

KIC 008387281

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})
008387281-01	OBS	No	227.929999	201.376378	2433.5	8.341	14.0	6.3	165.46	3441	1419.66	2710.40
008387281-02	OBS	No	177.254708	171.203947	2497.3	3.622	13.1	7.7	165.46	3441	924.95	3789.99
008387281-03	OBS	No	83.287353	157.308542	11469.9	20.965	11.9	15.3	165.46	3441	3453.65	0.00
008387281-04	OBS	No	194.341717	165.683464	2491.9	6.759	11.3	7.5	165.46	3441	862.66	3352.33
008387281-05	OBS	No	261.232284	374.362971	2836.9	6.710	15.0	8.4	165.46	3441	873.68	2259.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008387281-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008387281-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008387281-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
008387281-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
008387281-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS

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

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

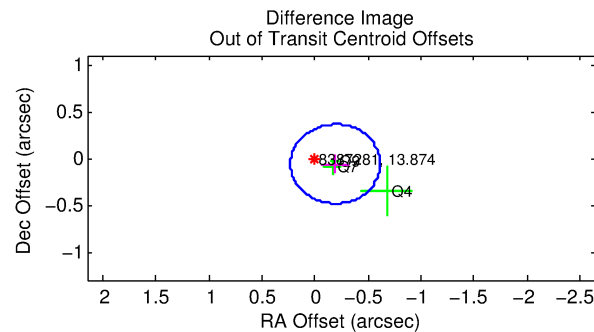
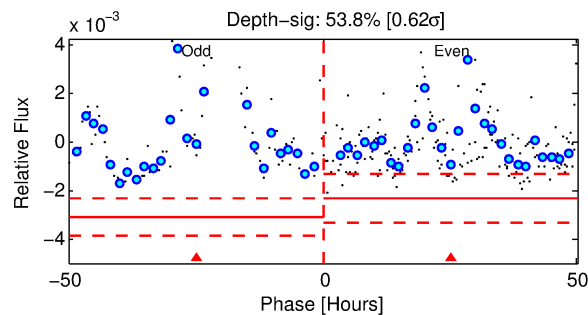
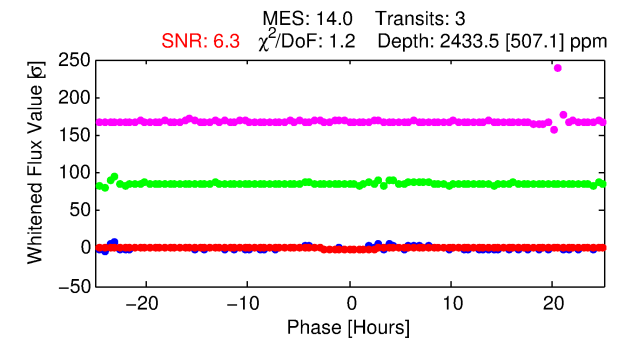
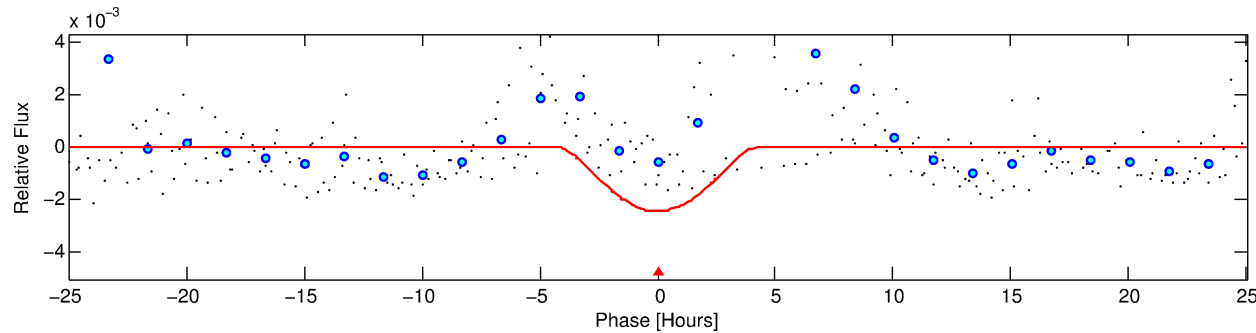
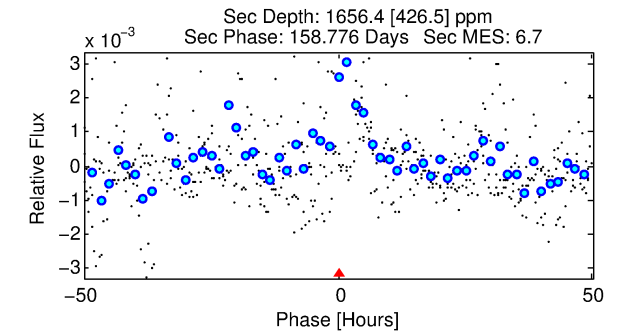
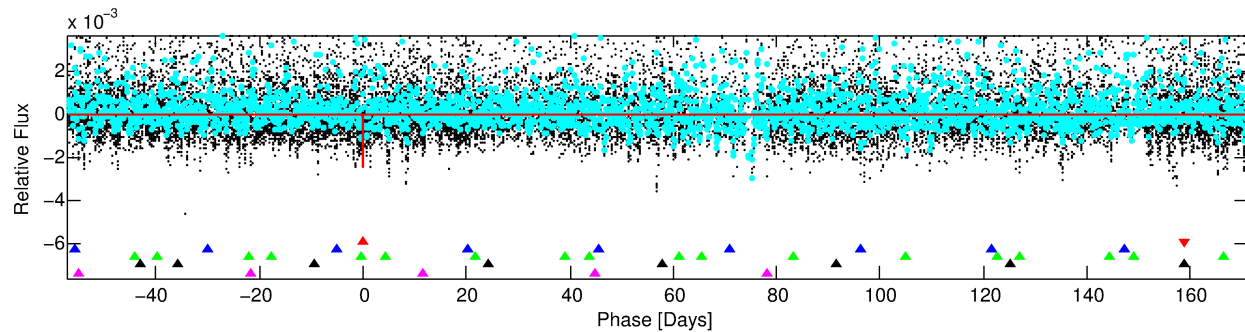
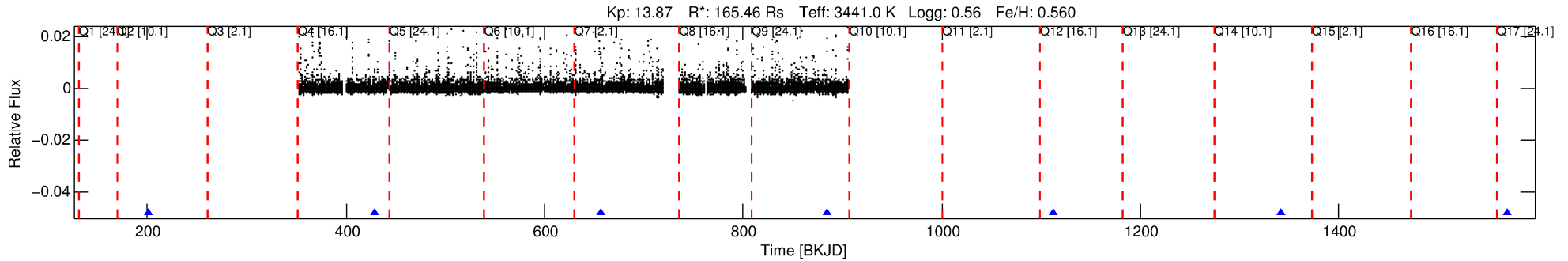
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008387281-01

No Significant Match Found

DV One-Page Summary

KIC: 8387281 Candidate: 1 of 5 Period: 227.930 d



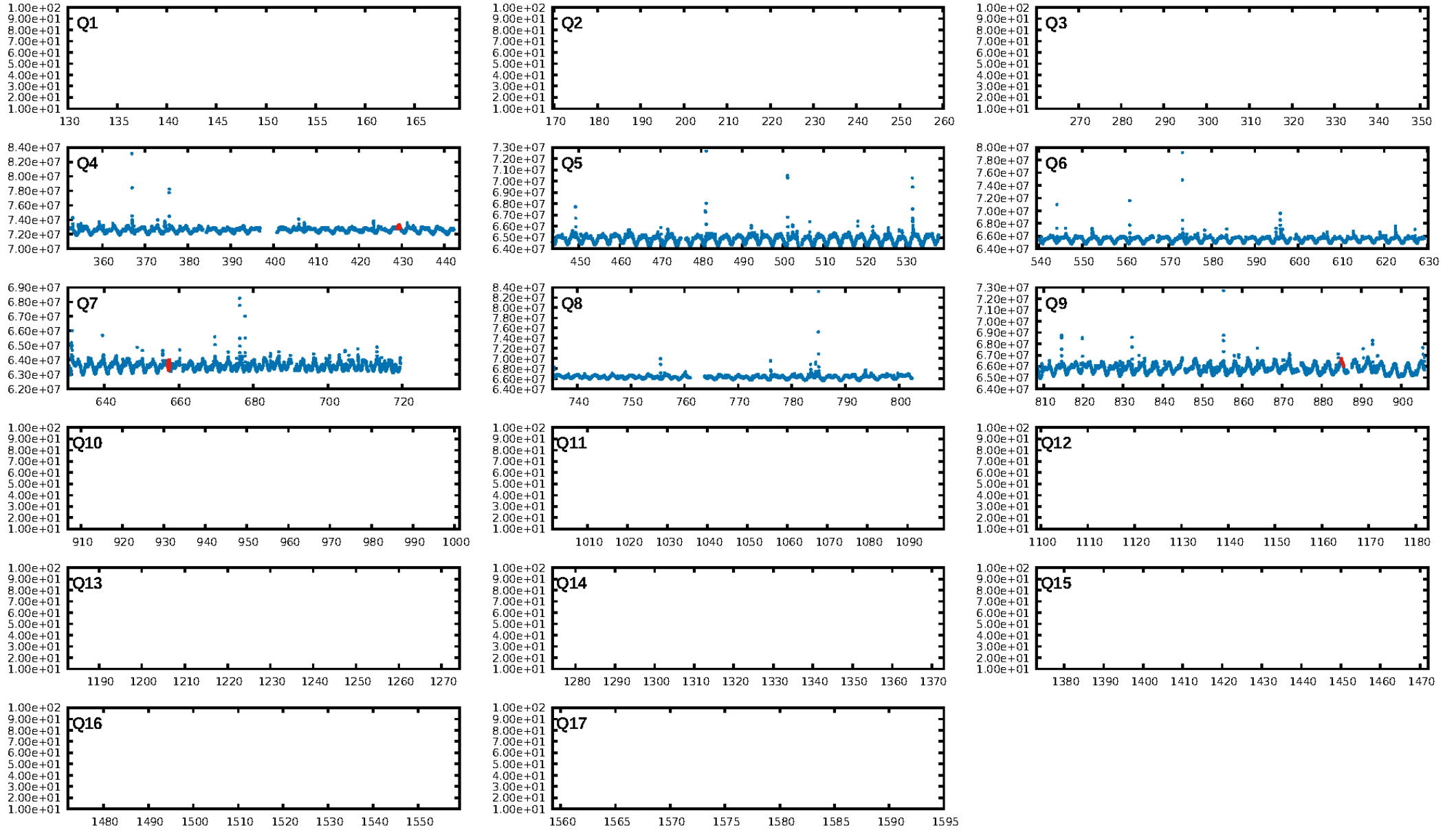
DV Fit Results:

Period = 227.93000 [0.01749] d
Epoch = 201.3764 [0.0358] BKJD
Rp/R* = 0.0786 [0.1657]
a/R* = 96.72 [53.84]
b = 0.97 [0.28]
Seff = 2710.40 [1585.69]
Teq = 1840 [269] K
Rp = 1419.66 [3088.17] Re
a = 1.1264 [0.4746] AU
Ag = 0.57 [2.44] [-0.17σ]
Teffp = 2476 [2615] K [0.24σ]

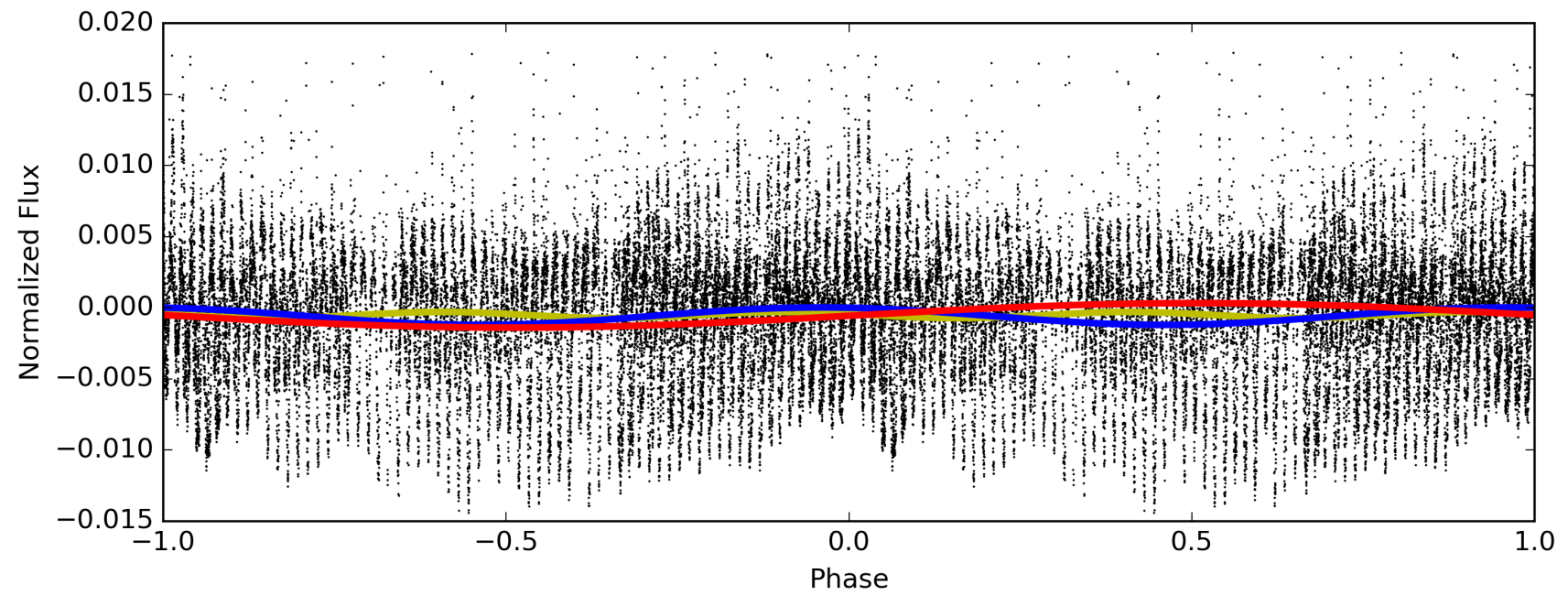
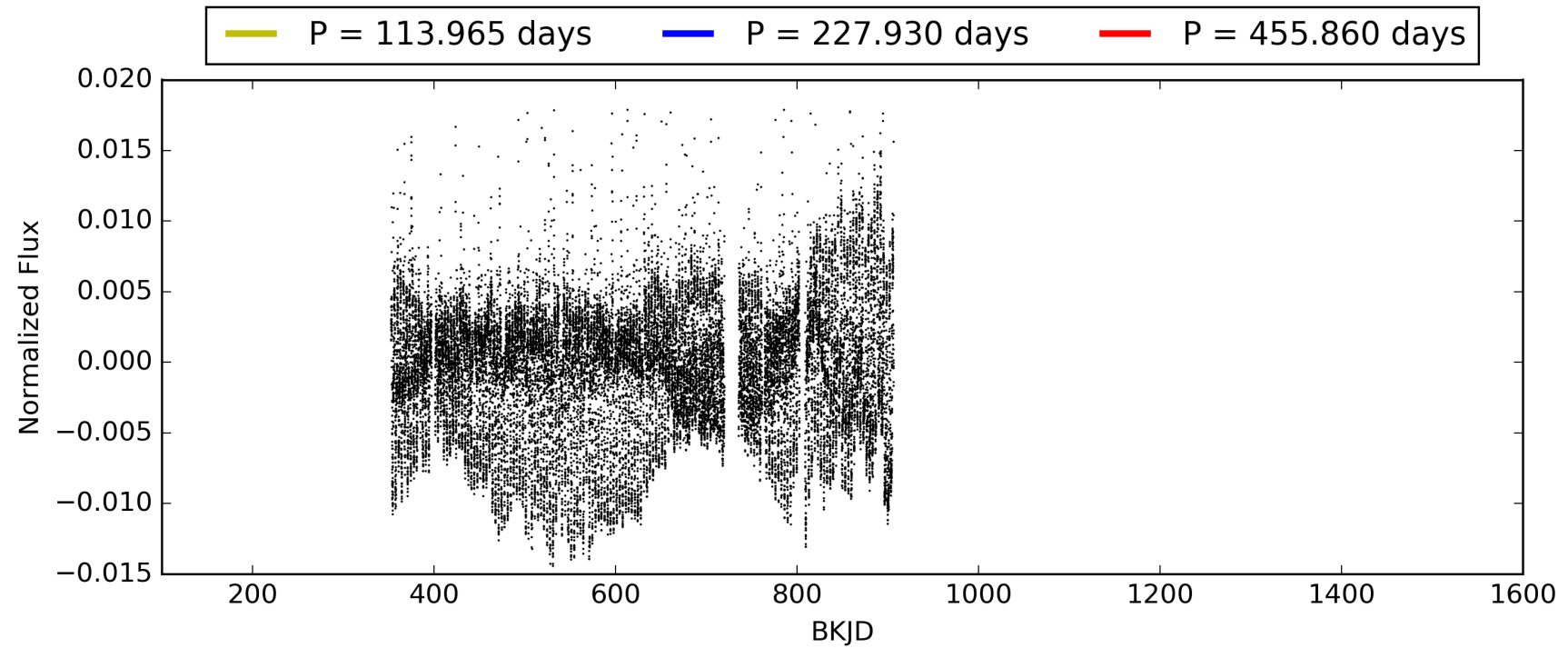
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [75.09σ]
LongPeriod-sig: 100.0% [74.66σ]
ModelChiSquare2-sig: 9.9%
ModelChiSquareGof-sig: 96.7%
Bootstrap-pfa: 1.81e-16
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 4.108
Centroid-sig: 74.0%
Centroid-so: 0.421 arcsec [1.58σ]
OotOffset-rm: 0.200 arcsec [1.42σ]
KicOffset-rm: 0.543 arcsec [2.50σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.67 [2/3]

TCE 008387281-01, PDC Light Curves

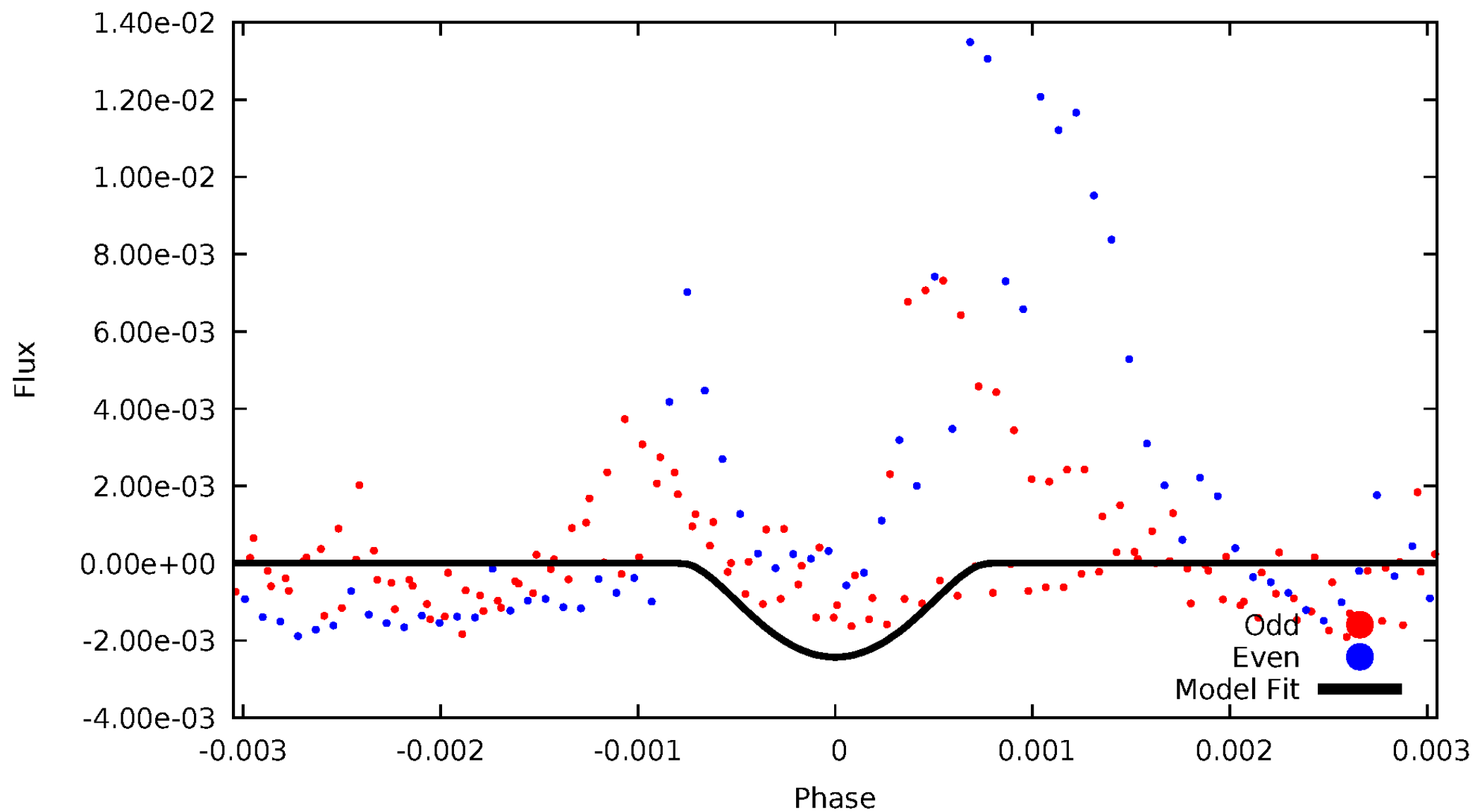


TCE 008387281-01



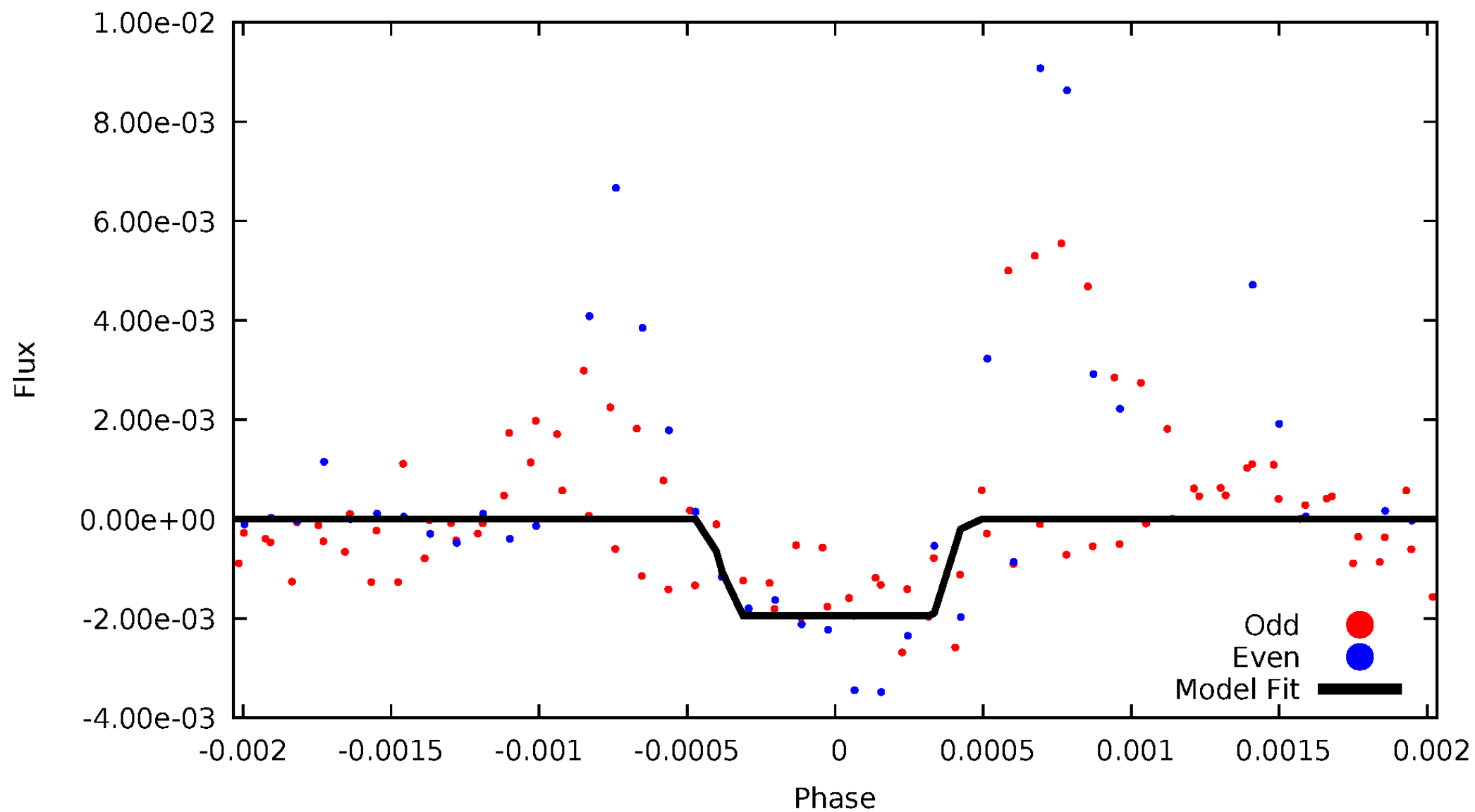
DV Odd/Even

TCE 008387281-01



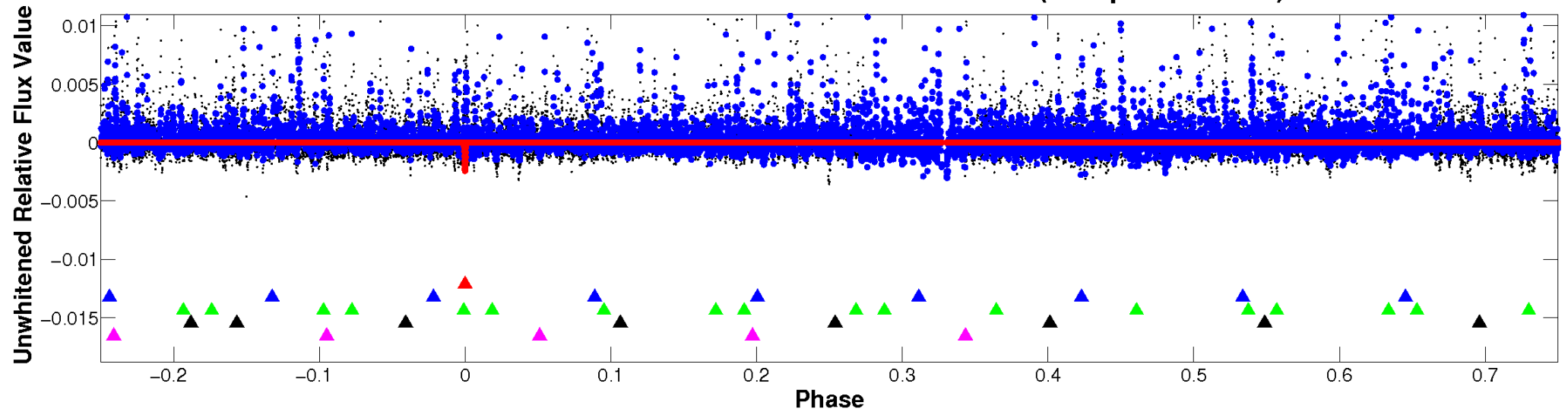
ALT Odd/Even

TCE 008387281-01

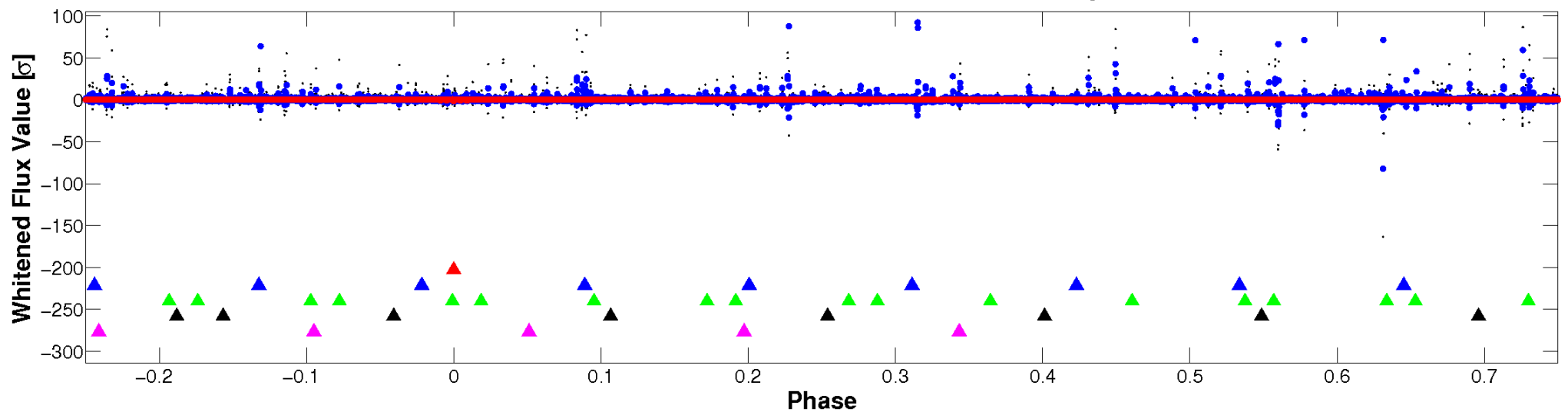


Non-Whitened Vs. Whitened Light Curve

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

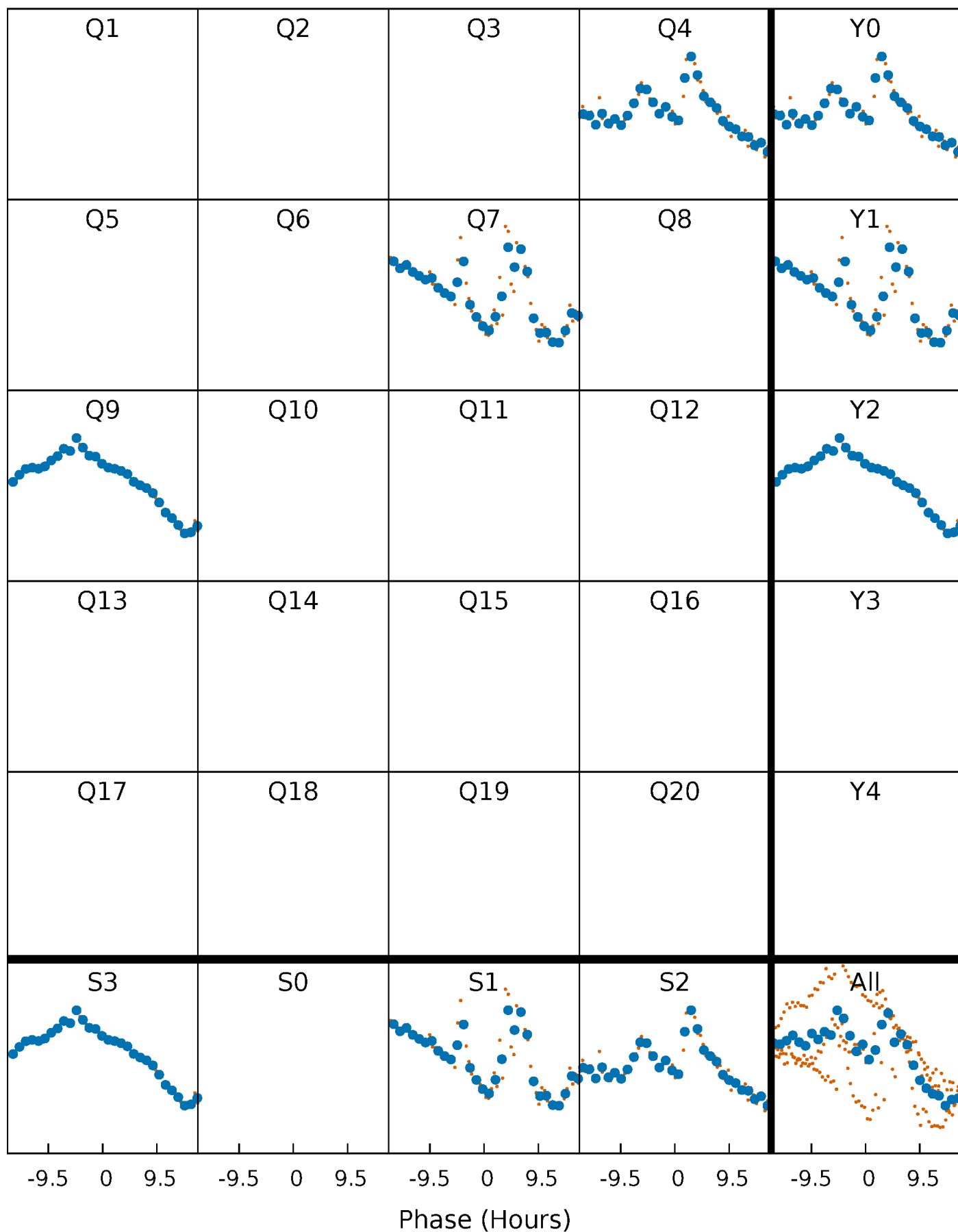


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



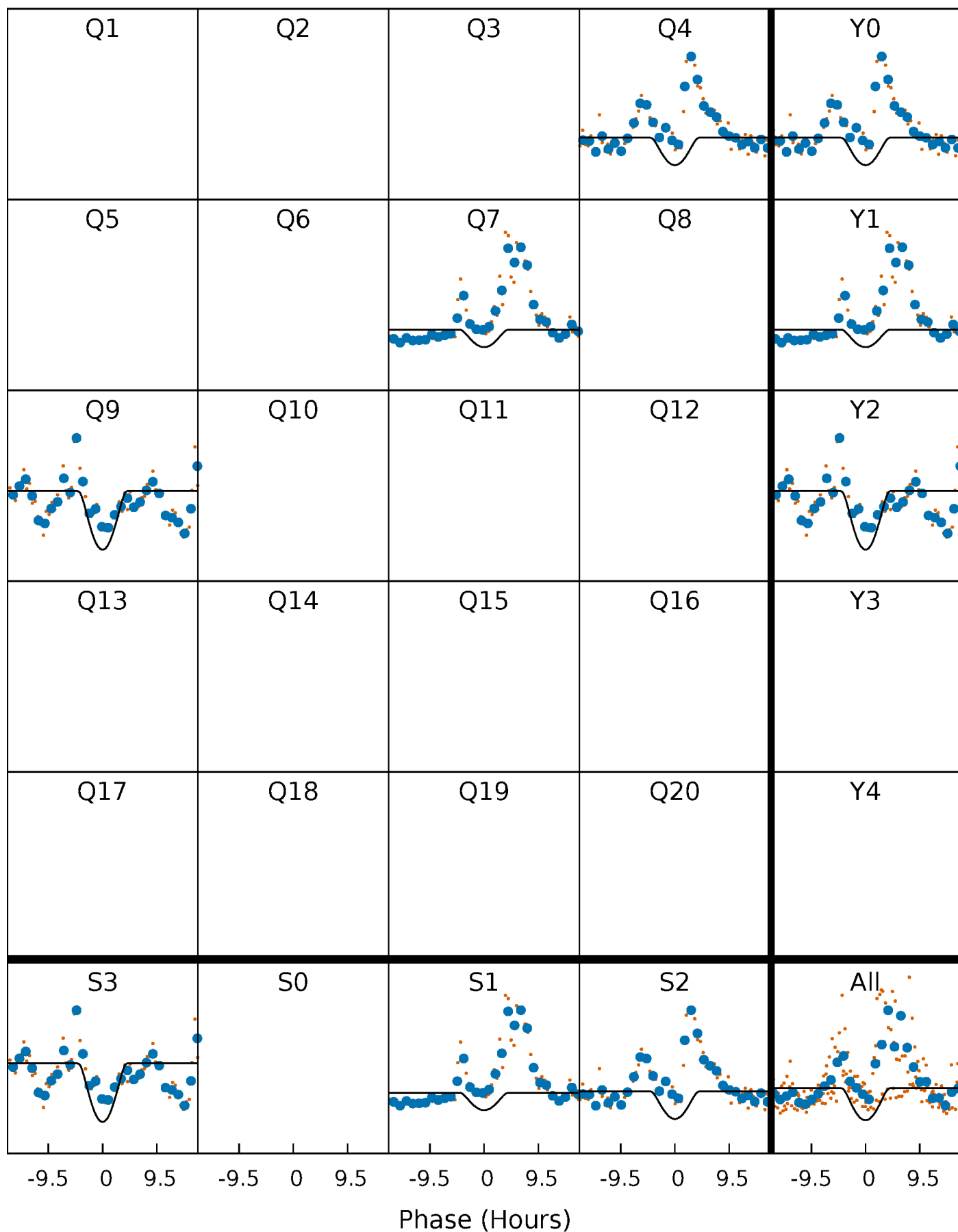
PDC Quarter-Phased Transit Curves

TCE 008387281-01 P=227.929999 Days $T_0=201.376378$ (BKJD)



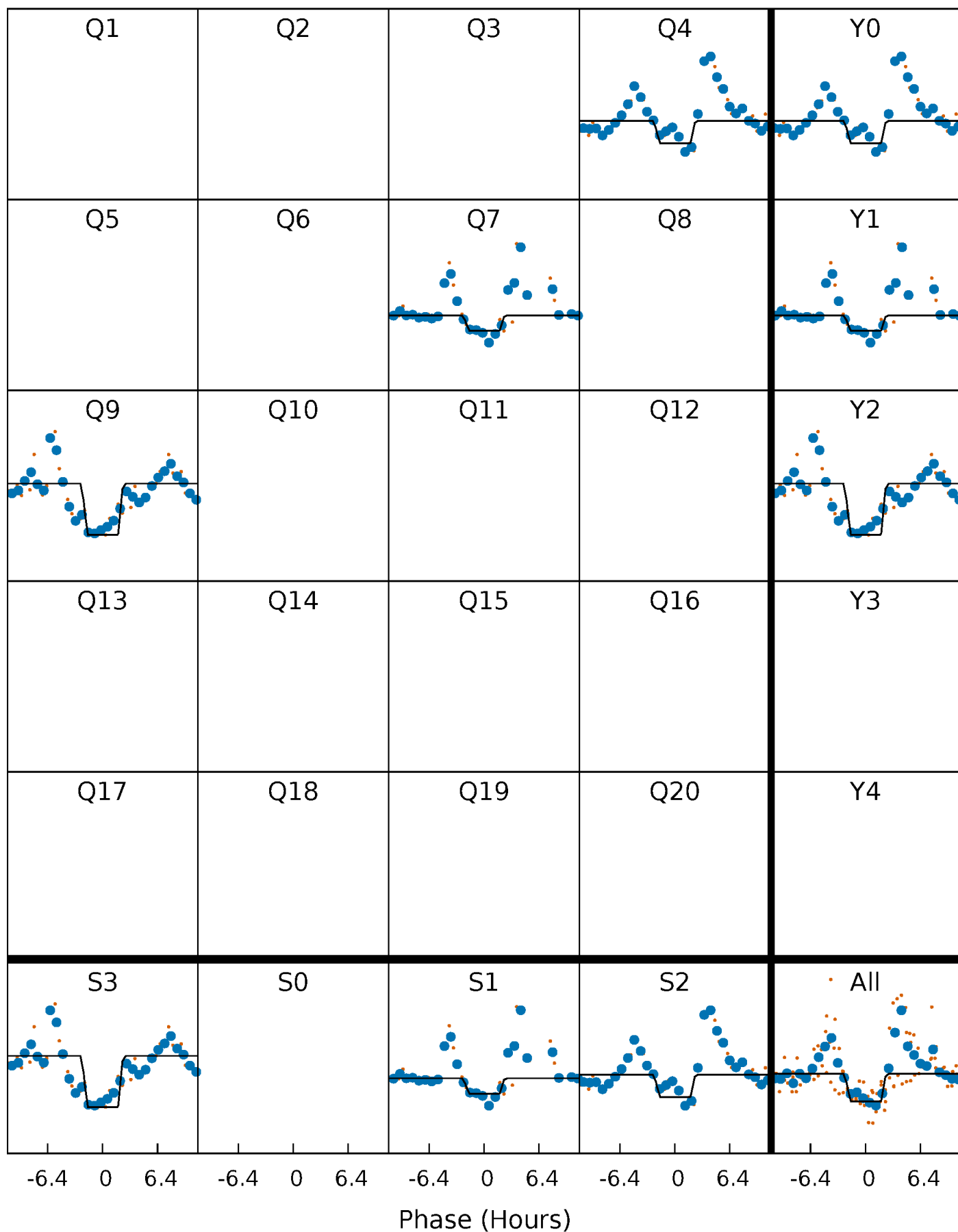
DV Quarter-Phased Transit Curves

TCE 008387281-01 P=227.929999 Days $T_0=201.376378$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

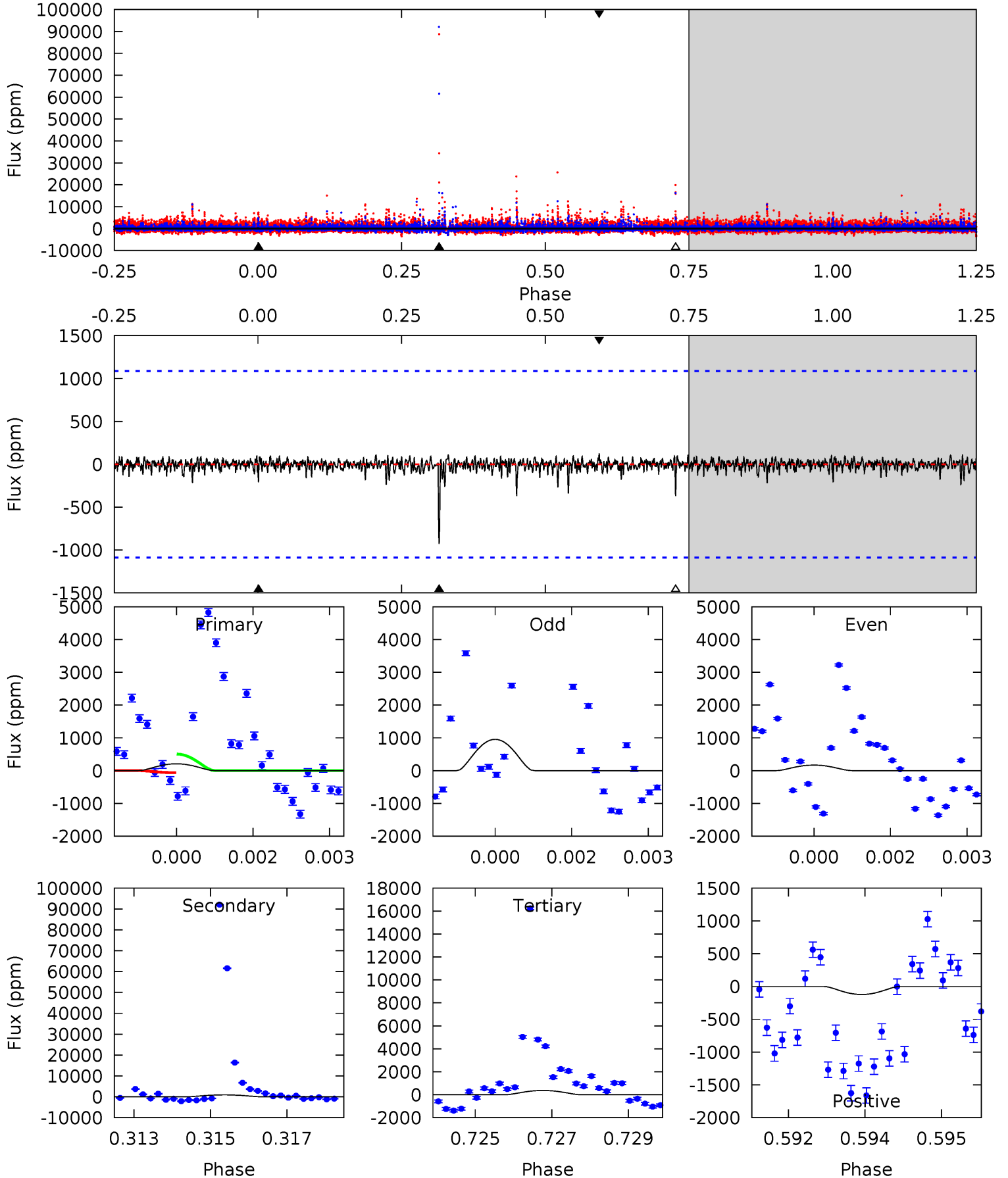
TCE 008387281-01 P=227.977229 Days $T_0=201.279753$ (BKJD)



DV Model-Shift Uniqueness Test

008387281-01, P = 227.929999 Days, E = 201.376378 Days

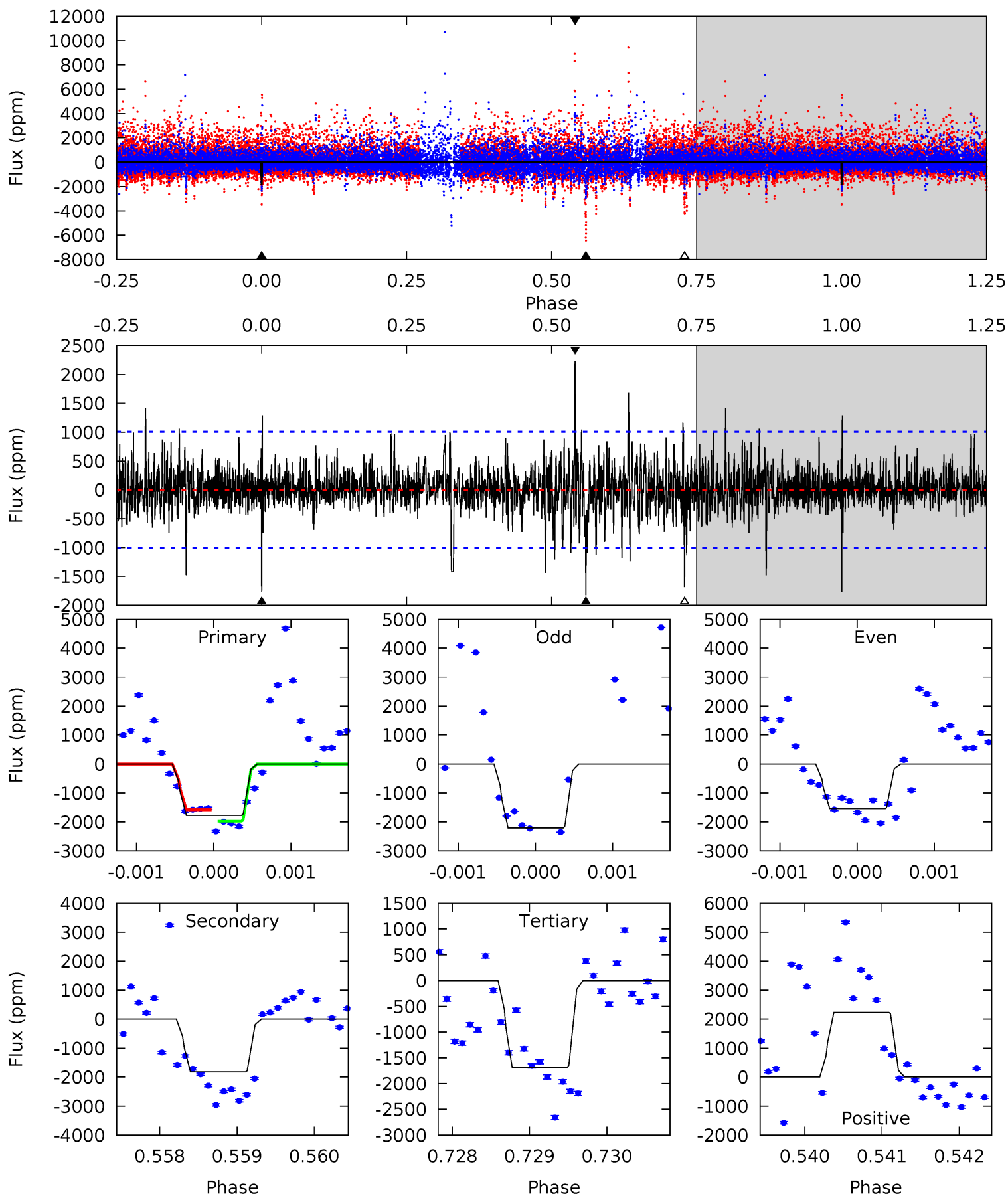
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.03	4.55	1.82	0.60	5.37	3.16	0.25	-0.79	0.42	2.73	3.94	1.02	0.39	0.12	1.08



Alt Model-Shift Uniqueness Test

008387281-01, P = 227.977229 Days, E = 201.279753 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.65	9.92	9.17	12.1	5.47	3.33	1.66	0.48	-2.49	0.74	-2.22	1.43	1.08	0.55	1.09



Stellar Parameters For KIC 008387281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3441^{+116}_{-104}	$0.565^{+0.288}_{-0.192}$	$0.560^{+0.050}_{-0.300}$	$165.464^{+22.255}_{-89.019}$	$3.668^{+0.073}_{-2.490}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+51%/-34%	+9%/-54%	+13%/-54%	+2%/-68%	+306%/-37%
Source	KIC0	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 008387281-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-921±203	$2668.81^{+2332.00}_{-1845.87}$	2604^{+176}_{-229}	-2467^{+5255}_{-183}	$0.084^{+0.791}_{-0.062}$
Alt.	-1822±184	$2256.31^{+2386.57}_{-1538.01}$	2610^{+164}_{-253}	-2124^{+5546}_{-462}	$0.241^{+1.939}_{-0.187}$

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 $A_{obs} \gg 1.0$

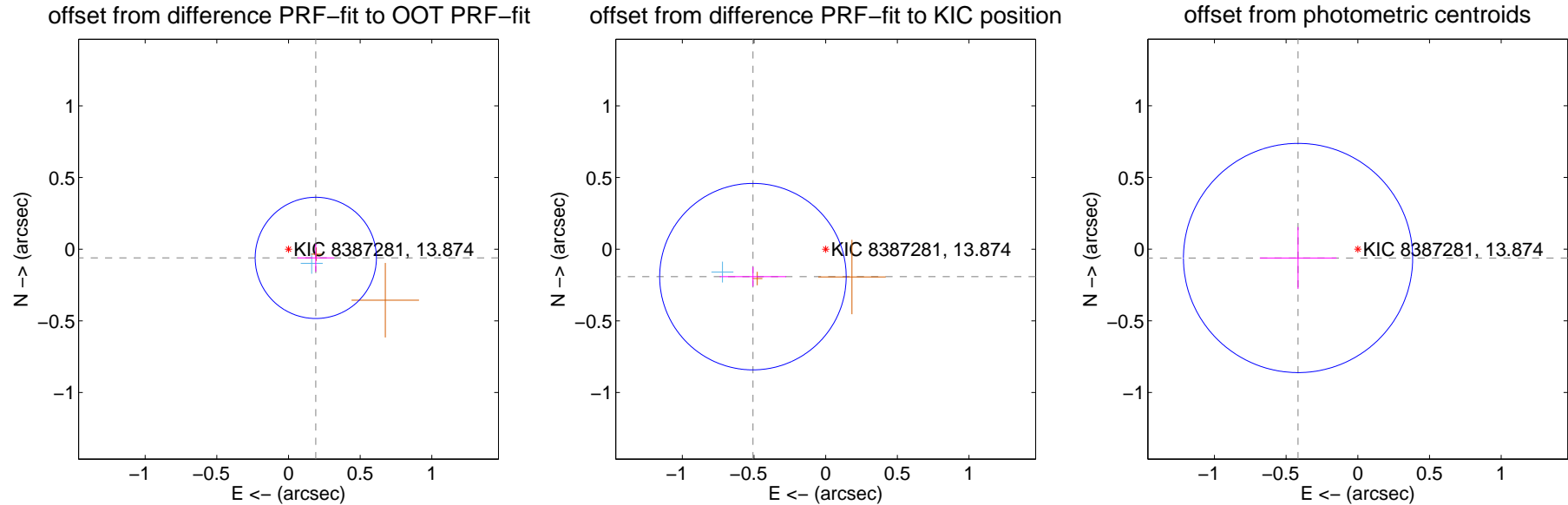
DV Centroid Data

Supplemental centroid analysis for 008387281-01. Kepler magnitude: 13.87. Transit SNR 6.32

There are 1 quarters with good PRF difference image offsets

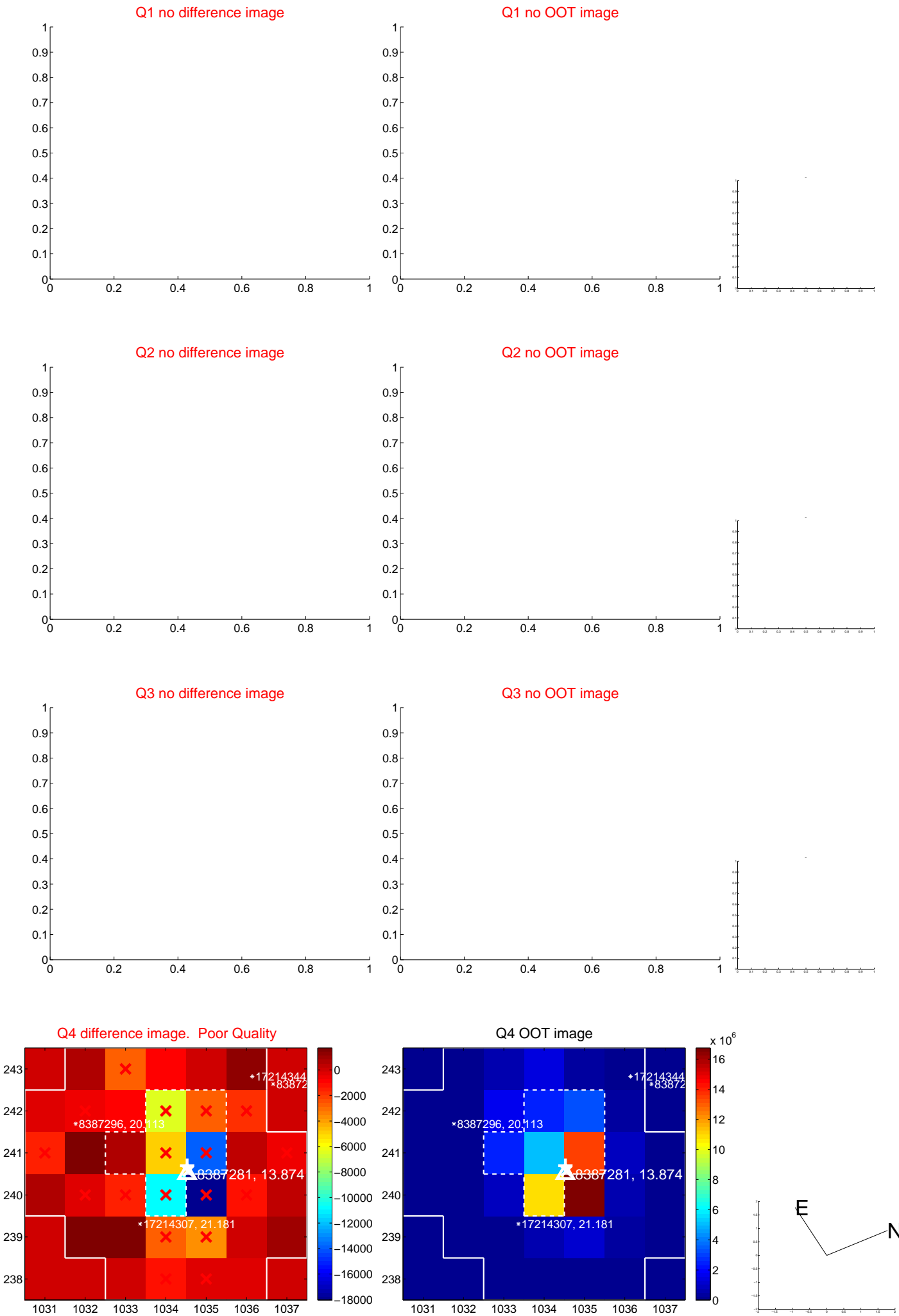
The direct PRF centroid is offset from the target star catalog position by about 0.69 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.200 ± 0.141	1.42	-0.191 ± 0.128	-0.061 ± 0.096
PRF-fit source offset from KIC position	0.543 ± 0.217	2.50	0.508 ± 0.232	-0.192 ± 0.068
photometric centroid source offset	0.42 ± 0.27	1.58	0.42 ± 0.27	-0.06 ± 0.22

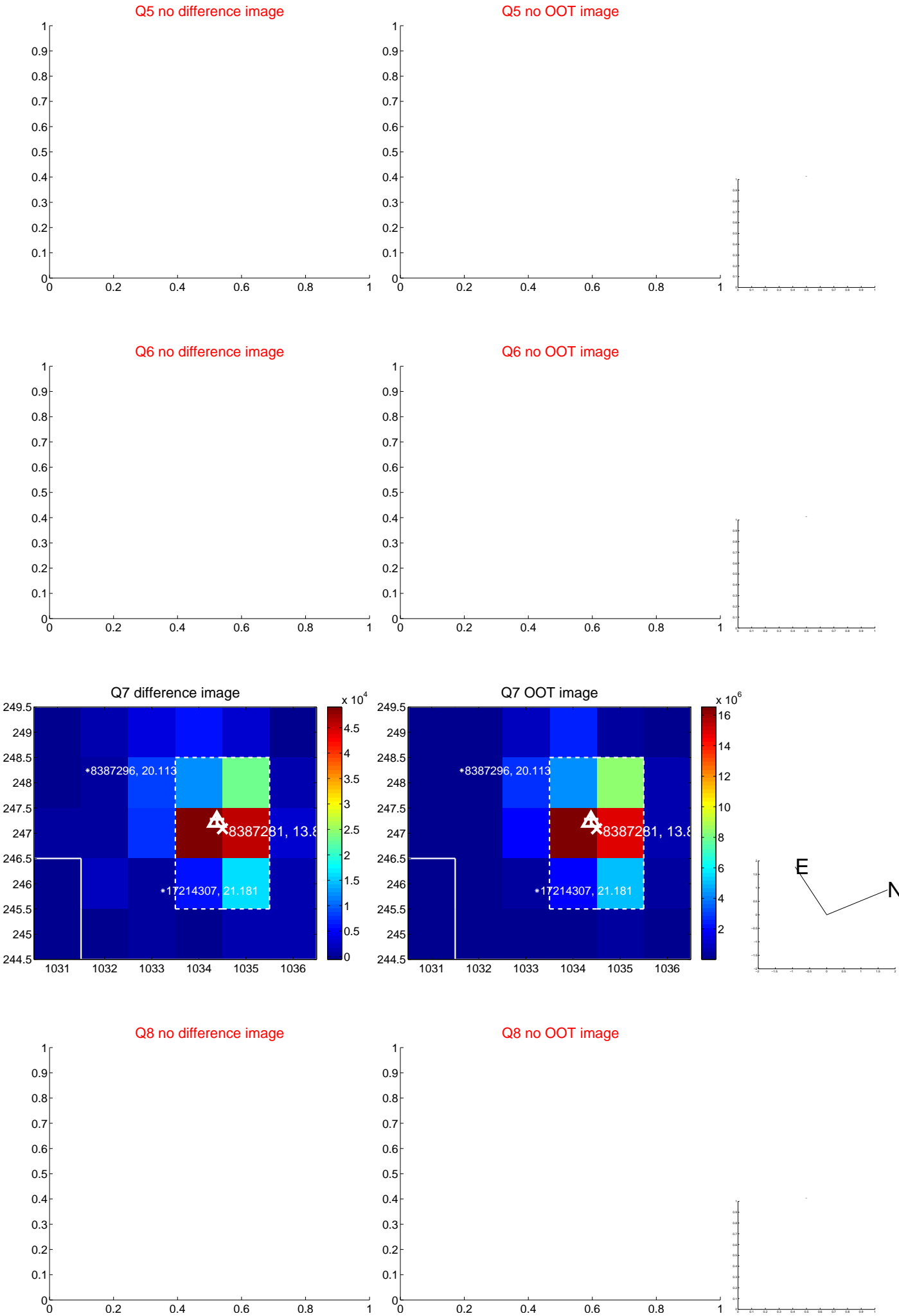


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

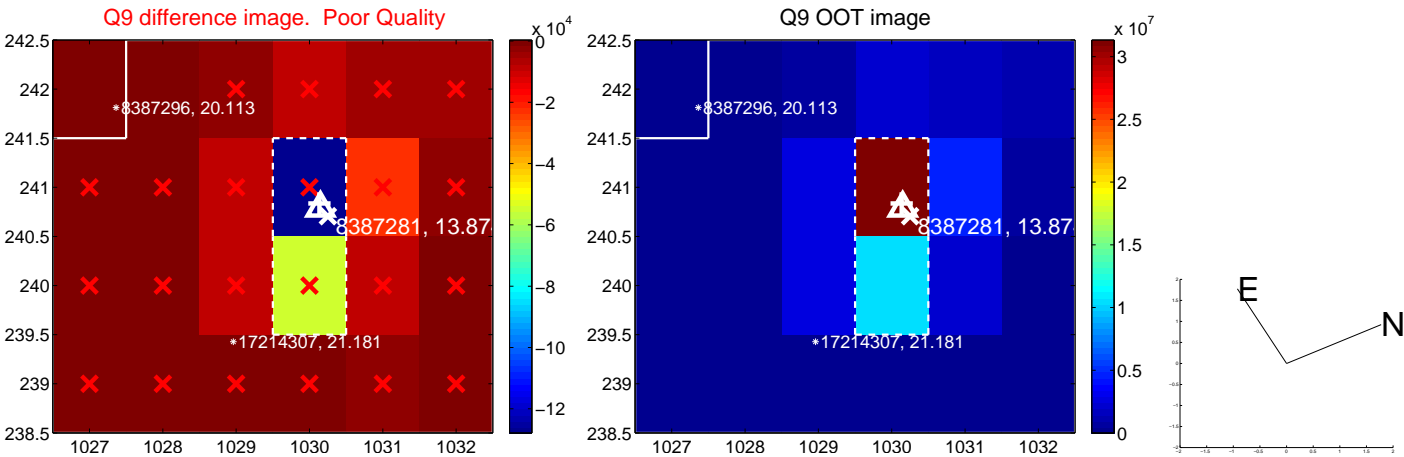
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



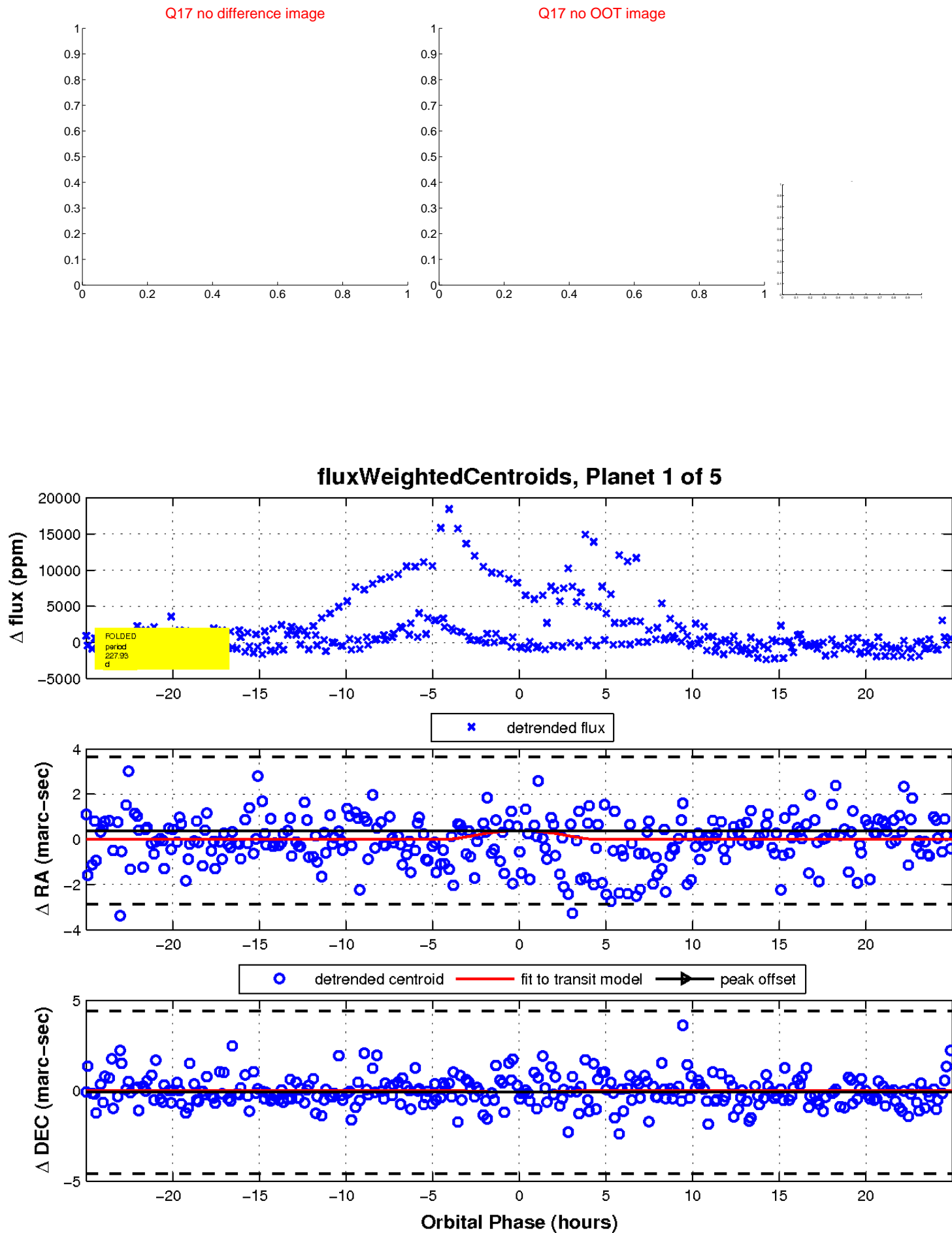
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

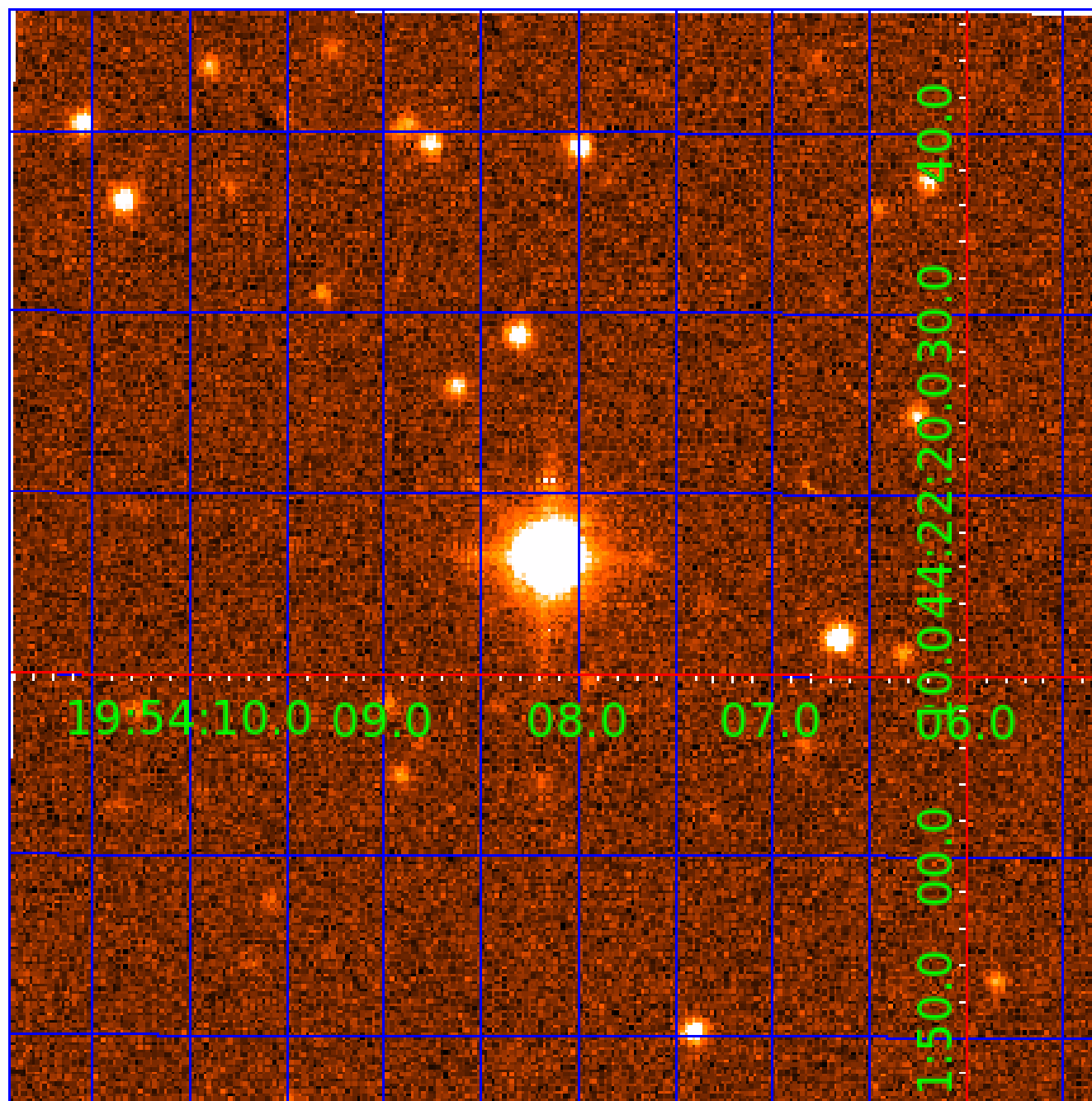


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008387281

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})
008387281-01	OBS	No	227.929999	201.376378	2433.5	8.341	14.0	6.3	165.46	3441	1419.66	2710.40
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Robovetter Results

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008387281-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008387281-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
008387281-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
008387281-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS

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

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

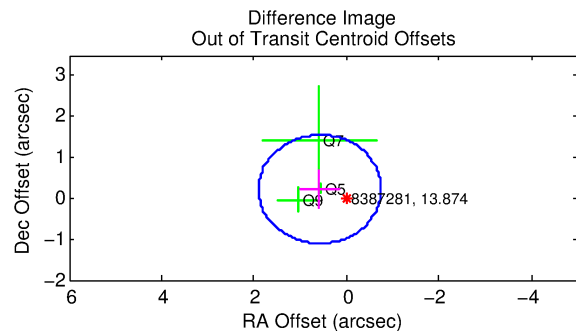
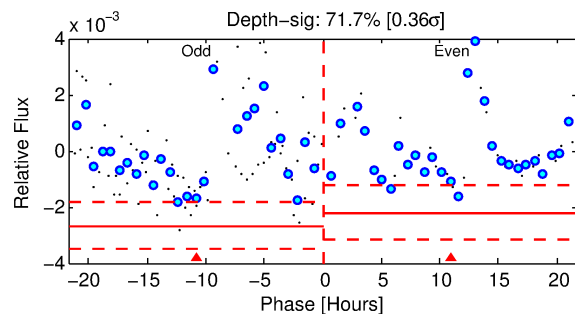
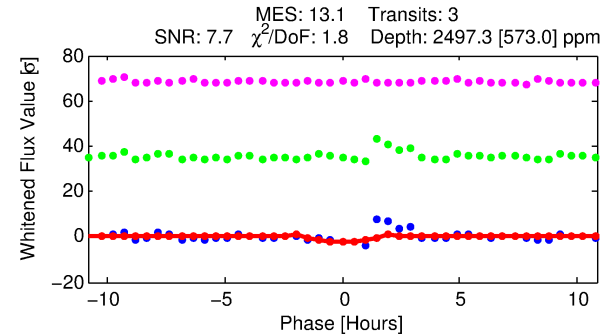
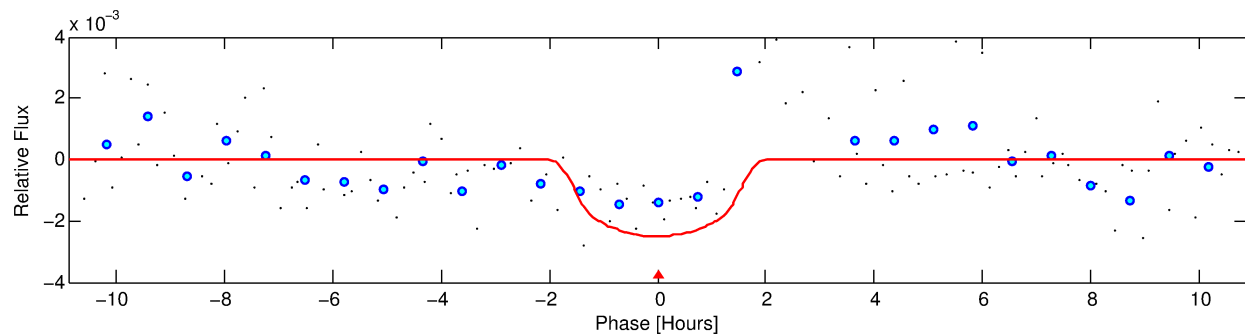
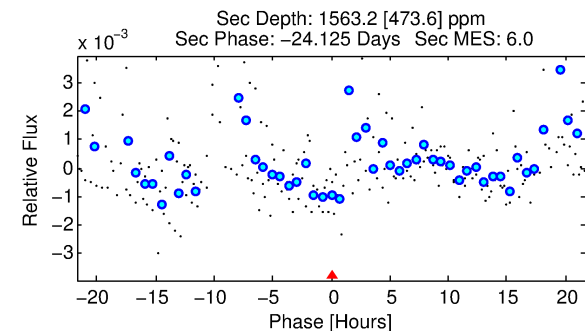
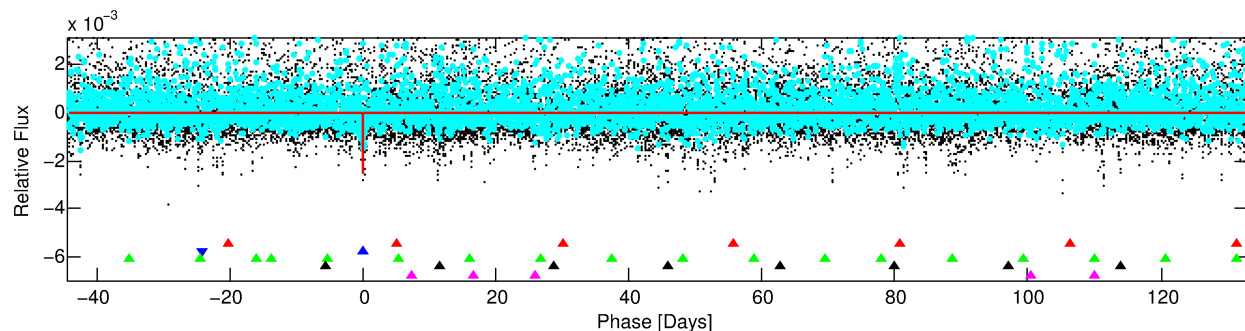
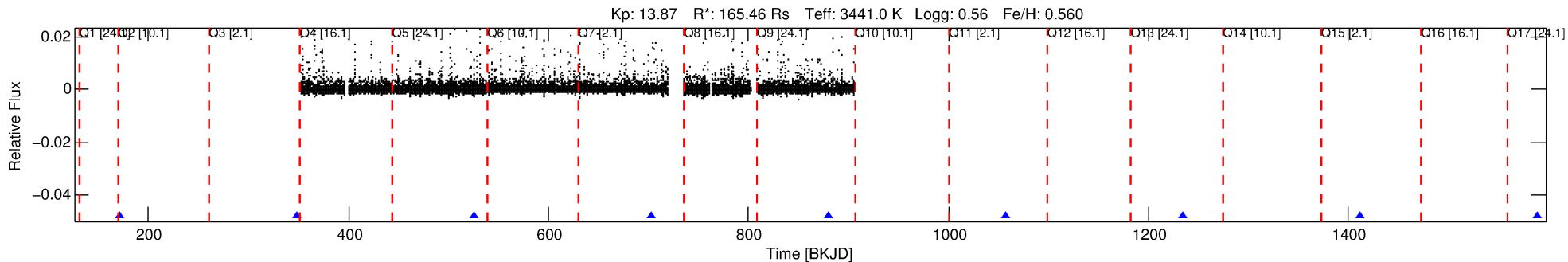
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008387281-02

No Significant Match Found

DV One-Page Summary

KIC: 8387281 Candidate: 2 of 5 Period: 177.255 d



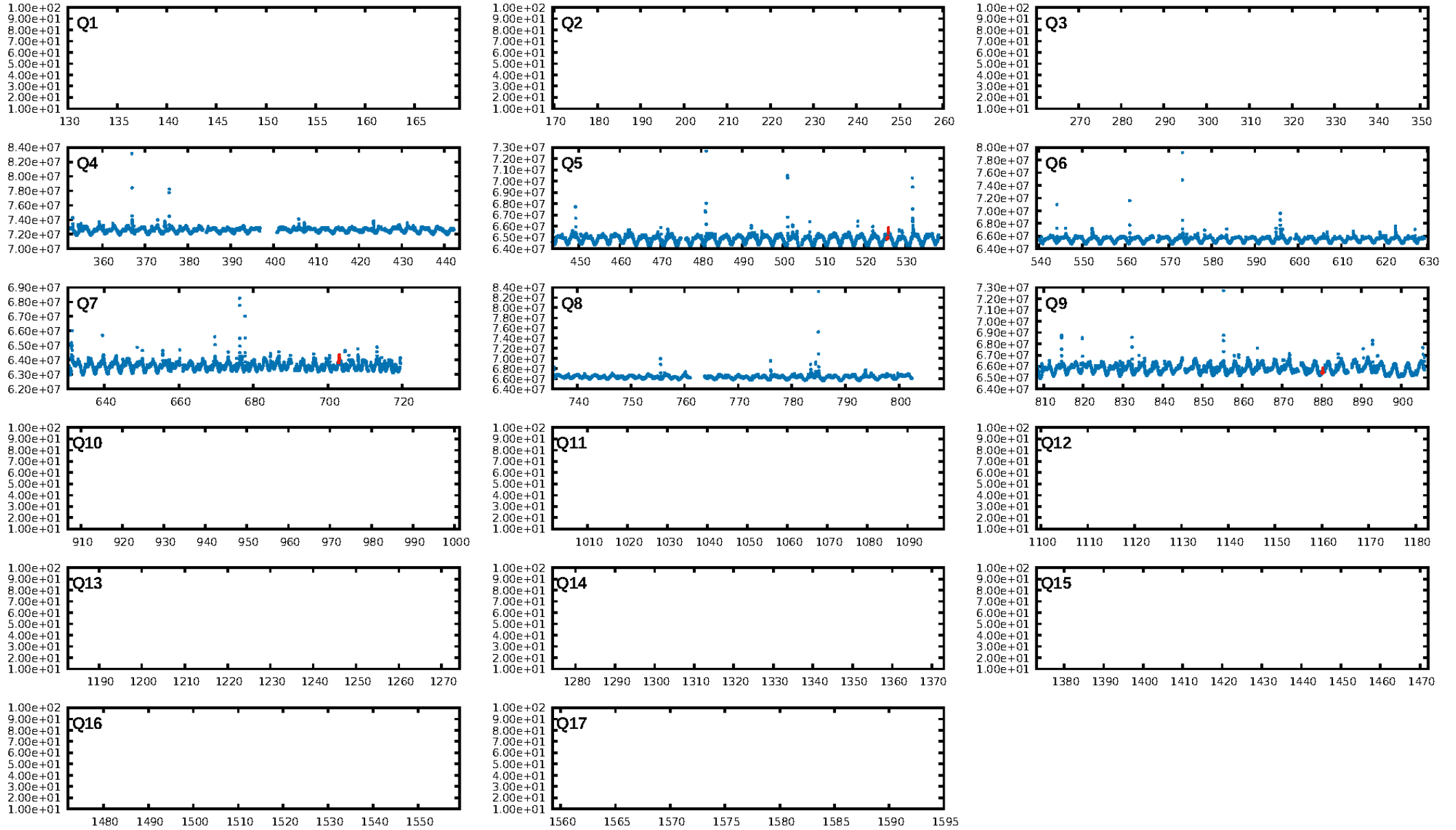
DV Fit Results:

Period = 177.25471 [0.00713] d
Epoch = 171.2039 [0.0231] BKJD
Rp/R* = 0.0512 [0.0480]
a/R* = 269.52 [629.76]
b = 0.77 [1.31]
Seff = 3789.99 [2217.30]
Teq = 2001 [293] K
Rp = 924.95 [998.68] Re
a = 0.9526 [0.4013] AU
Ag = 0.91 [1.81] [-0.05σ]
Teffp = 3023 [1437] K [0.70σ]

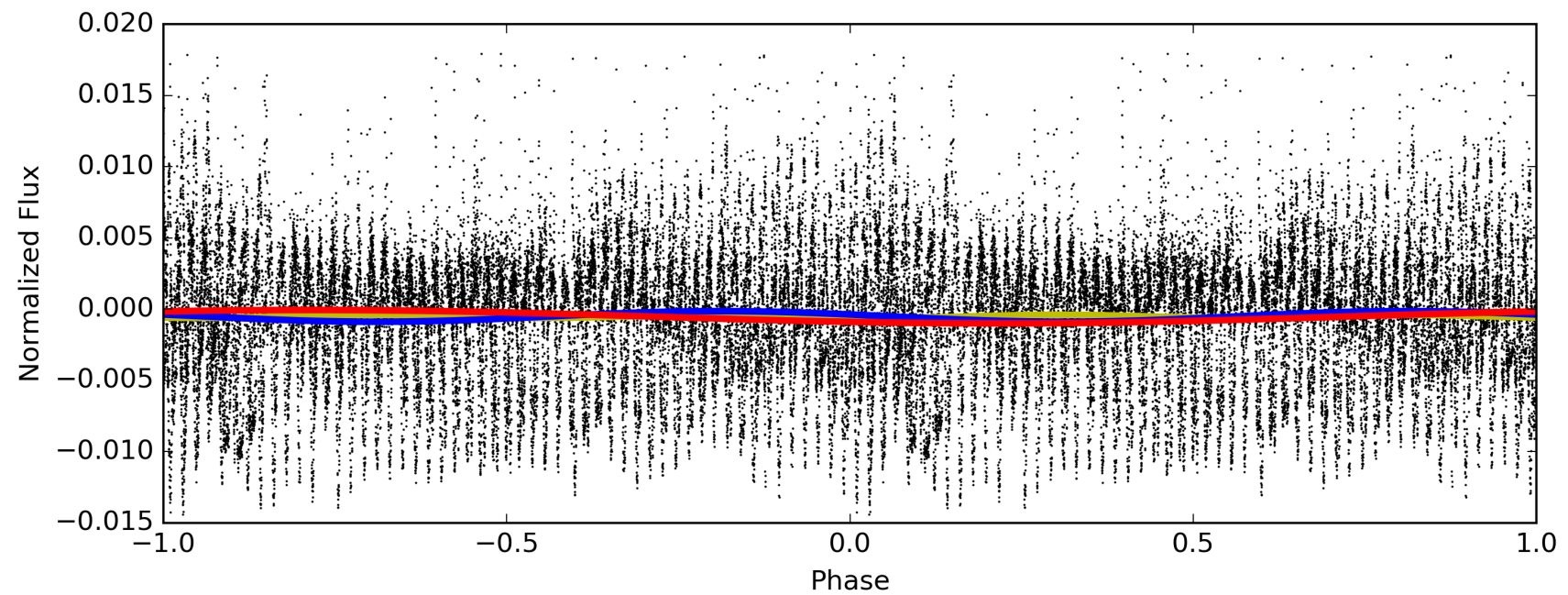
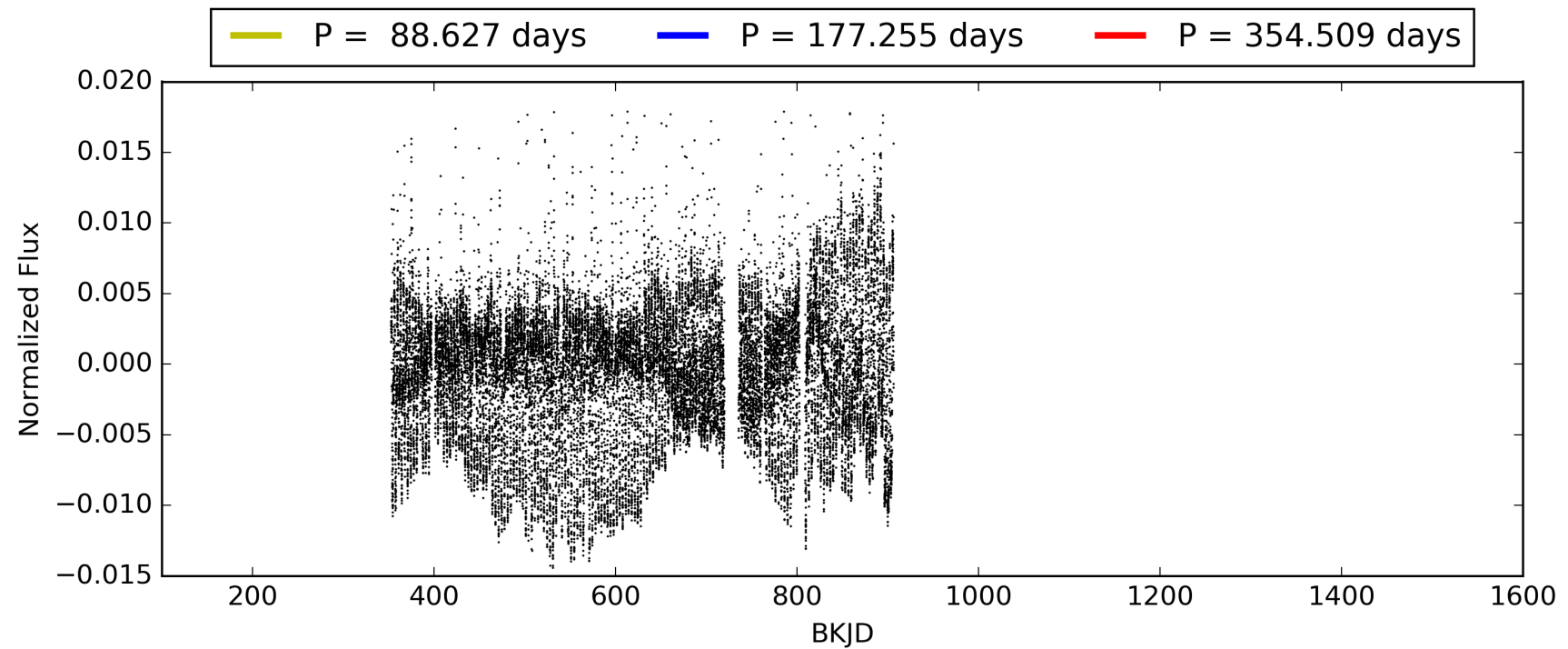
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [106.00σ]
LongPeriod-sig: 100.0% [53.48σ]
ModelChiSquare2-sig: 32.7%
ModelChiSquareGof-sig: 61.2%
Bootstrap-pfa: 5.10e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.104
Centroid-sig: 96.6%
Centroid-so: 0.554 arcsec [2.05σ]
OotOffset-rm: 0.622 arcsec [1.41σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-rm: 1.172 arcsec [2.66σ]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 008387281-02, PDC Light Curves

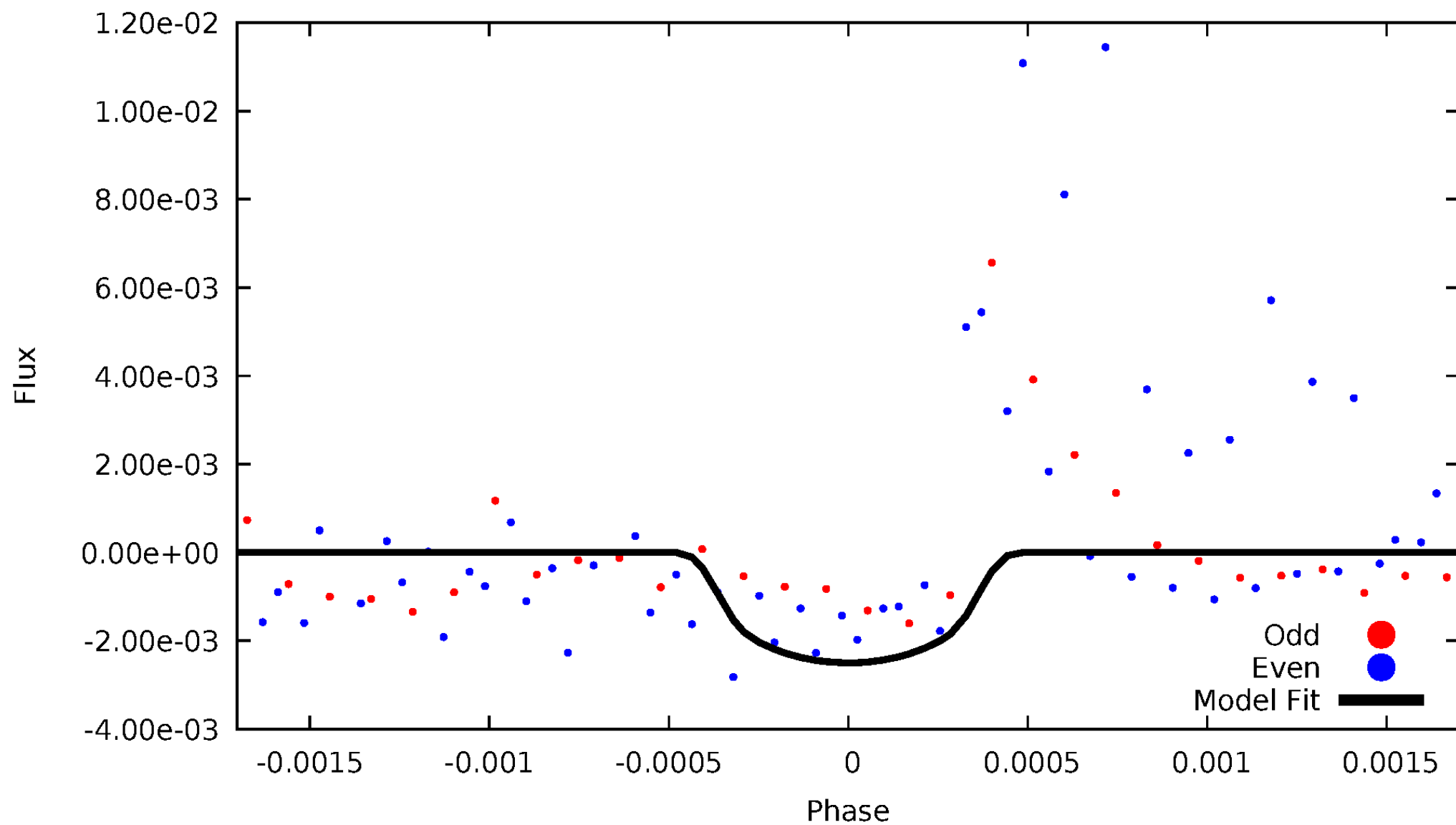


TCE 008387281-02



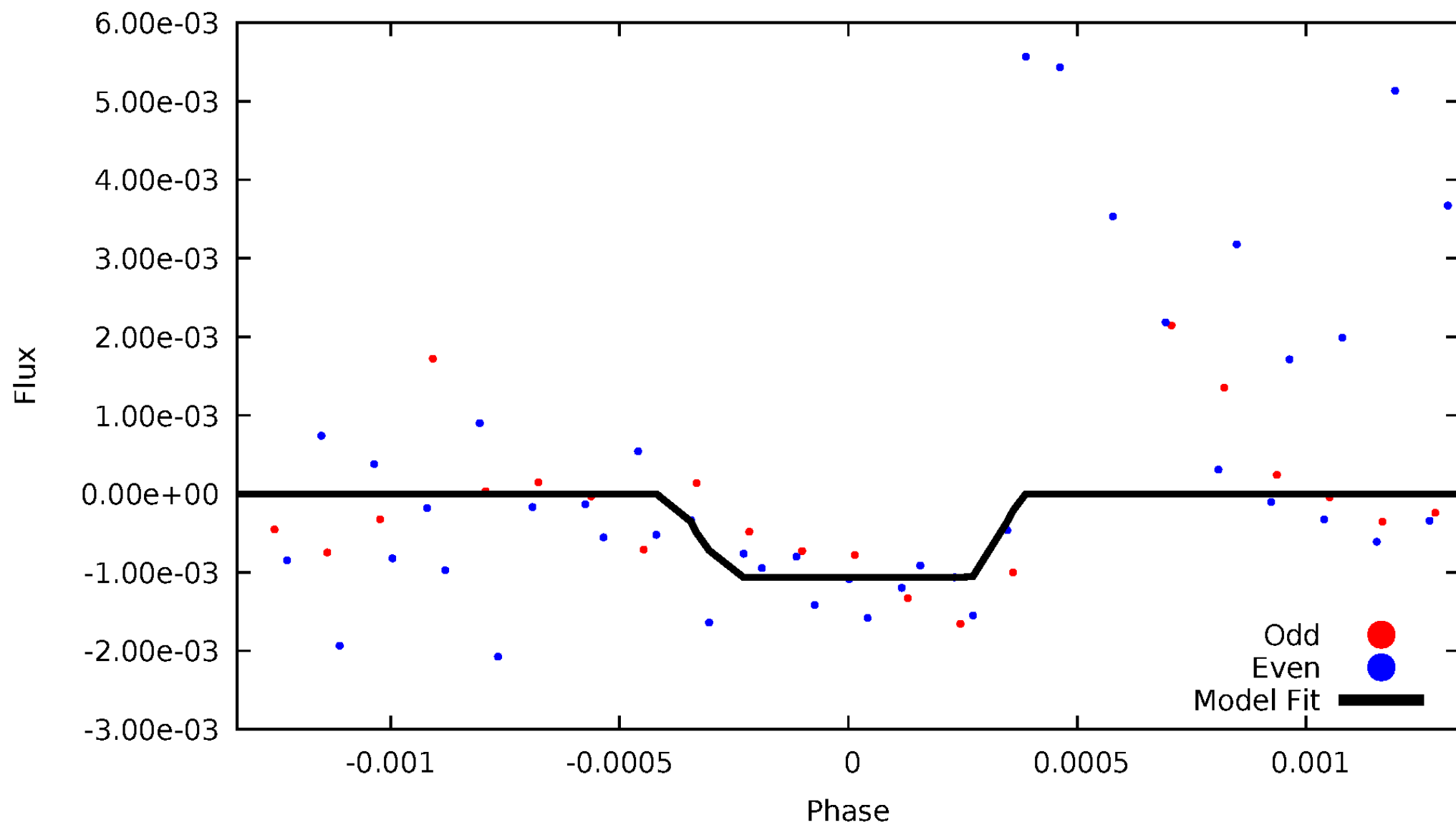
DV Odd/Even

TCE 008387281-02



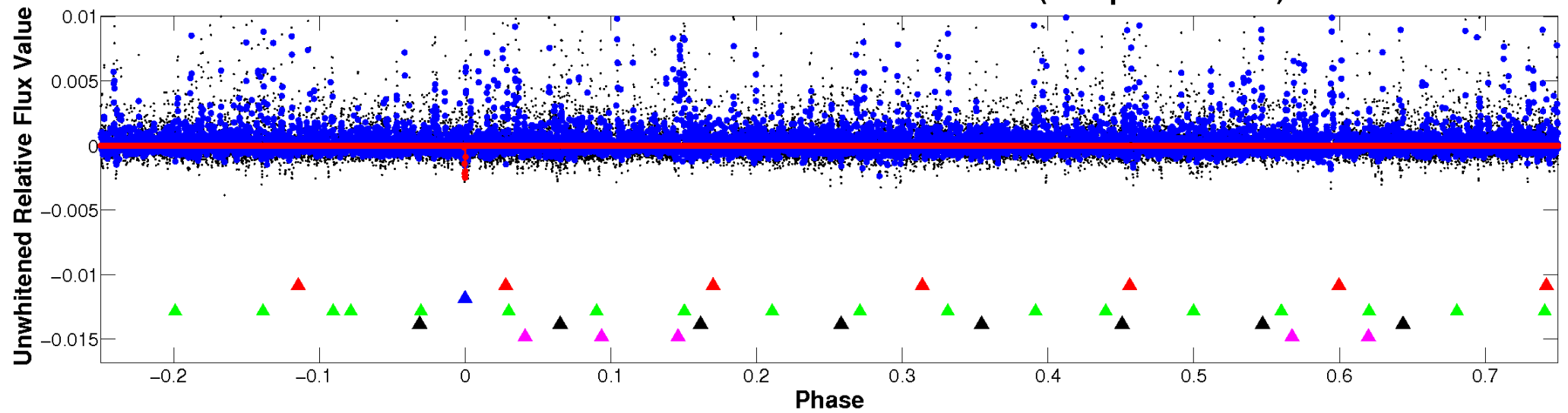
ALT Odd/Even

TCE 008387281-02

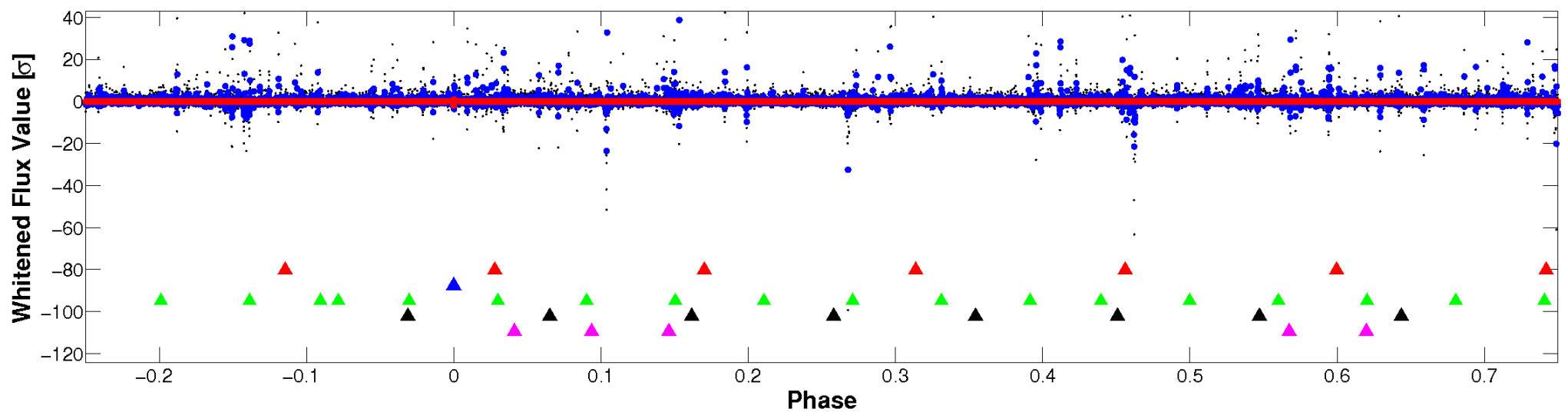


Non-Whitened Vs. Whitened Light Curve

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

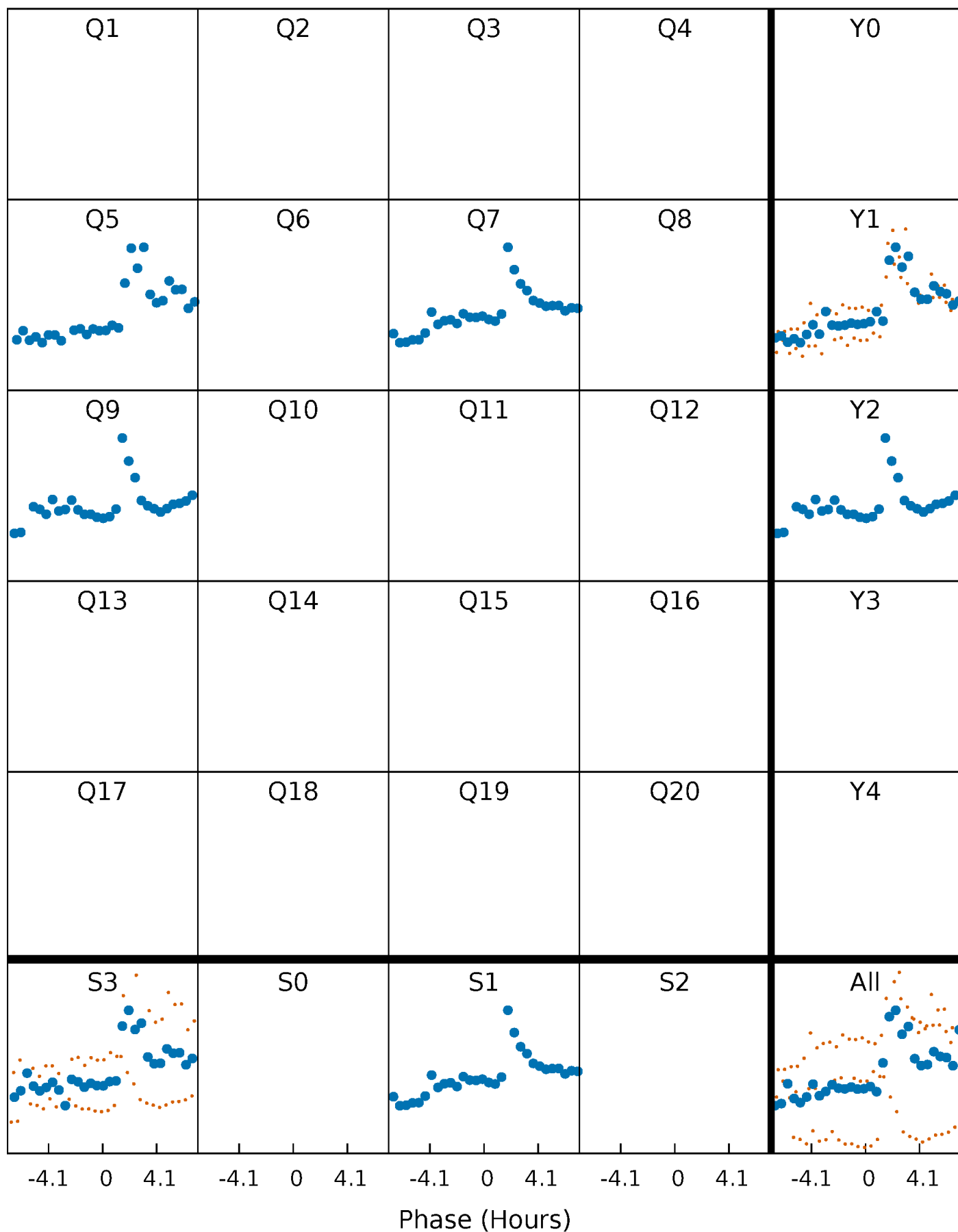


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



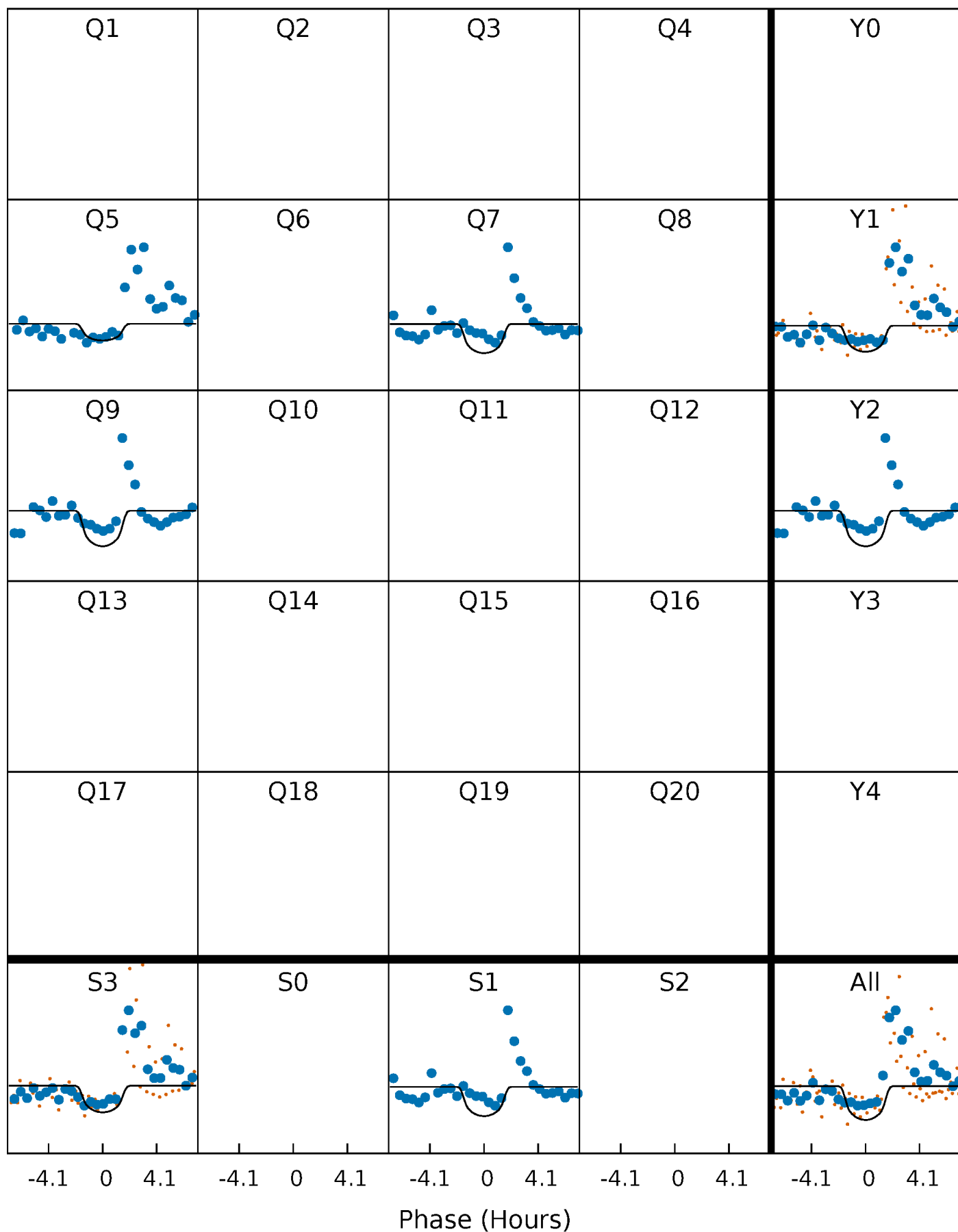
PDC Quarter-Phased Transit Curves

TCE 008387281-02 $P=177.254708$ Days $T_0=171.203947$ (BKJD)



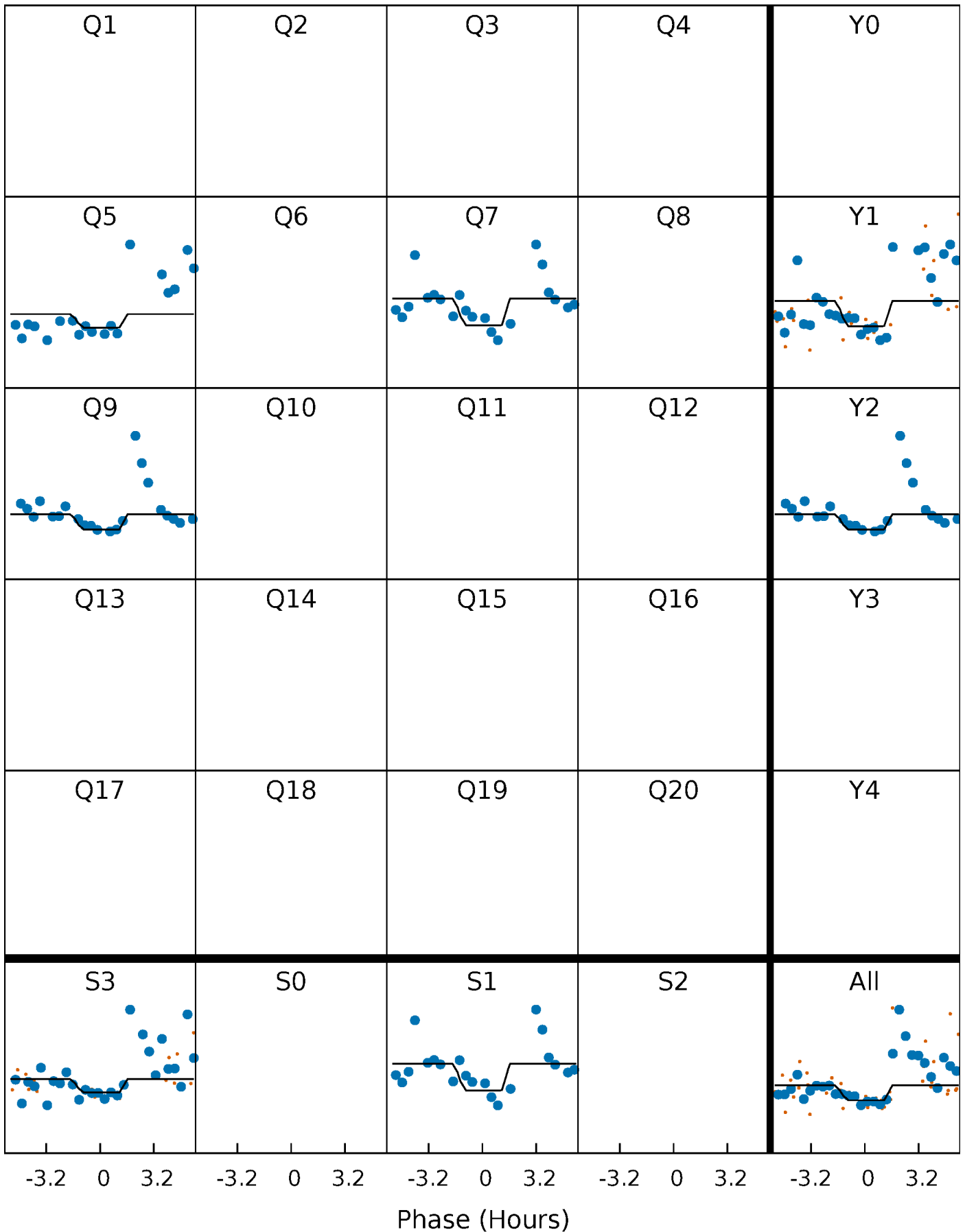
DV Quarter-Phased Transit Curves

TCE 008387281-02 P=177.254708 Days $T_0=171.203947$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

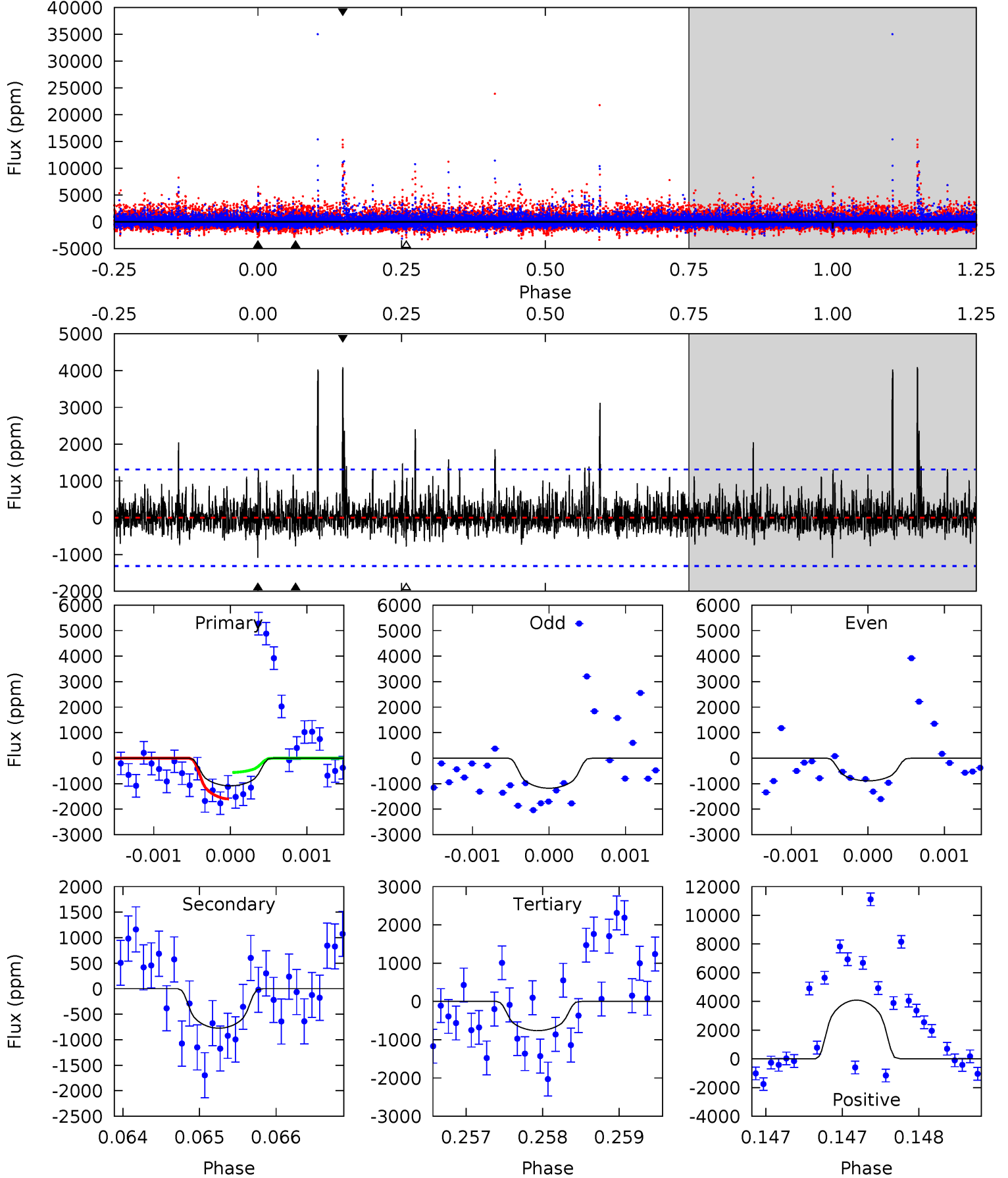
TCE 008387281-02 $P=177.244232$ Days $T_0=171.221956$ (BKJD)



DV Model-Shift Uniqueness Test

008387281-02, P = 177.254708 Days, E = 171.203947 Days

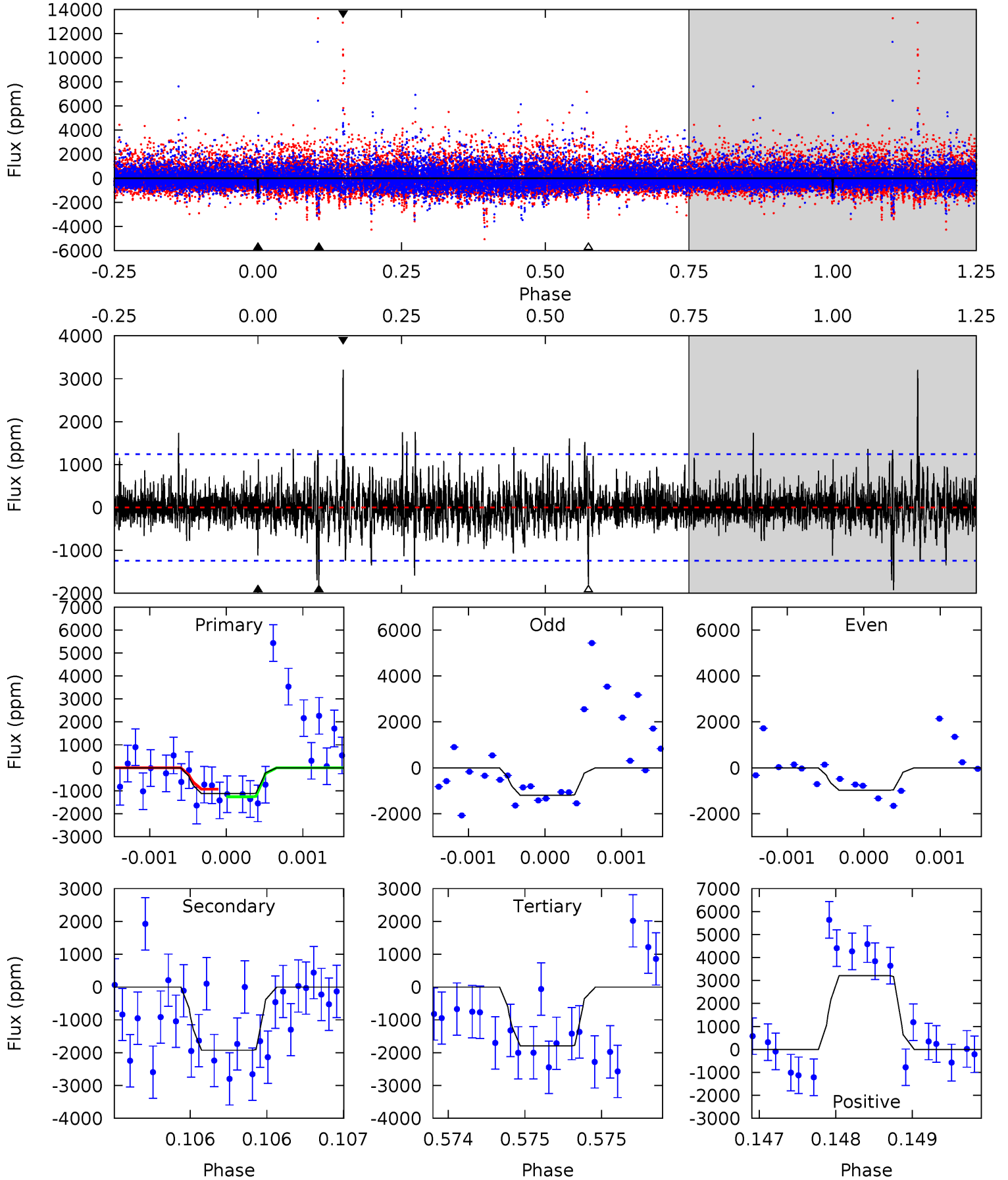
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.51	3.22	3.17	17.0	5.47	3.32	1.46	1.34	-12.5	0.05	-13.8	0.30	1.21	0.79	2.19



Alt Model-Shift Uniqueness Test

008387281-02, P = 177.244232 Days, E = 171.221956 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.97	8.56	7.97	14.2	5.51	3.39	1.55	-3.01	-9.27	0.58	-5.68	0.40	1.12	0.62	0.75



Stellar Parameters For KIC 008387281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3441^{+116}_{-104}	$0.565^{+0.288}_{-0.192}$	$0.560^{+0.050}_{-0.300}$	$165.464^{+22.255}_{-89.019}$	$3.668^{+0.073}_{-2.490}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+51%/-34%	+9%/-54%	+13%/-54%	+2%/-68%	+306%/-37%
Source	KIC0	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 008387281-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-774 ± 240	$1029.28^{+807.60}_{-655.27}$	2825^{+183}_{-252}	2124^{+1447}_{-4740}	$0.342^{+2.051}_{-0.242}$
Alt.	-1927 ± 225	$796.88^{+771.52}_{-530.94}$	2833^{+181}_{-240}	3257^{+1782}_{-976}	$1.414^{+10.588}_{-1.040}$

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 $A_{obs} \gg 1.0$

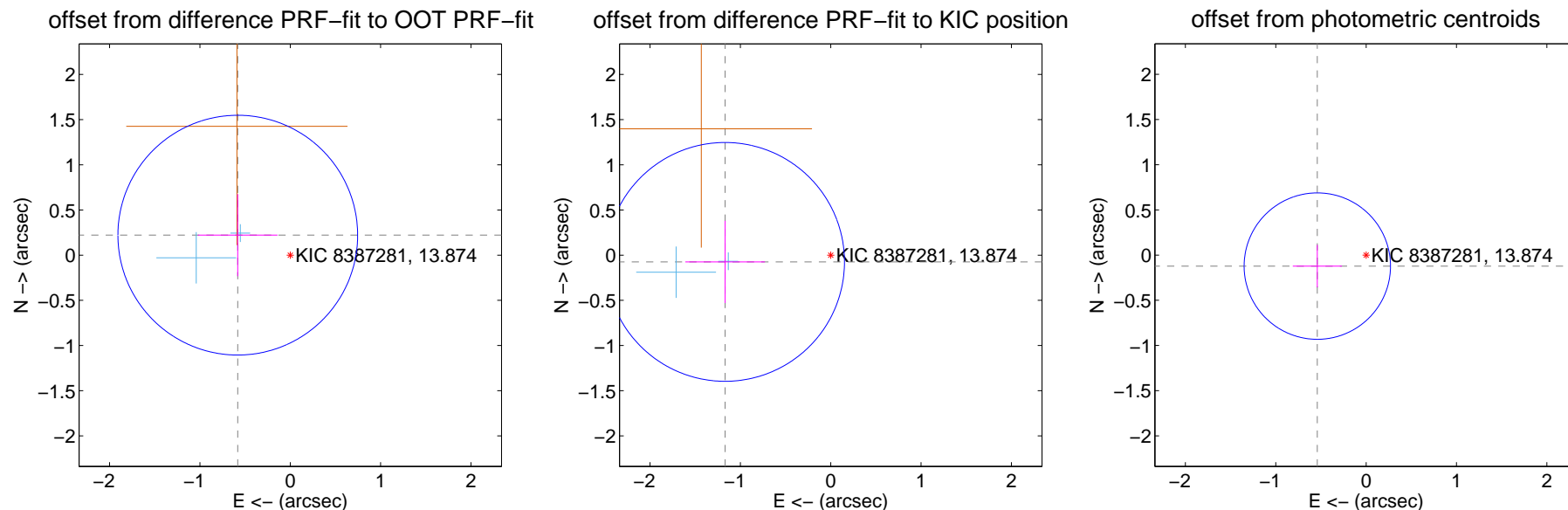
DV Centroid Data

Supplemental centroid analysis for 008387281-02. Kepler magnitude: 13.87. Transit SNR 7.70

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.69 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.622 ± 0.442	1.41	0.581 ± 0.441	0.221 ± 0.455
PRF-fit source offset from KIC position	1.172 ± 0.441	2.66	1.169 ± 0.441	-0.075 ± 0.455
photometric centroid source offset	0.55 ± 0.27	2.05	0.54 ± 0.27	-0.12 ± 0.23

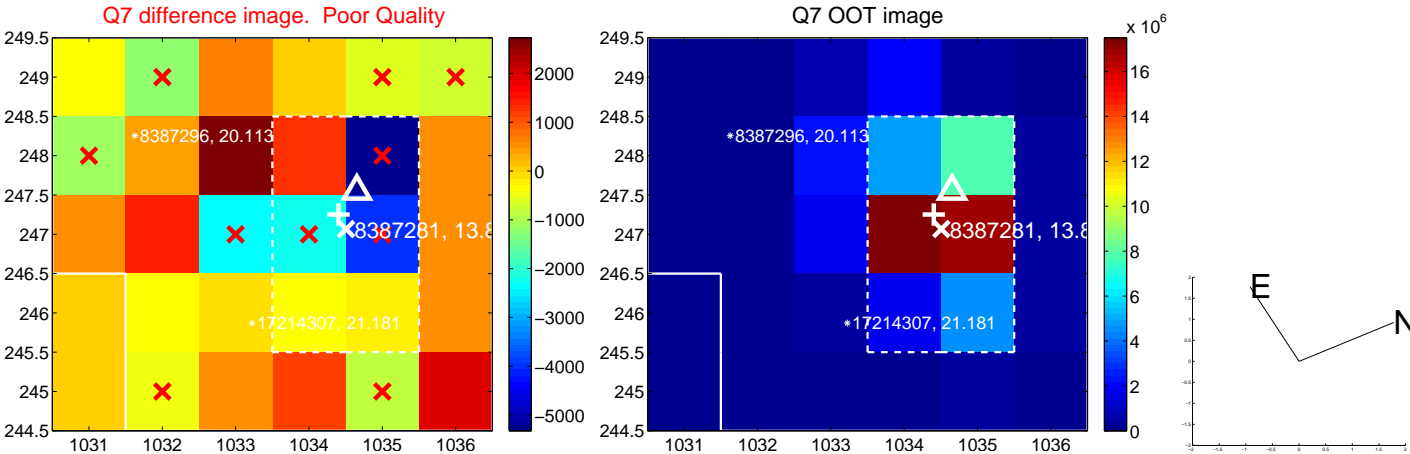
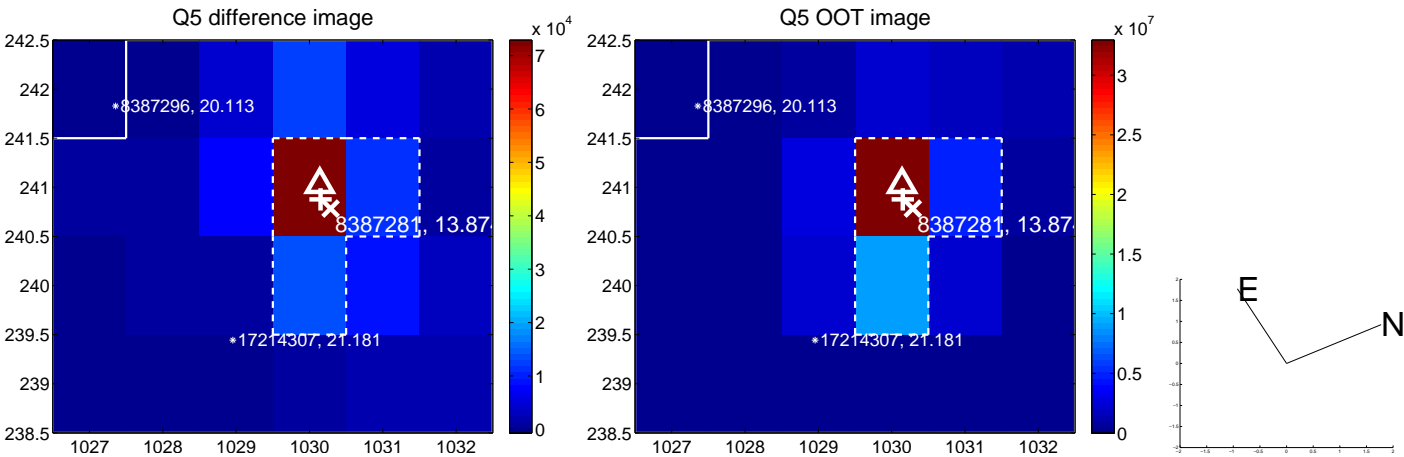


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

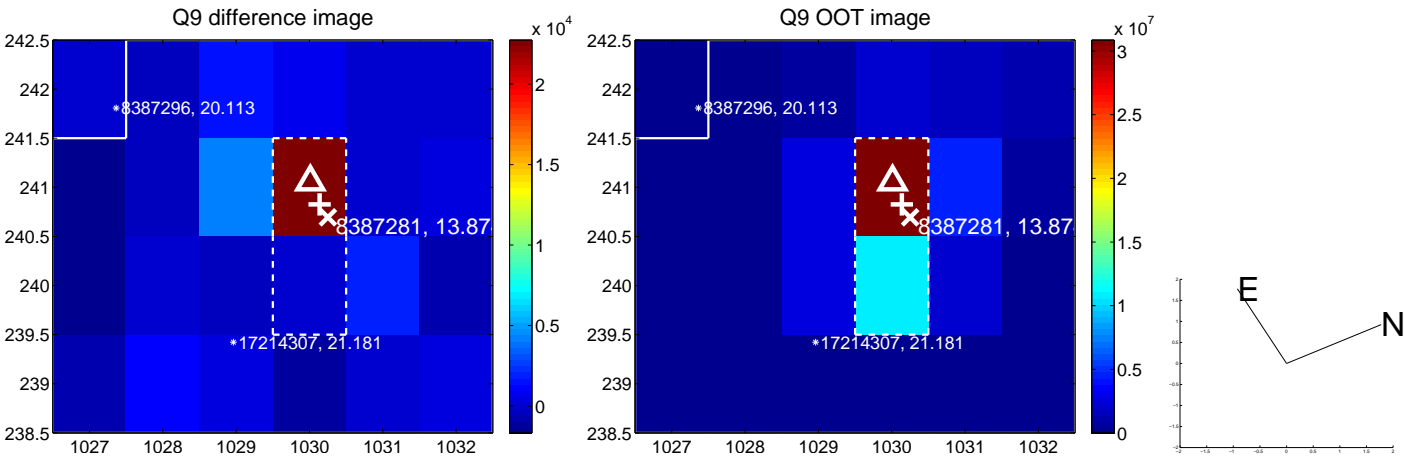
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



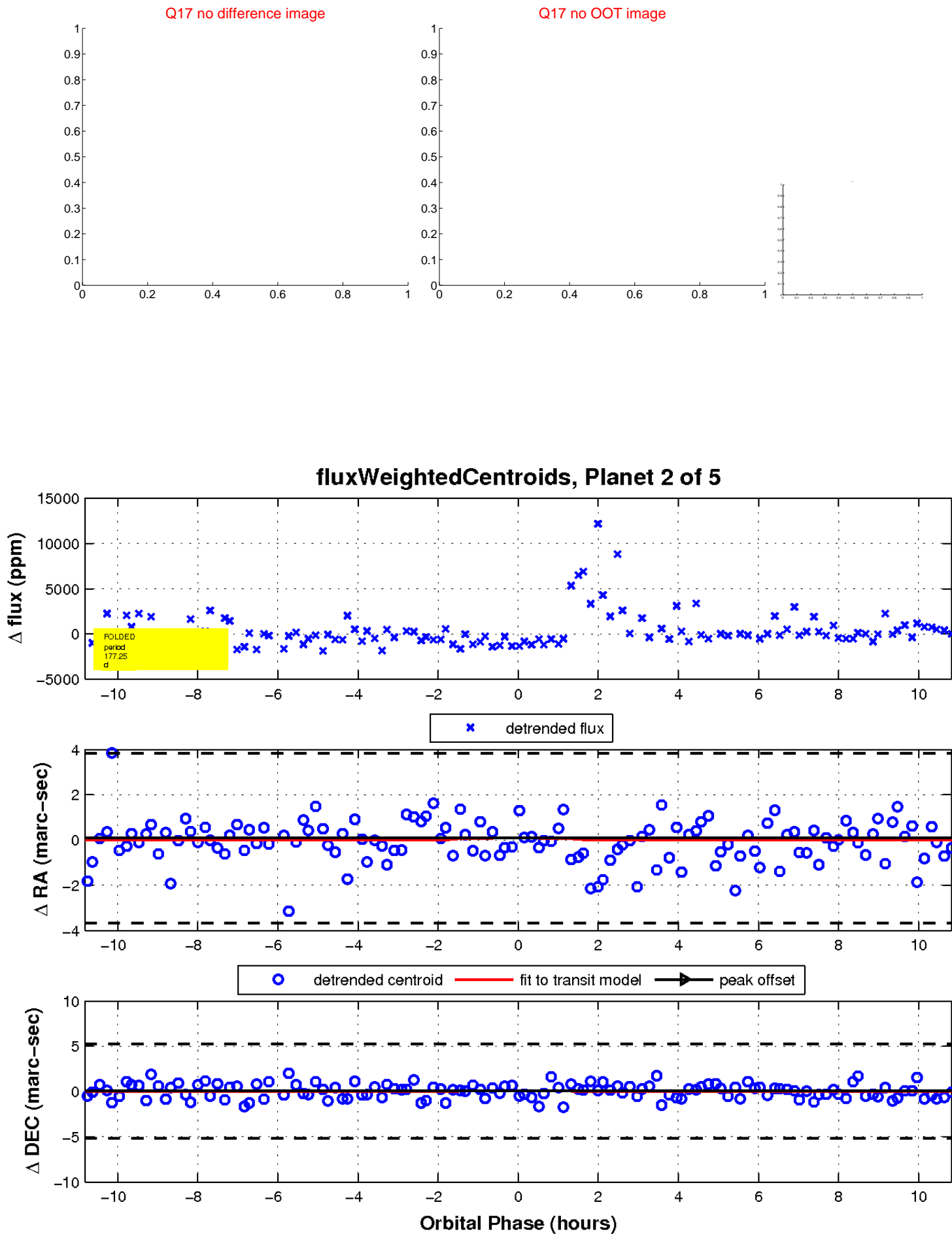
white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



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.



Declination

KIC 008387281

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})
008387281-01	OBS	No	227.929999	201.376378	2433.5	8.341	14.0	6.3	165.46	3441	1419.66	2710.40
008387281-02	OBS	No	177.254708	171.203947	2497.3	3.622	13.1	7.7	165.46	3441	924.95	3789.99
008387281-03	OBS	No	83.287353	157.308542	11469.9	20.965	11.9	15.3	165.46	3441	3453.65	0.00
008387281-04	OBS	No	194.341717	165.683464	2491.9	6.759	11.3	7.5	165.46	3441	862.66	3352.33
008387281-05	OBS	No	261.232284	374.362971	2836.9	6.710	15.0	8.4	165.46	3441	873.68	2259.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008387281-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008387281-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008387281-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
008387281-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
008387281-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS

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

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

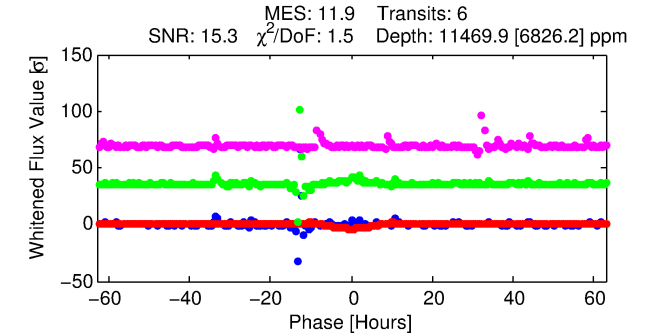
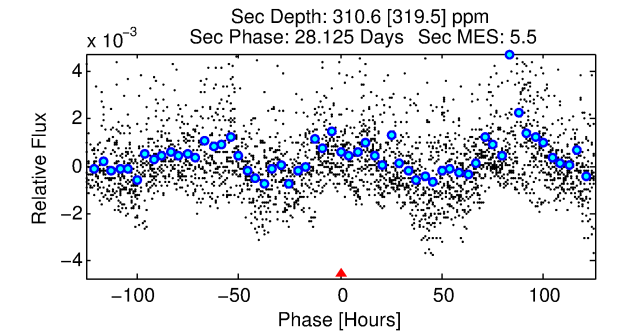
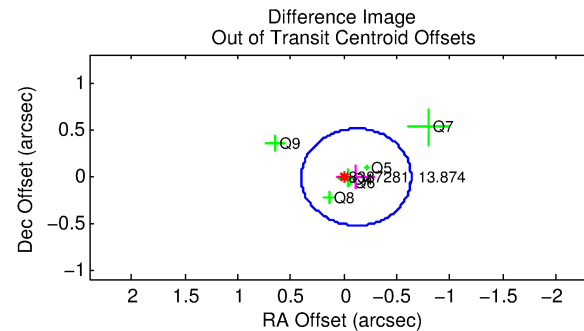
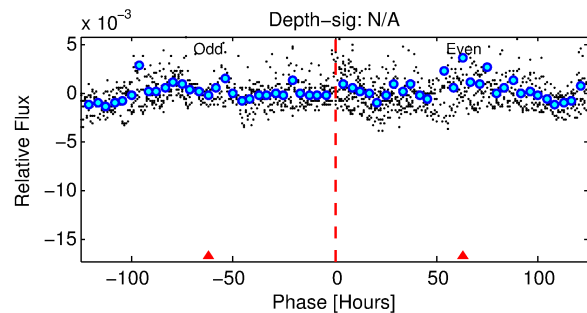
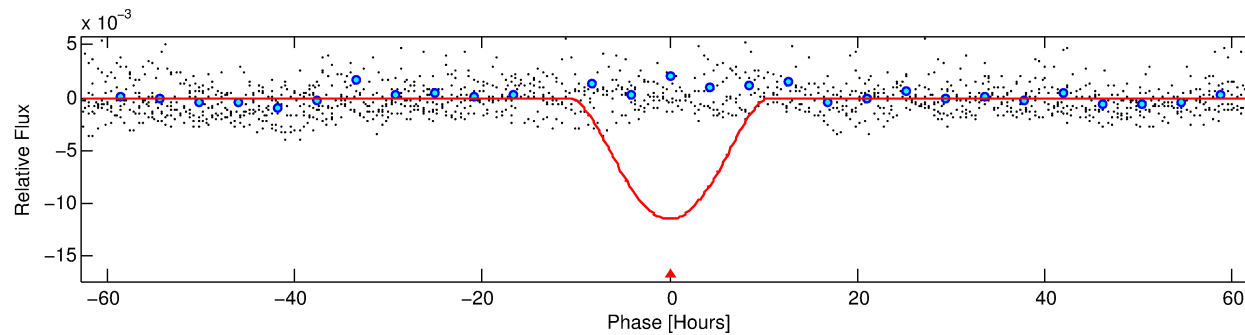
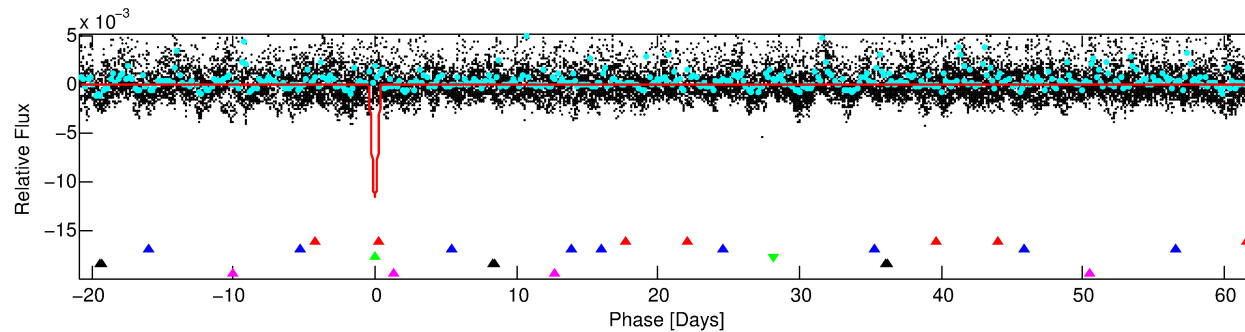
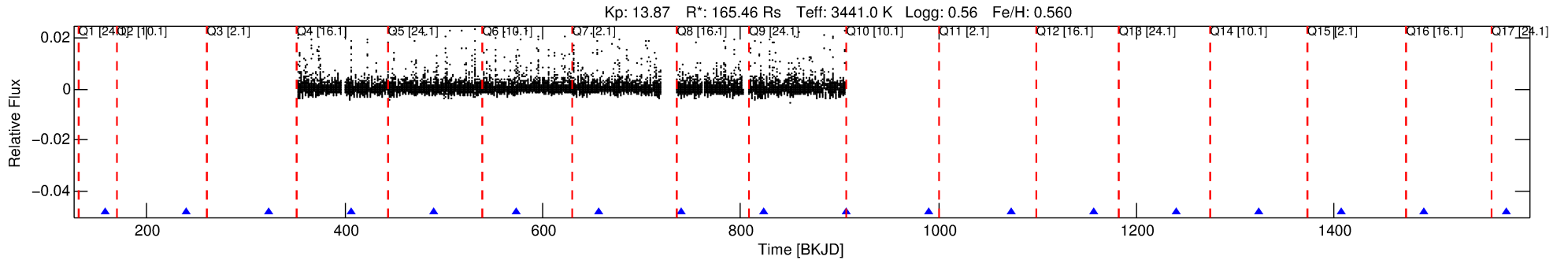
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008387281-03

No Significant Match Found

DV One-Page Summary

KIC: 8387281 Candidate: 3 of 5 Period: 83.287 d



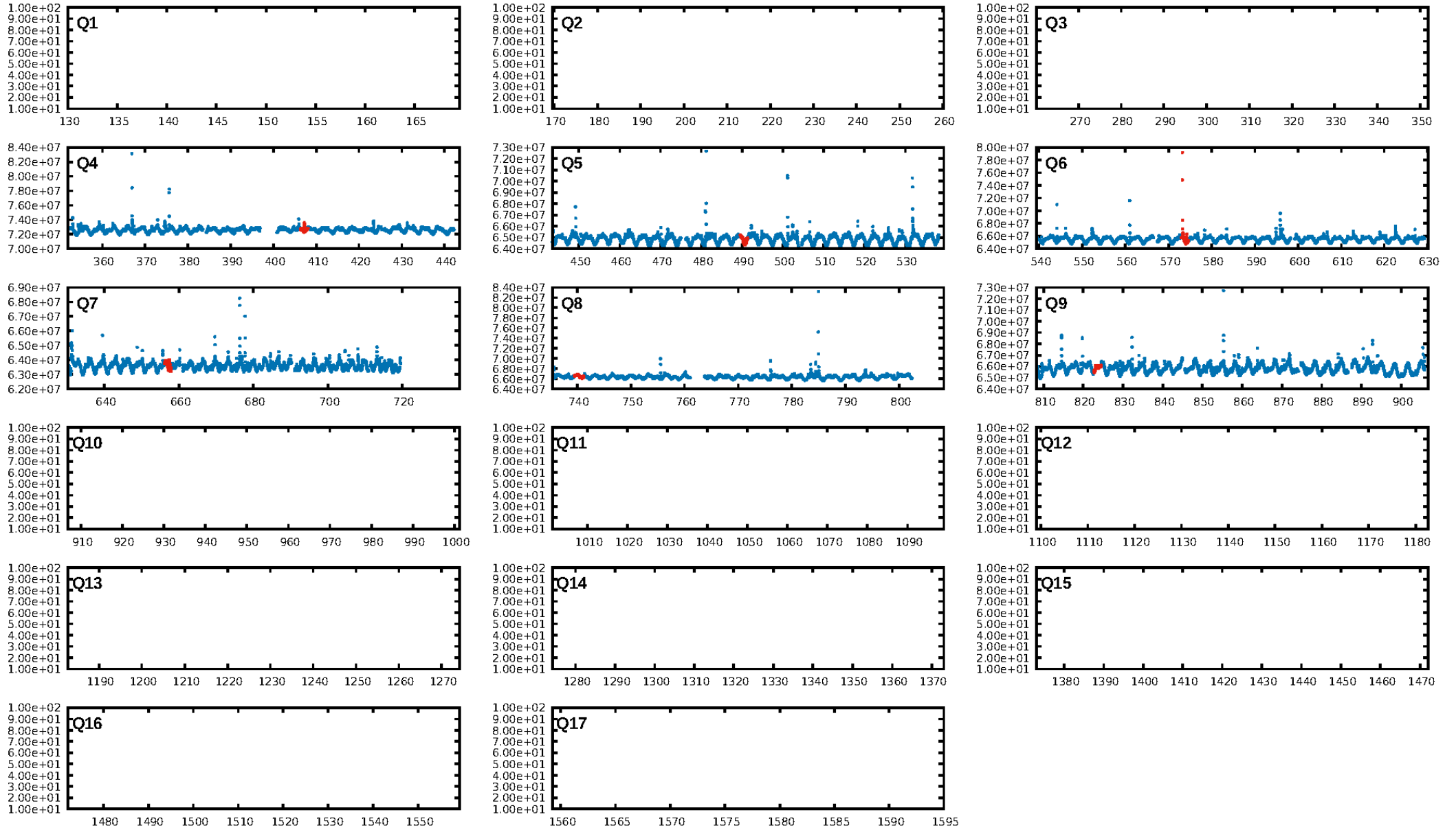
DV Fit Results:

Period = 83.28735 [0.04089] d
Epoch = 157.3085 [0.1962] BKJD
Rp/R* = 0.1913 [0.6658]
a/R* = 19.68 [7.19]
b = 1.00 [0.83]
Seff = N/A
Teq = N/A
Rp = 3453.65 [12163.74] Re
a = N/A
Ag = N/A
Teffp = N/A

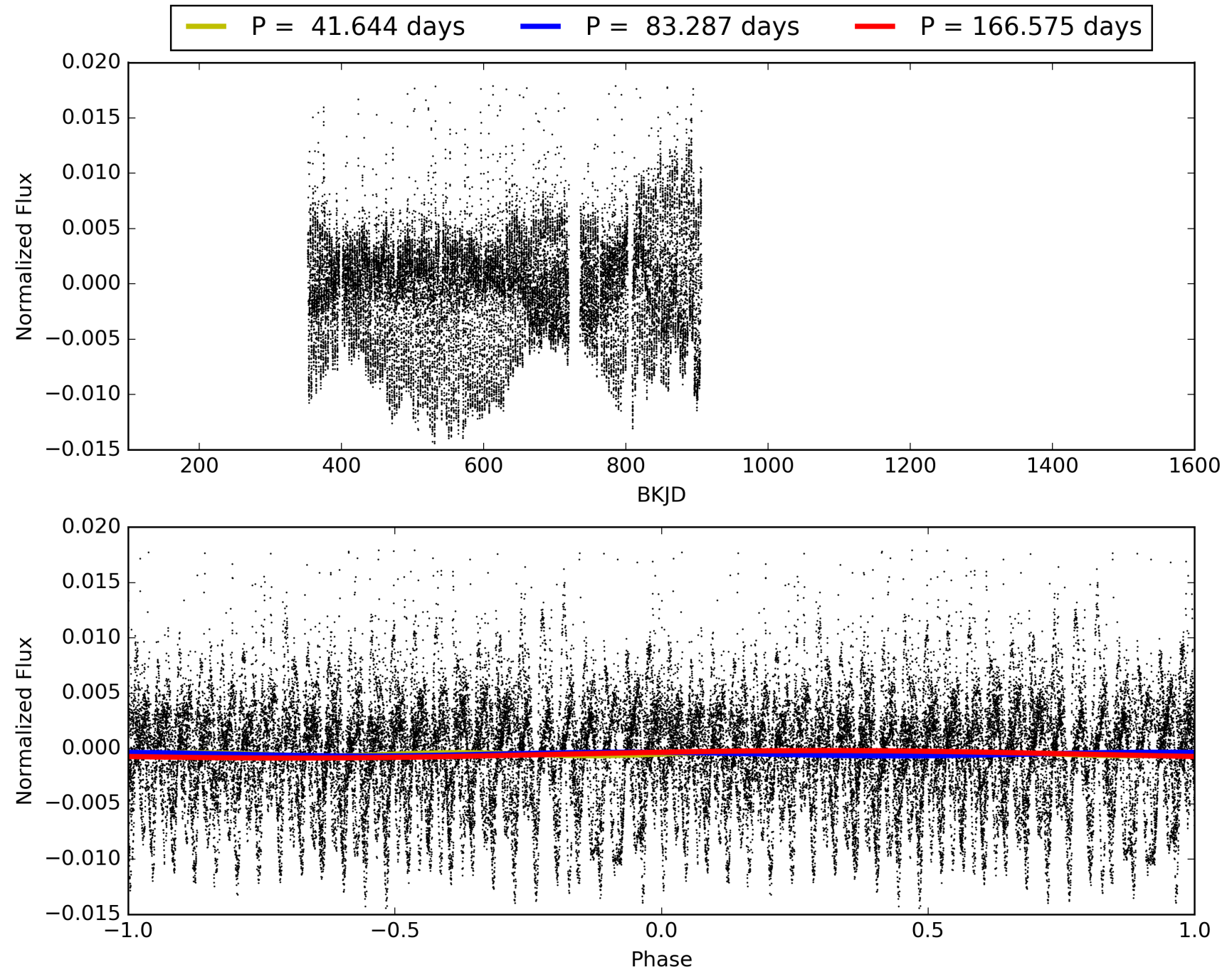
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [106.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.33e-12
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.7051
Centroid-sig: 74.2%
Centroid-so: 0.574 arcsec [18.07σ]
OotOffset-rm: 0.120 arcsec [0.69σ]
KicOffset-rm: 0.551 arcsec [3.91σ]
OotOffset-st: 1/1/2/2 [6]
KicOffset-st: 1/1/2/2 [6]
DiffImageQuality-fgm: 0.67 [4/6]
DiffImageOverlap-fno: 0.83 [5/6]

TCE 008387281-03, PDC Light Curves

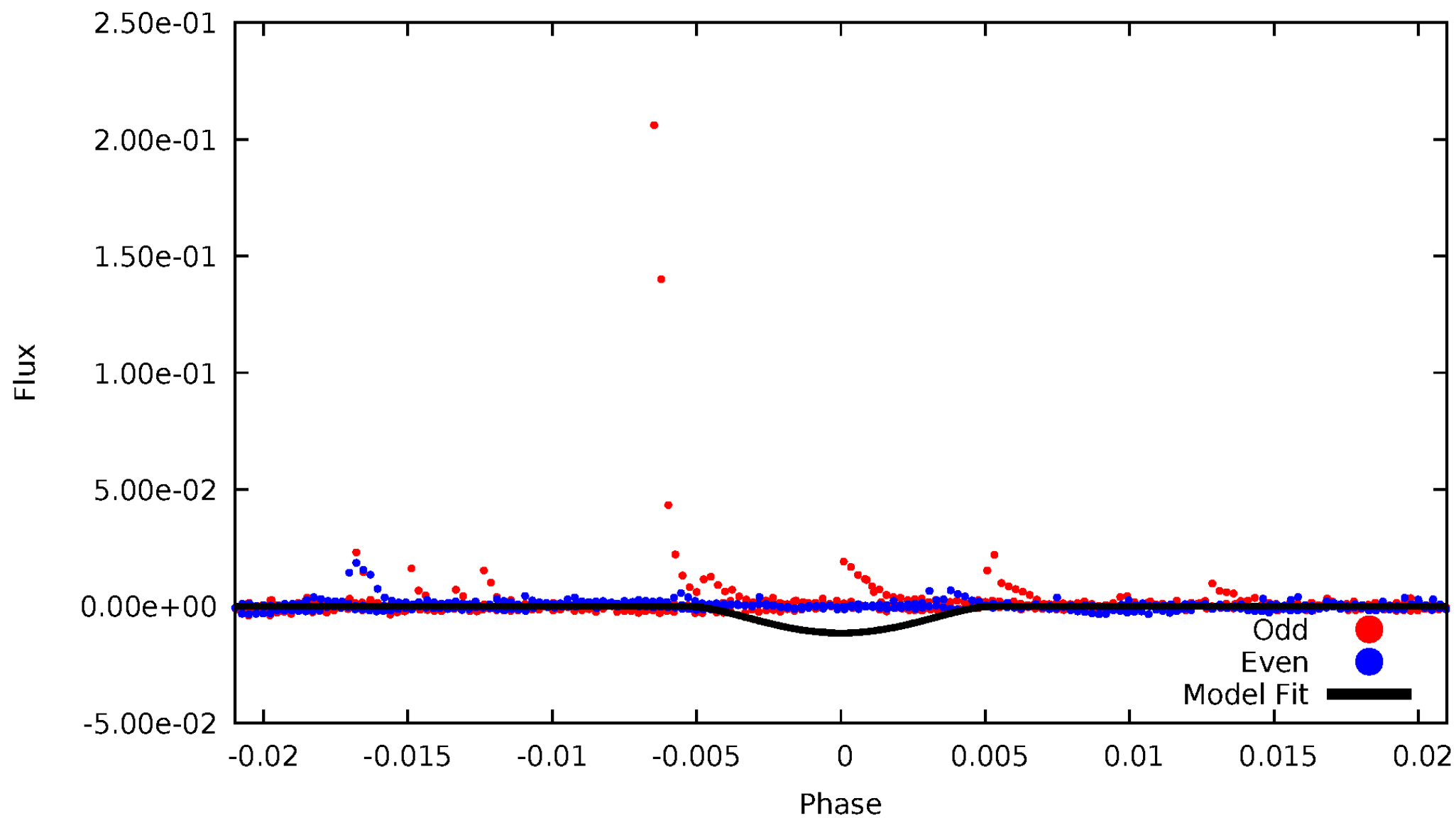


TCE 008387281-03



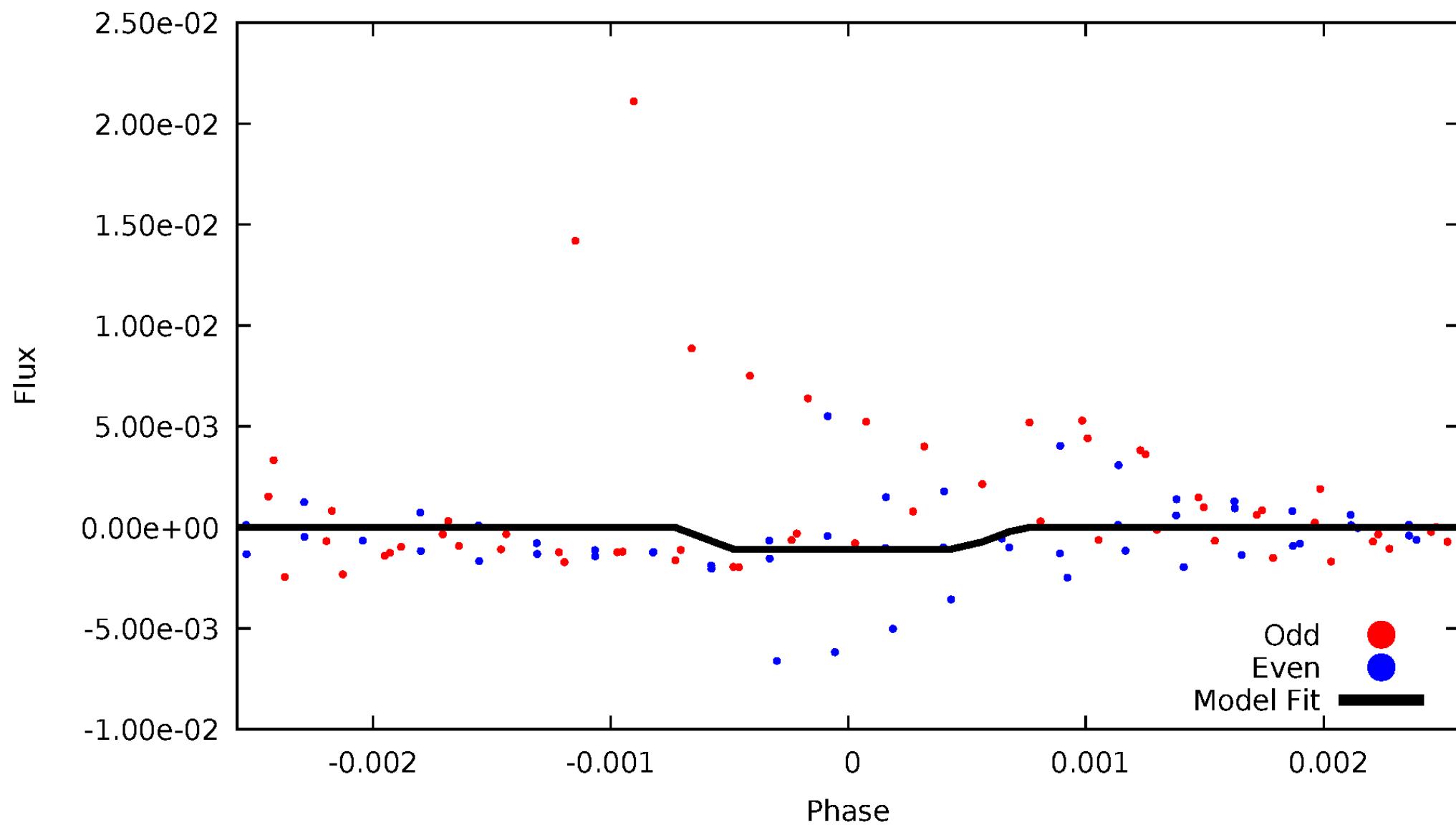
DV Odd/Even

TCE 008387281-03



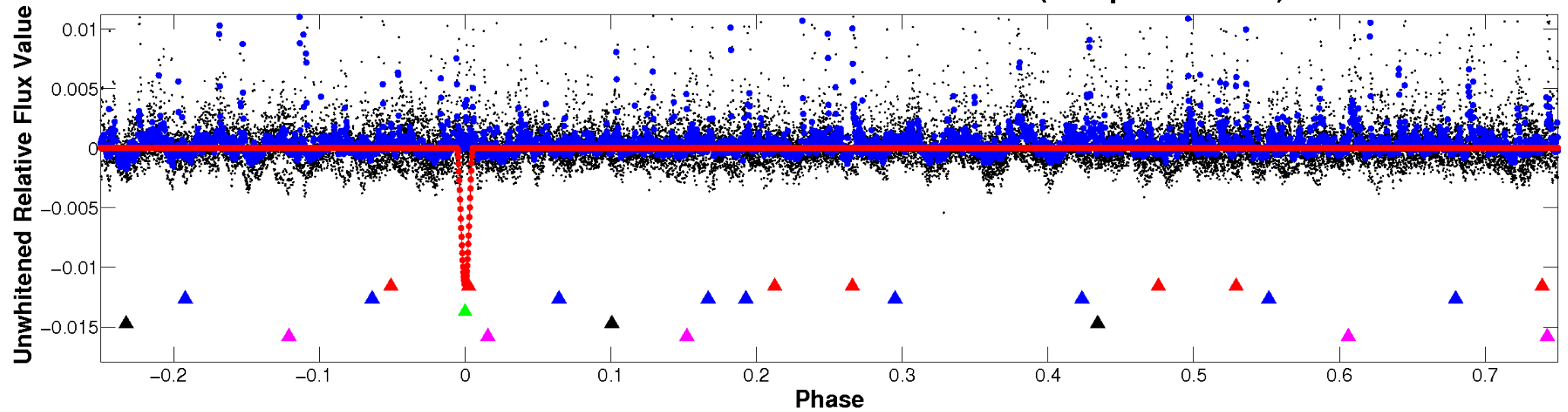
ALT Odd/Even

TCE 008387281-03

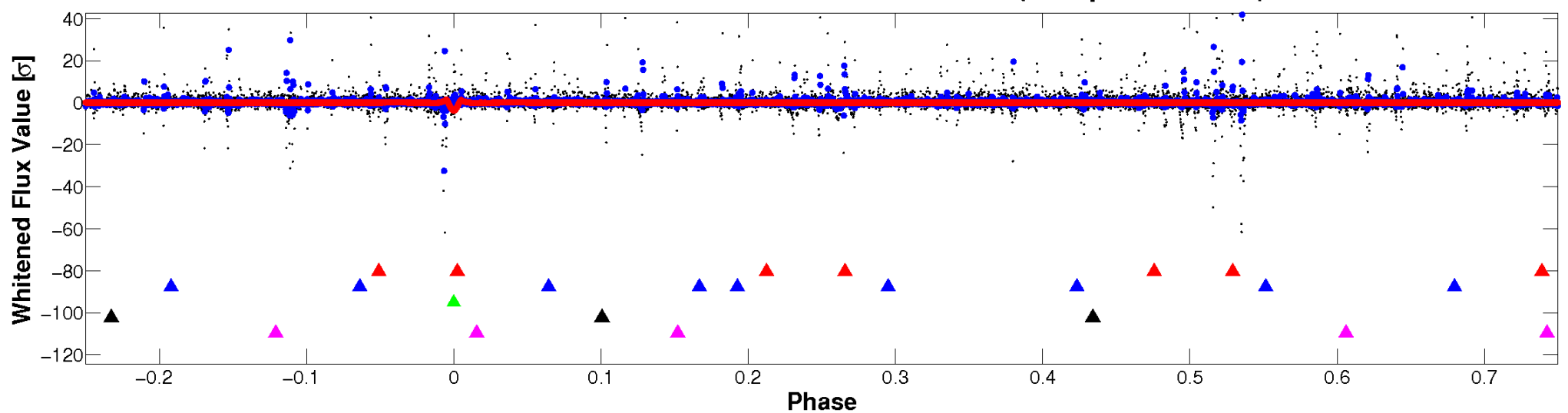


Non-Whitened Vs. Whitened Light Curve

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

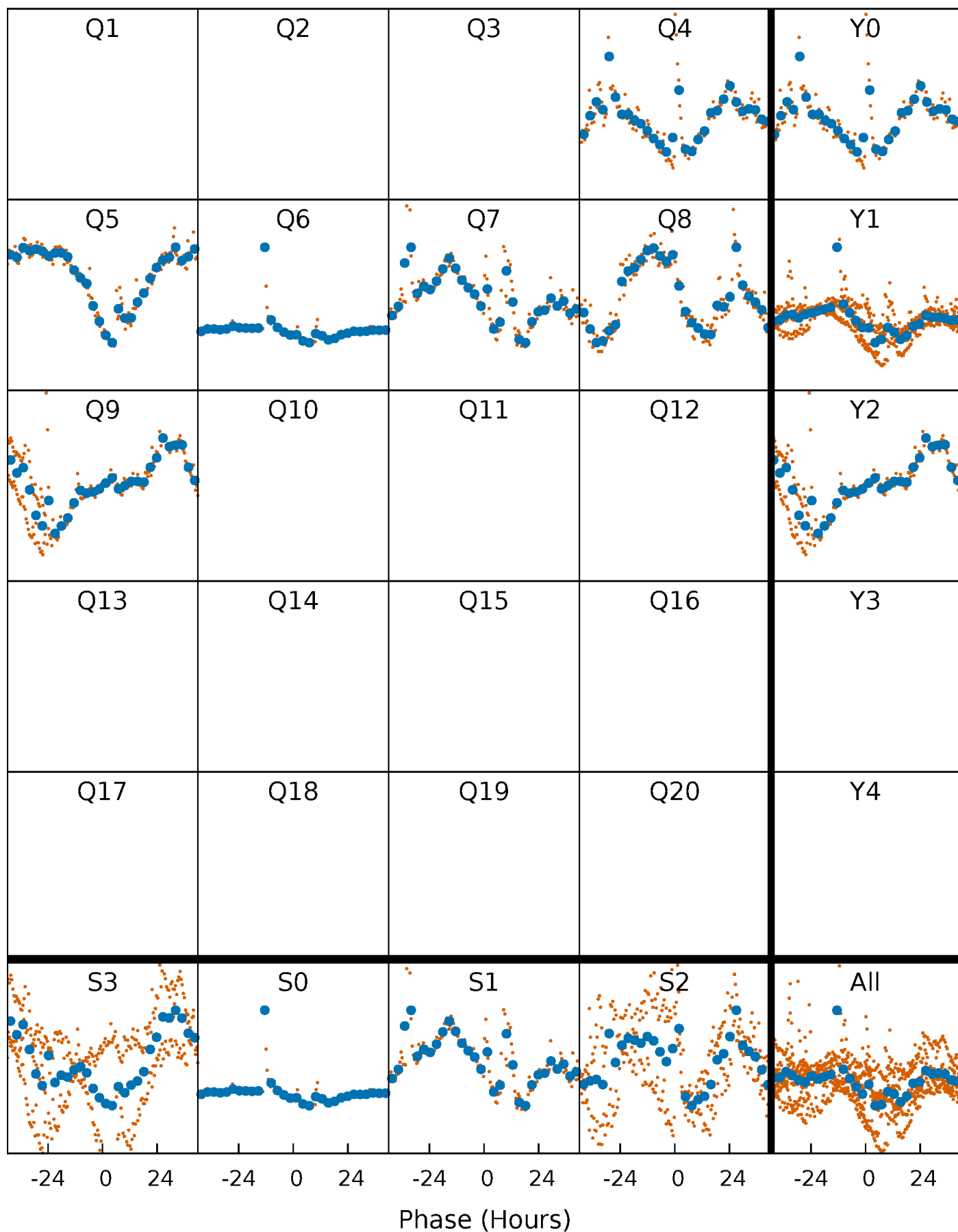


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 008387281-03 P= 83.287353 Days $T_0=157.308542$ (BKJD)



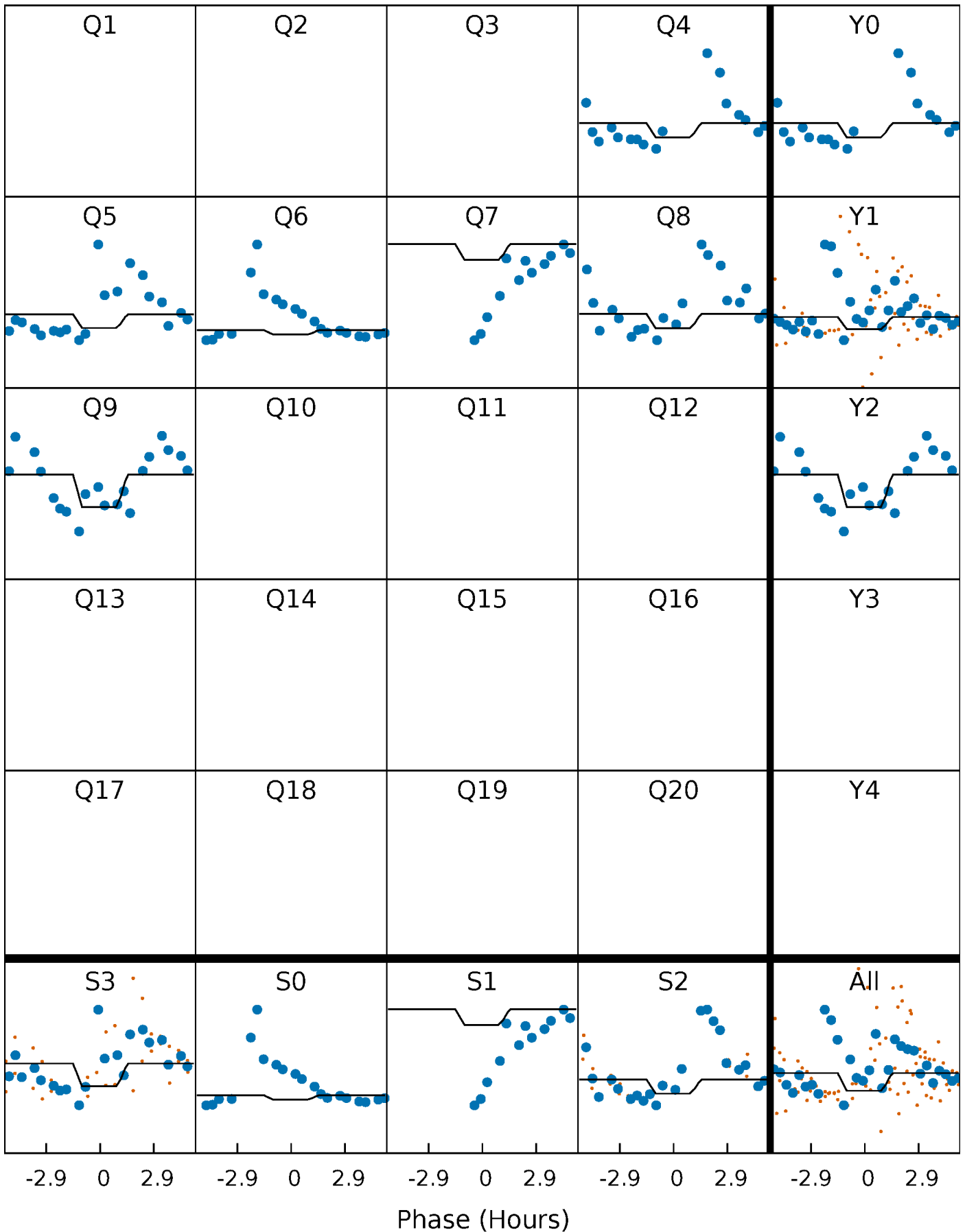
DV Quarter-Phased Transit Curves

TCE 008387281-03 P= 83.287353 Days $T_0=157.308542$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

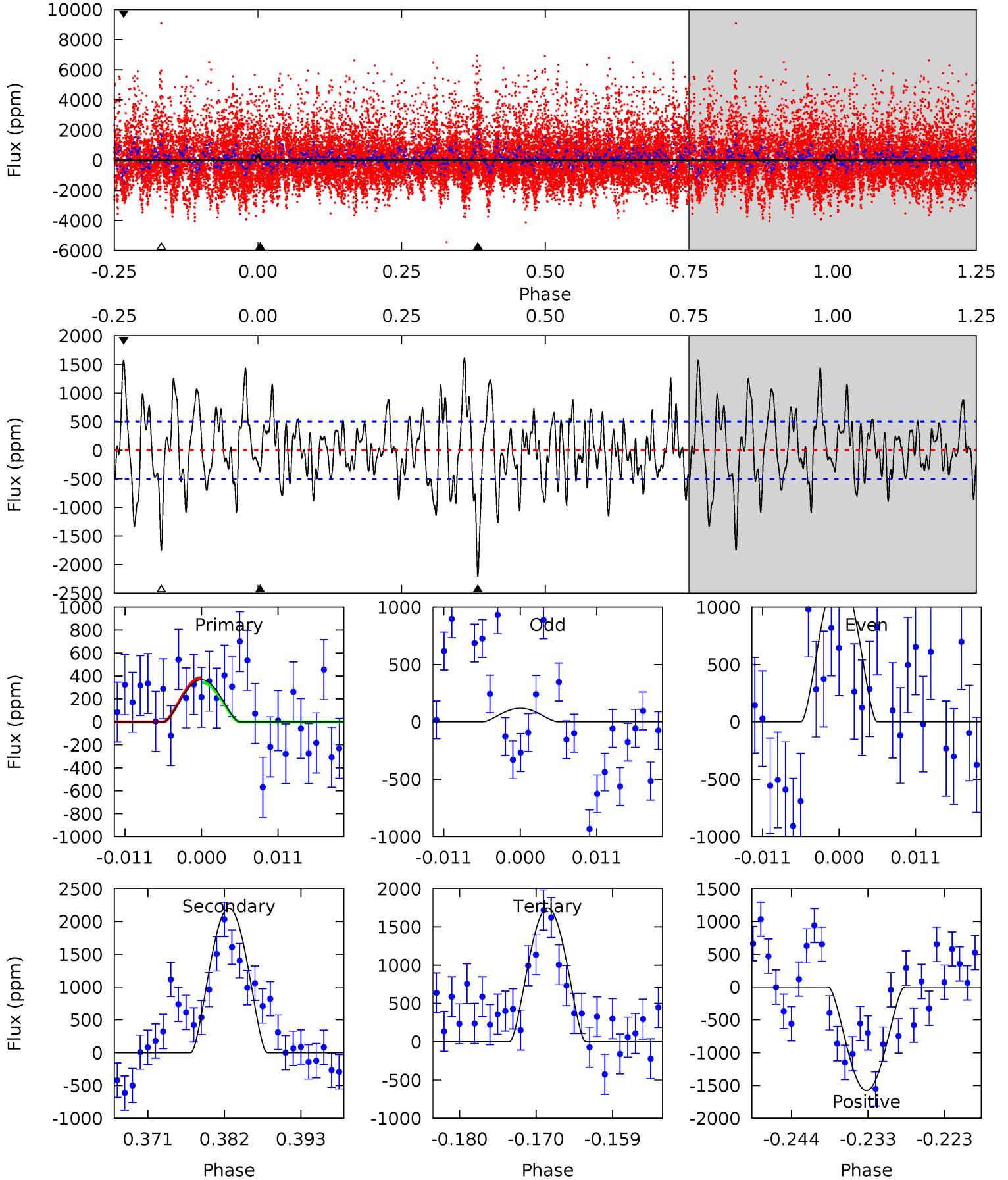
TCE 008387281-03 P= 83.542439 Days $T_0=156.551015$ (BKJD)



DV Model-Shift Uniqueness Test

008387281-03, P = 83.287353 Days, E = 157.308542 Days

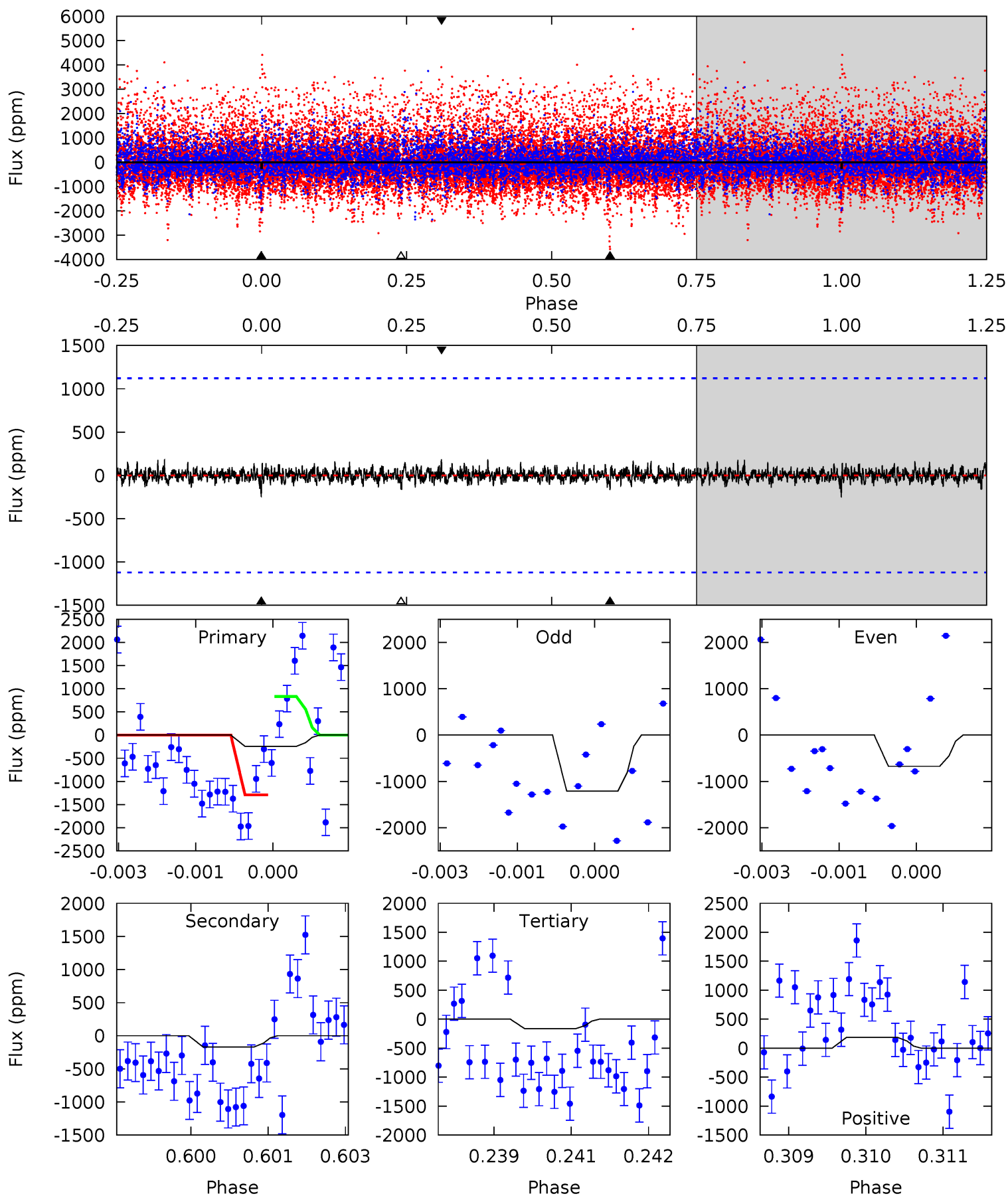
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.65	21.9	17.3	15.7	5.01	2.56	5.34	-13.7	-12.0	4.51	6.20	5.65	0.79	0.42	0.22



Alt Model-Shift Uniqueness Test

008387281-03, P = 83.542439 Days, E = 156.551015 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.17	0.81	0.79	0.89	5.40	3.21	0.24	0.39	0.28	0.02	-0.08	1.29	0.19	0.43	0



Stellar Parameters For KIC 008387281

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3441^{+116}_{-104}	$0.565^{+0.288}_{-0.192}$	$0.560^{+0.050}_{-0.300}$	$165.464^{+22.255}_{-89.019}$	$3.668^{+0.073}_{-2.490}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+51%/-34%	+9%/-54%	+13%/-54%	+2%/-68%	+306%/-37%
Source	KIC0	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 008387281-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2202 ± 101	$8565.19^{+9638.07}_{-6011.77}$	3627^{+246}_{-319}	-3101^{+267}_{-168}	$0.005^{+0.050}_{-0.004}$
Alt.	-168 ± 208	$8486.67^{+8629.64}_{-5979.43}$	3630^{+257}_{-356}	-3142^{+213}_{-164}	$0.000^{+0.003}_{-0.000}$

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 $A_{obs} \gg 1.0$

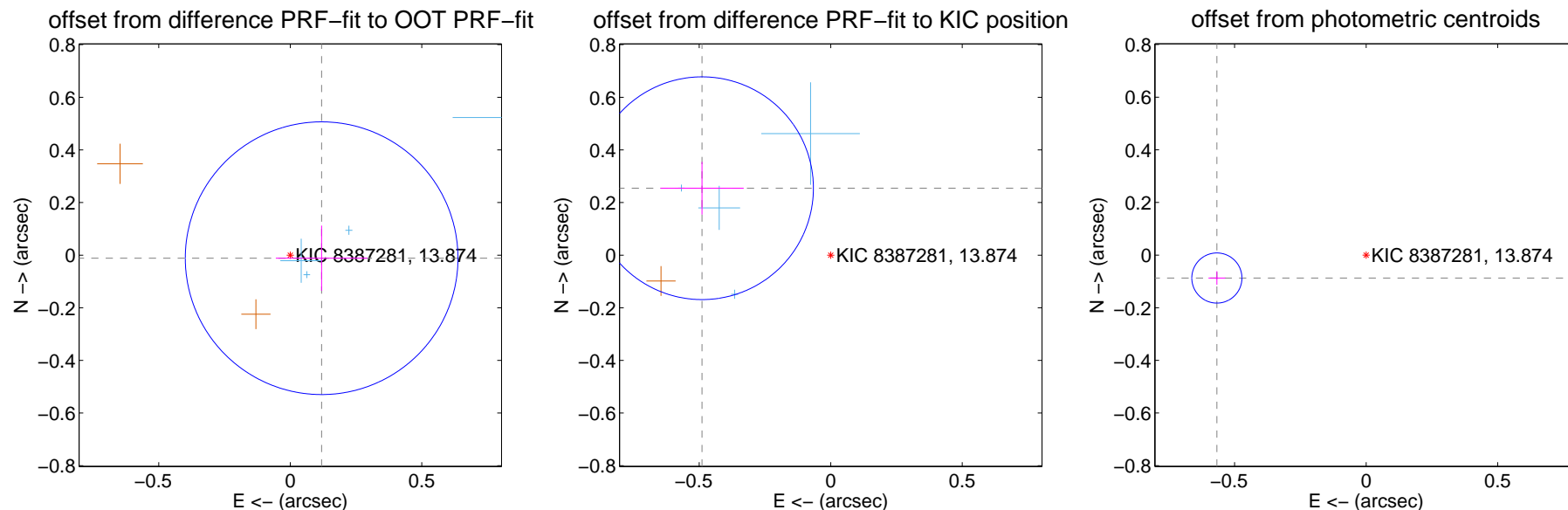
DV Centroid Data

Supplemental centroid analysis for 008387281-03. Kepler magnitude: 13.87. Transit SNR 15.34

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.64 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.120 ± 0.173	0.69	-0.119 ± 0.174	-0.012 ± 0.124
PRF-fit source offset from KIC position	0.551 ± 0.141	3.91	0.489 ± 0.158	0.254 ± 0.100
photometric centroid source offset	0.57 ± 0.03	18.07	0.57 ± 0.03	-0.09 ± 0.03



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

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

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



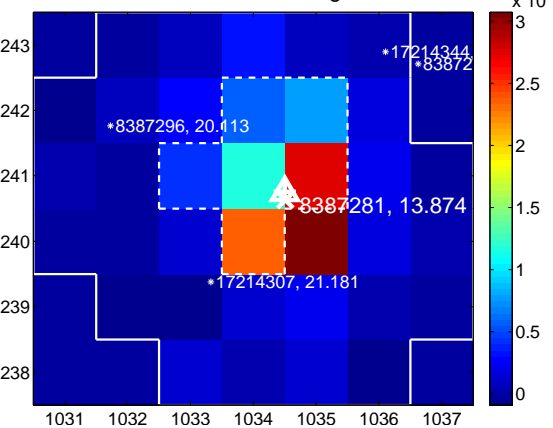
Q3 no difference image



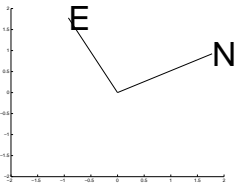
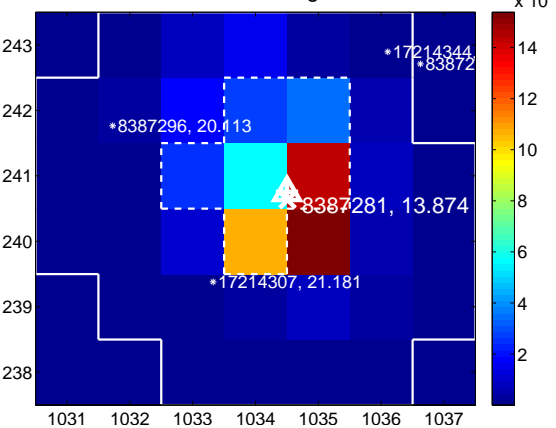
Q3 no OOT image



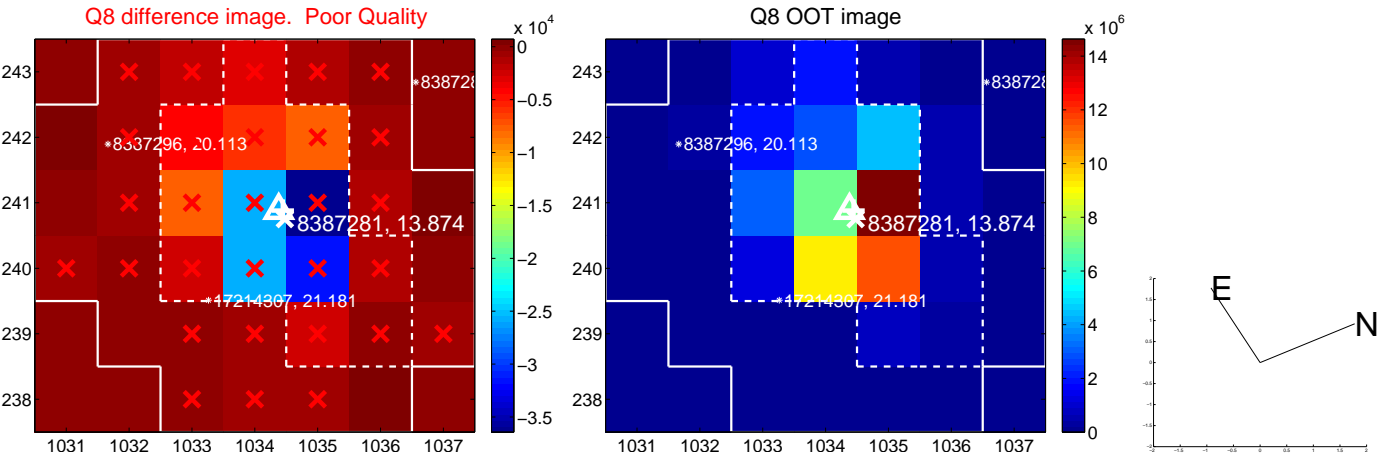
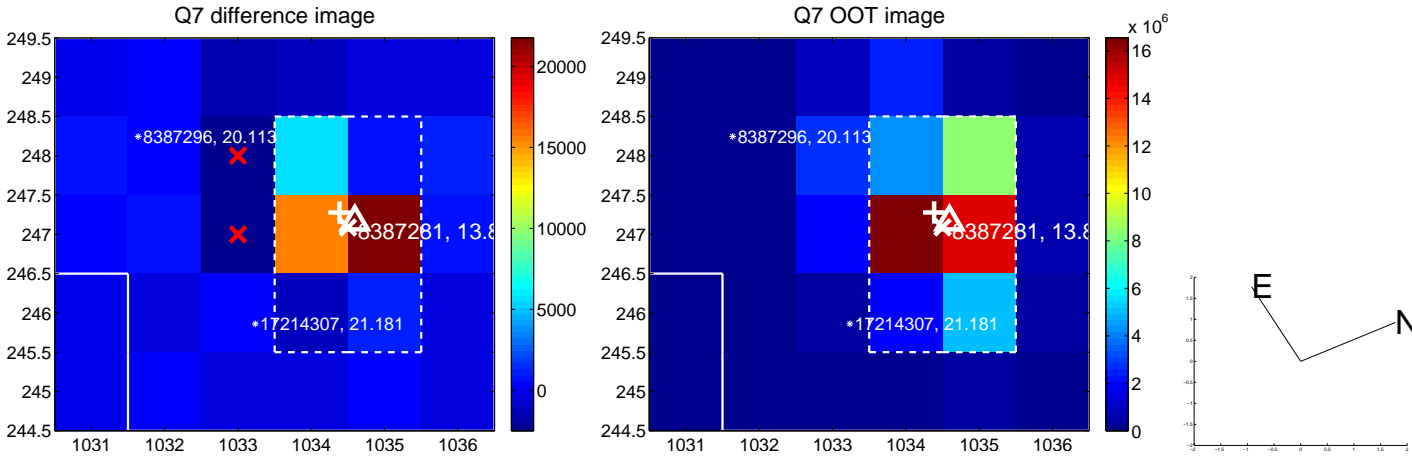
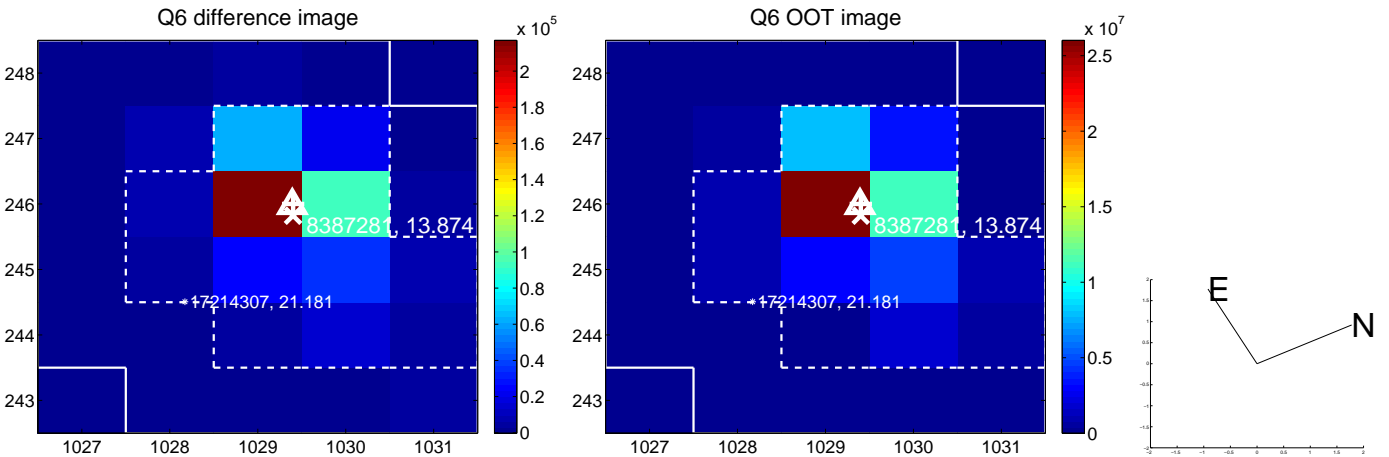
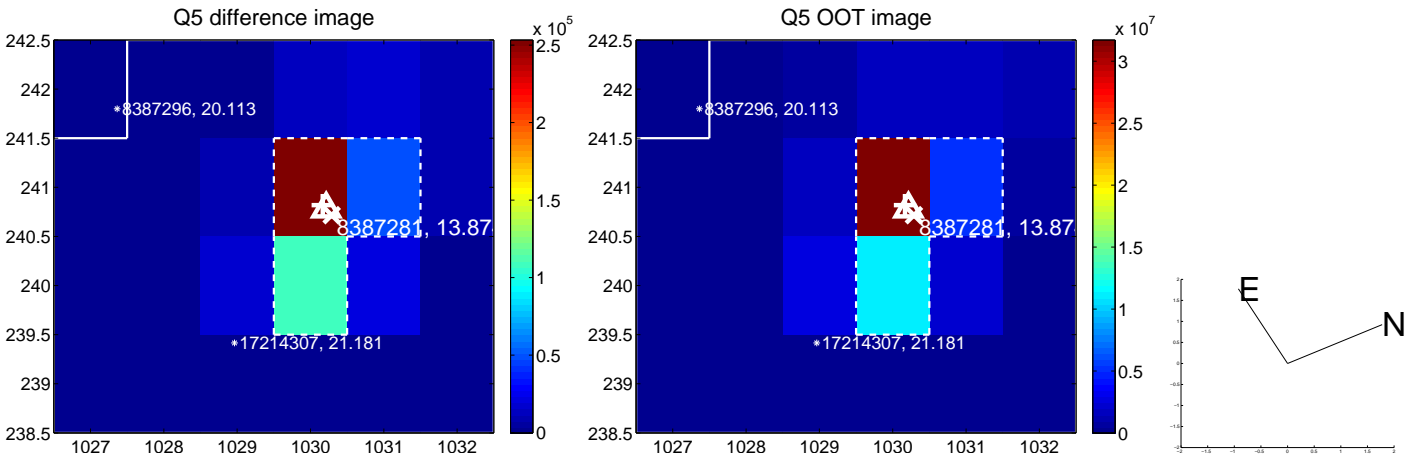
Q4 difference image



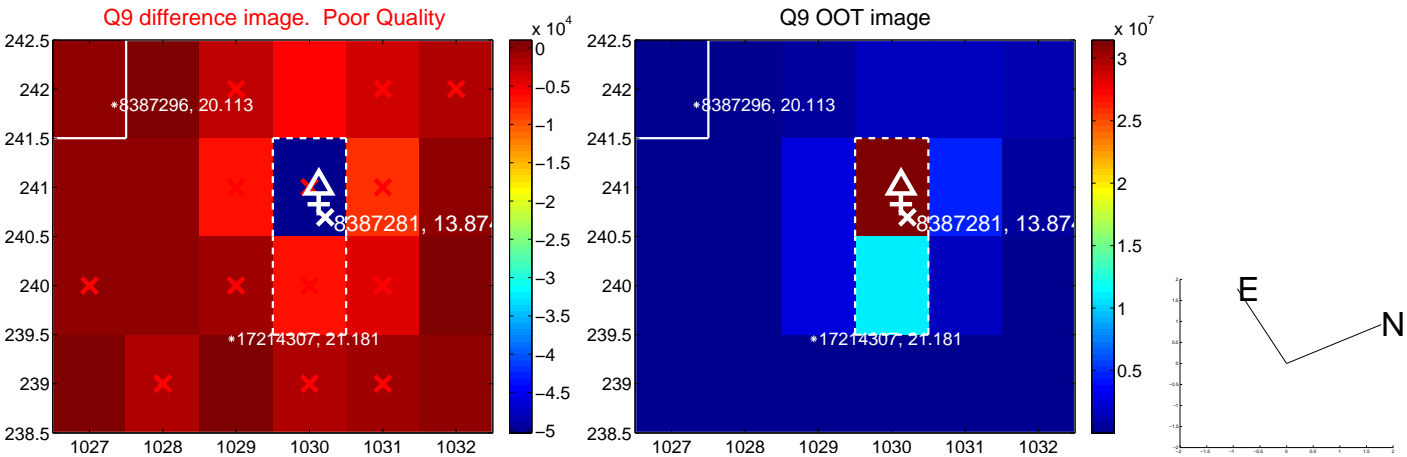
Q4 OOT image



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



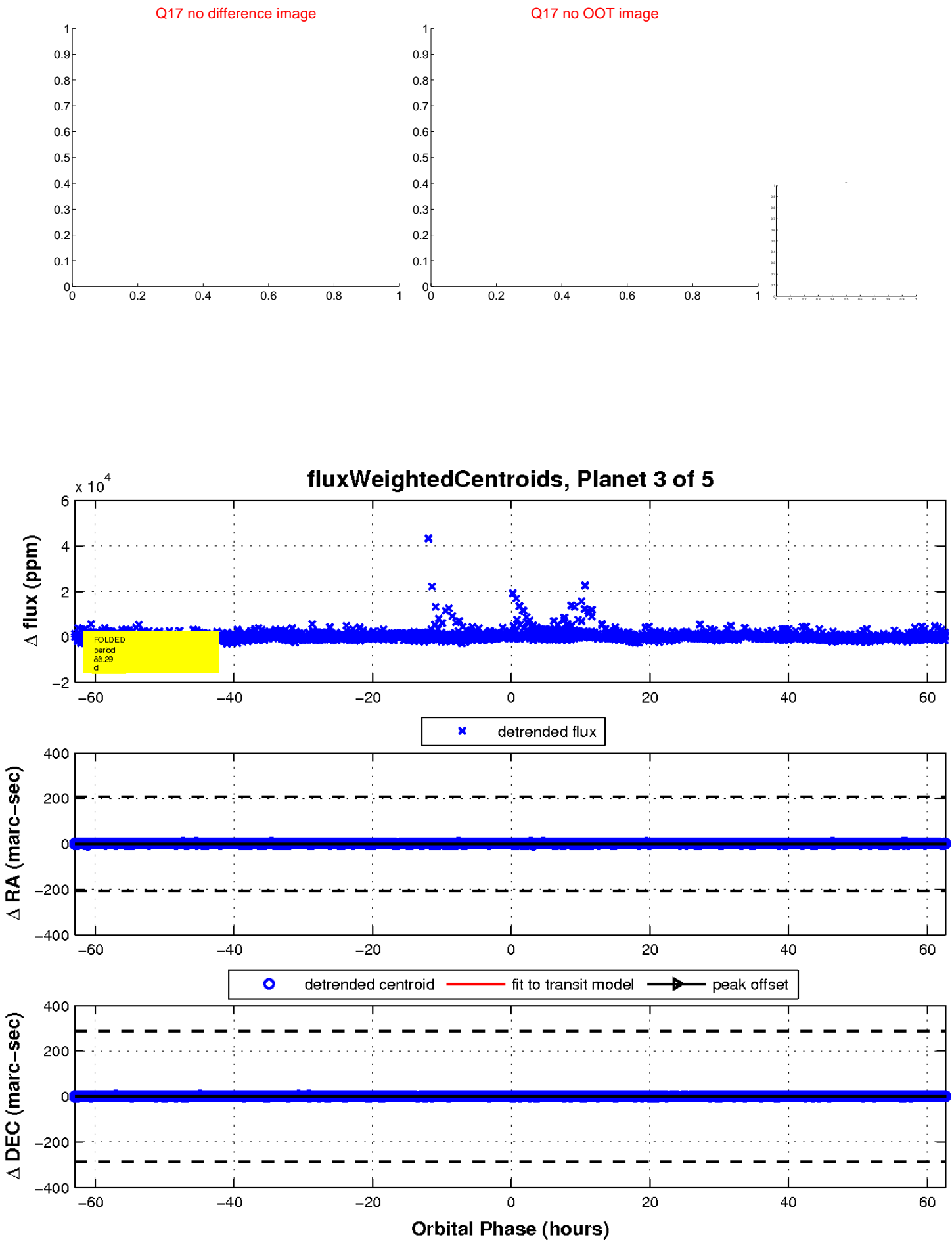
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



Declination

KIC 008387281

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})
008387281-01	OBS	No	227.929999	201.376378	2433.5	8.341	14.0	6.3	165.46	3441	1419.66	2710.40
008387281-02	OBS	No	177.254708	171.203947	2497.3	3.622	13.1	7.7	165.46	3441	924.95	3789.99
008387281-03	OBS	No	83.287353	157.308542	11469.9	20.965	11.9	15.3	165.46	3441	3453.65	0.00
008387281-04	OBS	No	194.341717	165.683464	2491.9	6.759	11.3	7.5	165.46	3441	862.66	3352.33
008387281-05	OBS	No	261.232284	374.362971	2836.9	6.710	15.0	8.4	165.46	3441	873.68	2259.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008387281-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008387281-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008387281-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
008387281-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
008387281-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS

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

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

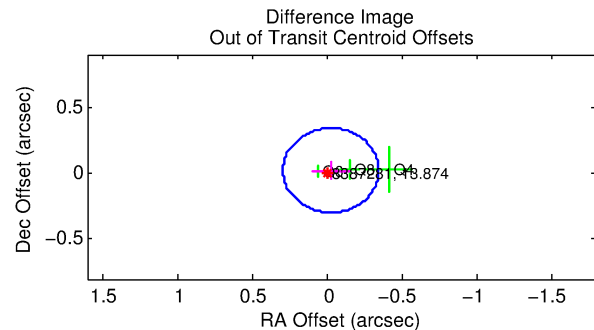
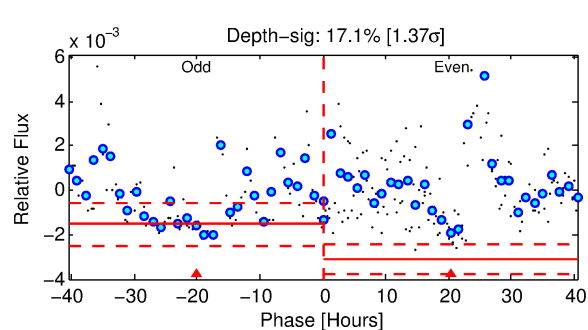
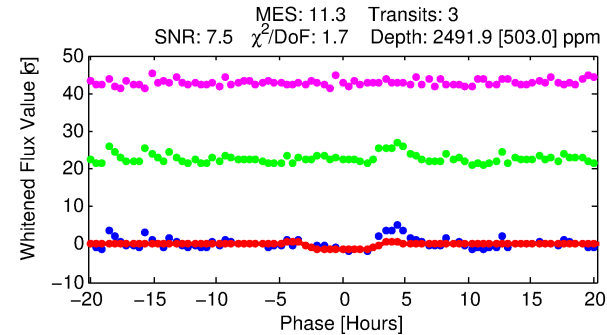
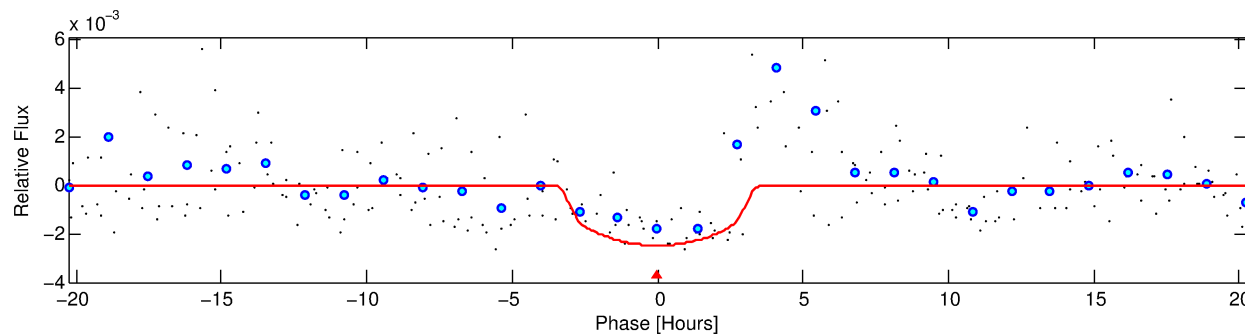
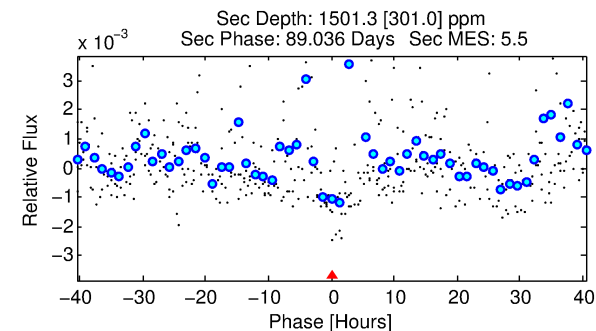
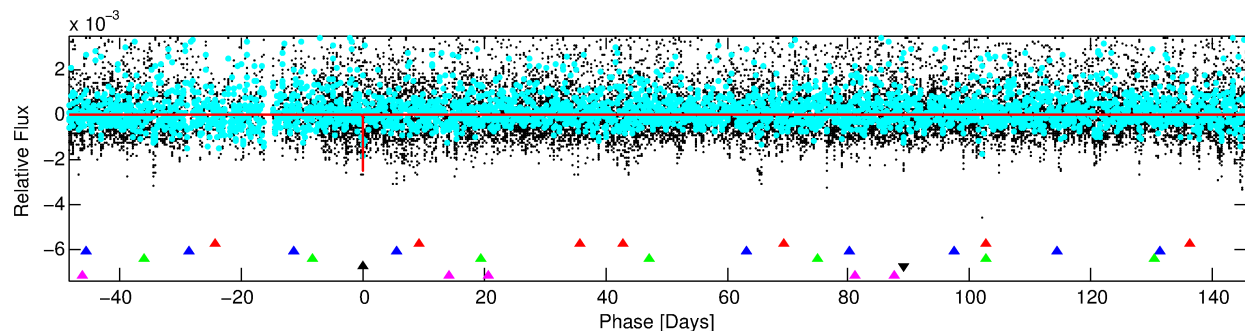
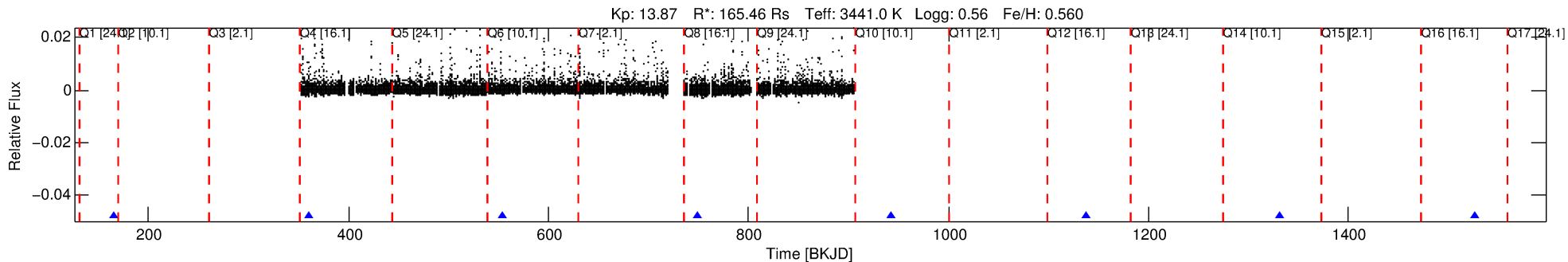
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008387281-04

No Significant Match Found

DV One-Page Summary

KIC: 8387281 Candidate: 4 of 5 Period: 194.342 d



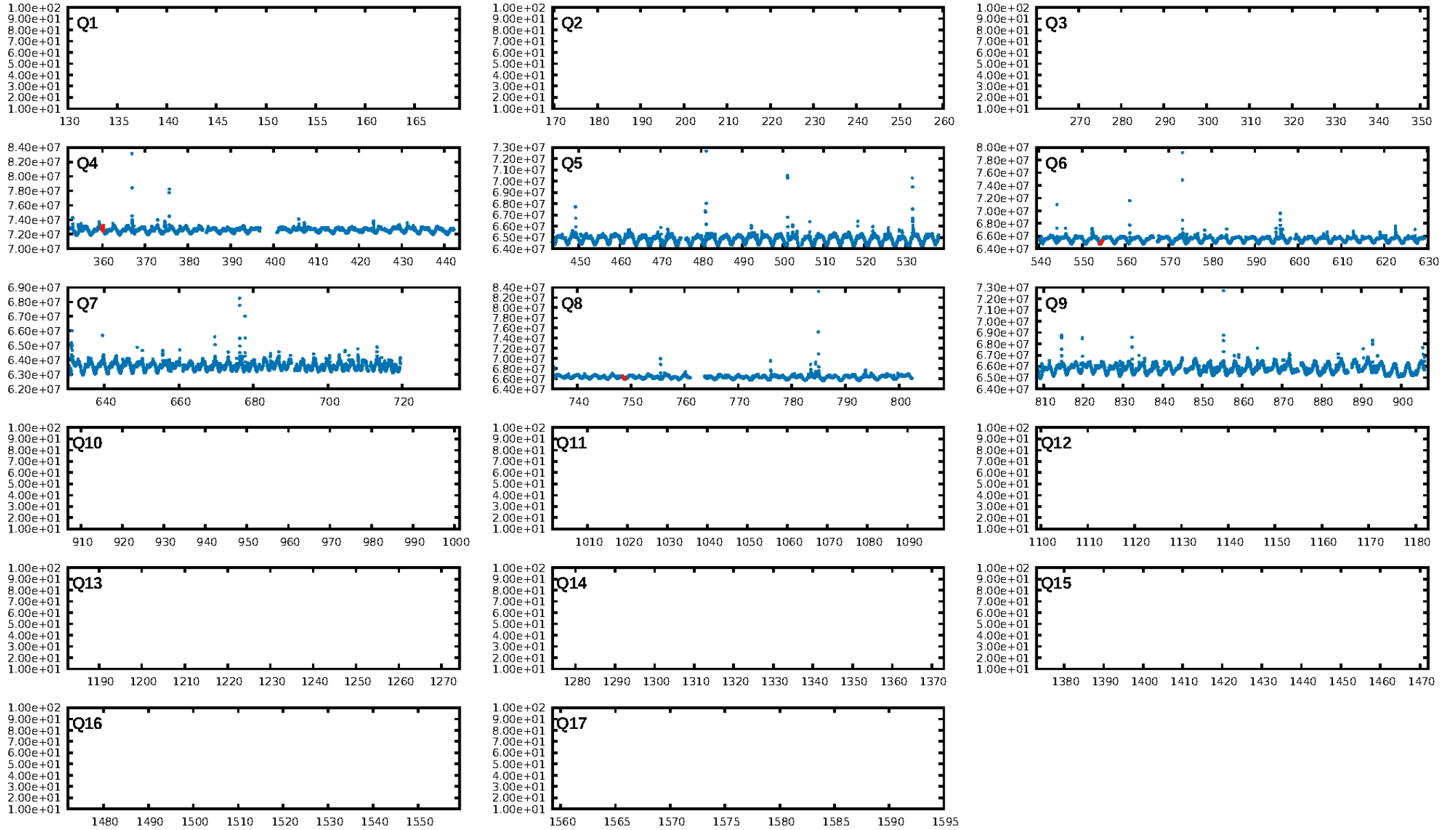
DV Fit Results:

Period = 194.34172 [0.01110] d
Epoch = 165.6835 [0.0226] BKJD
Rp/R* = 0.0478 [0.0291]
a/R* = 180.13 [254.71]
b = 0.65 [1.28]
Seff = 3352.33 [1961.25]
Teq = 1940 [284] K
Rp = 862.66 [700.72] Re
a = 1.0128 [0.4267] AU
Ag = 1.14 [1.55] [0.09σ]
Teffp = 3099 [961] K [1.16σ]

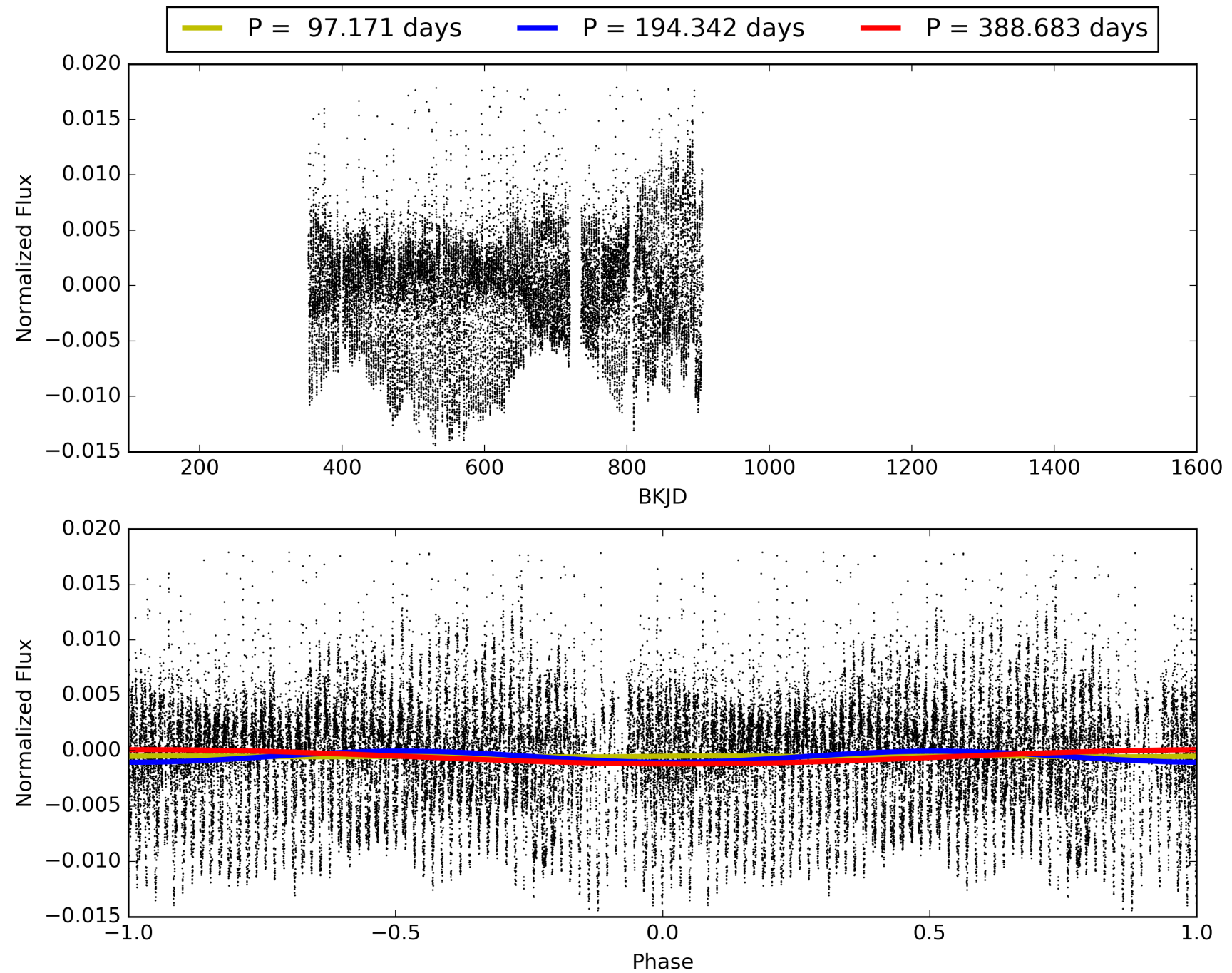
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [53.48σ]
LongPeriod-sig: 100.0% [75.09σ]
ModelChiSquare2-sig: 24.6%
ModelChiSquareGof-sig: 50.2%
Bootstrap-pfa: 4.50e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.9734
Centroid-sig: 3.6%
Centroid-so: 0.190 arcsec [0.66σ]
OotOffset-rm: 0.035 arcsec [0.33σ]
OotOffset-st: 1/0/2/0 [3]
KicOffset-rm: 0.598 arcsec [3.99σ]
KicOffset-st: 1/0/2/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 008387281-04, PDC Light Curves

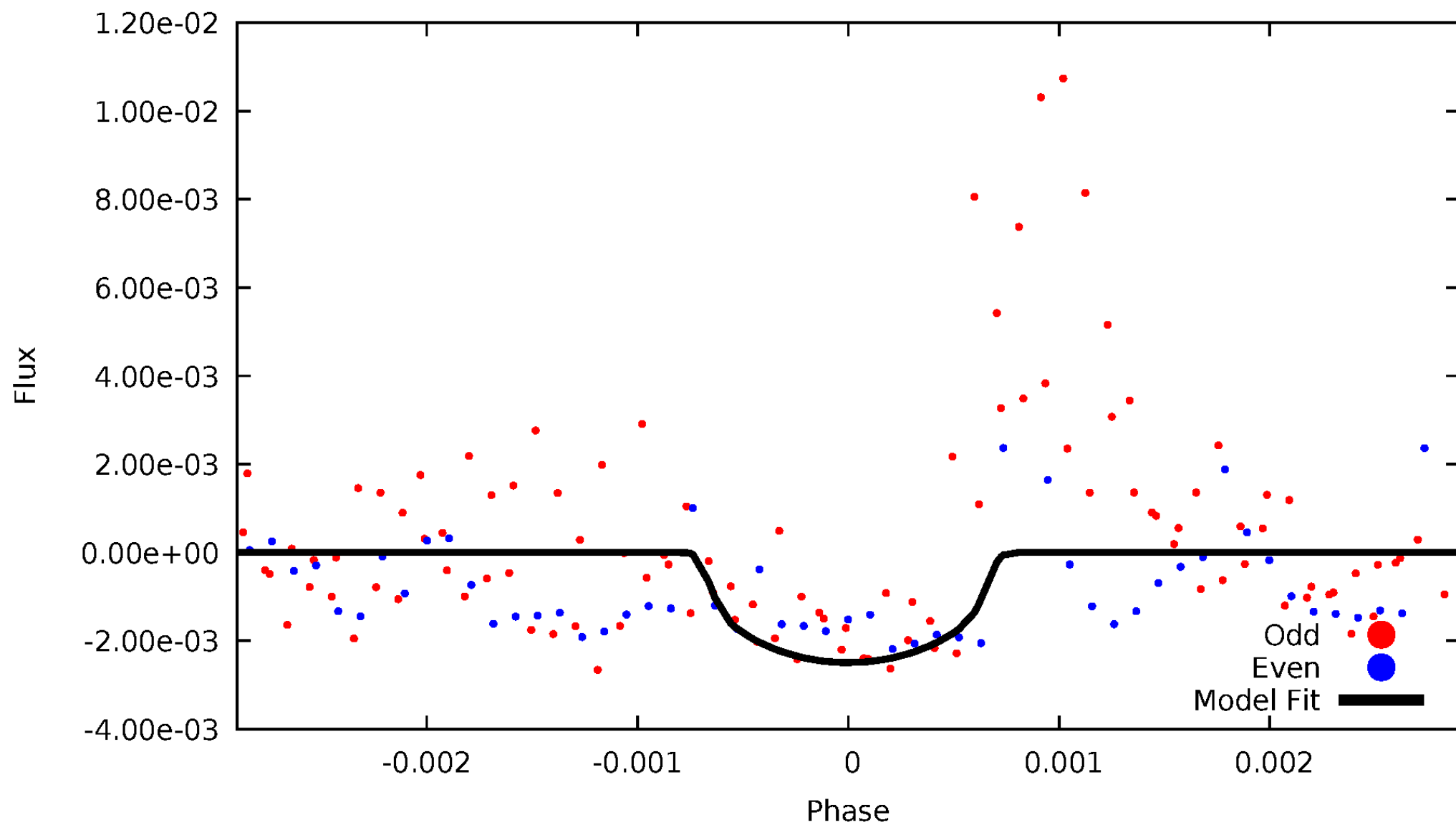


TCE 008387281-04



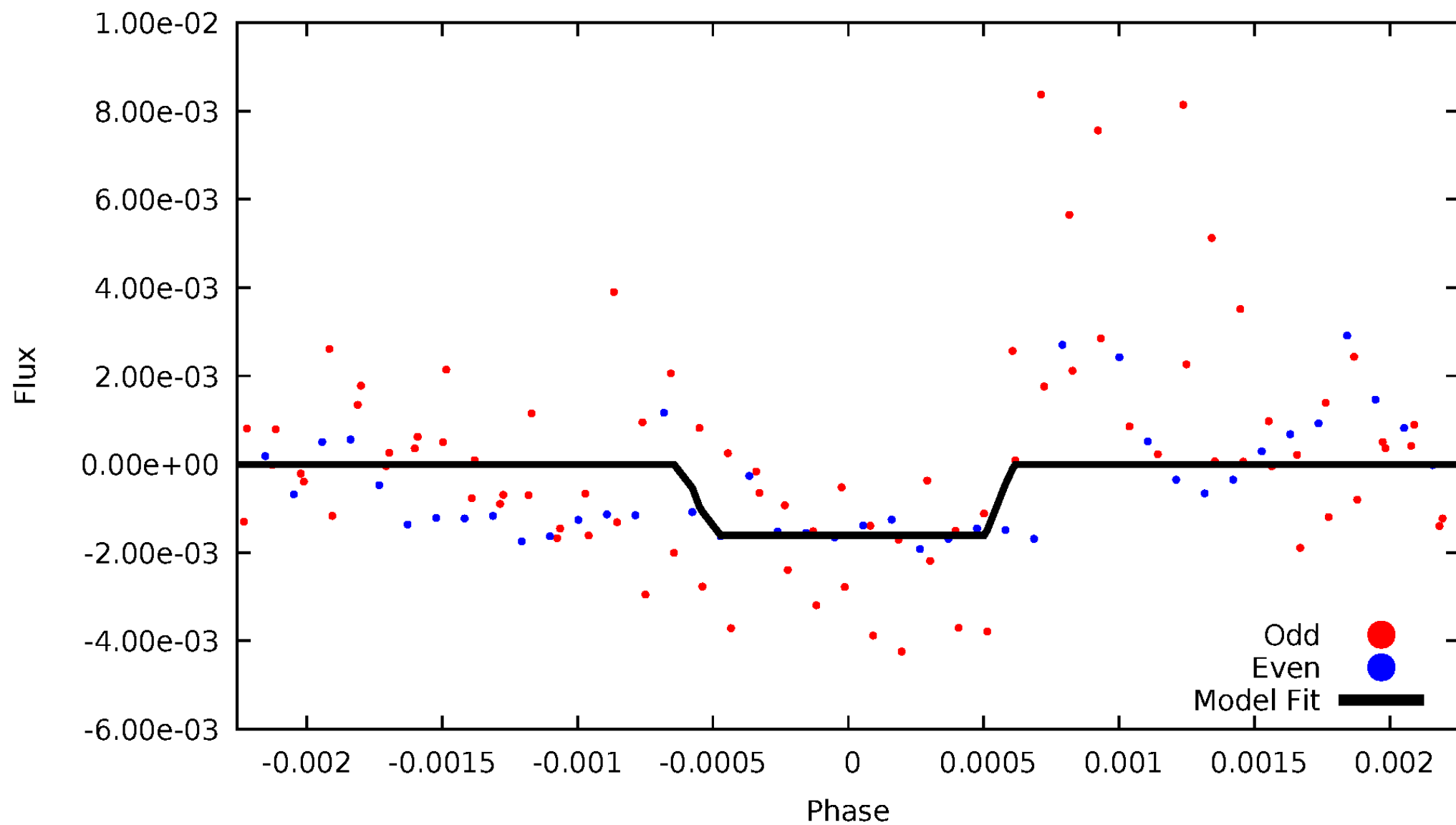
DV Odd/Even

TCE 008387281-04



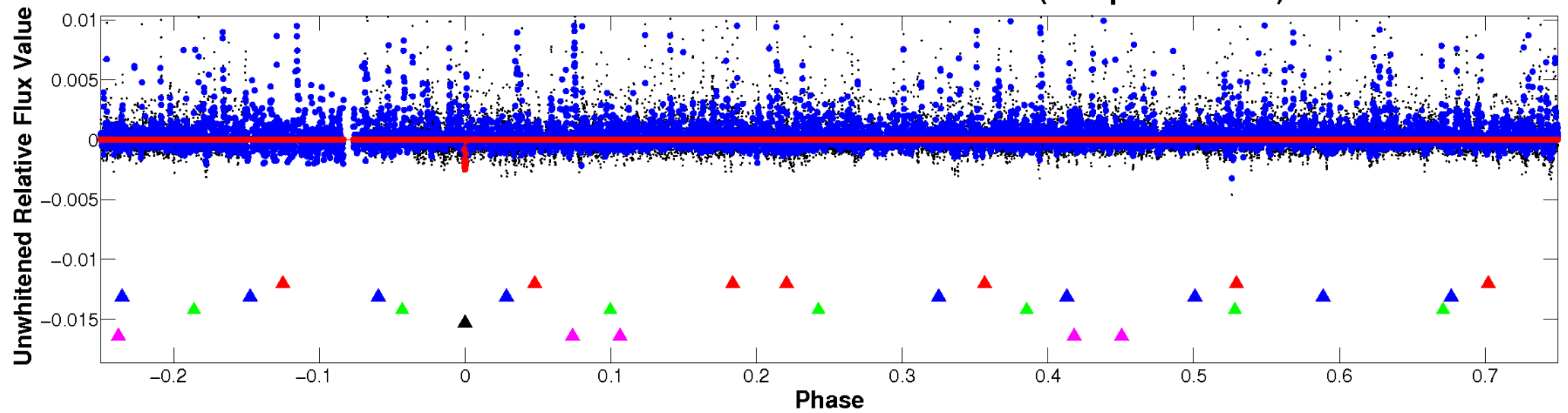
ALT Odd/Even

TCE 008387281-04

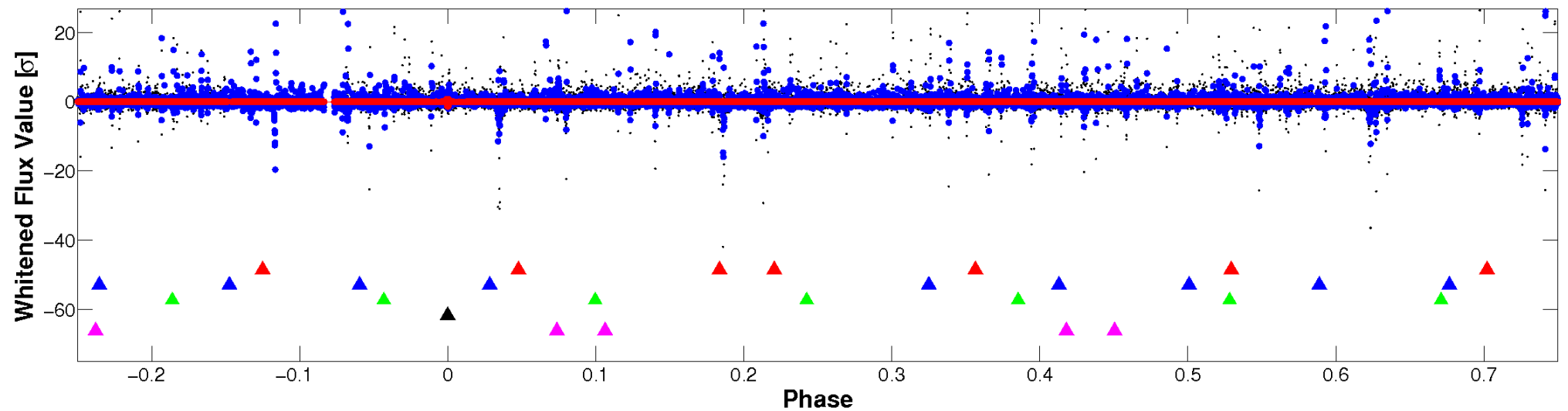


Non-Whitened Vs. Whitened Light Curve

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



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



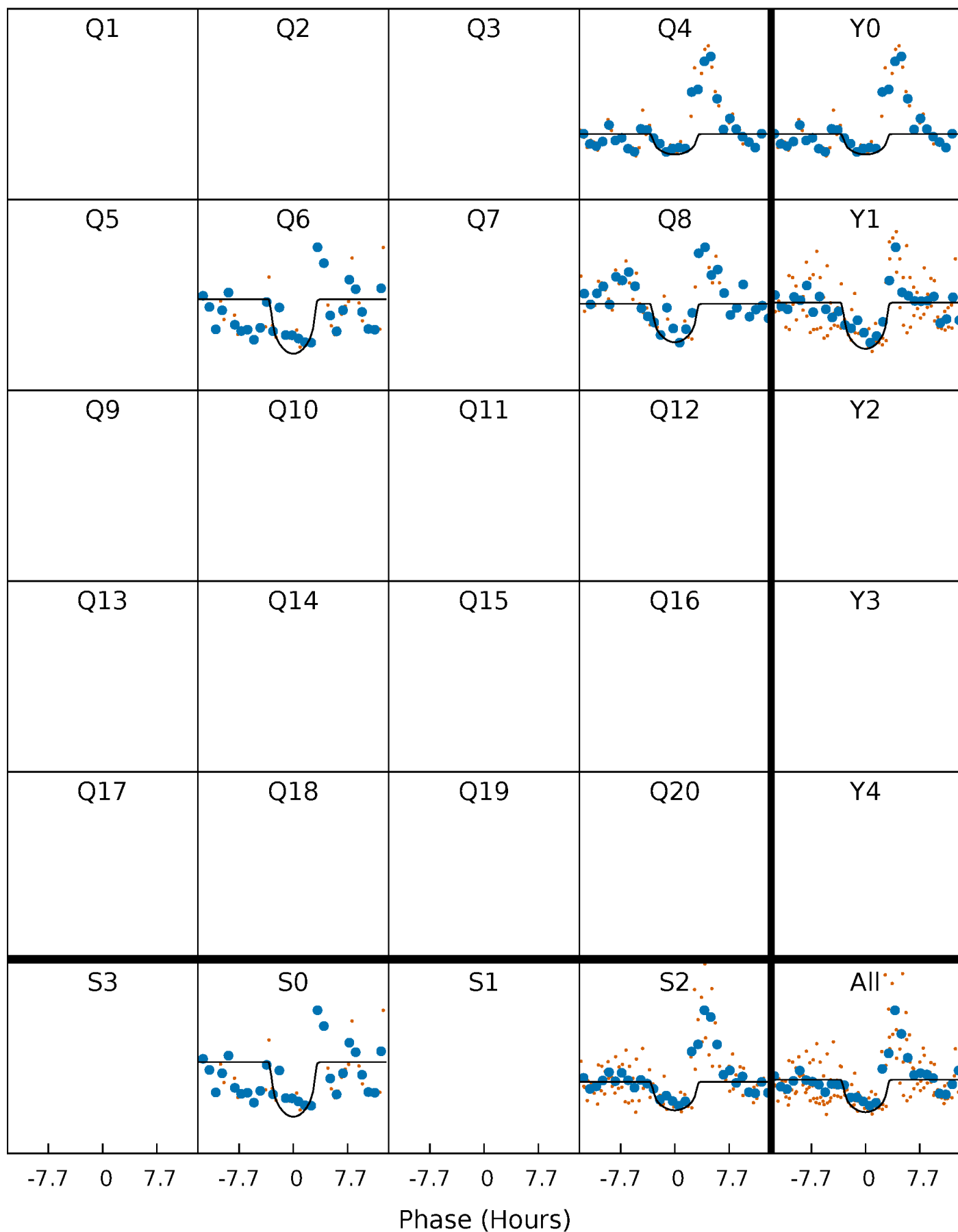
PDC Quarter-Phased Transit Curves

TCE 008387281-04 $P=194.341716$ Days $T_0=165.683464$ (BKJD)



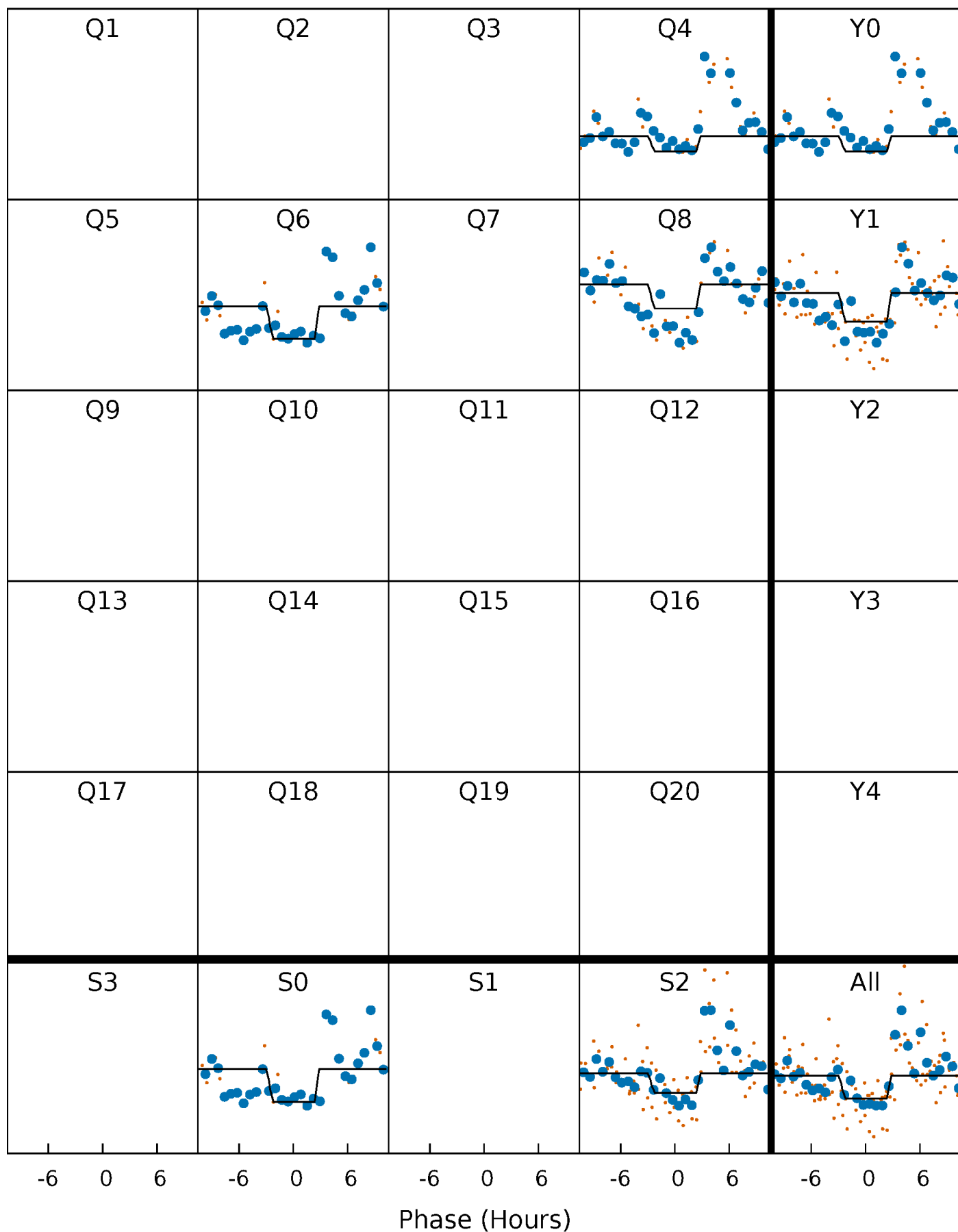
DV Quarter-Phased Transit Curves

TCE 008387281-04 $P=194.341716$ Days $T_0=165.683464$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

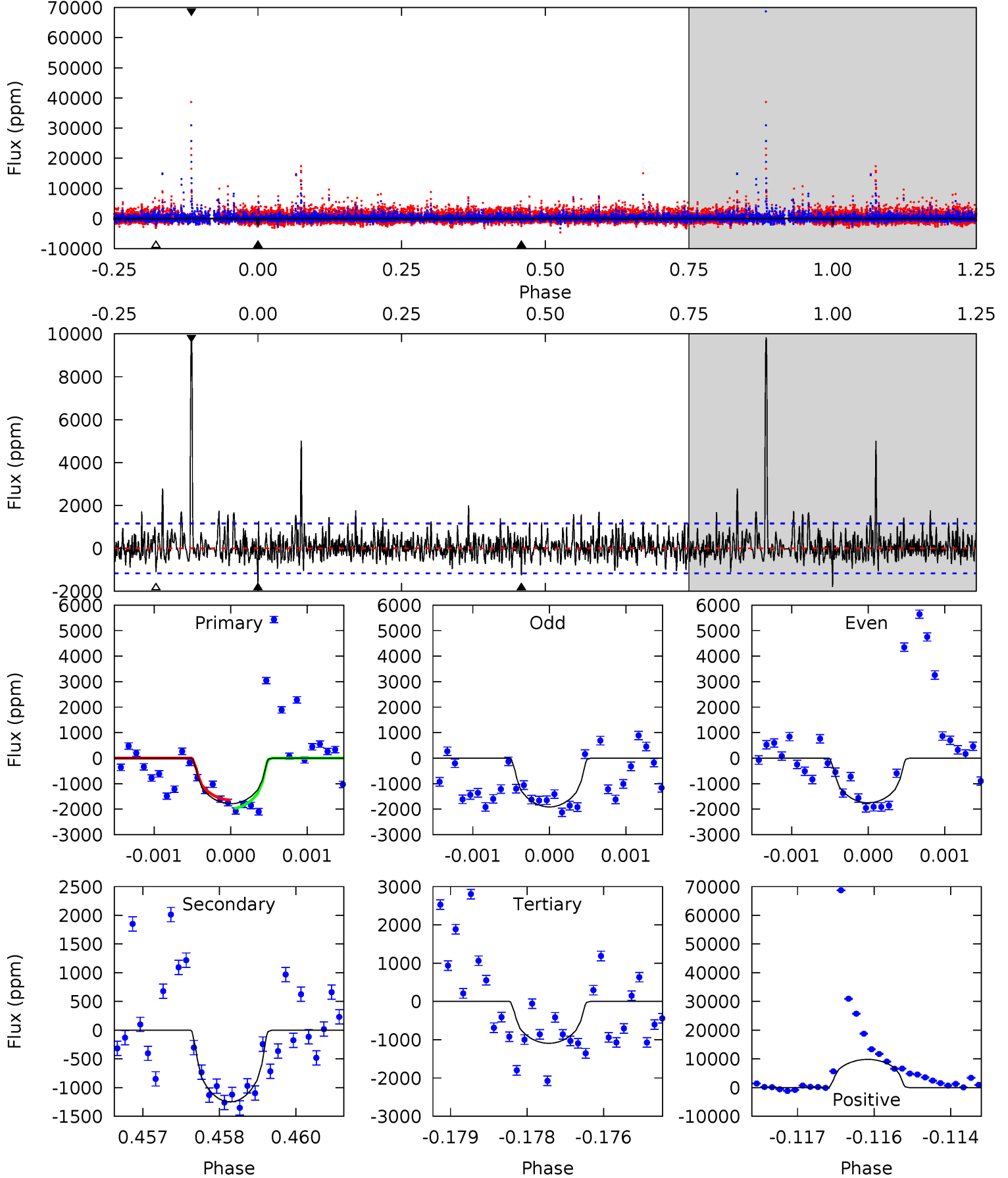
TCE 008387281-04 $P=194.352820$ Days $T_0=165.650442$ (BKJD)



DV Model-Shift Uniqueness Test

008387281-04, P = 194.341716 Days, E = 165.683464 Days

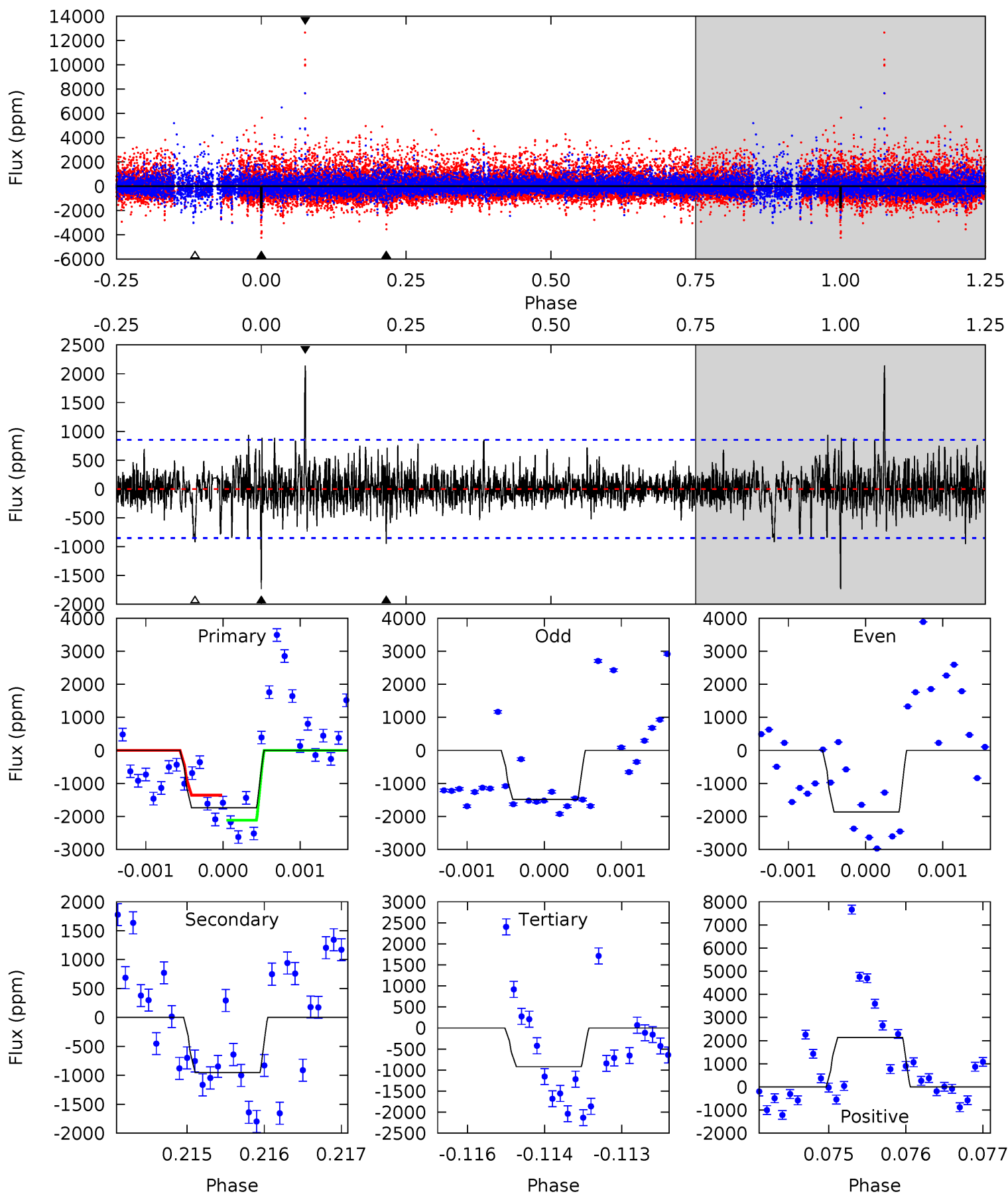
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.30	5.81	5.08	45.6	5.38	3.18	2.61	3.22	-37.3	0.73	-39.8	0.24	0.90	0.85	0.78



Alt Model-Shift Uniqueness Test

008387281-04, P = 194.352820 Days, E = 165.650442 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	6.05	5.85	13.6	5.43	3.25	1.41	5.19	-2.58	0.21	-7.56	1.05	1.21	0.55	2.43



Stellar Parameters For KIC 008387281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3441^{+116}_{-104}	$0.565^{+0.288}_{-0.192}$	$0.560^{+0.050}_{-0.300}$	$165.464^{+22.255}_{-89.019}$	$3.668^{+0.073}_{-2.490}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+51%/-34%	+9%/-54%	+13%/-54%	+2%/-68%	+306%/-37%
Source	KIC0	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 008387281-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1251±215	$845.21^{+555.88}_{-472.65}$	2746^{+172}_{-275}	2904^{+960}_{-730}	$0.902^{+3.652}_{-0.553}$
Alt.	-952±157	$752.76^{+500.53}_{-430.46}$	2740^{+171}_{-255}	2913^{+1043}_{-966}	$0.881^{+3.799}_{-0.565}$

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 $A_{obs} \gg 1.0$

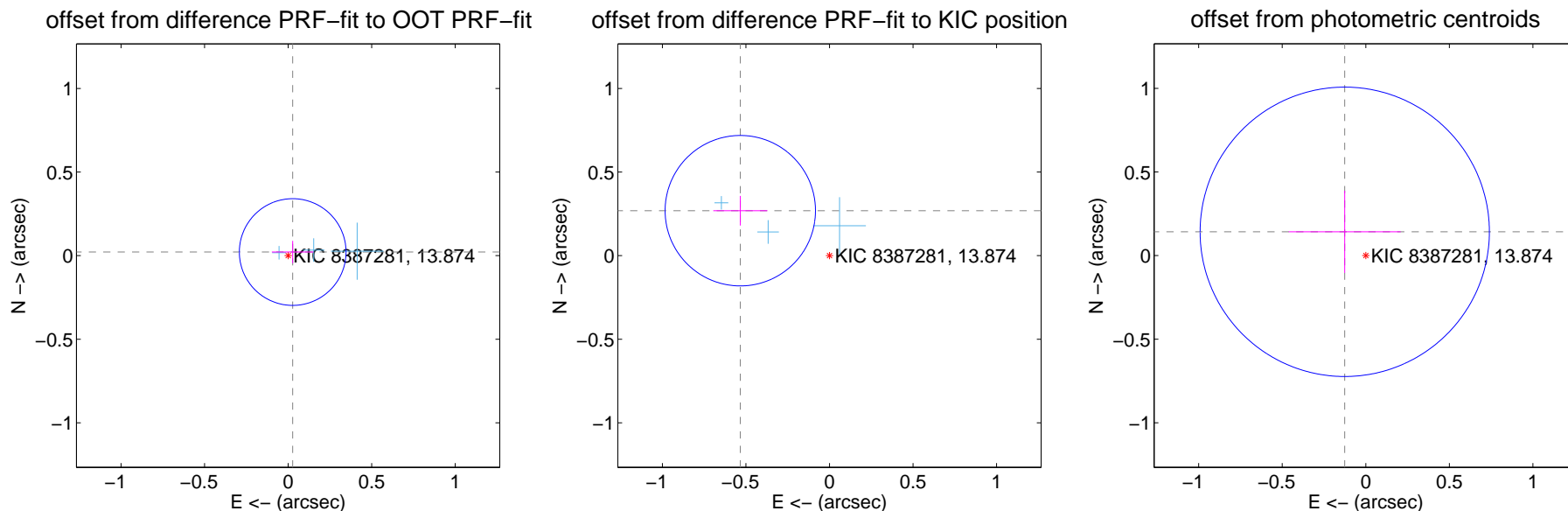
DV Centroid Data

Supplemental centroid analysis for 008387281-04. Kepler magnitude: 13.87. Transit SNR 7.48

There are 3 quarters with good PRF difference image offsets

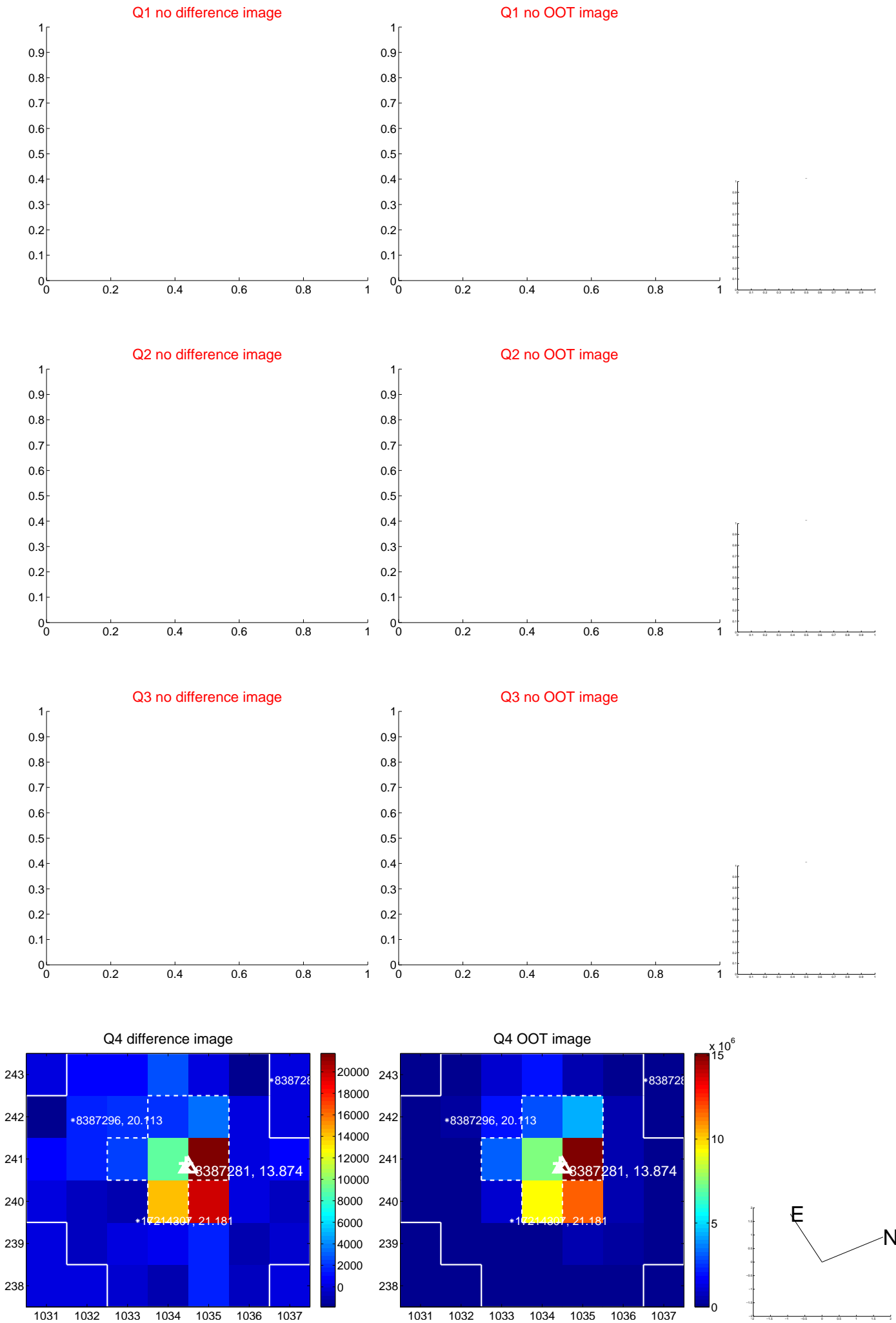
The direct PRF centroid is offset from the target star catalog position by about 0.53 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.035 ± 0.106	0.33	-0.027 ± 0.125	0.022 ± 0.067
PRF-fit source offset from KIC position	0.598 ± 0.150	3.99	0.534 ± 0.162	0.269 ± 0.089
photometric centroid source offset	0.19 ± 0.29	0.66	0.13 ± 0.34	0.14 ± 0.25

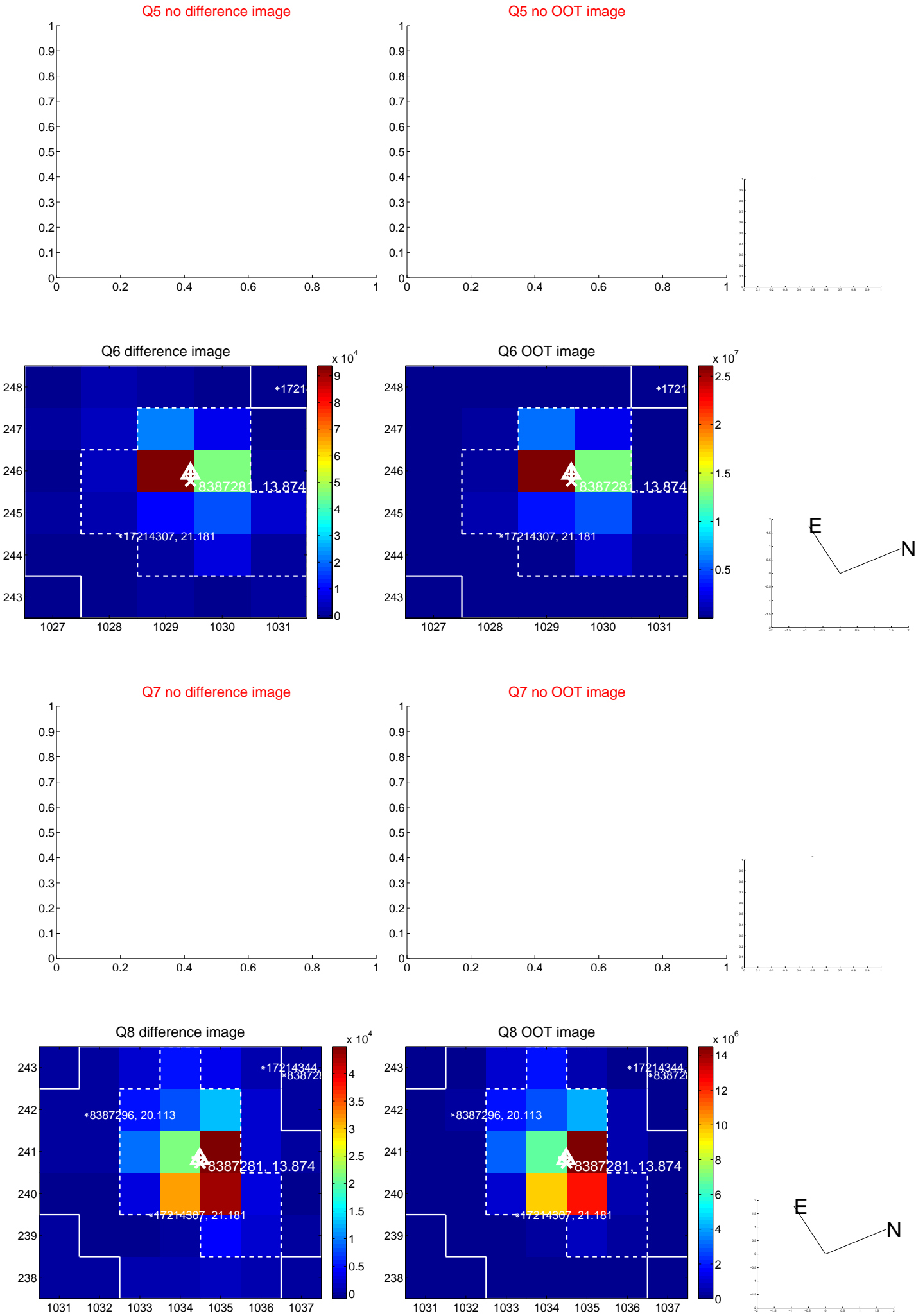


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



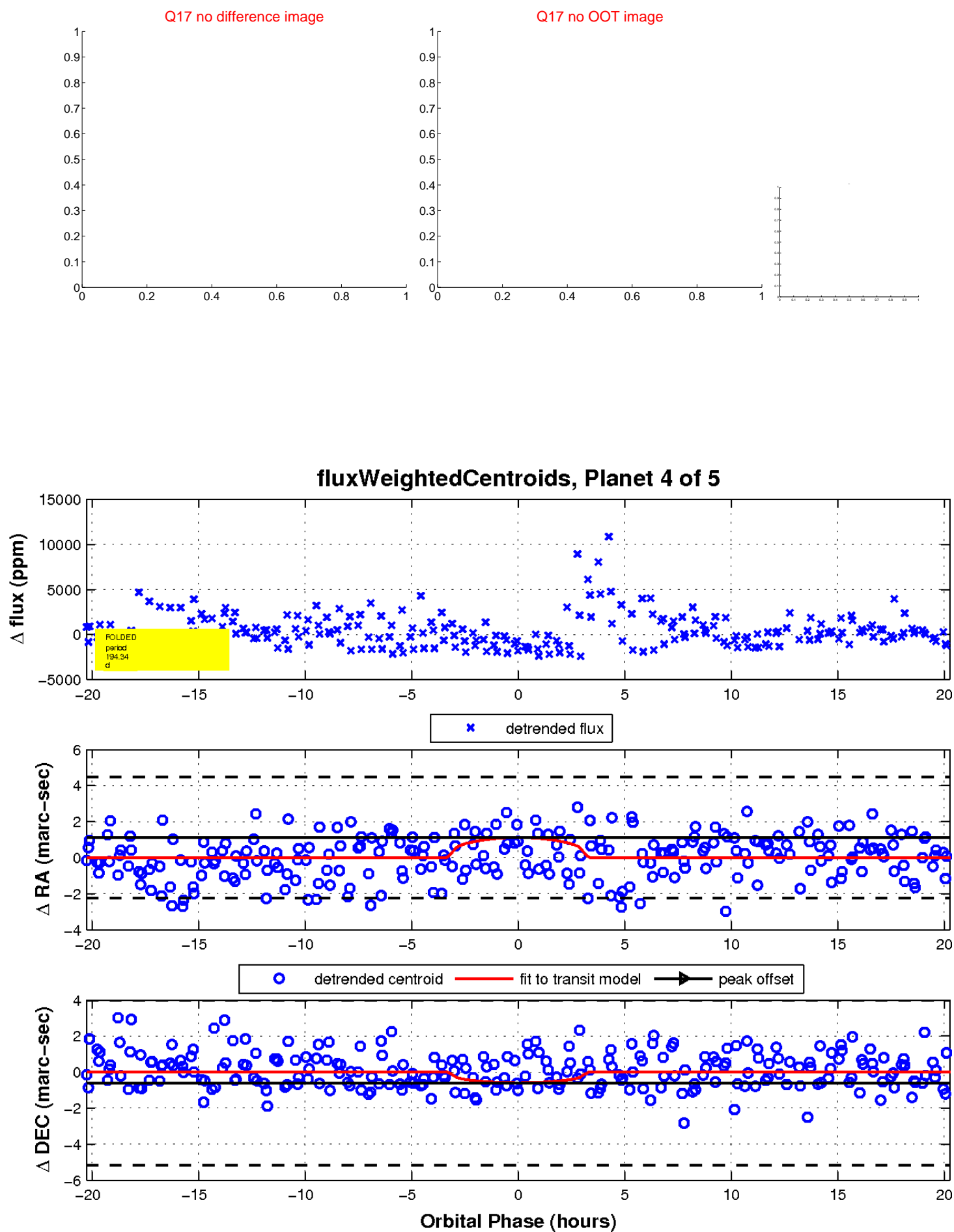
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



Declination

KIC 008387281

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})
008387281-01	OBS	No	227.929999	201.376378	2433.5	8.341	14.0	6.3	165.46	3441	1419.66	2710.40
008387281-02	OBS	No	177.254708	171.203947	2497.3	3.622	13.1	7.7	165.46	3441	924.95	3789.99
008387281-03	OBS	No	83.287353	157.308542	11469.9	20.965	11.9	15.3	165.46	3441	3453.65	0.00
008387281-04	OBS	No	194.341717	165.683464	2491.9	6.759	11.3	7.5	165.46	3441	862.66	3352.33
008387281-05	OBS	No	261.232284	374.362971	2836.9	6.710	15.0	8.4	165.46	3441	873.68	2259.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008387281-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008387281-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008387281-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
008387281-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
008387281-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS

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

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

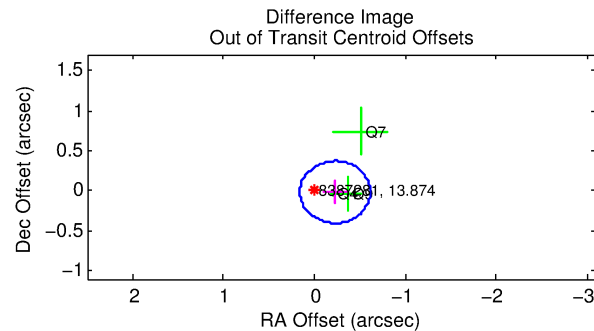
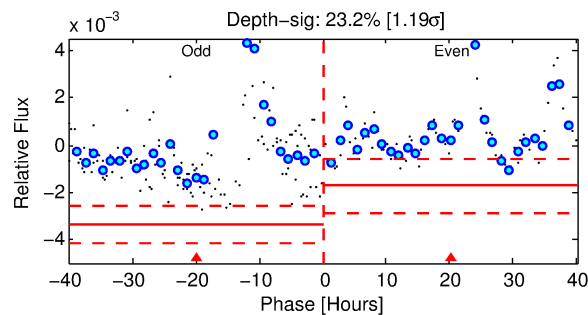
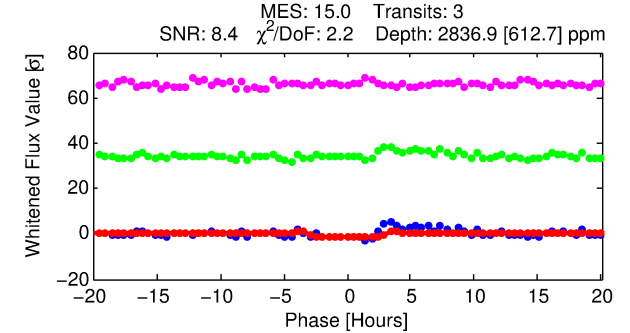
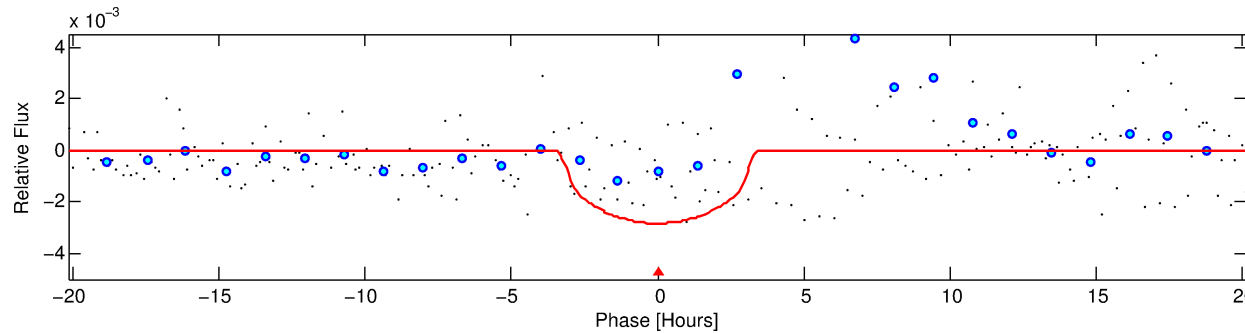
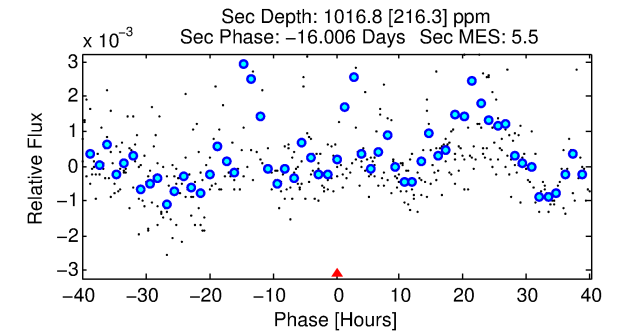
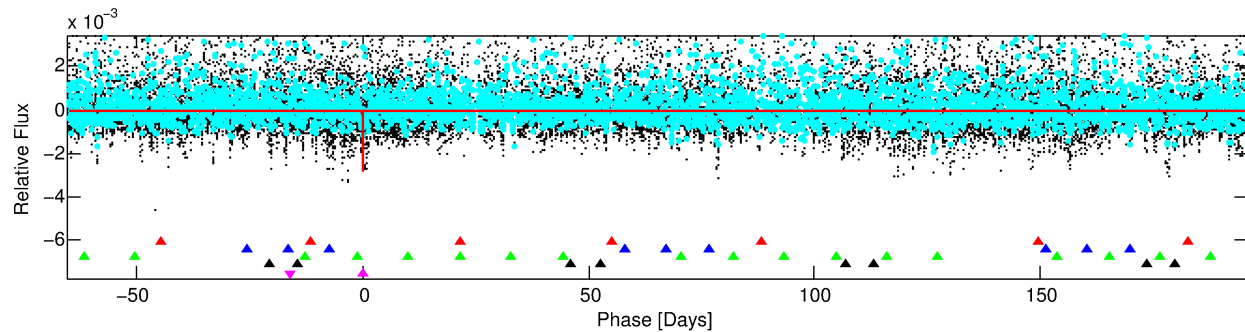
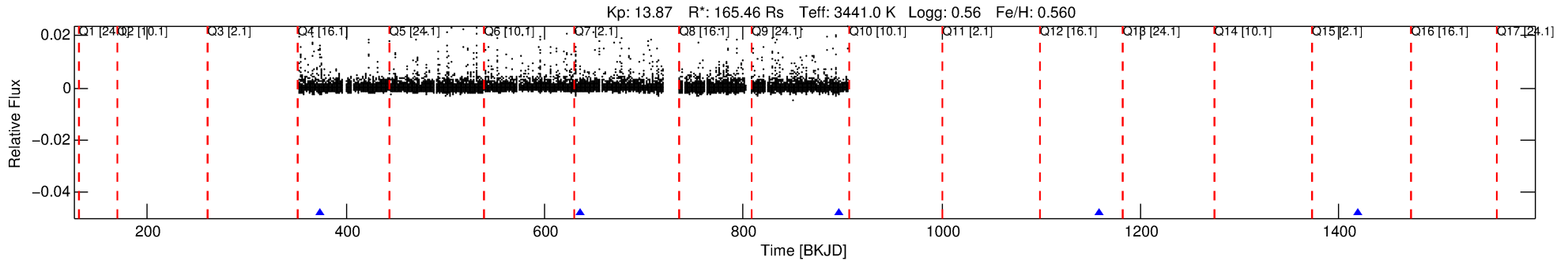
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008387281-05

No Significant Match Found

DV One-Page Summary

KIC: 8387281 Candidate: 5 of 5 Period: 261.232 d



DV Fit Results:

Period = 261.23228 [0.00922] d
Epoch = 374.3630 [0.0126] BKJD
Rp/R* = 0.0484 [0.0319]
a/R* = 270.05 [389.35]
b = 0.52 [2.06]
Seff = 2259.78 [1322.06]
Teff = 1758 [257] K
Rp = 873.68 [743.83] Re
a = 1.2336 [0.5197] AU
Ag = 1.12 [1.62] [0.07σ]
Teffp = 2793 [938] K [1.06σ]

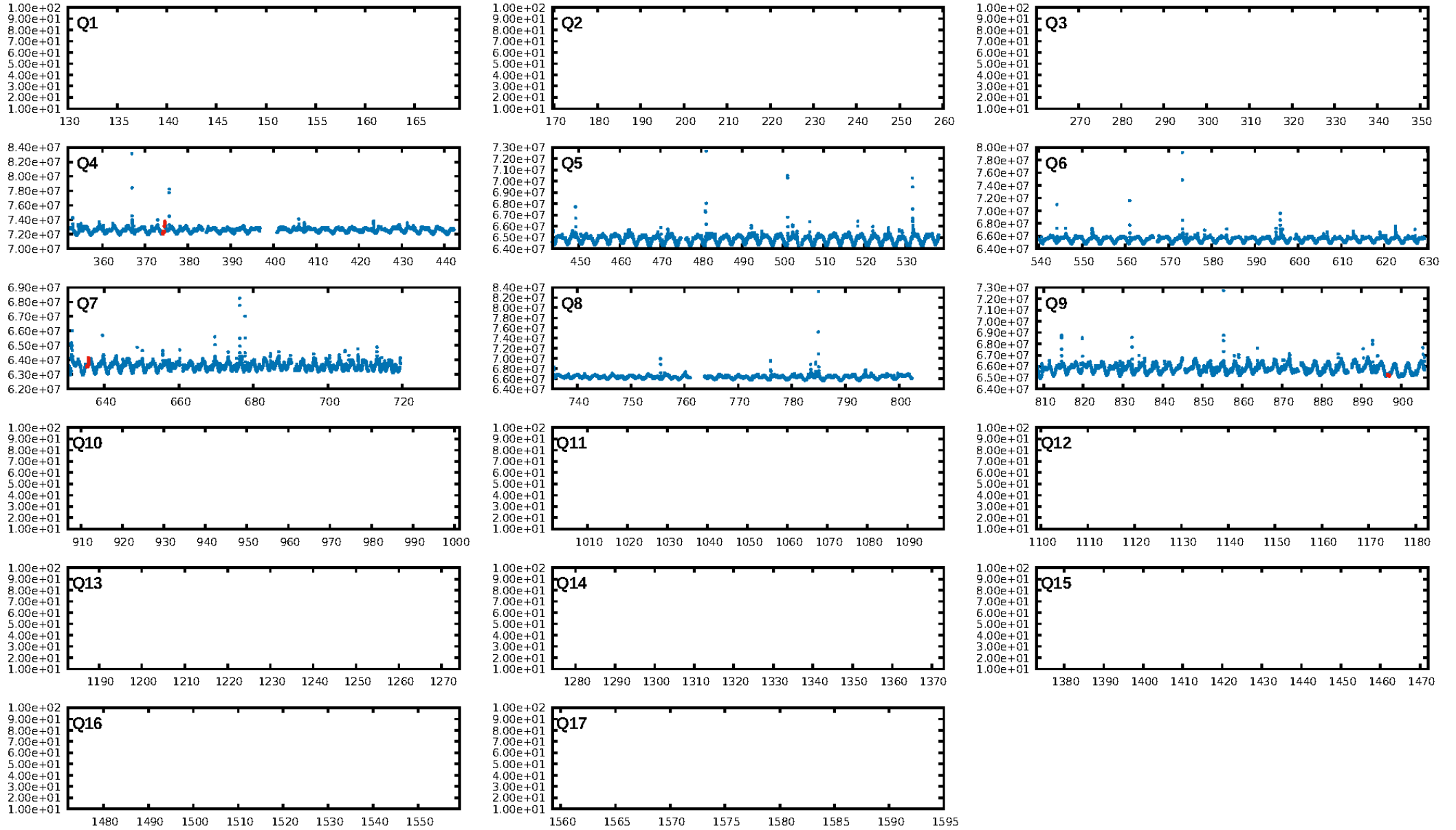
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [74.66σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 12.9%
Bootstrap-pfa: 2.51e-17
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.3811
Centroid-sig: 20.6%
Centroid-so: 0.401 arcsec [1.98σ]
OotOffset-rm: 0.228 arcsec [1.77σ]
KicOffset-rm: 0.218 arcsec [1.36σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

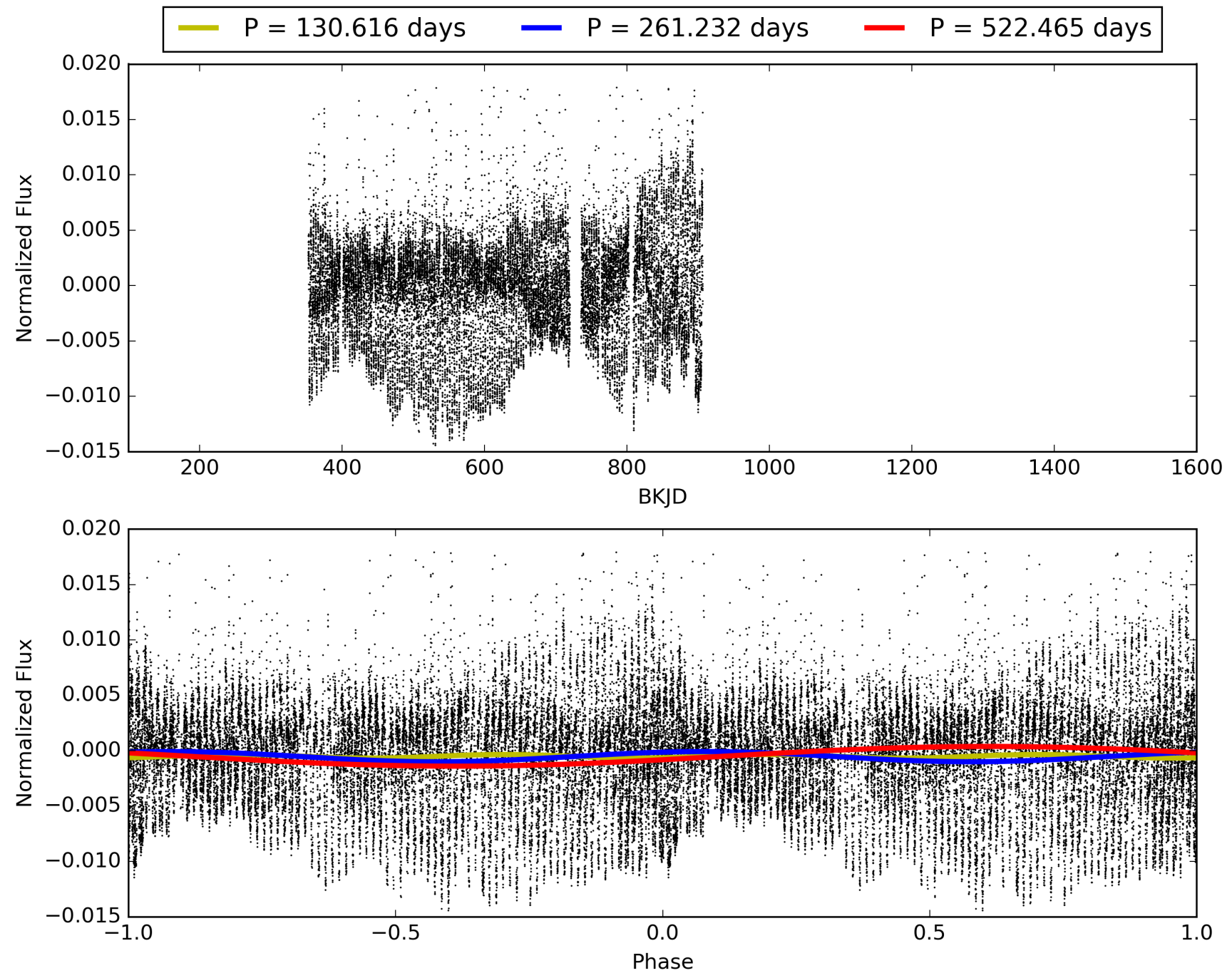
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:47:17 Z

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

TCE 008387281-05, PDC Light Curves

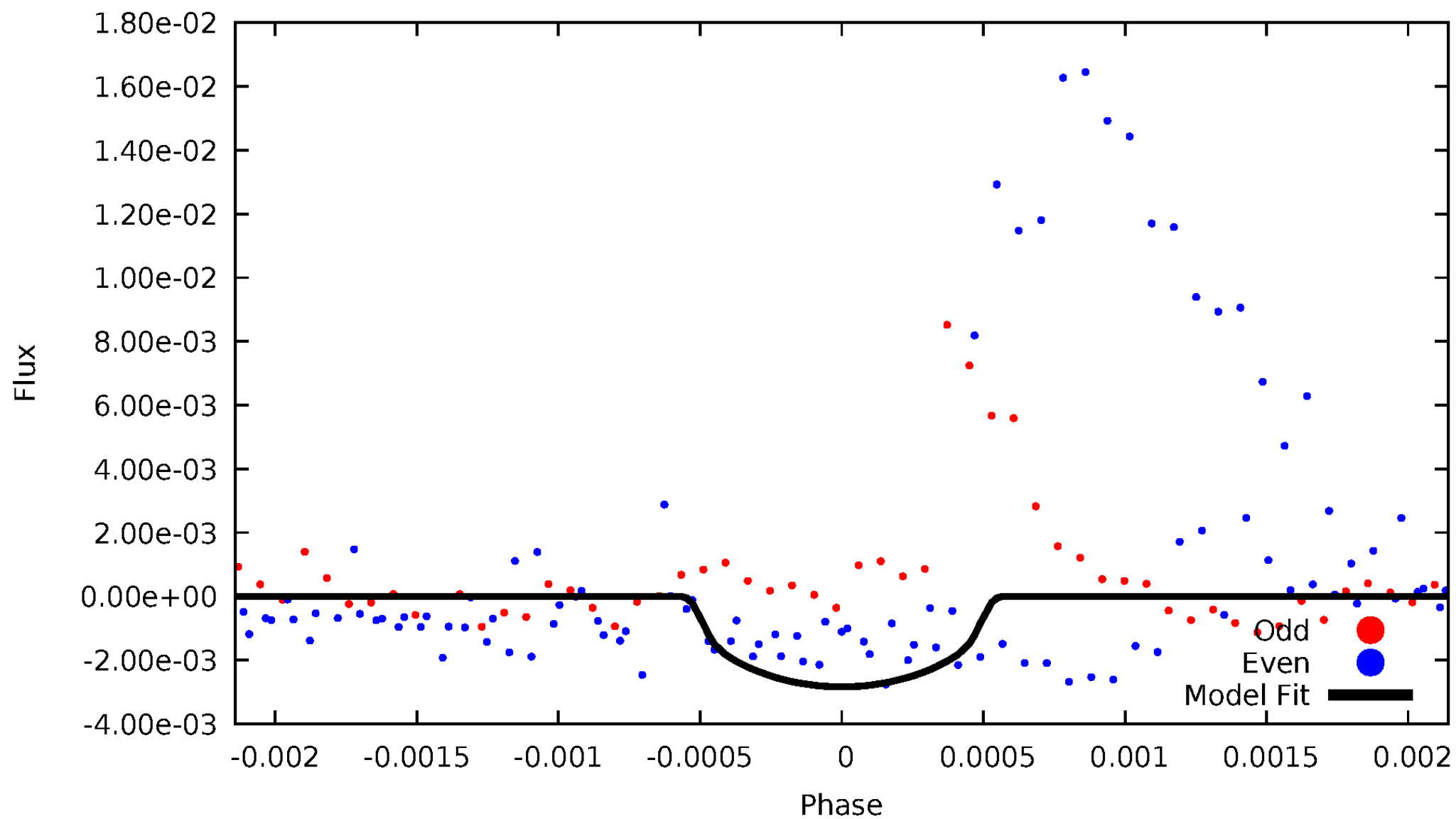


TCE 008387281-05



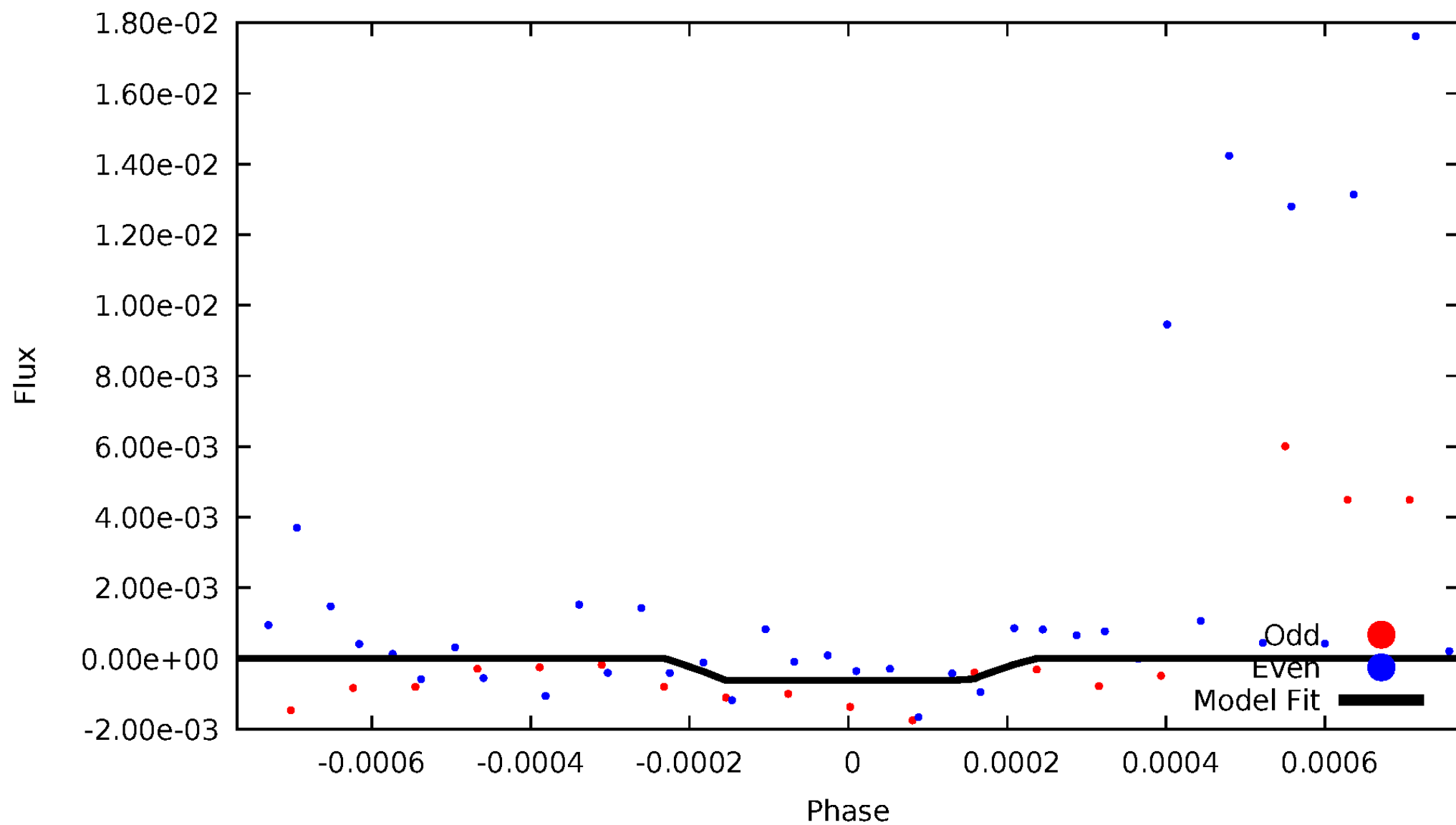
DV Odd/Even

TCE 008387281-05



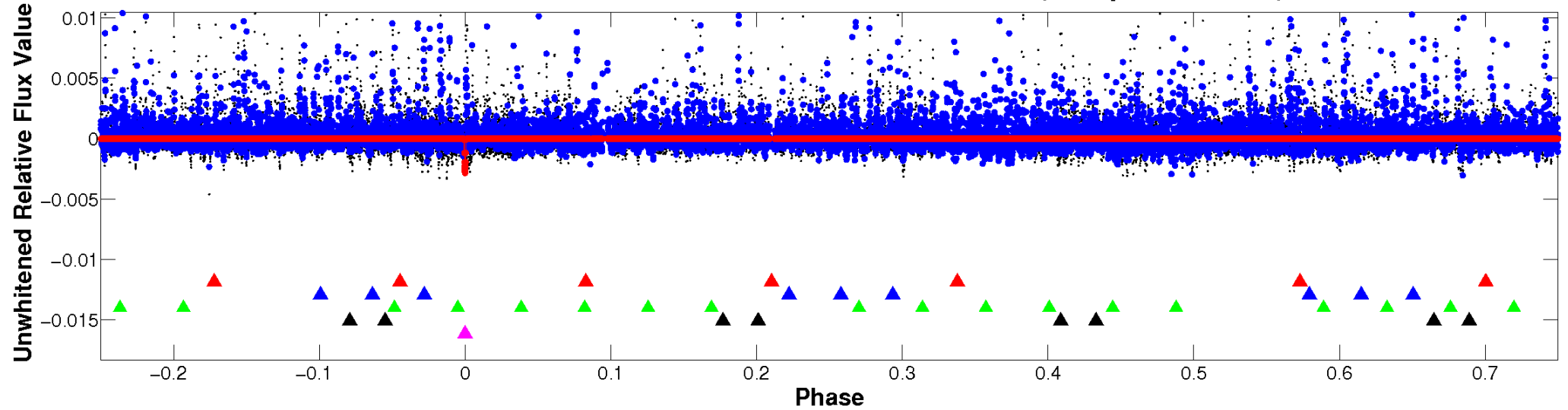
ALT Odd/Even

TCE 008387281-05

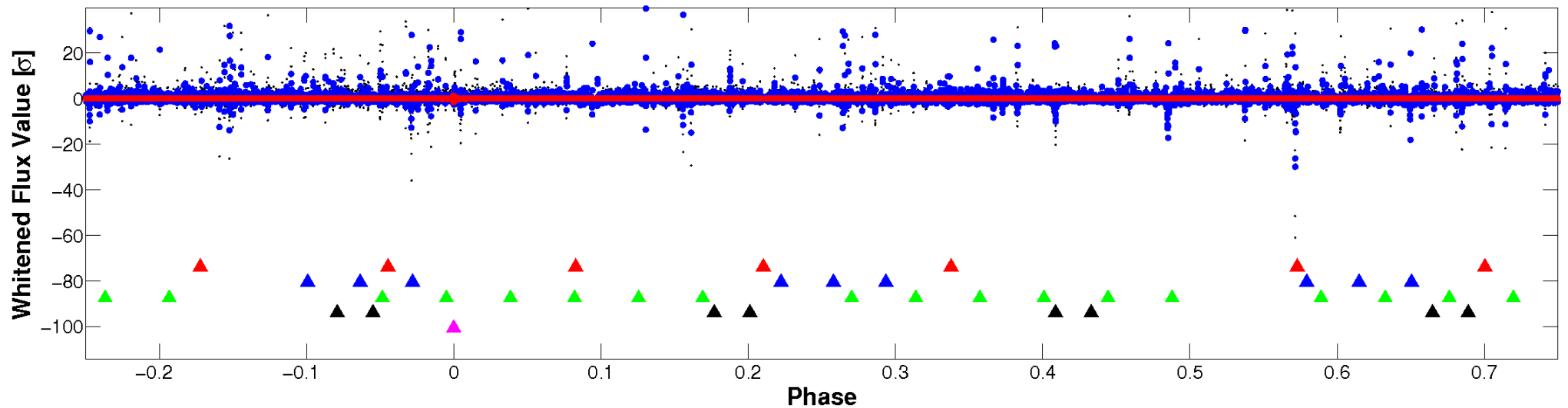


Non-Whitened Vs. Whitened Light Curve

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

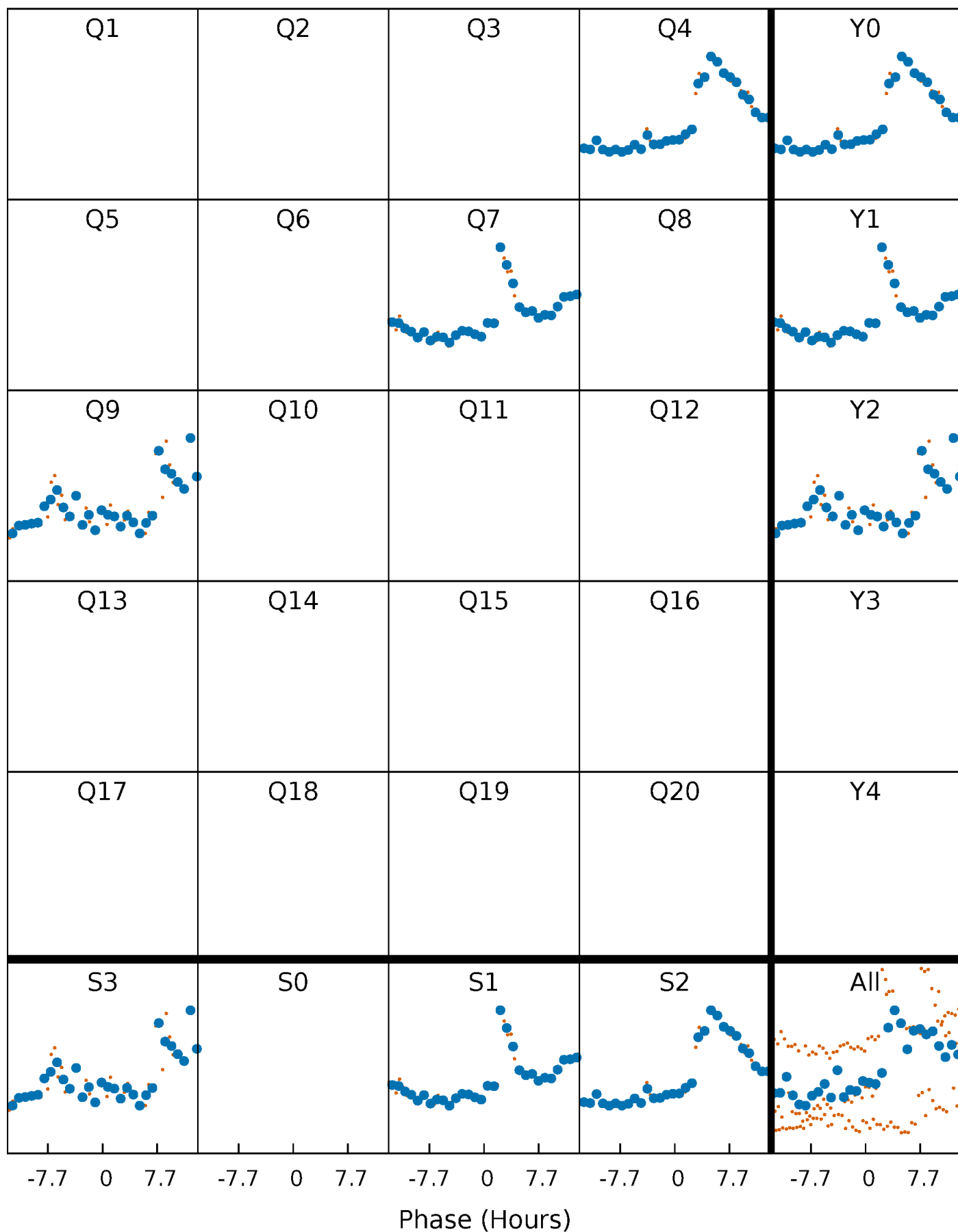


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



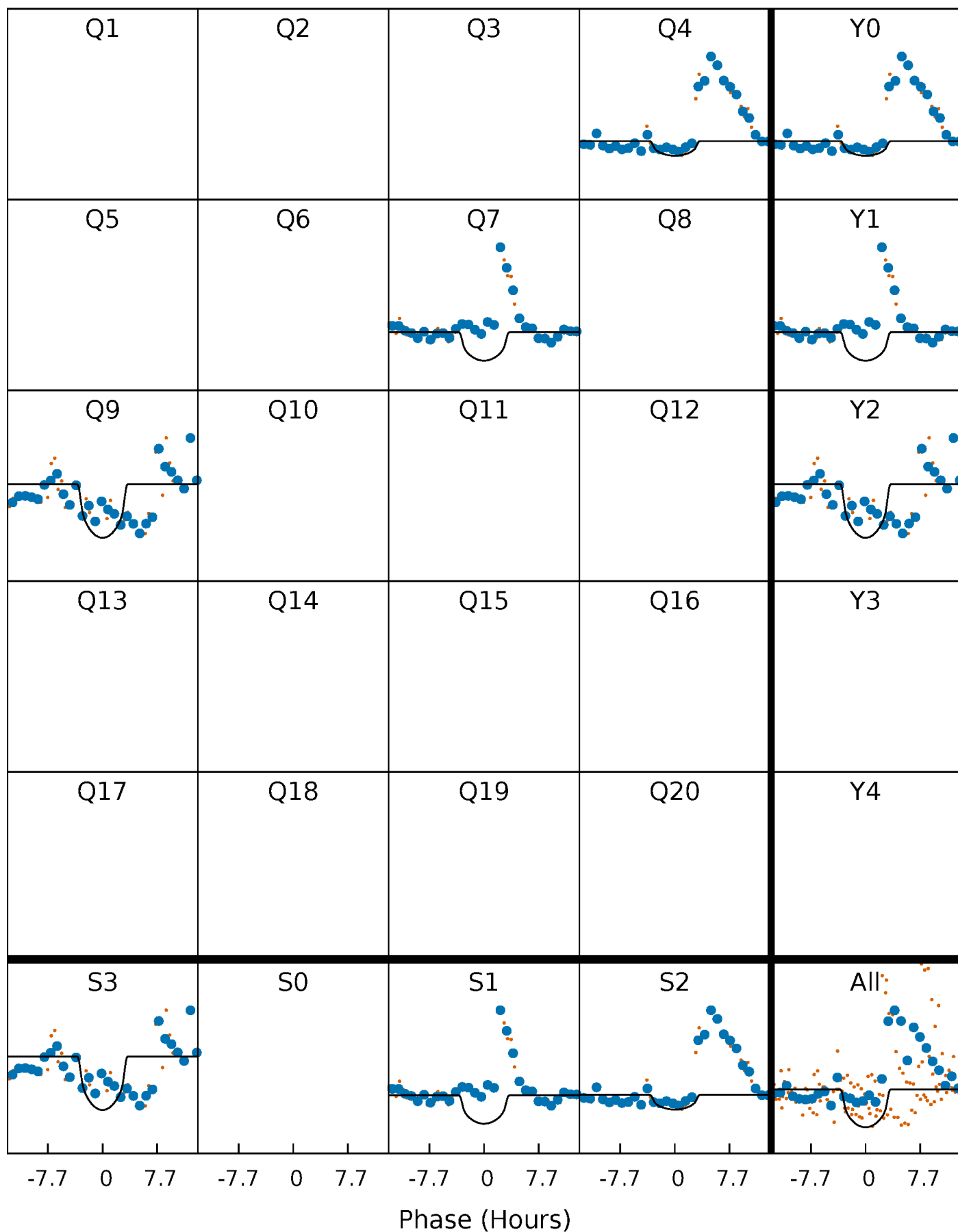
PDC Quarter-Phased Transit Curves

TCE 008387281-05 $P=261.232284$ Days $T_0=374.362971$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008387281-05 $P=261.232284$ Days $T_0=374.362971$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

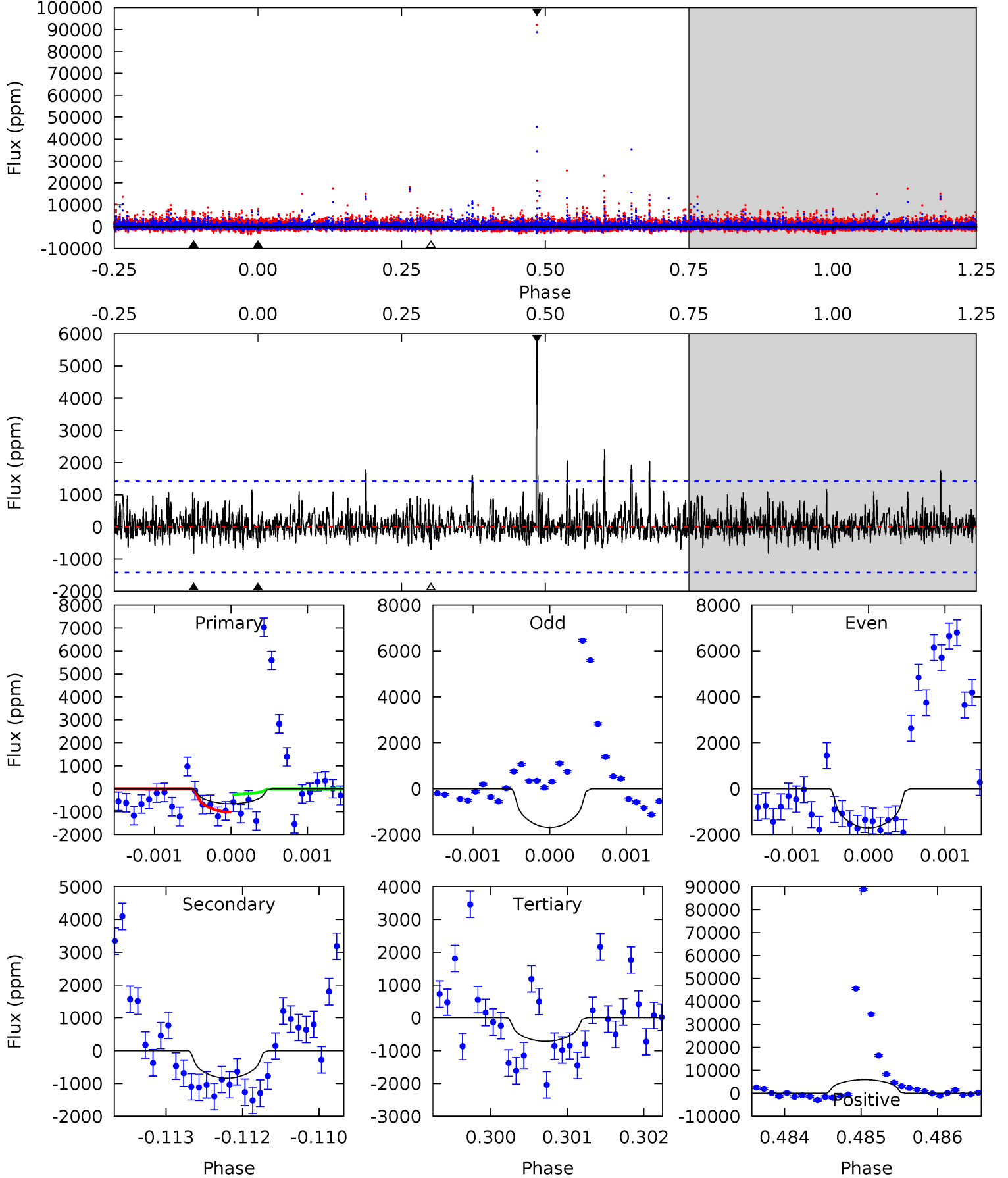
TCE 008387281-05 $P=261.188575$ Days $T_0=374.380677$ (BKJD)



DV Model-Shift Uniqueness Test

008387281-05, P = 261.232284 Days, E = 113.130687 Days

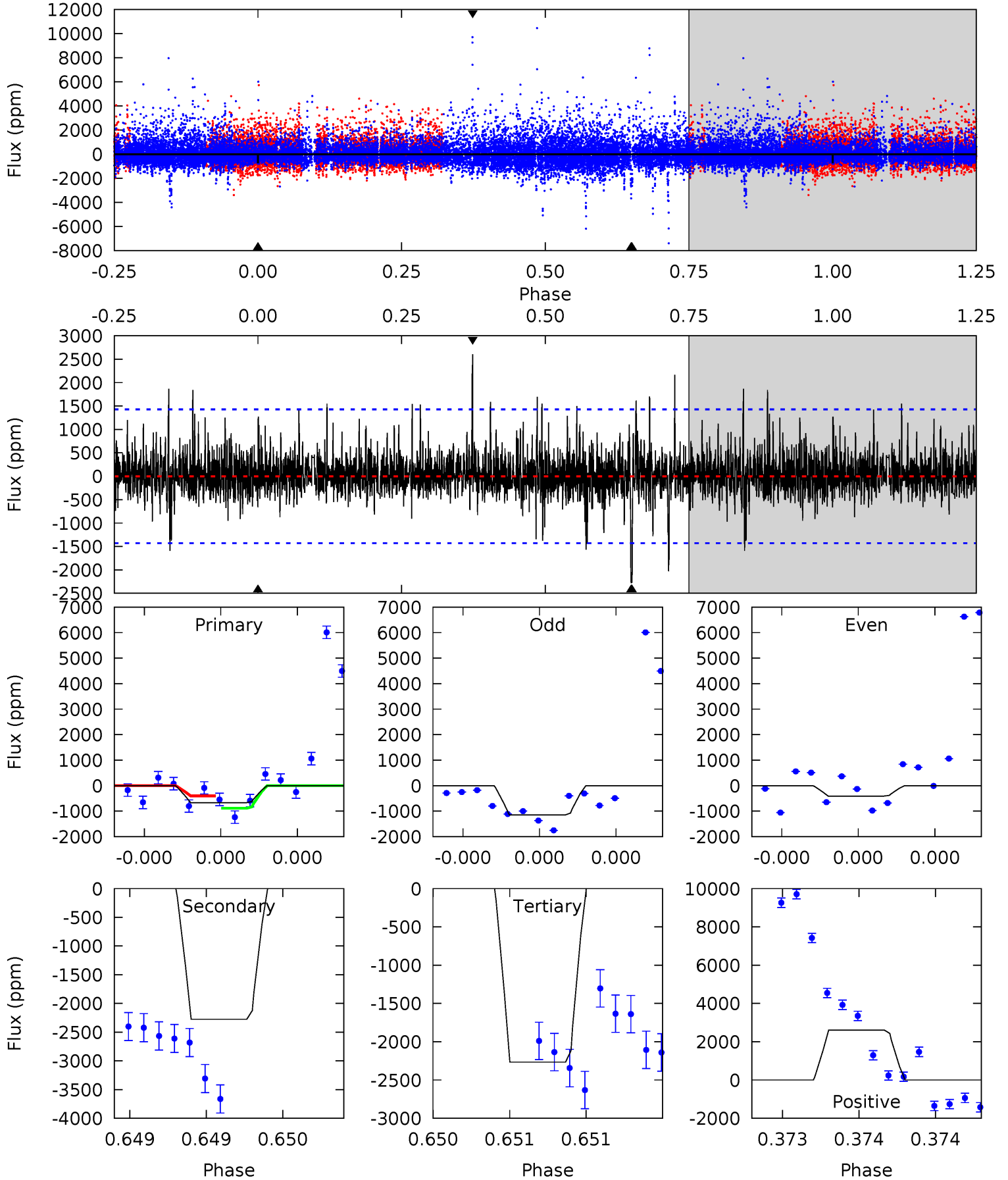
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.51	3.22	2.75	22.8	5.43	3.26	1.51	-0.24	-20.3	0.47	-19.6	0.02	0.34	0.88	1.47



Alt Model-Shift Uniqueness Test

008387281-05, P = 261.188575 Days, E = 113.192102 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.62	8.93	8.90	10.2	5.62	3.55	1.40	-6.28	-7.62	0.03	-1.31	1.22	0.74	0.53	0.96



Stellar Parameters For KIC 008387281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3441^{+116}_{-104}	$0.565^{+0.288}_{-0.192}$	$0.560^{+0.050}_{-0.300}$	$165.464^{+22.255}_{-89.019}$	$3.668^{+0.073}_{-2.490}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+51%/-34%	+9%/-54%	+13%/-54%	+2%/-68%	+306%/-37%
Source	KIC0	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 008387281-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-837 ± 260	$888.60^{+568.24}_{-507.01}$	2482^{+161}_{-260}	2713^{+908}_{-996}	$0.822^{+3.381}_{-0.516}$
Alt.	-2274 ± 255	$597.08^{+464.96}_{-398.63}$	2487^{+167}_{-234}	3790^{+2089}_{-706}	$5.037^{+38.888}_{-3.495}$

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 $A_{obs} \gg 1.0$

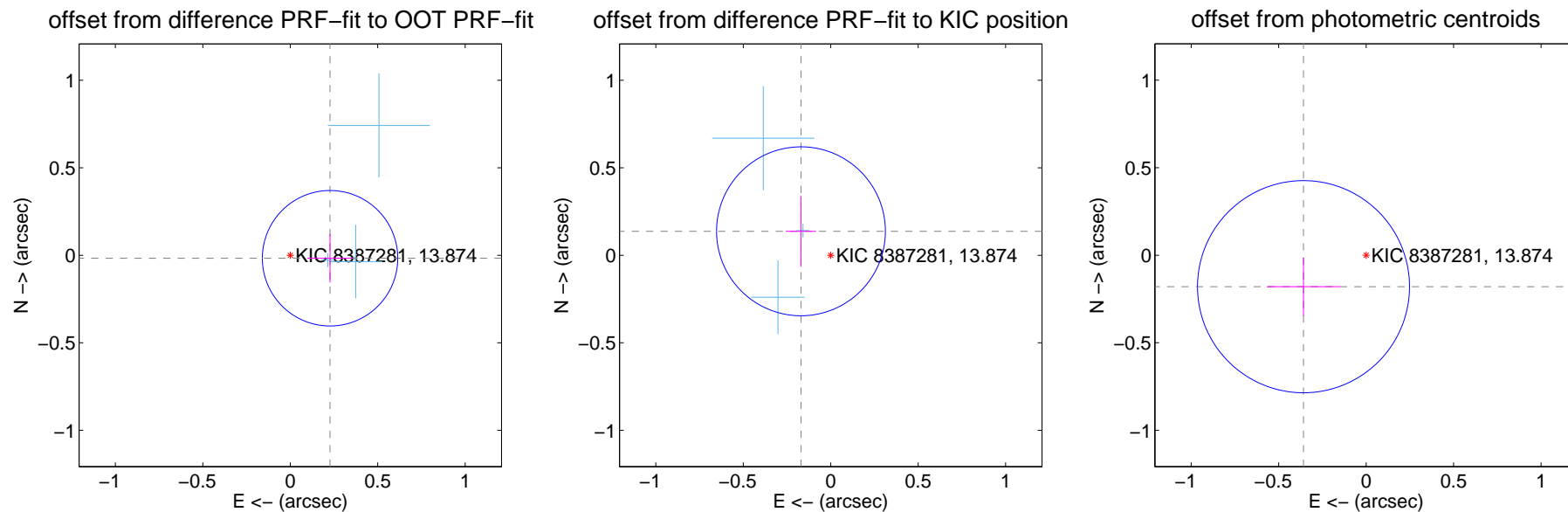
DV Centroid Data

Supplemental centroid analysis for 008387281-05. Kepler magnitude: 13.87. Transit SNR 8.43

There are 3 quarters with good PRF difference image offsets

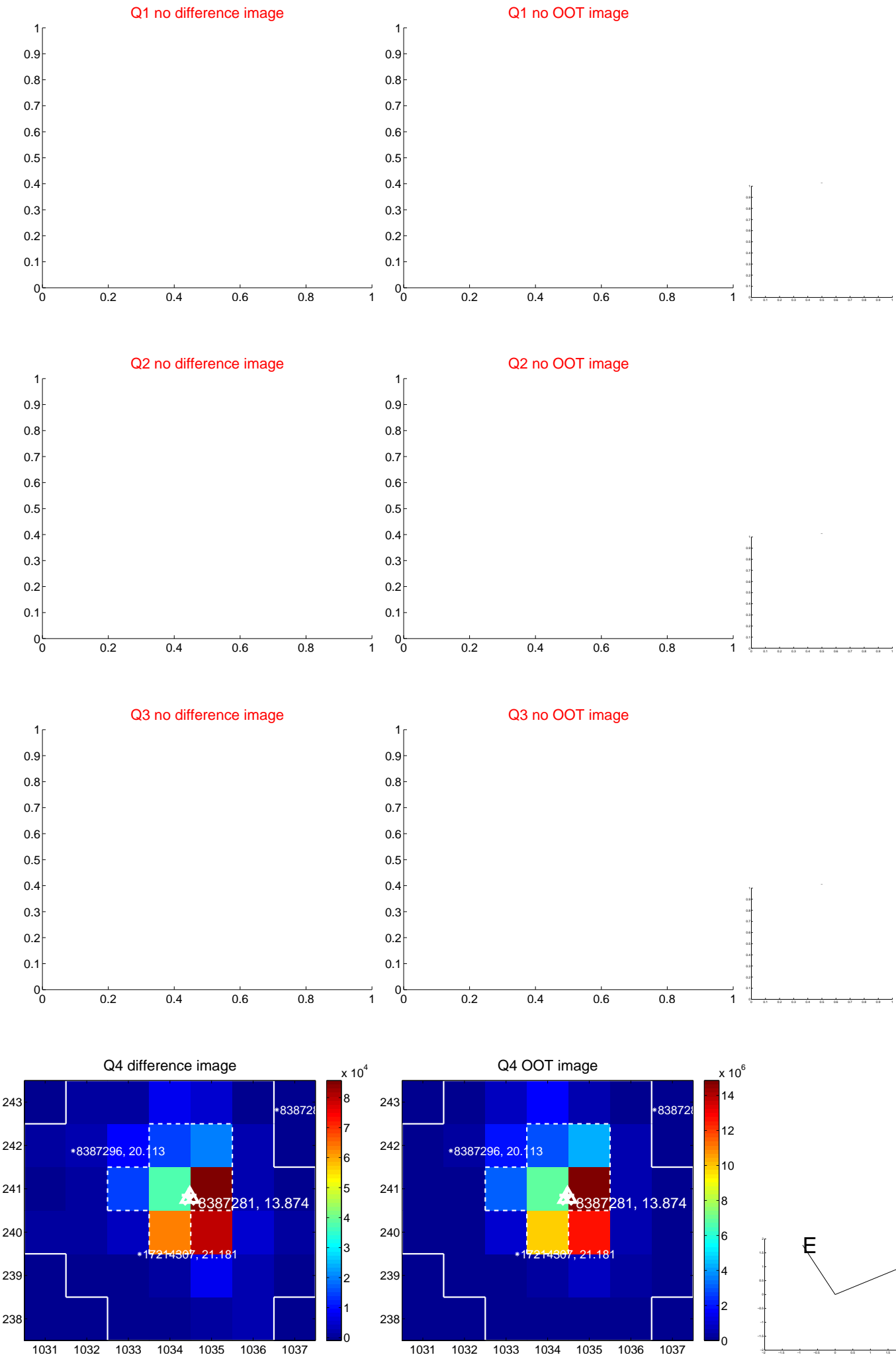
The direct PRF centroid is offset from the target star catalog position by about 0.71 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.228 ± 0.129	1.77	-0.228 ± 0.129	-0.017 ± 0.139
PRF-fit source offset from KIC position	0.218 ± 0.161	1.36	0.170 ± 0.087	0.137 ± 0.202
photometric centroid source offset	0.40 ± 0.20	1.98	0.36 ± 0.21	-0.18 ± 0.17



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.

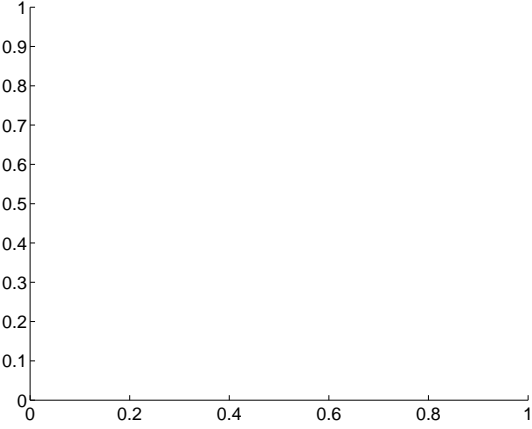
Q5 no difference image



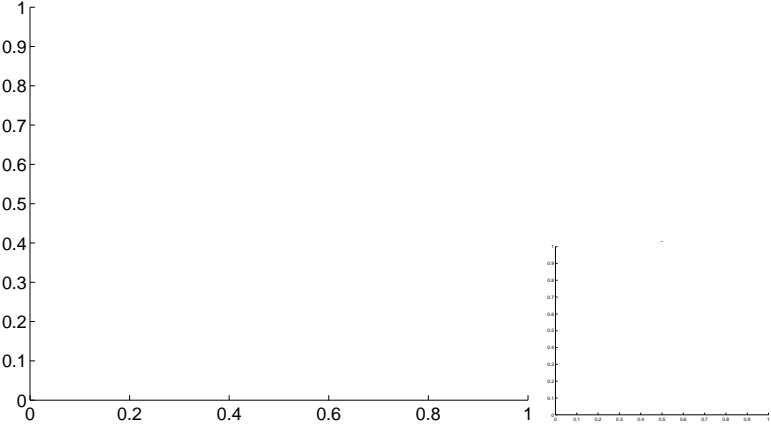
Q5 no OOT image



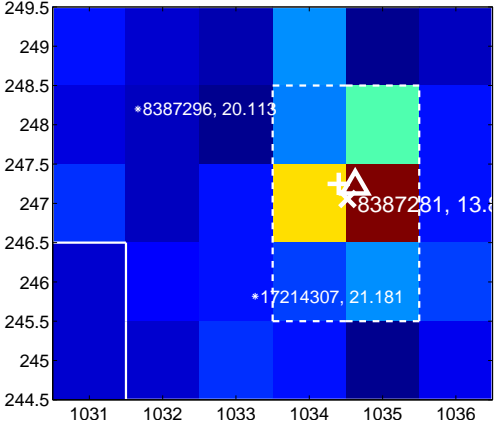
Q6 no difference image



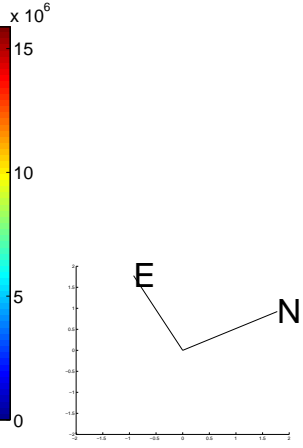
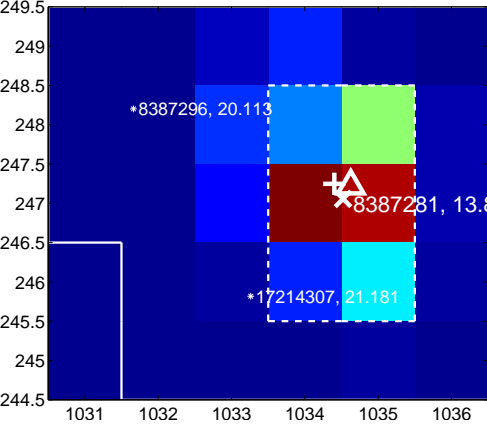
Q6 no OOT image



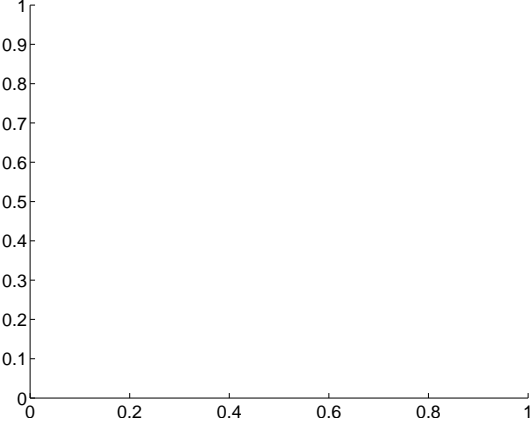
Q7 difference image



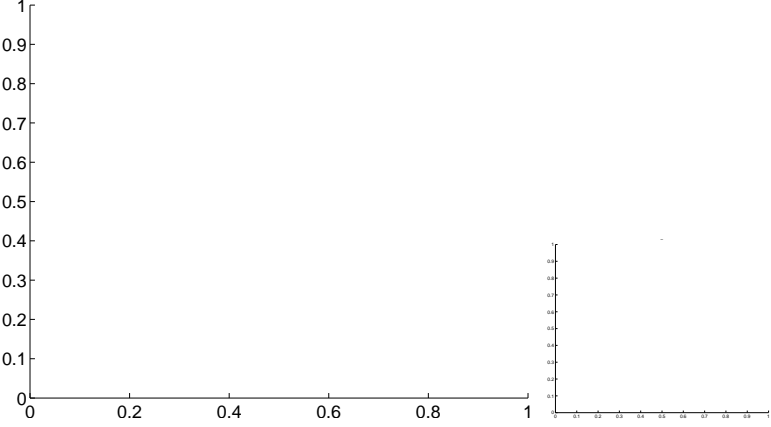
Q7 OOT image



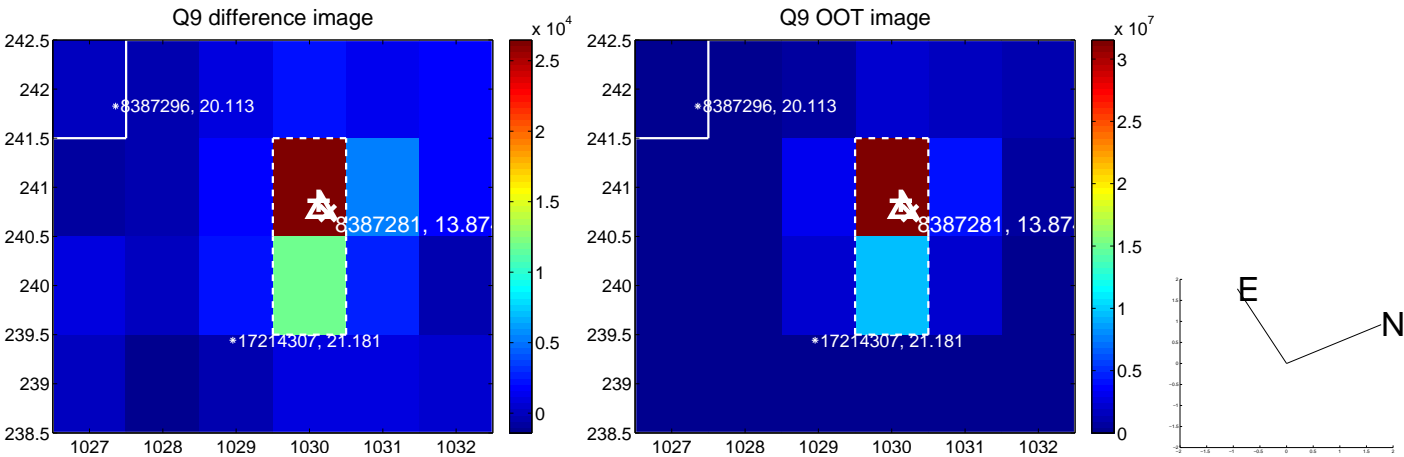
Q8 no difference image



Q8 no OOT image



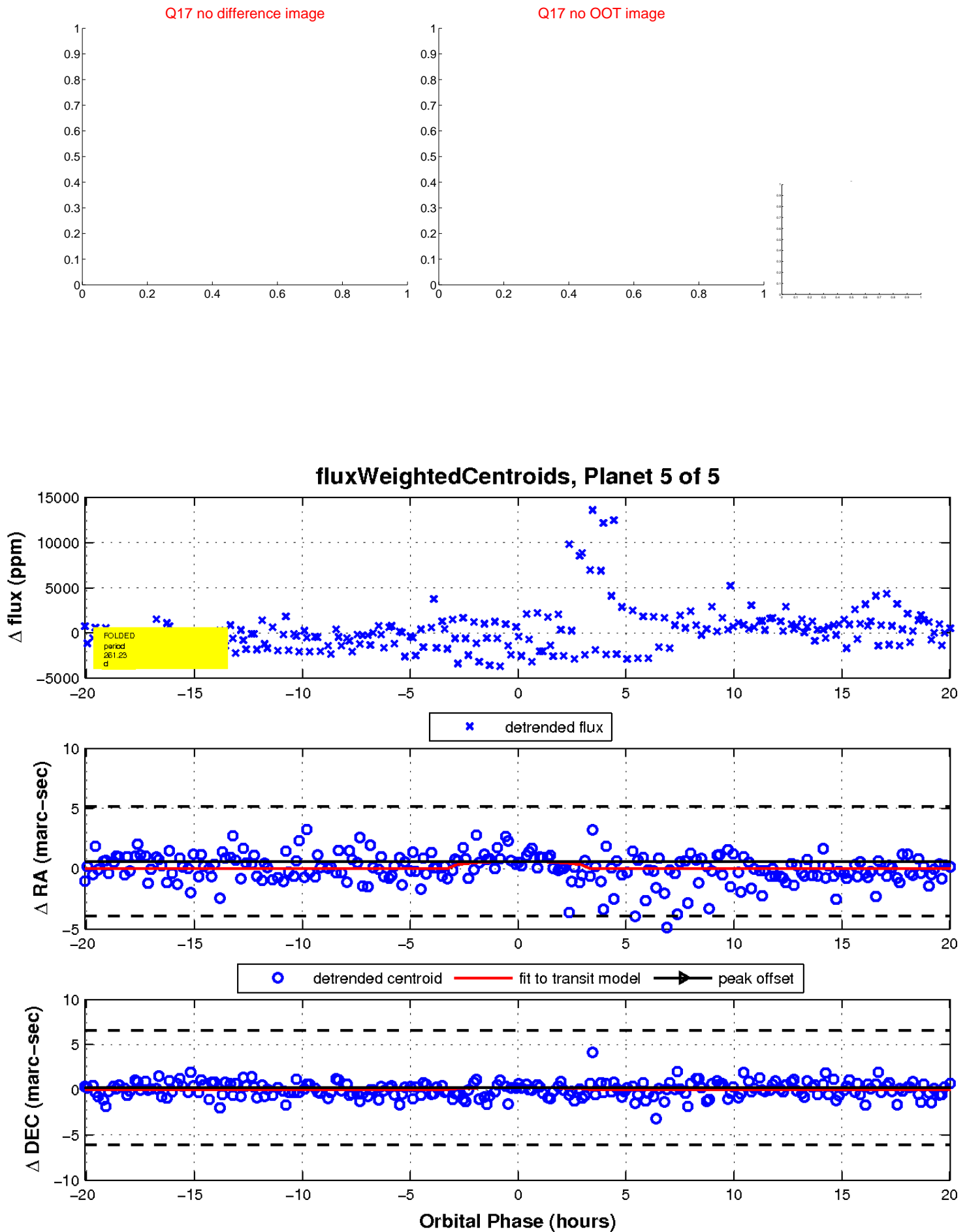
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



Declination