

KIC 005511659

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})
005511659-01	OBS	4541.01	8.529072	135.740964	347.5	3.567	9.9	11.4	1.11	5543	2.84	163.36
005511659-02	OBS	4541.02	17.235950	148.412635	291.7	4.249	7.4	7.8	1.11	5543	2.37	63.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005511659-01	OBS	PC	0.97	0	0	0	0	NO_COMMENT
005511659-02	OBS	PC	0.63	0	0	0	0	NO_COMMENT

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.

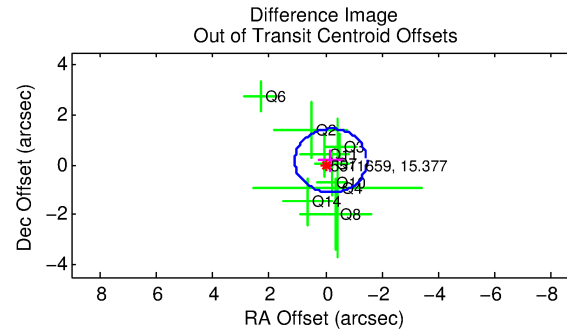
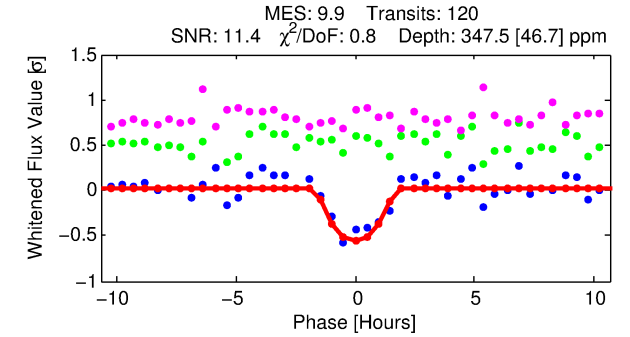
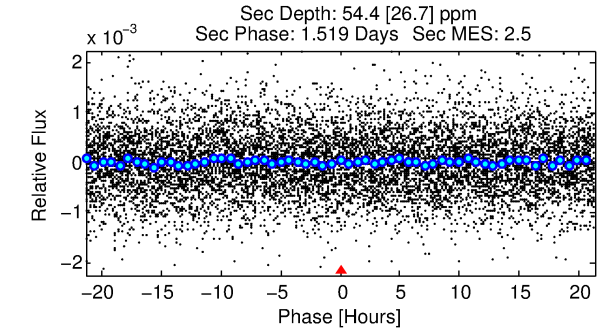
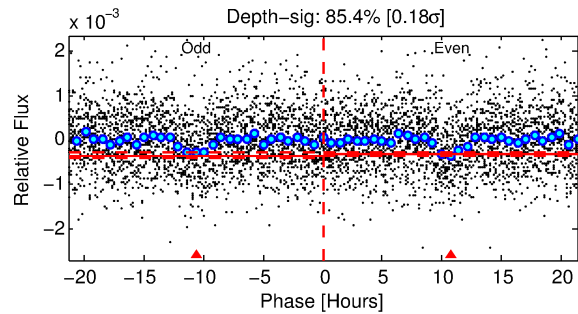
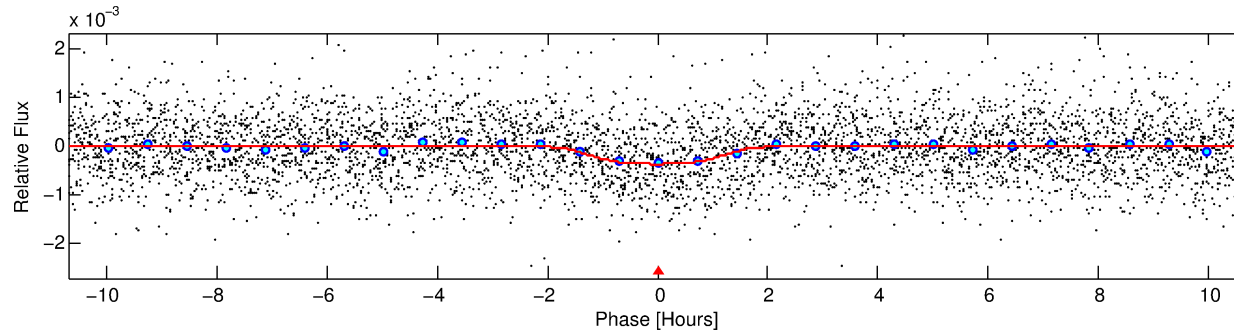
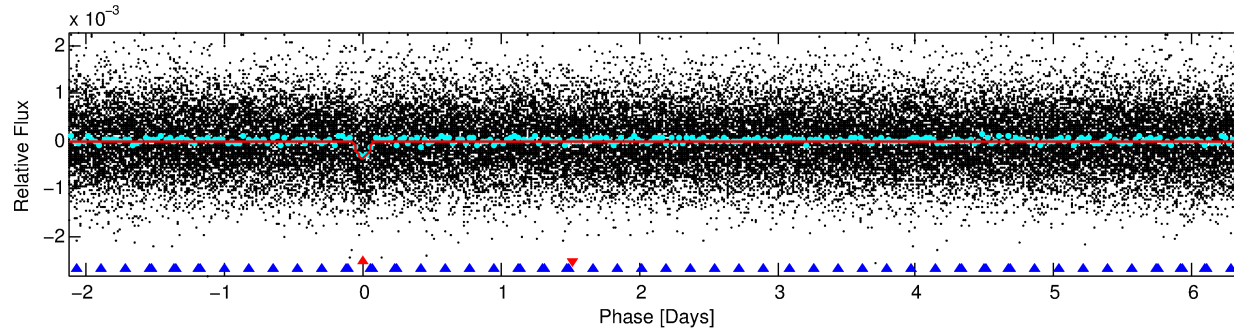
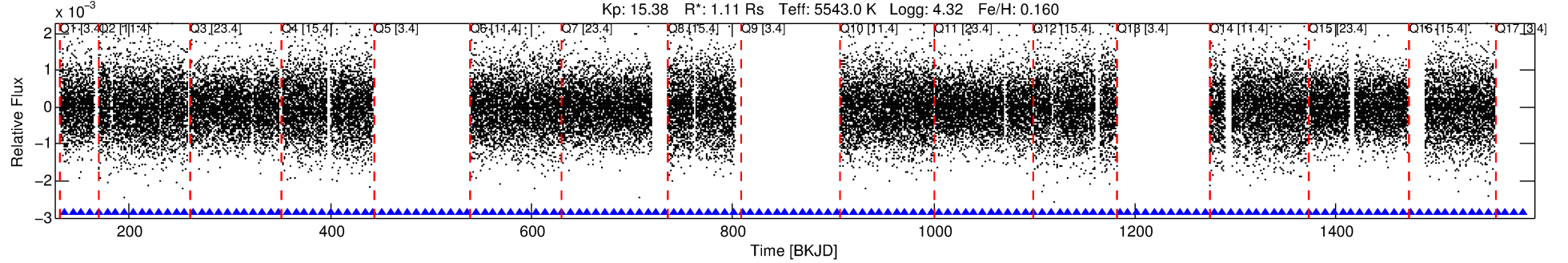
Ephemeris Match Information For 005511659-01

No Significant Match Found

DV One-Page Summary

KIC: 5511659 Candidate: 1 of 2 Period: 8.529 d
KOI: K04541.01 Corr: 0.953

Kp: 15.38 R*: 1.11 Rs Teff: 5543.0 K Logg: 4.32 Fe/H: 0.160



DV Fit Results:

Period = 8.52907 [0.00007] d
Epoch = 135.7410 [0.0069] BKJD
Rp/R* = 0.0234 [0.0025]
a/R* = 5.86 [1.26]
b = 0.97 [0.01]
Seff = 163.36 [39.17]
Teq = 912 [55] K
Rp = 2.84 [0.53] Re
a = 0.0799 [0.0117] AU
Ag = 23.70 [13.83] [1.64σ]
Teffp = 3110 [418] K [5.22σ]

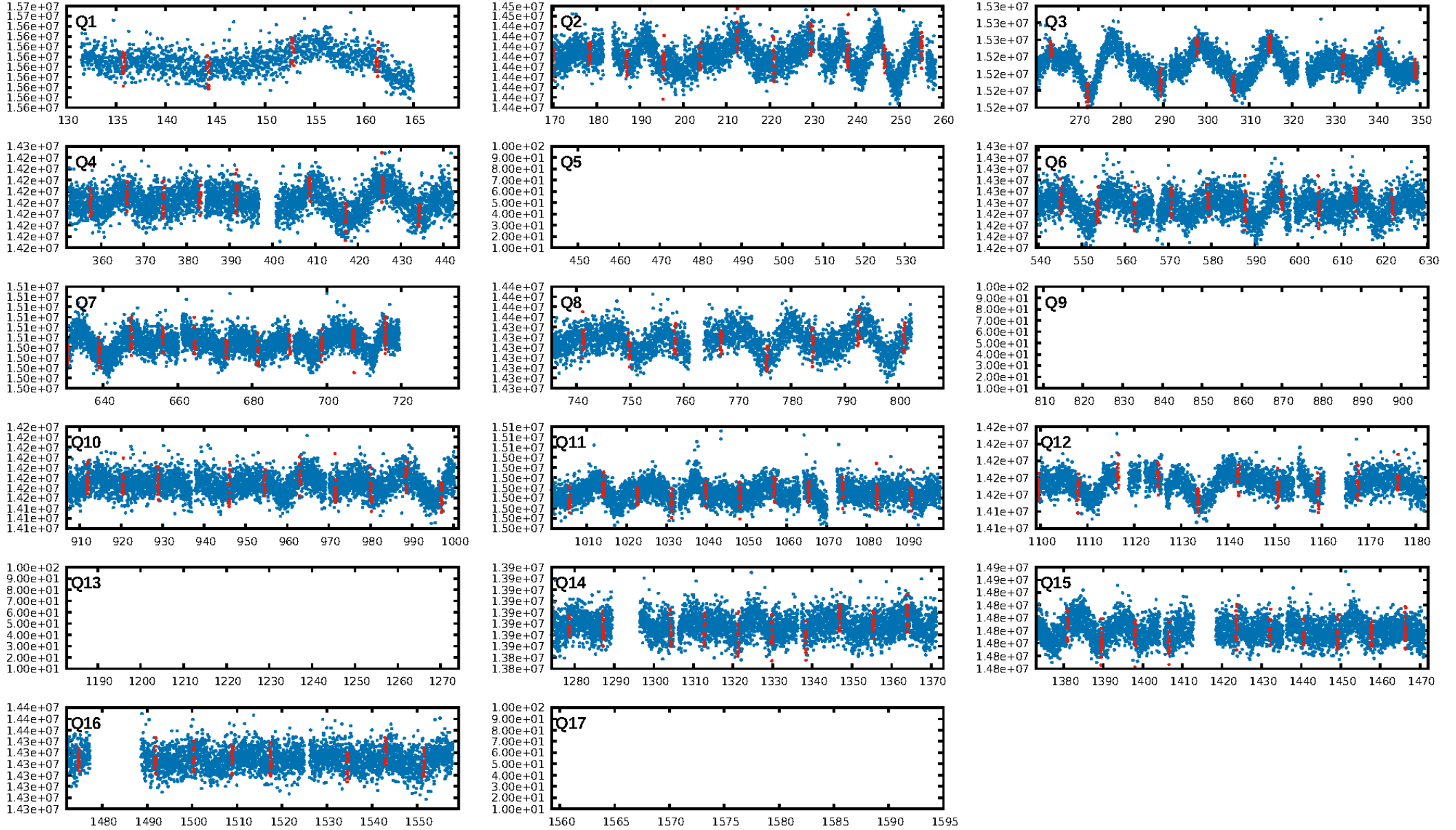
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [37.67σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.61e-23
RollingBand-fgt: 1.00 [116/116]
GhostDiagnostic-chr: 0.8345
Centroid-sig: 24.3%
Centroid-so: 1.062 arcsec [0.91σ]
OotOffset-rm: 0.244 arcsec [0.57σ]
KicOffset-rm: 0.262 arcsec [0.62σ]
OotOffset-st: 4/3/2/0 [9]
KicOffset-st: 4/3/2/0 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 1.00 [13/13]

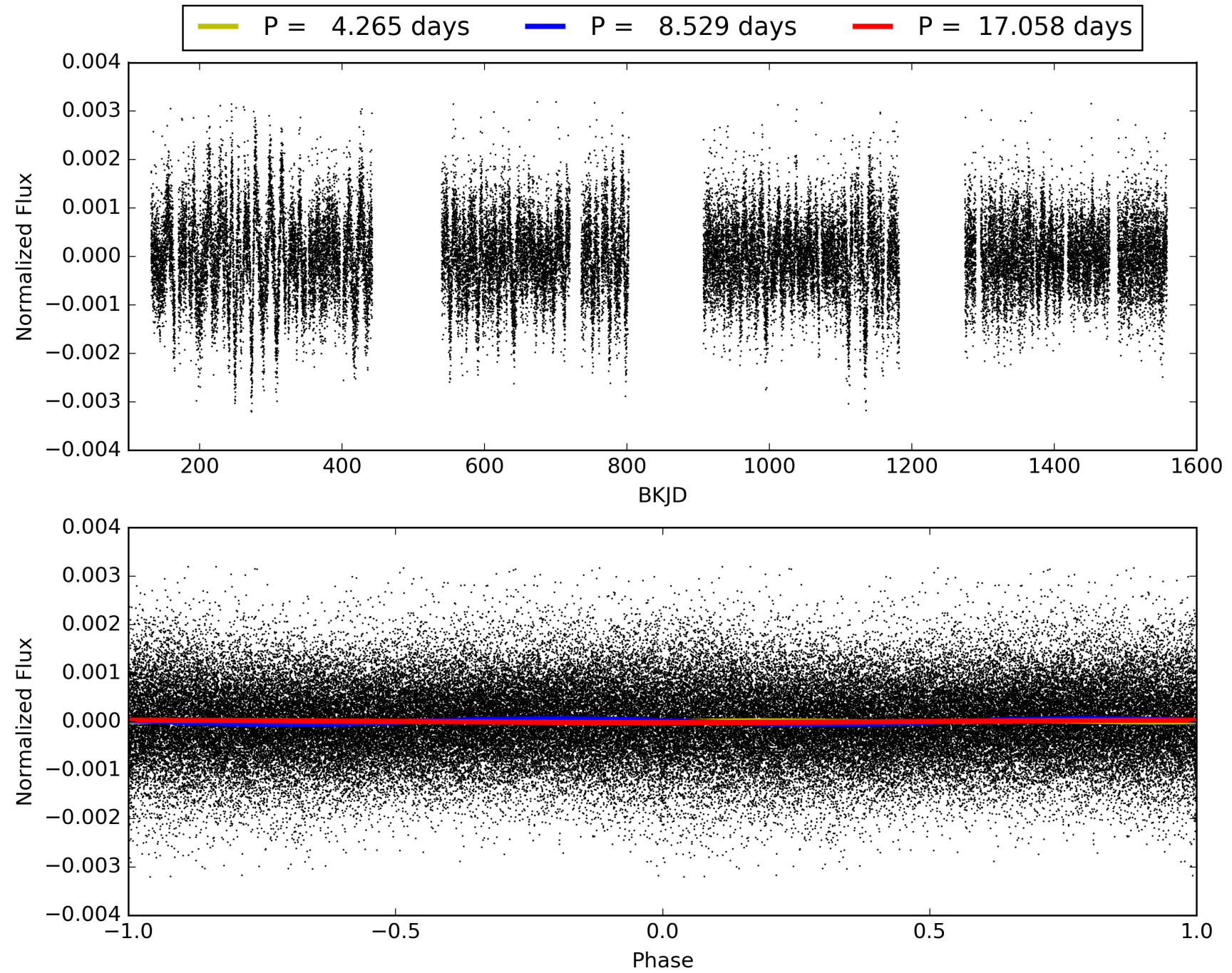
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:26:32 Z

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

TCE 005511659-01, PDC Light Curves

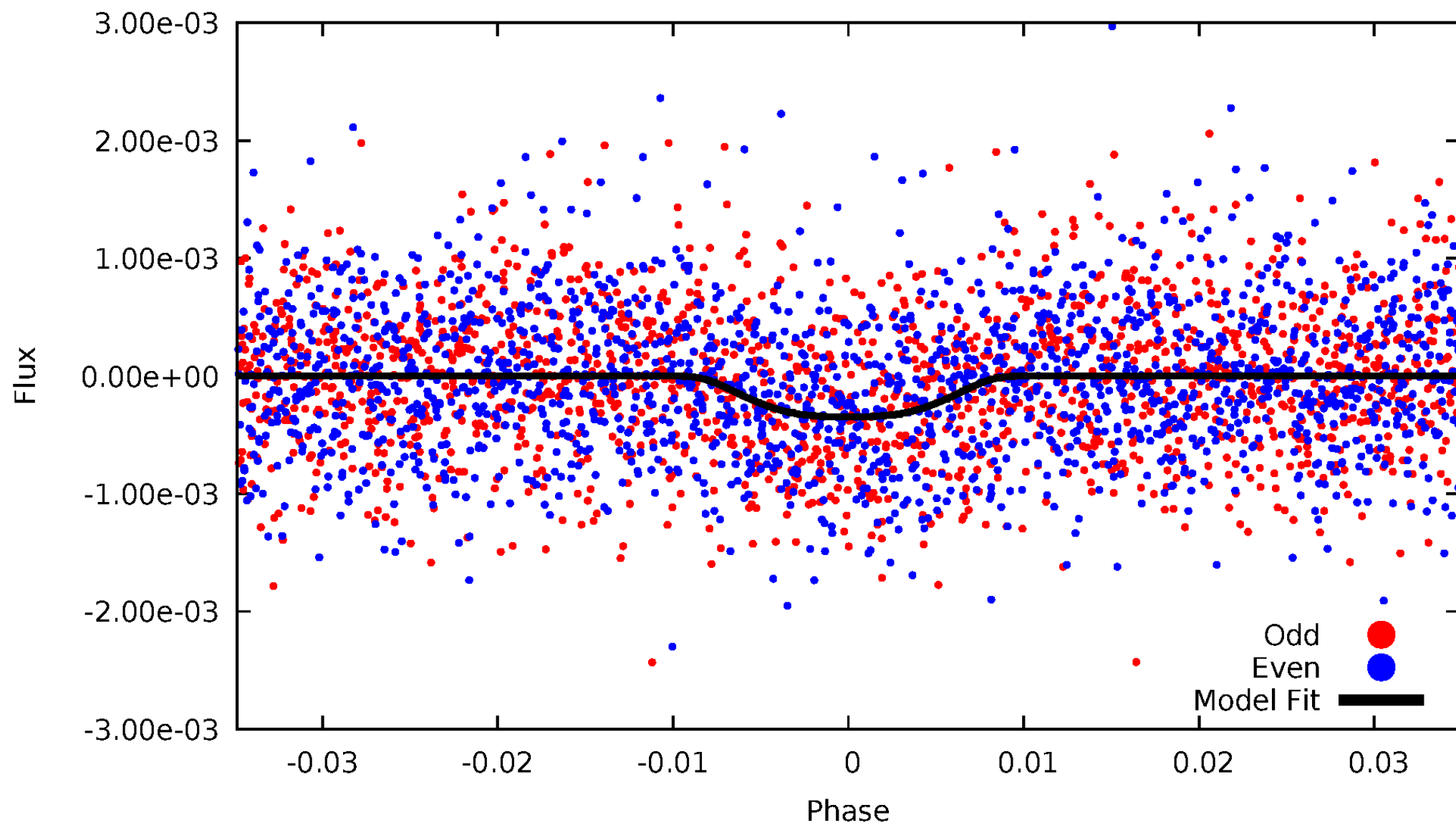


TCE 005511659-01



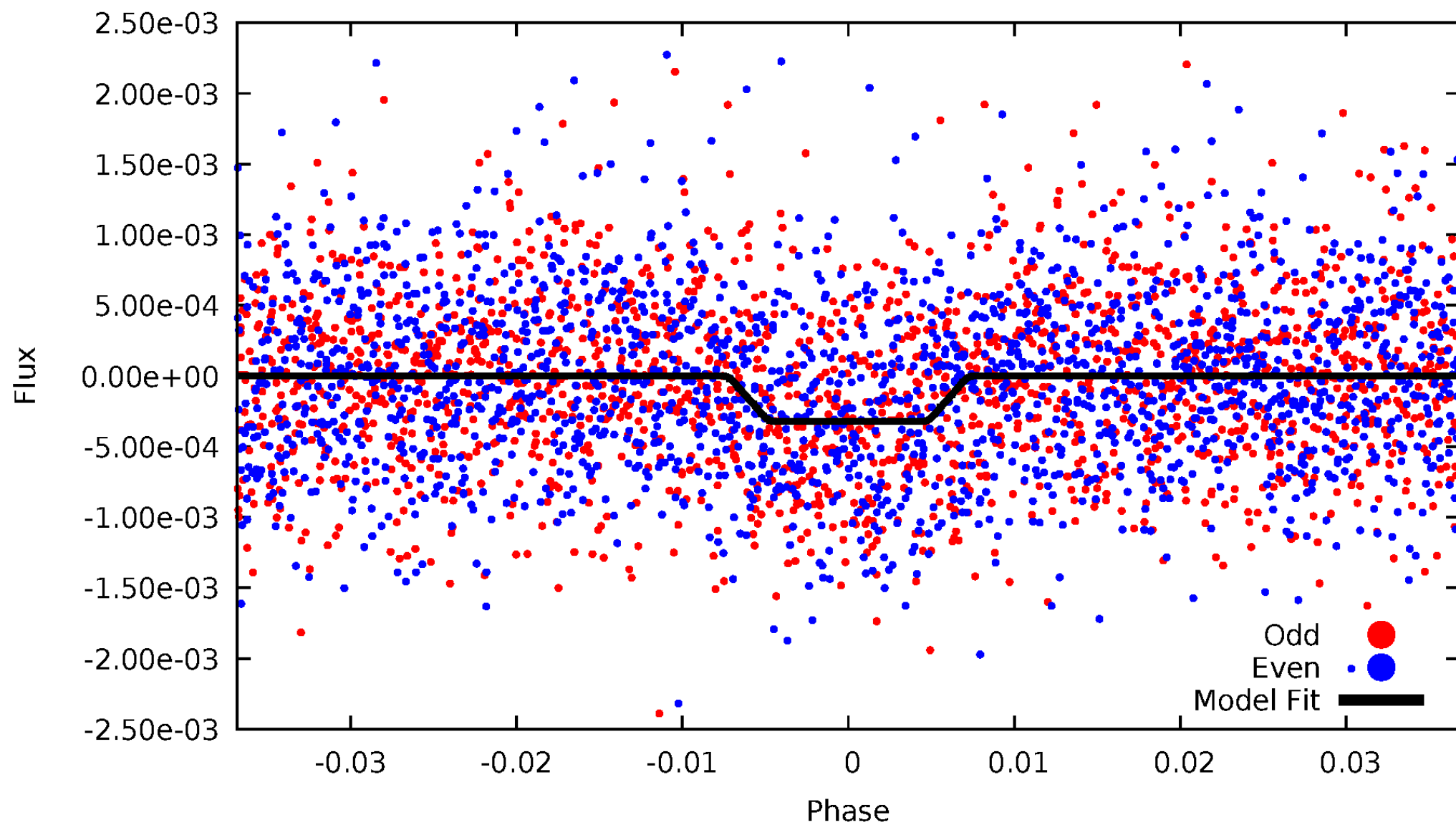
DV Odd/Even

TCE 005511659-01

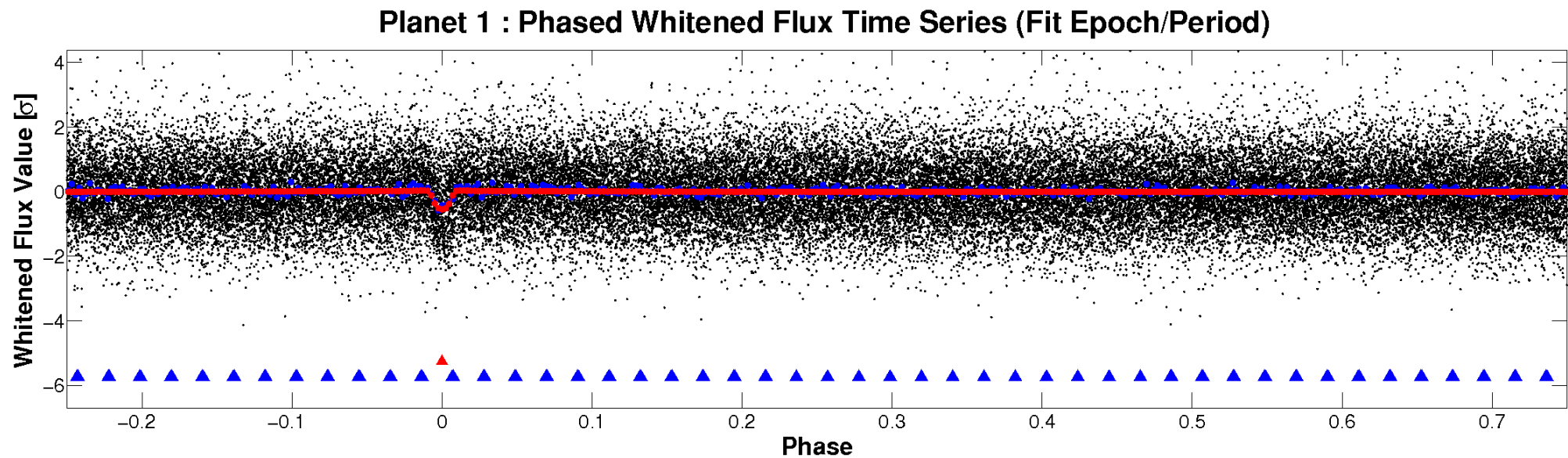
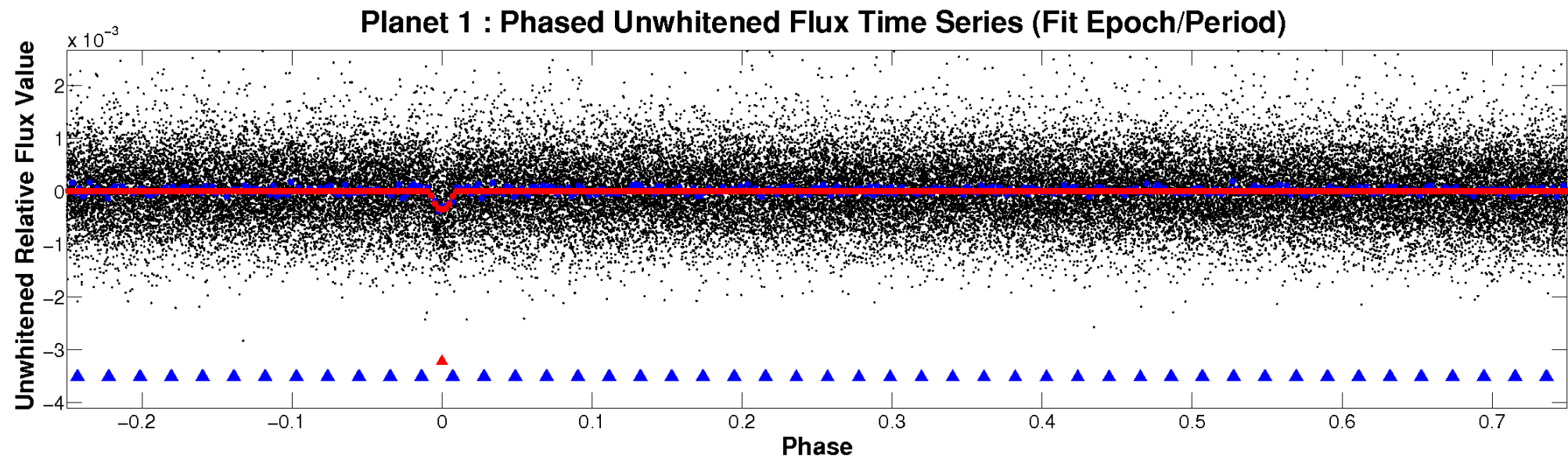


ALT Odd/Even

TCE 005511659-01

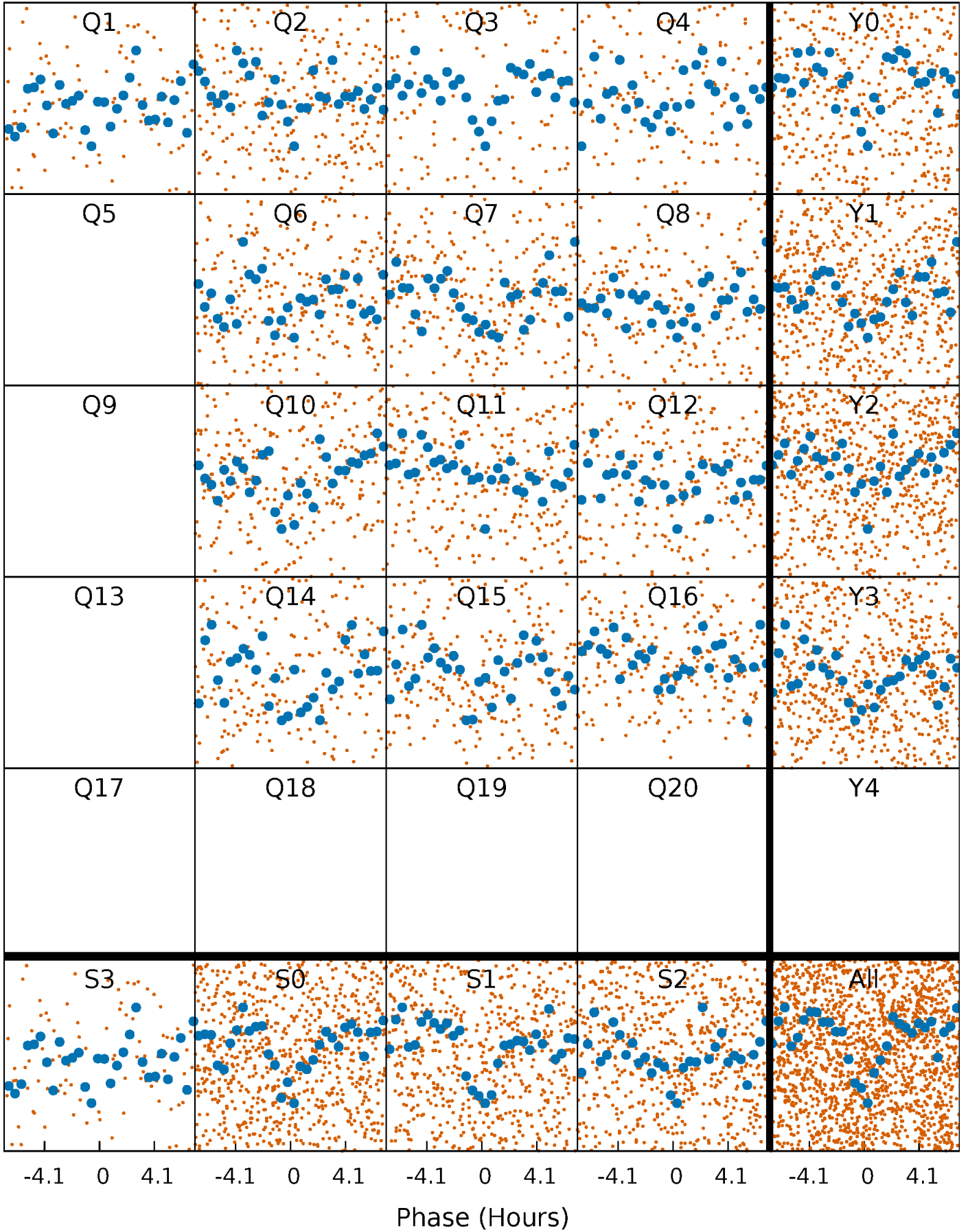


Non-Whitened Vs. Whitened Light Curve



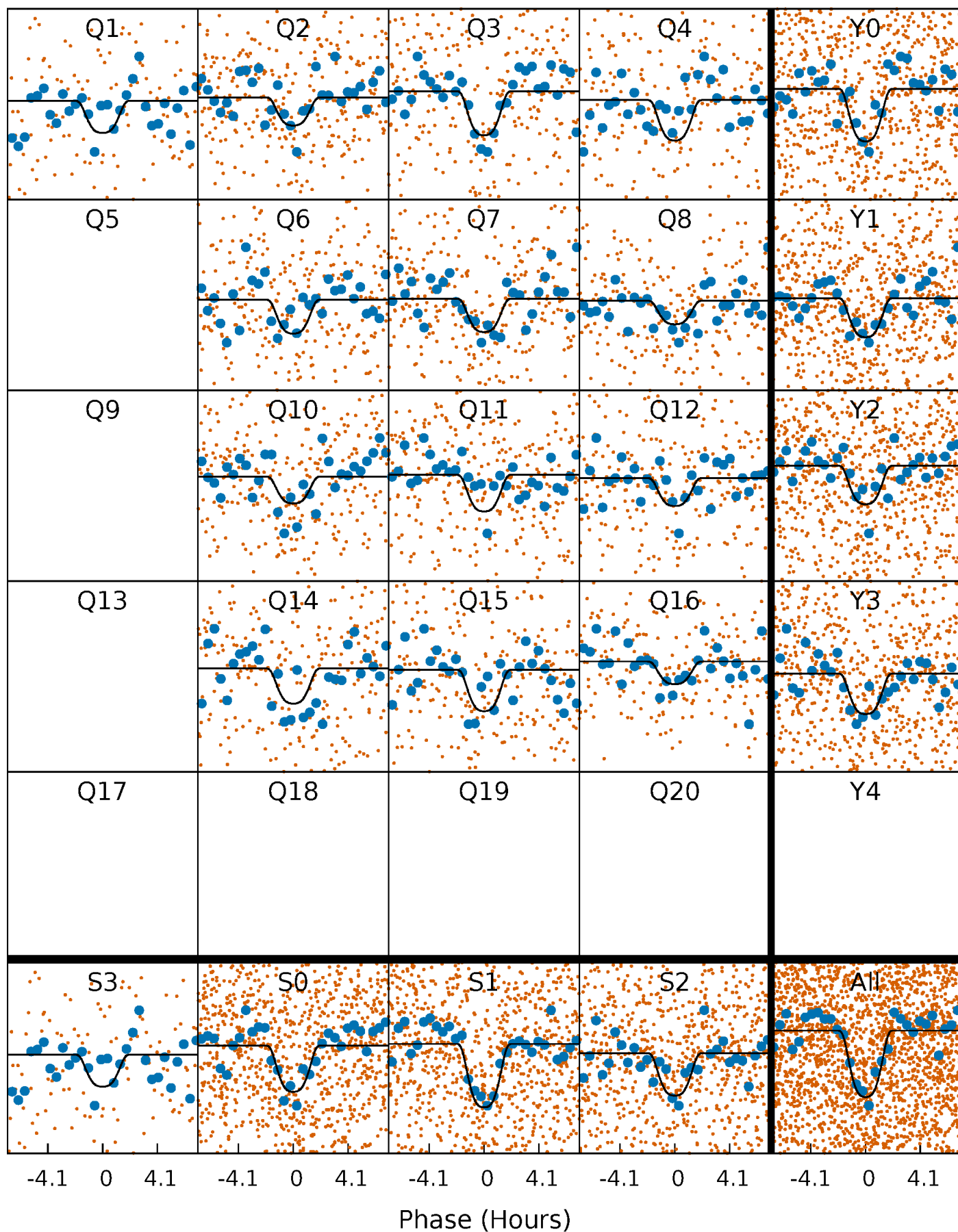
PDC Quarter-Phased Transit Curves

TCE 005511659-01 P= 8.529072 Days $T_0=135.740964$ (BKJD)



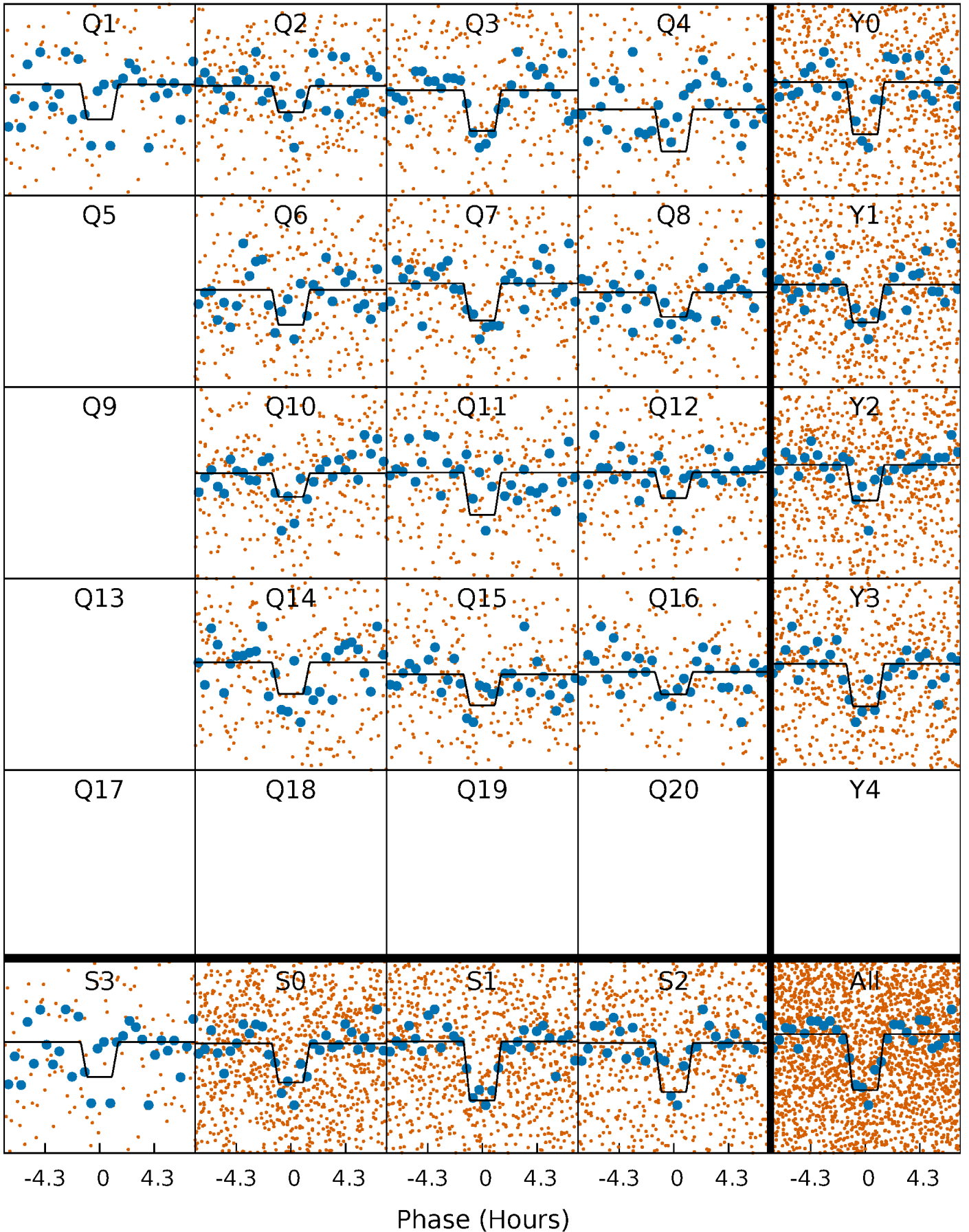
DV Quarter-Phased Transit Curves

TCE 005511659-01 P= 8.529072 Days $T_0=135.740964$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

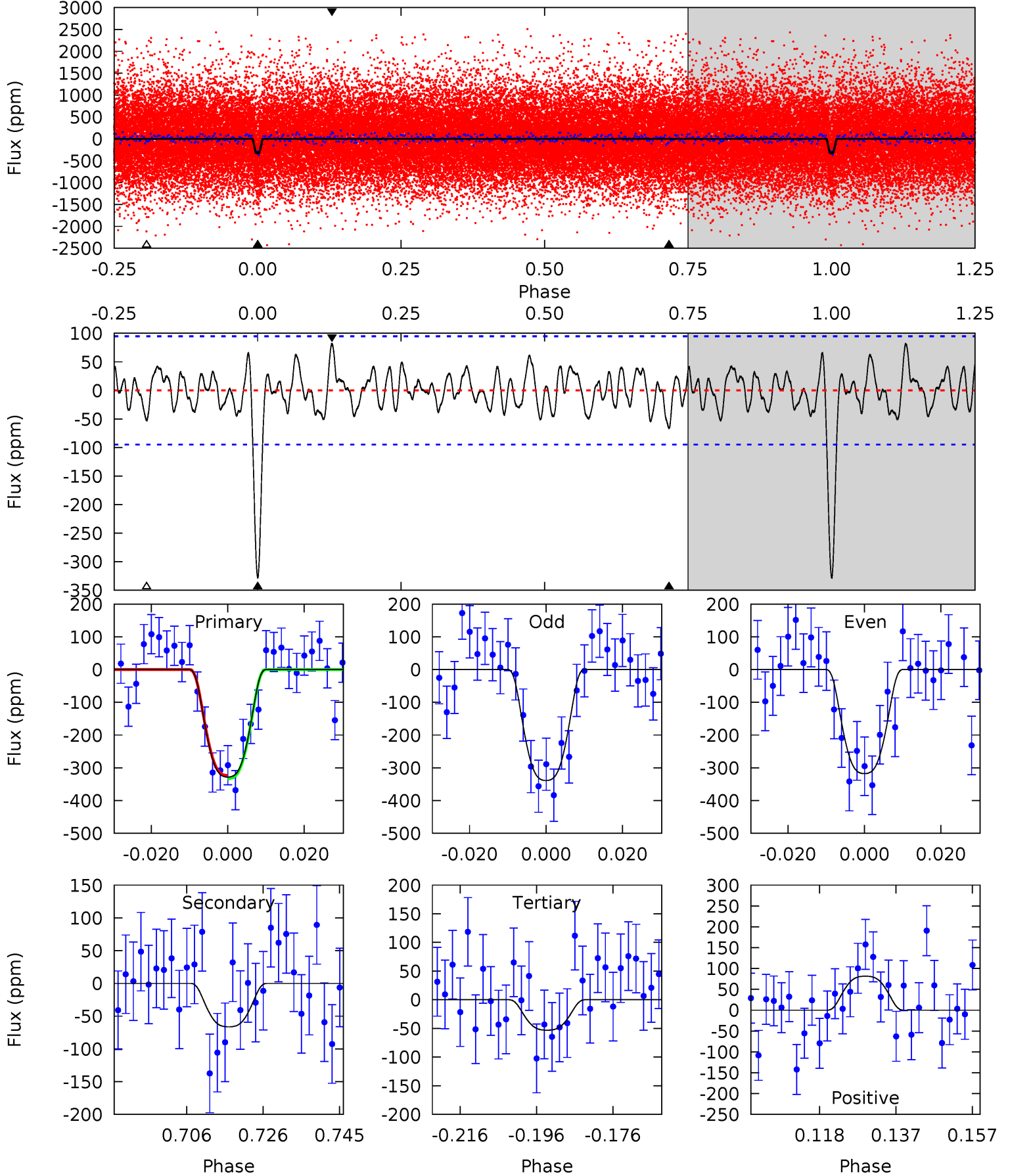
TCE 005511659-01 P= 8.529072 Days $T_0=135.742745$ (BKJD)



DV Model-Shift Uniqueness Test

005511659-01, P = 8.529072 Days, E = 127.211892 Days

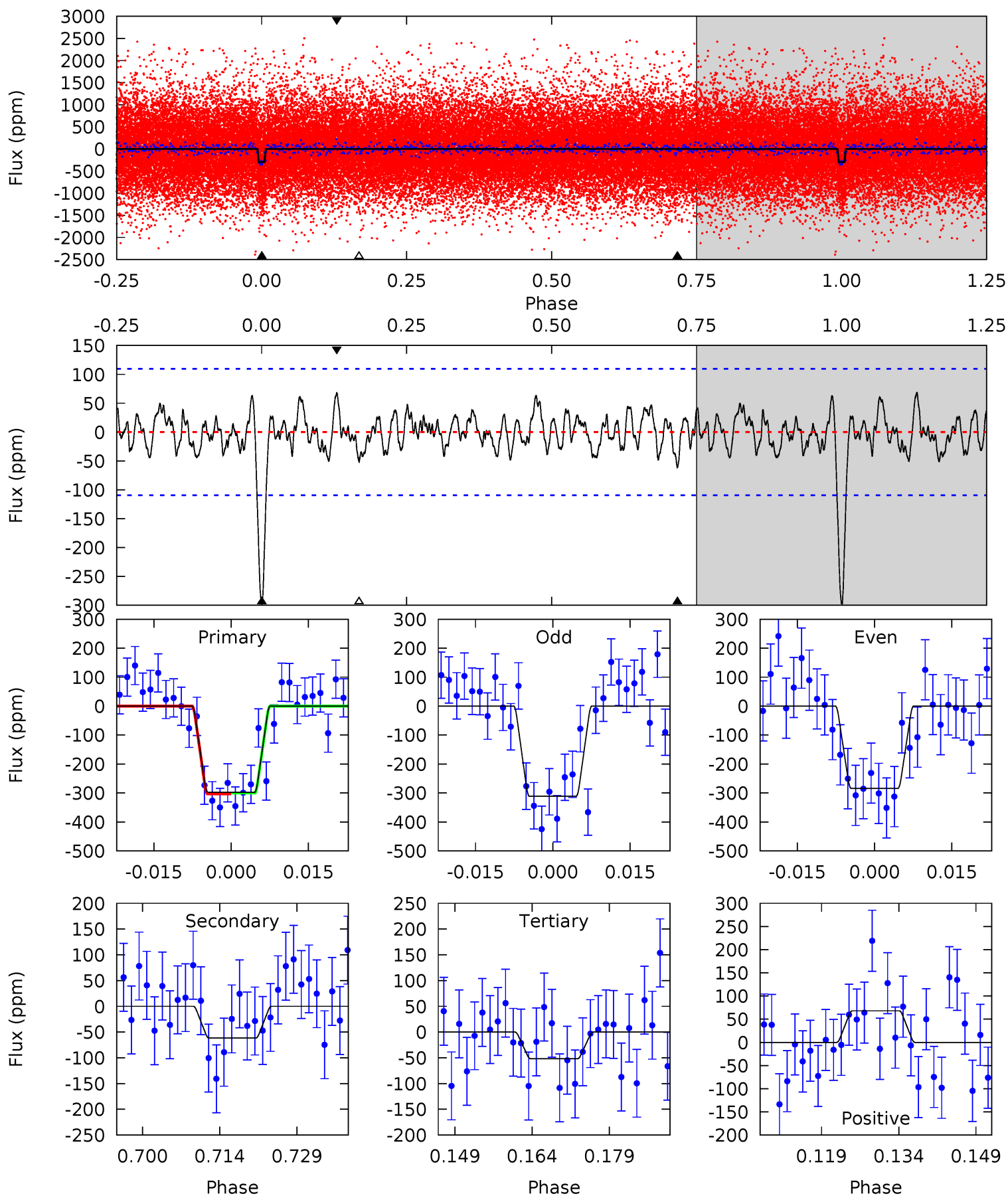
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	3.42	2.74	4.21	4.90	2.33	1.36	14.2	12.7	0.68	-0.78	0.55	1.01	0.20	0.24



Alt Model-Shift Uniqueness Test

005511659-01, P = 8.529072 Days, E = 127.213673 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	2.78	2.34	3.08	4.95	2.44	1.11	11.1	10.4	0.44	-0.29	0.62	1.01	0.19	0.05



Stellar Parameters For KIC 005511659

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5543^{+74}_{-74}	$4.318^{+0.137}_{-0.100}$	$0.160^{+0.150}_{-0.150}$	$1.111^{+0.170}_{-0.170}$	$0.937^{+0.062}_{-0.043}$	$0.961^{+0.601}_{-0.317}$
	+1%/-1%	+3%/-2%	+94%/-94%	+15%/-15%	+7%/-5%	+63%/-33%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 005511659-01 / KOI 4541.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-66 ± 19	$2.83^{+0.38}_{-0.36}$	1272^{+52}_{-58}	3656^{+230}_{-239}	29^{+14}_{-10}
Alt.	-62 ± 22	$2.17^{+0.38}_{-0.36}$	1273^{+53}_{-56}	3947^{+357}_{-332}	44^{+29}_{-18}

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 $A_{obs} \gg 1.0$

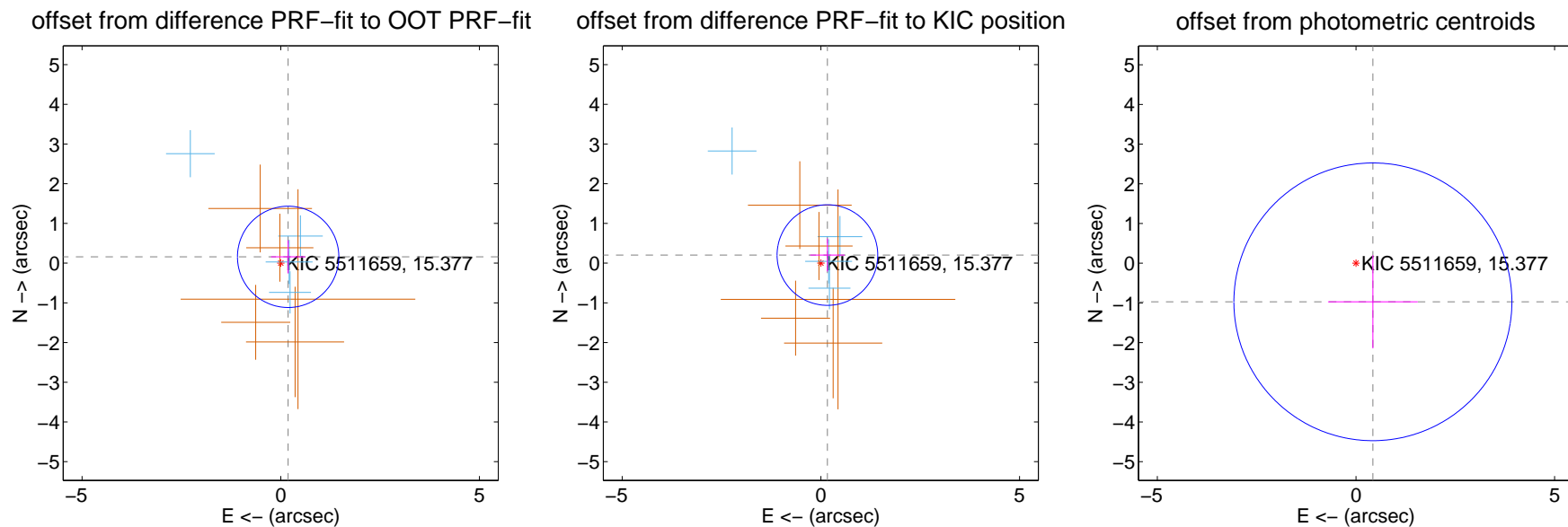
DV Centroid Data

Supplemental centroid analysis for 005511659-01. Kepler magnitude: 15.38. Transit SNR 11.38

There are 4 quarters with good PRF difference image offsets

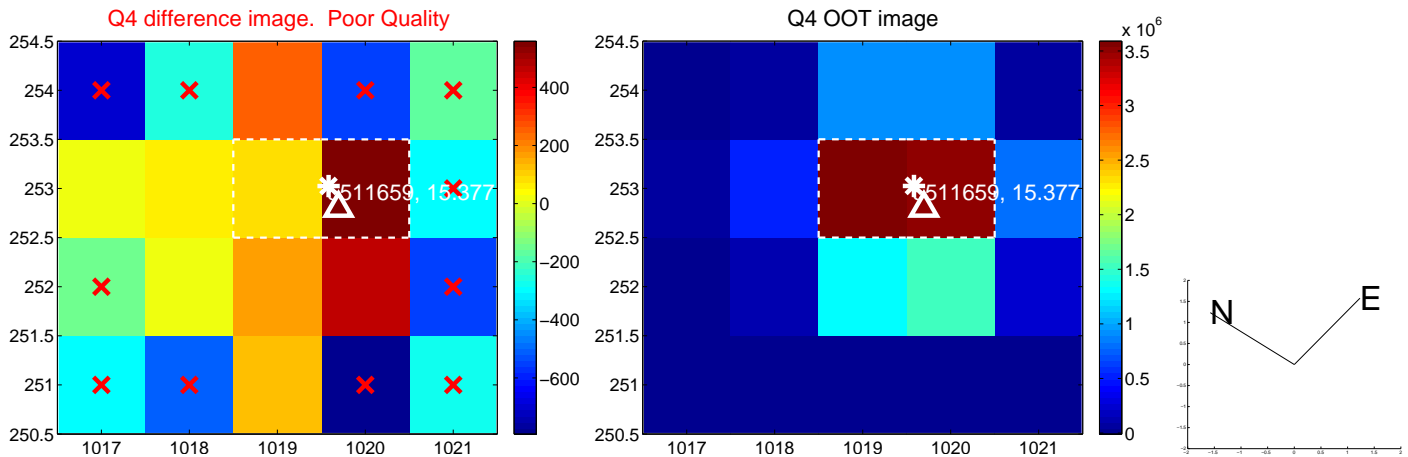
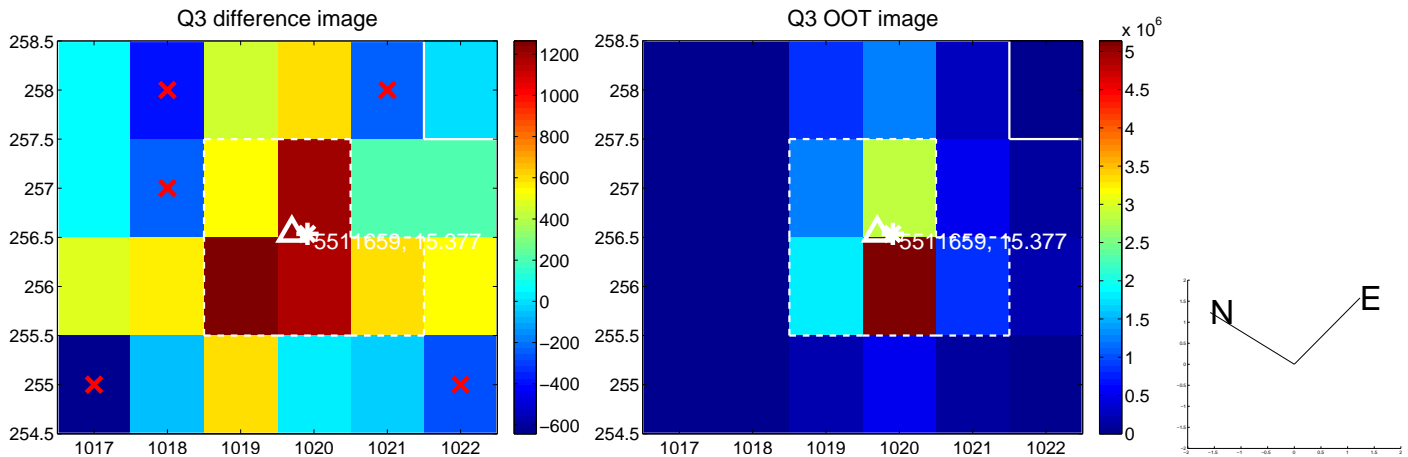
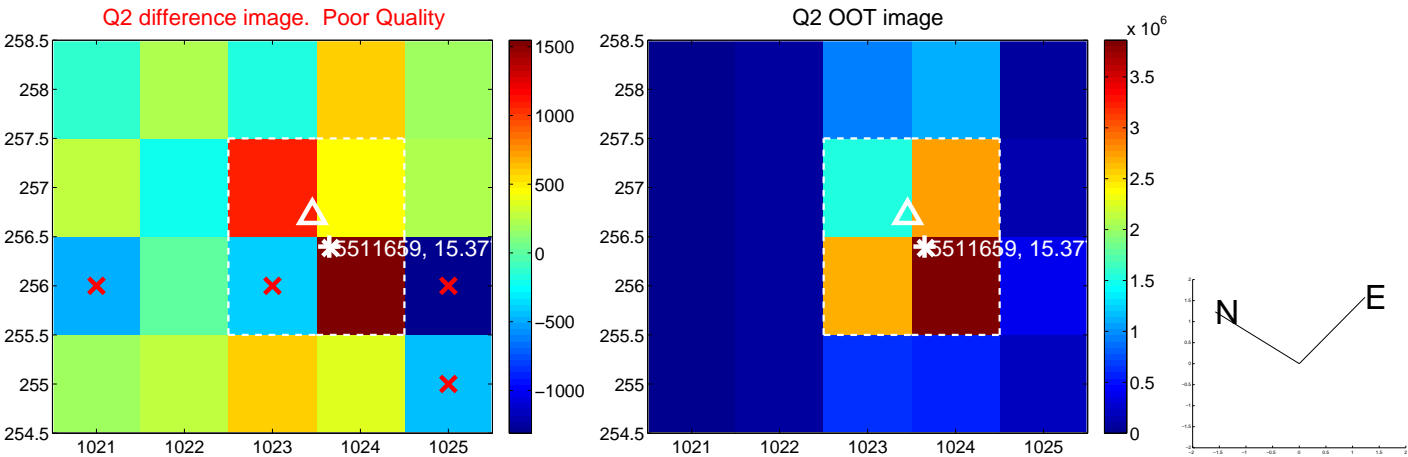
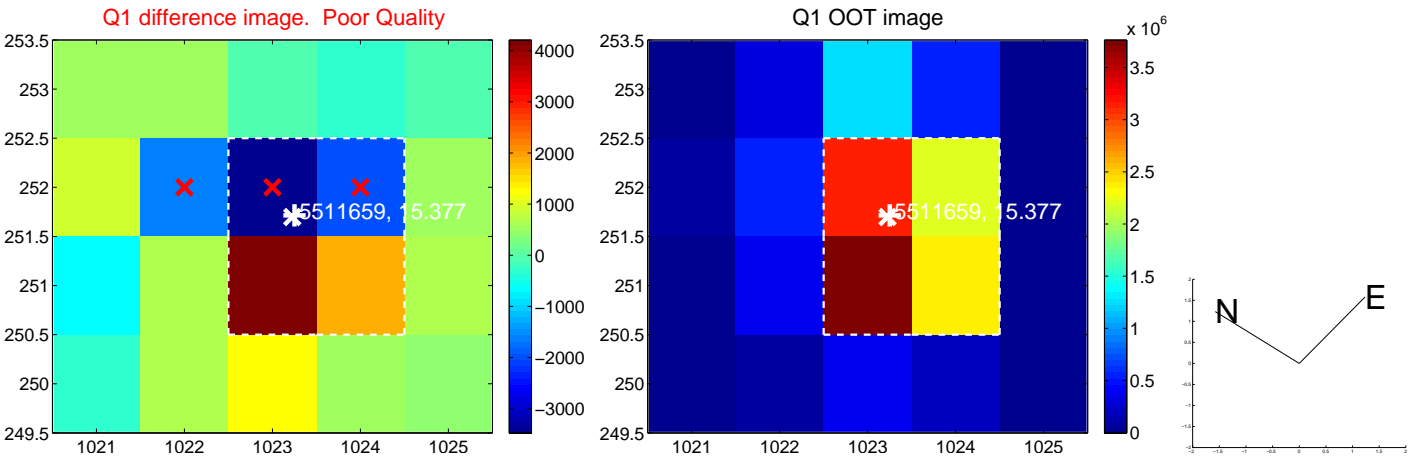
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.244 ± 0.425	0.57	-0.186 ± 0.432	0.158 ± 0.416
PRF-fit source offset from KIC position	0.262 ± 0.422	0.62	-0.165 ± 0.432	0.204 ± 0.416
photometric centroid source offset	1.06 ± 1.17	0.91	-0.43 ± 1.13	-0.97 ± 1.17

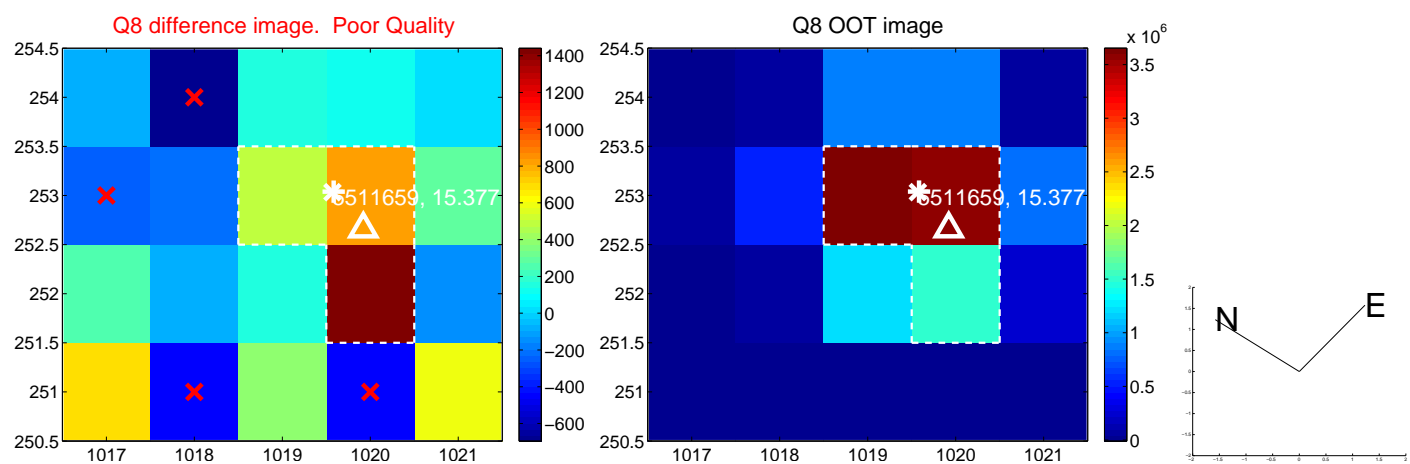
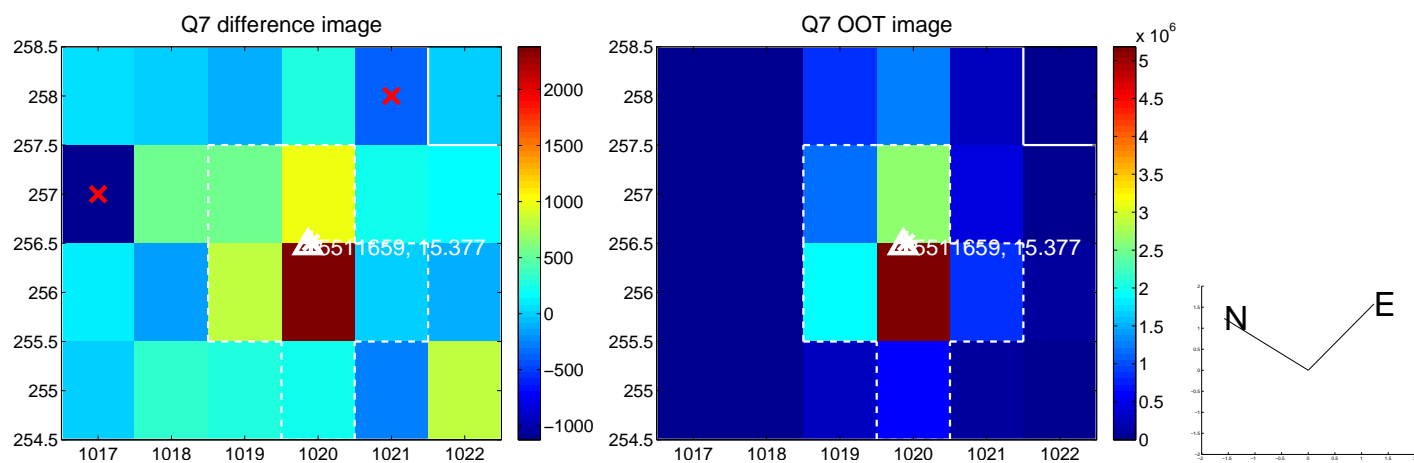
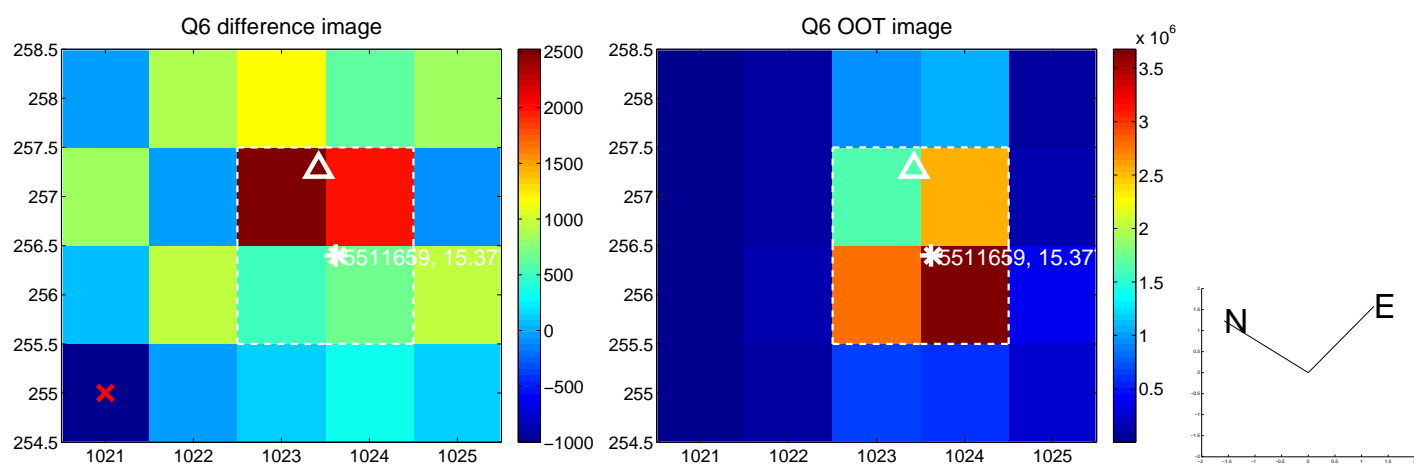
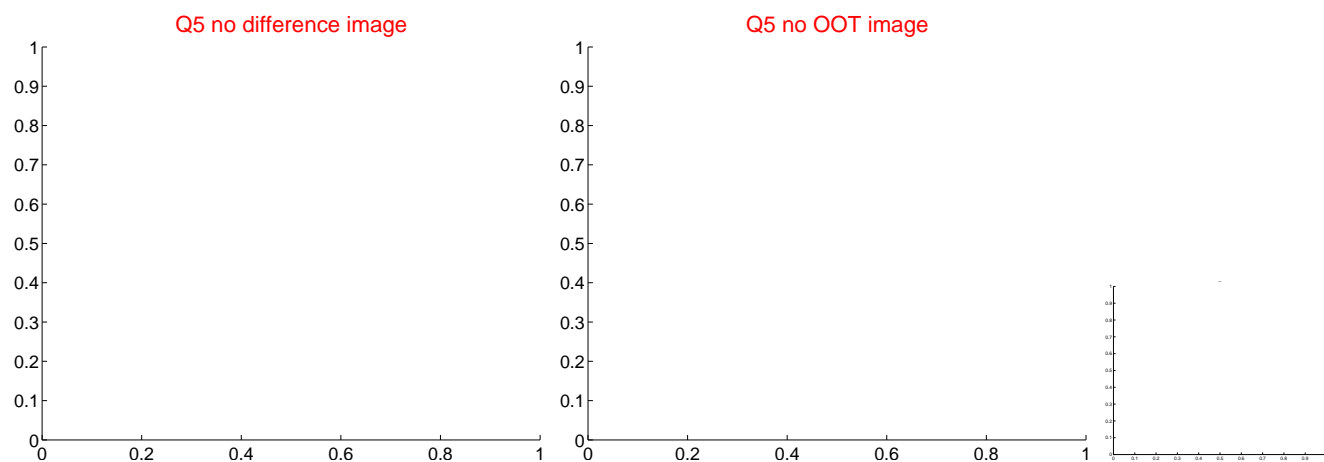


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

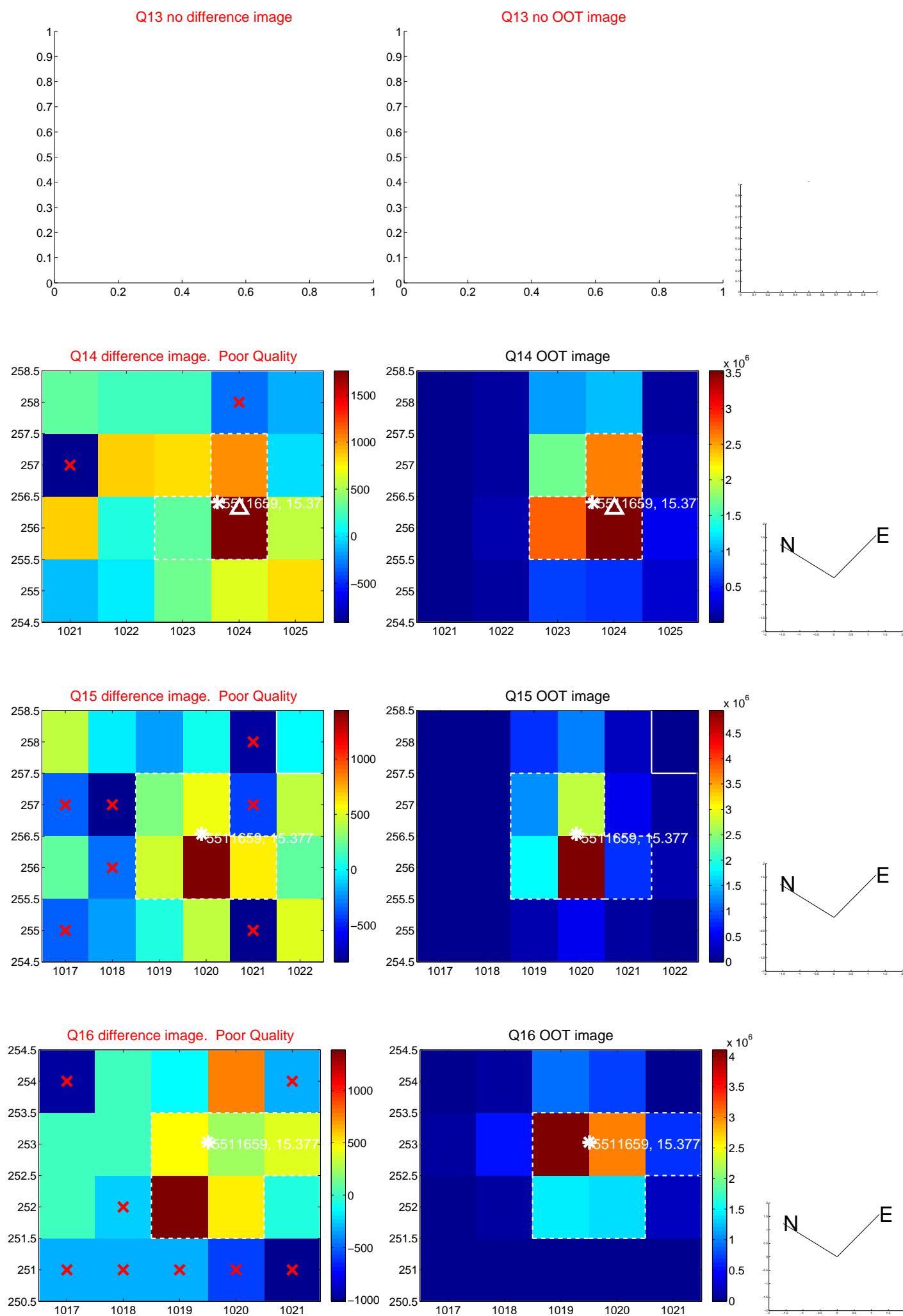
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



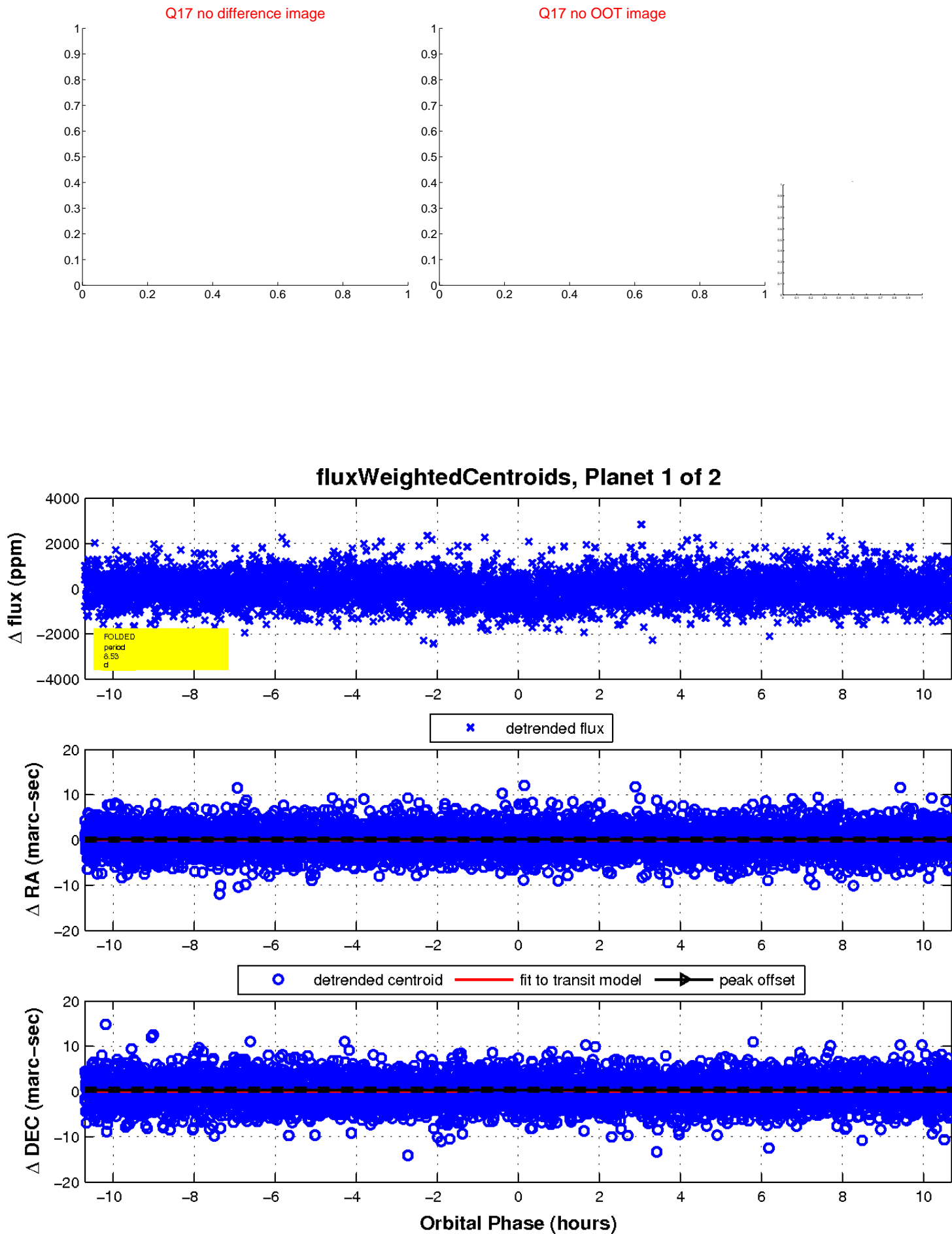
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

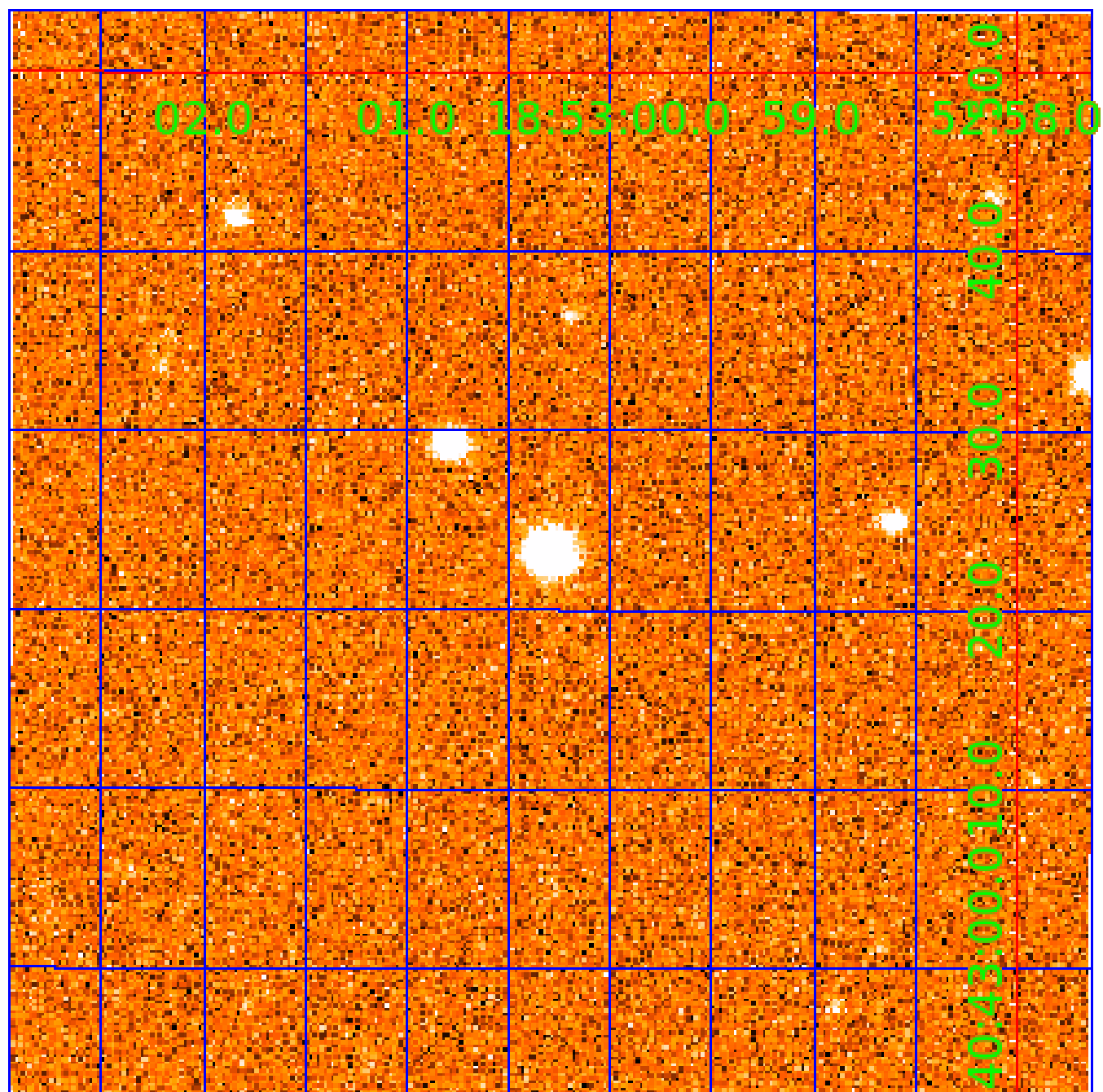


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005511659

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})
005511659-01	OBS	4541.01	8.529072	135.740964	347.5	3.567	9.9	11.4	1.11	5543	2.84	163.36
005511659-02	OBS	4541.02	17.235950	148.412635	291.7	4.249	7.4	7.8	1.11	5543	2.37	63.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005511659-01	OBS	PC	0.97	0	0	0	0	NO_COMMENT
005511659-02	OBS	PC	0.63	0	0	0	0	NO_COMMENT

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 005511659-02

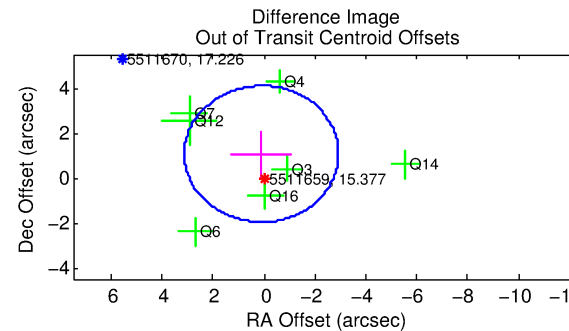
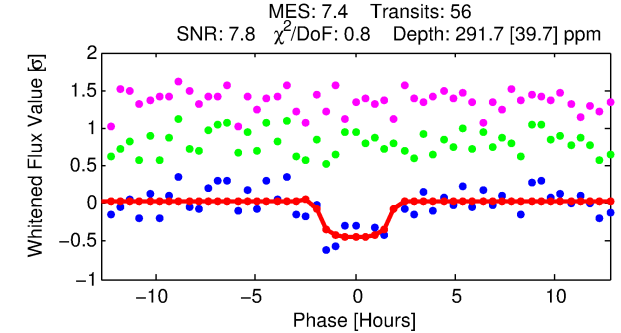
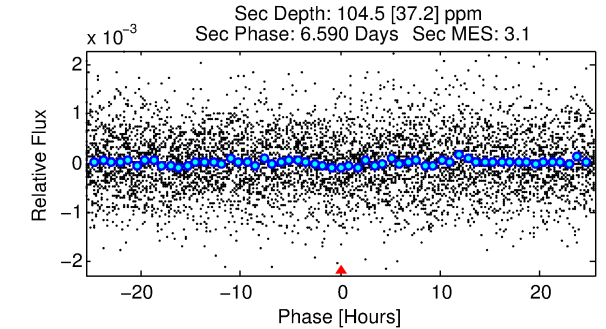
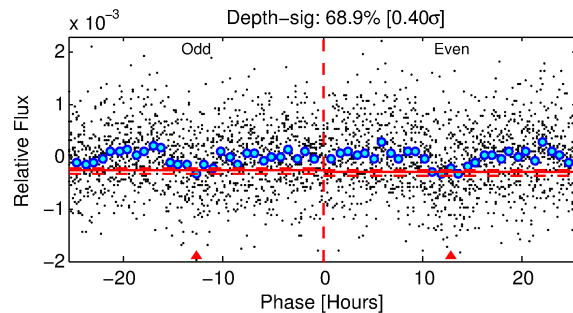
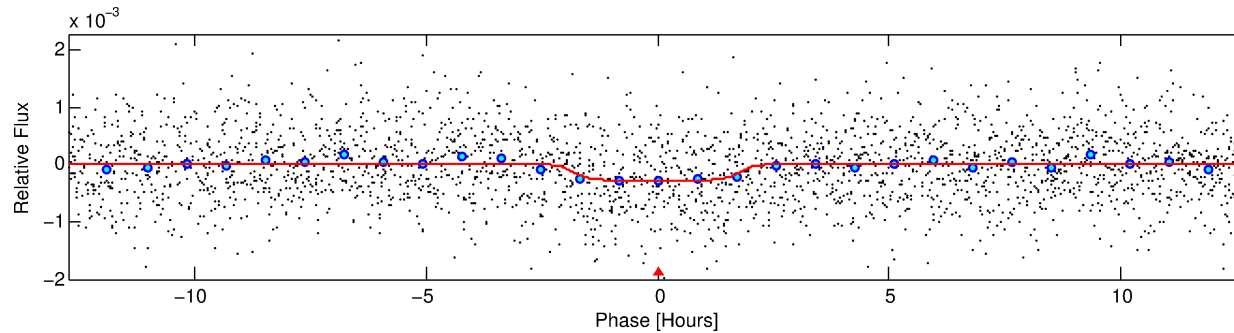
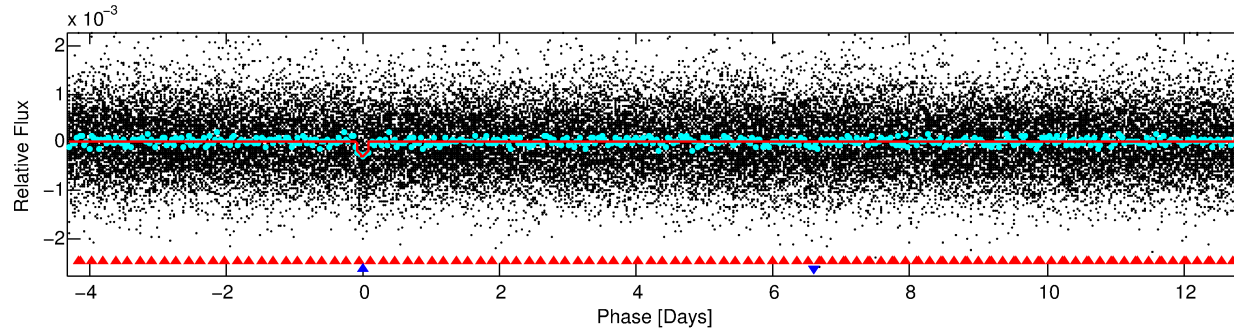
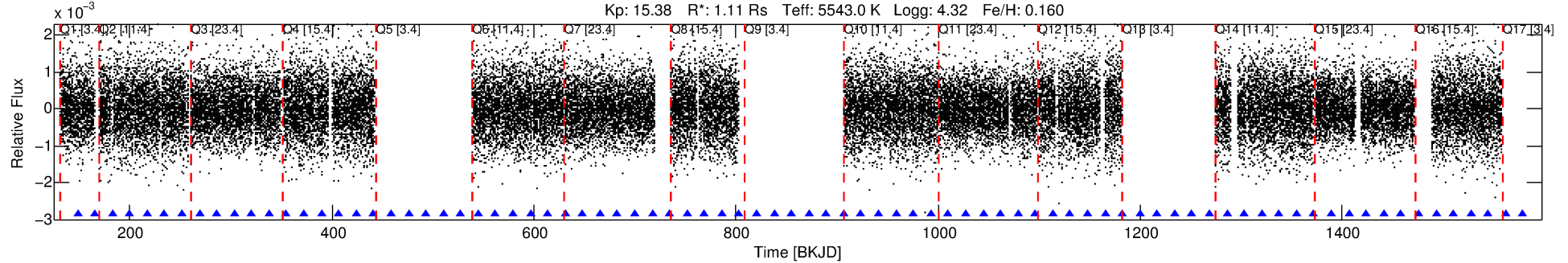
No Significant Match Found

DV One-Page Summary

KIC: 5511659 Candidate: 2 of 2 Period: 17.236 d

KOI: K04541.02 Corr: 0.927

Kp: 15.38 R*: 1.11 Rs Teff: 5543.0 K Logg: 4.32 Fe/H: 0.160



DV Fit Results:

Period = 17.23595 [0.00024] d
Epoch = 148.4126 [0.0113] BKJD
Rp/R* = 0.0196 [0.0047]
a/R* = 12.80 [13.14]
b = 0.93 [0.15]
Seff = 63.94 [15.33]
Teq = 721 [43] K
Rp = 2.37 [0.68] Re
a = 0.1278 [0.0187] AU
Ag = 166.91 [107.83] [1.54σ]
Teffp = 4007 [606] K [5.41σ]

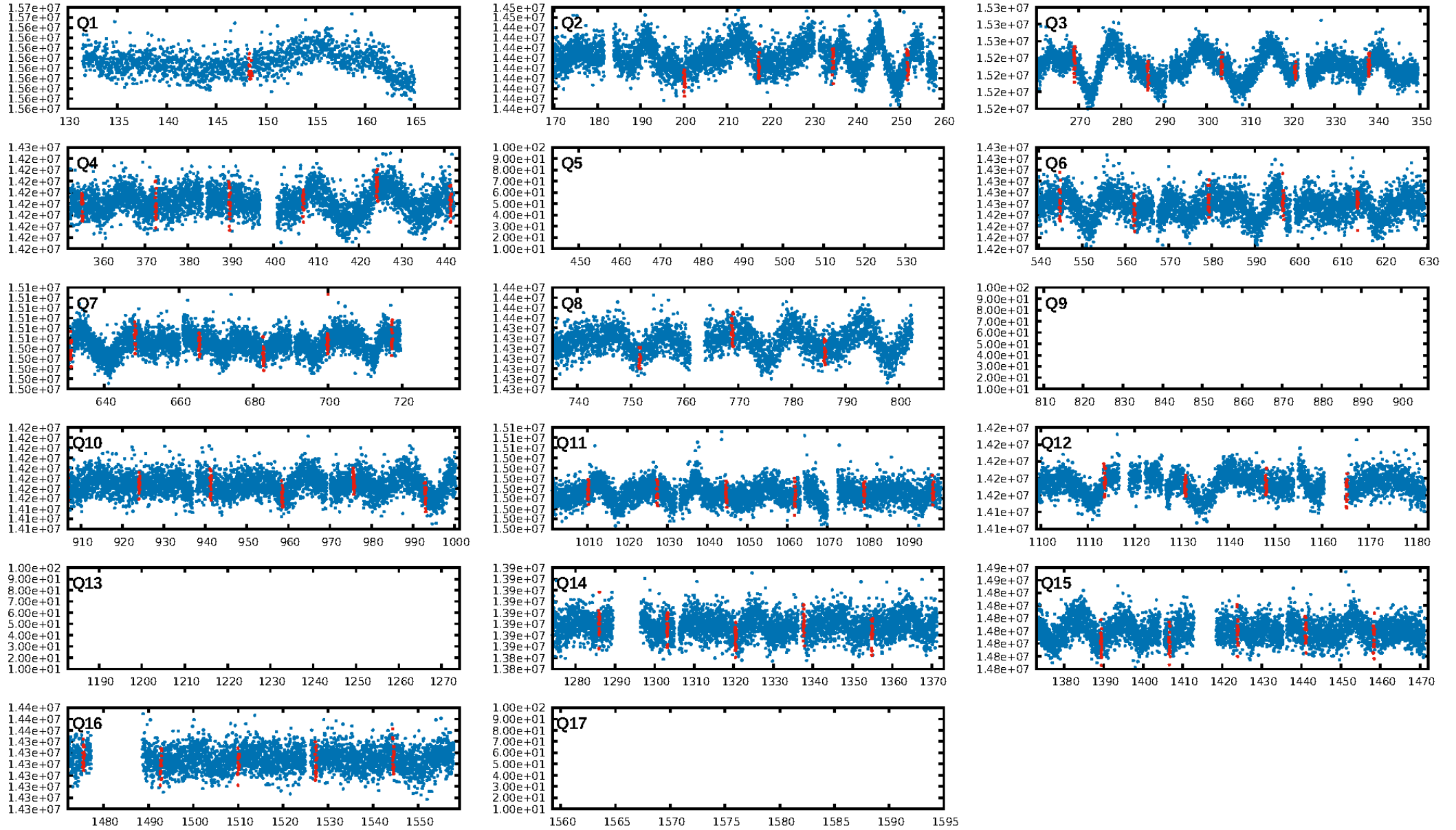
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [37.67σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.44e-14
RollingBand-fgt: 1.00 [55/55]
GhostDiagnostic-chr: 0.2663
Centroid-sig: 1.1%
Centroid-so: 2.754 arcsec [1.73σ]
OotOffset-rm: 1.072 arcsec [1.06σ]
KicOffset-rm: 1.091 arcsec [1.09σ]
OotOffset-st: 2/2/3/0 [7]
KicOffset-st: 2/2/3/0 [7]
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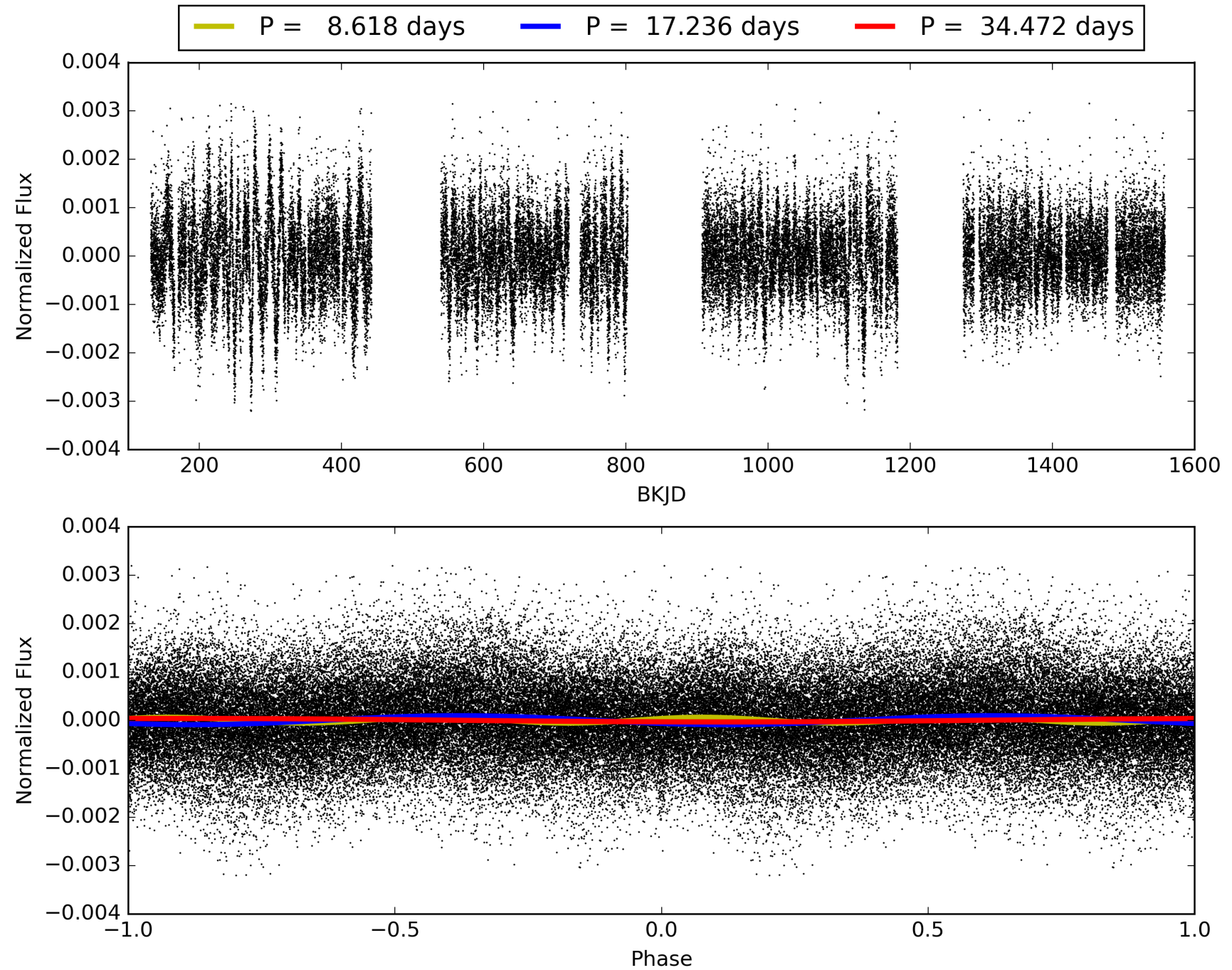
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:26:38 Z

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

TCE 005511659-02, PDC Light Curves

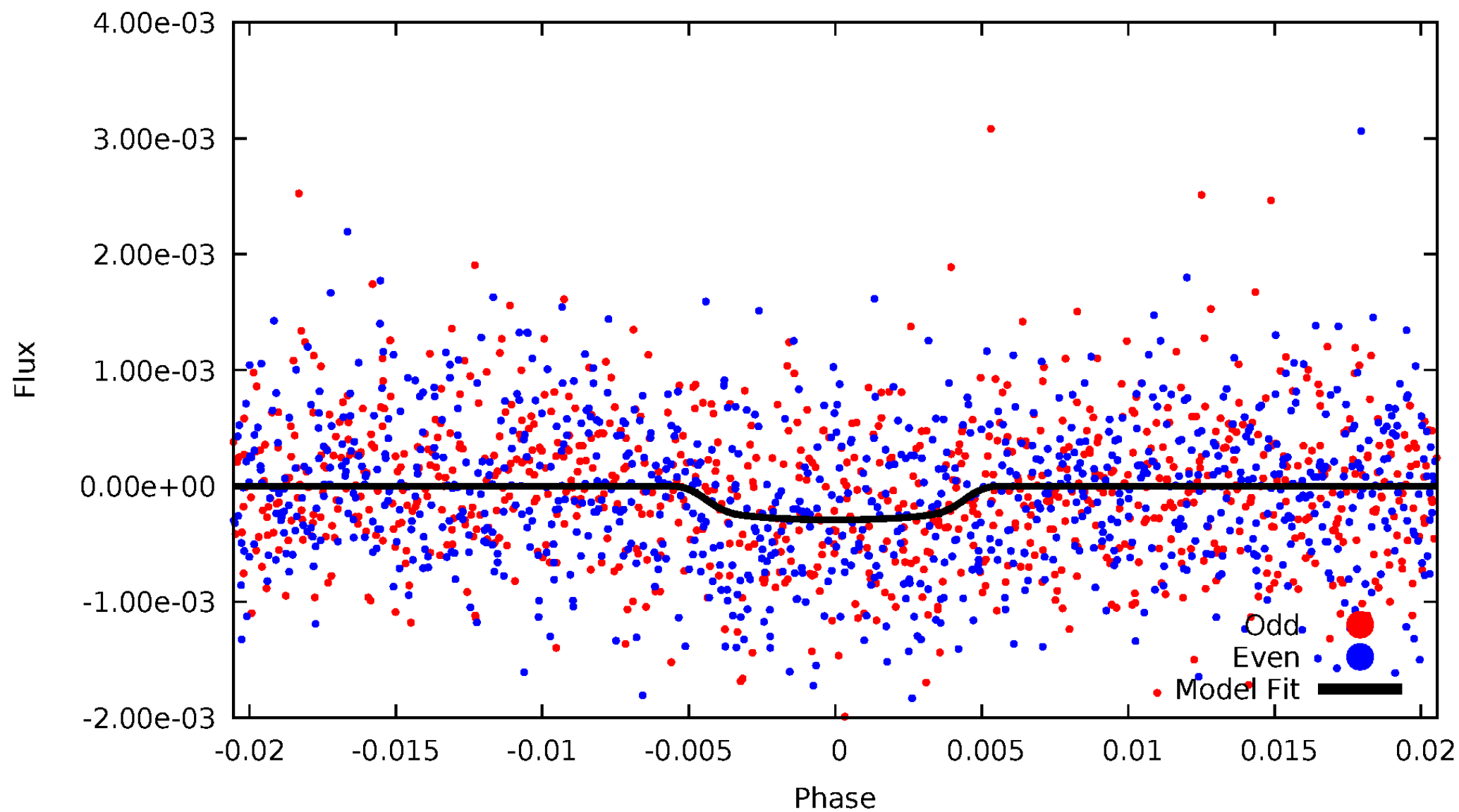


TCE 005511659-02



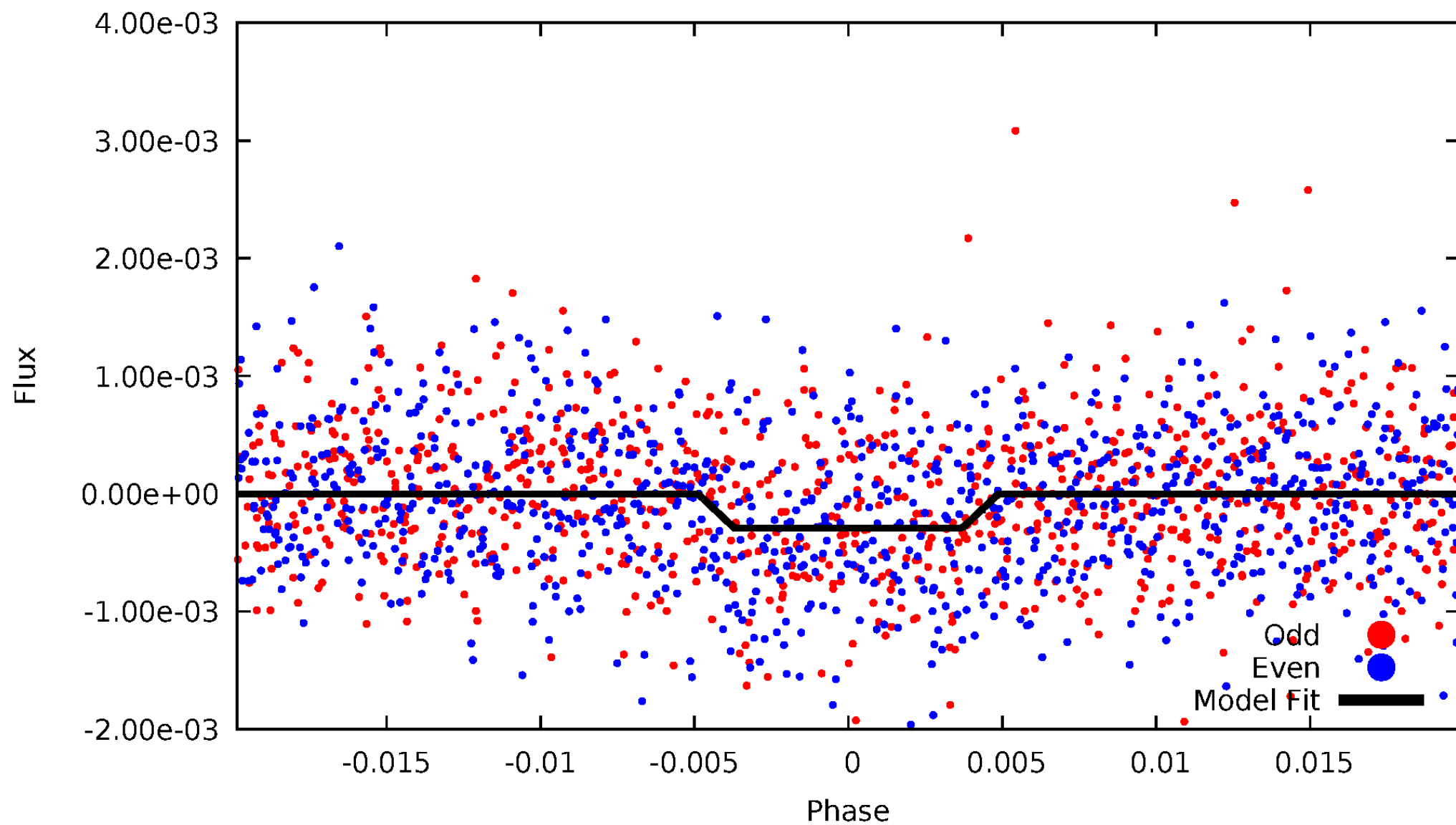
DV Odd/Even

TCE 005511659-02



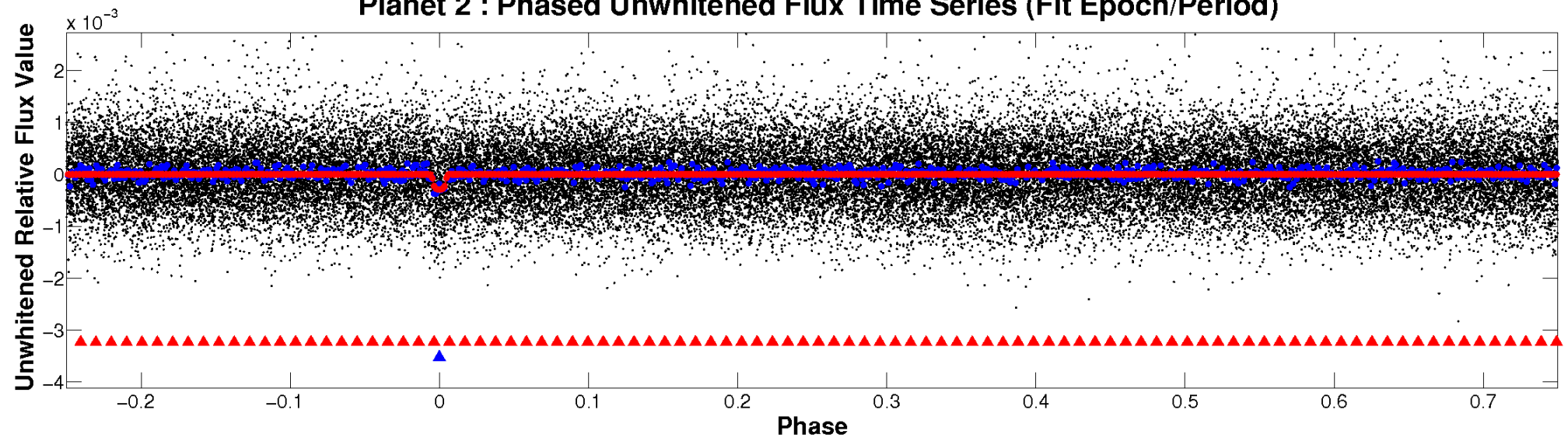
ALT Odd/Even

TCE 005511659-02

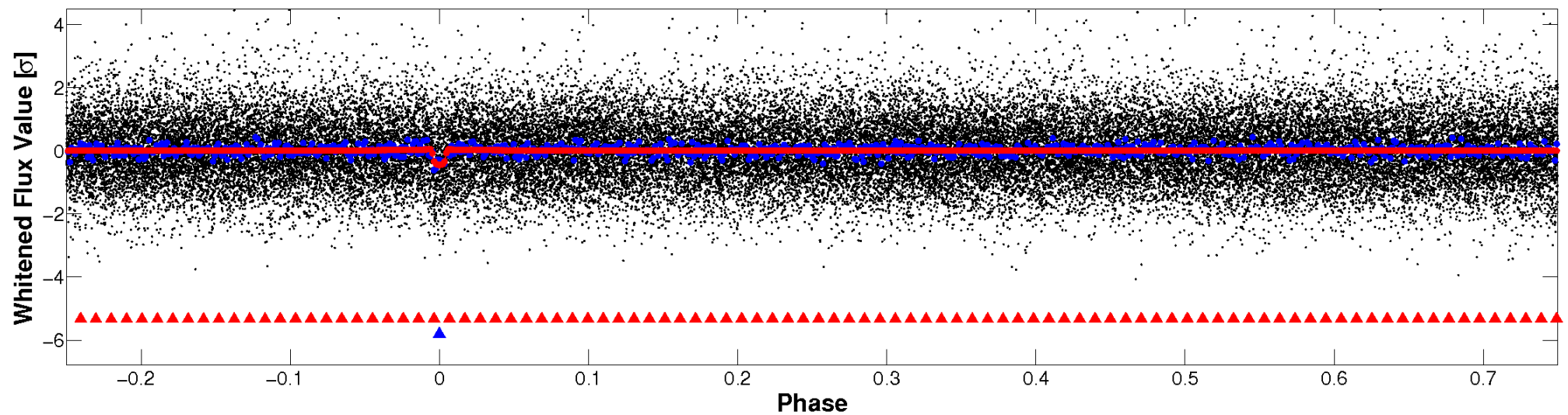


Non-Whitened Vs. Whitened Light Curve

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

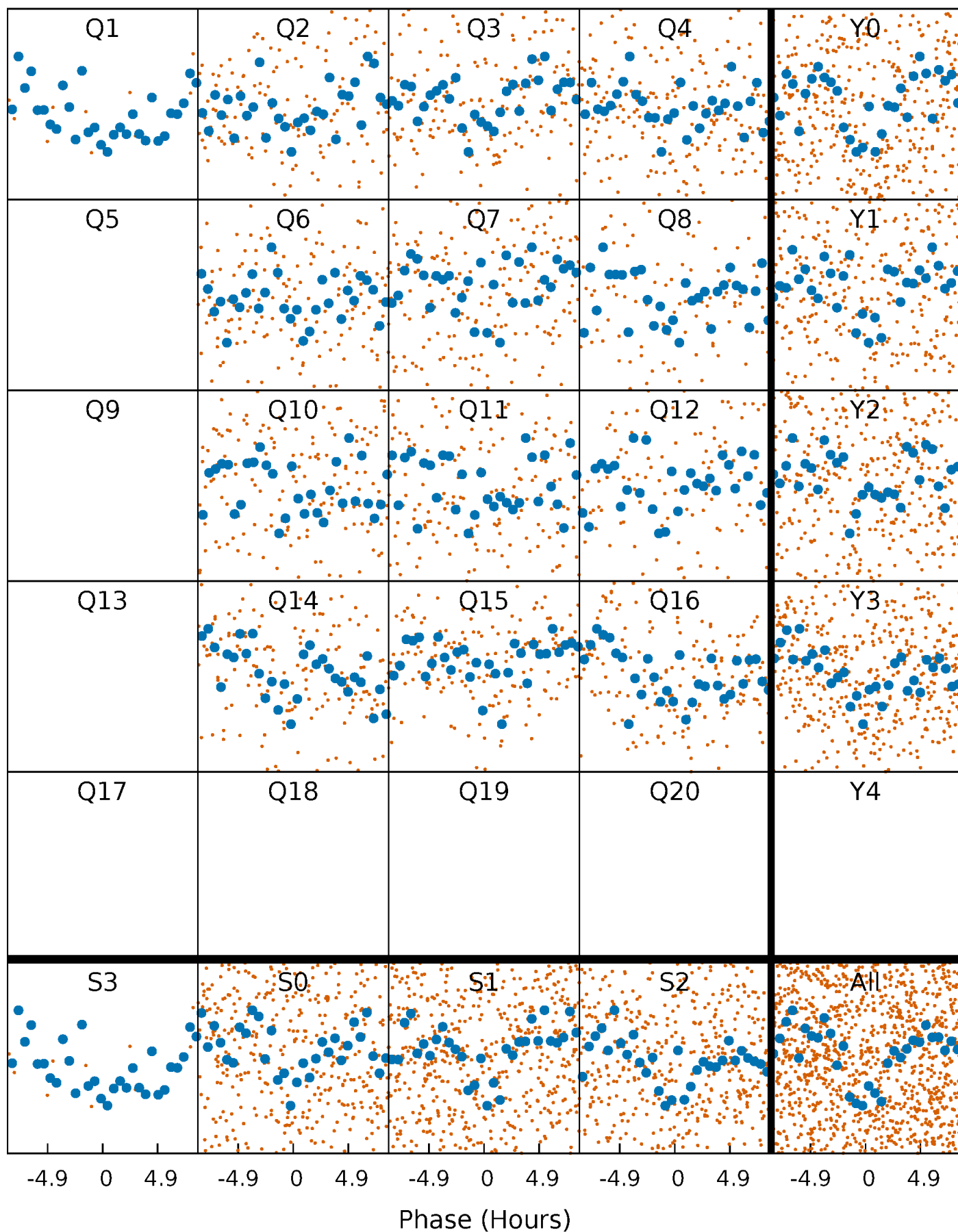


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



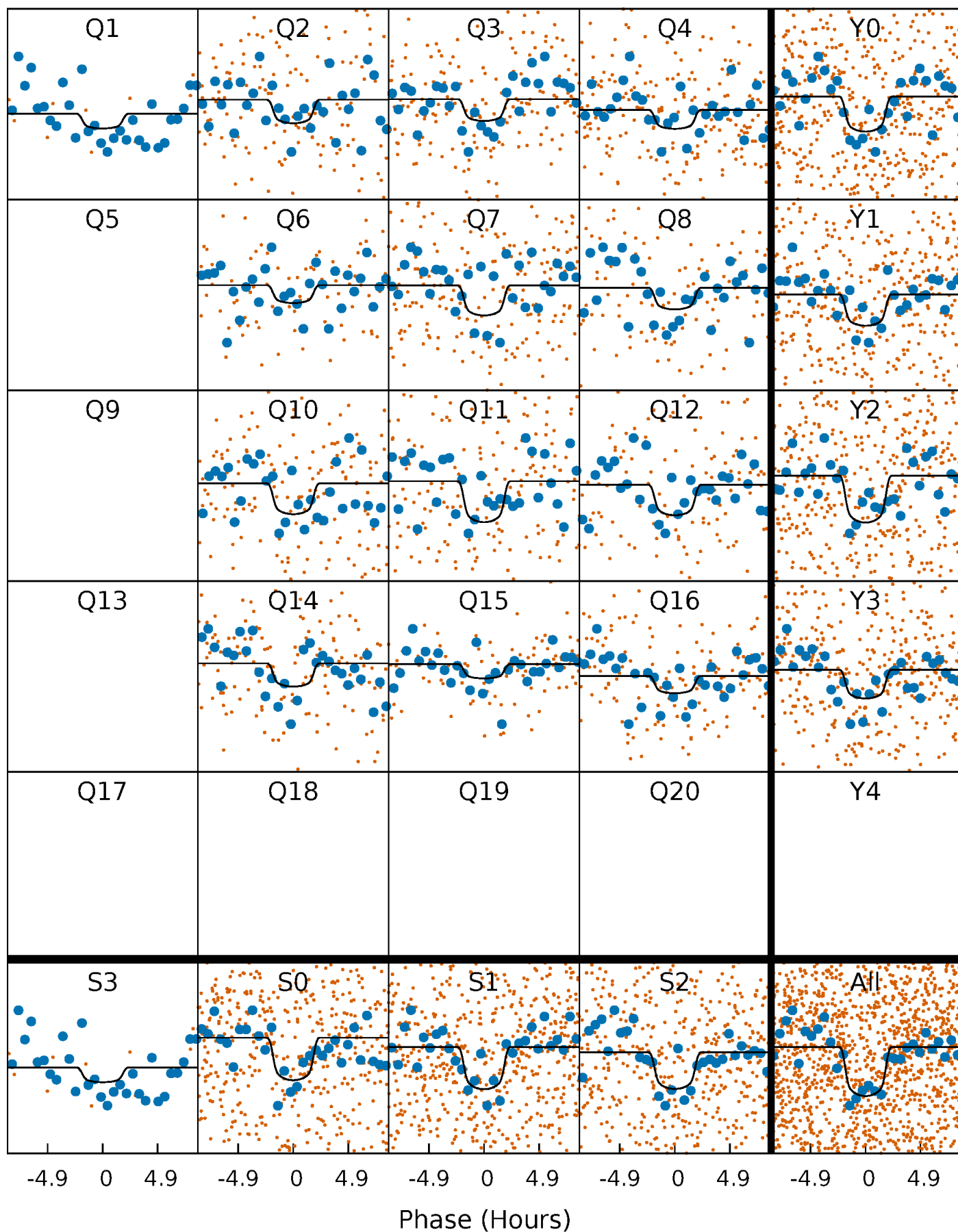
PDC Quarter-Phased Transit Curves

TCE 005511659-02 P= 17.235950 Days $T_0=148.412635$ (BKJD)



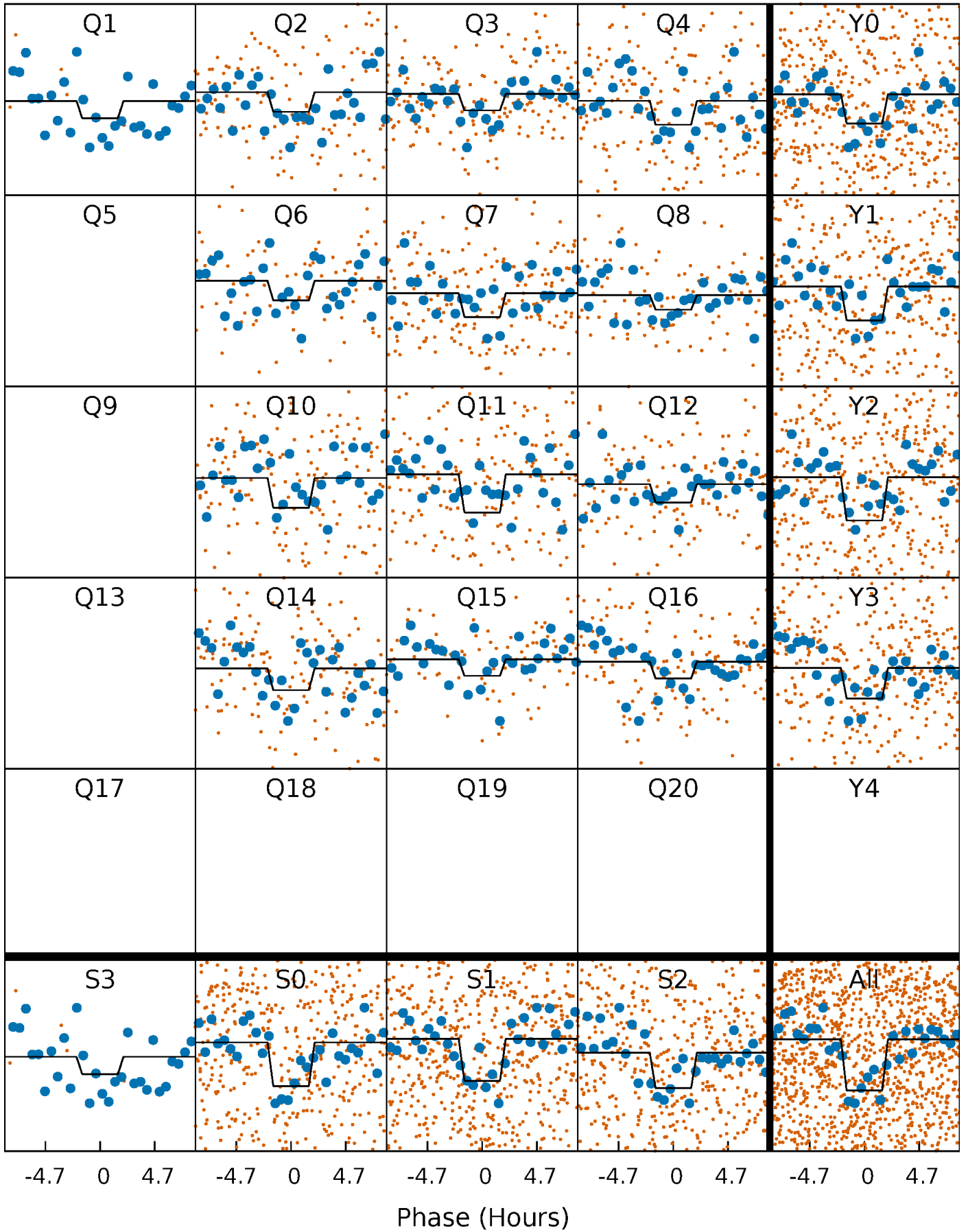
DV Quarter-Phased Transit Curves

TCE 005511659-02 P= 17.235950 Days $T_0=148.412635$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

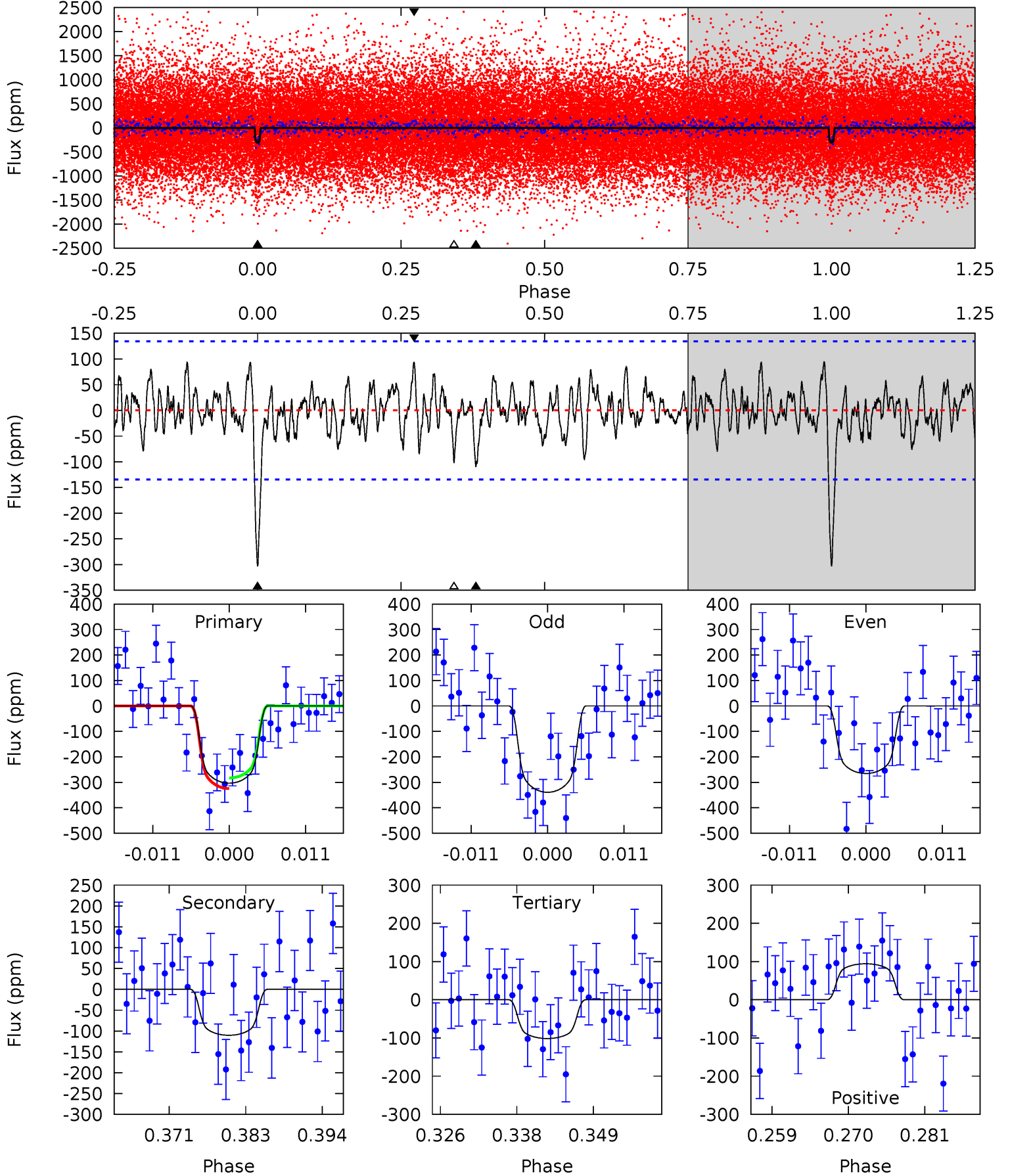
TCE 005511659-02 P= 17.236037 Days $T_0=148.407838$ (BKJD)



DV Model-Shift Uniqueness Test

005511659-02, $P = 17.235950$ Days, $E = 131.176685$ Days

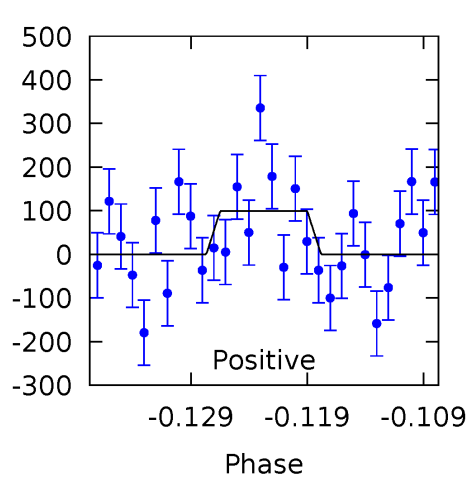
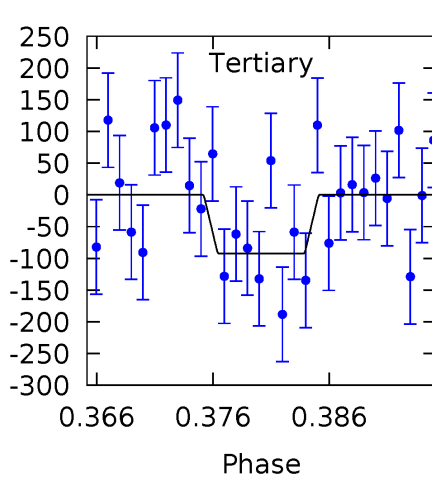
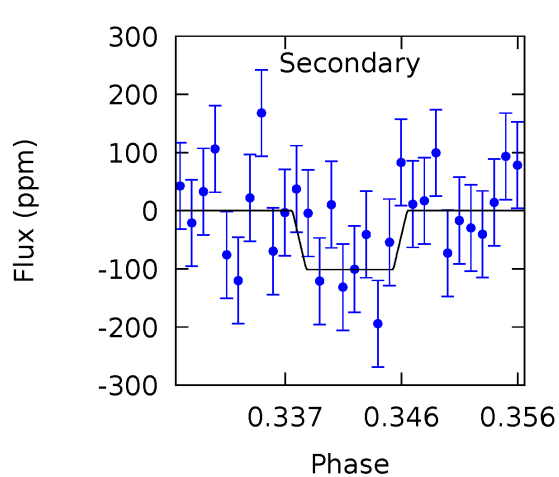
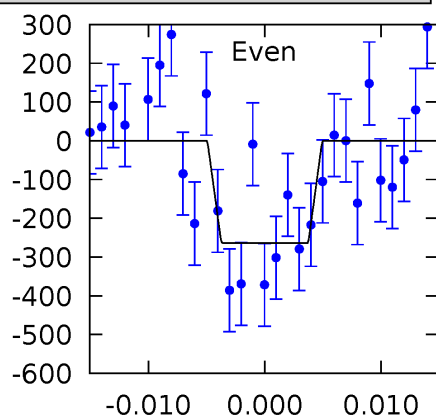
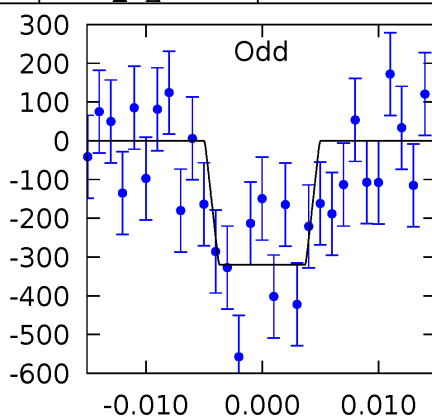
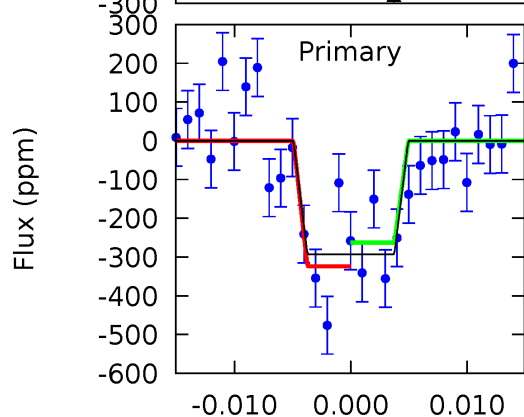
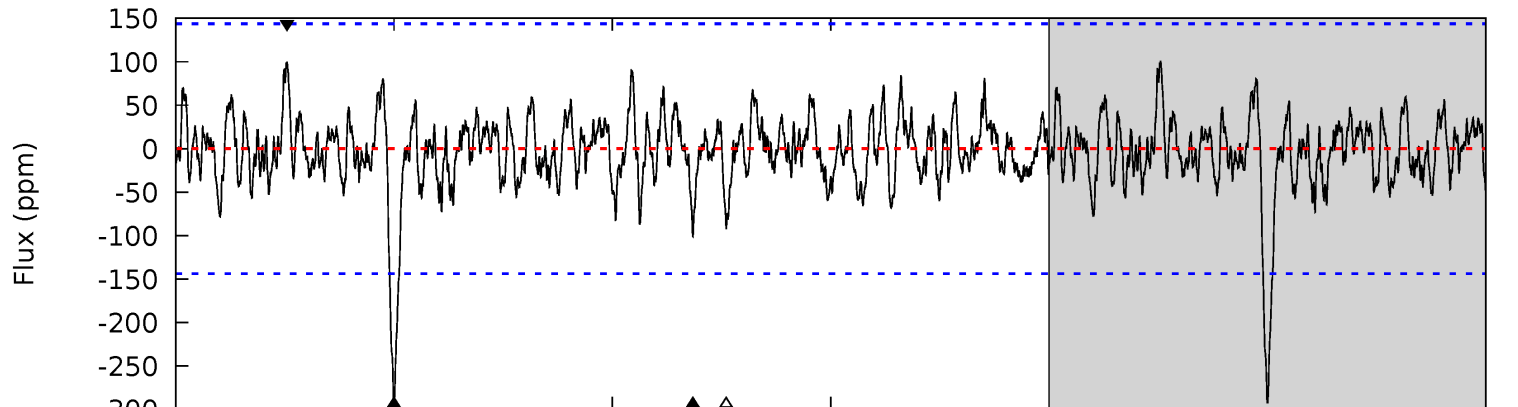
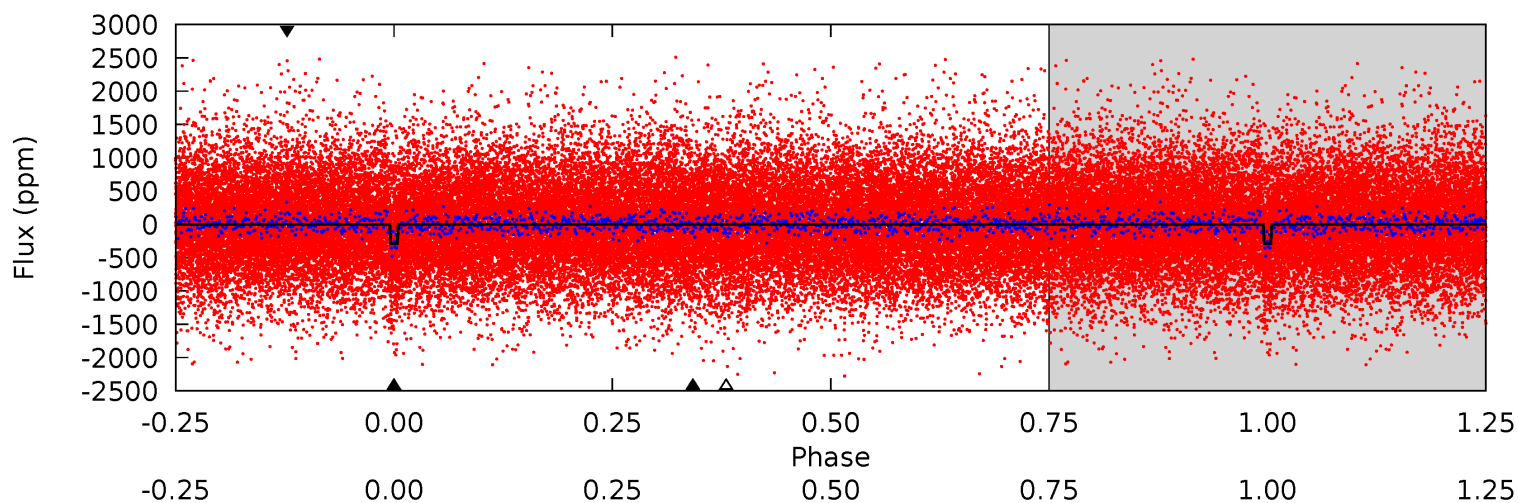
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	4.10	3.78	3.51	5.00	2.53	1.26	7.52	7.79	0.33	0.60	1.38	0.98	0.24	0.78



Alt Model-Shift Uniqueness Test

005511659-02, $P = 17.236037$ Days, $E = 131.171801$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	3.54	3.23	3.49	5.03	2.58	1.10	7.02	6.76	0.30	0.05	0.99	1.12	0.25	1.08



Stellar Parameters For KIC 005511659

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5543^{+74}_{-74}	$4.318^{+0.137}_{-0.100}$	$0.160^{+0.150}_{-0.150}$	$1.111^{+0.170}_{-0.170}$	$0.937^{+0.062}_{-0.043}$	$0.961^{+0.601}_{-0.317}$
	+1%/-1%	+3%/-2%	+94%/-94%	+15%/-15%	+7%/-5%	+63%/-33%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 005511659-02 / KOI 4541.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-110 ± 27	$2.32^{+0.65}_{-0.60}$	1006^{+37}_{-41}	4306^{+506}_{-393}	185^{+151}_{-78}
Alt.	-101 ± 29	$2.07^{+0.63}_{-0.60}$	1002^{+44}_{-43}	4431^{+681}_{-486}	216^{+229}_{-103}

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 $A_{obs} \gg 1.0$

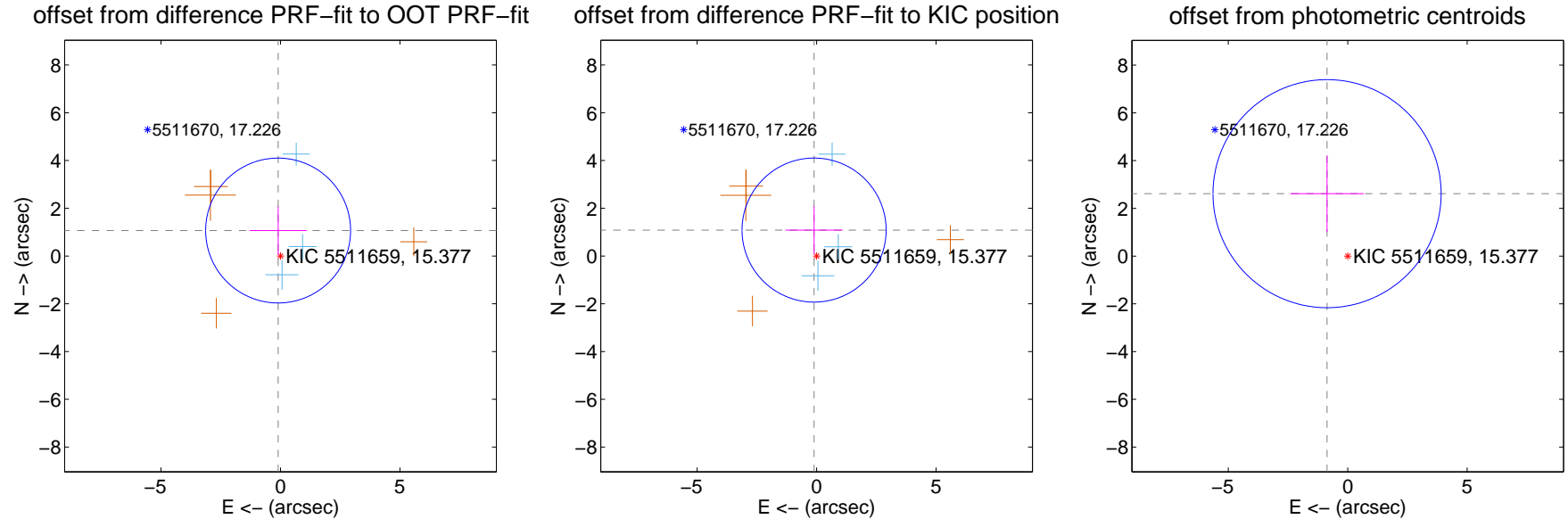
DV Centroid Data

Supplemental centroid analysis for 005511659-02. Kepler magnitude: 15.38. Transit SNR 7.81

There are 3 quarters with good PRF difference image offsets

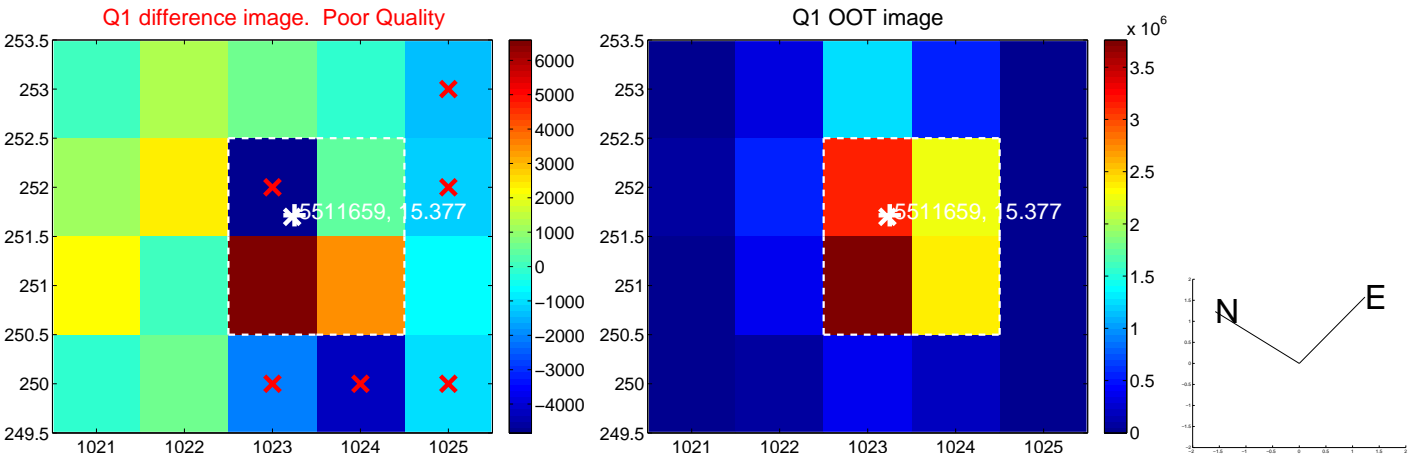
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.072 ± 1.011	1.06	0.098 ± 1.193	1.067 ± 1.010
PRF-fit source offset from KIC position	1.091 ± 1.005	1.09	0.104 ± 1.196	1.086 ± 1.003
photometric centroid source offset	2.75 ± 1.59	1.73	0.86 ± 1.54	2.61 ± 1.60

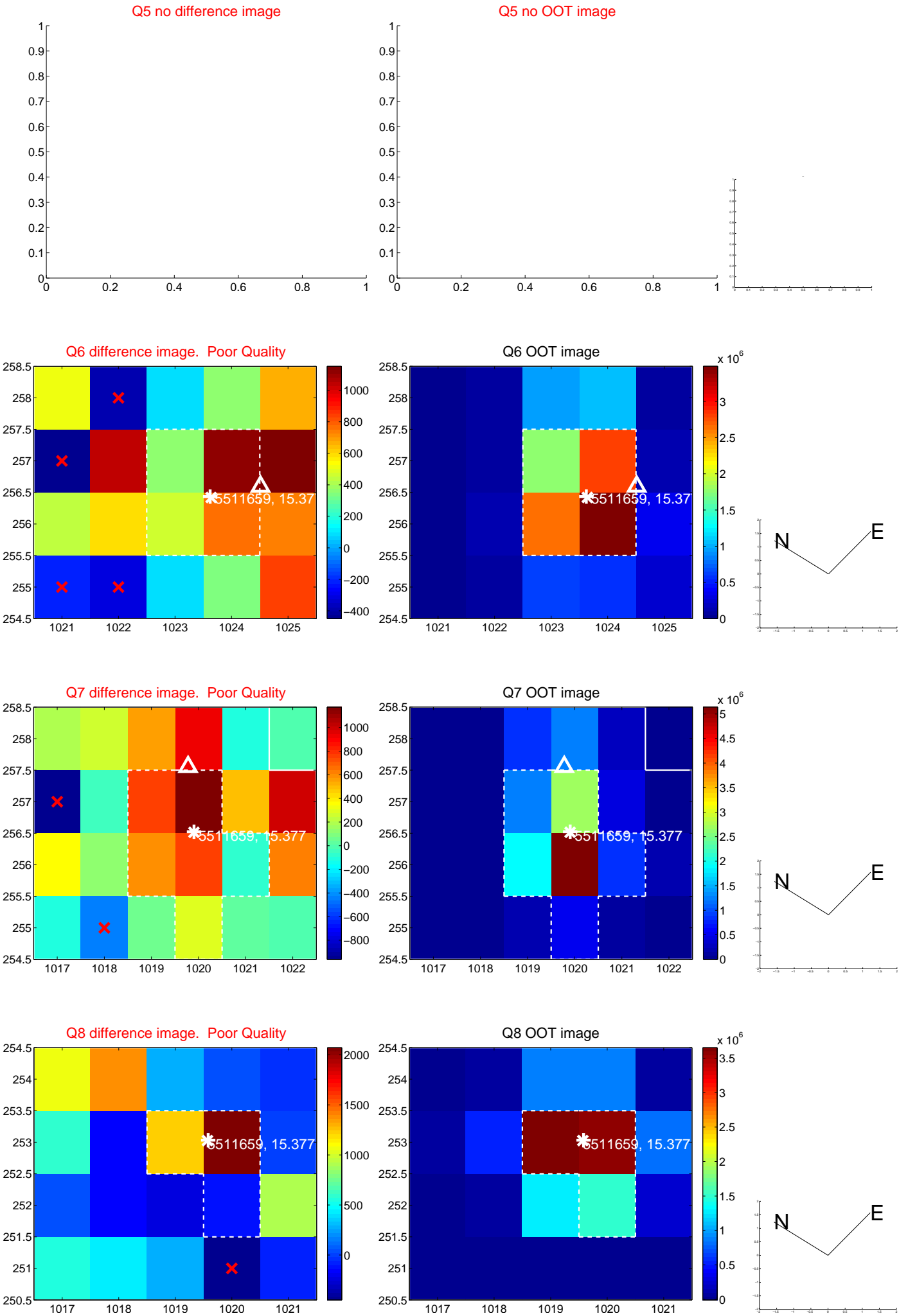


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

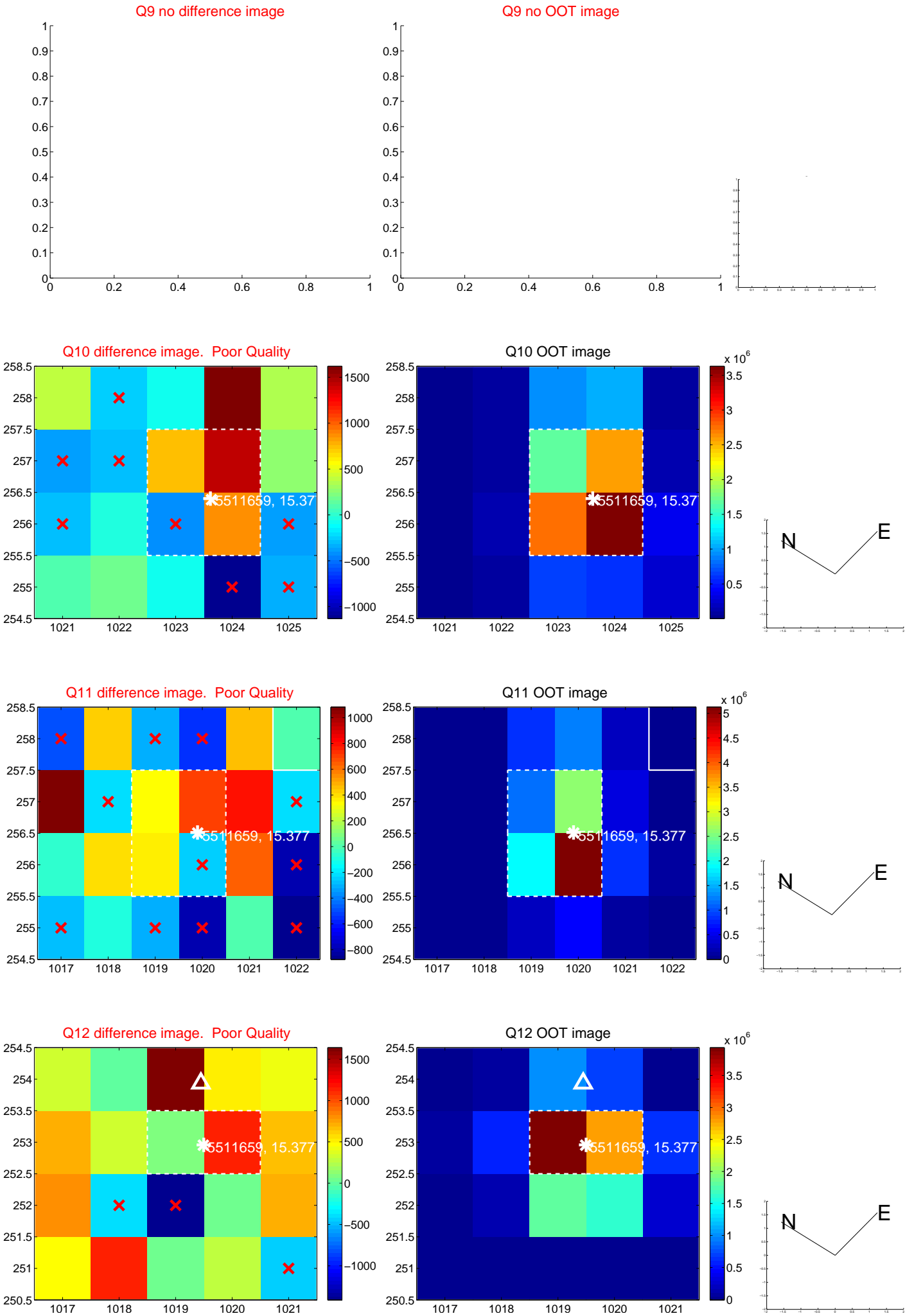
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



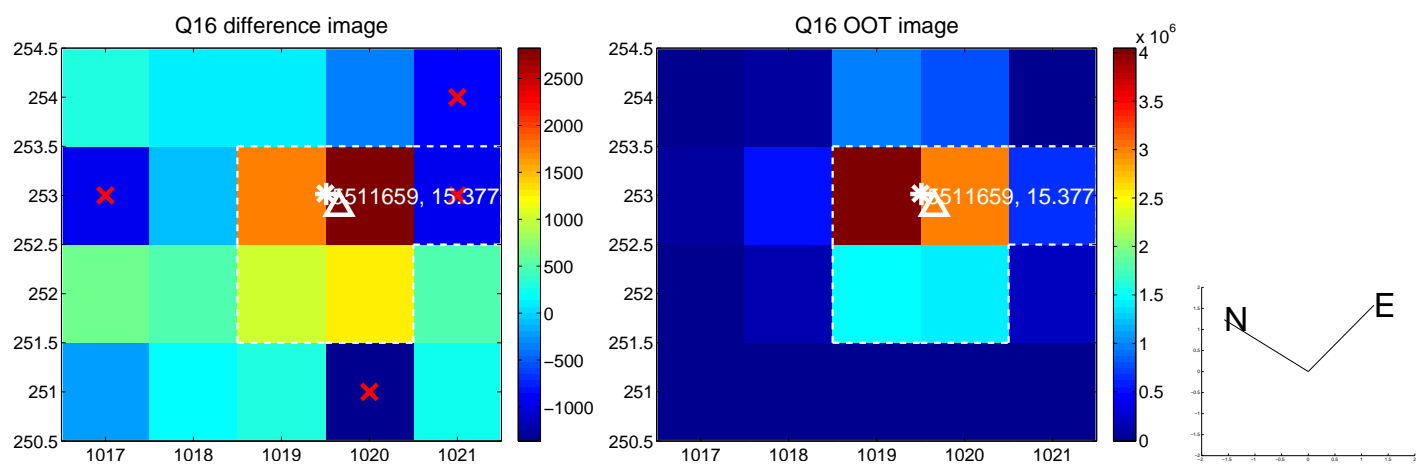
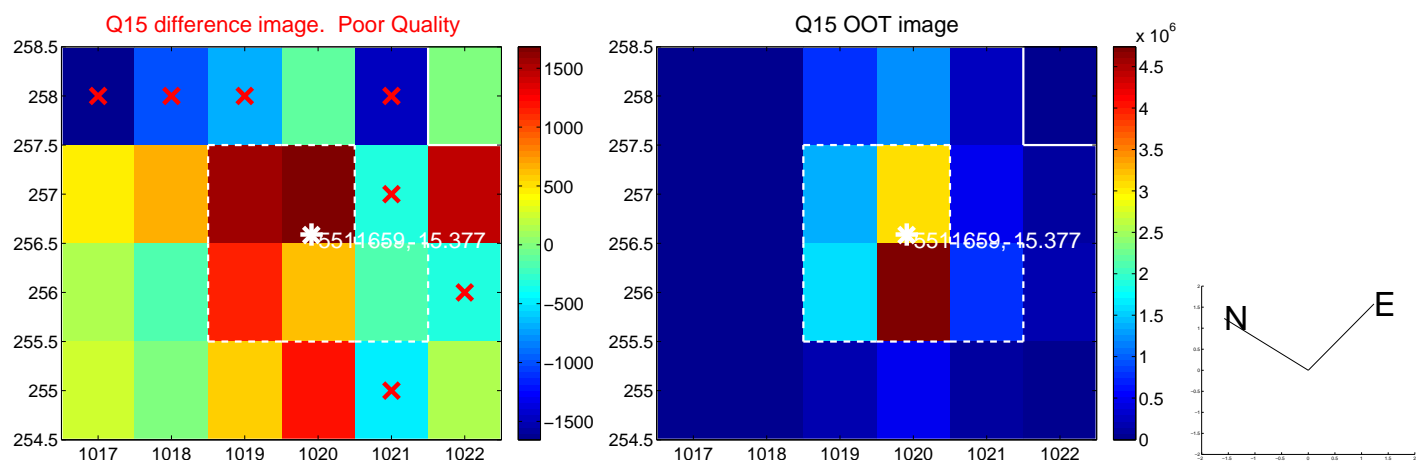
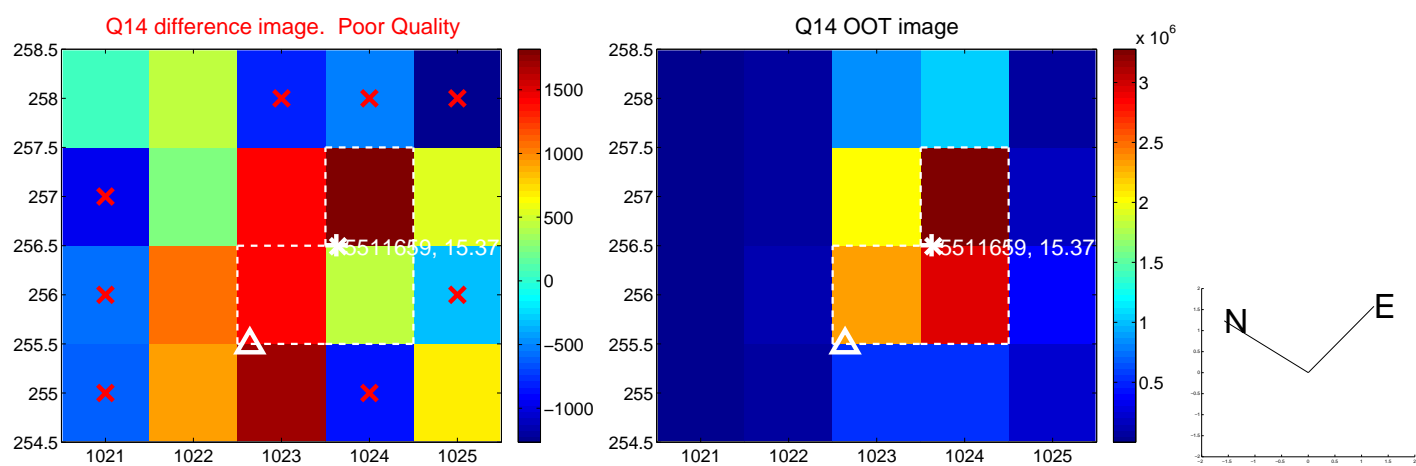
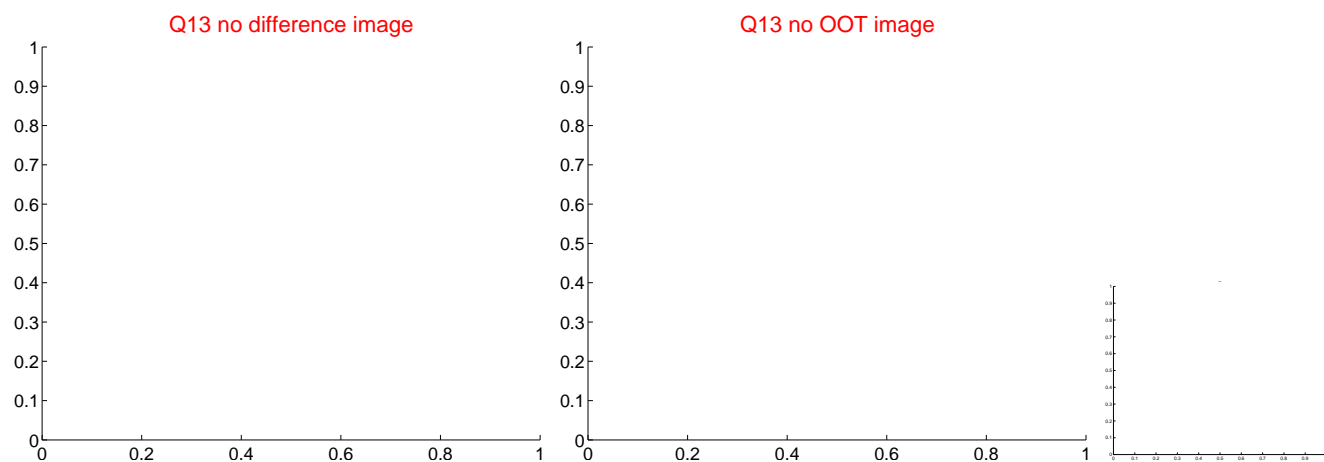
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



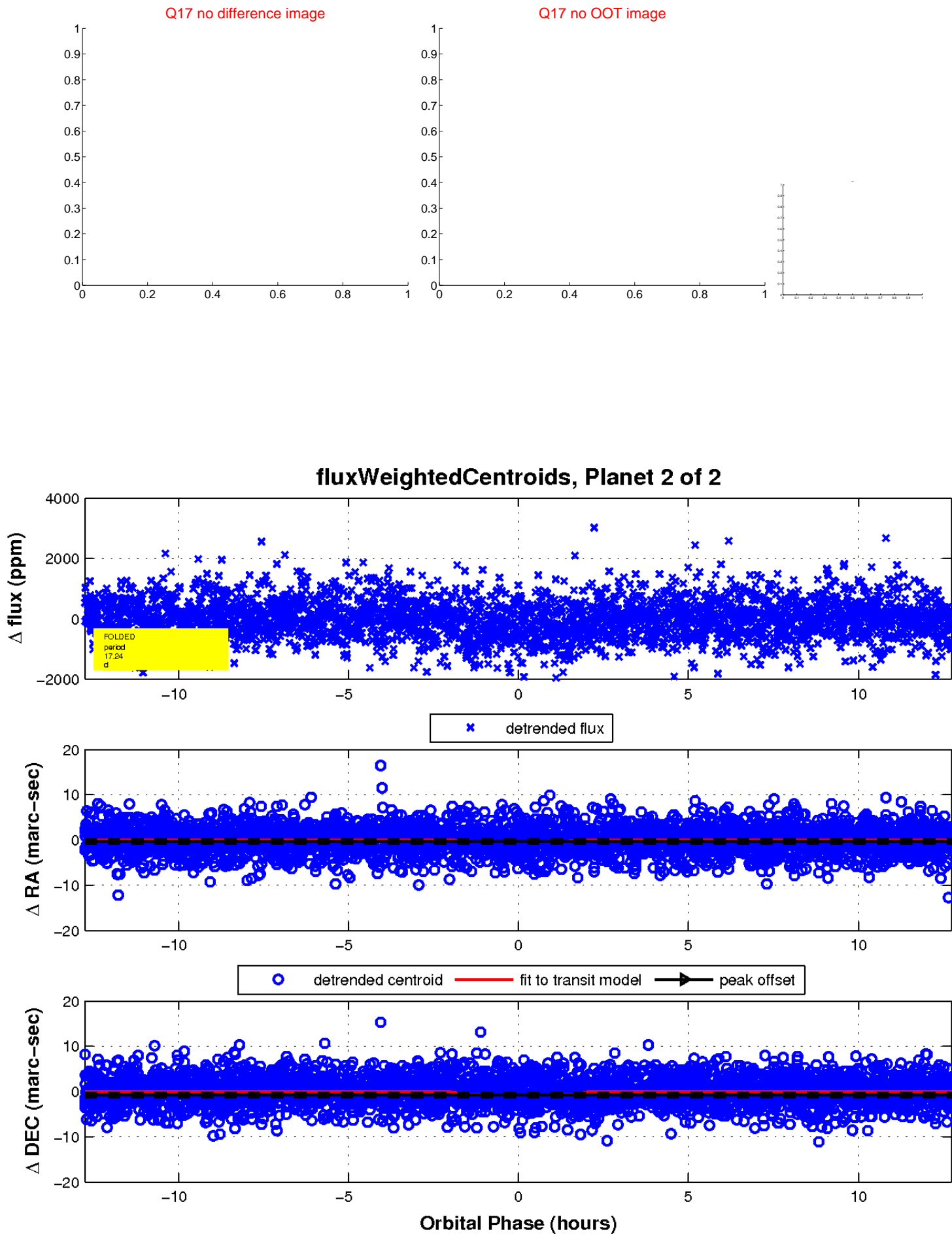
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

