

KIC 009848641

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})
009848641-01	OBS	No	2.171786	132.711702	7.5	10.283	7.5	3.2	2.74	7037	0.92	11158.64
009848641-02	OBS	No	74.320503	156.463919	81.4	26.463	9.0	5.9	2.74	7037	2.68	100.44
009848641-03	OBS	No	178.613561	309.208524	152.7	15.301	8.2	6.4	2.74	7037	3.67	31.20
009848641-04	OBS	No	82.221118	163.500974	237.4	2.693	8.1	8.6	2.74	7037	4.92	87.78
009848641-05	OBS	No	133.211763	192.939425	180.2	5.834	7.4	7.5	2.74	7037	4.47	46.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009848641-01	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
009848641-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009848641-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009848641-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009848641-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT

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

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

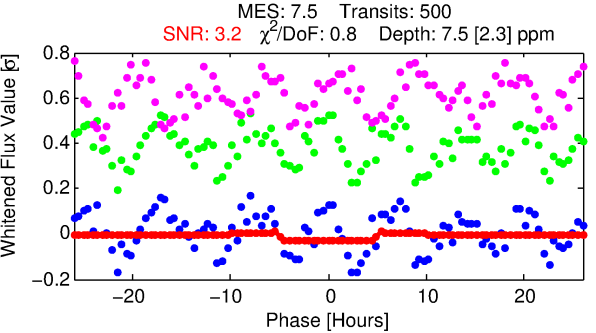
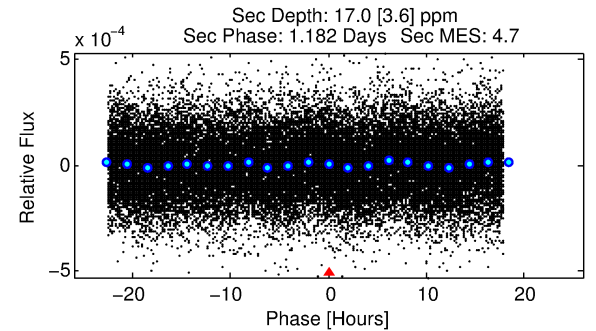
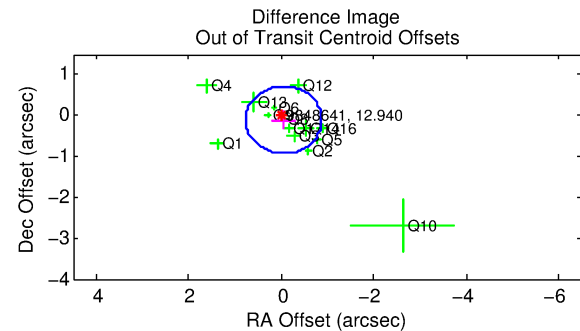
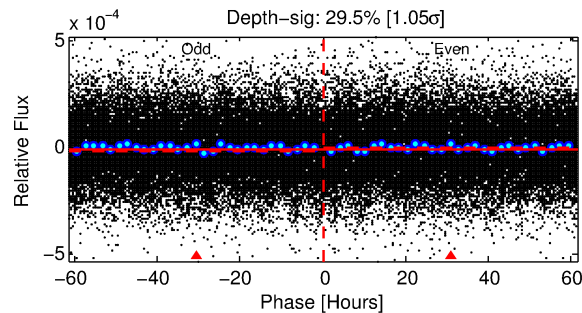
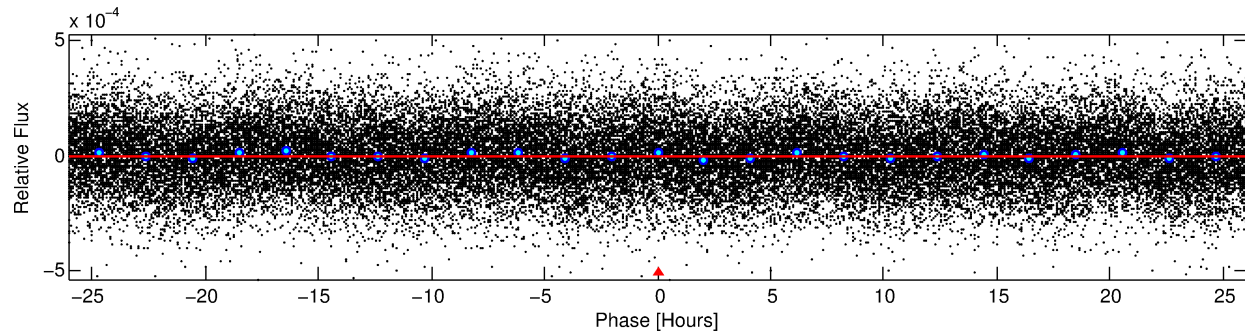
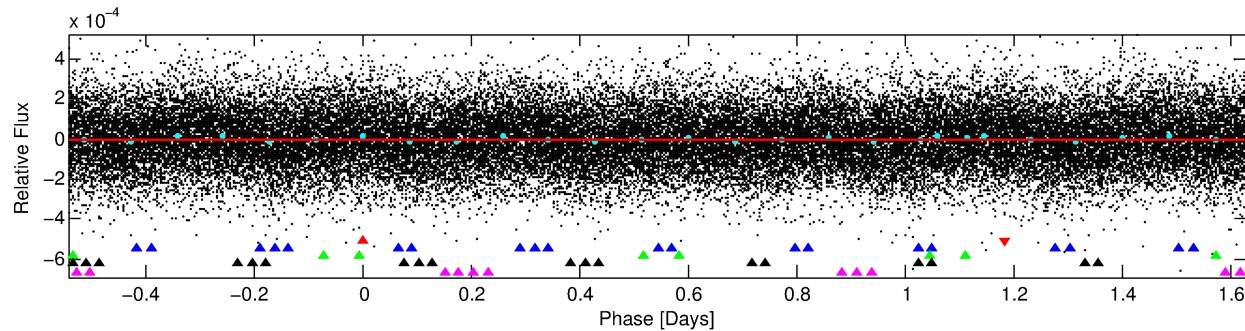
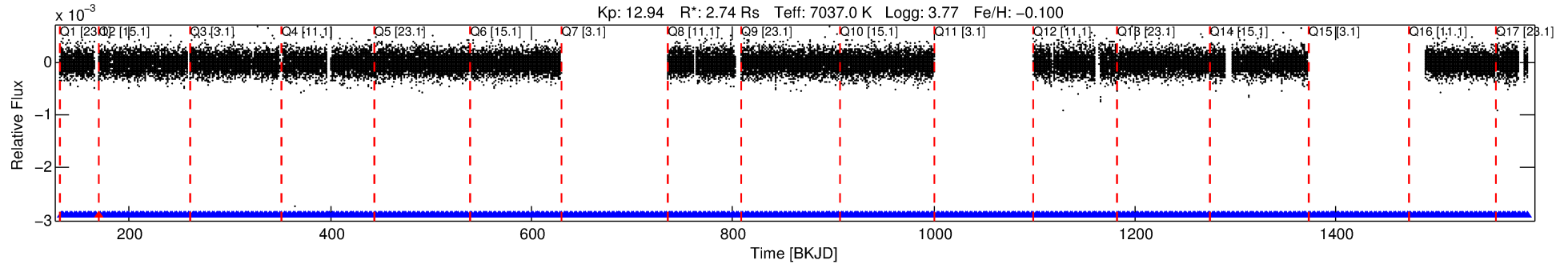
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009848641-01

No Significant Match Found

DV One-Page Summary

KIC: 9848641 Candidate: 1 of 5 Period: 2.172 d



DV Fit Results:

Period = 2.17179 [0.00008] d
Epoch = 132.7117 [0.0189] BKJD
Rp/R* = 0.0031 [0.0012]
a/R* = 1.10 [0.42]
b = 0.95 [0.23]
Seff = 11158.64 [5435.43]
Teq = 2621 [319] K
Rp = 0.92 [0.46] Re
a = 0.0385 [0.0114] AU
Ag = 16.27 [14.92] [1.02 σ]
Teffp = 8139 [1632] K [3.32 σ]

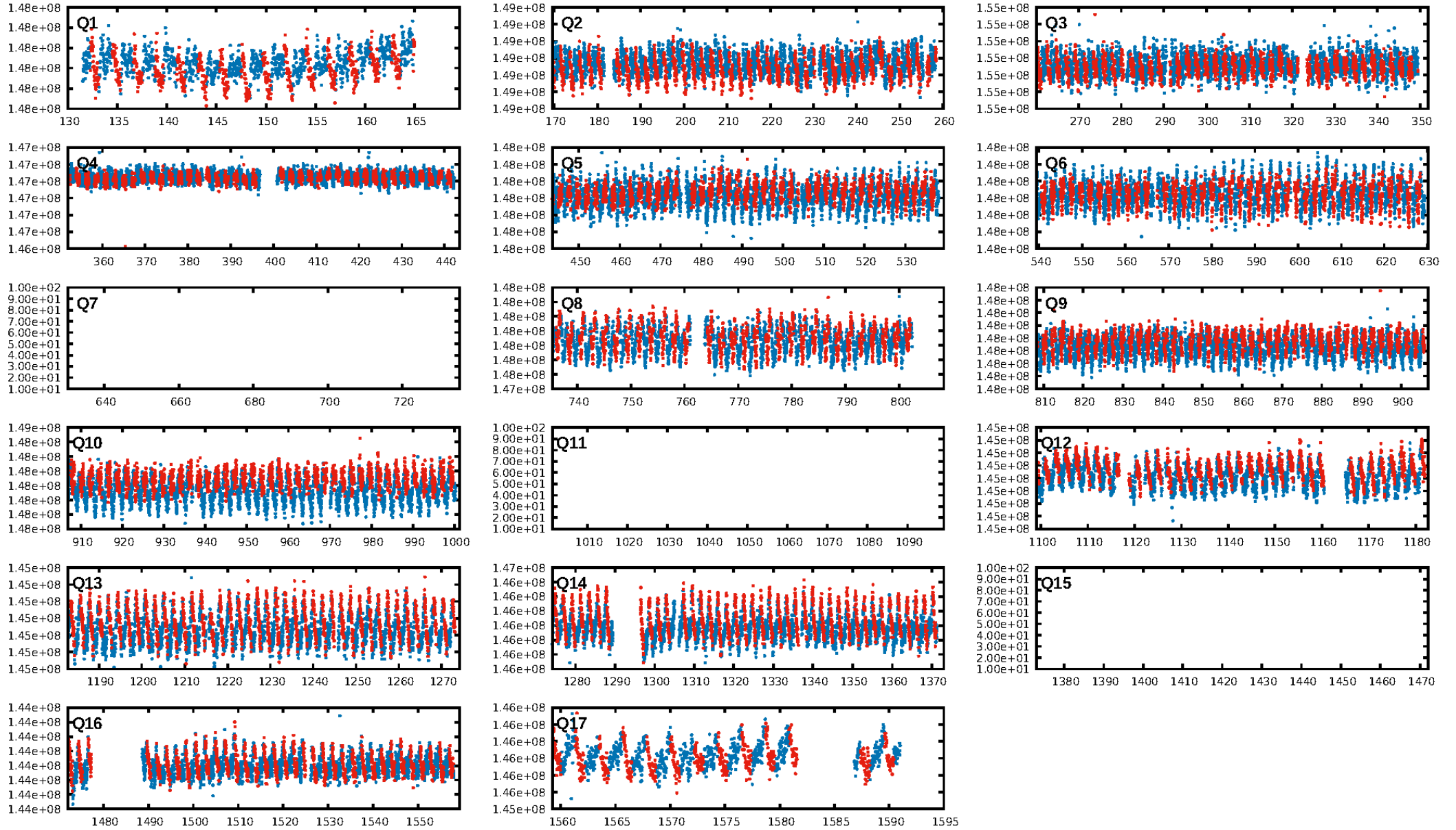
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [60.99 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.22e-10
RollingBand-fgt: 1.00 [471/472]
GhostDiagnostic-chr: -0.1465
Centroid-sig: 1.5%
Centroid-so: 5.435 arcsec [2.28 σ]
OotOffset-rm: 0.116 arcsec [0.42 σ]
KicOffset-rm: 0.184 arcsec [0.68 σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [14/14]

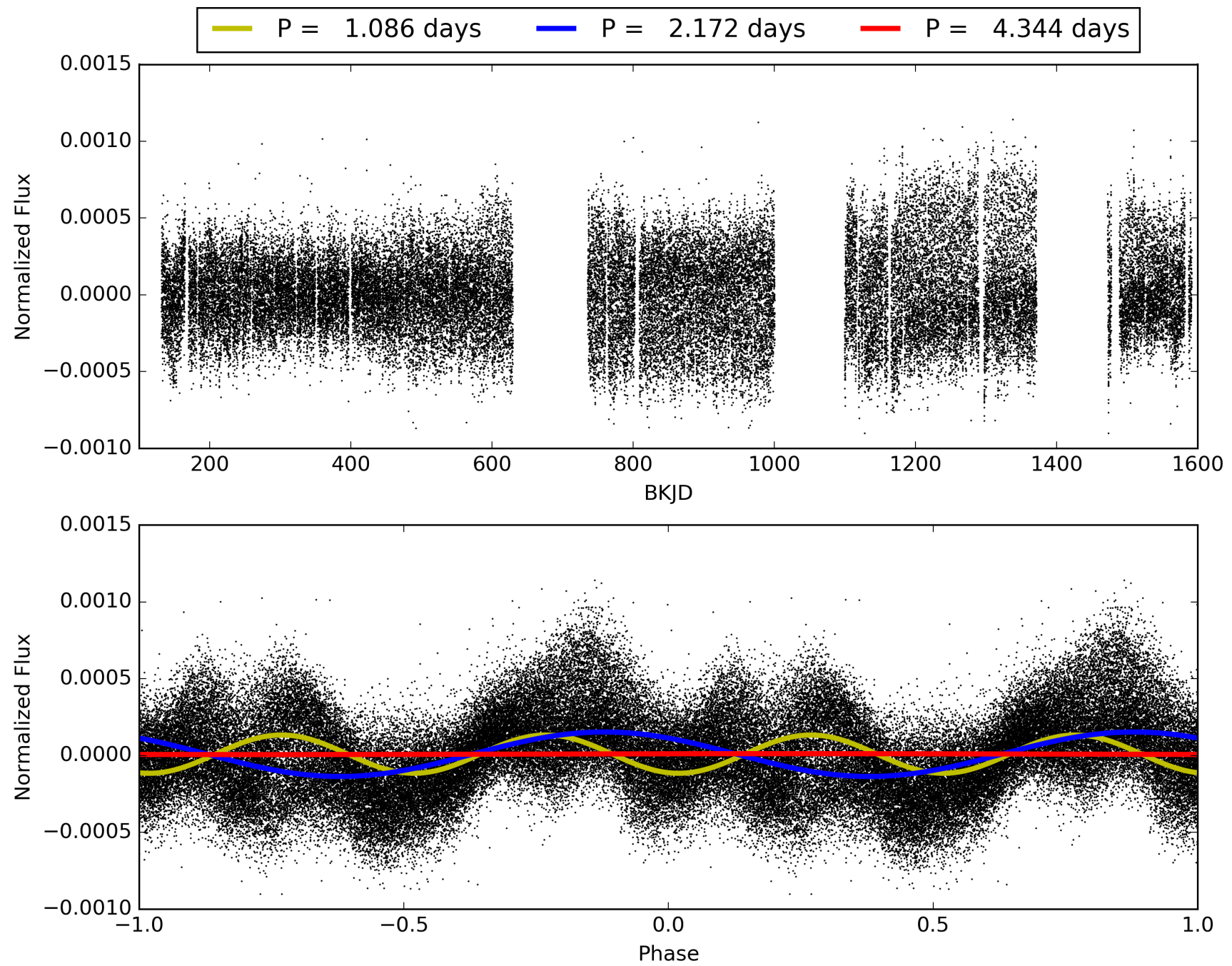
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:59:14 Z

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

TCE 009848641-01, PDC Light Curves

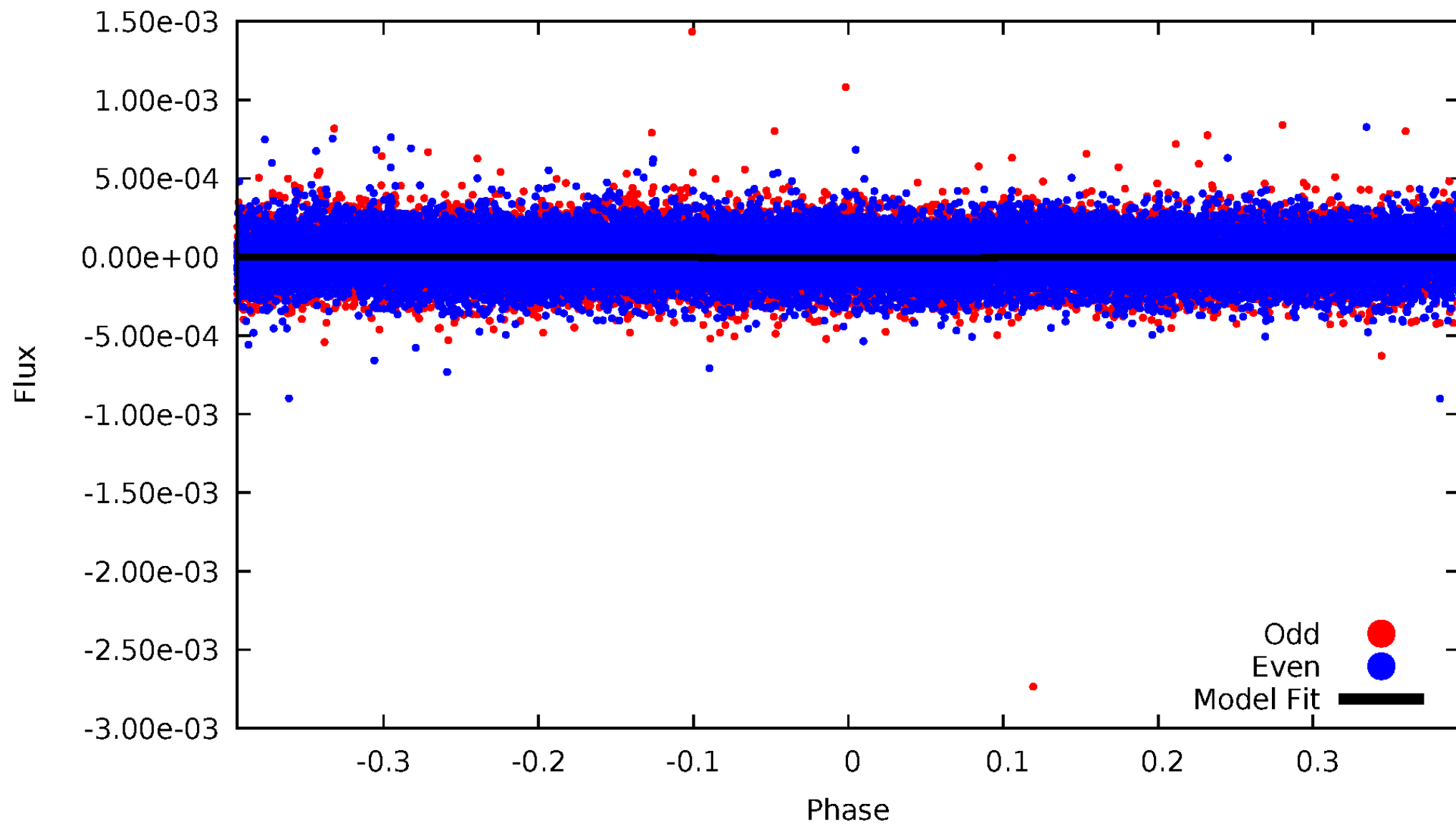


TCE 009848641-01



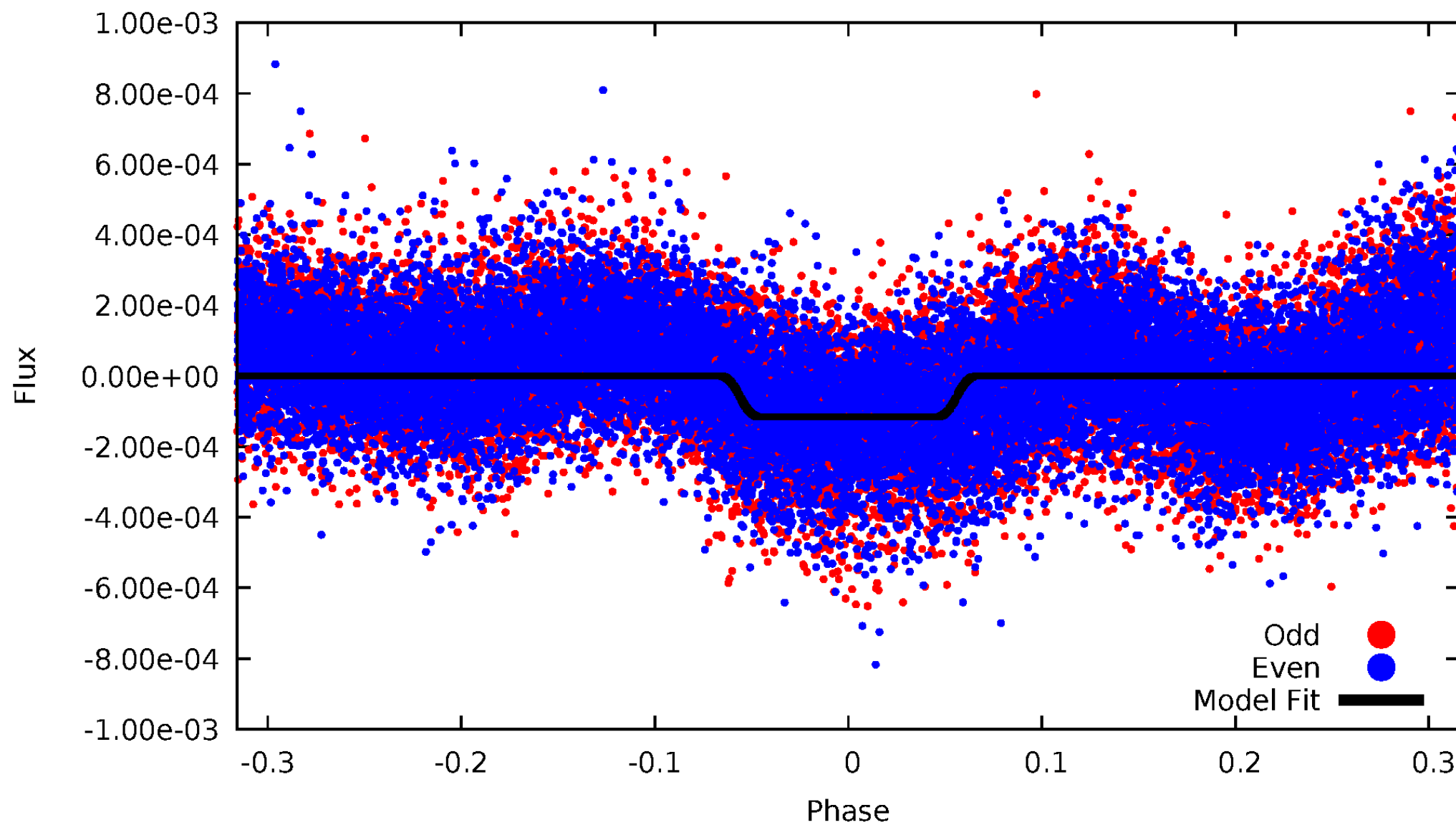
DV Odd/Even

TCE 009848641-01

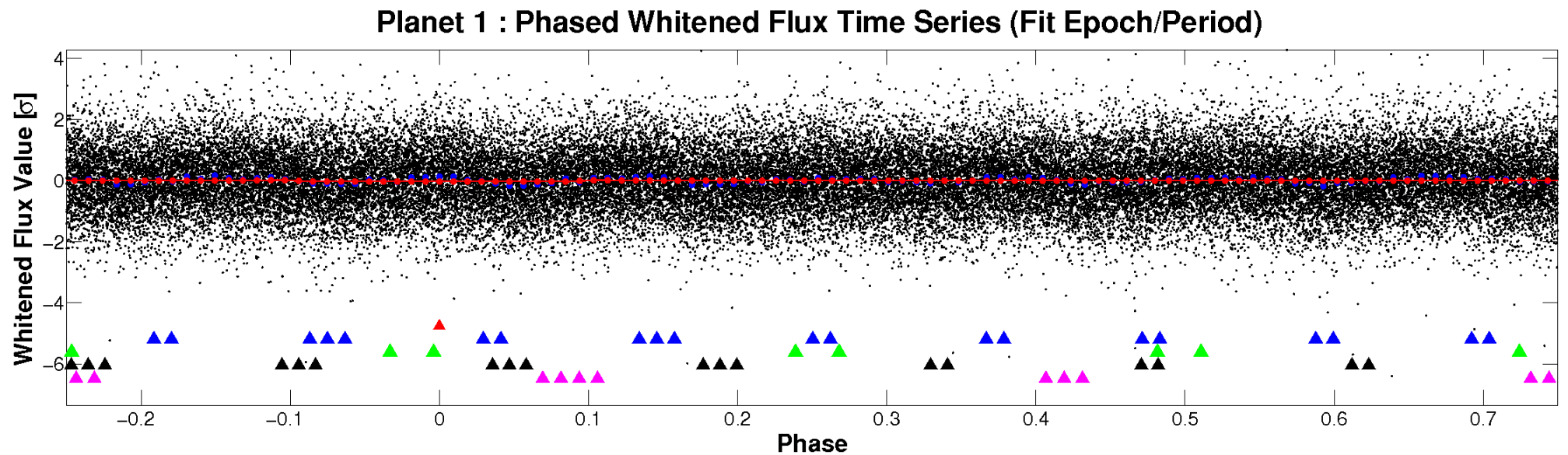
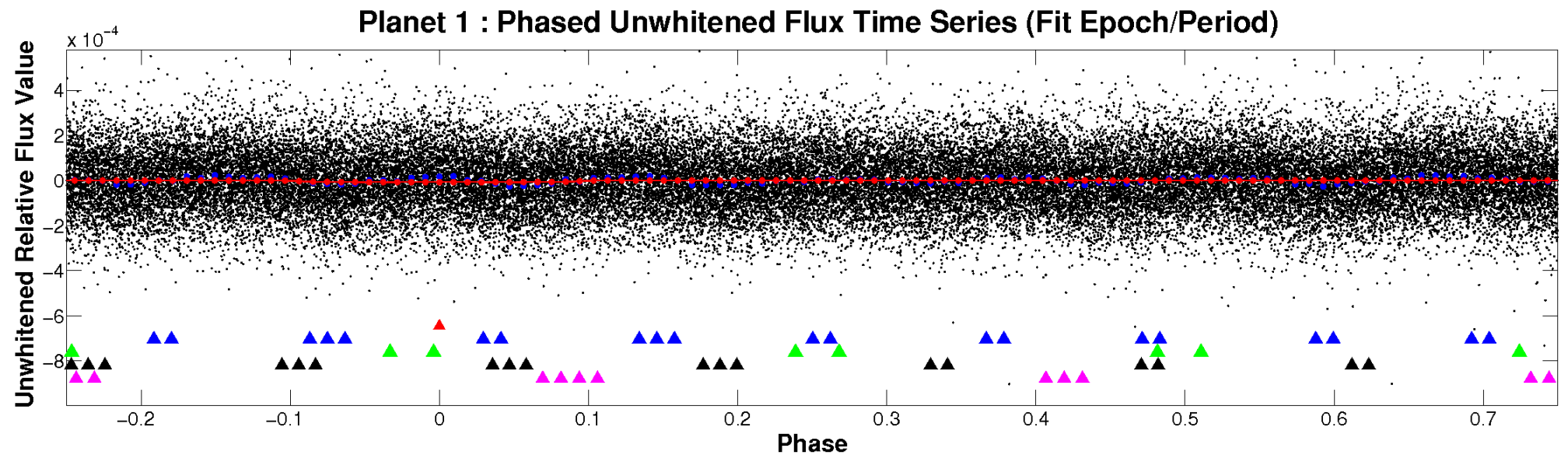


ALT Odd/Even

TCE 009848641-01

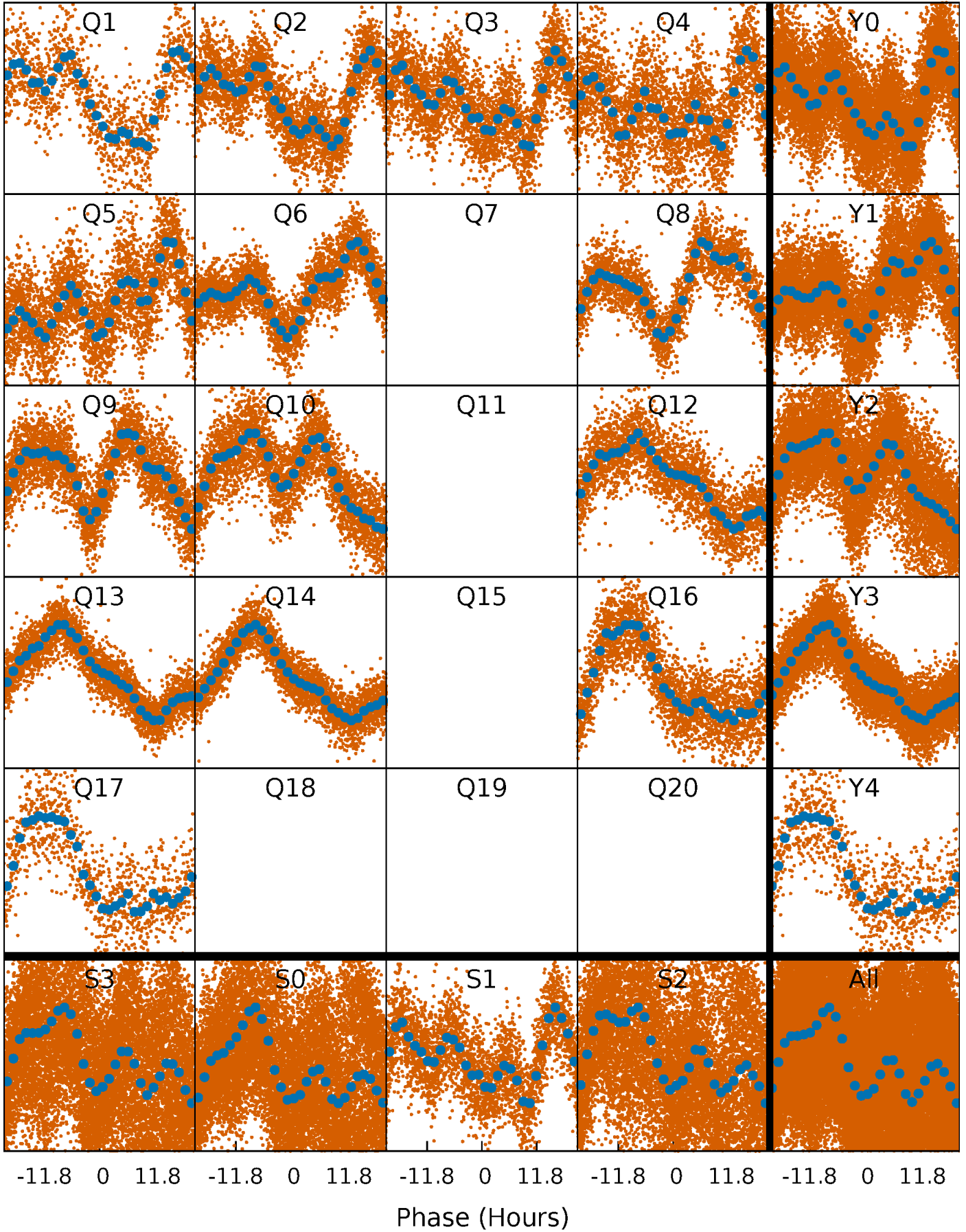


Non-Whitened Vs. Whitened Light Curve



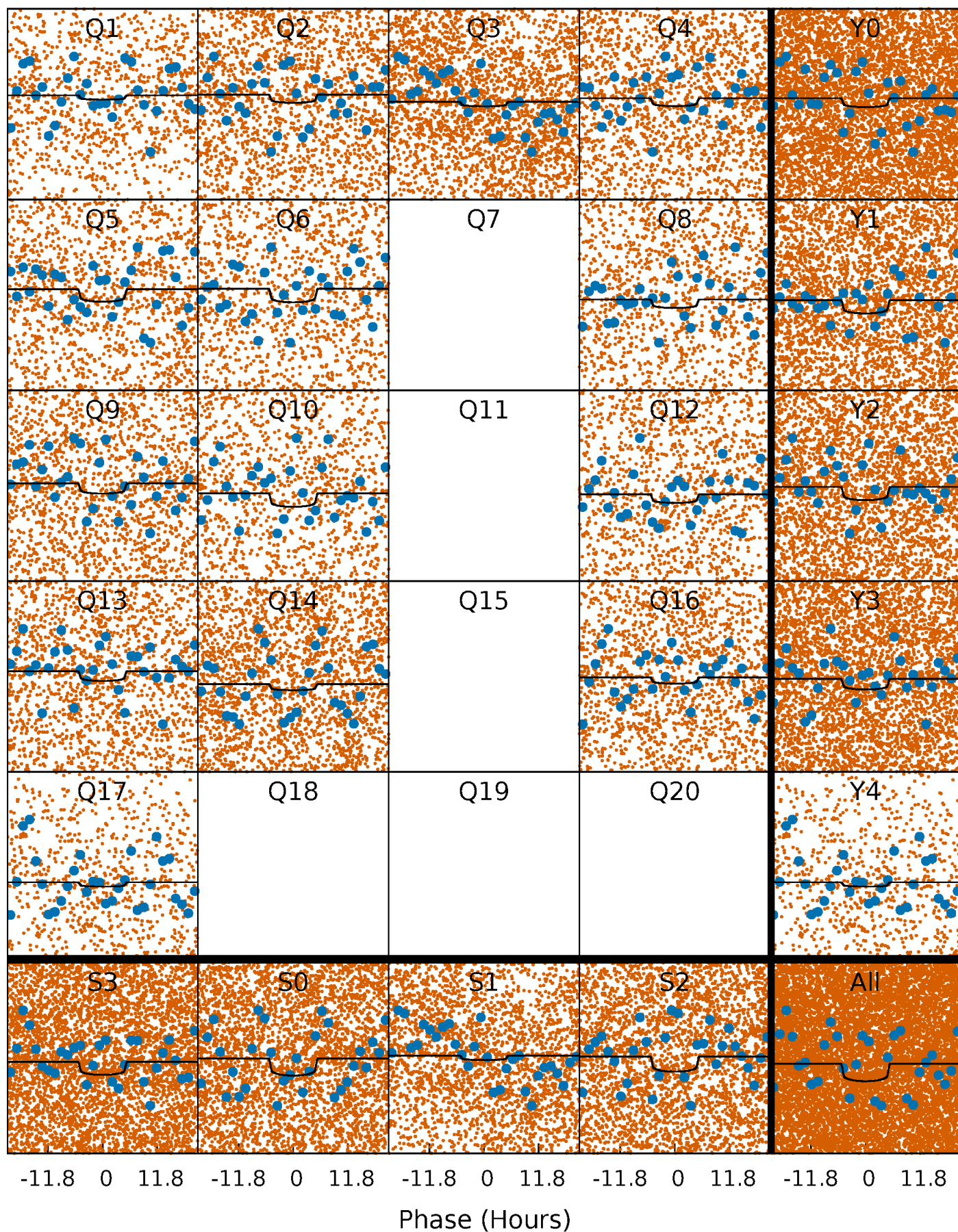
PDC Quarter-Phased Transit Curves

TCE 009848641-01 P= 2.171786 Days $T_0=132.711702$ (BKJD)



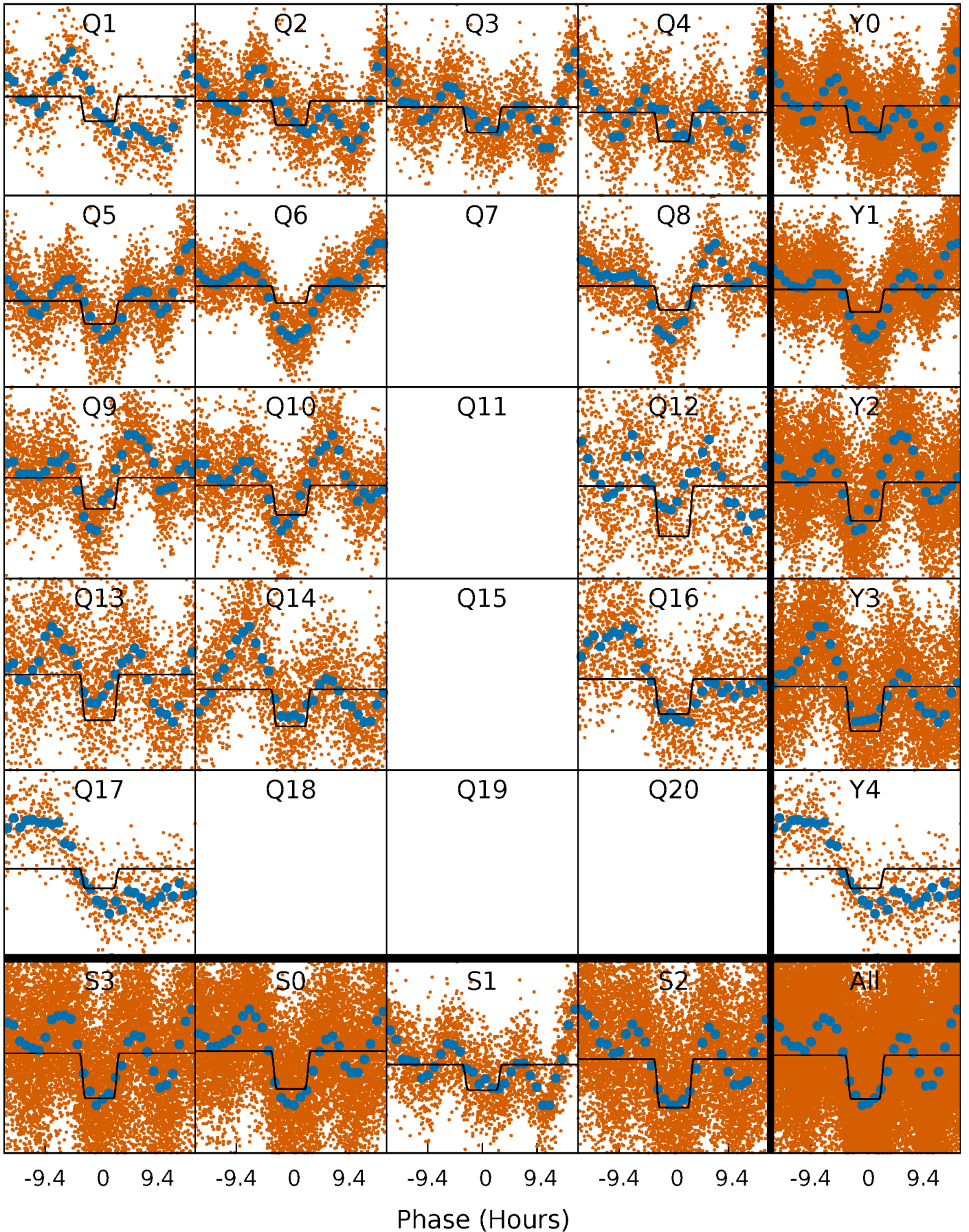
DV Quarter-Phased Transit Curves

TCE 009848641-01 P= 2.171786 Days $T_0=132.711702$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

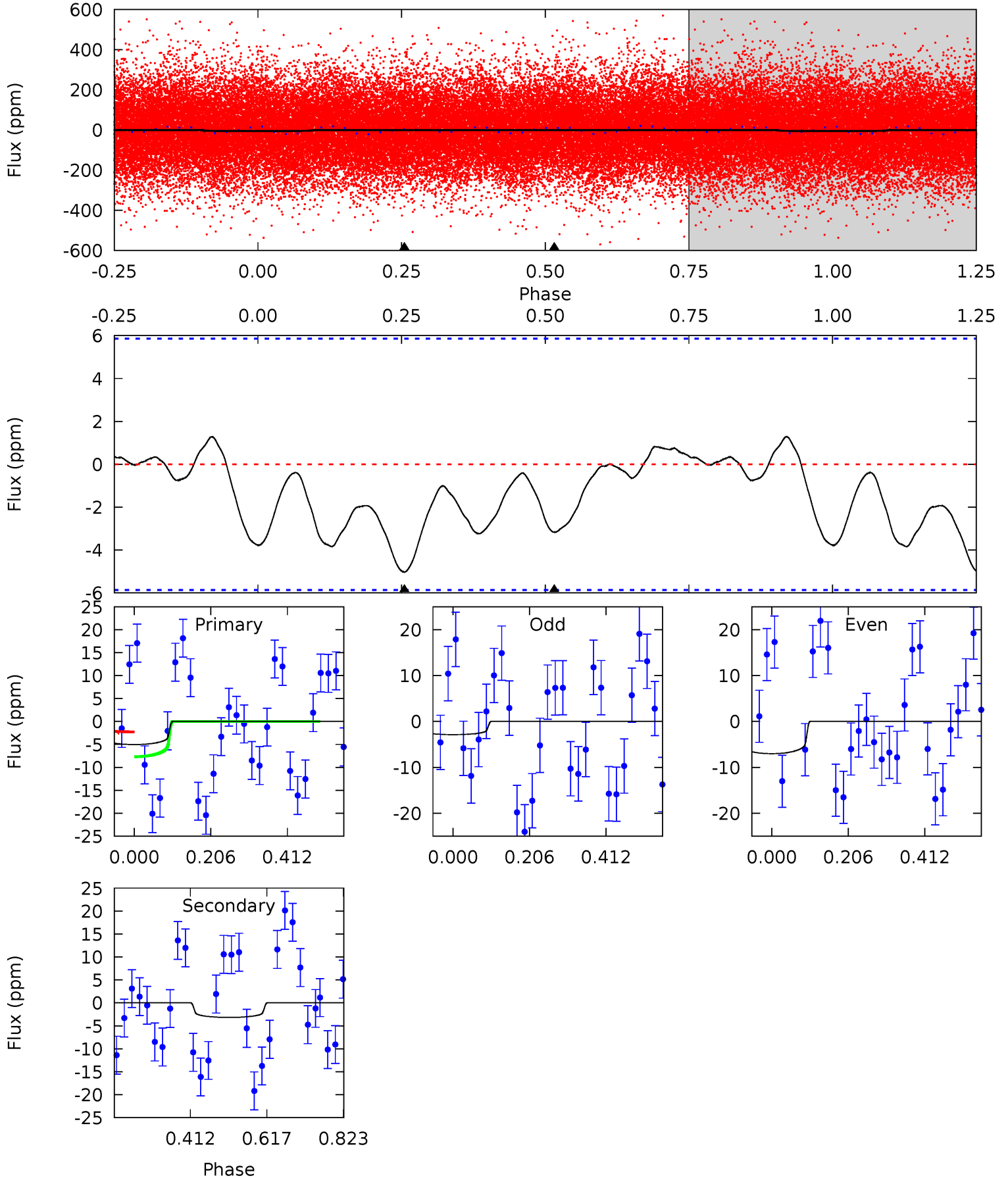
TCE 009848641-01 P= 2.171872 Days $T_0=132.656557$ (BKJD)



DV Model-Shift Uniqueness Test

009848641-01, P = 2.171786 Days, E = 130.539916 Days

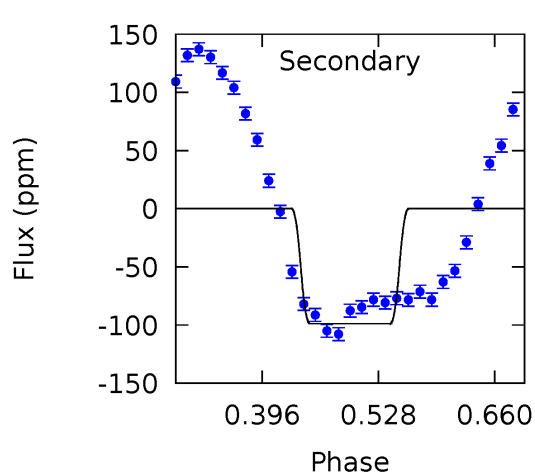
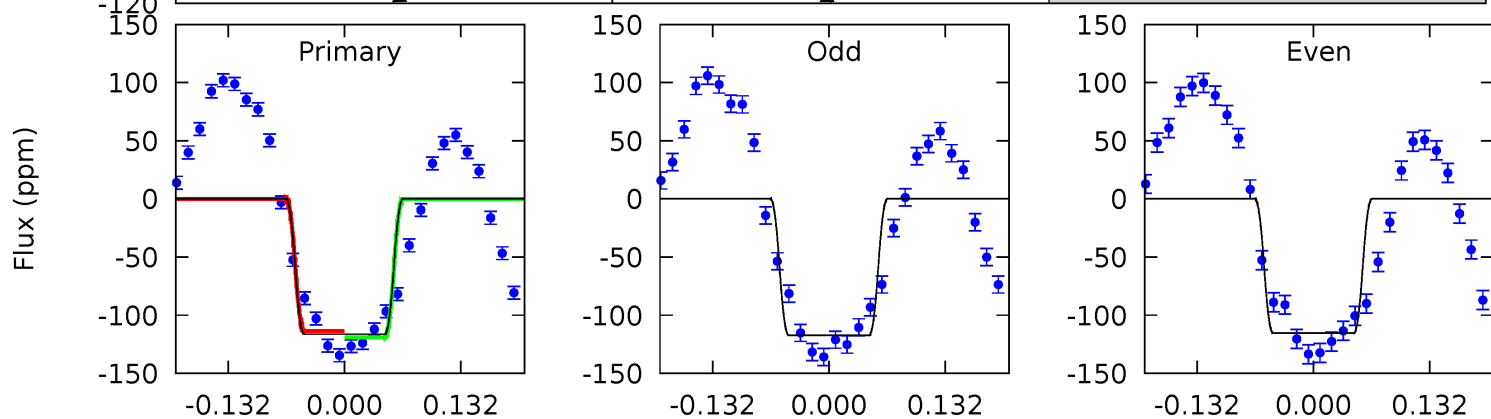
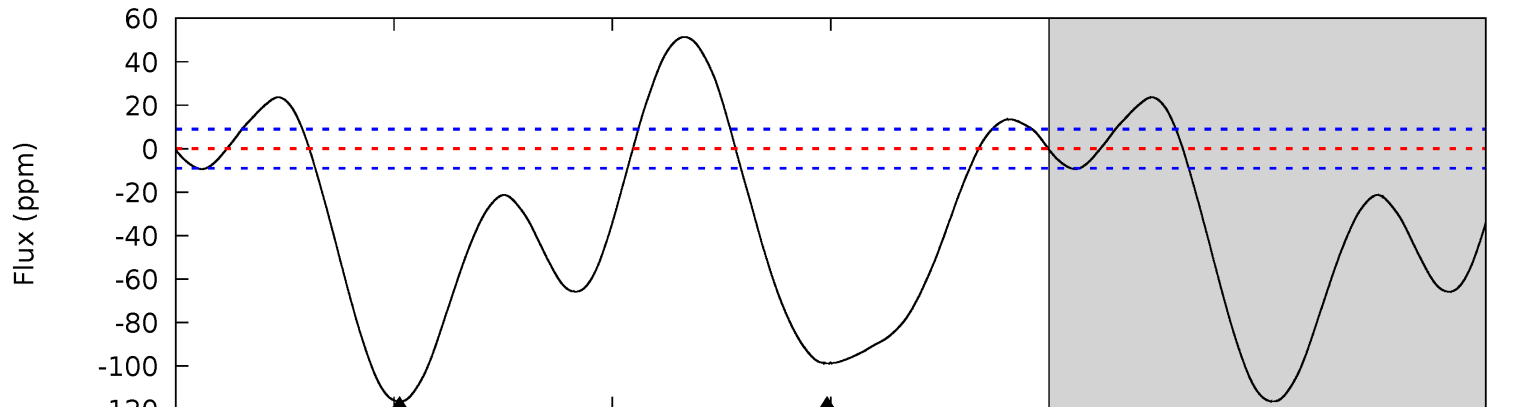
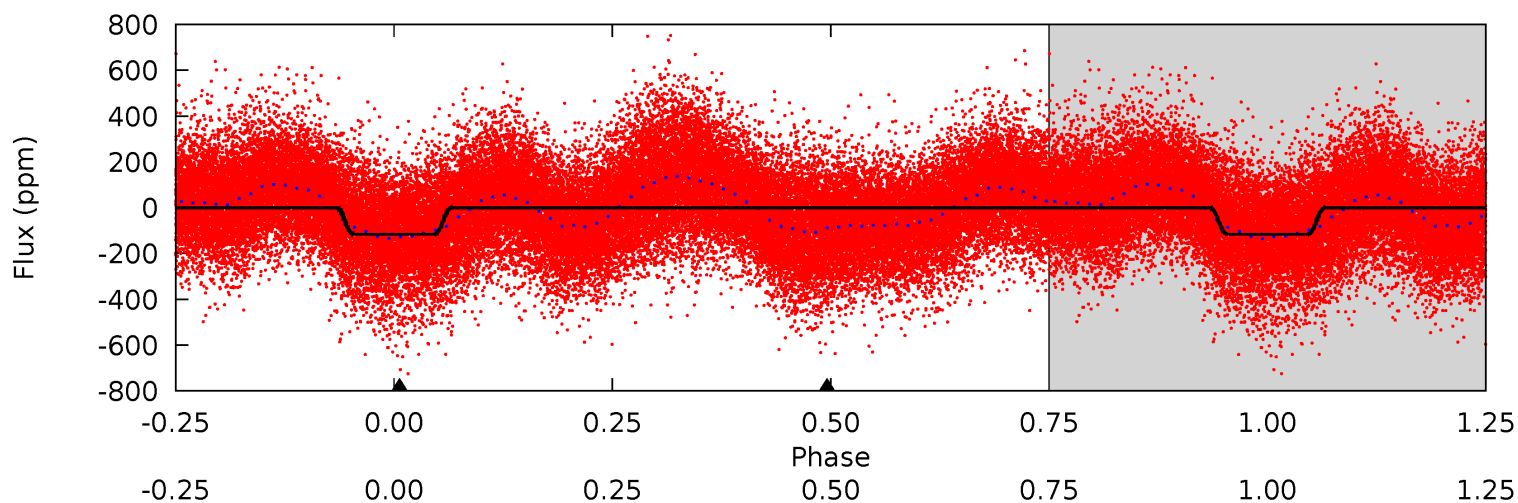
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.78	2.39	0	0	4.41	1.27	1.09	3.78	3.78	2.39	2.39	1.56	0.87	0.20	2.04



Alt Model-Shift Uniqueness Test

009848641-01, P = 2.171872 Days, E = 130.484685 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
58.0	49.2	0	0	4.51	1.51	16.2	58.0	58.0	49.2	49.2	0.43	1.22	0.31	1.31



Stellar Parameters For KIC 009848641

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7037^{+187}_{-250}	$3.769^{+0.270}_{-0.090}$	$-0.100^{+0.250}_{-0.300}$	$2.744^{+0.472}_{-0.876}$	$1.612^{+0.224}_{-0.249}$	$0.110^{+0.182}_{-0.038}$
	+3%/-4%	+7%/-2%	+250%/-300%	+17%/-32%	+14%/-15%	+165%/-34%
Source	PHO1	FLK73	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 009848641-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3 ± 1	$0.87^{+0.38}_{-0.34}$	3591^{+220}_{-289}	5167^{+1710}_{-844}	$3.388^{+6.409}_{-1.927}$
Alt.	-99 ± 2	$3.09^{+0.55}_{-0.57}$	3595^{+199}_{-274}	6654^{+500}_{-419}	$8.478^{+3.501}_{-2.205}$

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 $A_{obs} \gg 1.0$

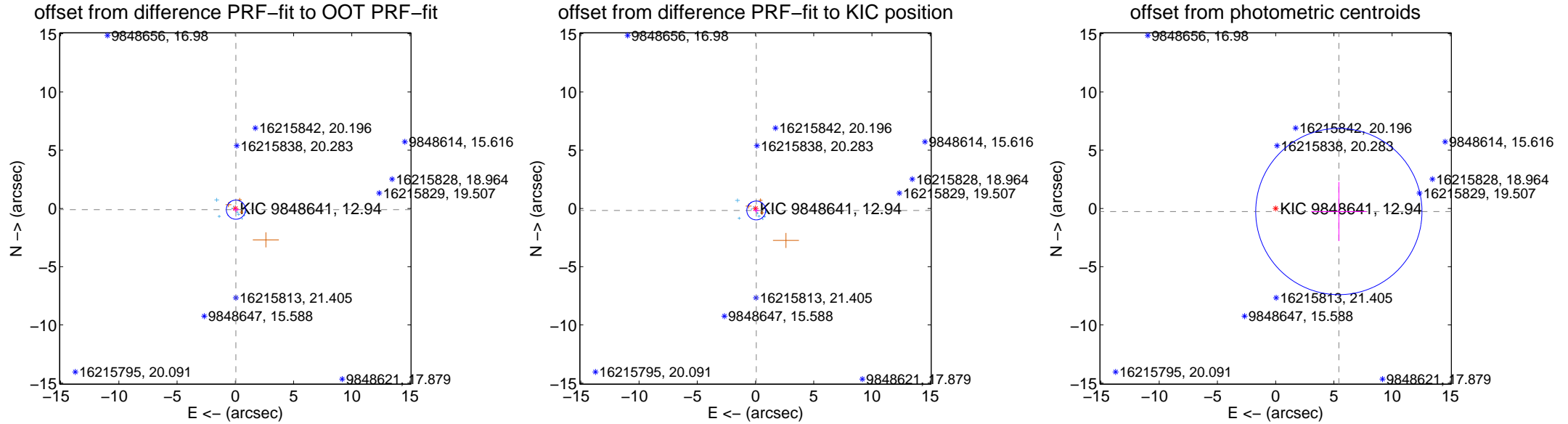
DV Centroid Data

Supplemental centroid analysis for 009848641-01. Kepler magnitude: 12.94. Transit SNR 3.21

There are 10 quarters with good PRF difference image offsets

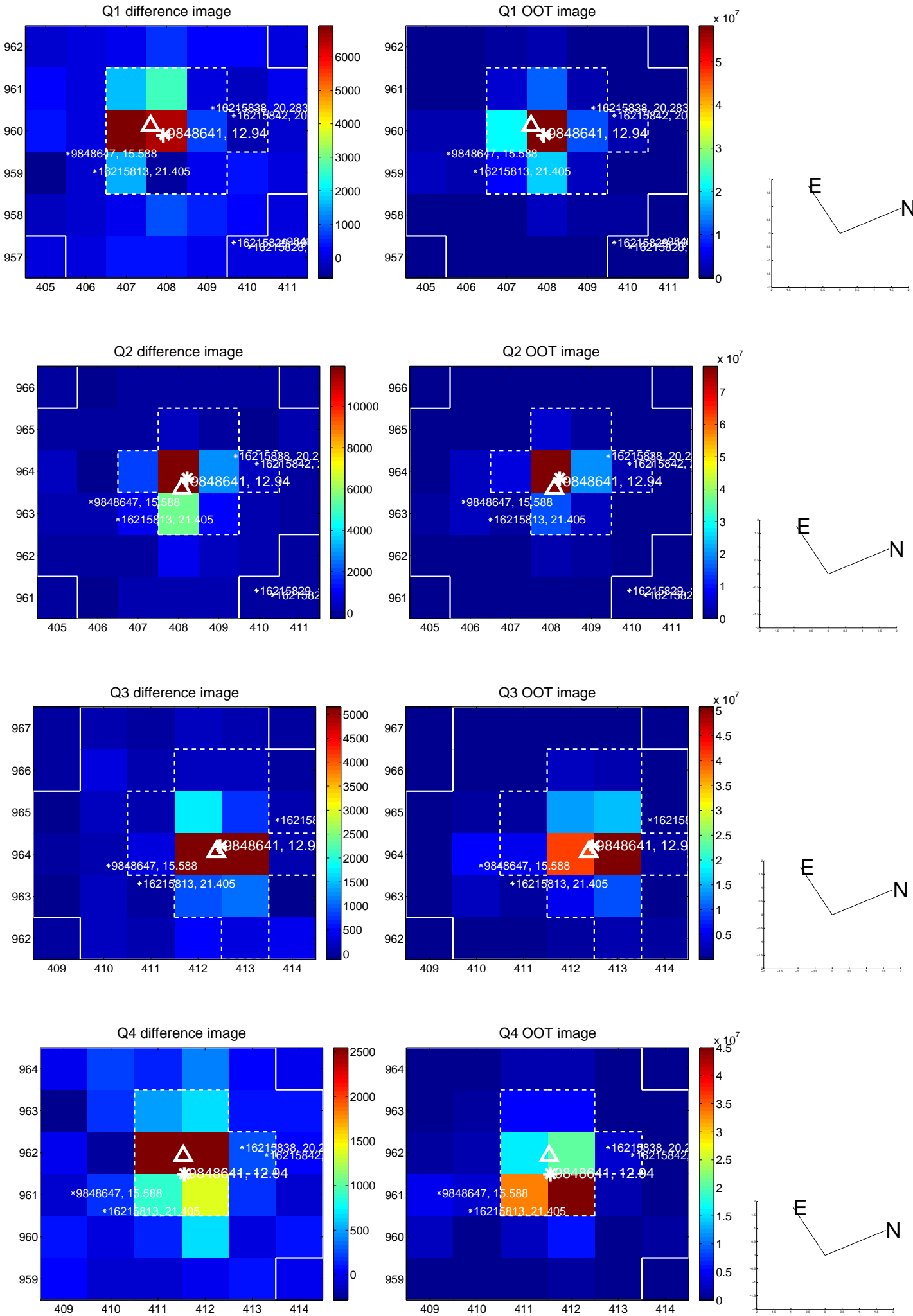
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.116 ± 0.275	0.42	-0.049 ± 0.258	-0.105 ± 0.212
PRF-fit source offset from KIC position	0.184 ± 0.270	0.68	-0.065 ± 0.254	-0.172 ± 0.224
photometric centroid source offset	5.43 ± 2.38	2.28	-5.43 ± 2.38	-0.27 ± 2.54

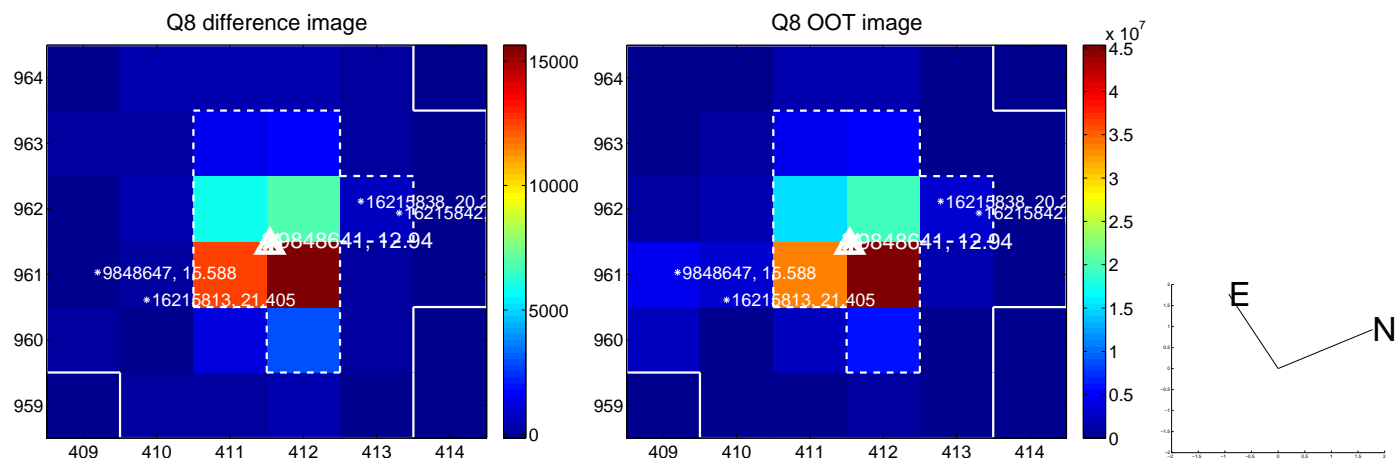
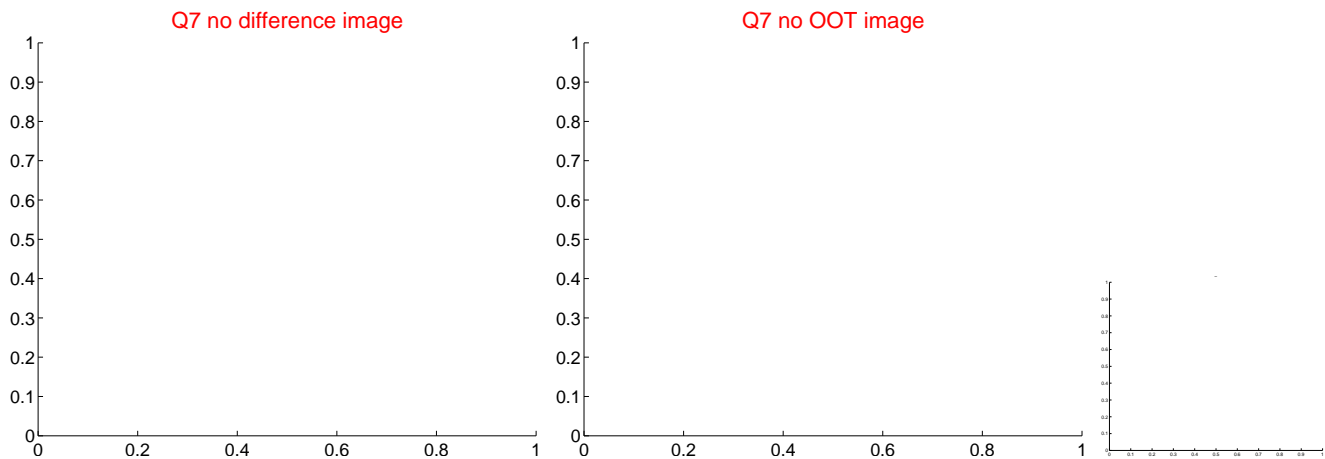
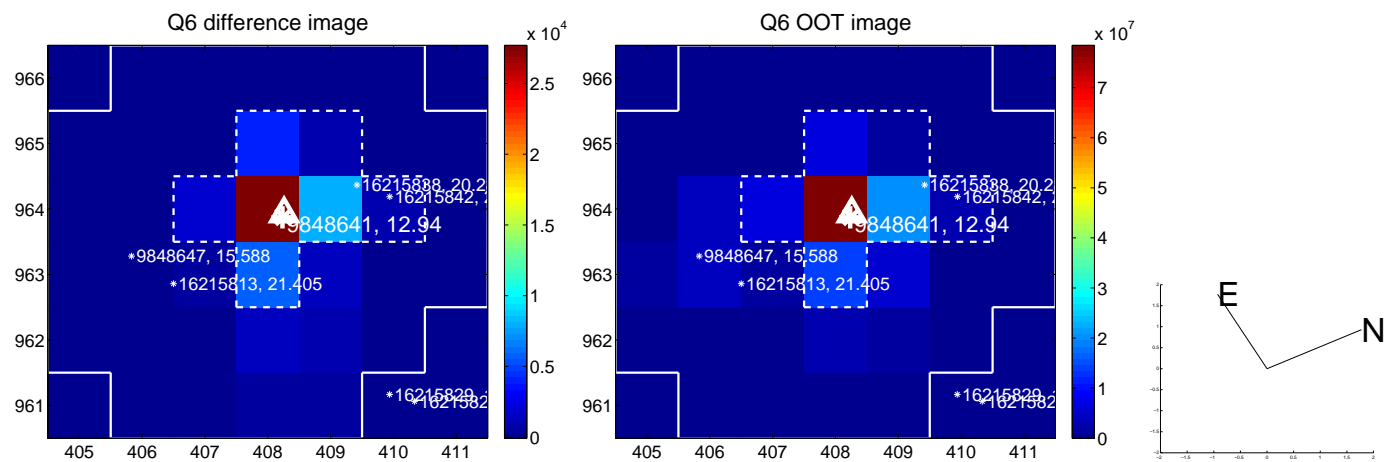
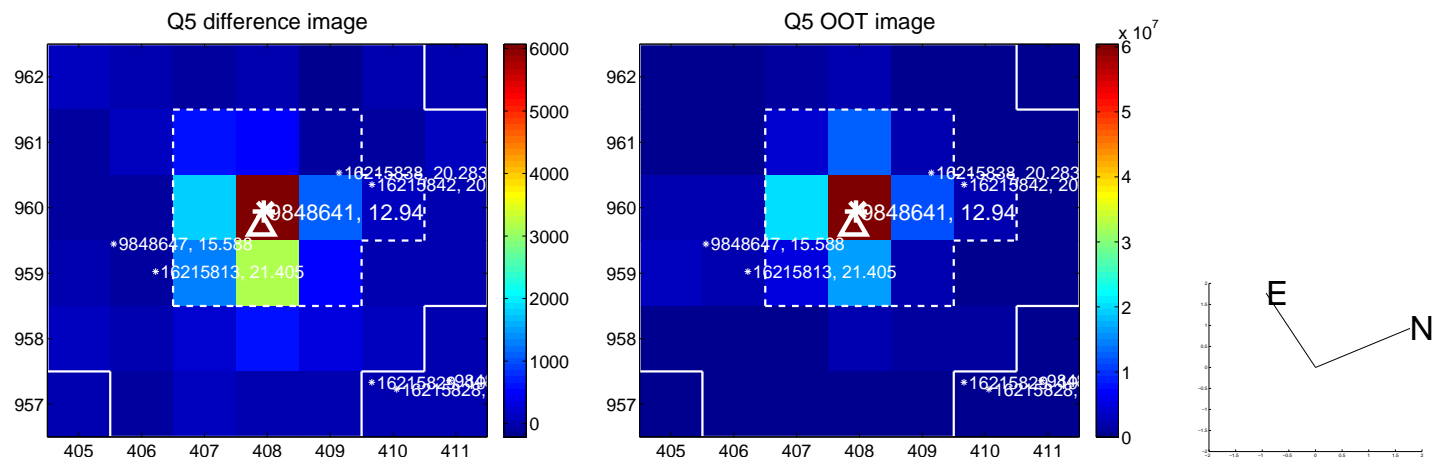


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

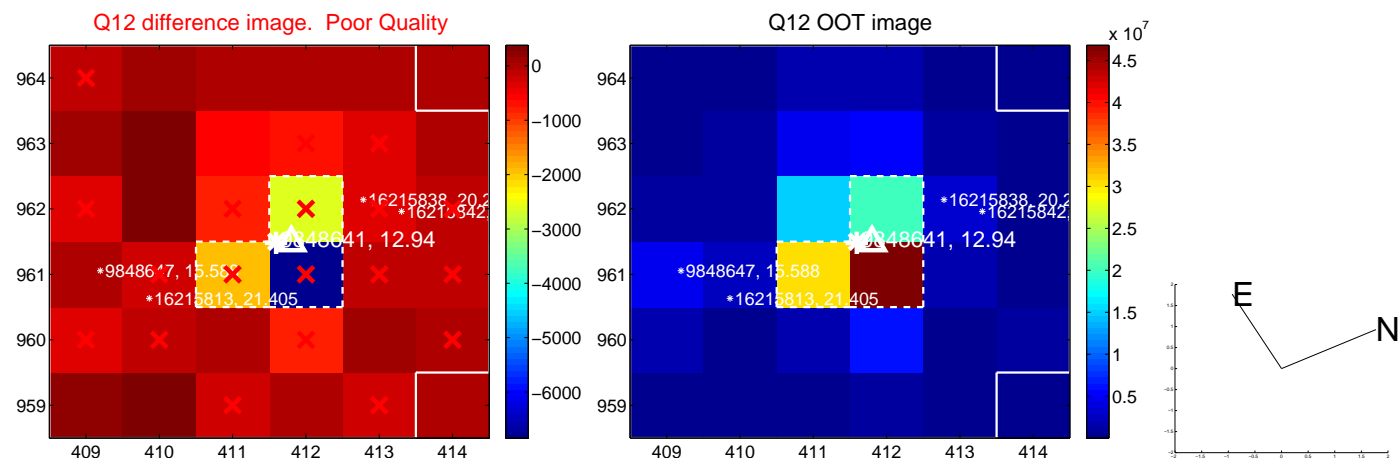
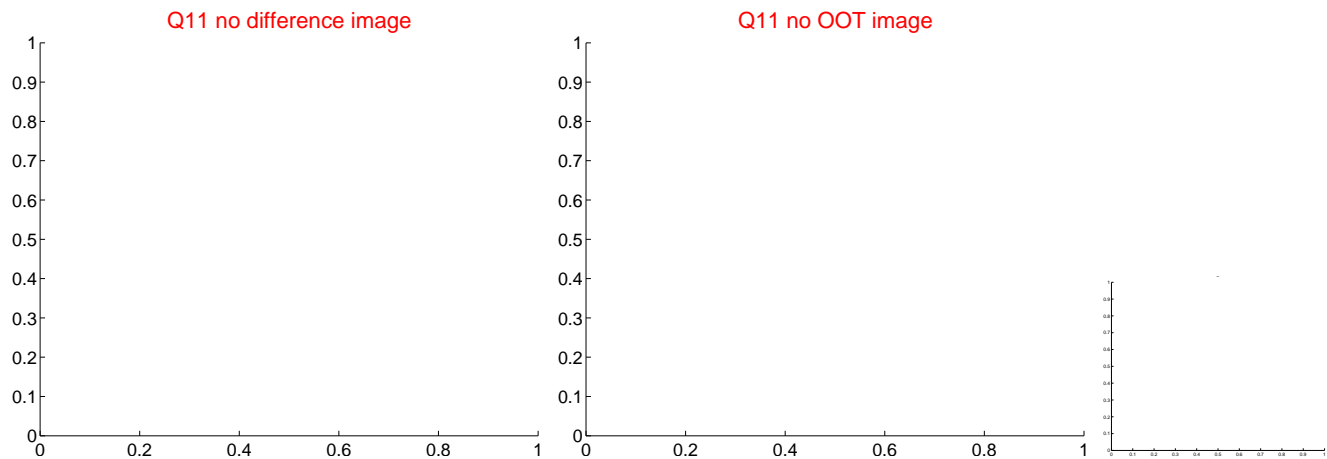
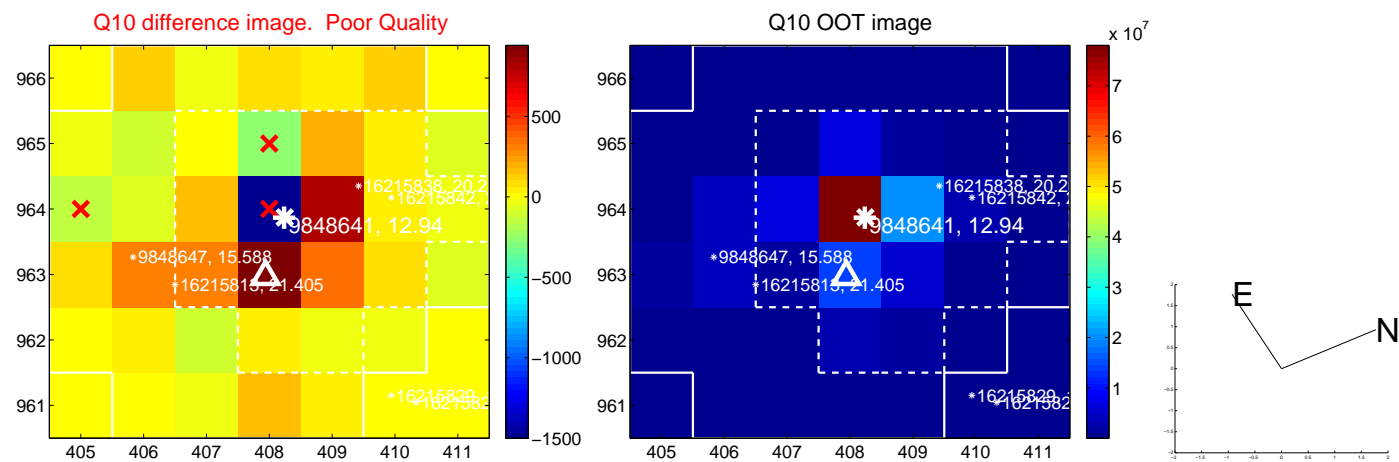
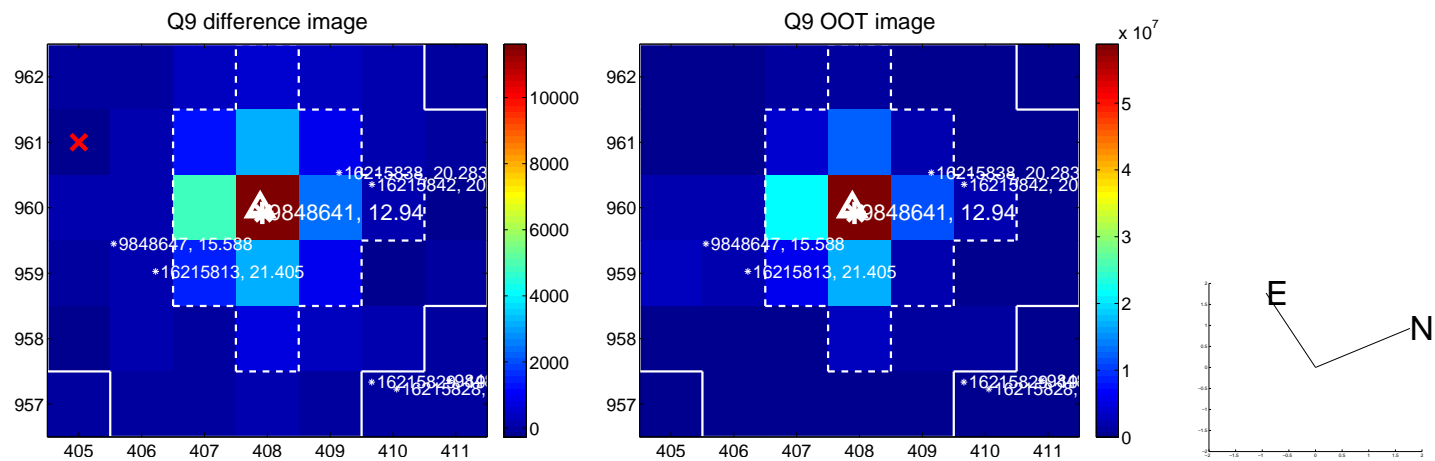
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



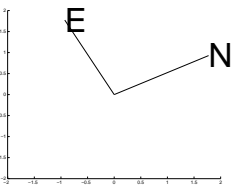
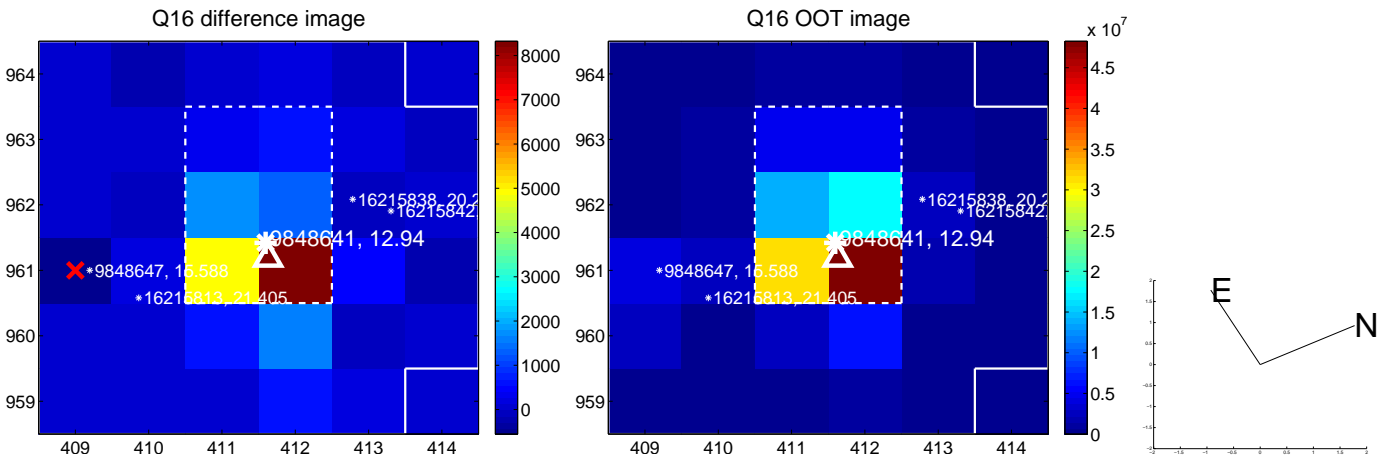
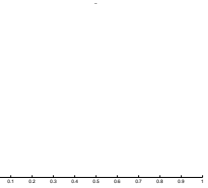
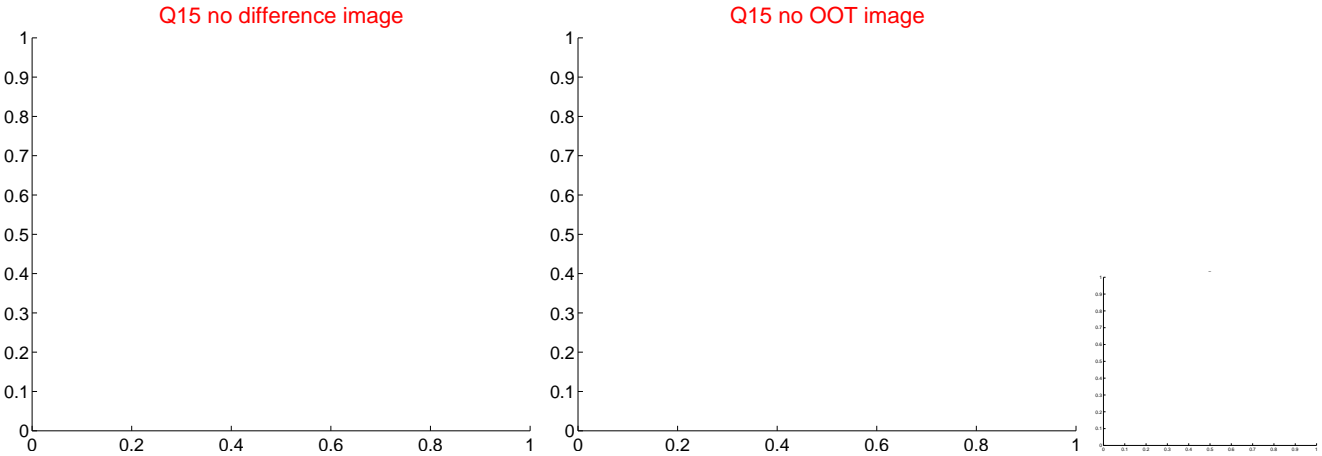
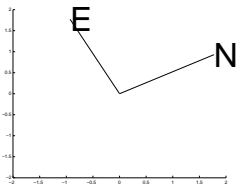
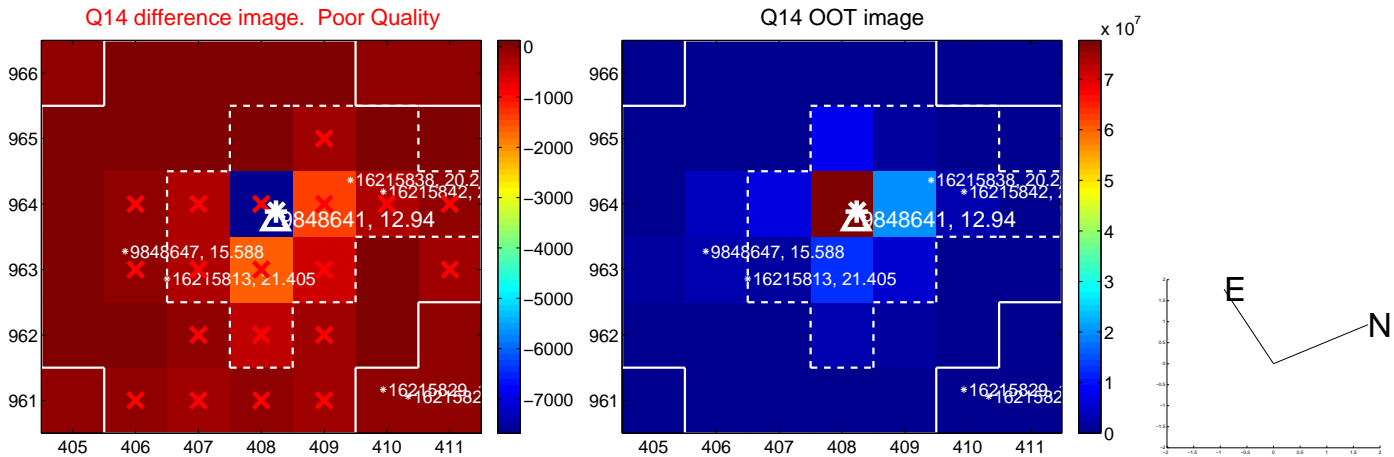
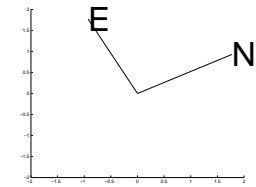
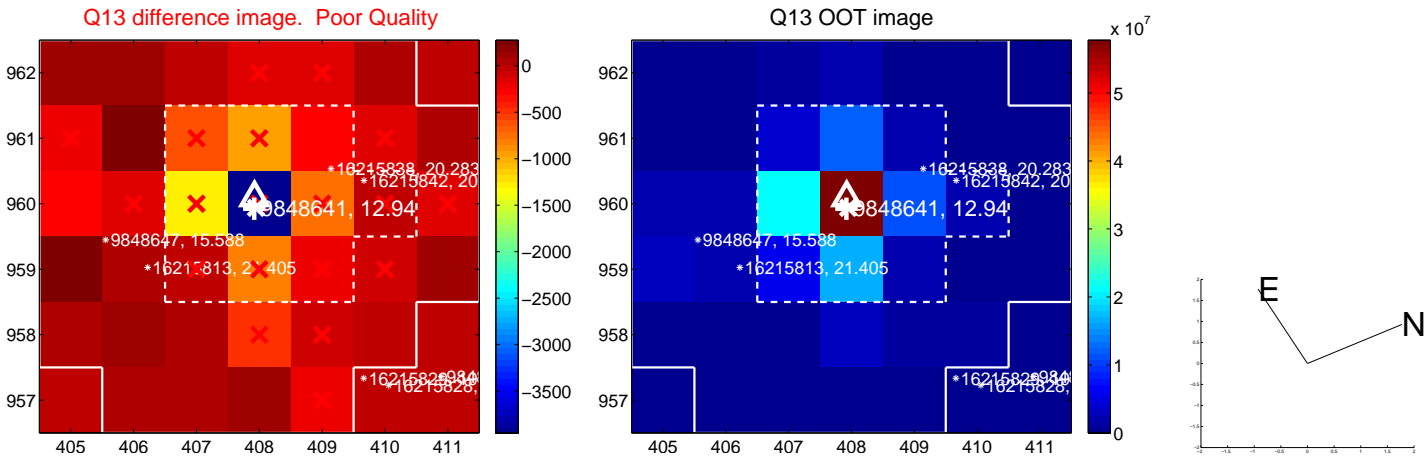
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



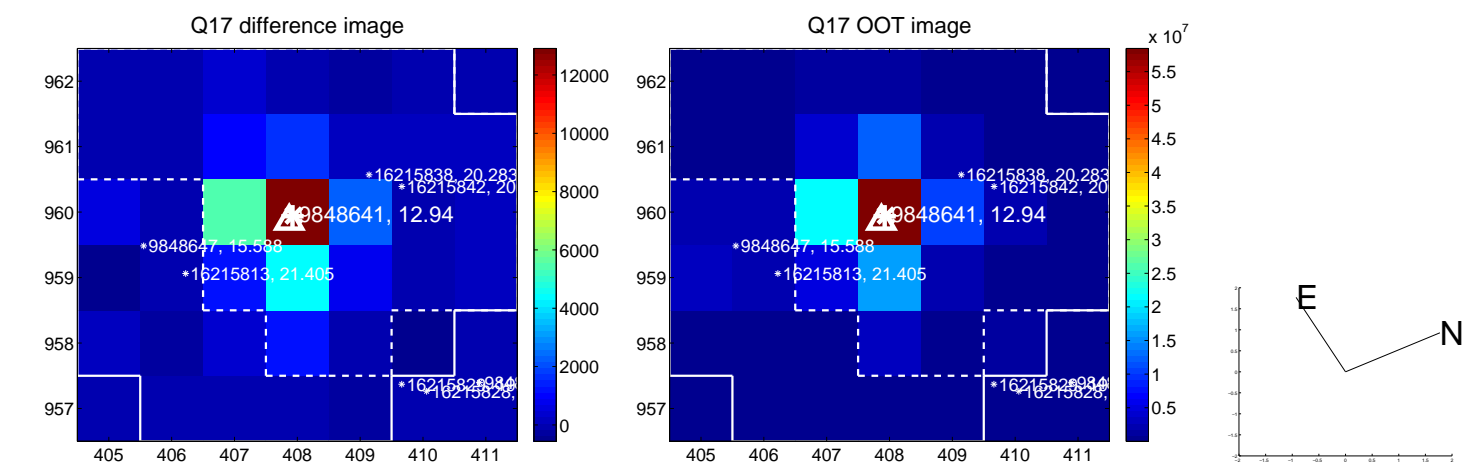
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



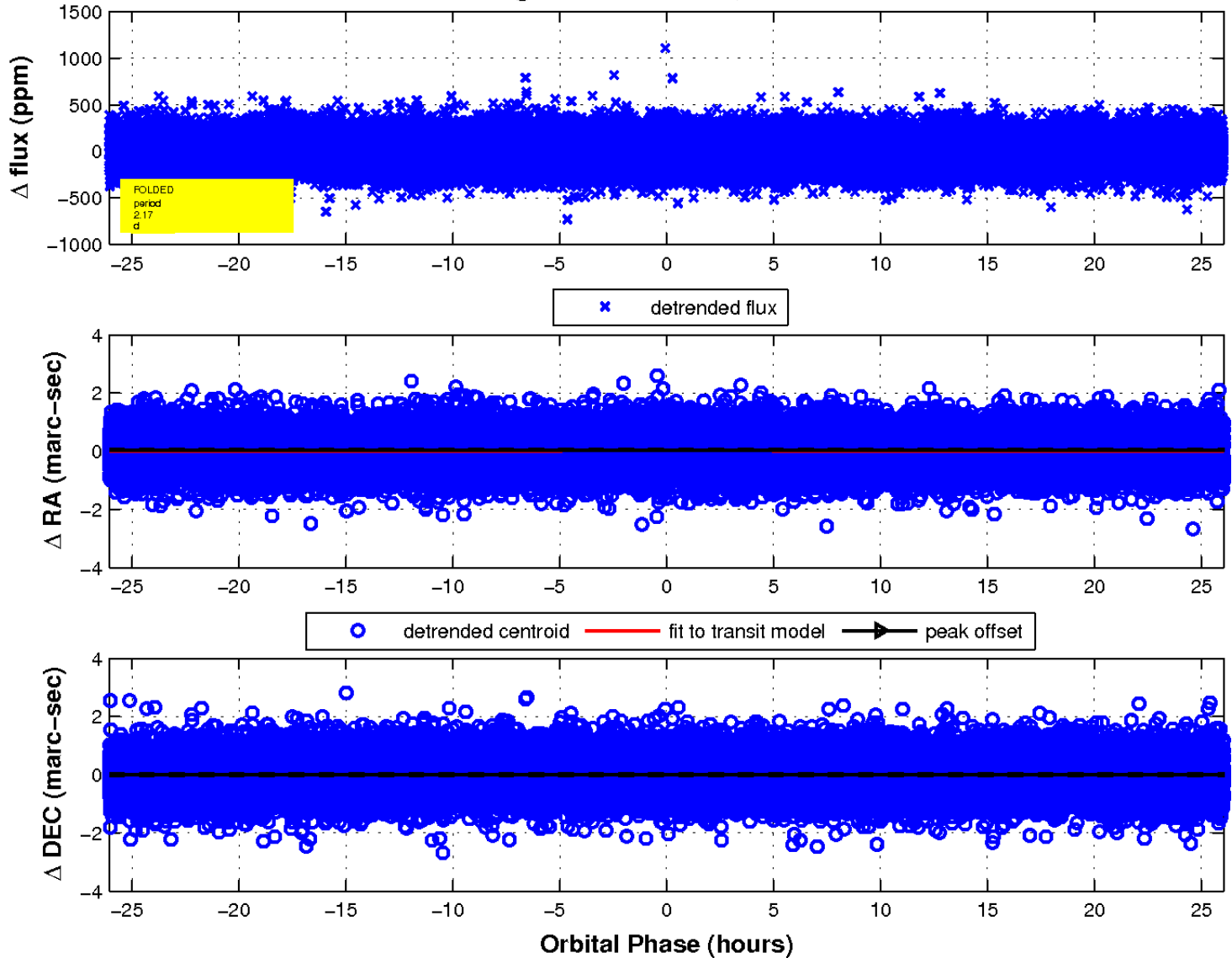
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



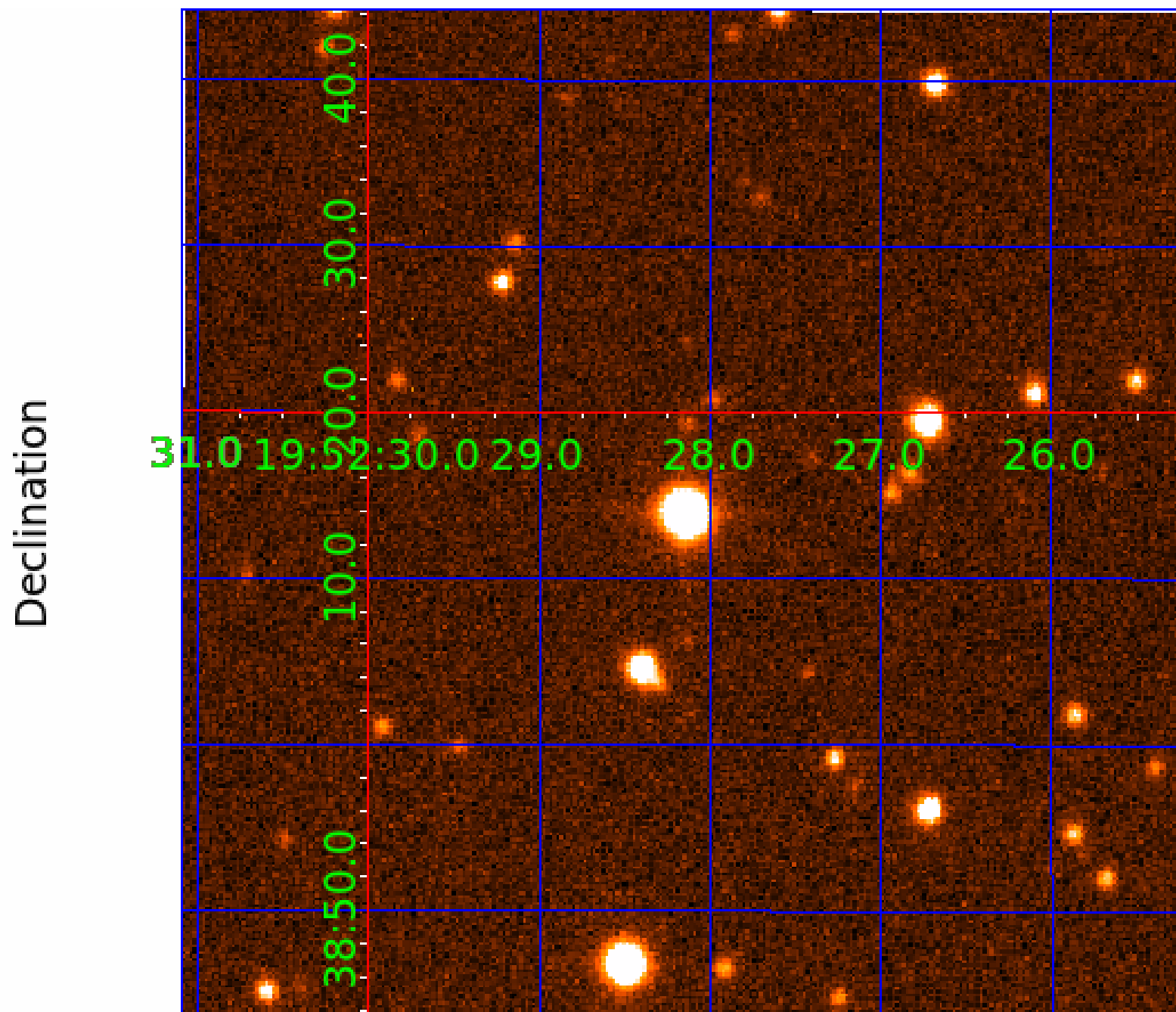
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 5



UKIRT Image



KIC 009848641

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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009848641-05	OBS	No	133.211763	192.939425	180.2	5.834	7.4	7.5	2.74	7037	4.47	46.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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009848641-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009848641-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009848641-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009848641-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT

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

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

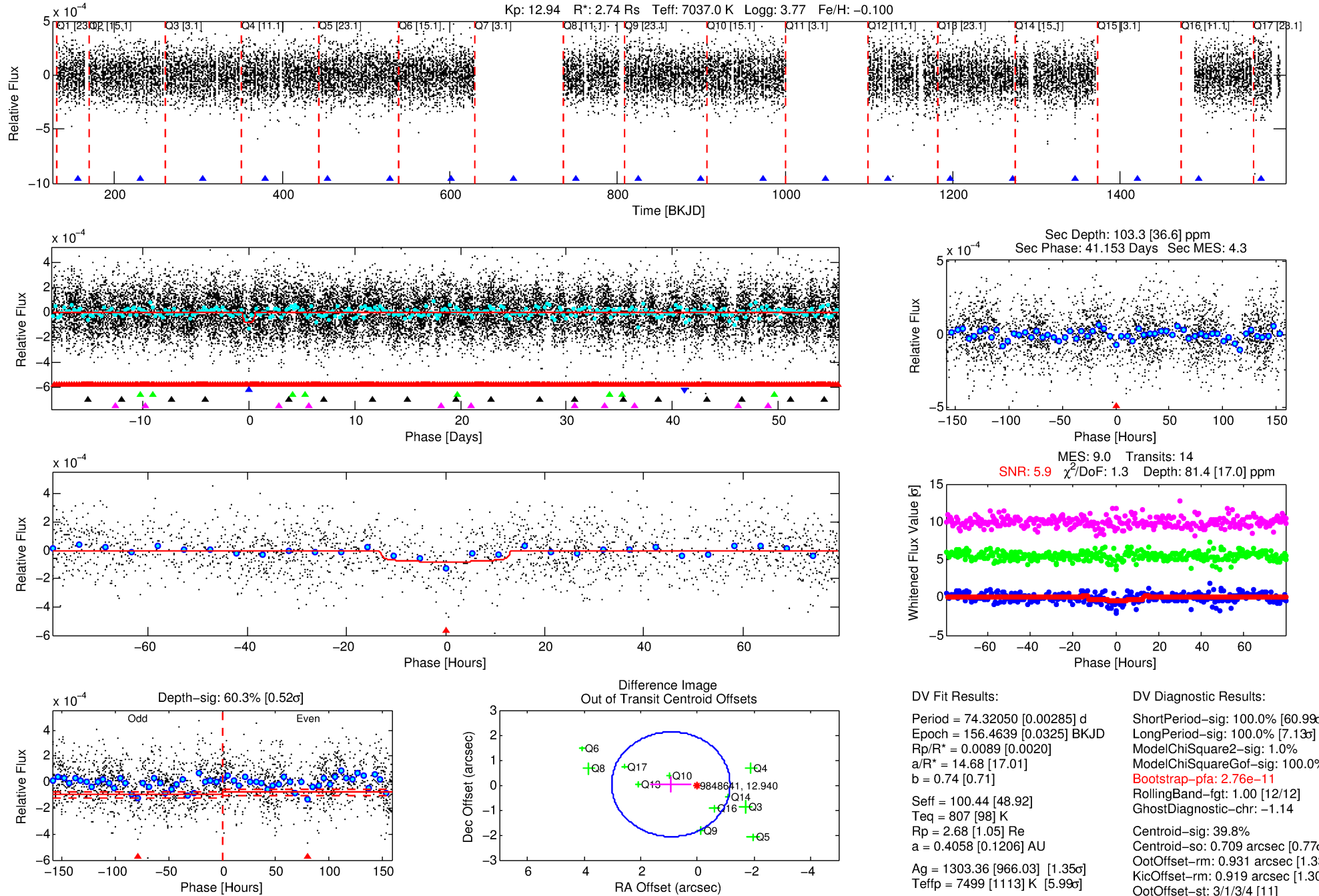
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009848641-02

No Significant Match Found

DV One-Page Summary

KIC: 9848641 Candidate: 2 of 5 Period: 74.321 d



DV Fit Results:

Period = 74.32050 [0.00285] d
Epoch = 156.4639 [0.0325] BKJD
Rp/R* = 0.0089 [0.0020]
a/R* = 14.68 [17.01]
b = 0.74 [0.71]
Seff = 100.44 [48.92]
Teq = 807 [98] K
Rp = 2.68 [1.05] Re
a = 0.4058 [0.1206] AU
Ag = 1303.36 [966.03] [1.35 σ]
Teffp = 7499 [1113] K [5.99 σ]

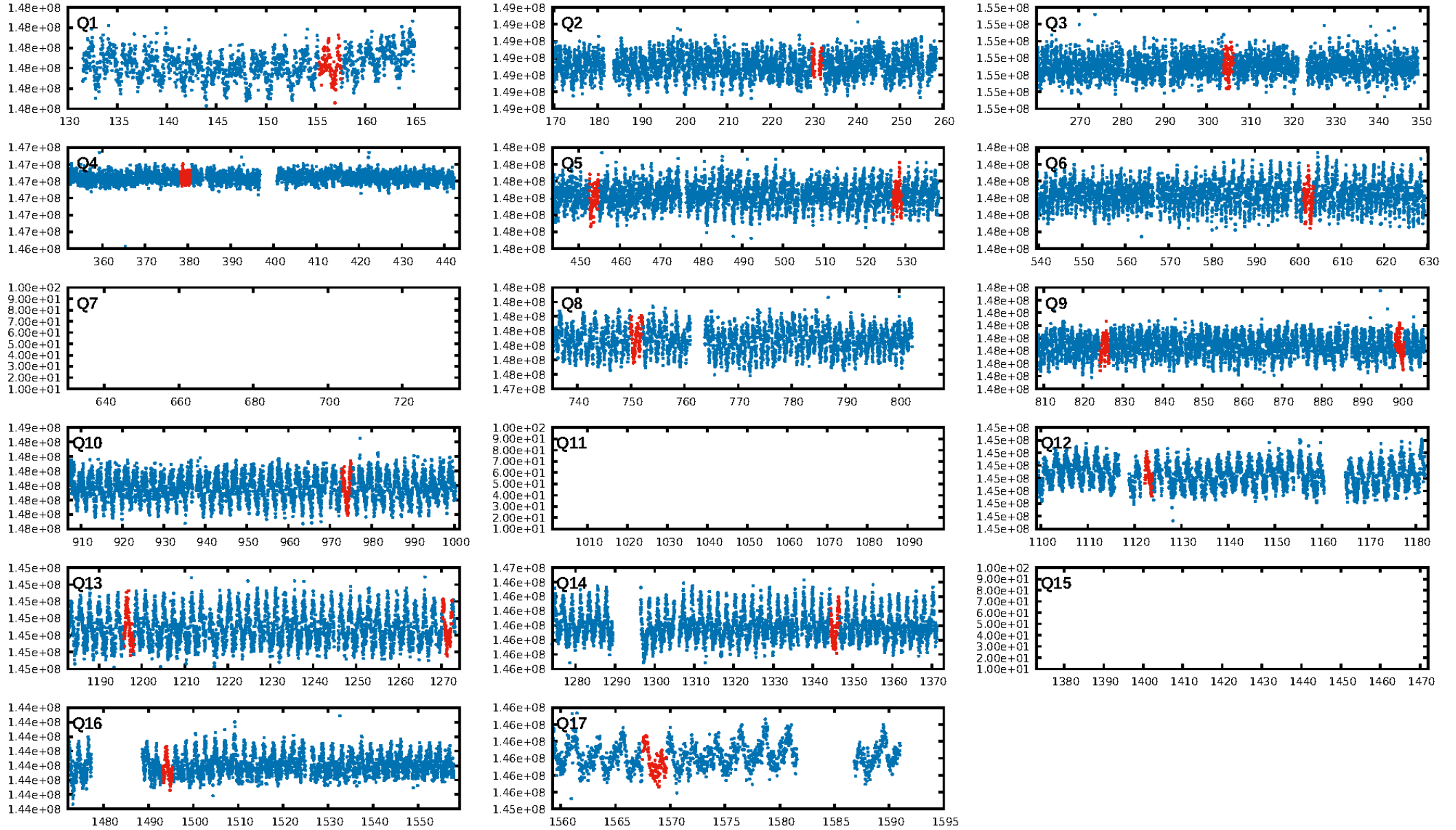
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [60.99 σ]
LongPeriod-sig: 100.0% [7.13 σ]
ModelChiSquare2-sig: 1.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.76e-11
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: -1.14
Centroid-sig: 39.8%
Centroid-so: 0.709 arcsec [0.77 σ]
OotOffset-rm: 0.931 arcsec [1.33 σ]
KicOffset-rm: 0.919 arcsec [1.30 σ]
OotOffset-st: 3/1/3/4 [11]
KicOffset-st: 3/1/3/4 [11]
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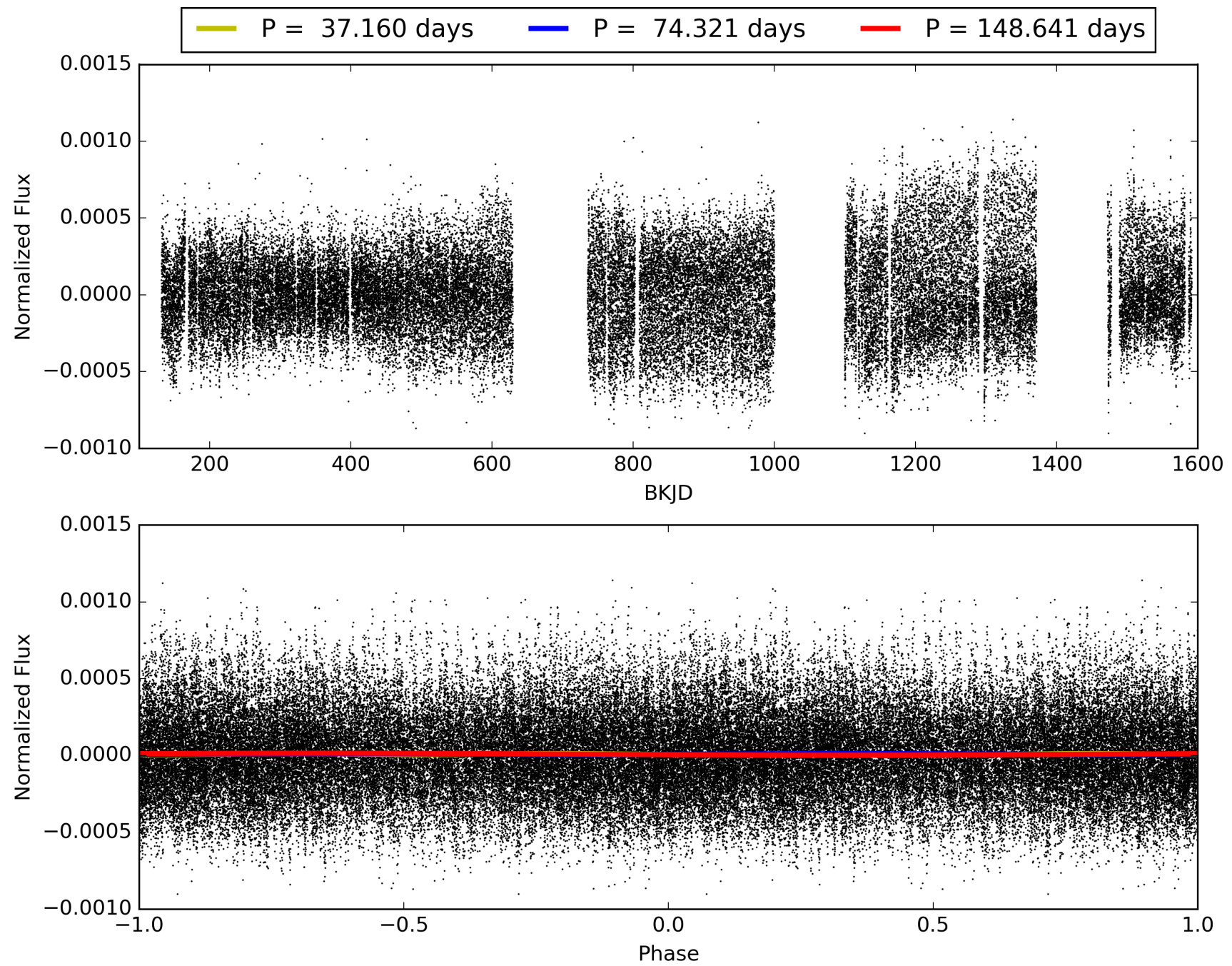
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009848641-02, PDC Light Curves

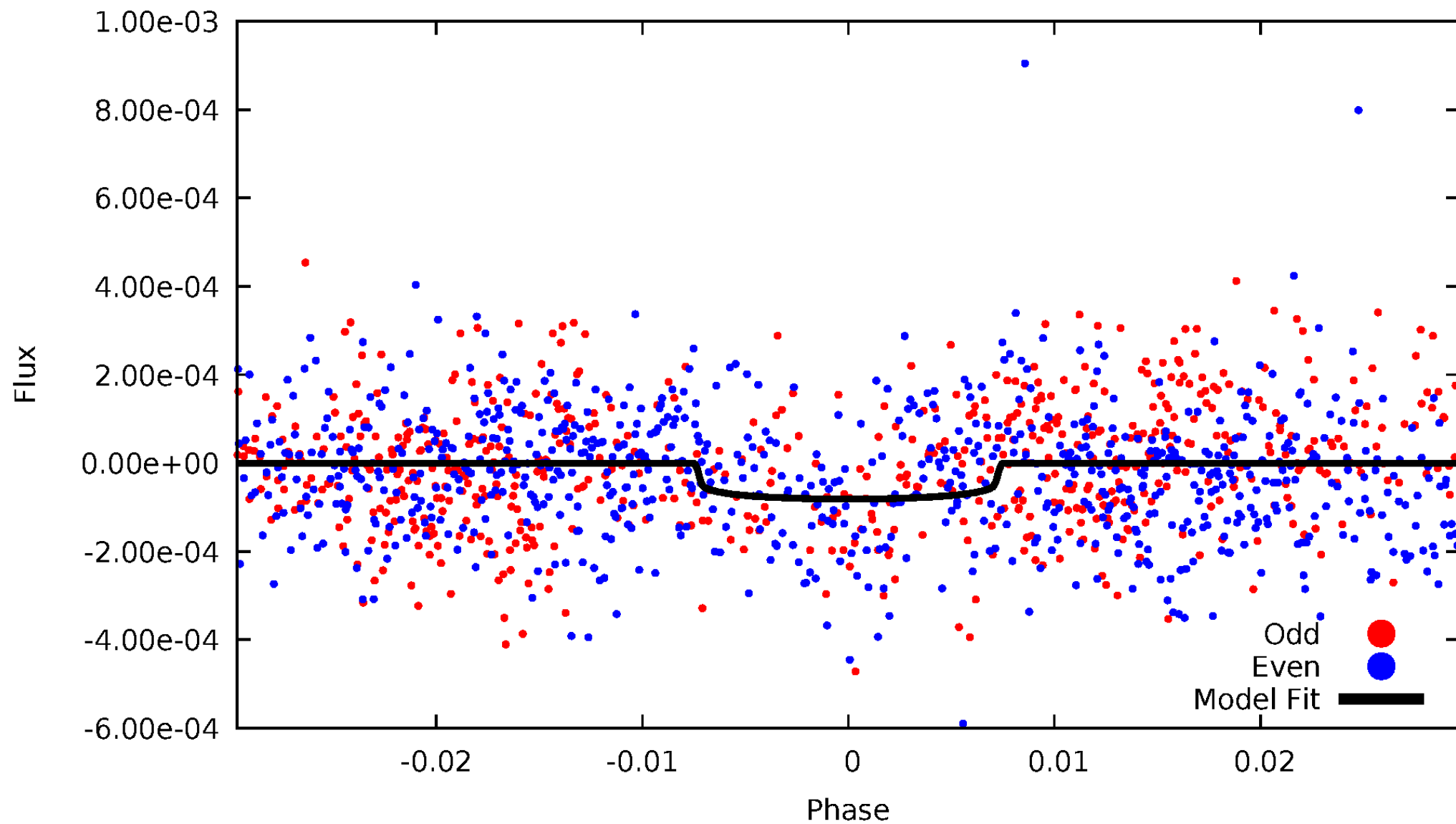


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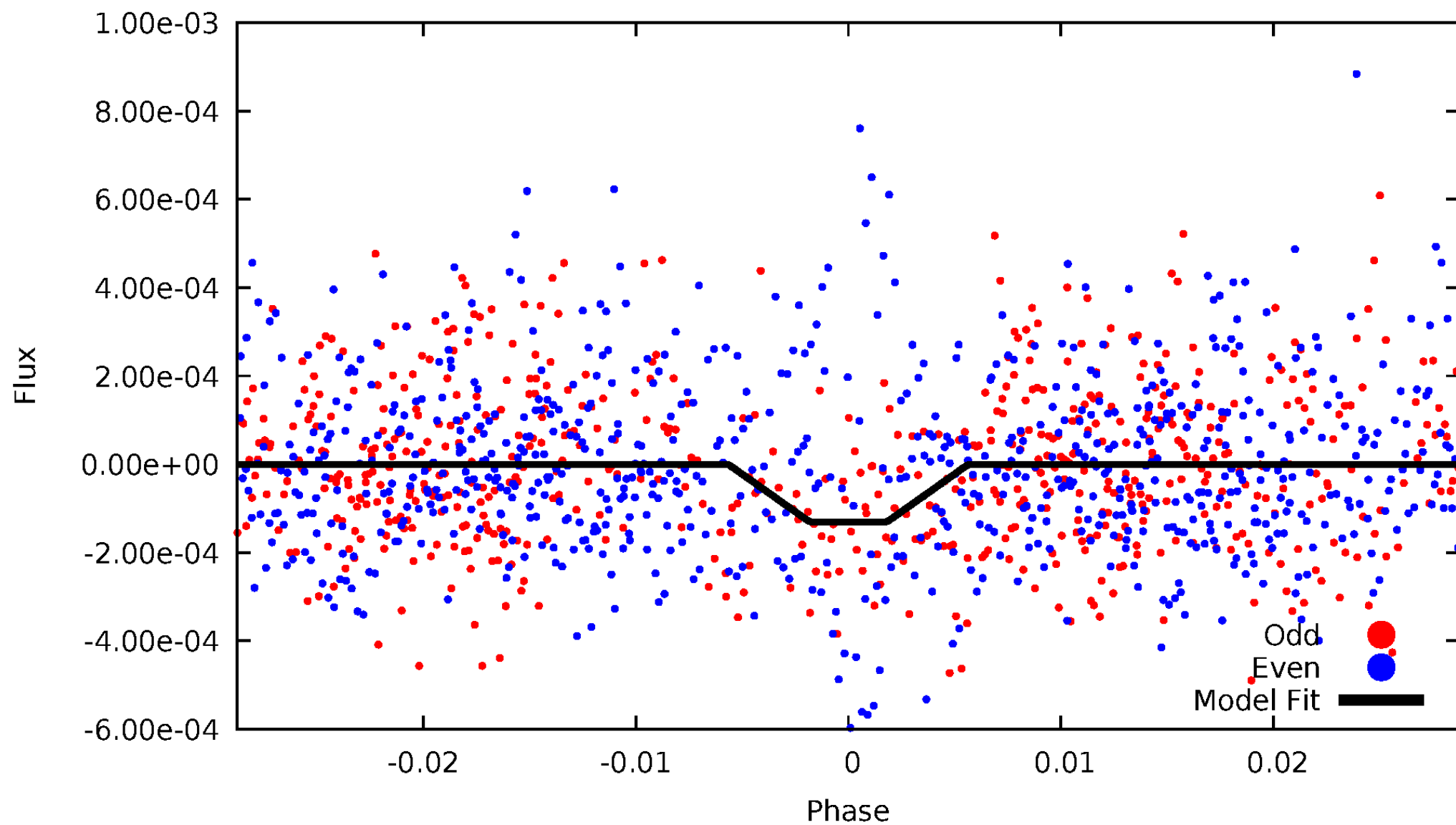
DV Odd/Even

TCE 009848641-02



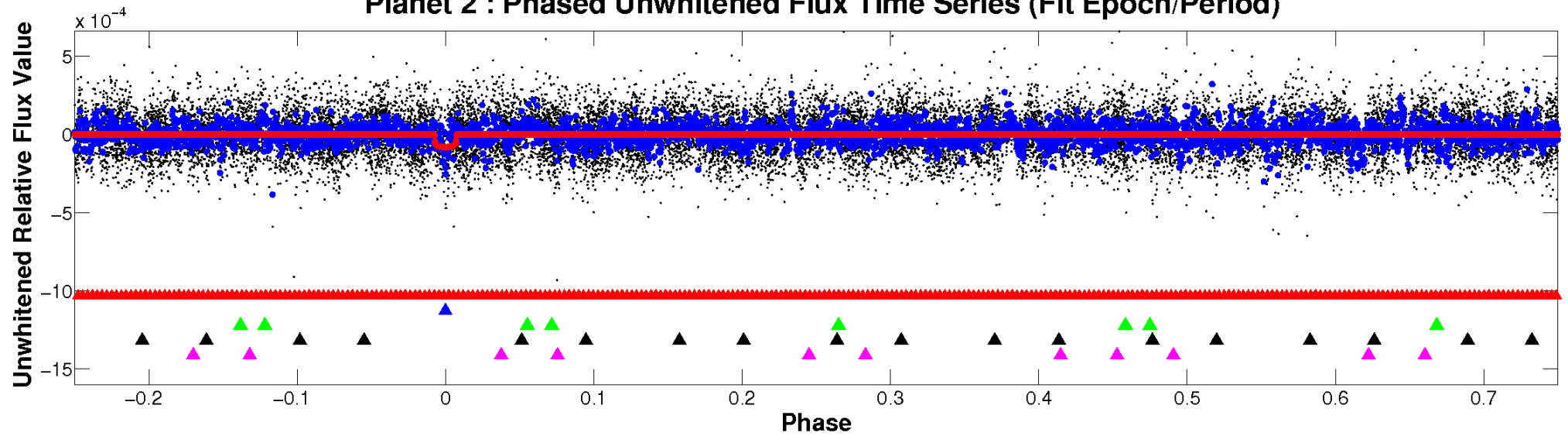
ALT Odd/Even

TCE 009848641-02

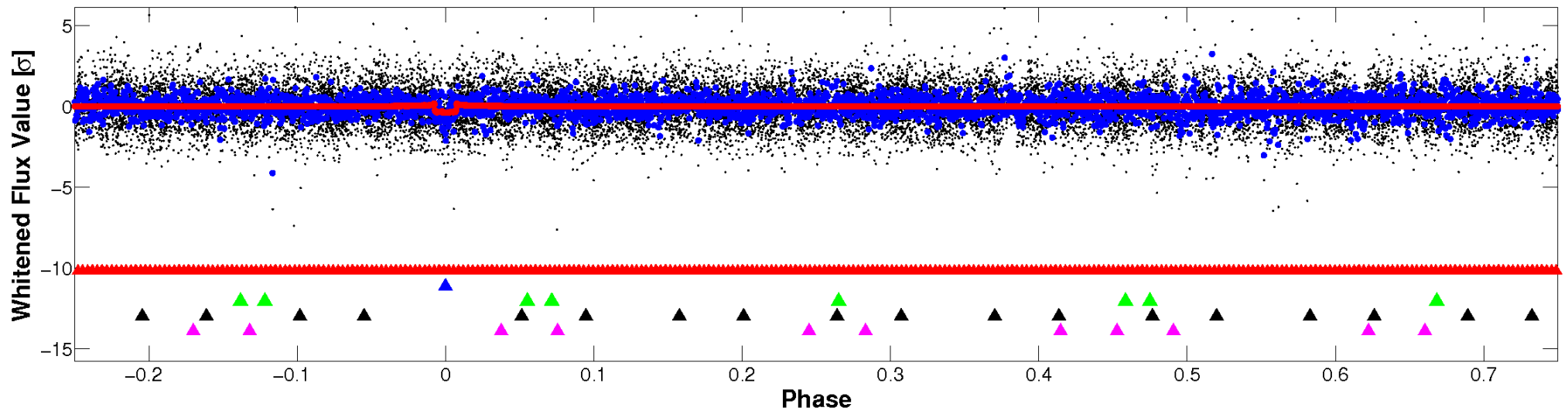


Non-Whitened Vs. Whitened Light Curve

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

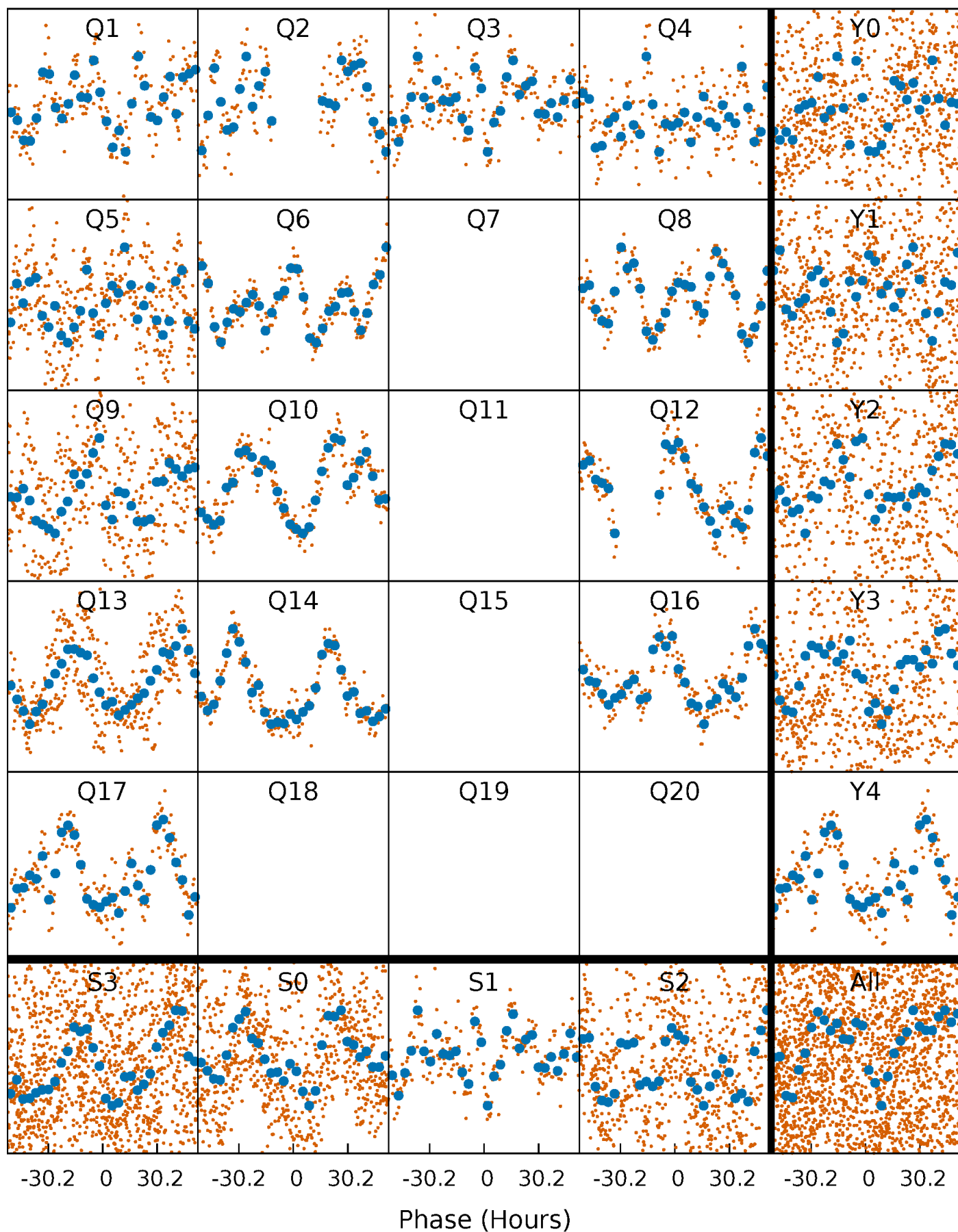


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



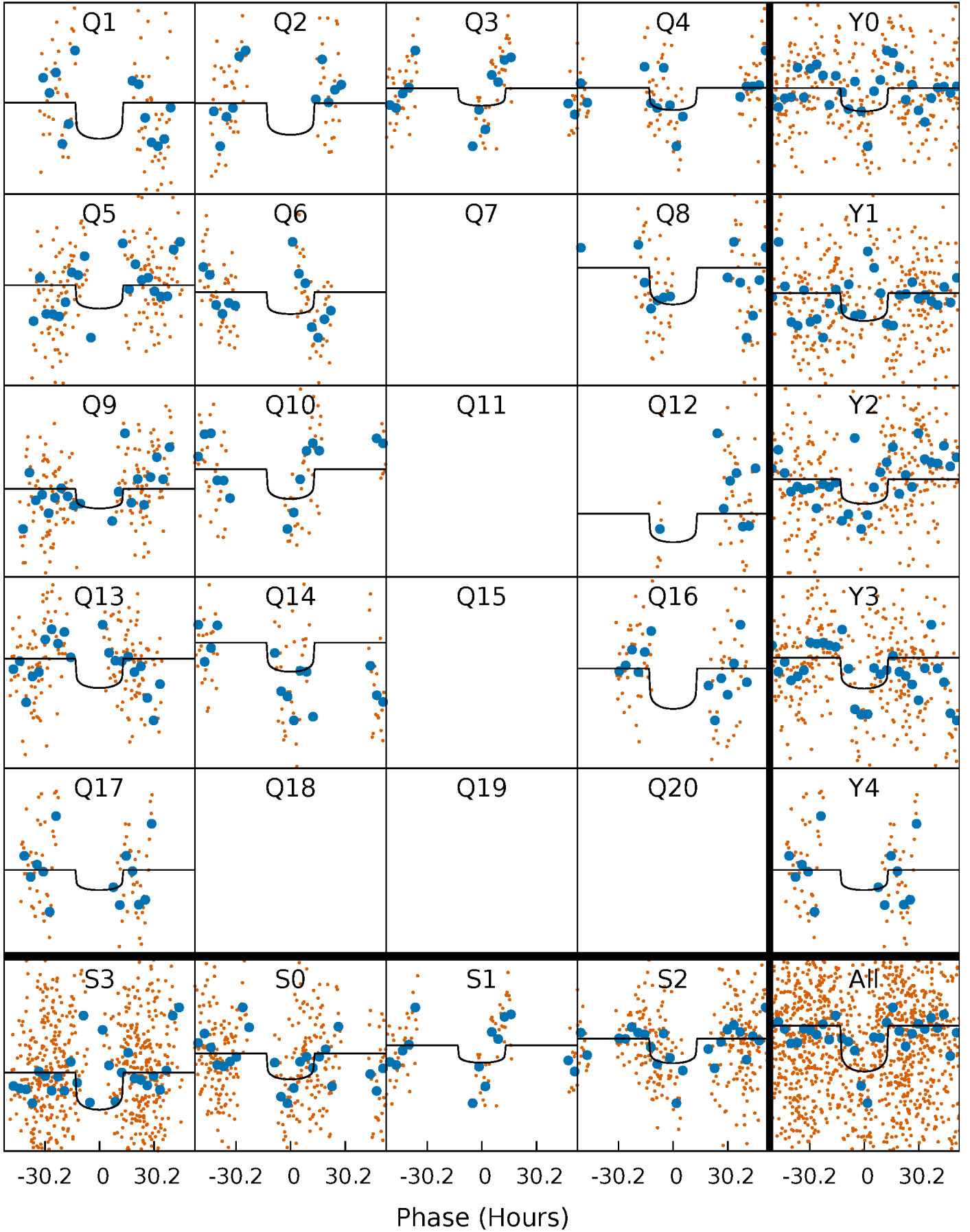
PDC Quarter-Phased Transit Curves

TCE 009848641-02 P= 74.320503 Days $T_0=156.463919$ (BKJD)



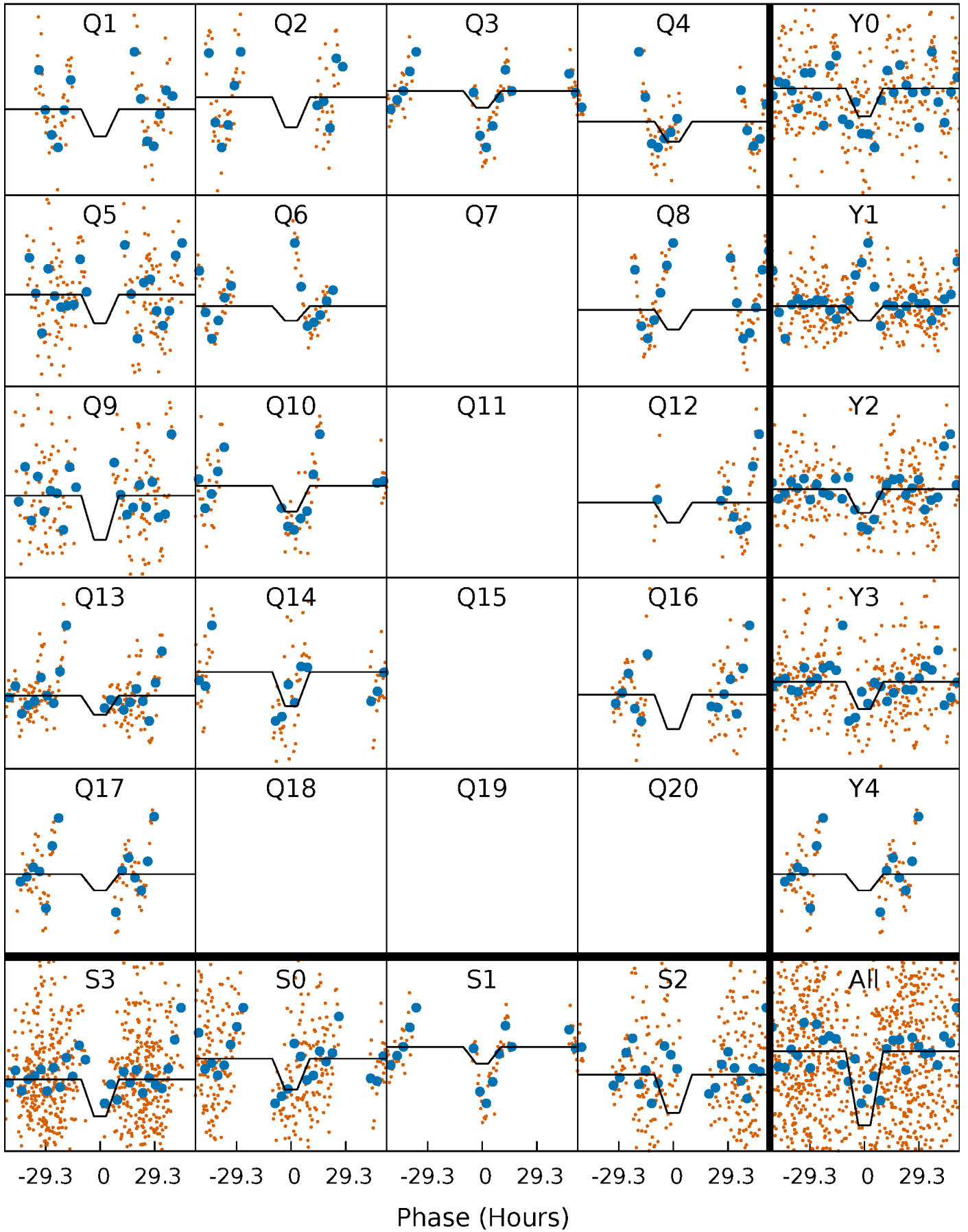
DV Quarter-Phased Transit Curves

TCE 009848641-02 P= 74.320503 Days $T_0=156.463919$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

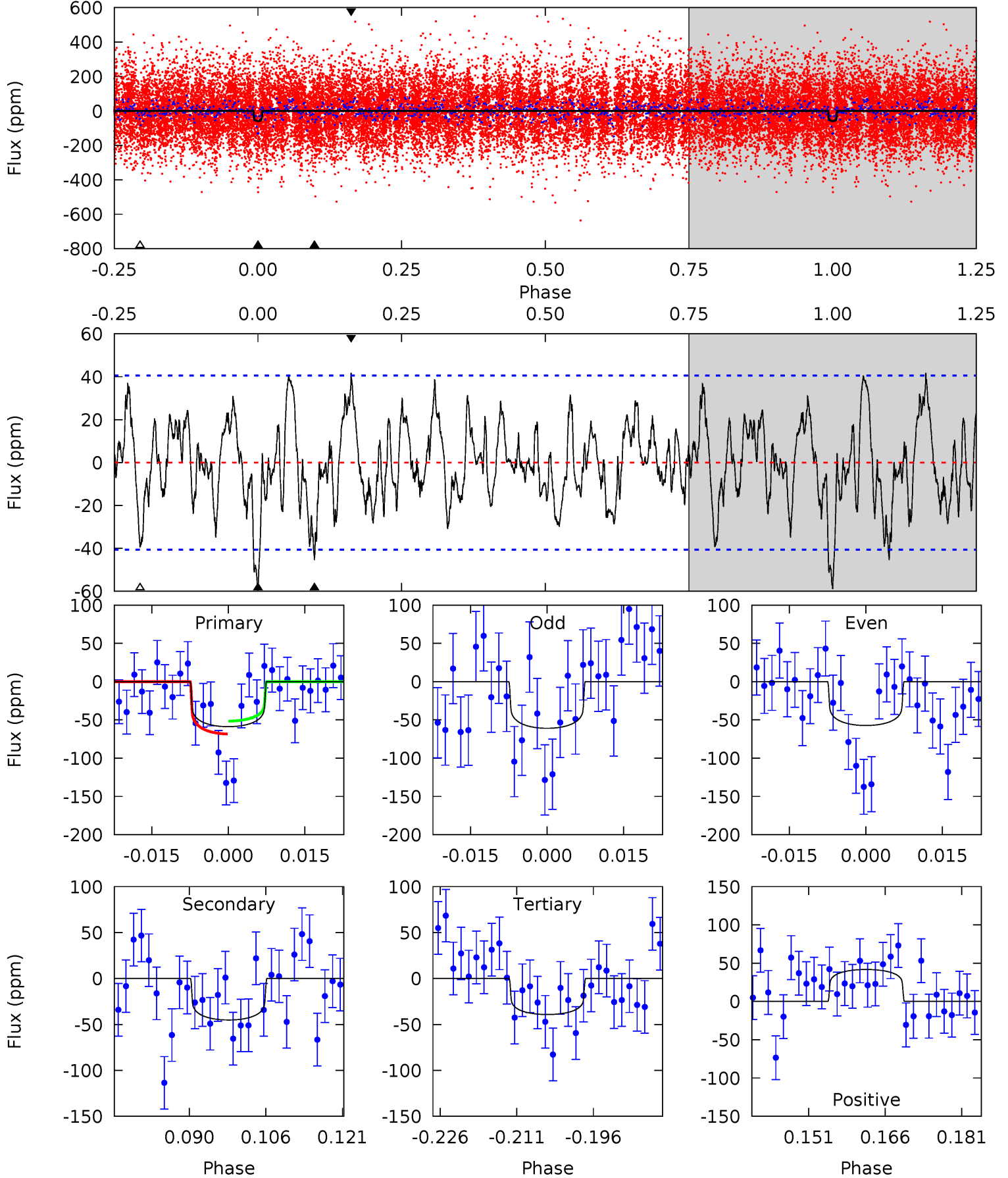
TCE 009848641-02 P= 74.319251 Days $T_0=156.531944$ (BKJD)



DV Model-Shift Uniqueness Test

009848641-02, P = 74.320503 Days, E = 82.143416 Days

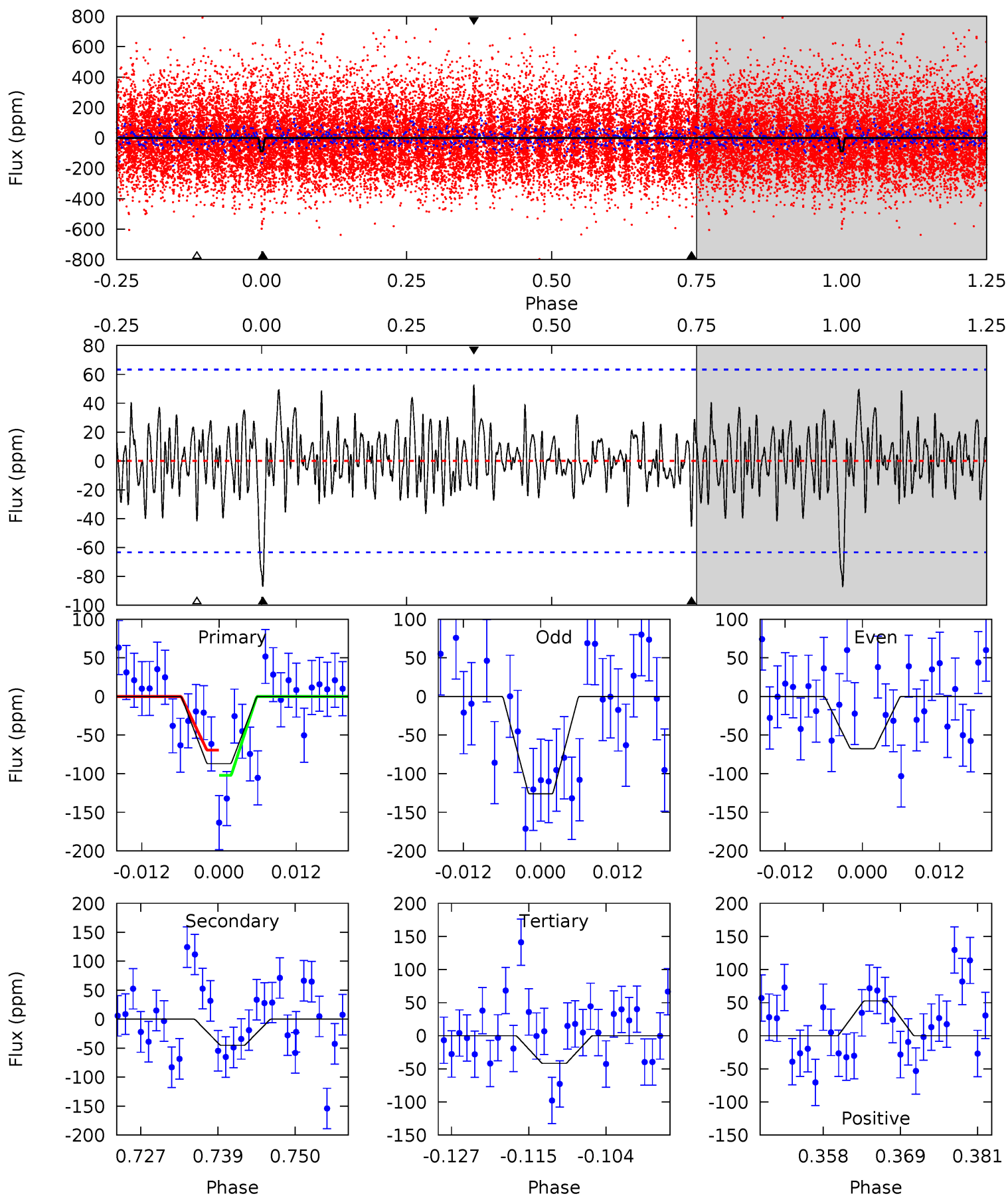
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.18	5.51	4.78	5.09	4.95	2.43	1.93	2.39	2.09	0.73	0.42	0.22	1.14	0.42	1.02



Alt Model-Shift Uniqueness Test

009848641-02, P = 74.319251 Days, E = 82.212693 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.87	3.57	3.30	4.15	5.00	2.53	1.26	3.57	2.72	0.27	-0.58	2.29	0.51	0.38	1.29



Stellar Parameters For KIC 009848641

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7037^{+187}_{-250}	$3.769^{+0.270}_{-0.090}$	$-0.100^{+0.250}_{-0.300}$	$2.744^{+0.472}_{-0.876}$	$1.612^{+0.224}_{-0.249}$	$0.110^{+0.182}_{-0.038}$
	+3%/-4%	+7%/-2%	+250%/-300%	+17%/-32%	+14%/-15%	+165%/-34%
Source	PHO1	FLK73	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 009848641-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-45 ± 8	$2.56^{+0.71}_{-0.69}$	1108^{+66}_{-88}	6011^{+896}_{-628}	625^{+546}_{-255}
Alt.	-45 ± 13	$3.26^{+0.74}_{-0.76}$	1102^{+67}_{-95}	5336^{+605}_{-479}	380^{+290}_{-147}

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 $A_{obs} \gg 1.0$

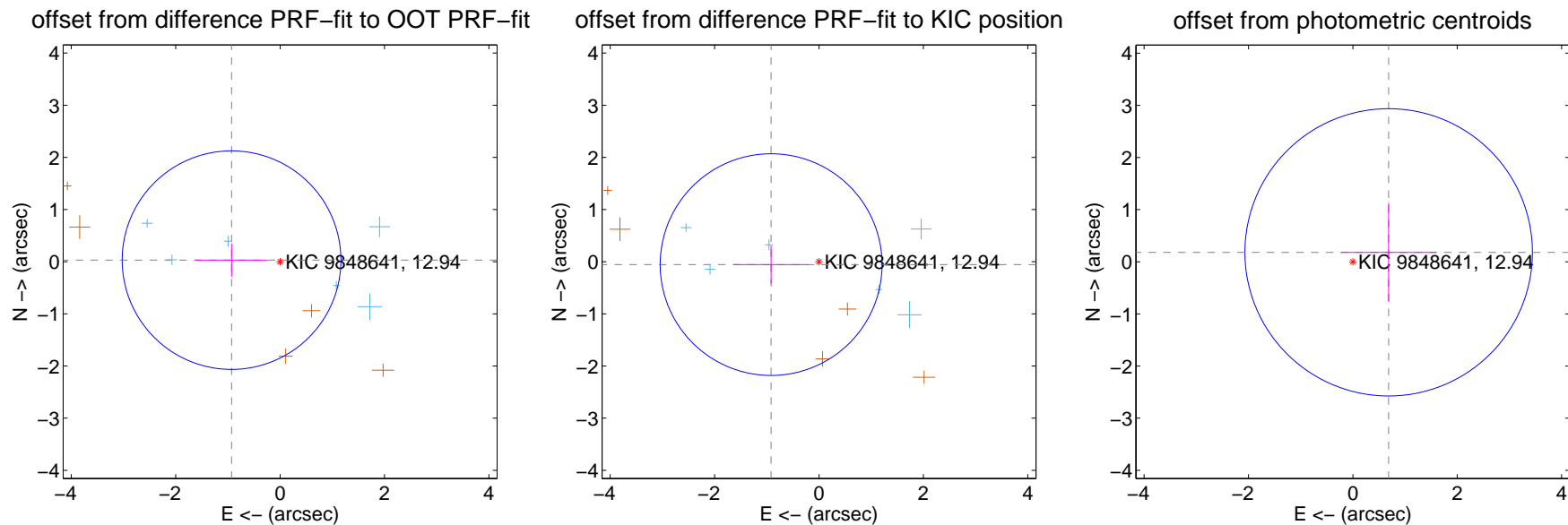
DV Centroid Data

Supplemental centroid analysis for 009848641-02. Kepler magnitude: 12.94. Transit SNR 5.88

There are 6 quarters with good PRF difference image offsets

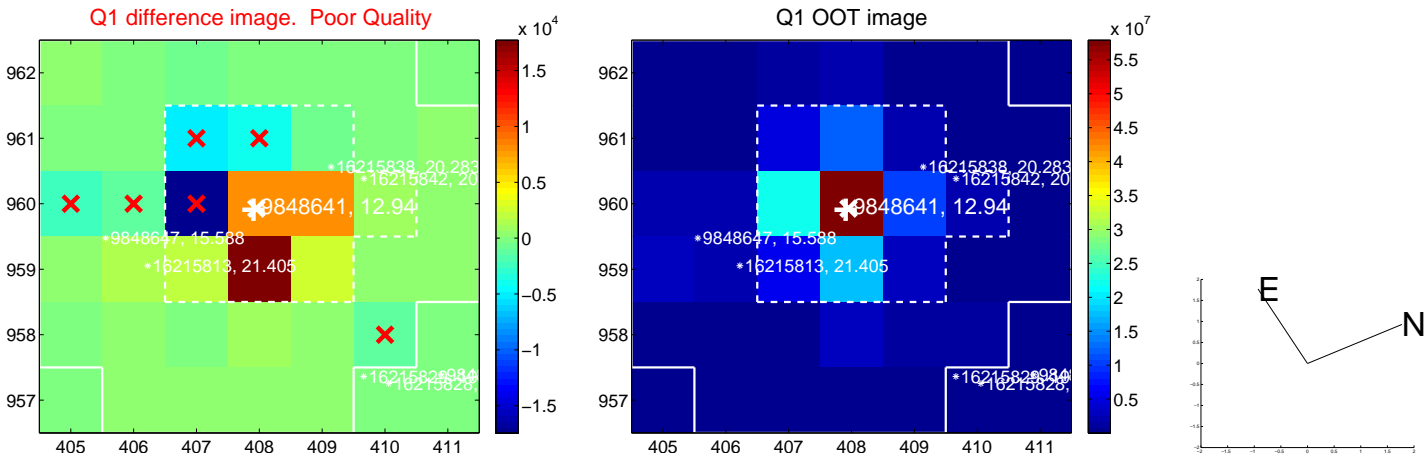
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.931 ± 0.698	1.33	0.930 ± 0.692	0.030 ± 0.317
PRF-fit source offset from KIC position	0.919 ± 0.708	1.30	0.917 ± 0.724	-0.056 ± 0.361
photometric centroid source offset	0.71 ± 0.92	0.77	-0.69 ± 0.92	0.18 ± 0.95

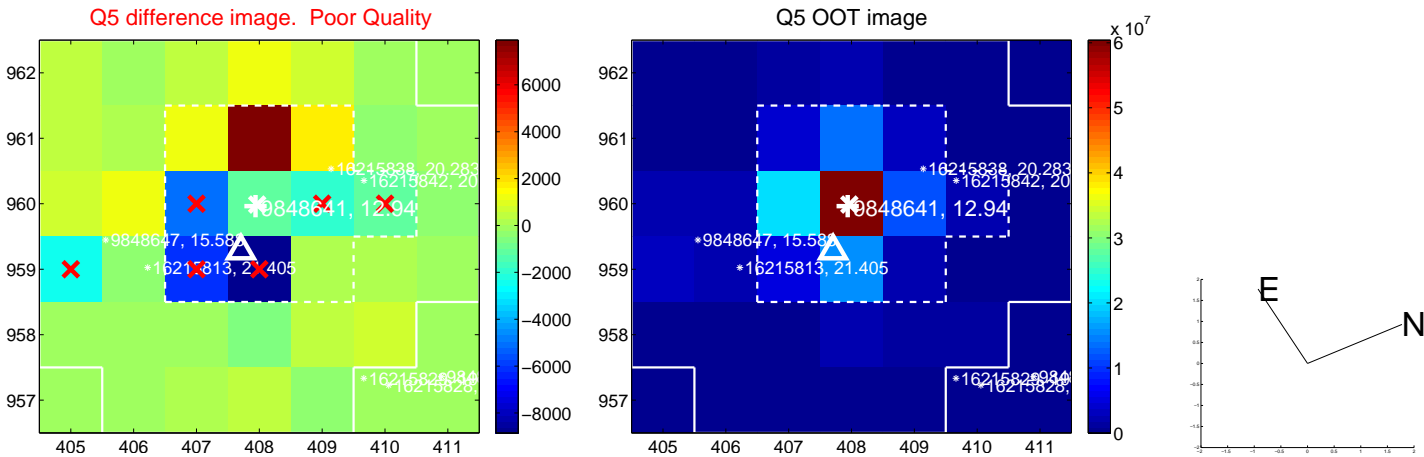


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

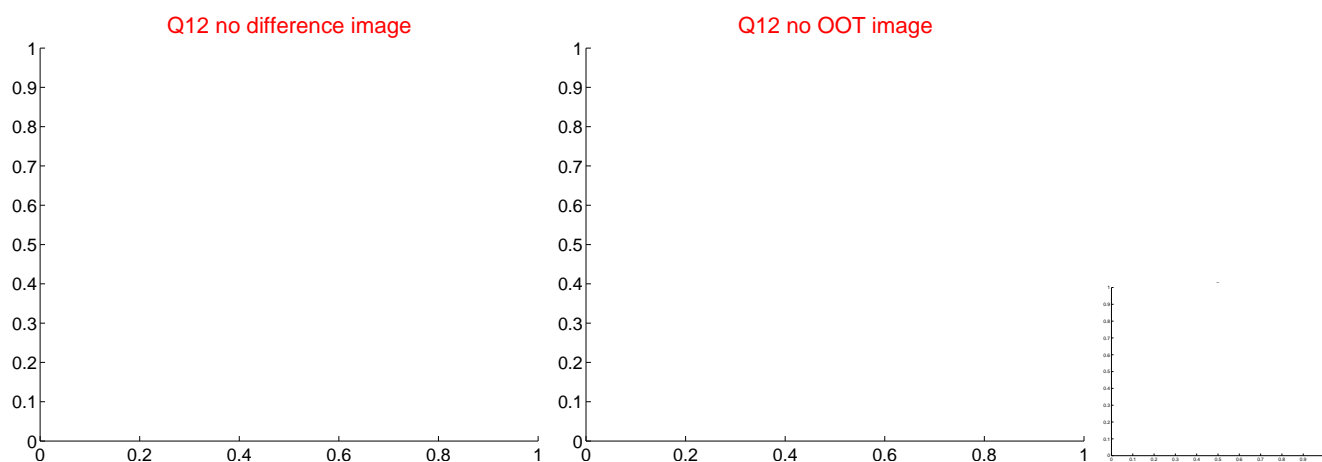
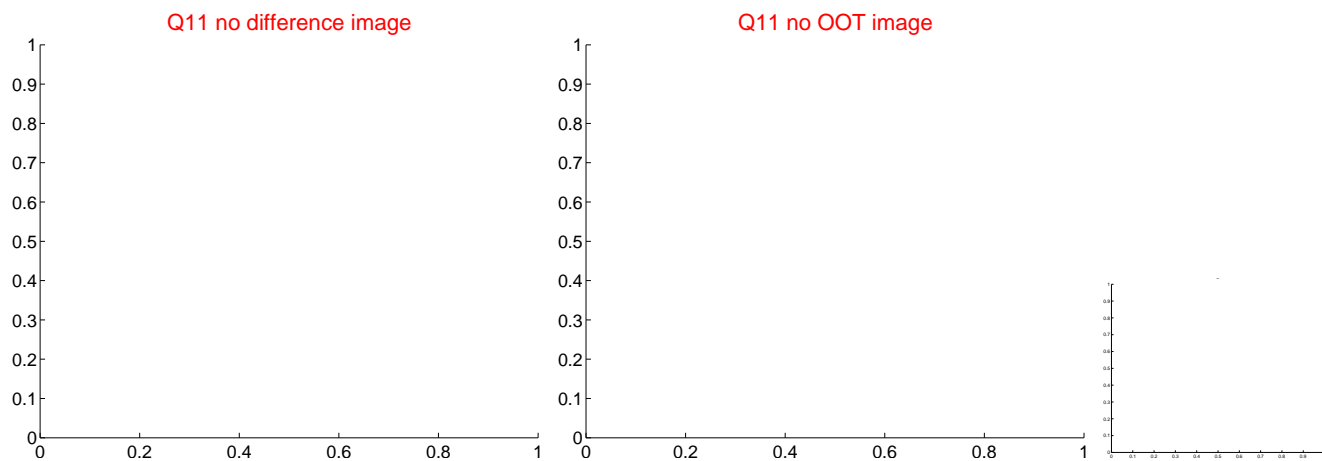
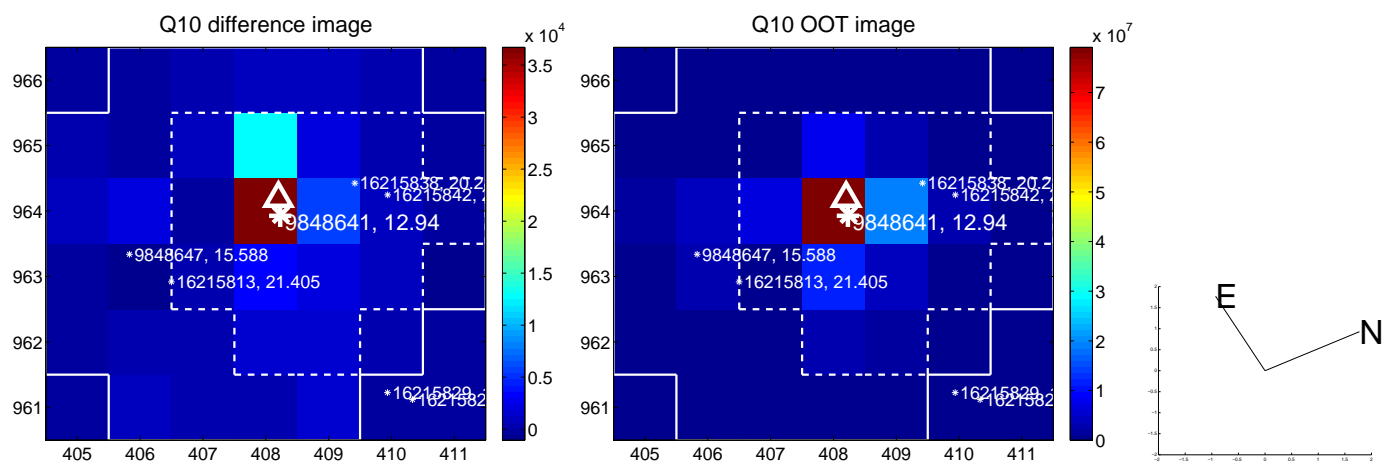
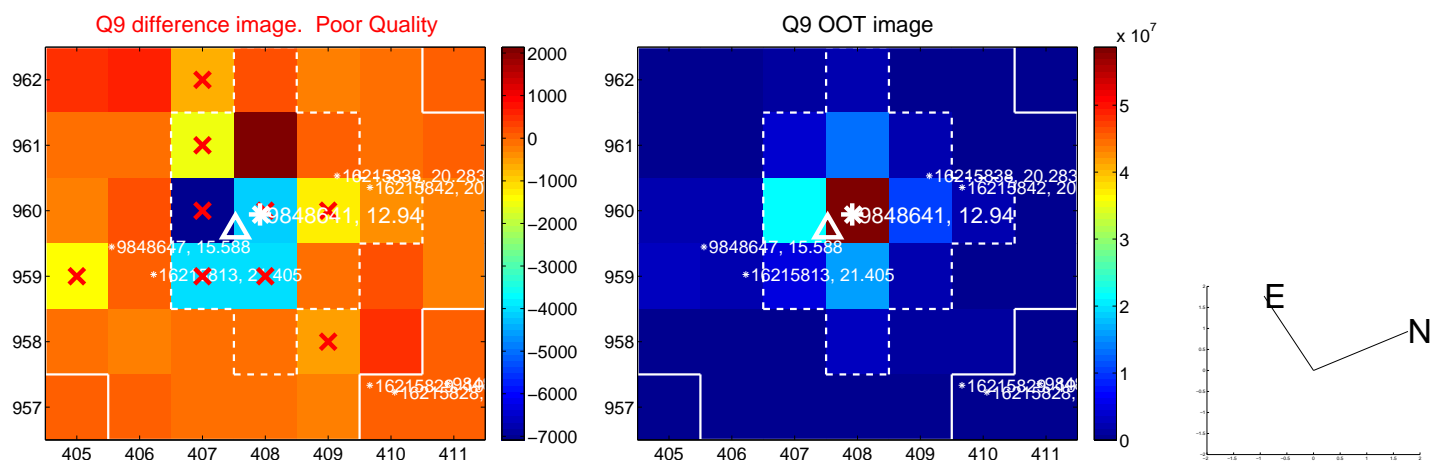
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



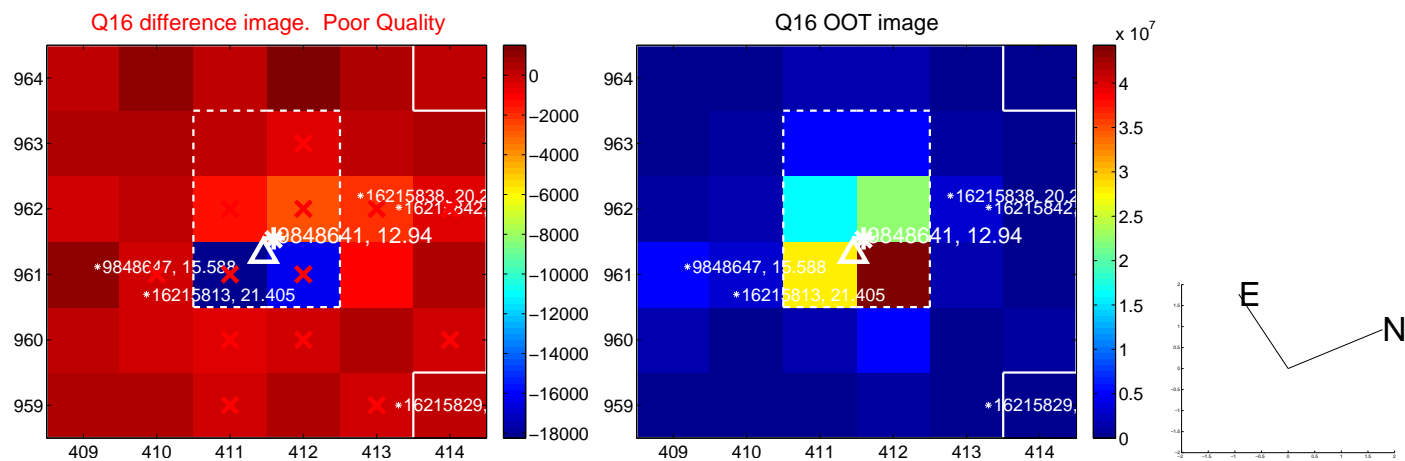
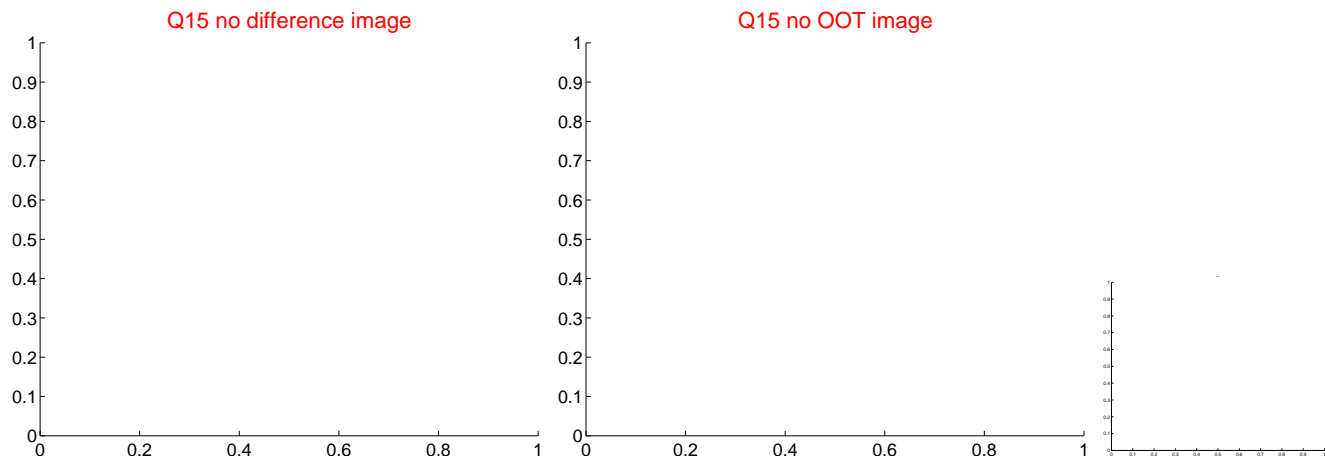
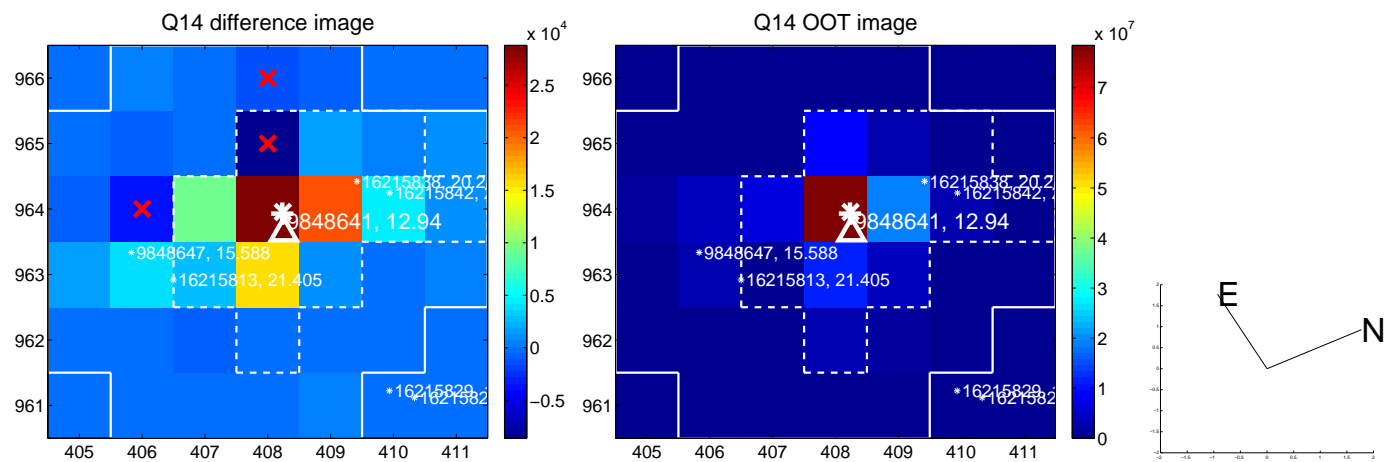
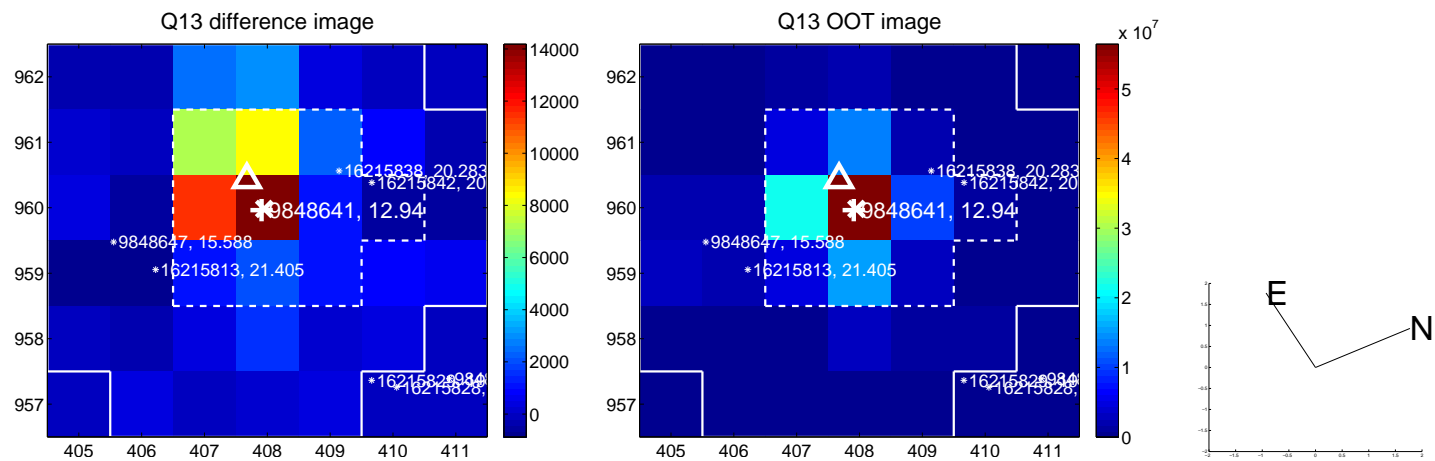
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



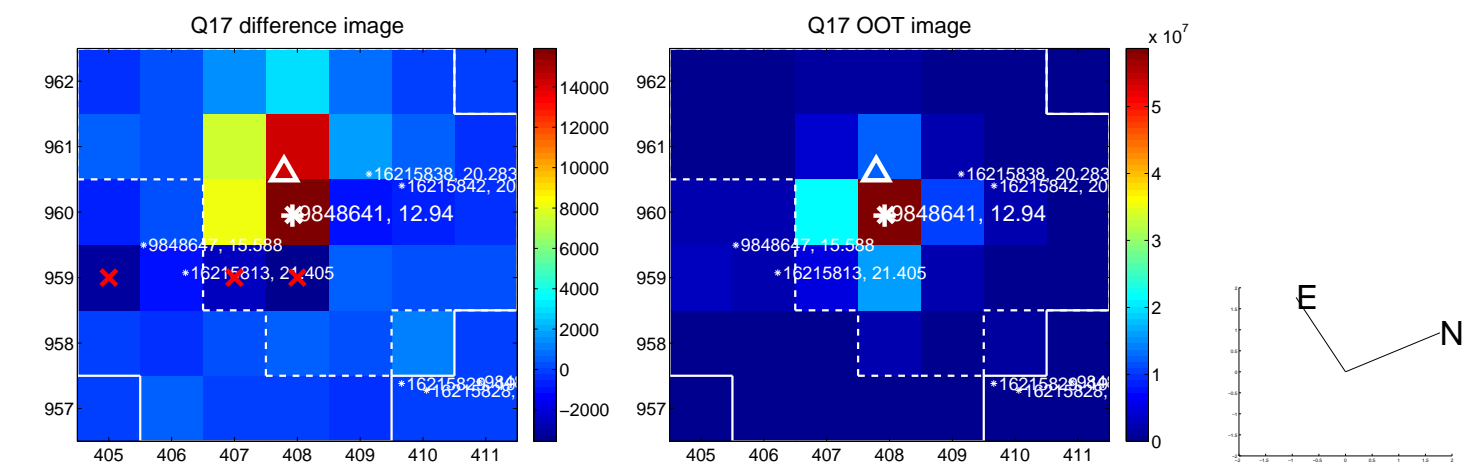
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



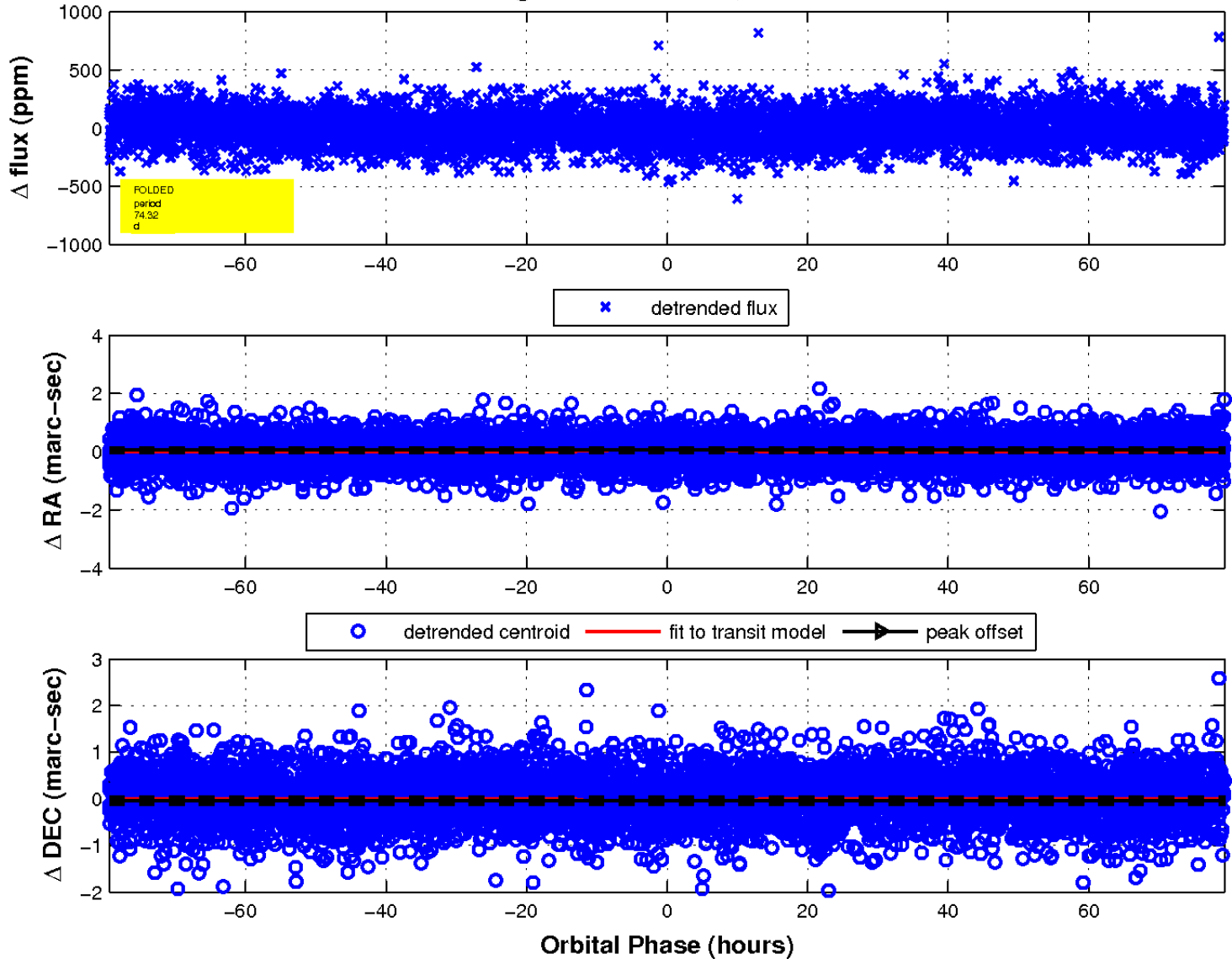
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



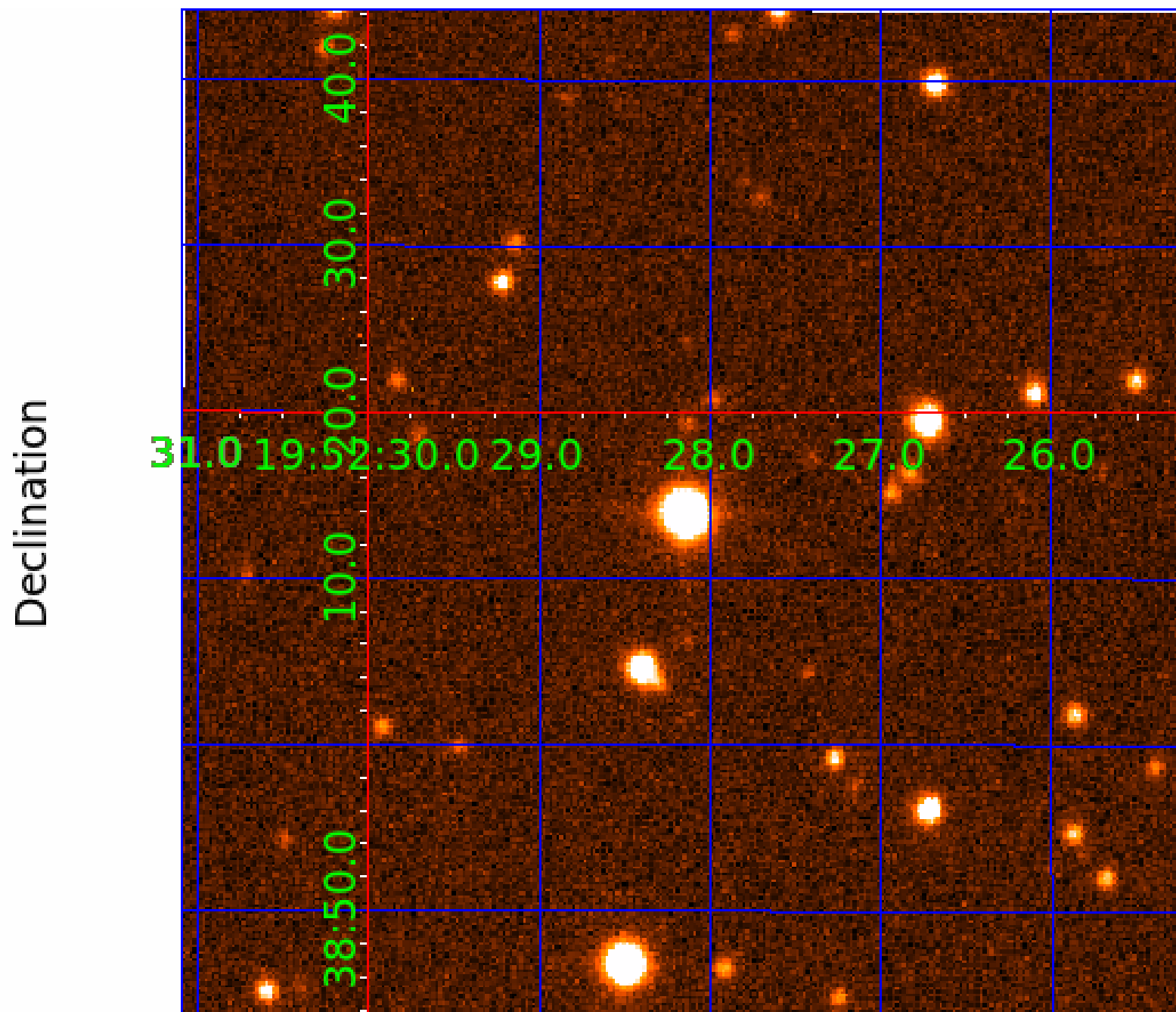
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 5



UKIRT Image



KIC 009848641

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})
009848641-01	OBS	No	2.171786	132.711702	7.5	10.283	7.5	3.2	2.74	7037	0.92	11158.64
009848641-02	OBS	No	74.320503	156.463919	81.4	26.463	9.0	5.9	2.74	7037	2.68	100.44
009848641-03	OBS	No	178.613561	309.208524	152.7	15.301	8.2	6.4	2.74	7037	3.67	31.20
009848641-04	OBS	No	82.221118	163.500974	237.4	2.693	8.1	8.6	2.74	7037	4.92	87.78
009848641-05	OBS	No	133.211763	192.939425	180.2	5.834	7.4	7.5	2.74	7037	4.47	46.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009848641-01	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
009848641-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009848641-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009848641-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009848641-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT

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

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

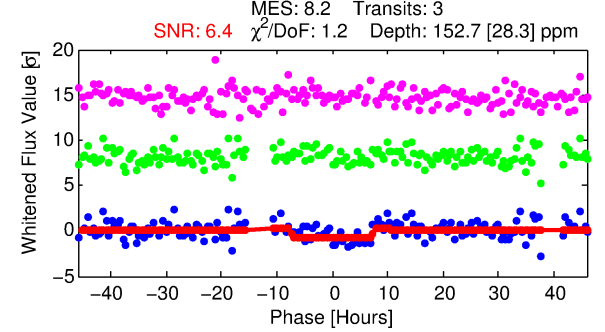
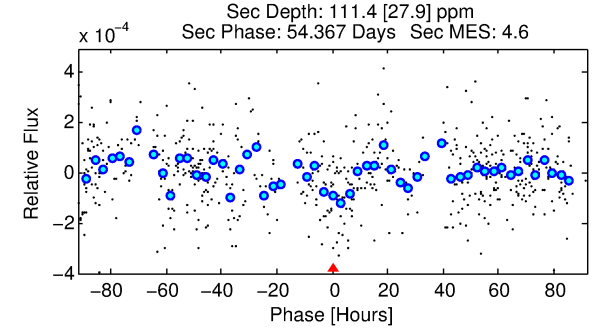
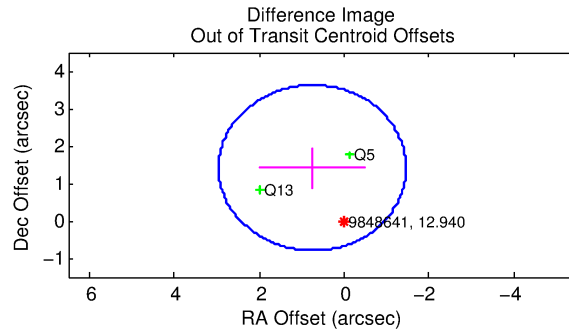
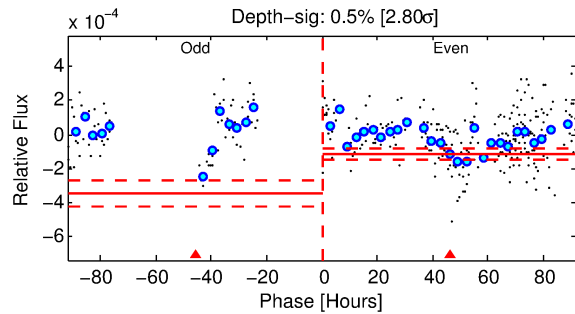
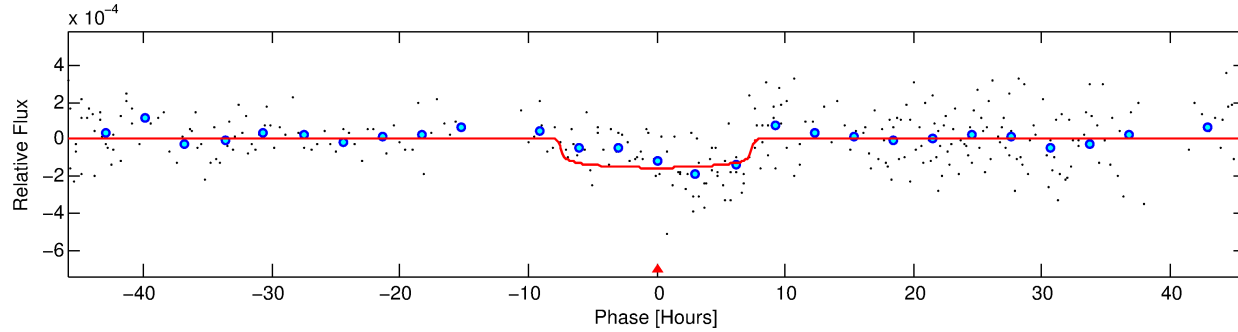
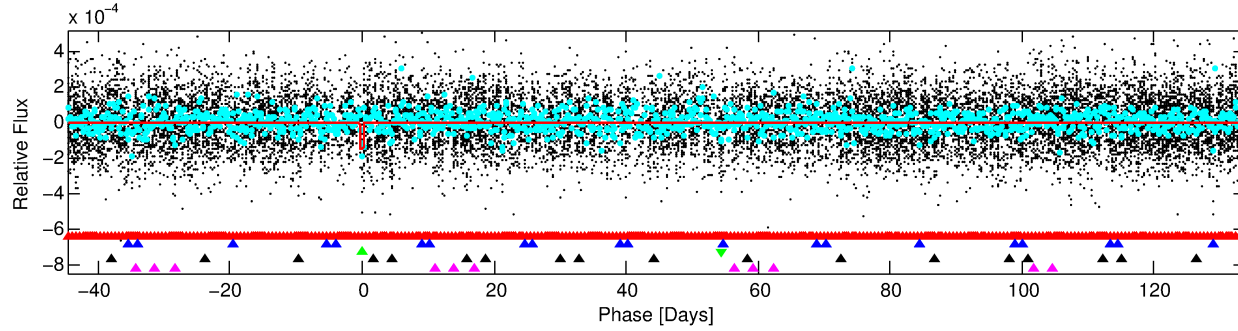
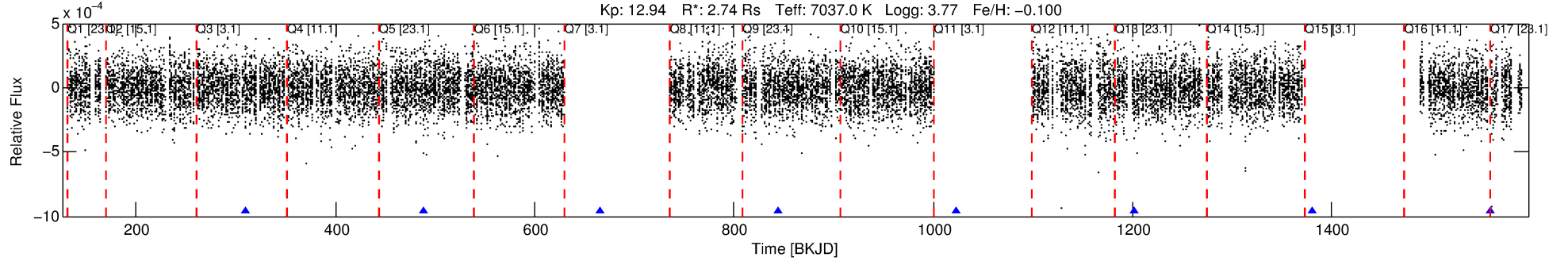
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009848641-03

No Significant Match Found

DV One-Page Summary

KIC: 9848641 Candidate: 3 of 5 Period: 178.614 d



DV Fit Results:

Period = 178.61356 [0.00666] d
Epoch = 309.2085 [0.0244] BKJD
Rp/R* = 0.0122 [0.0036]
a/R* = 61.90 [101.48]
b = 0.74 [1.02]
Seff = 31.20 [15.20]
Teq = 603 [73] K
Rp = 3.66 [1.60] Re
a = 0.7282 [0.2163] AU
Ag = 2420.42 [1925.55] [1.26σ]
Teffp = 6535 [1079] K [5.49σ]

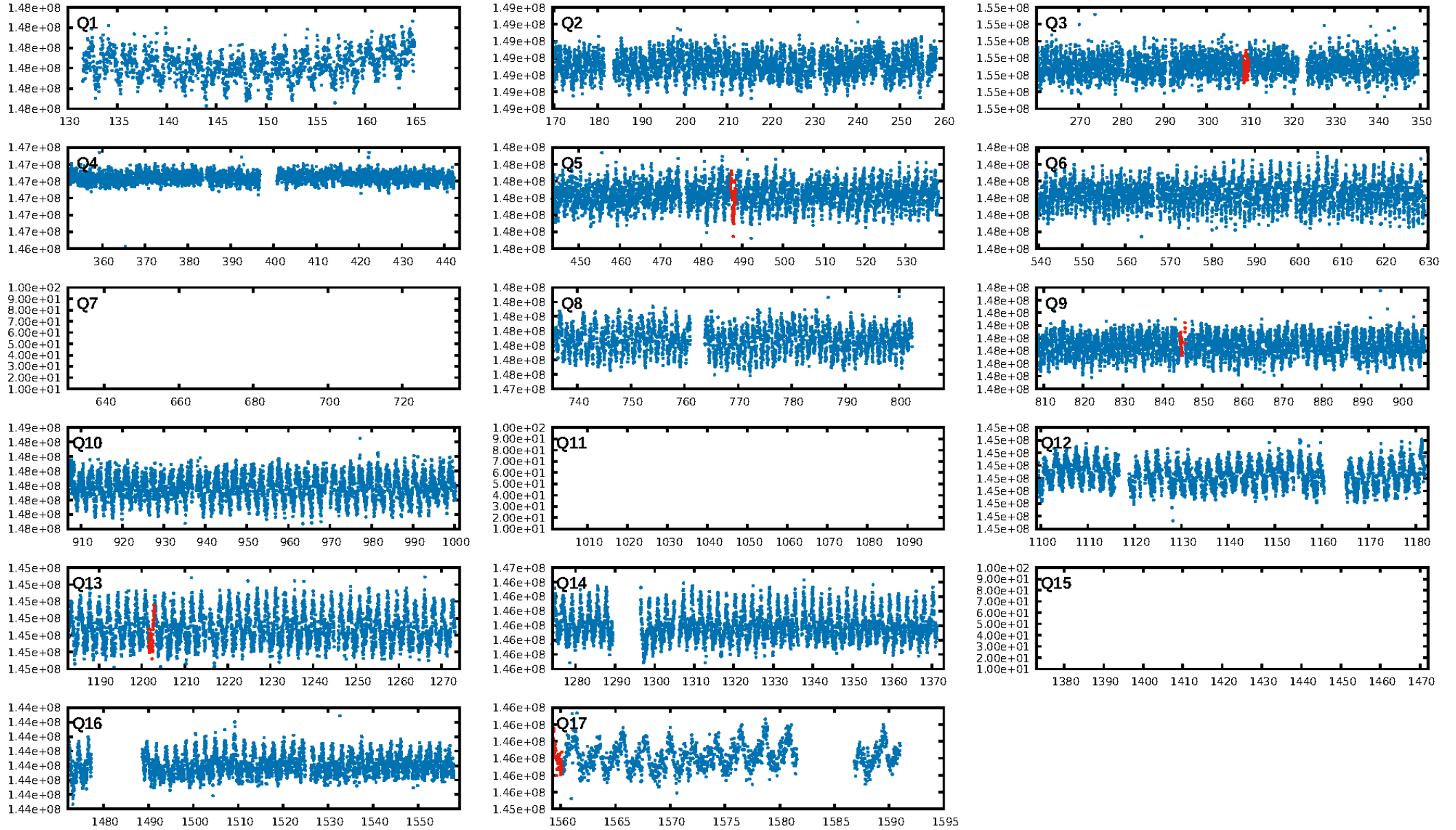
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [66.54σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 7.0%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.32e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.176
Centroid-sig: 43.5%
Centroid-so: 0.953 arcsec [0.90σ]
OotOffset-rm: 1.597 arcsec [2.17σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-rm: 1.508 arcsec [2.00σ]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/3]

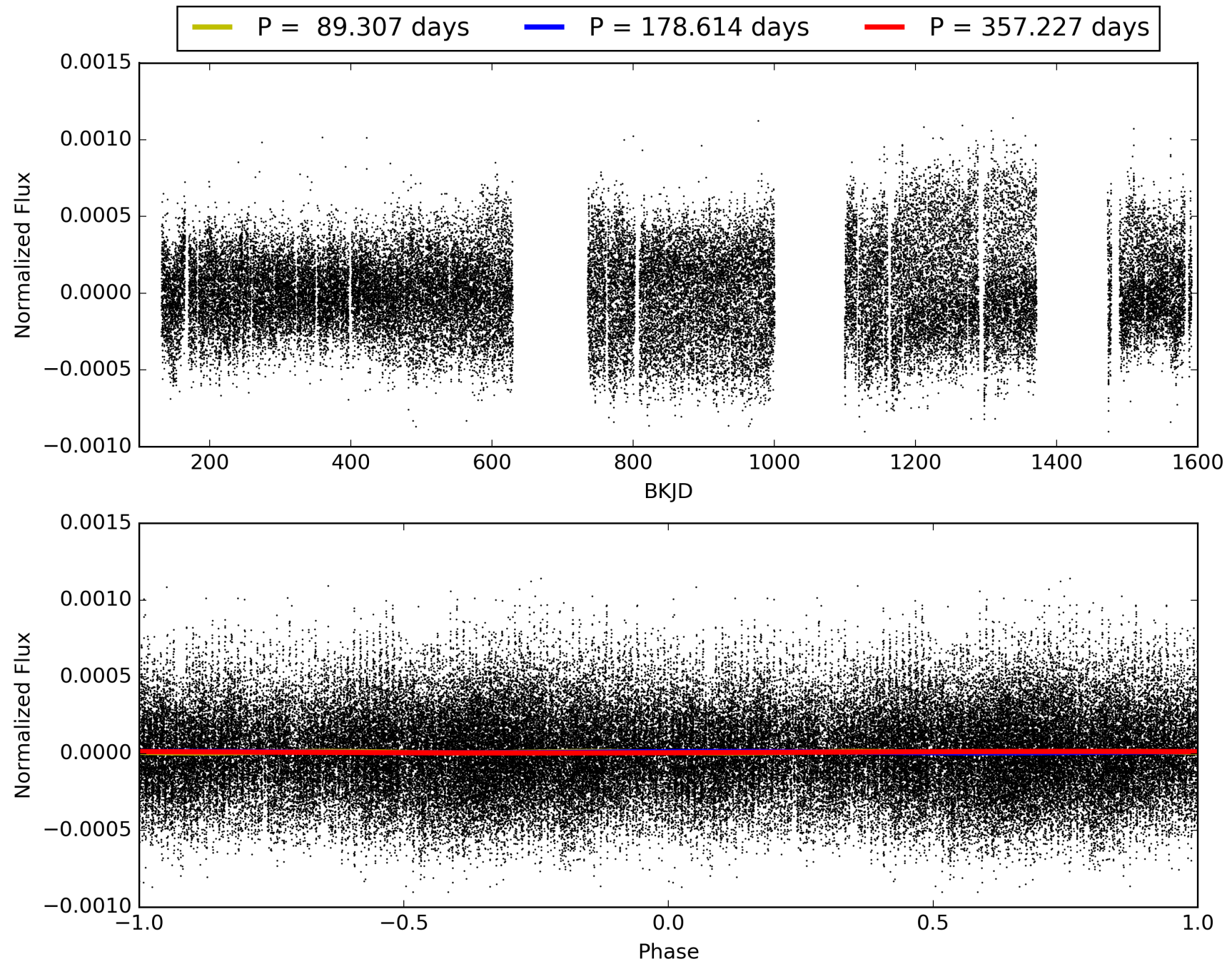
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:59:29 Z

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

TCE 009848641-03, PDC Light Curves

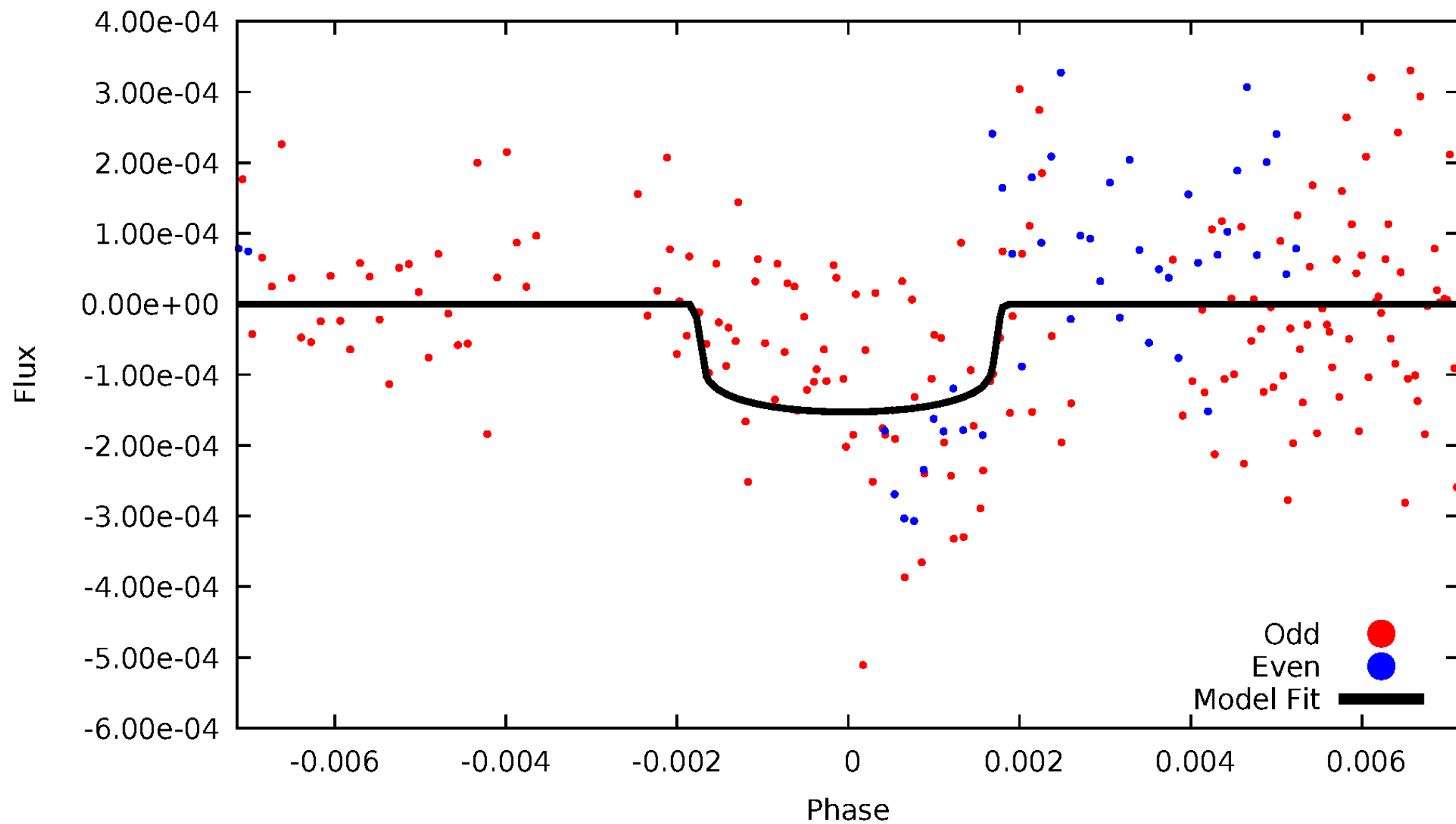


TCE 009848641-03



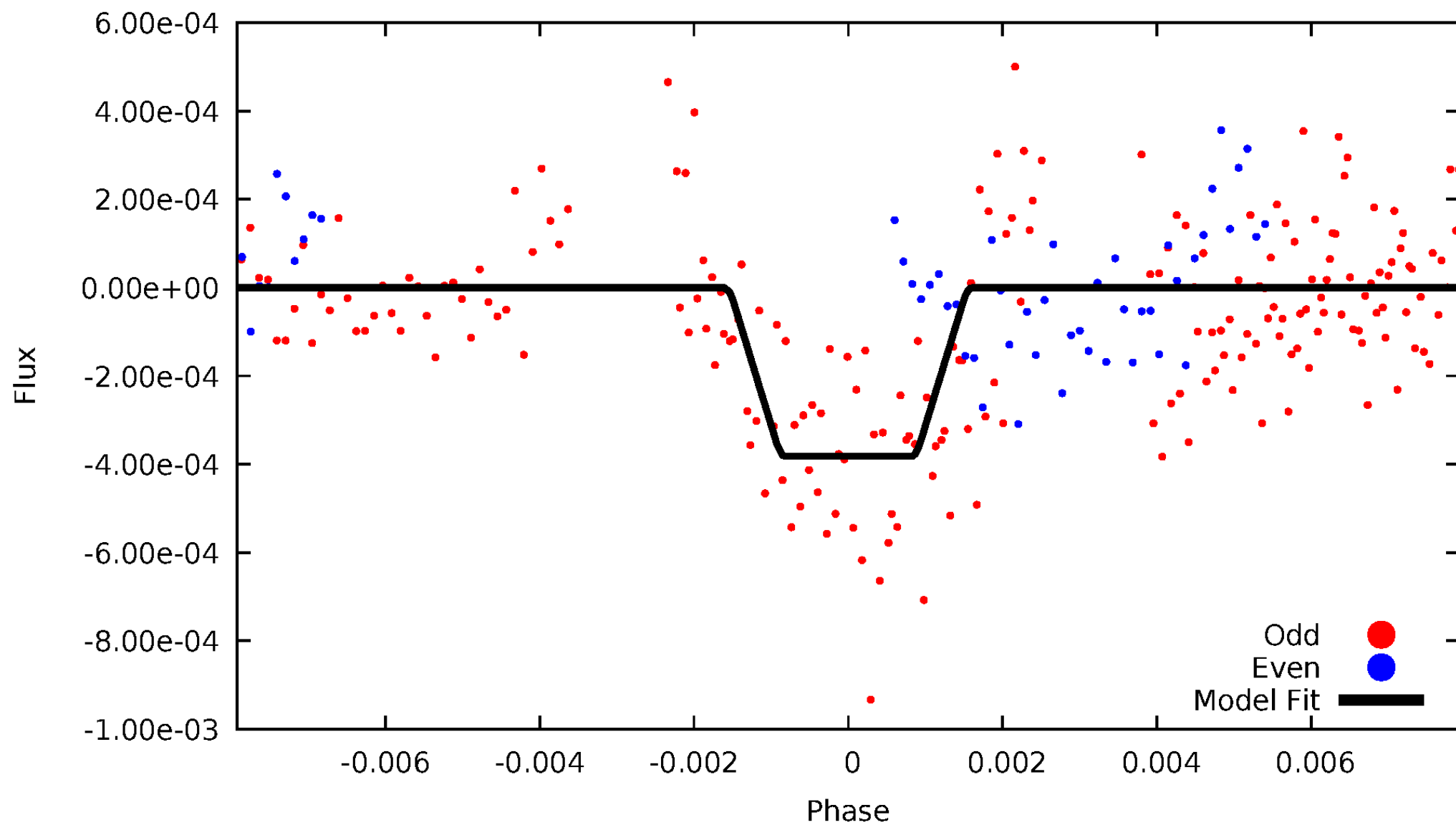
DV Odd/Even

TCE 009848641-03



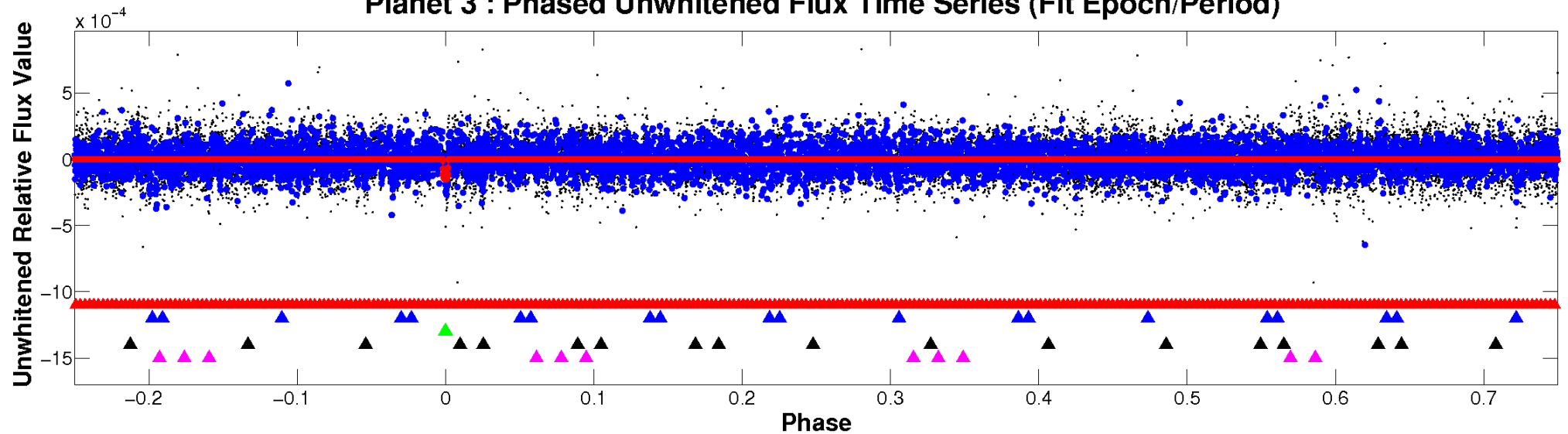
ALT Odd/Even

TCE 009848641-03

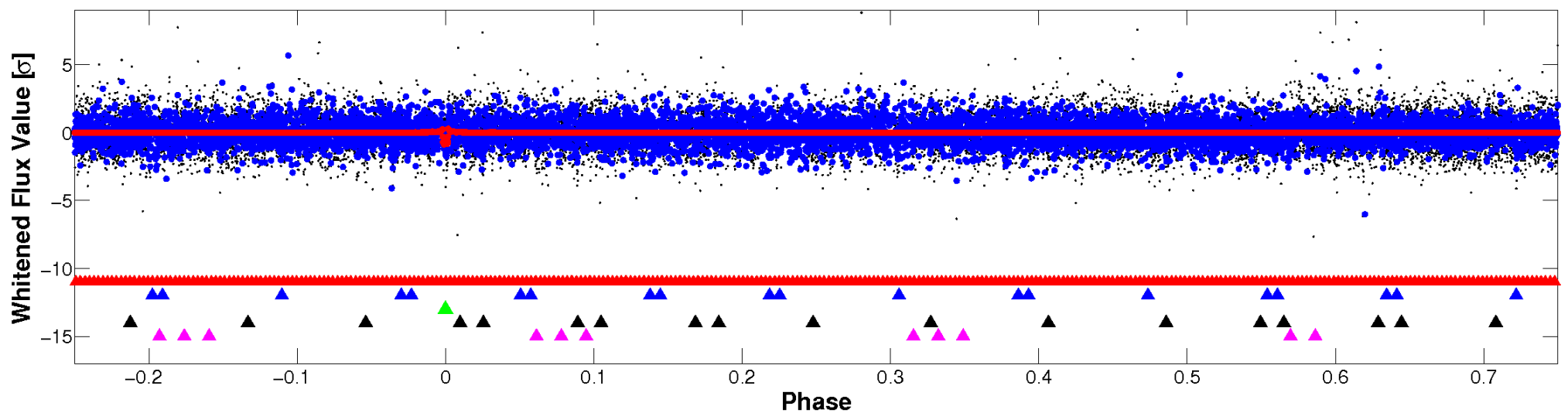


Non-Whitened Vs. Whitened Light Curve

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

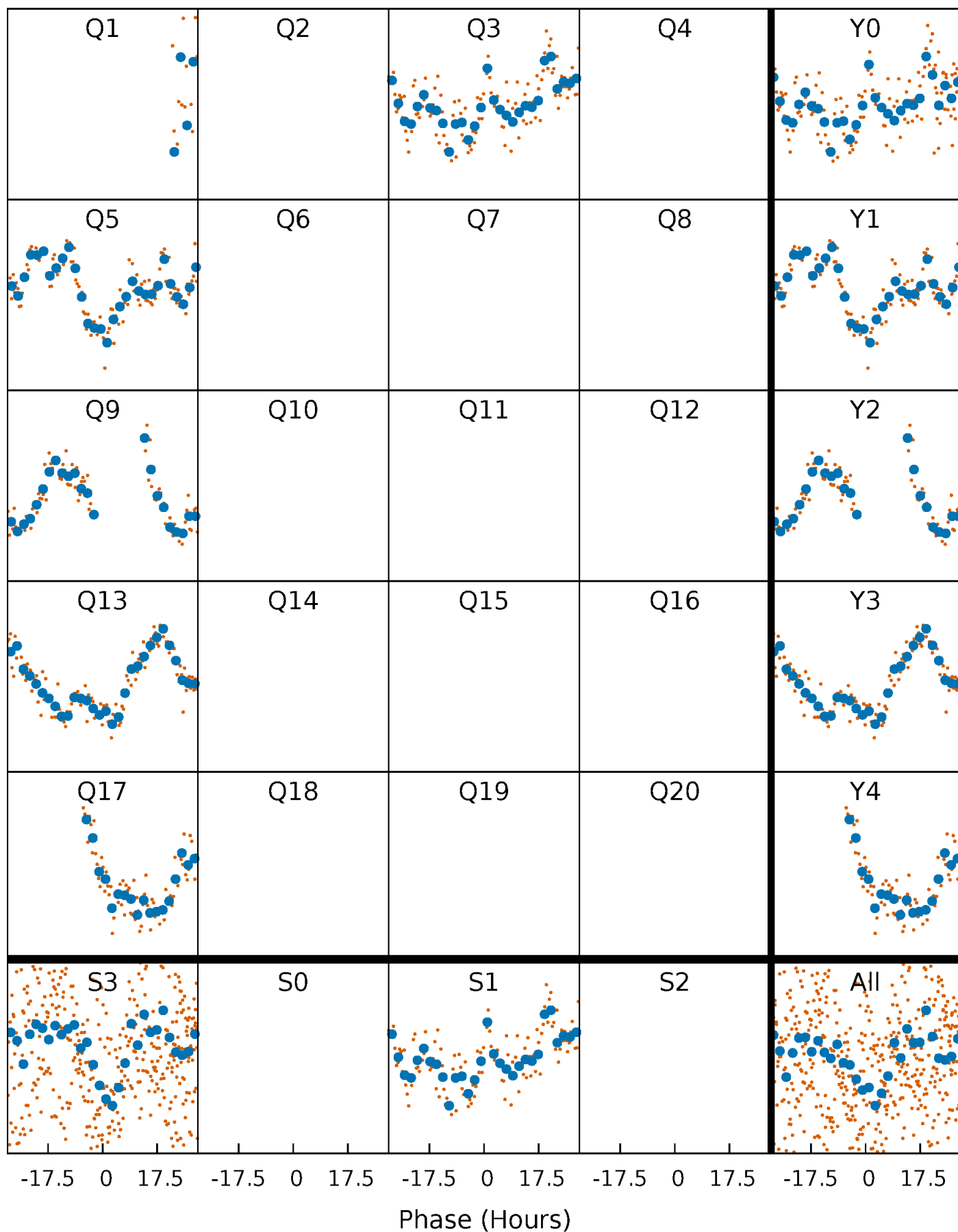


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



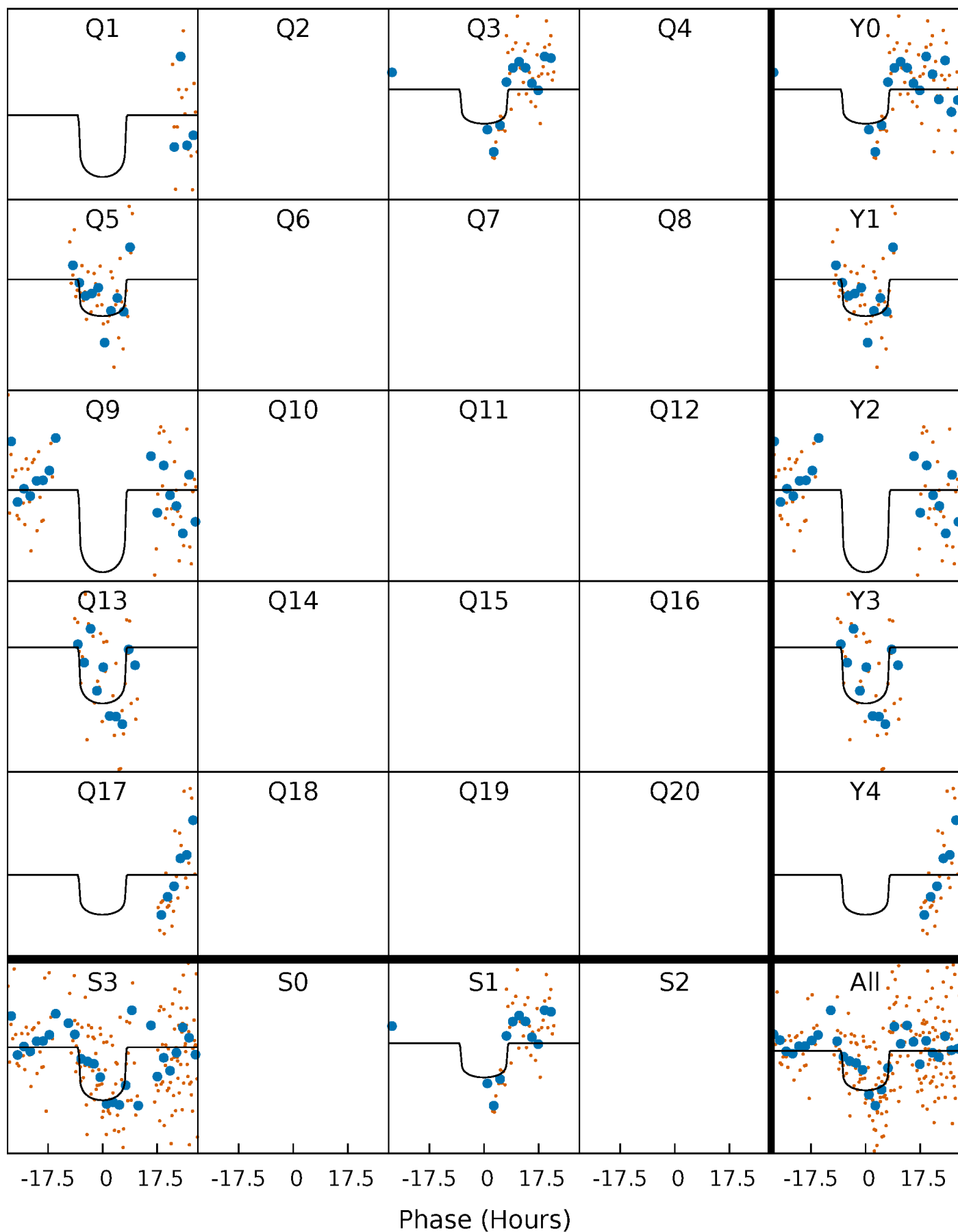
PDC Quarter-Phased Transit Curves

TCE 009848641-03 P=178.613561 Days $T_0=309.208524$ (BKJD)



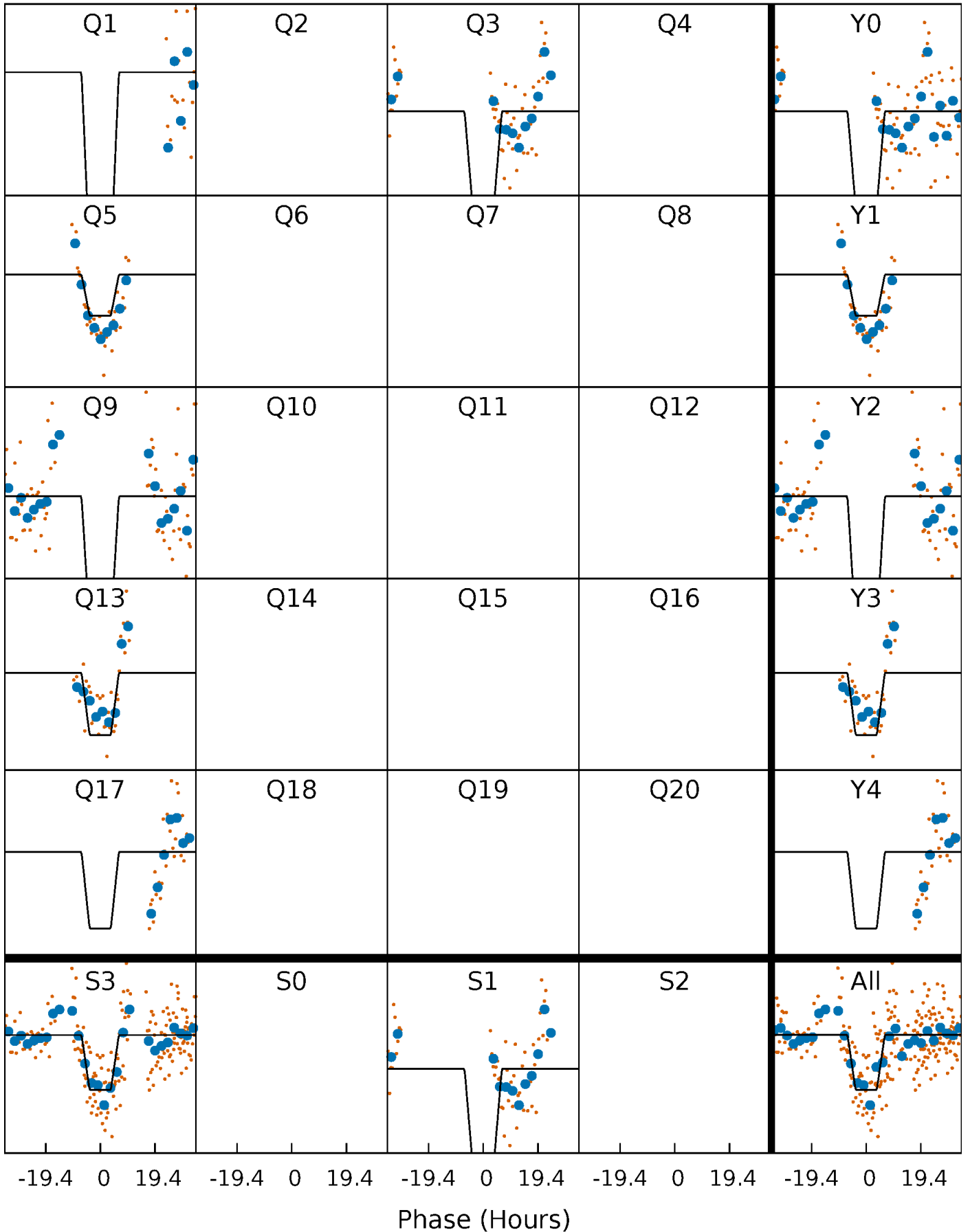
DV Quarter-Phased Transit Curves

TCE 009848641-03 $P=178.613561$ Days $T_0=309.208524$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

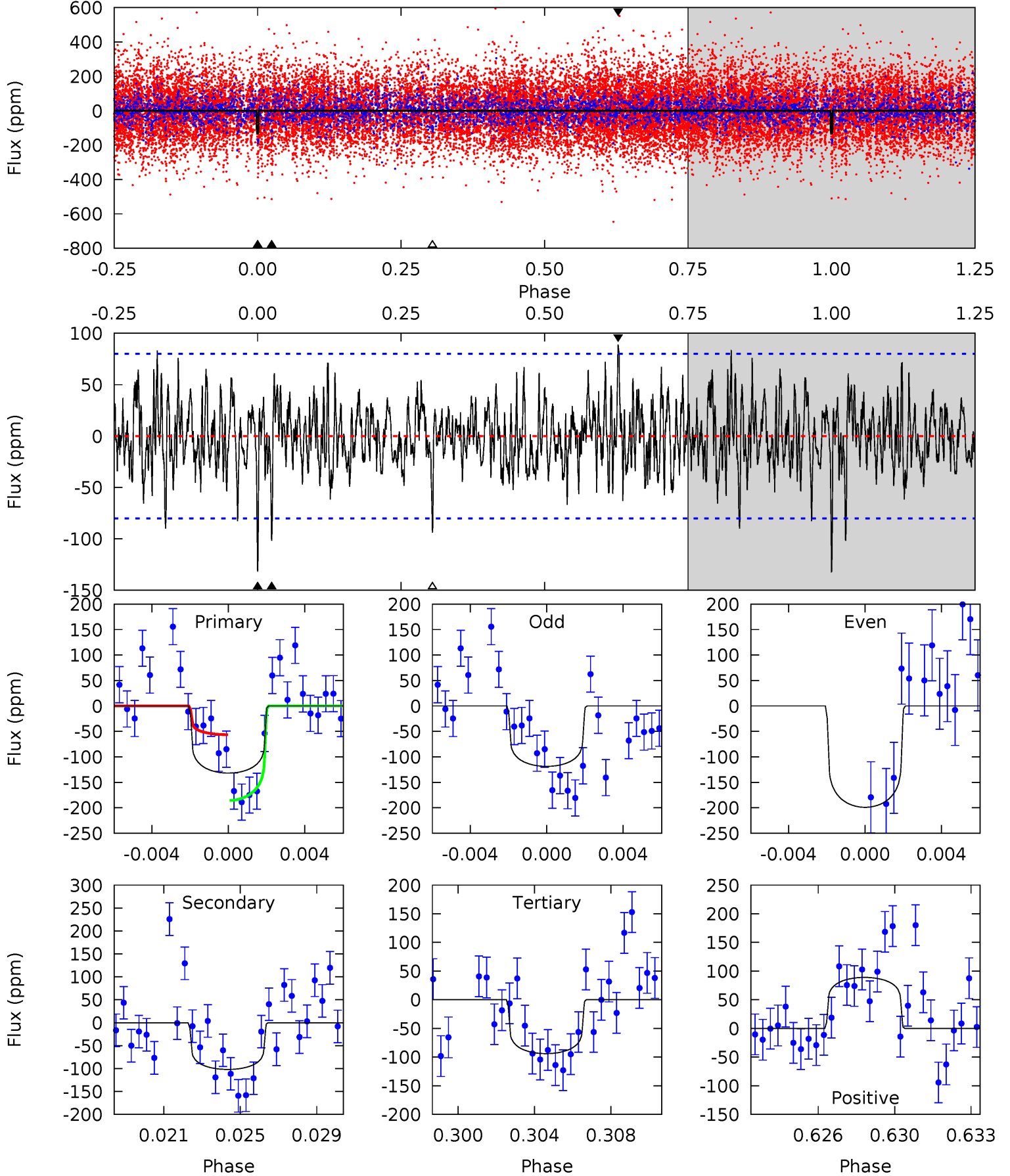
TCE 009848641-03 P=178.623370 Days $T_0=309.177213$ (BKJD)



DV Model-Shift Uniqueness Test

009848641-03, P = 178.613561 Days, E = 130.594963 Days

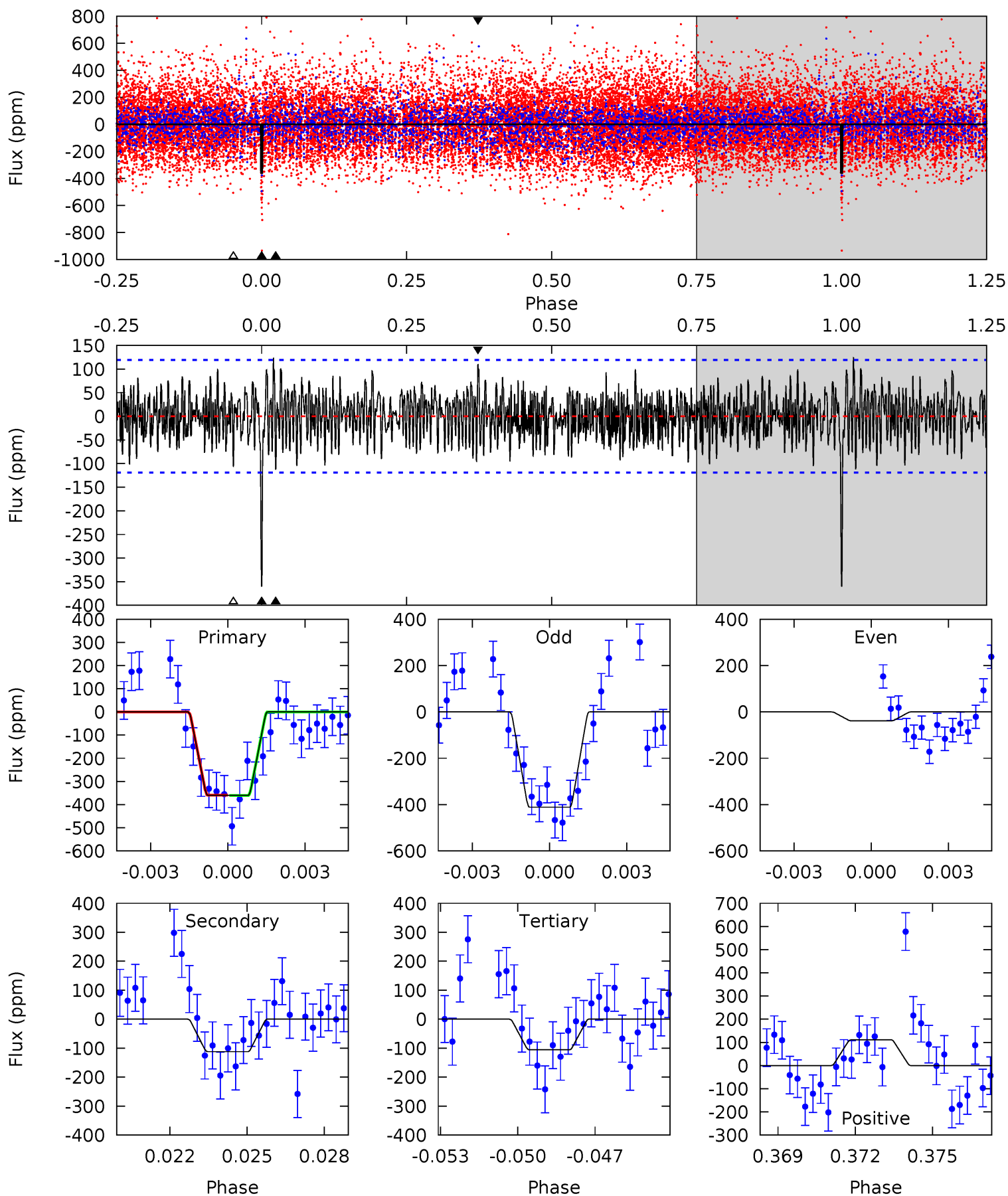
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.60	6.65	6.13	5.80	5.22	2.91	1.76	2.47	2.80	0.52	0.85	2.01	1.19	0.40	4.13



Alt Model-Shift Uniqueness Test

009848641-03, P = 178.623370 Days, E = 130.553843 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	4.93	4.64	4.87	5.24	2.95	1.66	11.2	11.0	0.29	0.06	5.72	0.96	0.26	0.01



Stellar Parameters For KIC 009848641

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7037^{+187}_{-250}	$3.769^{+0.270}_{-0.090}$	$-0.100^{+0.250}_{-0.300}$	$2.744^{+0.472}_{-0.876}$	$1.612^{+0.224}_{-0.249}$	$0.110^{+0.182}_{-0.038}$
	+3%/-4%	+7%/-2%	+250%/-300%	+17%/-32%	+14%/-15%	+165%/-34%
Source	PHO1	FLK73	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 009848641-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-102 ± 15	$3.51^{+1.22}_{-1.13}$	824^{+50}_{-60}	6262^{+1442}_{-756}	2395^{+2868}_{-1118}
Alt.	-112 ± 23	$5.53^{+1.37}_{-1.25}$	822^{+51}_{-59}	5190^{+614}_{-452}	1052^{+768}_{-402}

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

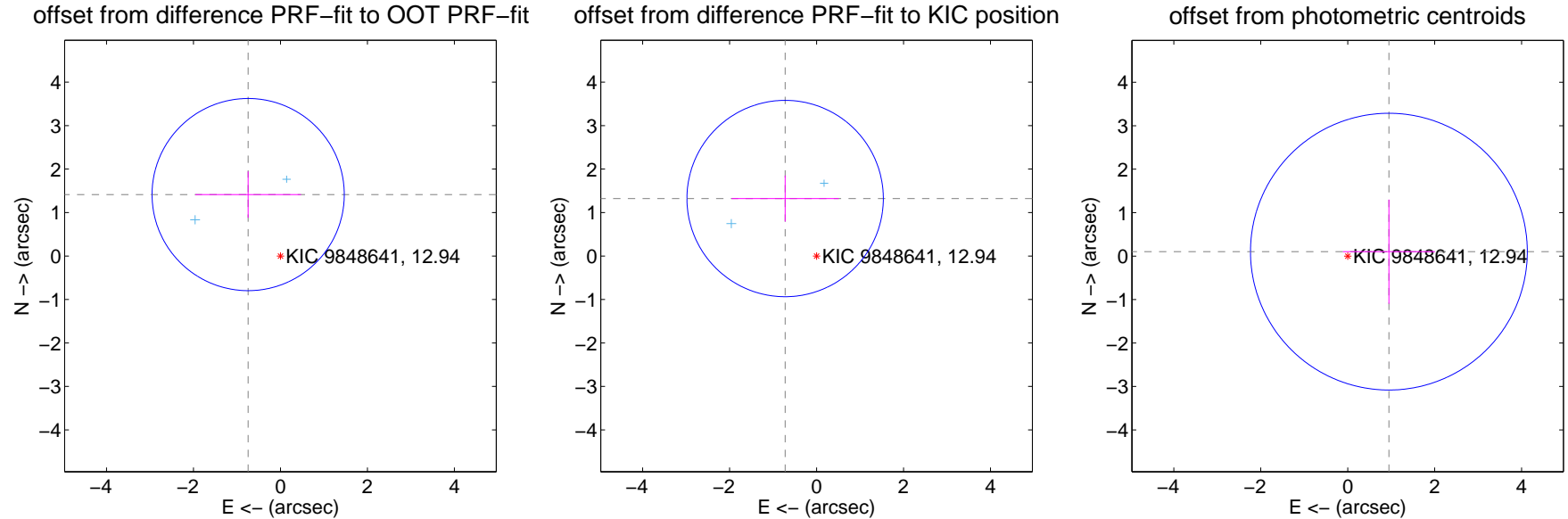
DV Centroid Data

Supplemental centroid analysis for 009848641-03. Kepler magnitude: 12.94. Transit SNR 6.44

There are 2 quarters with good PRF difference image offsets

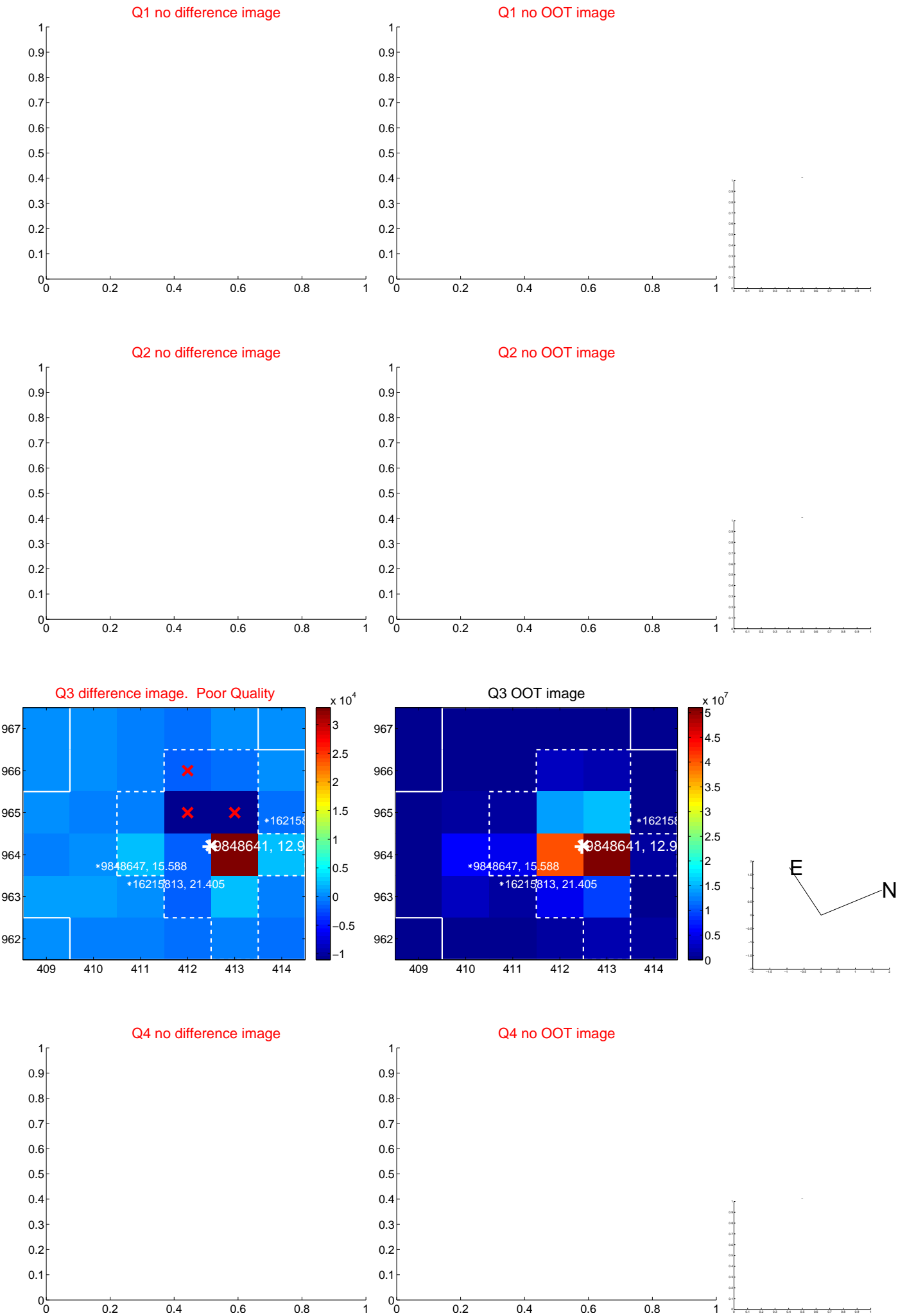
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.597 ± 0.737	2.17	0.743 ± 1.217	1.414 ± 0.533
PRF-fit source offset from KIC position	1.508 ± 0.753	2.00	0.723 ± 1.233	1.323 ± 0.531
photometric centroid source offset	0.95 ± 1.06	0.90	-0.95 ± 1.06	0.10 ± 1.20

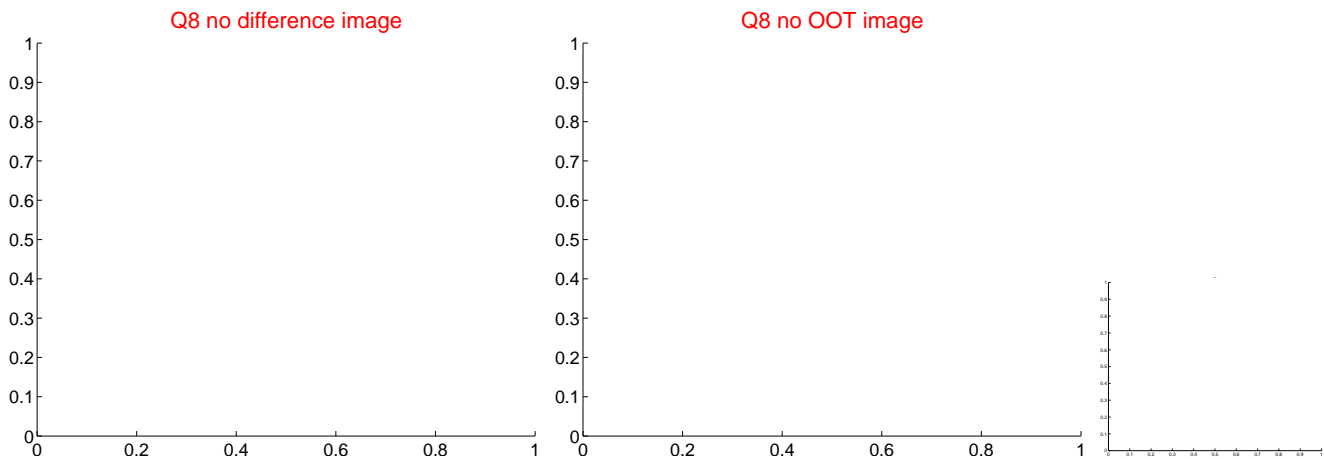
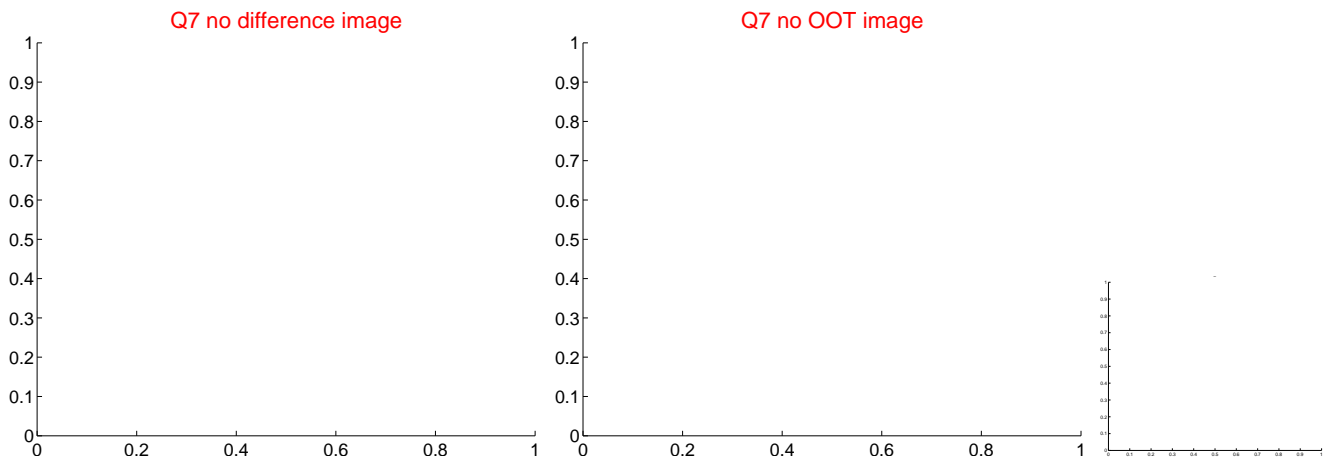
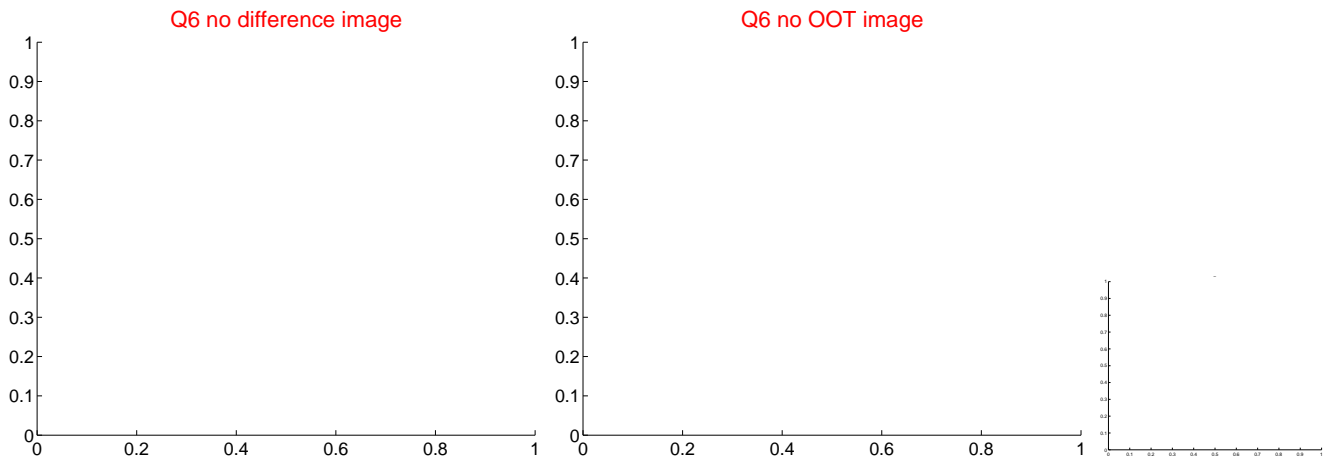
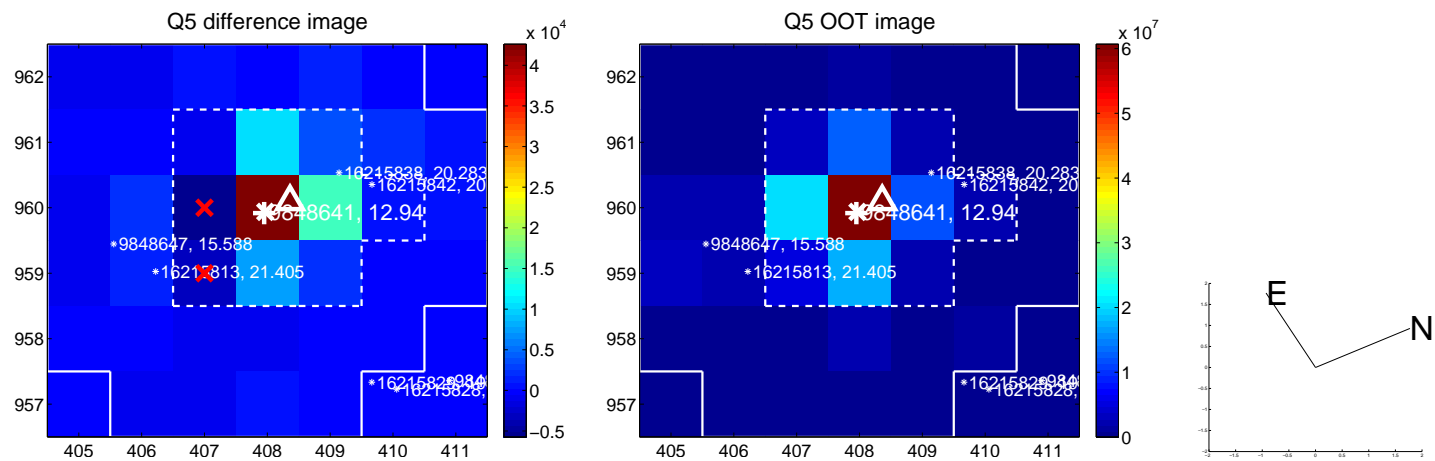


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



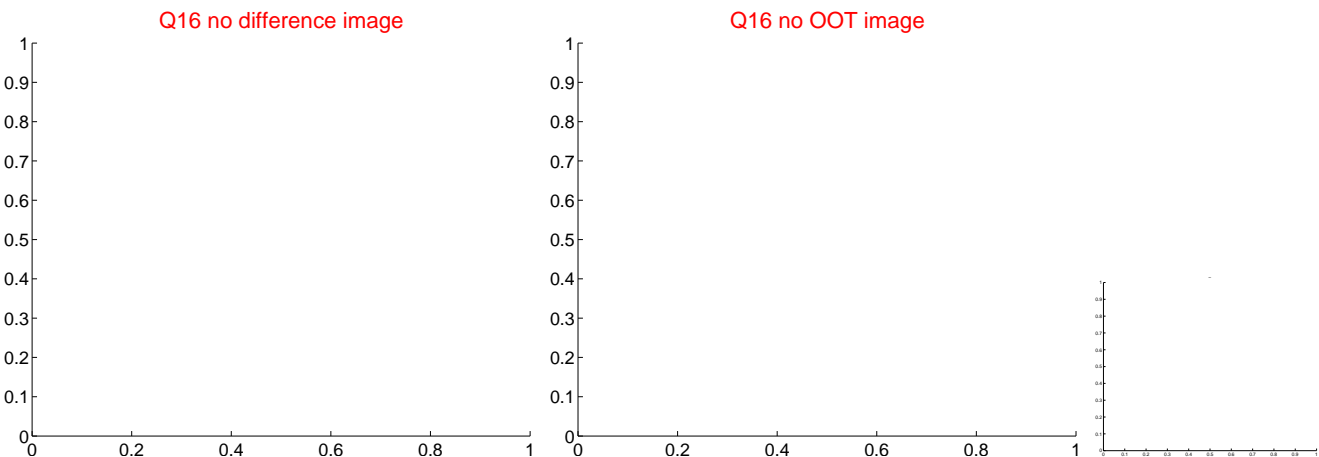
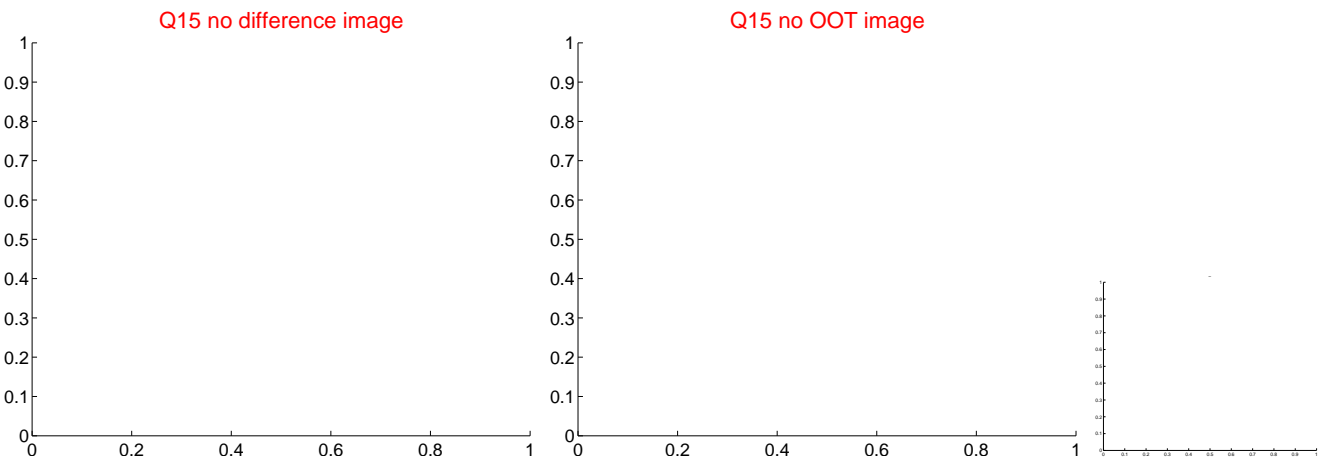
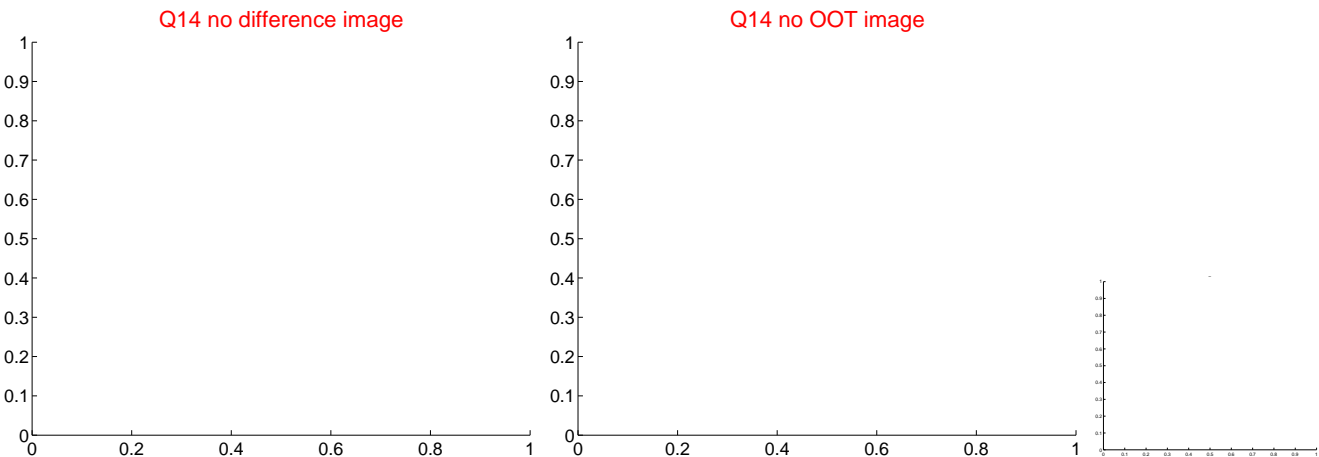
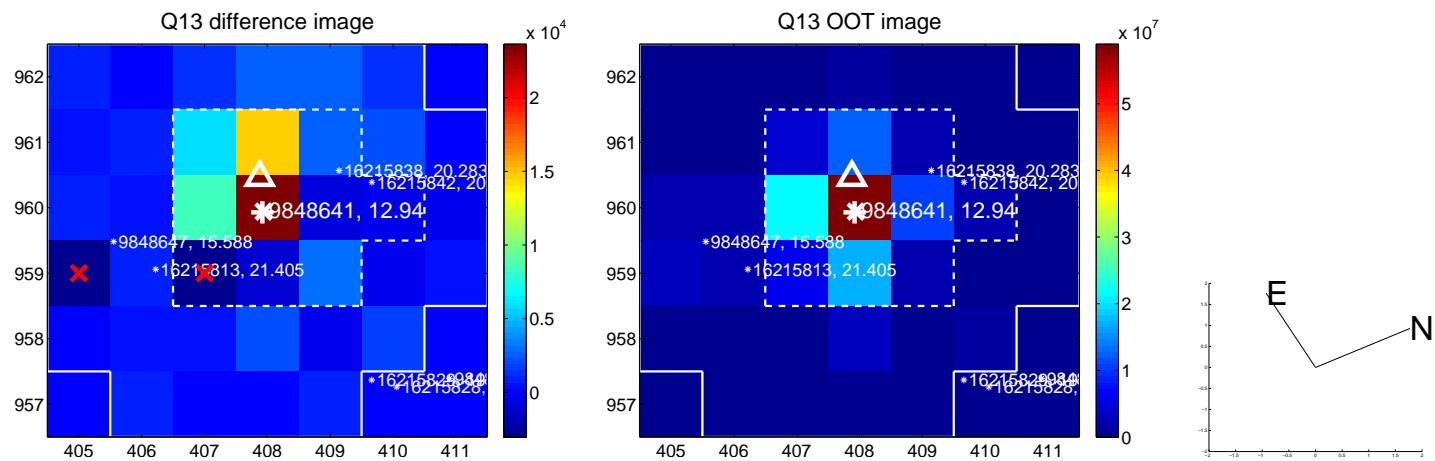
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



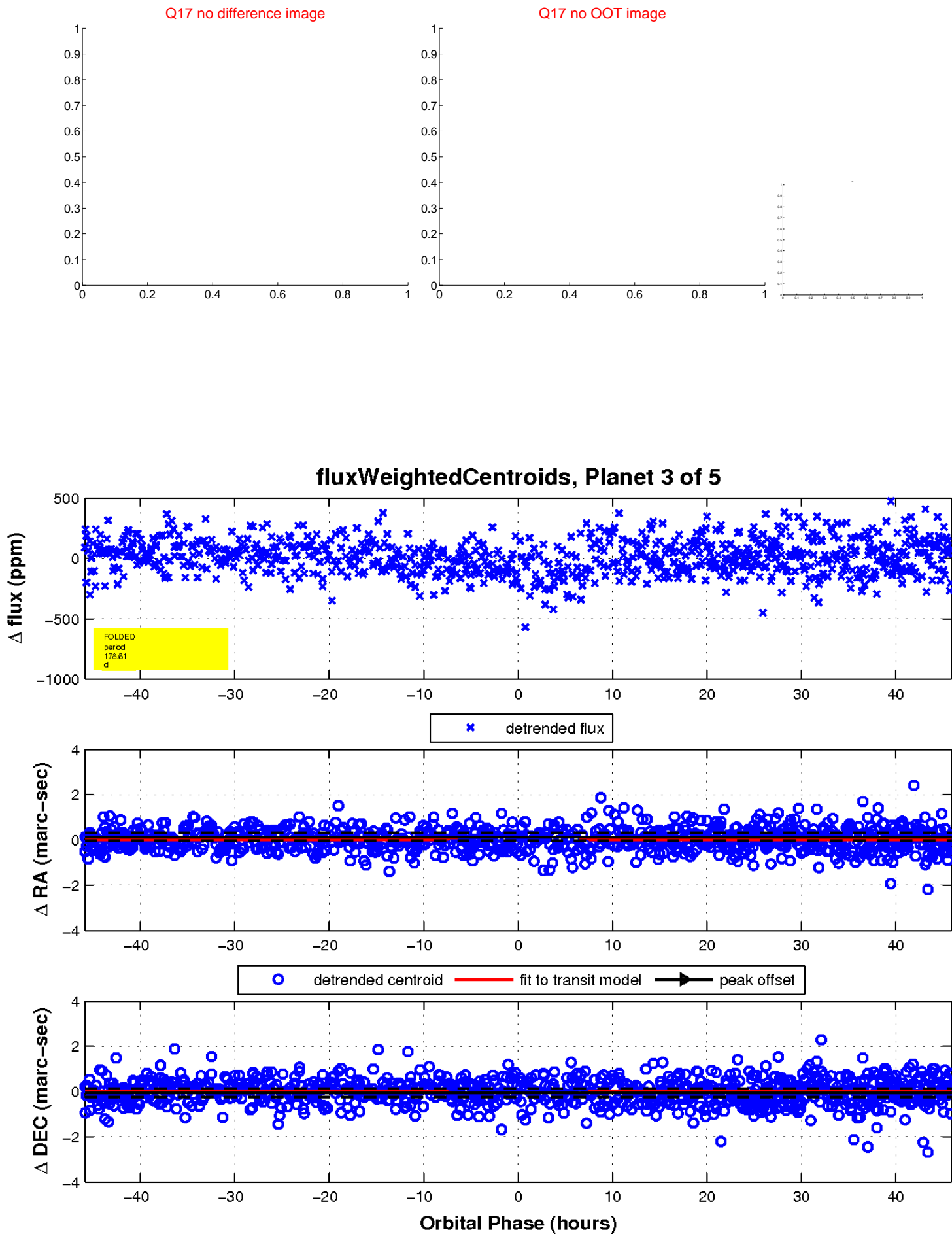
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



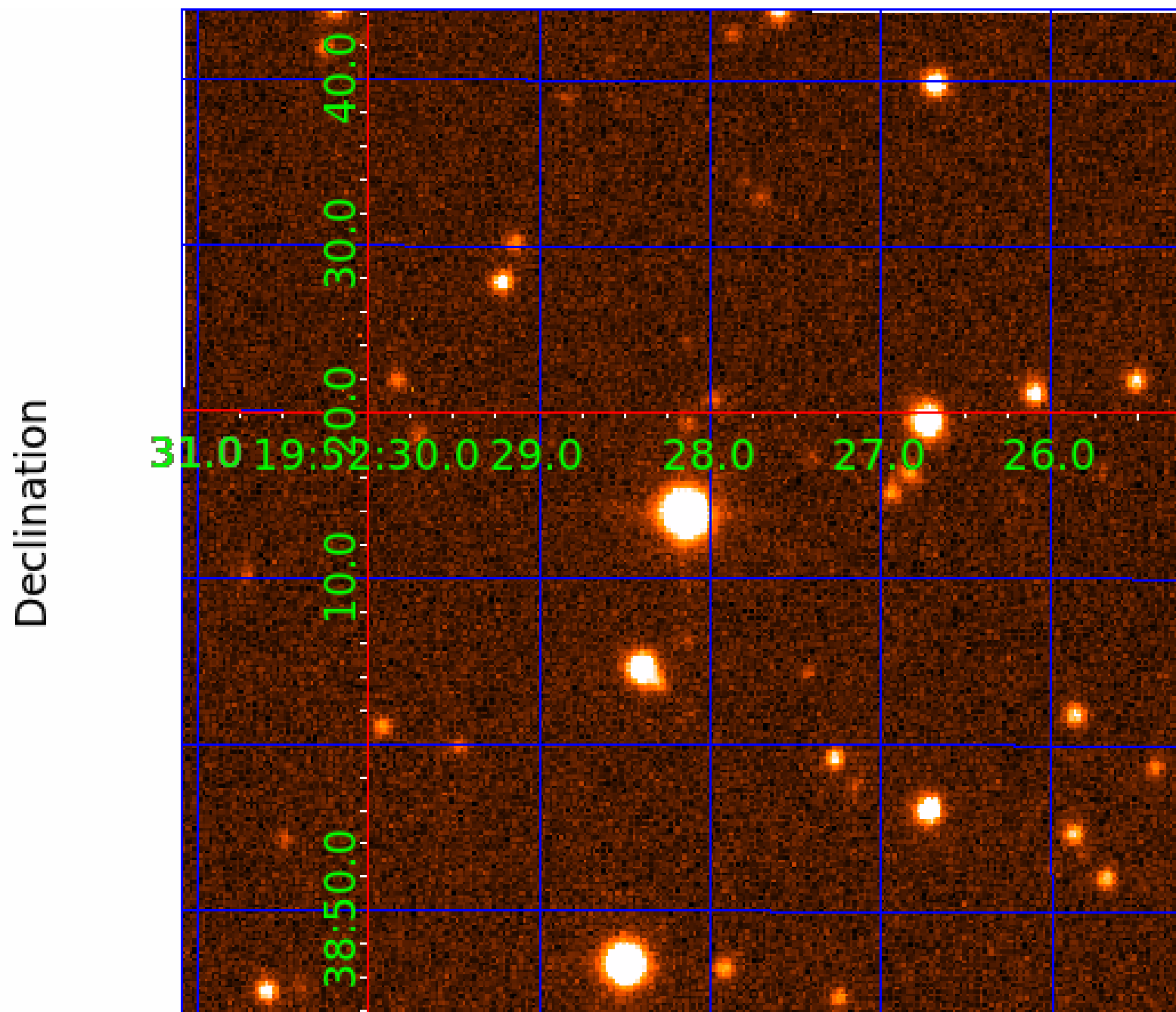
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009848641

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})
009848641-01	OBS	No	2.171786	132.711702	7.5	10.283	7.5	3.2	2.74	7037	0.92	11158.64
009848641-02	OBS	No	74.320503	156.463919	81.4	26.463	9.0	5.9	2.74	7037	2.68	100.44
009848641-03	OBS	No	178.613561	309.208524	152.7	15.301	8.2	6.4	2.74	7037	3.67	31.20
009848641-04	OBS	No	82.221118	163.500974	237.4	2.693	8.1	8.6	2.74	7037	4.92	87.78
009848641-05	OBS	No	133.211763	192.939425	180.2	5.834	7.4	7.5	2.74	7037	4.47	46.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009848641-01	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
009848641-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009848641-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009848641-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009848641-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT

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

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

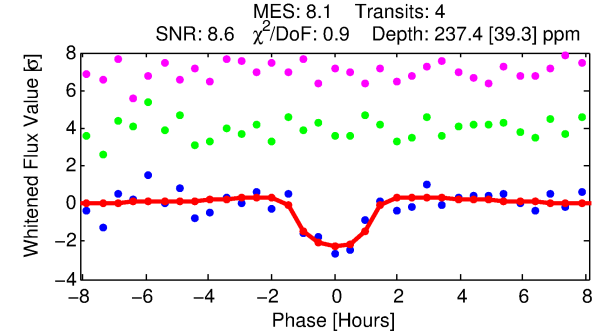
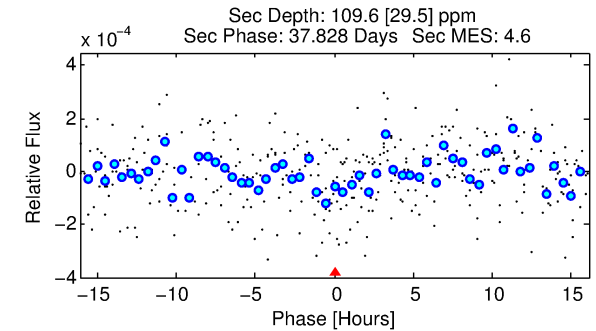
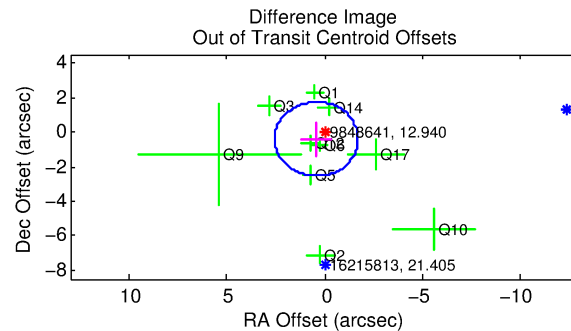
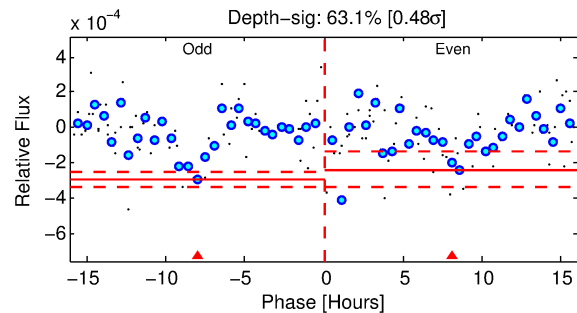
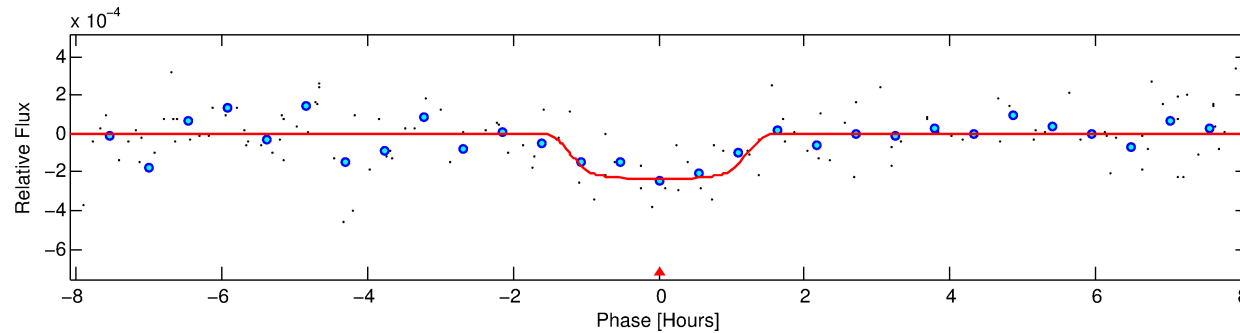
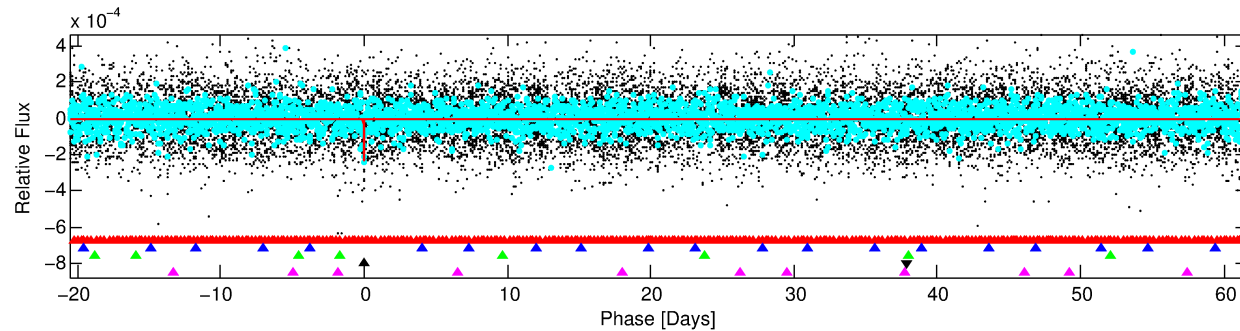
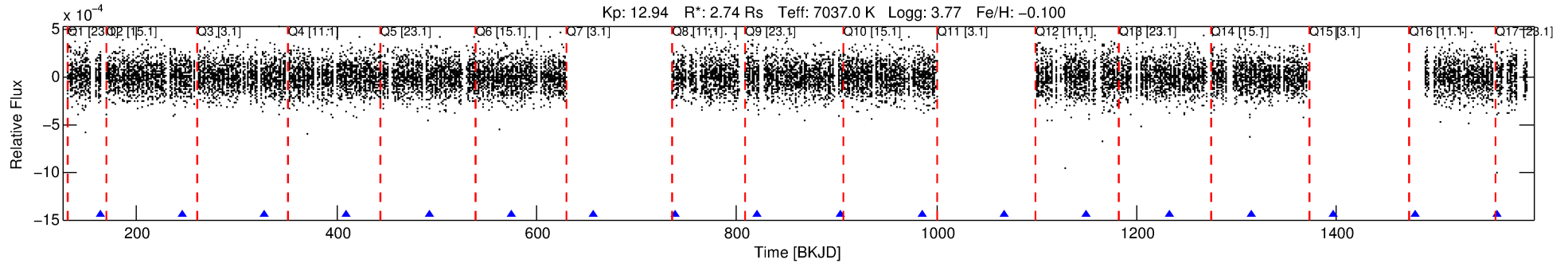
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009848641-04

No Significant Match Found

DV One-Page Summary

KIC: 9848641 Candidate: 4 of 5 Period: 82.221 d



DV Fit Results:

Period = 82.22112 [0.00111] d
Epoch = 163.5010 [0.0112] BKJD
Rp/R* = 0.0164 [0.0248]
a/R* = 109.95 [1033.34]
b = 0.90 [1.99]
Seff = 87.78 [42.76]
Teq = 781 [95] K
Rp = 4.92 [7.58] Re
a = 0.4341 [0.1290] AU
Ag = 470.31 [1442.16] [0.33 σ]
Teffp = 5620 [4263] K [1.13 σ]

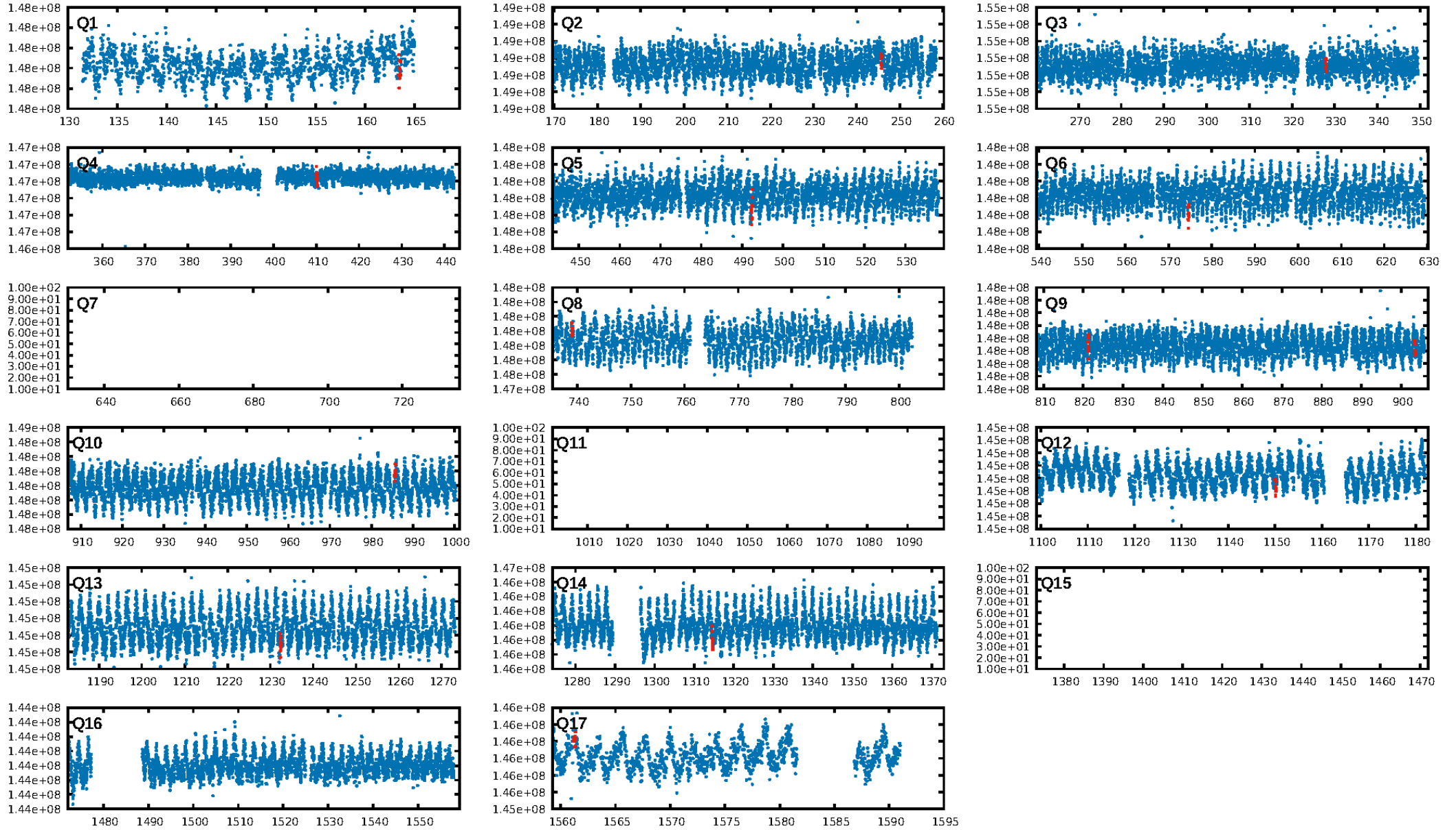
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.13 σ]
LongPeriod-sig: 100.0% [190.44 σ]
ModelChiSquare2-sig: 16.6%
ModelChiSquareGof-sig: 87.5%
Bootstrap-pfa: 3.72e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 23.11
Centroid-sig: 89.5%
Centroid-so: 0.191 arcsec [0.23 σ]
OotOffset-rm: 0.585 arcsec [0.82 σ]
OotOffset-st: 4/1/1/4 [10]
KicOffset-rm: 0.646 arcsec [0.91 σ]
KicOffset-st: 4/1/1/4 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 0.38 [5/13]

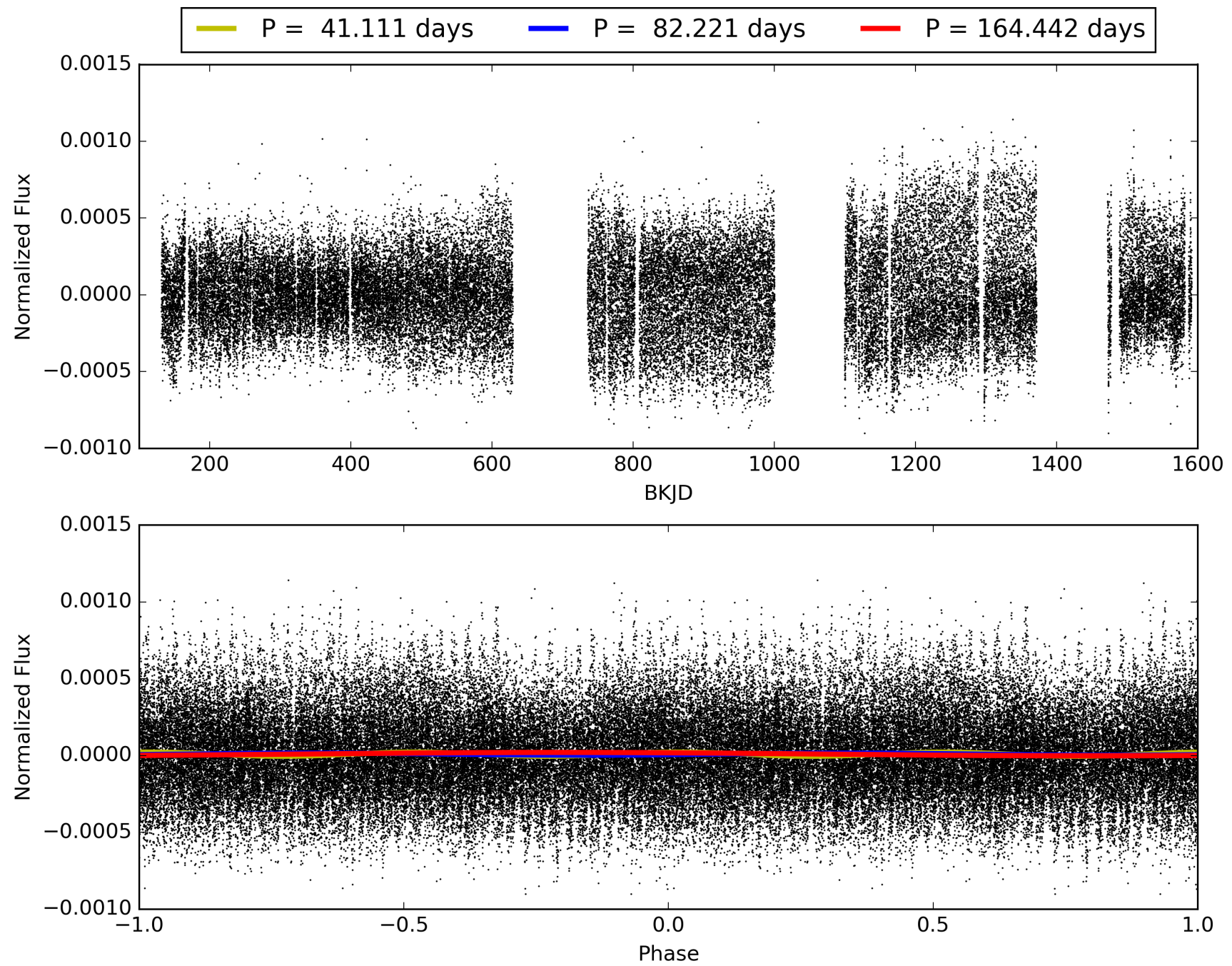
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:59:33 Z

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

TCE 009848641-04, PDC Light Curves

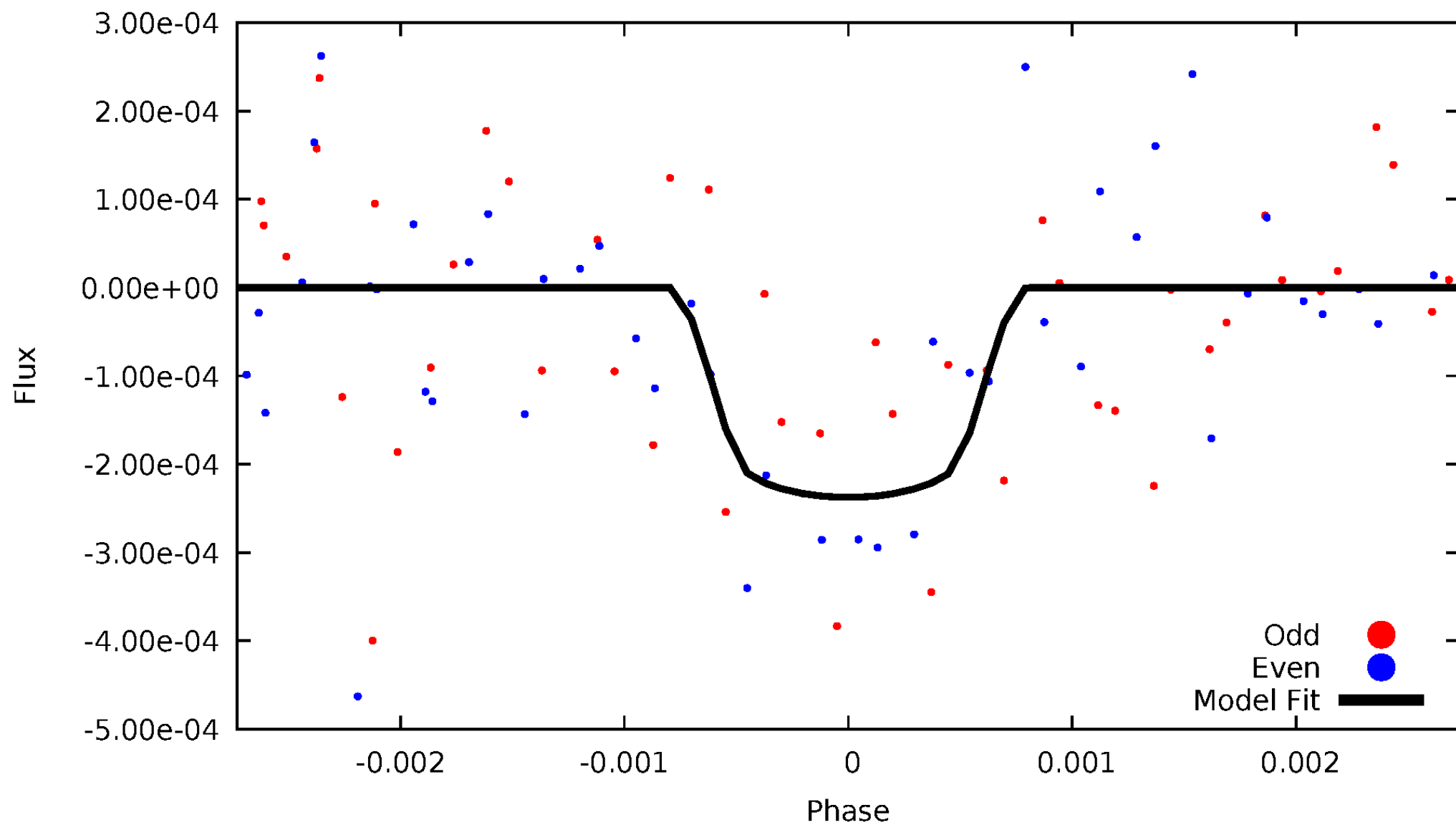


TCE 009848641-04



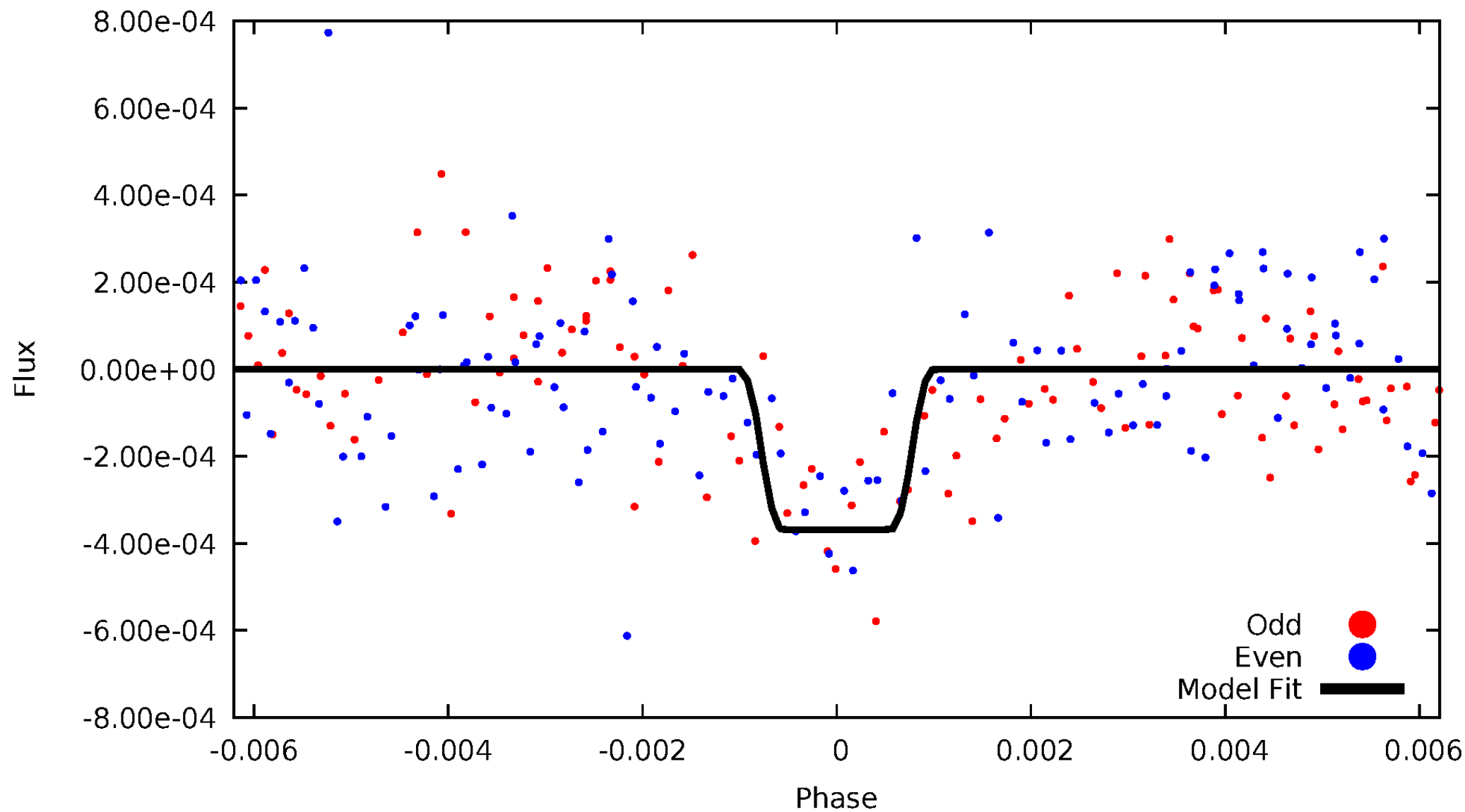
DV Odd/Even

TCE 009848641-04



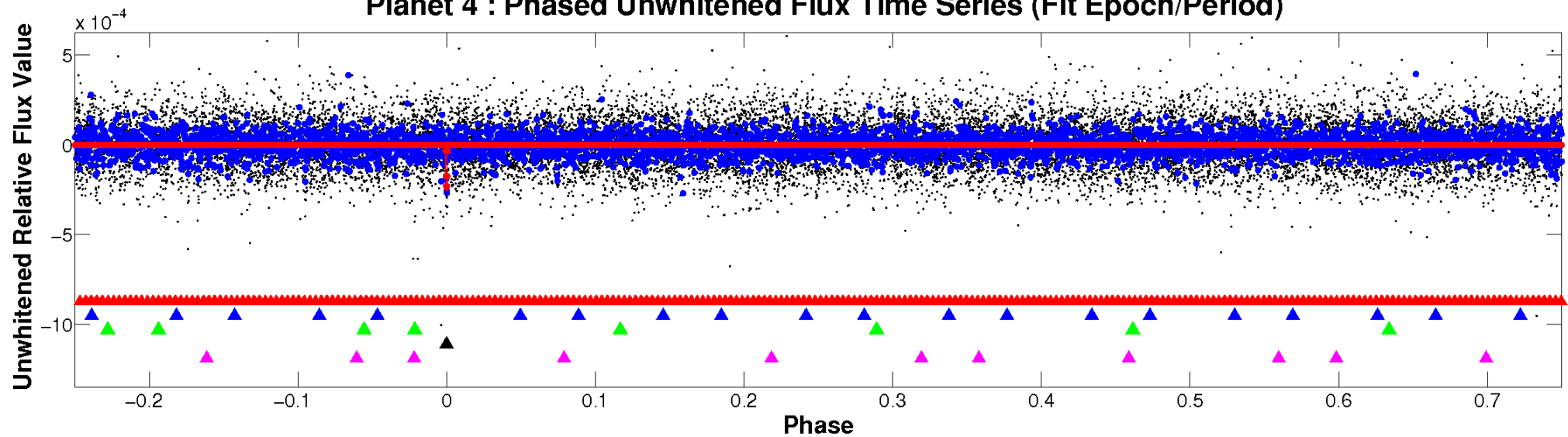
ALT Odd/Even

TCE 009848641-04

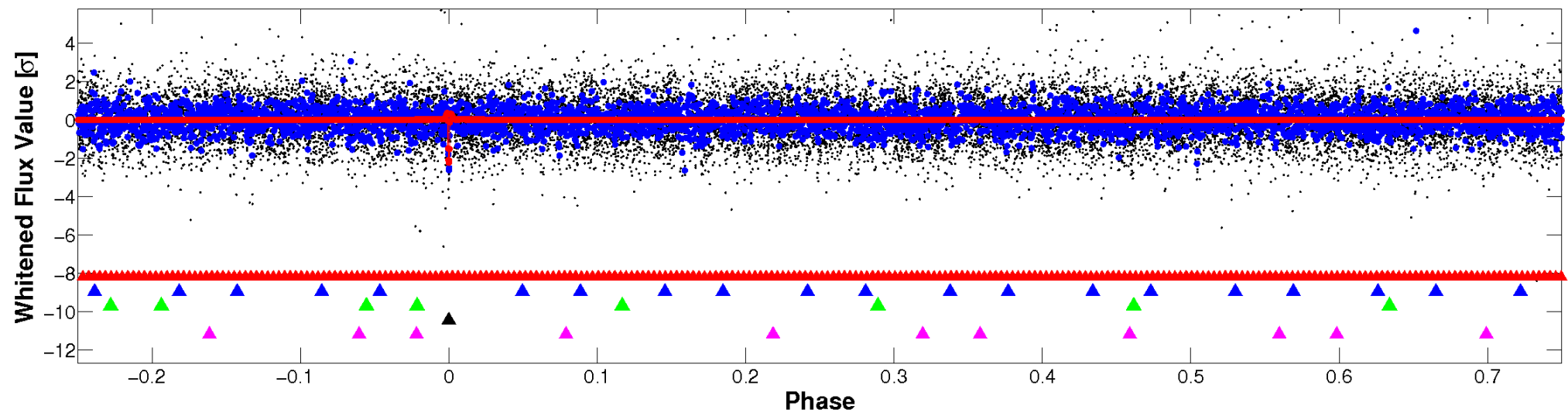


Non-Whitened Vs. Whitened Light Curve

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

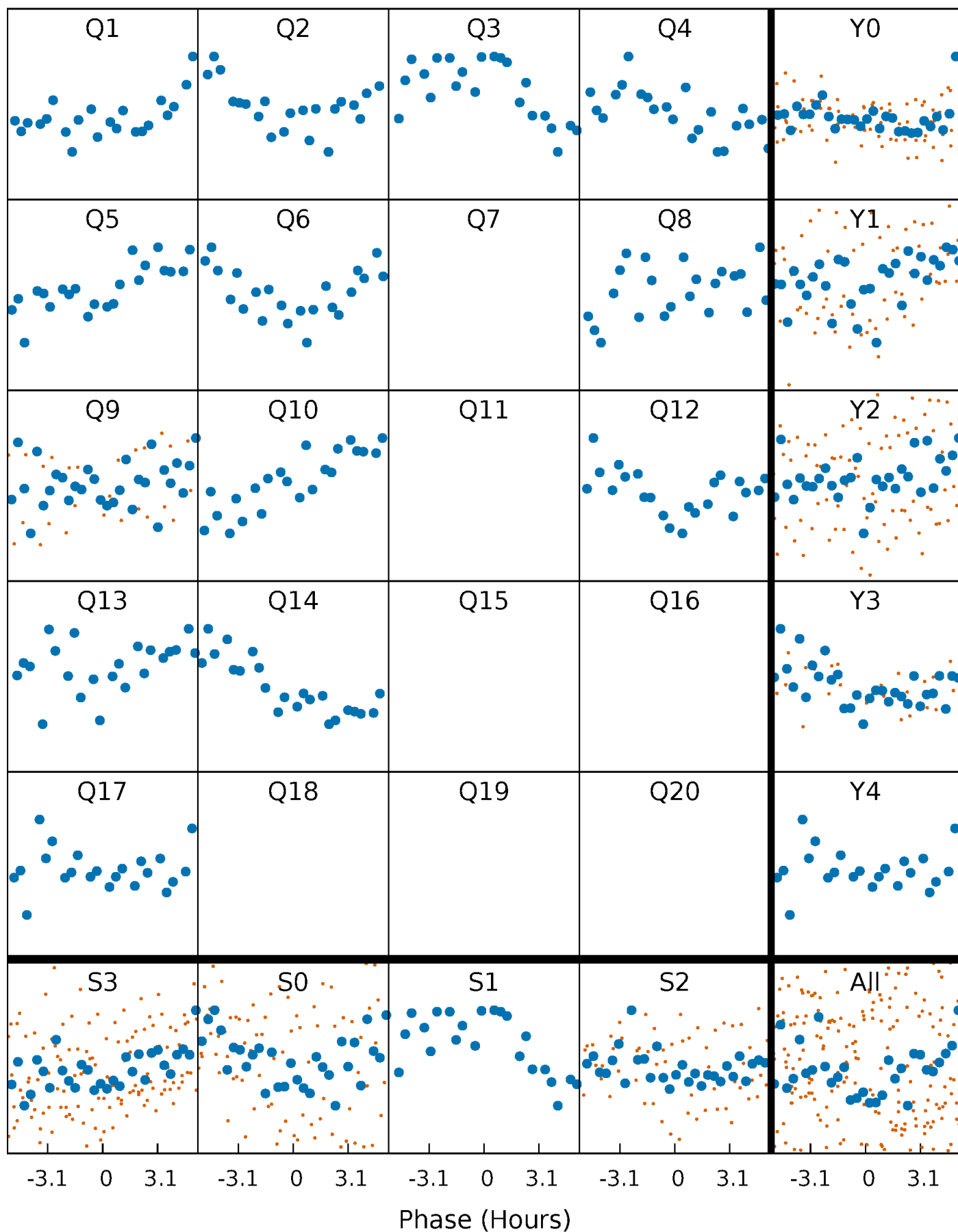


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



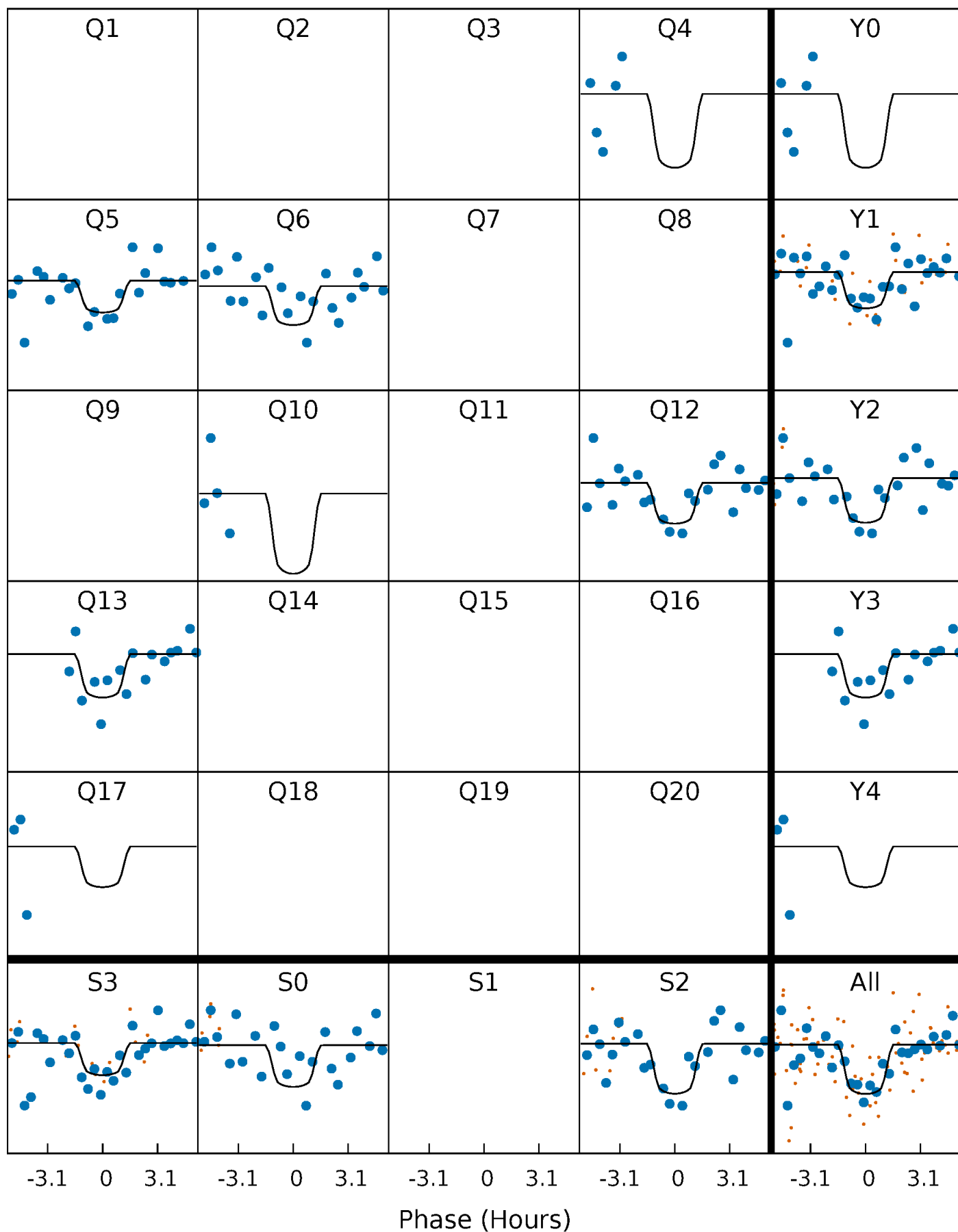
PDC Quarter-Phased Transit Curves

TCE 009848641-04 P= 82.221118 Days $T_0=163.500974$ (BKJD)



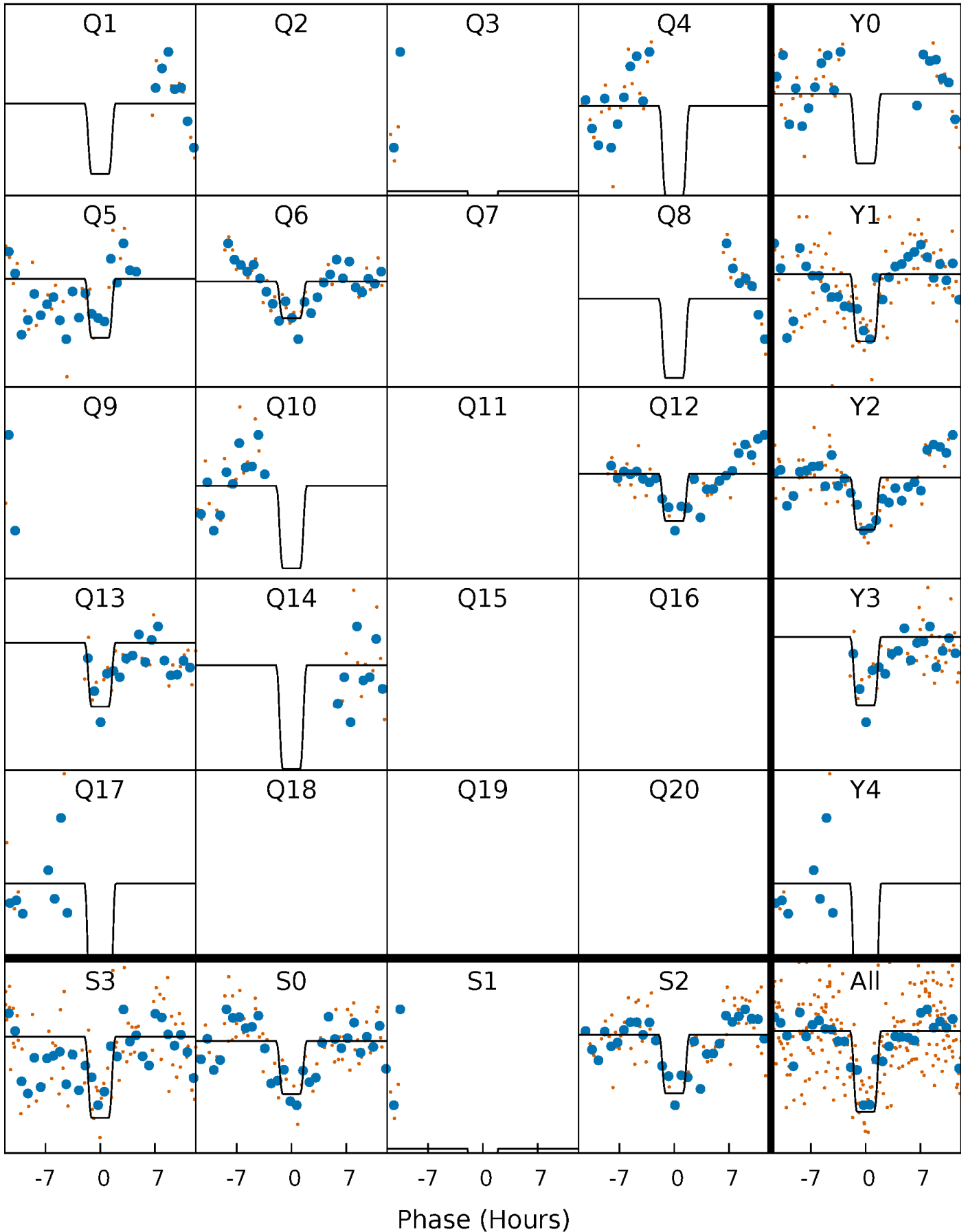
DV Quarter-Phased Transit Curves

TCE 009848641-04 P= 82.221118 Days $T_0=163.500974$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

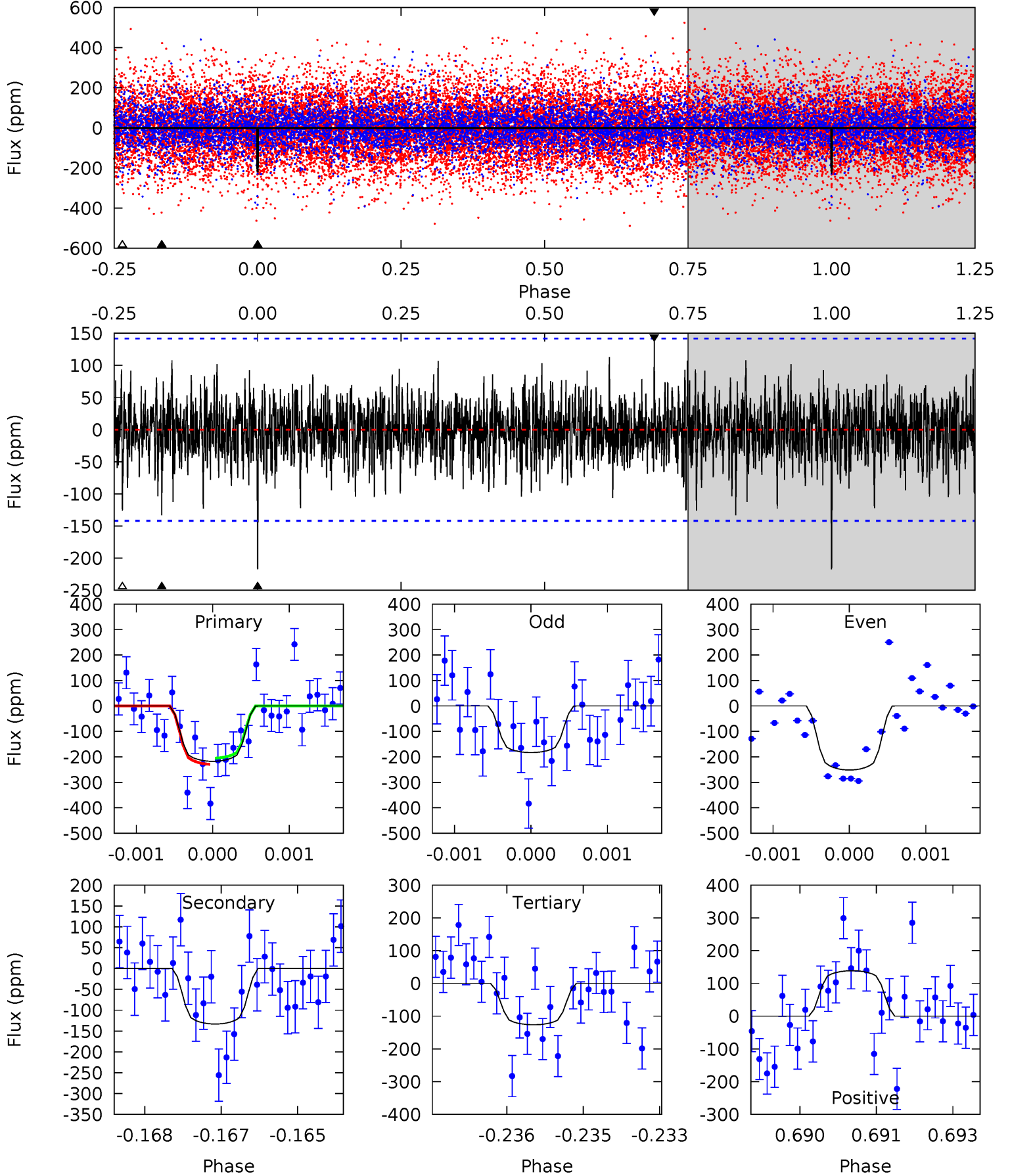
TCE 009848641-04 $P = 82.221037$ Days $T_0 = 163.498708$ (BKJD)



DV Model-Shift Uniqueness Test

009848641-04, P = 82.221118 Days, E = 81.279856 Days

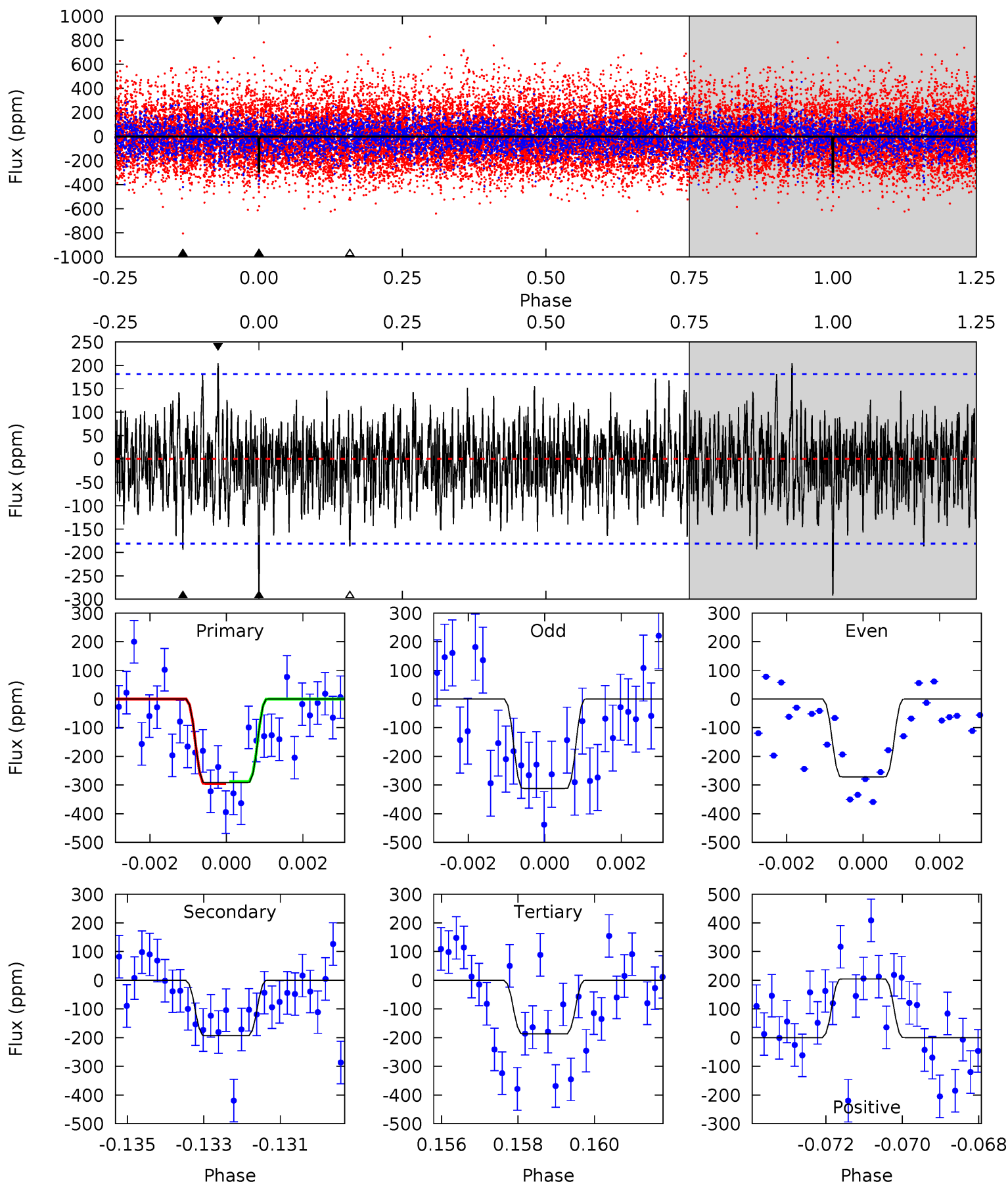
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.25	5.06	4.80	5.26	5.39	3.19	1.34	3.45	2.99	0.26	-0.21	1.30	0.95	0.39	0.46



Alt Model-Shift Uniqueness Test

009848641-04, P = 82.221037 Days, E = 81.277671 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.58	5.69	5.50	6.02	5.34	3.11	1.72	3.08	2.56	0.19	-0.33	0.60	0.96	0.41	0.10



Stellar Parameters For KIC 009848641

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7037^{+187}_{-250}	$3.769^{+0.270}_{-0.090}$	$-0.100^{+0.250}_{-0.300}$	$2.744^{+0.472}_{-0.876}$	$1.612^{+0.224}_{-0.249}$	$0.110^{+0.182}_{-0.038}$
	+3%/-4%	+7%/-2%	+250%/-300%	+17%/-32%	+14%/-15%	+165%/-34%
Source	PHO1	FLK73	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 009848641-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-133 ± 26	$7.17^{+6.08}_{-4.74}$	1071^{+66}_{-92}	4855^{+3479}_{-1036}	270^{+1954}_{-196}
Alt.	-193 ± 34	$7.63^{+6.41}_{-5.07}$	1068^{+69}_{-82}	5094^{+3977}_{-1078}	337^{+2675}_{-238}

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

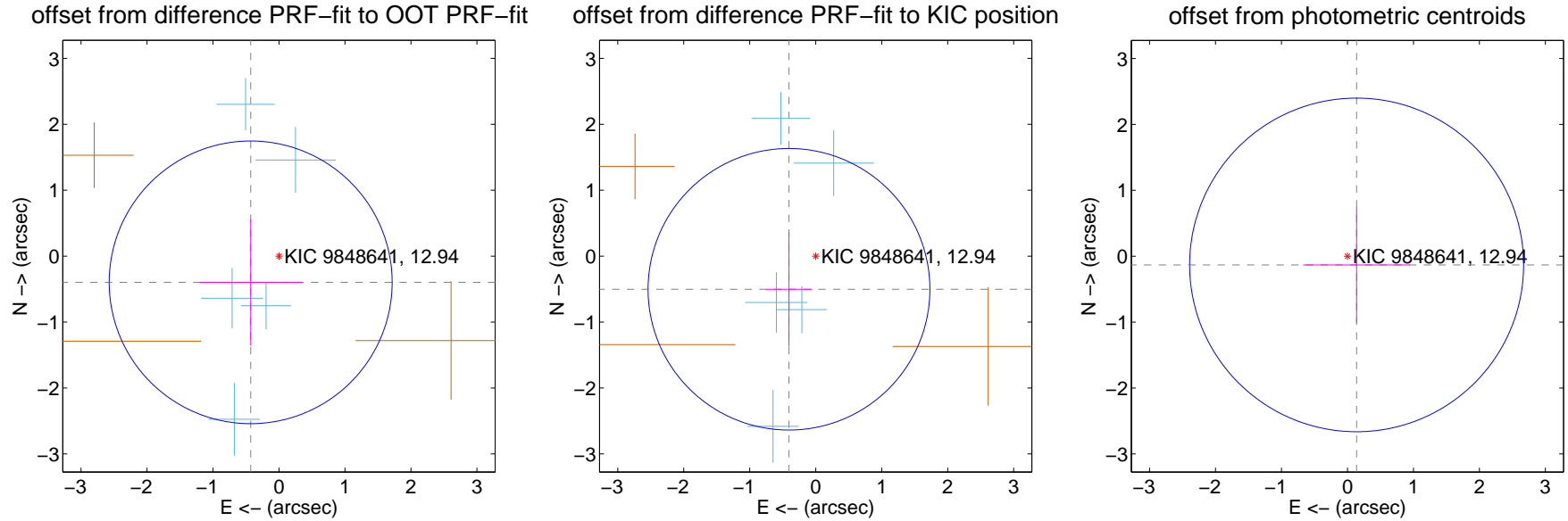
DV Centroid Data

Supplemental centroid analysis for 009848641-04. Kepler magnitude: 12.94. Transit SNR 8.65

There are 5 quarters with good PRF difference image offsets

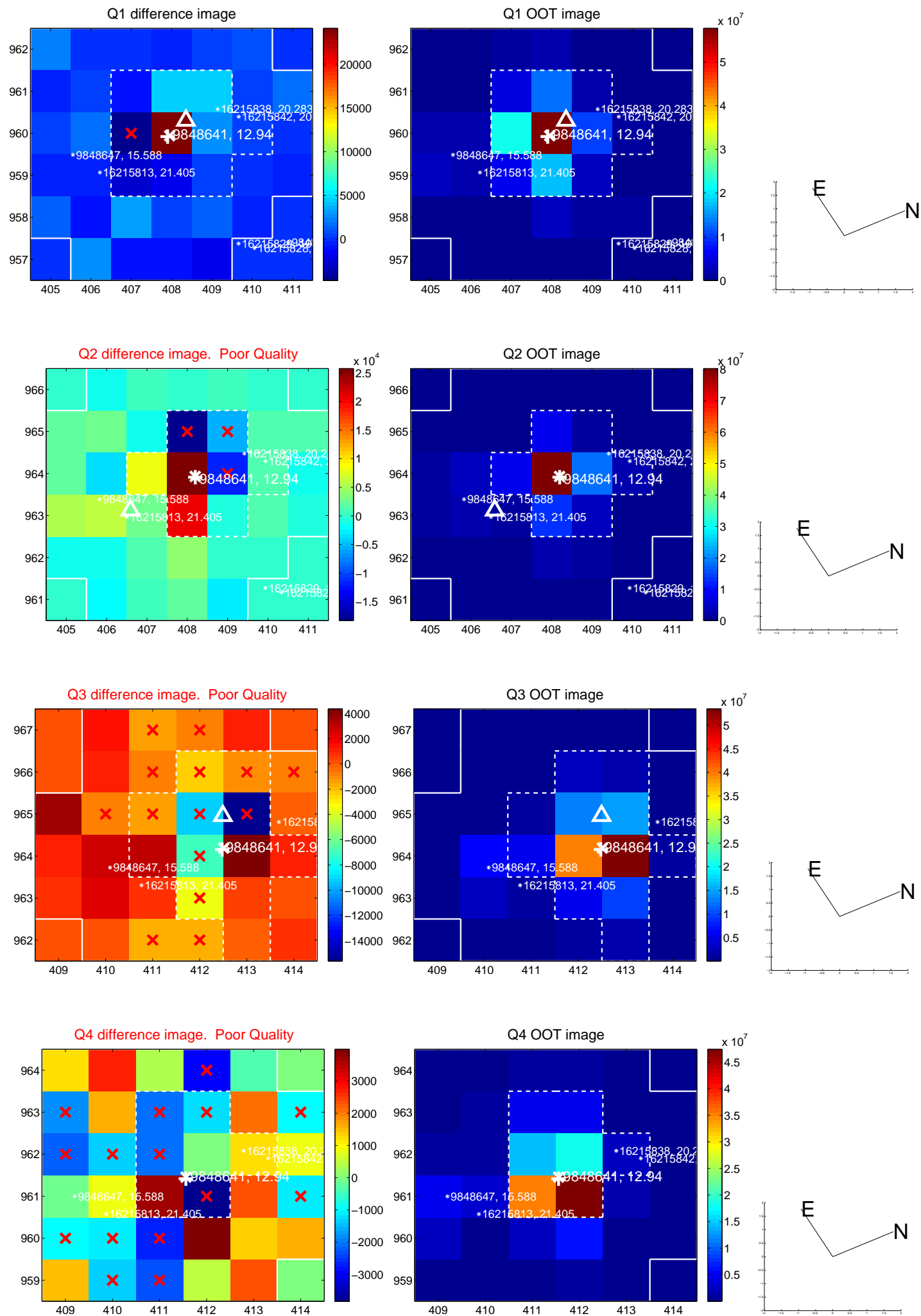
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.585 ± 0.715	0.82	0.429 ± 0.778	-0.398 ± 0.957
PRF-fit source offset from KIC position	0.646 ± 0.712	0.91	0.405 ± 0.348	-0.503 ± 0.870
photometric centroid source offset	0.19 ± 0.84	0.23	-0.14 ± 0.81	-0.13 ± 0.88

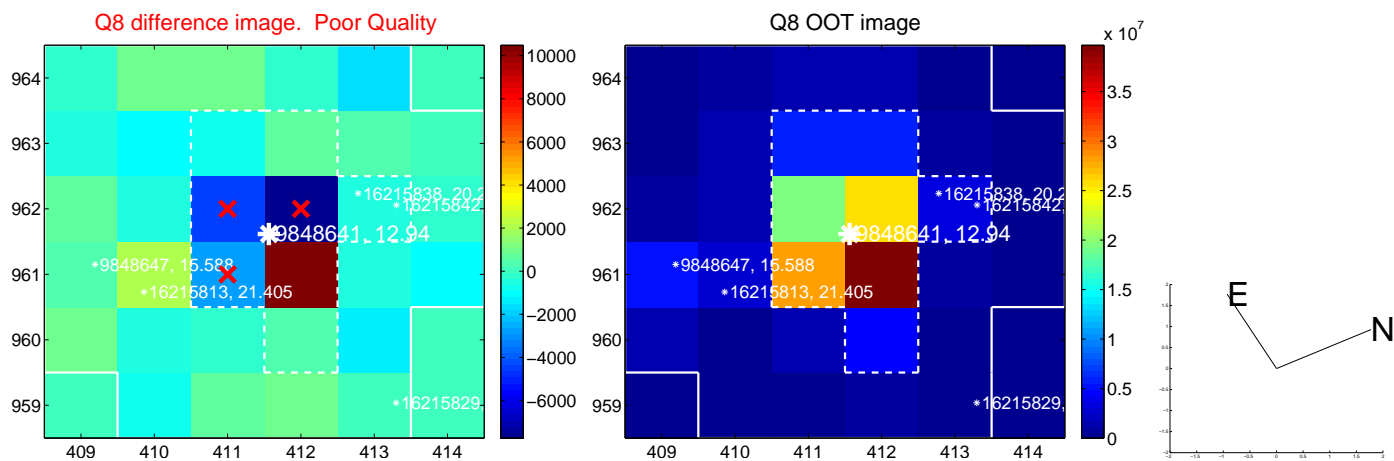
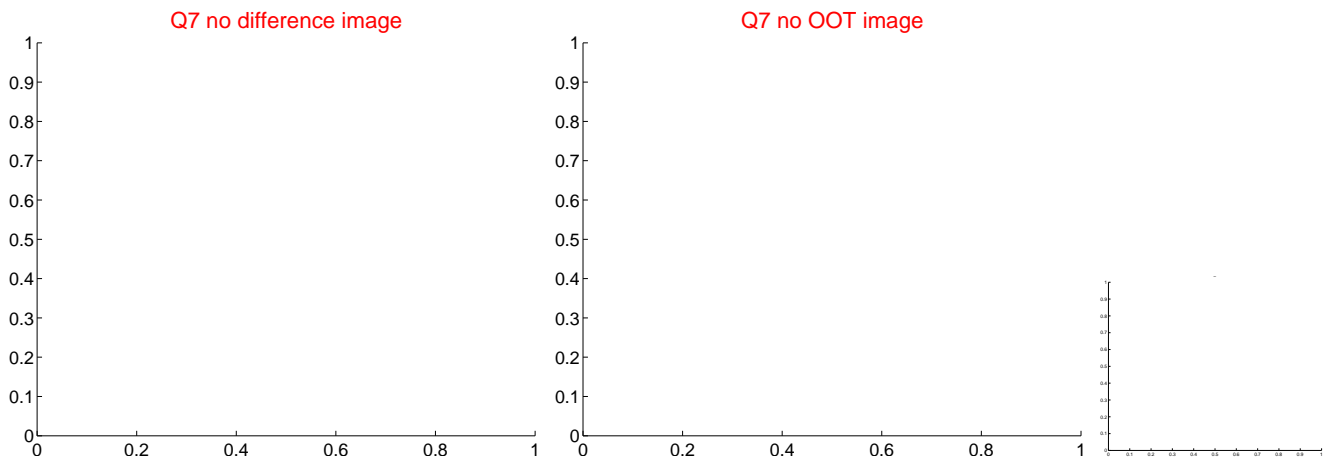
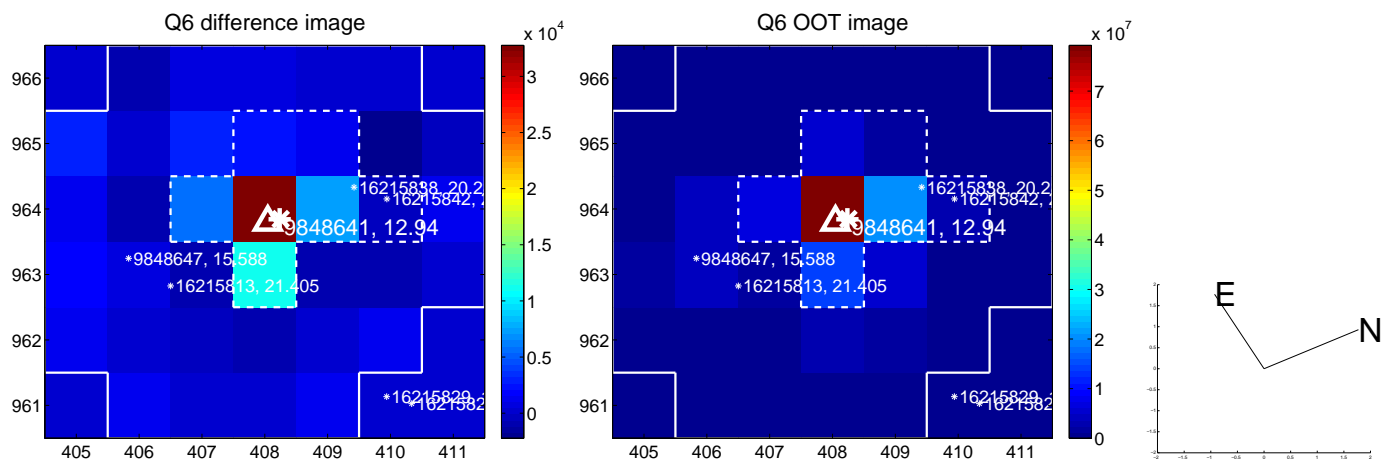
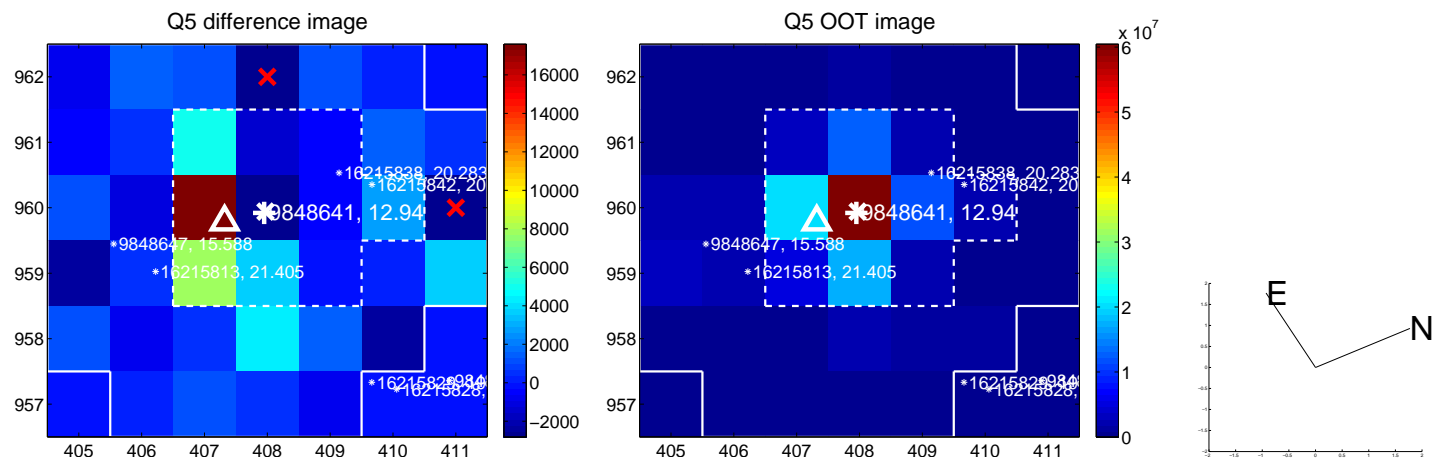


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

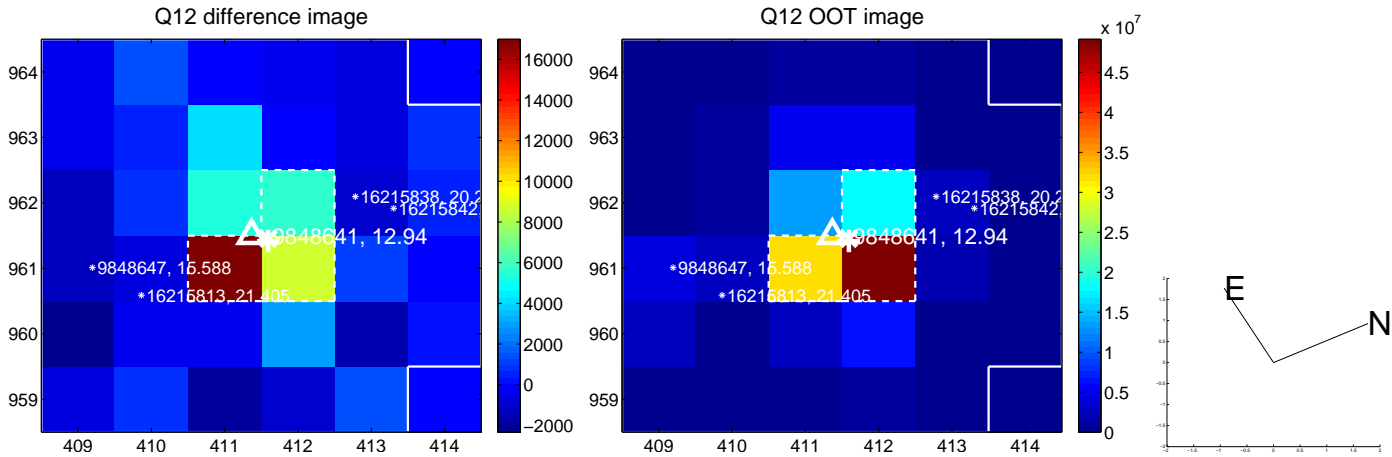
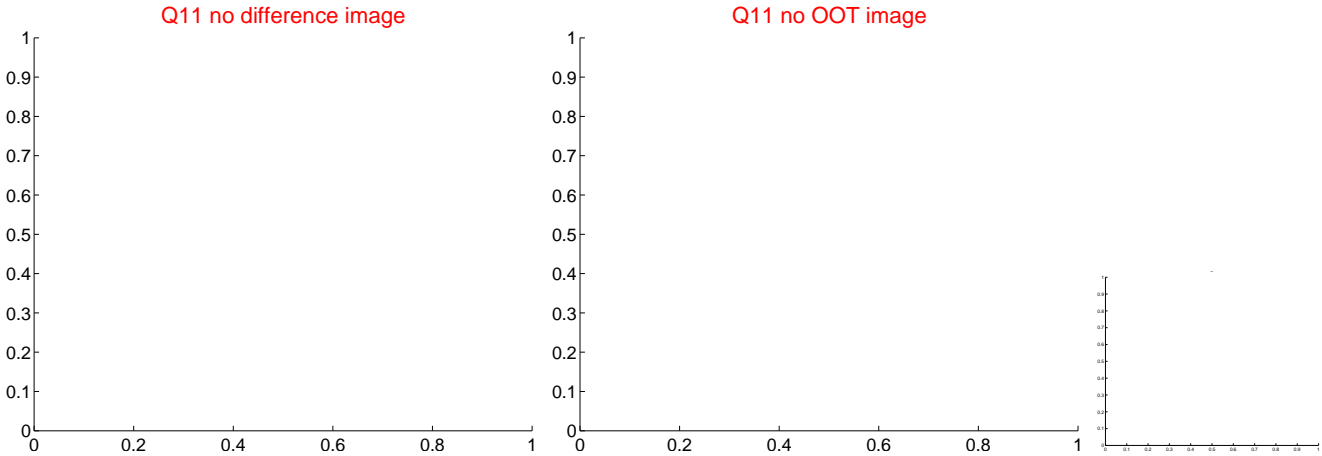
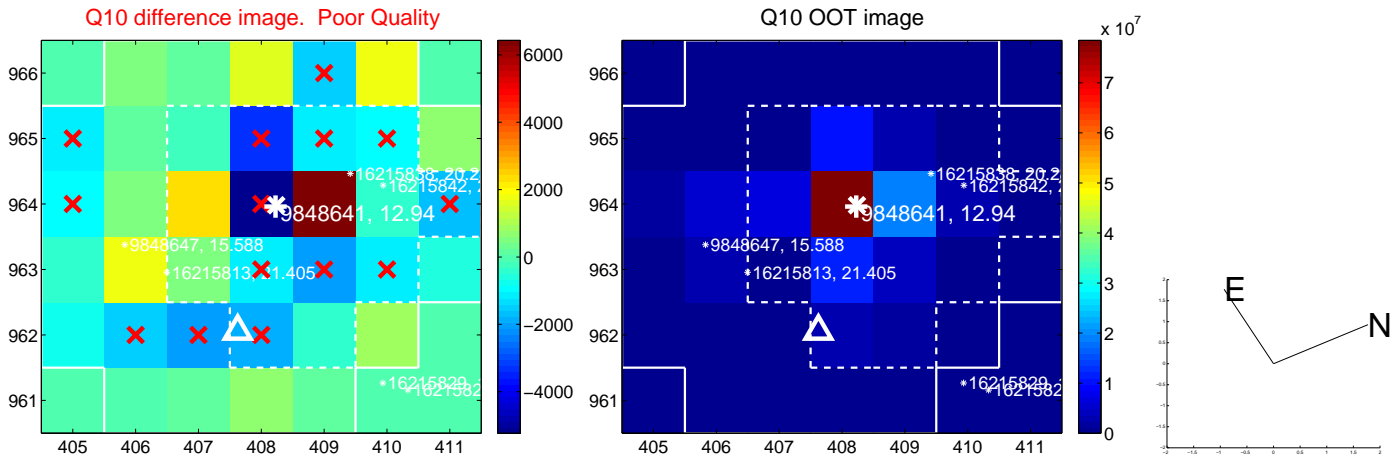
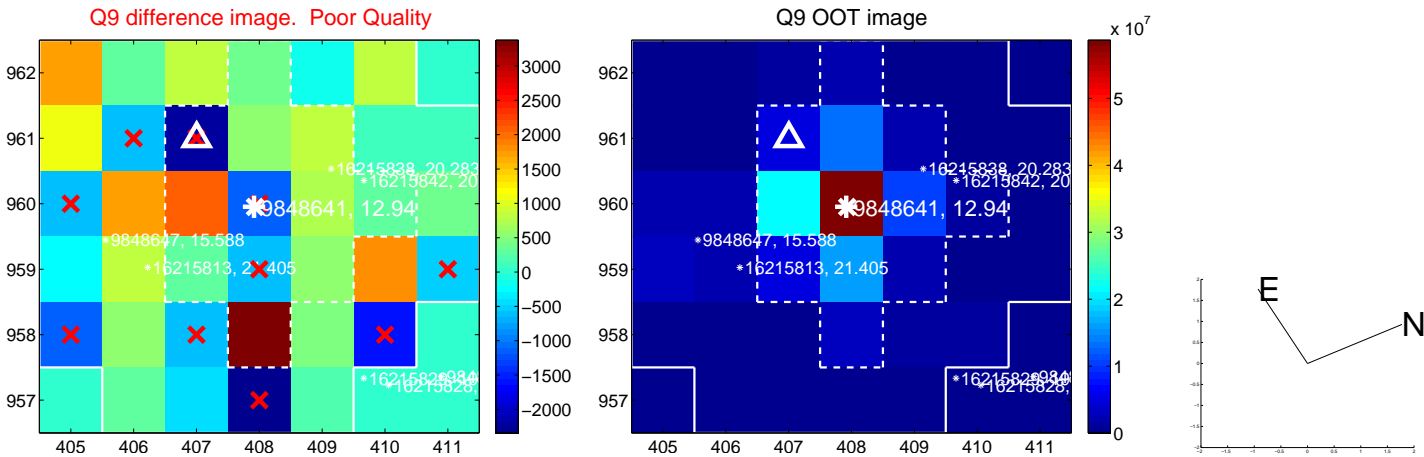
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



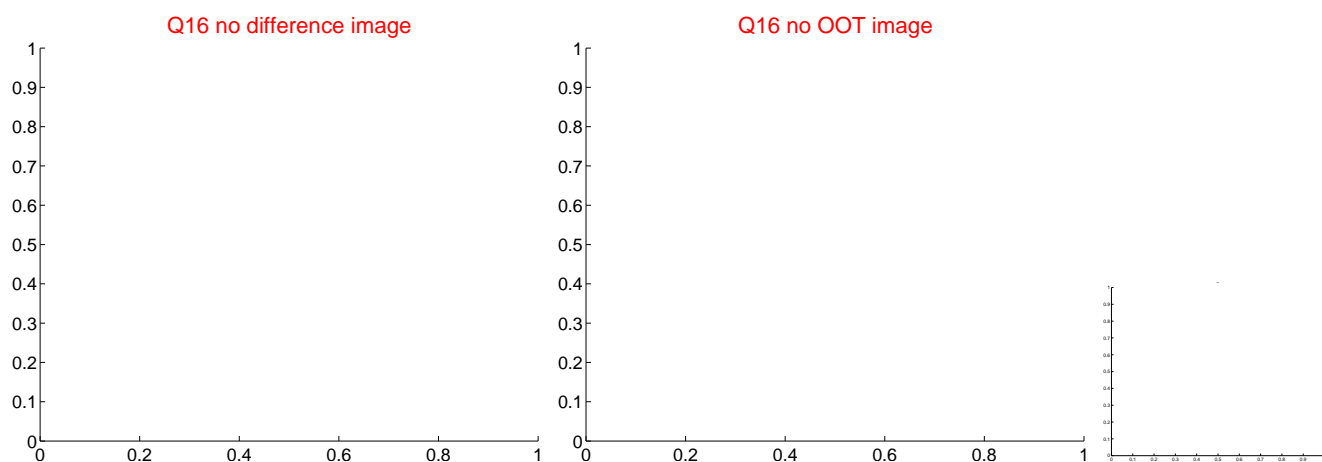
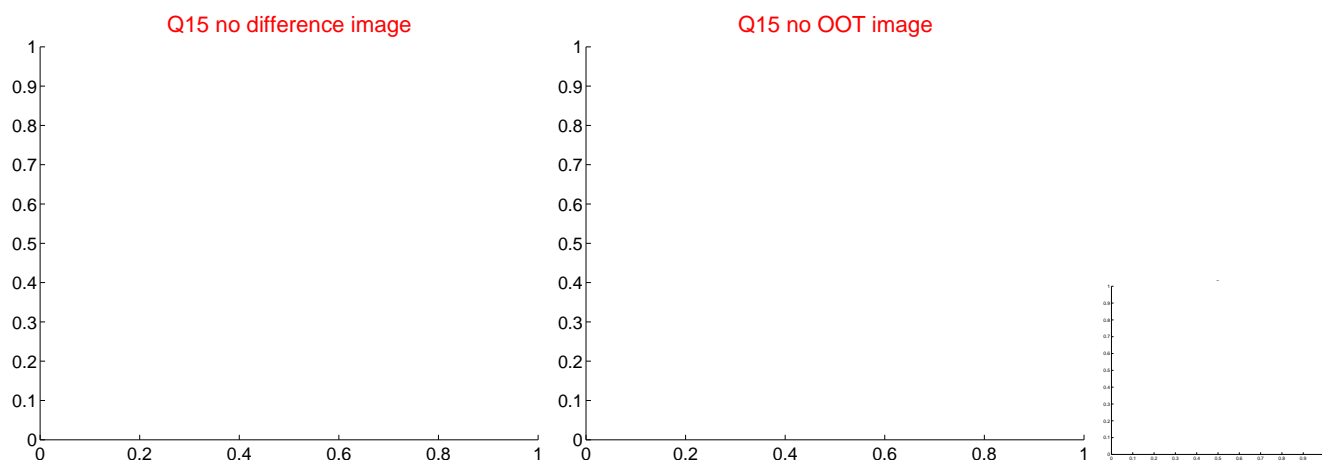
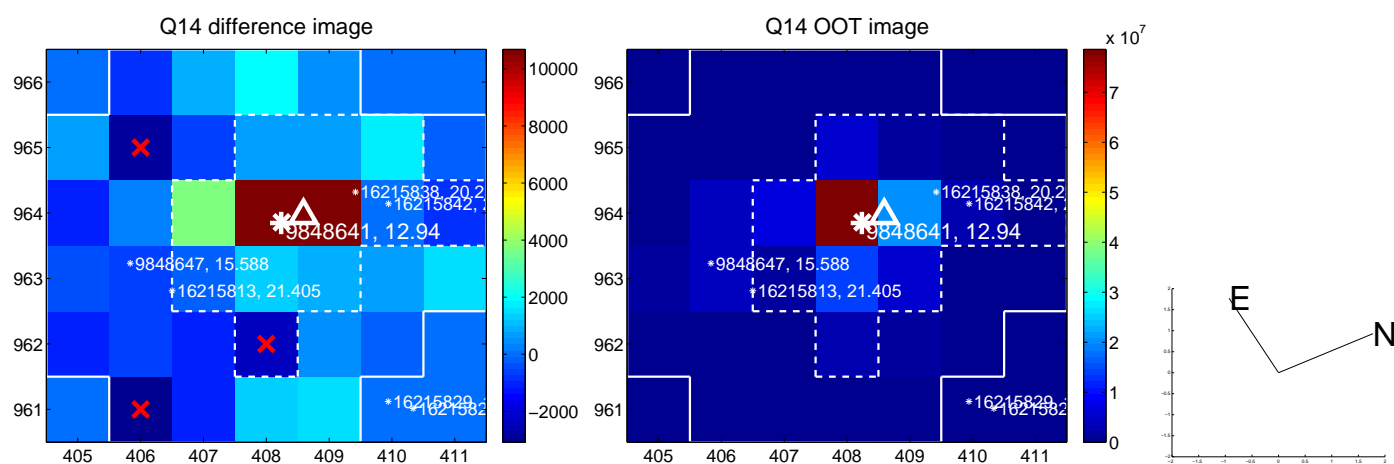
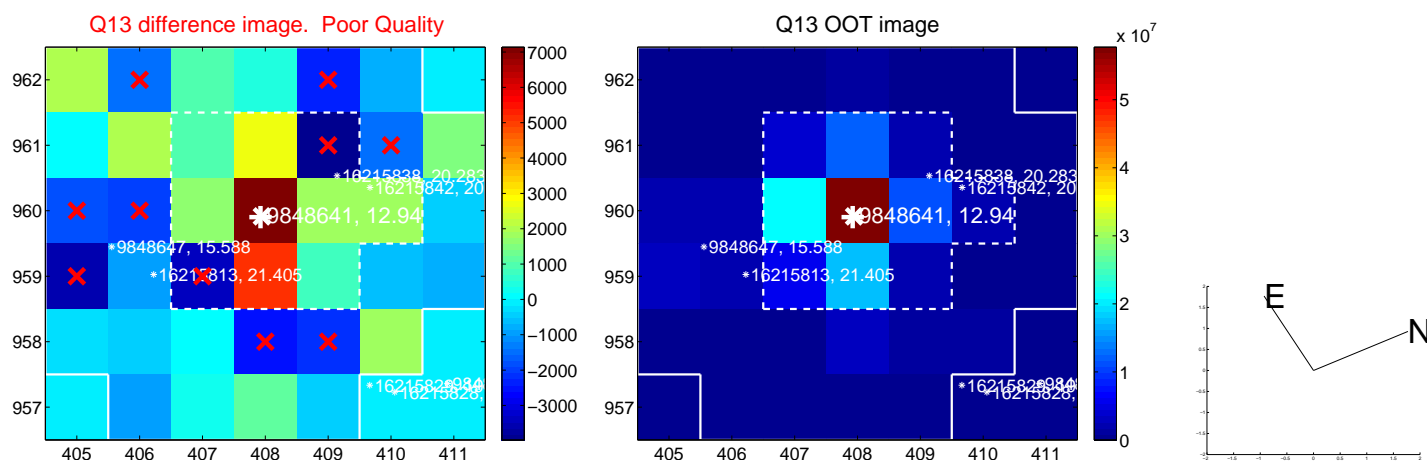
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



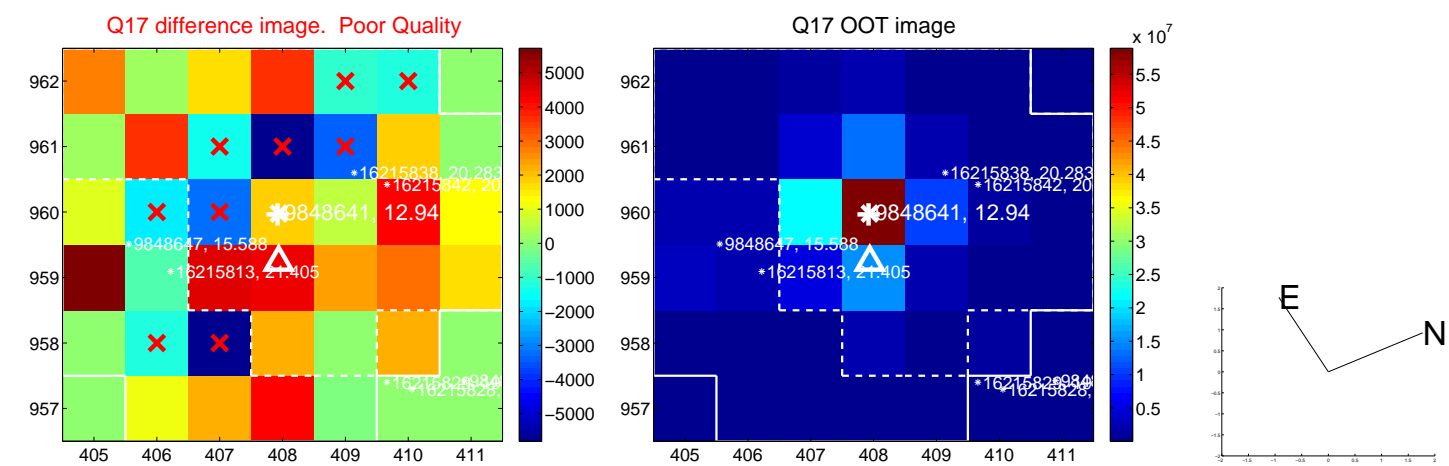
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



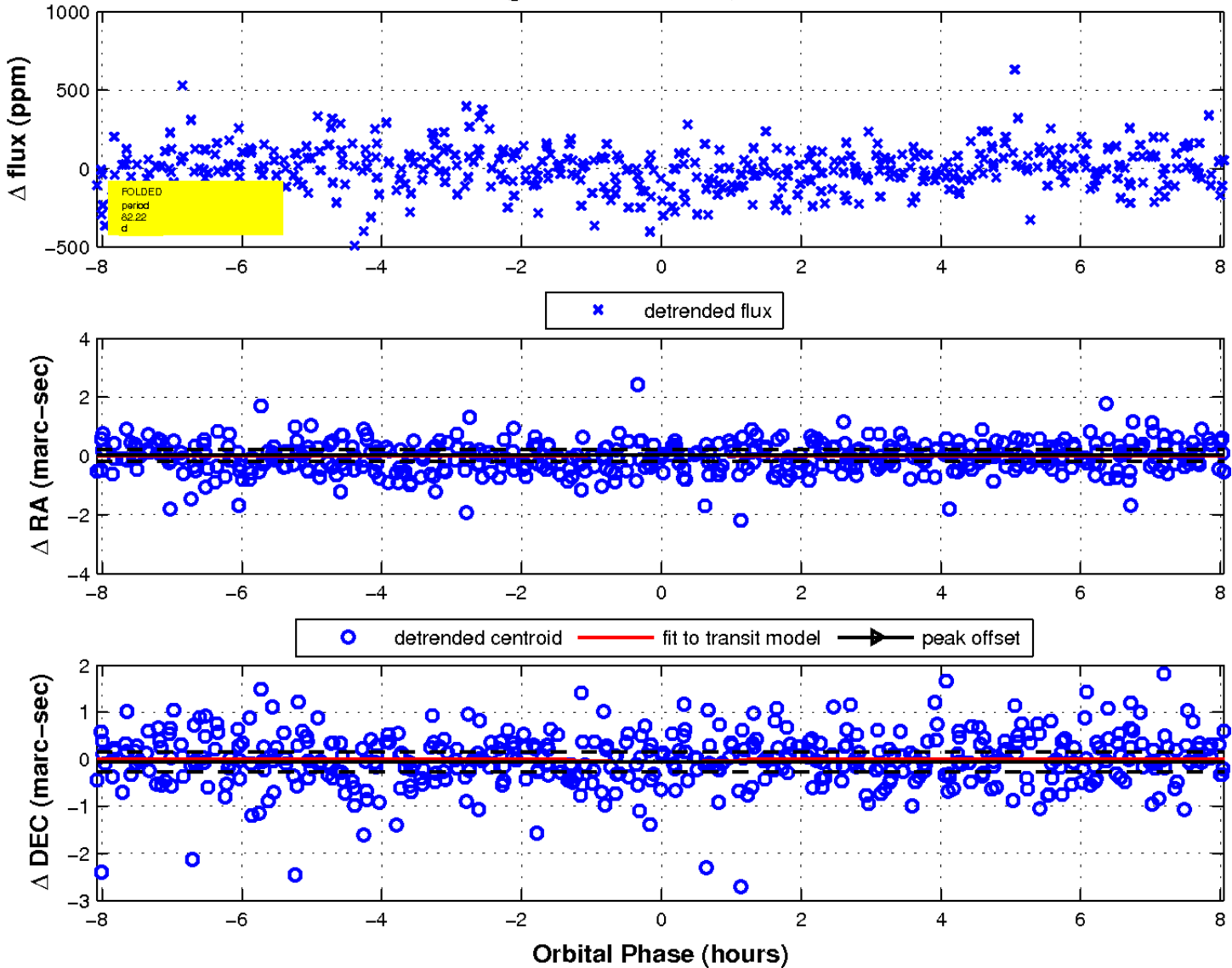
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



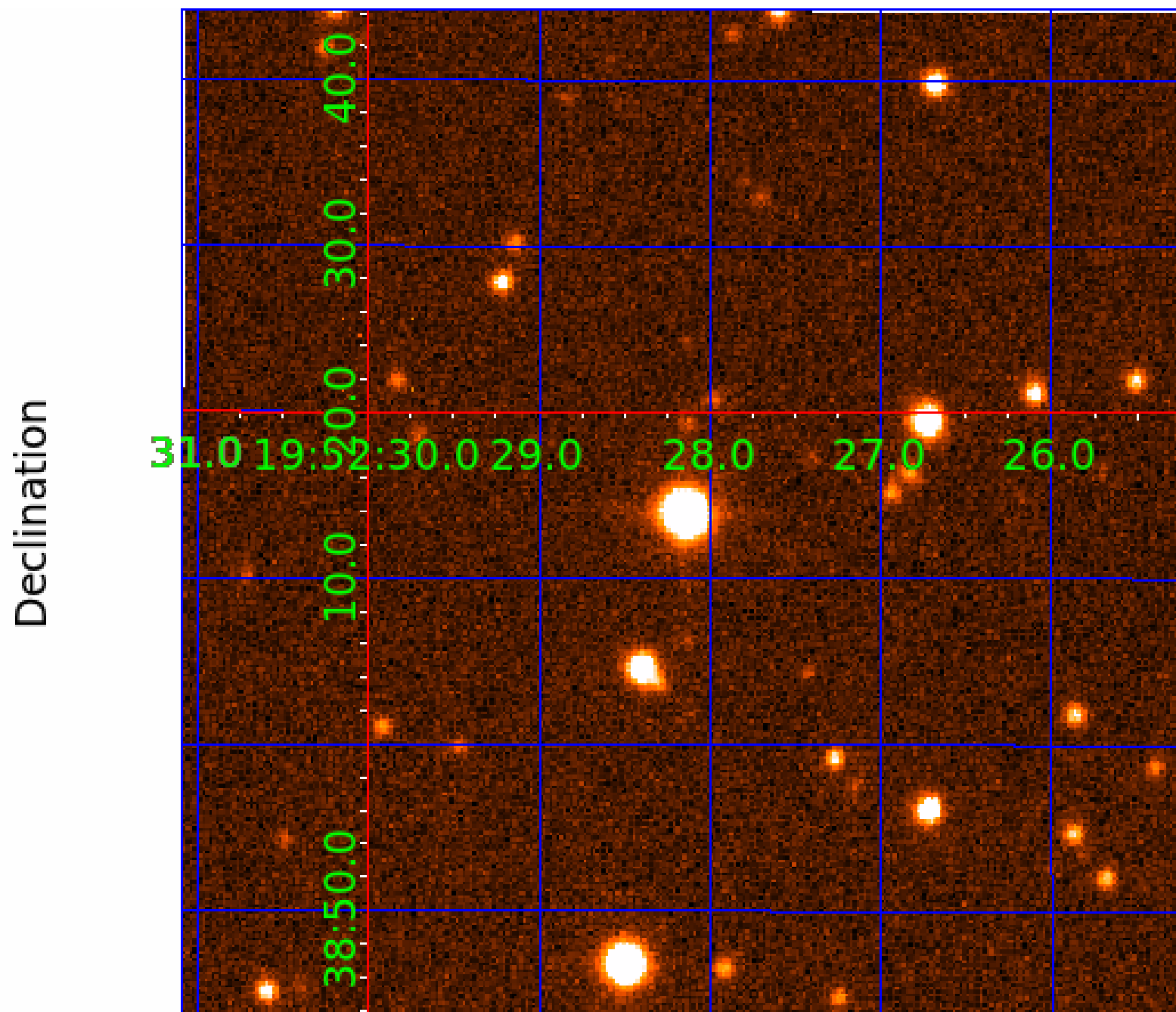
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 4 of 5



UKIRT Image



KIC 009848641

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})
009848641-01	OBS	No	2.171786	132.711702	7.5	10.283	7.5	3.2	2.74	7037	0.92	11158.64
009848641-02	OBS	No	74.320503	156.463919	81.4	26.463	9.0	5.9	2.74	7037	2.68	100.44
009848641-03	OBS	No	178.613561	309.208524	152.7	15.301	8.2	6.4	2.74	7037	3.67	31.20
009848641-04	OBS	No	82.221118	163.500974	237.4	2.693	8.1	8.6	2.74	7037	4.92	87.78
009848641-05	OBS	No	133.211763	192.939425	180.2	5.834	7.4	7.5	2.74	7037	4.47	46.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009848641-01	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
009848641-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009848641-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009848641-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009848641-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT

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

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

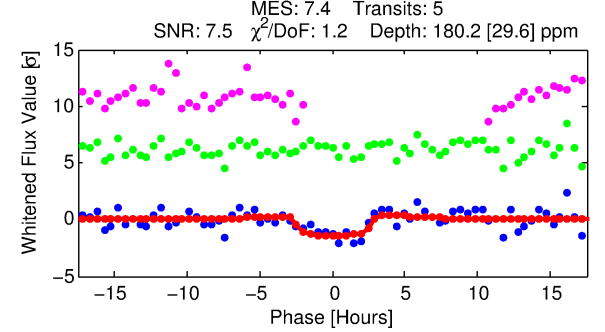
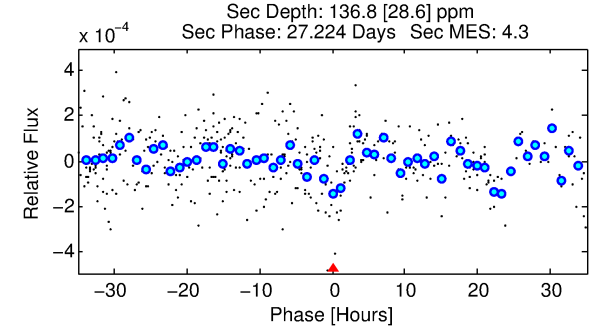
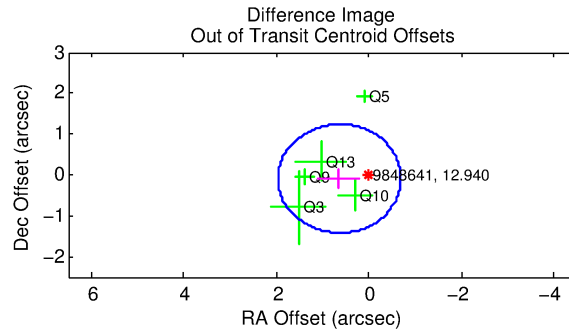
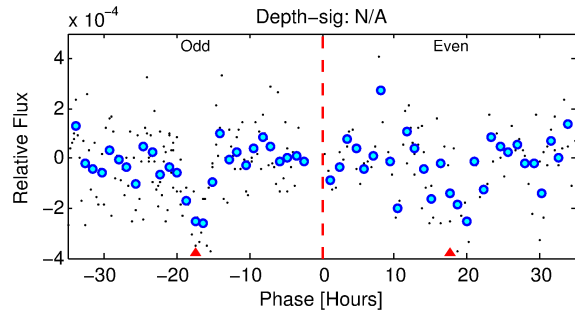
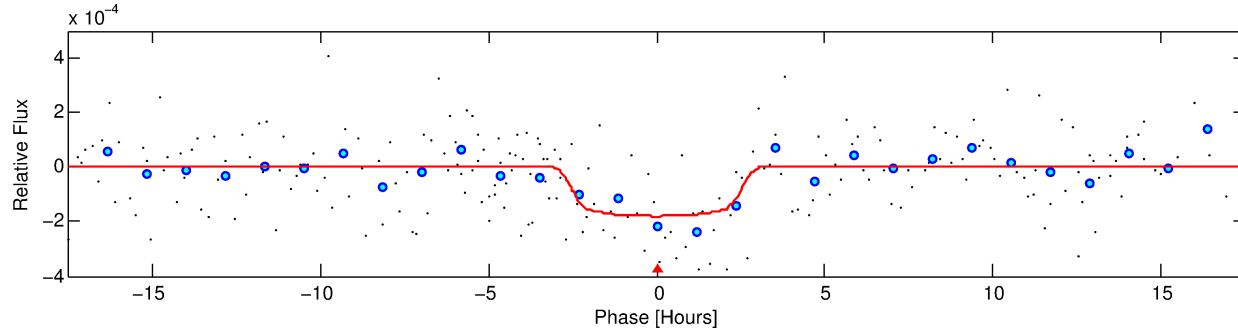
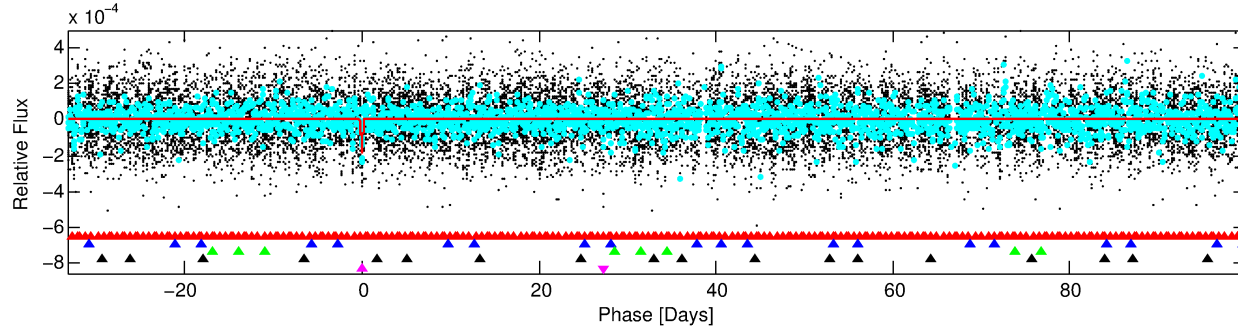
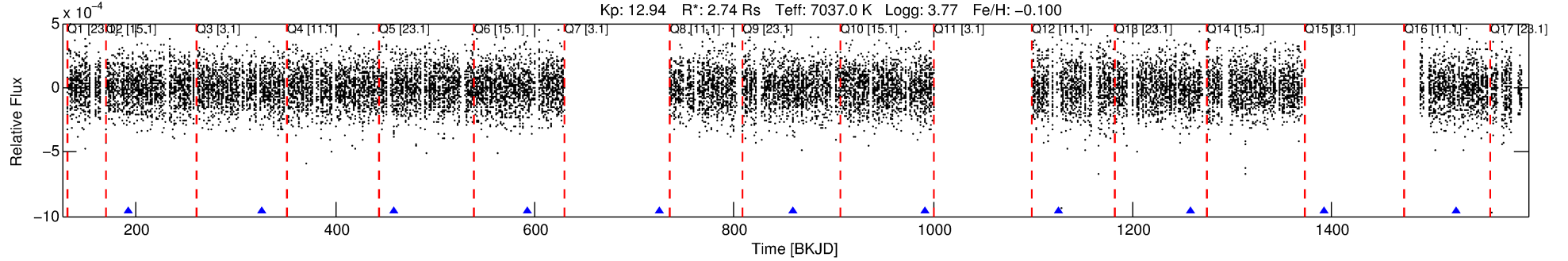
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009848641-05

No Significant Match Found

DV One-Page Summary

KIC: 9848641 Candidate: 5 of 5 Period: 133.212 d



DV Fit Results:

Period = 133.21176 [0.00276] d
Epoch = 192.9394 [0.0139] BKJD
Rp/R* = 0.0149 [0.0026]
a/R* = 65.12 [58.05]
b = 0.94 [0.10]
Seff = 46.13 [22.47]
Teq = 665 [81] K
Rp = 4.47 [1.63] Re
a = 0.5988 [0.1779] AU
Ag = 1353.47 [837.63] [1.61 σ]
Teffp = 6232 [672] K [8.22 σ]

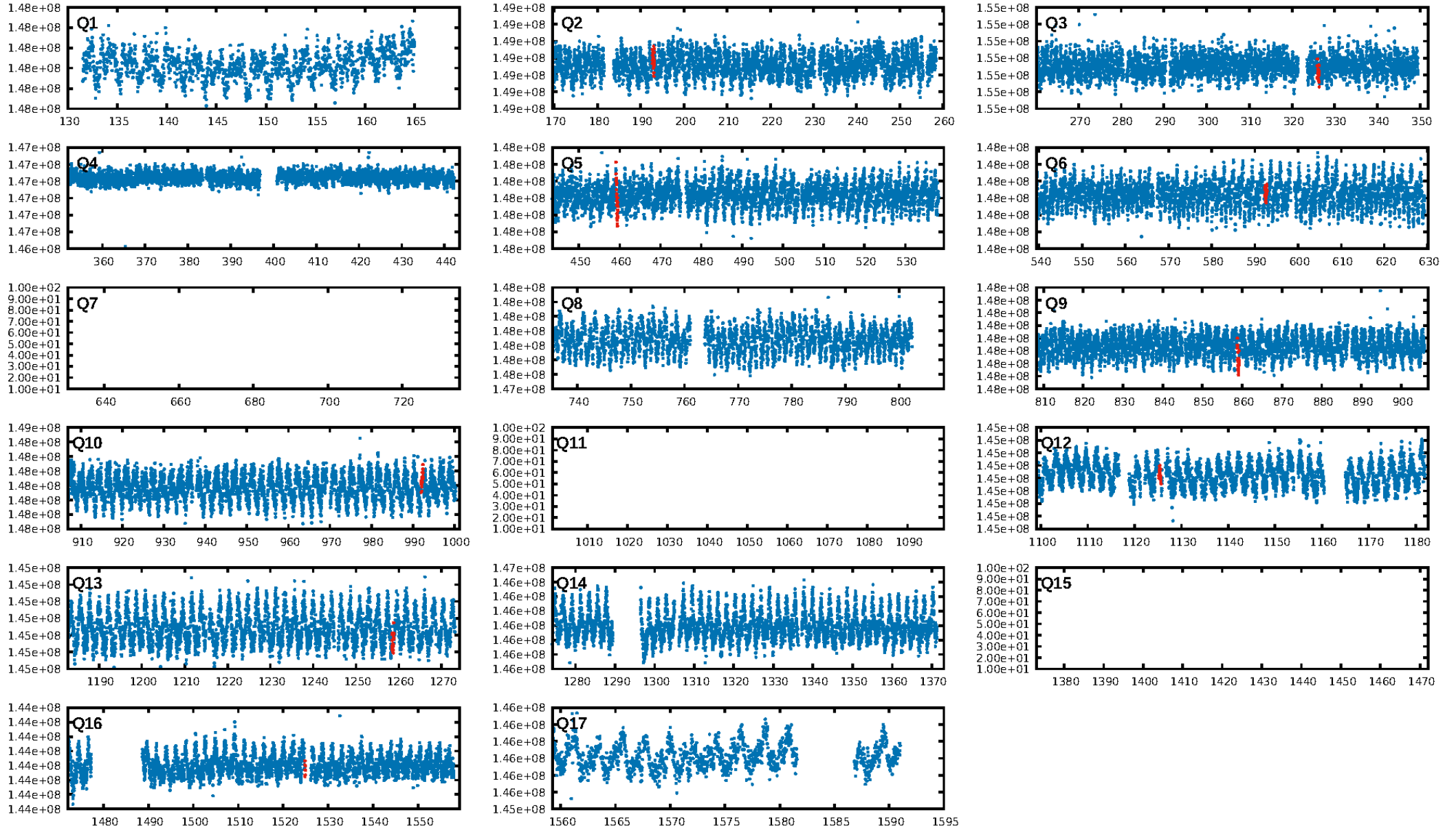
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [190.44 σ]
LongPeriod-sig: 100.0% [66.54 σ]
ModelChiSquare2-sig: 32.6%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 3.64e-08
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -4.907
Centroid-sig: 30.1%
Centroid-so: 1.184 arcsec [1.05 σ]
OotOffset-rm: 0.646 arcsec [1.46 σ]
OotOffset-st: 1/1/0/3 [5]
KicOffset-rm: 0.609 arcsec [1.24 σ]
KicOffset-st: 1/1/0/3 [5]
DiffImageQuality-fgm: 0.80 [4/5]
DiffImageOverlap-fno: 0.38 [3/8]

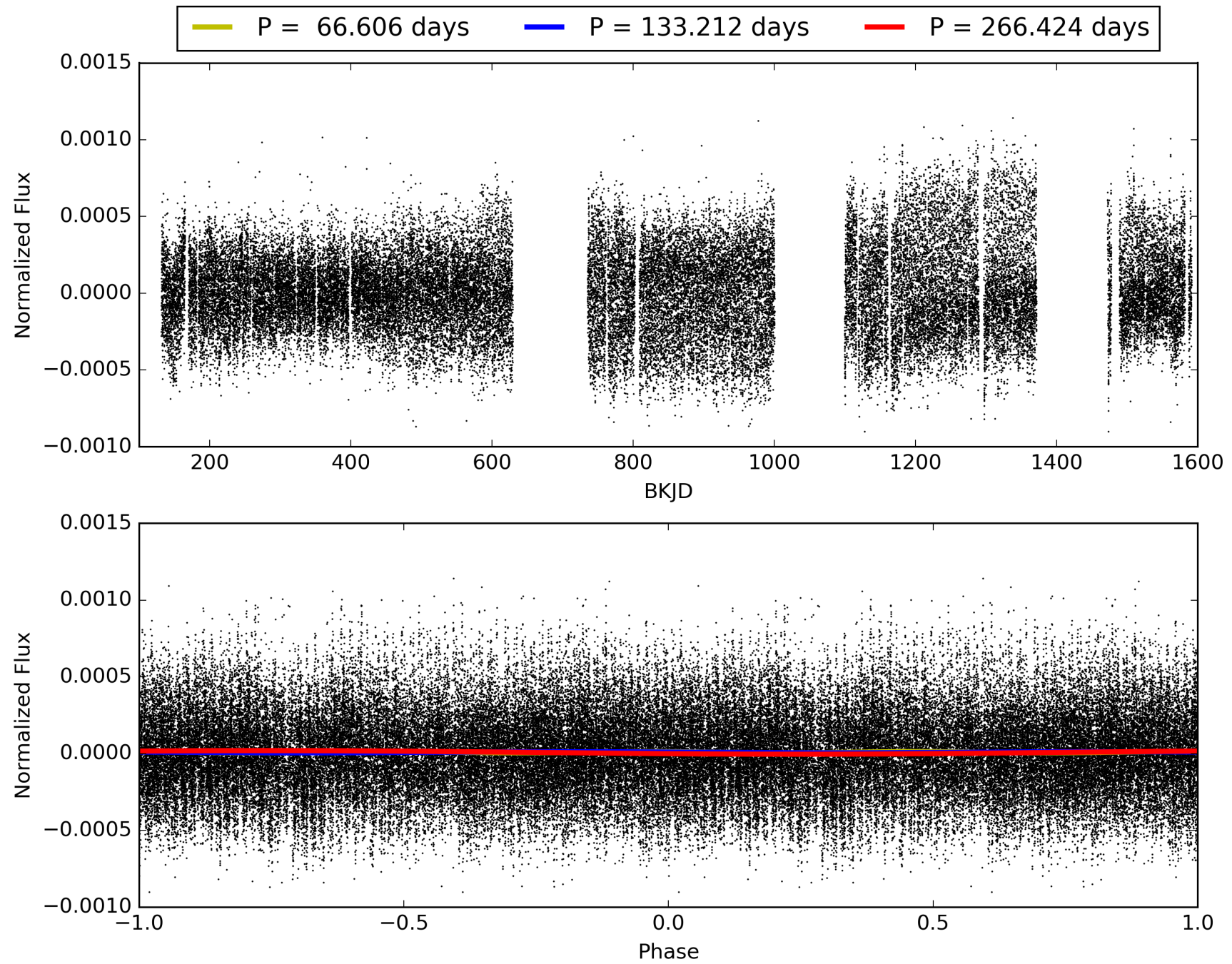
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:59:38 Z

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

TCE 009848641-05, PDC Light Curves

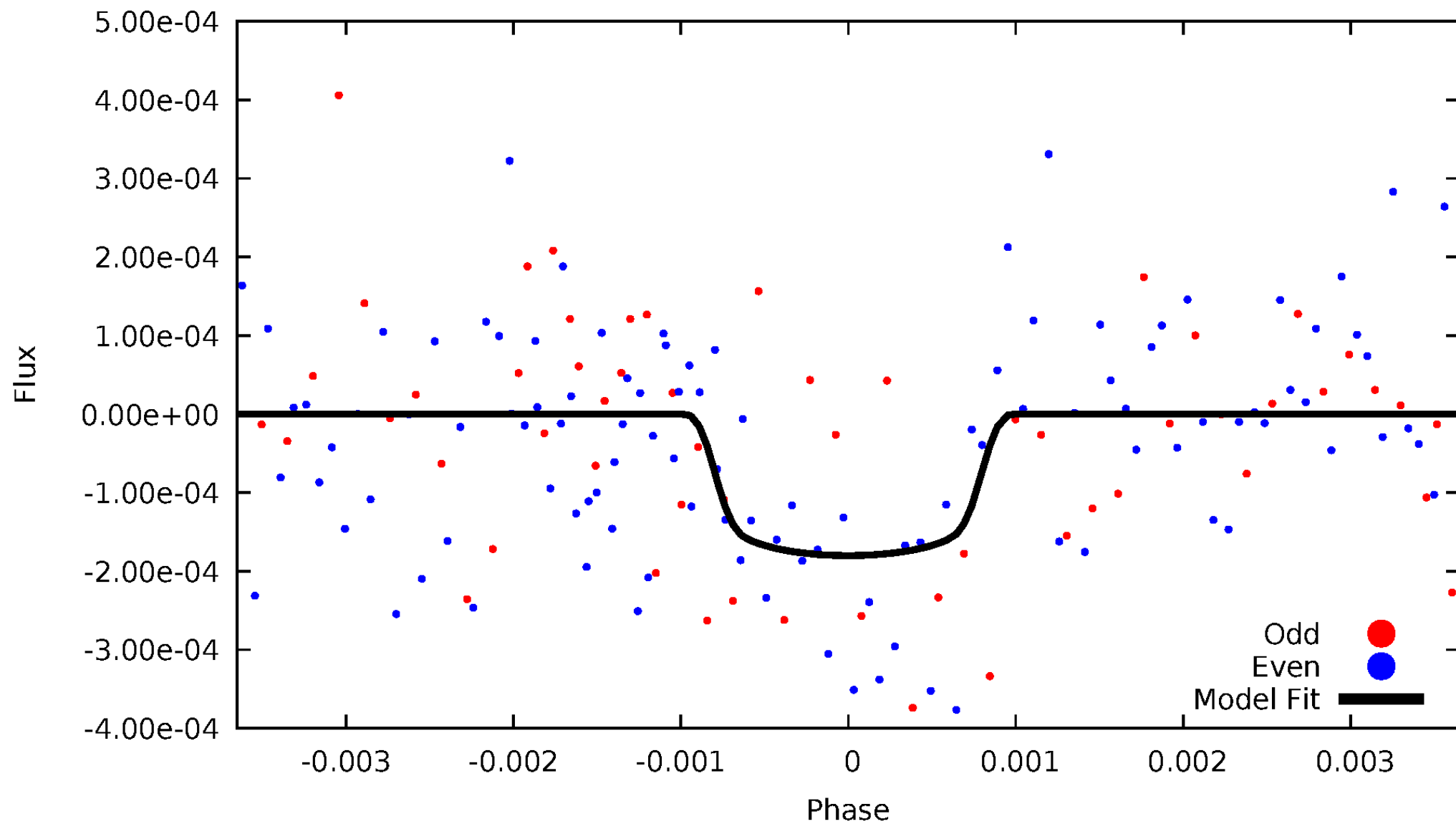


TCE 009848641-05



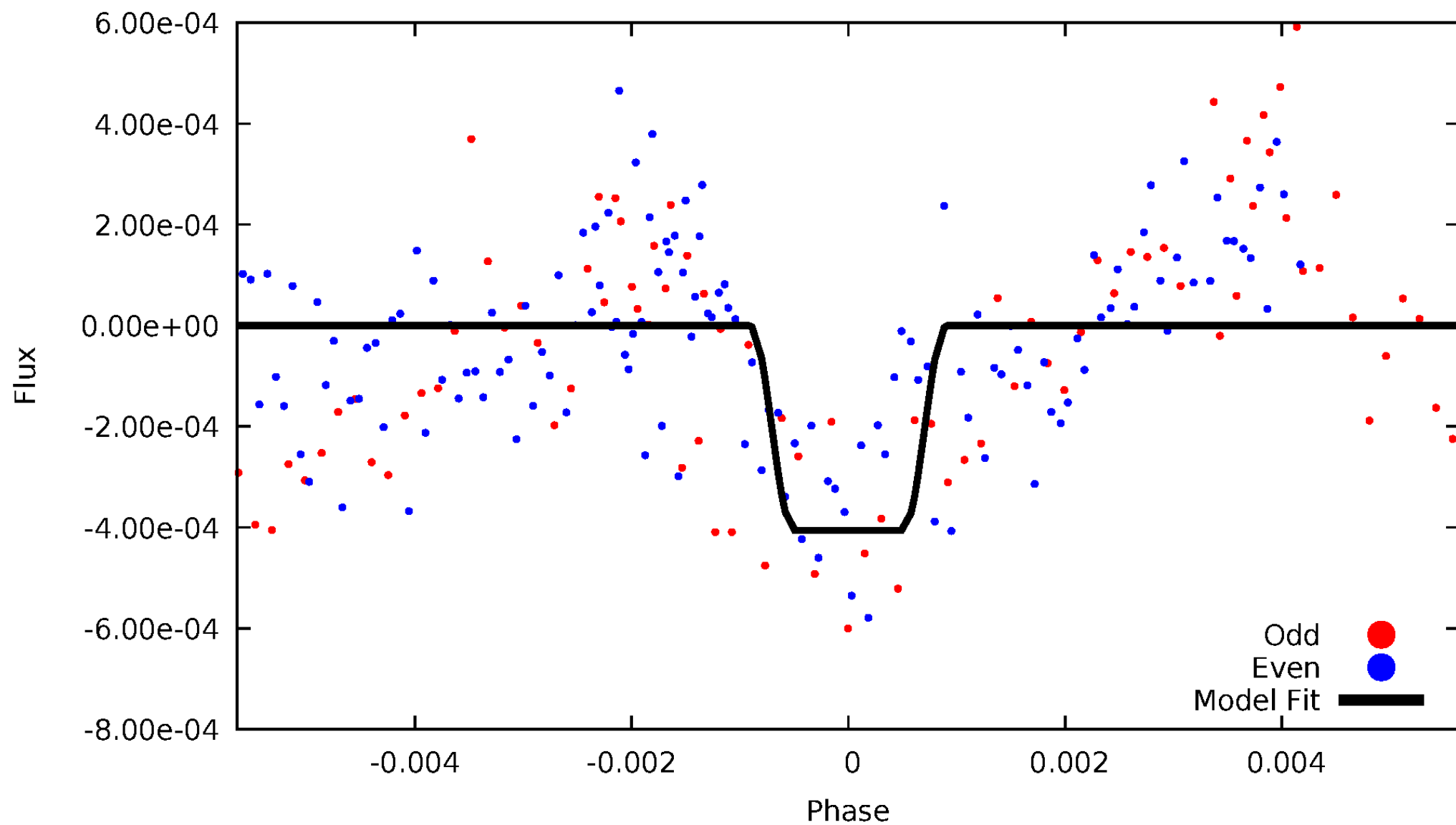
DV Odd/Even

TCE 009848641-05



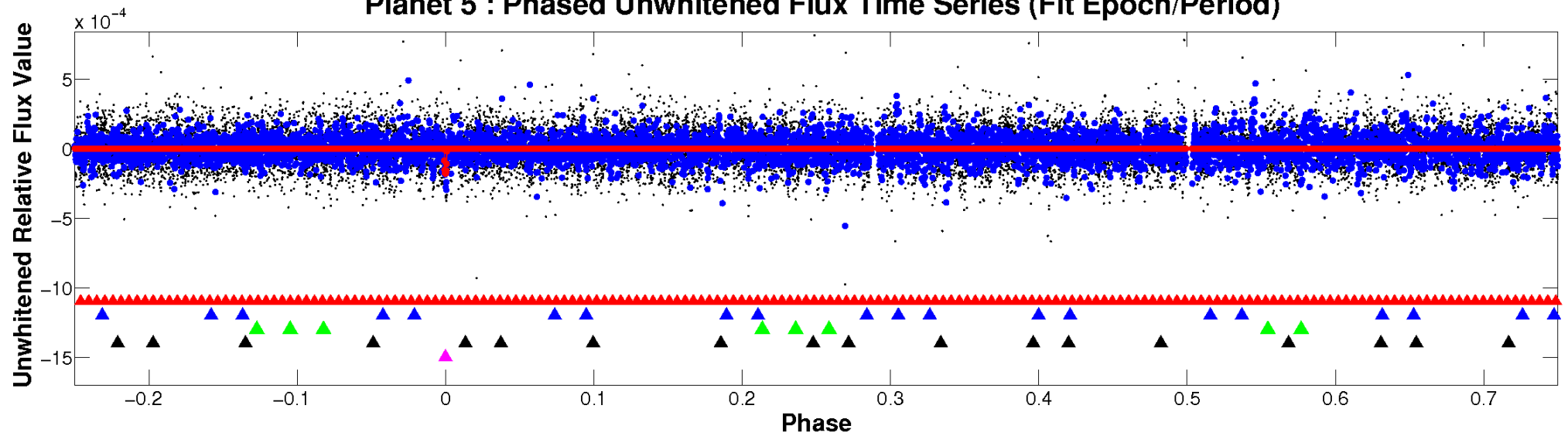
ALT Odd/Even

TCE 009848641-05

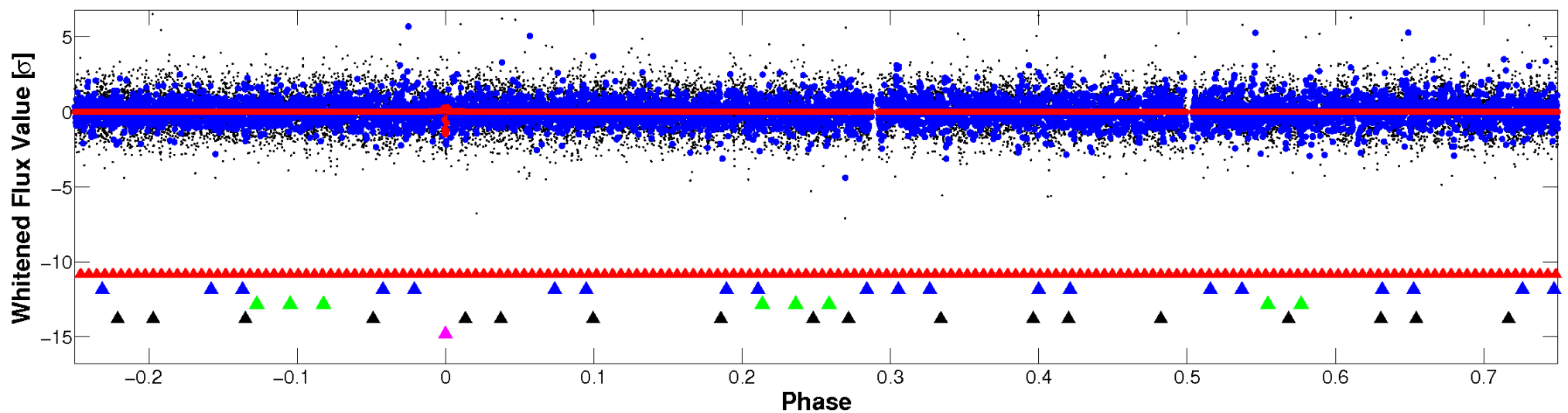


Non-Whitened Vs. Whitened Light Curve

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

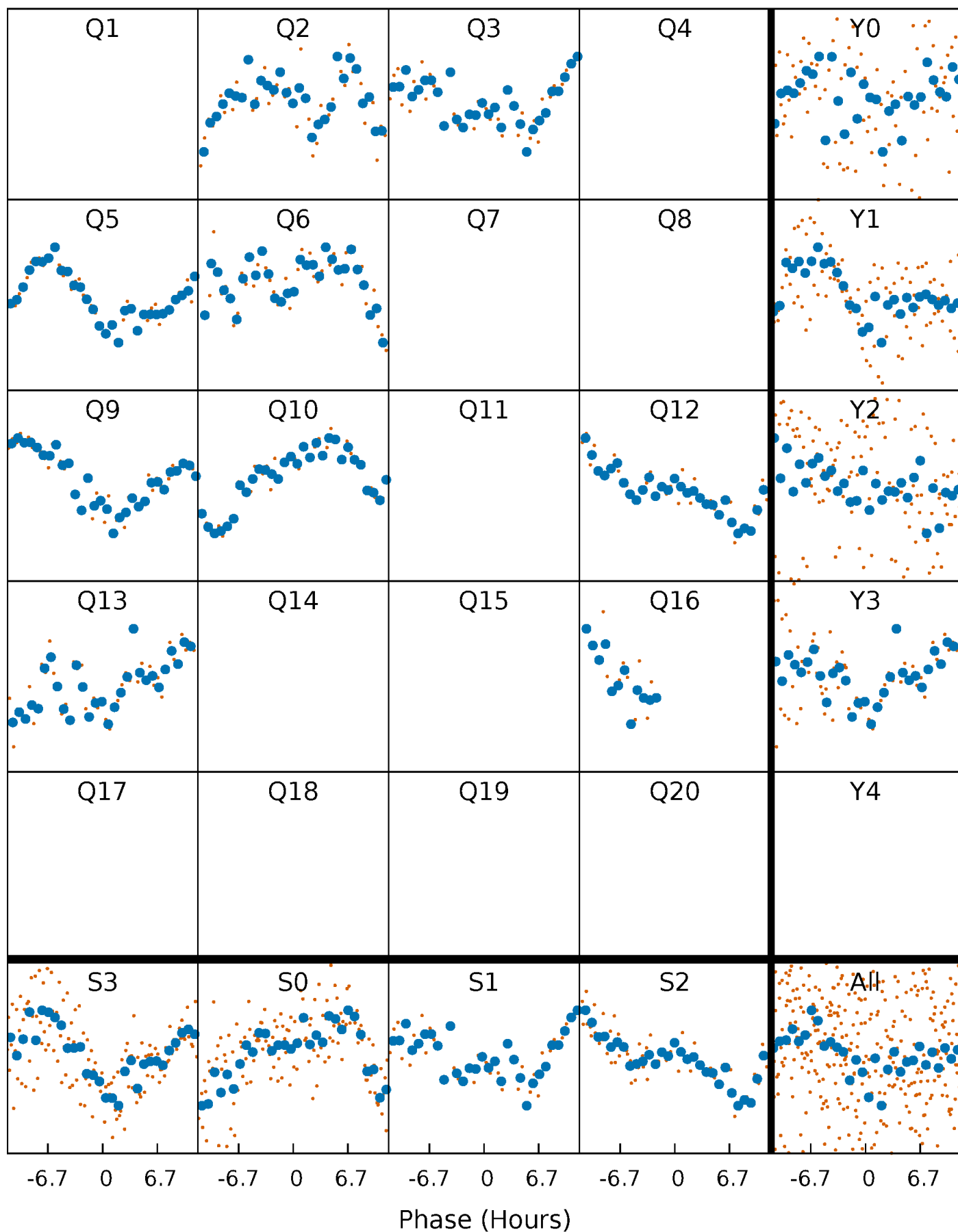


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



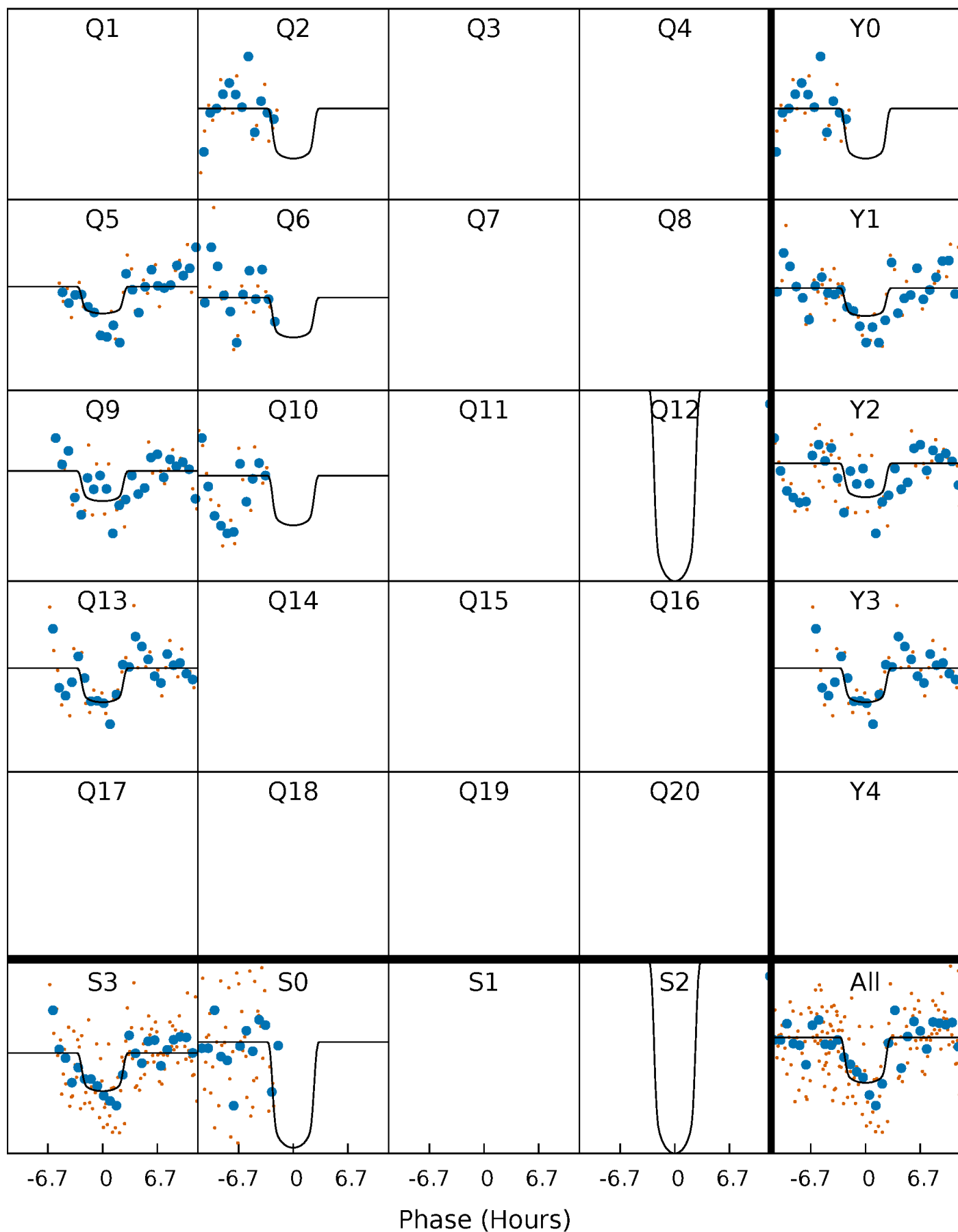
PDC Quarter-Phased Transit Curves

TCE 009848641-05 $P=133.211763$ Days $T_0=192.939425$ (BKJD)



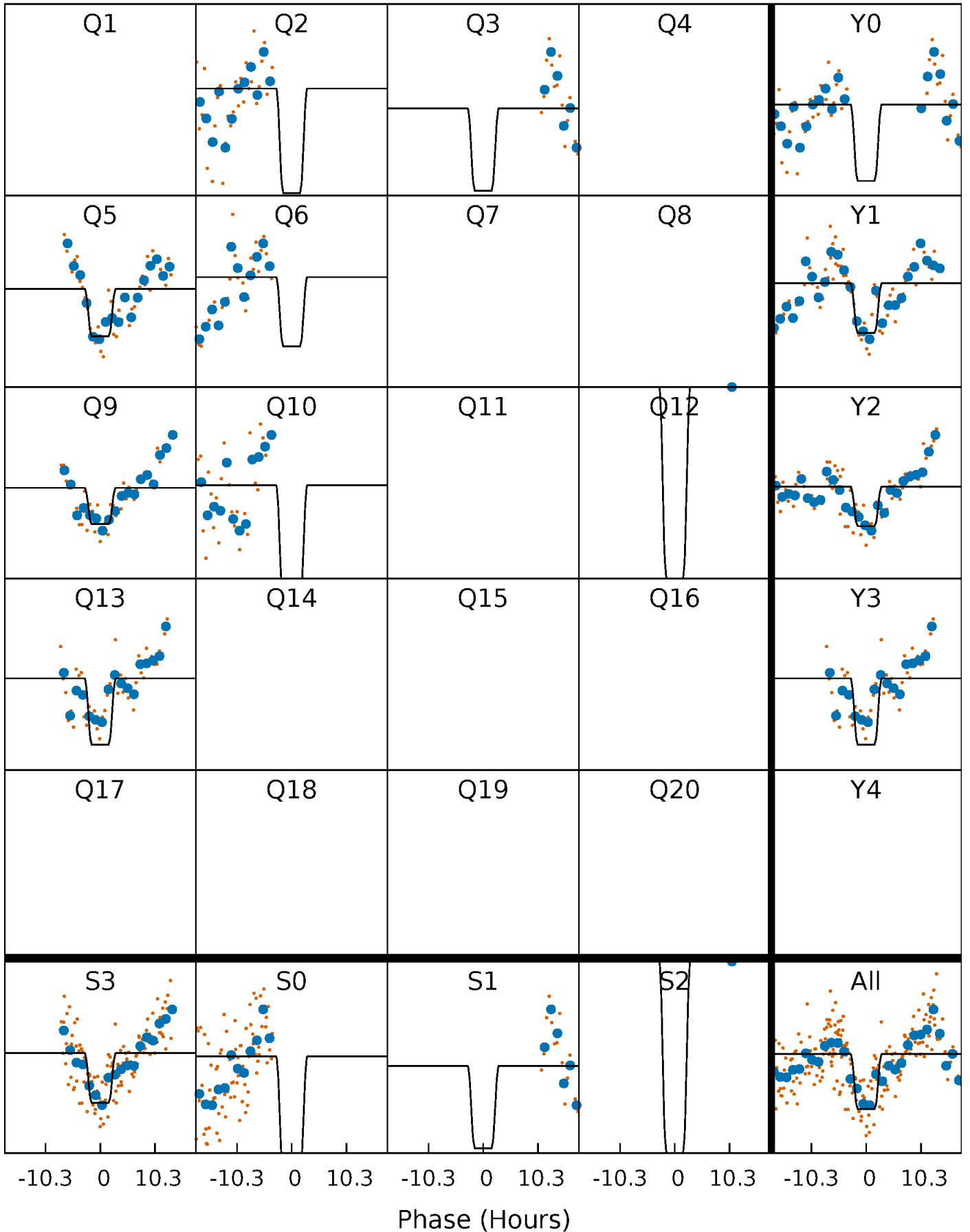
DV Quarter-Phased Transit Curves

TCE 009848641-05 P=133.211763 Days $T_0=192.939425$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

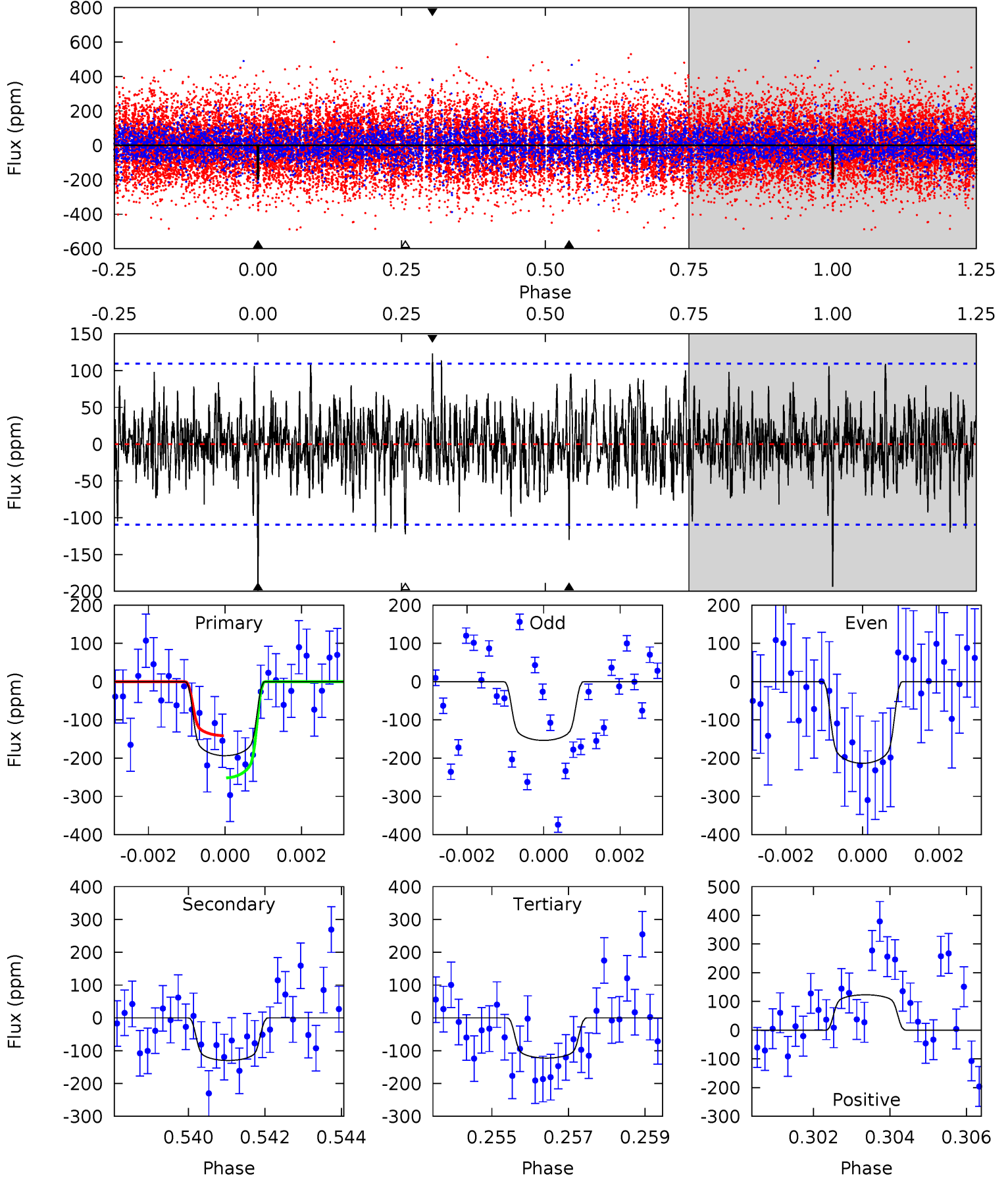
TCE 009848641-05 $P=133.208447$ Days $T_0=193.007477$ (BKJD)



DV Model-Shift Uniqueness Test

009848641-05, P = 133.211763 Days, E = 59.727662 Days

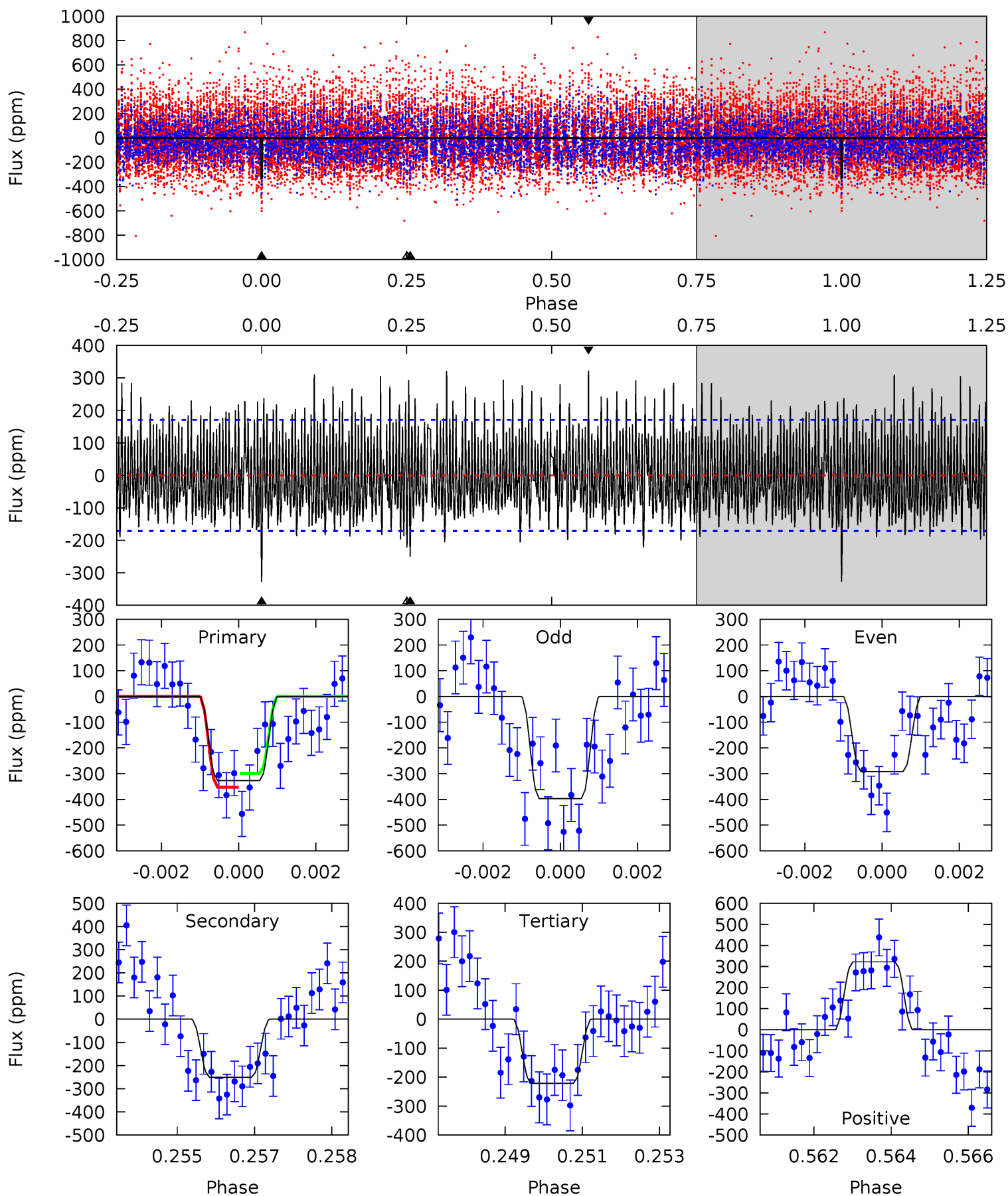
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.44	6.33	5.98	6.01	5.34	3.11	1.61	3.47	3.43	0.36	0.32	1.39	0.93	0.39	2.68



Alt Model-Shift Uniqueness Test

009848641-05, P = 133.208447 Days, E = 59.799030 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	7.84	6.94	10.1	5.35	3.12	3.26	3.28	0.15	0.90	-2.23	1.53	0.90	0.50	0.84



Stellar Parameters For KIC 009848641

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7037^{+187}_{-250}	$3.769^{+0.270}_{-0.090}$	$-0.100^{+0.250}_{-0.300}$	$2.744^{+0.472}_{-0.876}$	$1.612^{+0.224}_{-0.249}$	$0.110^{+0.182}_{-0.038}$
	+3%/-4%	+7%/-2%	+250%/-300%	+17%/-32%	+14%/-15%	+165%/-34%
Source	PHO1	FLK73	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 009848641-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-130 ± 21	$4.27^{+1.06}_{-0.92}$	913^{+52}_{-73}	6091^{+643}_{-527}	1406^{+817}_{-473}
Alt.	-251 ± 32	$5.72^{+1.10}_{-1.11}$	904^{+58}_{-75}	6195^{+519}_{-446}	1507^{+814}_{-436}

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 $A_{obs} \gg 1.0$

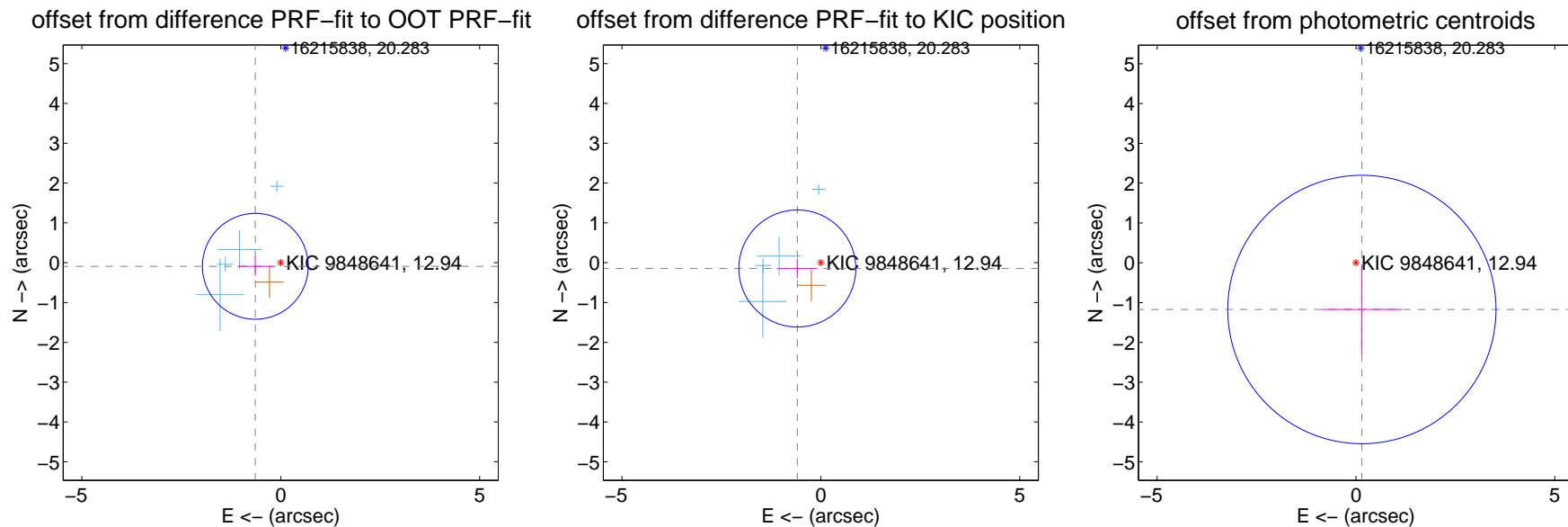
DV Centroid Data

Supplemental centroid analysis for 009848641-05. Kepler magnitude: 12.94. Transit SNR 7.55

There are 4 quarters with good PRF difference image offsets

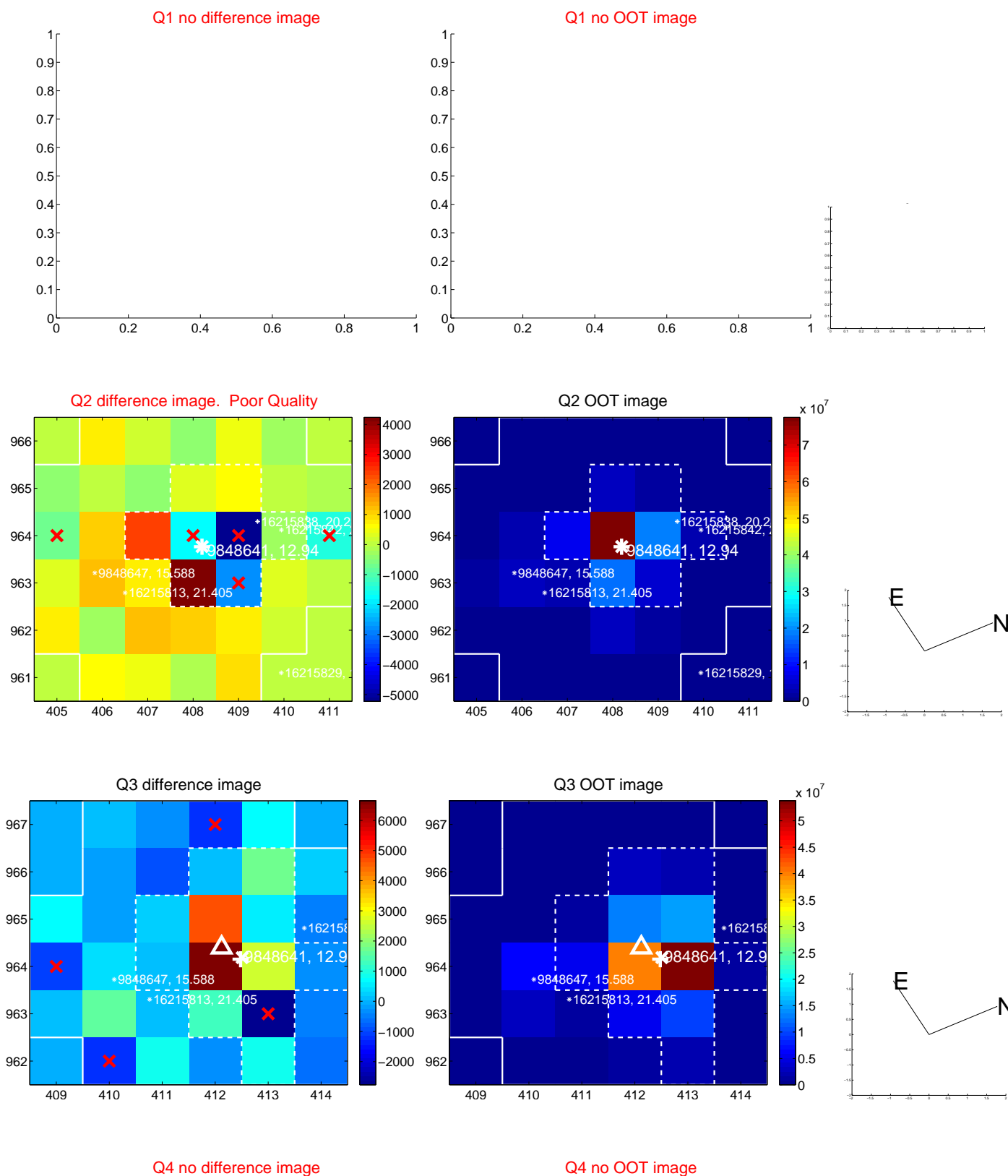
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.646 ± 0.443	1.46	0.639 ± 0.446	-0.091 ± 0.242
PRF-fit source offset from KIC position	0.609 ± 0.490	1.24	0.591 ± 0.501	-0.146 ± 0.241
photometric centroid source offset	1.18 ± 1.12	1.05	-0.15 ± 1.01	-1.17 ± 1.13

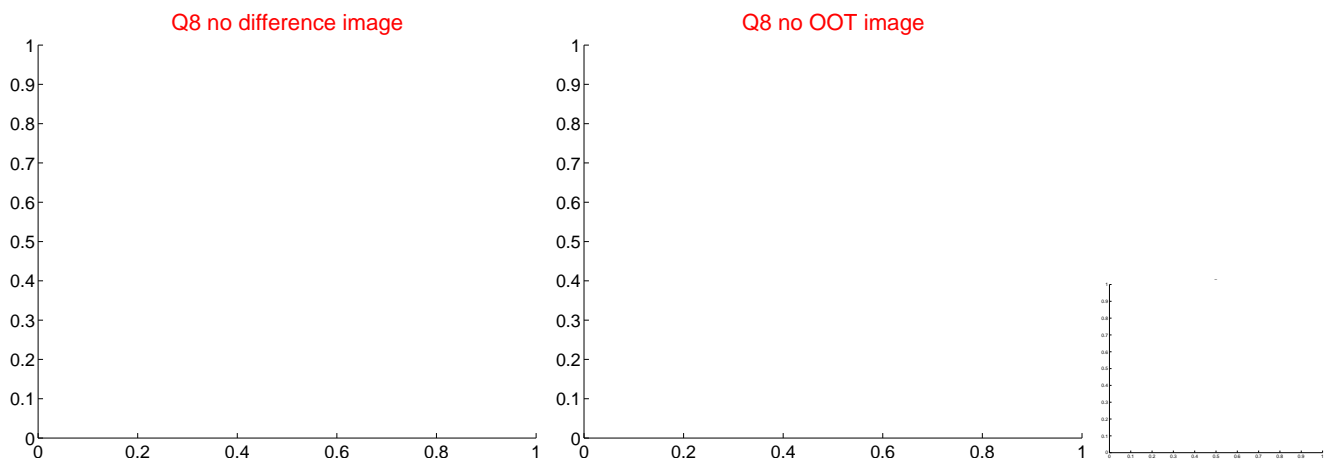
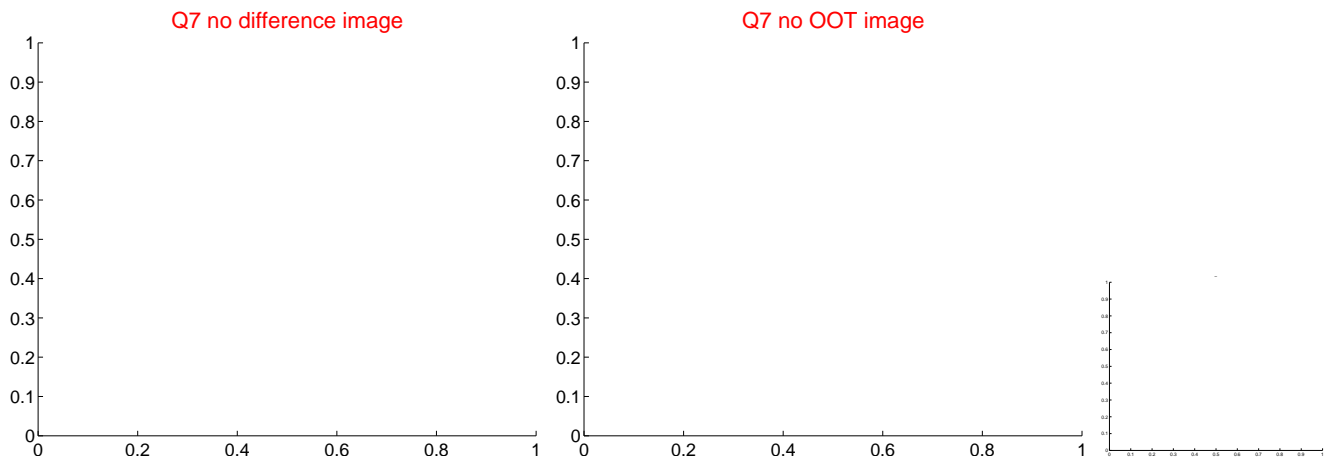
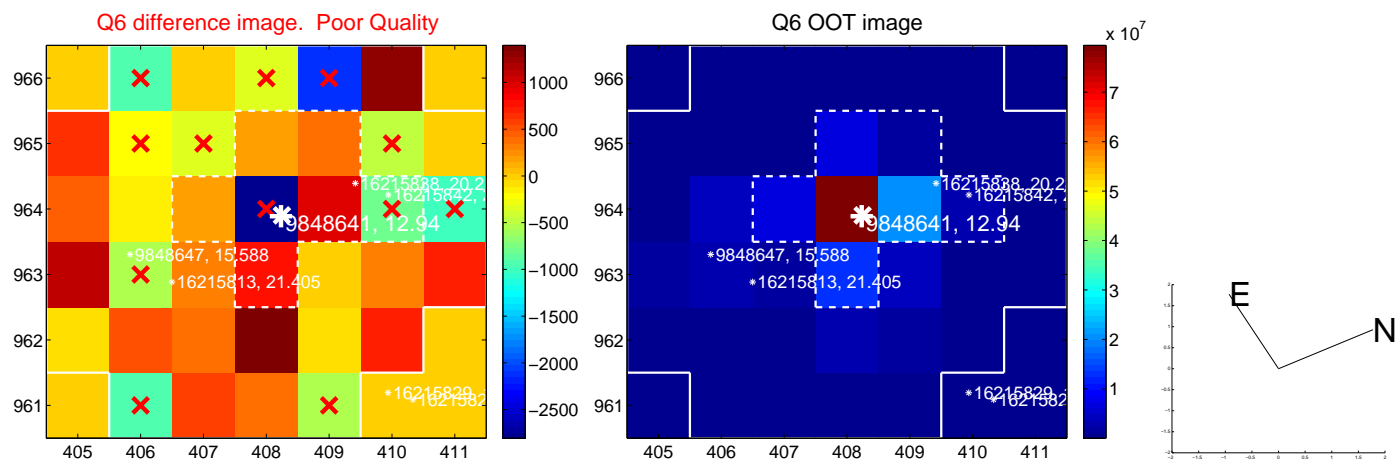
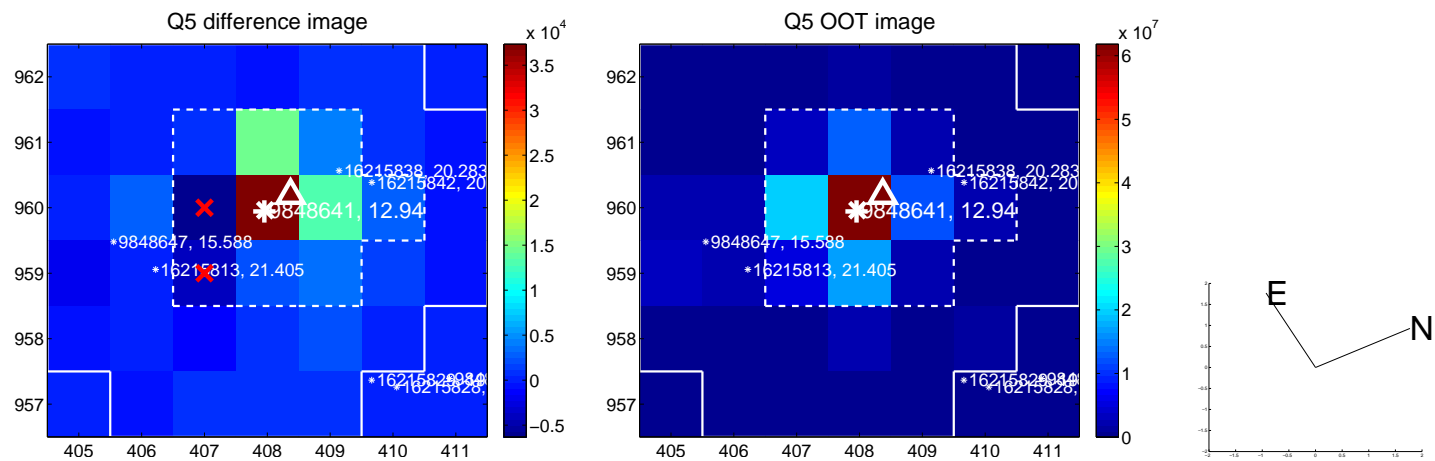


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

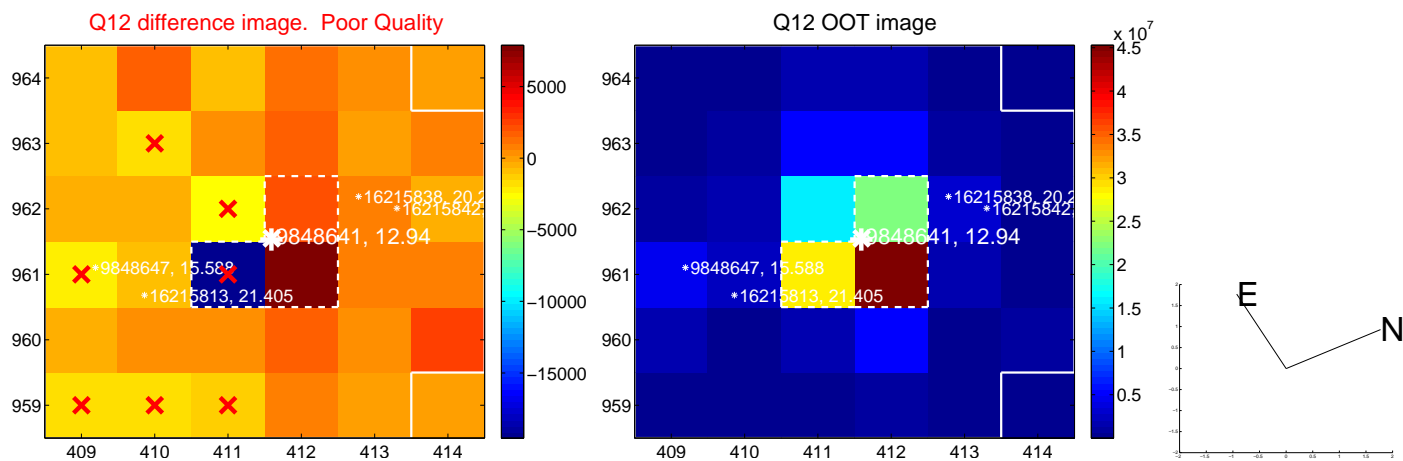
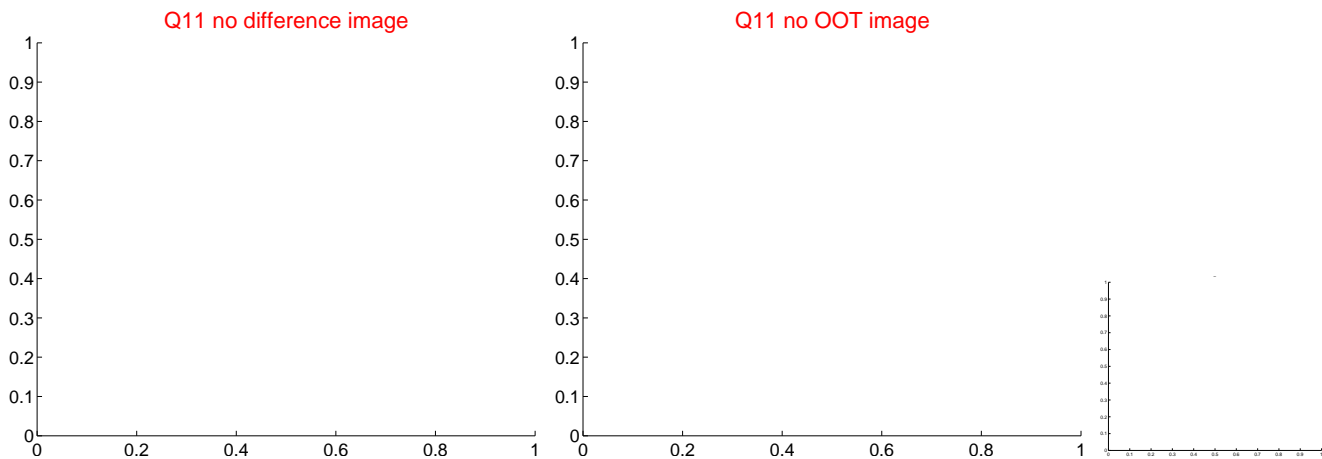
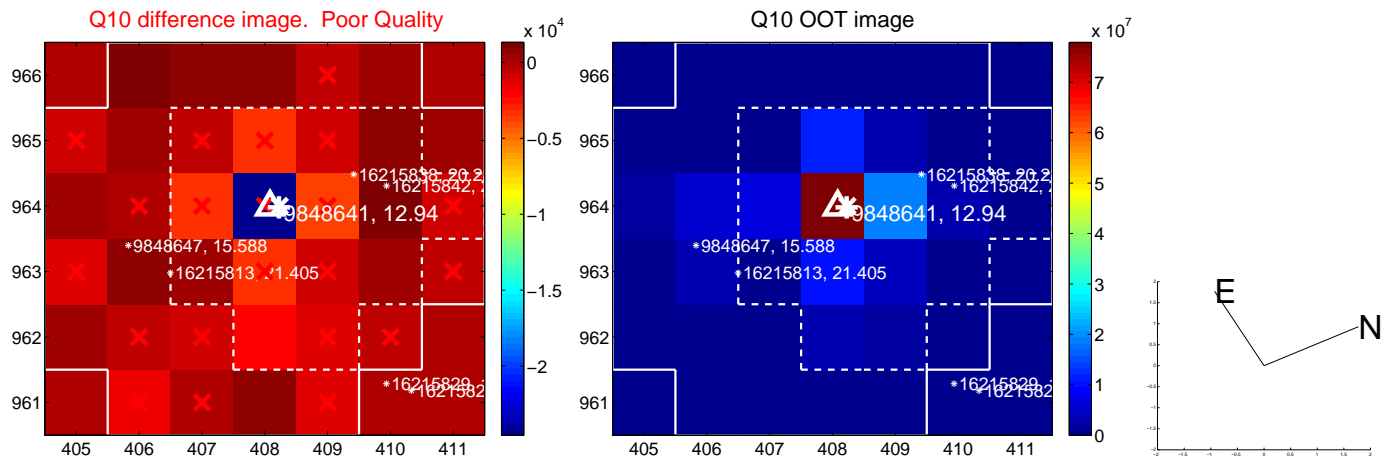
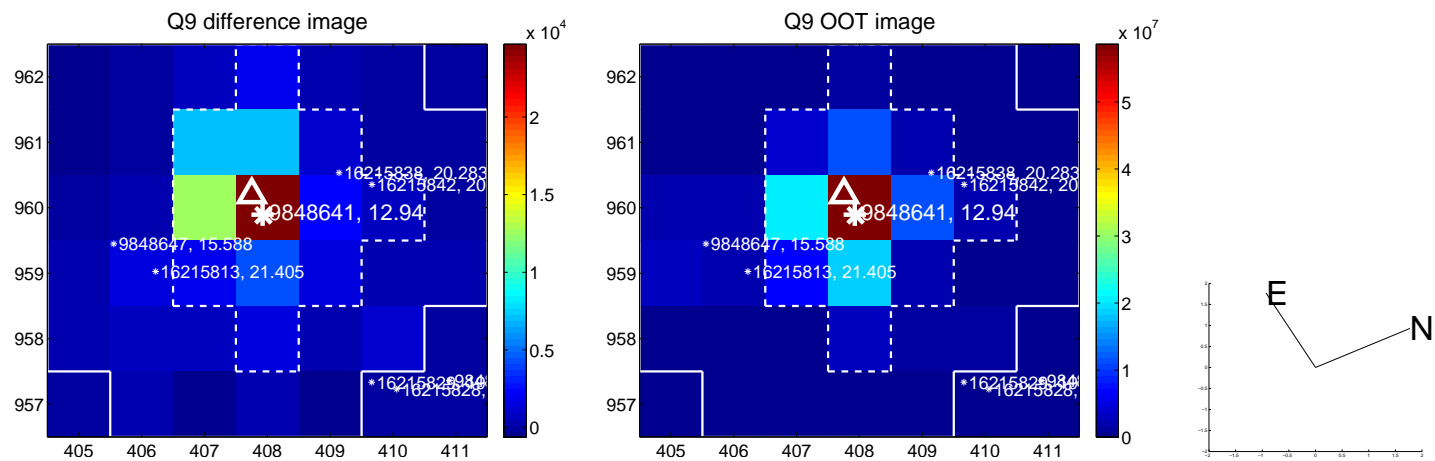
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



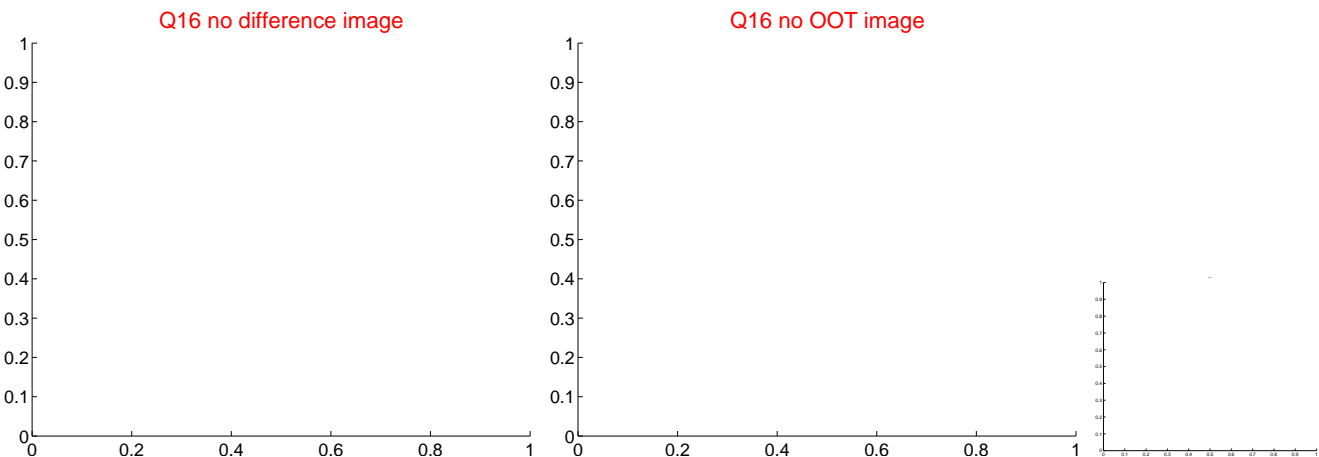
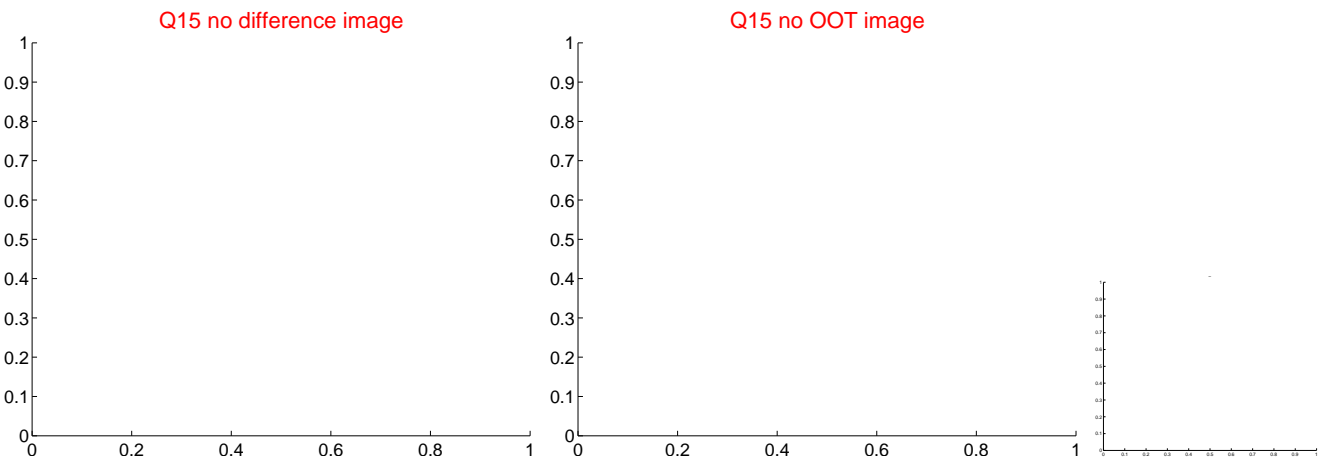
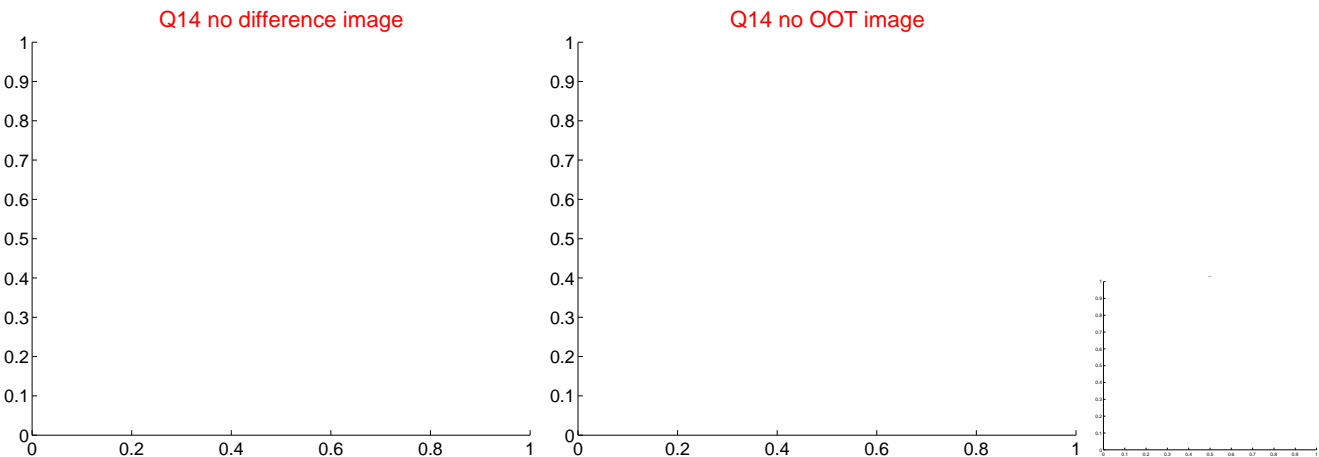
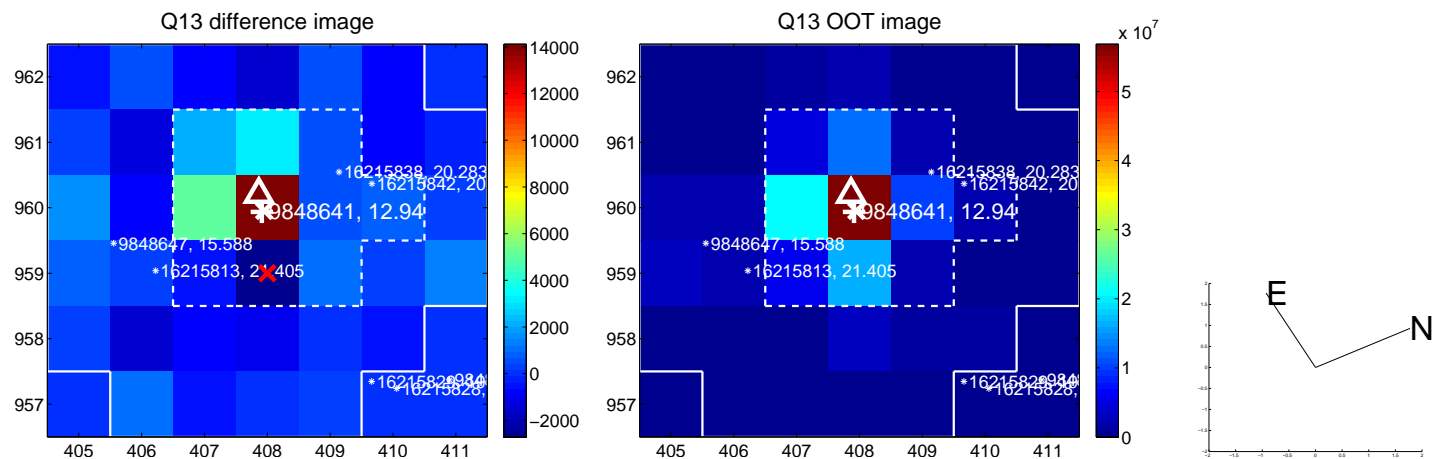
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



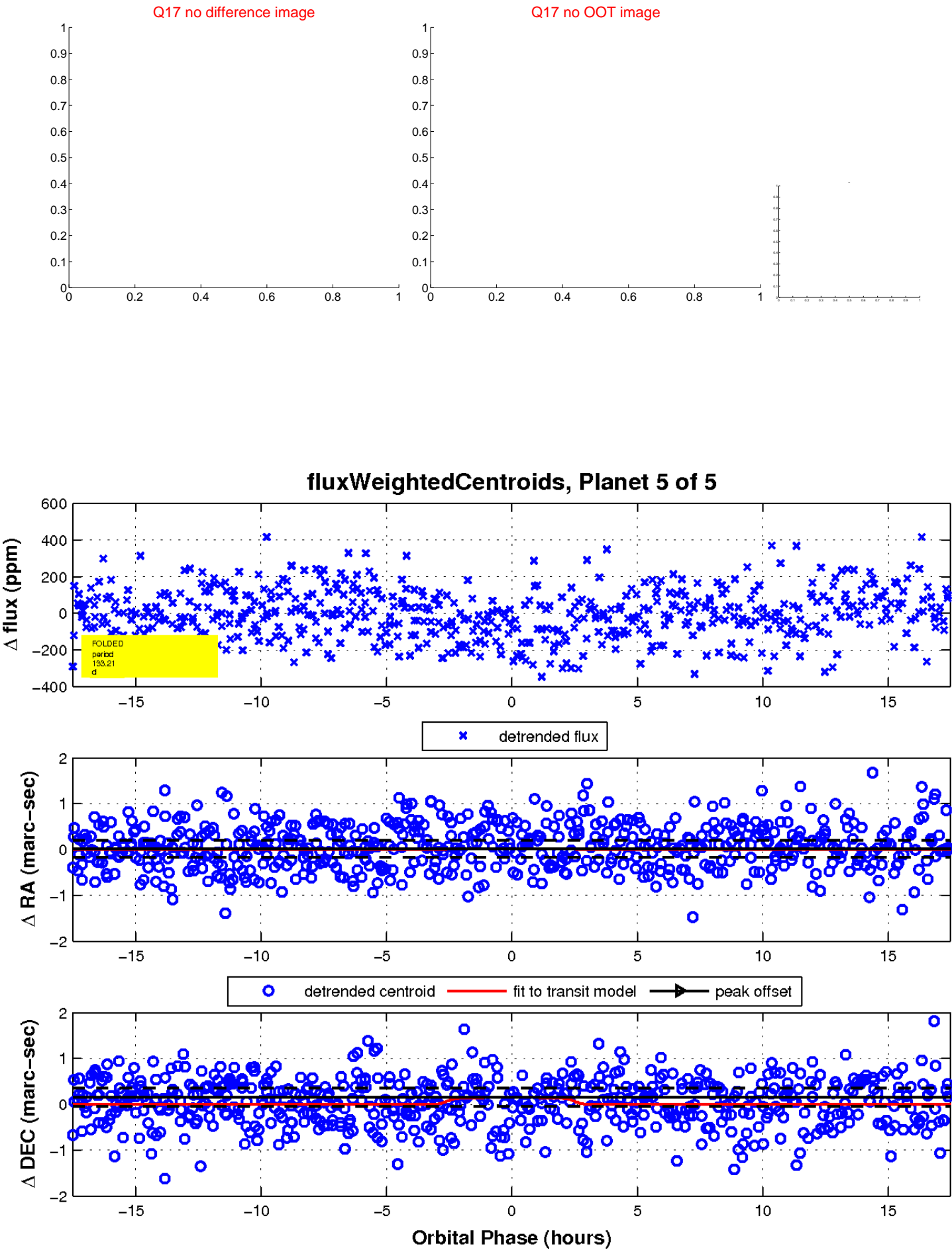
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

