

KIC 009631366

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})
009631366-01	OBS	No	569.753870	293.473648	1368.3	23.947	16.7	7.3	0.48	3720	1.76	0.04
009631366-02	OBS	No	350.103158	248.942223	1391.5	6.925	16.9	7.5	0.48	3720	3.50	0.07
009631366-03	OBS	No	420.327312	141.376498	1490.5	11.596	14.0	9.9	0.48	3720	2.34	0.05
009631366-05	OBS	No	607.142790	358.531386	419.3	7.207	10.8	2.8	0.48	3720	1.09	0.03
009631366-06	OBS	No	348.715721	446.661344	832.4	4.650	11.9	7.1	0.48	3720	1.45	0.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009631366-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009631366-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009631366-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009631366-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
009631366-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

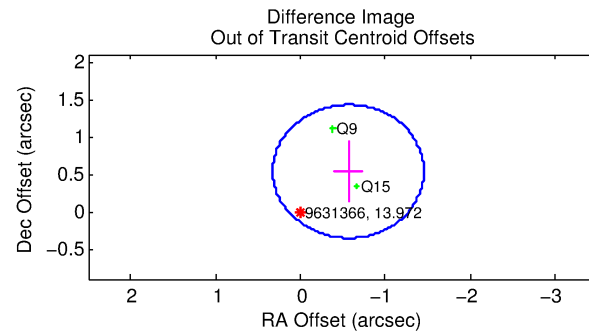
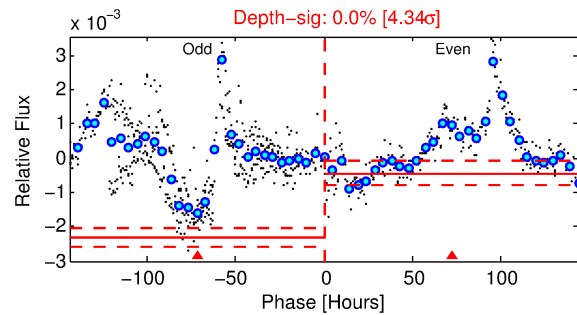
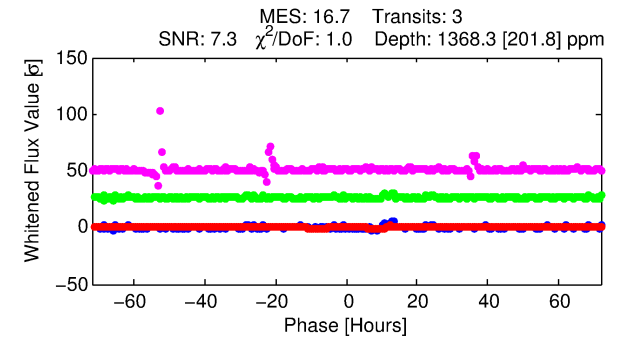
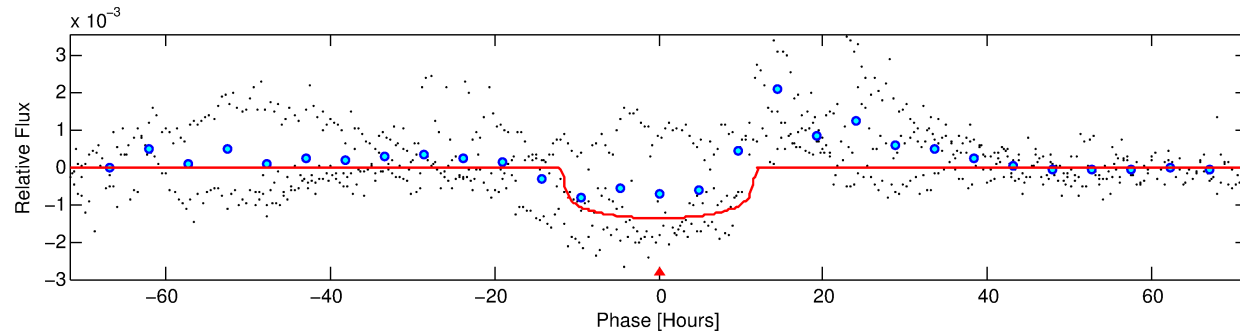
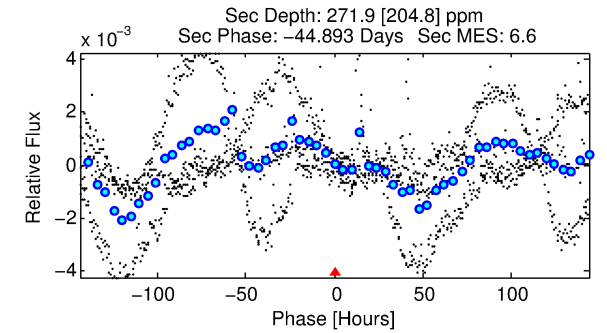
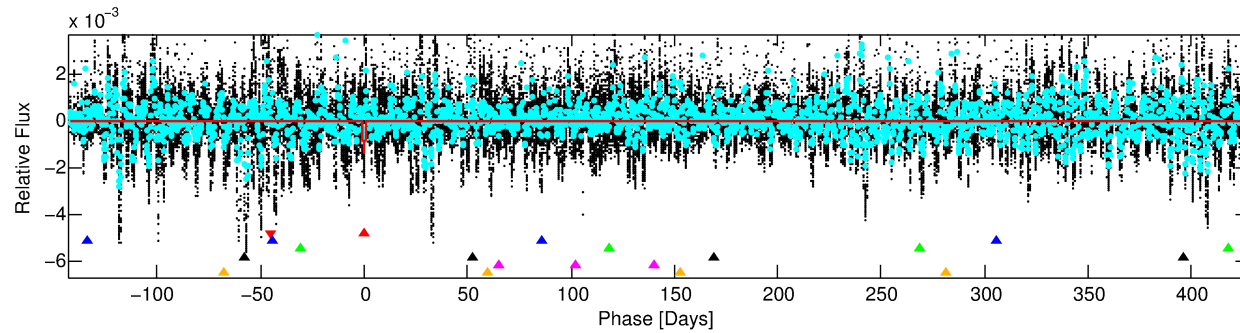
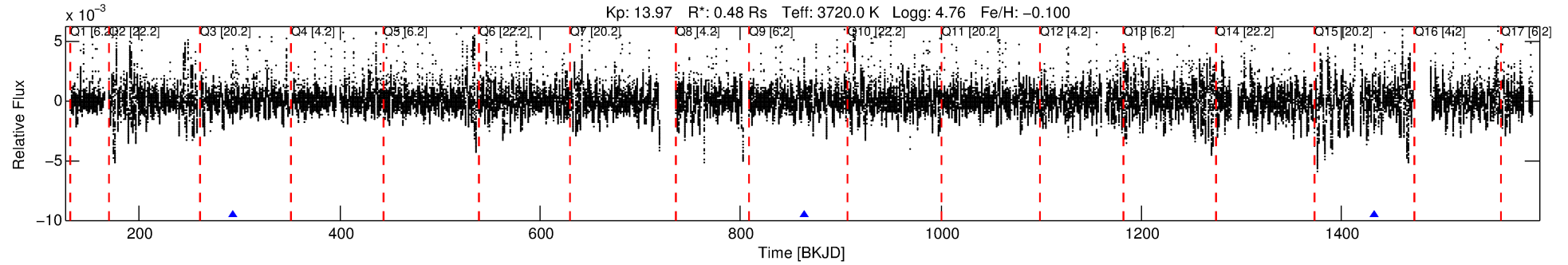
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009631366-01

No Significant Match Found

DV One-Page Summary

KIC: 9631366 Candidate: 1 of 6 Period: 569.754 d



DV Fit Results:

Period = 569.75387 [0.00730] d
Epoch = 293.4736 [0.0096] BKJD
Rp/R* = 0.0335 [0.0057]
a/R* = 187.31 [115.70]
b = 0.08 [7.79]
Seff = 0.04 [0.01]
Teq = 110 [6] K
Rp = 1.76 [0.40] Re
a = 1.0592 [0.1235] AU
Ag = 54342.95 [45758.76] [1.19 σ]
Teffp = 2608 [547] K [4.57 σ]

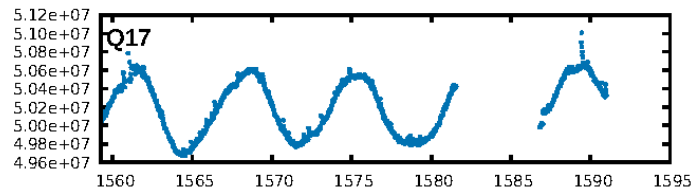
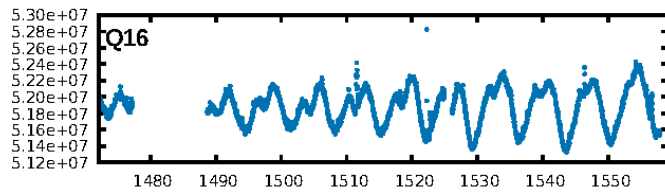
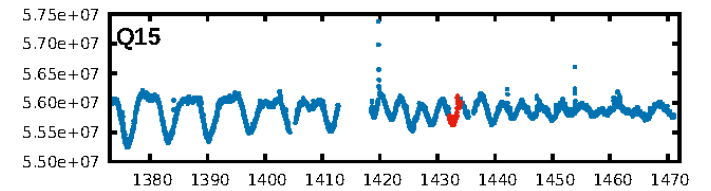
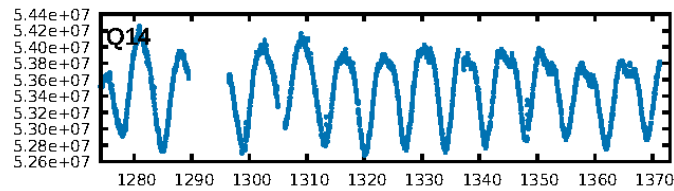
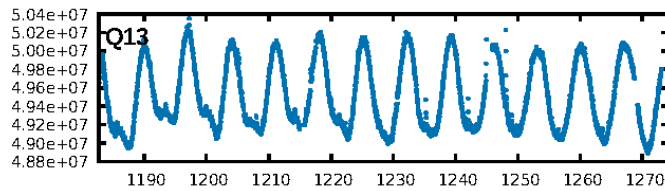
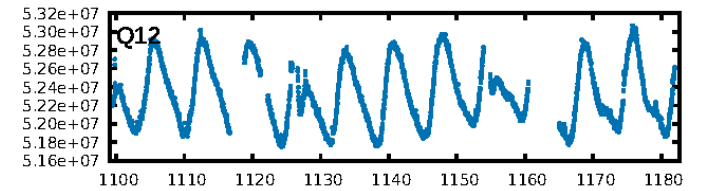
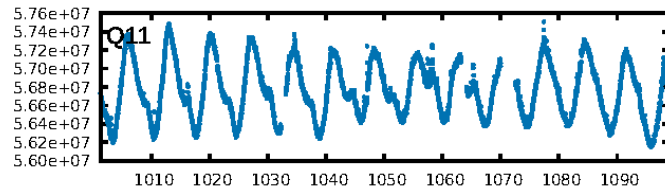
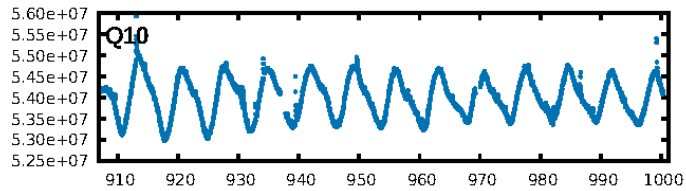
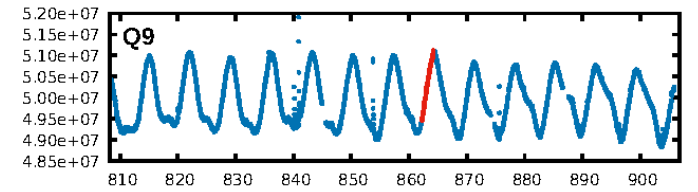
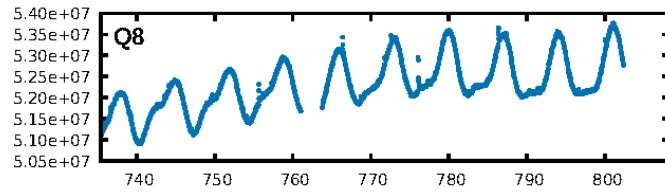
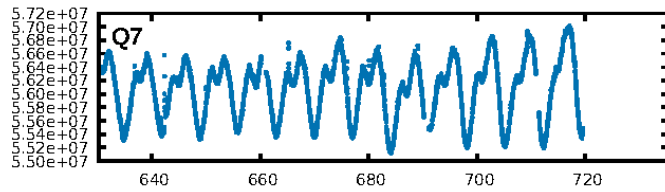
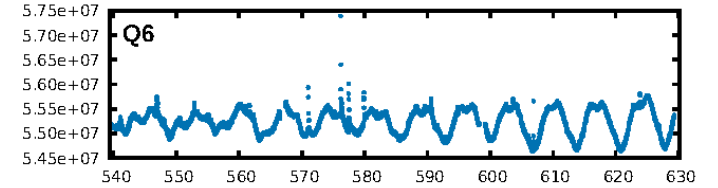
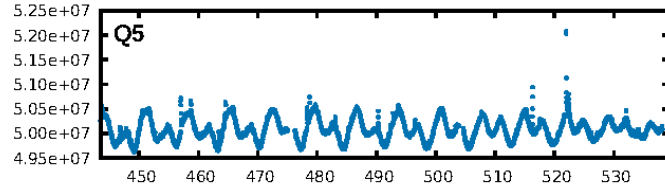
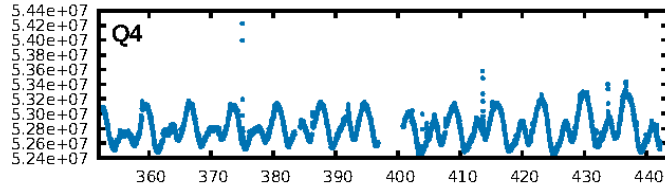
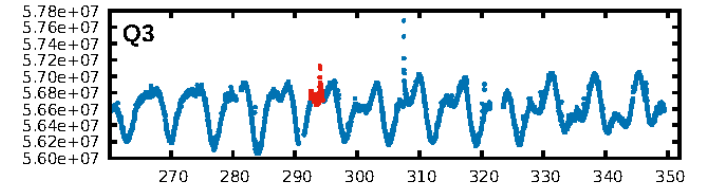
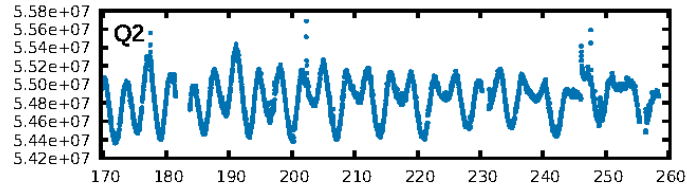
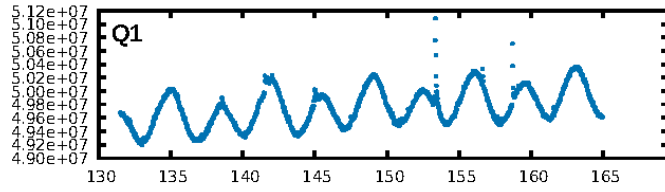
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [134.79 σ]
LongPeriod-sig: 100.0% [35.88 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 4.022
Centroid-sig: 47.0%
Centroid-so: 1.233 arcsec [2.21 σ]
OotOffset-rm: 0.781 arcsec [2.63 σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-rm: **1.692 arcsec [6.47 σ]**
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

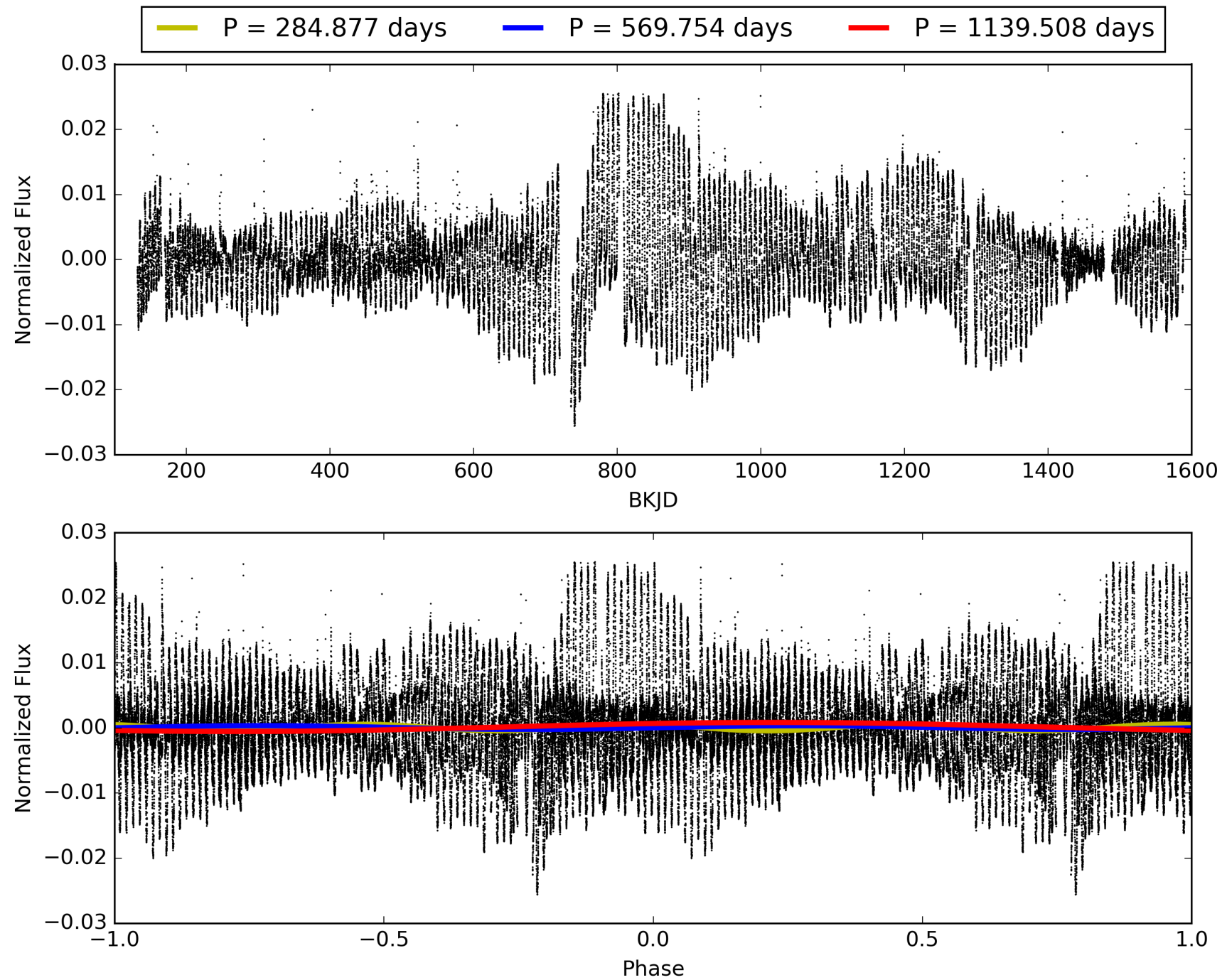
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009631366-01, PDC Light Curves

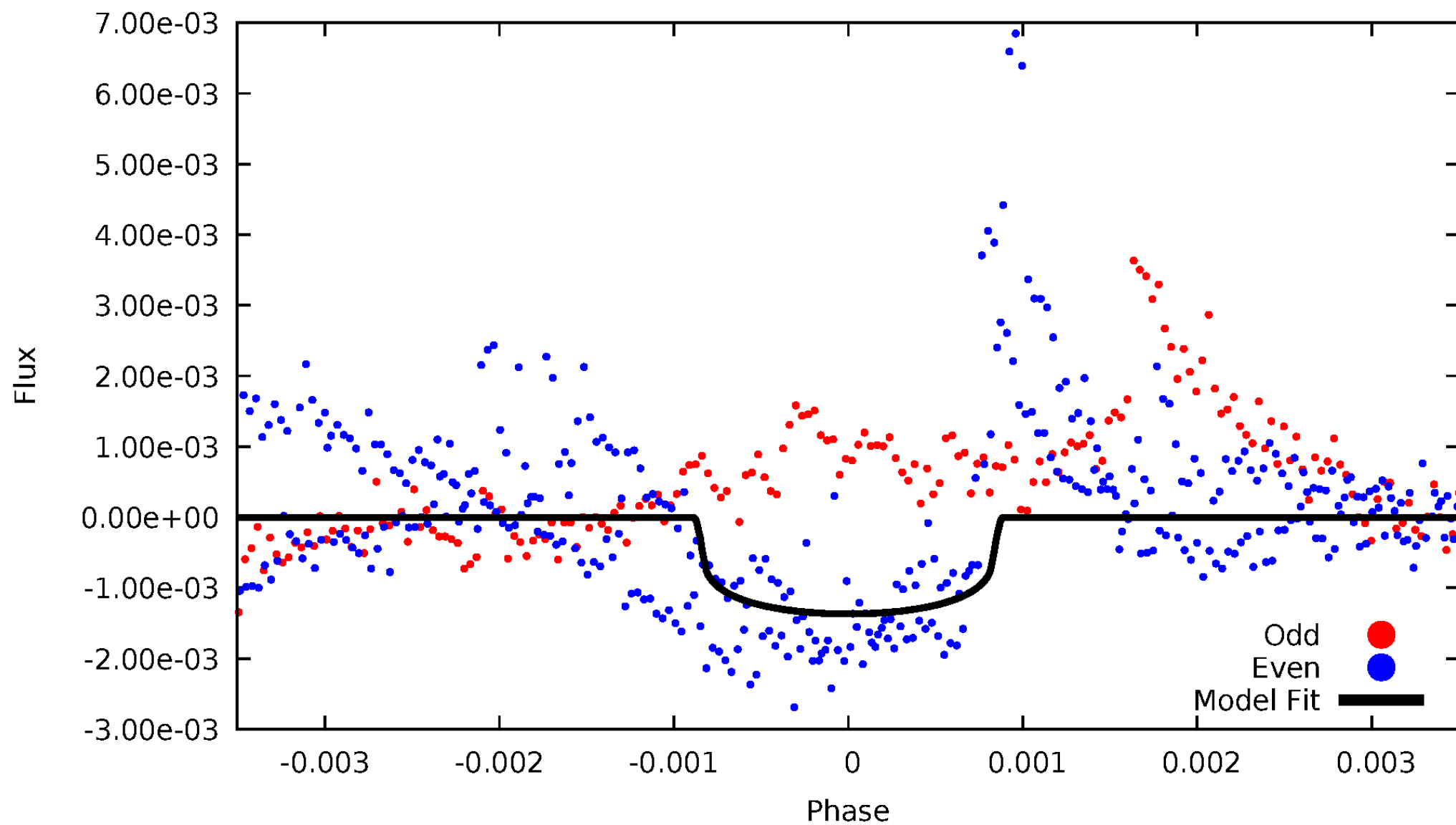


TCE 009631366-01



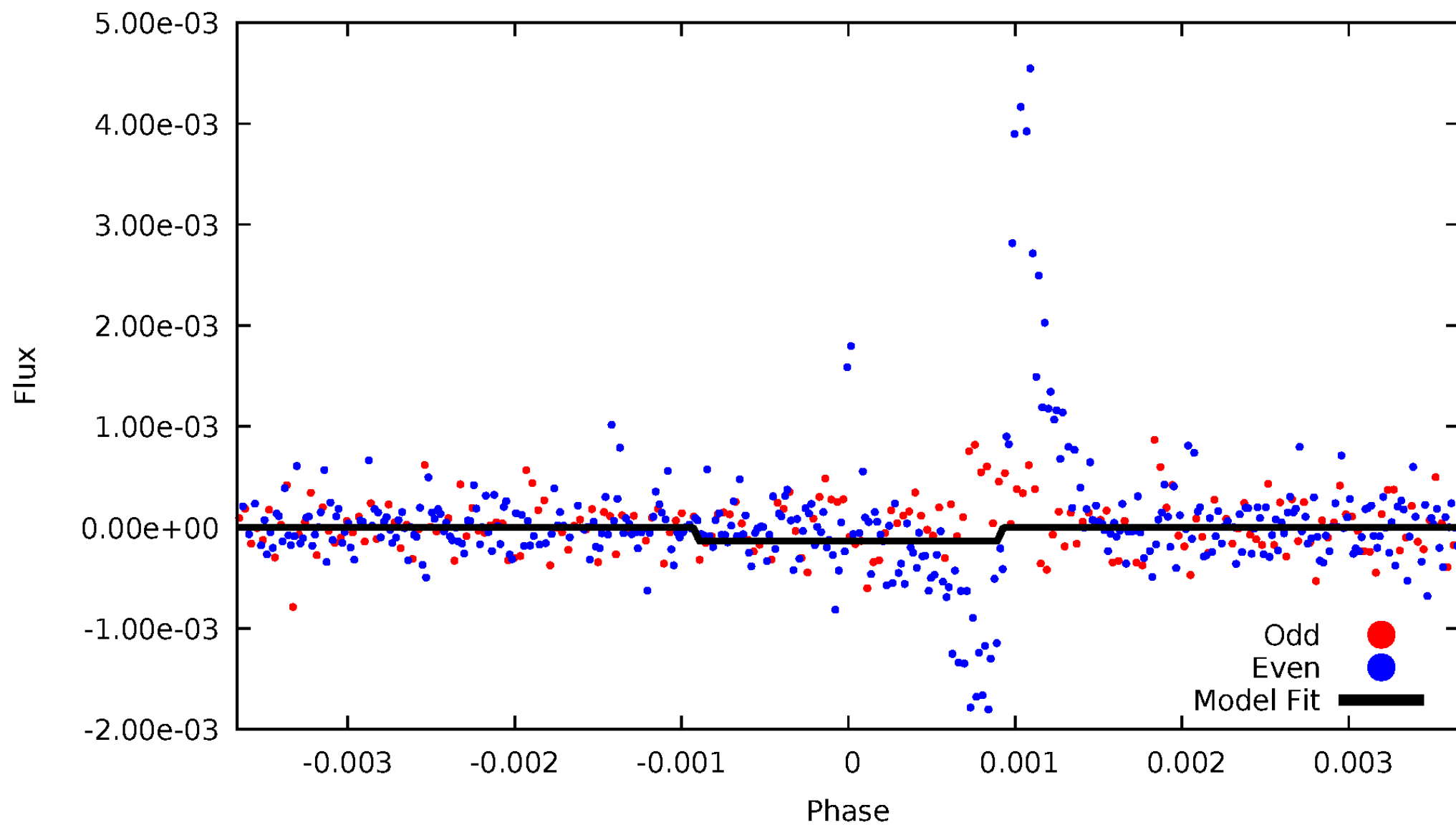
DV Odd/Even

TCE 009631366-01



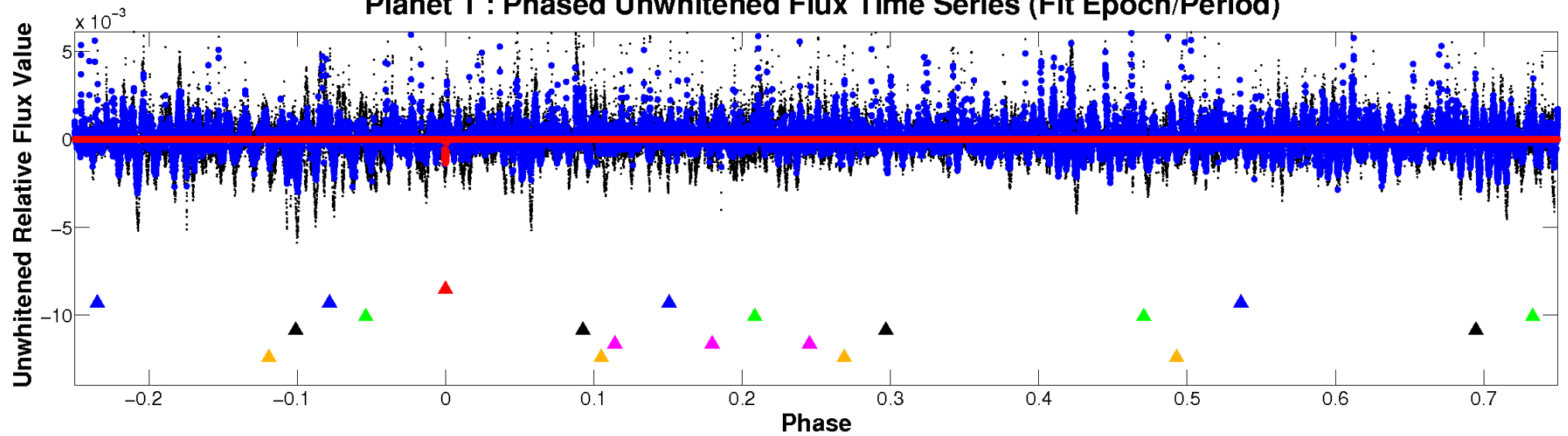
ALT Odd/Even

TCE 009631366-01

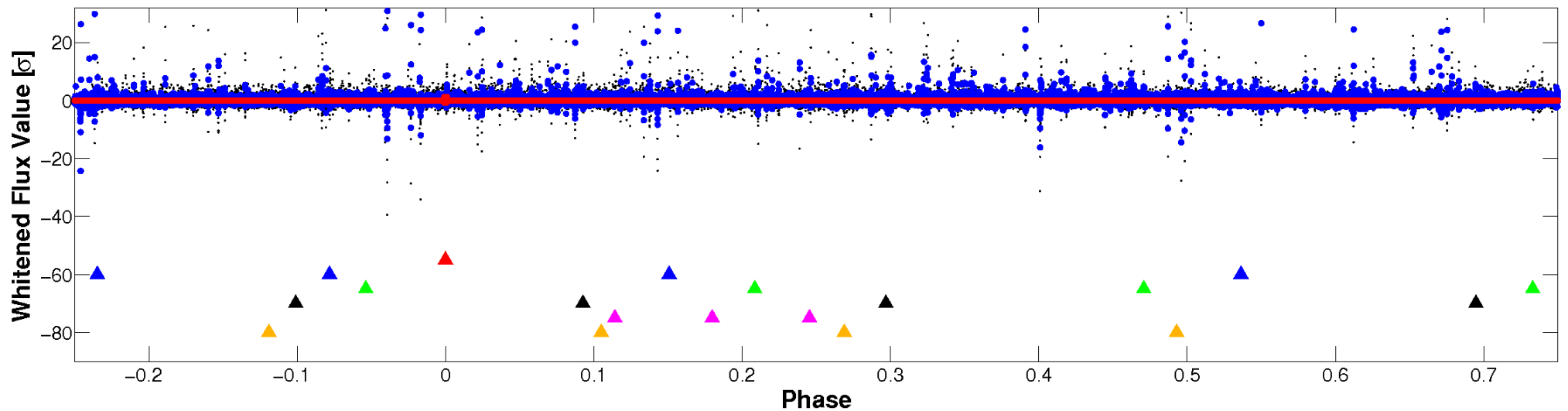


Non-Whitened Vs. Whitened Light Curve

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

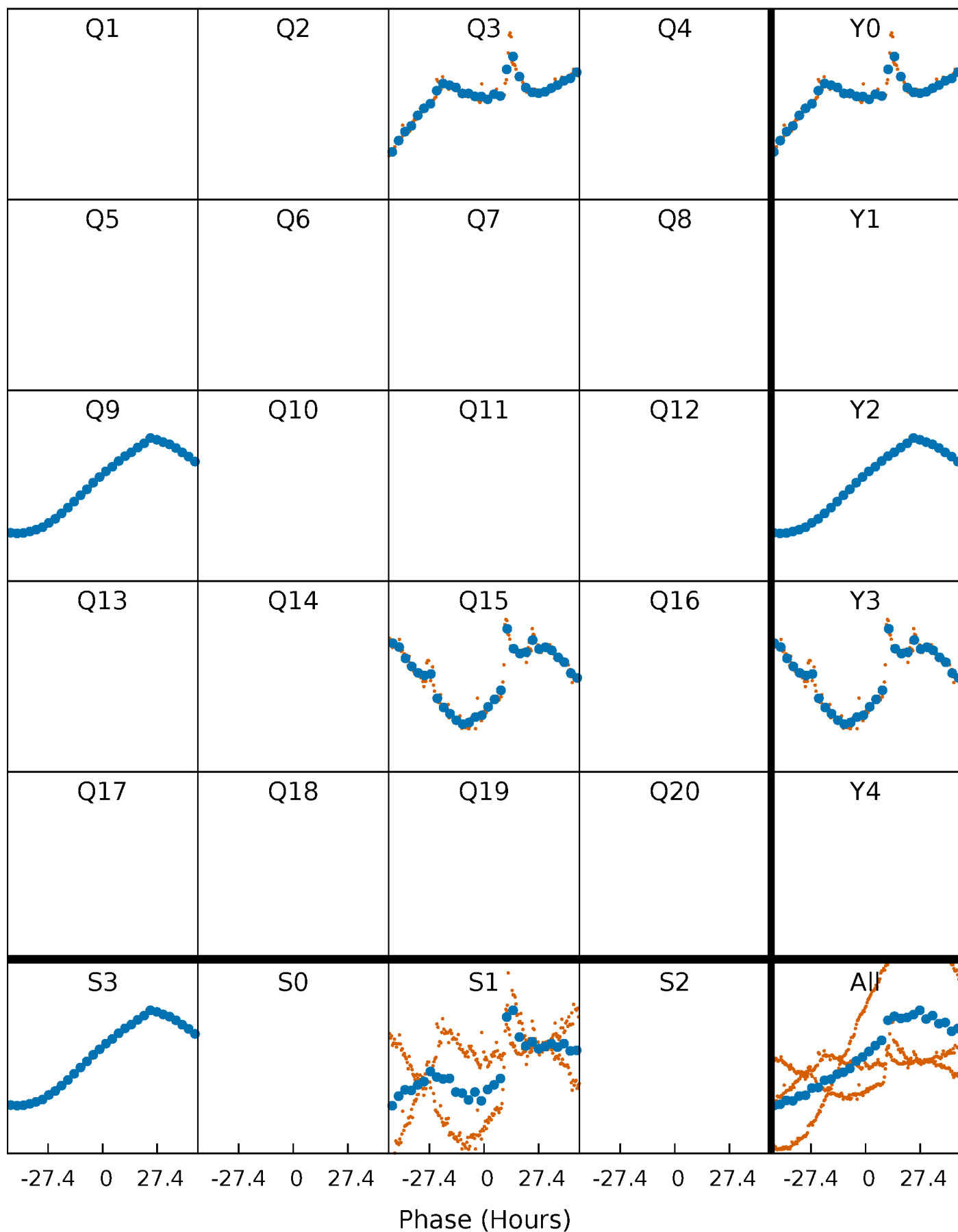


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



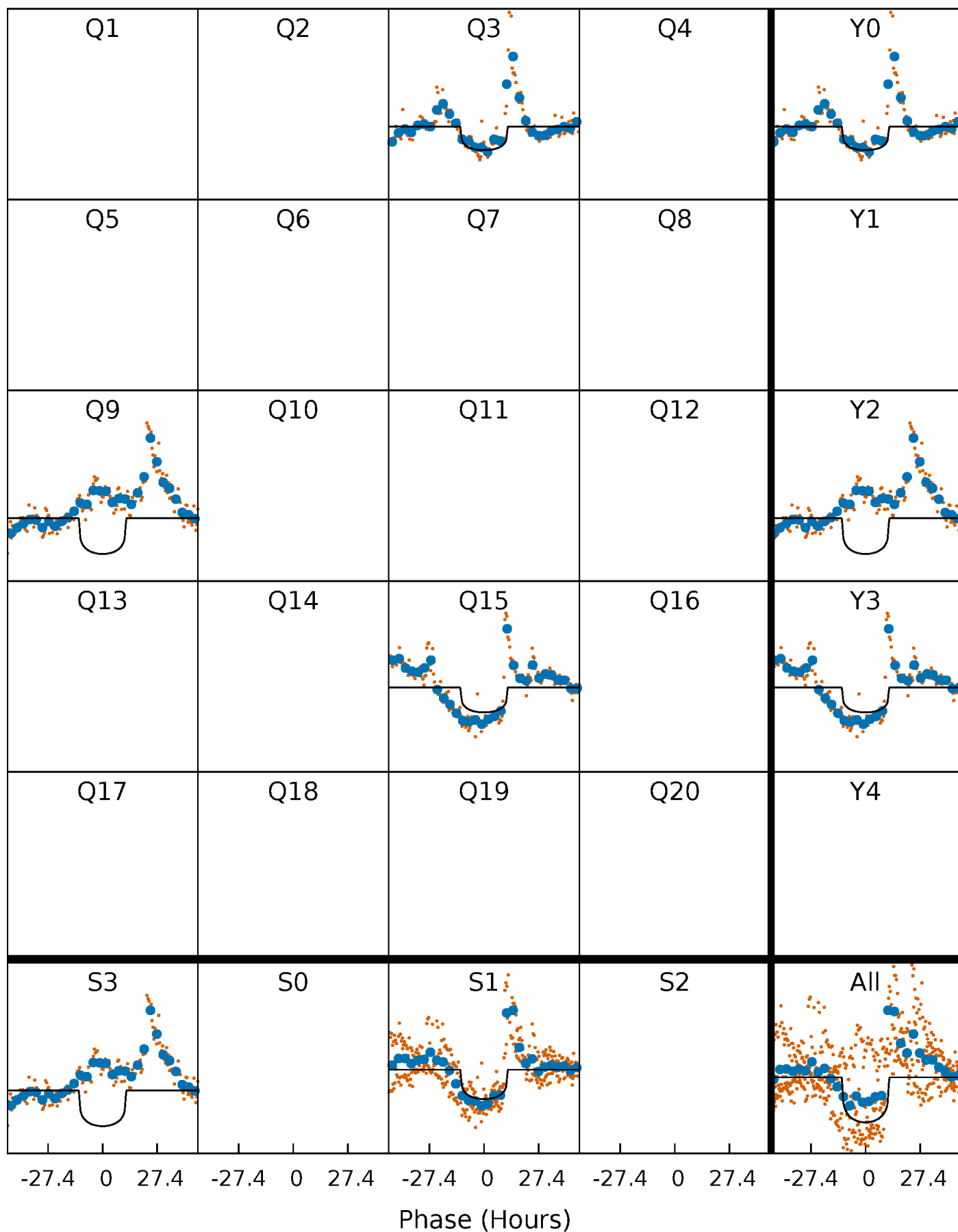
PDC Quarter-Phased Transit Curves

TCE 009631366-01 P=569.753870 Days $T_0=293.473649$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009631366-01 P=569.753870 Days $T_0=293.473649$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

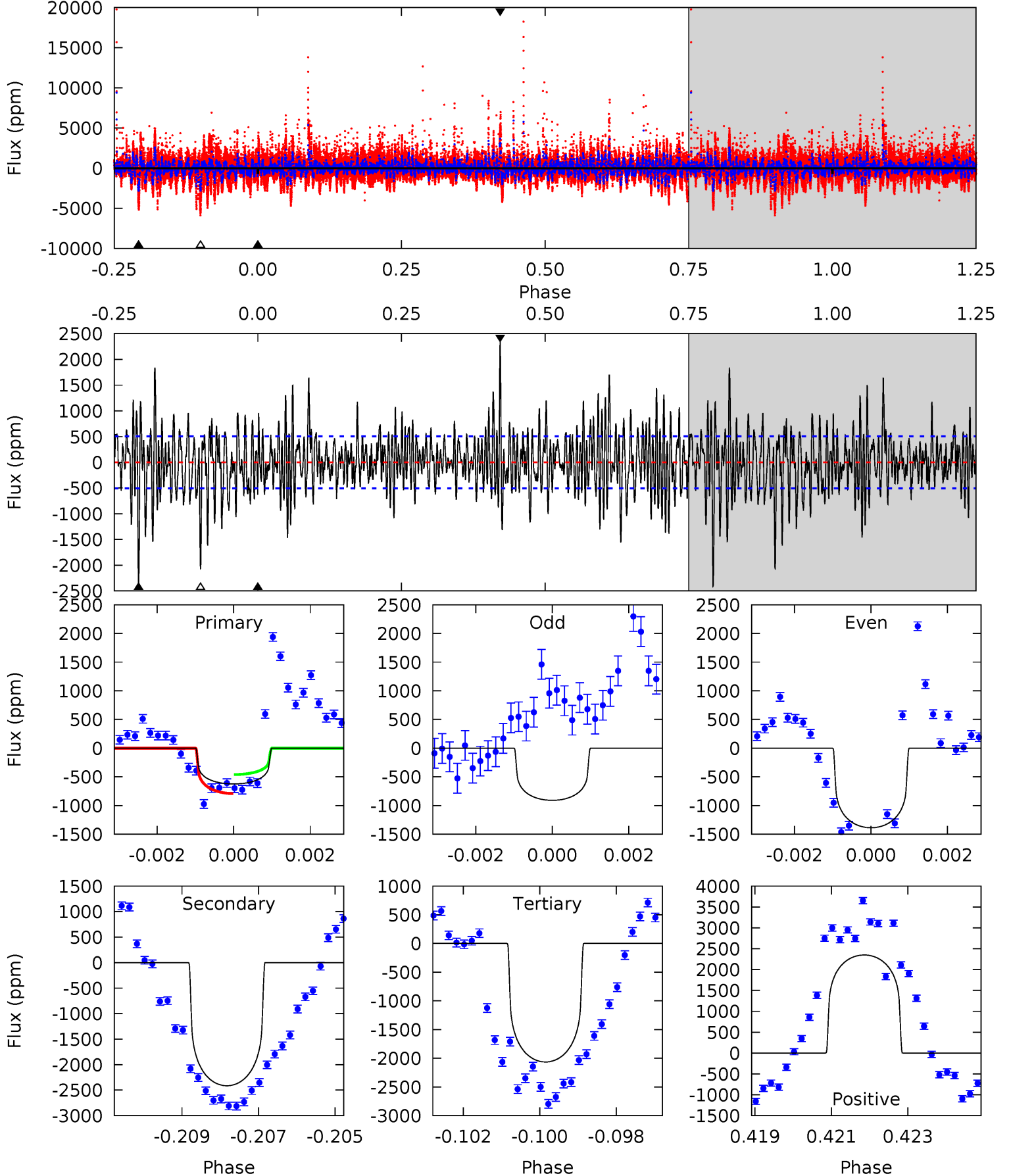
TCE 009631366-01 P=569.714898 Days $T_0=293.419081$ (BKJD)



DV Model-Shift Uniqueness Test

009631366-01, P = 569.753870 Days, E = 293.473649 Days

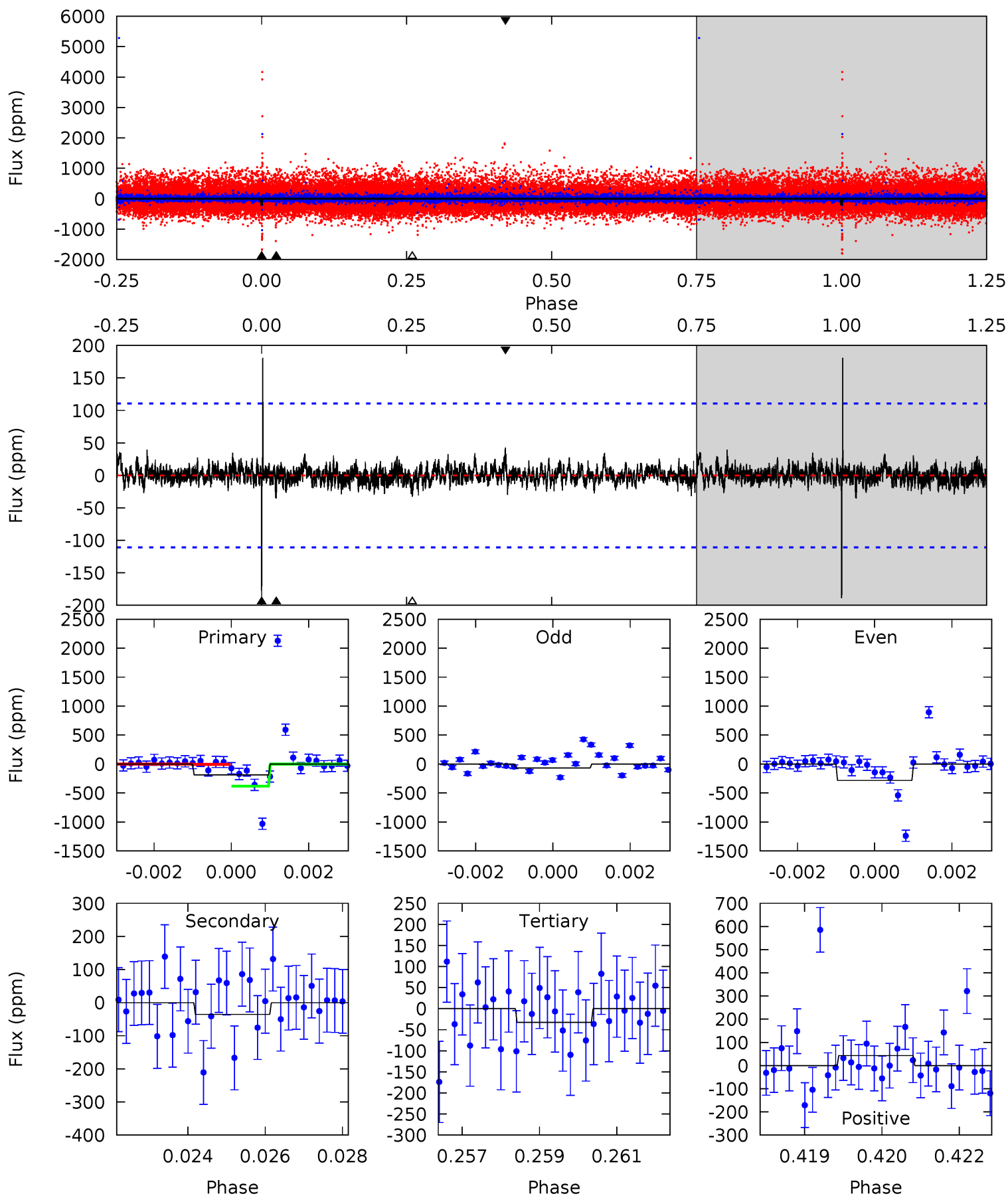
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.60	25.6	21.9	24.9	5.35	3.12	5.45	-15.3	-18.3	3.70	0.68	2.21	0.57	0.49	1.76



Alt Model-Shift Uniqueness Test

009631366-01, P = 569.714898 Days, E = 293.419081 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.11	1.72	1.57	2.07	5.34	3.11	0.46	7.53	7.04	0.14	-0.35	4.78	0.73	0.49	0



Stellar Parameters For KIC 009631366

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3720^{+103}_{-129}	$4.764^{+0.078}_{-0.042}$	$-0.100^{+0.200}_{-0.200}$	$0.480^{+0.048}_{-0.072}$	$0.488^{+0.052}_{-0.064}$	$6.213^{+2.529}_{-1.041}$
	+3%/-3%	+2%/-1%	+200%/-200%	+10%/-15%	+11%/-13%	+41%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009631366-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2414 ± 94	$1.74^{+0.31}_{-0.32}$	153^{+6}_{-7}	4255^{+344}_{-285}	$503453^{+224952}_{-143693}$
Alt.	-36 ± 21	$0.61^{+0.30}_{-0.28}$	153^{+6}_{-7}	2943^{+712}_{-433}	$50016^{+151461}_{-35168}$

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

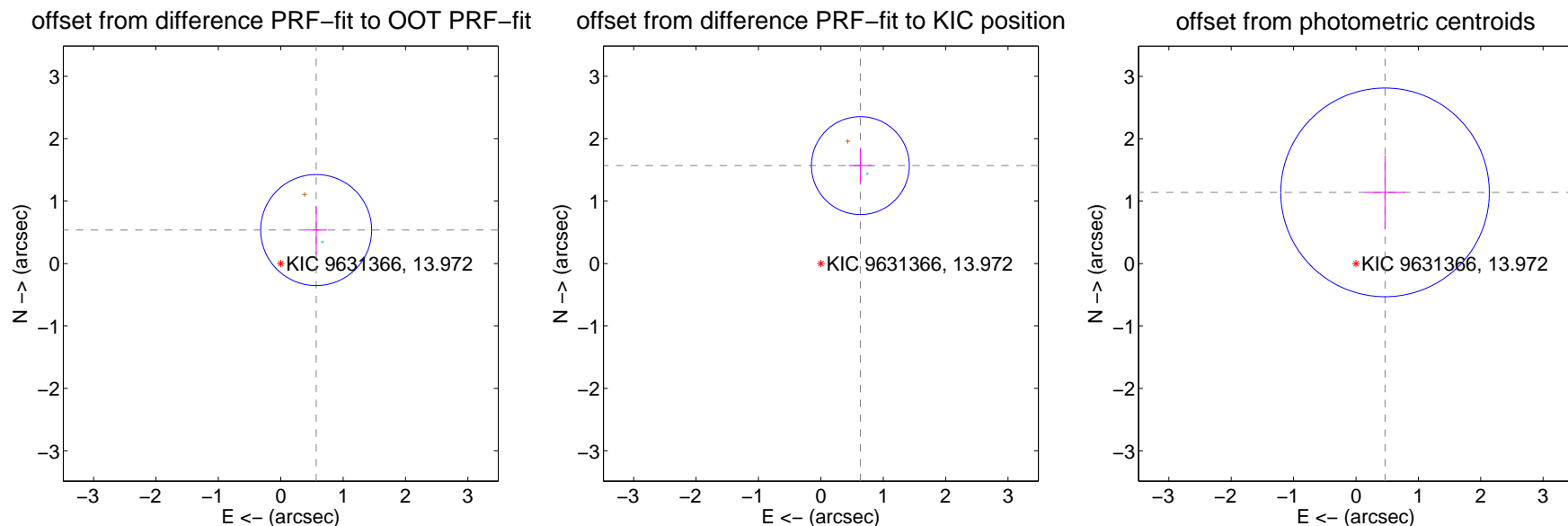
DV Centroid Data

Supplemental centroid analysis for 009631366-01. Kepler magnitude: 13.97. Transit SNR 7.26

There are 1 quarters with good PRF difference image offsets

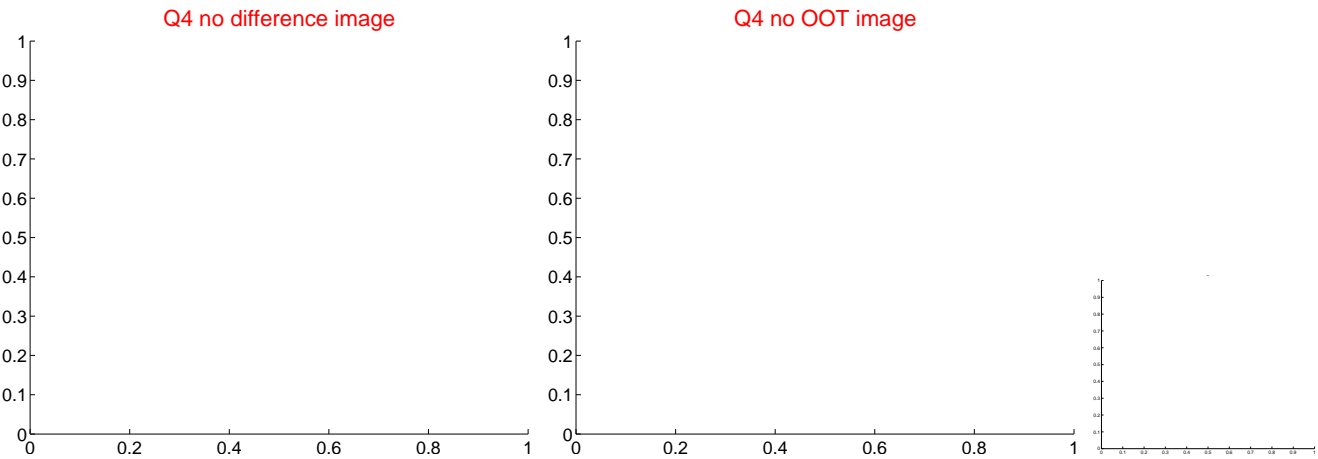
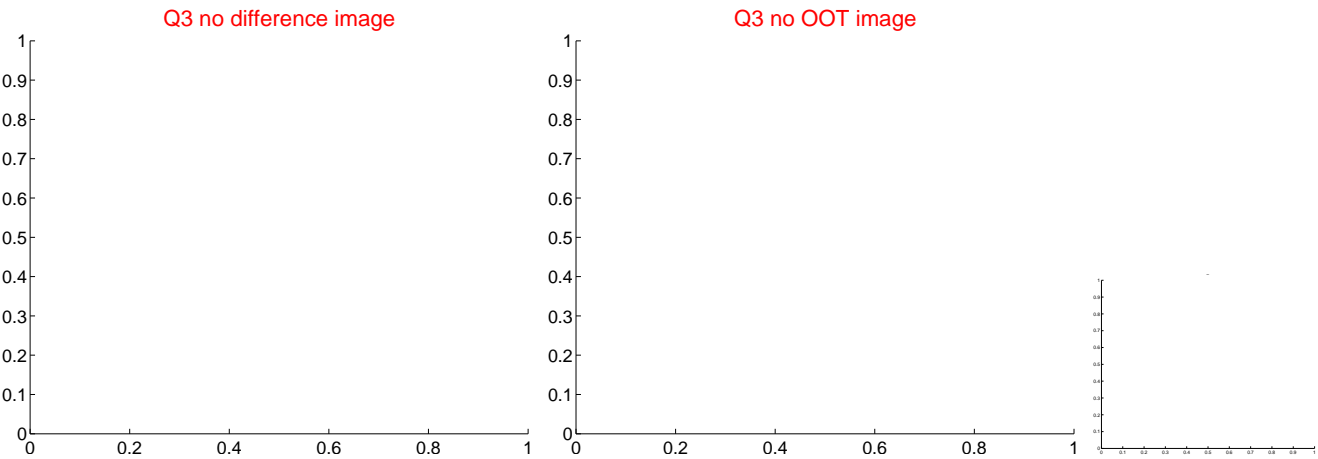
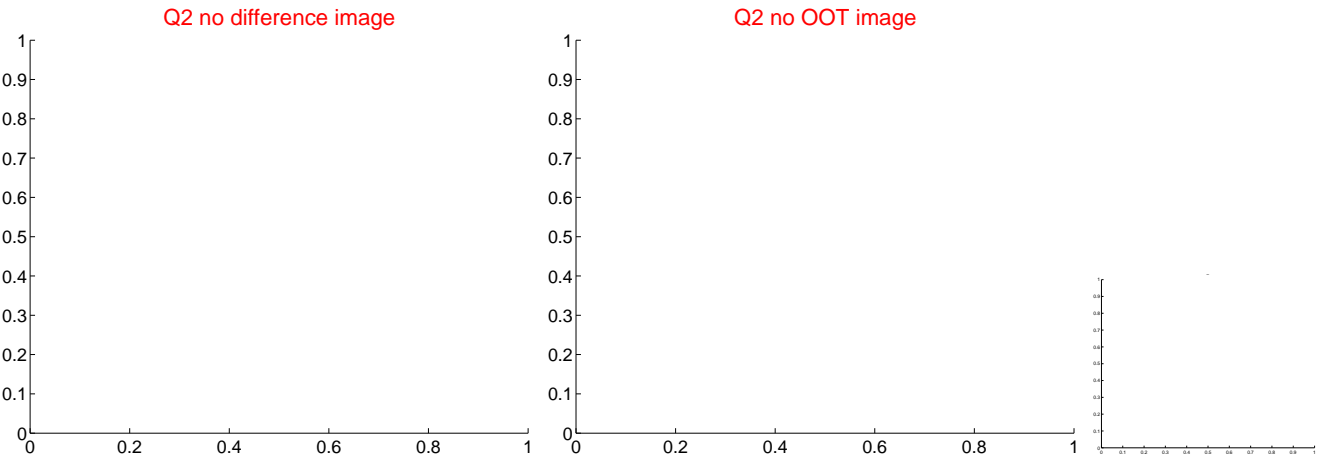
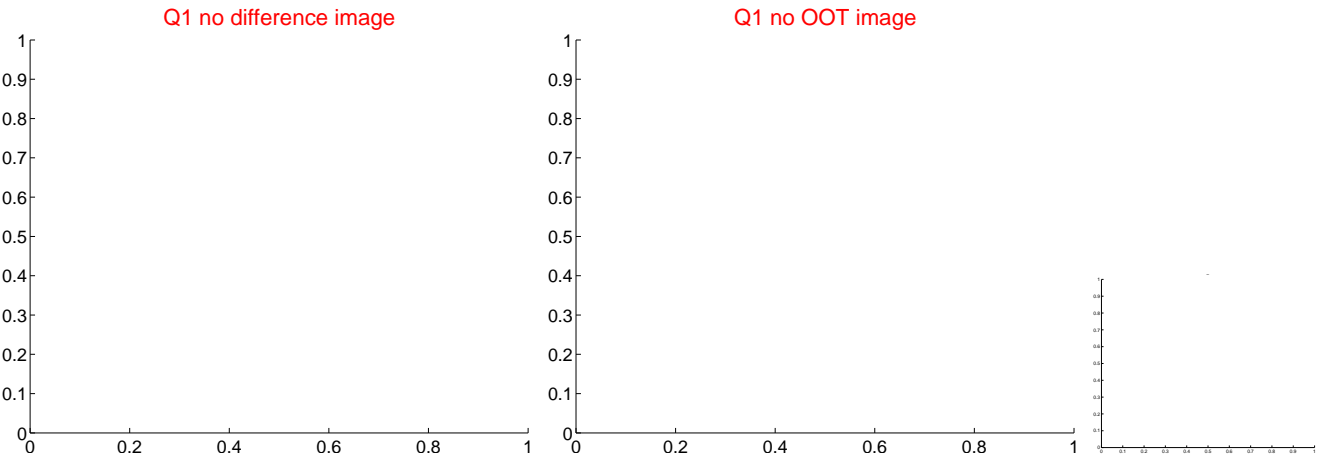
The direct PRF centroid is offset from the target star catalog position by about 1.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.781 ± 0.297	2.63	-0.568 ± 0.174	0.537 ± 0.391
PRF-fit source offset from KIC position	1.692 ± 0.261	6.47	-0.634 ± 0.188	1.569 ± 0.272
photometric centroid source offset	1.23 ± 0.56	2.21	-0.47 ± 0.32	1.14 ± 0.59

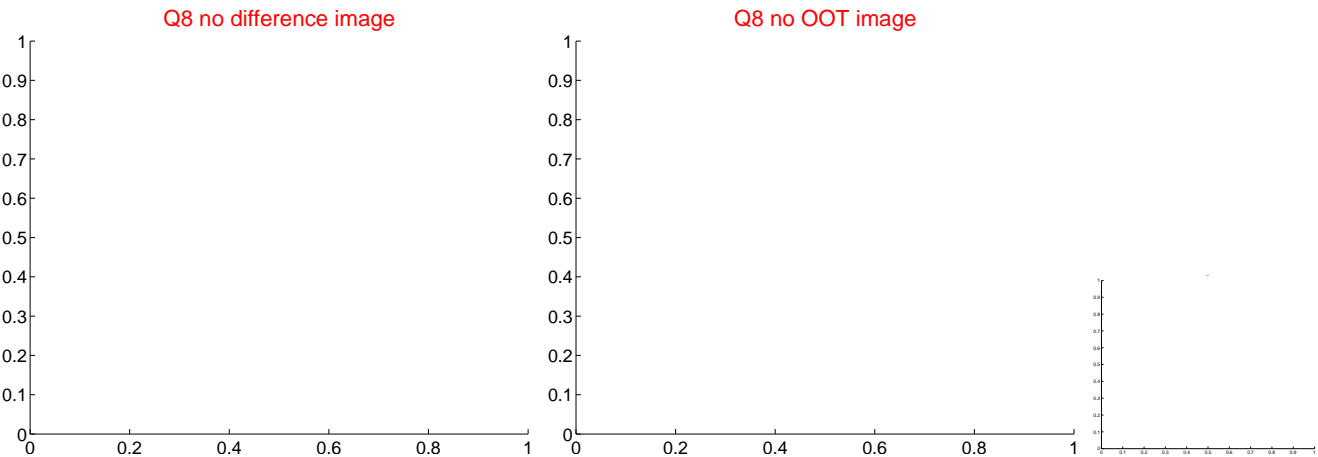
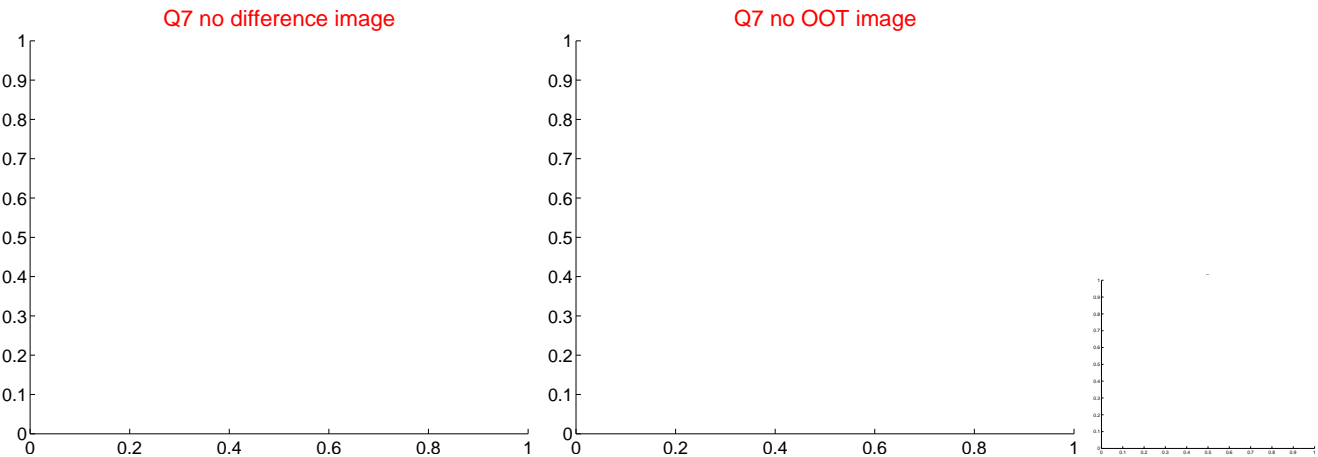
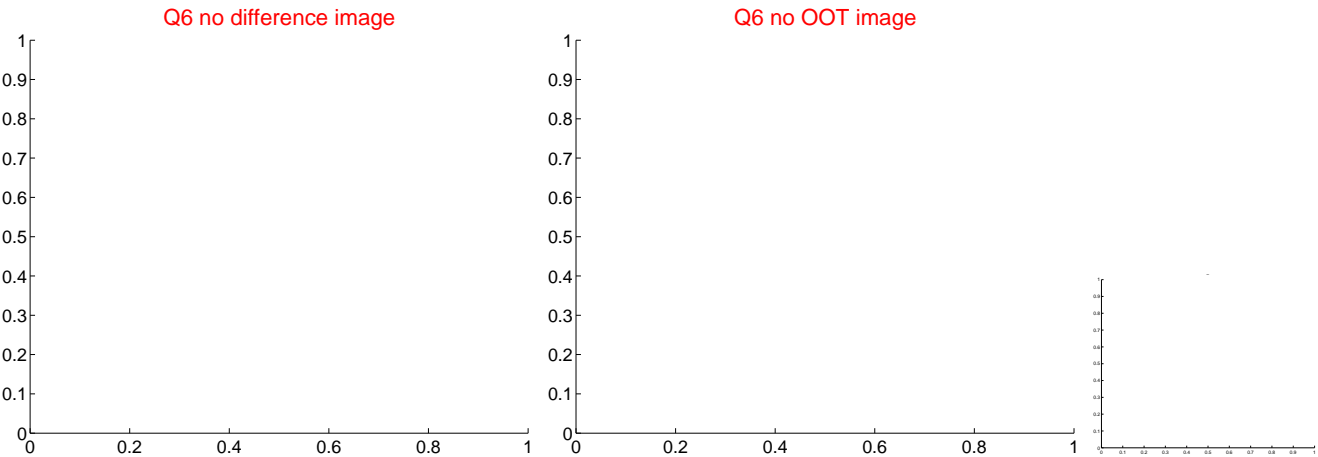
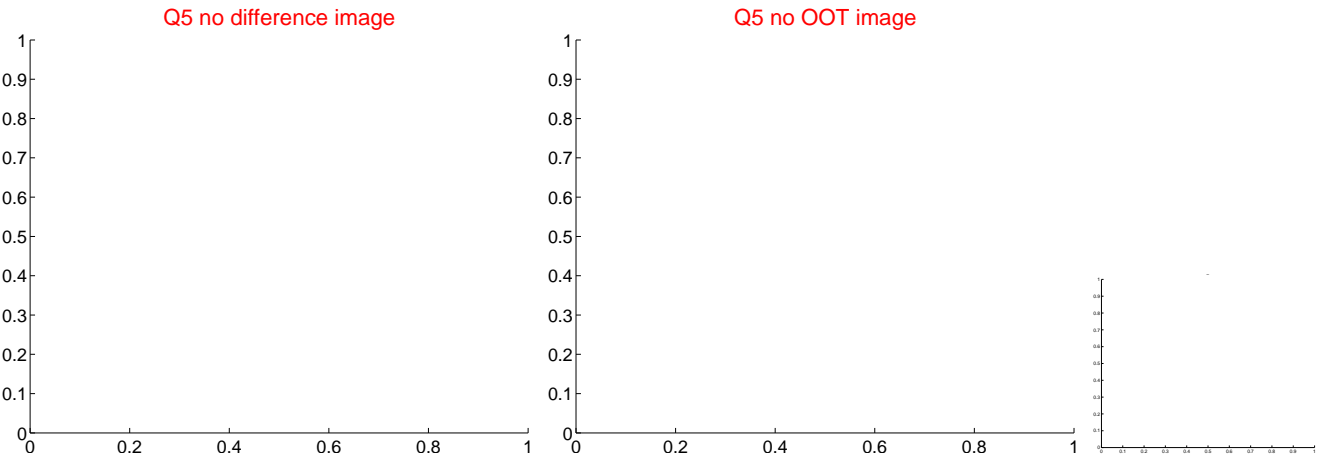


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

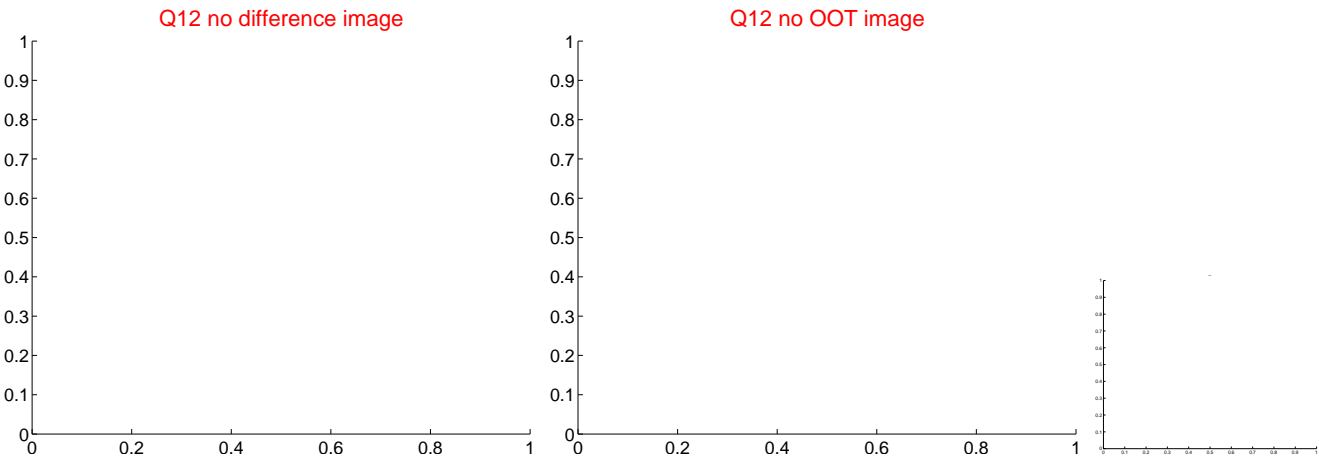
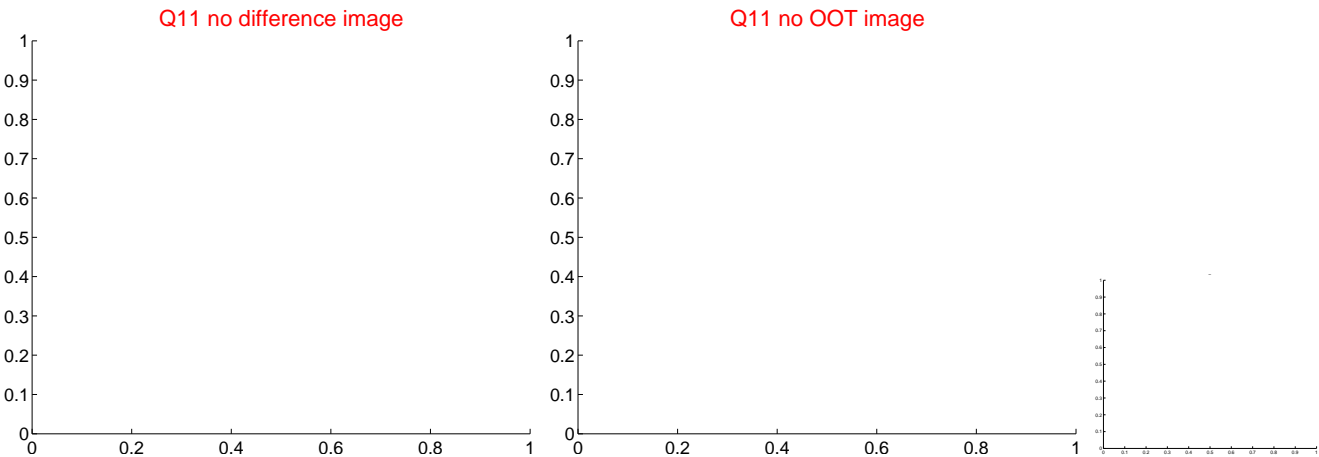
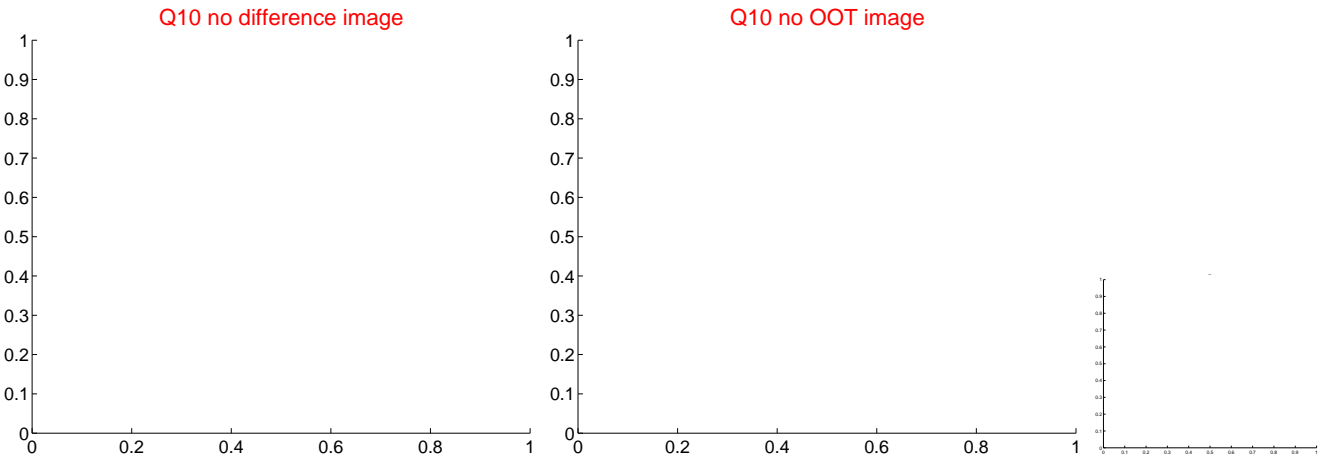
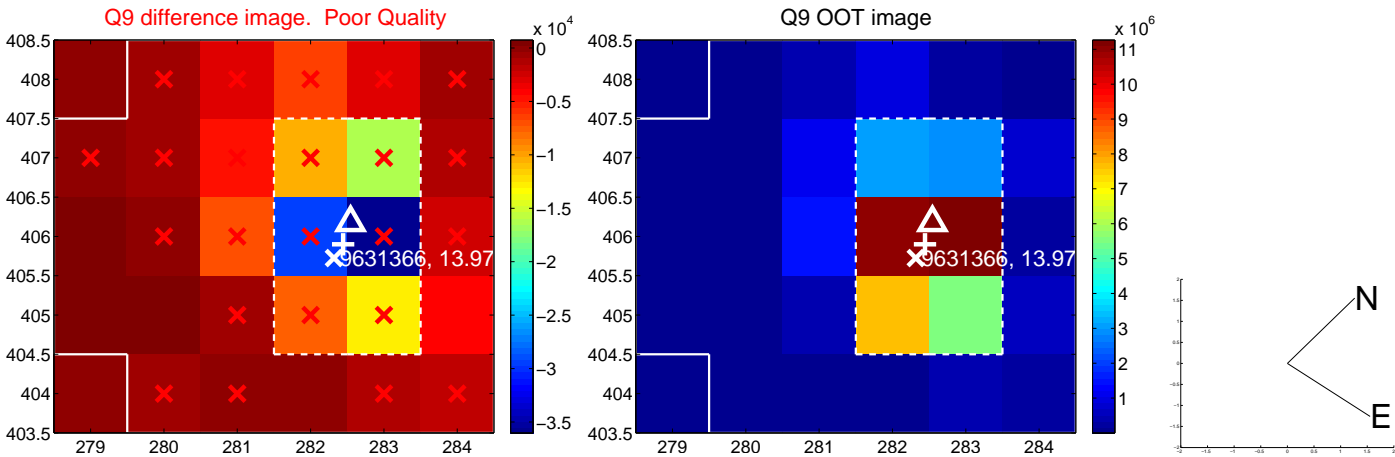
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



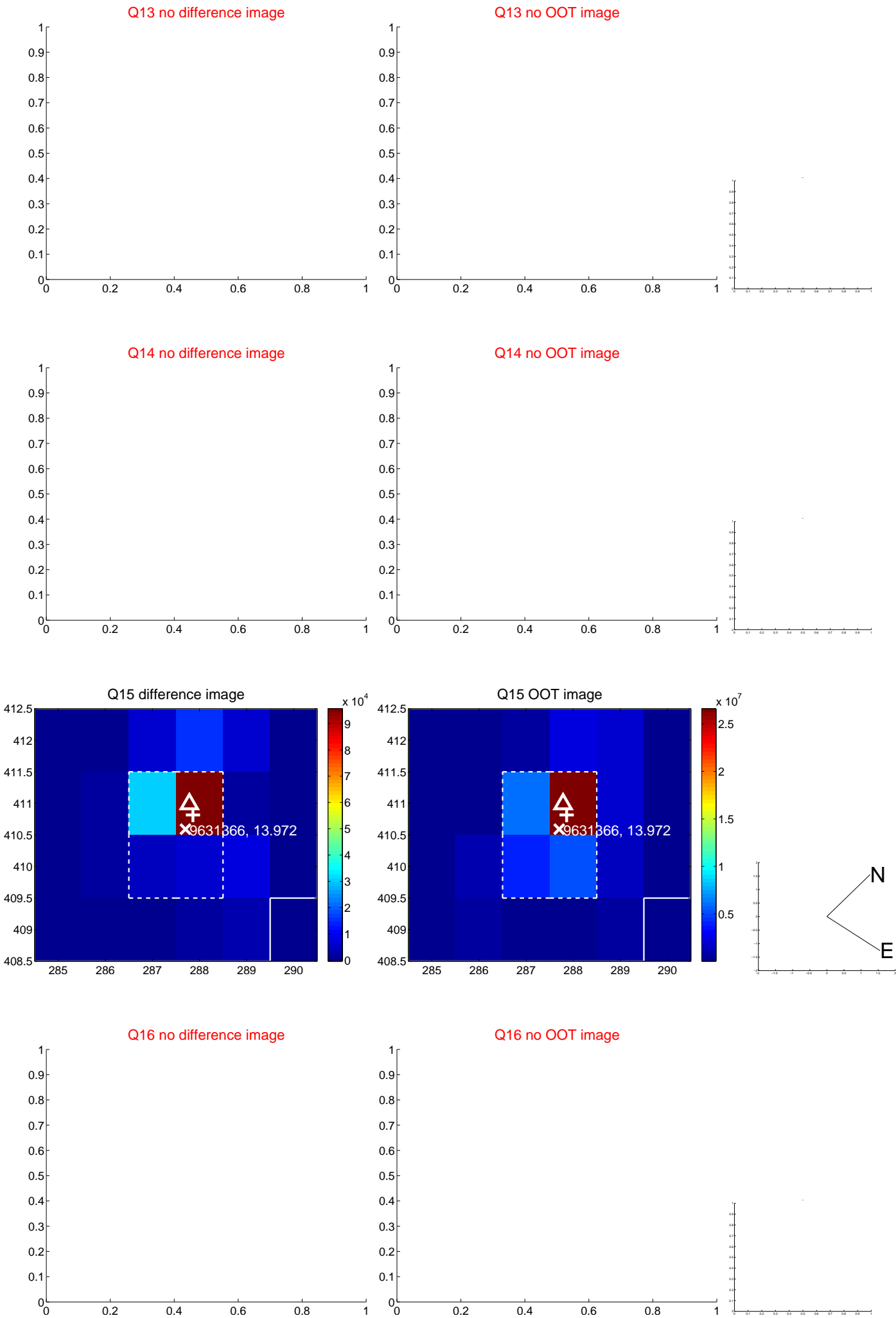
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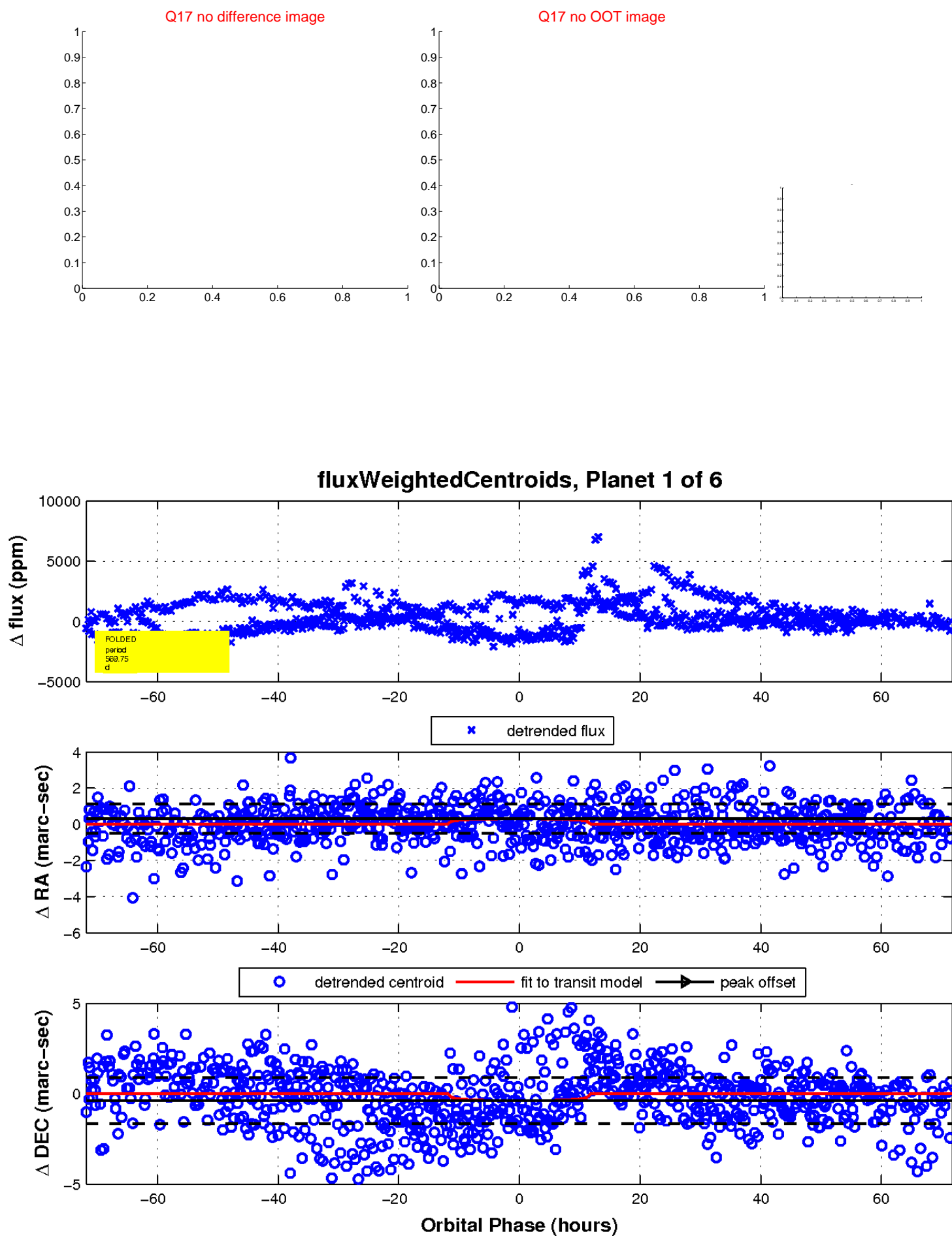
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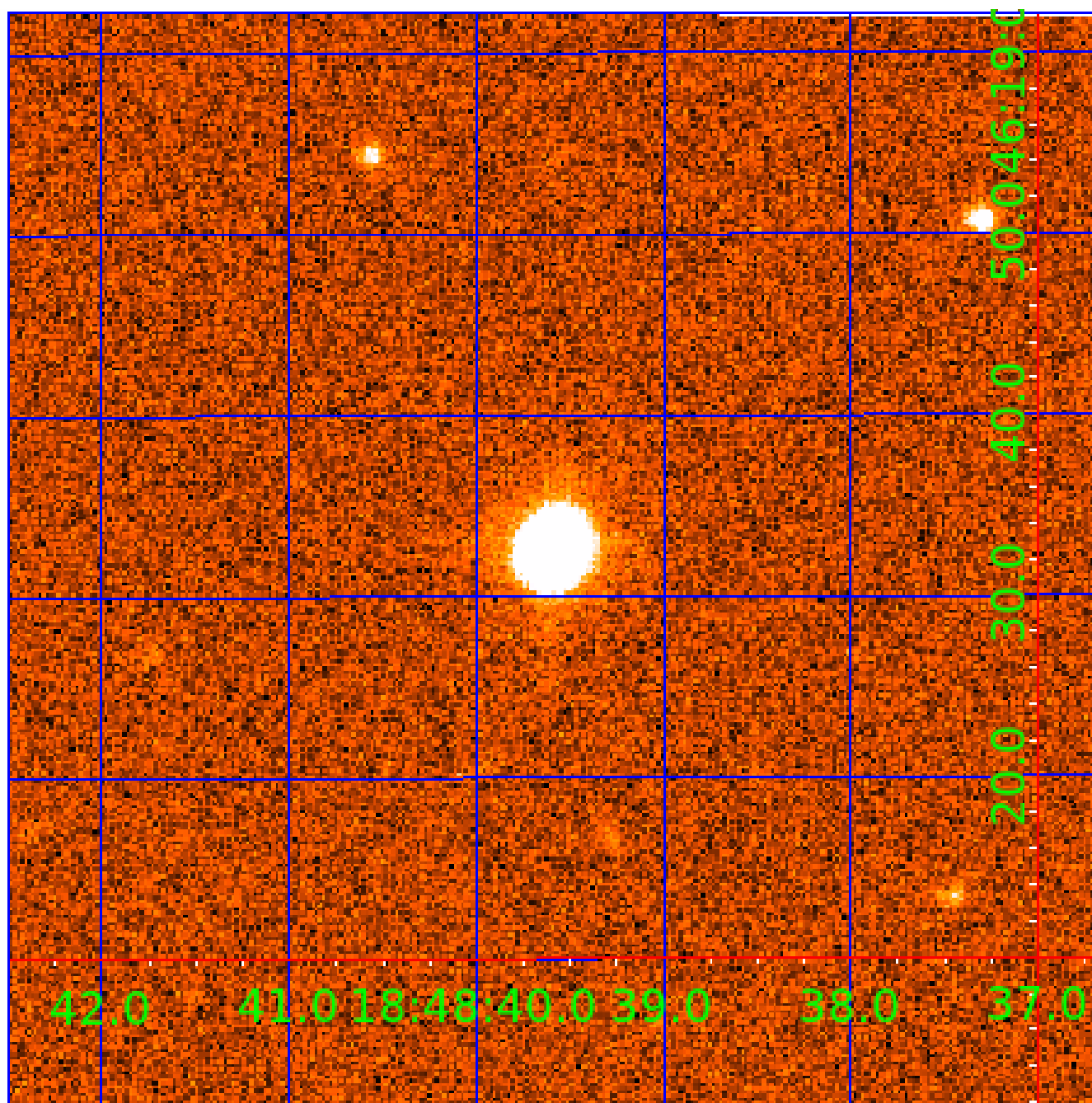


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UKIRT Image

Declination



KIC 009631366

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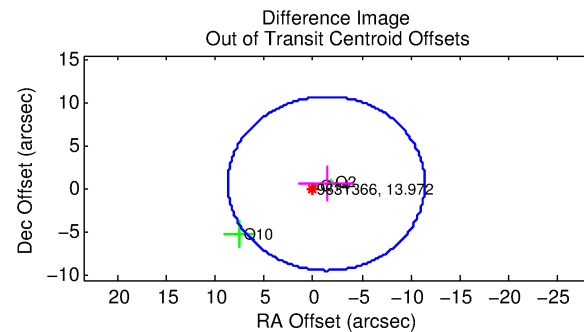
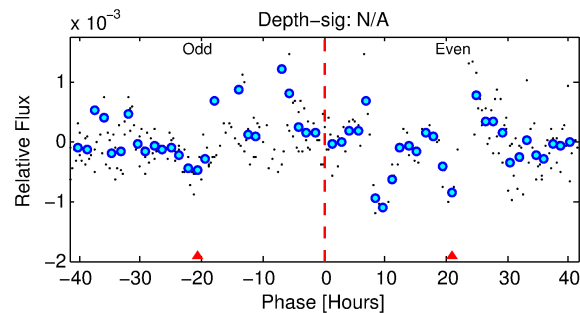
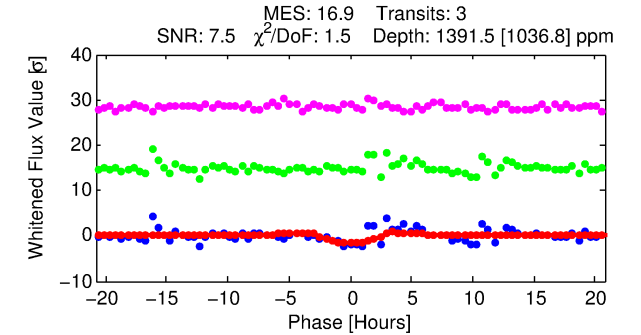
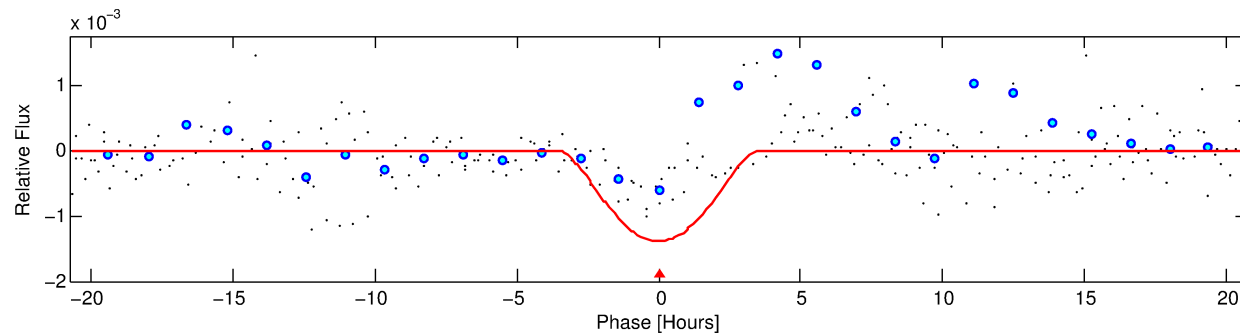
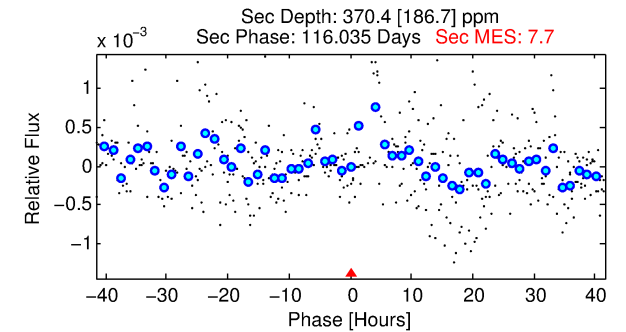
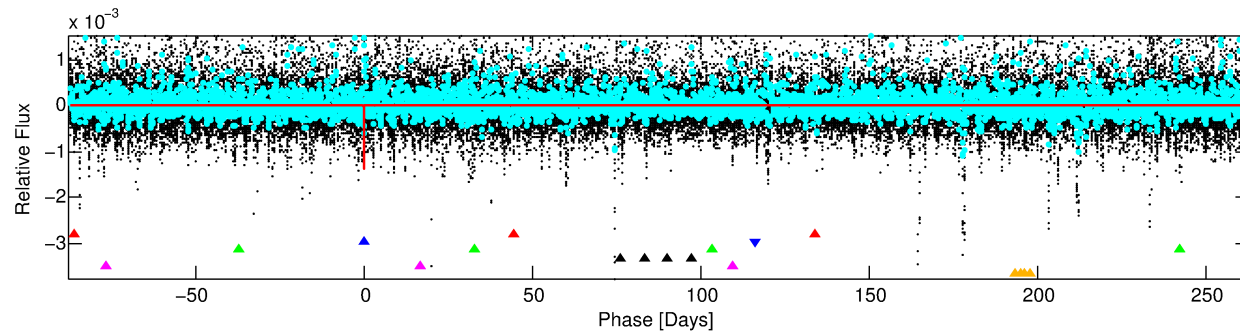
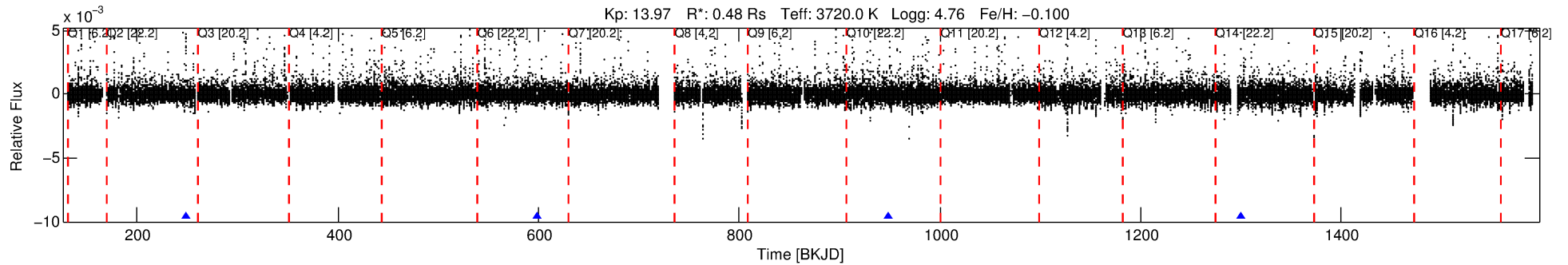
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009631366-02

No Significant Match Found

DV One-Page Summary

KIC: 9631366 Candidate: 2 of 6 Period: 350.103 d



DV Fit Results:

Period = 350.10316 [0.00936] d
Epoch = 248.9422 [0.0168] BKJD
Rp/R* = 0.0669 [0.2750]
a/R* = 143.67 [128.13]
b = 1.00 [0.42]
Seff = 0.07 [0.01]
Teq = 130 [7] K
Rp = 3.50 [14.42] Re
a = 0.7656 [0.0892] AU
Ag = 9739.92 [80304.52] [0.12] σ
Teffp = 1996 [4114] K [0.45] σ

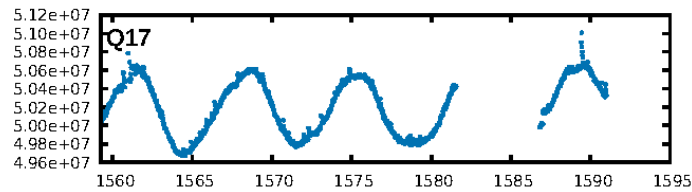
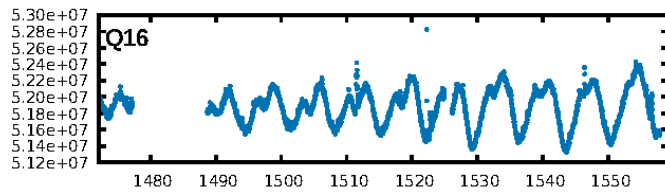
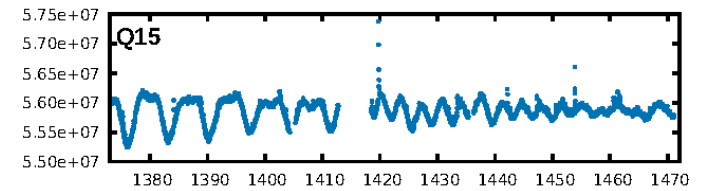
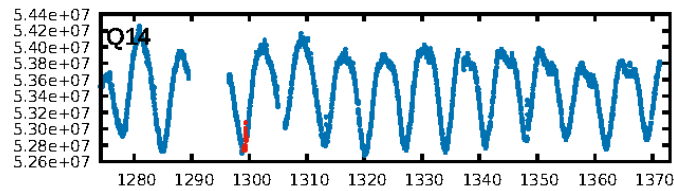
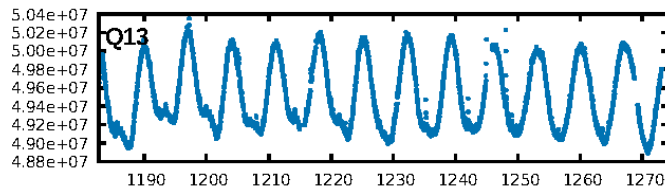
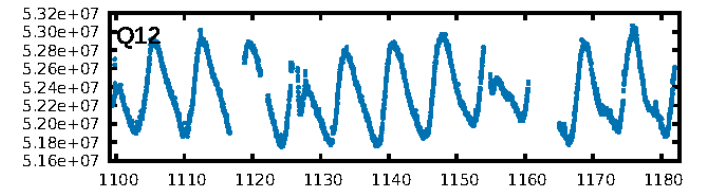
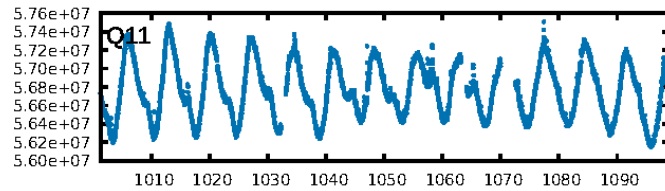
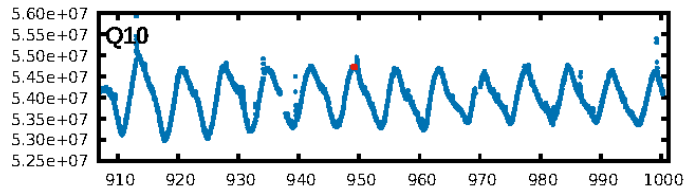
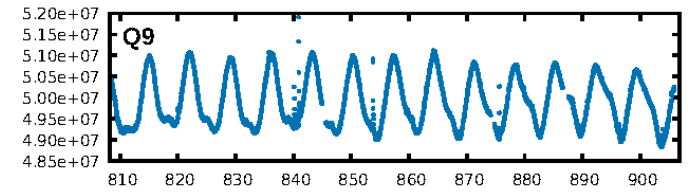
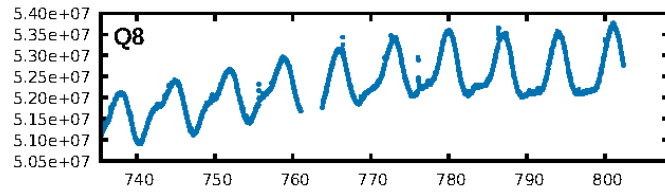
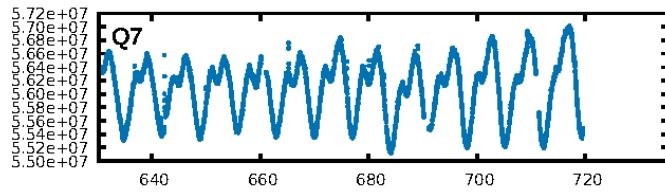
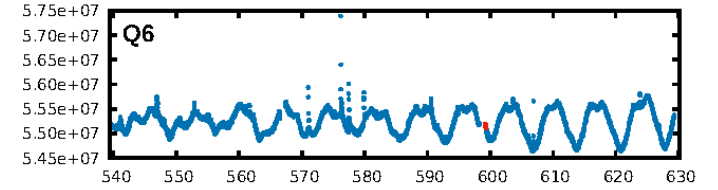
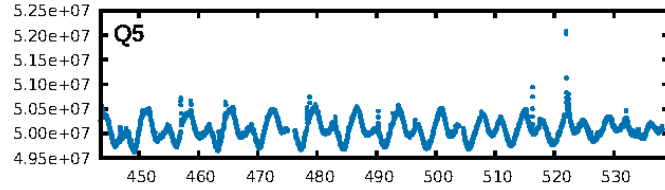
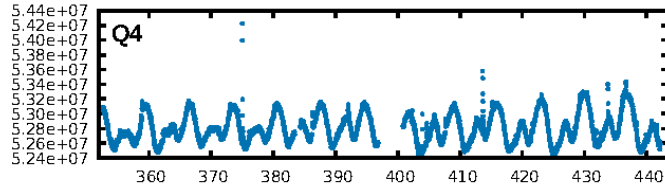
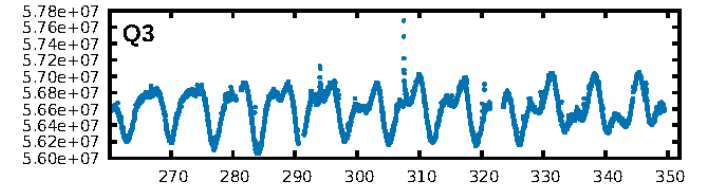
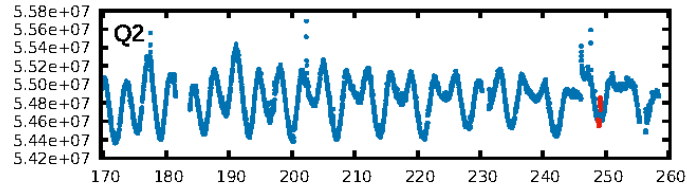
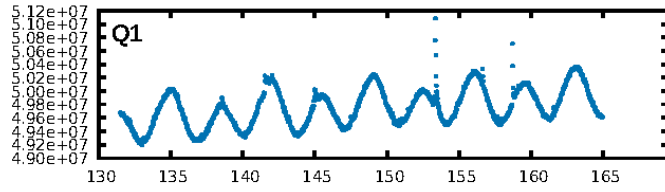
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.99] σ
LongPeriod-sig: 100.0% [124.79] σ
ModelChiSquare2-sig: 0.5%
ModelChiSquareGof-sig: 76.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.07286
Centroid-sig: 66.6%
Centroid-so: 0.498 arcsec [0.66] σ
OotOffset-rm: 1.504 arcsec [0.45] σ
OotOffset-st: 3/0/0/0 [3]
KicOffset-rm: 2.021 arcsec [0.59] σ
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

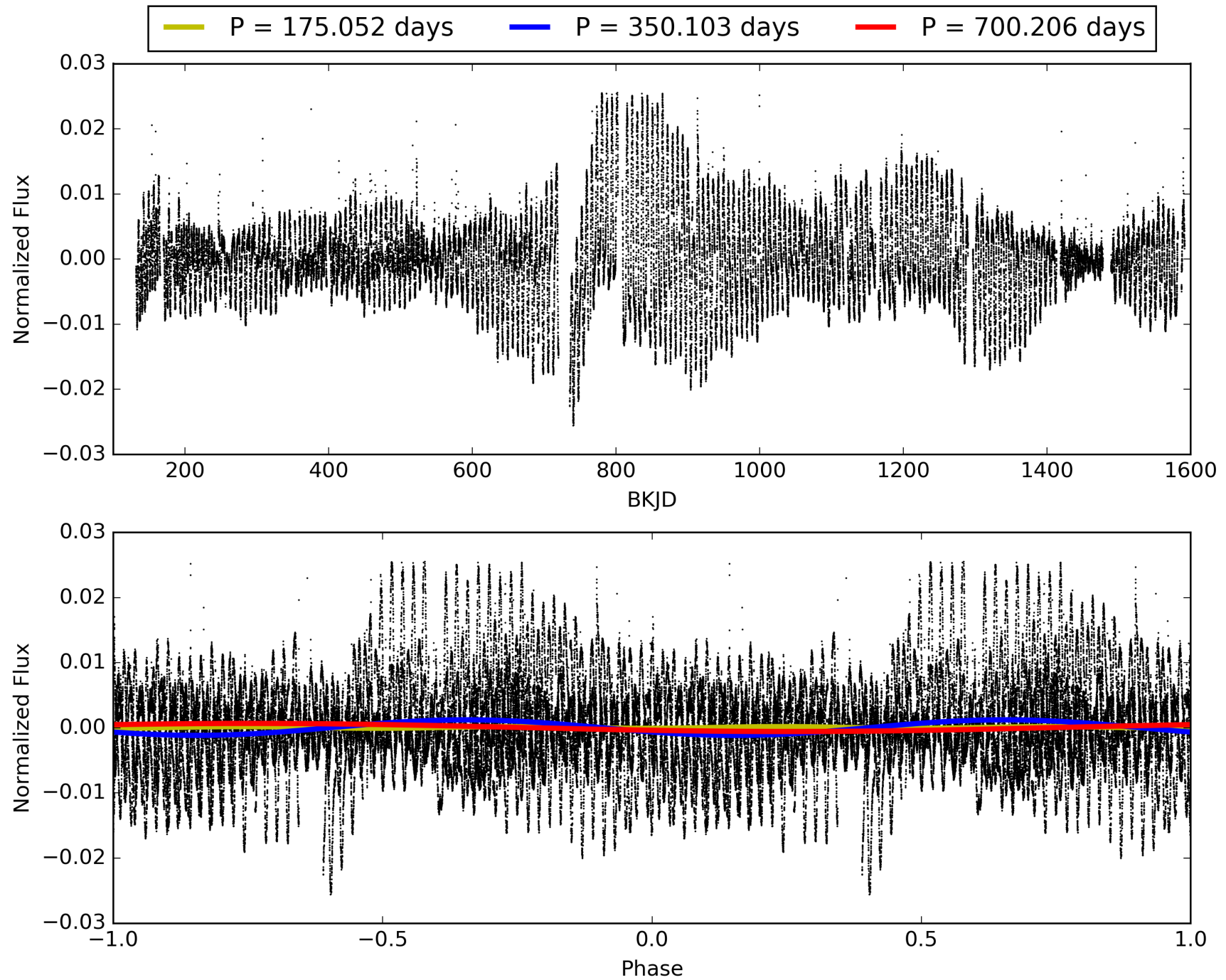
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:37:06 Z

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

TCE 009631366-02, PDC Light Curves

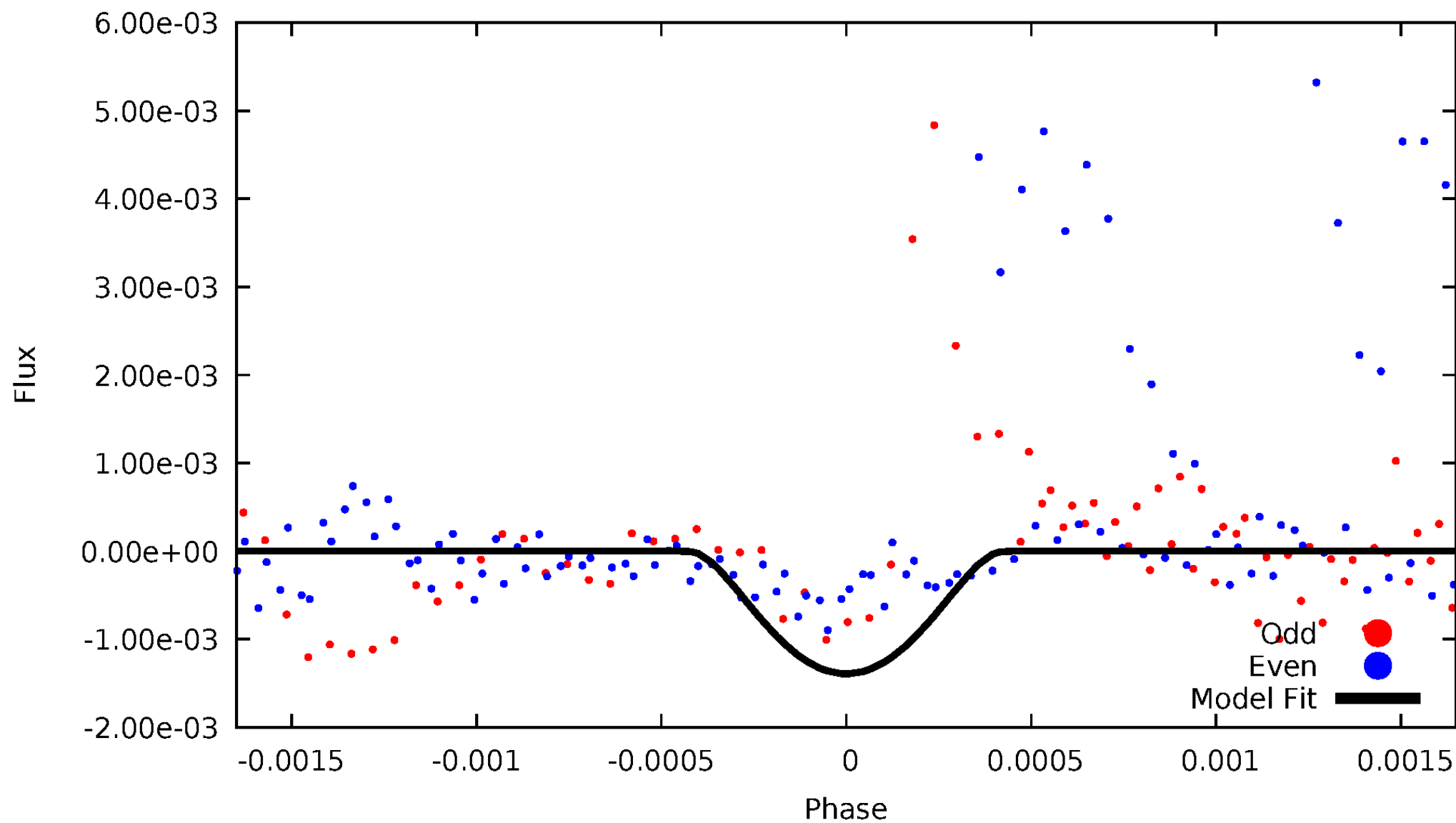


TCE 009631366-02



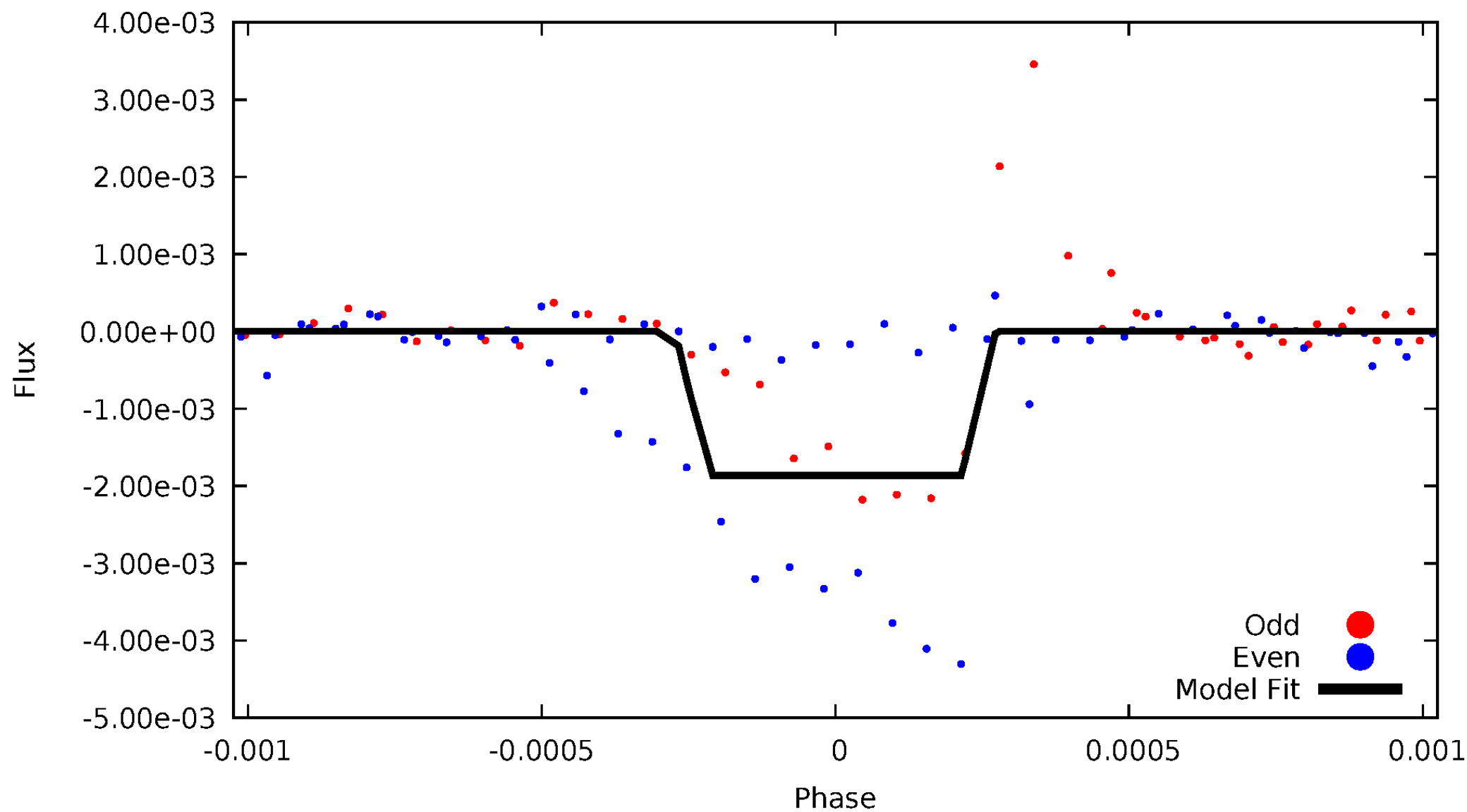
DV Odd/Even

TCE 009631366-02



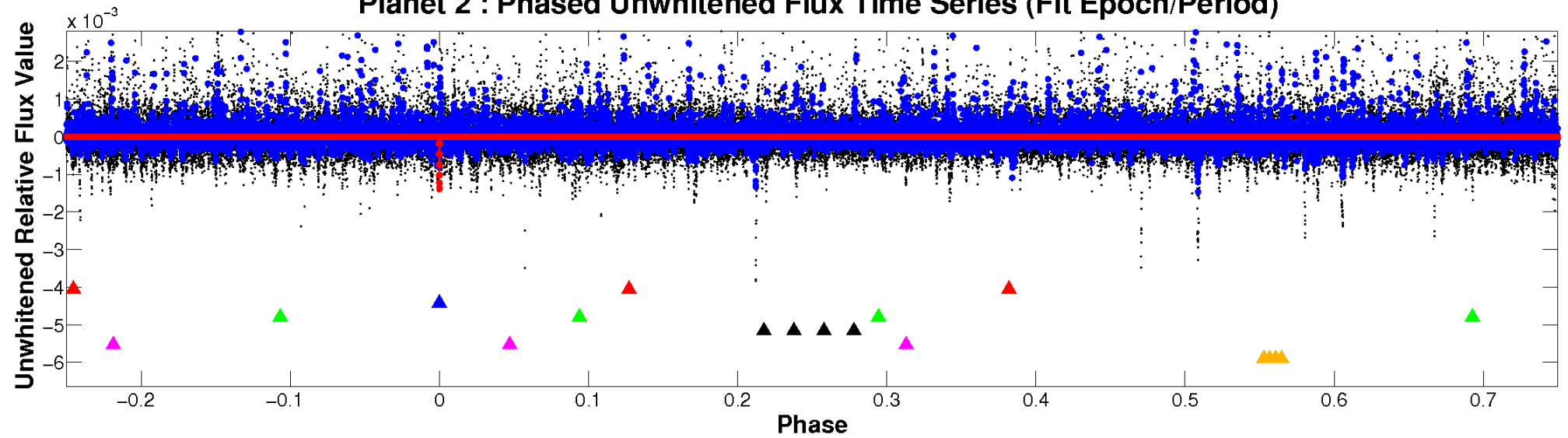
ALT Odd/Even

TCE 009631366-02

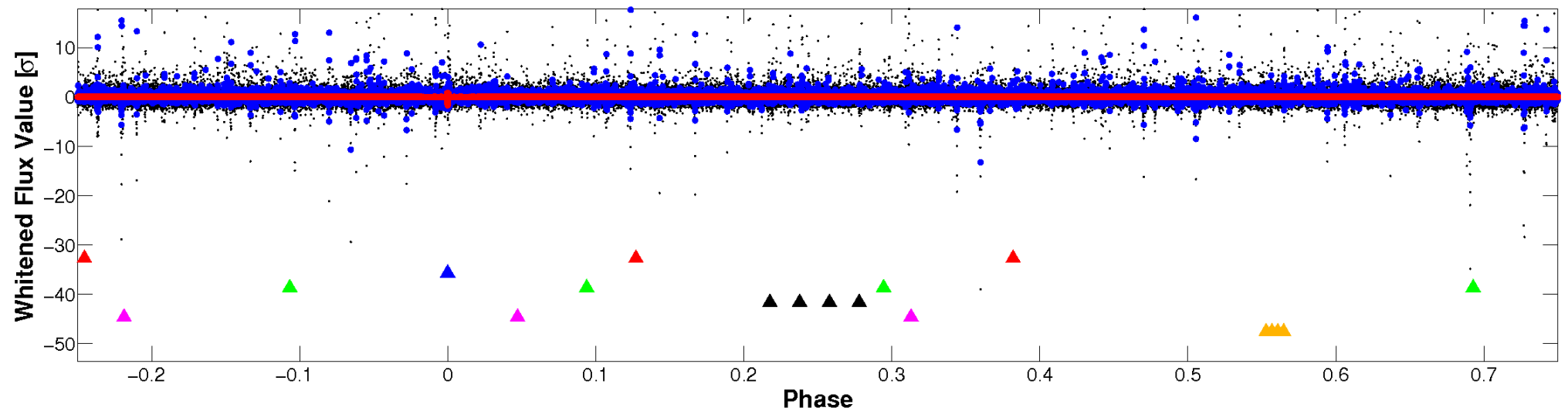


Non-Whitened Vs. Whitened Light Curve

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

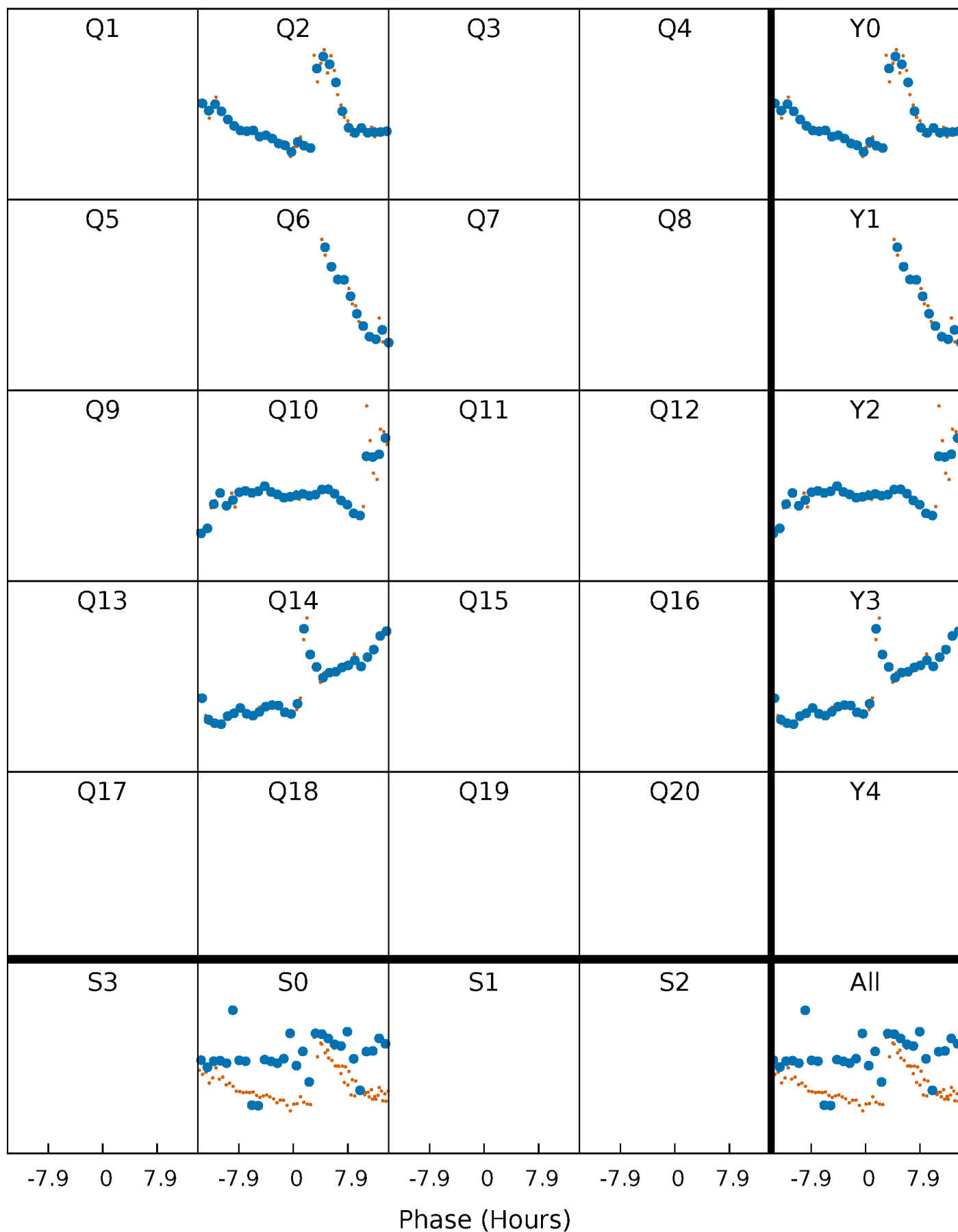


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



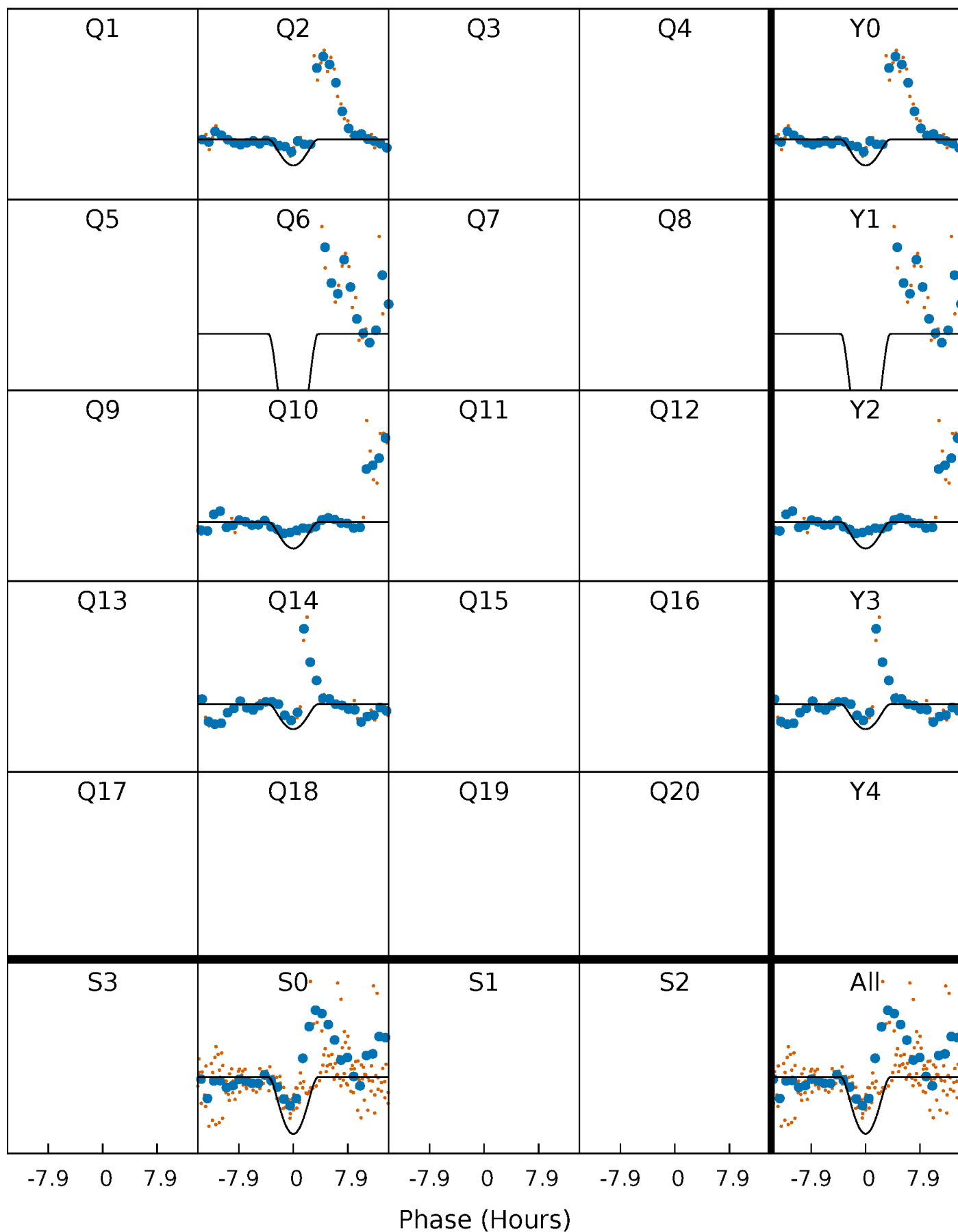
PDC Quarter-Phased Transit Curves

TCE 009631366-02 P=350.103158 Days $T_0=248.942223$ (BKJD)



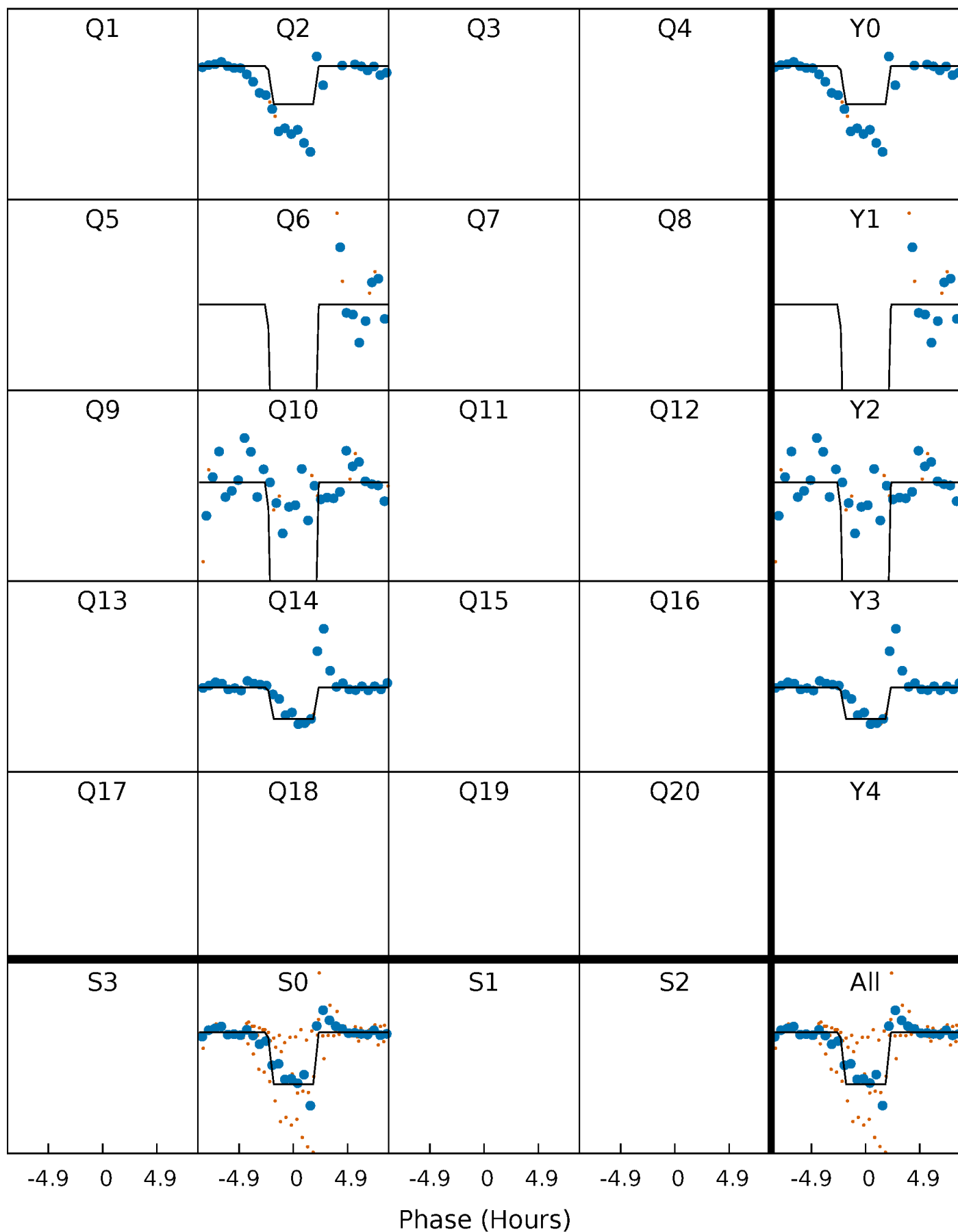
DV Quarter-Phased Transit Curves

TCE 009631366-02 P=350.103158 Days $T_0=248.942223$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

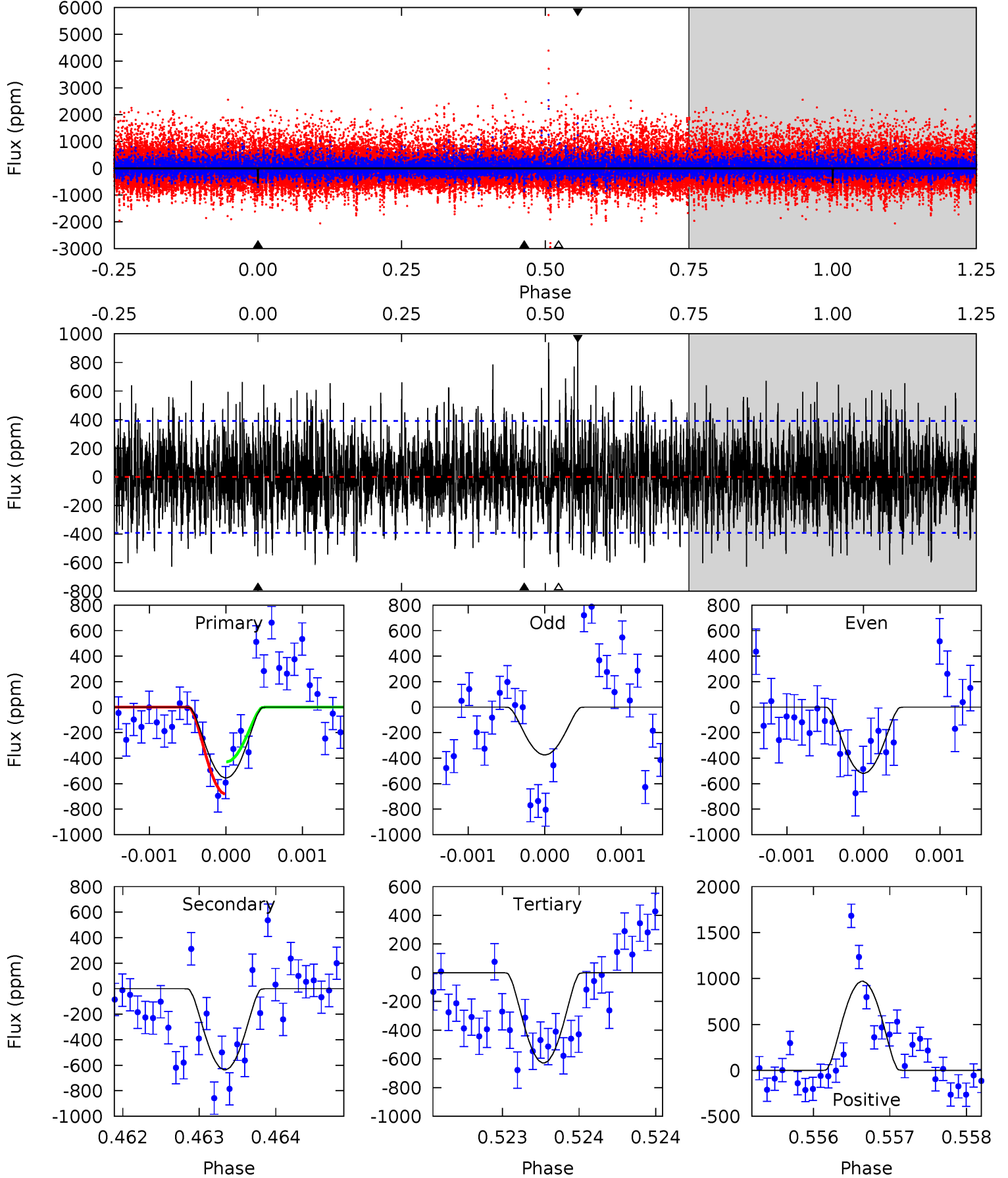
TCE 009631366-02 P=350.081372 Days $T_0=248.972515$ (BKJD)



DV Model-Shift Uniqueness Test

009631366-02, $P = 350.103158$ Days, $E = 248.942223$ Days

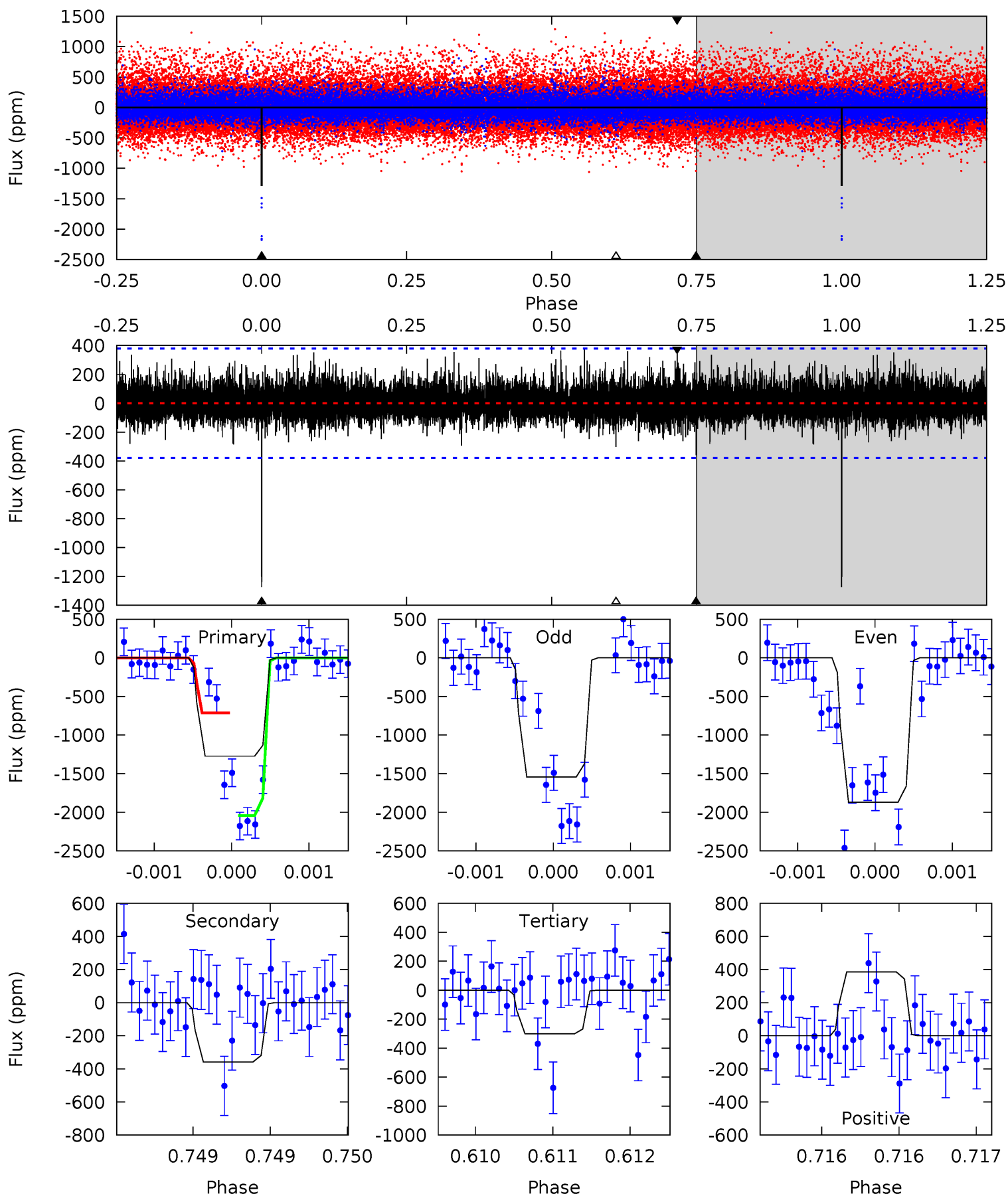
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.77	8.89	8.80	13.6	5.47	3.33	2.80	-1.03	-5.80	0.10	-4.68	0.86	0.54	0.60	1.78



Alt Model-Shift Uniqueness Test

009631366-02, P = 350.081372 Days, E = 248.972515 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.7	5.26	4.42	5.66	5.56	3.46	1.11	14.3	13.0	0.85	-0.40	3.18	1.11	0.23	10.1



Stellar Parameters For KIC 009631366

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3720^{+103}_{-129}	$4.764^{+0.078}_{-0.042}$	$-0.100^{+0.200}_{-0.200}$	$0.480^{+0.048}_{-0.072}$	$0.488^{+0.052}_{-0.064}$	$6.213^{+2.529}_{-1.041}$
	+3%/-3%	+2%/-1%	+200%/-200%	+10%/-15%	+11%/-13%	+41%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009631366-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-636 ± 72	$11.43^{+10.87}_{-8.12}$	180^{+7}_{-7}	2099^{+699}_{-258}	1658^{+16527}_{-1234}
Alt.	-359 ± 68	$10.44^{+11.09}_{-7.36}$	180^{+6}_{-7}	2014^{+653}_{-268}	1020^{+10547}_{-768}

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

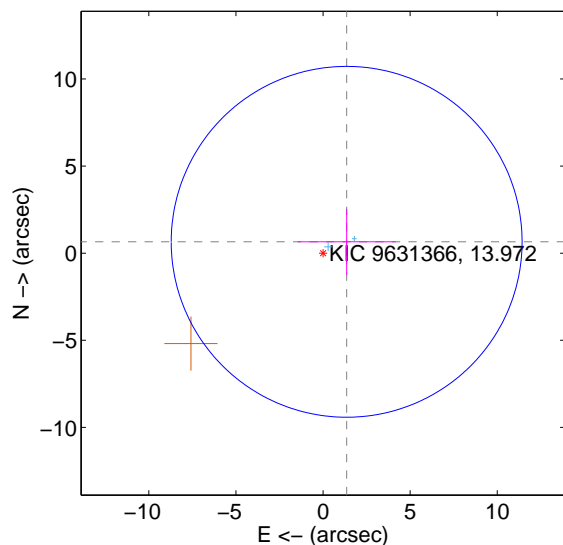
Supplemental centroid analysis for 009631366-02. Kepler magnitude: 13.97. Transit SNR 7.47

There are 2 quarters with good PRF difference image offsets

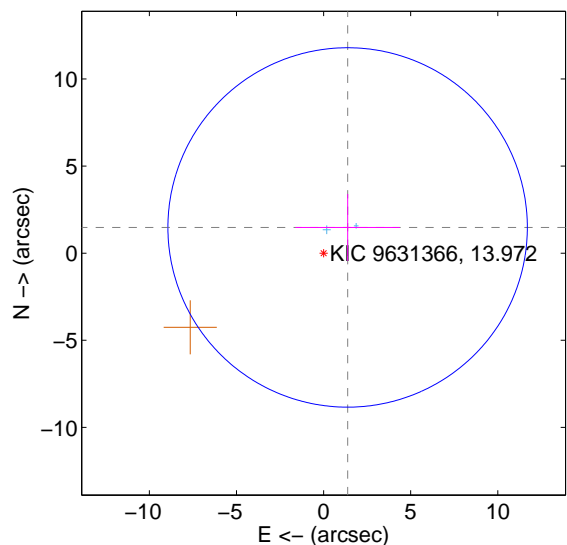
The direct PRF centroid is offset from the target star catalog position by about 0.98 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.504 ± 3.357	0.45	-1.355 ± 2.821	0.652 ± 1.883
PRF-fit source offset from KIC position	2.021 ± 3.439	0.59	-1.381 ± 2.995	1.477 ± 1.916
photometric centroid source offset	0.50 ± 0.76	0.66	-0.16 ± 0.59	0.47 ± 0.78

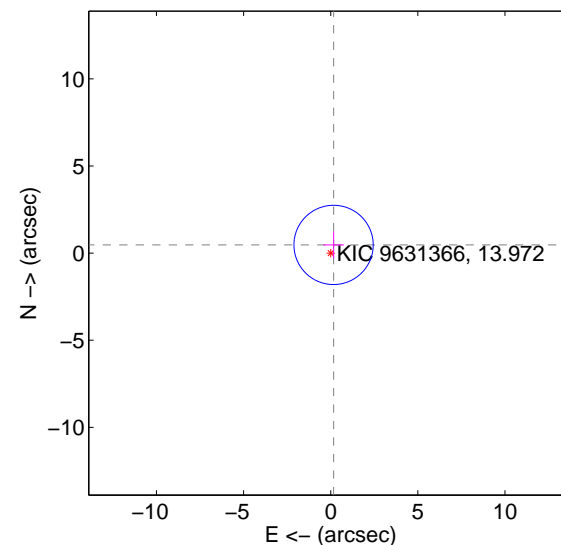
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

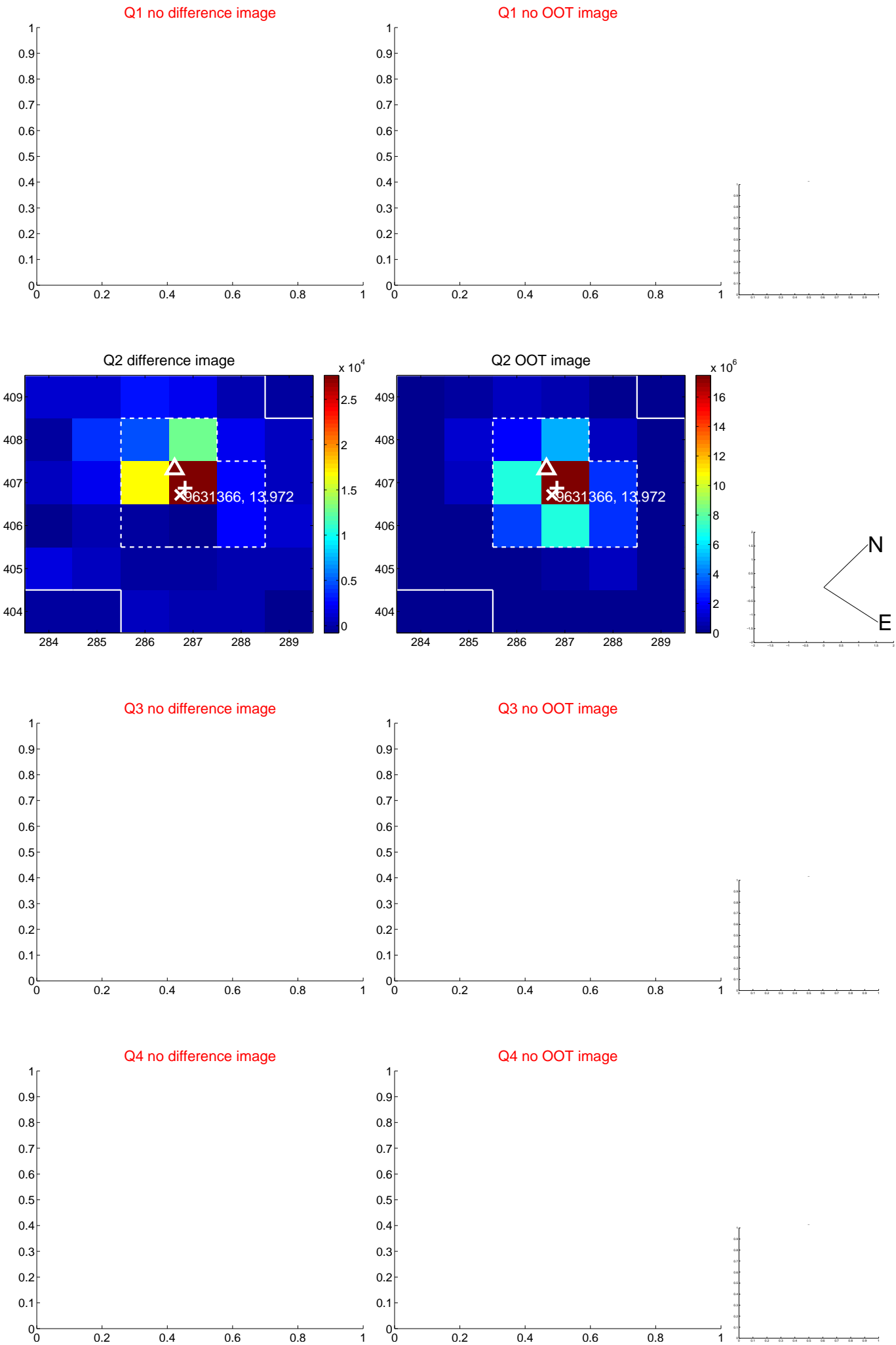


offset from photometric centroids

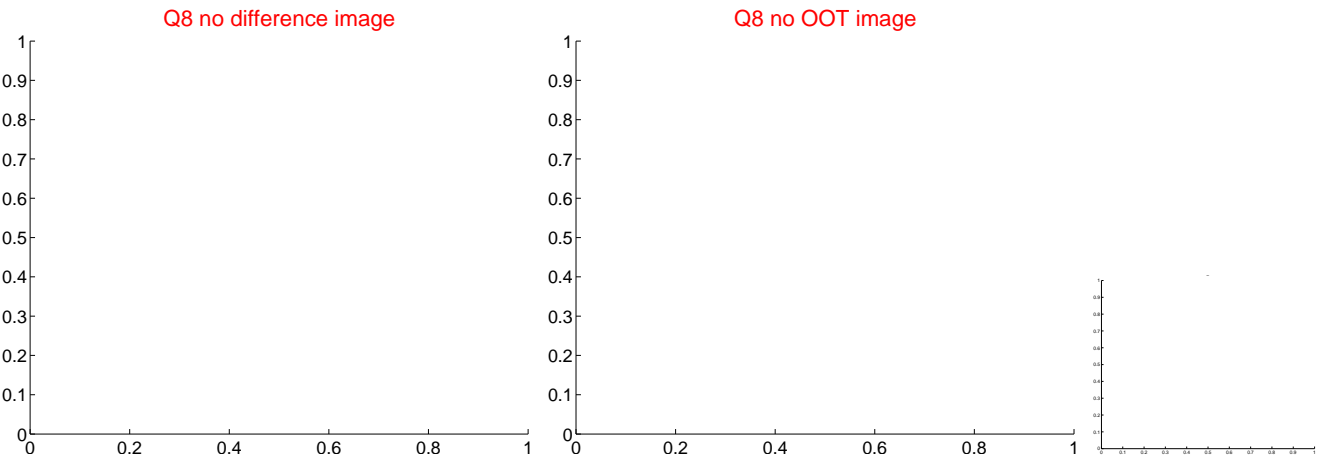
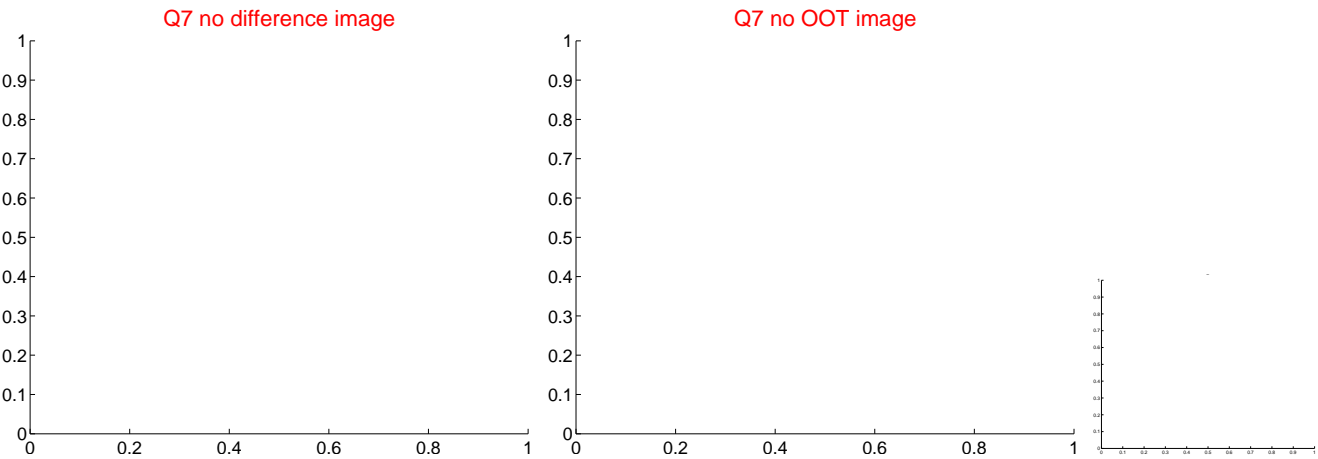
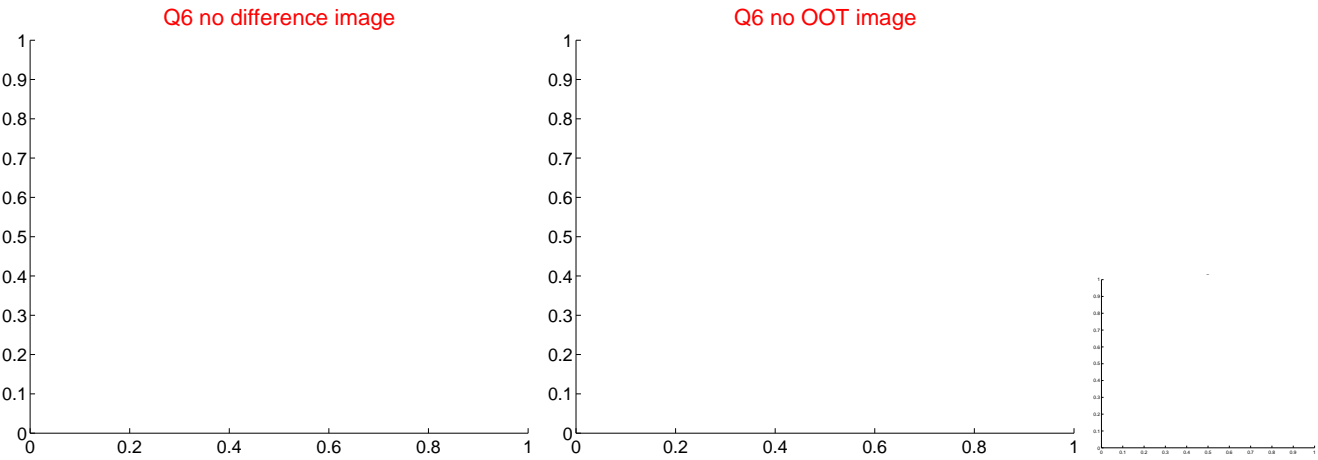
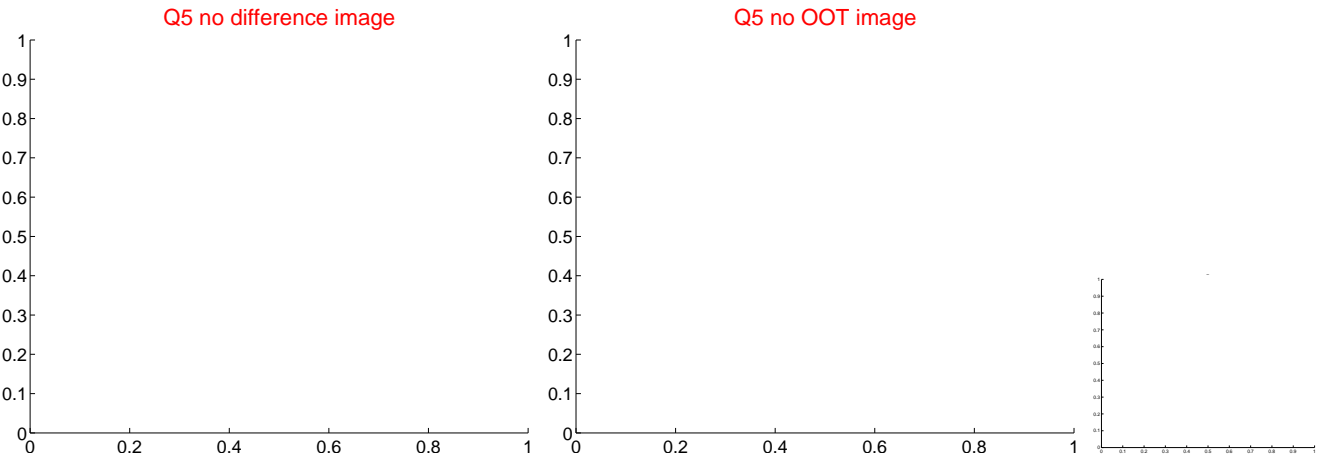


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

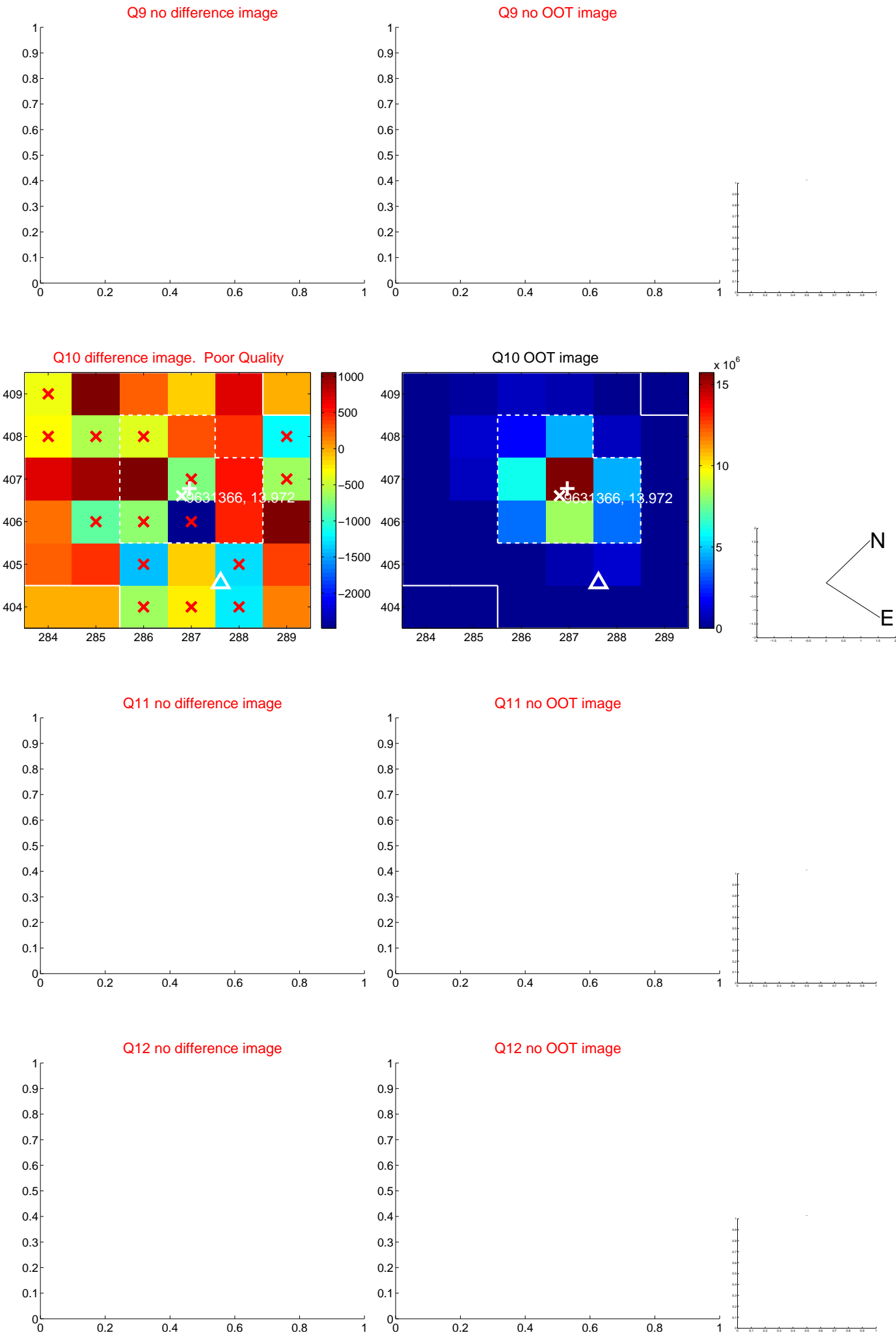
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



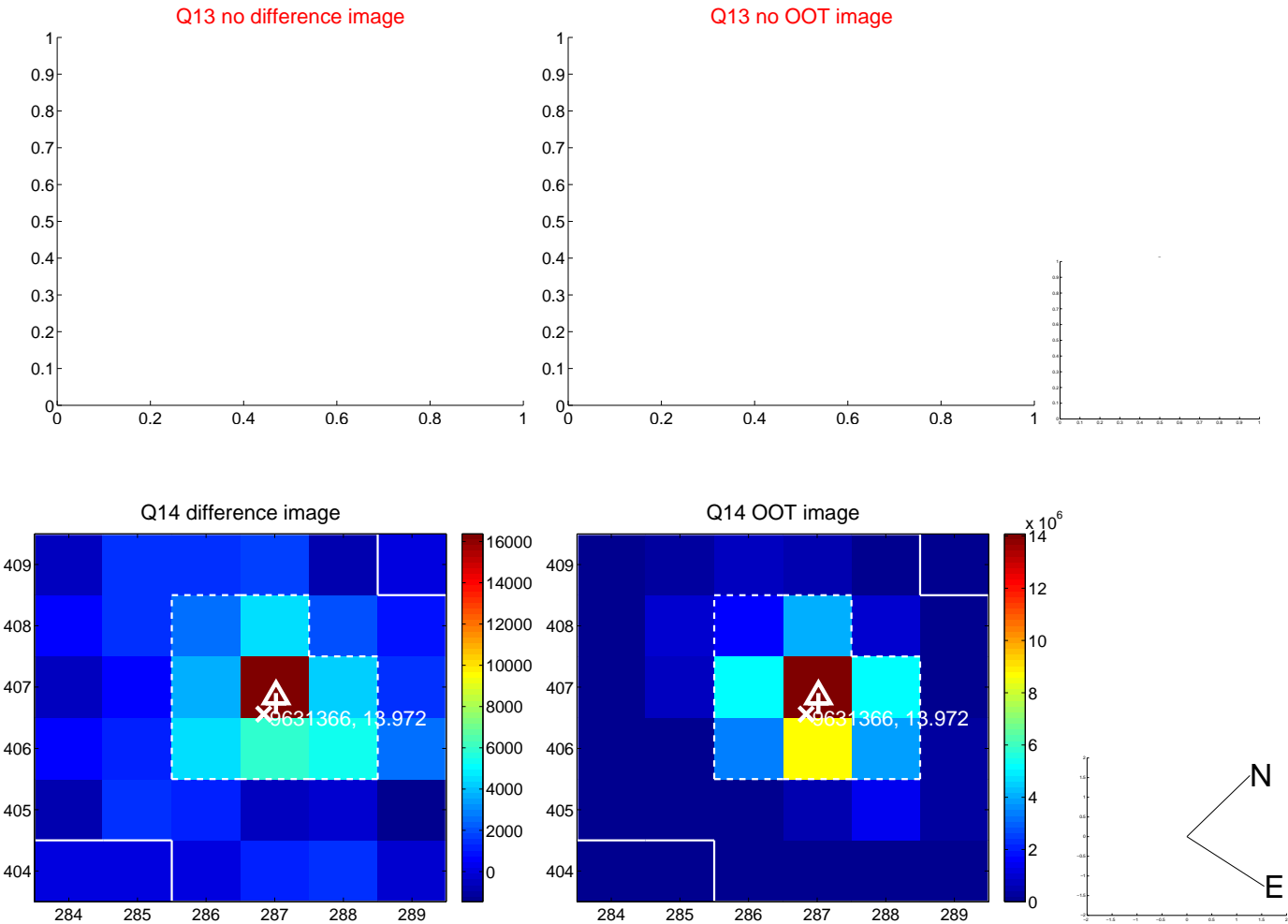
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



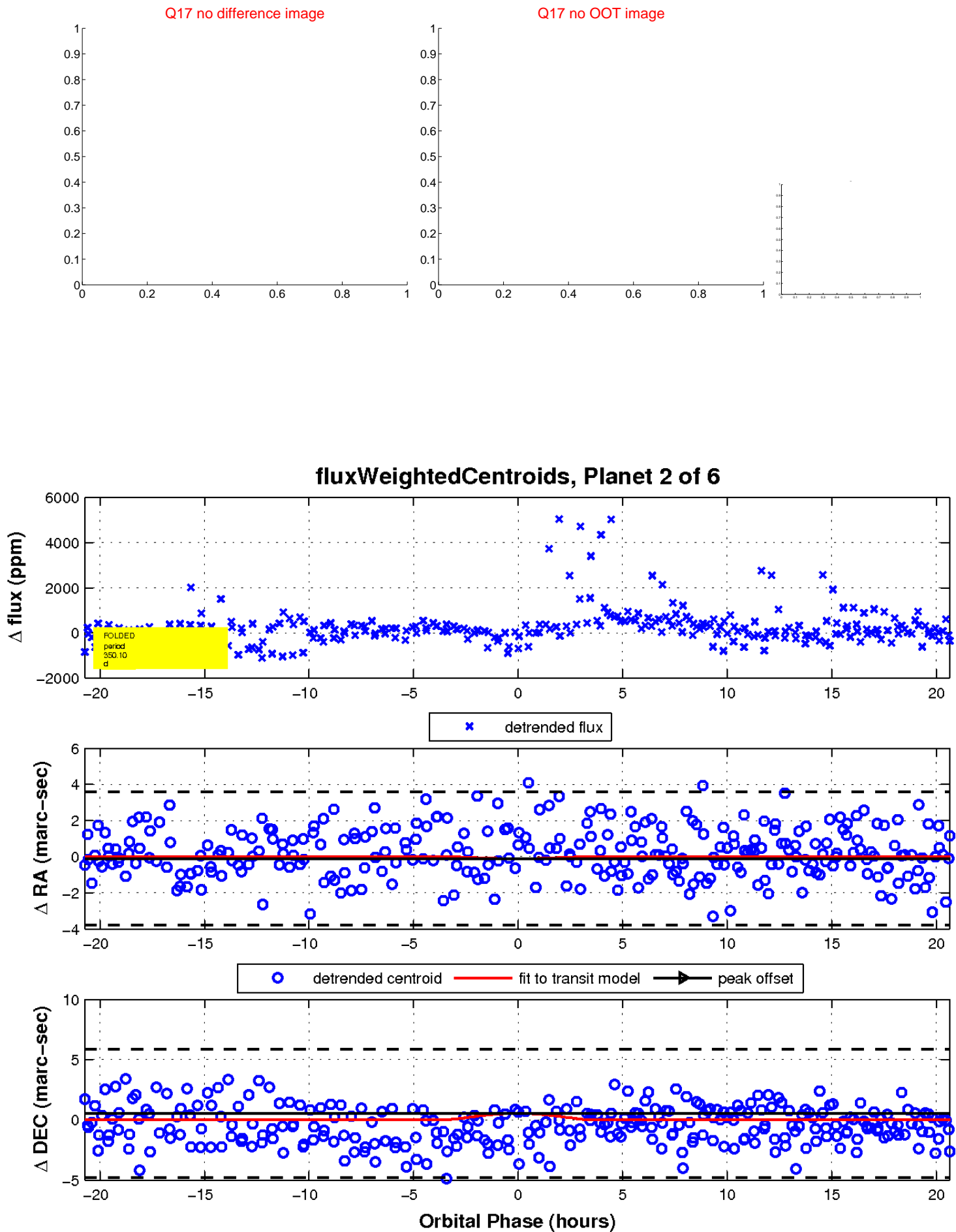
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

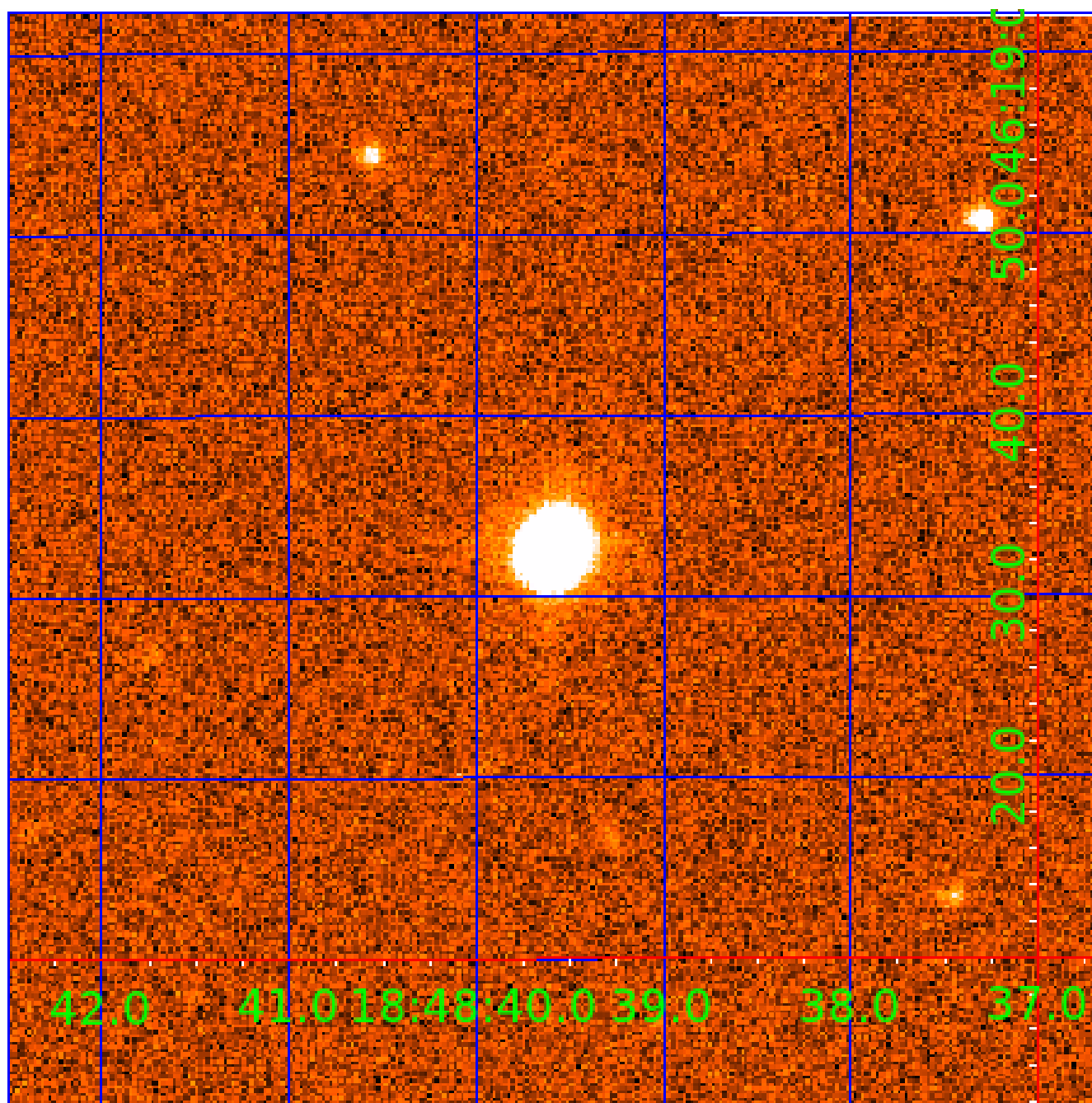


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009631366

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})
009631366-01	OBS	No	569.753870	293.473648	1368.3	23.947	16.7	7.3	0.48	3720	1.76	0.04
009631366-02	OBS	No	350.103158	248.942223	1391.5	6.925	16.9	7.5	0.48	3720	3.50	0.07
009631366-03	OBS	No	420.327312	141.376498	1490.5	11.596	14.0	9.9	0.48	3720	2.34	0.05
009631366-05	OBS	No	607.142790	358.531386	419.3	7.207	10.8	2.8	0.48	3720	1.09	0.03
009631366-06	OBS	No	348.715721	446.661344	832.4	4.650	11.9	7.1	0.48	3720	1.45	0.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009631366-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009631366-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009631366-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009631366-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
009631366-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

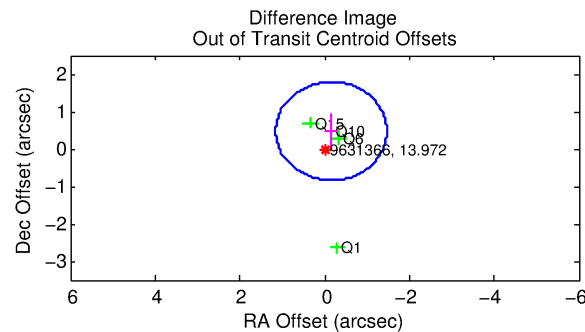
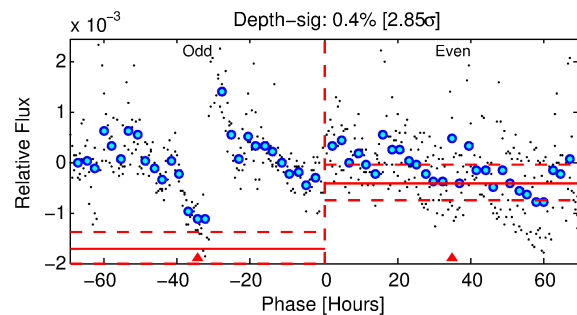
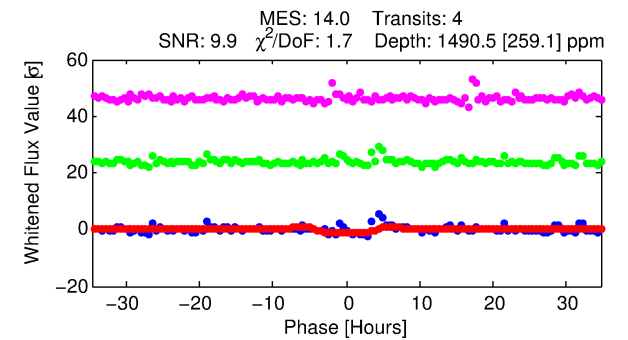
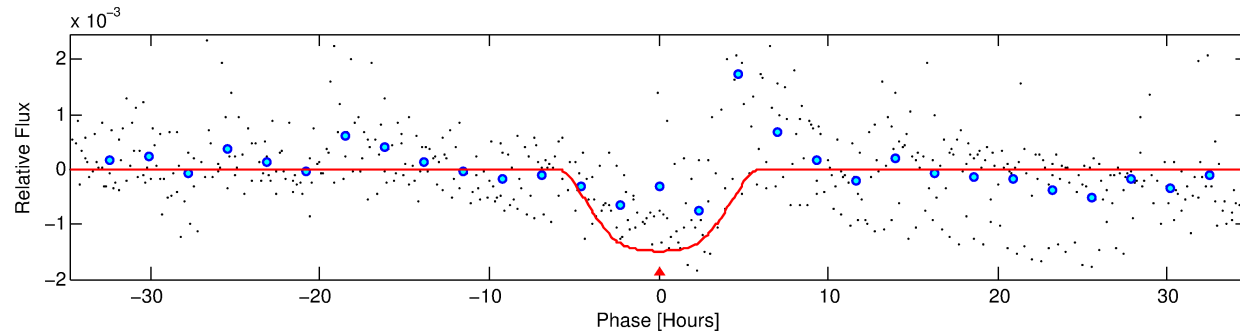
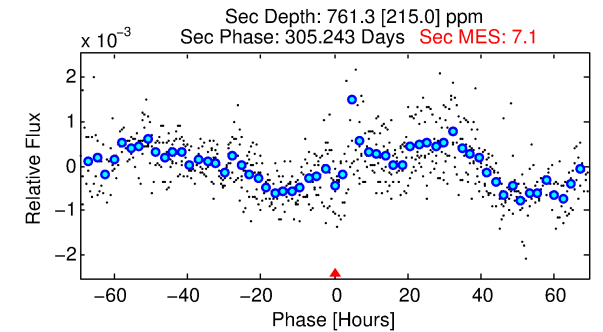
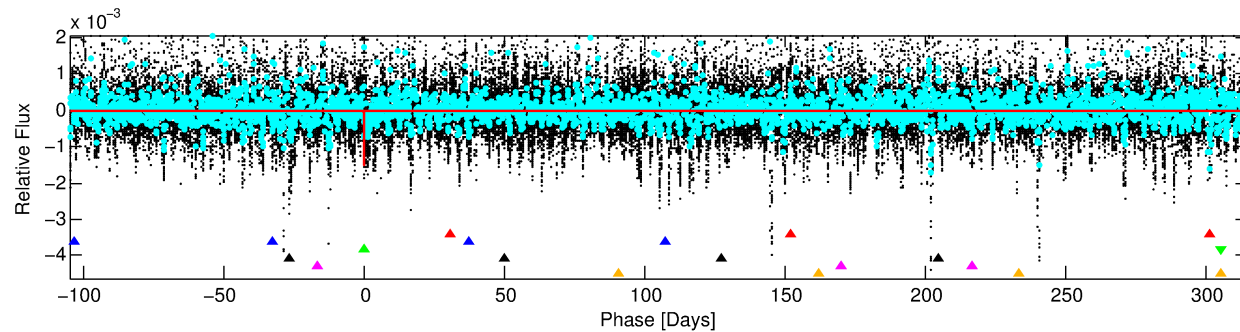
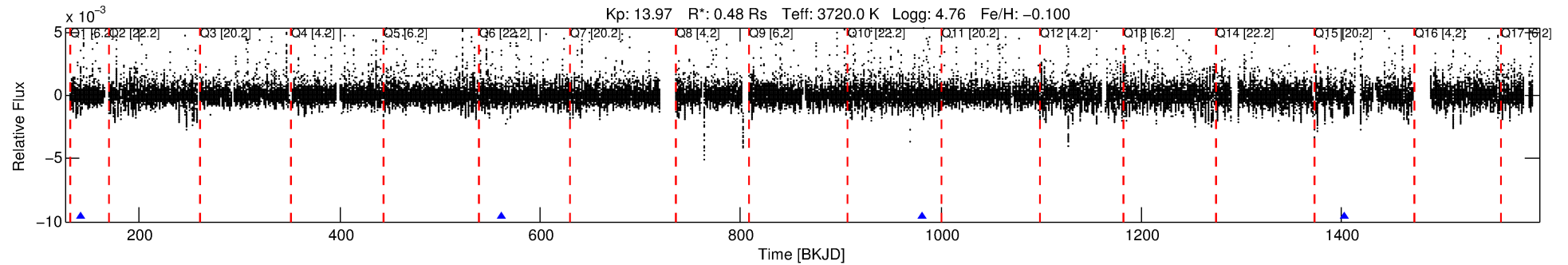
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009631366-03

No Significant Match Found

DV One-Page Summary

KIC: 9631366 Candidate: 3 of 6 Period: 420.327 d



DV Fit Results:

Period = 420.32731 [0.01027] d
Epoch = 141.3765 [0.0184] BKJD
Rp/R* = 0.0447 [0.0047]
a/R* = 124.78 [17.70]
b = 0.94 [0.02]
Seff = 0.05 [0.01]
Teq = 122 [6] K
Rp = 2.34 [0.43] Re
a = 0.8648 [0.1008] AU
Ag = 57147.01 [21944.28] [2.60 σ]
Teffp = 2923 [276] K [10.16 σ]

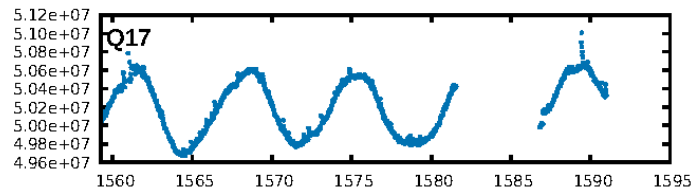
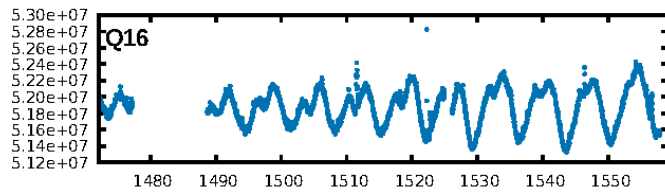
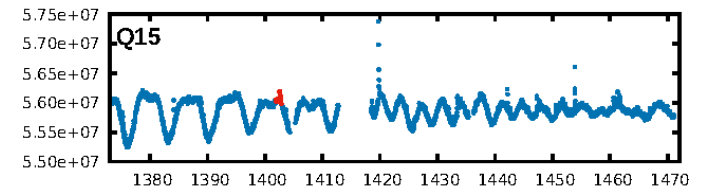
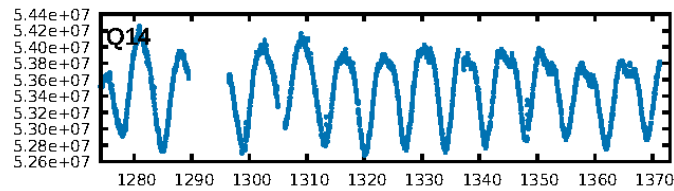
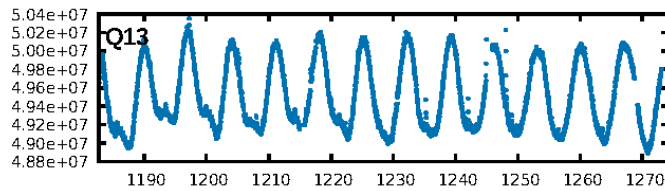
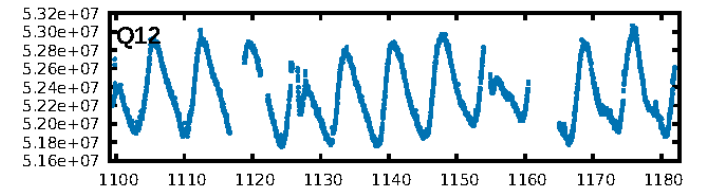
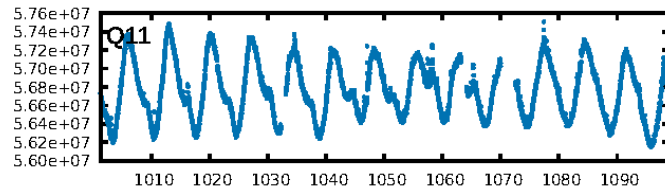
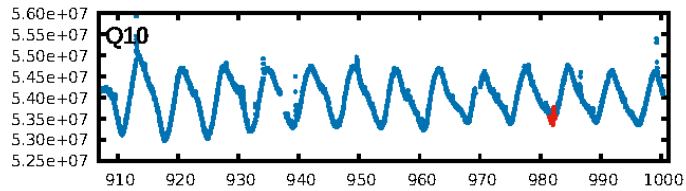
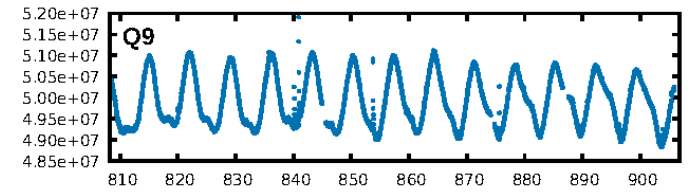
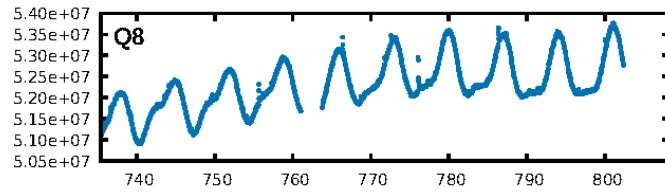
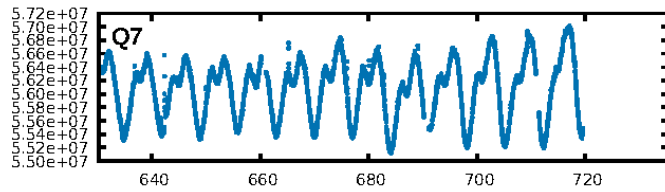
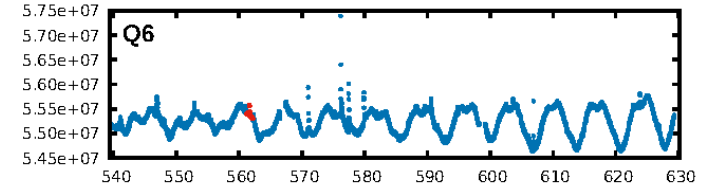
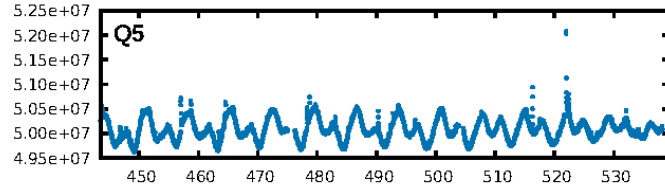
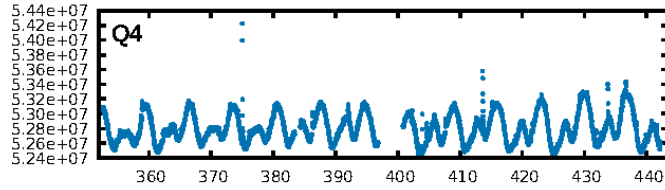
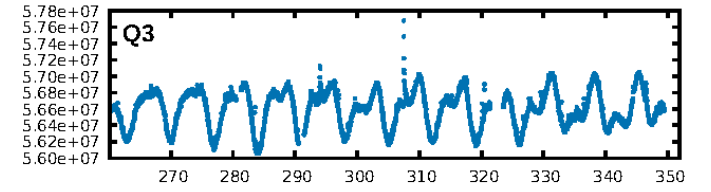
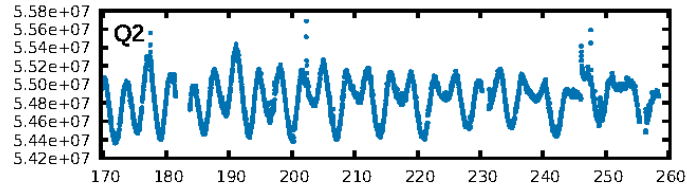
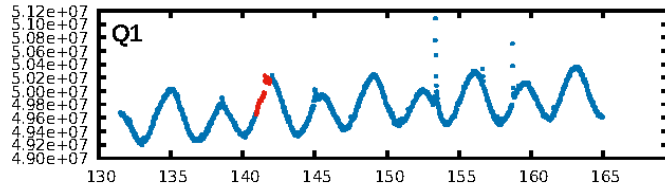
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [124.79 σ]
LongPeriod-sig: 100.0% [134.79 σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 61.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -59.28
Centroid-sig: 61.2%
Centroid-so: 0.701 arcsec [1.44 σ]
OotOffset-rm: 0.499 arcsec [1.14 σ]
OotOffset-st: 2/1/0/1 [4]
KicOffset-rm: 1.362 arcsec [1.46 σ]
KicOffset-st: 2/1/0/1 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 1.00 [4/4]

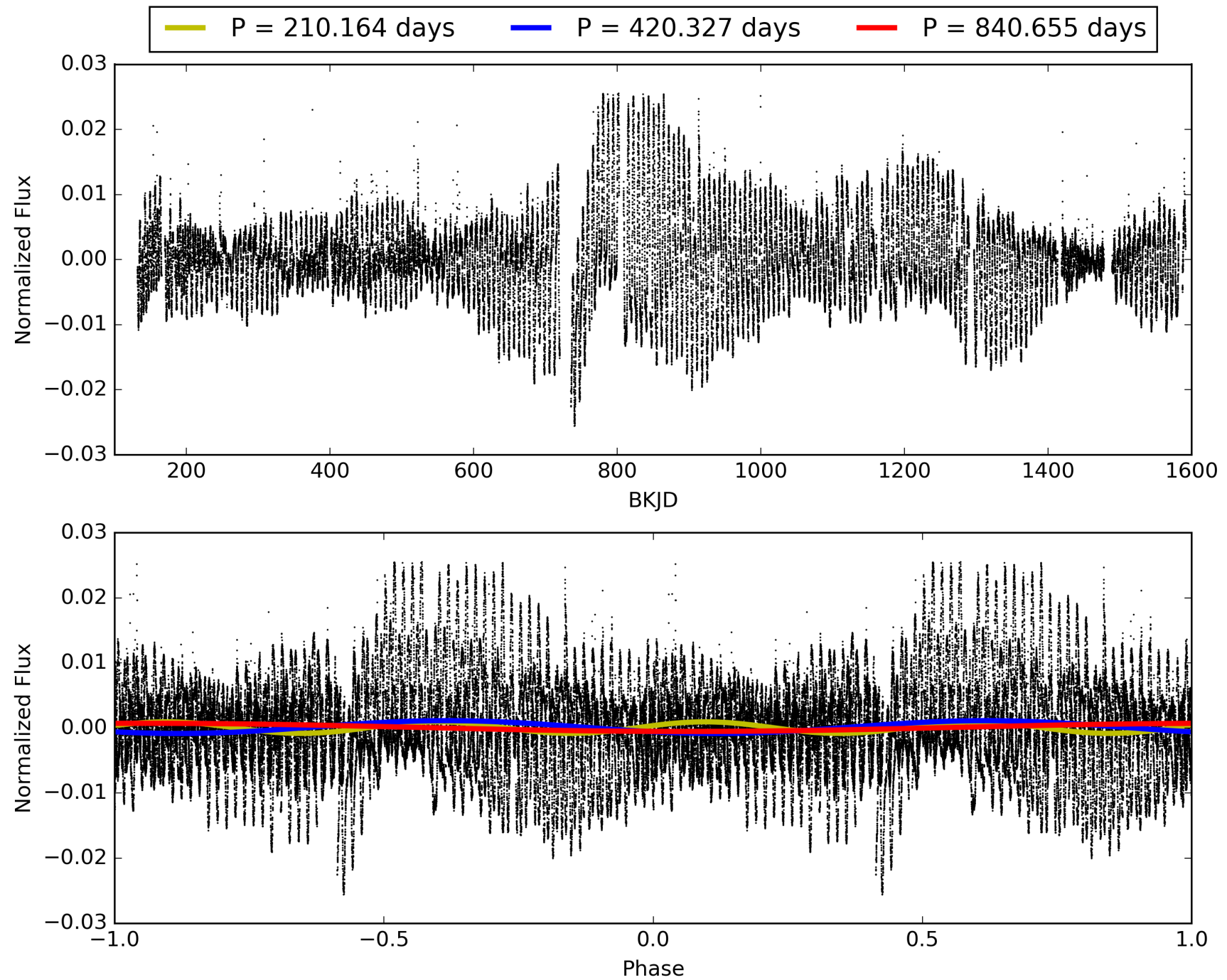
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:37:16 Z

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

TCE 009631366-03, PDC Light Curves

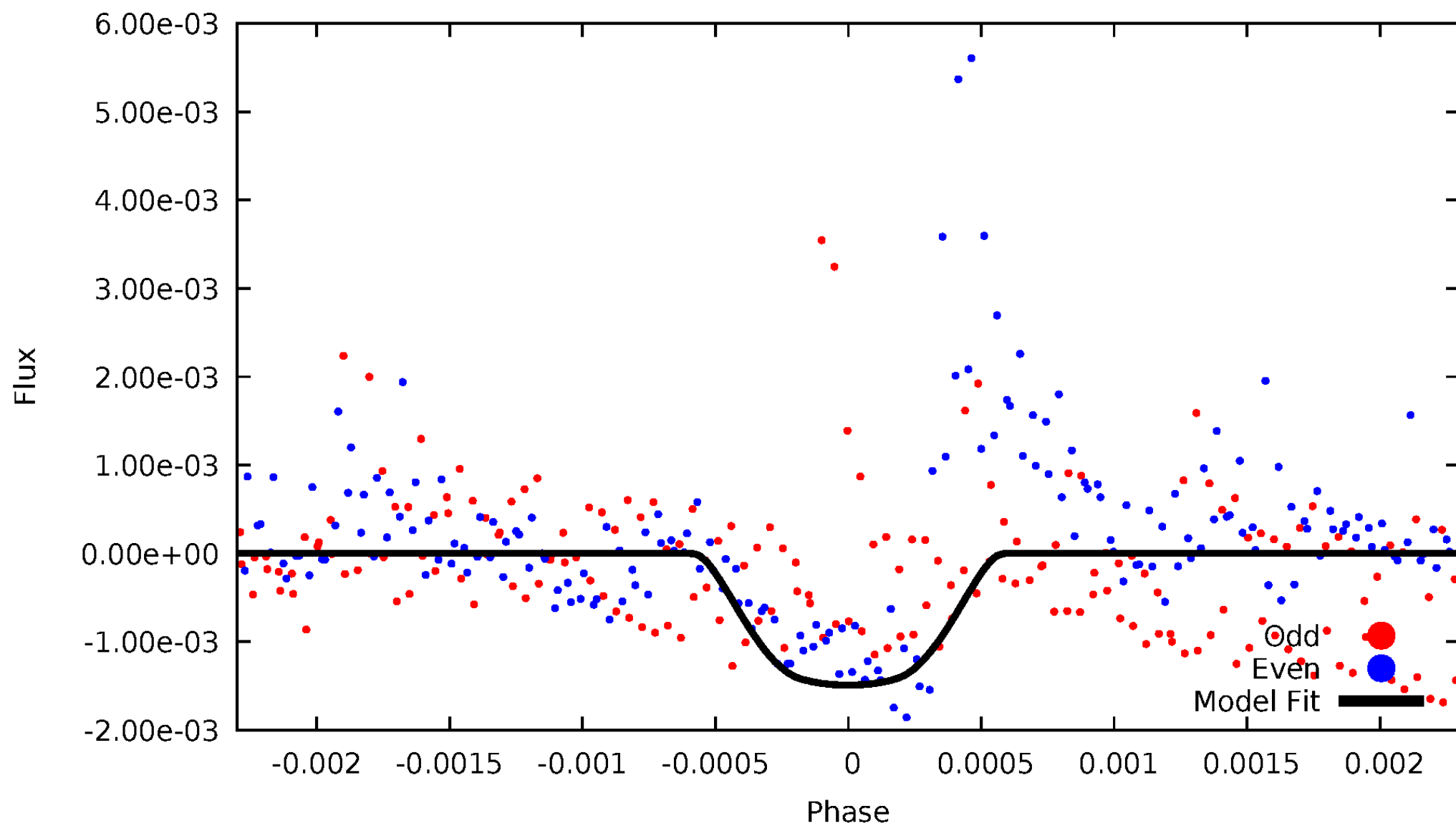


TCE 009631366-03



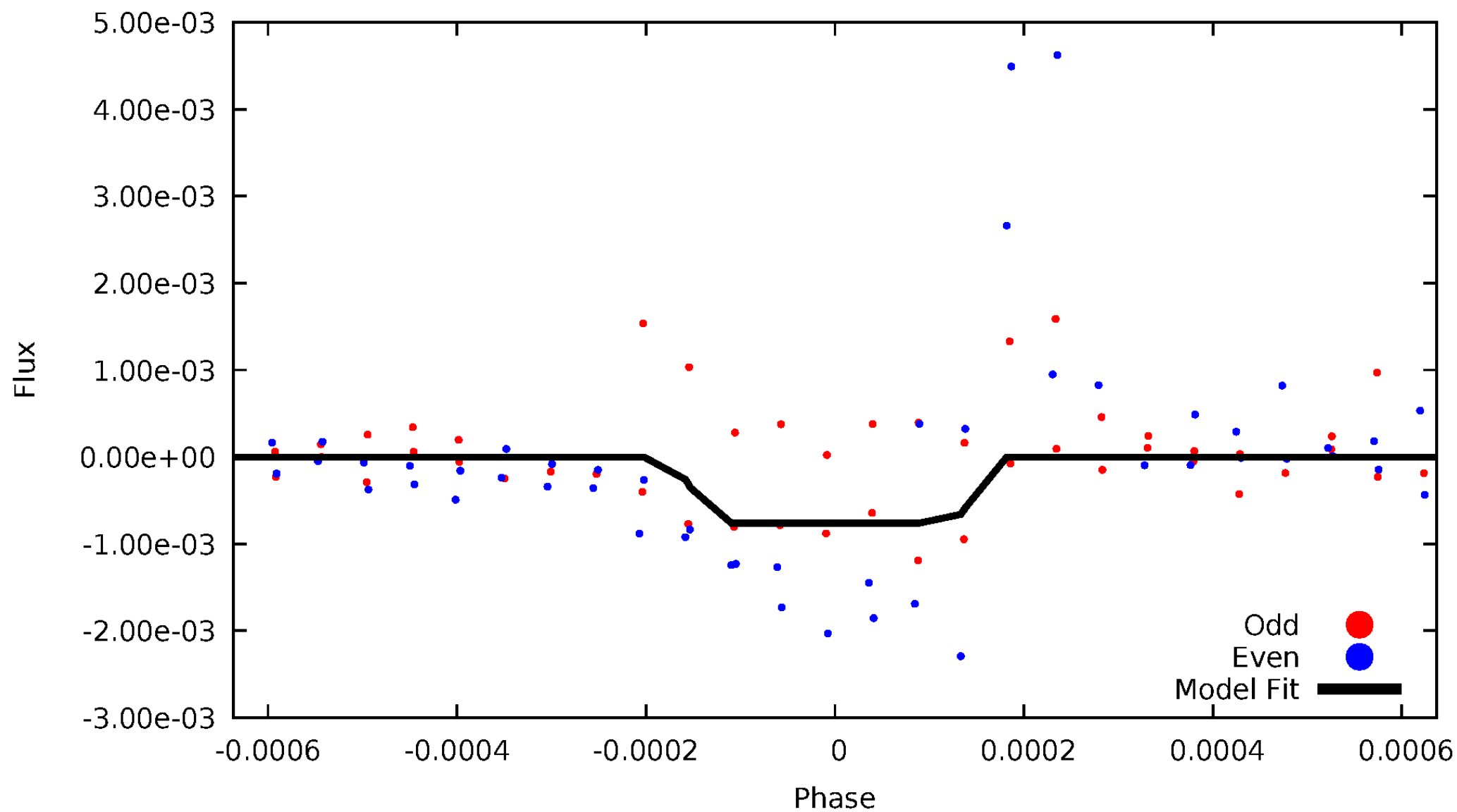
DV Odd/Even

TCE 009631366-03



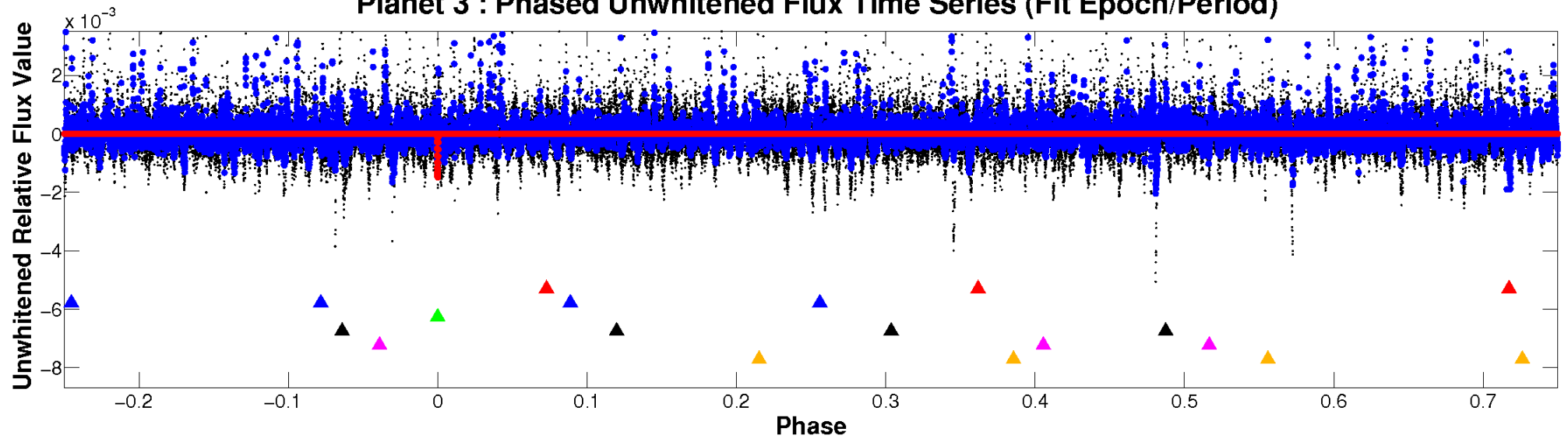
ALT Odd/Even

TCE 009631366-03

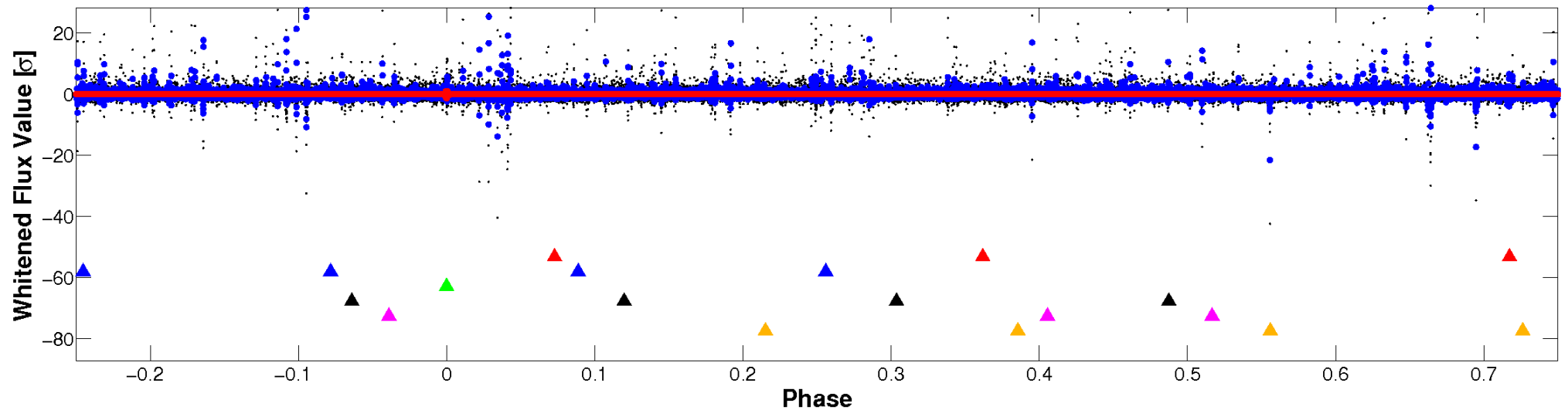


Non-Whitened Vs. Whitened Light Curve

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

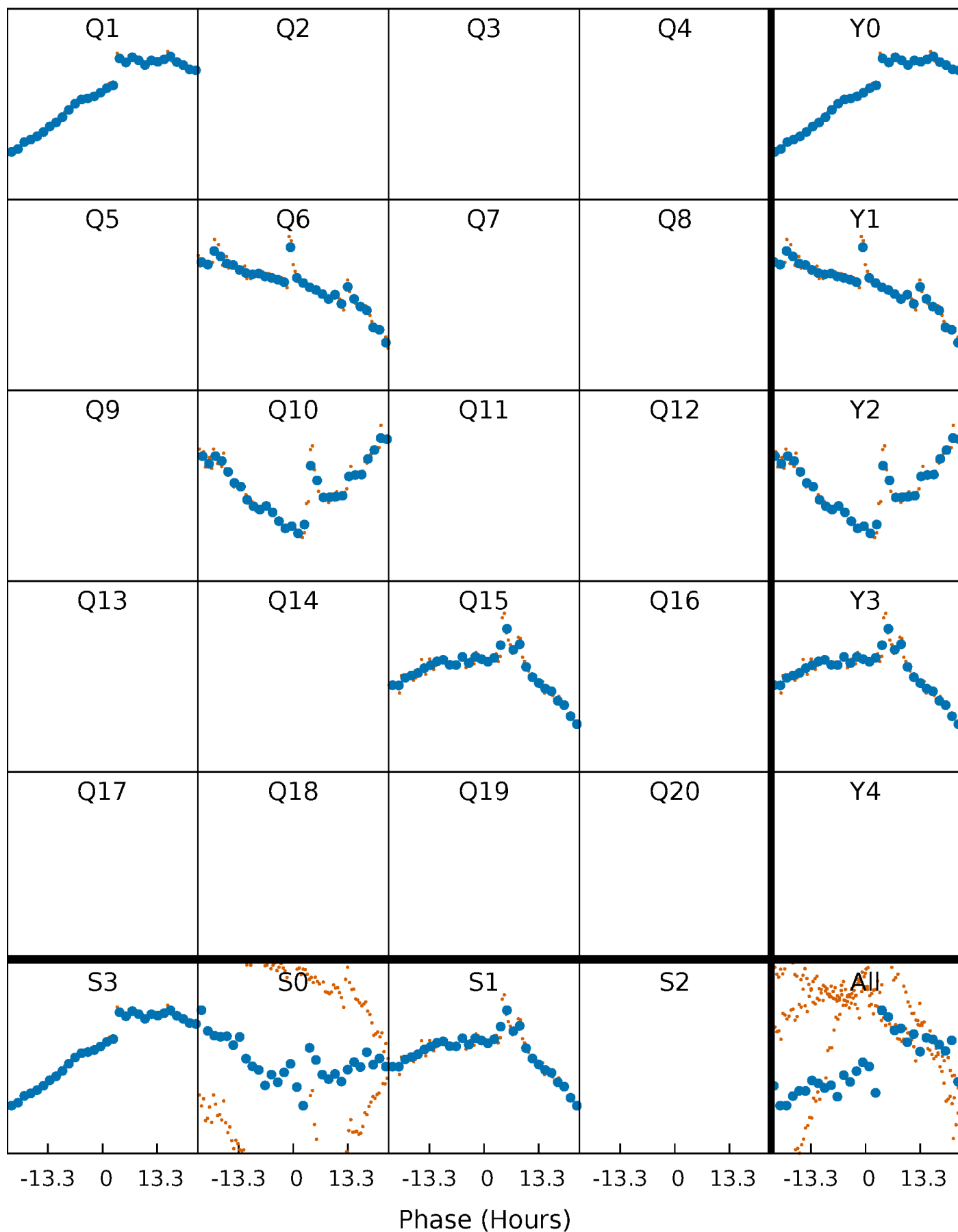


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



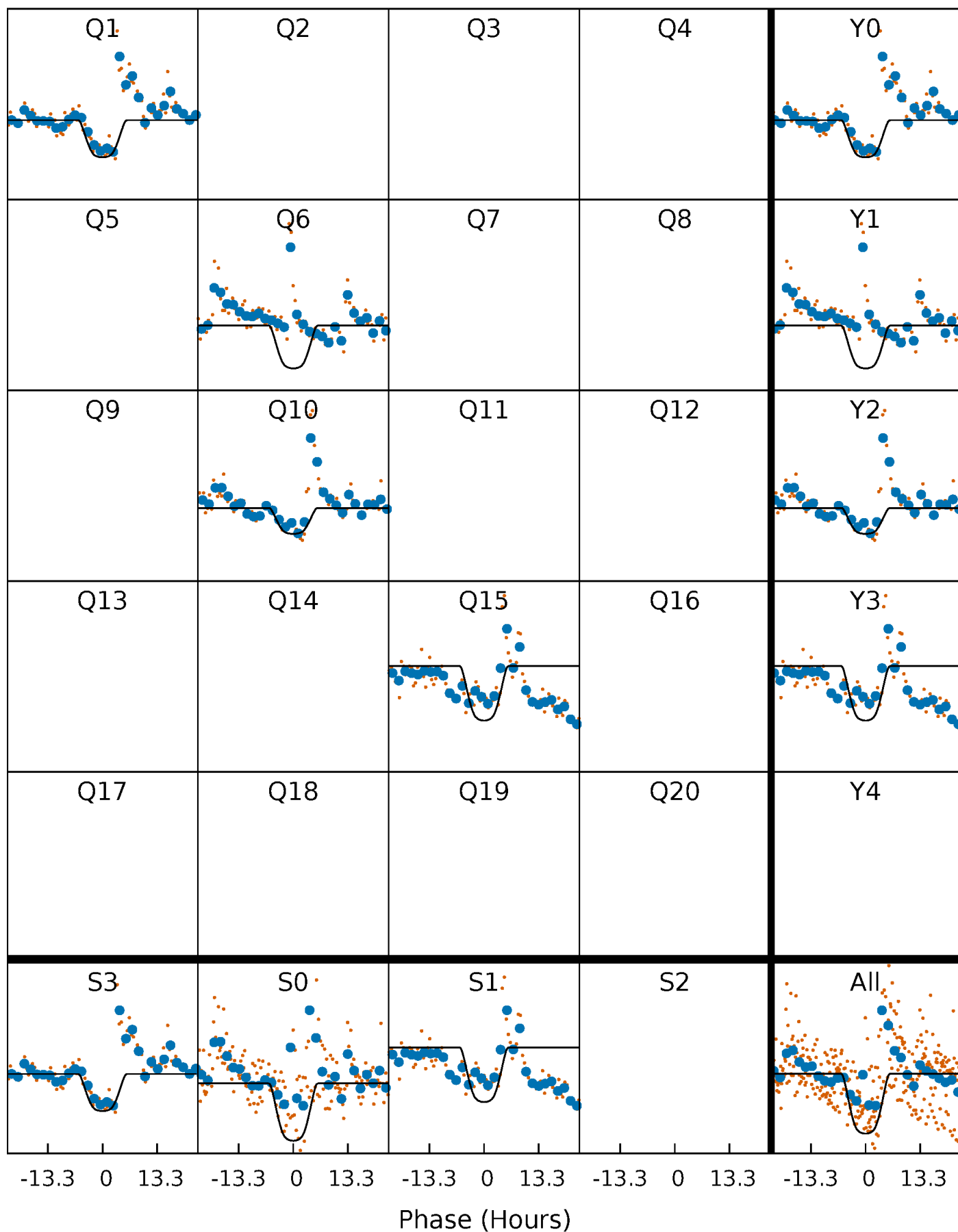
PDC Quarter-Phased Transit Curves

TCE 009631366-03 $P=420.327312$ Days $T_0=141.376498$ (BKJD)



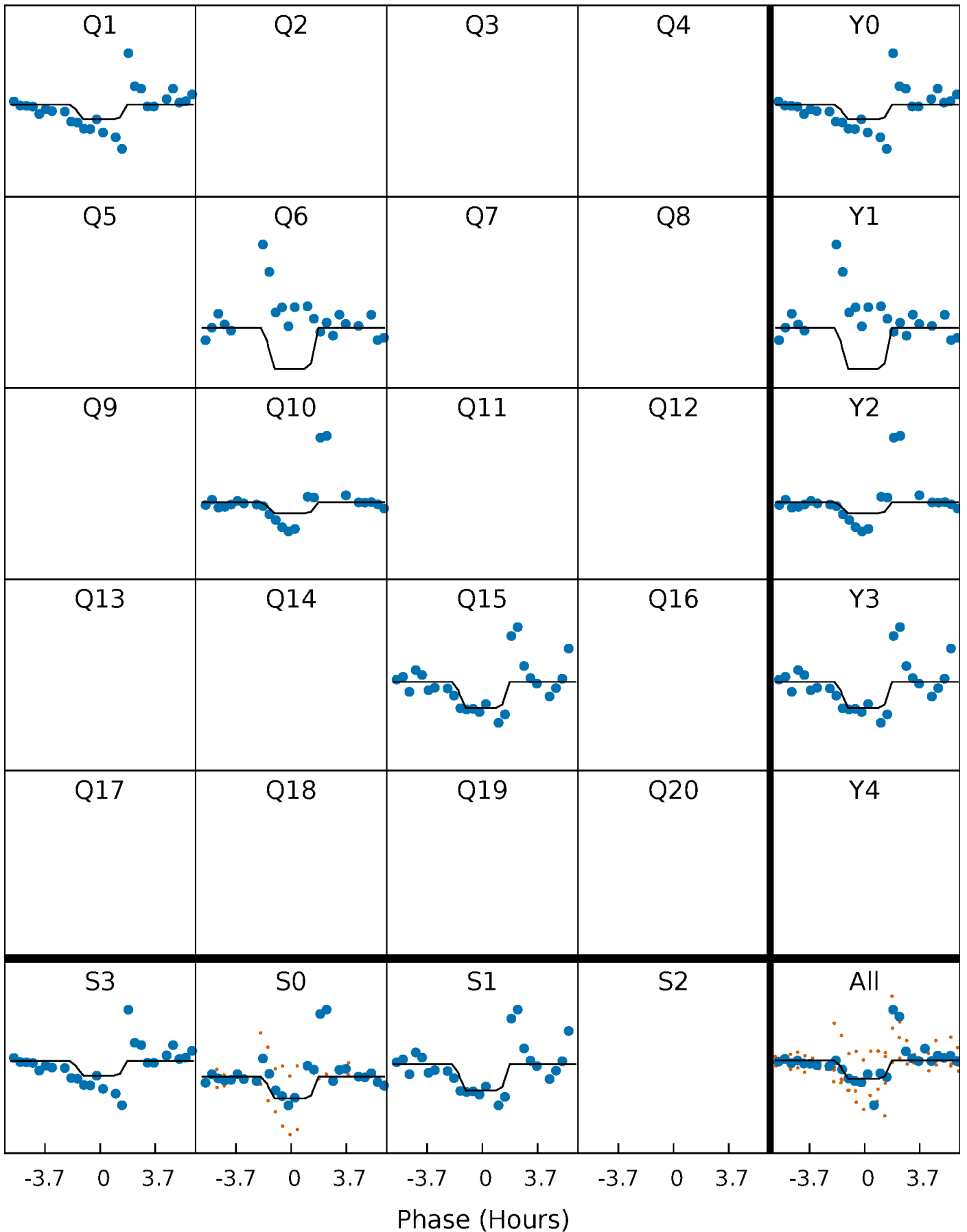
DV Quarter-Phased Transit Curves

TCE 009631366-03 $P=420.327312$ Days $T_0=141.376498$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

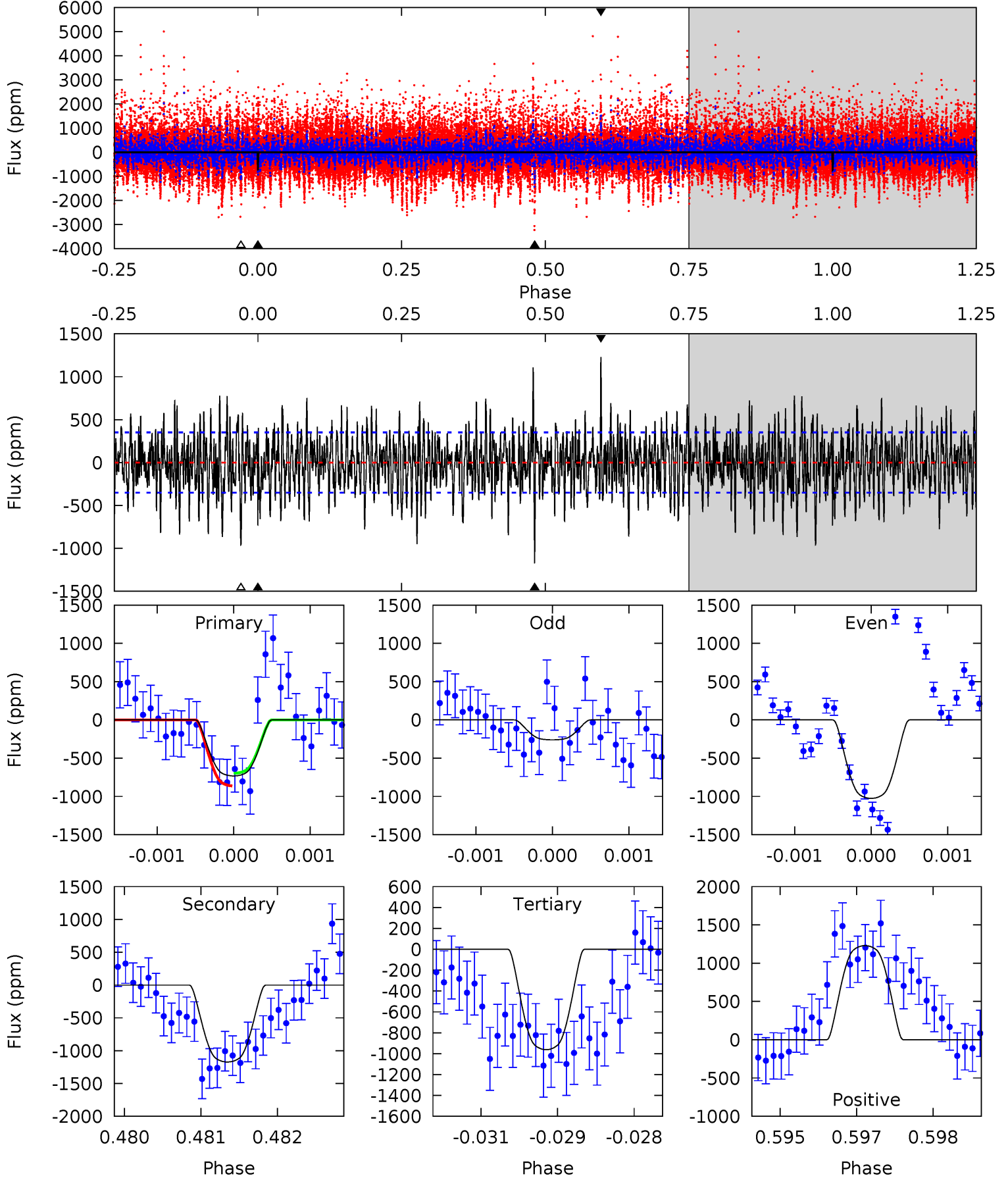
TCE 009631366-03 P=420.338763 Days $T_0=141.449069$ (BKJD)



DV Model-Shift Uniqueness Test

009631366-03, P = 420.327312 Days, E = 141.376498 Days

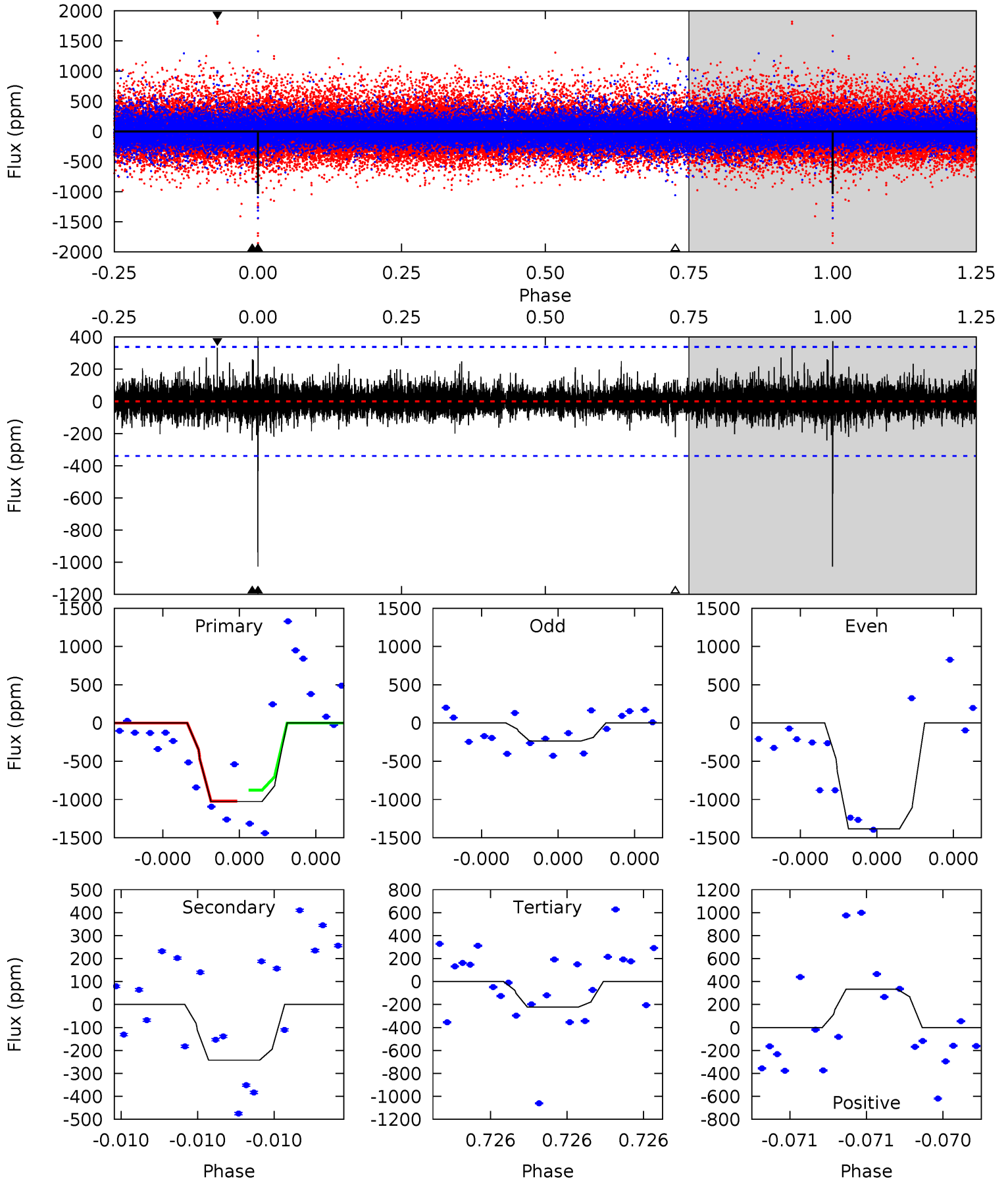
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	18.2	14.9	19.0	5.42	3.24	4.33	-3.55	-7.70	3.26	-0.88	4.58	0.58	0.51	0



Alt Model-Shift Uniqueness Test

009631366-03, P = 420.338763 Days, E = 141.449069 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	4.06	3.72	5.57	5.66	3.62	0.85	13.4	11.6	0.34	-1.52	11.4	0.78	0.27	0



Stellar Parameters For KIC 009631366

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3720^{+103}_{-129}	$4.764^{+0.078}_{-0.042}$	$-0.100^{+0.200}_{-0.200}$	$0.480^{+0.048}_{-0.072}$	$0.488^{+0.052}_{-0.064}$	$6.213^{+2.529}_{-1.041}$
	+3%/-3%	+2%/-1%	+200%/-200%	+10%/-15%	+11%/-13%	+41%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009631366-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1172 ± 65	$2.31^{+0.29}_{-0.30}$	169^{+7}_{-7}	3412^{+159}_{-153}	90953^{+28243}_{-18770}
Alt.	-243 ± 60	$1.42^{+0.26}_{-0.25}$	170^{+6}_{-7}	3100^{+239}_{-187}	47870^{+27009}_{-15899}

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

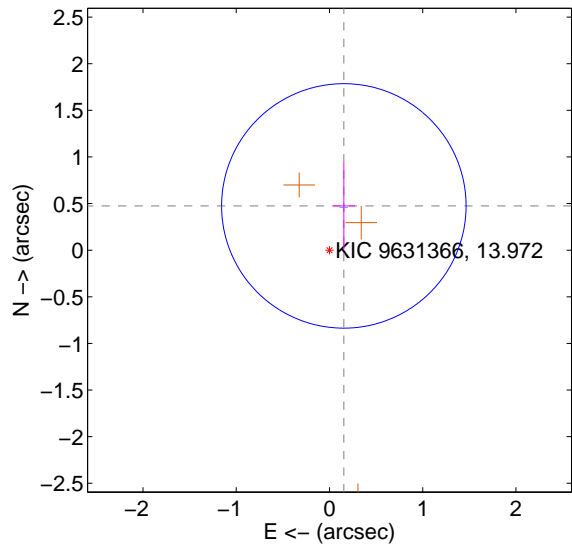
Supplemental centroid analysis for 009631366-03. Kepler magnitude: 13.97. Transit SNR 9.92

There are 1 quarters with good PRF difference image offsets

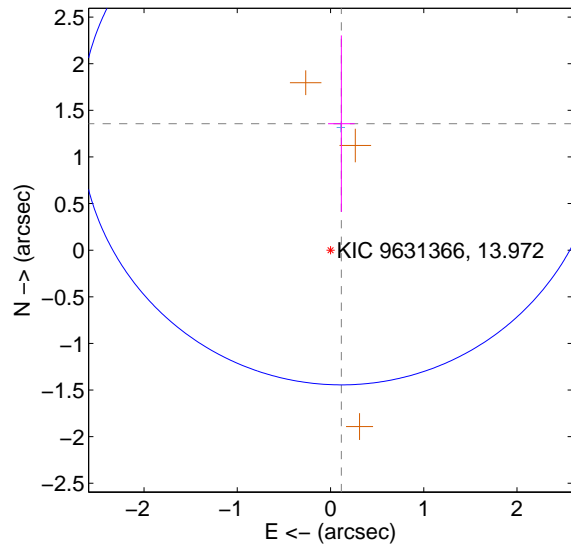
The direct PRF centroid is offset from the target star catalog position by about 1.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.499 ± 0.437	1.14	-0.154 ± 0.120	0.475 ± 0.469
PRF-fit source offset from KIC position	1.362 ± 0.934	1.46	-0.116 ± 0.143	1.357 ± 0.947
photometric centroid source offset	0.70 ± 0.49	1.44	-0.32 ± 0.35	0.62 ± 0.52

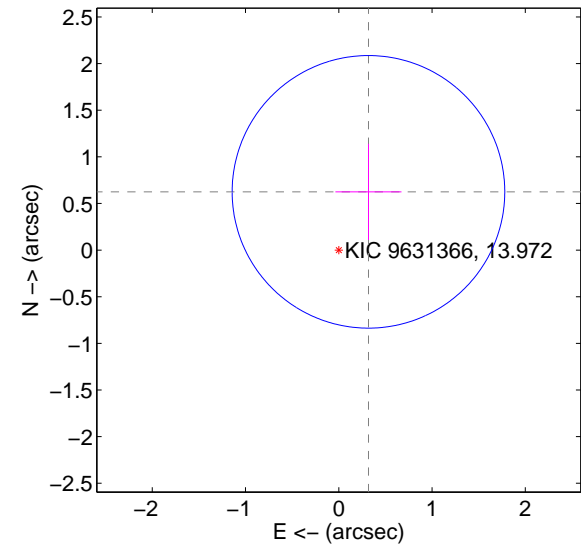
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

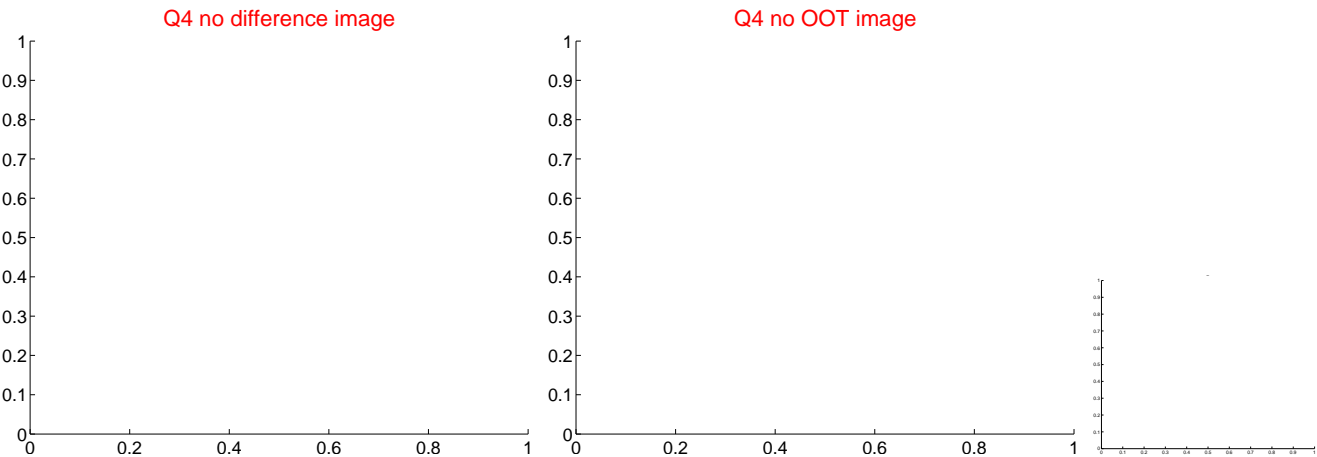
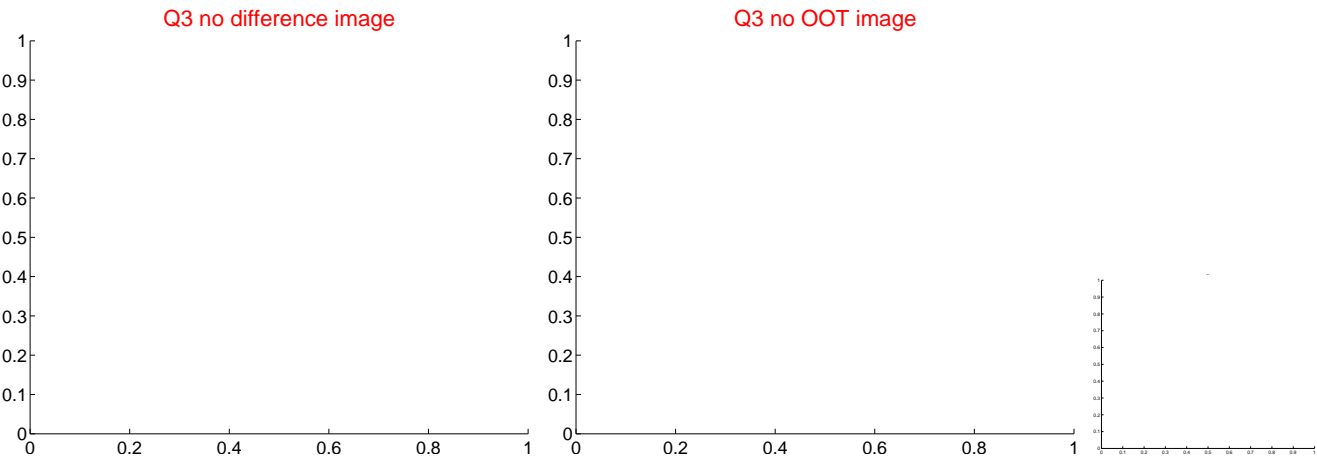
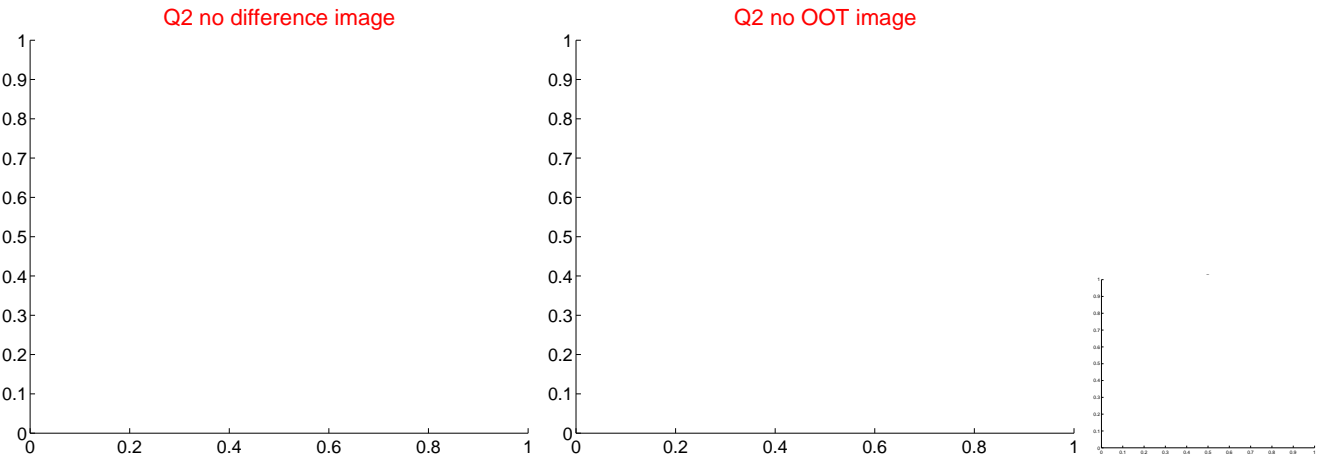
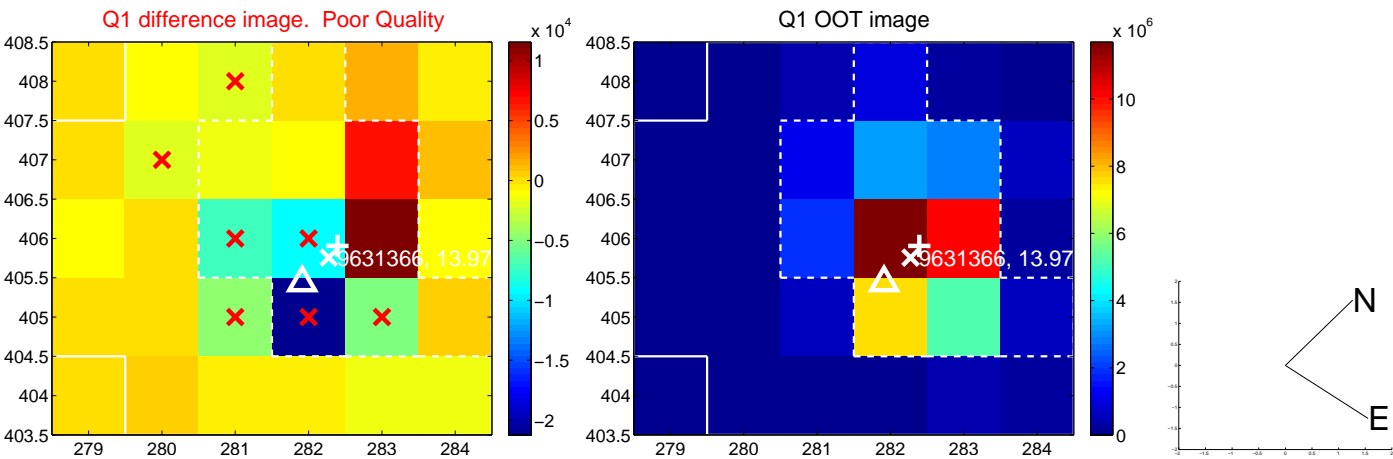


offset from photometric centroids



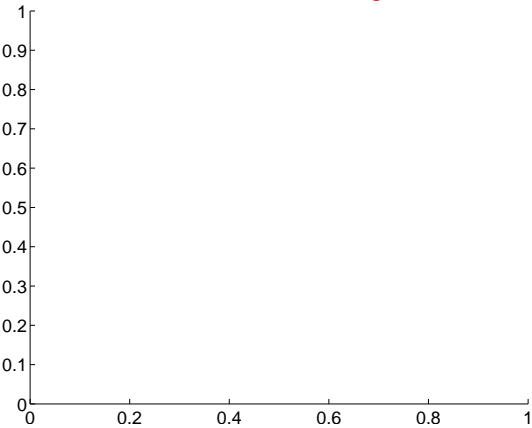
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

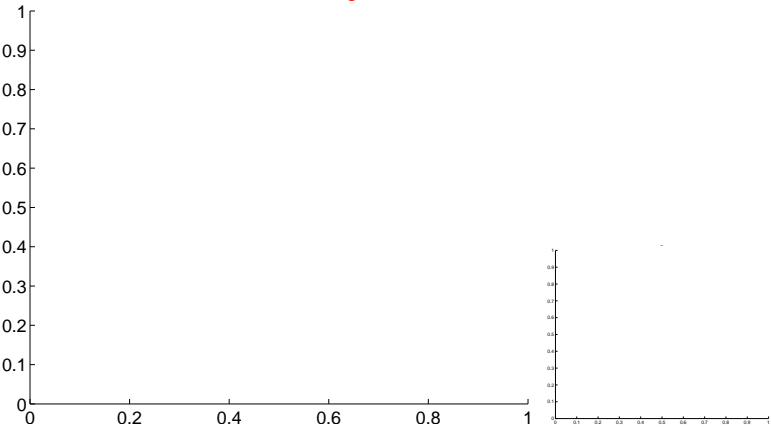


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

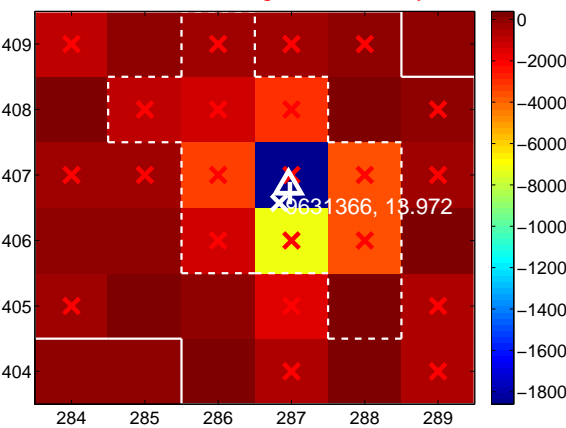
Q5 no difference image



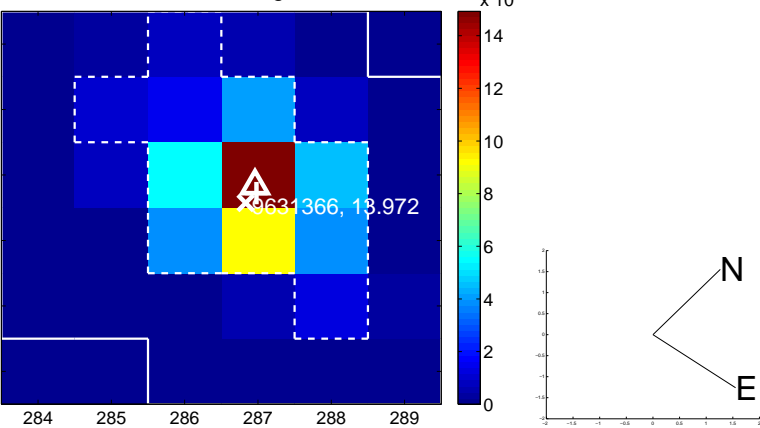
Q5 no OOT image



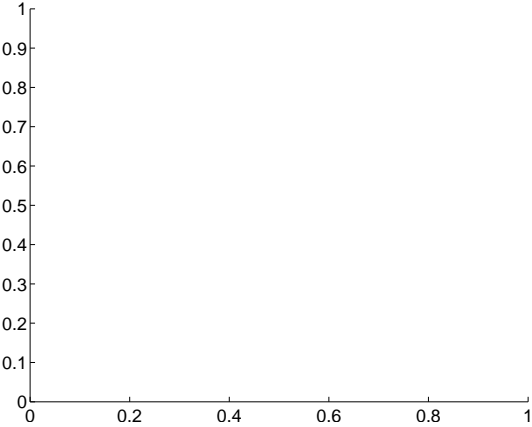
Q6 difference image. Poor Quality



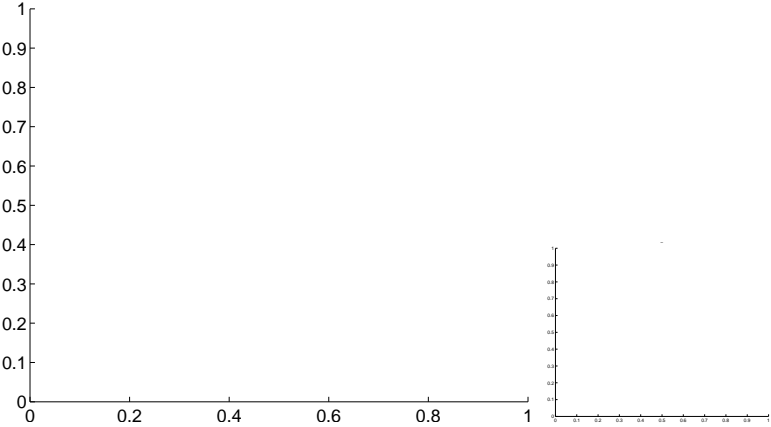
Q6 OOT image



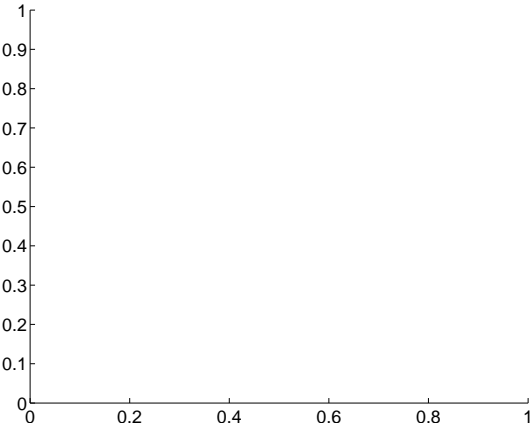
Q7 no difference image



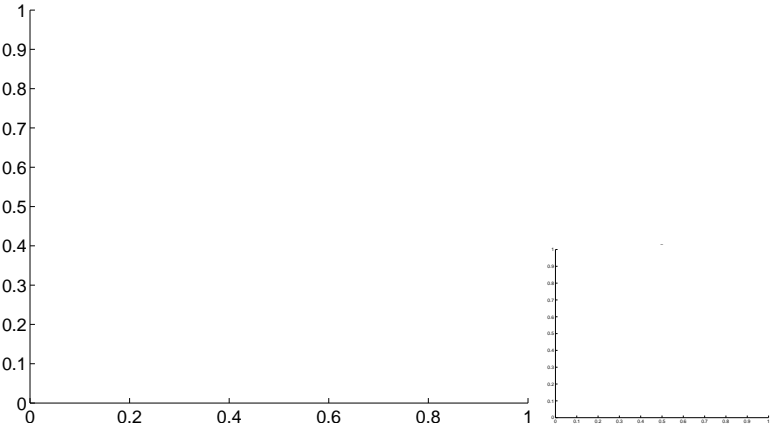
Q7 no OOT image



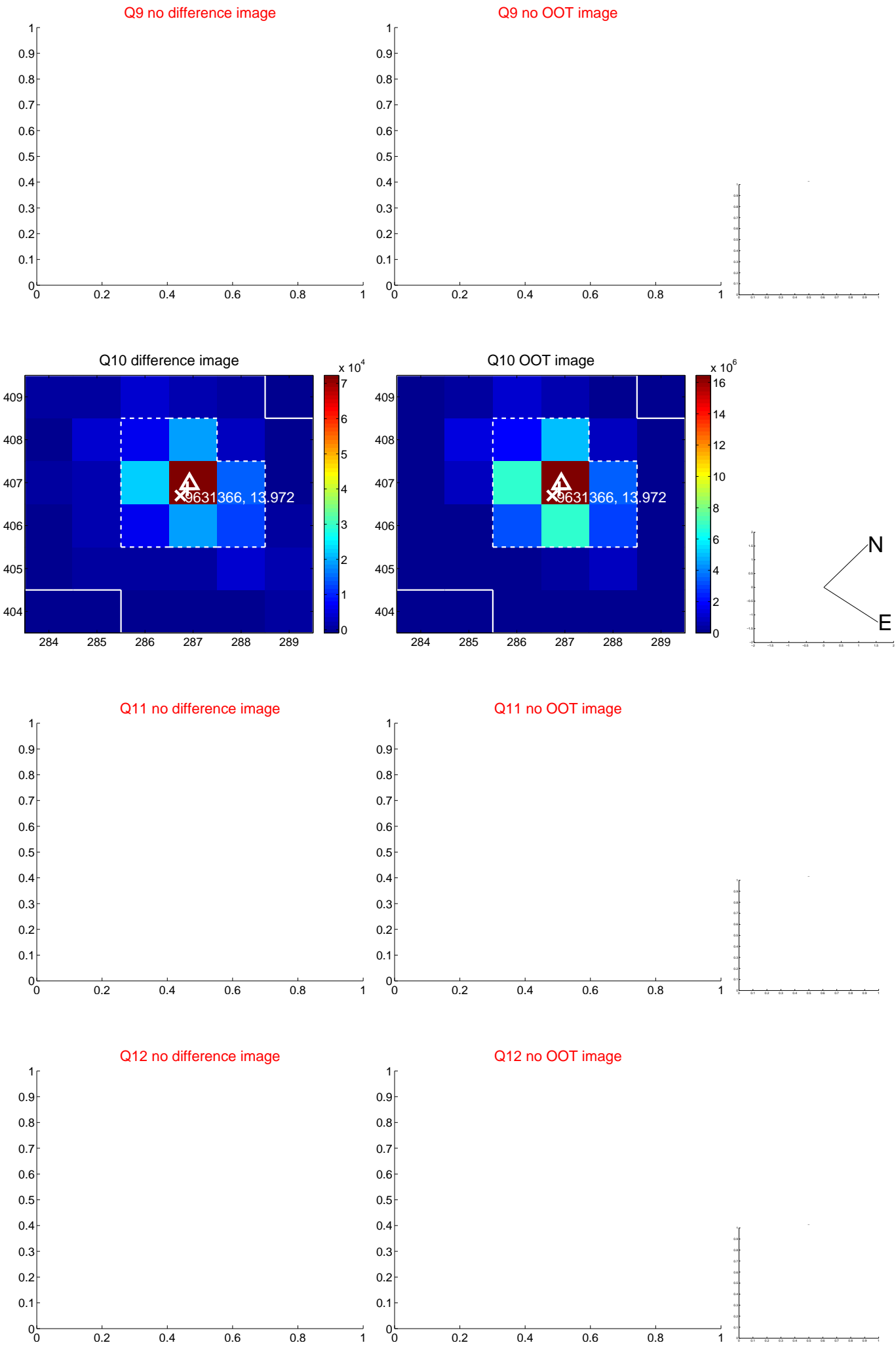
Q8 no difference image



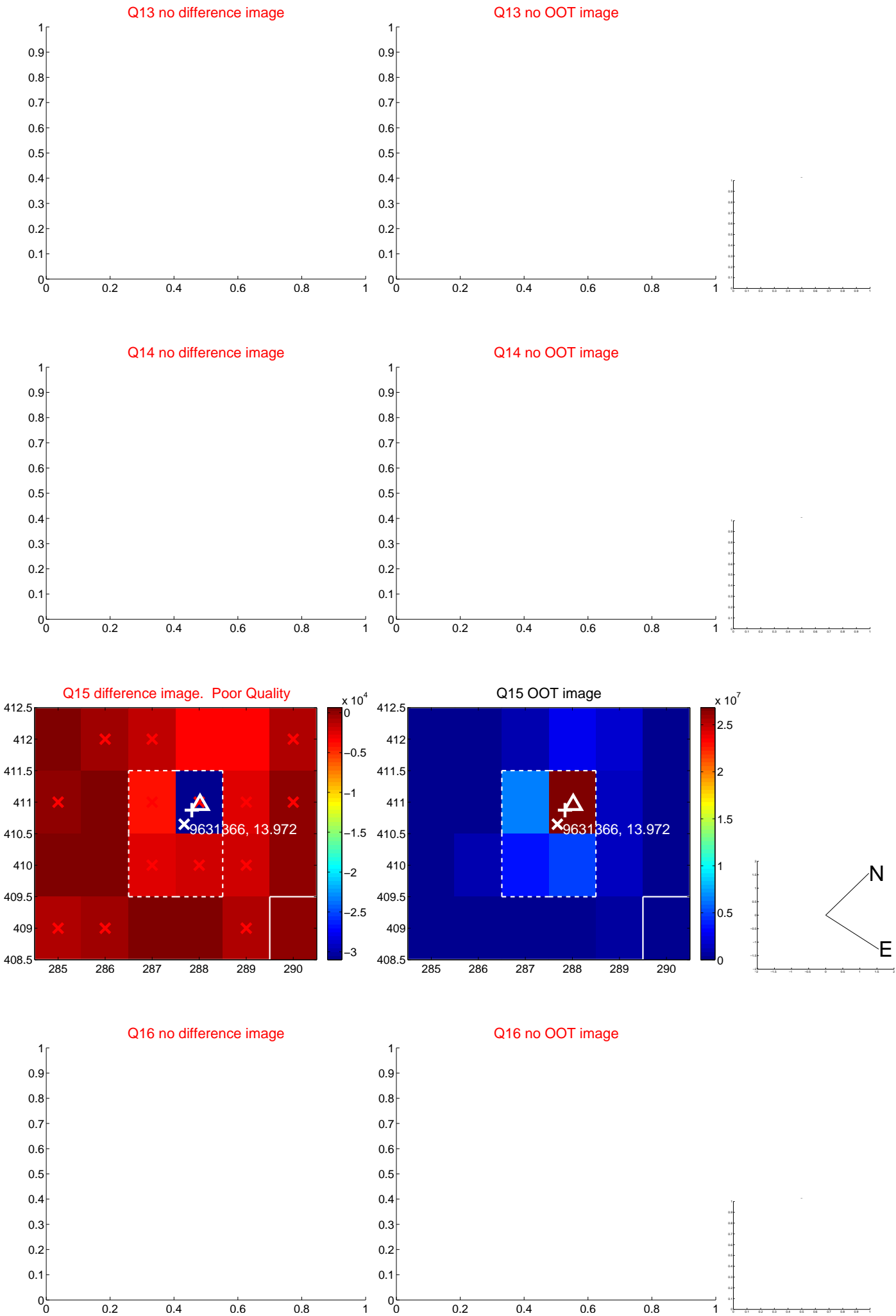
Q8 no OOT image



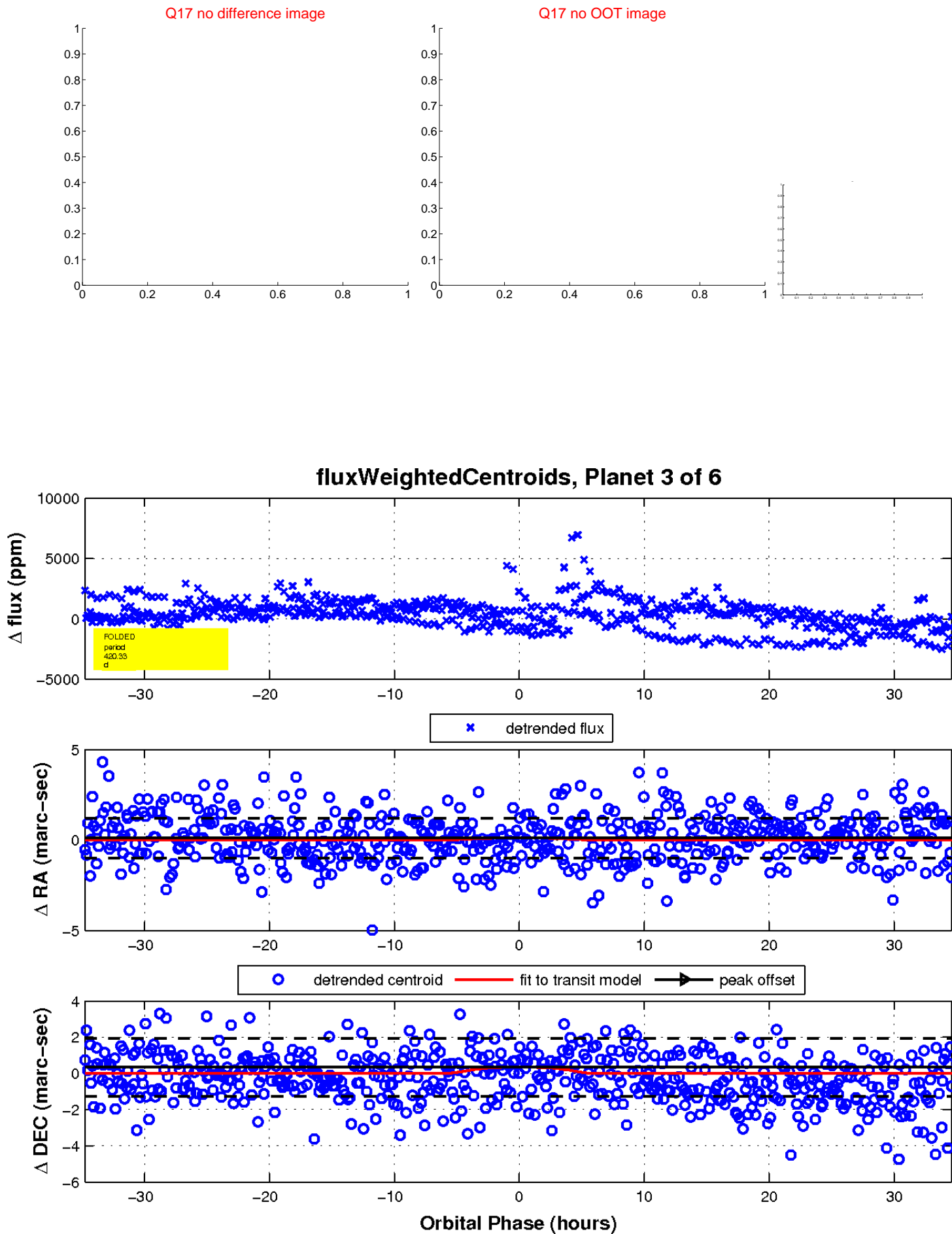
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

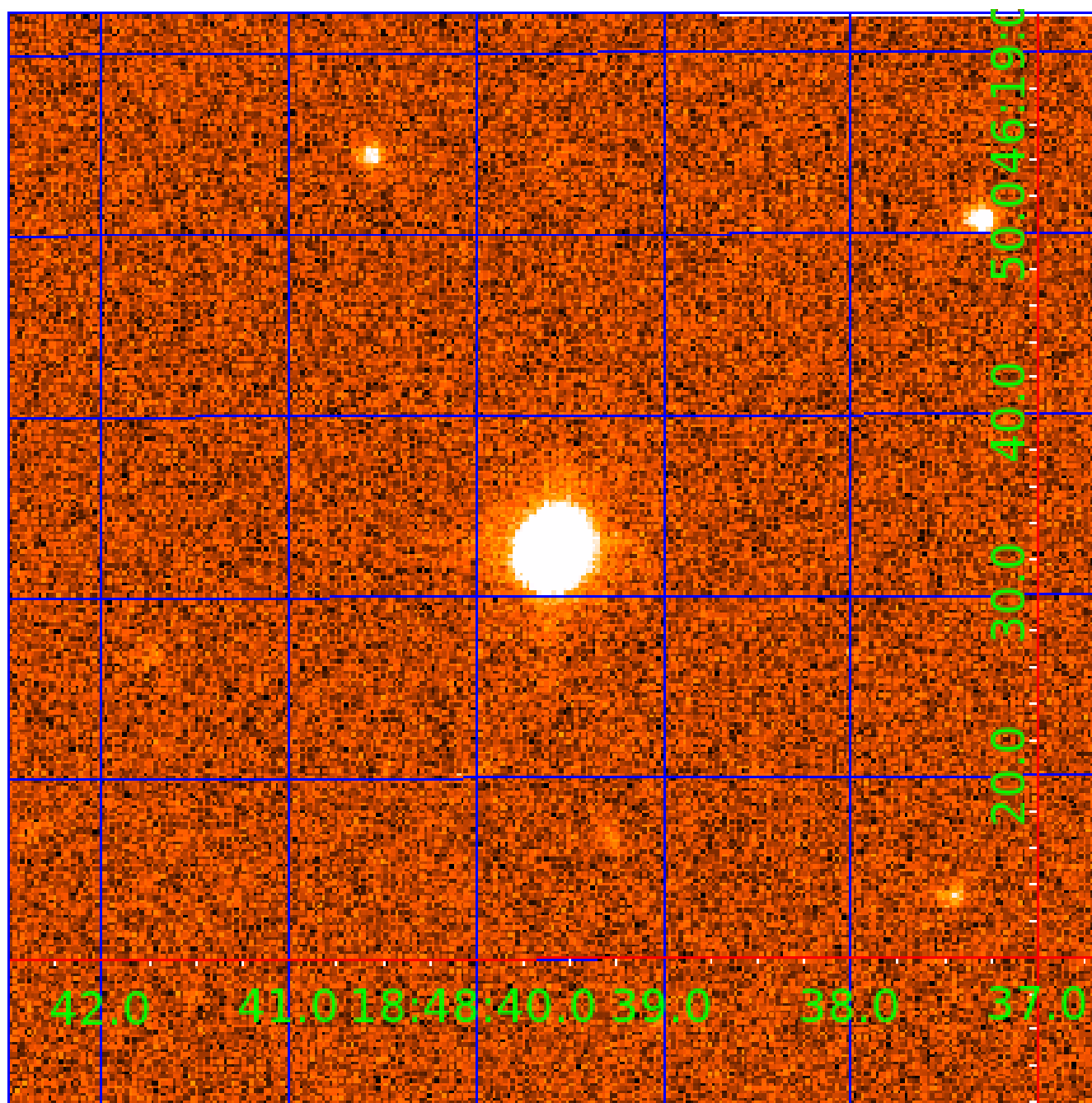


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009631366

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})
009631366-01	OBS	No	569.753870	293.473648	1368.3	23.947	16.7	7.3	0.48	3720	1.76	0.04
009631366-02	OBS	No	350.103158	248.942223	1391.5	6.925	16.9	7.5	0.48	3720	3.50	0.07
009631366-03	OBS	No	420.327312	141.376498	1490.5	11.596	14.0	9.9	0.48	3720	2.34	0.05
009631366-05	OBS	No	607.142790	358.531386	419.3	7.207	10.8	2.8	0.48	3720	1.09	0.03
009631366-06	OBS	No	348.715721	446.661344	832.4	4.650	11.9	7.1	0.48	3720	1.45	0.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009631366-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009631366-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009631366-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009631366-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
009631366-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

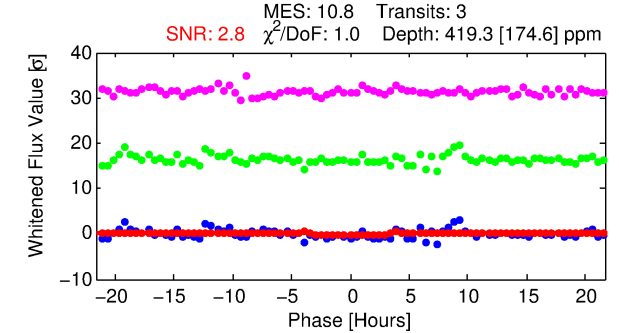
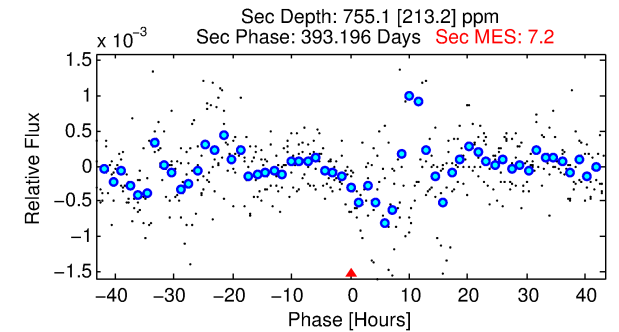
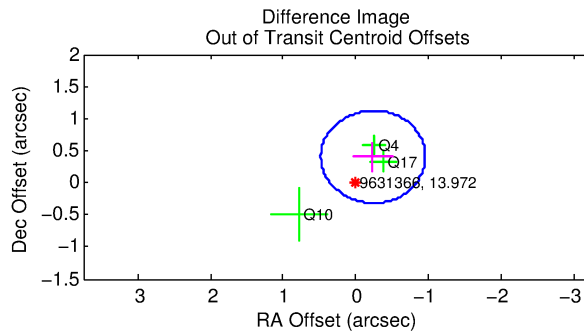
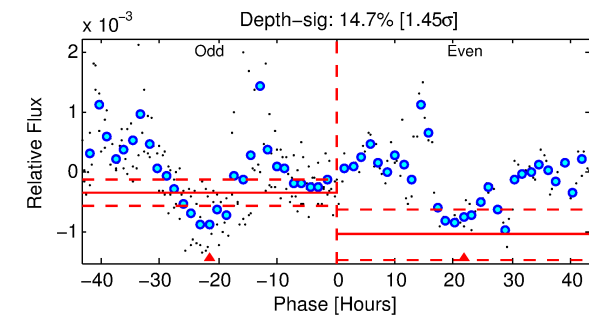
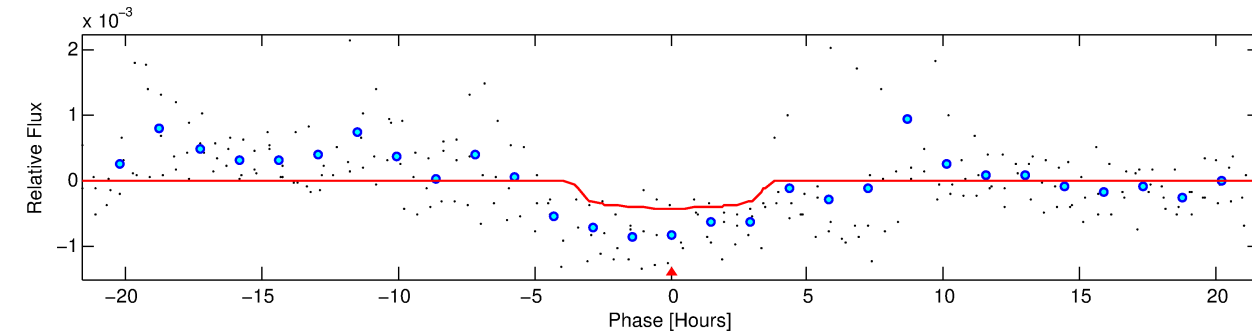
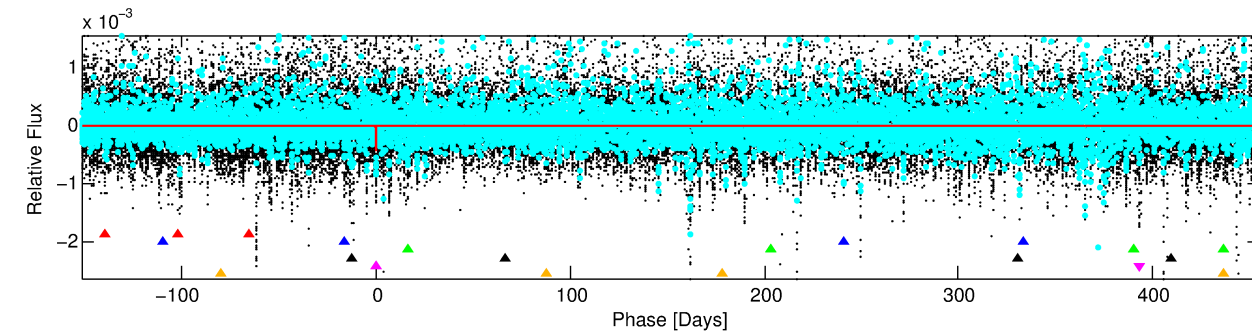
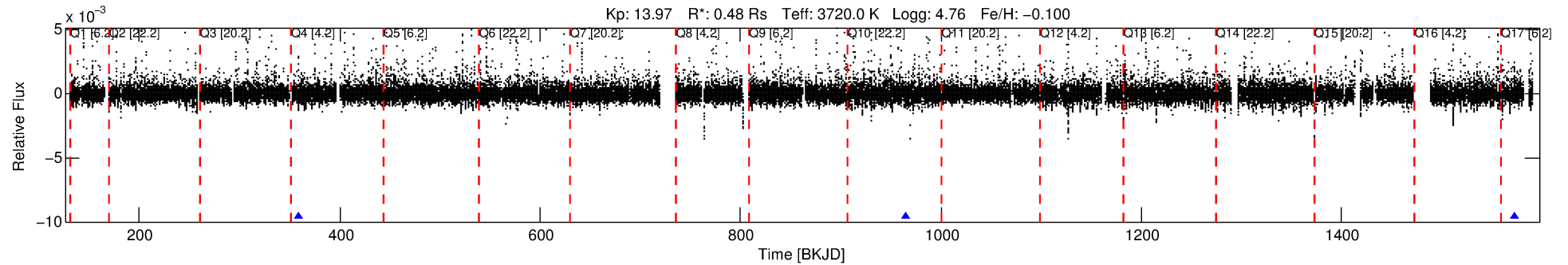
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009631366-05

No Significant Match Found

DV One-Page Summary

KIC: 9631366 Candidate: 5 of 6 Period: 607.143 d



DV Fit Results:

Period = 607.14279 [0.01644] d
Epoch = 358.5314 [0.0234] BKJD
Rp/R* = 0.0208 [0.0297]
a/R* = 404.77 [2518.19]
b = 0.80 [2.76]
Seff = 0.03 [0.01]
Teq = 108 [6] K
Rp = 1.09 [1.57] Re
a = 1.1051 [0.1288] AU
Ag = 426516.81 [1226069.23] [0.35 σ]
Teffp = 4274 [3070] K [1.36 σ]

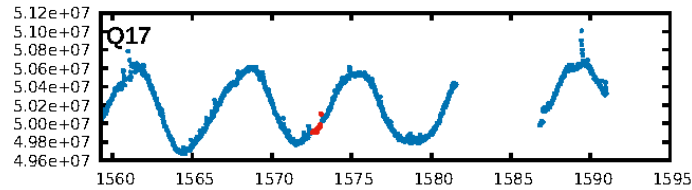
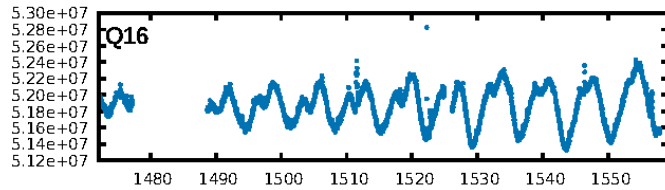
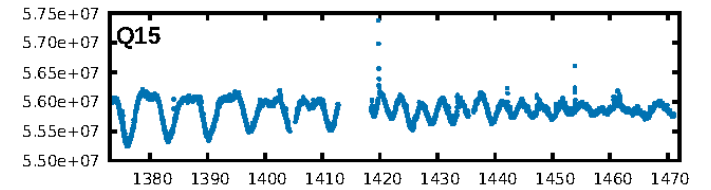
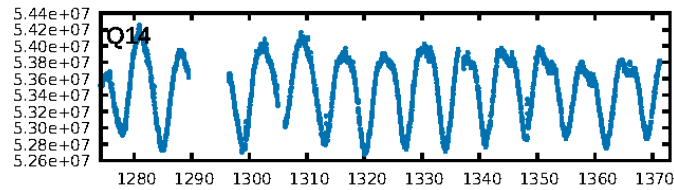
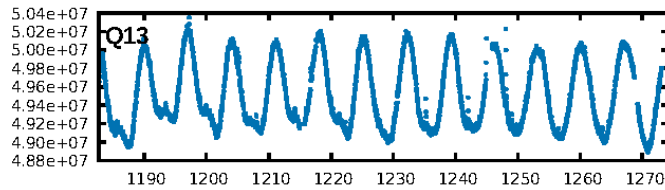
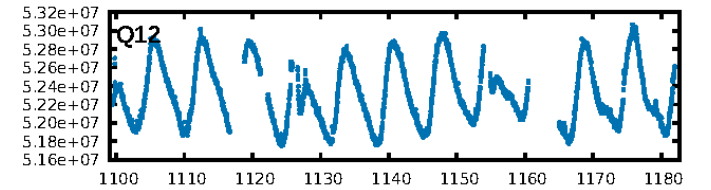
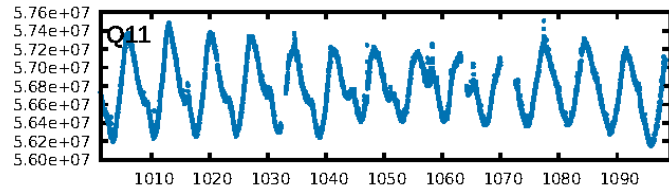
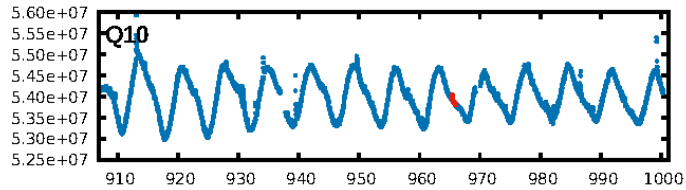
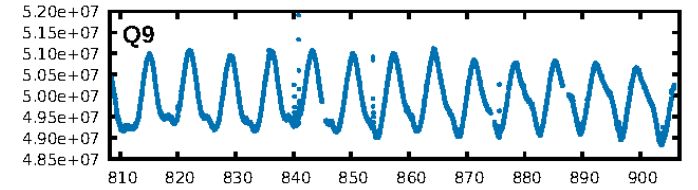
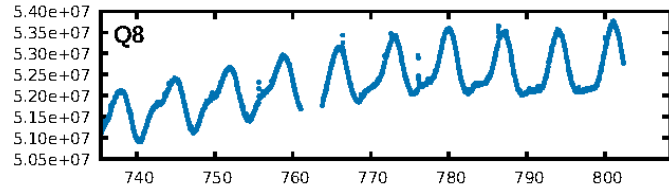
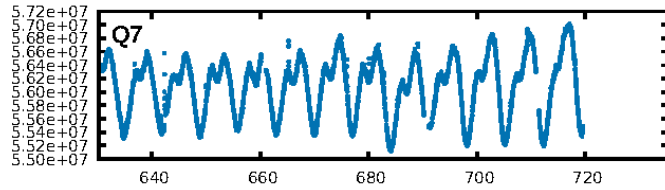
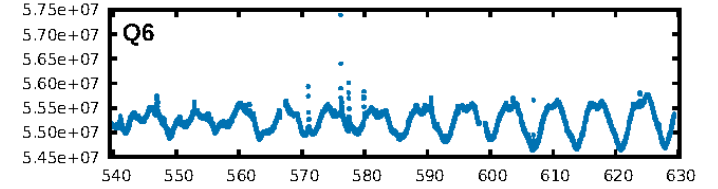
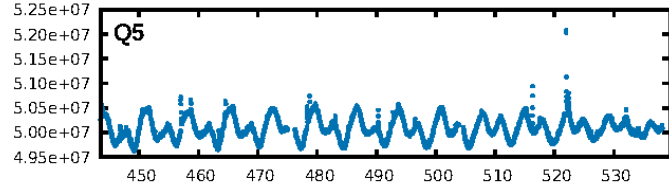
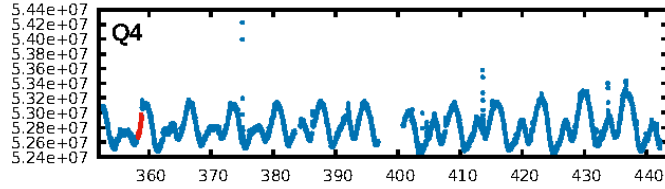
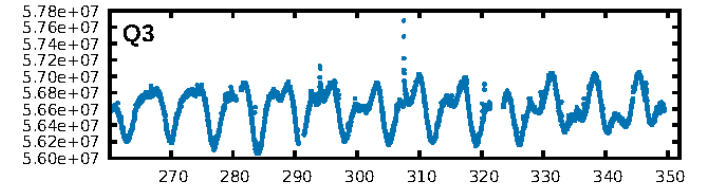
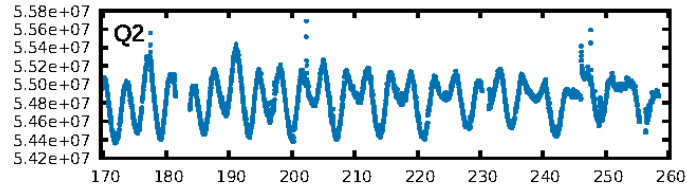
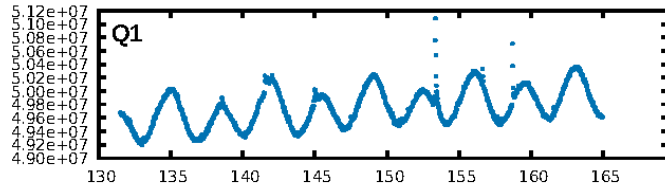
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [35.88 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 7.3%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -1.328
Centroid-sig: 87.6%
Centroid-so: 0.482 arcsec [0.24 σ]
OotOffset-rm: 0.467 arcsec [1.95 σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-rm: 1.295 arcsec [3.82 σ]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

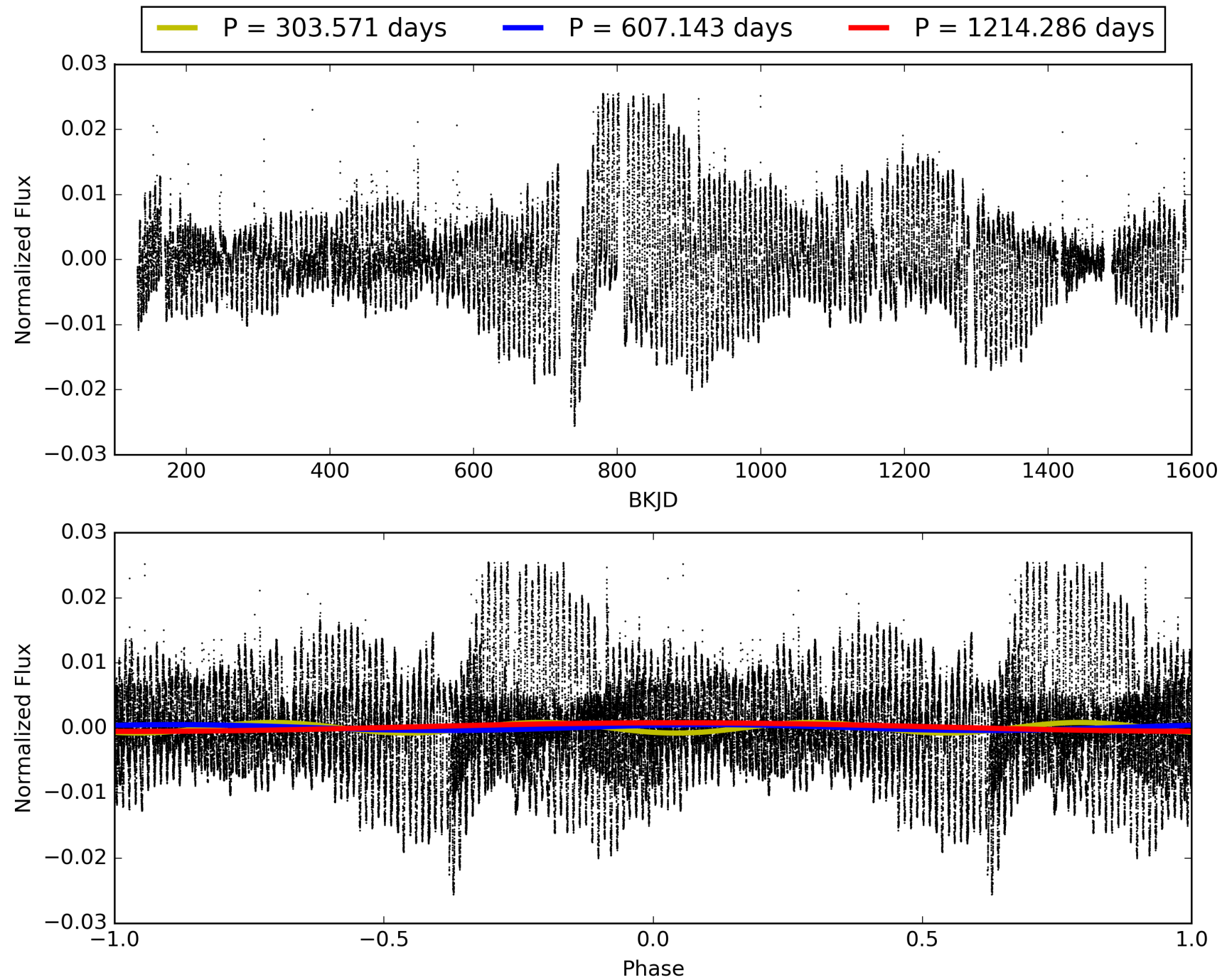
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:37:39 Z

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

TCE 009631366-05, PDC Light Curves

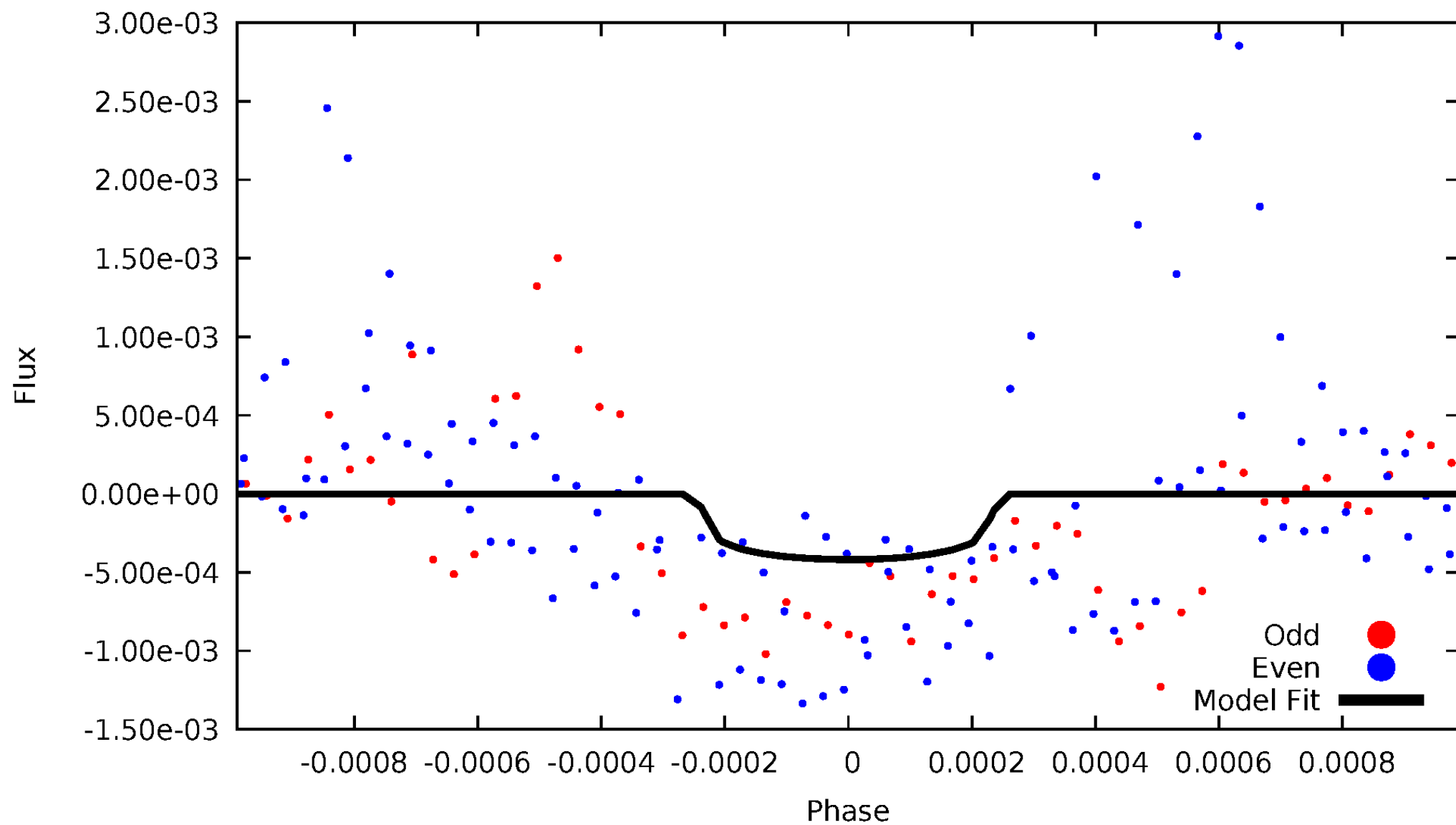


TCE 009631366-05



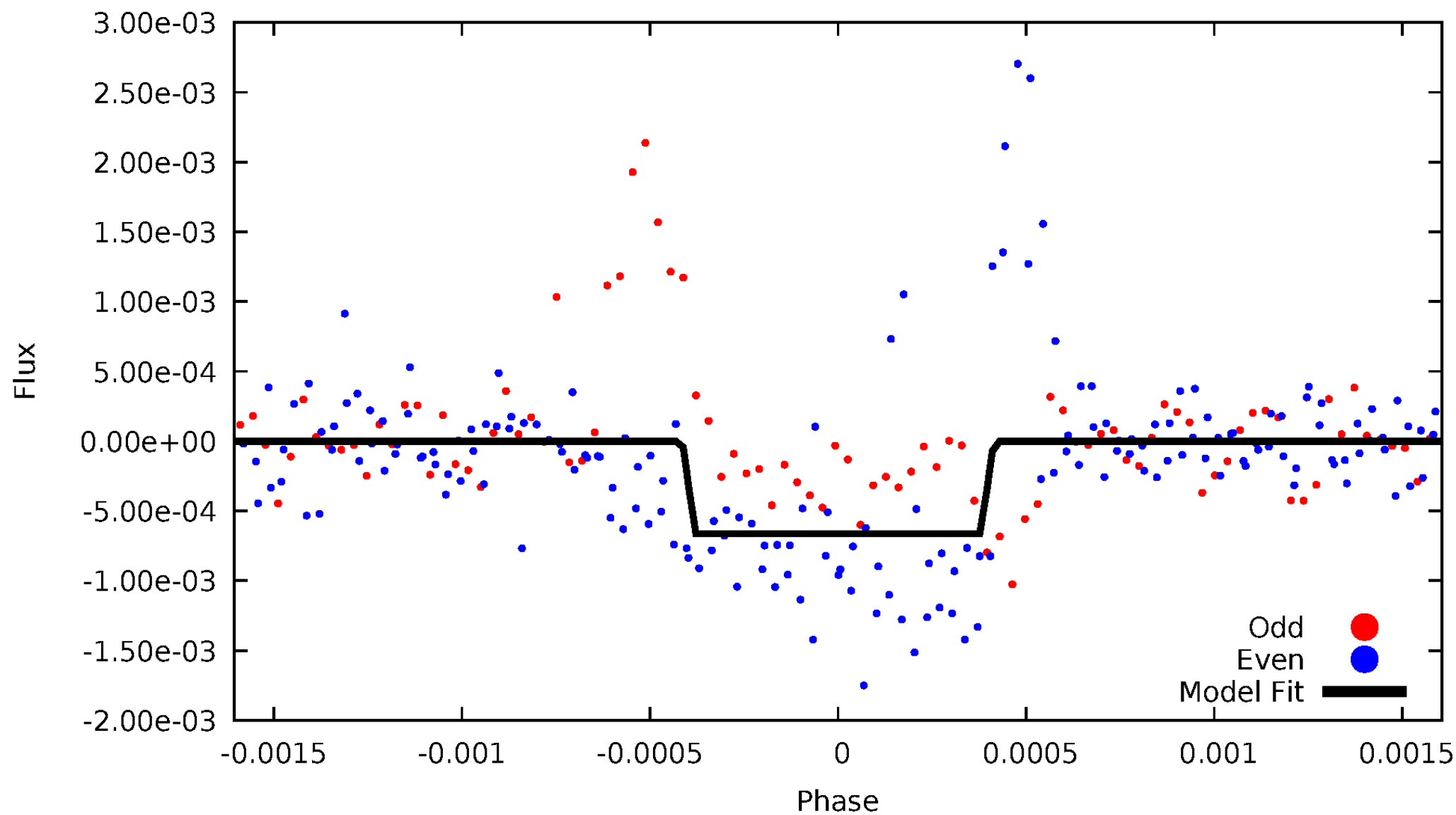
DV Odd/Even

TCE 009631366-05



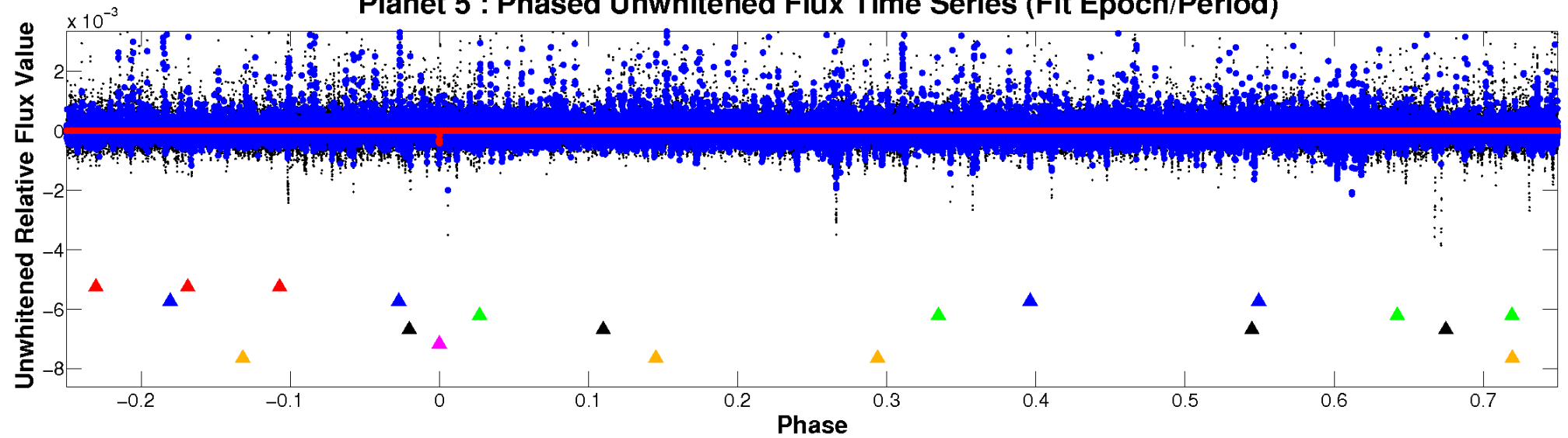
ALT Odd/Even

TCE 009631366-05

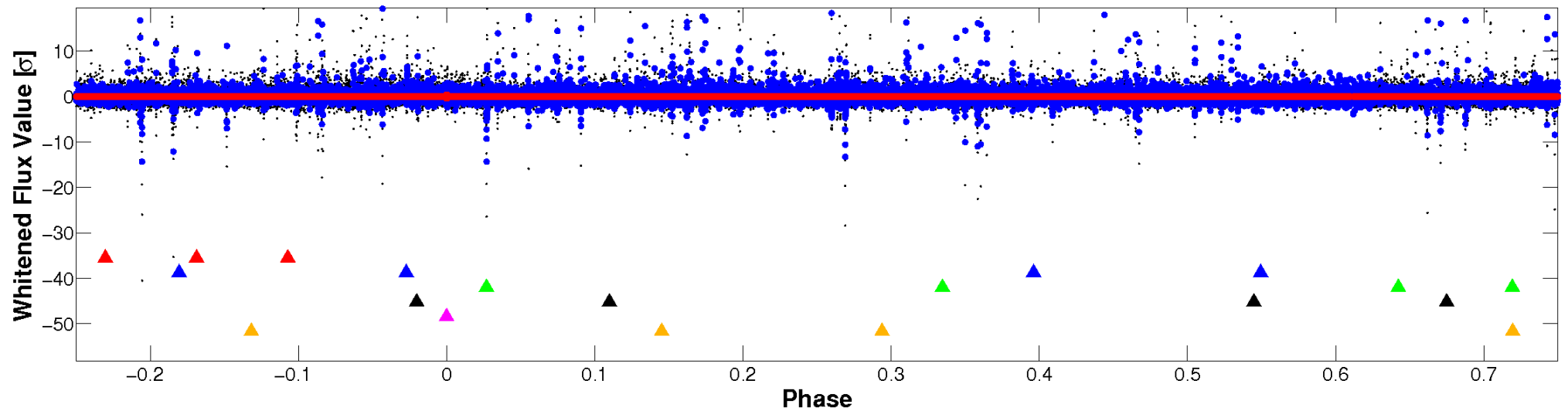


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

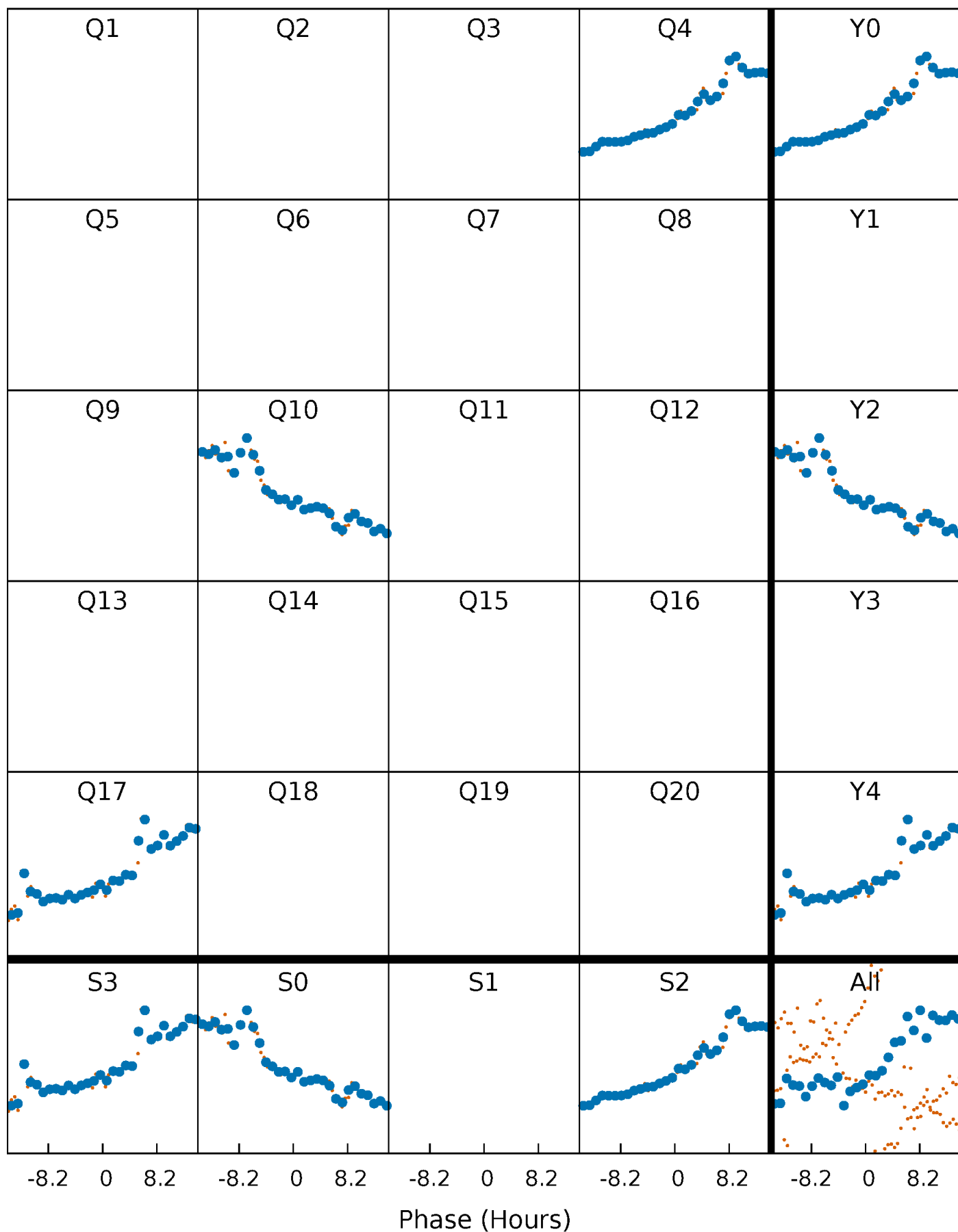


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



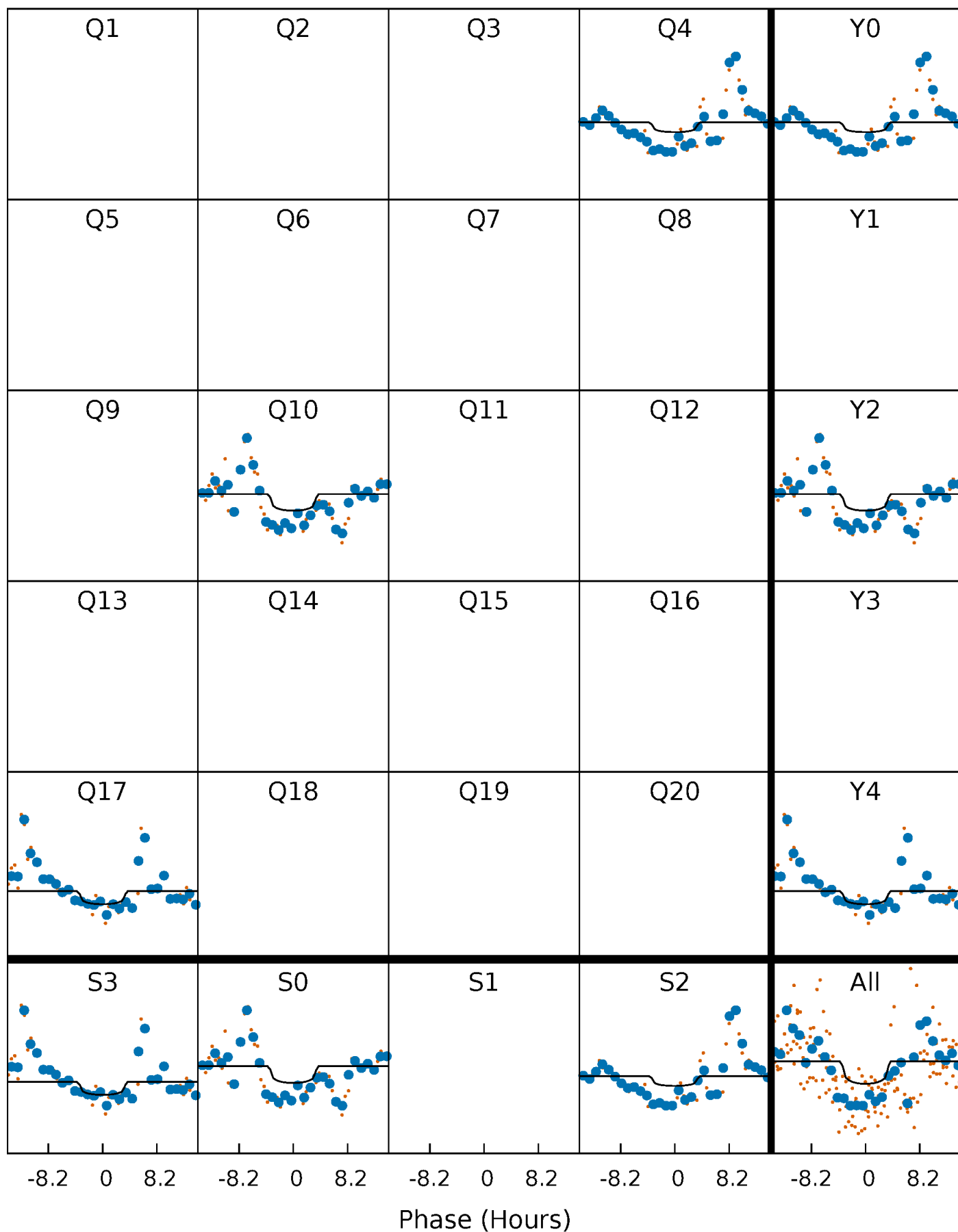
PDC Quarter-Phased Transit Curves

TCE 009631366-05 $P=607.142790$ Days $T_0=358.531386$ (BKJD)



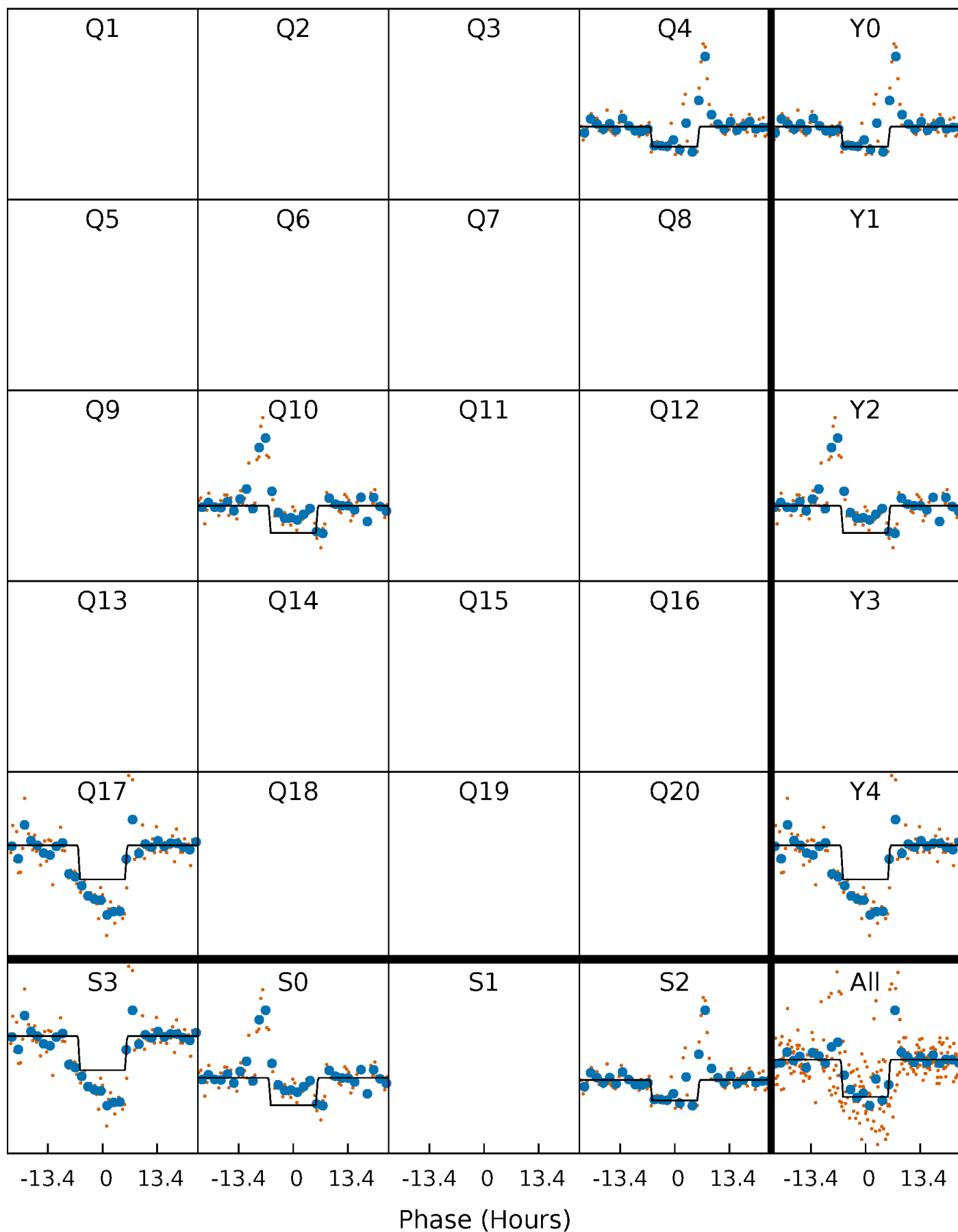
DV Quarter-Phased Transit Curves

TCE 009631366-05 $P=607.142790$ Days $T_0=358.531386$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

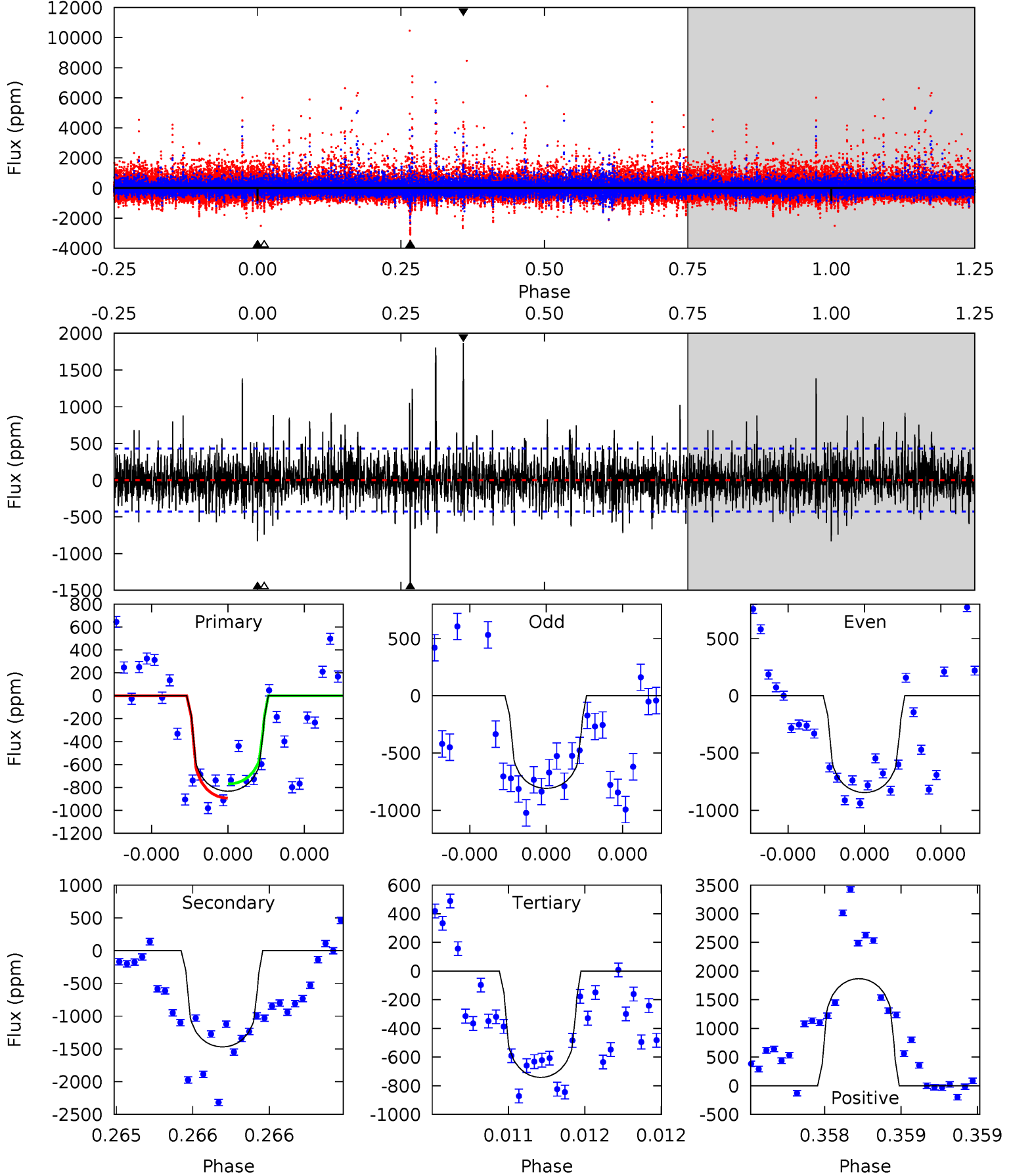
TCE 009631366-05 $P=607.094690$ Days $T_0=358.605010$ (BKJD)



DV Model-Shift Uniqueness Test

009631366-05, P = 607.142790 Days, E = 358.531386 Days

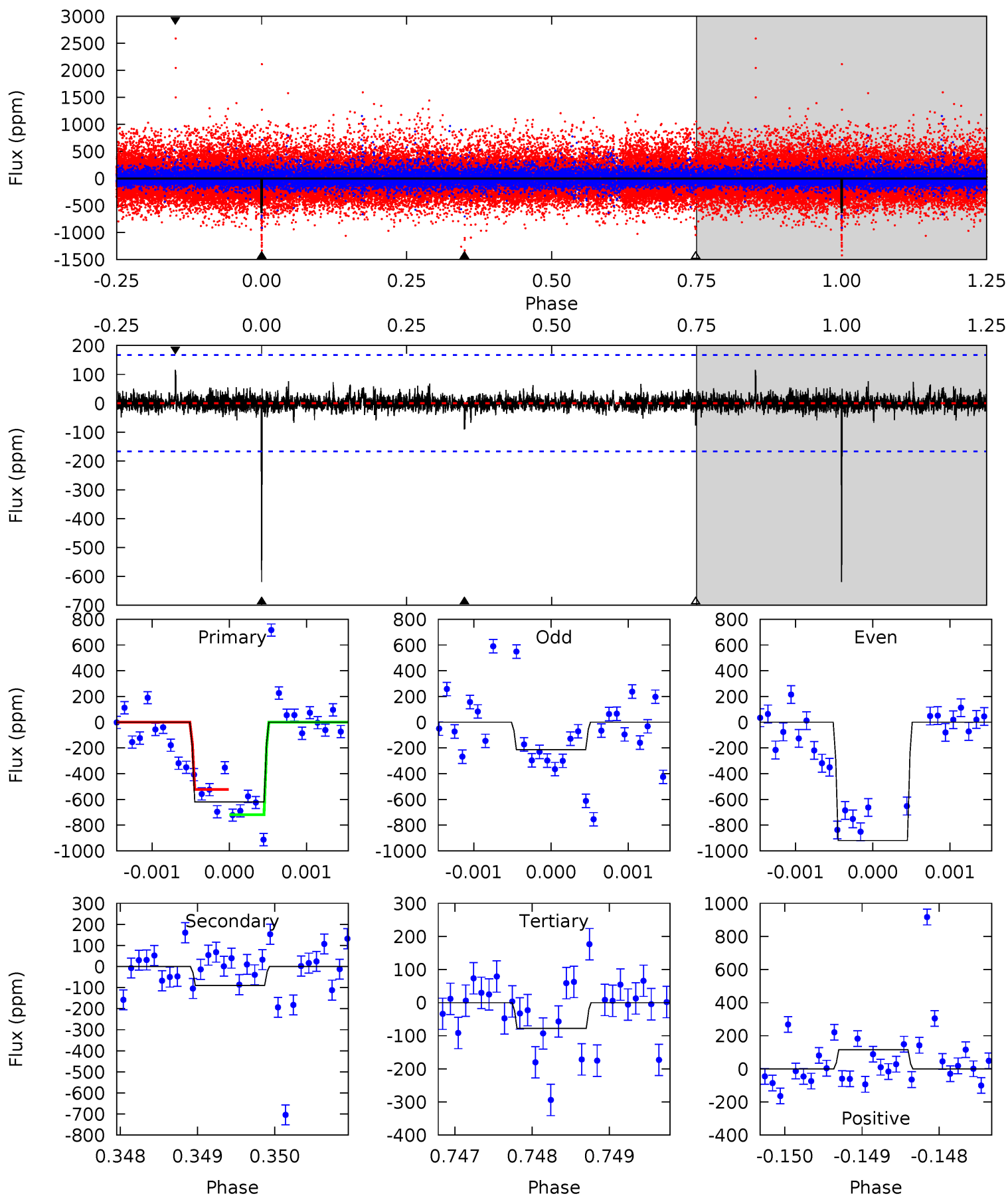
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	19.1	9.65	24.3	5.57	3.48	2.75	1.18	-13.5	9.46	-5.18	0.15	1.03	0.56	0.81



Alt Model-Shift Uniqueness Test

009631366-05, P = 607.094690 Days, E = 358.605010 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	2.96	2.55	3.77	5.48	3.34	0.50	17.8	16.6	0.41	-0.81	11.0	1.20	0.16	3.24



Stellar Parameters For KIC 009631366

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3720^{+103}_{-129}	$4.764^{+0.078}_{-0.042}$	$-0.100^{+0.200}_{-0.200}$	$0.480^{+0.048}_{-0.072}$	$0.488^{+0.052}_{-0.064}$	$6.213^{+2.529}_{-1.041}$
	+3%/-3%	+2%/-1%	+200%/-200%	+10%/-15%	+11%/-13%	+41%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009631366-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1470 ± 77	$1.60^{+1.34}_{-1.04}$	150^{+6}_{-6}	3976^{+2174}_{-703}	$384826^{+2761909}_{-268448}$
Alt.	-90 ± 30	$1.70^{+1.36}_{-1.08}$	150^{+6}_{-6}	2569^{+856}_{-346}	$19540^{+121868}_{-13552}$

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

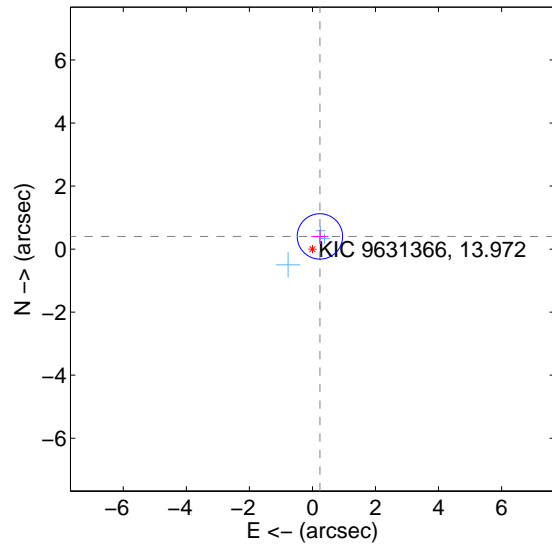
Supplemental centroid analysis for 009631366-05. Kepler magnitude: 13.97. Transit SNR 2.82

There are 3 quarters with good PRF difference image offsets

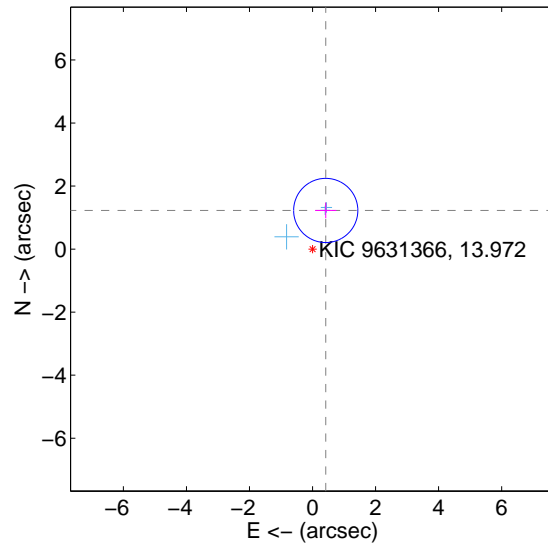
The direct PRF centroid is offset from the target star catalog position by about 0.99 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.467 ± 0.240	1.95	-0.237 ± 0.275	0.402 ± 0.226
PRF-fit source offset from KIC position	1.295 ± 0.339	3.82	-0.419 ± 0.335	1.226 ± 0.249
photometric centroid source offset	0.48 ± 1.97	0.24	0.16 ± 1.37	0.45 ± 2.04

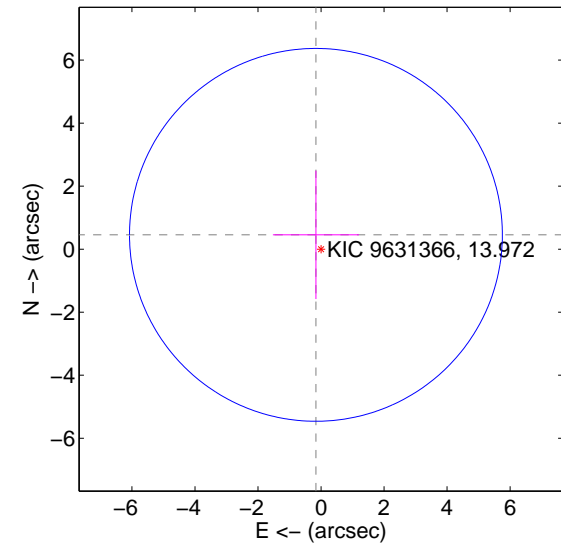
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

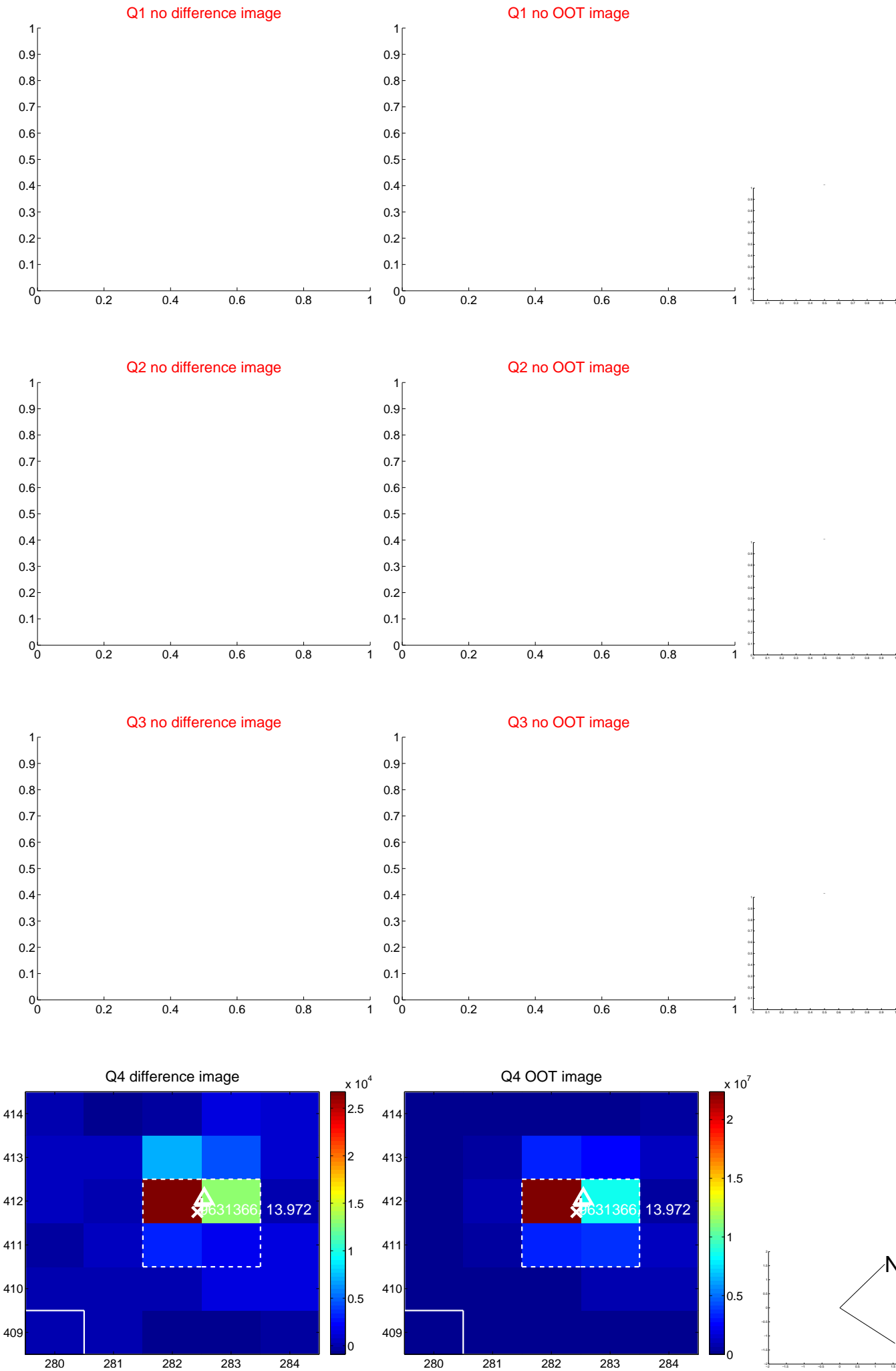


offset from photometric centroids

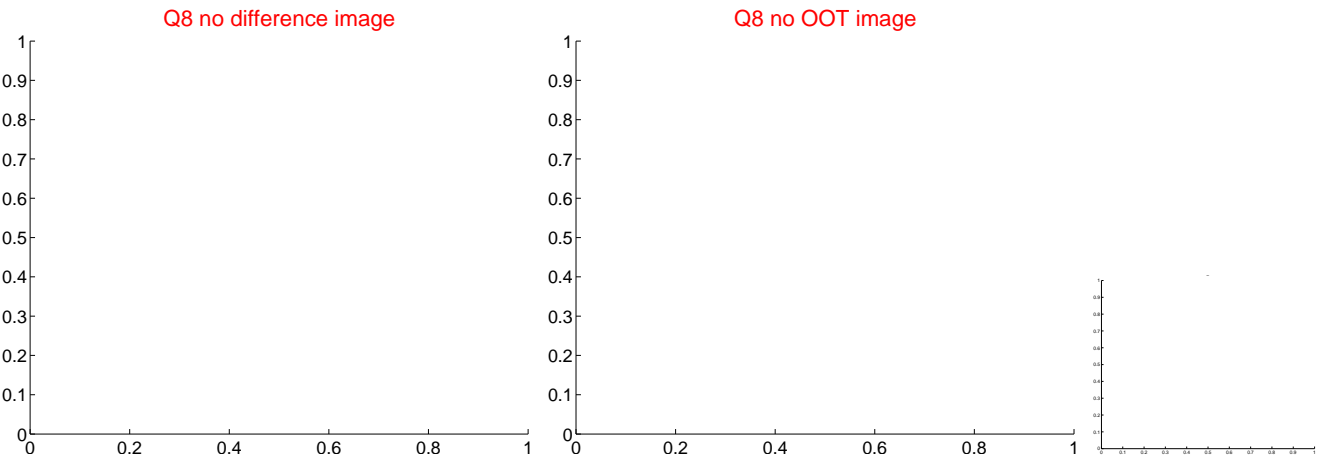
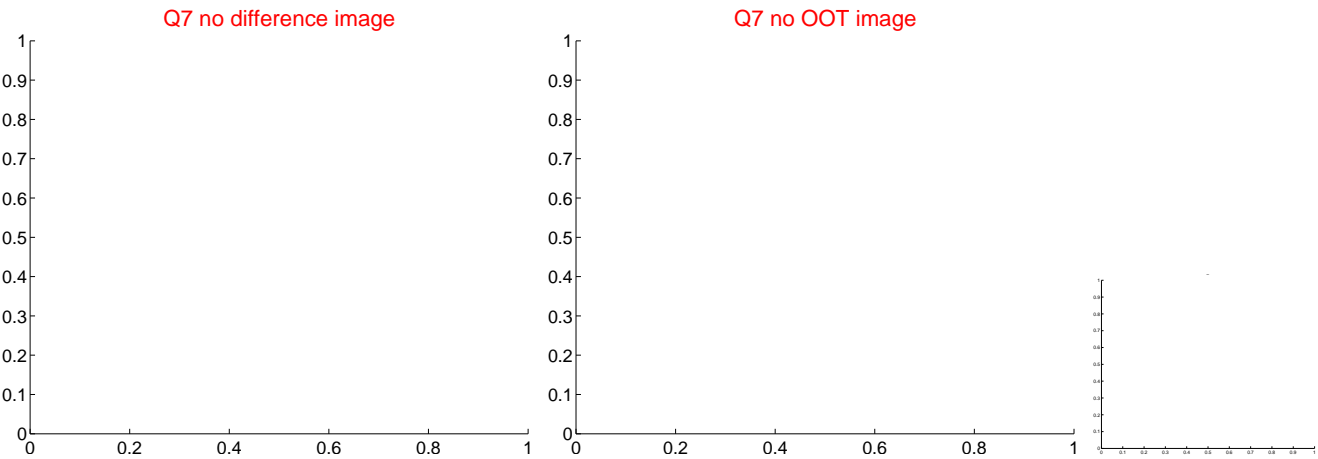
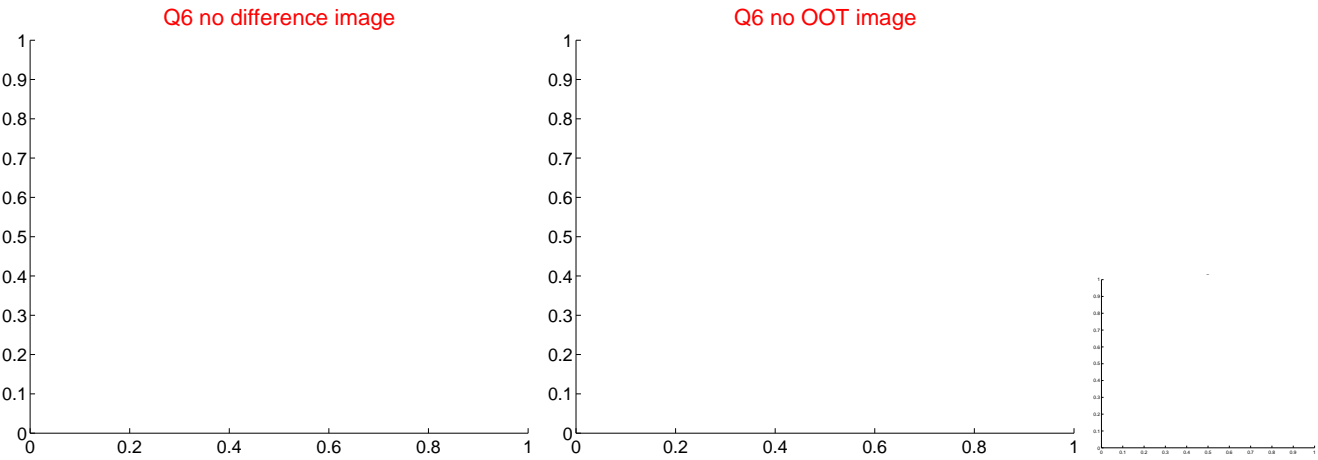
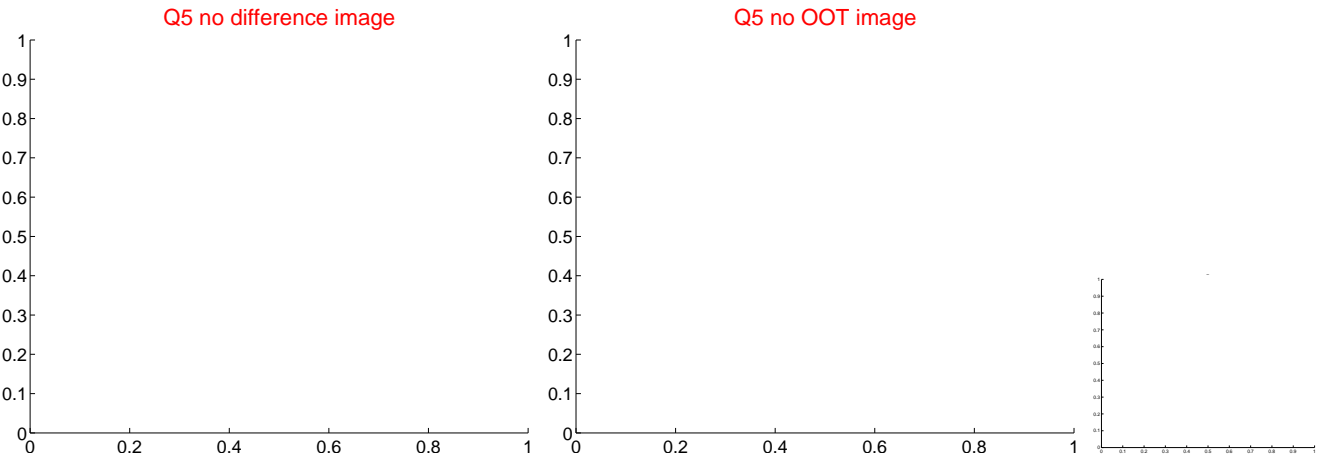


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

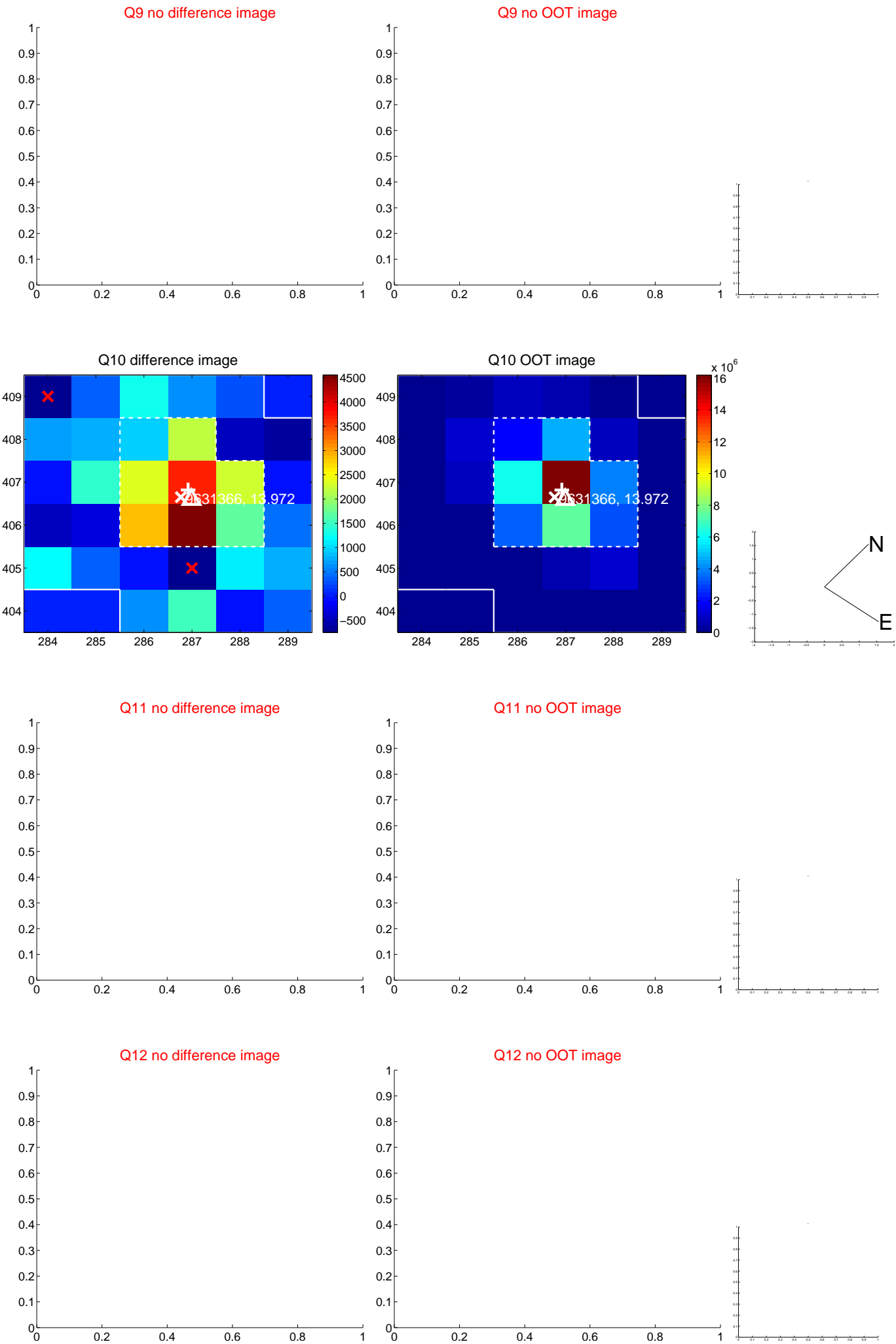
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



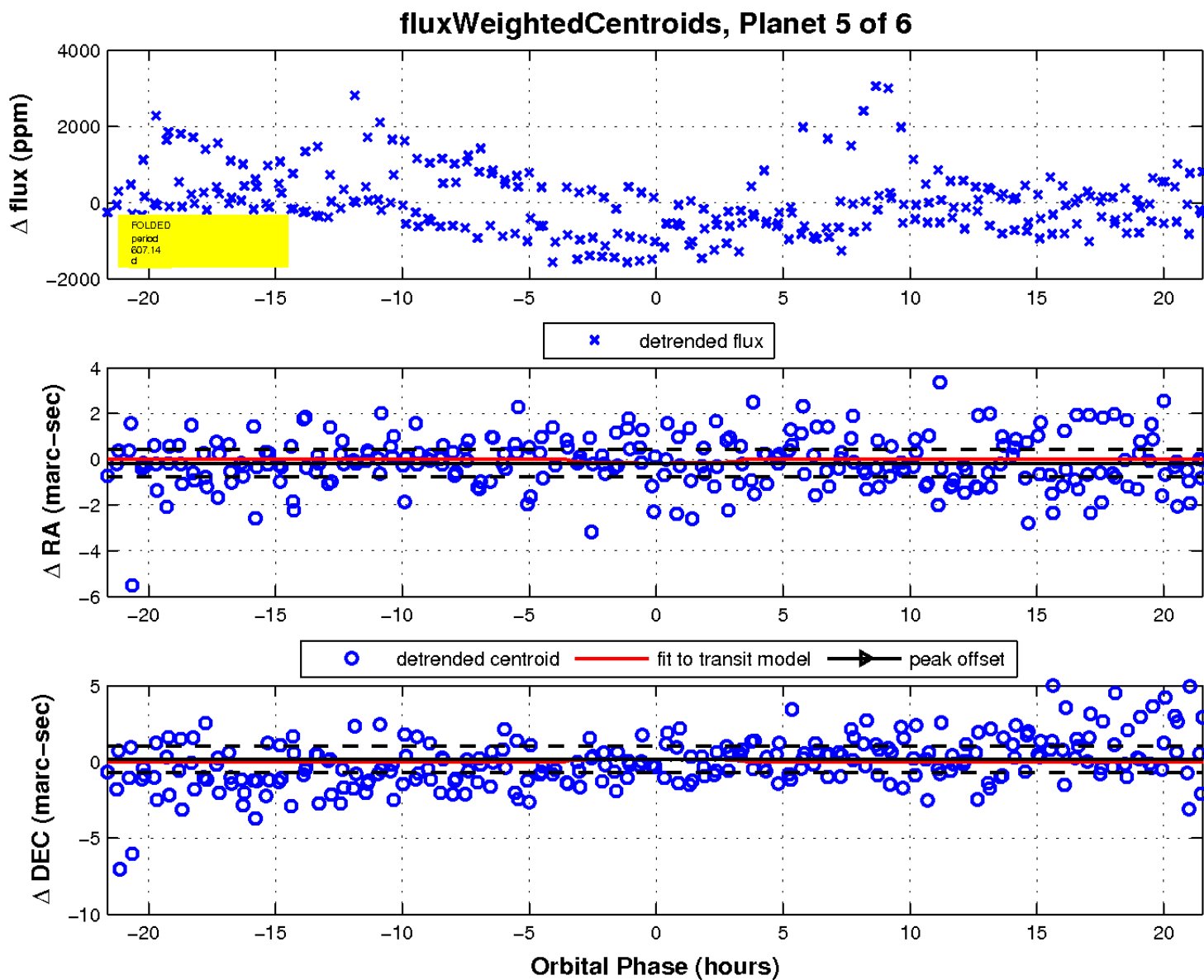
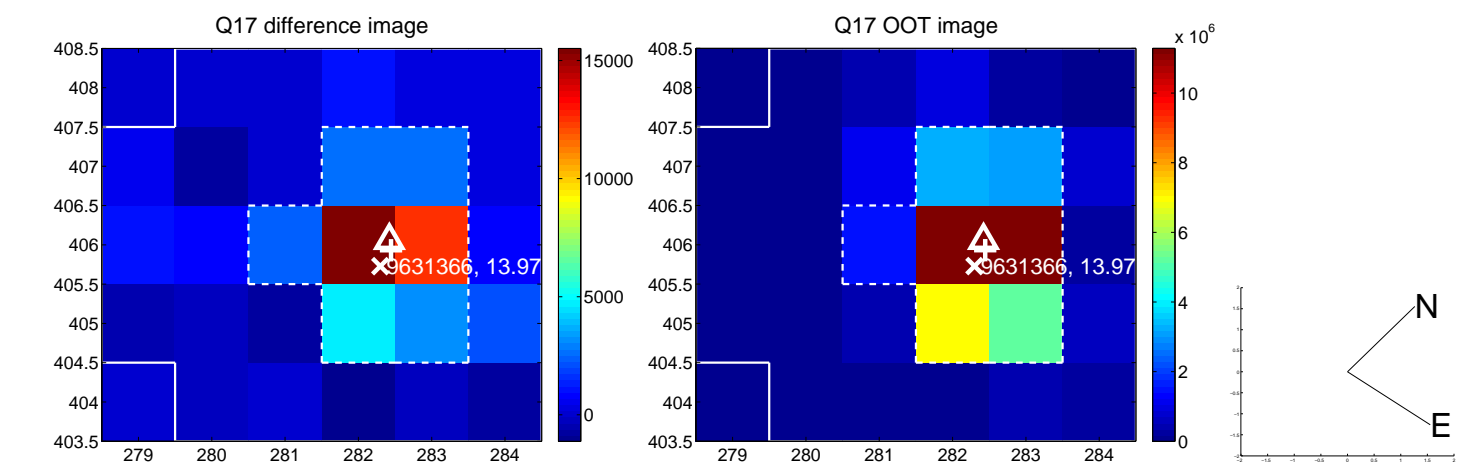
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

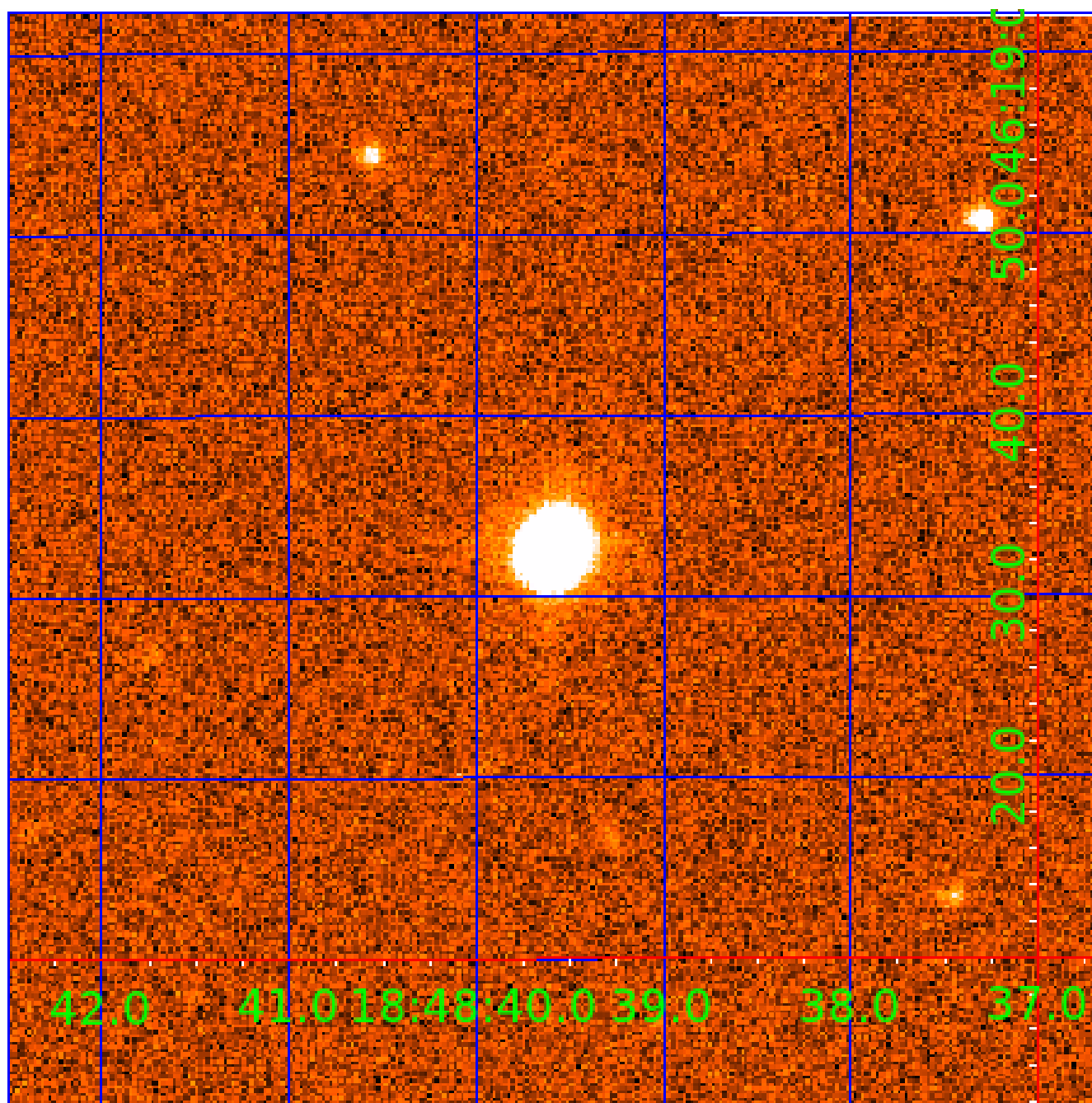


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009631366

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})
009631366-01	OBS	No	569.753870	293.473648	1368.3	23.947	16.7	7.3	0.48	3720	1.76	0.04
009631366-02	OBS	No	350.103158	248.942223	1391.5	6.925	16.9	7.5	0.48	3720	3.50	0.07
009631366-03	OBS	No	420.327312	141.376498	1490.5	11.596	14.0	9.9	0.48	3720	2.34	0.05
009631366-05	OBS	No	607.142790	358.531386	419.3	7.207	10.8	2.8	0.48	3720	1.09	0.03
009631366-06	OBS	No	348.715721	446.661344	832.4	4.650	11.9	7.1	0.48	3720	1.45	0.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009631366-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009631366-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009631366-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009631366-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
009631366-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

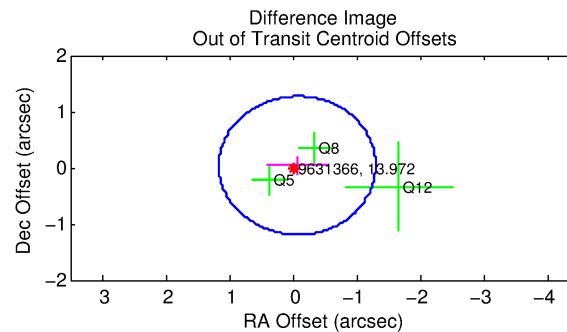
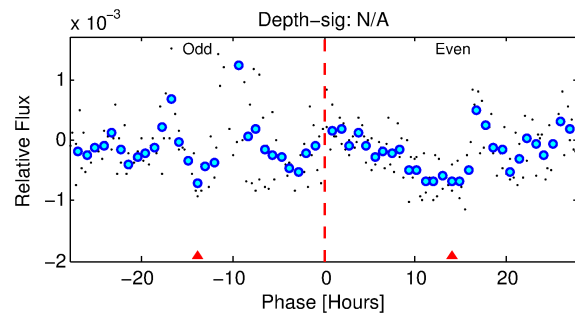
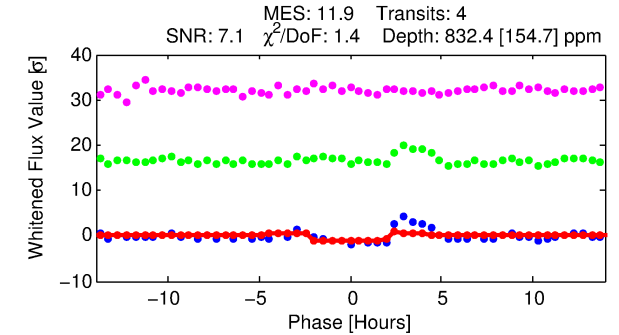
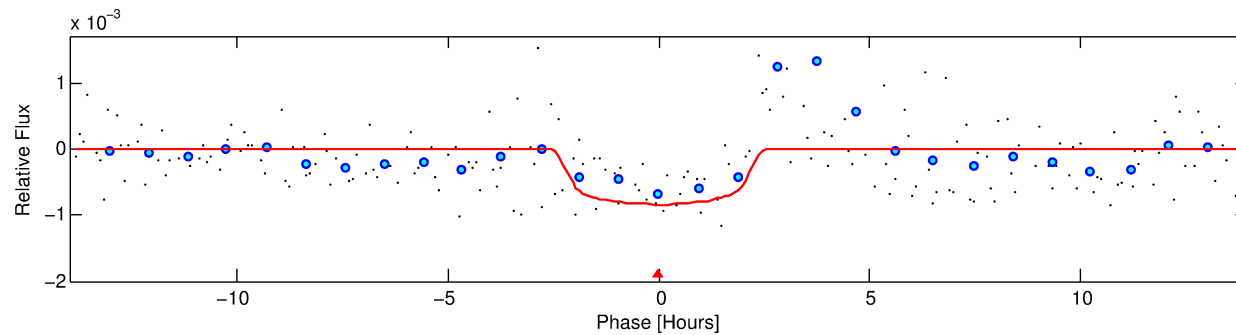
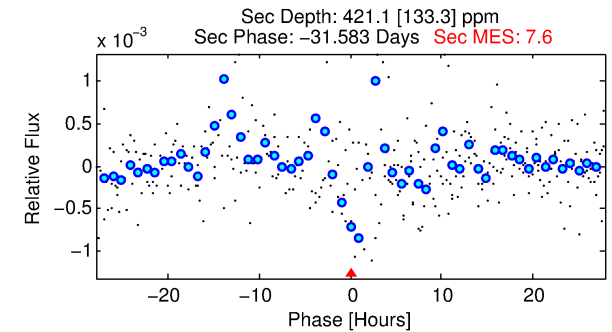
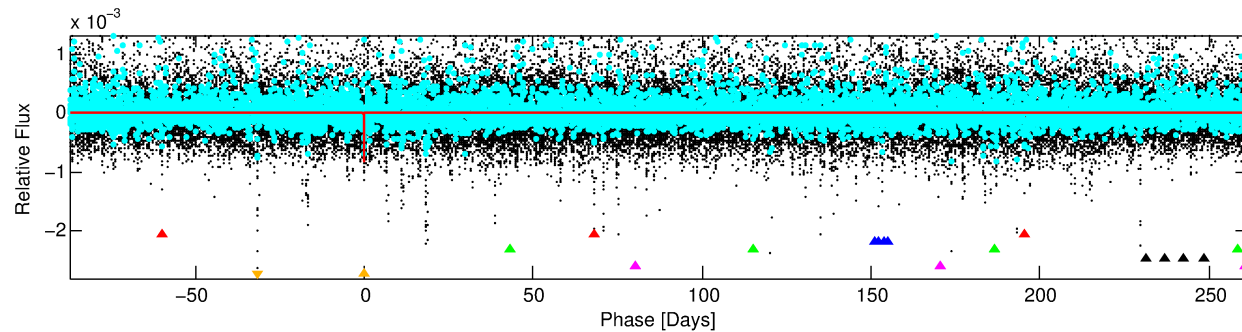
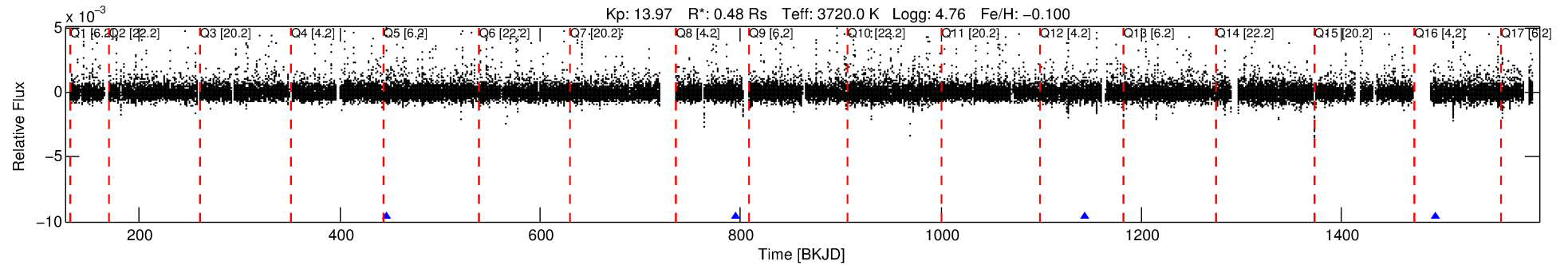
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009631366-06

No Significant Match Found

DV One-Page Summary

KIC: 9631366 Candidate: 6 of 6 Period: 348.716 d



DV Fit Results:

Period = 348.71572 [0.00473] d
Epoch = 446.6613 [0.0100] BKJD
Rp/R* = 0.0276 [0.0252]
a/R* = 467.98 [1877.74]
b = 0.62 [3.94]
Seff = 0.07 [0.01]
Teq = 130 [7] K
Rp = 1.45 [1.34] Re
a = 0.7636 [0.0890] AU
Ag = 64488.30 [119764.50] [0.54] σ
Teffp = 3206 [1487] K [2.07] σ

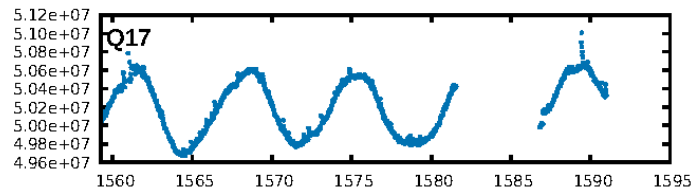
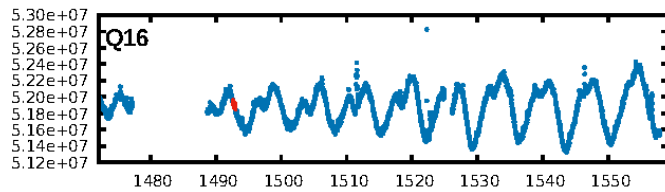
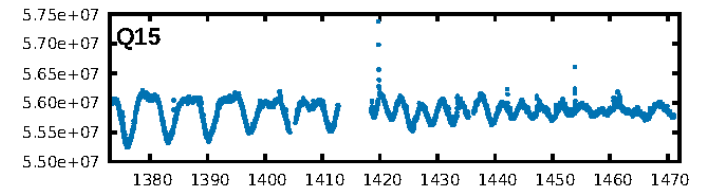
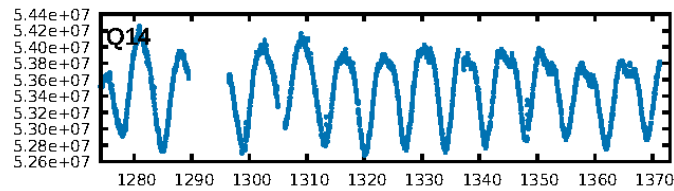
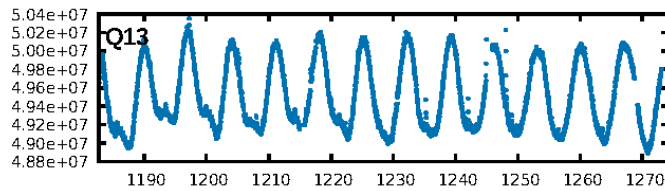
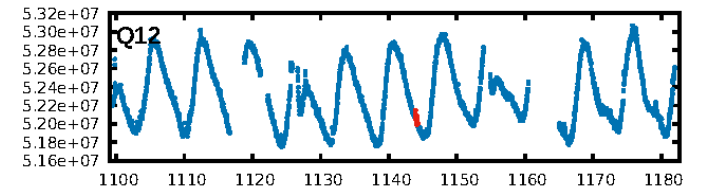
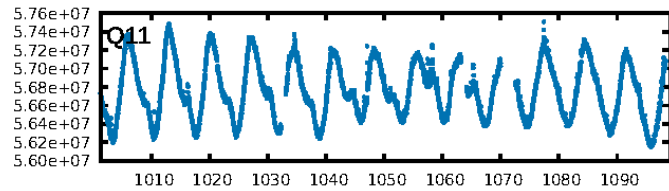
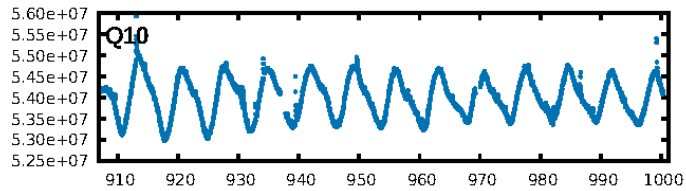
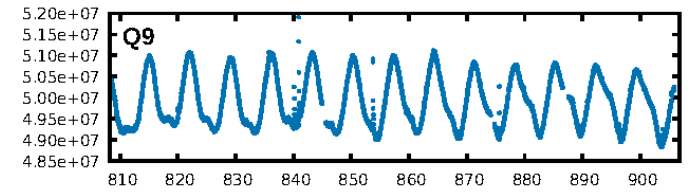
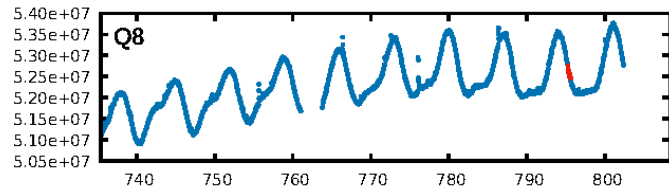
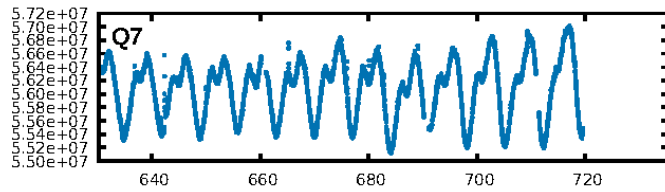
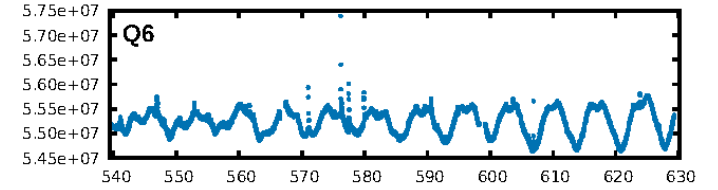
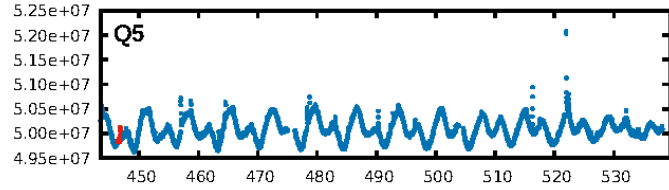
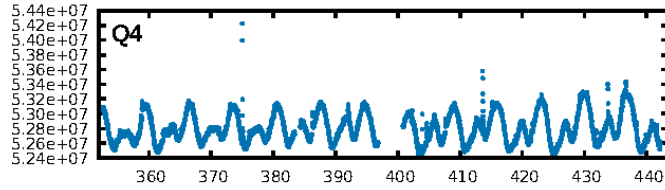
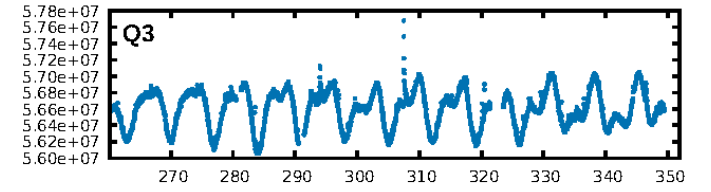
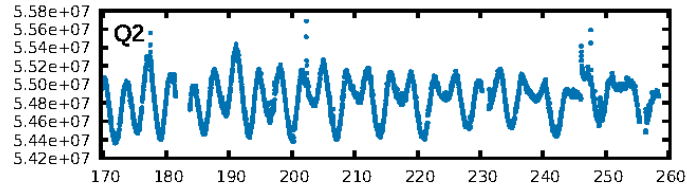
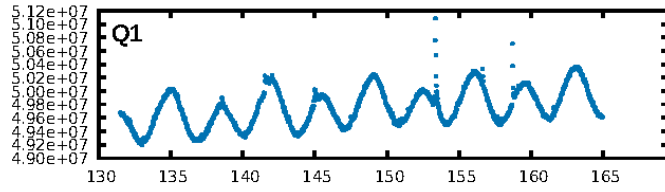
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.53] σ
LongPeriod-sig: 100.0% [3.99] σ
ModelChiSquare2-sig: 1.3%
ModelChiSquareGof-sig: 51.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -2.316
Centroid-sig: 15.5%
Centroid-so: 1.987 arcsec [2.00] σ
OotOffset-rm: 0.079 arcsec [0.19] σ
OotOffset-st: 0/0/2/1 [3]
KicOffset-rm: 0.827 arcsec [2.77] σ
KicOffset-st: 0/0/2/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [4/4]

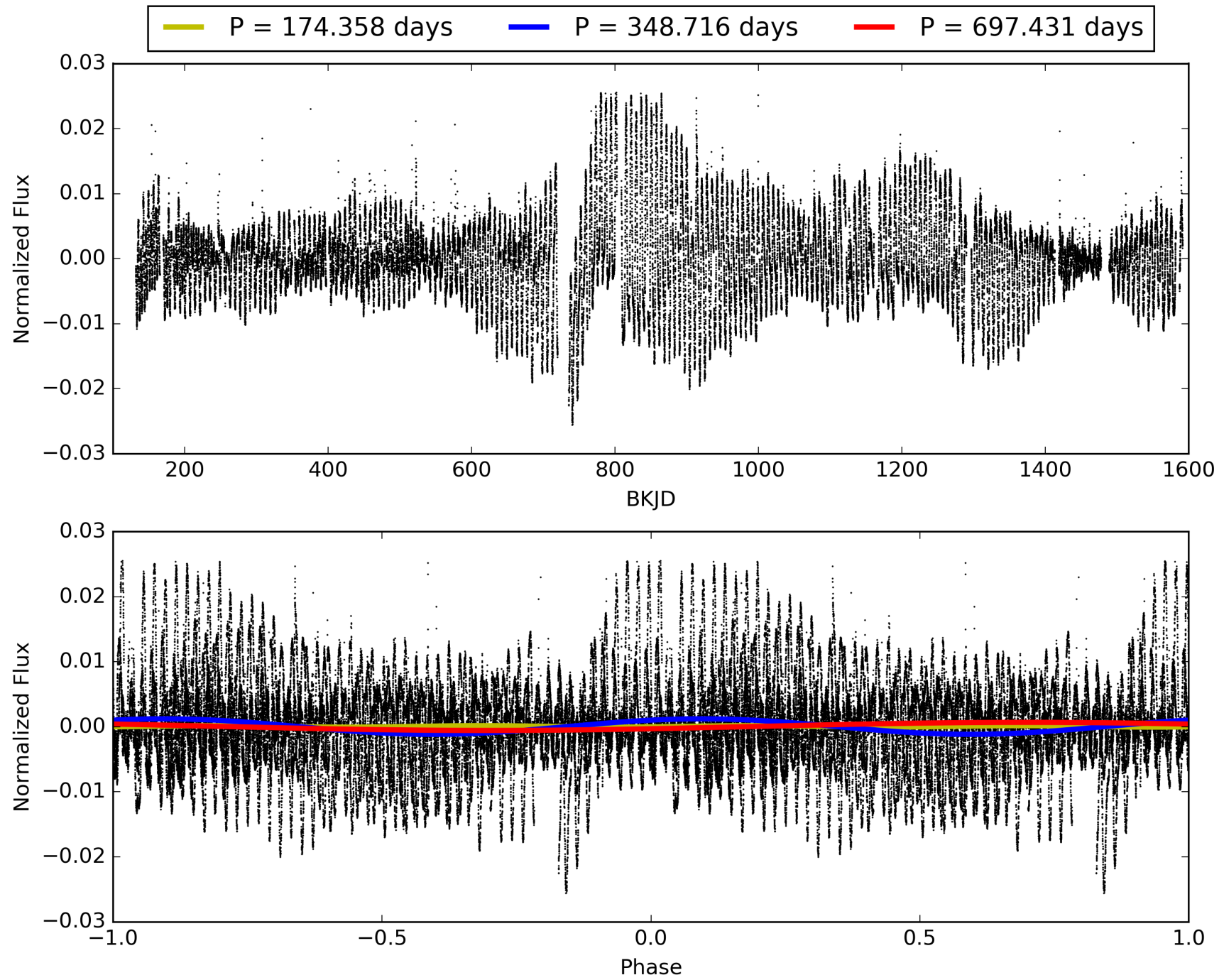
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:37:52 Z

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

TCE 009631366-06, PDC Light Curves

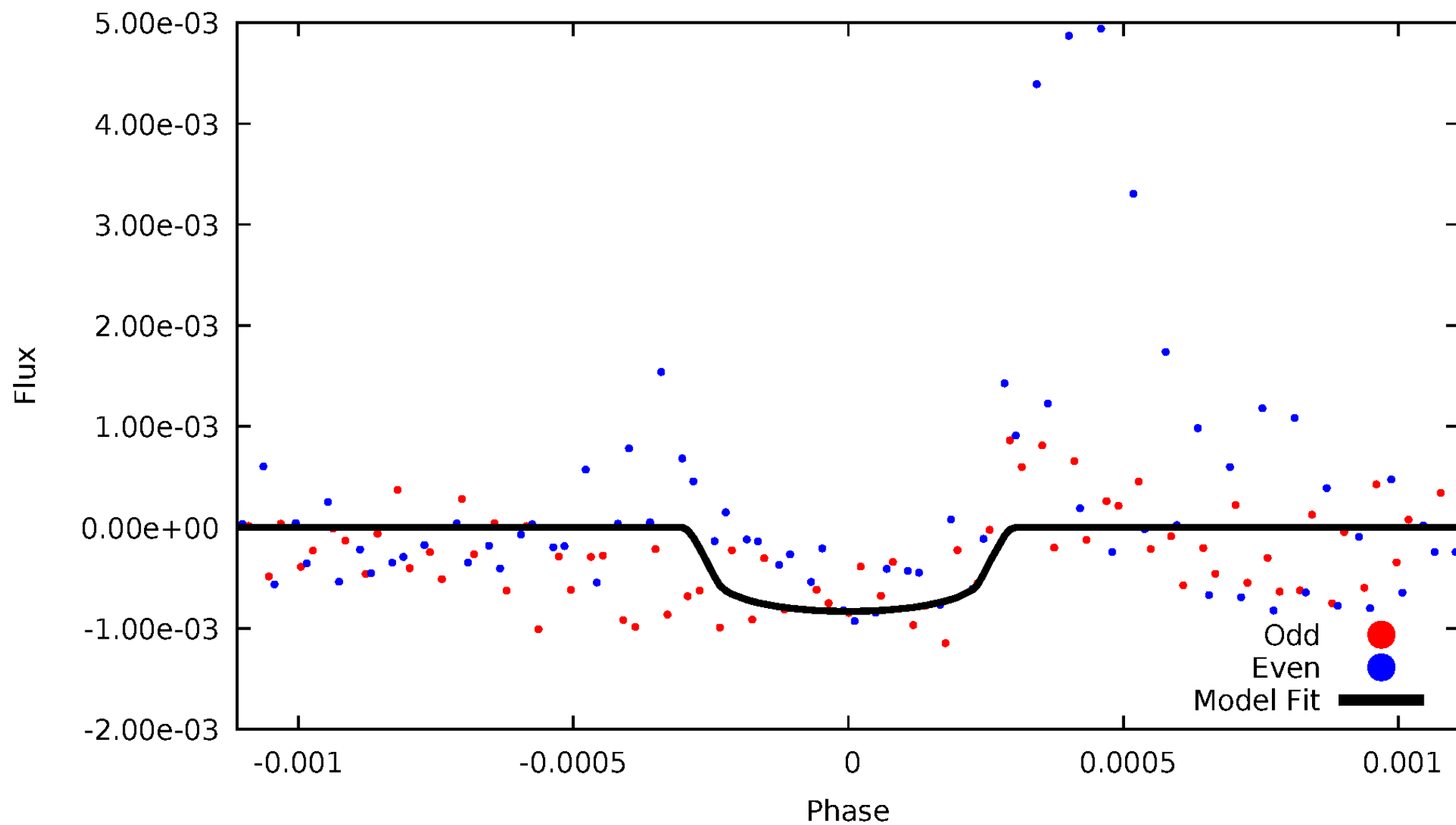


TCE 009631366-06



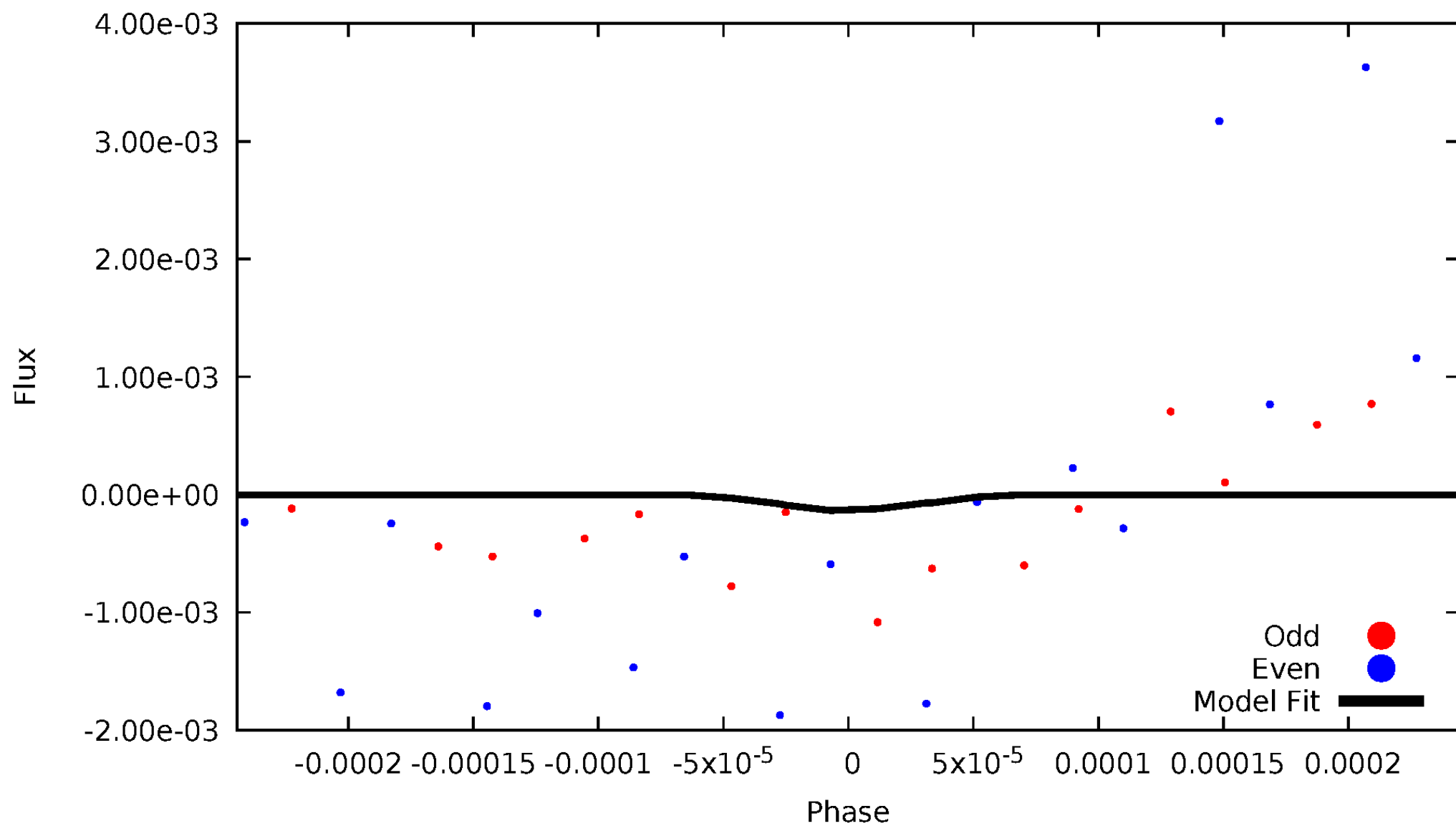
DV Odd/Even

TCE 009631366-06



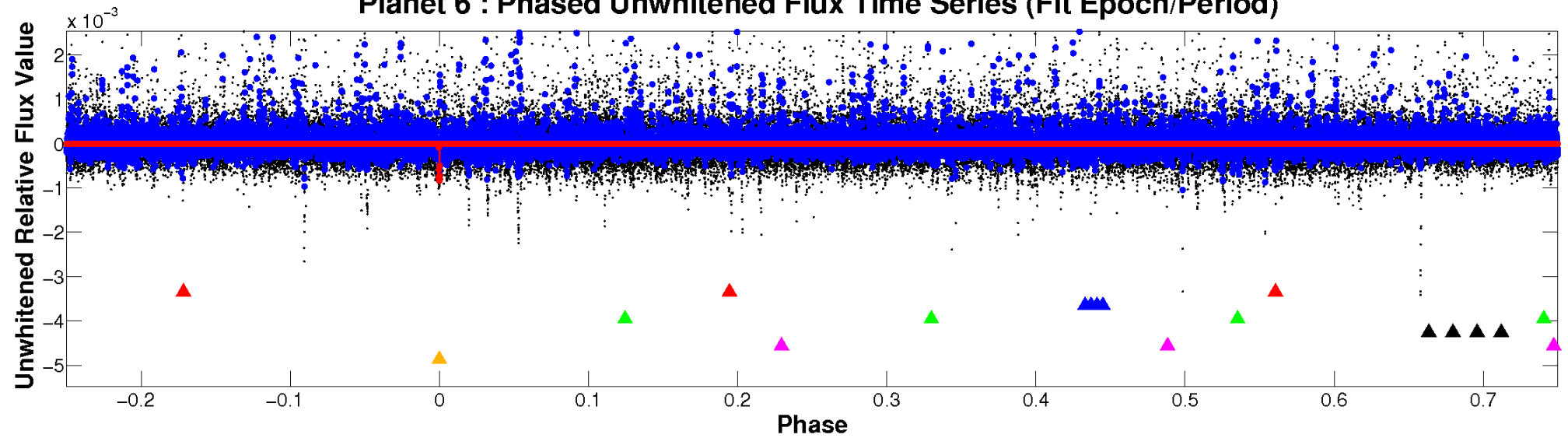
ALT Odd/Even

TCE 009631366-06

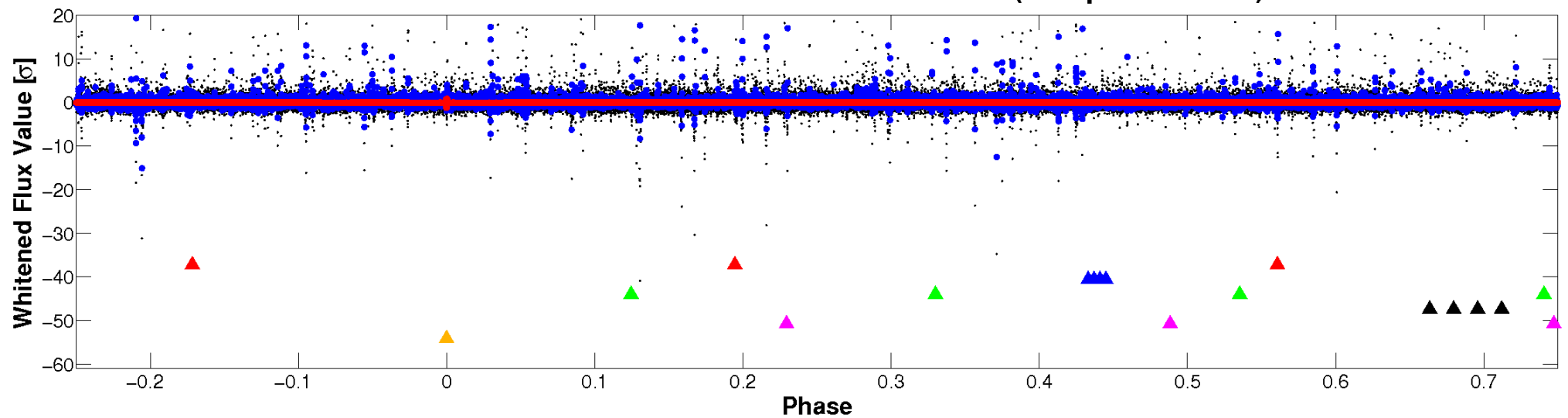


Non-Whitened Vs. Whitened Light Curve

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

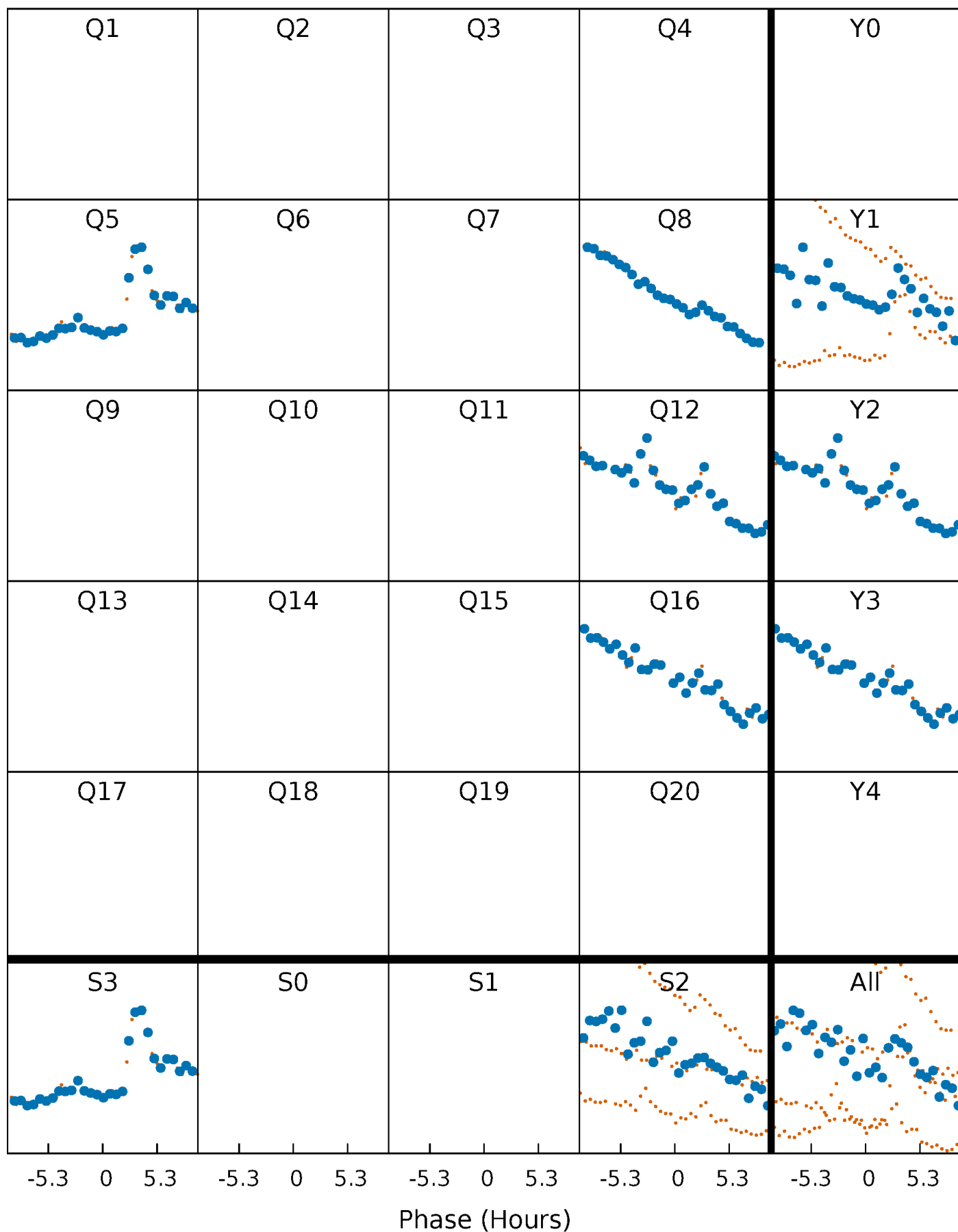


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



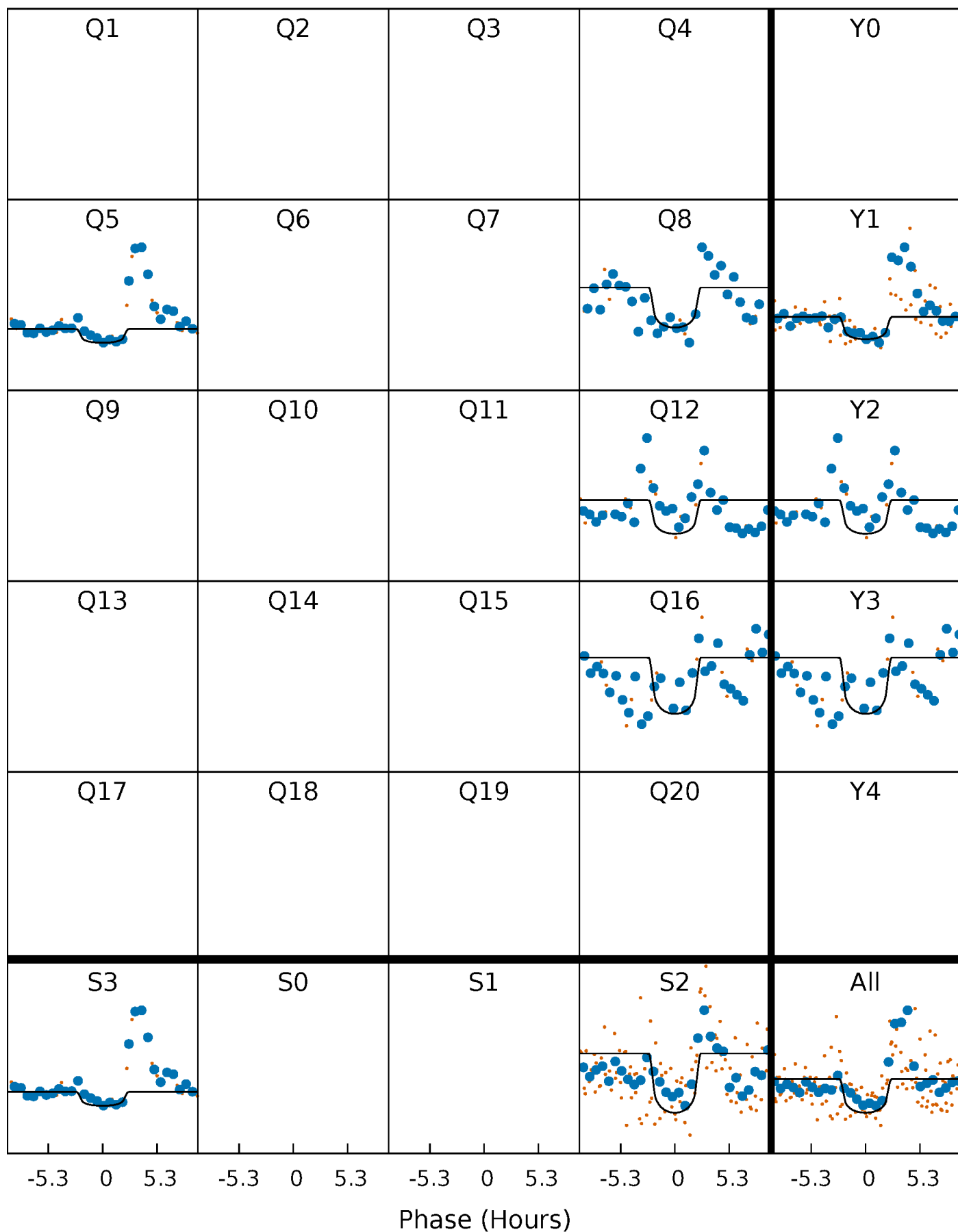
PDC Quarter-Phased Transit Curves

TCE 009631366-06 P=348.715721 Days $T_0=446.661344$ (BKJD)



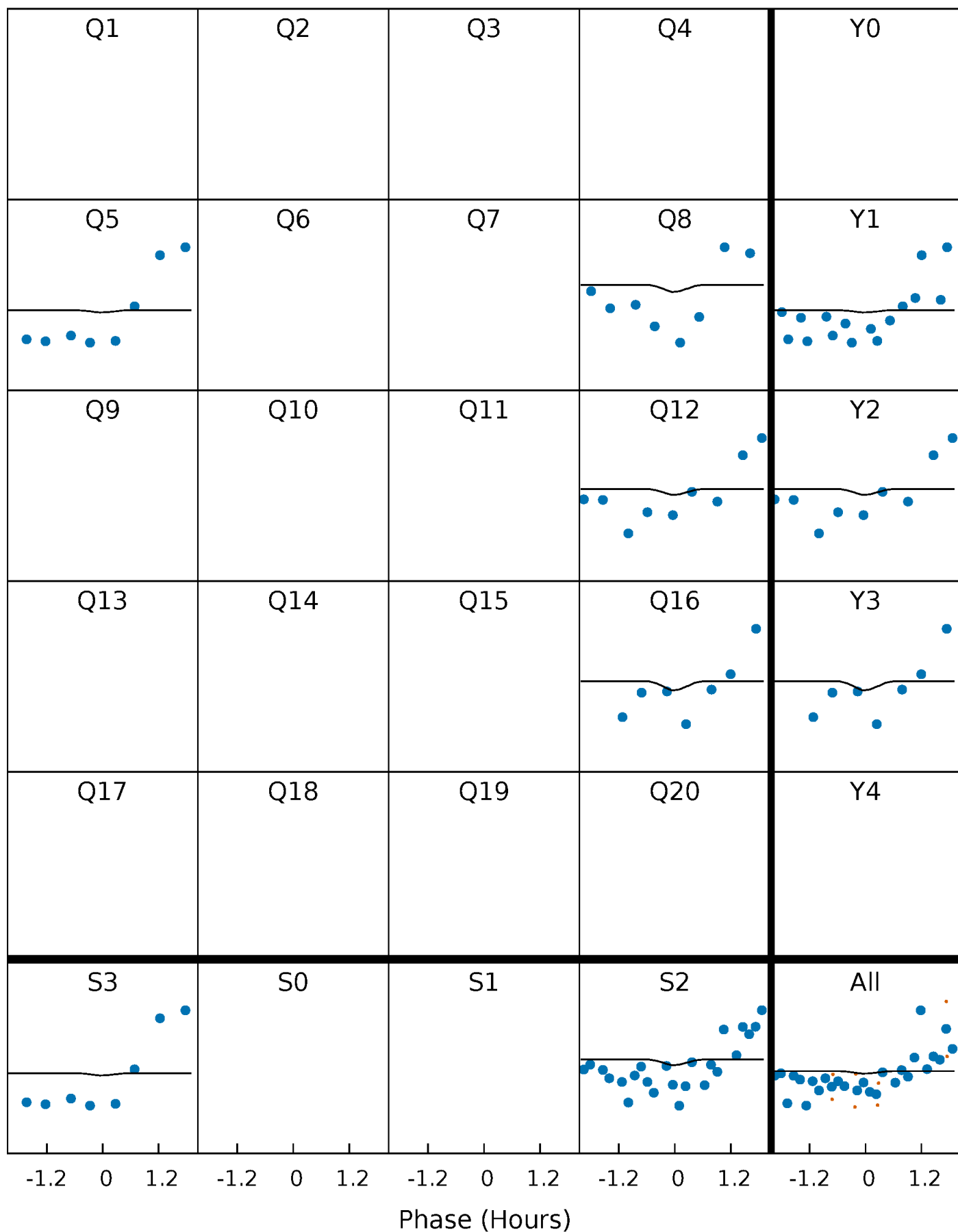
DV Quarter-Phased Transit Curves

TCE 009631366-06 $P=348.715721$ Days $T_0=446.661344$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

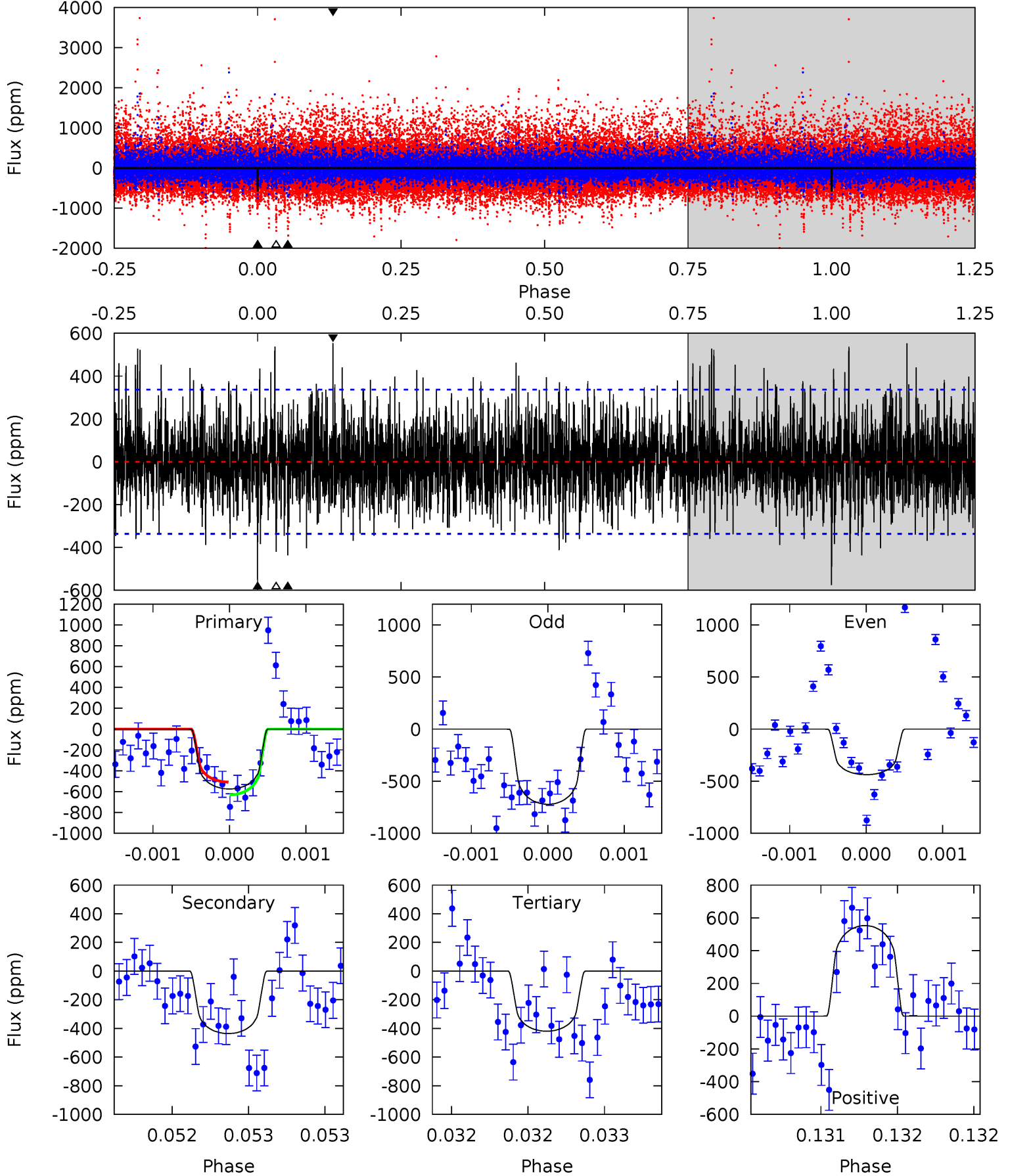
TCE 009631366-06 P=348.705513 Days $T_0=446.729061$ (BKJD)



DV Model-Shift Uniqueness Test

009631366-06, $P = 348.715721$ Days, $E = 97.945623$ Days

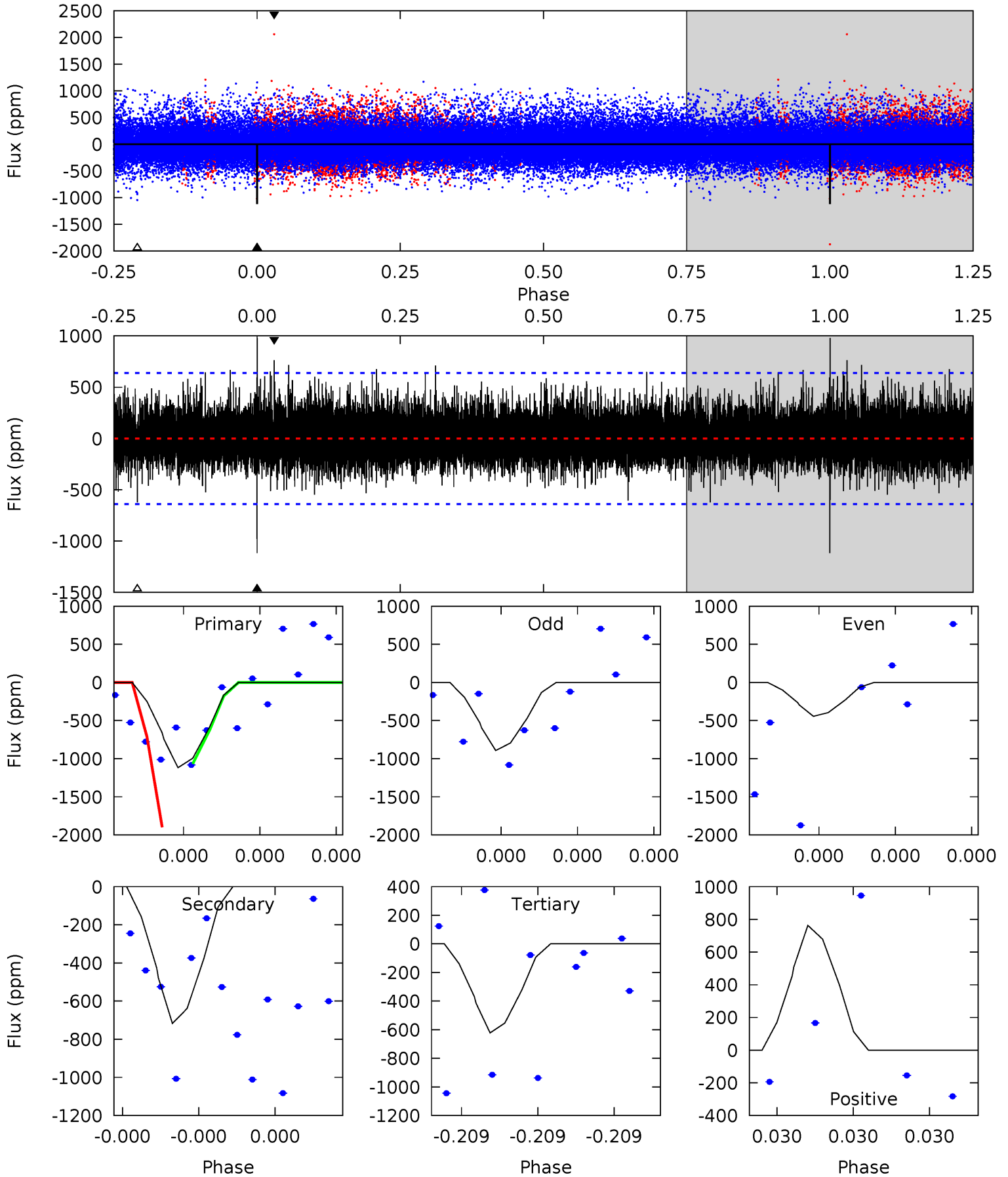
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.46	7.17	6.90	9.10	5.54	3.43	2.08	2.56	0.36	0.27	-1.93	1.81	1.08	0.49	1.01



Alt Model-Shift Uniqueness Test

009631366-06, P = 348.705513 Days, E = 98.023548 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	6.58	5.70	7.00	5.85	3.90	1.31	4.54	3.25	0.87	-0.42	1.55	1.49	0.47	0



Stellar Parameters For KIC 009631366

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3720^{+103}_{-129}	$4.764^{+0.078}_{-0.042}$	$-0.100^{+0.200}_{-0.200}$	$0.480^{+0.048}_{-0.072}$	$0.488^{+0.052}_{-0.064}$	$6.213^{+2.529}_{-1.041}$
	+3%/-3%	+2%/-1%	+200%/-200%	+10%/-15%	+11%/-13%	+41%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 009631366-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-436 ± 61	$1.68^{+1.21}_{-1.02}$	180^{+7}_{-8}	3213^{+1231}_{-462}	$48325^{+270203}_{-32212}$
Alt.	-718 ± 109	$1.16^{+1.06}_{-0.81}$	180^{+7}_{-7}	3934^{+2776}_{-756}	$168053^{+1728979}_{-121452}$

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

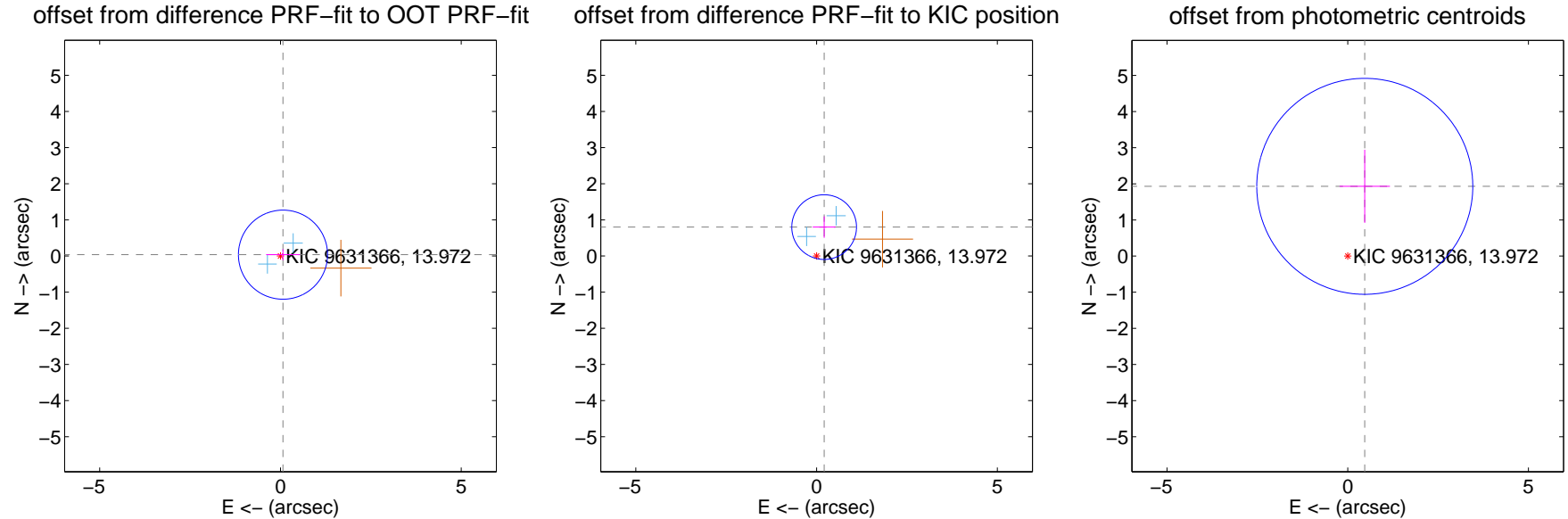
DV Centroid Data

Supplemental centroid analysis for 009631366-06. Kepler magnitude: 13.97. Transit SNR 7.15

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.81 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.079 ± 0.411	0.19	-0.070 ± 0.468	0.038 ± 0.154
PRF-fit source offset from KIC position	0.827 ± 0.298	2.77	-0.209 ± 0.315	0.800 ± 0.297
photometric centroid source offset	1.99 ± 1.00	2.00	-0.47 ± 0.70	1.93 ± 1.01

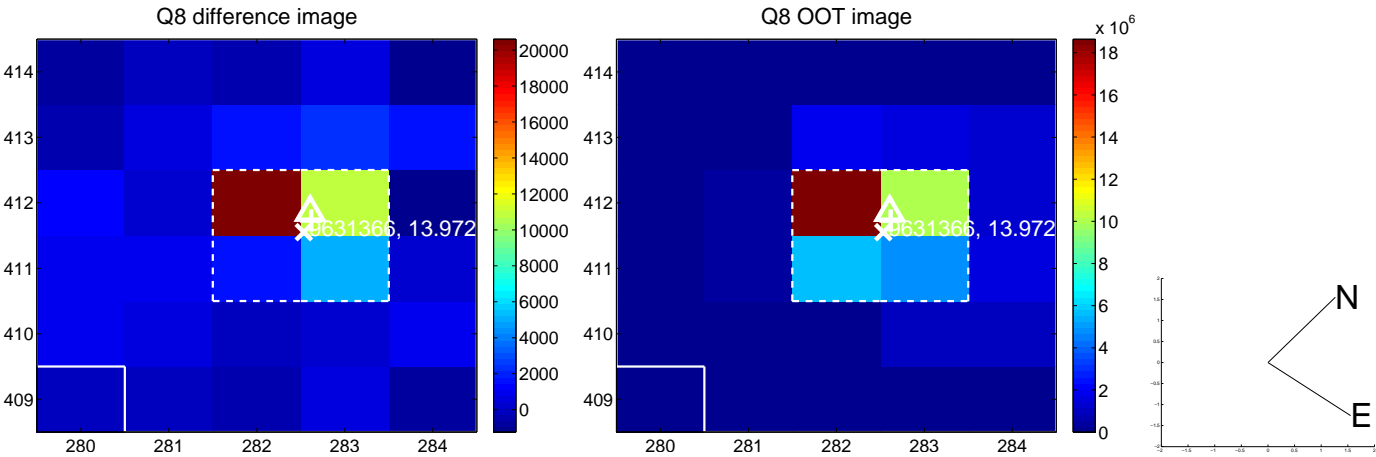
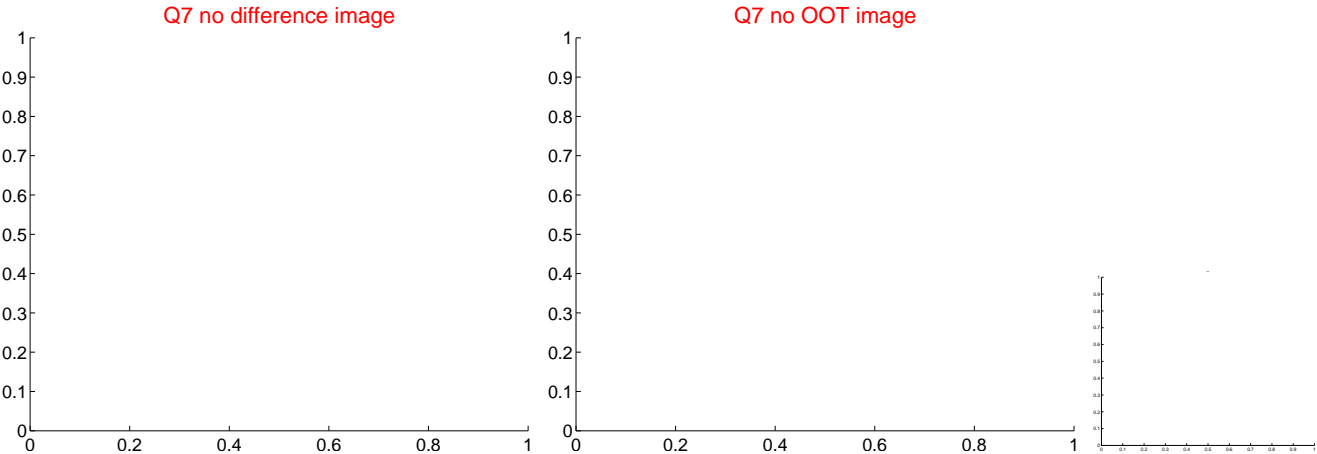
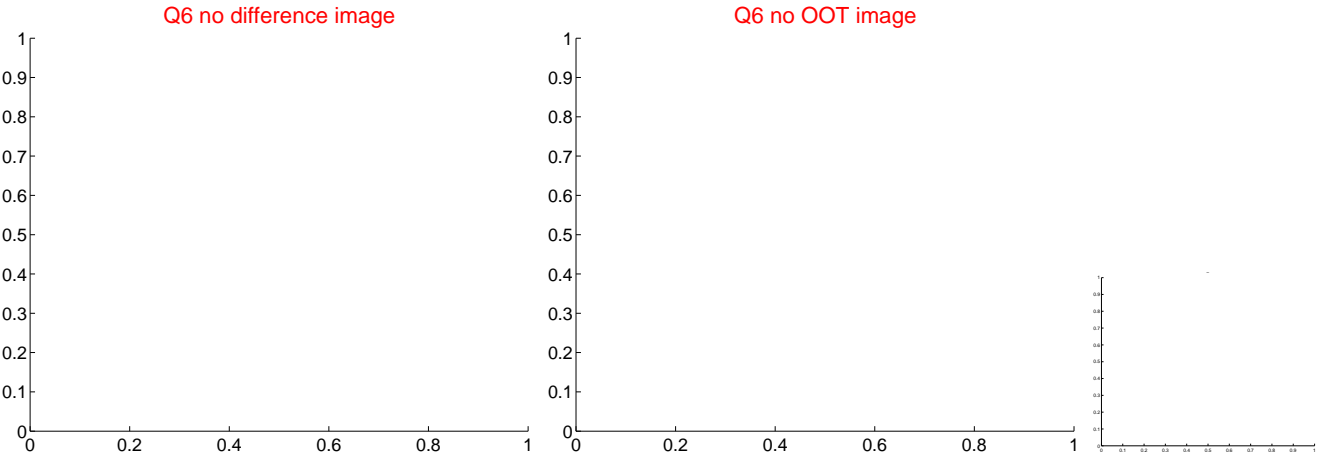
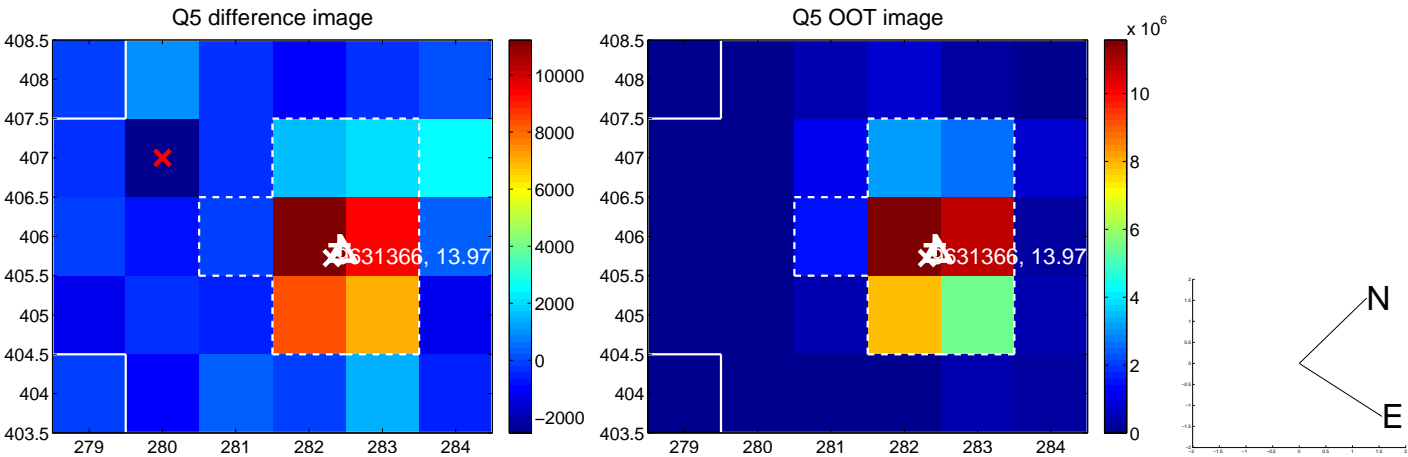


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

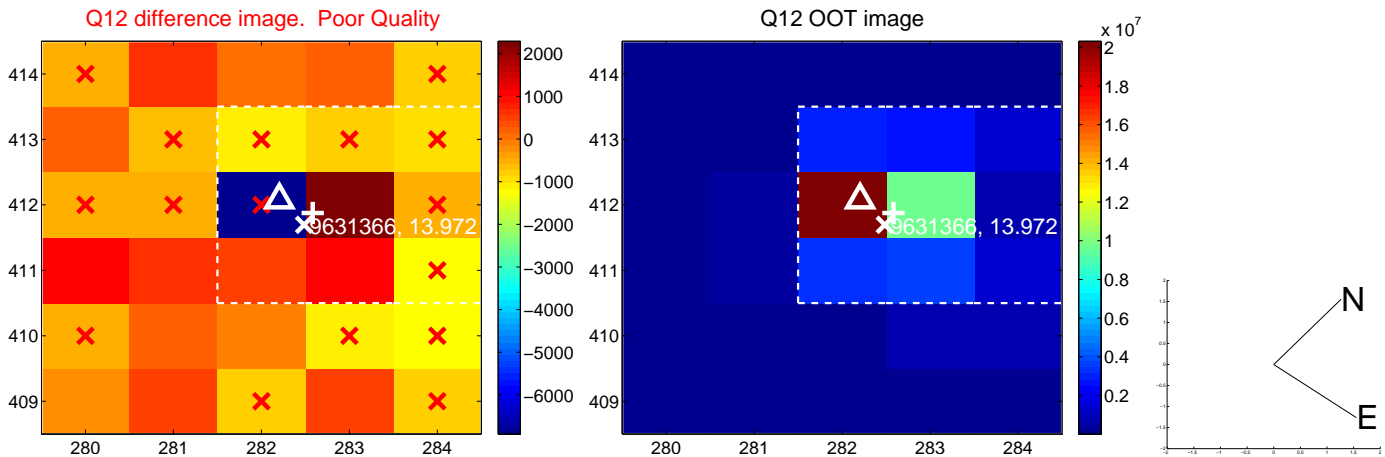
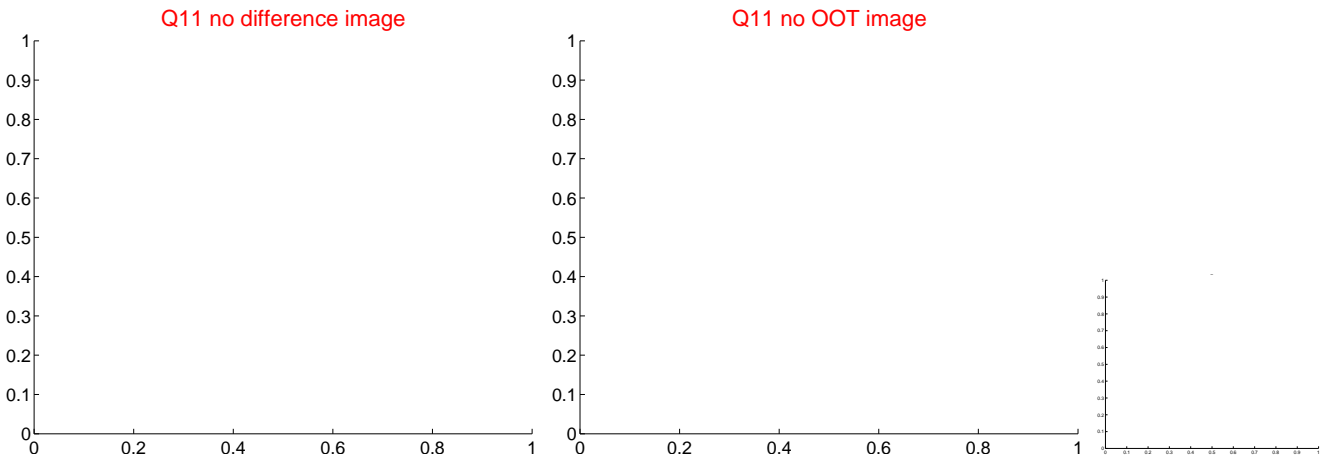
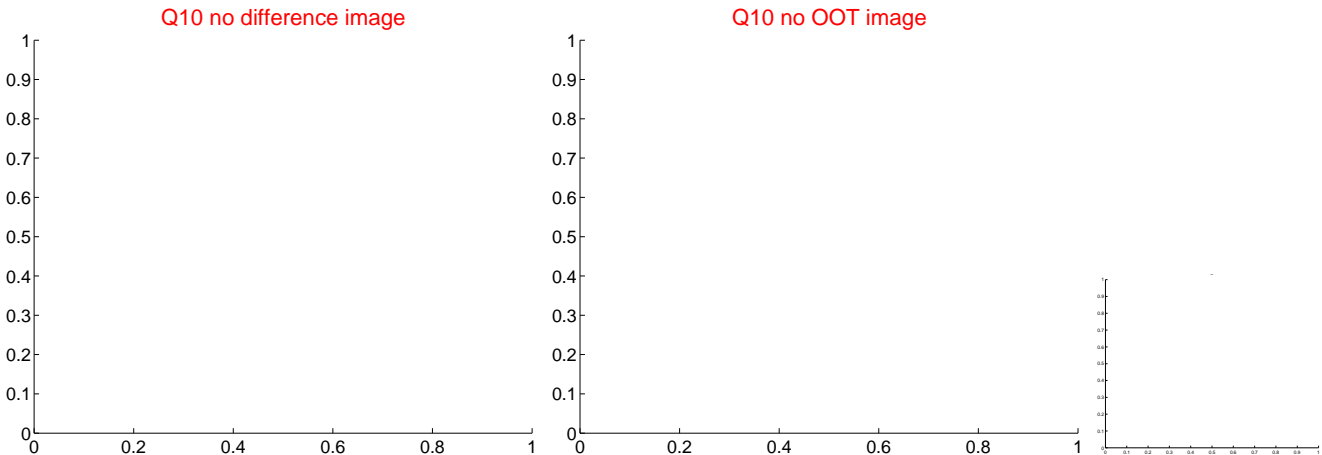
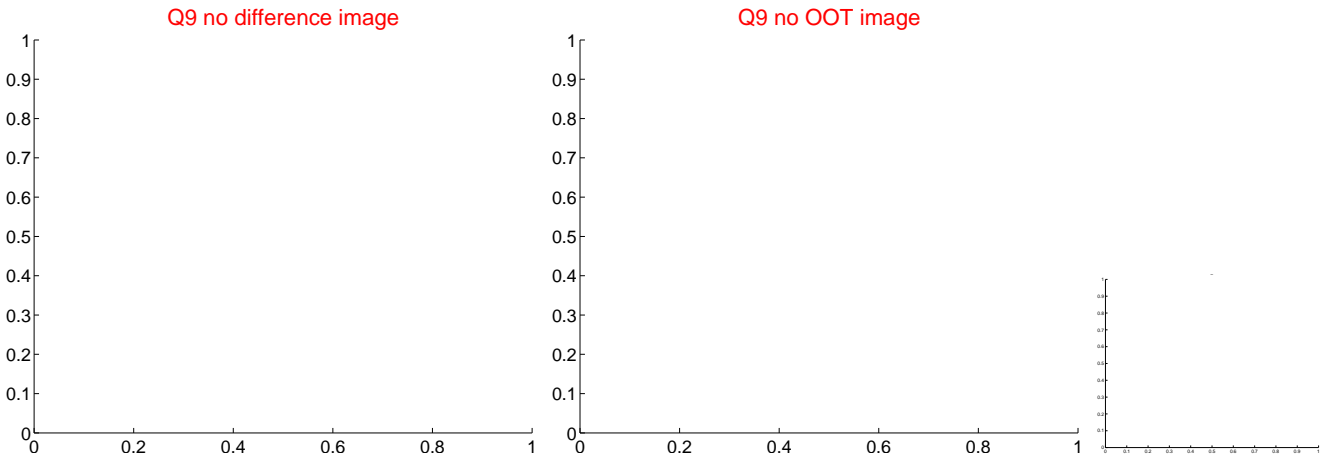
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



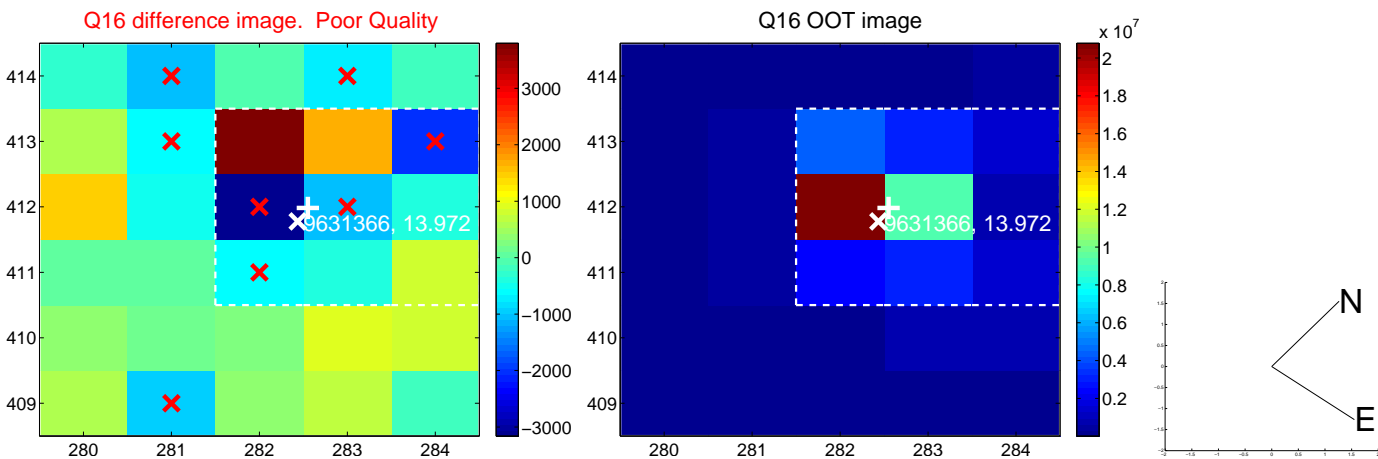
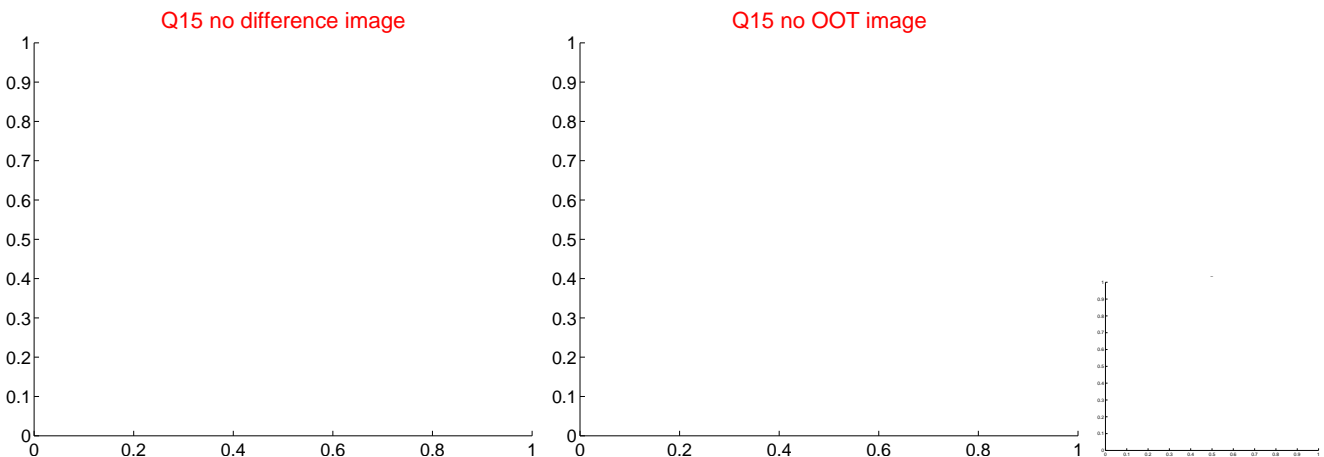
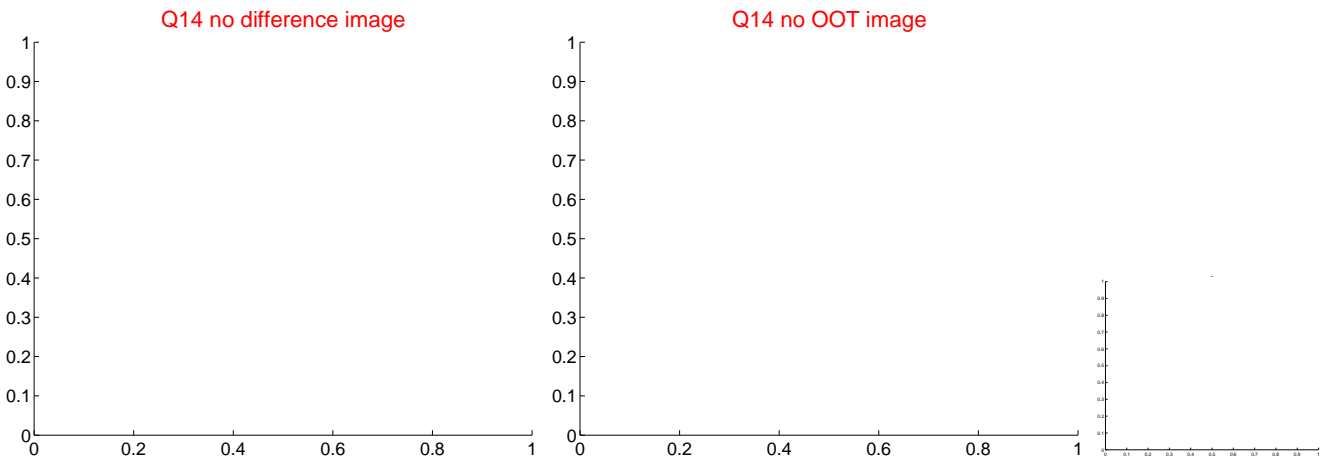
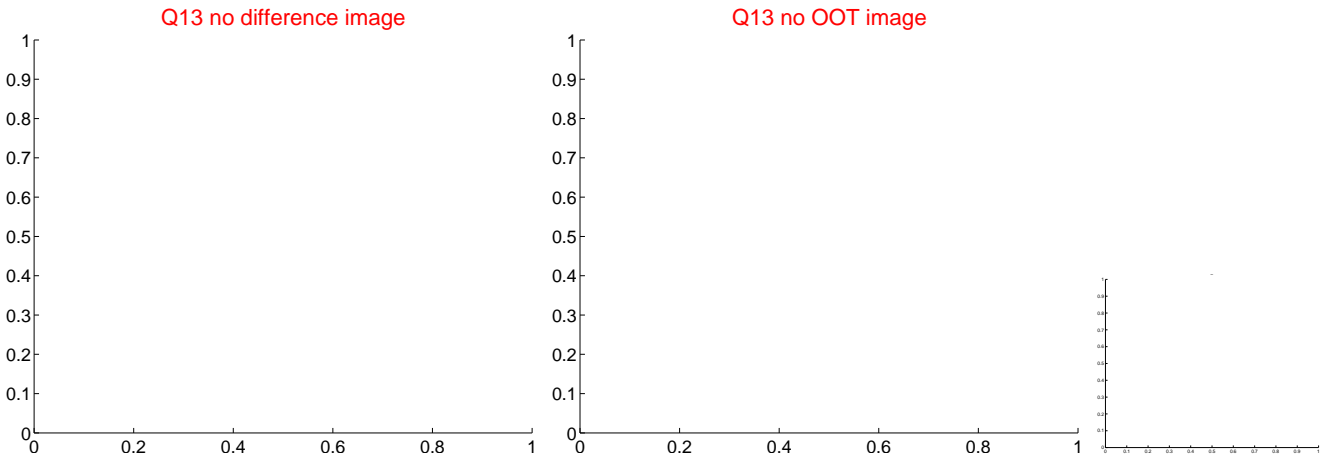
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



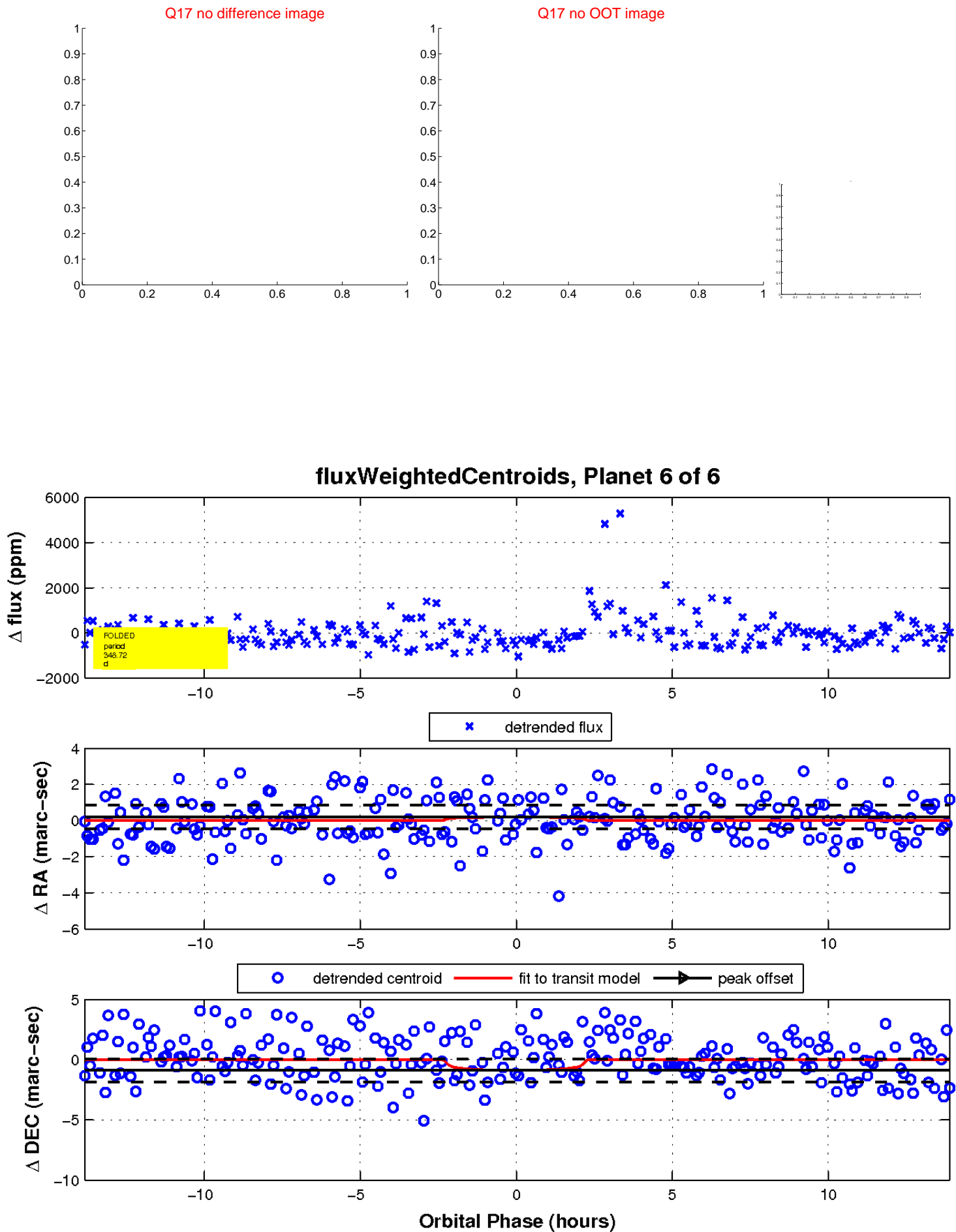
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

