

KIC 005956106

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})
005956106-01	OBS	No	417.149201	309.954984	402.0	21.620	9.1	9.0	0.93	6060	2.12	0.86
005956106-02	OBS	No	354.737071	327.365593	345.0	16.398	7.1	6.5	0.93	6060	1.83	1.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005956106-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005956106-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

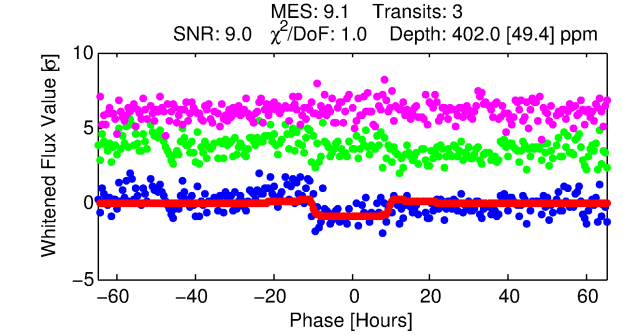
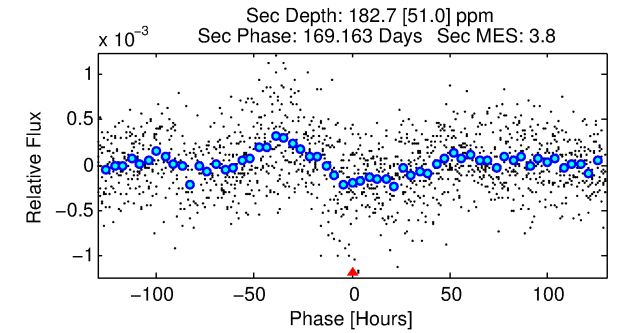
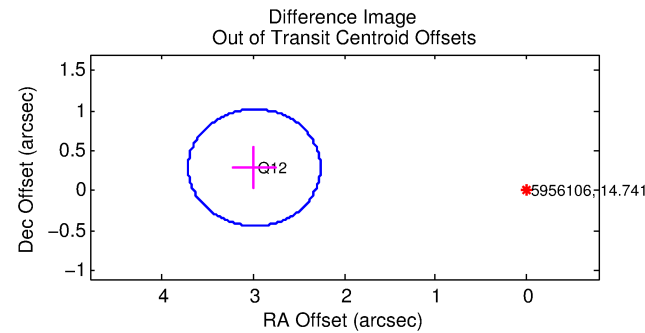
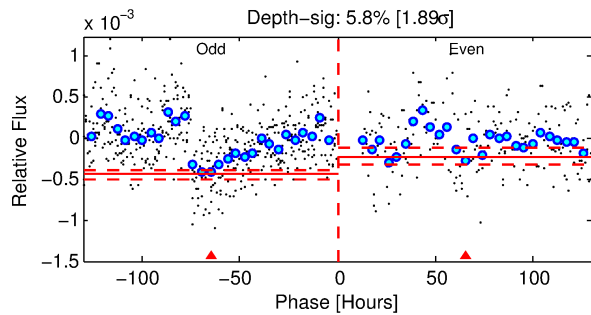
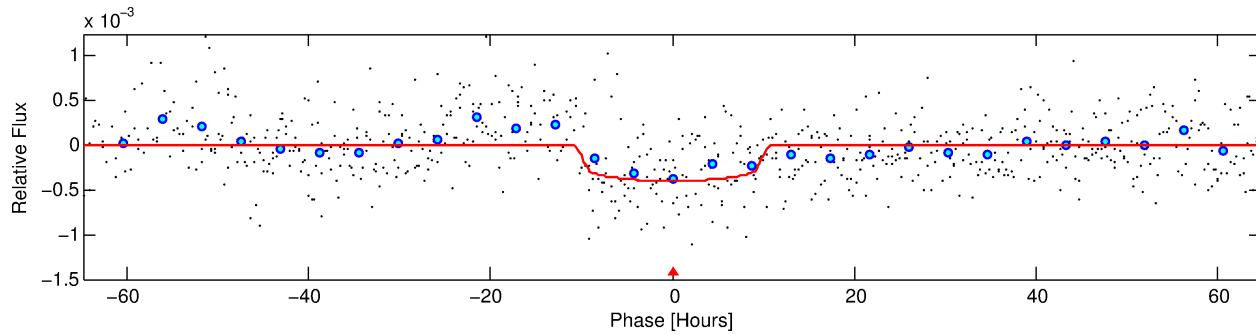
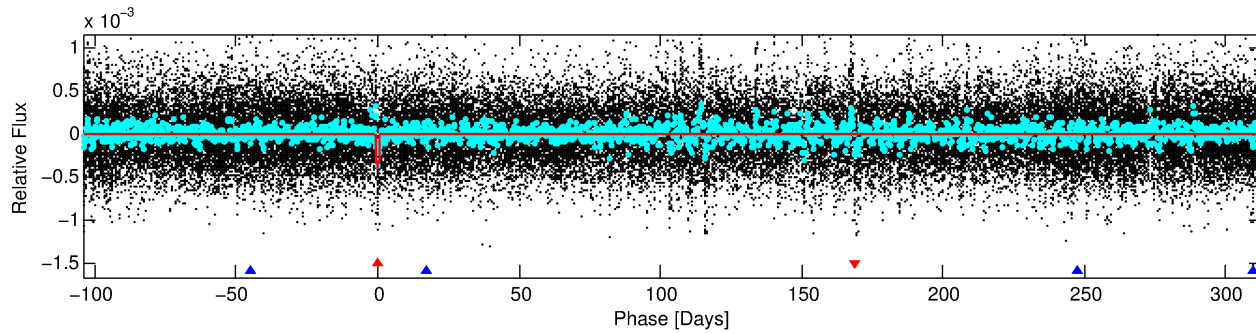
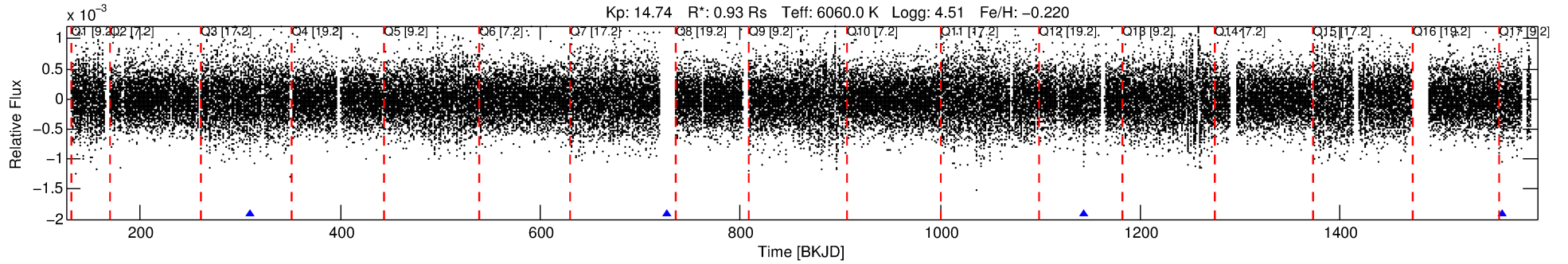
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005956106-01

No Significant Match Found

DV One-Page Summary

KIC: 5956106 Candidate: 1 of 2 Period: 417.149 d



DV Fit Results:

Period = 417.14920 [0.01514] d
Epoch = 309.9550 [0.0324] BKJD
Rp/R* = 0.0210 [0.0029]
a/R* = 80.05 [49.00]
b = 0.86 [0.18]
Seff = 0.86 [0.38]
Teq = 246 [27] K
Rp = 2.12 [0.77] Re
a = 1.0956 [0.3120] AU
Ag = 26730.39 [15326.27] [1.74σ]
Teffp = 4856 [503] K [9.16σ]

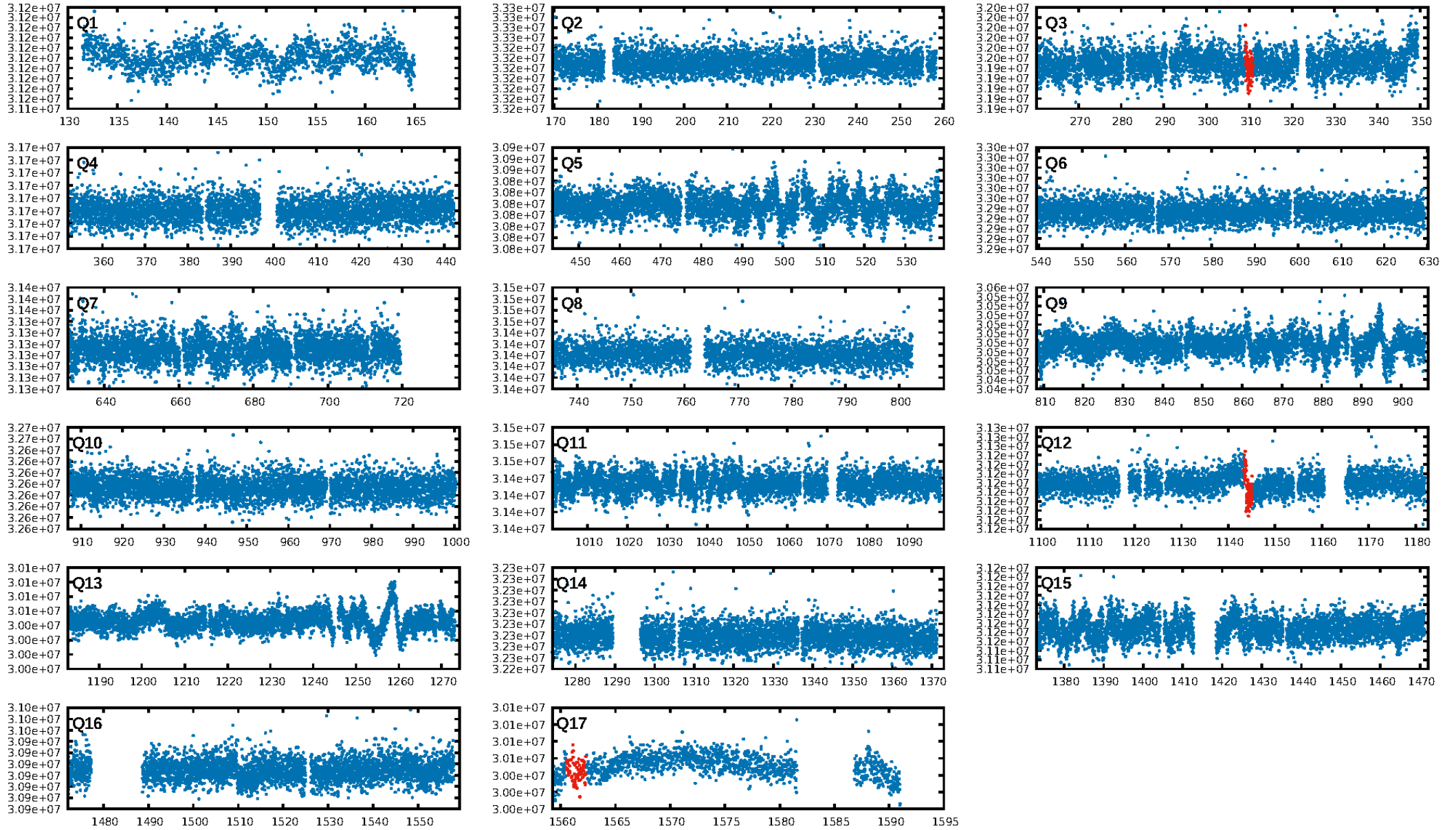
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [55.20σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 12.0%
ModelChiSquareGof-sig: 98.7%
Bootstrap-pfa: 9.89e-13
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 2.759
Centroid-sig: 10.3%
Centroid-so: 1.610 arcsec [1.21σ]
OotOffset-rm: 3.003 arcsec [12.38σ]
KicOffset-rm: 2.916 arcsec [12.02σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

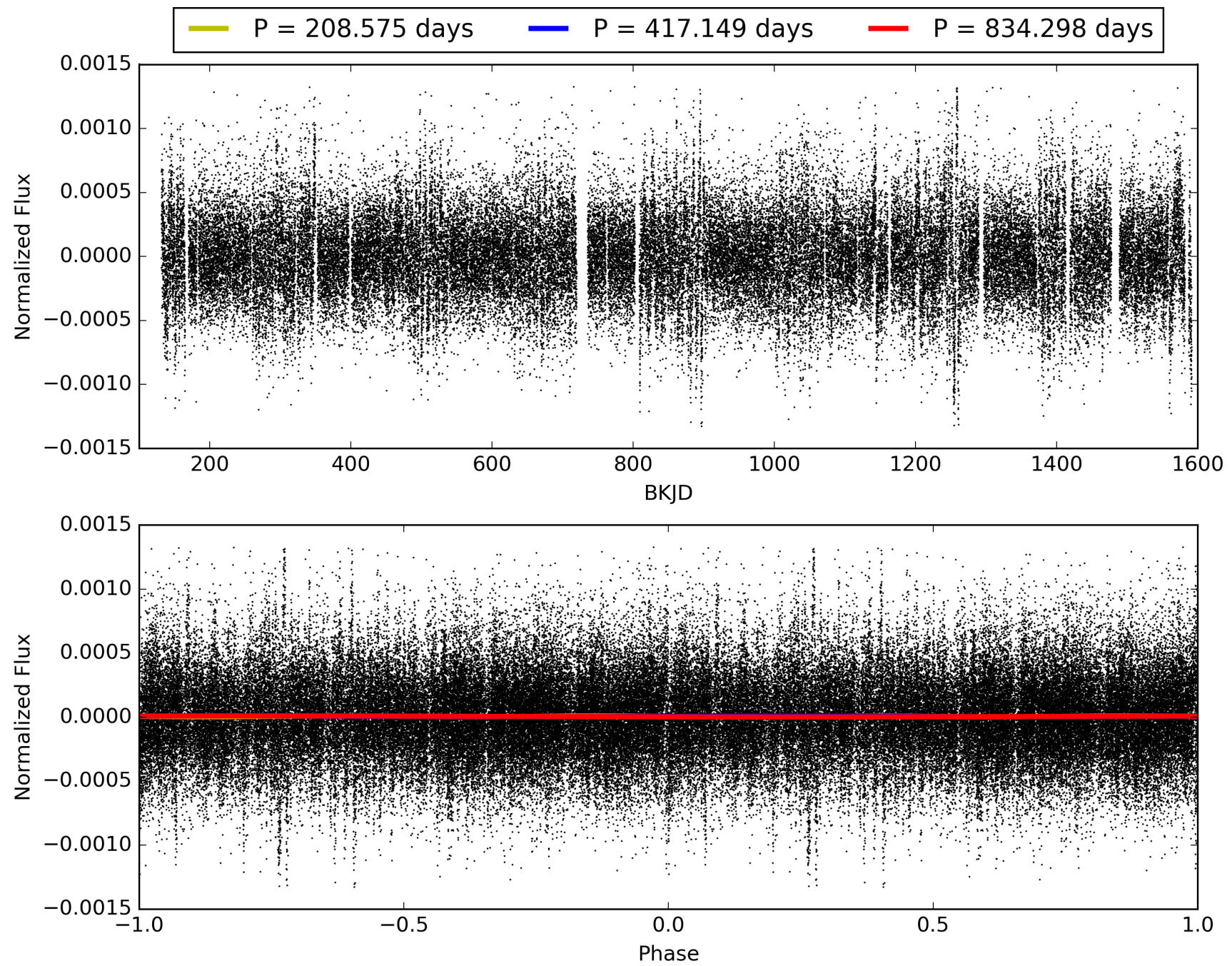
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:41:59 Z

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

TCE 005956106-01, PDC Light Curves

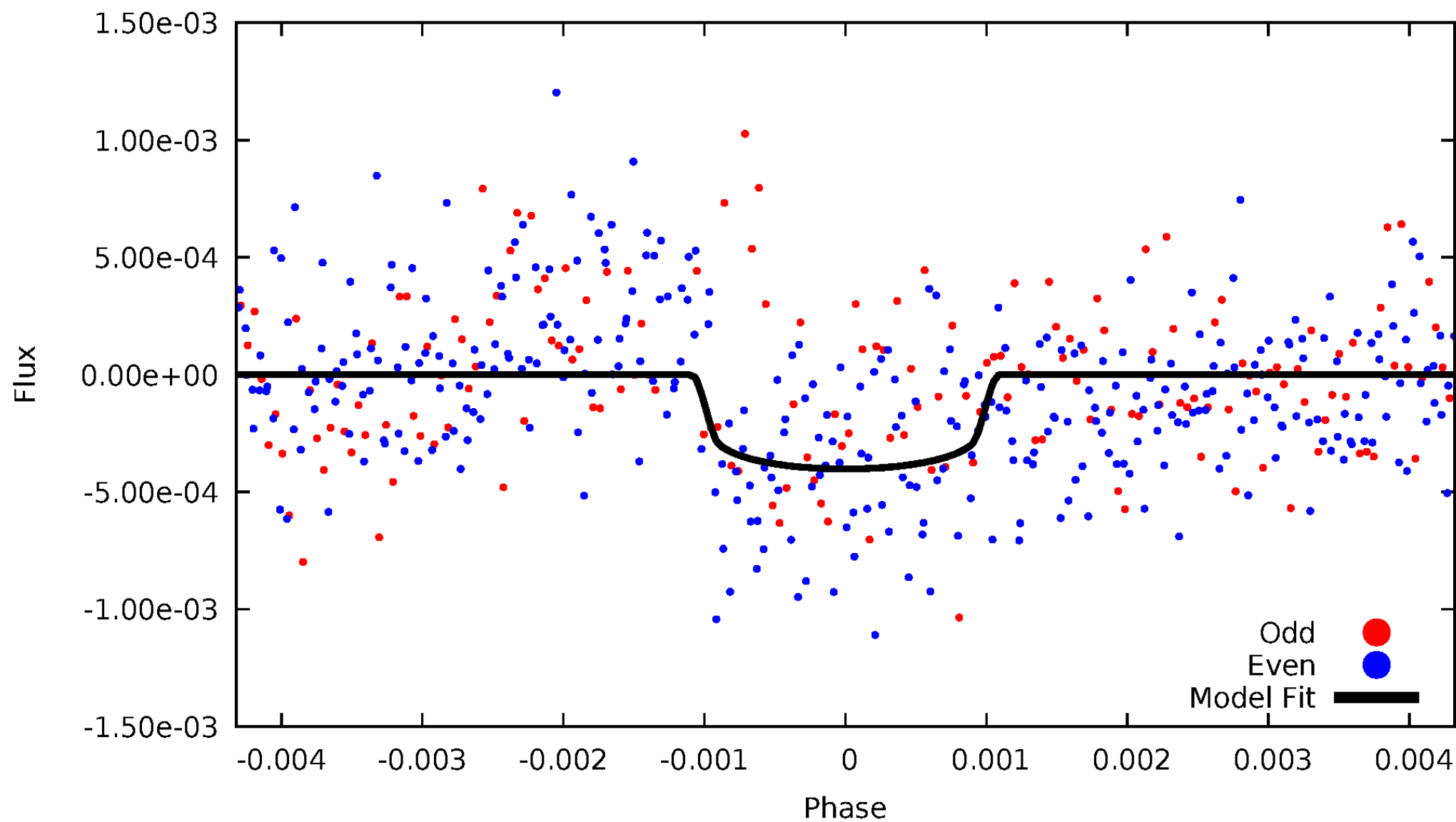


TCE 005956106-01



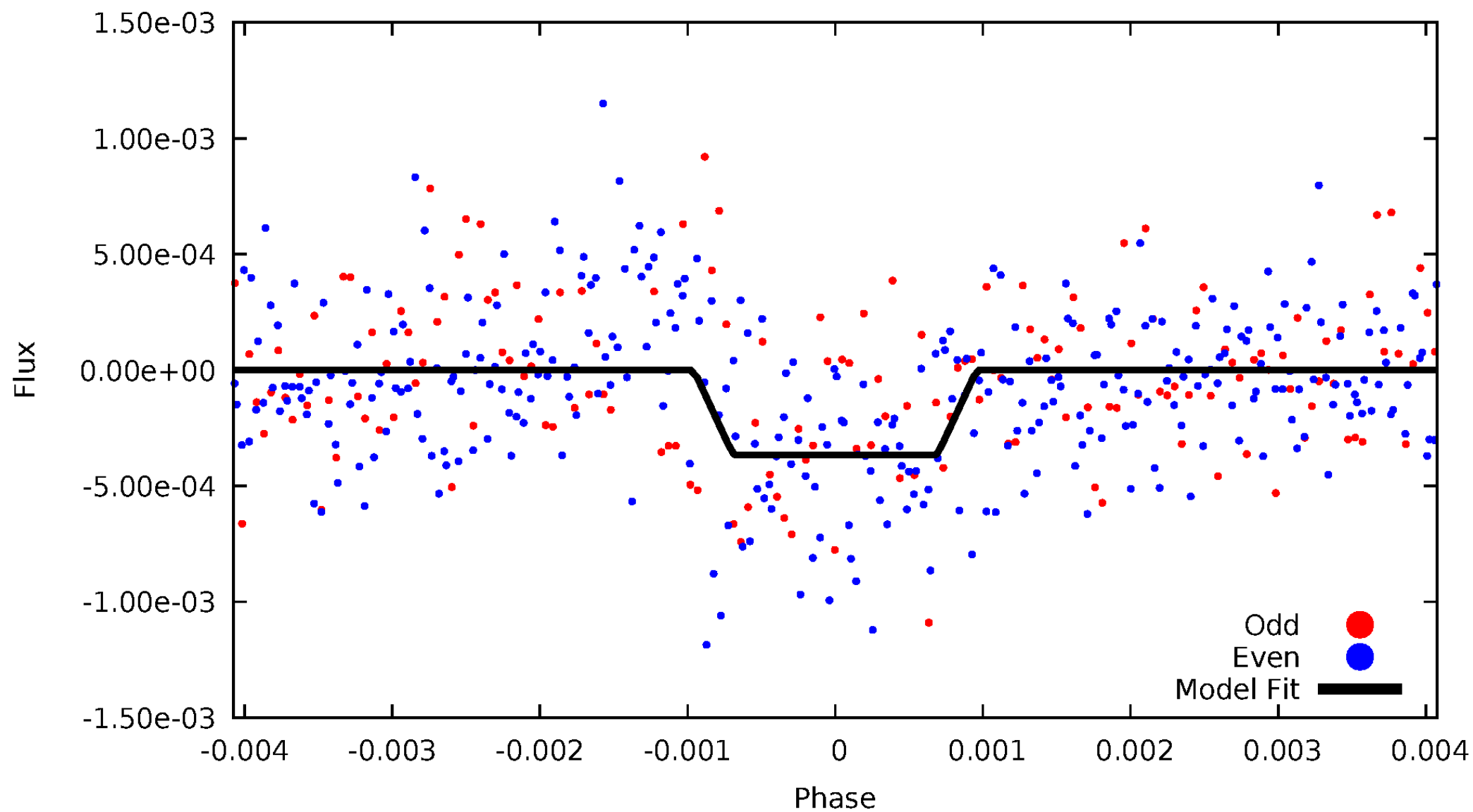
DV Odd/Even

TCE 005956106-01



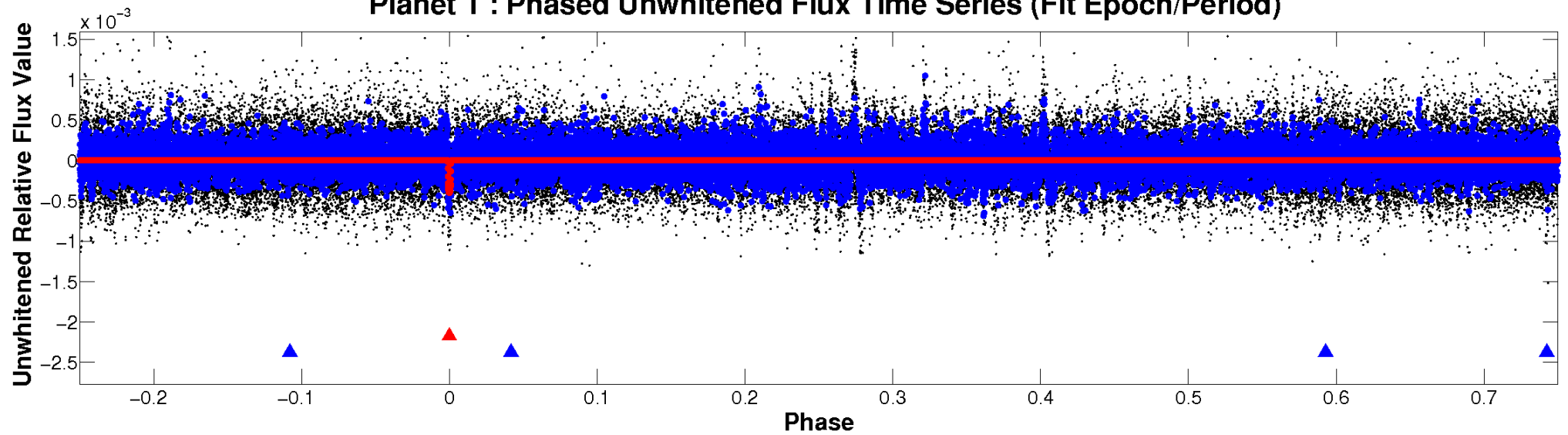
ALT Odd/Even

TCE 005956106-01

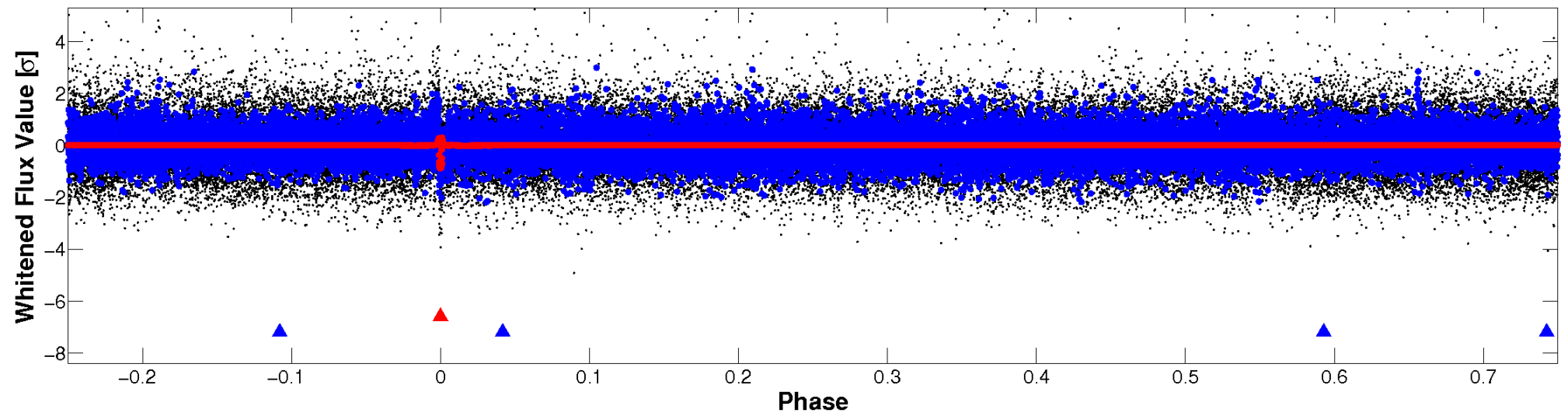


Non-Whitened Vs. Whitened Light Curve

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



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



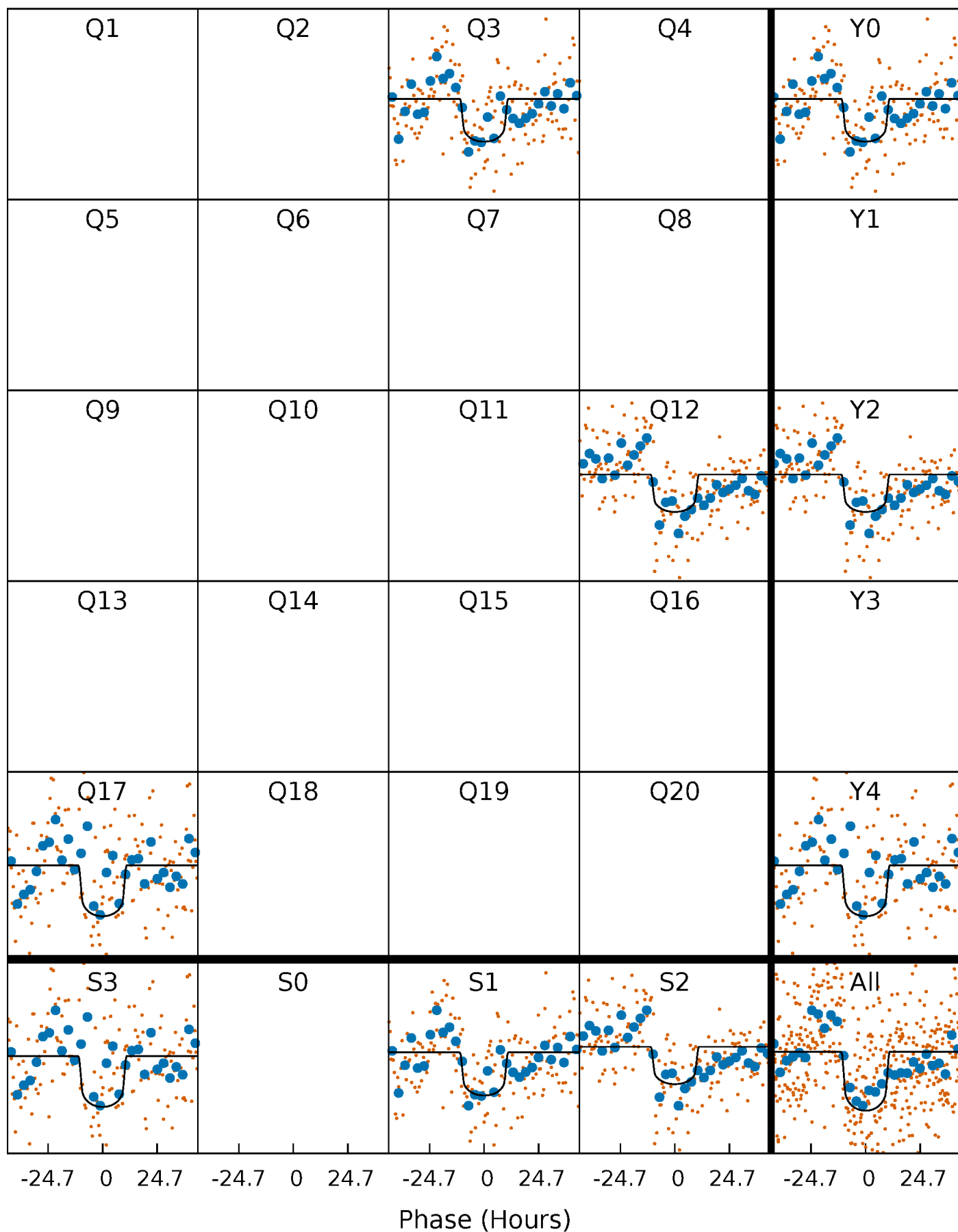
PDC Quarter-Phased Transit Curves

TCE 005956106-01 P=417.149201 Days $T_0=309.954984$ (BKJD)



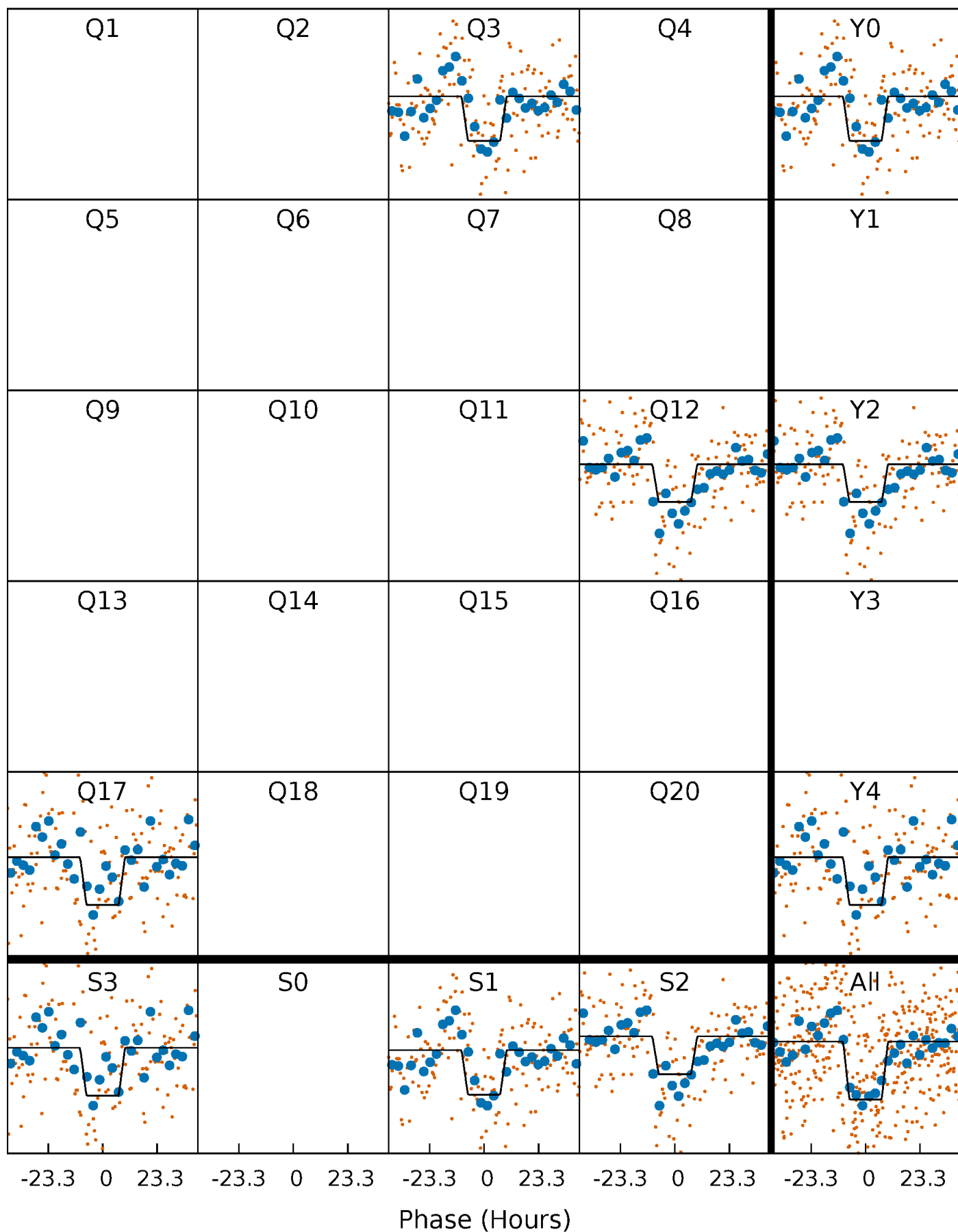
DV Quarter-Phased Transit Curves

TCE 005956106-01 P=417.149201 Days $T_0=309.954984$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

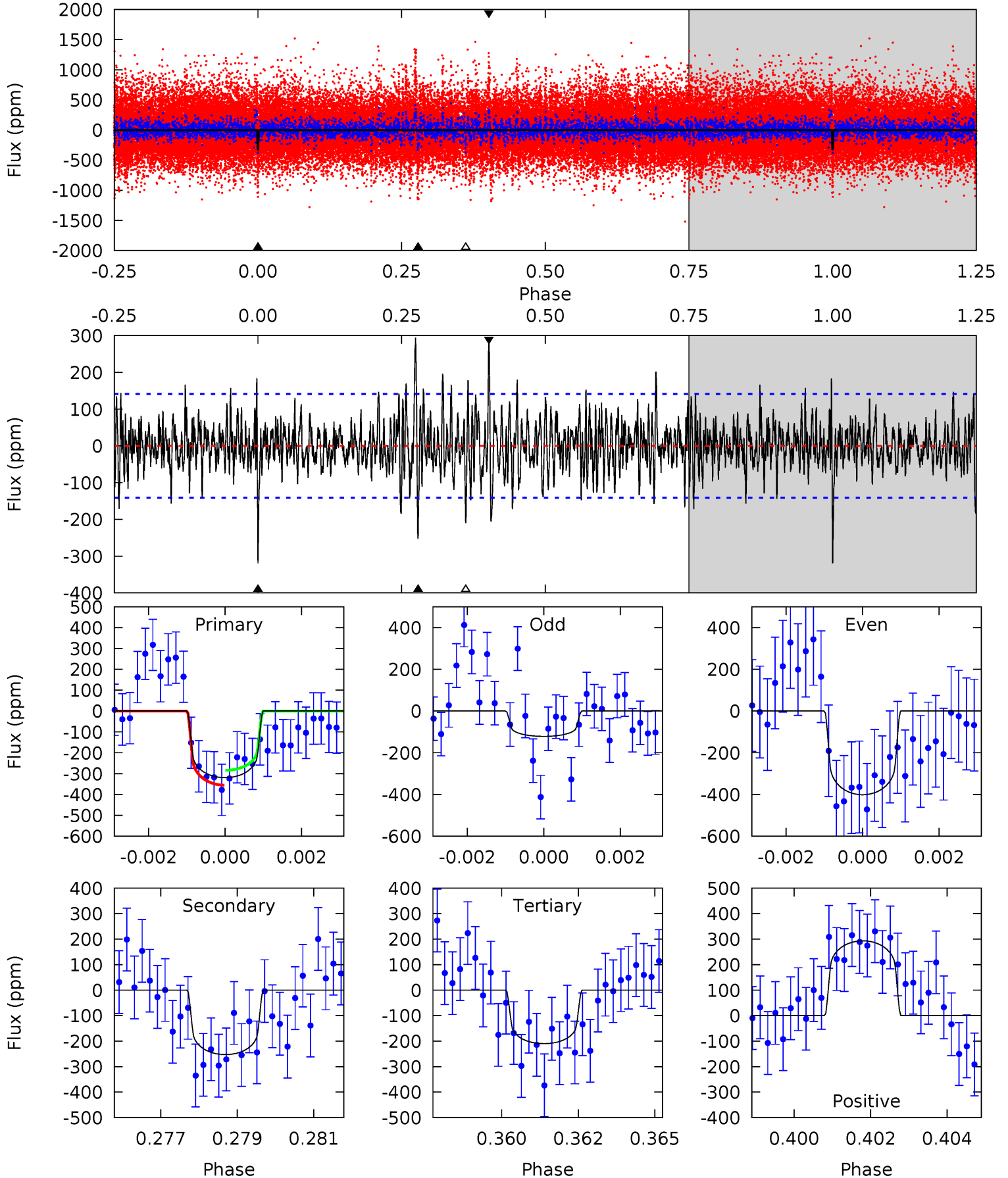
TCE 005956106-01 P=417.239673 Days $T_0=309.755871$ (BKJD)



DV Model-Shift Uniqueness Test

005956106-01, P = 417.149201 Days, E = 309.954984 Days

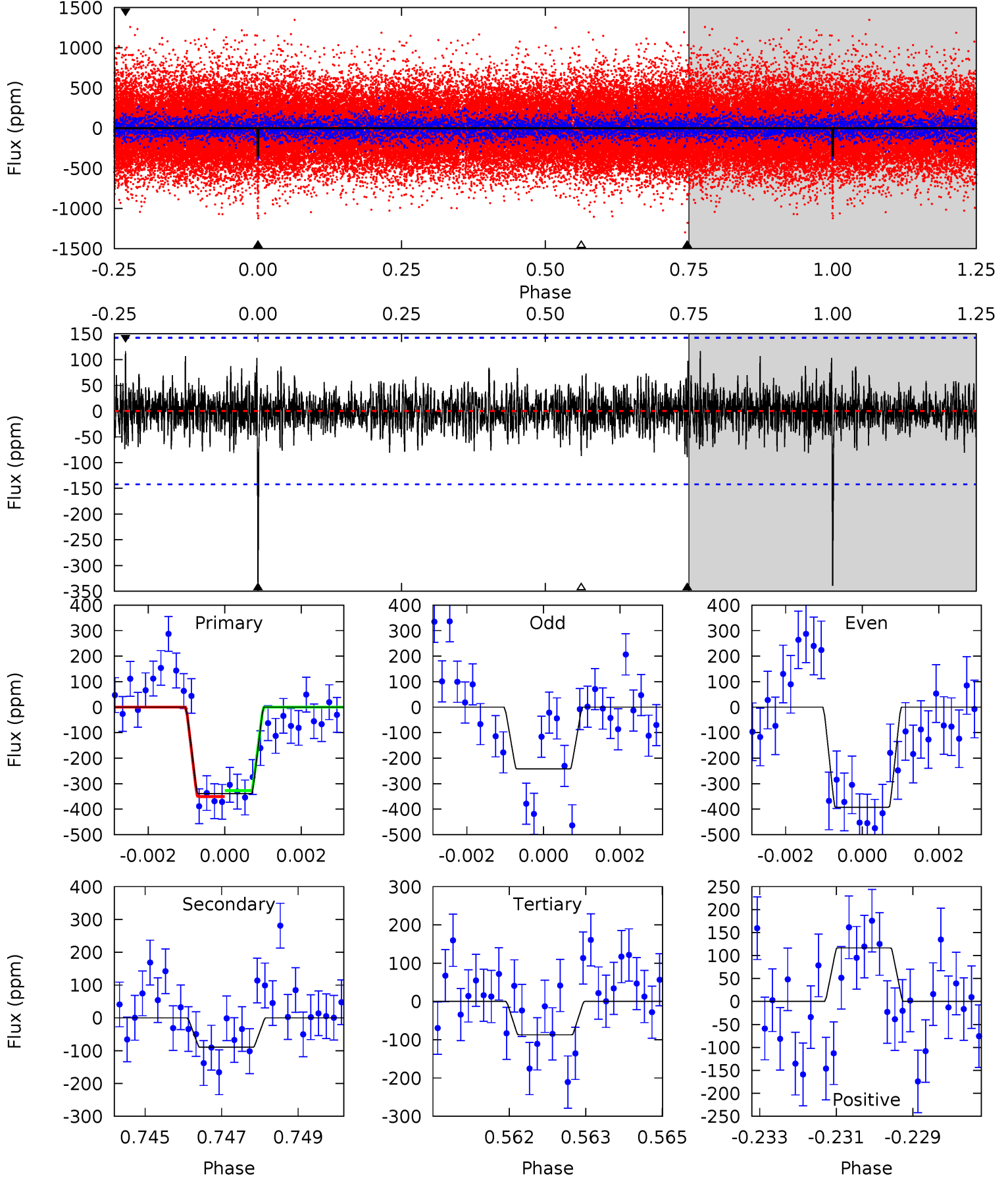
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	9.50	7.89	11.0	5.31	3.06	2.26	4.11	0.98	1.61	-1.52	5.00	0.92	0.48	1.34



Alt Model-Shift Uniqueness Test

005956106-01, P = 417.239673 Days, E = 309.755871 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	3.35	3.27	4.38	5.34	3.10	1.00	9.45	8.34	0.08	-1.02	2.66	1.27	0.26	0.44



Stellar Parameters For KIC 005956106

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6060^{+163}_{-199}	$4.509^{+0.041}_{-0.230}$	$-0.220^{+0.300}_{-0.300}$	$0.925^{+0.310}_{-0.097}$	$1.008^{+0.140}_{-0.126}$	$1.795^{+0.396}_{-0.989}$
	+3%/-3%	+1%/-5%	+136%/-136%	+34%/-10%	+14%/-12%	+22%/-55%
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 005956106-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-253 ± 27	$2.25^{+0.52}_{-0.37}$	353^{+28}_{-18}	5280^{+443}_{-336}	31647^{+14127}_{-10060}
Alt.	-89 ± 27	$2.05^{+0.46}_{-0.34}$	354^{+28}_{-18}	4459^{+399}_{-382}	13296^{+8142}_{-5226}

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 $A_{obs} \gg 1.0$

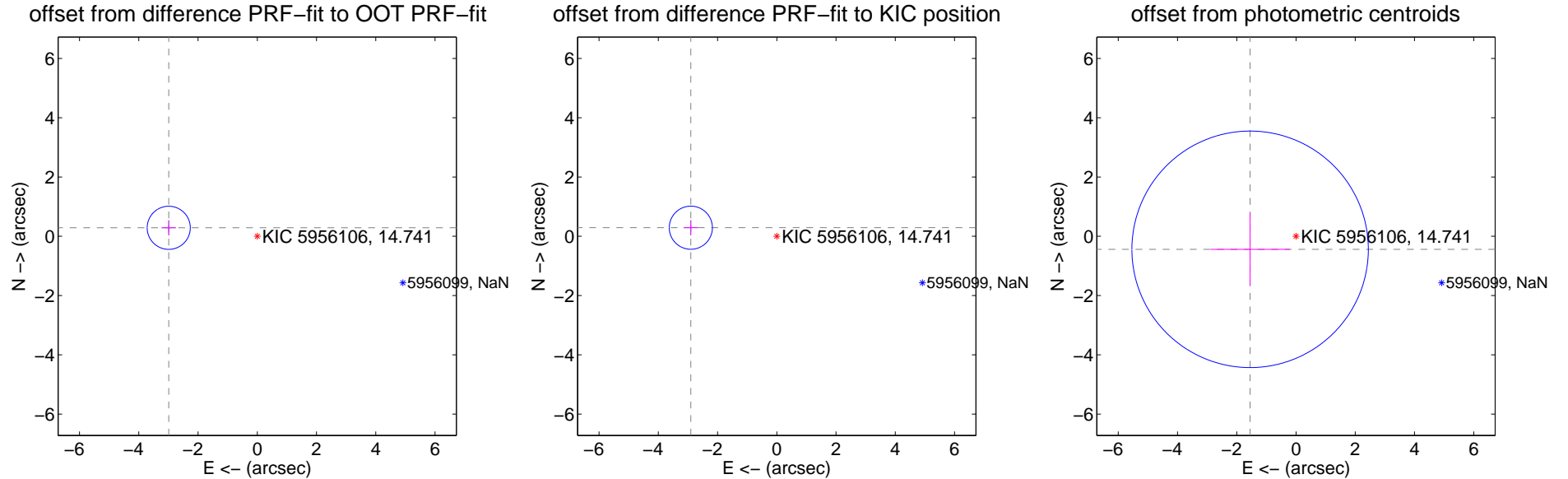
DV Centroid Data

Supplemental centroid analysis for 005956106-01. Kepler magnitude: 14.74. Transit SNR 9.00

There are 1 quarters with good PRF difference image offsets

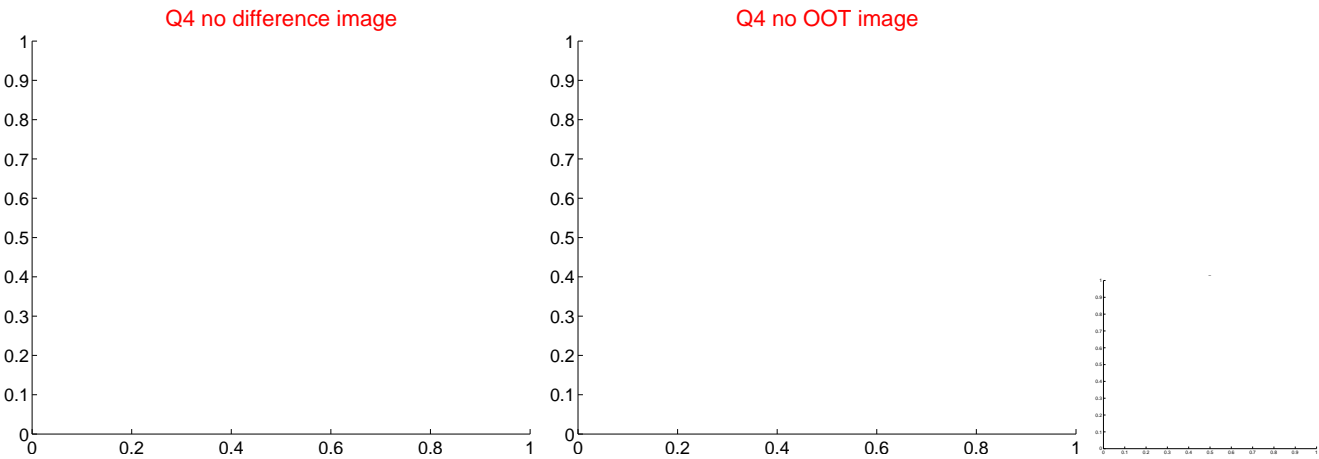
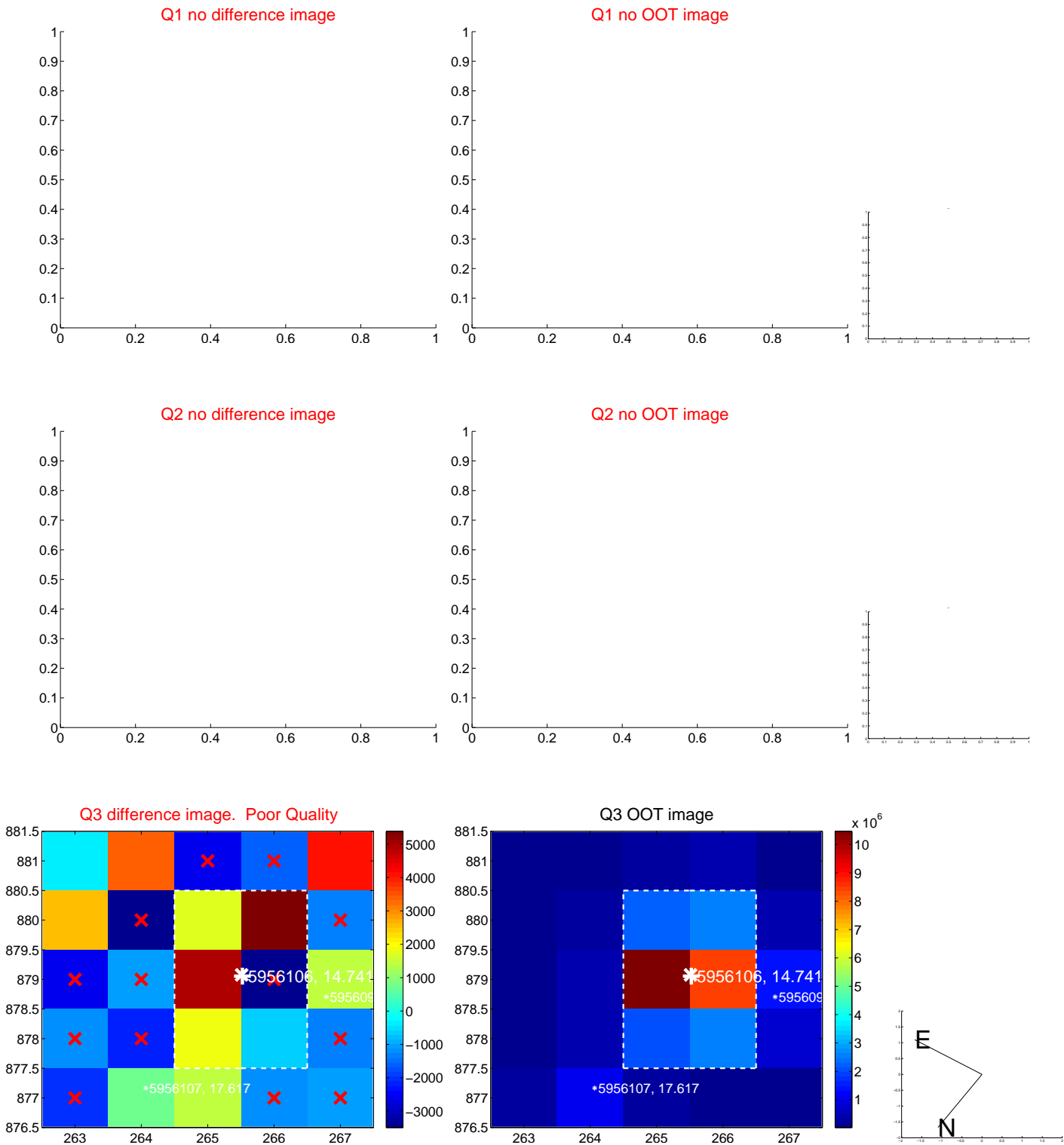
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.003 ± 0.243	12.38	2.989 ± 0.242	0.287 ± 0.256
PRF-fit source offset from KIC position	2.916 ± 0.243	12.02	2.902 ± 0.242	0.290 ± 0.256
photometric centroid source offset	1.61 ± 1.33	1.21	1.55 ± 1.34	-0.44 ± 1.23



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.

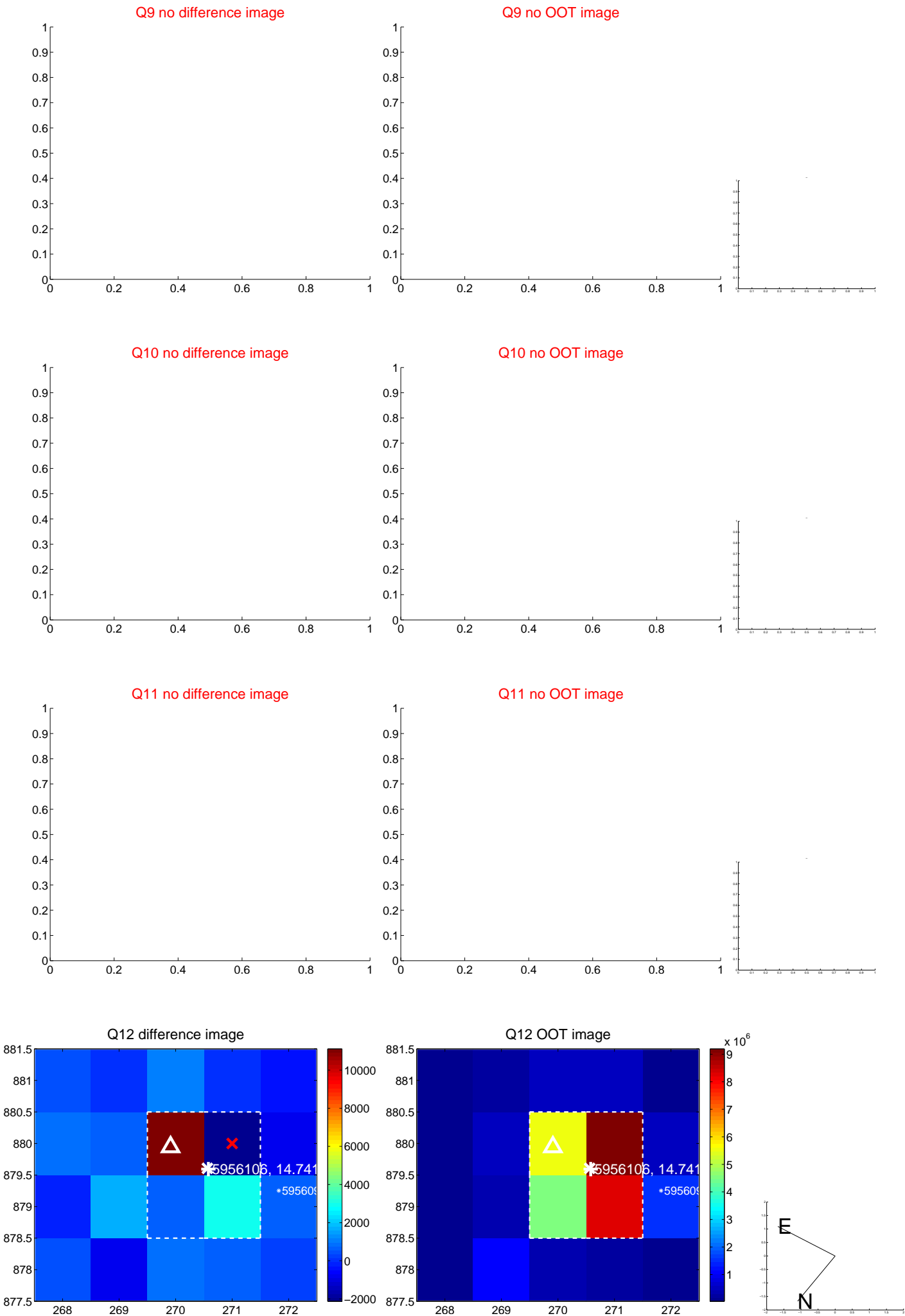
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



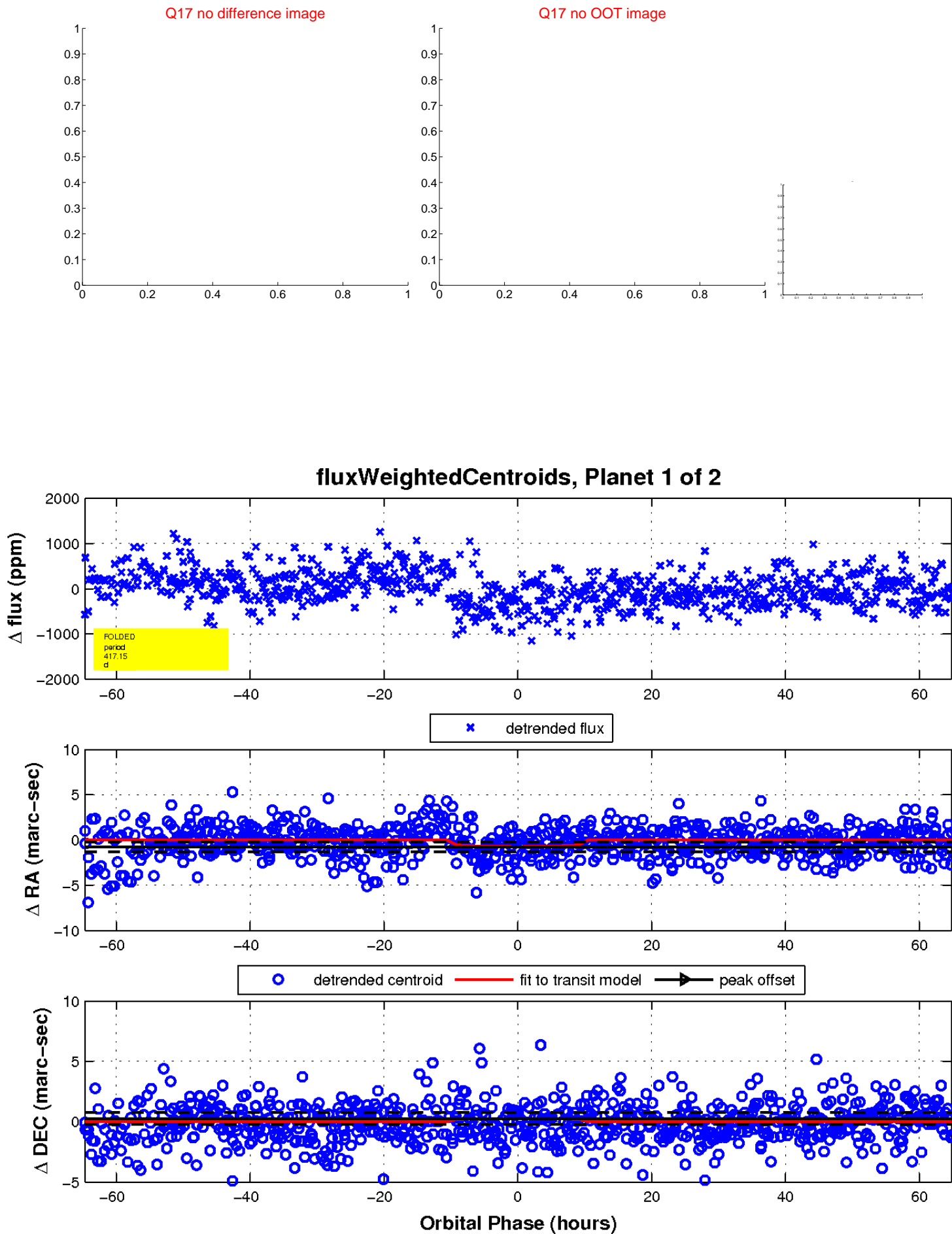
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

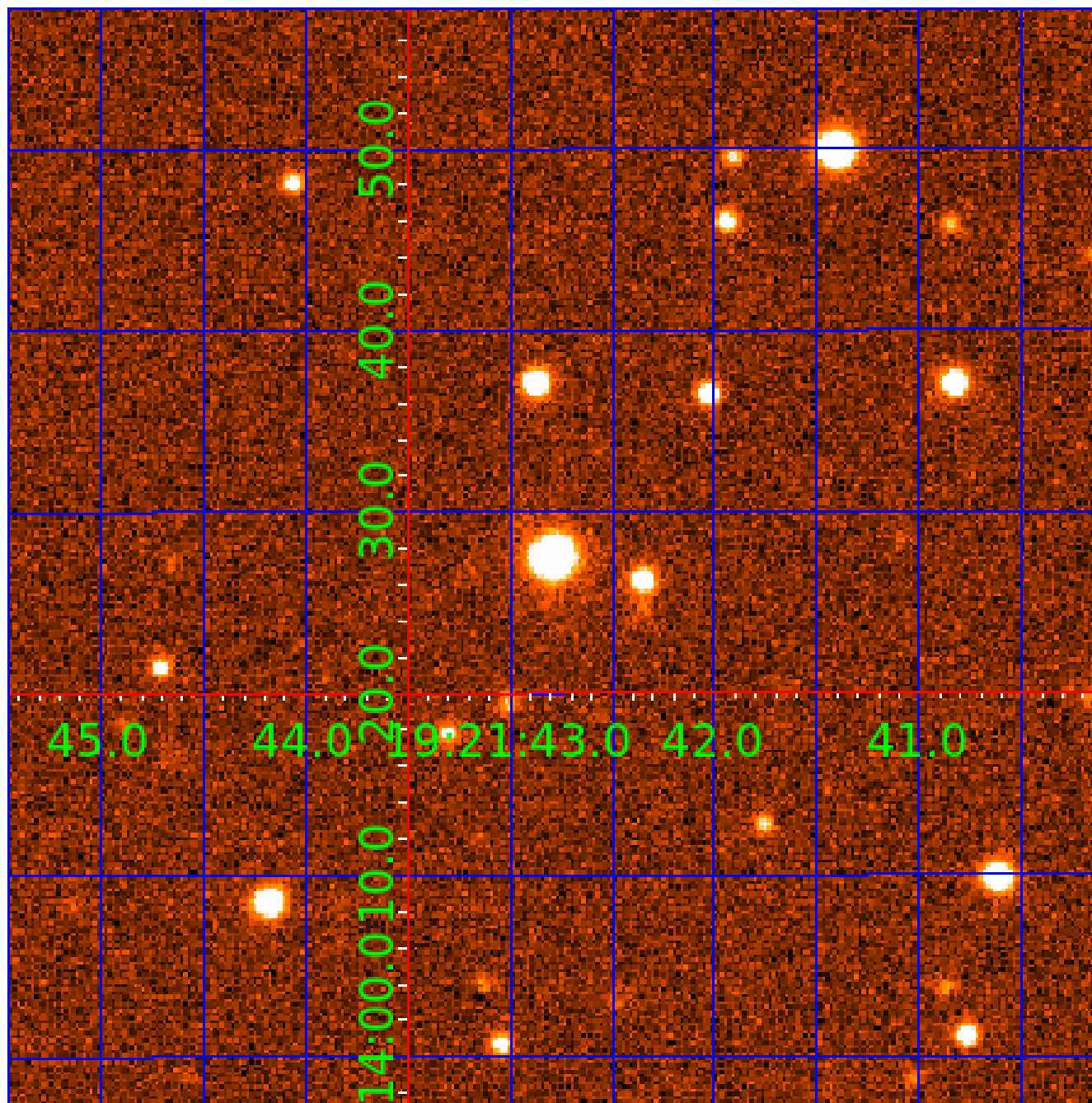


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005956106

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})
005956106-01	OBS	No	417.149201	309.954984	402.0	21.620	9.1	9.0	0.93	6060	2.12	0.86
005956106-02	OBS	No	354.737071	327.365593	345.0	16.398	7.1	6.5	0.93	6060	1.83	1.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005956106-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005956106-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

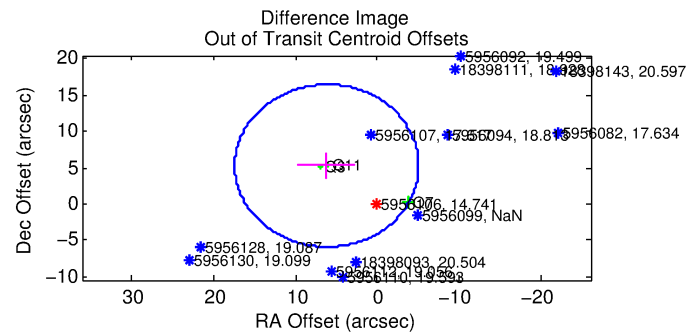
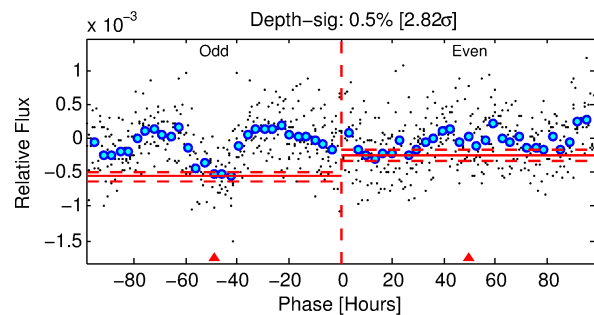
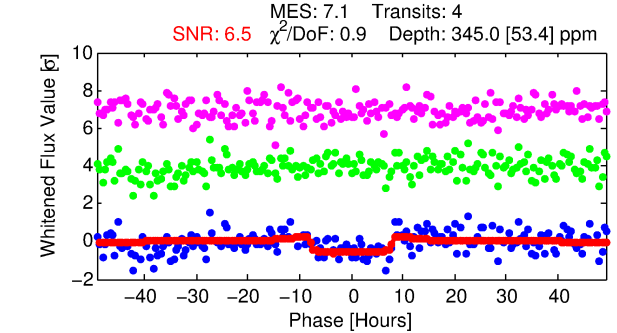
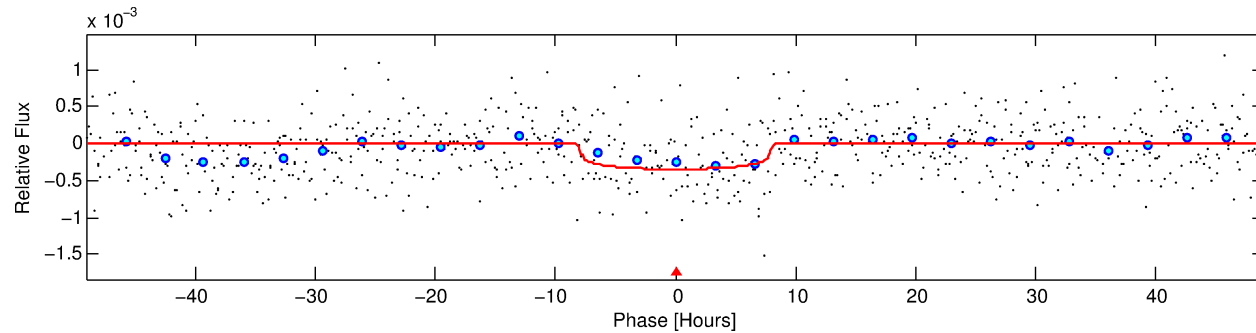
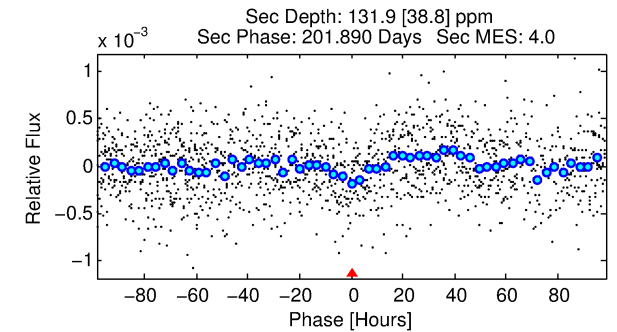
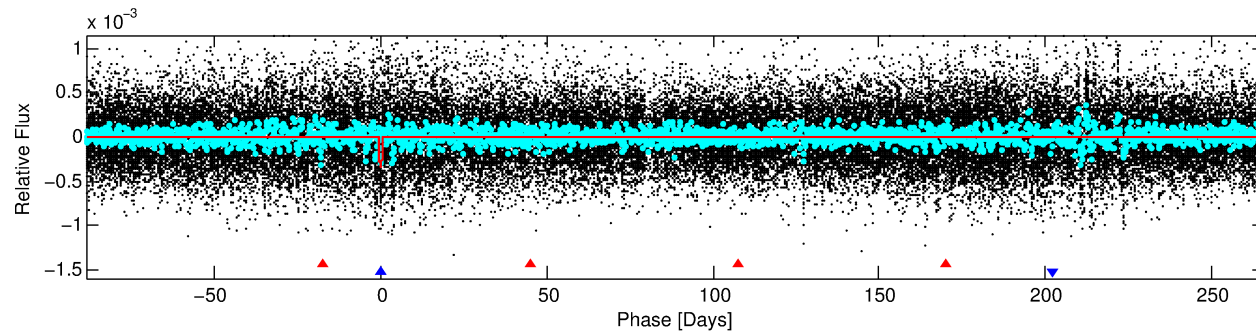
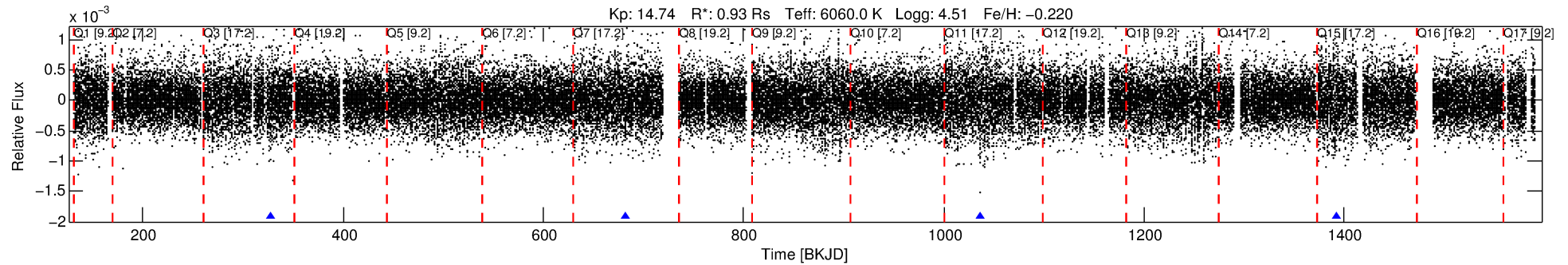
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005956106-02

No Significant Match Found

DV One-Page Summary

KIC: 5956106 Candidate: 2 of 2 Period: 354.737 d



DV Fit Results:

Period = 354.73707 [0.01171] d
Epoch = 327.3656 [0.0207] BKJD
Rp/R* = 0.0182 [0.0067]
a/R* = 122.38 [215.55]
b = 0.70 [1.30]
Seff = 1.07 [0.47]
Teq = 259 [28] K
Rp = 1.84 [0.91] Re
a = 0.9834 [0.2800] AU
Ag = 20833.86 [18616.04] [1.12 σ]
Teffp = 4816 [964] K [4.72 σ]

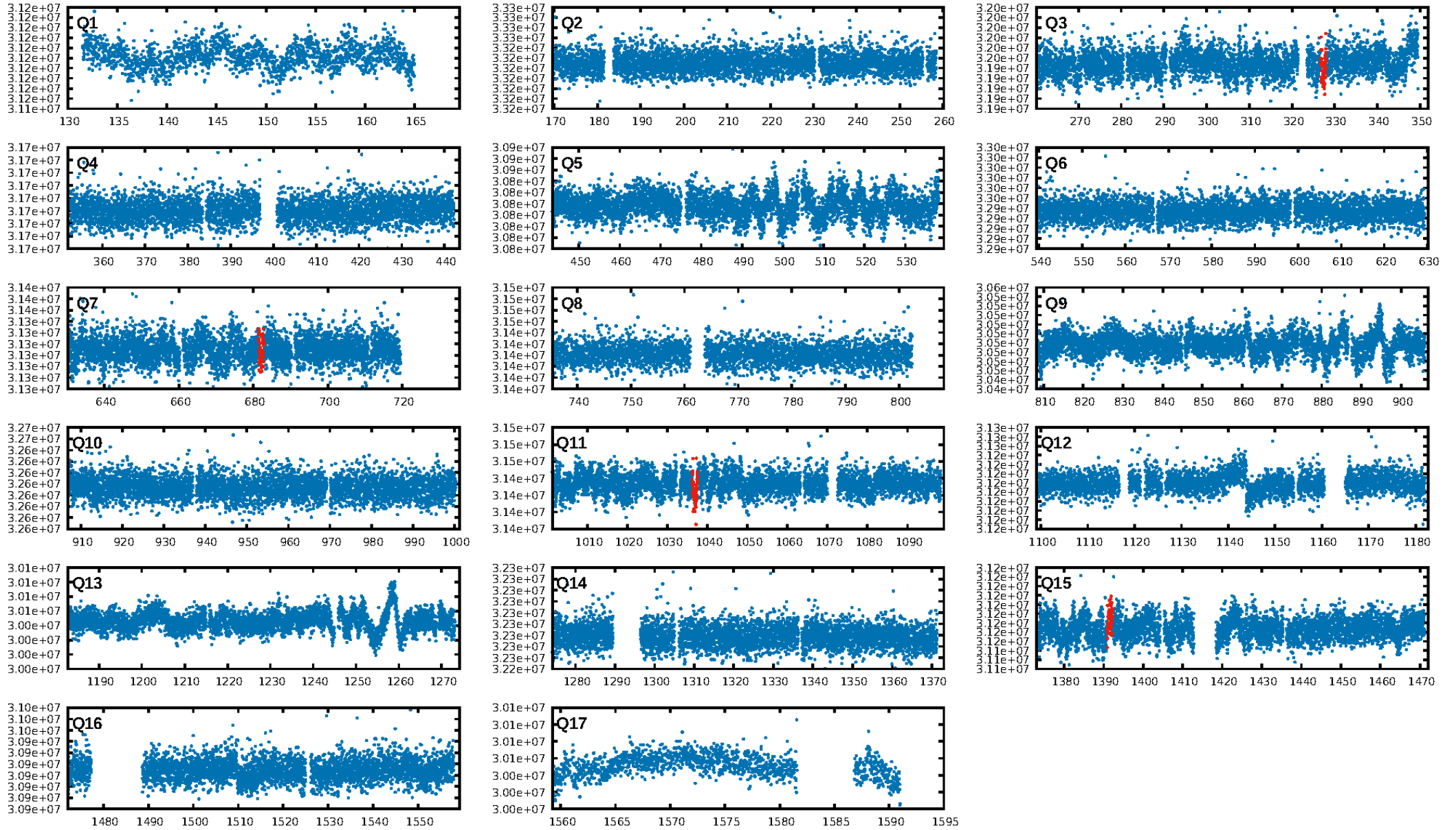
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [55.20 σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.29e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 4.009
Centroid-sig: 0.2%
Centroid-so: 5.148 arcsec [2.05 σ]
OotOffset-rm: 8.121 arcsec [2.17 σ]
KicOffset-rm: 8.113 arcsec [3.30 σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [4/4]

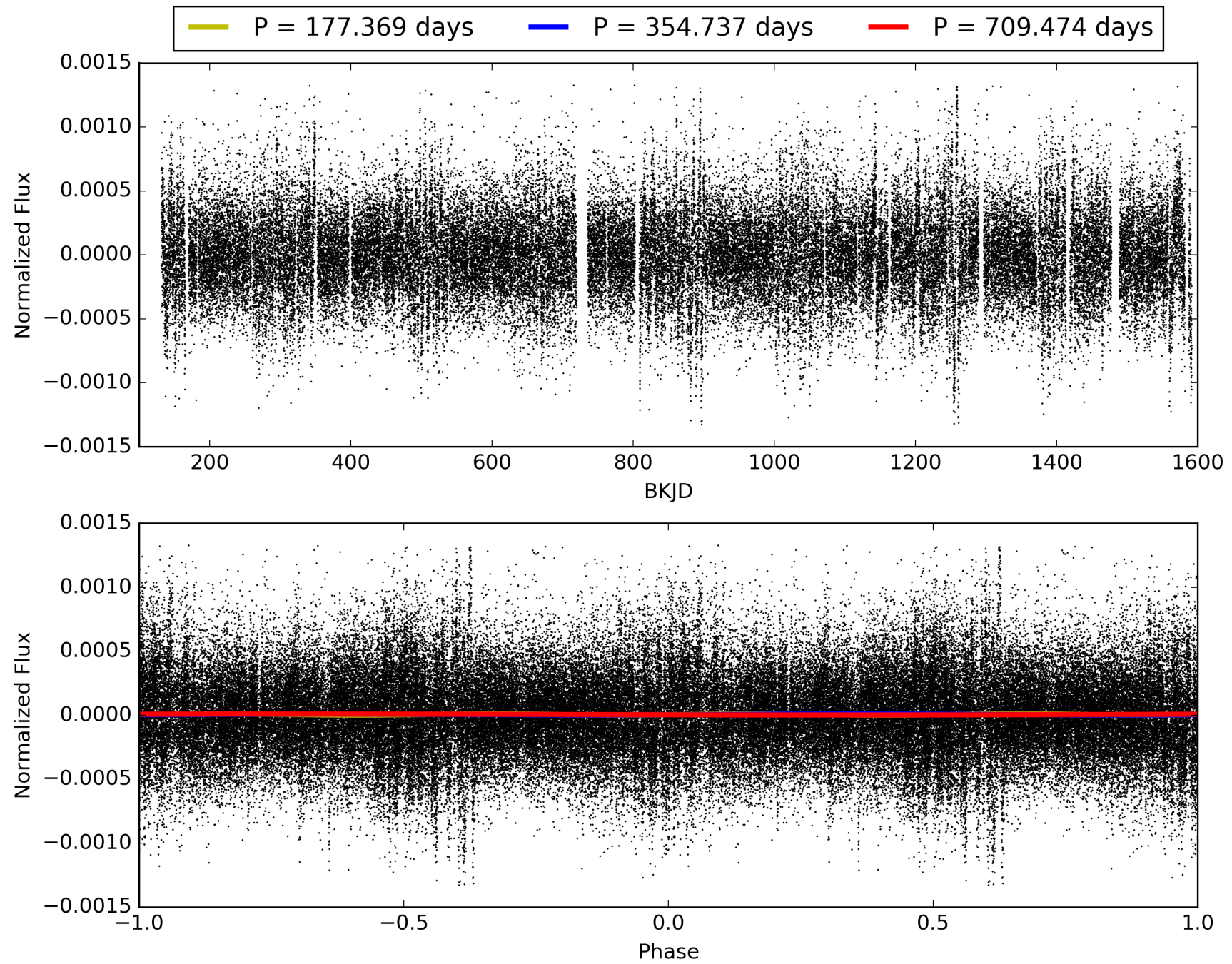
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:42:08 Z

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

TCE 005956106-02, PDC Light Curves

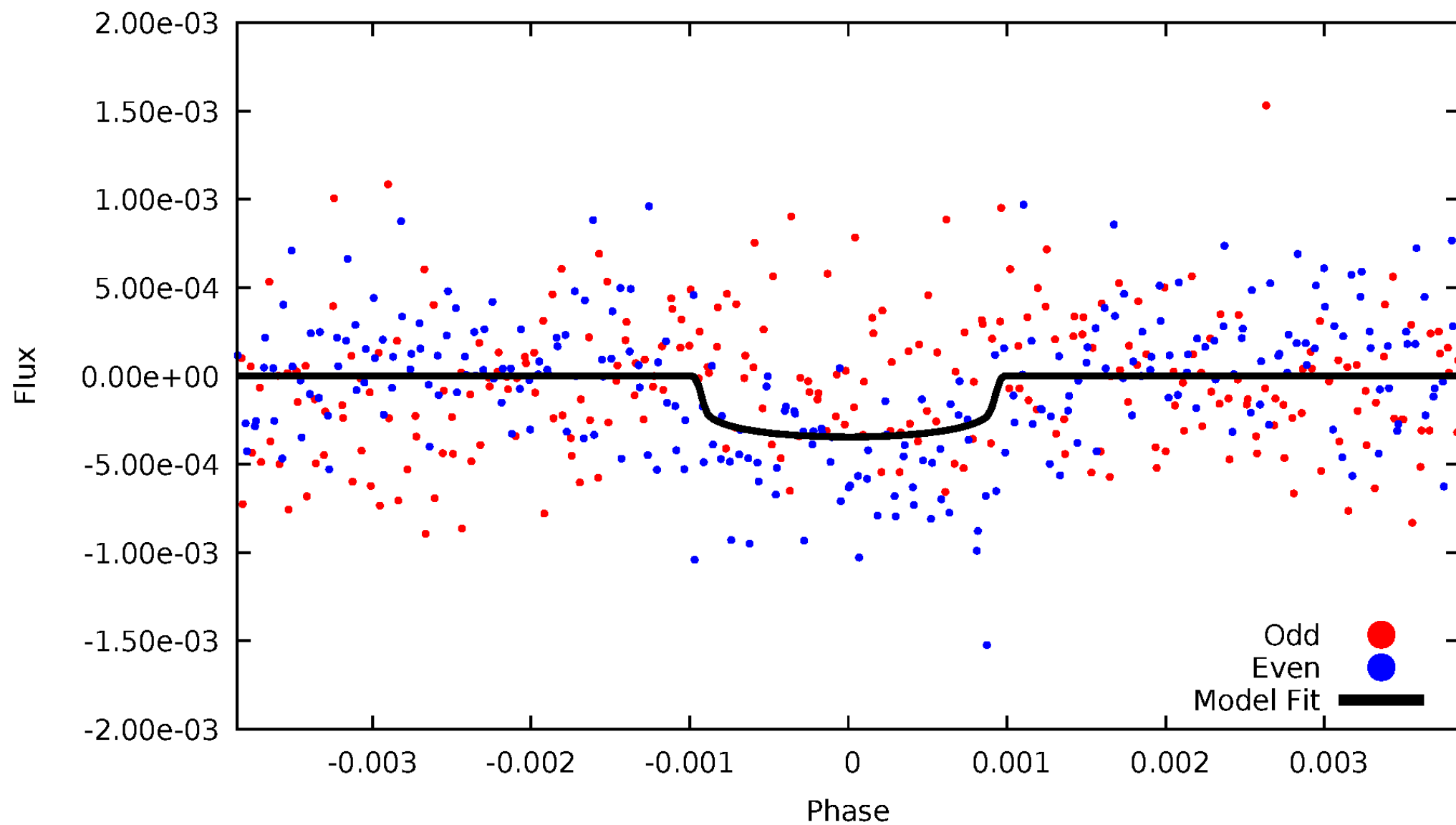


TCE 005956106-02



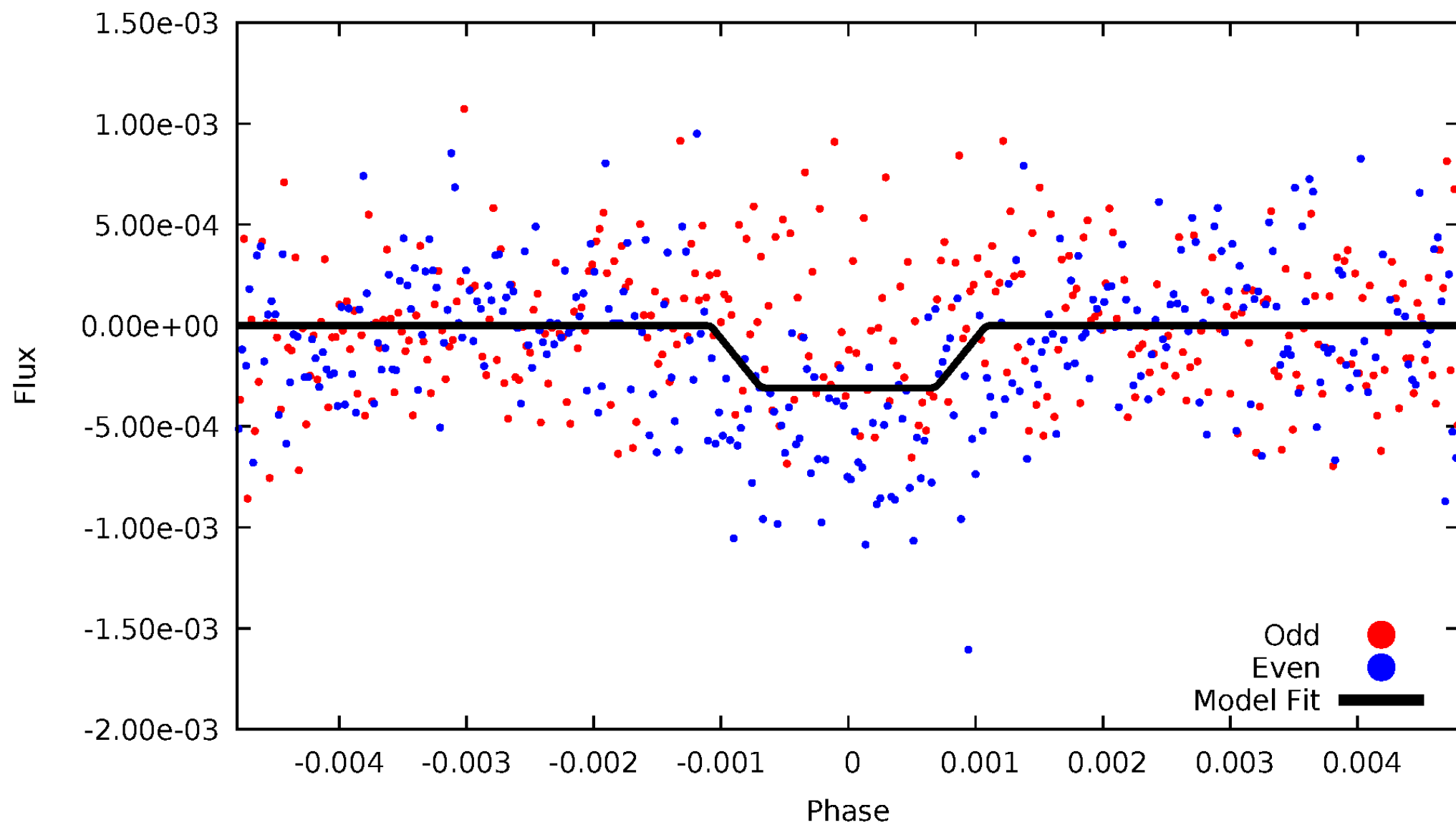
DV Odd/Even

TCE 005956106-02



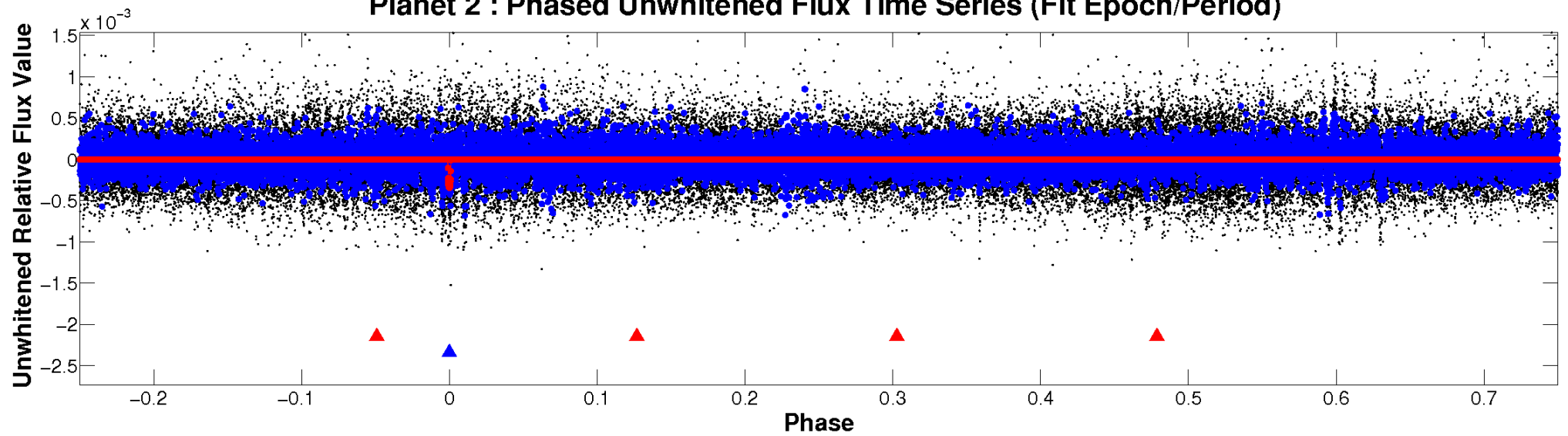
ALT Odd/Even

TCE 005956106-02

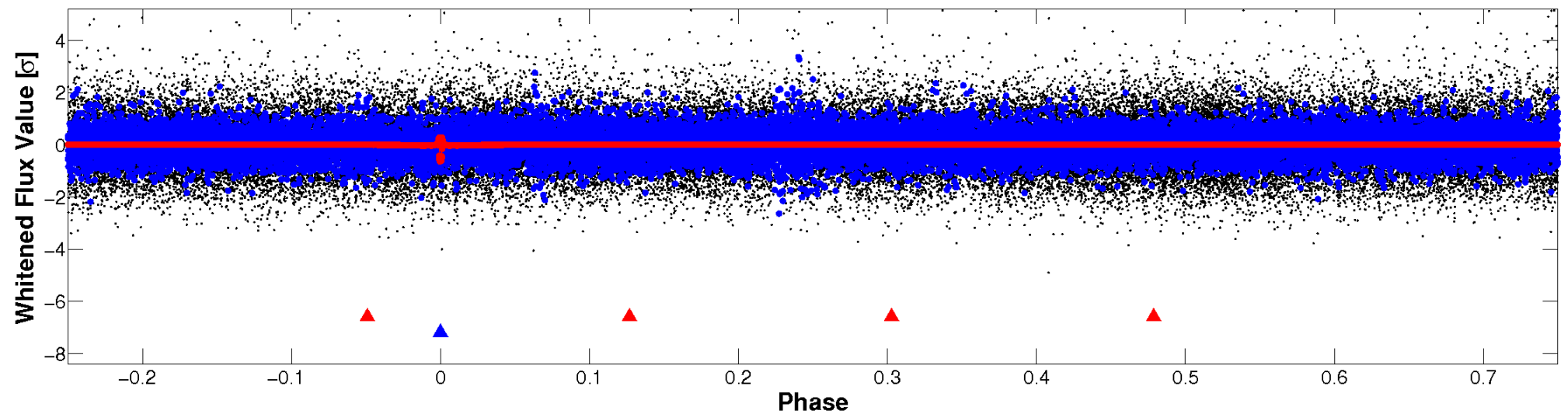


Non-Whitened Vs. Whitened Light Curve

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

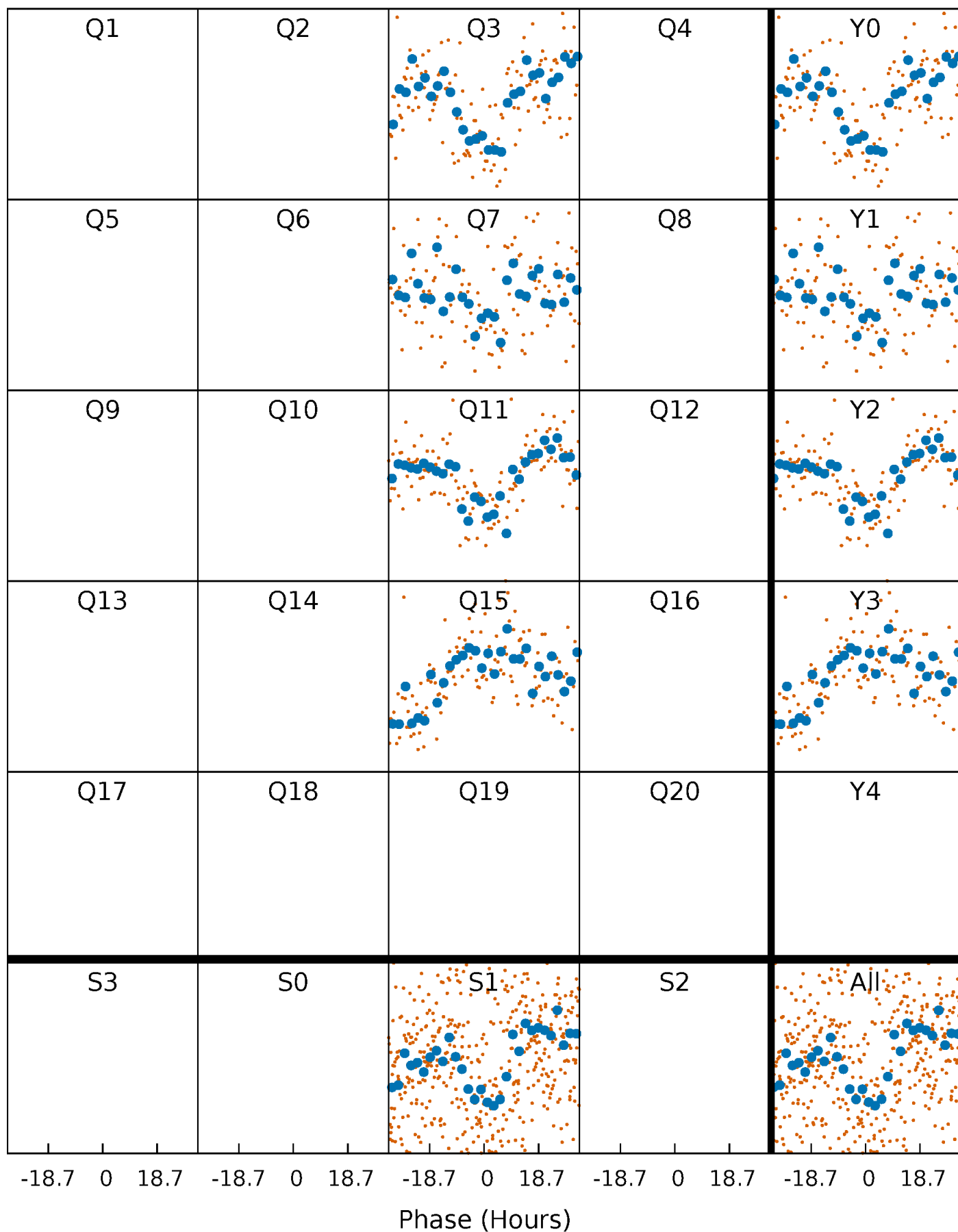


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



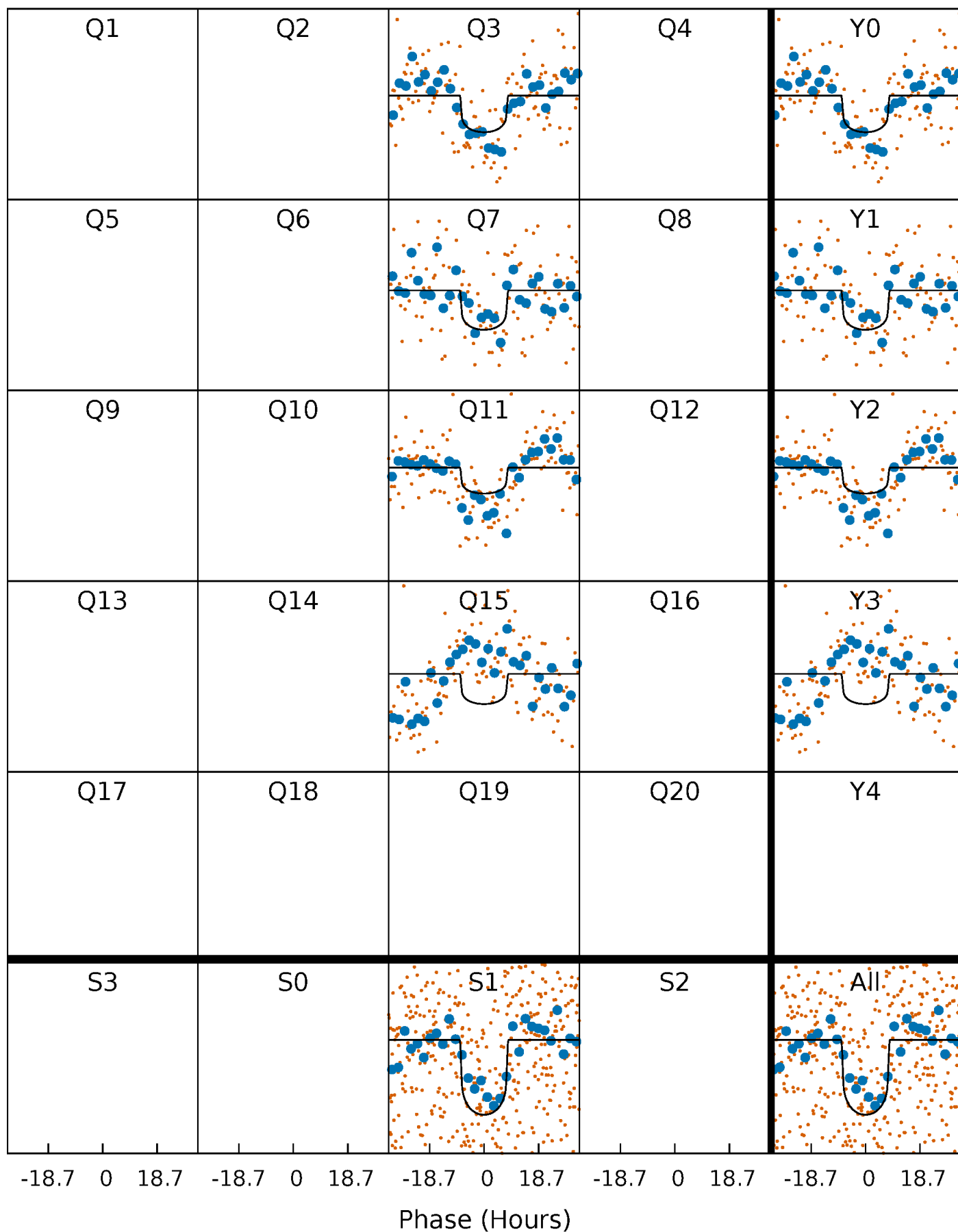
PDC Quarter-Phased Transit Curves

TCE 005956106-02 P=354.737071 Days $T_0=327.365593$ (BKJD)



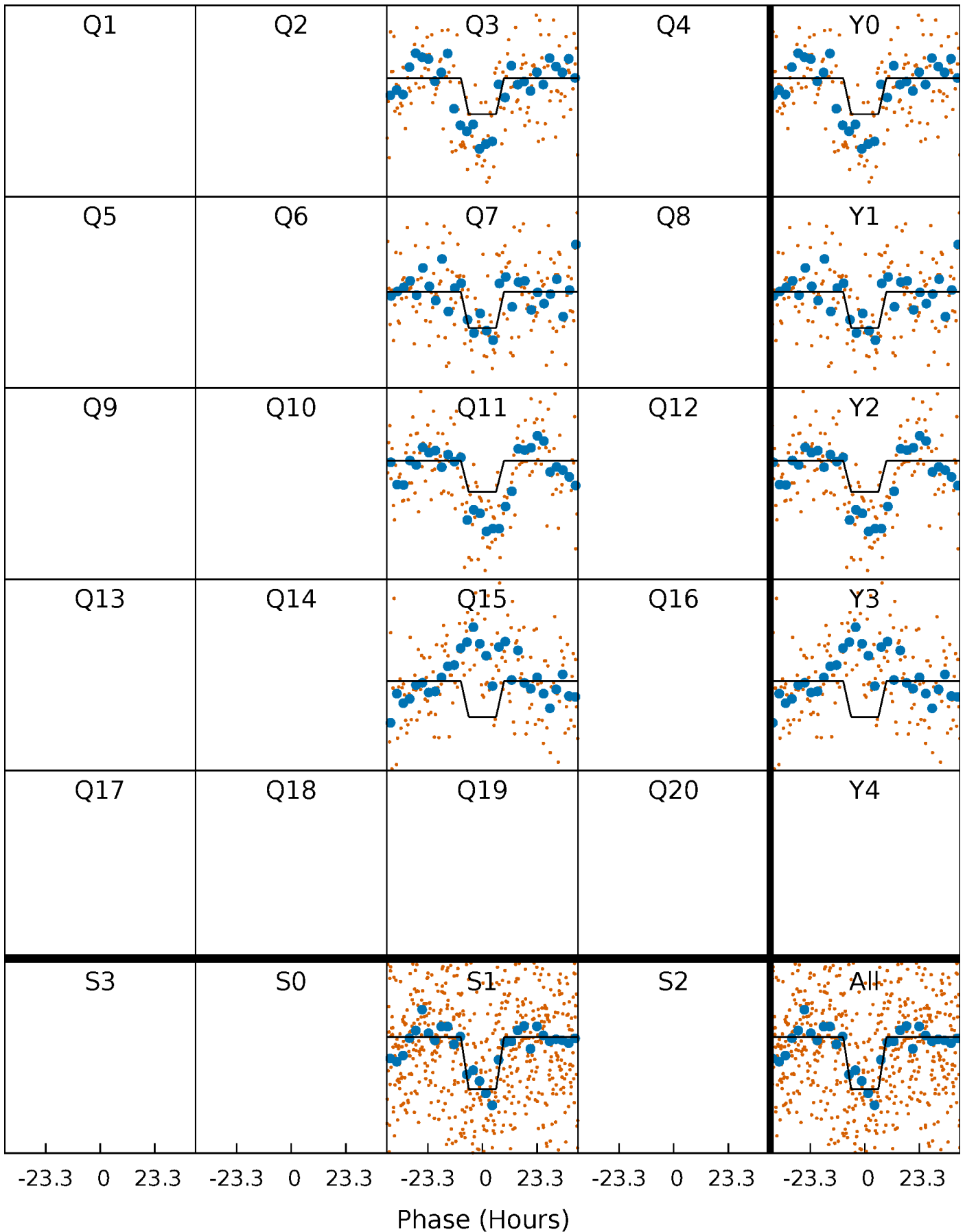
DV Quarter-Phased Transit Curves

TCE 005956106-02 $P=354.737071$ Days $T_0=327.365593$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

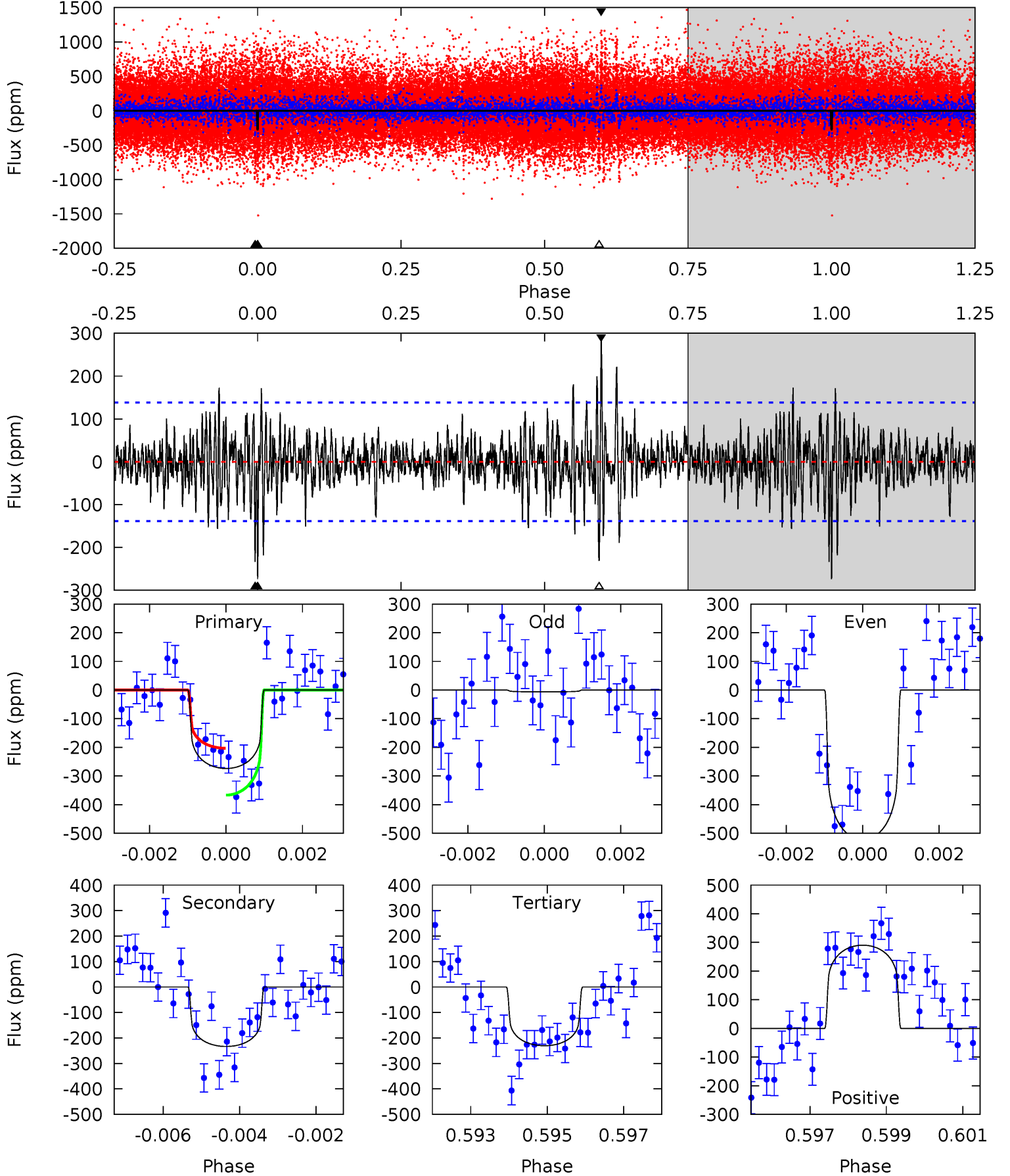
TCE 005956106-02 $P=354.672112$ Days $T_0=327.471324$ (BKJD)



DV Model-Shift Uniqueness Test

005956106-02, P = 354.737071 Days, E = 327.365593 Days

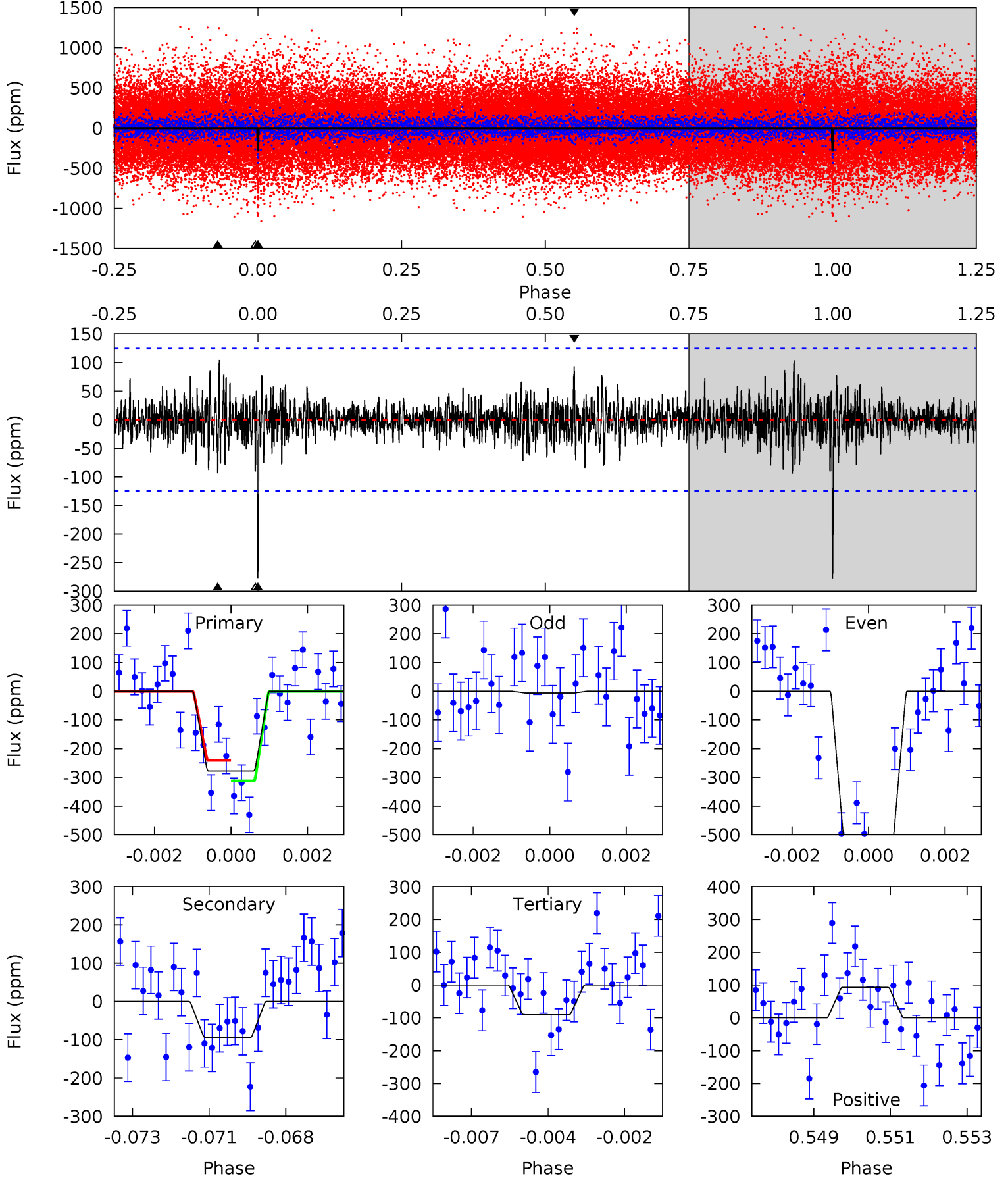
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	8.99	8.87	11.2	5.33	3.09	1.94	1.67	-0.64	0.11	-2.19	9.98	0.72	0.51	3.14



Alt Model-Shift Uniqueness Test

005956106-02, P = 354.672112 Days, E = 327.471324 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	4.00	3.85	3.97	5.31	3.06	1.02	8.01	7.89	0.15	0.03	11.9	0.73	0.27	1.53



Stellar Parameters For KIC 005956106

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6060^{+163}_{-199}	$4.509^{+0.041}_{-0.230}$	$-0.220^{+0.300}_{-0.300}$	$0.925^{+0.310}_{-0.097}$	$1.008^{+0.140}_{-0.126}$	$1.795^{+0.396}_{-0.989}$
	+3%/-3%	+1%/-5%	+136%/-136%	+34%/-10%	+14%/-12%	+22%/-55%
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 005956106-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-233 ± 26	$1.95^{+0.80}_{-0.69}$	372^{+26}_{-18}	5552^{+1269}_{-717}	31791^{+43872}_{-15799}
Alt.	-94 ± 23	$1.87^{+0.69}_{-0.75}$	372^{+29}_{-18}	4690^{+1091}_{-560}	14148^{+25659}_{-7150}

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

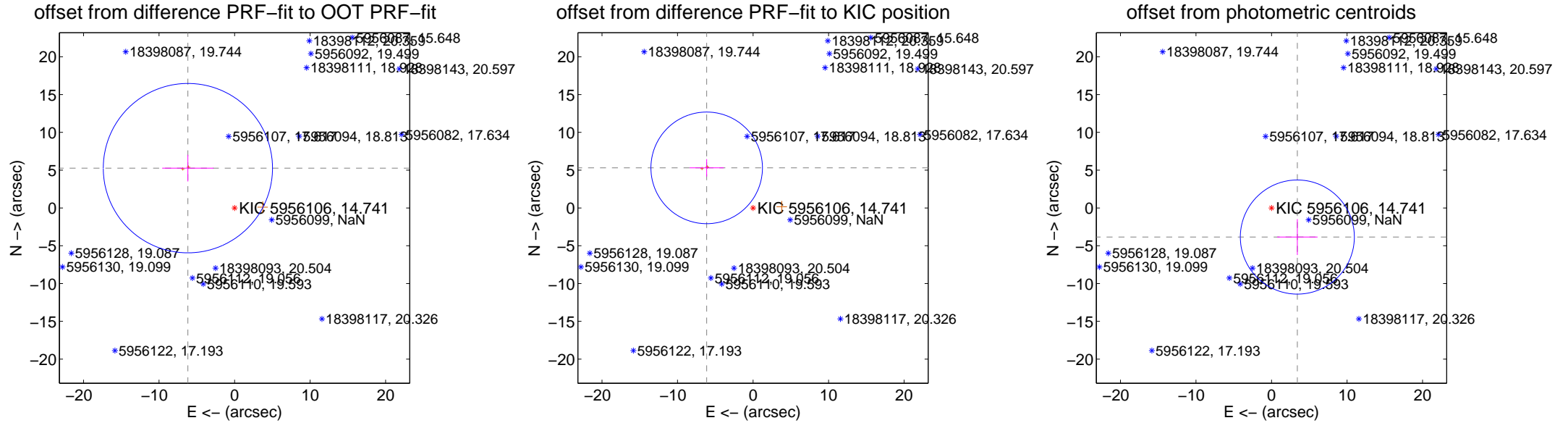
DV Centroid Data

Supplemental centroid analysis for 005956106-02. Kepler magnitude: 14.74. Transit SNR 6.52

There are 0 quarters with good PRF difference image offsets

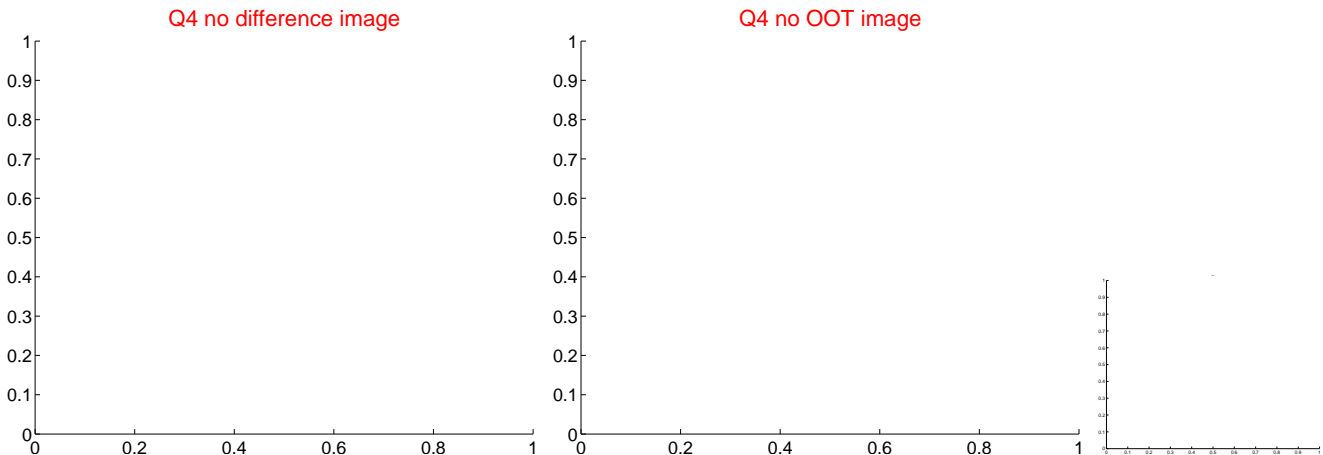
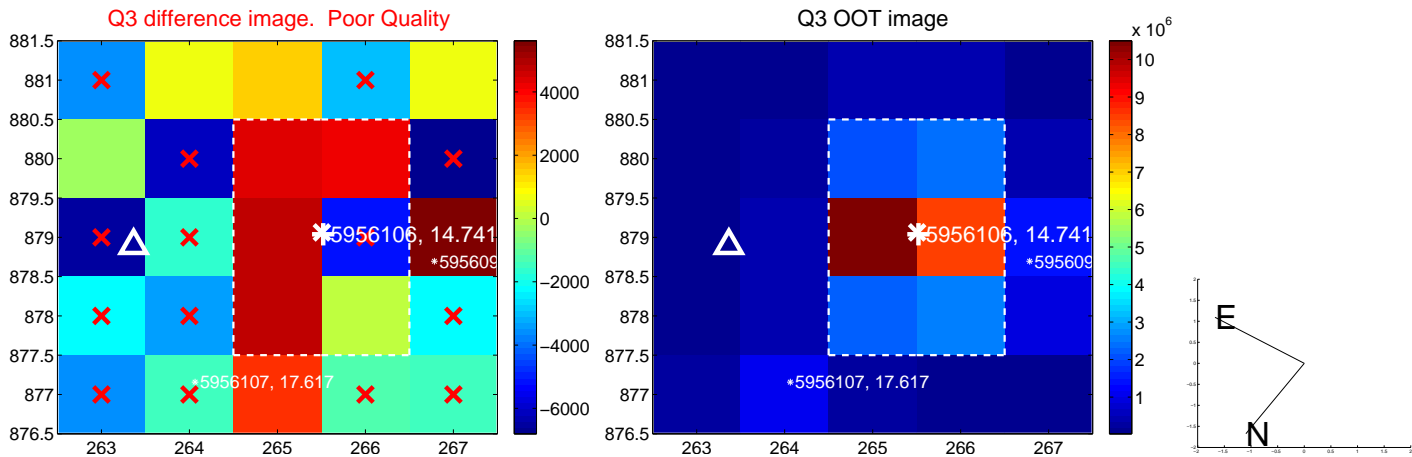
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.121 ± 3.734	2.17	6.182 ± 3.406	5.266 ± 1.762
PRF-fit source offset from KIC position	8.113 ± 2.461	3.30	6.139 ± 2.261	5.303 ± 1.151
photometric centroid source offset	5.15 ± 2.52	2.05	-3.42 ± 2.68	-3.85 ± 2.38



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

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



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

Q5 no difference image



Q5 no OOT image



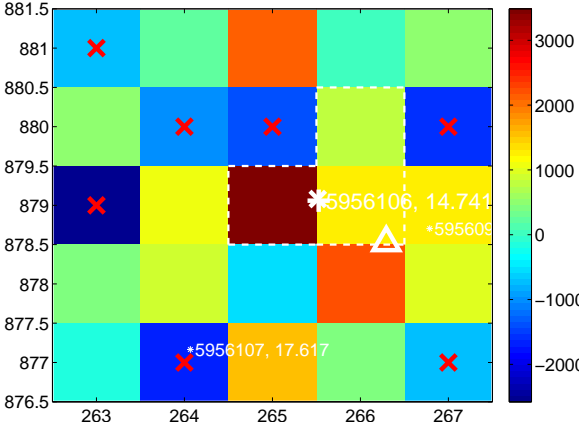
Q6 no difference image



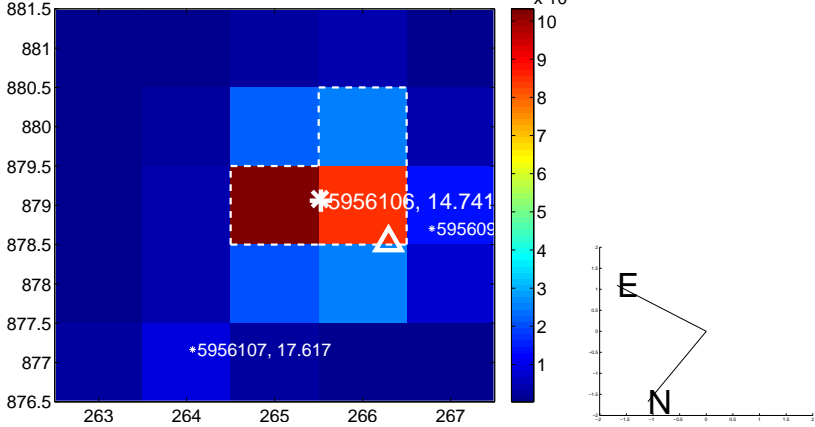
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



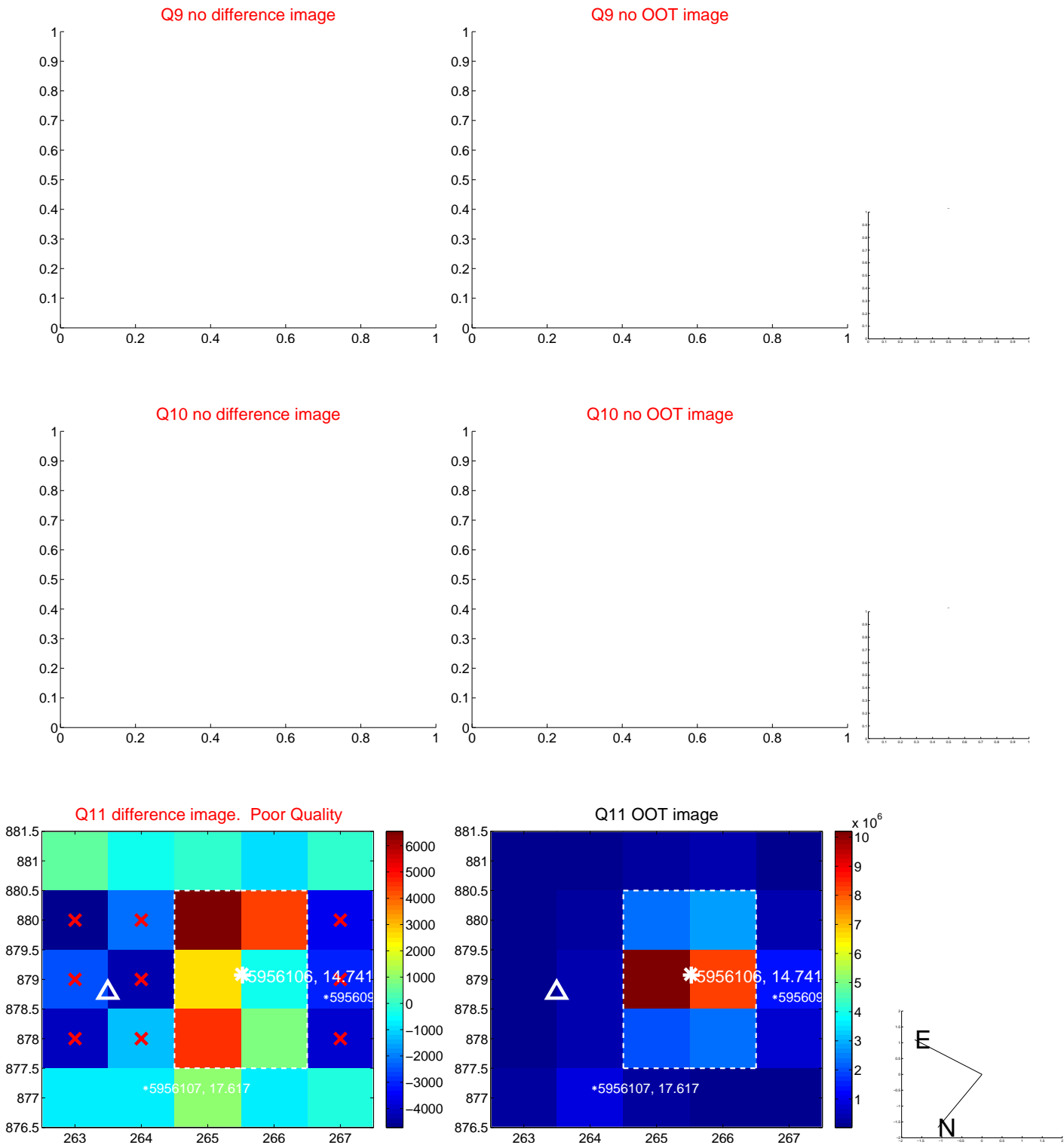
Q8 no difference image



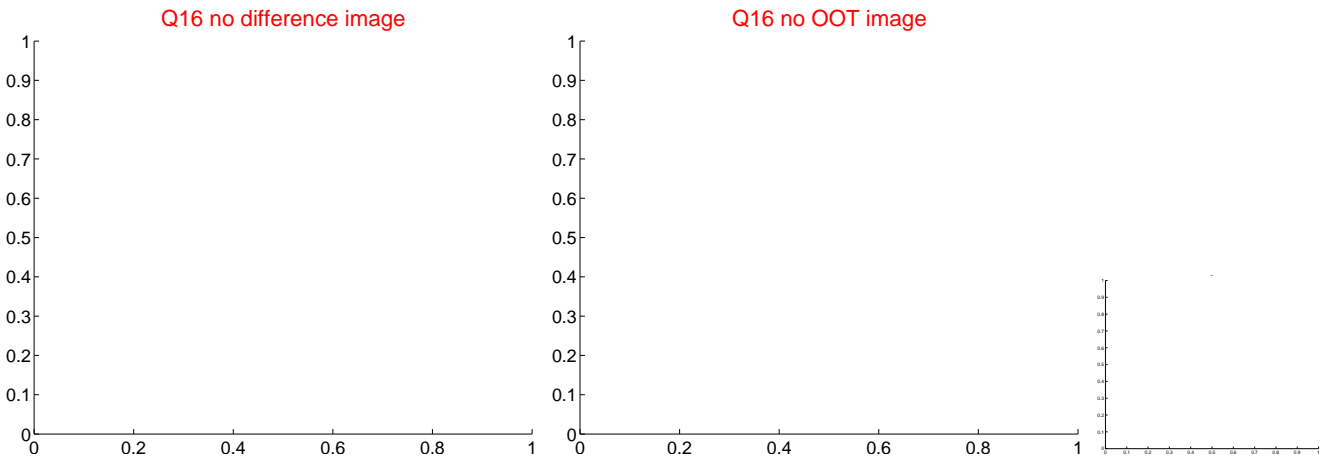
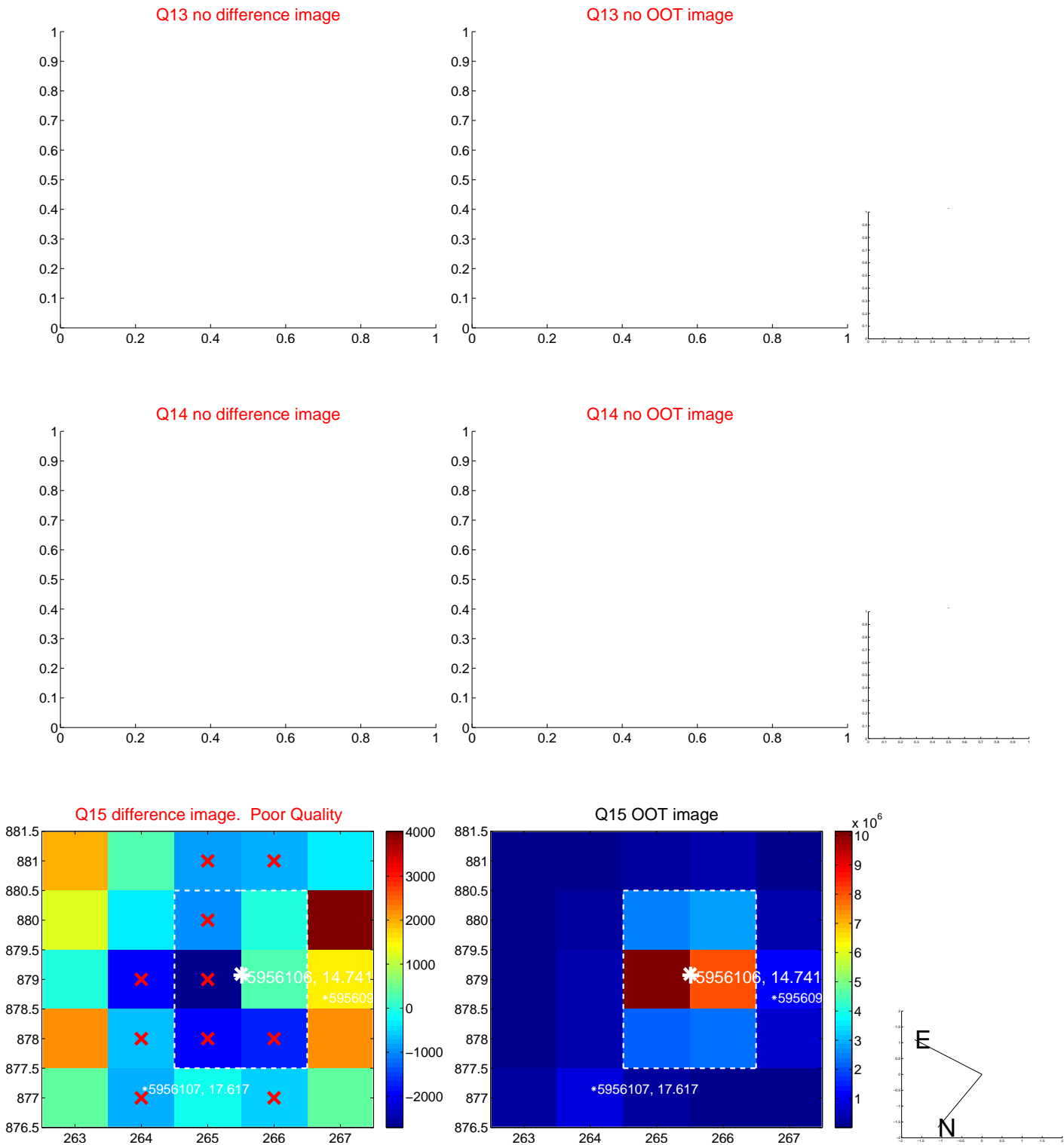
Q8 no OOT image



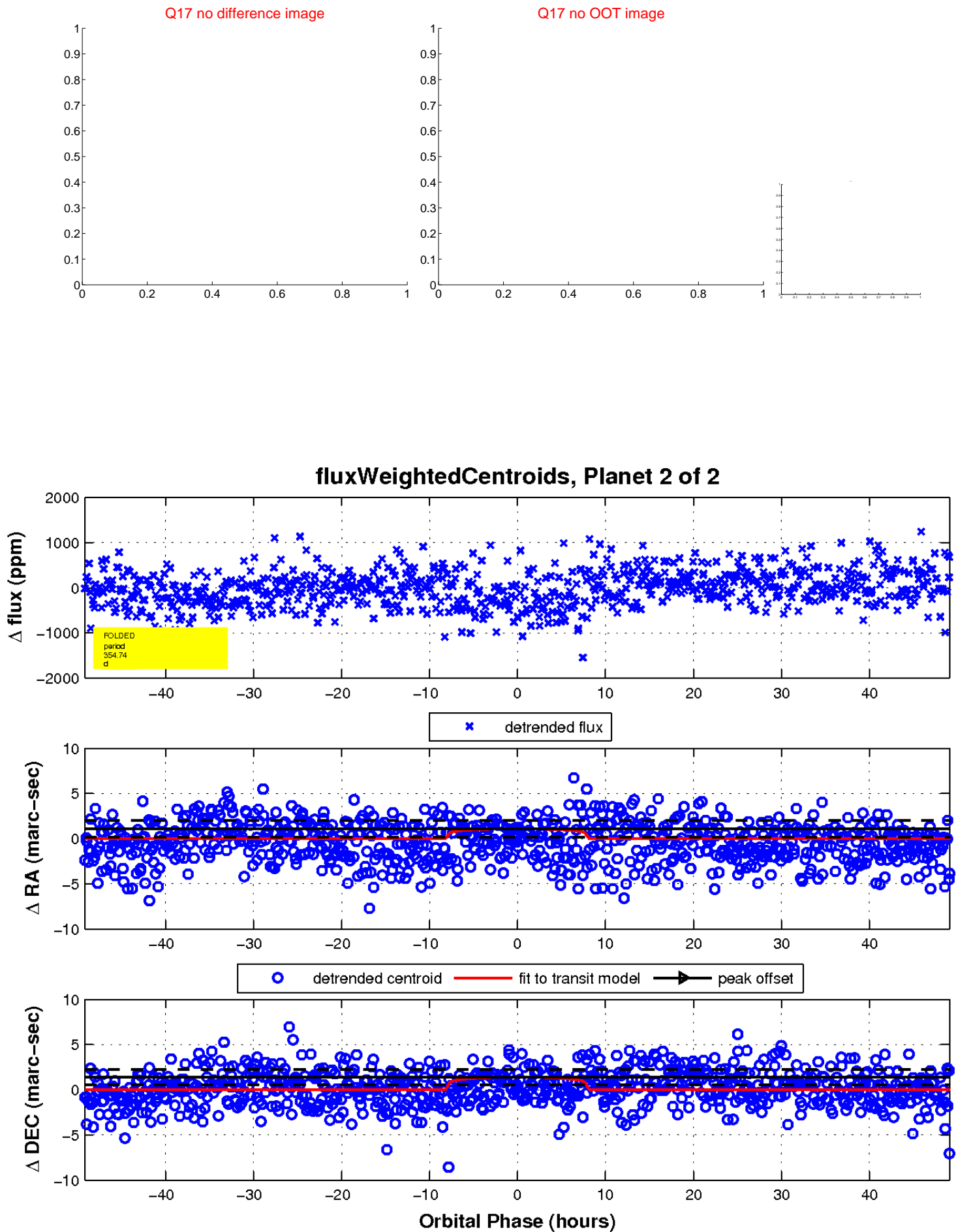
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

