

KIC 009597882

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})
009597882-01	OBS	No	1.293648	132.319867	30.6	4.896	8.2	7.0	0.78	5330	0.51	951.15
009597882-05	OBS	No	117.821423	237.234144	341.8	13.259	9.4	5.6	0.78	5330	1.53	2.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009597882-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST
009597882-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

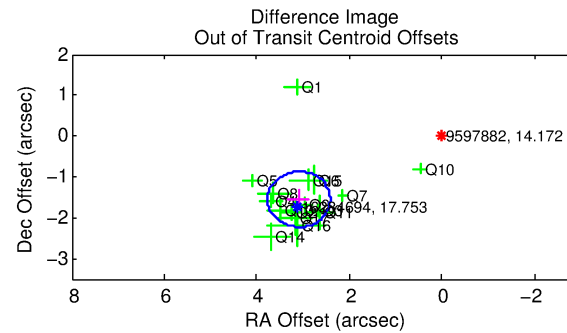
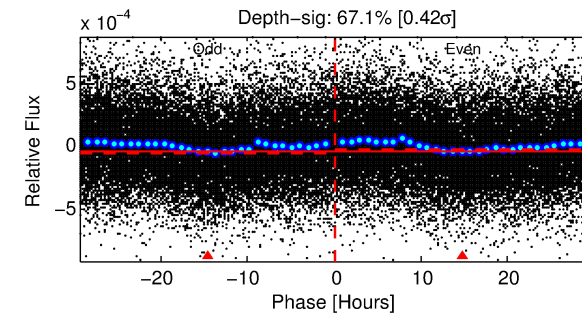
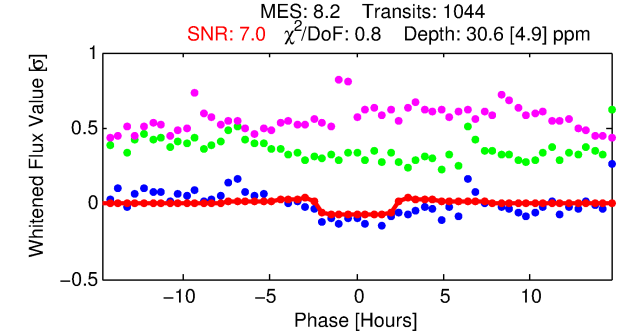
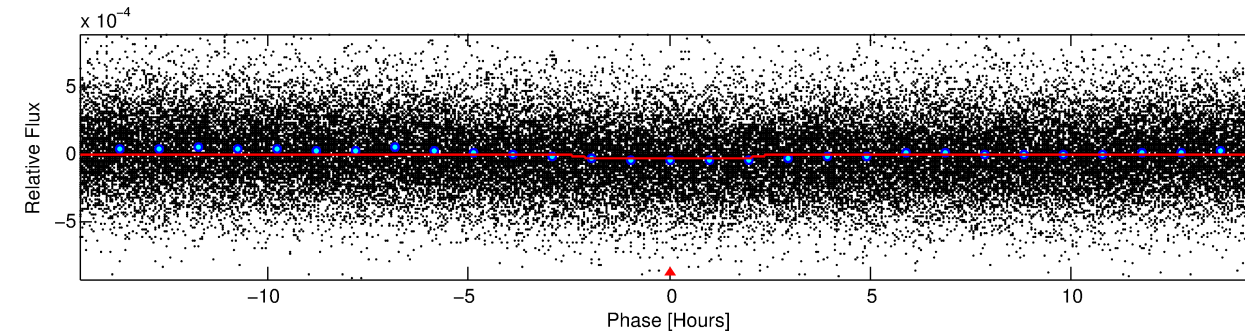
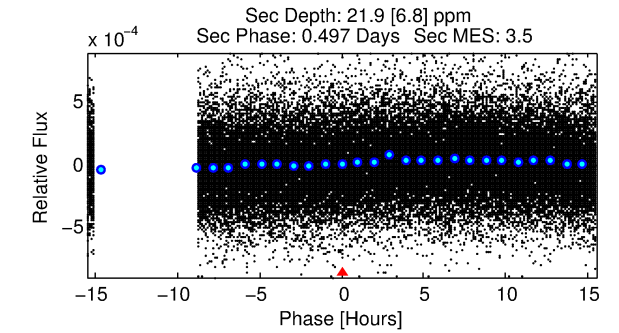
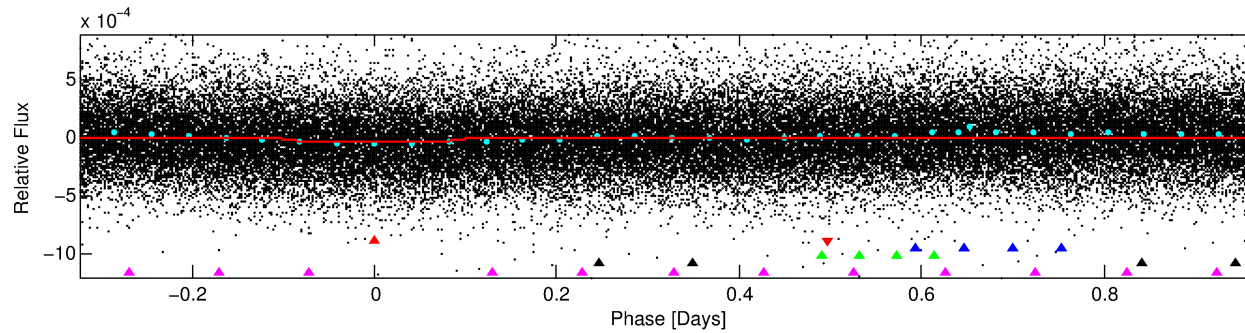
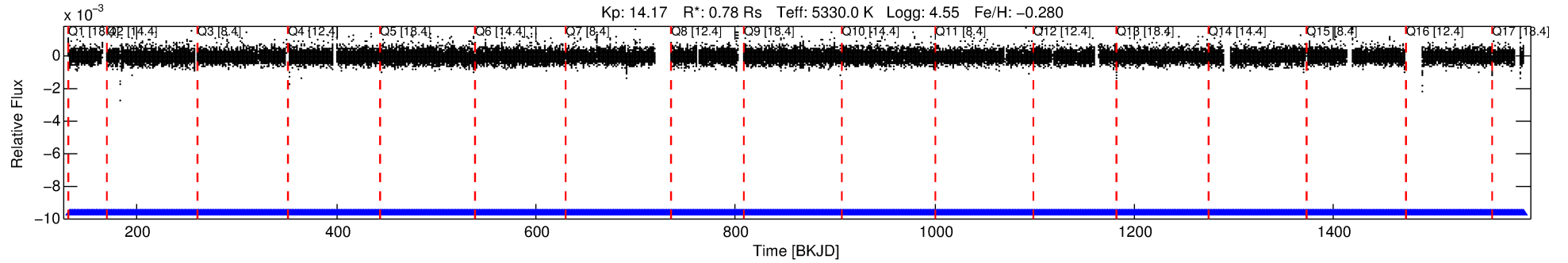
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009597882-01

No Significant Match Found

DV One-Page Summary

KIC: 9597882 Candidate: 1 of 5 Period: 1.294 d



DV Fit Results:

Period = 1.29365 [0.00002] d
Epoch = 132.3199 [0.0052] BKJD
Rp/R* = 0.0061 [0.0032]
a/R* = 1.31 [1.29]
b = 0.90 [0.51]
Seff = 951.15 [189.11]
Teq = 1416 [70] K
Rp = 0.51 [0.28] Re
a = 0.0214 [0.0025] AU
Ag = 20.80 [23.33] [0.85σ]
Teffp = 4676 [1305] K [2.49σ]

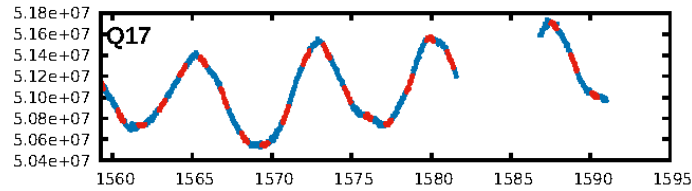
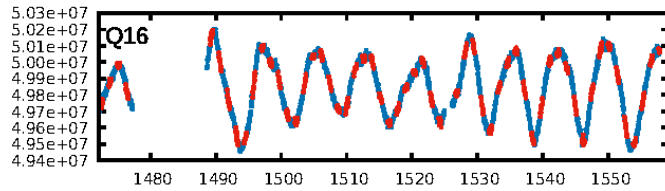
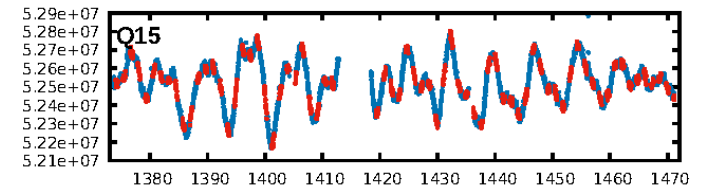
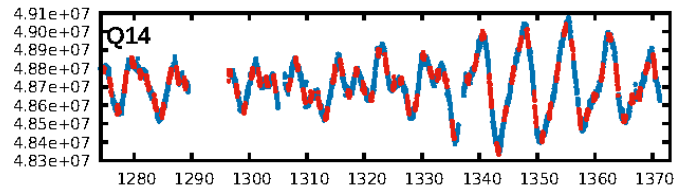
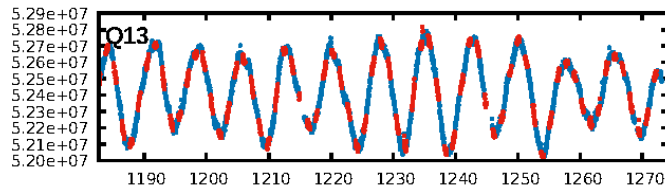
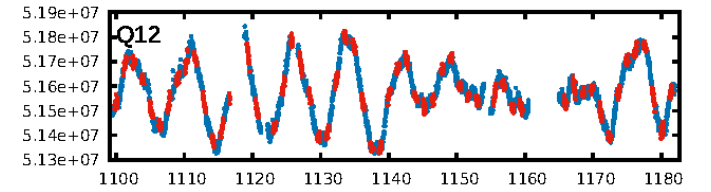
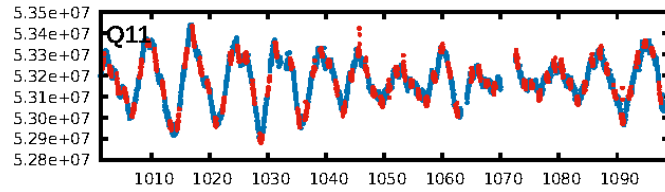
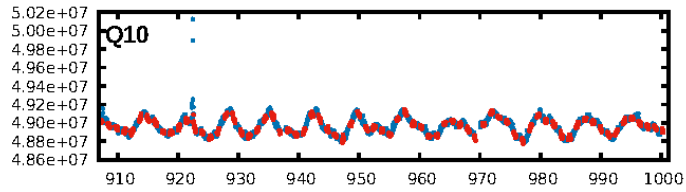
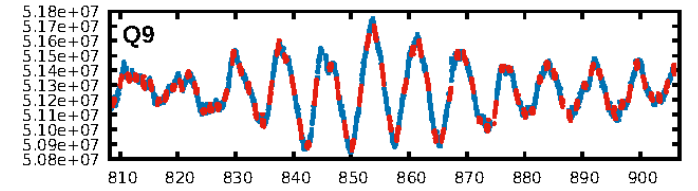
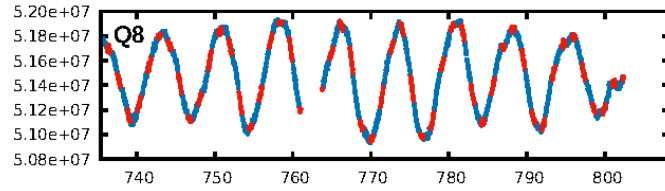
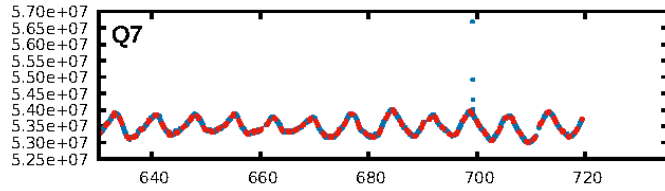
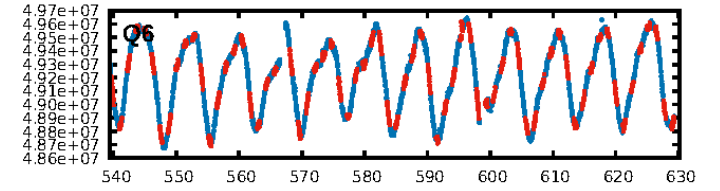
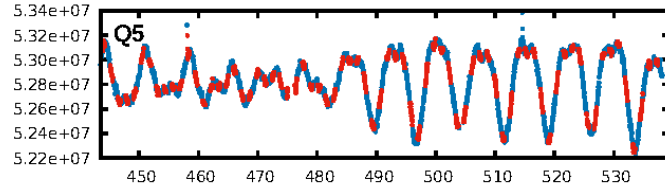
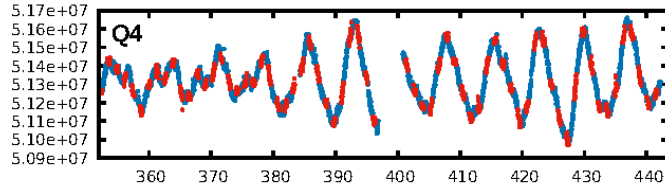
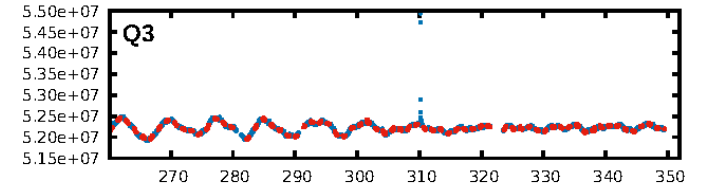
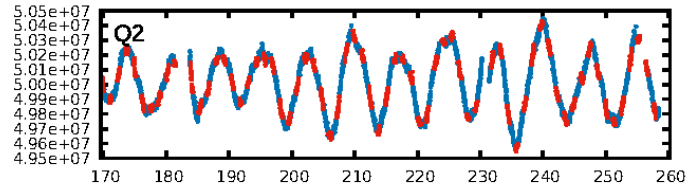
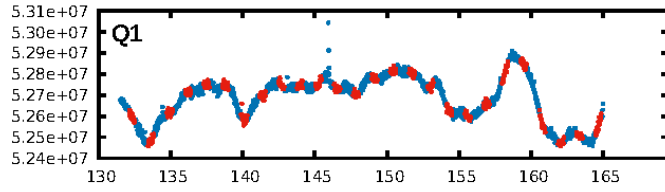
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [197.87σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.15e-14
RollingBand-fgt: 1.00 [997/997]
GhostDiagnostic-chr: 0.1222
Centroid-sig: 0.0%
Centroid-so: 2.794 arcsec [2.71σ]
OotOffset-rm: 3.462 arcsec [15.30σ]
KicOffset-rm: 3.569 arcsec [15.88σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 1.00 [17/17]

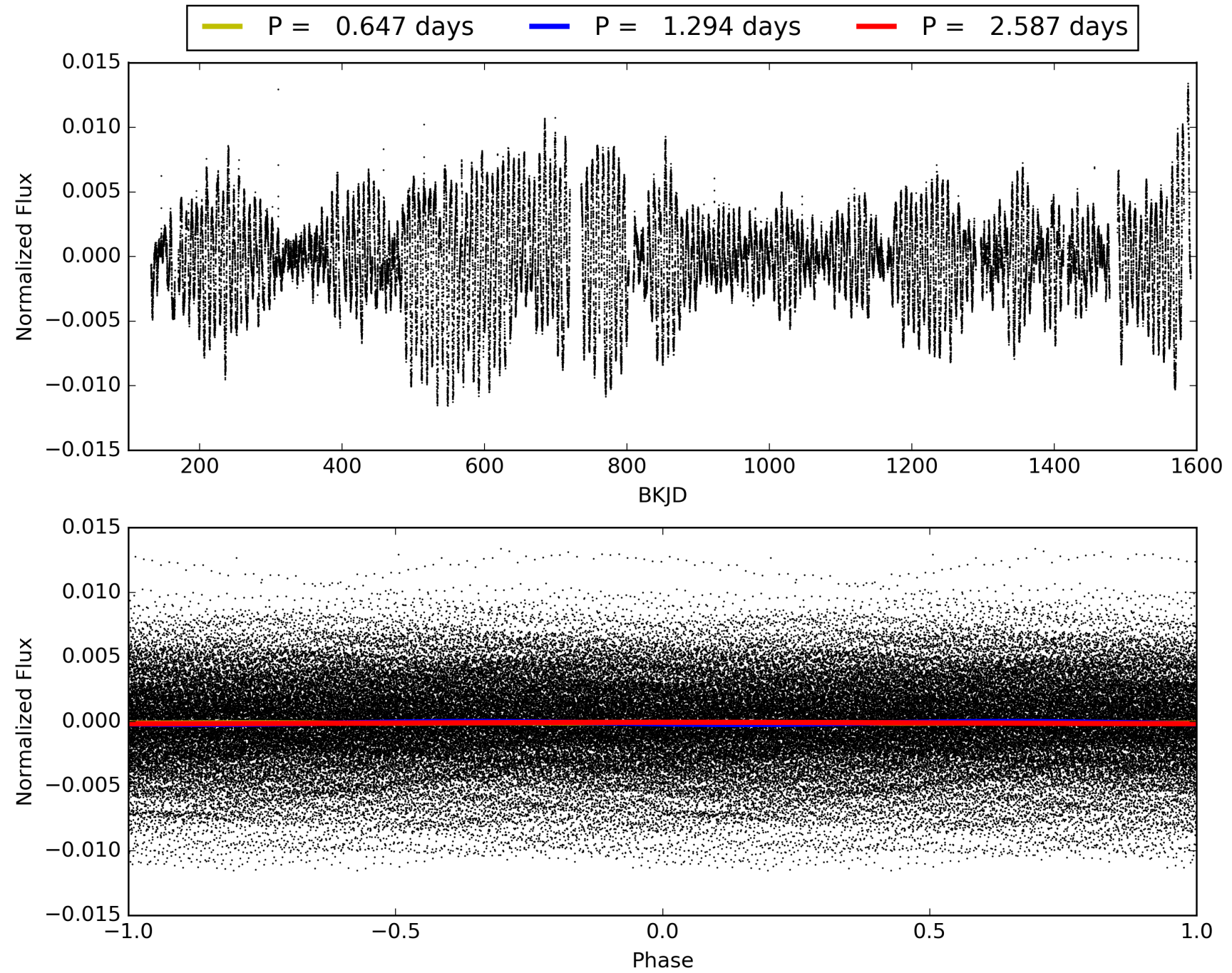
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009597882-01, PDC Light Curves

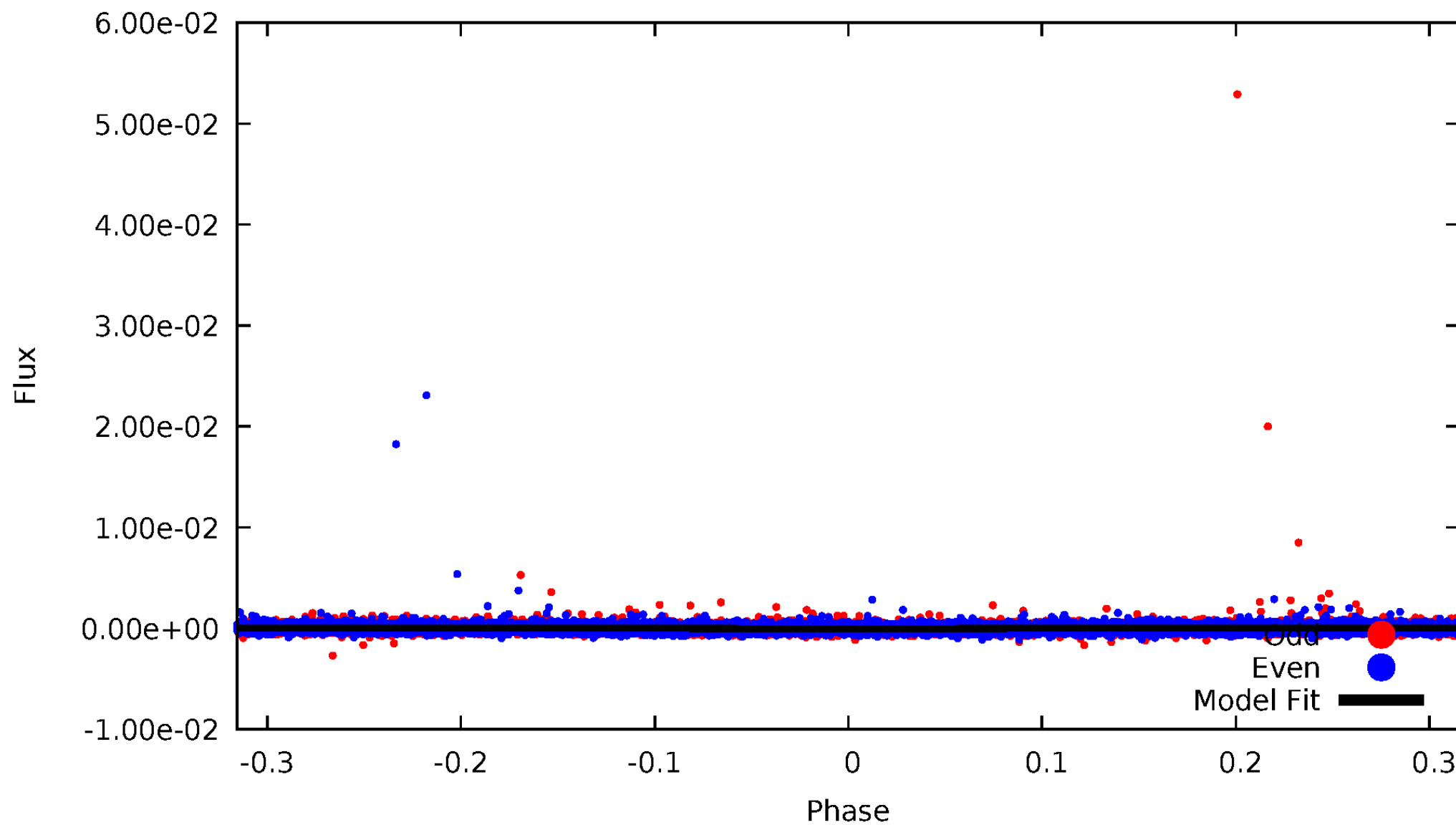


TCE 009597882-01



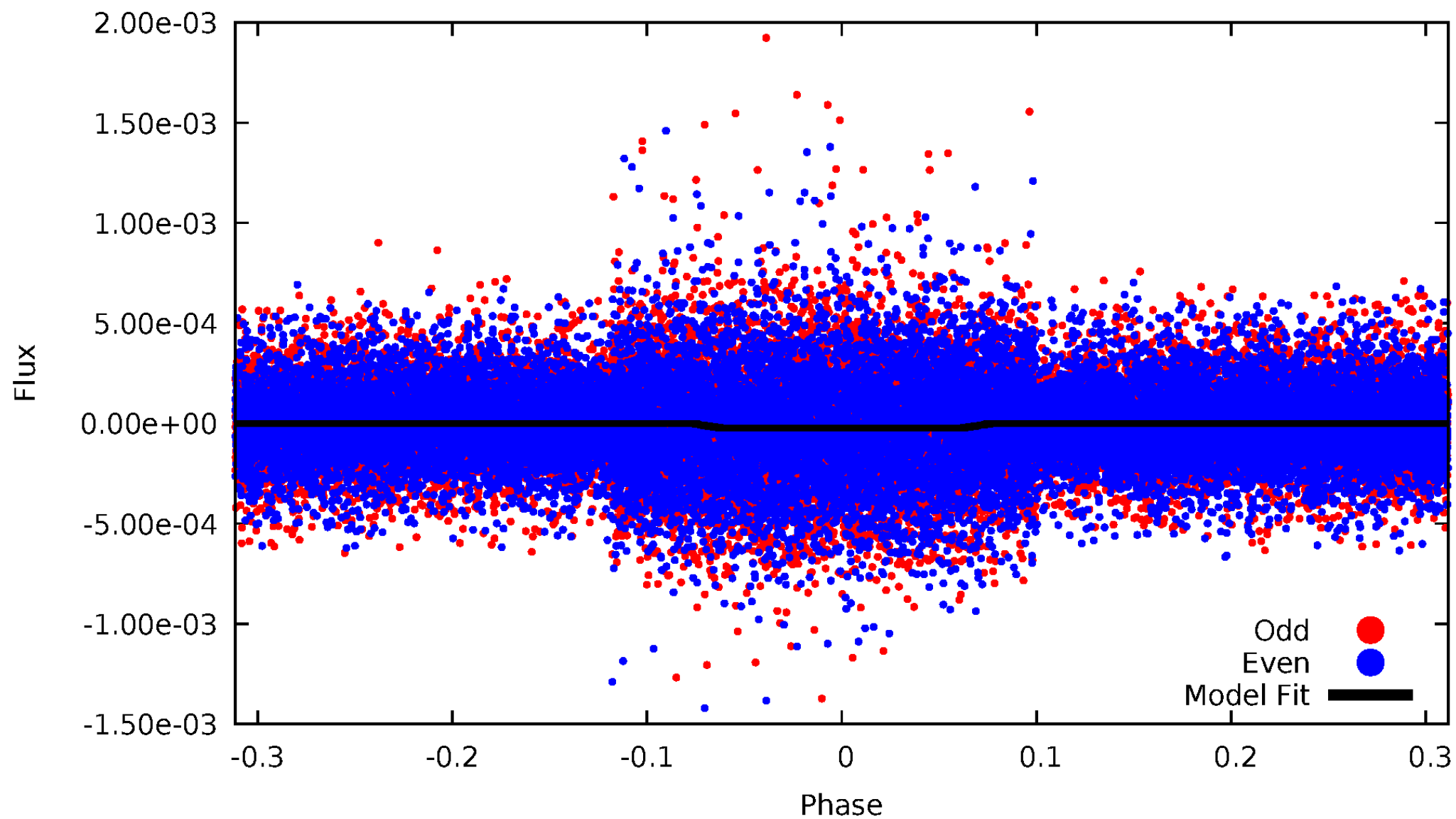
DV Odd/Even

TCE 009597882-01

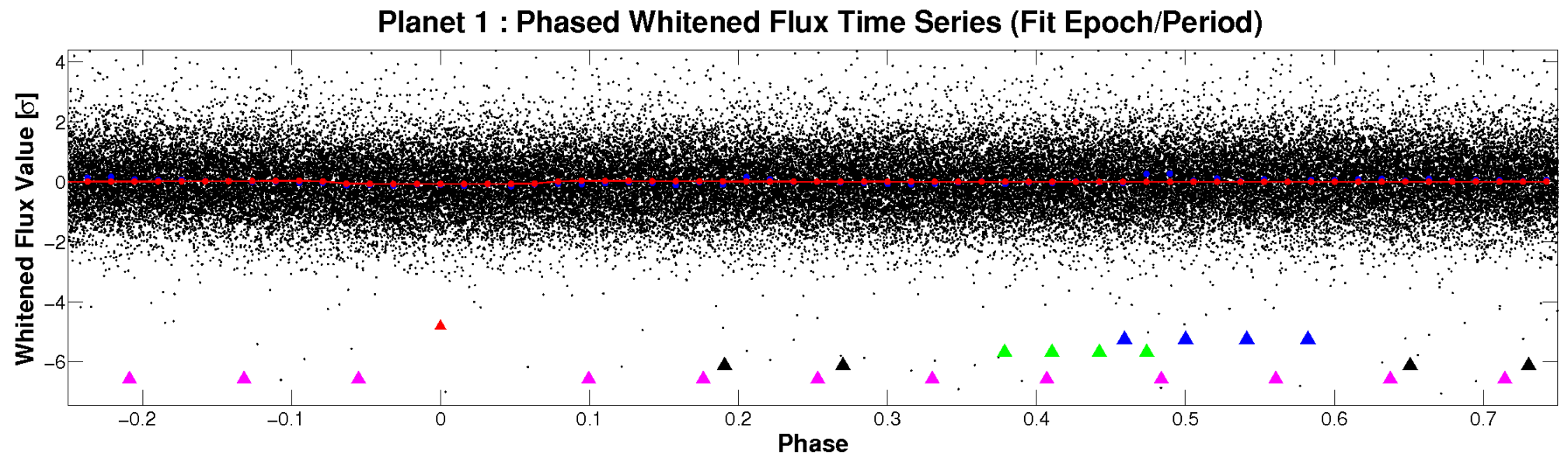
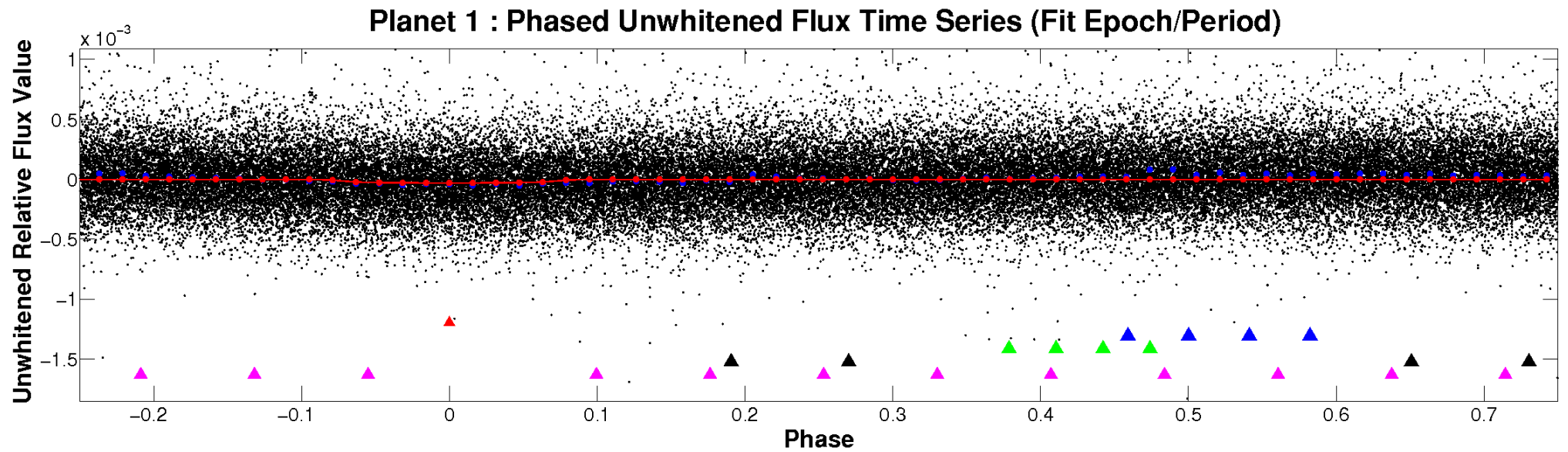


ALT Odd/Even

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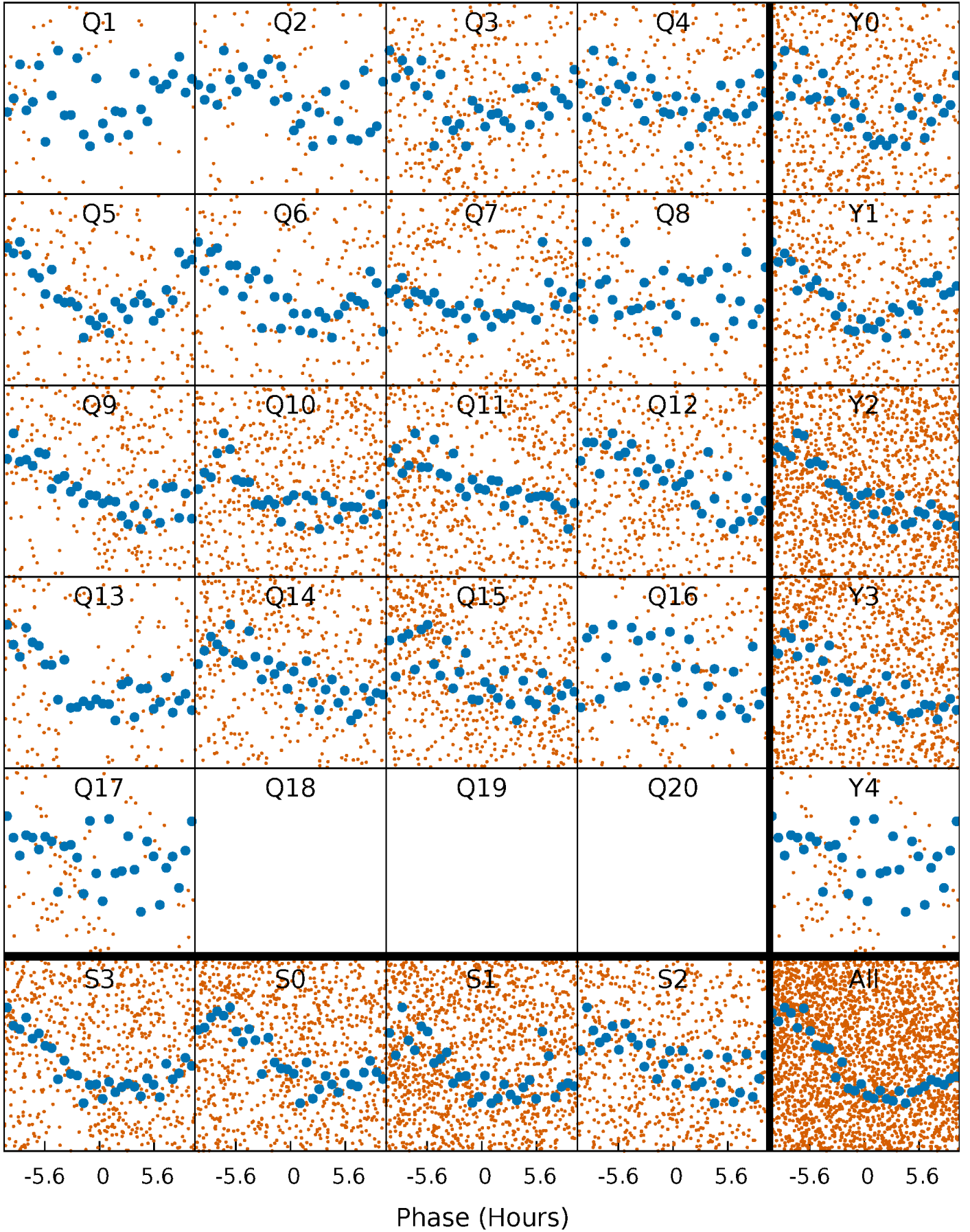


Non-Whitened Vs. Whitened Light Curve



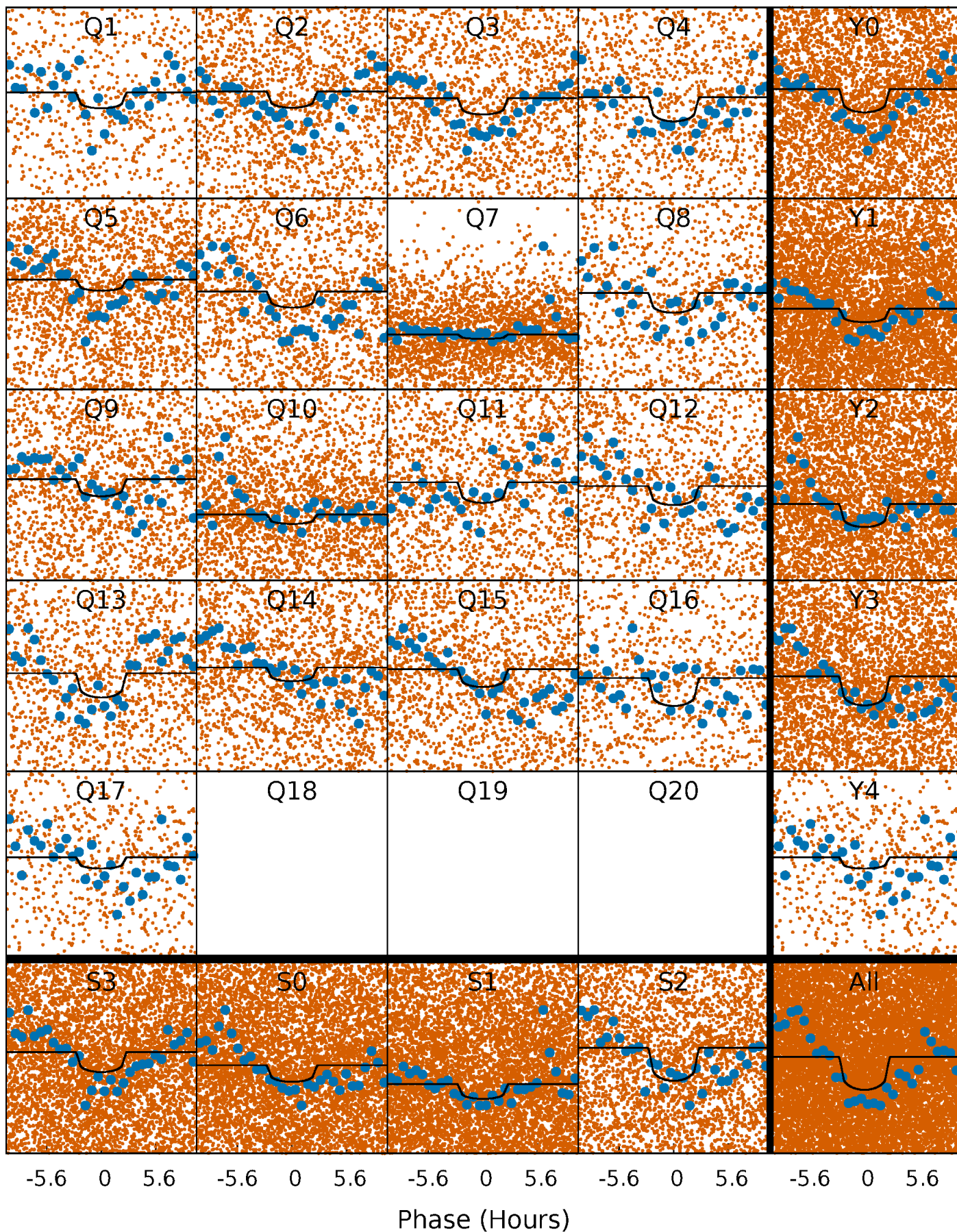
PDC Quarter-Phased Transit Curves

TCE 009597882-01 P= 1.293648 Days $T_0=132.319867$ (BKJD)



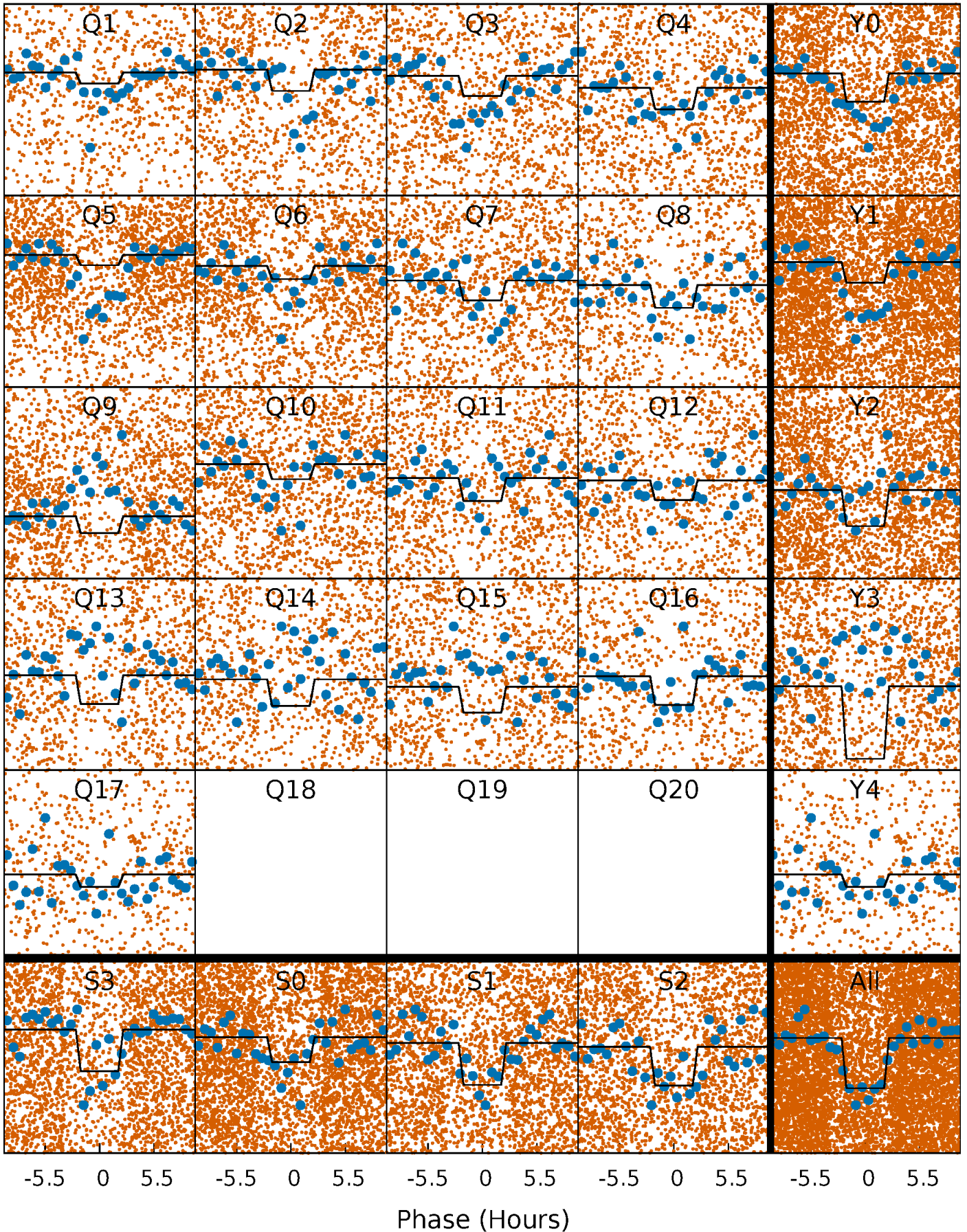
DV Quarter-Phased Transit Curves

TCE 009597882-01 P= 1.293648 Days $T_0=132.319867$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

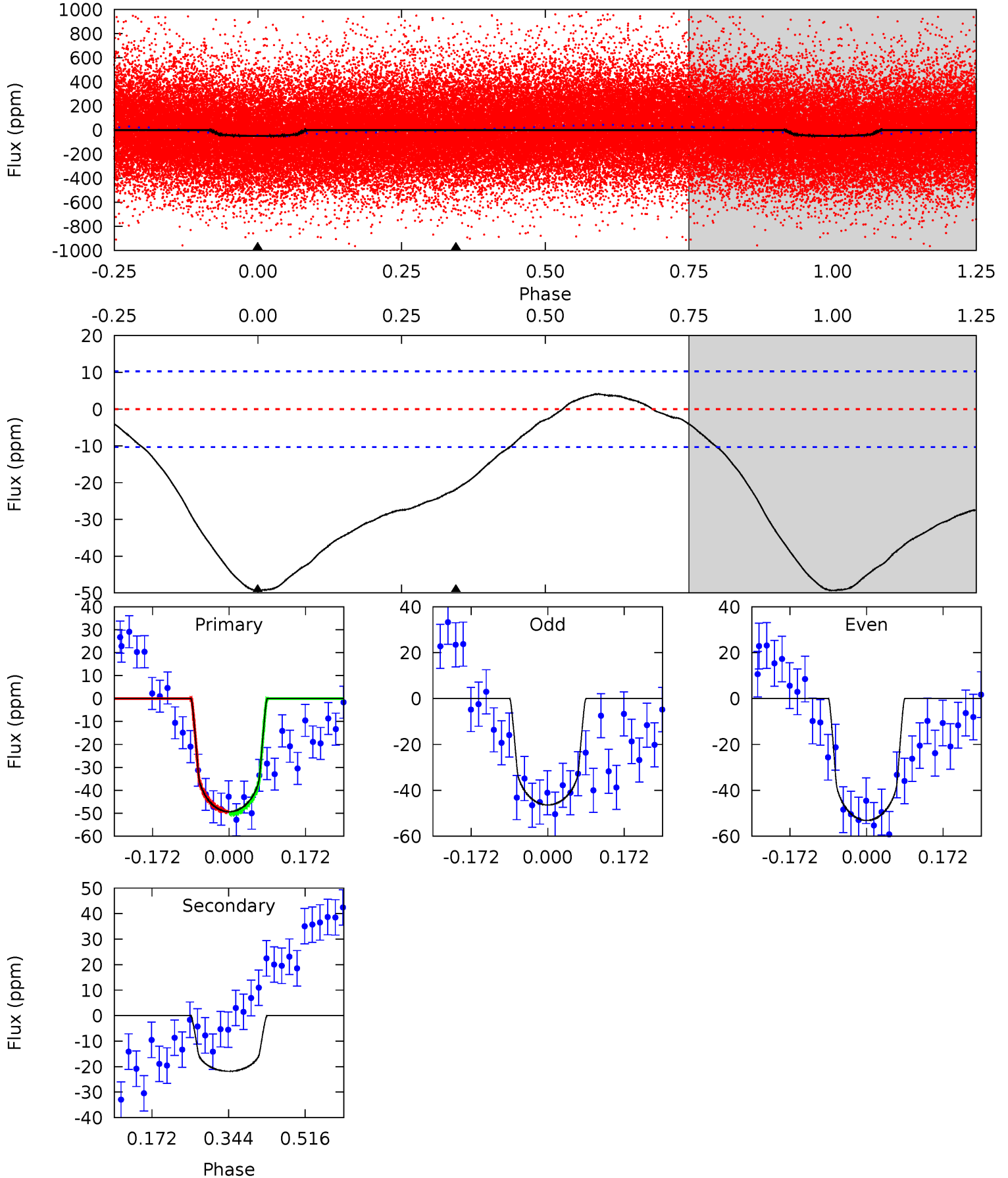
TCE 009597882-01 P= 1.293636 Days $T_0=132.320722$ (BKJD)



DV Model-Shift Uniqueness Test

009597882-01, P = 1.293648 Days, E = 131.026219 Days

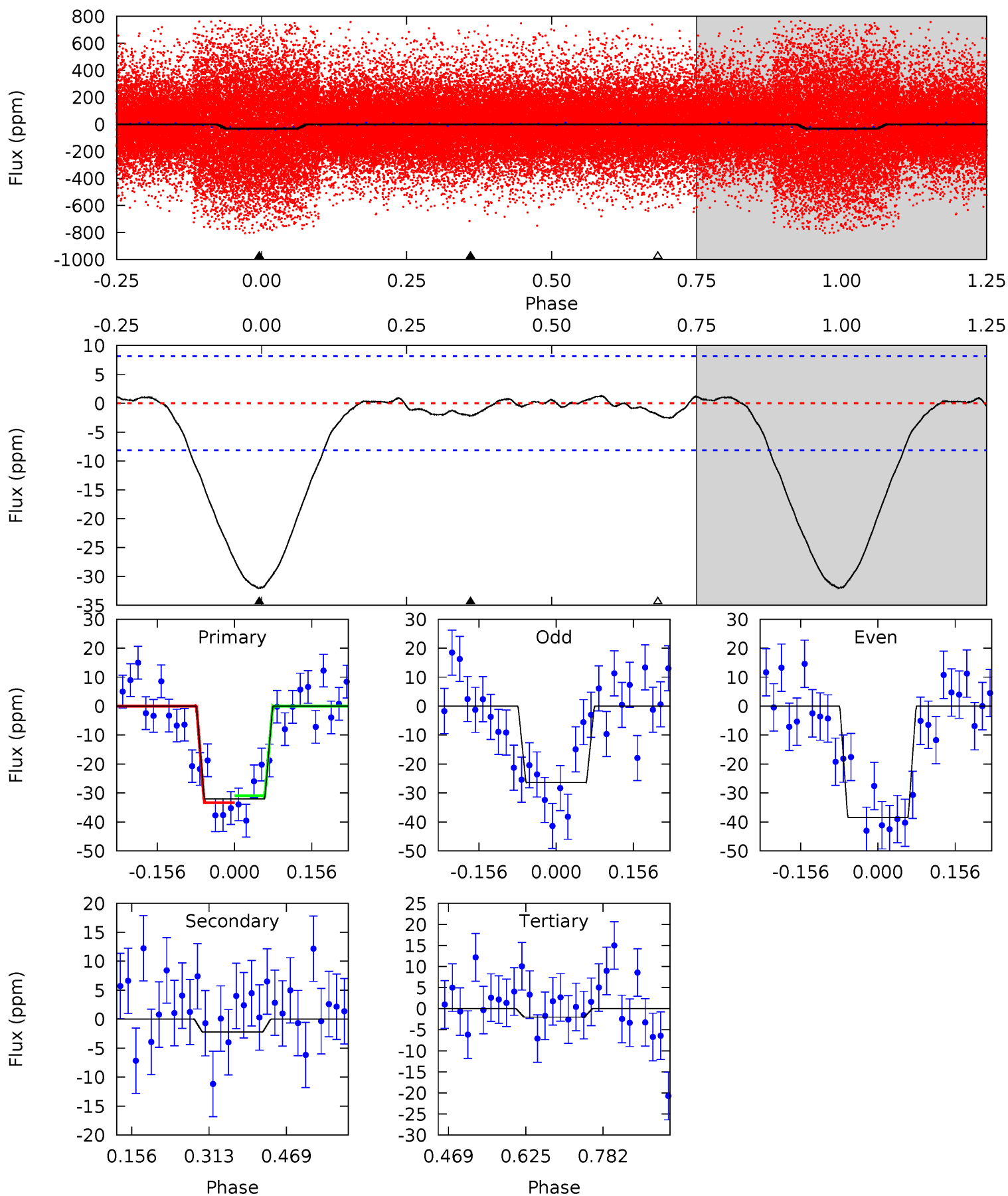
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.3	9.43	0	0	4.45	1.37	2.39	21.3	21.3	9.43	9.43	1.47	1.03	0.08	0.24



Alt Model-Shift Uniqueness Test

009597882-01, P = 1.293636 Days, E = 131.027086 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	1.22	1.10	0	4.47	1.42	0.55	16.5	17.6	0.11	1.22	3.32	0.86	0.04	0.65



Stellar Parameters For KIC 009597882

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5330^{+159}_{-143}	$4.550^{+0.060}_{-0.082}$	$-0.280^{+0.300}_{-0.300}$	$0.775^{+0.113}_{-0.075}$	$0.777^{+0.096}_{-0.061}$	$2.354^{+0.613}_{-0.642}$
	+3%/-3%	+1%/-2%	+107%/-107%	+15%/-10%	+12%/-8%	+26%/-27%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009597882-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-22 ± 2	$0.53^{+0.28}_{-0.28}$	1994^{+80}_{-84}	4711^{+1952}_{-716}	20^{+65}_{-11}
Alt.	-2 ± 2	$0.44^{+0.27}_{-0.24}$	1989^{+80}_{-81}	3197^{+1127}_{-1504}	$2.358^{+10.001}_{-2.050}$

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 $A_{obs} \gg 1.0$

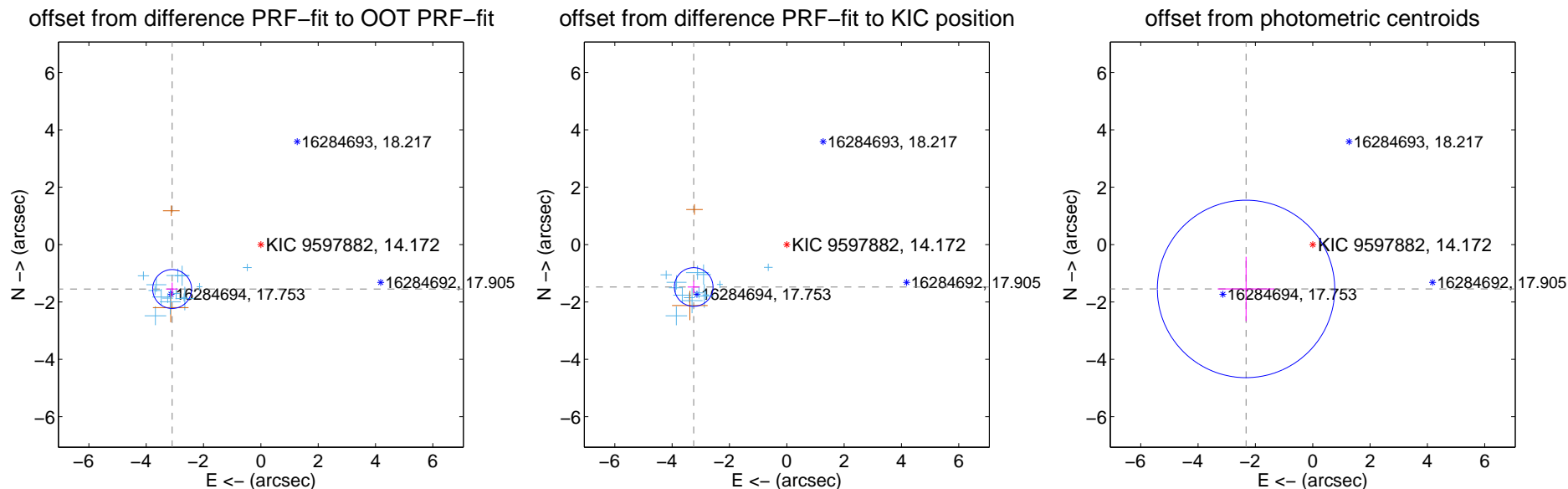
DV Centroid Data

Supplemental centroid analysis for 009597882-01. Kepler magnitude: 14.17. Transit SNR 7.02

There are 14 quarters with good PRF difference image offsets

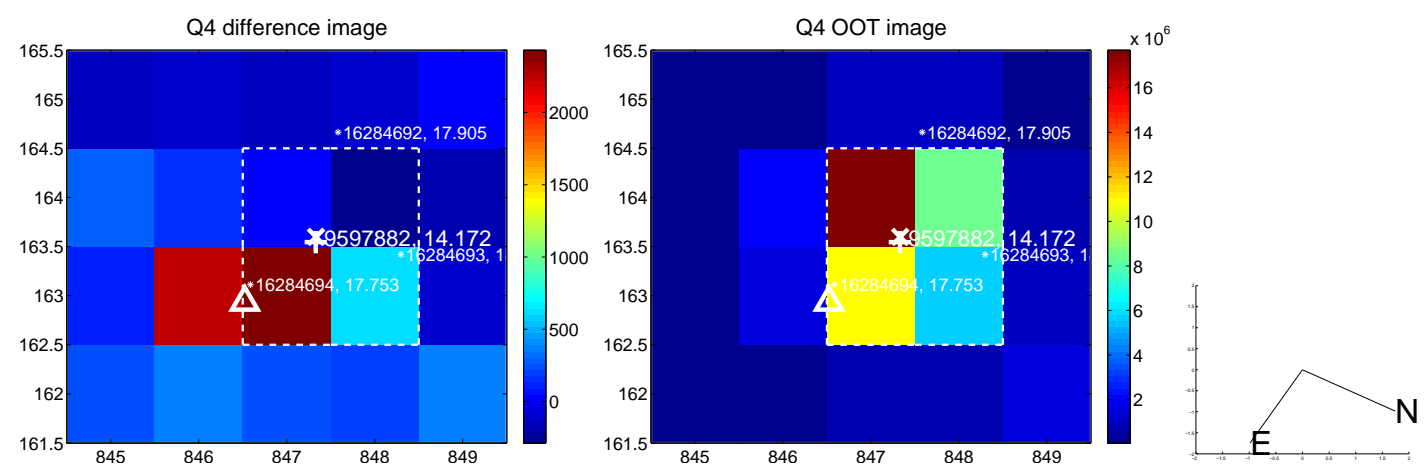
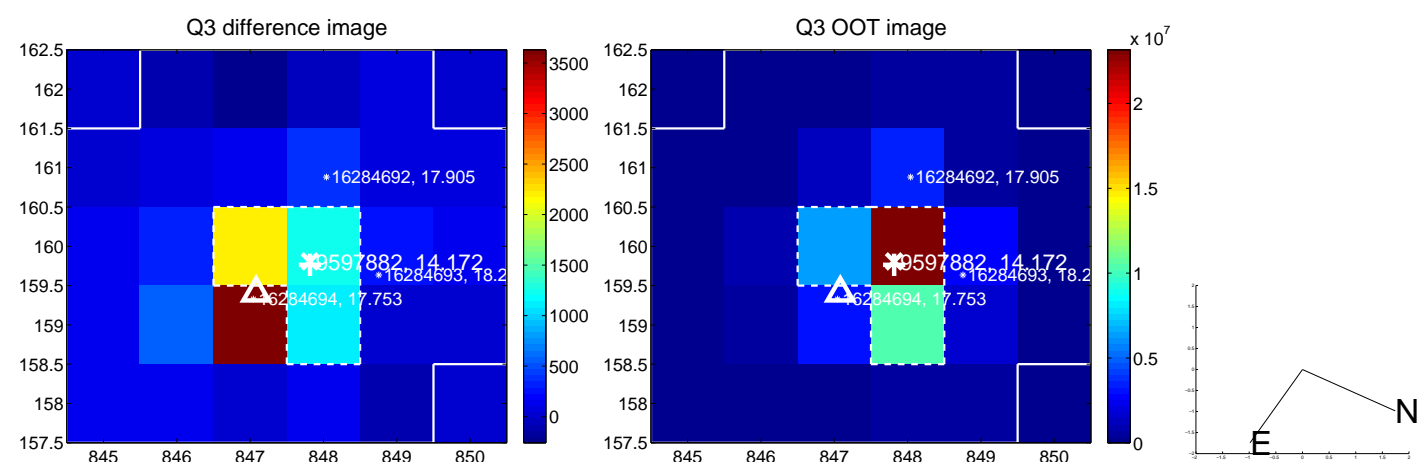
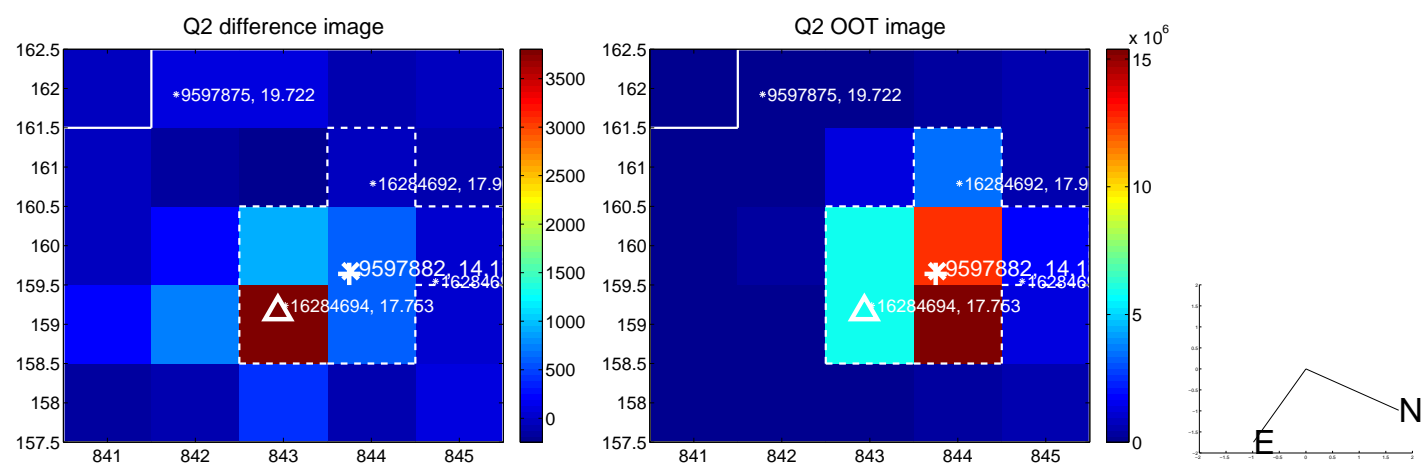
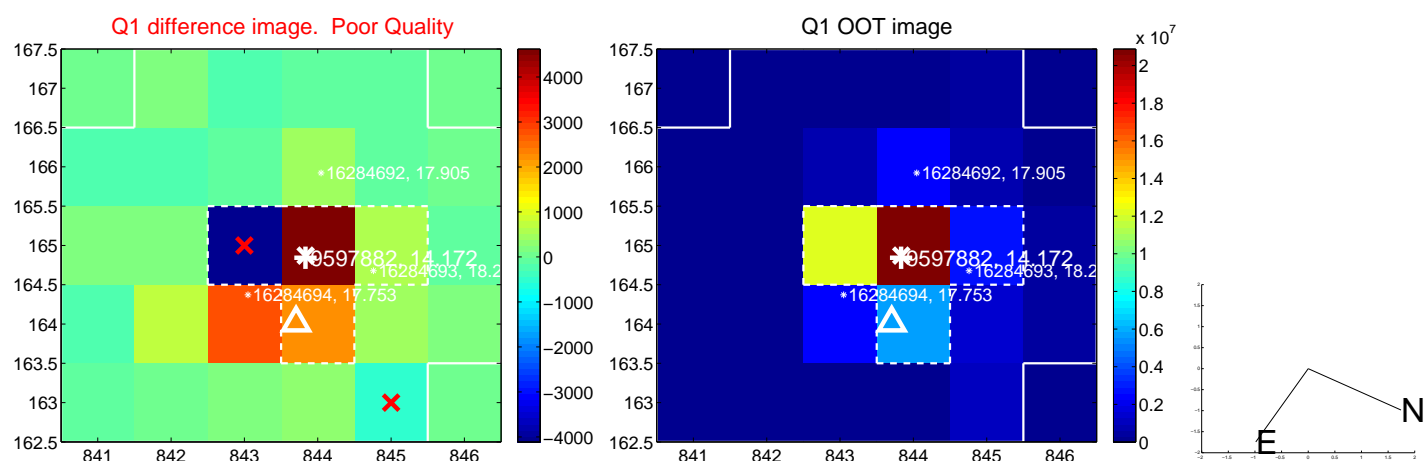
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.462 ± 0.226	15.30	3.096 ± 0.213	-1.550 ± 0.225
PRF-fit source offset from KIC position	3.569 ± 0.225	15.88	3.248 ± 0.210	-1.479 ± 0.214
photometric centroid source offset	2.79 ± 1.03	2.71	2.33 ± 0.99	-1.55 ± 1.12

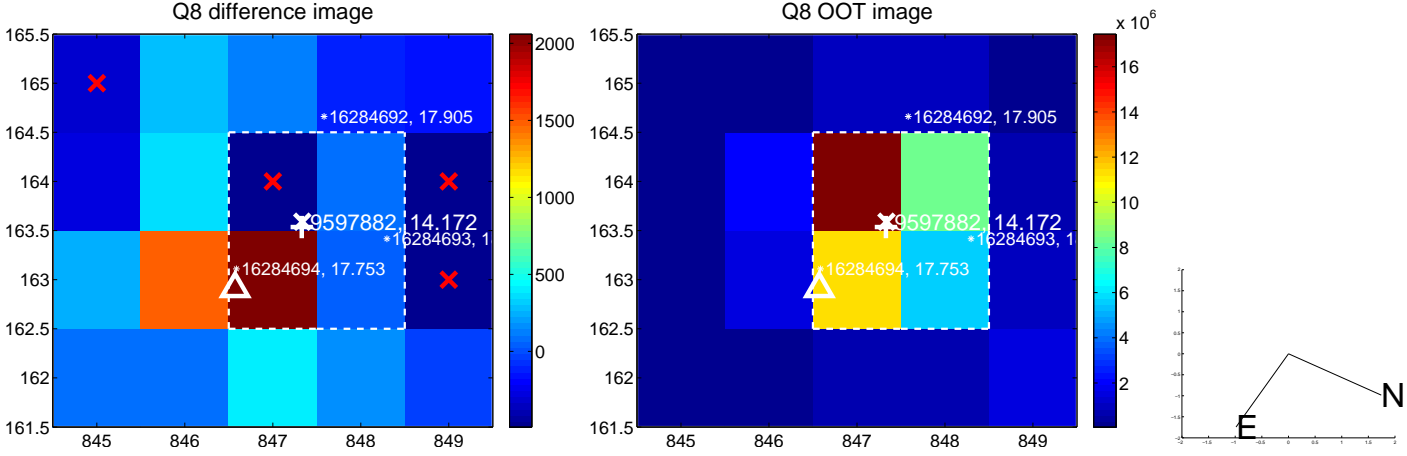
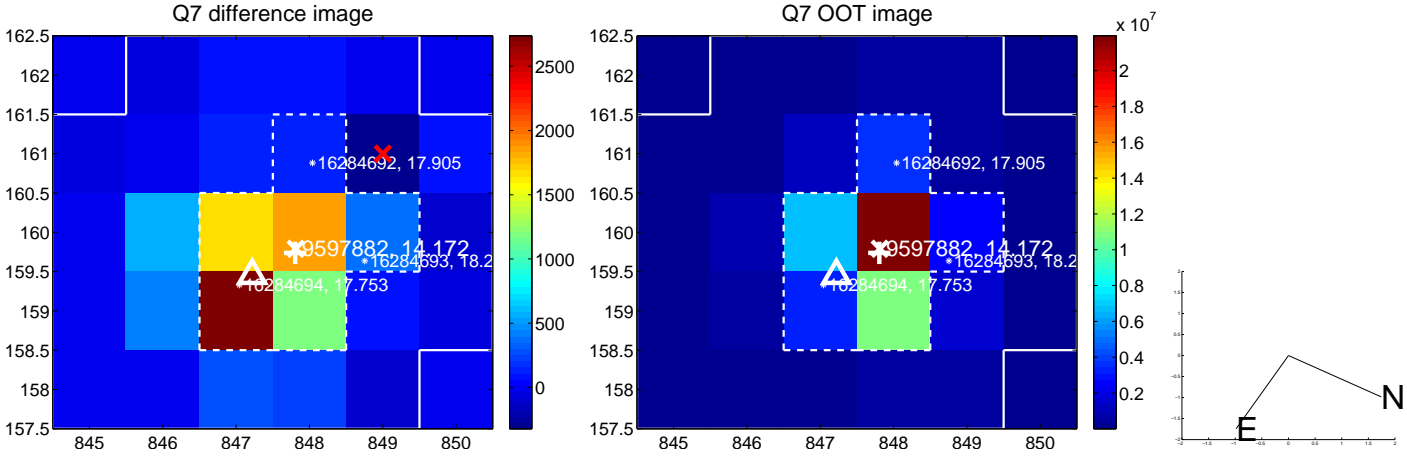
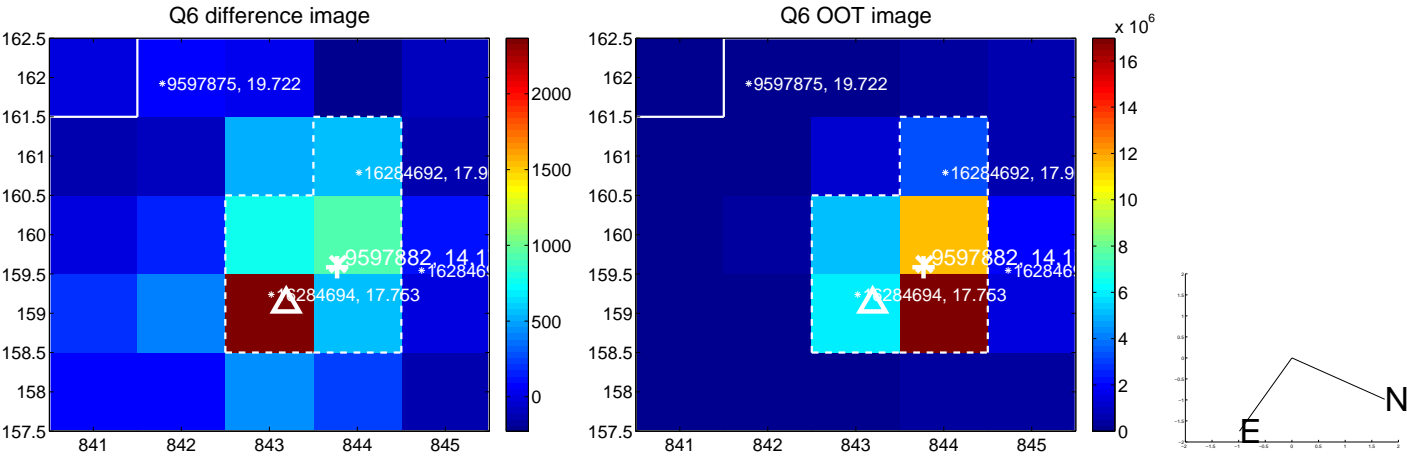
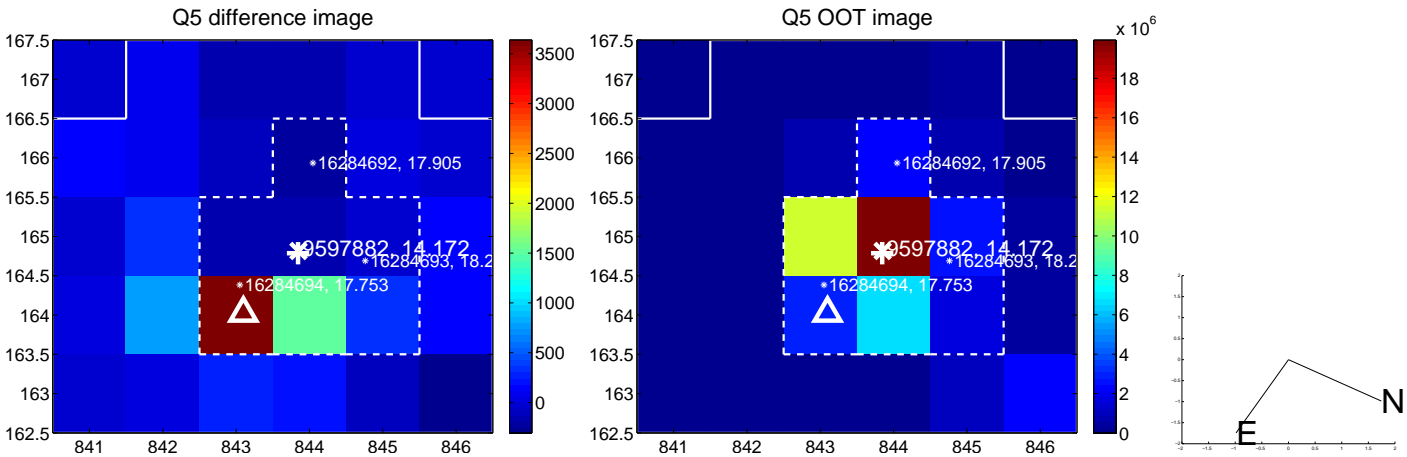


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

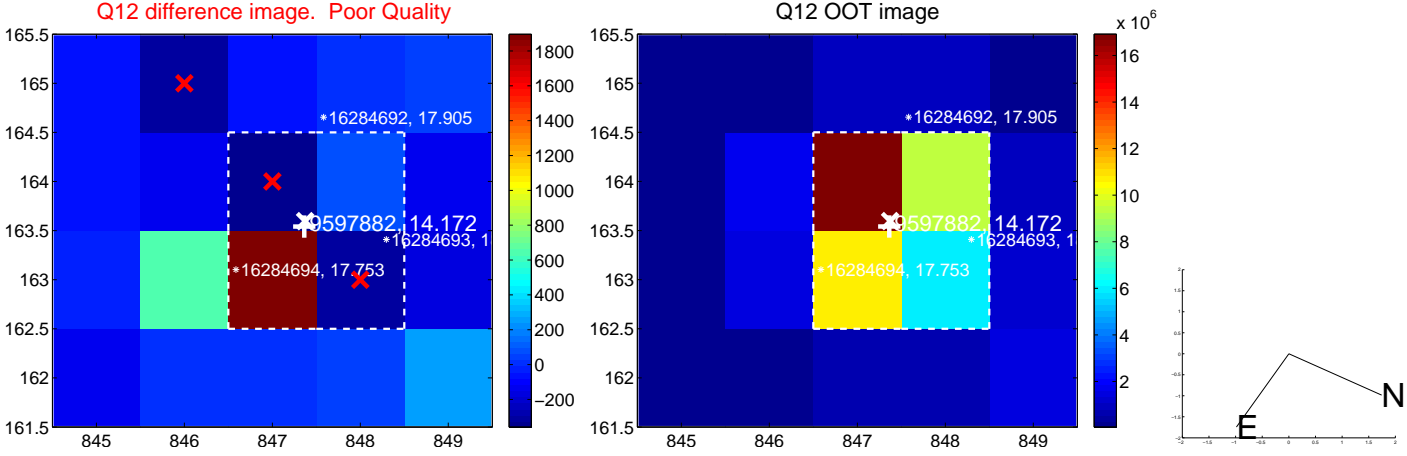
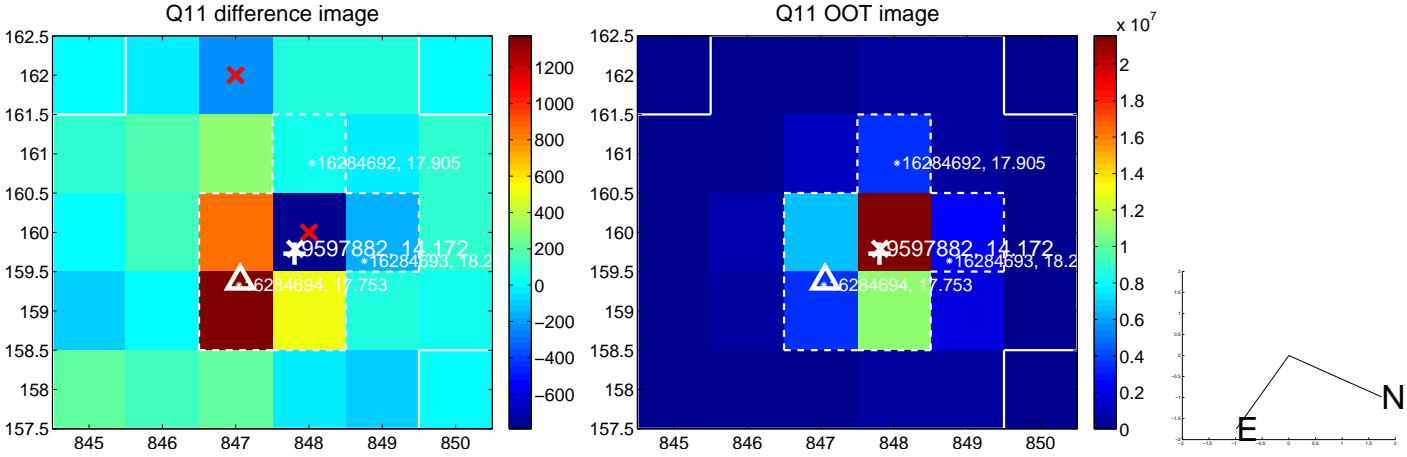
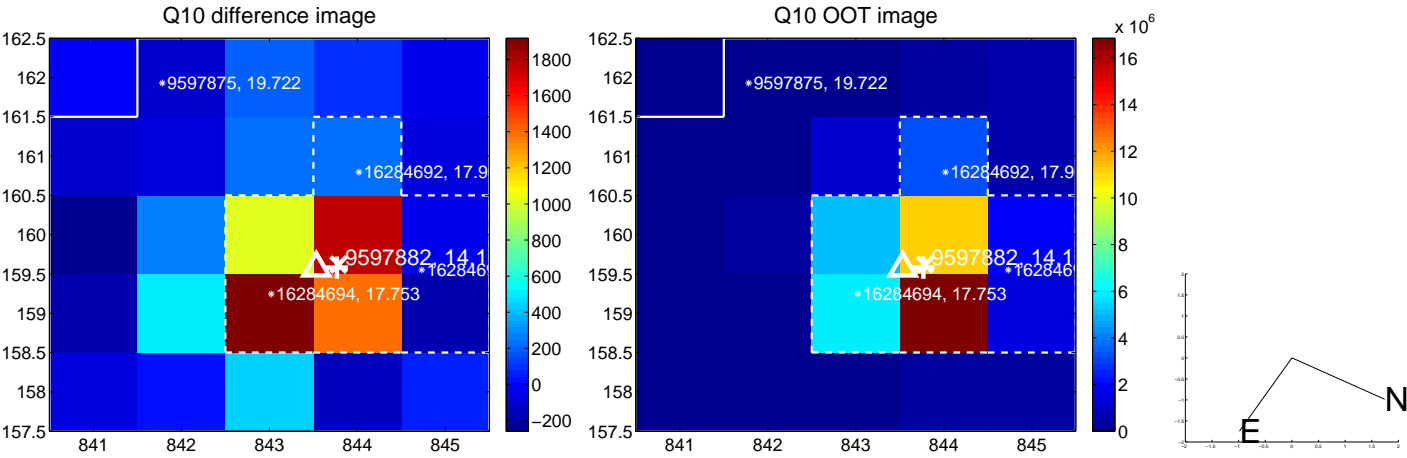
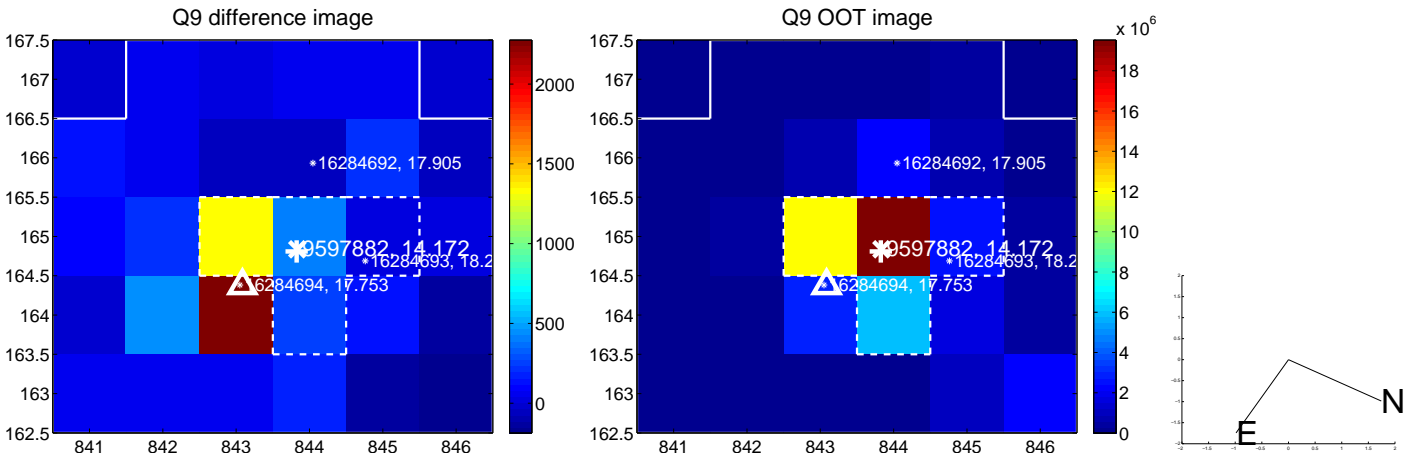
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



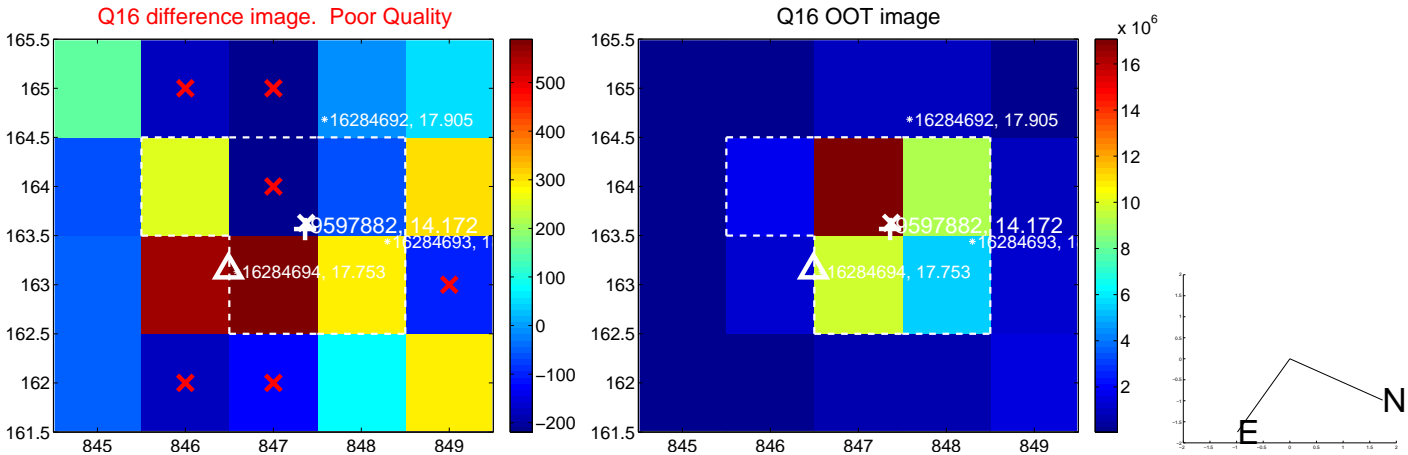
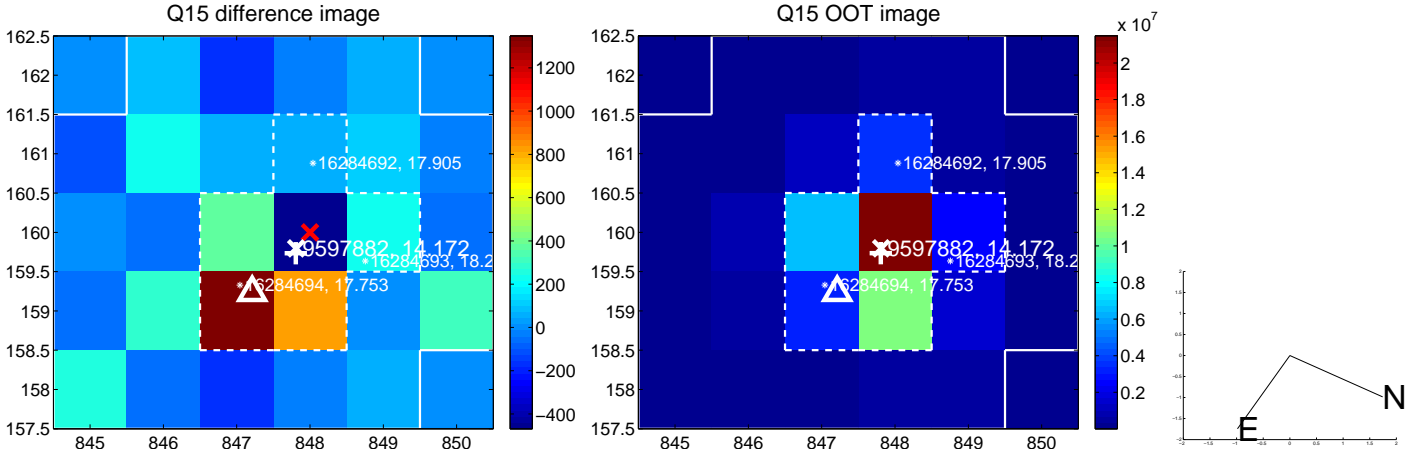
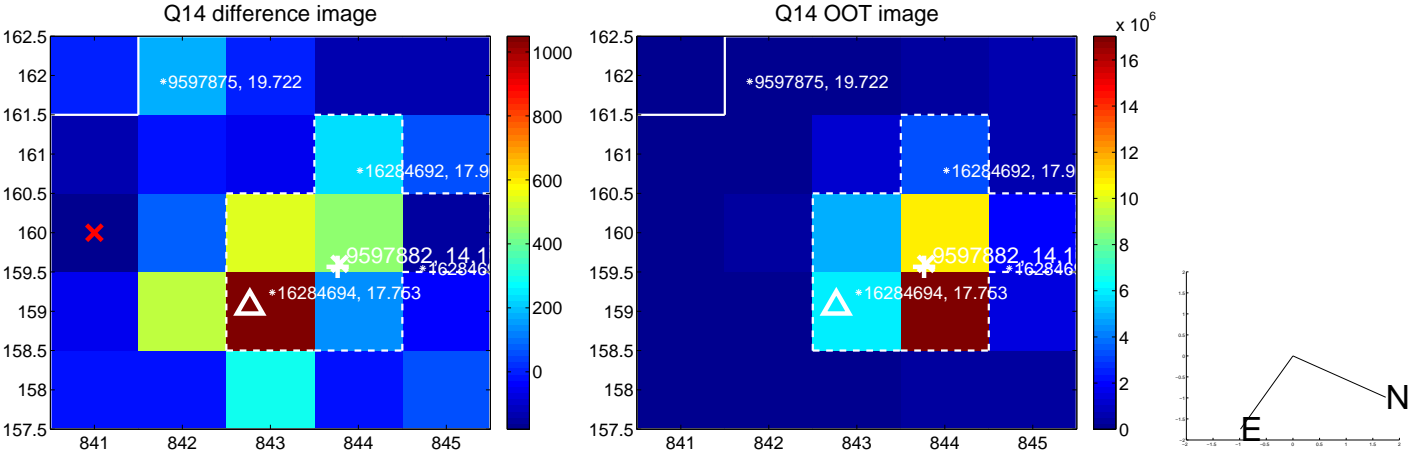
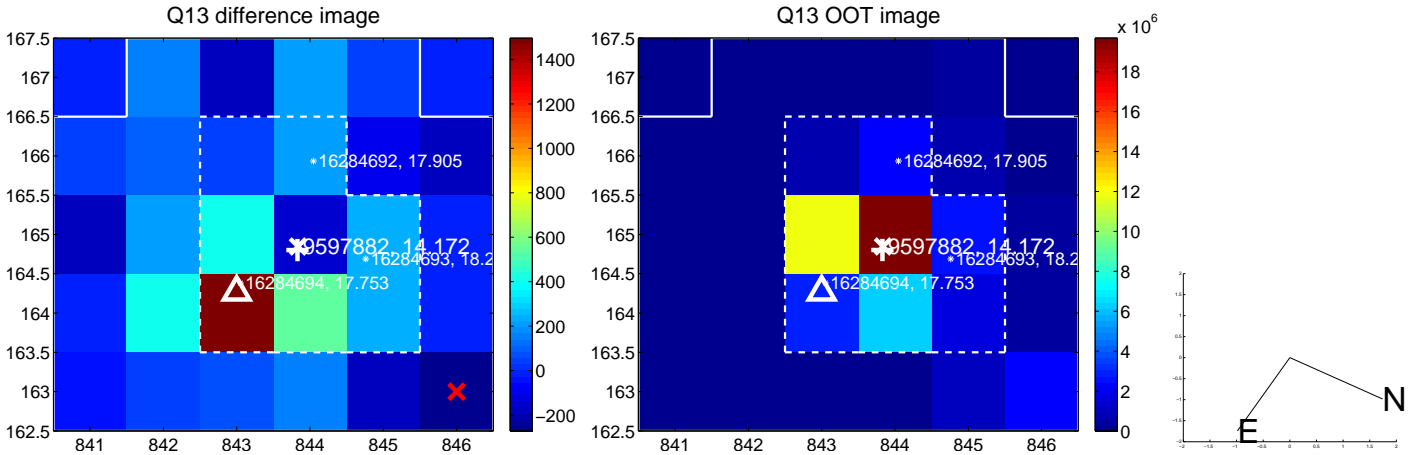
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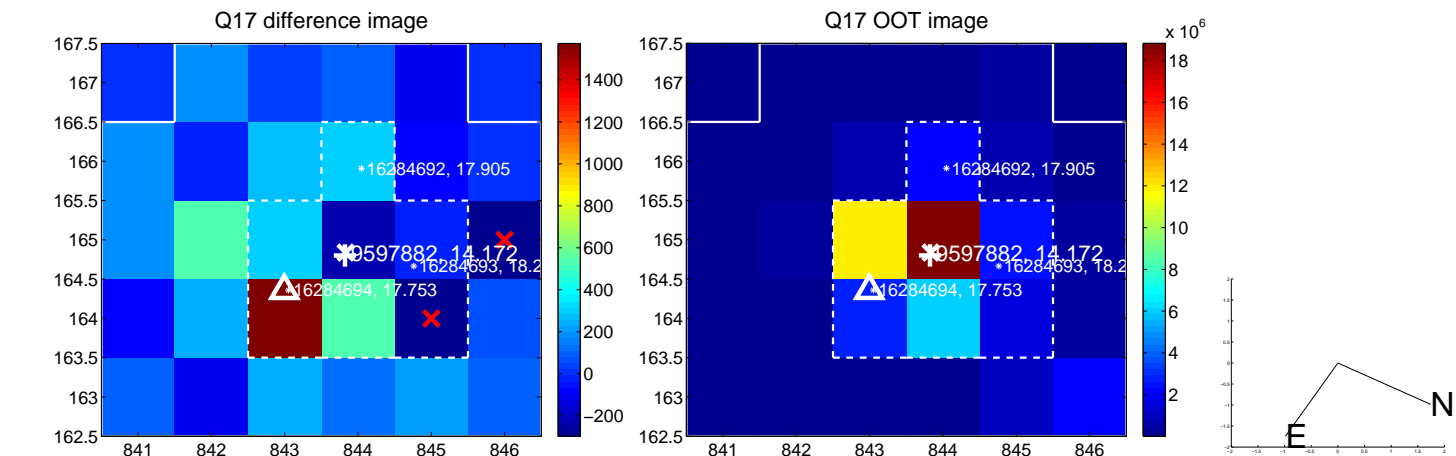
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



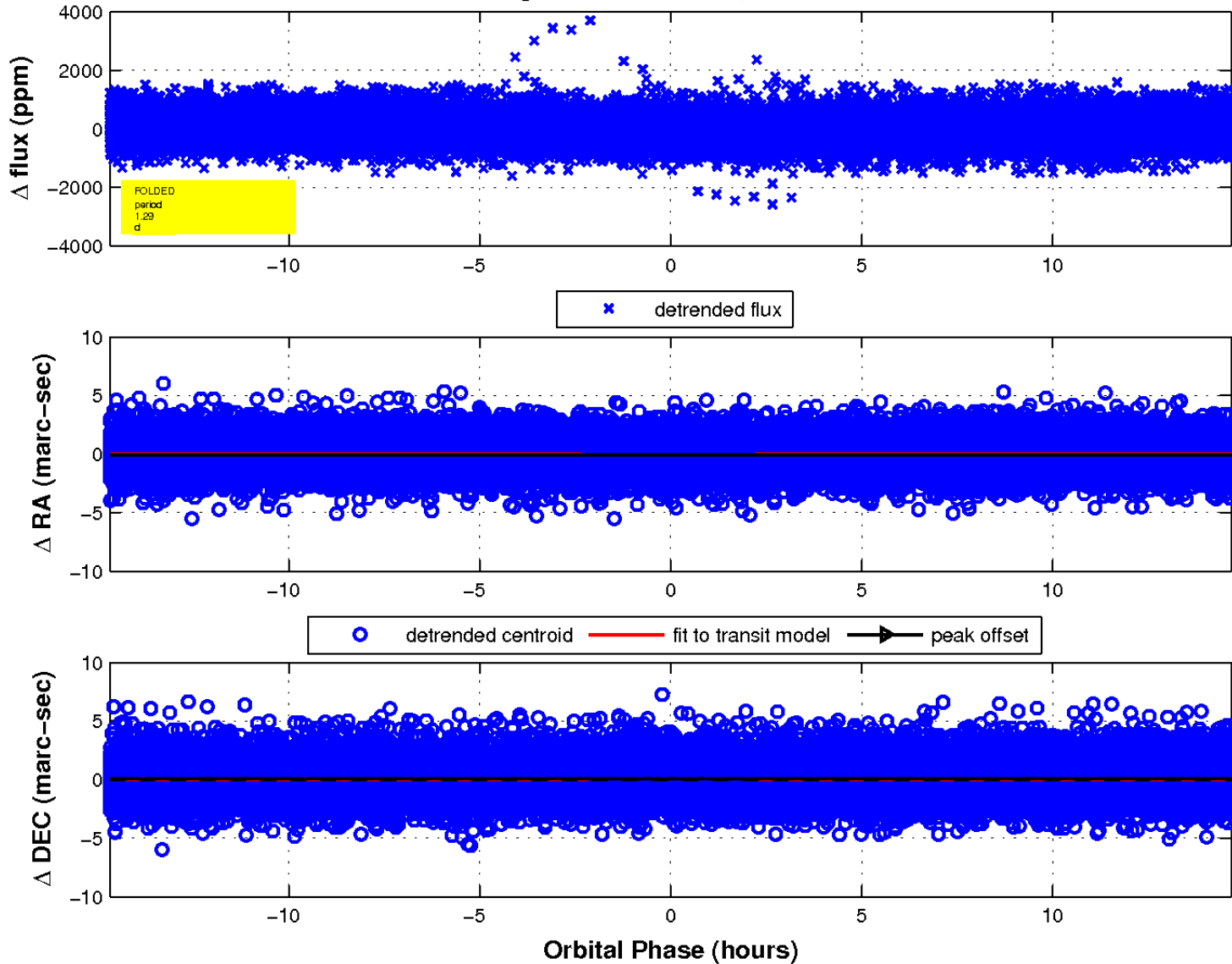
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

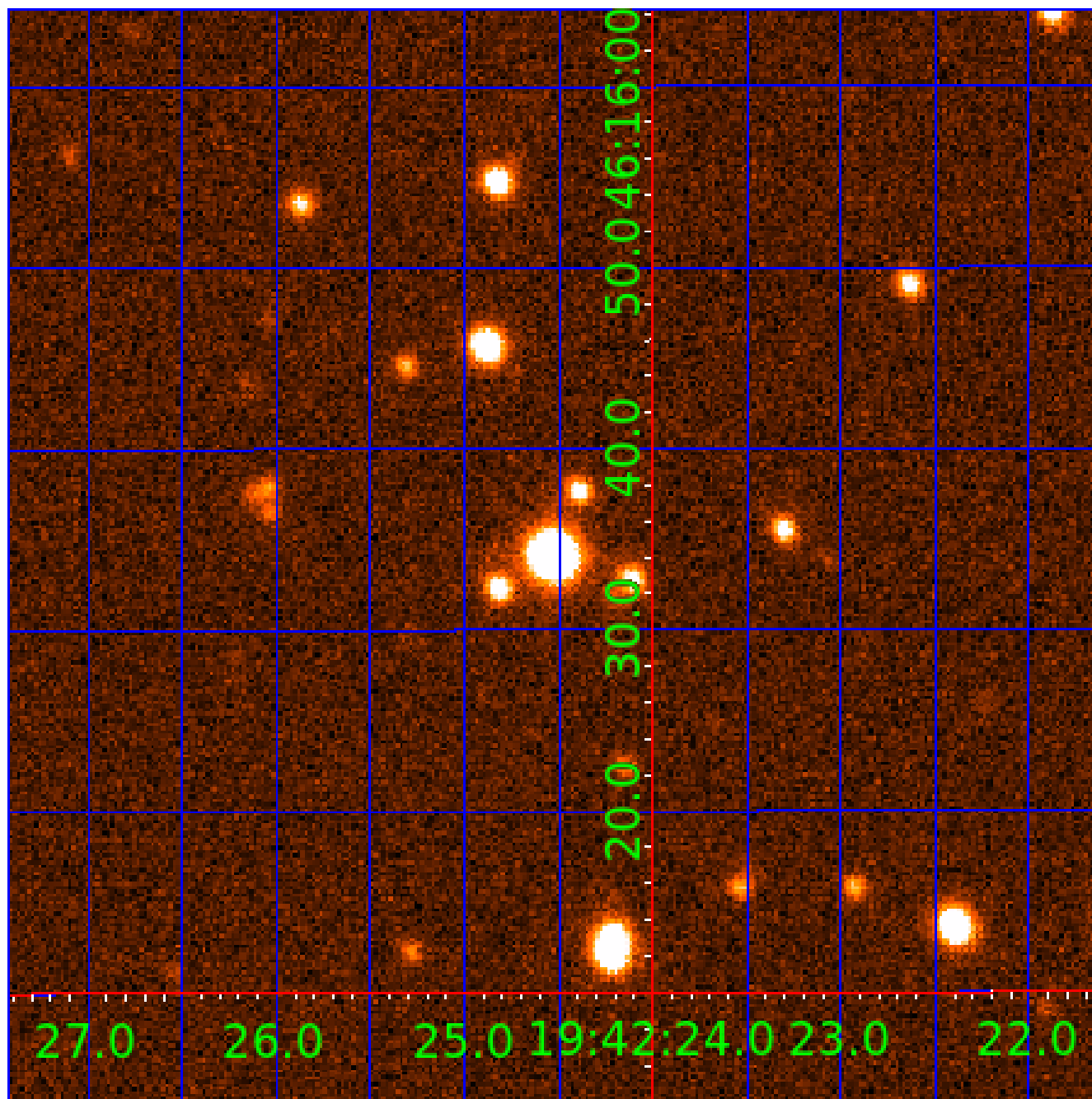


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination



KIC 009597882

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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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009597882-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST
009597882-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

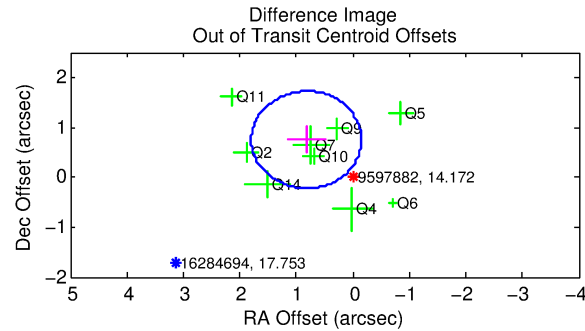
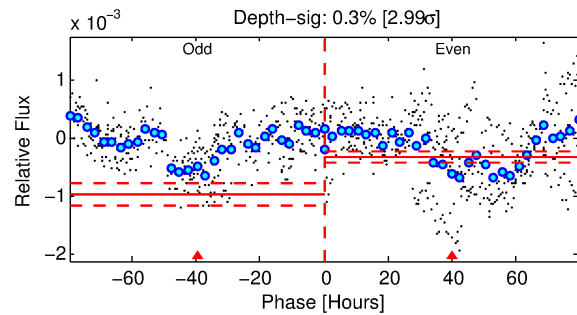
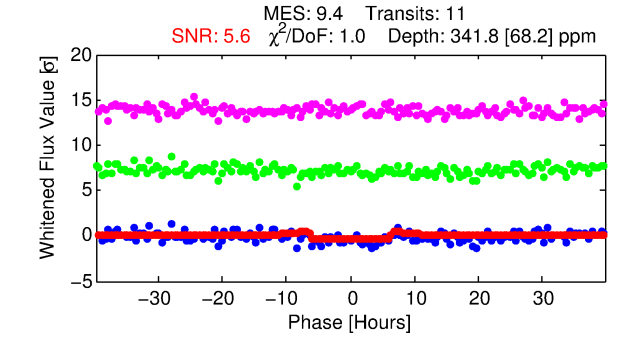
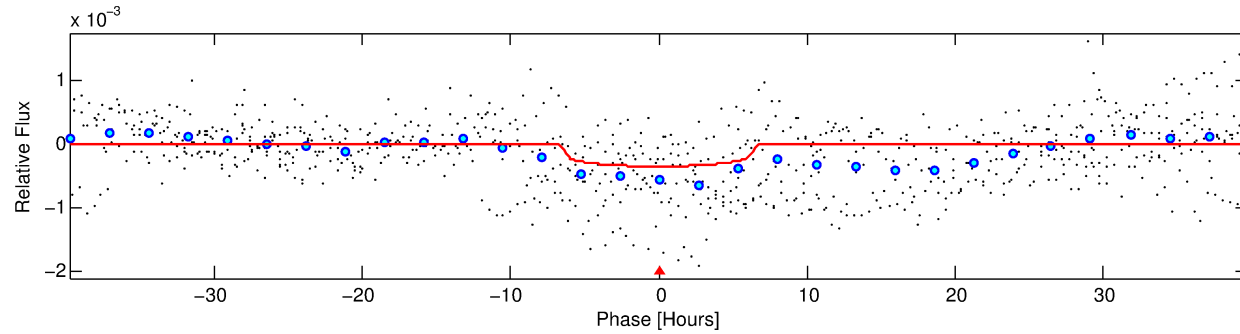
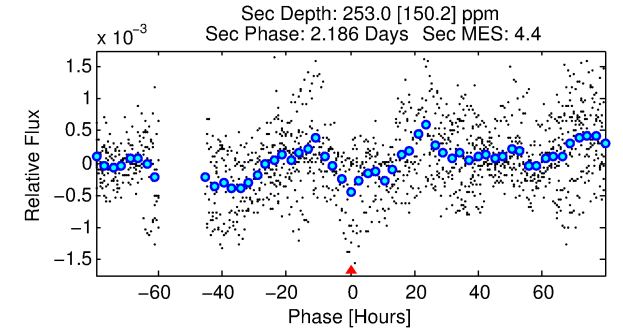
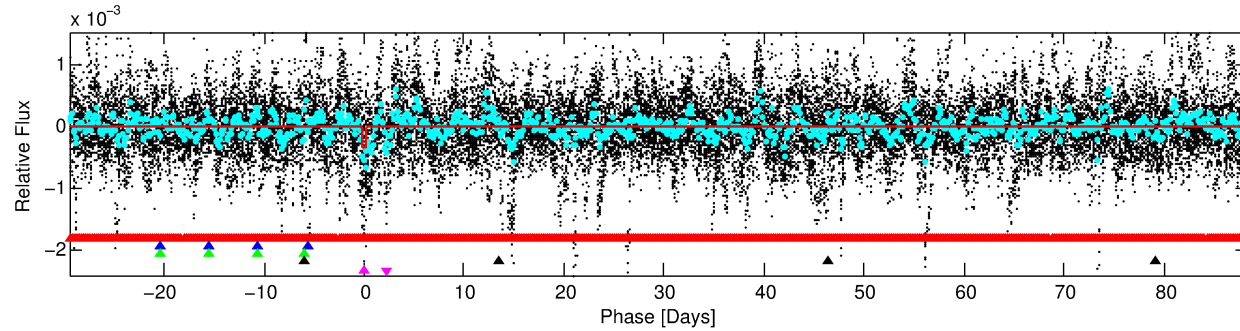
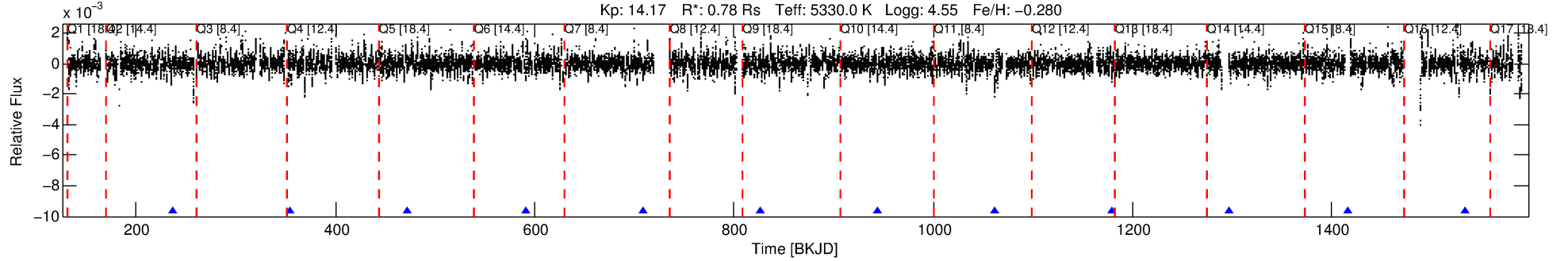
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009597882-05

No Significant Match Found

DV One-Page Summary

KIC: 9597882 Candidate: 5 of 5 Period: 117.821 d



DV Fit Results:

Period = 117.82142 [0.00433] d
Epoch = 237.2341 [0.0244] BKJD
Rp/R* = 0.0182 [0.0065]
a/R* = 49.28 [66.67]
b = 0.71 [0.93]
Seff = 2.32 [0.46]
Teq = 315 [16] K
Rp = 1.54 [0.60] Re
a = 0.4326 [0.0501] AU
Ag = 11048.22 [10465.29] [1.06σ]
Teffp = 4989 [1174] K [3.98σ]

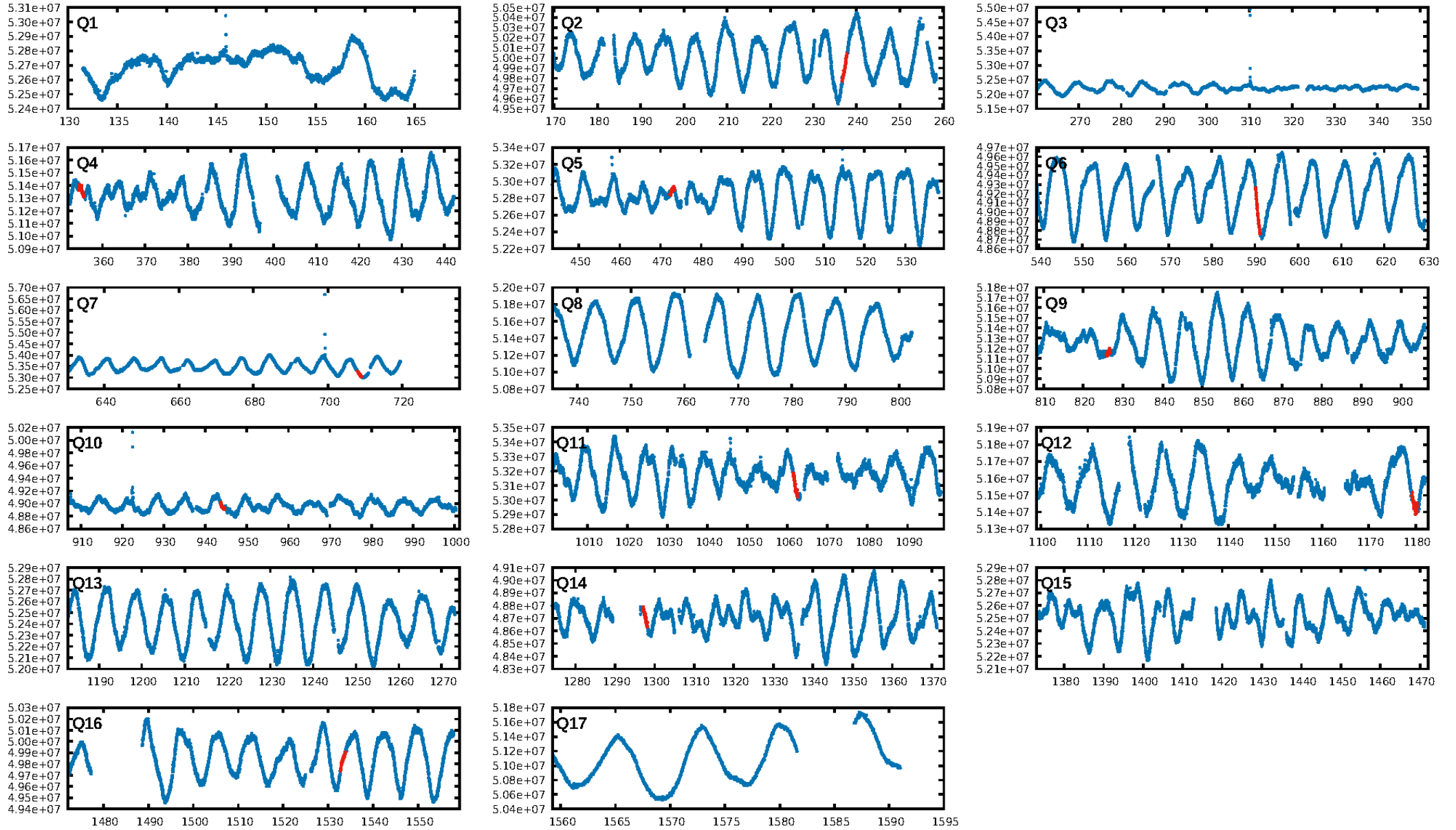
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [197.87σ]
LongPeriod-sig: 100.0% [433.56σ]
ModelChiSquare2-sig: 27.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.03e-11
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: -0.8351
Centroid-sig: 71.0%
Centroid-so: 0.376 arcsec [0.60σ]
OotOffset-rm: 1.113 arcsec [3.43σ]
KicOffset-rm: 1.252 arcsec [3.29σ]
OotOffset-st: 4/2/1/2 [9]
KicOffset-st: 4/2/1/2 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 0.00 [0/9]

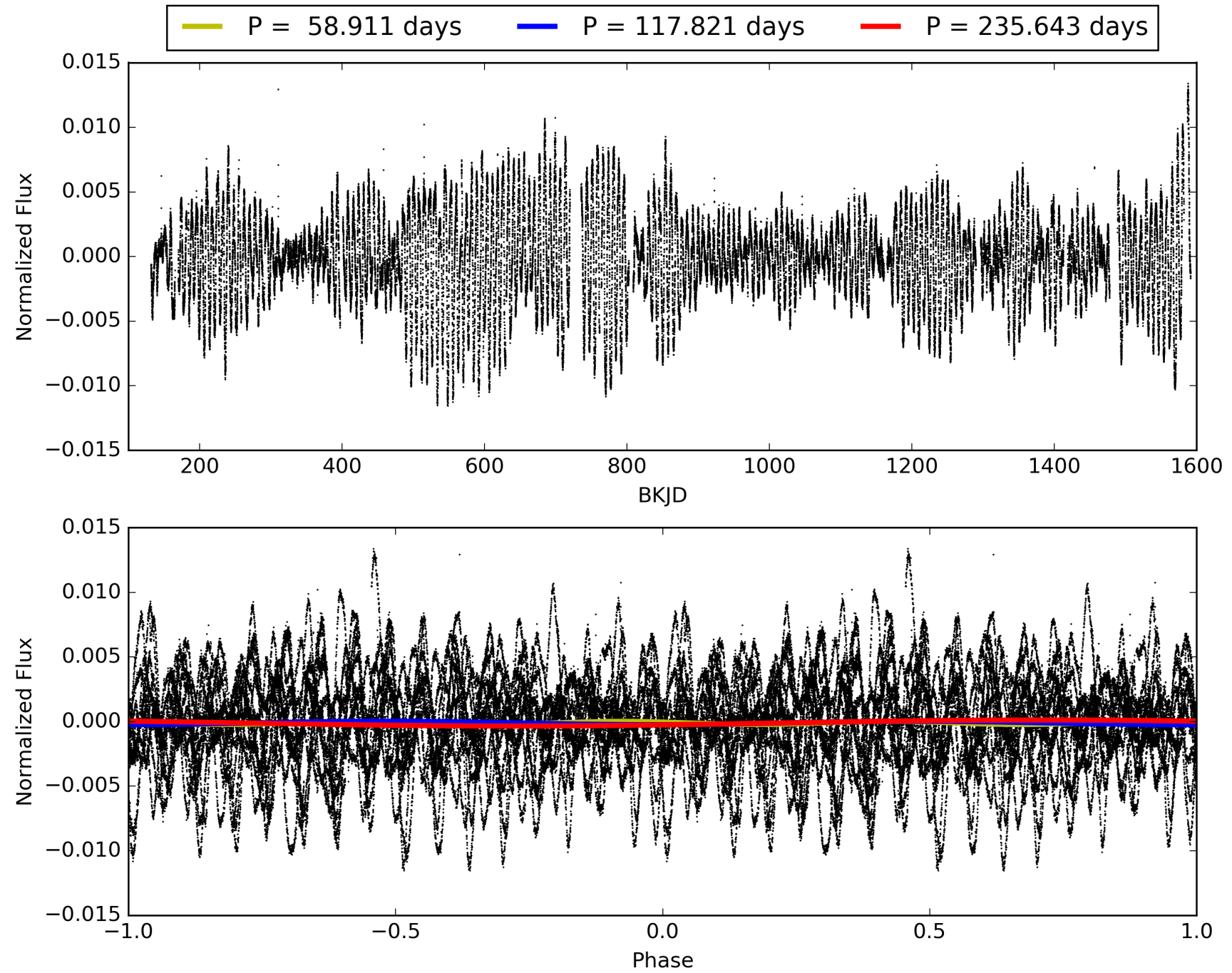
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:14:38 Z

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

TCE 009597882-05, PDC Light Curves

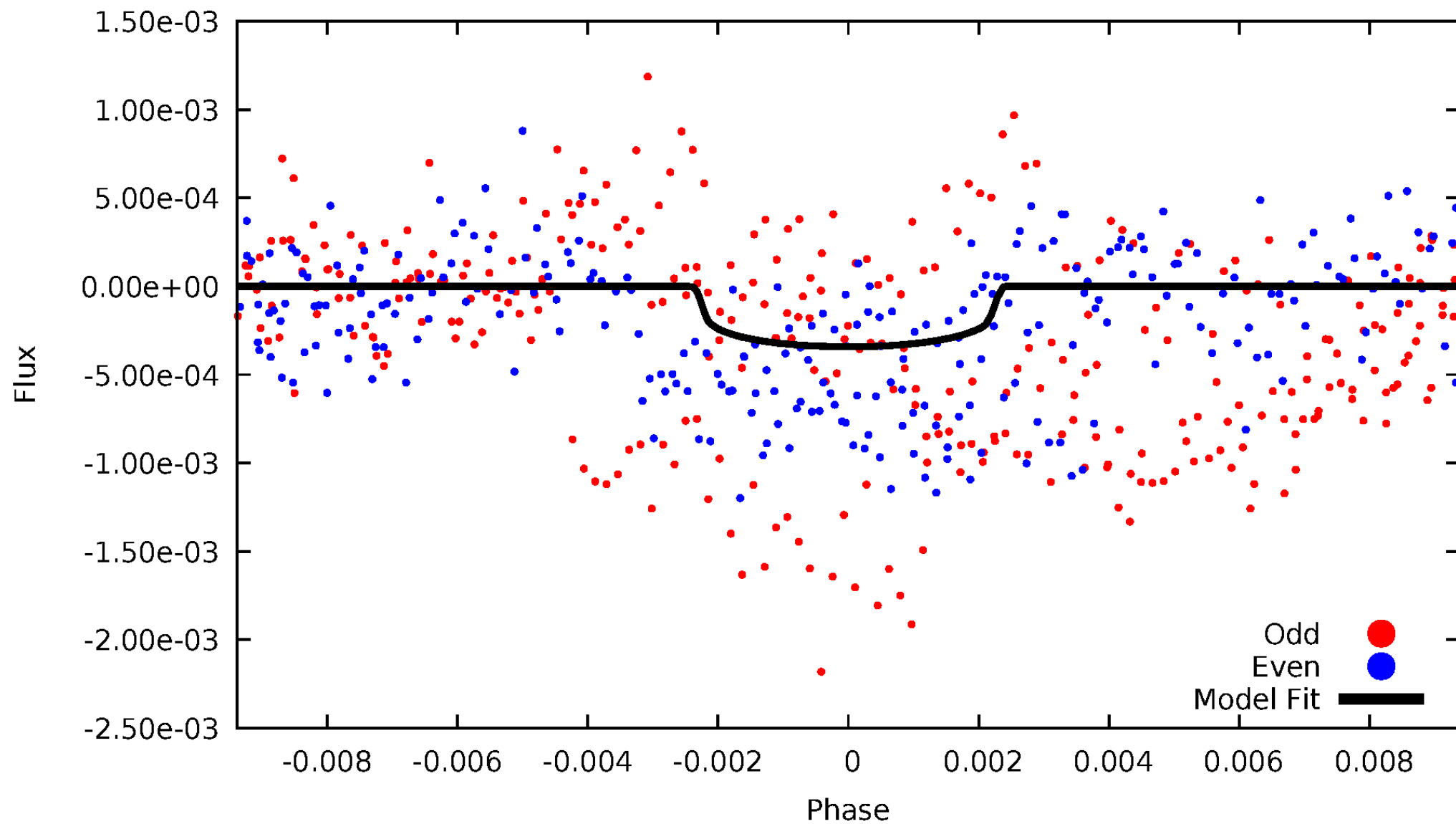


TCE 009597882-05



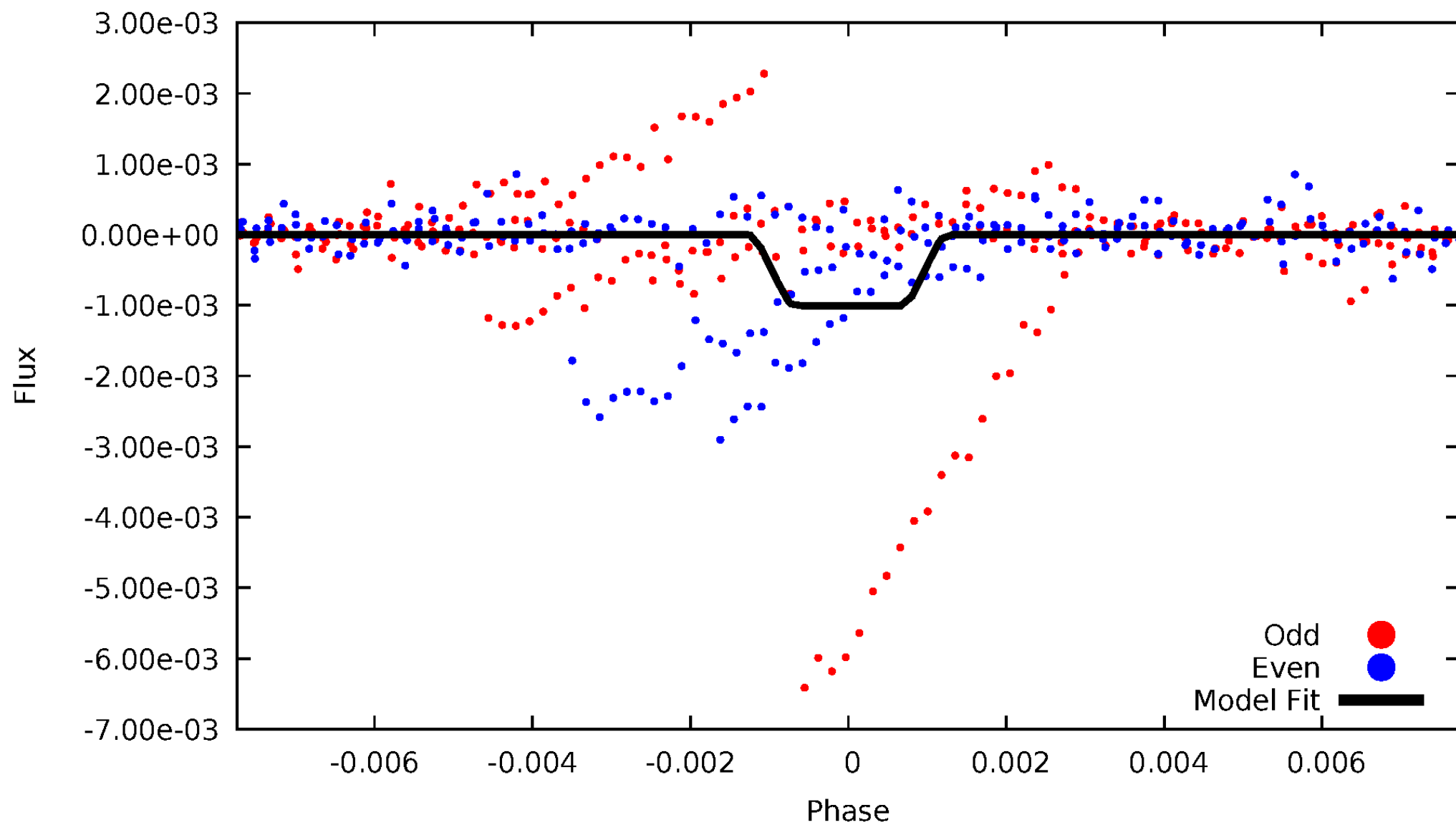
DV Odd/Even

TCE 009597882-05



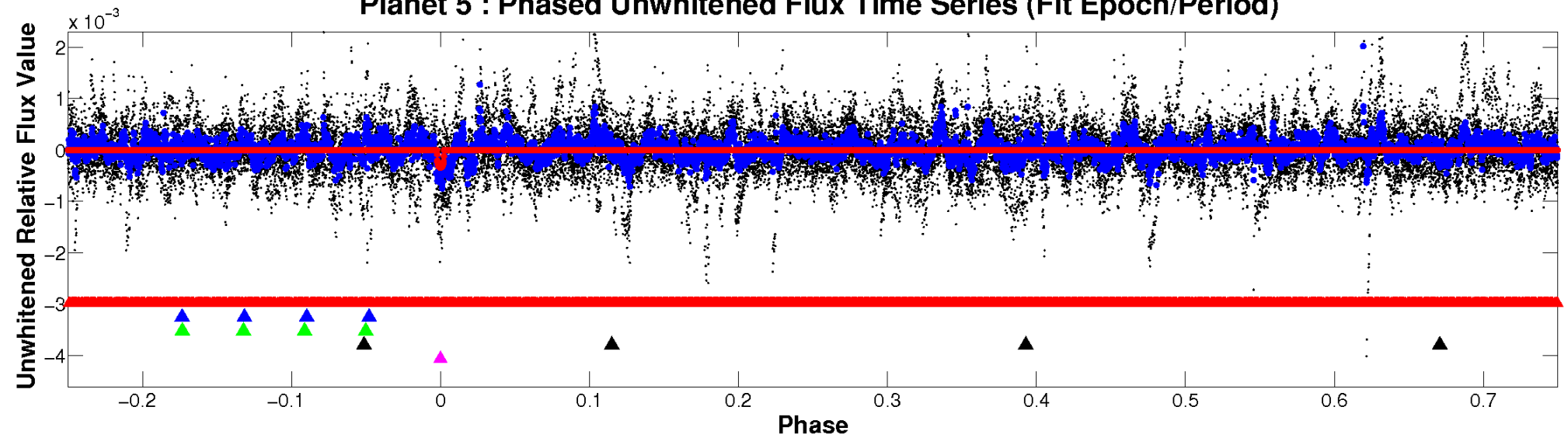
ALT Odd/Even

TCE 009597882-05

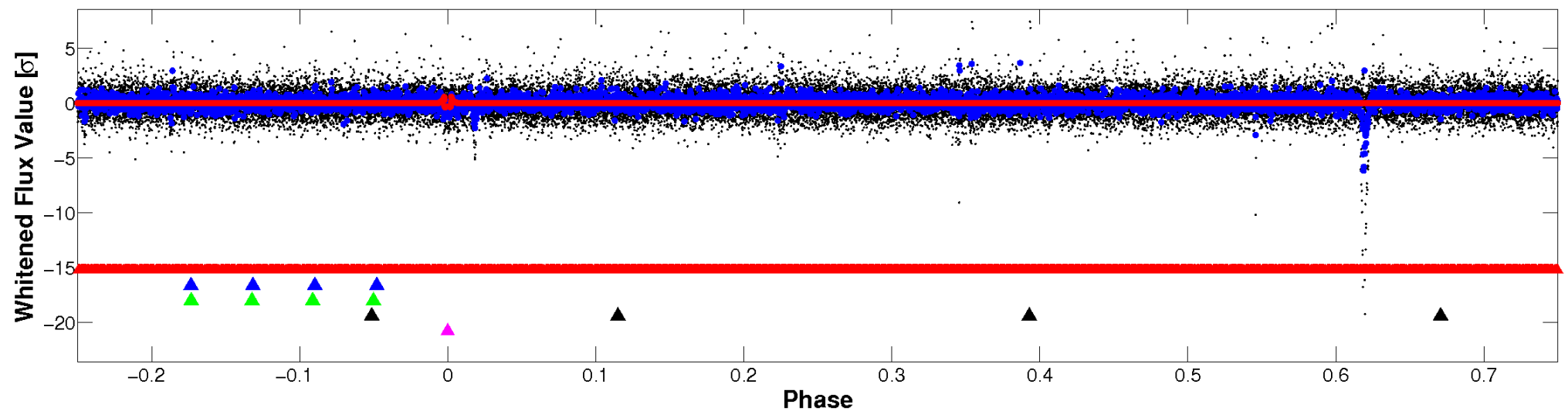


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

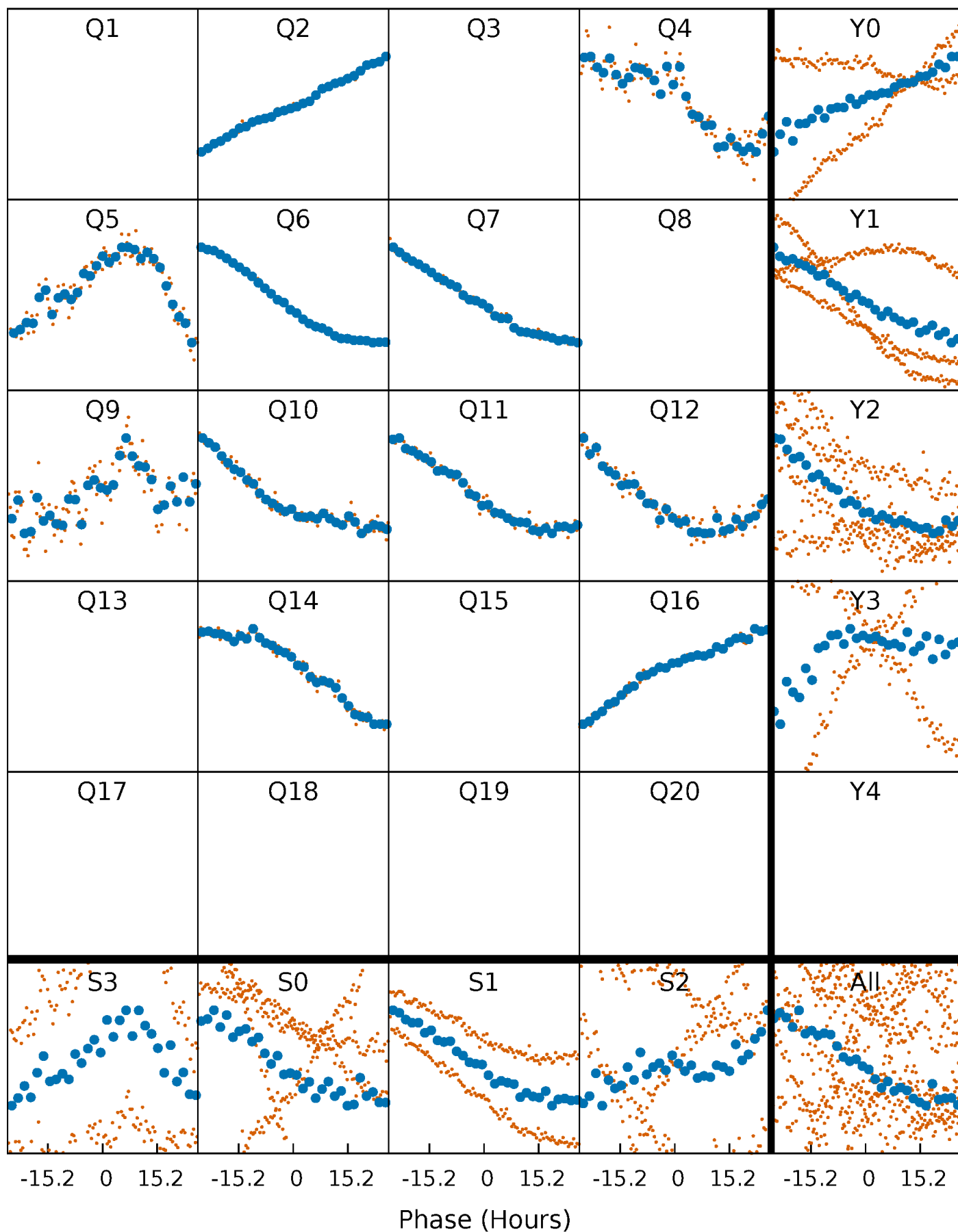


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



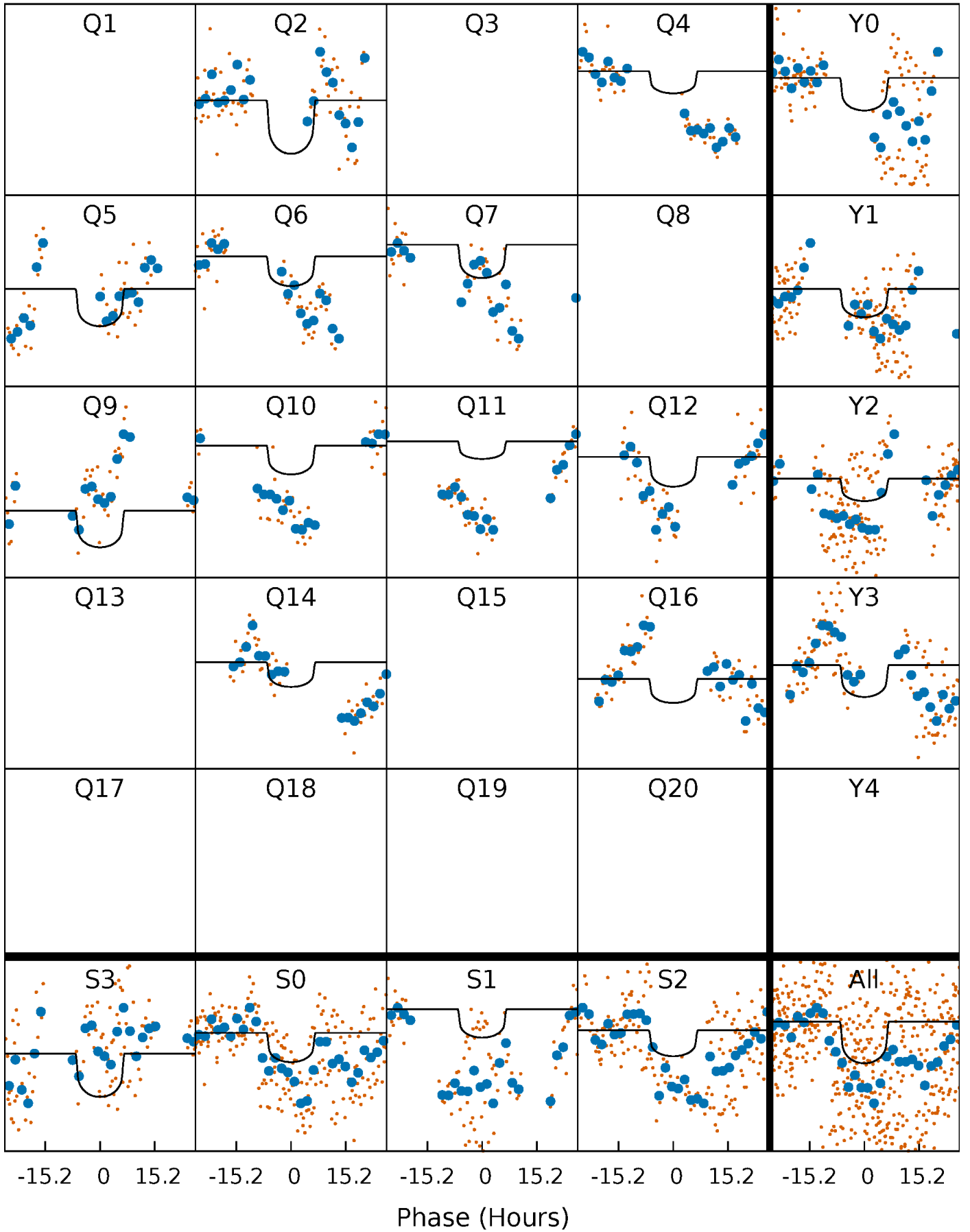
PDC Quarter-Phased Transit Curves

TCE 009597882-05 $P=117.821423$ Days $T_0=237.234144$ (BKJD)



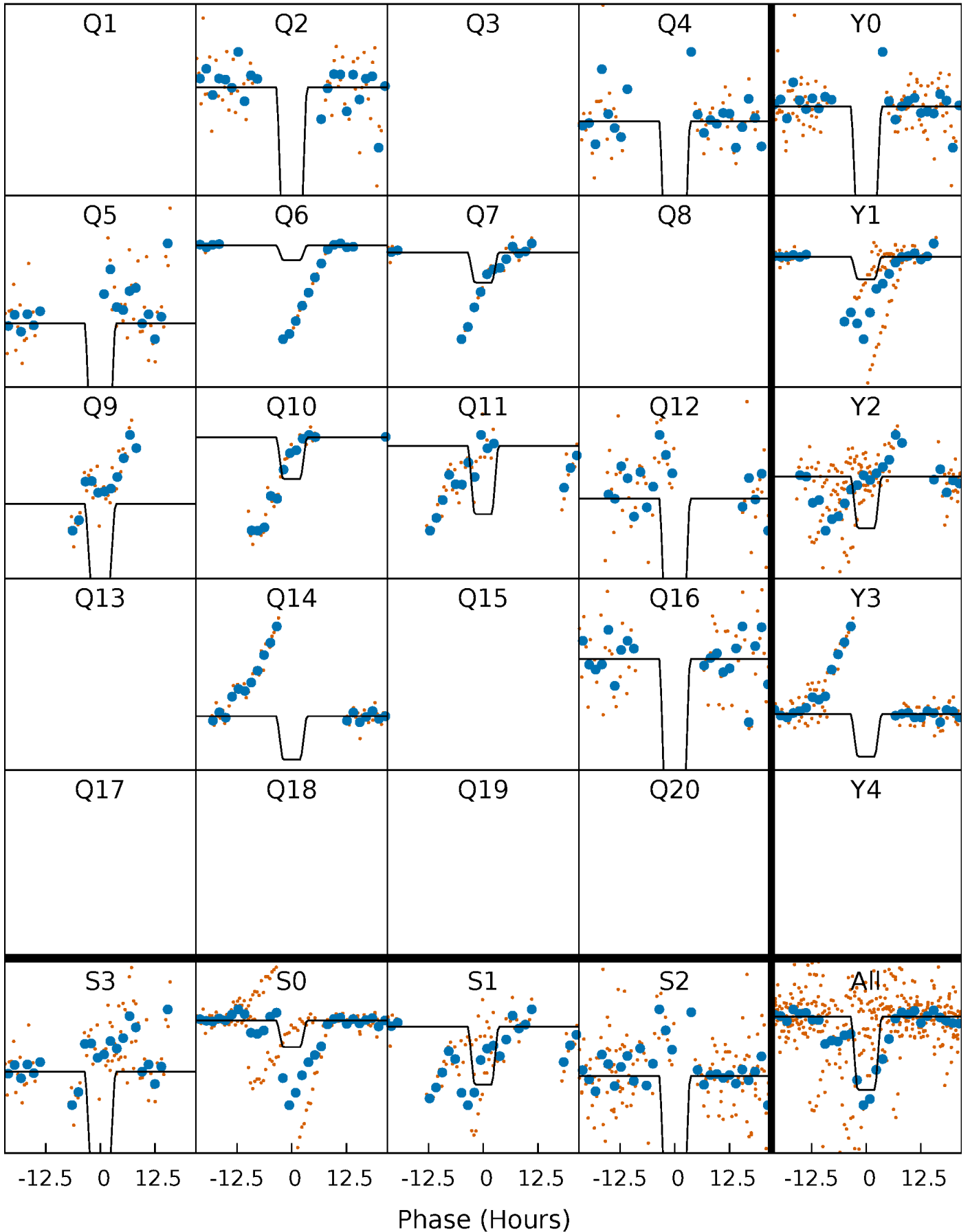
DV Quarter-Phased Transit Curves

TCE 009597882-05 $P=117.821423$ Days $T_0=237.234144$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

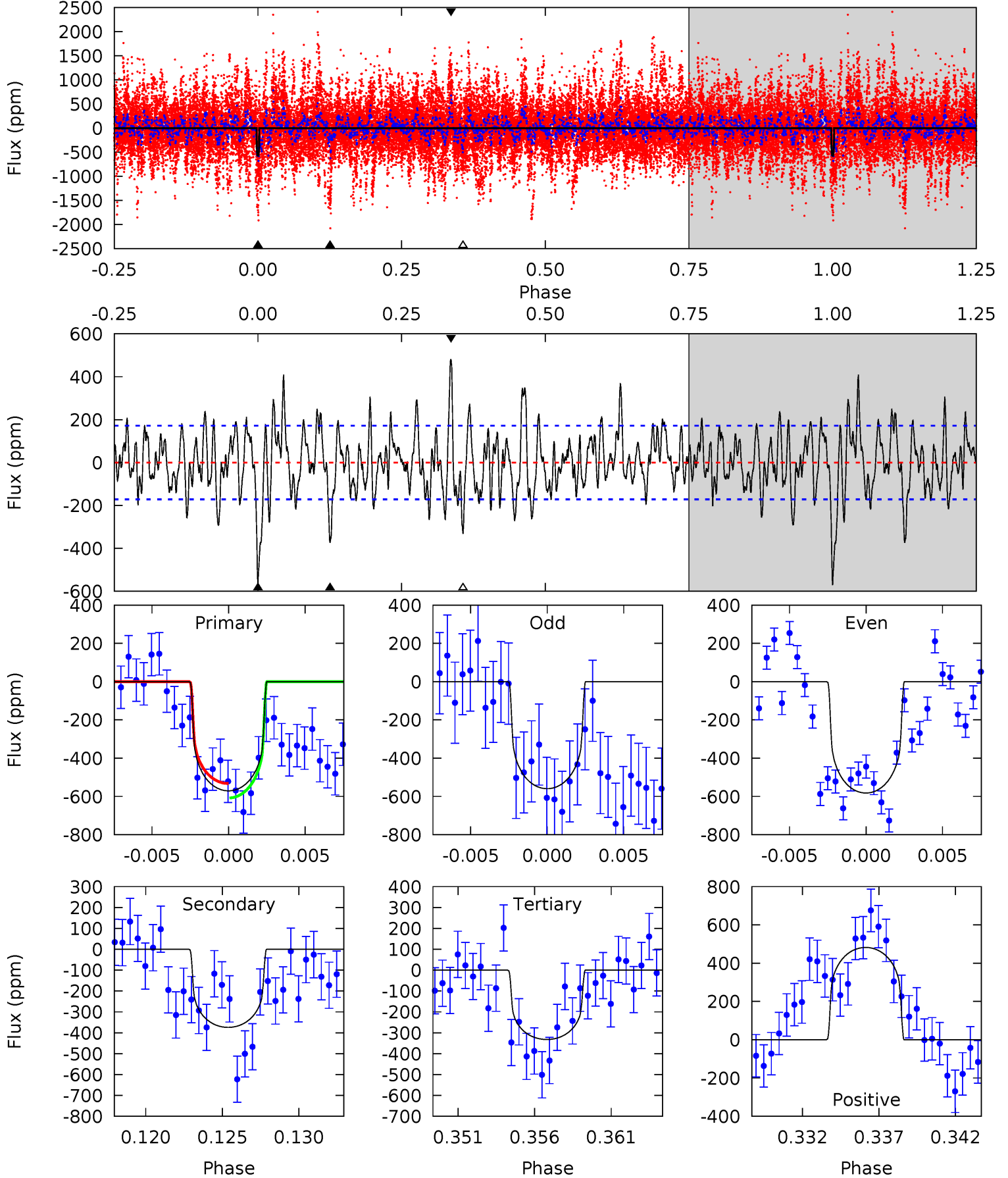
TCE 009597882-05 $P=117.840340$ Days $T_0=237.140218$ (BKJD)



DV Model-Shift Uniqueness Test

009597882-05, P = 117.821423 Days, E = 119.412721 Days

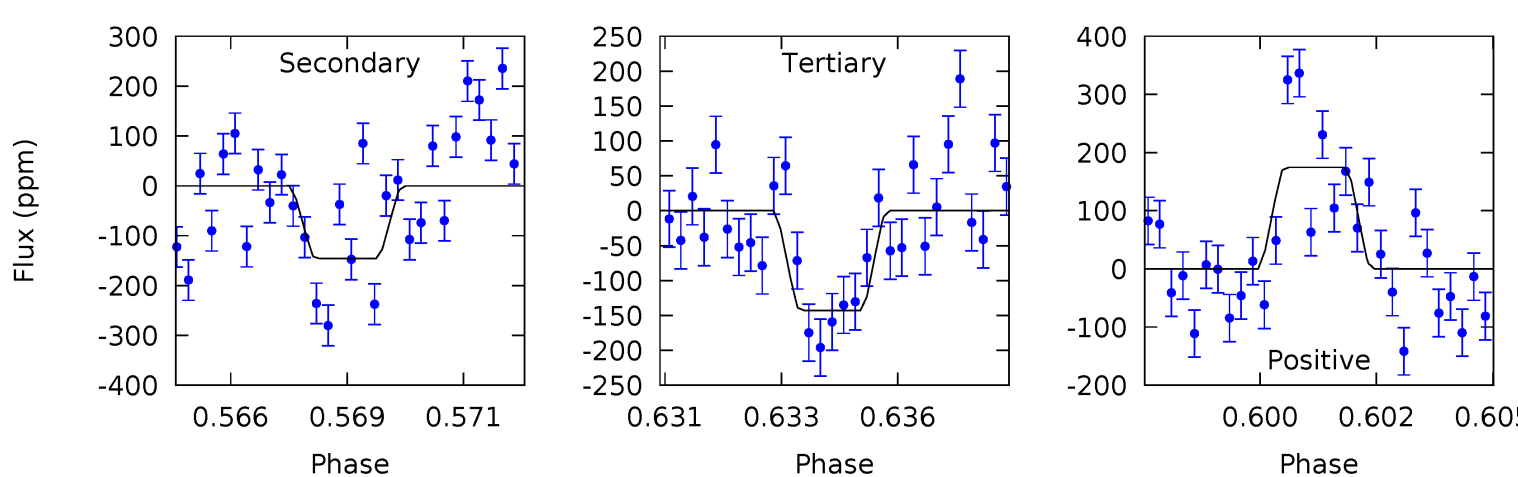
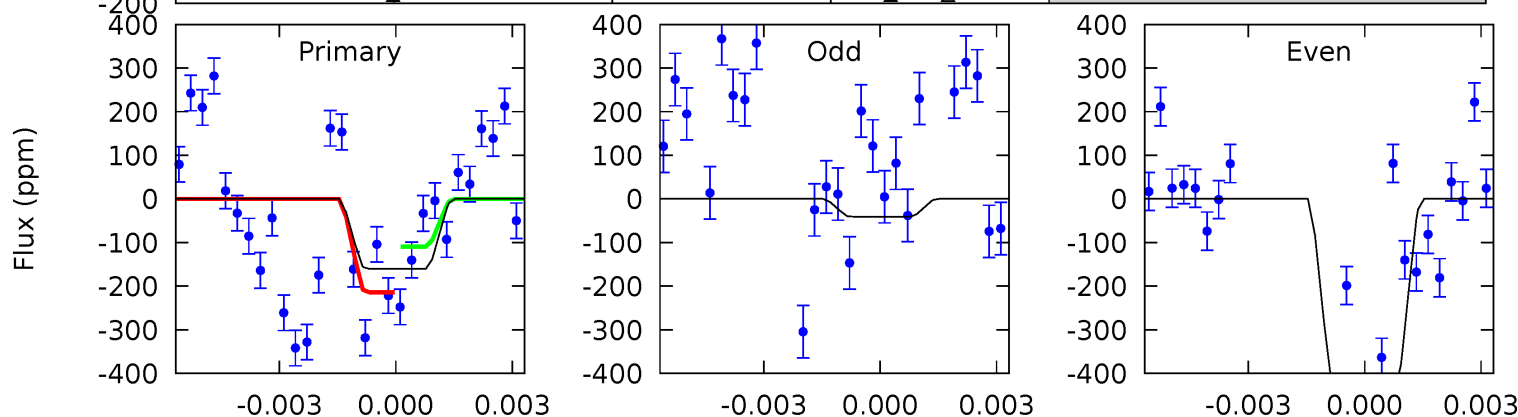
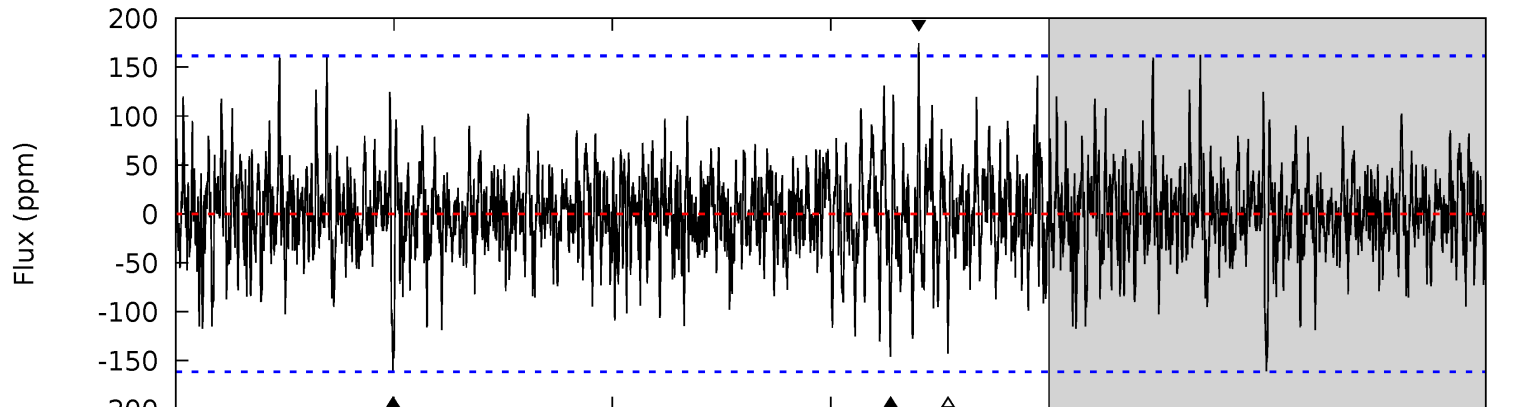
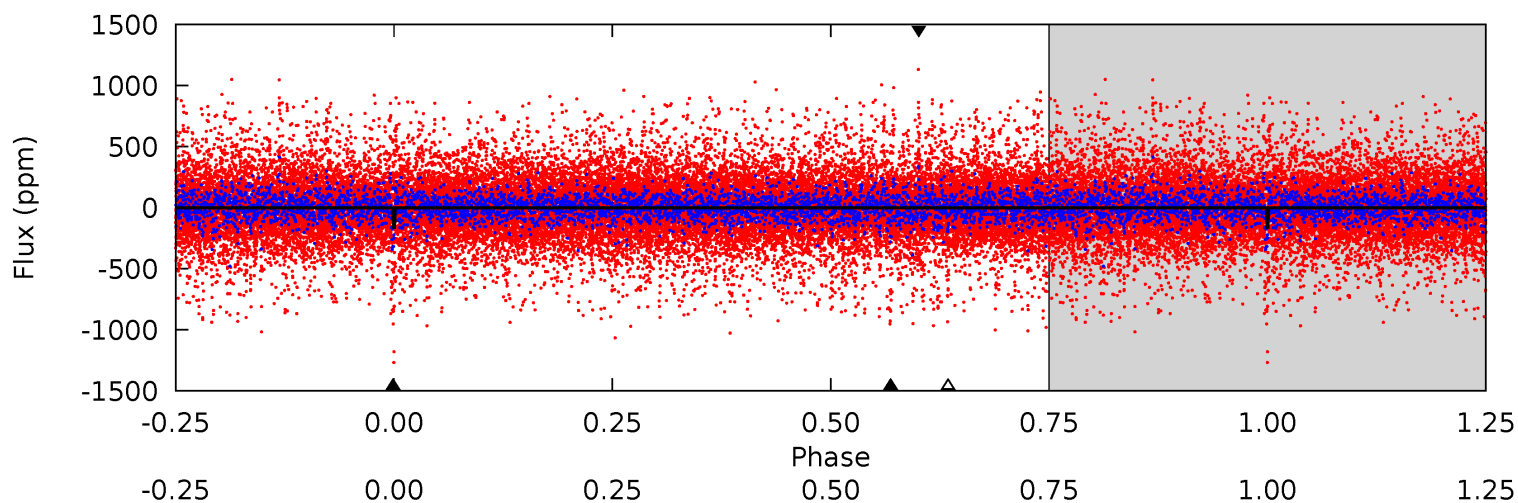
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.2	11.2	9.99	14.5	5.16	2.82	3.75	7.17	2.66	1.26	-3.25	0.34	0.86	0.46	1.14



Alt Model-Shift Uniqueness Test

009597882-05, P = 117.840340 Days, E = 119.299878 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.25	4.78	4.67	5.71	5.28	3.01	1.29	0.58	-0.45	0.11	-0.93	6.56	5.38	0.52	1.72



Stellar Parameters For KIC 009597882

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5330^{+159}_{-143}	$4.550^{+0.060}_{-0.082}$	$-0.280^{+0.300}_{-0.300}$	$0.775^{+0.113}_{-0.075}$	$0.777^{+0.096}_{-0.061}$	$2.354^{+0.613}_{-0.642}$
	+3%/-3%	+1%/-2%	+107%/-107%	+15%/-10%	+12%/-8%	+26%/-27%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009597882-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-374 ± 33	$1.55^{+0.58}_{-0.54}$	442^{+18}_{-16}	5509^{+1297}_{-699}	16198^{+21412}_{-7527}
Alt.	-146 ± 31	$2.70^{+0.59}_{-0.56}$	443^{+18}_{-17}	3682^{+339}_{-261}	2056^{+1353}_{-764}

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

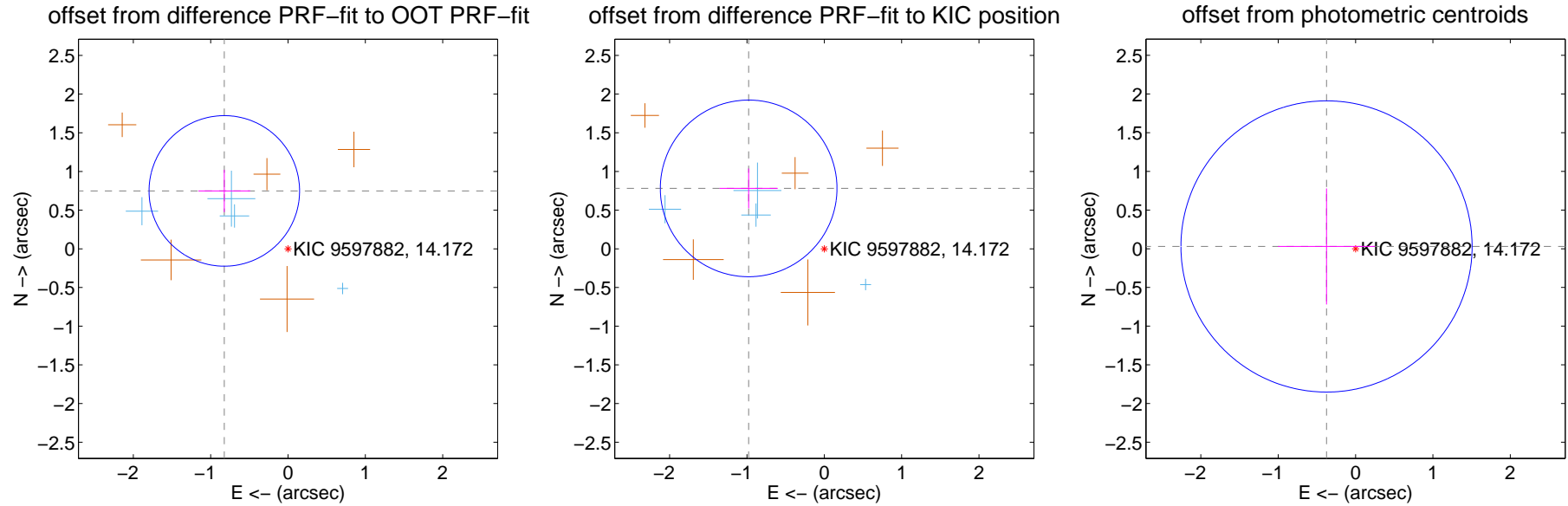
DV Centroid Data

Supplemental centroid analysis for 009597882-05. Kepler magnitude: 14.17. Transit SNR 5.55

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.113 \pm 0.324	3.43	0.824 \pm 0.335	0.749 \pm 0.273
PRF-fit source offset from KIC position	1.252 \pm 0.381	3.29	0.978 \pm 0.376	0.781 \pm 0.257
photometric centroid source offset	0.38 \pm 0.63	0.60	0.38 \pm 0.63	0.03 \pm 0.75



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.

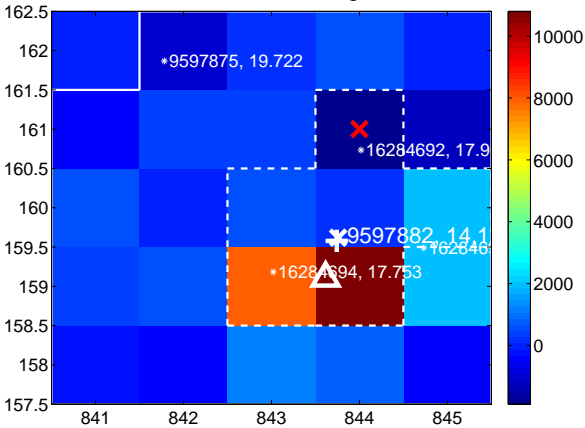
Q1 no difference image



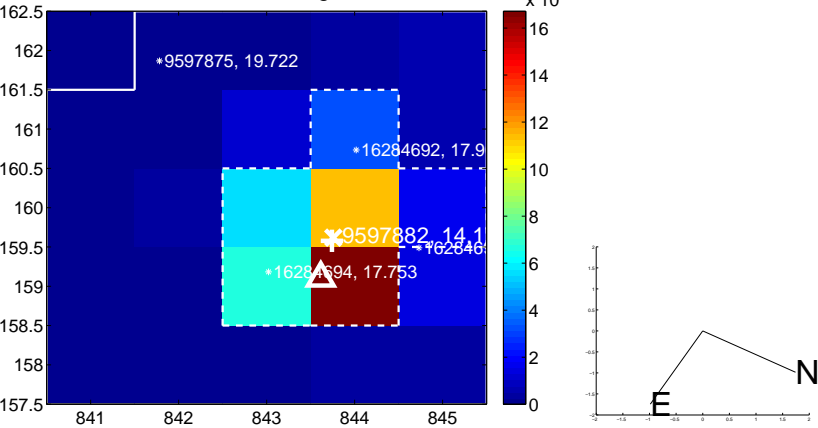
Q1 no OOT image



Q2 difference image



Q2 OOT image



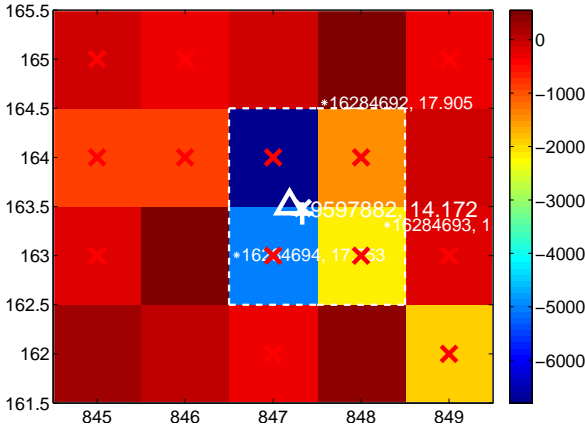
Q3 no difference image



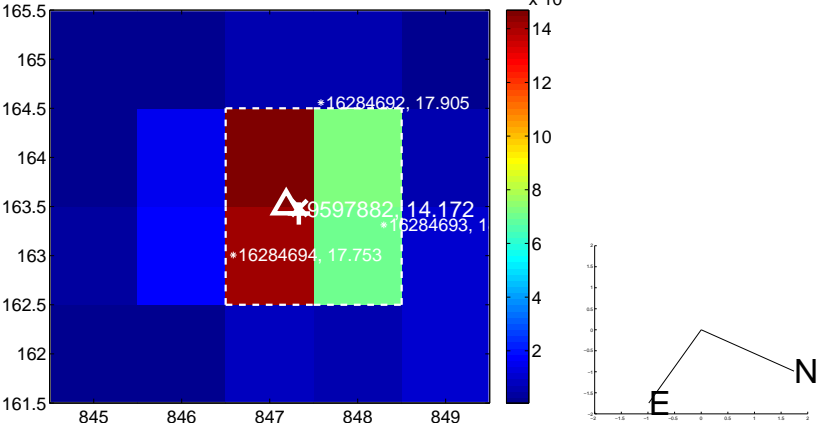
Q3 no OOT image



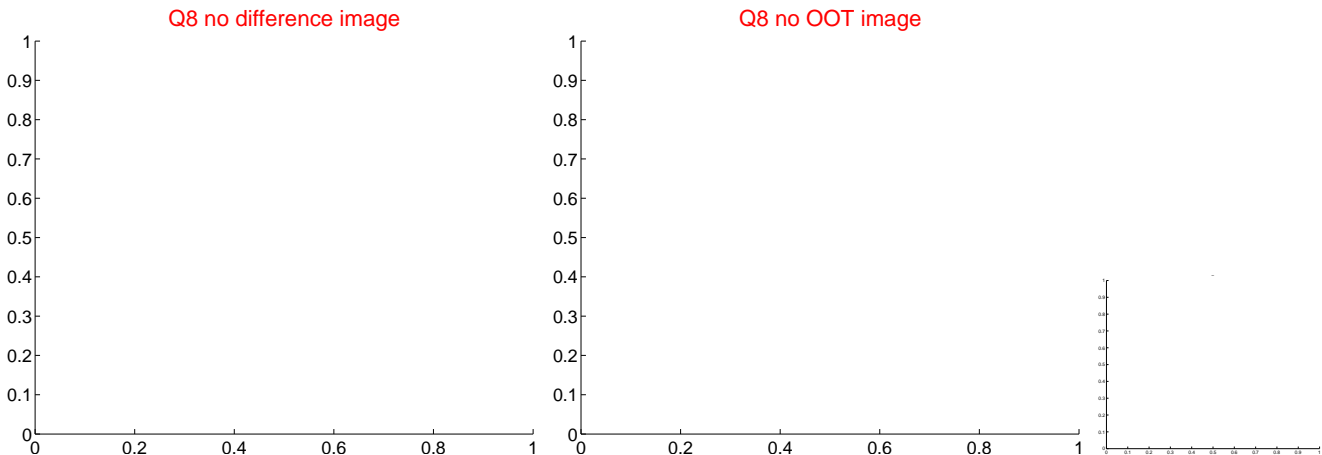
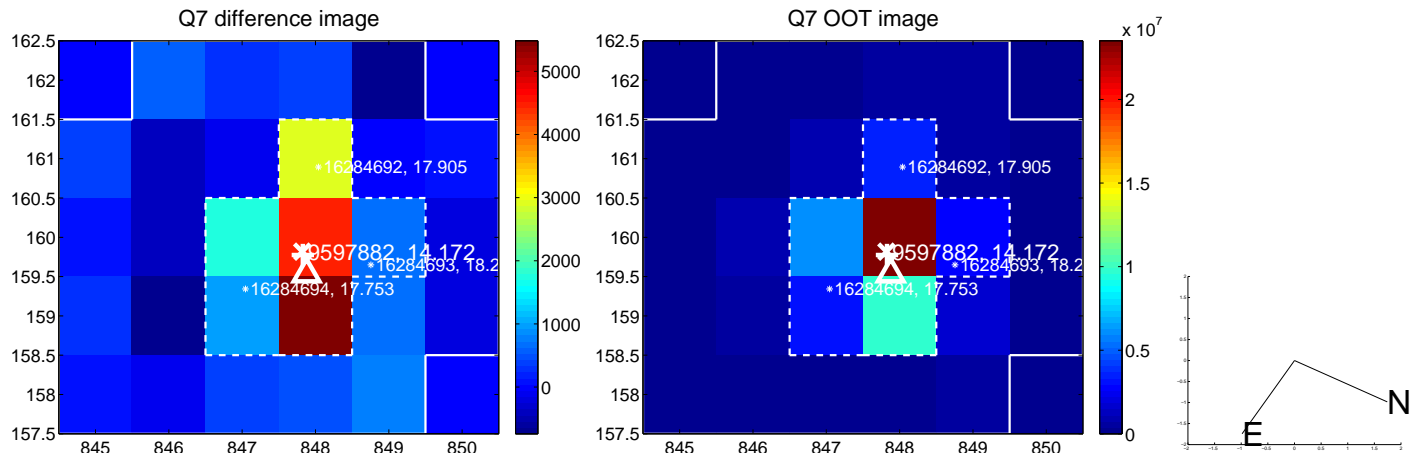
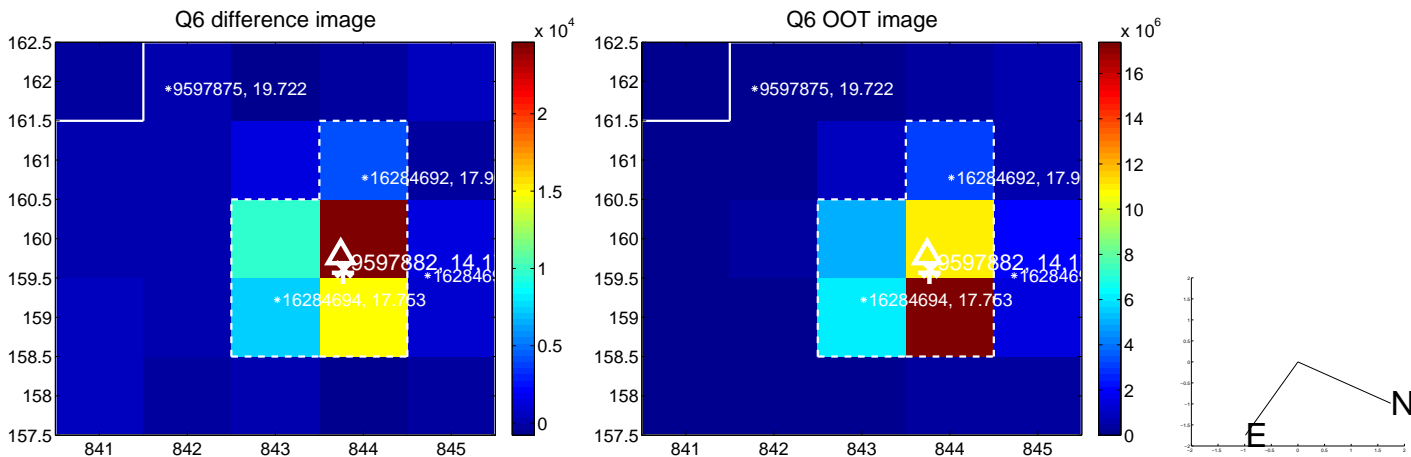
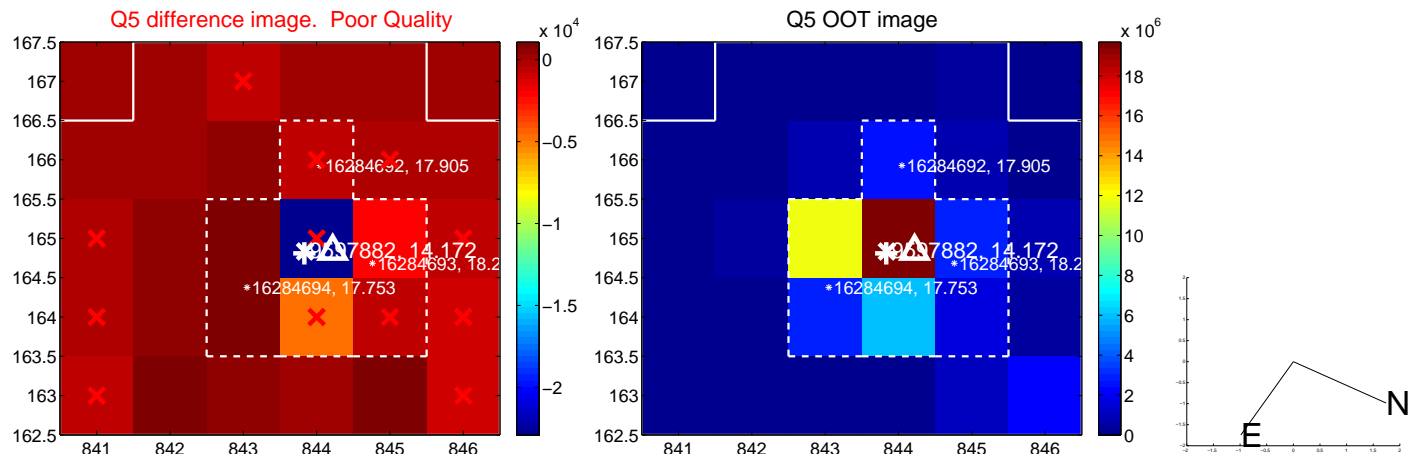
Q4 difference image. Poor Quality



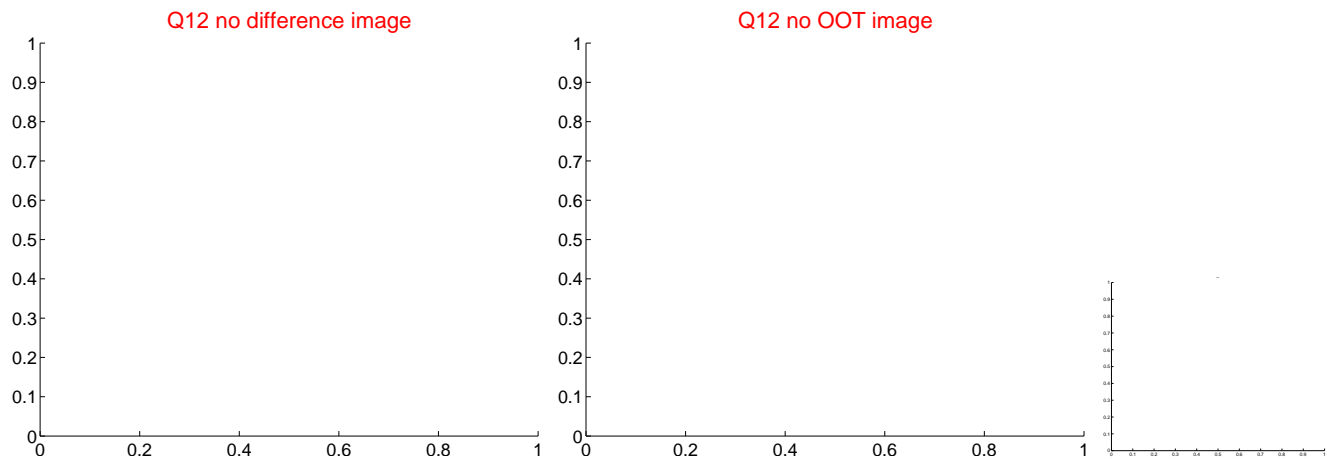
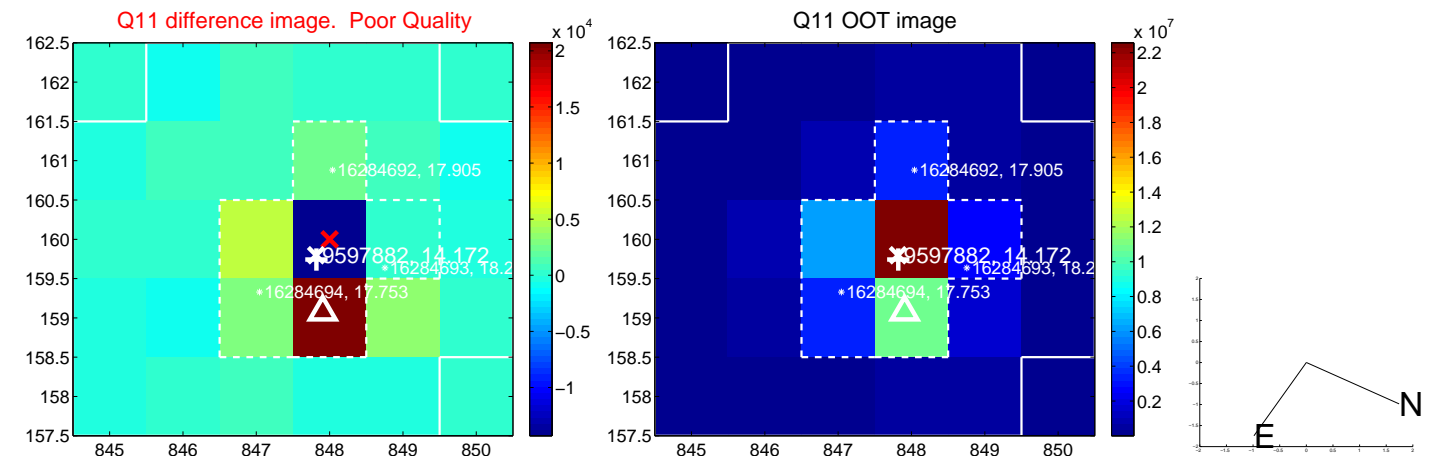
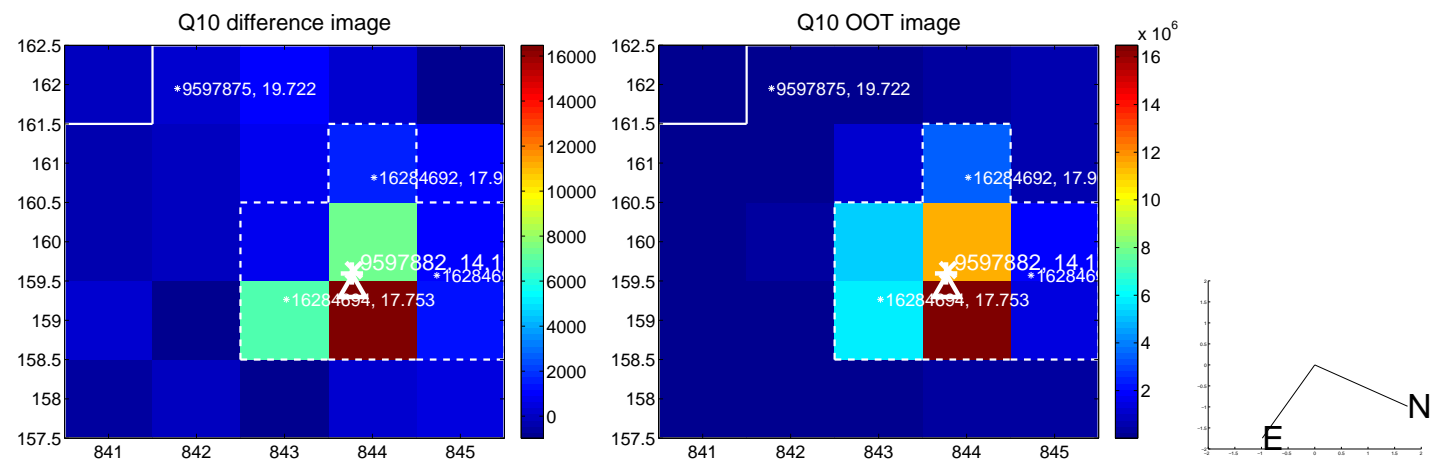
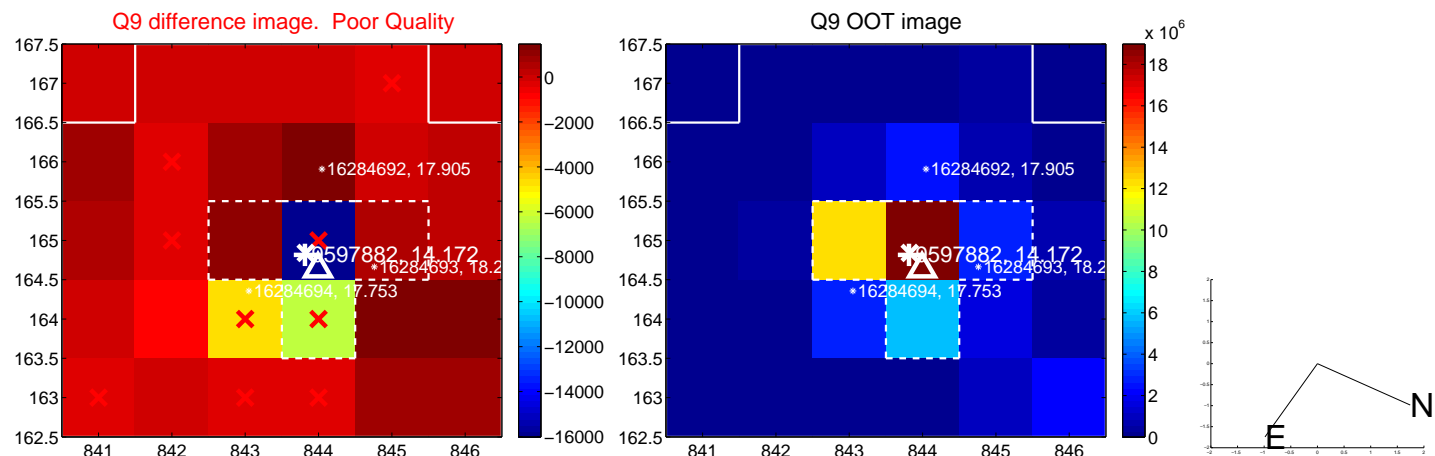
Q4 OOT image



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.

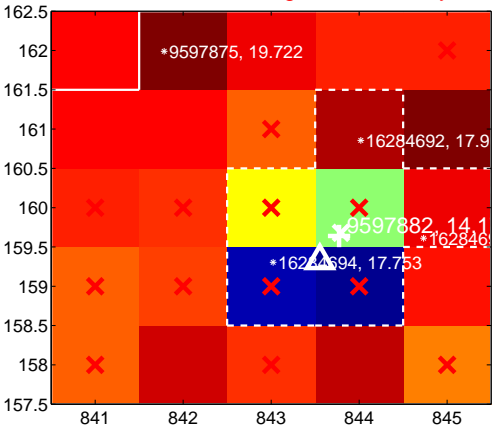
Q13 no difference image



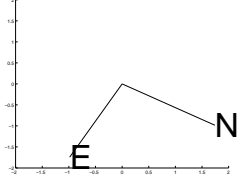
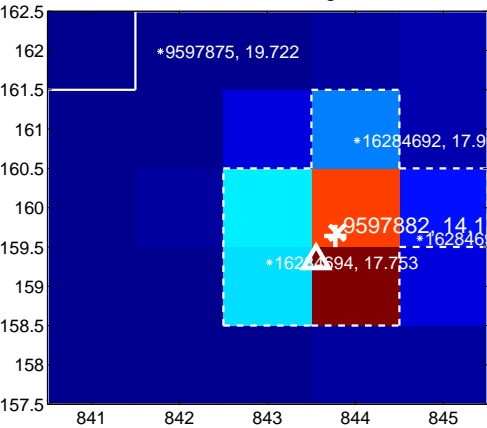
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



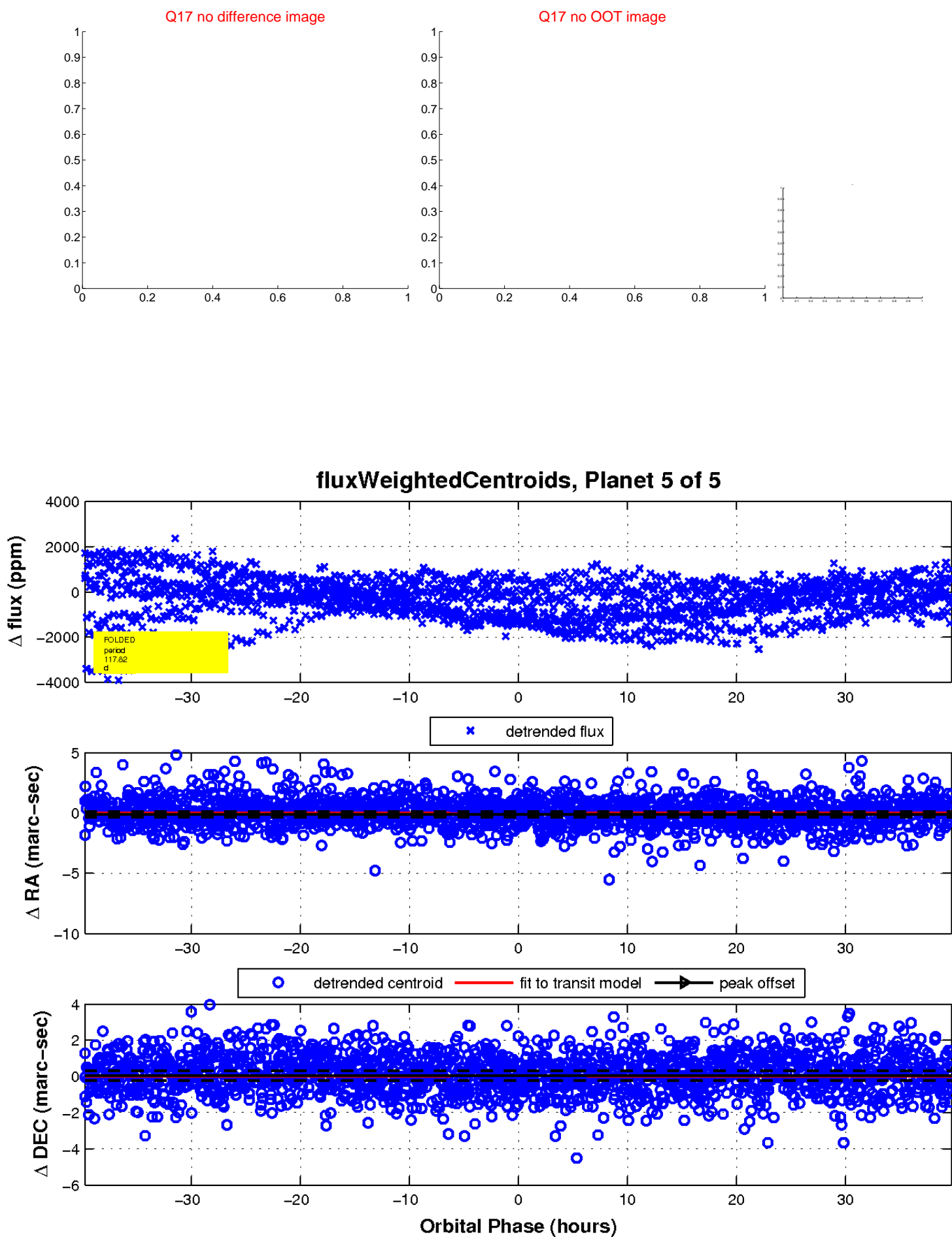
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

