

KIC 012783196

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})
012783196-01	OBS	No	278.961695	206.759948	1366.5	83.463	36.8	14.7	0.88	5955	3.50	1.32
012783196-02	OBS	No	328.786868	279.950980	1810.2	21.485	12.0	11.4	0.88	5955	4.51	1.06
012783196-03	OBS	No	266.077307	268.013447	1253.1	10.810	13.2	9.0	0.88	5955	3.17	1.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012783196-01	OBS	FP	0.00	1	0	0	0	LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012783196-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012783196-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—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.

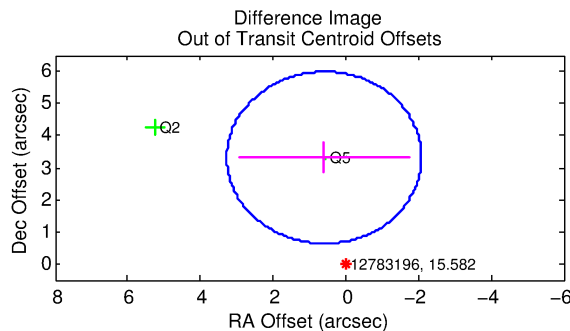
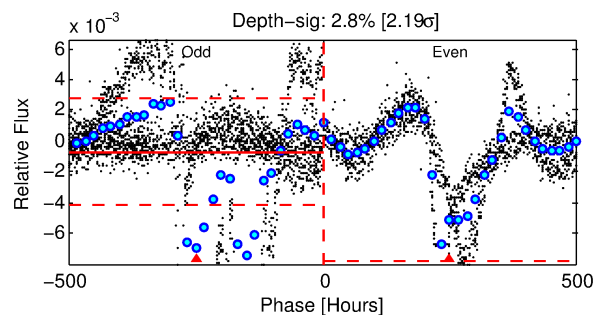
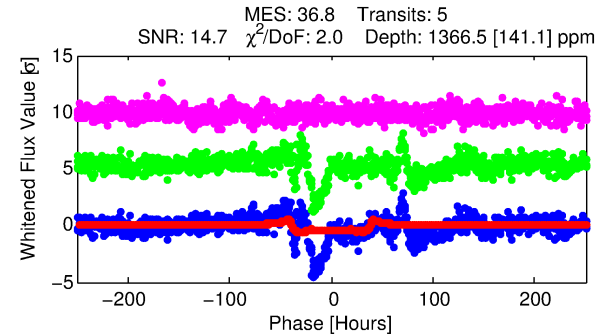
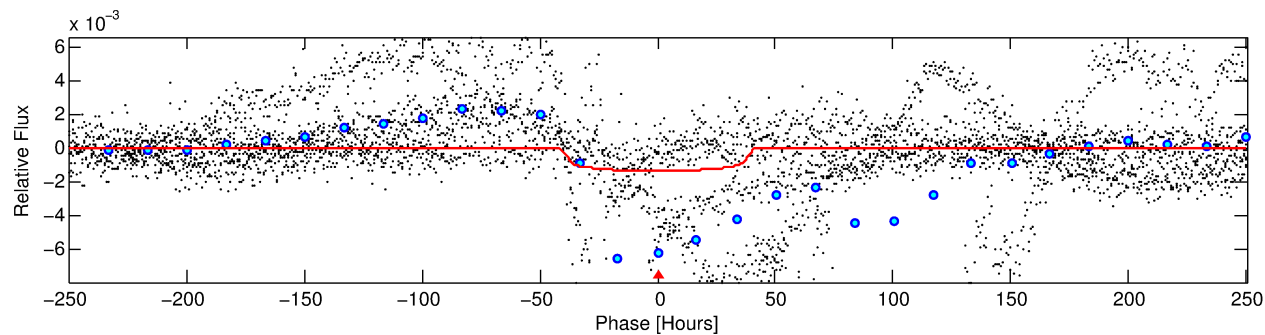
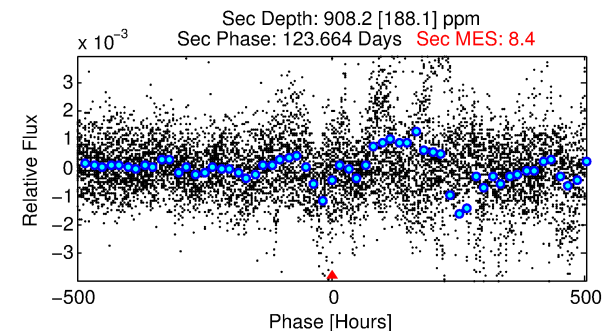
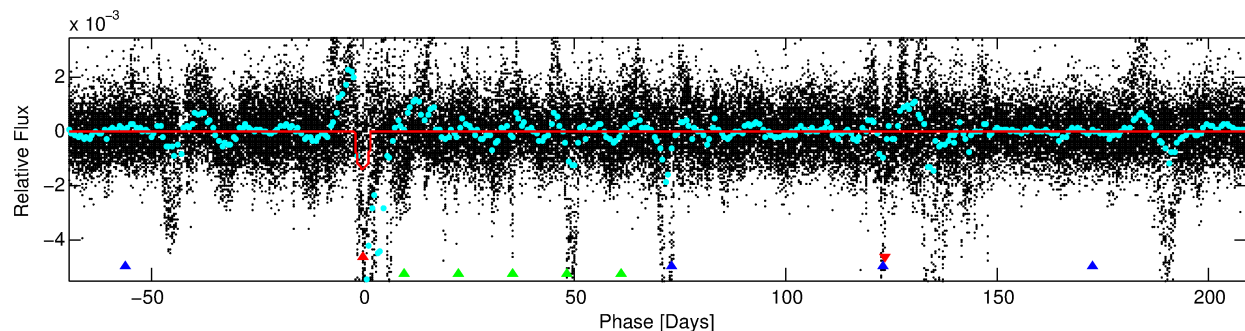
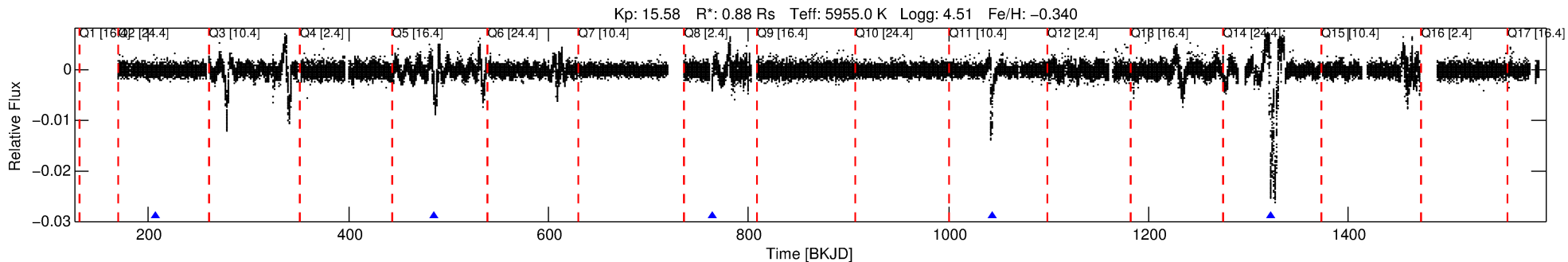
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012783196-01

No Significant Match Found

DV One-Page Summary

KIC: 12783196 Candidate: 1 of 3 Period: 278.962 d



DV Fit Results:

Period = 278.96169 [0.02430] d
Epoch = 206.7599 [0.0536] BKJD
Rp/R* = 0.0363 [0.0031]
a/R* = 19.22 [5.70]
b = 0.71 [0.21]
Seff = 1.32 [0.49]
Teff = 273 [25] K
Rp = 3.50 [1.03] Re
a = 0.8154 [0.1961] AU
Ag = 27164.45 [12029.45] [2.26σ]
Teffp = 5423 [396] K [12.97σ]

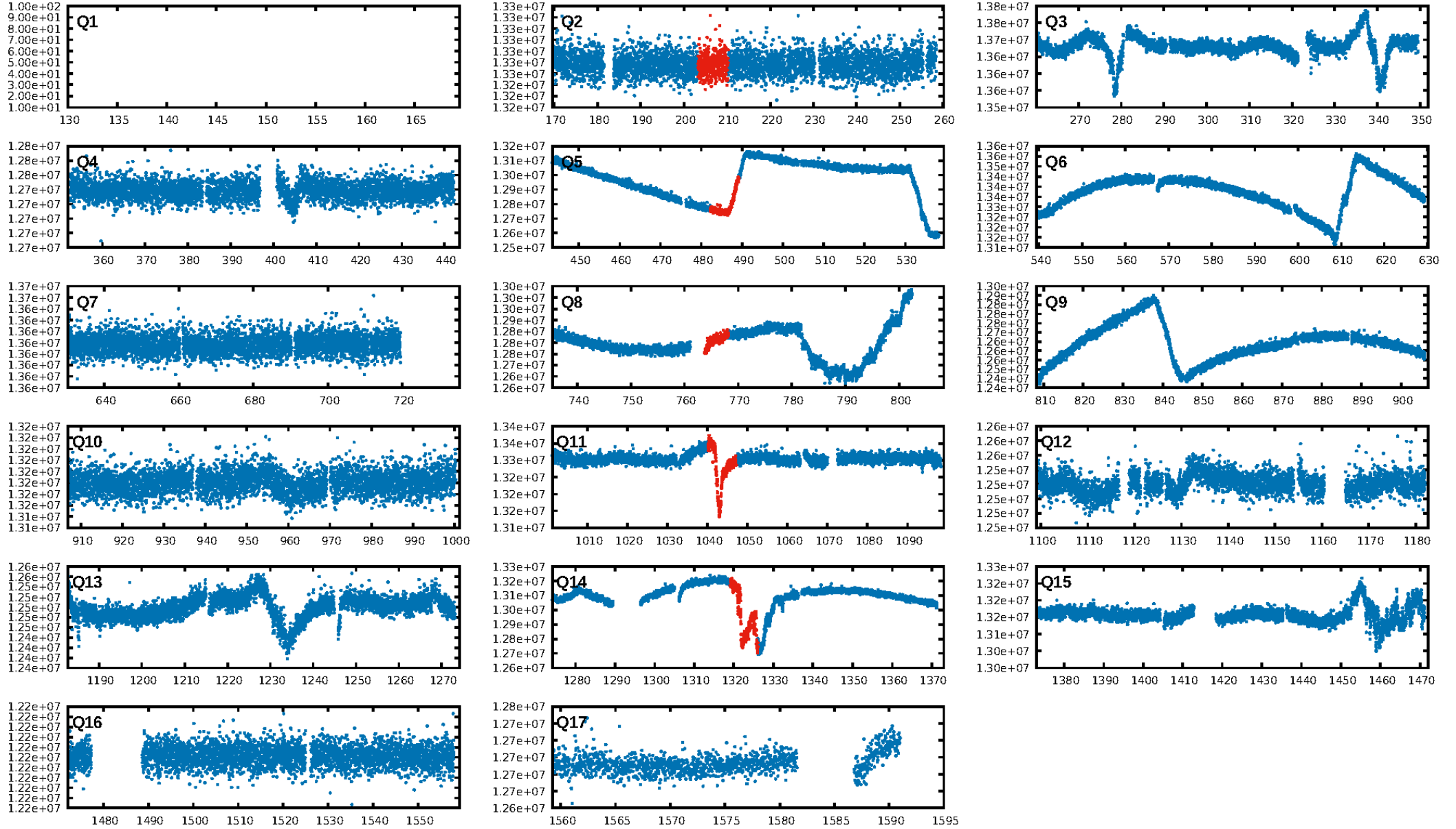
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.67σ]
LongPeriod-sig: 100.0% [13.87σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 6.6%
Bootstrap-pfa: 3.65e-47
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 2.12
Centroid-sig: 0.8%
Centroid-so: 1.652 arcsec [1.25σ]
OotOffset-rm: 3.366 arcsec [3.77σ]
KicOffset-rm: 3.120 arcsec [4.57σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-figm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

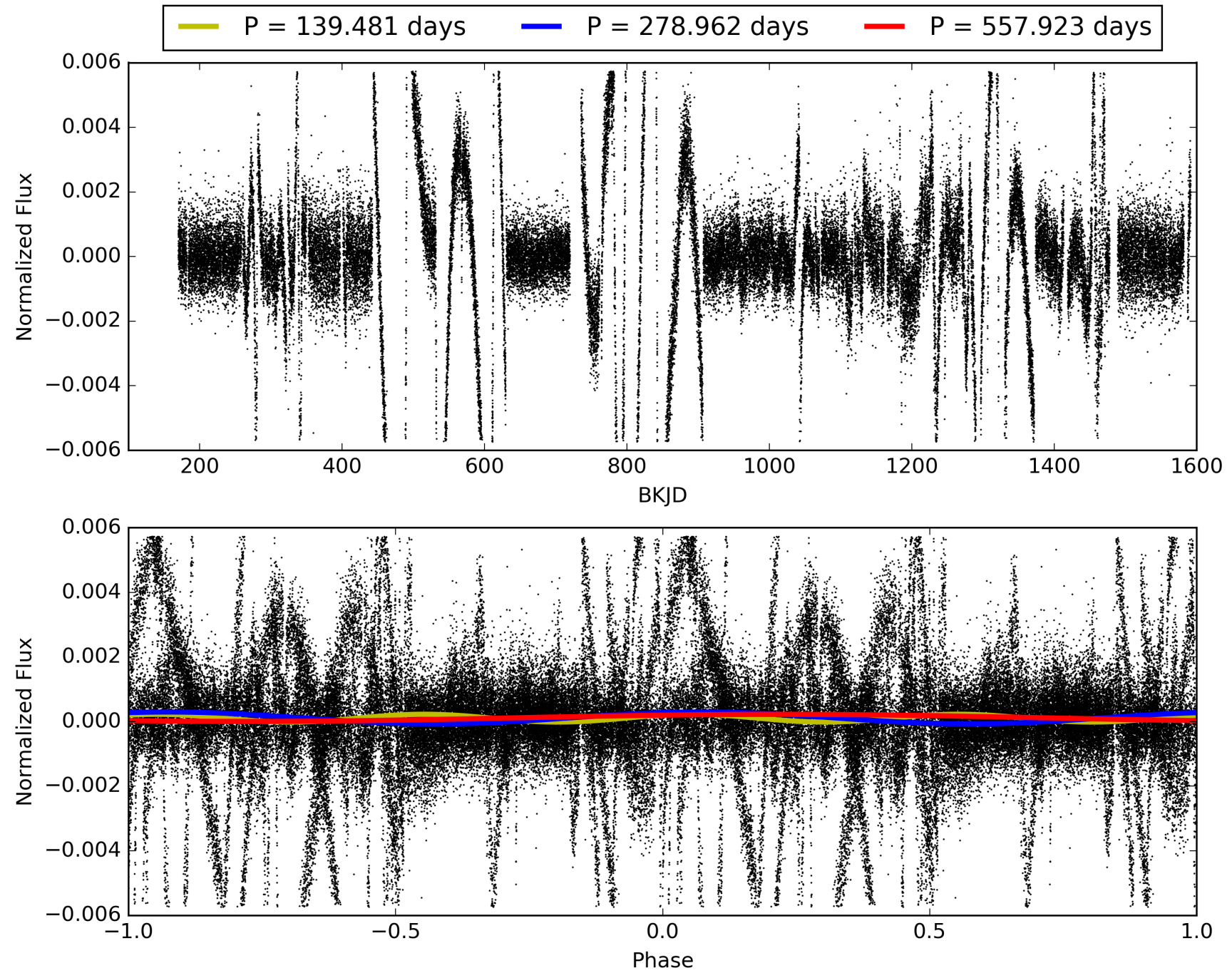
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:44:26 Z

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

TCE 012783196-01, PDC Light Curves

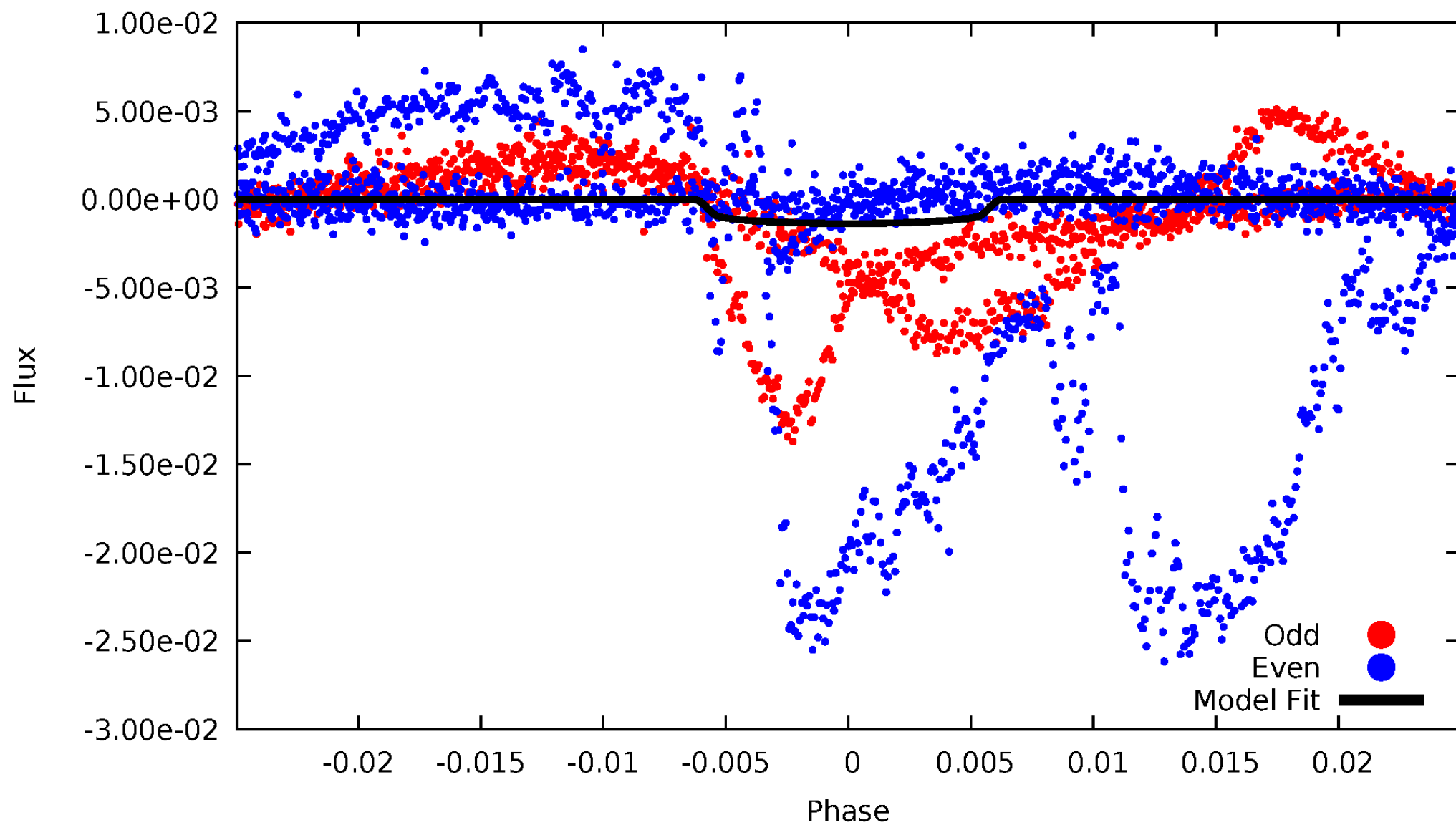


TCE 012783196-01



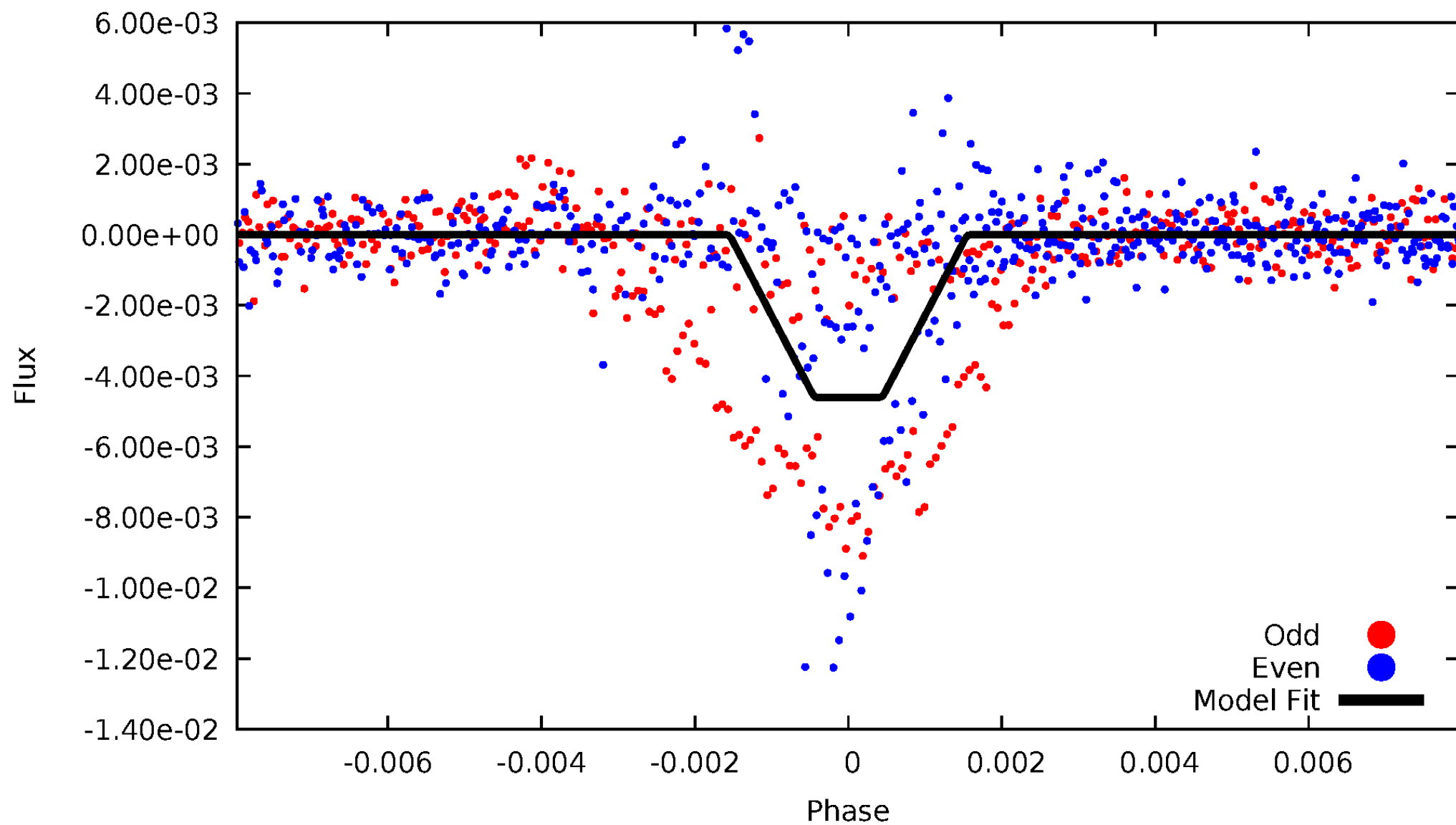
DV Odd/Even

TCE 012783196-01



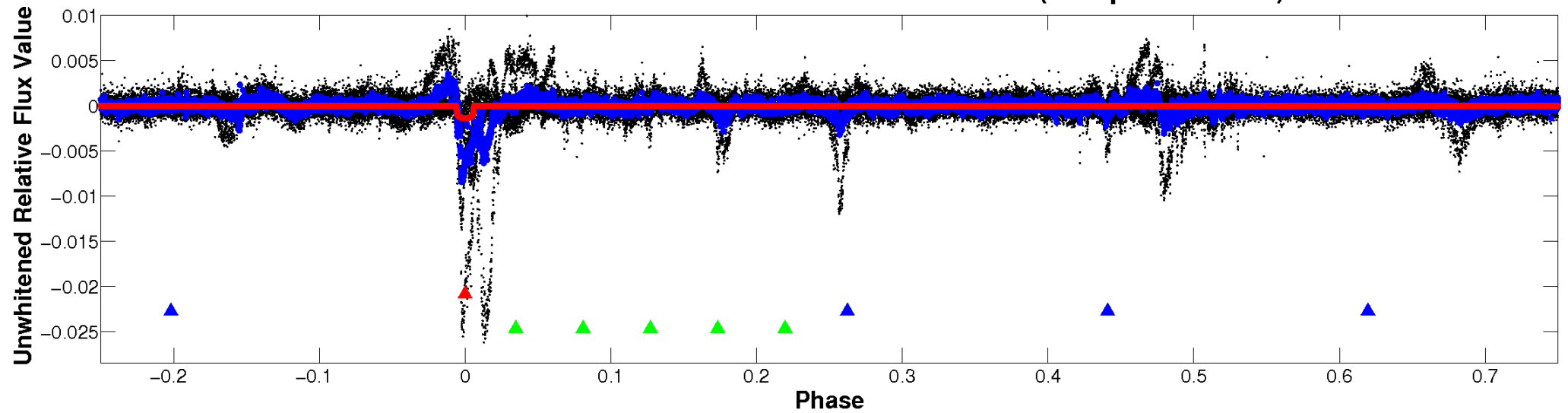
ALT Odd/Even

TCE 012783196-01

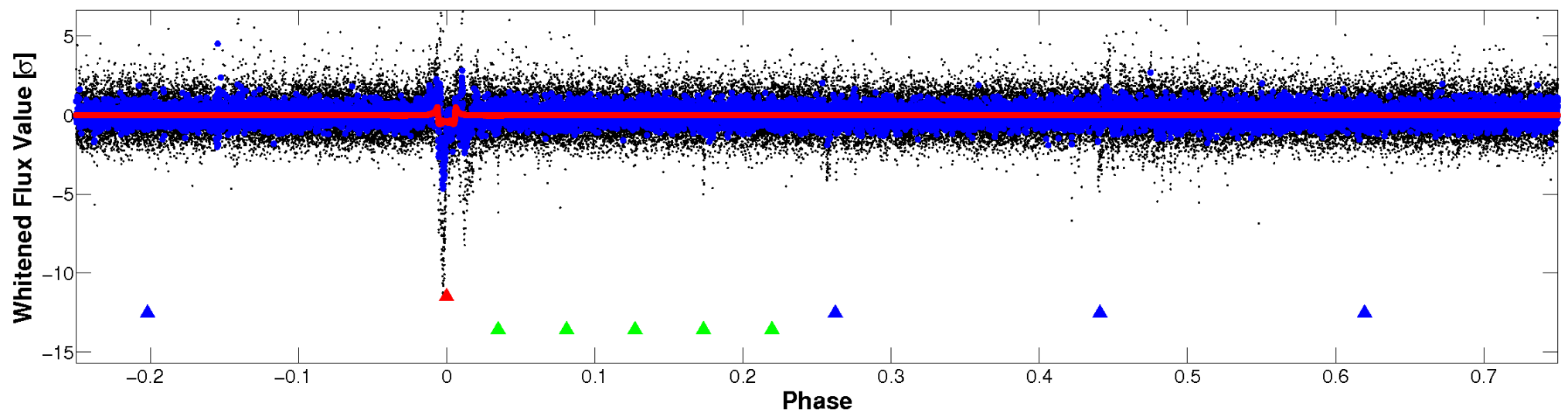


Non-Whitened Vs. Whitened Light Curve

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

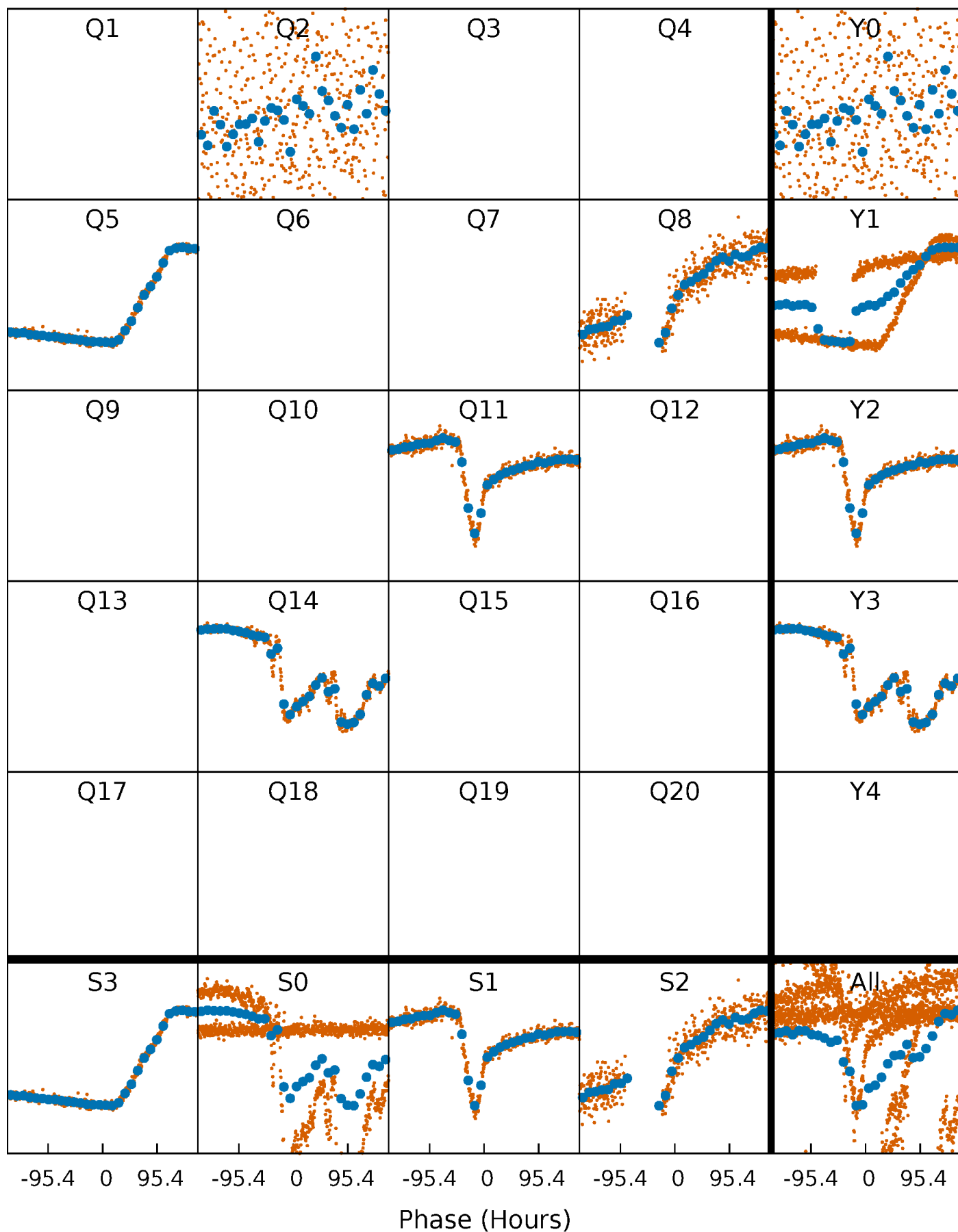


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



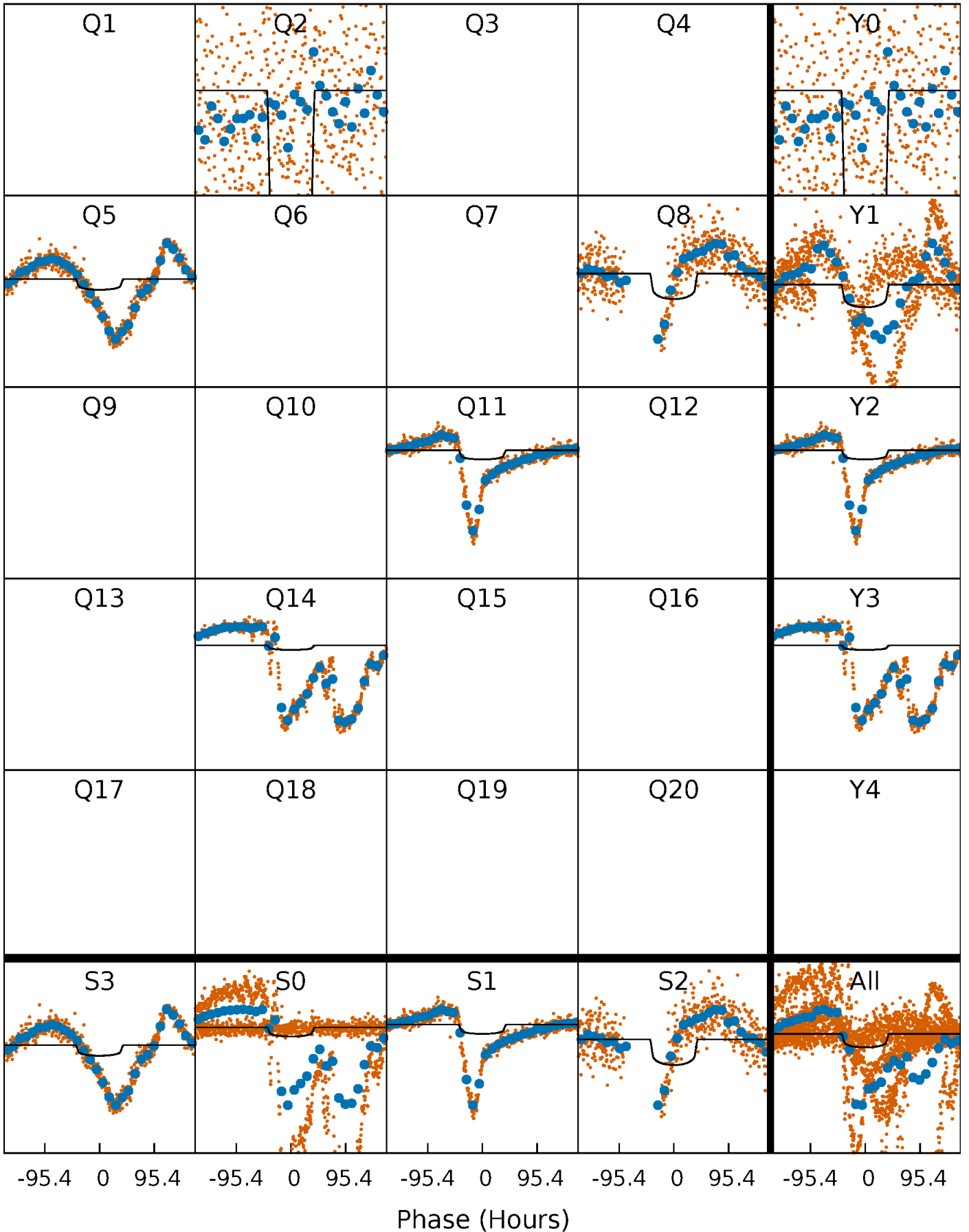
PDC Quarter-Phased Transit Curves

TCE 012783196-01 P=278.961695 Days $T_0=206.759948$ (BKJD)



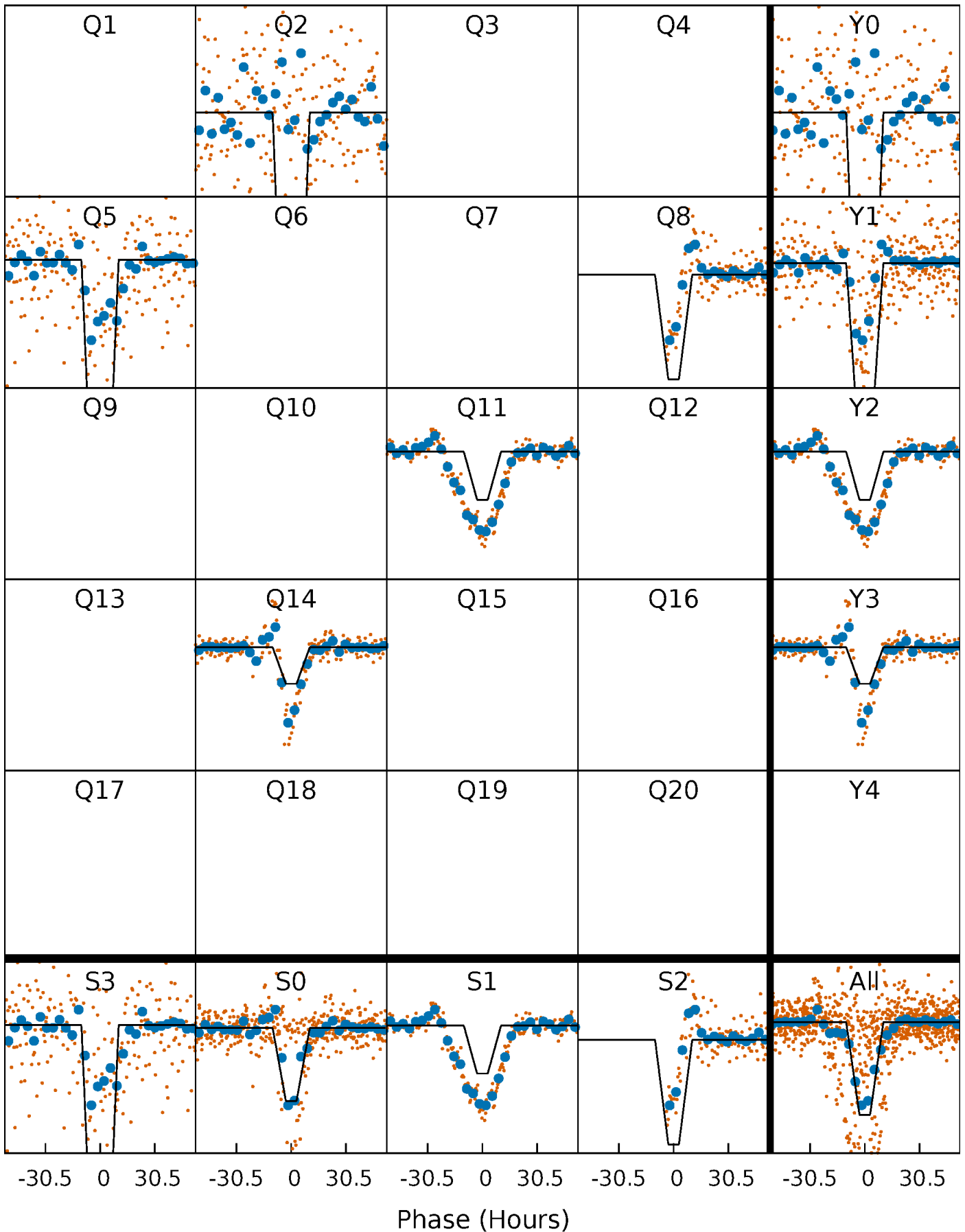
DV Quarter-Phased Transit Curves

TCE 012783196-01 $P=278.961695$ Days $T_0=206.759948$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

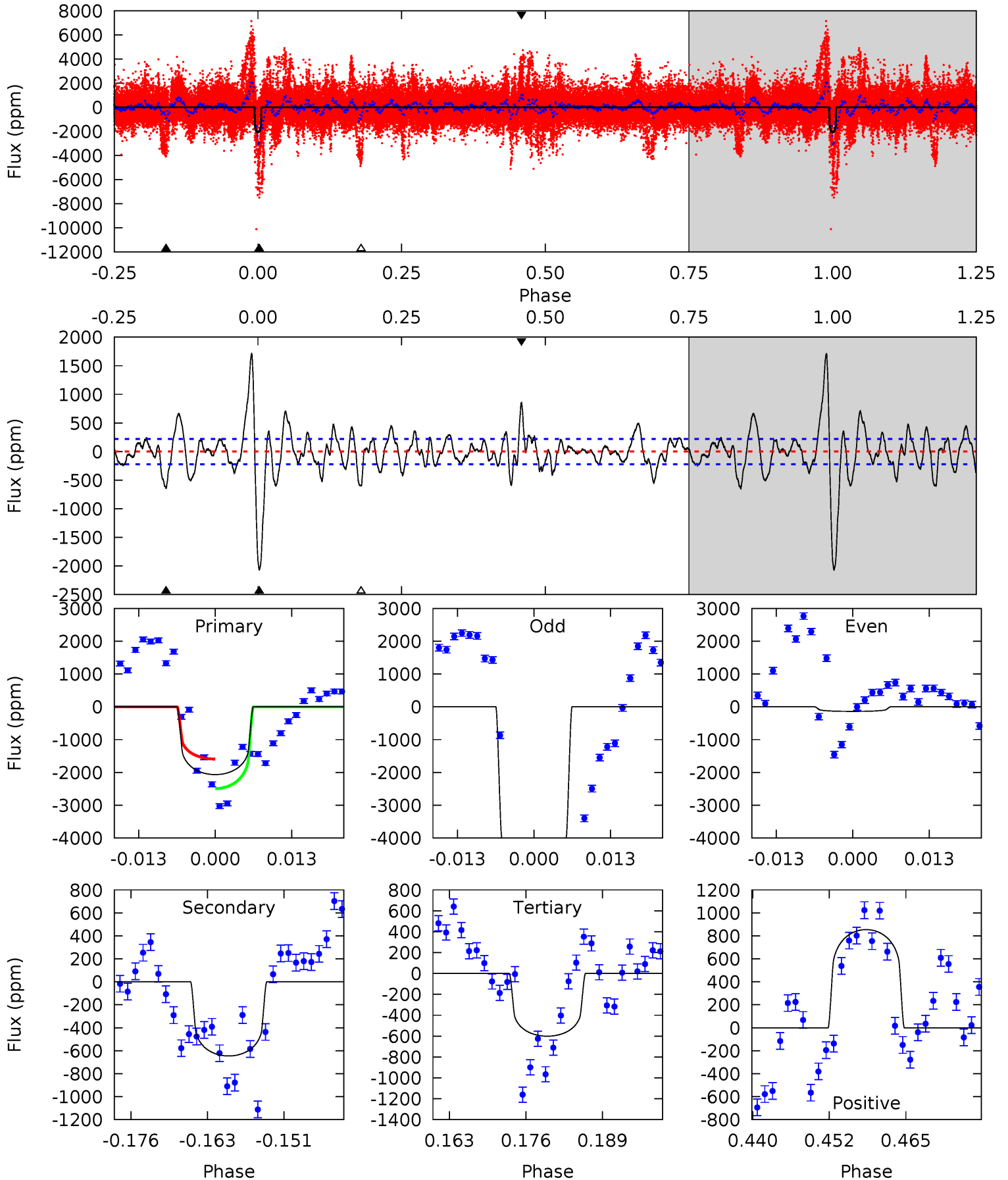
TCE 012783196-01 P=279.027073 Days $T_0=205.880249$ (BKJD)



DV Model-Shift Uniqueness Test

012783196-01, P = 278.961695 Days, E = 206.759948 Days

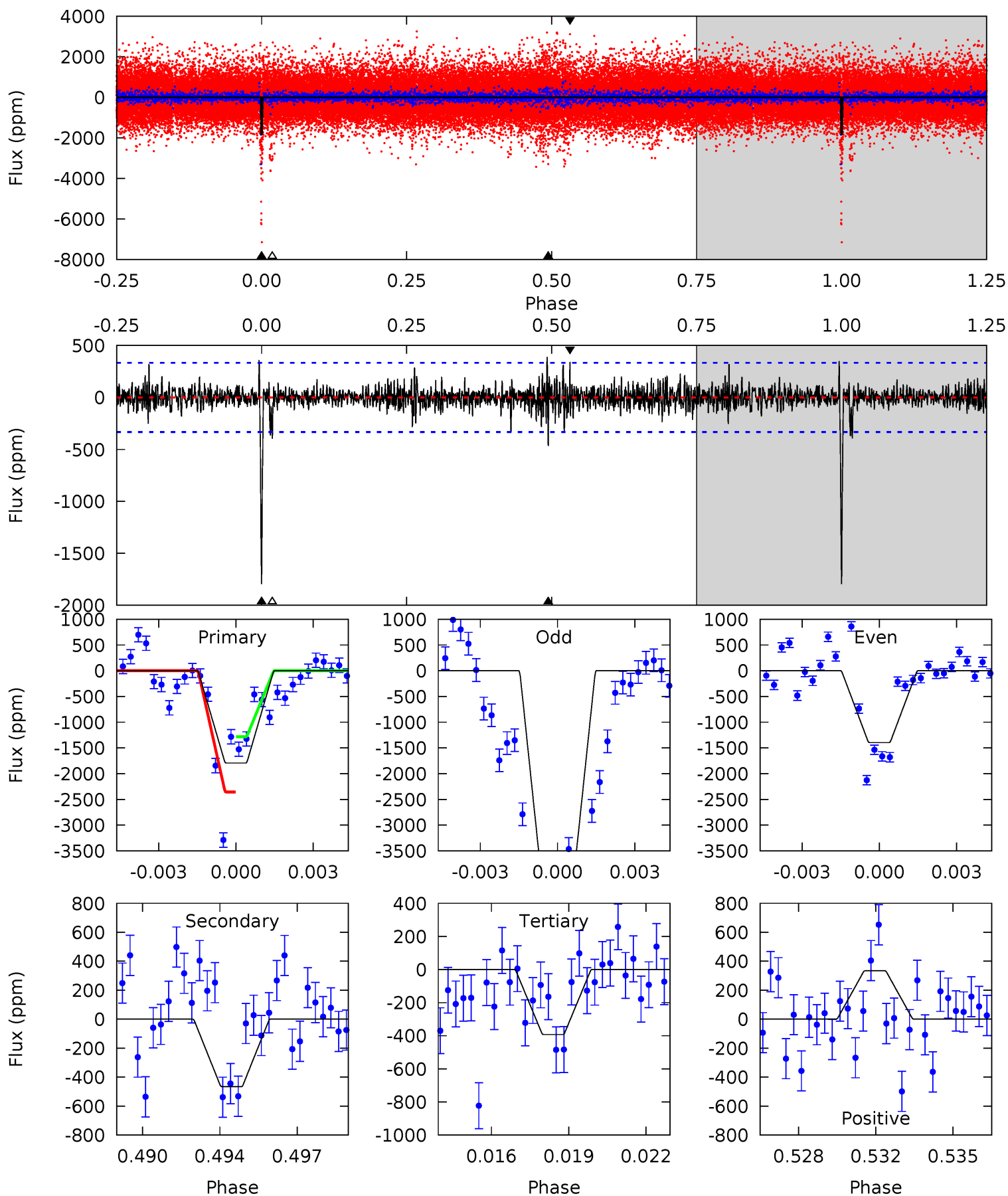
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.5	14.5	13.5	19.2	4.98	2.50	5.93	32.9	27.3	1.01	-4.69	67.4	1.27	0.45	10.2



Alt Model-Shift Uniqueness Test

012783196-01, P = 279.027073 Days, E = 205.880249 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.3	7.34	6.19	5.27	5.24	2.95	1.18	22.1	23.0	1.15	2.07	33.4	1.92	0.18	8.36



Stellar Parameters For KIC 012783196

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5955^{+160}_{-178}	$4.515^{+0.052}_{-0.195}$	$-0.340^{+0.300}_{-0.300}$	$0.882^{+0.249}_{-0.083}$	$0.929^{+0.109}_{-0.109}$	$1.908^{+0.488}_{-0.941}$
	+3%/-3%	+1%/-4%	+88%/-88%	+28%/-9%	+12%/-12%	+26%/-49%
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 012783196-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-646 ± 44	$3.58^{+0.62}_{-0.43}$	388^{+24}_{-18}	5053^{+236}_{-232}	17902^{+5128}_{-4483}
Alt.	-466 ± 63	$6.78^{+1.03}_{-0.62}$	390^{+26}_{-19}	3753^{+119}_{-145}	3594^{+892}_{-942}

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 $A_{obs} \gg 1.0$

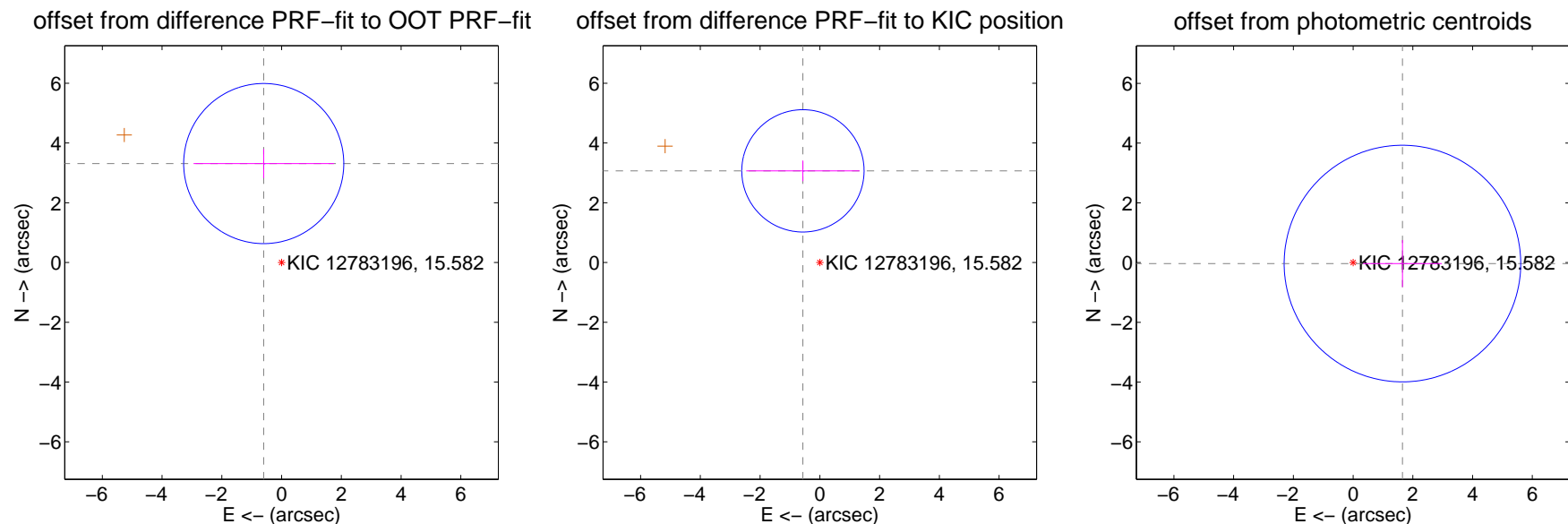
DV Centroid Data

Supplemental centroid analysis for 012783196-01. Kepler magnitude: 15.58. Transit SNR 14.69

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.366 ± 0.893	3.77	0.597 ± 2.350	3.312 ± 0.486
PRF-fit source offset from KIC position	3.120 ± 0.682	4.57	0.566 ± 1.897	3.068 ± 0.347
photometric centroid source offset	1.65 ± 1.32	1.25	-1.65 ± 1.32	-0.03 ± 0.78



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

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

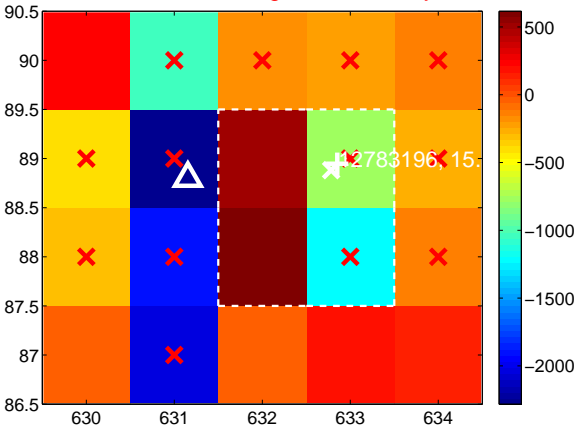
Q1 no difference image



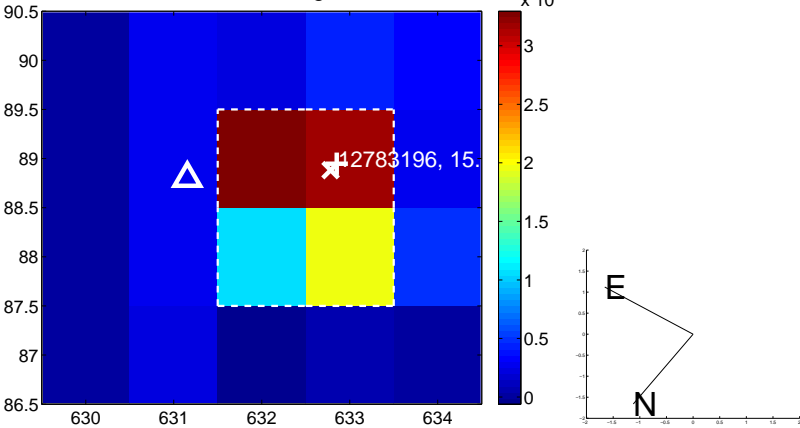
Q1 no OOT image



Q2 difference image. Poor Quality



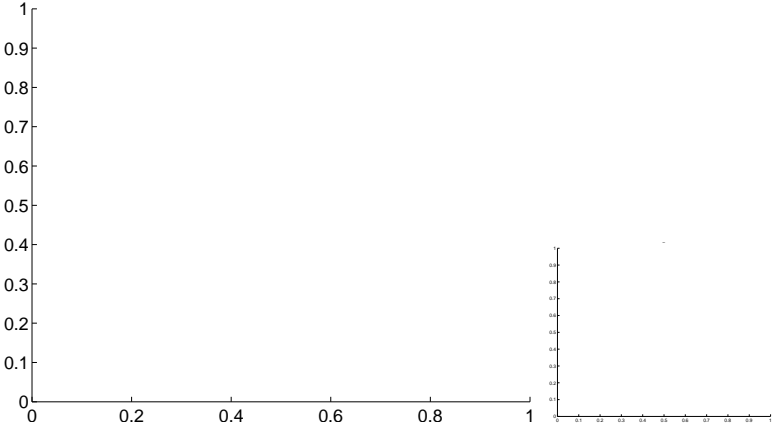
Q2 OOT image



Q3 no difference image



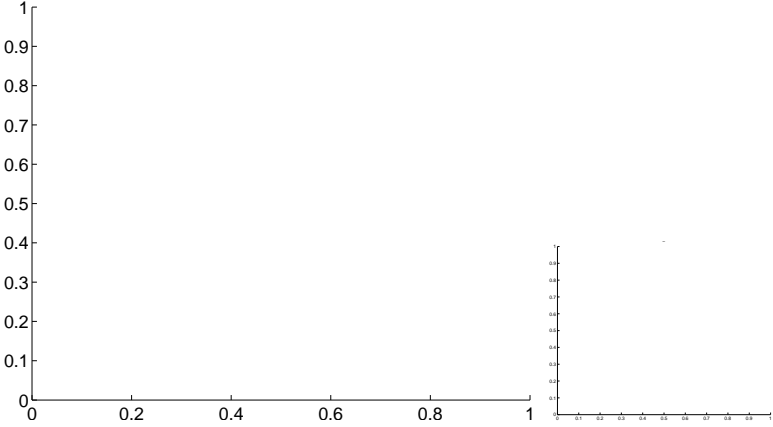
Q3 no OOT image



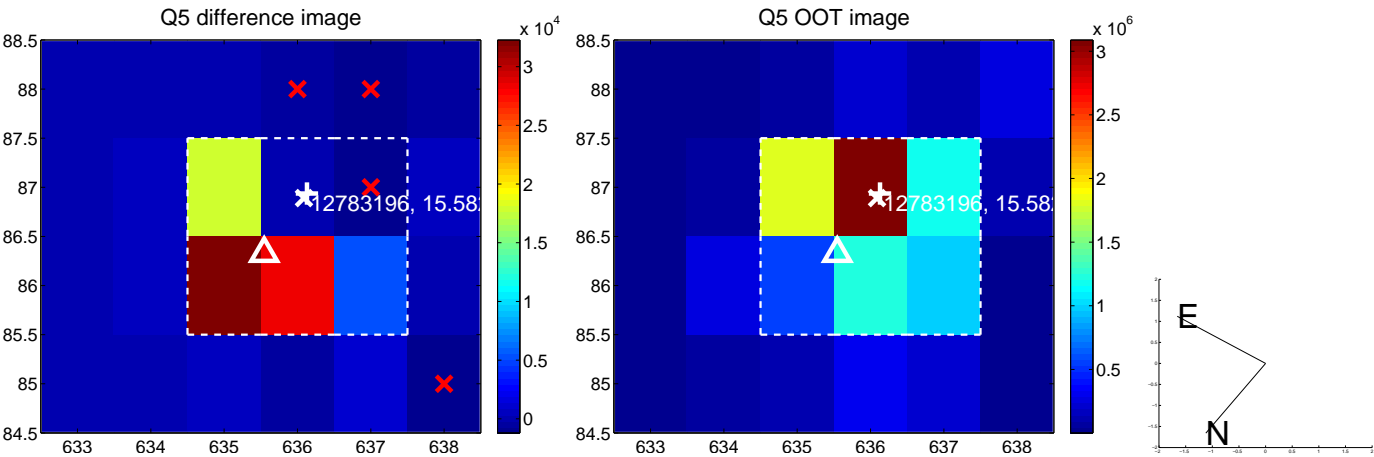
Q4 no difference image



Q4 no OOT image



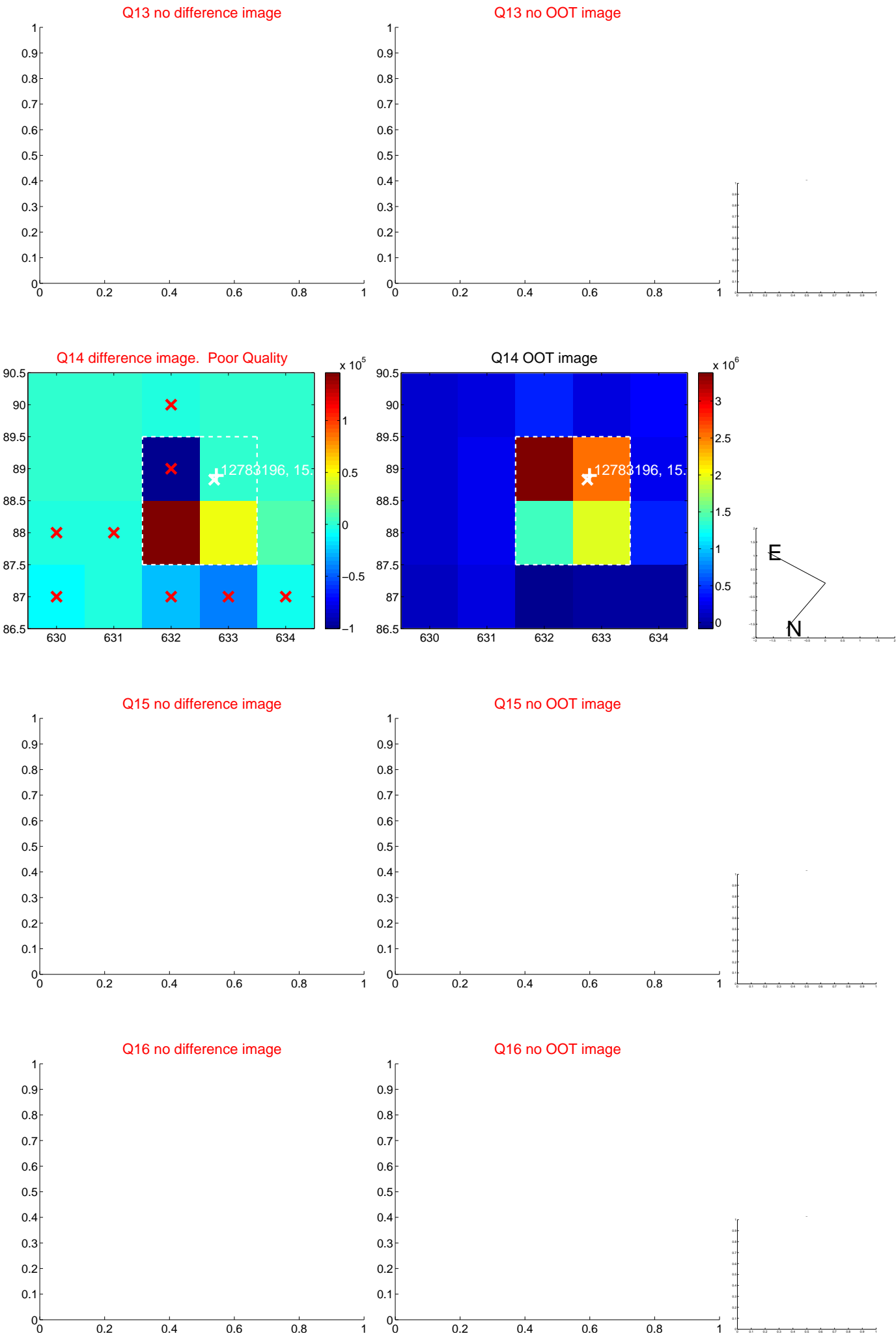
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



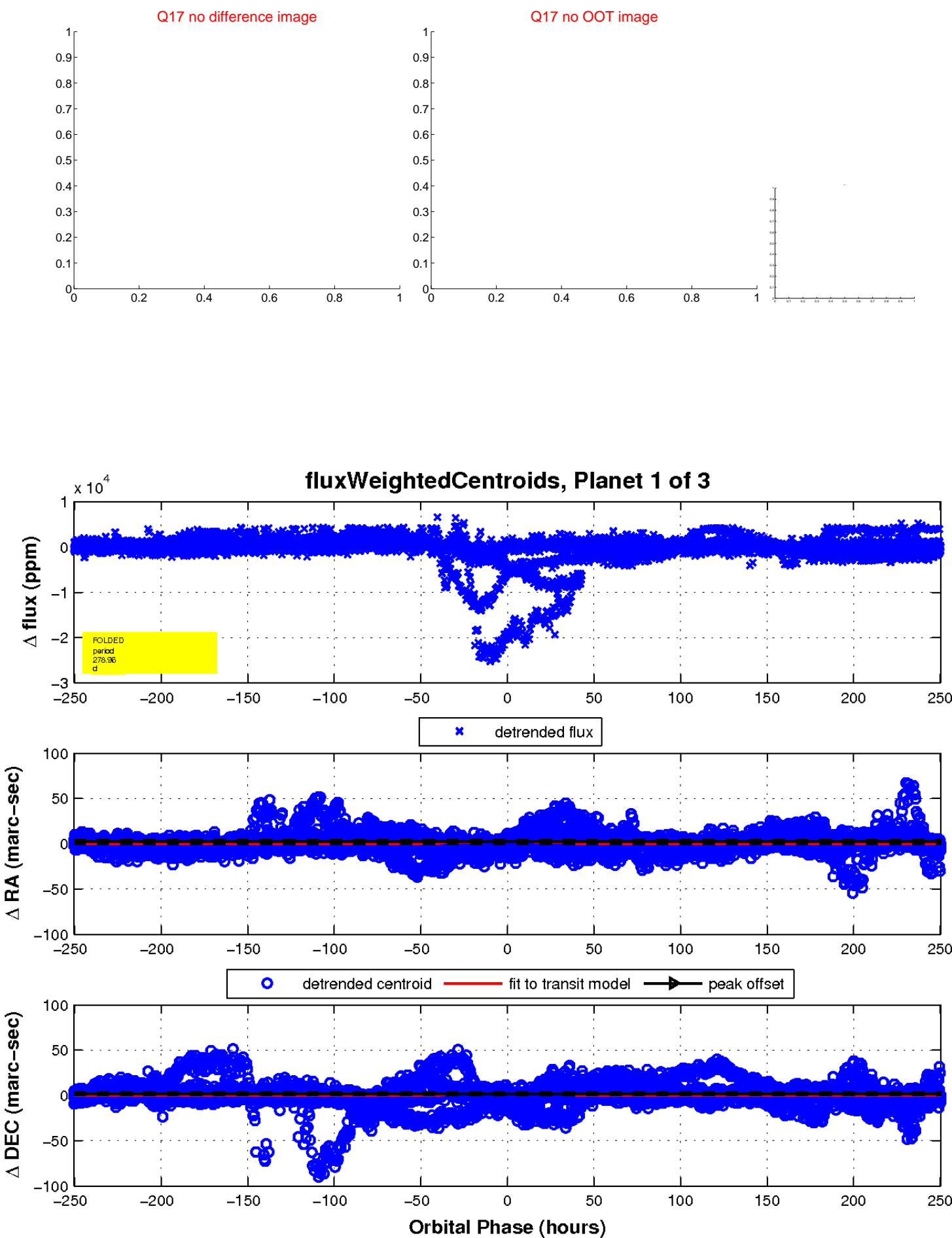
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

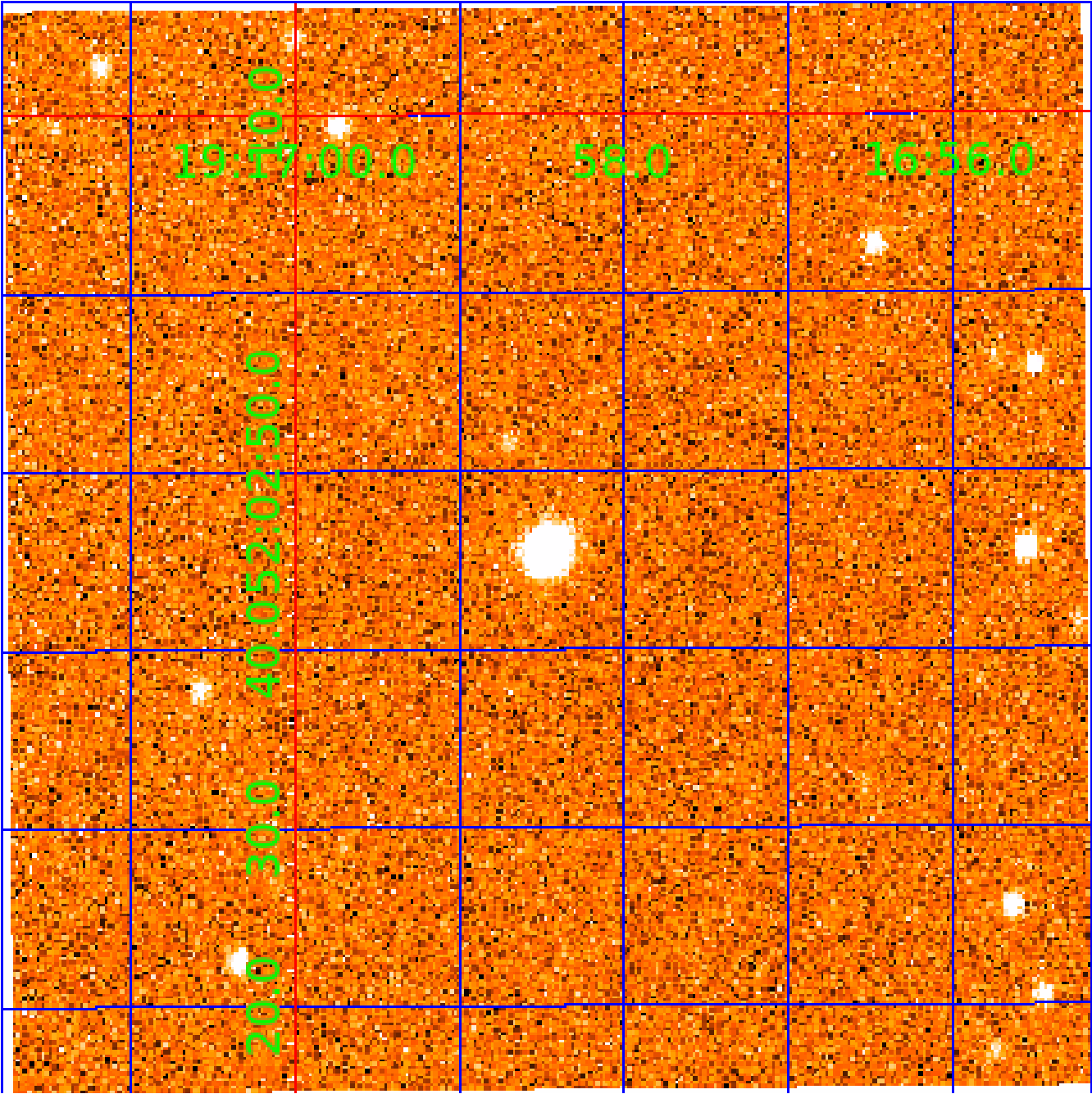


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012783196

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})
012783196-01	OBS	No	278.961695	206.759948	1366.5	83.463	36.8	14.7	0.88	5955	3.50	1.32
012783196-02	OBS	No	328.786868	279.950980	1810.2	21.485	12.0	11.4	0.88	5955	4.51	1.06
012783196-03	OBS	No	266.077307	268.013447	1253.1	10.810	13.2	9.0	0.88	5955	3.17	1.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012783196-01	OBS	FP	0.00	1	0	0	0	LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012783196-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012783196-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—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.

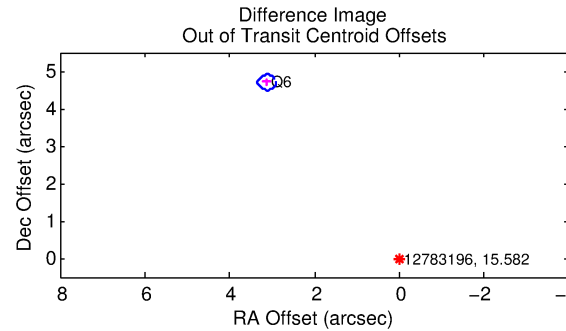
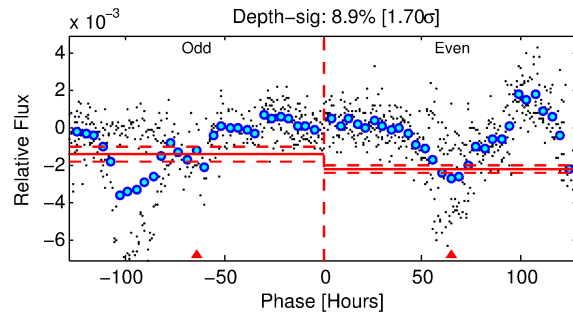
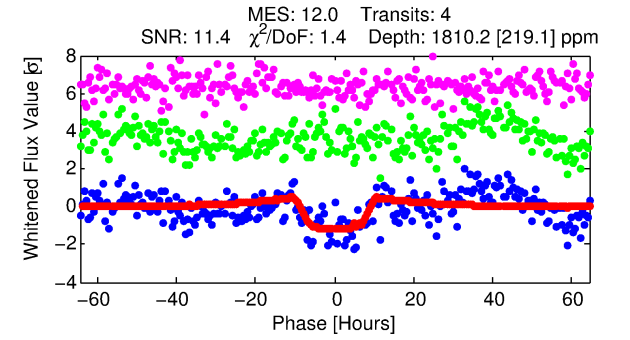
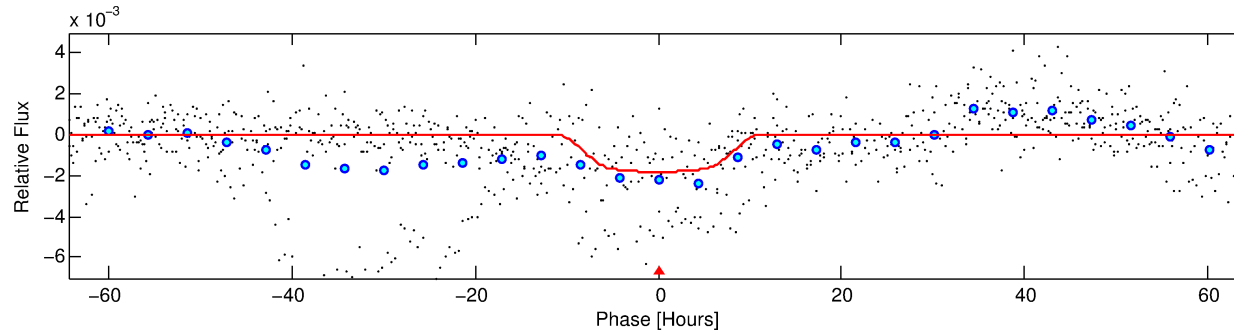
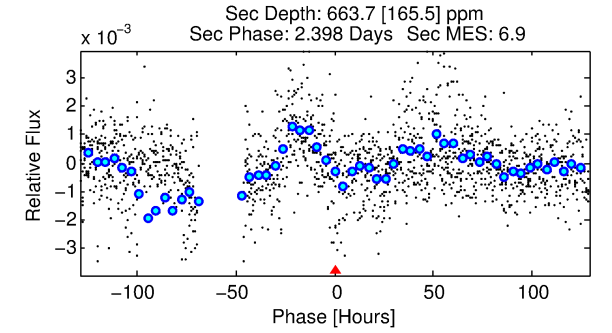
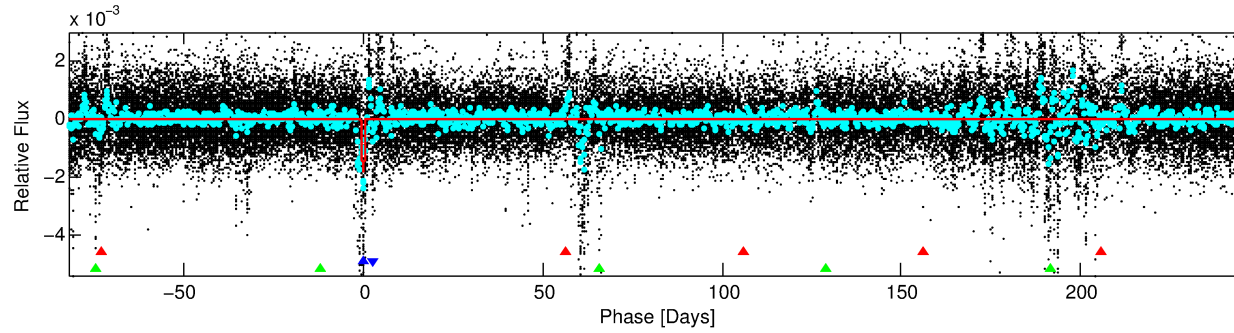
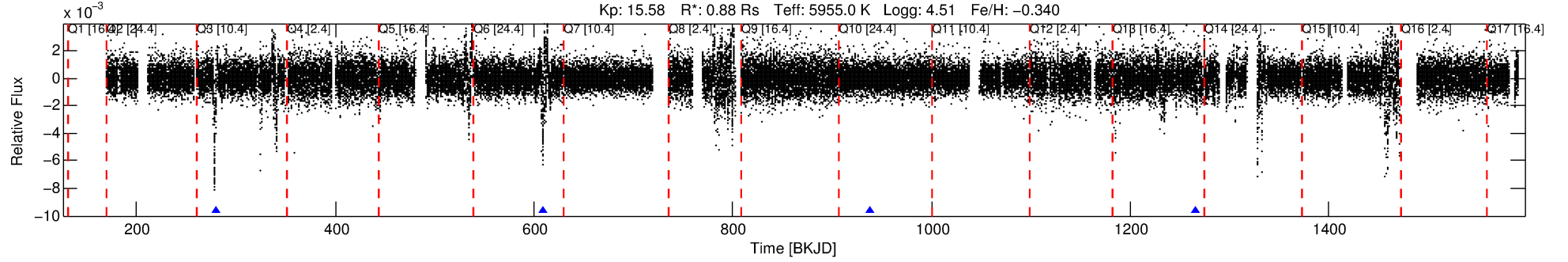
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012783196-02

No Significant Match Found

DV One-Page Summary

KIC: 12783196 Candidate: 2 of 3 Period: 328.787 d



DV Fit Results:

Period = 328.78687 [0.01942] d
Epoch = 279.9510 [0.0324] BKJD
Rp/R* = 0.0468 [0.0039]
a/R* = 58.87 [12.20]
b = 0.92 [0.04]
Seff = 1.06 [0.40]
Teq = 259 [24] K
Rp = 4.51 [1.33] Re
a = 0.9098 [0.2188] AU
Ag = 14870.54 [6901.67] [2.15σ]
Teffp = 4416 [357] K [11.61σ]

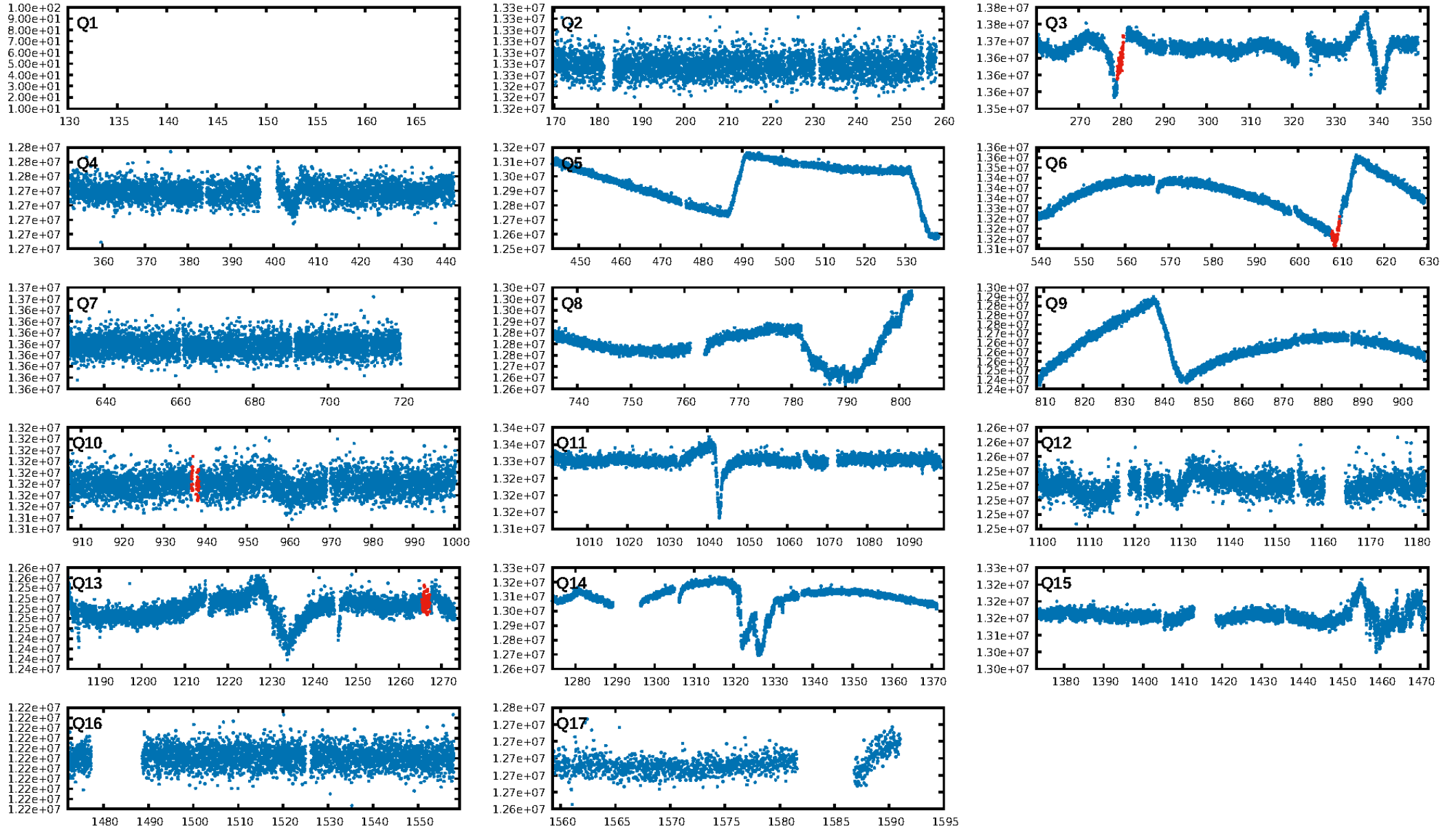
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.87σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 98.0%
Bootstrap-pfa: 6.30e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.9033
Centroid-sig: 76.2%
Centroid-so: 1.588 arcsec [0.74σ]
OotOffset-rm: 5.646 arcsec [81.11σ]
KicOffset-rm: 5.334 arcsec [76.63σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [1/1]

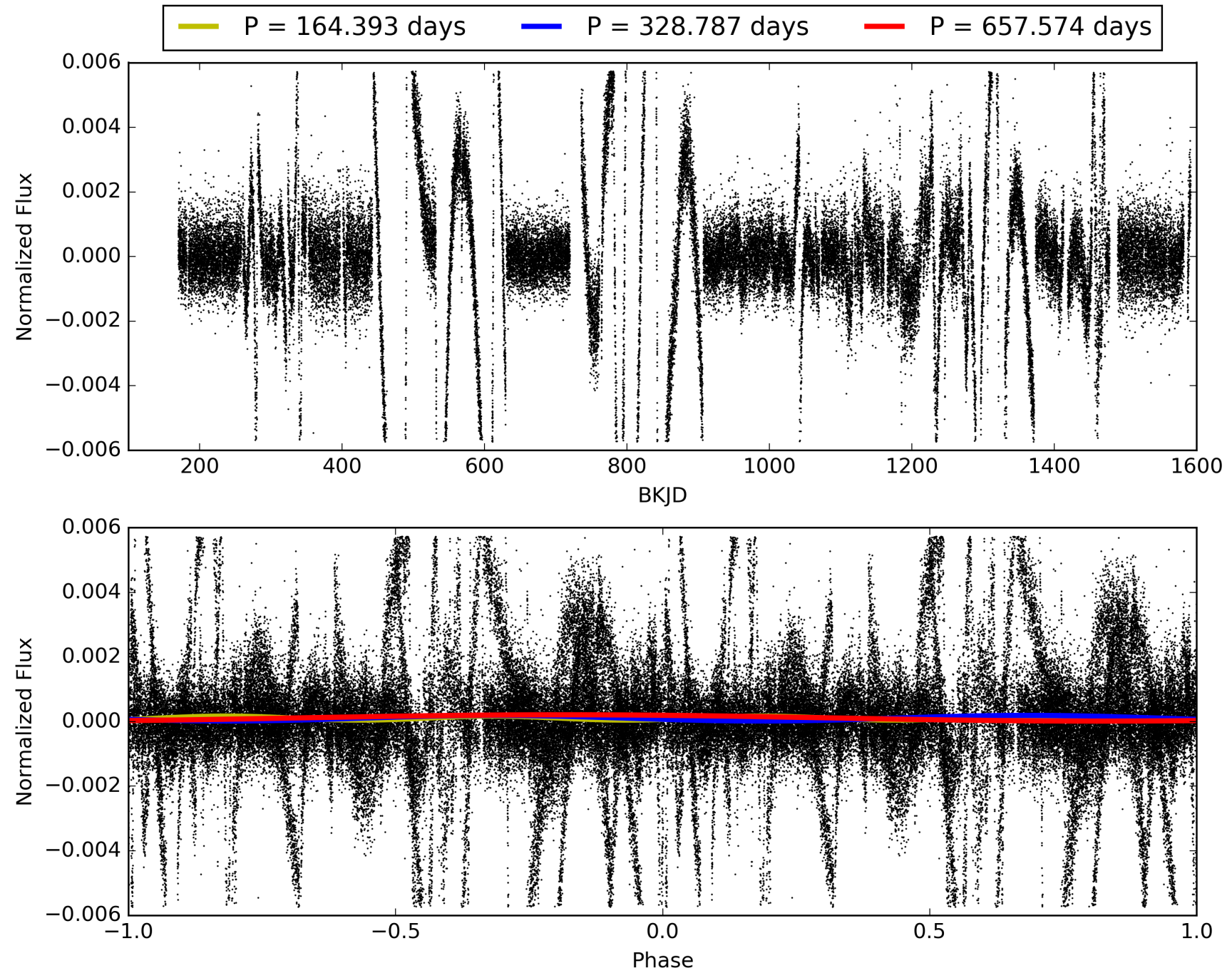
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:44:33 Z

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

TCE 012783196-02, PDC Light Curves

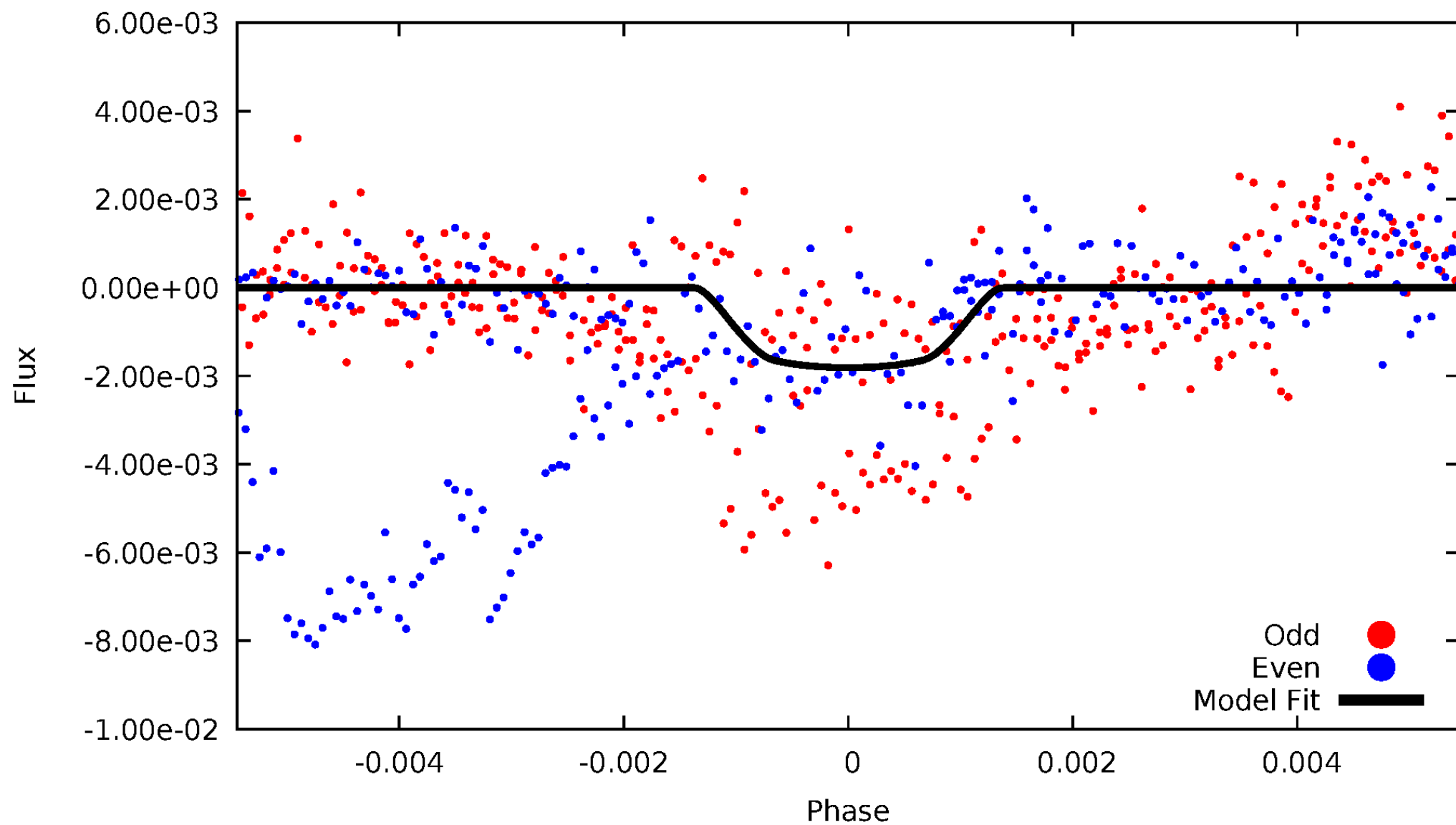


TCE 012783196-02



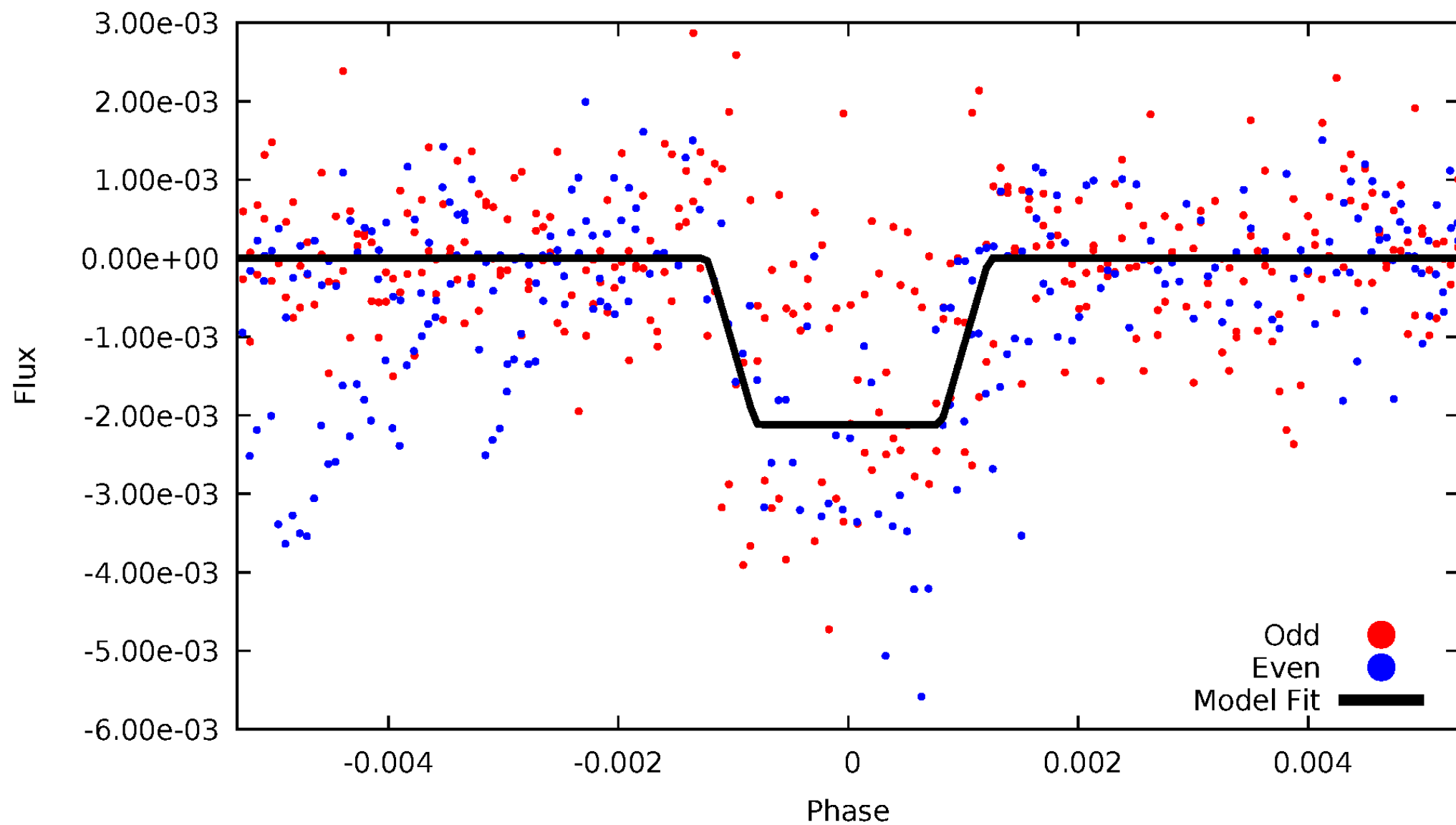
DV Odd/Even

TCE 012783196-02



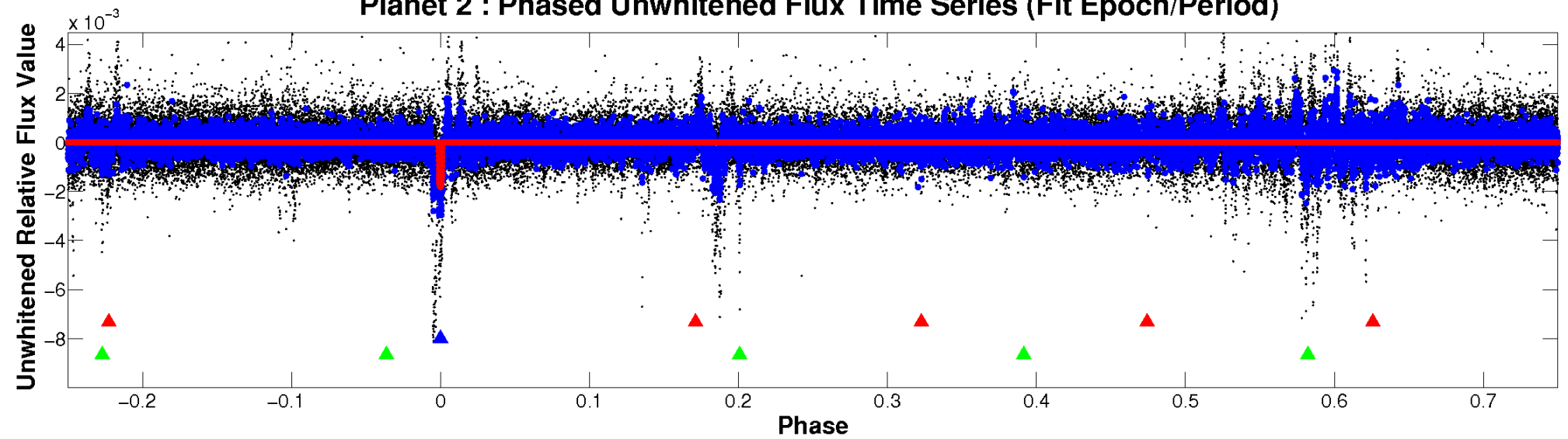
ALT Odd/Even

TCE 012783196-02

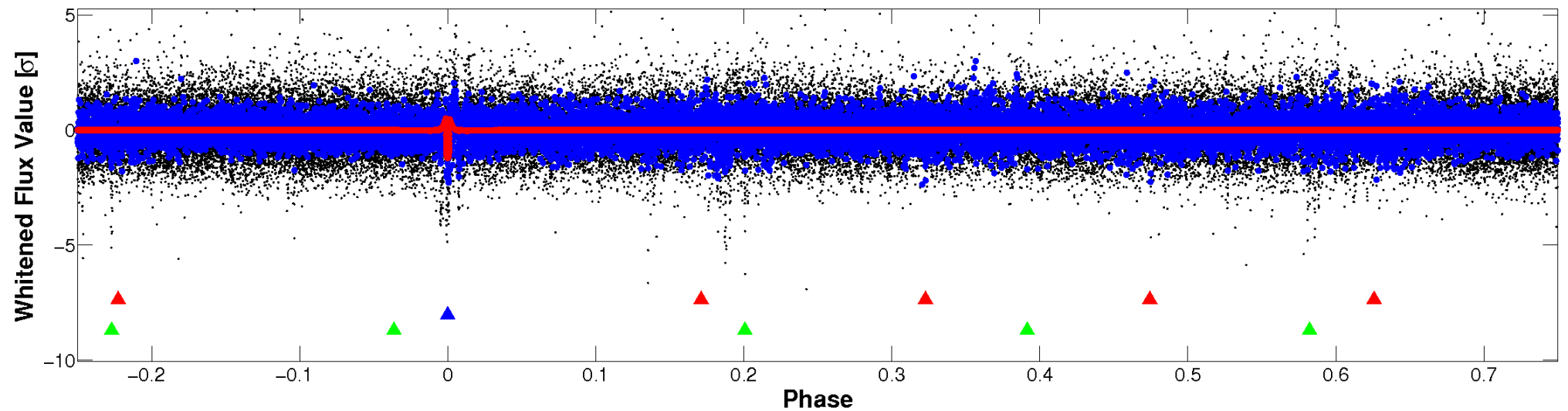


Non-Whitened Vs. Whitened Light Curve

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

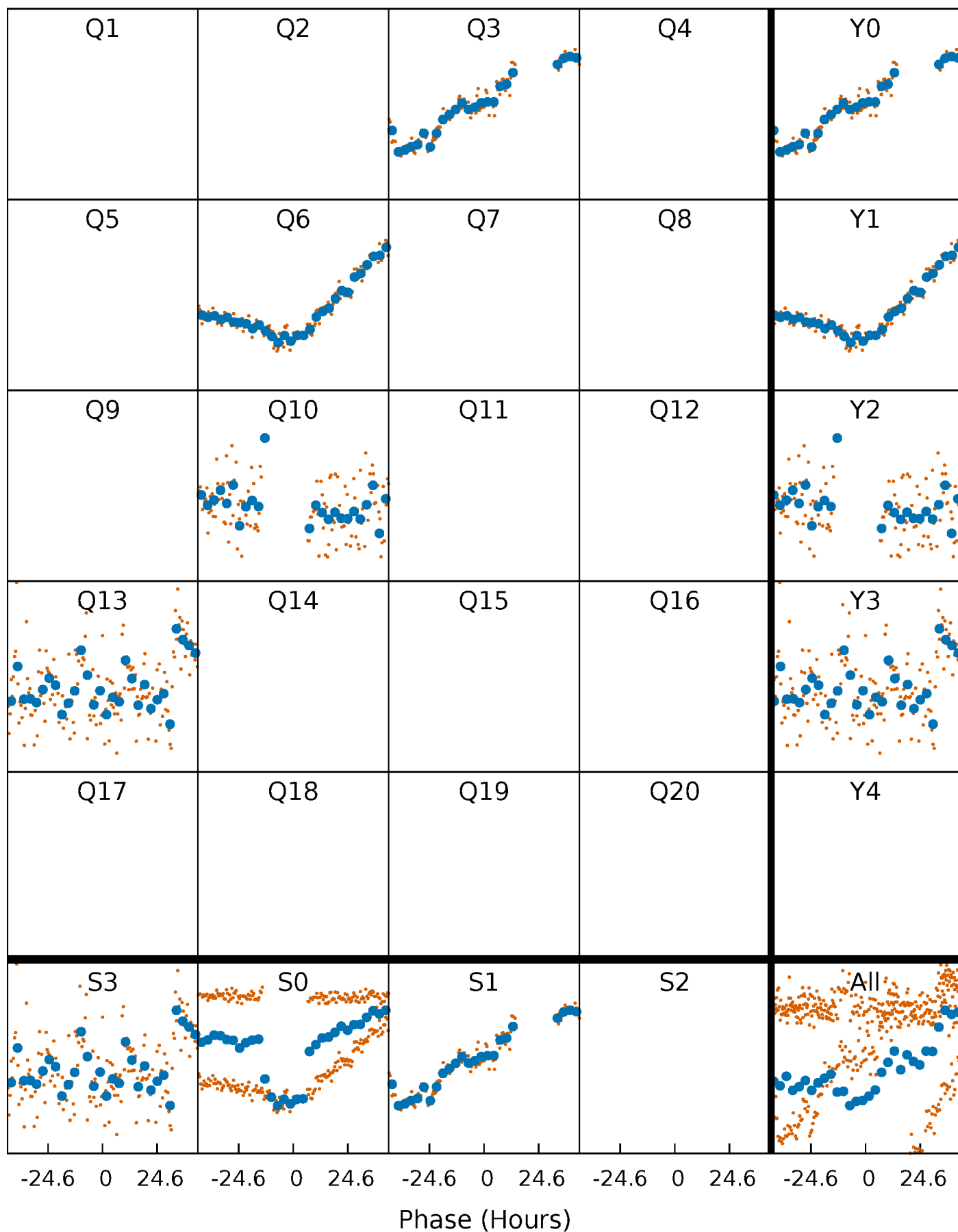


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



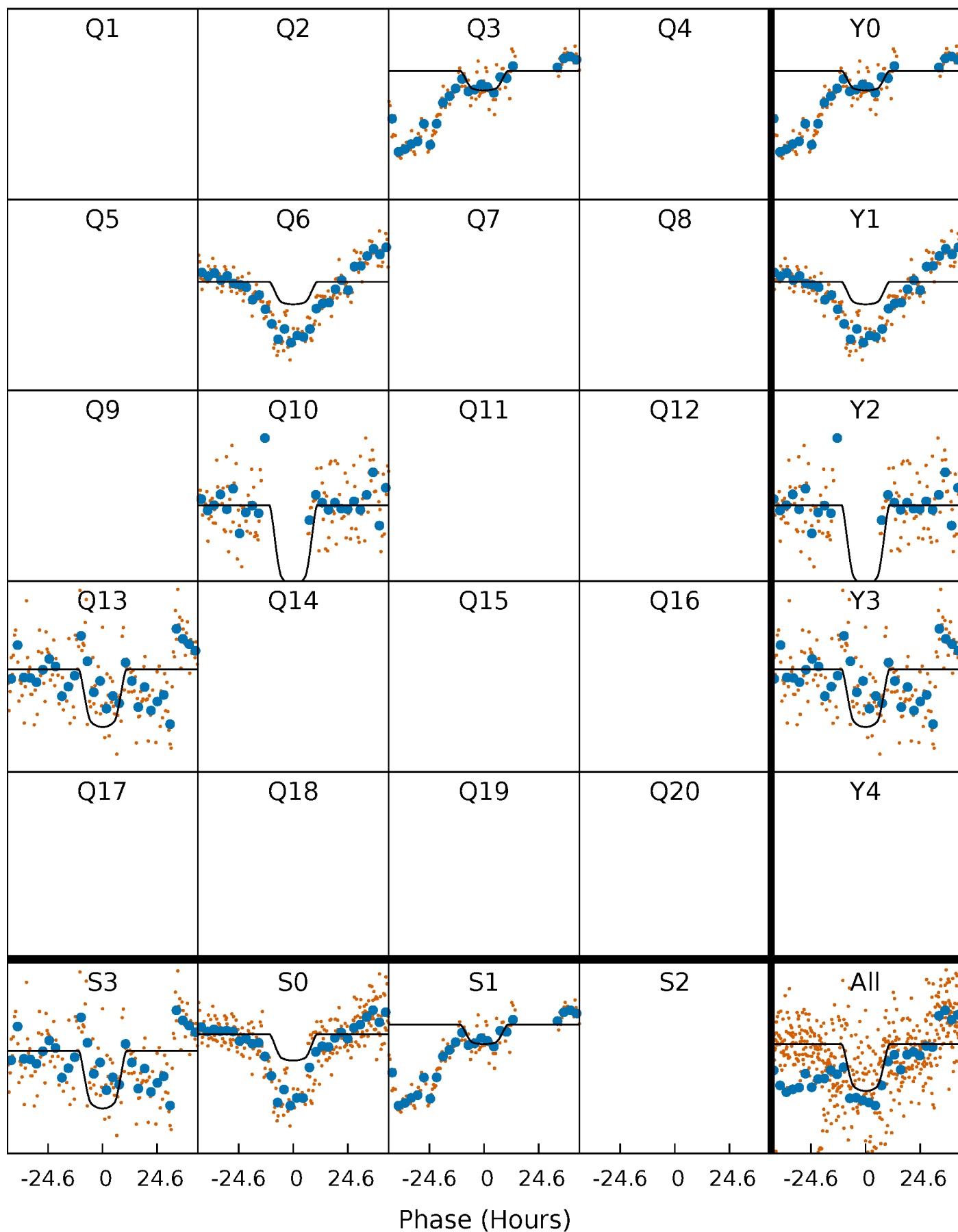
PDC Quarter-Phased Transit Curves

TCE 012783196-02 $P=328.786868$ Days $T_0=279.950980$ (BKJD)



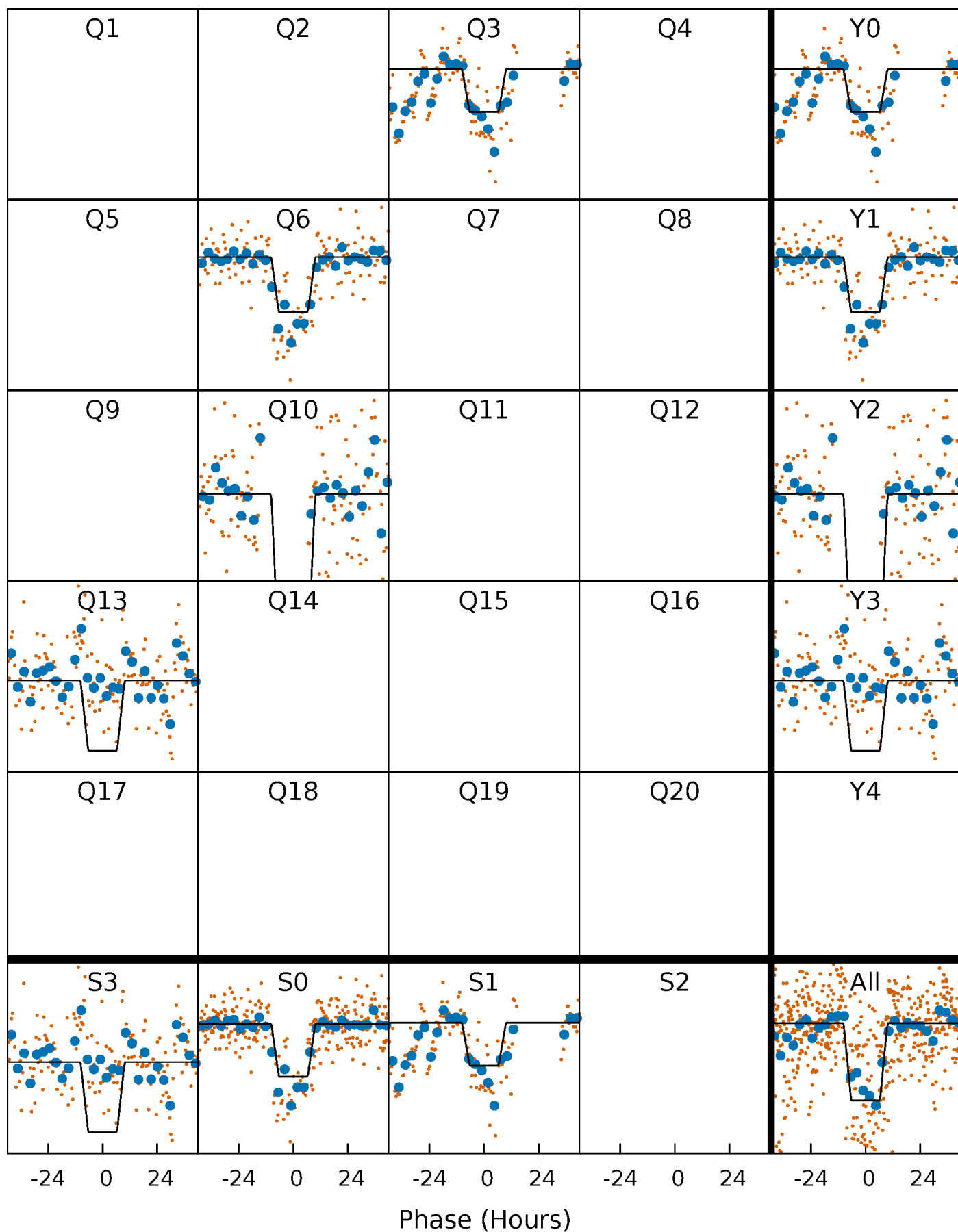
DV Quarter-Phased Transit Curves

TCE 012783196-02 $P=328.786868$ Days $T_0=279.950980$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

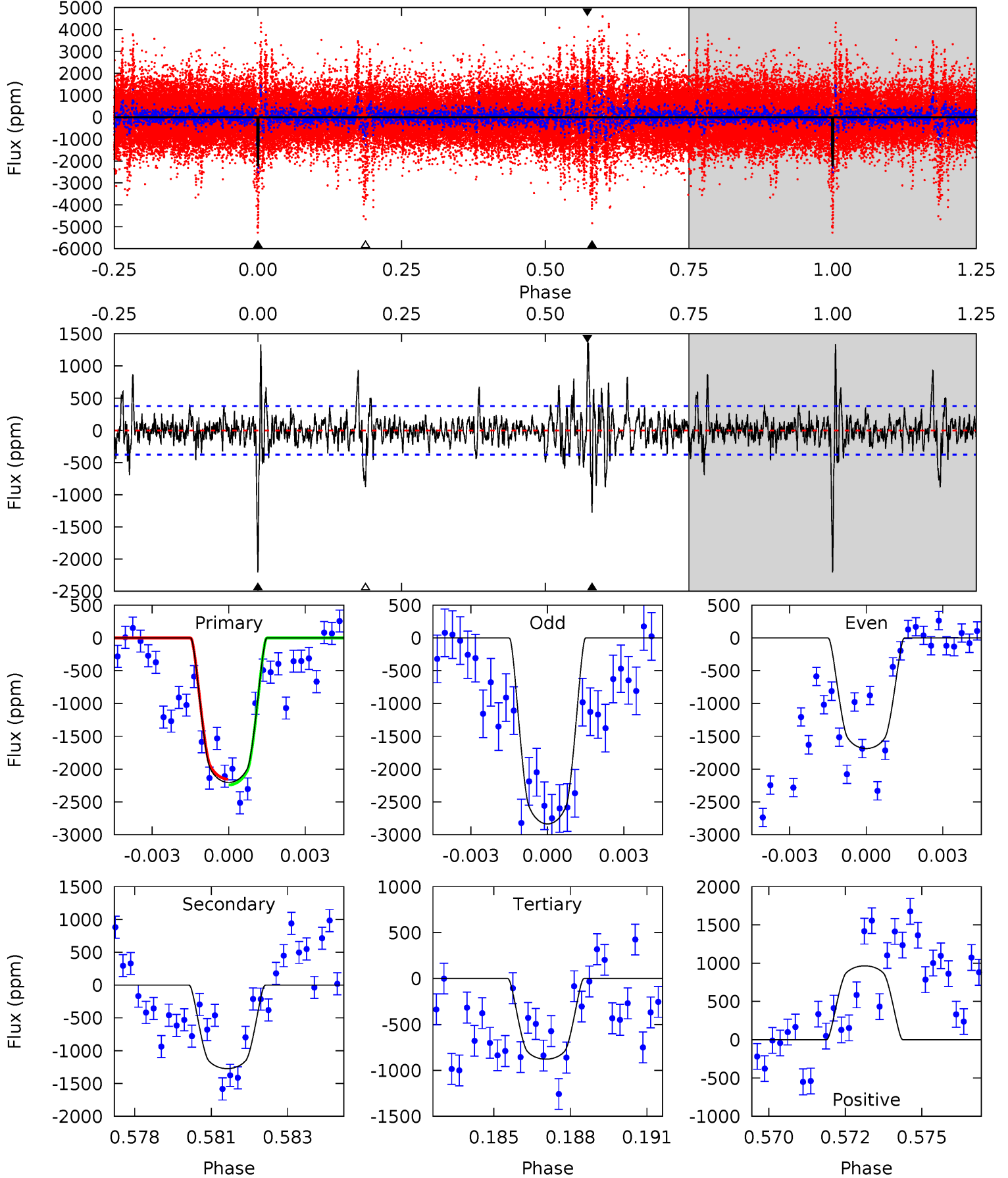
TCE 012783196-02 P=328.796414 Days $T_0=279.937793$ (BKJD)



DV Model-Shift Uniqueness Test

012783196-02, P = 328.786868 Days, E = 279.950980 Days

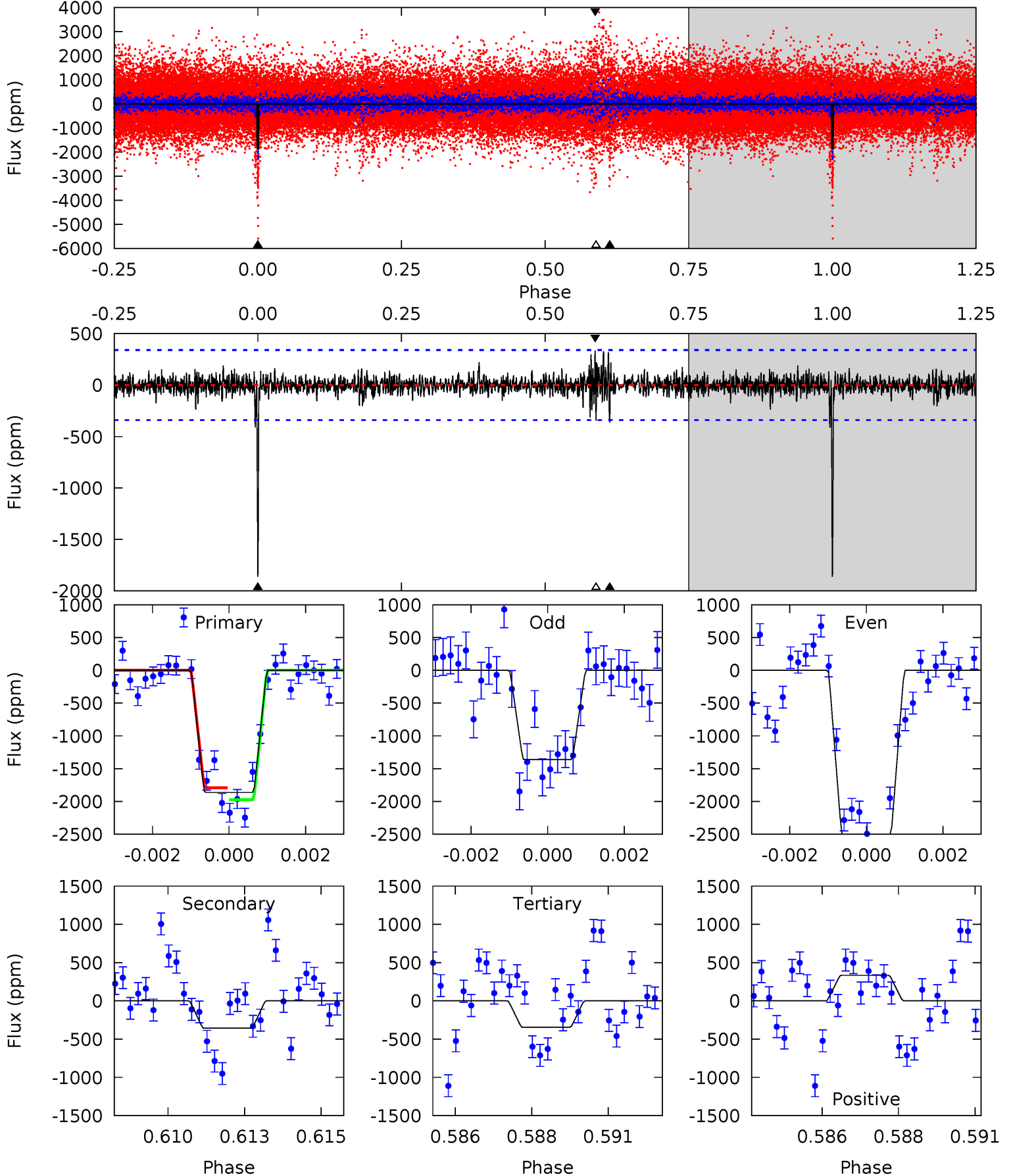
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.7	17.8	12.3	13.5	5.27	2.99	3.02	18.5	17.3	5.51	4.30	7.79	1.60	0.39	0.59



Alt Model-Shift Uniqueness Test

012783196-02, $P = 328.796414$ Days, $E = 279.937793$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.9	5.54	5.35	5.18	5.29	3.03	0.95	23.6	23.7	0.19	0.36	8.56	0.95	0.15	0



Stellar Parameters For KIC 012783196

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5955^{+160}_{-178}	$4.515^{+0.052}_{-0.195}$	$-0.340^{+0.300}_{-0.300}$	$0.882^{+0.249}_{-0.083}$	$0.929^{+0.109}_{-0.109}$	$1.908^{+0.488}_{-0.941}$
	+3%/-3%	+1%/-4%	+88%/-88%	+28%/-9%	+12%/-12%	+26%/-49%
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 012783196-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1274 ± 72	$4.66^{+0.78}_{-0.54}$	368^{+24}_{-17}	5248^{+229}_{-231}	26036^{+6799}_{-6108}
Alt.	-357 ± 64	$4.60^{+0.73}_{-0.57}$	368^{+25}_{-16}	4100^{+218}_{-193}	7561^{+2732}_{-2217}

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

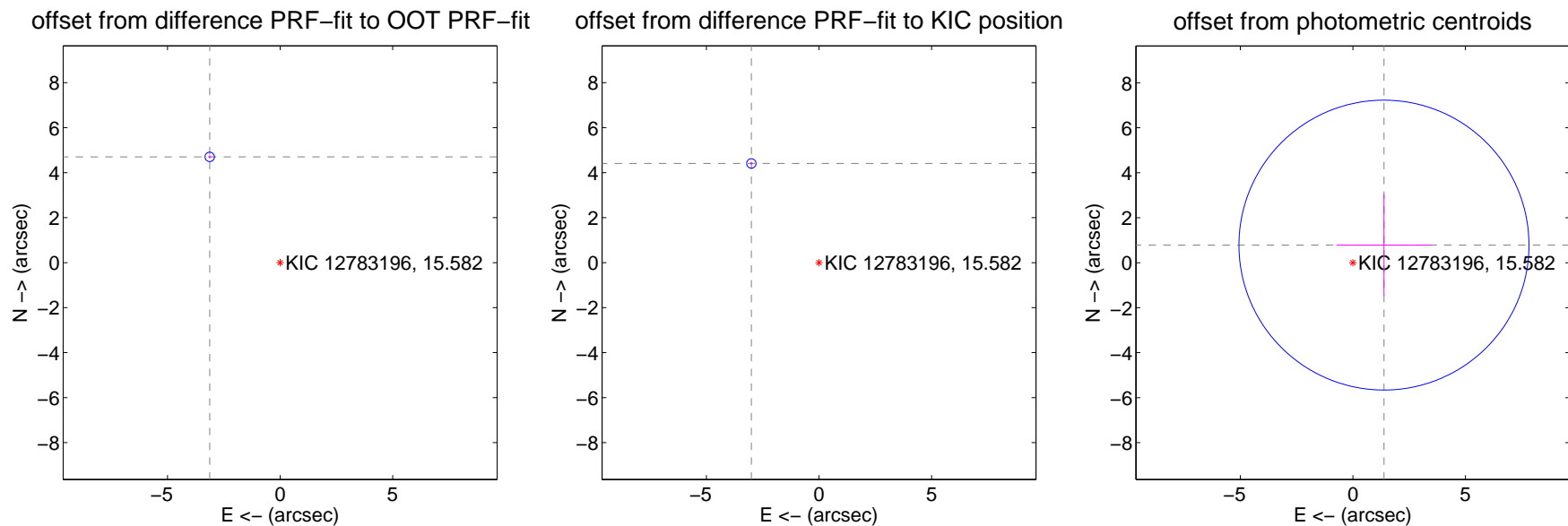
DV Centroid Data

Supplemental centroid analysis for 012783196-02. Kepler magnitude: 15.58. Transit SNR 11.37

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.646 ± 0.070	81.11	3.128 ± 0.069	4.701 ± 0.070
PRF-fit source offset from KIC position	5.334 ± 0.070	76.63	3.004 ± 0.069	4.408 ± 0.070
photometric centroid source offset	1.59 ± 2.15	0.74	-1.38 ± 2.11	0.78 ± 2.26

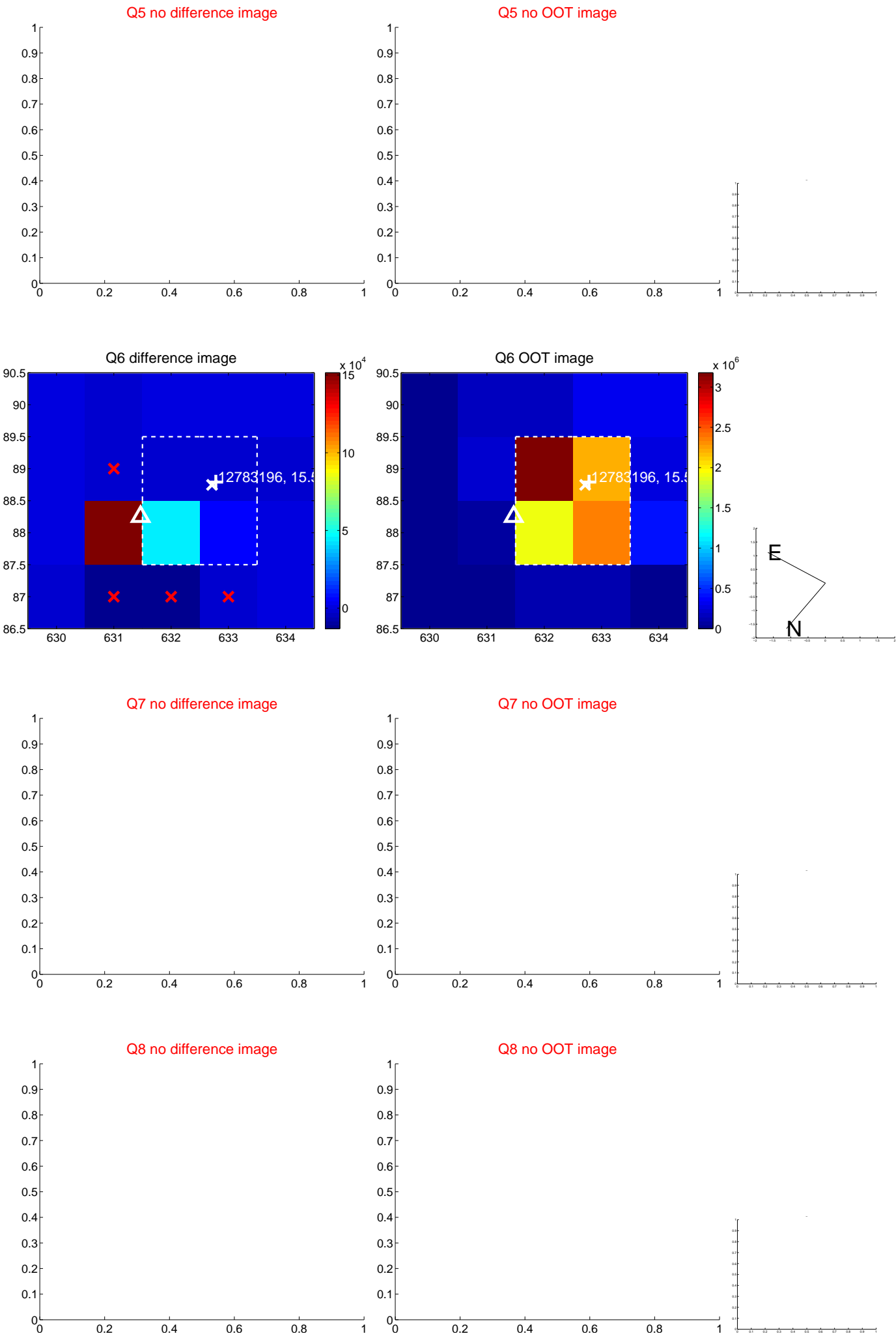


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



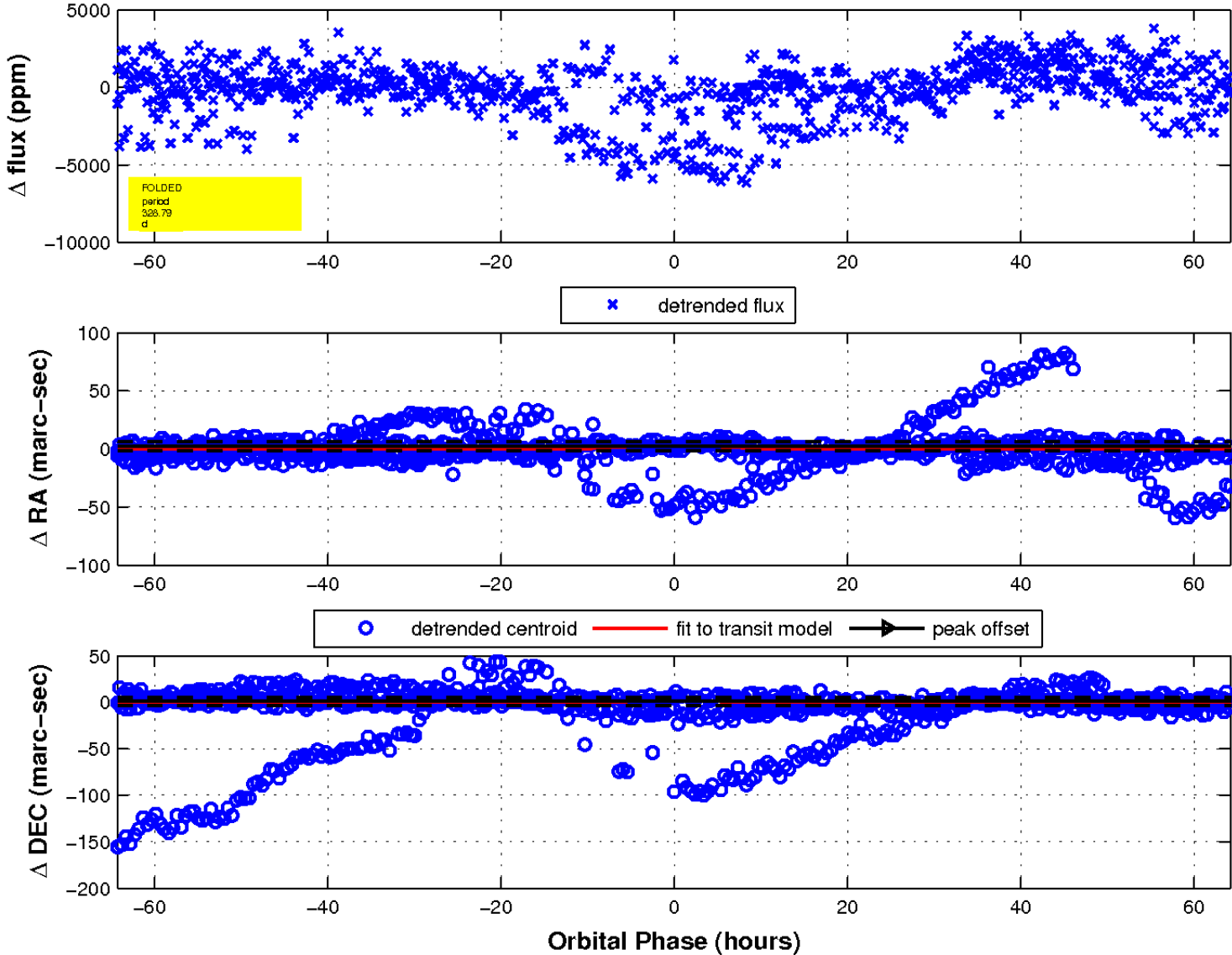
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image

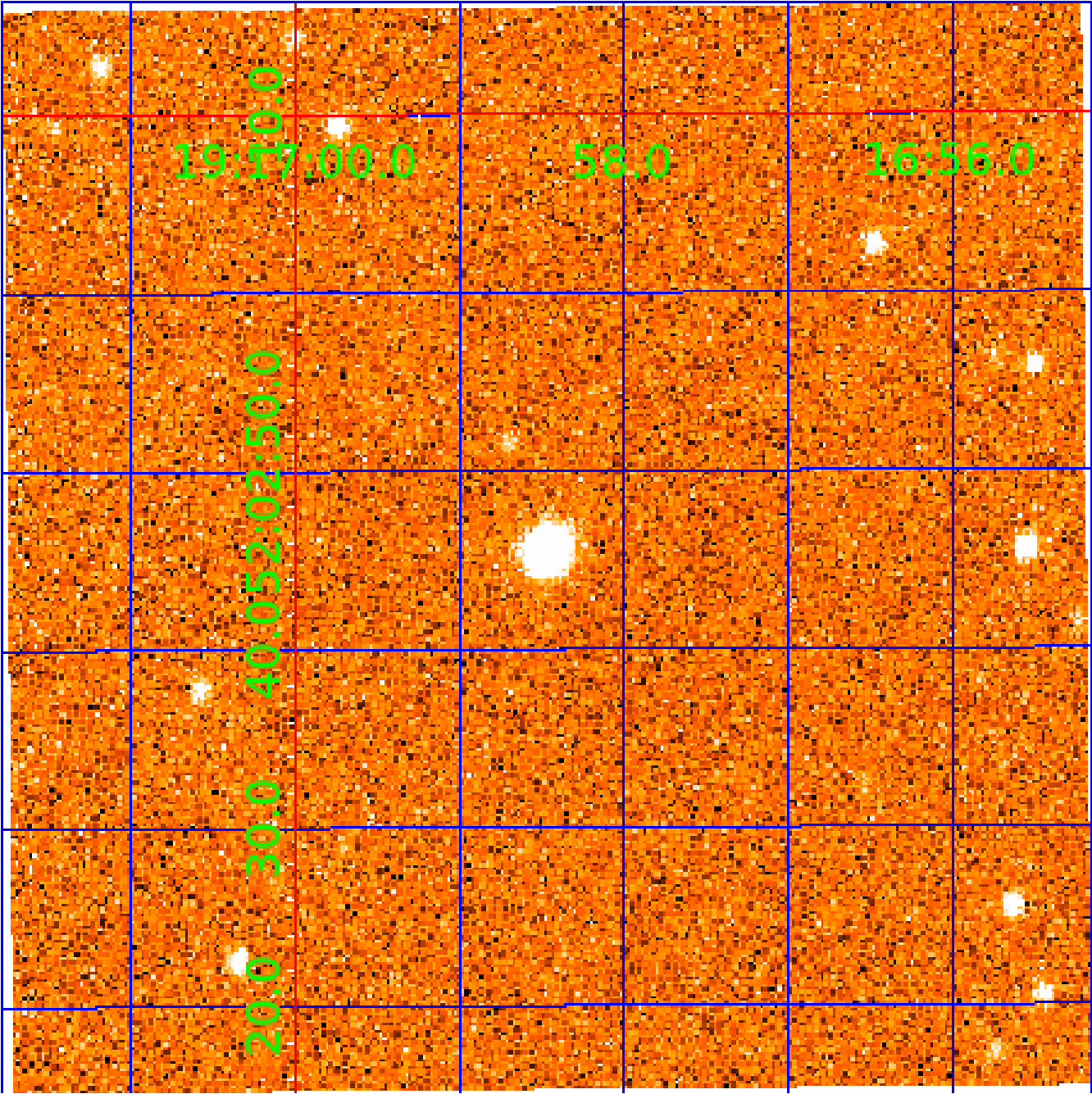


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 012783196

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})
012783196-01	OBS	No	278.961695	206.759948	1366.5	83.463	36.8	14.7	0.88	5955	3.50	1.32
012783196-02	OBS	No	328.786868	279.950980	1810.2	21.485	12.0	11.4	0.88	5955	4.51	1.06
012783196-03	OBS	No	266.077307	268.013447	1253.1	10.810	13.2	9.0	0.88	5955	3.17	1.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012783196-01	OBS	FP	0.00	1	0	0	0	LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012783196-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012783196-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—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.

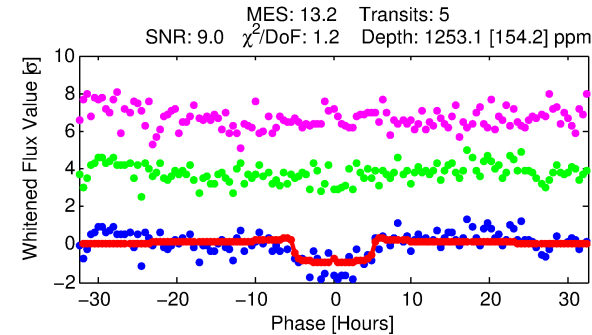
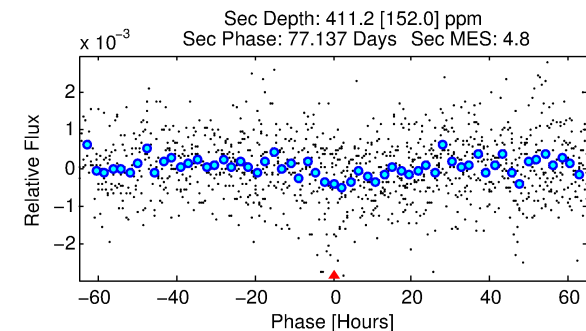
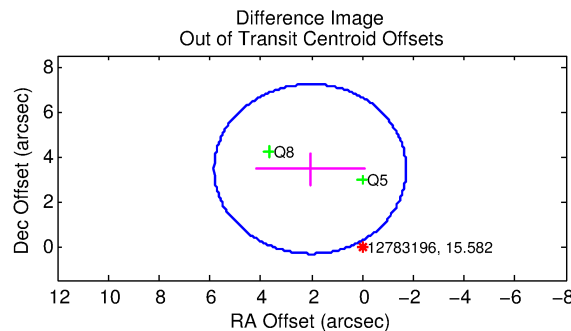
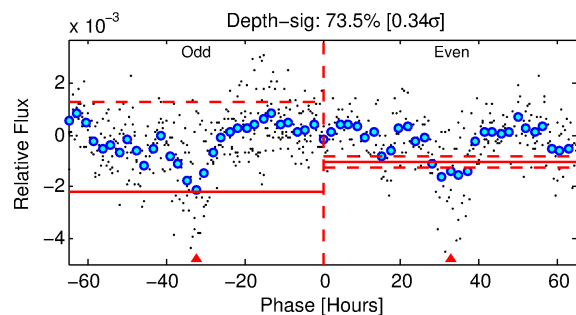
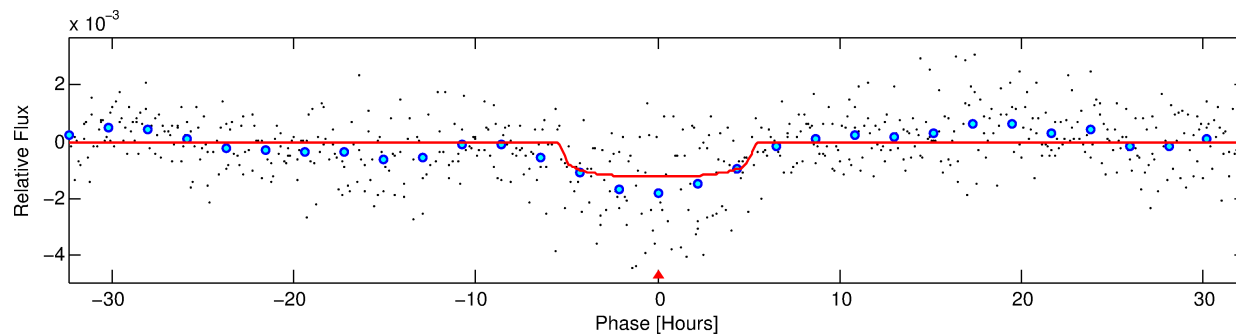
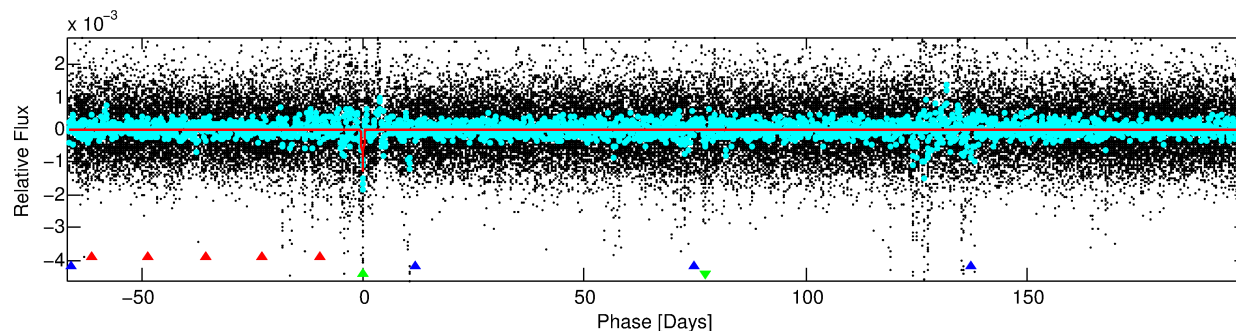
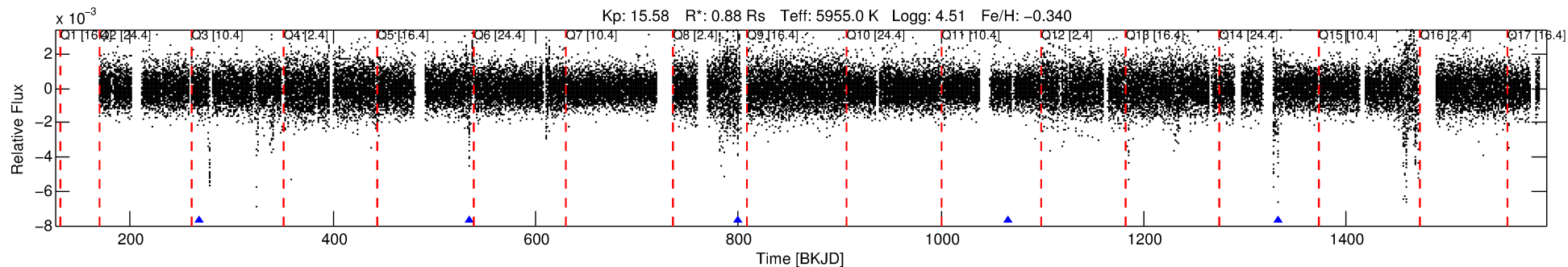
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012783196-03

No Significant Match Found

DV One-Page Summary

KIC: 12783196 Candidate: 3 of 3 Period: 266.077 d



DV Fit Results:

Period = 266.07731 [0.00588] d
Epoch = 268.0134 [0.0148] BKJD
Rp/R* = 0.0329 [0.0179]
a/R* = 180.56 [467.59]
b = 0.38 [5.85]
Seff = 1.40 [0.52]
Teq = 278 [26] K
Rp = 3.16 [1.94] Re
a = 0.7901 [0.1900] AU
Ag = 14101.35 [16931.84] [0.83 σ]
Teffp = 4677 [1349] K [3.26 σ]

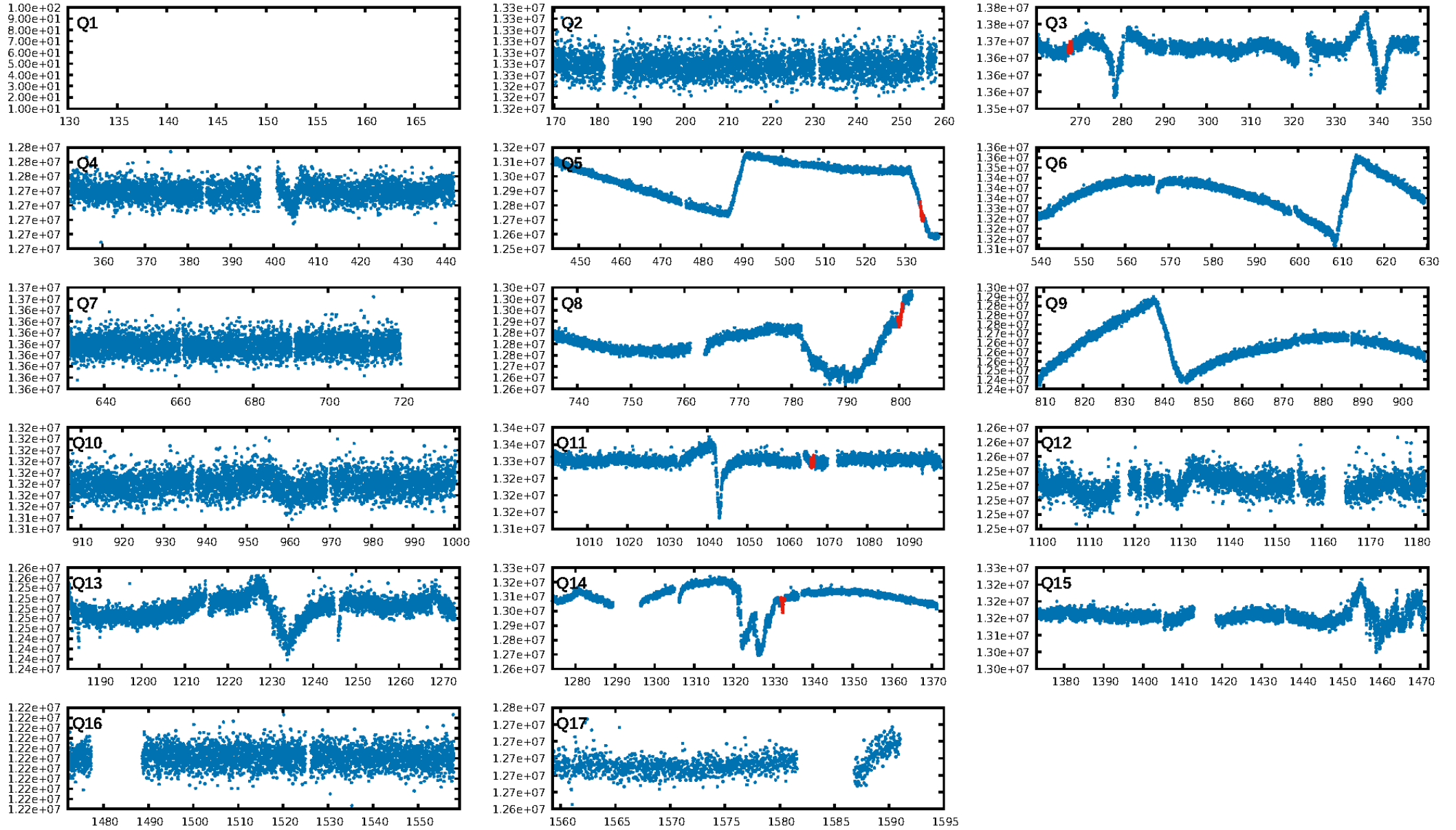
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [3.67 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 29.4%
Bootstrap-pfa: 5.50e-14
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 3.653
Centroid-sig: 0.2%
Centroid-so: 4.668 arcsec [2.85 σ]
OotOffset-rm: 4.003 arcsec [3.18 σ]
KicOffset-rm: 3.807 arcsec [3.01 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [4/4]

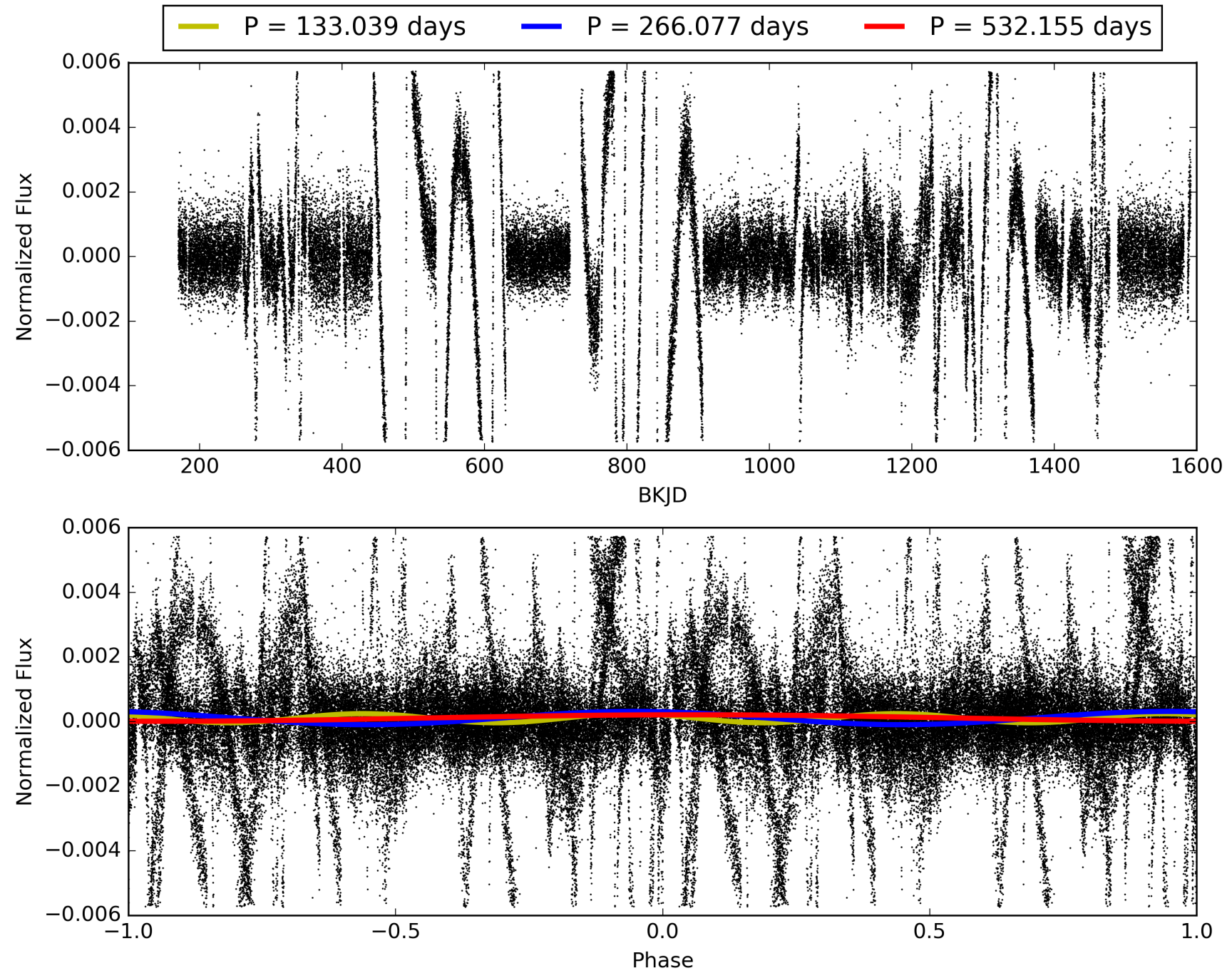
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:44:41 Z

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

TCE 012783196-03, PDC Light Curves

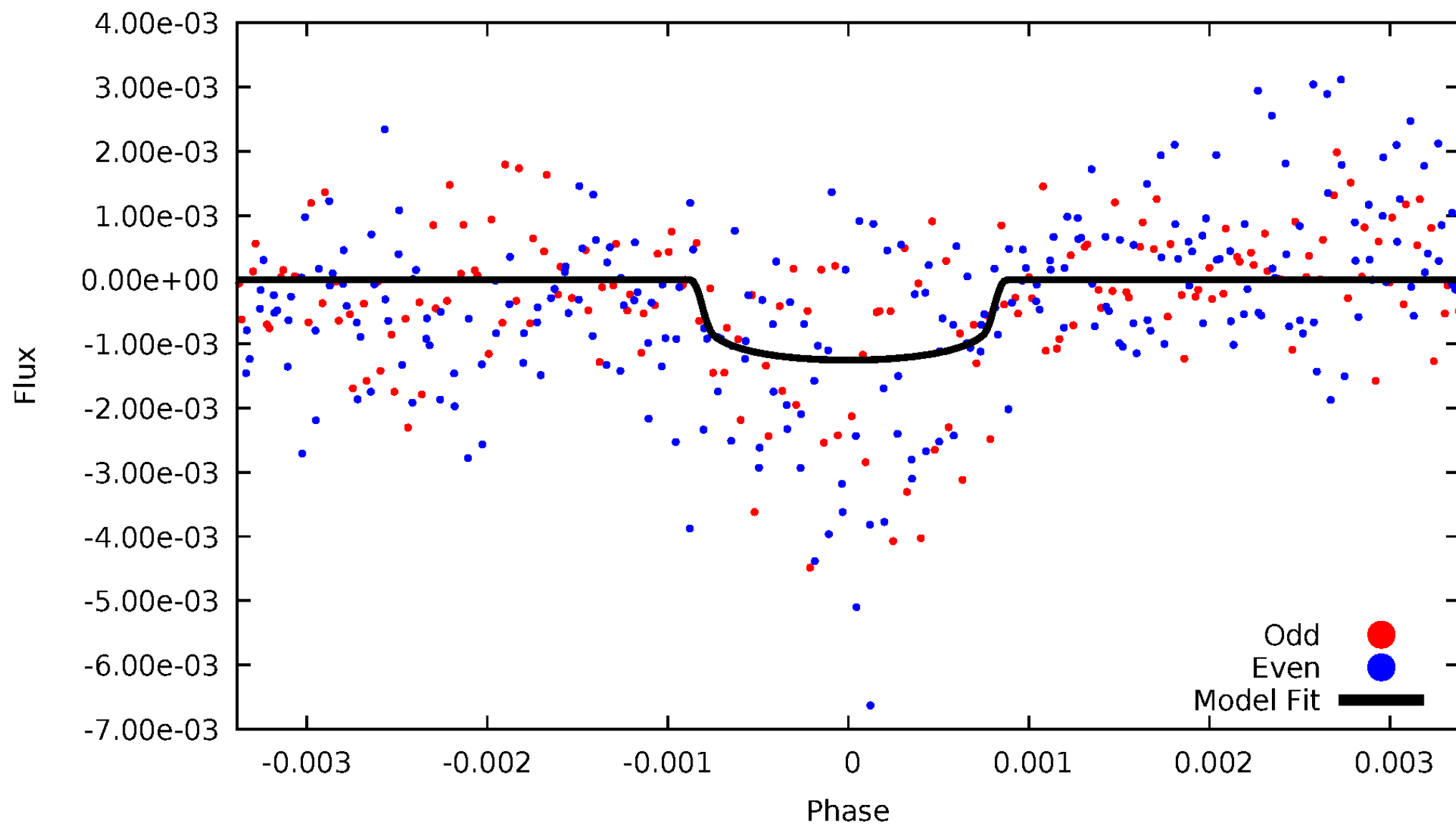


TCE 012783196-03



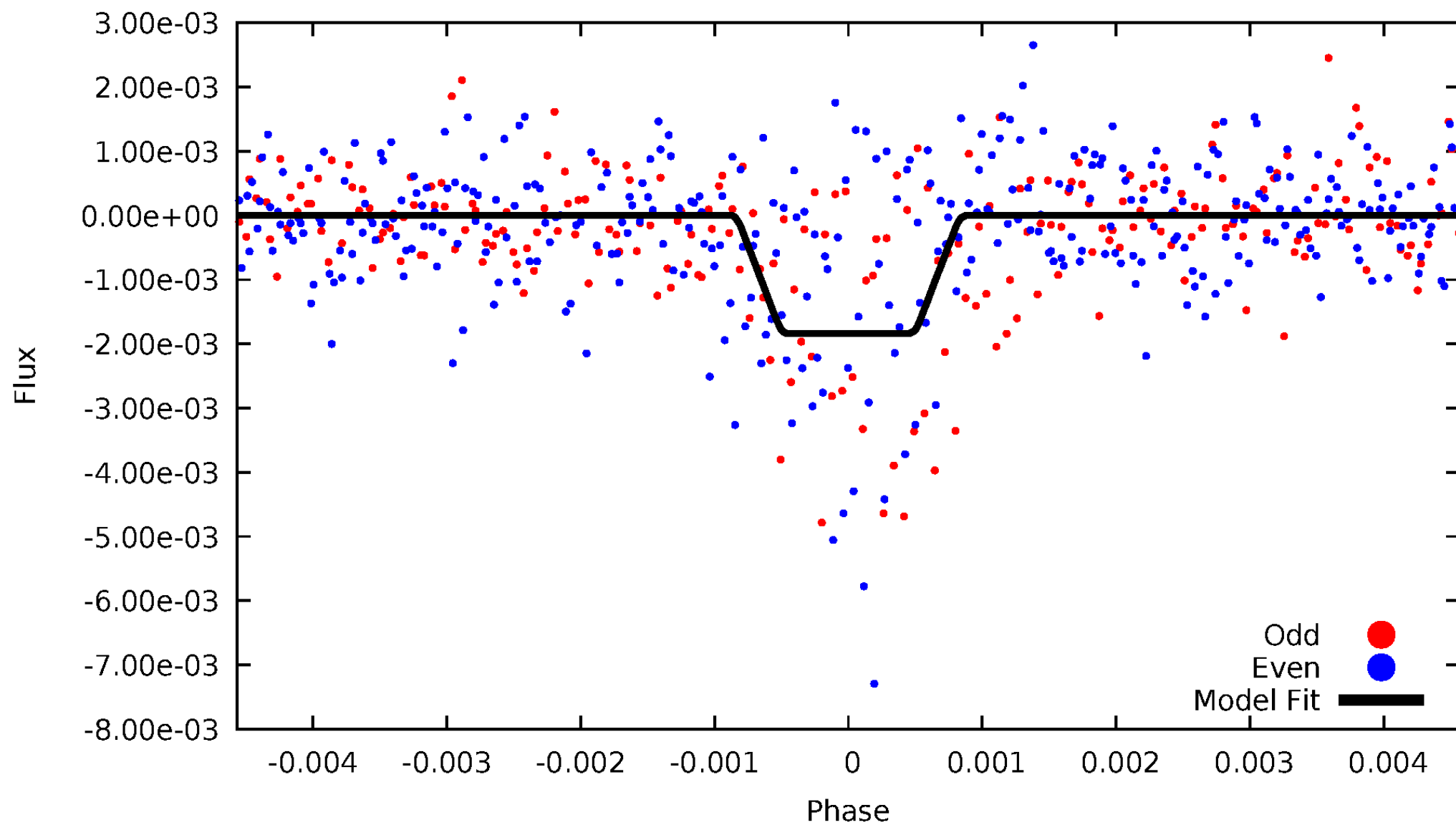
DV Odd/Even

TCE 012783196-03



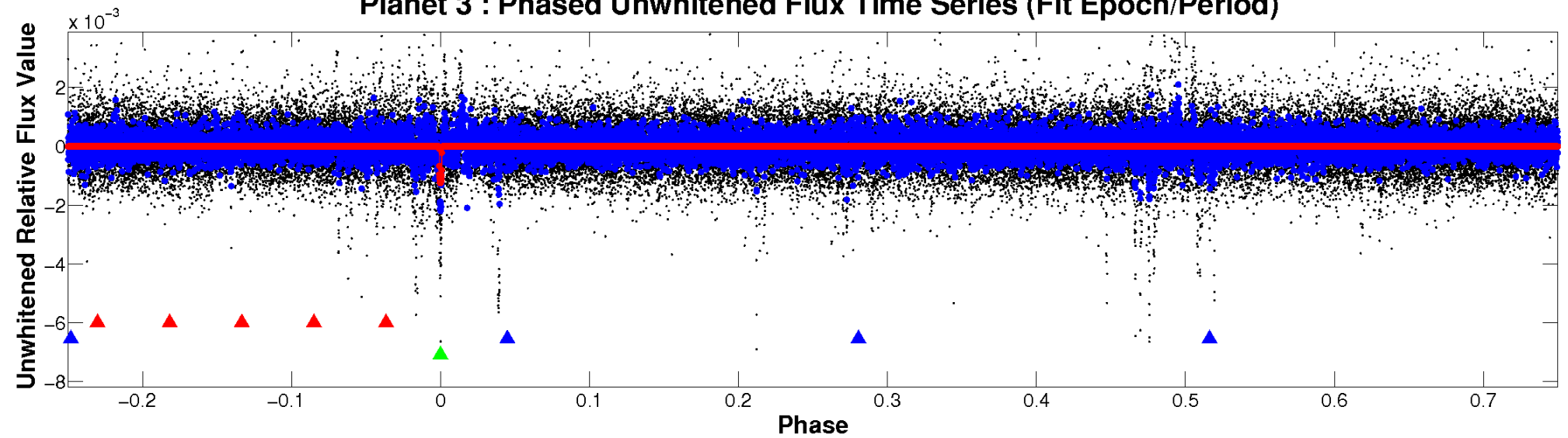
ALT Odd/Even

TCE 012783196-03

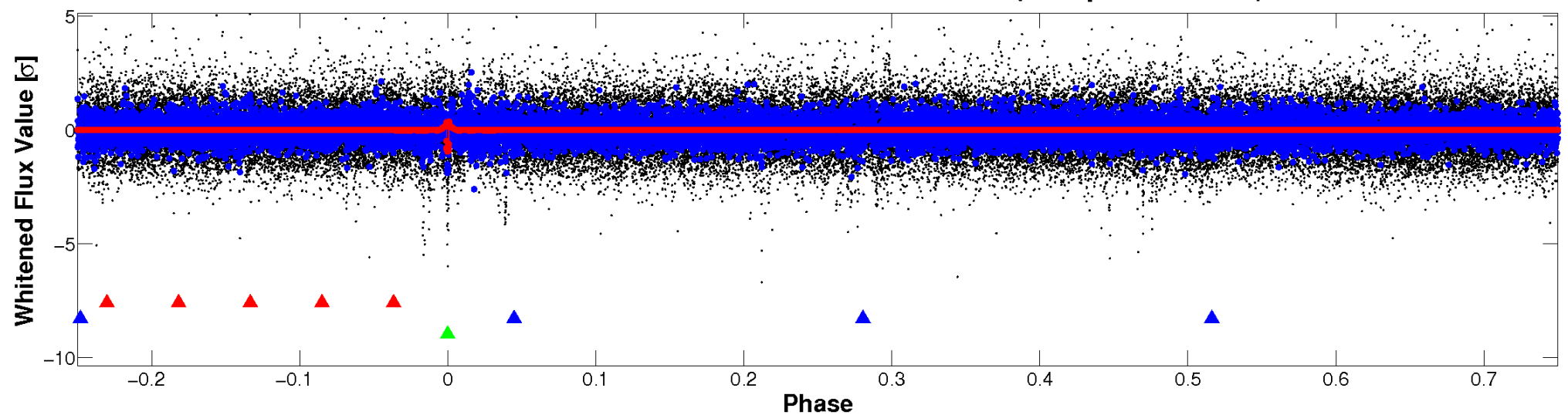


Non-Whitened Vs. Whitened Light Curve

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

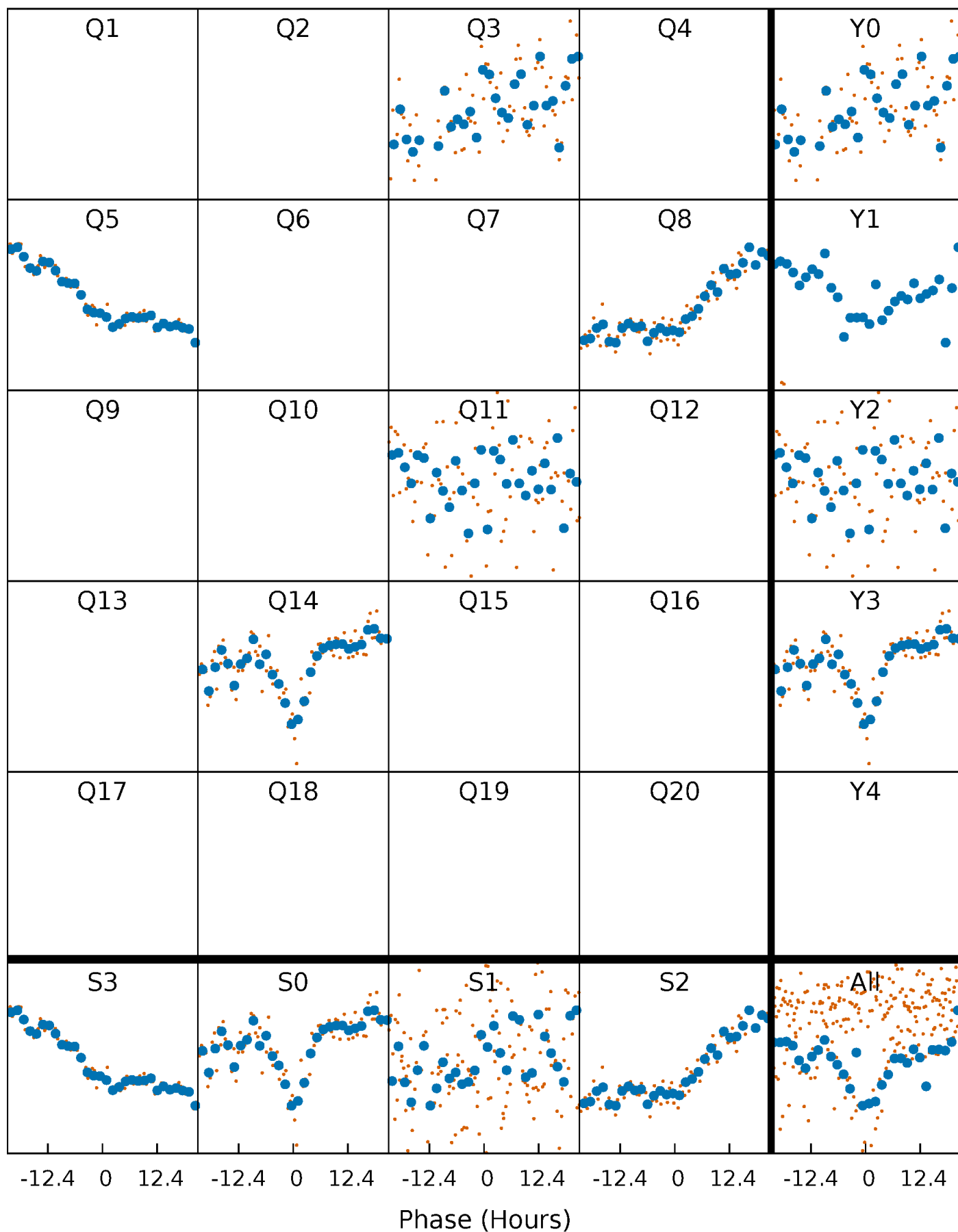


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



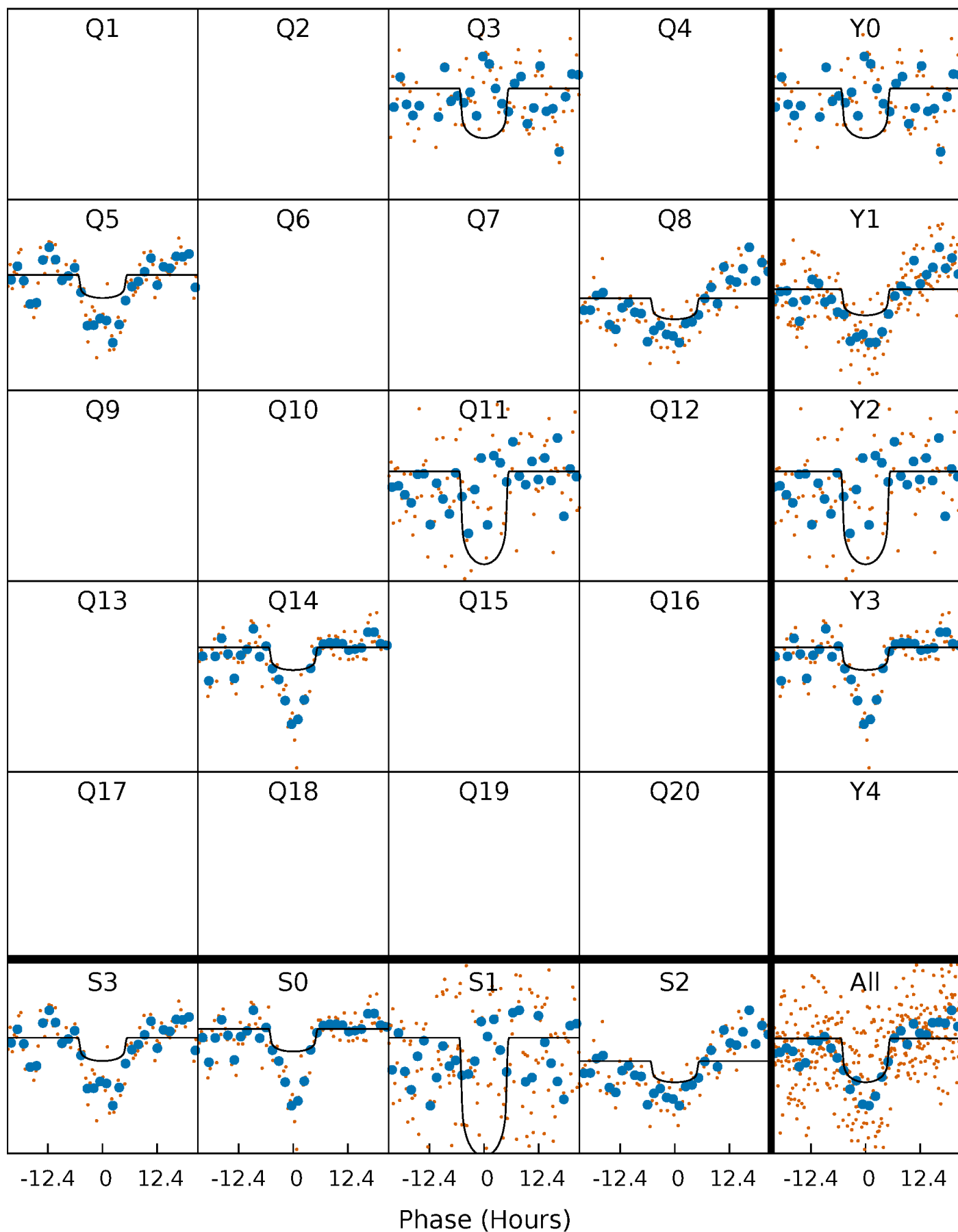
PDC Quarter-Phased Transit Curves

TCE 012783196-03 $P=266.077307$ Days $T_0=268.013447$ (BKJD)



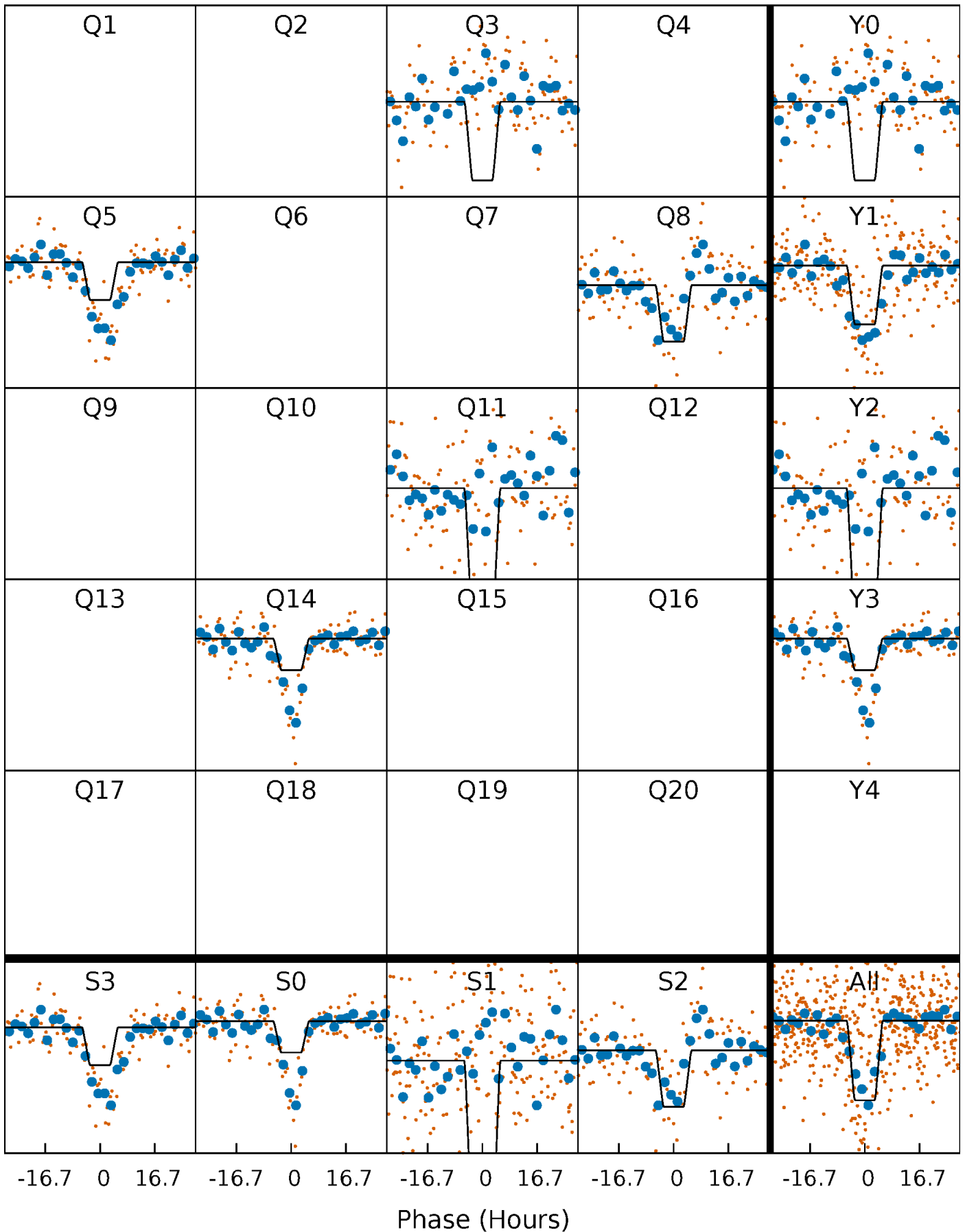
DV Quarter-Phased Transit Curves

TCE 012783196-03 $P=266.077307$ Days $T_0=268.013447$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

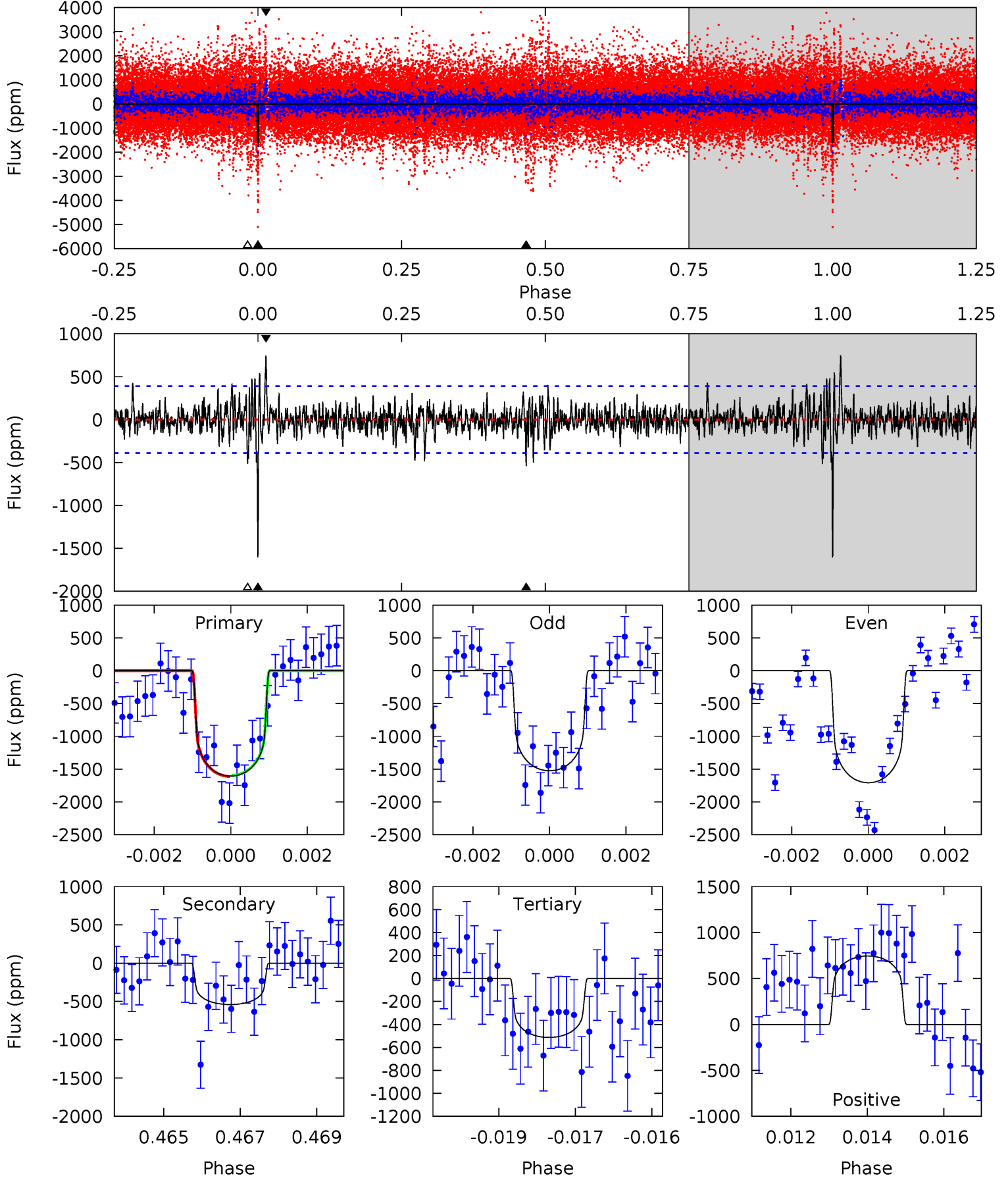
TCE 012783196-03 $P=266.072196$ Days $T_0=268.014972$ (BKJD)



DV Model-Shift Uniqueness Test

012783196-03, P = 266.077307 Days, E = 1.936140 Days

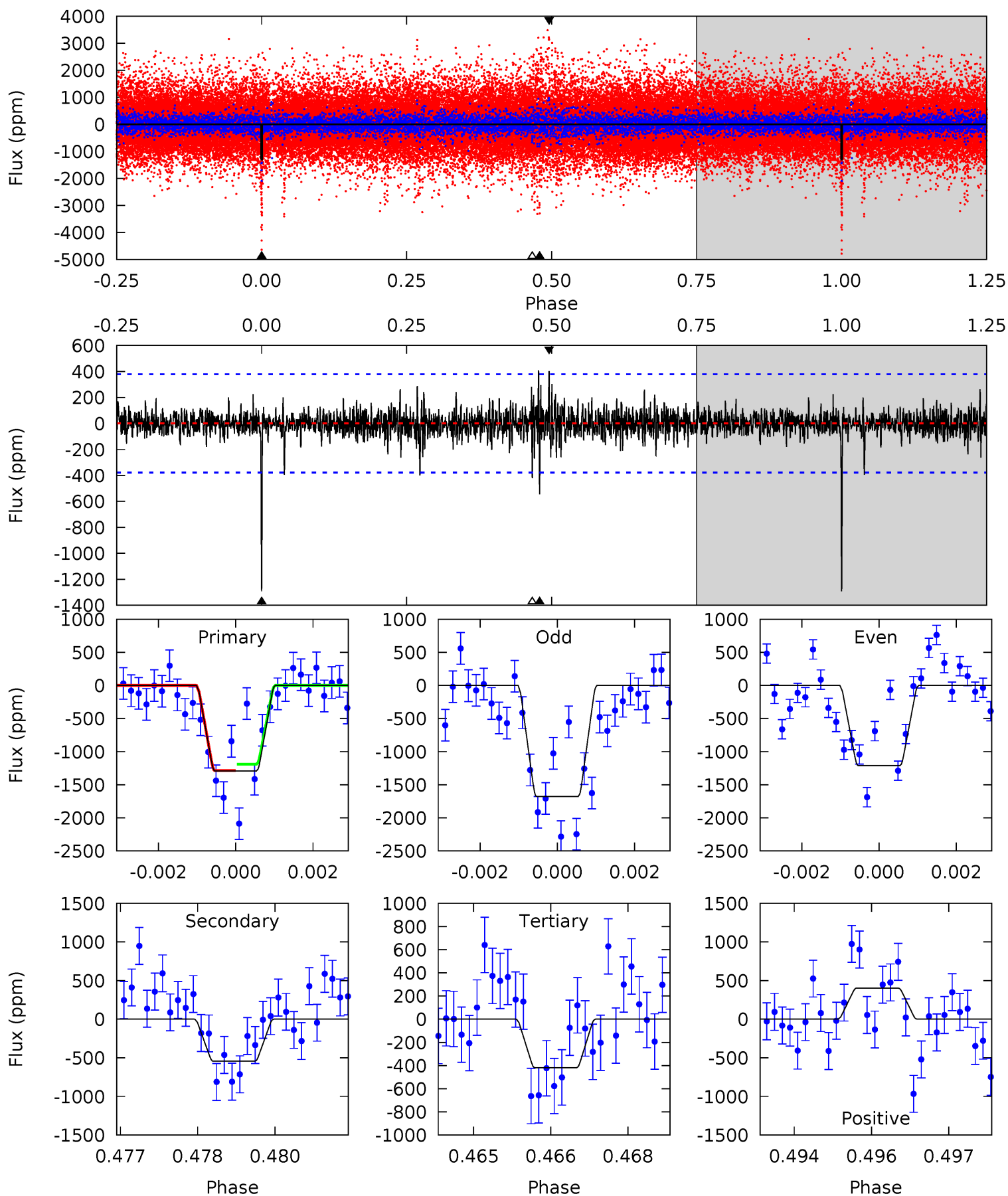
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	7.41	7.04	10.2	5.35	3.13	1.65	15.0	11.8	0.37	-2.80	1.22	0.77	0.32	0.11



Alt Model-Shift Uniqueness Test

012783196-03, P = 266.072196 Days, E = 1.942776 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	7.71	5.94	5.71	5.36	3.14	1.07	12.3	12.6	1.76	2.00	3.29	1.27	0.24	0.67



Stellar Parameters For KIC 012783196

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5955^{+160}_{-178}	$4.515^{+0.052}_{-0.195}$	$-0.340^{+0.300}_{-0.300}$	$0.882^{+0.249}_{-0.083}$	$0.929^{+0.109}_{-0.109}$	$1.908^{+0.488}_{-0.941}$
	+3%/-3%	+1%/-4%	+88%/-88%	+28%/-9%	+12%/-12%	+26%/-49%
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 012783196-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-540 ± 73	$3.24^{+1.79}_{-1.65}$	395^{+26}_{-17}	5083^{+2220}_{-793}	17497^{+54645}_{-10254}
Alt.	-545 ± 71	$4.33^{+1.81}_{-1.76}$	396^{+27}_{-18}	4550^{+1150}_{-581}	9784^{+18385}_{-5098}

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

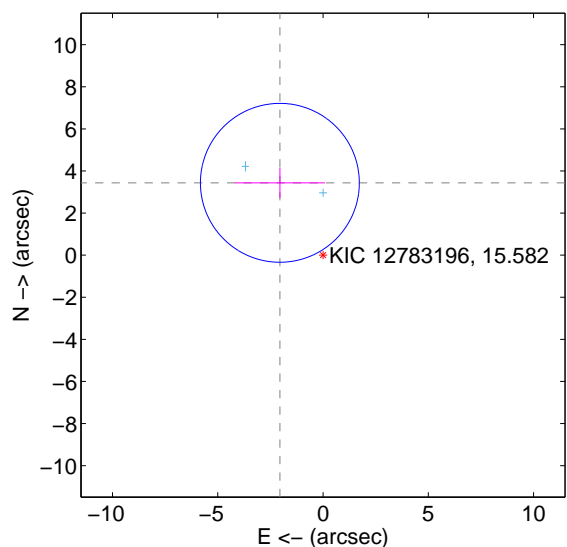
Supplemental centroid analysis for 012783196-03. Kepler magnitude: 15.58. Transit SNR 9.03

There are 2 quarters with good PRF difference image offsets

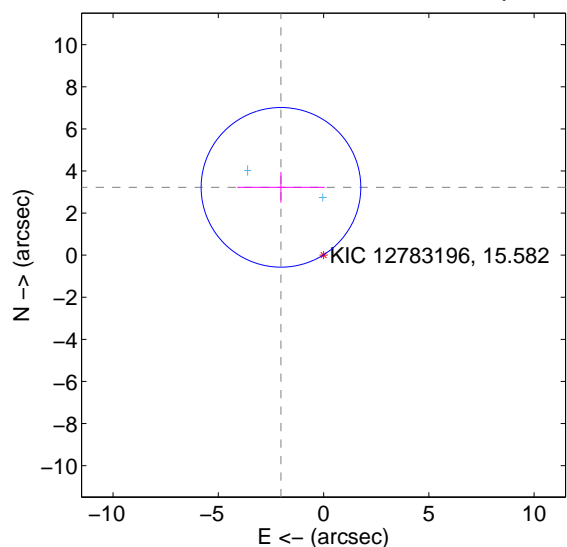
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.003 ± 1.258	3.18	2.051 ± 2.143	3.438 ± 0.716
PRF-fit source offset from KIC position	3.807 ± 1.264	3.01	2.024 ± 2.074	3.224 ± 0.730
photometric centroid source offset	4.67 ± 1.64	2.85	0.66 ± 1.85	4.62 ± 1.63

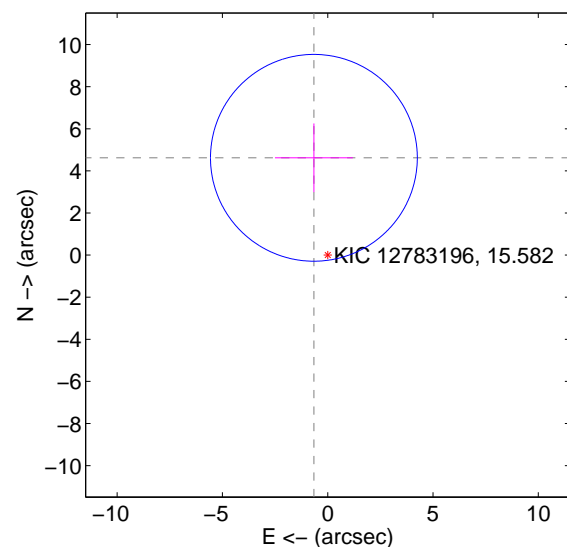
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

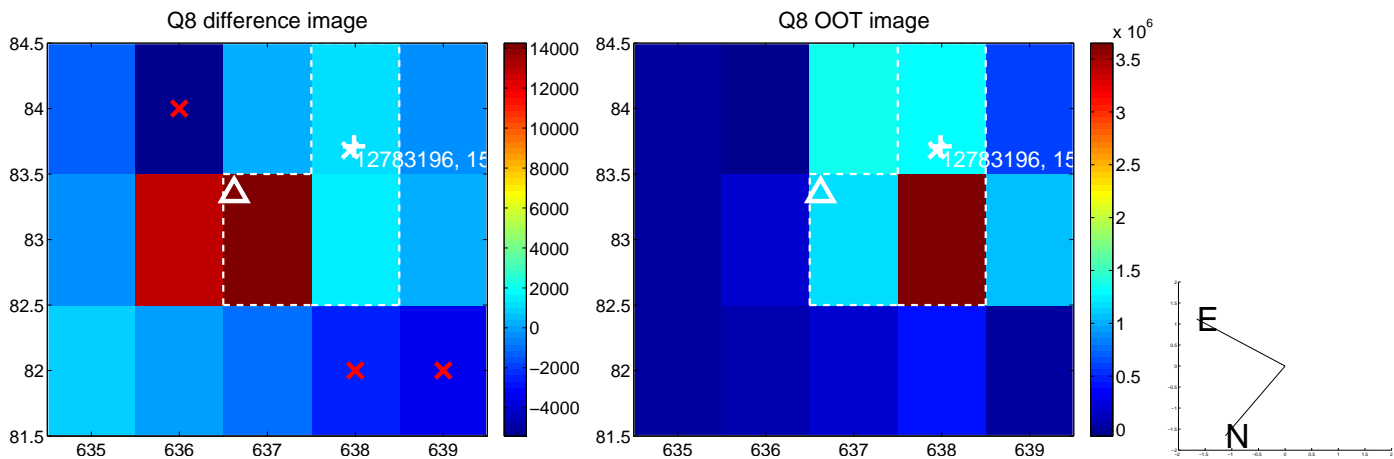
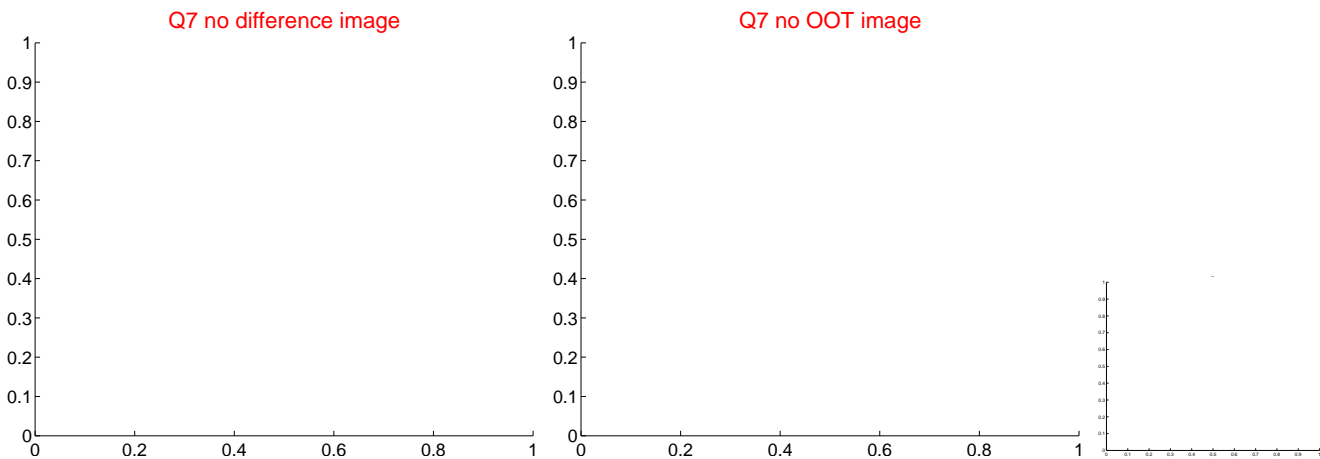
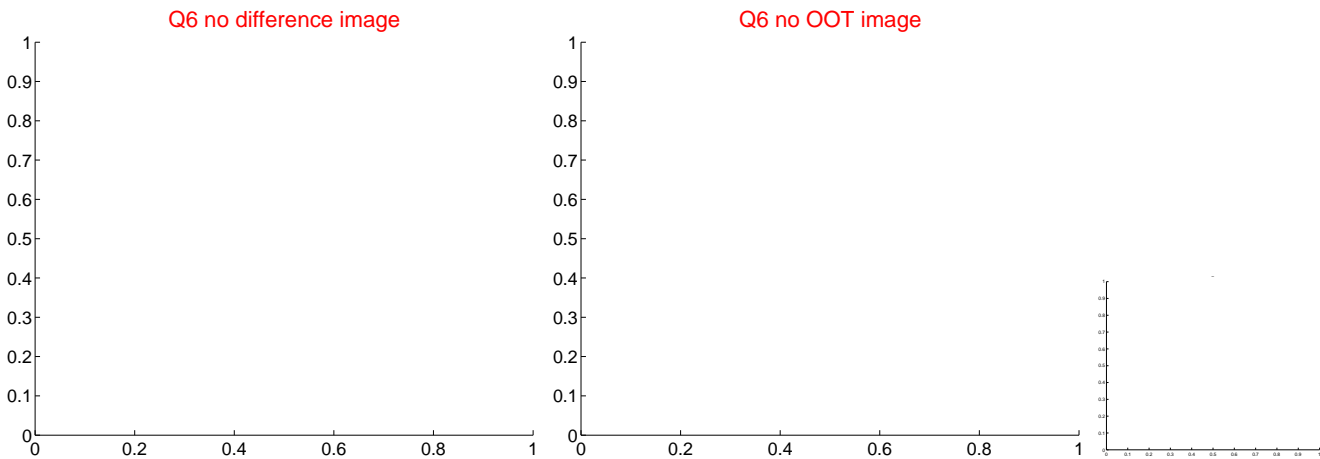
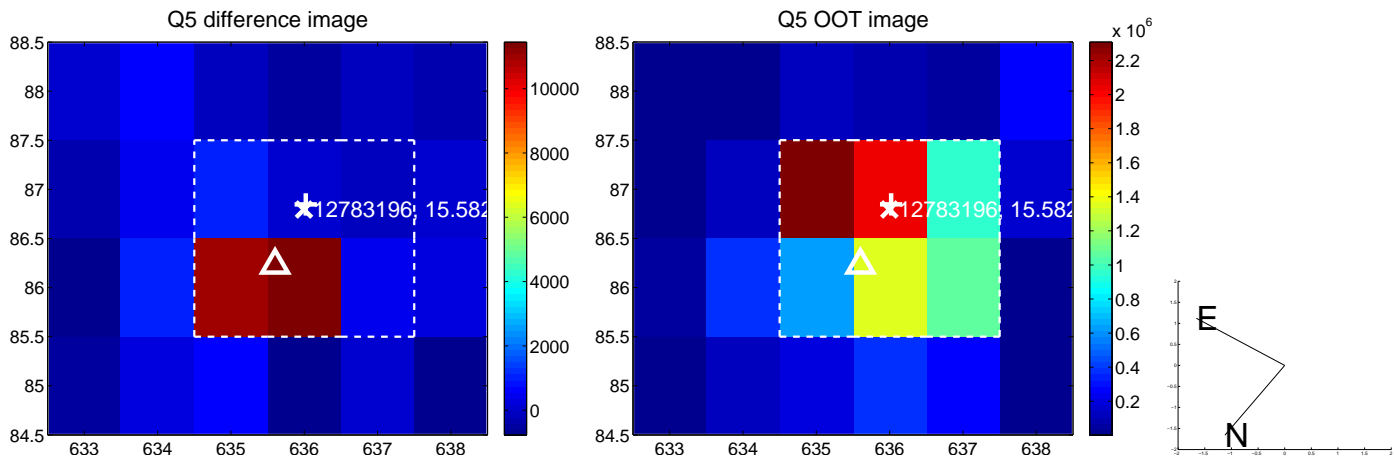


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



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

Q9 no difference image



Q9 no OOT image



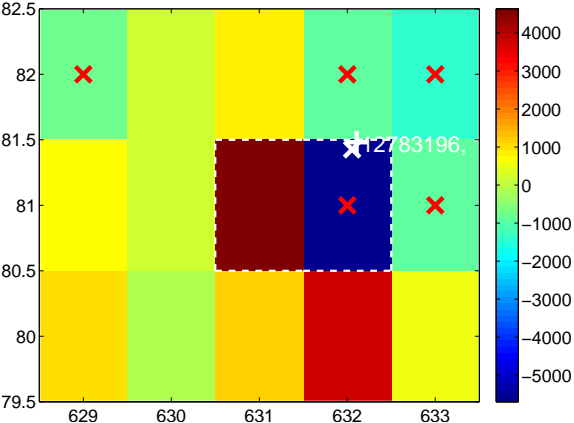
Q10 no difference image



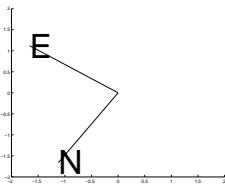
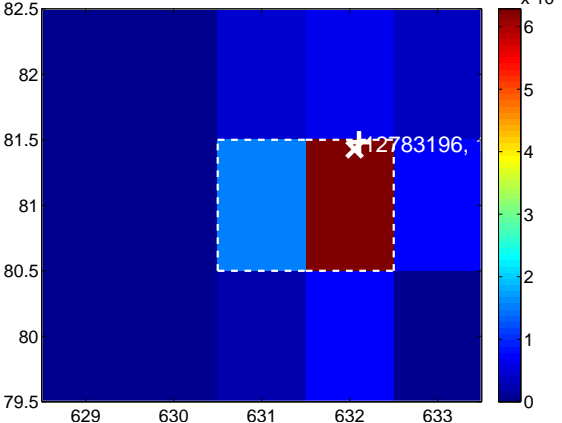
Q10 no OOT image



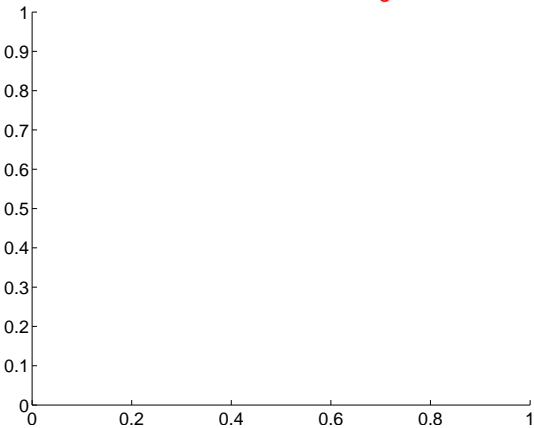
Q11 difference image. Poor Quality



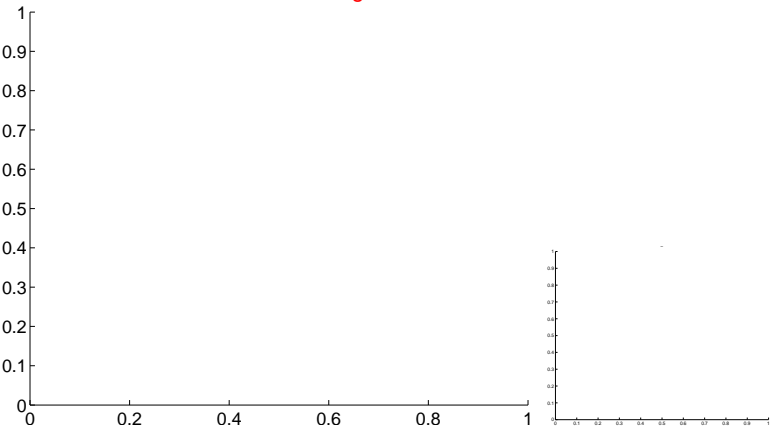
Q11 OOT image



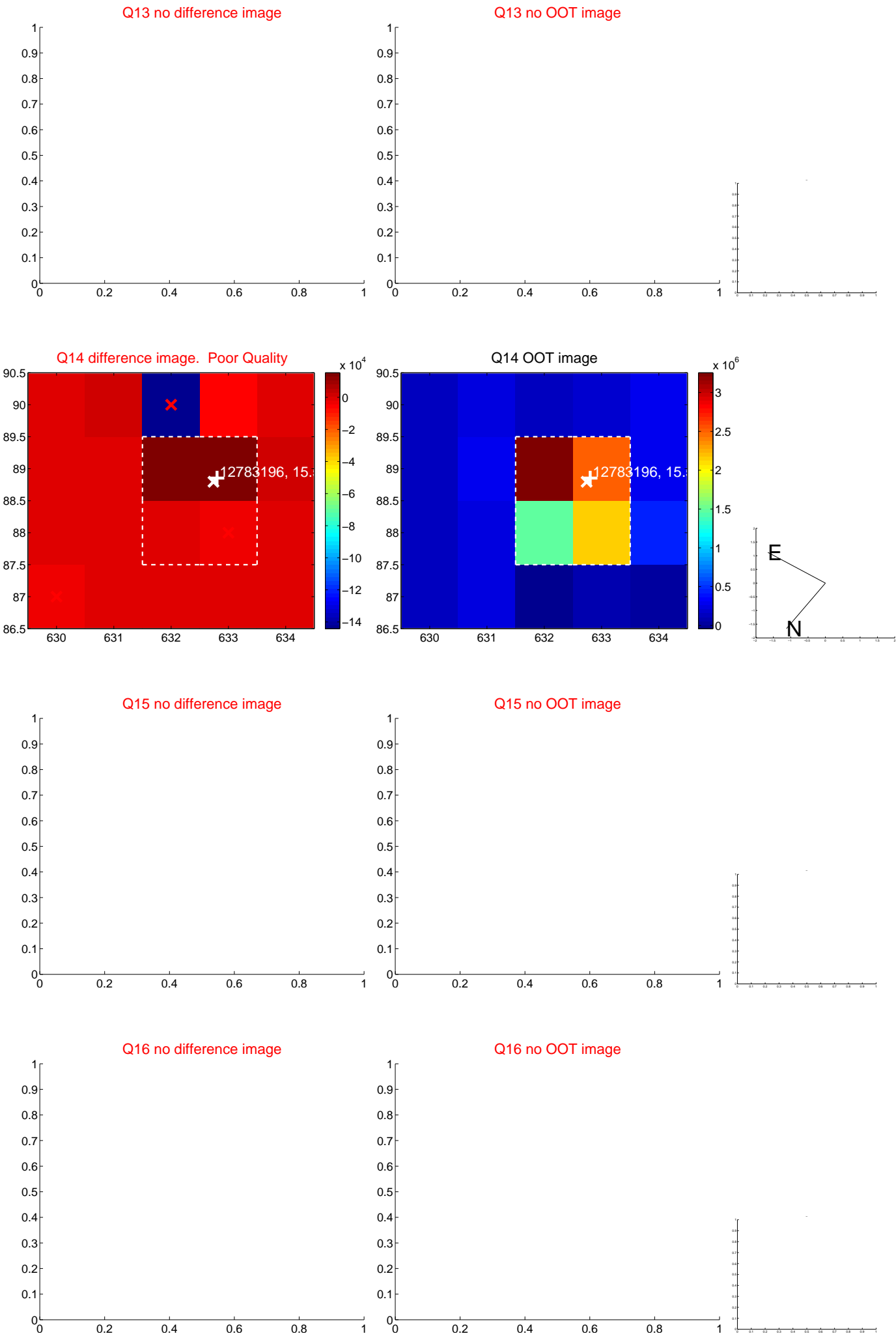
Q12 no difference image



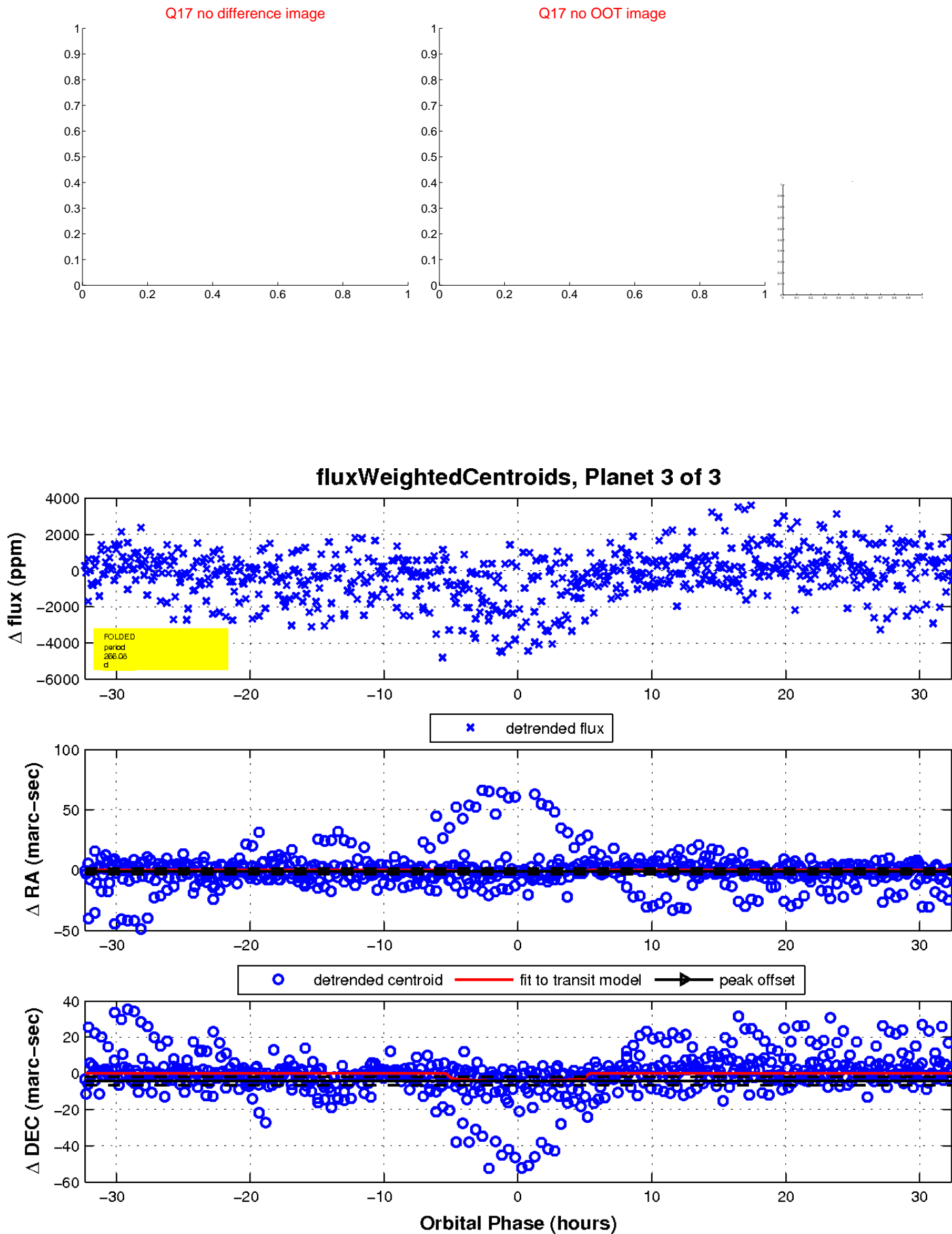
Q12 no OOT image



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

