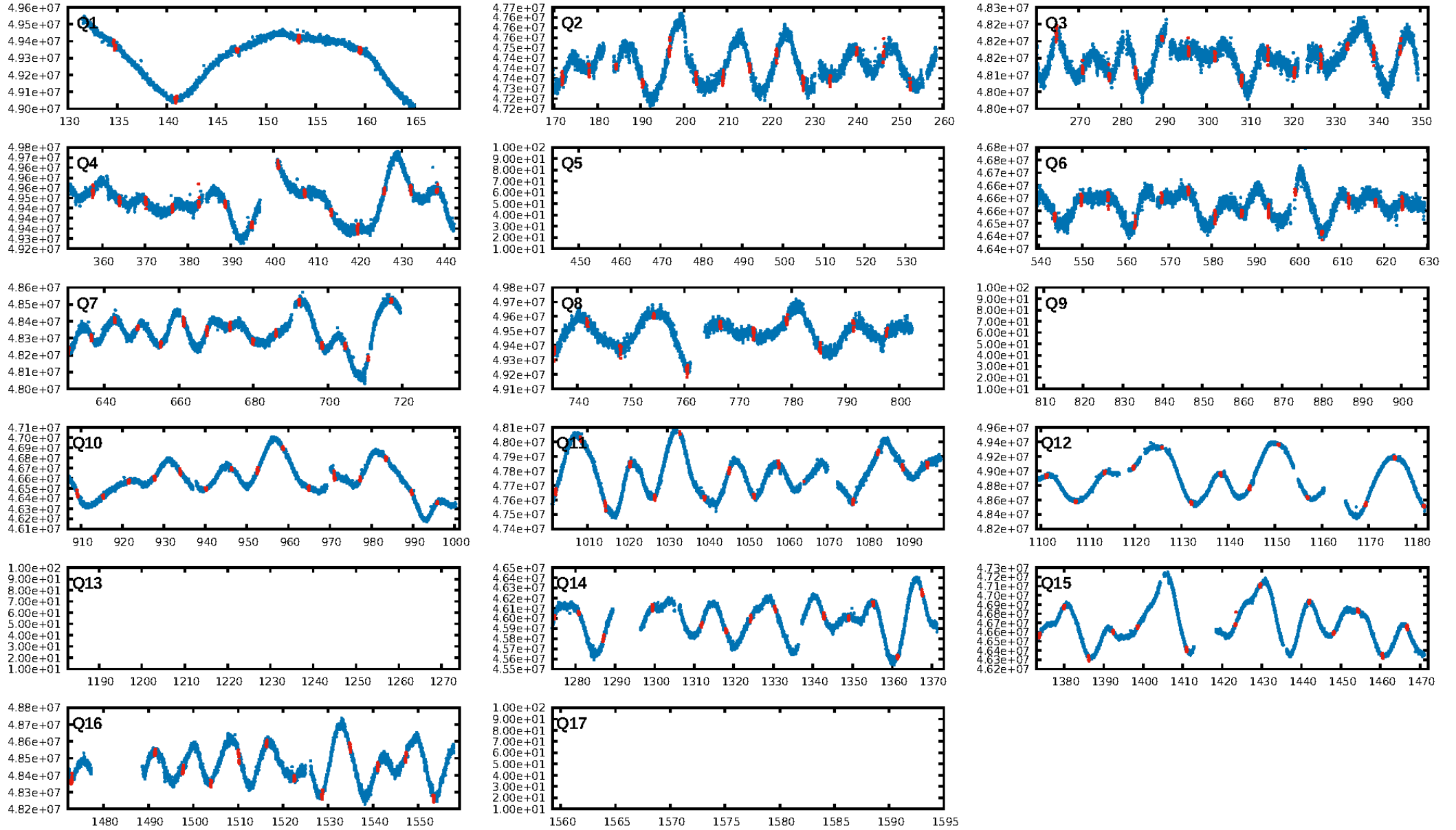
DV Fit Results:

Period = 6.19549 [0.00002] d
Epoch = 134.7119 [0.0024] BKJD
Rp/R* = 0.0178 [0.0046]
a/R* = 7.68 [7.73]
b = 0.90 [0.22]
Seff = 85.82 [9.91]
Teq = 776 [22] K
Rp = 1.47 [0.39] Re
a = 0.0614 [0.0034] AU
Ag = 24.80 [17.51] [1.36 σ]
Teffp = 2678 [472] K [4.02 σ]

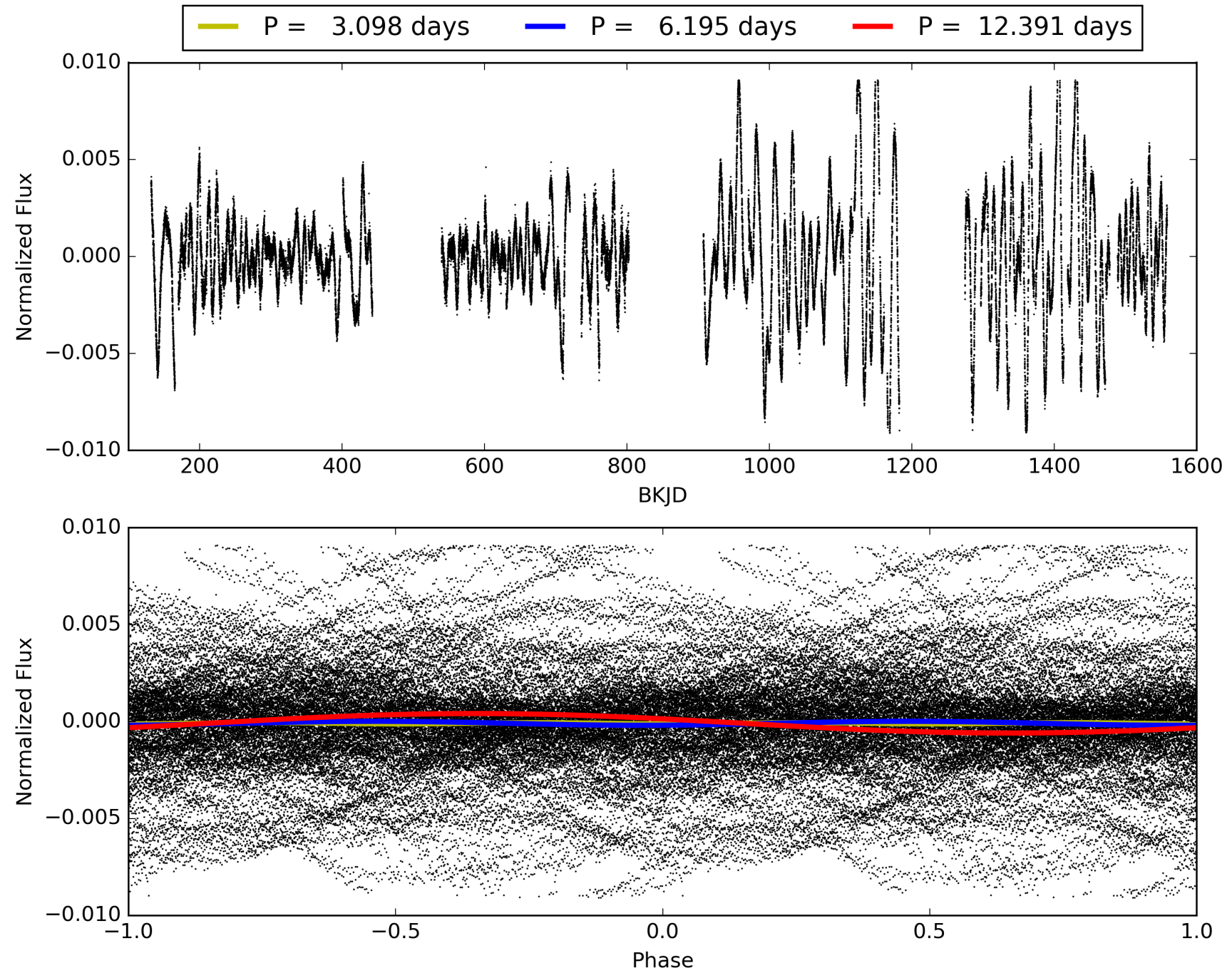
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.96 σ]
LongPeriod-sig: 100.0% [11.76 σ]
ModelChiSquare2-sig: 91.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.90e-69
RollingBand-fgt: 0.99 [138/140]
GhostDiagnostic-chr: 2.968
Centroid-sig: 1.6%
Centroid-so: 0.956 arcsec [2.02 σ]
OotOffset-rm: 0.465 arcsec [2.28 σ]
KicOffset-rm: 0.298 arcsec [1.42 σ]
OotOffset-st: 4/4/4/0 [12]
KicOffset-st: 4/4/4/0 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [13/13]

TCE 005689351-05, PDC Light Curves

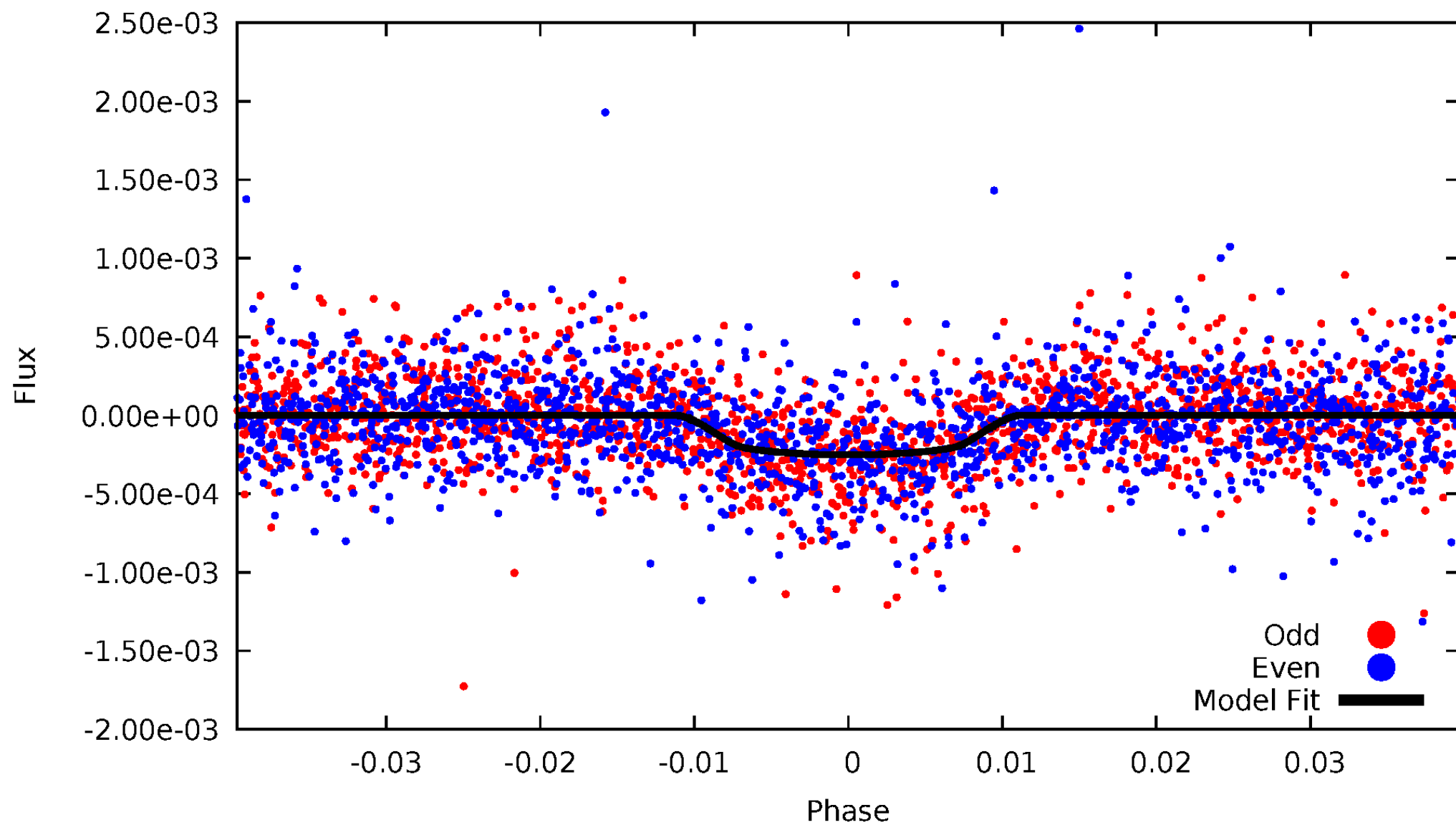


TCE 005689351-05



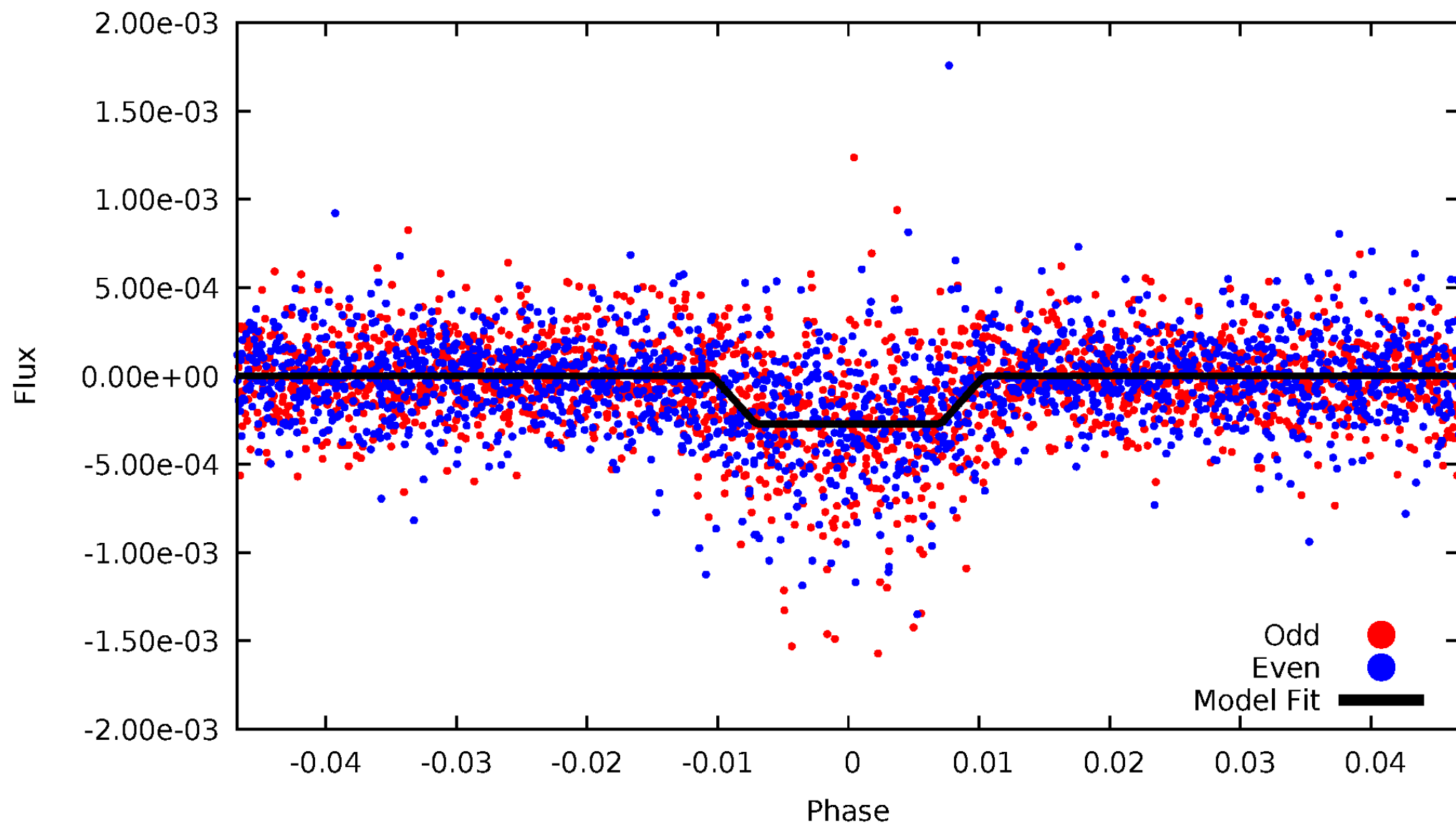
DV Odd/Even

TCE 005689351-05

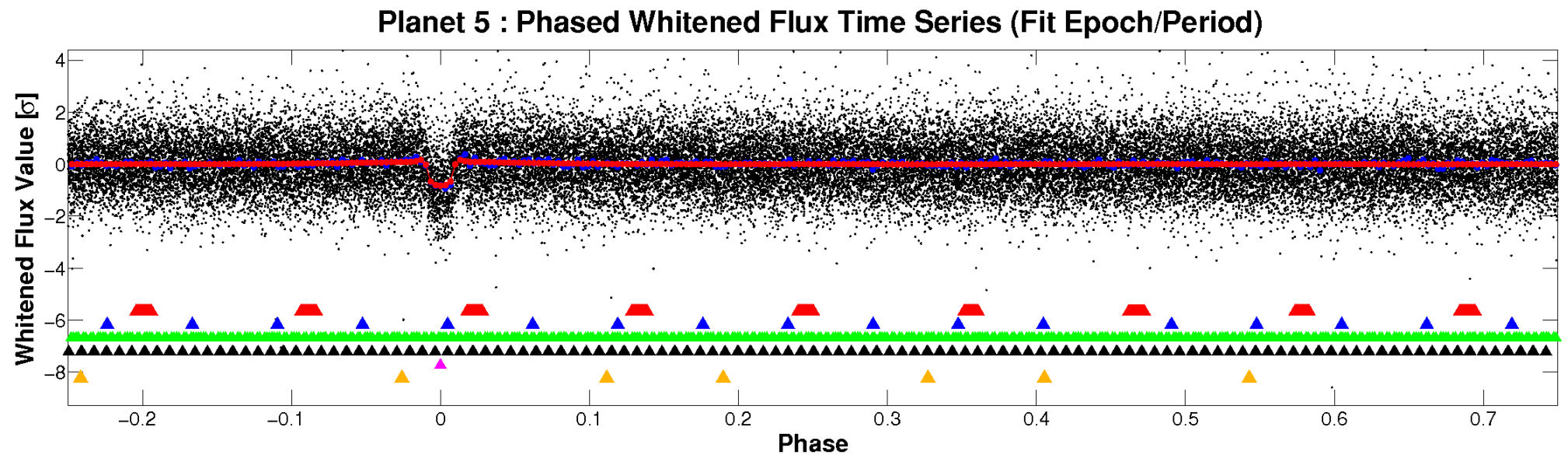
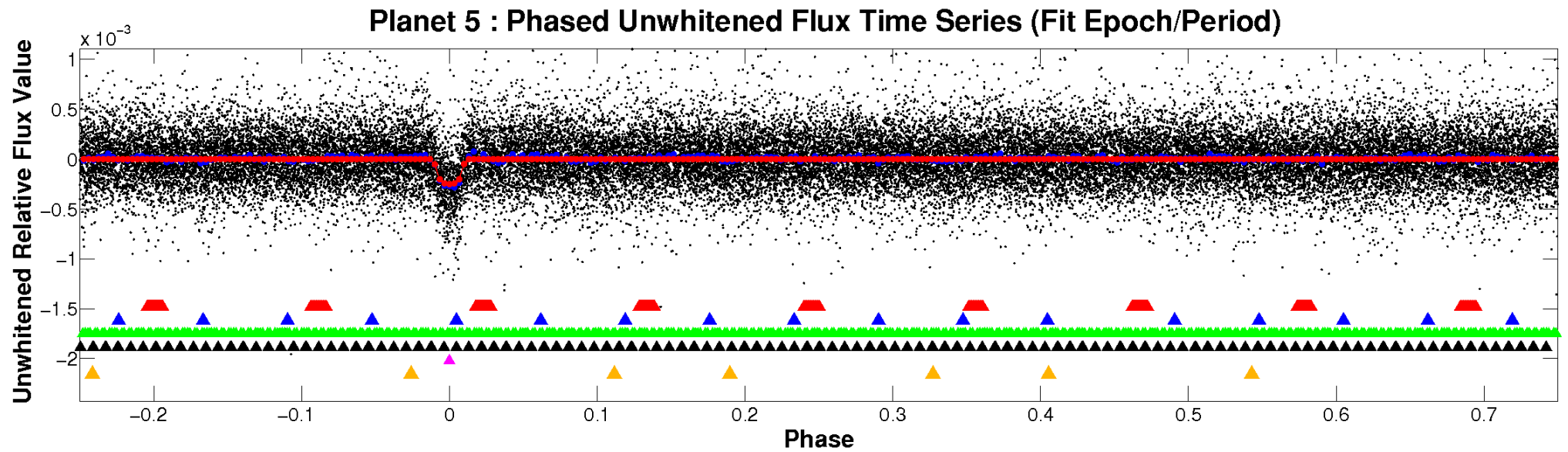


ALT Odd/Even

TCE 005689351-05

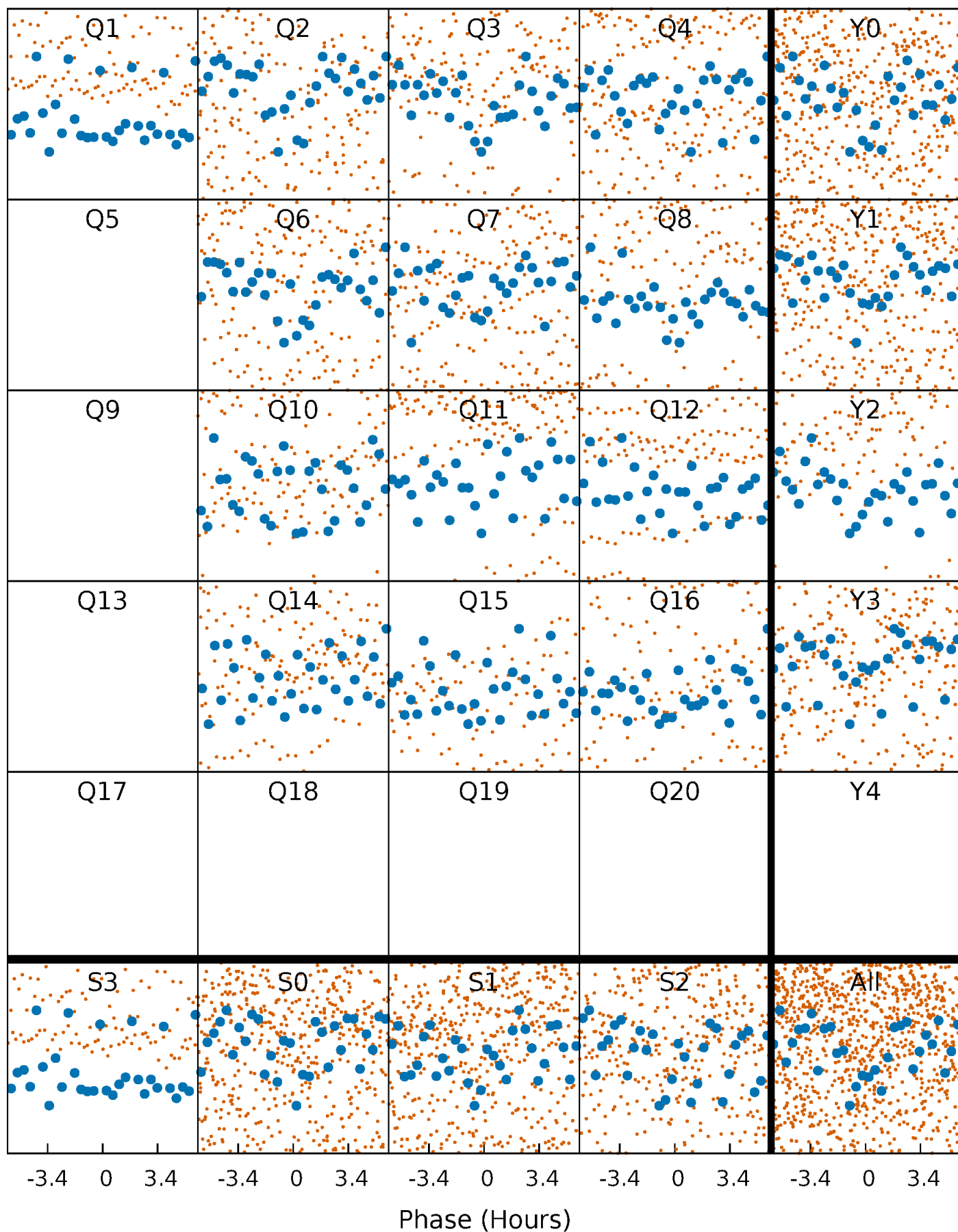


Non-Whitened Vs. Whitened Light Curve



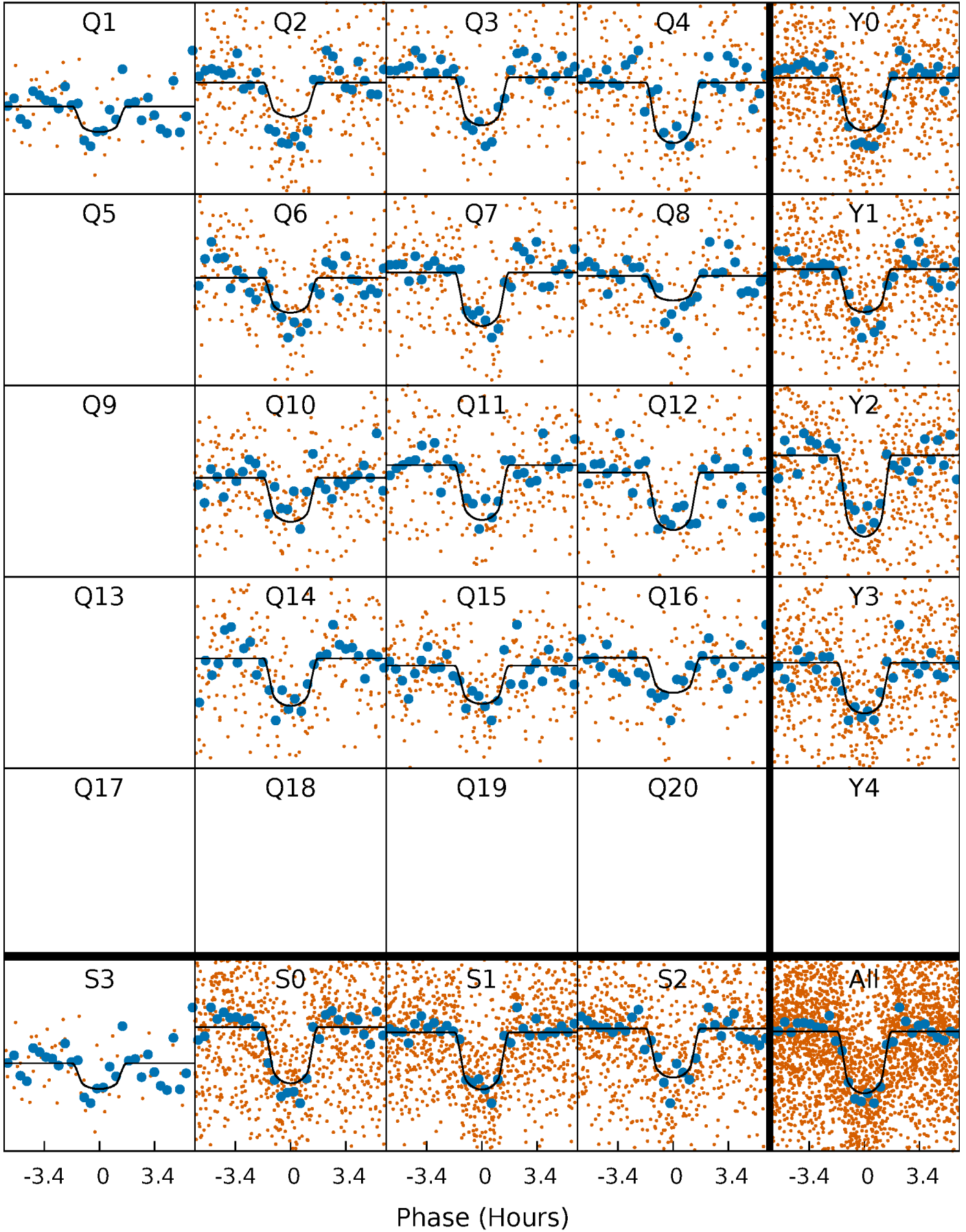
PDC Quarter-Phased Transit Curves

TCE 005689351-05 P= 6.195489 Days $T_0=134.711927$ (BKJD)



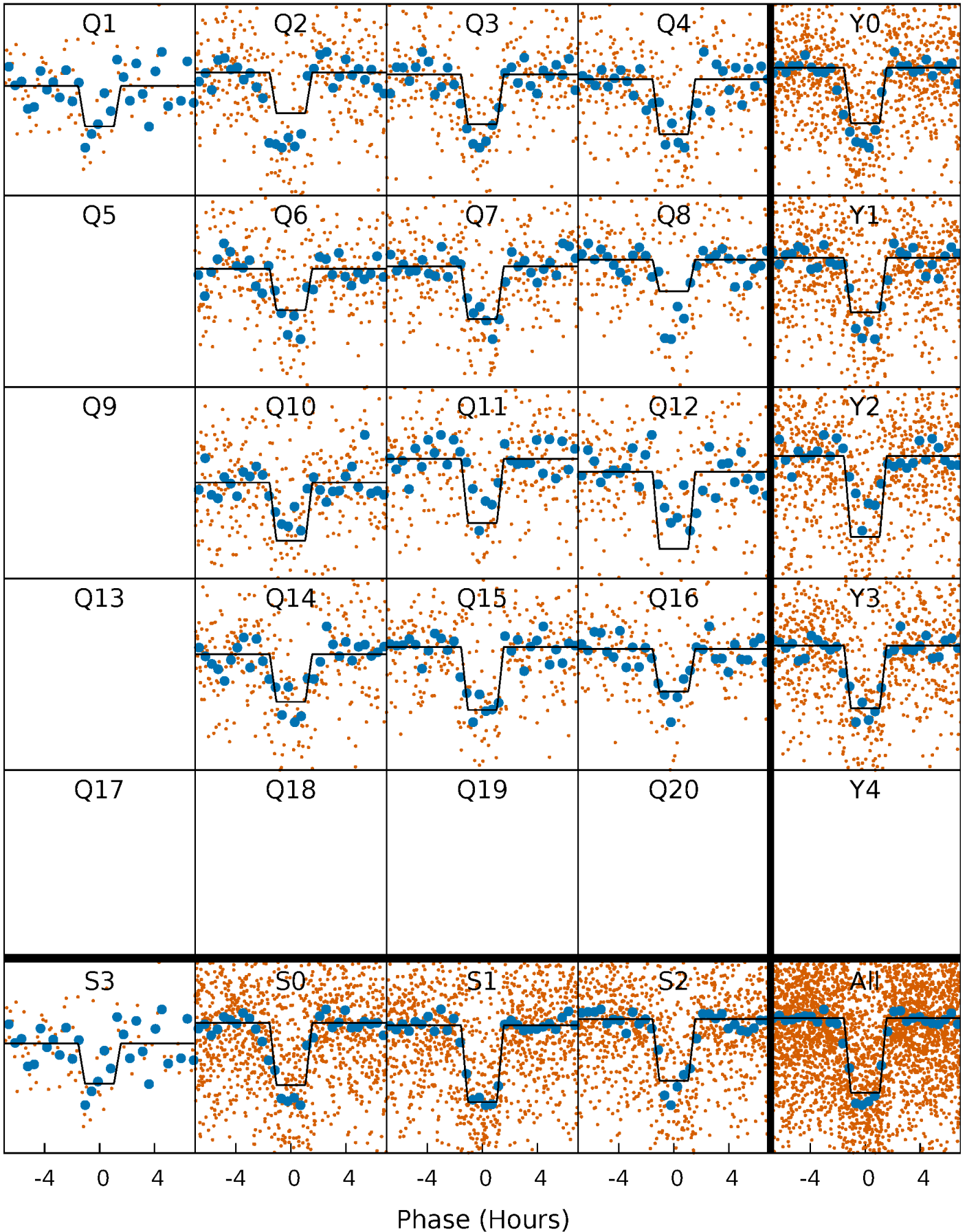
DV Quarter-Phased Transit Curves

TCE 005689351-05 P= 6.195489 Days $T_0=134.711927$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

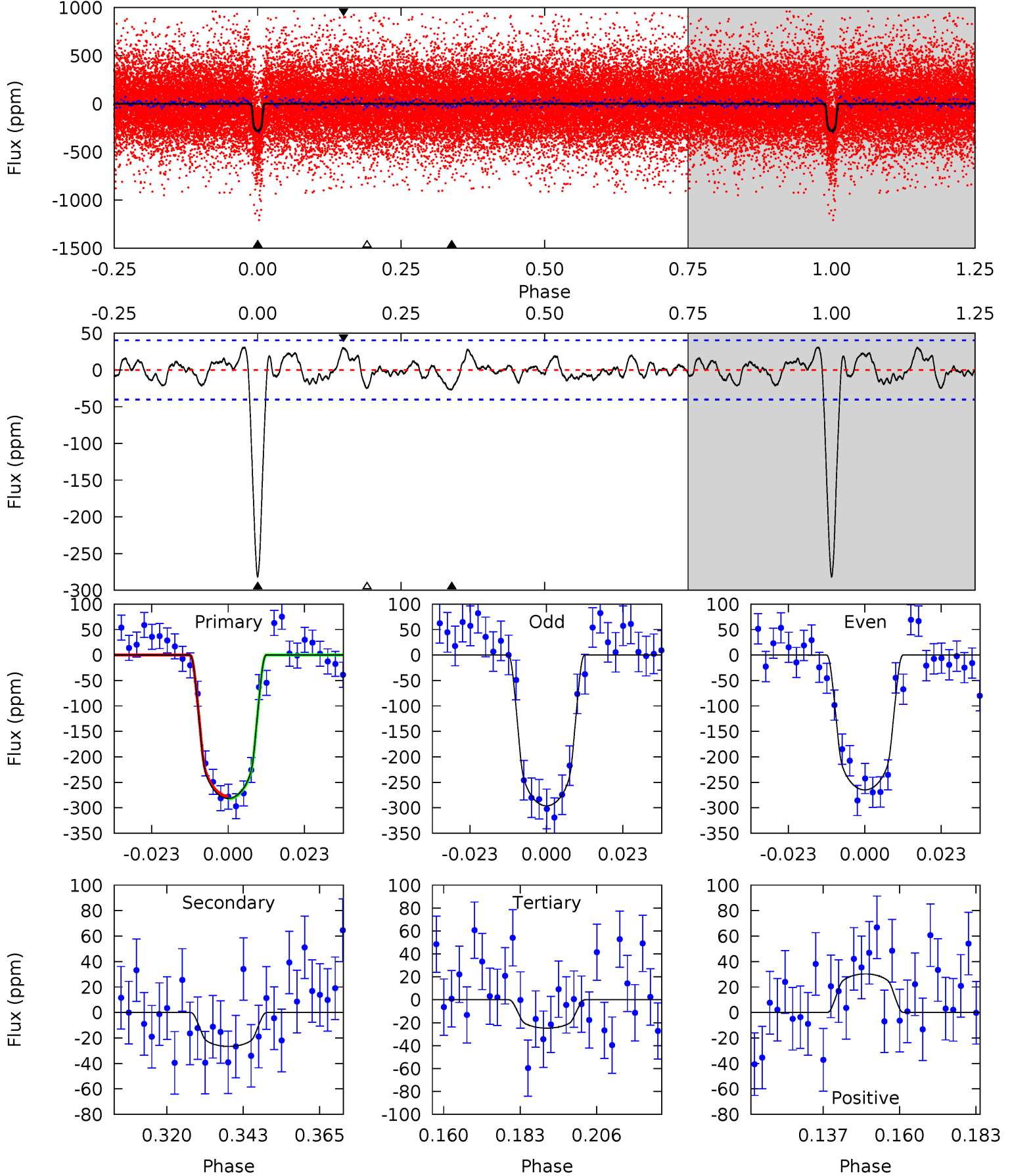
TCE 005689351-05 $P = 6.195371$ Days $T_0 = 134.724918$ (BKJD)



DV Model-Shift Uniqueness Test

005689351-05, P = 6.195489 Days, E = 128.516438 Days

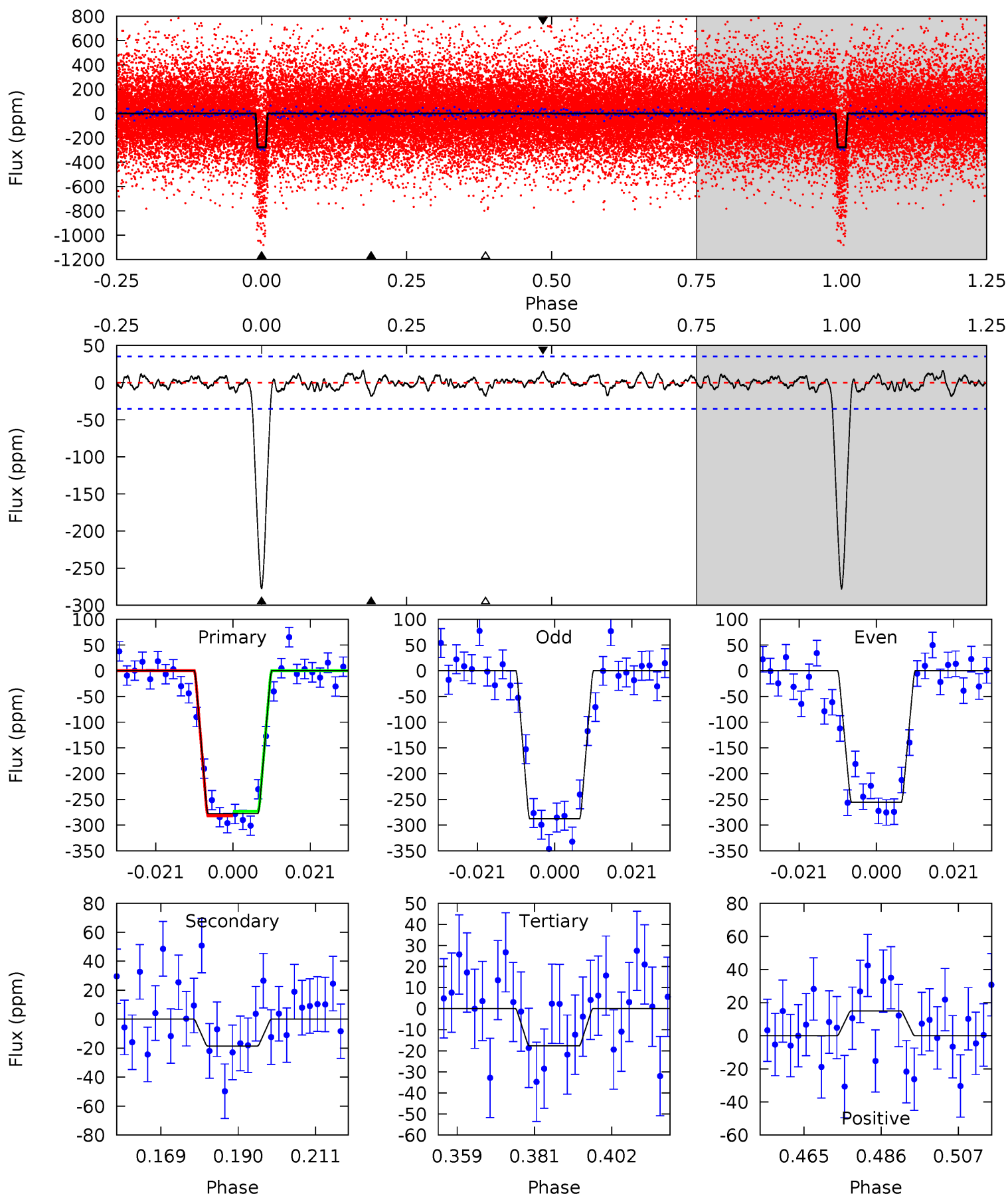
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.0	3.21	2.98	3.65	4.87	2.28	1.30	31.0	30.3	0.23	-0.44	1.89	1.03	0.10	0.32



Alt Model-Shift Uniqueness Test

005689351-05, P = 6.195371 Days, E = 128.529547 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.5	2.57	2.45	2.08	4.88	2.31	0.84	36.0	36.4	0.12	0.49	2.23	1.01	0.05	0.60



Stellar Parameters For KIC 005689351

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5001^{+99}_{-1}	$4.582^{+0.024}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.760^{+0.046}_{-0.034}$	$0.806^{+0.038}_{-0.046}$	$2.582^{+0.301}_{-0.394}$
	+2%/-0%	+1%/-1%	+375%/-375%	+6%/-4%	+5%/-6%	+12%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005689351-05 / KOI 0505.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-27 ± 8	$1.48^{+0.38}_{-0.39}$	1088^{+27}_{-42}	3207^{+377}_{-271}	25^{+26}_{-11}
Alt.	-19 ± 7	$1.38^{+0.38}_{-0.39}$	1083^{+31}_{-41}	3086^{+372}_{-282}	19^{+21}_{-9}

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 $A_{obs} \gg 1.0$

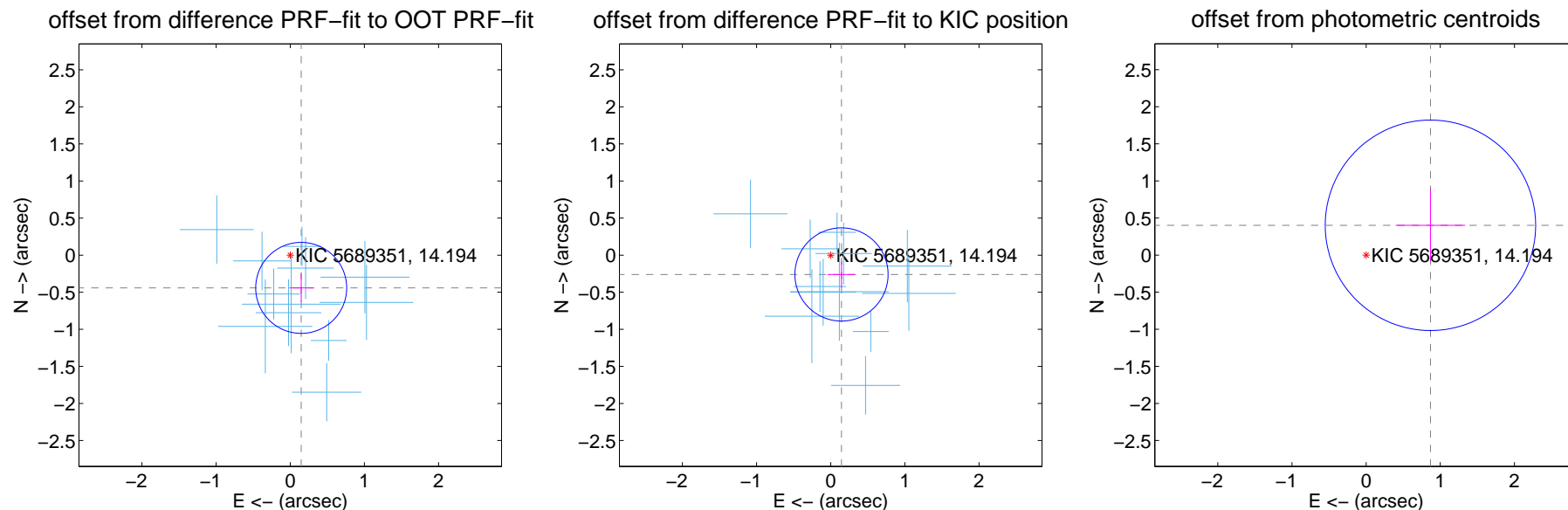
DV Centroid Data

Supplemental centroid analysis for 005689351-05. Kepler magnitude: 14.19. Transit SNR 20.26

There are 12 quarters with good PRF difference image offsets

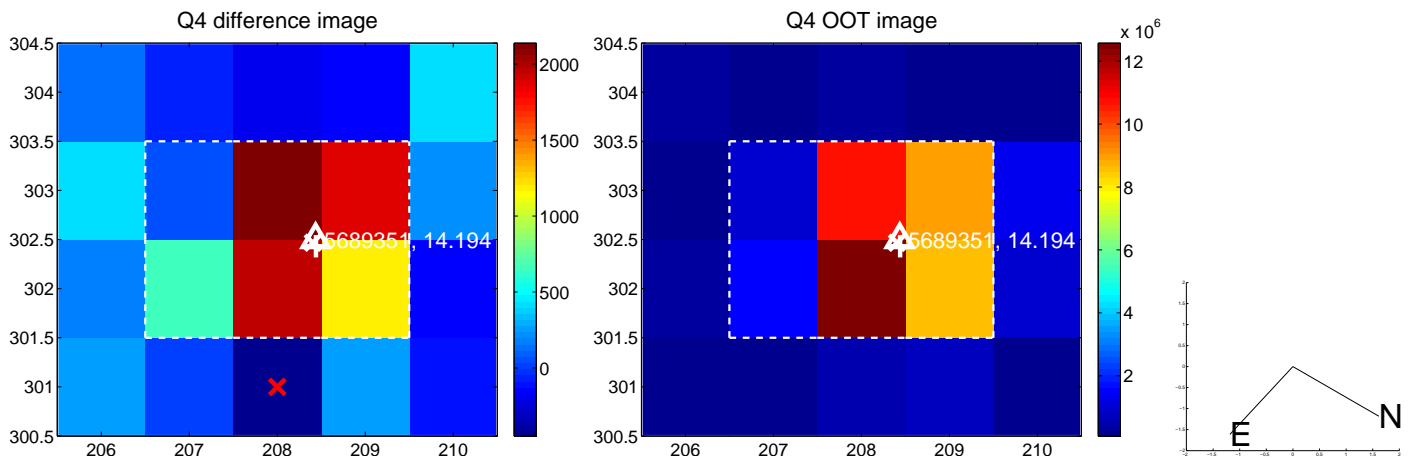
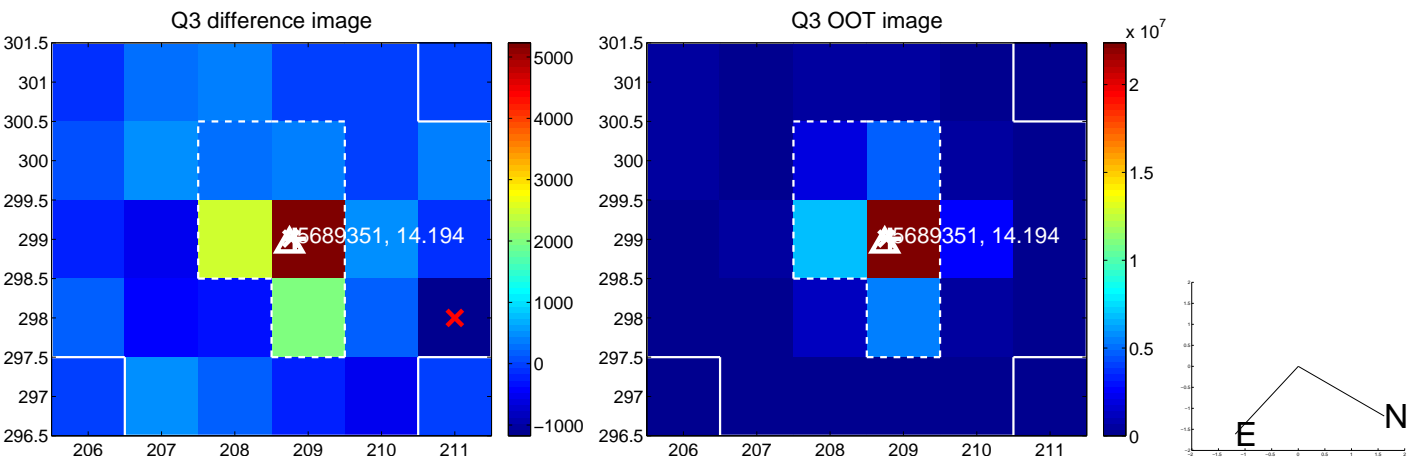
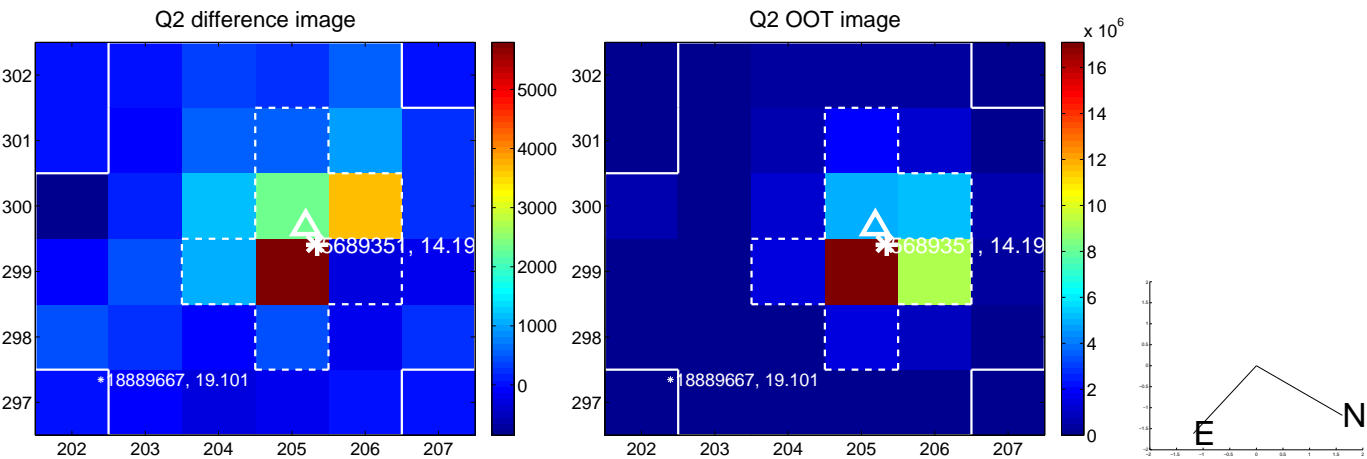
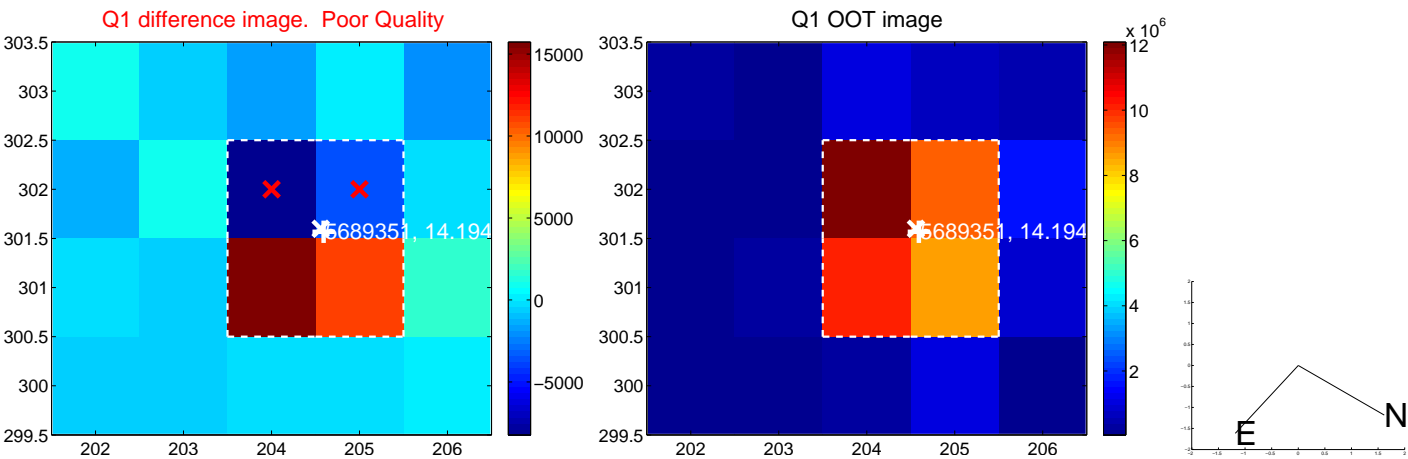
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.465 ± 0.205	2.28	-0.147 ± 0.161	-0.441 ± 0.191
PRF-fit source offset from KIC position	0.298 ± 0.210	1.42	-0.146 ± 0.190	-0.260 ± 0.177
photometric centroid source offset	0.96 ± 0.47	2.02	-0.87 ± 0.47	0.40 ± 0.49

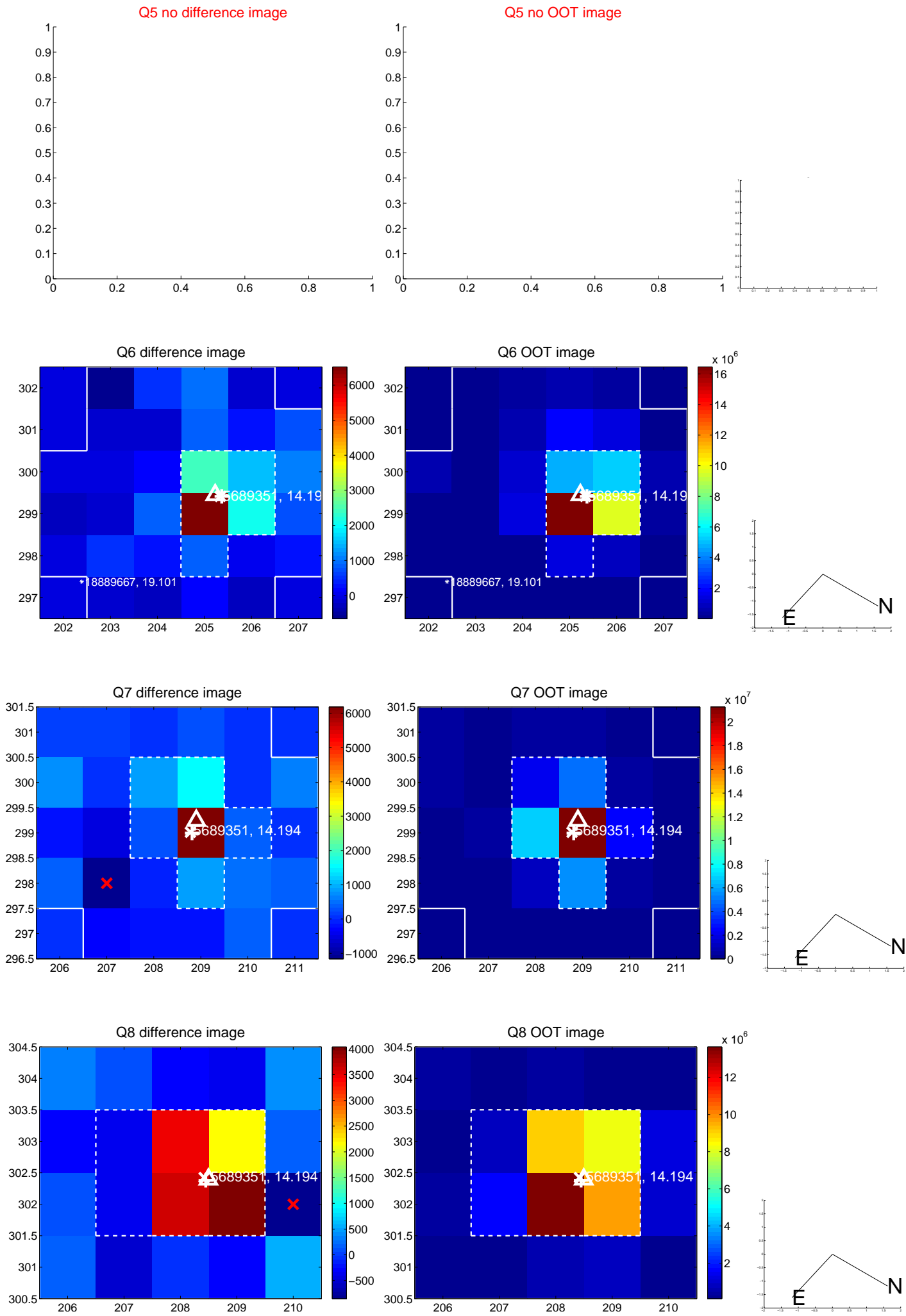


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

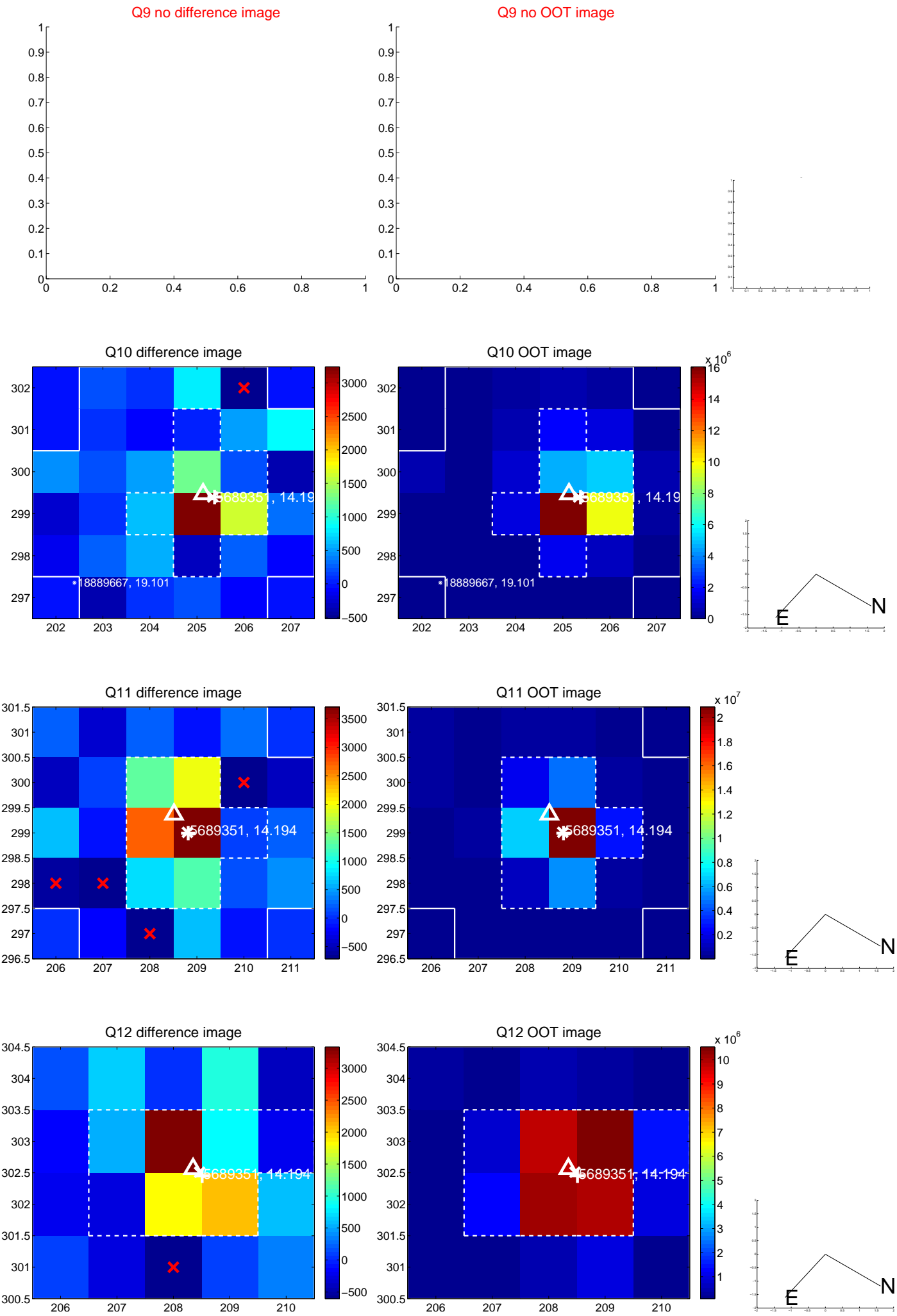
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



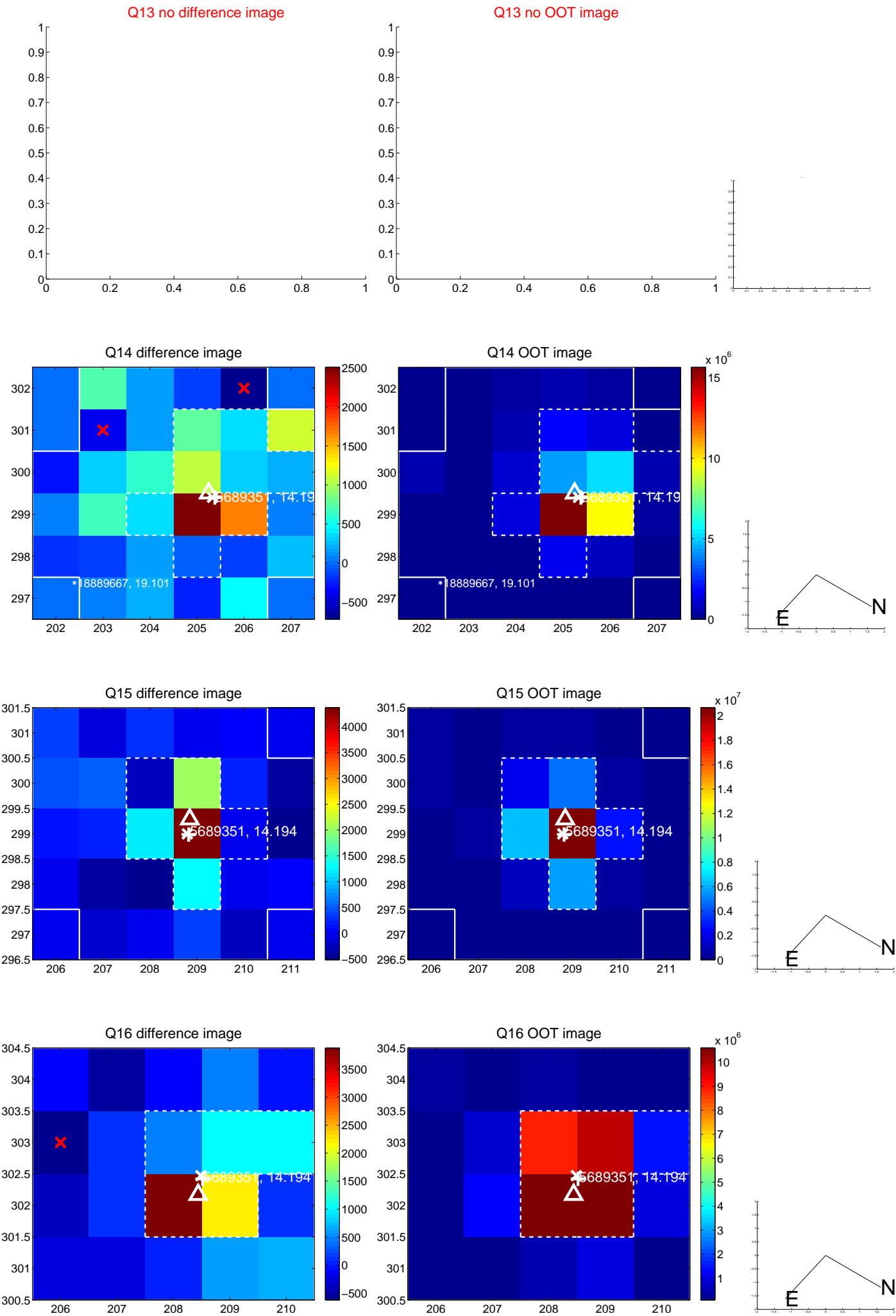
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



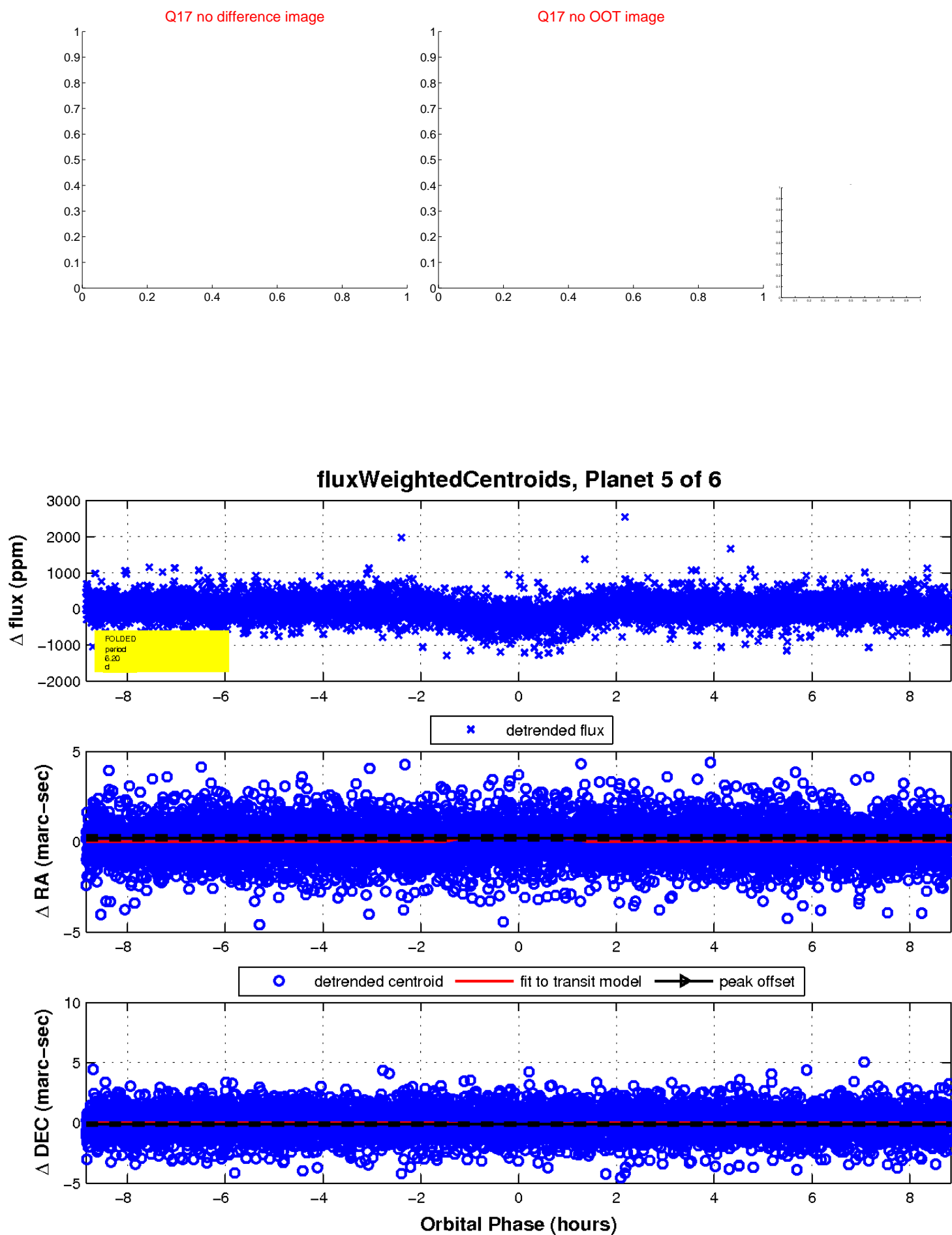
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

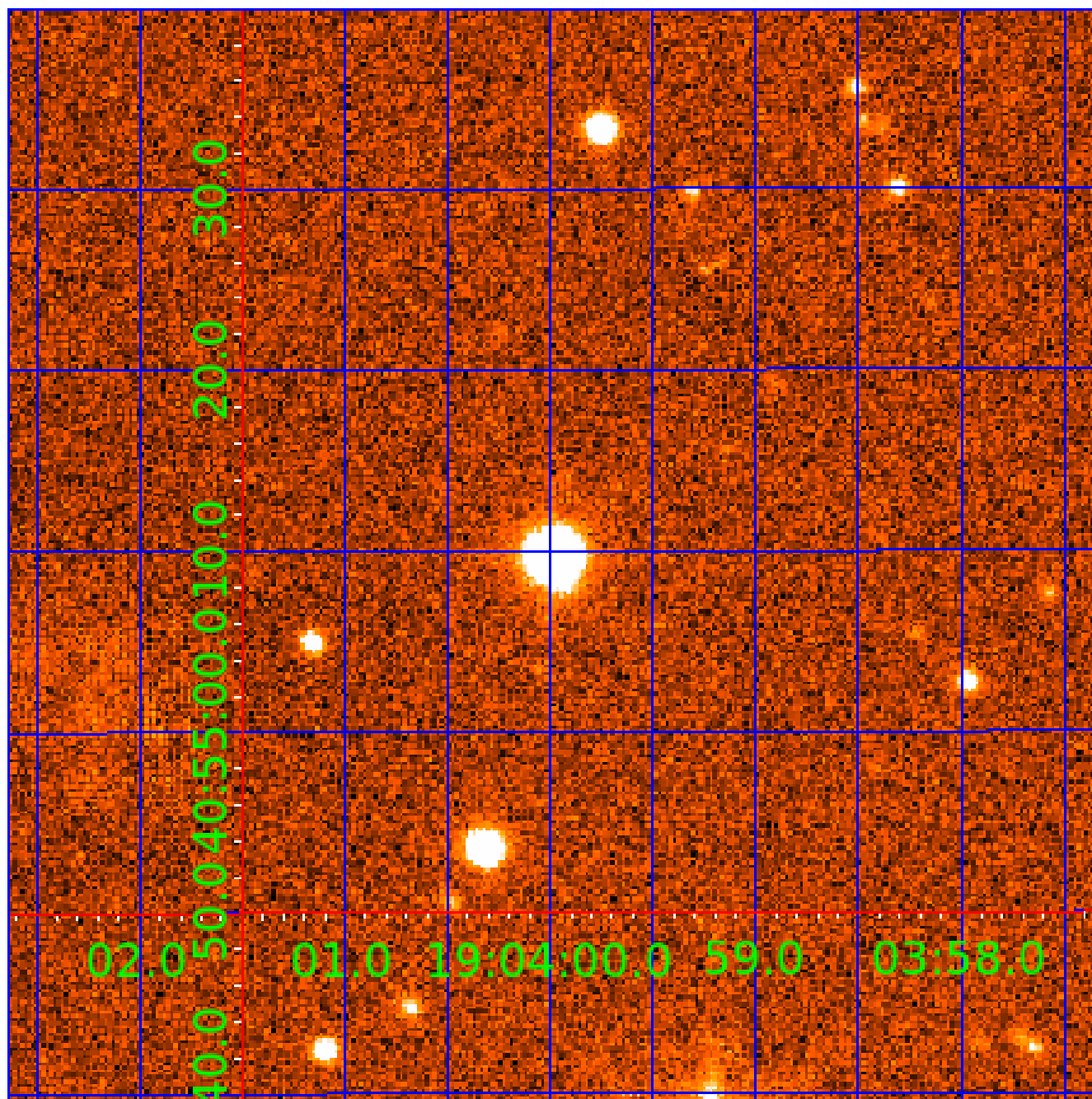


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005689351

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})
005689351-01	OBS	0505.01	13.767106	133.510150	689.0	3.070	35.3	39.2	0.76	5001	2.46	29.59
005689351-02	OBS	0505.05	87.090728	187.315954	1119.4	6.729	31.2	31.2	0.76	5001	2.87	2.53
005689351-03	OBS	0505.03	3.250590	133.696199	206.9	2.279	20.3	22.5	0.76	5001	1.40	202.79
005689351-04	OBS	0505.04	8.348186	136.838888	304.2	3.255	20.0	22.0	0.76	5001	1.74	57.66
005689351-05	OBS	0505.02	6.195489	134.711926	252.4	2.949	18.1	20.3	0.76	5001	1.47	85.81
005689351-06	OBS	No	199.591596	203.553758	327.6	10.850	10.8	6.1	0.76	5001	1.54	0.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005689351-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT
005689351-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005689351-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

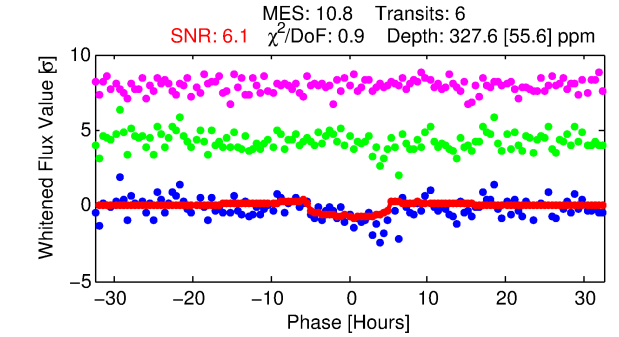
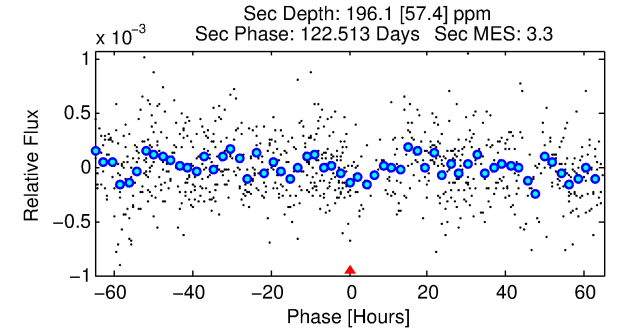
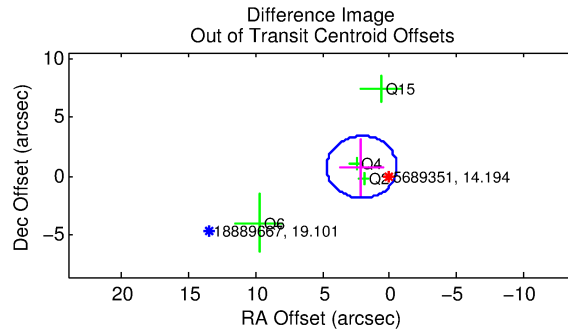
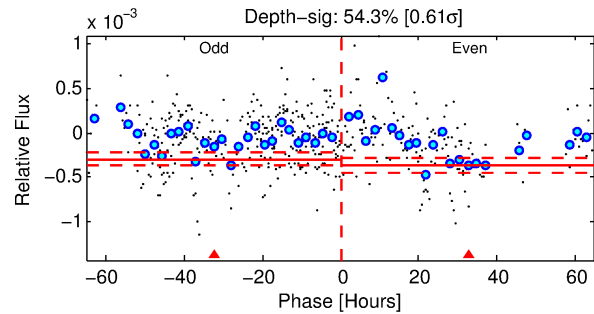
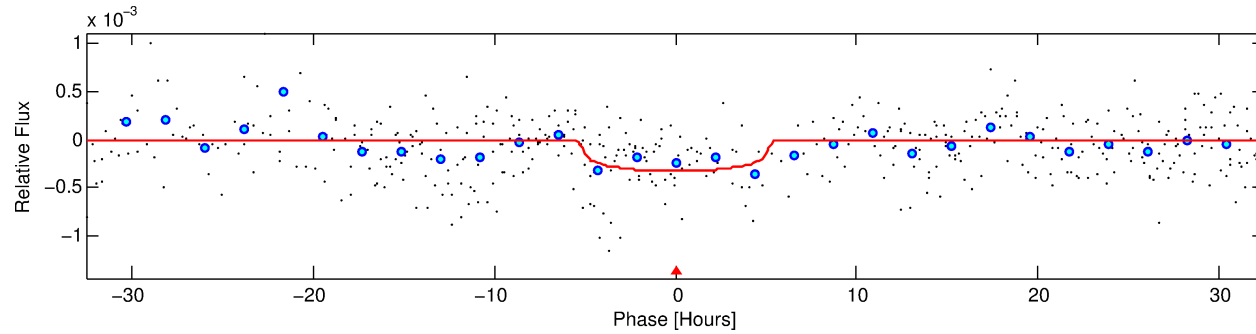
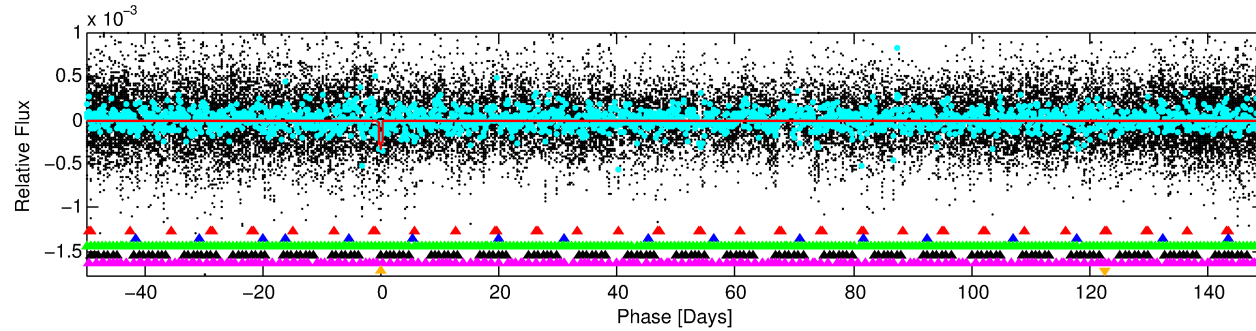
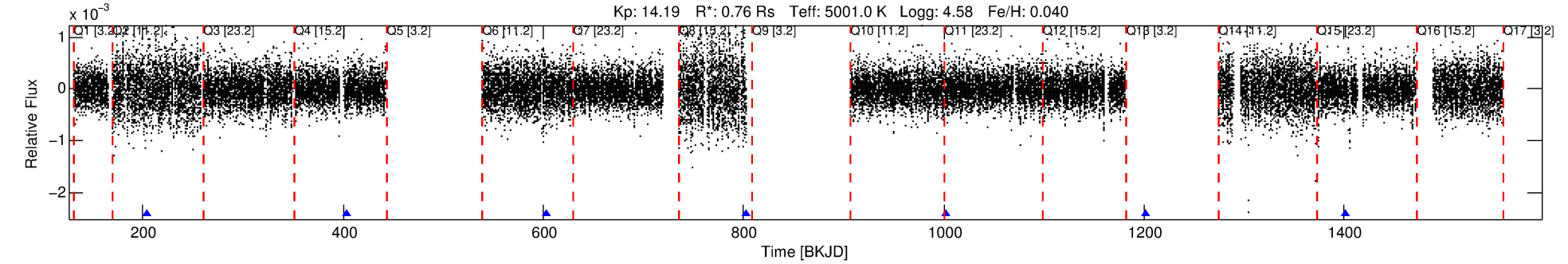
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005689351-06

No Significant Match Found

DV One-Page Summary

KIC: 5689351 Candidate: 6 of 6 Period: 199.592 d
KOI: K00505 Name: Kepler-169 Corr: No Ephemeris Match



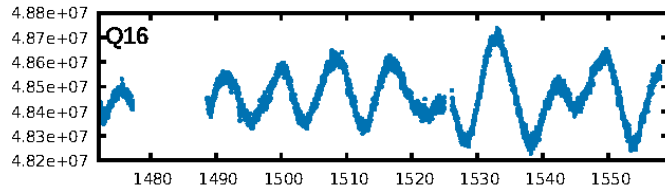
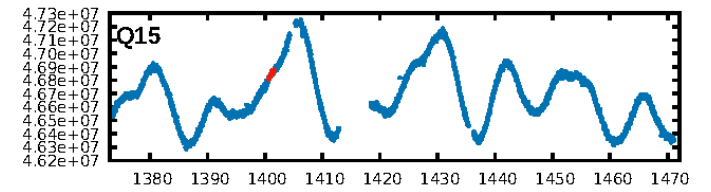
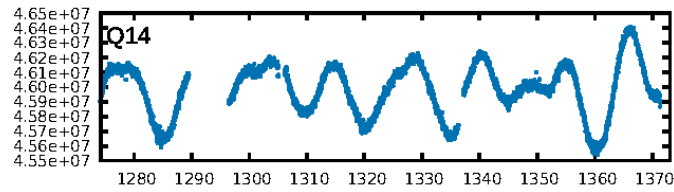
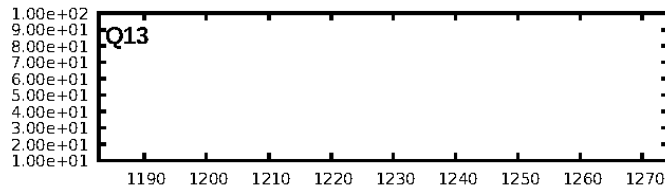
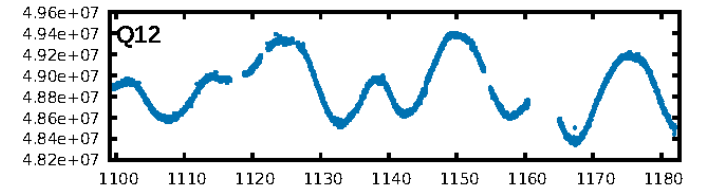
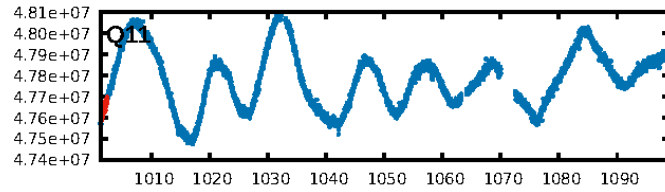
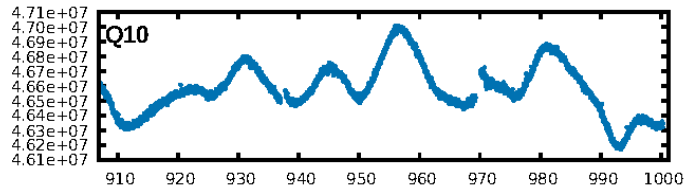
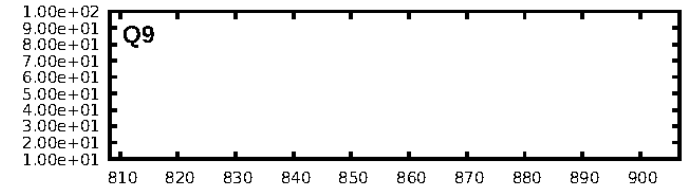
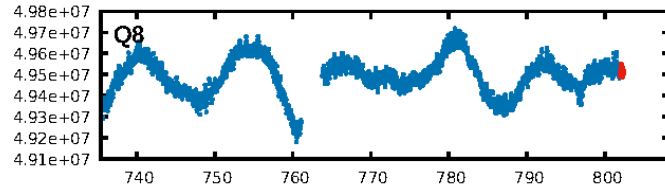
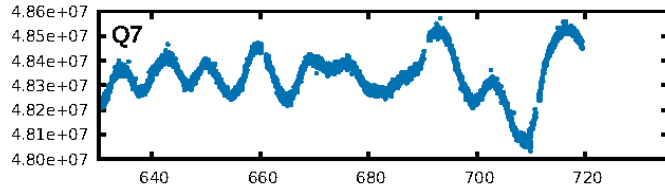
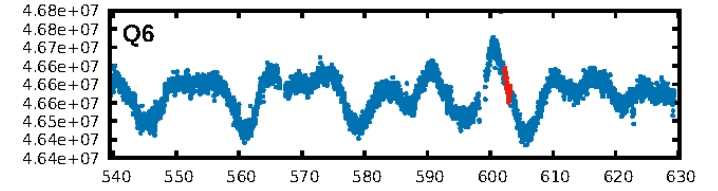
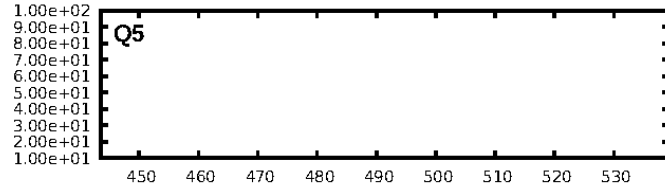
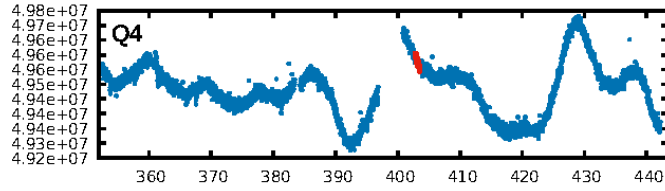
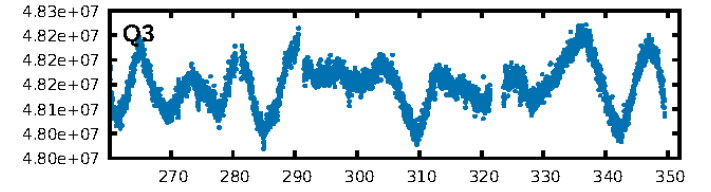
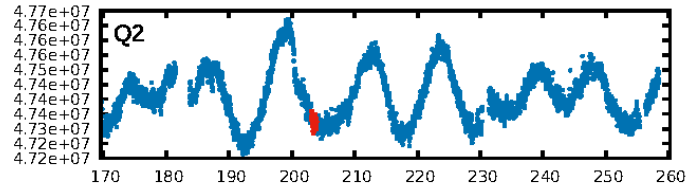
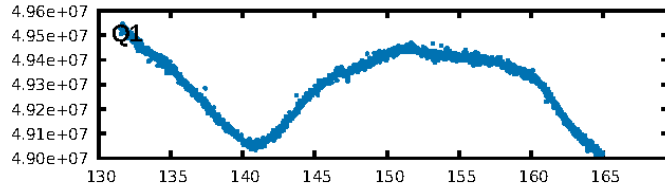
DV Fit Results:

Period = 199.59160 [0.00536] d
Epoch = 203.5538 [0.0234] BKJD
Rp/R* = 0.0186 [0.0098]
a/R* = 87.86 [165.46]
b = 0.80 [0.85]
Seff = 0.84 [0.10]
Teq = 244 [7] K
Rp = 1.54 [0.82] Re
a = 0.6218 [0.0340] AU
Ag = 17487.26 [19169.19] [0.91 σ]
Teffp = 4337 [1188] K [3.44 σ]

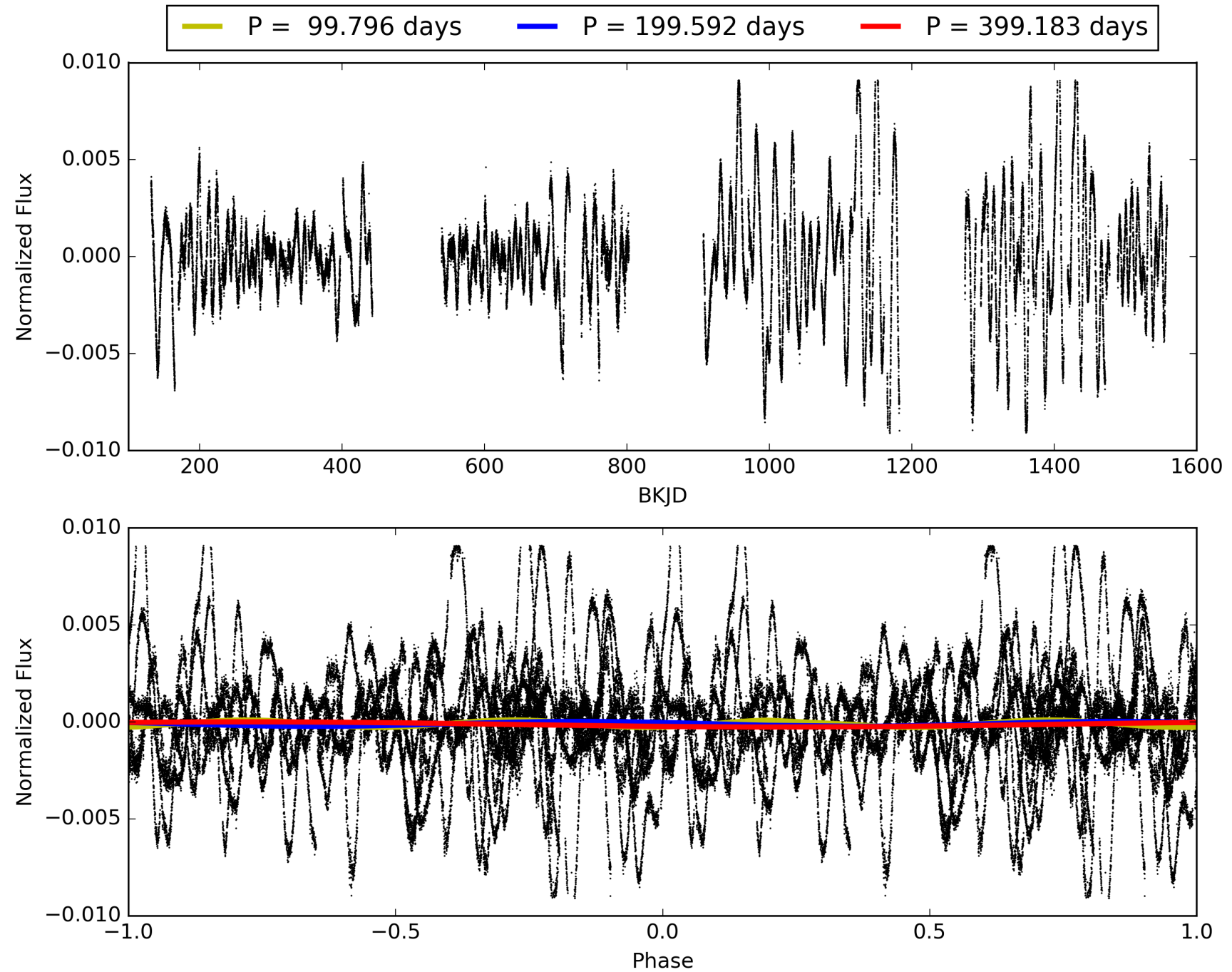
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [211.48 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 42.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.12e-17
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -7.142
Centroid-sig: 12.4%
Centroid-so: 1.451 arcsec [1.29 σ]
OotOffset-rm: 2.220 arcsec [2.54 σ]
KicOffset-rm: 2.288 arcsec [2.32 σ]
OotOffset-st: 2/1/1/0 [4]
KicOffset-st: 2/1/1/0 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 0.25 [1/4]

TCE 005689351-06, PDC Light Curves

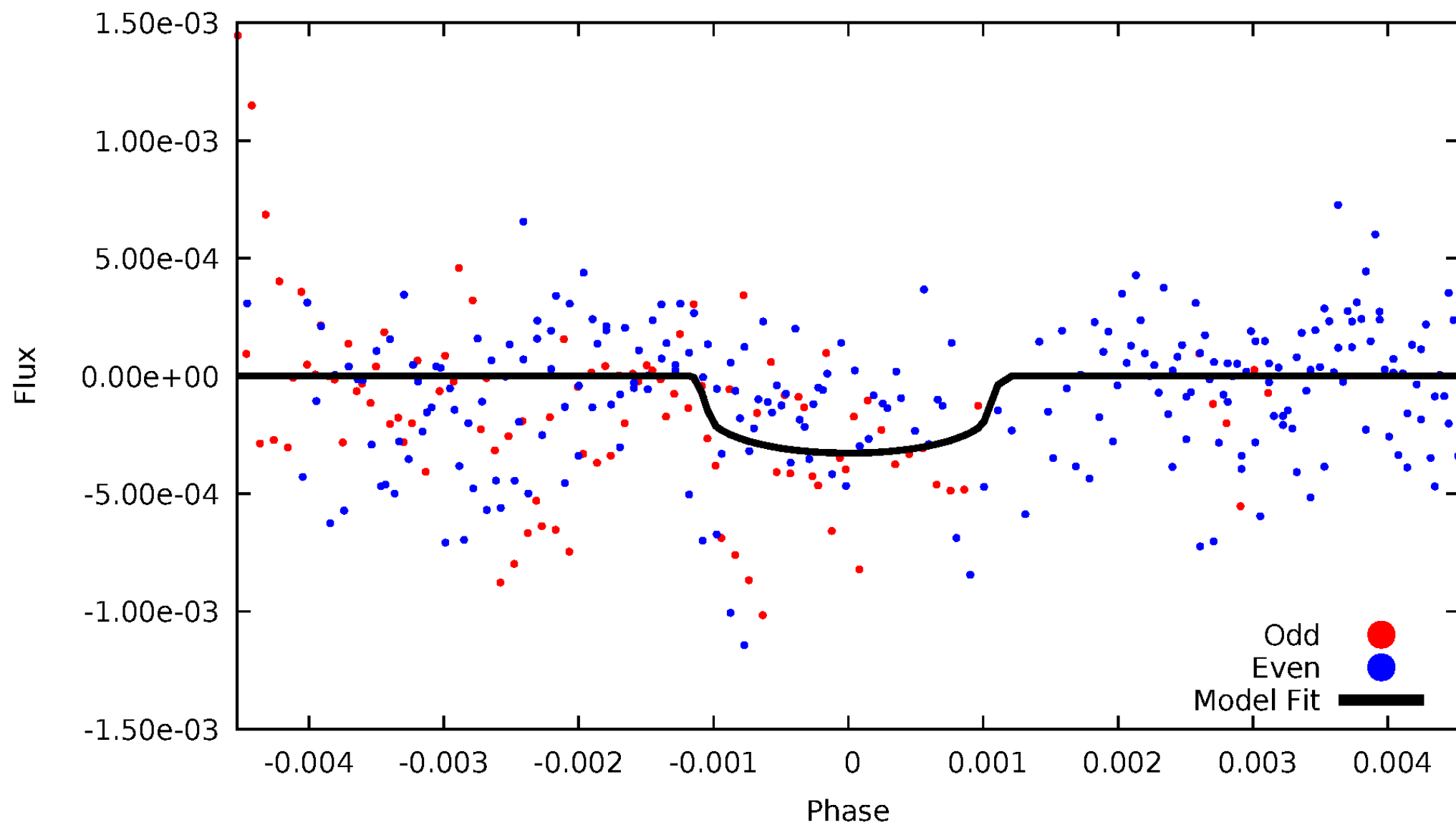


TCE 005689351-06



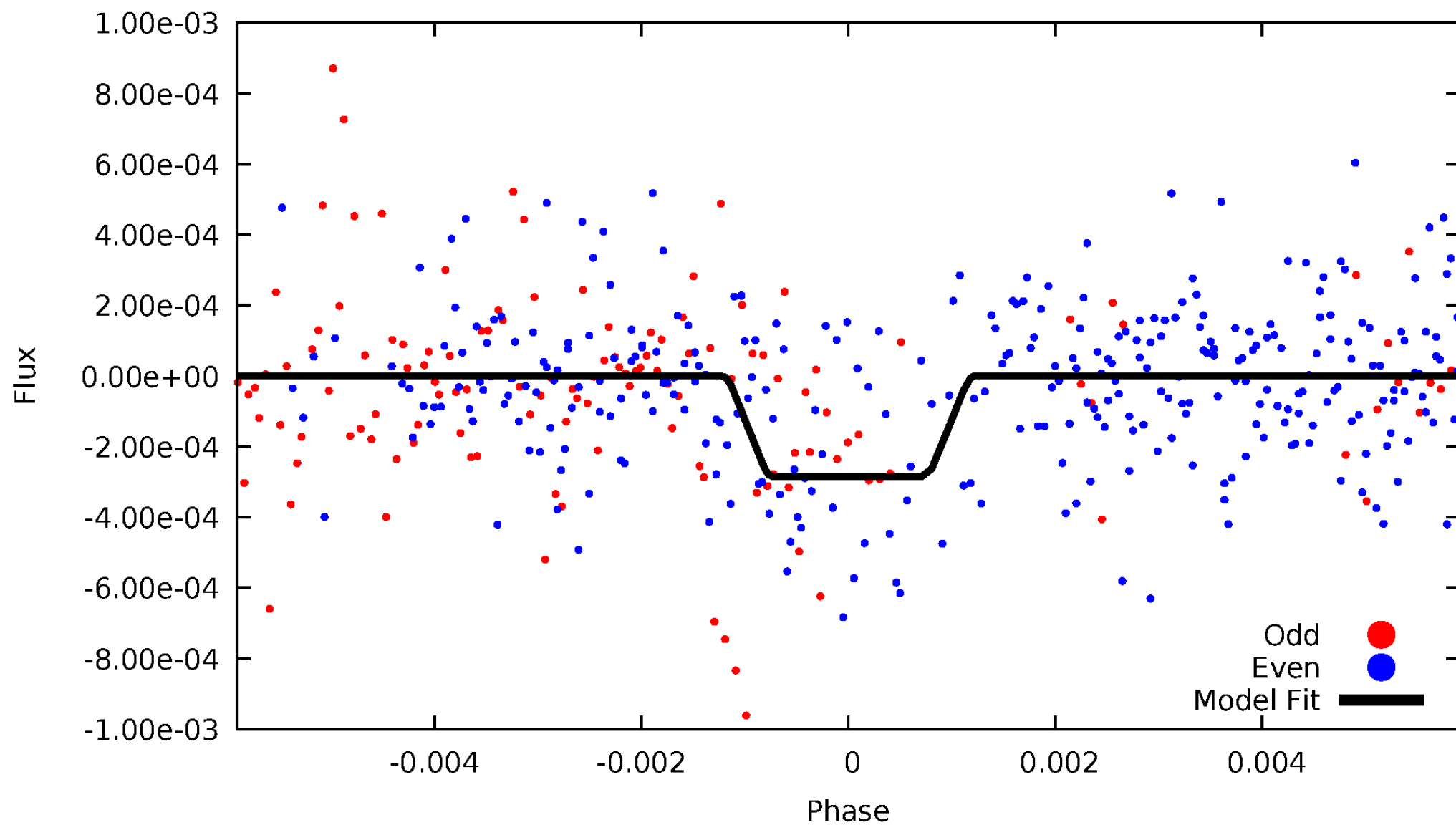
DV Odd/Even

TCE 005689351-06



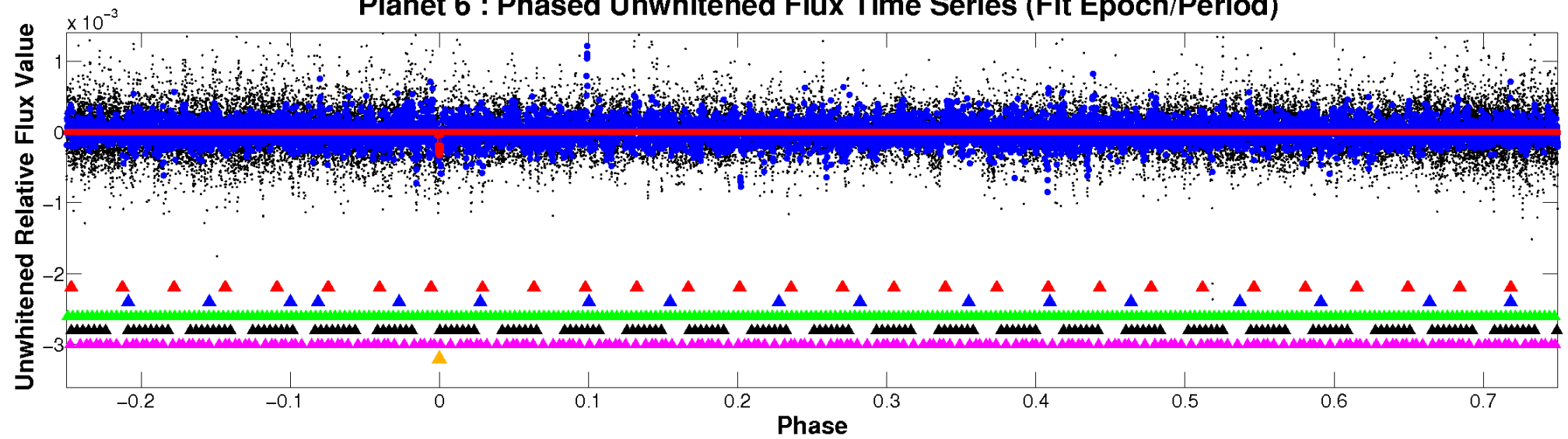
ALT Odd/Even

TCE 005689351-06

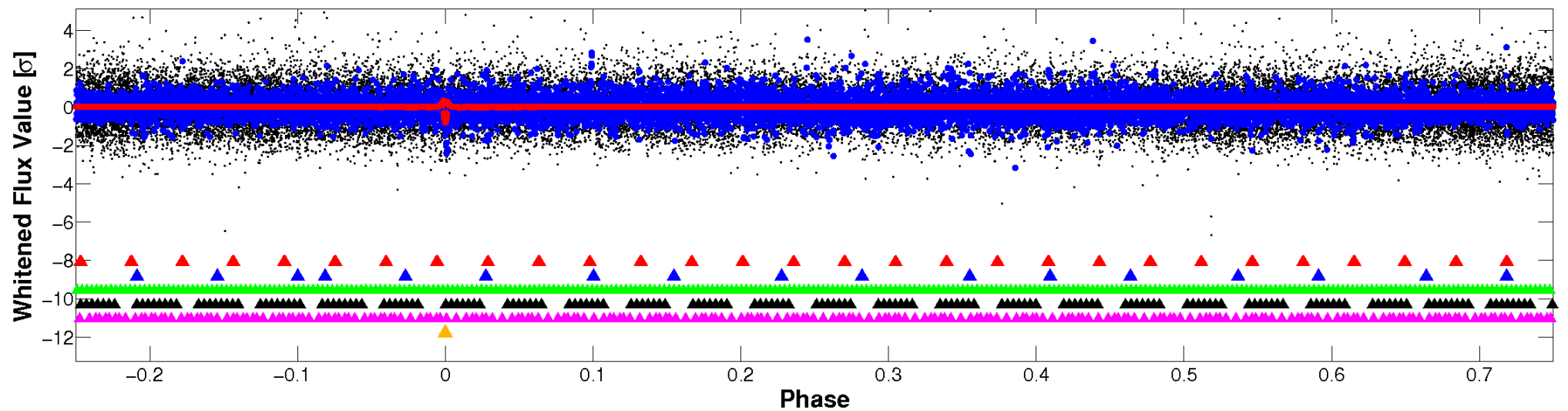


Non-Whitened Vs. Whitened Light Curve

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

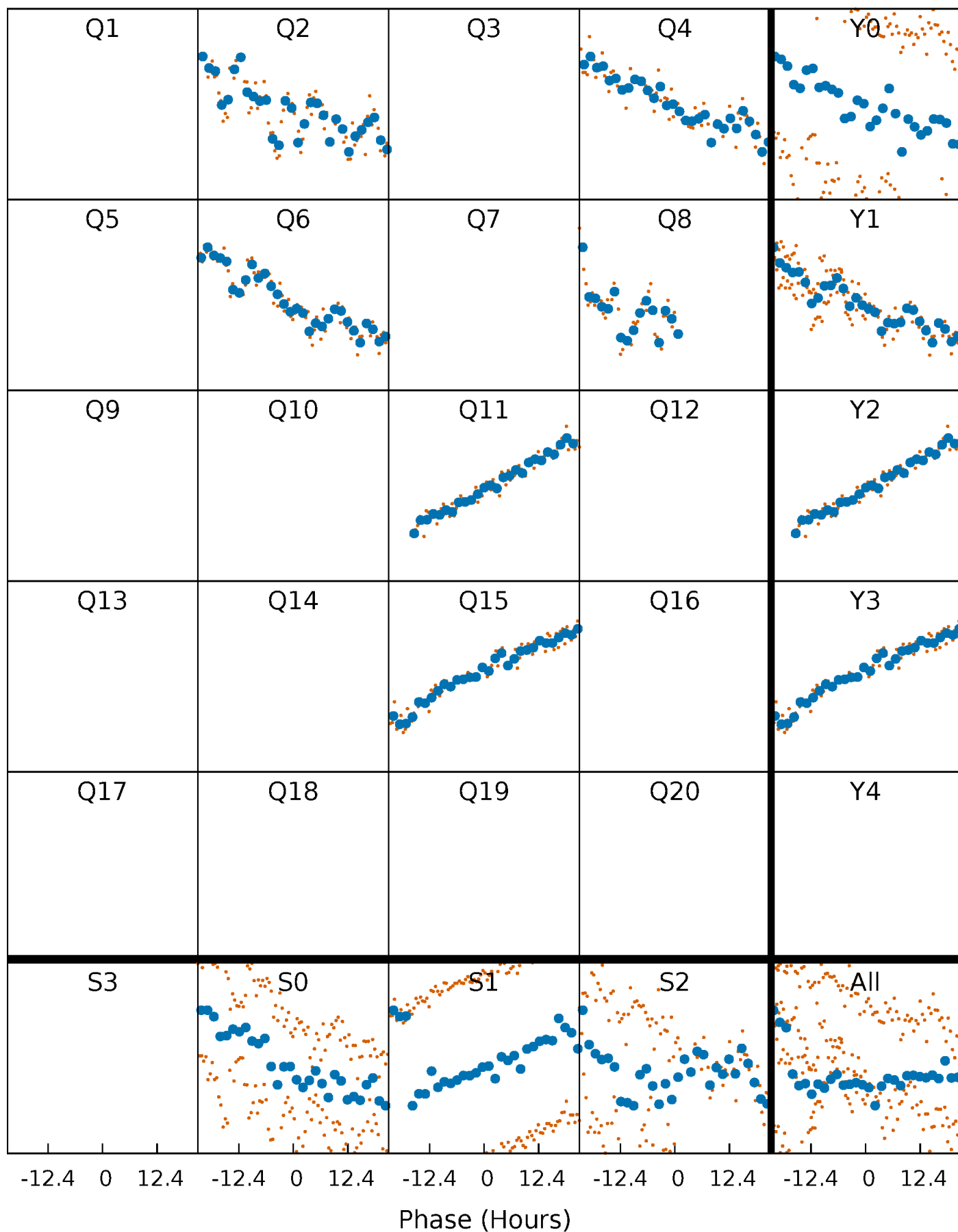


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



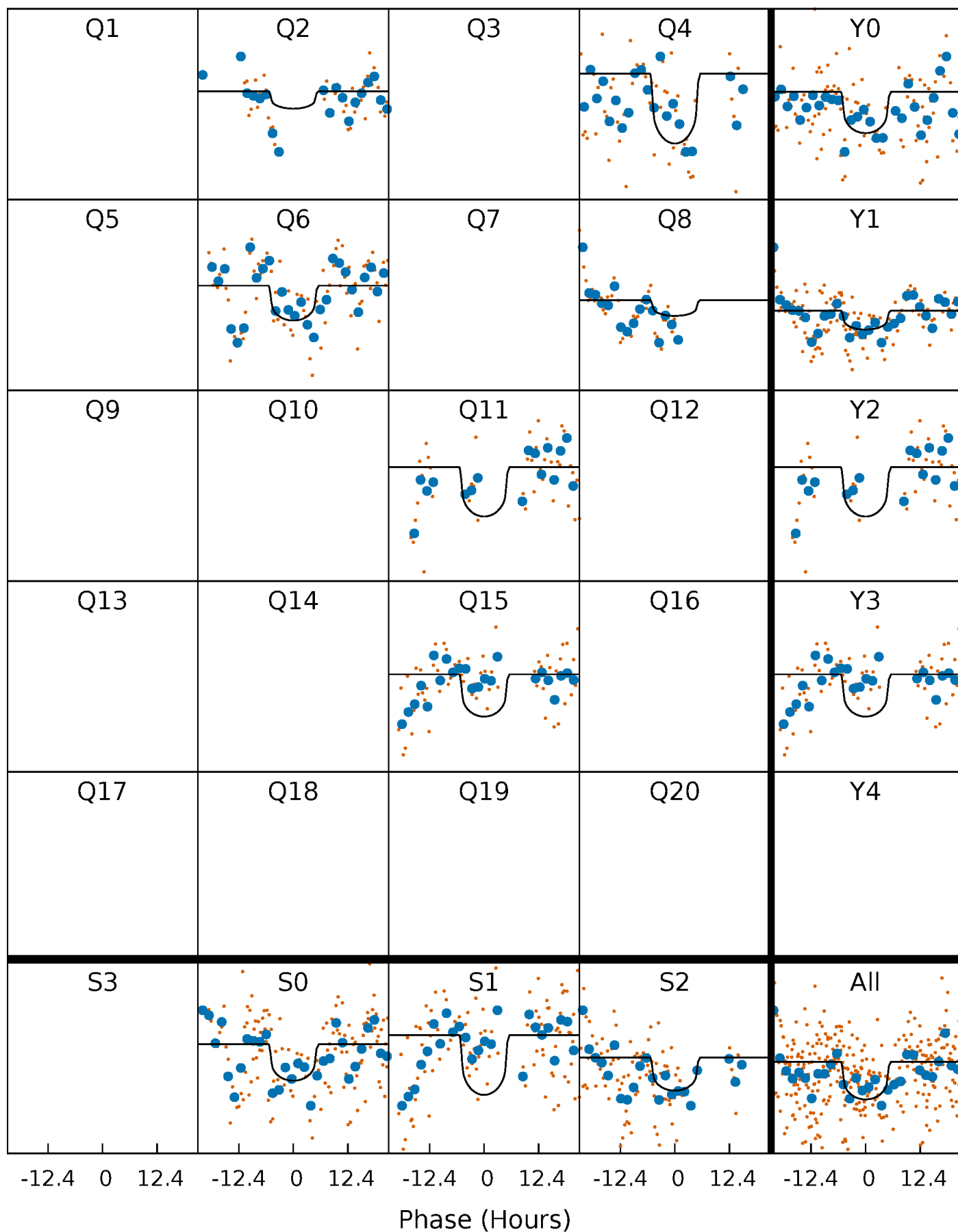
PDC Quarter-Phased Transit Curves

TCE 005689351-06 $P=199.591596$ Days $T_0=203.553758$ (BKJD)



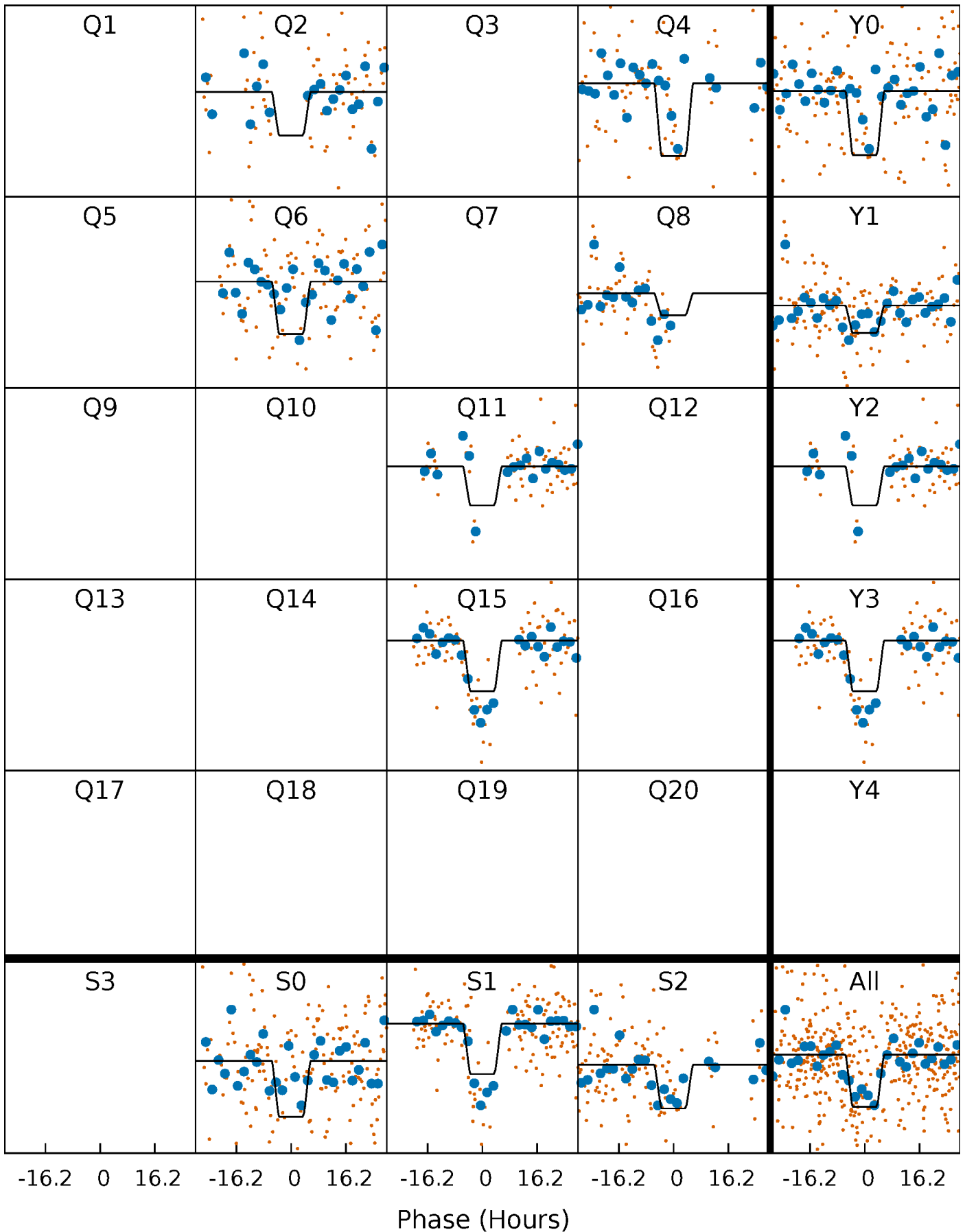
DV Quarter-Phased Transit Curves

TCE 005689351-06 P=199.591596 Days $T_0=203.553758$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

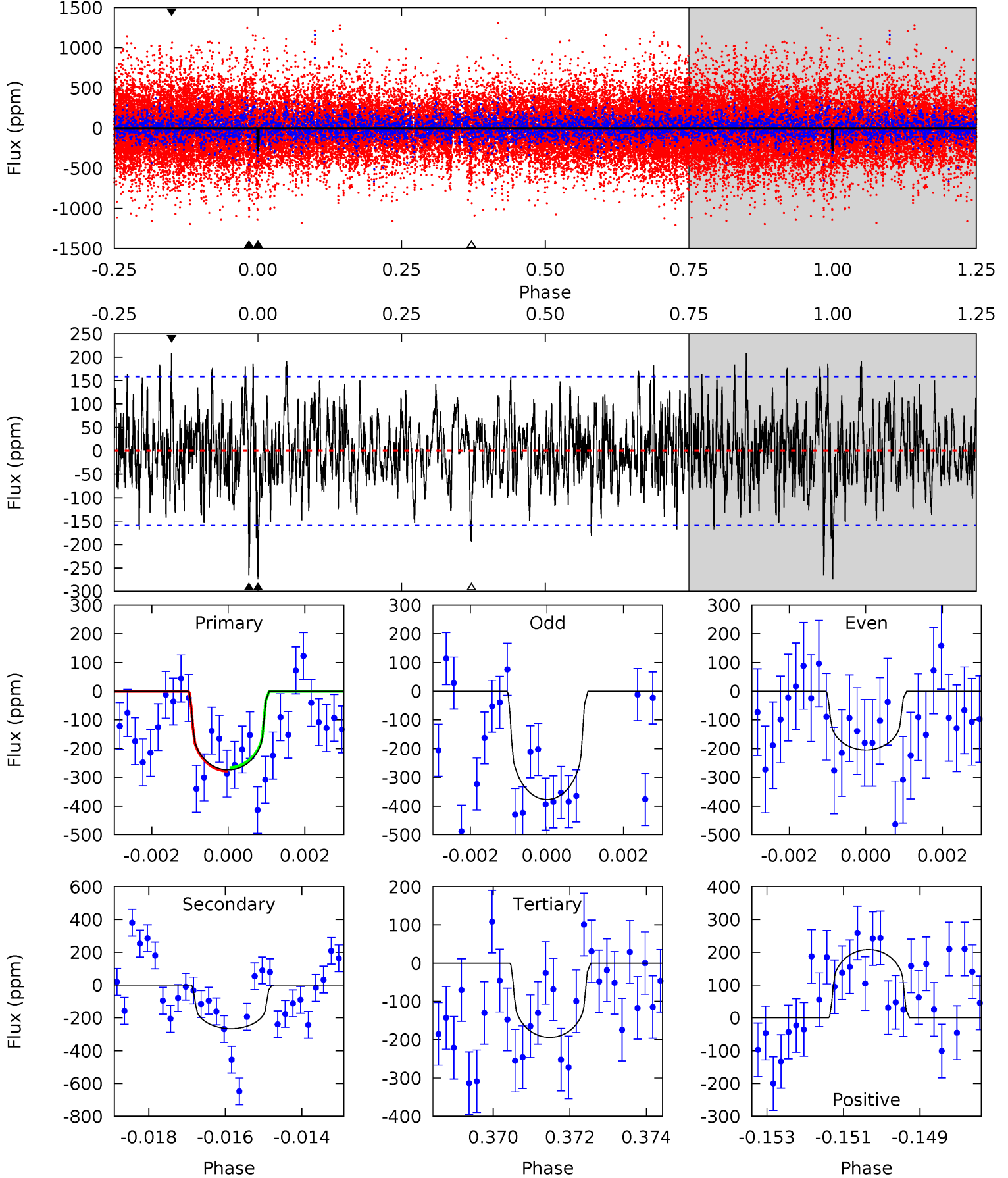
TCE 005689351-06 P=199.581392 Days $T_0=203.654732$ (BKJD)



DV Model-Shift Uniqueness Test

005689351-06, P = 199.591596 Days, E = 3.962162 Days

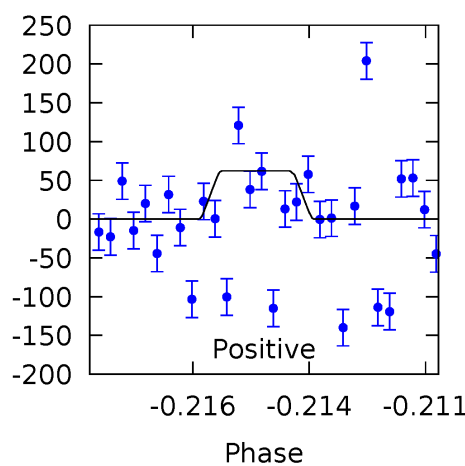
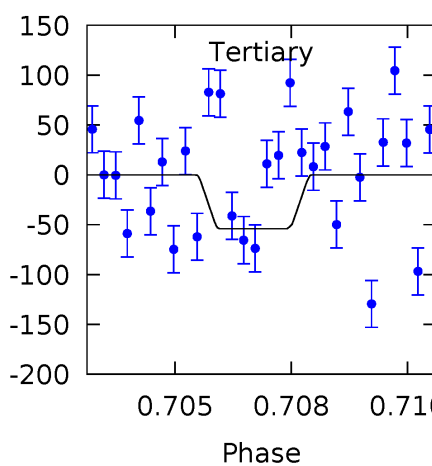
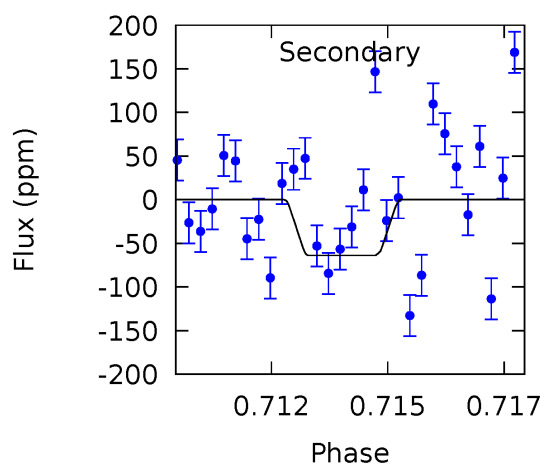
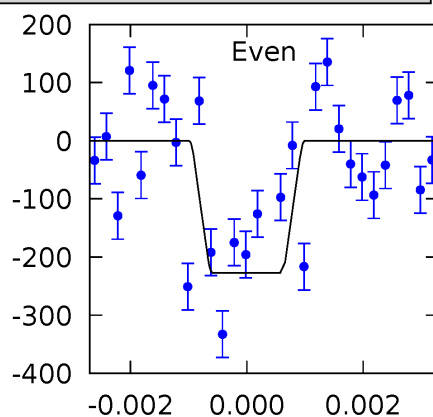
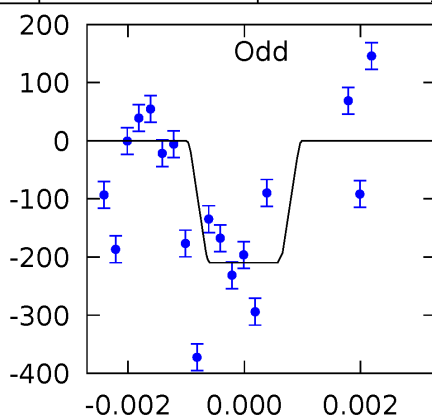
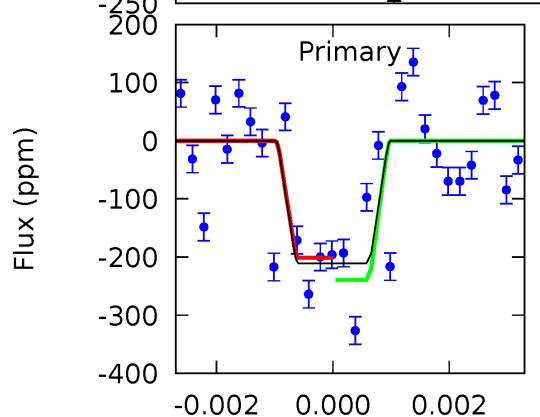
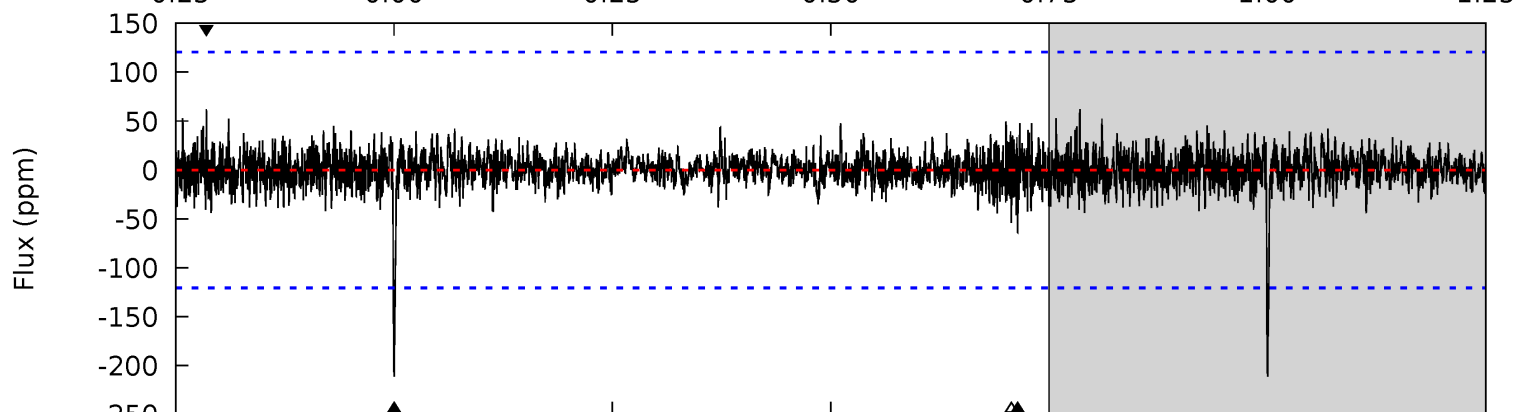
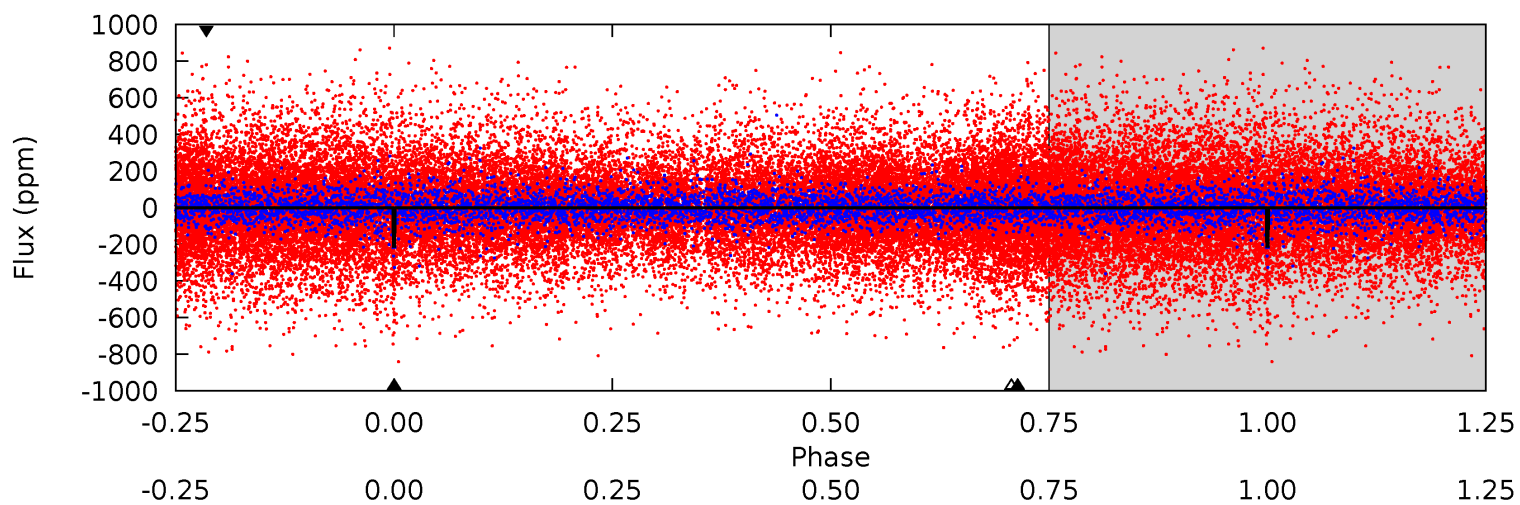
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.16	8.89	6.48	6.96	5.30	3.05	2.07	2.68	2.20	2.41	1.93	2.73	1.75	0.43	0.20



Alt Model-Shift Uniqueness Test

005689351-06, P = 199.581392 Days, E = 4.073340 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.26	2.80	2.37	2.73	5.29	3.03	0.59	6.88	6.53	0.43	0.07	0.36	1.37	0.23	0.81



Stellar Parameters For KIC 005689351

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5001^{+99}_{-1}	$4.582^{+0.024}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.760^{+0.046}_{-0.034}$	$0.806^{+0.038}_{-0.046}$	$2.582^{+0.301}_{-0.394}$
	+2%/-0%	+1%/-1%	+375%/-375%	+6%/-4%	+5%/-6%	+12%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005689351-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-266 ± 30	$1.60^{+0.80}_{-0.78}$	341^{+9}_{-13}	4649^{+1615}_{-659}	21803^{+62800}_{-11996}
Alt.	-64 ± 23	$1.47^{+0.80}_{-0.76}$	341^{+10}_{-13}	3650^{+1176}_{-493}	5802^{+21147}_{-3569}

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

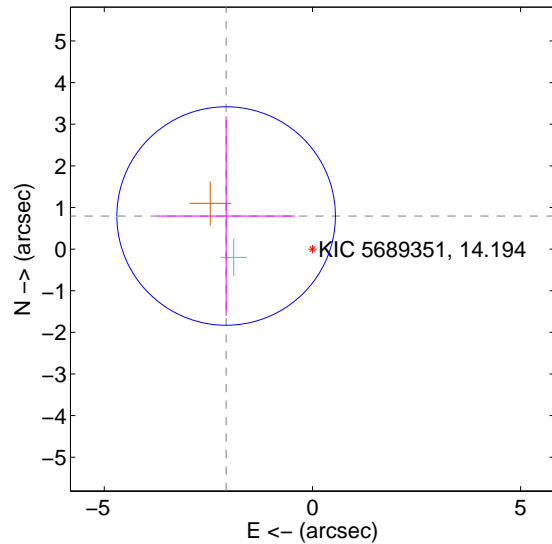
Supplemental centroid analysis for 005689351-06. Kepler magnitude: 14.19. Transit SNR 6.11

There are 1 quarters with good PRF difference image offsets

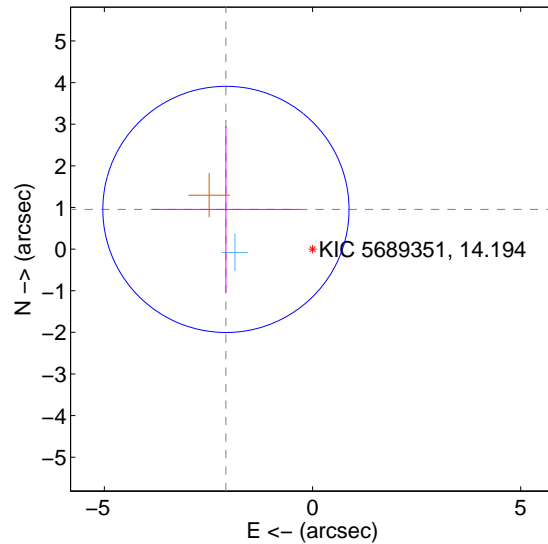
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.220 ± 0.875	2.54	2.073 ± 1.650	0.795 ± 2.395
PRF-fit source offset from KIC position	2.288 ± 0.986	2.32	2.080 ± 1.772	0.954 ± 1.999
photometric centroid source offset	1.45 ± 1.13	1.29	-1.14 ± 1.11	-0.90 ± 1.15

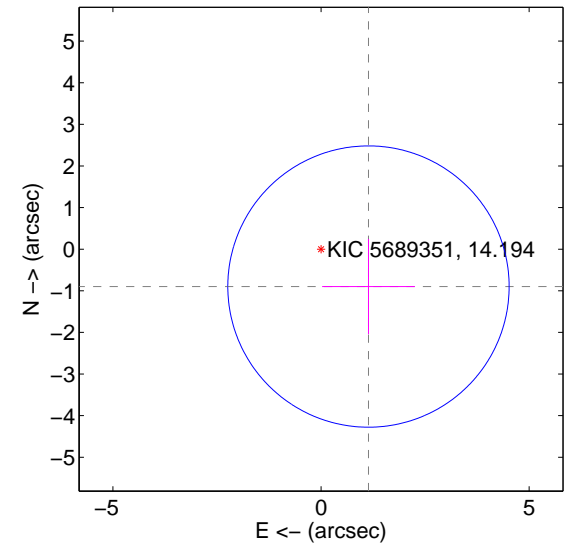
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

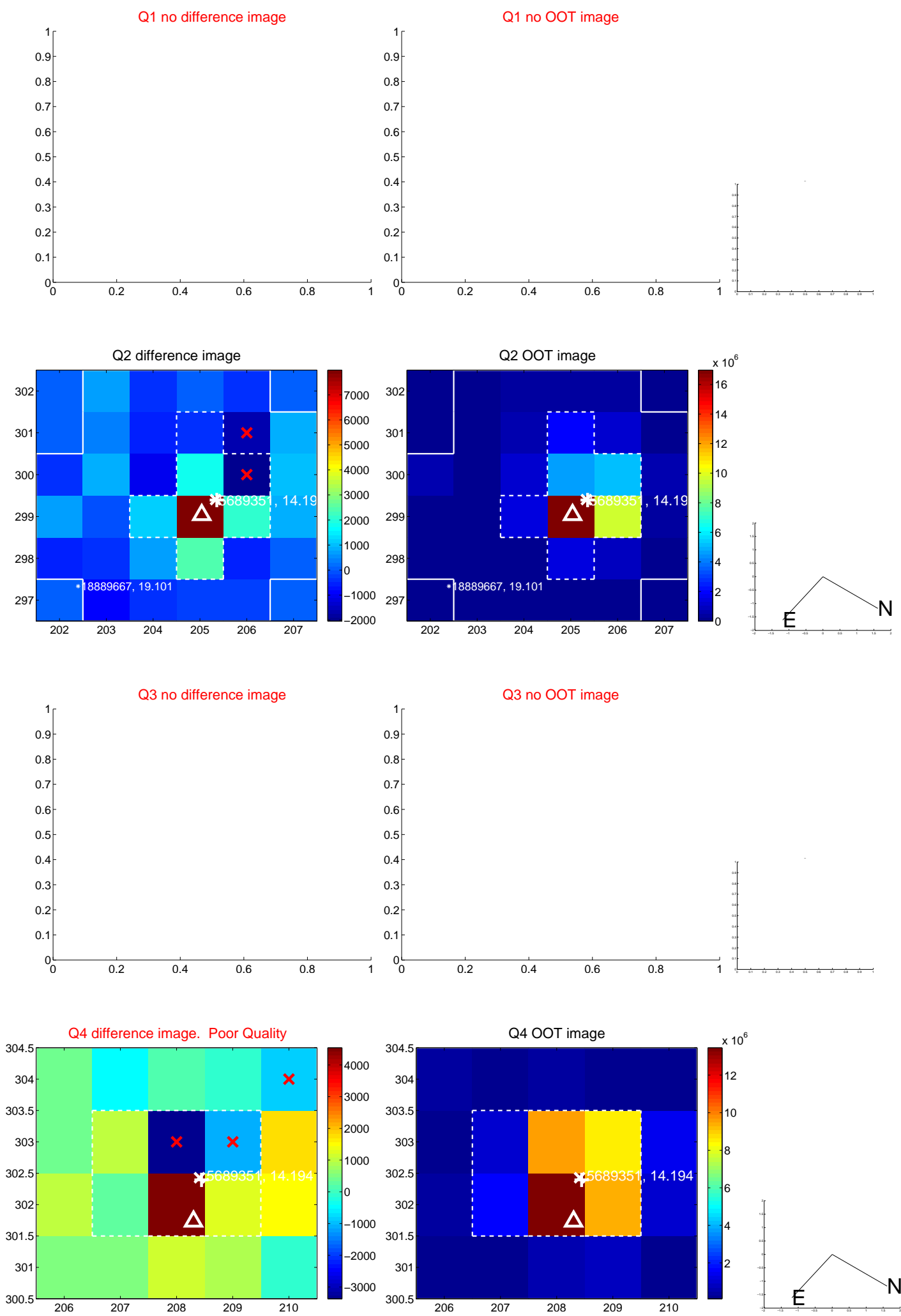


offset from photometric centroids

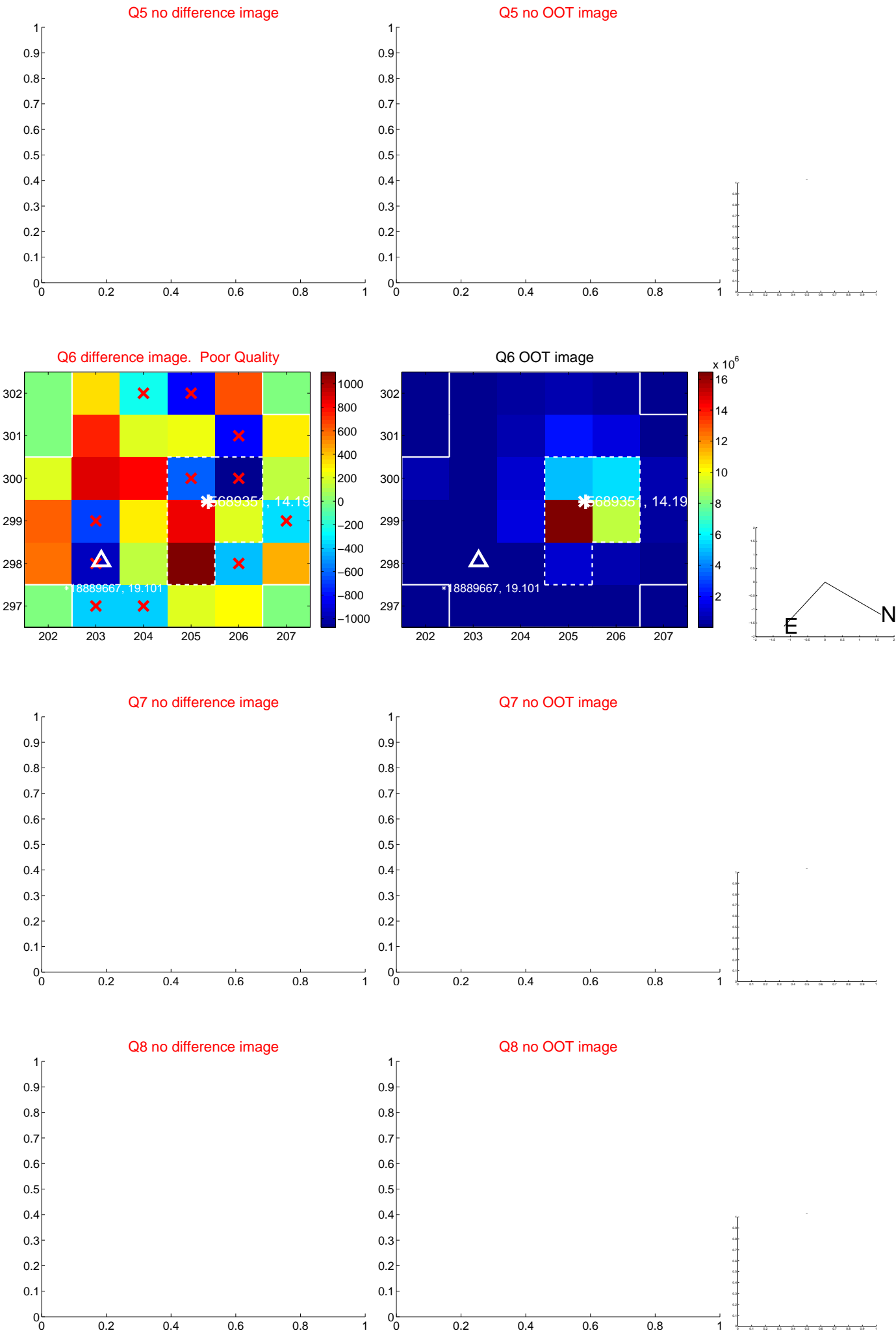


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



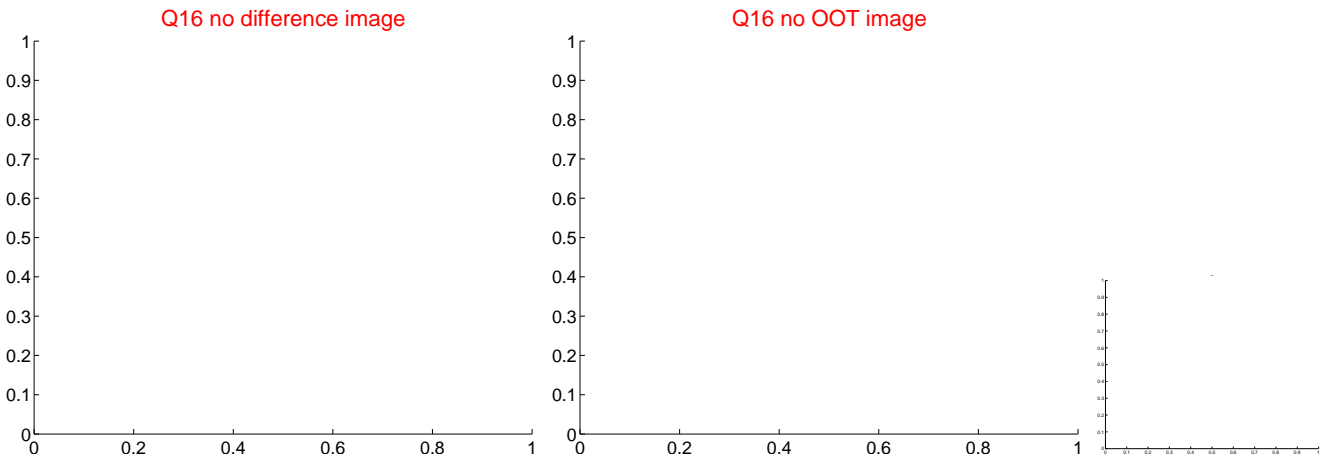
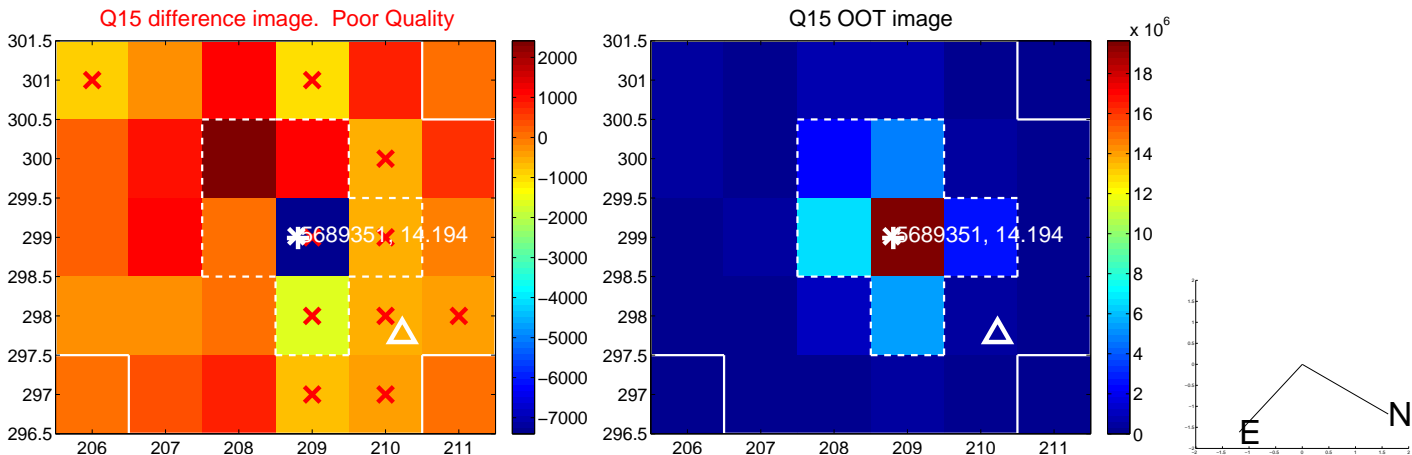
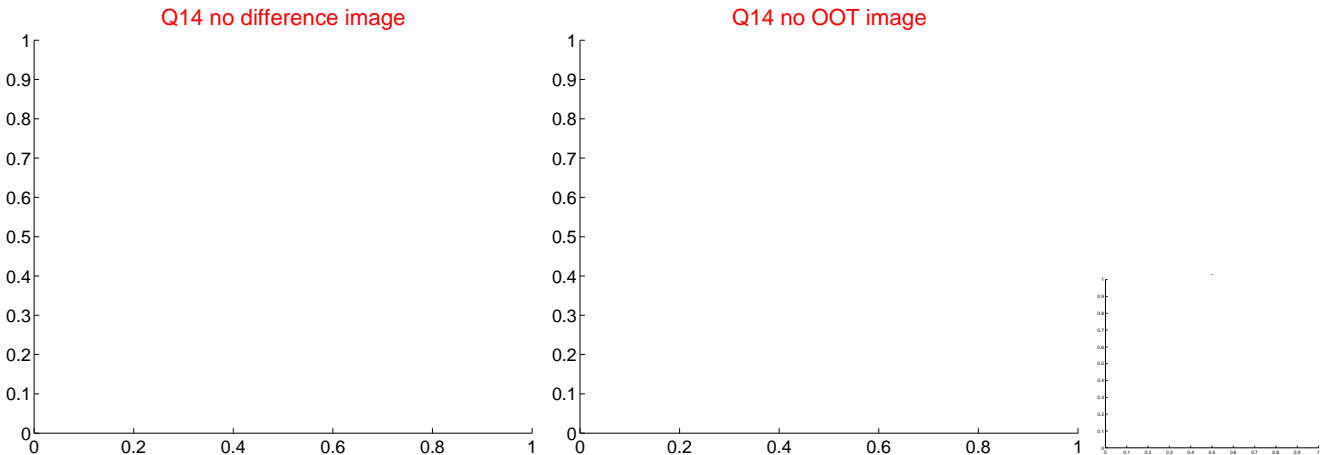
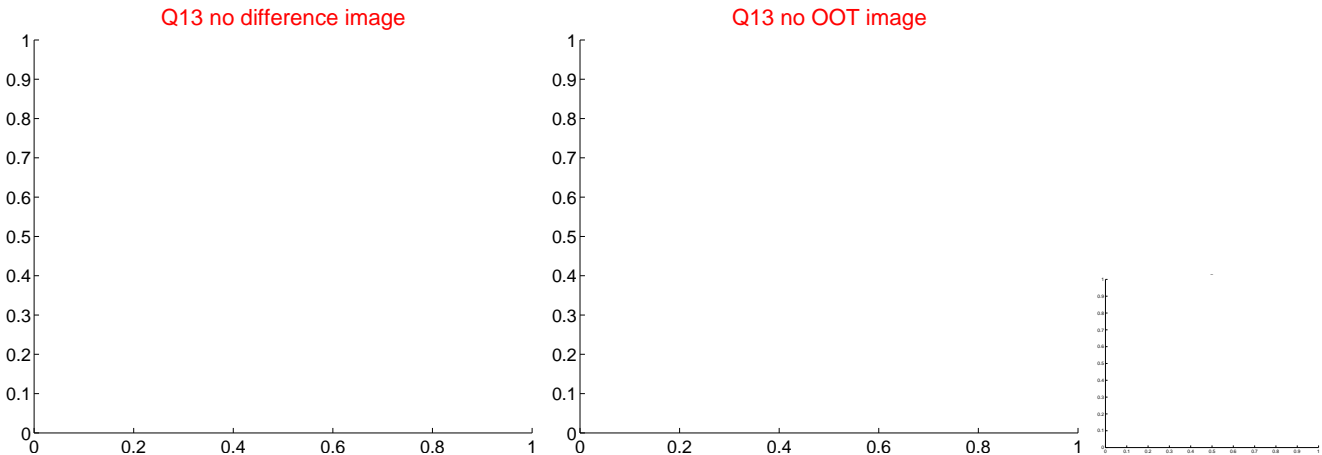
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



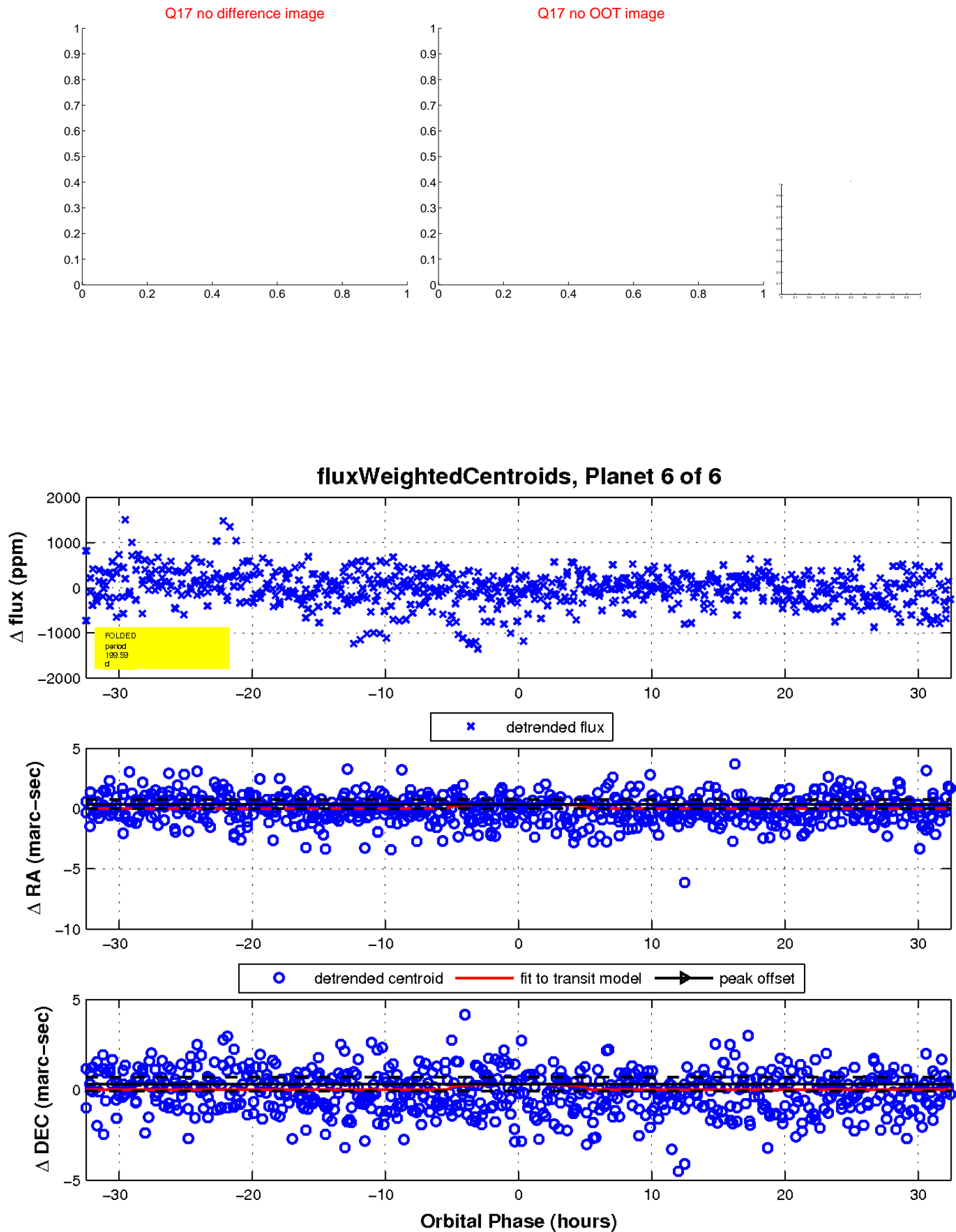
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

