

KIC 010907381

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})
010907381-01	OBS	No	191.697496	209.895032	776.7	3.165	10.4	6.9	0.87	5904	2.77	1.99
010907381-02	OBS	No	314.014807	400.365417	741.5	3.083	9.4	5.7	0.87	5904	2.55	1.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010907381-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—HALO_GHOST
010907381-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS

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

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

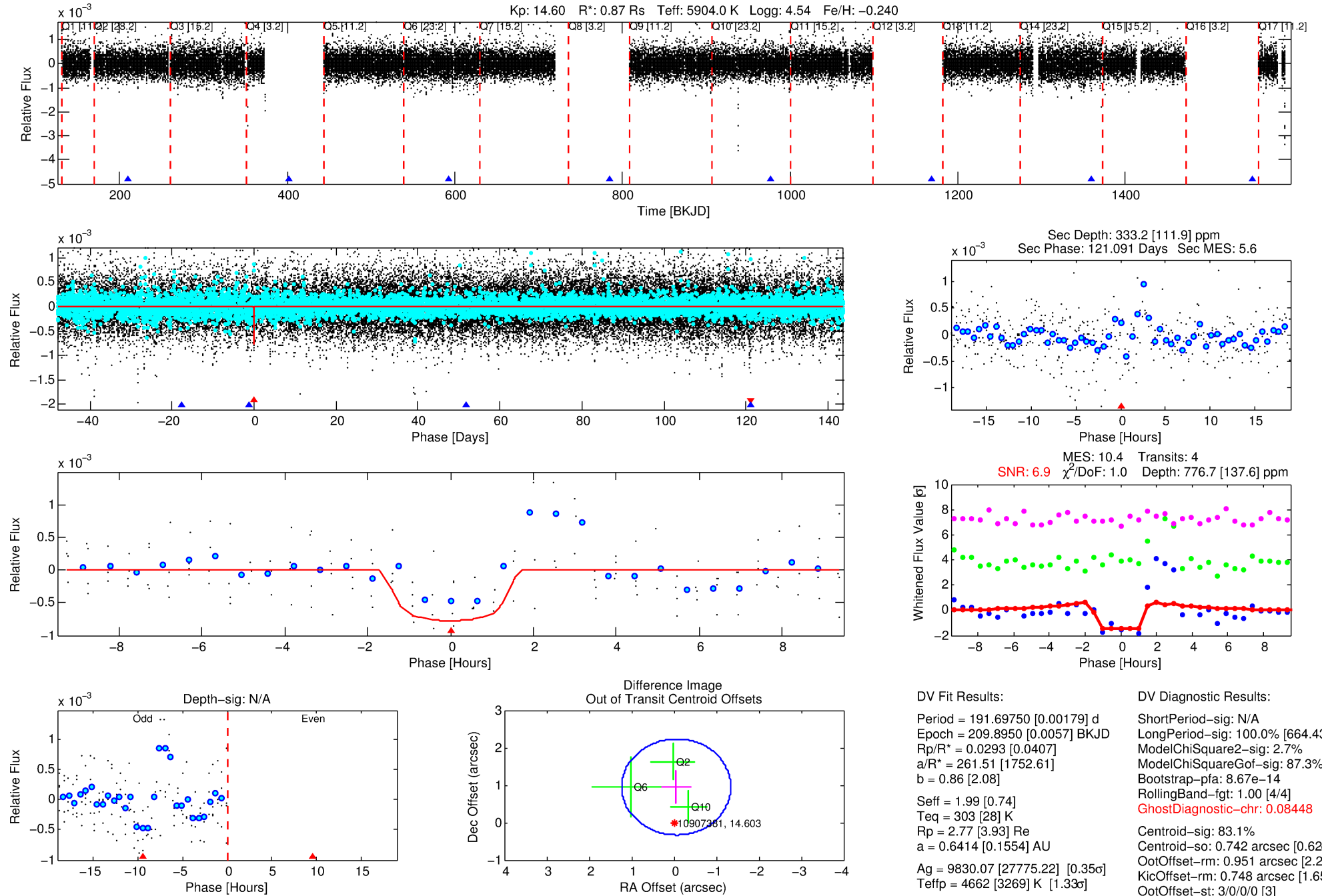
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010907381-01

No Significant Match Found

DV One-Page Summary

KIC: 10907381 Candidate: 1 of 2 Period: 191.697 d



DV Fit Results:

Period = 191.69750 [0.00179] d
Epoch = 209.8950 [0.0057] BKJD
Rp/R* = 0.0293 [0.0407]
a/R* = 261.51 [1752.61]
b = 0.86 [2.08]
Seff = 1.99 [0.74]
Teq = 303 [28] K
Rp = 2.77 [3.93] Re
a = 0.6414 [0.1554] AU
Ag = 9830.07 [27775.22] [0.35] σ
Teffp = 4662 [3269] K [1.33] σ

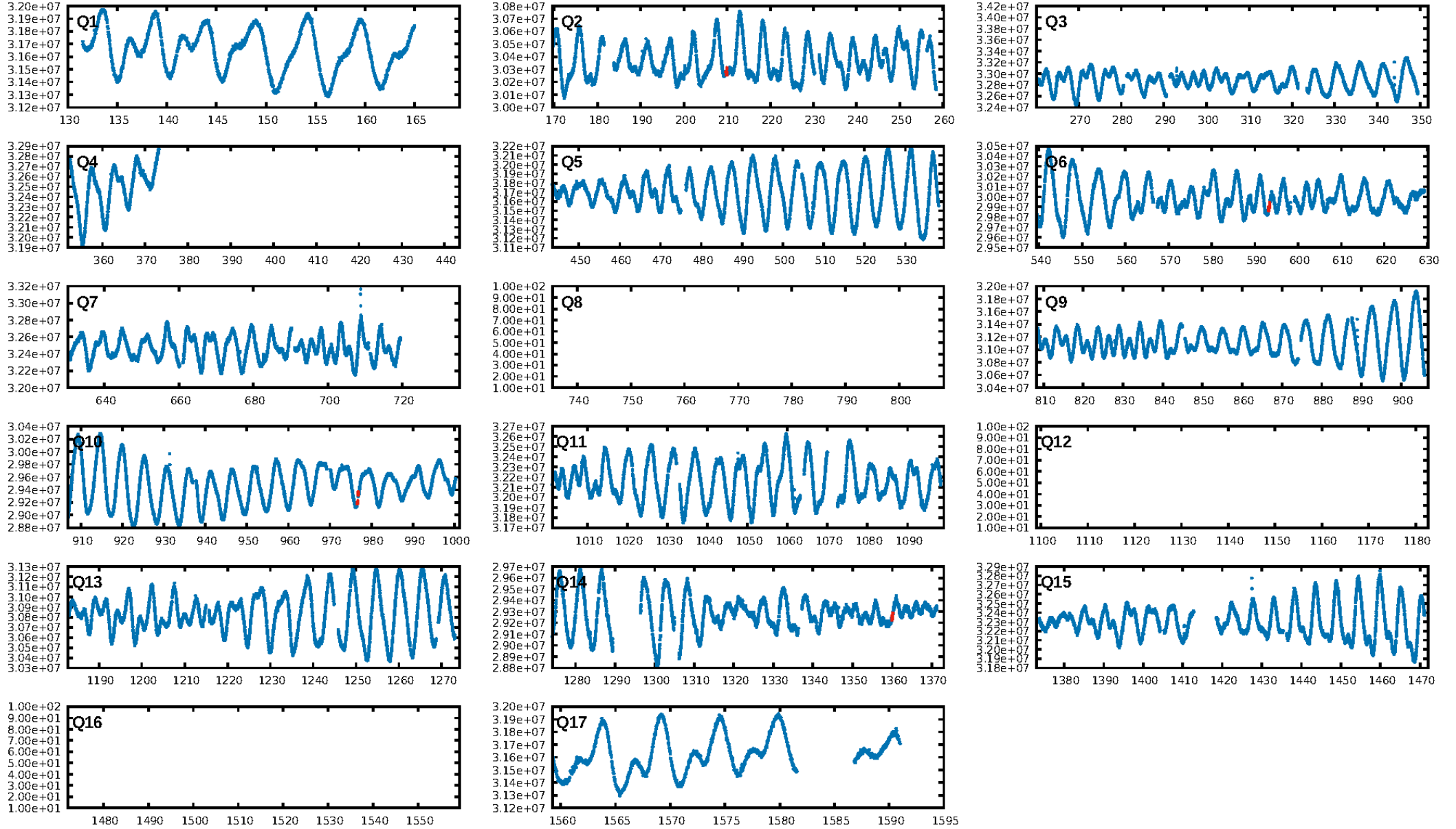
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [664.43] σ
ModelChiSquare2-sig: 2.7%
ModelChiSquareGof-sig: 87.3%
Bootstrap-pfa: 8.67e-14
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.08448
Centroid-sig: 83.1%
Centroid-so: 0.742 arcsec [0.62] σ
OotOffset-rm: 0.951 arcsec [2.22] σ
OotOffset-st: 3/0/0/0 [3]
KicOffset-rm: 0.748 arcsec [1.65] σ
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [4/4]

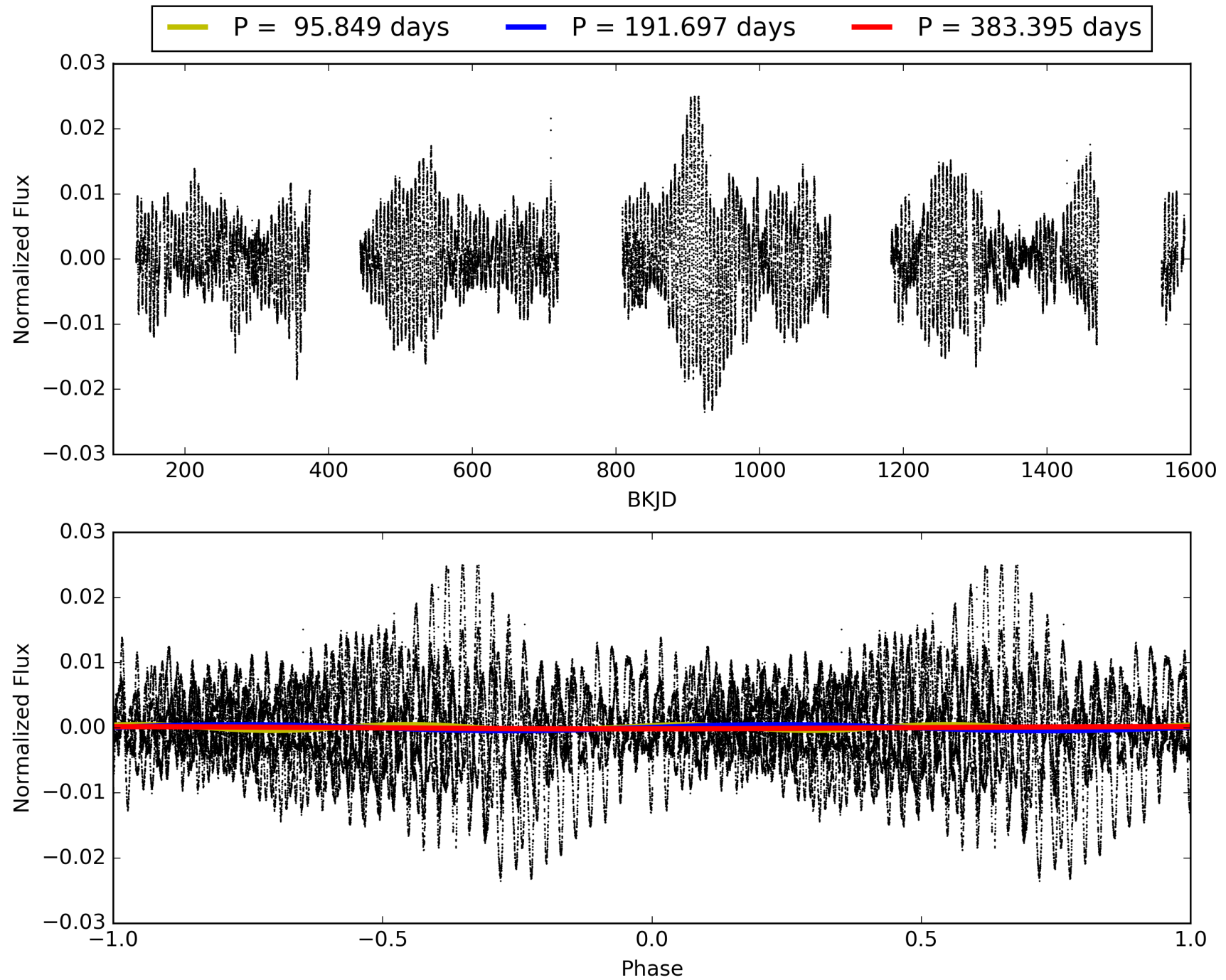
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:56:58 Z

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

TCE 010907381-01, PDC Light Curves

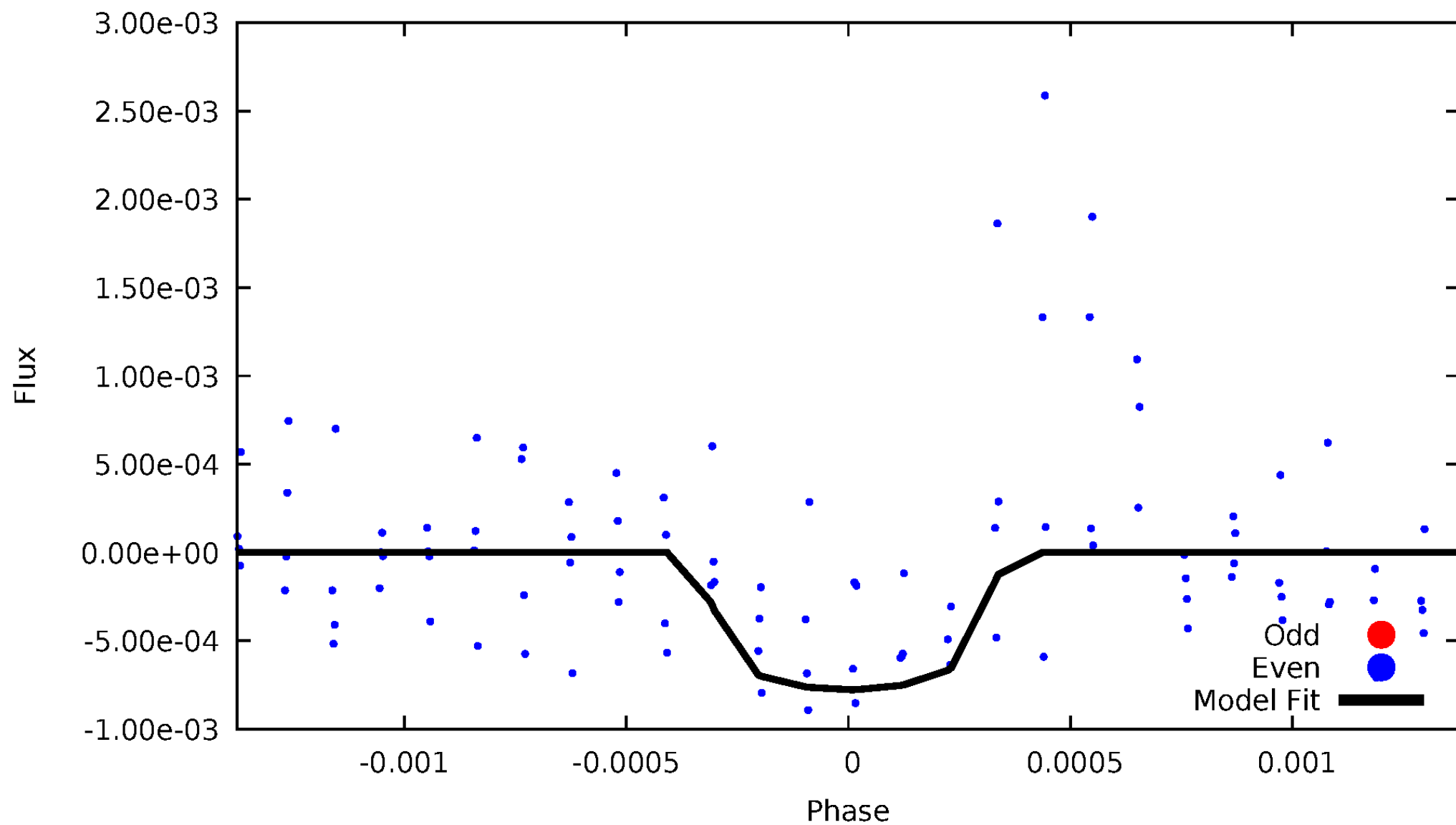


TCE 010907381-01



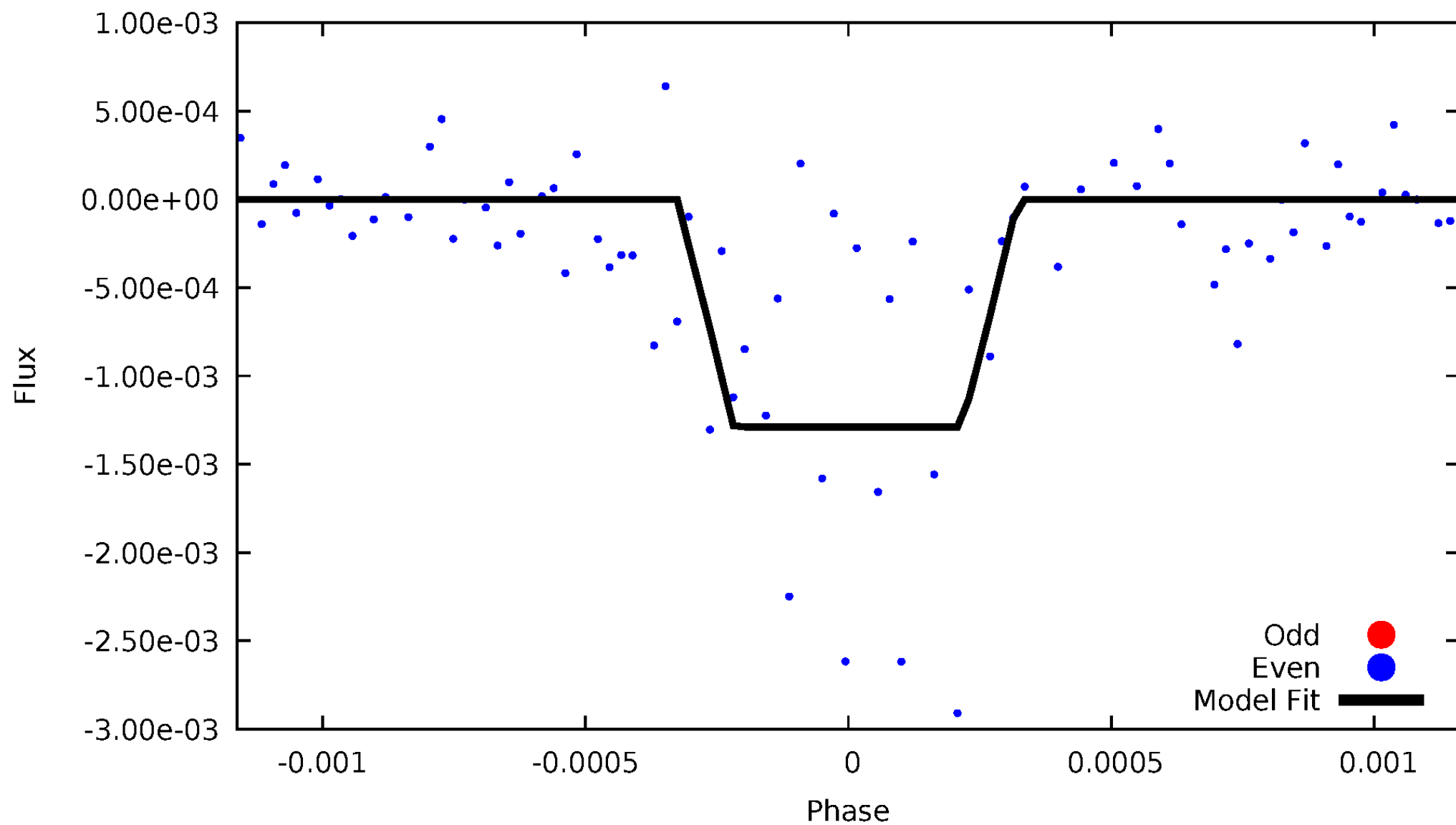
DV Odd/Even

TCE 010907381-01



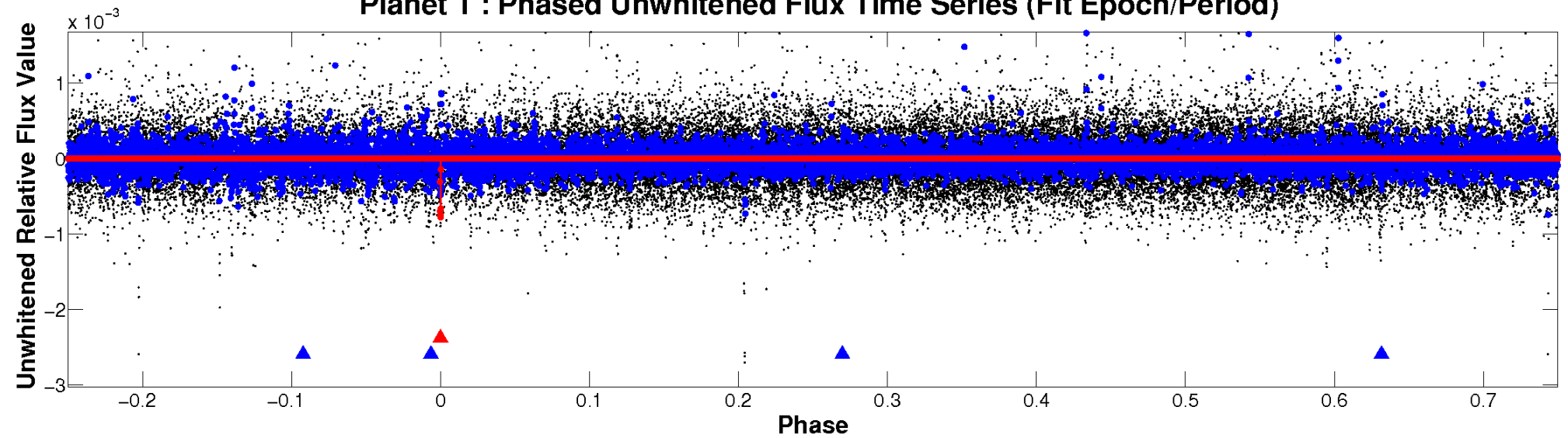
ALT Odd/Even

TCE 010907381-01

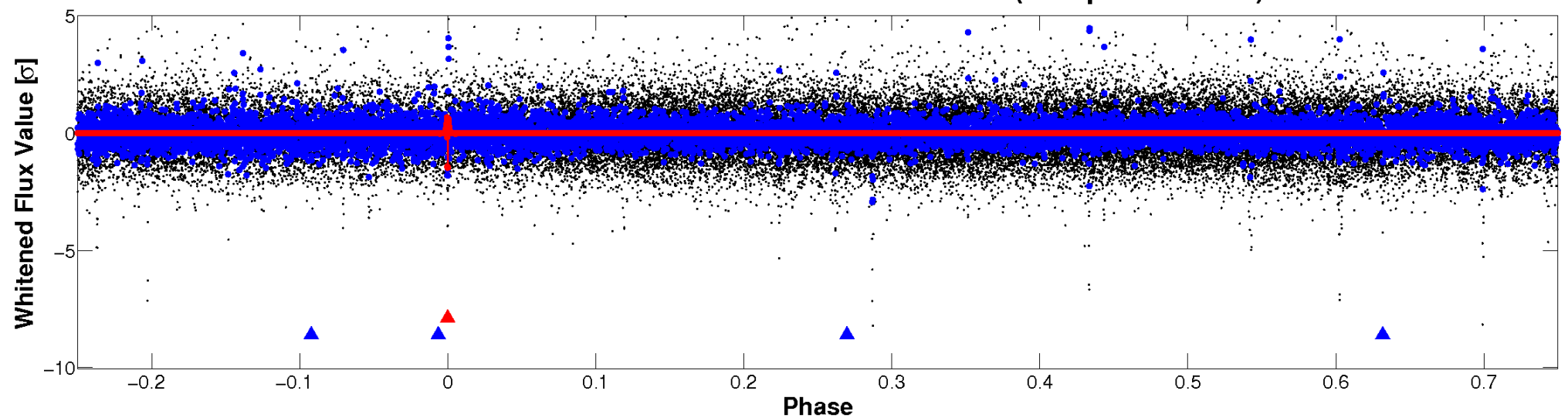


Non-Whitened Vs. Whitened Light Curve

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

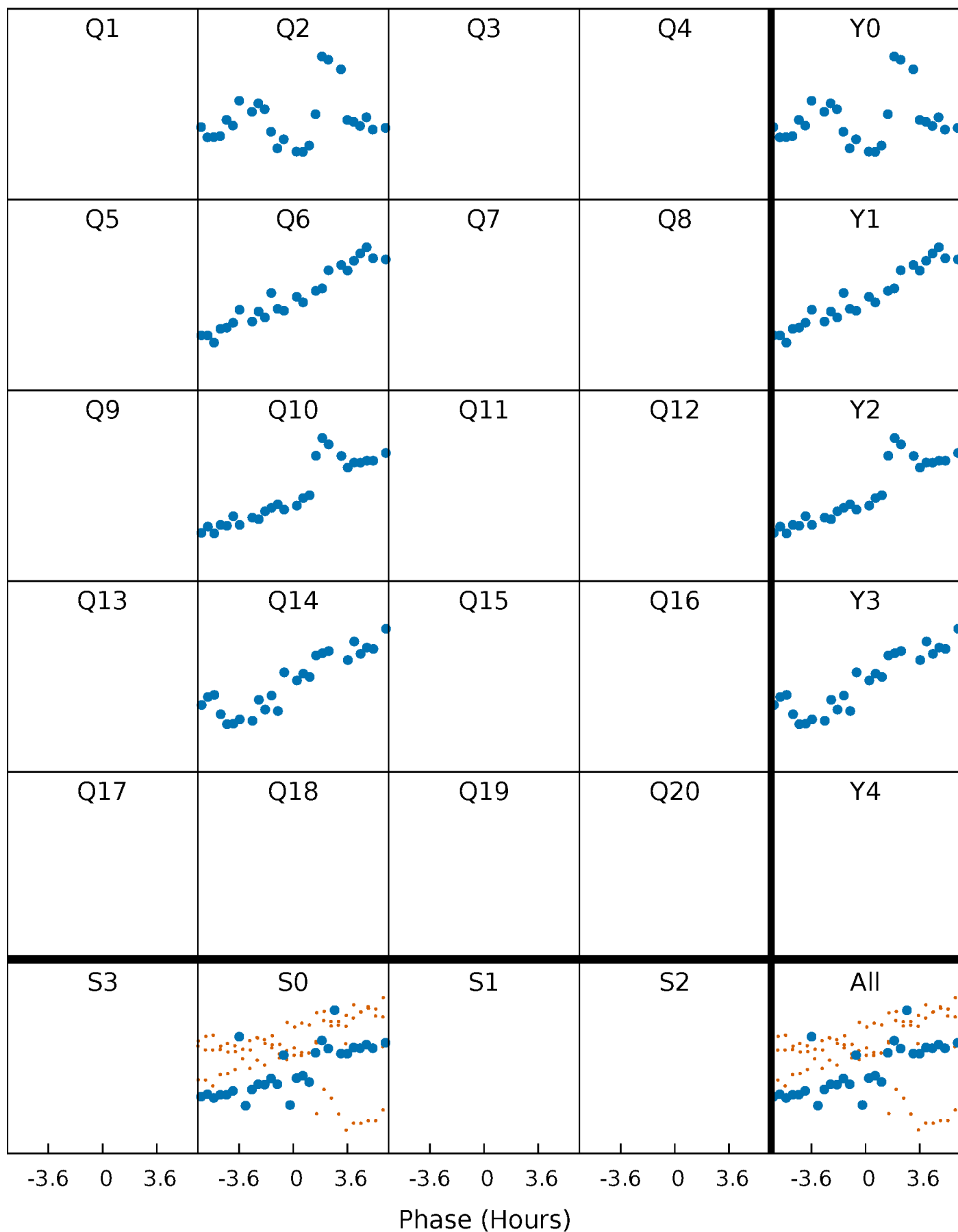


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



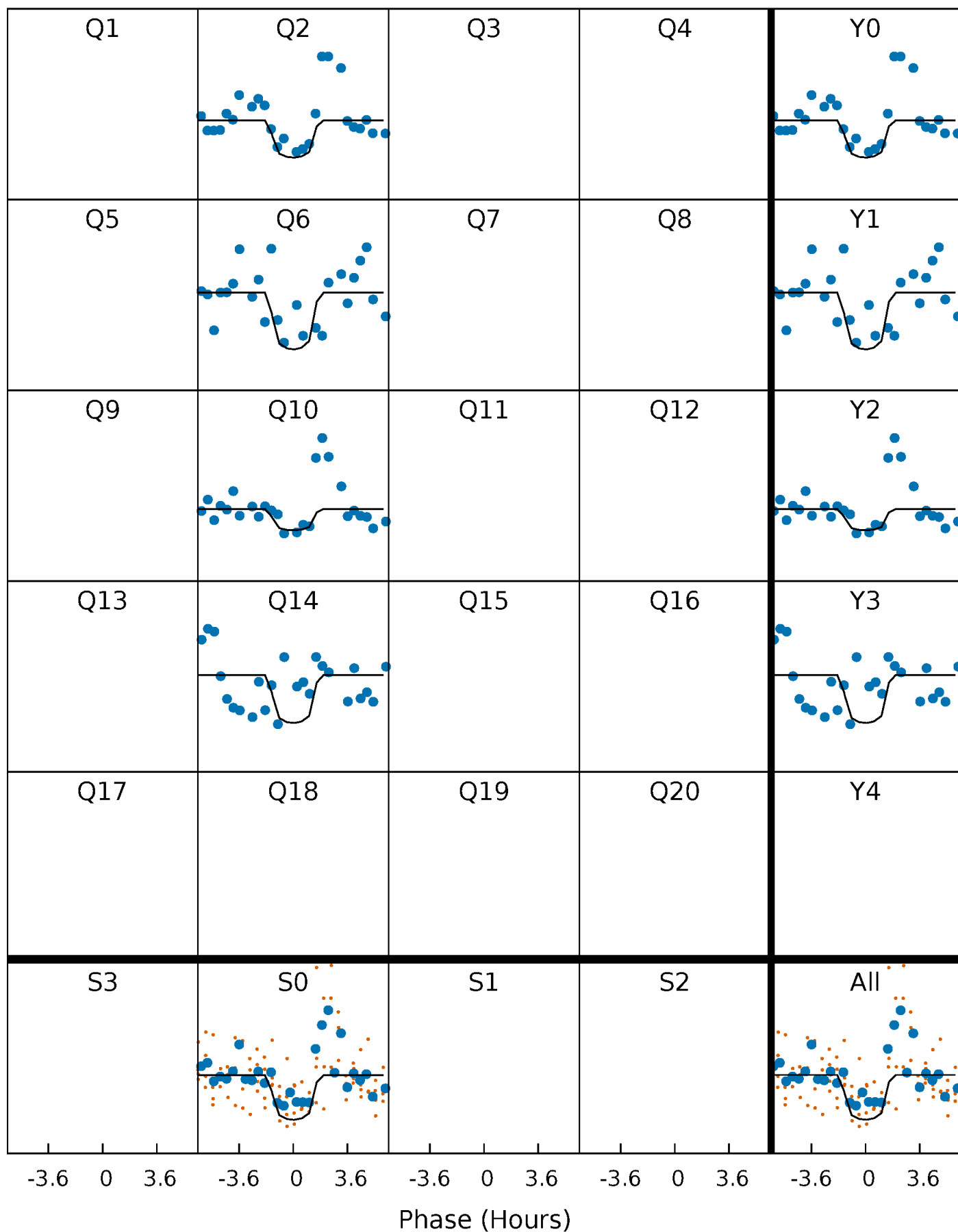
PDC Quarter-Phased Transit Curves

TCE 010907381-01 P=191.697496 Days $T_0=209.895032$ (BKJD)



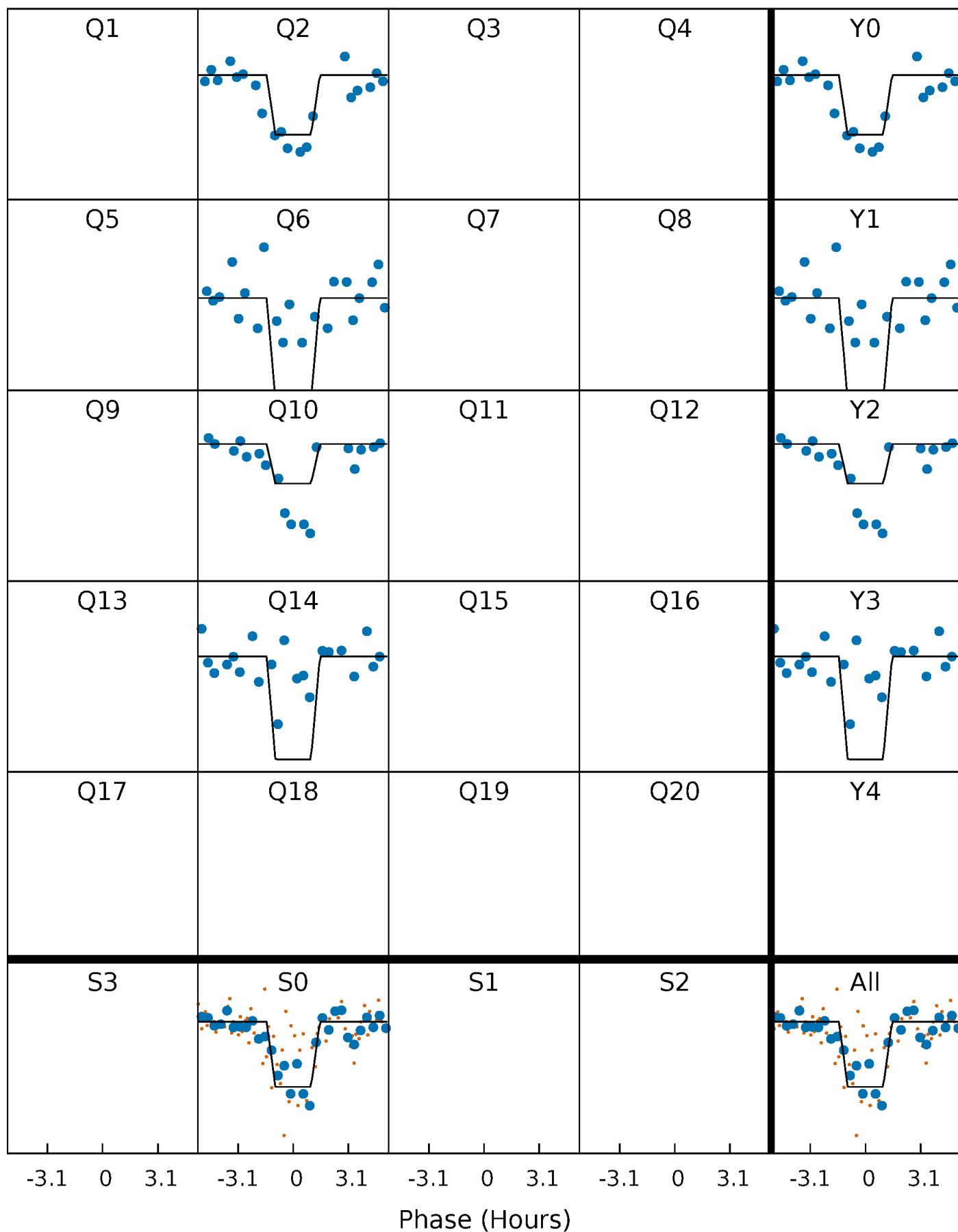
DV Quarter-Phased Transit Curves

TCE 010907381-01 P=191.697496 Days $T_0=209.895032$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

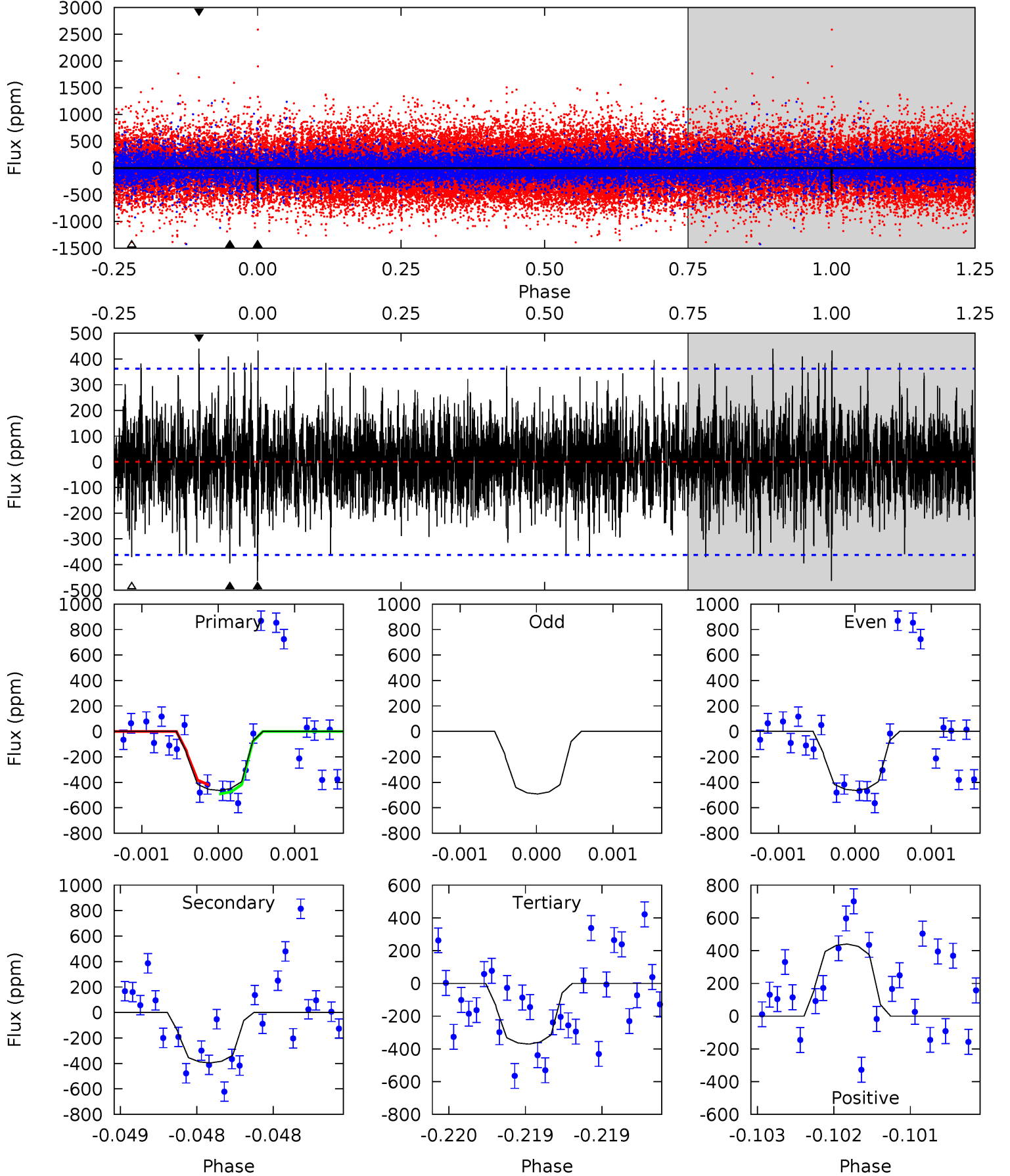
TCE 010907381-01 P=191.695635 Days $T_0=209.906653$ (BKJD)



DV Model-Shift Uniqueness Test

010907381-01, $P = 191.697496$ Days, $E = 18.197536$ Days

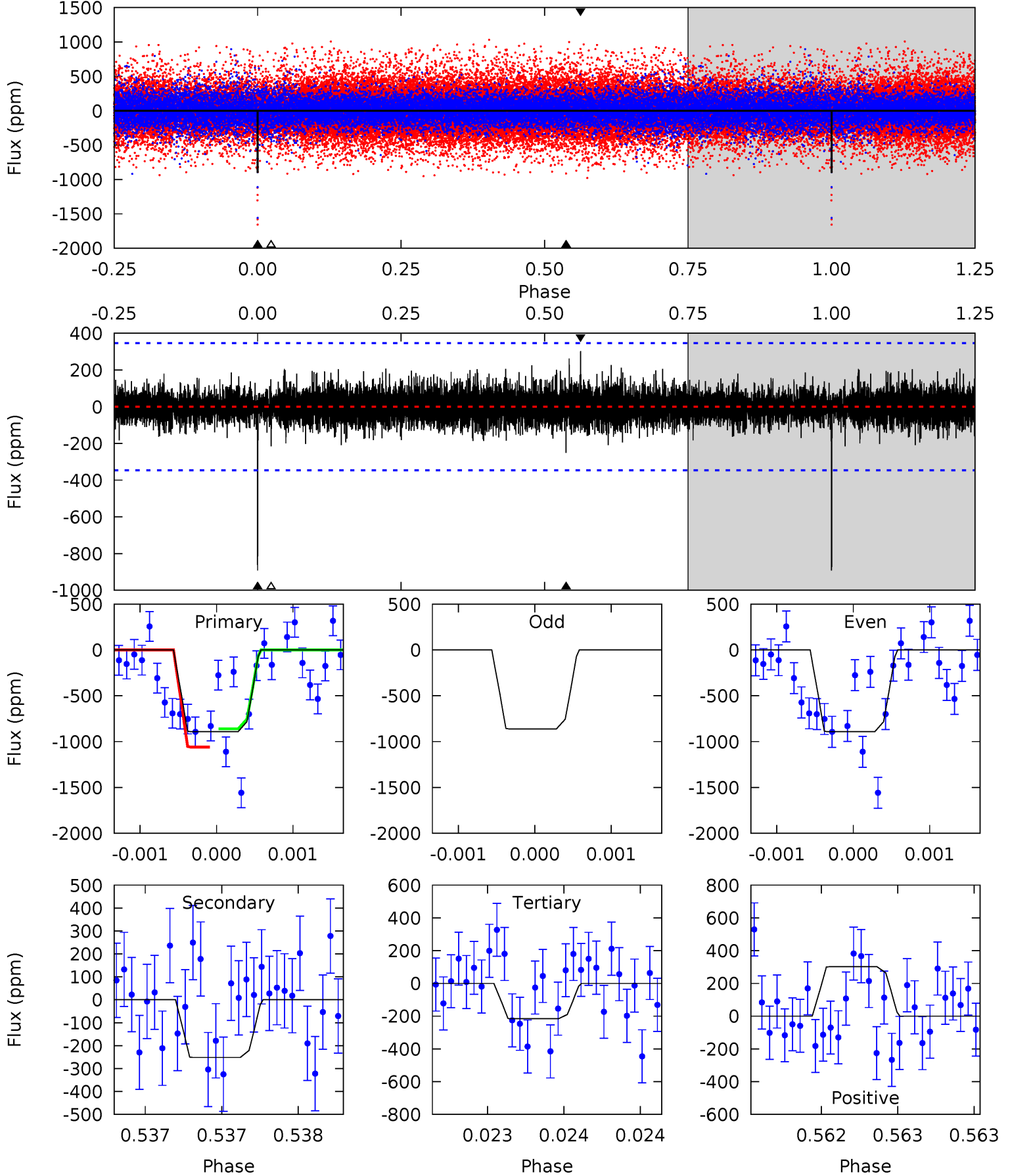
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.03	6.00	5.63	6.68	5.50	3.37	1.54	1.41	0.35	0.38	-0.68	0.26	0.91	0.49	0.54



Alt Model-Shift Uniqueness Test

010907381-01, P = 191.695635 Days, E = 18.211018 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	4.03	3.45	4.82	5.55	3.44	0.91	10.8	9.44	0.57	-0.80	0.30	1.17	0.25	0



Stellar Parameters For KIC 010907381

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5904^{+142}_{-160}	$4.543^{+0.046}_{-0.196}$	$-0.240^{+0.300}_{-0.300}$	$0.867^{+0.247}_{-0.077}$	$0.958^{+0.109}_{-0.120}$	$2.073^{+0.391}_{-1.029}$
	+2%/-3%	+1%/-4%	+125%/-125%	+28%/-9%	+11%/-13%	+19%/-50%
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 010907381-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-395 ± 66	$4.19^{+3.47}_{-2.79}$	433^{+30}_{-19}	4295^{+2686}_{-807}	4971^{+41243}_{-3471}
Alt.	-252 ± 62	$4.49^{+3.43}_{-2.82}$	432^{+28}_{-19}	3881^{+1866}_{-695}	2709^{+18148}_{-1883}

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 $A_{obs} \gg 1.0$

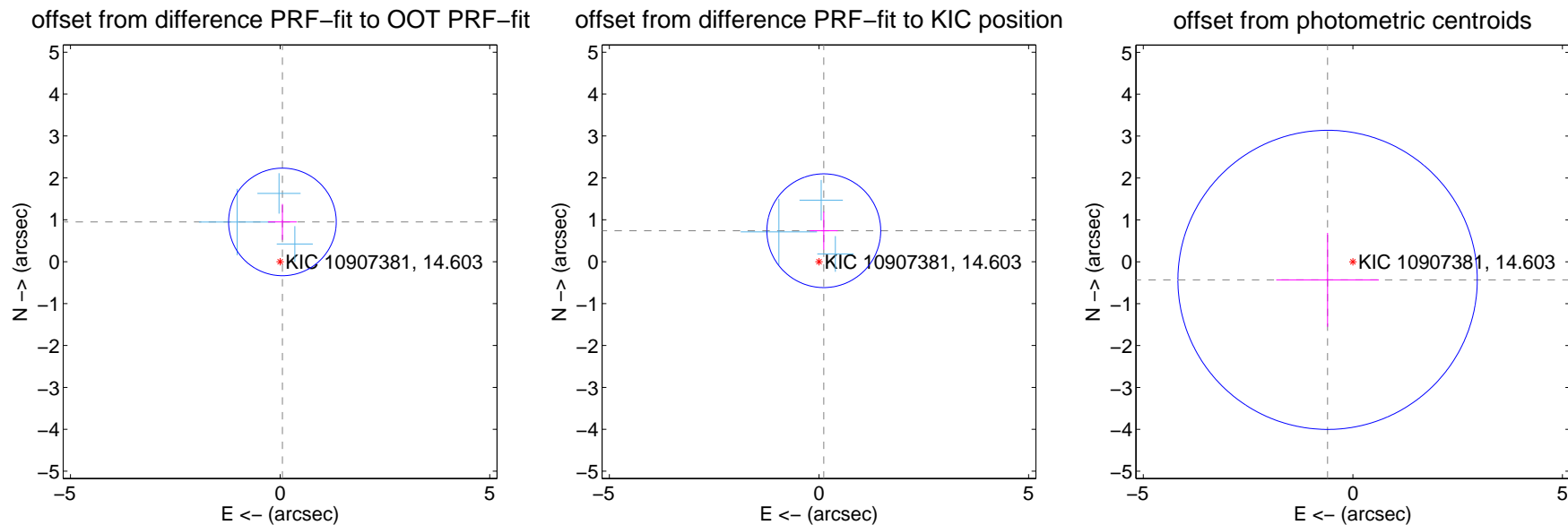
DV Centroid Data

Supplemental centroid analysis for 010907381-01. Kepler magnitude: 14.60. Transit SNR 6.94

There are 3 quarters with good PRF difference image offsets

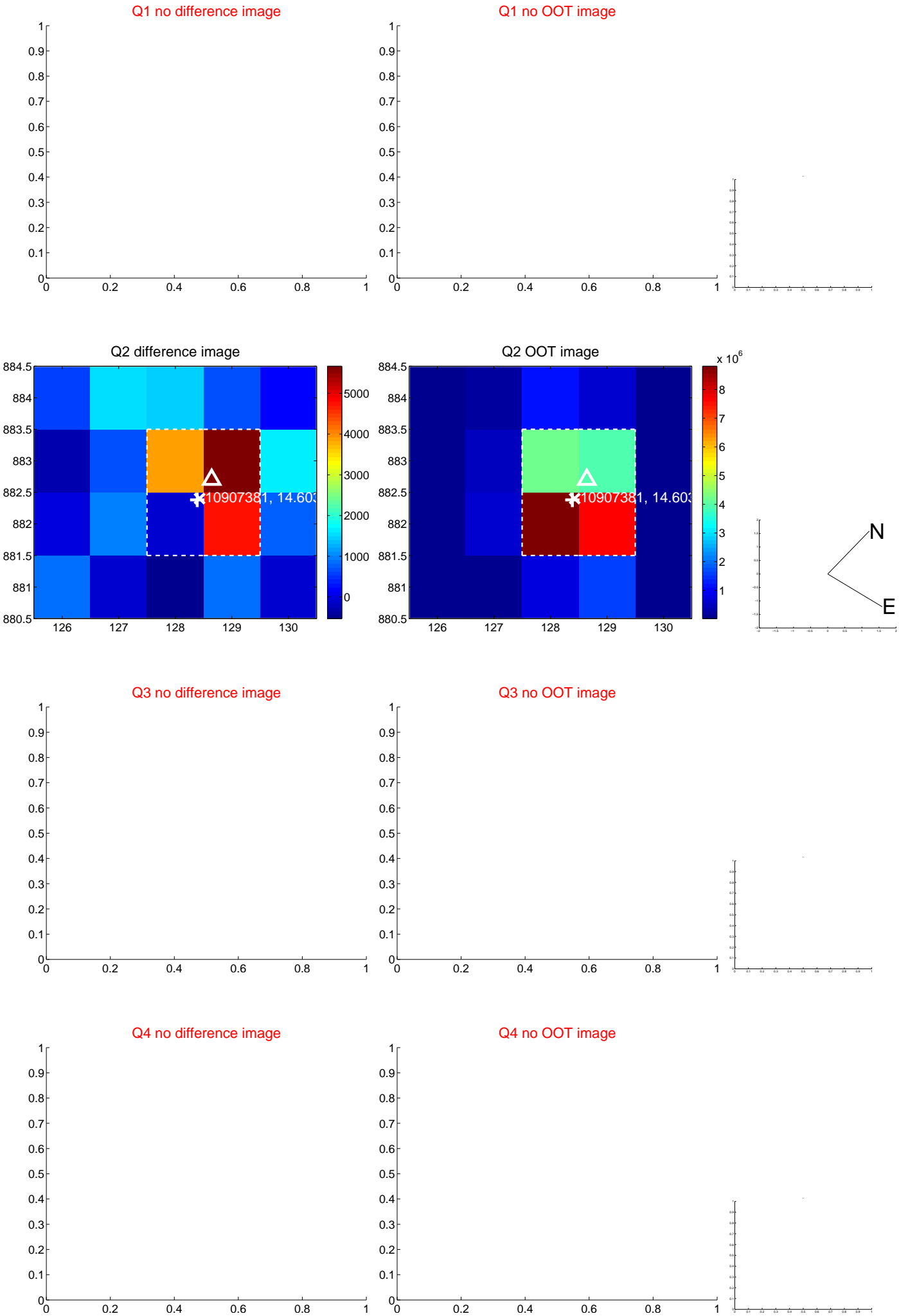
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.951 ± 0.428	2.22	-0.055 ± 0.340	0.949 ± 0.428
PRF-fit source offset from KIC position	0.748 ± 0.452	1.65	-0.115 ± 0.333	0.739 ± 0.455
photometric centroid source offset	0.74 ± 1.19	0.62	0.60 ± 1.22	-0.43 ± 1.12



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.

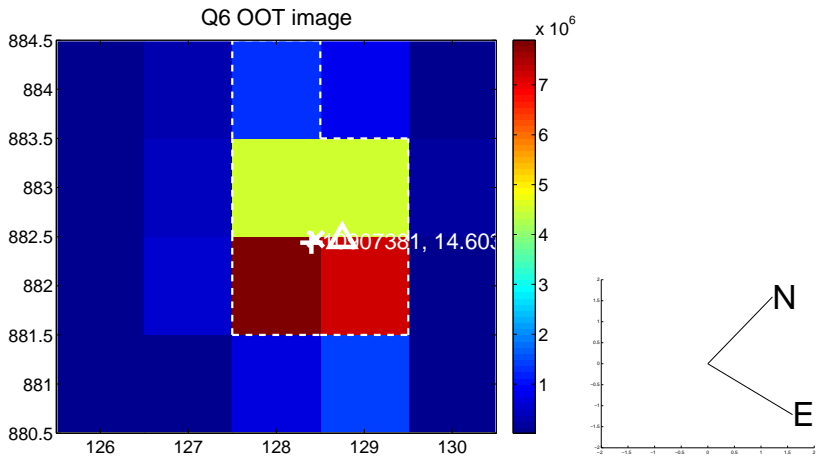
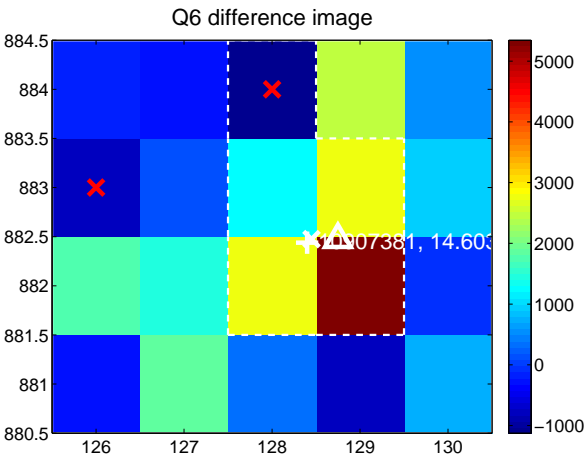


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

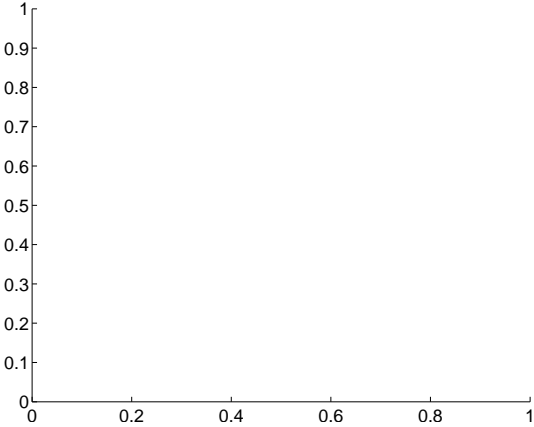
Q5 no difference image



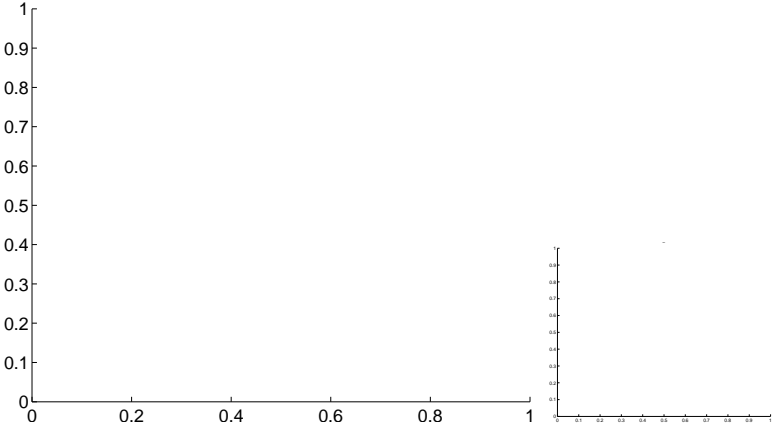
Q5 no OOT image



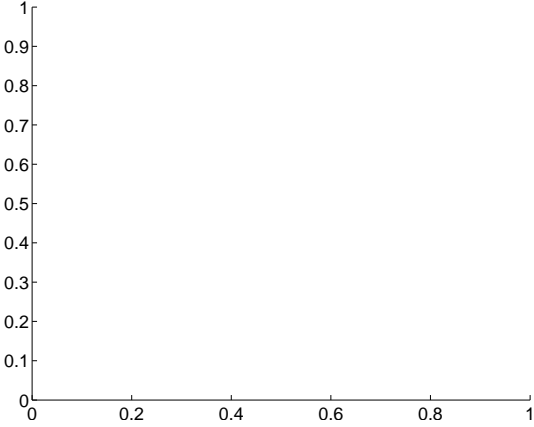
Q7 no difference image



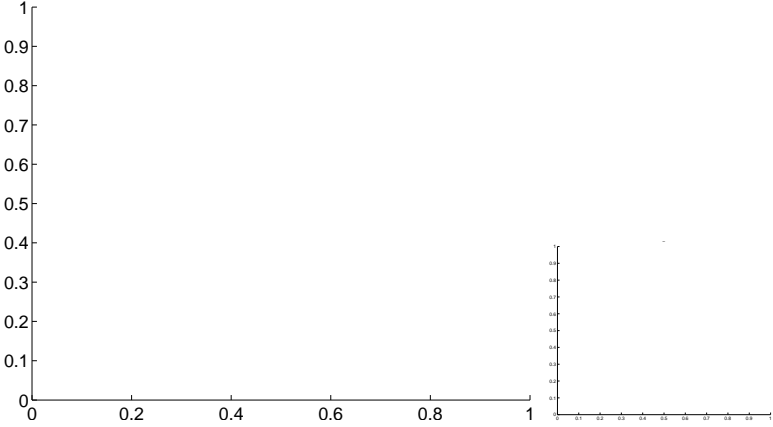
Q7 no OOT image



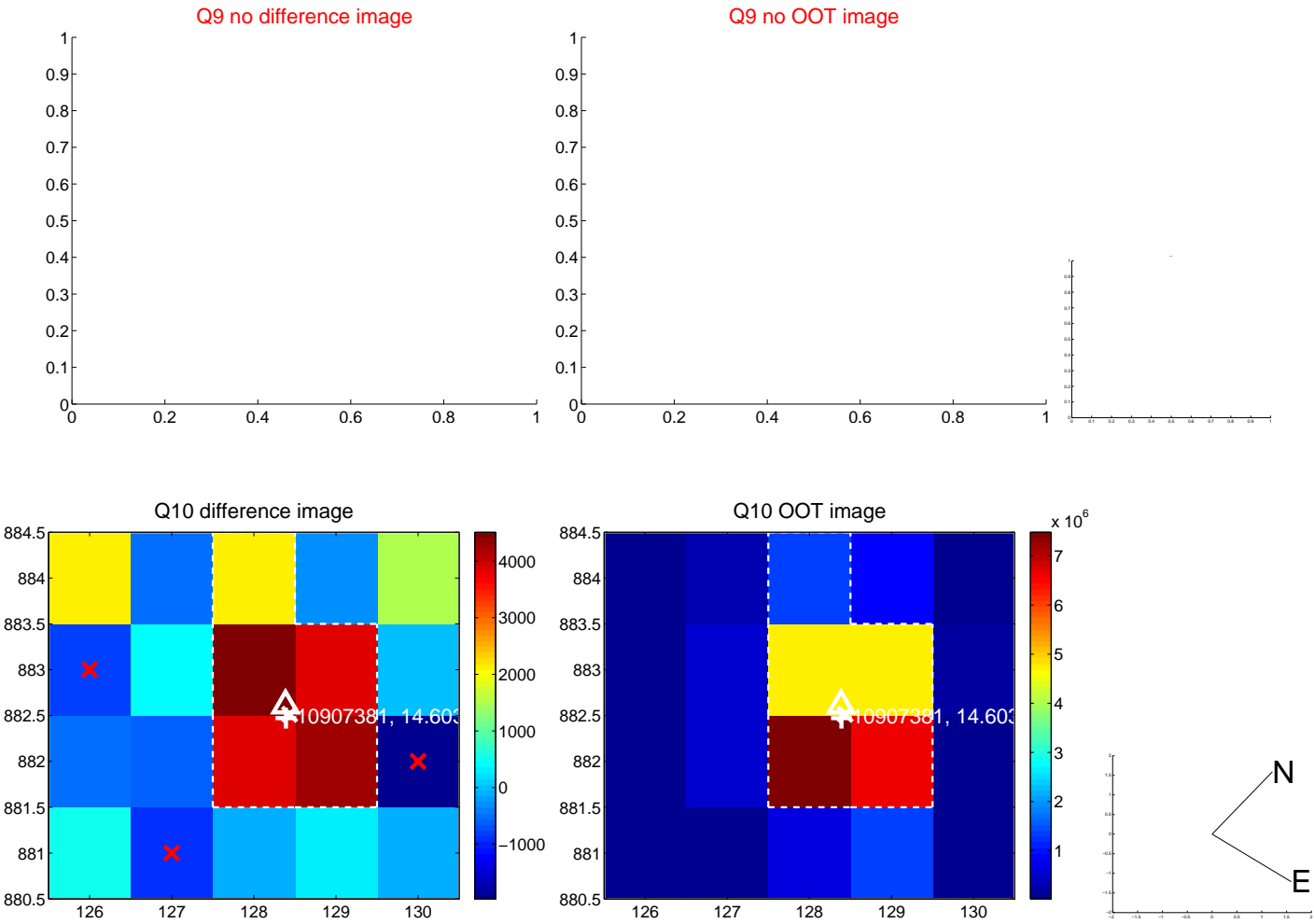
Q8 no difference image



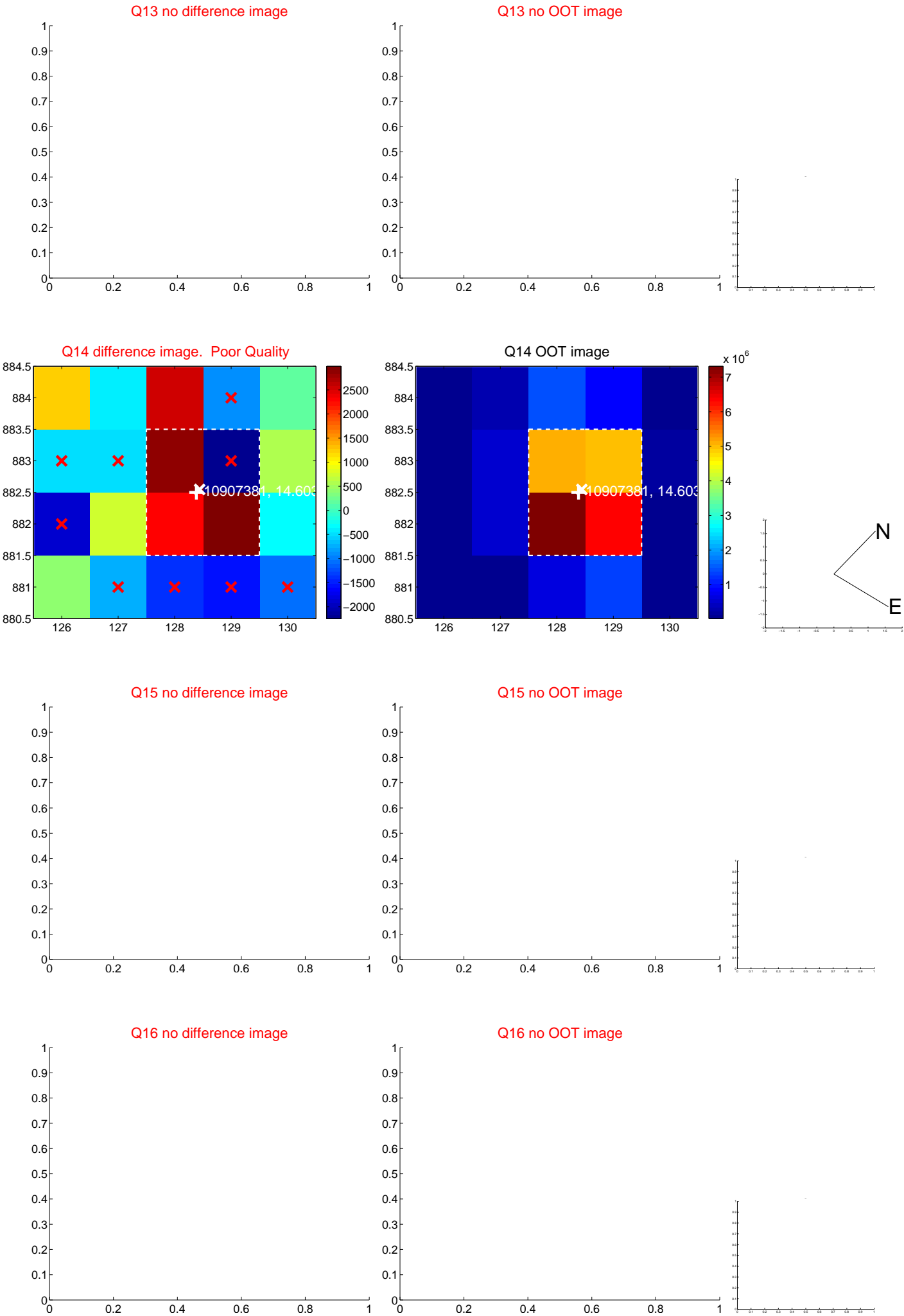
Q8 no OOT image



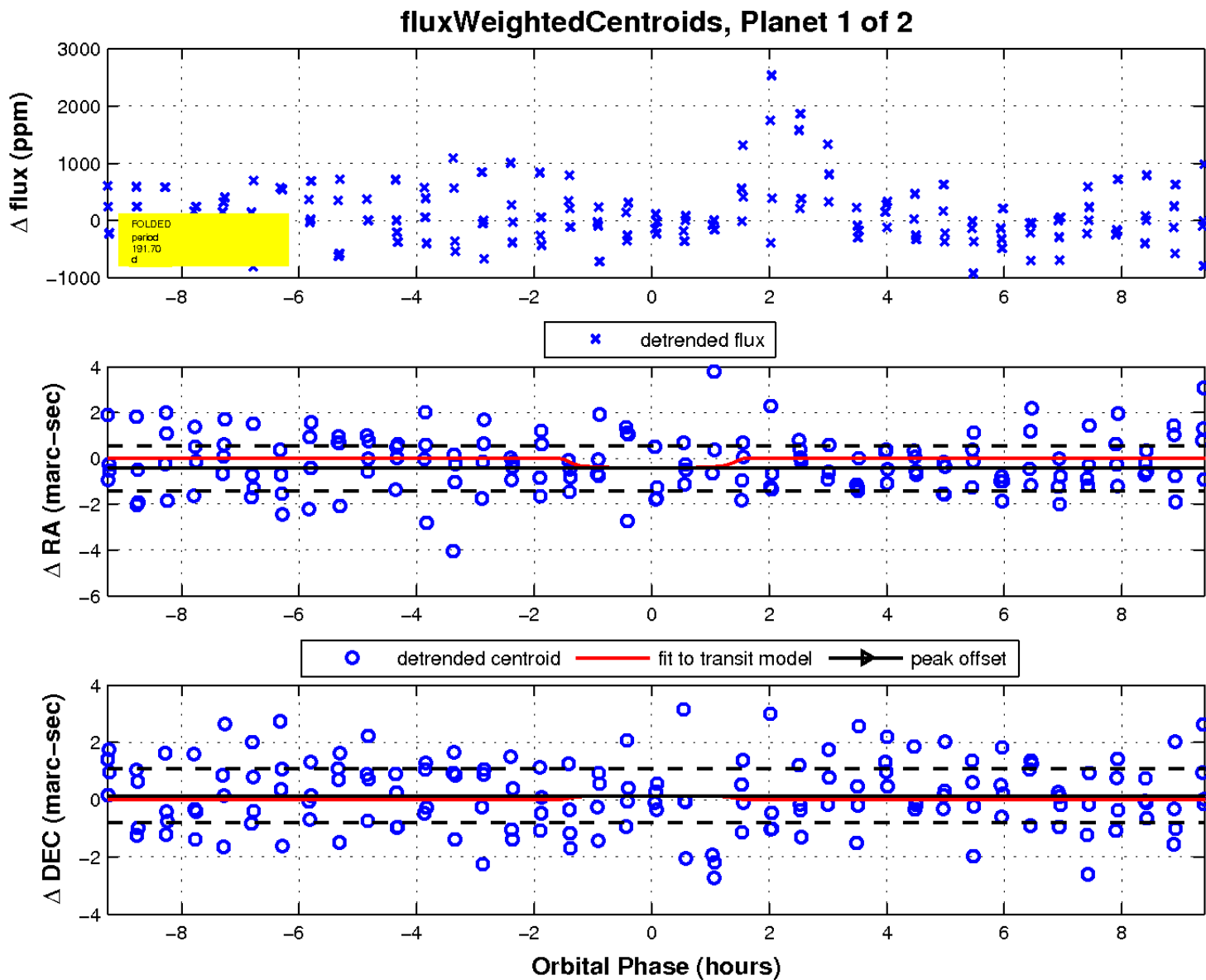
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

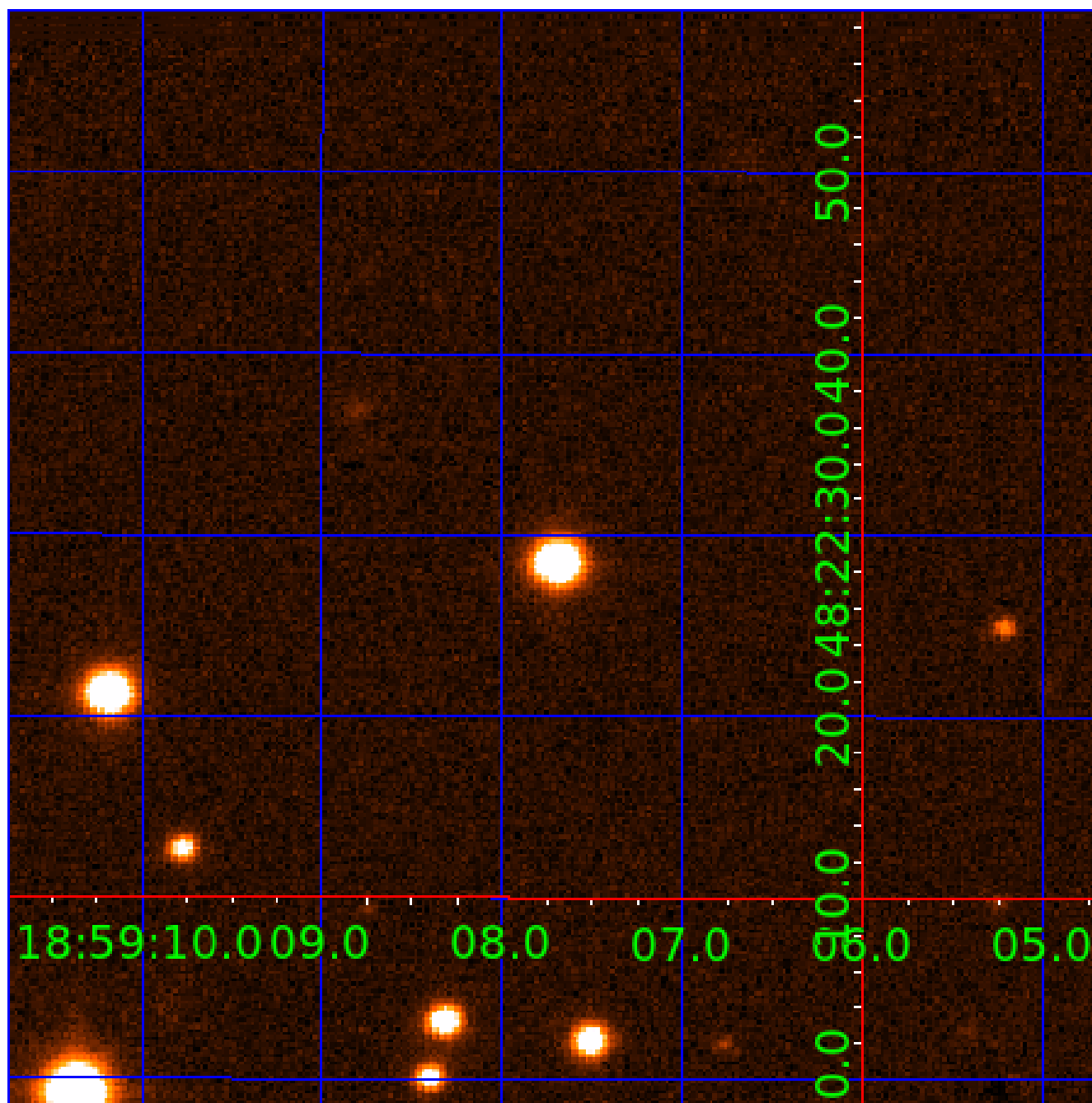


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010907381

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})
010907381-01	OBS	No	191.697496	209.895032	776.7	3.165	10.4	6.9	0.87	5904	2.77	1.99
010907381-02	OBS	No	314.014807	400.365417	741.5	3.083	9.4	5.7	0.87	5904	2.55	1.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010907381-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—HALO_GHOST
010907381-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS

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

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

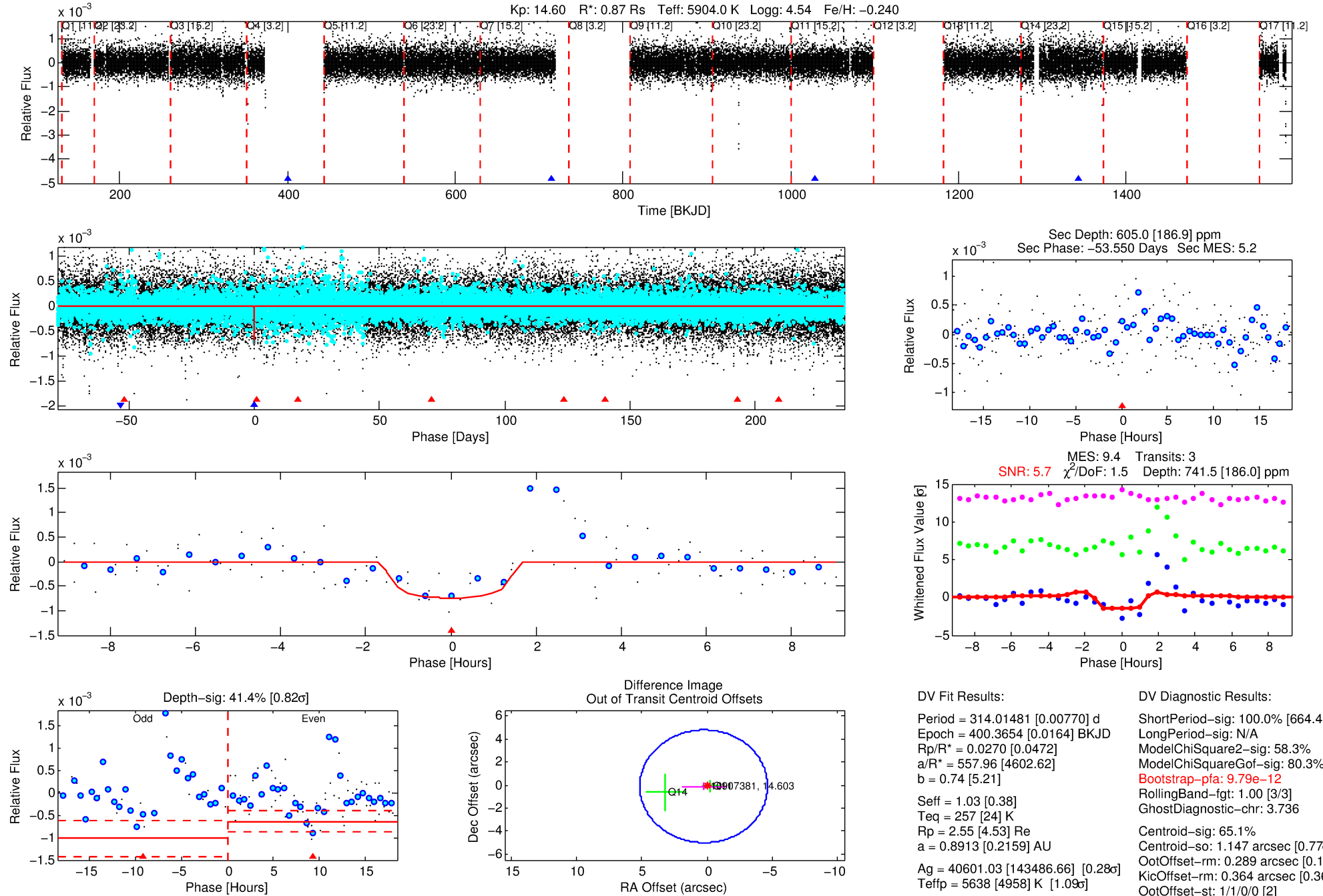
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010907381-02

No Significant Match Found

DV One-Page Summary

KIC: 10907381 Candidate: 2 of 2 Period: 314.015 d



DV Fit Results:

Period = 314.01481 [0.00770] d
Epoch = 400.3654 [0.0164] BKJD
Rp/R* = 0.0270 [0.0472]
a/R* = 557.96 [4602.62]
b = 0.74 [5.21]
Seff = 1.03 [0.38]
Teff = 257 [24] K
Rp = 2.55 [4.53] Re
a = 0.8913 [0.2159] AU
Ag = 40601.03 [143486.66] [0.28 σ]
Teffp = 5638 [4958] K [1.09 σ]

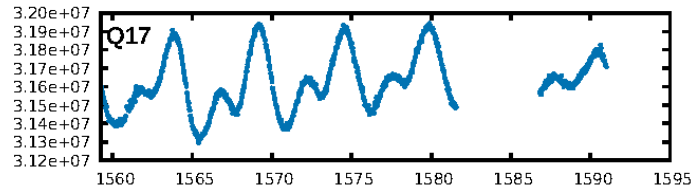
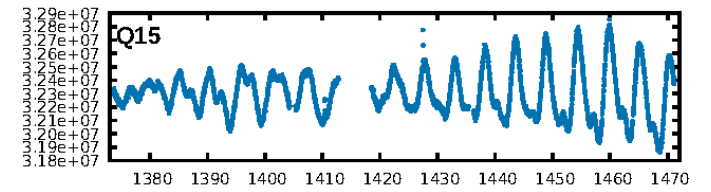
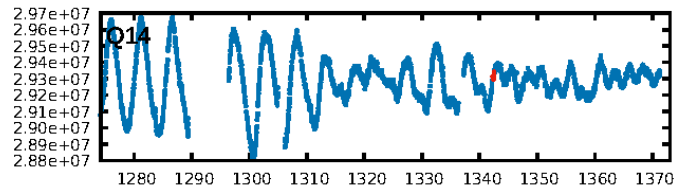
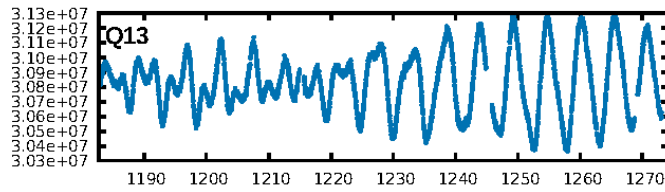
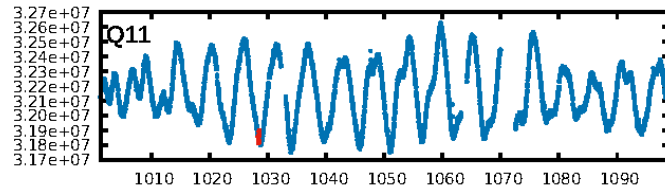
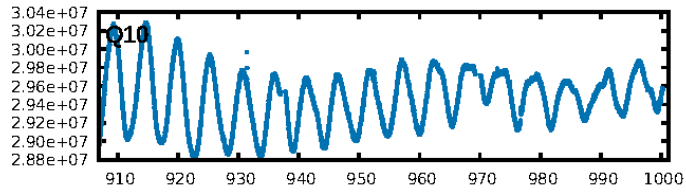
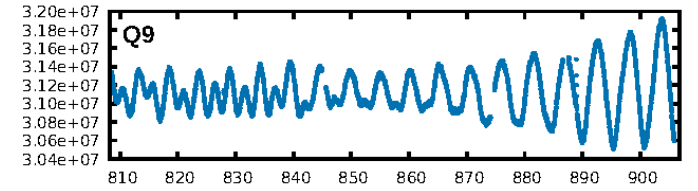
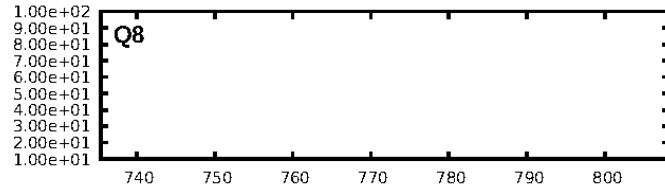
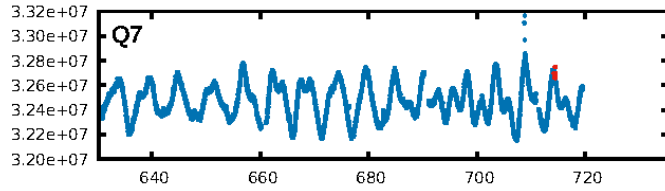
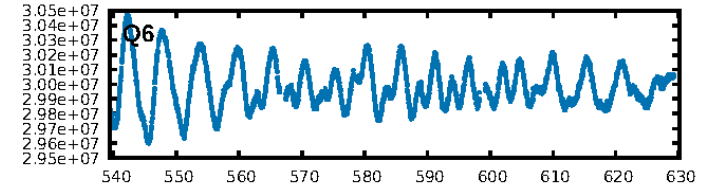
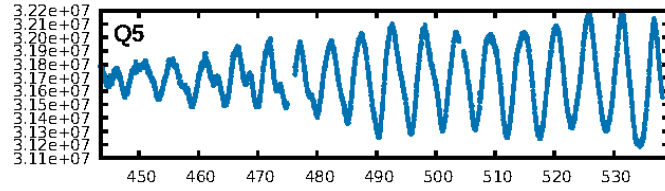
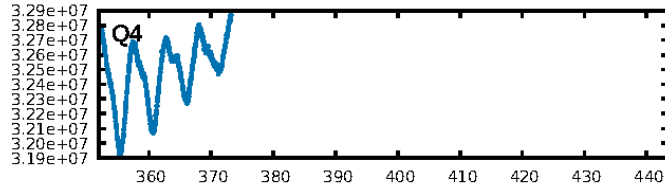
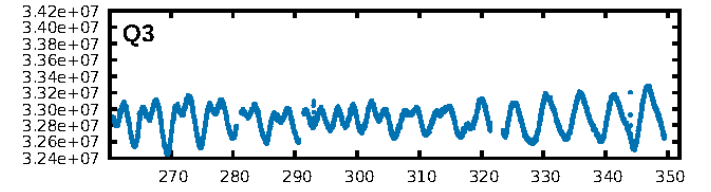
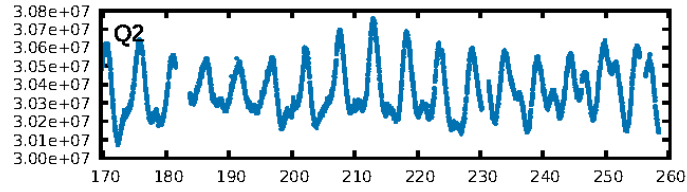
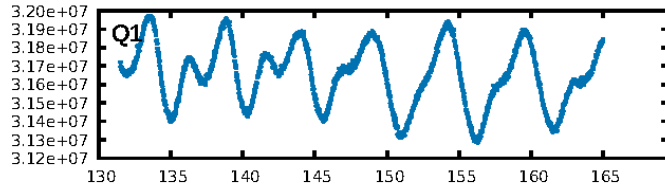
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [664.43 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 58.3%
ModelChiSquareGof-sig: 80.3%
Bootstrap-pfa: 9.79e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 3.736
Centroid-sig: 65.1%
Centroid-so: 1.147 arcsec [0.77 σ]
OotOffset-rm: 0.289 arcsec [0.18 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-rm: 0.364 arcsec [0.36 σ]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

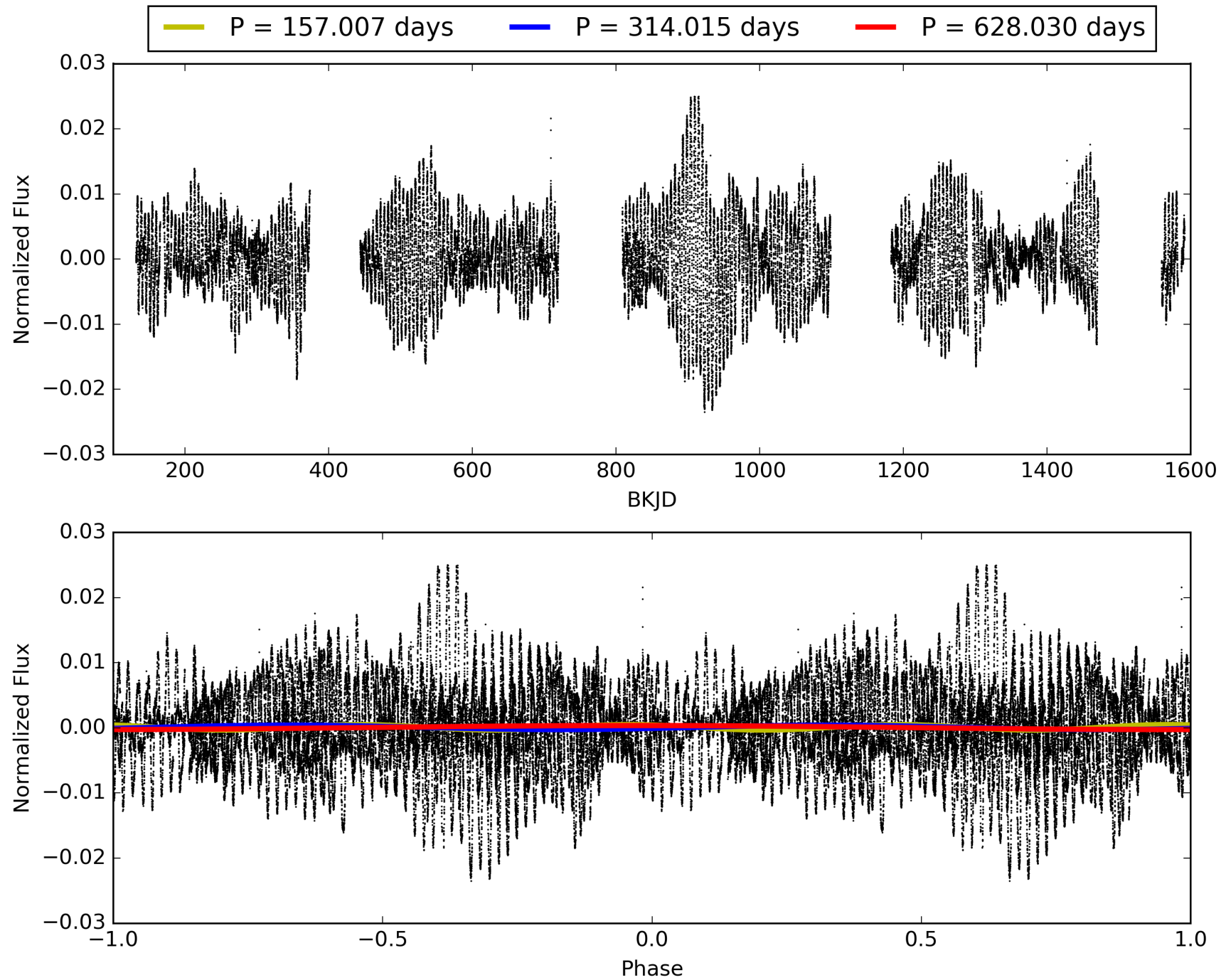
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:57:11 Z

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

TCE 010907381-02, PDC Light Curves

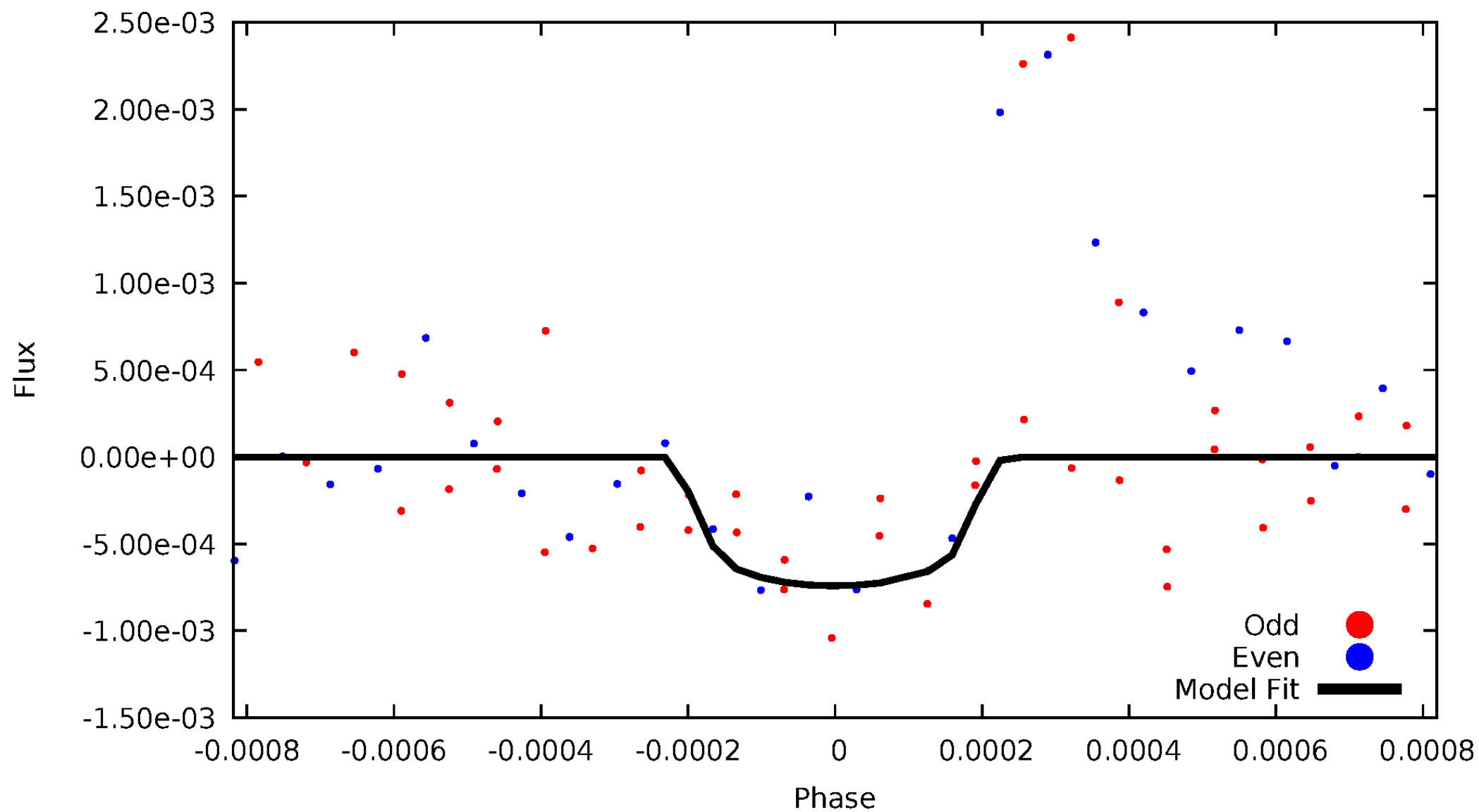


TCE 010907381-02



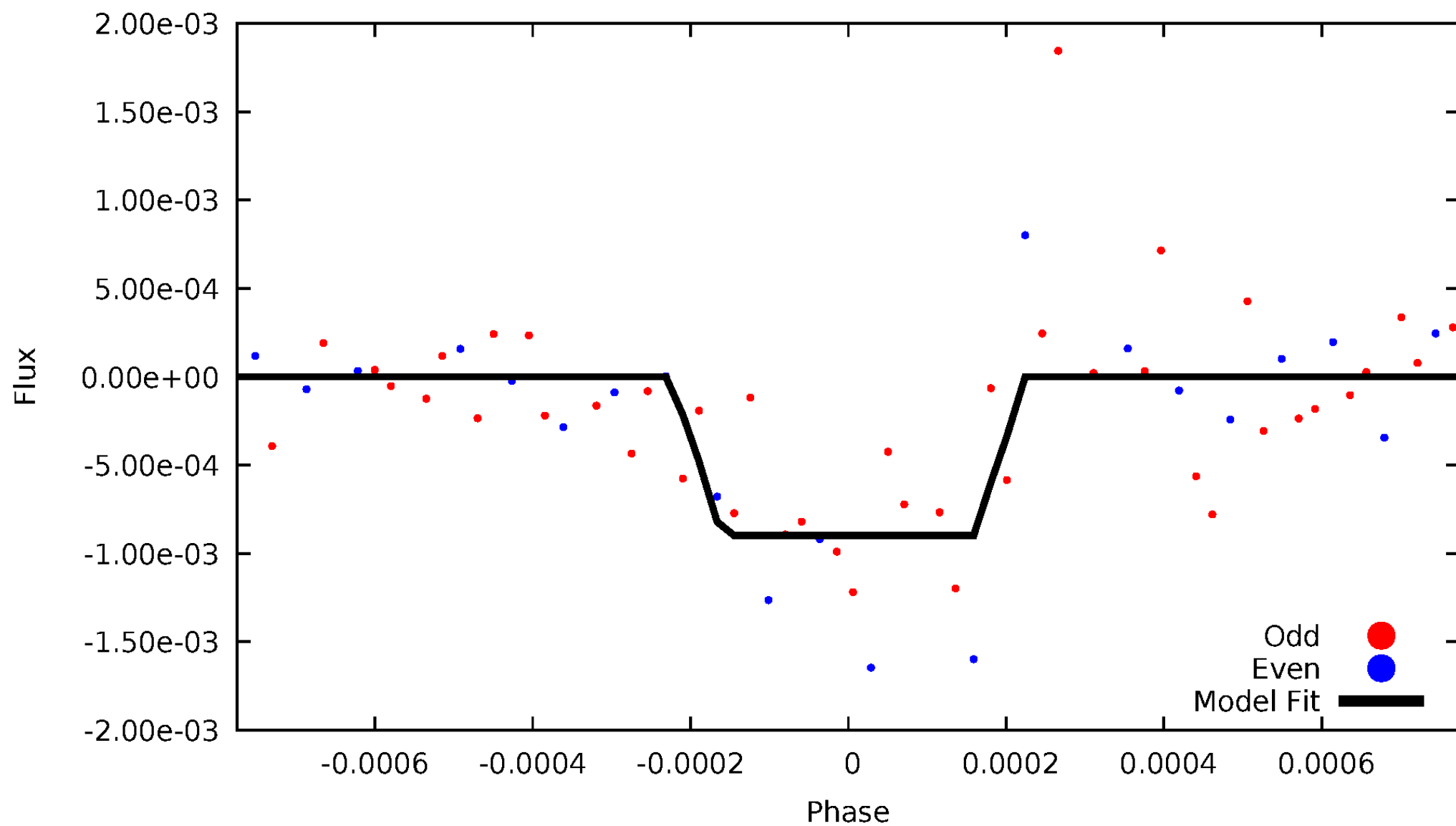
DV Odd/Even

TCE 010907381-02



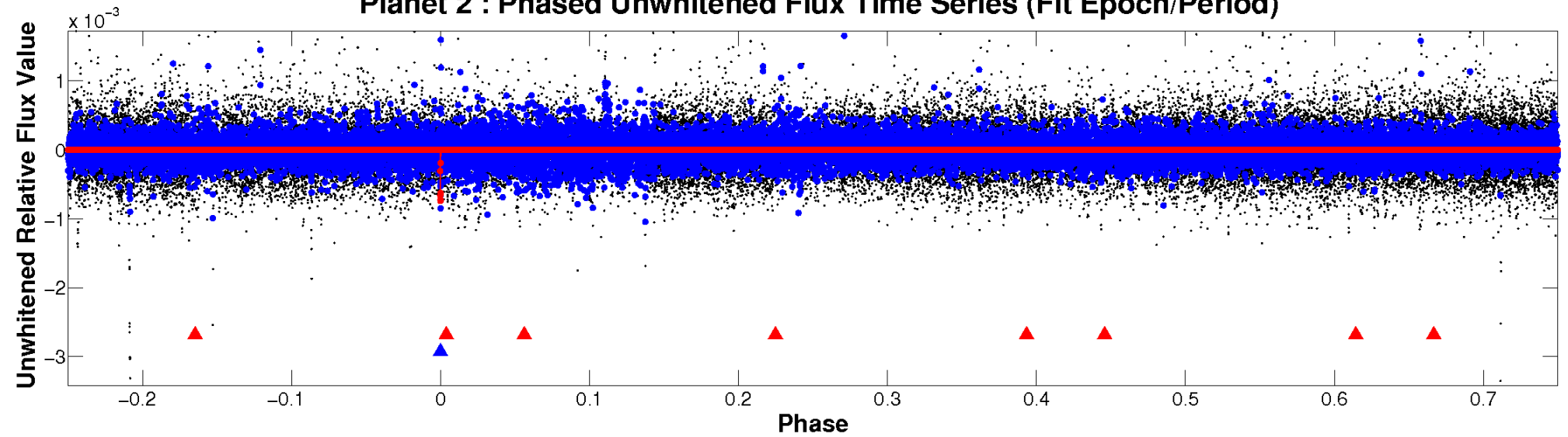
ALT Odd/Even

TCE 010907381-02

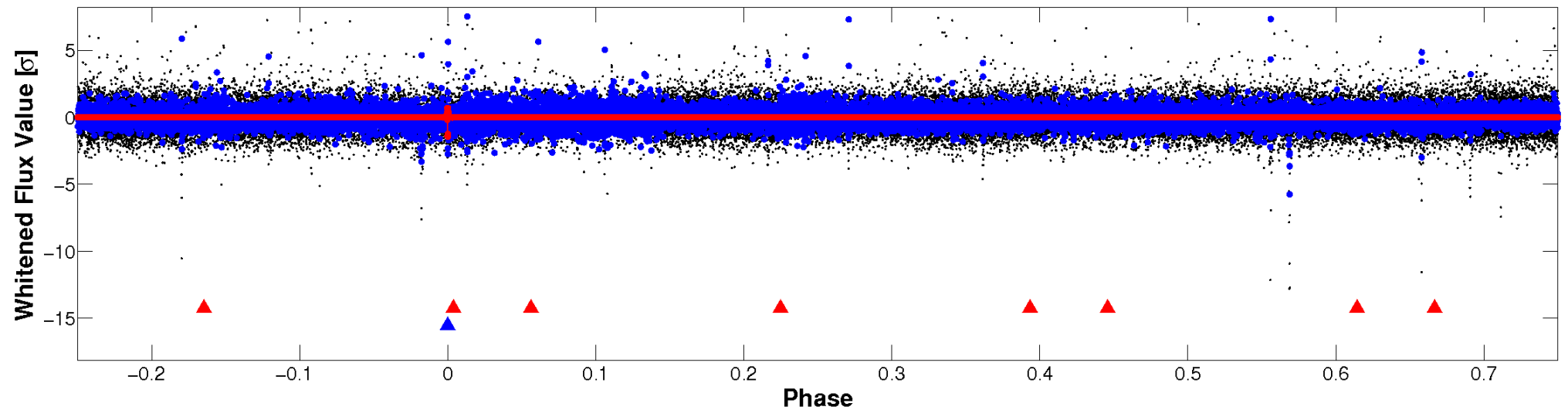


Non-Whitened Vs. Whitened Light Curve

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

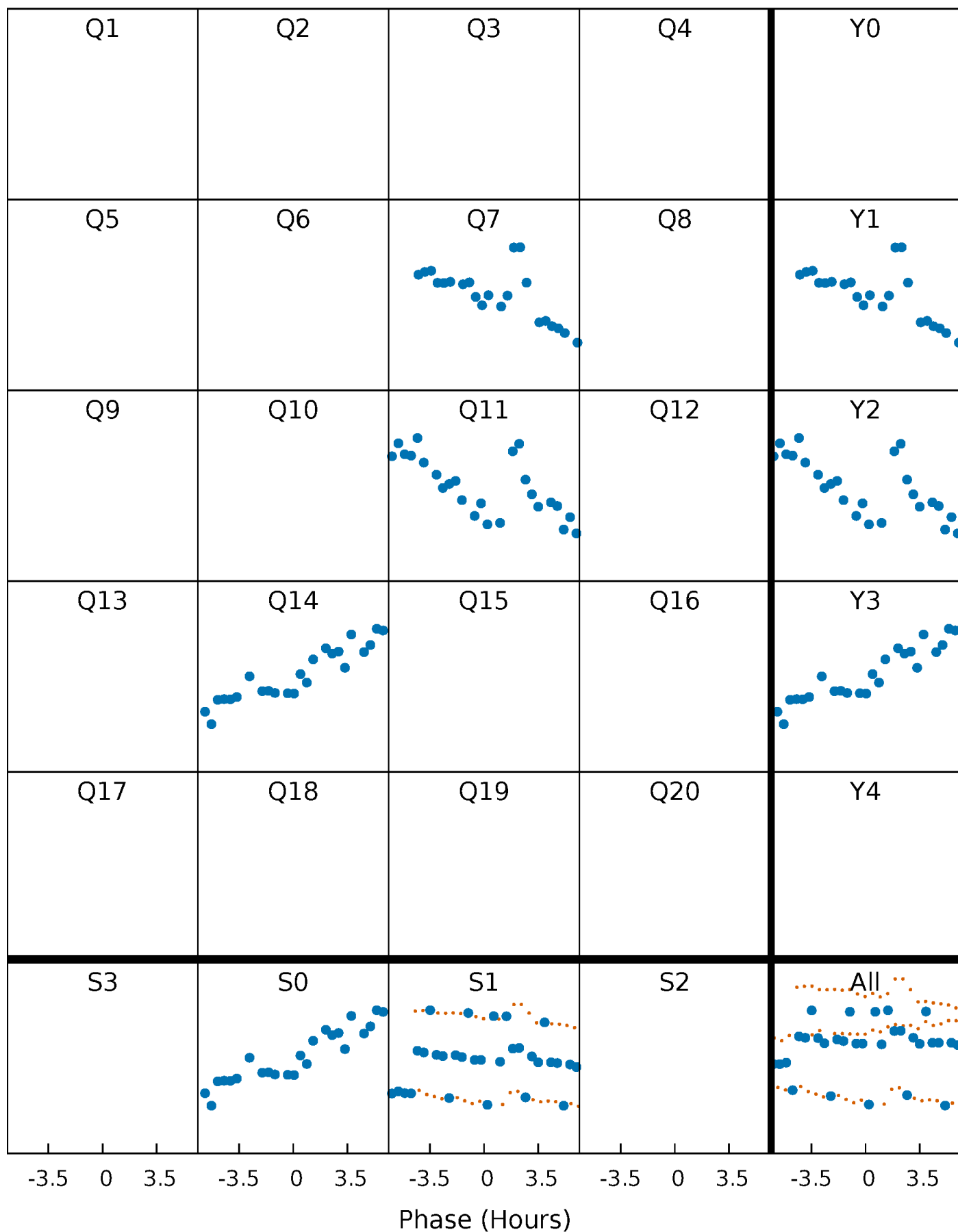


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



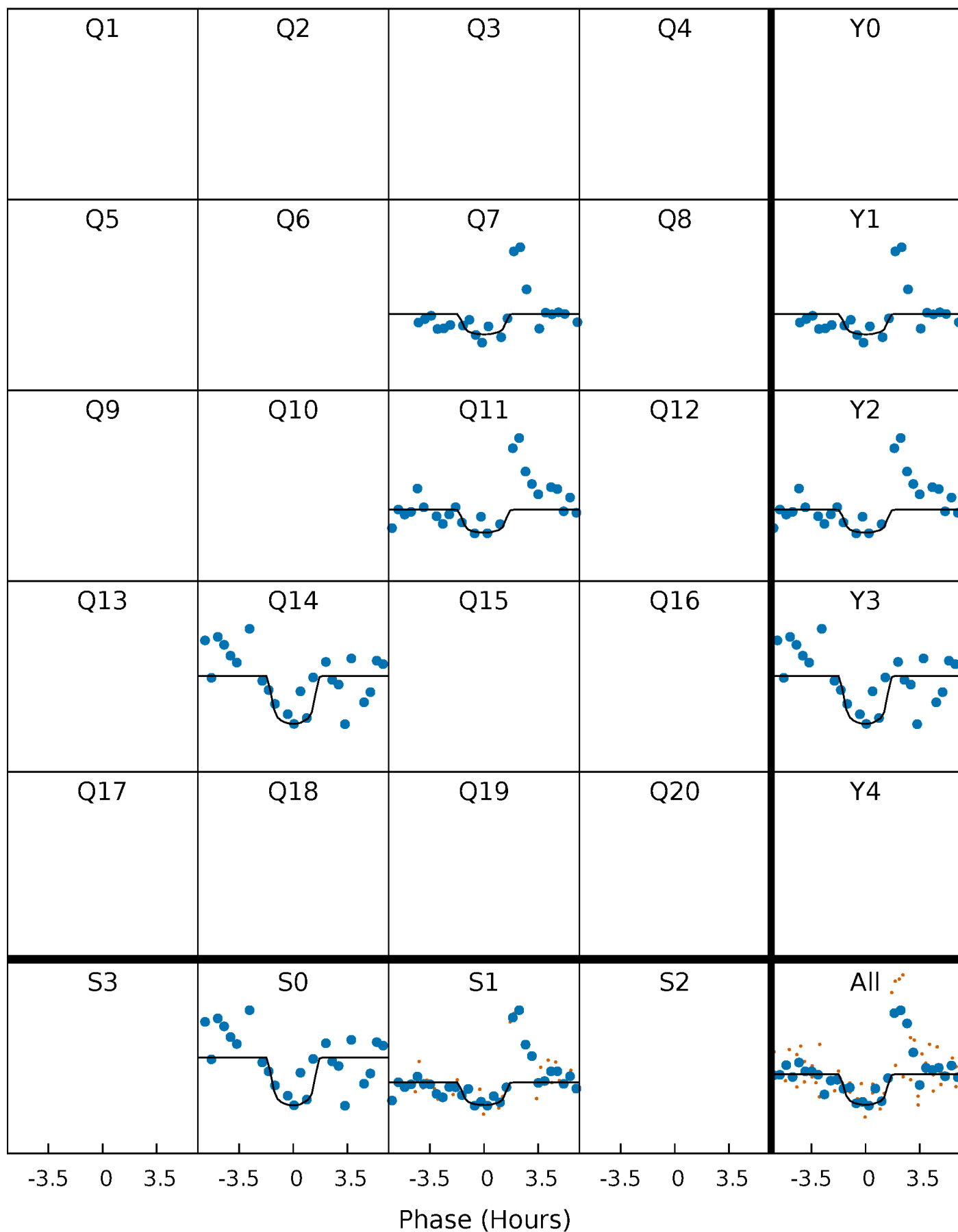
PDC Quarter-Phased Transit Curves

TCE 010907381-02 $P=314.014807$ Days $T_0=400.365417$ (BKJD)



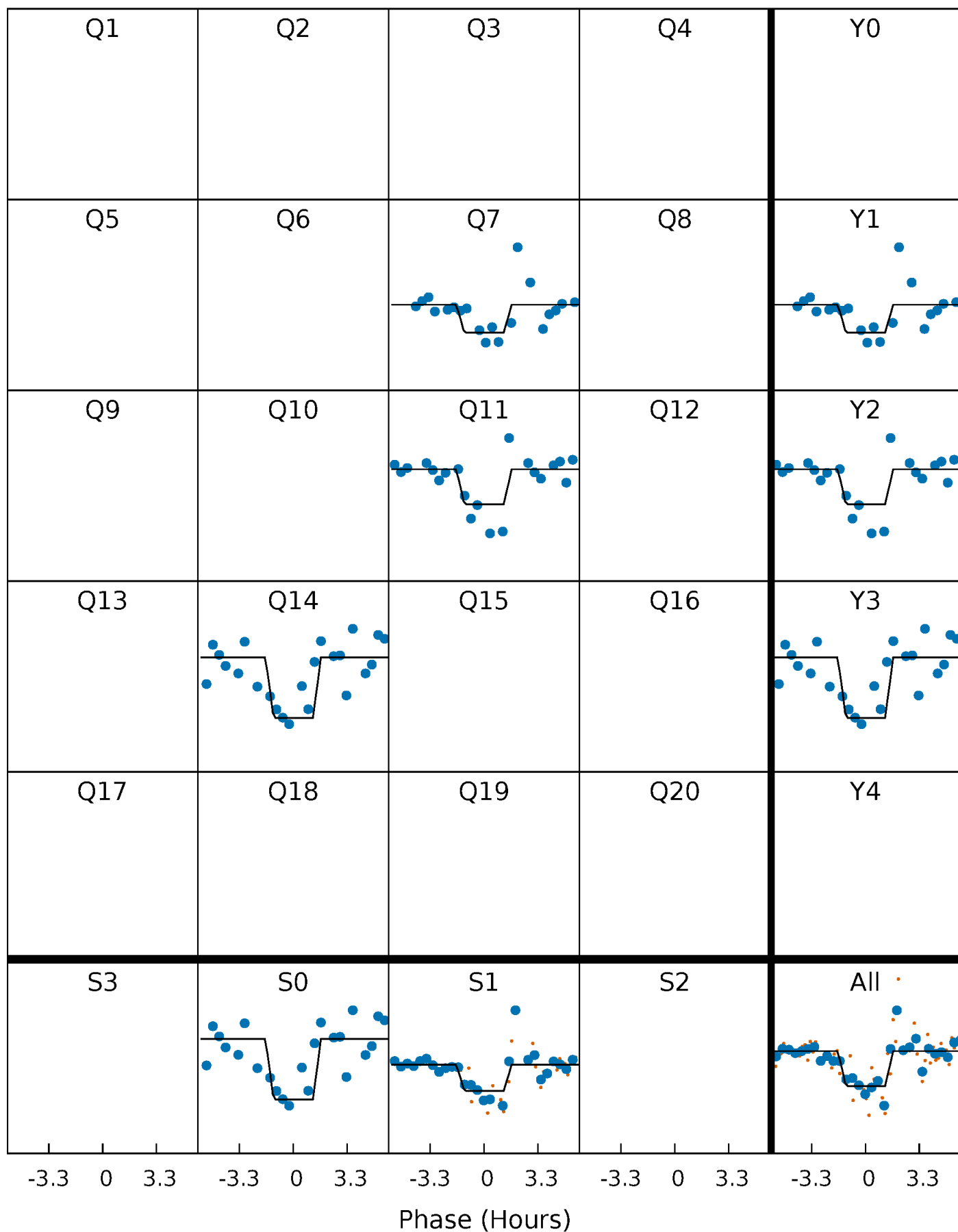
DV Quarter-Phased Transit Curves

TCE 010907381-02 $P=314.014807$ Days $T_0=400.365417$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

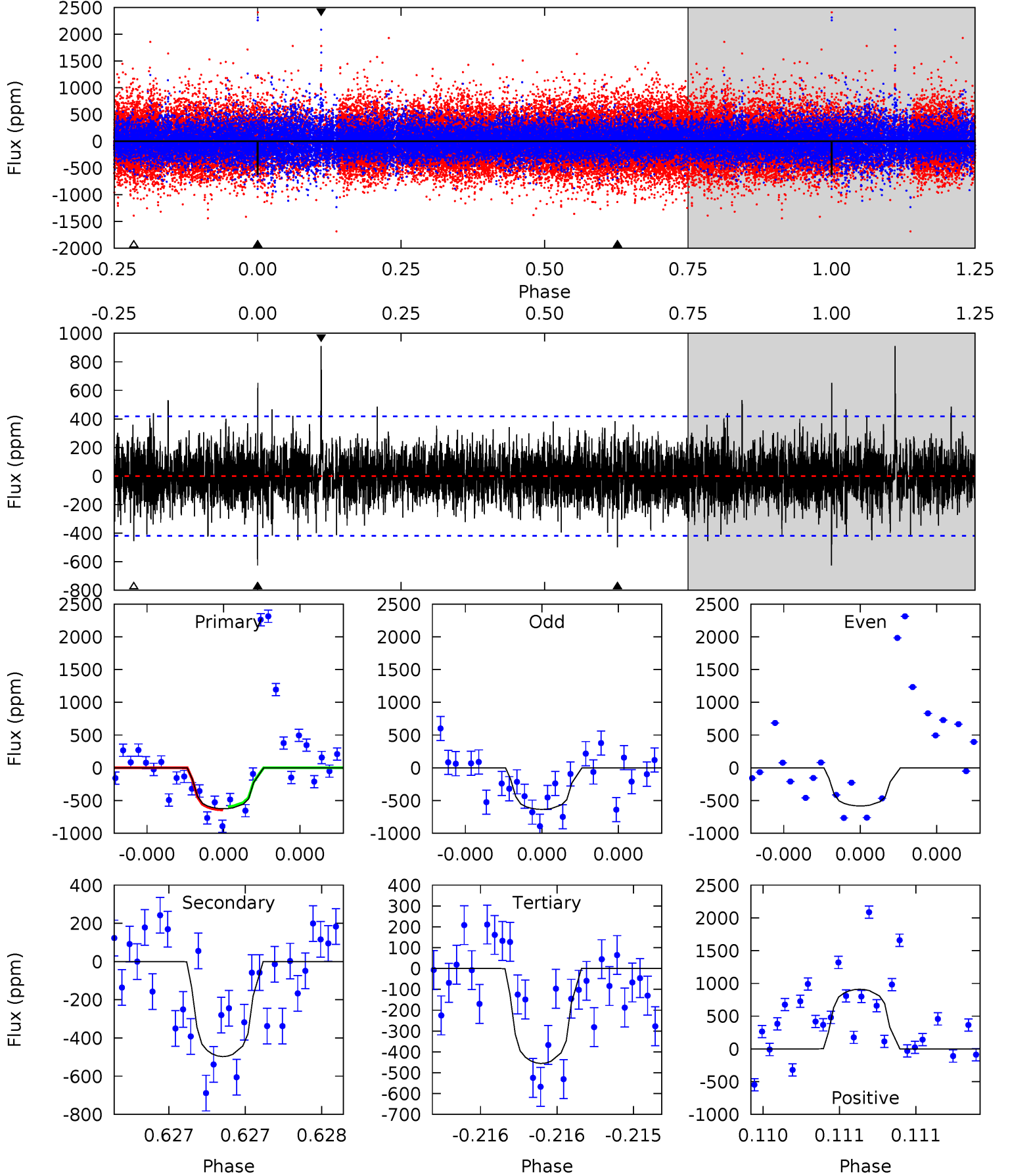
TCE 010907381-02 $P=314.018175$ Days $T_0=400.358779$ (BKJD)



DV Model-Shift Uniqueness Test

010907381-02, P = 314.014807 Days, E = 86.350610 Days

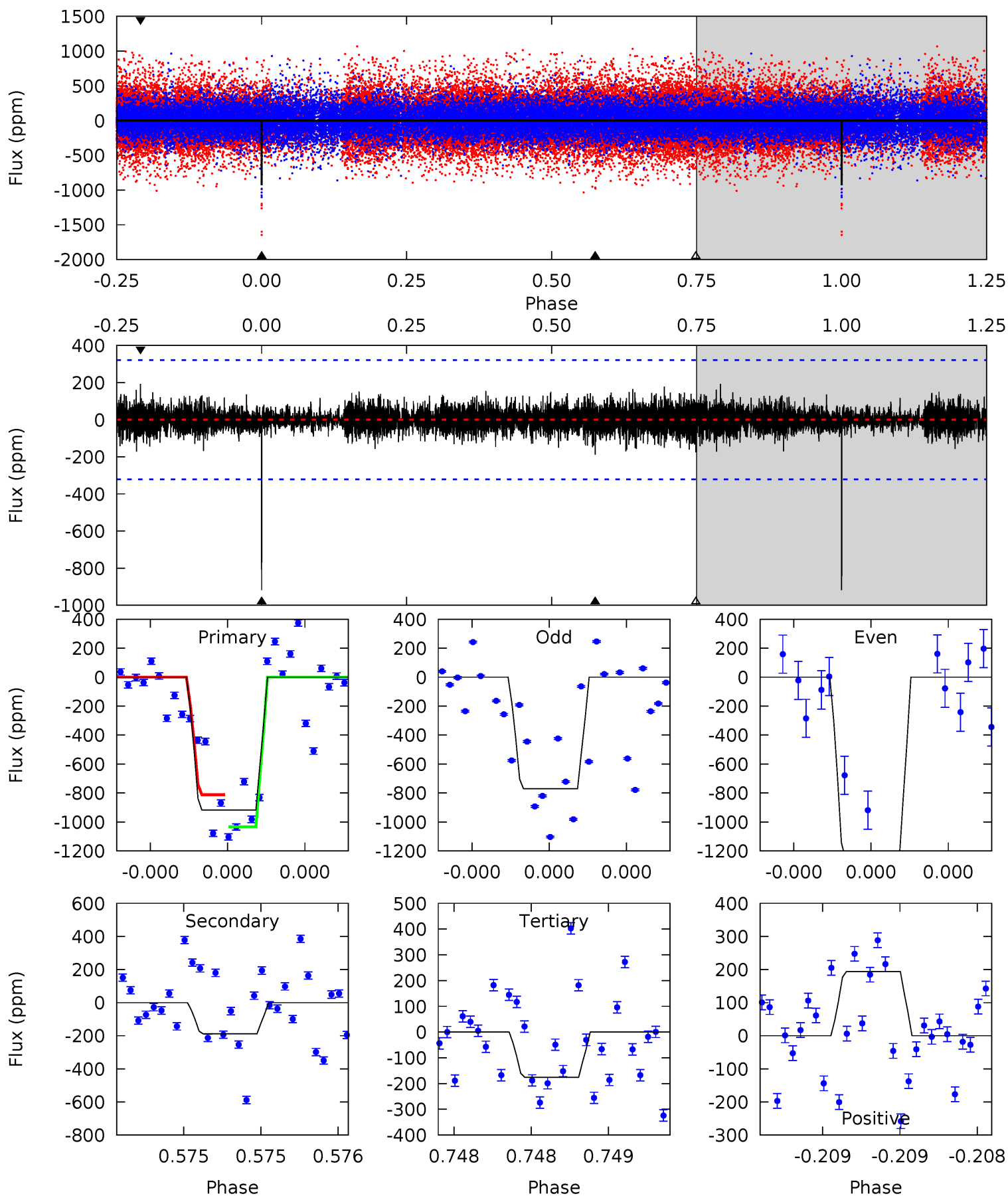
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.33	6.63	6.07	12.1	5.58	3.49	1.53	2.26	-3.80	0.56	-5.50	0.32	1.06	0.59	0.31



Alt Model-Shift Uniqueness Test

010907381-02, P = 314.018175 Days, E = 86.340604 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	3.28	3.06	3.37	5.60	3.52	0.74	12.9	12.6	0.22	-0.09	3.98	1.15	0.17	1.94



Stellar Parameters For KIC 010907381

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5904^{+142}_{-160}	$4.543^{+0.046}_{-0.196}$	$-0.240^{+0.300}_{-0.300}$	$0.867^{+0.247}_{-0.077}$	$0.958^{+0.109}_{-0.120}$	$2.073^{+0.391}_{-1.029}$
	+2%/-3%	+1%/-4%	+125%/-125%	+28%/-9%	+11%/-13%	+19%/-50%
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 010907381-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-497 ± 75	$4.39^{+4.12}_{-2.82}$	367^{+24}_{-16}	4425^{+2525}_{-905}	10723^{+67755}_{-7763}
Alt.	-188 ± 57	$4.81^{+4.09}_{-3.03}$	367^{+22}_{-17}	3587^{+1688}_{-620}	3383^{+21305}_{-2431}

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 $A_{obs} \gg 1.0$

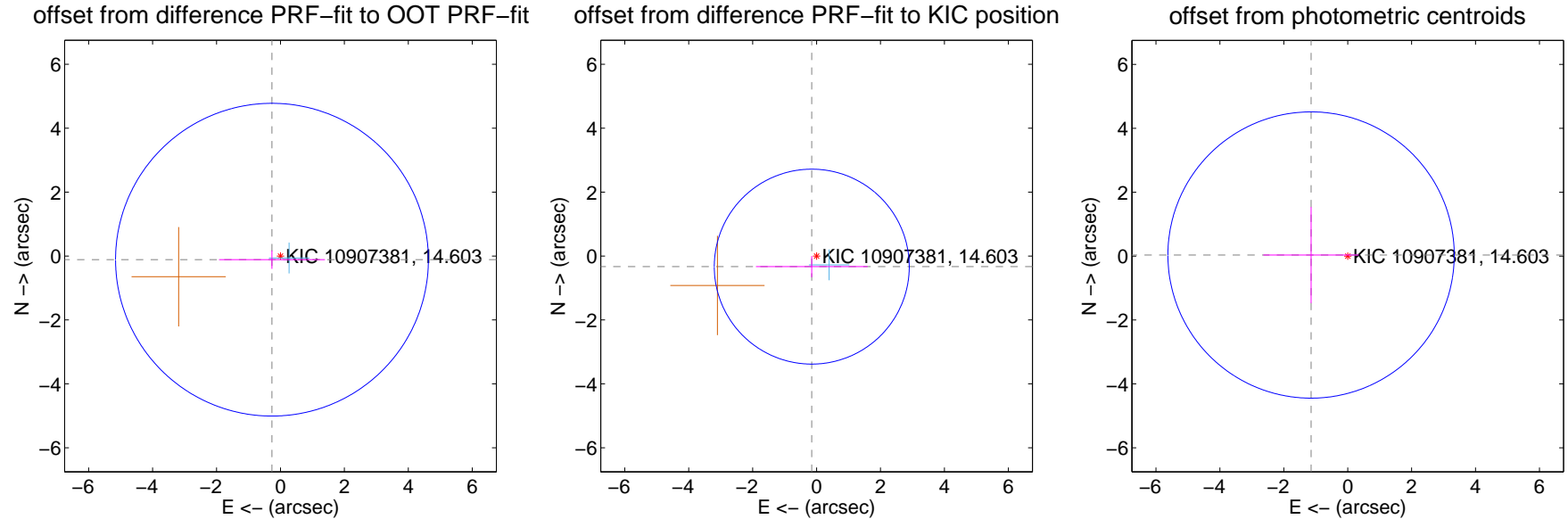
DV Centroid Data

Supplemental centroid analysis for 010907381-02. Kepler magnitude: 14.60. Transit SNR 5.71

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.289 ± 1.631	0.18	0.265 ± 1.656	-0.115 ± 0.287
PRF-fit source offset from KIC position	0.364 ± 1.016	0.36	0.150 ± 1.747	-0.332 ± 0.330
photometric centroid source offset	1.15 ± 1.49	0.77	1.15 ± 1.49	0.03 ± 1.50



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.

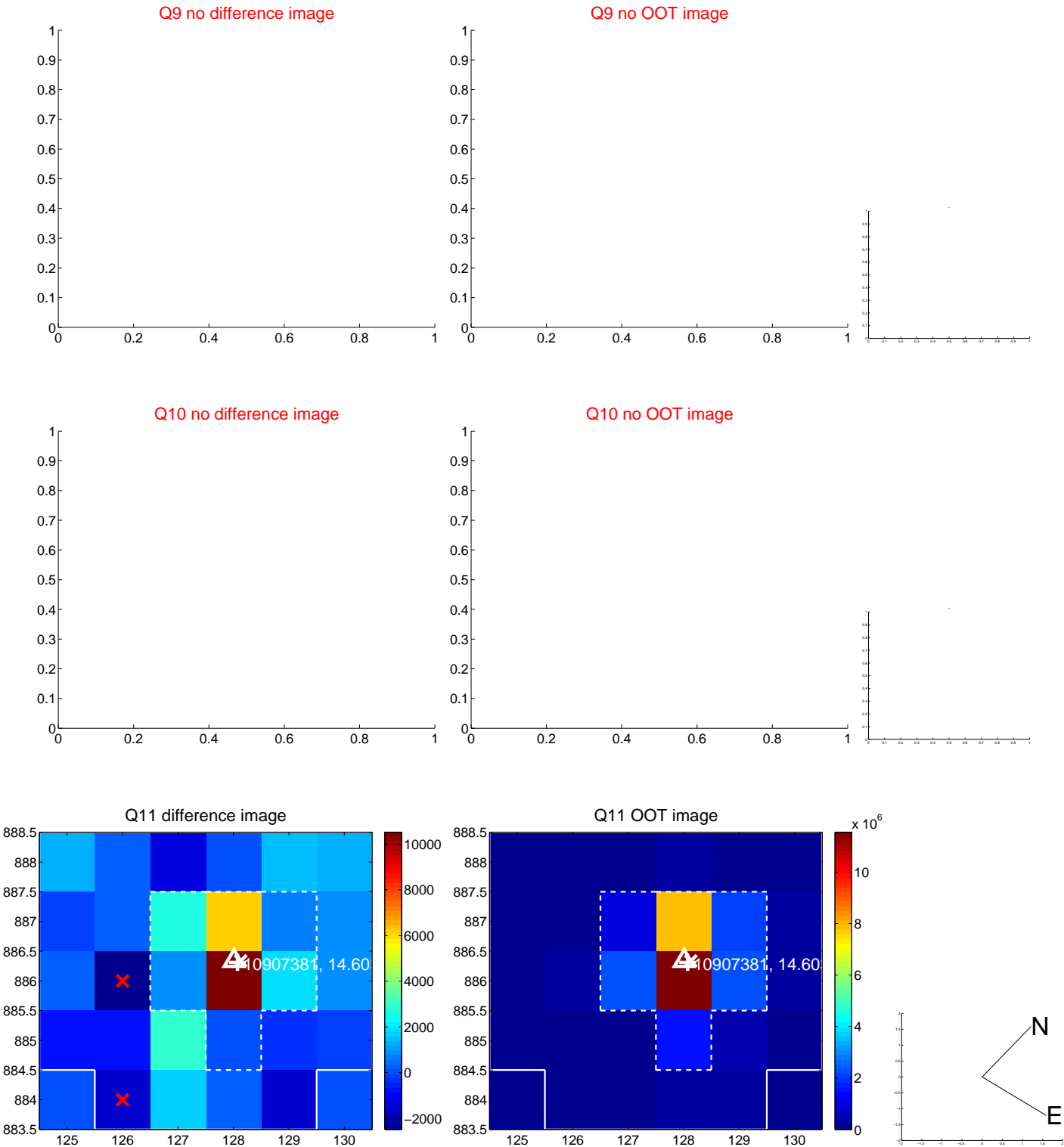
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



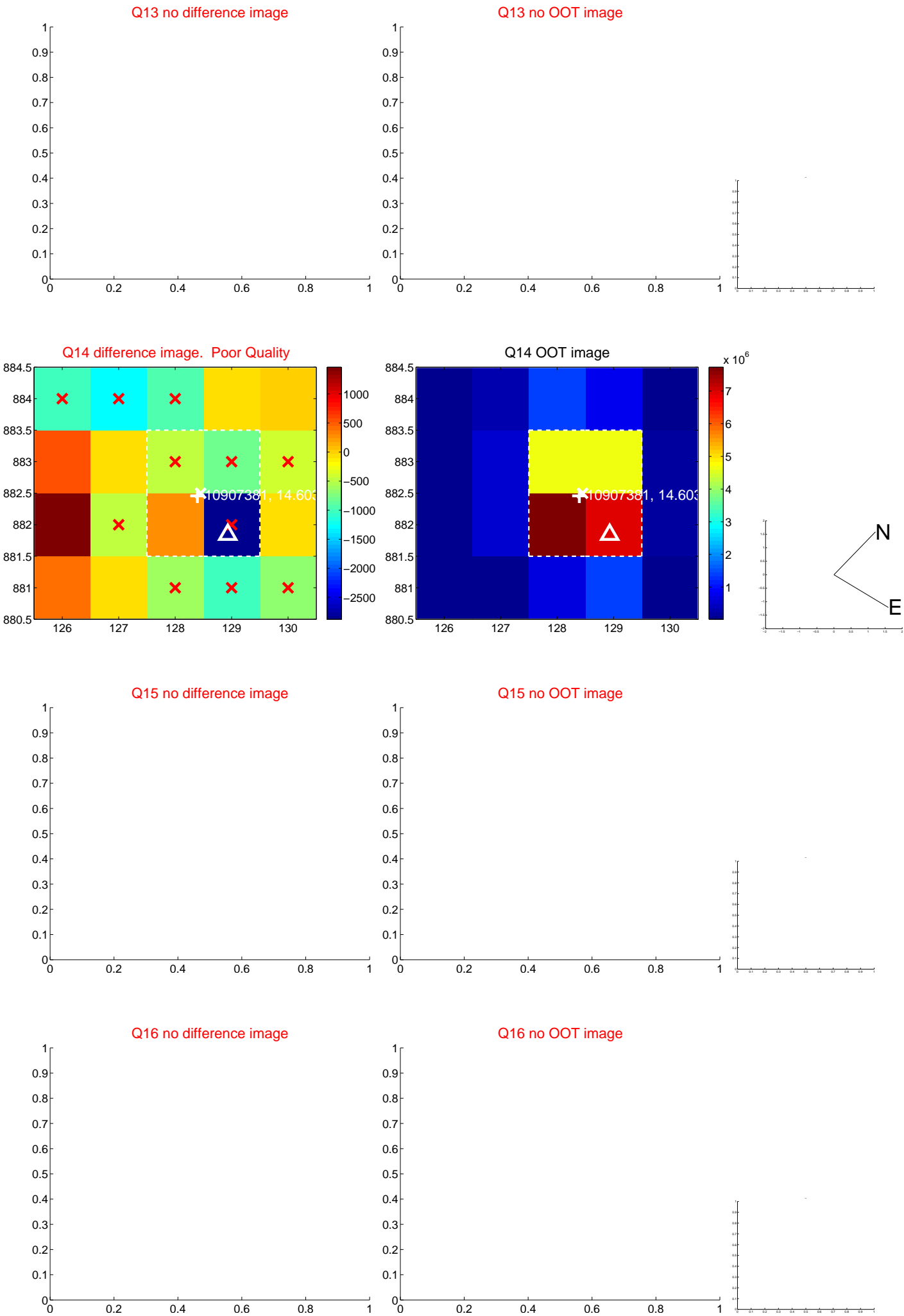
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



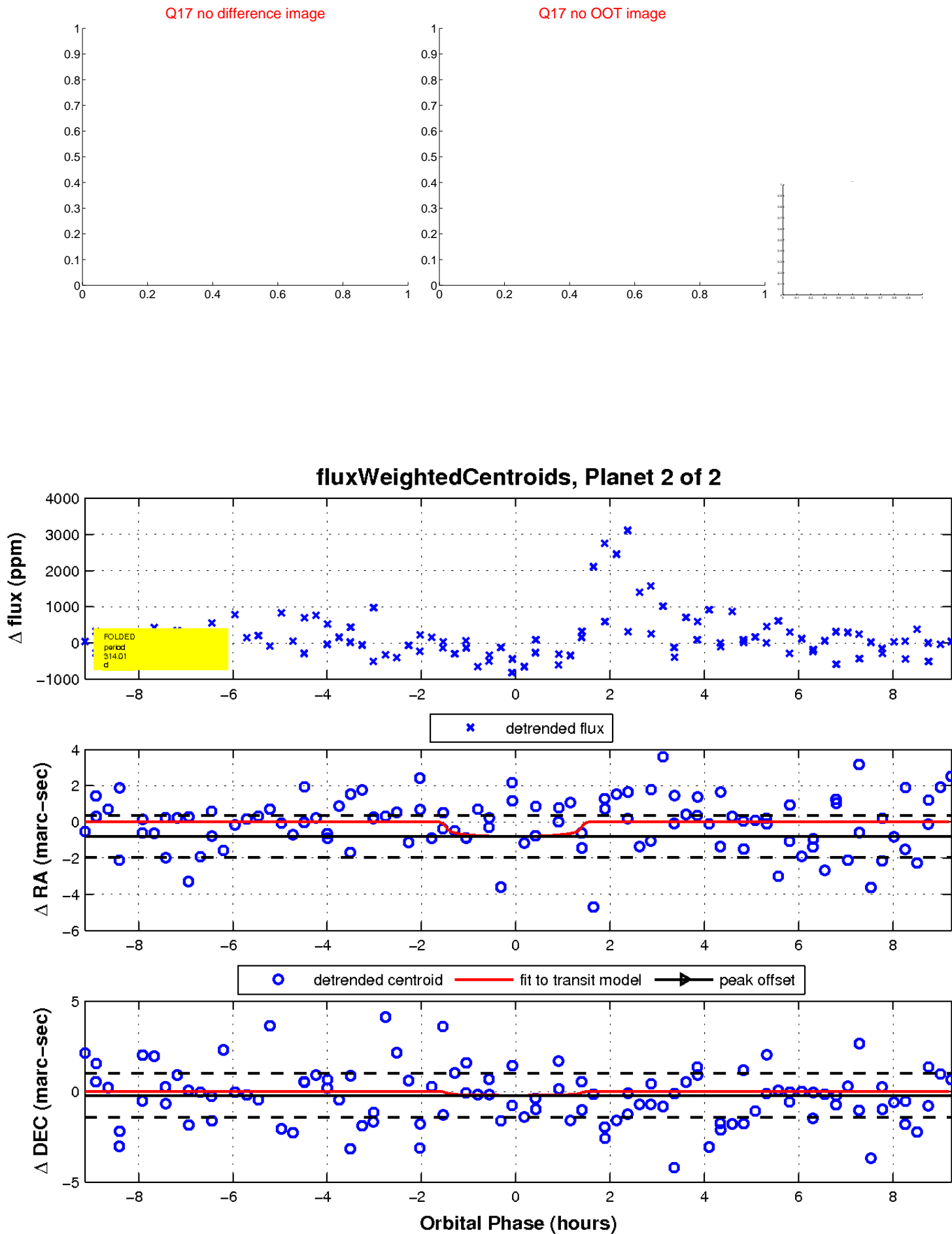
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

