

KIC 009210828

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})
009210828-01	OBS	7147.01	1.656418	131.579970	99964.3	2.634	2801.3	3669.6	0.66	5033	26.45	442.73
009210828-02	OBS	No	0.828206	131.579744	55945.6	1.500	8968.2	-1.0	0.66	5033	15.31	1115.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009210828-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
009210828-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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.

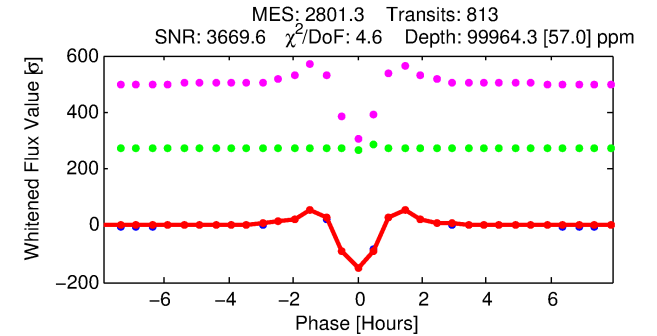
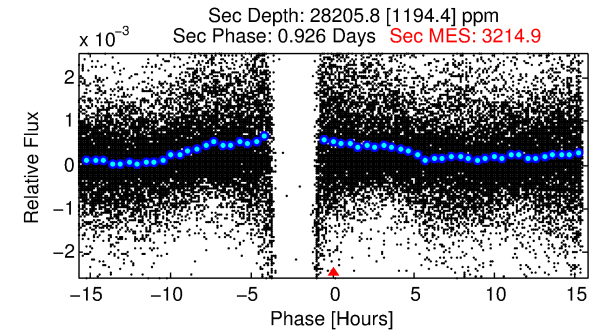
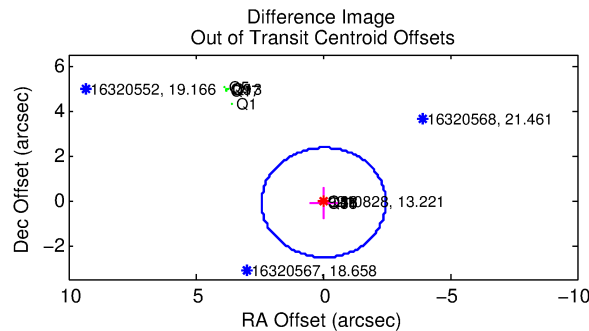
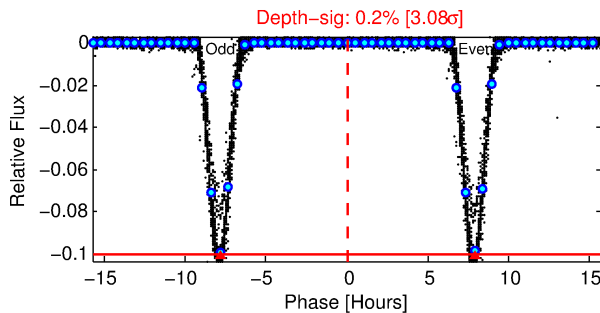
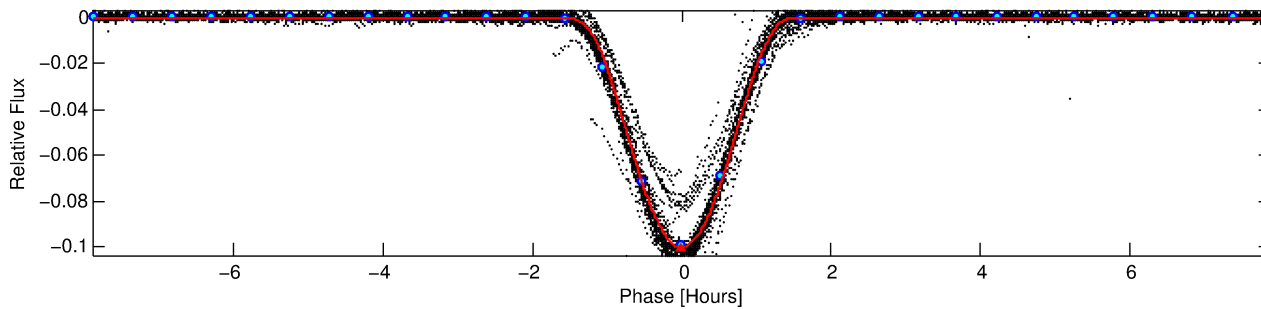
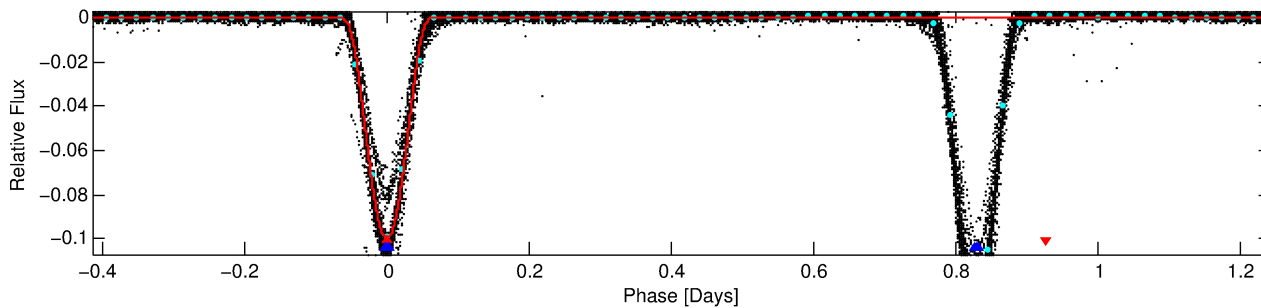
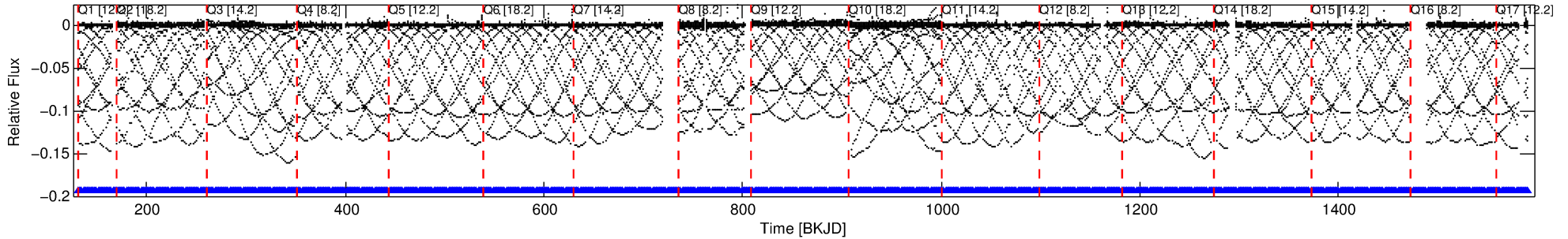
Ephemeris Match Information For 009210828-01

No Significant Match Found

DV One-Page Summary

KIC: 9210828 Candidate: 1 of 2 Period: 1.656 d
KOI: K07147 Corr: No Ephemeris Match

Kp: 13.22 R*: 0.66 Rs Teff: 5033.0 K Logg: 4.61 Fe/H: -0.660



DV Fit Results:

Period = 1.65642 [0.00000] d
Epoch = 131.5800 [0.0000] BKJD
Rp/R* = 0.3701 [0.0020]
a/R* = 5.42 [0.00]
b = 0.81 [0.00]
Seff = 442.73 [75.45]
Teq = 1170 [50] K
Rp = 26.45 [2.63] Re
a = 0.0236 [0.0020] AU
Ag = 12.35 [1.59] [7.14σ]
Teffp = 3390 [108] K [18.63σ]

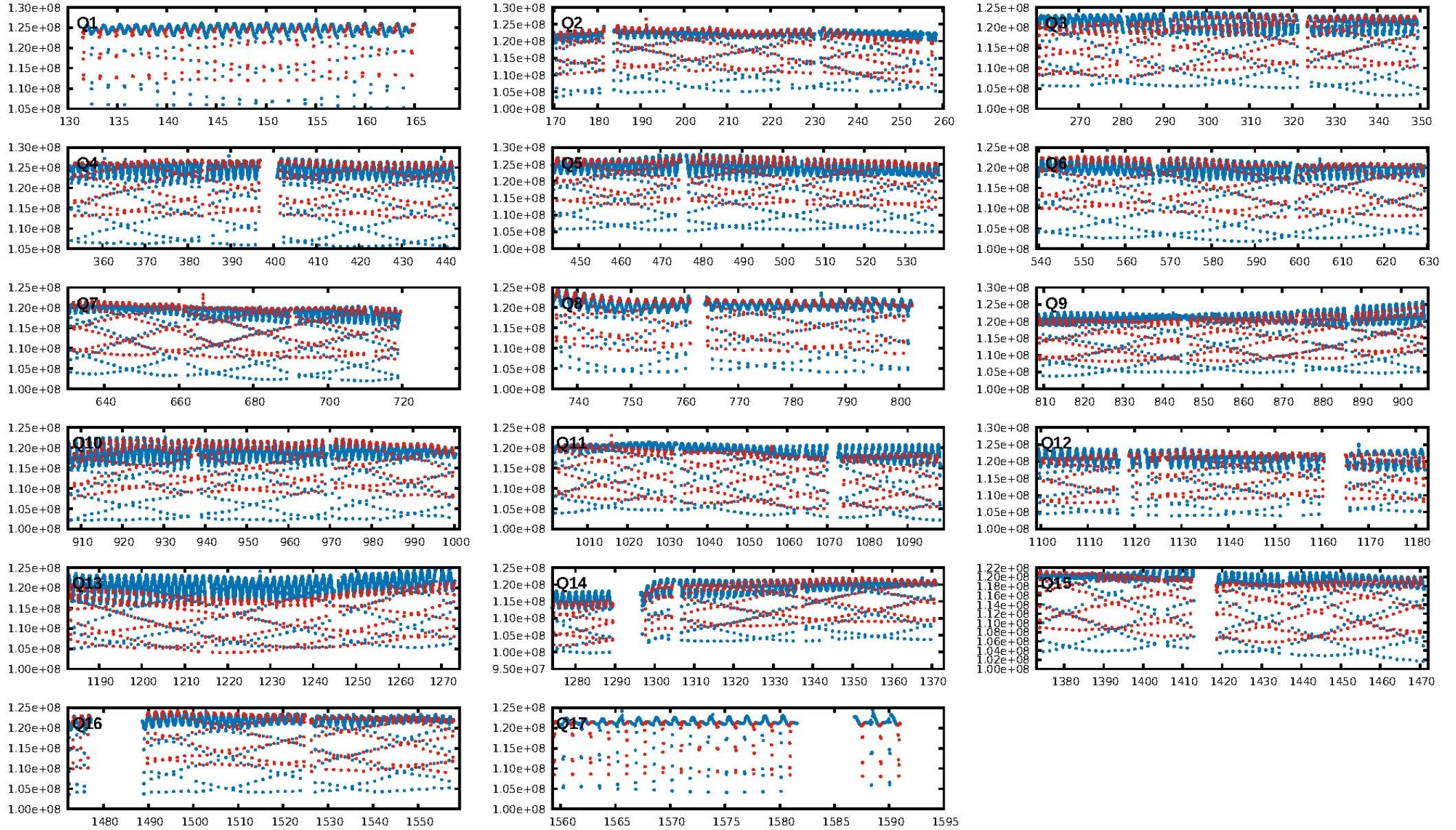
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.56σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [775/775]
GhostDiagnostic-chr: 1.956
Centroid-sig: N/A
Centroid-so: 1.148 arcsec [1297.03σ]
OotOffset-rm: 0.104 arcsec [0.13σ]
KicOffset-rm: 0.145 arcsec [2.14σ]
OotOffset-st: 0/4/4/5 [13]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

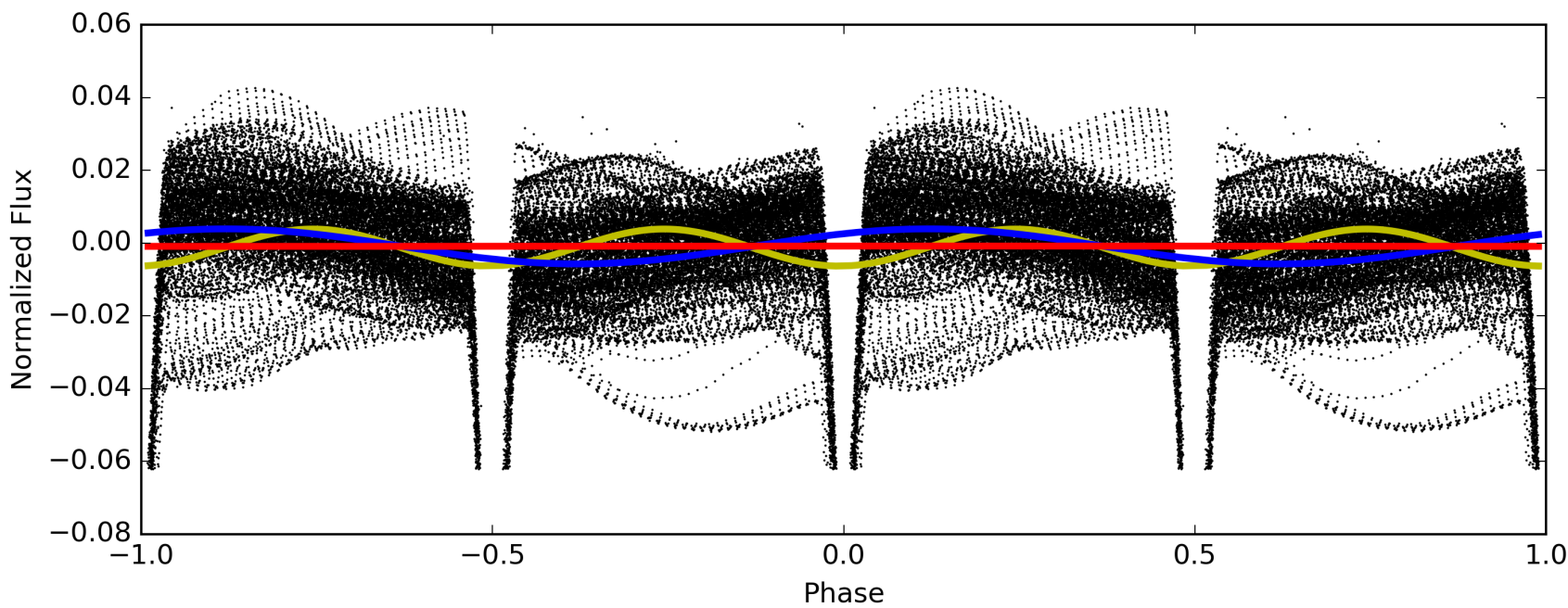
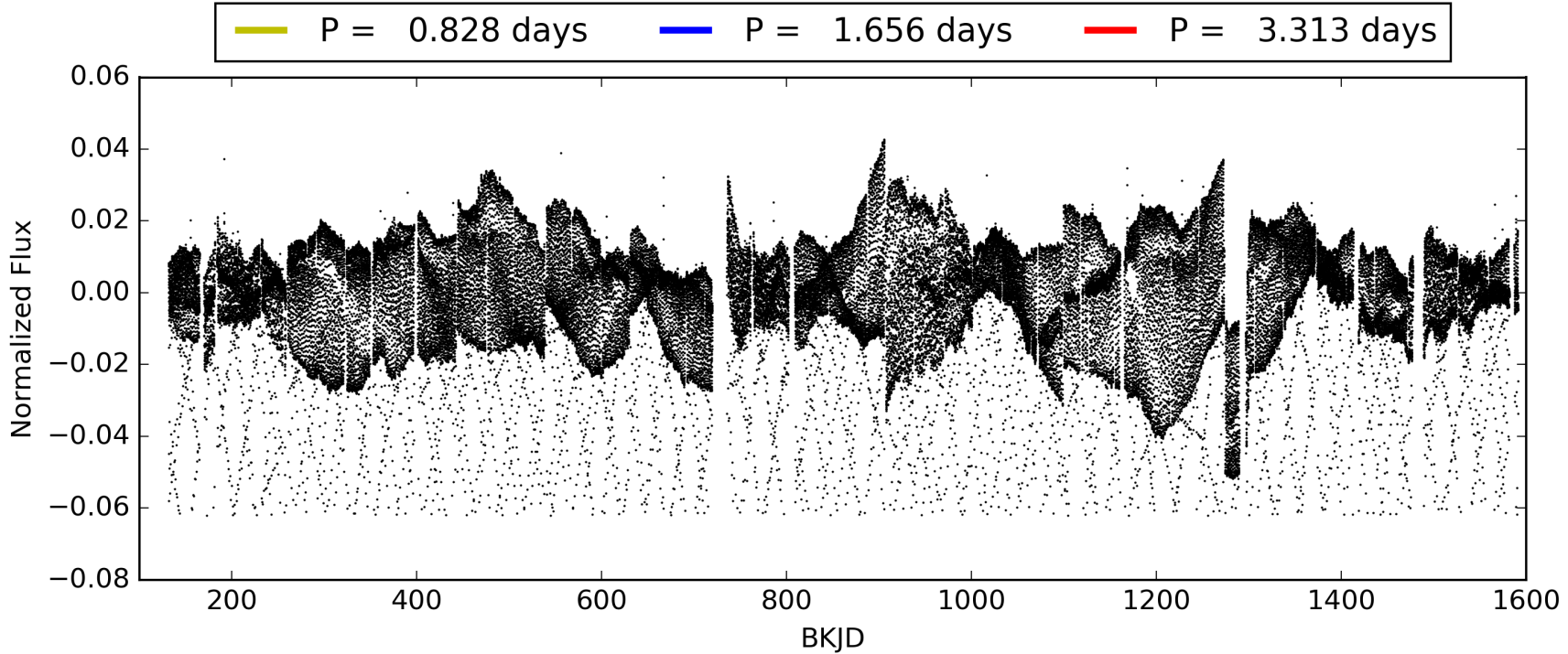
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:05:56 Z

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

TCE 009210828-01, PDC Light Curves

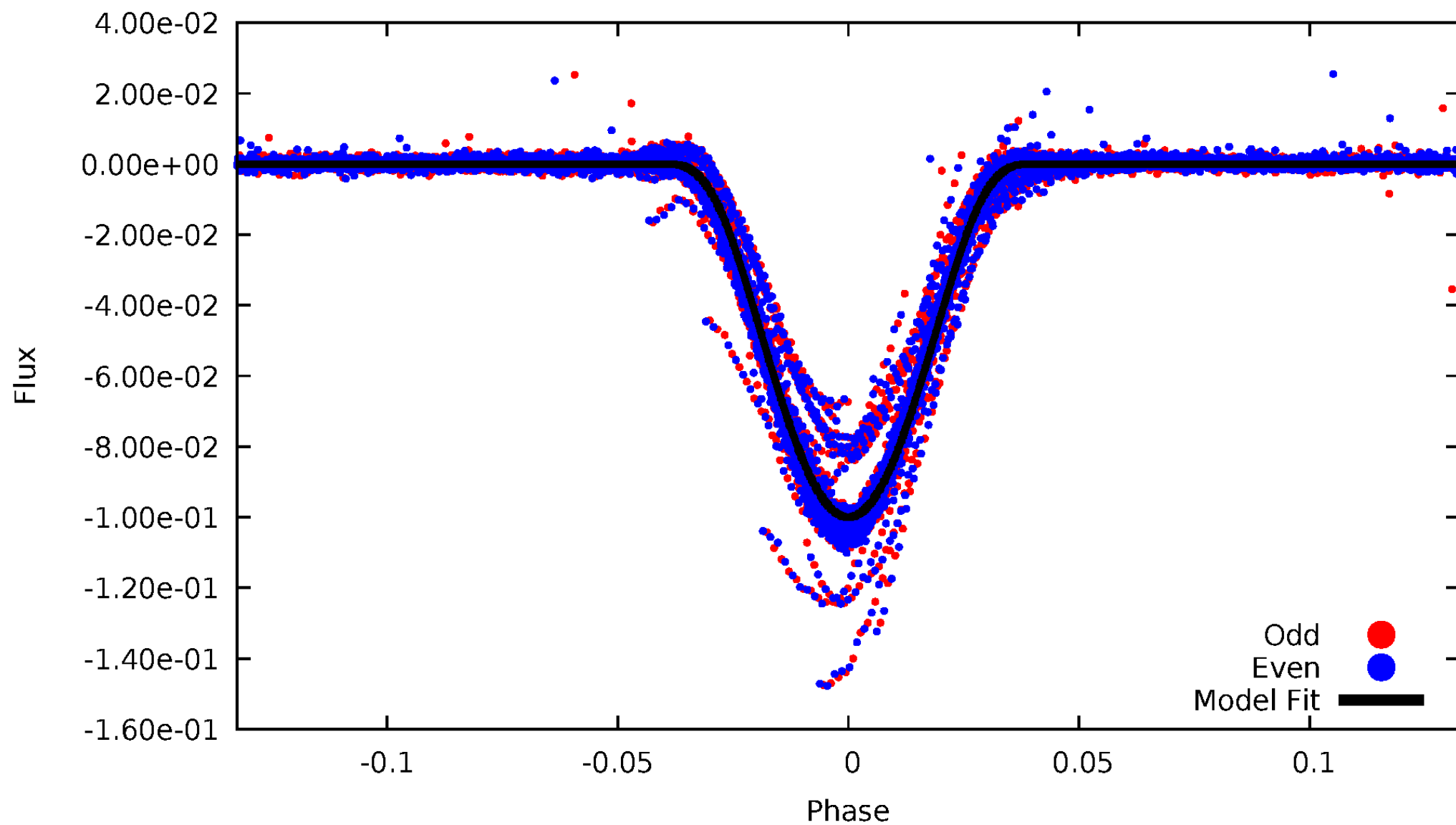


TCE 009210828-01



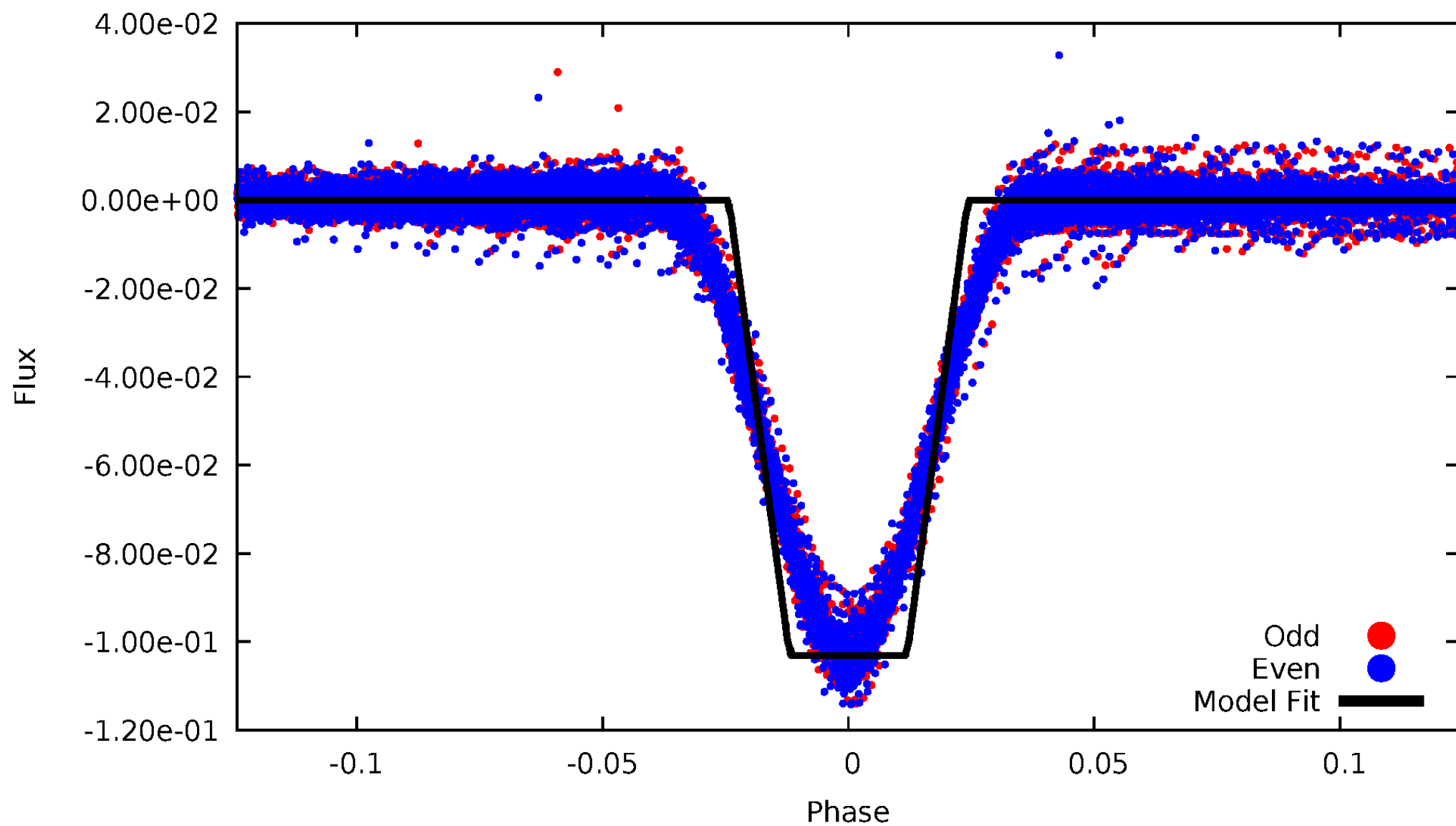
DV Odd/Even

TCE 009210828-01



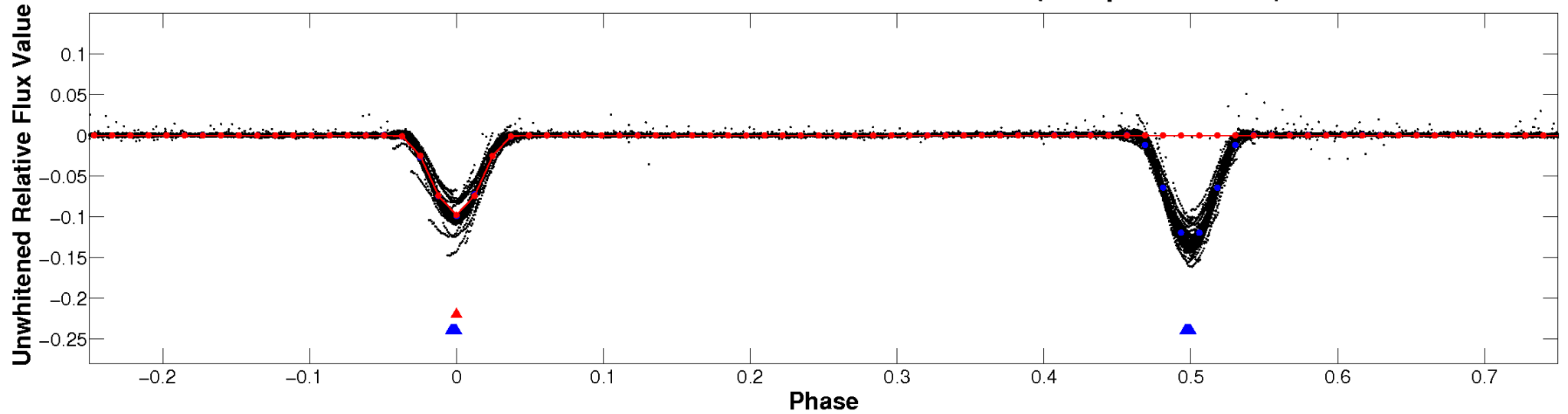
ALT Odd/Even

TCE 009210828-01

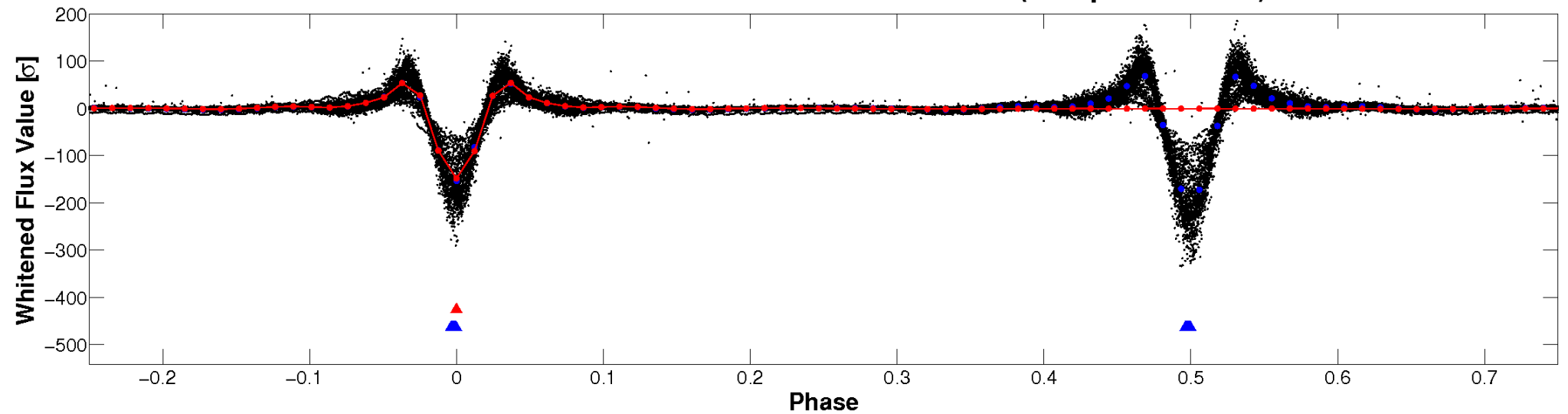


Non-Whitened Vs. Whitened Light Curve

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

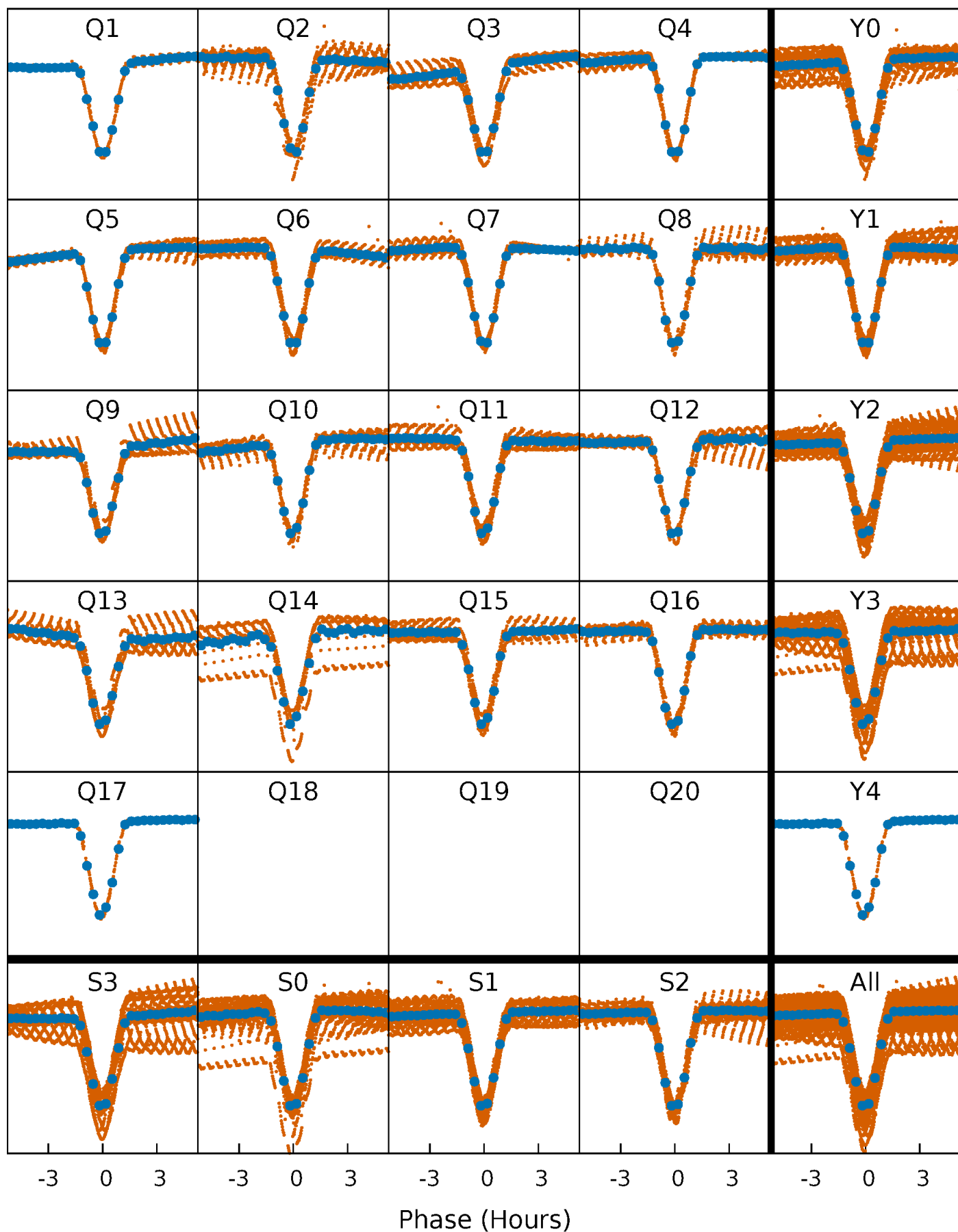


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



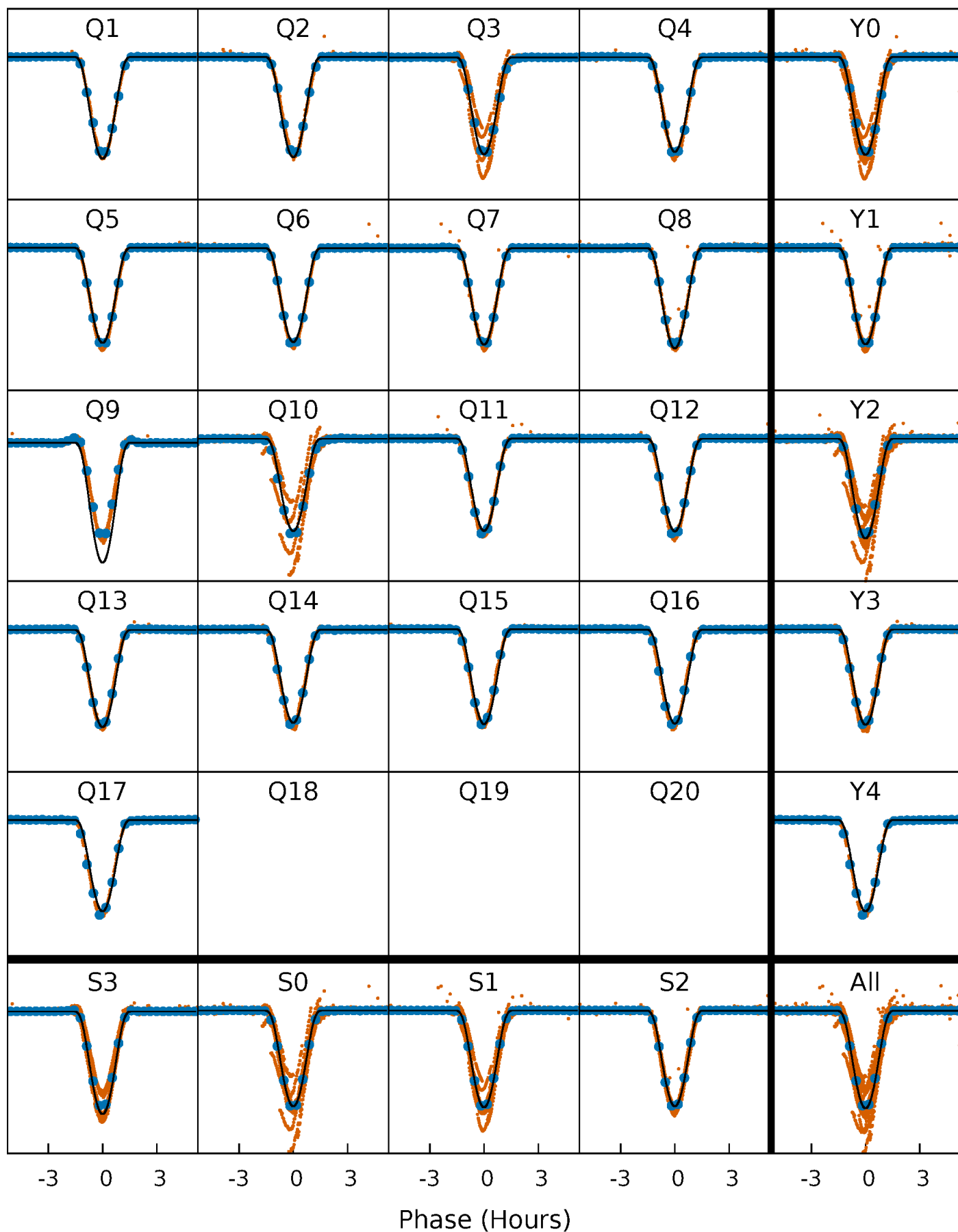
PDC Quarter-Phased Transit Curves

TCE 009210828-01 P= 1.656418 Days $T_0=131.579970$ (BKJD)



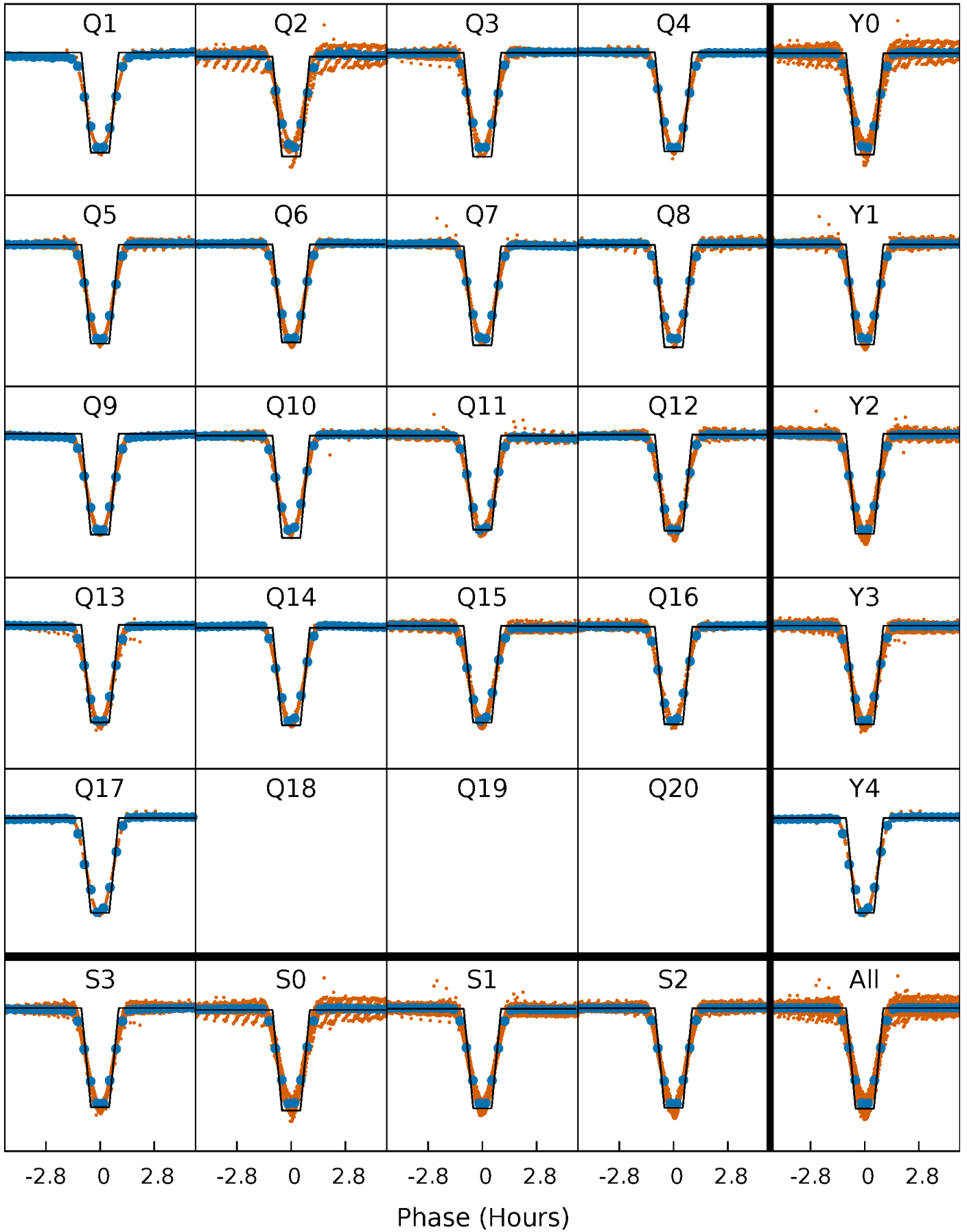
DV Quarter-Phased Transit Curves

TCE 009210828-01 P= 1.656418 Days $T_0=131.579970$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

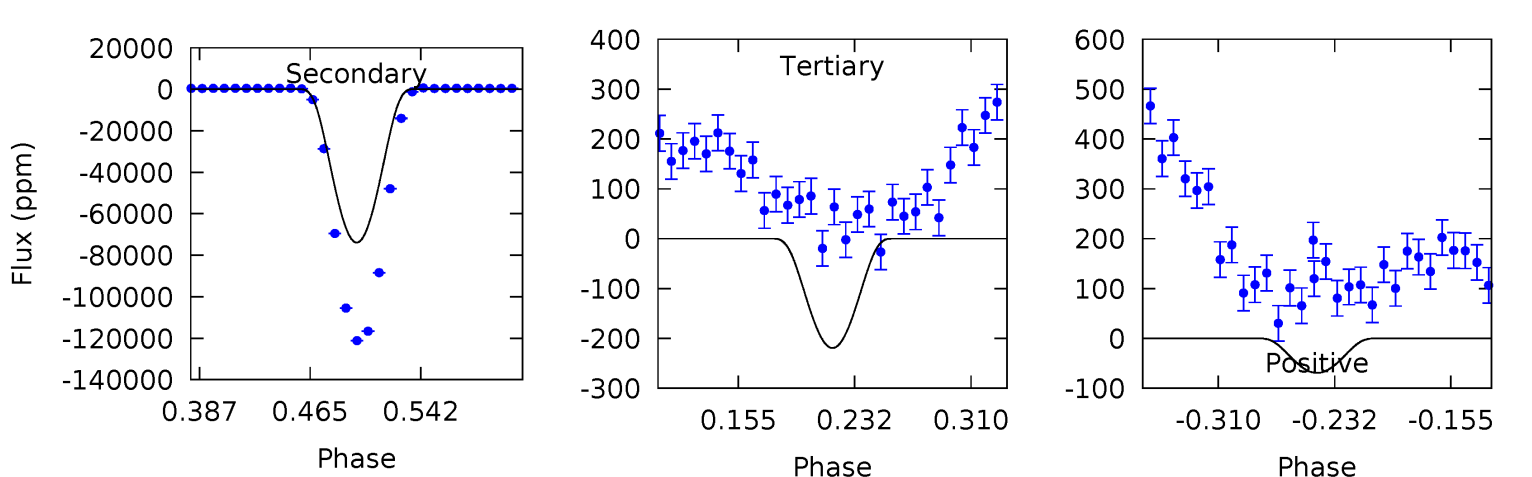
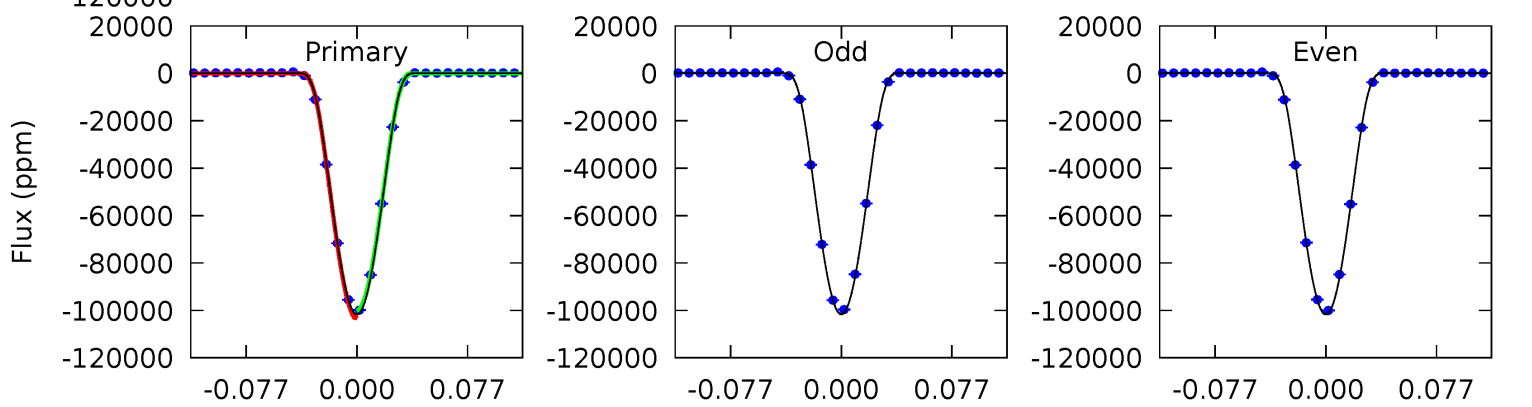
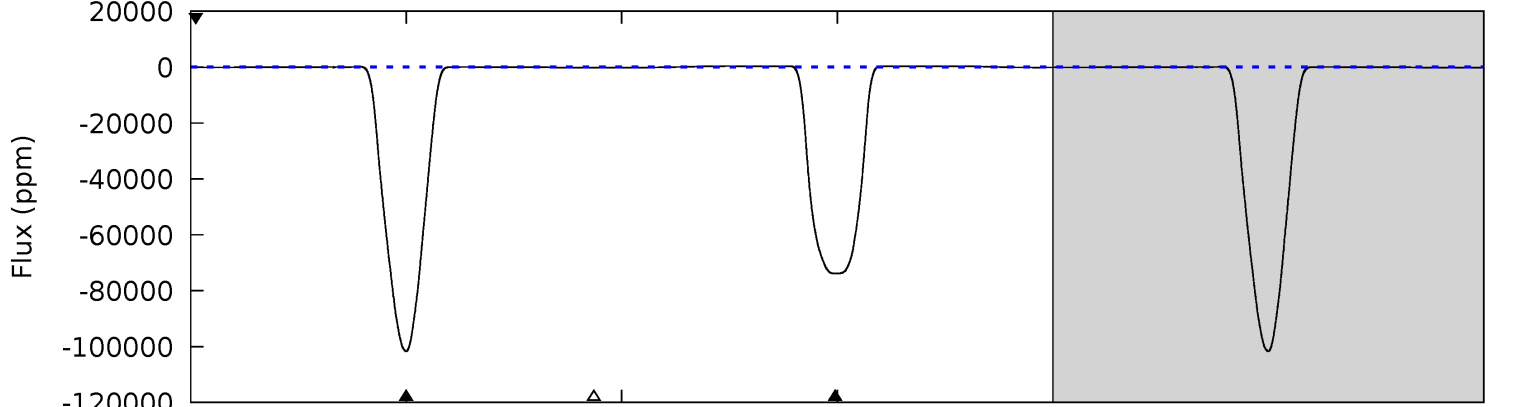
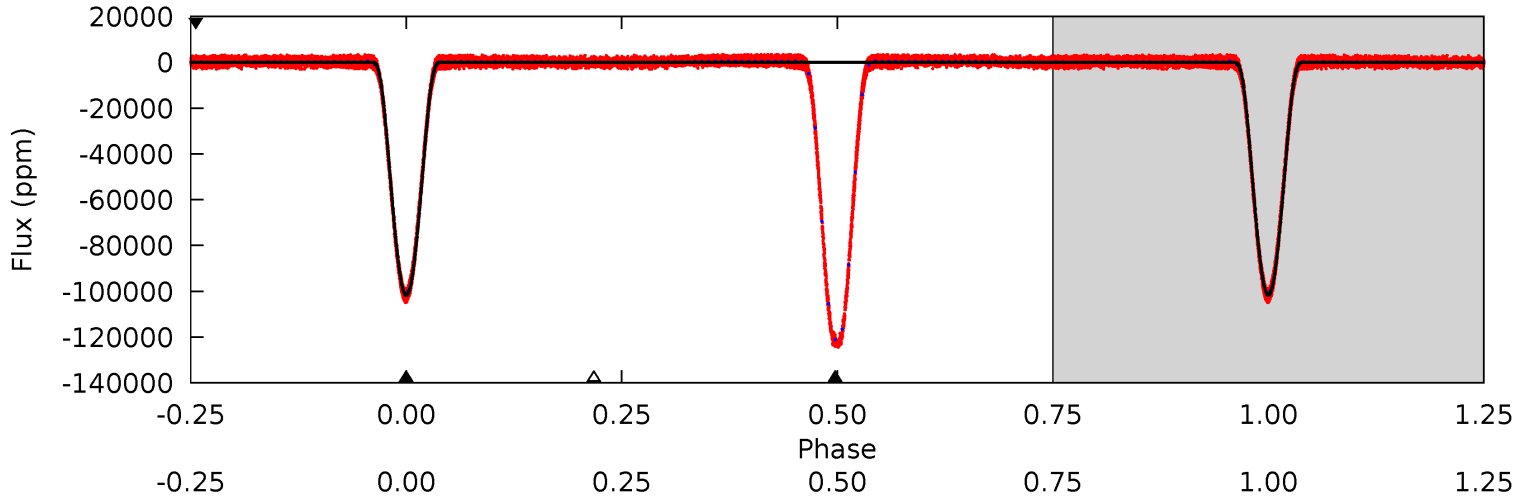
TCE 009210828-01 P= 1.656415 Days $T_0=131.580339$ (BKJD)



DV Model-Shift Uniqueness Test

009210828-01, P = 1.656418 Days, E = 129.923552 Days

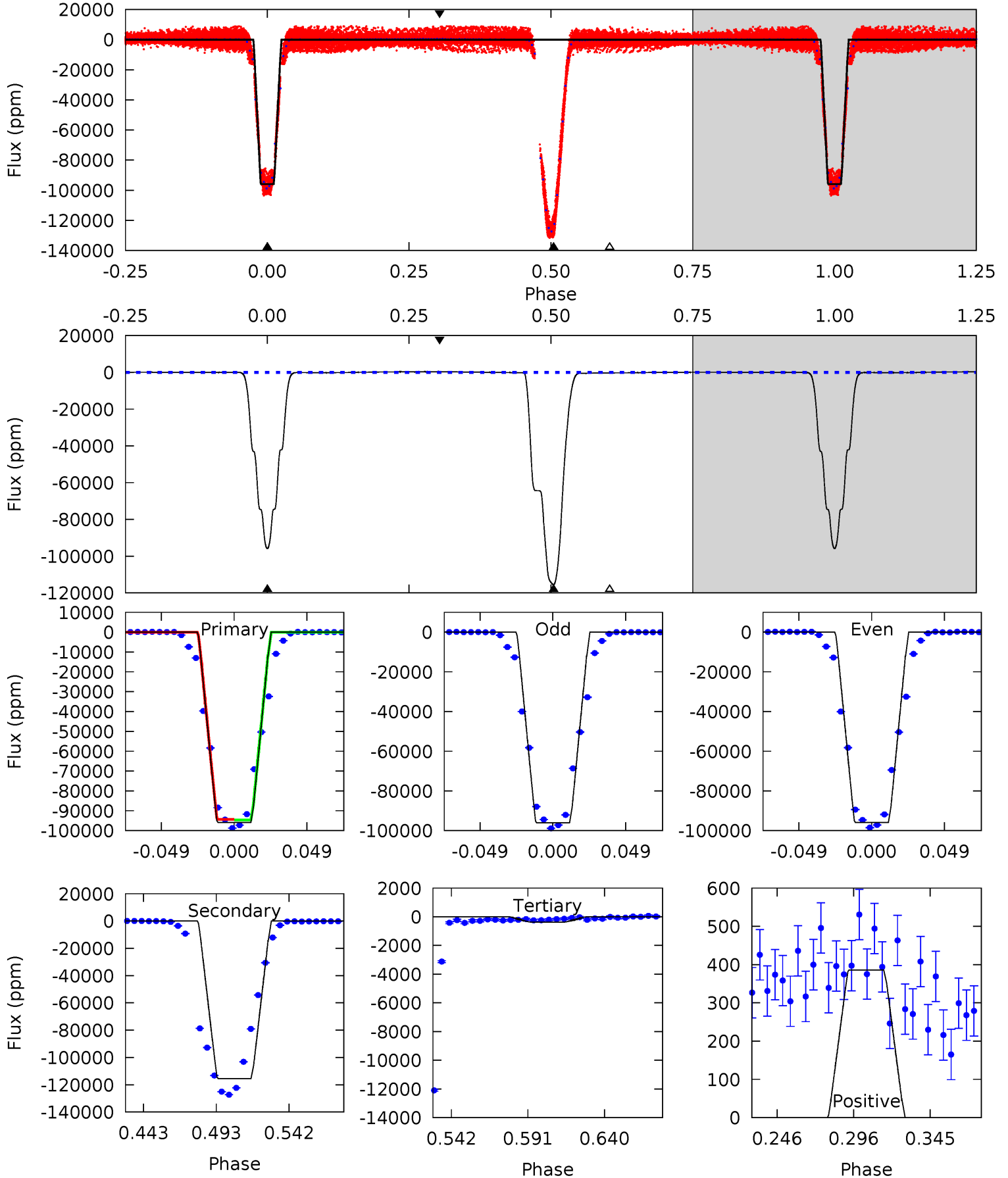
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6953	5051	15.0	-4.74	4.62	1.77	12.2	6938	6958	5036	5056	2.77	0.99	0.00	0



Alt Model-Shift Uniqueness Test

009210828-01, P = 1.656415 Days, E = 129.923924 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1888	2273	7.19	7.60	4.71	1.97	4.08	1881	1880	2266	2266	1.38	1.00	0.00	0



Stellar Parameters For KIC 009210828

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5033^{+136}_{-151}	$4.611^{+0.066}_{-0.038}$	$-0.660^{+0.350}_{-0.300}$	$0.655^{+0.065}_{-0.059}$	$0.638^{+0.076}_{-0.032}$	$3.198^{+0.895}_{-0.540}$
	+3%/-3%	+1%/-1%	+53%/-45%	+10%/-9%	+12%/-5%	+28%/-17%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009210828-01 / KOI 7147.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-73885 ± 15	$26.32^{+1.45}_{-1.26}$	1625^{+62}_{-62}	4502^{+122}_{-129}	35^{+3}_{-3}
Alt.	-115475 ± 51	$22.83^{+1.27}_{-1.10}$	1623^{+55}_{-59}	5294^{+155}_{-174}	78^{+7}_{-6}

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

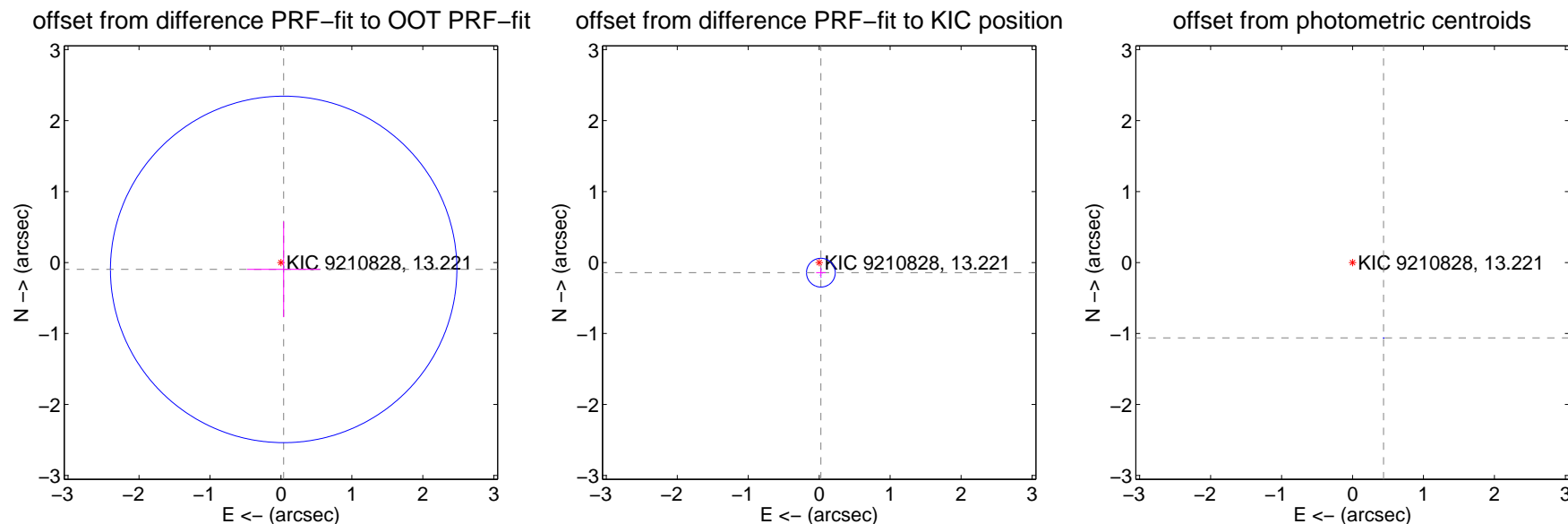
DV Centroid Data

Supplemental centroid analysis for 009210828-01. Kepler magnitude: 13.22. Transit SNR 3669.57

There are 17 quarters with good PRF difference image offsets

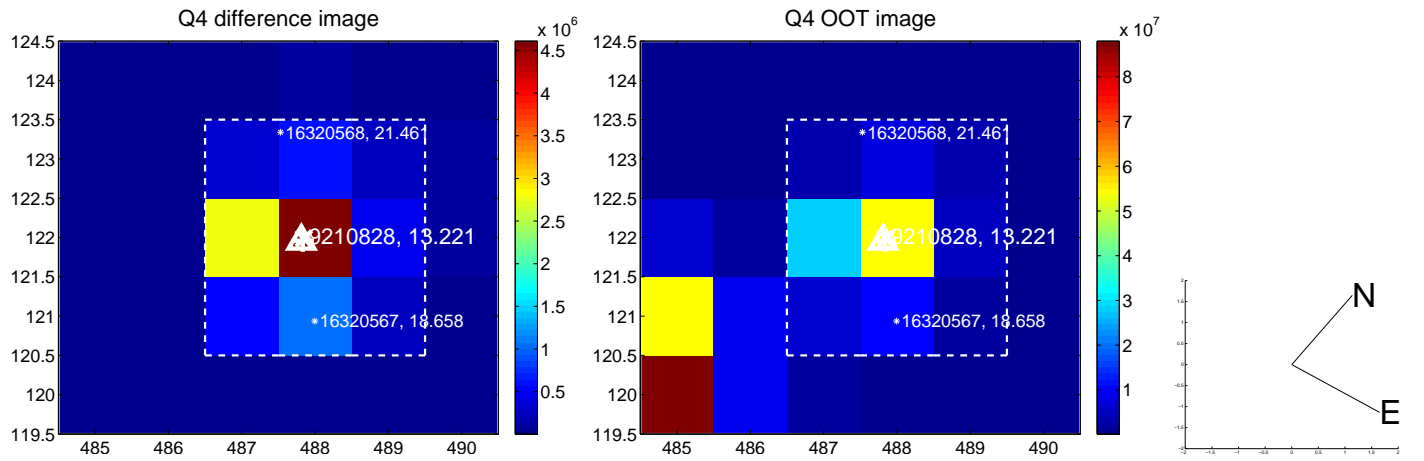
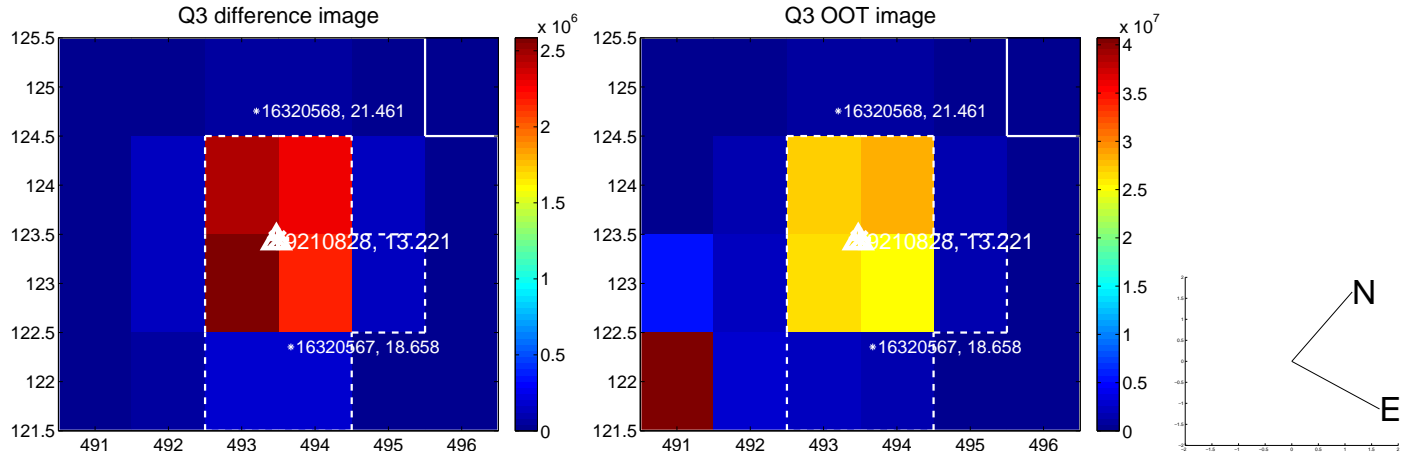
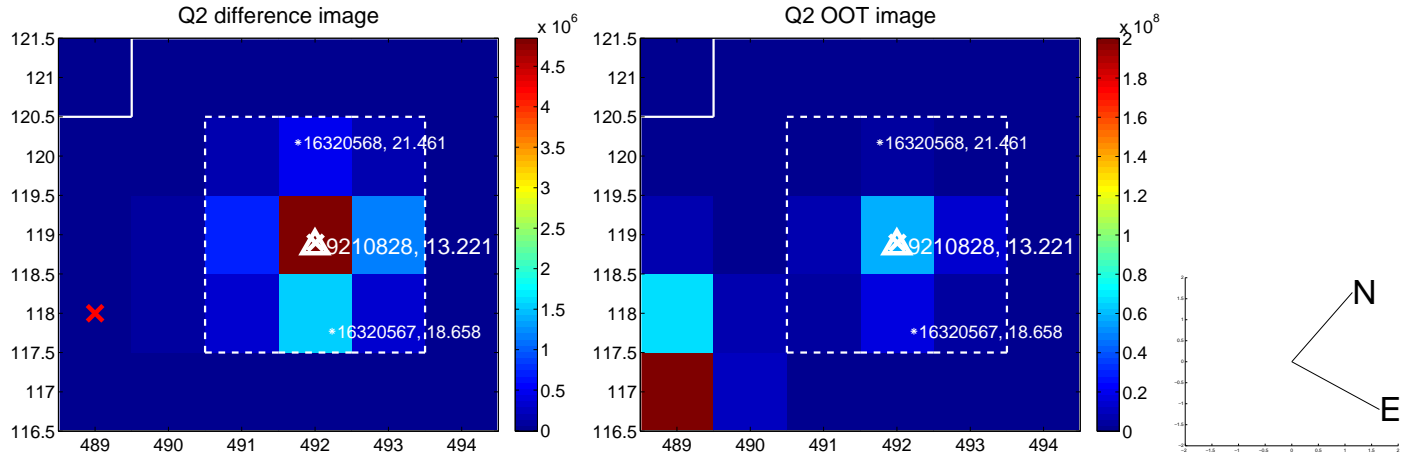
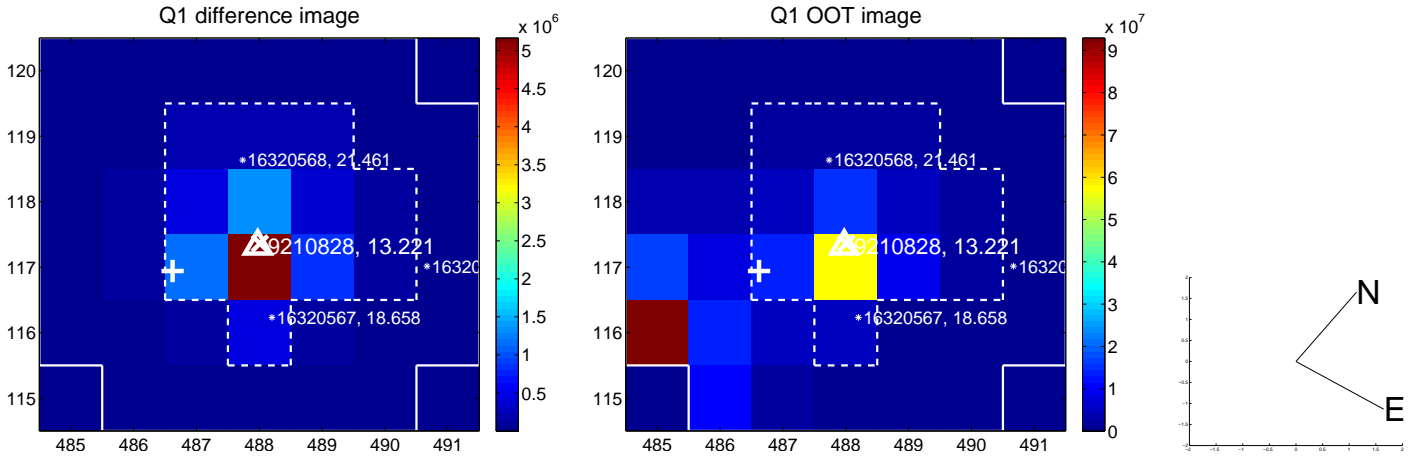
The OOT PRF centroid is offset from the target star catalog position by about 6.32 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.104 ± 0.814	0.13	-0.039 ± 0.516	-0.097 ± 0.673
PRF-fit source offset from KIC position	0.145 ± 0.068	2.14	-0.024 ± 0.067	-0.143 ± 0.068
photometric centroid source offset	1.15 ± 0.00	1297.03	-0.44 ± 0.00	-1.06 ± 0.00

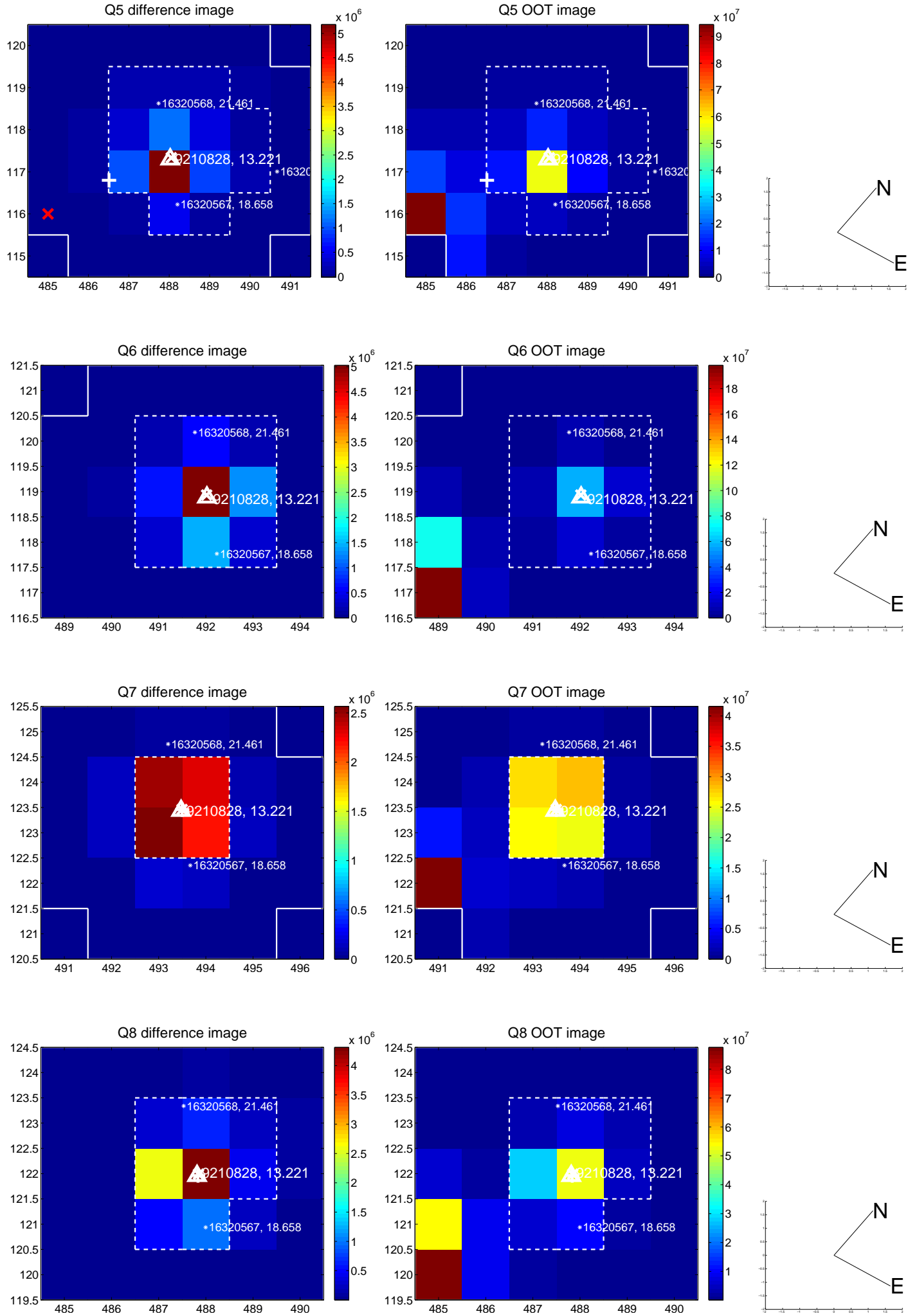


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

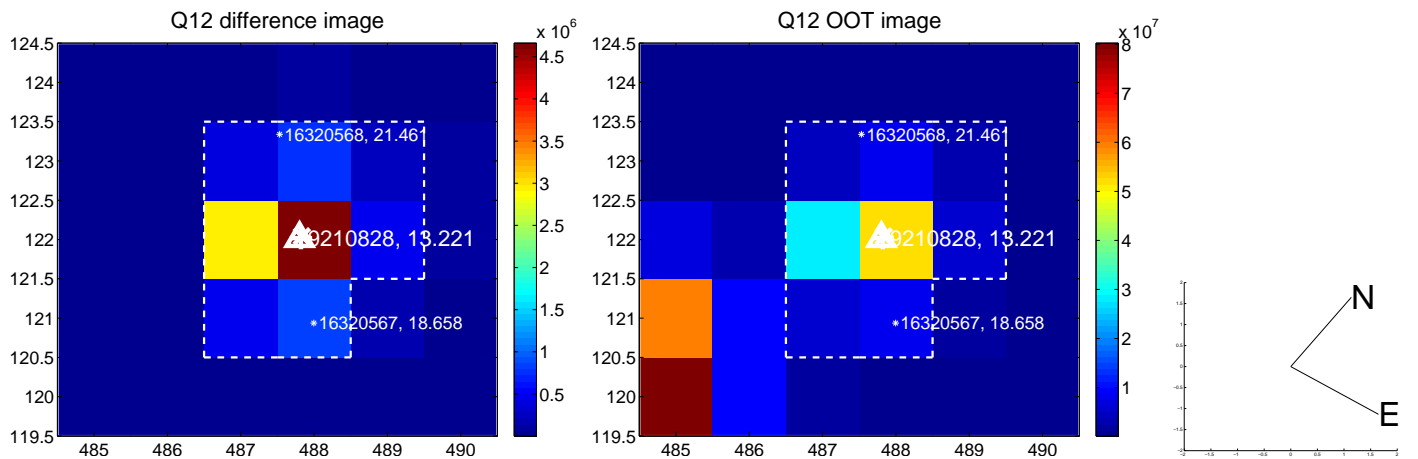
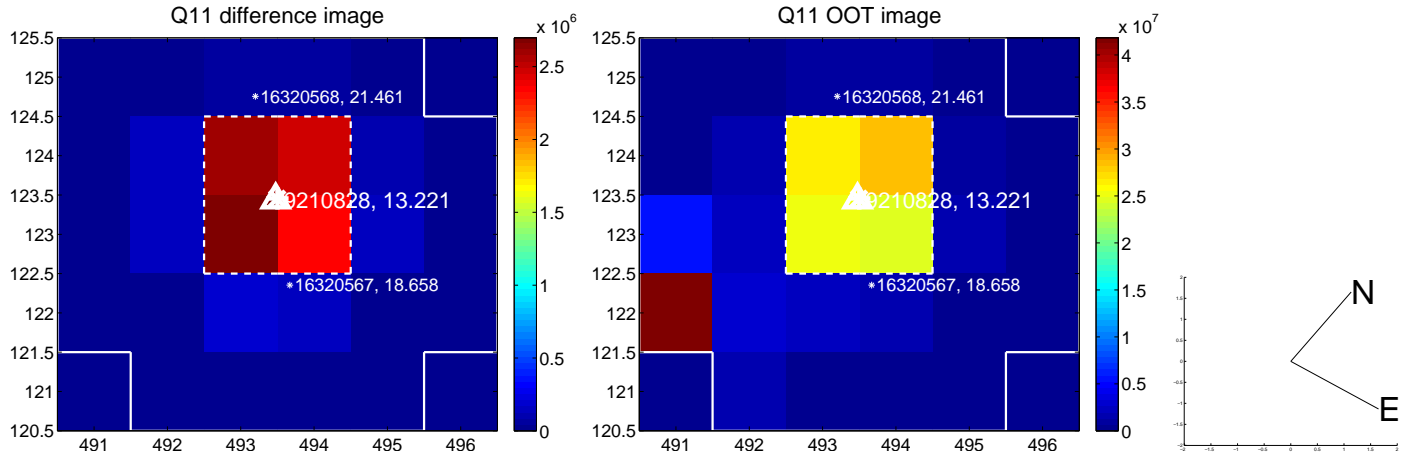
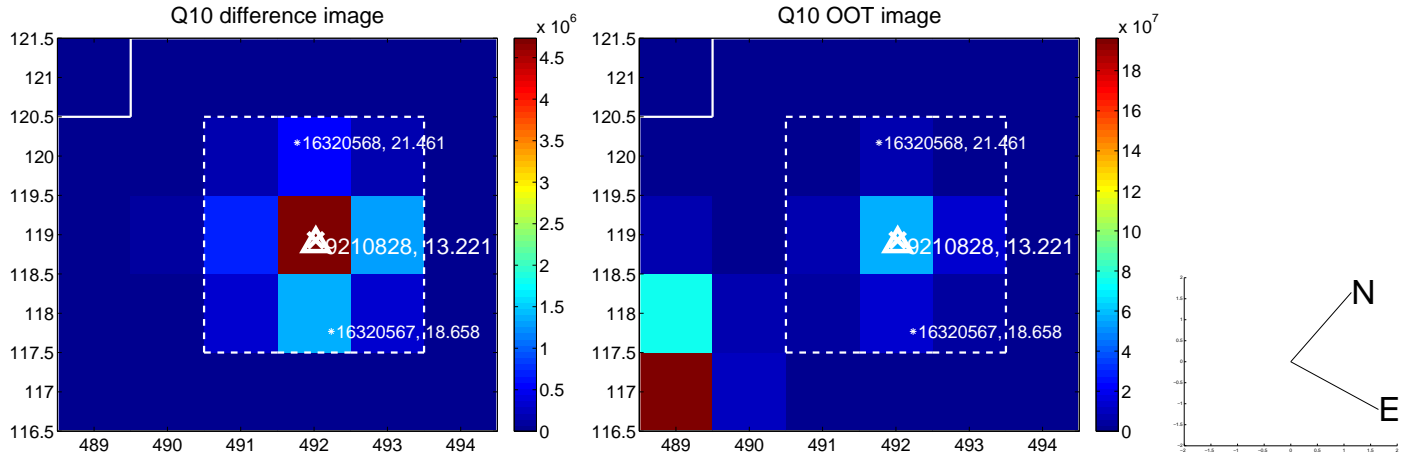
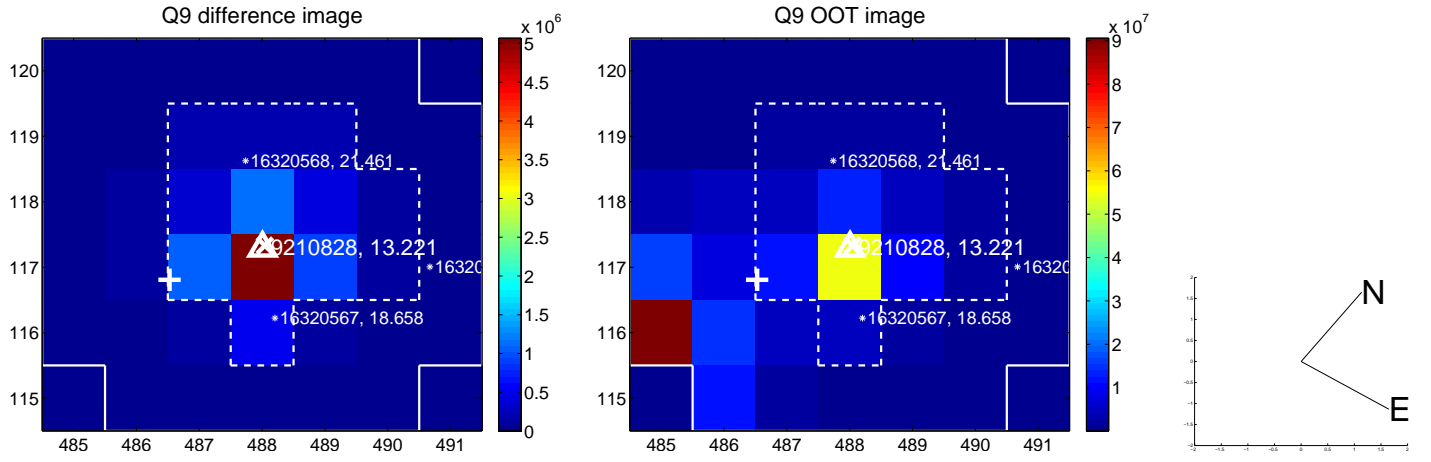
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



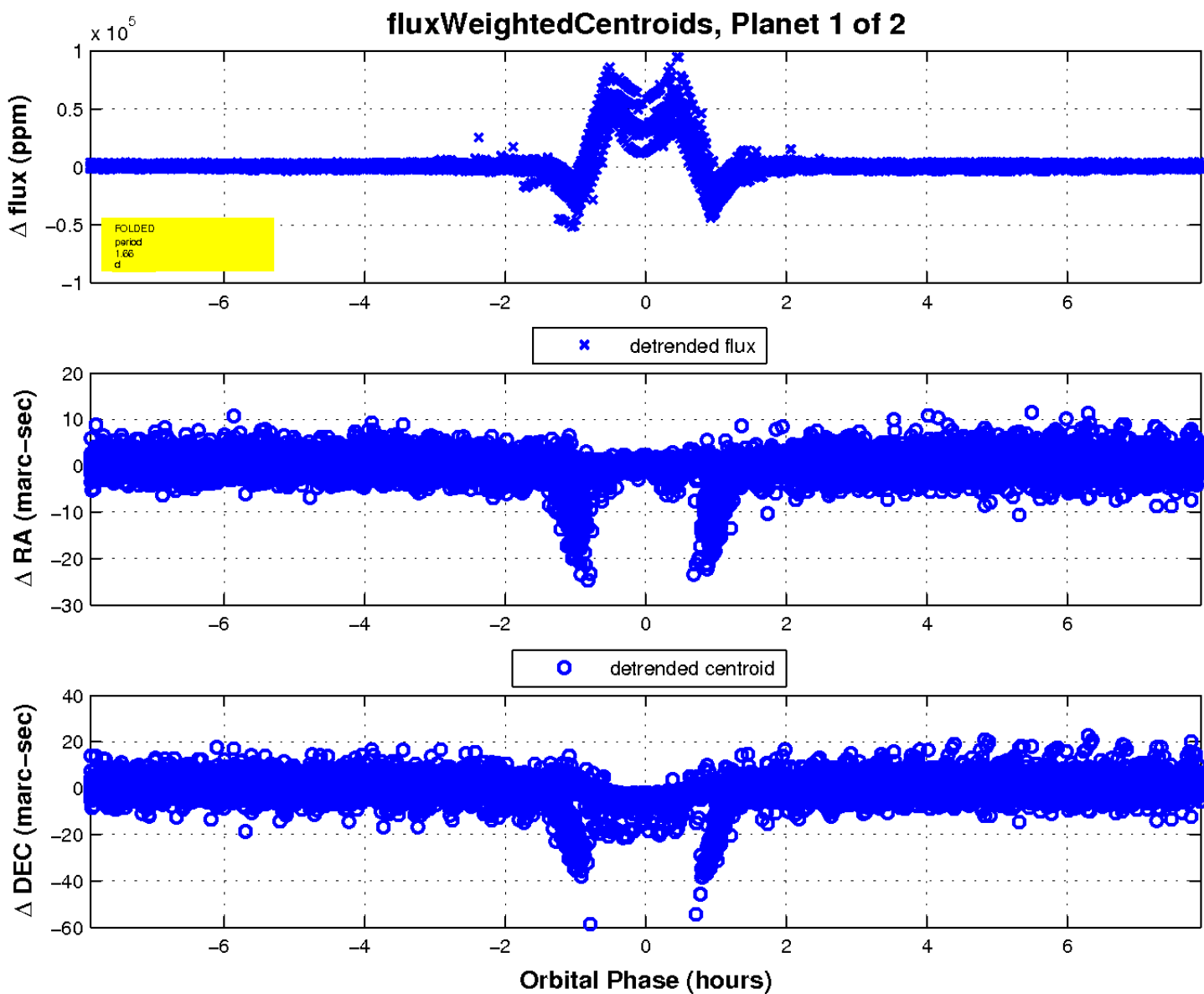
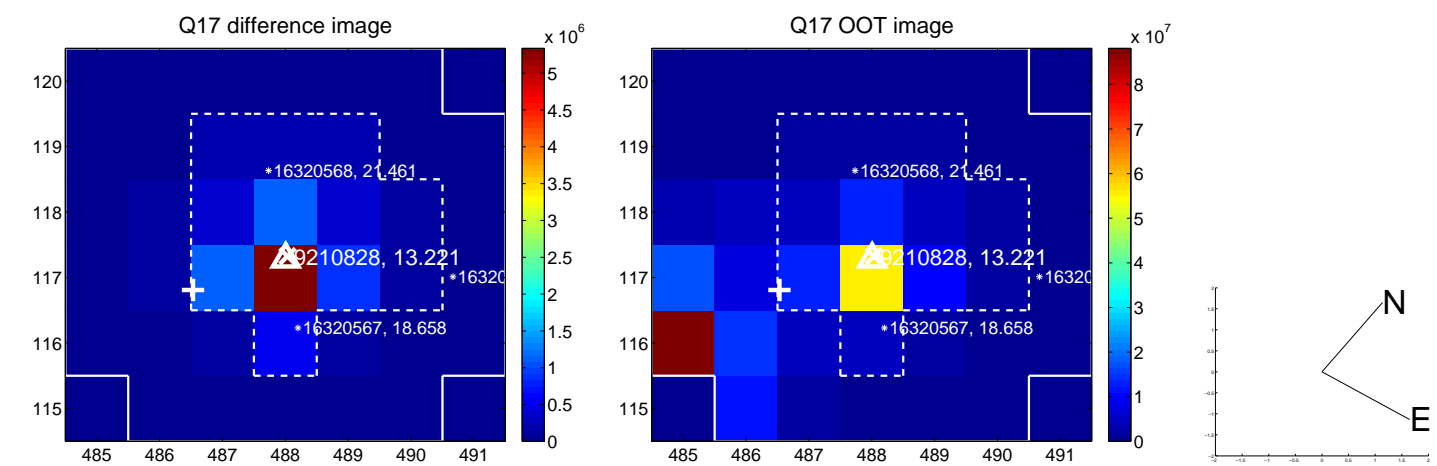
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



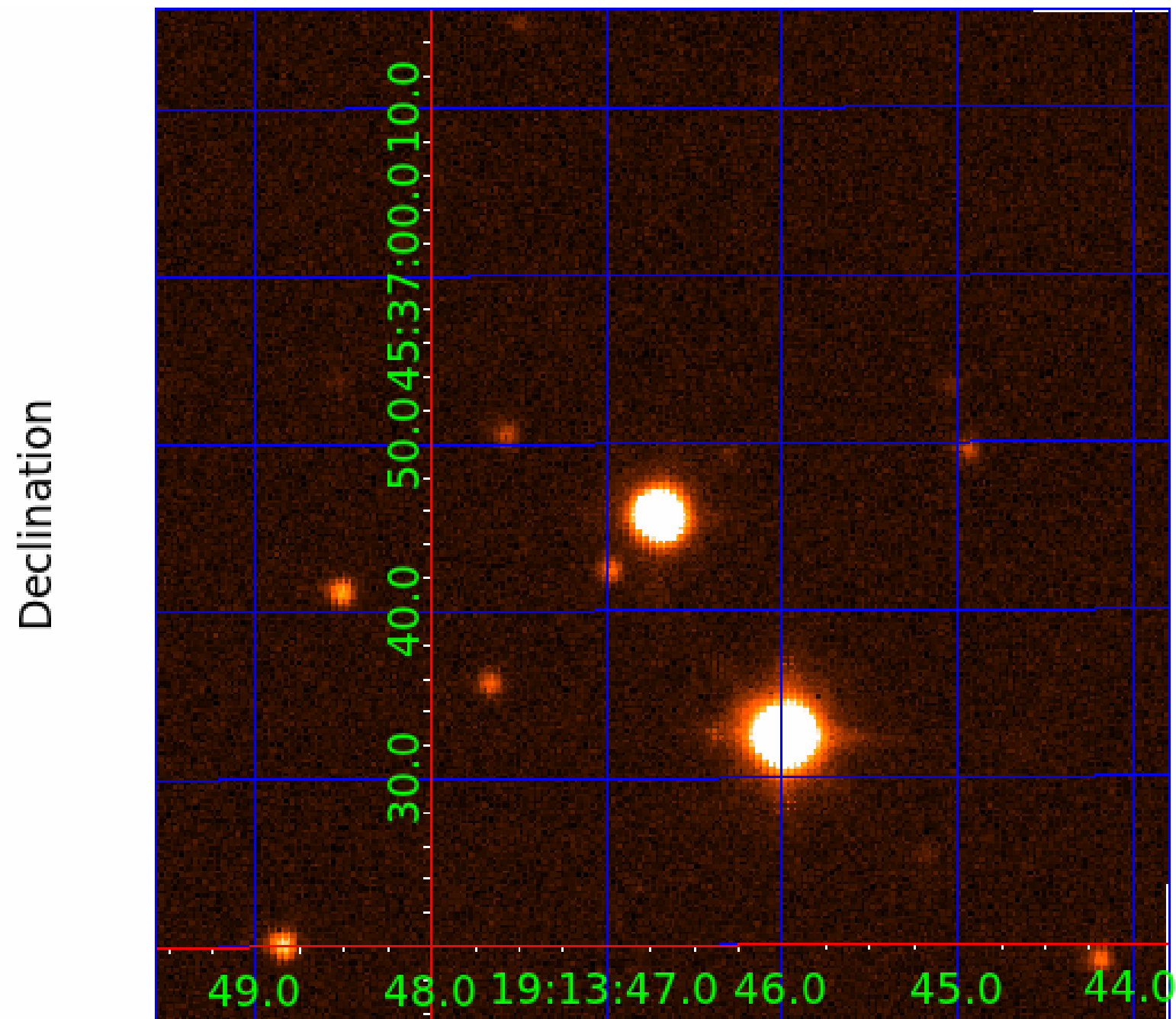
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009210828

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})
009210828-01	OBS	7147.01	1.656418	131.579970	99964.3	2.634	2801.3	3669.6	0.66	5033	26.45	442.73
009210828-02	OBS	No	0.828206	131.579744	55945.6	1.500	8968.2	-1.0	0.66	5033	15.31	1115.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009210828-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
009210828-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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 009210828-02

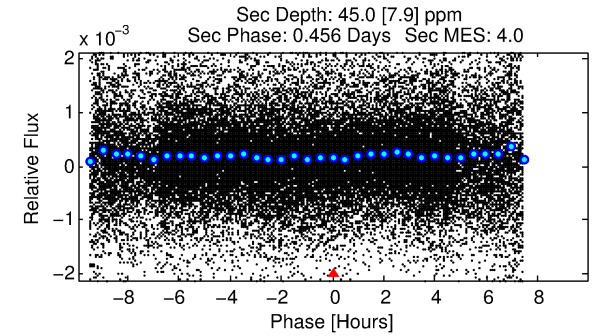
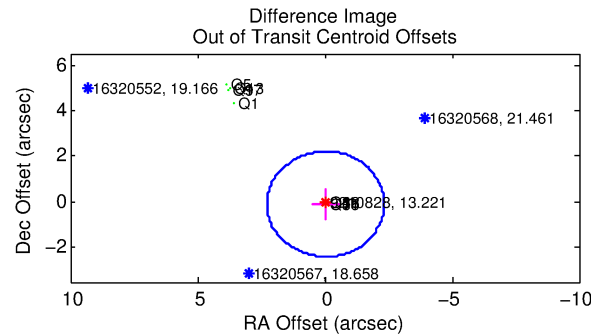
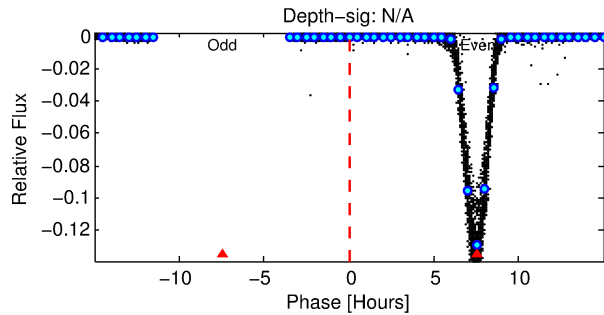
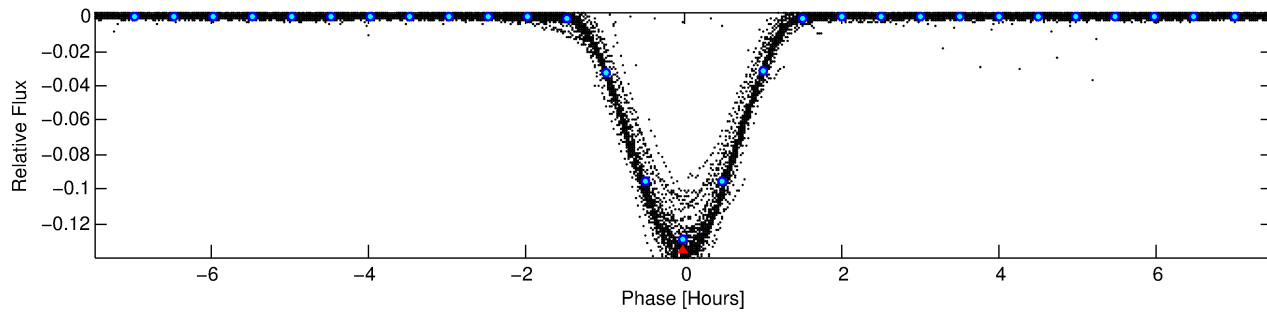
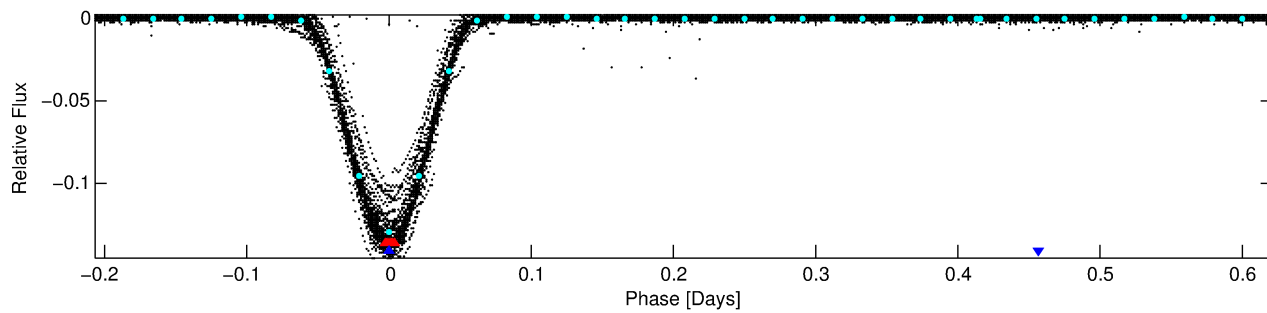
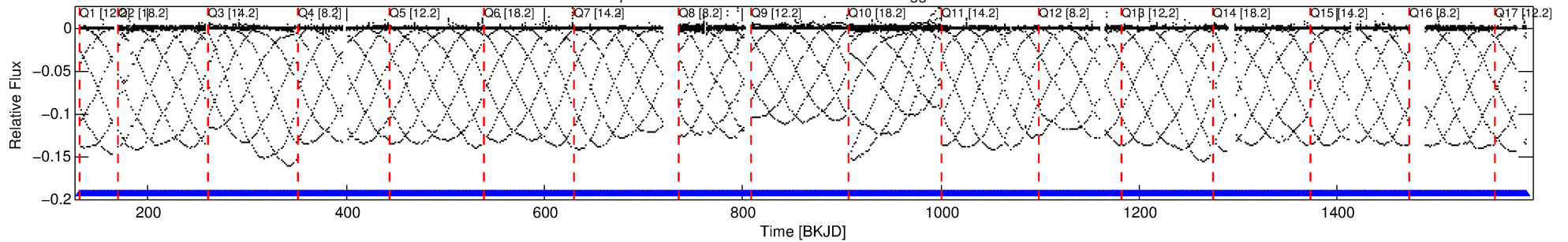
No Significant Match Found

DV One-Page Summary

KIC: 9210828 Candidate: 2 of 2 Period: 0.828 d

KOI: K07147 Corr: No Ephemeris Match

Kp: 13.22 R*: 0.66 Rs Teff: 5033.0 K Logg: 4.61 Fe/H: -0.660



TPS TCE Results:

Period = 0.82821 d
Epoch = 131.5797 BKJD

DV fit results are unavailable

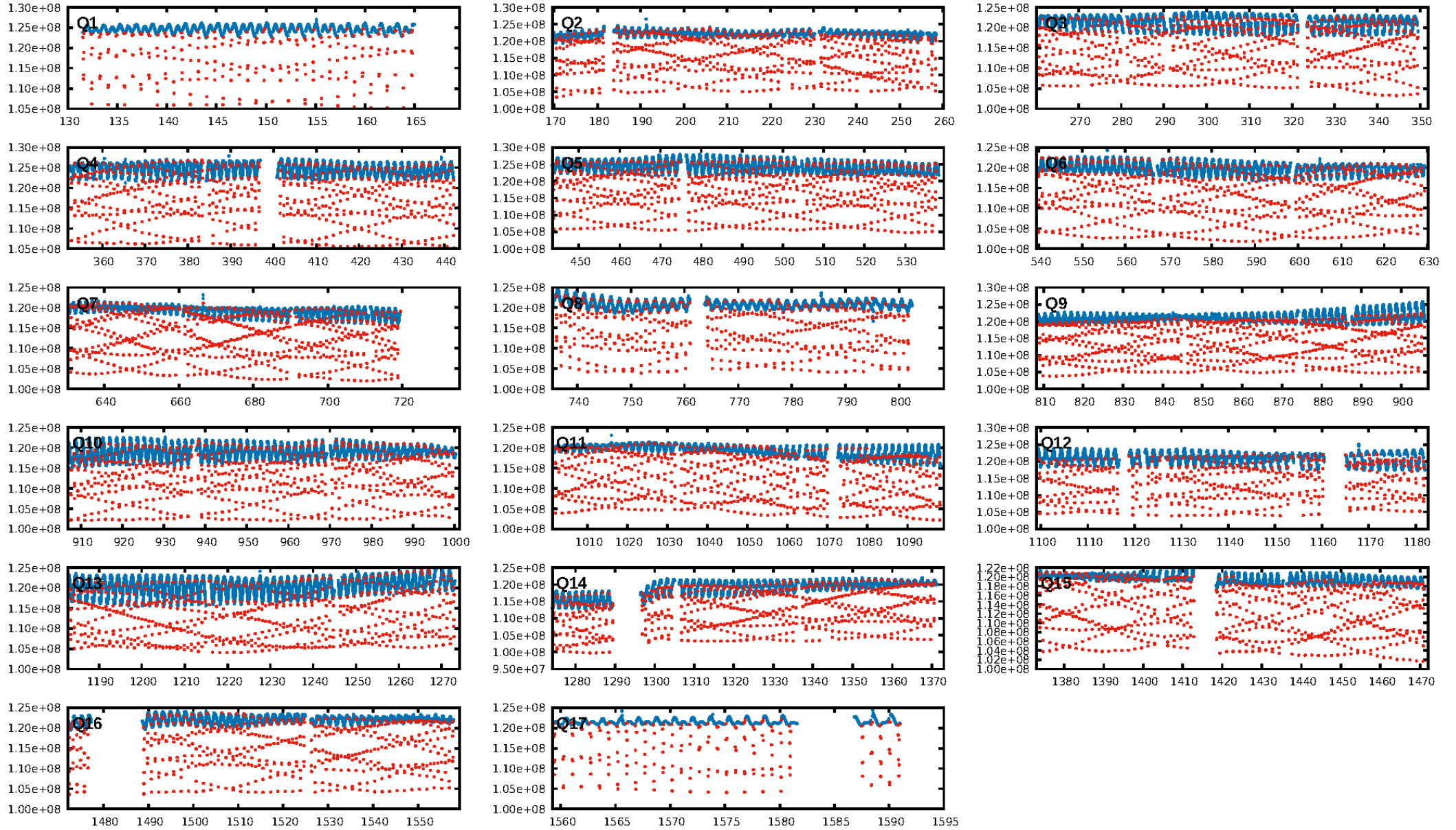
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.56σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [772/772]
GhostDiagnostic-chr: 1.552
Centroid-sig: N/A
Centroid-so: 1.105 arcsec [2483.80σ]
OotOffset-rm: 0.097 arcsec [0.13σ]
KicOffset-rm: 0.137 arcsec [2.04σ]
OotOffset-st: 0/4/4/5 [13]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

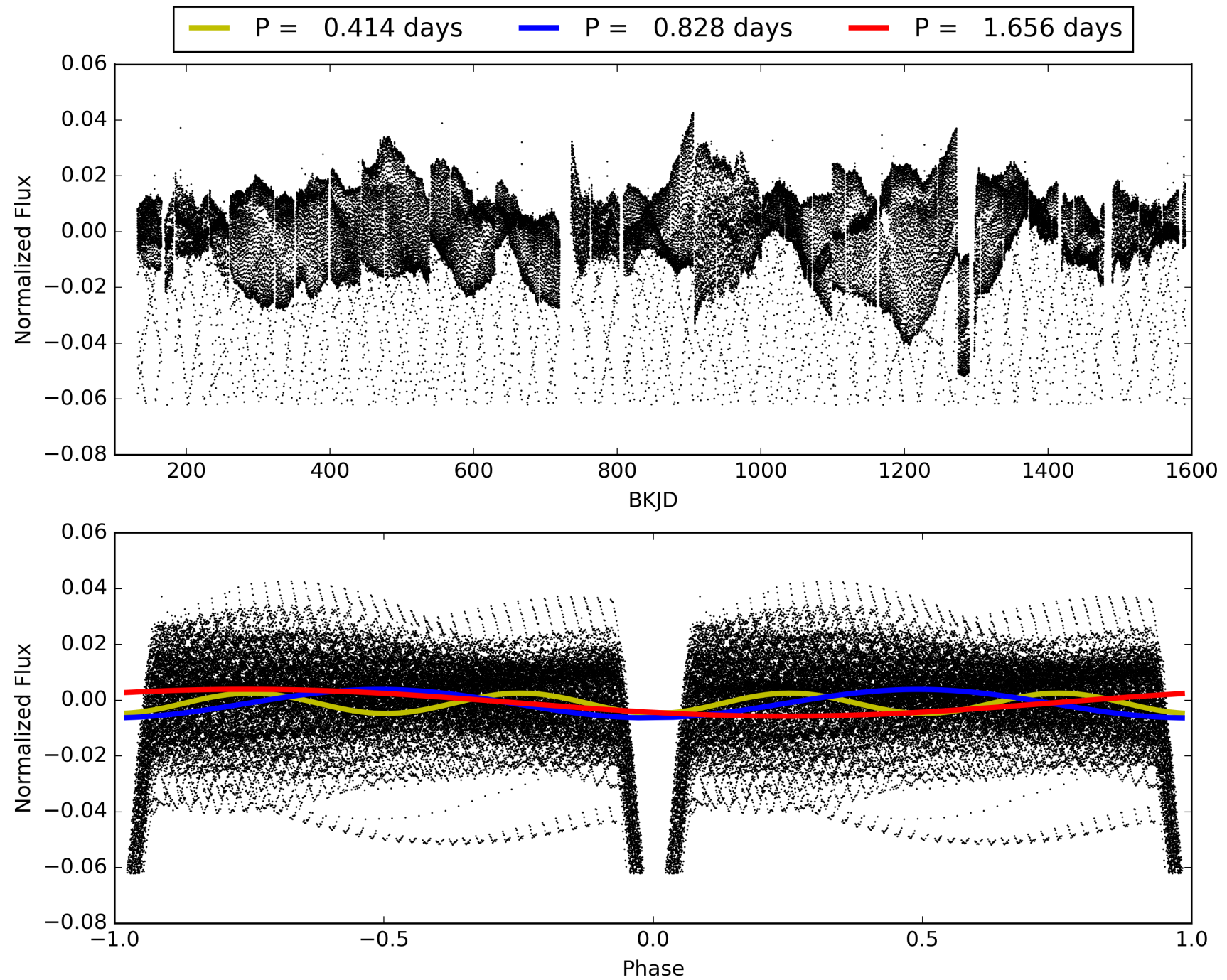
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:06:03 Z

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TCE 009210828-02, PDC Light Curves

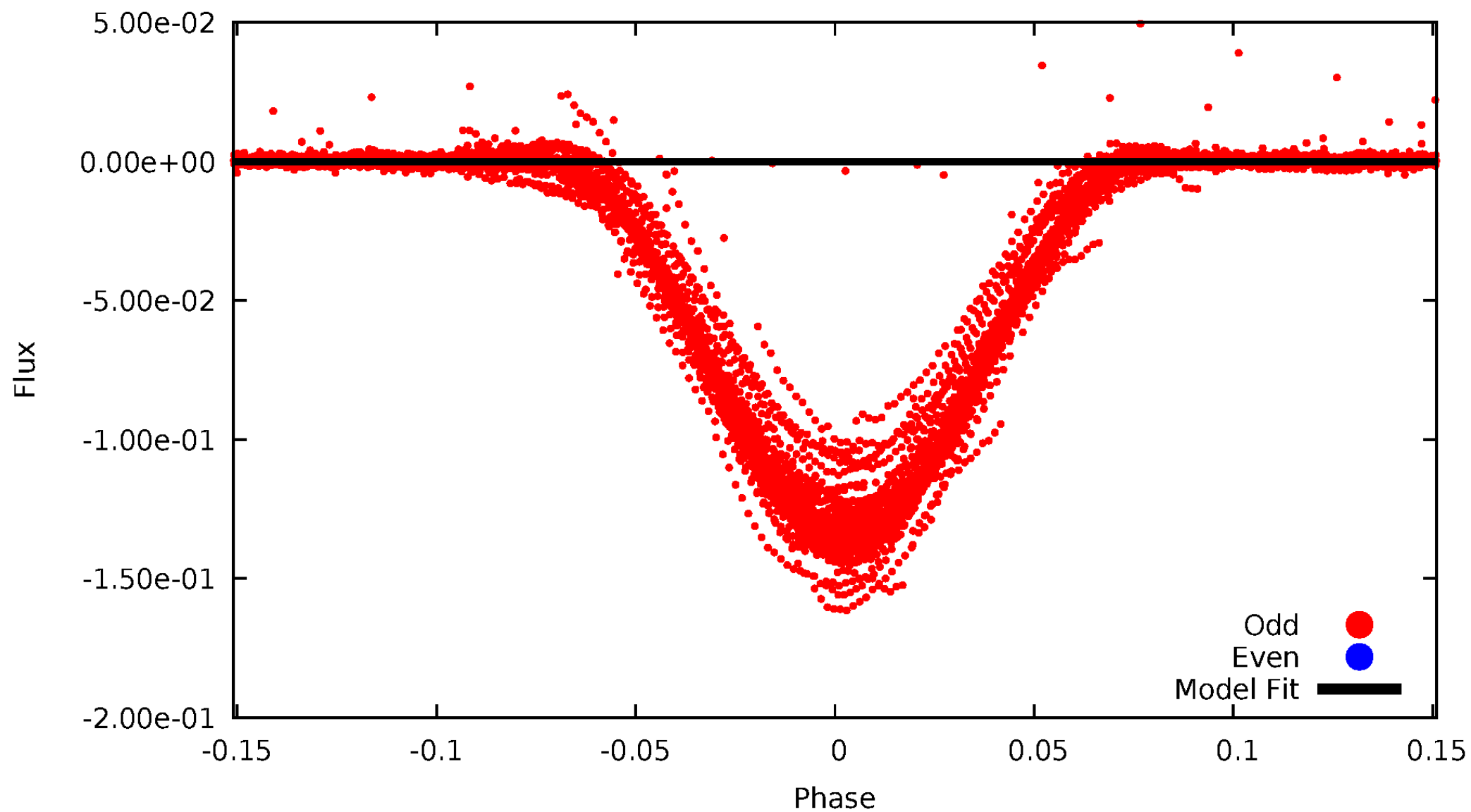


TCE 009210828-02



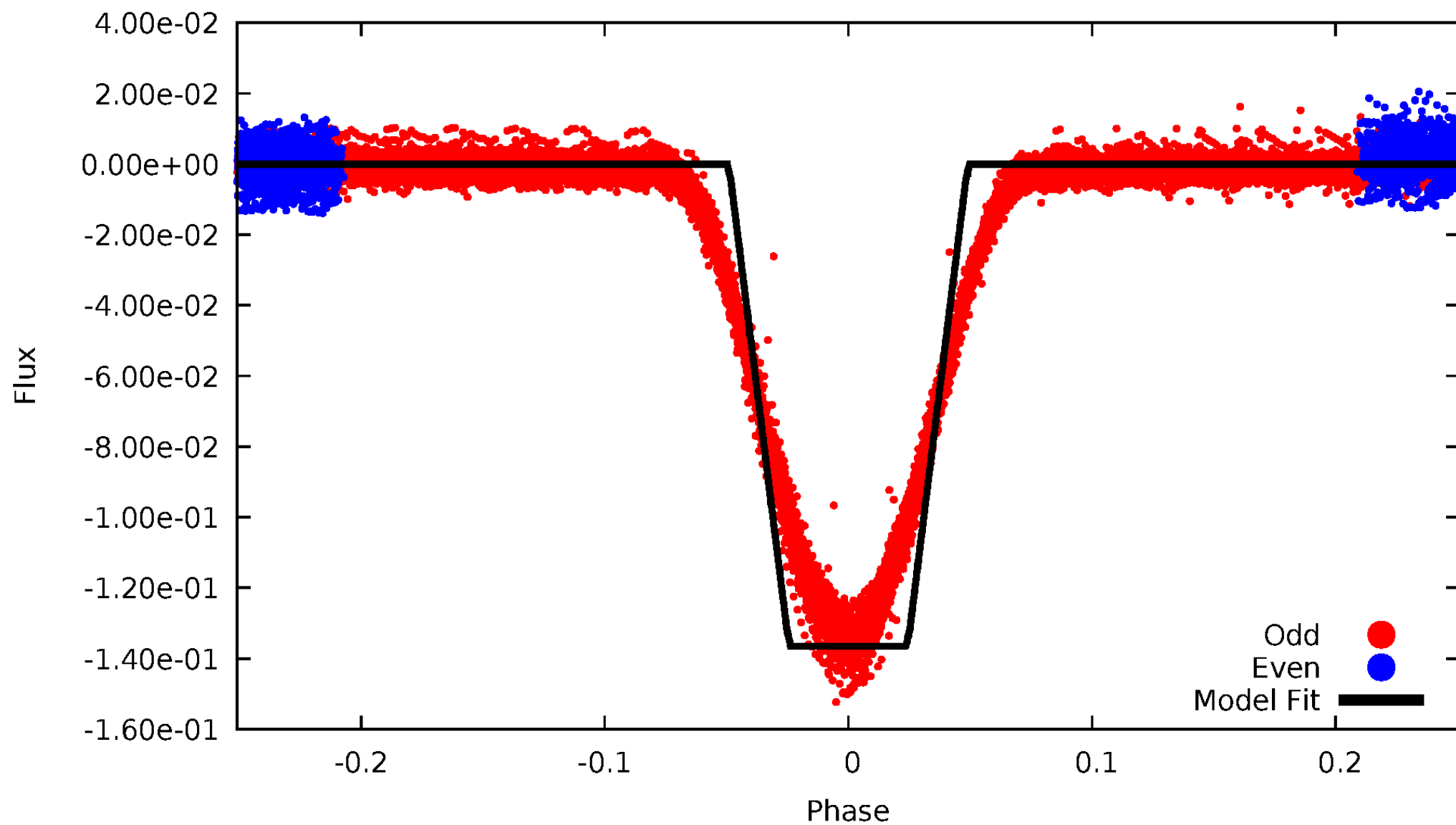
DV Odd/Even

TCE 009210828-02



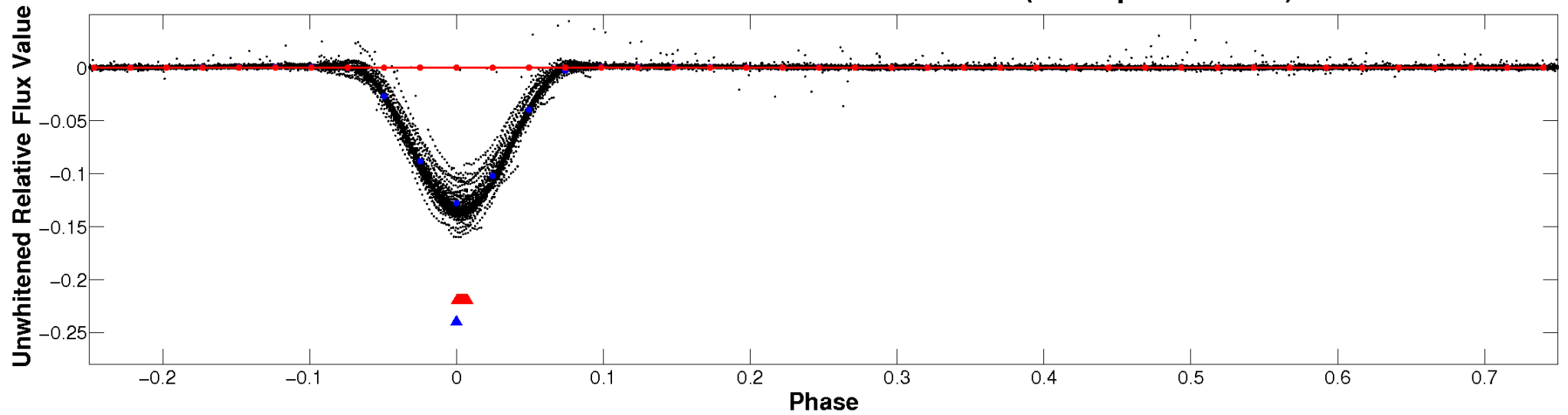
ALT Odd/Even

TCE 009210828-02

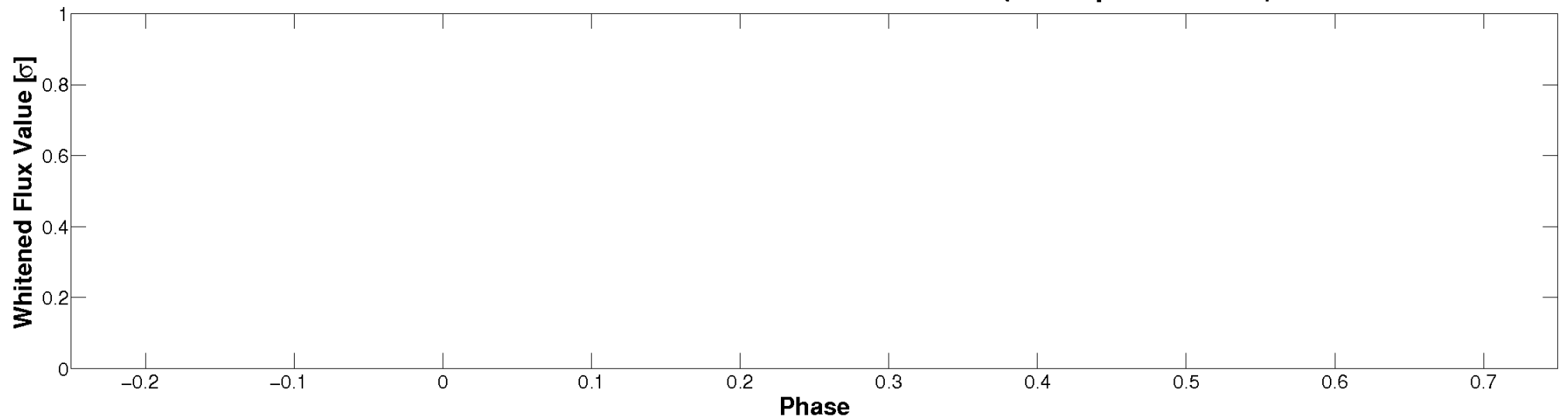


Non-Whitened Vs. Whitened Light Curve

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

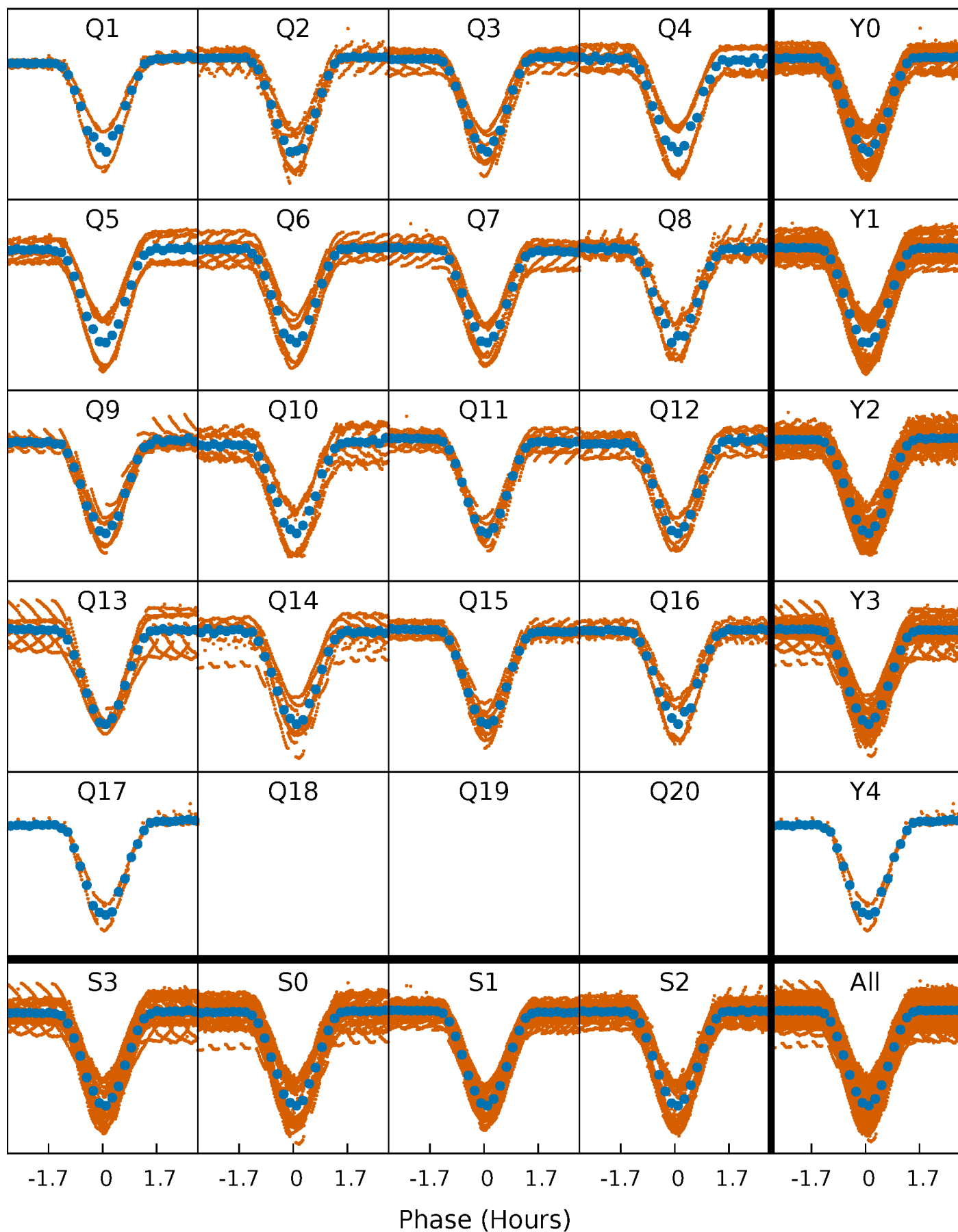


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



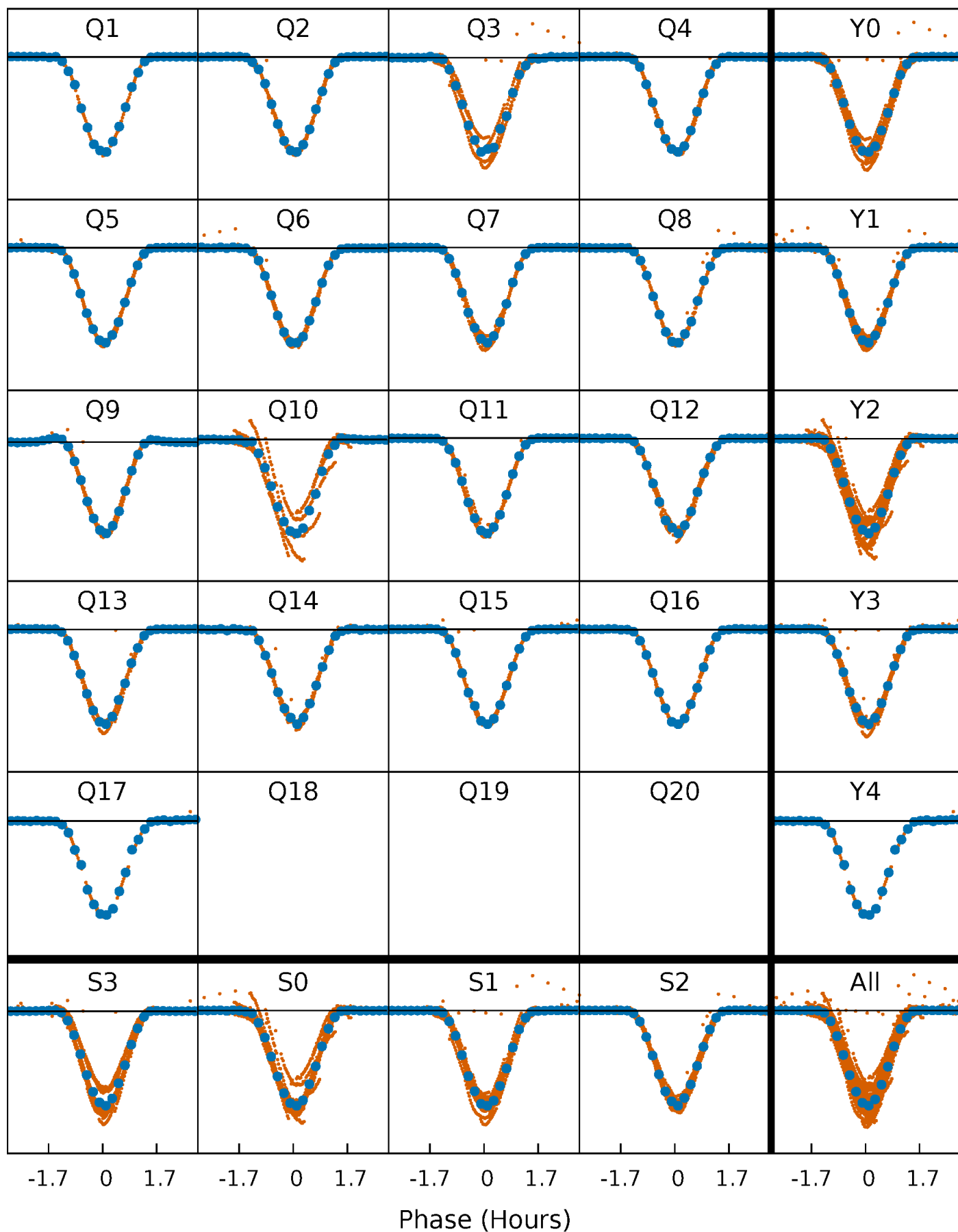
PDC Quarter-Phased Transit Curves

TCE 009210828-02 P= 0.828206 Days $T_0=131.579744$ (BKJD)



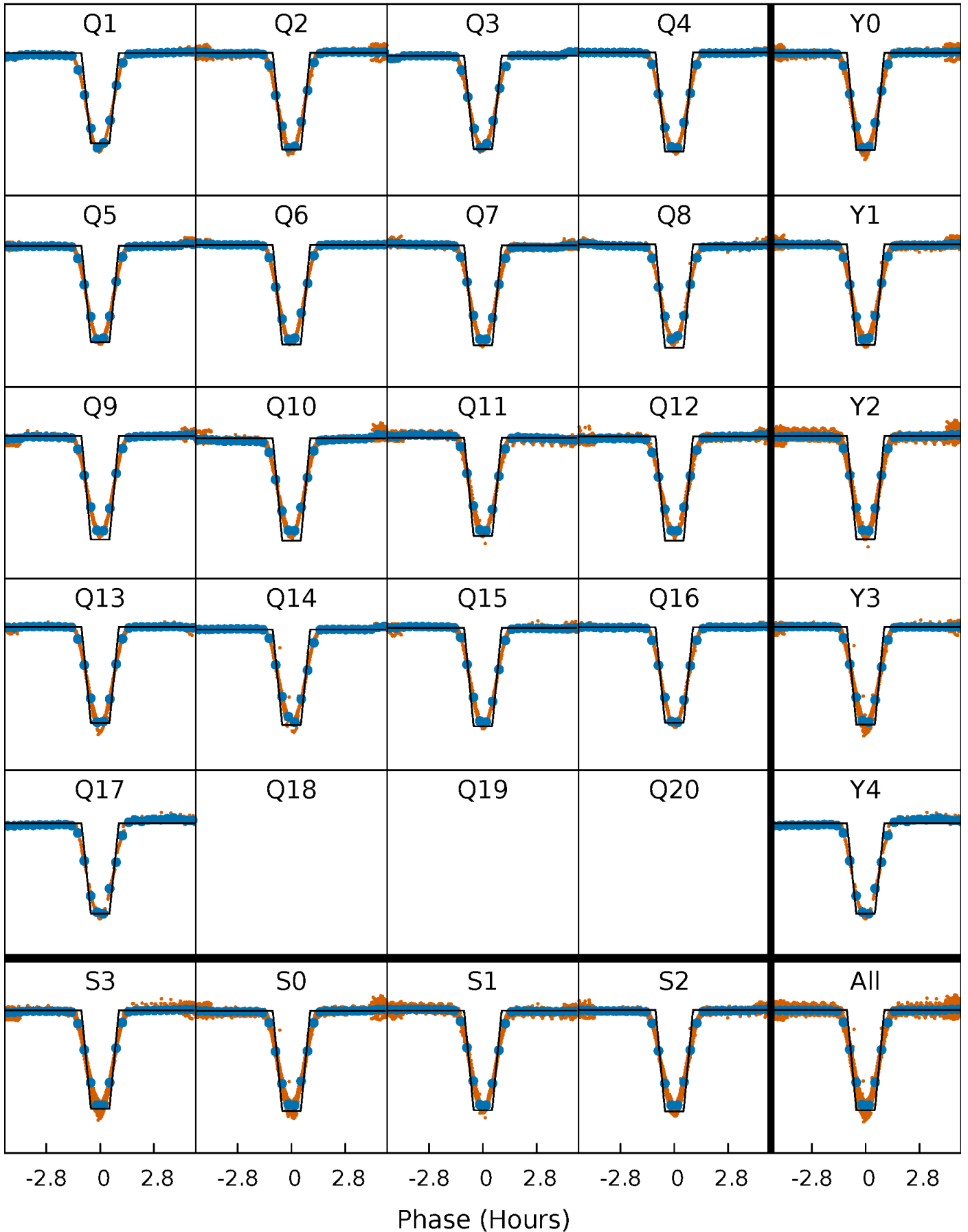
DV Quarter-Phased Transit Curves

TCE 009210828-02 P= 0.828206 Days $T_0=131.579744$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

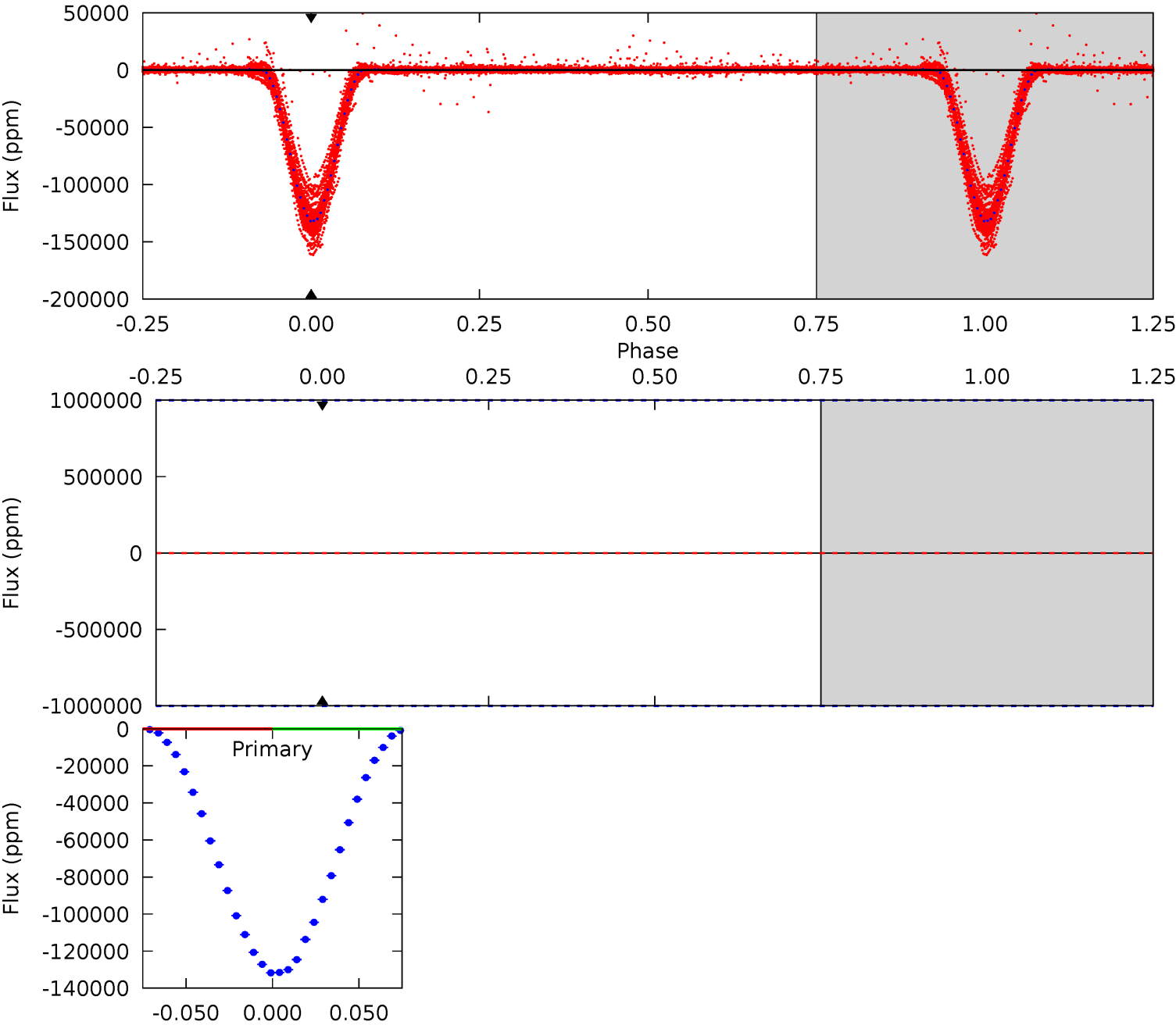
TCE 009210828-02 $P = 0.828206$ Days $T_0 = 131.582106$ (BKJD)



DV Model-Shift Uniqueness Test

009210828-02, P = 0.828206 Days, E = 131.579744 Days

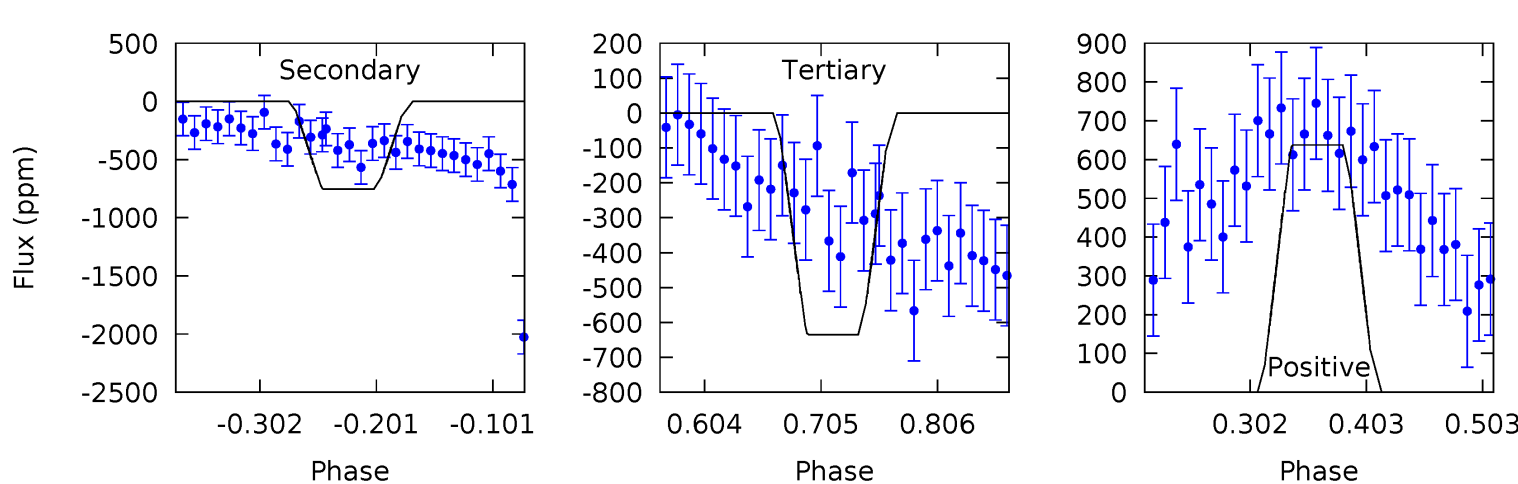
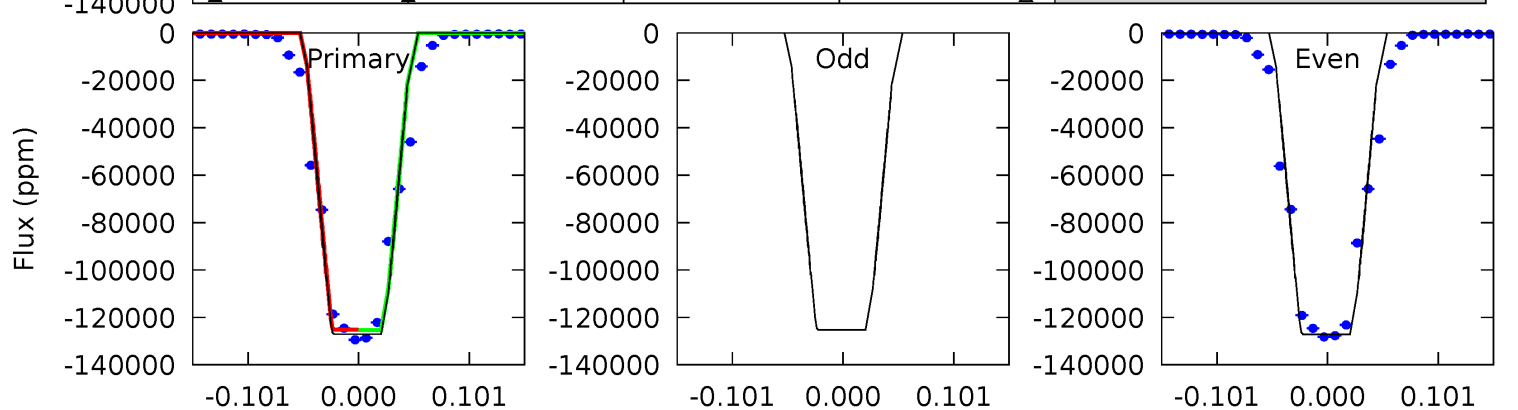
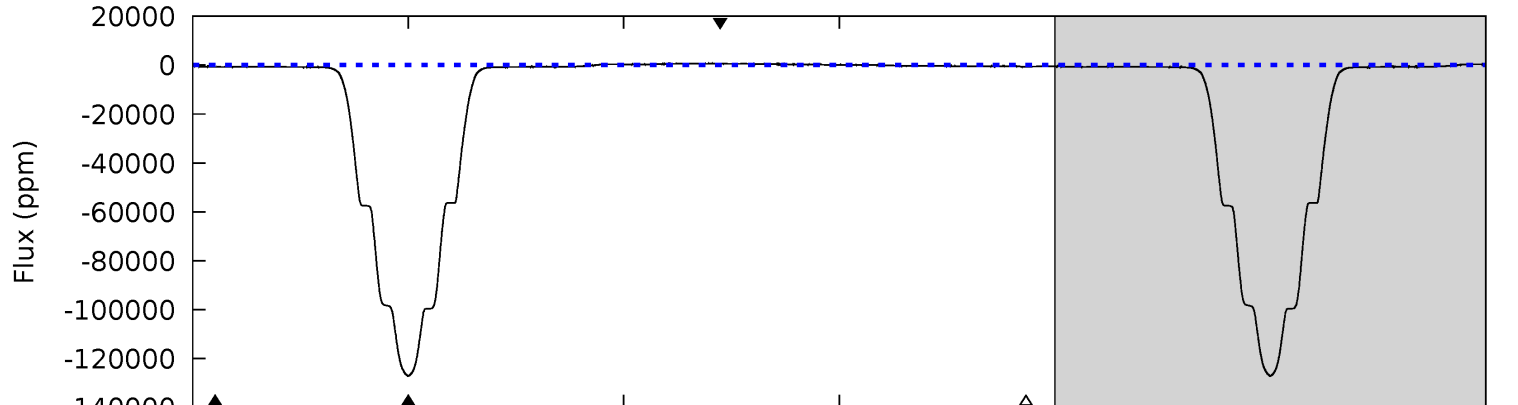
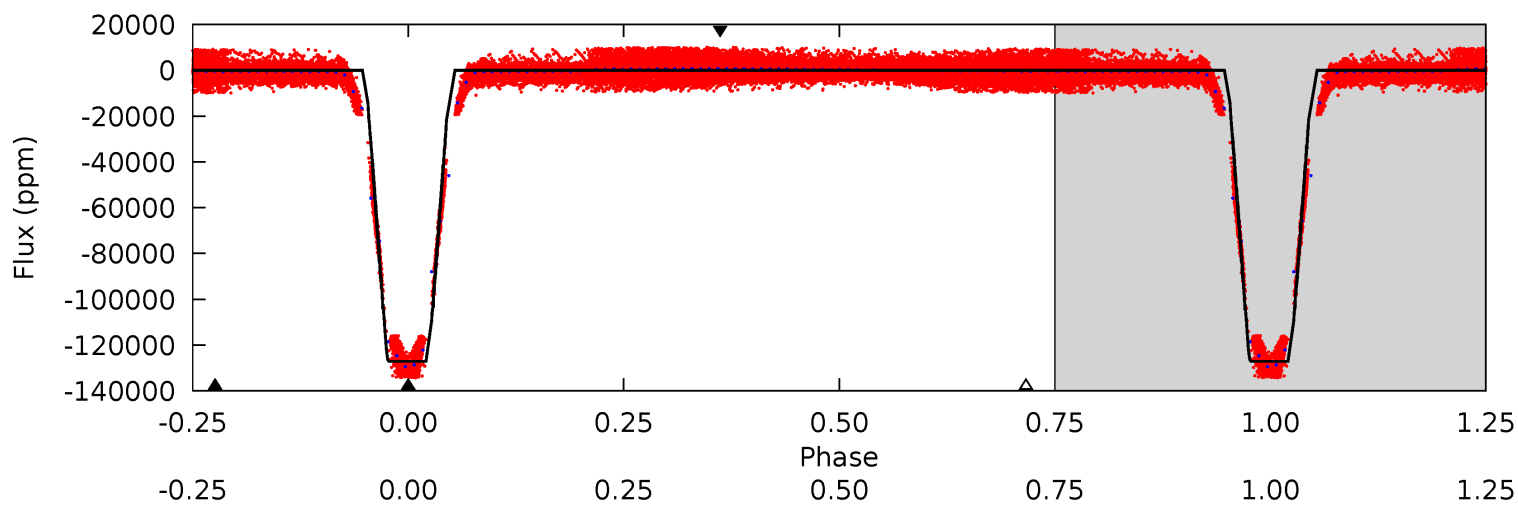
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009210828-02, P = 0.828206 Days, E = 131.582106 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1819	10.8	9.09	9.13	4.56	1.64	6.30	1810	1810	1.72	1.68	14.0	1.00	0.00	0



Stellar Parameters For KIC 009210828

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5033^{+136}_{-151}	$4.611^{+0.066}_{-0.038}$	$-0.660^{+0.350}_{-0.300}$	$0.655^{+0.065}_{-0.059}$	$0.638^{+0.076}_{-0.032}$	$3.198^{+0.895}_{-0.540}$
	+3%/-3%	+1%/-1%	+53%/-45%	+10%/-9%	+12%/-5%	+28%/-17%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009210828-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$14.74^{+7.06}_{-6.31}$	2048^{+73}_{-79}	3260^{+3317}_{-9532}	$2.509^{+79.406}_{-64.460}$
Alt.	-755 ± 70	$26.51^{+7.28}_{-7.29}$	2045^{+72}_{-70}	-2327^{+303}_{-94}	$0.133^{+0.119}_{-0.050}$

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

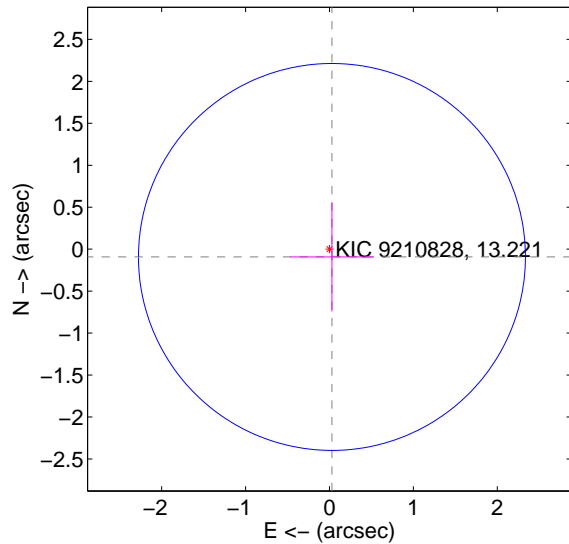
Supplemental centroid analysis for 009210828-02. Kepler magnitude: 13.22. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

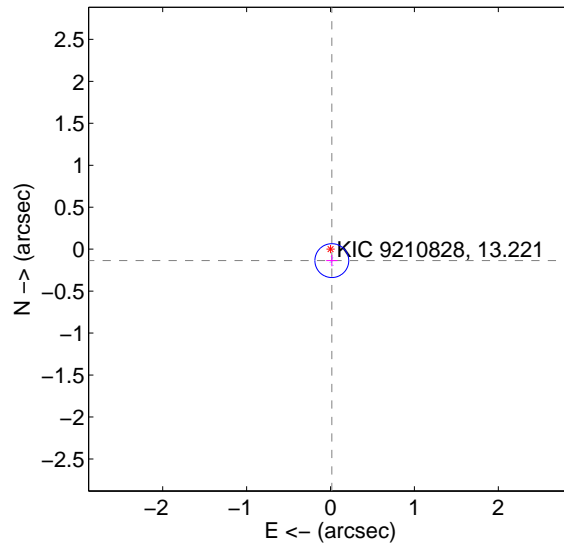
The OOT PRF centroid is offset from the target star catalog position by about 6.32 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.097 ± 0.768	0.13	-0.029 ± 0.498	-0.093 ± 0.650
PRF-fit source offset from KIC position	0.137 ± 0.067	2.04	-0.016 ± 0.067	-0.136 ± 0.067
photometric centroid source offset	1.10 ± 0.00	2483.80	-0.43 ± 0.00	-1.02 ± 0.00

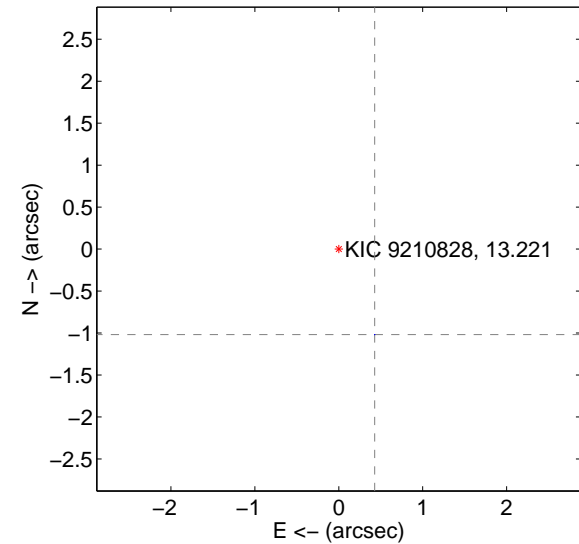
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

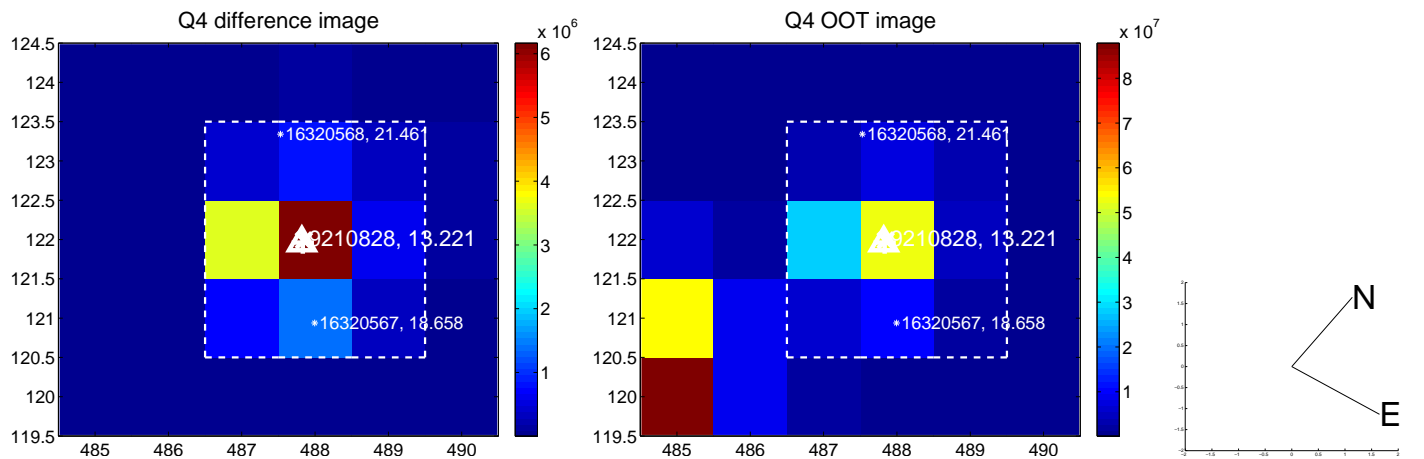
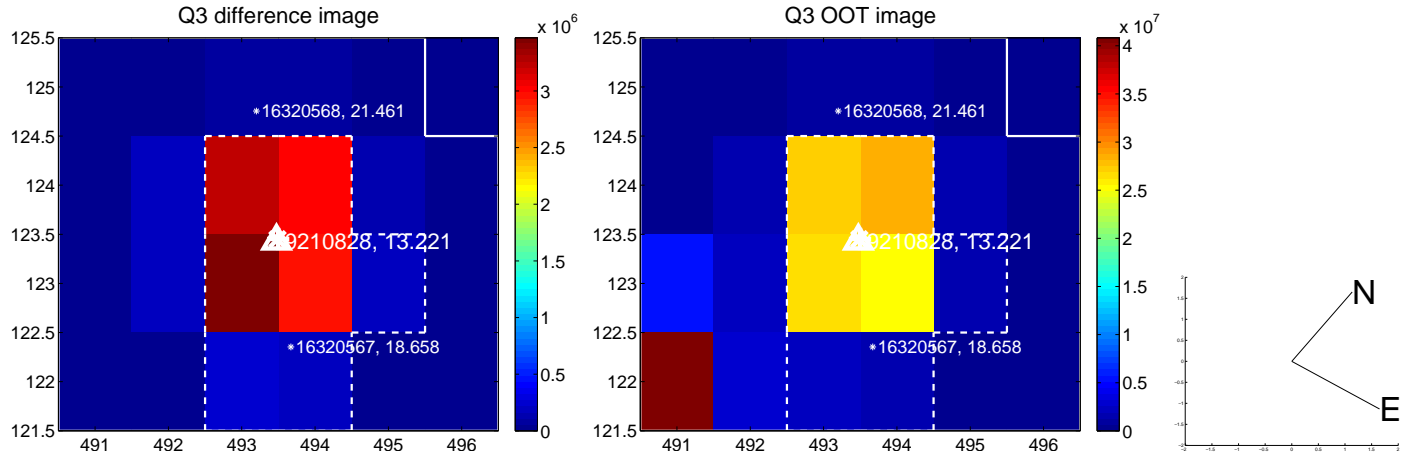
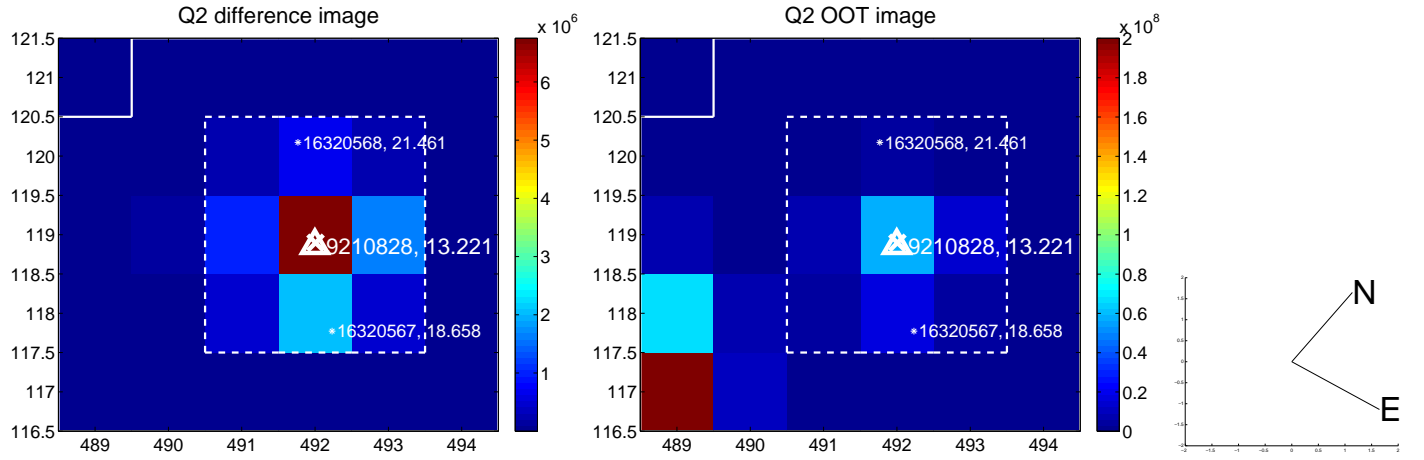
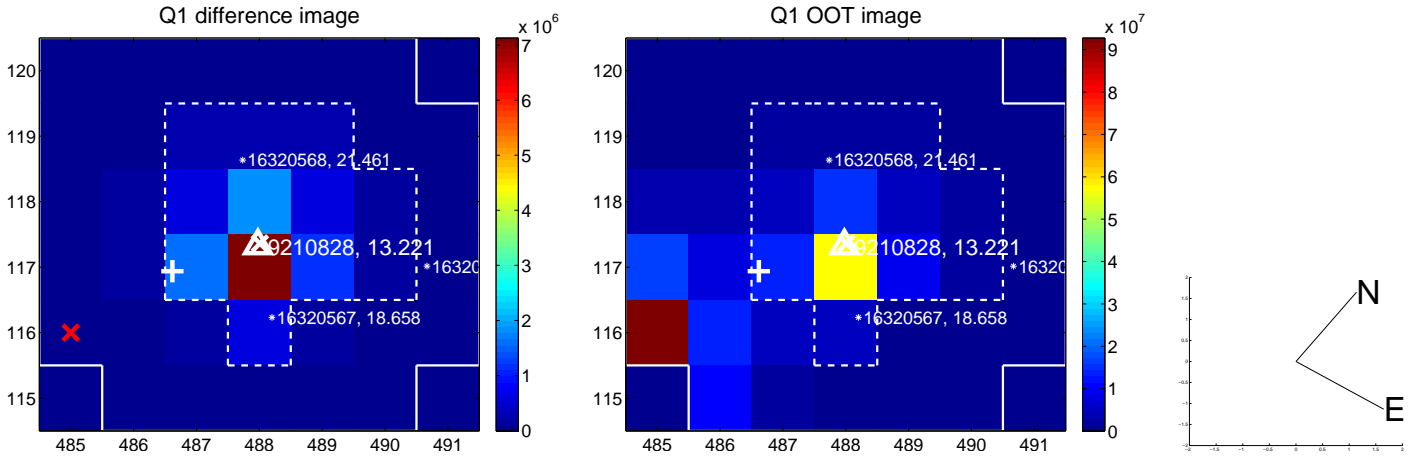


offset from photometric centroids

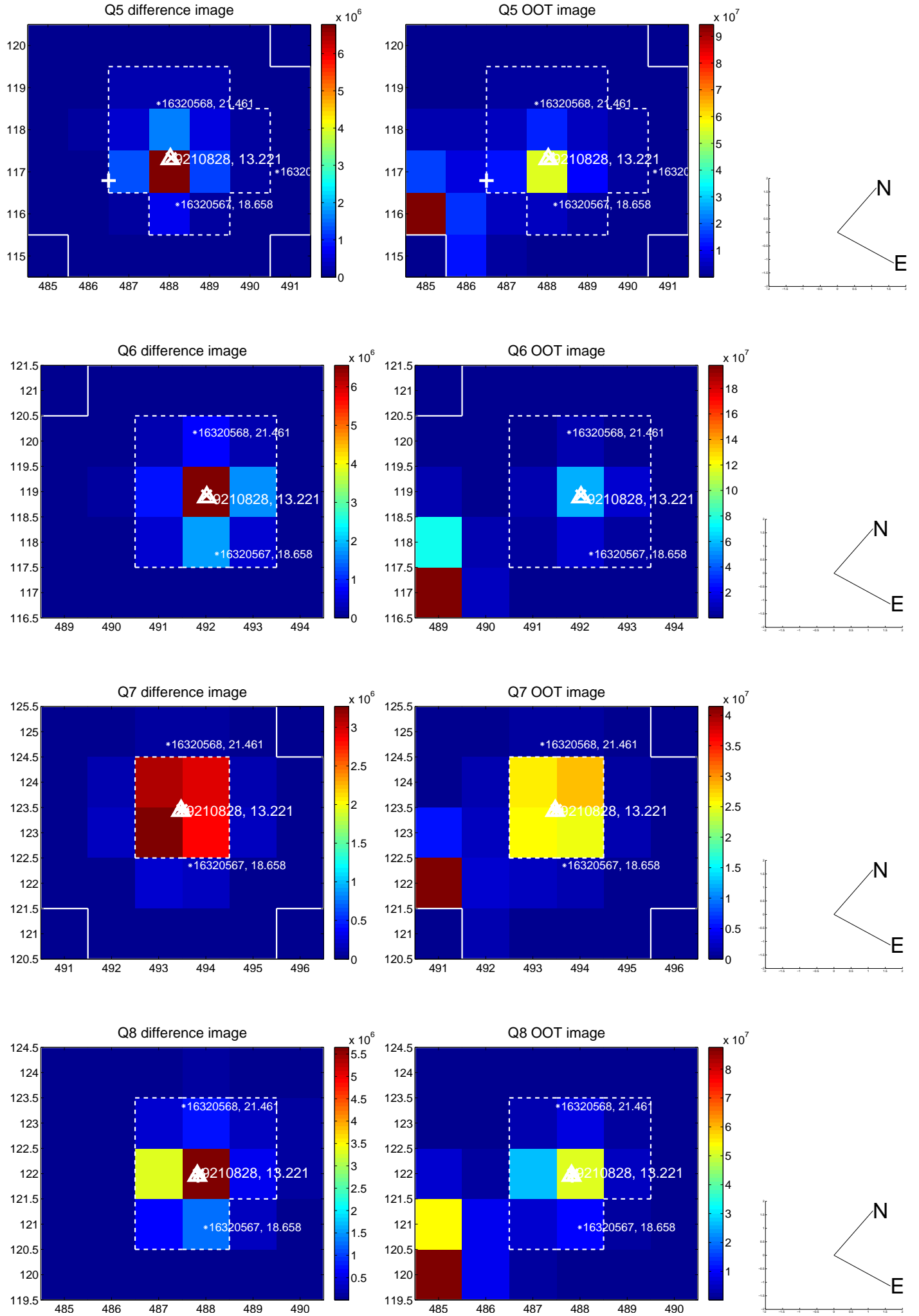


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

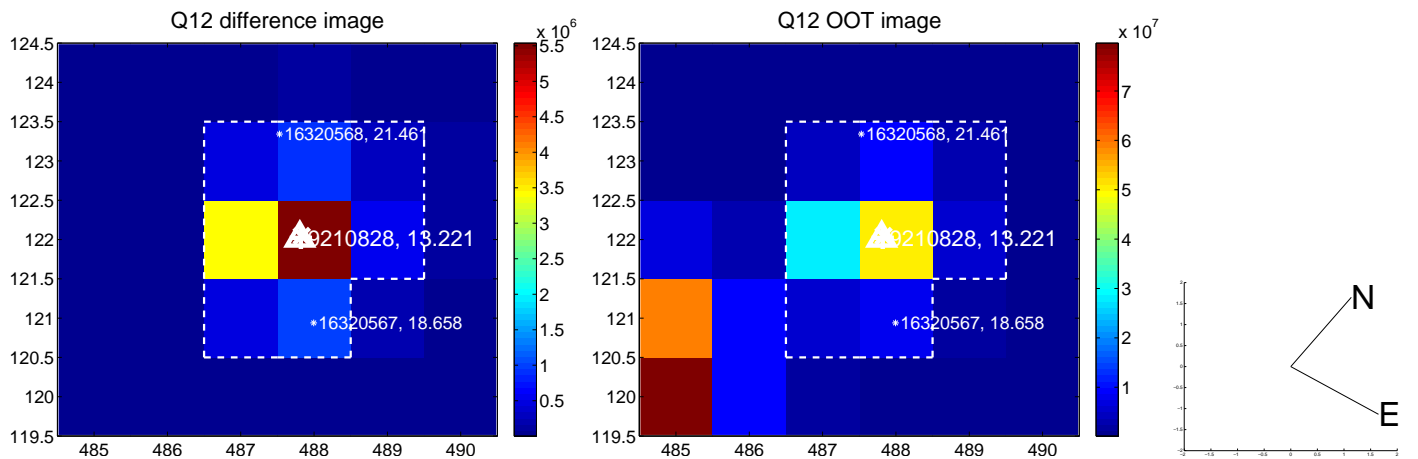
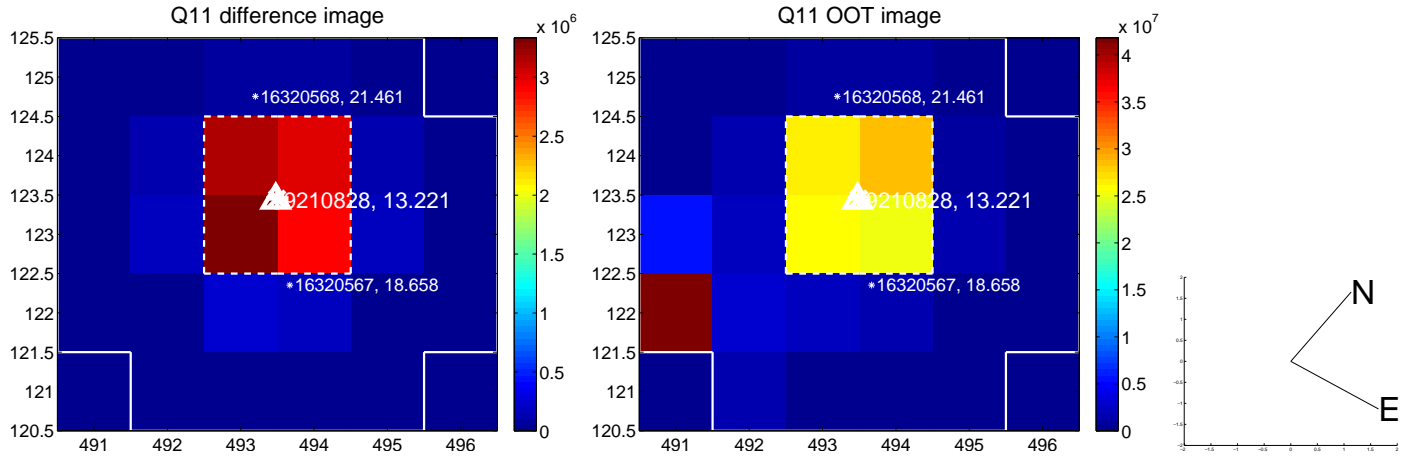
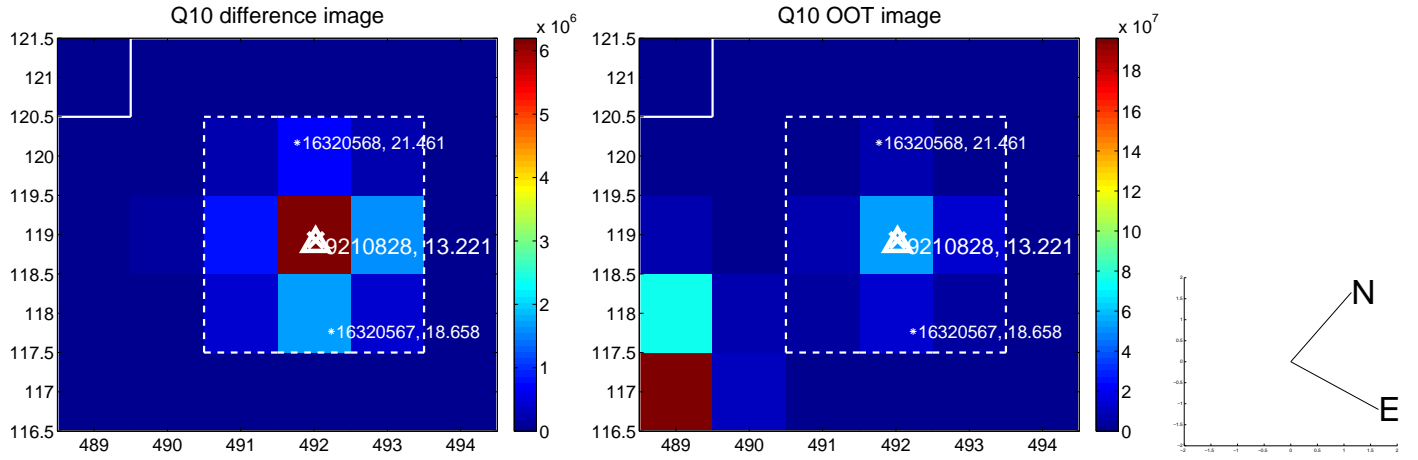
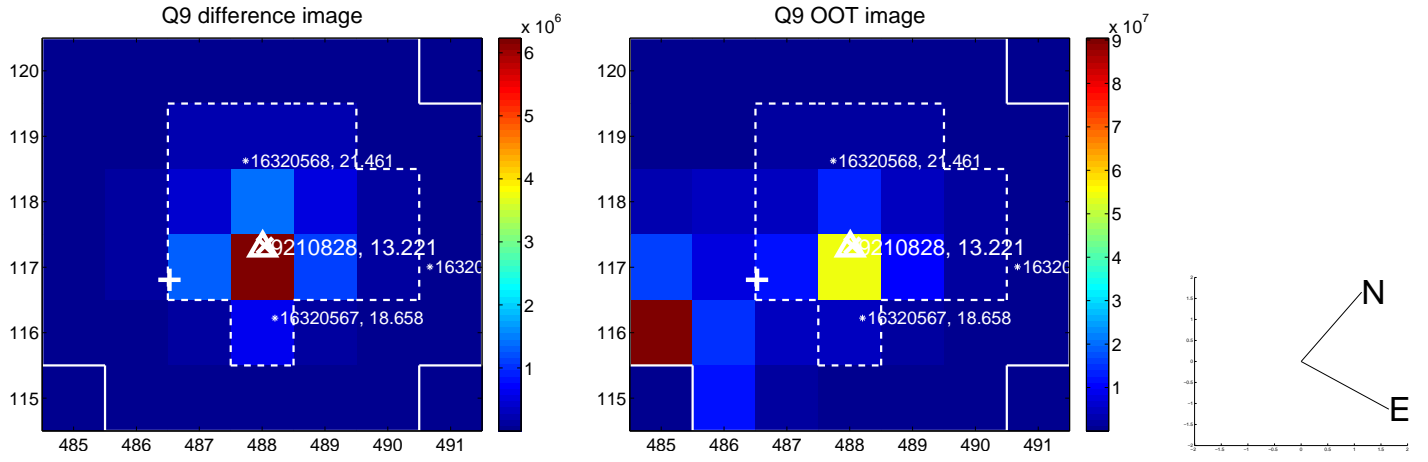
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



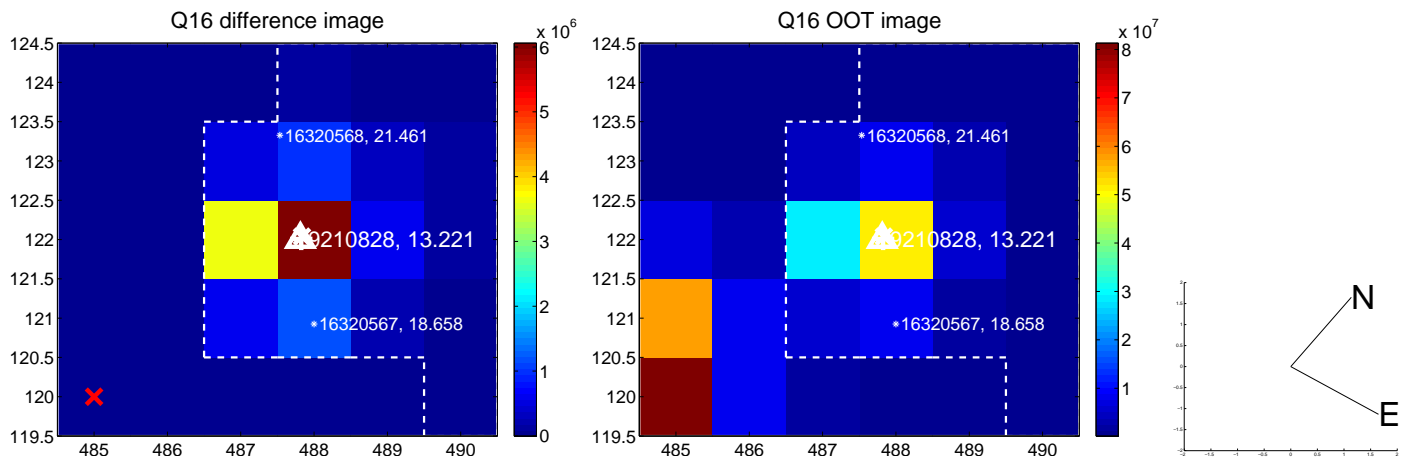
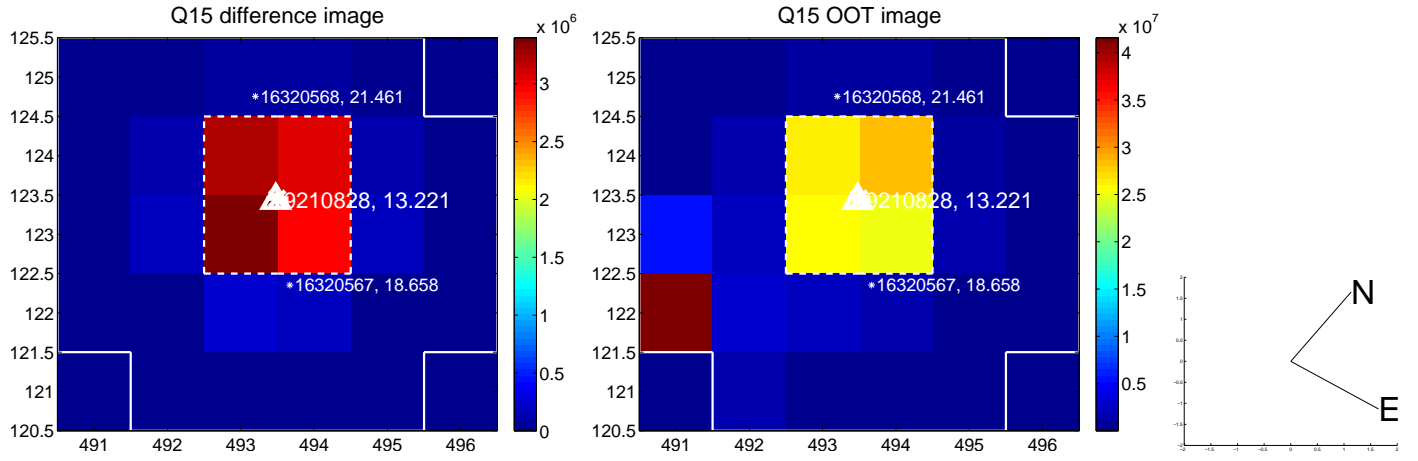
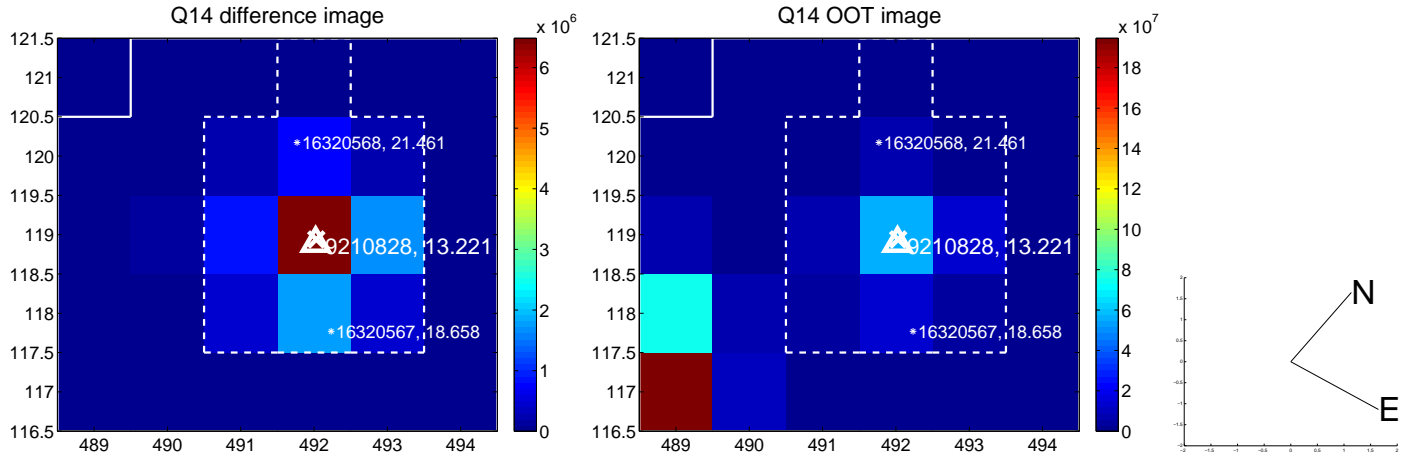
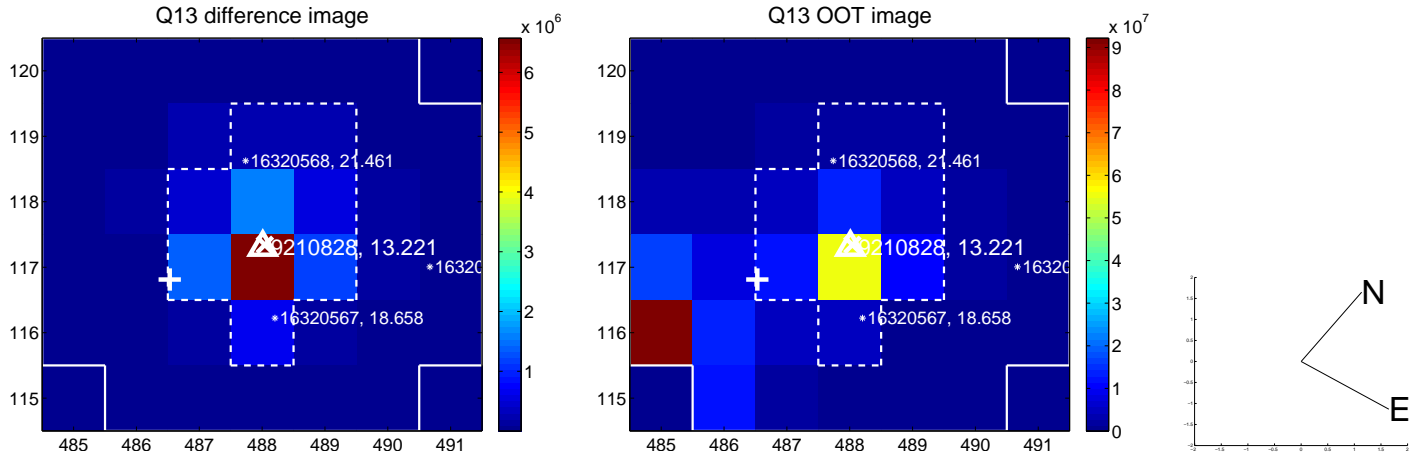
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



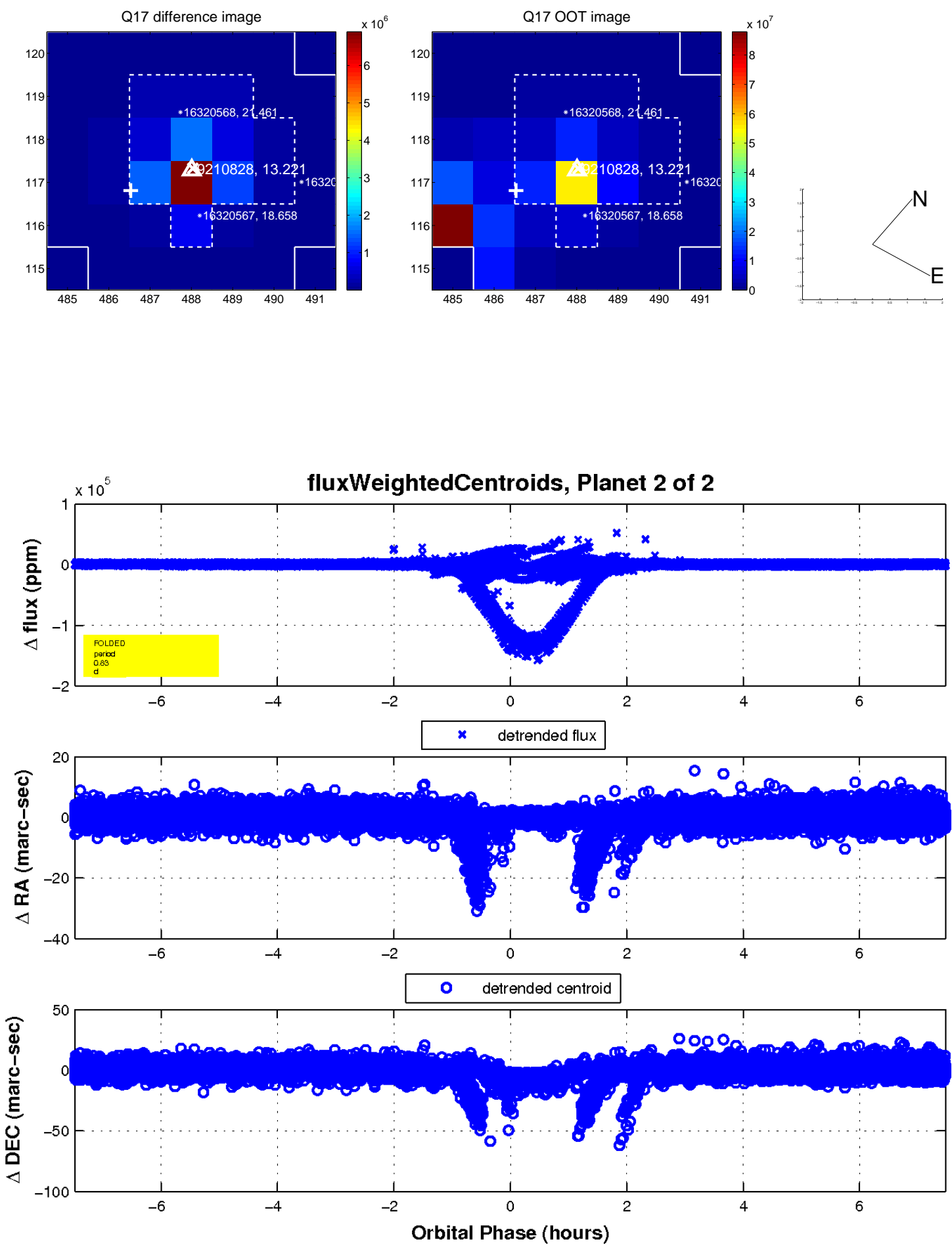
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

