

KIC 009826562

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})
009826562-01	OBS	No	0.611198	131.763798	56.0	2.635	10.3	9.3	1.66	7050	1.44	23295.59
009826562-02	OBS	No	186.775060	270.754365	1350.3	11.362	8.7	9.5	1.66	7050	11.25	11.32
009826562-03	OBS	No	266.514956	394.183830	1219.3	3.175	8.1	7.8	1.66	7050	5.85	7.04
009826562-04	OBS	No	210.627348	300.500019	1586.9	5.773	8.3	7.6	1.66	7050	12.14	9.64

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009826562-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009826562-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009826562-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
009826562-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

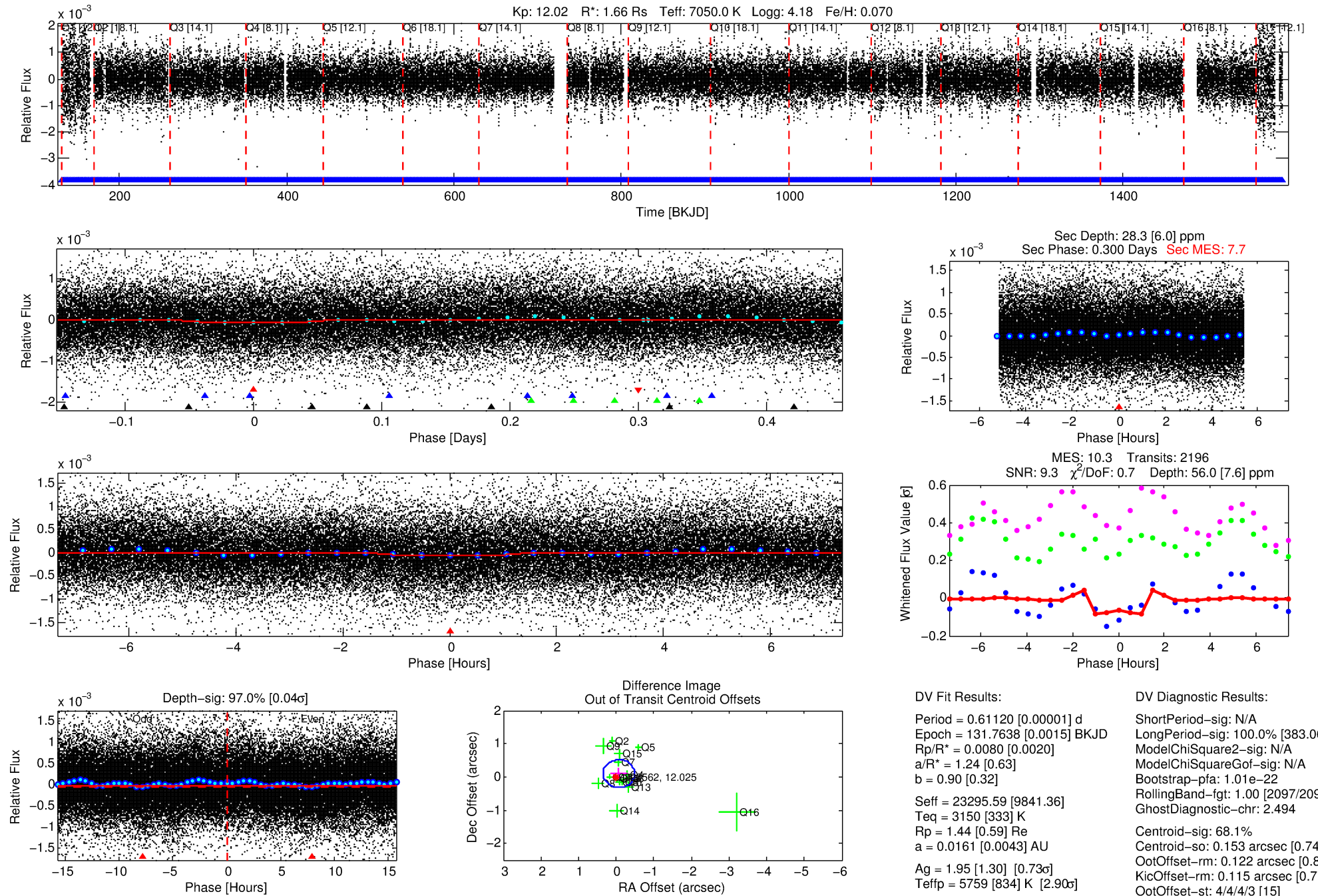
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009826562-01

No Significant Match Found

DV One-Page Summary

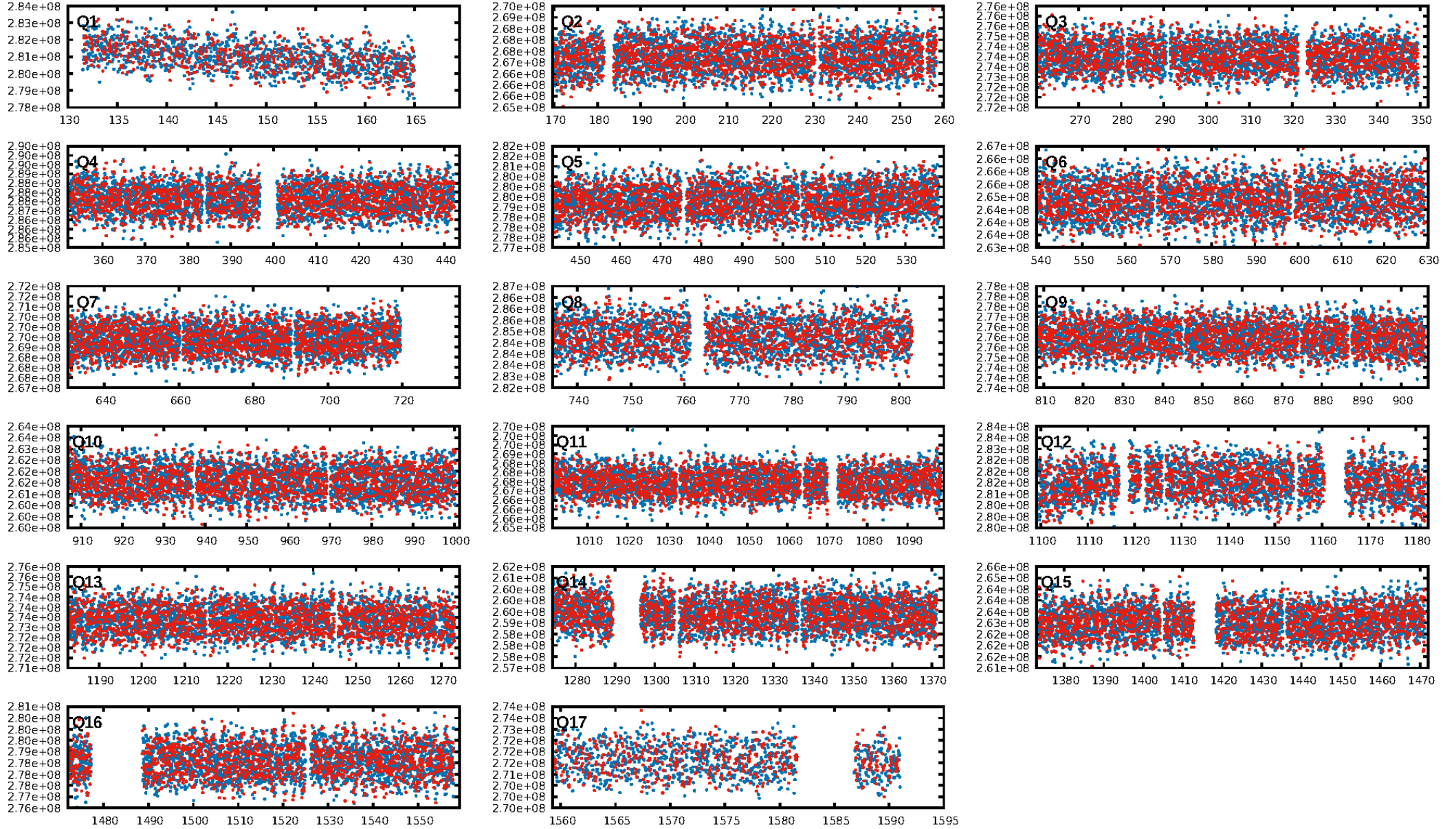
KIC: 9826562 Candidate: 1 of 4 Period: 0.611 d



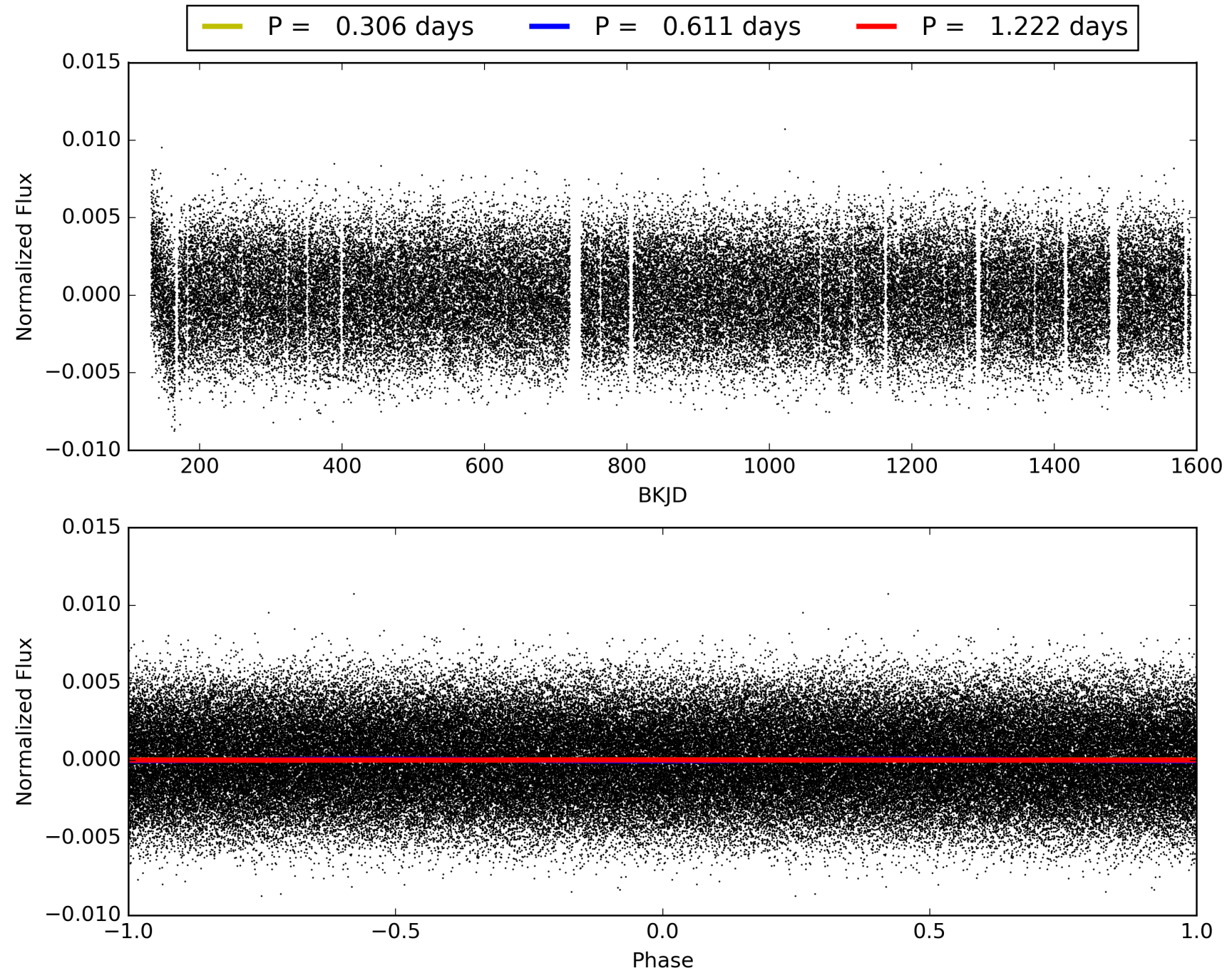
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:02:05 Z

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

TCE 009826562-01, PDC Light Curves

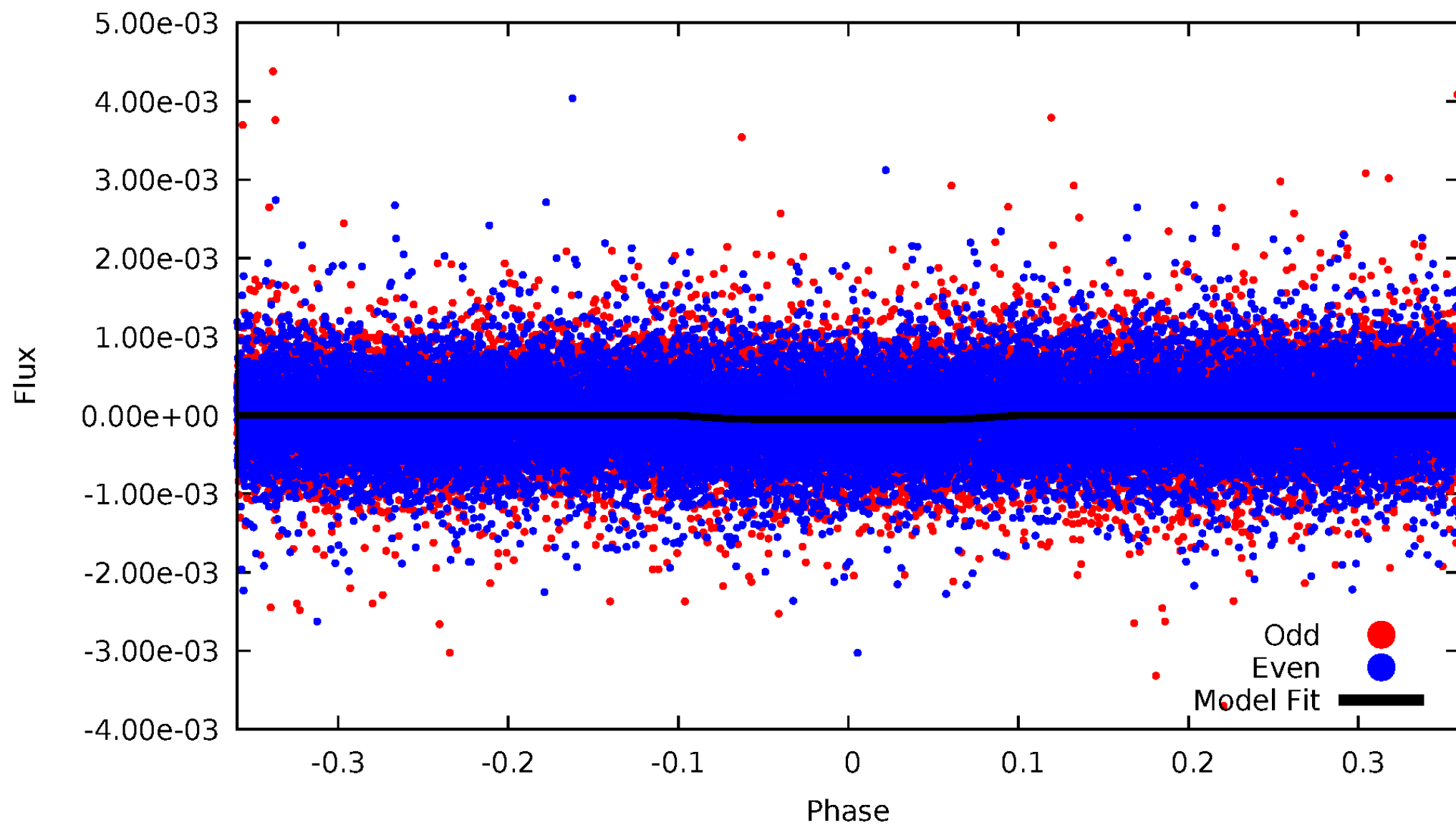


TCE 009826562-01



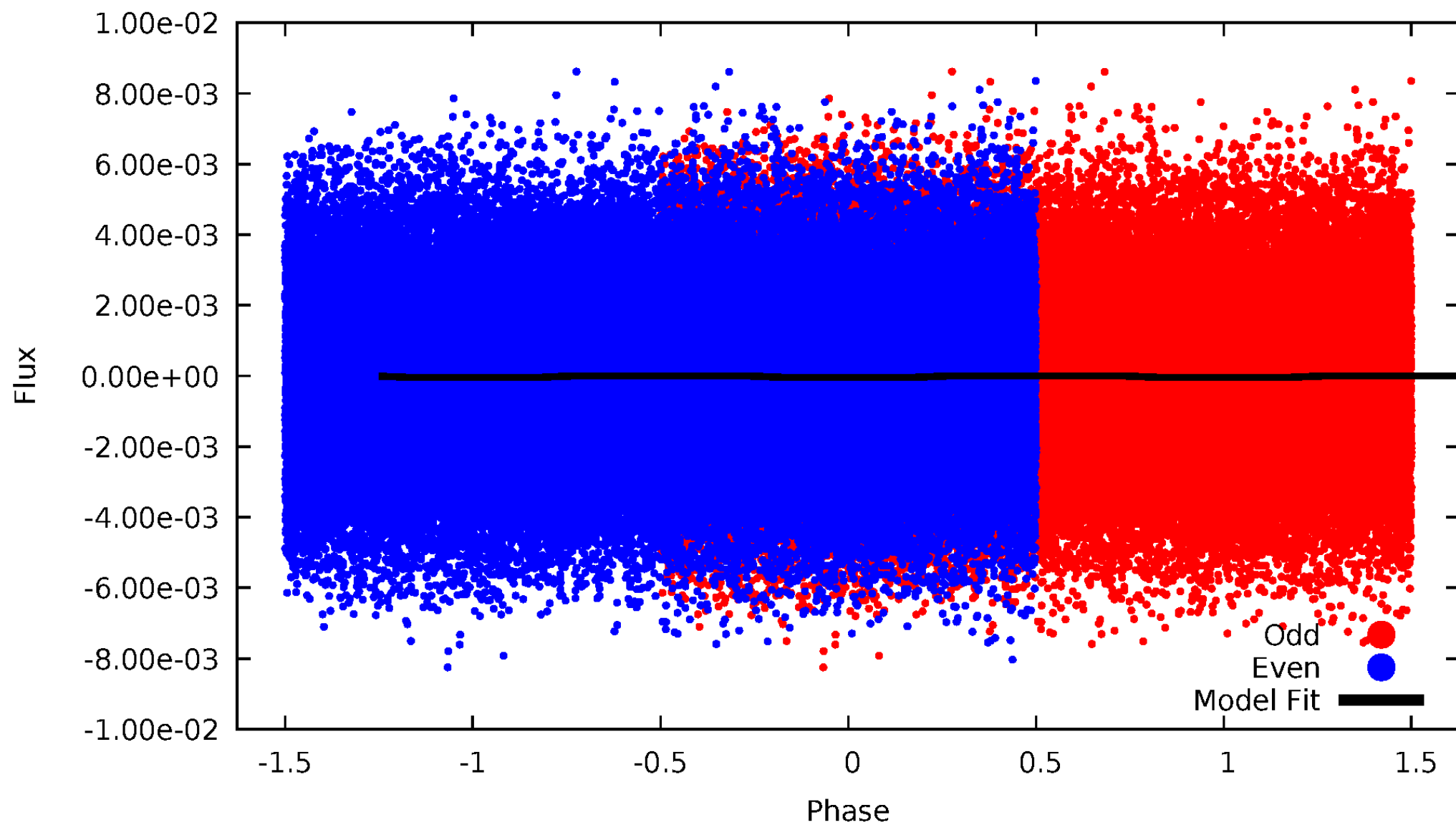
DV Odd/Even

TCE 009826562-01



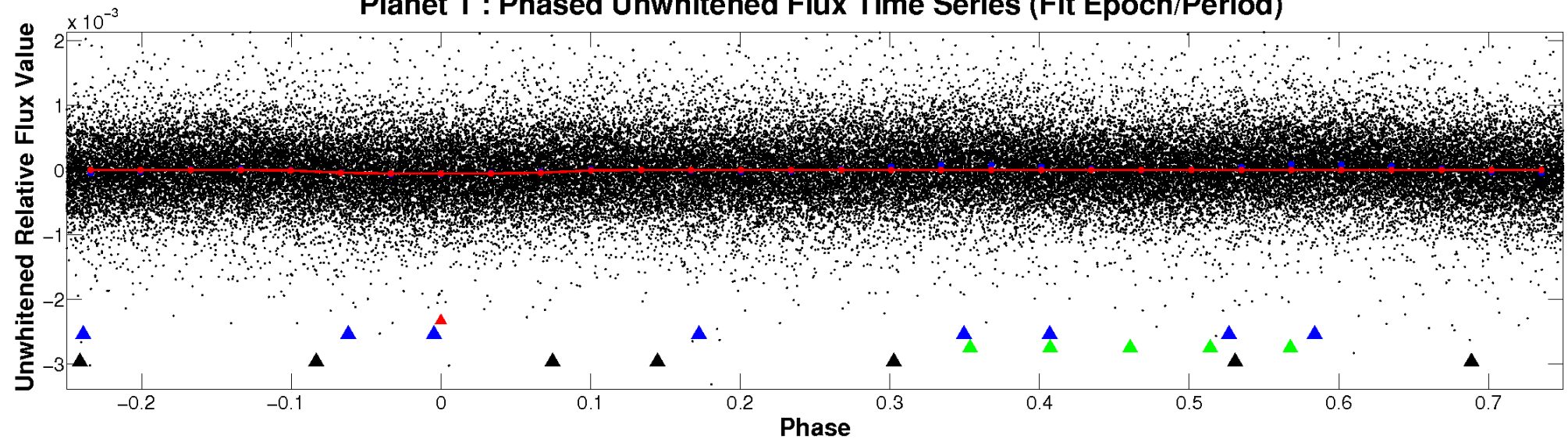
ALT Odd/Even

TCE 009826562-01

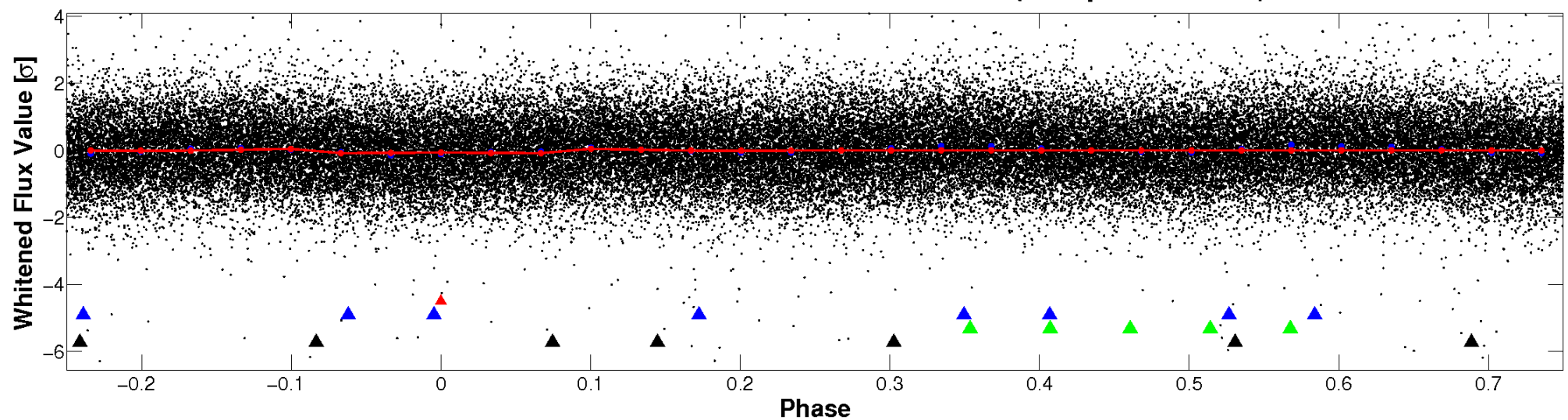


Non-Whitened Vs. Whitened Light Curve

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

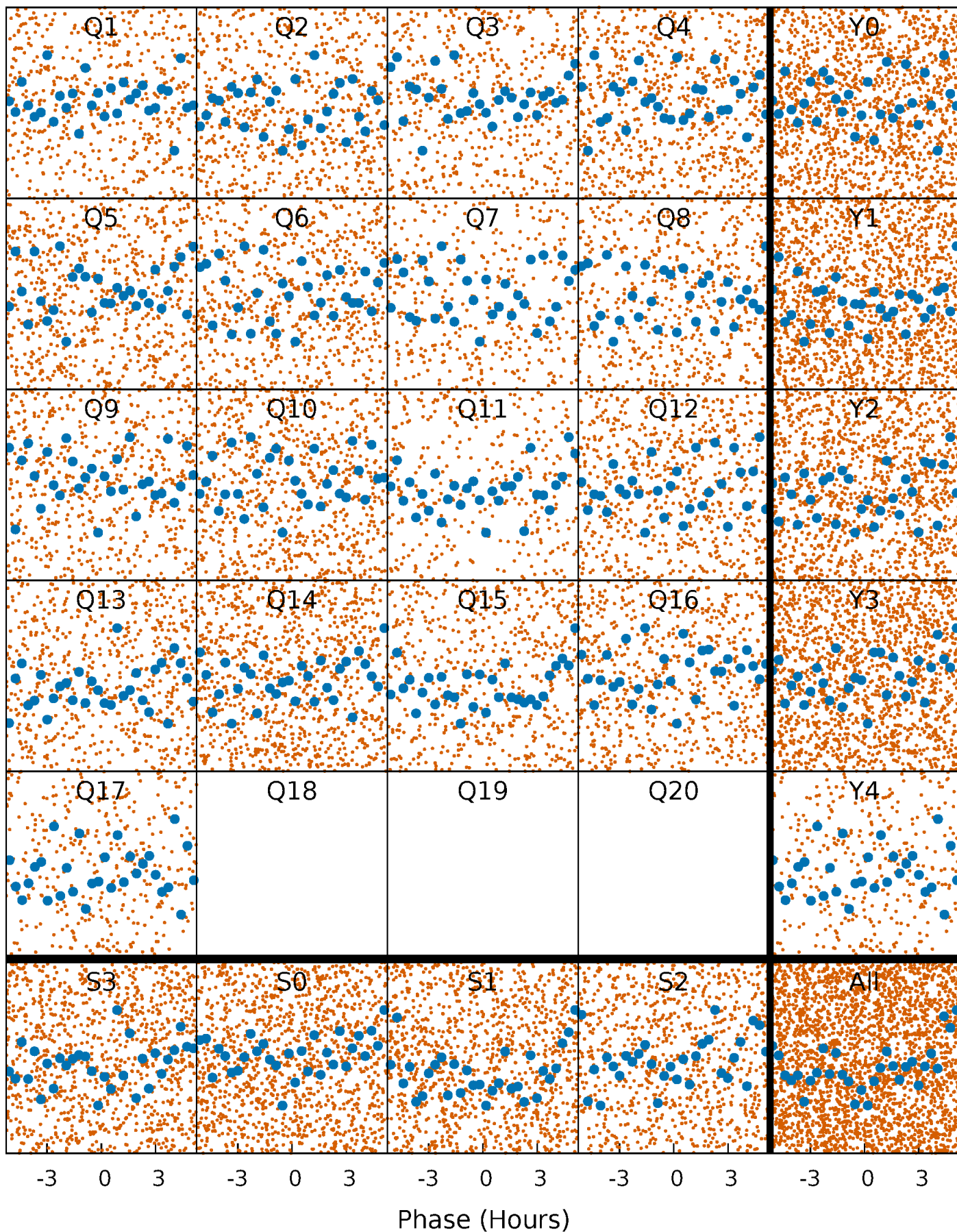


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



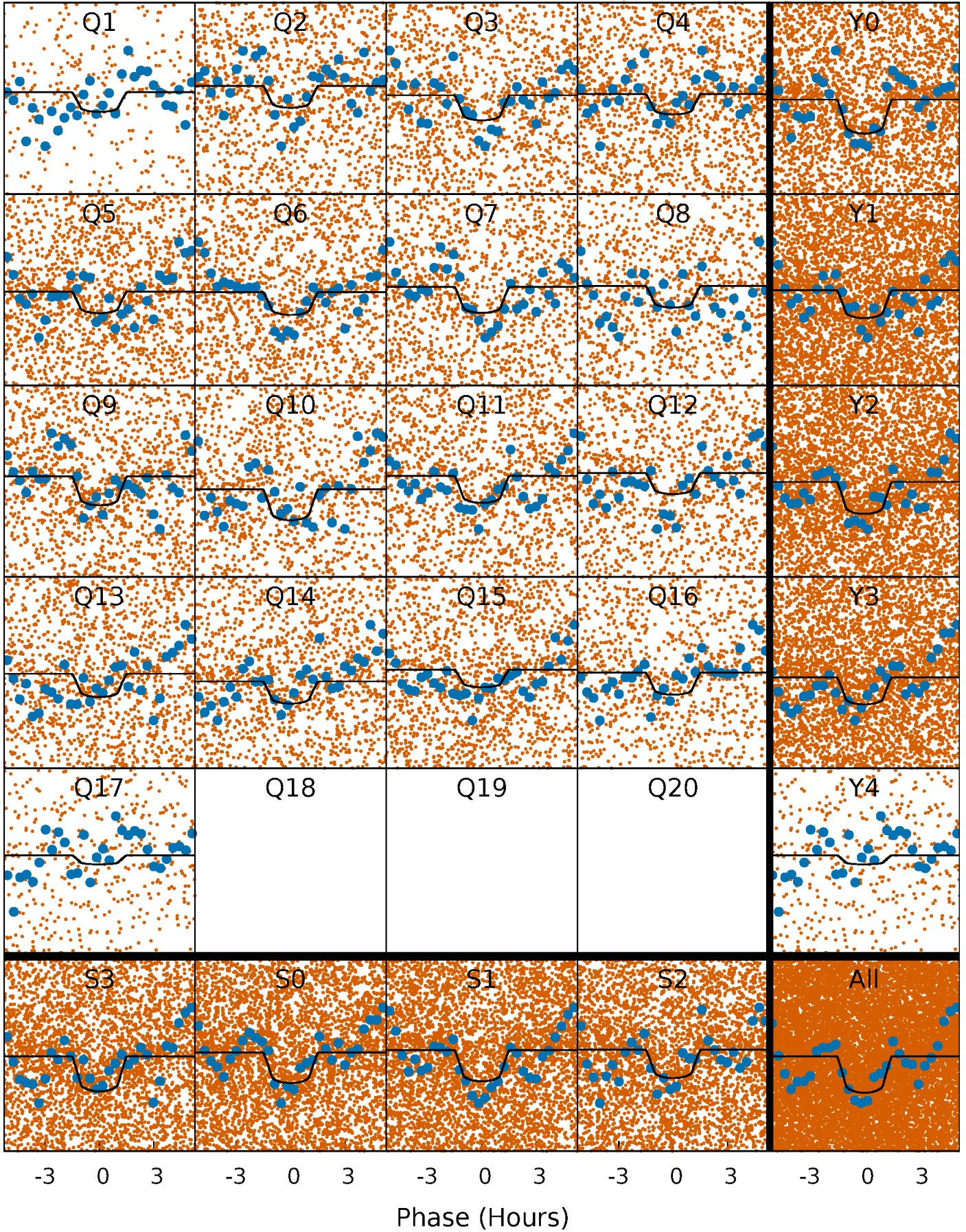
PDC Quarter-Phased Transit Curves

TCE 009826562-01 P= 0.611198 Days $T_0=131.763798$ (BKJD)



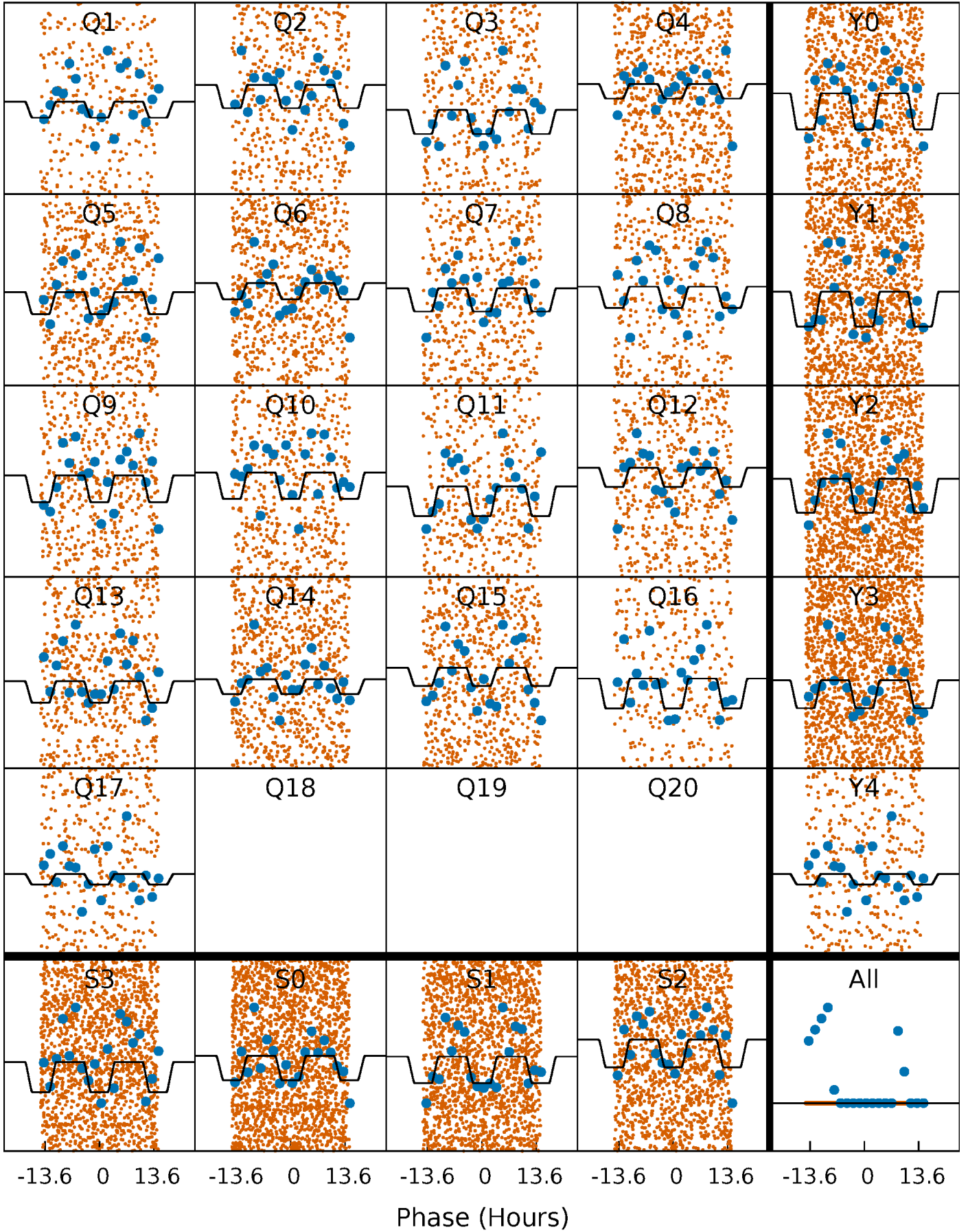
DV Quarter-Phased Transit Curves

TCE 009826562-01 P= 0.611198 Days $T_0=131.763798$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

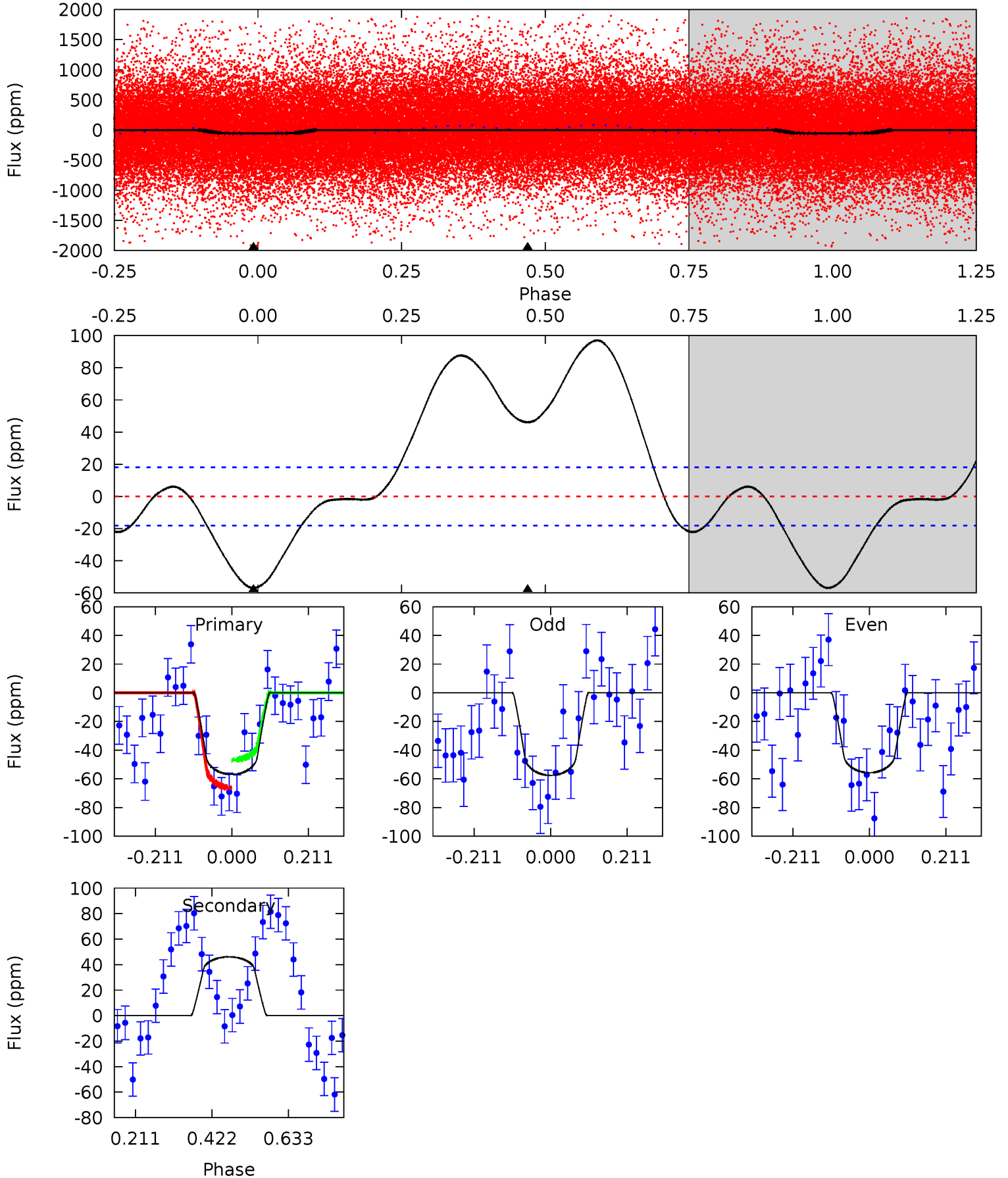
TCE 009826562-01 P= 0.611189 Days $T_0=131.755528$ (BKJD)



DV Model-Shift Uniqueness Test

009826562-01, P = 0.611198 Days, E = 131.152600 Days

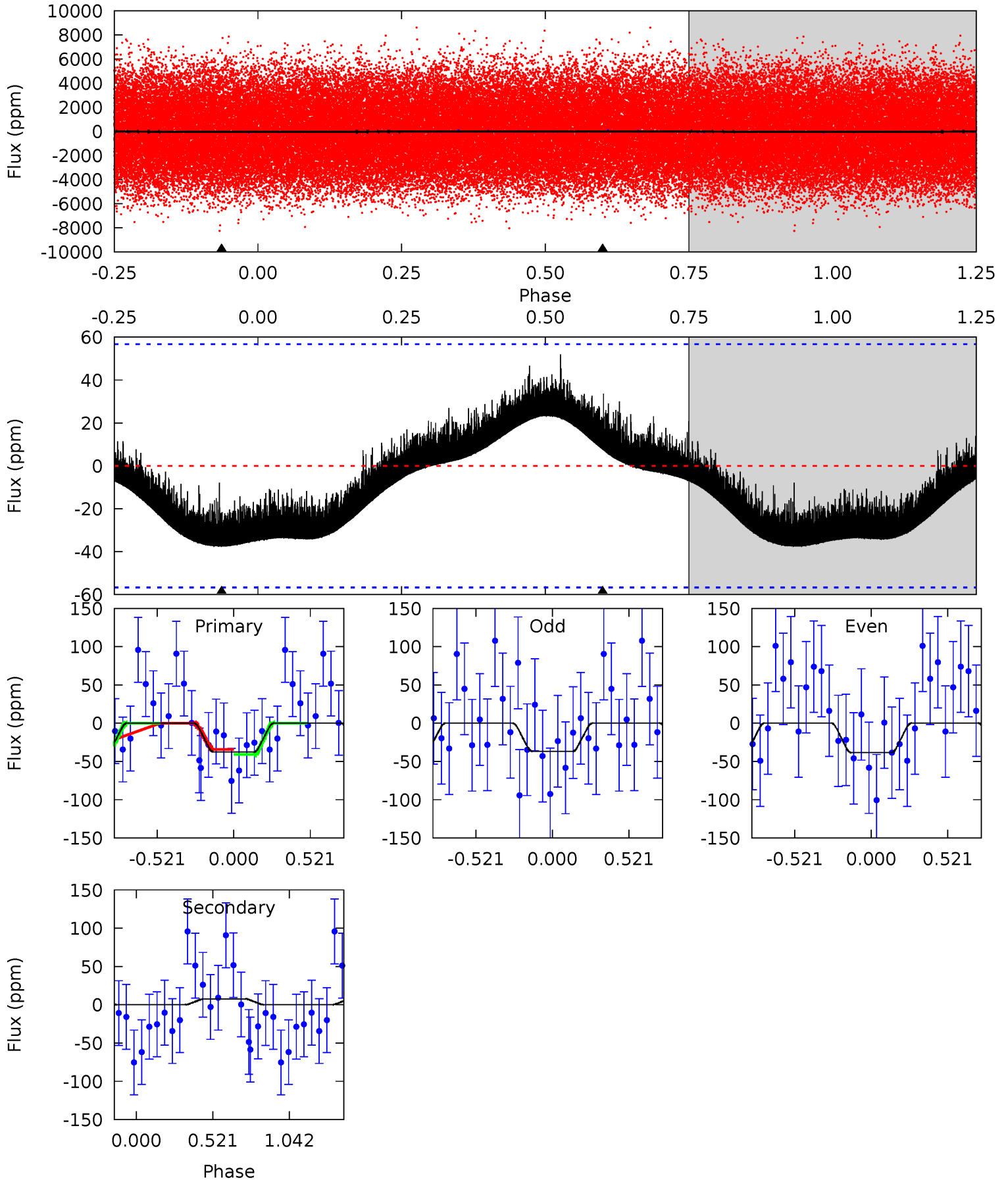
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	-11.2	0	0	4.41	1.25	3.89	13.8	13.8	-11.2	-11.2	0.23	0.89	0.63	2.37



Alt Model-Shift Uniqueness Test

009826562-01, P = 0.611189 Days, E = 131.144339 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.79	-0.57	0	0	4.21	0.64	0.34	2.79	2.79	-0.57	-0.57	0.06	1.03	0.58	0.25



Stellar Parameters For KIC 009826562

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7050^{+195}_{-335}	$4.176^{+0.108}_{-0.201}$	$0.070^{+0.200}_{-0.350}$	$1.655^{+0.539}_{-0.290}$	$1.497^{+0.214}_{-0.236}$	$0.465^{+0.278}_{-0.247}$
	+3%/-5%	+3%/-5%	+286%/-500%	+33%/-18%	+14%/-16%	+60%/-53%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009826562-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	46 ± 4	$1.45^{+0.48}_{-0.38}$	4446^{+358}_{-279}	-6644^{+761}_{-1215}	$-3.031^{+1.321}_{-2.579}$
Alt.	8 ± 13	$1.31^{+0.42}_{-0.41}$	4443^{+323}_{-290}	-4849^{+8740}_{-1287}	$-0.518^{+1.099}_{-1.677}$

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 $A_{obs} \gg 1.0$

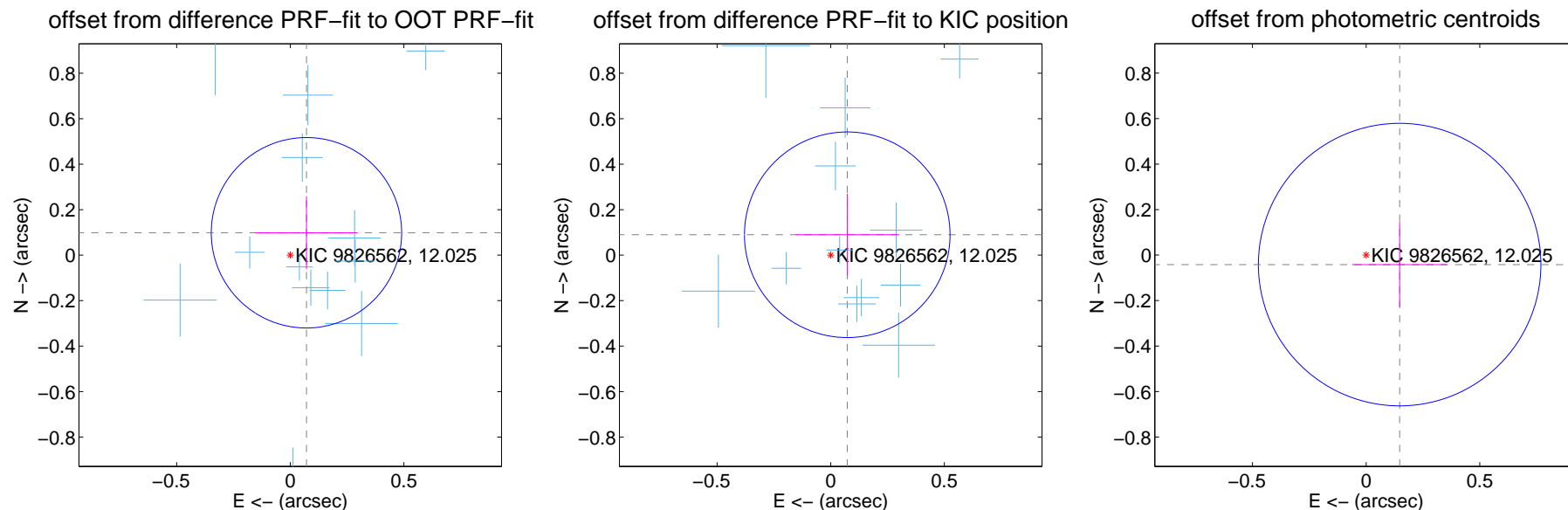
DV Centroid Data

Supplemental centroid analysis for 009826562-01. Kepler magnitude: 12.03. Transit SNR 9.26

There are 14 quarters with good PRF difference image offsets

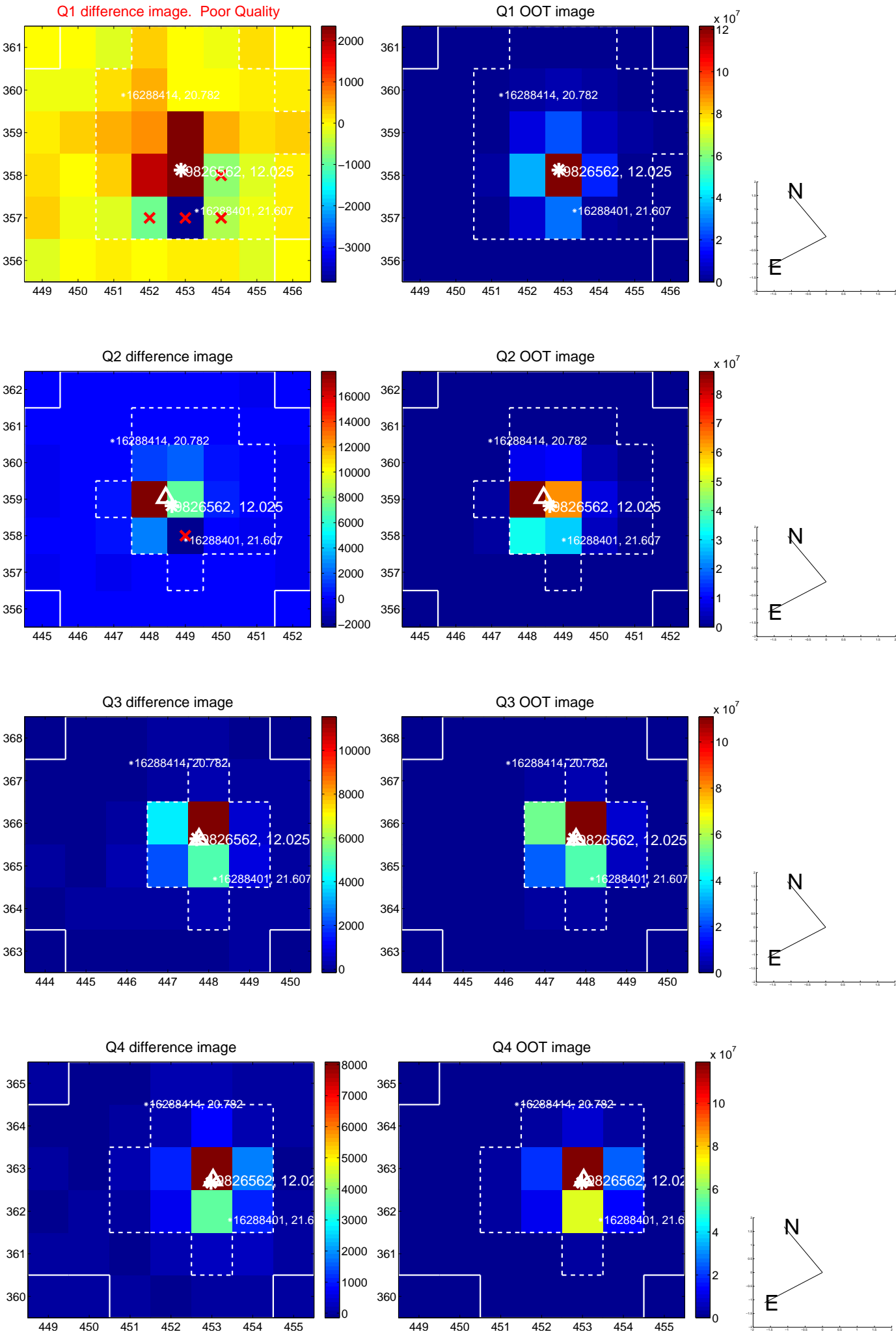
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.122 ± 0.140	0.87	-0.071 ± 0.224	0.098 ± 0.160
PRF-fit source offset from KIC position	0.115 ± 0.151	0.77	-0.073 ± 0.228	0.090 ± 0.180
photometric centroid source offset	0.15 ± 0.21	0.74	-0.15 ± 0.21	-0.04 ± 0.19

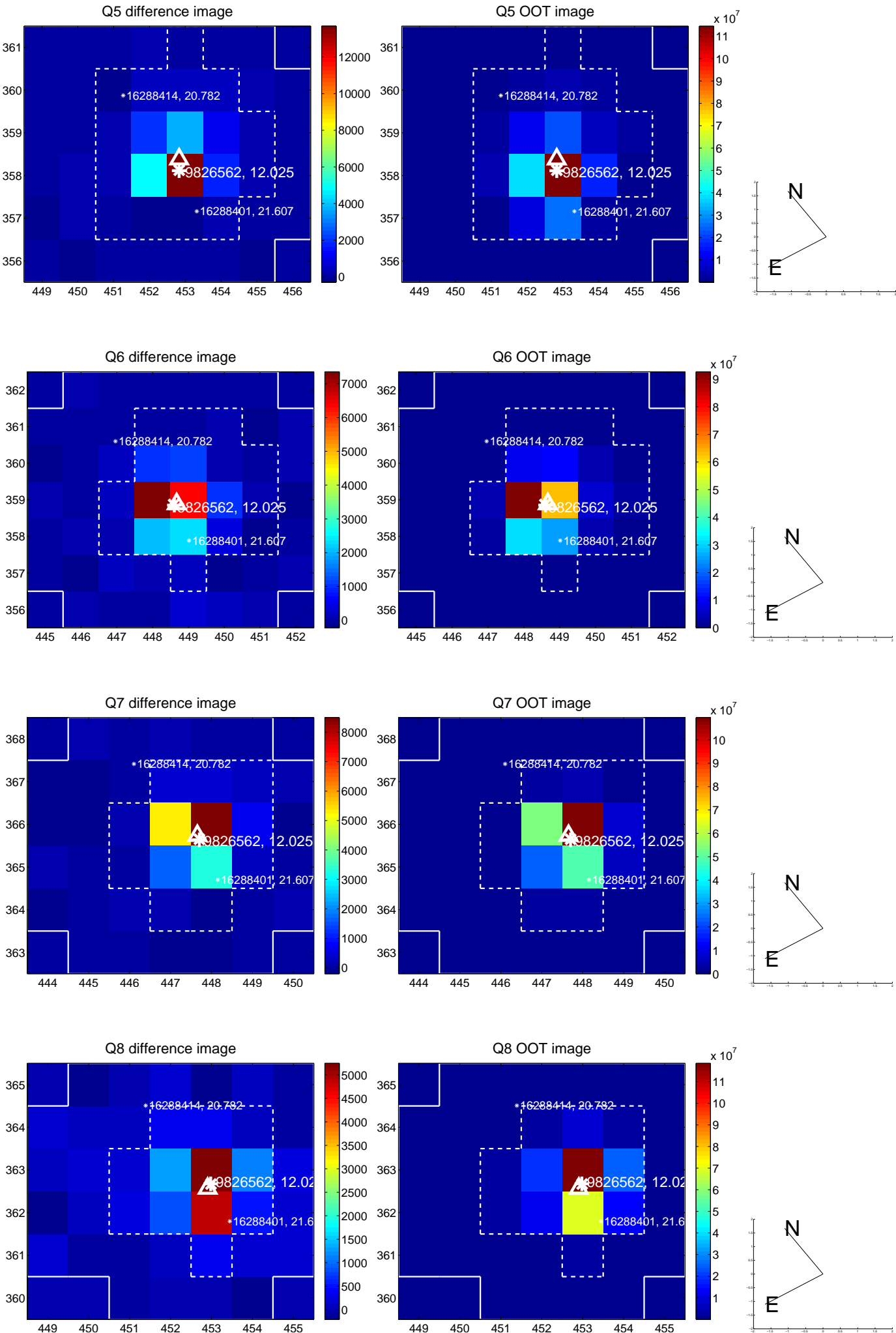


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

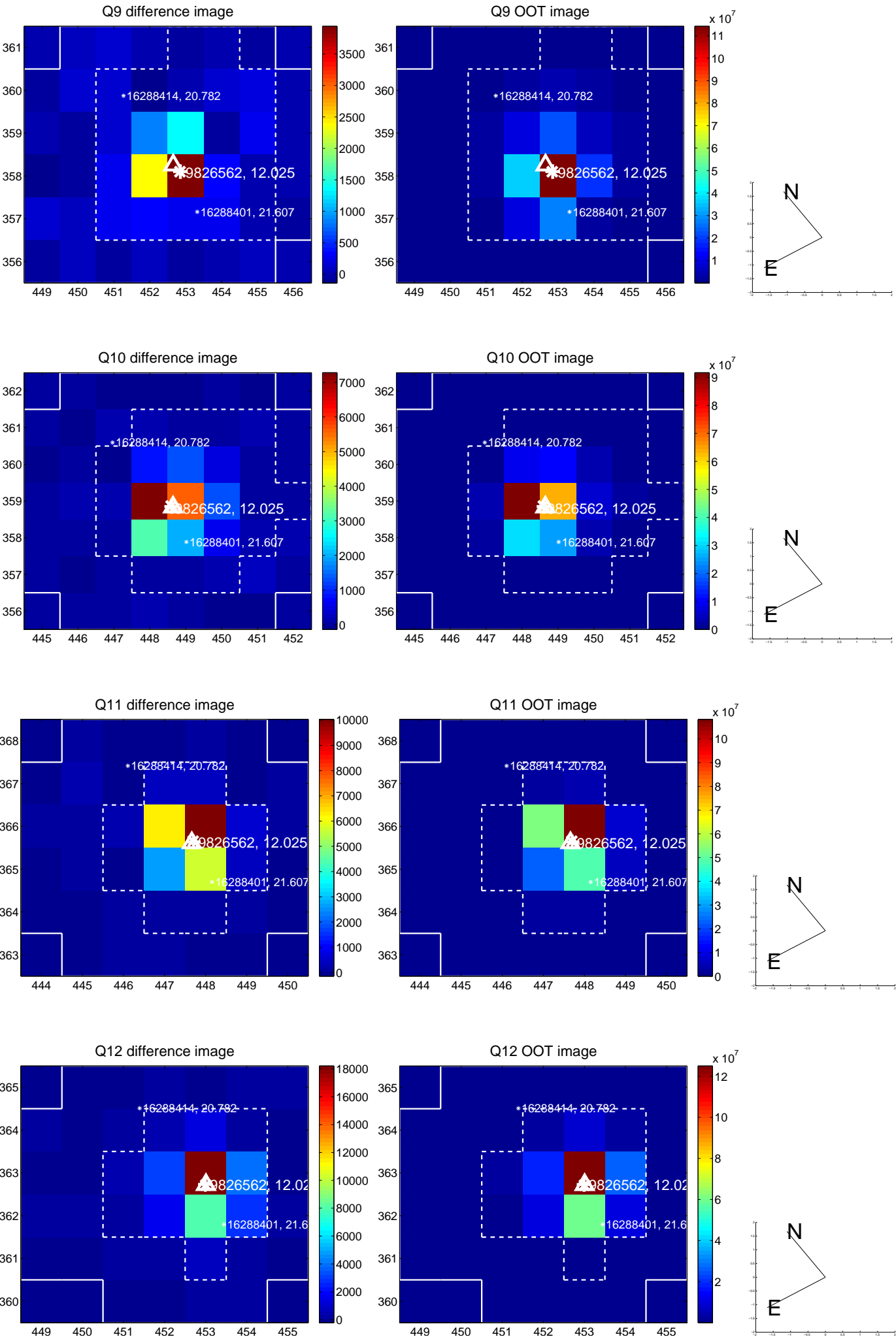
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



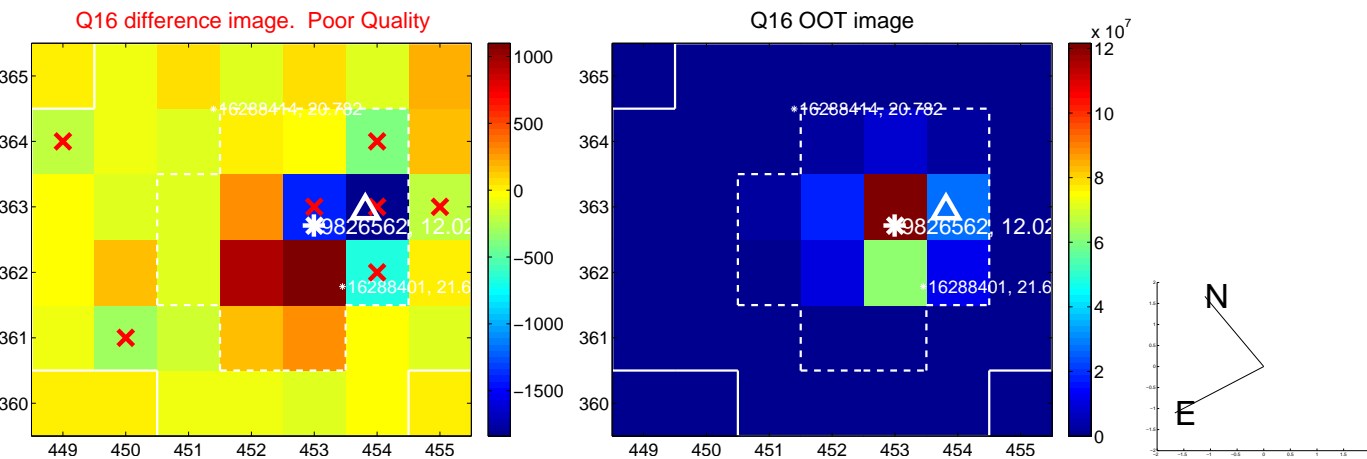
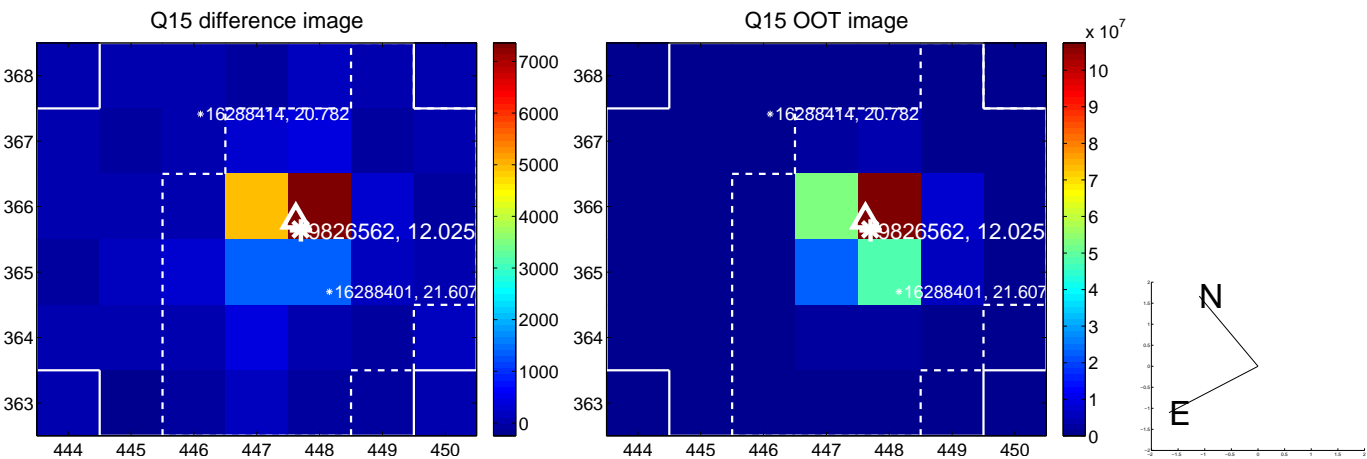
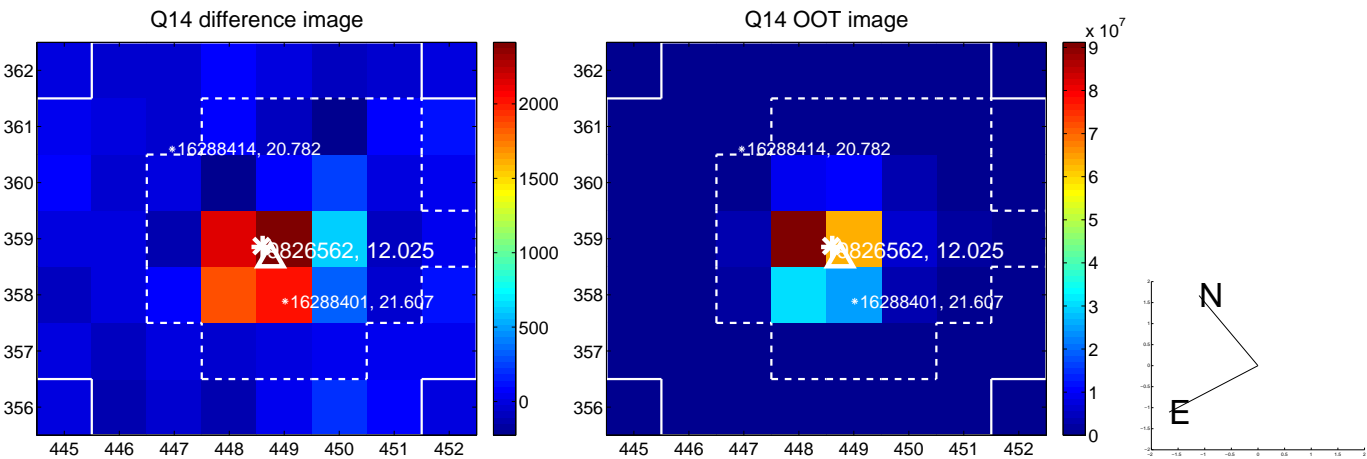
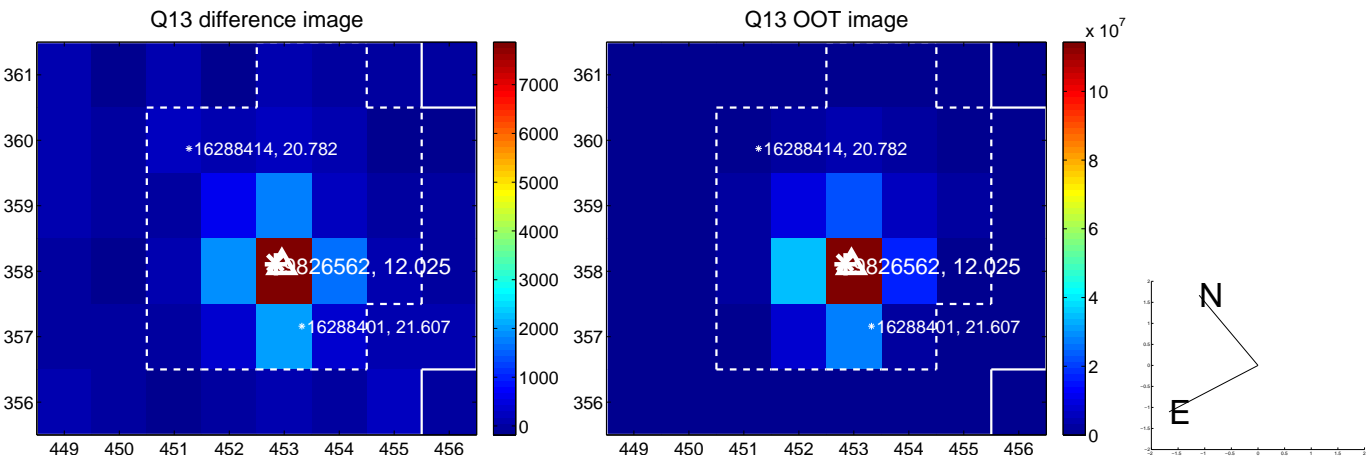
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



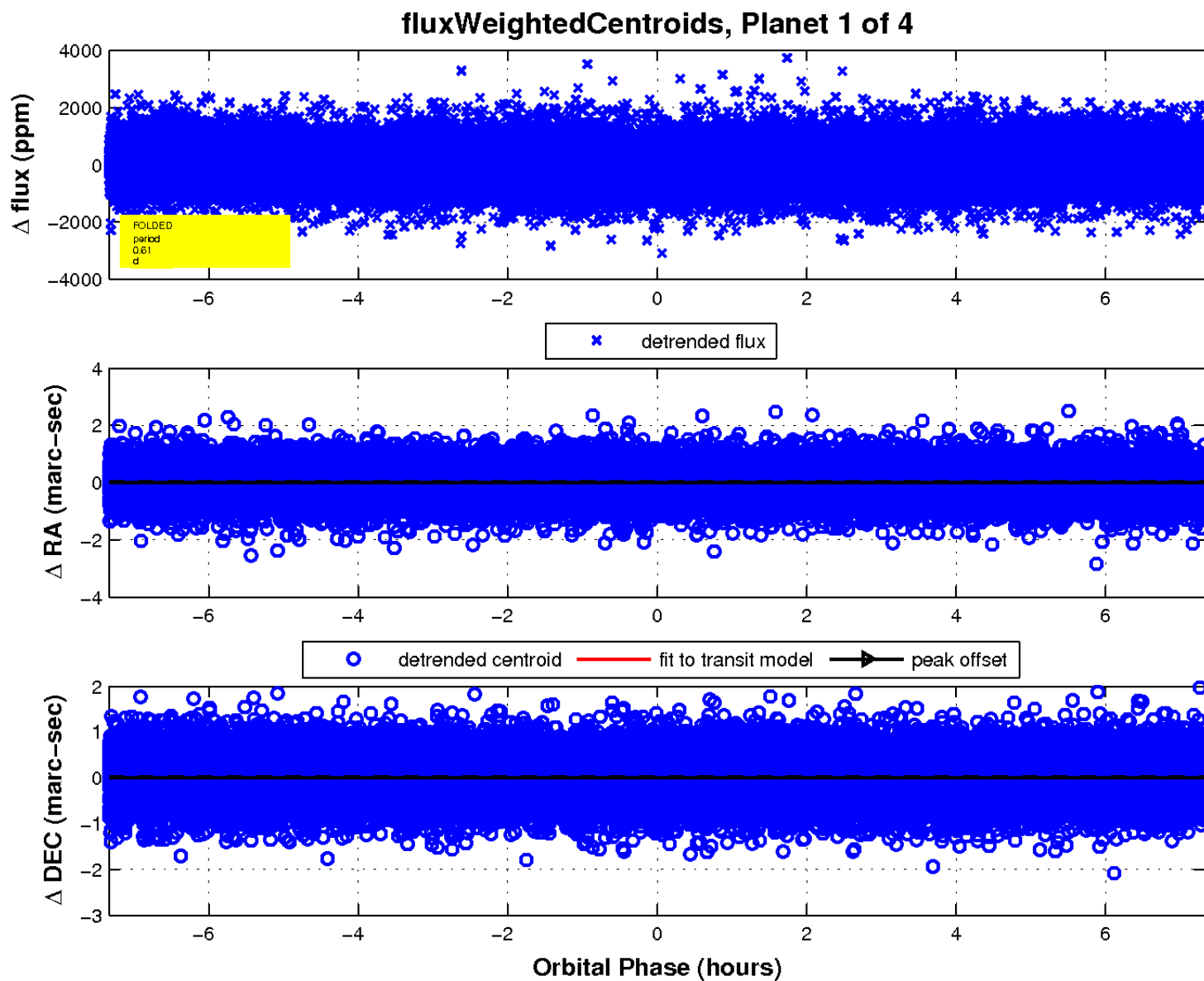
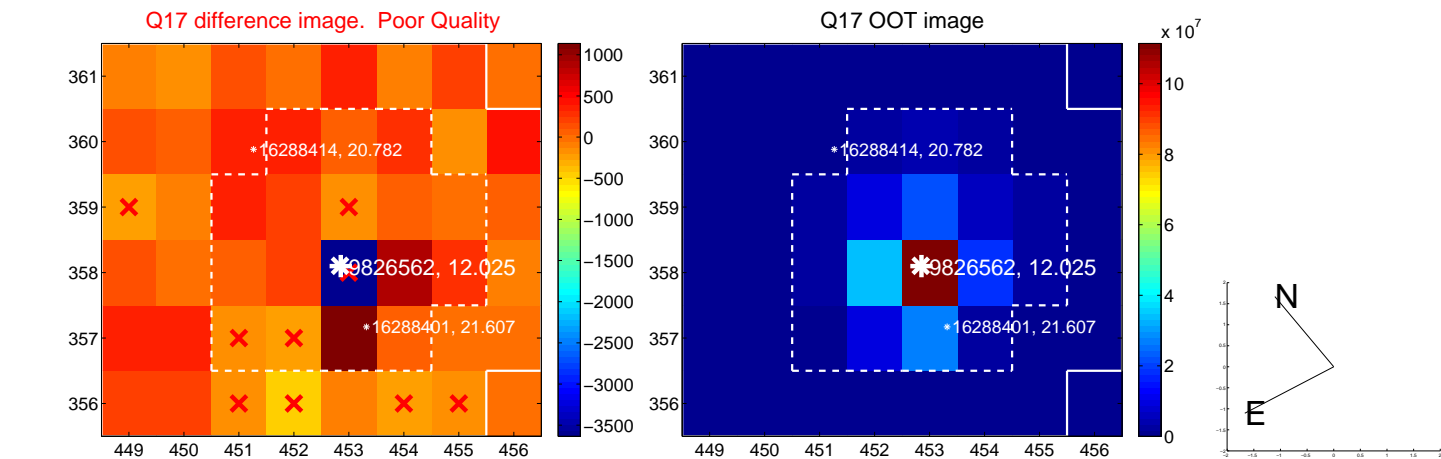
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009826562

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})
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009826562-03	OBS	No	266.514956	394.183830	1219.3	3.175	8.1	7.8	1.66	7050	5.85	7.04
009826562-04	OBS	No	210.627348	300.500019	1586.9	5.773	8.3	7.6	1.66	7050	12.14	9.64

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009826562-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009826562-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009826562-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
009826562-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

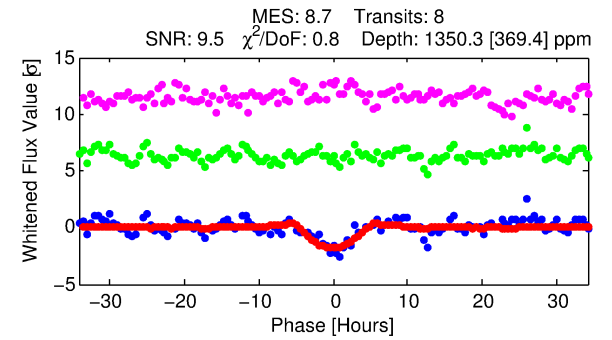
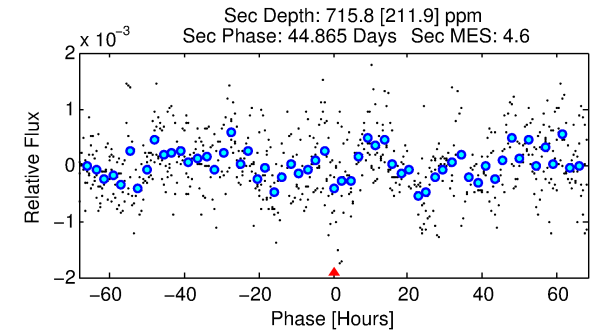
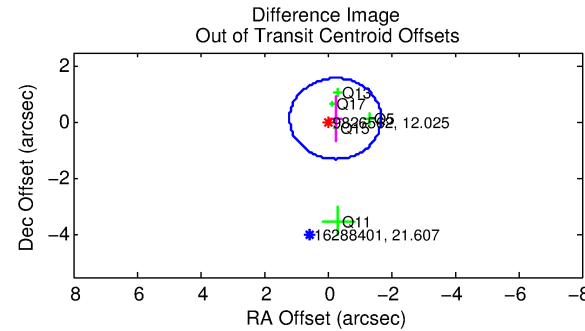
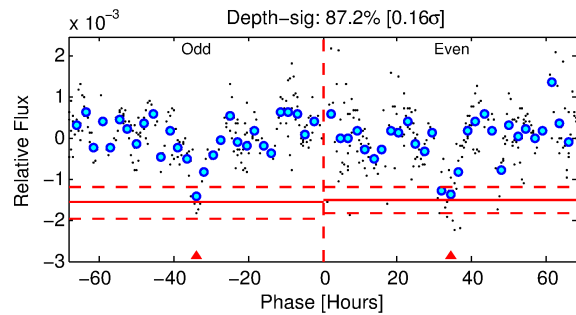
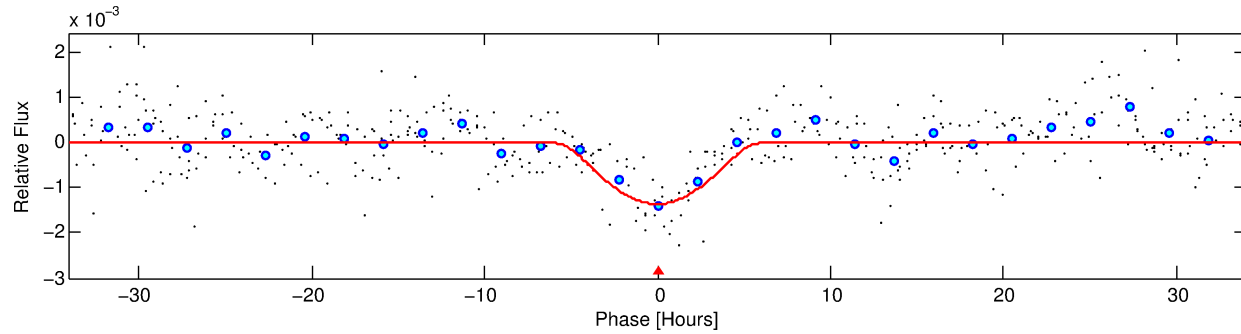
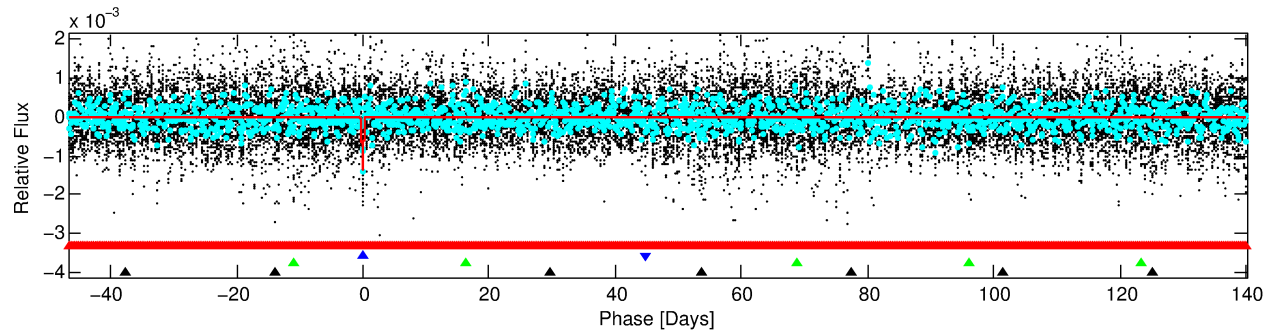
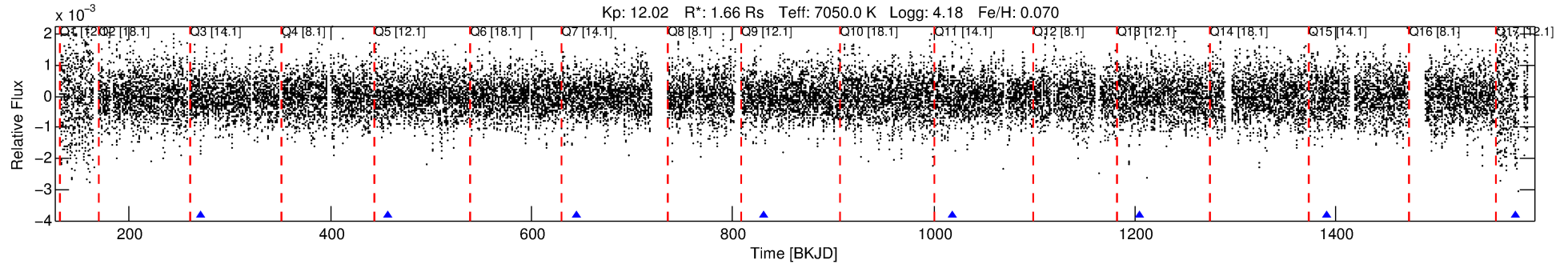
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009826562-02

No Significant Match Found

DV One-Page Summary

KIC: 9826562 Candidate: 2 of 4 Period: 186.775 d



DV Fit Results:

Period = 186.77506 [0.00545] d
Epoch = 270.7544 [0.0227] BKJD
Rp/R* = 0.0623 [0.1666]
a/R* = 45.05 [27.31]
b = 1.00 [0.23]
Seff = 11.32 [4.78]
Teq = 468 [49] K
Rp = 11.25 [30.31] Re
a = 0.7319 [0.1949] AU
Ag = 1667.69 [8958.30] [0.19 σ]
Teffp = 4621 [6194] K [0.67 σ]

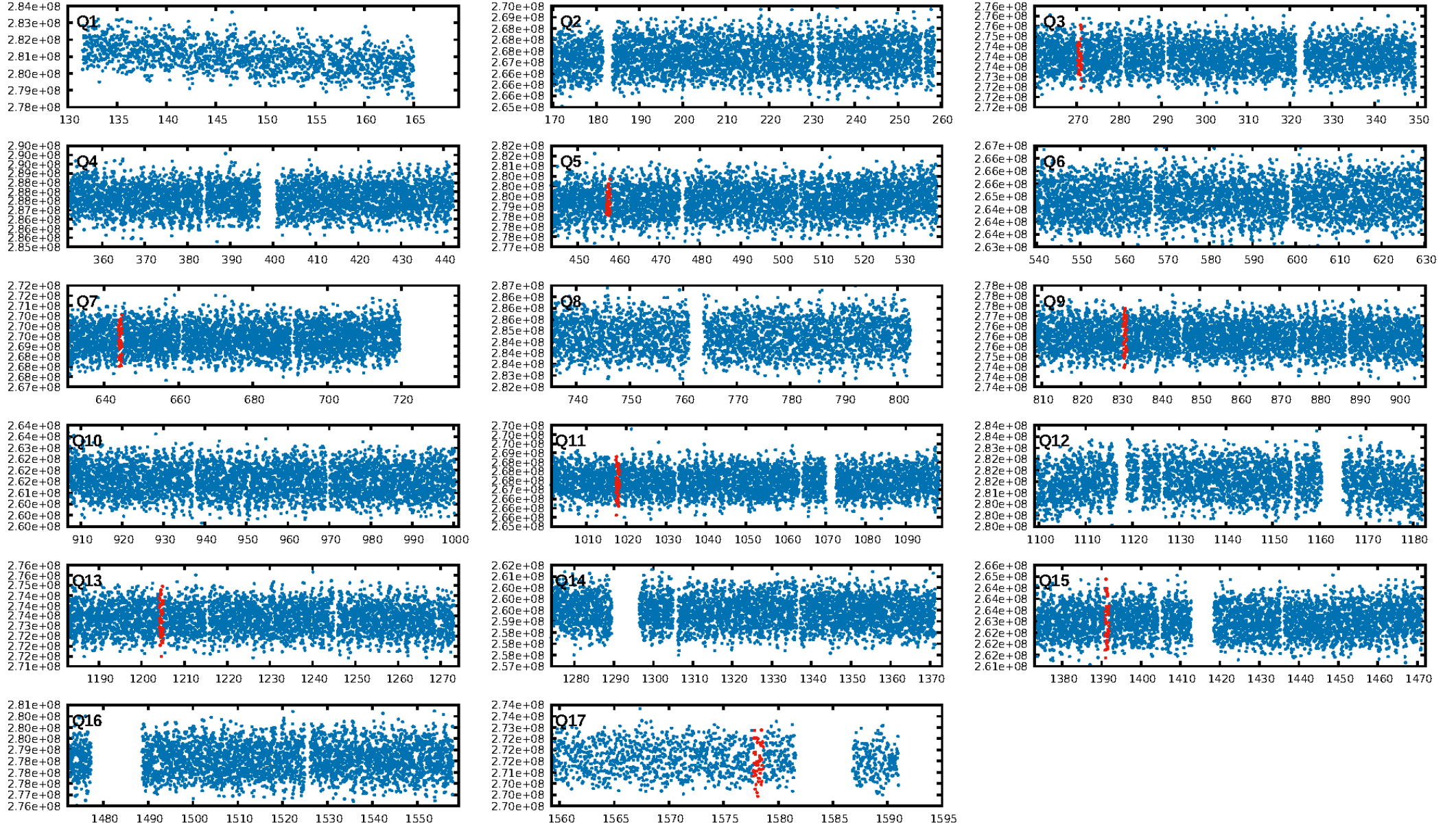
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [383.06 σ]
LongPeriod-sig: 100.0% [44.92 σ]
ModelChiSquare2-sig: 17.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.88e-12
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 3.528
Centroid-sig: 16.2%
Centroid-so: 0.176 arcsec [1.74 σ]
OotOffset-rm: 0.280 arcsec [0.58 σ]
KicOffset-rm: 0.244 arcsec [0.86 σ]
OotOffset-st: 0/2/0/3 [5]
KicOffset-st: 0/2/0/3 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.00 [0/6]

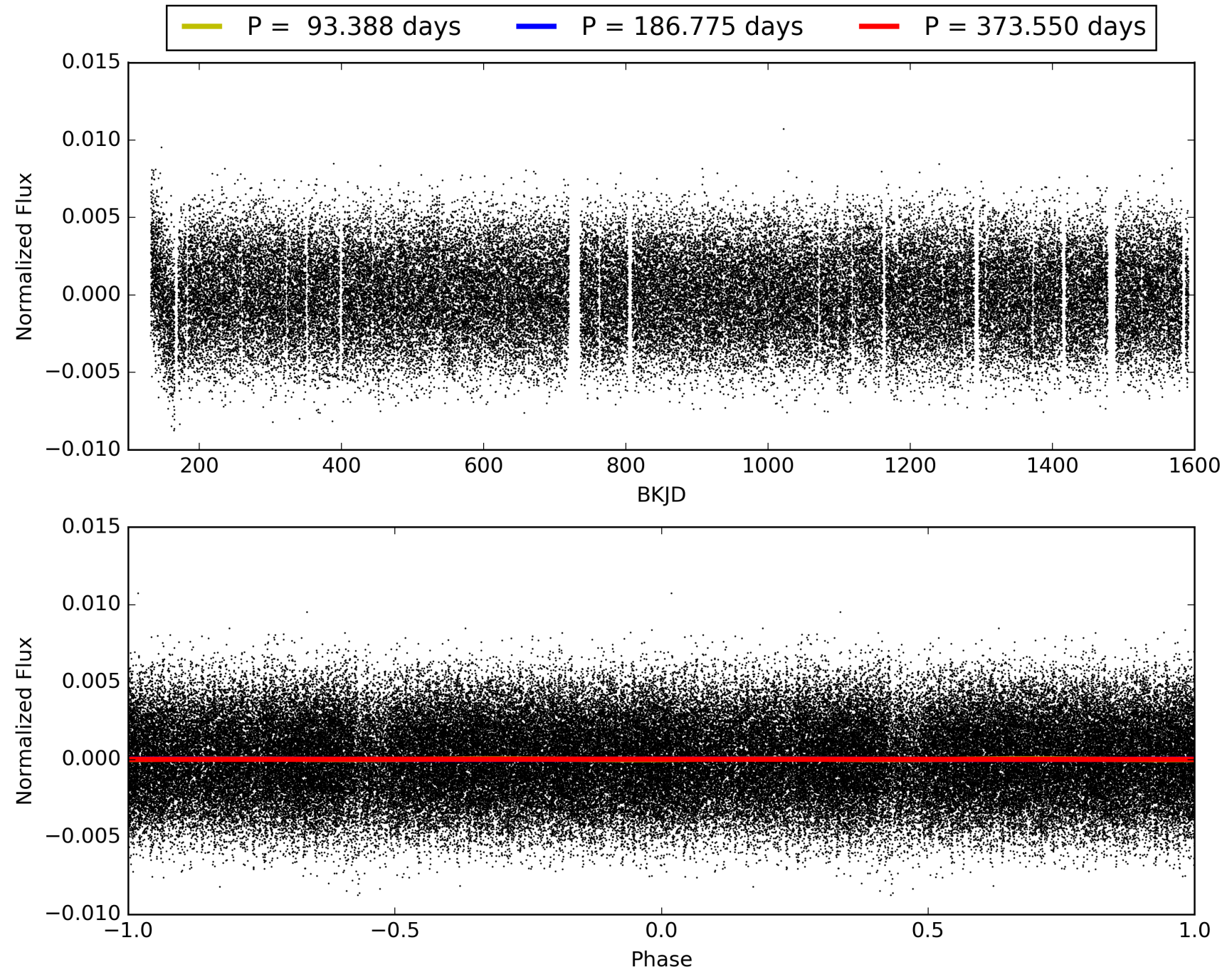
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:02:16 Z

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

TCE 009826562-02, PDC Light Curves

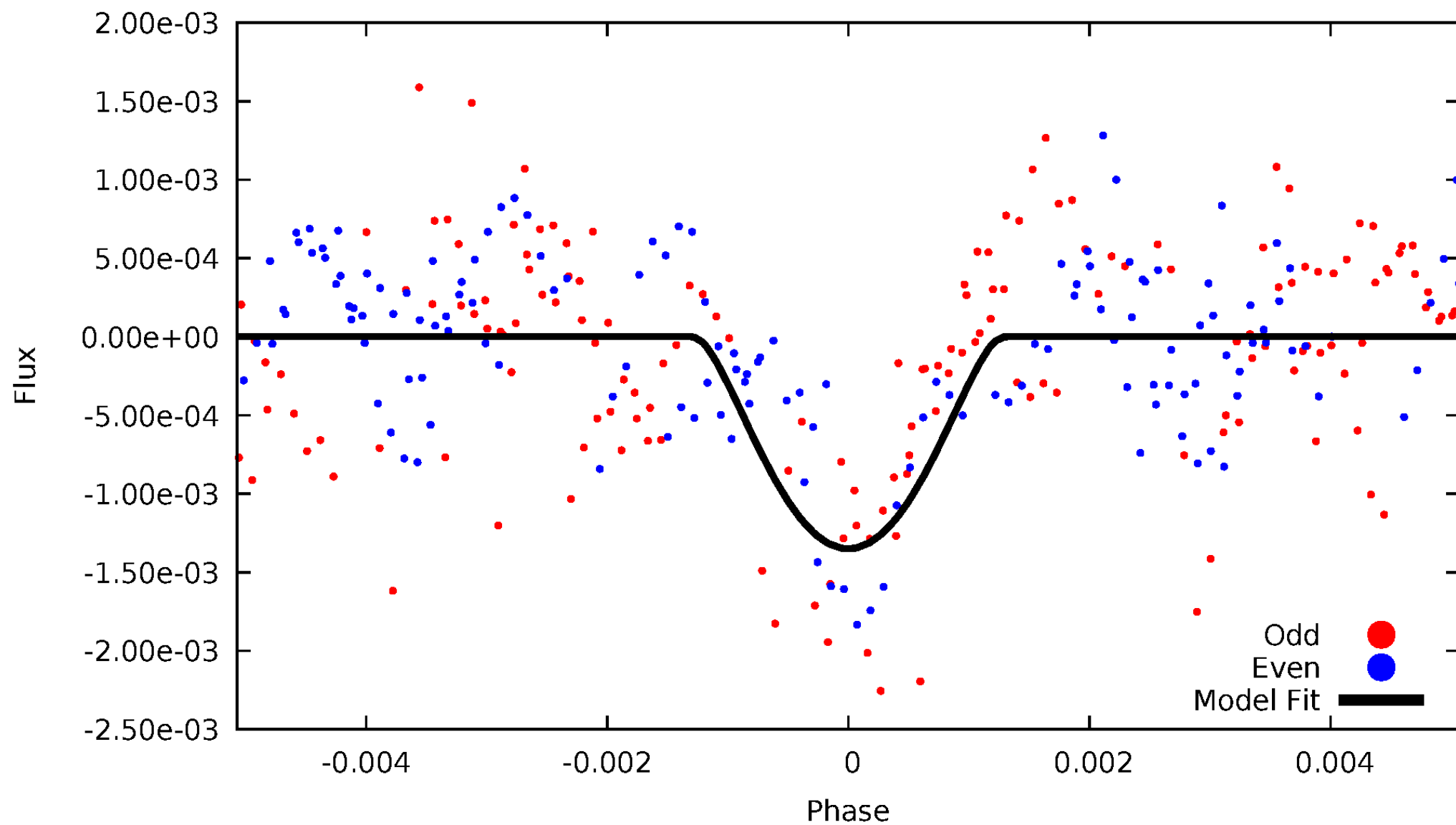


TCE 009826562-02



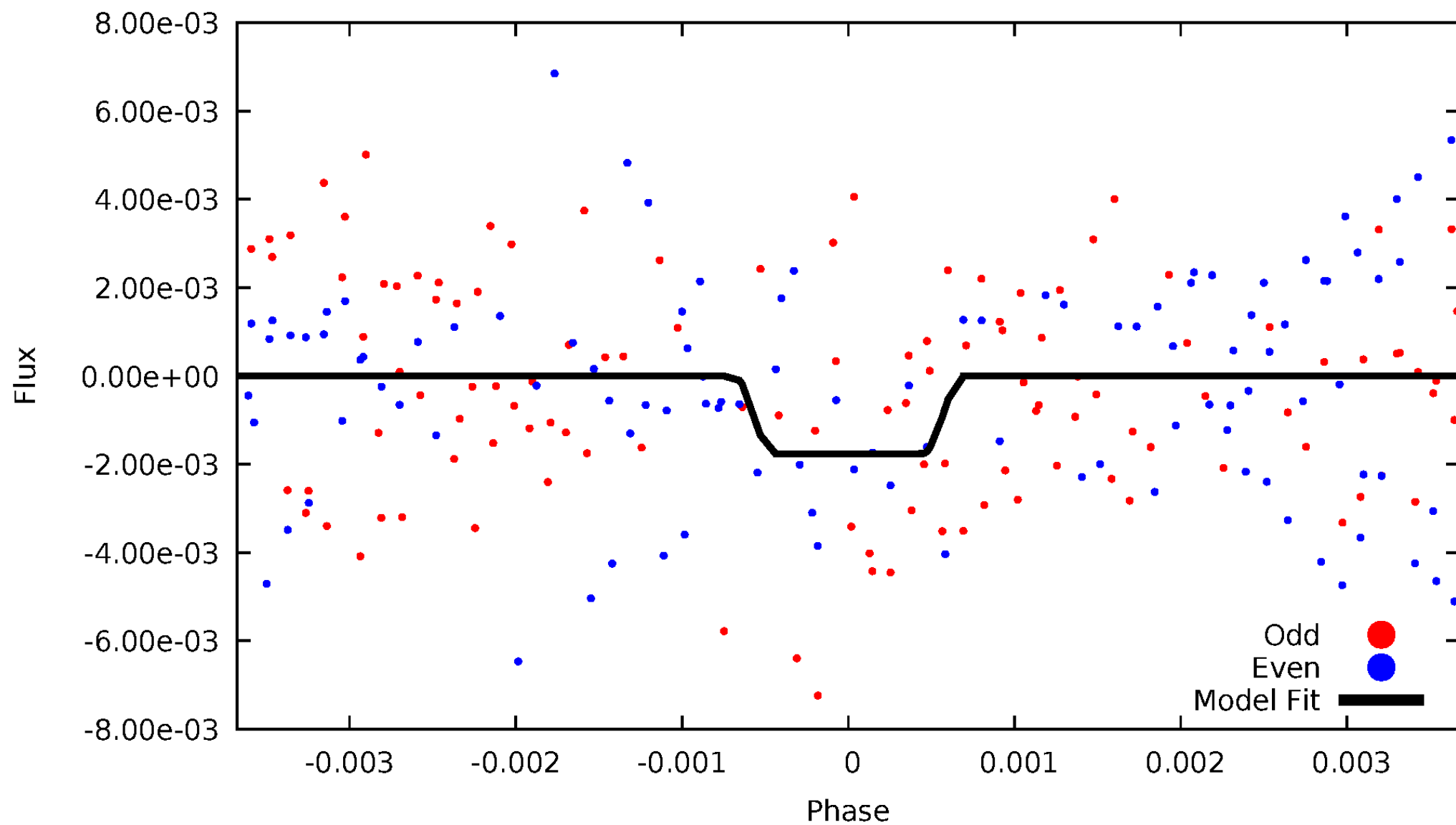
DV Odd/Even

TCE 009826562-02



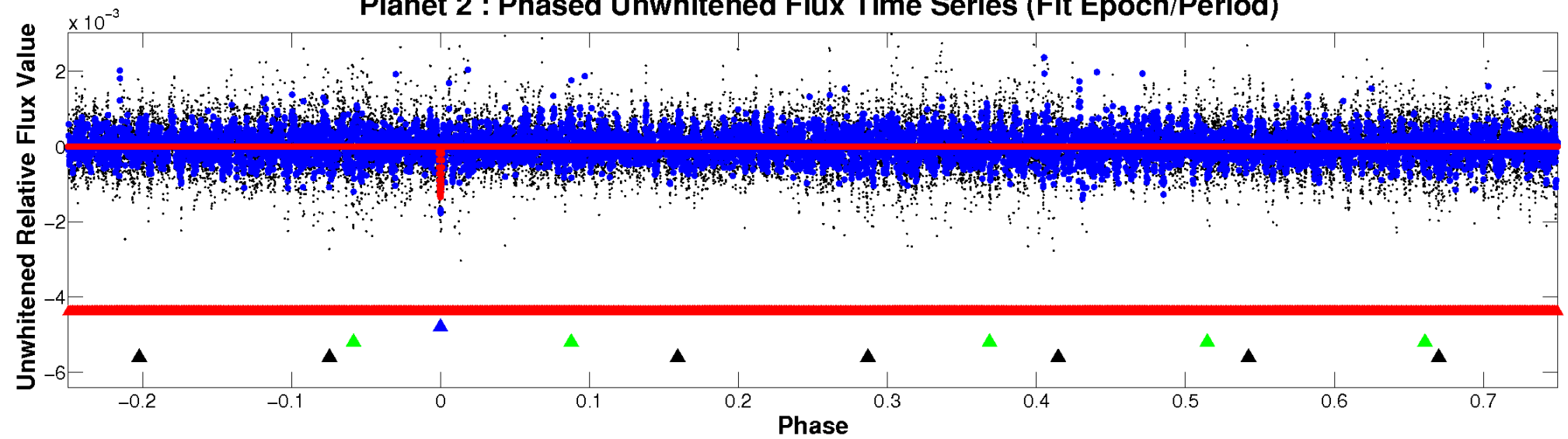
ALT Odd/Even

TCE 009826562-02

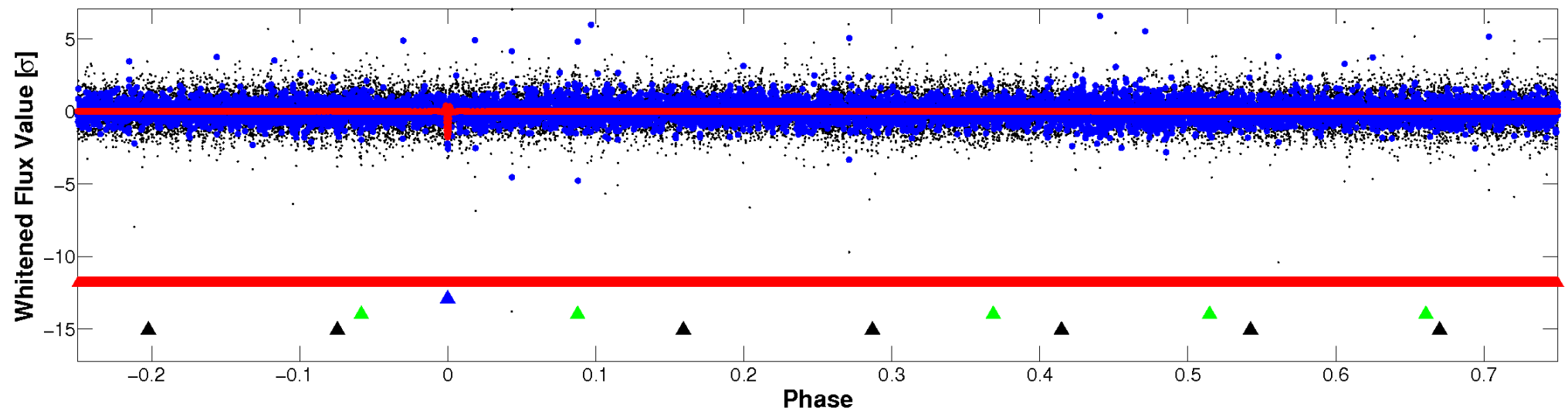


Non-Whitened Vs. Whitened Light Curve

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

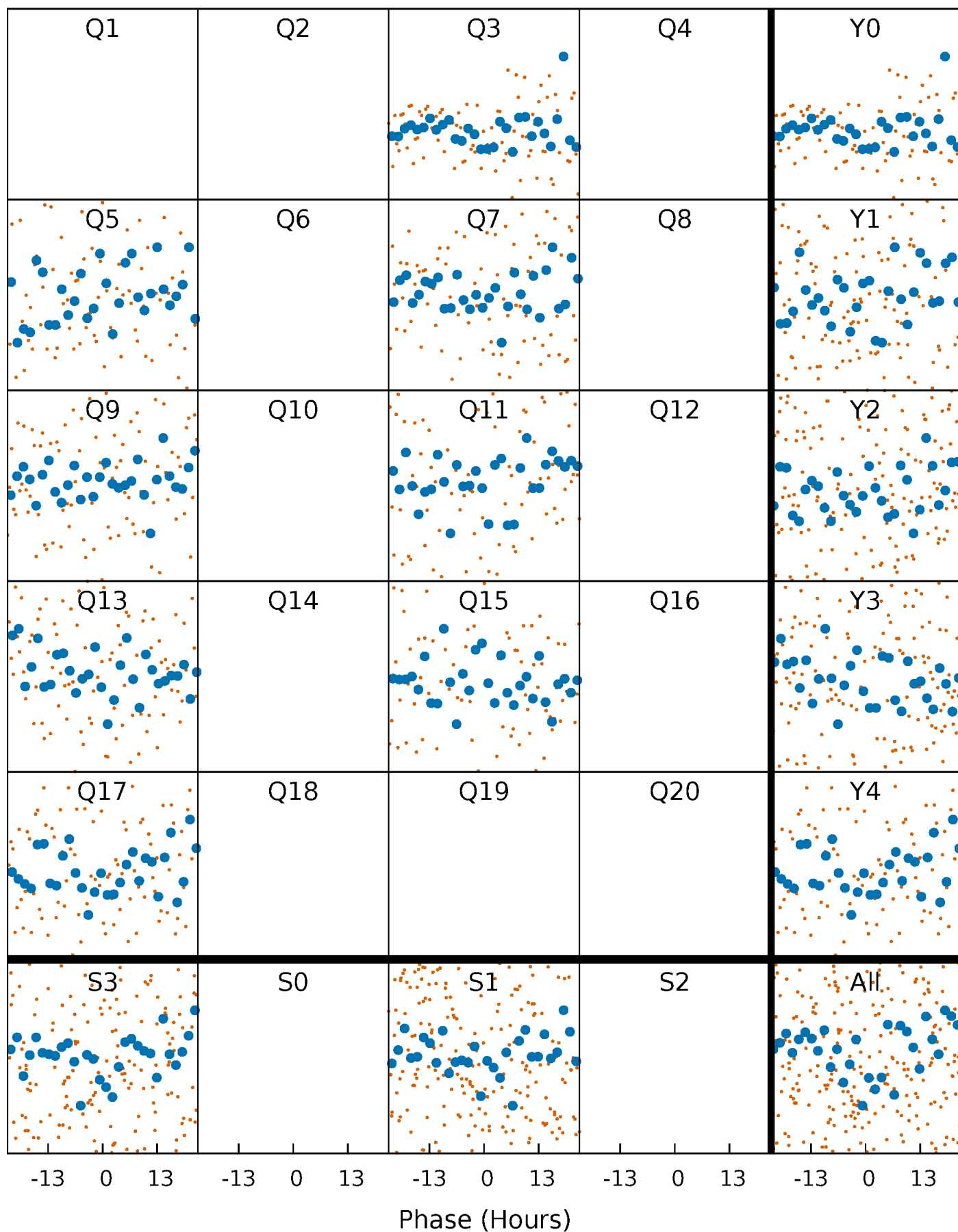


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



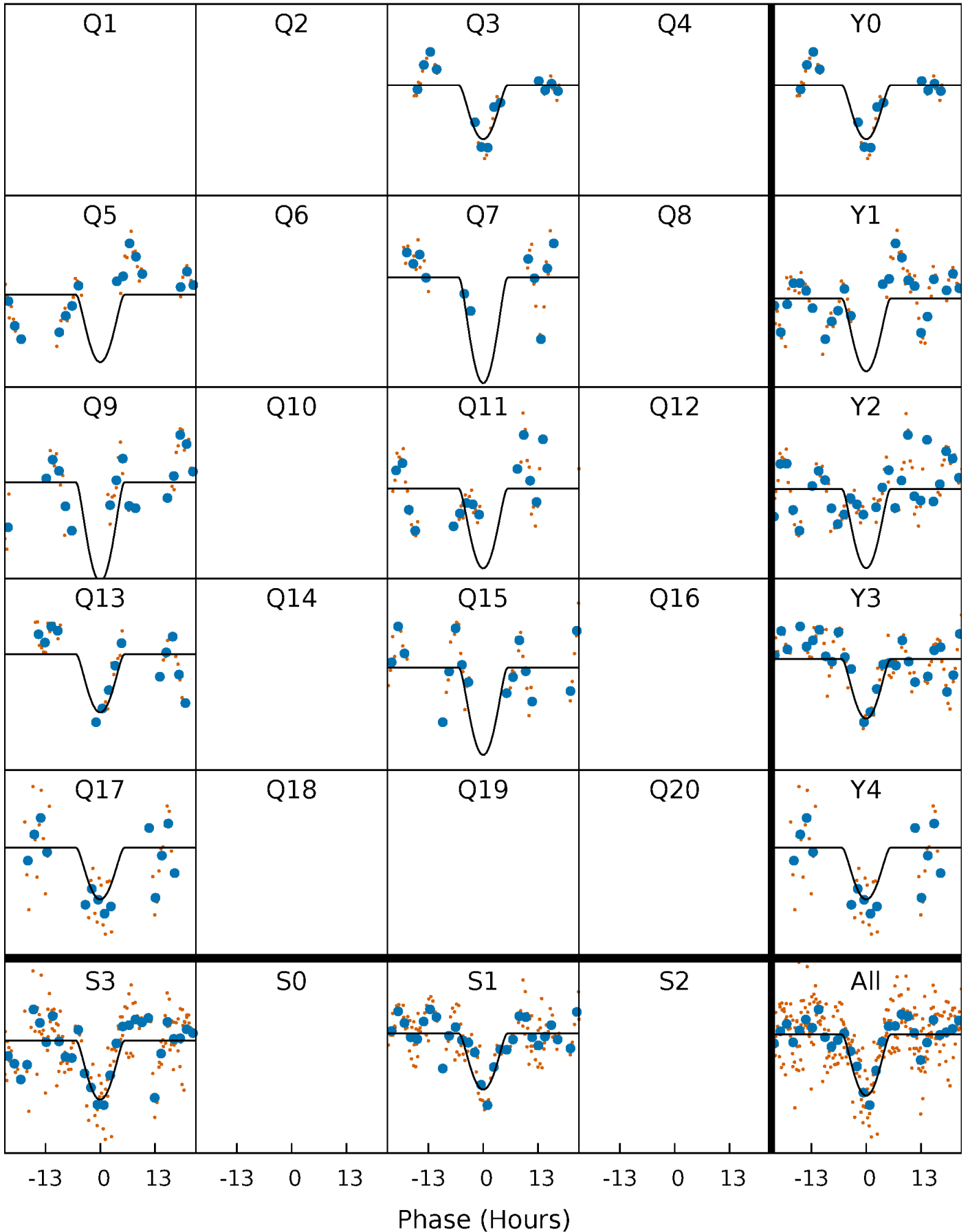
PDC Quarter-Phased Transit Curves

TCE 009826562-02 P=186.775060 Days $T_0=270.754365$ (BKJD)



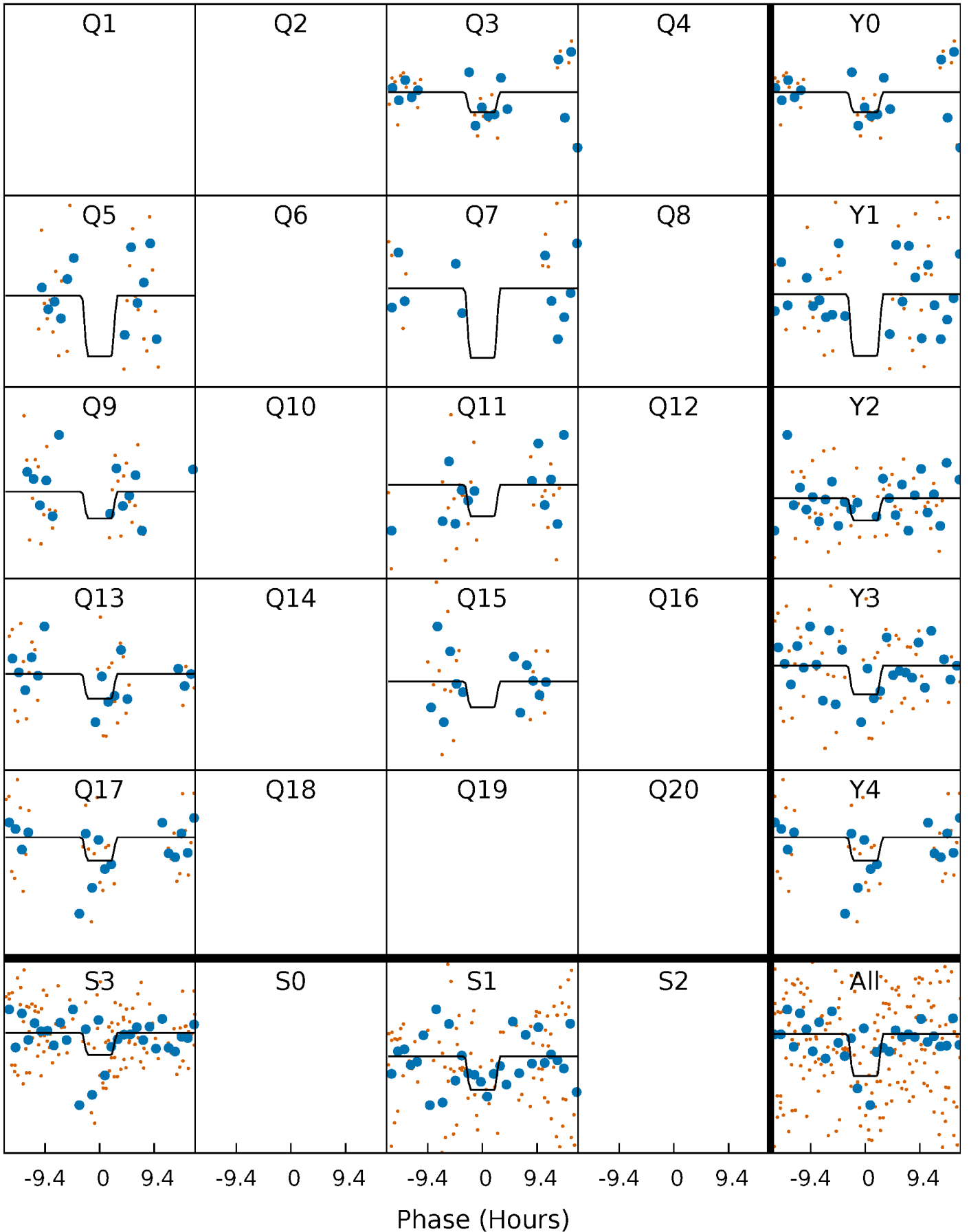
DV Quarter-Phased Transit Curves

TCE 009826562-02 $P=186.775060$ Days $T_0=270.754365$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

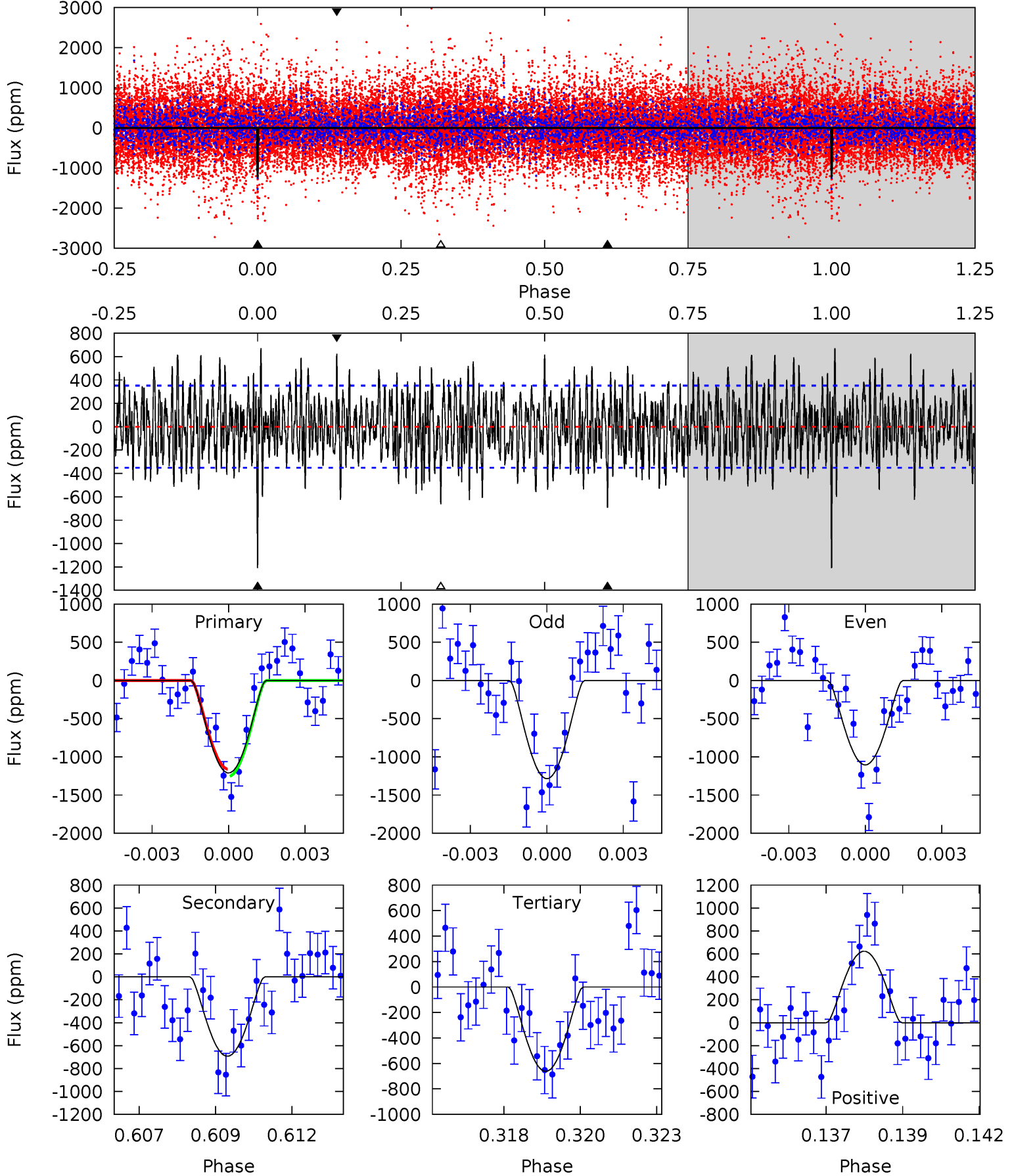
TCE 009826562-02 P=186.774900 Days $T_0=270.761399$ (BKJD)



DV Model-Shift Uniqueness Test

009826562-02, P = 186.775060 Days, E = 83.979305 Days

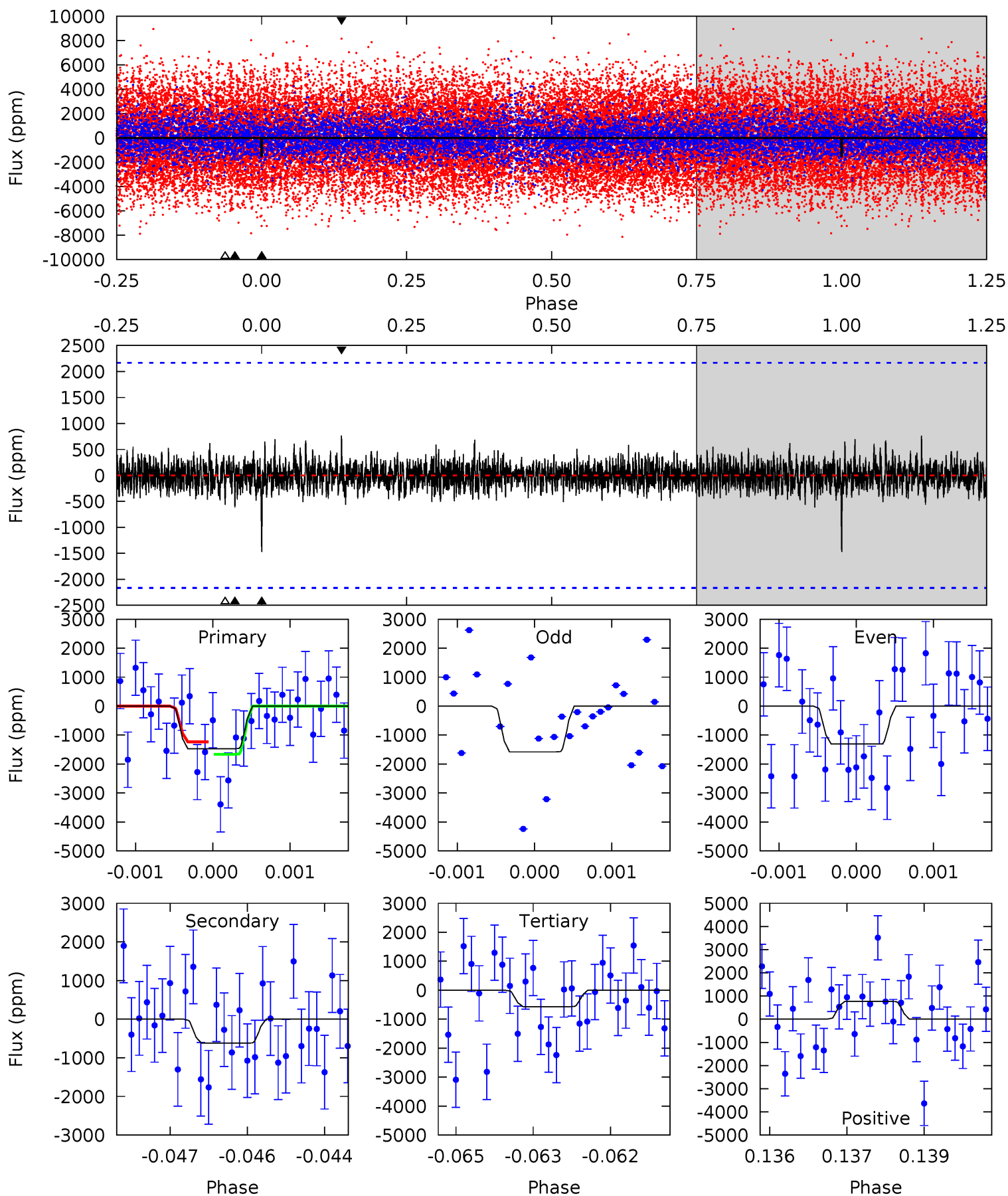
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	10.4	9.94	9.36	5.28	3.01	3.41	8.23	8.81	0.45	1.04	1.35	0.92	0.36	0.68



Alt Model-Shift Uniqueness Test

009826562-02, P = 186.774900 Days, E = 83.986499 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.67	1.54	1.41	1.91	5.40	3.21	0.43	2.26	1.76	0.13	-0.37	0.33	0.83	0.34	0.53



Stellar Parameters For KIC 009826562

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7050^{+195}_{-335}	$4.176^{+0.108}_{-0.201}$	$0.070^{+0.200}_{-0.350}$	$1.655^{+0.539}_{-0.290}$	$1.497^{+0.214}_{-0.236}$	$0.465^{+0.278}_{-0.247}$
	+3%/-5%	+3%/-5%	+286%/-500%	+33%/-18%	+14%/-16%	+60%/-53%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009826562-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-692 ± 67	$24.54^{+28.32}_{-16.77}$	656^{+52}_{-44}	3534^{+2102}_{-684}	336^{+3242}_{-265}
Alt.	-619 ± 401	$24.45^{+24.17}_{-17.20}$	656^{+55}_{-45}	3423^{+1660}_{-804}	253^{+2023}_{-216}

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 $A_{obs} \gg 1.0$

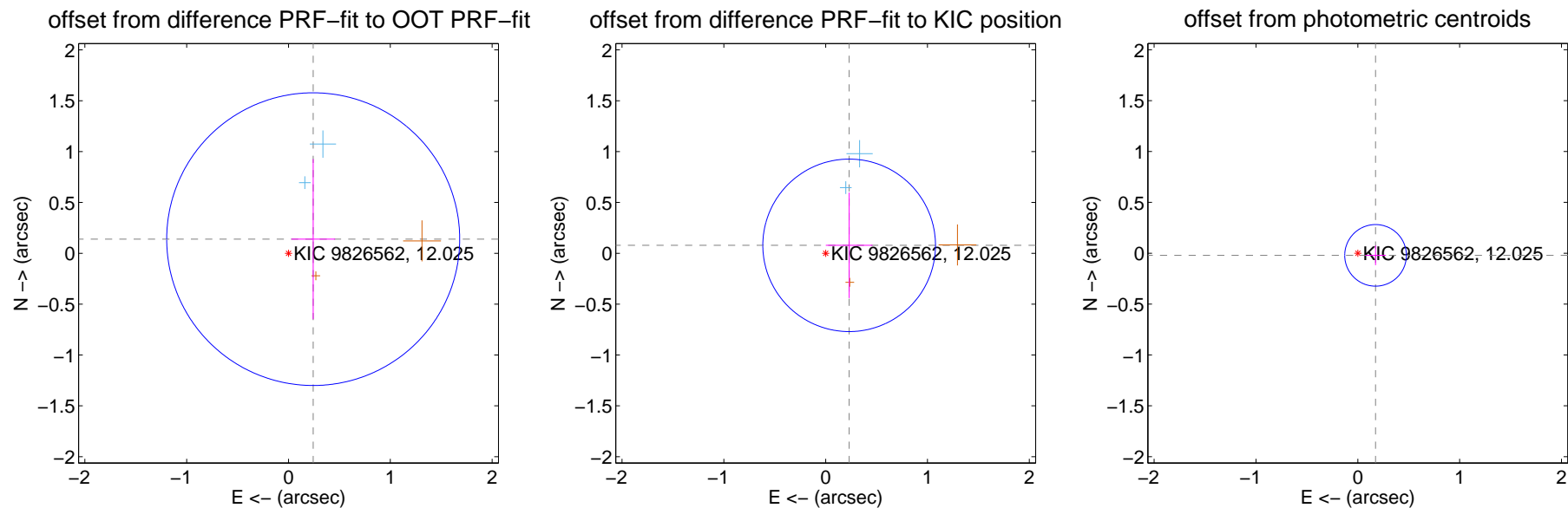
DV Centroid Data

Supplemental centroid analysis for 009826562-02. Kepler magnitude: 12.03. Transit SNR 9.54

There are 3 quarters with good PRF difference image offsets

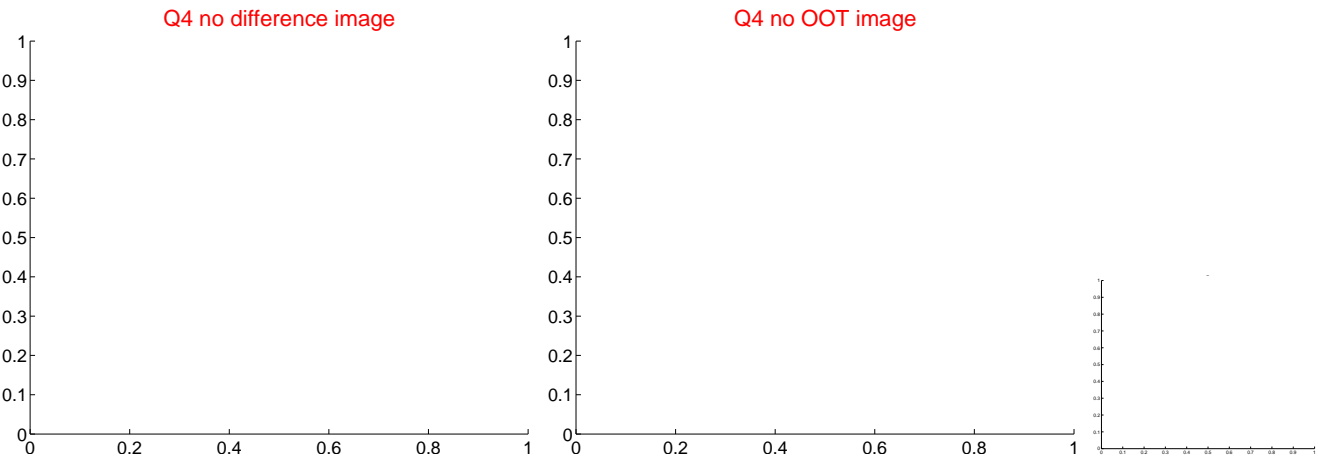
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.280 ± 0.480	0.58	-0.243 ± 0.215	0.139 ± 0.788
PRF-fit source offset from KIC position	0.244 ± 0.283	0.86	-0.231 ± 0.229	0.078 ± 0.519
photometric centroid source offset	0.18 ± 0.10	1.74	-0.17 ± 0.10	-0.02 ± 0.10

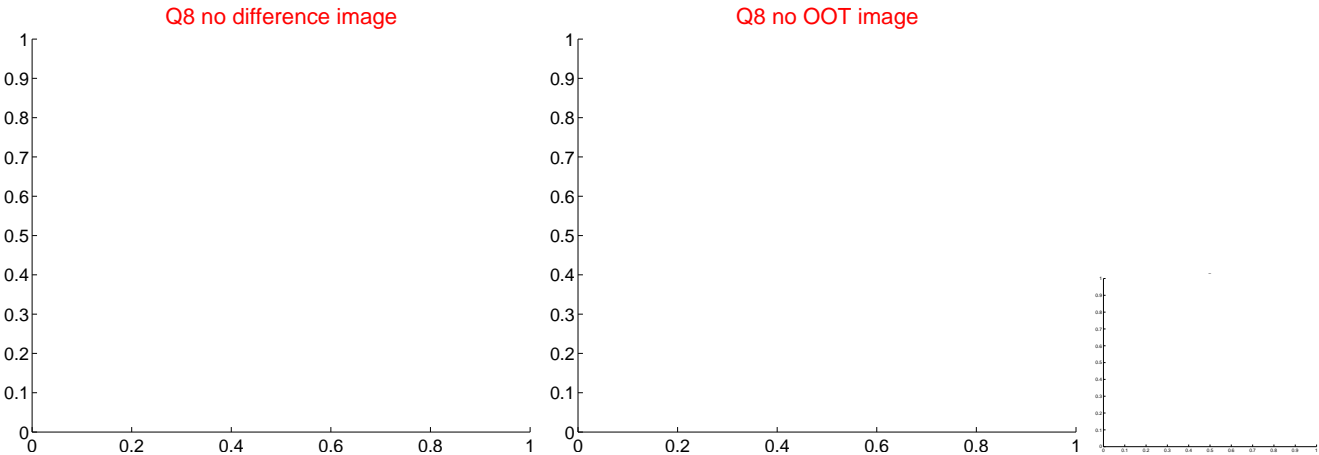
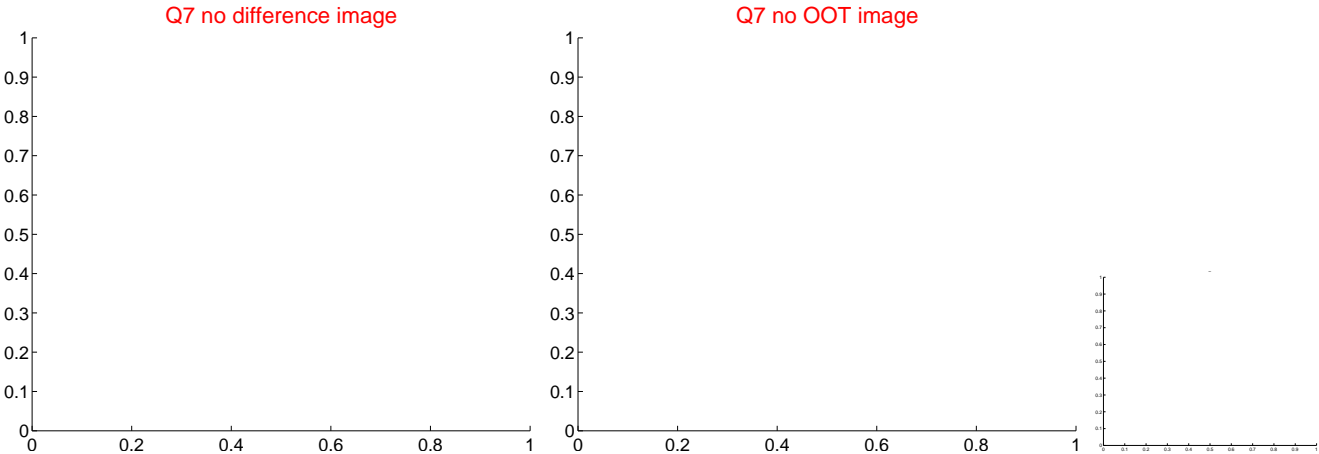
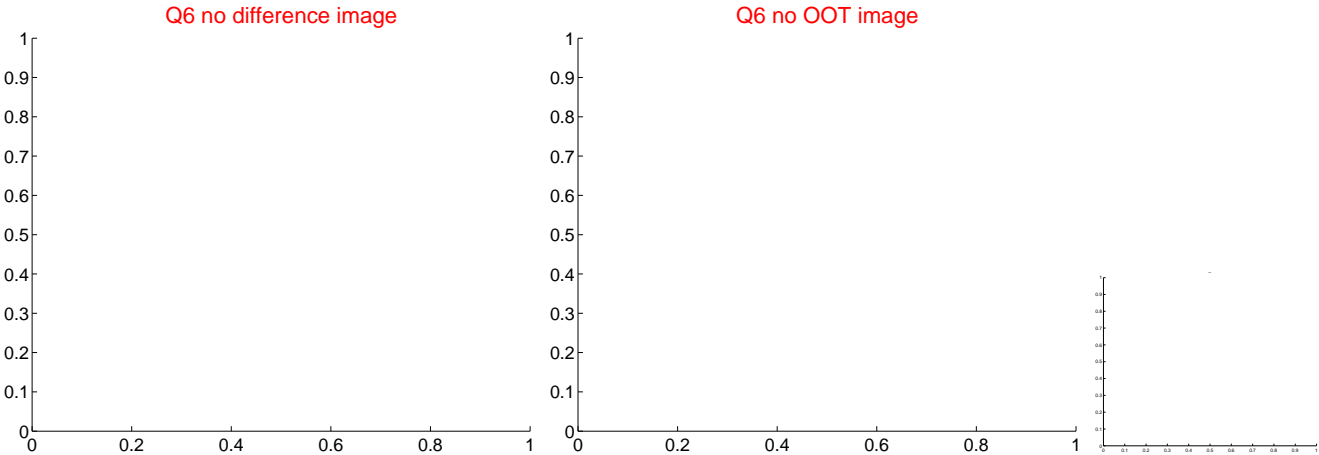
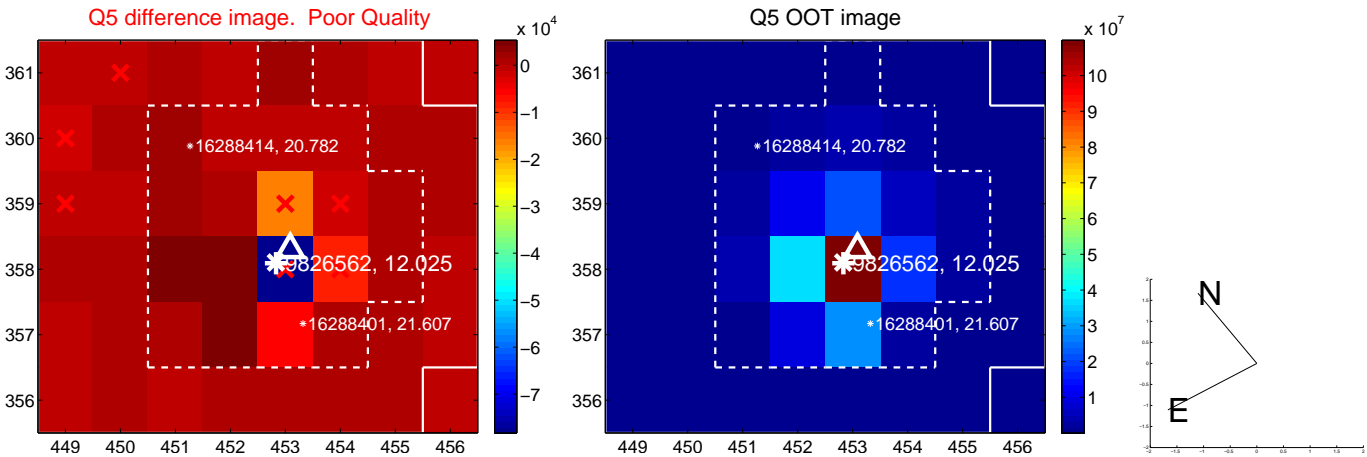


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

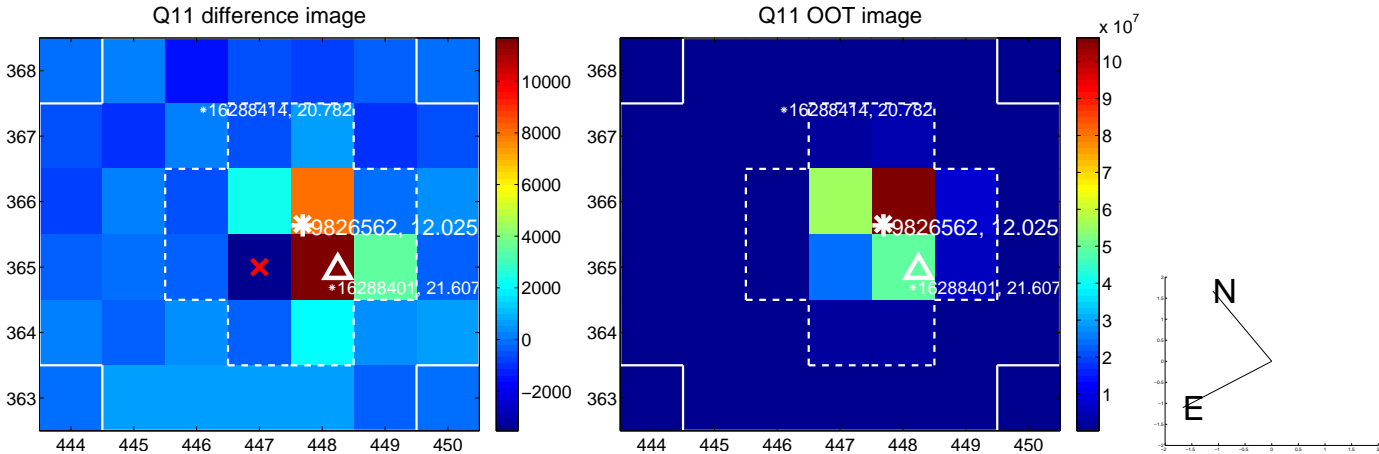
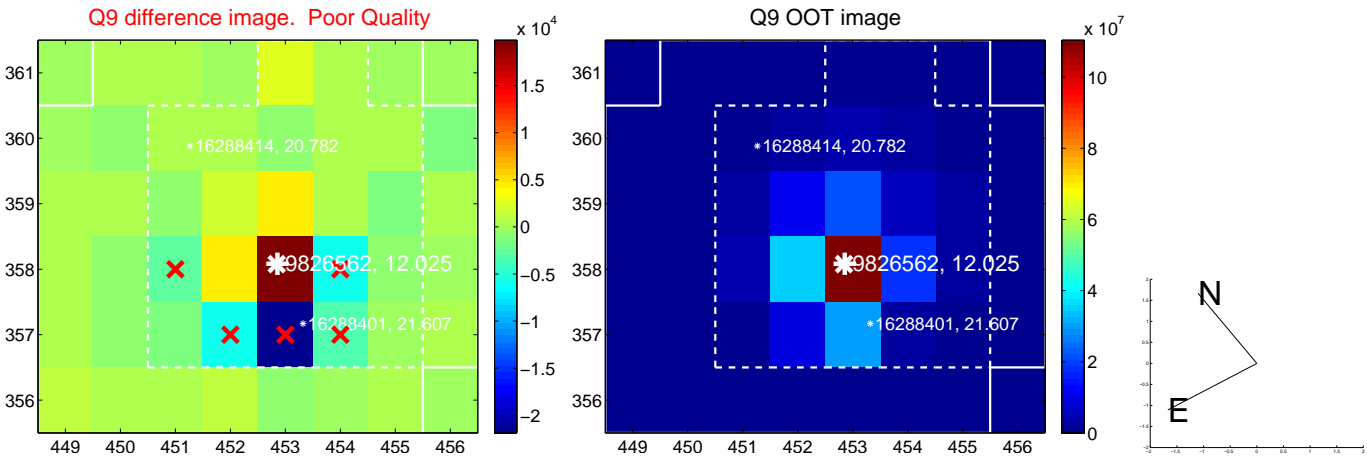
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



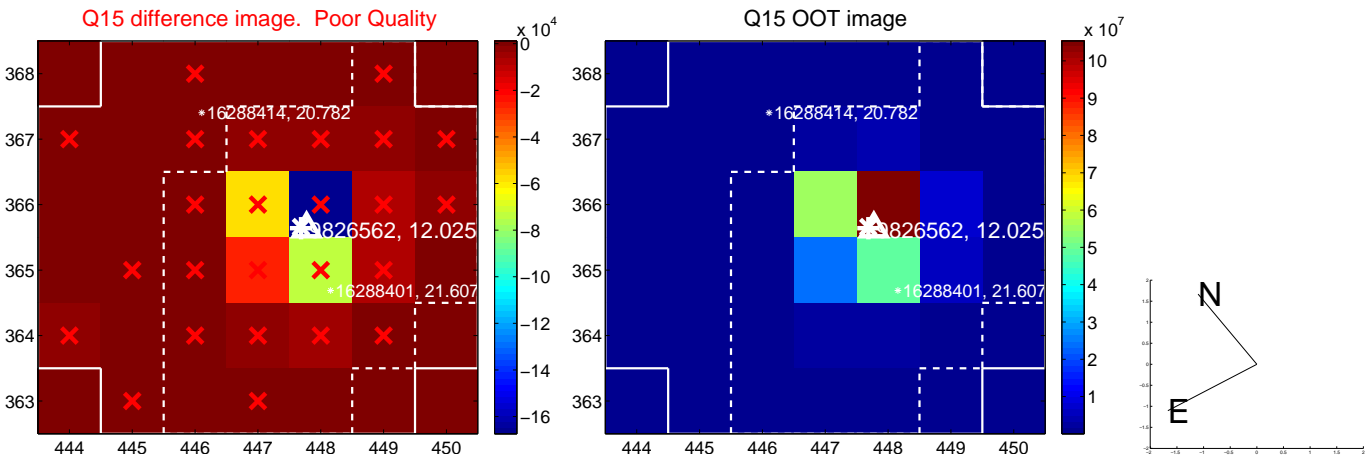
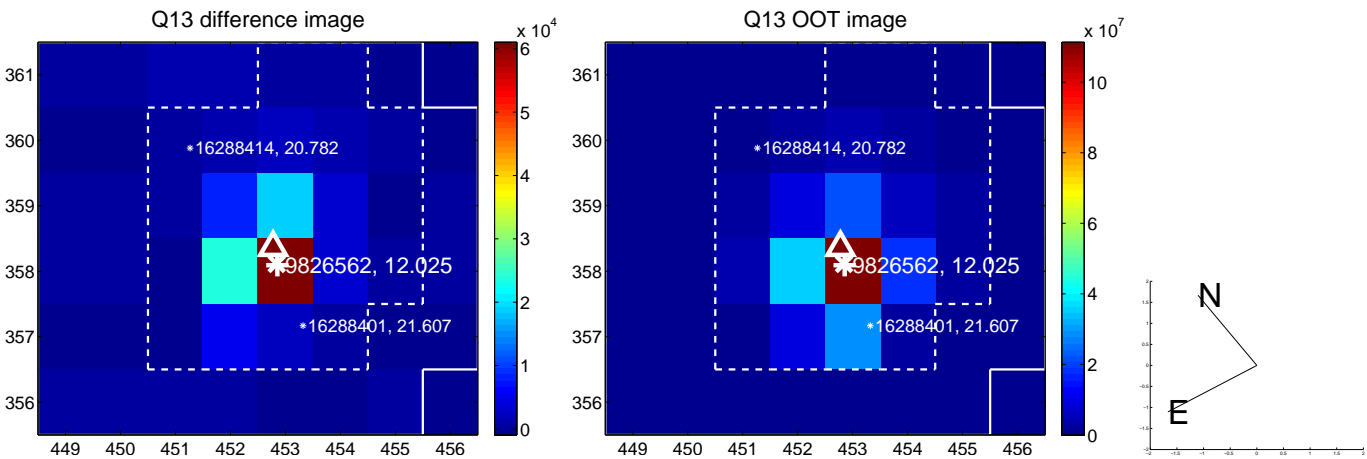
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



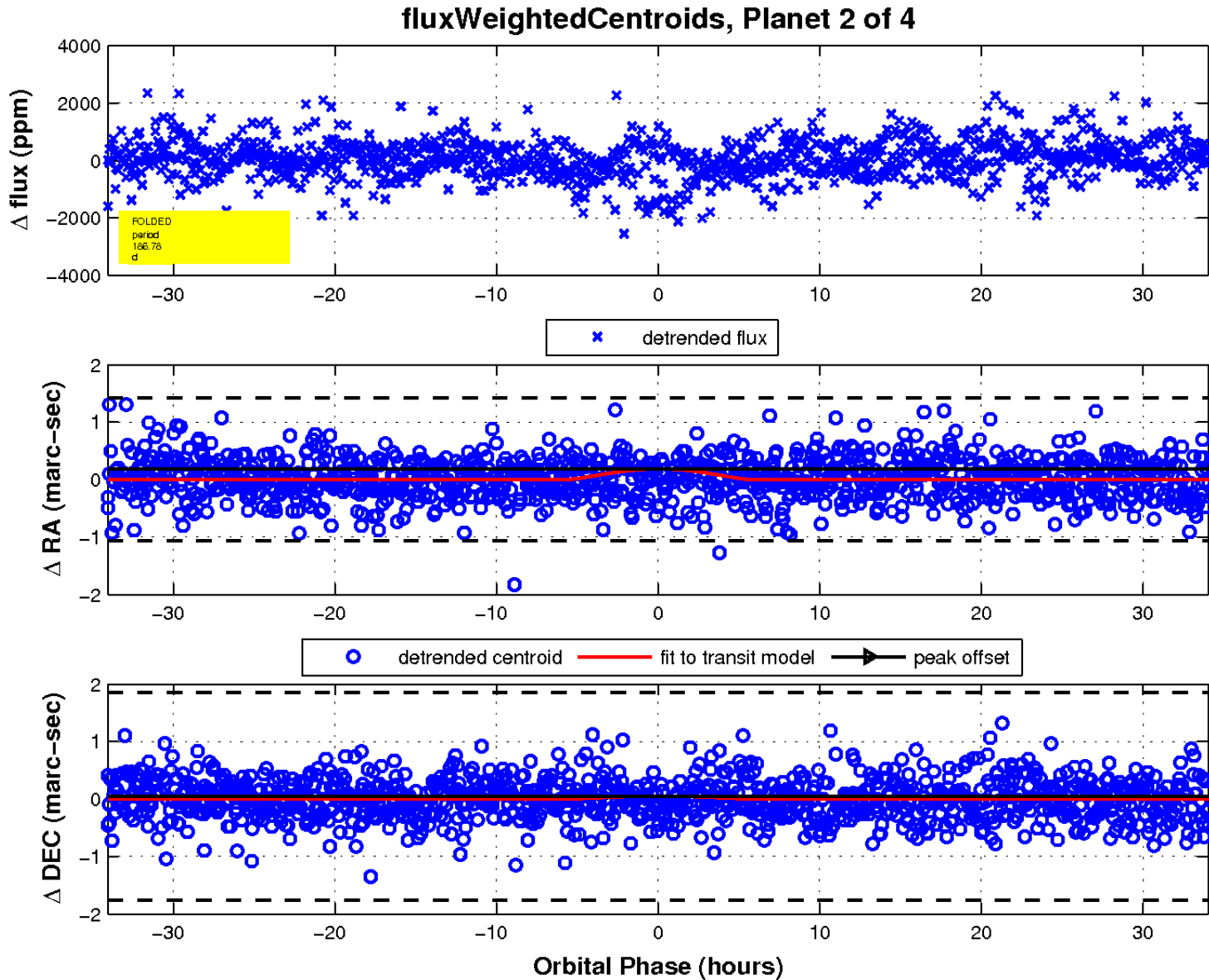
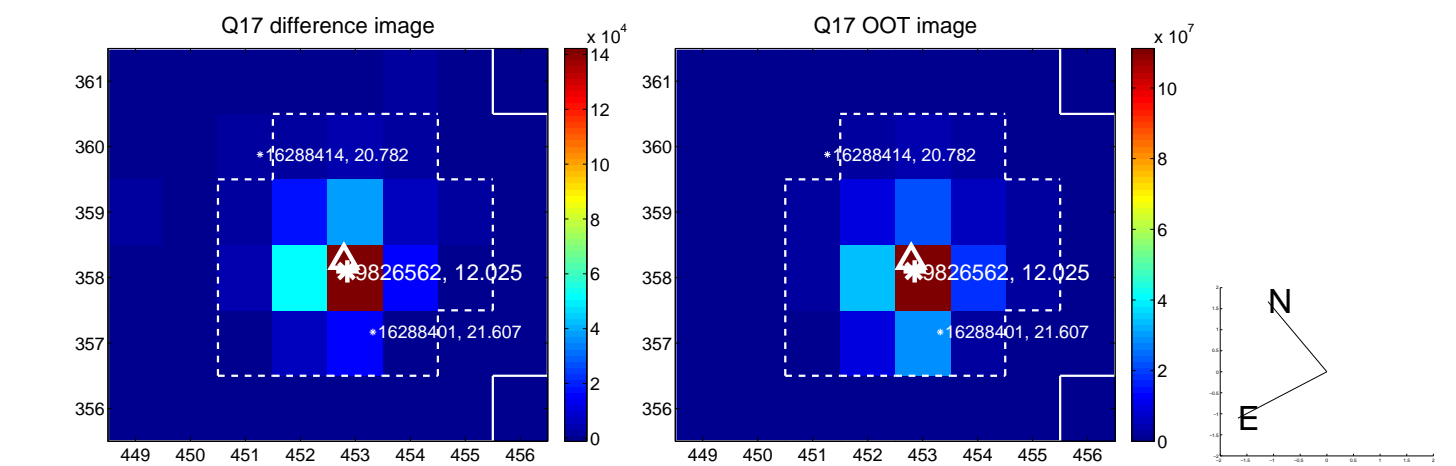
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

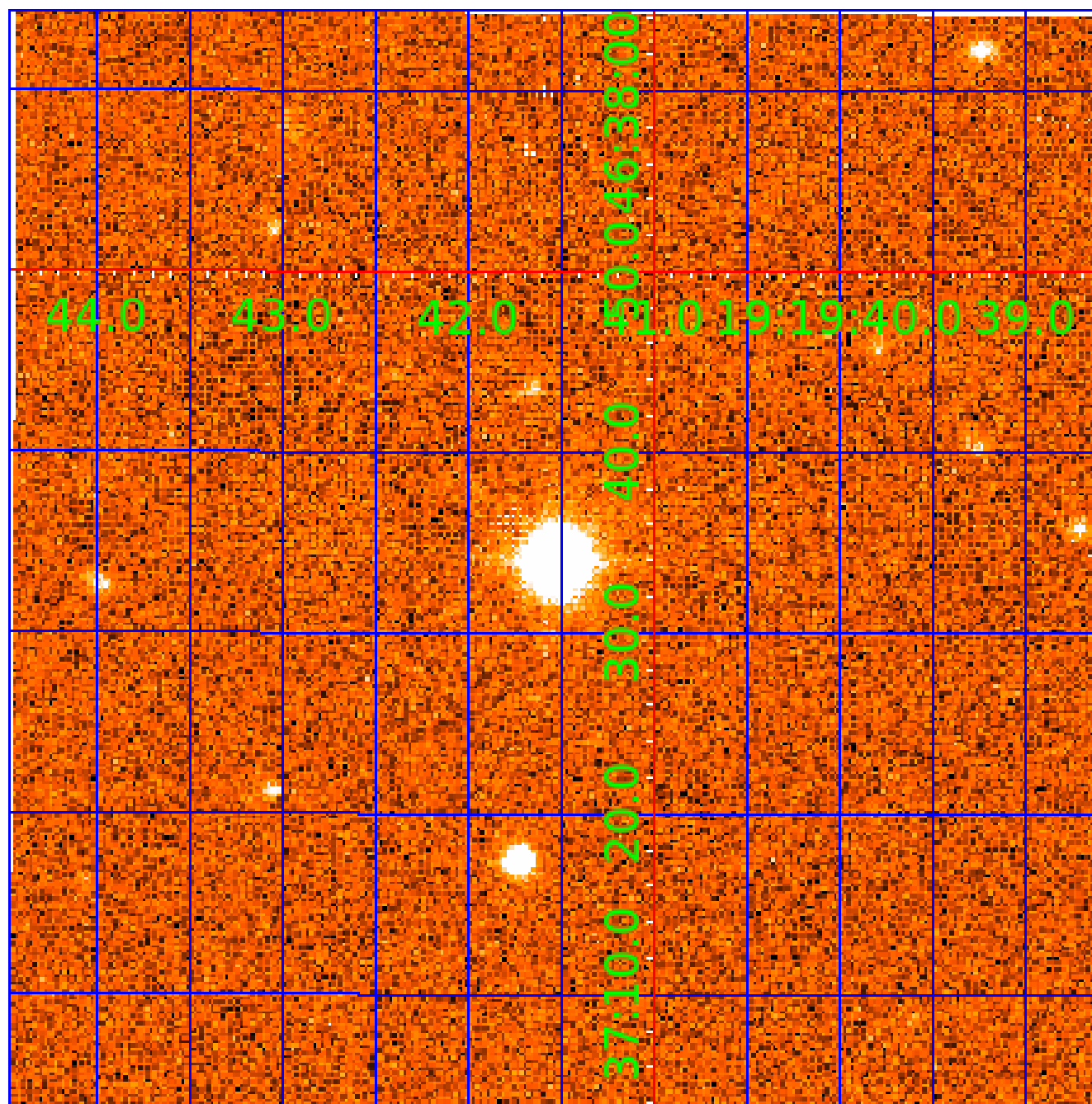


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009826562

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})
009826562-01	OBS	No	0.611198	131.763798	56.0	2.635	10.3	9.3	1.66	7050	1.44	23295.59
009826562-02	OBS	No	186.775060	270.754365	1350.3	11.362	8.7	9.5	1.66	7050	11.25	11.32
009826562-03	OBS	No	266.514956	394.183830	1219.3	3.175	8.1	7.8	1.66	7050	5.85	7.04
009826562-04	OBS	No	210.627348	300.500019	1586.9	5.773	8.3	7.6	1.66	7050	12.14	9.64

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009826562-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009826562-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009826562-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
009826562-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

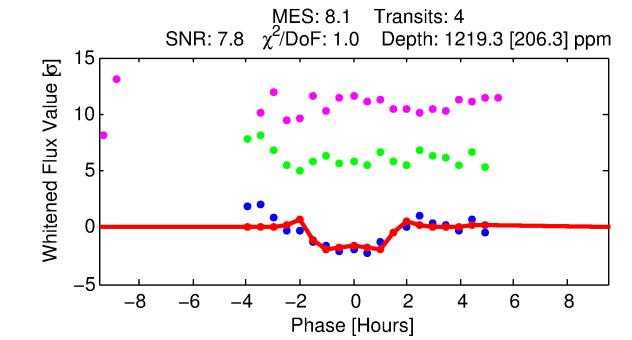
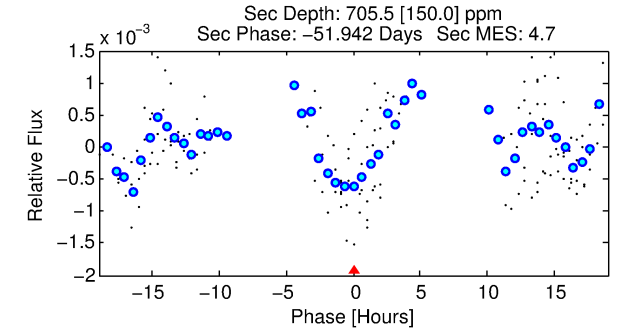
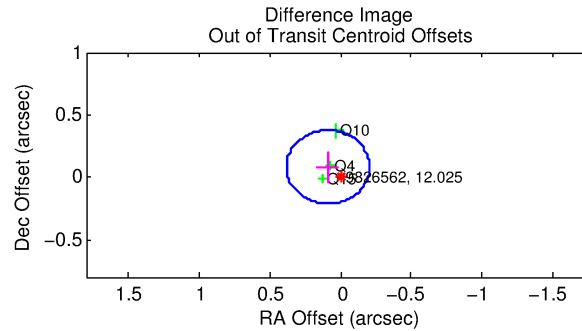
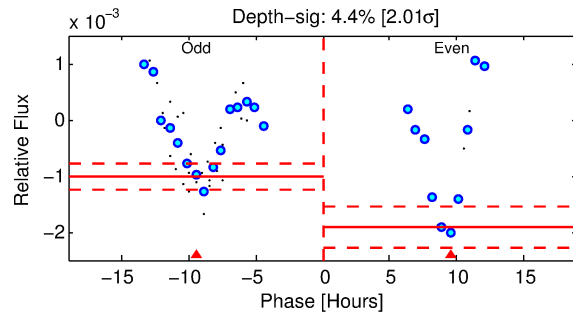
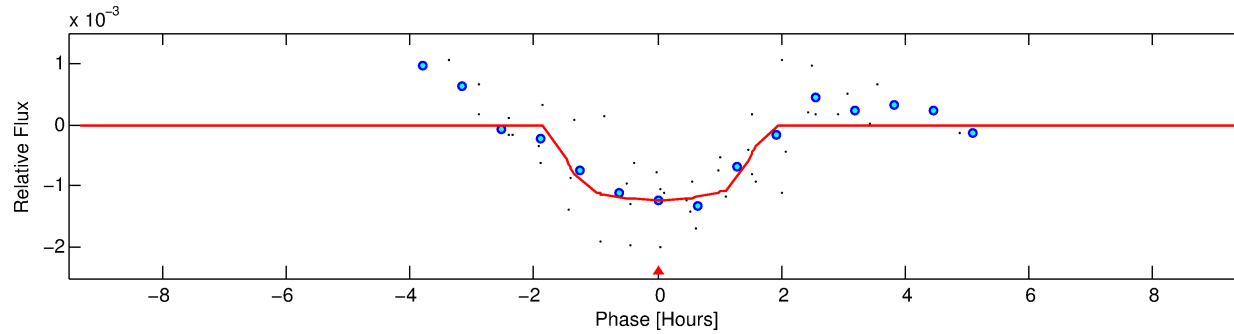
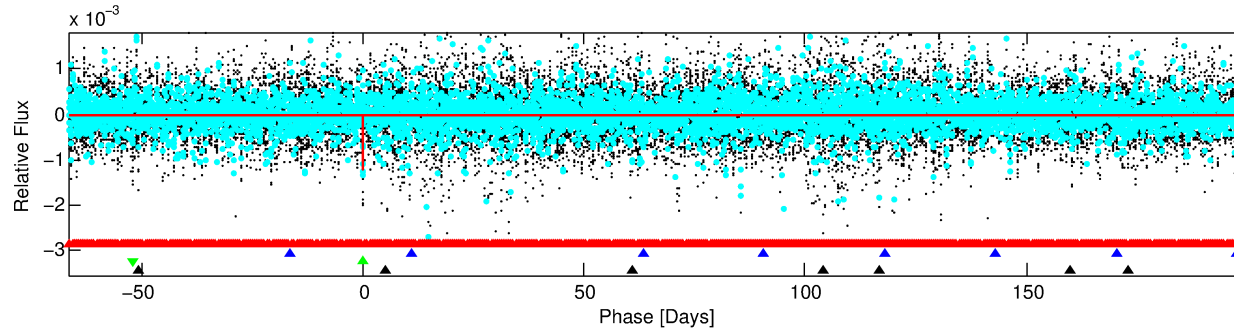
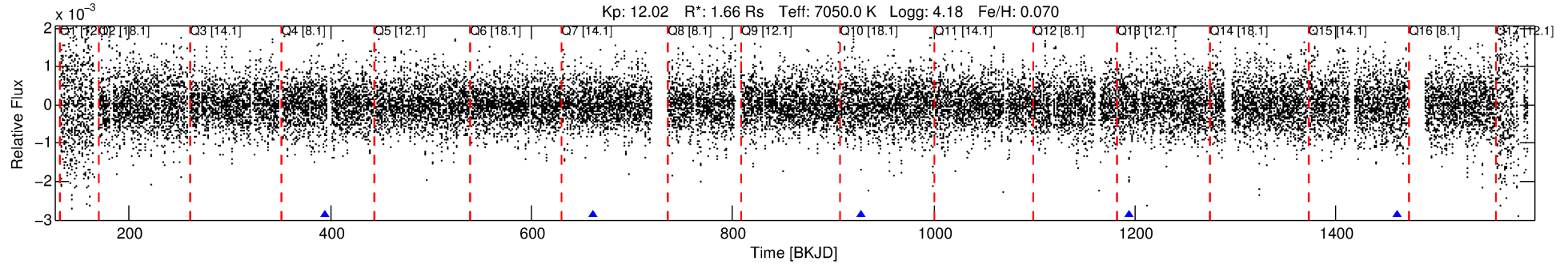
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009826562-03

No Significant Match Found

DV One-Page Summary

KIC: 9826562 Candidate: 3 of 4 Period: 266.515 d



DV Fit Results:

Period = 266.51496 [0.00330] d
Epoch = 394.1838 [0.0093] BKJD
Rp/R* = 0.0324 [0.0602]
a/R* = 657.47 [6923.35]
b = 0.12 [86.44]
Seff = 7.05 [2.98]
Teq = 415 [44] K
Rp = 5.85 [11.04] Re
a = 0.9276 [0.2471] AU
Ag = 9759.34 [36517.94] [0.27 σ]
Teffp = 6384 [5949] K [1.00 σ]

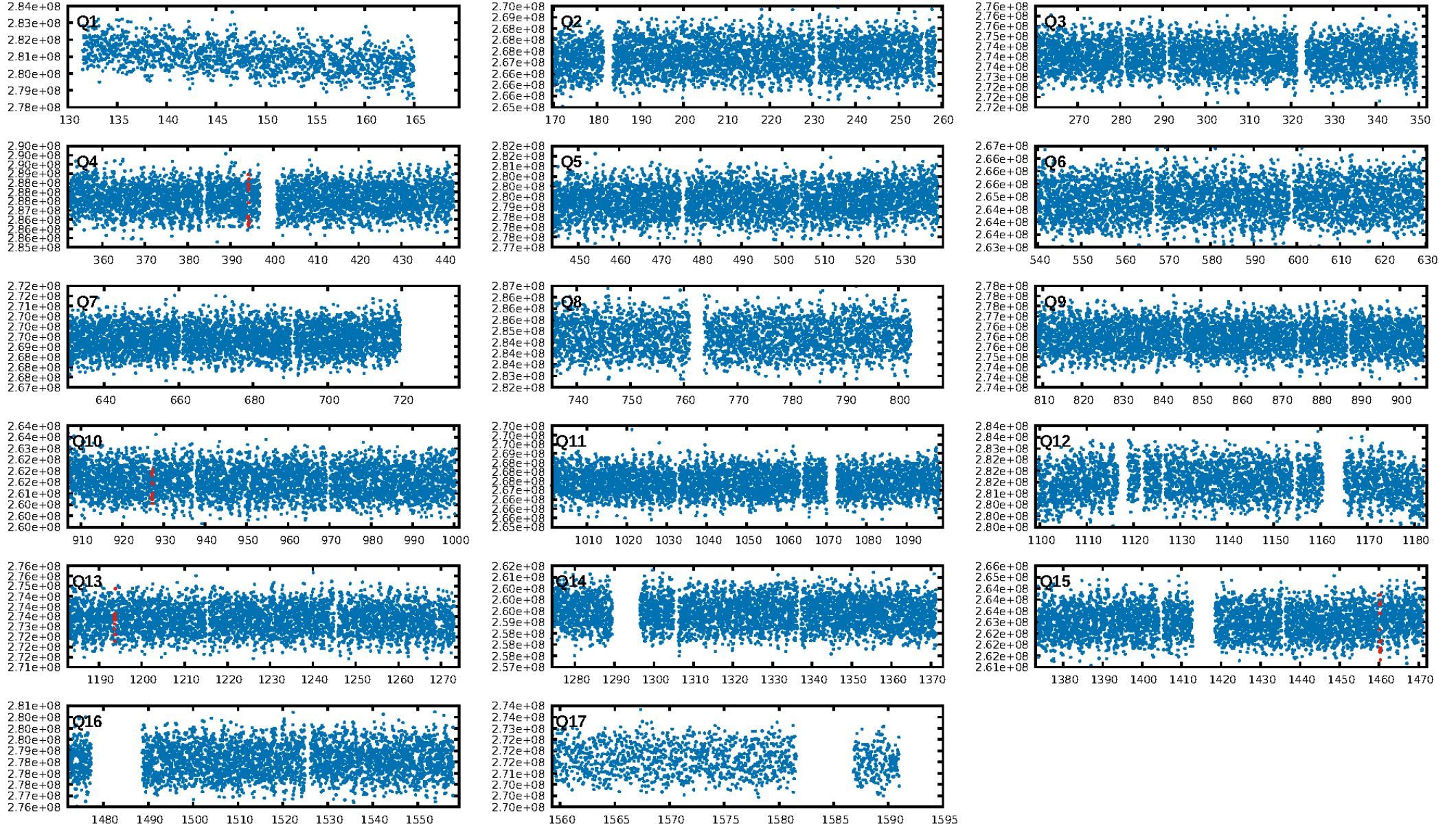
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [203.59 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 50.3%
ModelChiSquareGof-sig: 97.6%
Bootstrap-pfa: 4.94e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.177
Centroid-sig: 42.4%
Centroid-so: 0.224 arcsec [1.13 σ]
OotOffset-rm: 0.121 arcsec [1.23 σ]
KicOffset-rm: 0.104 arcsec [1.06 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

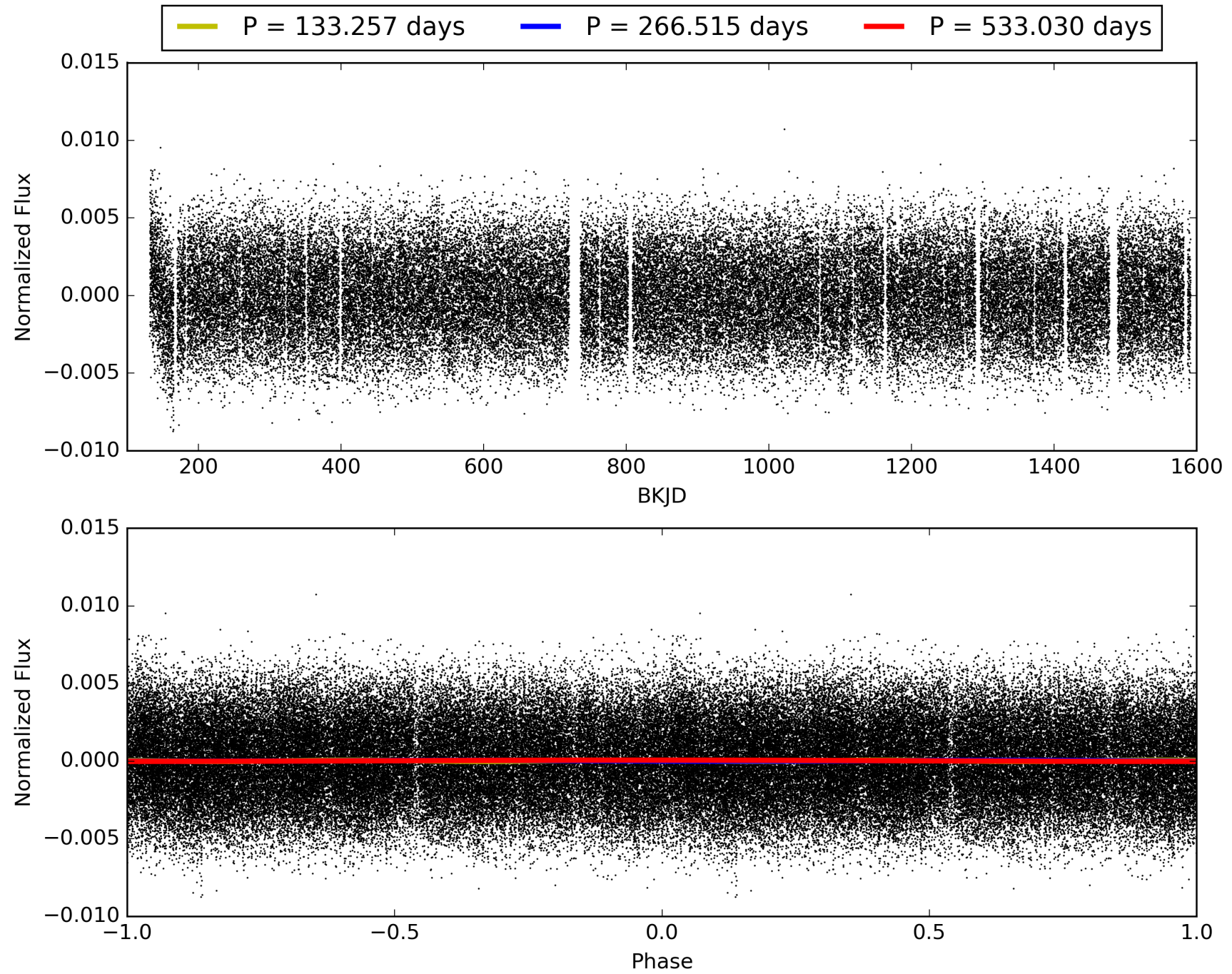
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:02:24 Z

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

TCE 009826562-03, PDC Light Curves

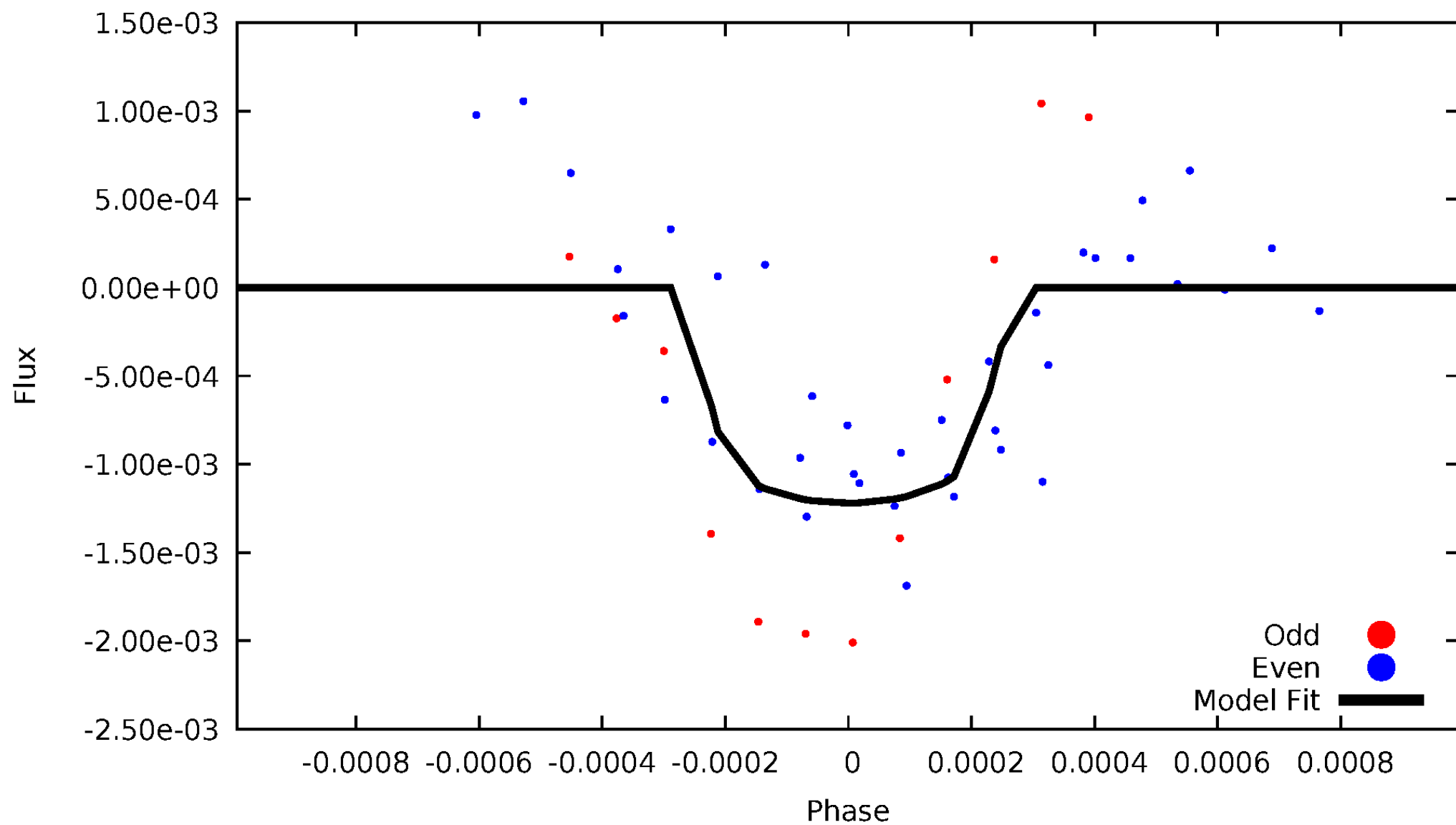


TCE 009826562-03



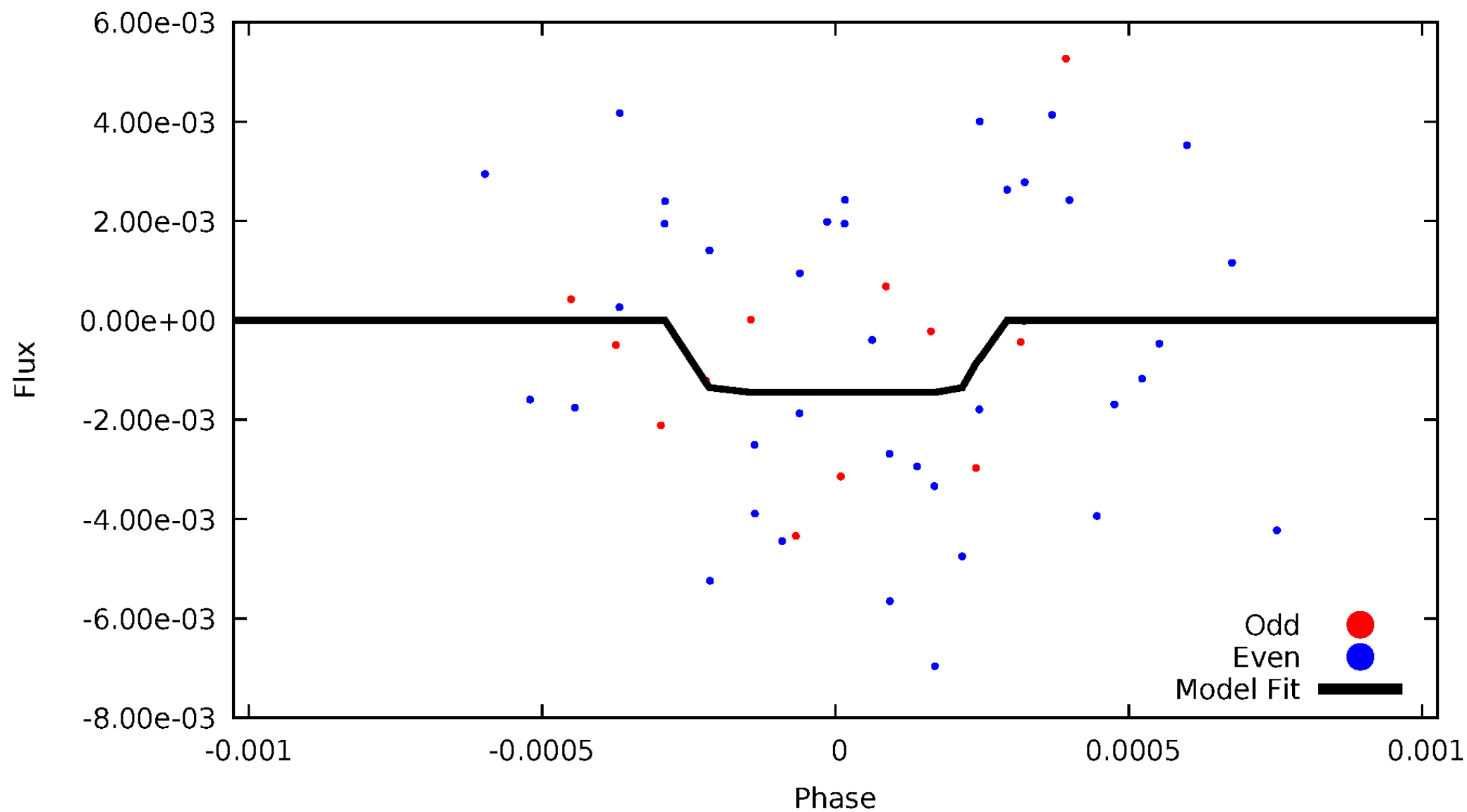
DV Odd/Even

TCE 009826562-03



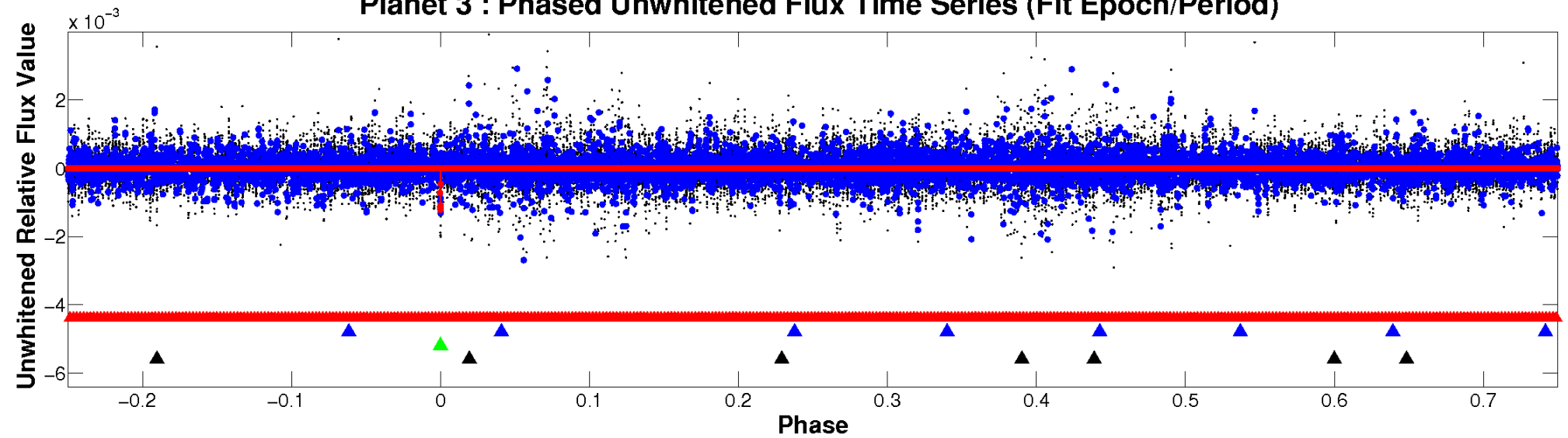
ALT Odd/Even

TCE 009826562-03

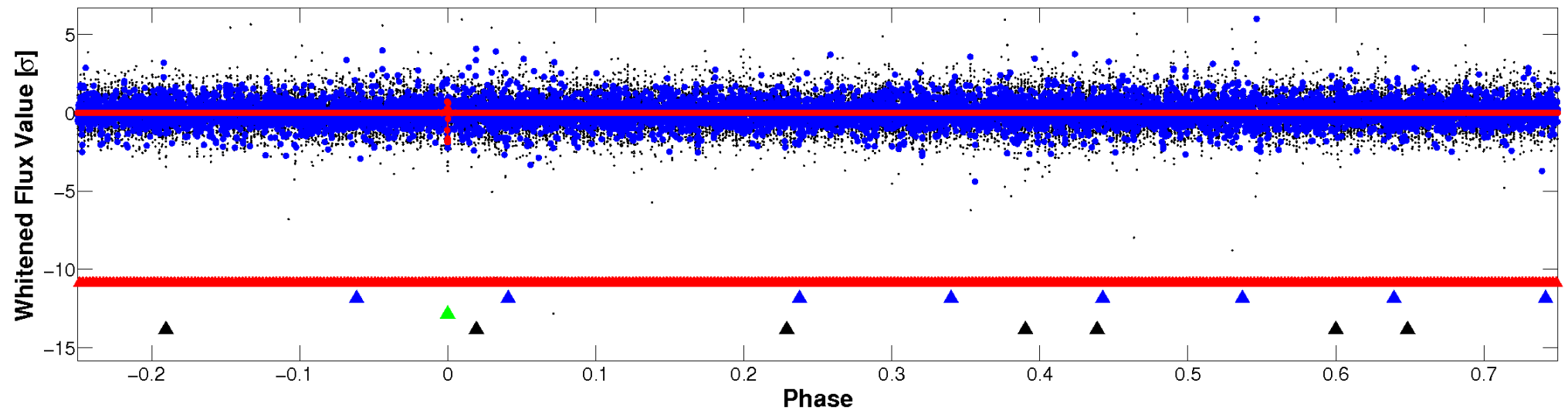


Non-Whitened Vs. Whitened Light Curve

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

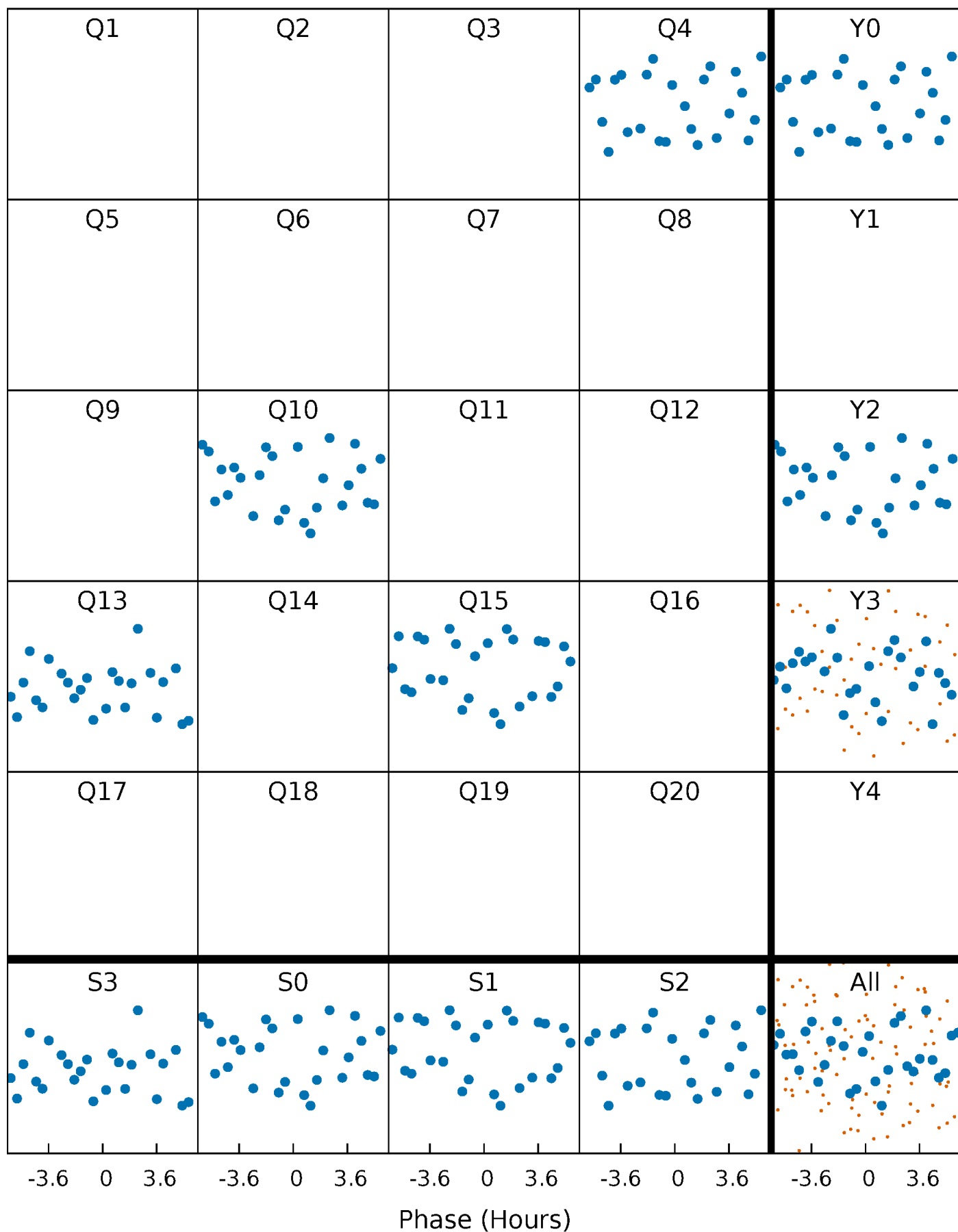


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



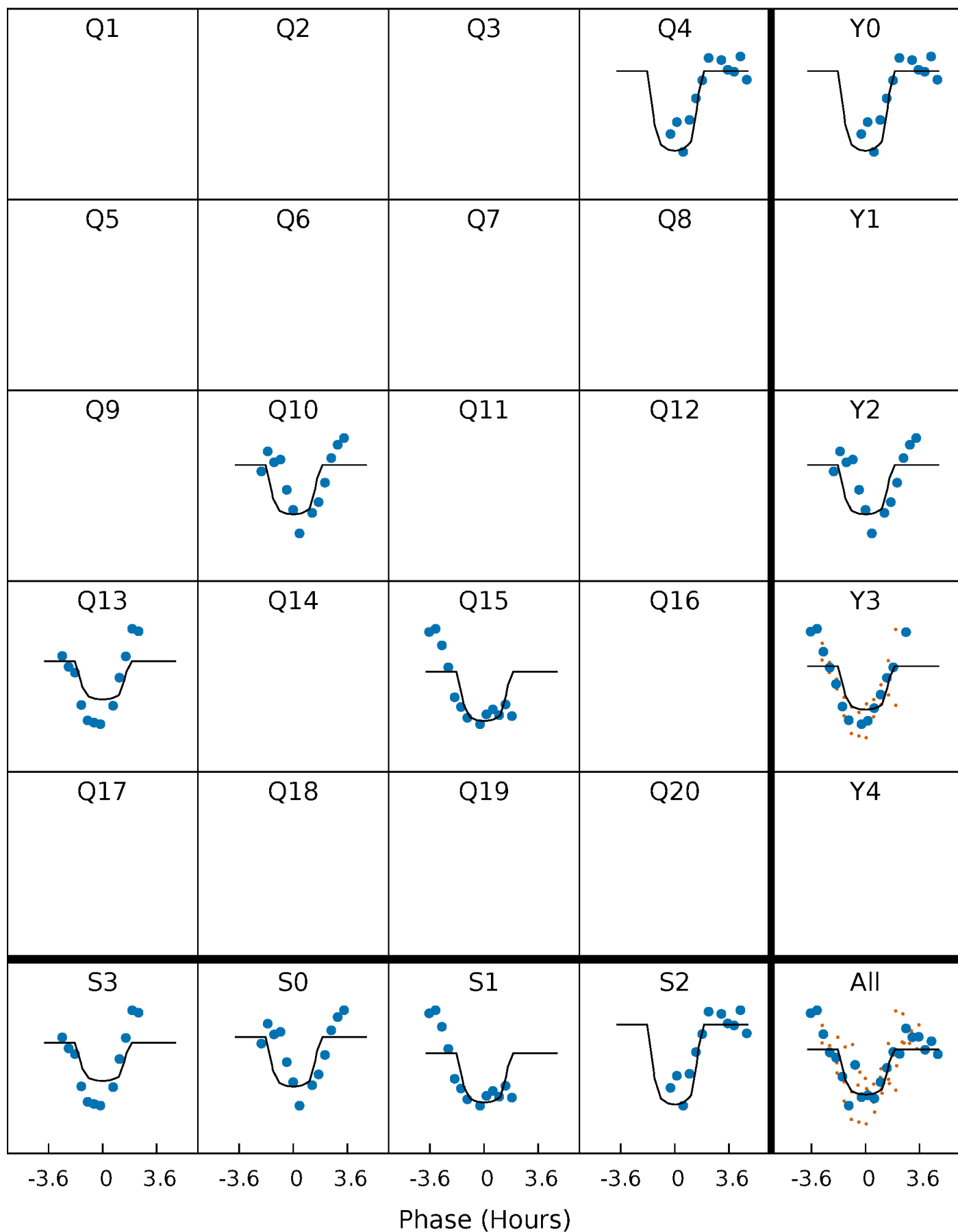
PDC Quarter-Phased Transit Curves

TCE 009826562-03 P=266.514956 Days $T_0=394.183830$ (BKJD)



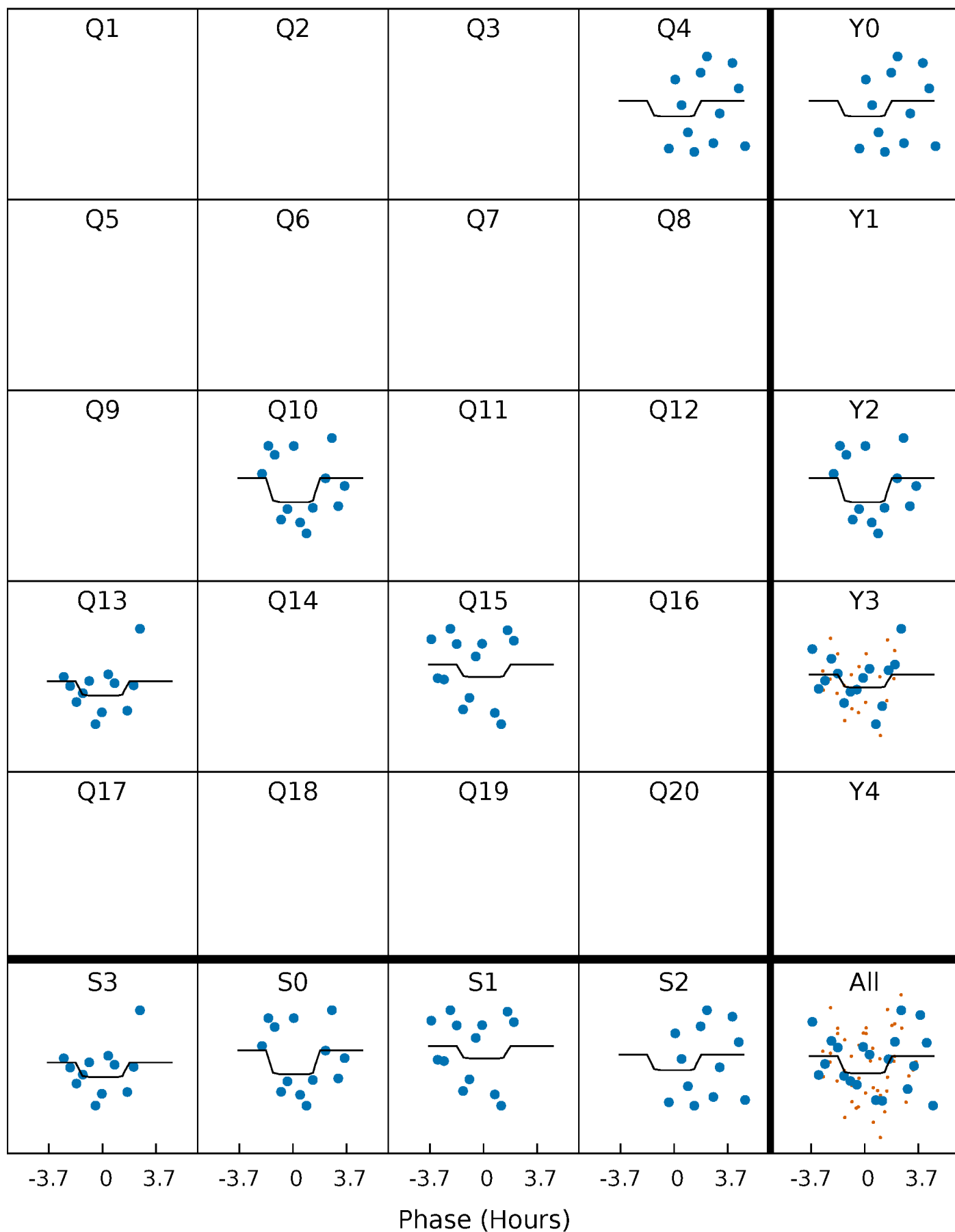
DV Quarter-Phased Transit Curves

TCE 009826562-03 P=266.514956 Days $T_0=394.183830$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

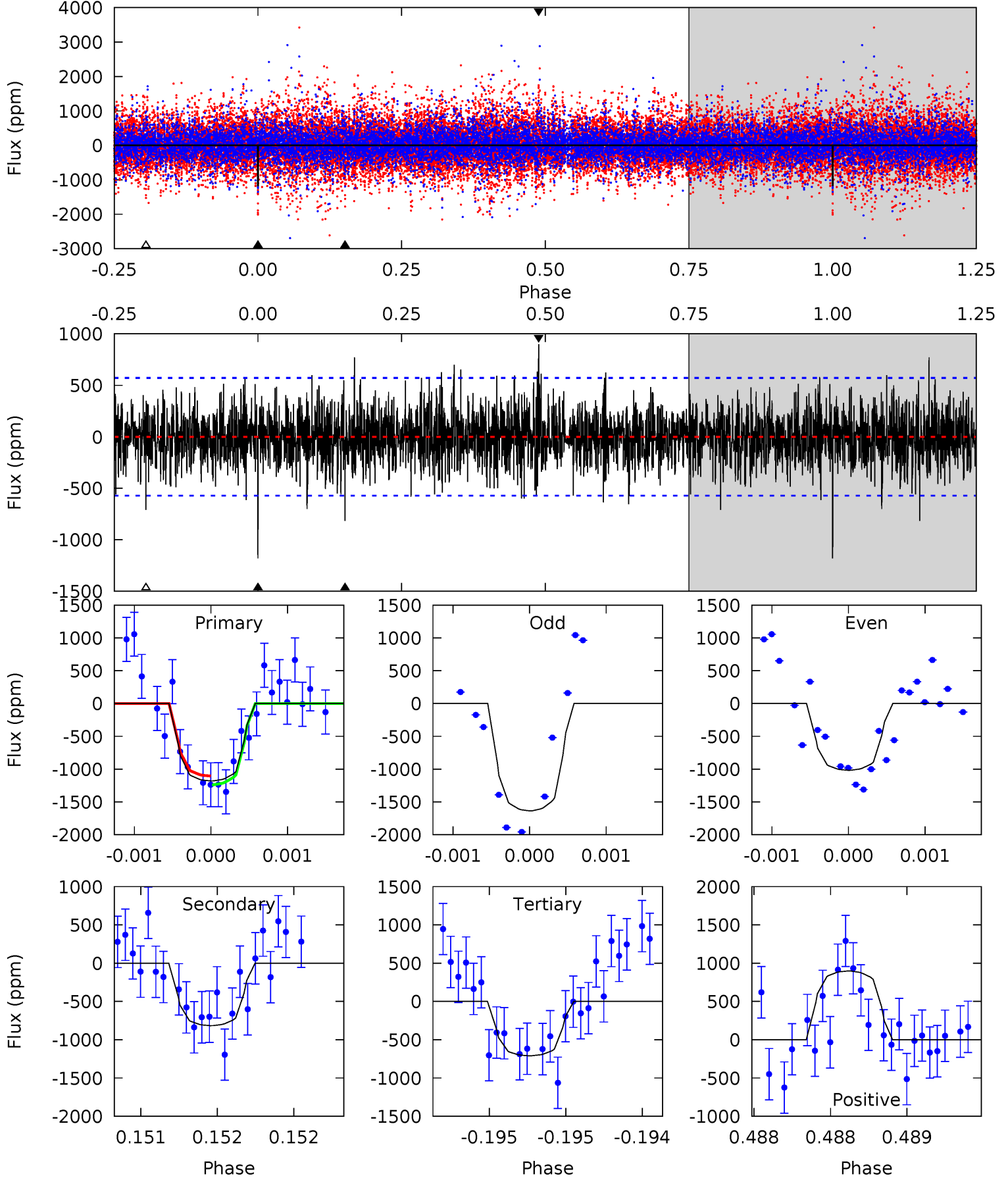
TCE 009826562-03 P=266.513640 Days $T_0=394.187182$ (BKJD)



DV Model-Shift Uniqueness Test

009826562-03, P = 266.514956 Days, E = 127.668874 Days

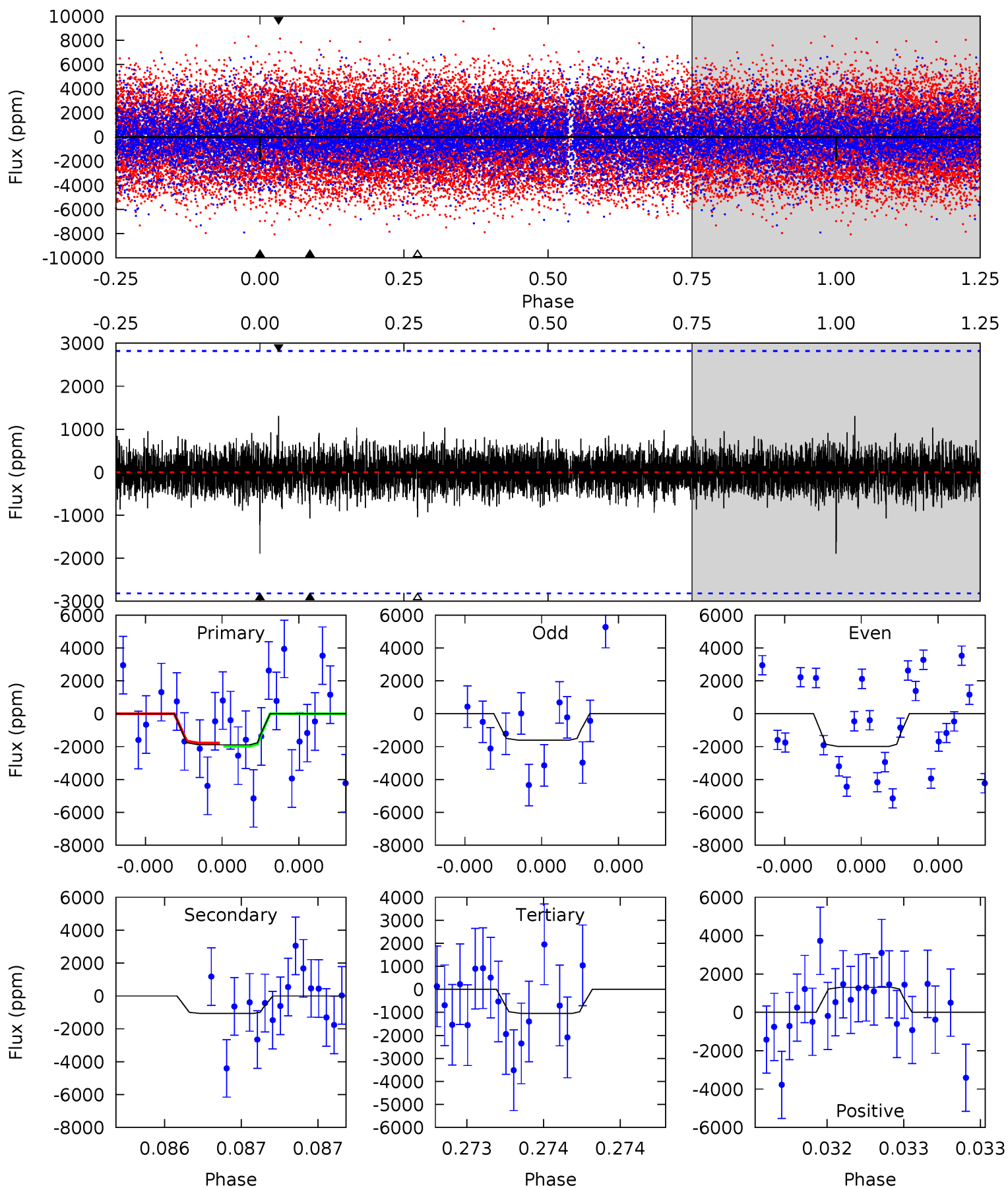
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	7.95	6.91	8.75	5.56	3.47	1.92	4.59	2.75	1.04	-0.80	2.61	1.08	0.43	0.64



Alt Model-Shift Uniqueness Test

009826562-03, P = 266.513640 Days, E = 127.673542 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.75	2.12	2.07	2.59	5.59	3.50	0.54	1.68	1.17	0.05	-0.46	0.33	1.03	0.41	0.19



Stellar Parameters For KIC 009826562

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7050^{+195}_{-335}	$4.176^{+0.108}_{-0.201}$	$0.070^{+0.200}_{-0.350}$	$1.655^{+0.539}_{-0.290}$	$1.497^{+0.214}_{-0.236}$	$0.465^{+0.278}_{-0.247}$
	+3%/-5%	+3%/-5%	+286%/-500%	+33%/-18%	+14%/-16%	+60%/-53%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009826562-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-816 ± 103	$10.33^{+9.59}_{-7.12}$	587^{+43}_{-38}	5075^{+4474}_{-1112}	3530^{+32218}_{-2567}
Alt.	-1069 ± 504	$11.00^{+9.86}_{-7.12}$	586^{+52}_{-40}	5195^{+4312}_{-1269}	4152^{+26775}_{-3249}

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

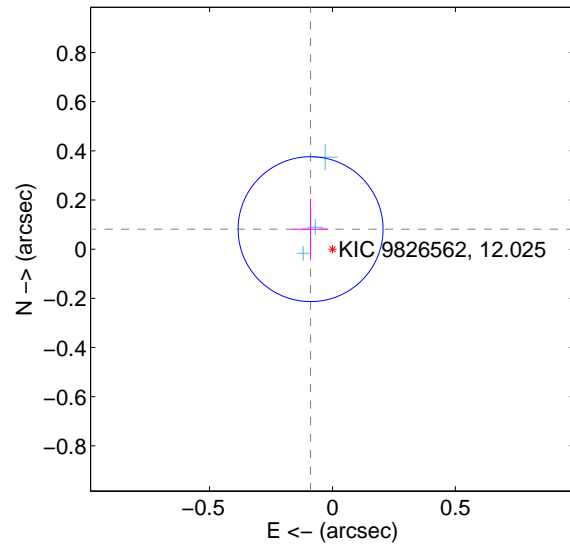
Supplemental centroid analysis for 009826562-03. Kepler magnitude: 12.03. Transit SNR 7.81

There are 3 quarters with good PRF difference image offsets

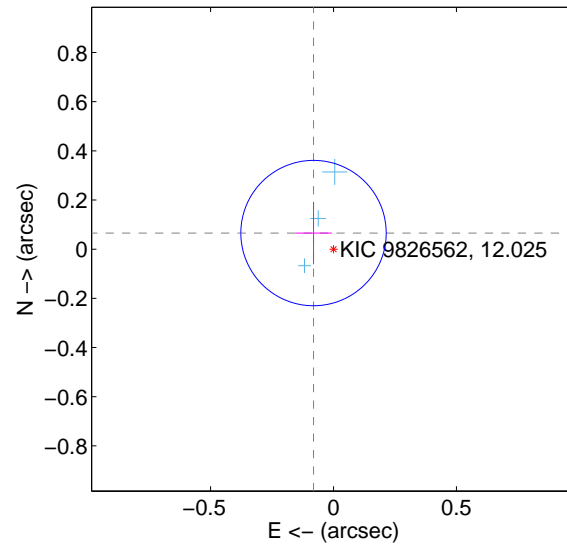
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.121 ± 0.098	1.23	0.089 ± 0.072	0.081 ± 0.123
PRF-fit source offset from KIC position	0.104 ± 0.099	1.06	0.081 ± 0.074	0.066 ± 0.127
photometric centroid source offset	0.22 ± 0.20	1.13	-0.18 ± 0.21	0.14 ± 0.18

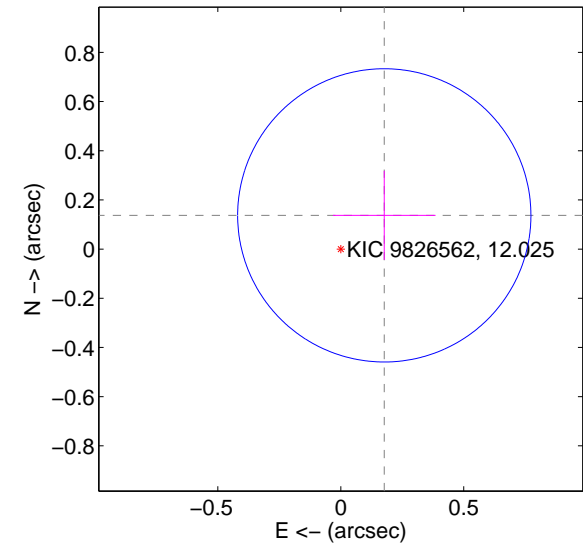
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

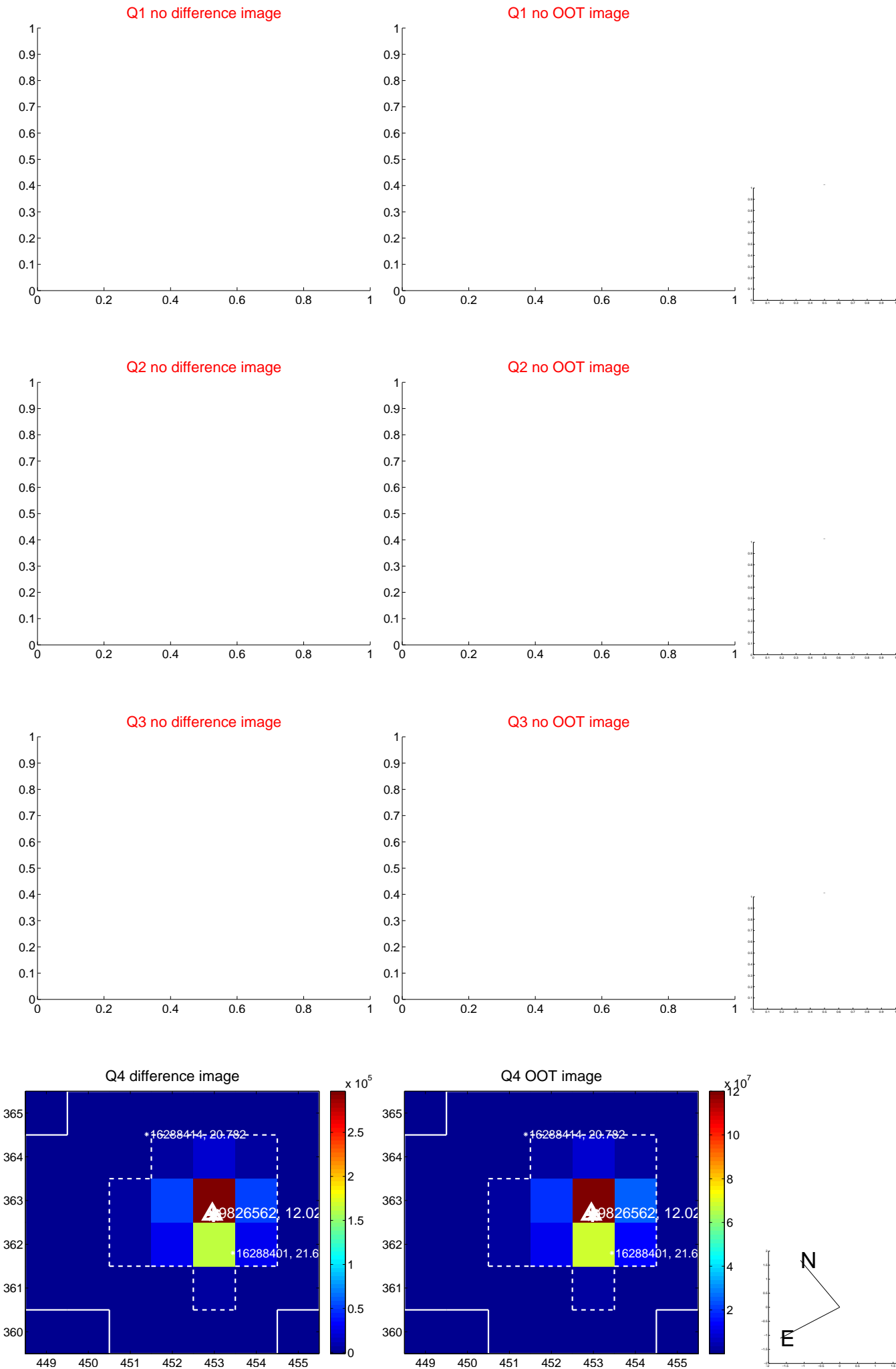


offset from photometric centroids



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

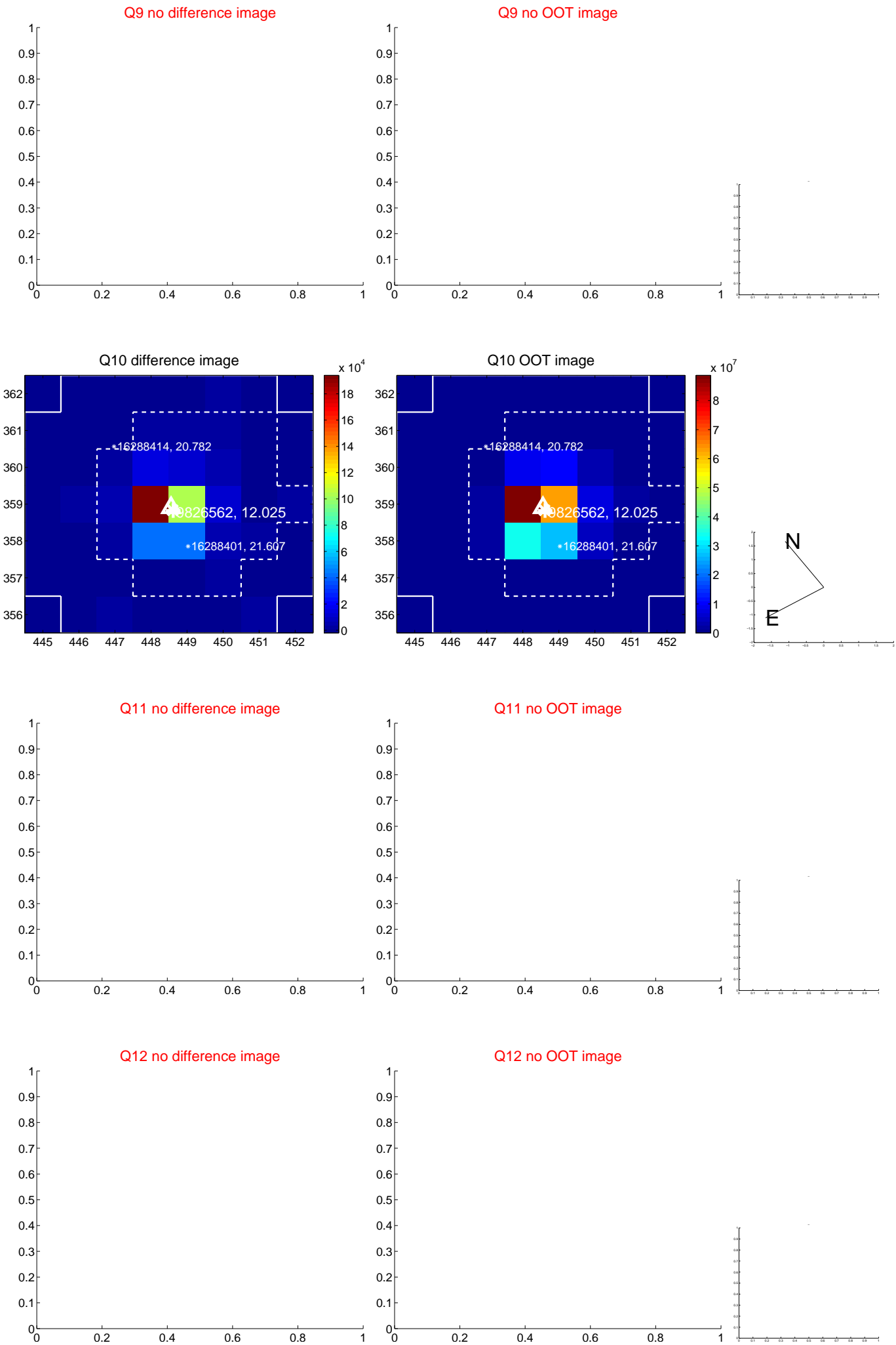
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



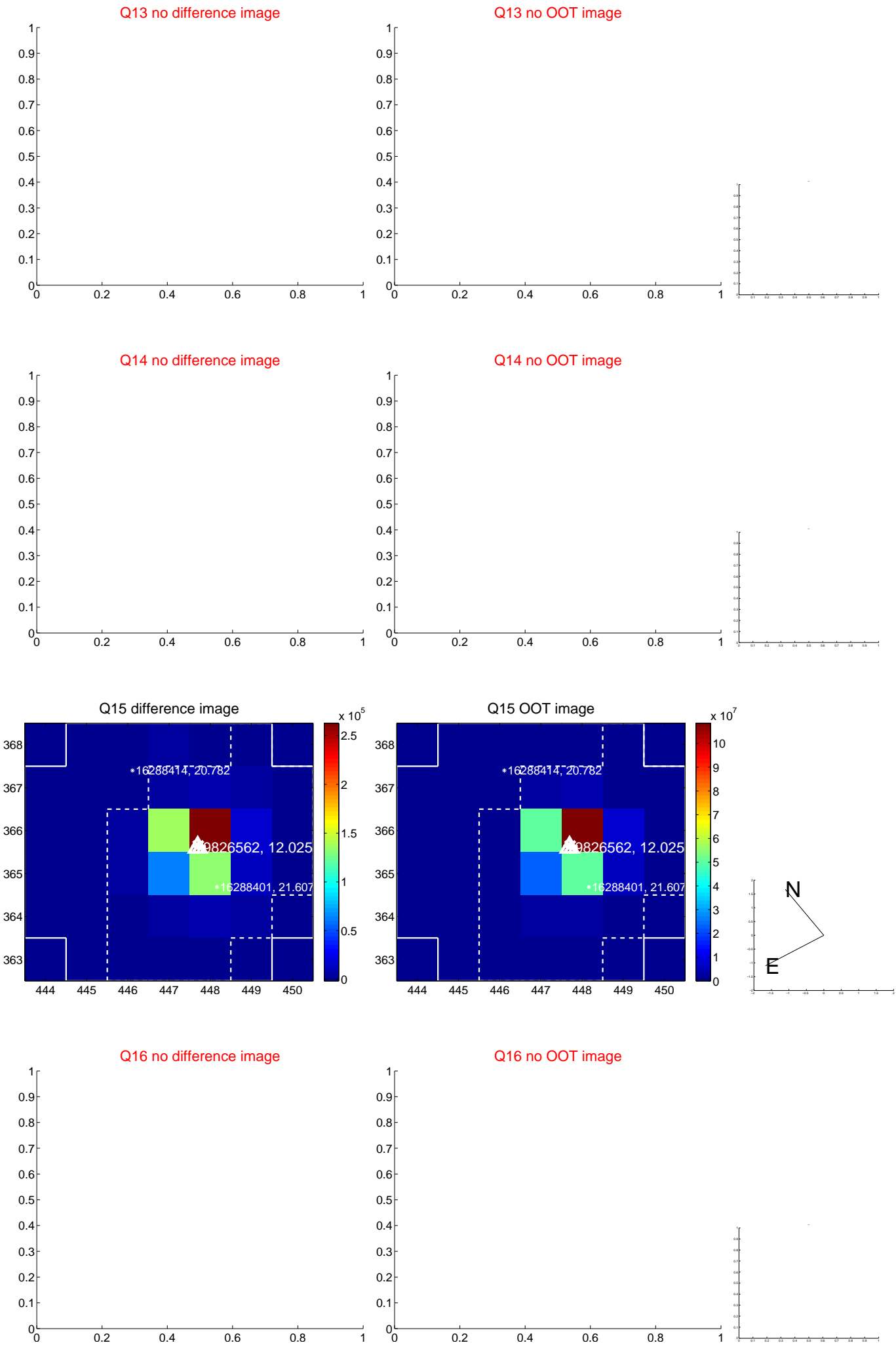
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



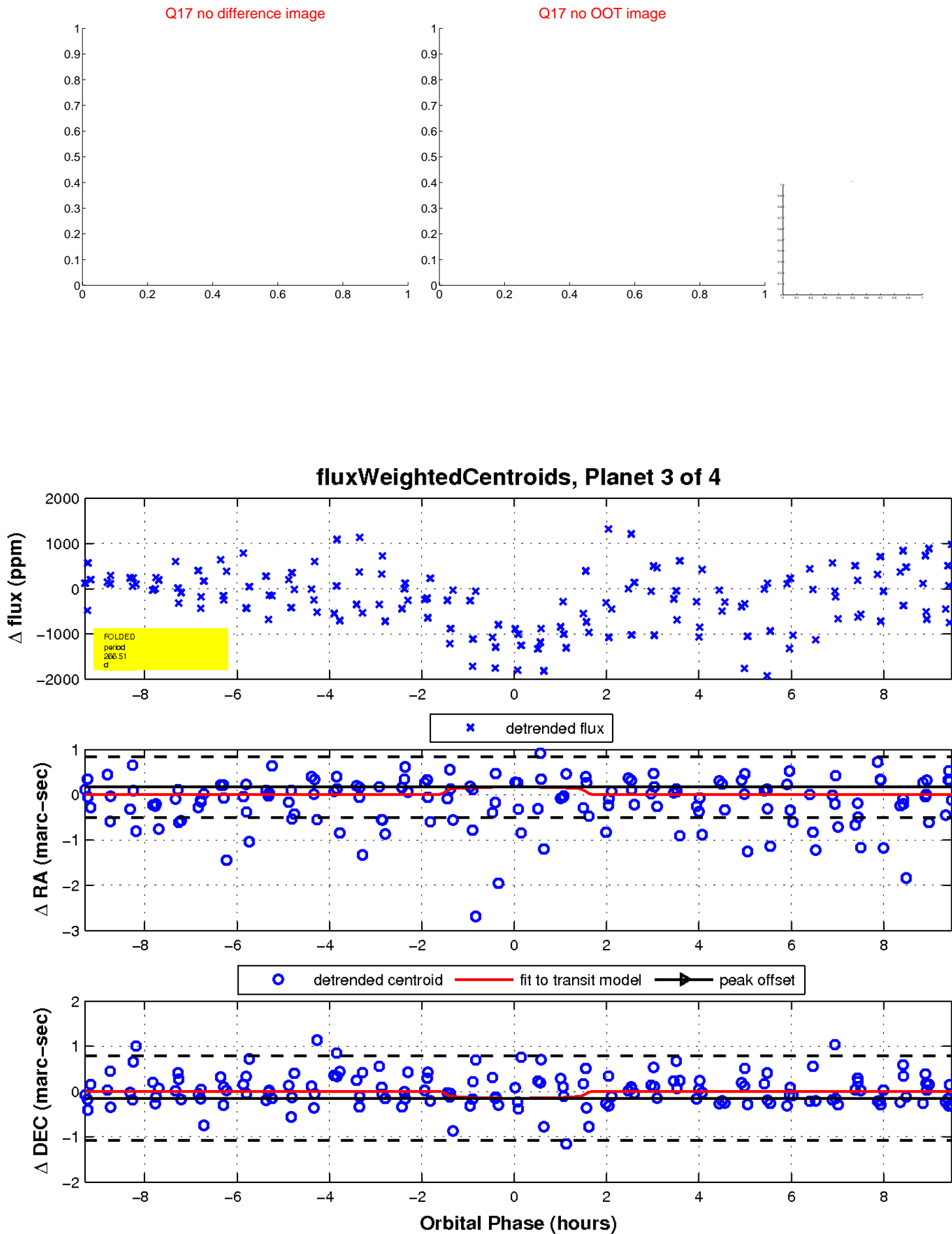
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

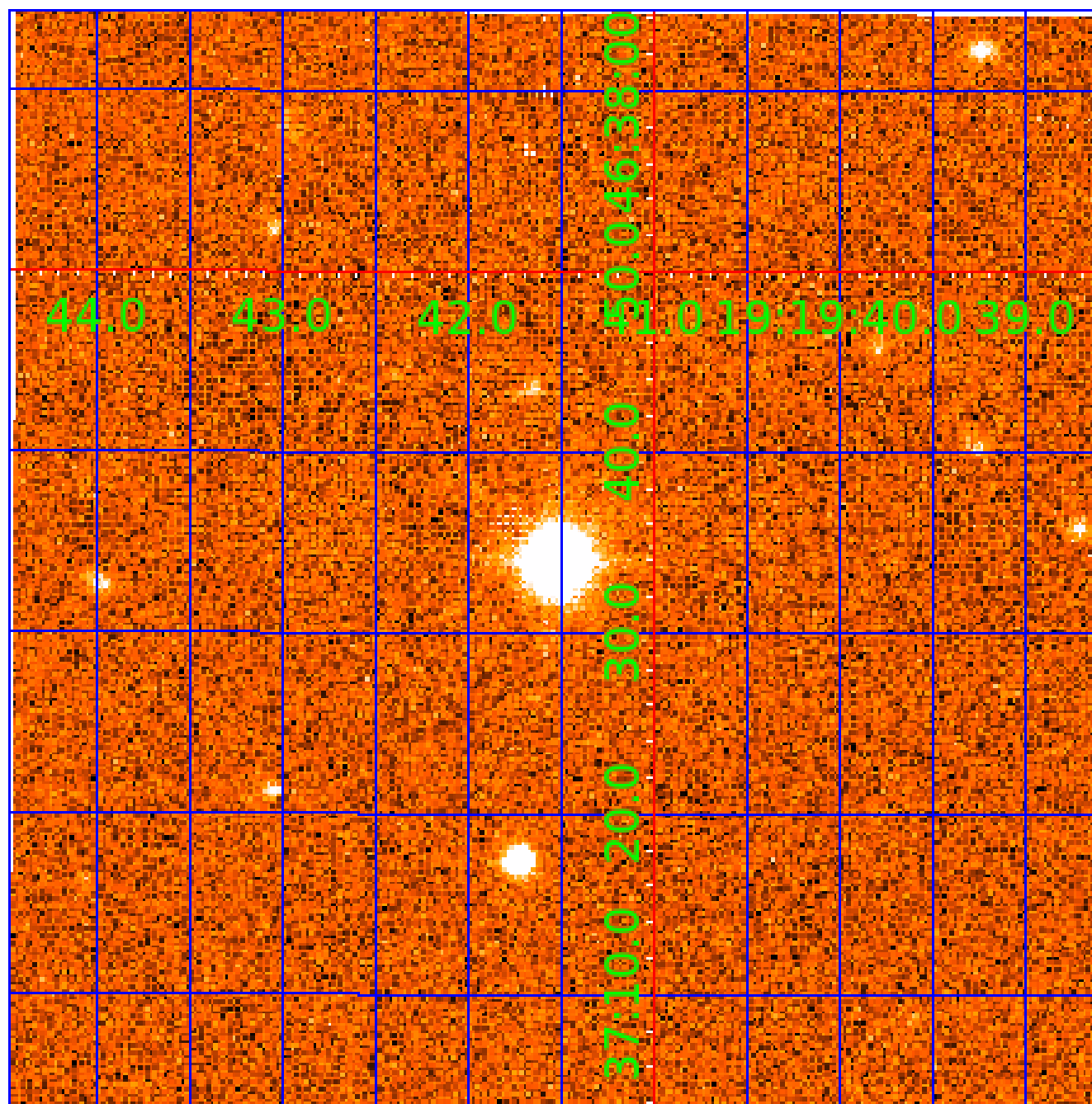


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009826562

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})
009826562-01	OBS	No	0.611198	131.763798	56.0	2.635	10.3	9.3	1.66	7050	1.44	23295.59
009826562-02	OBS	No	186.775060	270.754365	1350.3	11.362	8.7	9.5	1.66	7050	11.25	11.32
009826562-03	OBS	No	266.514956	394.183830	1219.3	3.175	8.1	7.8	1.66	7050	5.85	7.04
009826562-04	OBS	No	210.627348	300.500019	1586.9	5.773	8.3	7.6	1.66	7050	12.14	9.64

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009826562-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009826562-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009826562-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
009826562-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

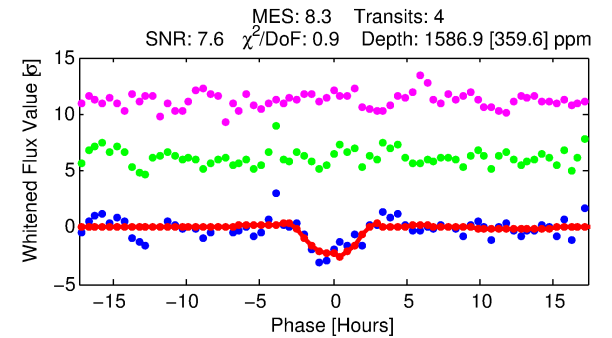
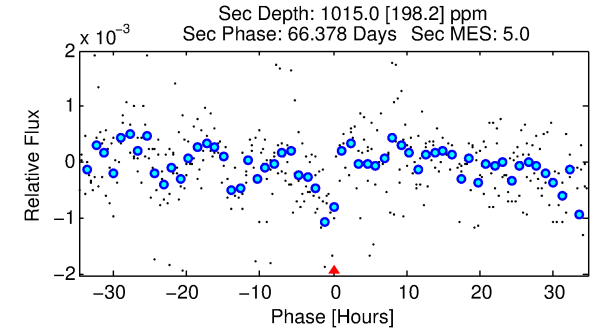
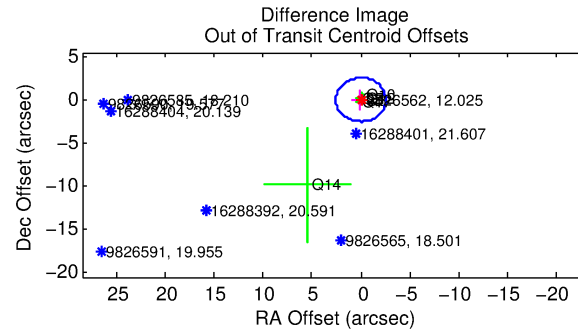
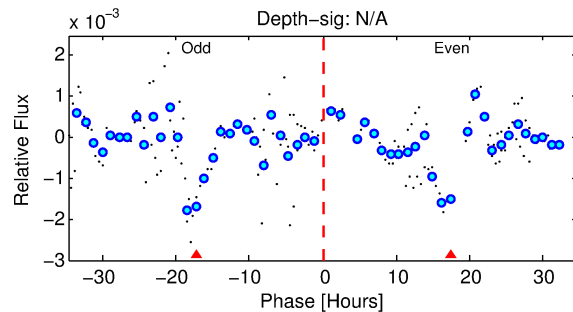
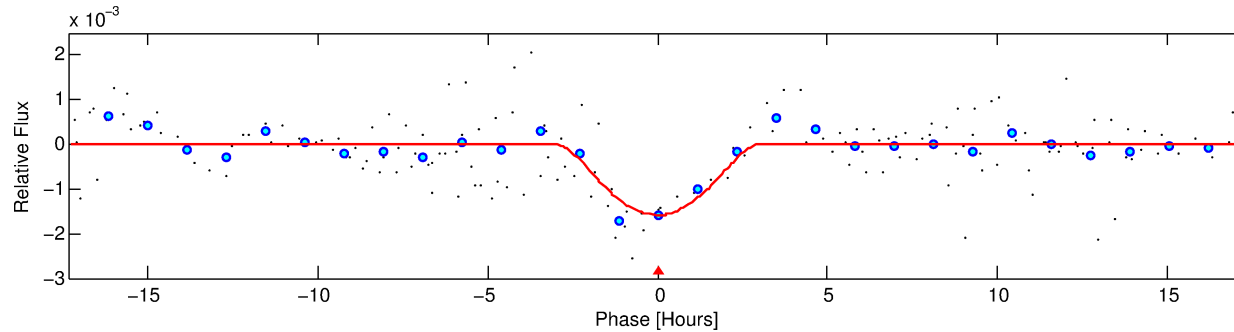
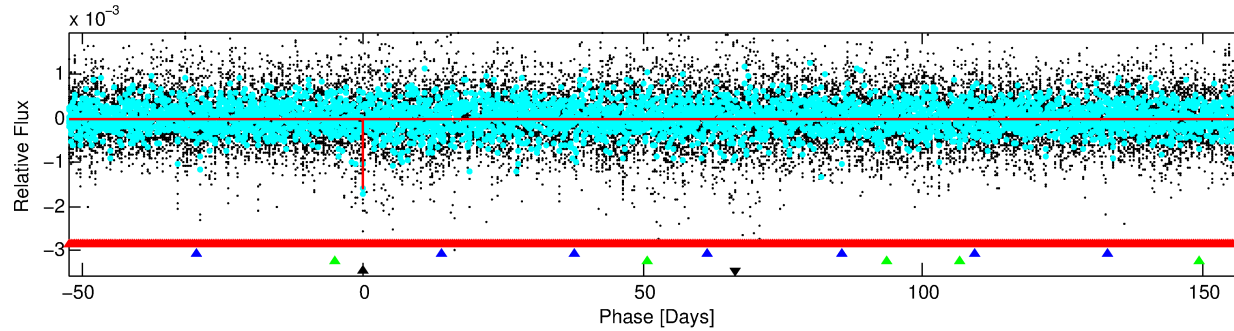
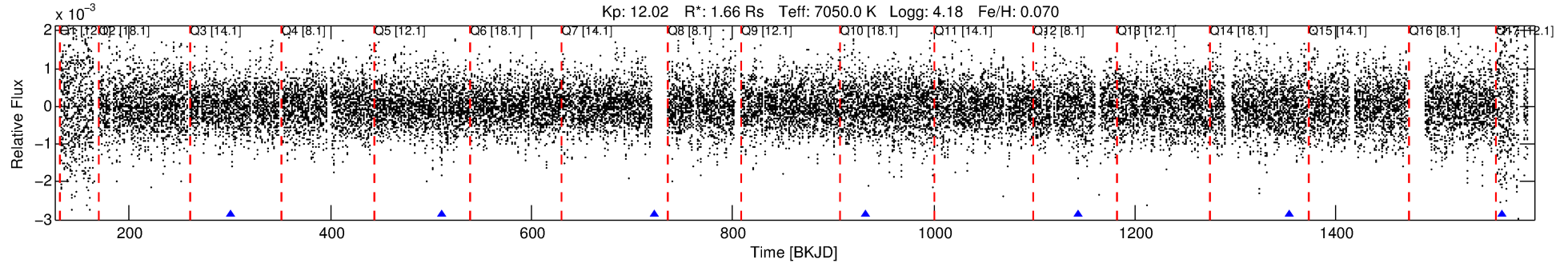
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009826562-04

No Significant Match Found

DV One-Page Summary

KIC: 9826562 Candidate: 4 of 4 Period: 210.627 d



DV Fit Results:

Period = 210.62735 [0.00478] d
Epoch = 300.5000 [0.0198] BKJD
Rp/R* = 0.0672 [0.1822]
a/R* = 104.05 [63.86]
b = 1.00 [0.25]
Seff = 9.64 [4.07]
Teq = 449 [47] K
Rp = 12.14 [33.14] Re
a = 0.7929 [0.2112] AU
Ag = 2381.61 [12945.97] [0.18σ]
Teffp = 4853 [6583] K [0.67σ]

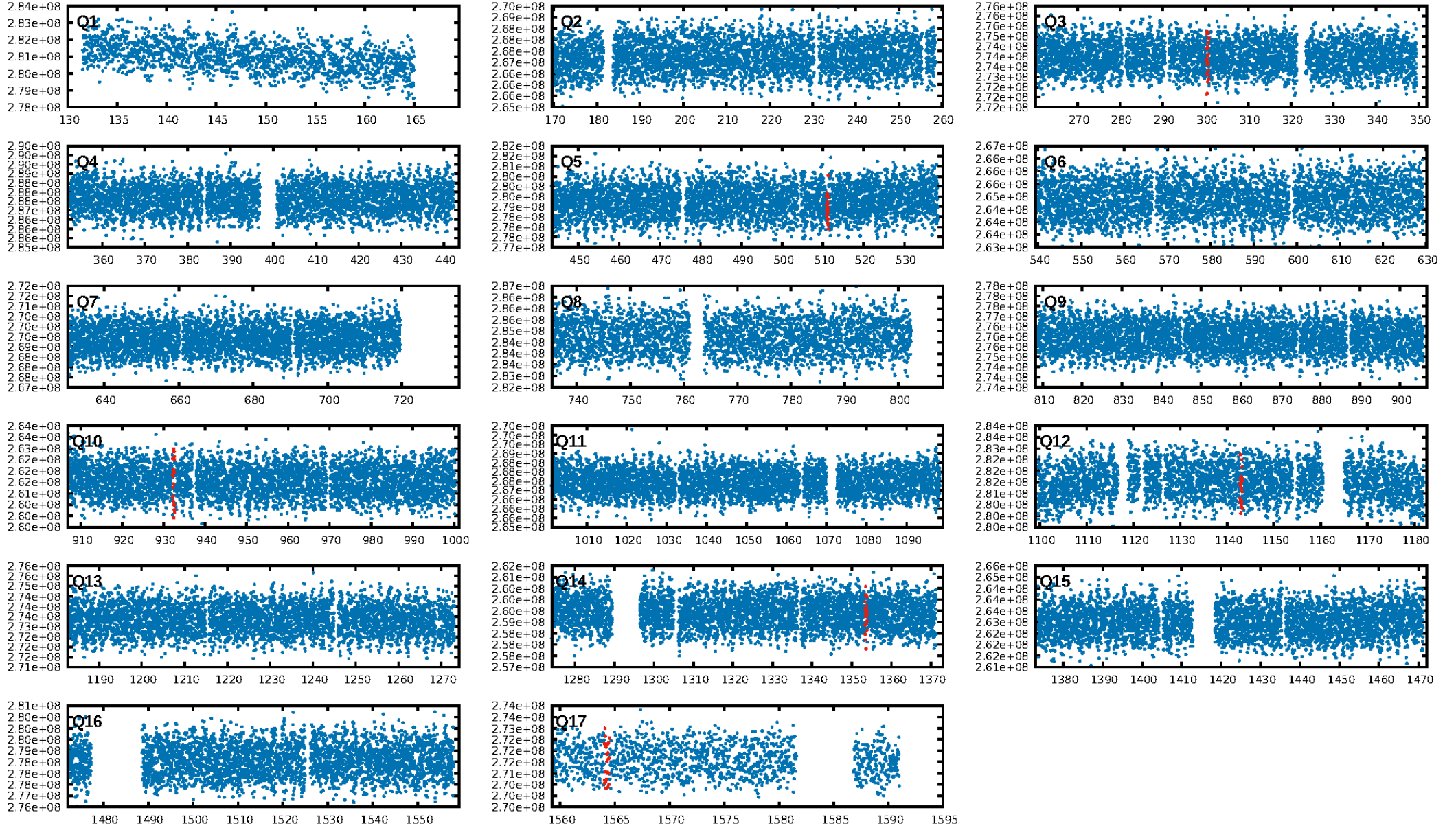
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [44.92σ]
LongPeriod-sig: 100.0% [203.59σ]
ModelChiSquare2-sig: 39.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.32e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.134
Centroid-sig: 0.2%
Centroid-so: 0.332 arcsec [2.62σ]
OotOffset-rm: 0.049 arcsec [0.06σ]
KicOffset-rm: 0.054 arcsec [0.07σ]
OotOffset-st: 2/1/1/2 [6]
KicOffset-st: 2/1/1/2 [6]
DiffImageQuality-fgm: 0.67 [4/6]
DiffImageOverlap-fno: 0.00 [0/6]

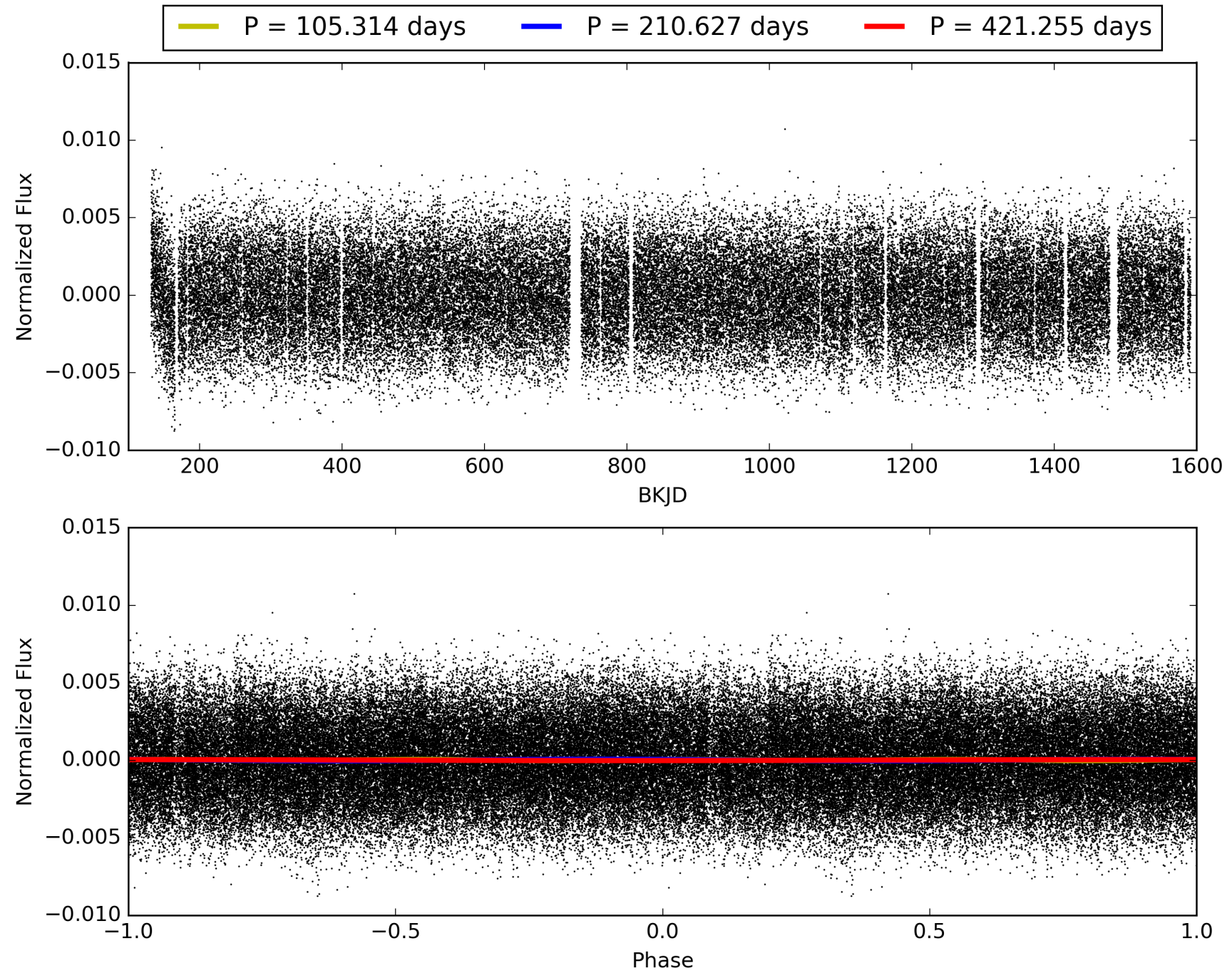
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009826562-04, PDC Light Curves

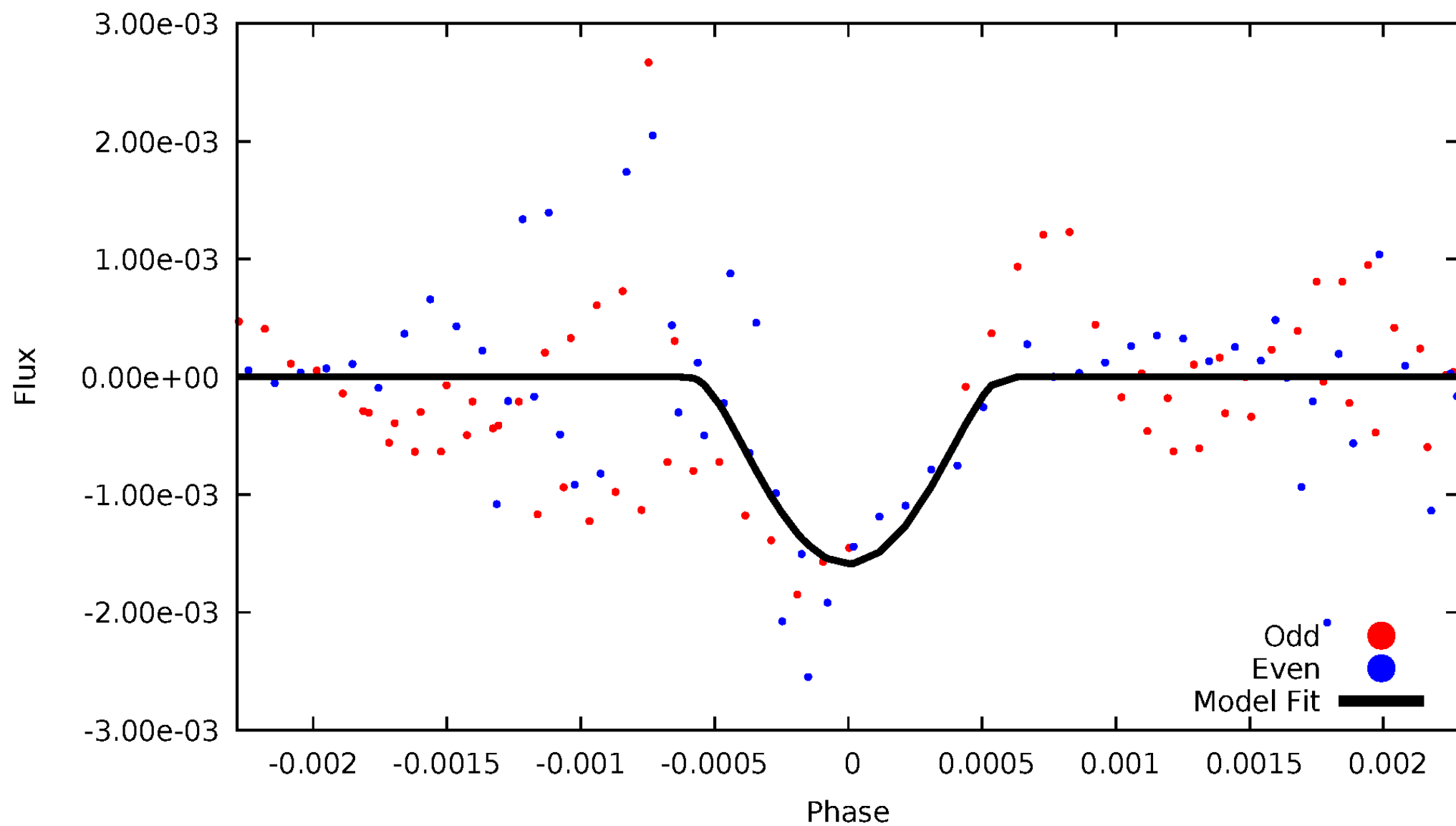


TCE 009826562-04



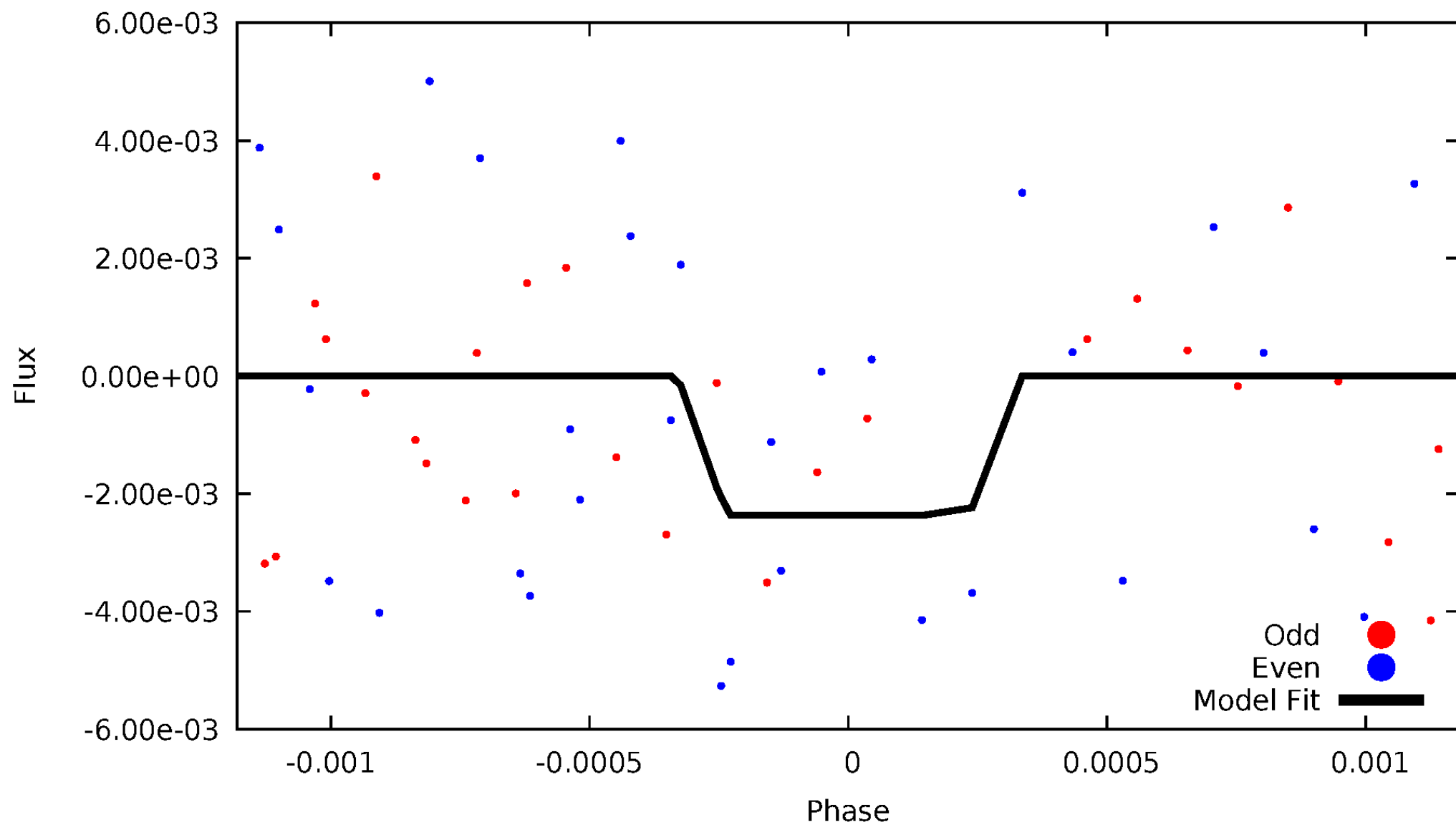
DV Odd/Even

TCE 009826562-04



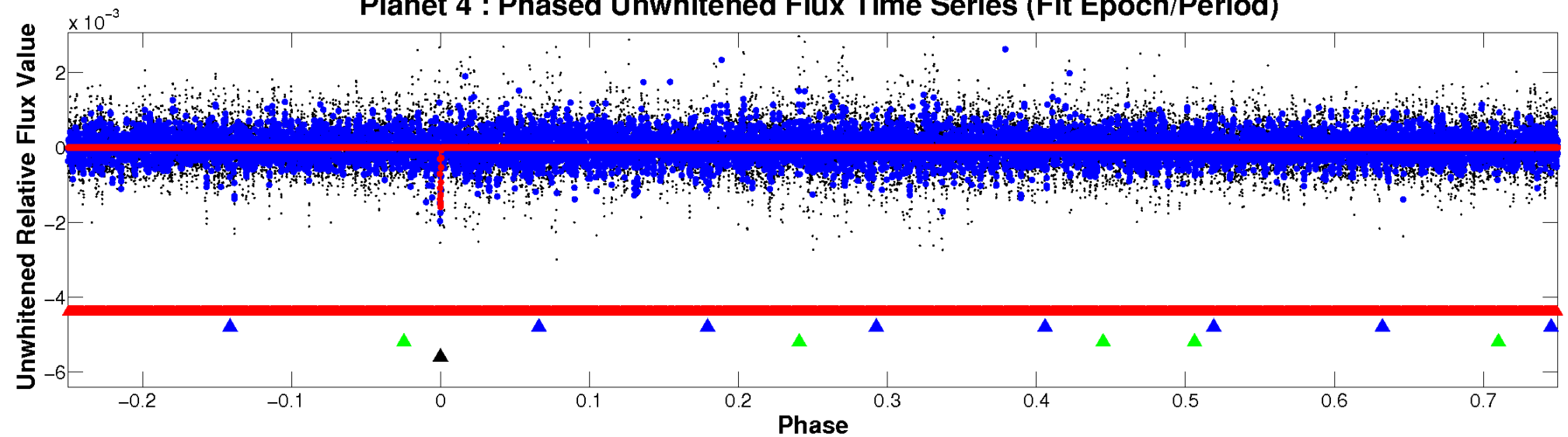
ALT Odd/Even

TCE 009826562-04

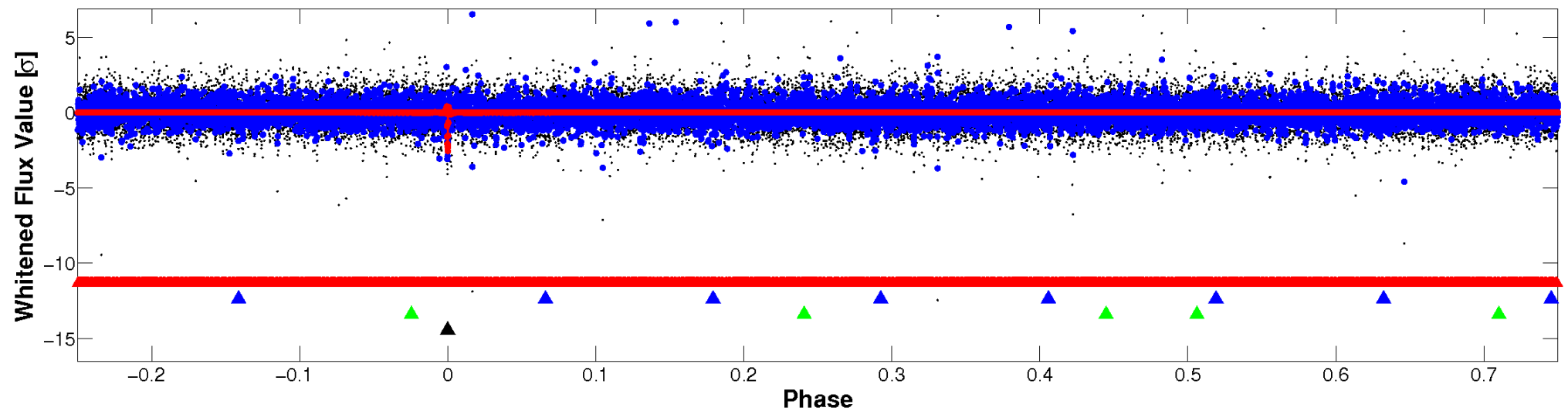


Non-Whitened Vs. Whitened Light Curve

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

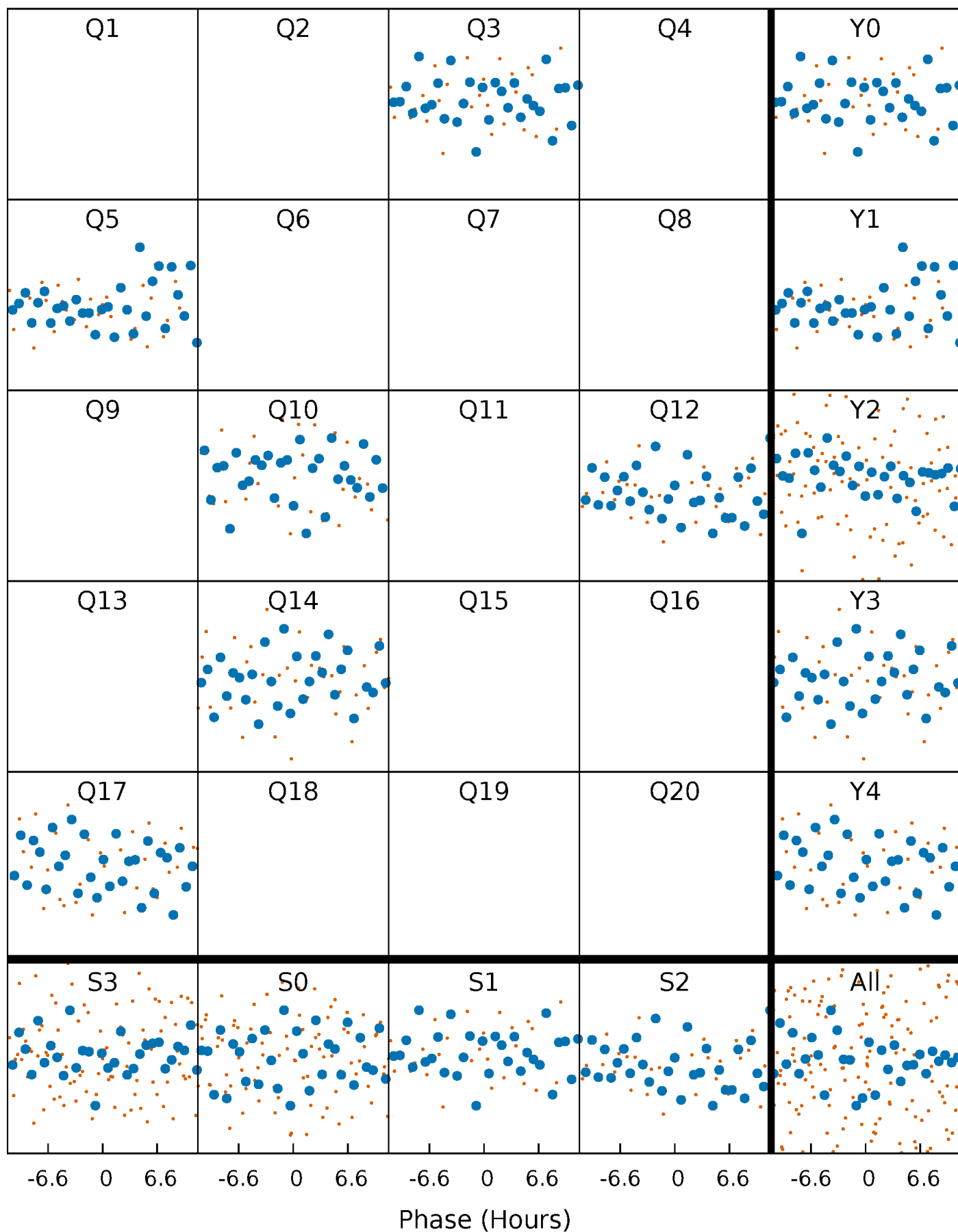


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



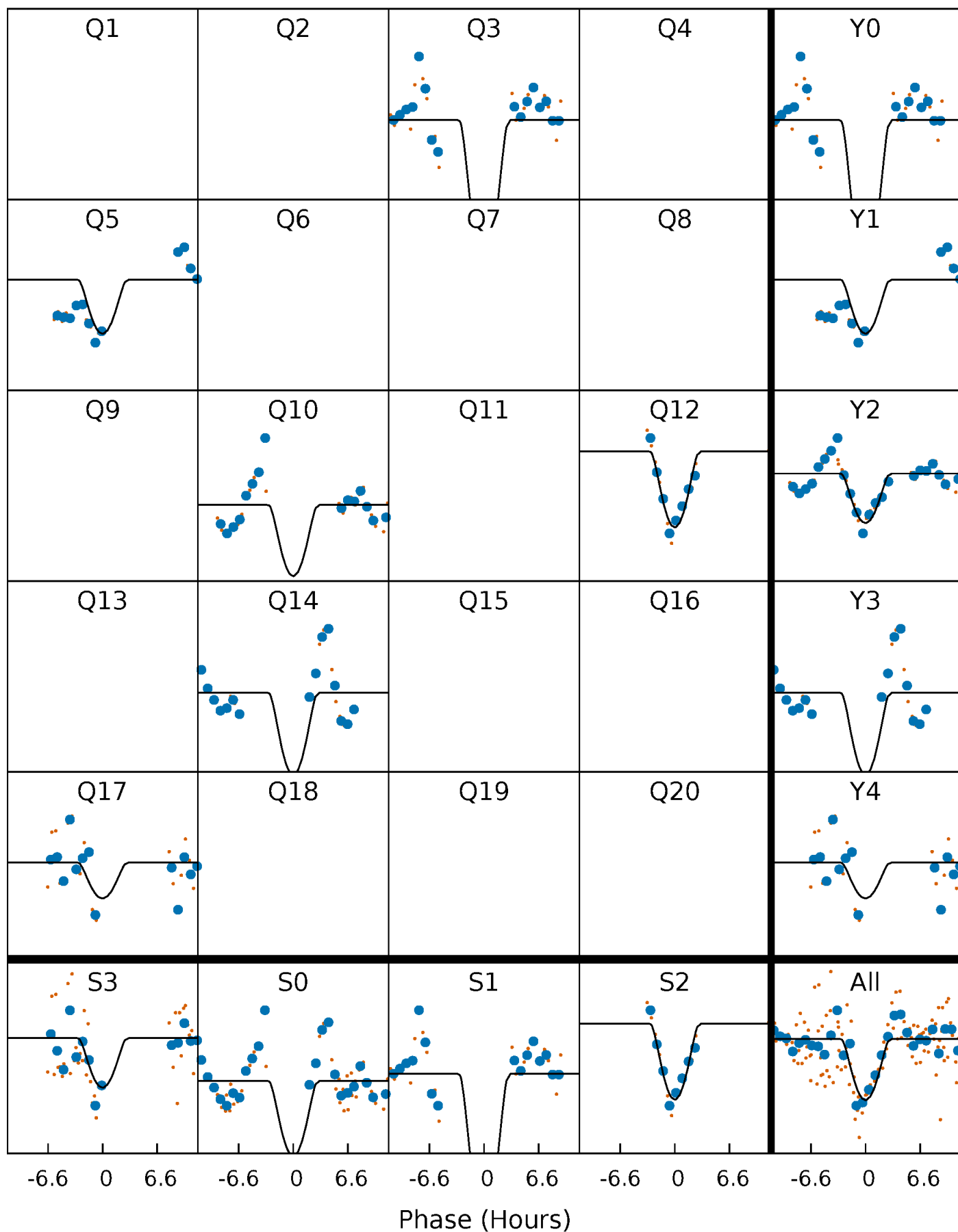
PDC Quarter-Phased Transit Curves

TCE 009826562-04 P=210.627348 Days $T_0=300.500019$ (BKJD)



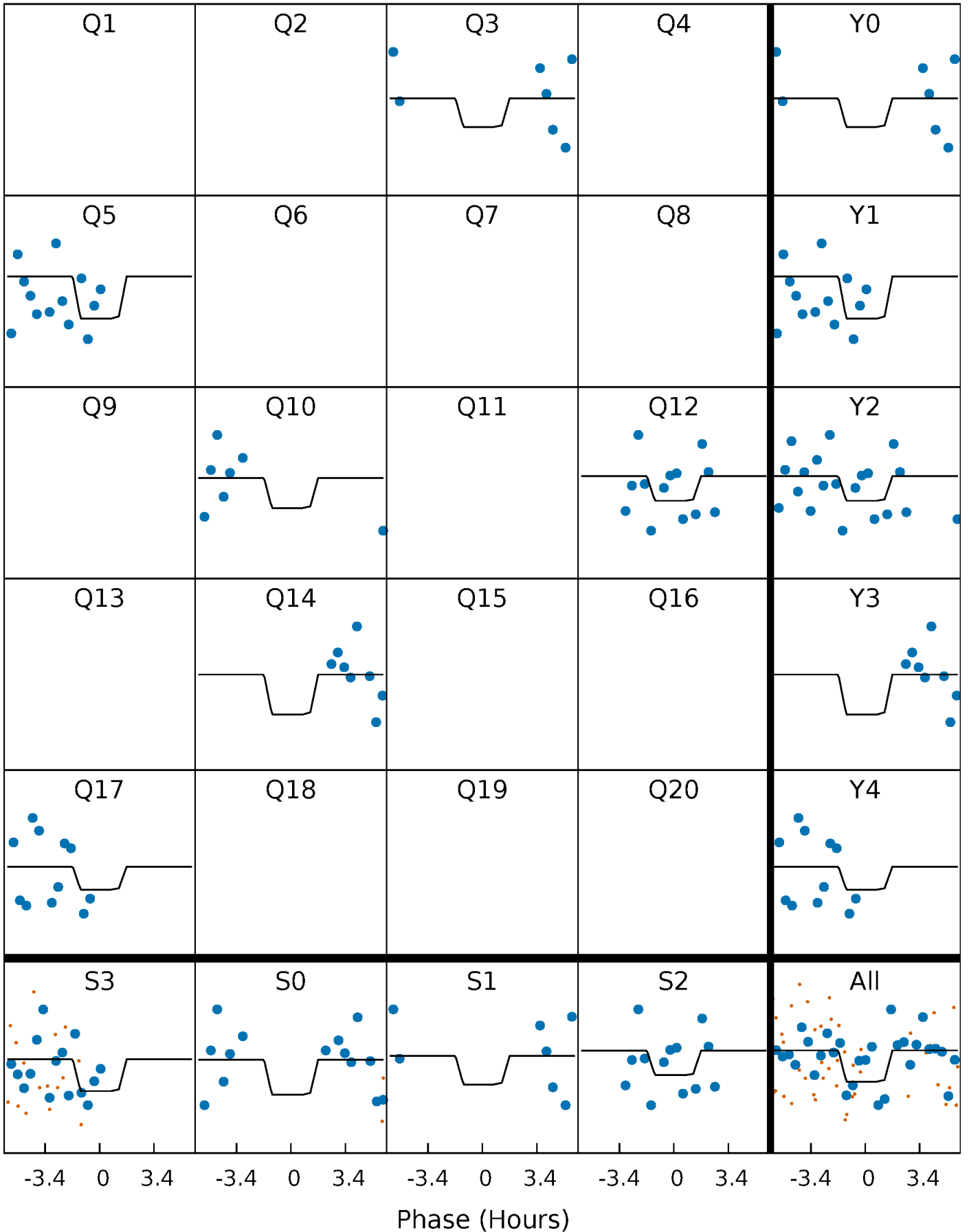
DV Quarter-Phased Transit Curves

TCE 009826562-04 P=210.627348 Days $T_0=300.500019$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

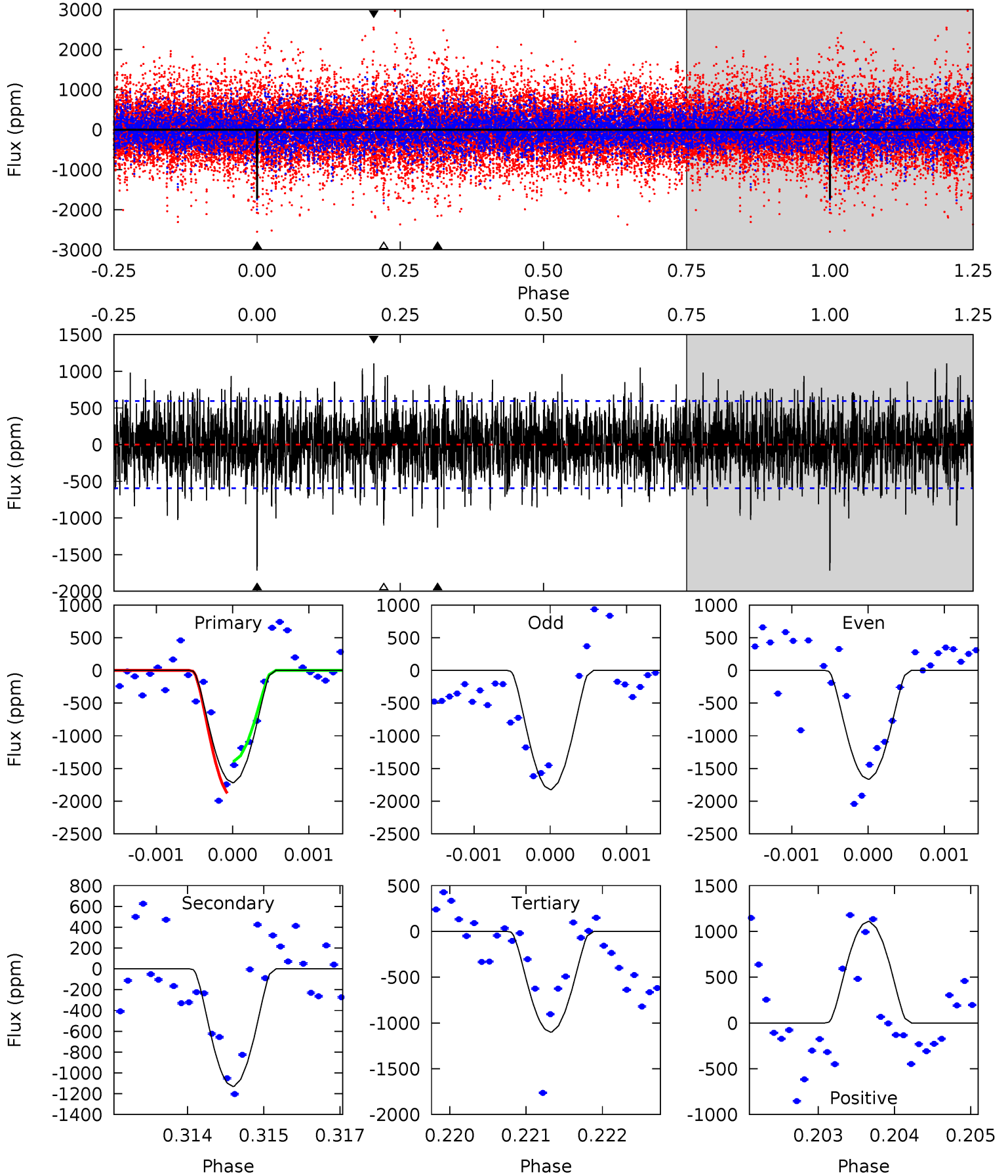
TCE 009826562-04 $P=210.627931$ Days $T_0=300.492298$ (BKJD)



DV Model-Shift Uniqueness Test

009826562-04, P = 210.627348 Days, E = 89.872671 Days

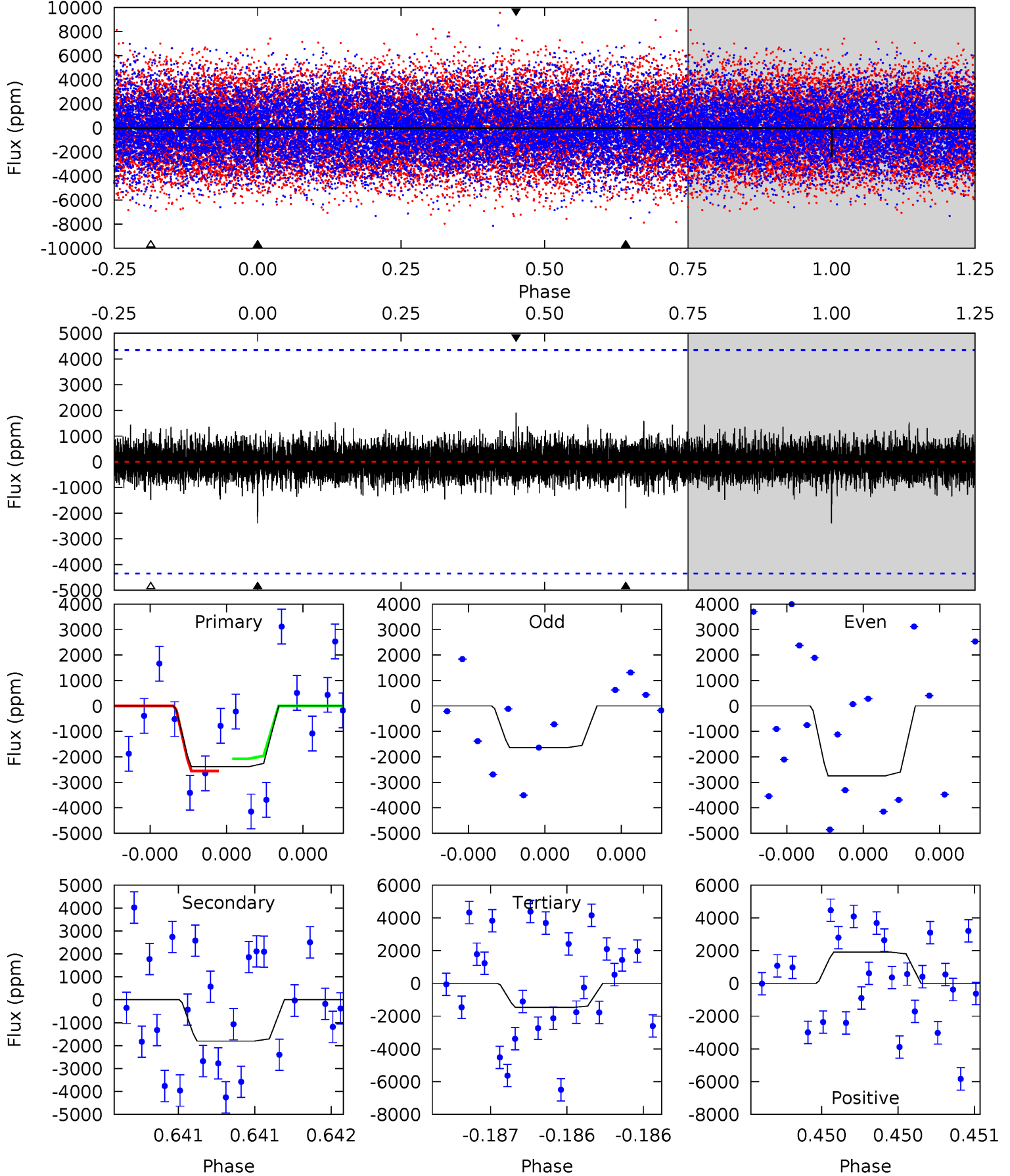
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	10.3	10.0	10.1	5.43	3.26	2.72	5.63	5.56	0.27	0.20	0.66	0.81	0.39	2.06



Alt Model-Shift Uniqueness Test

009826562-04, P = 210.627931 Days, E = 89.864367 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.06	2.31	1.88	2.44	5.58	3.48	0.51	1.18	0.62	0.43	-0.13	0.65	1.15	0.44	0.28



Stellar Parameters For KIC 009826562

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7050^{+195}_{-335}	$4.176^{+0.108}_{-0.201}$	$0.070^{+0.200}_{-0.350}$	$1.655^{+0.539}_{-0.290}$	$1.497^{+0.214}_{-0.236}$	$0.465^{+0.278}_{-0.247}$
	+3%/-5%	+3%/-5%	+286%/-500%	+33%/-18%	+14%/-16%	+60%/-53%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009826562-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1131 ± 110	$28.27^{+27.80}_{-18.96}$	633^{+50}_{-42}	3697^{+1903}_{-695}	479^{+3783}_{-357}
Alt.	-1805 ± 780	$26.89^{+28.50}_{-19.15}$	631^{+50}_{-41}	4040^{+2835}_{-902}	806^{+8762}_{-636}

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 $A_{obs} \gg 1.0$

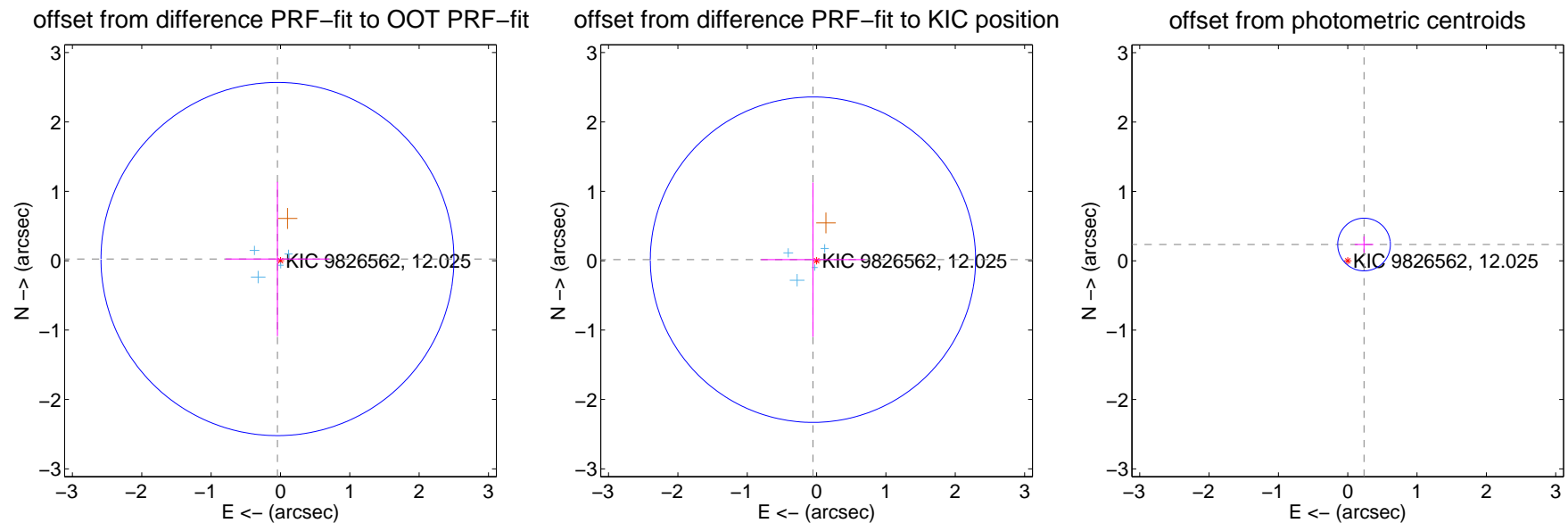
DV Centroid Data

Supplemental centroid analysis for 009826562-04. Kepler magnitude: 12.03. Transit SNR 7.63

There are 4 quarters with good PRF difference image offsets

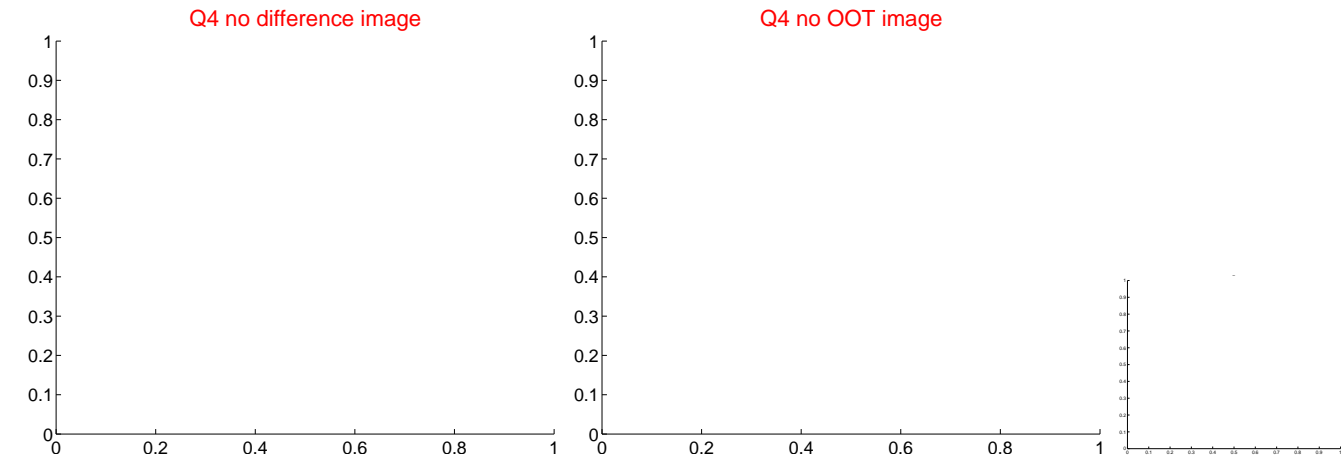
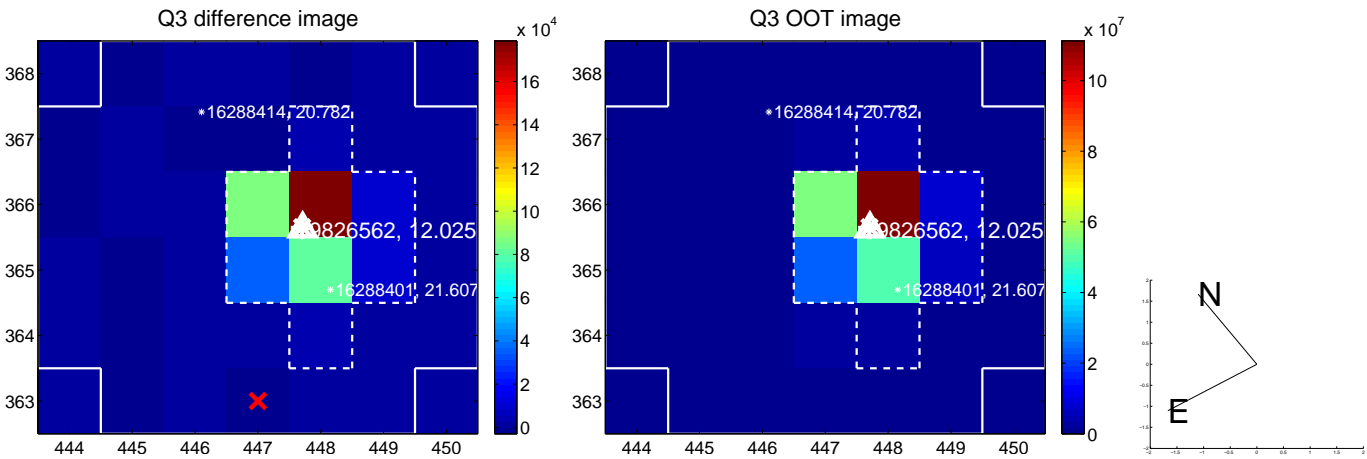
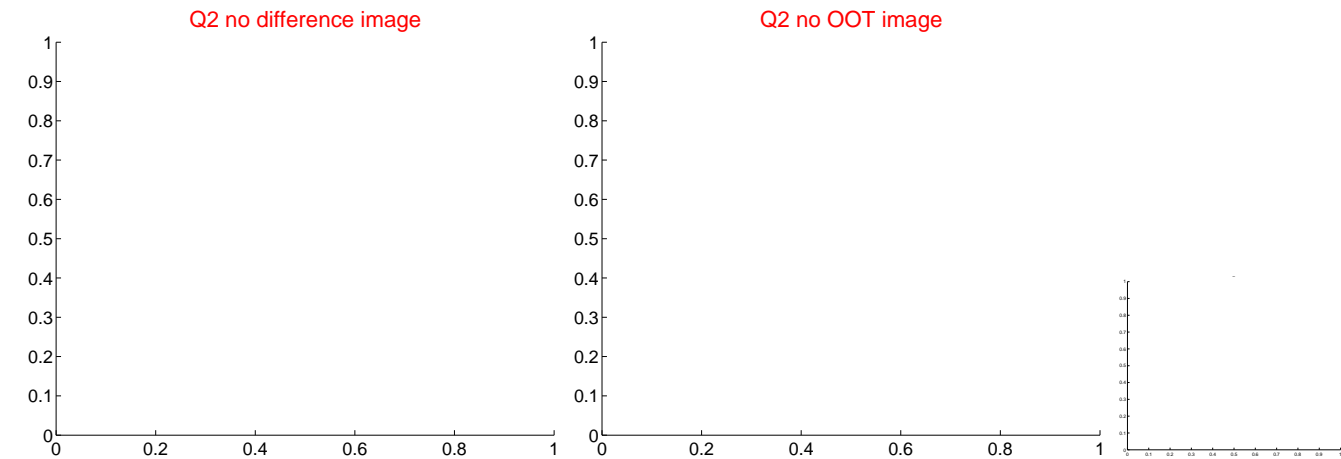
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.049 ± 0.848	0.06	0.043 ± 0.749	0.024 ± 1.111
PRF-fit source offset from KIC position	0.054 ± 0.782	0.07	0.052 ± 0.749	0.015 ± 1.111
photometric centroid source offset	0.33 ± 0.13	2.62	-0.24 ± 0.13	0.23 ± 0.12

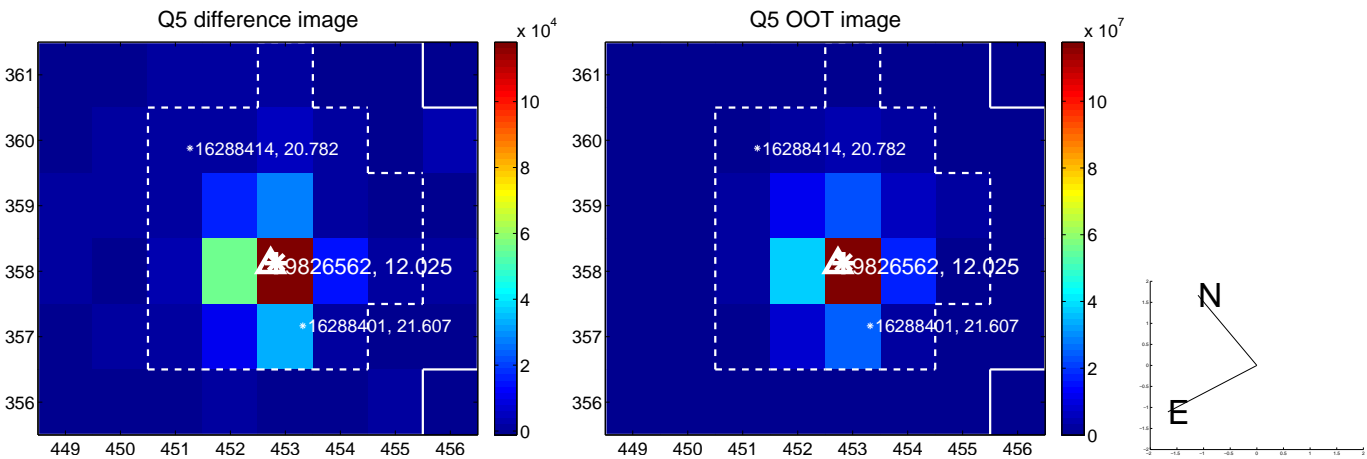


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

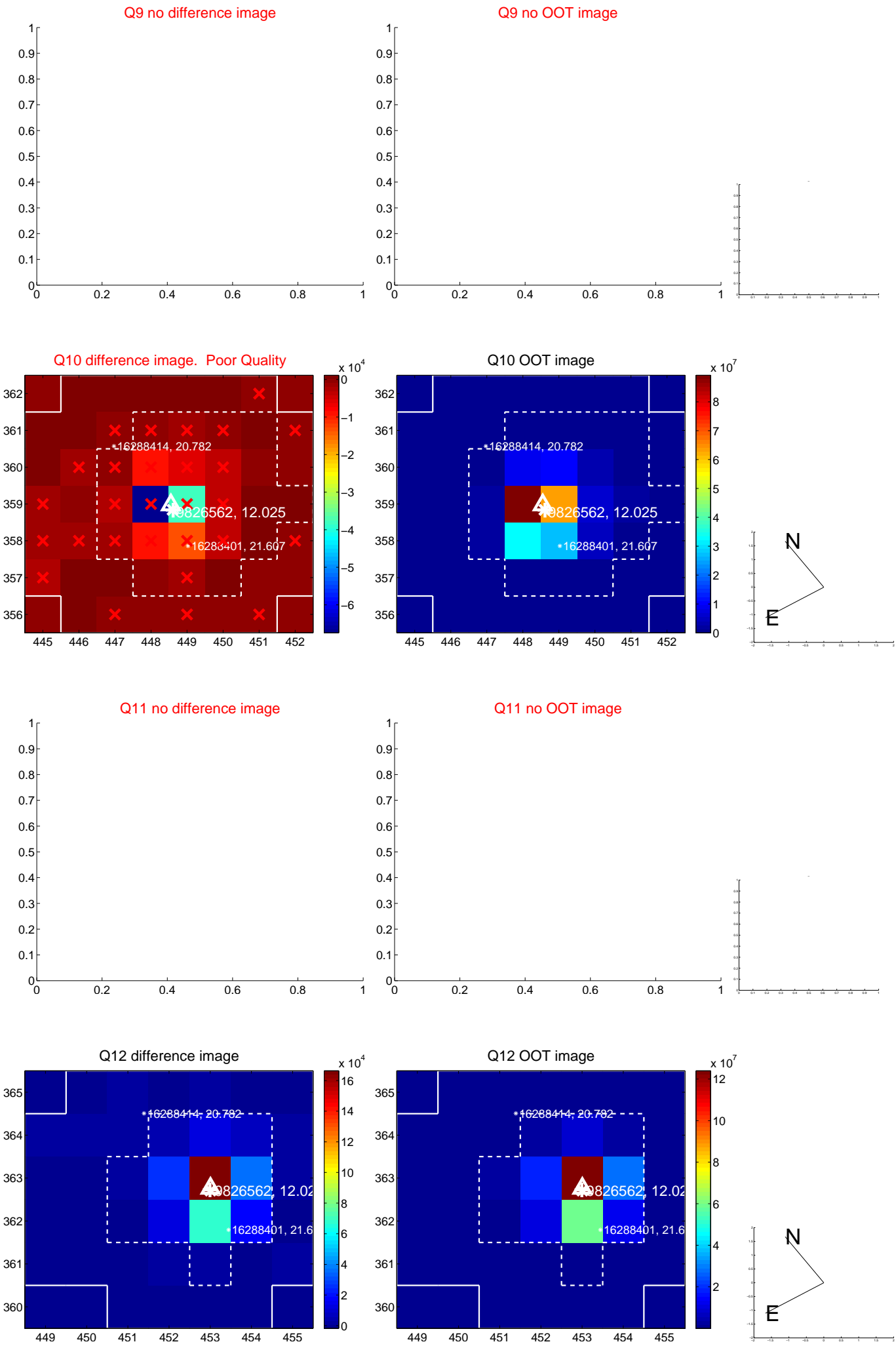
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



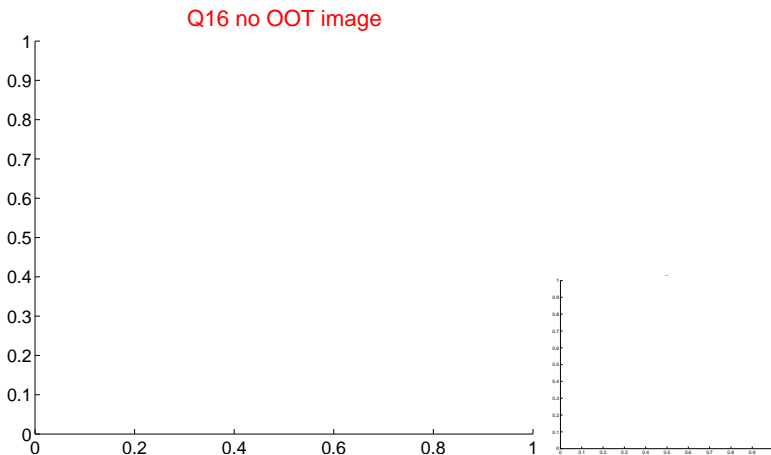
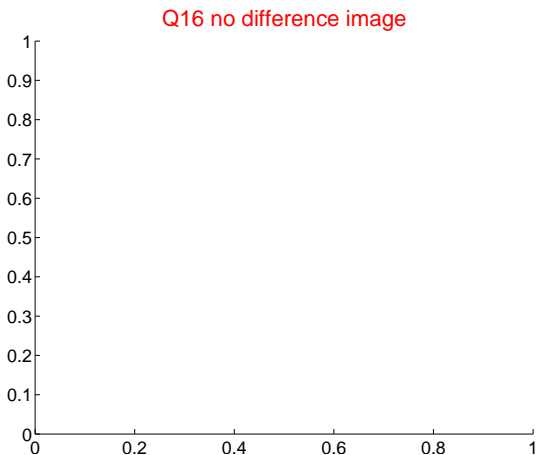
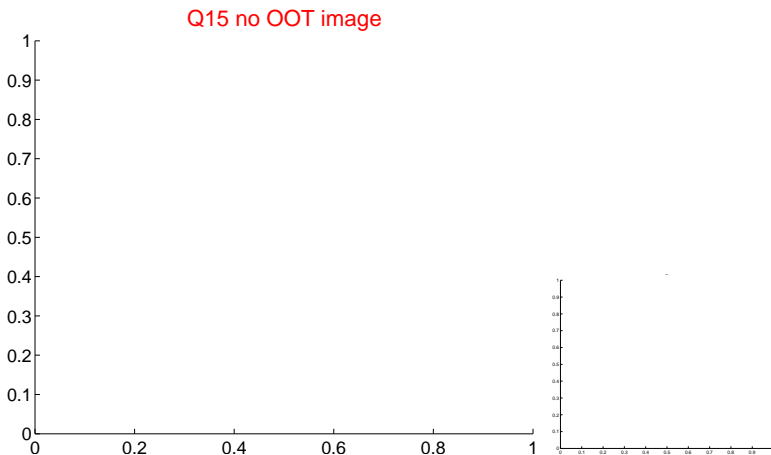
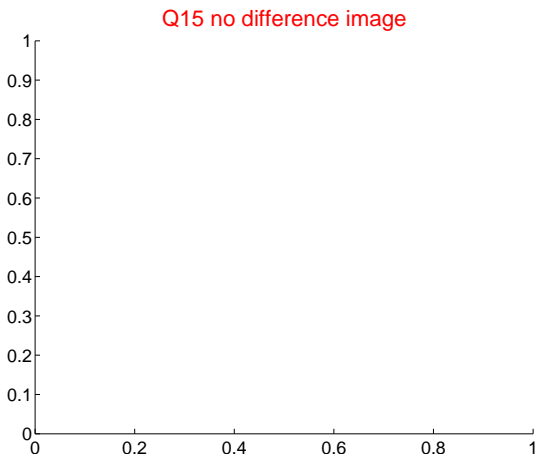
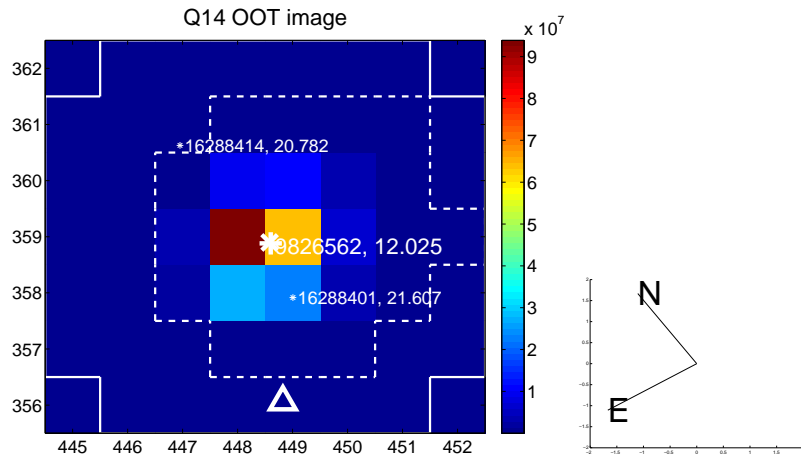
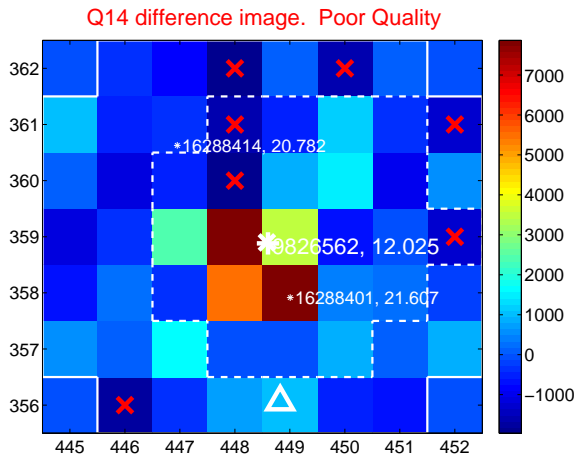
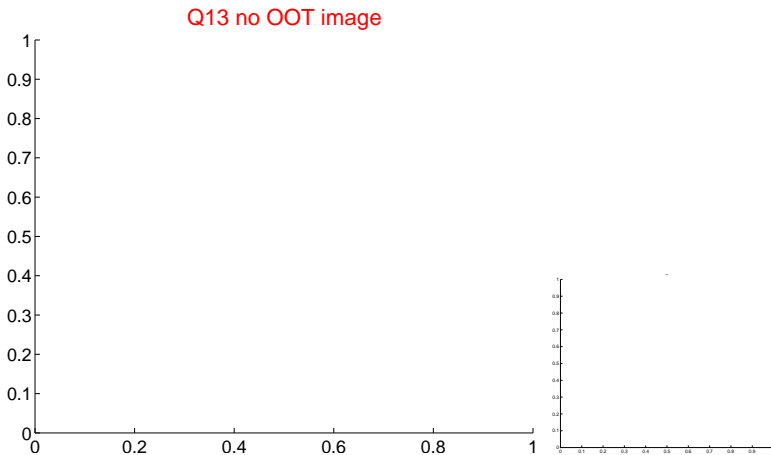
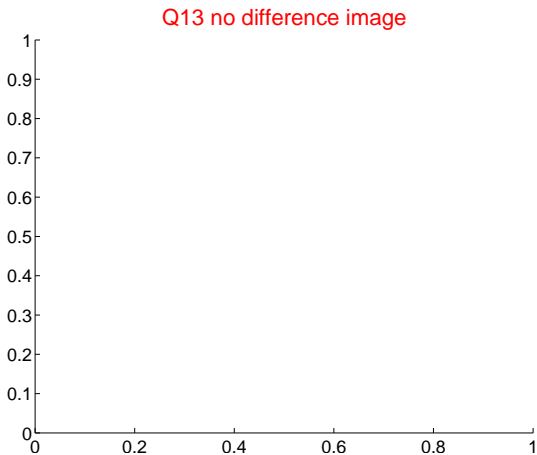
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



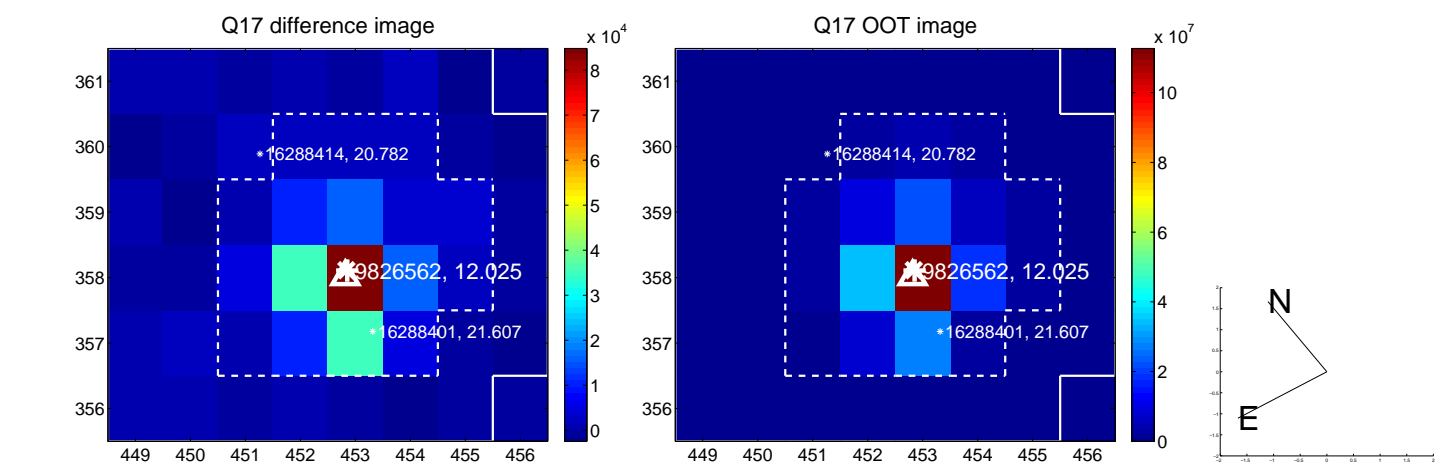
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



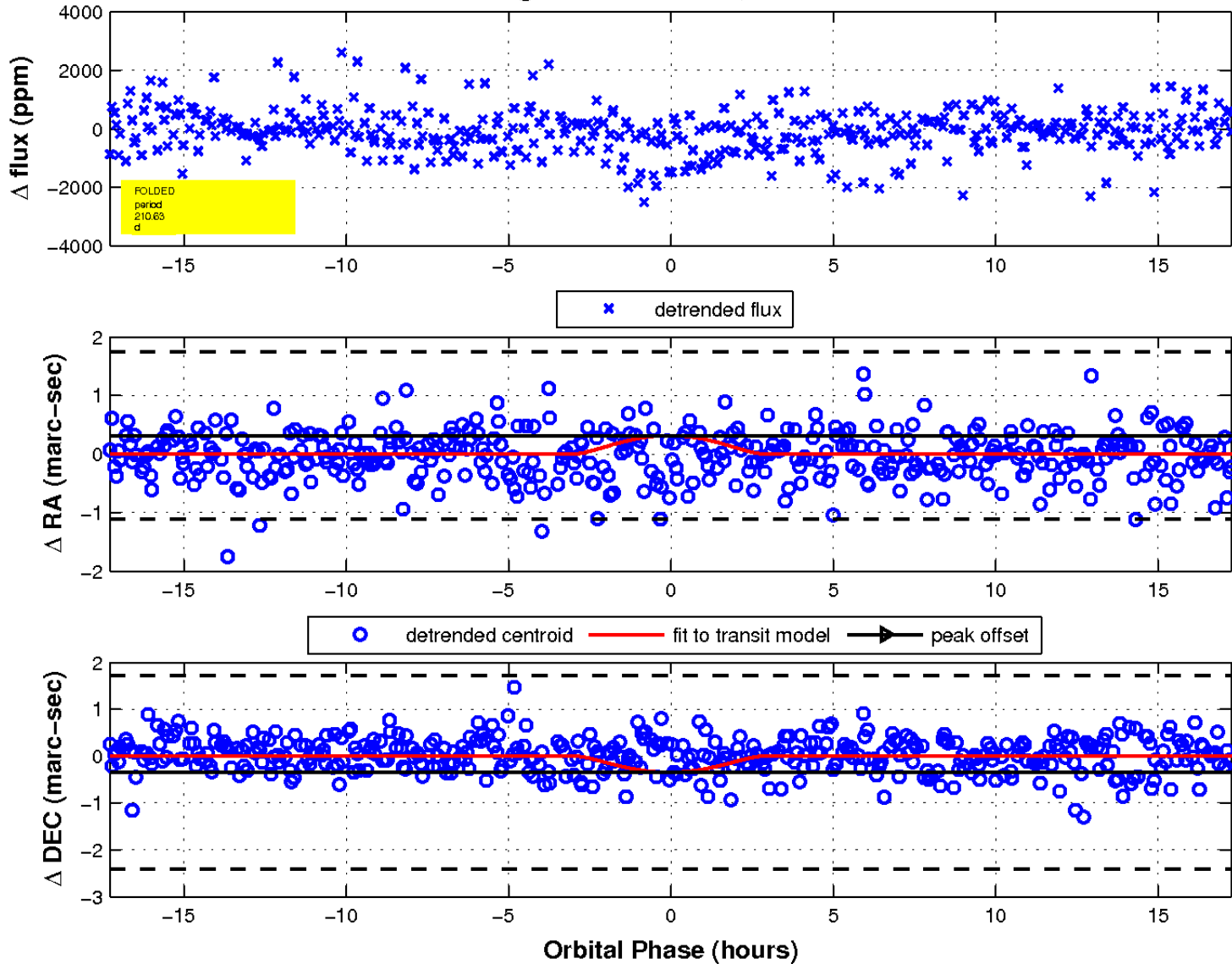
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

