

KIC 010328375

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})
010328375-01	OBS	No	401.608992	367.967550	1704.9	3.046	15.7	8.6	0.81	5631	3.35	0.64
010328375-02	OBS	No	261.659780	325.702788	988.5	9.417	16.9	4.1	0.81	5631	2.64	1.14
010328375-03	OBS	No	473.076705	393.296160	2193.8	3.248	15.0	9.1	0.81	5631	3.80	0.52
010328375-04	OBS	No	518.596942	155.445504	1744.9	4.500	15.0	-1.0	0.81	5631	3.36	0.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010328375-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
010328375-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010328375-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010328375-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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

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

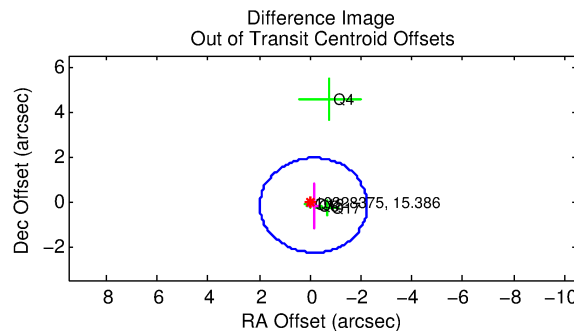
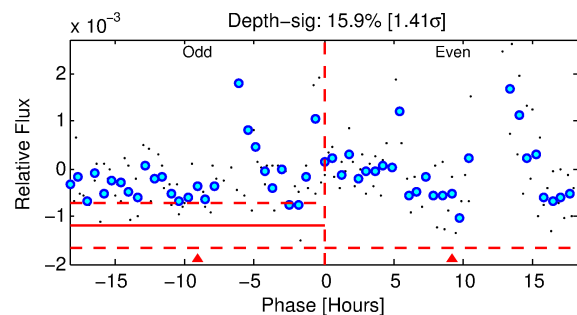
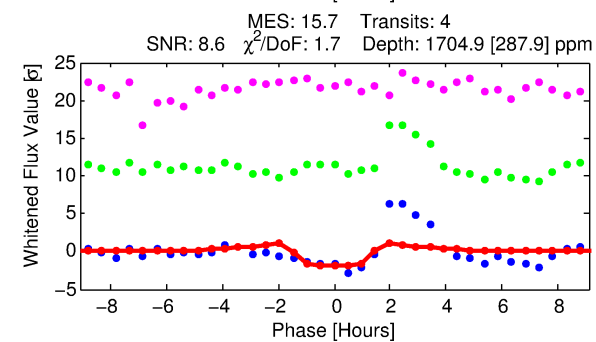
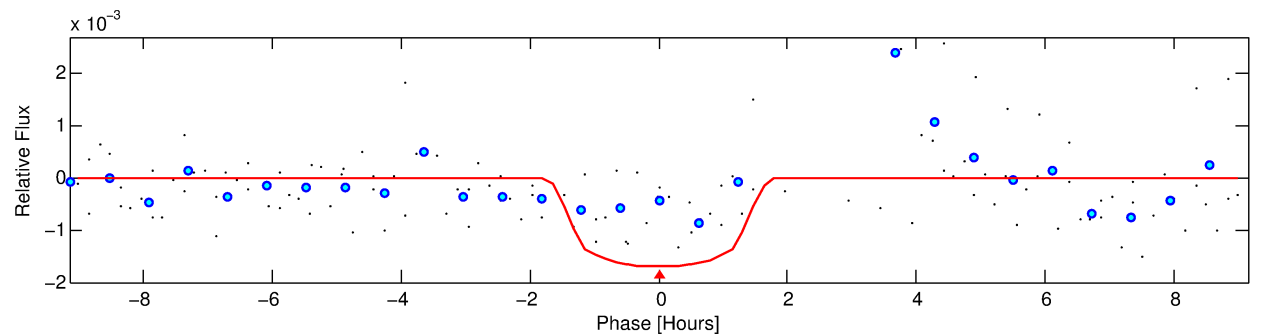
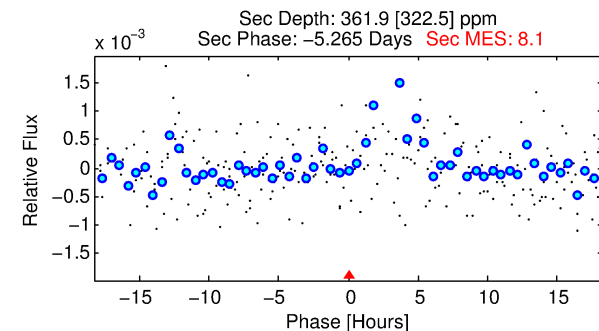
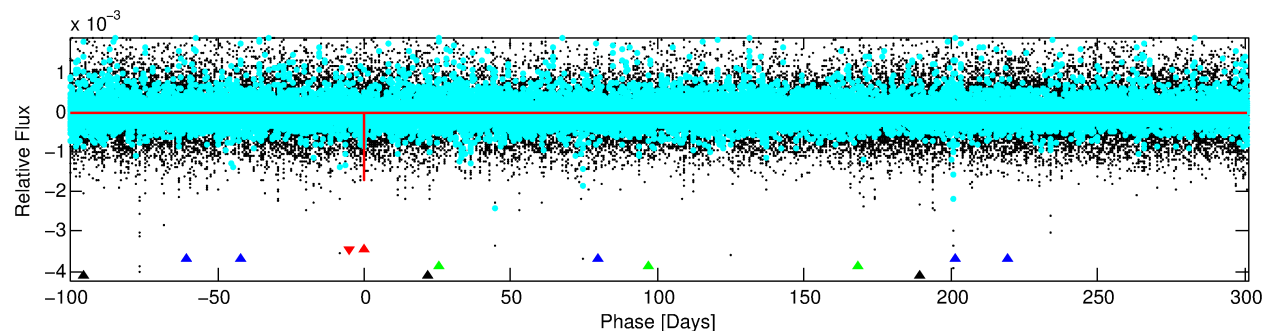
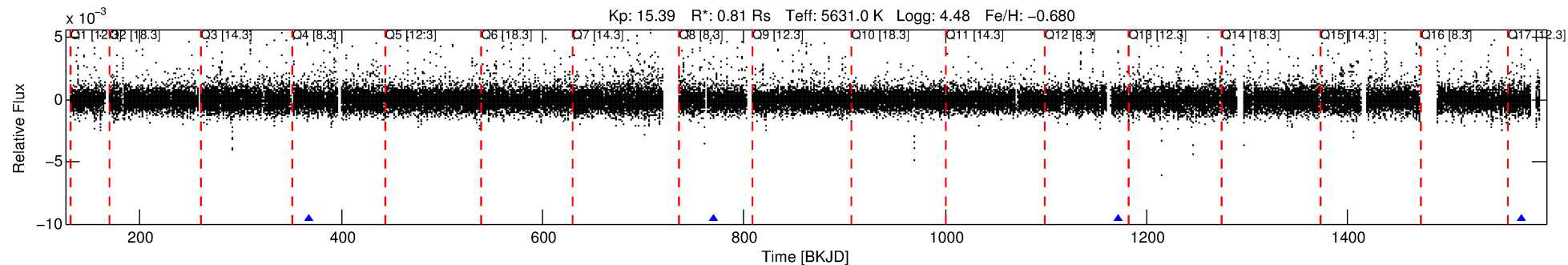
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010328375-01

No Significant Match Found

DV One-Page Summary

KIC: 10328375 Candidate: 1 of 4 Period: 401.609 d



DV Fit Results:

Period = 401.60899 [0.00381] d
Epoch = 367.9675 [0.0077] BKJD
Rp/R* = 0.0380 [0.3334]
a/R* = 1004.58 [40919.24]
b = 0.29 [130.84]
Seff = 0.64 [0.19]
Teq = 228 [17] K
Rp = 3.35 [29.36] Re
a = 0.9546 [0.1675] AU
Ag = 16192.48 [284416.22] [0.06 σ]
Teffp = 3984 [17491] K [0.21 σ]

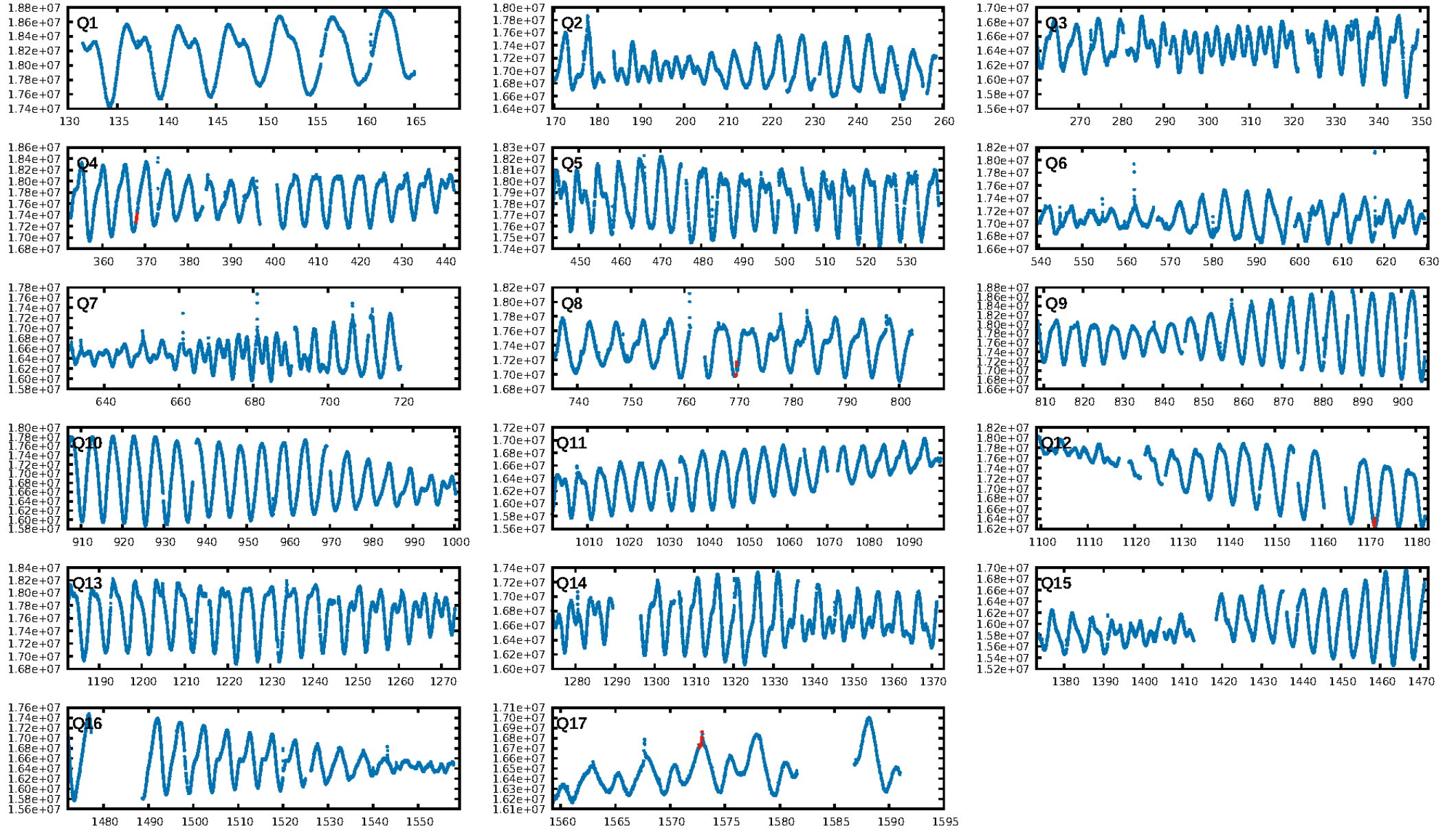
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [339.36 σ]
LongPeriod-sig: 100.0% [385.22 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 16.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.5482
Centroid-sig: 60.3%
Centroid-so: 0.552 arcsec [0.57 σ]
OotOffset-rm: 0.227 arcsec [0.32 σ]
OotOffset-st: 0/0/3/1 [4]
KicOffset-rm: 0.058 arcsec [0.08 σ]
KicOffset-st: 0/0/3/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

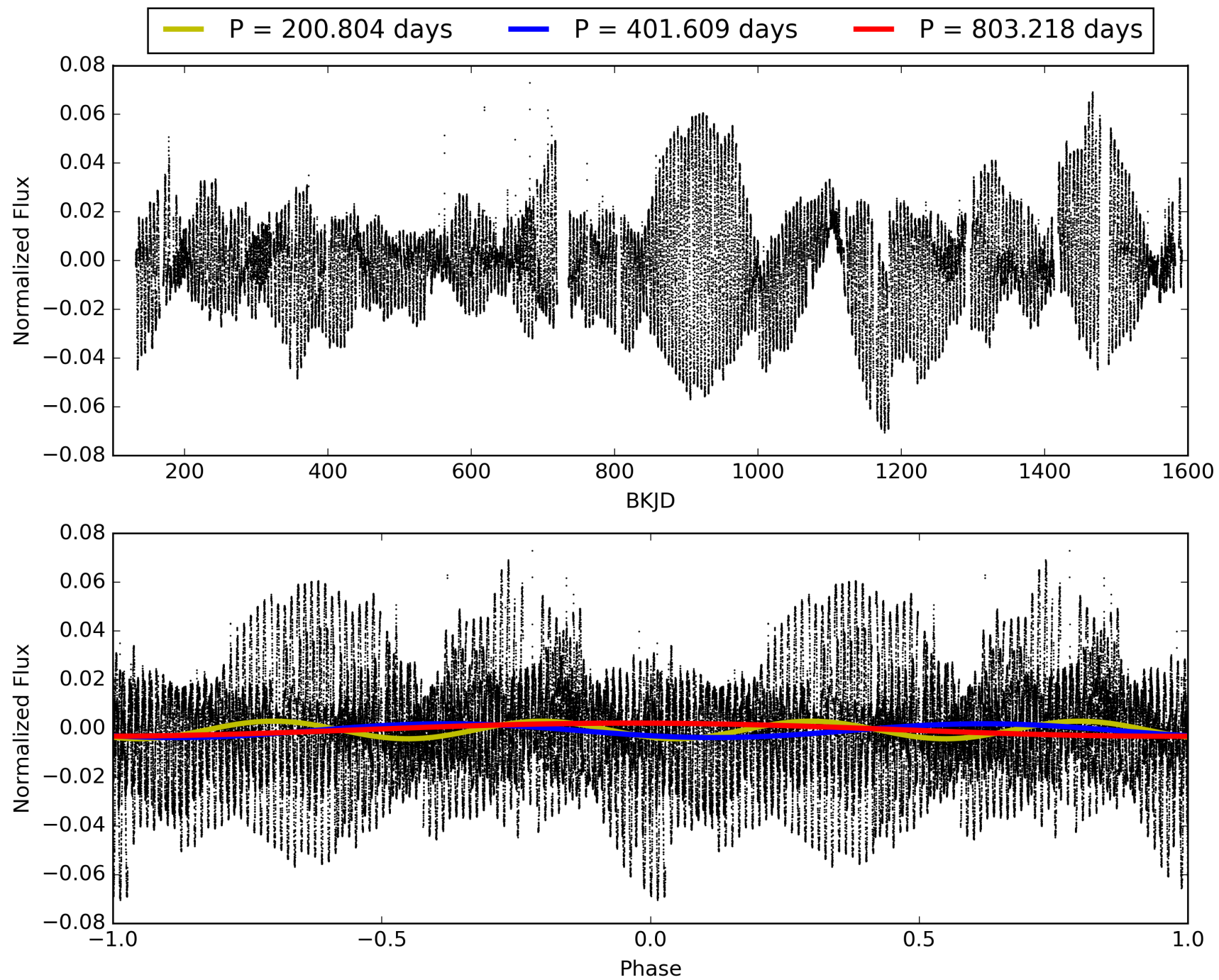
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:21:14 Z

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

TCE 010328375-01, PDC Light Curves

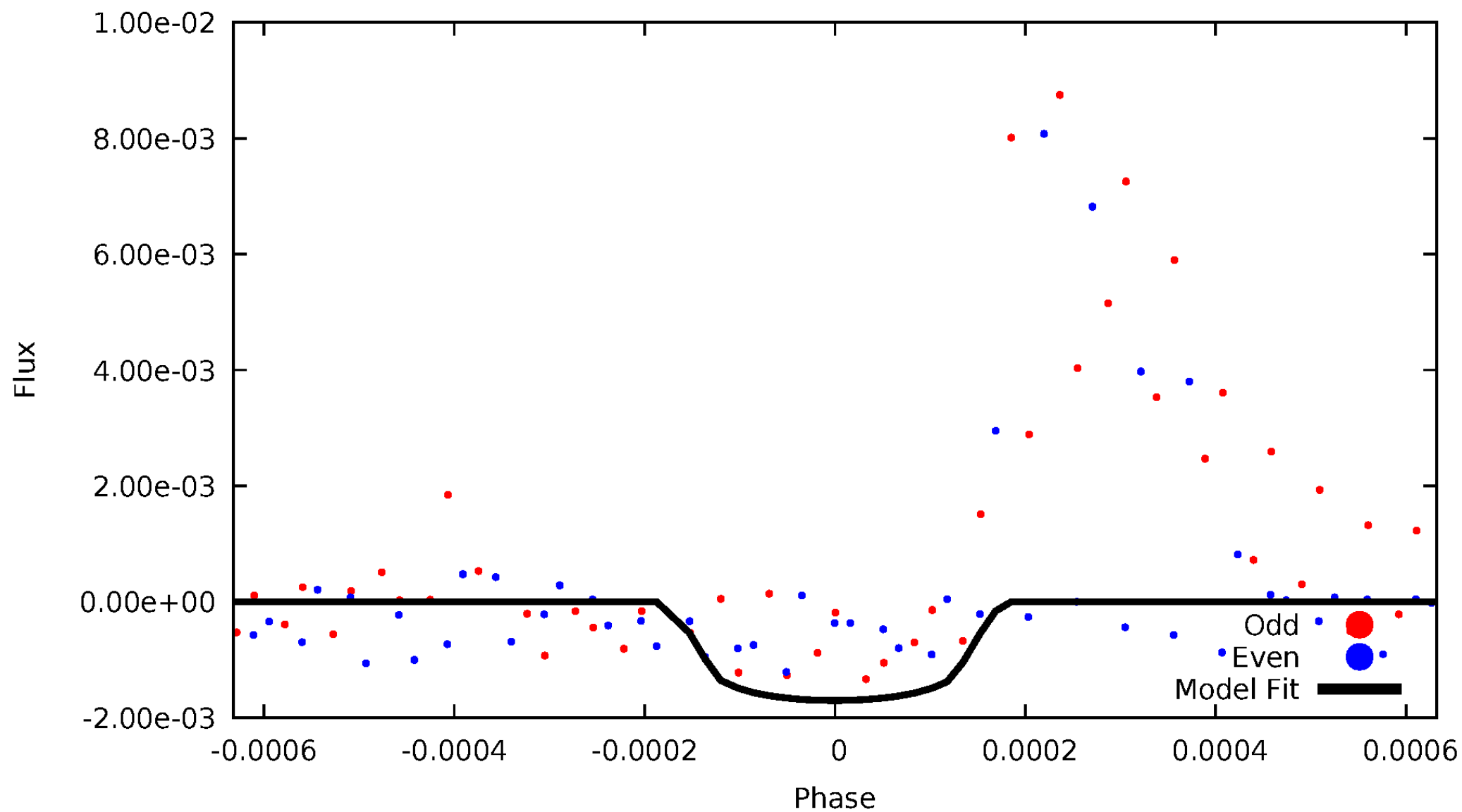


TCE 010328375-01



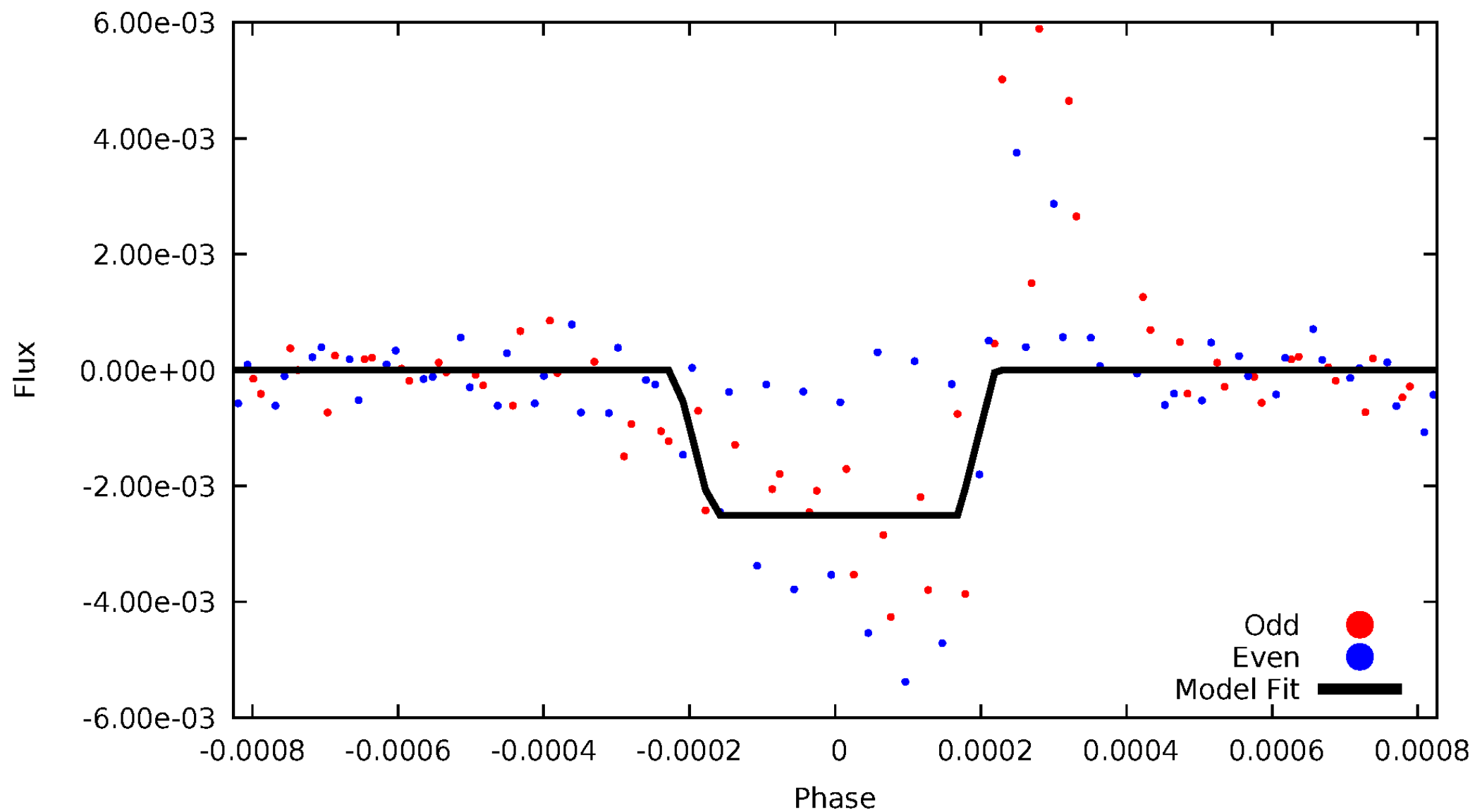
DV Odd/Even

TCE 010328375-01



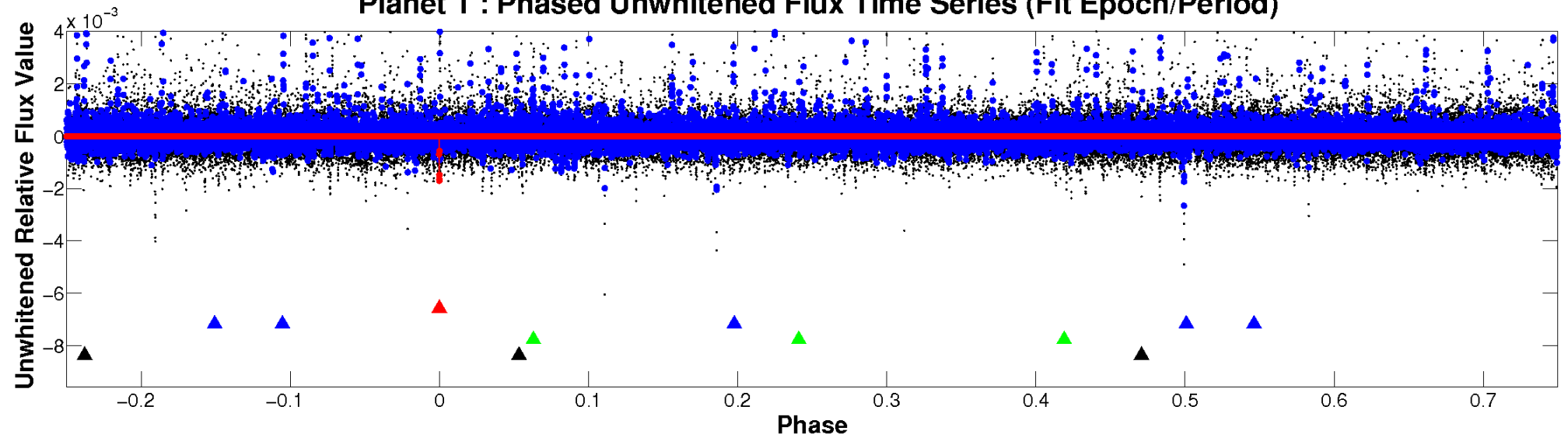
ALT Odd/Even

TCE 010328375-01

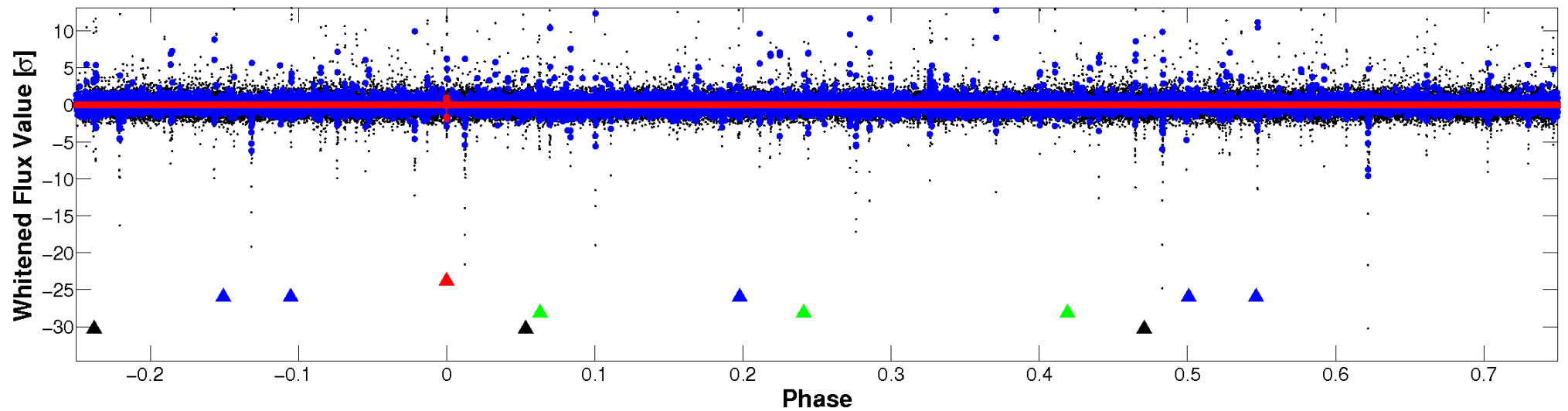


Non-Whitened Vs. Whitened Light Curve

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

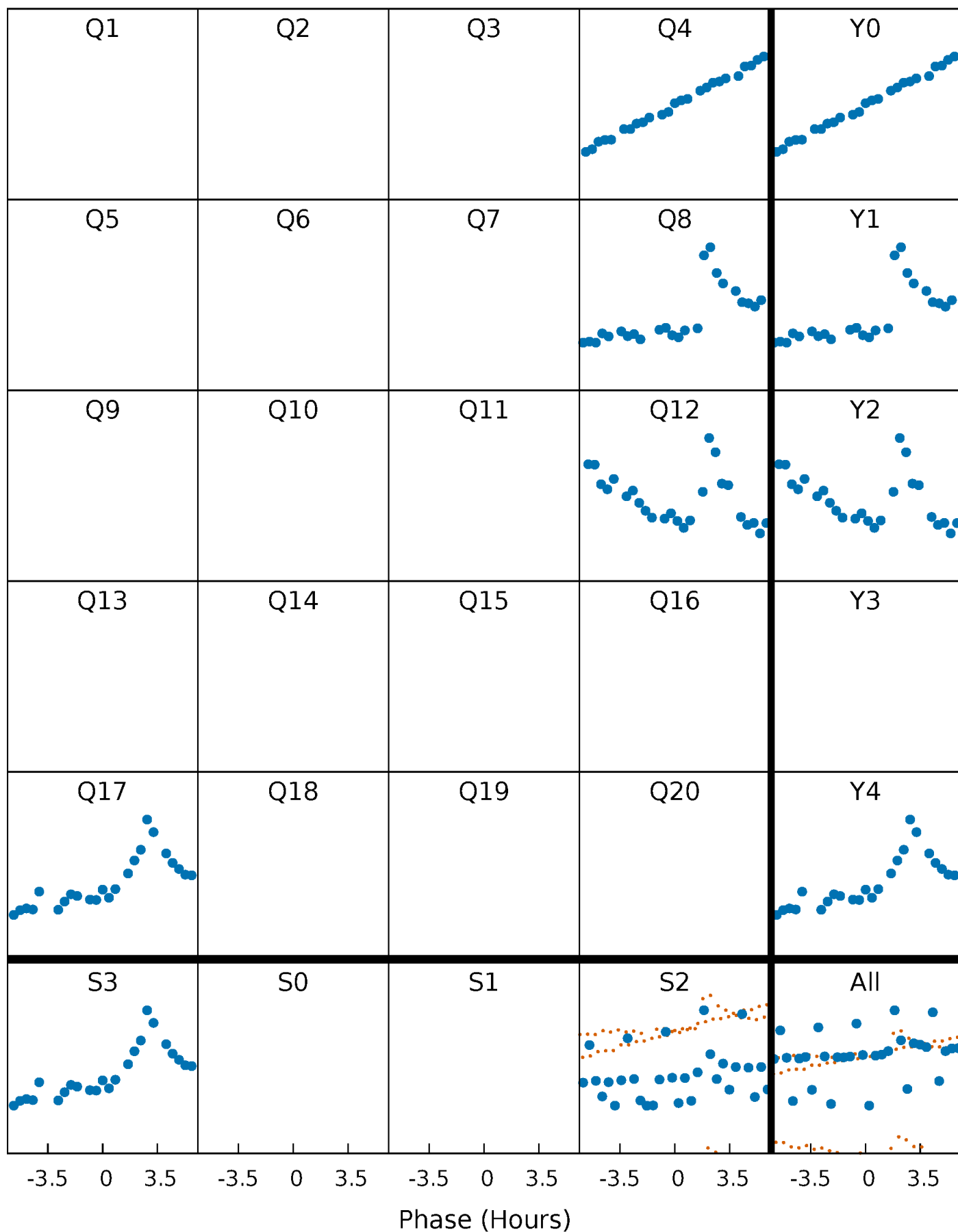


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



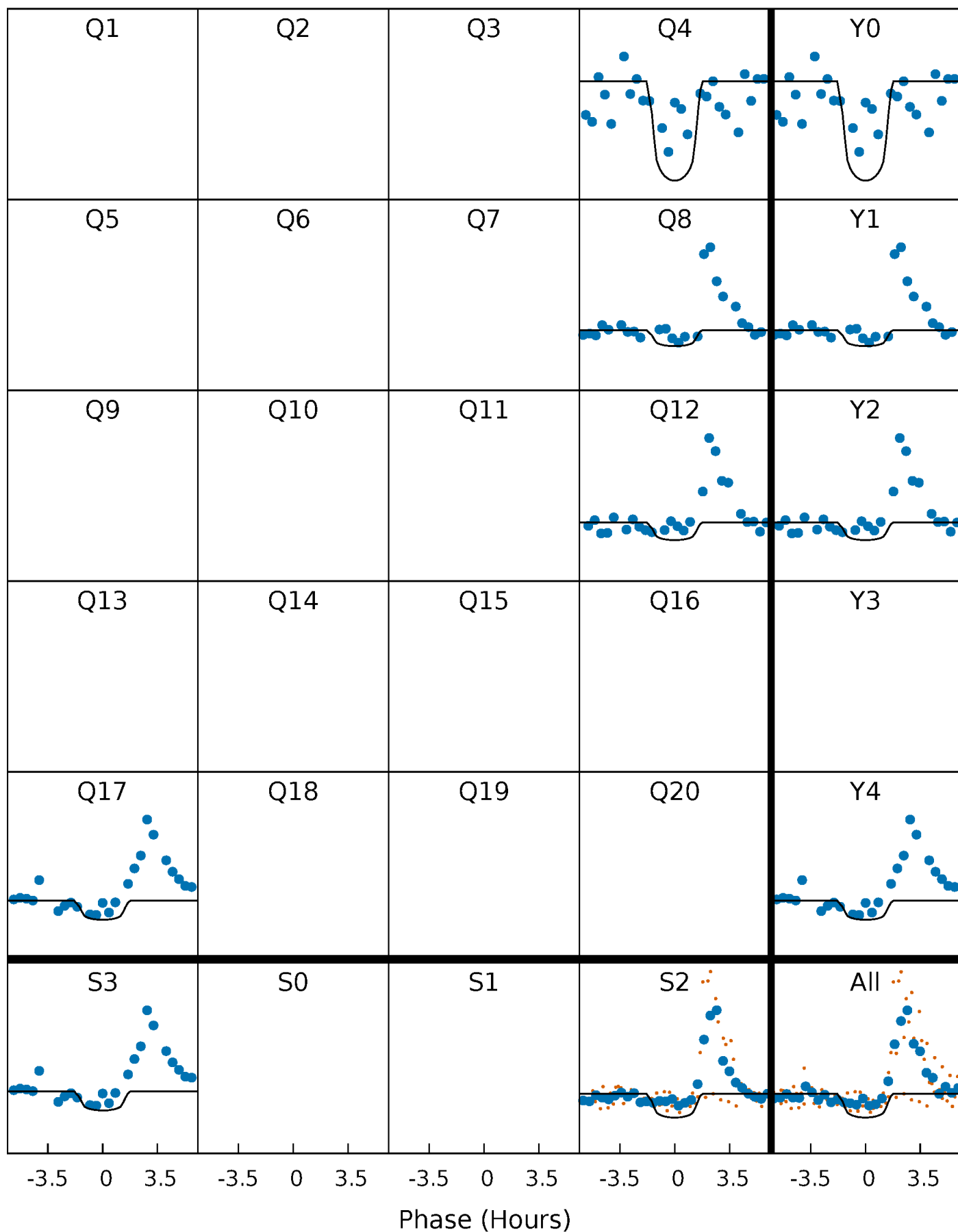
PDC Quarter-Phased Transit Curves

TCE 010328375-01 P=401.608992 Days $T_0=367.967550$ (BKJD)



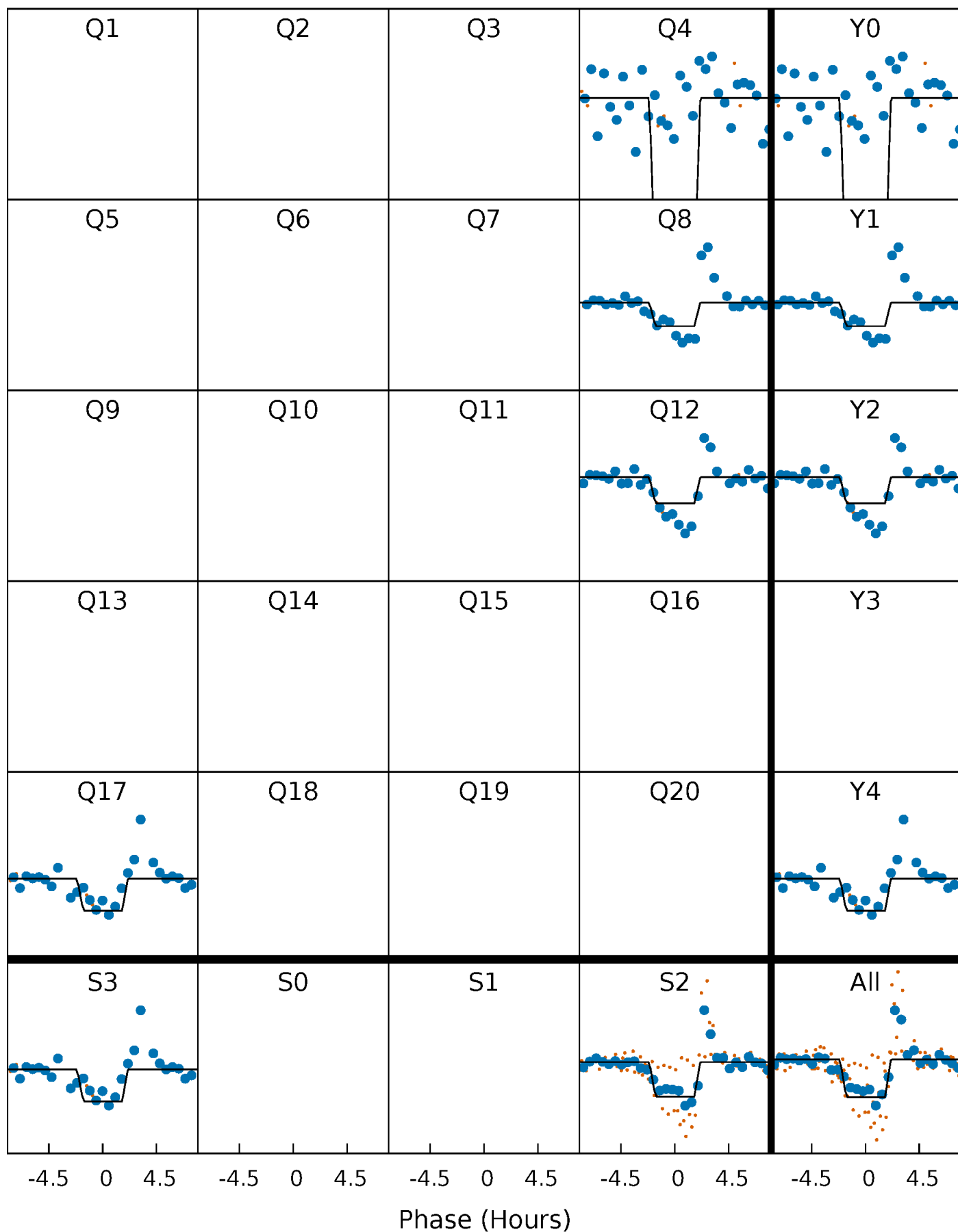
DV Quarter-Phased Transit Curves

TCE 010328375-01 P=401.608992 Days $T_0=367.967550$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

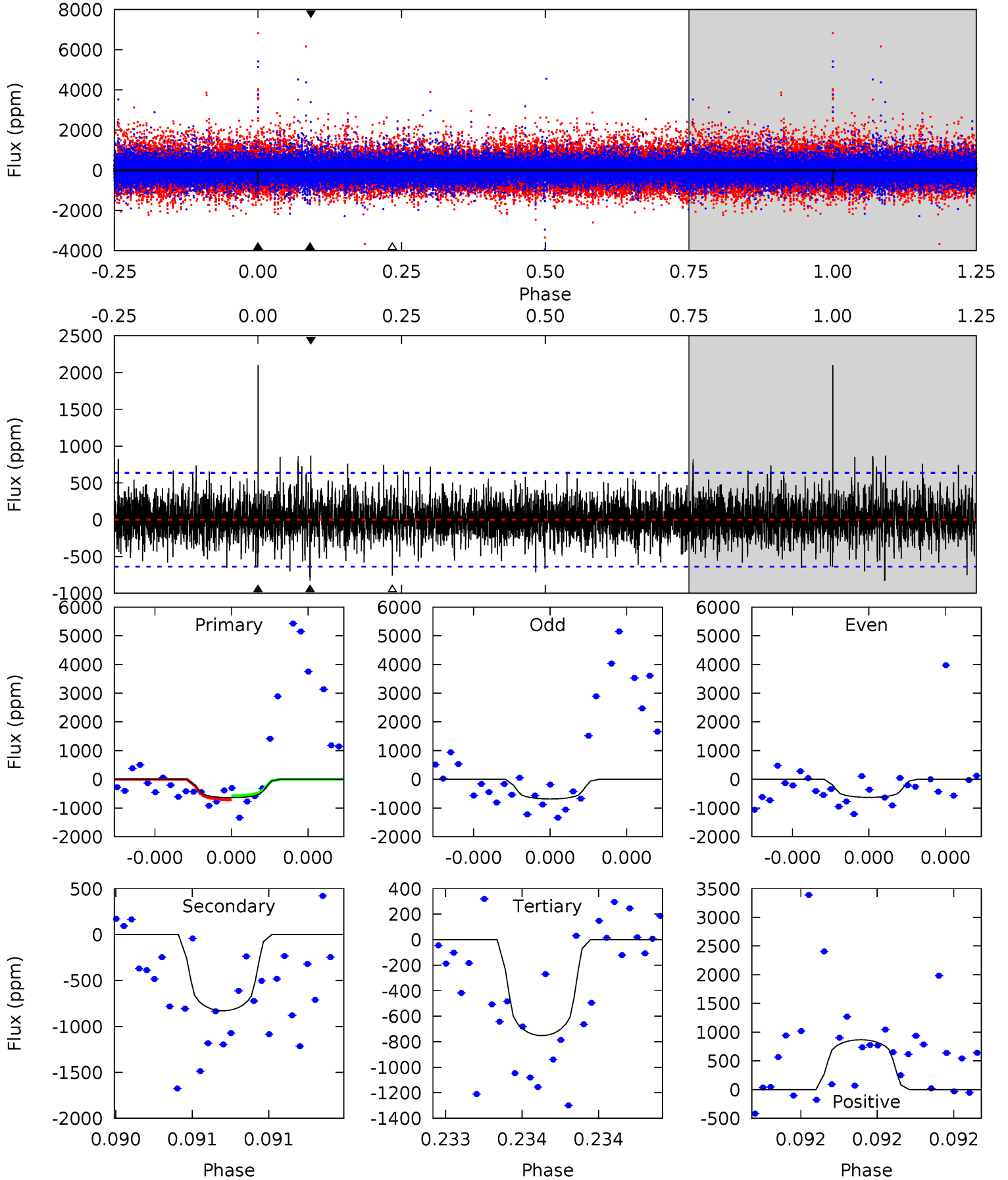
TCE 010328375-01 P=401.614811 Days $T_0=367.944085$ (BKJD)



DV Model-Shift Uniqueness Test

010328375-01, P = 401.608992 Days, E = 367.967550 Days

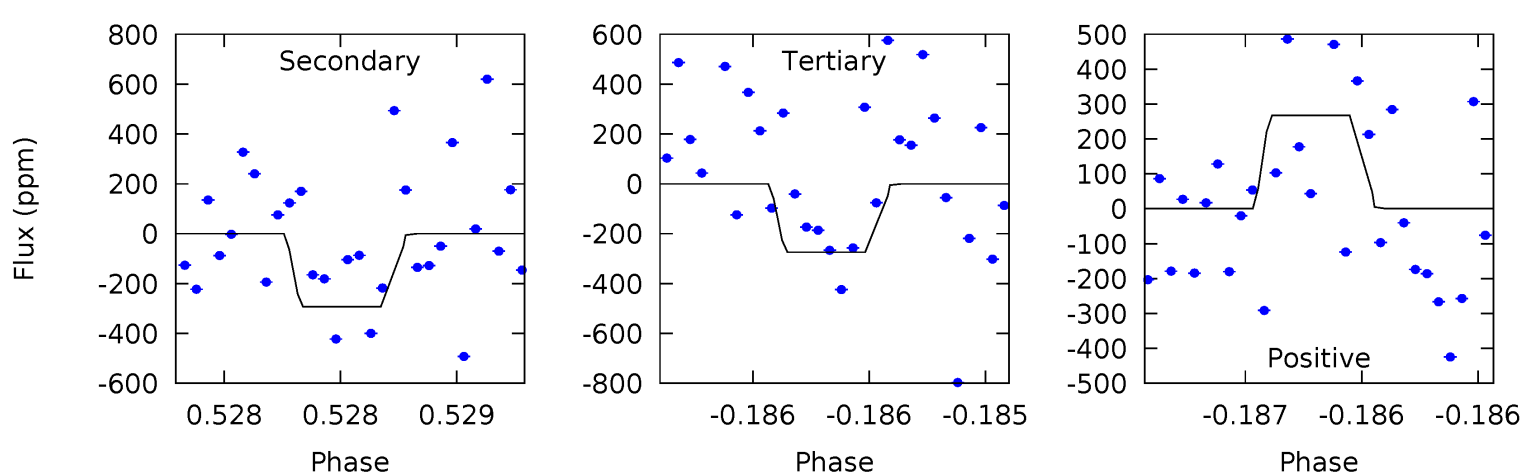
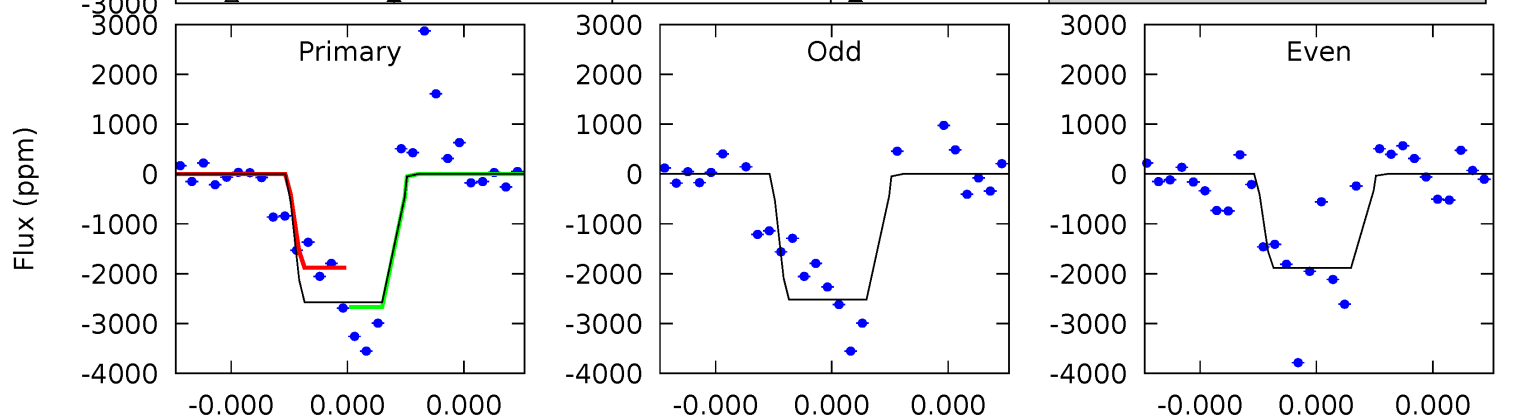
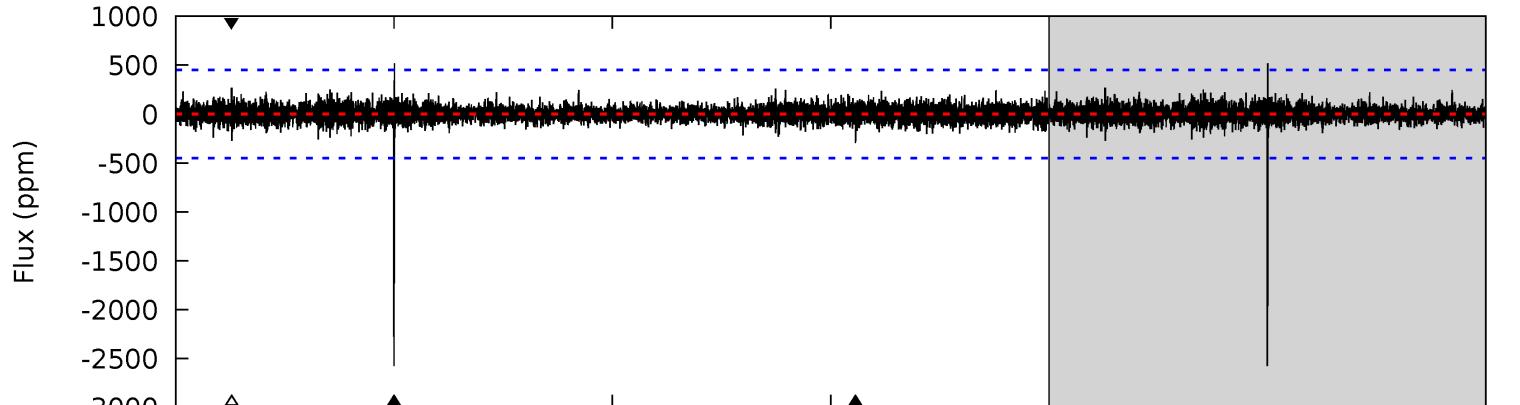
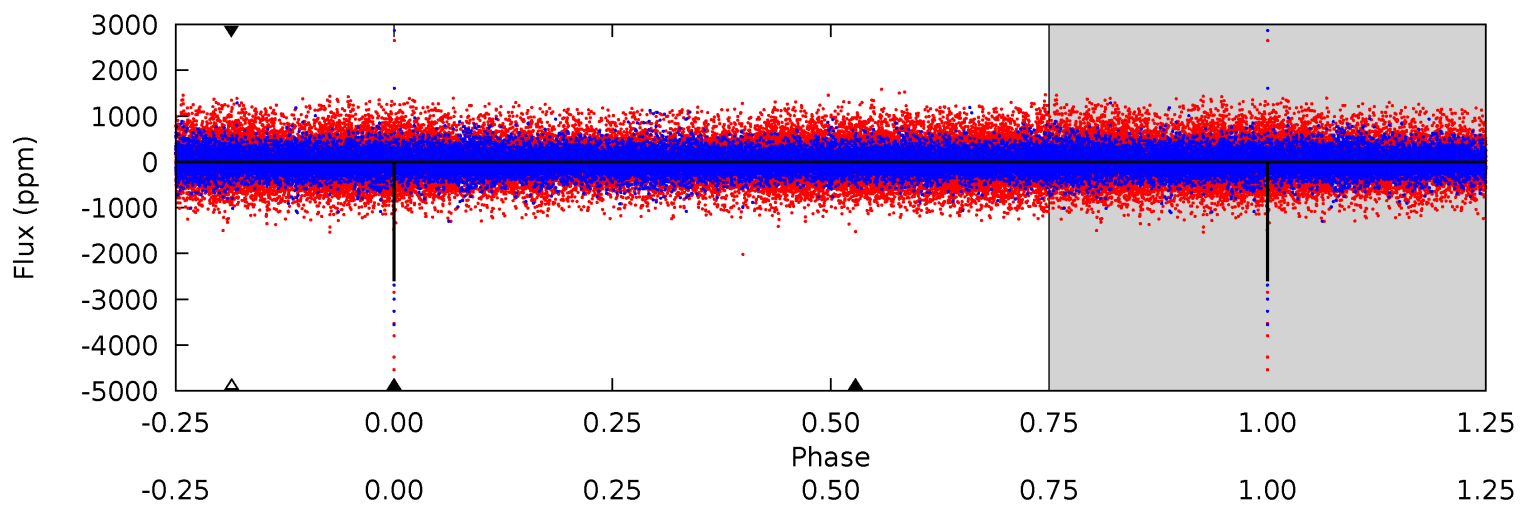
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.70	7.35	6.67	7.69	5.65	3.60	1.66	-0.96	-1.99	0.69	-0.34	0.20	0.94	0.72	0.63



Alt Model-Shift Uniqueness Test

010328375-01, P = 401.614811 Days, E = 367.944085 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.9	3.64	3.40	3.32	5.60	3.52	0.69	28.5	28.6	0.24	0.32	4.75	0.91	0.17	5.06



Stellar Parameters For KIC 010328375

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5631^{+183}_{-167}	$4.481^{+0.140}_{-0.154}$	$-0.680^{+0.350}_{-0.300}$	$0.807^{+0.157}_{-0.118}$	$0.718^{+0.102}_{-0.036}$	$1.922^{+1.102}_{-0.767}$
	+3%/-3%	+3%/-3%	+51%/-44%	+19%/-15%	+14%/-5%	+57%/-40%
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 010328375-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-830 ± 113	$20.40^{+25.16}_{-14.27}$	320^{+21}_{-17}	2740^{+1235}_{-453}	1027^{+9440}_{-818}
Alt.	-293 ± 81	$22.14^{+24.99}_{-15.25}$	320^{+20}_{-18}	2355^{+854}_{-344}	288^{+2703}_{-222}

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 $A_{obs} \gg 1.0$

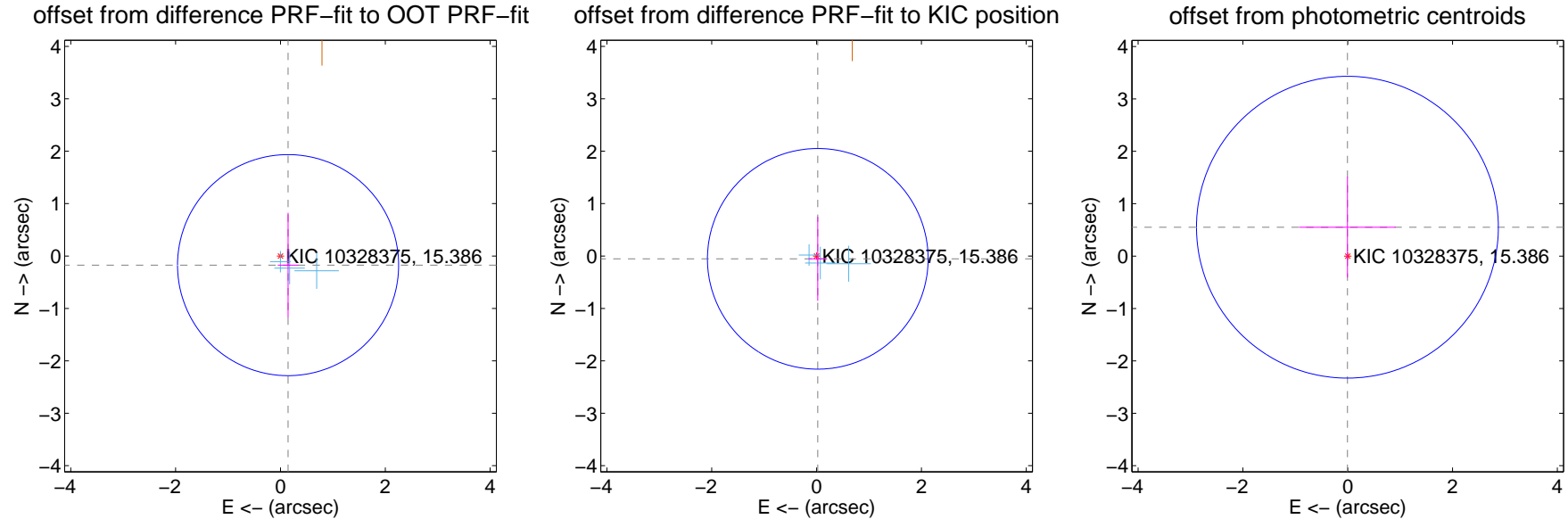
DV Centroid Data

Supplemental centroid analysis for 010328375-01. Kepler magnitude: 15.39. Transit SNR 8.58

There are 3 quarters with good PRF difference image offsets

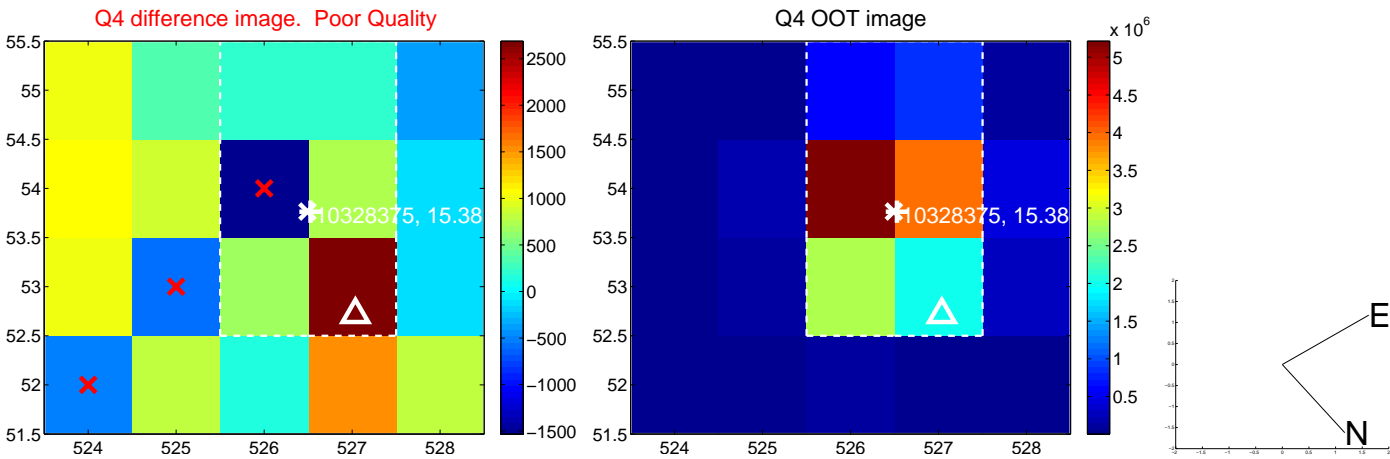
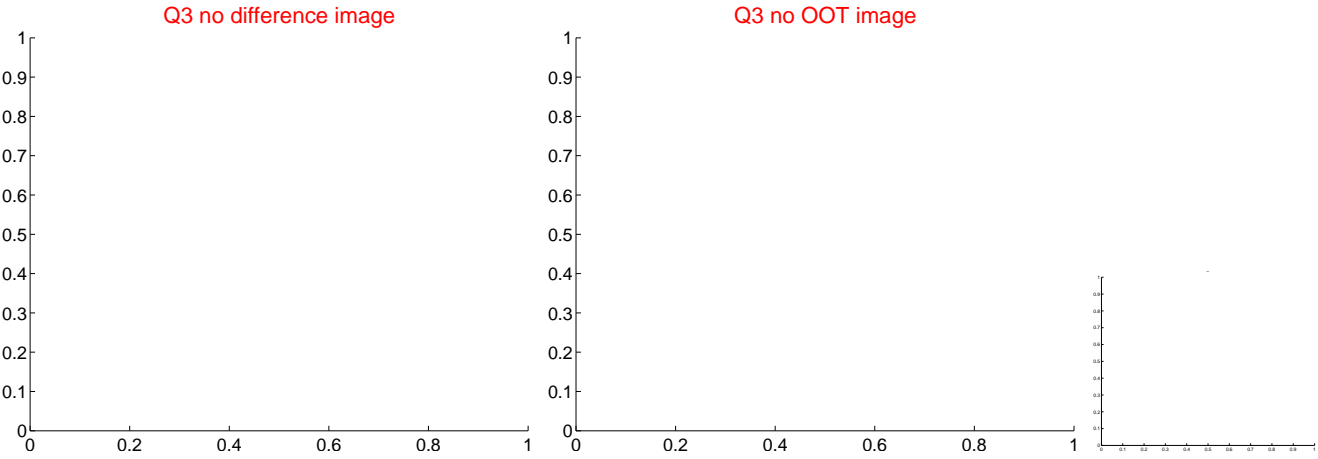
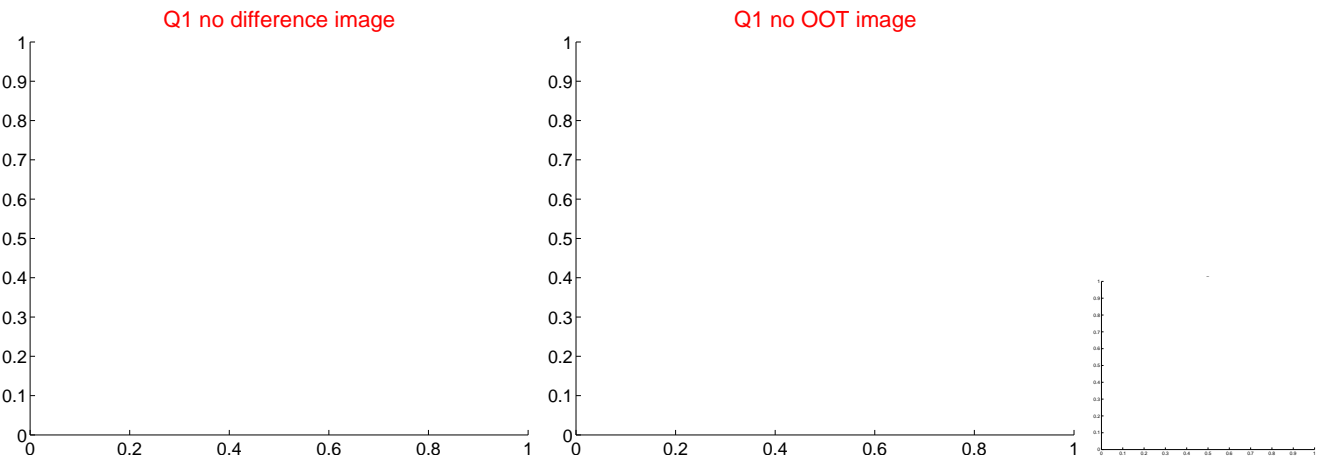
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.227 ± 0.703	0.32	-0.145 ± 0.196	-0.174 ± 0.998
PRF-fit source offset from KIC position	0.058 ± 0.702	0.08	-0.023 ± 0.179	-0.053 ± 0.802
photometric centroid source offset	0.55 ± 0.96	0.57	0.01 ± 0.92	0.55 ± 0.96

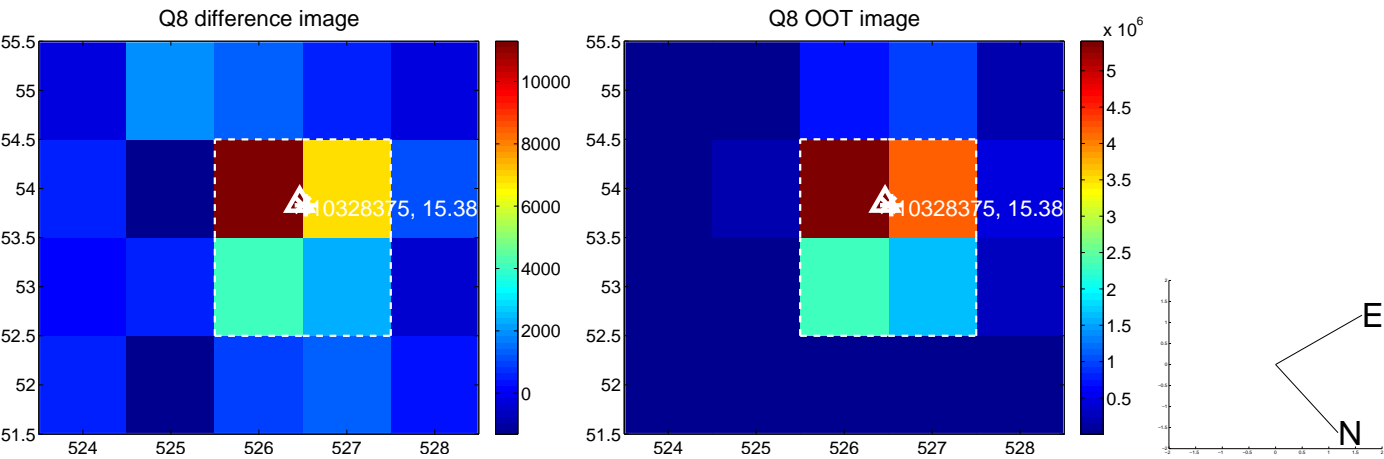


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

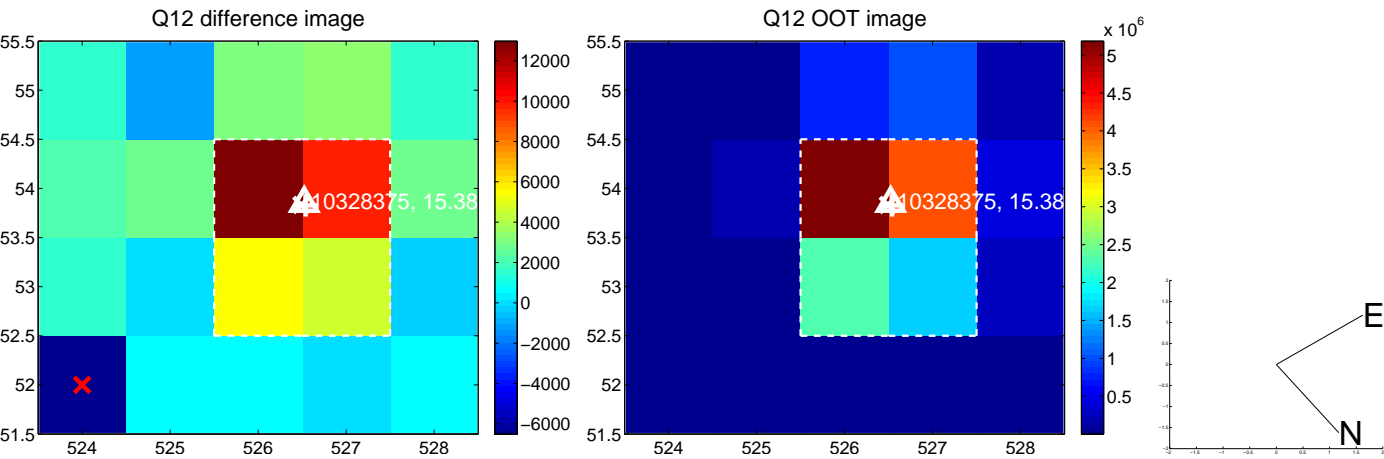
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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

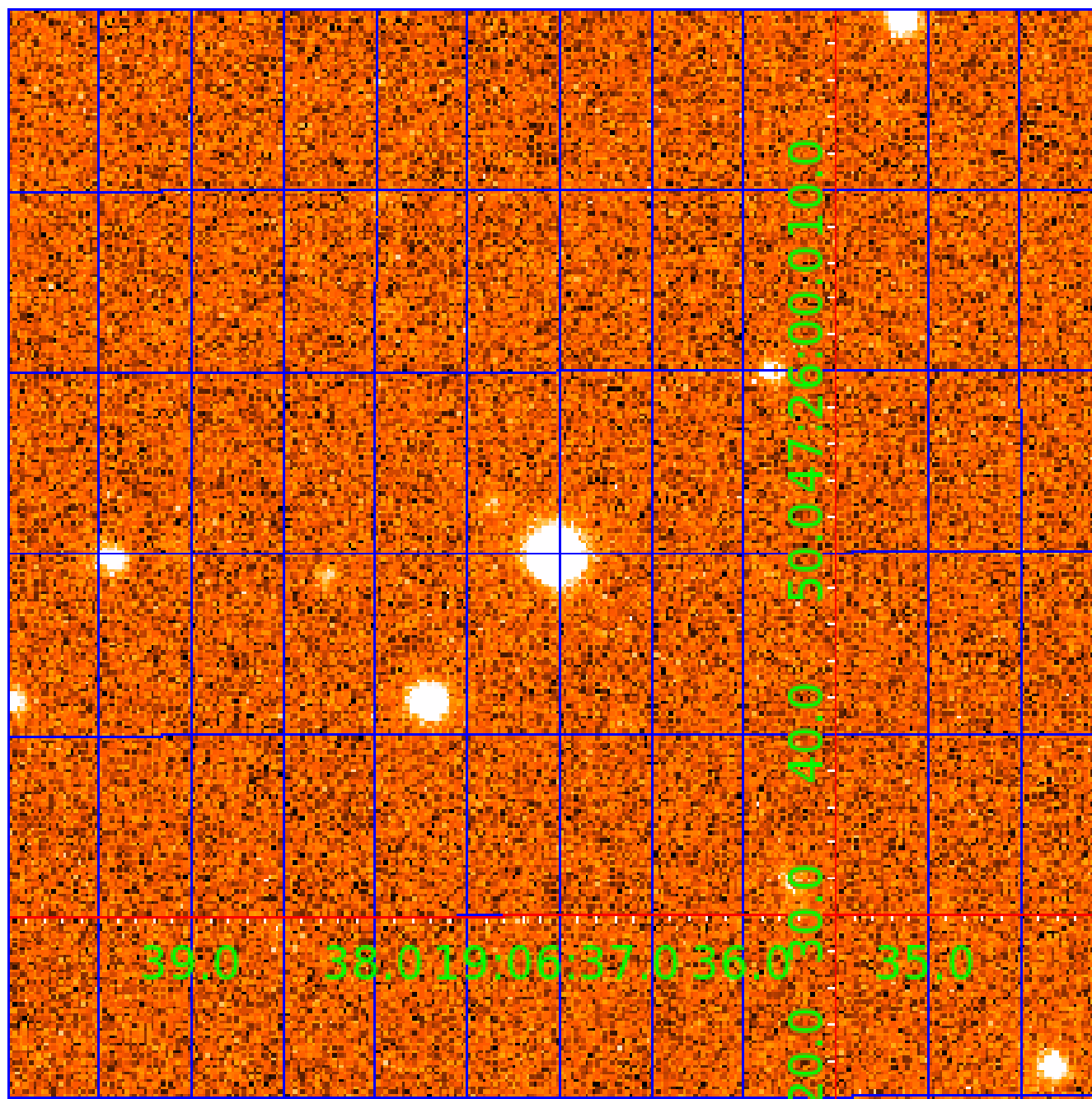


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010328375

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})
010328375-01	OBS	No	401.608992	367.967550	1704.9	3.046	15.7	8.6	0.81	5631	3.35	0.64
010328375-02	OBS	No	261.659780	325.702788	988.5	9.417	16.9	4.1	0.81	5631	2.64	1.14
010328375-03	OBS	No	473.076705	393.296160	2193.8	3.248	15.0	9.1	0.81	5631	3.80	0.52
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Robovetter Results

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010328375-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010328375-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010328375-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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

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

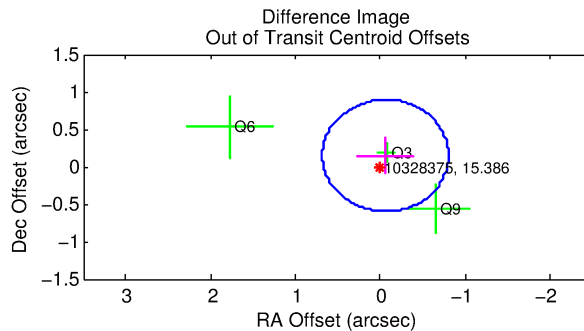
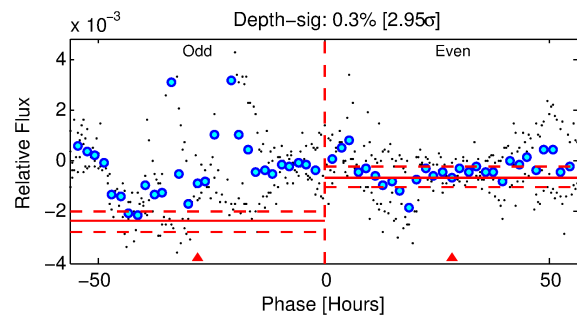
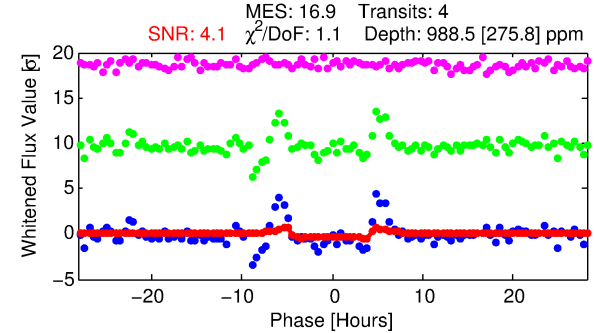
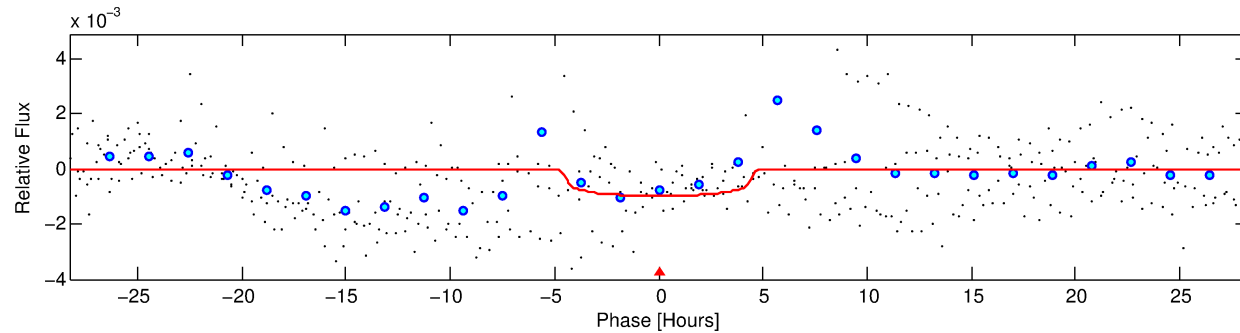
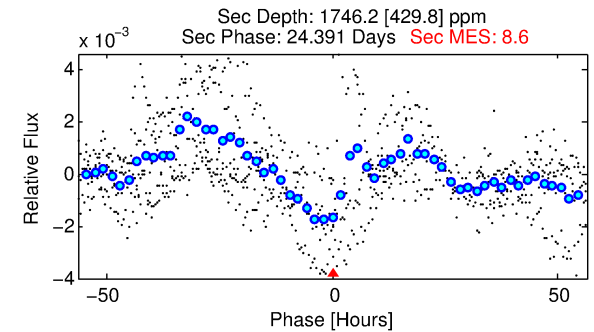
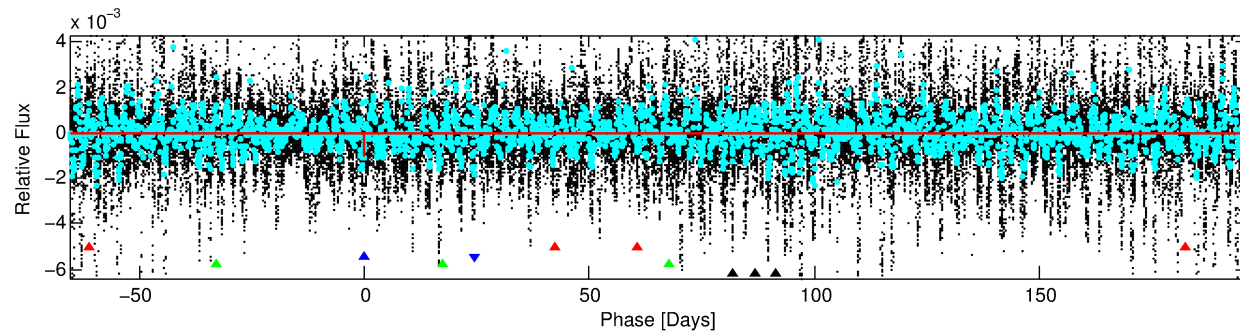
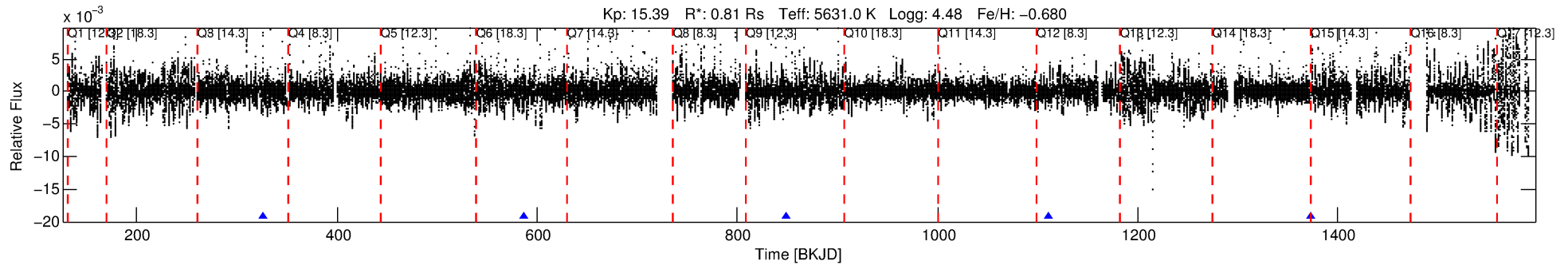
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010328375-02

No Significant Match Found

DV One-Page Summary

KIC: 10328375 Candidate: 2 of 4 Period: 261.660 d



DV Fit Results:

Period = 261.65978 [0.00769] d
Epoch = 325.7028 [0.0147] BKJD
Rp/R* = 0.0300 [0.0139]
a/R* = 178.62 [343.57]
b = 0.59 [2.11]
Seff = 1.14 [0.34]
Teq = 263 [20] K
Rp = 2.64 [1.32] Re
a = 0.7174 [0.1259] AU
Ag = 70796.51 [70282.51] [1.01σ]
Teffp = 6645 [1602] K [3.98σ]

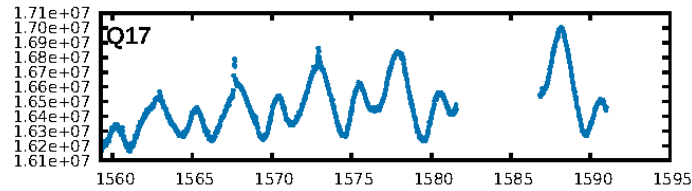
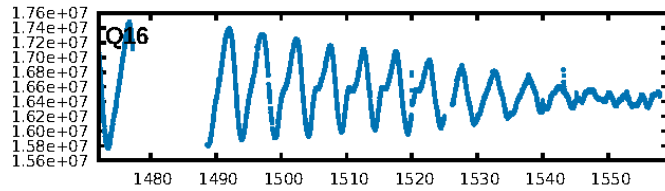
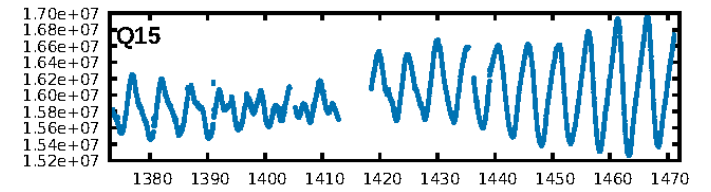
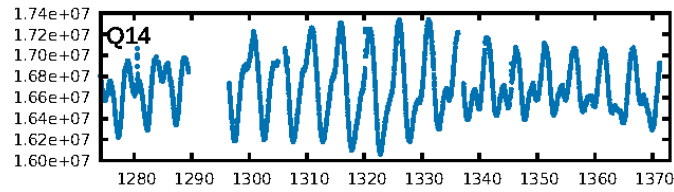
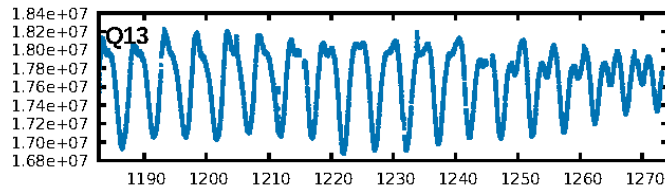
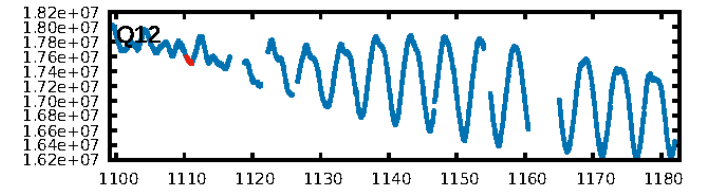
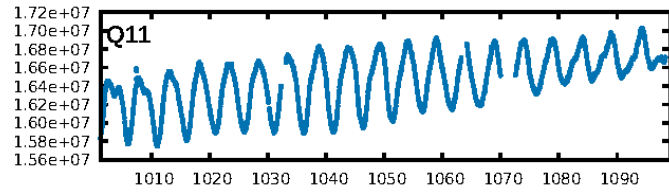
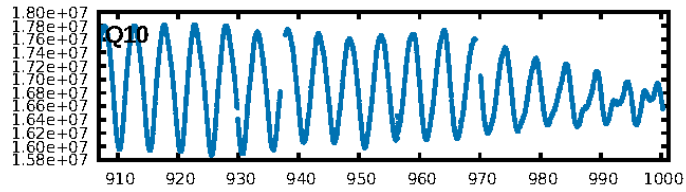
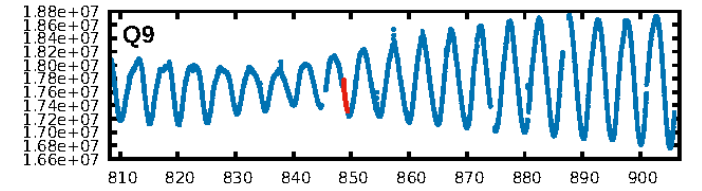
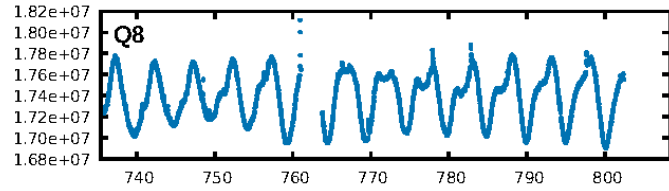
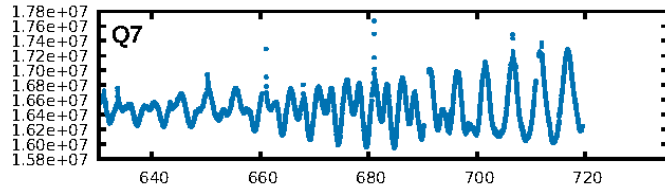
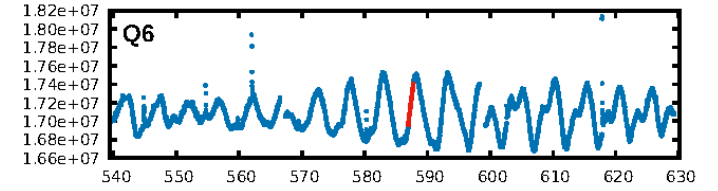
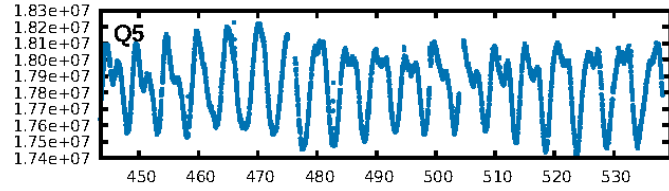
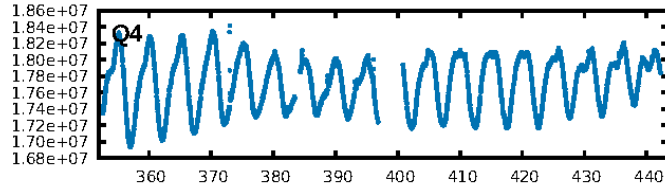
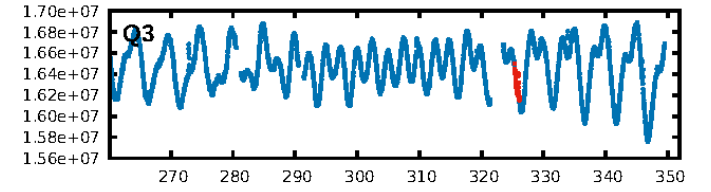
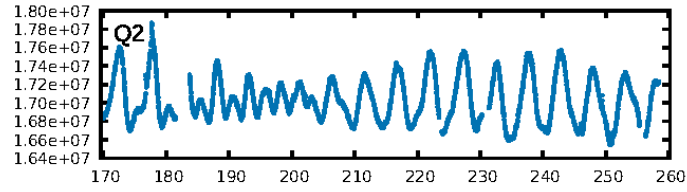
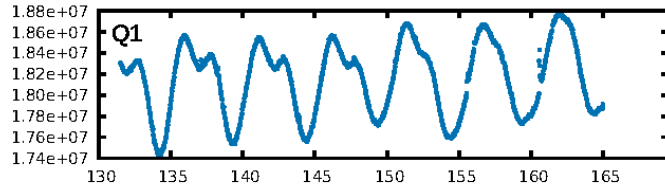
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [339.36σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 95.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.3623
Centroid-sig: 37.2%
Centroid-so: 0.528 arcsec [0.55σ]
OotOffset-rm: 0.161 arcsec [0.65σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-rm: 0.402 arcsec [1.10σ]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

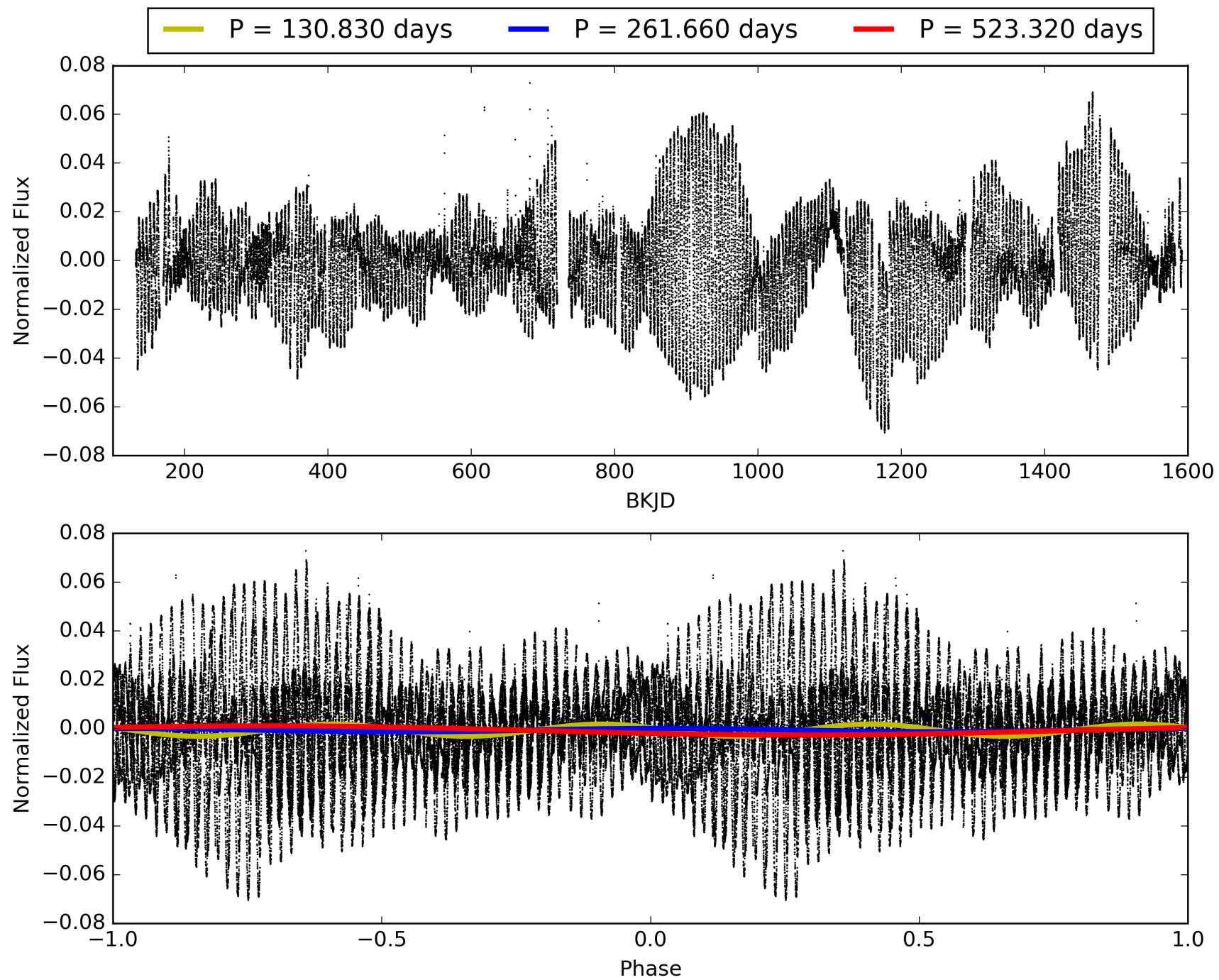
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:21:23 Z

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

TCE 010328375-02, PDC Light Curves

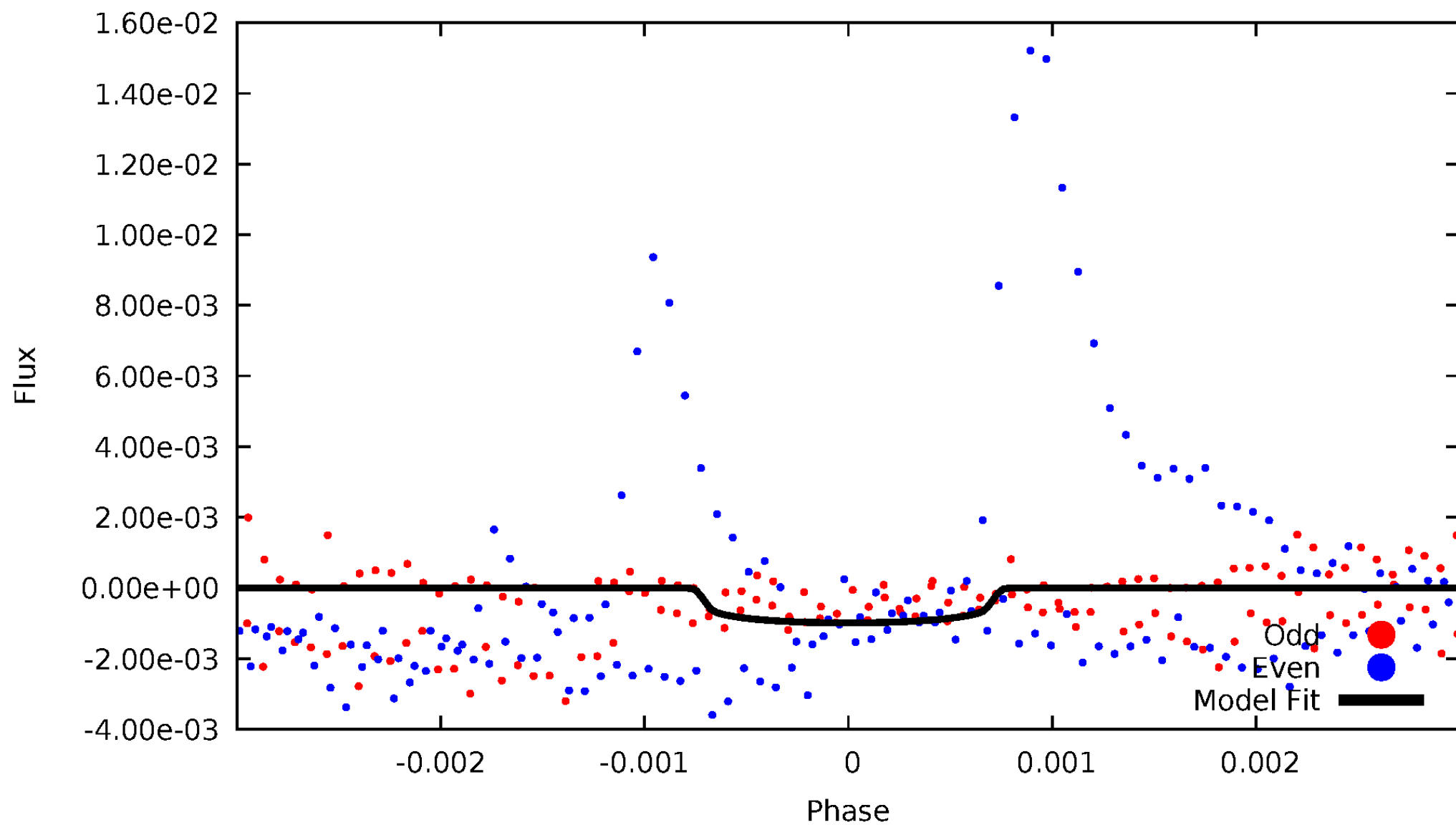


TCE 010328375-02



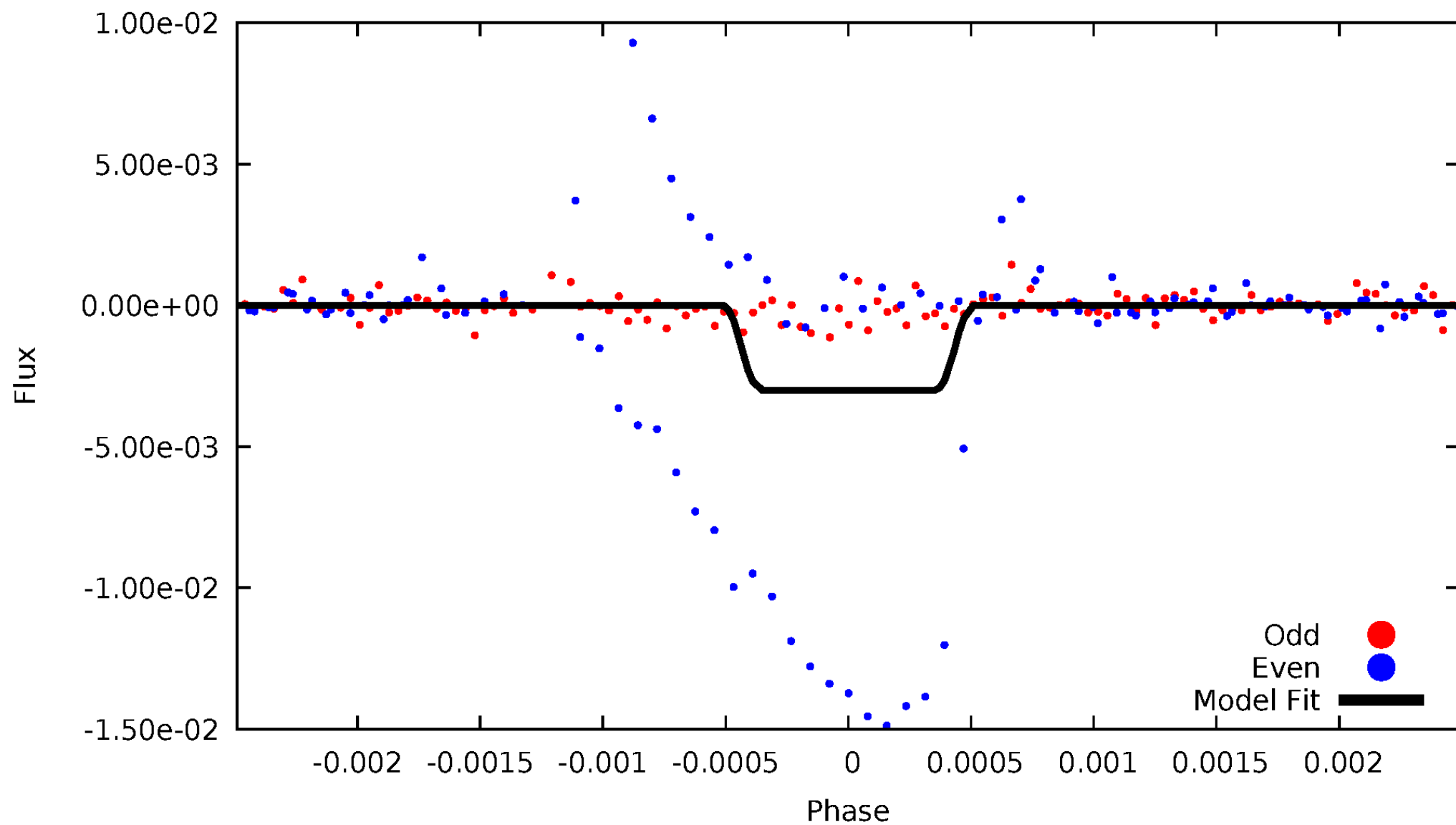
DV Odd/Even

TCE 010328375-02



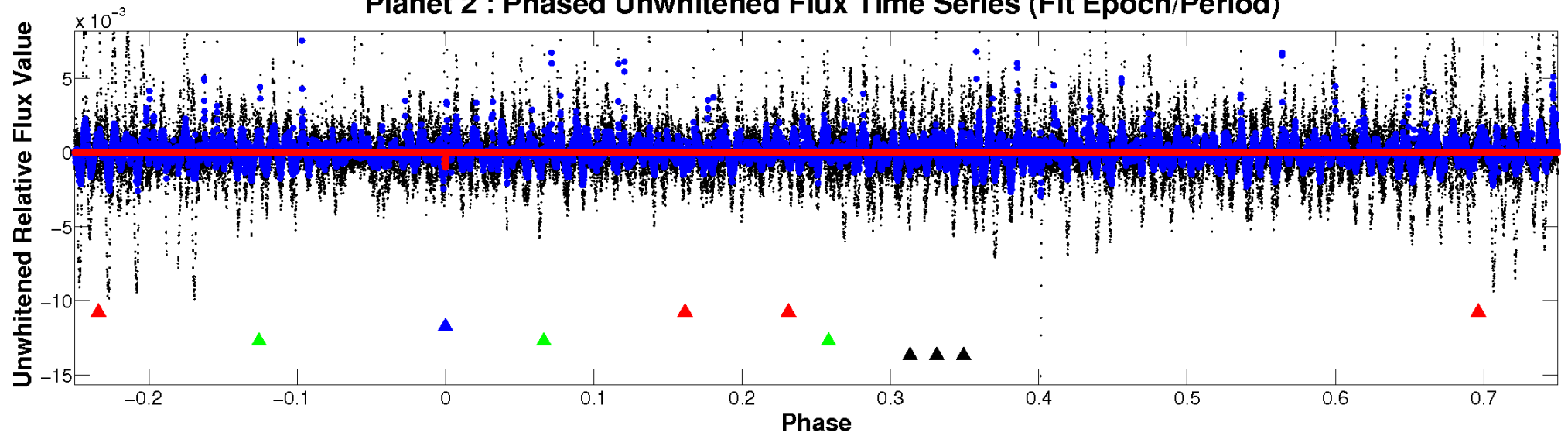
ALT Odd/Even

TCE 010328375-02

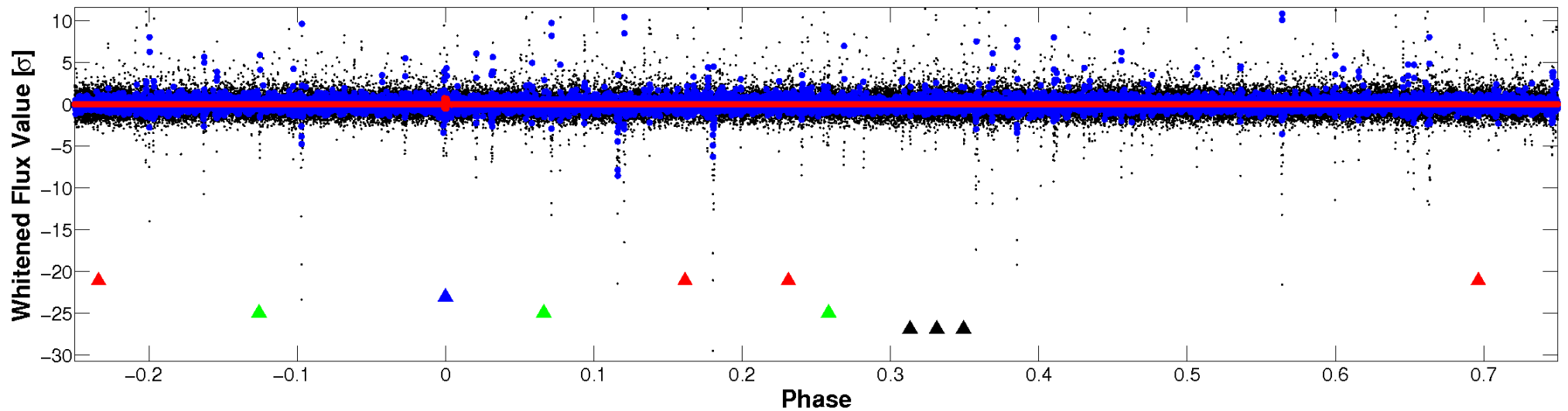


Non-Whitened Vs. Whitened Light Curve

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

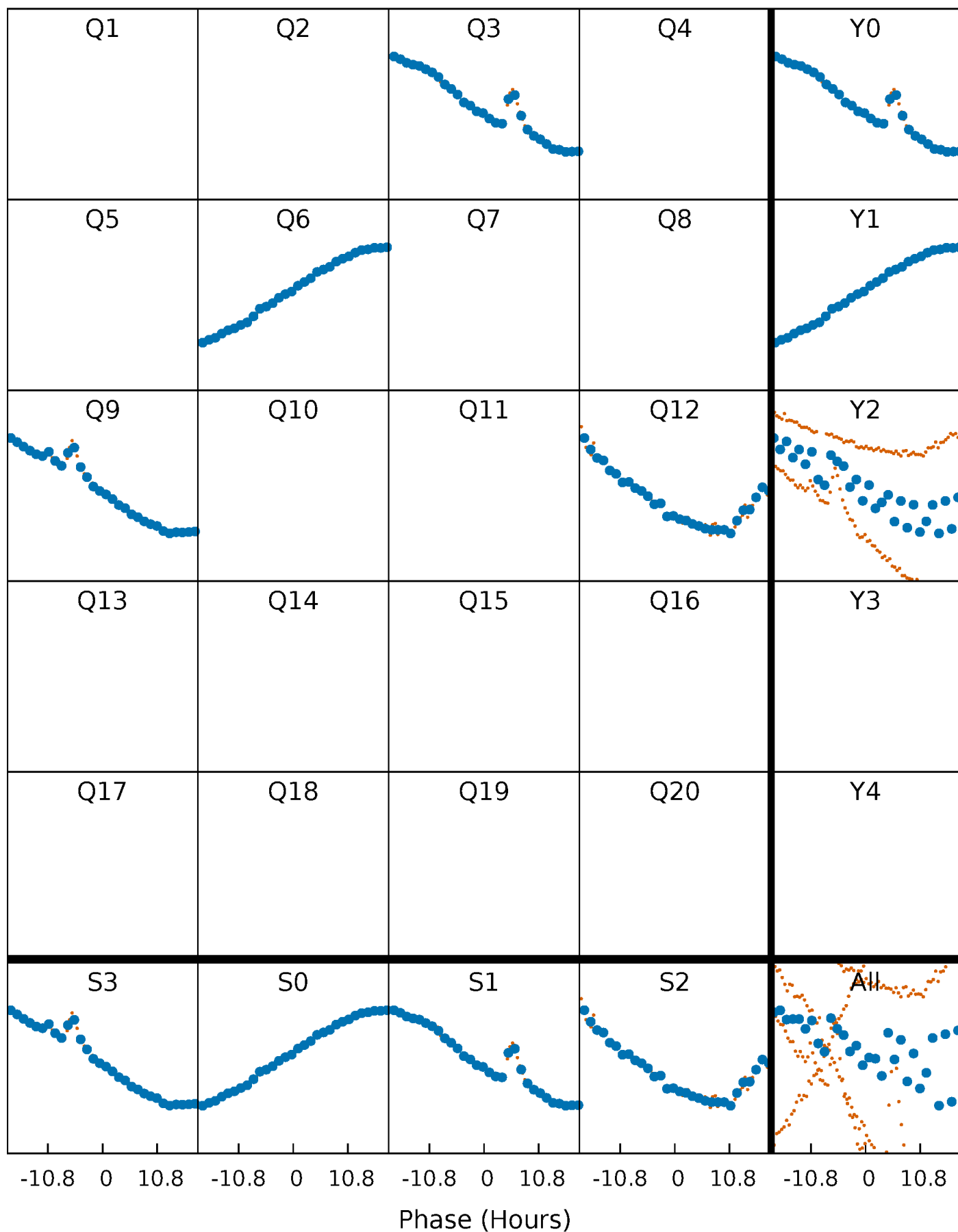


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



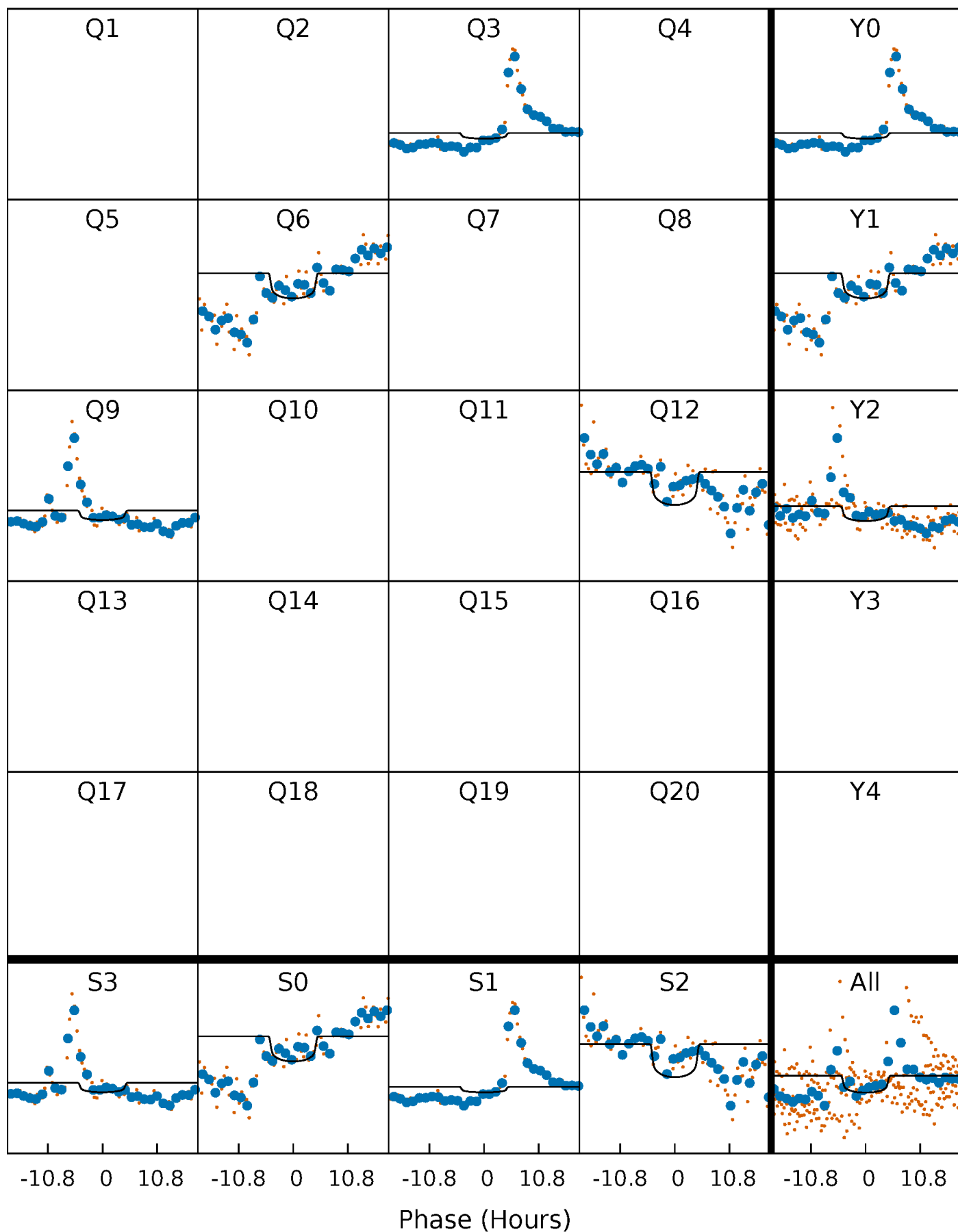
PDC Quarter-Phased Transit Curves

TCE 010328375-02 $P=261.659780$ Days $T_0=325.702788$ (BKJD)



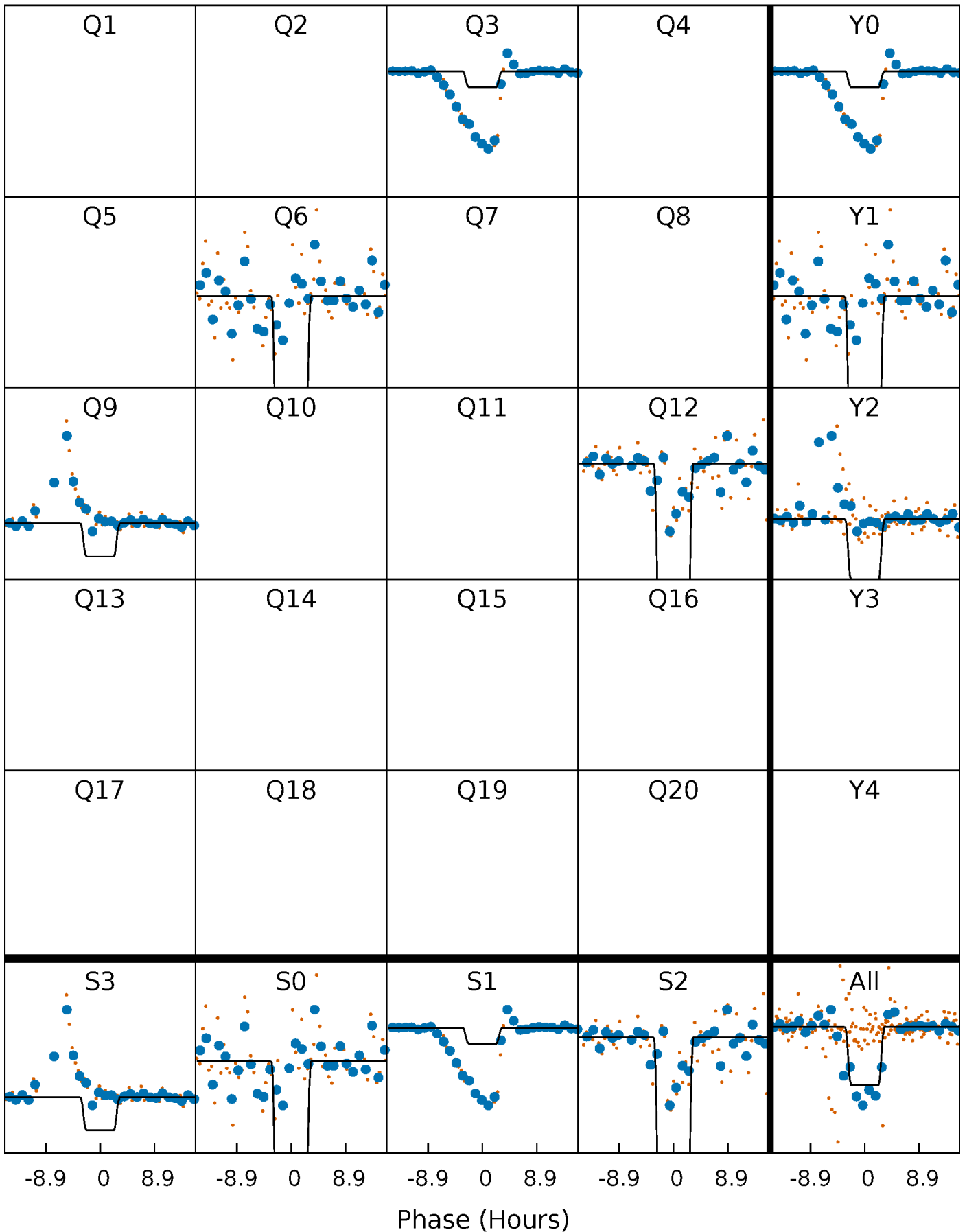
DV Quarter-Phased Transit Curves

TCE 010328375-02 $P=261.659780$ Days $T_0=325.702788$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

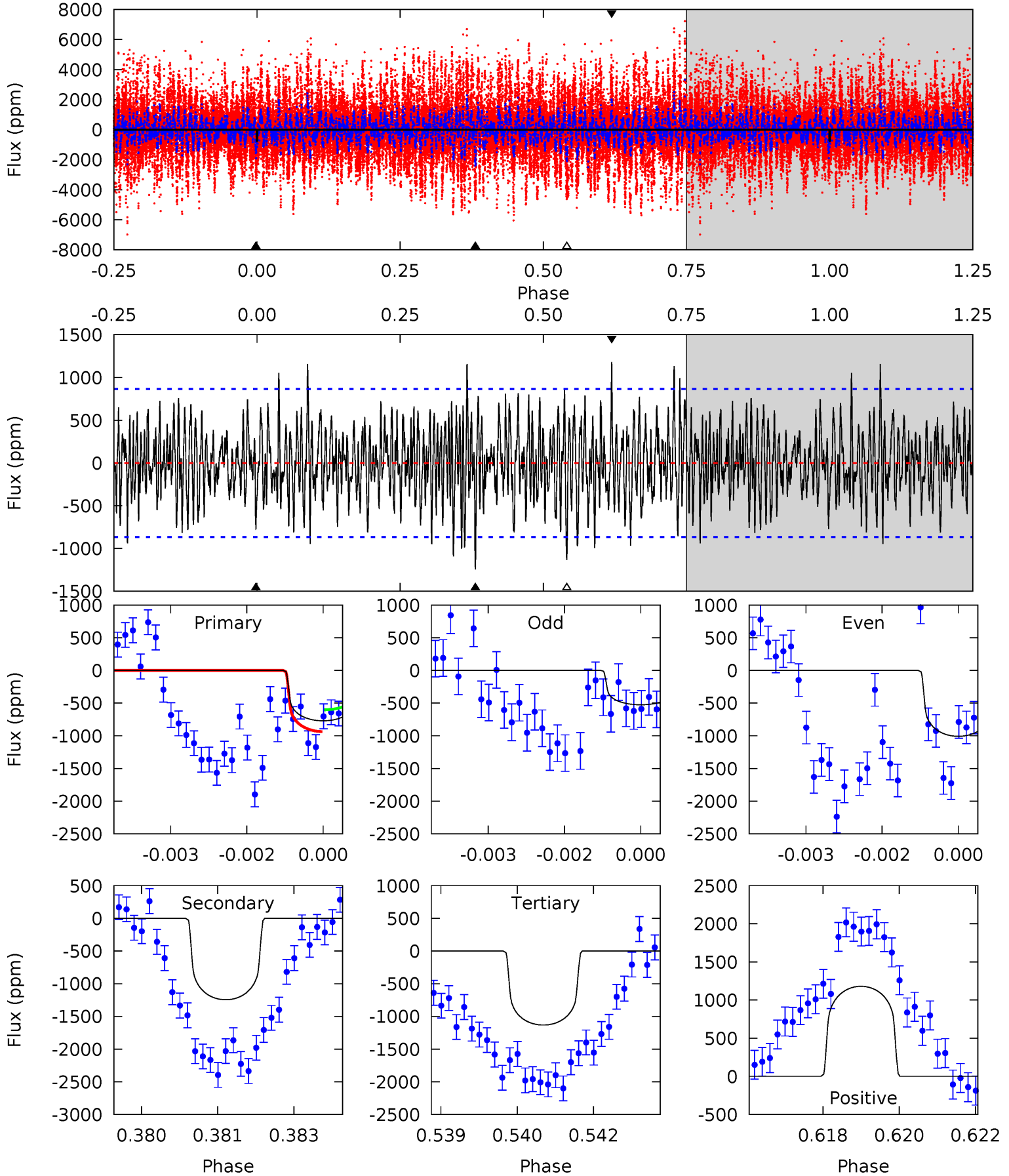
TCE 010328375-02 $P=261.624491$ Days $T_0=325.772883$ (BKJD)



DV Model-Shift Uniqueness Test

010328375-02, $P = 261.659780$ Days, $E = 64.043008$ Days

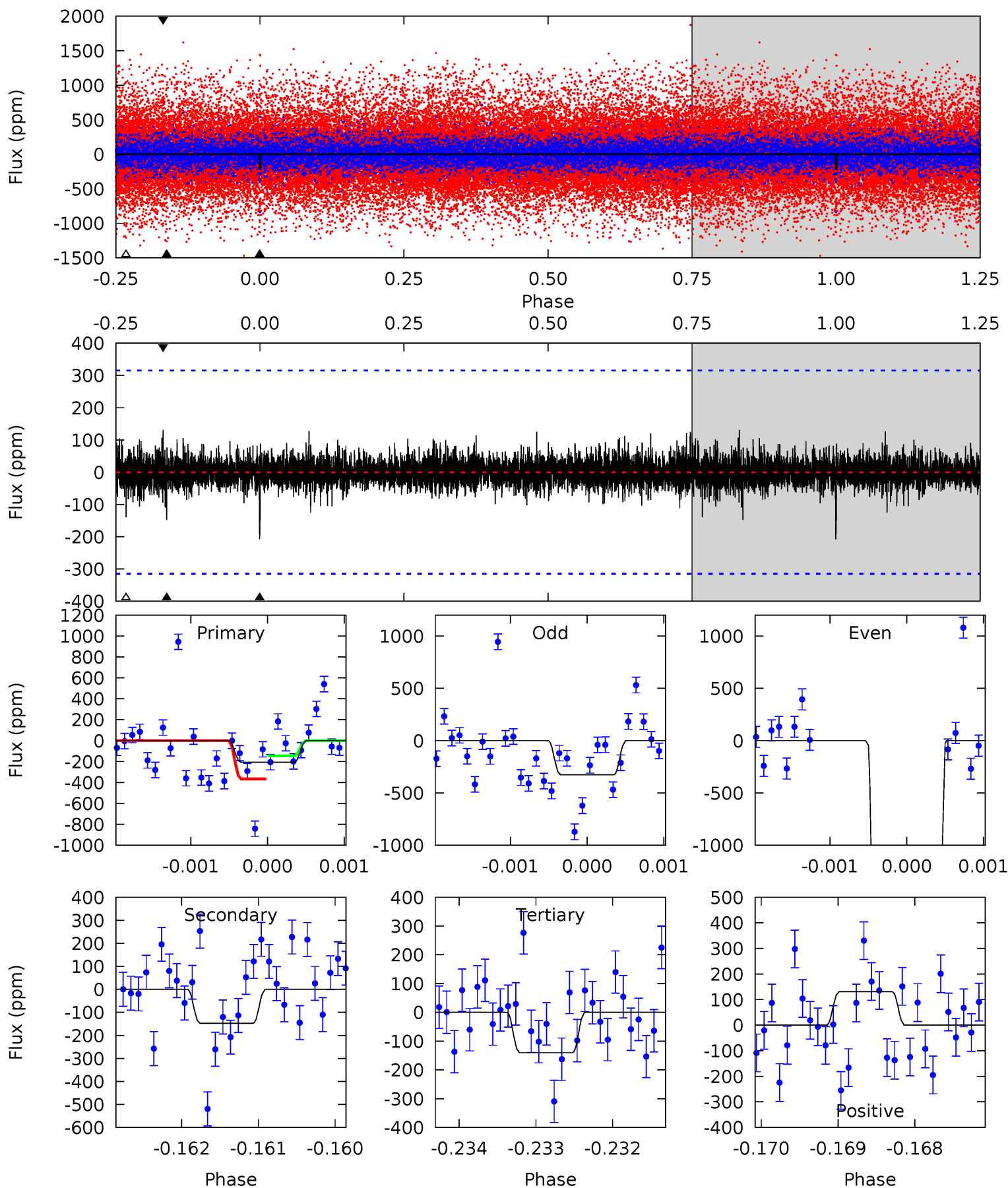
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.79	7.73	7.03	7.33	5.37	3.16	2.29	-2.24	-2.54	0.70	0.40	1.44	1.41	0.49	1.04



Alt Model-Shift Uniqueness Test

010328375-02, P = 261.624491 Days, E = 64.148392 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.59	2.55	2.42	2.26	5.45	3.29	0.50	1.17	1.33	0.14	0.30	62.1	10.8	0.39	1.88



Stellar Parameters For KIC 010328375

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5631^{+183}_{-167}	$4.481^{+0.140}_{-0.154}$	$-0.680^{+0.350}_{-0.300}$	$0.807^{+0.157}_{-0.118}$	$0.718^{+0.102}_{-0.036}$	$1.922^{+1.102}_{-0.767}$
	+3%/-3%	+3%/-3%	+51%/-44%	+19%/-15%	+14%/-5%	+57%/-40%
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 010328375-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1245 ± 161	$2.79^{+1.27}_{-1.27}$	370^{+24}_{-21}	5984^{+2528}_{-931}	$47407^{+107556}_{-26077}$
Alt.	-148 ± 58	$4.85^{+1.39}_{-1.29}$	369^{+23}_{-20}	3236^{+361}_{-312}	1790^{+1807}_{-928}

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

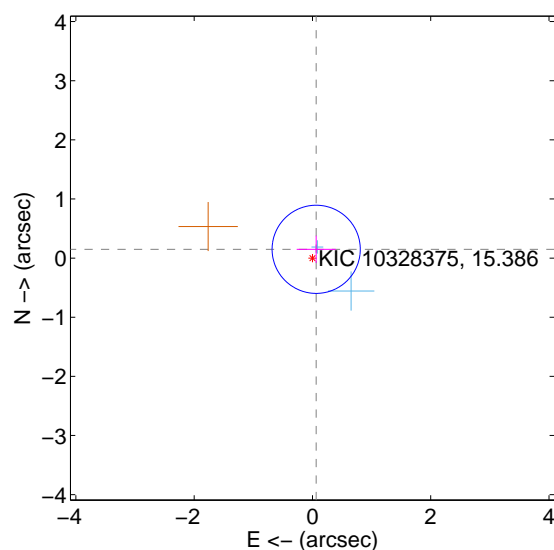
Supplemental centroid analysis for 010328375-02. Kepler magnitude: 15.39. Transit SNR 4.06

There are 2 quarters with good PRF difference image offsets

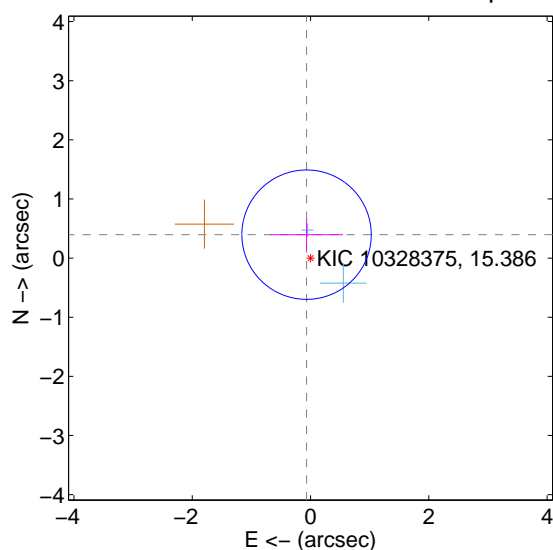
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.161 ± 0.249	0.65	-0.063 ± 0.330	0.149 ± 0.231
PRF-fit source offset from KIC position	0.402 ± 0.365	1.10	0.067 ± 0.616	0.397 ± 0.269
photometric centroid source offset	0.53 ± 0.96	0.55	-0.36 ± 0.94	-0.39 ± 0.98

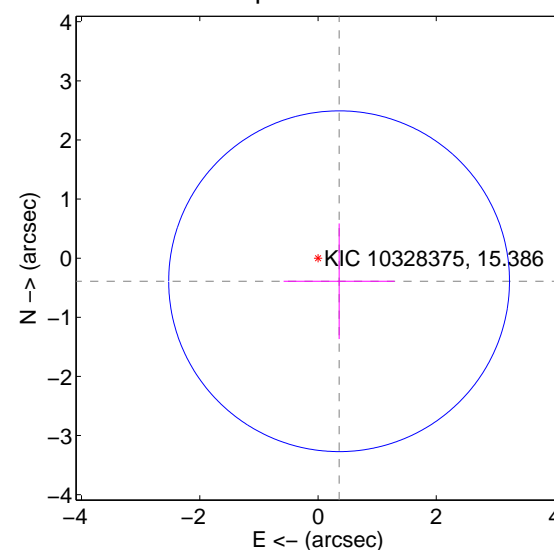
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

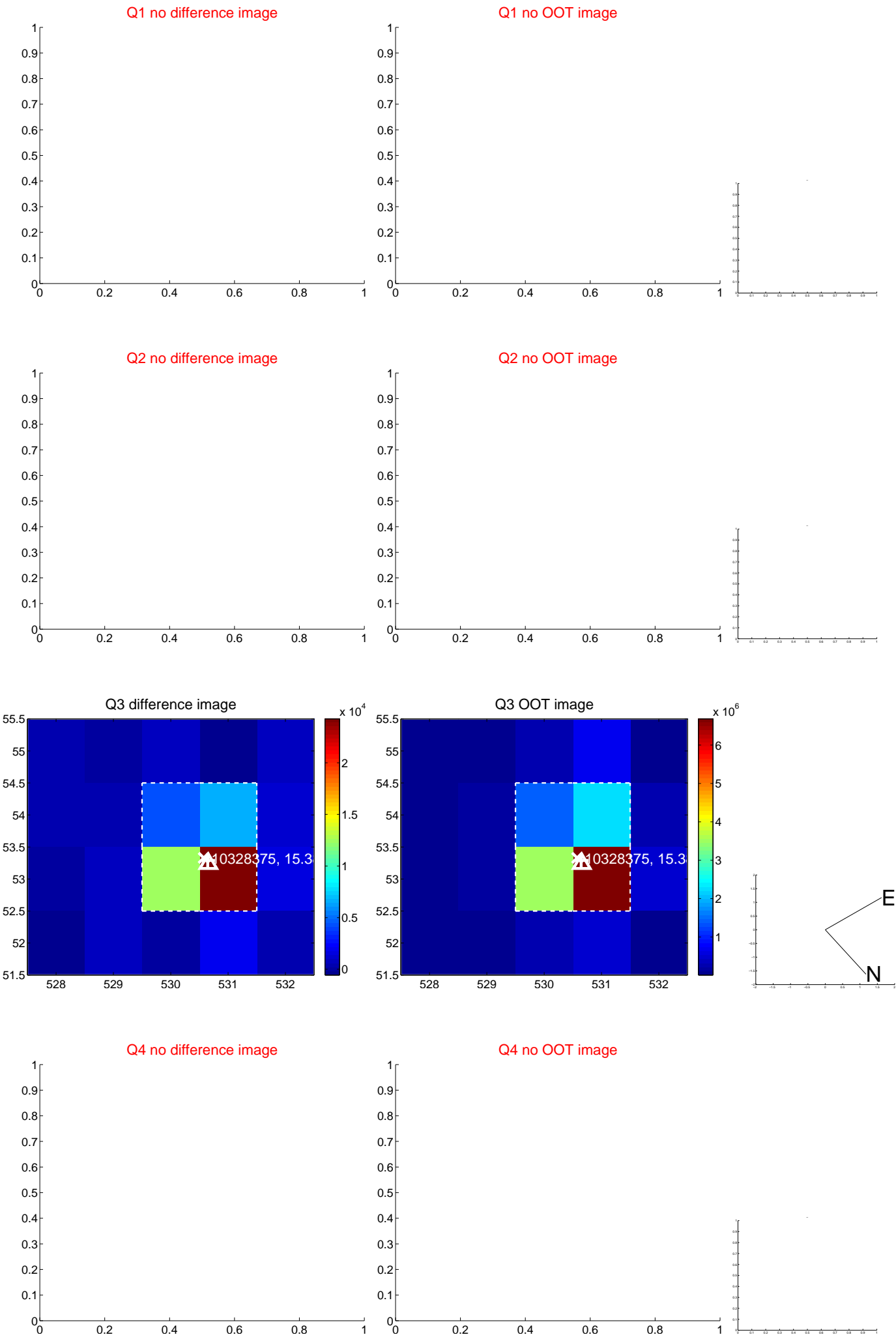


offset from photometric centroids

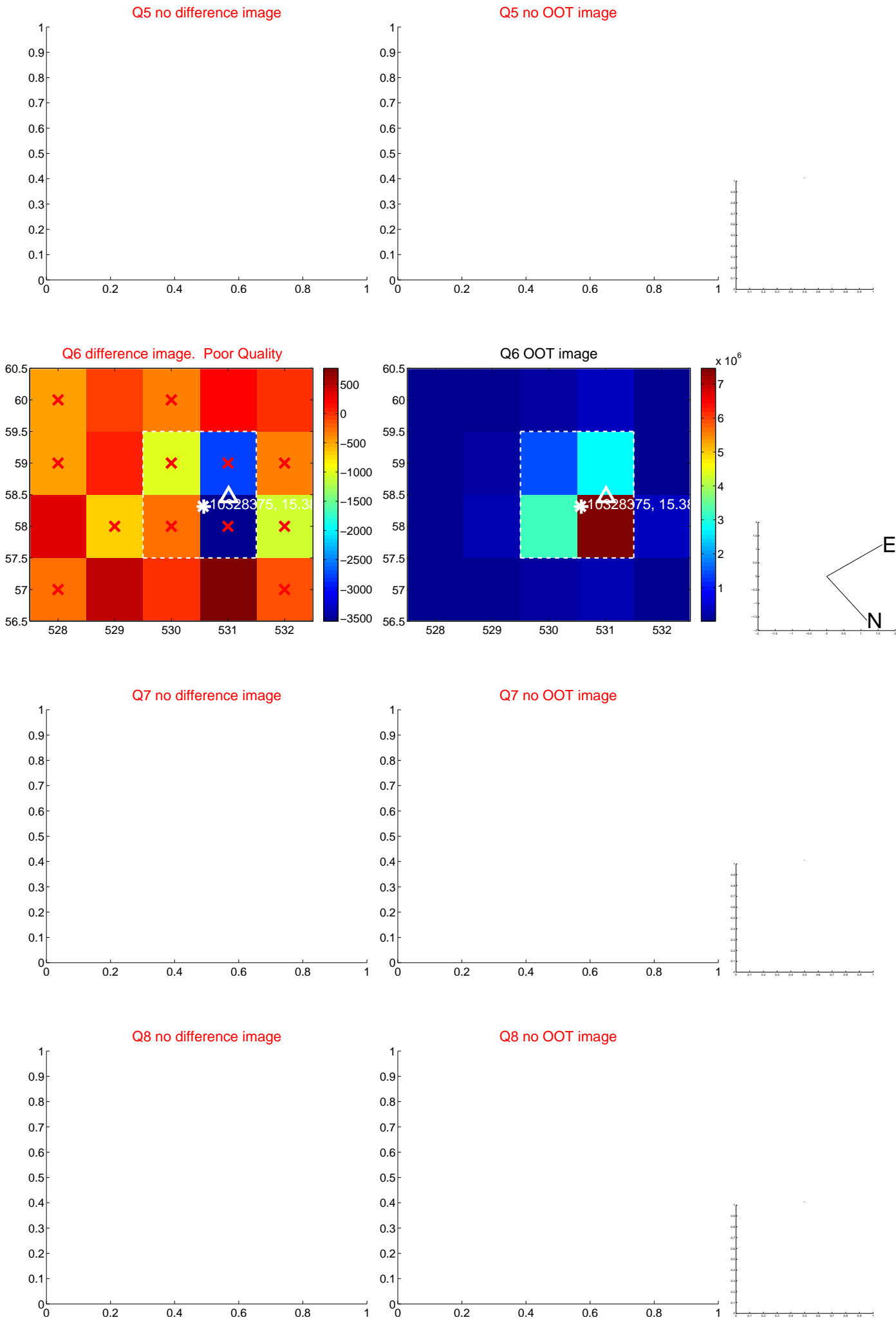


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

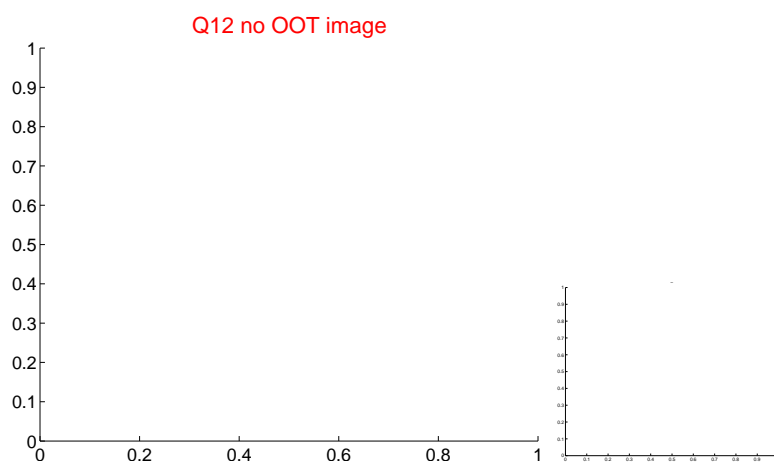
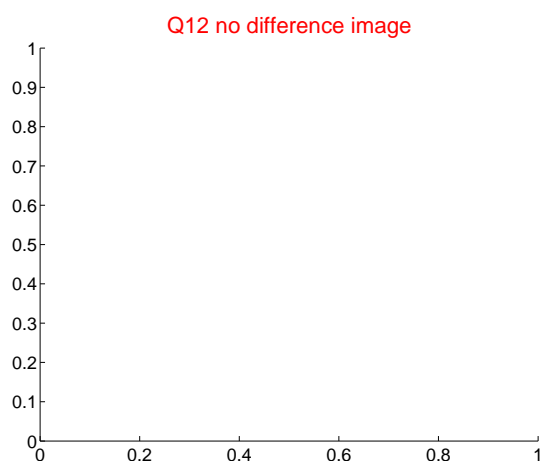
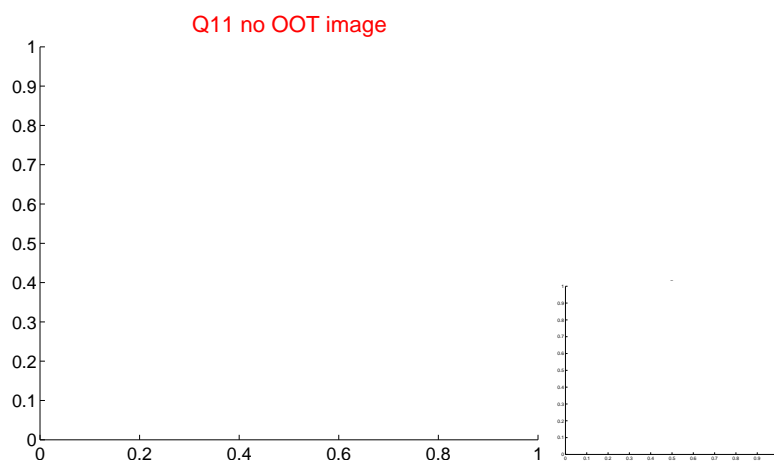
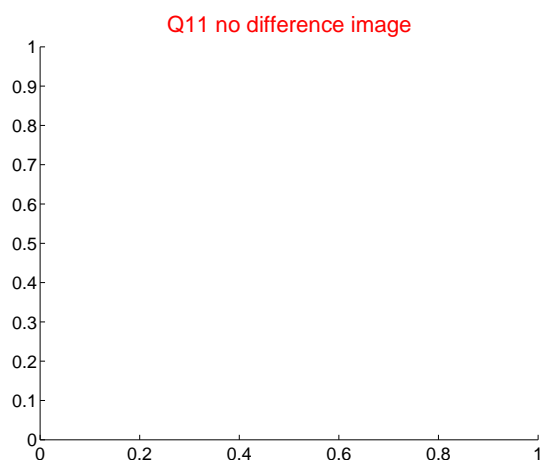
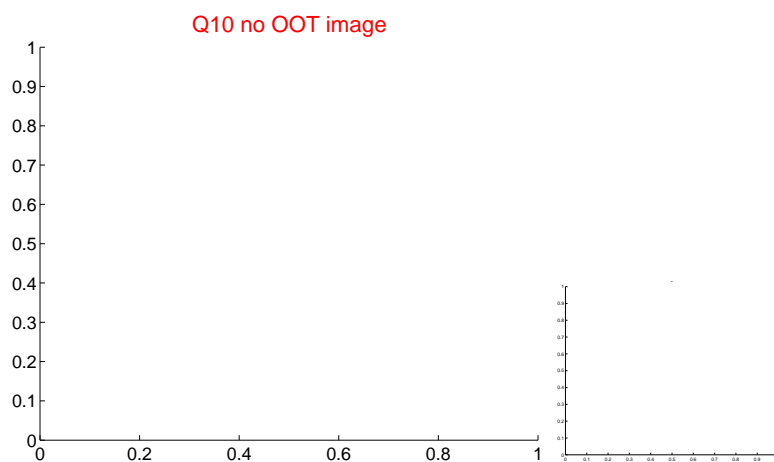
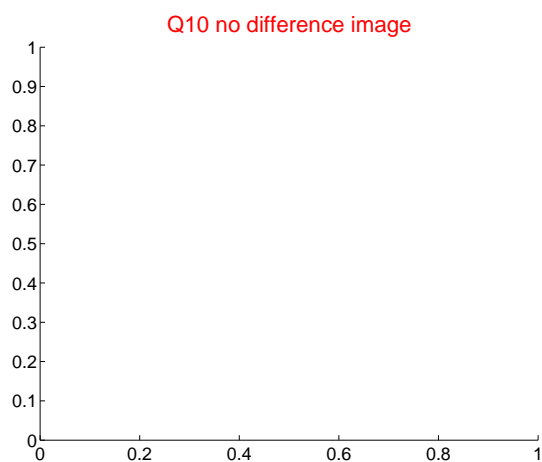
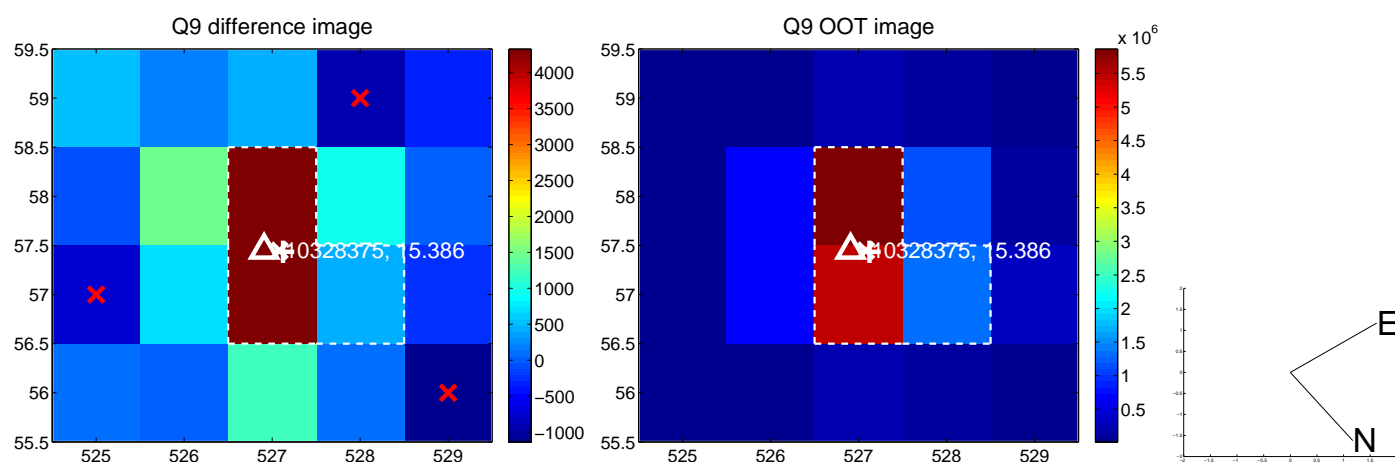
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



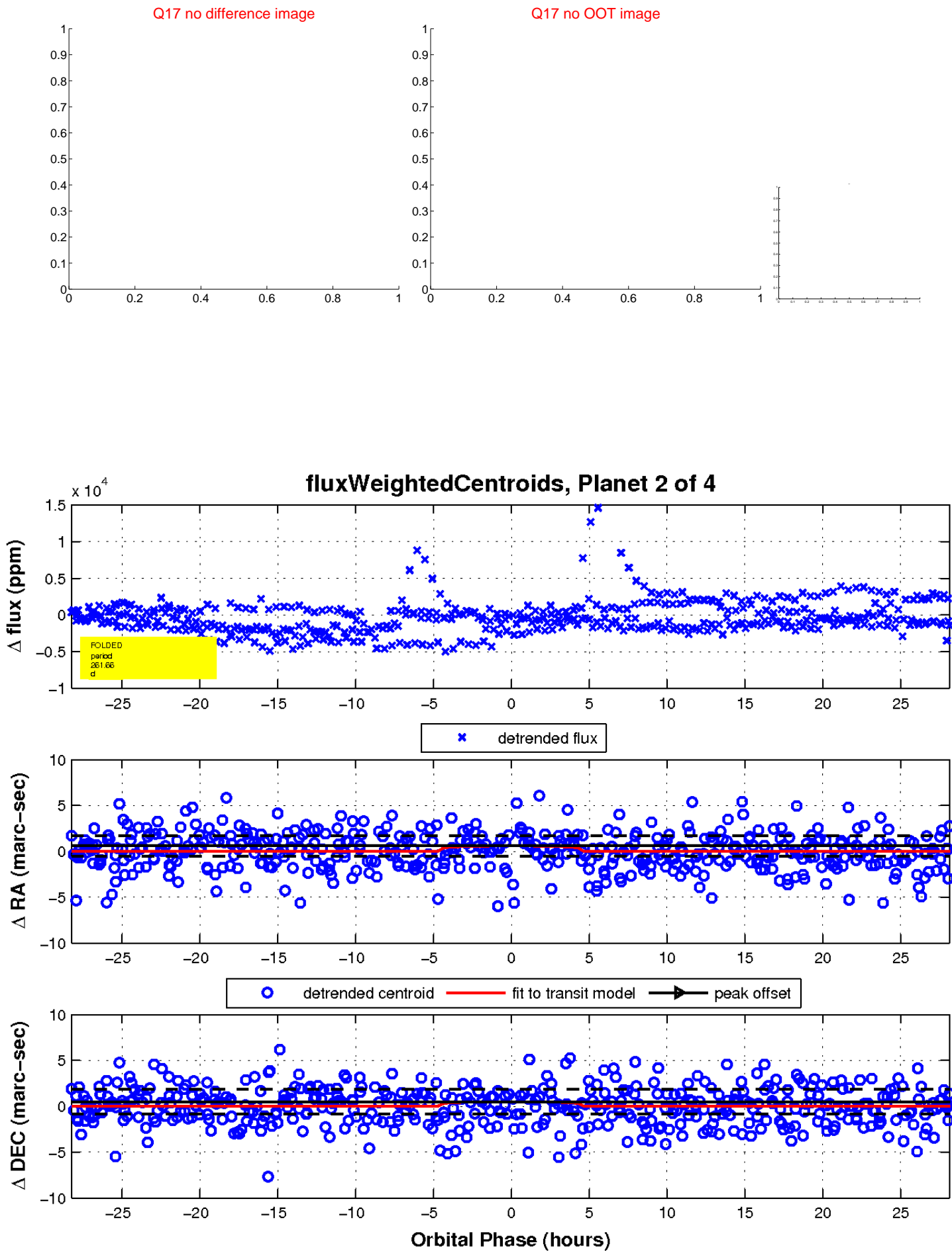
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

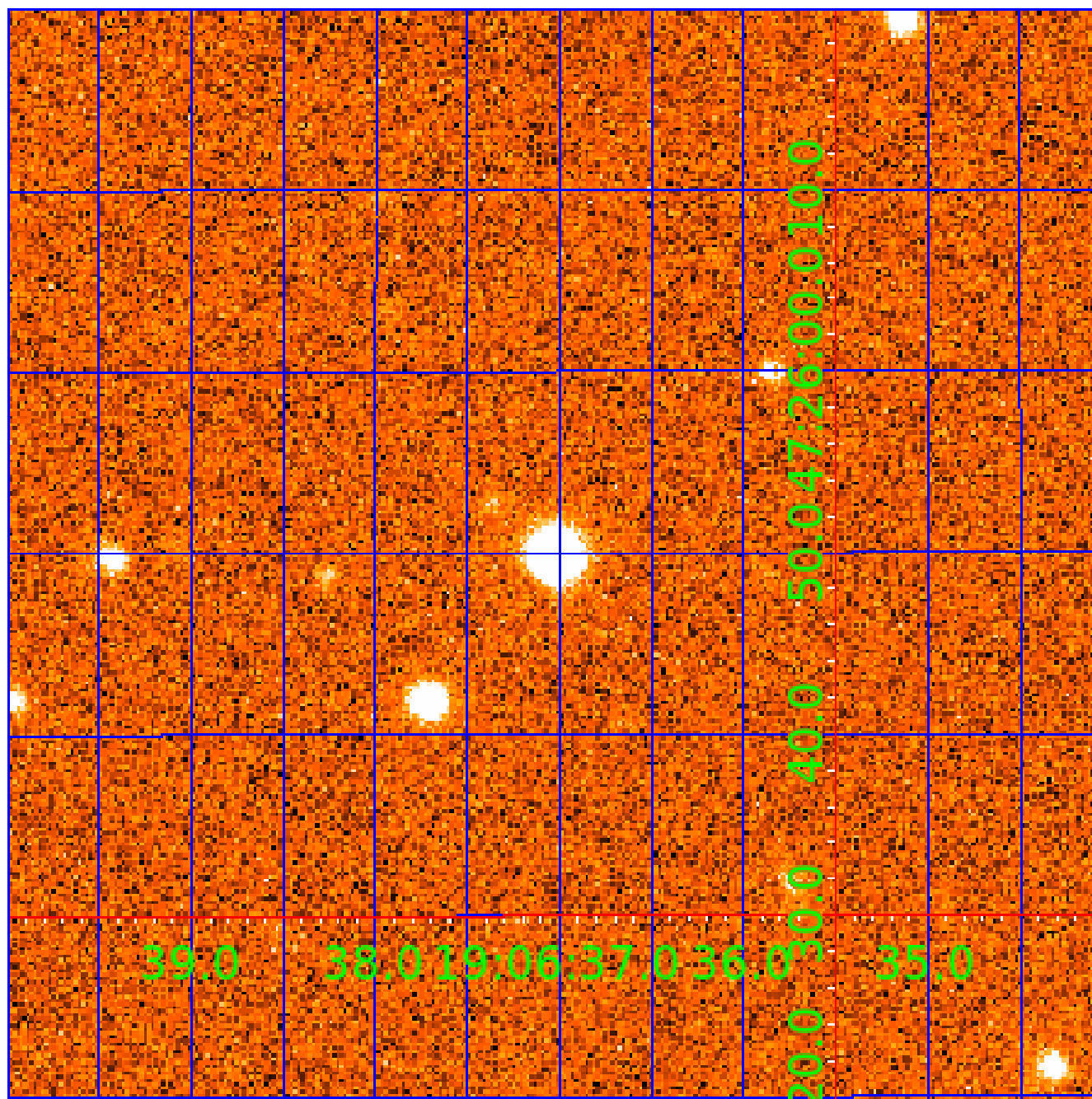


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010328375

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})
010328375-01	OBS	No	401.608992	367.967550	1704.9	3.046	15.7	8.6	0.81	5631	3.35	0.64
010328375-02	OBS	No	261.659780	325.702788	988.5	9.417	16.9	4.1	0.81	5631	2.64	1.14
010328375-03	OBS	No	473.076705	393.296160	2193.8	3.248	15.0	9.1	0.81	5631	3.80	0.52
010328375-04	OBS	No	518.596942	155.445504	1744.9	4.500	15.0	-1.0	0.81	5631	3.36	0.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010328375-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
010328375-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010328375-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010328375-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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

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

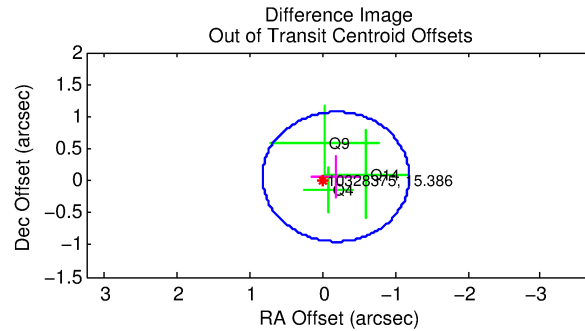
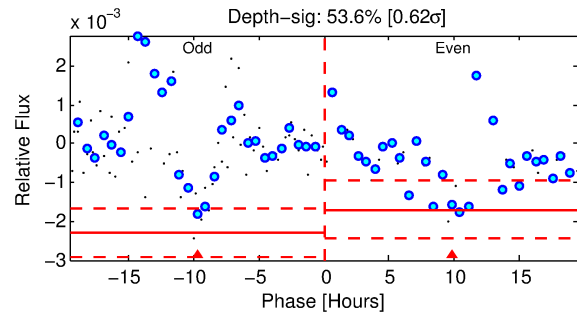
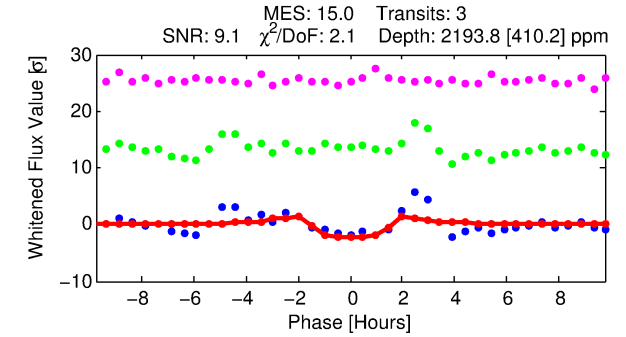
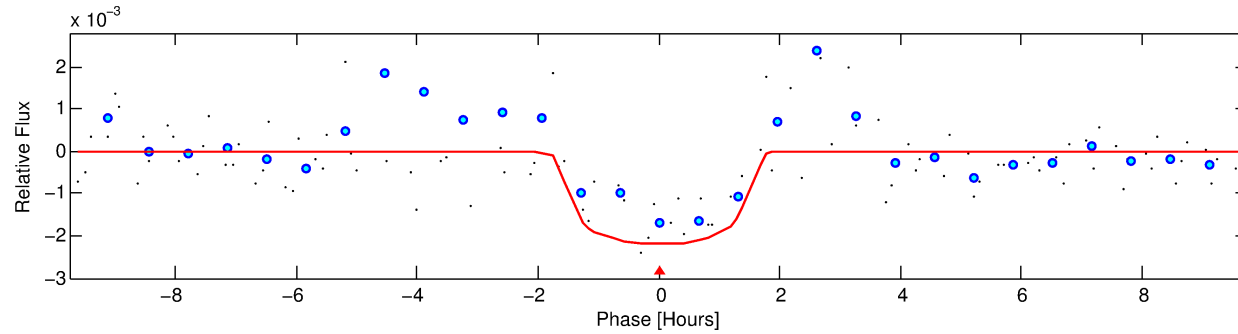
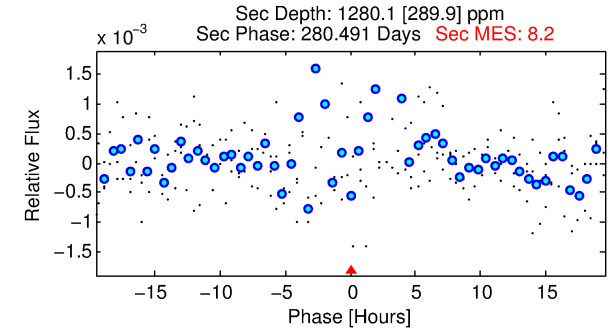
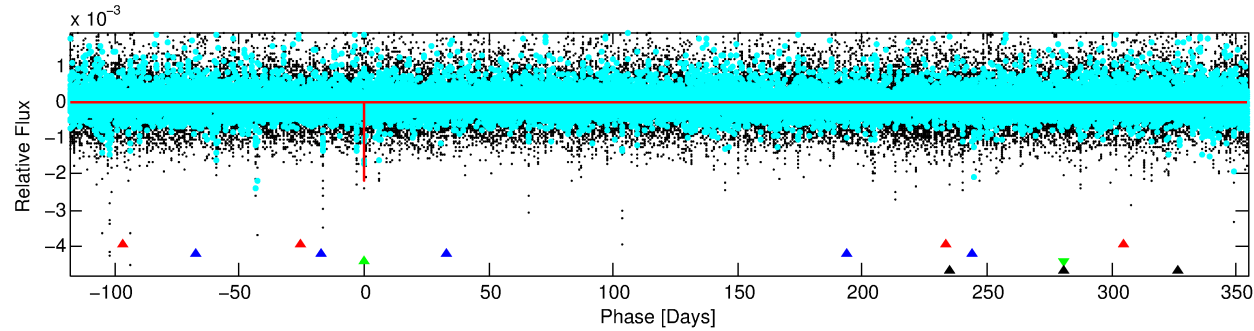
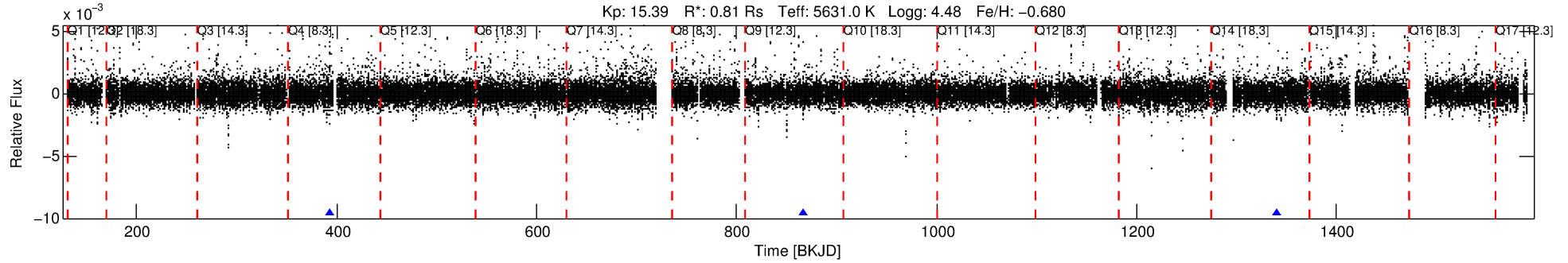
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010328375-03

No Significant Match Found

DV One-Page Summary

KIC: 10328375 Candidate: 3 of 4 Period: 473.077 d



DV Fit Results:

Period = 473.07670 [0.00532] d
Epoch = 393.2962 [0.0074] BKJD
Rp/R* = 0.0431 [0.0597]
a/R* = 1116.95 [7030.13]
b = 0.28 [20.63]
Seff = 0.52 [0.15]
Teq = 216 [16] K
Rp = 3.80 [5.31] Re
a = 1.0647 [0.1868] AU
Ag = 55380.57 [154640.64] [0.36 σ]
Teffp = 5130 [3568] K [1.38 σ]

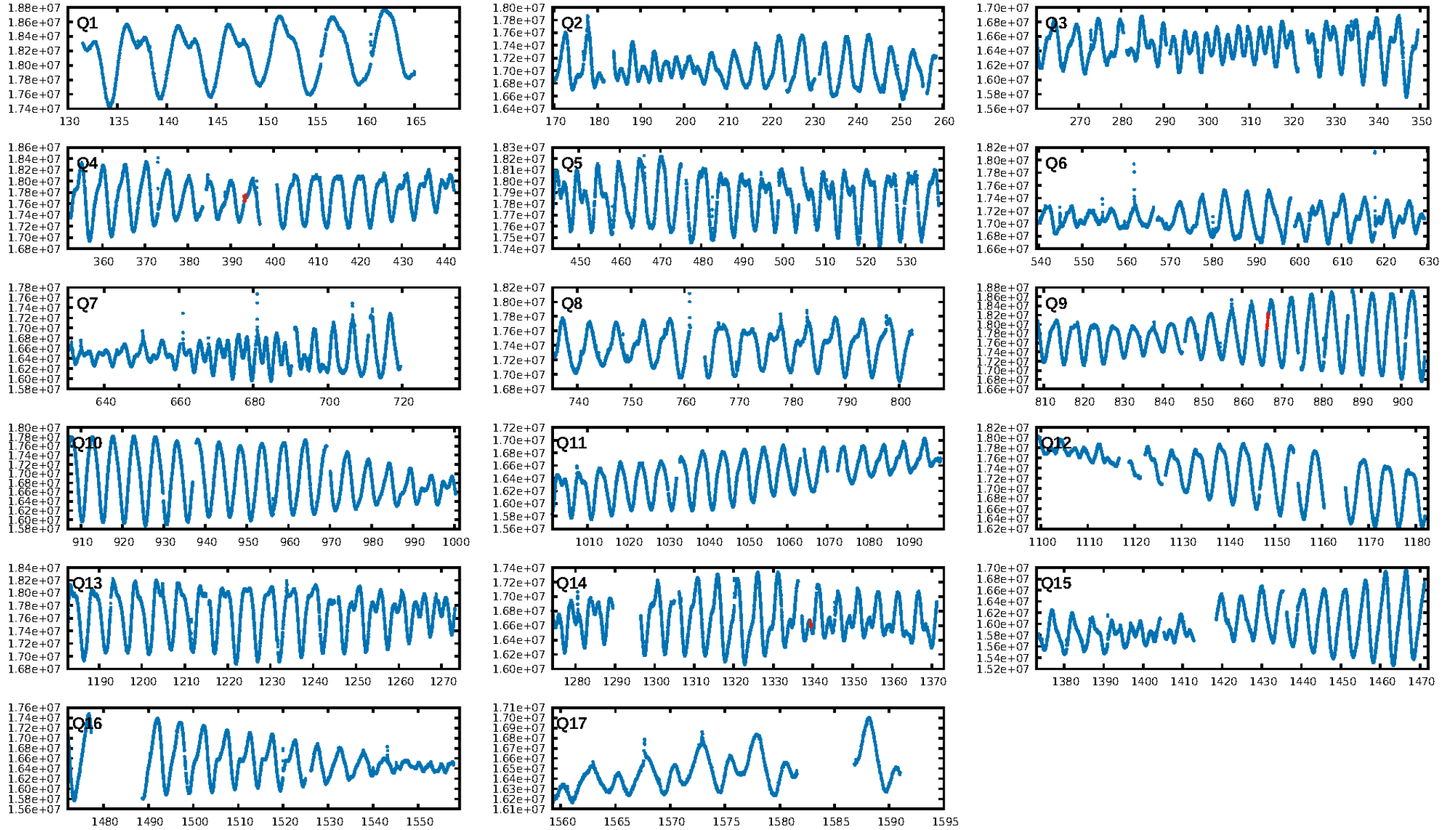
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [385.22 σ]
LongPeriod-sig: 100.0% [196.85 σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 6.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.788
Centroid-sig: 35.7%
Centroid-so: 0.600 arcsec [0.71 σ]
OotOffset-rm: 0.195 arcsec [0.58 σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-rm: 0.189 arcsec [0.58 σ]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

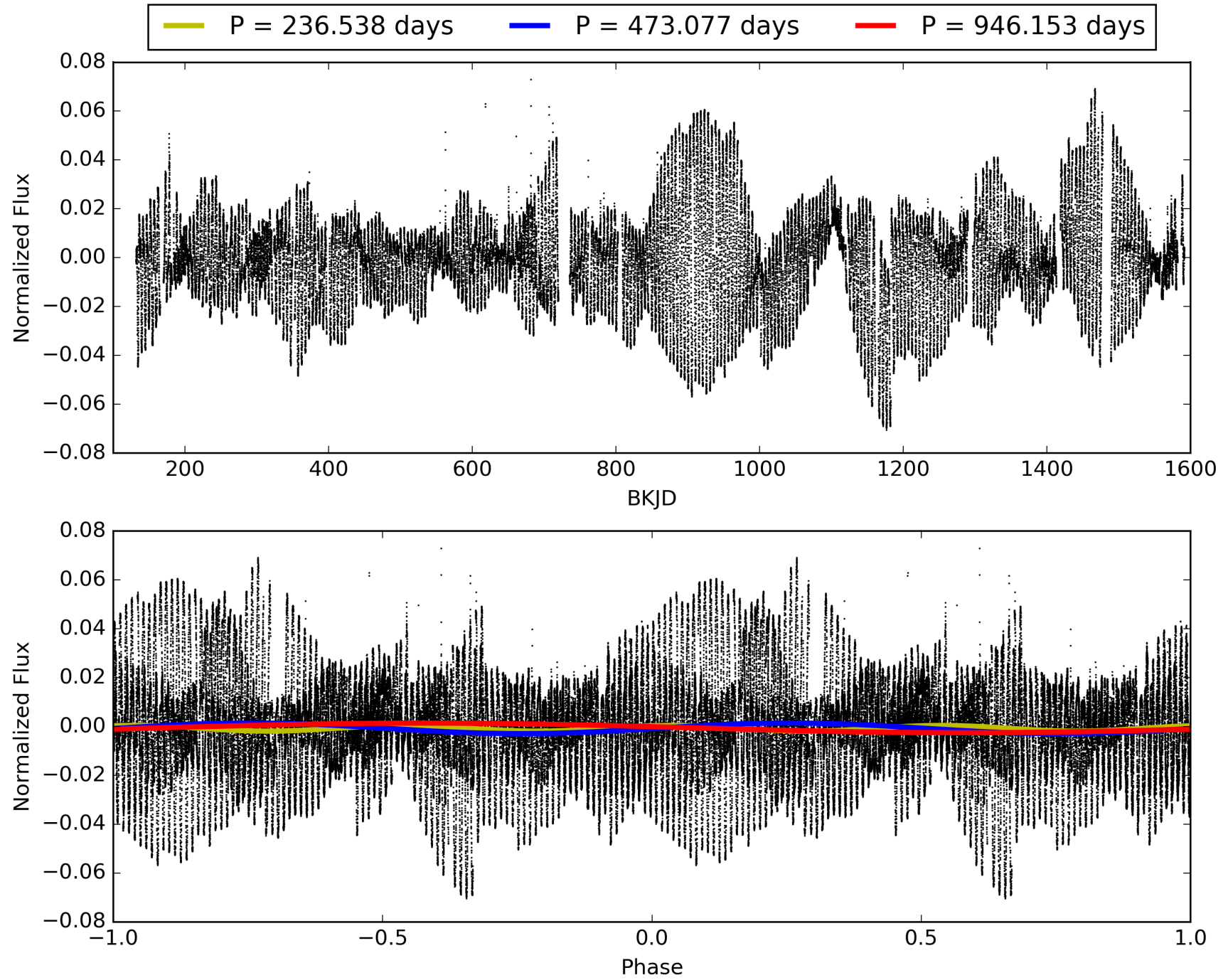
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:21:43 Z

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

TCE 010328375-03, PDC Light Curves

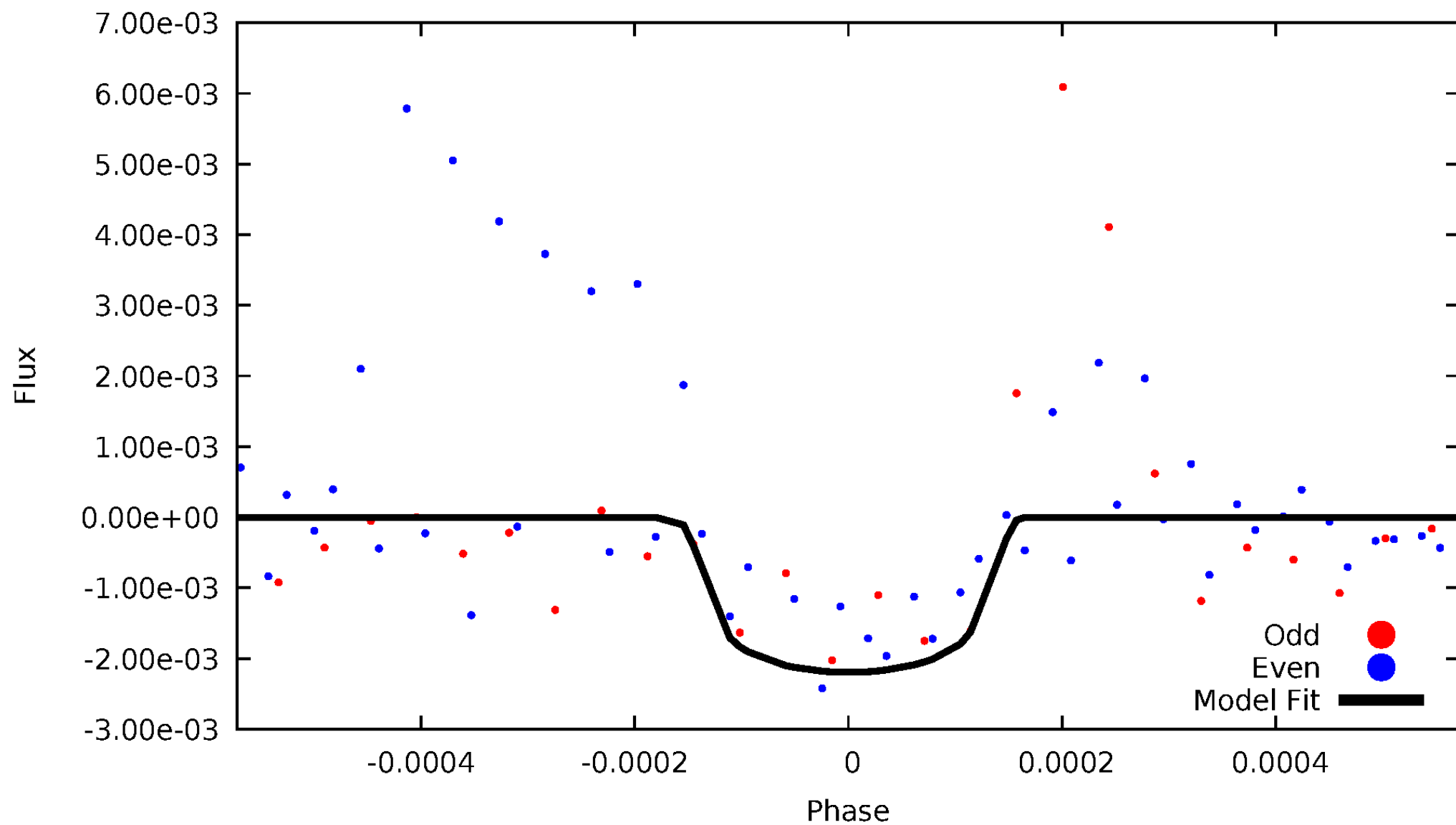


TCE 010328375-03



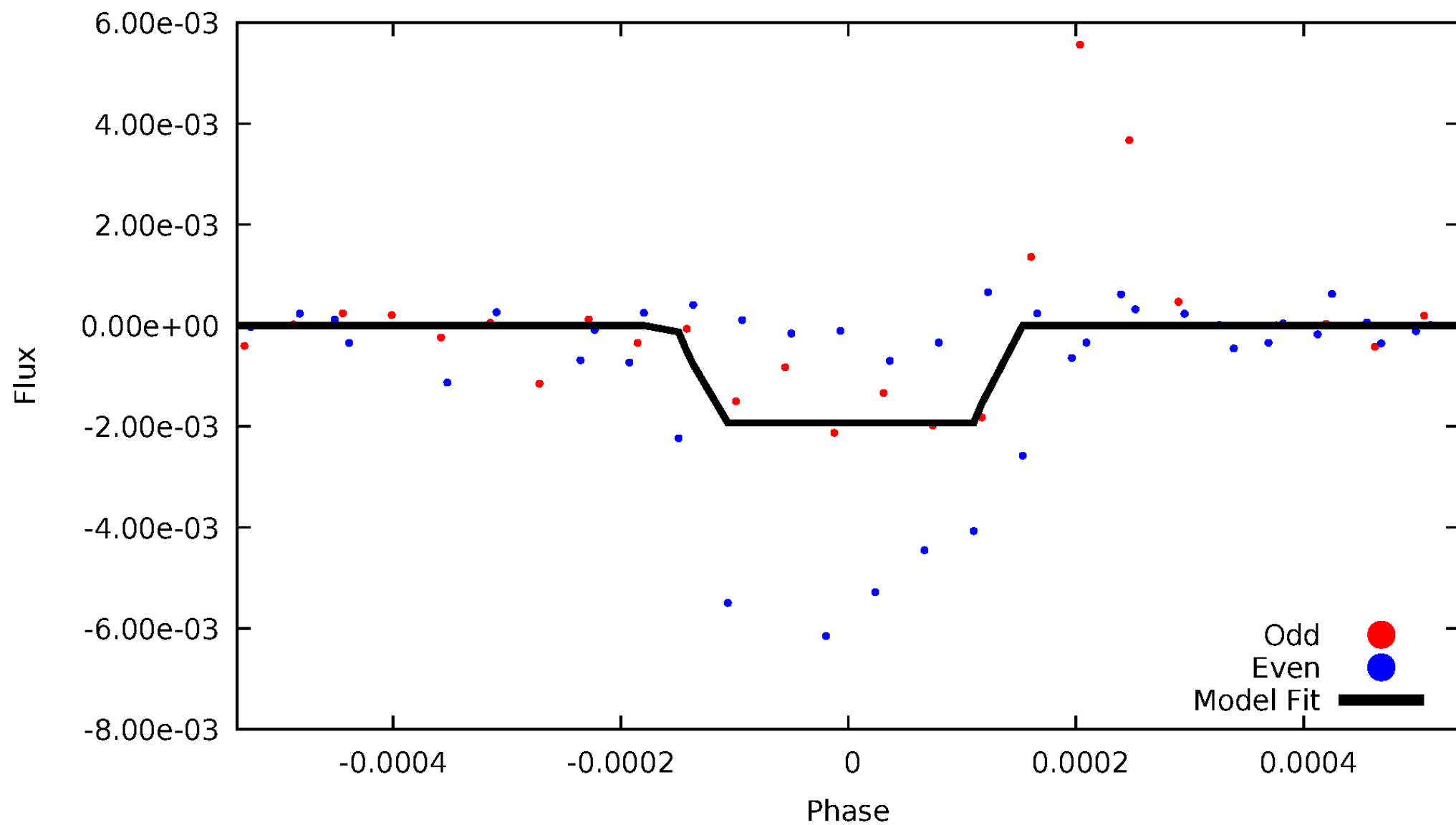
DV Odd/Even

TCE 010328375-03



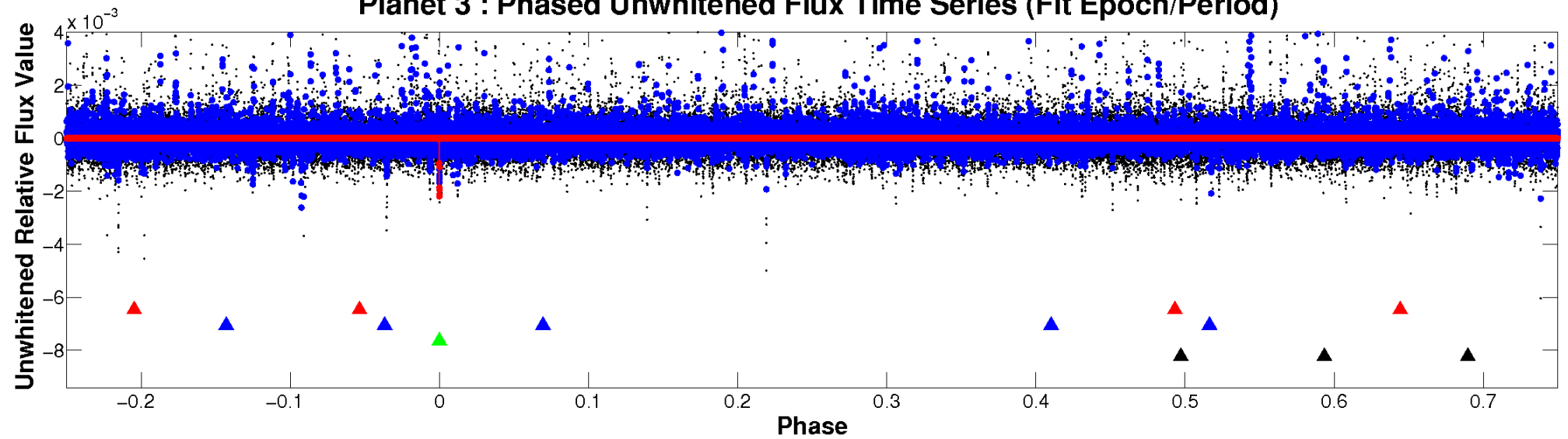
ALT Odd/Even

TCE 010328375-03

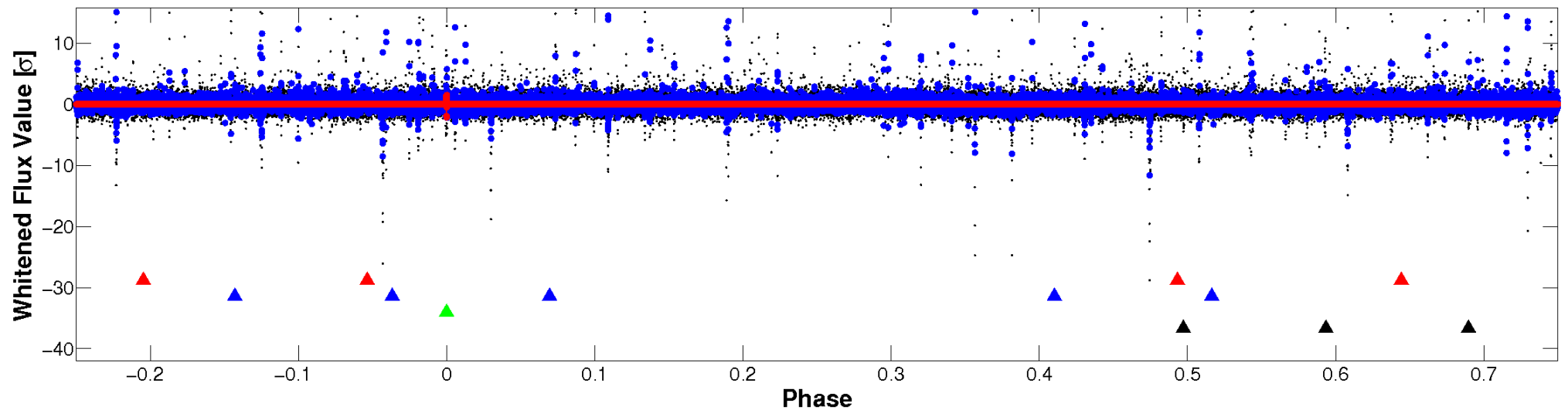


Non-Whitened Vs. Whitened Light Curve

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

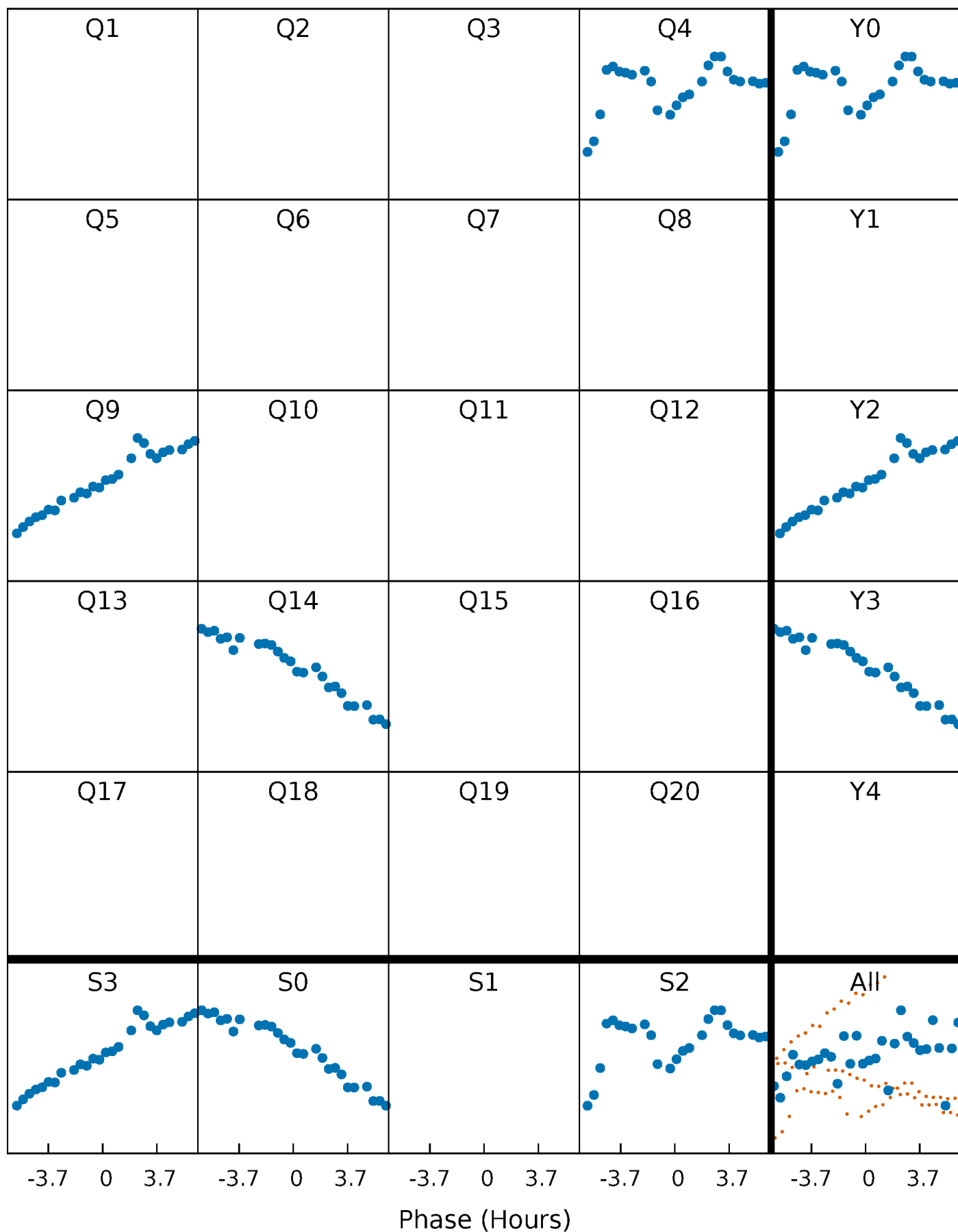


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



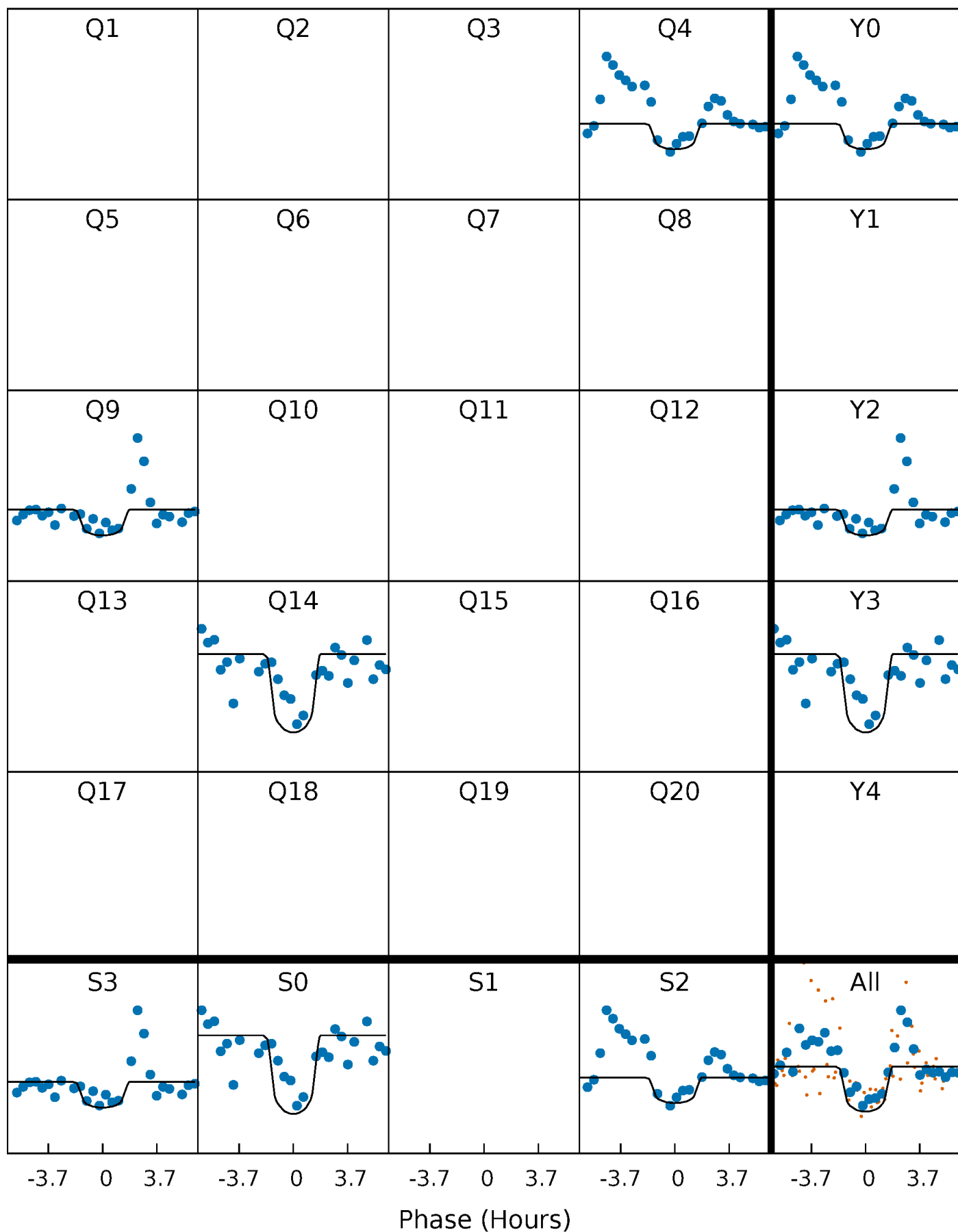
PDC Quarter-Phased Transit Curves

TCE 010328375-03 P=473.076705 Days $T_0=393.296160$ (BKJD)



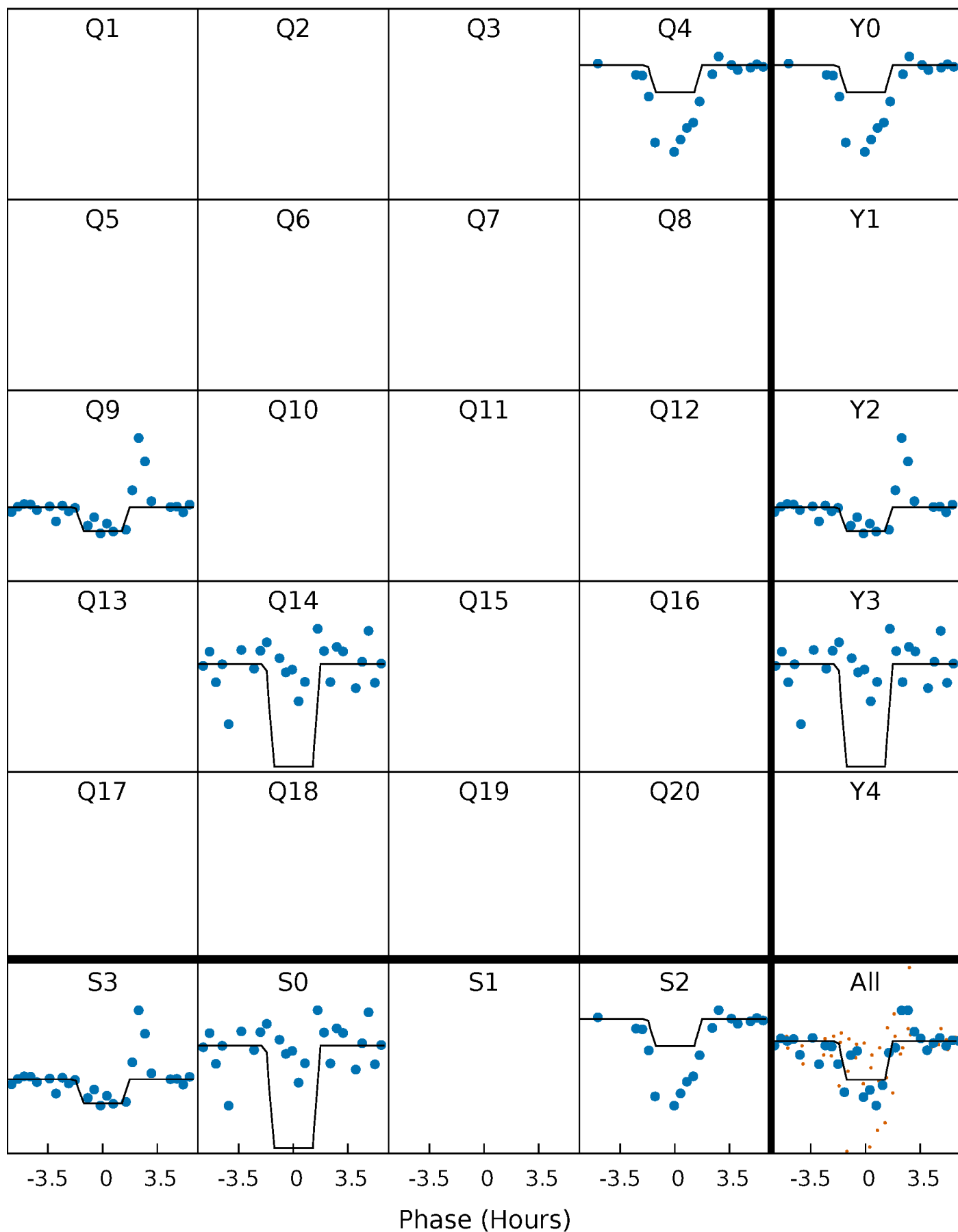
DV Quarter-Phased Transit Curves

TCE 010328375-03 $P=473.076705$ Days $T_0=393.296160$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

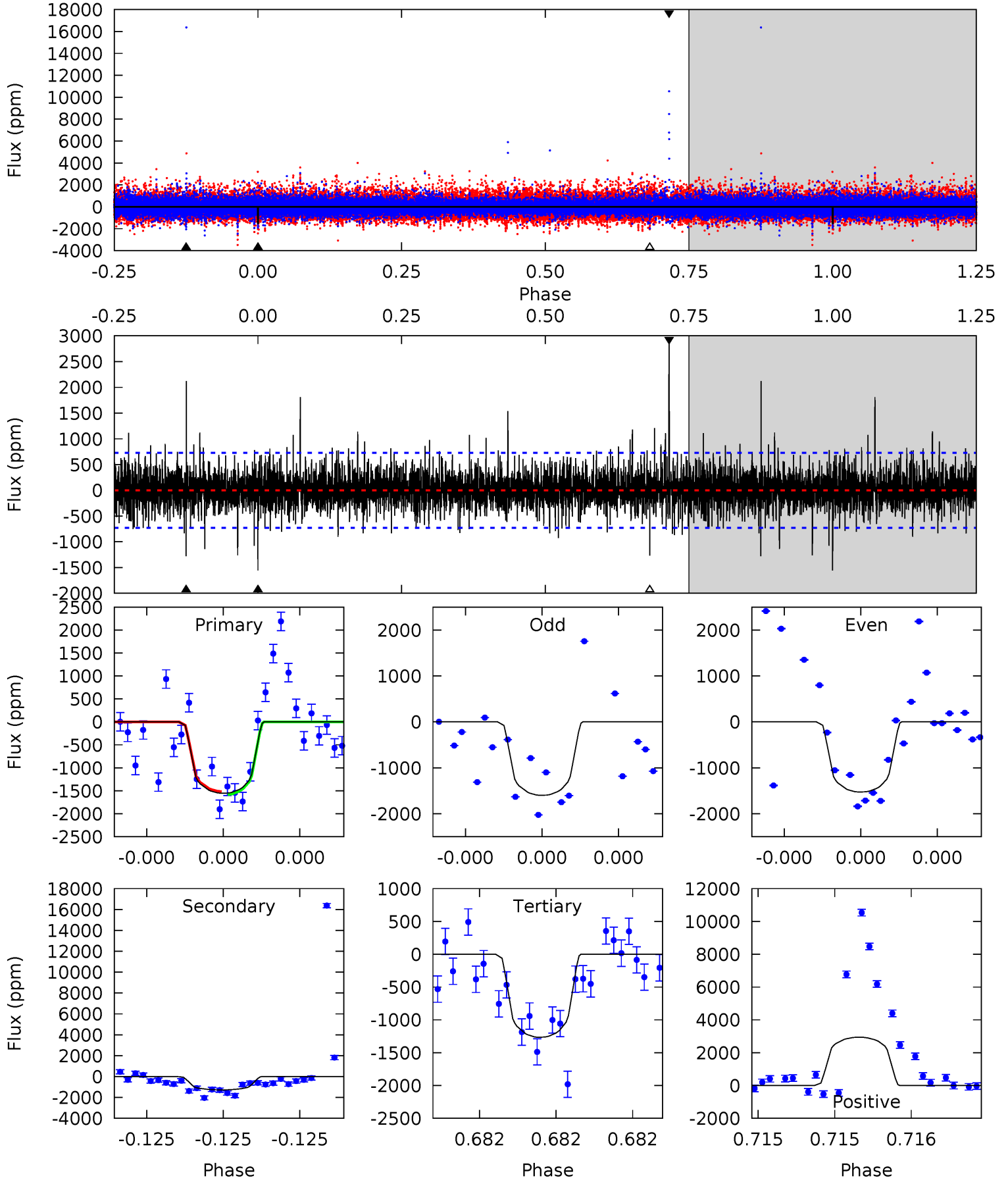
TCE 010328375-03 P=473.077781 Days $T_0=393.293709$ (BKJD)



DV Model-Shift Uniqueness Test

010328375-03, P = 473.076705 Days, E = 393.296160 Days

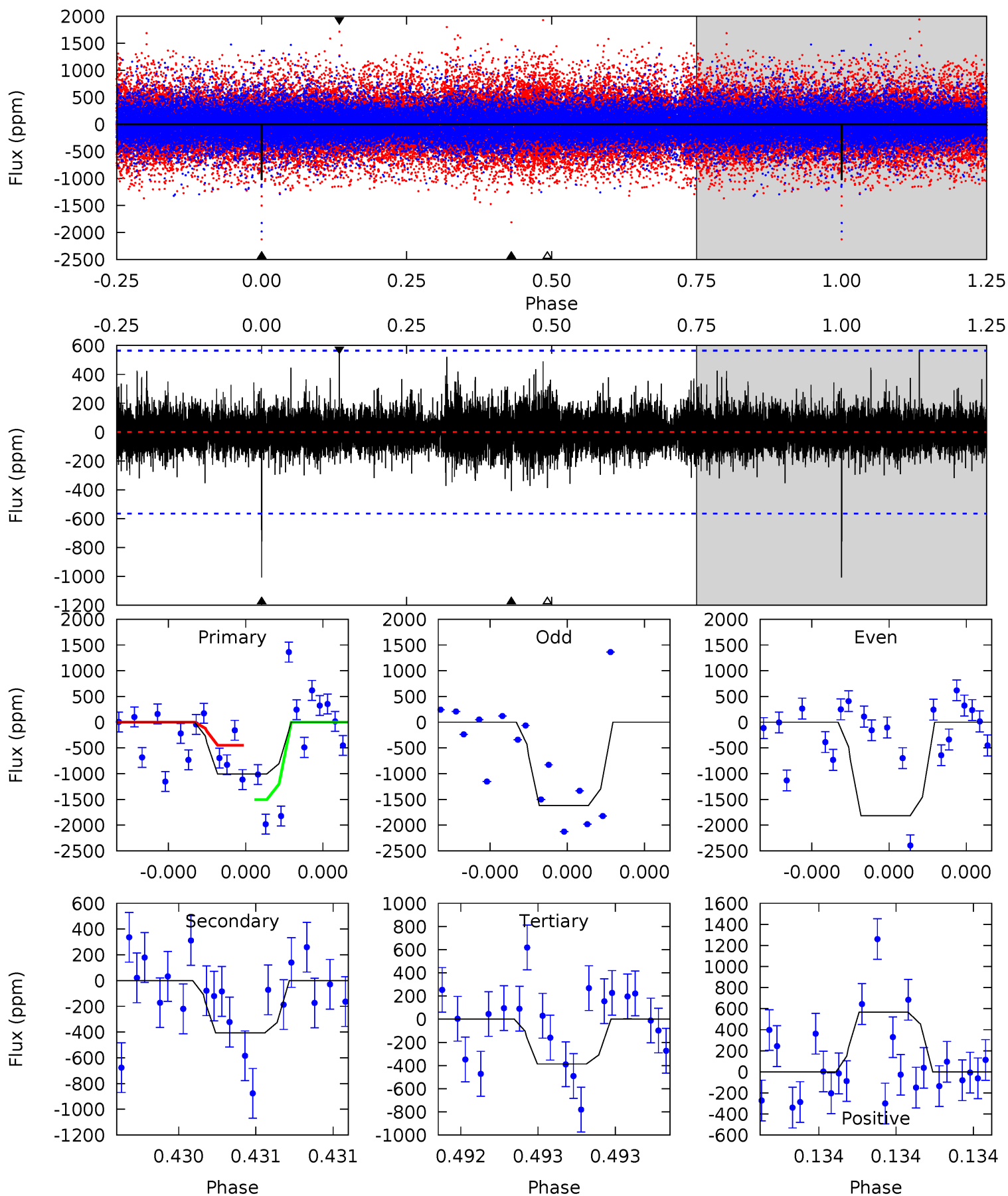
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	9.93	9.84	22.8	5.66	3.61	1.98	2.24	-10.8	0.09	-12.9	0.20	0.97	0.65	0.25



Alt Model-Shift Uniqueness Test

010328375-03, P = 473.077781 Days, E = 393.293709 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	4.10	3.89	5.69	5.68	3.64	0.83	6.23	4.42	0.21	-1.60	1.12	1.41	0.36	4.90



Stellar Parameters For KIC 010328375

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5631^{+183}_{-167}	$4.481^{+0.140}_{-0.154}$	$-0.680^{+0.350}_{-0.300}$	$0.807^{+0.157}_{-0.118}$	$0.718^{+0.102}_{-0.036}$	$1.922^{+1.102}_{-0.767}$
	+3%/-3%	+3%/-3%	+51%/-44%	+19%/-15%	+14%/-5%	+57%/-40%
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 010328375-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1278 ± 129	$5.54^{+4.27}_{-3.61}$	302^{+18}_{-16}	4444^{+2780}_{-831}	$25900^{+198728}_{-17550}$
Alt.	-407 ± 99	$5.11^{+5.30}_{-3.25}$	302^{+18}_{-17}	3734^{+1715}_{-755}	9566^{+63978}_{-7316}

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

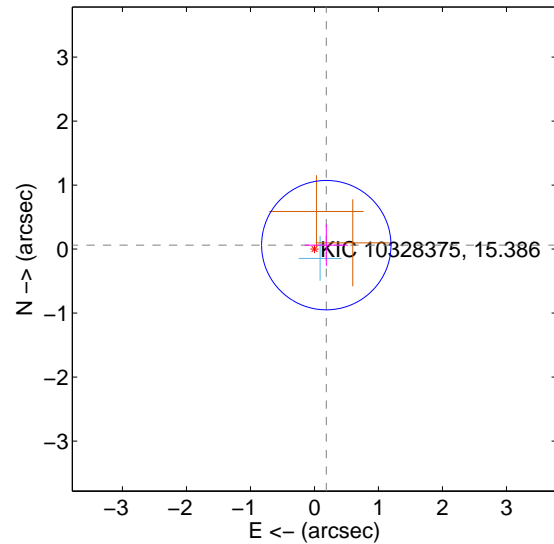
Supplemental centroid analysis for 010328375-03. Kepler magnitude: 15.39. Transit SNR 9.11

There are 1 quarters with good PRF difference image offsets

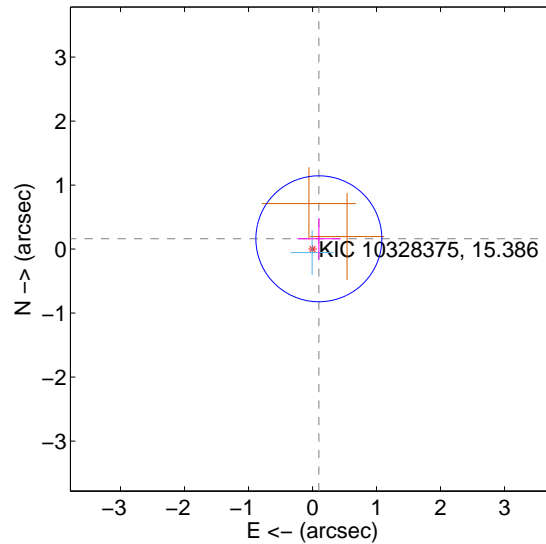
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.195 ± 0.337	0.58	-0.185 ± 0.338	0.062 ± 0.324
PRF-fit source offset from KIC position	0.189 ± 0.328	0.58	-0.099 ± 0.338	0.161 ± 0.324
photometric centroid source offset	0.60 ± 0.85	0.71	0.23 ± 0.74	-0.56 ± 0.87

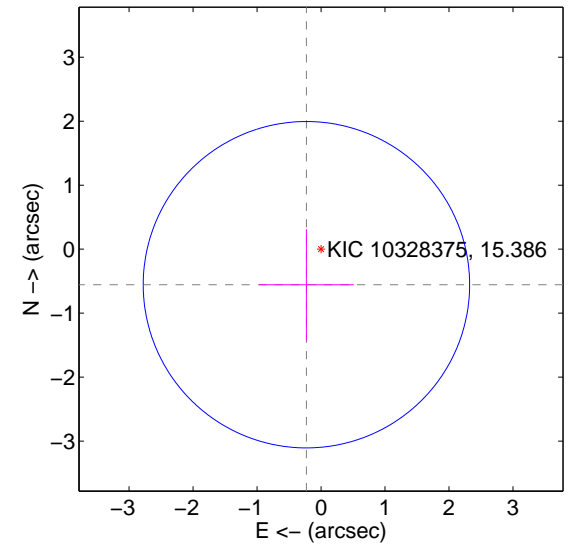
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

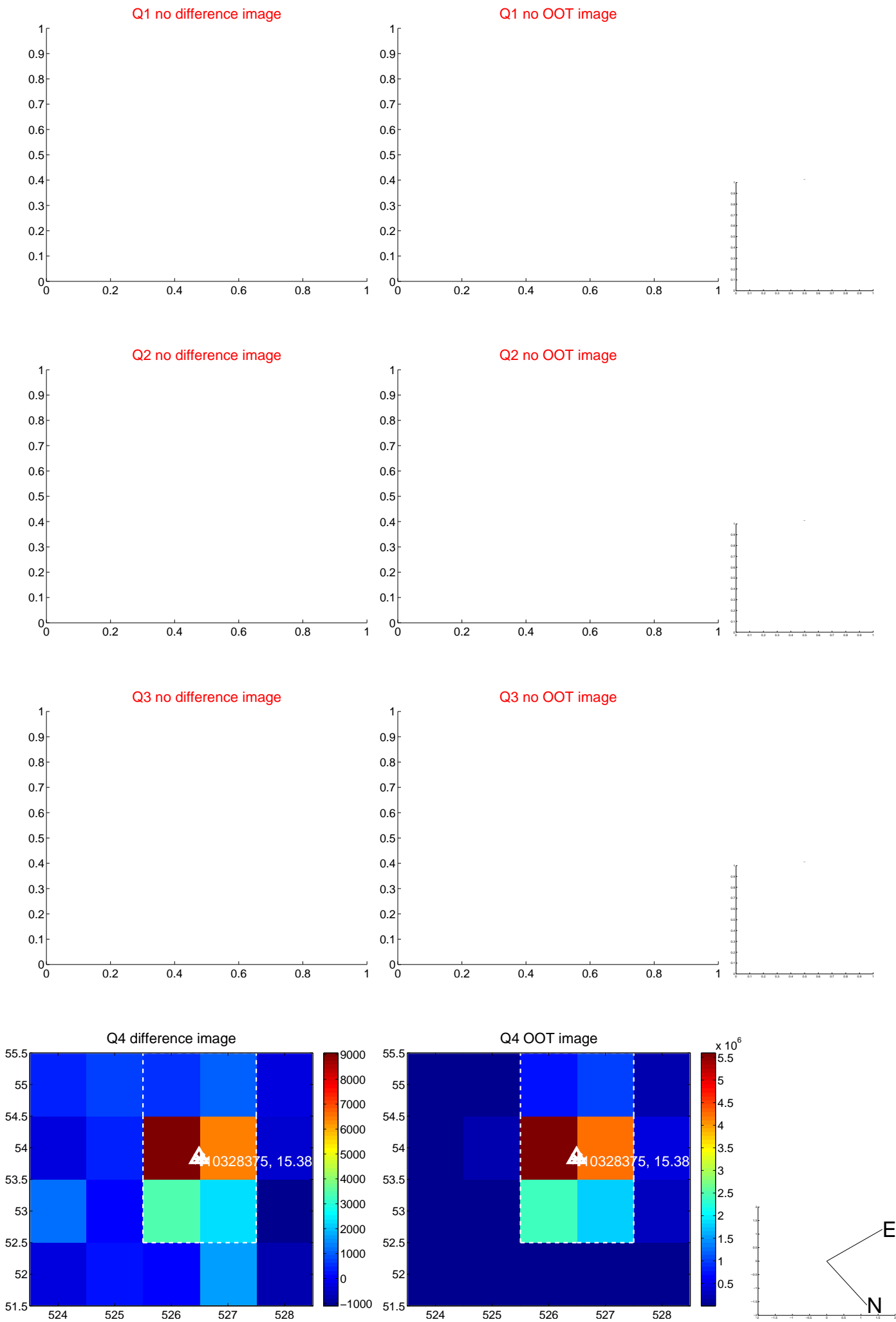


offset from photometric centroids



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

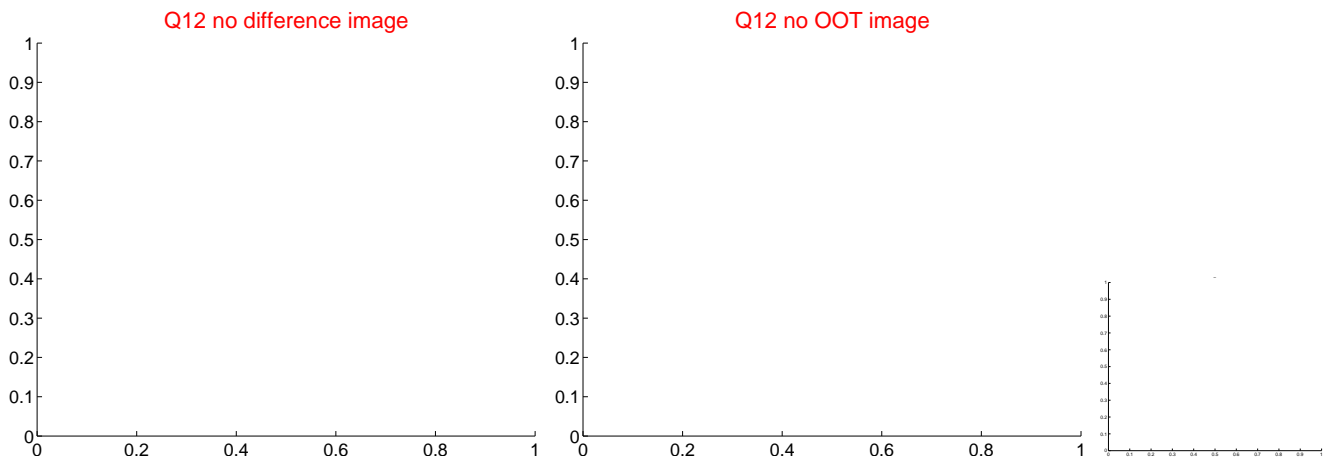
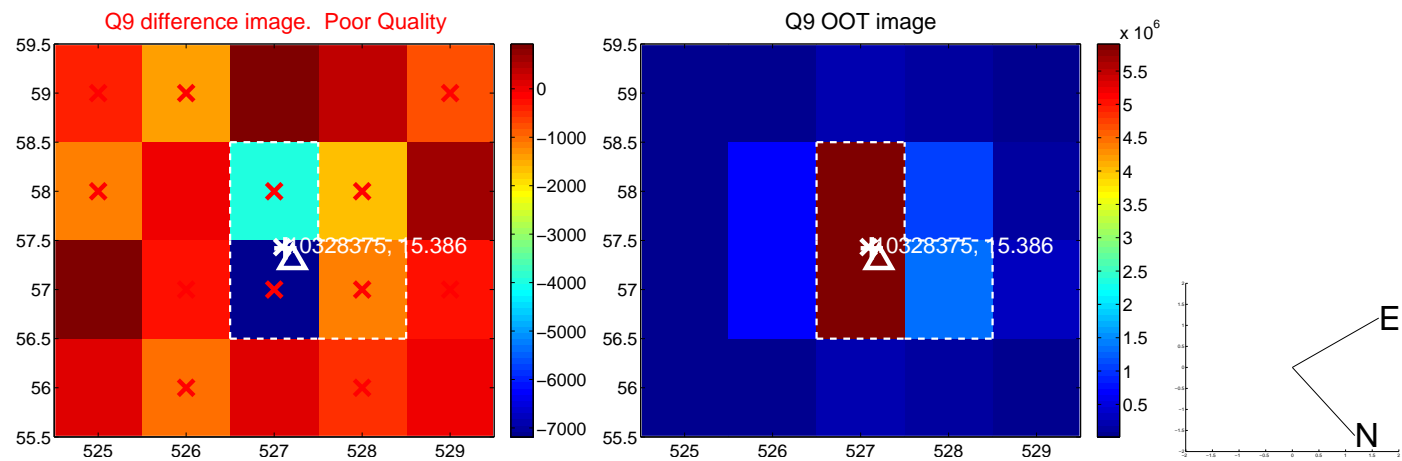
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



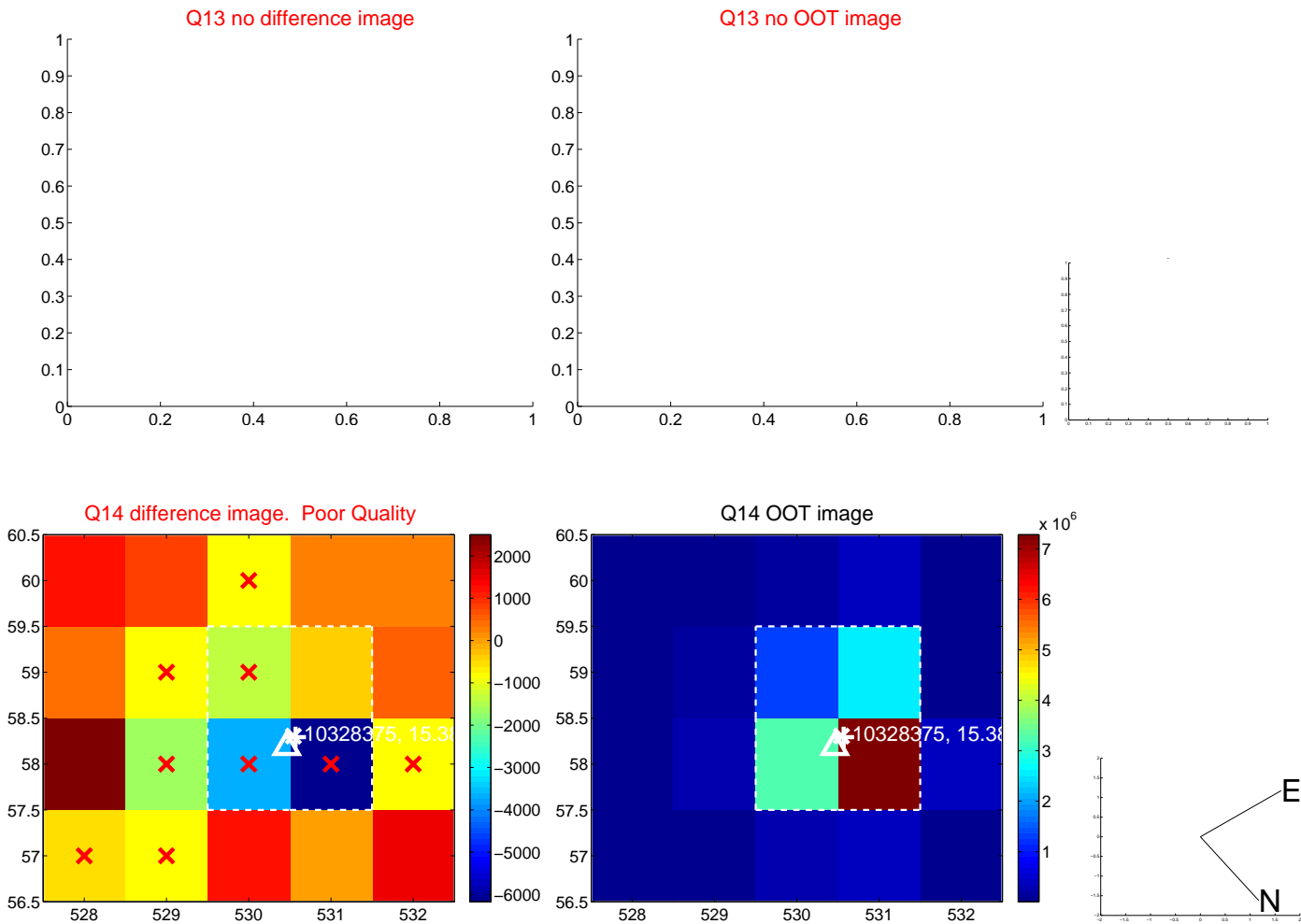
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



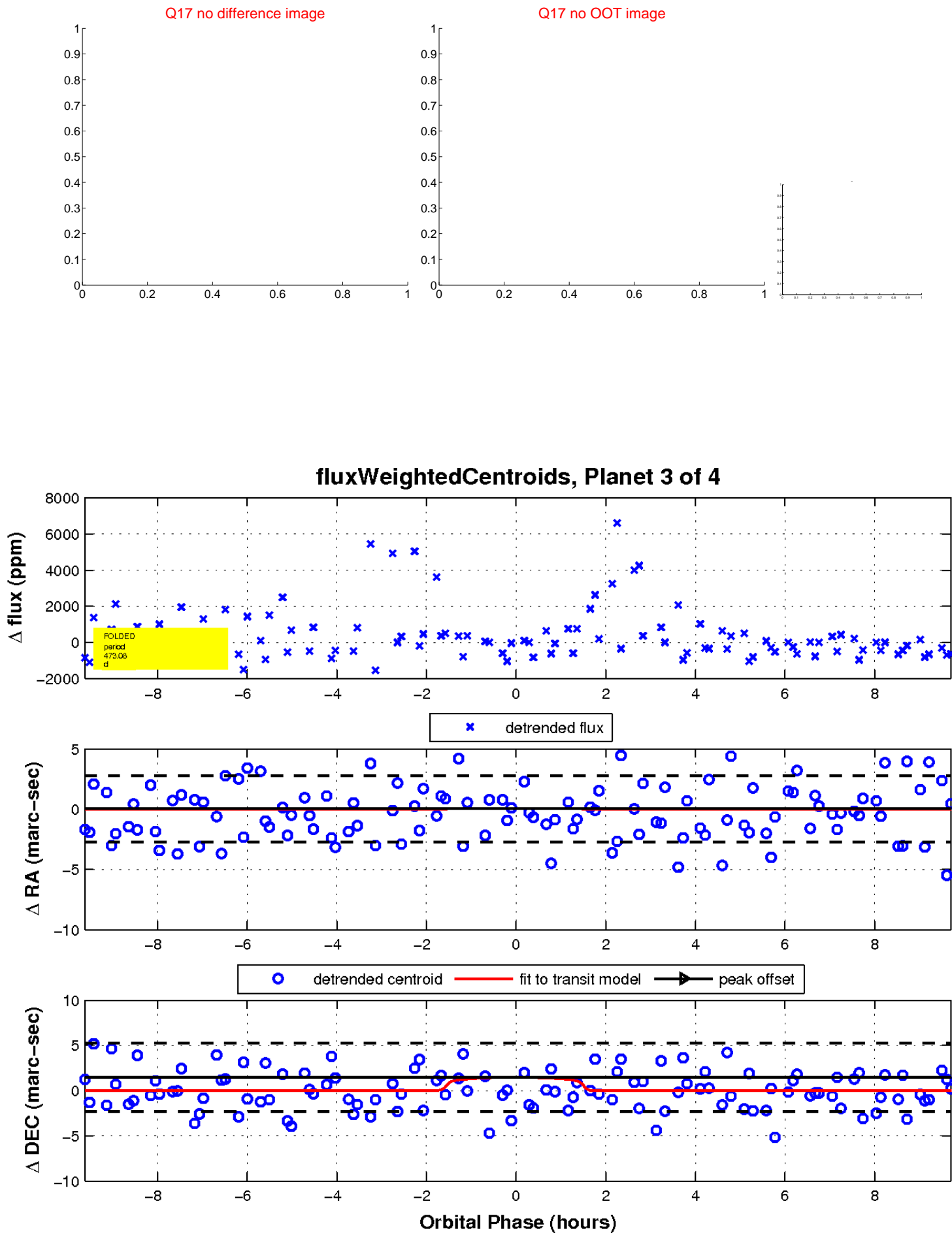
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

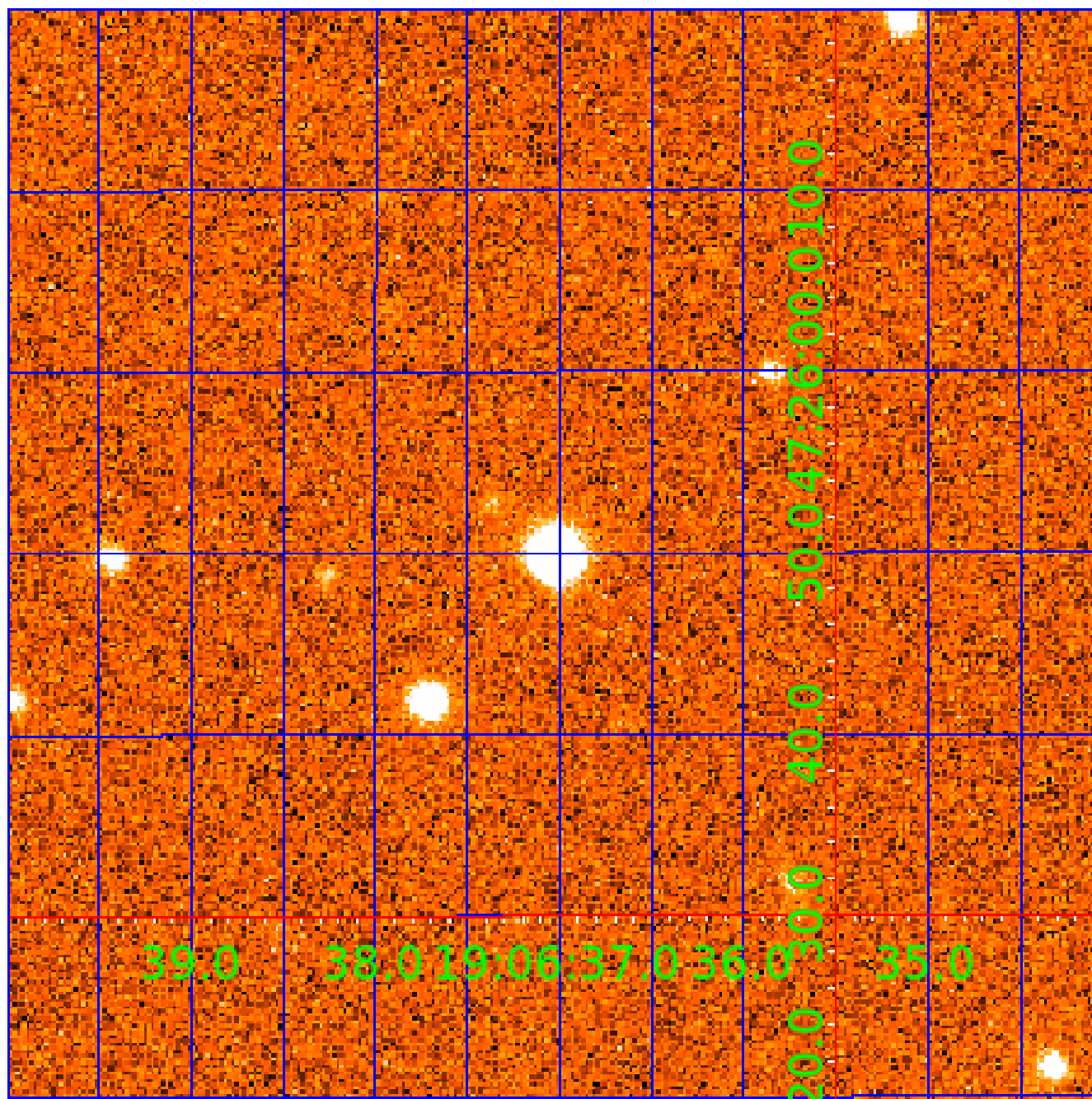


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010328375

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})
010328375-01	OBS	No	401.608992	367.967550	1704.9	3.046	15.7	8.6	0.81	5631	3.35	0.64
010328375-02	OBS	No	261.659780	325.702788	988.5	9.417	16.9	4.1	0.81	5631	2.64	1.14
010328375-03	OBS	No	473.076705	393.296160	2193.8	3.248	15.0	9.1	0.81	5631	3.80	0.52
010328375-04	OBS	No	518.596942	155.445504	1744.9	4.500	15.0	-1.0	0.81	5631	3.36	0.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010328375-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
010328375-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010328375-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010328375-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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

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

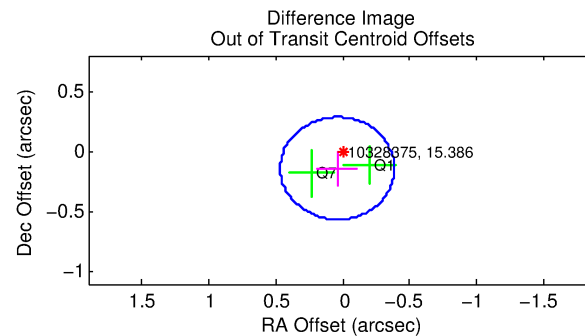
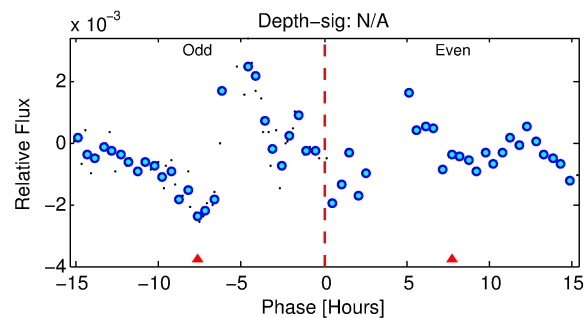
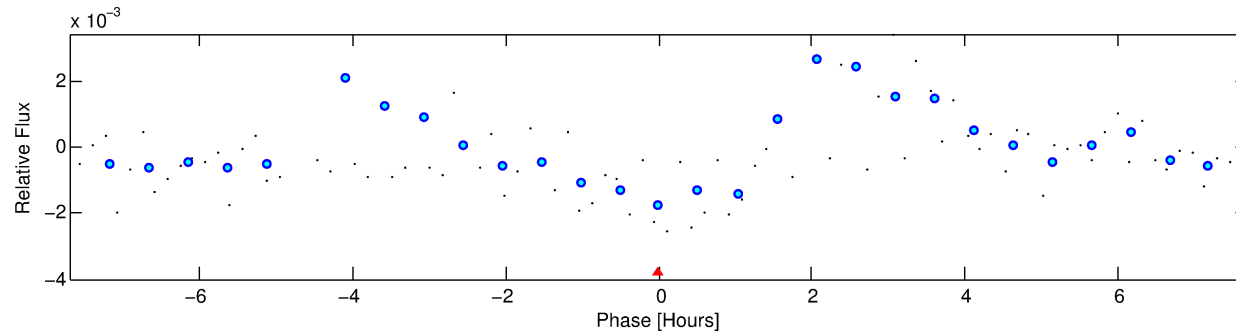
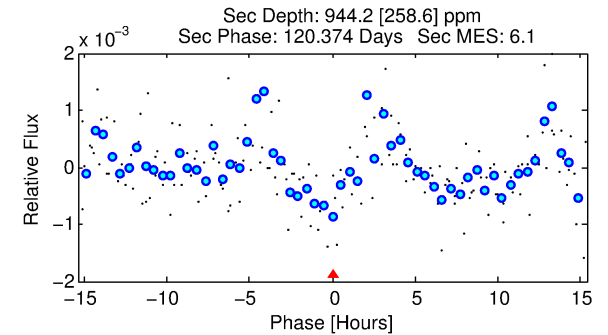
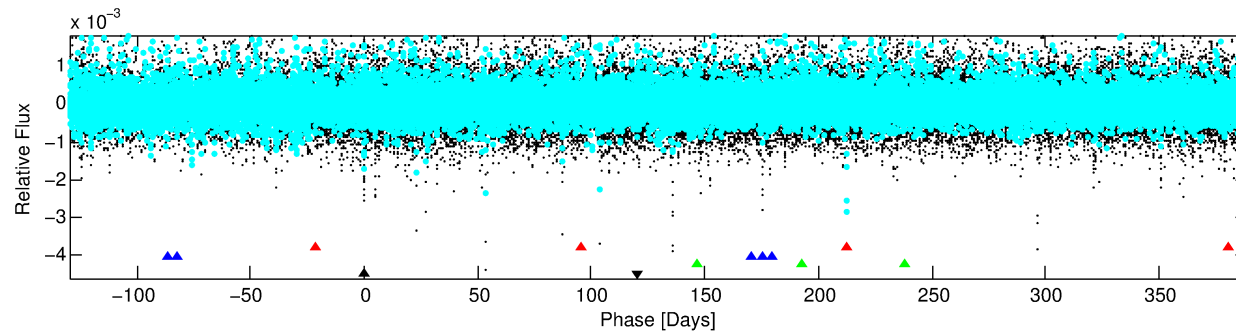
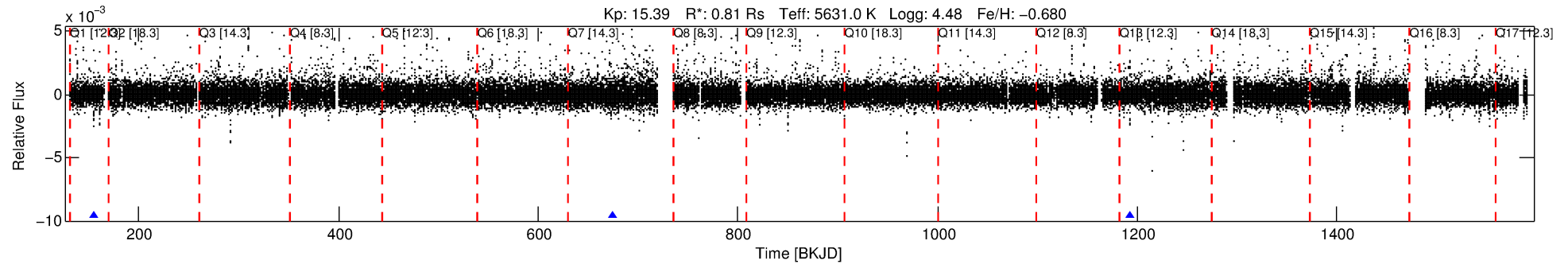
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010328375-04

No Significant Match Found

DV One-Page Summary

KIC: 10328375 Candidate: 4 of 4 Period: 518.597 d



TPS TCE Results:

Period = 518.59694 d
Epoch = 155.4455 BKJD

DV fit results are unavailable

DV Diagnostic Results:

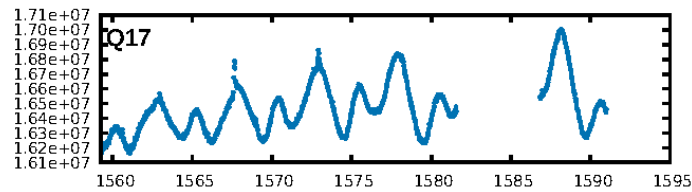
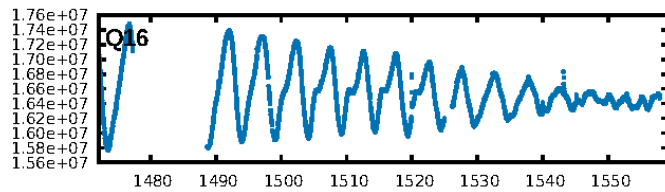
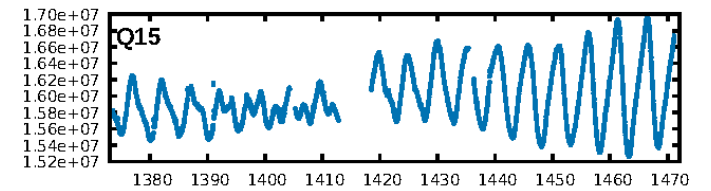
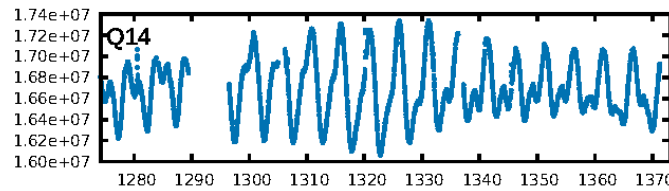
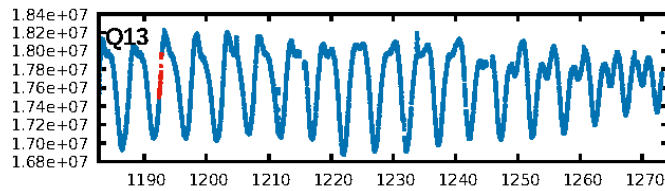
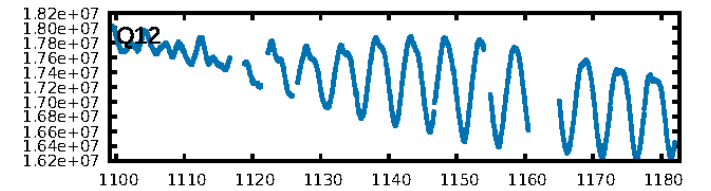
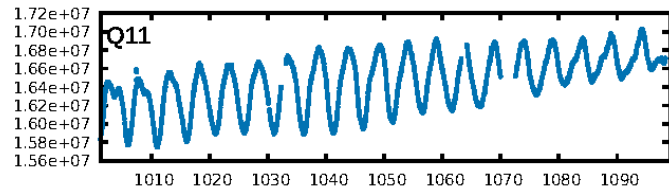
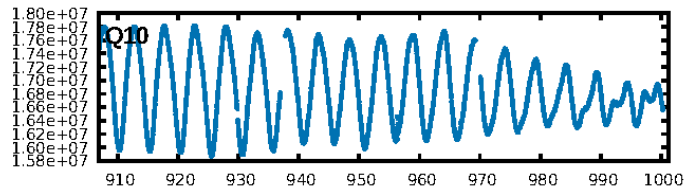
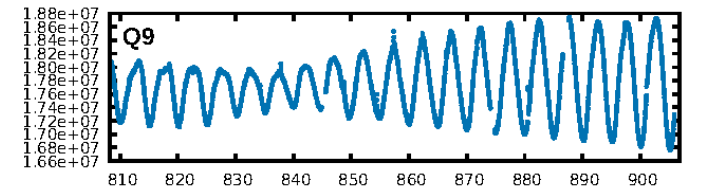
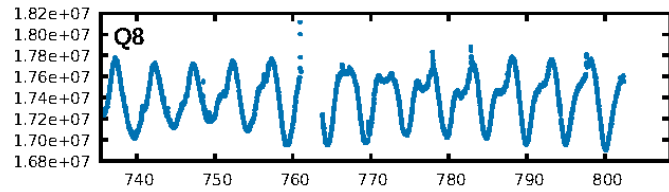
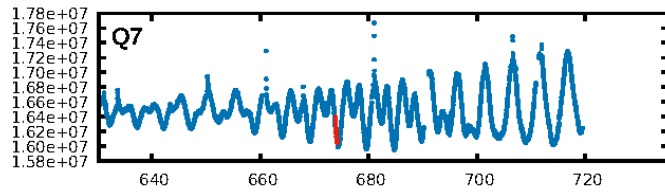
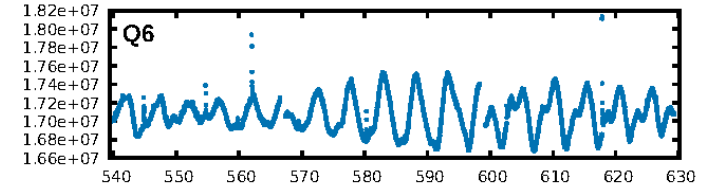
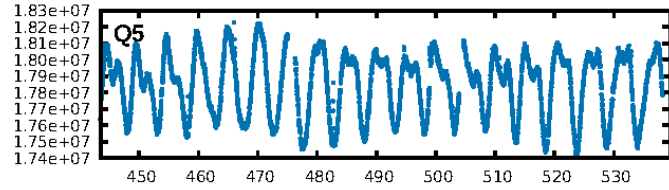
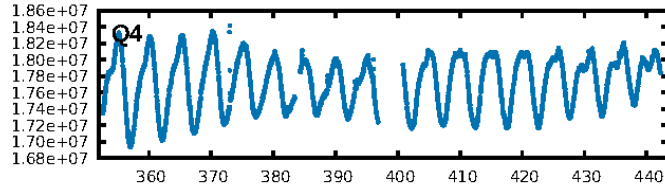
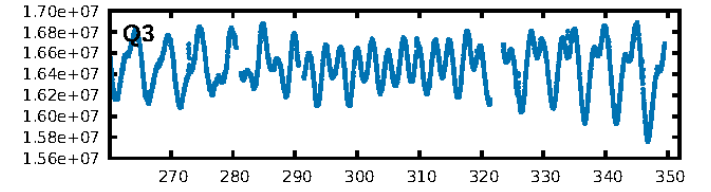
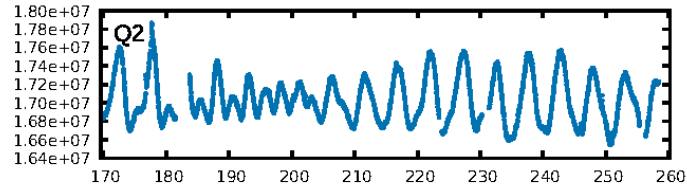
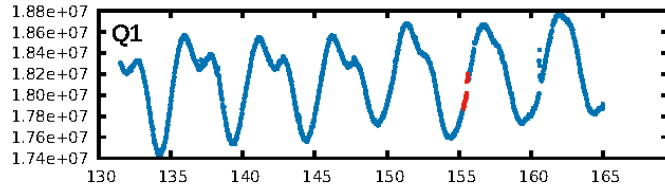
ShortPeriod-sig: 100.0% [196.85σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 5.868

Centroid-sig: 51.5%
Centroid-so: 0.542 arcsec [0.68σ]
OotOffset-rm: 0.144 arcsec [1.01σ]
KicOffset-rm: 0.150 arcsec [0.47σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

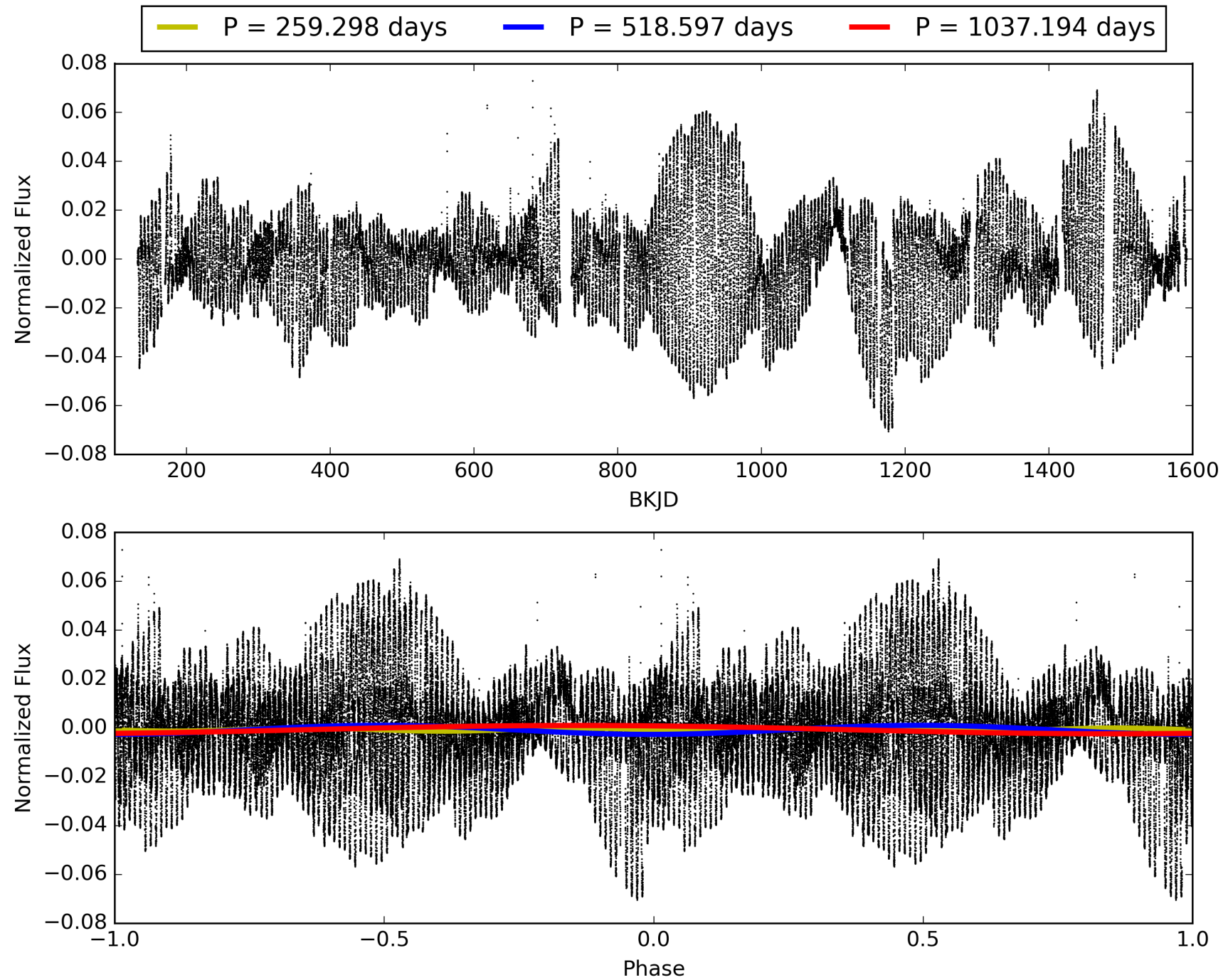
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:22:09 Z

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

TCE 010328375-04, PDC Light Curves

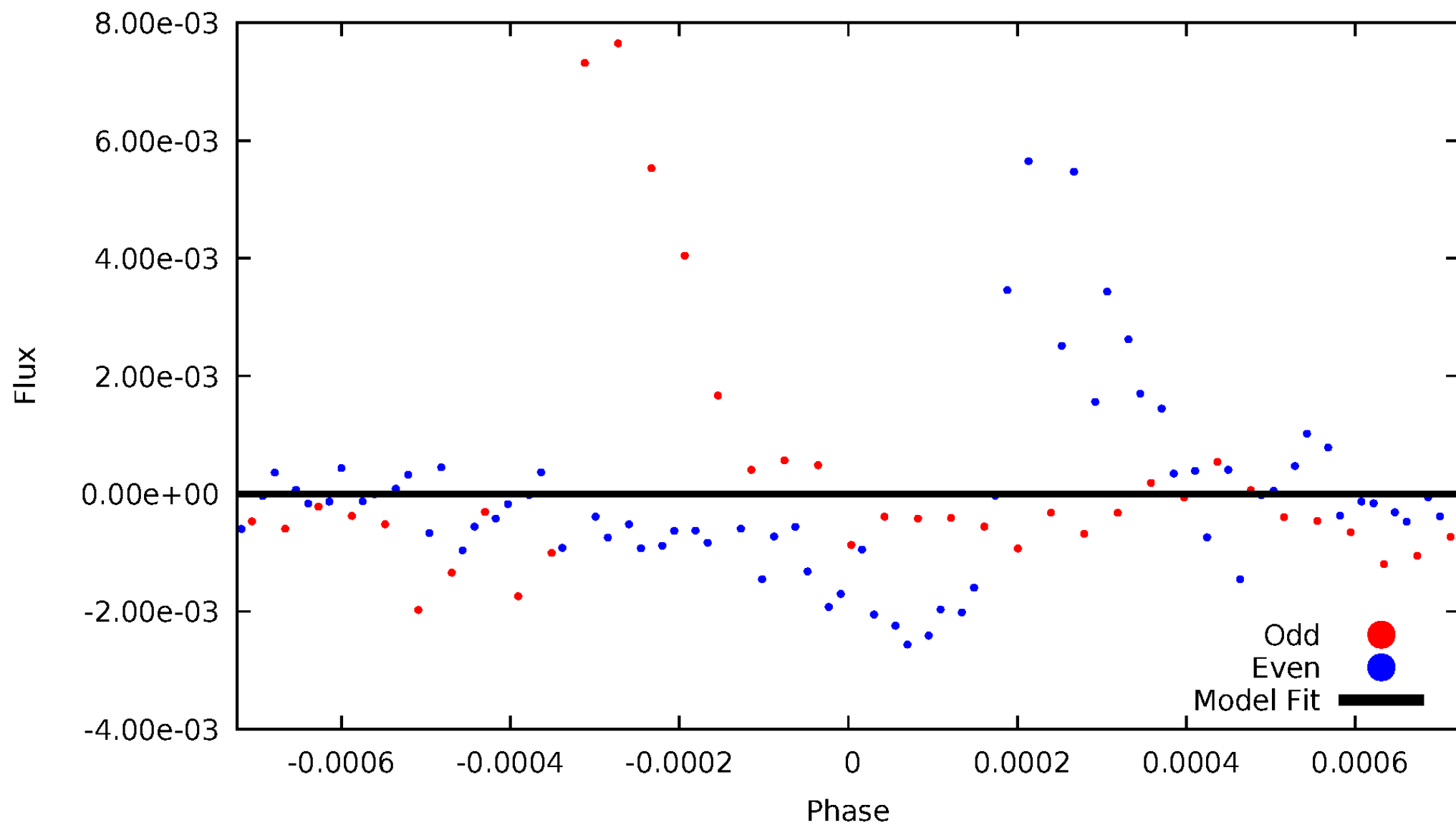


TCE 010328375-04



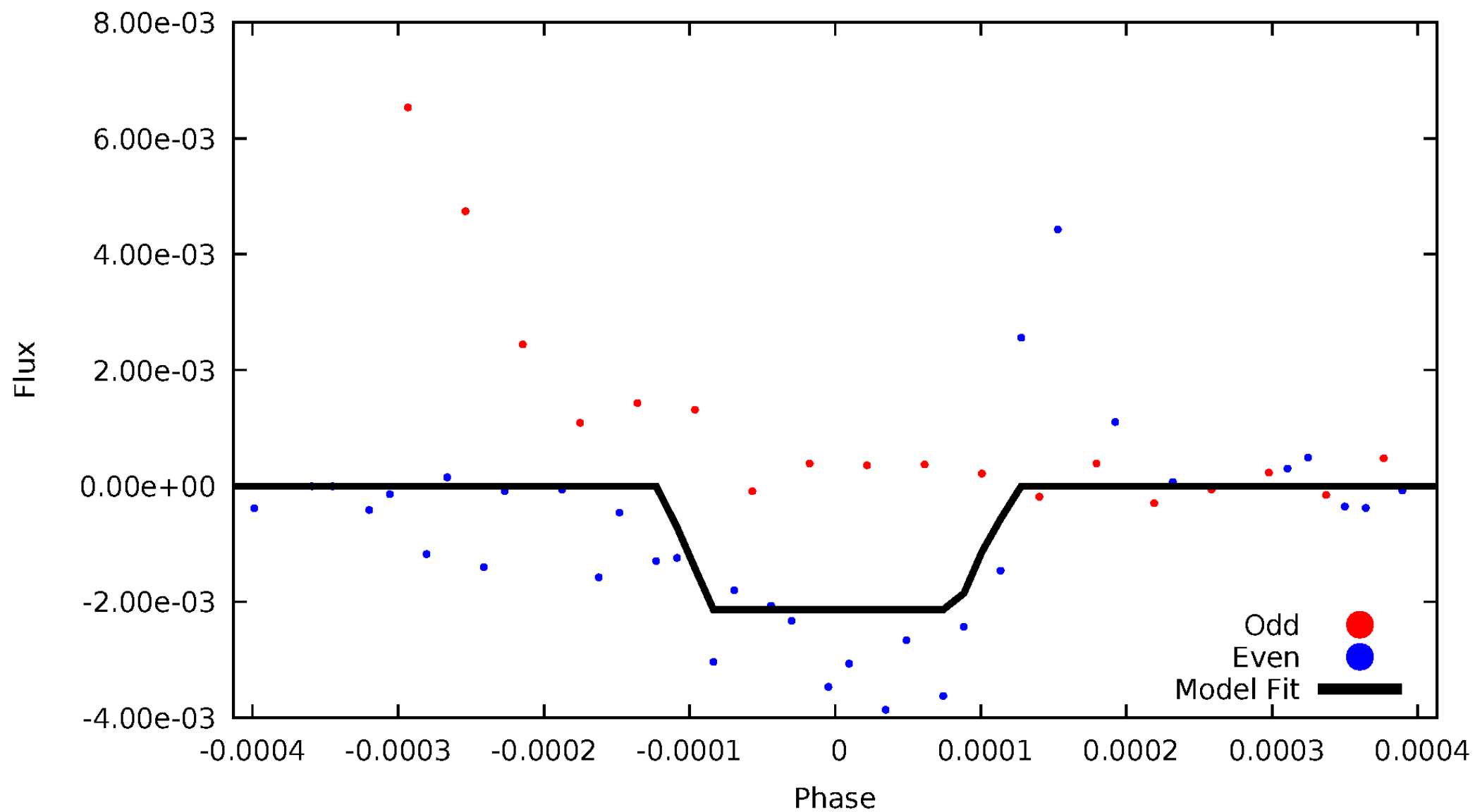
DV Odd/Even

TCE 010328375-04



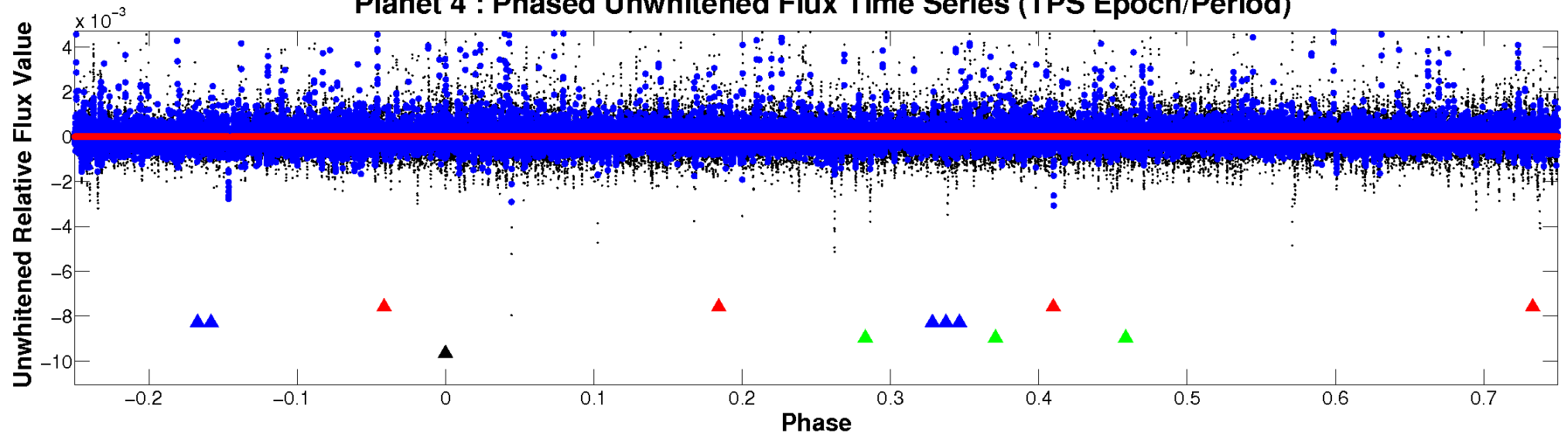
ALT Odd/Even

TCE 010328375-04



Non-Whitened Vs. Whitened Light Curve

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

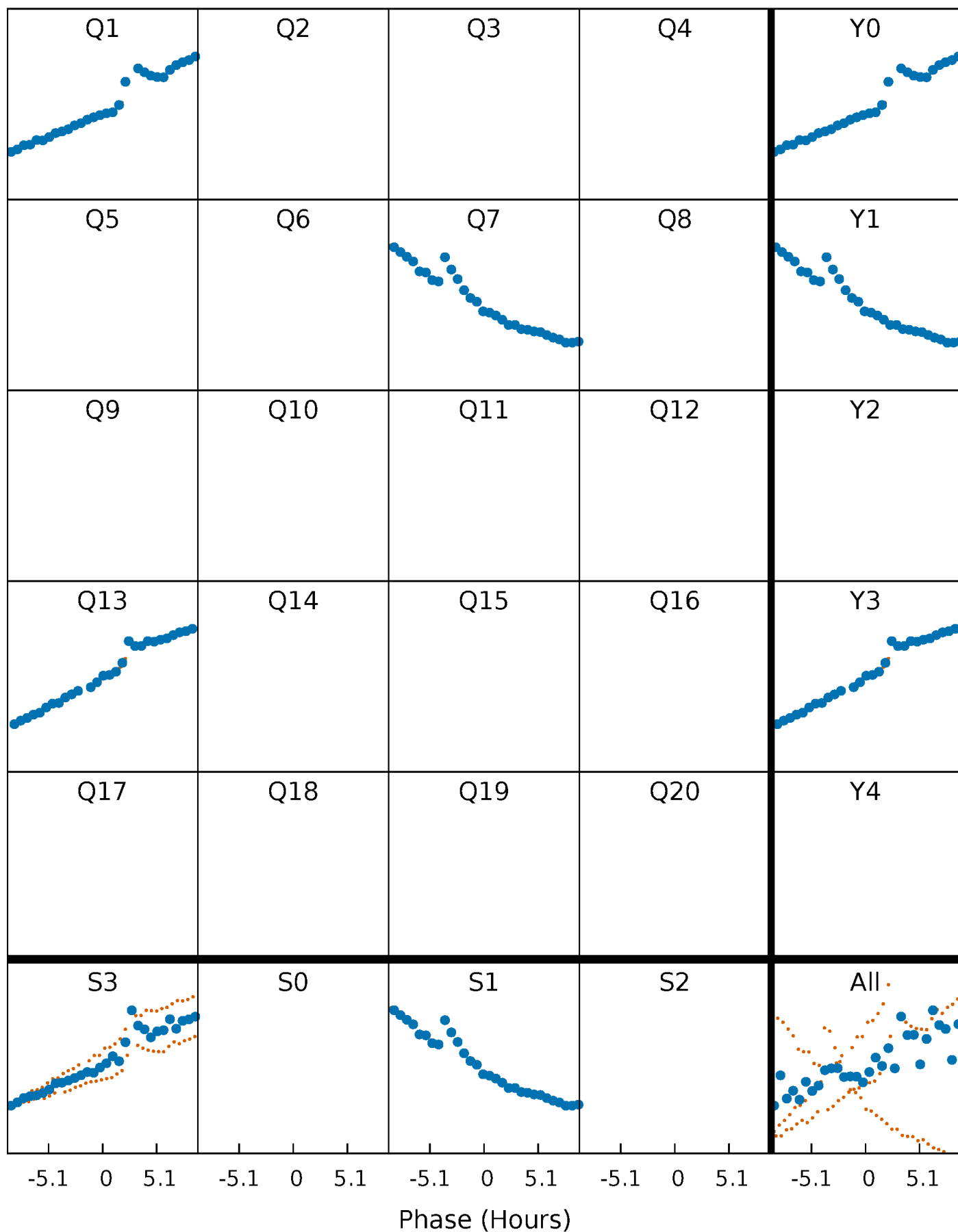


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



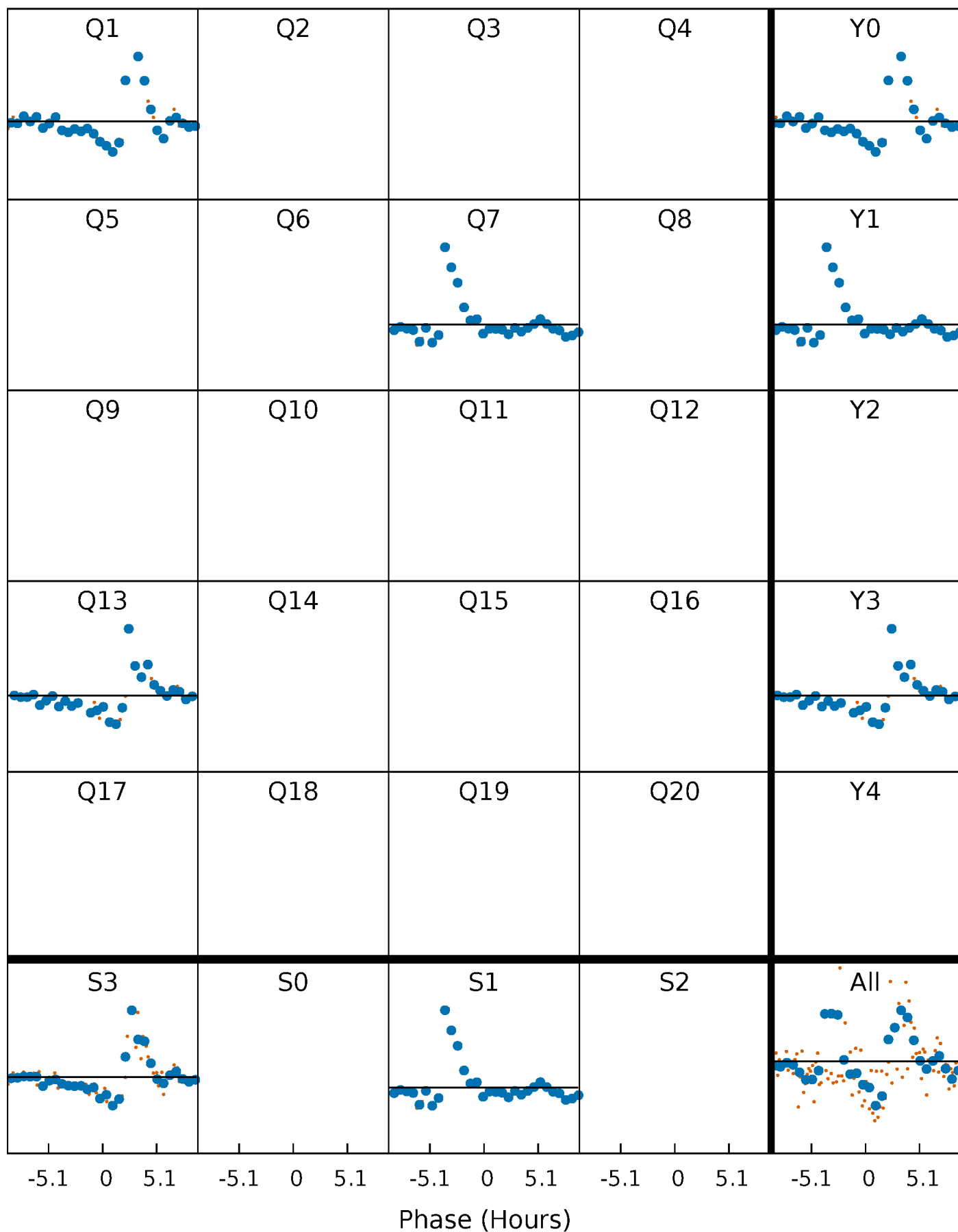
PDC Quarter-Phased Transit Curves

TCE 010328375-04 $P=518.596942$ Days $T_0=155.445504$ (BKJD)



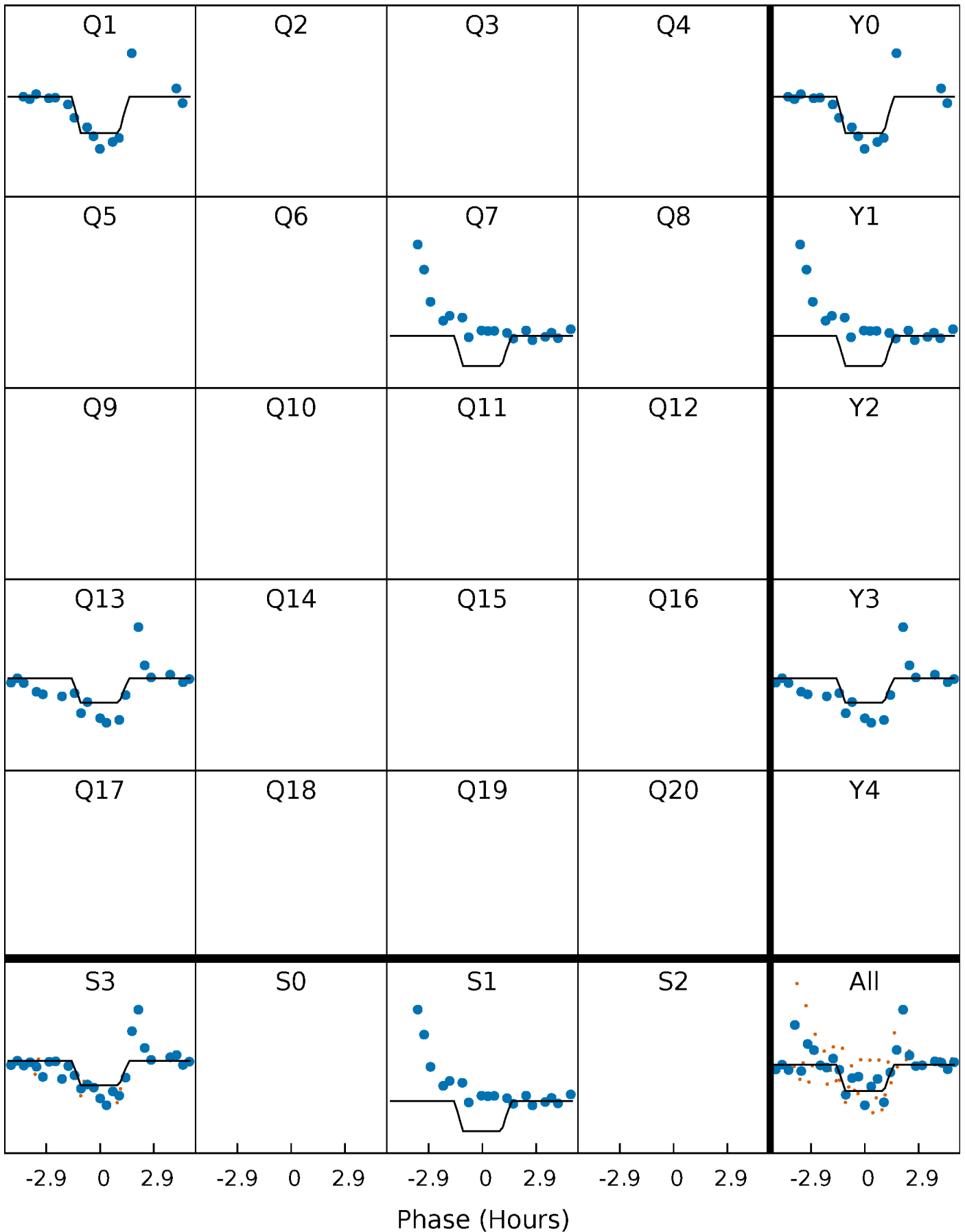
DV Quarter-Phased Transit Curves

TCE 010328375-04 $P=518.596942$ Days $T_0=155.445504$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

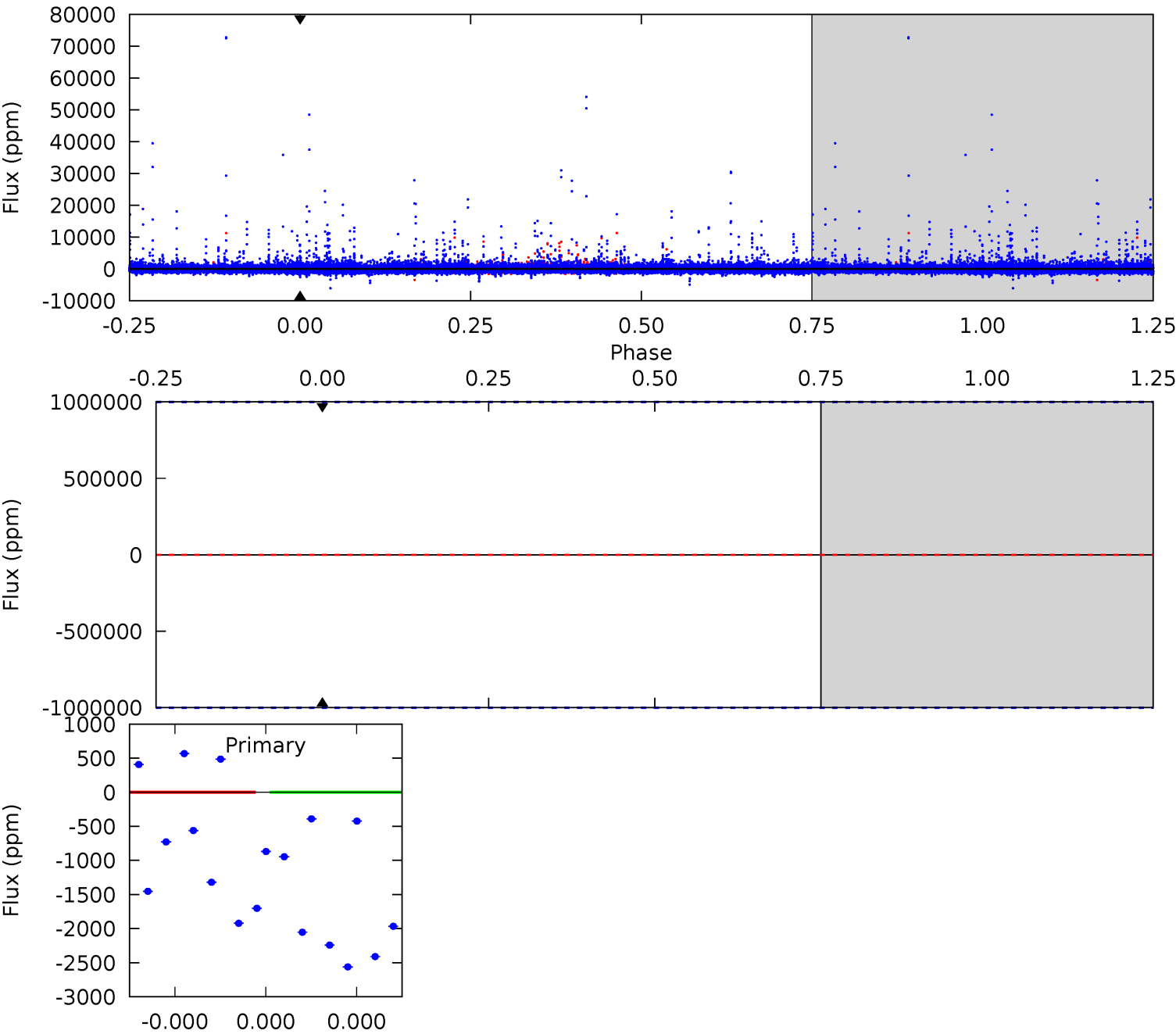
TCE 010328375-04 P=518.596942 Days $T_0=155.476781$ (BKJD)



DV Model-Shift Uniqueness Test

010328375-04, P = 518.596942 Days, E = 155.445504 Days

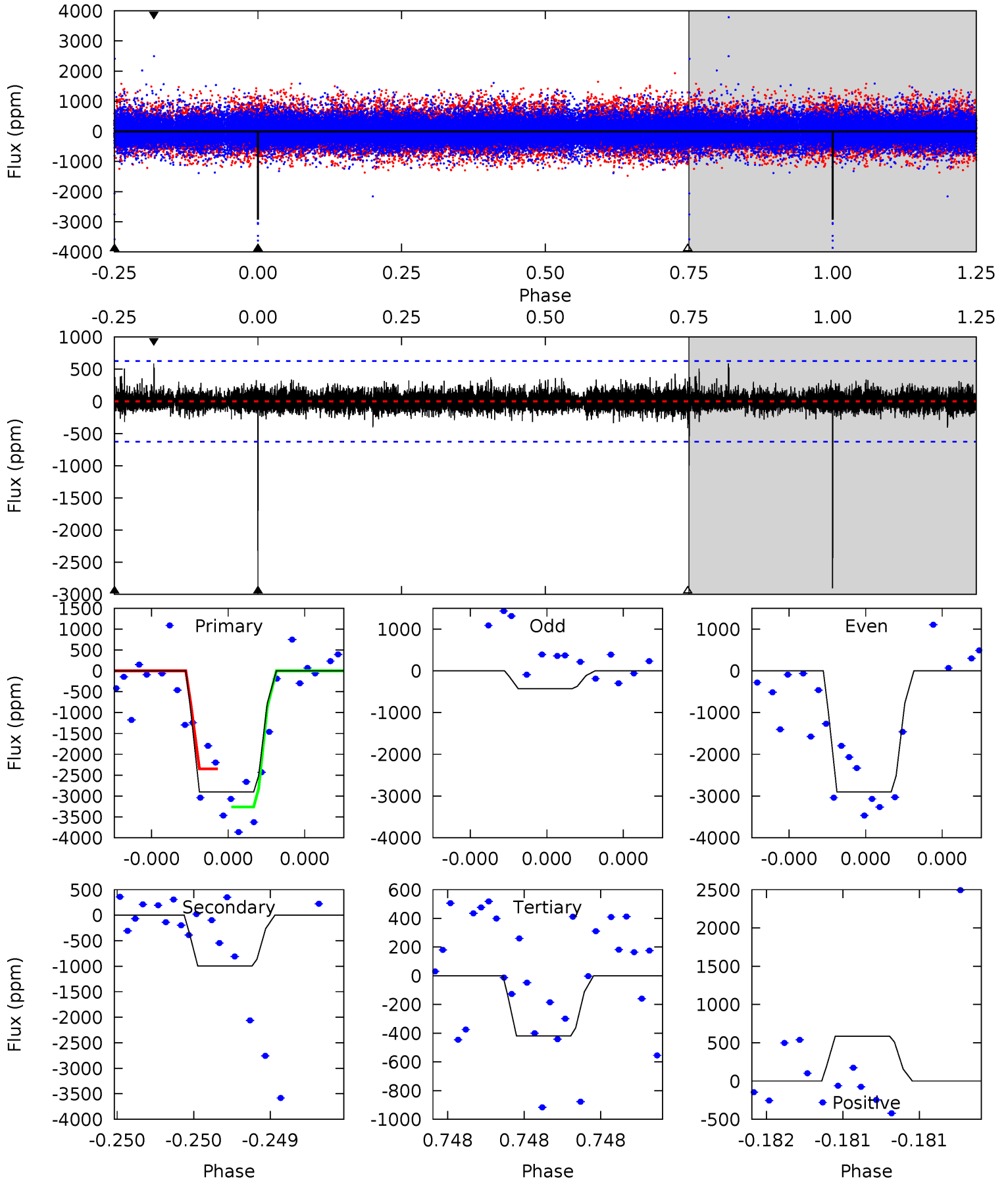
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010328375-04, P = 518.596942 Days, E = 155.476781 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.5	9.07	3.82	5.35	5.71	3.69	0.73	22.7	21.1	5.26	3.72	12.8	0.70	0.17	0



Stellar Parameters For KIC 010328375

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5631^{+183}_{-167}	$4.481^{+0.140}_{-0.154}$	$-0.680^{+0.350}_{-0.300}$	$0.807^{+0.157}_{-0.118}$	$0.718^{+0.102}_{-0.036}$	$1.922^{+1.102}_{-0.767}$
	+3%/-3%	+3%/-3%	+51%/-44%	+19%/-15%	+14%/-5%	+57%/-40%
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 010328375-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$7.34^{+7.24}_{-5.05}$	293^{+18}_{-17}	-3848^{+21087}_{-13292}	$-14949.975^{+2275893.532}_{-2277092.742}$
Alt.	-995 ± 110	$7.84^{+7.76}_{-5.11}$	295^{+19}_{-17}	3773^{+1937}_{-736}	12047^{+86945}_{-9126}

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 $A_{obs} \gg 1.0$

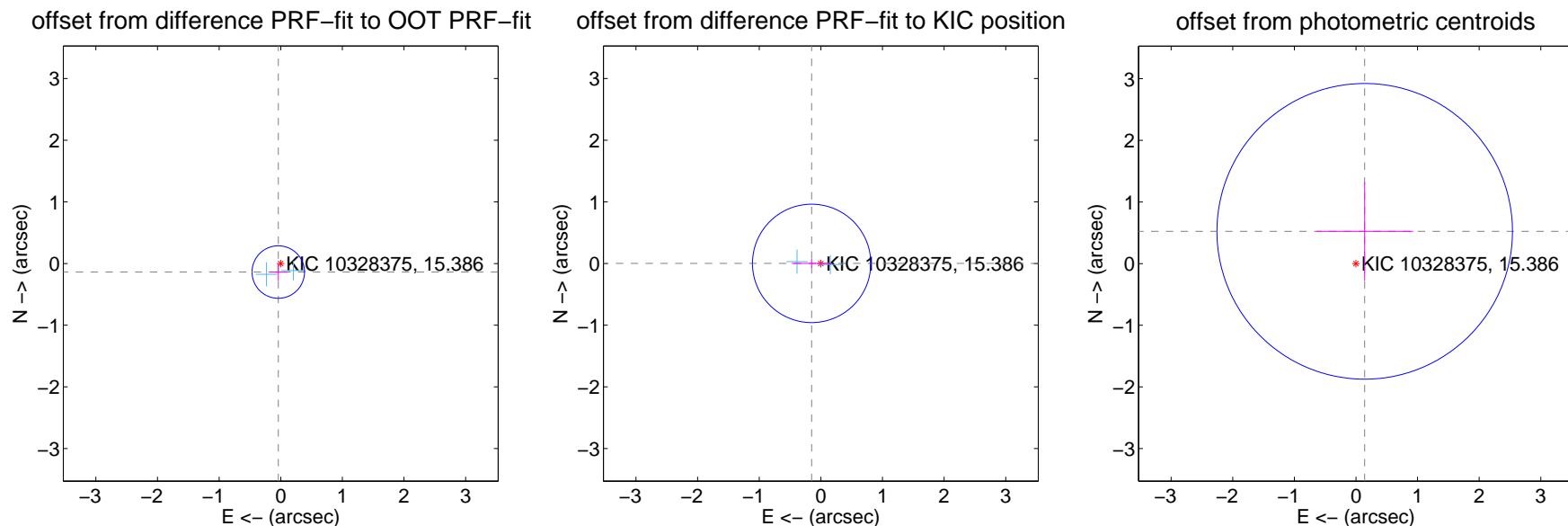
DV Centroid Data

Supplemental centroid analysis for 010328375-04. Kepler magnitude: 15.39. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

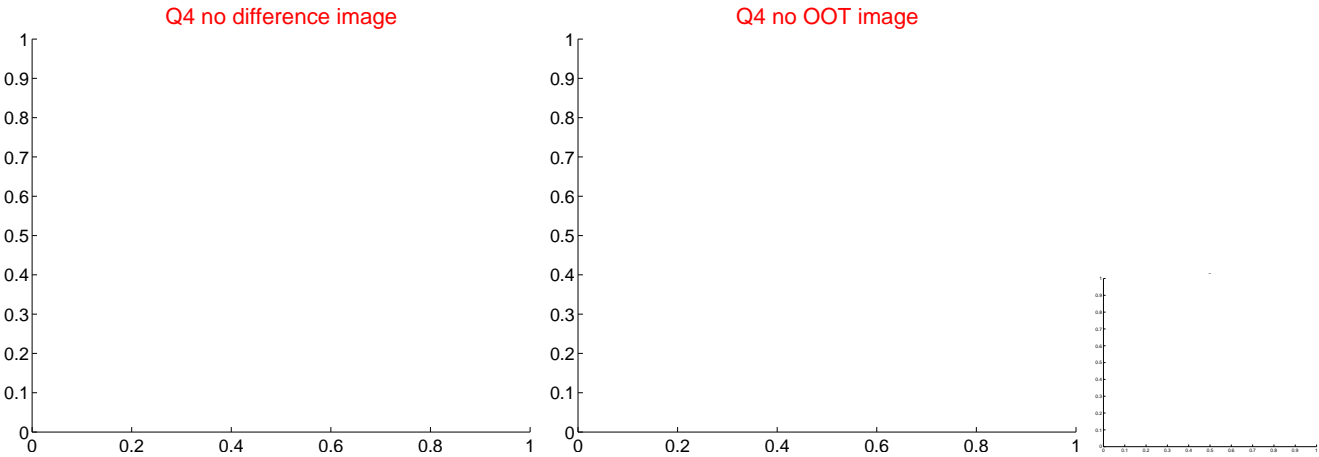
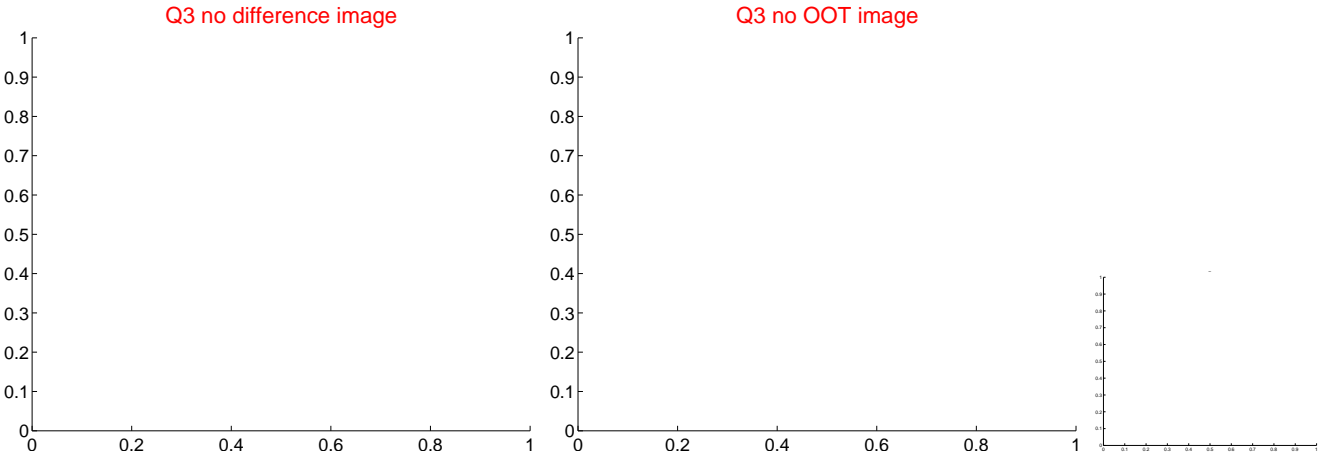
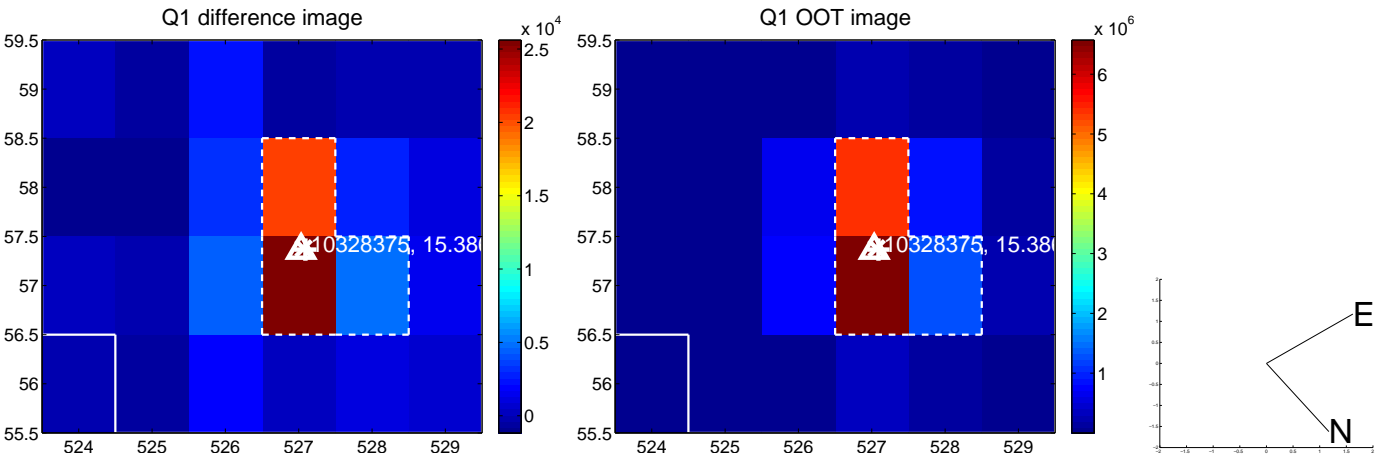
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.144 ± 0.142	1.01	0.040 ± 0.147	-0.138 ± 0.141
PRF-fit source offset from KIC position	0.150 ± 0.320	0.47	0.150 ± 0.320	0.002 ± 0.072
photometric centroid source offset	0.54 ± 0.80	0.68	-0.14 ± 0.79	0.52 ± 0.80

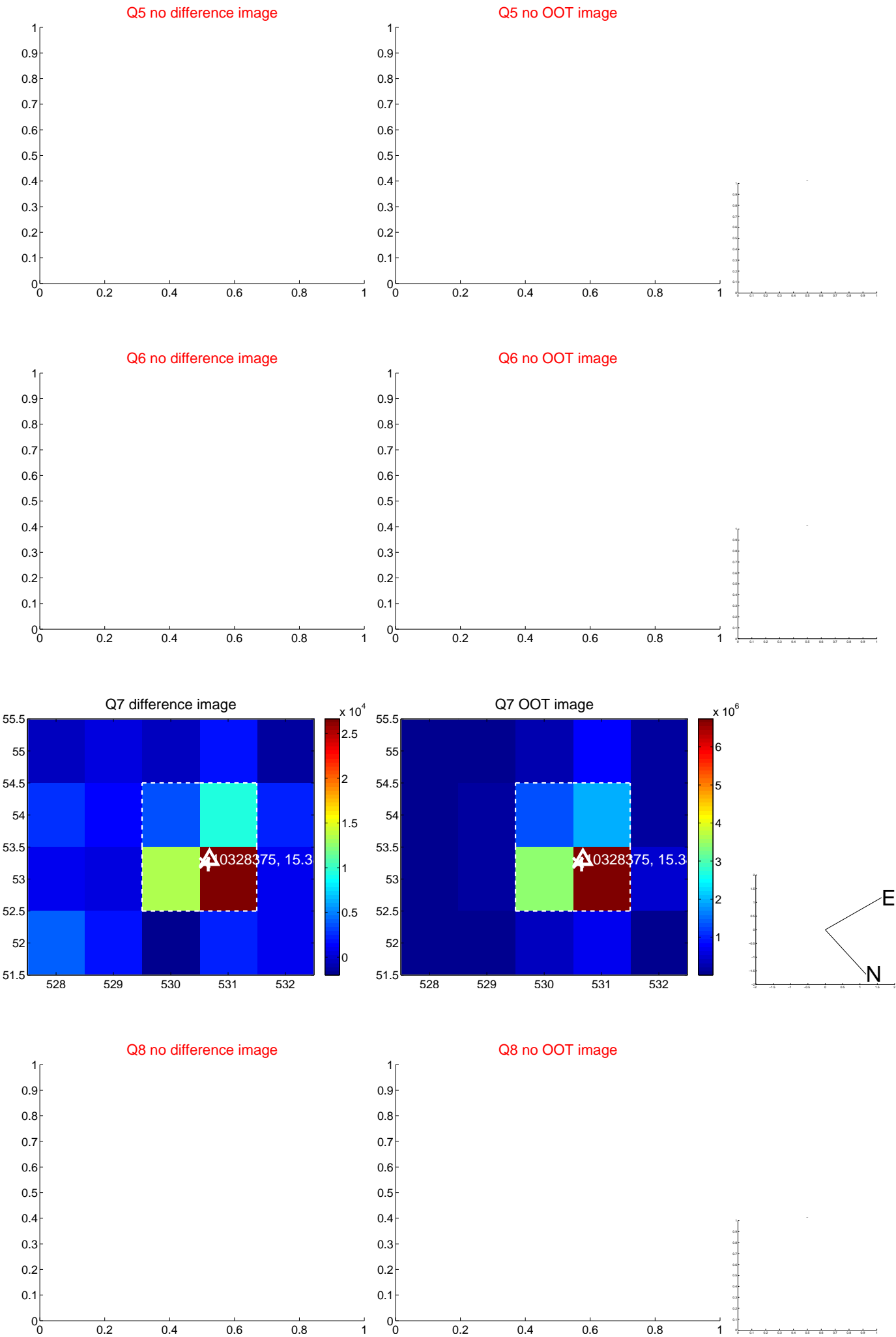


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



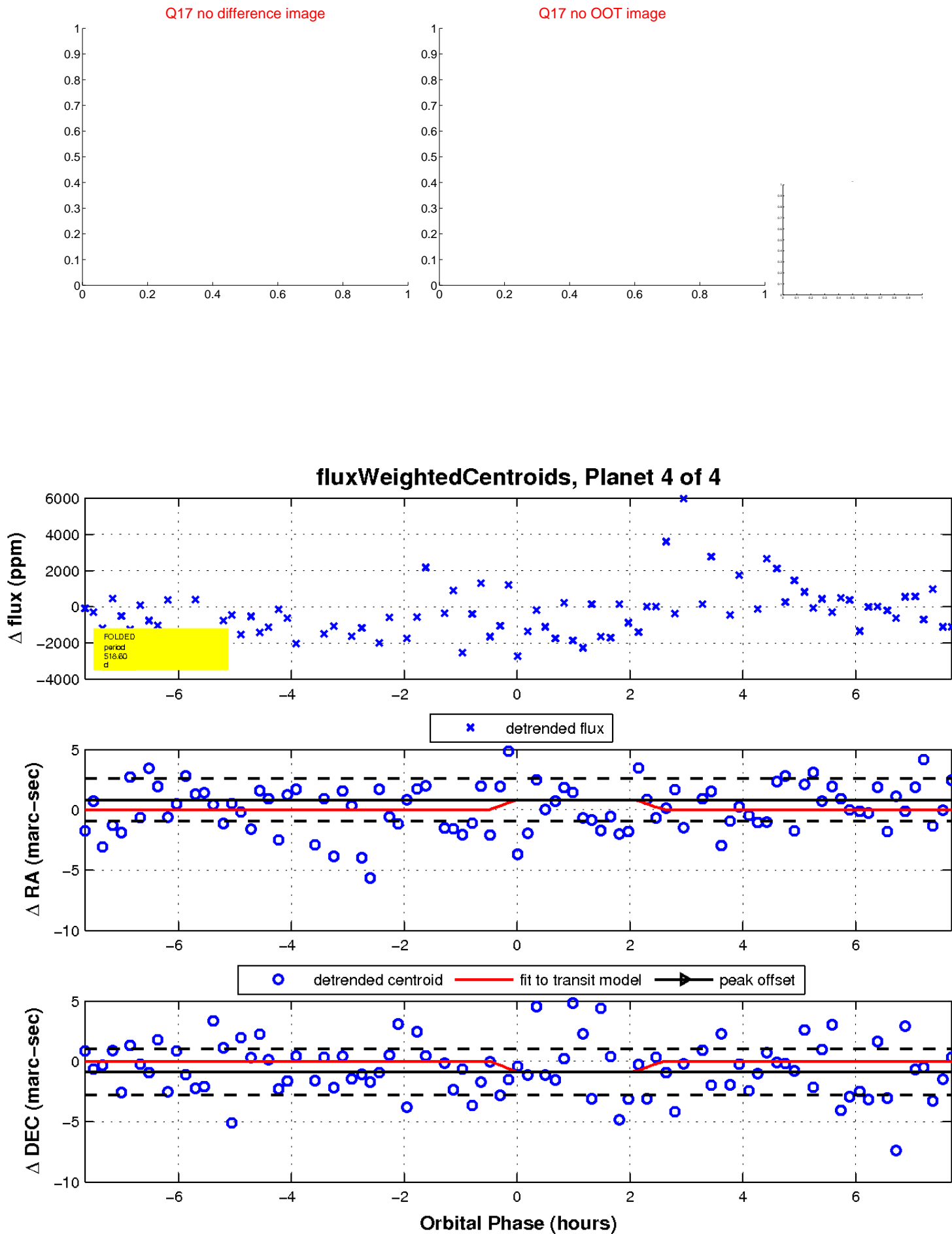
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

