

KIC 003112828

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})
003112828-01	OBS	No	207.378773	316.718855	796.6	4.123	12.4	7.3	0.70	4492	2.05	0.48
003112828-02	OBS	No	509.056899	425.284378	947.6	8.473	12.3	6.7	0.70	4492	2.26	0.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003112828-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003112828-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_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.

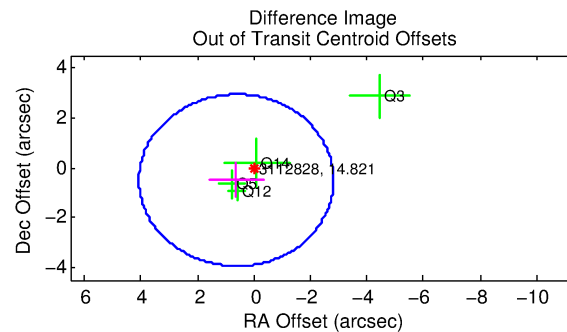
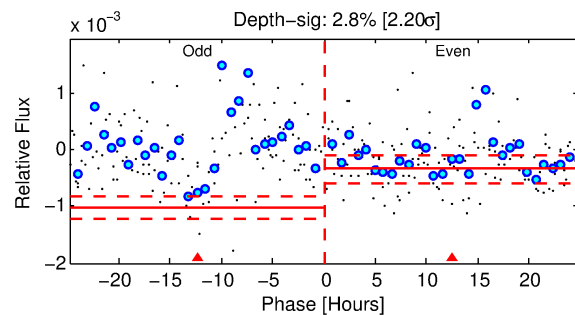
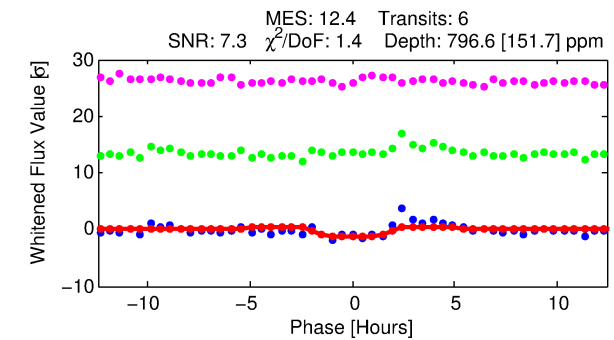
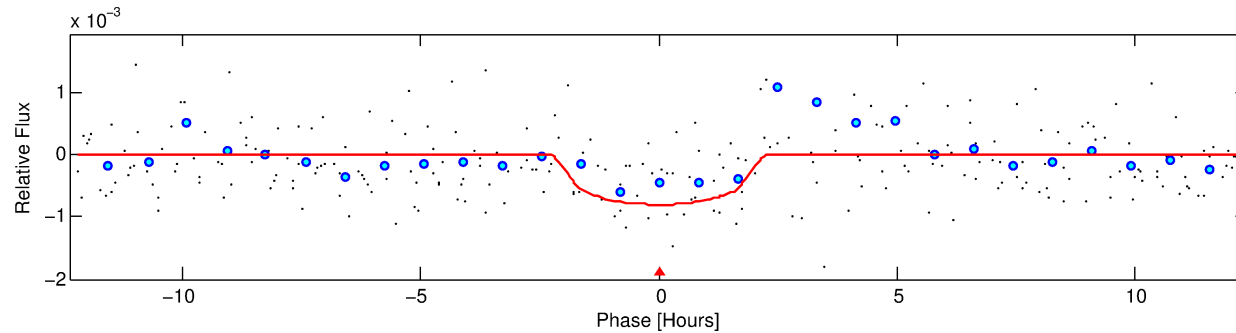
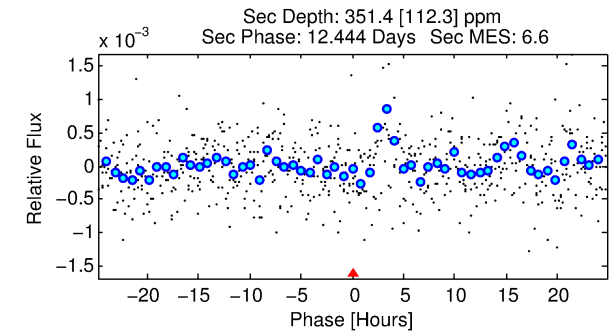
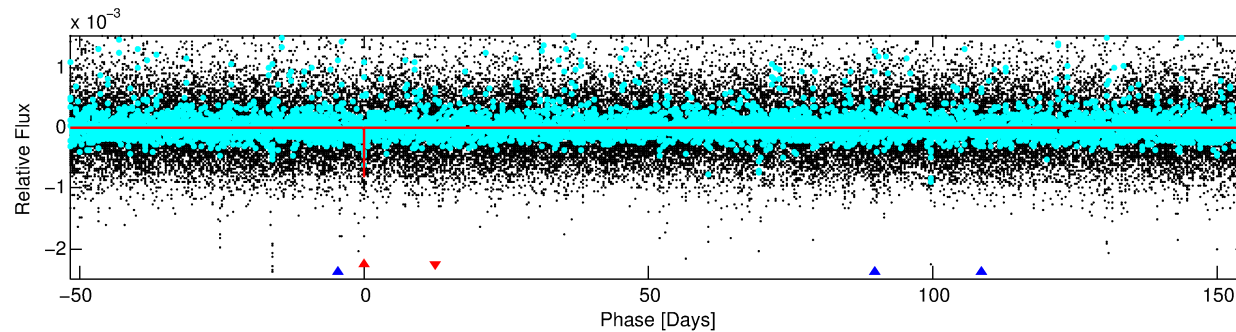
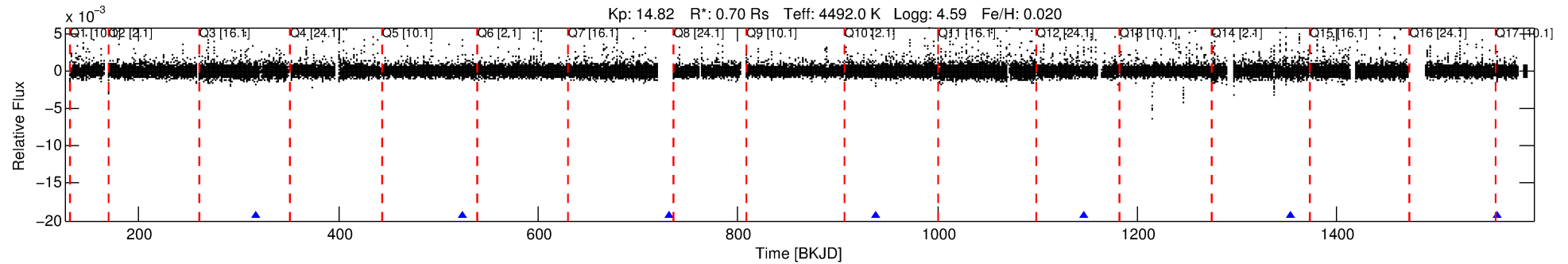
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003112828-01

No Significant Match Found

DV One-Page Summary

KIC: 3112828 Candidate: 1 of 2 Period: 207.379 d



DV Fit Results:

Period = 207.37877 [0.00326] d
Epoch = 316.7189 [0.0111] BKJD
Rp/R* = 0.0270 [0.0347]
a/R* = 308.32 [1199.12]
b = 0.64 [3.67]
Seff = 0.48 [0.08]
Teq = 213 [8] K
Rp = 2.05 [2.64] Re
a = 0.6043 [0.0443] AU
Ag = 16830.31 [43677.45] [0.39 σ]
Teffp = 3745 [2430] K [1.45 σ]

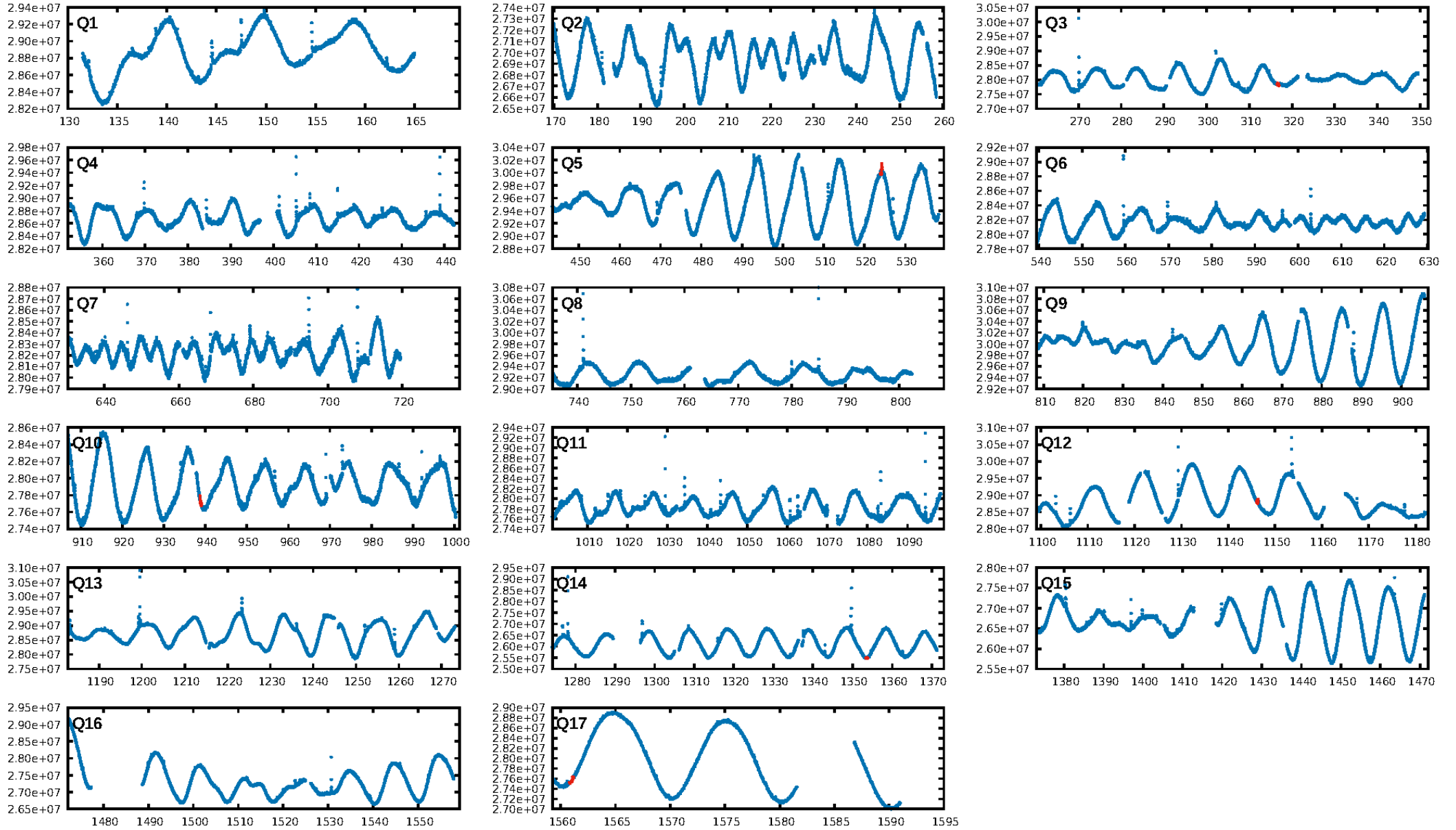
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [768.39 σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 34.8%
Bootstrap-pfa: 2.74e-12
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.275
Centroid-sig: 15.3%
Centroid-so: 1.035 arcsec [0.77 σ]
OotOffset-rm: 0.801 arcsec [0.70 σ]
KicOffset-rm: 0.679 arcsec [0.43 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

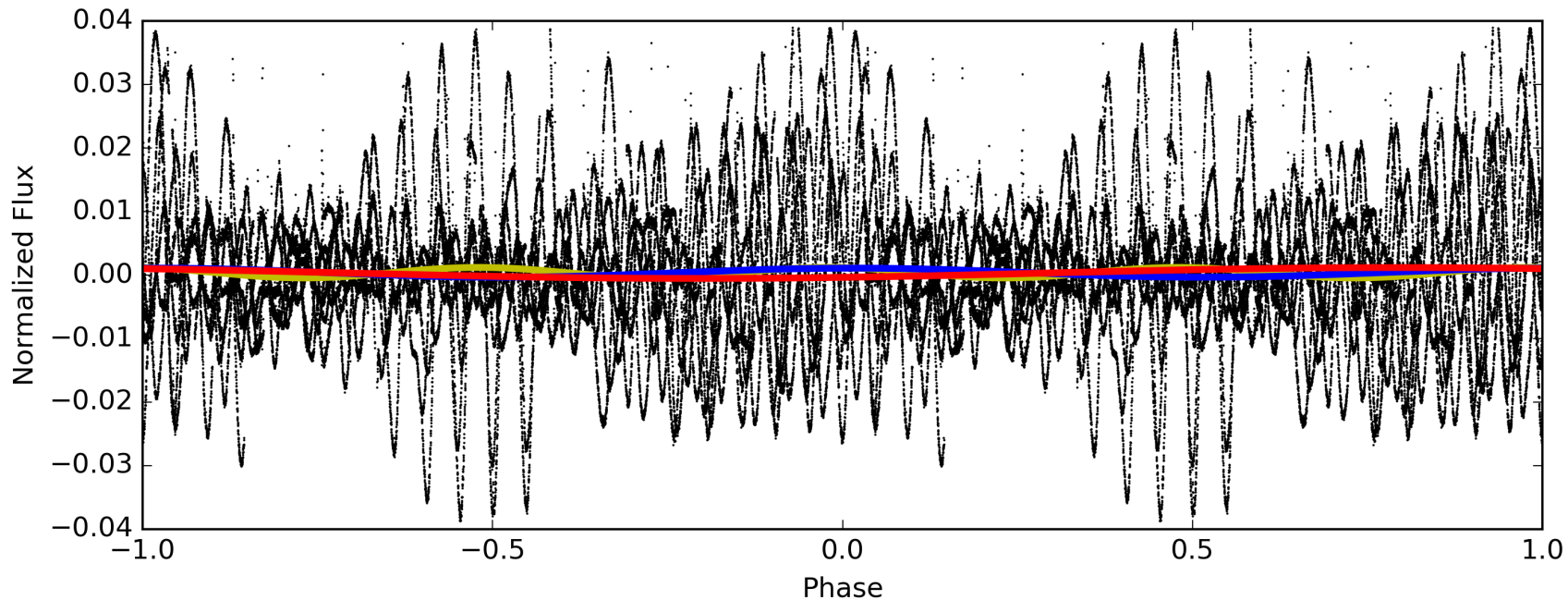
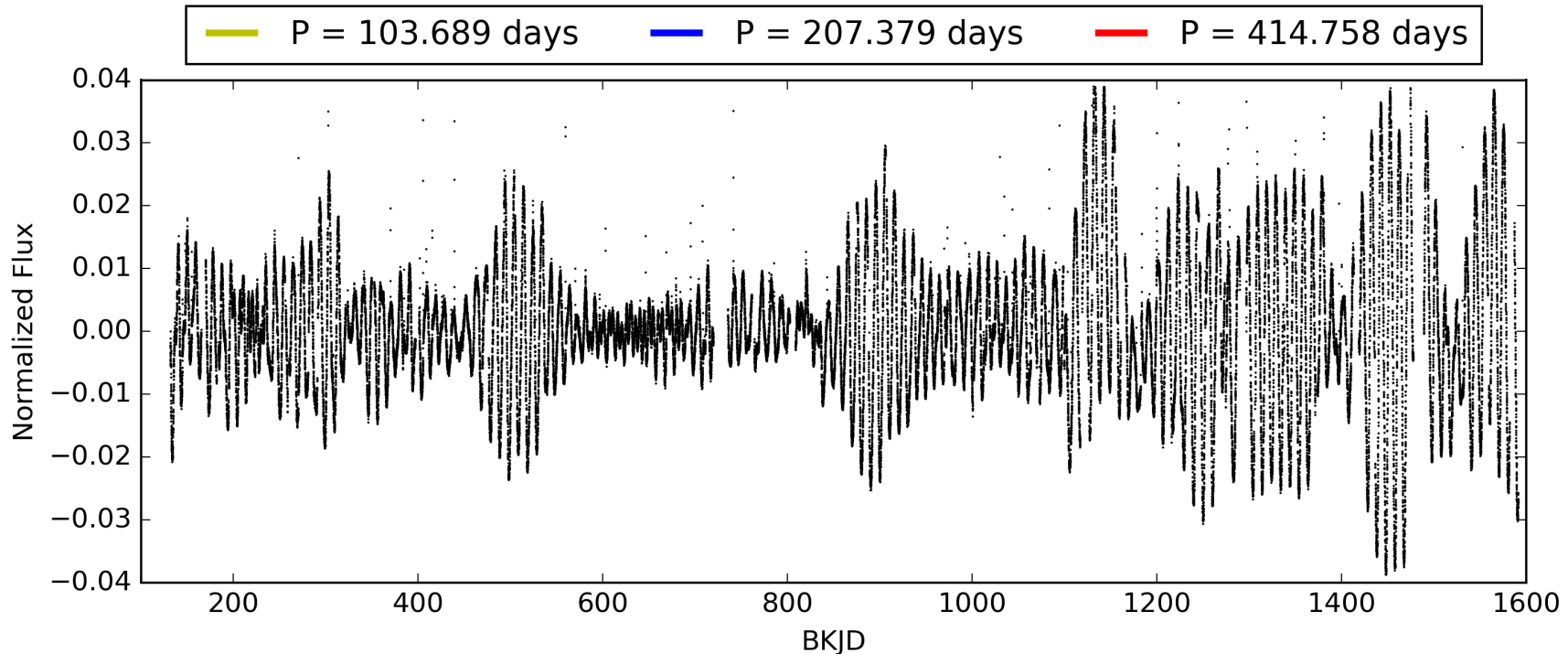
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 16:17:38 Z

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

TCE 003112828-01, PDC Light Curves

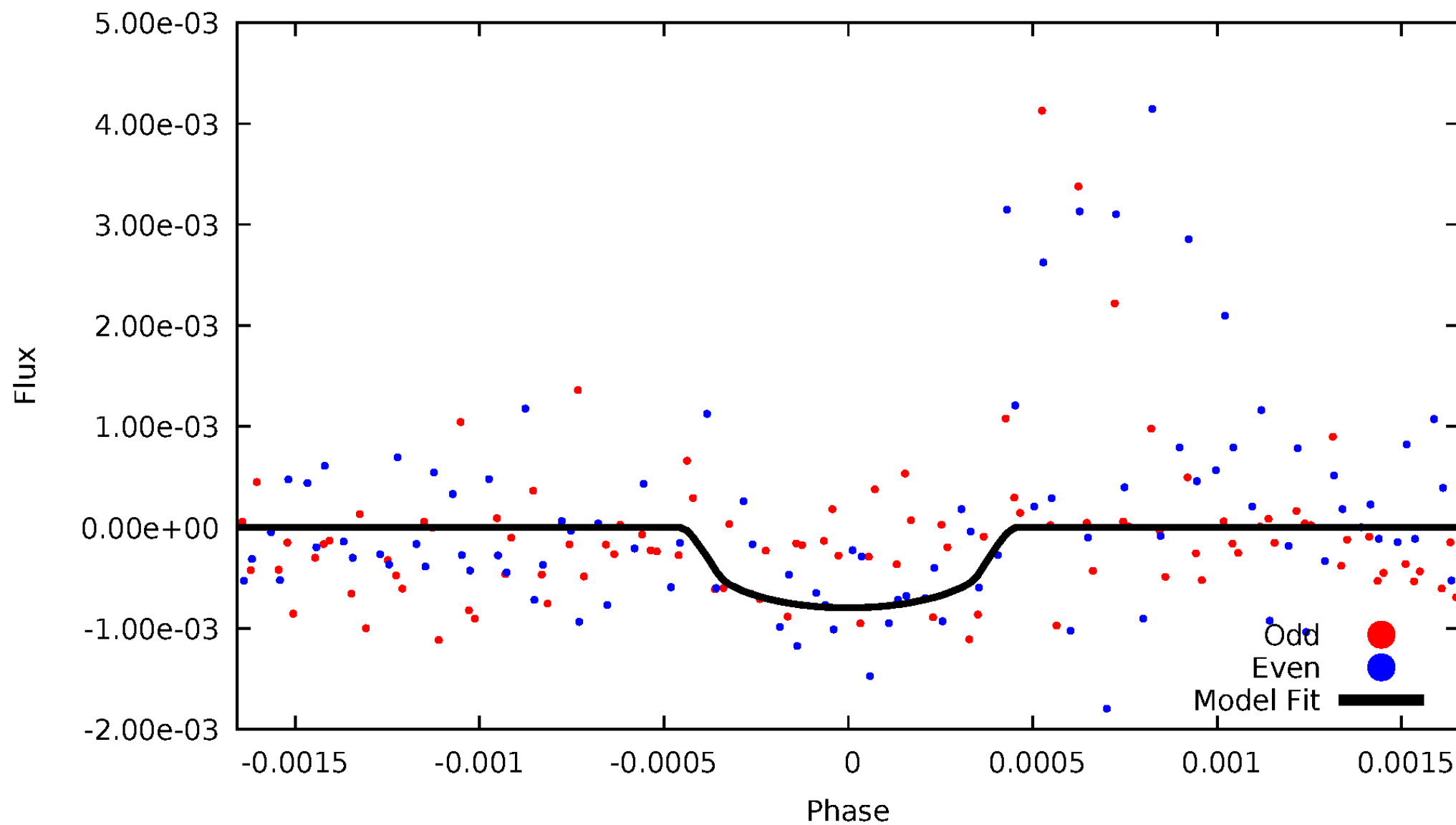


TCE 003112828-01



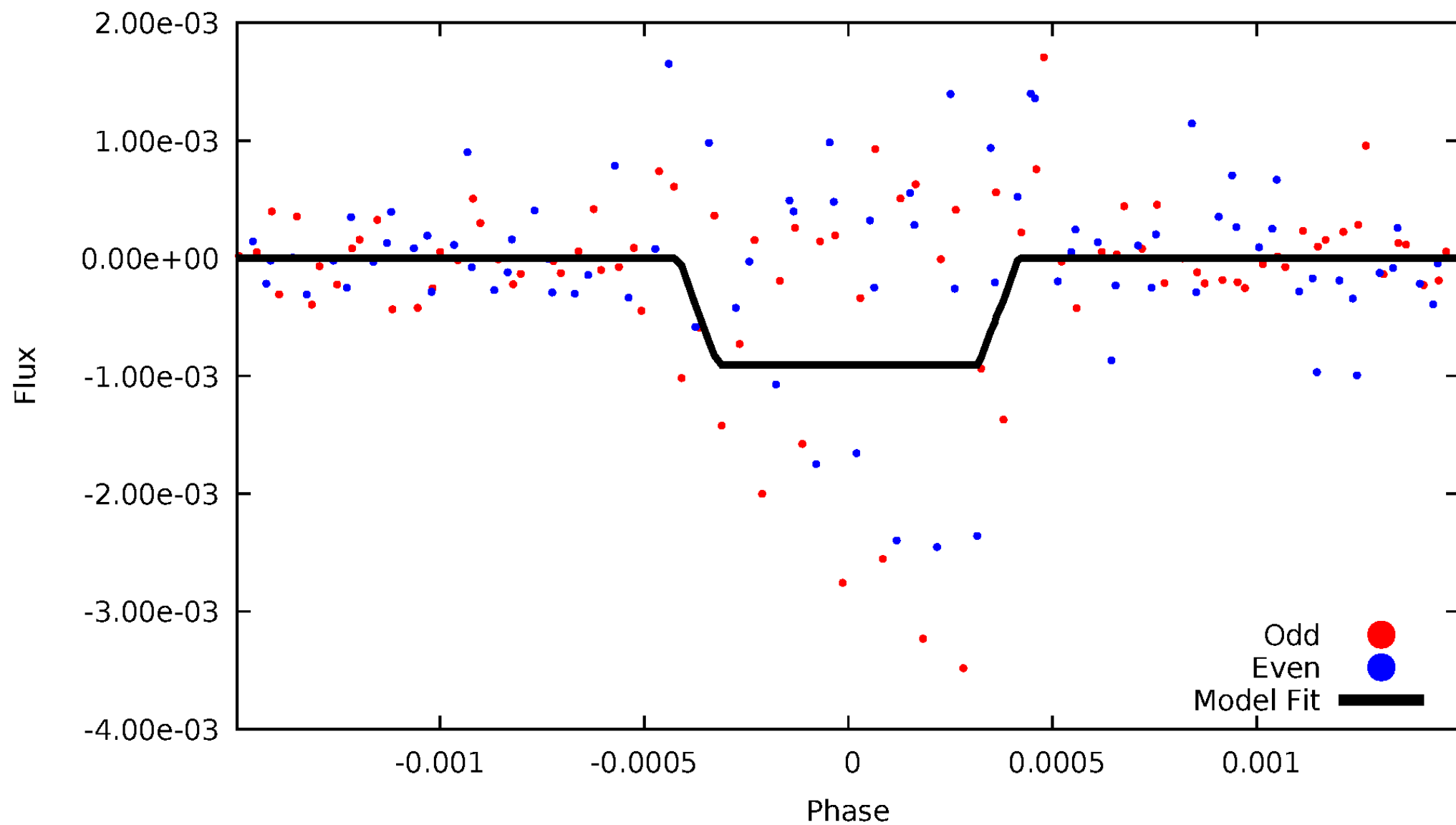
DV Odd/Even

TCE 003112828-01



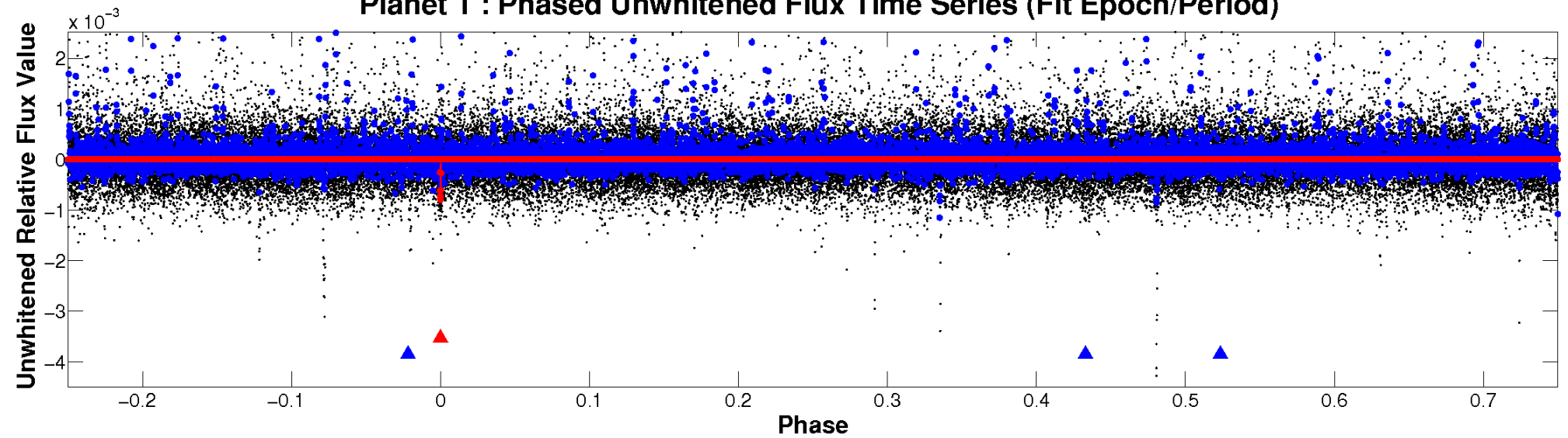
ALT Odd/Even

TCE 003112828-01

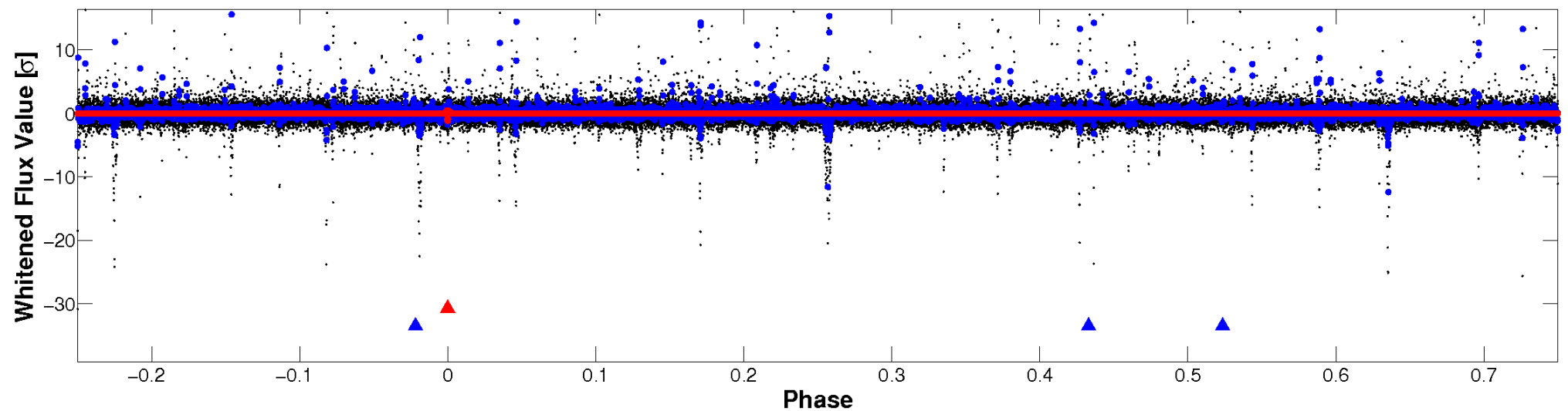


Non-Whitened Vs. Whitened Light Curve

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

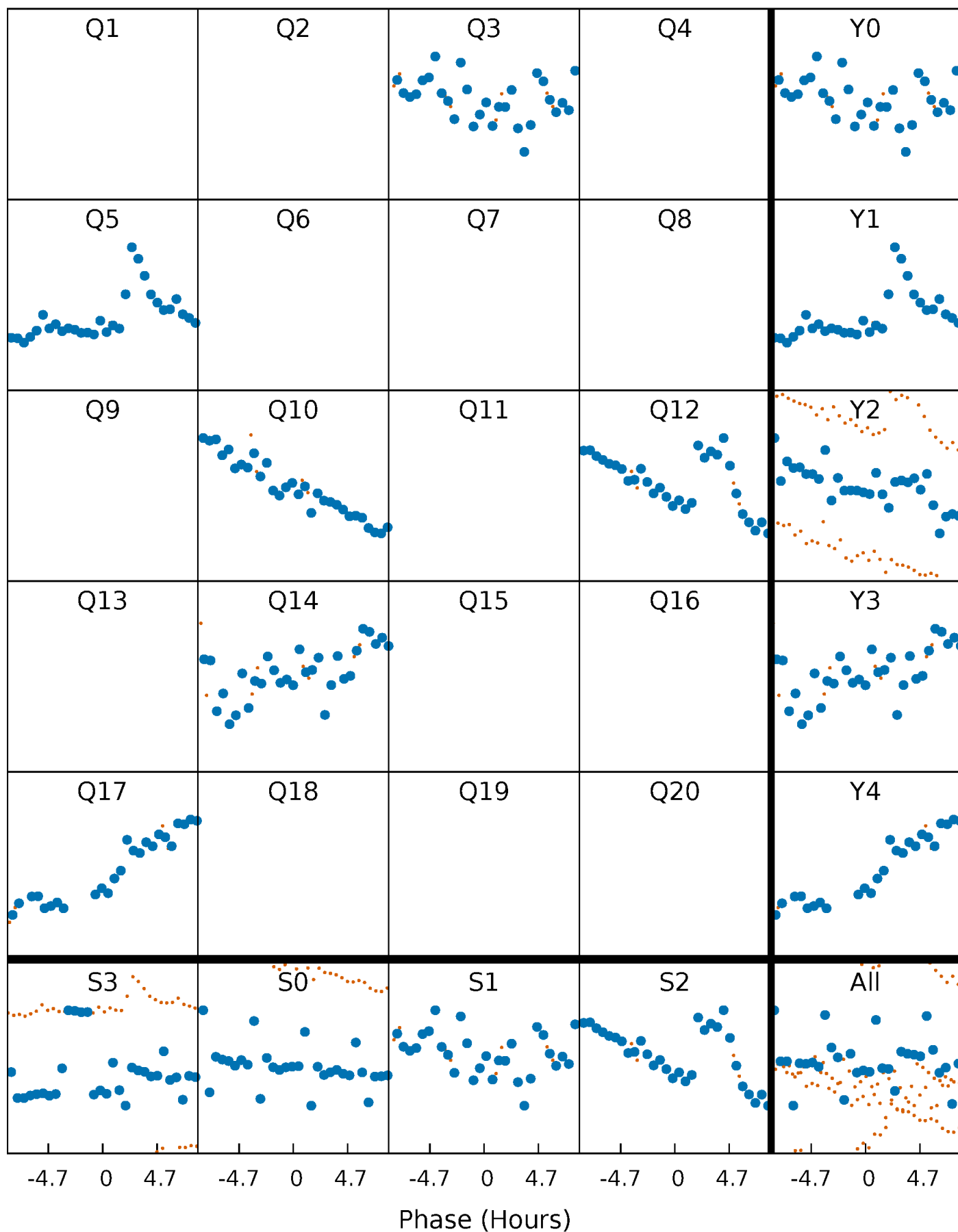


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



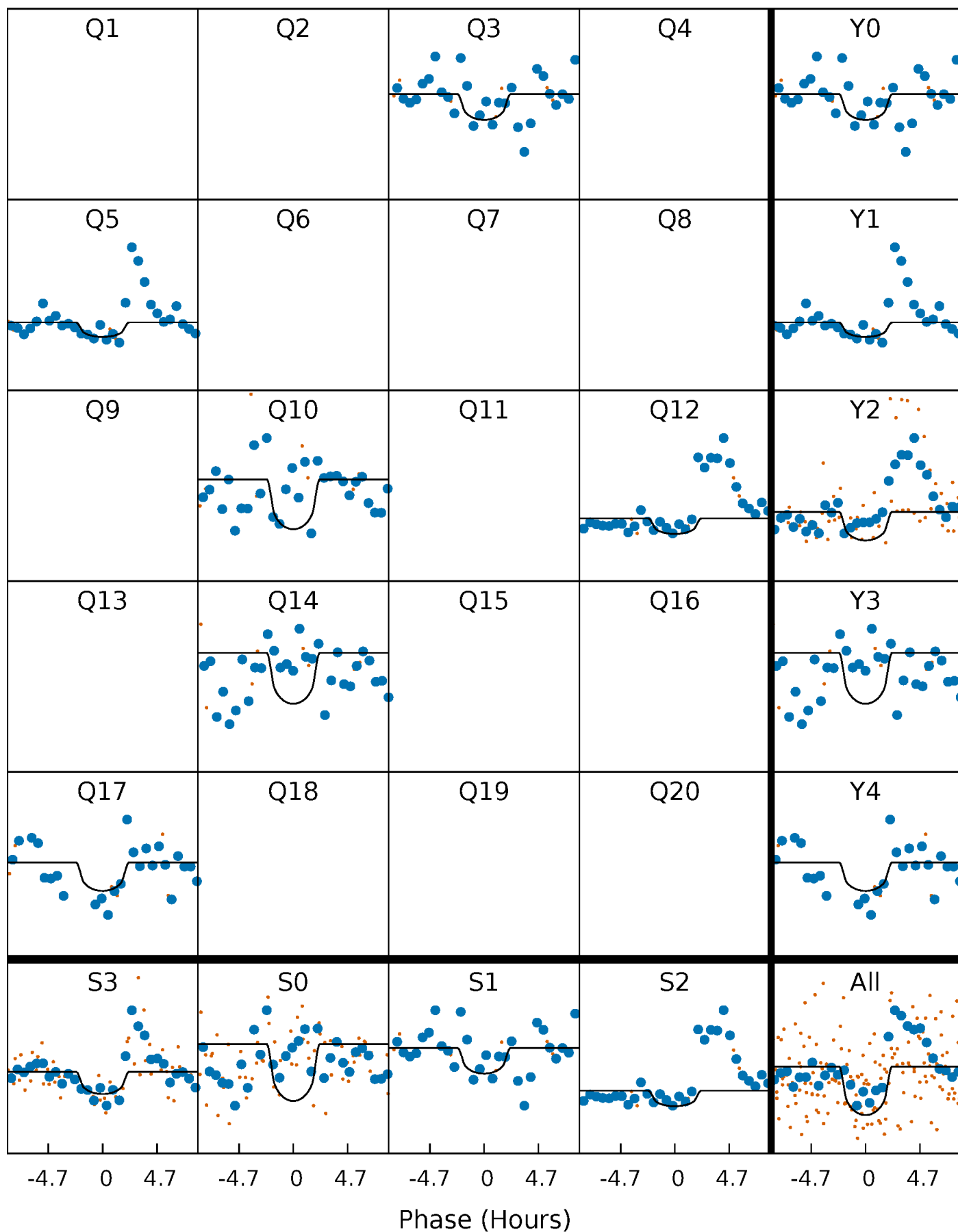
PDC Quarter-Phased Transit Curves

TCE 003112828-01 P=207.378773 Days $T_0=316.718855$ (BKJD)



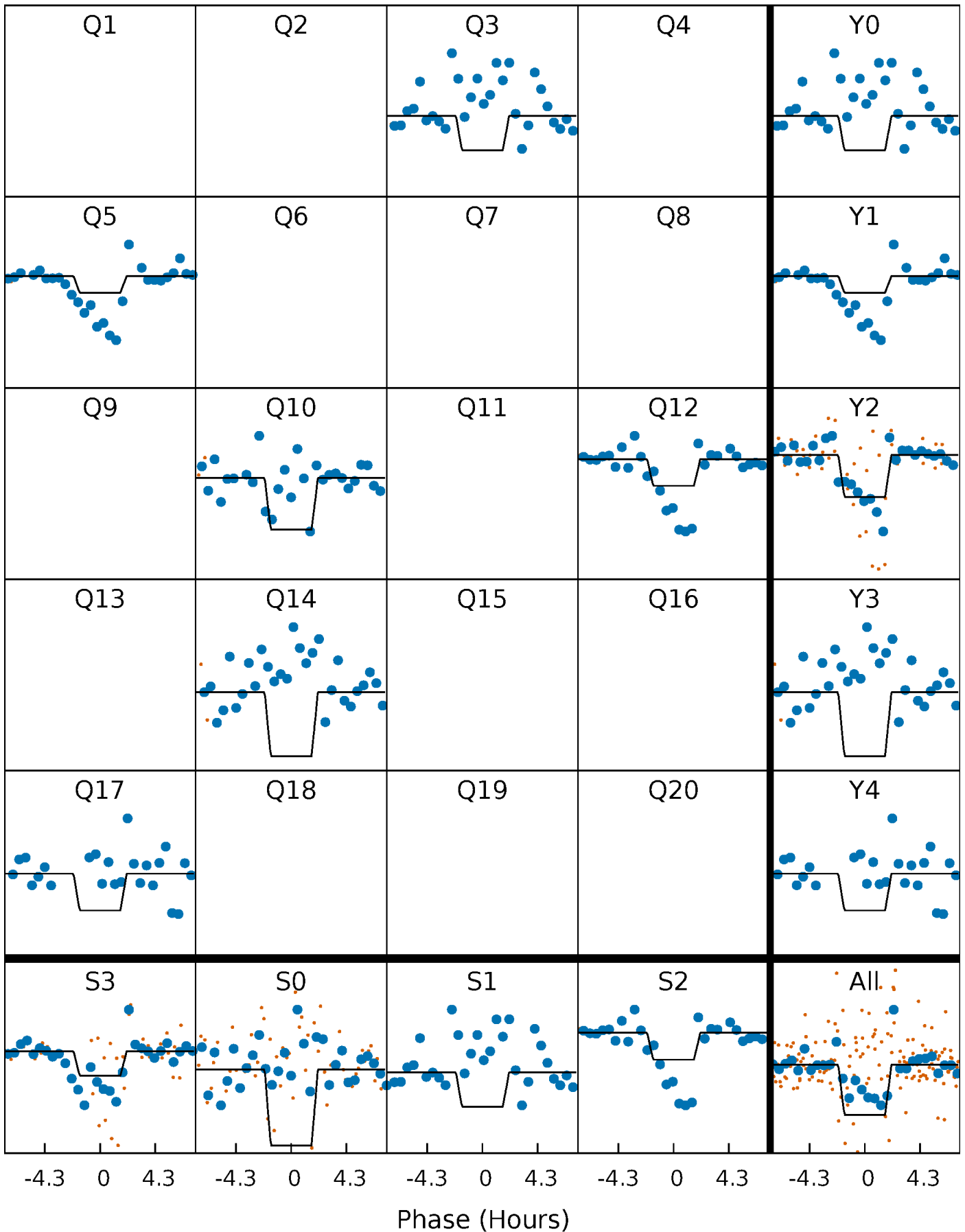
DV Quarter-Phased Transit Curves

TCE 003112828-01 P=207.378773 Days $T_0=316.718855$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

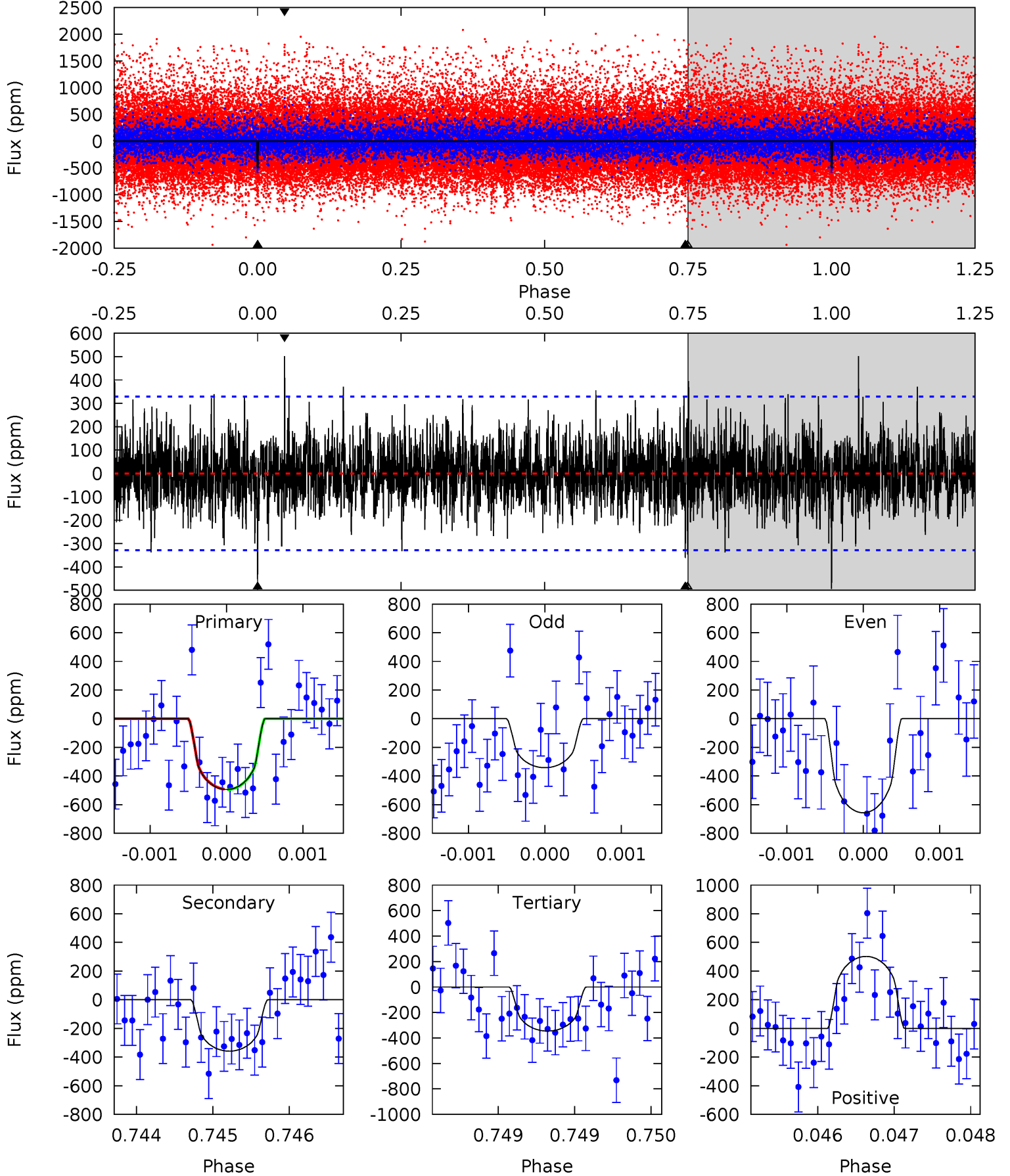
TCE 003112828-01 P=207.376647 Days $T_0=316.730641$ (BKJD)



DV Model-Shift Uniqueness Test

003112828-01, P = 207.378773 Days, E = 109.340082 Days

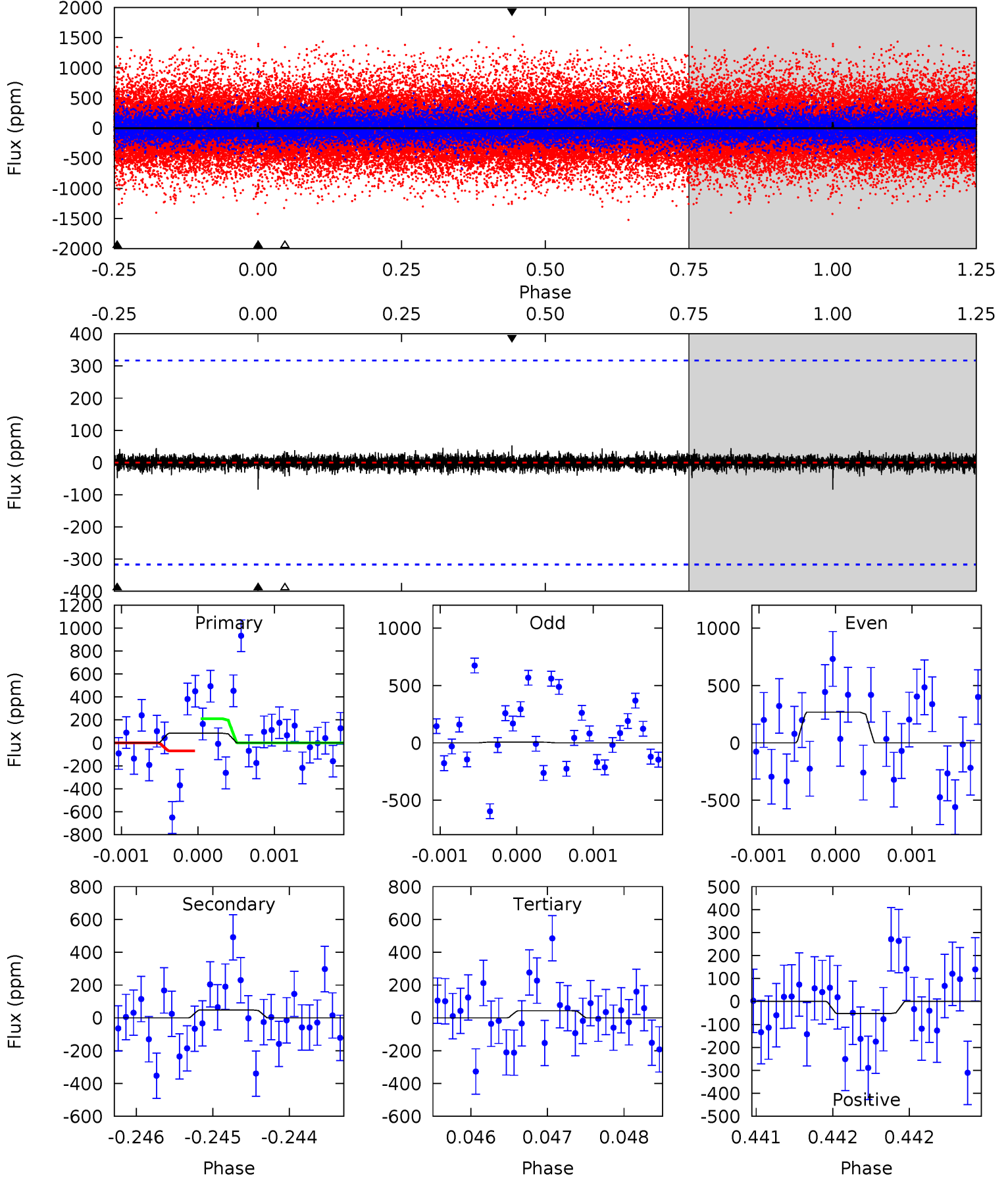
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.22	5.96	5.75	8.36	5.47	3.32	1.64	2.46	-0.14	0.21	-2.39	2.56	1.12	0.50	0.04



Alt Model-Shift Uniqueness Test

003112828-01, P = 207.376647 Days, E = 109.353994 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.45	0.83	0.75	0.91	5.49	3.35	0.20	0.70	0.54	0.08	-0.09	2.30	6.83	0.39	0



Stellar Parameters For KIC 003112828

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4492^{+121}_{-134}	$4.588^{+0.056}_{-0.021}$	$0.020^{+0.250}_{-0.300}$	$0.696^{+0.038}_{-0.062}$	$0.684^{+0.066}_{-0.054}$	$2.858^{+0.668}_{-0.246}$
	+3%/-3%	+1%/-0%	+1250%/-1500%	+5%/-9%	+10%/-8%	+23%/-9%
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 003112828-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-359 ± 60	$2.71^{+2.49}_{-1.73}$	295^{+9}_{-10}	3579^{+1624}_{-645}	10012^{+63105}_{-7309}
Alt.	-48 ± 58	$2.95^{+2.32}_{-1.88}$	295^{+10}_{-10}	2519^{+877}_{-4630}	781^{+6359}_{-973}

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

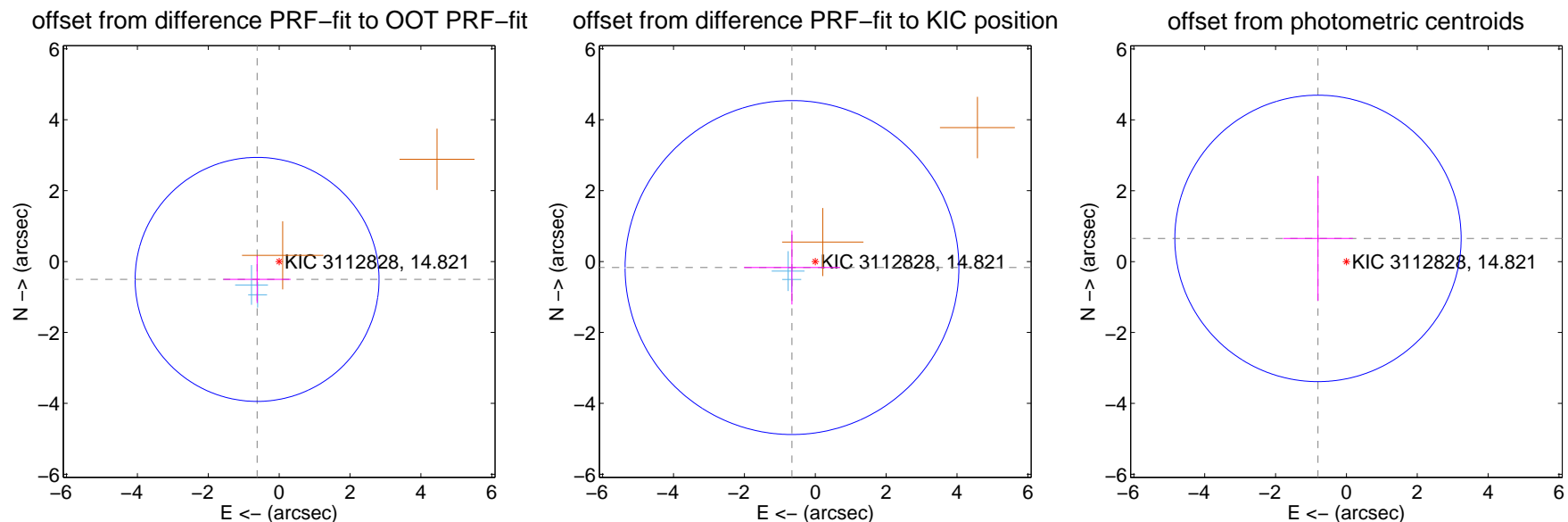
DV Centroid Data

Supplemental centroid analysis for 003112828-01. Kepler magnitude: 14.82. Transit SNR 7.33

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

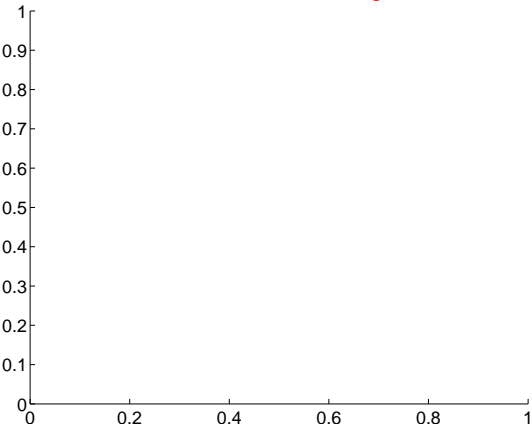
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.801 ± 1.147	0.70	0.623 ± 0.946	-0.504 ± 0.665
PRF-fit source offset from KIC position	0.679 ± 1.570	0.43	0.657 ± 1.353	-0.170 ± 1.043
photometric centroid source offset	1.04 ± 1.35	0.77	0.80 ± 0.98	0.65 ± 1.76



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

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

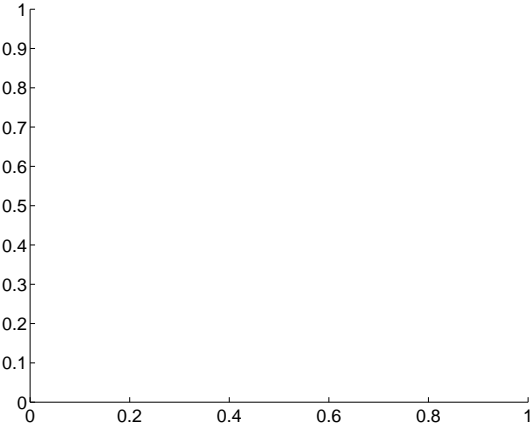
Q1 no difference image



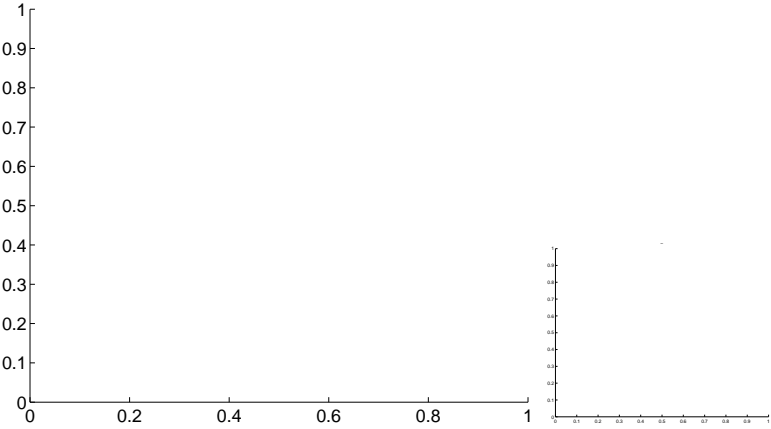
Q1 no OOT image



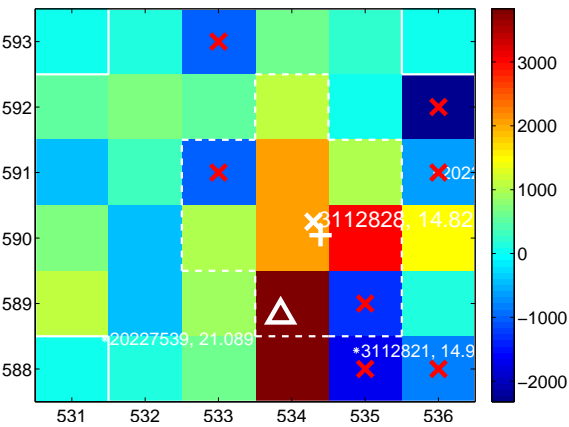
Q2 no difference image



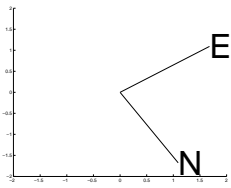
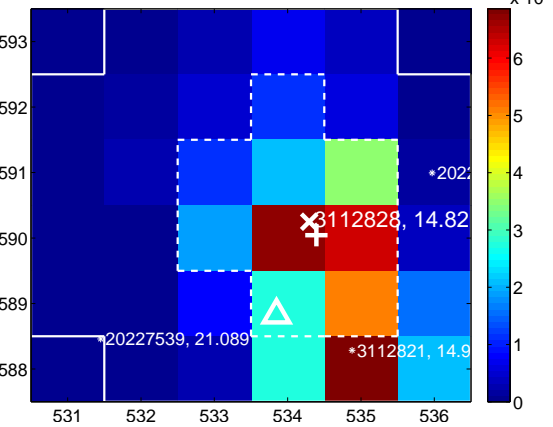
Q2 no OOT image



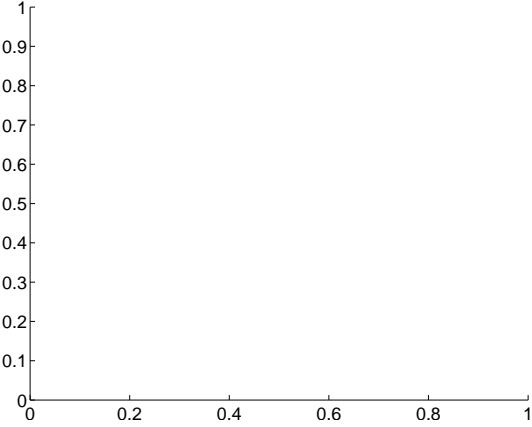
Q3 difference image. Poor Quality



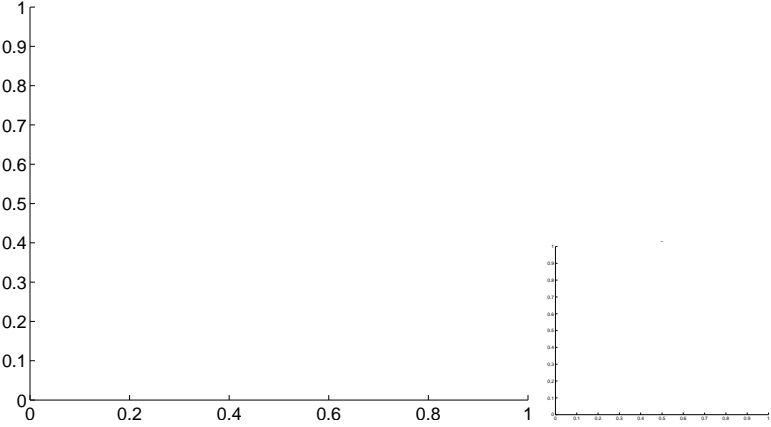
Q3 OOT image



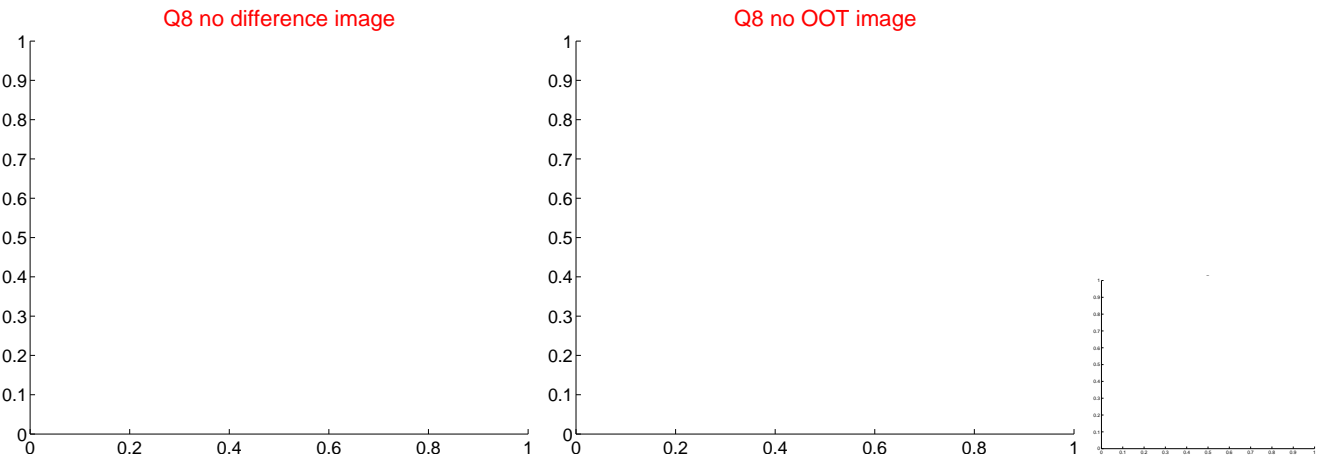
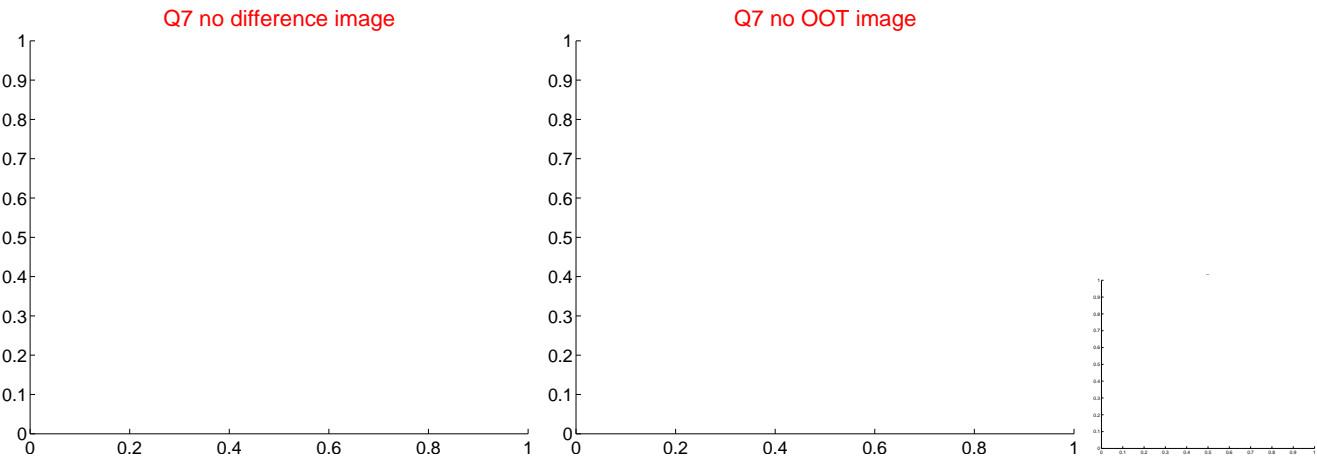
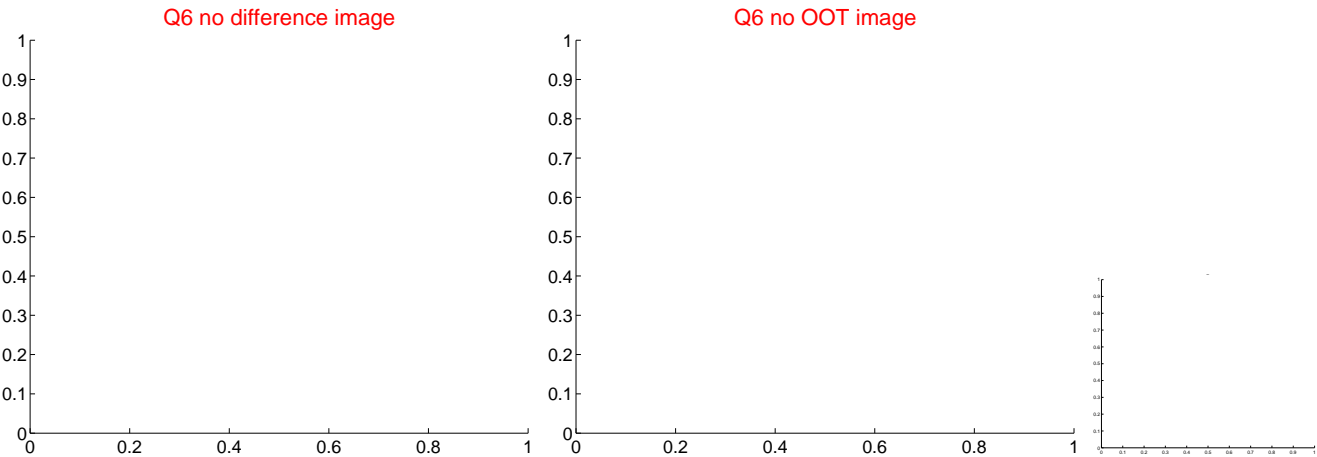
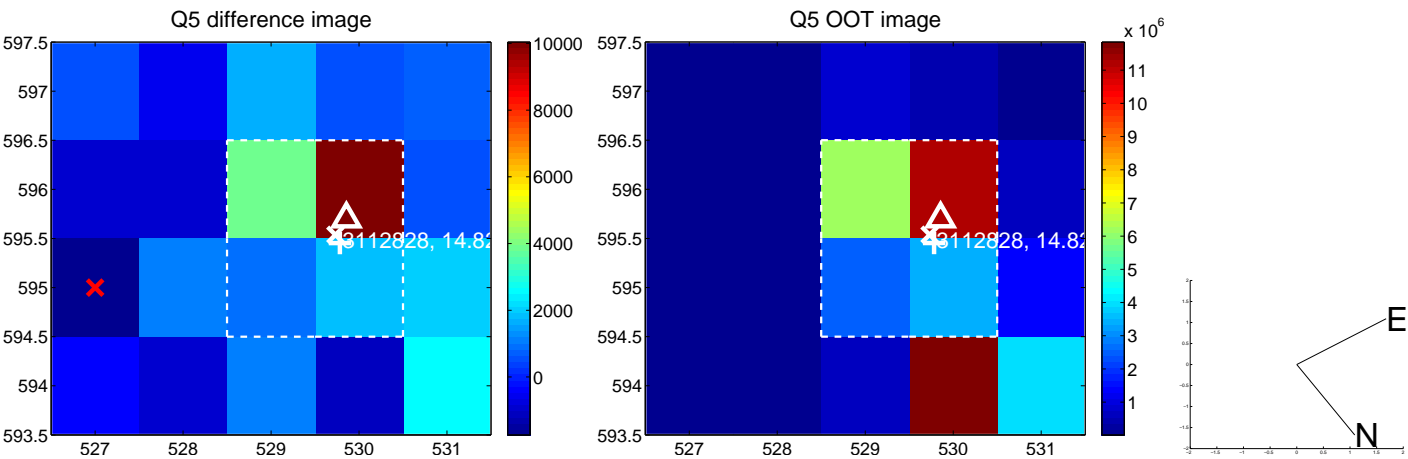
Q4 no difference image



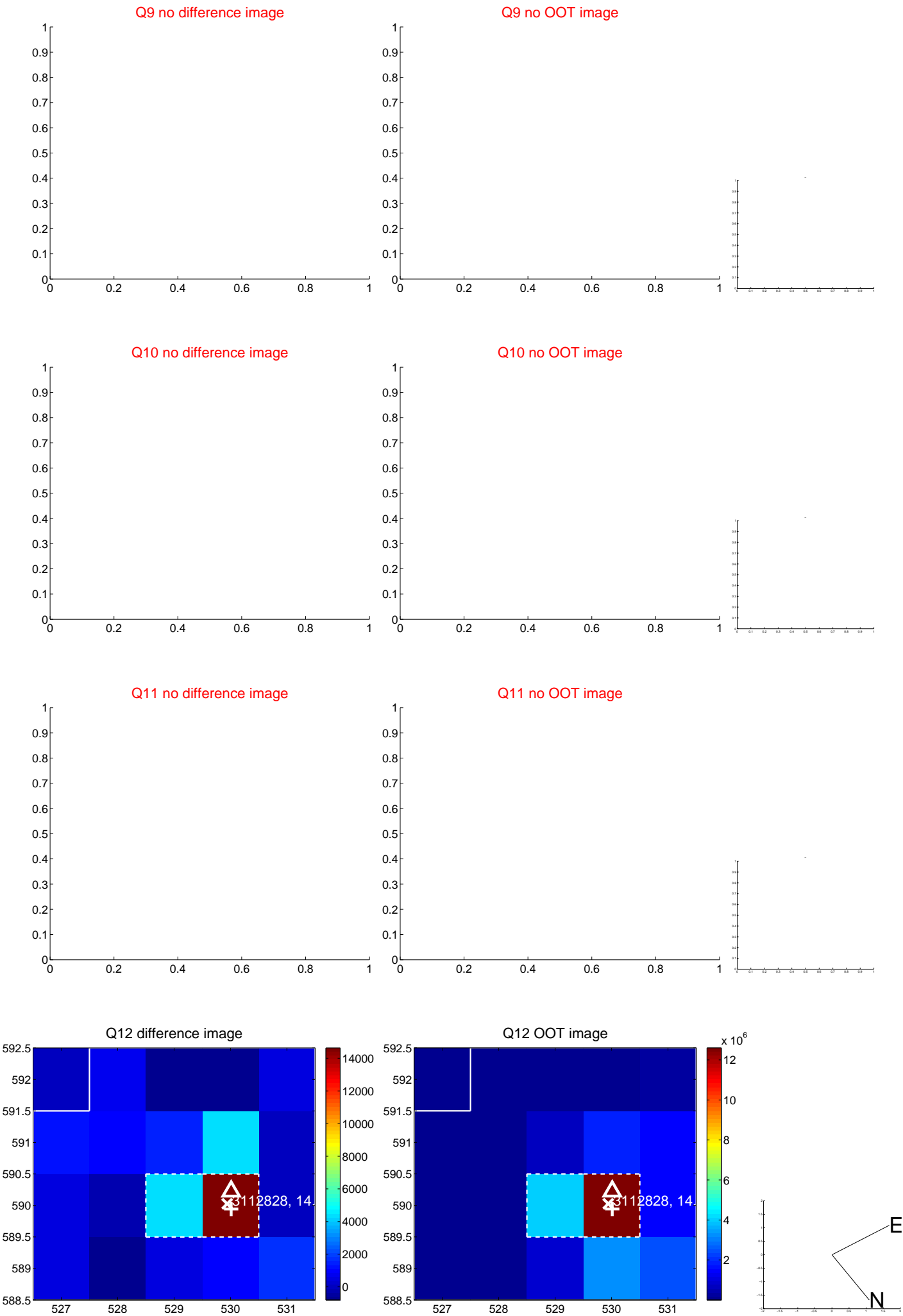
Q4 no OOT image



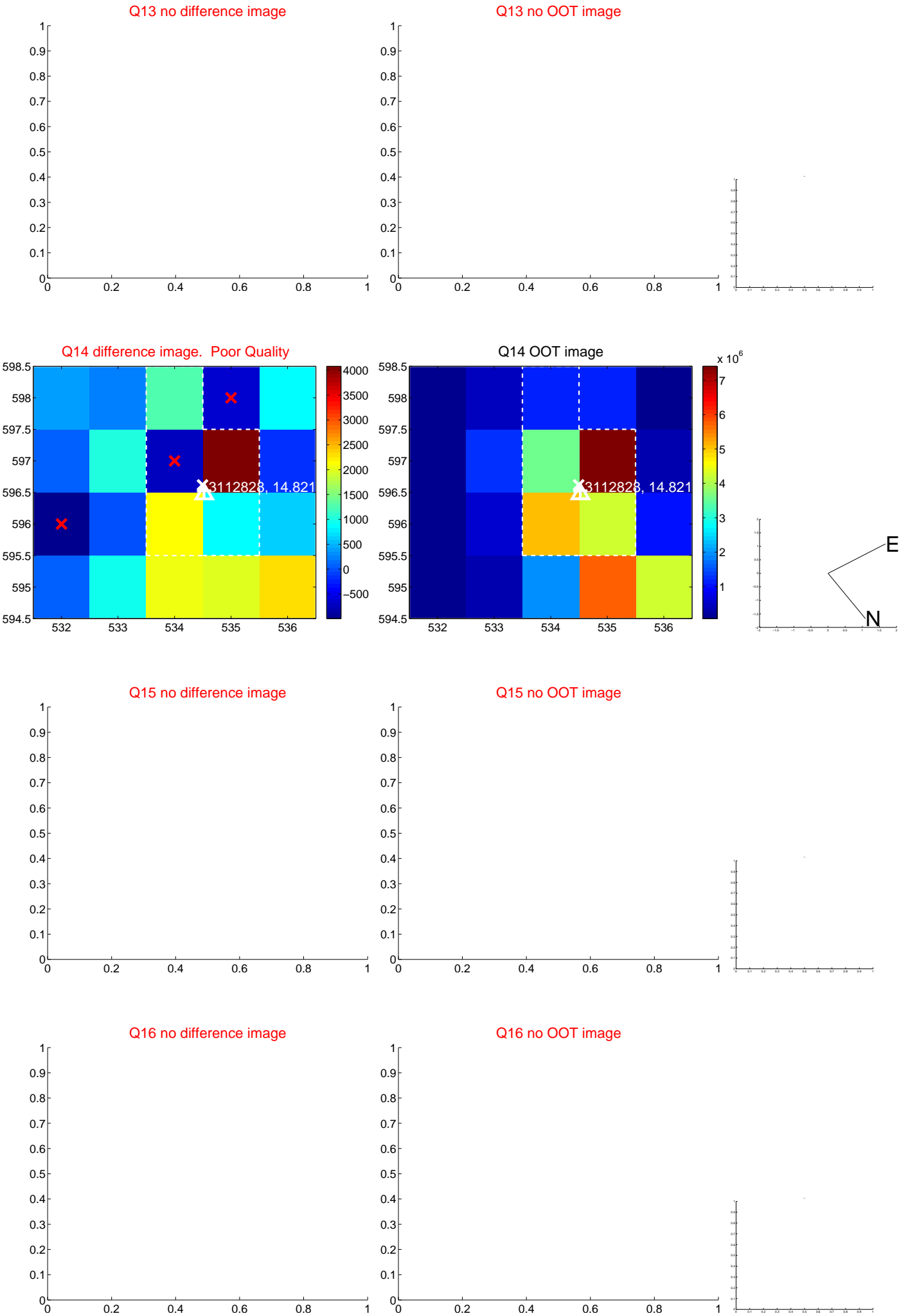
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



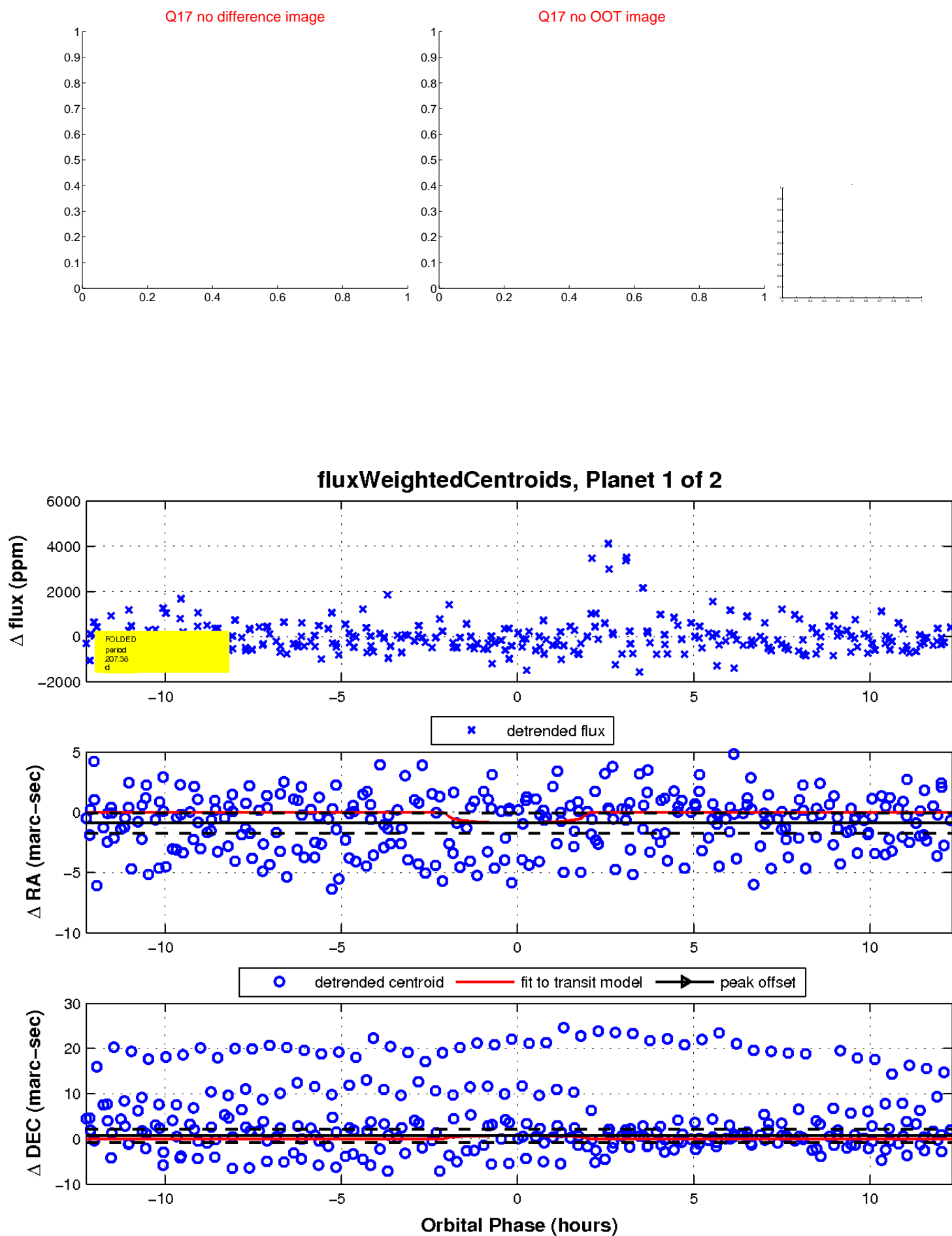
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

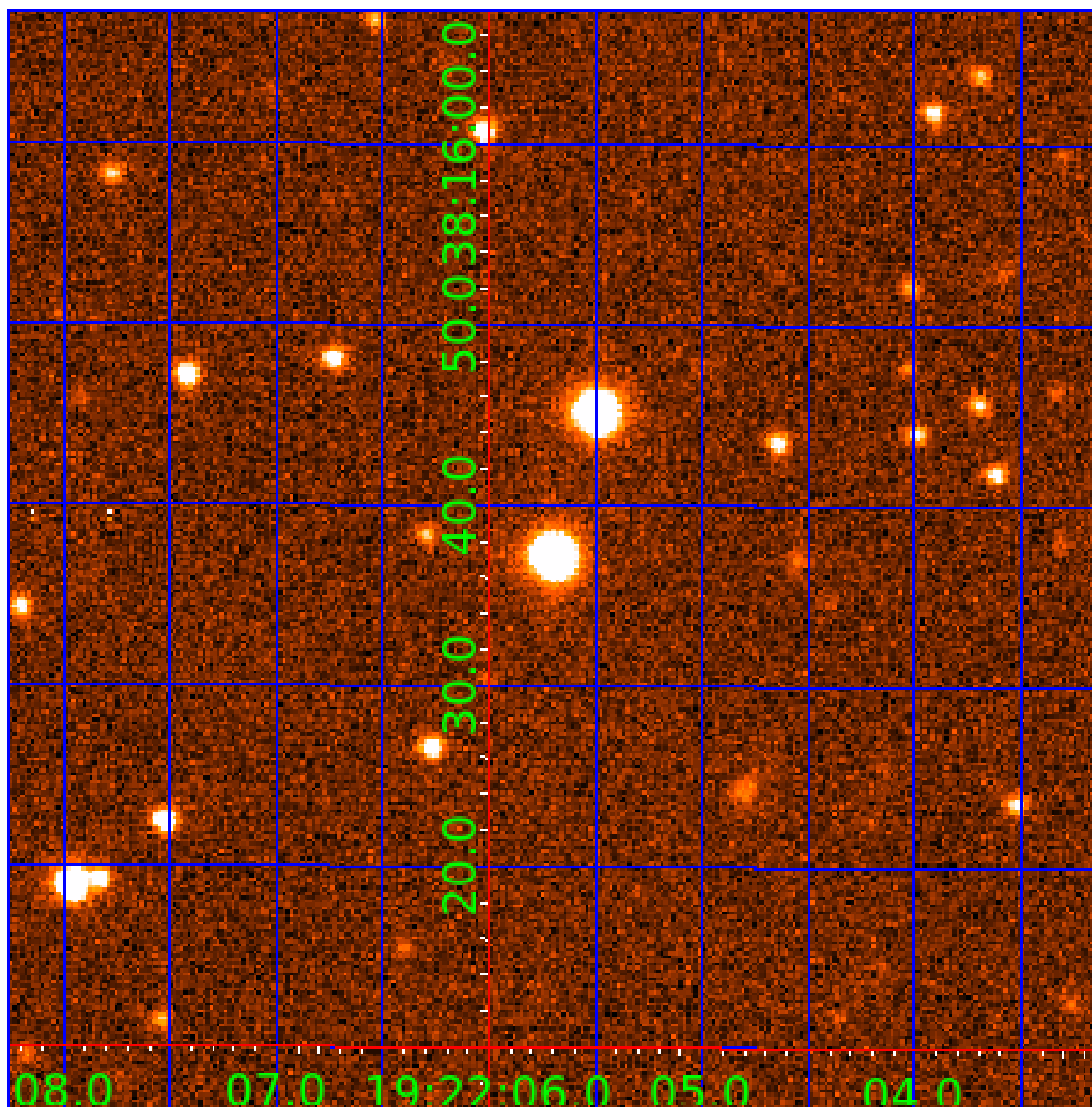


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003112828

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})
003112828-01	OBS	No	207.378773	316.718855	796.6	4.123	12.4	7.3	0.70	4492	2.05	0.48
003112828-02	OBS	No	509.056899	425.284378	947.6	8.473	12.3	6.7	0.70	4492	2.26	0.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003112828-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003112828-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_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.

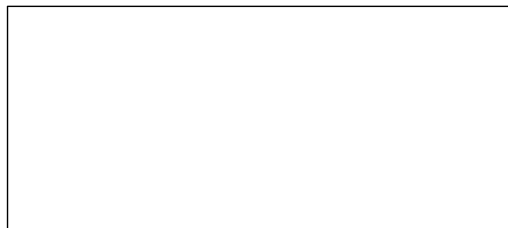
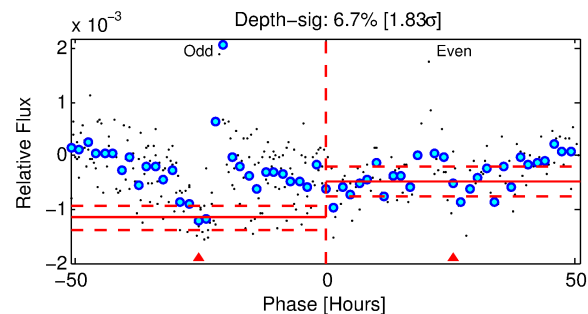
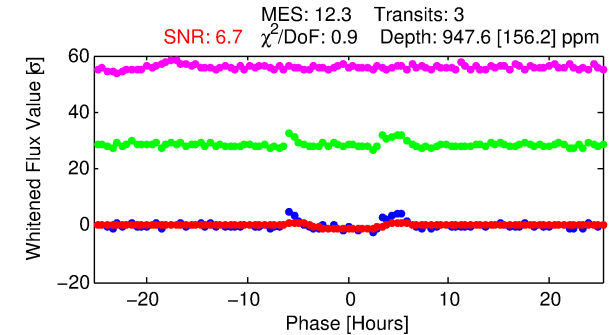
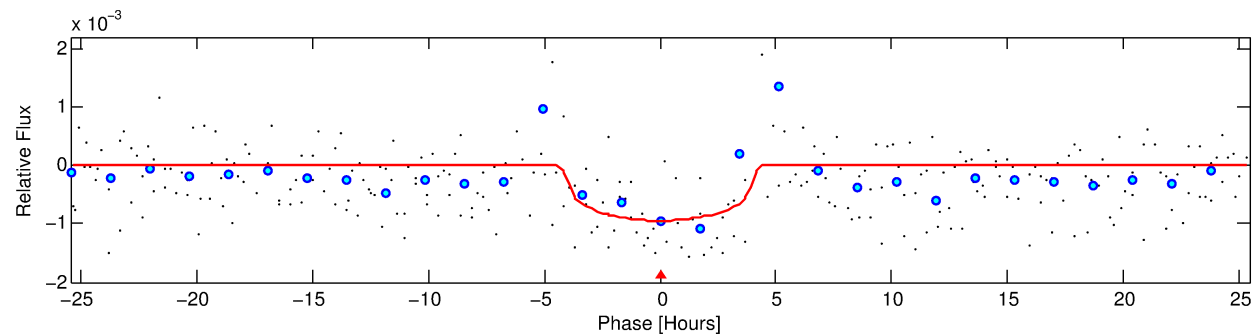
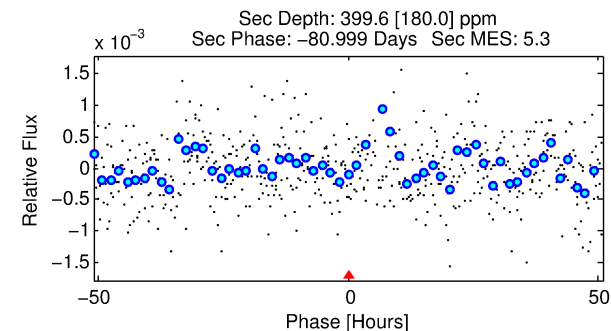
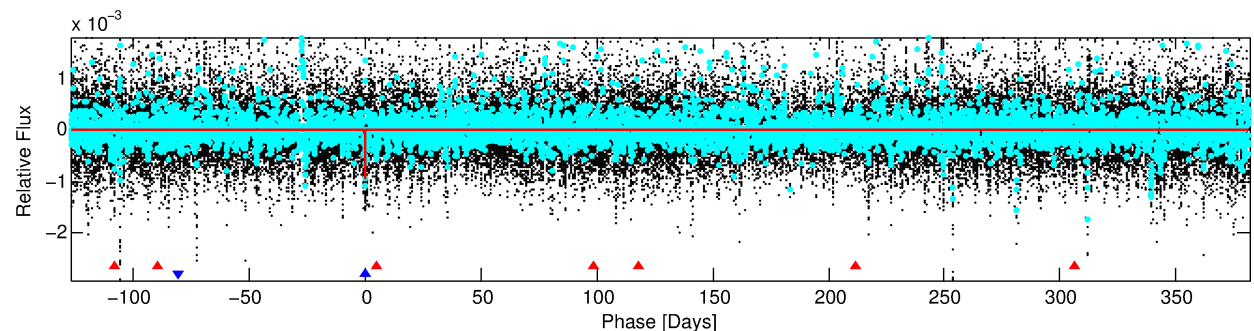
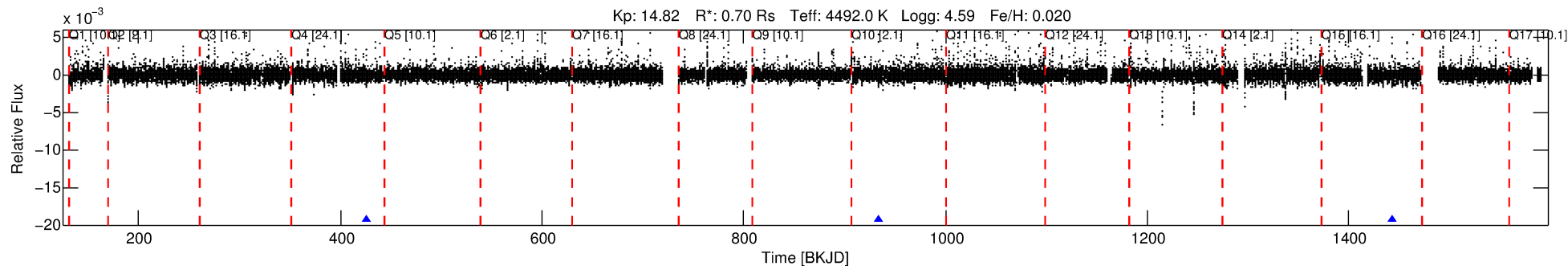
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003112828-02

No Significant Match Found

DV One-Page Summary

KIC: 3112828 Candidate: 2 of 2 Period: 509.057 d



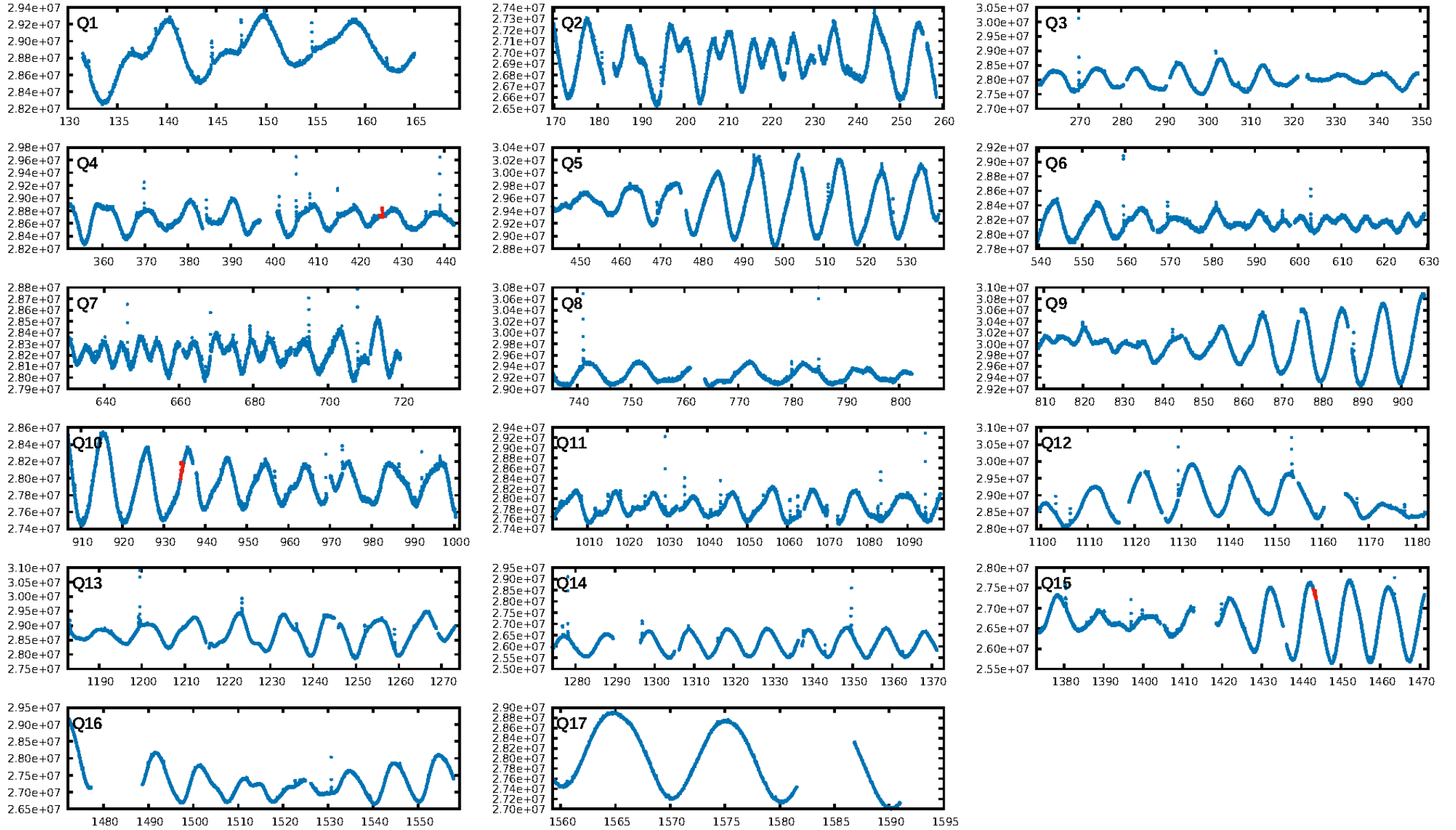
DV Fit Results:

Period = 509.05690 [0.01042] d
Epoch = 425.2844 [0.0108] BKJD
Rp/R* = 0.0297 [0.0209]
a/R* = 359.34 [769.96]
b = 0.67 [1.81]
Seff = 0.15 [0.02]
Teq = 158 [6] K
Rp = 2.26 [1.60] Re
a = 1.0997 [0.0806] AU
Ag = 52241.74 [77511.15] [0.67σ]
Teffp = 3685 [1368] K [2.58σ]

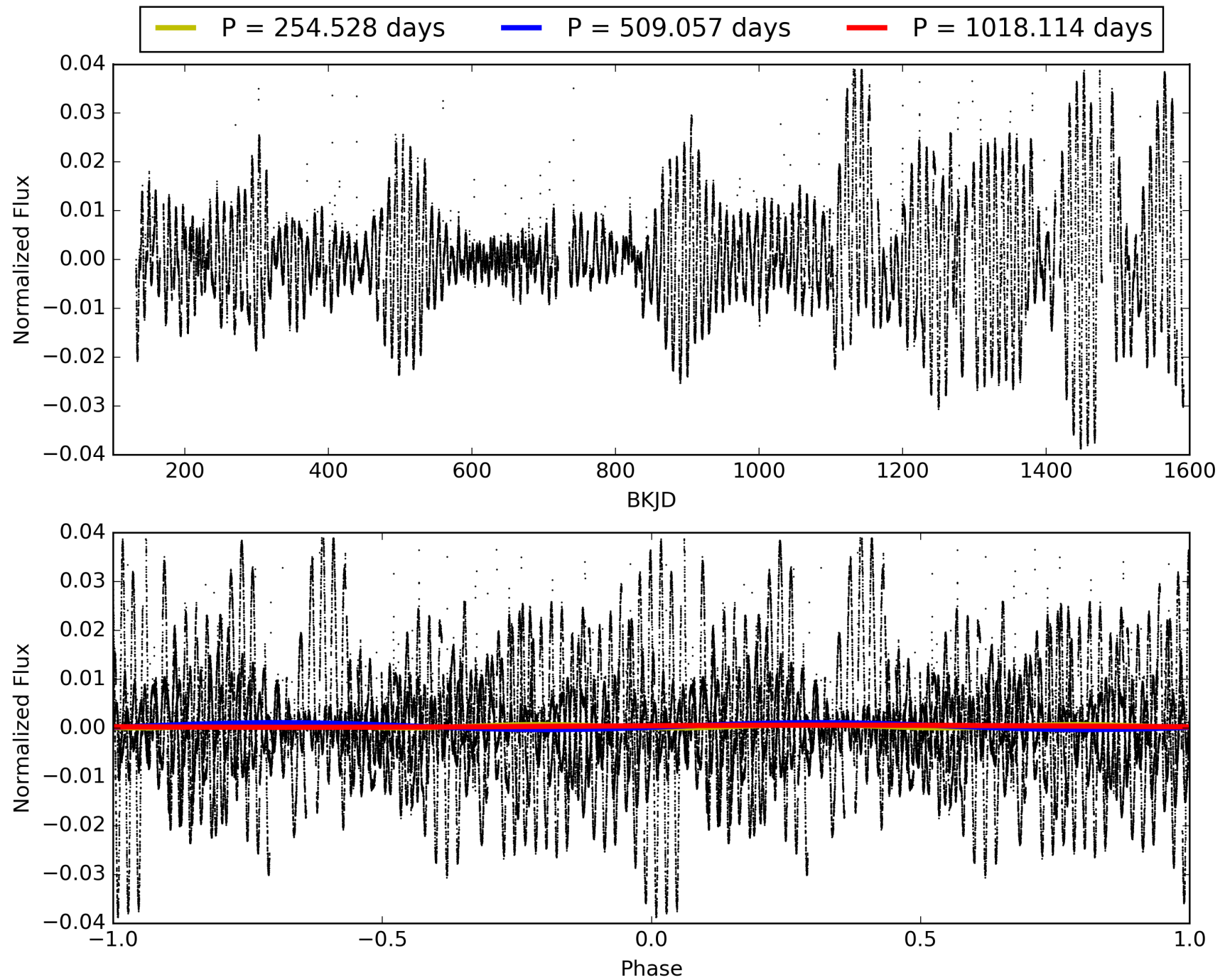
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [768.39σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 34.6%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: 1.62e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -3.12
Centroid-sig: 70.9%
Centroid-so: 1.315 arcsec [0.73σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [3/3]

TCE 003112828-02, PDC Light Curves

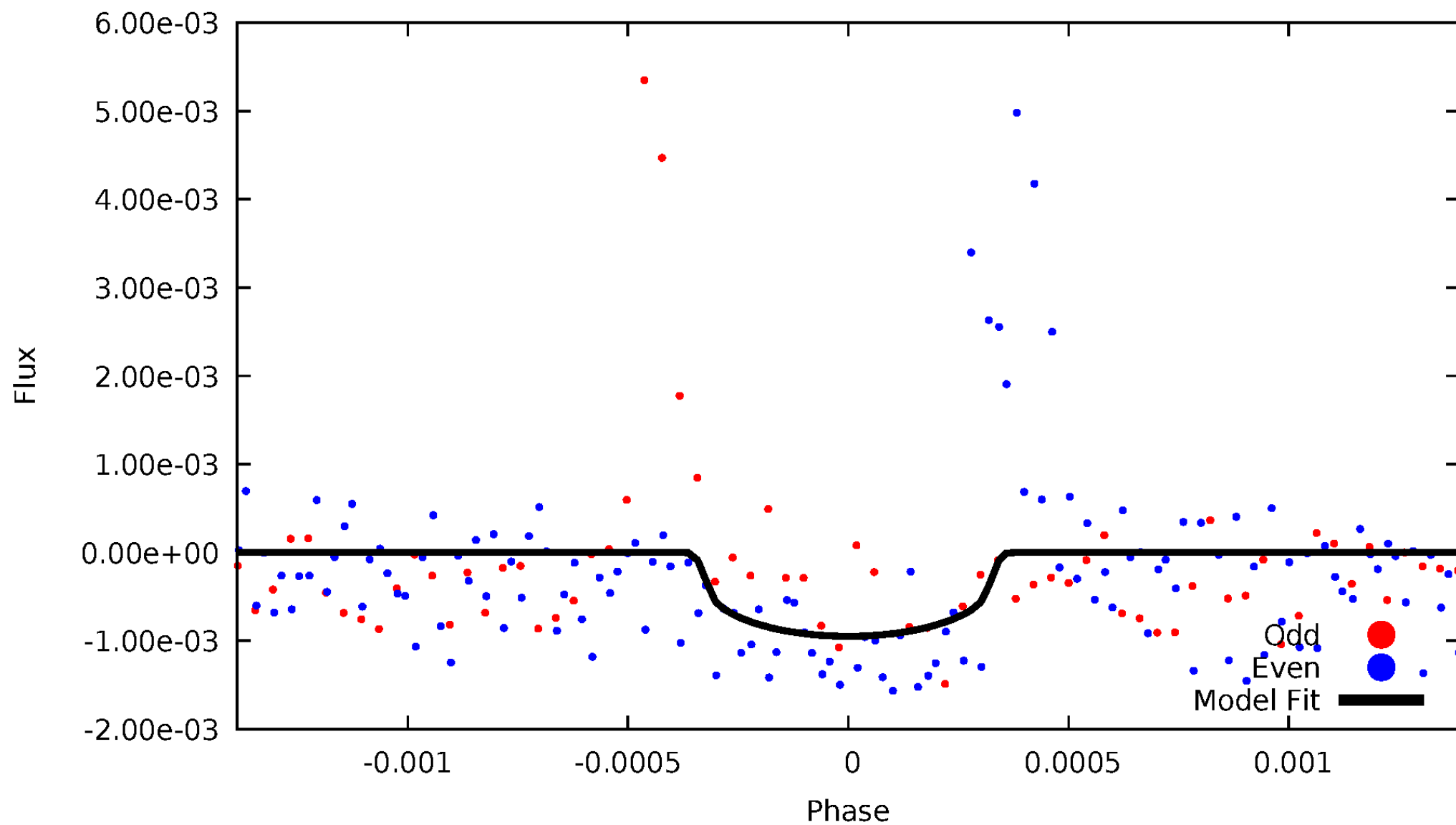


TCE 003112828-02



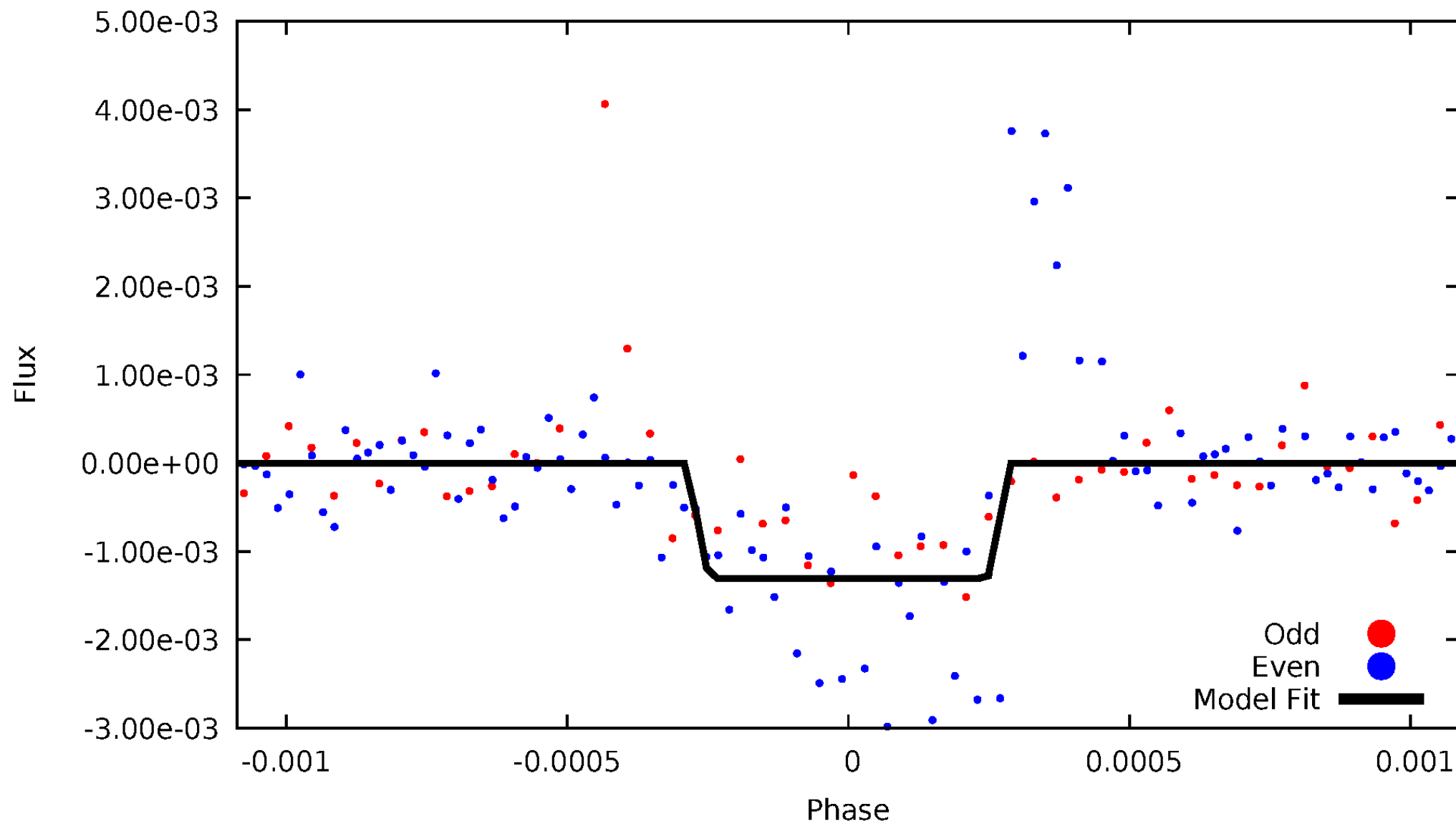
DV Odd/Even

TCE 003112828-02



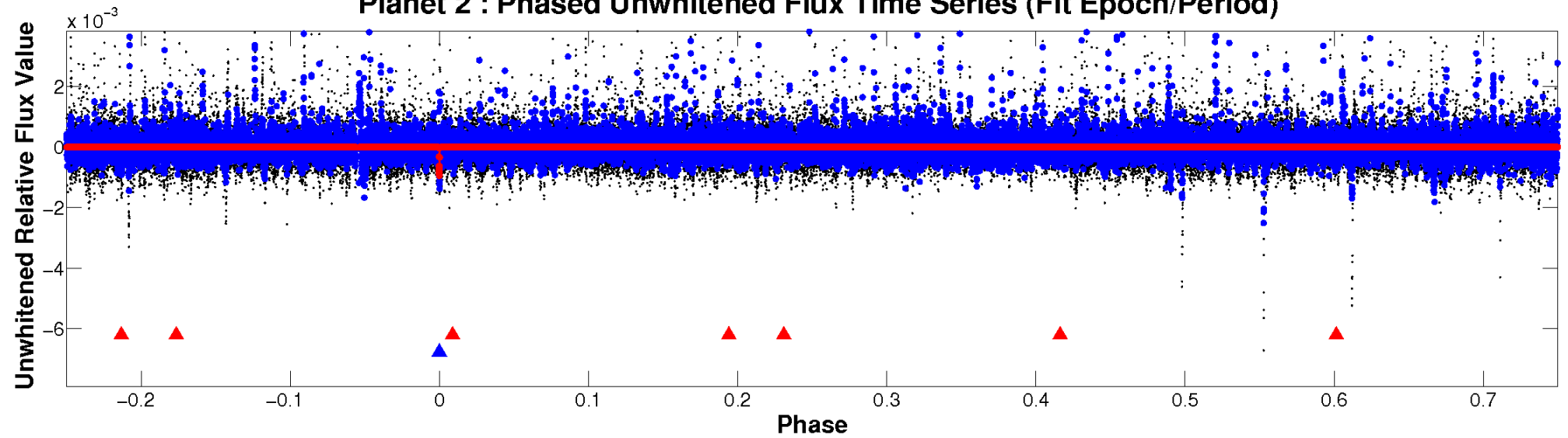
ALT Odd/Even

TCE 003112828-02

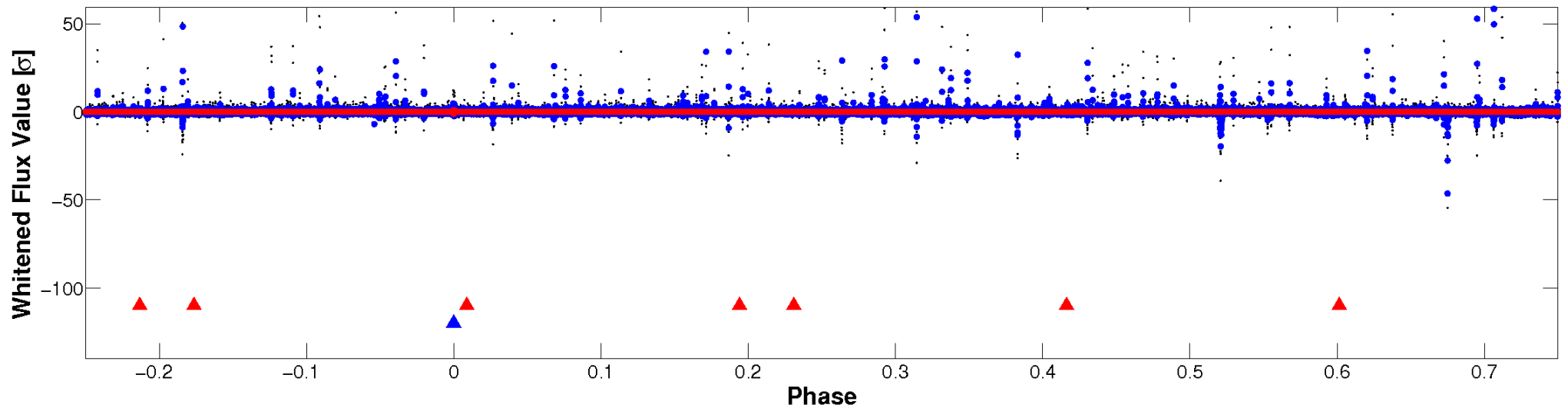


Non-Whitened Vs. Whitened Light Curve

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

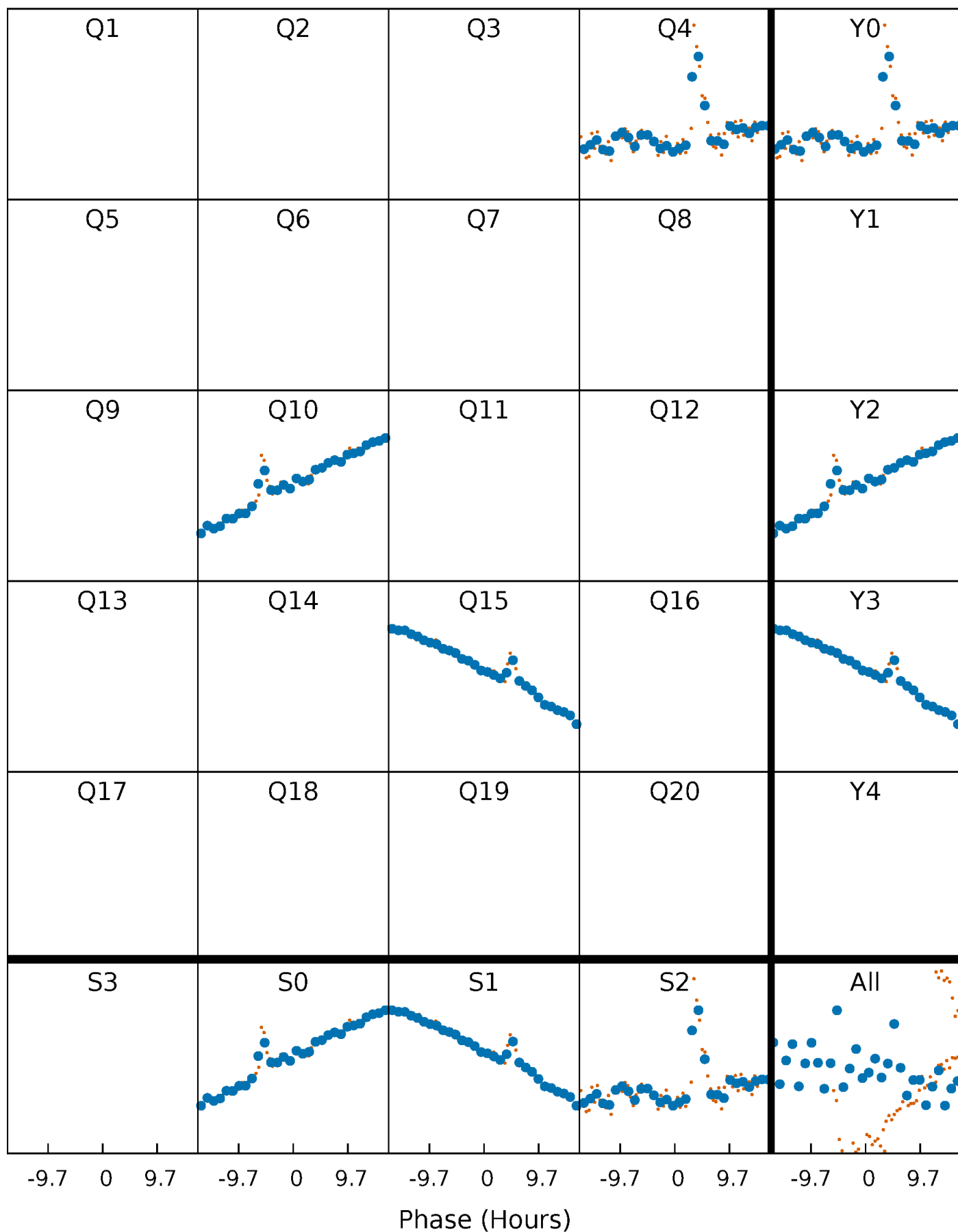


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



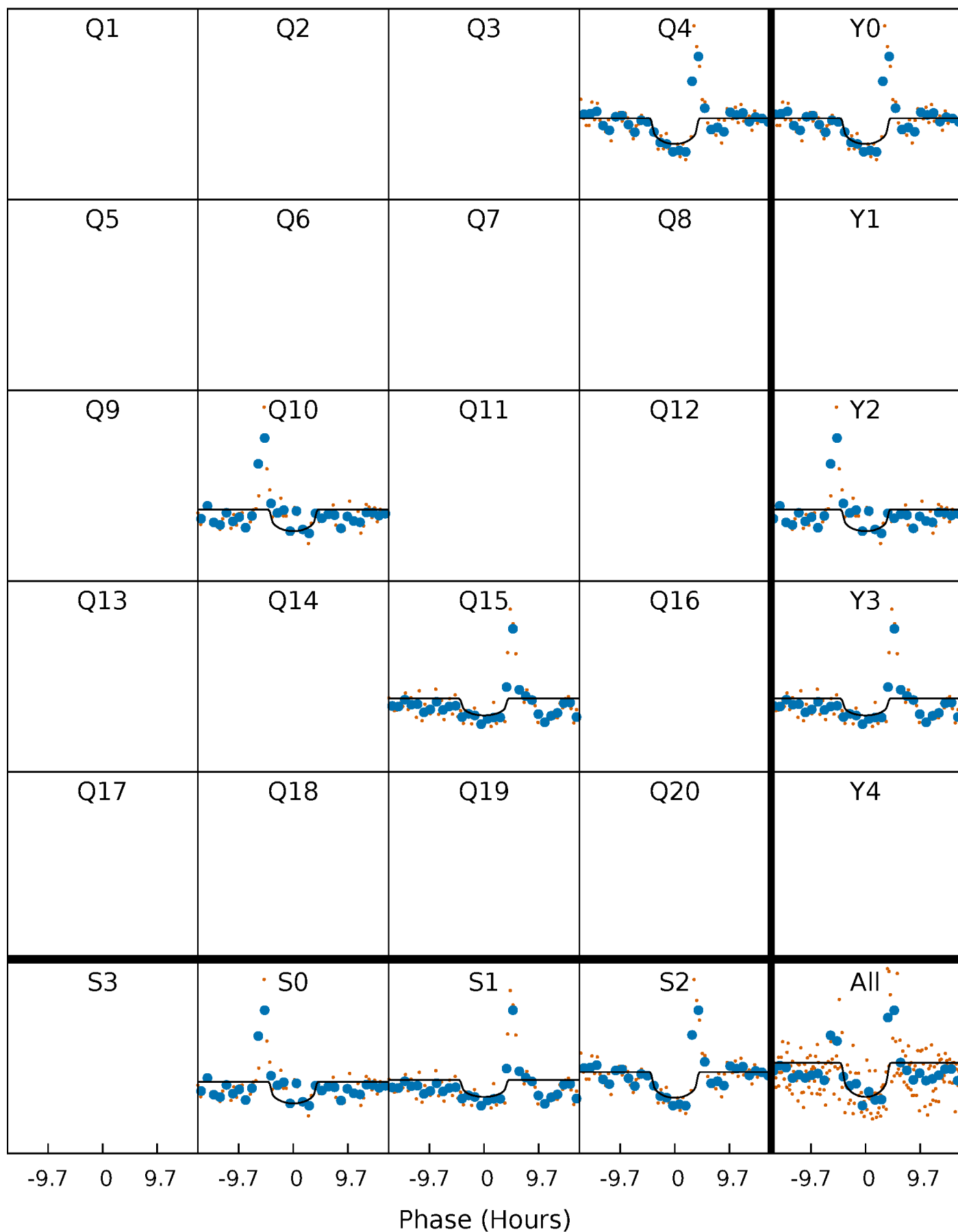
PDC Quarter-Phased Transit Curves

TCE 003112828-02 P=509.056899 Days $T_0=425.284378$ (BKJD)



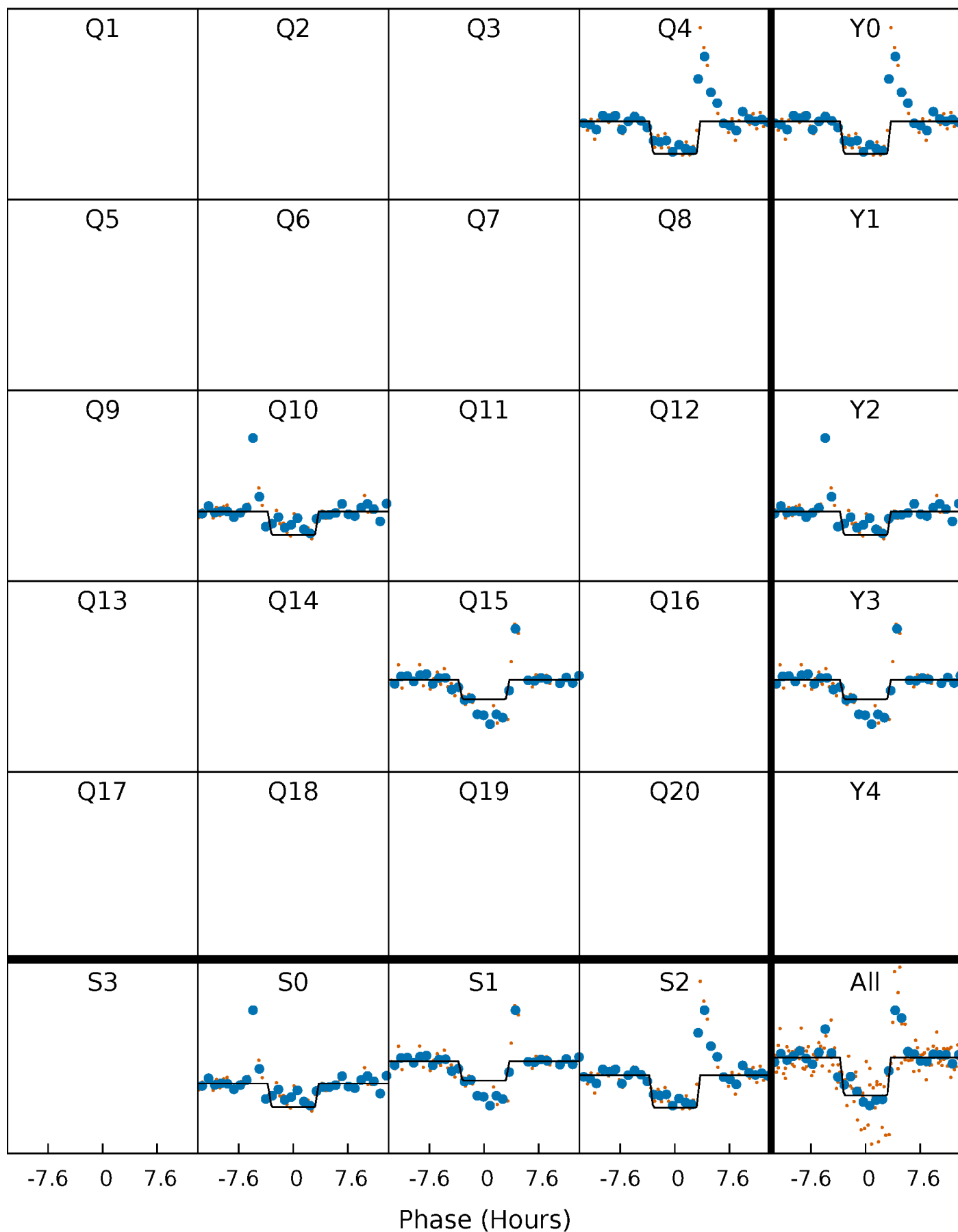
DV Quarter-Phased Transit Curves

TCE 003112828-02 P=509.056899 Days $T_0=425.284378$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

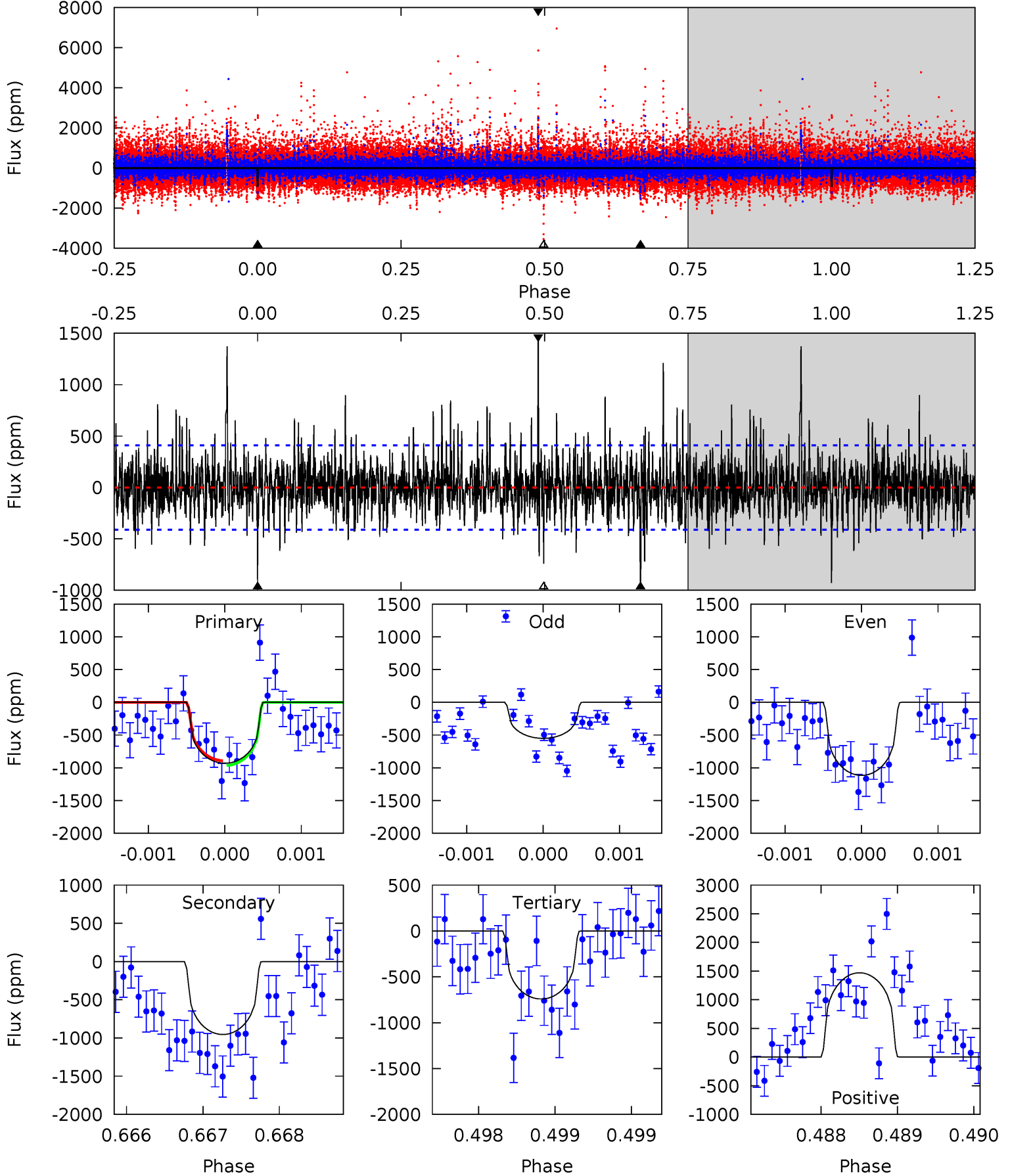
TCE 003112828-02 P=509.068091 Days $T_0=425.278342$ (BKJD)



DV Model-Shift Uniqueness Test

003112828-02, P = 509.056899 Days, E = 425.284378 Days

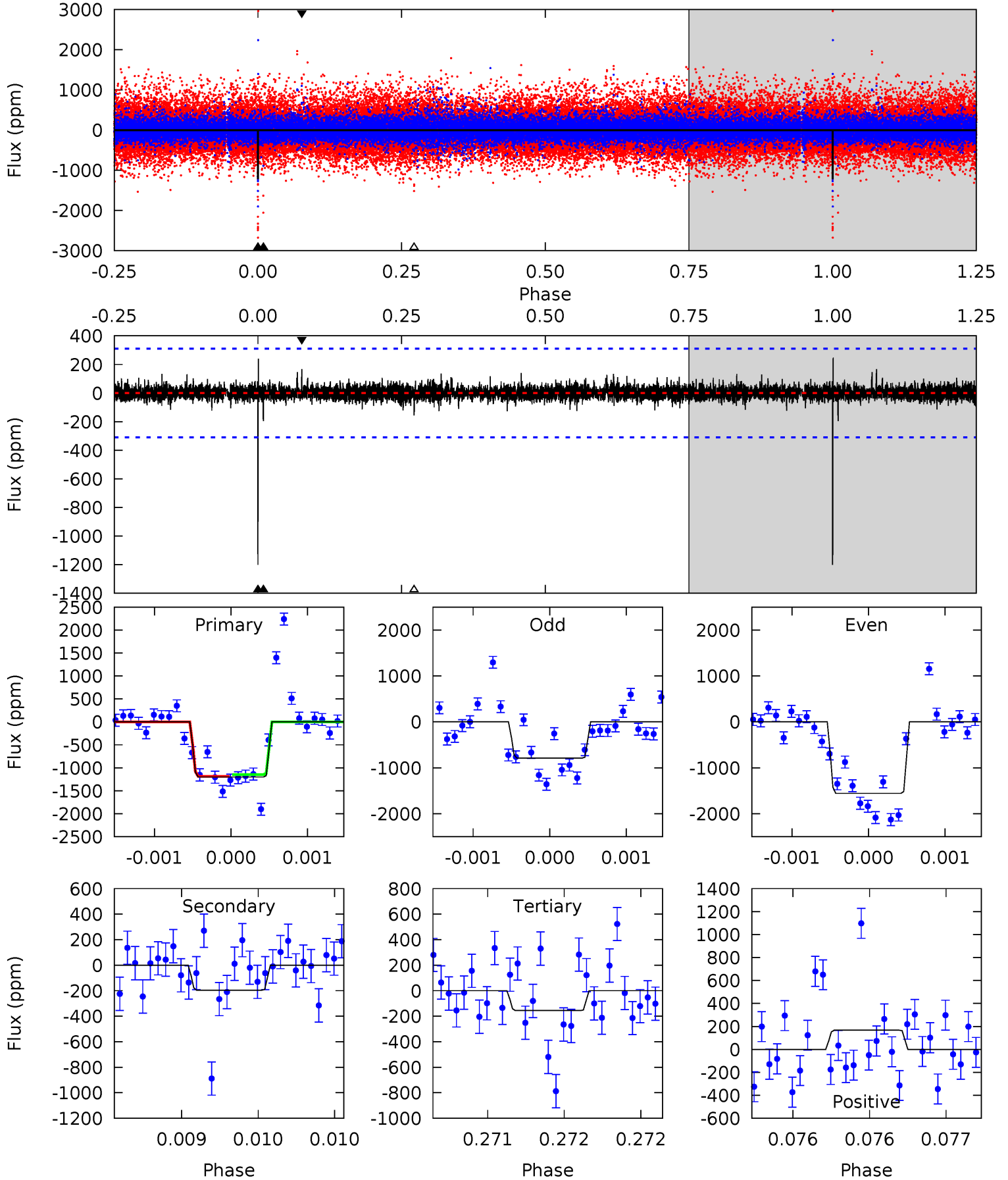
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	12.8	9.94	19.7	5.51	3.38	2.75	2.52	-7.24	2.85	-6.92	2.19	1.10	0.61	0.49



Alt Model-Shift Uniqueness Test

003112828-02, P = 509.068091 Days, E = 425.278342 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.5	3.50	2.78	2.98	5.56	3.46	0.50	18.7	18.5	0.72	0.52	6.34	1.37	0.17	0.33



Stellar Parameters For KIC 003112828

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4492^{+121}_{-134}	$4.588^{+0.056}_{-0.021}$	$0.020^{+0.250}_{-0.300}$	$0.696^{+0.038}_{-0.062}$	$0.684^{+0.066}_{-0.054}$	$2.858^{+0.668}_{-0.246}$
	+3%/-3%	+1%/-0%	+1250%/-1500%	+5%/-9%	+10%/-8%	+23%/-9%
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 003112828-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-953 ± 75	$2.32^{+1.55}_{-1.28}$	218^{+7}_{-7}	4487^{+1988}_{-744}	$119660^{+514013}_{-76820}$
Alt.	-196 ± 56	$2.87^{+1.53}_{-1.42}$	218^{+6}_{-8}	3179^{+778}_{-385}	15275^{+49452}_{-9237}

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

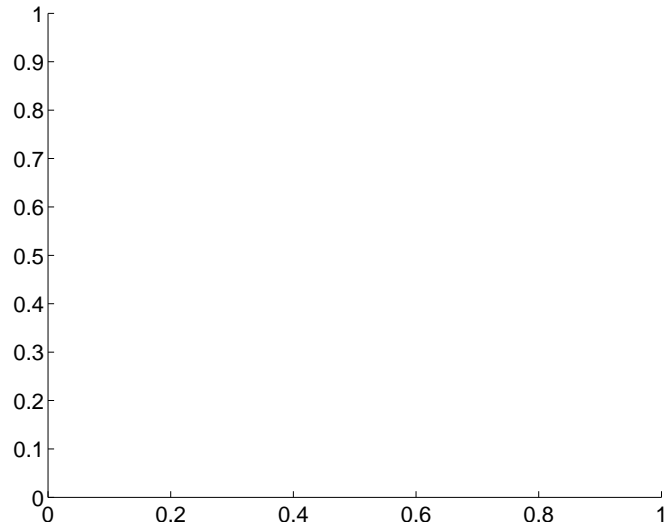
Supplemental centroid analysis for 003112828-02. Kepler magnitude: 14.82. Transit SNR 6.73

There are 0 quarters with good PRF difference image offsets

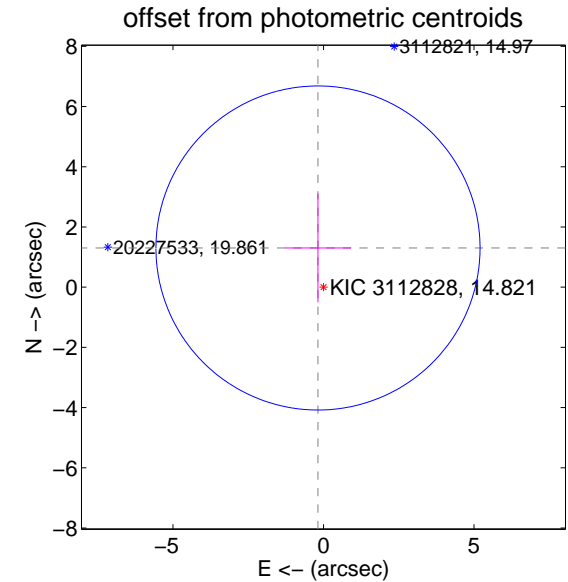
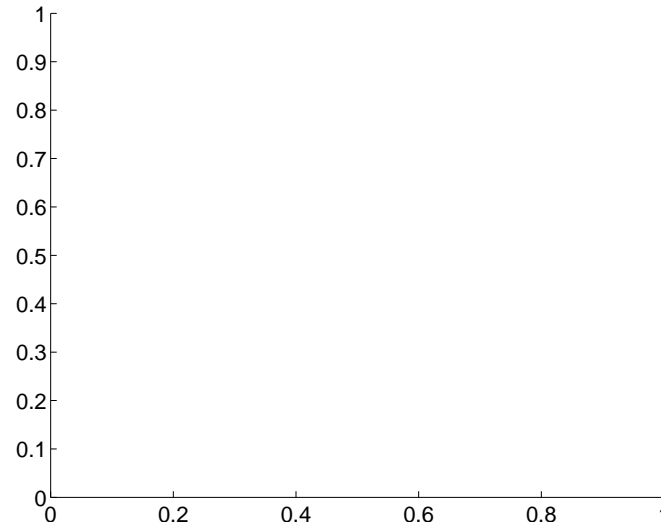
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	1.31 ± 1.79	0.73	0.18 ± 1.10	1.30 ± 1.81

There is no PRF-fit offset from OOT-fit



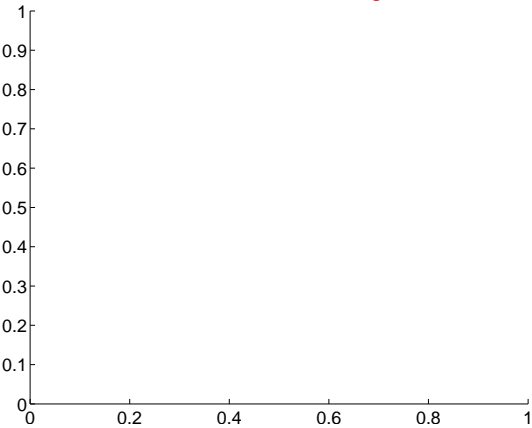
There is no PRF-fit offset from KIC



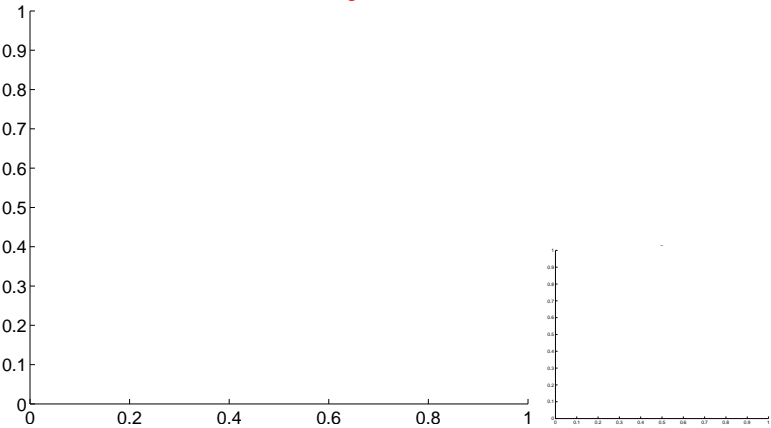
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

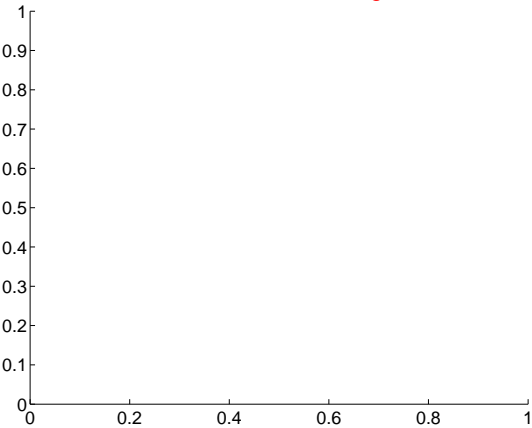
Q1 no difference image



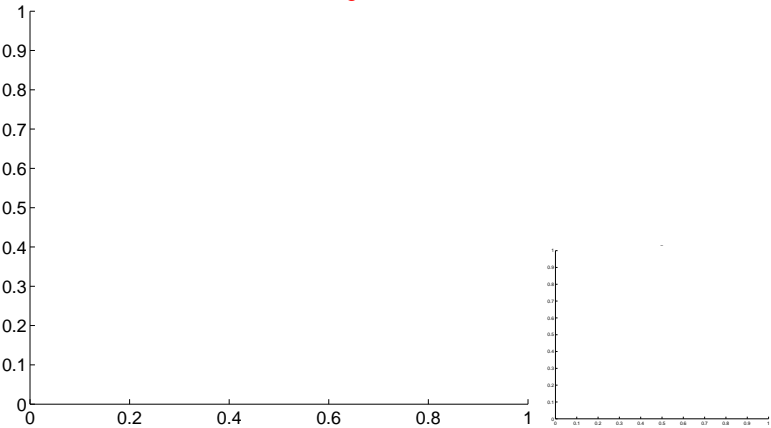
Q1 no OOT image



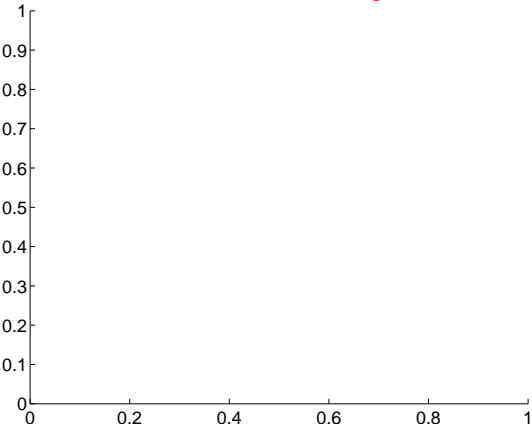
Q2 no difference image



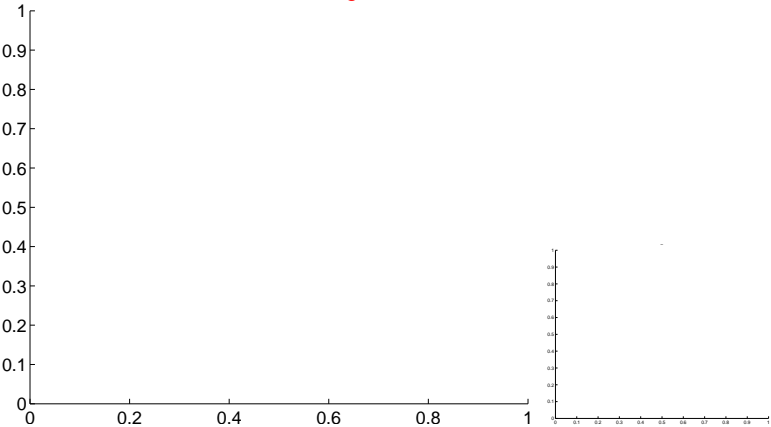
Q2 no OOT image



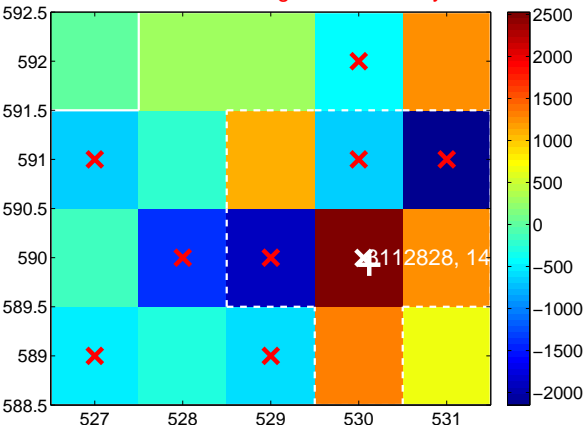
Q3 no difference image



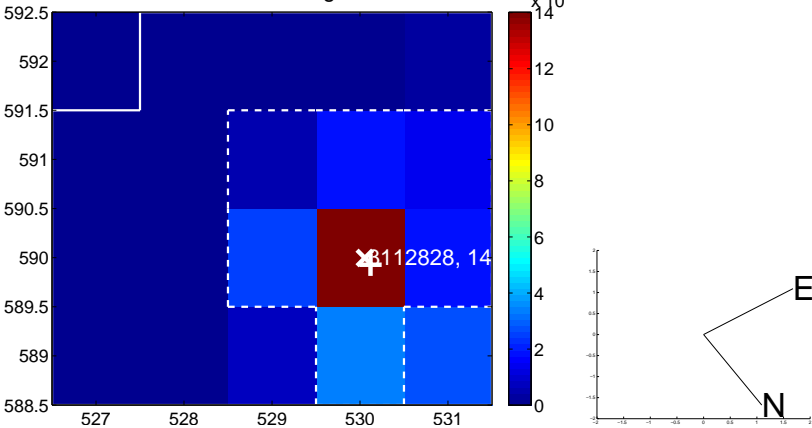
Q3 no OOT image



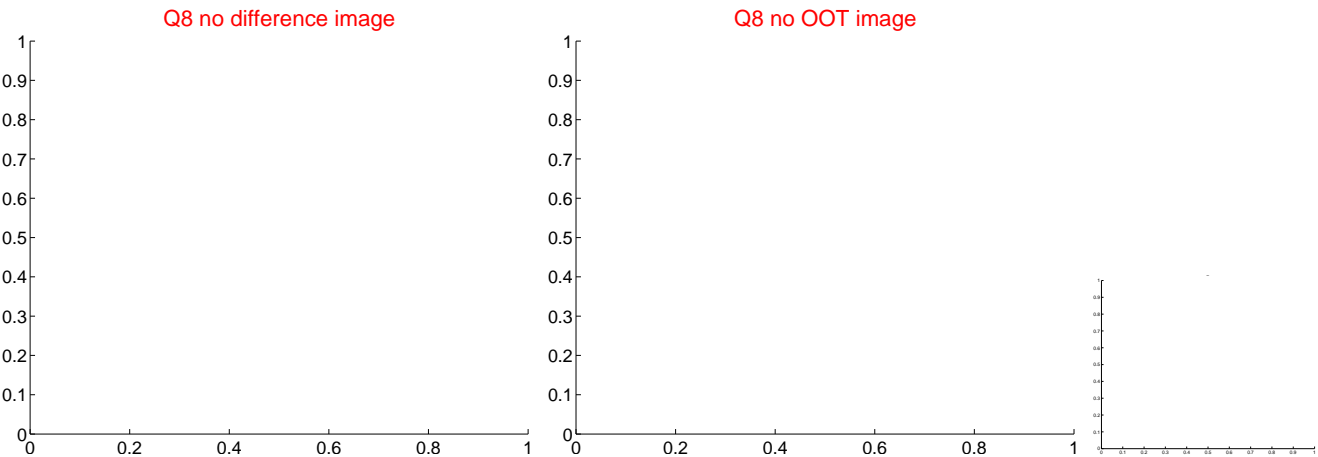
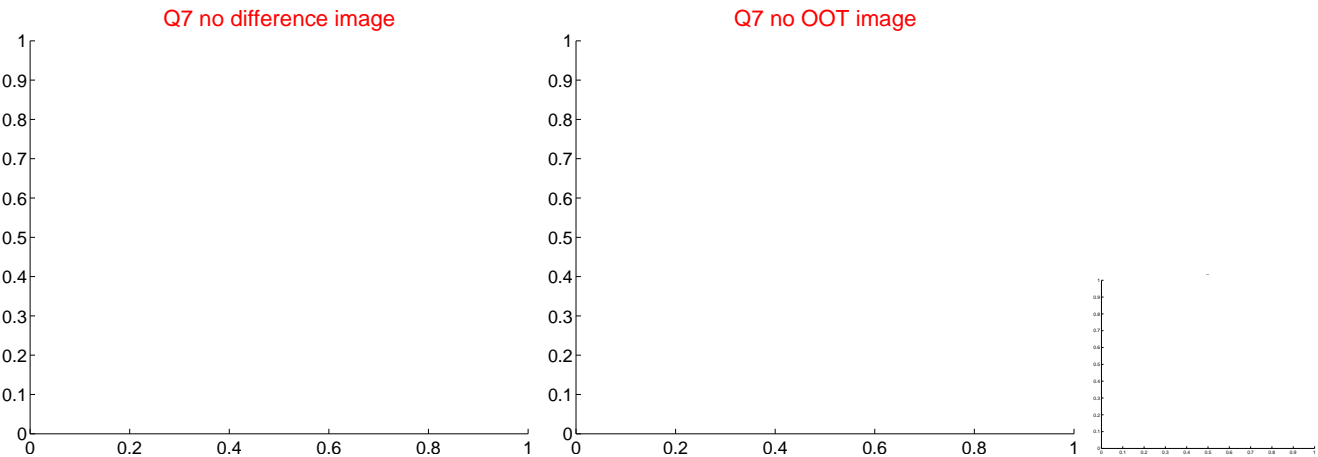
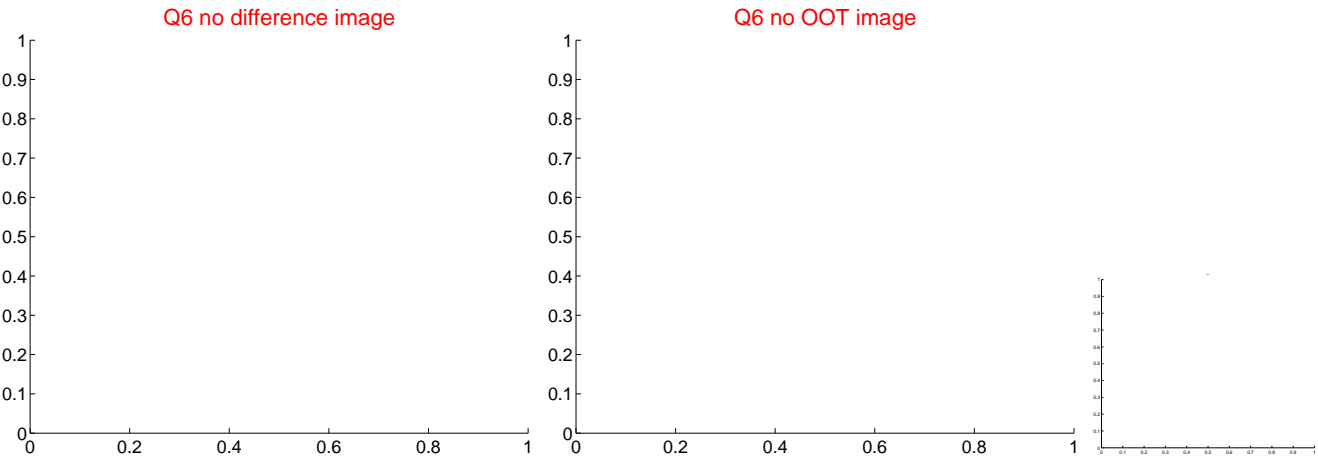
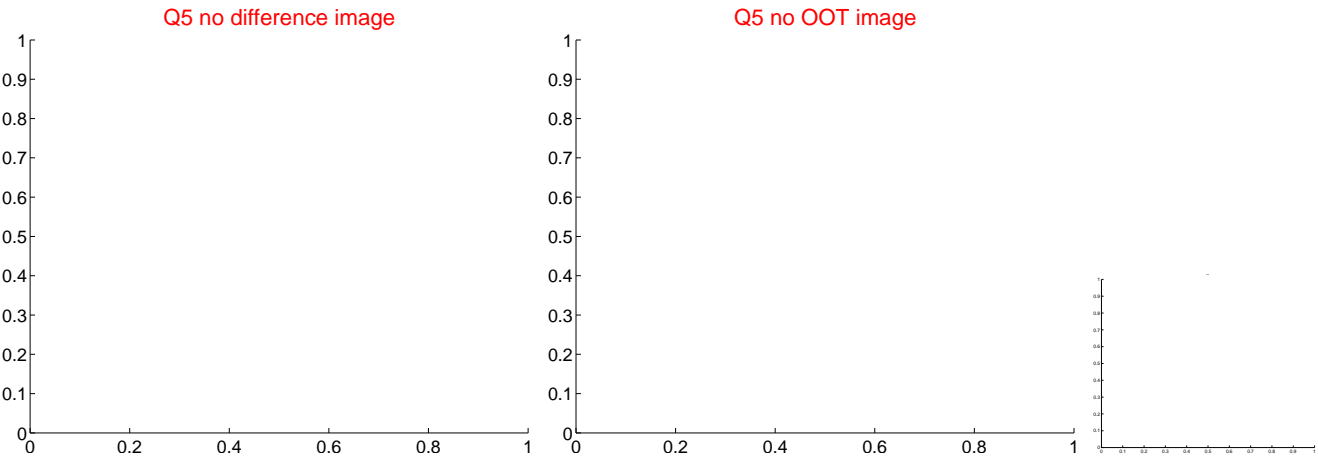
Q4 difference image. Poor Quality



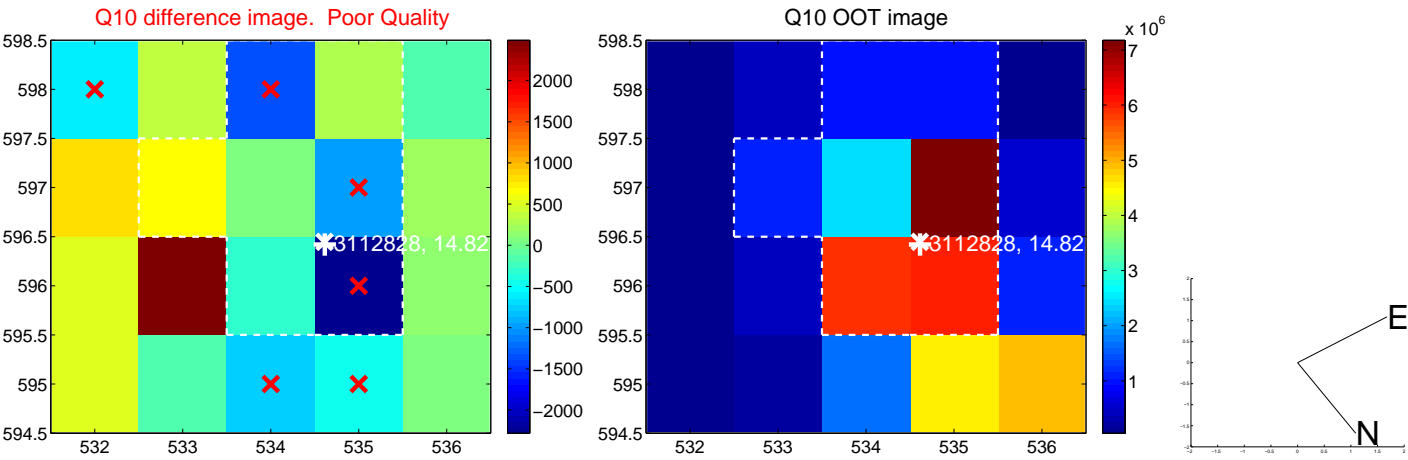
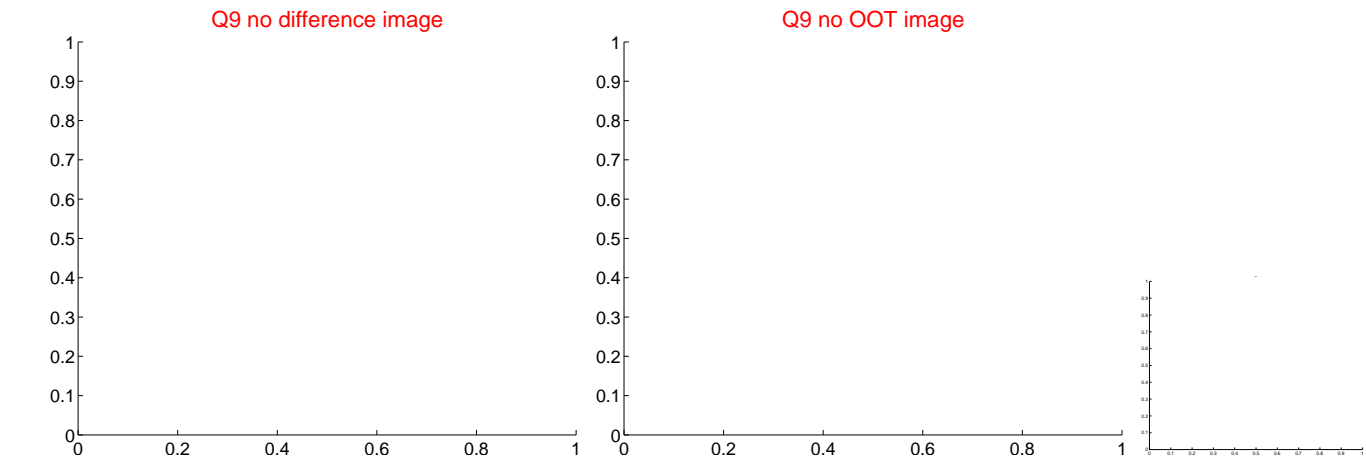
Q4 OOT image



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

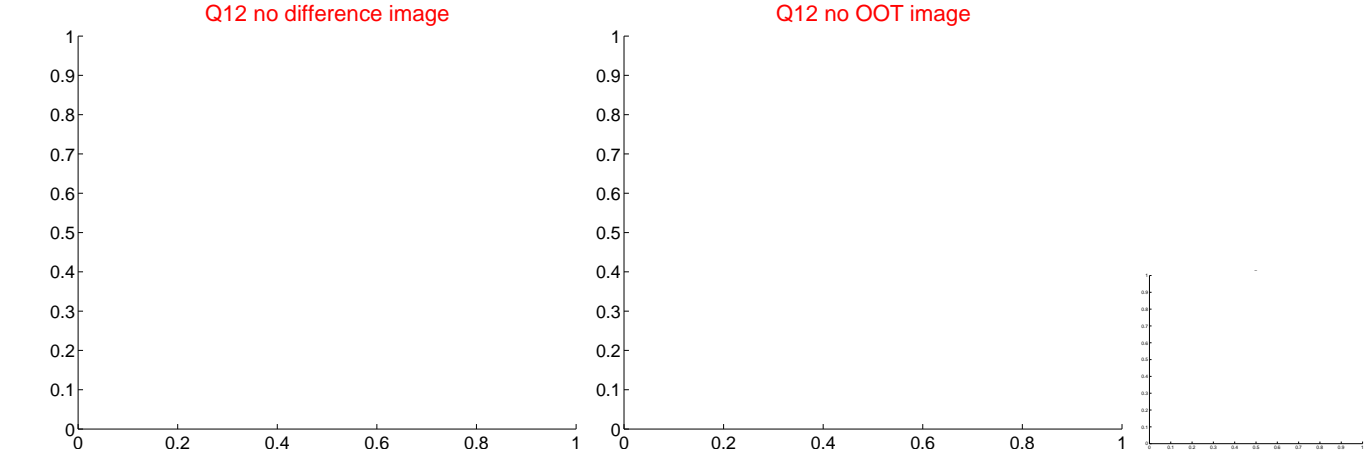
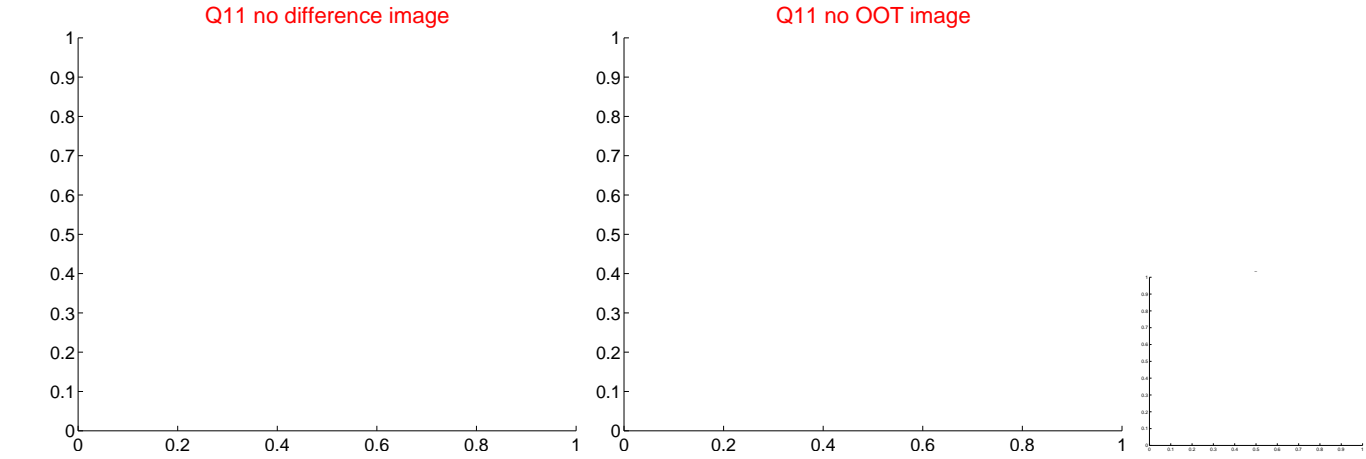


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



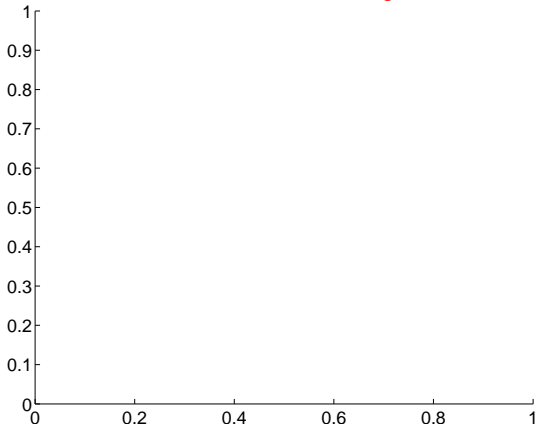
E

N

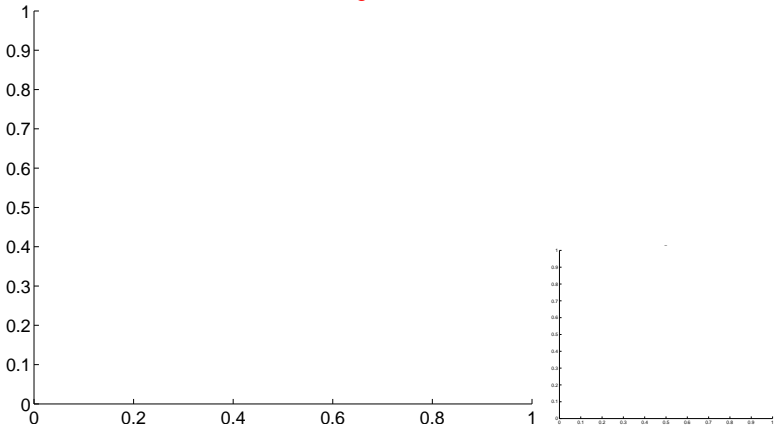


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

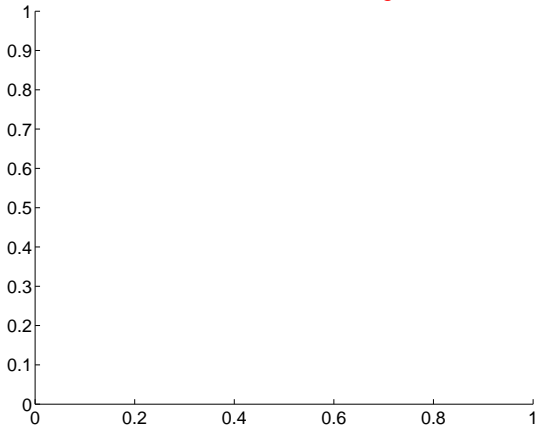
Q13 no difference image



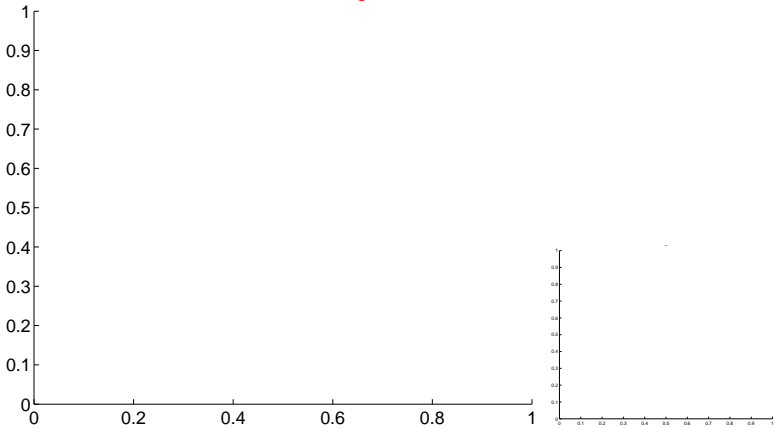
Q13 no OOT image



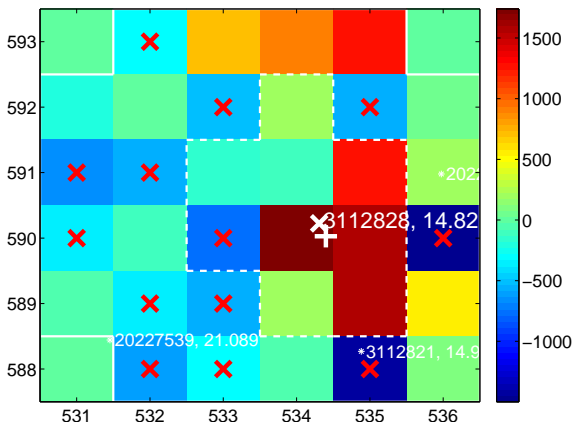
Q14 no difference image



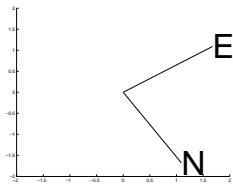
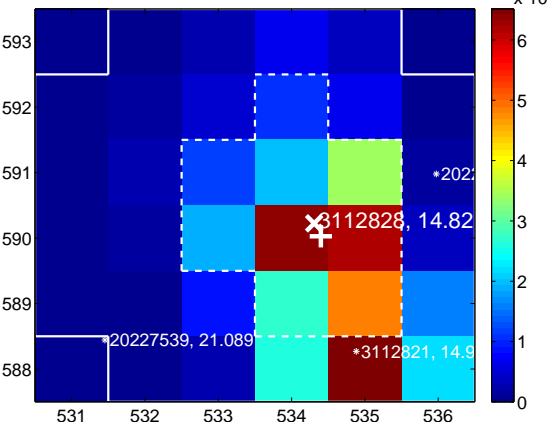
Q14 no OOT image



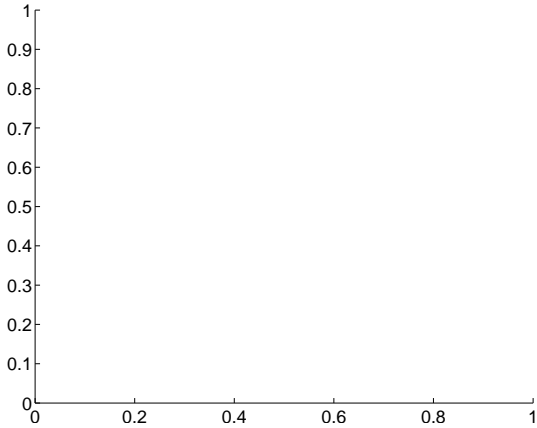
Q15 difference image. Poor Quality



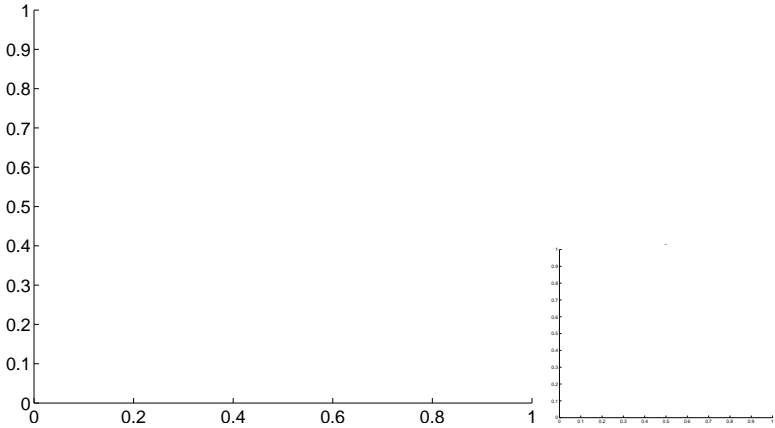
Q15 OOT image



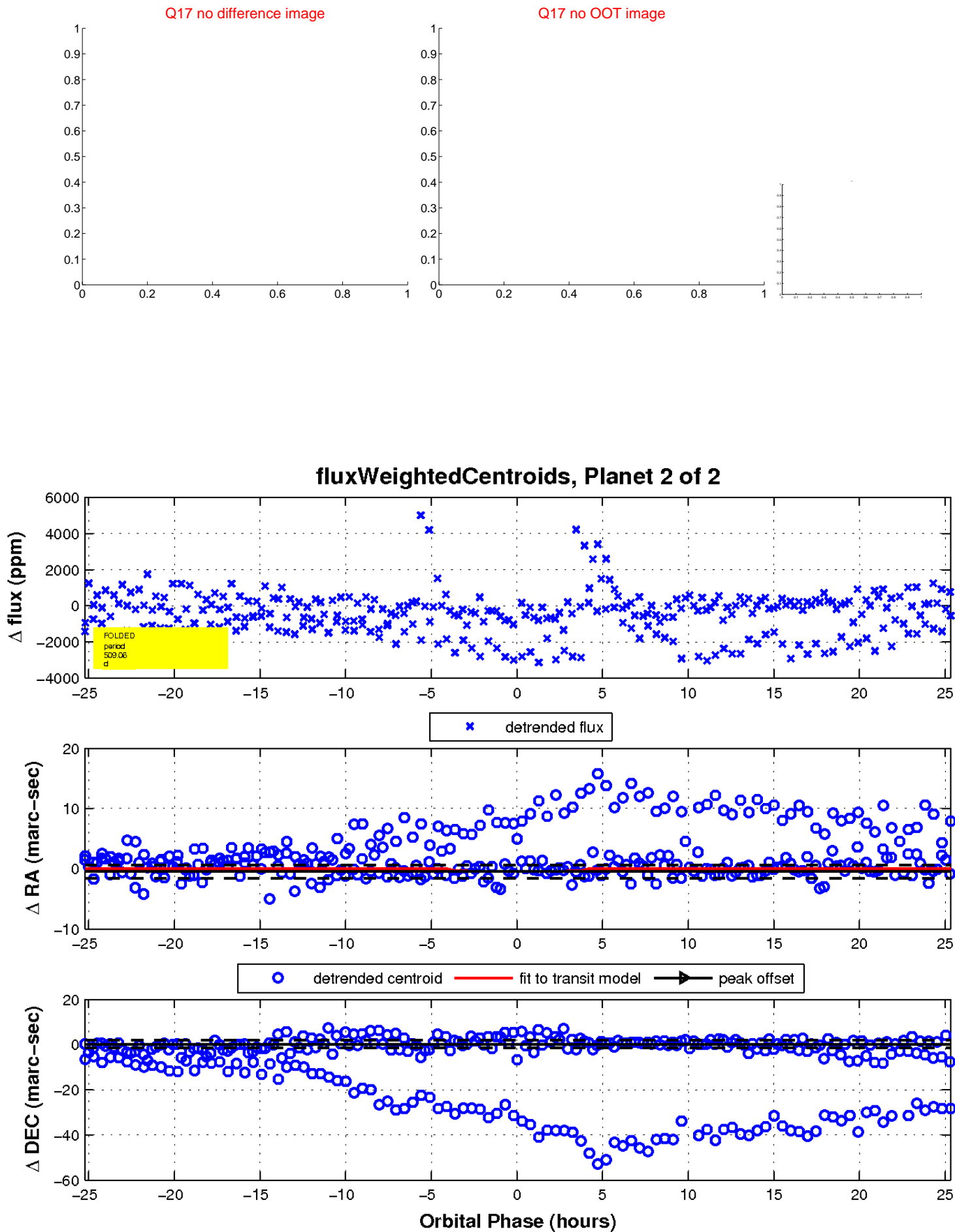
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

