

KIC 009570858

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})
009570858-01	OBS	No	317.468477	369.622640	1451.7	4.166	10.4	10.4	155.19	3266	1290.14	2787.80
009570858-02	OBS	No	314.442638	416.219630	2442.7	4.220	20.8	15.1	155.19	3266	1629.80	2823.63
009570858-03	OBS	No	396.881036	389.099857	260.2	6.000	19.5	-1.0	155.19	3266	229.76	2070.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009570858-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009570858-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009570858-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

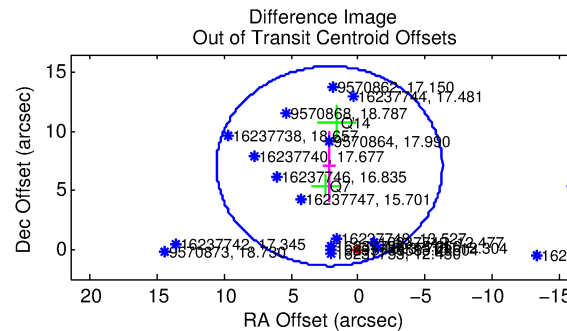
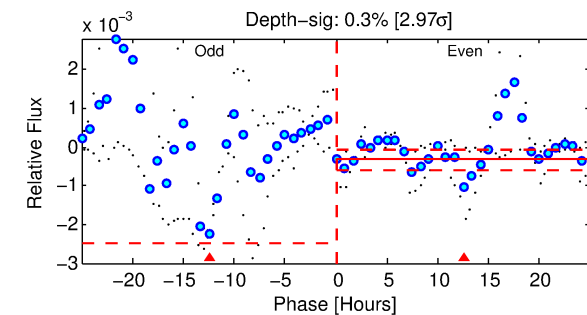
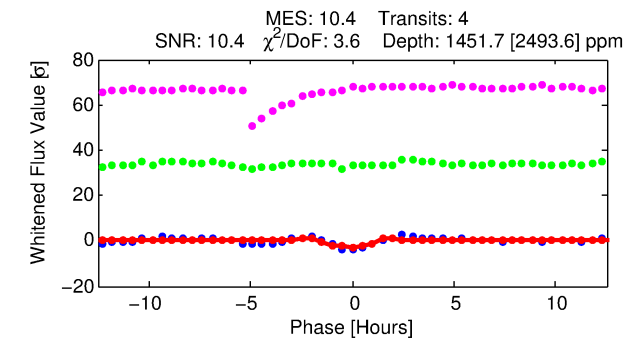
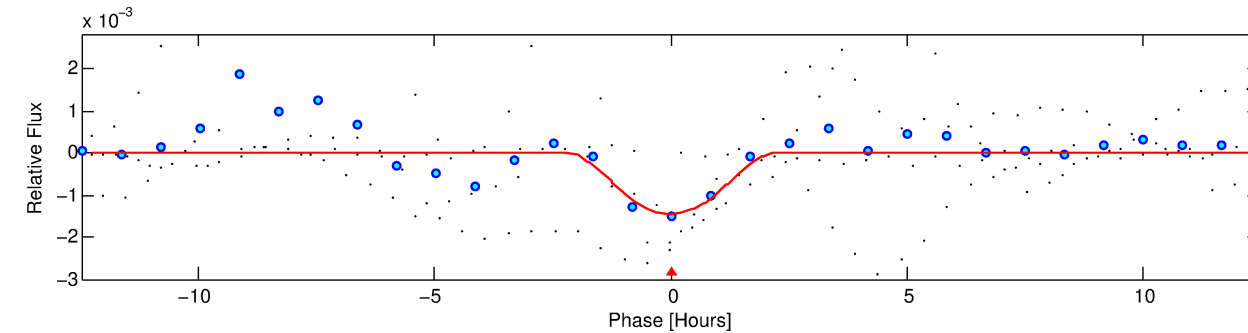
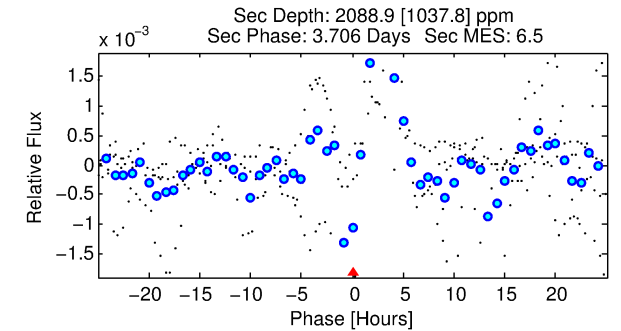
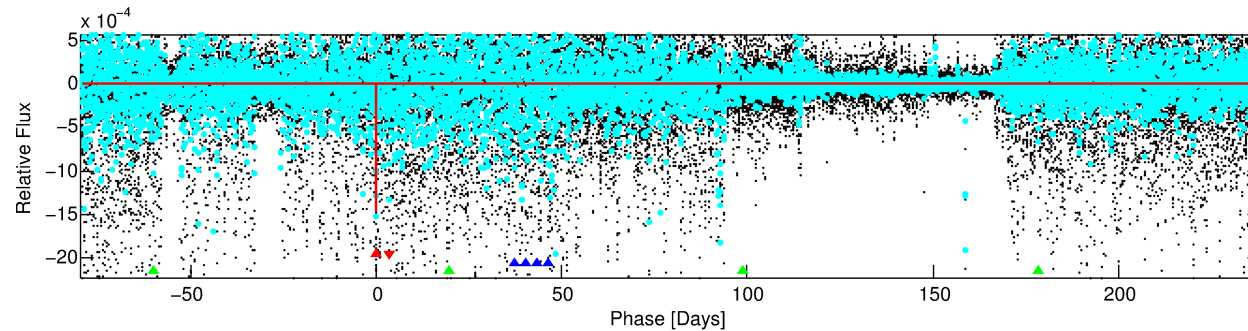
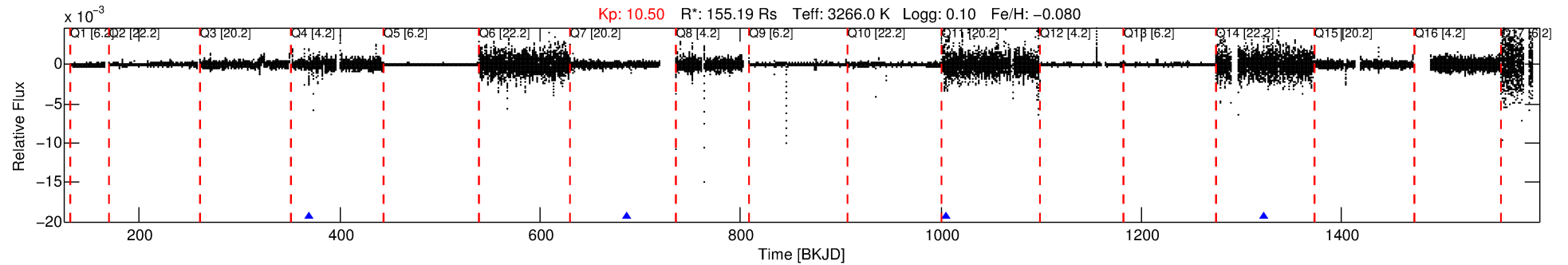
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009570858-01

No Significant Match Found

DV One-Page Summary

KIC: 9570858 Candidate: 1 of 3 Period: 317.468 d



DV Fit Results:

Period = 317.46848 [0.00649] d
Epoch = 369.6226 [0.0083] BKJD
 R_p/R^* = 0.0762 [0.2700]
 a/R^* = 231.55 [165.69]
 b = 1.00 [0.29]
 T_{eff} = 2787.80 [1023.18]
 T_{eq} = 1853 [170] K
 R_p = 1290.14 [4577.76] R_e
 a = 0.9384 [0.1822] AU
 A_g = 0.61 [4.33] [-0.09 σ]
 T_{eff} = 2530 [4495] K [0.15 σ]

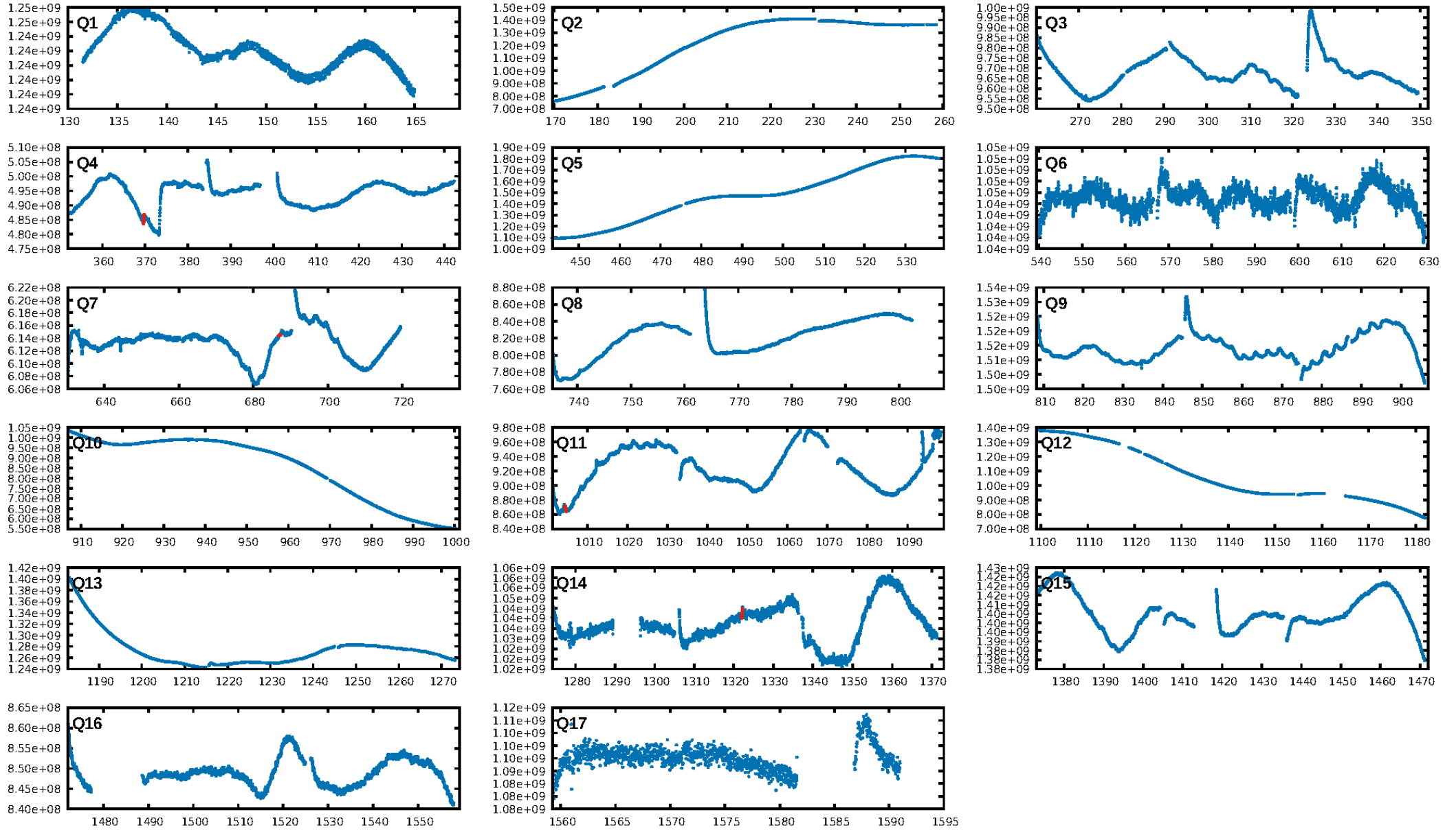
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.25 σ]
LongPeriod-sig: 100.0% [260.93 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.222 arcsec [0.72 σ]
OotOffset-rm: 7.358 arcsec [2.62 σ]
KicOffset-rm: 6.666 arcsec [1.96 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

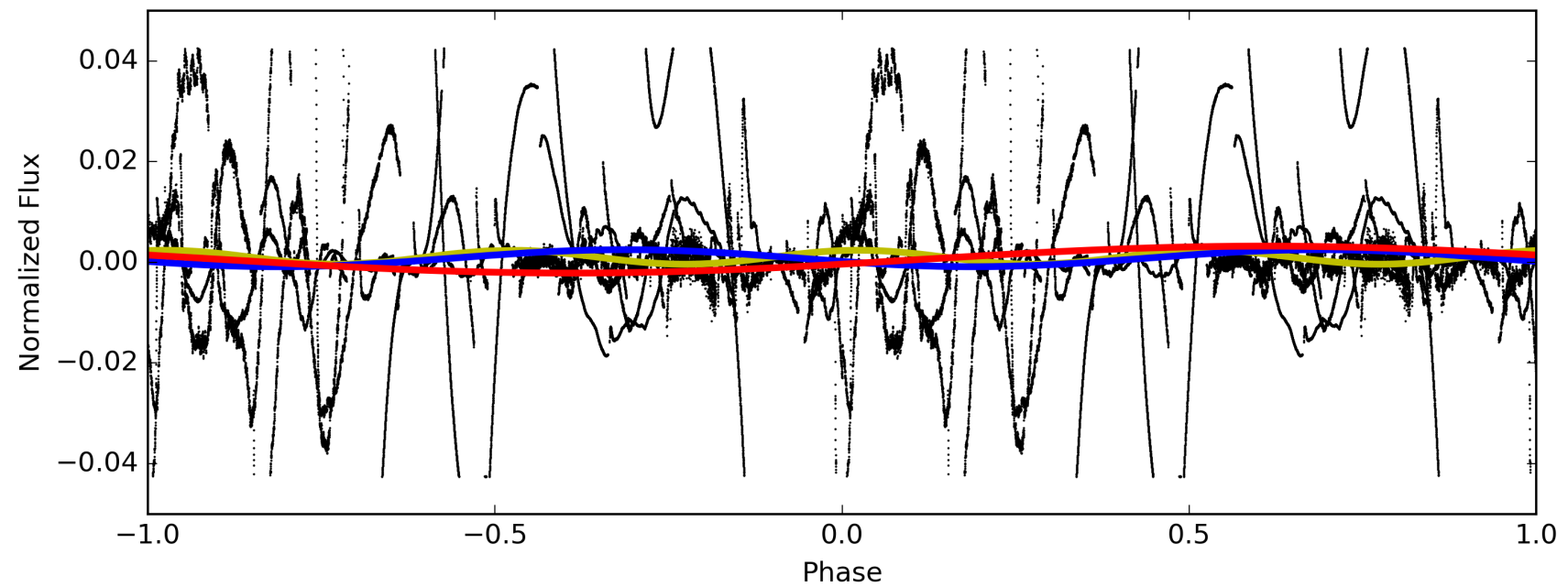
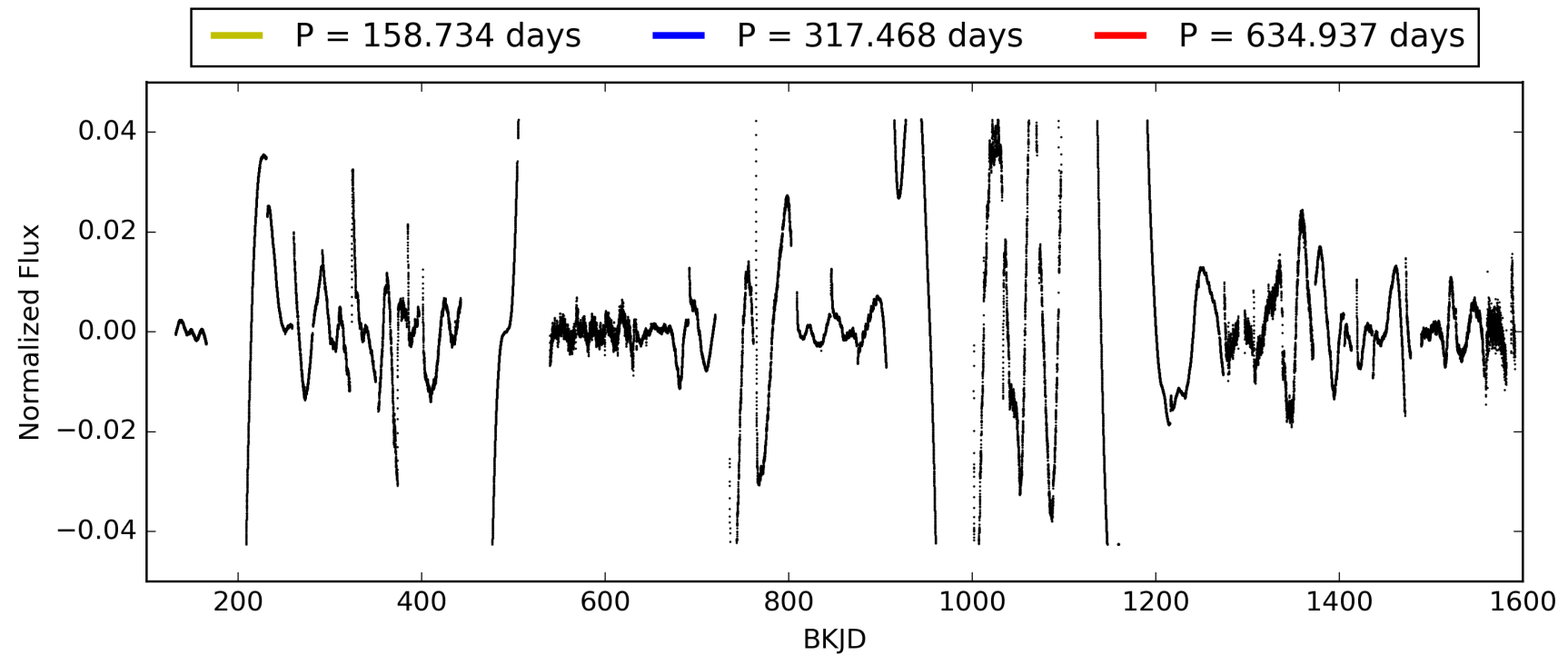
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:53:10 Z

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

TCE 009570858-01, PDC Light Curves

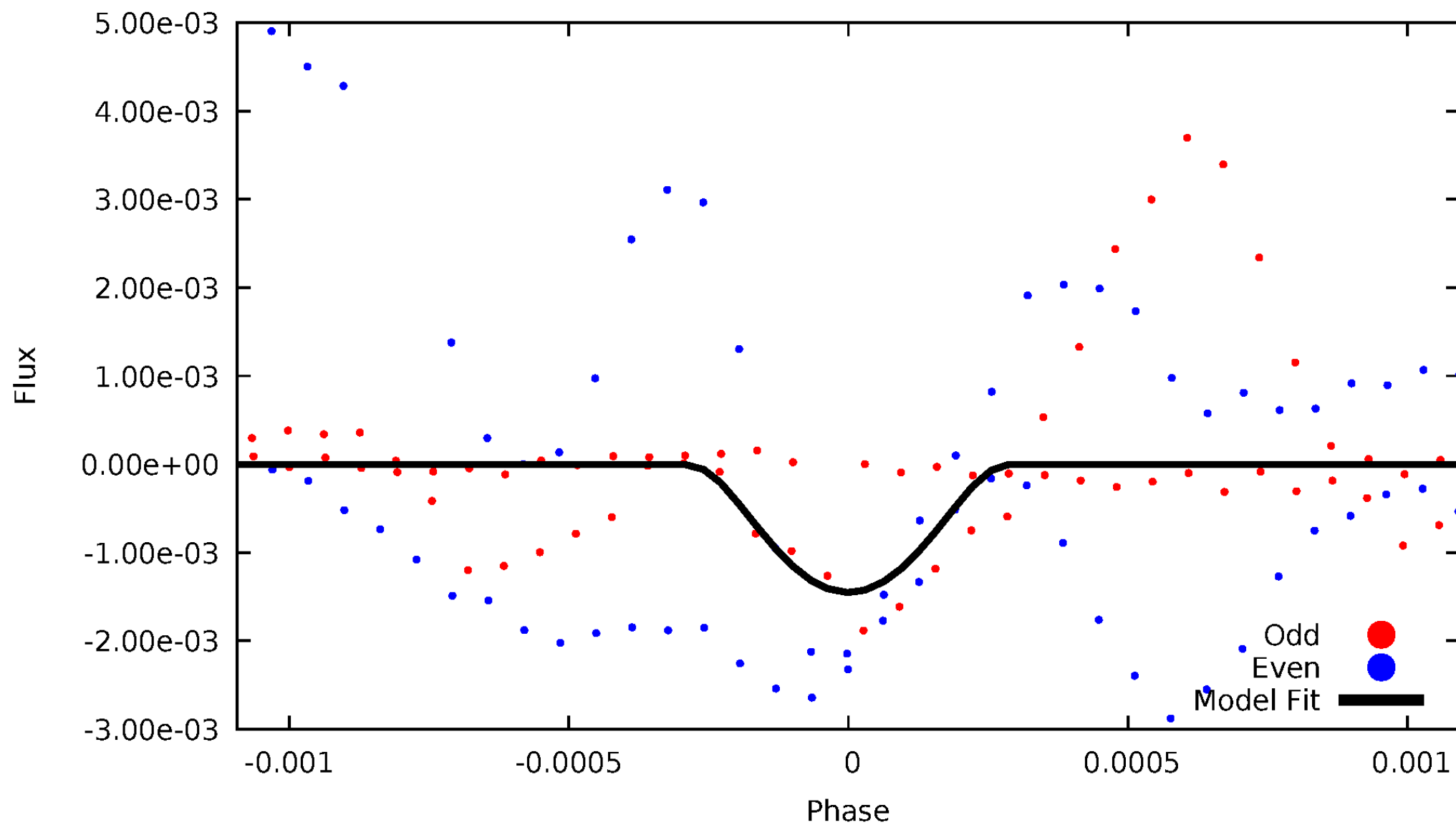


TCE 009570858-01



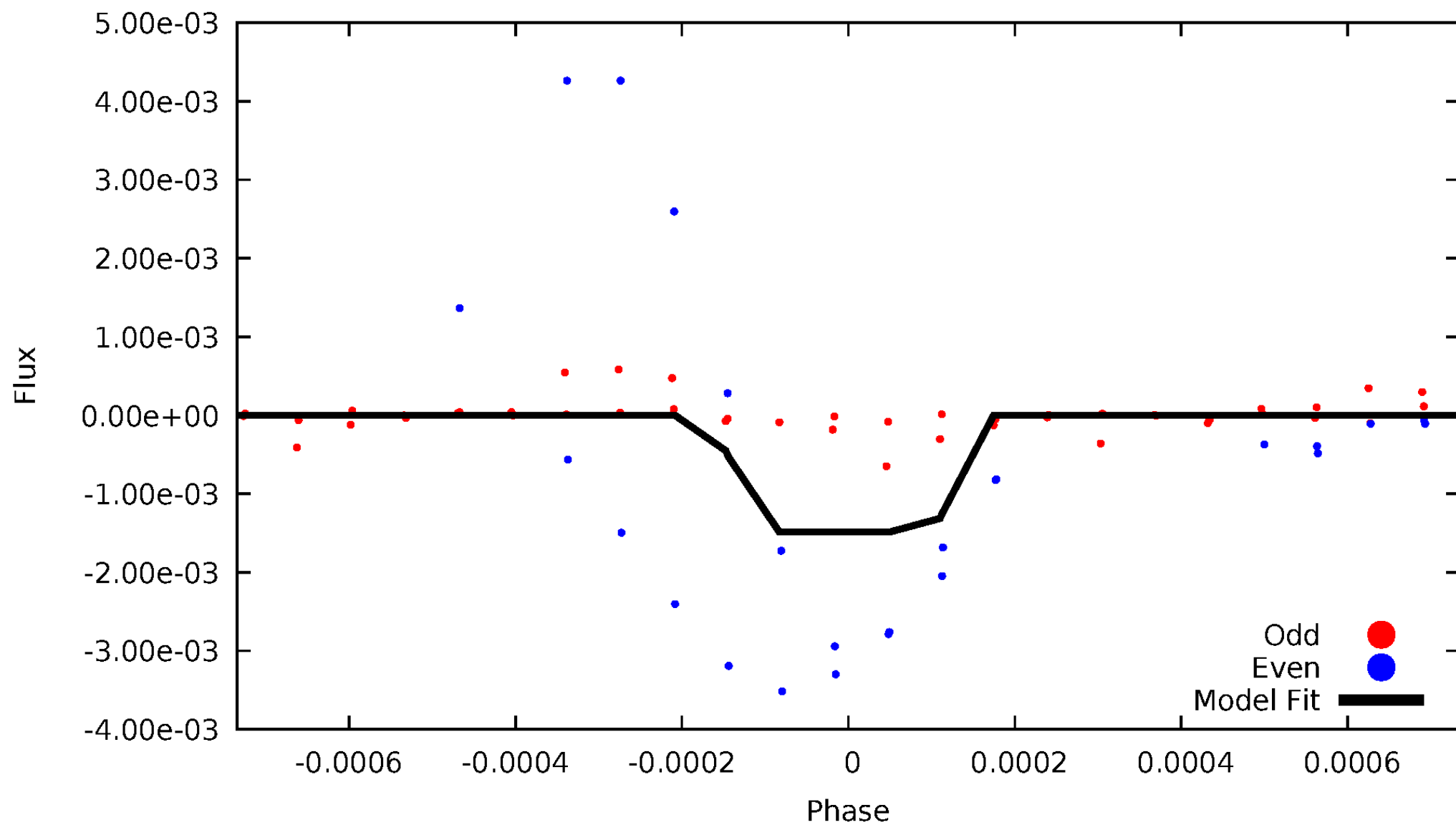
DV Odd/Even

TCE 009570858-01



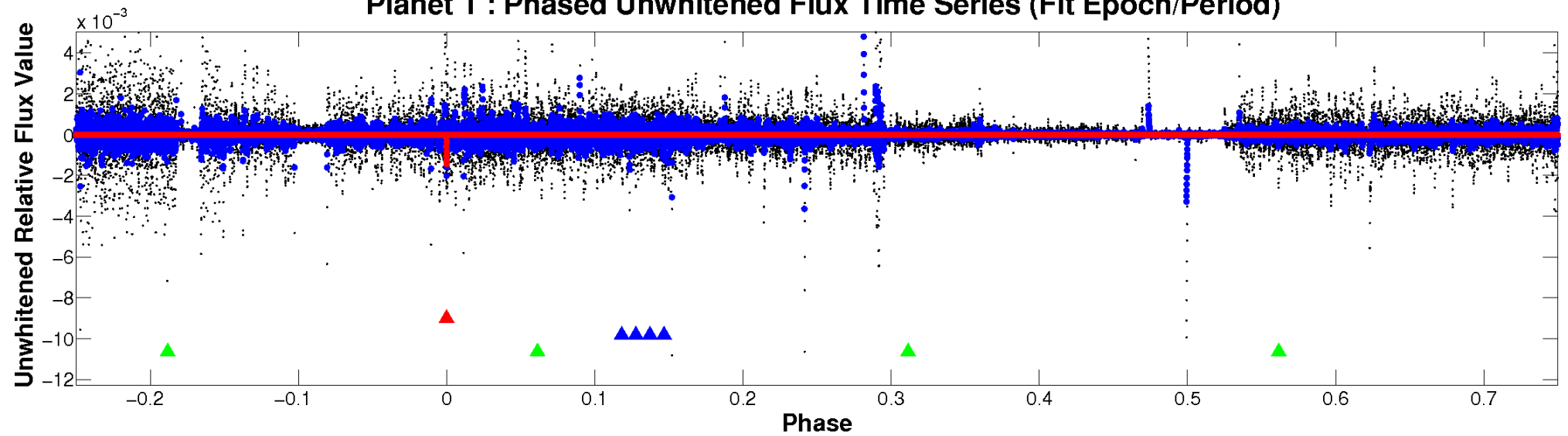
ALT Odd/Even

TCE 009570858-01

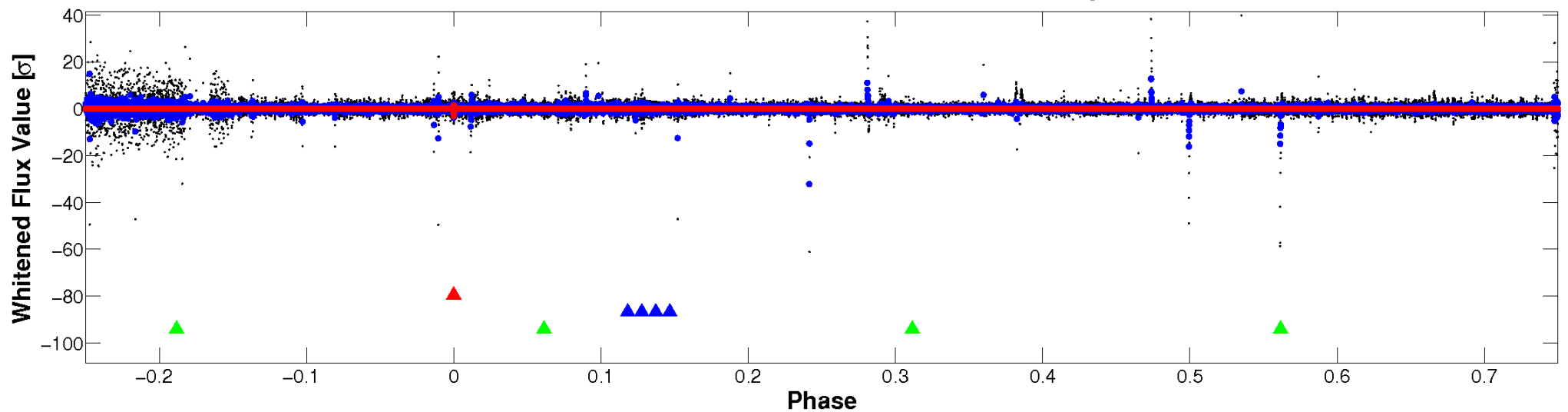


Non-Whitened Vs. Whitened Light Curve

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

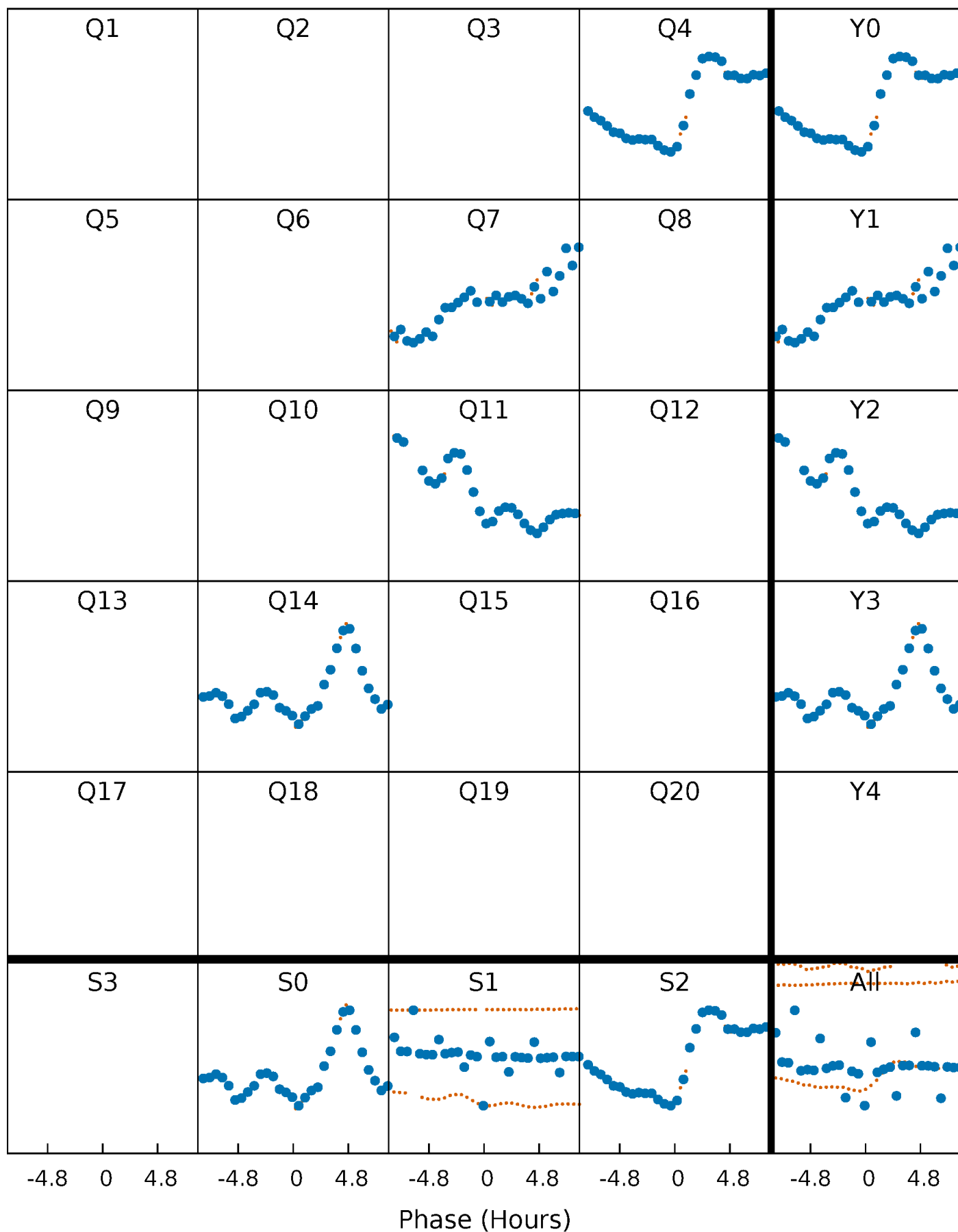


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



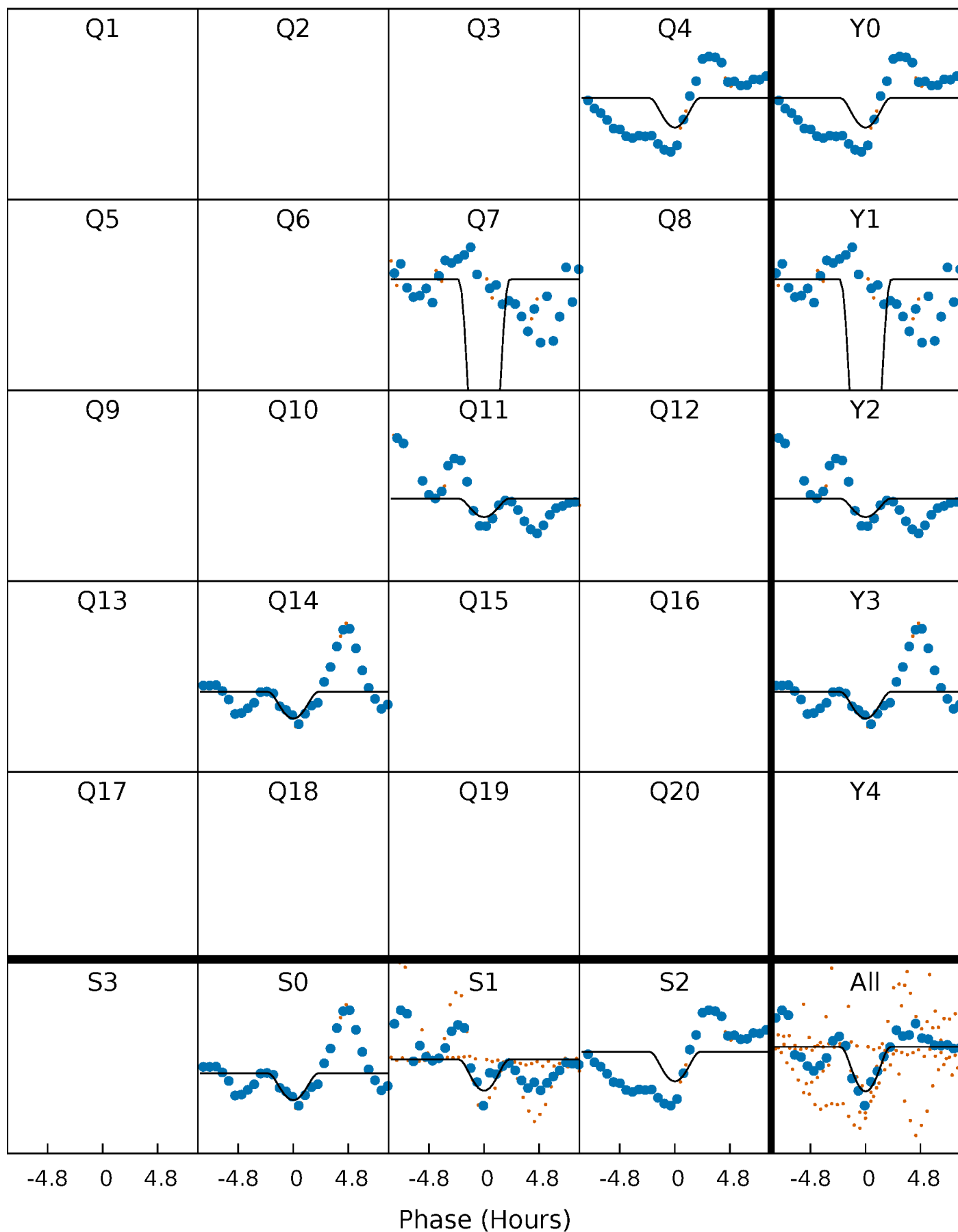
PDC Quarter-Phased Transit Curves

TCE 009570858-01 P=317.468477 Days $T_0=369.622640$ (BKJD)



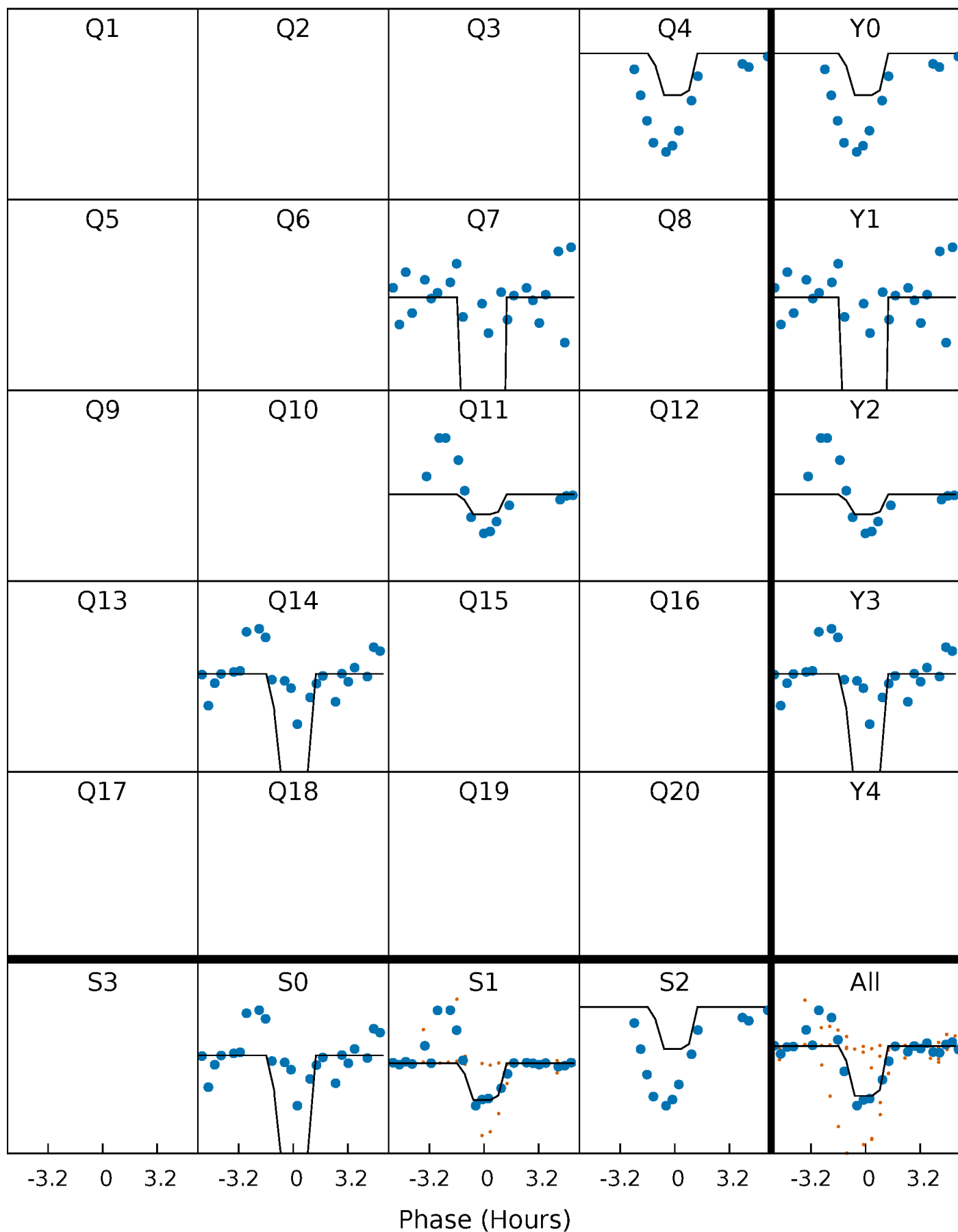
DV Quarter-Phased Transit Curves

TCE 009570858-01 P=317.468477 Days $T_0=369.622640$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

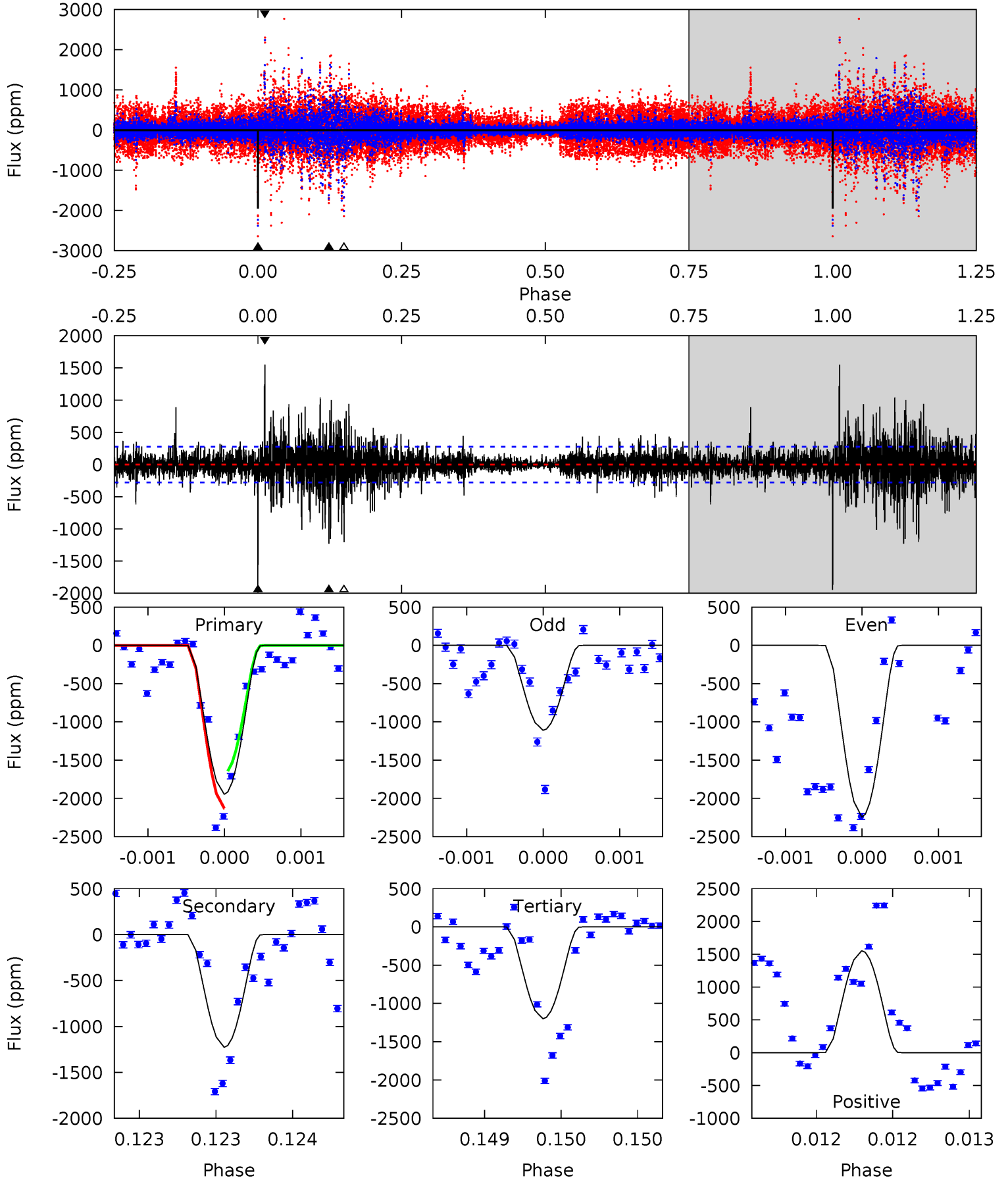
TCE 009570858-01 P=317.458175 Days $T_0=369.647636$ (BKJD)



DV Model-Shift Uniqueness Test

009570858-01, $P = 317.468477$ Days, $E = 52.154163$ Days

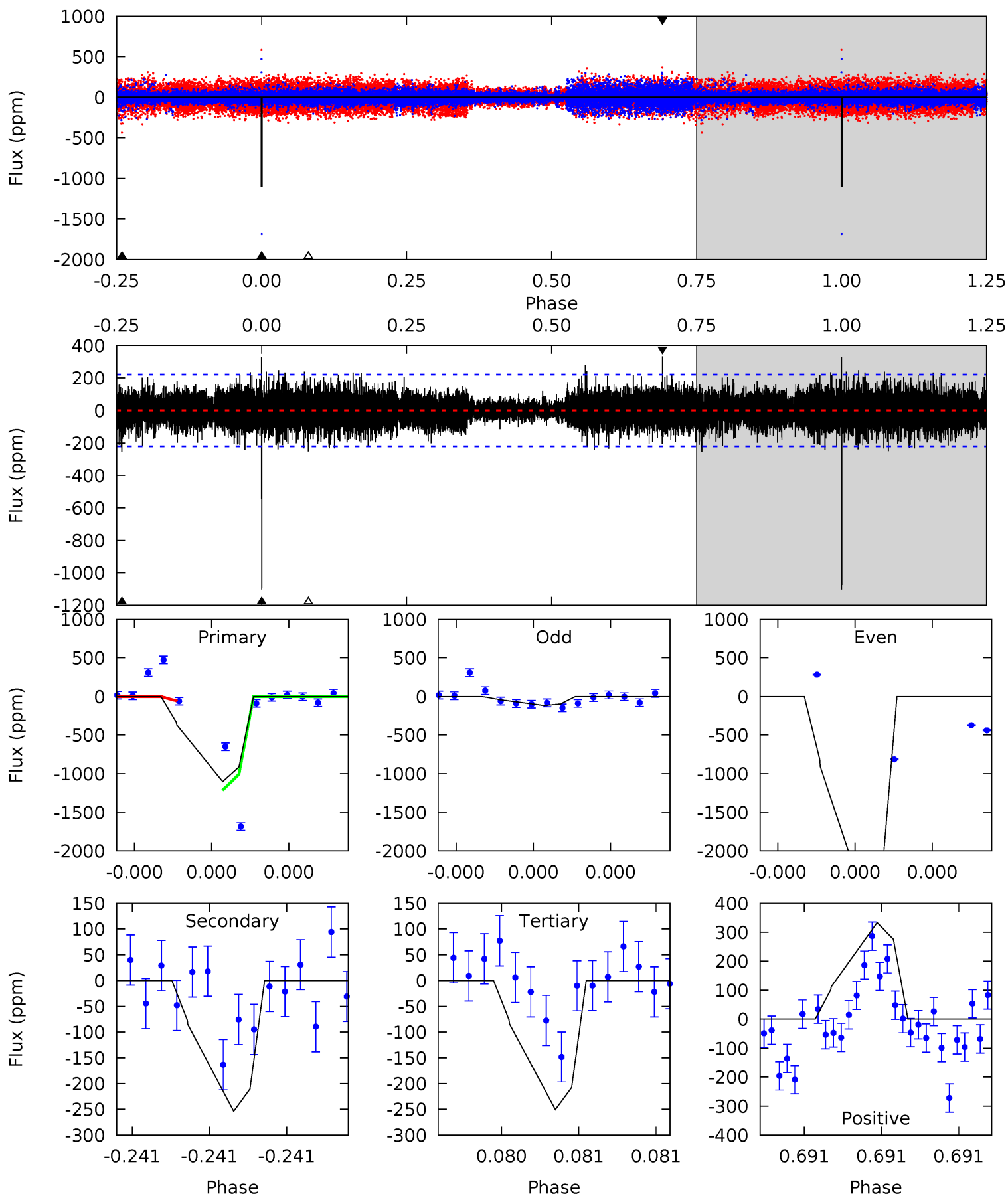
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.8	24.5	23.9	31.0	5.54	3.43	3.00	14.9	7.83	0.54	-6.51	7.65	0.84	0.44	5.07



Alt Model-Shift Uniqueness Test

009570858-01, P = 317.458175 Days, E = 52.189461 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.1	6.49	6.40	8.51	5.65	3.60	1.29	21.7	19.6	0.08	-2.03	41.7	1.10	0.23	0



Stellar Parameters For KIC 009570858

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3266^{+117}_{-78}	$0.095^{+0.208}_{-0.065}$	$-0.080^{+0.250}_{-0.100}$	$155.187^{+9.192}_{-25.737}$	$1.095^{+0.206}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+219%/-68%	+312%/-125%	+6%/-17%	+19%/-11%	+86%/-14%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009570858-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1227 ± 50	$3308.64^{+3378.78}_{-2220.20}$	2555^{+122}_{-141}	-2467^{+4922}_{-114}	$0.057^{+0.443}_{-0.044}$
Alt.	-254 ± 39	$3212.74^{+3558.93}_{-2131.63}$	2562^{+111}_{-149}	-2520^{+171}_{-94}	$0.012^{+0.091}_{-0.009}$

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

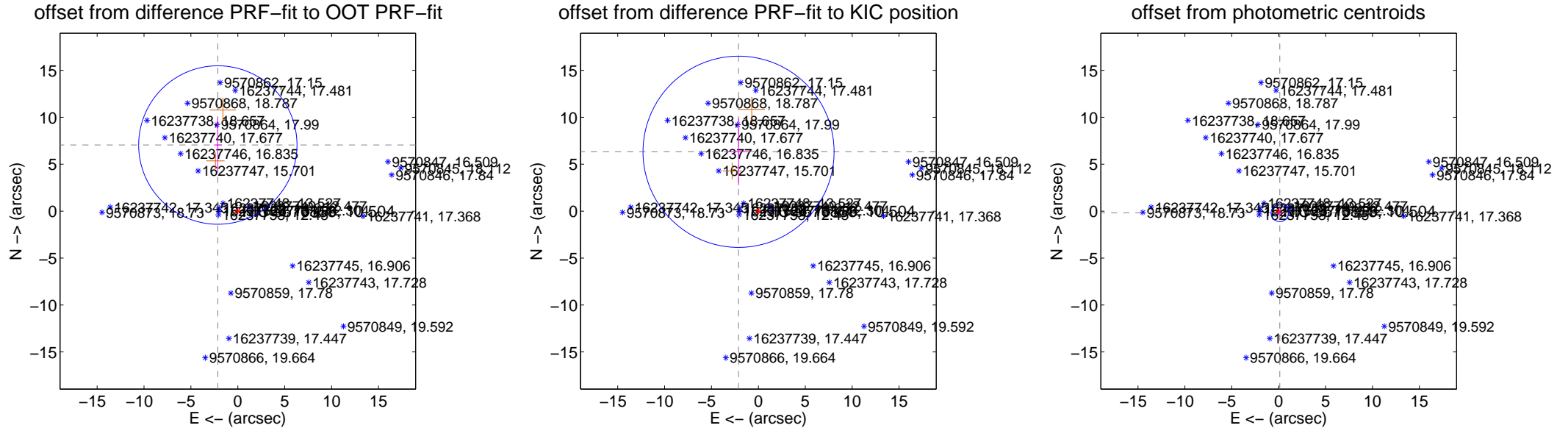
DV Centroid Data

Supplemental centroid analysis for 009570858-01. **Kepler magnitude: 10.50.** Transit SNR 10.45

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.89 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.358 ± 2.813	2.62	2.130 ± 0.442	7.043 ± 2.936
PRF-fit source offset from KIC position	6.666 ± 3.395	1.96	2.113 ± 1.151	6.323 ± 3.559
photometric centroid source offset	0.22 ± 0.31	0.72	-0.12 ± 0.31	-0.19 ± 0.31



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

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

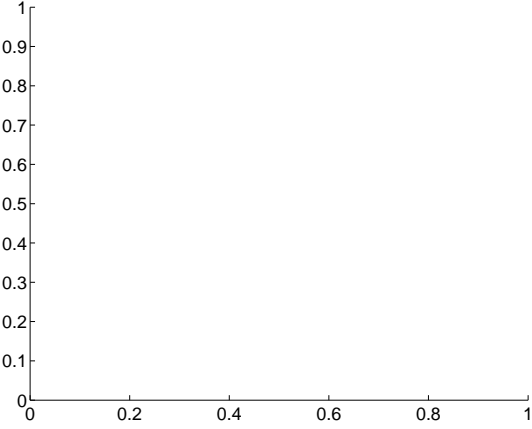
Q1 no difference image



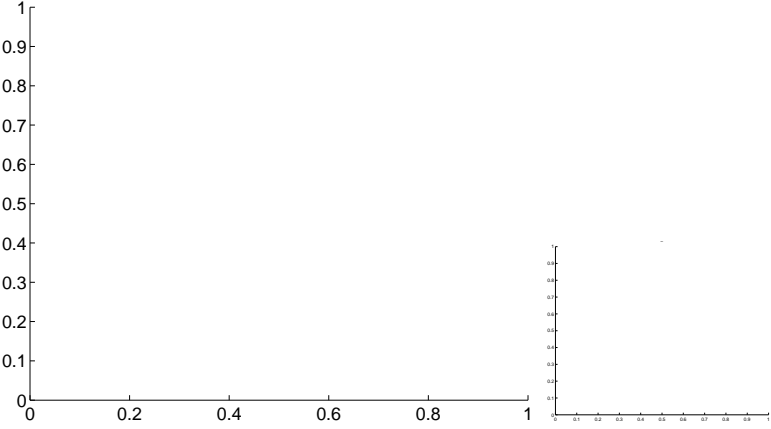
Q1 no OOT image



Q2 no difference image



Q2 no OOT image



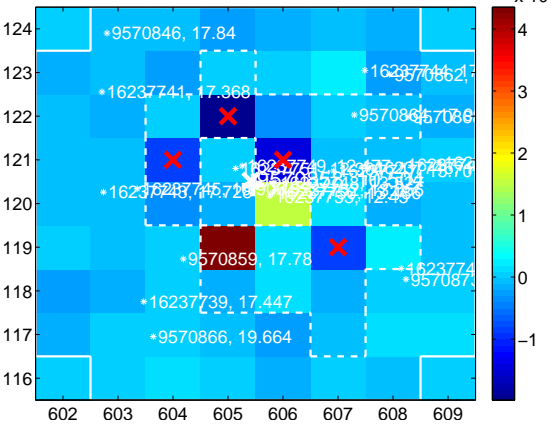
Q3 no difference image



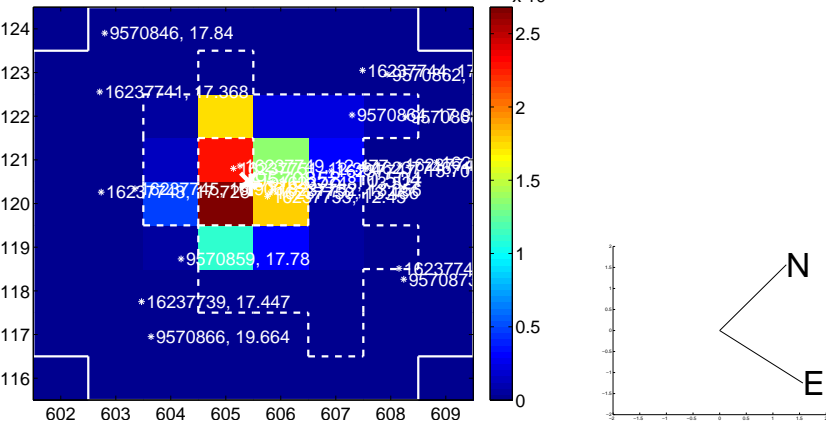
Q3 no OOT image



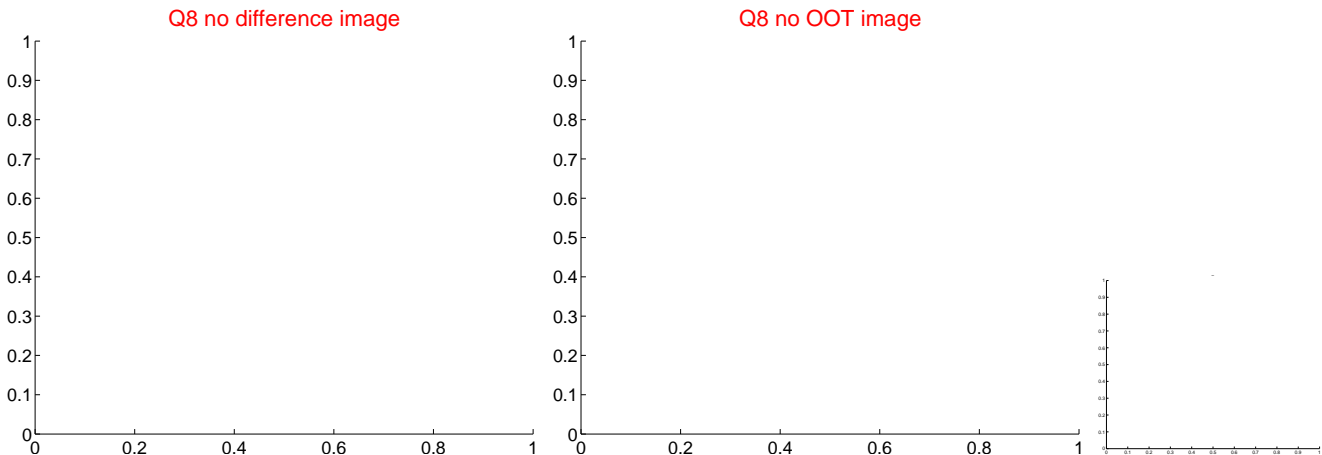
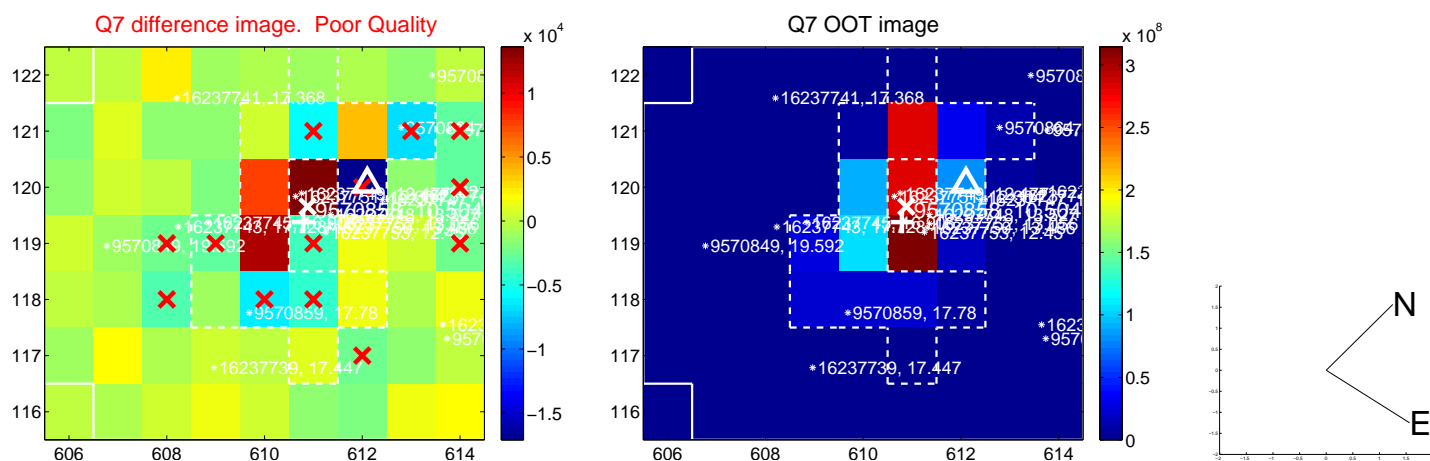
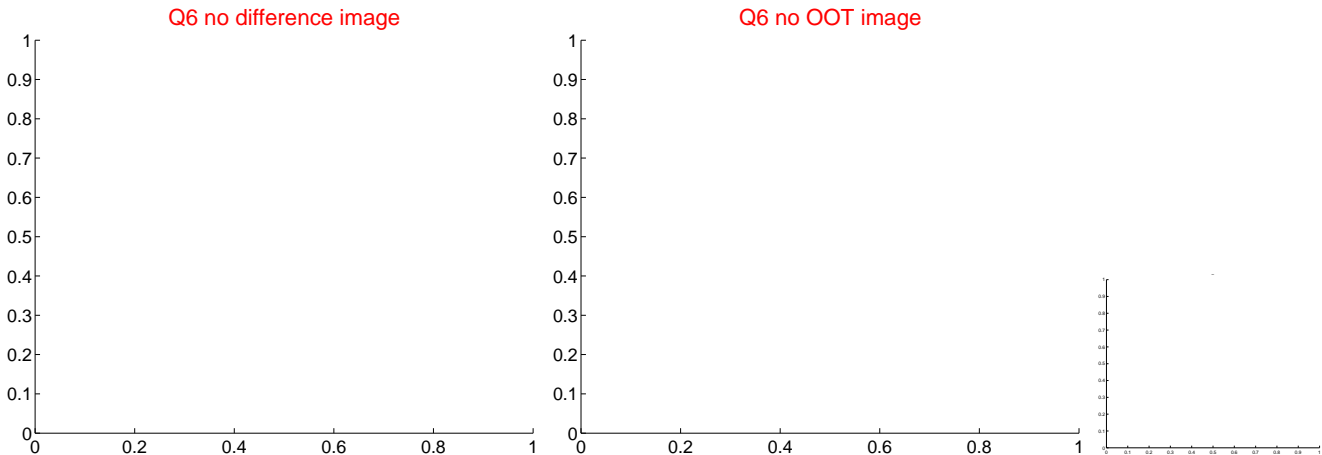
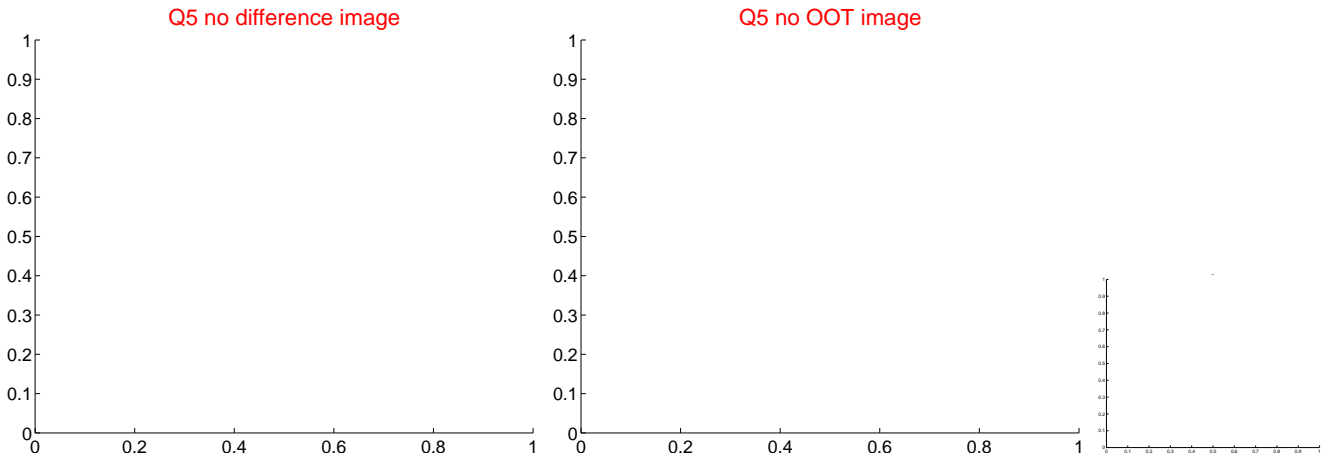
Q4 difference image. Poor Quality



Q4 OOT image



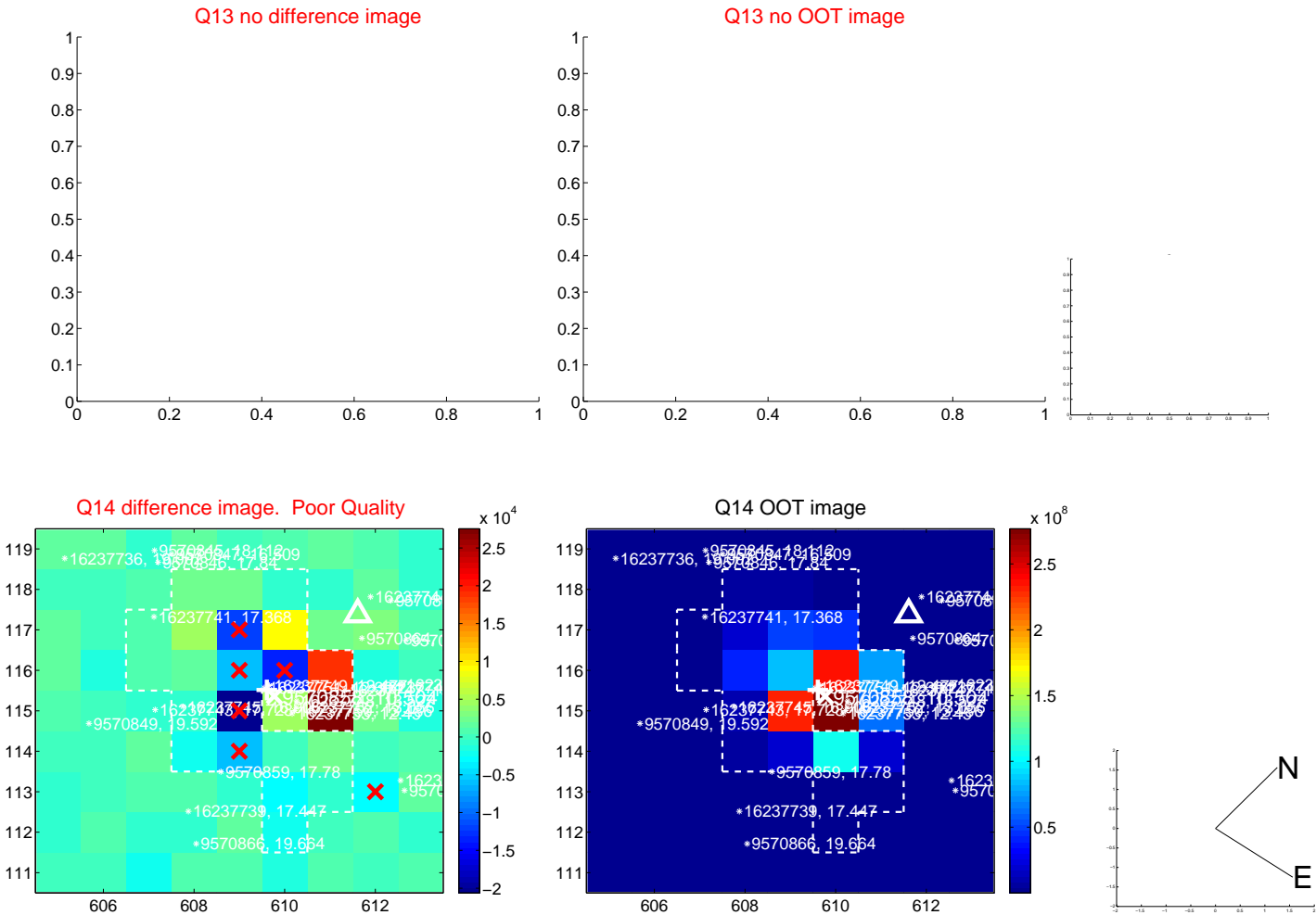
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



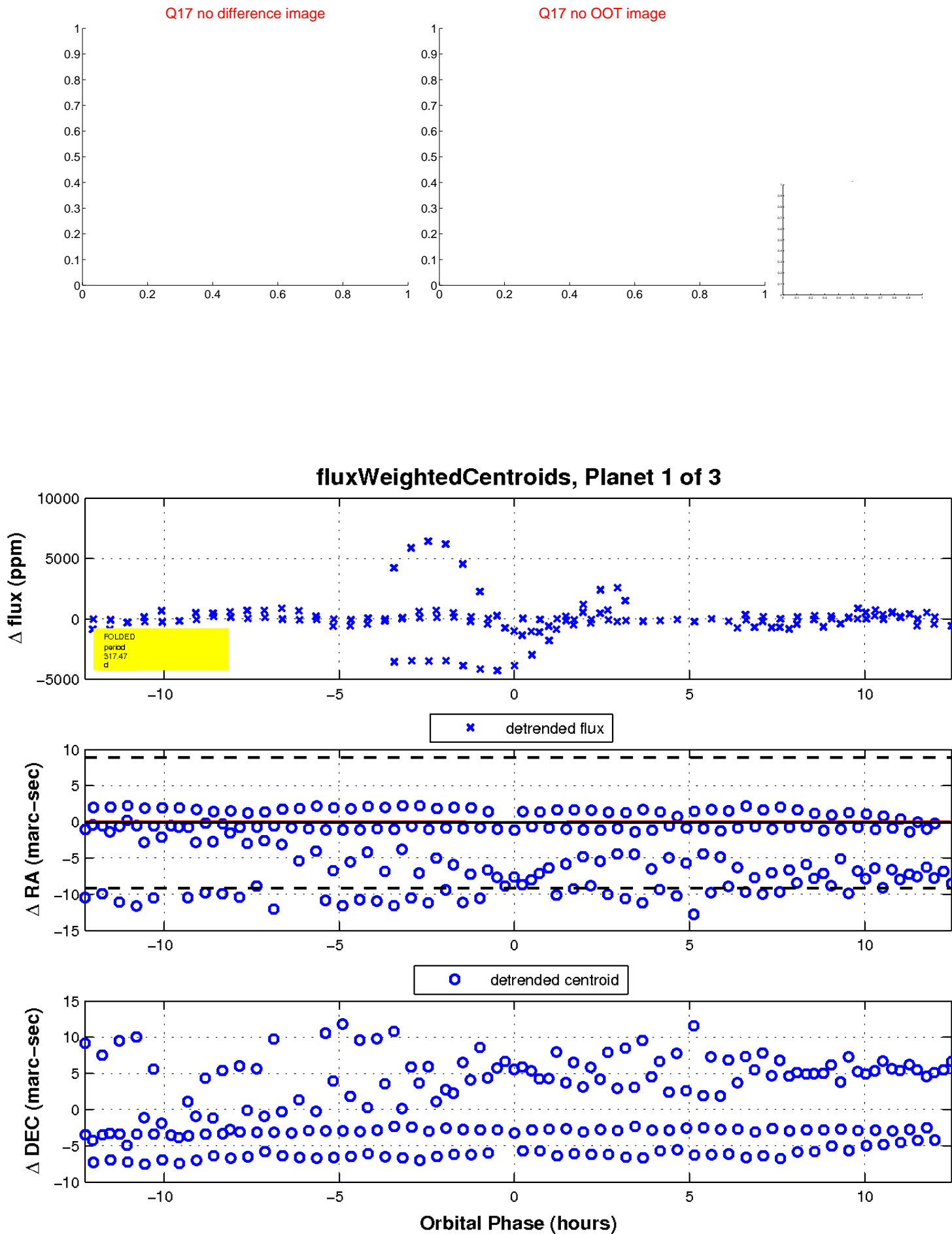
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



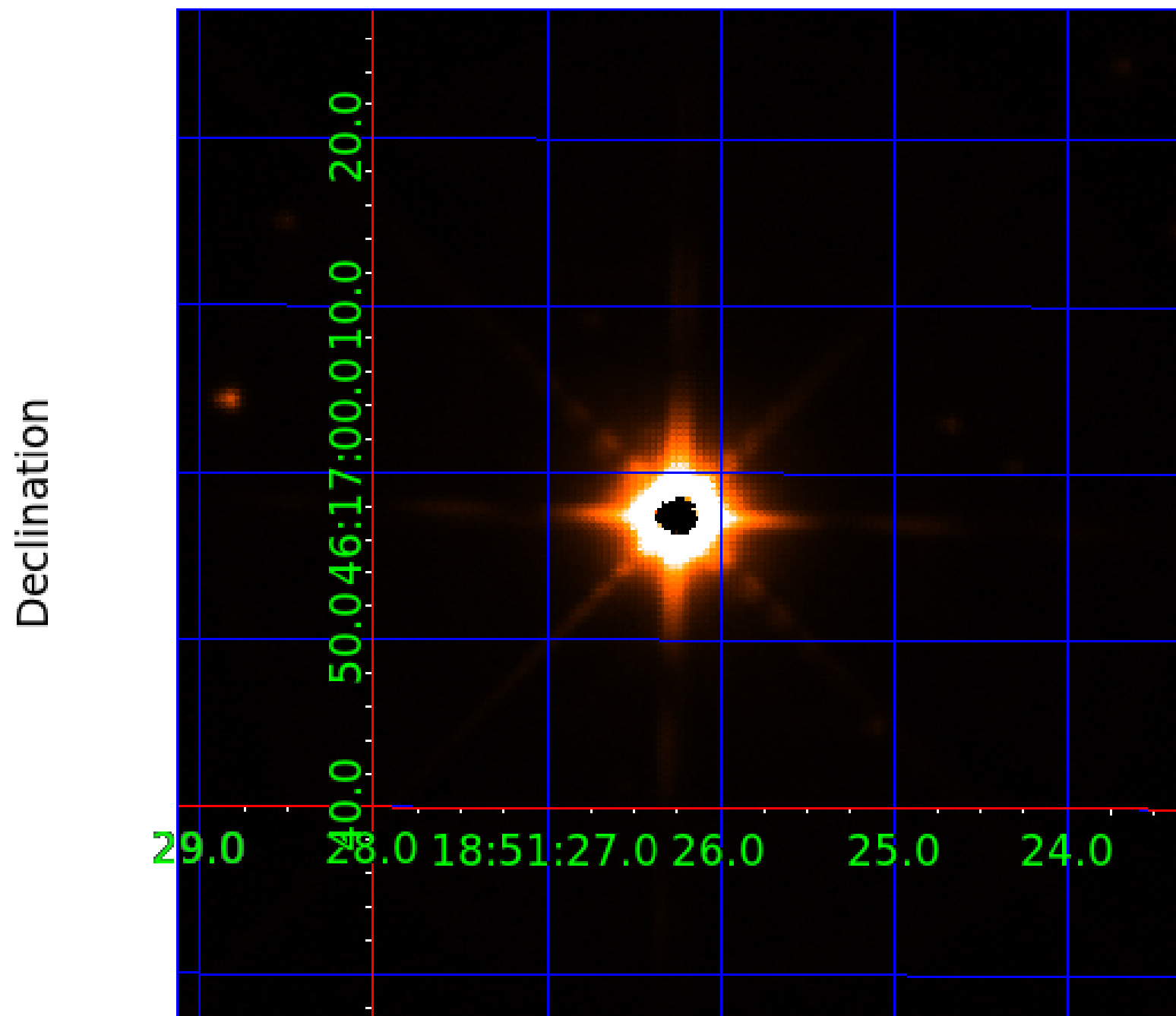
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009570858

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})
009570858-01	OBS	No	317.468477	369.622640	1451.7	4.166	10.4	10.4	155.19	3266	1290.14	2787.80
009570858-02	OBS	No	314.442638	416.219630	2442.7	4.220	20.8	15.1	155.19	3266	1629.80	2823.63
009570858-03	OBS	No	396.881036	389.099857	260.2	6.000	19.5	-1.0	155.19	3266	229.76	2070.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009570858-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009570858-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009570858-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

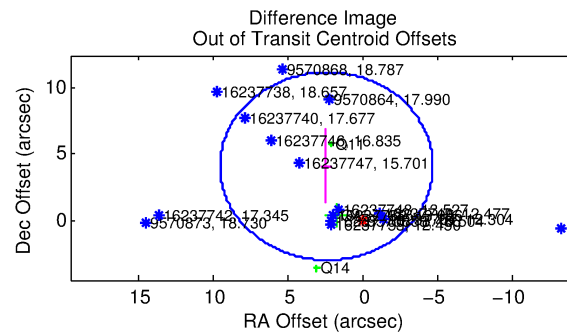
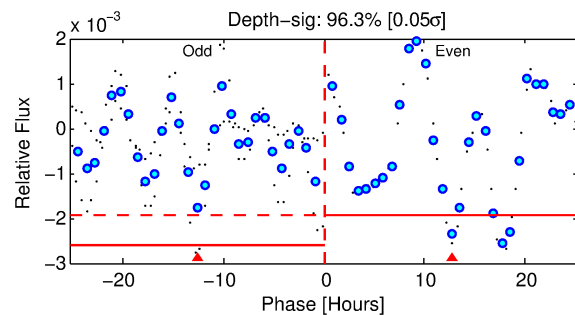
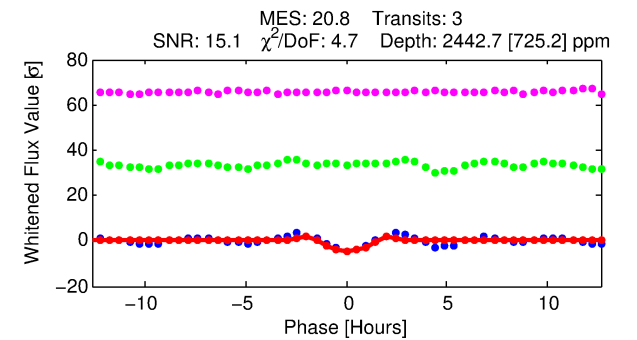
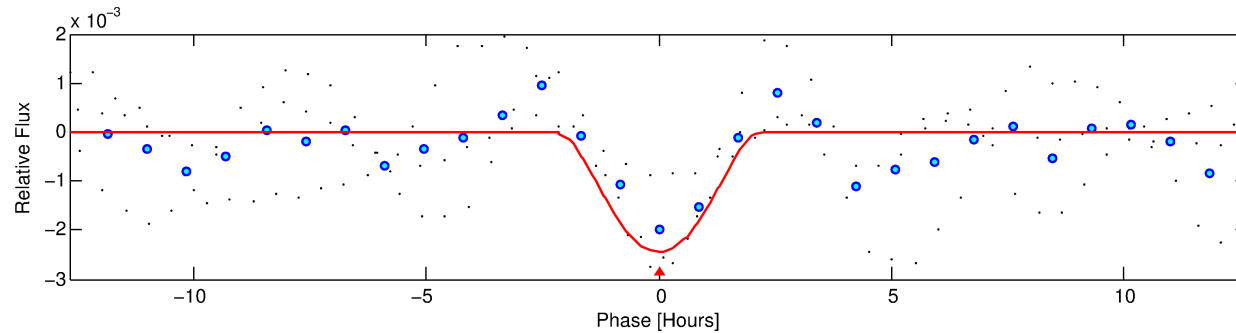
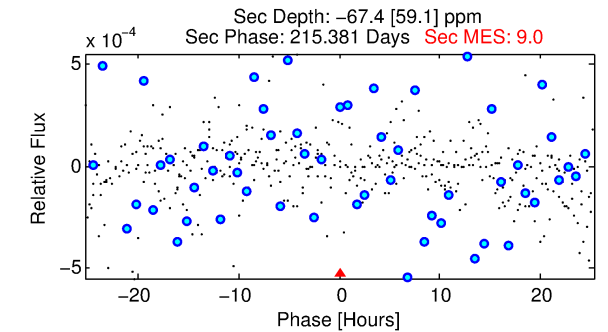
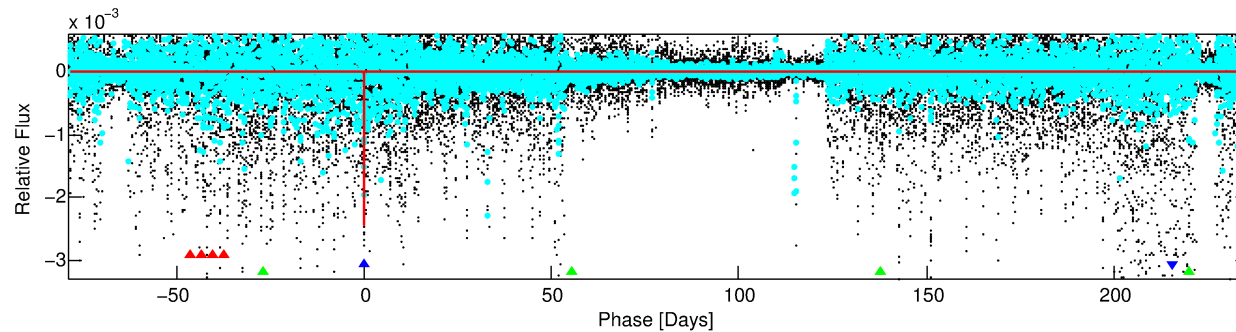
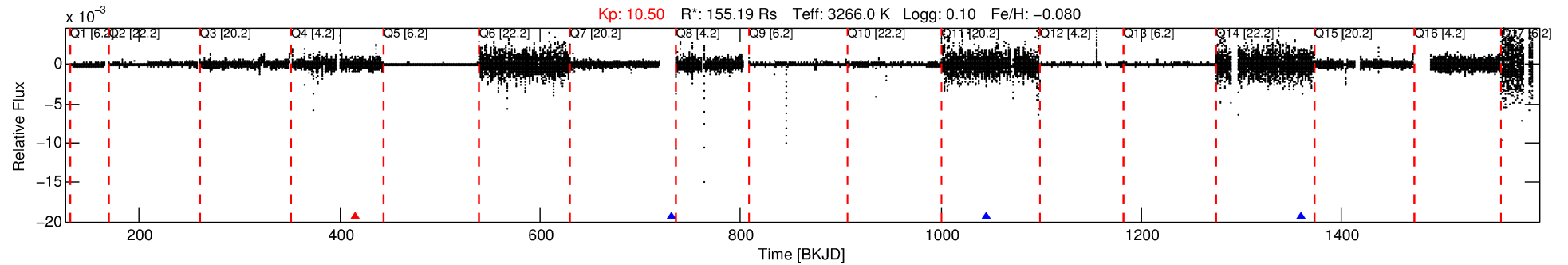
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009570858-02

No Significant Match Found

DV One-Page Summary

KIC: 9570858 Candidate: 2 of 3 Period: 314.443 d



DV Fit Results:

Period = 314.44264 [0.00439] d
Epoch = 416.2196 [0.0082] BKJD
Rp/R* = 0.0962 [0.3109]
a/R* = 255.83 [151.66]
b = 1.00 [0.41]
Seff = 2823.63 [1036.33]
Teq = 1859 [171] K
Rp = 1629.80 [5272.05] Re
a = 0.9325 [0.1811] AU
Ag = N/A
Teffp = N/A

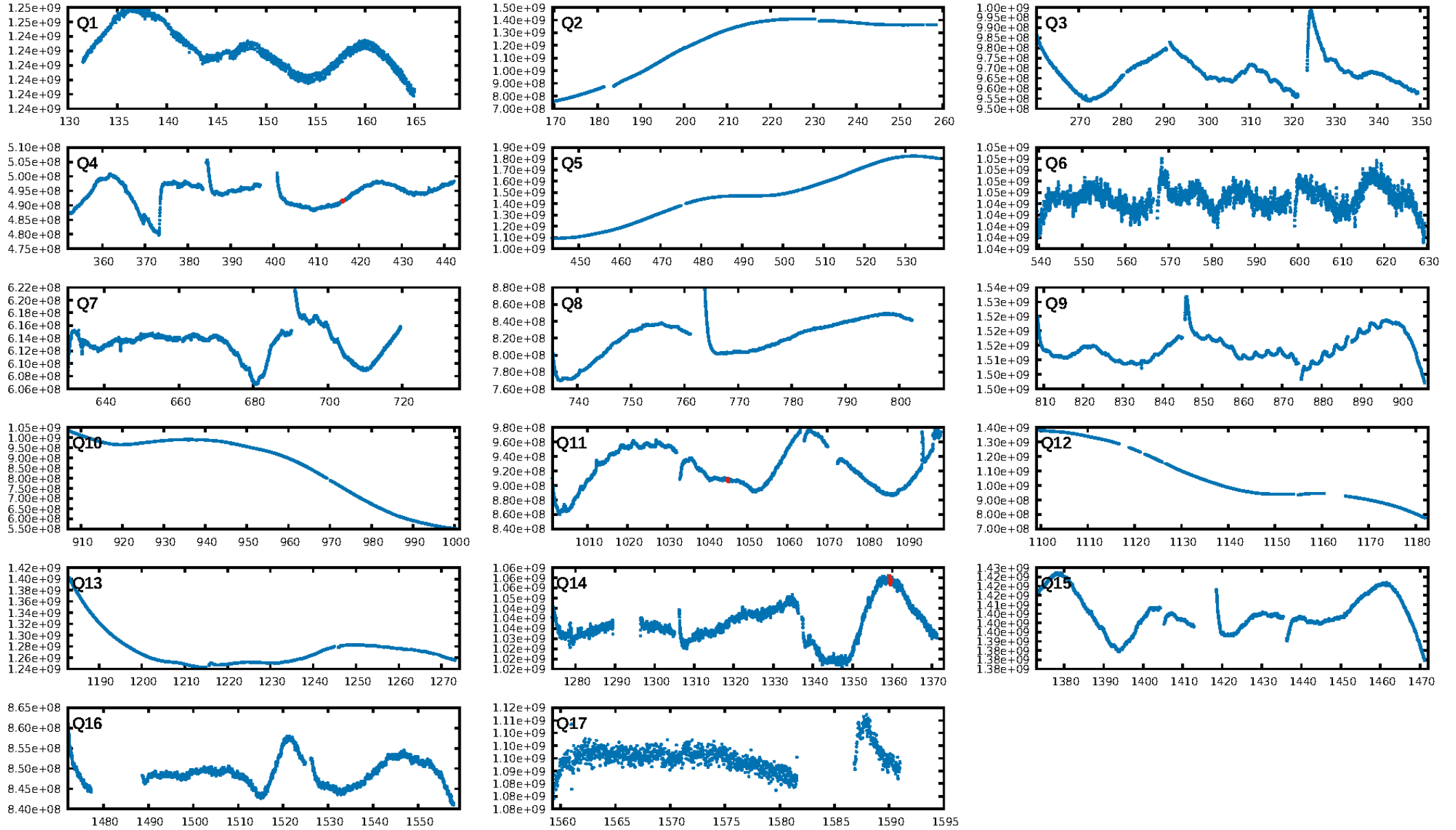
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [12.25σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.364 arcsec [1.76σ]
OotOffset-rm: 4.745 arcsec [2.00σ]
KicOffset-rm: 3.915 arcsec [1.96σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

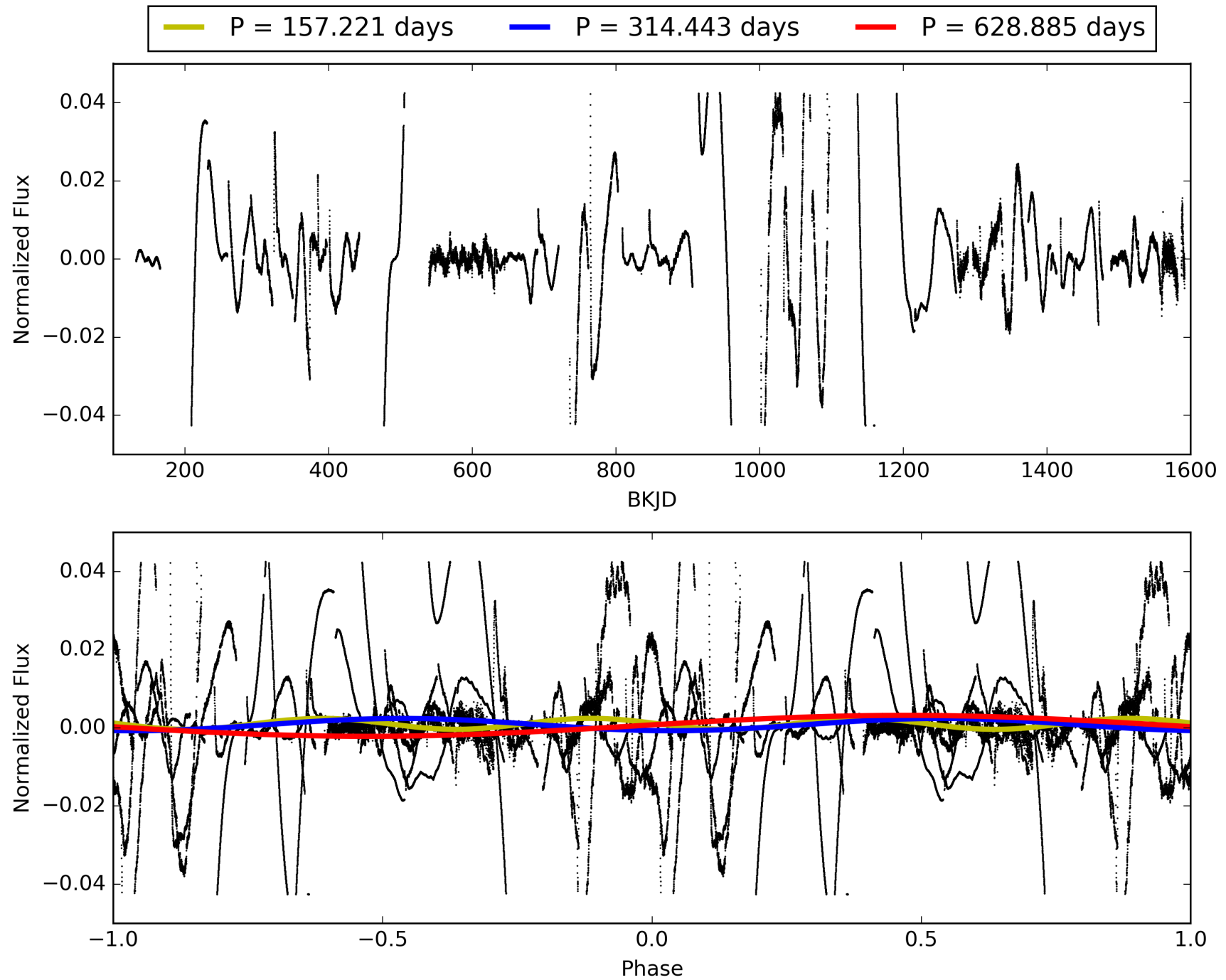
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:53:22 Z

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

TCE 009570858-02, PDC Light Curves

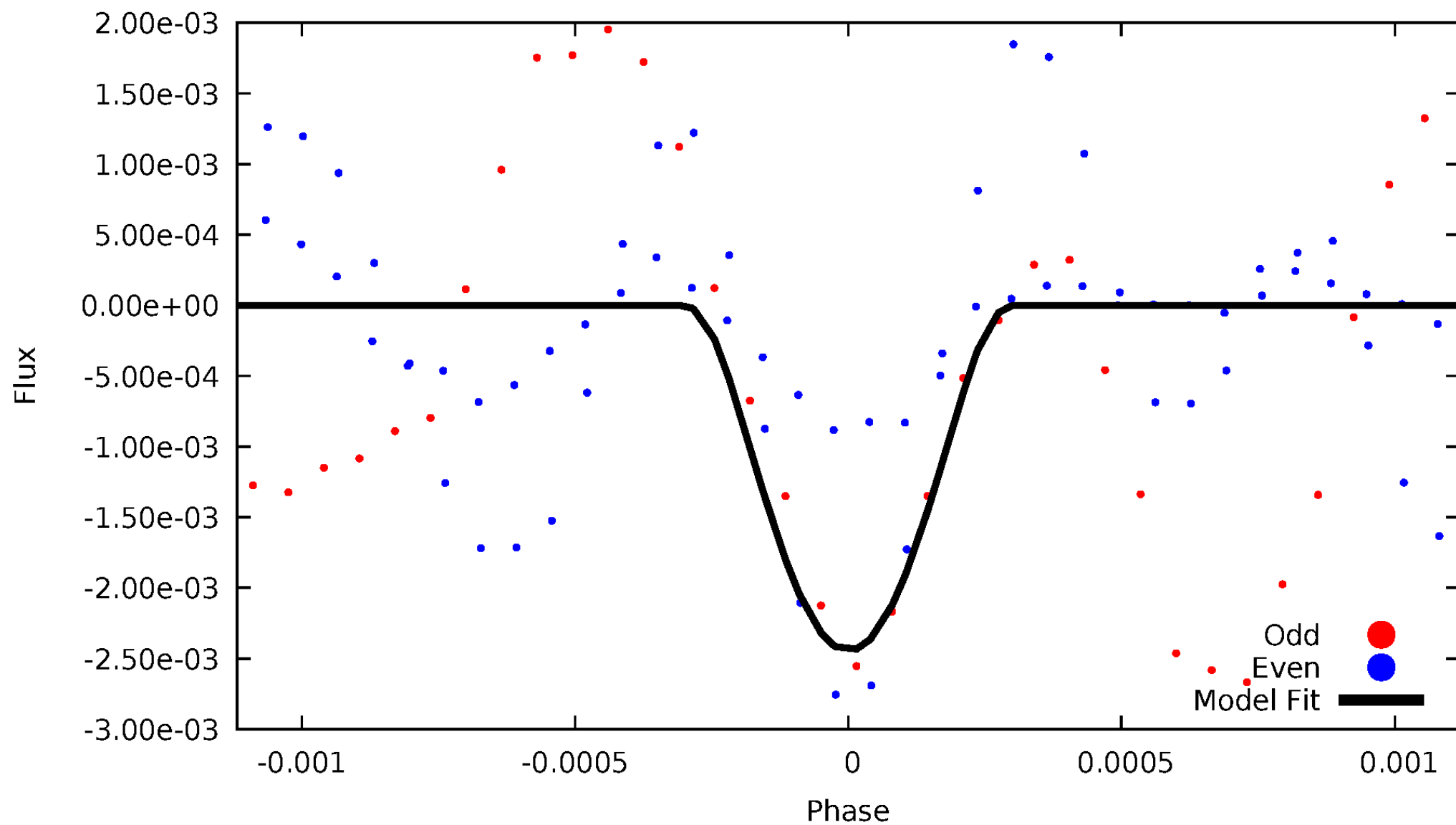


TCE 009570858-02



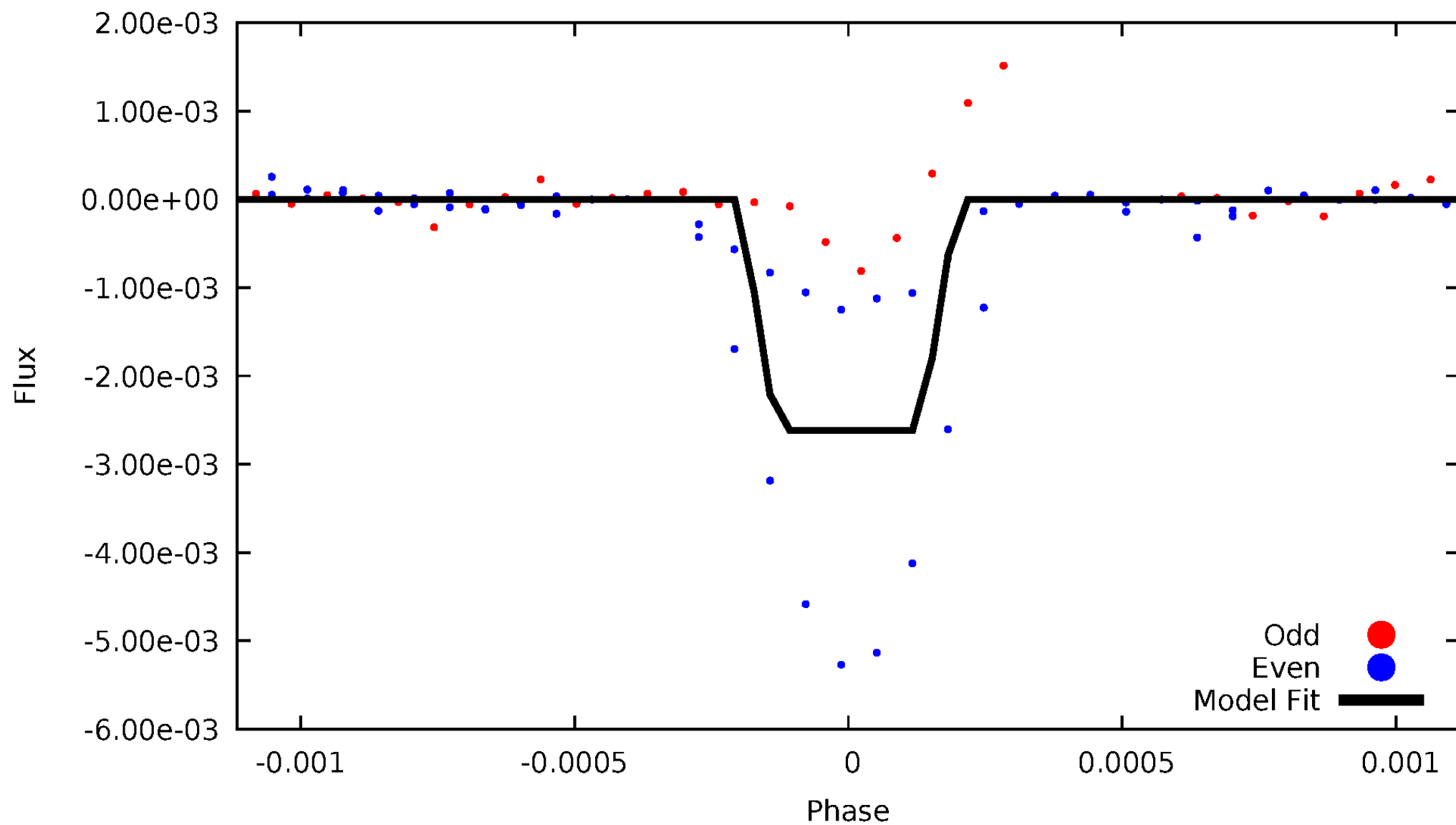
DV Odd/Even

TCE 009570858-02



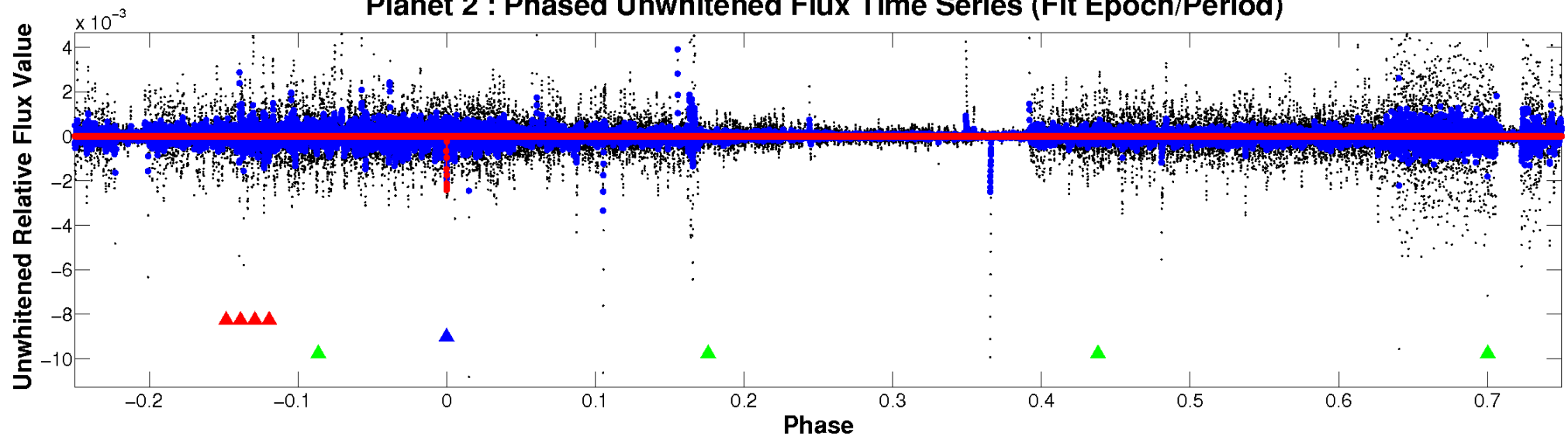
ALT Odd/Even

TCE 009570858-02

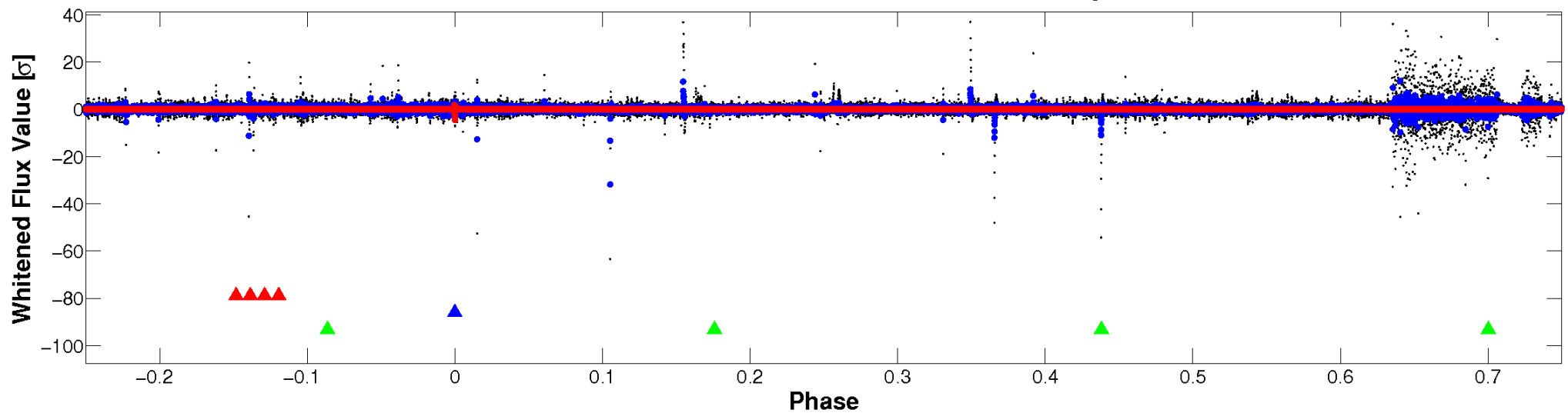


Non-Whitened Vs. Whitened Light Curve

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

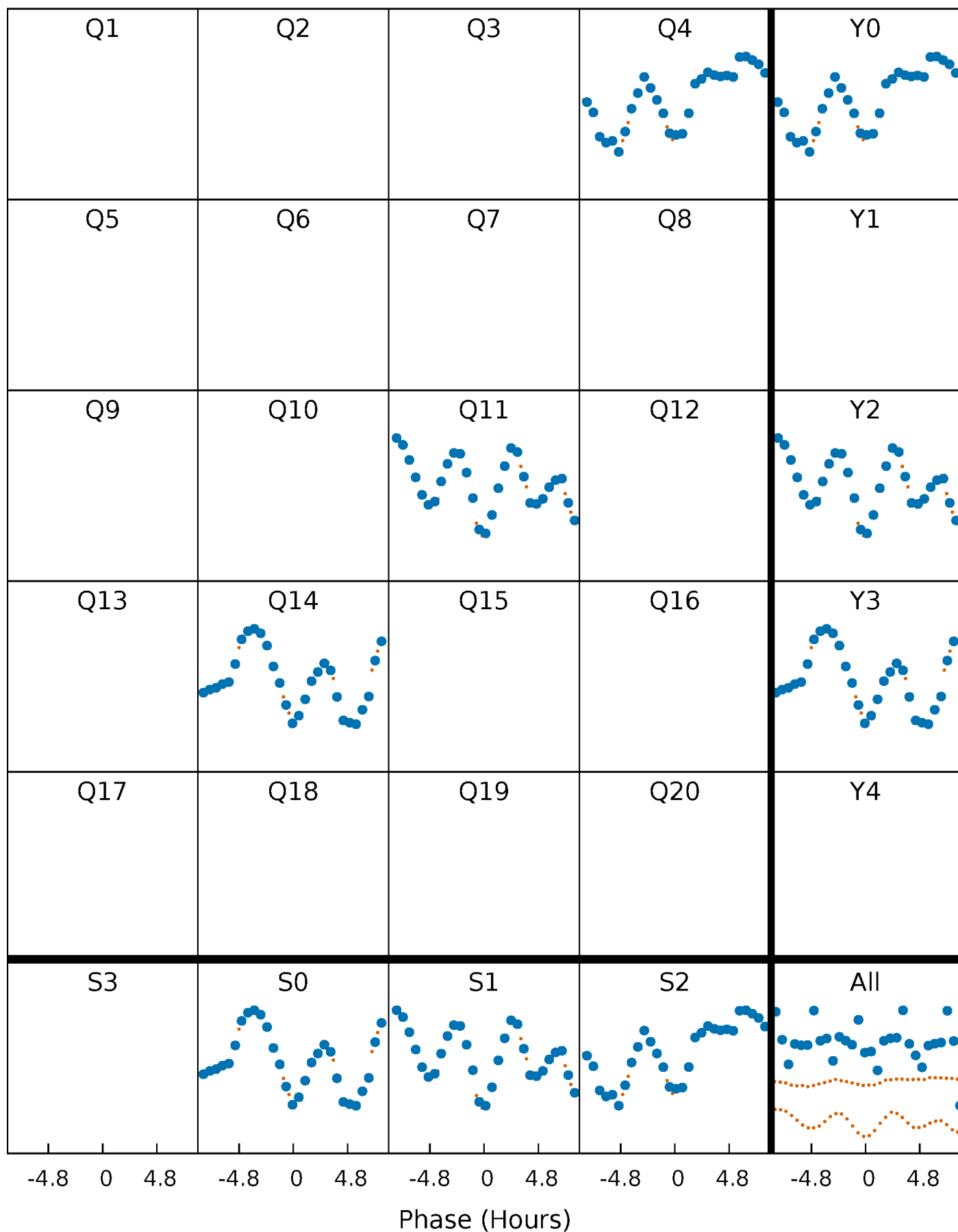


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



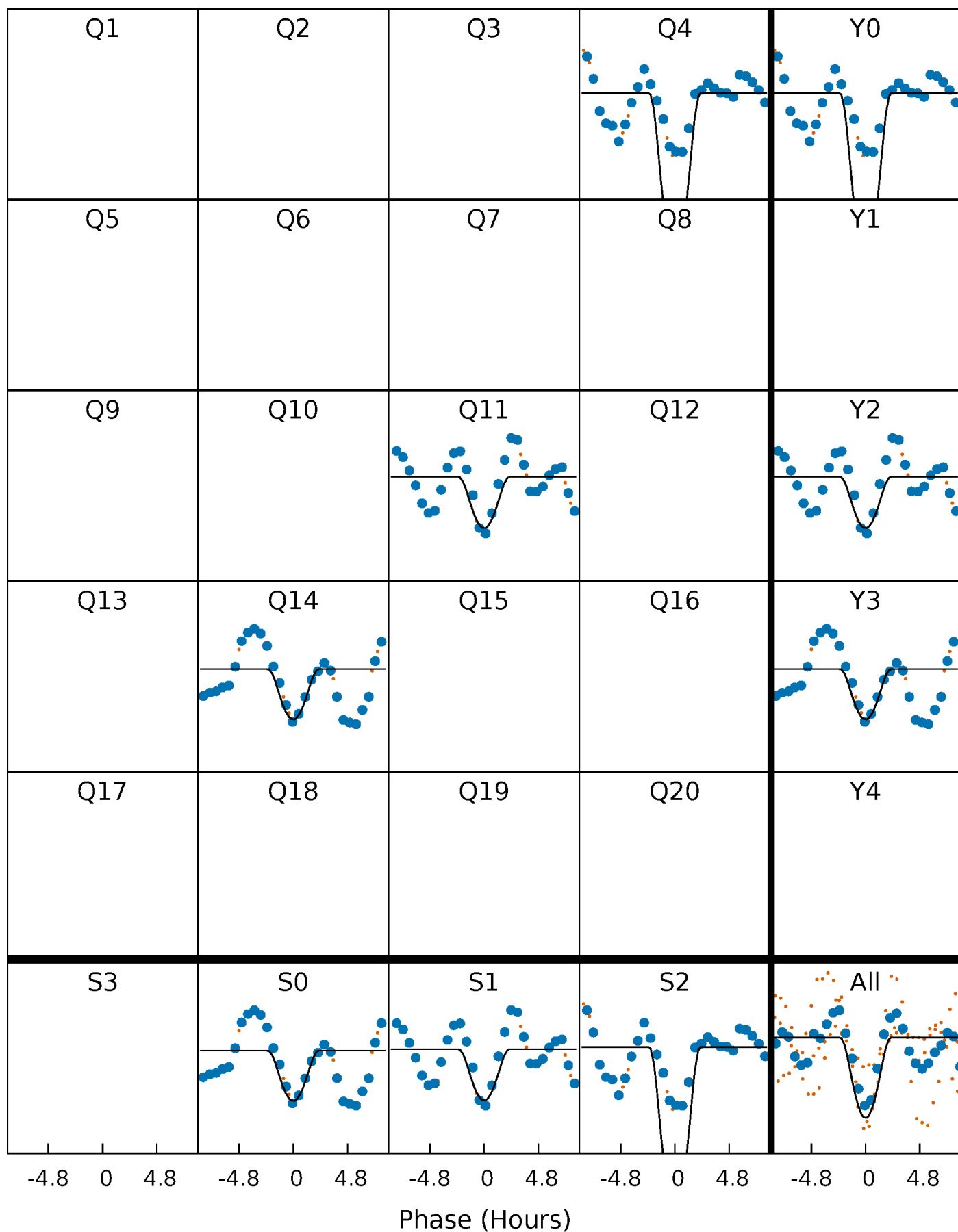
PDC Quarter-Phased Transit Curves

TCE 009570858-02 $P=314.442638$ Days $T_0=416.219630$ (BKJD)



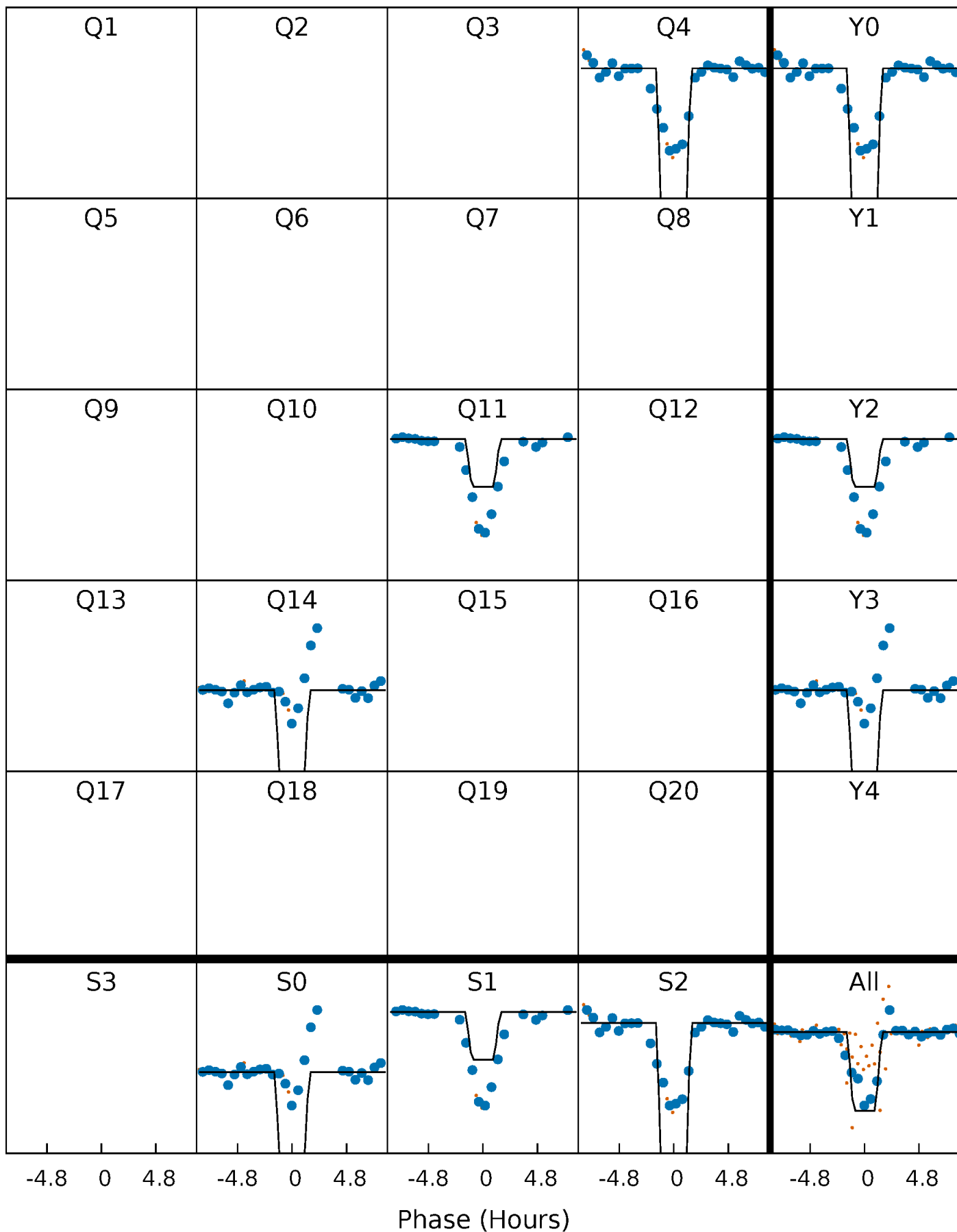
DV Quarter-Phased Transit Curves

TCE 009570858-02 $P=314.442638$ Days $T_0=416.219630$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

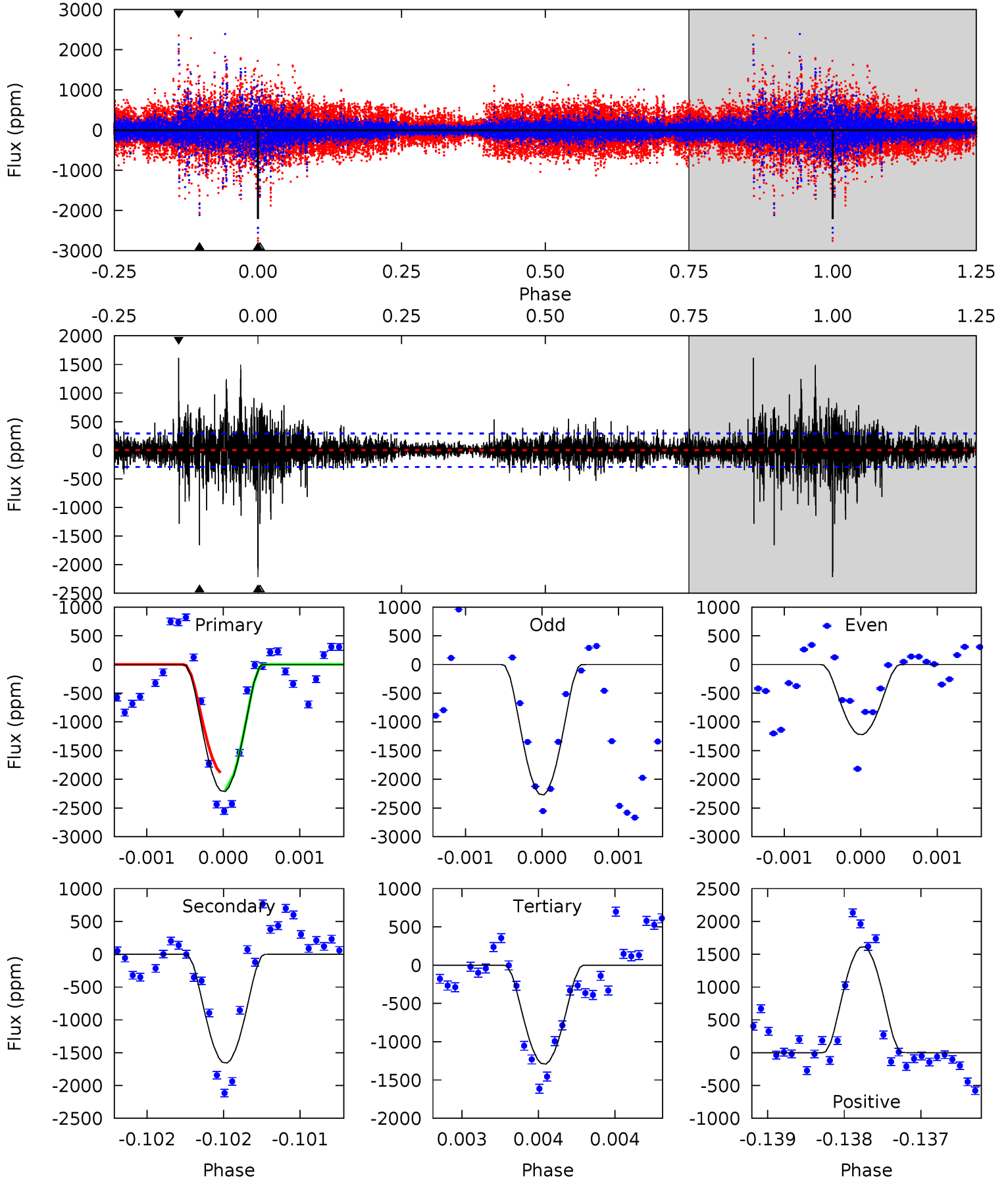
TCE 009570858-02 P=314.443175 Days $T_0=416.215392$ (BKJD)



DV Model-Shift Uniqueness Test

009570858-02, P = 314.442638 Days, E = 101.776992 Days

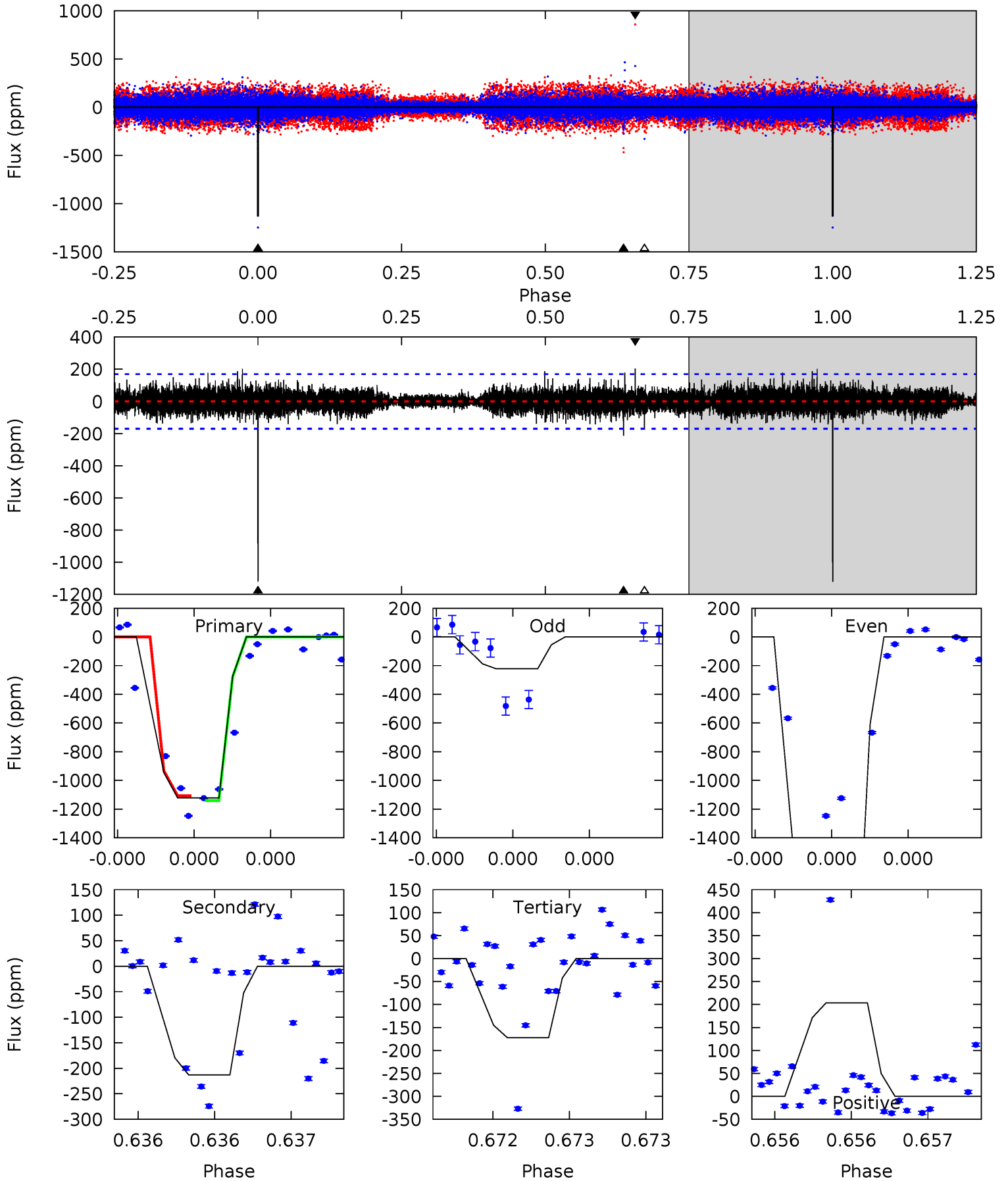
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.9	31.4	24.4	30.6	5.55	3.44	2.98	17.4	11.3	6.94	0.82	5.89	0.80	0.42	2.77



Alt Model-Shift Uniqueness Test

009570858-02, P = 314.443175 Days, E = 101.772217 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.1	7.05	5.70	6.74	5.63	3.57	1.07	31.4	30.4	1.35	0.31	33.7	1.83	0.15	0



Stellar Parameters For KIC 009570858

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3266^{+117}_{-78}	$0.095^{+0.208}_{-0.065}$	$-0.080^{+0.250}_{-0.100}$	$155.187^{+9.192}_{-25.737}$	$1.095^{+0.206}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+219%/-68%	+312%/-125%	+6%/-17%	+19%/-11%	+86%/-14%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009570858-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1658 ± 53	$4044.60^{+4215.43}_{-2667.64}$	2575^{+109}_{-138}	-2484^{+4726}_{-109}	$0.051^{+0.370}_{-0.039}$
Alt.	-213 ± 30	$3918.71^{+3819.44}_{-2706.52}$	2566^{+111}_{-141}	-2533^{+126}_{-84}	$0.007^{+0.064}_{-0.005}$

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

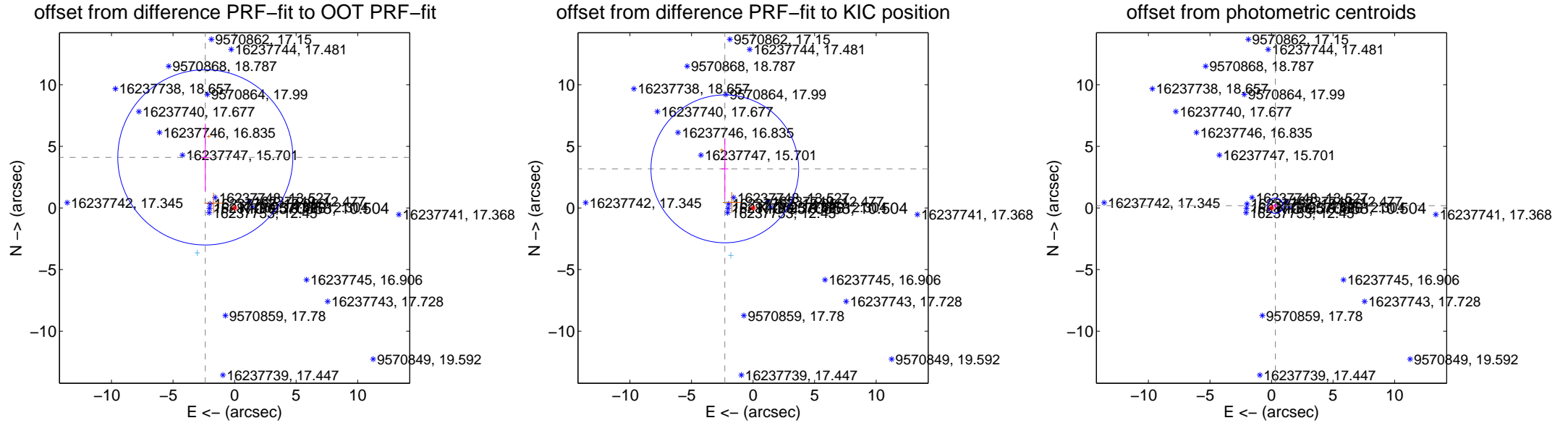
DV Centroid Data

Supplemental centroid analysis for 009570858-02. **Kepler magnitude: 10.50.** Transit SNR 15.08

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.745 ± 2.370	2.00	2.377 ± 0.348	4.106 ± 2.731
PRF-fit source offset from KIC position	3.915 ± 2.000	1.96	2.294 ± 0.280	3.173 ± 2.460
photometric centroid source offset	0.36 ± 0.21	1.76	-0.31 ± 0.21	0.18 ± 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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



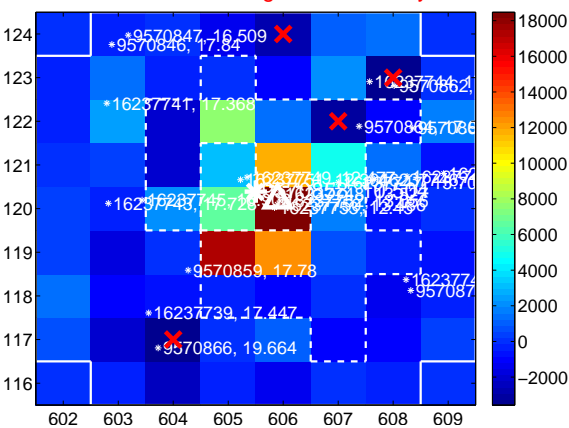
Q3 no difference image



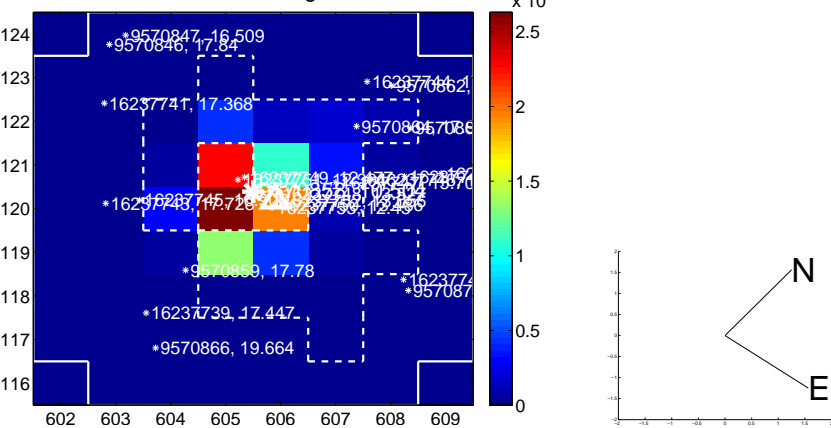
Q3 no OOT image



Q4 difference image. Poor Quality



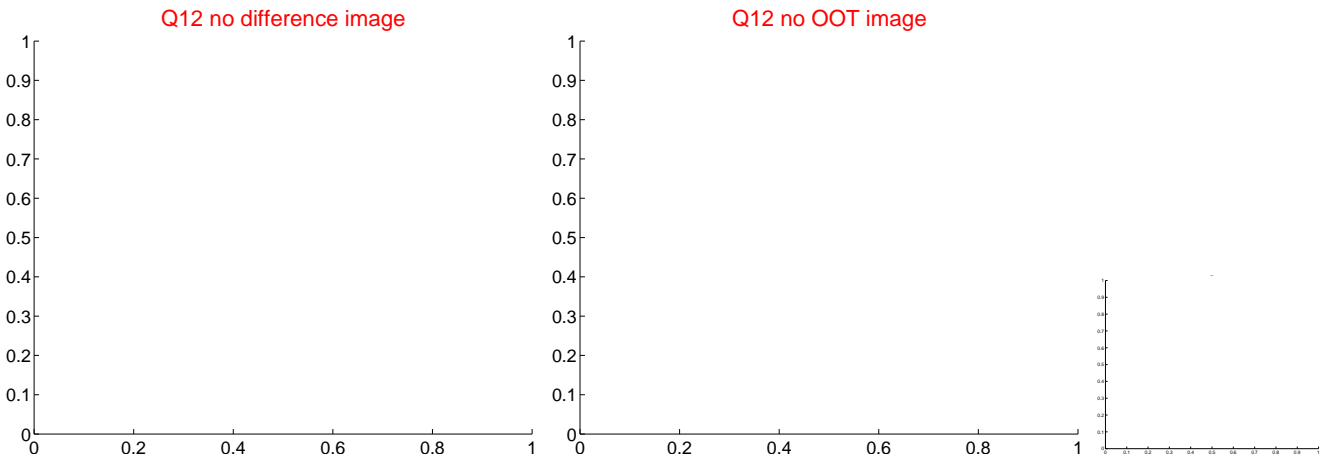
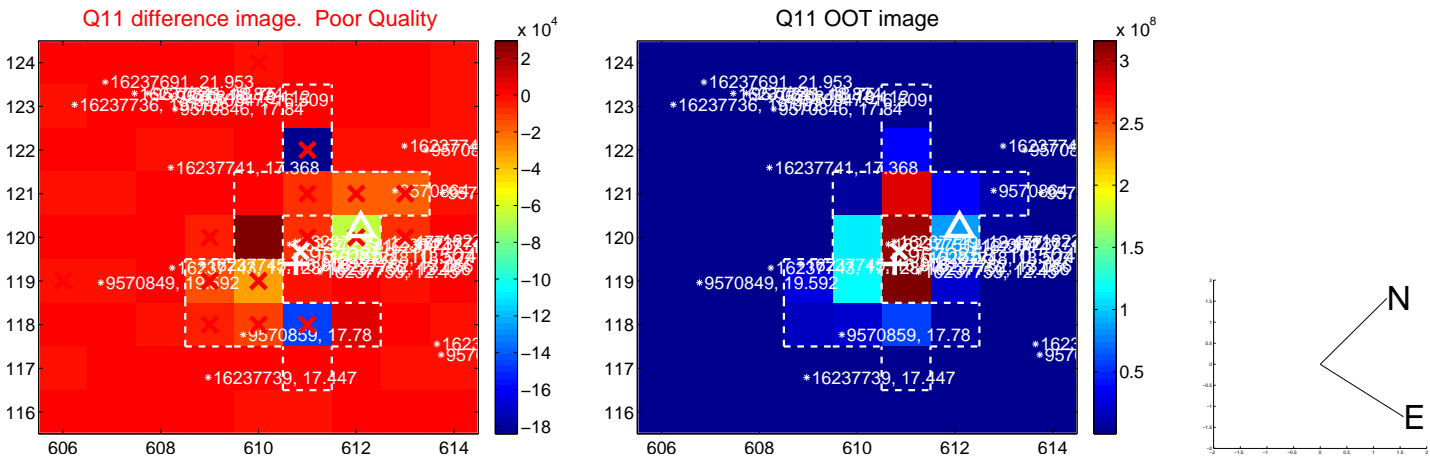
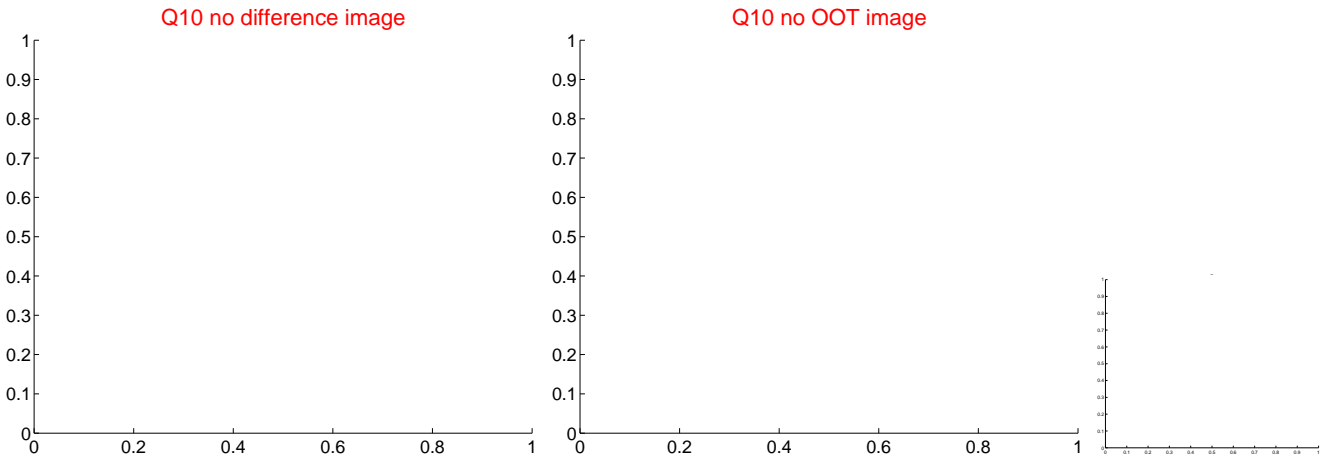
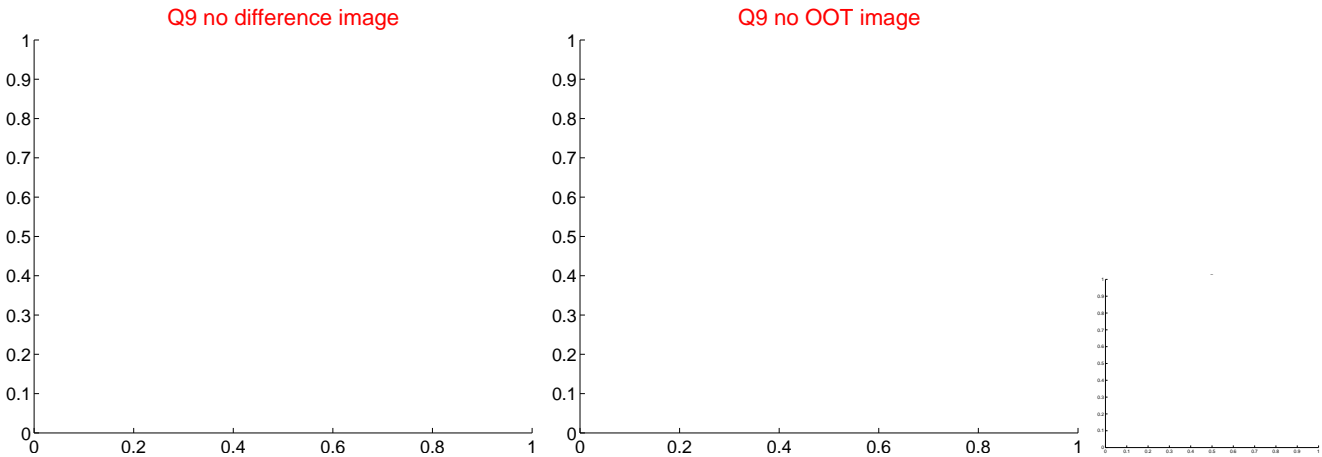
Q4 OOT image



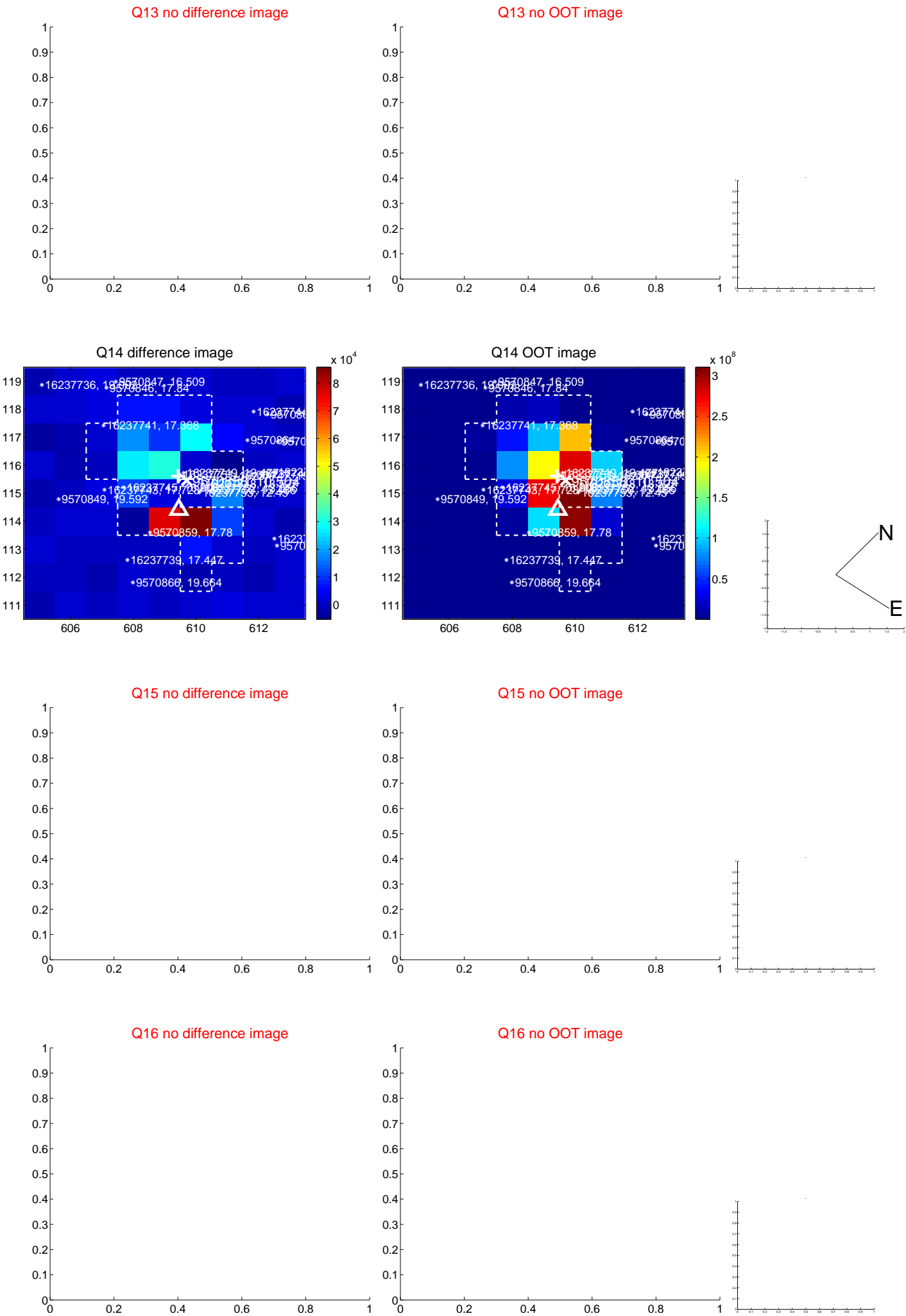
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



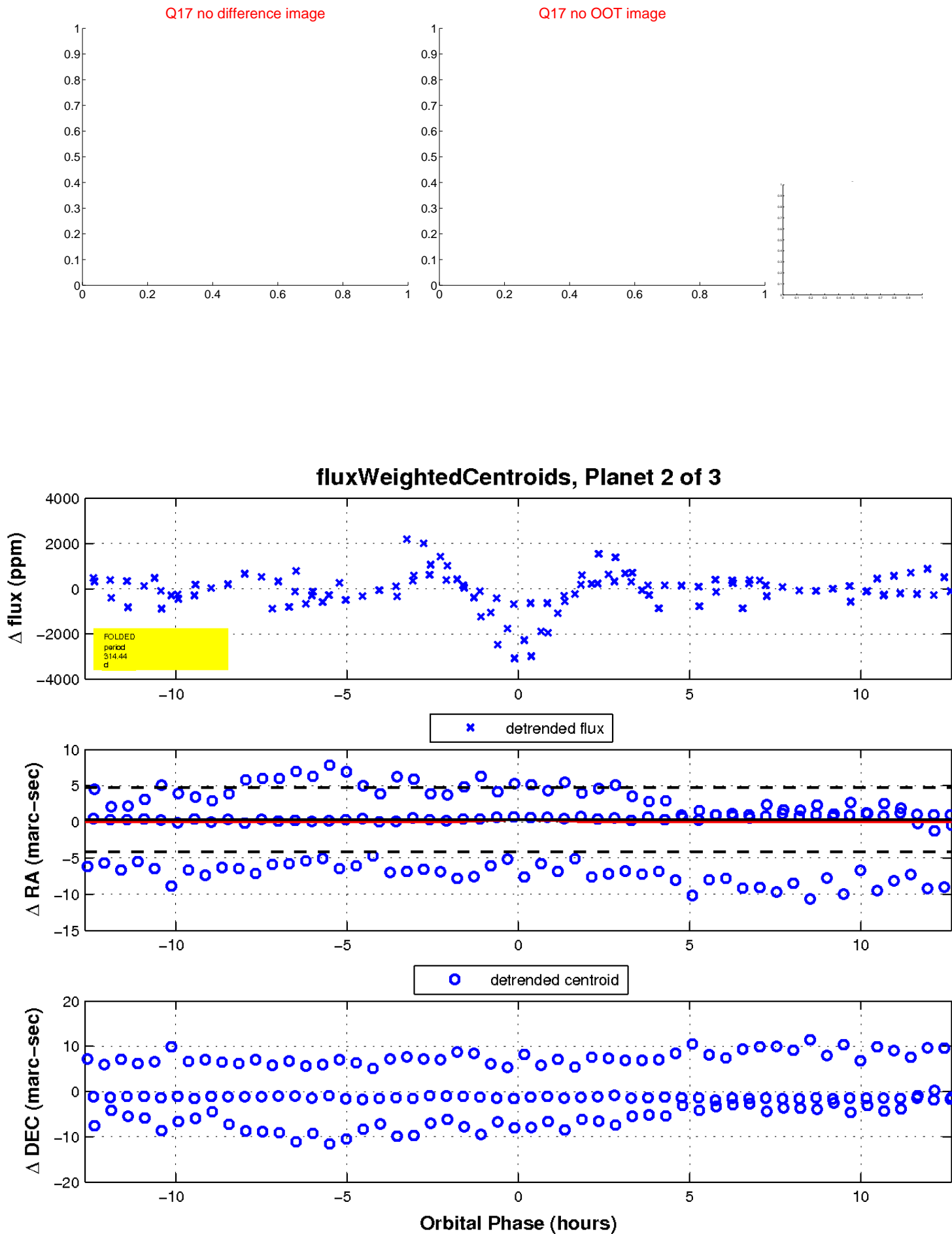
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



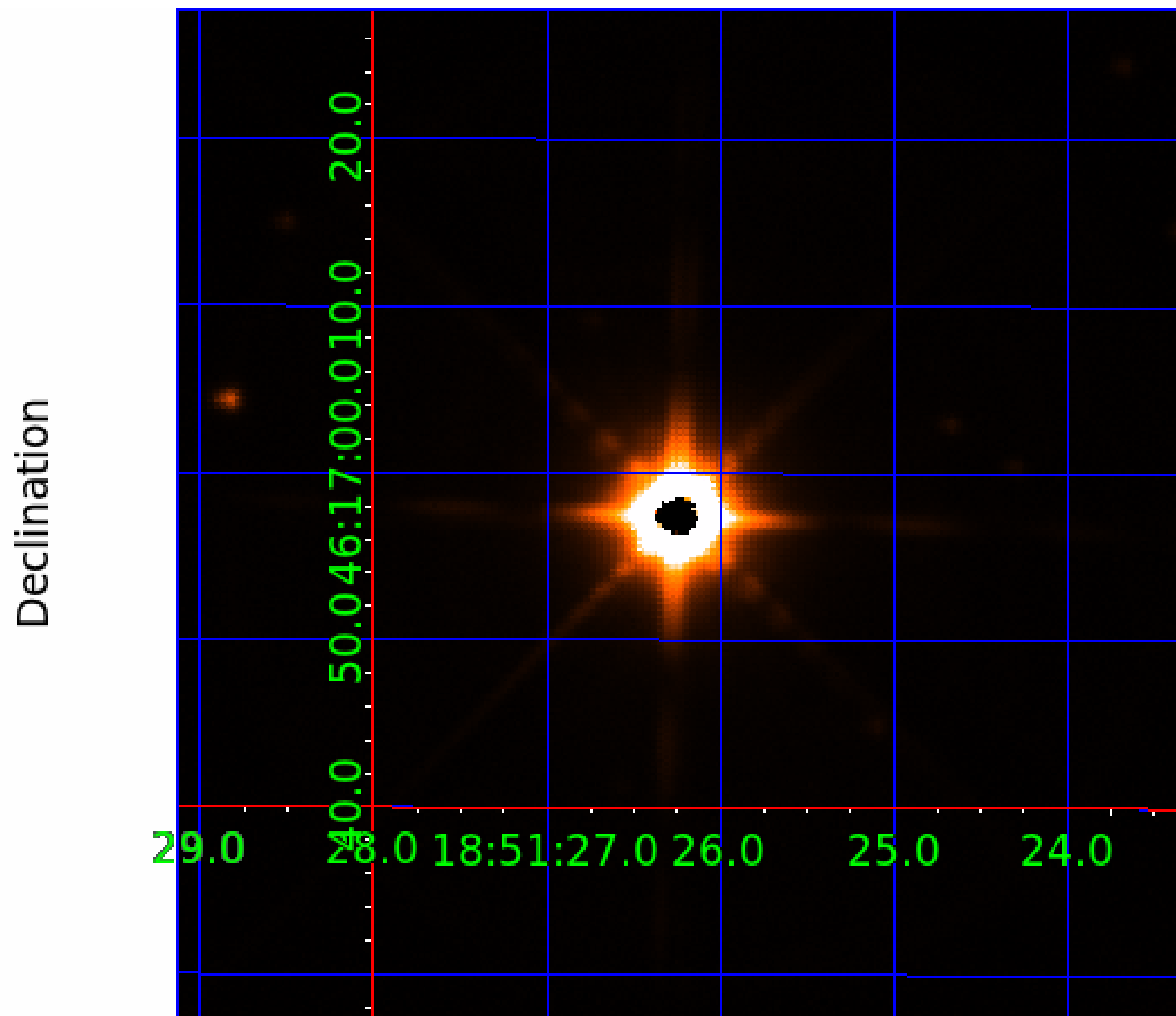
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009570858

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})
009570858-01	OBS	No	317.468477	369.622640	1451.7	4.166	10.4	10.4	155.19	3266	1290.14	2787.80
009570858-02	OBS	No	314.442638	416.219630	2442.7	4.220	20.8	15.1	155.19	3266	1629.80	2823.63
009570858-03	OBS	No	396.881036	389.099857	260.2	6.000	19.5	-1.0	155.19	3266	229.76	2070.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009570858-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQU_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009570858-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009570858-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

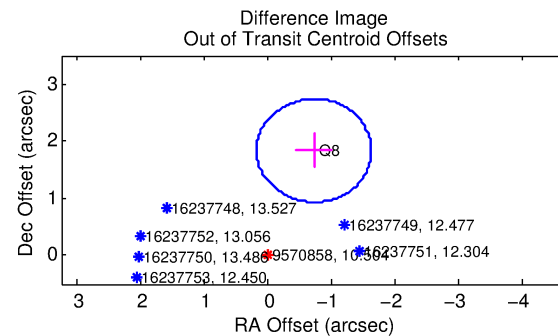
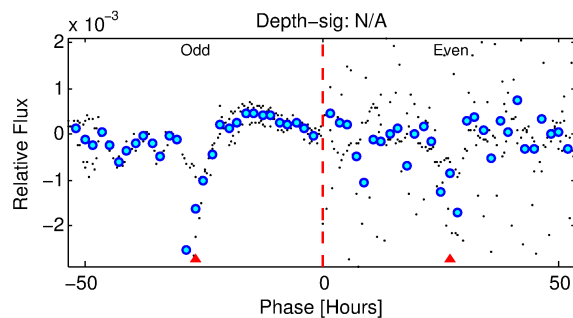
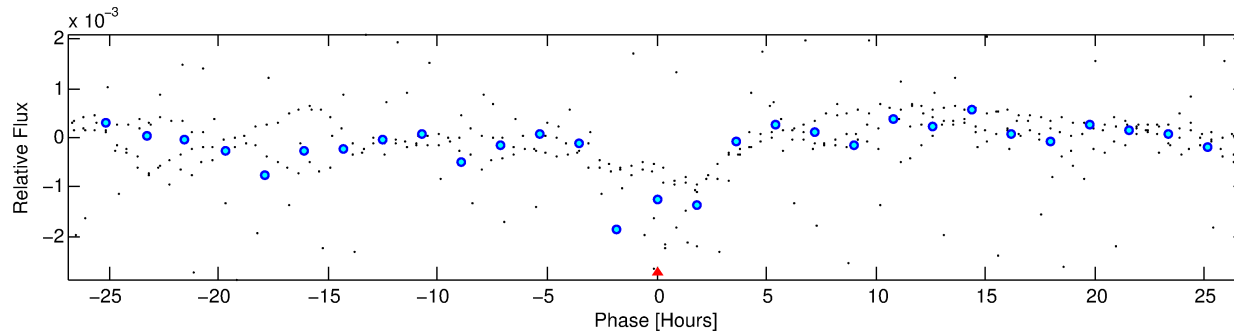
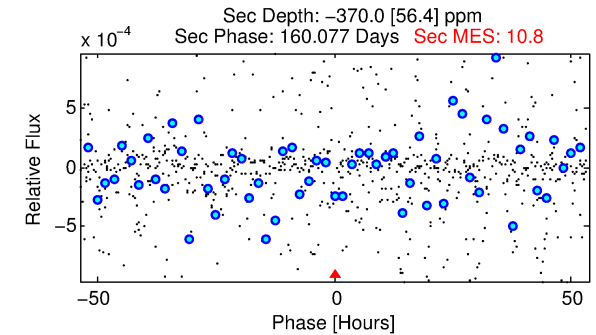
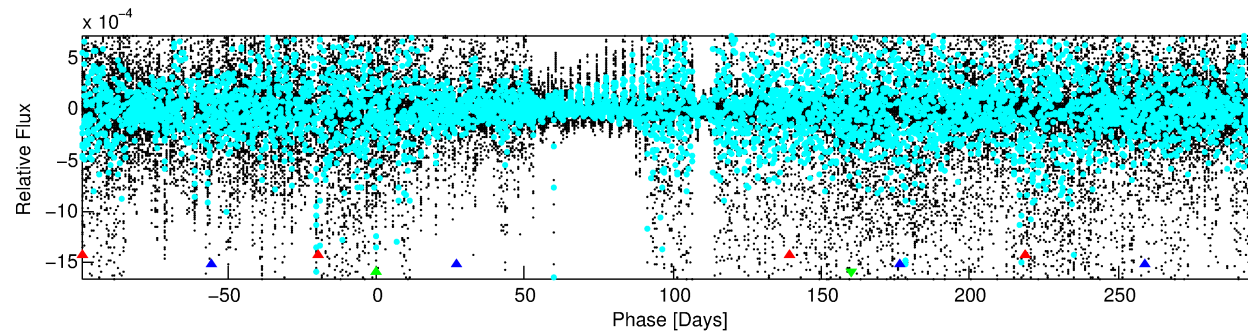
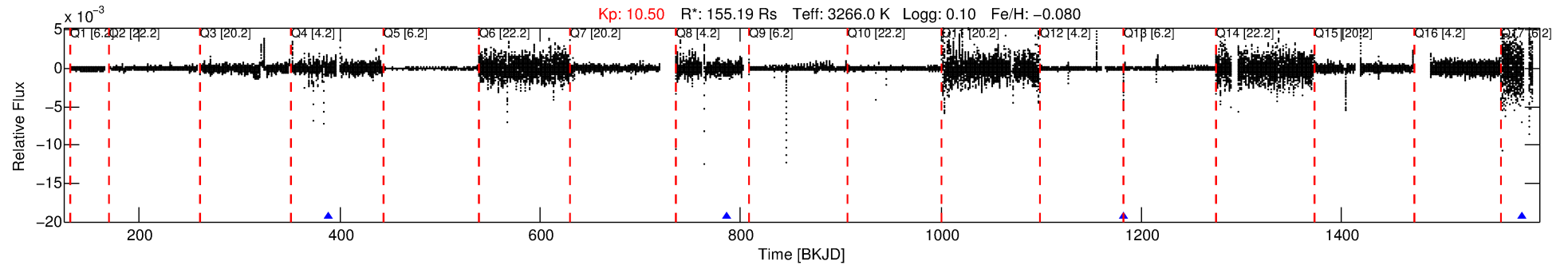
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009570858-03

No Significant Match Found

DV One-Page Summary

KIC: 9570858 Candidate: 3 of 3 Period: 396.881 d



TPS TCE Results:

Period = 396.88104 d
Epoch = 389.0999 BKJD

DV fit results are unavailable

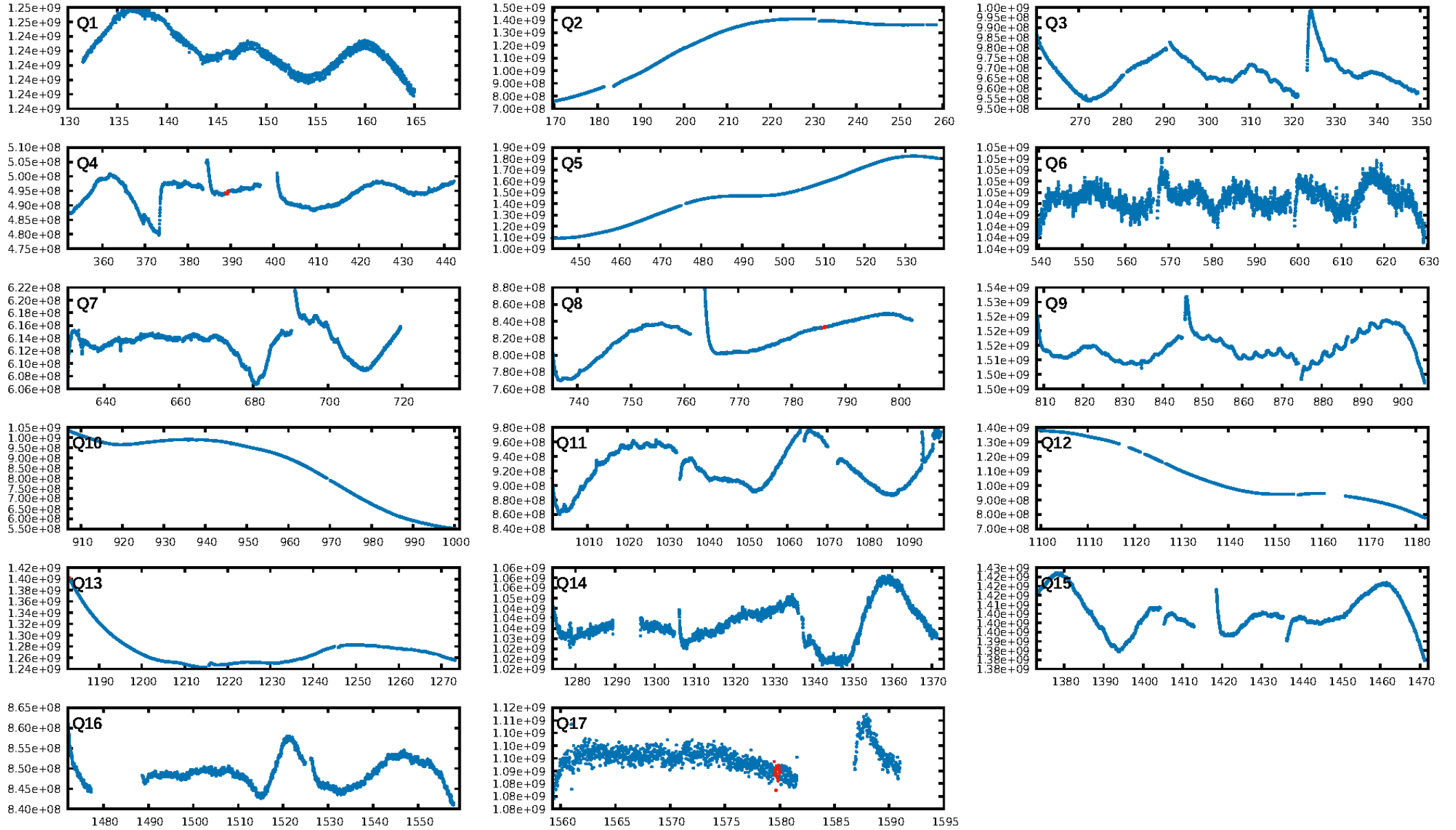
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [260.93 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.207 arcsec [0.67 σ]
OotOffset-rm: 1.975 arcsec [6.56 σ]
KicOffset-rm: 2.255 arcsec [7.45 σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [3/3]

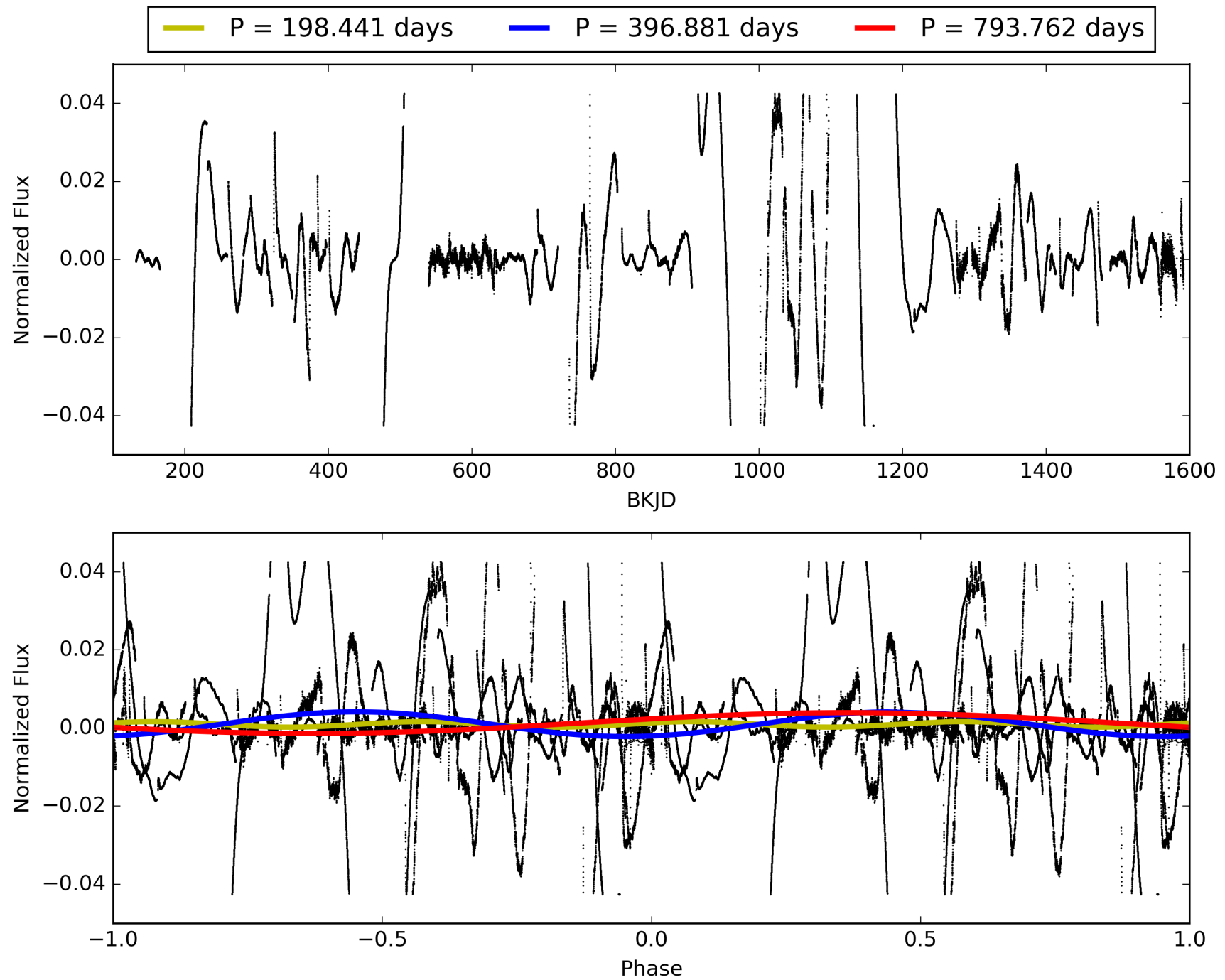
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:53:32 Z

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

TCE 009570858-03, PDC Light Curves

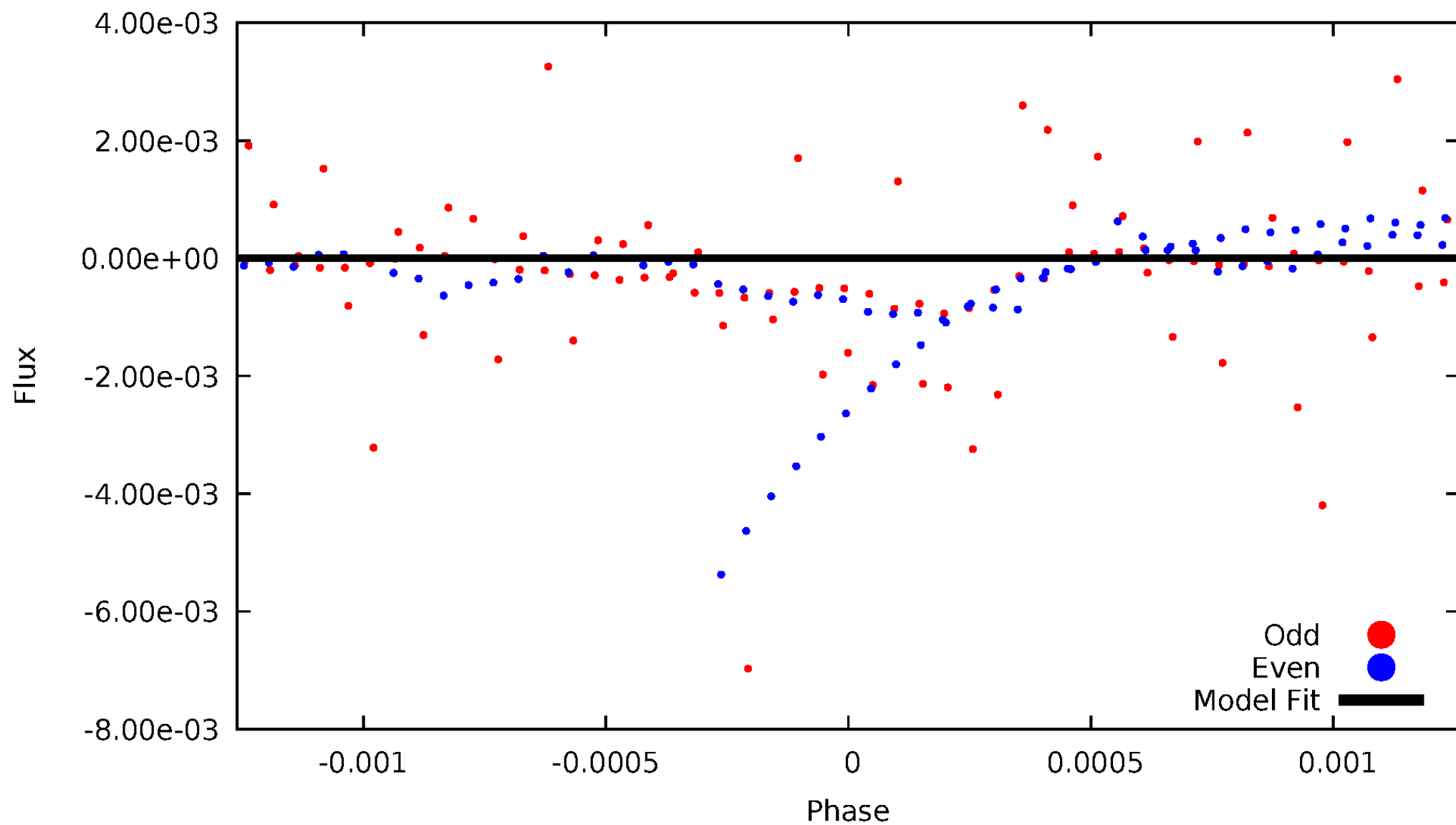


TCE 009570858-03



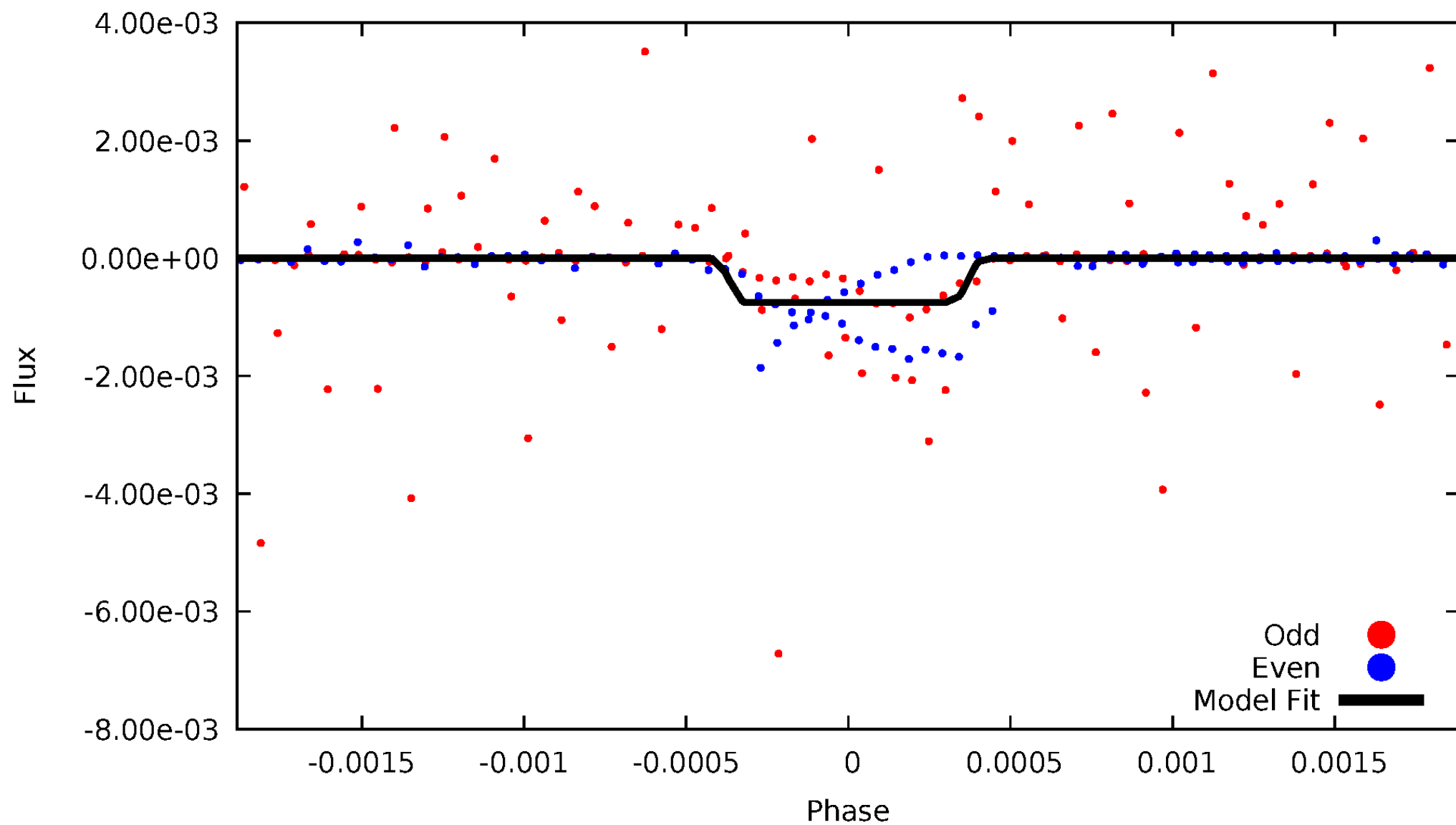
DV Odd/Even

TCE 009570858-03

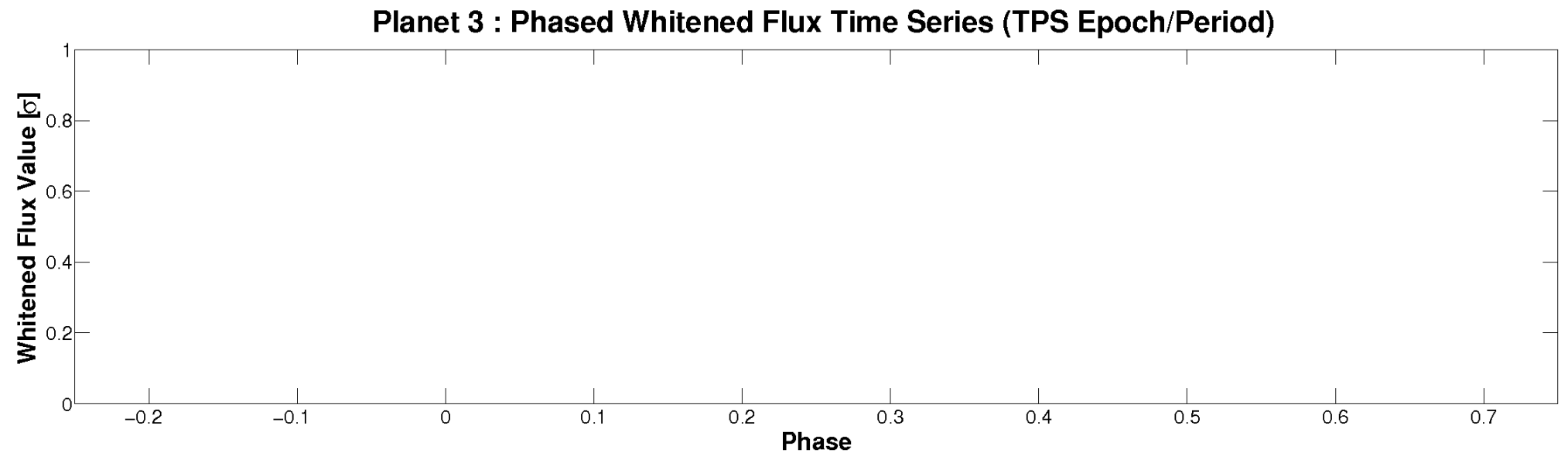
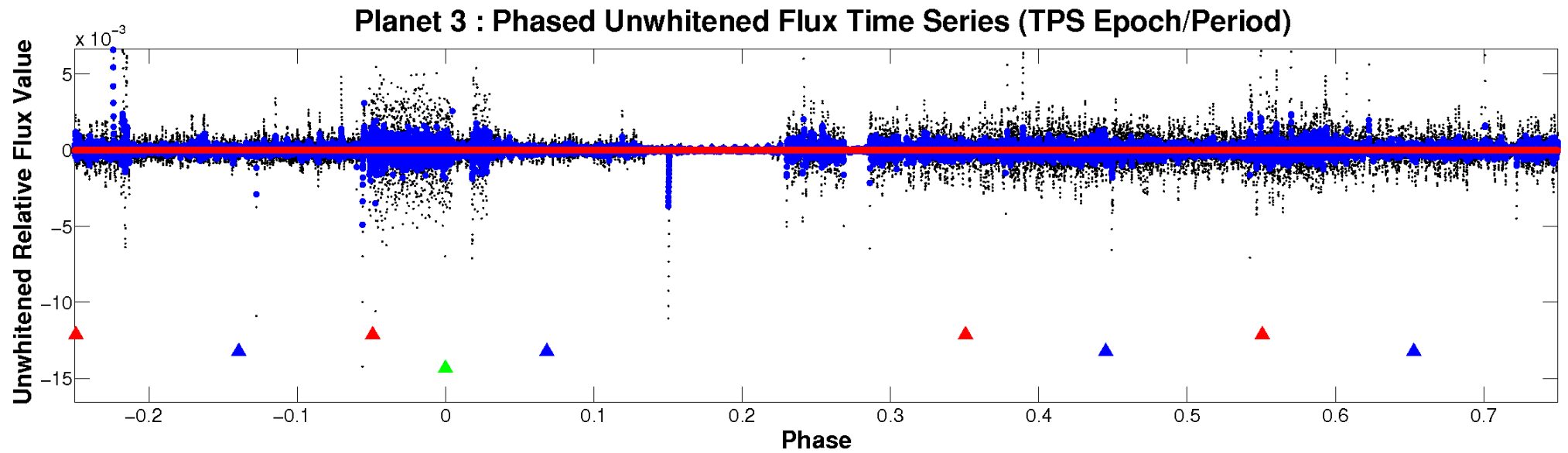


ALT Odd/Even

TCE 009570858-03

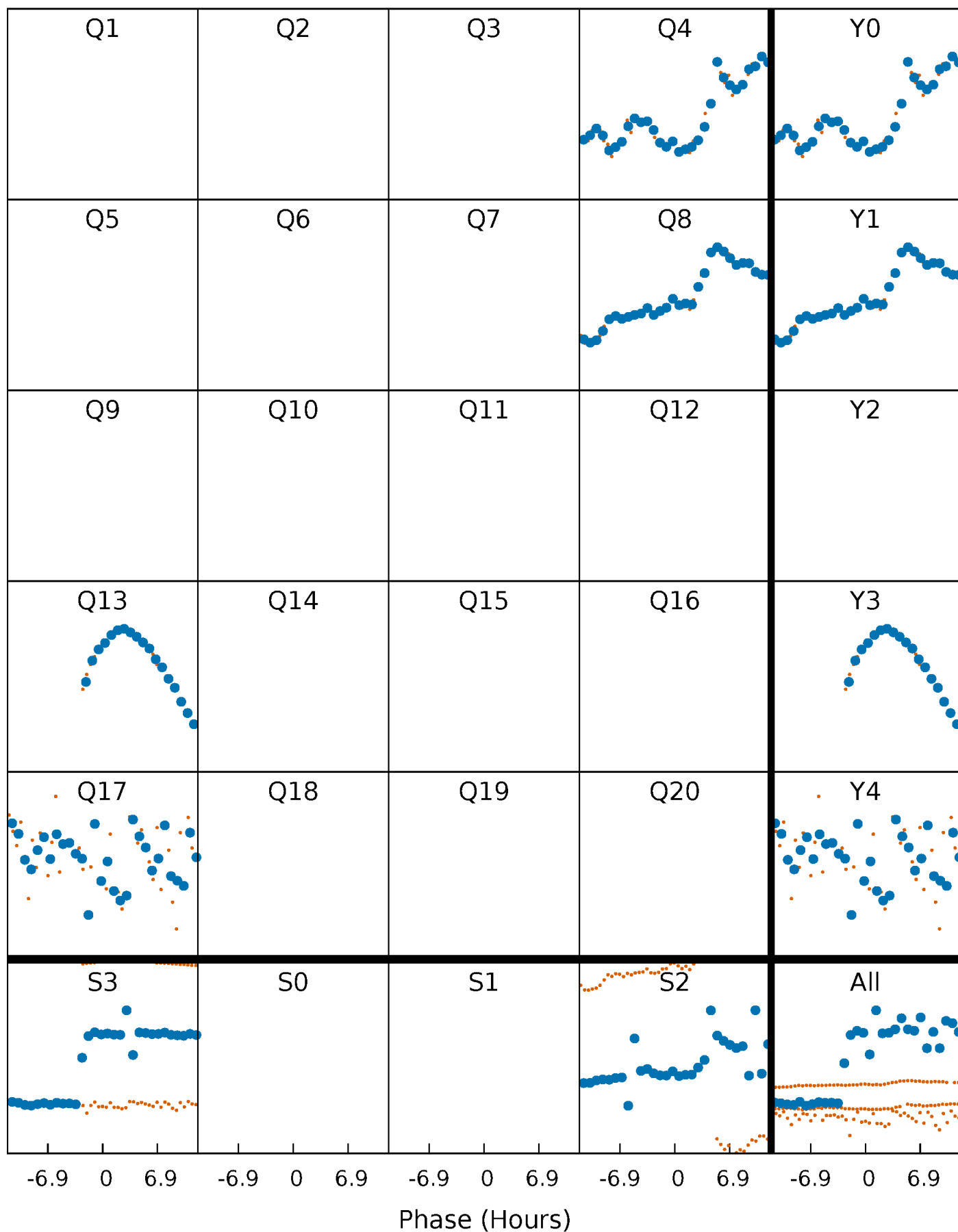


Non-Whitened Vs. Whitened Light Curve



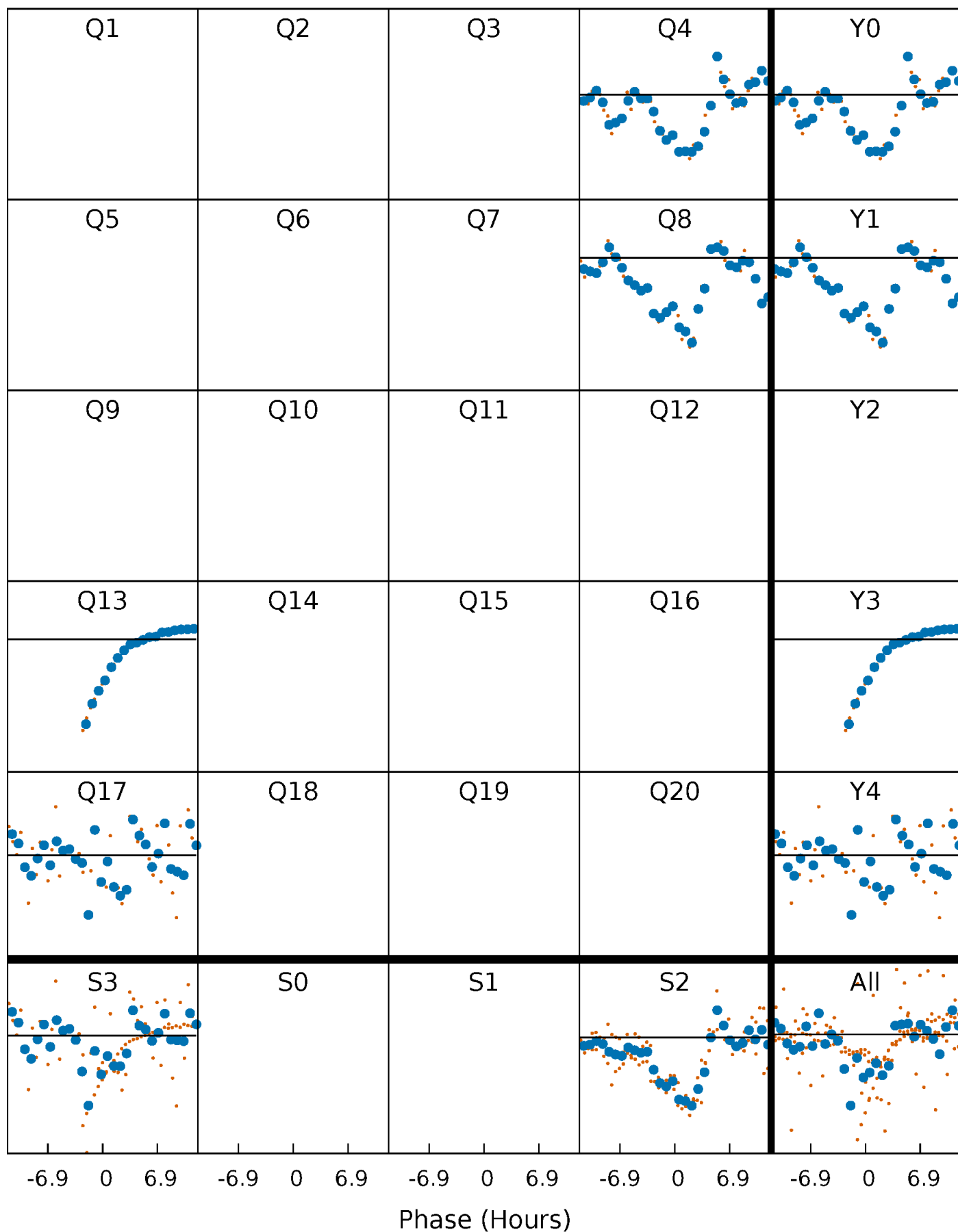
PDC Quarter-Phased Transit Curves

TCE 009570858-03 P=396.881036 Days $T_0=389.099857$ (BKJD)



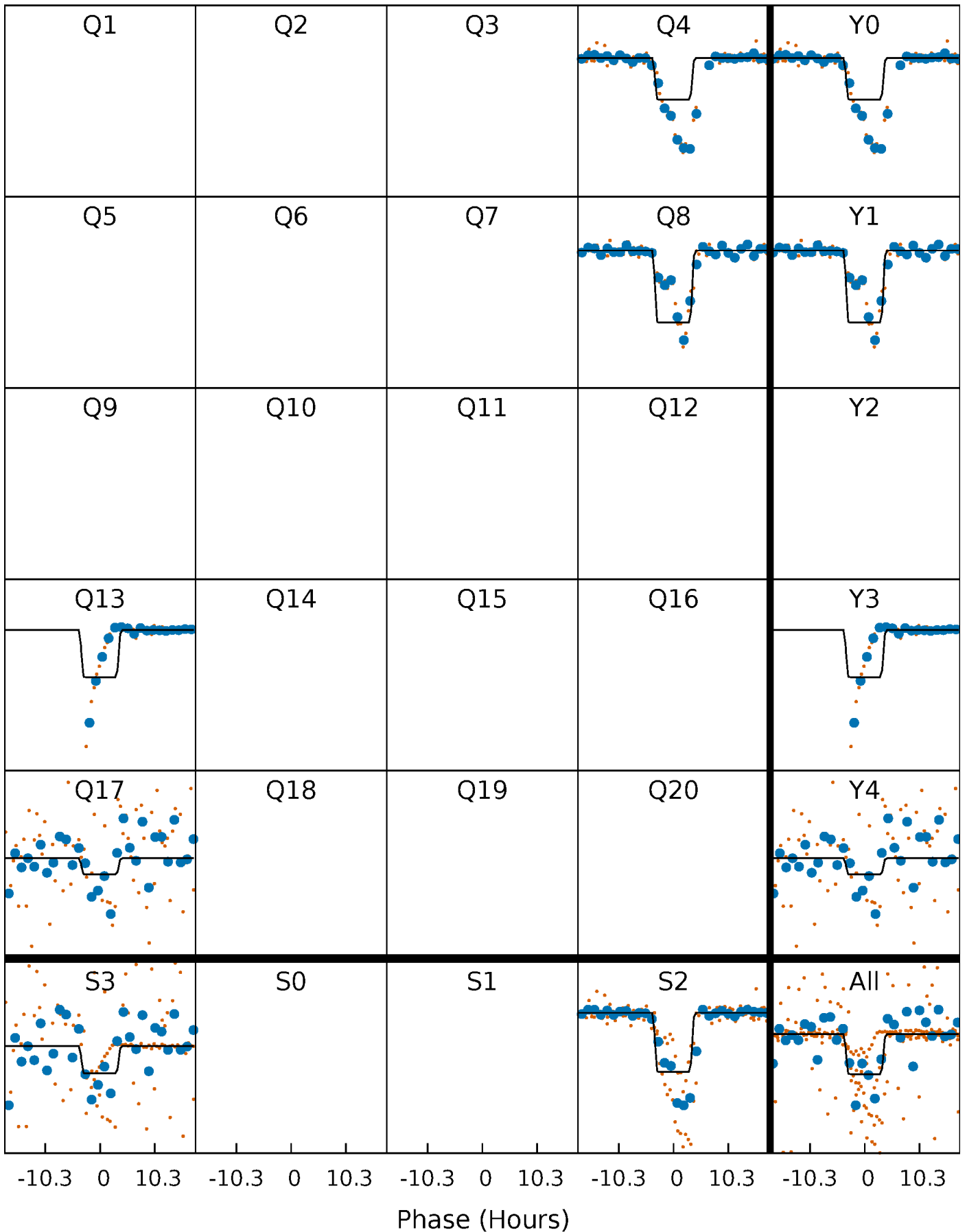
DV Quarter-Phased Transit Curves

TCE 009570858-03 $P=396.881036$ Days $T_0=389.099857$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

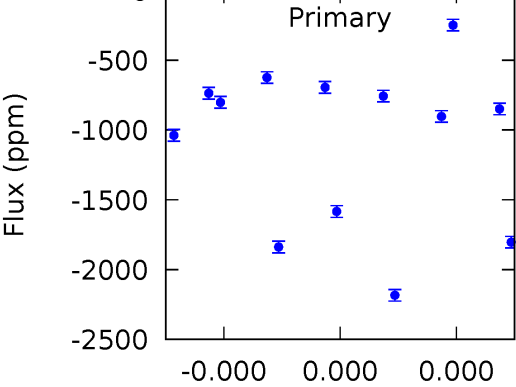
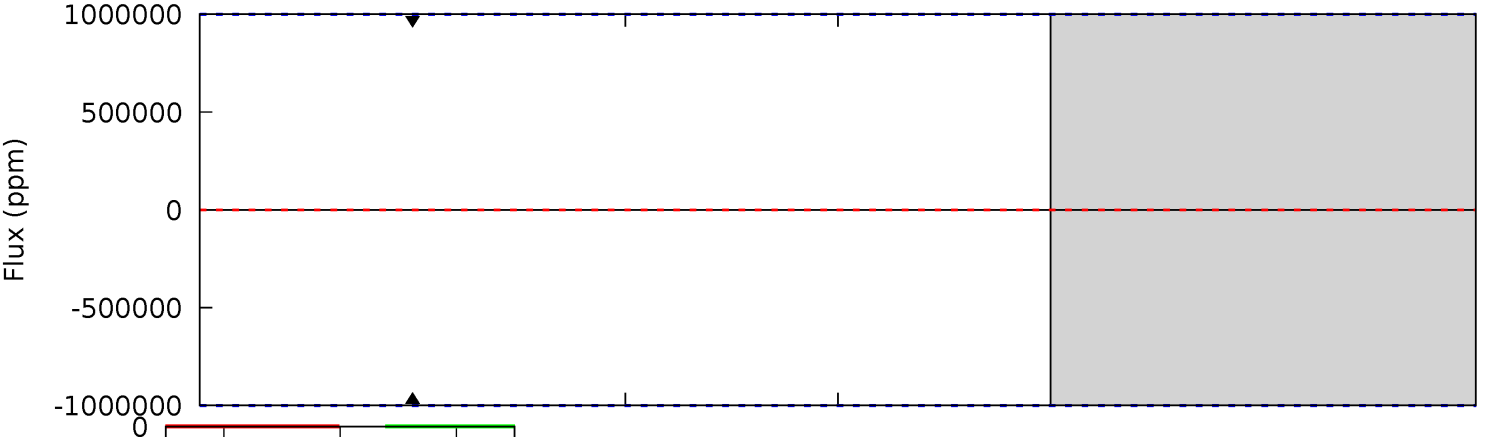
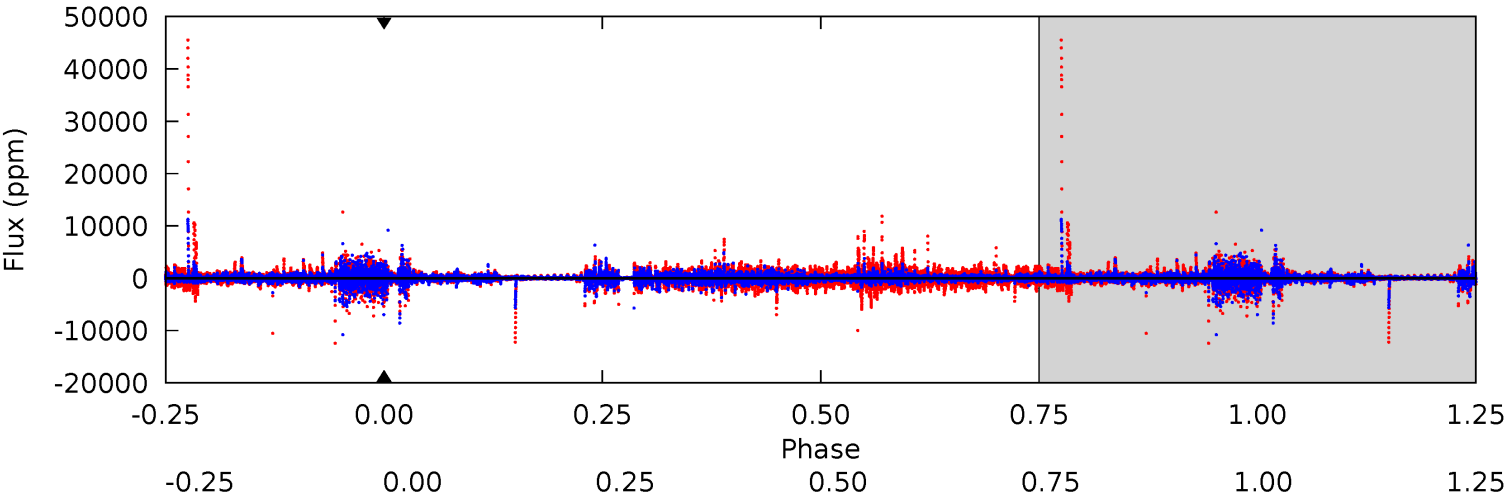
TCE 009570858-03 P=396.881036 Days $T_0=389.103219$ (BKJD)



DV Model-Shift Uniqueness Test

009570858-03, P = 396.881036 Days, E = 389.099857 Days

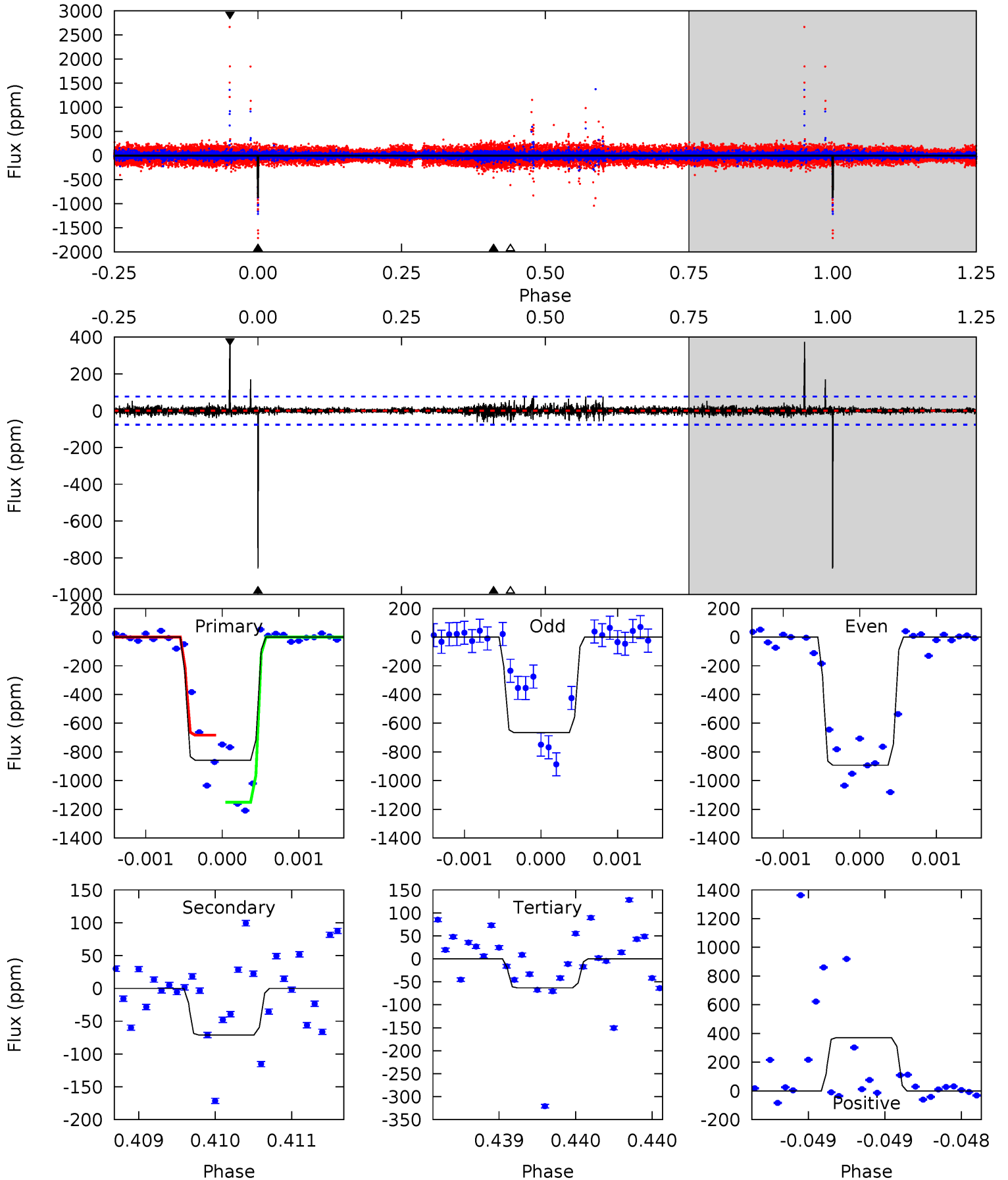
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009570858-03, P = 396.881036 Days, E = 389.103219 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
61.6	5.09	4.52	26.6	5.49	3.36	0.93	57.1	35.0	0.56	-21.5	5.37	0.99	0.30	0



Stellar Parameters For KIC 009570858

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	3266^{+117}_{-78}	$0.095^{+0.208}_{-0.065}$	$-0.080^{+0.250}_{-0.100}$	$155.187^{+9.192}_{-25.737}$	$1.095^{+0.206}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+219%/-68%	+312%/-125%	+6%/-17%	+19%/-11%	+86%/-14%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009570858-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$1267.30^{+1284.90}_{-885.70}$	2376^{+110}_{-124}	-2978^{+9276}_{-3113}	$-1.107^{+75.229}_{-60.168}$
Alt.	-71 ± 14	$1330.21^{+1244.36}_{-961.02}$	2371^{+109}_{-128}	-2405^{+4445}_{-104}	$0.028^{+0.319}_{-0.022}$

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

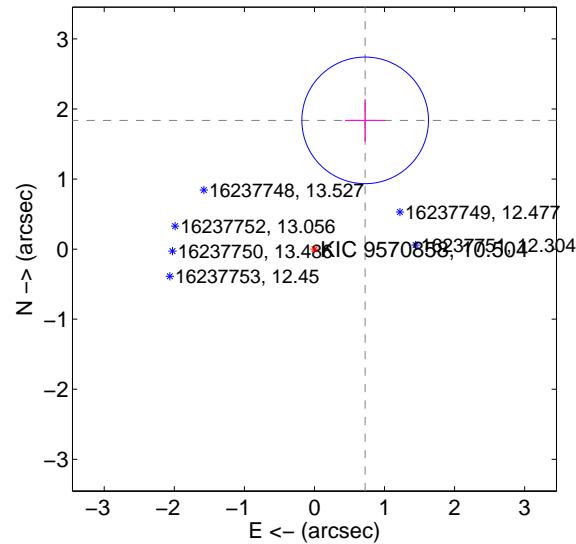
Supplemental centroid analysis for 009570858-03. **Kepler magnitude: 10.50.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

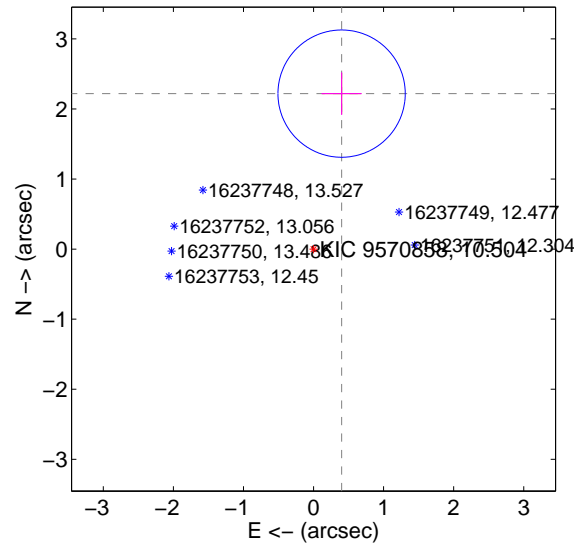
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.975 ± 0.301	6.56	-0.724 ± 0.287	1.838 ± 0.303
PRF-fit source offset from KIC position	2.255 ± 0.303	7.45	-0.401 ± 0.287	2.219 ± 0.303
photometric centroid source offset	0.21 ± 0.31	0.67	0.20 ± 0.31	0.05 ± 0.27

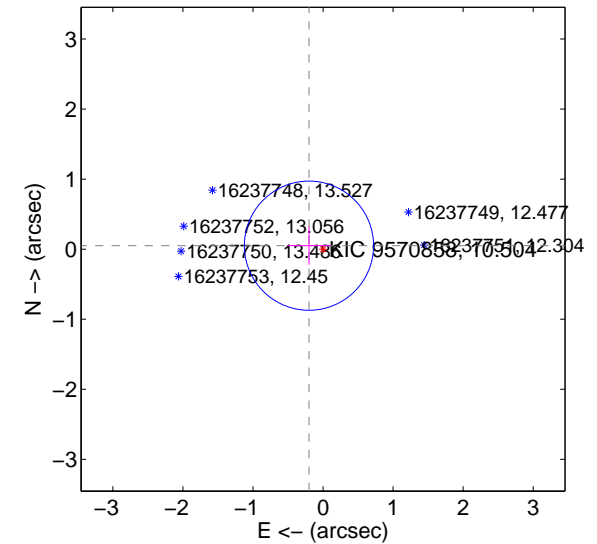
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



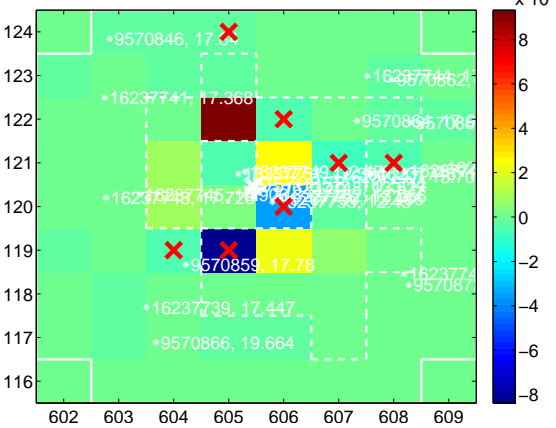
Q3 no difference image



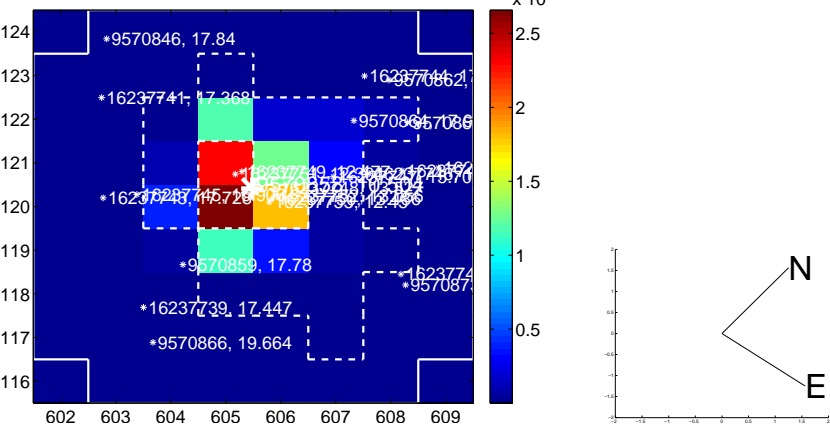
Q3 no OOT image



Q4 difference image. Poor Quality



Q4 OOT image



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



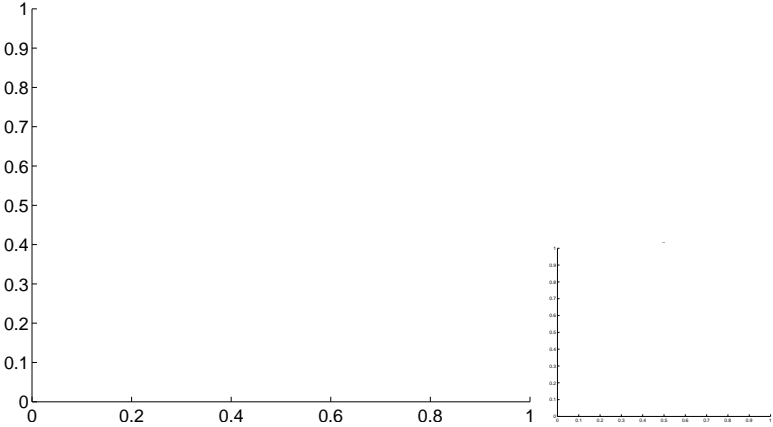
Q6 no OOT image



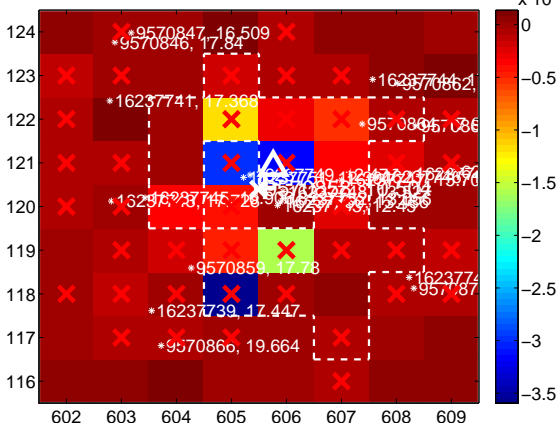
Q7 no difference image



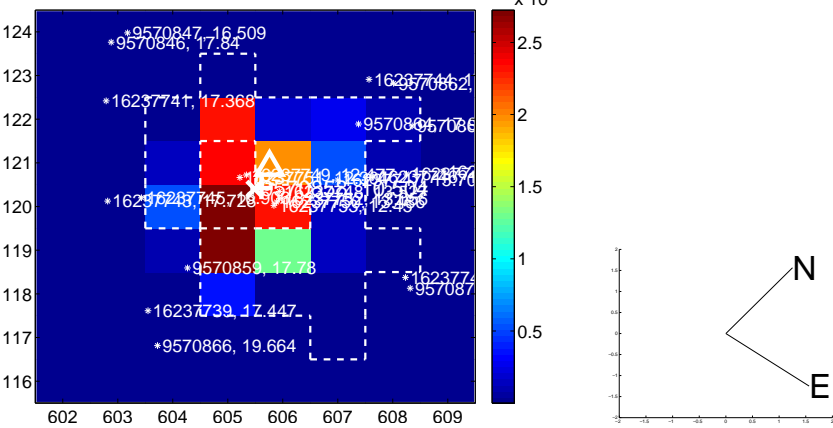
Q7 no OOT image



Q8 difference image. Poor Quality



Q8 OOT image



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



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



UKIRT Image

