

KIC 008747865

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})
008747865-01	OBS	No	1.209131	132.607616	12.5	6.765	8.4	6.4	1.72	6770	0.64	8990.79
008747865-02	OBS	No	97.198270	158.316789	263.6	3.940	8.2	9.0	1.72	6770	3.15	25.91
008747865-04	OBS	No	69.622216	186.999204	143.5	5.632	8.4	6.8	1.72	6770	2.21	40.44
008747865-05	OBS	No	266.037473	392.777979	198.4	21.247	8.2	7.6	1.72	6770	2.75	6.77
008747865-06	OBS	No	115.943719	140.631570	236.8	2.837	8.0	8.3	1.72	6770	2.96	20.48
008747865-07	OBS	No	46.902202	165.353757	175.3	2.299	8.1	7.6	1.72	6770	2.58	68.47
008747865-08	OBS	No	40.482062	171.627250	113.5	9.685	7.2	8.2	1.72	6770	1.98	83.32
008747865-09	OBS	No	115.128340	183.140863	287.1	4.893	7.5	9.6	1.72	6770	4.52	20.68
008747865-10	OBS	No	126.754341	154.280346	261.3	3.501	8.0	8.4	1.72	6770	3.08	18.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008747865-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008747865-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008747865-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
008747865-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008747865-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

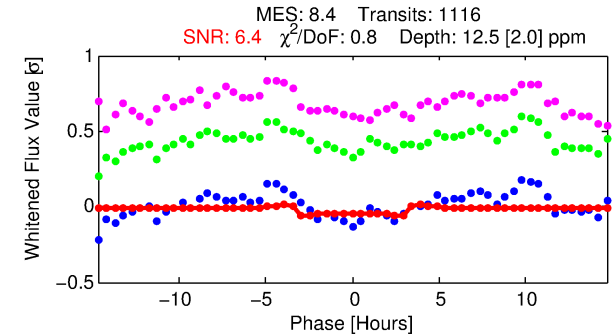
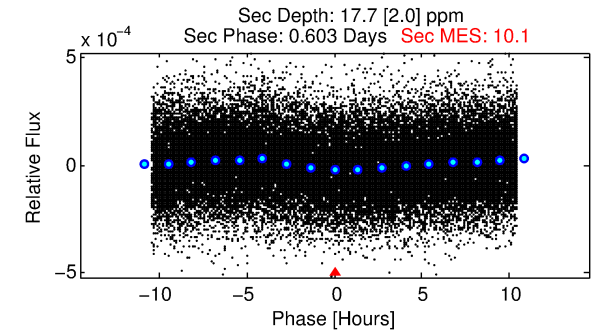
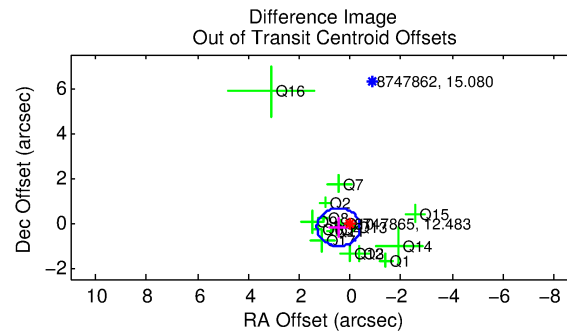
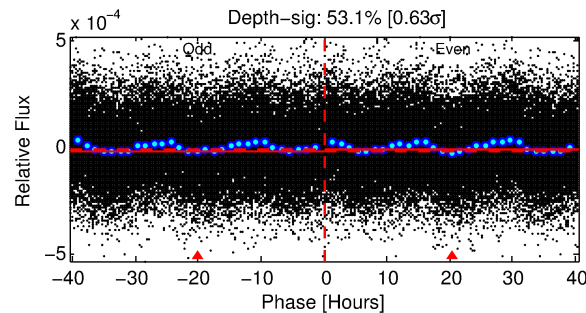
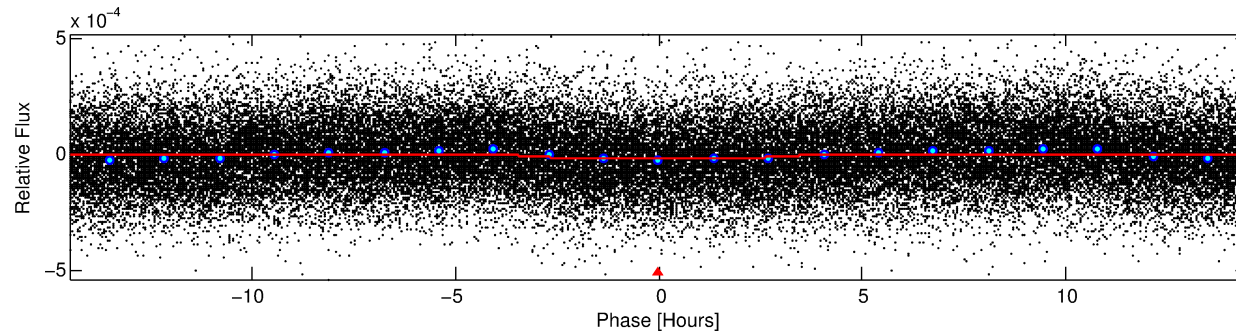
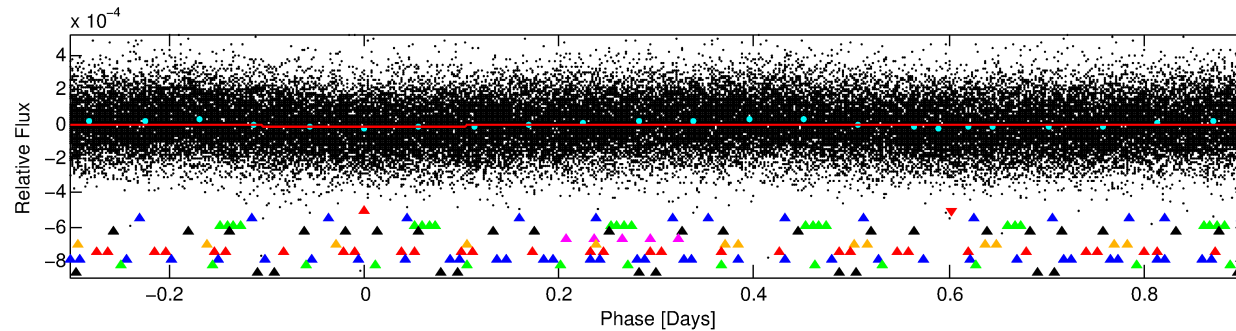
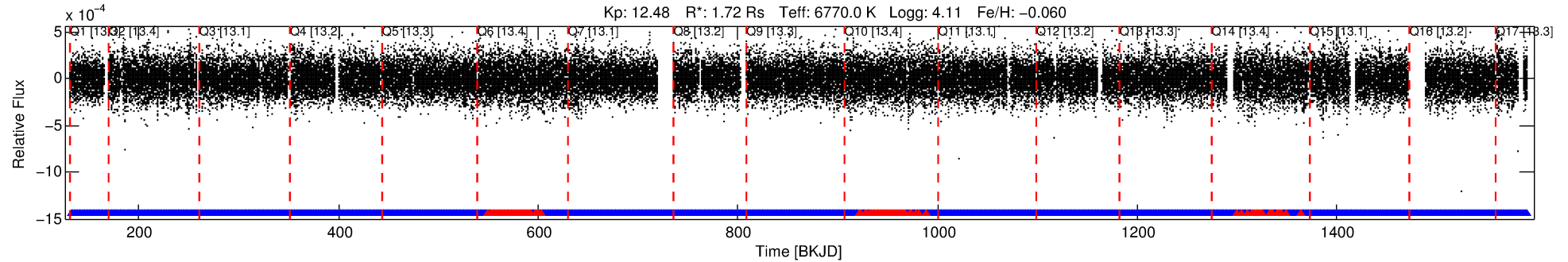
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008747865-01

No Significant Match Found

DV One-Page Summary

KIC: 8747865 Candidate: 1 of 10 Period: 1.209 d



DV Fit Results:

Period = 1.20913 [0.00002] d
Epoch = 132.6076 [0.0059] BKJD
Rp/R* = 0.0034 [0.0013]
a/R* = 1.32 [1.23]
b = 0.65 [1.99]
Seff = 8990.79 [2102.13]
Teq = 2483 [145] K
Rp = 0.64 [0.27] Re
a = 0.0248 [0.0036] AU
Ag = 14.60 [11.99] [1.13 σ]
Teffp = 7505 [1482] K [3.37 σ]

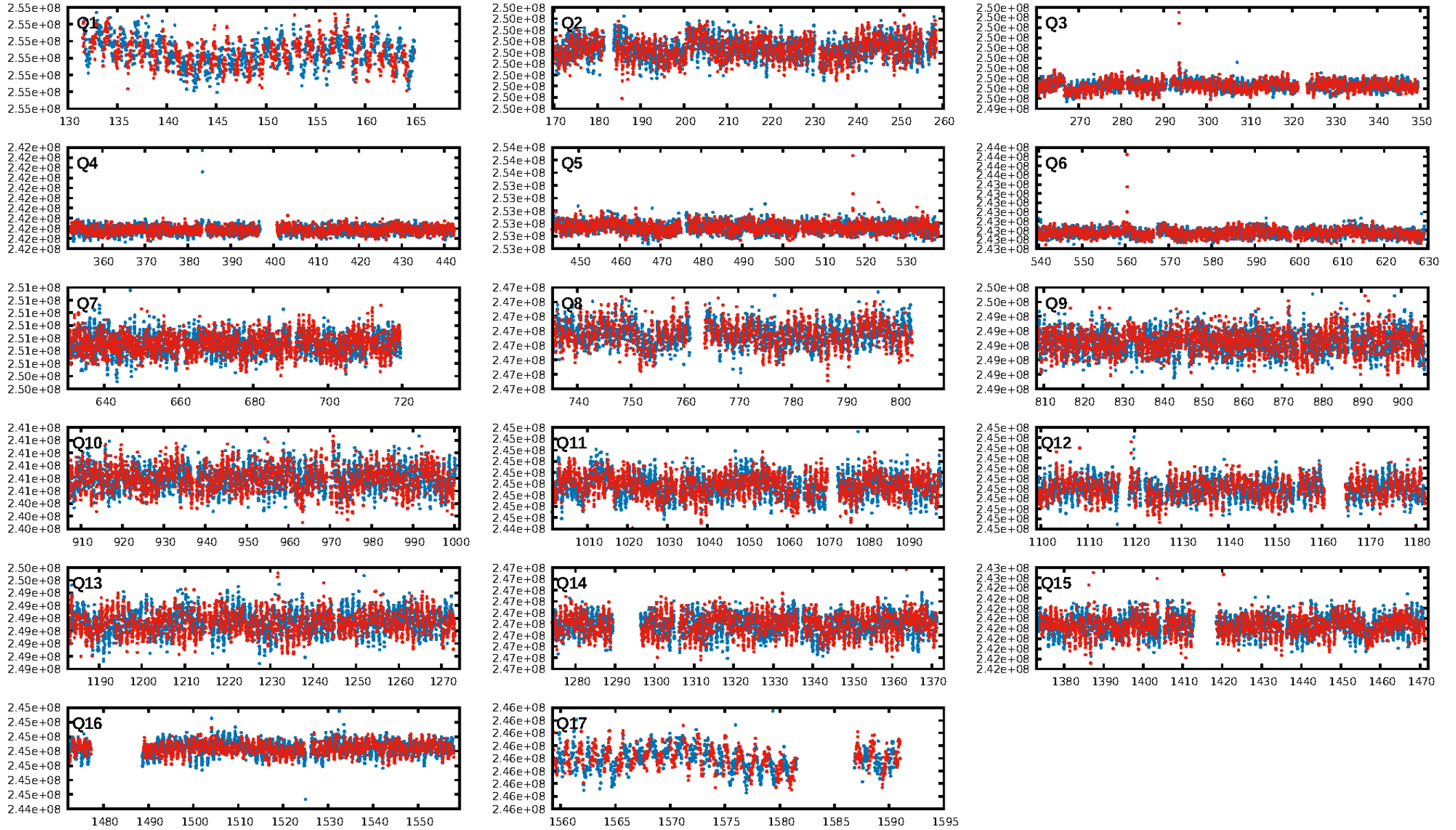
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [79.79 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 2.43e-09
RollingBand-fgt: 0.91 [966/1065]
GhostDiagnostic-chr: -1319
Centroid-sig: 0.0%
Centroid-so: 2.310 arcsec [2.30 σ]
OotOffset-rm: 0.497 arcsec [1.76 σ]
KicOffset-rm: 0.565 arcsec [1.95 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.75 [12/16]
DiffImageOverlap-fno: 1.00 [17/17]

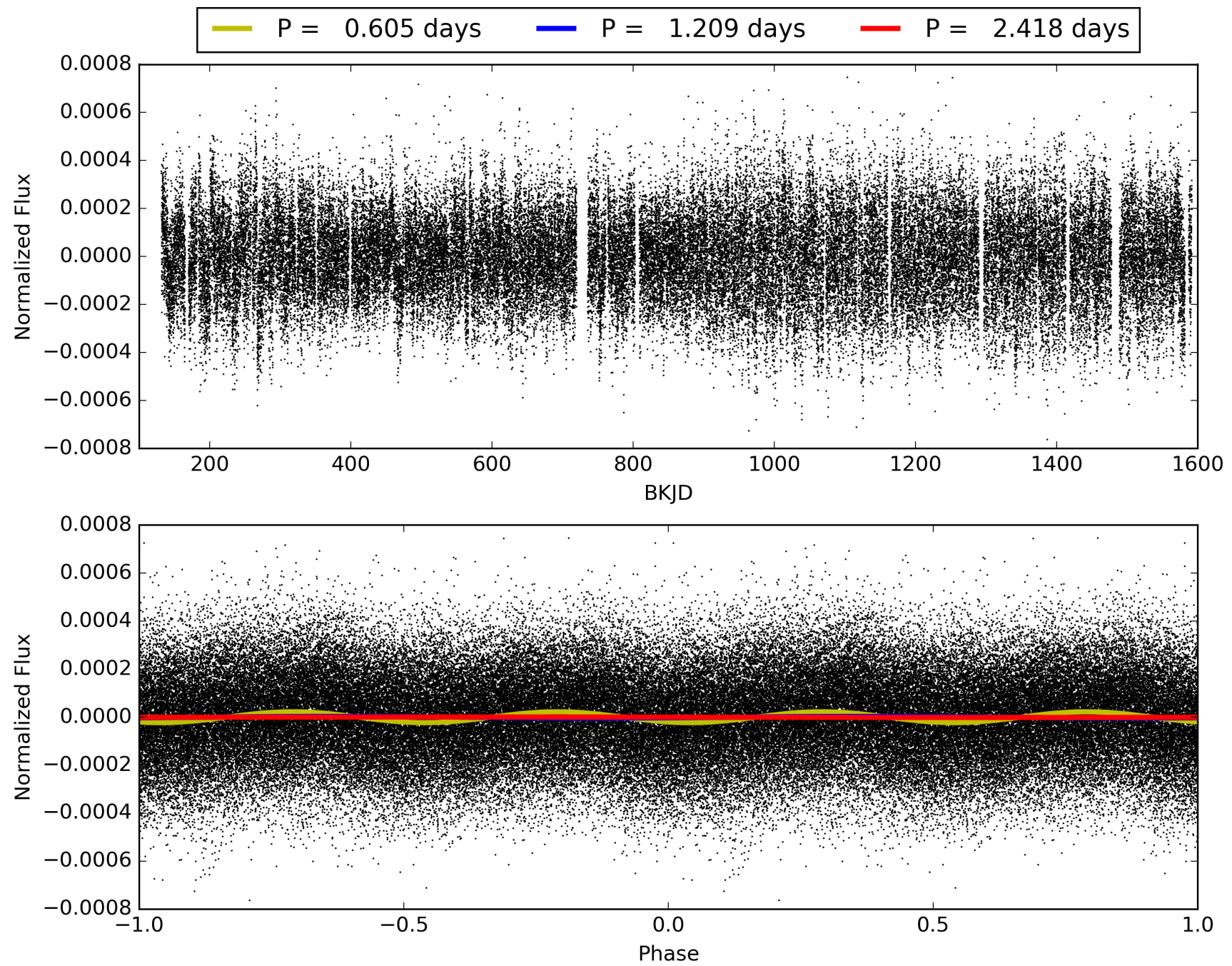
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:16:59 Z

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

TCE 008747865-01, PDC Light Curves

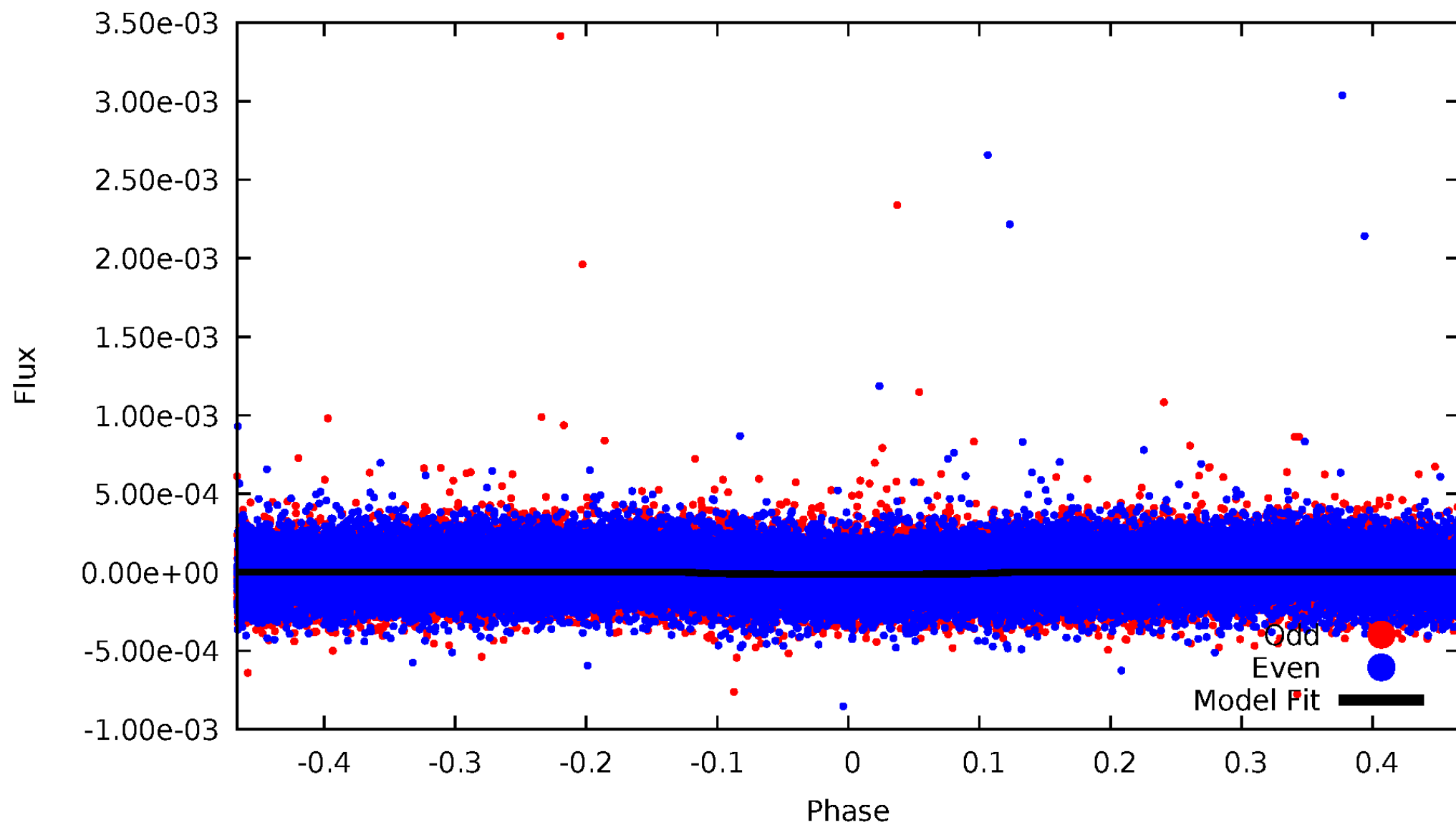


TCE 008747865-01



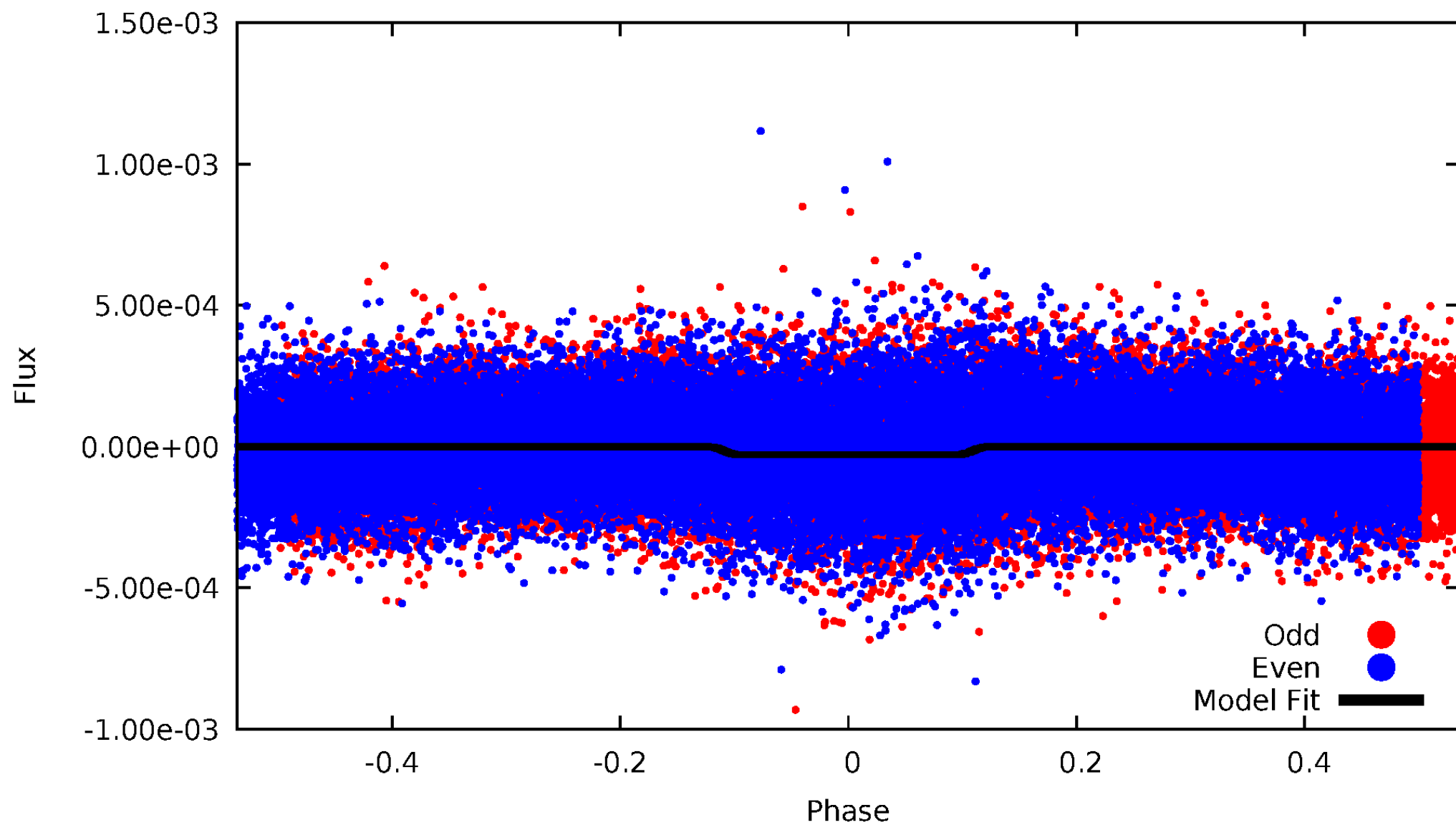
DV Odd/Even

TCE 008747865-01

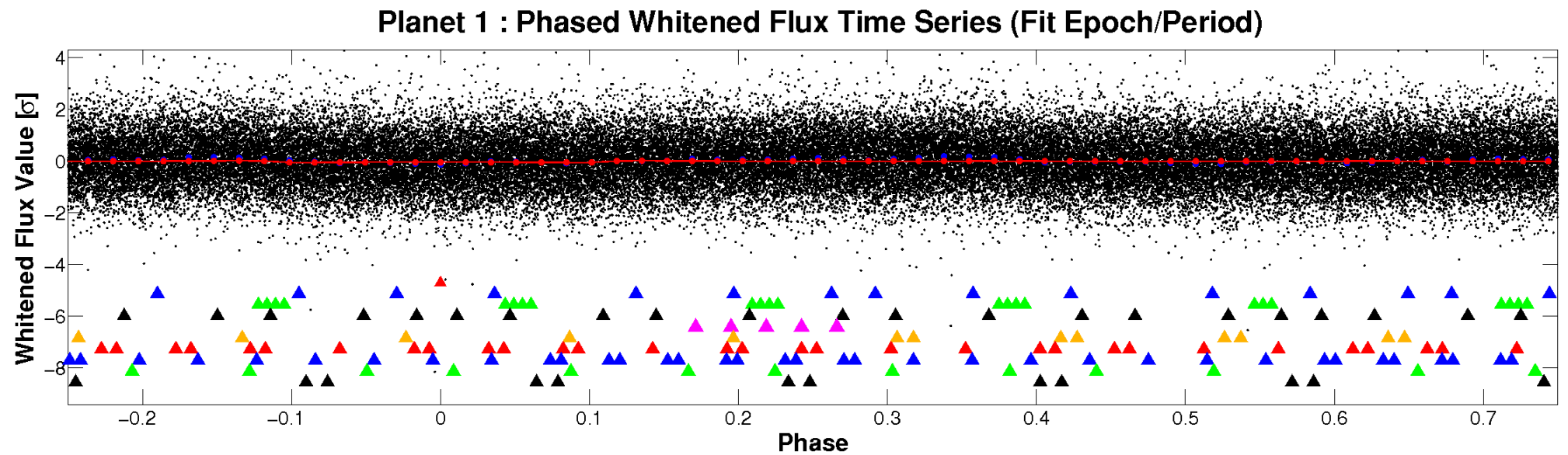
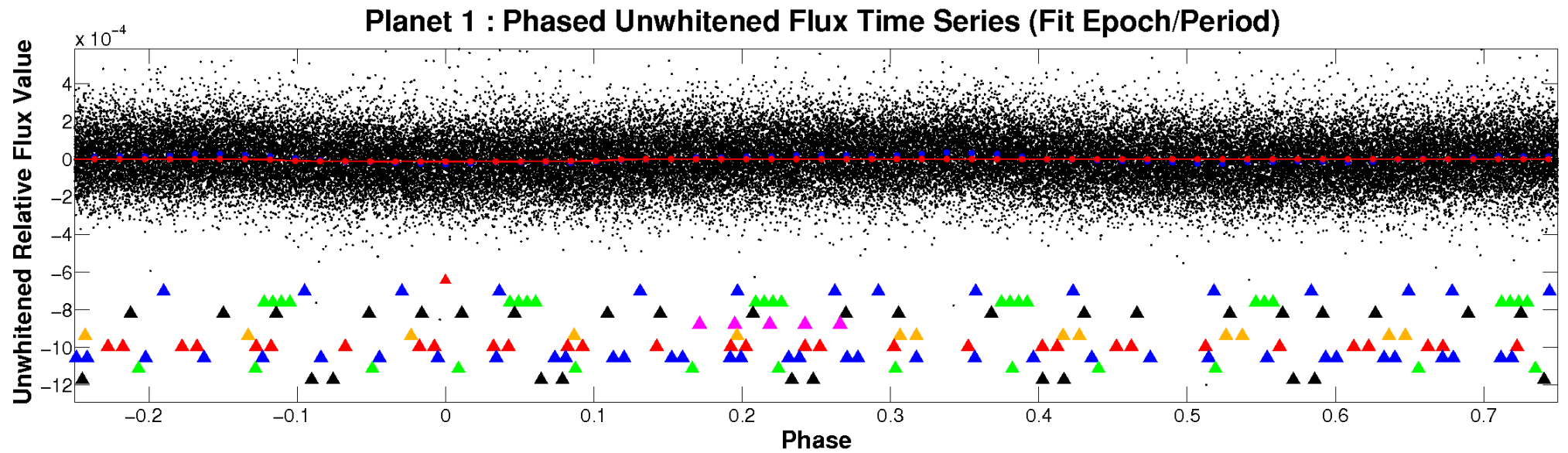


ALT Odd/Even

TCE 008747865-01

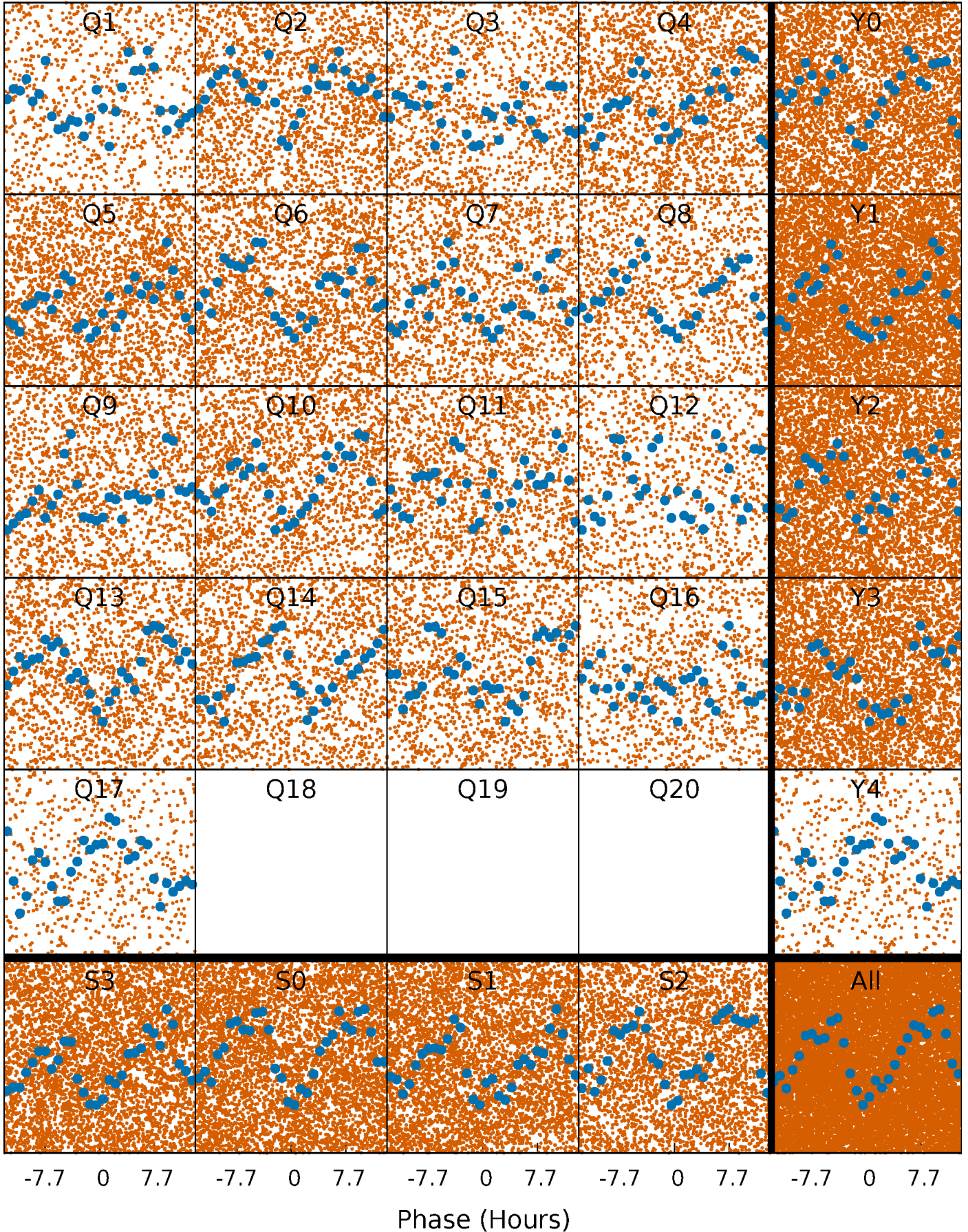


Non-Whitened Vs. Whitened Light Curve



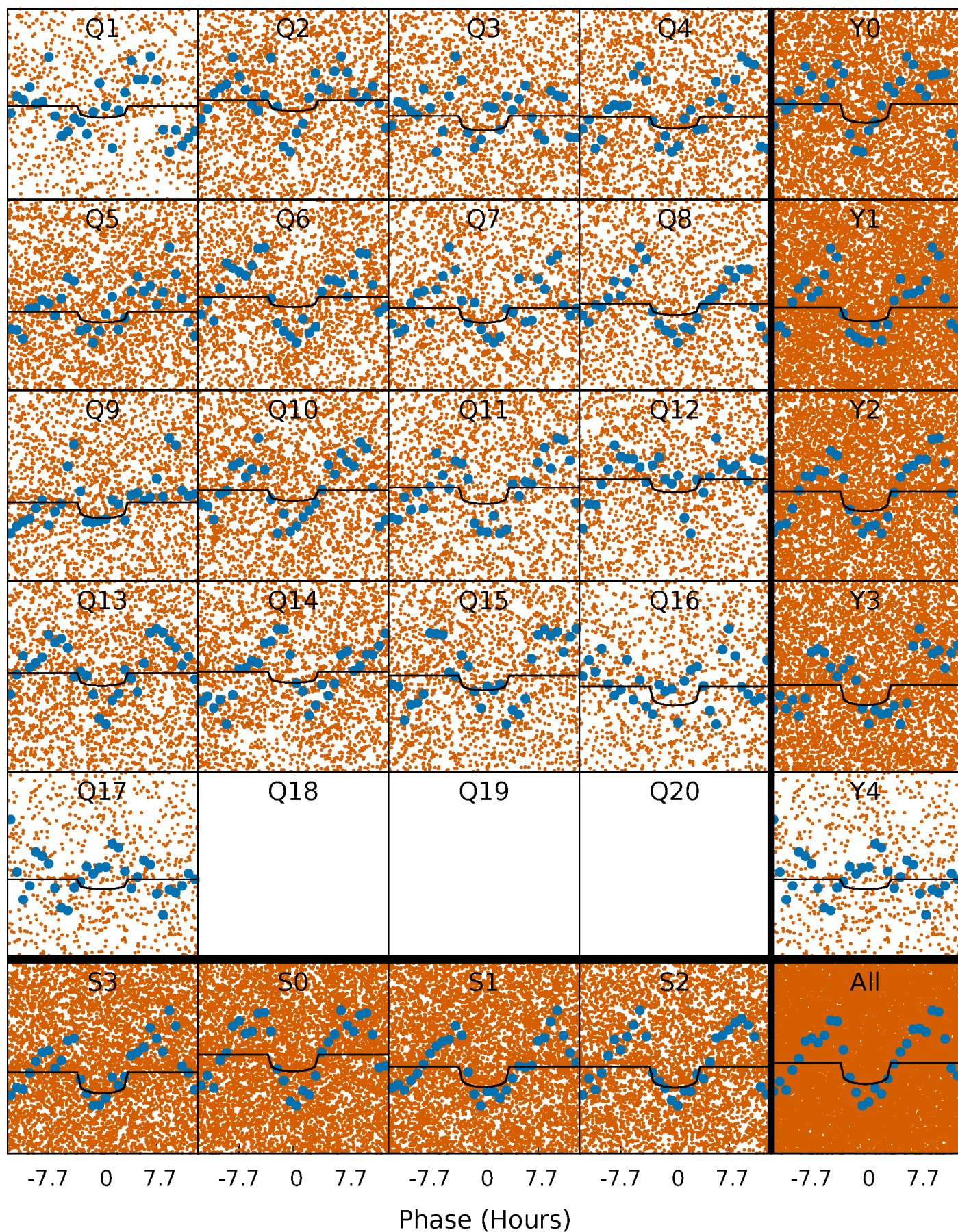
PDC Quarter-Phased Transit Curves

TCE 008747865-01 P= 1.209131 Days $T_0=132.607616$ (BKJD)



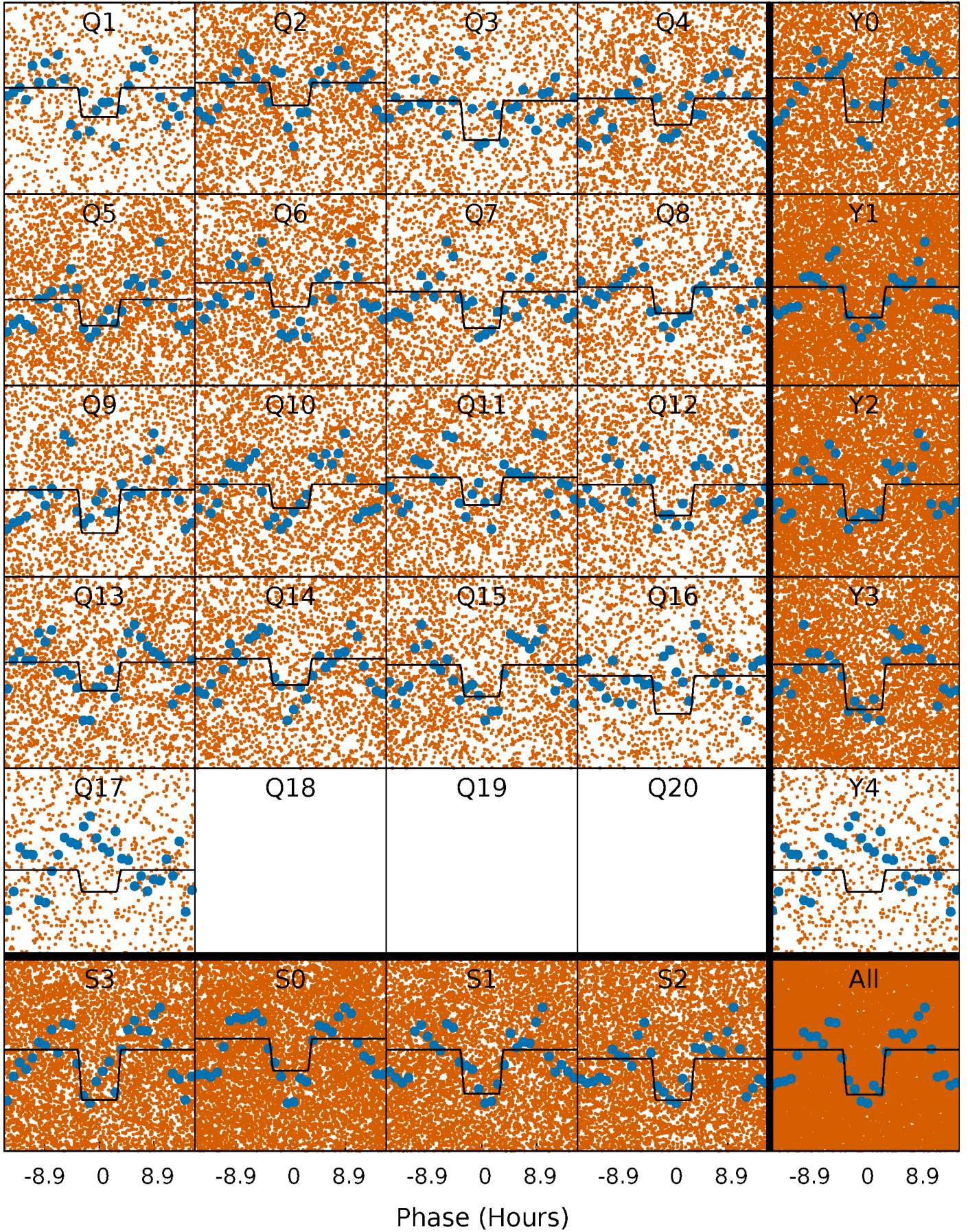
DV Quarter-Phased Transit Curves

TCE 008747865-01 P= 1.209131 Days $T_0=132.607616$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

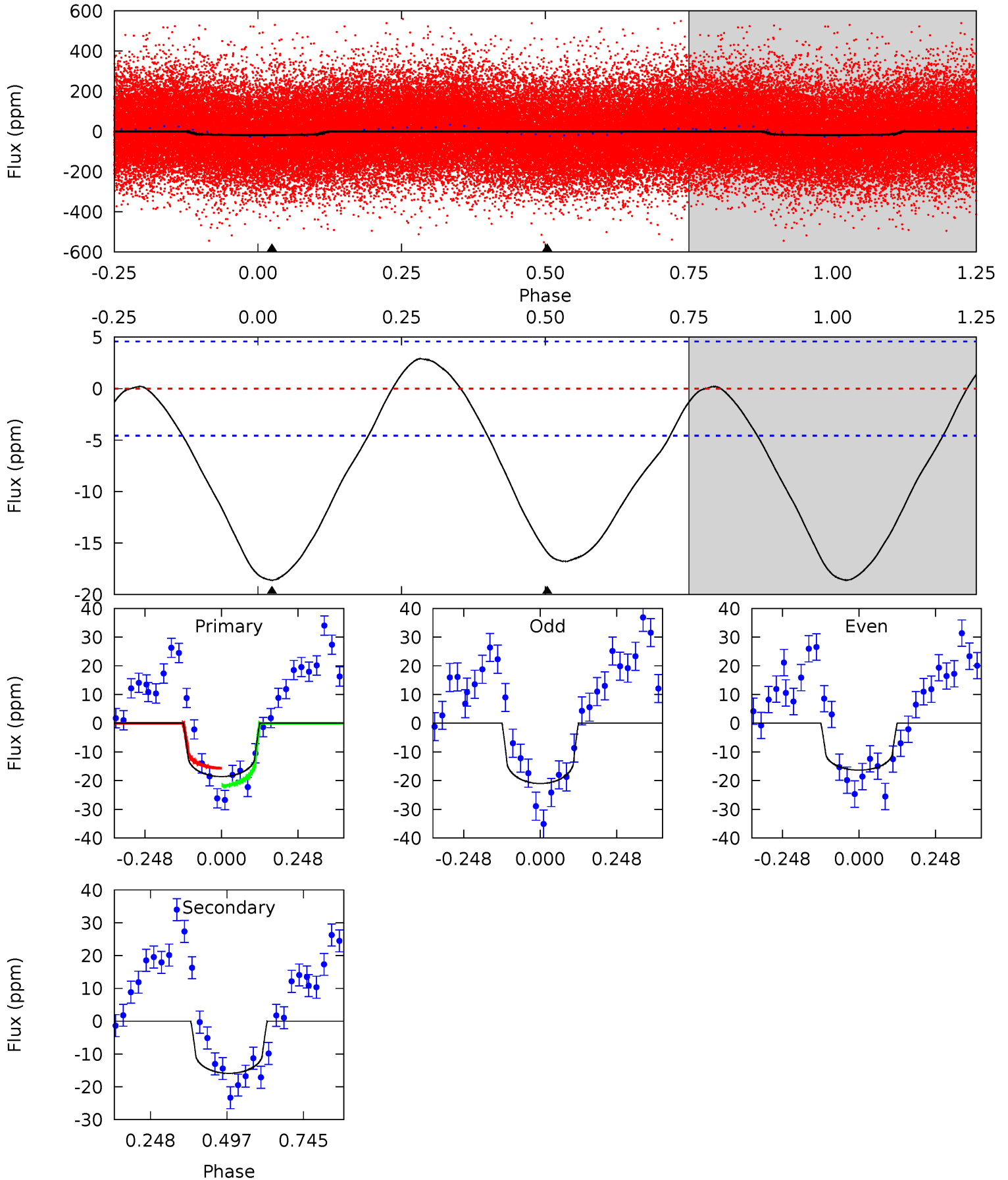
TCE 008747865-01 P= 1.209299 Days $T_0=132.550678$ (BKJD)



DV Model-Shift Uniqueness Test

008747865-01, P = 1.209131 Days, E = 131.398485 Days

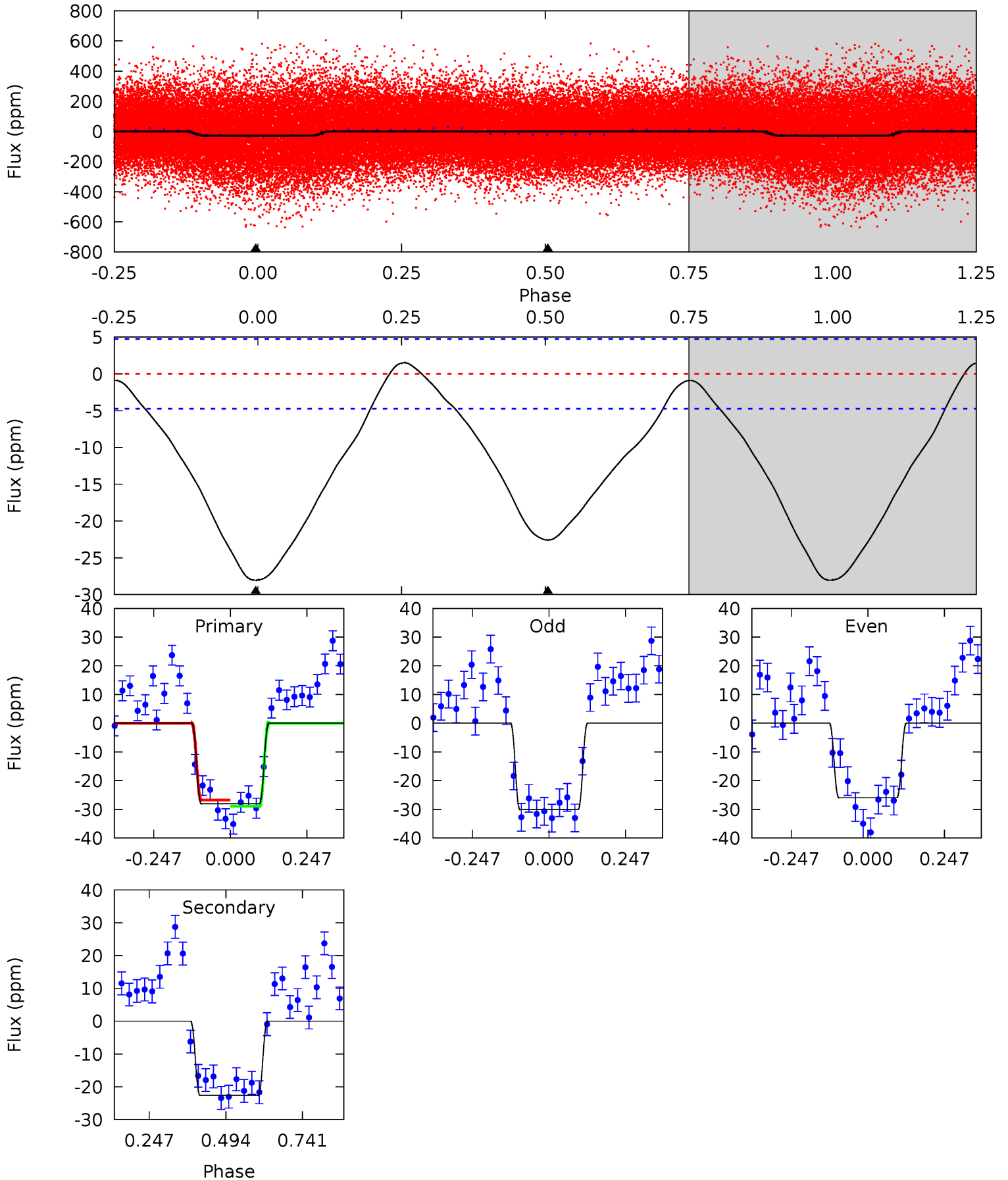
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	15.2	0	0	4.37	1.15	1.60	17.8	17.8	15.2	15.2	2.23	0.99	0.13	2.90



Alt Model-Shift Uniqueness Test

008747865-01, P = 1.209299 Days, E = 131.341379 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.9	20.9	0	0	4.37	1.16	1.05	25.9	25.9	20.9	20.9	1.92	1.30	0.05	0.86



Stellar Parameters For KIC 008747865

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6770^{+81}_{-81}	$4.114^{+0.132}_{-0.108}$	$-0.060^{+0.150}_{-0.150}$	$1.717^{+0.274}_{-0.274}$	$1.405^{+0.109}_{-0.098}$	$0.391^{+0.240}_{-0.127}$
	+1%/-1%	+3%/-3%	+250%/-250%	+16%/-16%	+8%/-7%	+62%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 008747865-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-16 ± 1	$0.62^{+0.27}_{-0.24}$	3456^{+156}_{-163}	7350^{+2628}_{-1232}	14^{+21}_{-7}
Alt.	-23 ± 1	$0.99^{+0.28}_{-0.26}$	3457^{+153}_{-150}	6322^{+1070}_{-706}	$7.862^{+6.599}_{-3.084}$

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 $A_{obs} \gg 1.0$

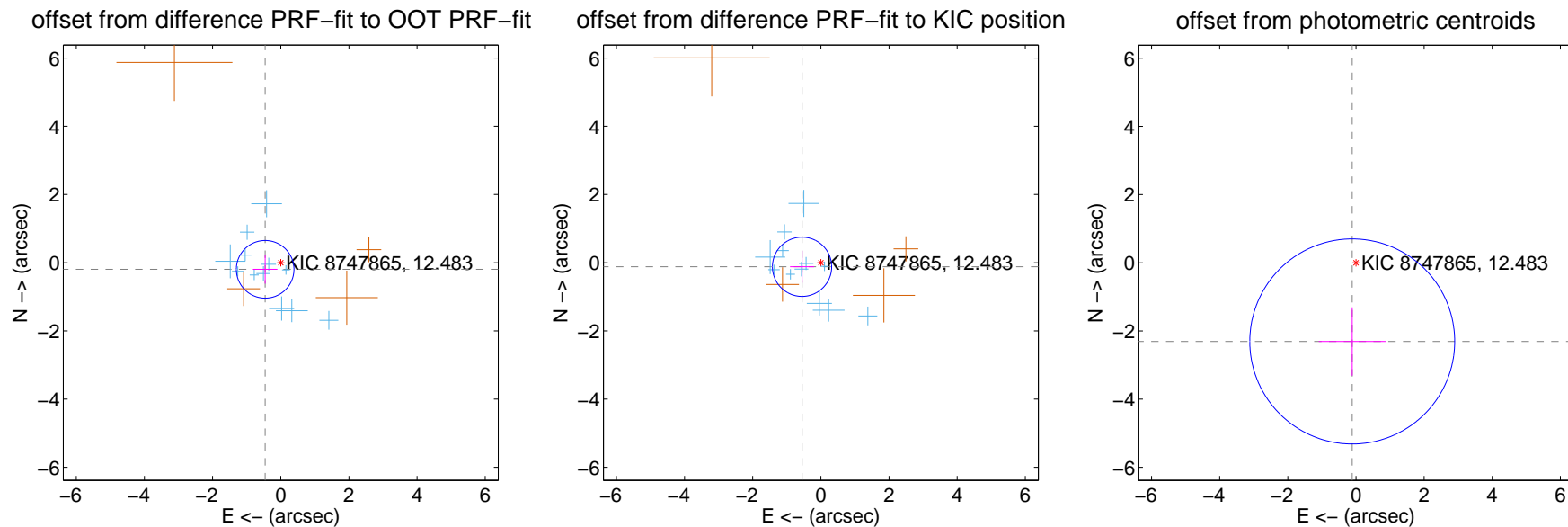
DV Centroid Data

Supplemental centroid analysis for 008747865-01. Kepler magnitude: 12.48. Transit SNR 6.39

There are 12 quarters with good PRF difference image offsets

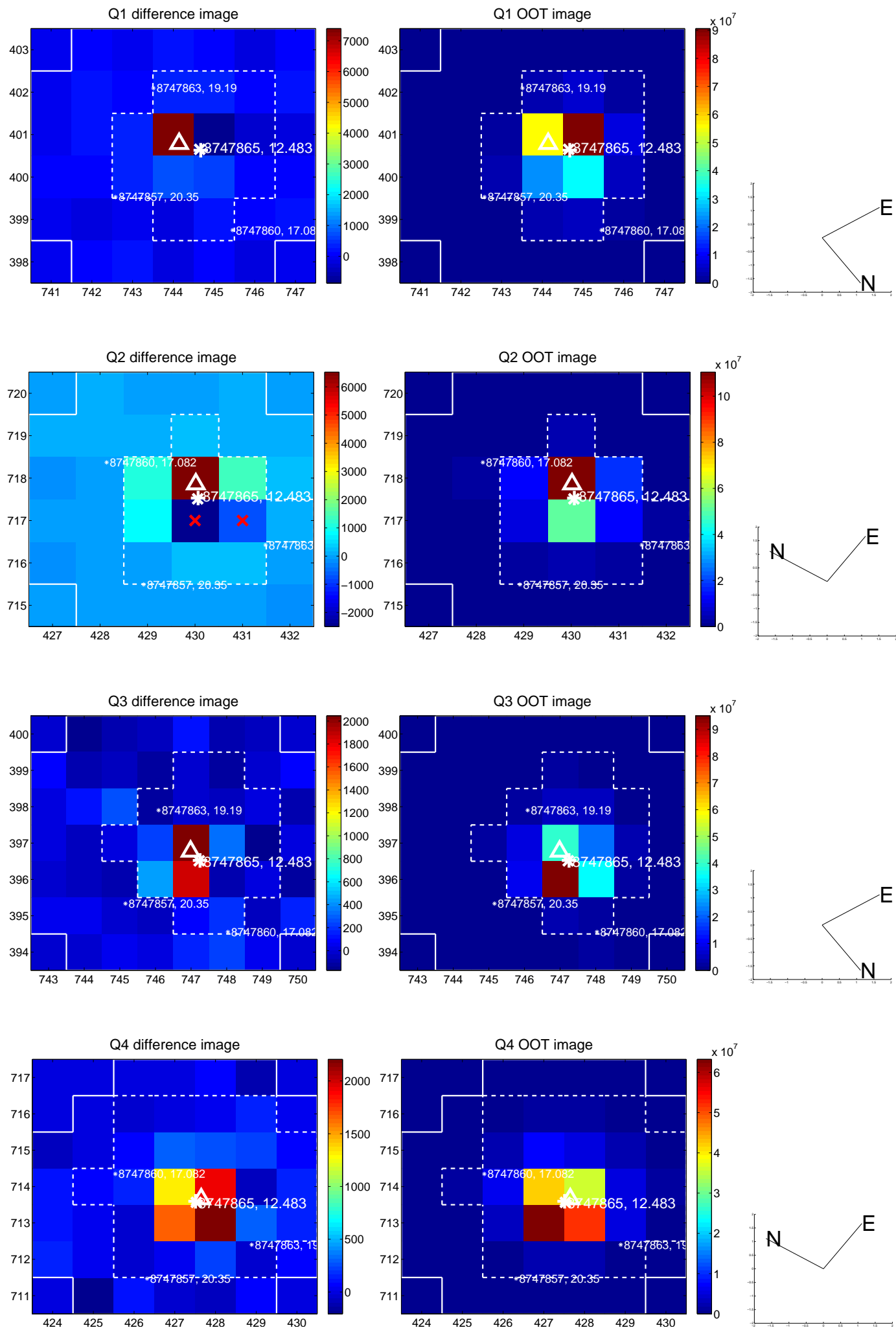
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.497 ± 0.282	1.76	0.458 ± 0.358	-0.195 ± 0.421
PRF-fit source offset from KIC position	0.565 ± 0.290	1.95	0.552 ± 0.353	-0.120 ± 0.467
photometric centroid source offset	2.31 ± 1.00	2.30	0.11 ± 0.98	-2.31 ± 1.00

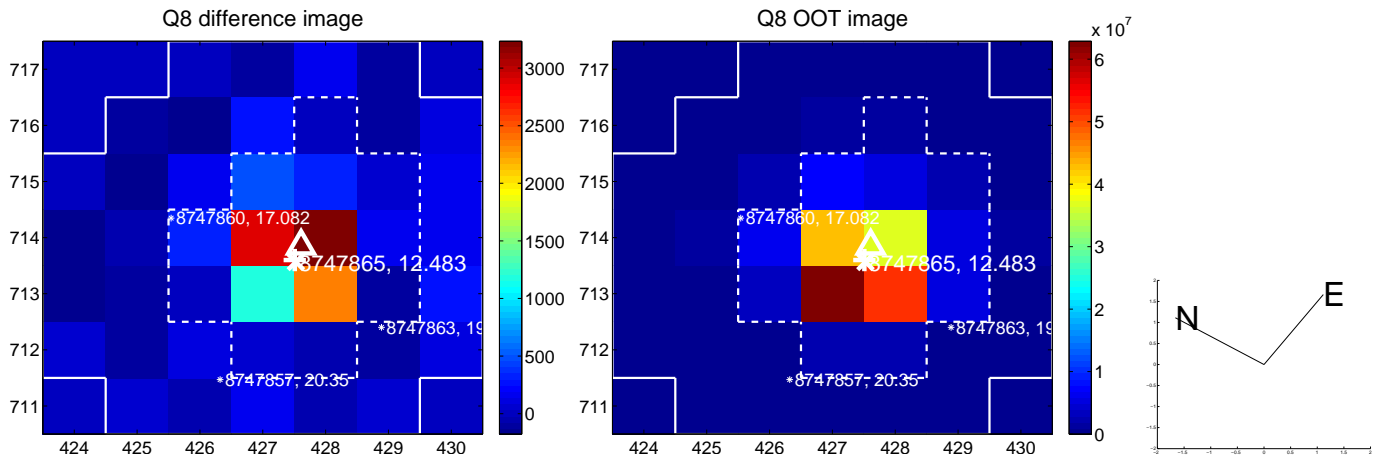
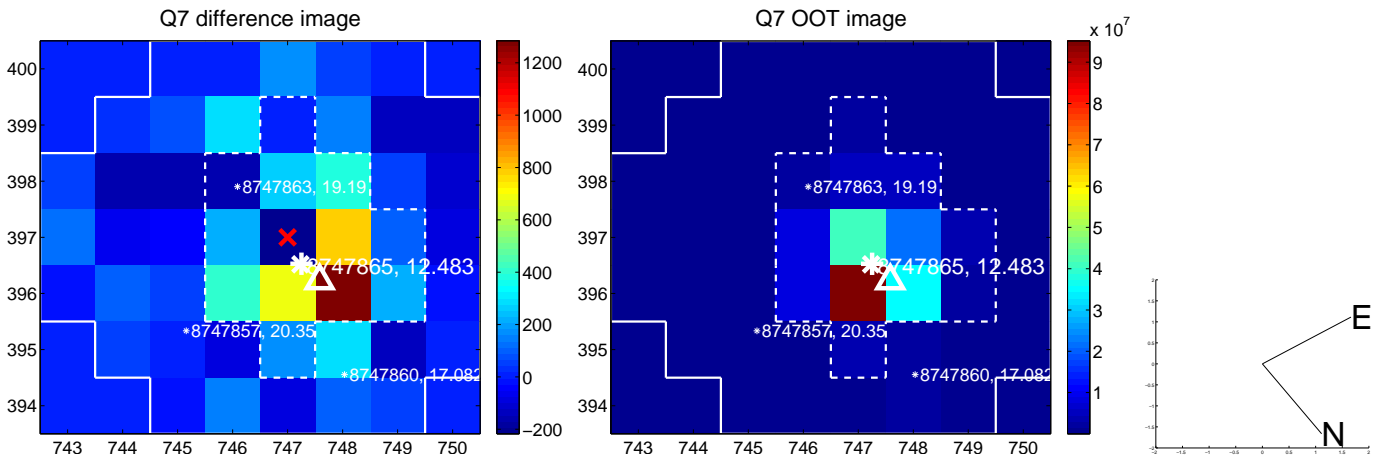
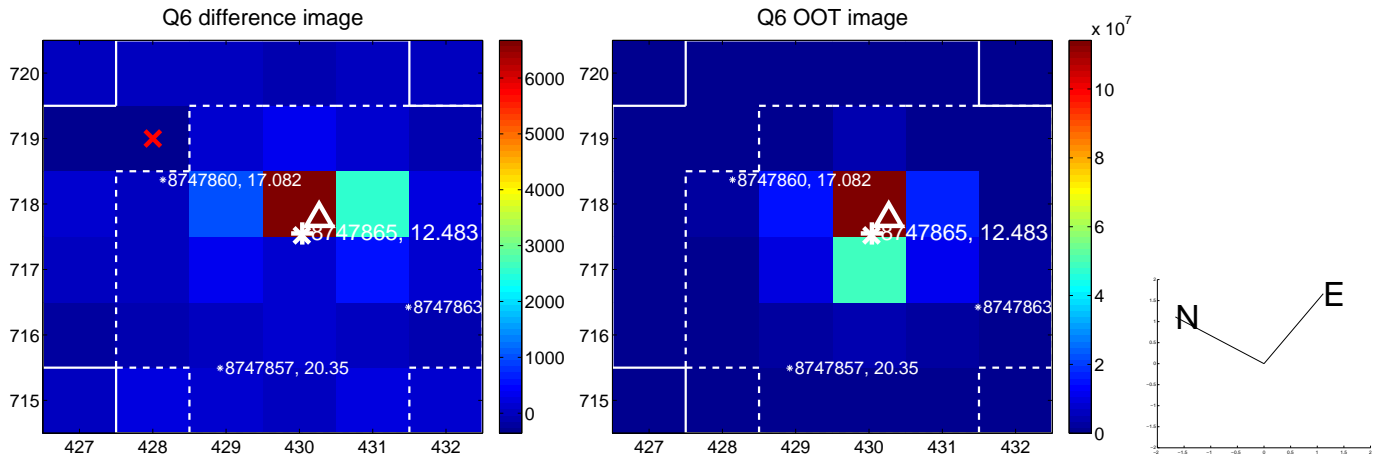
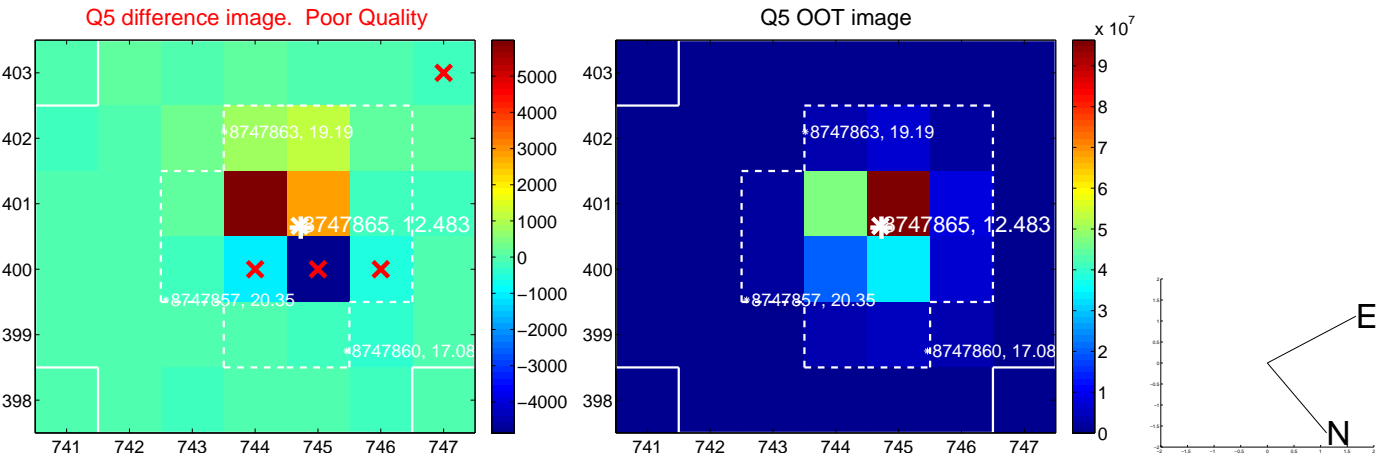


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

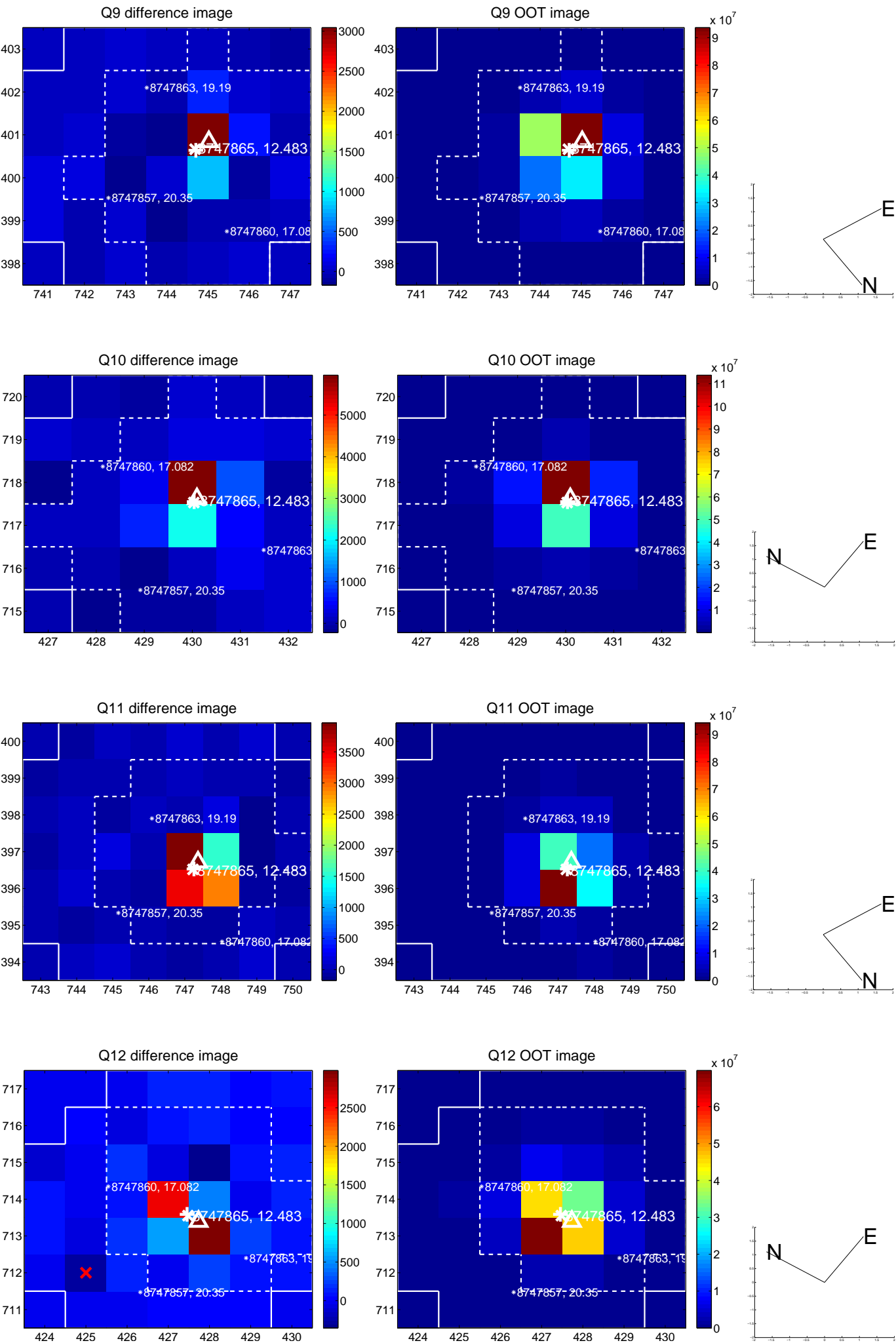
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



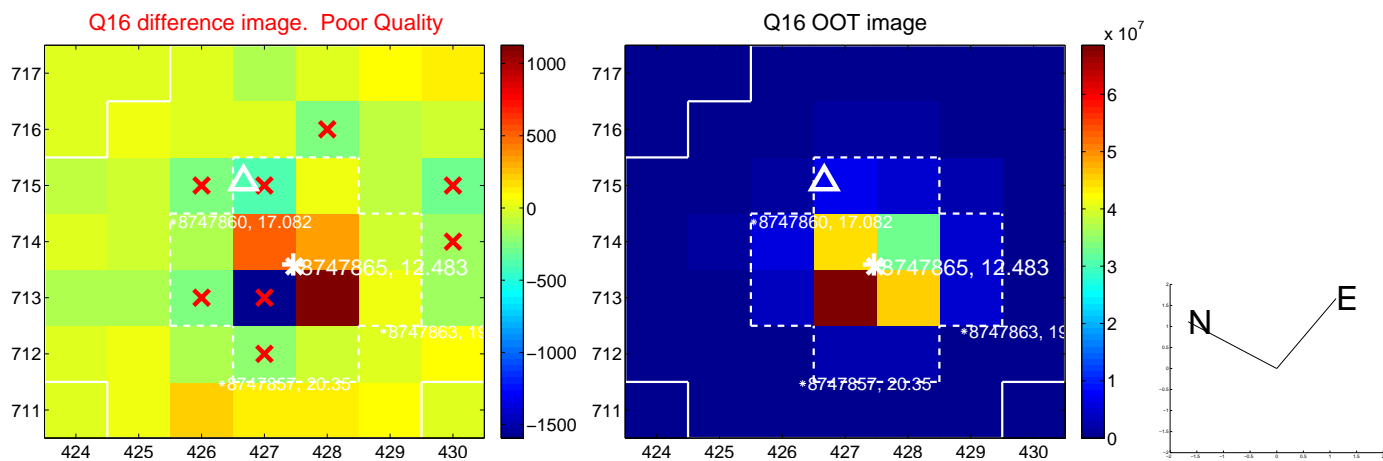
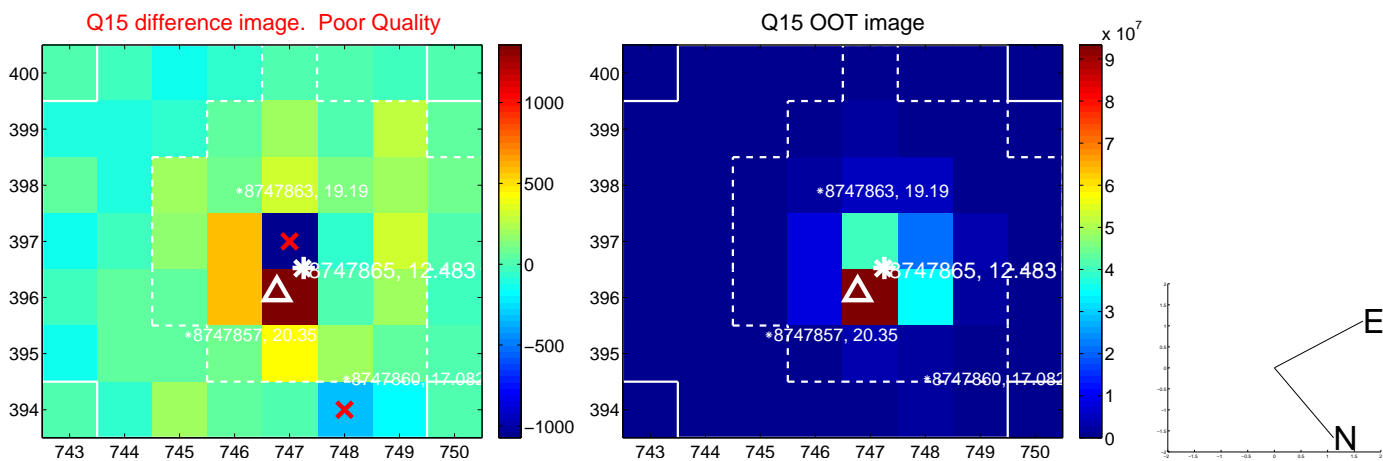
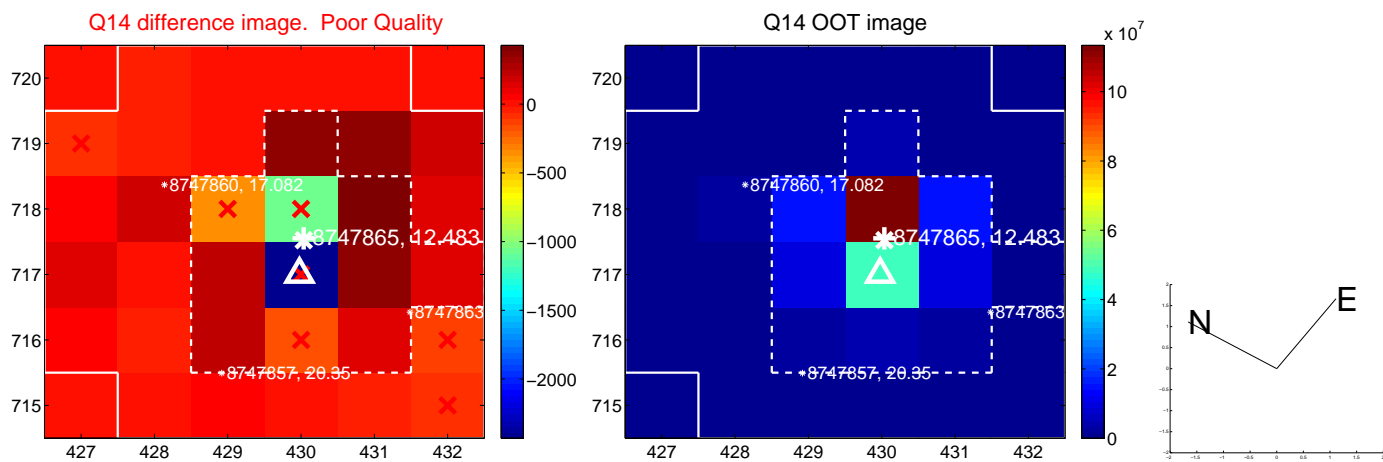
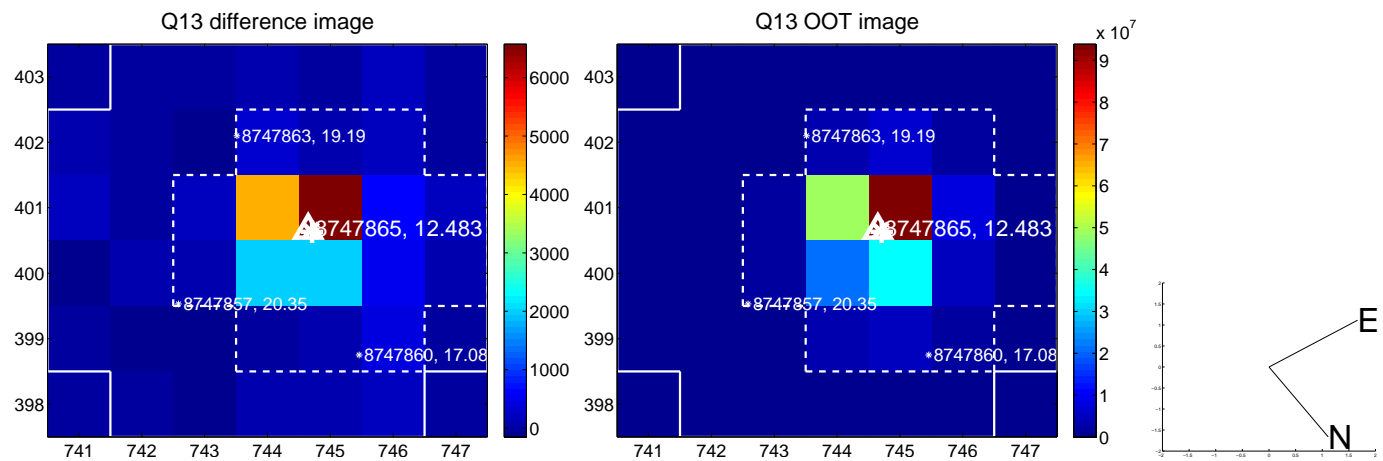
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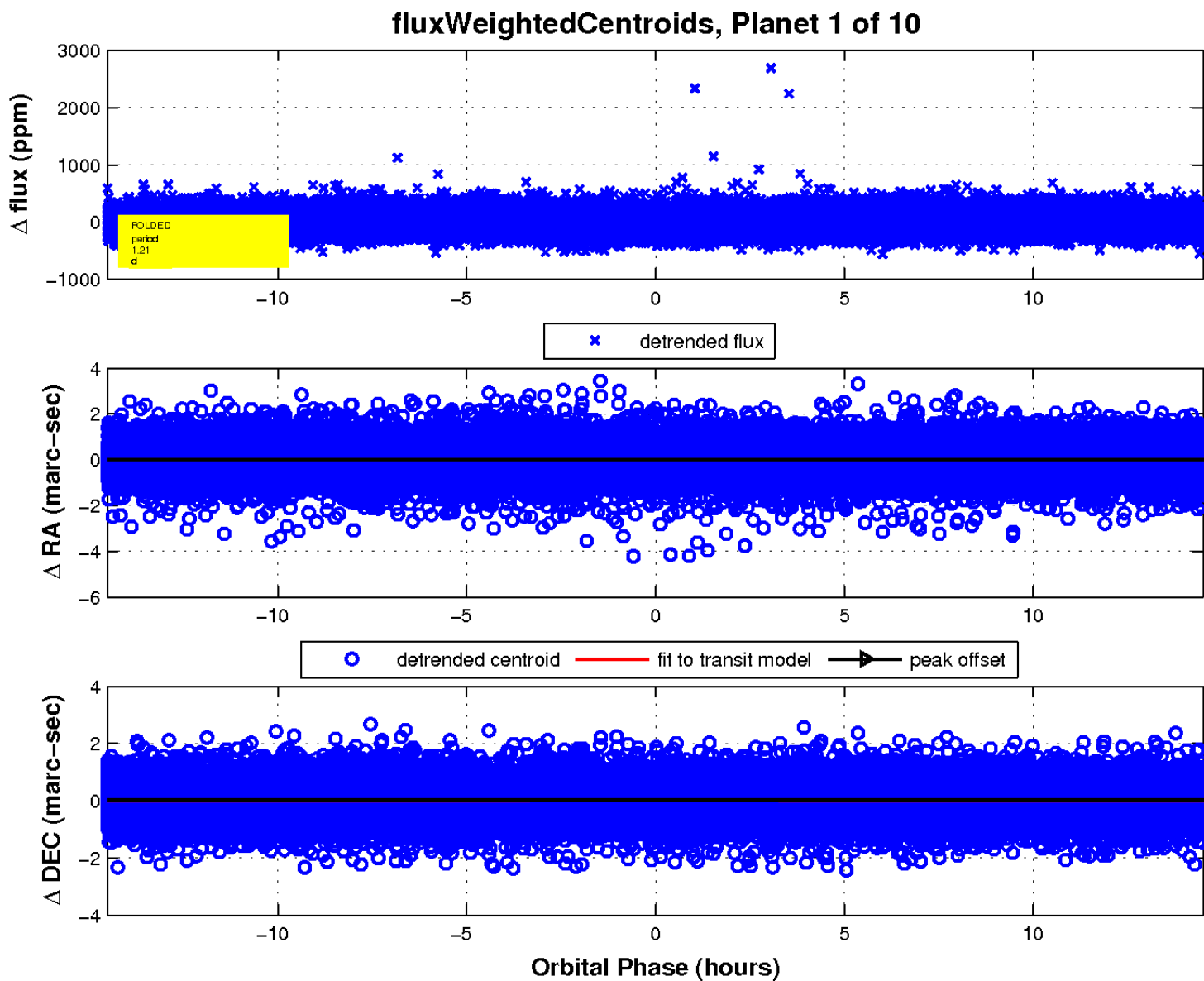
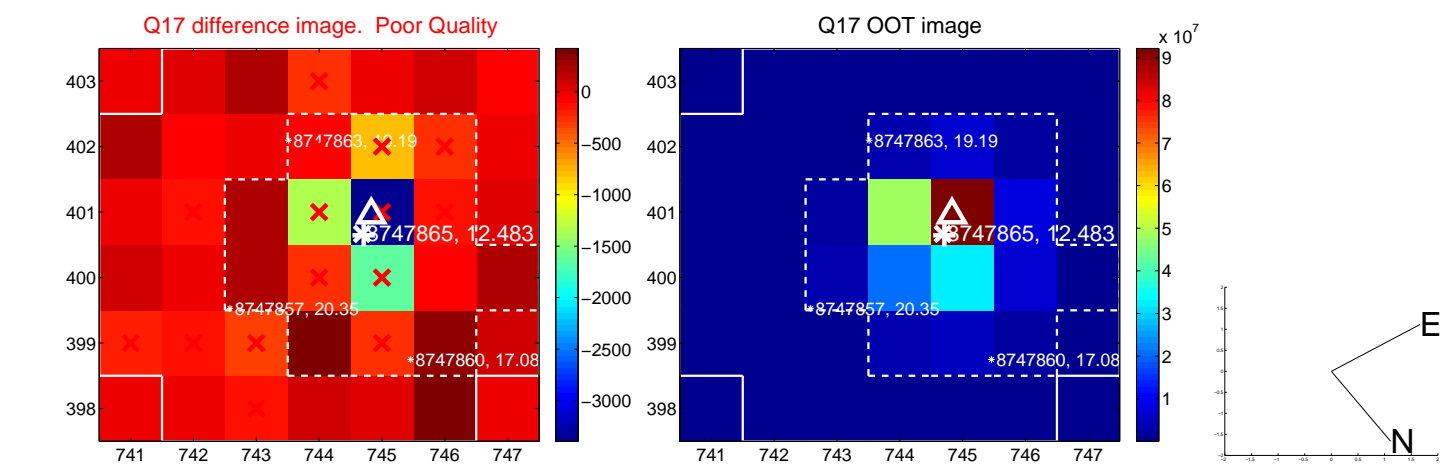
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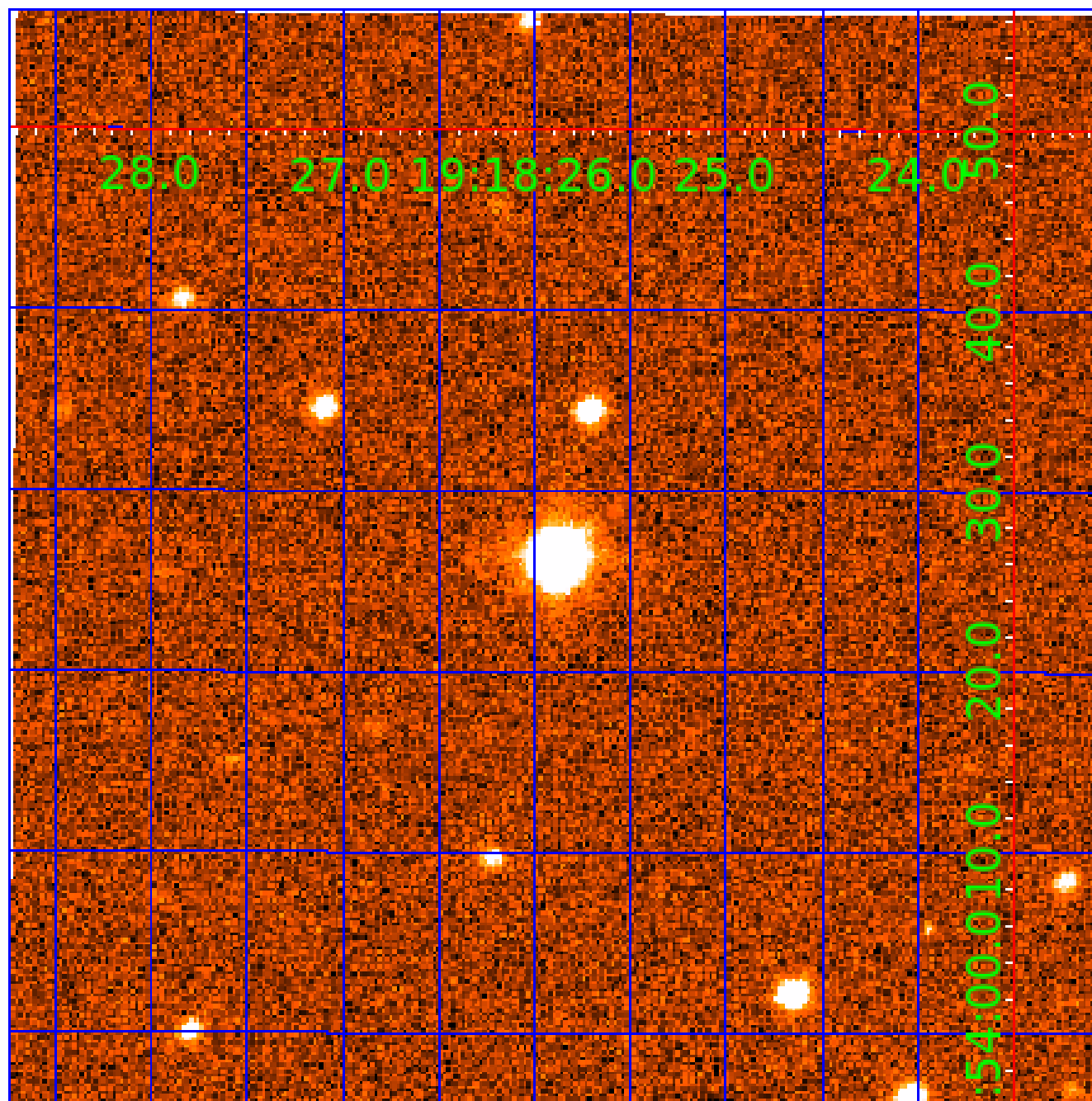


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UKIRT Image

Declination



KIC 008747865

Q1-17 DR25 TCE Parameters

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Robovetter Results

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008747865-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008747865-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
008747865-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008747865-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

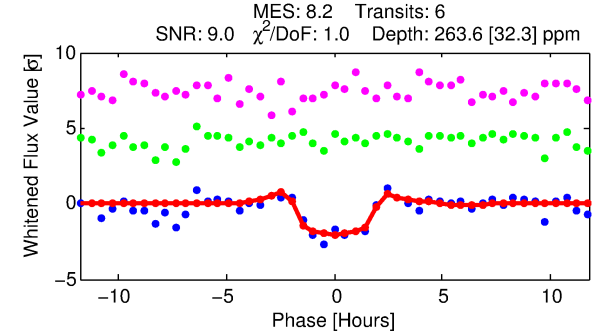
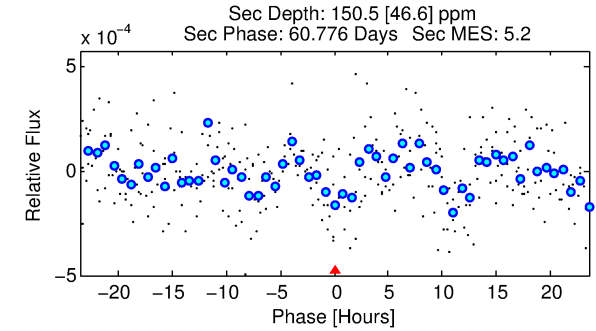
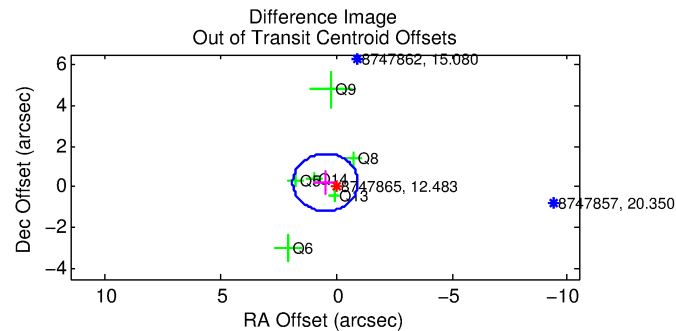
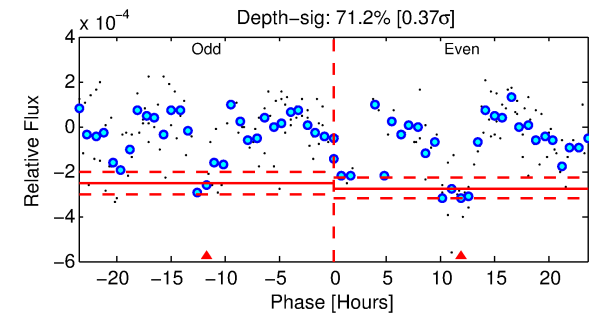
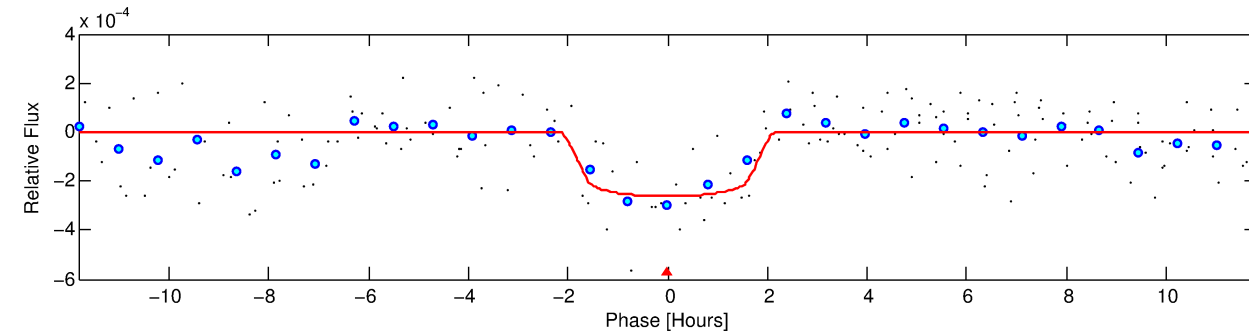
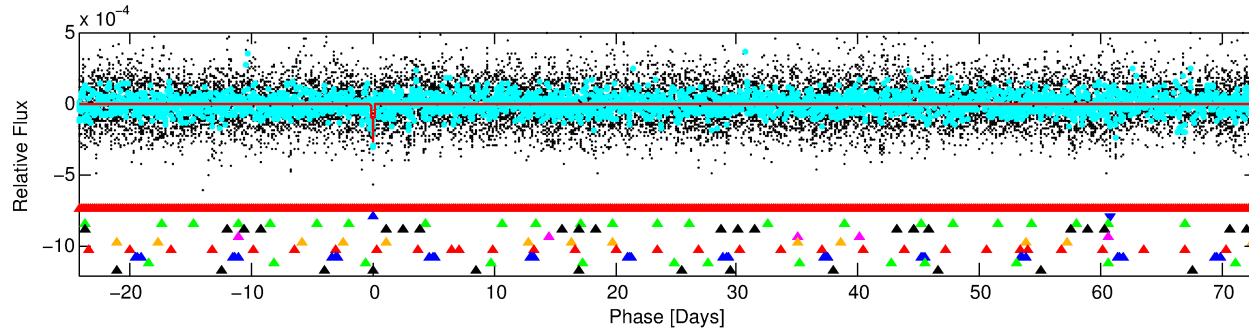
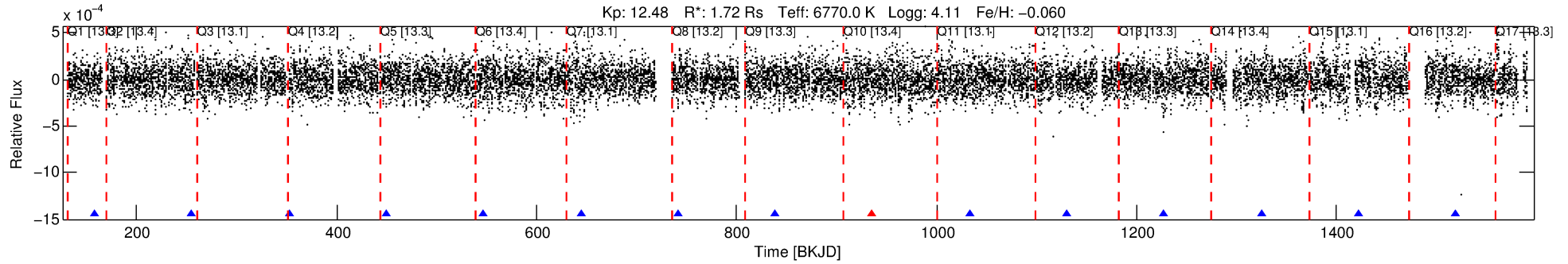
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008747865-02

No Significant Match Found

DV One-Page Summary

KIC: 8747865 Candidate: 2 of 10 Period: 97.198 d



DV Fit Results:

Period = 97.19827 [0.00083] d
Epoch = 158.3168 [0.0082] BKJD
Rp/R* = 0.0168 [0.0102]
a/R* = 104.51 [367.35]
b = 0.85 [1.13]
Seff = 25.91 [6.06]
Teff = 575 [34] K
Rp = 3.15 [1.97] Re
a = 0.4627 [0.0680] AU
Ag = 1786.03 [2270.36] [0.79σ]
Teffp = 5783 [1809] K [2.88σ]

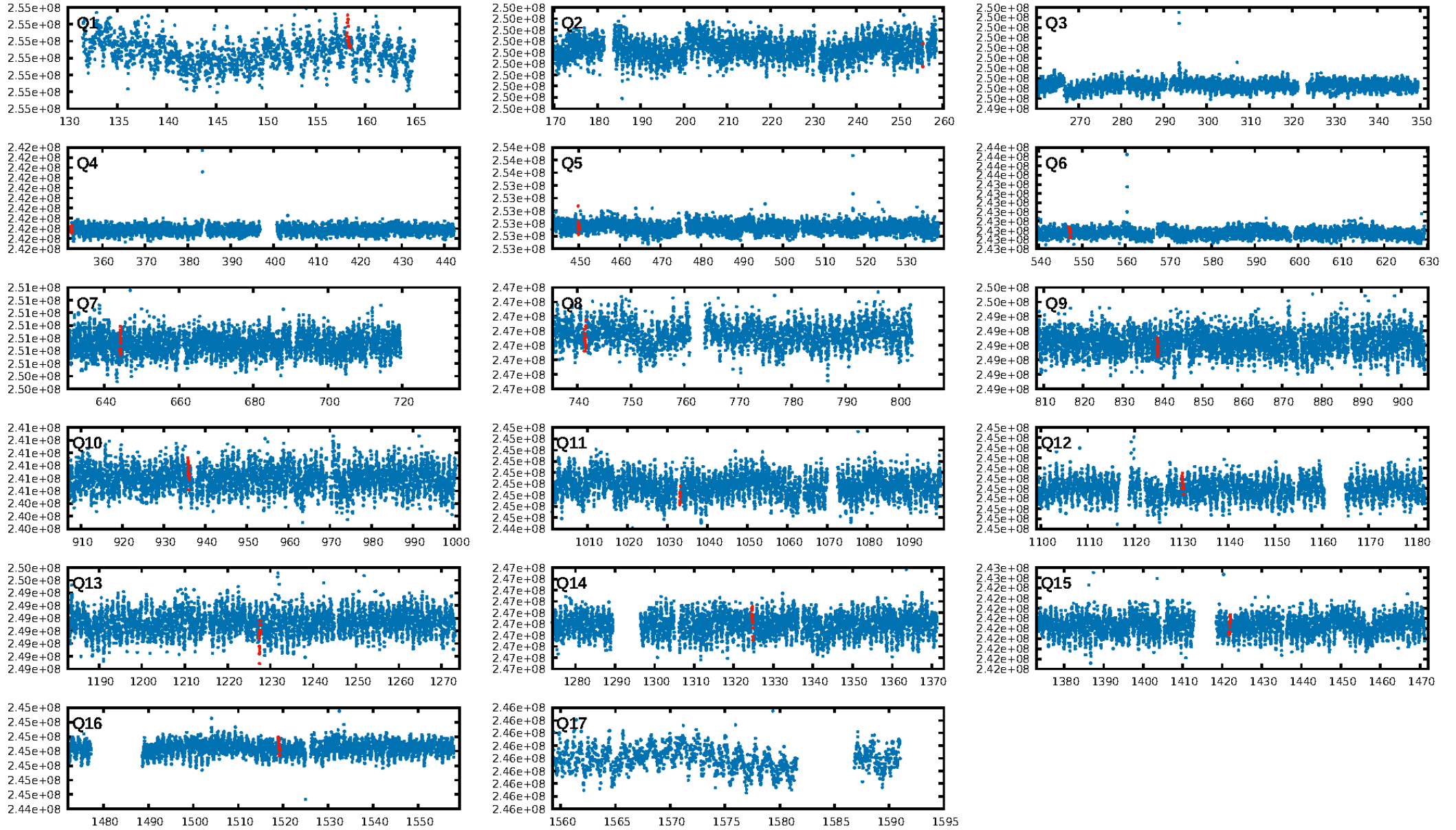
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [96.30σ]
LongPeriod-sig: 100.0% [68.50σ]
ModelChiSquare2-sig: 92.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.13e-08
RollingBand-fgt: 0.83 [5/6]
GhostDiagnostic-chr: -0.08579
Centroid-sig: 72.8%
Centroid-so: 0.067 arcsec [0.12σ]
OotOffset-rm: 0.526 arcsec [1.12σ]
OotOffset-st: 2/0/1/3 [6]
KicOffset-rm: 0.620 arcsec [1.28σ]
KicOffset-st: 2/0/1/3 [6]
DiffImageQuality-fgm: 0.67 [4/6]
DiffImageOverlap-fno: 0.10 [1/10]

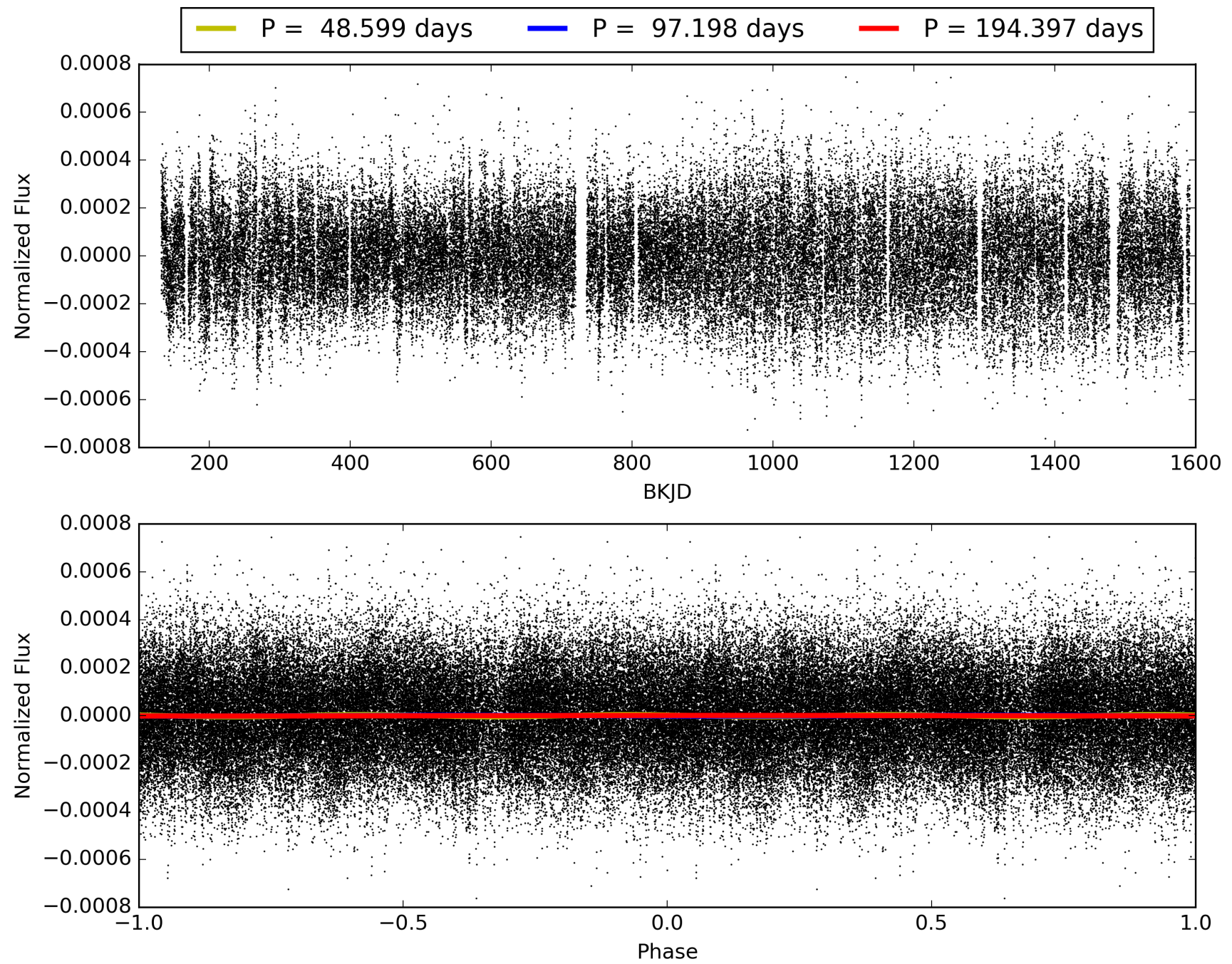
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:17:10 Z

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

TCE 008747865-02, PDC Light Curves

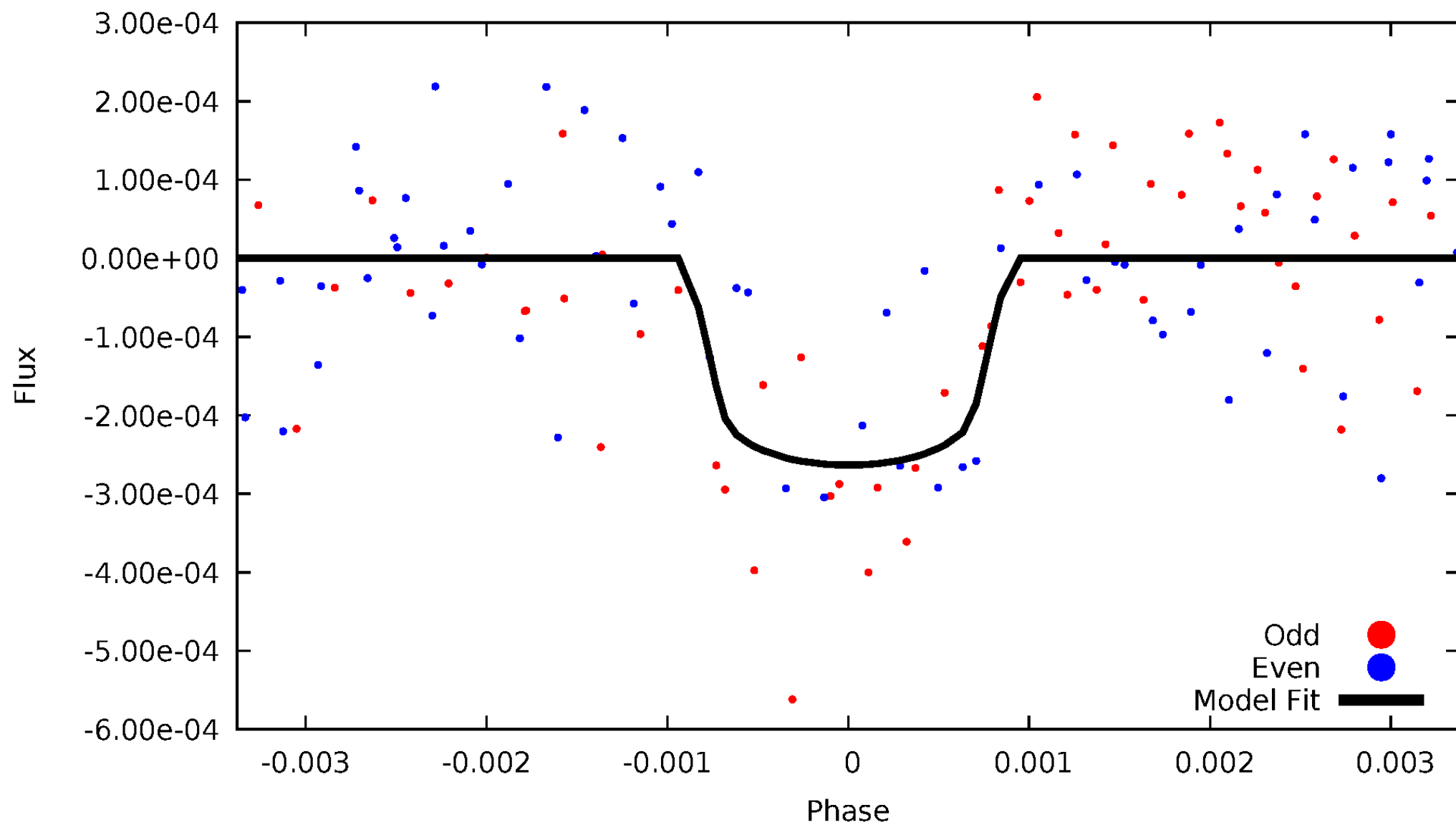


TCE 008747865-02



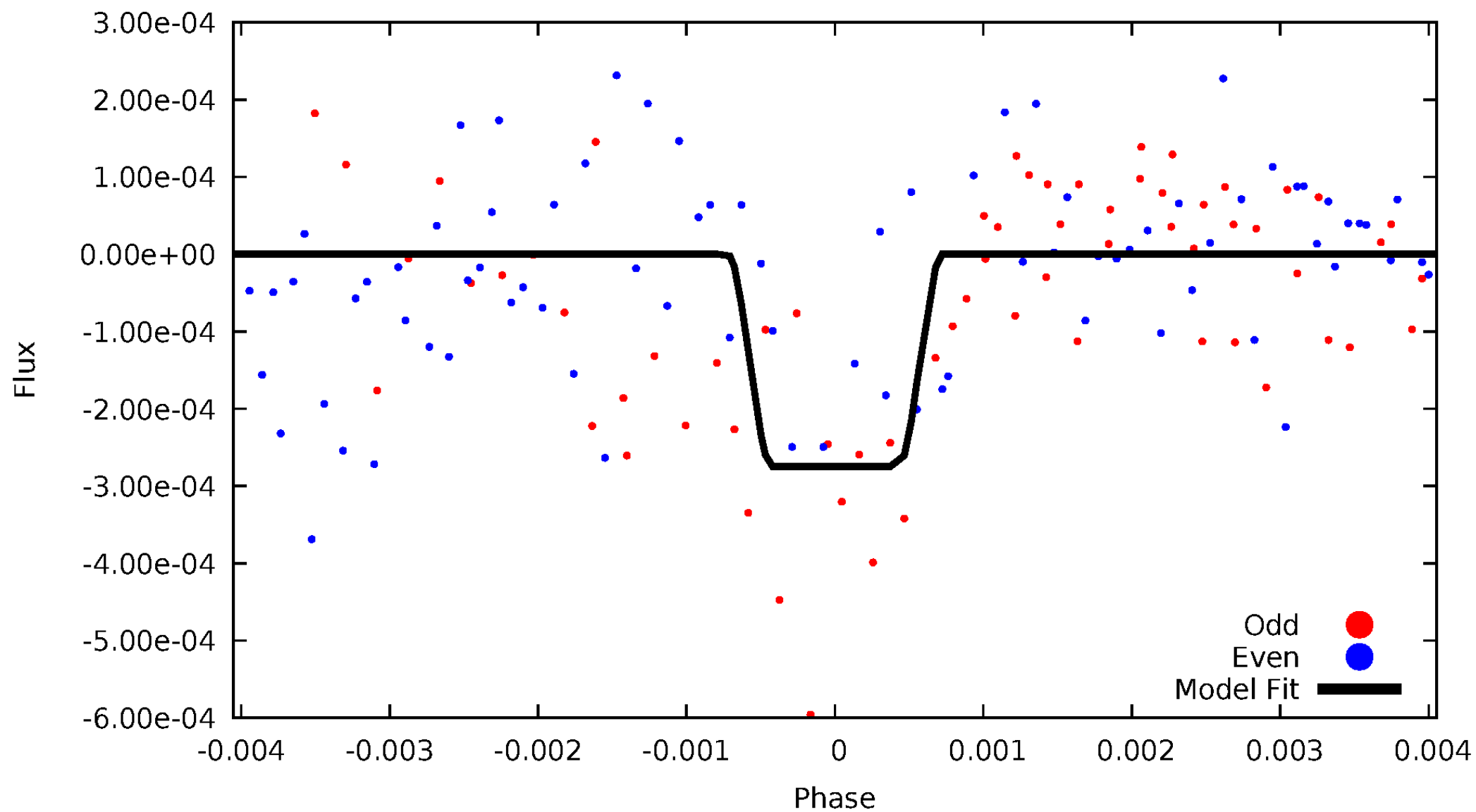
DV Odd/Even

TCE 008747865-02



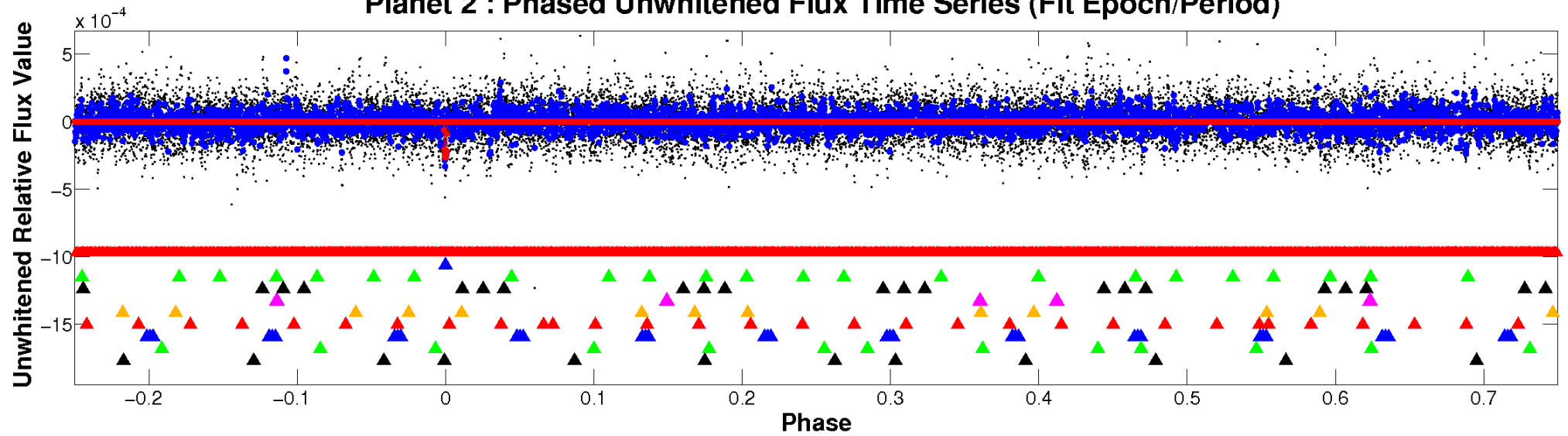
ALT Odd/Even

TCE 008747865-02

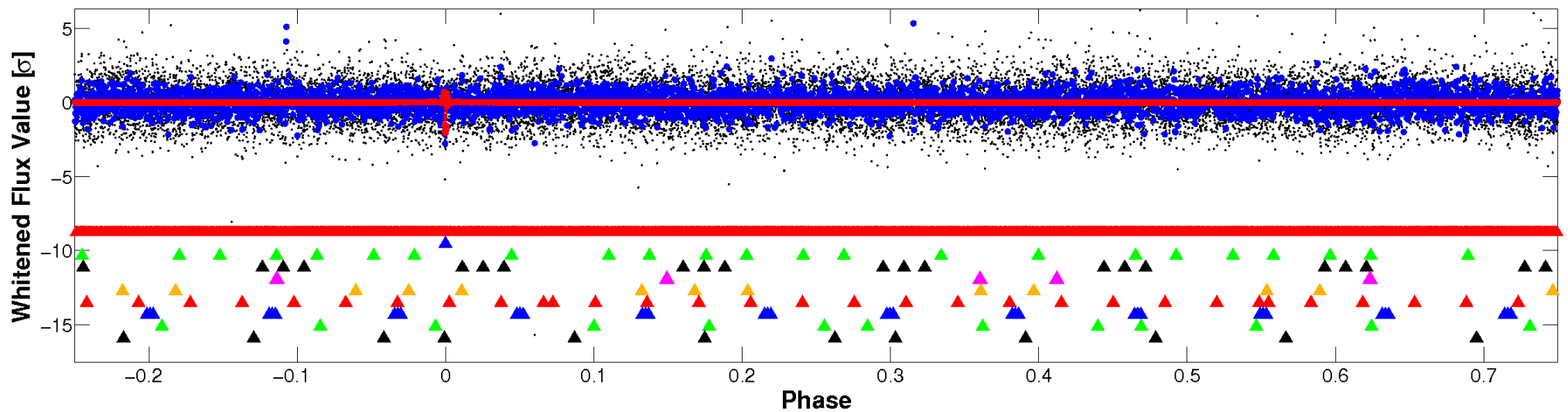


Non-Whitened Vs. Whitened Light Curve

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

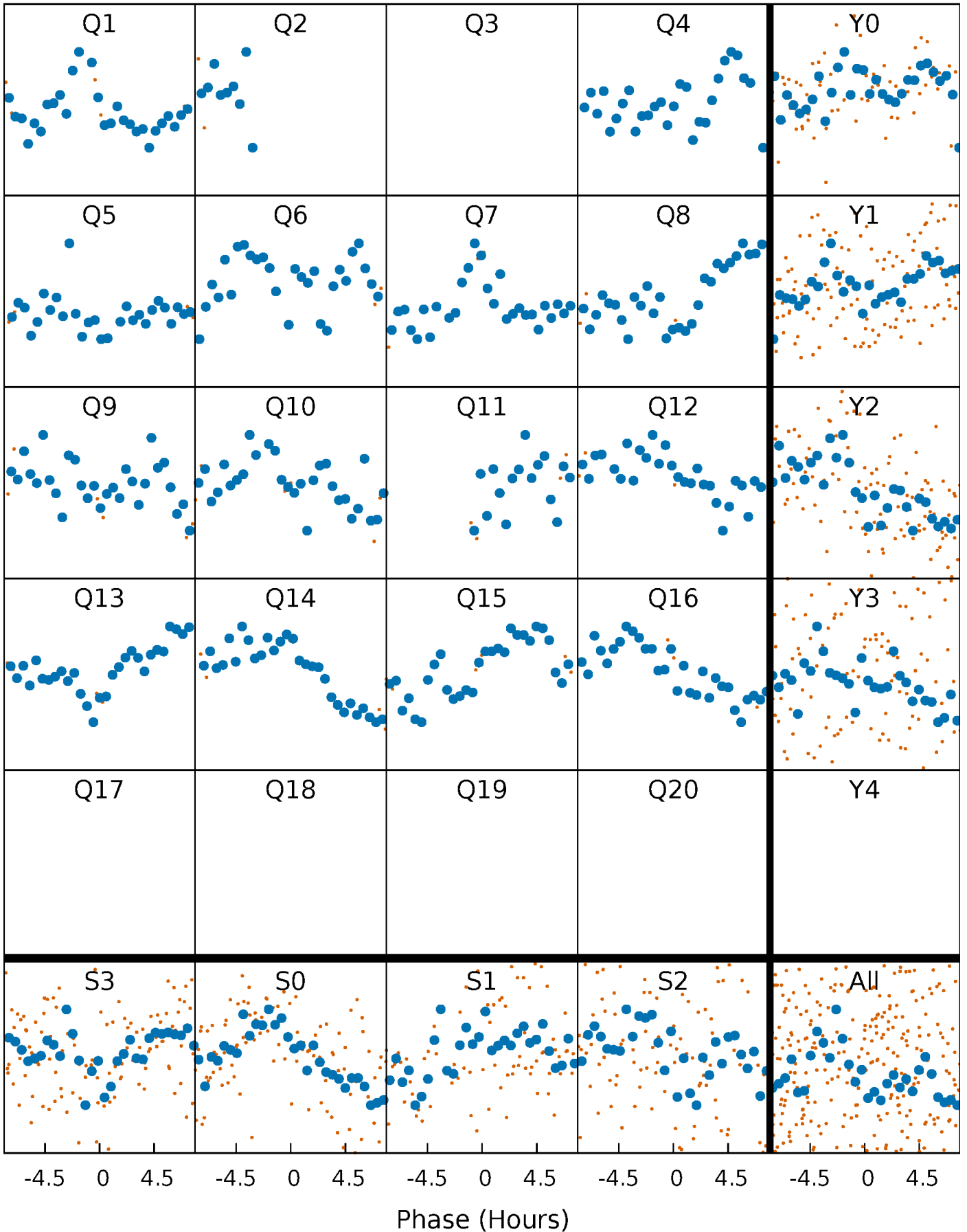


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



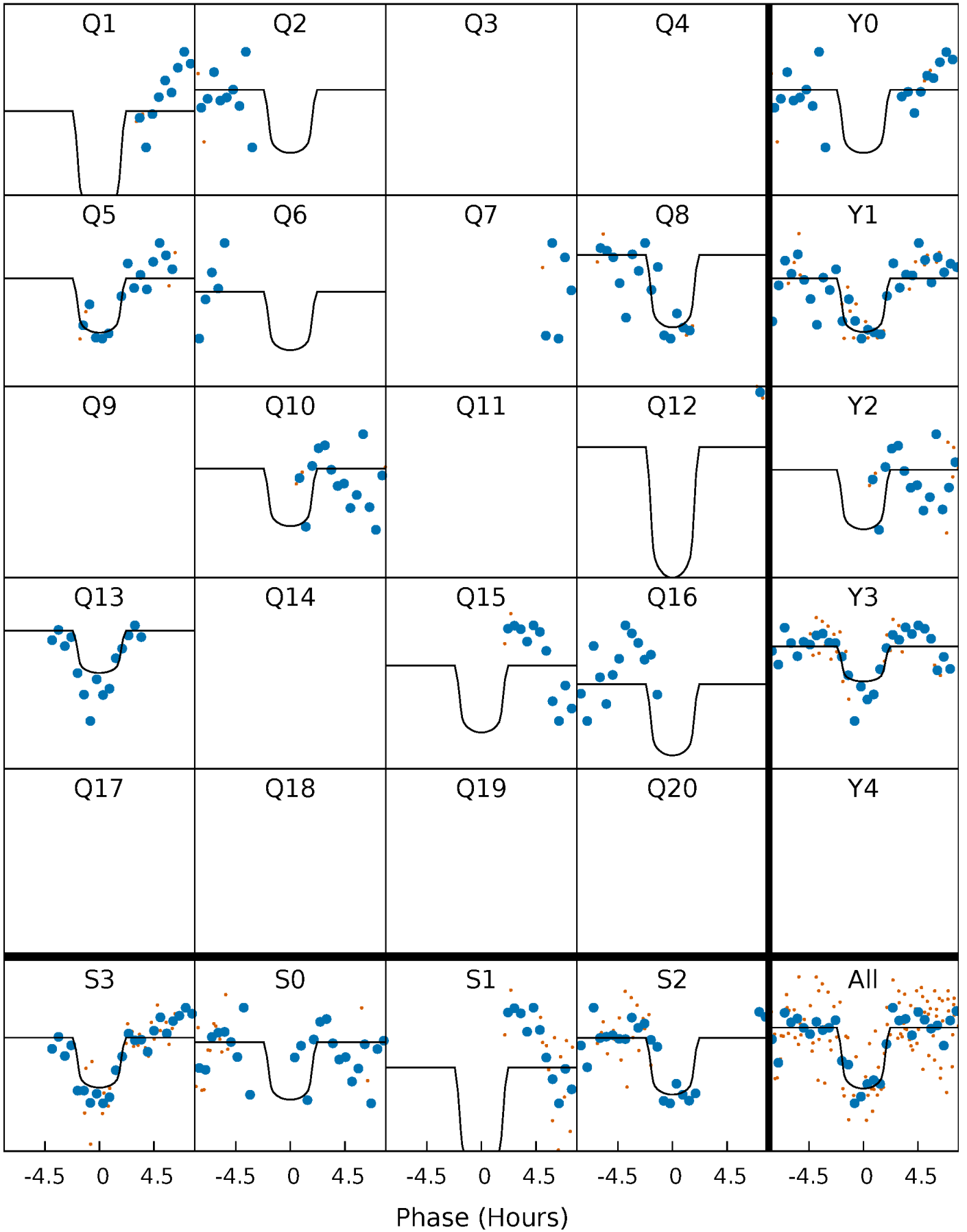
PDC Quarter-Phased Transit Curves

TCE 008747865-02 P= 97.198270 Days $T_0=158.316789$ (BKJD)



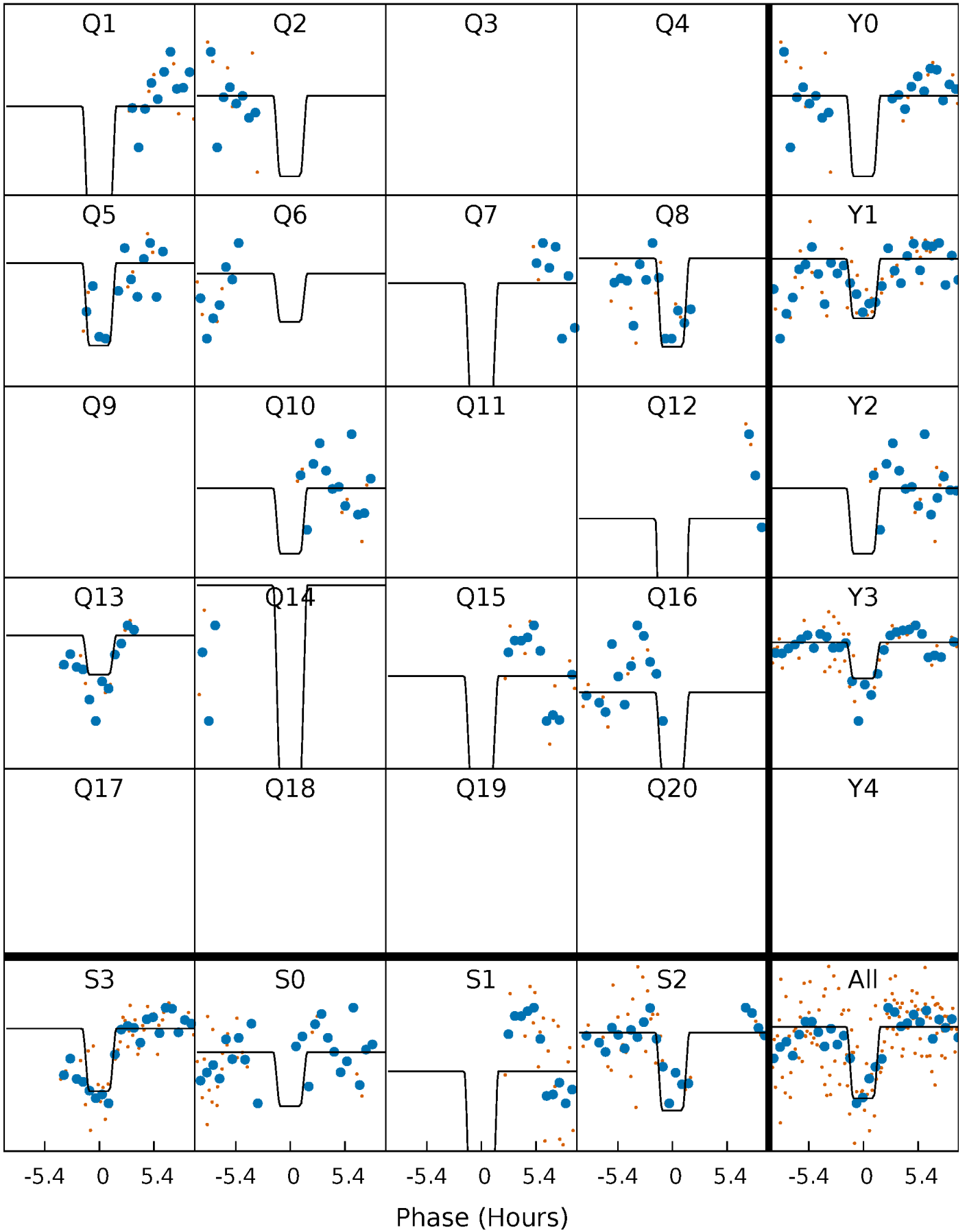
DV Quarter-Phased Transit Curves

TCE 008747865-02 P= 97.198270 Days $T_0=158.316789$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

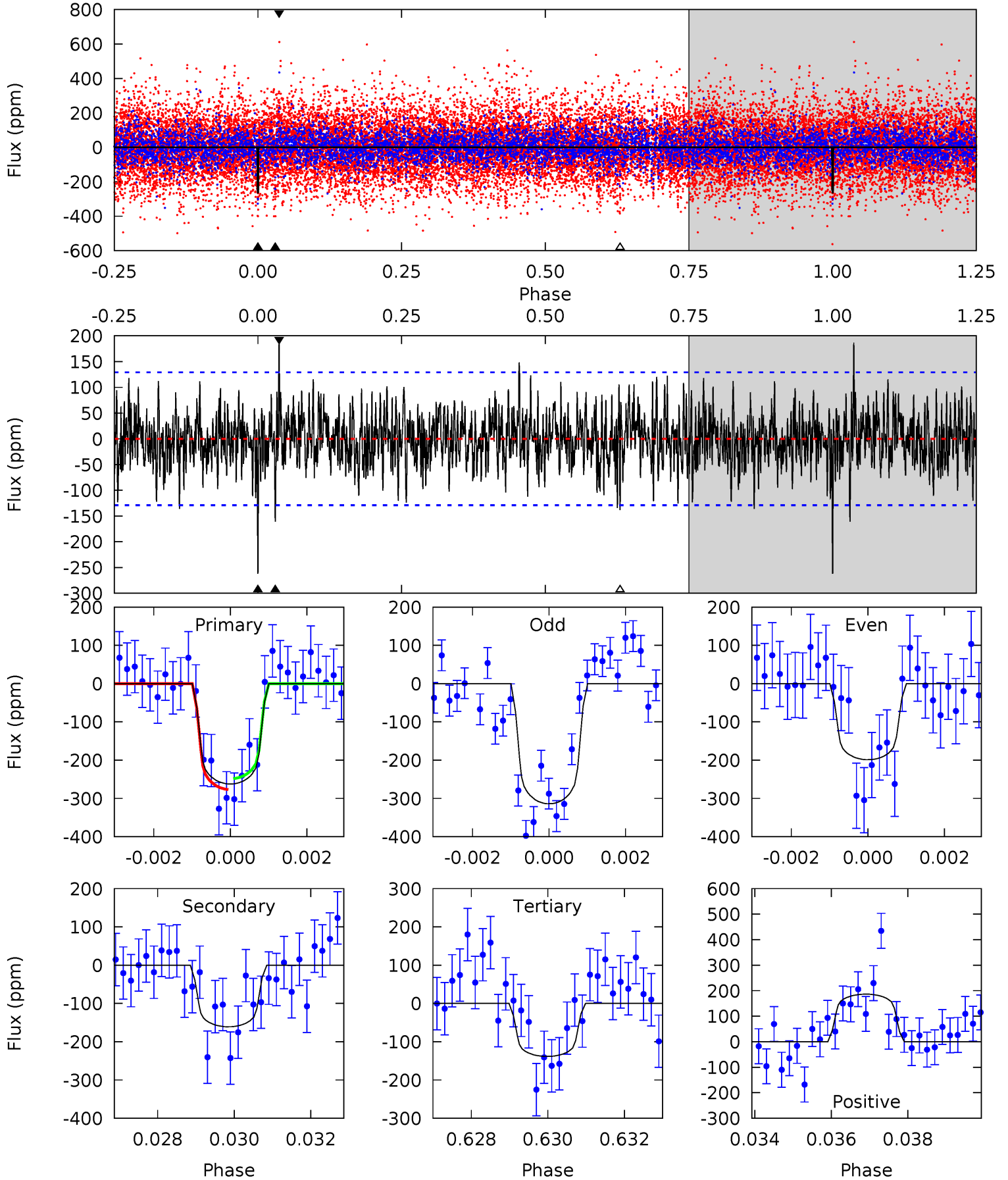
TCE 008747865-02 P= 97.196539 Days $T_0=158.321730$ (BKJD)



DV Model-Shift Uniqueness Test

008747865-02, P = 97.198270 Days, E = 61.118519 Days

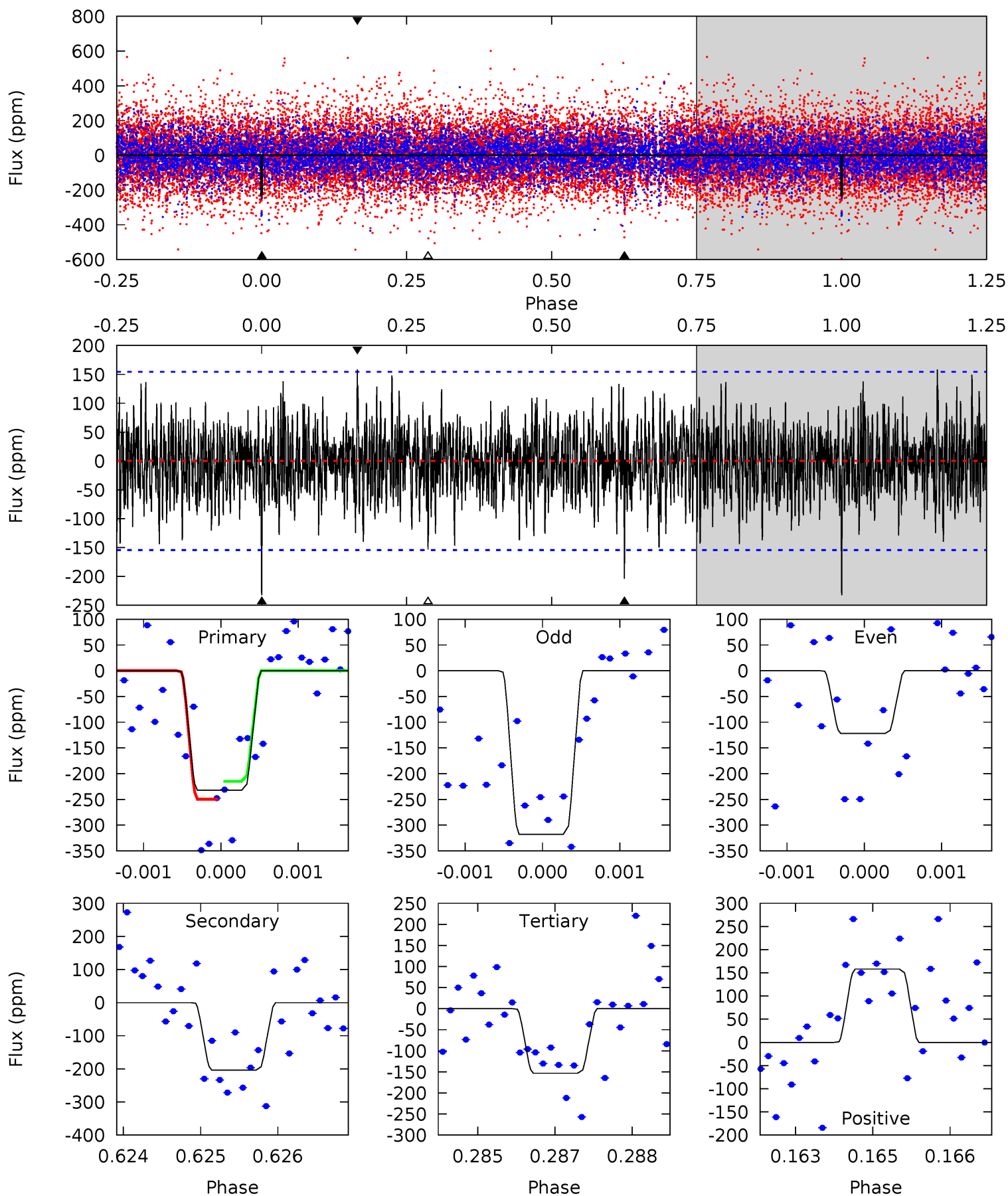
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	6.66	5.73	7.71	5.34	3.11	1.78	5.12	3.14	0.93	-1.05	2.38	0.81	0.42	0.59



Alt Model-Shift Uniqueness Test

008747865-02, P = 97.196539 Days, E = 61.125191 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.11	7.12	5.35	5.52	5.39	3.20	1.65	2.76	2.58	1.77	1.60	3.41	0.90	0.41	0.61



Stellar Parameters For KIC 008747865

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6770^{+81}_{-81}	$4.114^{+0.132}_{-0.108}$	$-0.060^{+0.150}_{-0.150}$	$1.717^{+0.274}_{-0.274}$	$1.405^{+0.109}_{-0.098}$	$0.391^{+0.240}_{-0.127}$
	+1%/-1%	+3%/-3%	+250%/-250%	+16%/-16%	+8%/-7%	+62%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 008747865-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-161 ± 24	$3.11^{+1.95}_{-1.77}$	805^{+32}_{-42}	5849^{+3808}_{-1090}	1967^{+8732}_{-1233}
Alt.	-204 ± 29	$3.41^{+2.01}_{-1.81}$	803^{+35}_{-37}	6012^{+3125}_{-1126}	2089^{+7107}_{-1263}

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 $A_{obs} \gg 1.0$

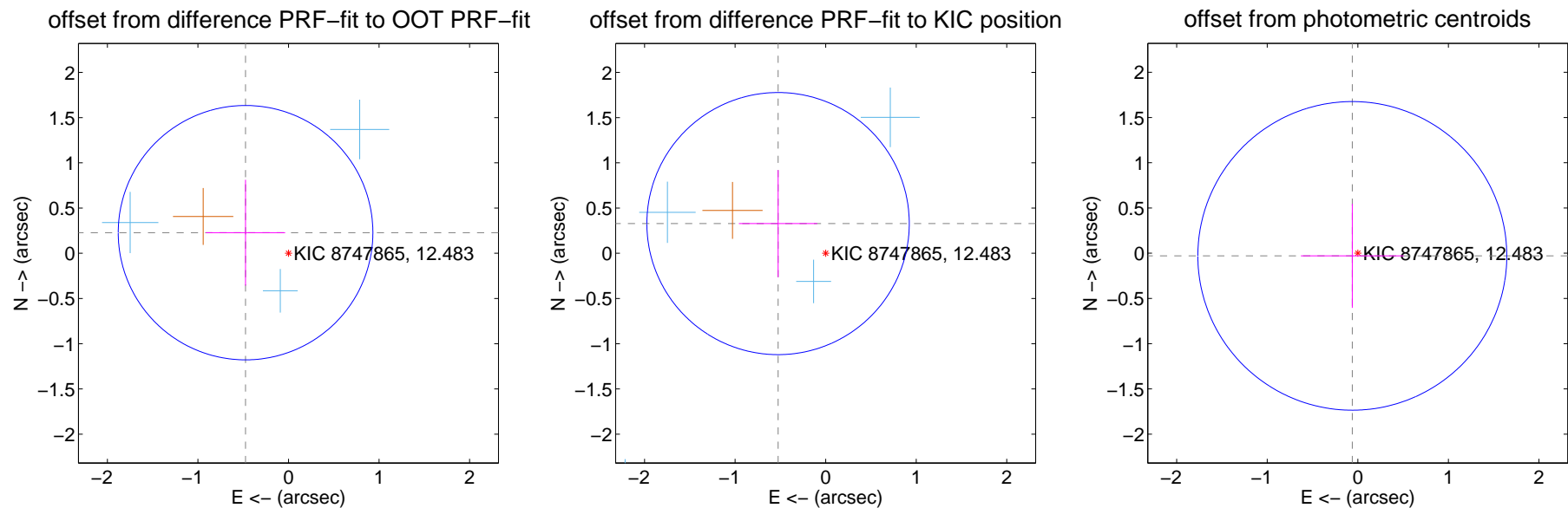
DV Centroid Data

Supplemental centroid analysis for 008747865-02. Kepler magnitude: 12.48. Transit SNR 9.03

There are 4 quarters with good PRF difference image offsets

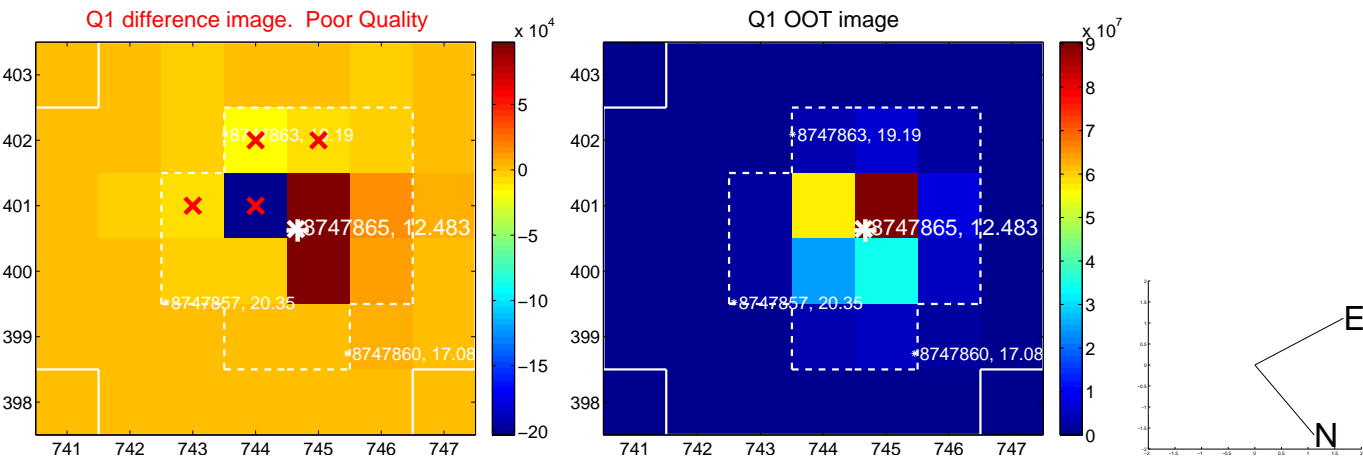
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.526 ± 0.469	1.12	0.474 ± 0.438	0.228 ± 0.585
PRF-fit source offset from KIC position	0.620 ± 0.483	1.28	0.526 ± 0.433	0.328 ± 0.592
photometric centroid source offset	0.07 ± 0.57	0.12	0.06 ± 0.57	-0.03 ± 0.57

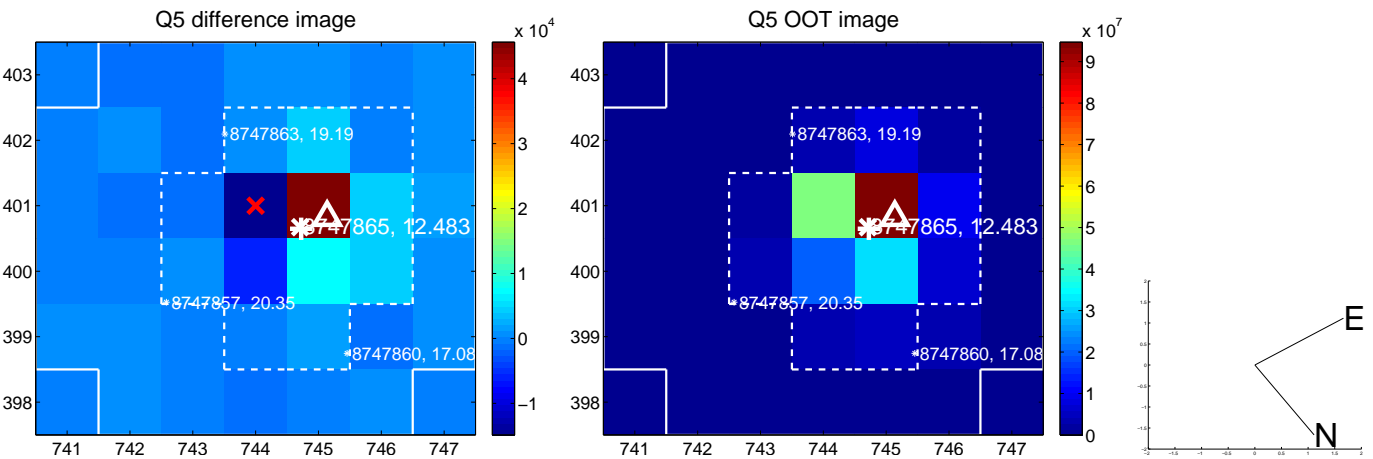


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

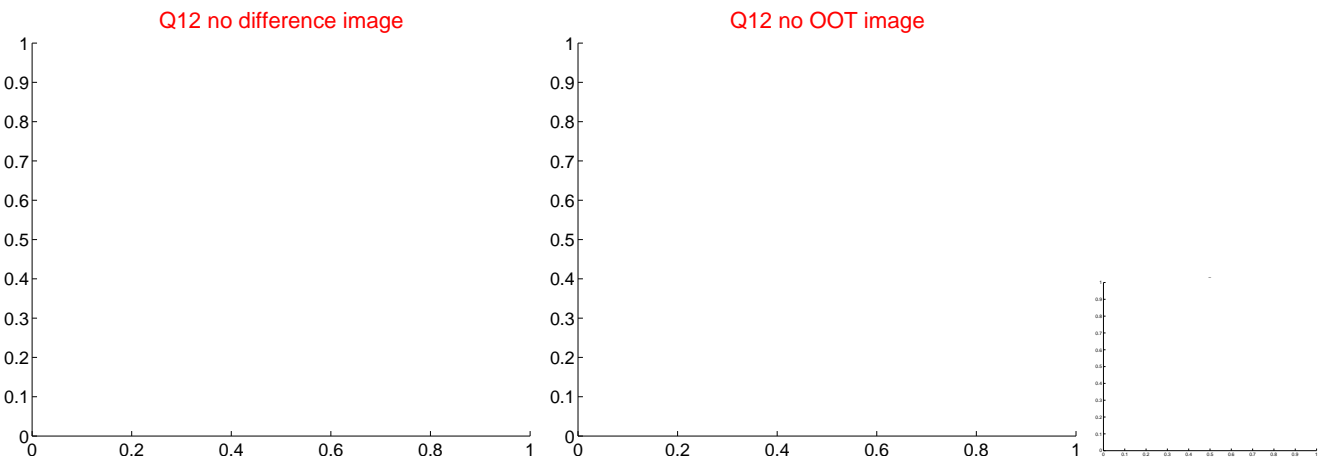
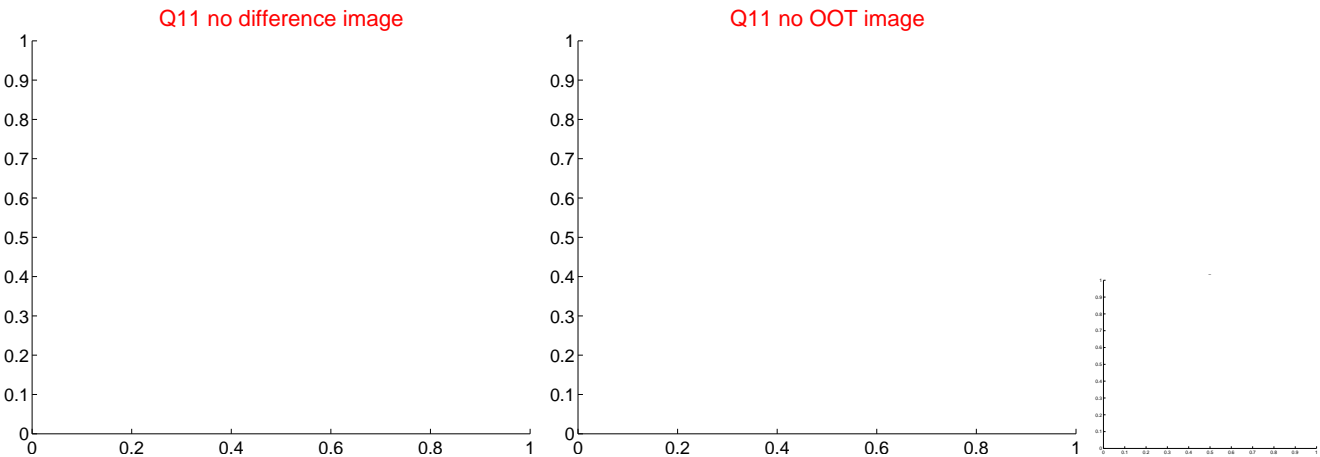
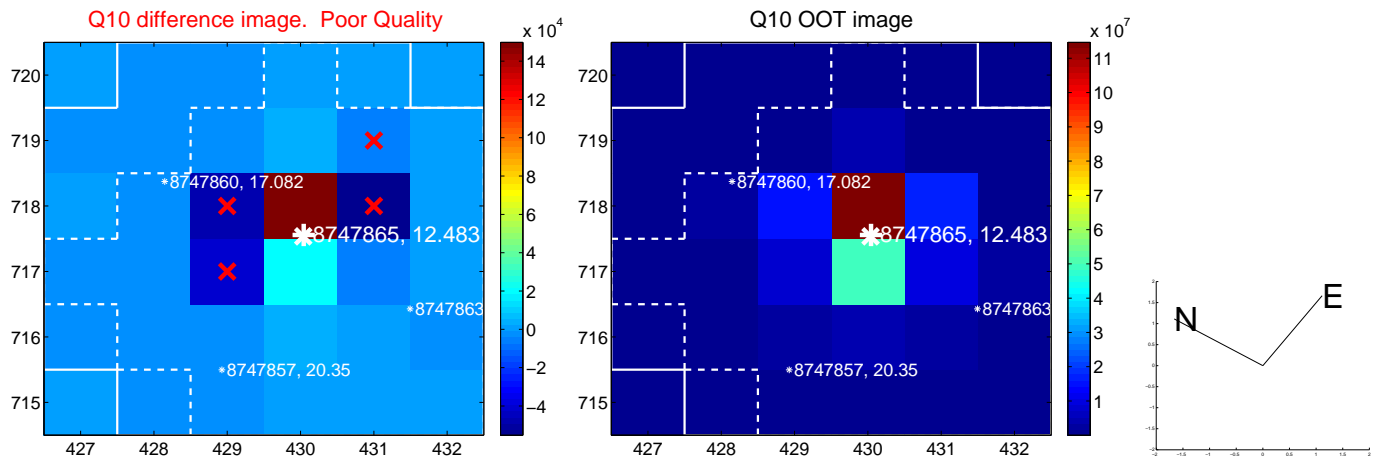
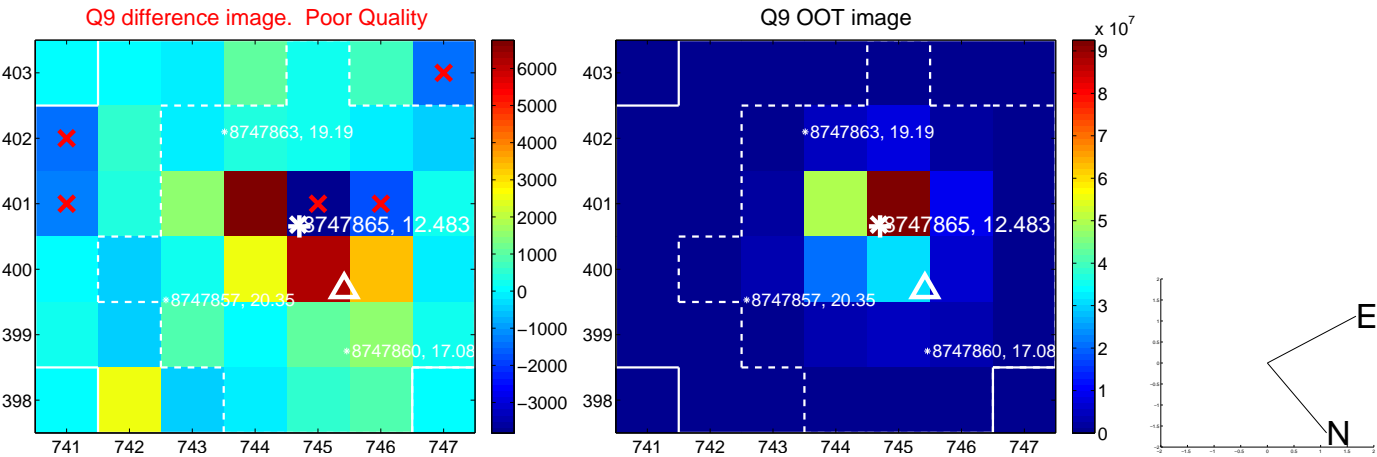
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



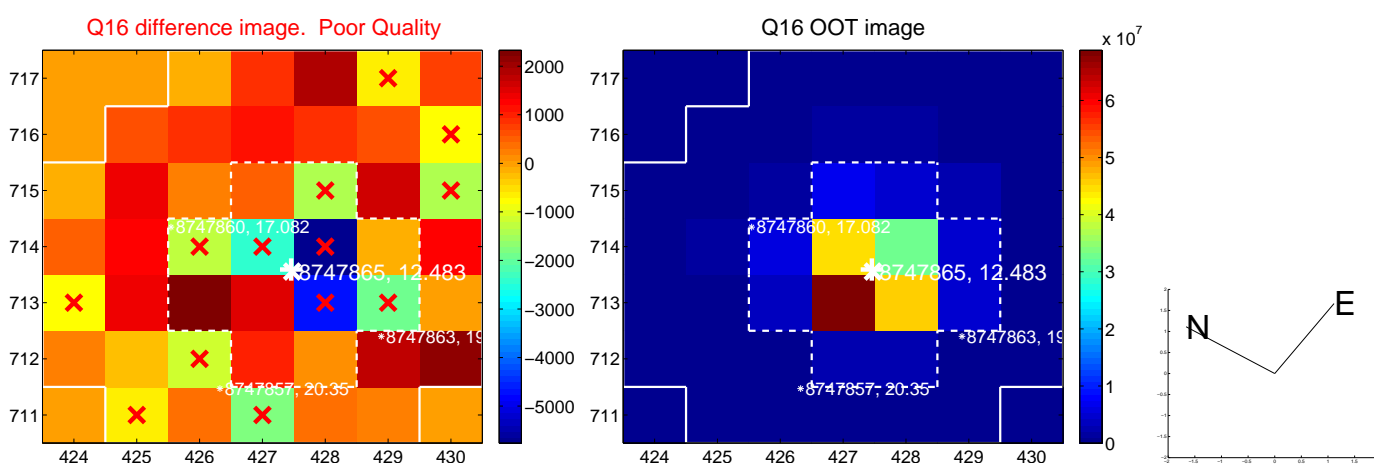
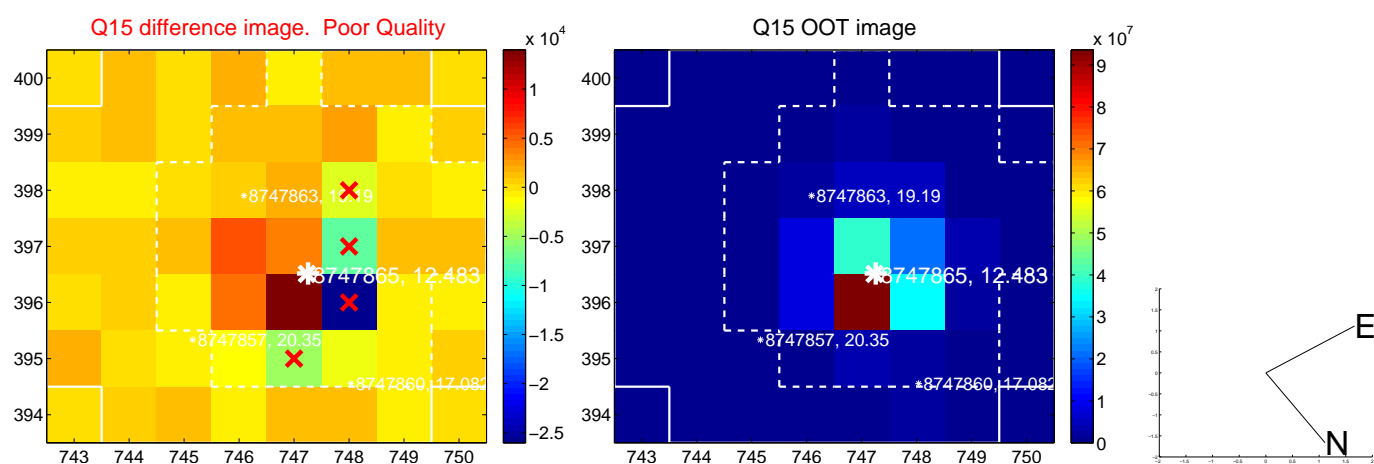
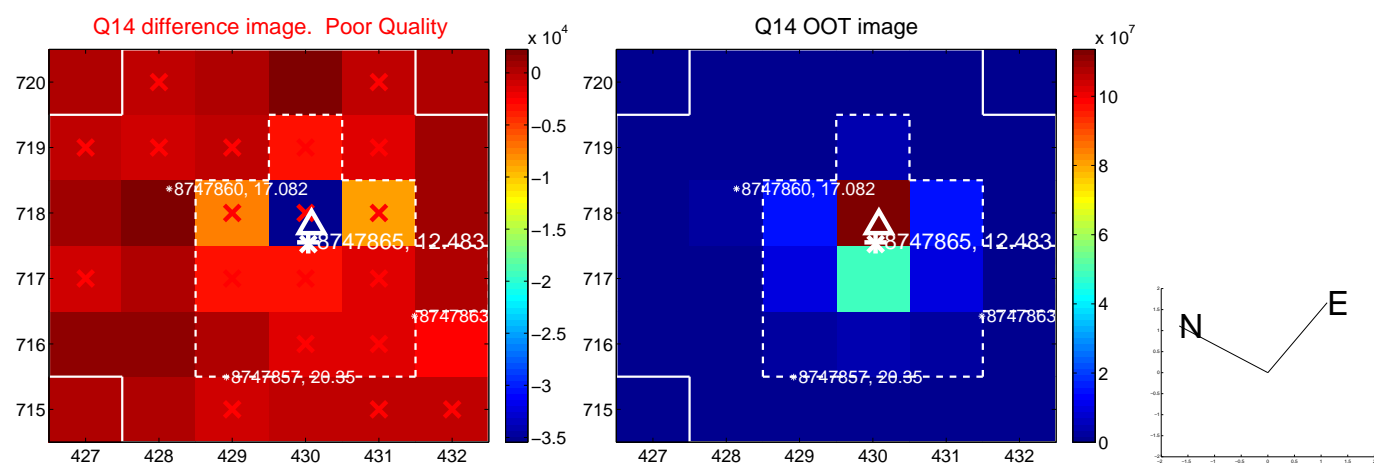
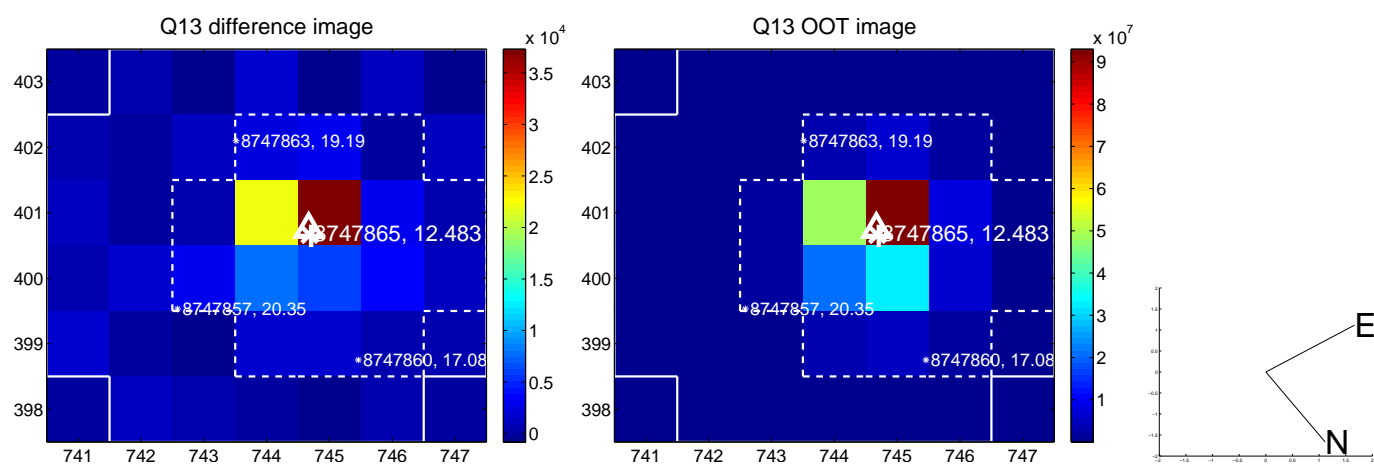
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



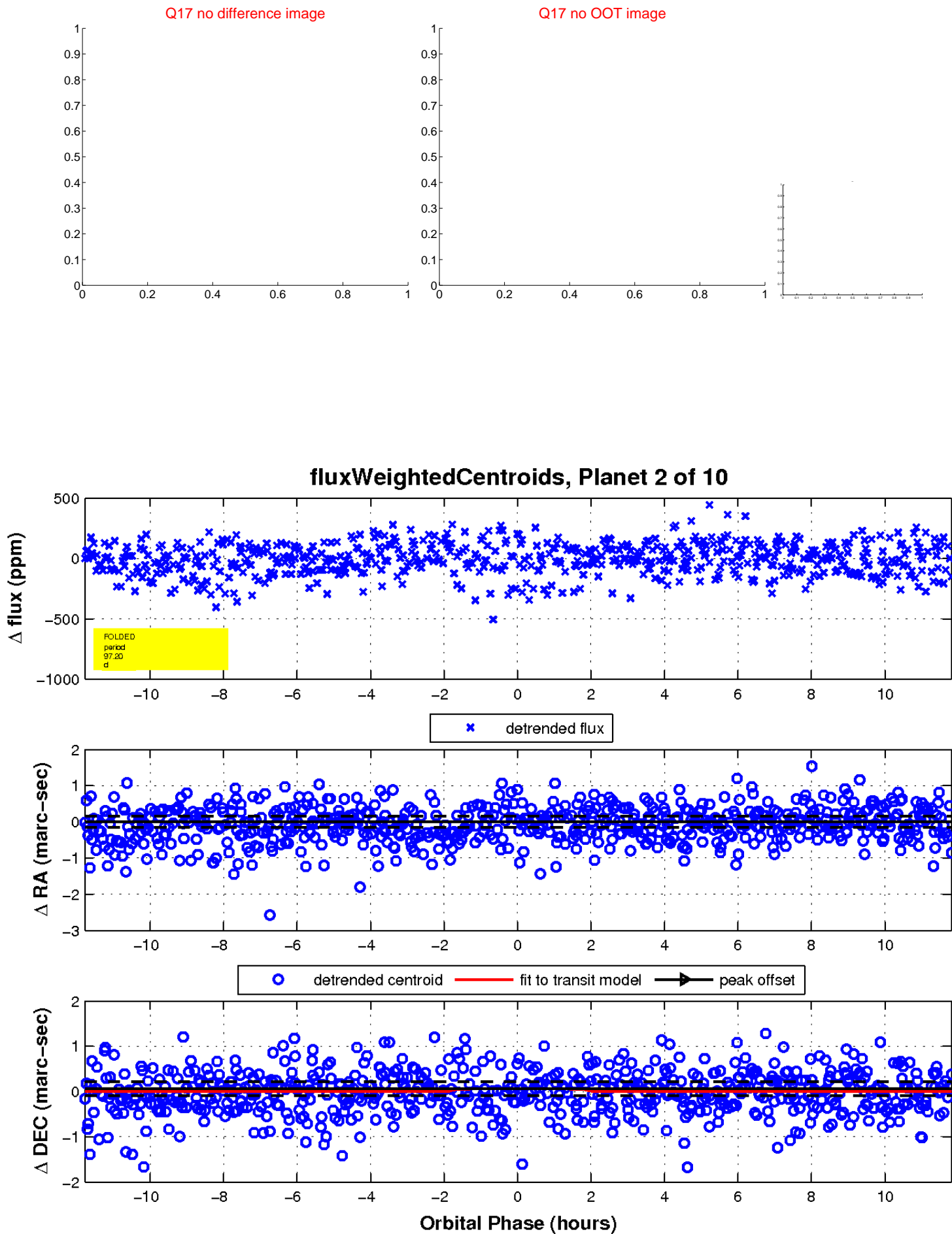
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

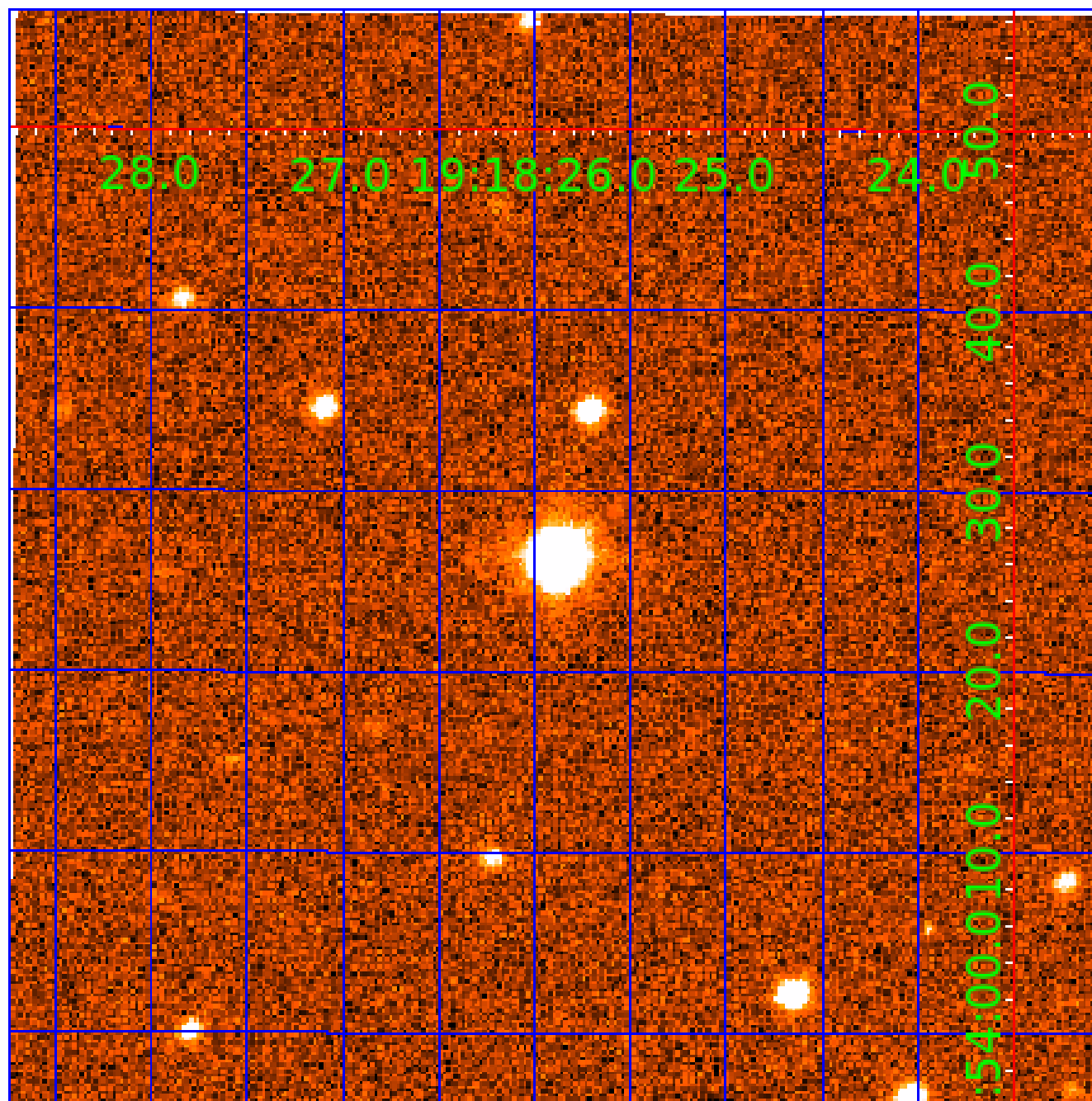


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008747865

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})
008747865-01	OBS	No	1.209131	132.607616	12.5	6.765	8.4	6.4	1.72	6770	0.64	8990.79
008747865-02	OBS	No	97.198270	158.316789	263.6	3.940	8.2	9.0	1.72	6770	3.15	25.91
008747865-04	OBS	No	69.622216	186.999204	143.5	5.632	8.4	6.8	1.72	6770	2.21	40.44
008747865-05	OBS	No	266.037473	392.777979	198.4	21.247	8.2	7.6	1.72	6770	2.75	6.77
008747865-06	OBS	No	115.943719	140.631570	236.8	2.837	8.0	8.3	1.72	6770	2.96	20.48
008747865-07	OBS	No	46.902202	165.353757	175.3	2.299	8.1	7.6	1.72	6770	2.58	68.47
008747865-08	OBS	No	40.482062	171.627250	113.5	9.685	7.2	8.2	1.72	6770	1.98	83.32
008747865-09	OBS	No	115.128340	183.140863	287.1	4.893	7.5	9.6	1.72	6770	4.52	20.68
008747865-10	OBS	No	126.754341	154.280346	261.3	3.501	8.0	8.4	1.72	6770	3.08	18.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008747865-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008747865-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008747865-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
008747865-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008747865-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

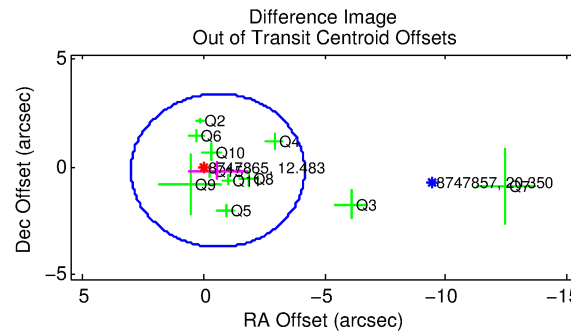
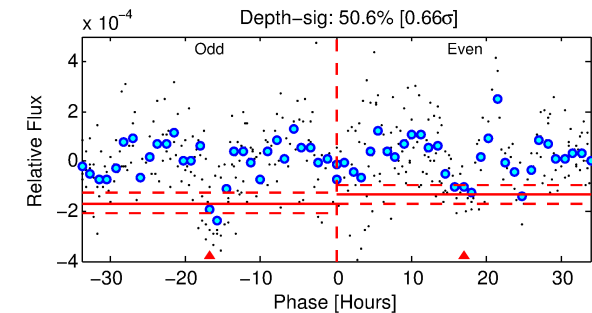
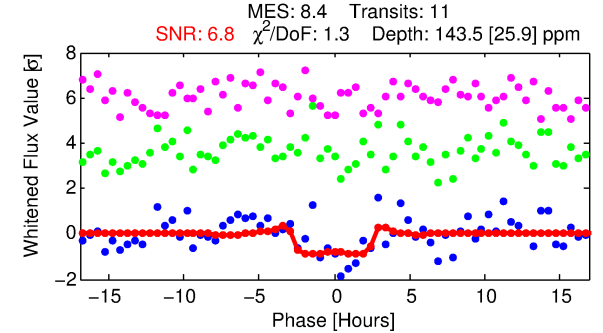
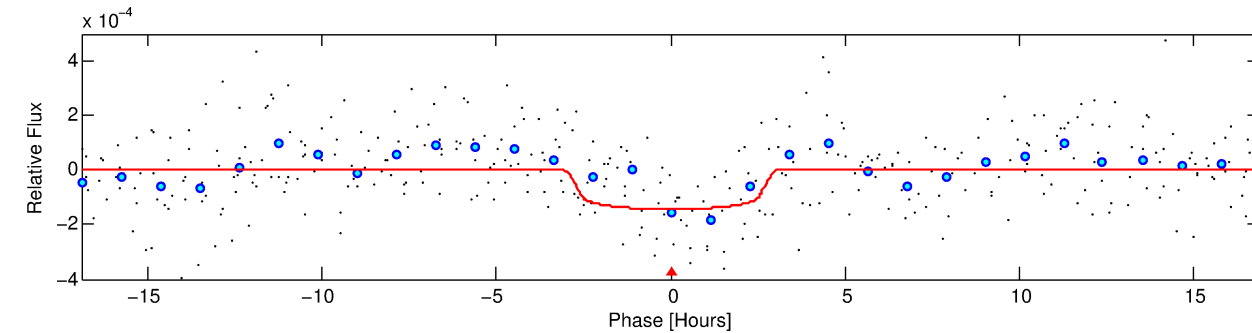
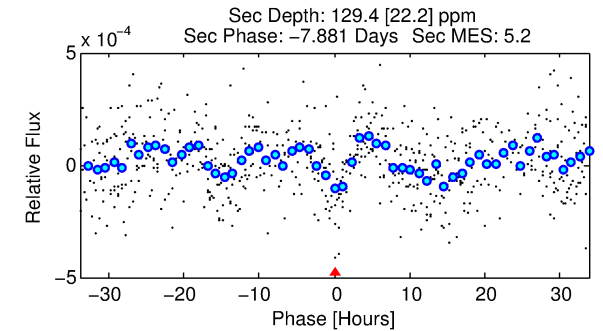
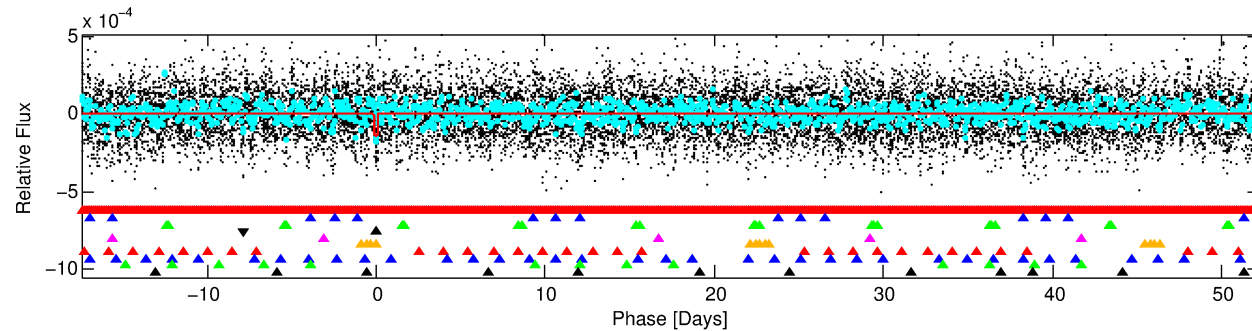
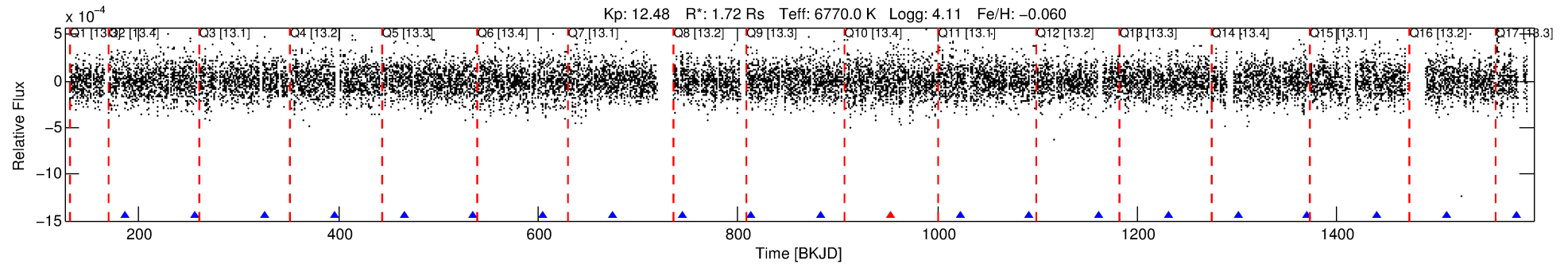
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008747865-04

No Significant Match Found

DV One-Page Summary

KIC: 8747865 Candidate: 4 of 10 Period: 69.622 d



DV Fit Results:

Period = 69.62222 [0.00113] d
Epoch = 186.9992 [0.0136] BKJD
Rp/R* = 0.0118 [0.0069]
a/R* = 67.76 [223.09]
b = 0.71 [2.28]
Seff = 40.44 [9.45]
Teq = 643 [38] K
Rp = 2.21 [1.34] Re
a = 0.3704 [0.0544] AU
Ag = 2000.68 [2405.69] [0.83σ]
Teffp = 6649 [1964] K [3.06σ]

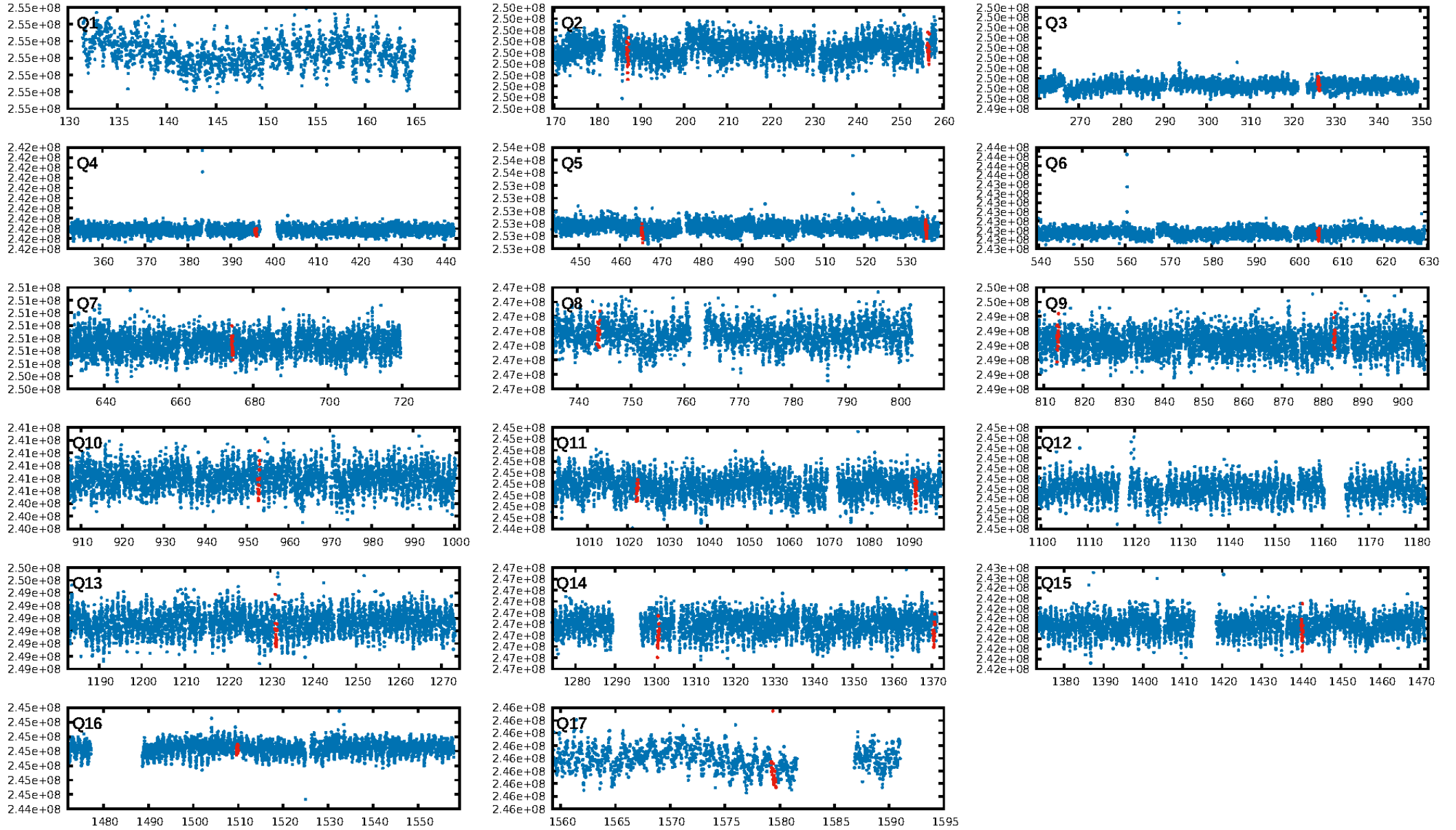
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.62σ]
LongPeriod-sig: 100.0% [96.30σ]
ModelChiSquare2-sig: 64.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.59e-09
RollingBand-fgt: 0.90 [9/10]
GhostDiagnostic-chr: -0.01251
Centroid-sig: 16.5%
Centroid-so: 0.524 arcsec [0.72σ]
OotOffset-rm: 0.620 arcsec [0.52σ]
OotOffset-st: 3/4/2/2 [11]
KicOffset-rm: 0.525 arcsec [0.52σ]
KicOffset-st: 3/4/2/2 [11]
DiffImageQuality-fgm: 0.73 [8/11]
DiffImageOverlap-fno: 0.00 [0/13]

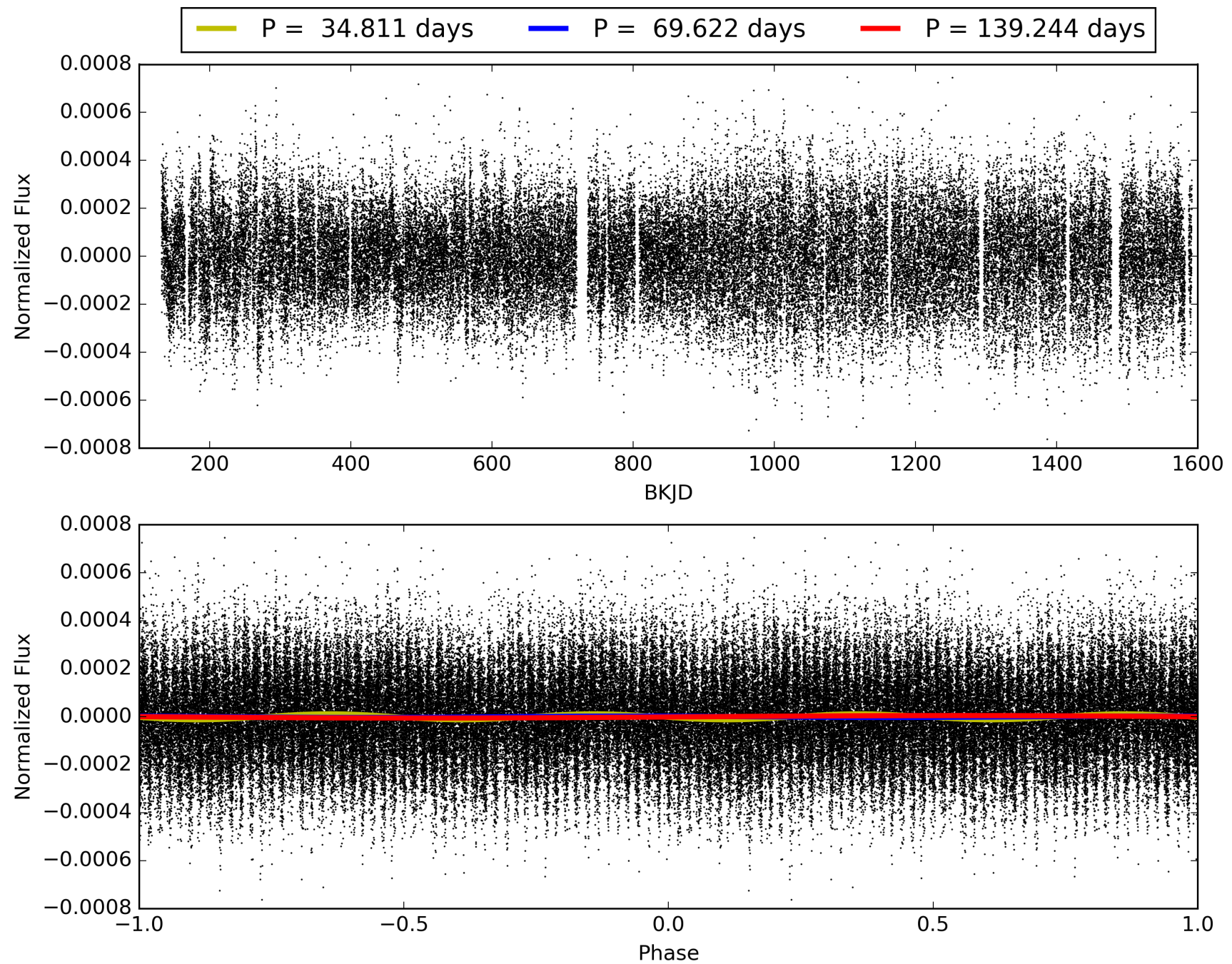
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:17:18 Z

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

TCE 008747865-04, PDC Light Curves

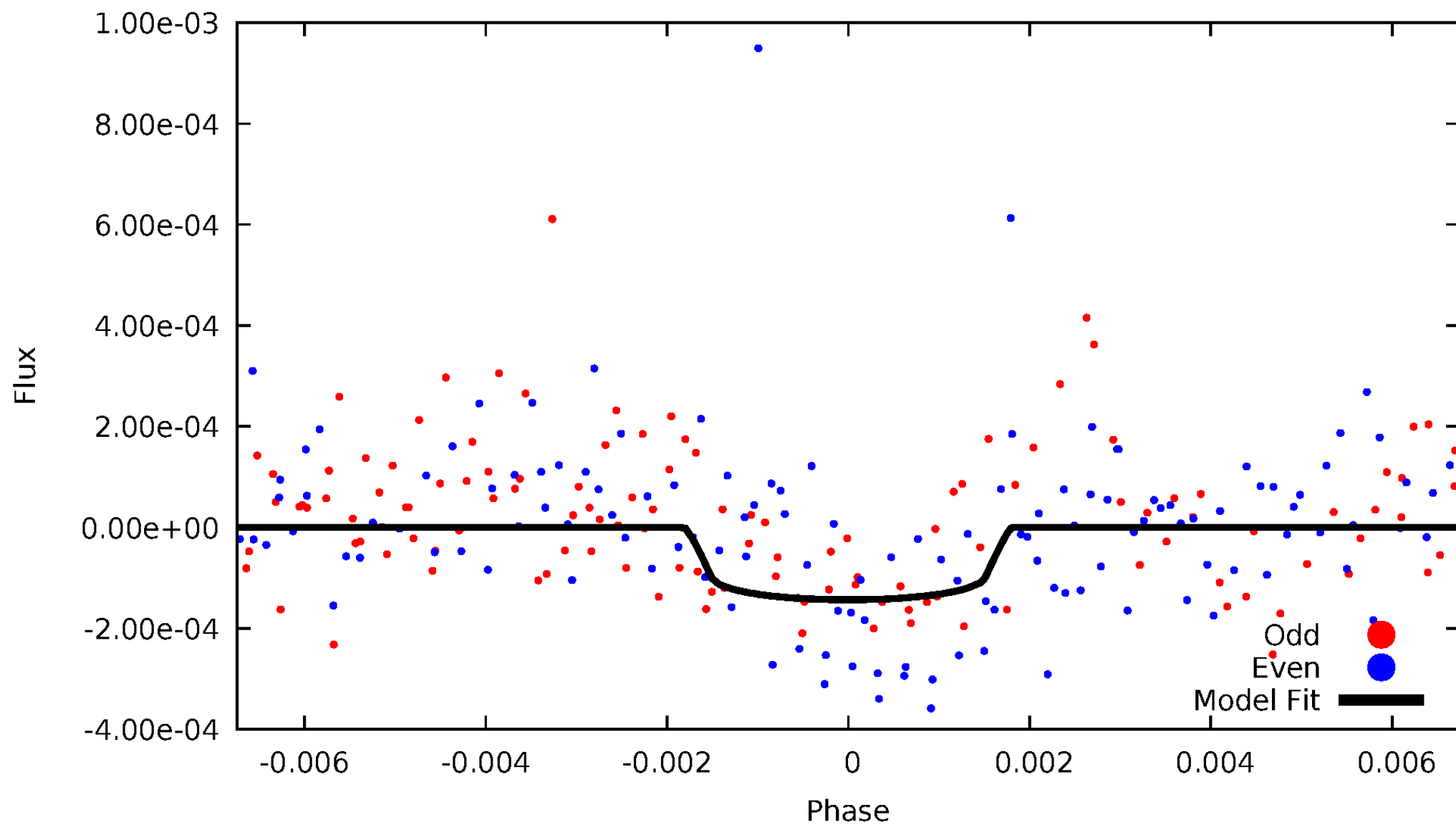


TCE 008747865-04



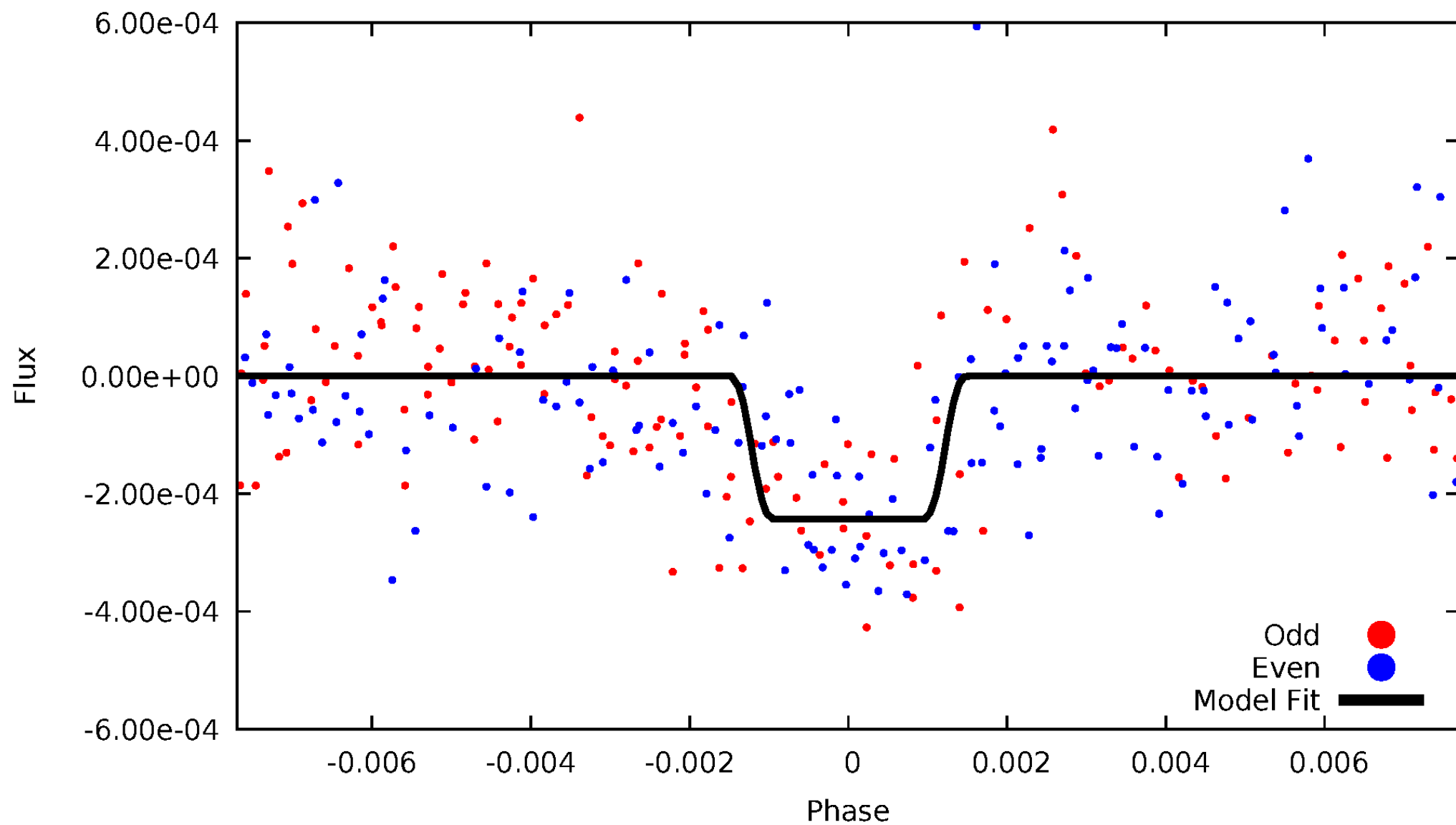
DV Odd/Even

TCE 008747865-04



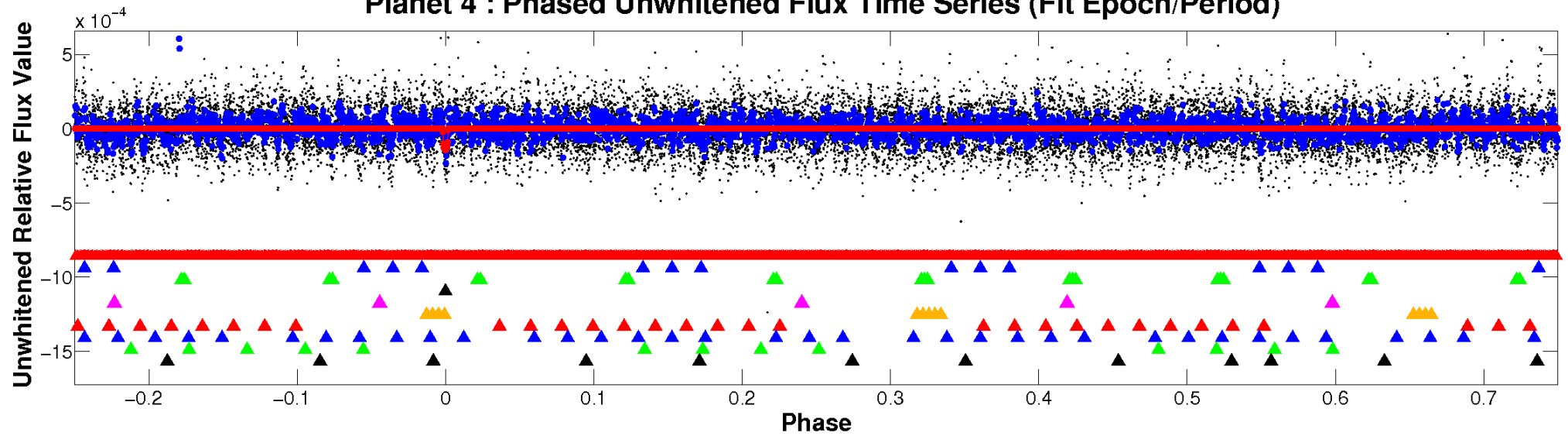
ALT Odd/Even

TCE 008747865-04

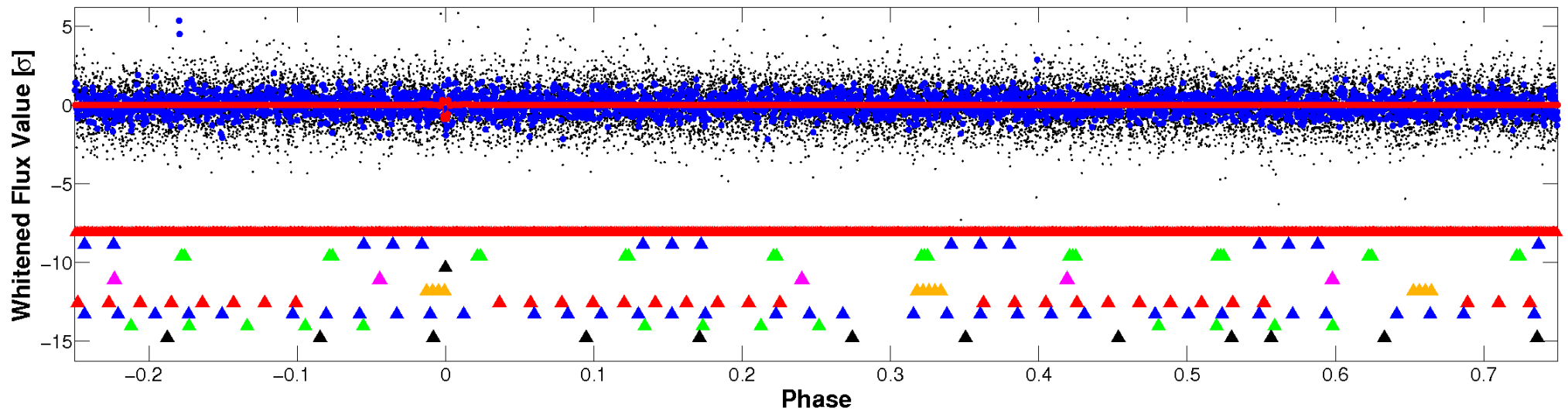


Non-Whitened Vs. Whitened Light Curve

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

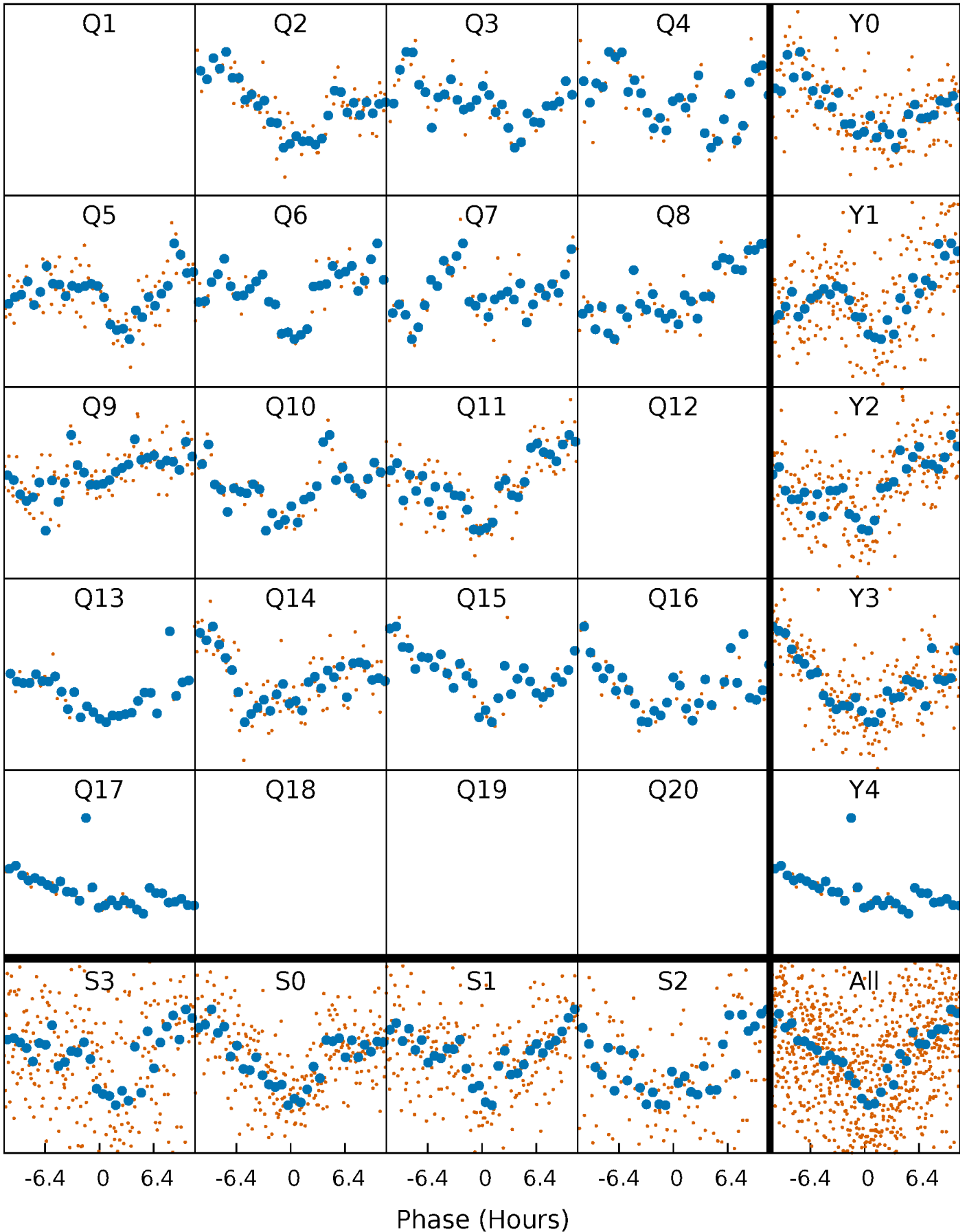


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



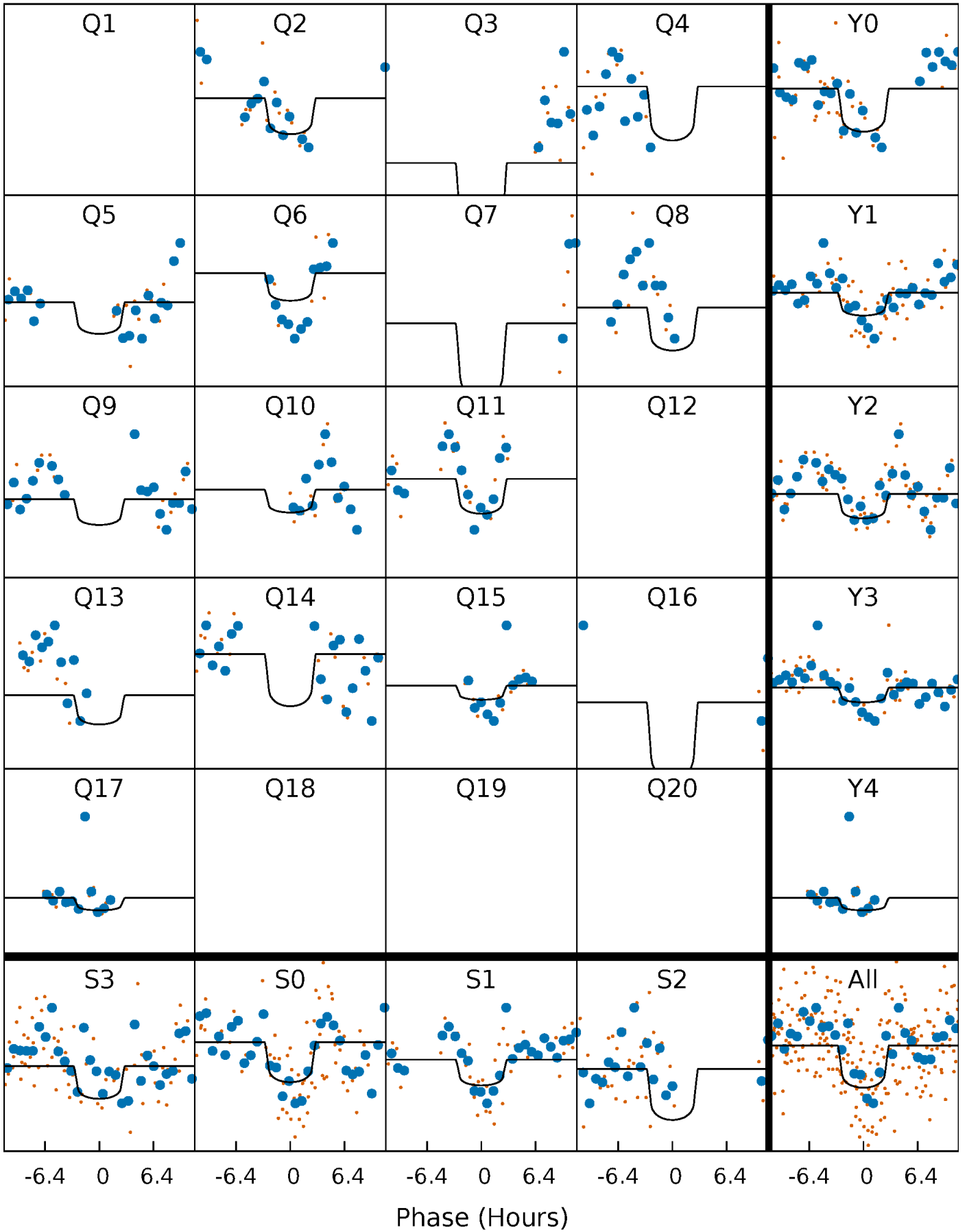
PDC Quarter-Phased Transit Curves

TCE 008747865-04 P= 69.622216 Days $T_0=186.999203$ (BKJD)



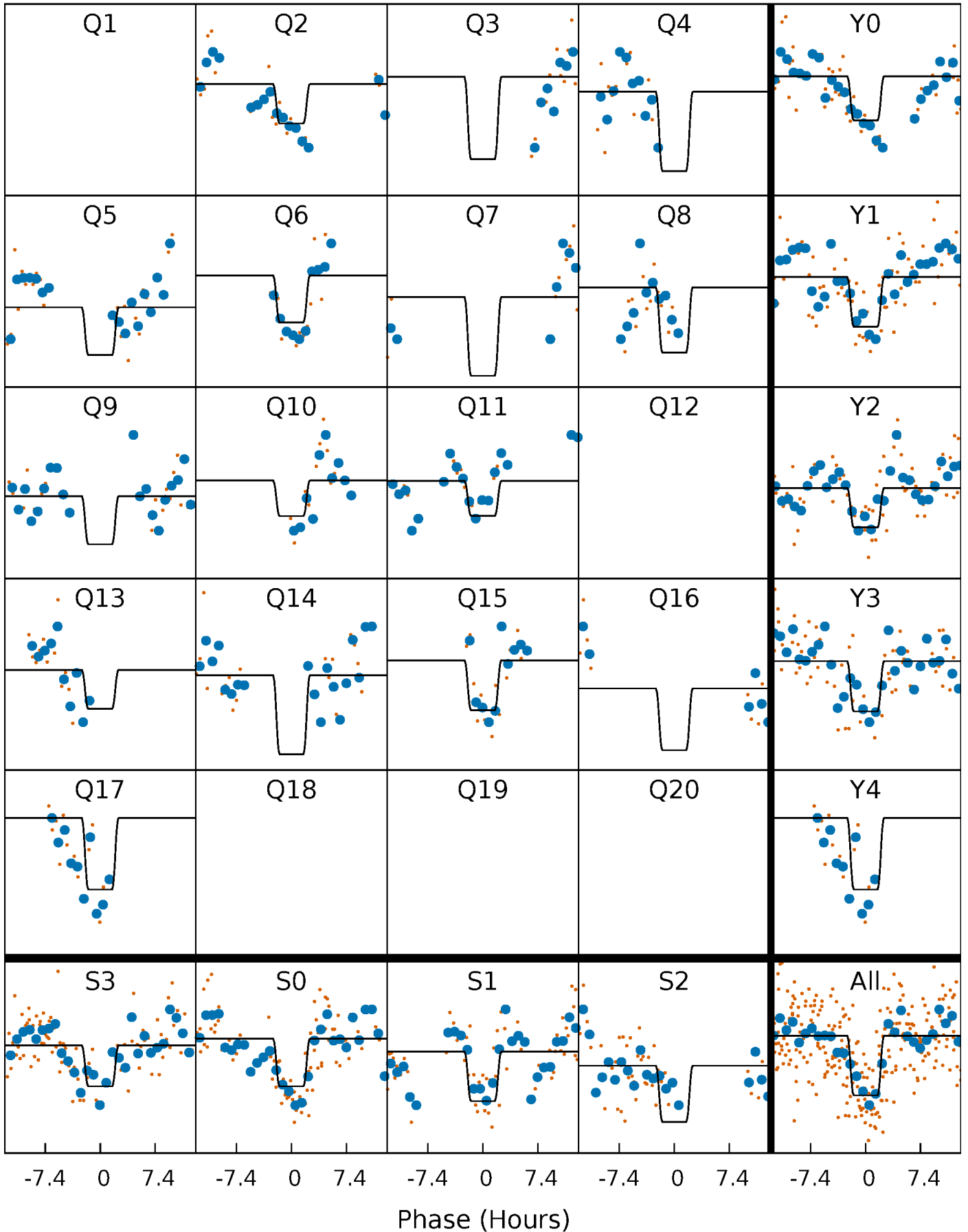
DV Quarter-Phased Transit Curves

TCE 008747865-04 P= 69.622216 Days $T_0=186.999203$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

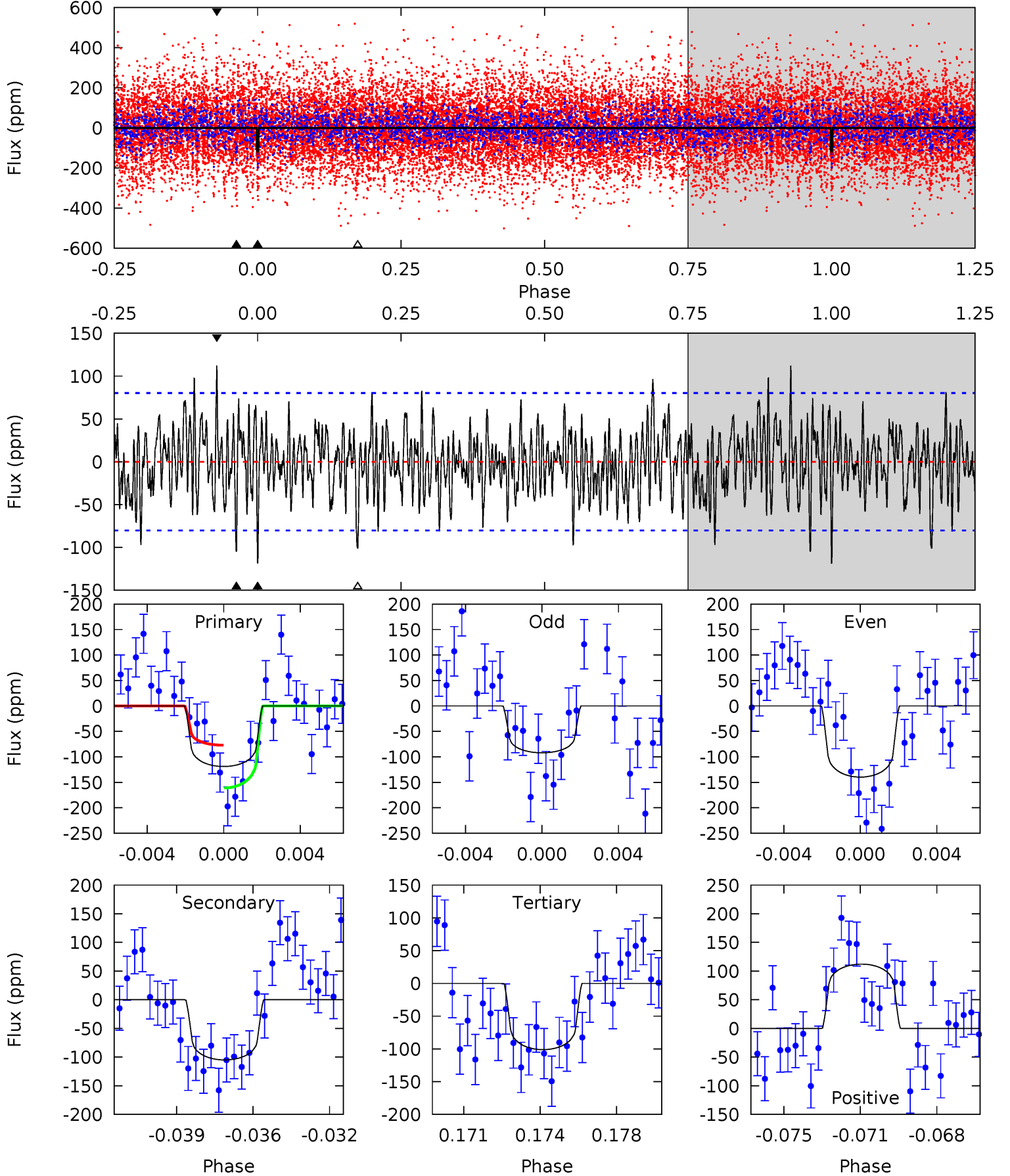
TCE 008747865-04 P= 69.623443 Days $T_0=186.989203$ (BKJD)



DV Model-Shift Uniqueness Test

008747865-04, P = 69.622216 Days, E = 117.376987 Days

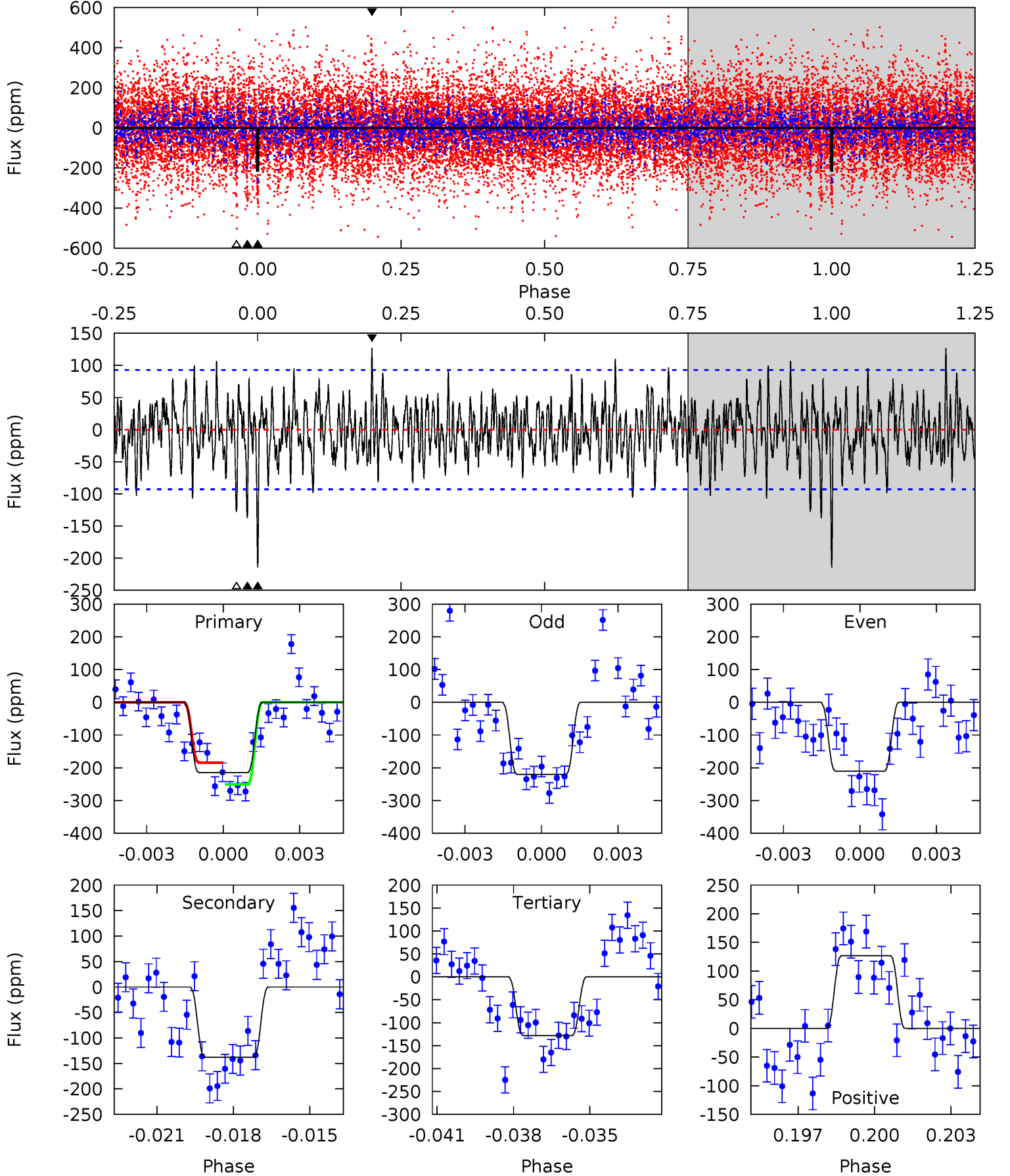
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.75	6.84	6.59	7.31	5.22	2.92	2.11	1.16	0.44	0.25	-0.47	1.55	1.03	0.49	2.74



Alt Model-Shift Uniqueness Test

008747865-04, P = 69.623443 Days, E = 117.365760 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	7.82	7.26	7.20	5.26	2.97	2.04	4.90	4.96	0.55	0.62	0.28	0.96	0.37	1.88



Stellar Parameters For KIC 008747865

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6770^{+81}_{-81}	$4.114^{+0.132}_{-0.108}$	$-0.060^{+0.150}_{-0.150}$	$1.717^{+0.274}_{-0.274}$	$1.405^{+0.109}_{-0.098}$	$0.391^{+0.240}_{-0.127}$
	+1%/-1%	+3%/-3%	+250%/-250%	+16%/-16%	+8%/-7%	+62%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 008747865-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-105 ± 15	$2.25^{+1.35}_{-1.13}$	895^{+38}_{-38}	6189^{+3177}_{-1187}	1537^{+4864}_{-941}
Alt.	-138 ± 18	$2.86^{+1.47}_{-1.25}$	897^{+39}_{-37}	5906^{+2122}_{-981}	1293^{+2775}_{-745}

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

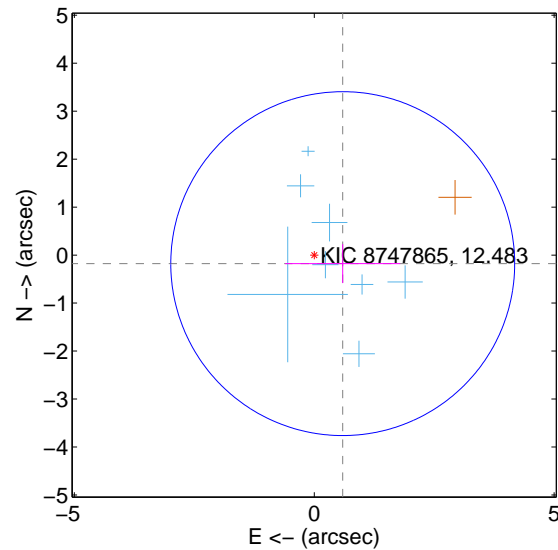
Supplemental centroid analysis for 008747865-04. Kepler magnitude: 12.48. Transit SNR 6.84

There are 8 quarters with good PRF difference image offsets

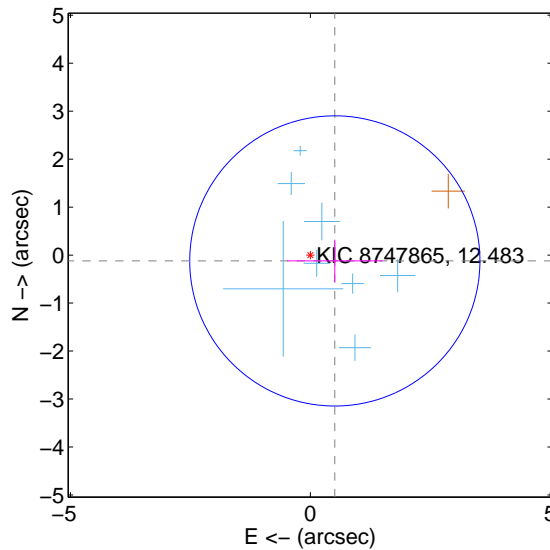
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.620 ± 1.194	0.52	-0.594 ± 1.198	-0.178 ± 0.406
PRF-fit source offset from KIC position	0.525 ± 1.008	0.52	-0.511 ± 0.994	-0.121 ± 0.443
photometric centroid source offset	0.52 ± 0.73	0.72	-0.02 ± 0.71	-0.52 ± 0.73

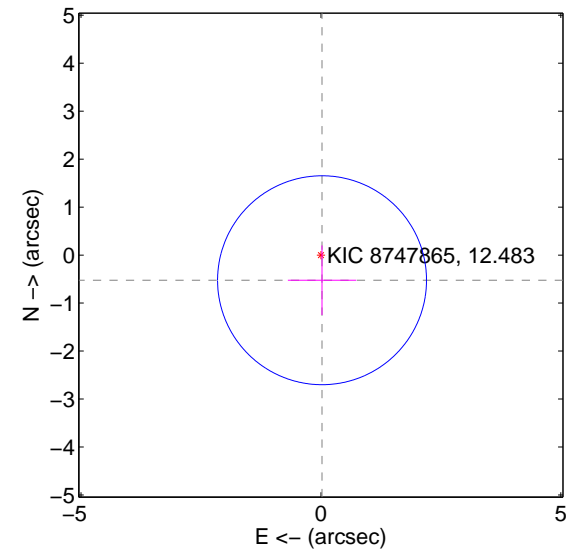
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

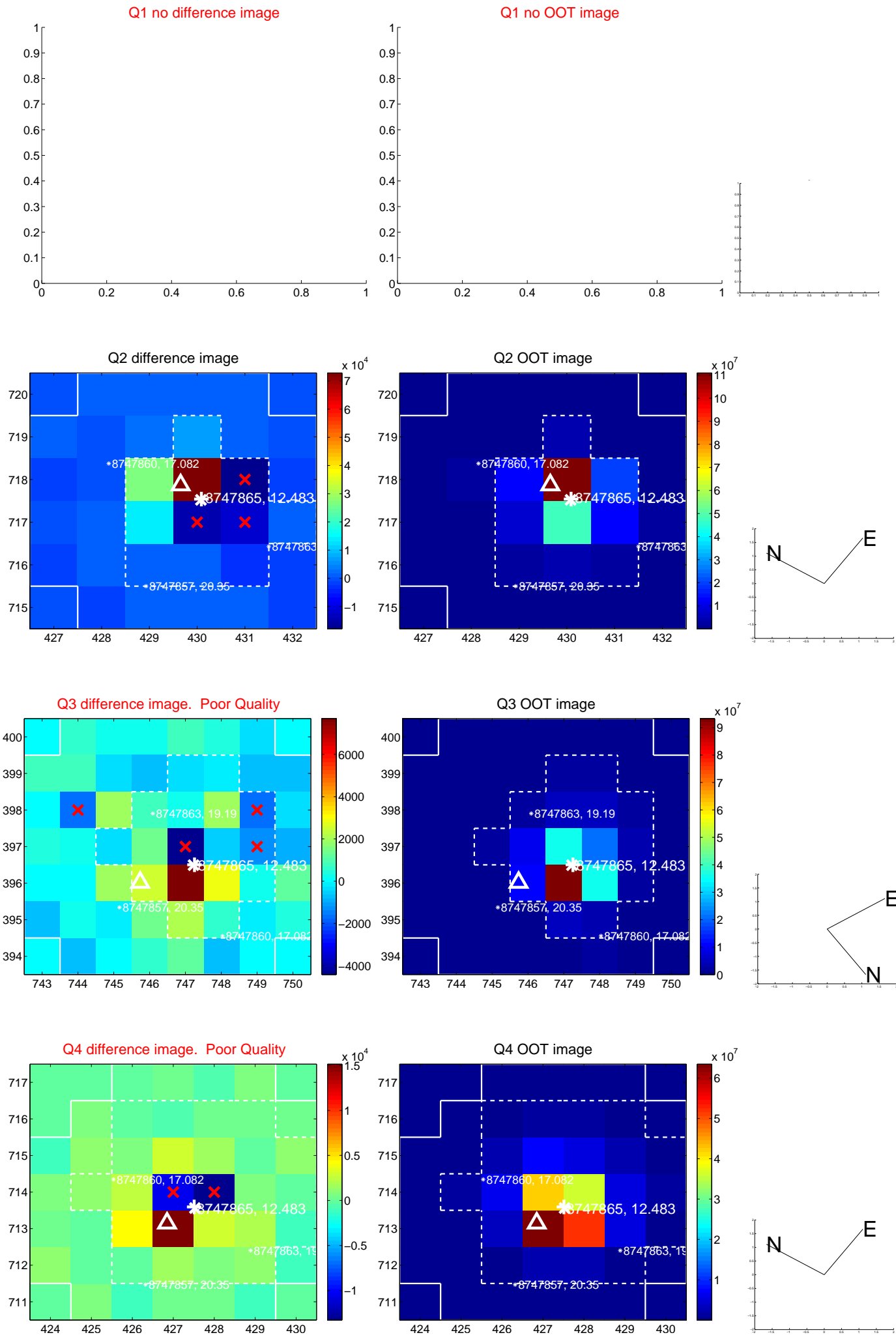


offset from photometric centroids

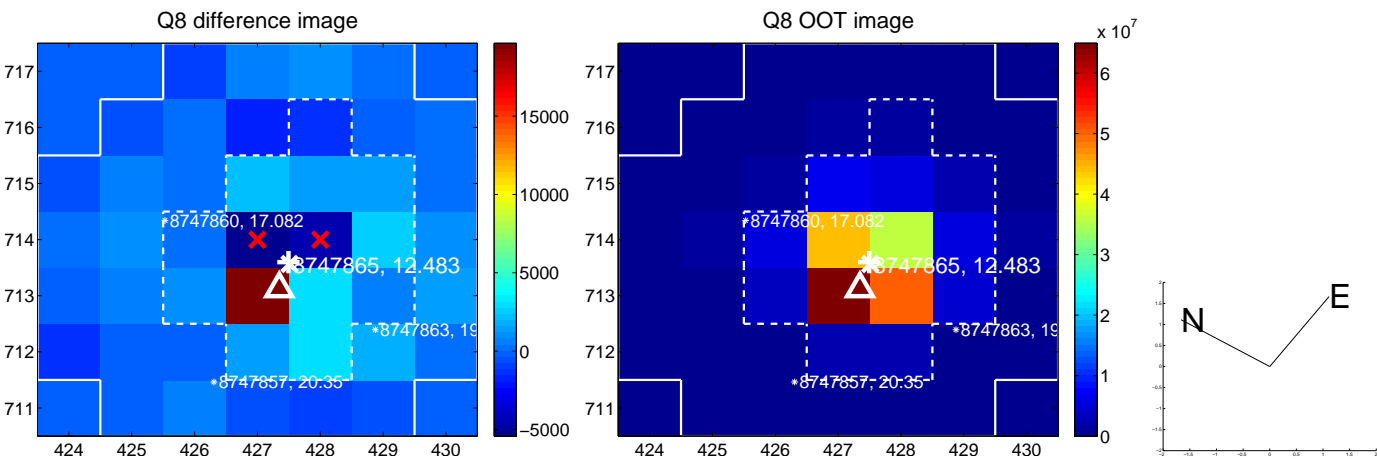
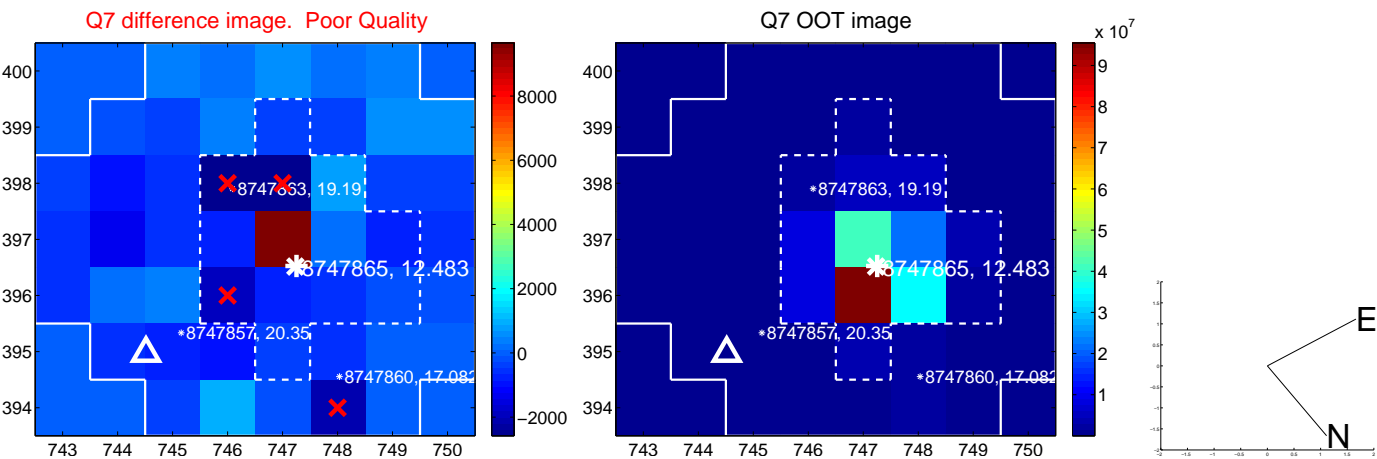
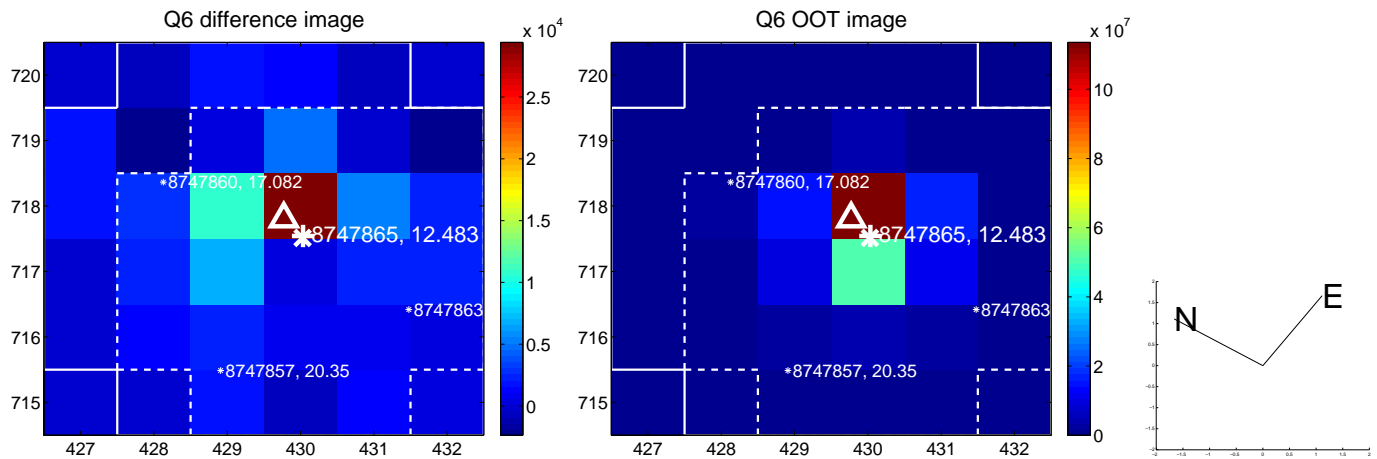
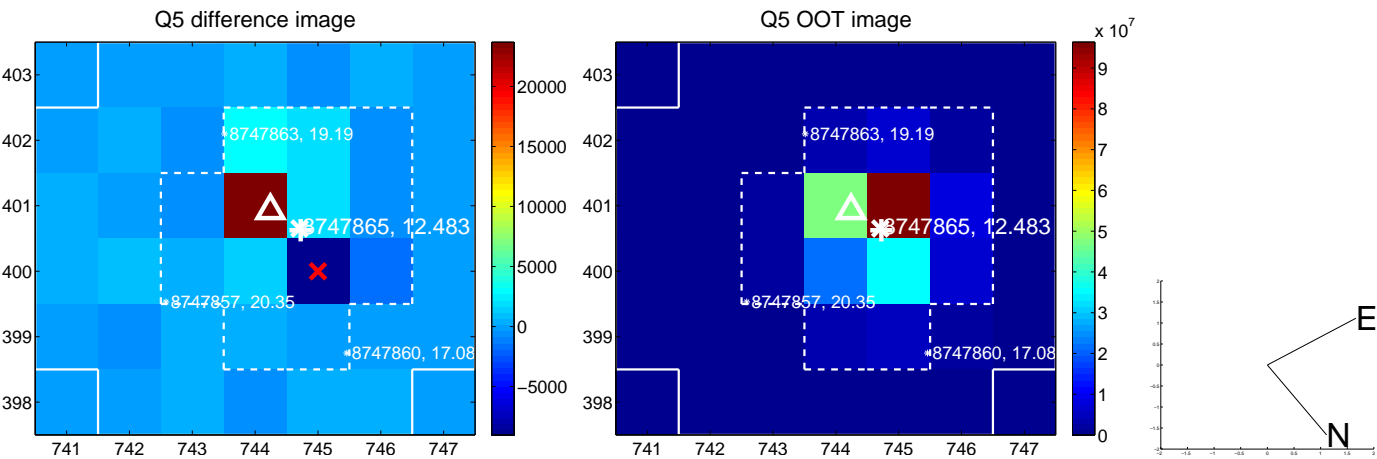


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

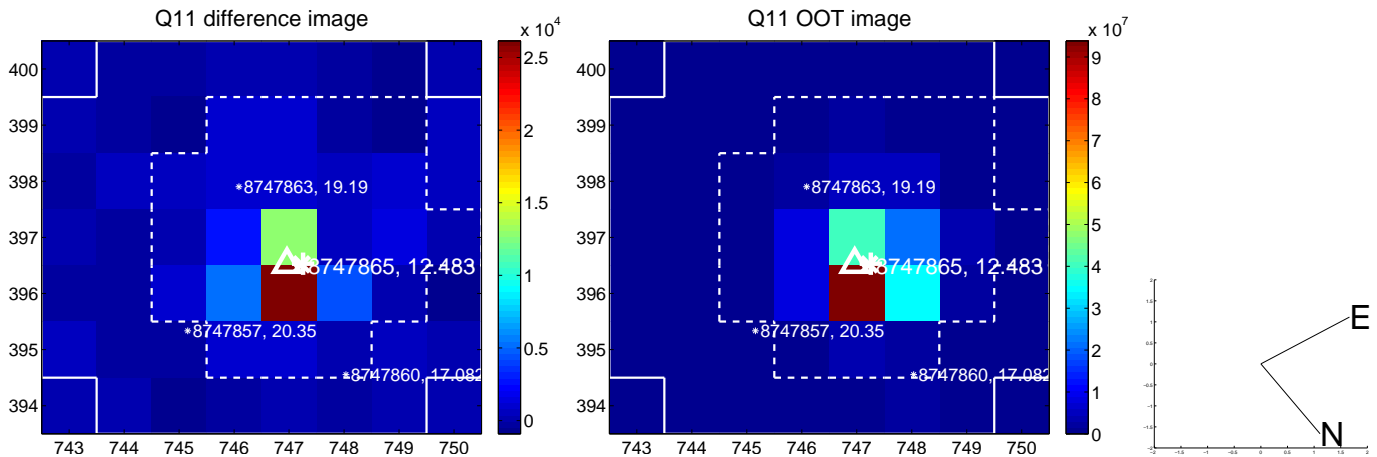
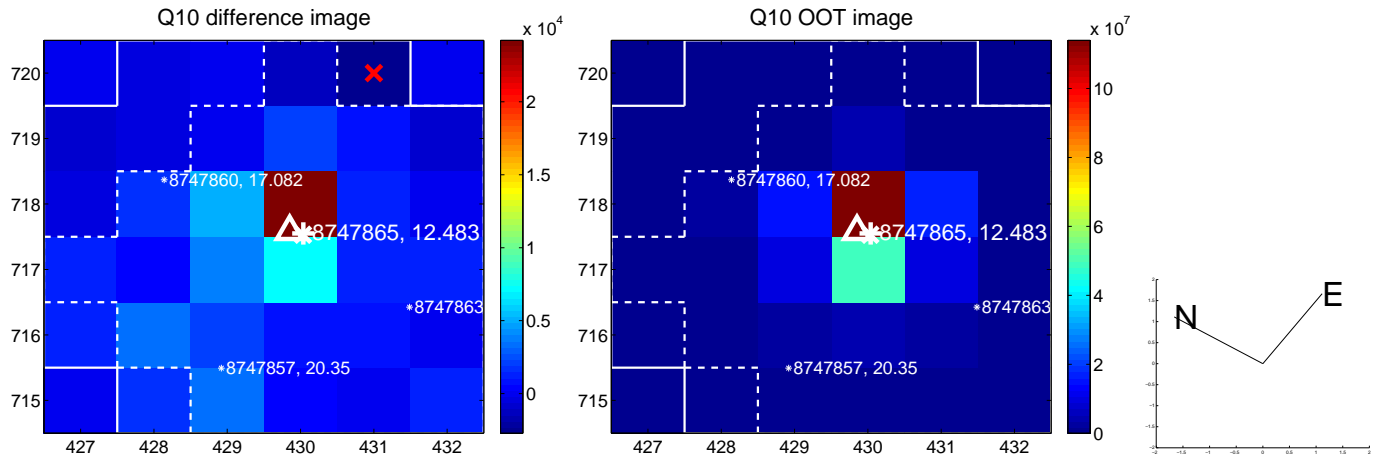
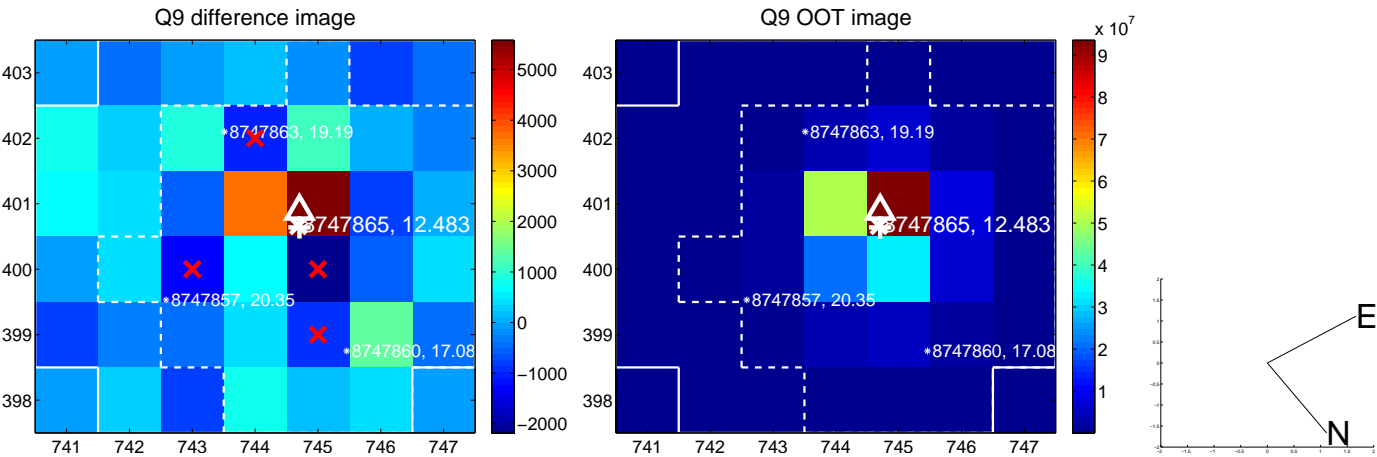
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



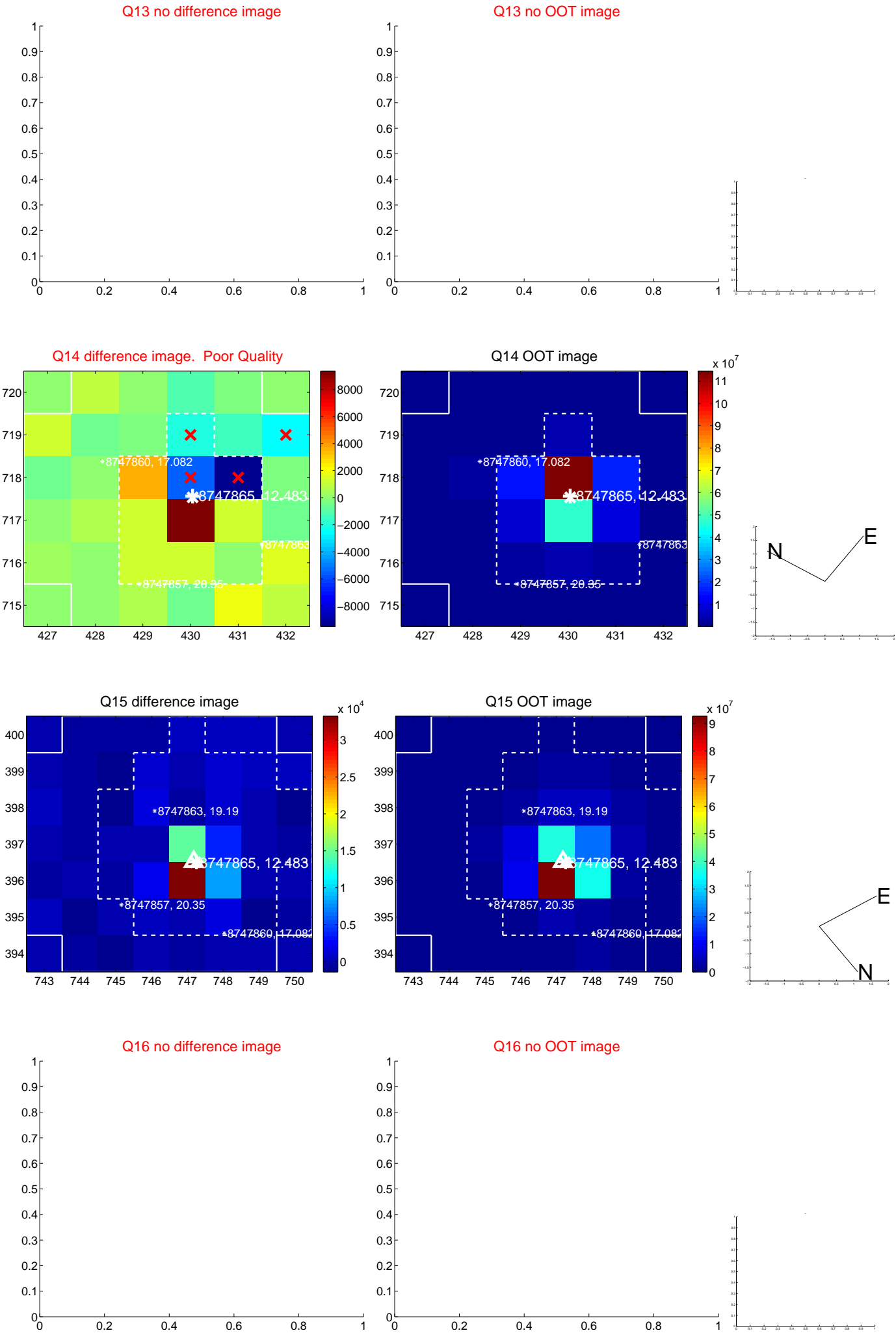
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



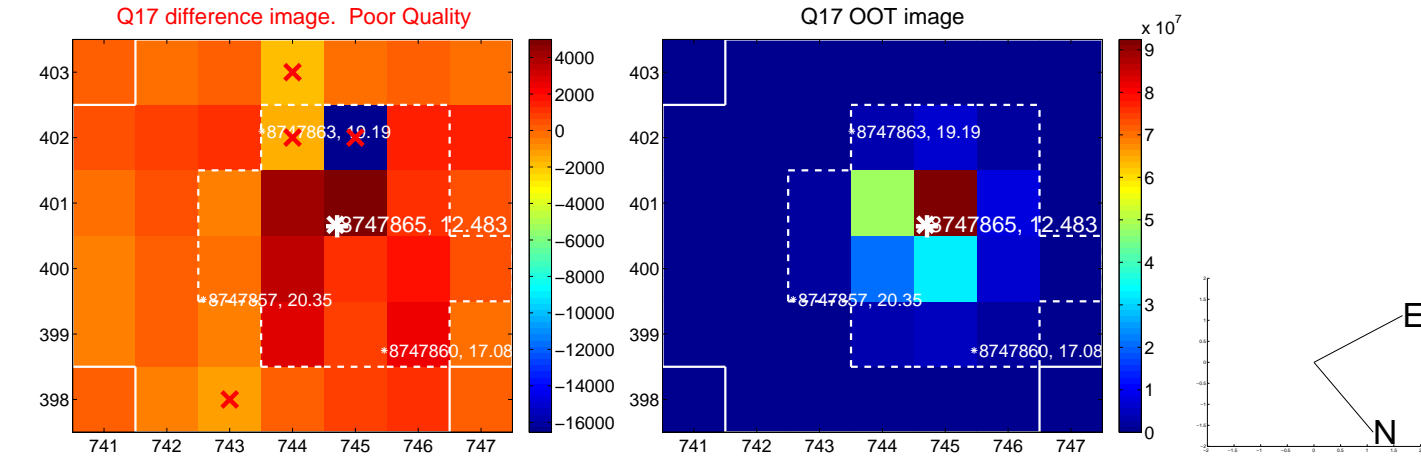
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



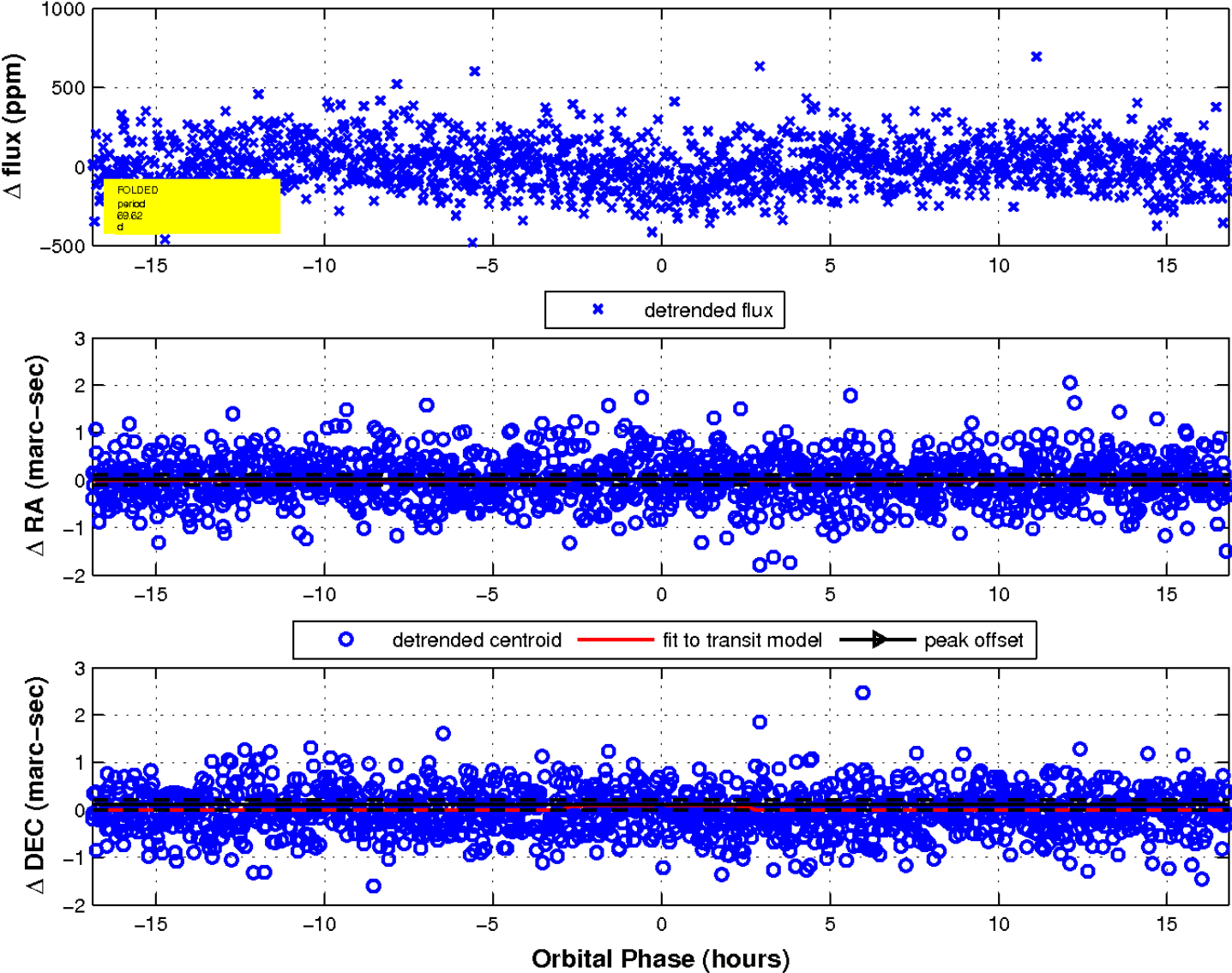
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

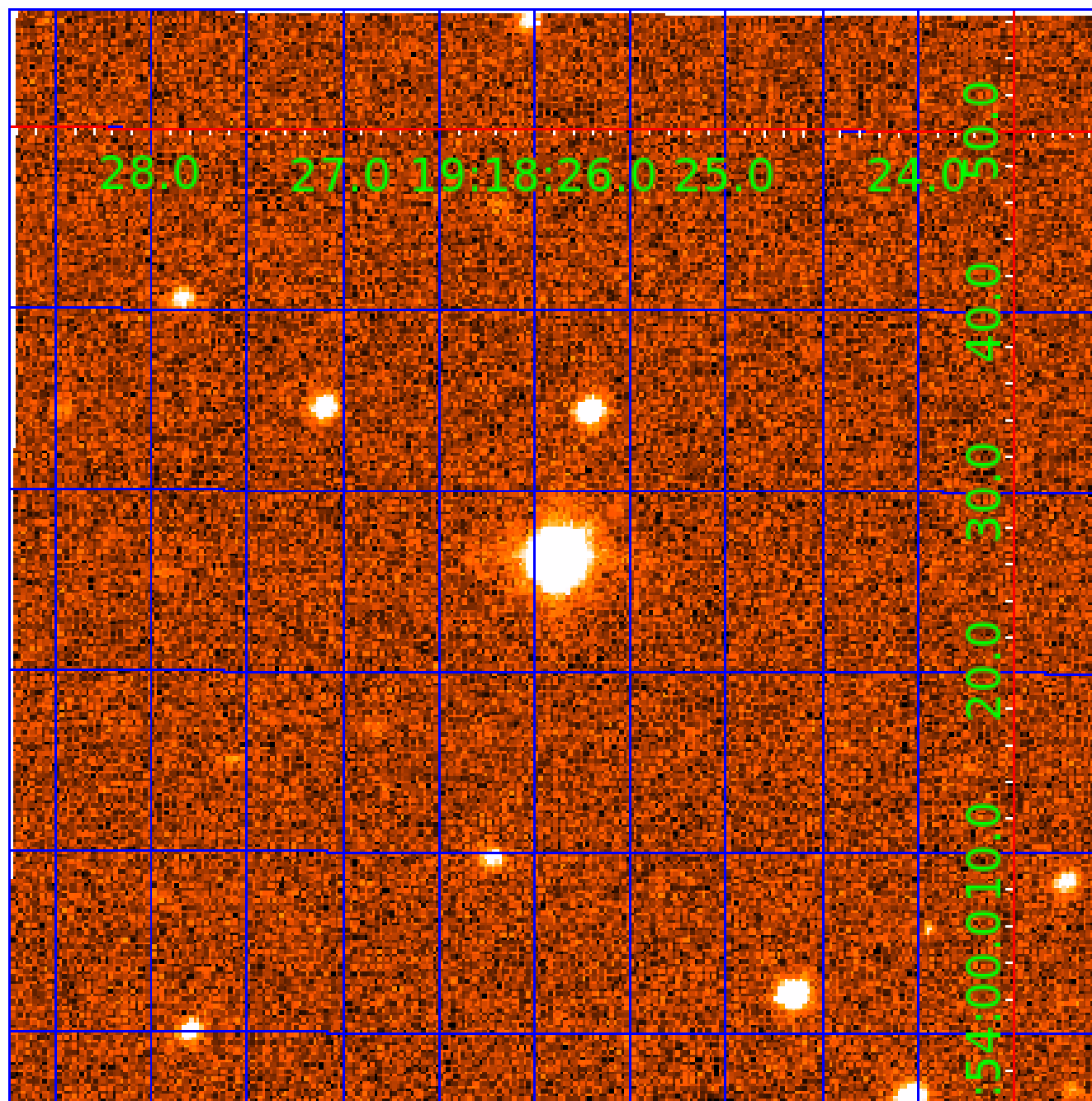


fluxWeightedCentroids, Planet 4 of 10



UKIRT Image

Declination



KIC 008747865

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})
008747865-01	OBS	No	1.209131	132.607616	12.5	6.765	8.4	6.4	1.72	6770	0.64	8990.79
008747865-02	OBS	No	97.198270	158.316789	263.6	3.940	8.2	9.0	1.72	6770	3.15	25.91
008747865-04	OBS	No	69.622216	186.999204	143.5	5.632	8.4	6.8	1.72	6770	2.21	40.44
008747865-05	OBS	No	266.037473	392.777979	198.4	21.247	8.2	7.6	1.72	6770	2.75	6.77
008747865-06	OBS	No	115.943719	140.631570	236.8	2.837	8.0	8.3	1.72	6770	2.96	20.48
008747865-07	OBS	No	46.902202	165.353757	175.3	2.299	8.1	7.6	1.72	6770	2.58	68.47
008747865-08	OBS	No	40.482062	171.627250	113.5	9.685	7.2	8.2	1.72	6770	1.98	83.32
008747865-09	OBS	No	115.128340	183.140863	287.1	4.893	7.5	9.6	1.72	6770	4.52	20.68
008747865-10	OBS	No	126.754341	154.280346	261.3	3.501	8.0	8.4	1.72	6770	3.08	18.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008747865-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008747865-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008747865-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
008747865-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008747865-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

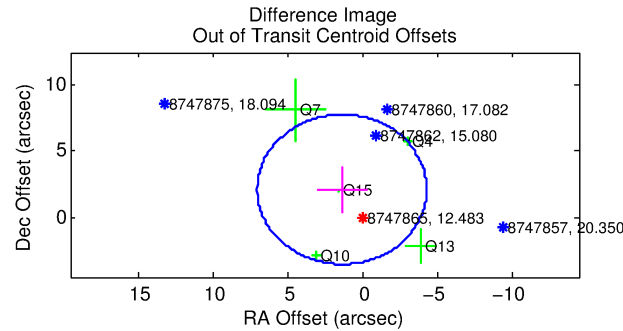
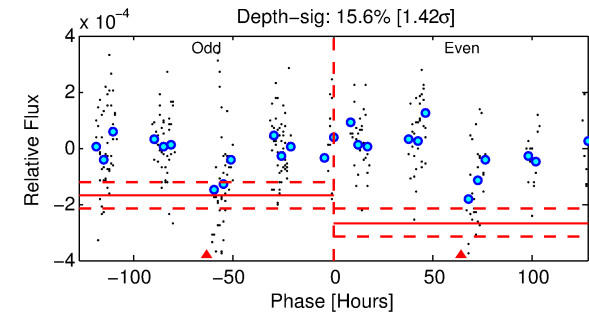
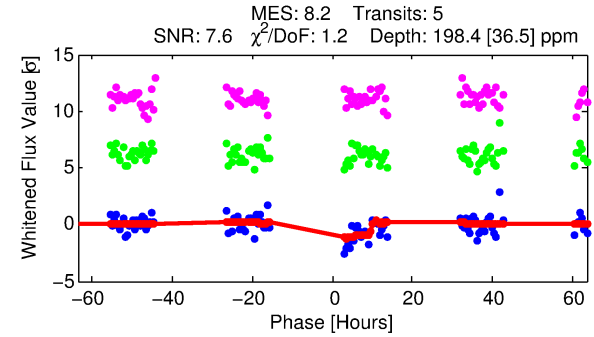
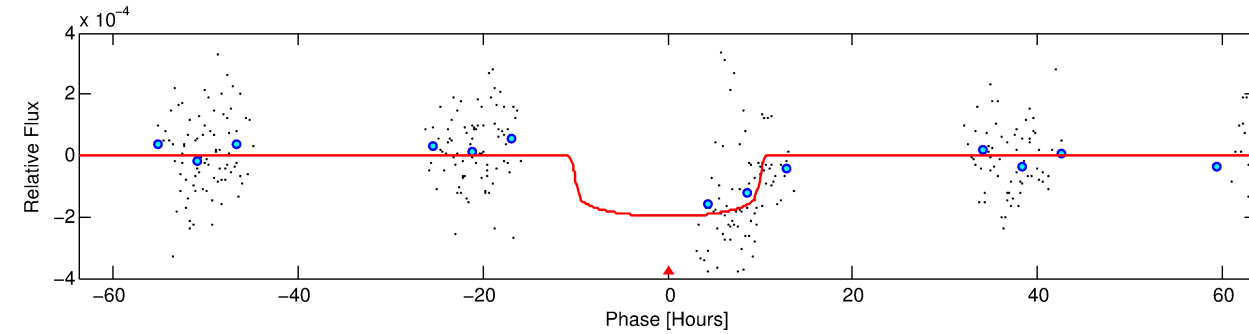
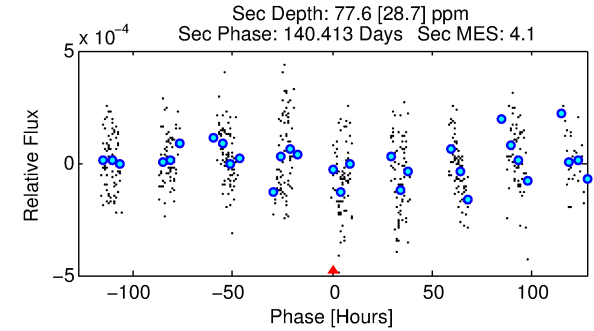
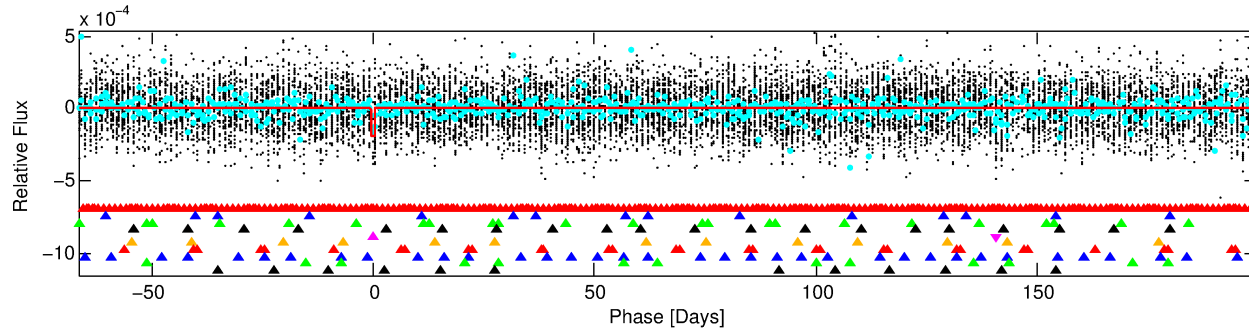
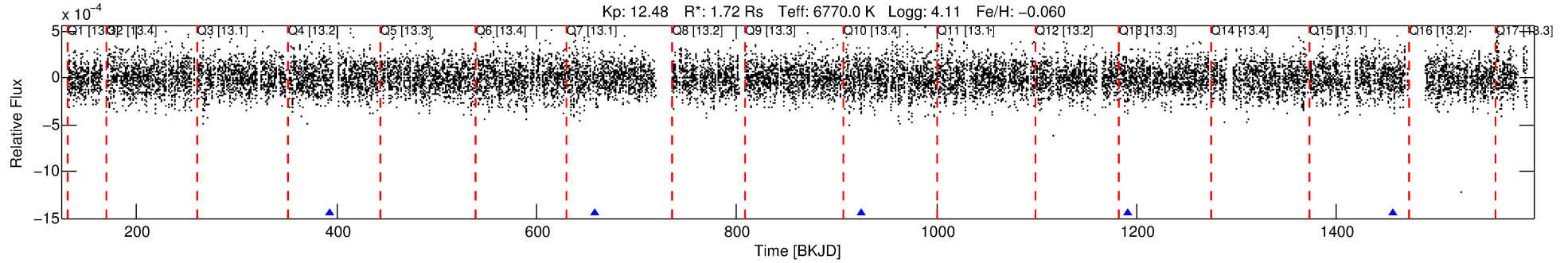
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008747865-05

No Significant Match Found

DV One-Page Summary

KIC: 8747865 Candidate: 5 of 10 Period: 266.037 d



DV Fit Results:

Period = 266.03747 [0.00935] d
Epoch = 392.7780 [0.1780] BKJD
Rp/R* = 0.0147 [0.0027]
a/R* = 51.31 [55.63]
b = 0.86 [0.22]
Seff = 6.77 [1.58]
Teq = 411 [24] K
Rp = 2.75 [0.67] Re
a = 0.9054 [0.1330] AU
Ag = 4645.39 [2639.28] [1.76σ]
Teffp = 5250 [685] K [7.06σ]

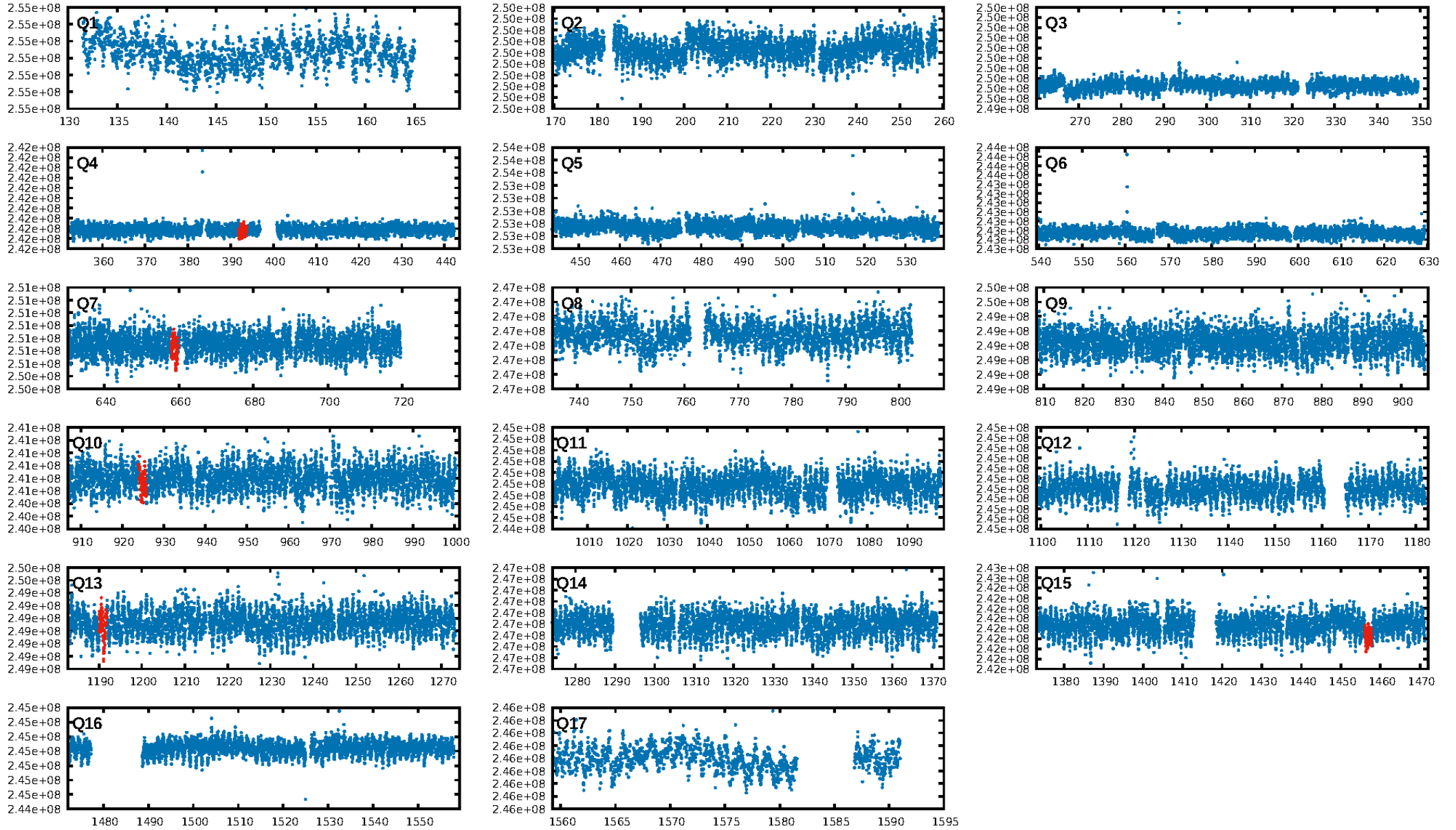
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [155.23σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.16e-13
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.562
Centroid-sig: 8.3%
Centroid-so: 1.166 arcsec [1.66σ]
OotOffset-rm: 2.519 arcsec [1.33σ]
KicOffset-rm: 2.597 arcsec [1.48σ]
OotOffset-st: 1/2/1/1 [5]
KicOffset-st: 1/2/1/1 [5]
DiffImageQuality-fgm: 0.20 [1/5]
DiffImageOverlap-fno: 0.00 [0/5]

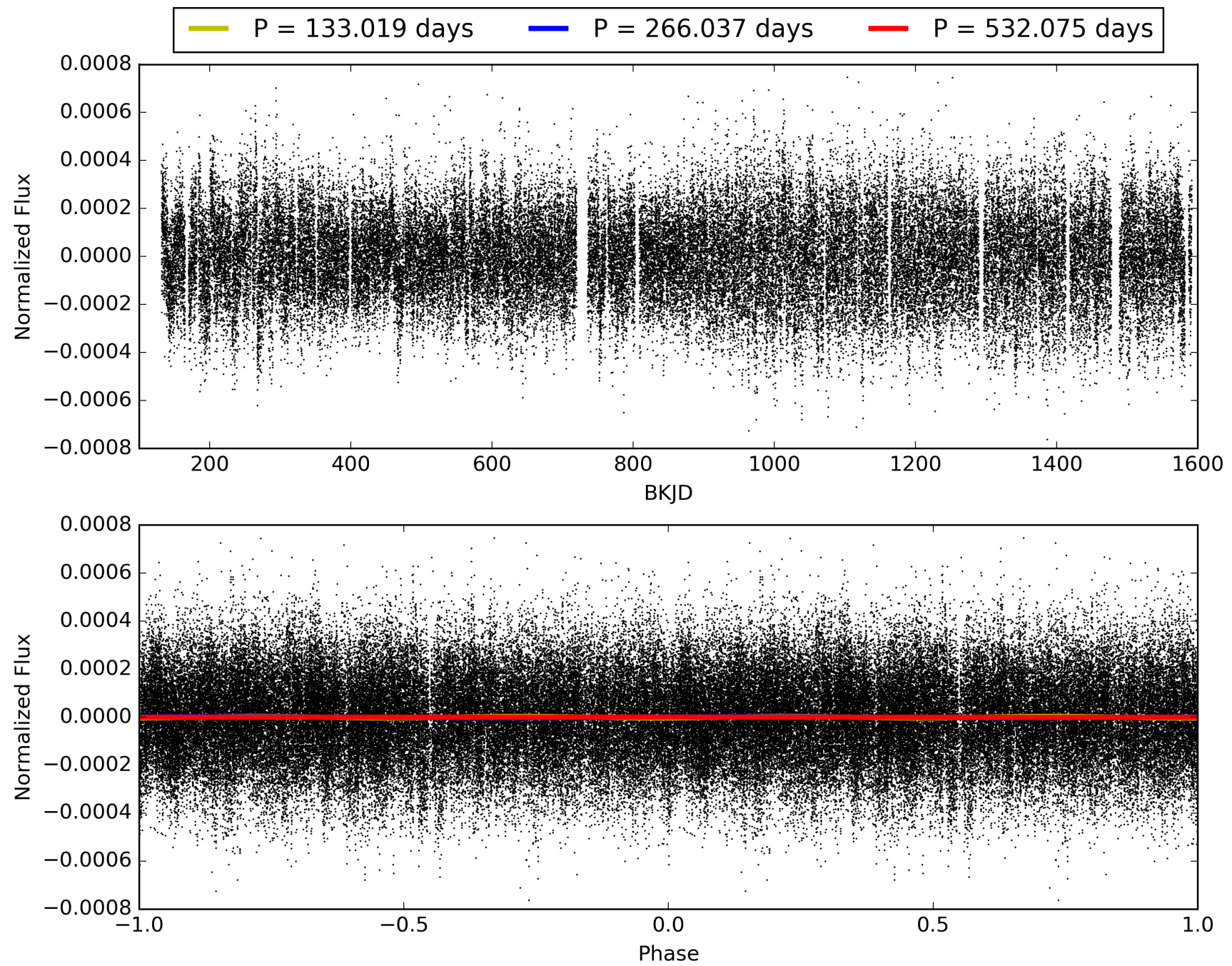
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:17:23 Z

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

TCE 008747865-05, PDC Light Curves

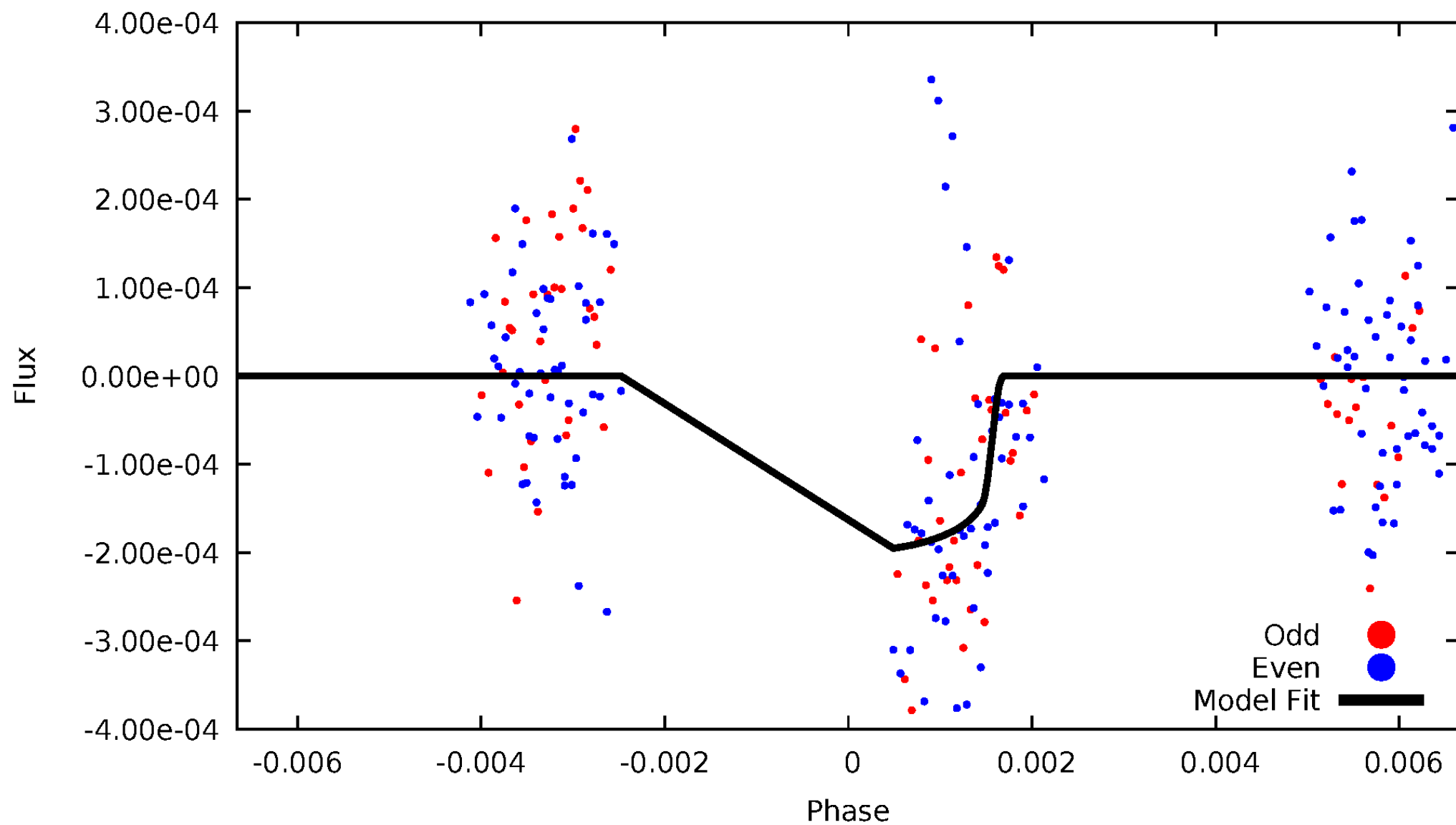


TCE 008747865-05



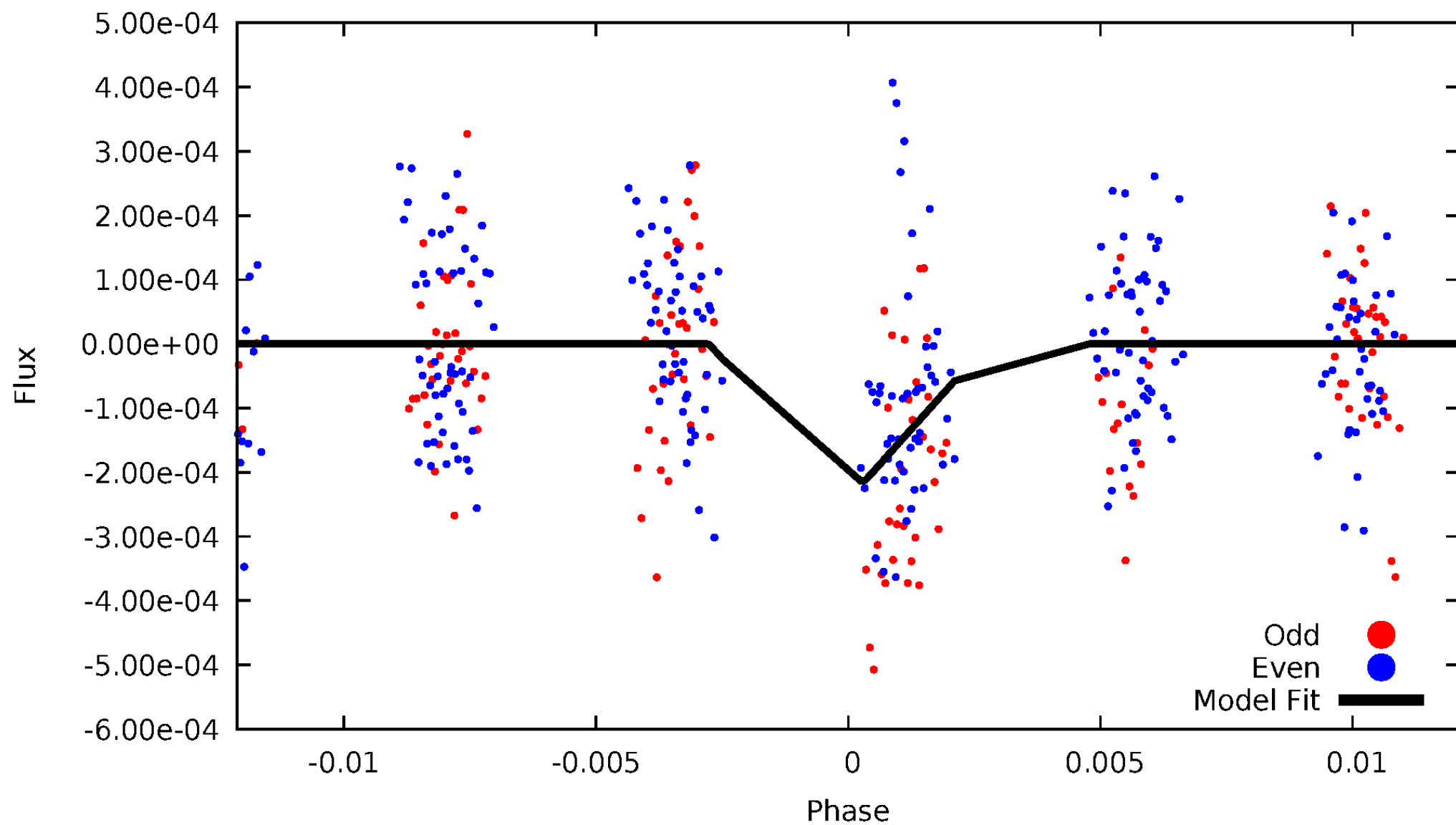
DV Odd/Even

TCE 008747865-05



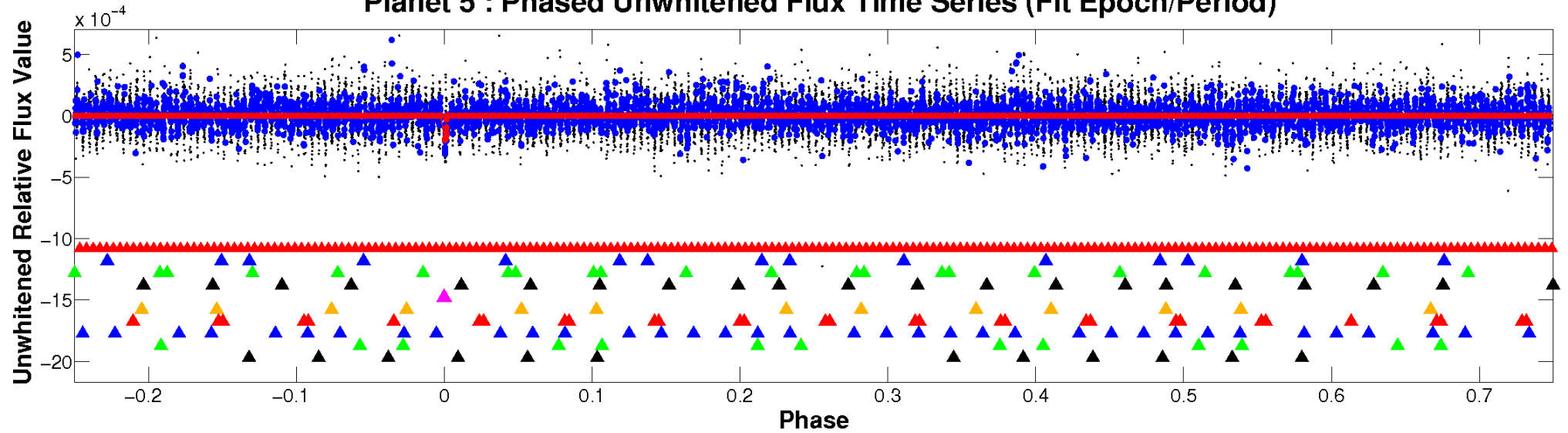
ALT Odd/Even

TCE 008747865-05

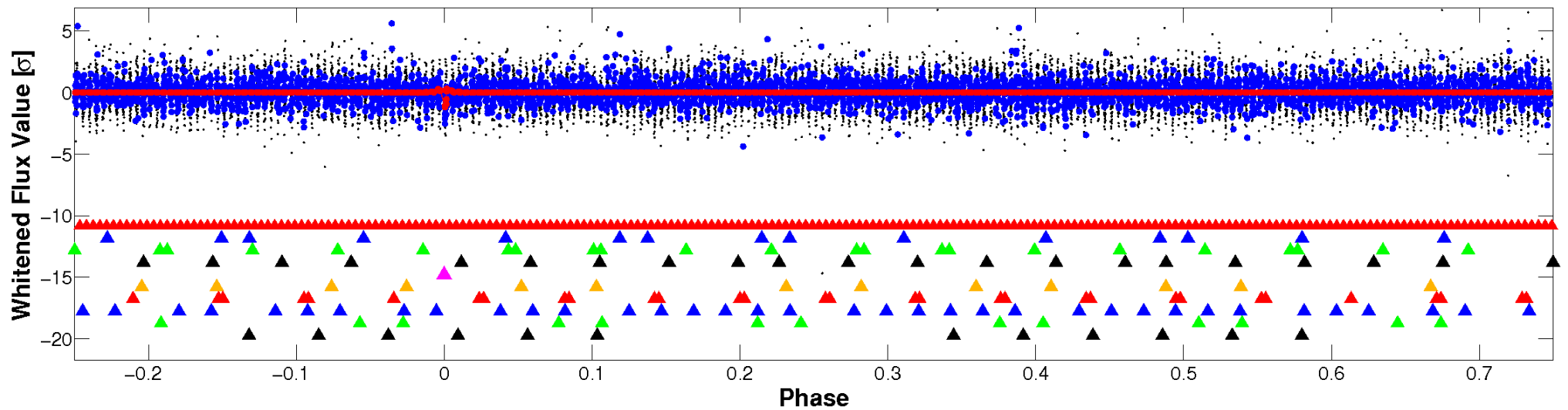


Non-Whitened Vs. Whitened Light Curve

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

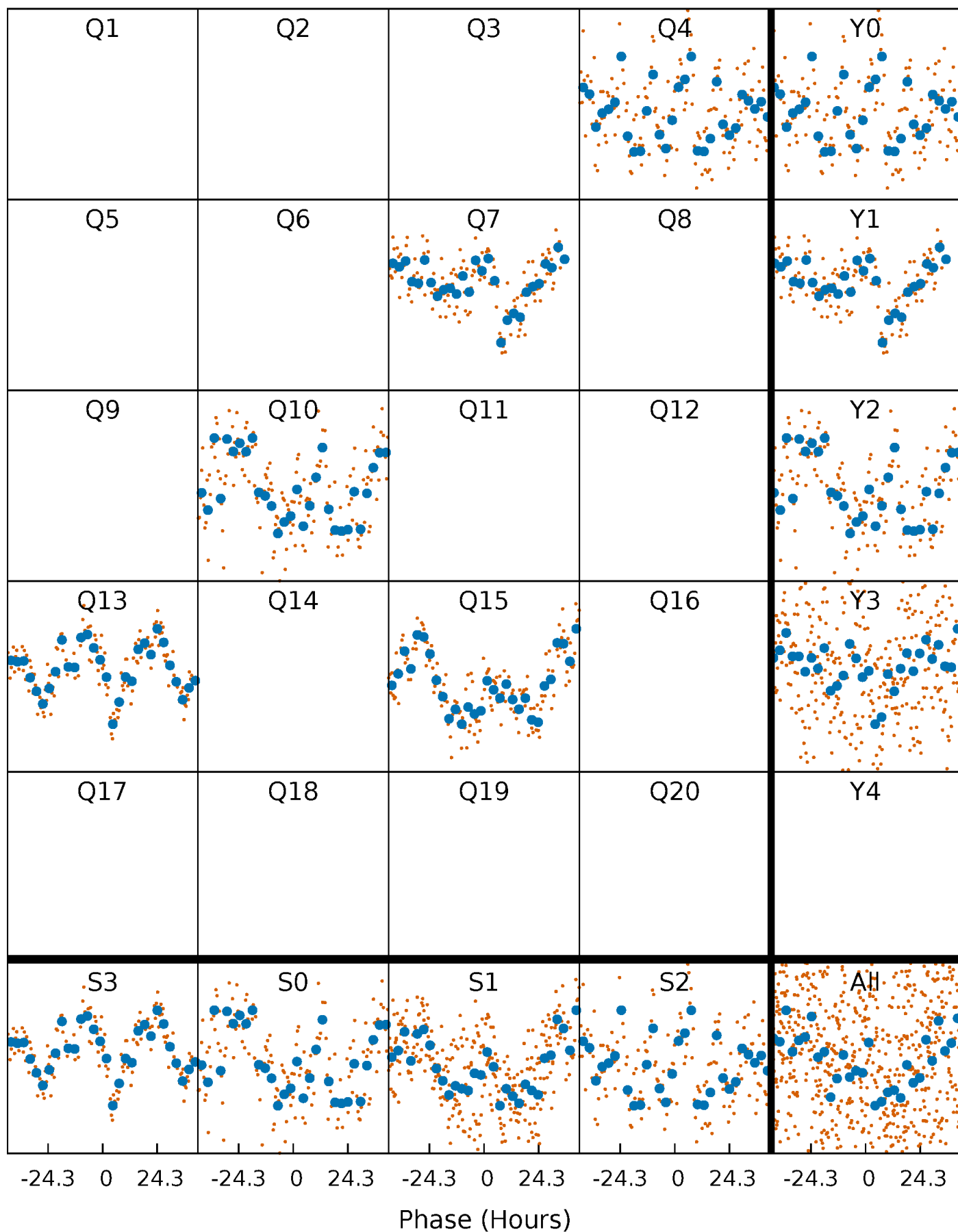


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



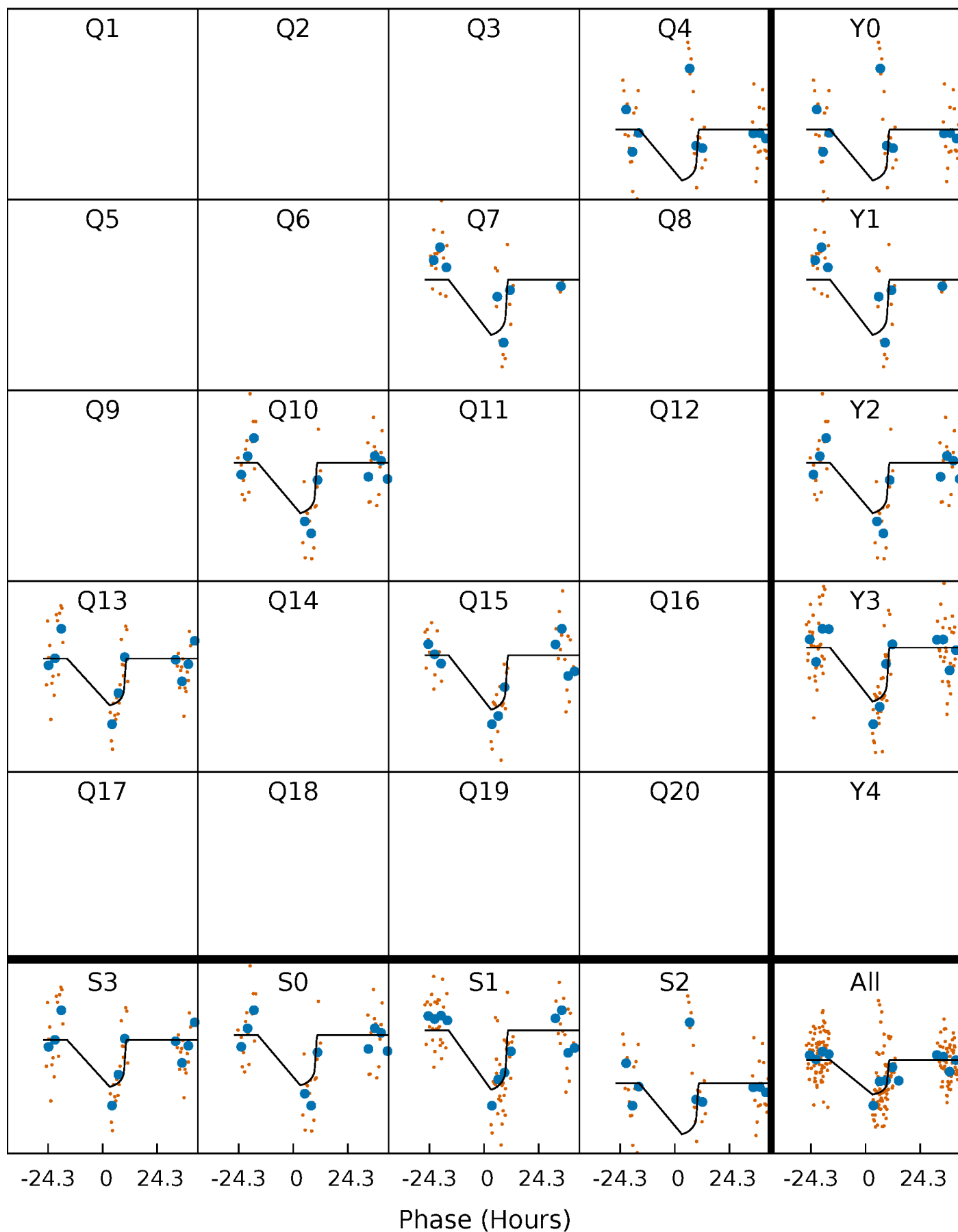
PDC Quarter-Phased Transit Curves

TCE 008747865-05 $P=266.037473$ Days $T_0=392.777979$ (BKJD)



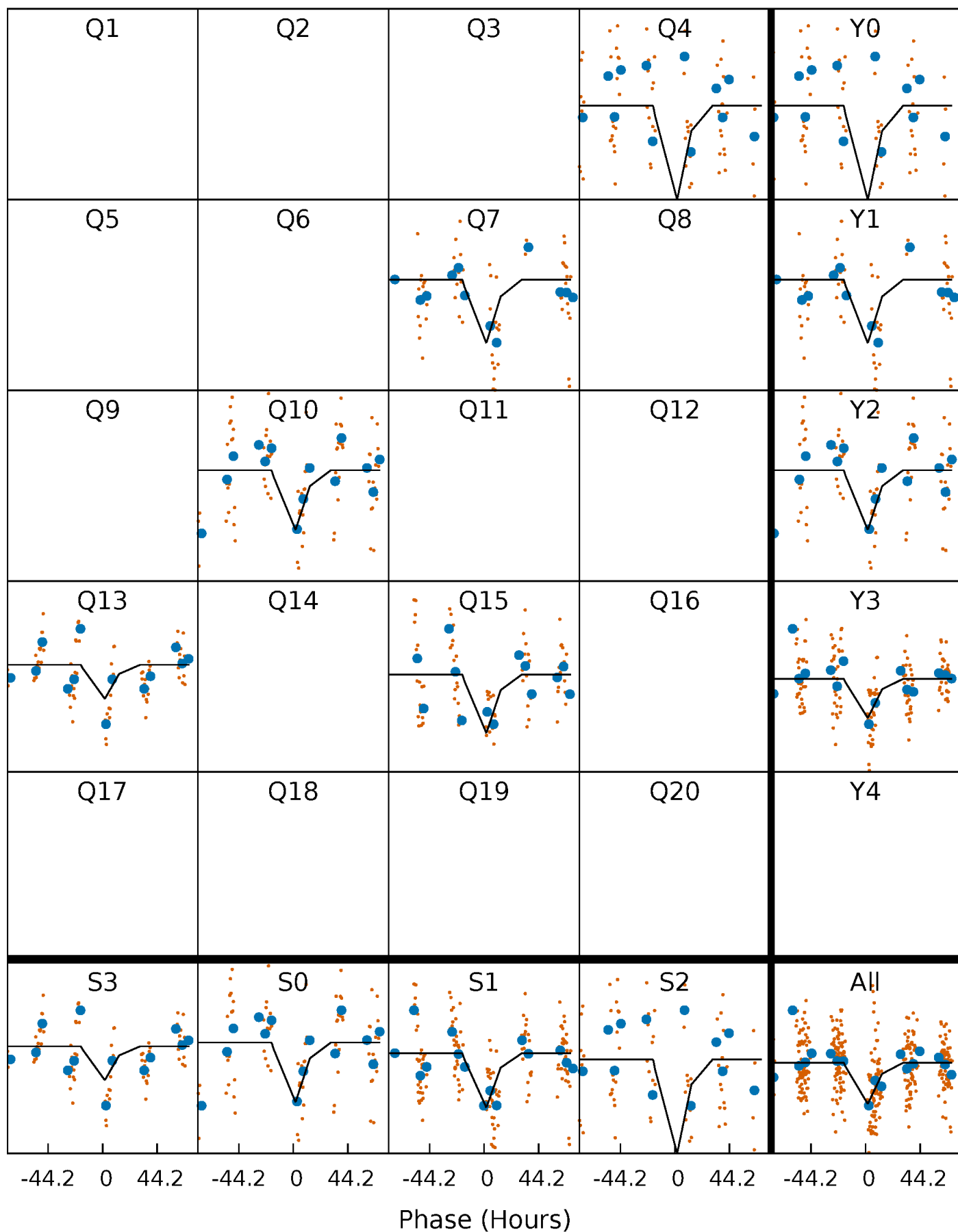
DV Quarter-Phased Transit Curves

TCE 008747865-05 $P=266.037473$ Days $T_0=392.777979$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

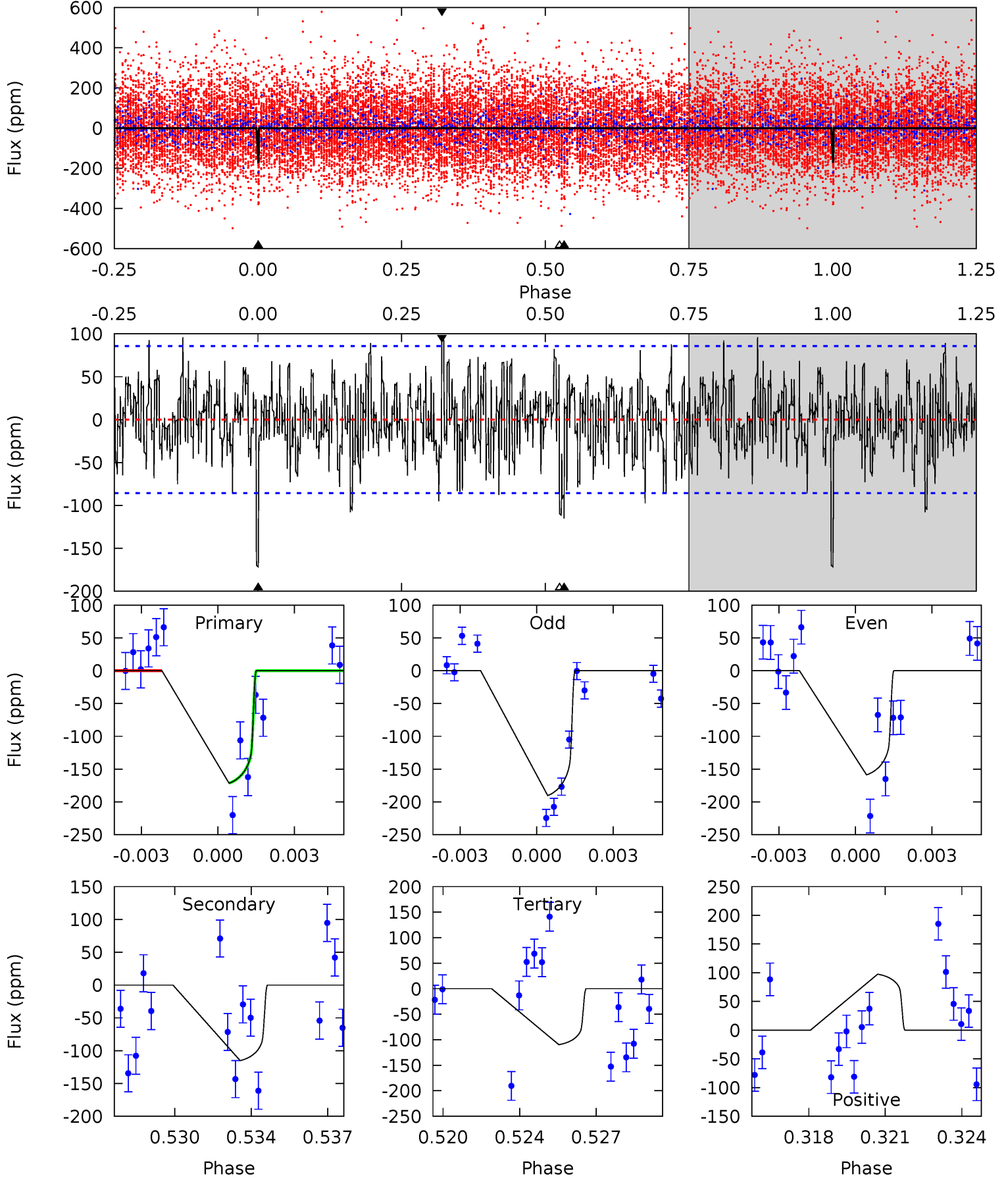
TCE 008747865-05 $P=266.051762$ Days $T_0=392.784805$ (BKJD)



DV Model-Shift Uniqueness Test

008747865-05, P = 266.037473 Days, E = 126.740506 Days

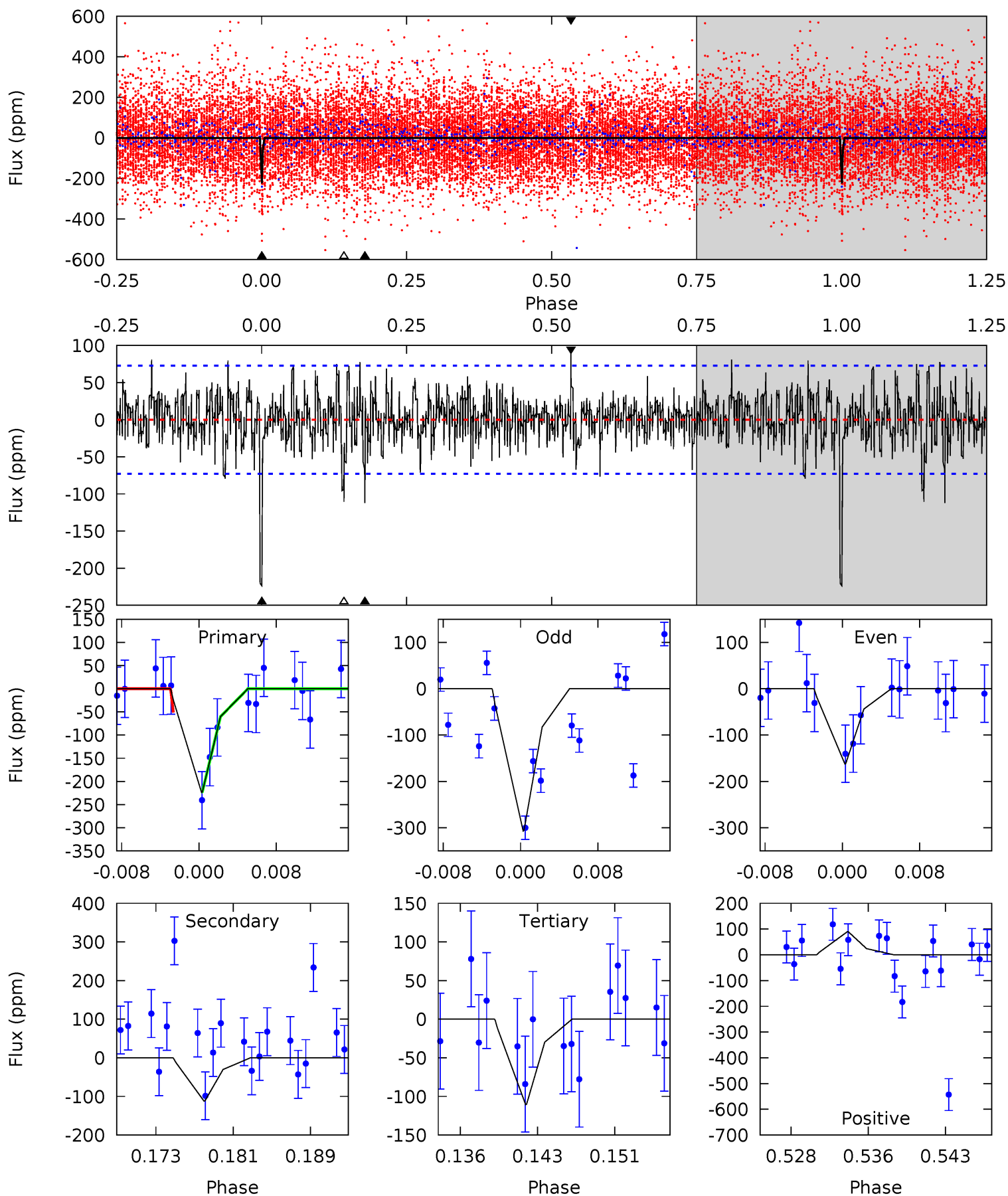
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	7.03	6.69	5.96	5.23	2.93	1.98	3.78	4.51	0.34	1.07	0.94	0.76	0.36	0



Alt Model-Shift Uniqueness Test

008747865-05, P = 266.051762 Days, E = 126.733043 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.6	7.81	7.71	6.27	5.08	2.67	1.70	7.87	9.31	0.10	1.54	5.00	0.84	0.29	3.06



Stellar Parameters For KIC 008747865

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6770^{+81}_{-81}	$4.114^{+0.132}_{-0.108}$	$-0.060^{+0.150}_{-0.150}$	$1.717^{+0.274}_{-0.274}$	$1.405^{+0.109}_{-0.098}$	$0.391^{+0.240}_{-0.127}$
	+1%/-1%	+3%/-3%	+250%/-250%	+16%/-16%	+8%/-7%	+62%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 008747865-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-115 ± 16	$2.74^{+0.57}_{-0.54}$	573^{+25}_{-25}	5792^{+622}_{-501}	7032^{+4179}_{-2559}
Alt.	-112 ± 14	$2.71^{+0.58}_{-0.53}$	575^{+27}_{-26}	5767^{+629}_{-458}	6885^{+3847}_{-2317}

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

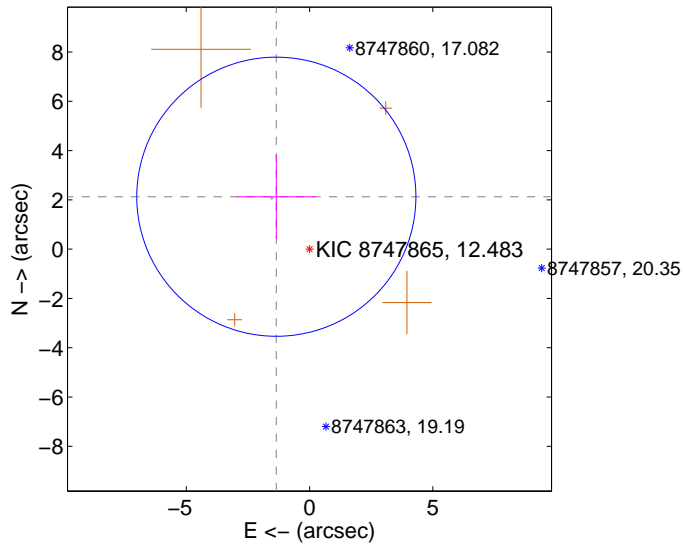
Supplemental centroid analysis for 008747865-05. Kepler magnitude: 12.48. Transit SNR 7.55

There are 1 quarters with good PRF difference image offsets

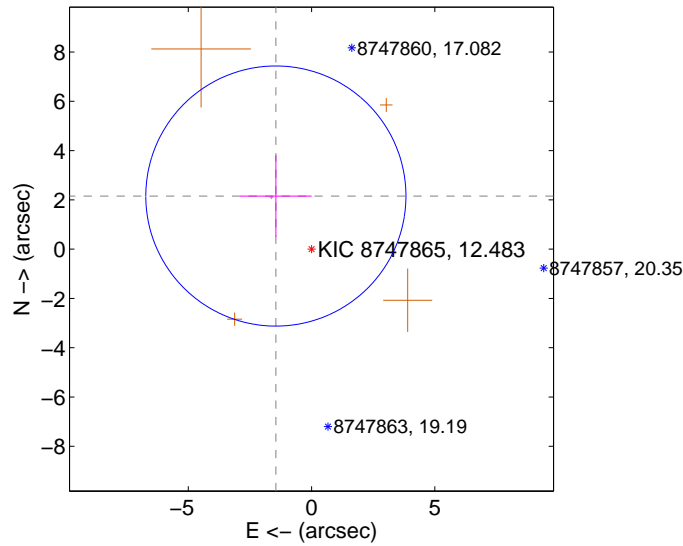
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.519 ± 1.888	1.33	1.348 ± 1.601	2.128 ± 1.703
PRF-fit source offset from KIC position	2.597 ± 1.759	1.48	1.448 ± 1.454	2.156 ± 1.658
photometric centroid source offset	1.17 ± 0.70	1.66	-0.92 ± 0.68	0.71 ± 0.73

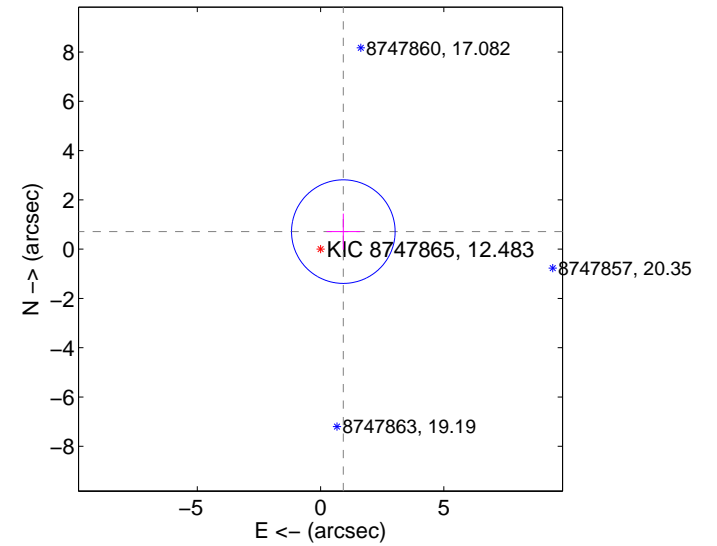
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

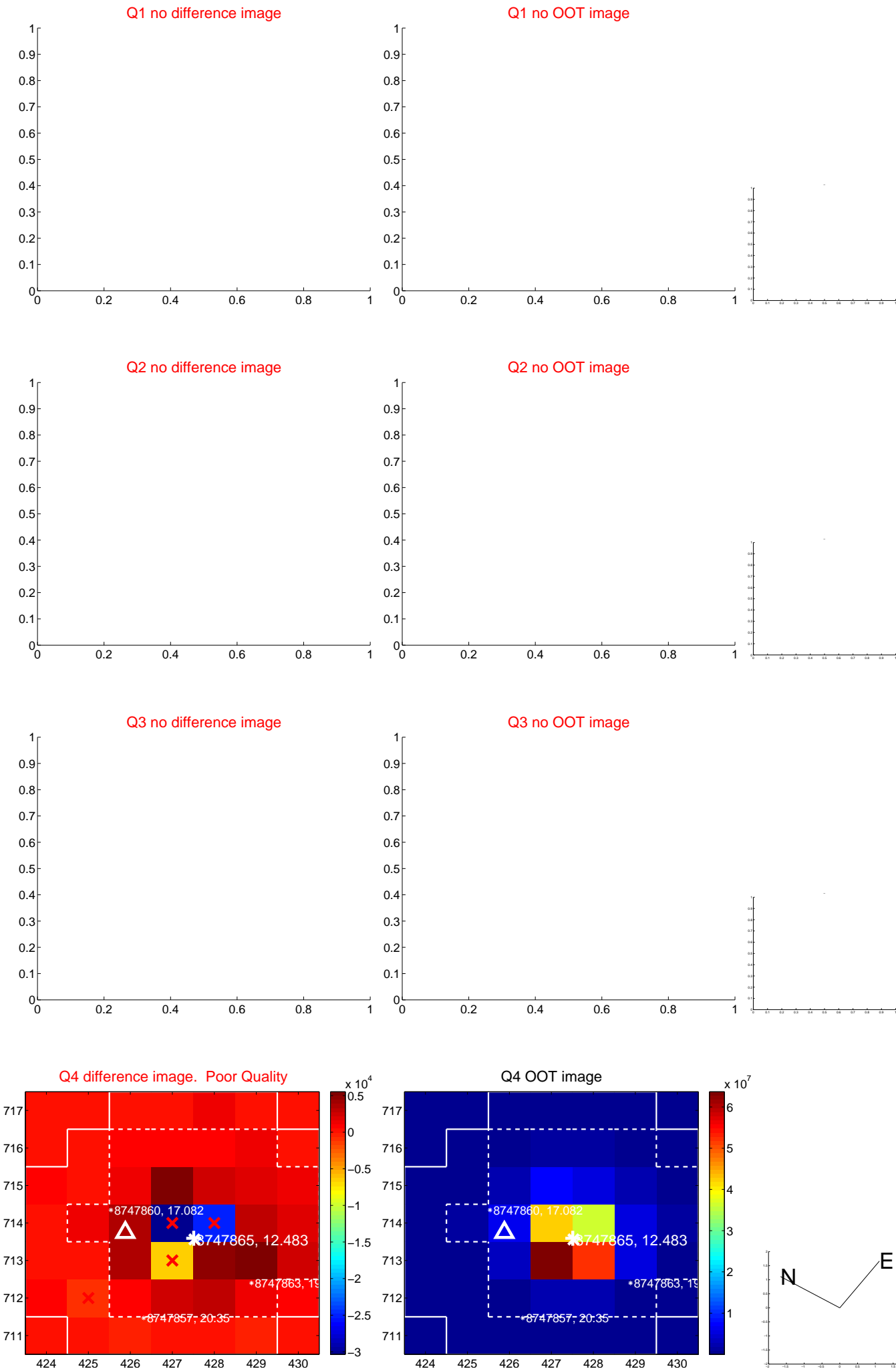


offset from photometric centroids



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

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



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

Q5 no difference image



Q5 no OOT image



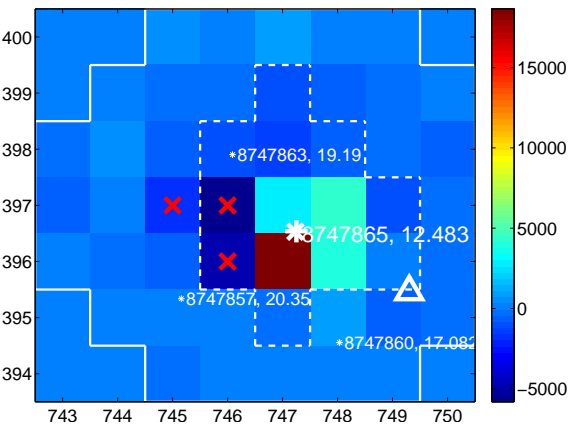
Q6 no difference image



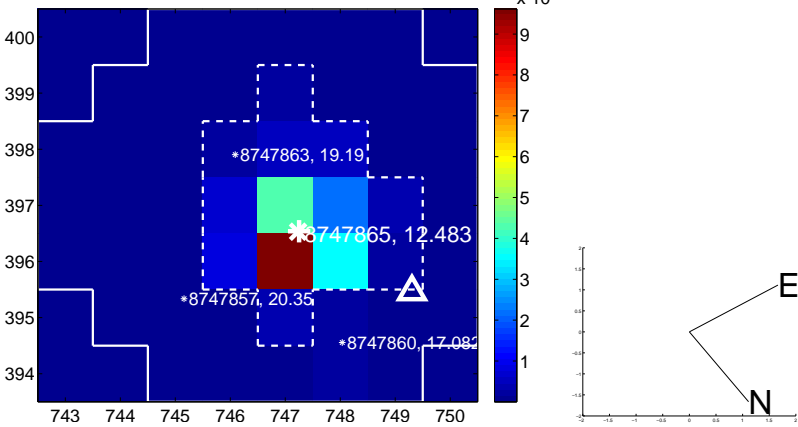
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



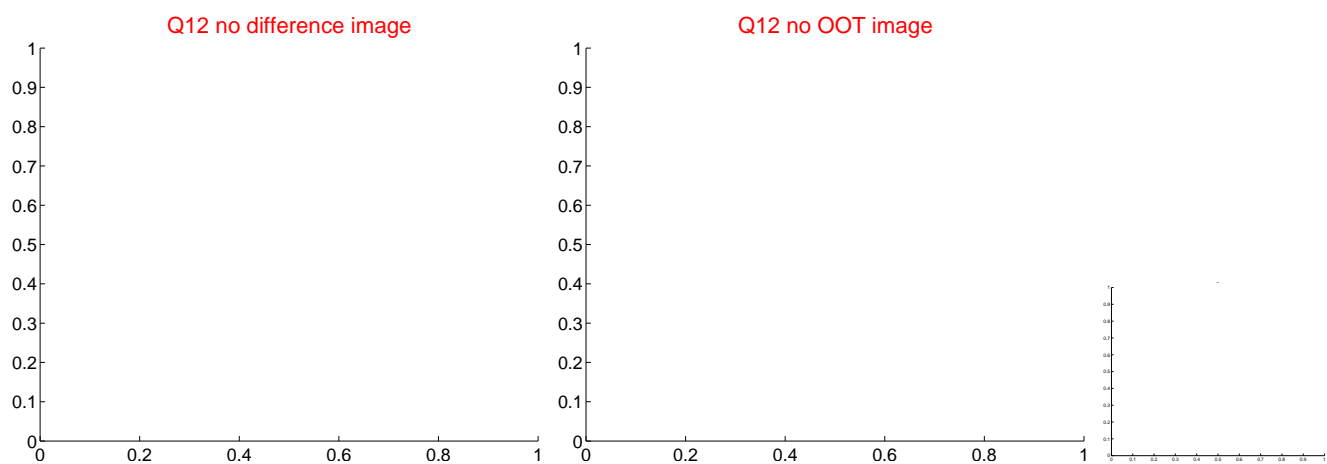
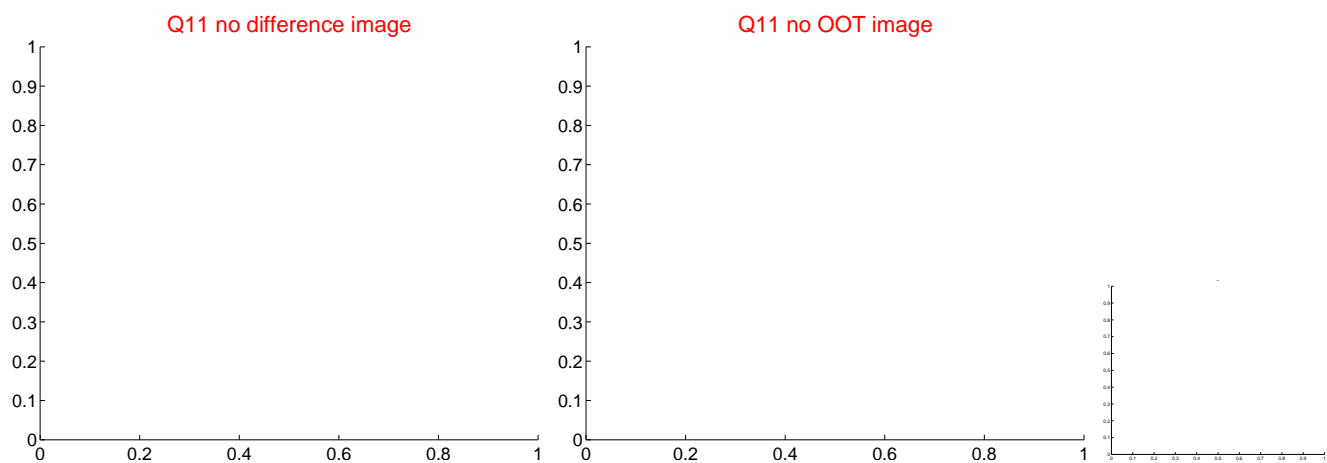
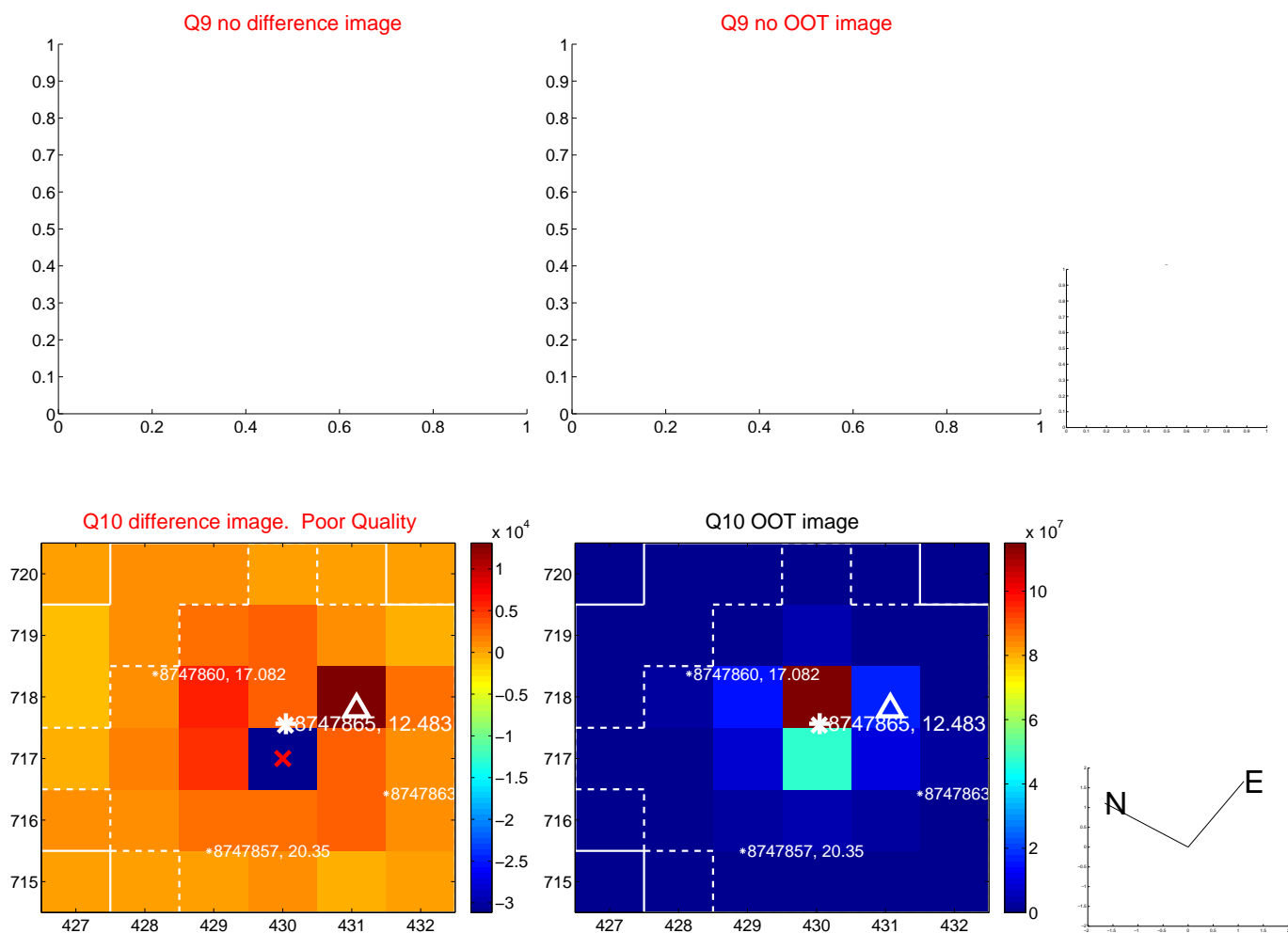
Q8 no difference image



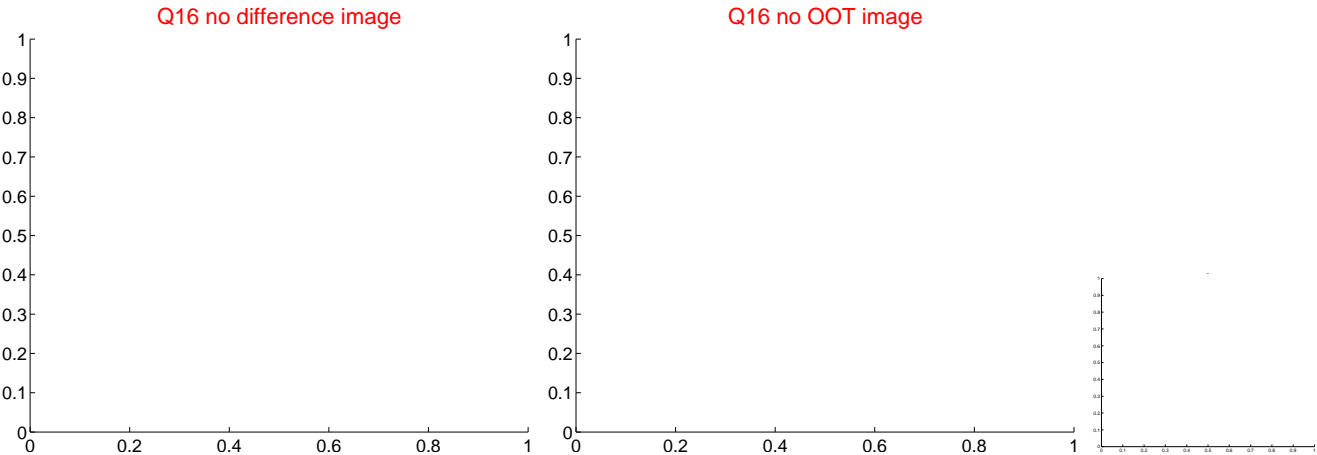
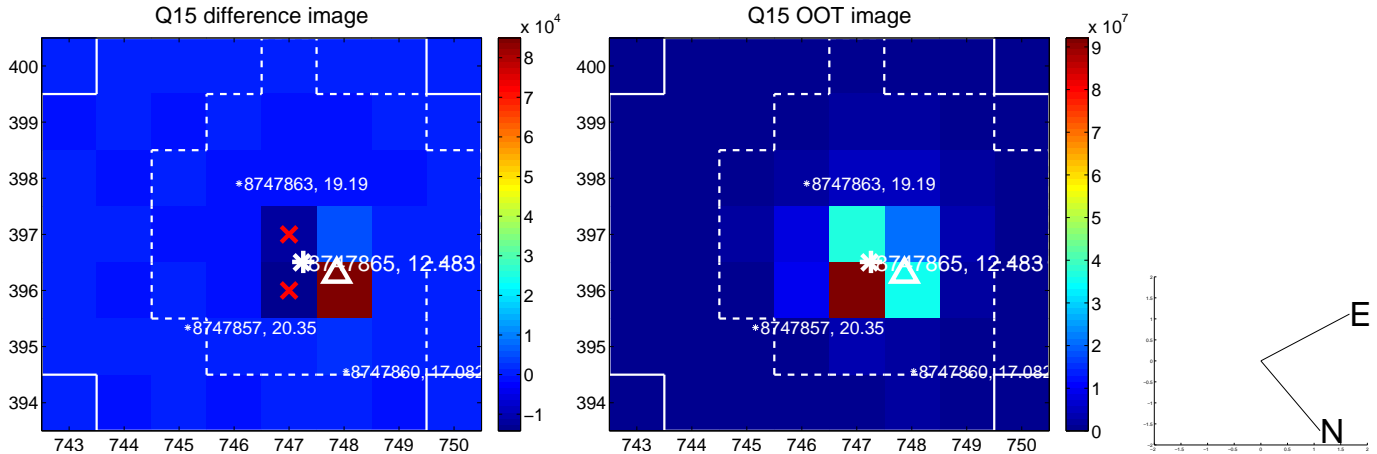
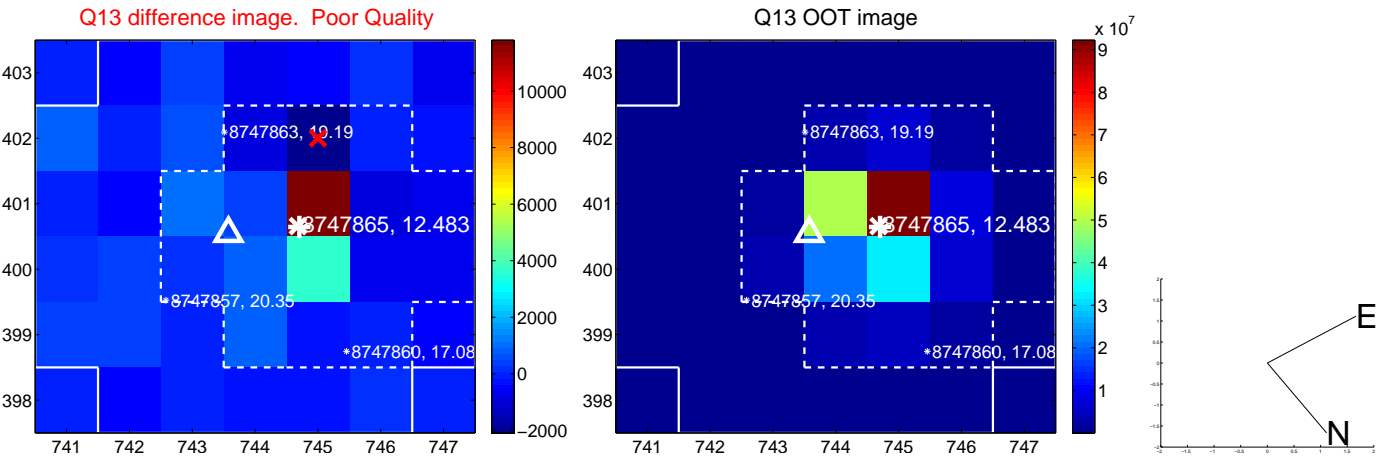
Q8 no OOT image



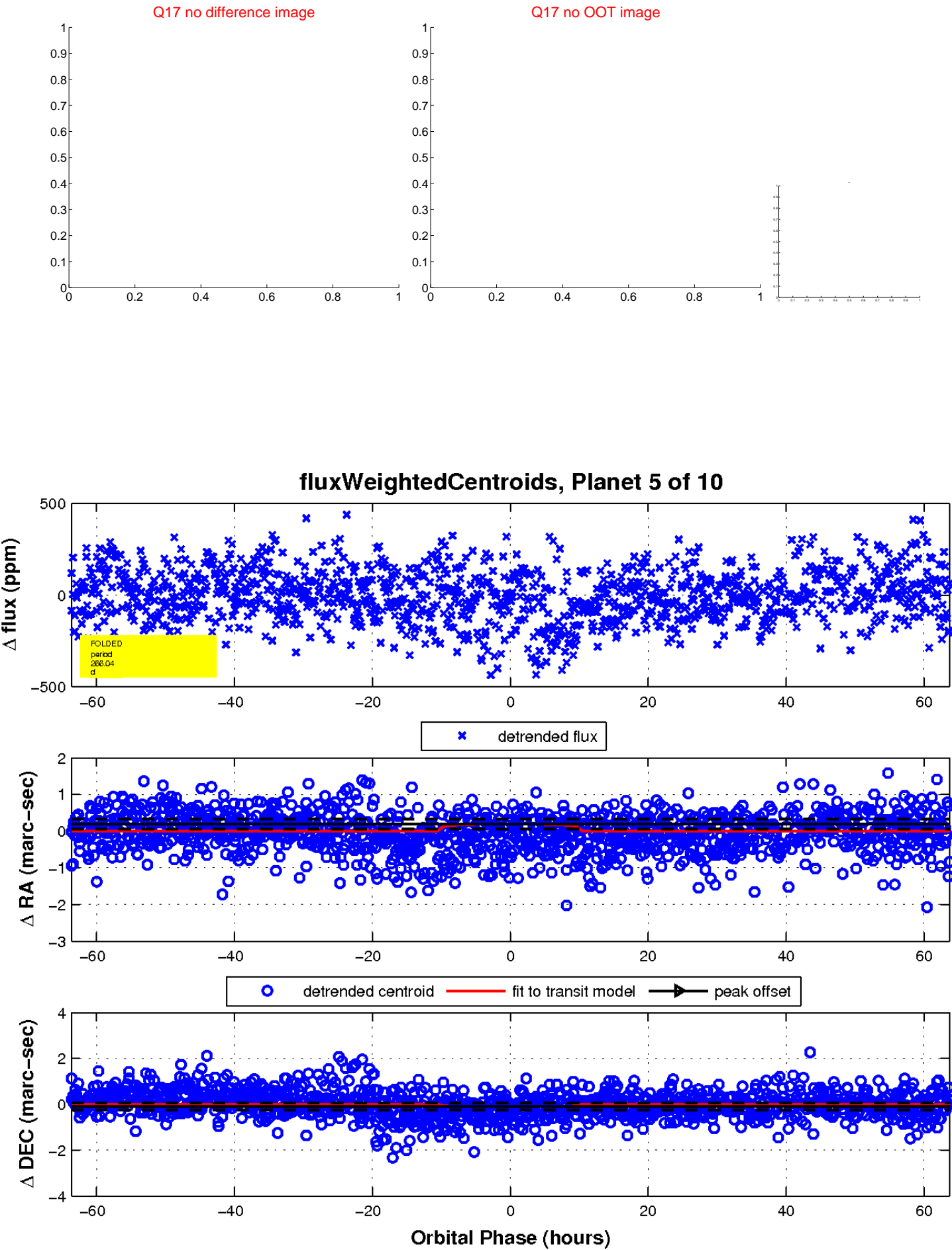
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

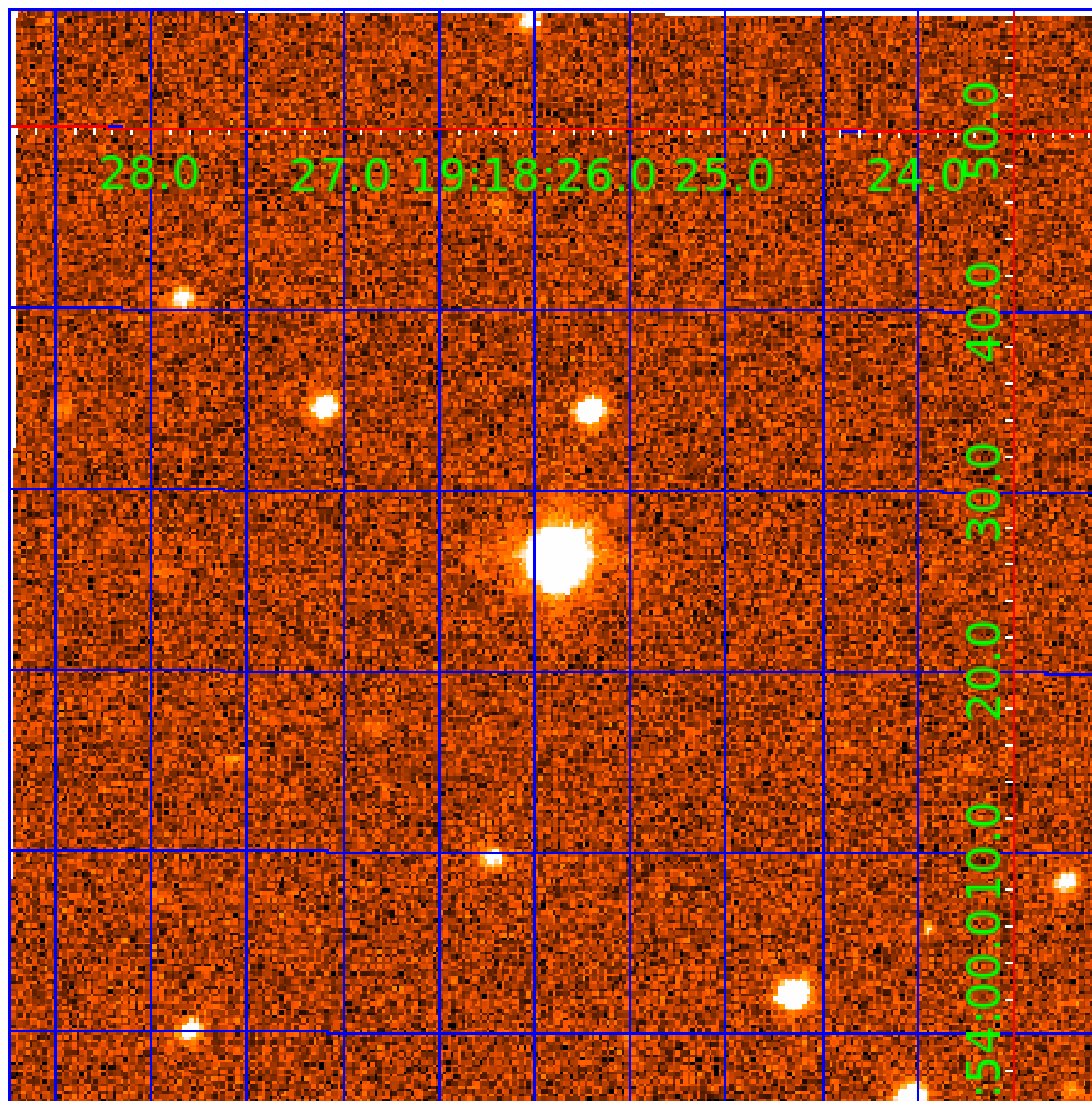


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008747865

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})
008747865-01	OBS	No	1.209131	132.607616	12.5	6.765	8.4	6.4	1.72	6770	0.64	8990.79
008747865-02	OBS	No	97.198270	158.316789	263.6	3.940	8.2	9.0	1.72	6770	3.15	25.91
008747865-04	OBS	No	69.622216	186.999204	143.5	5.632	8.4	6.8	1.72	6770	2.21	40.44
008747865-05	OBS	No	266.037473	392.777979	198.4	21.247	8.2	7.6	1.72	6770	2.75	6.77
008747865-06	OBS	No	115.943719	140.631570	236.8	2.837	8.0	8.3	1.72	6770	2.96	20.48
008747865-07	OBS	No	46.902202	165.353757	175.3	2.299	8.1	7.6	1.72	6770	2.58	68.47
008747865-08	OBS	No	40.482062	171.627250	113.5	9.685	7.2	8.2	1.72	6770	1.98	83.32
008747865-09	OBS	No	115.128340	183.140863	287.1	4.893	7.5	9.6	1.72	6770	4.52	20.68
008747865-10	OBS	No	126.754341	154.280346	261.3	3.501	8.0	8.4	1.72	6770	3.08	18.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008747865-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008747865-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008747865-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
008747865-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008747865-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

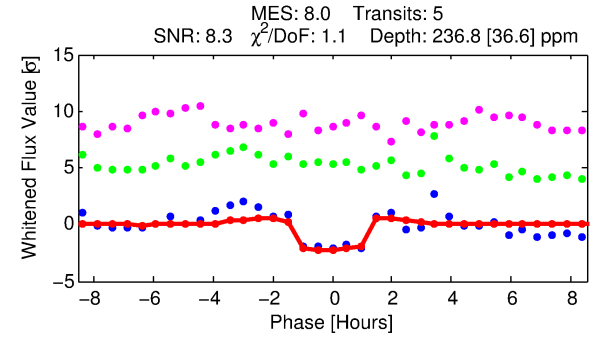
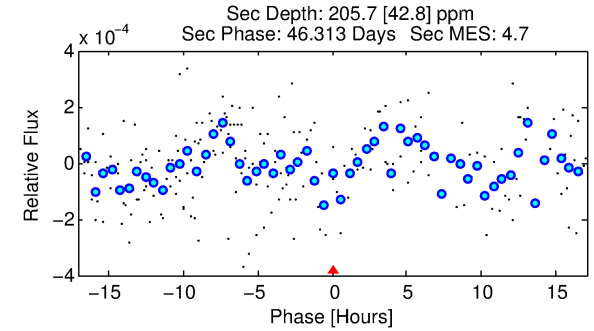
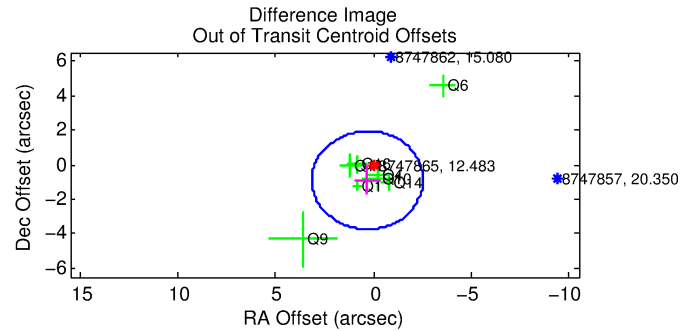
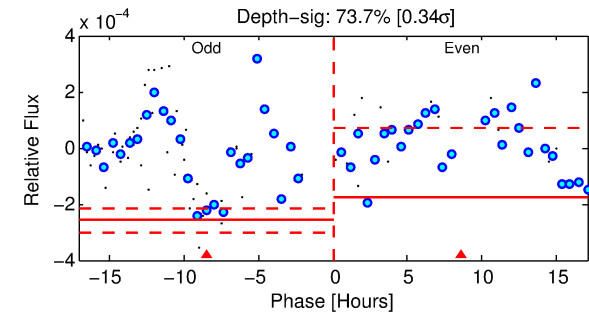
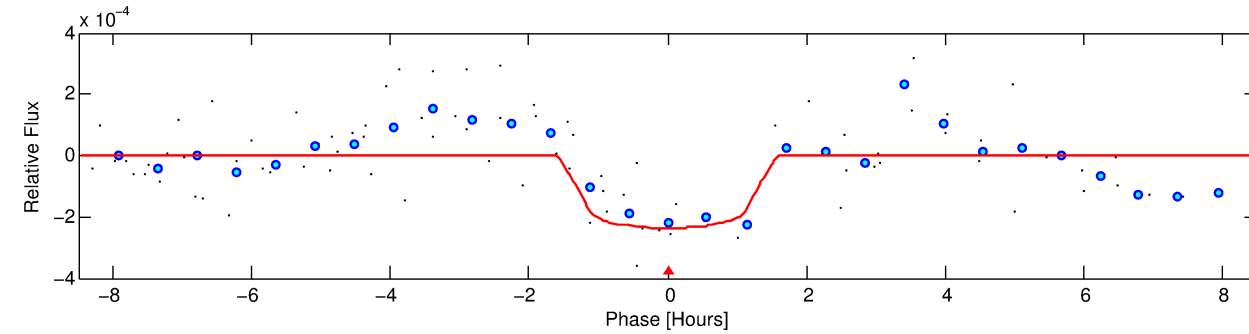
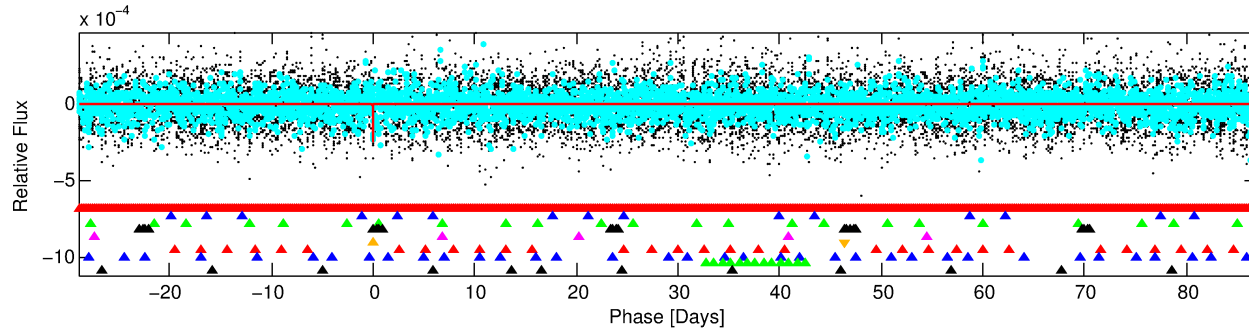
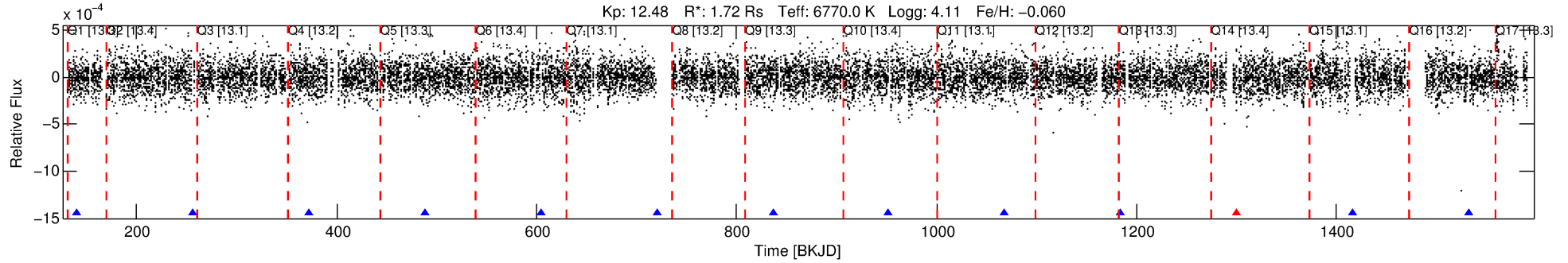
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008747865-06

No Significant Match Found

DV One-Page Summary

KIC: 8747865 Candidate: 6 of 10 Period: 115.944 d



DV Fit Results:

Period = 115.94372 [0.00097] d
Epoch = 140.6316 [0.0066] BKJD
Rp/R* = 0.0158 [0.0065]
a/R* = 179.61 [416.46]
b = 0.84 [0.83]
Seff = 20.48 [4.79]
Teq = 542 [32] K
Rp = 2.97 [1.31] Re
a = 0.5204 [0.0765] AU
Ag = 3486.13 [3076.55] [1.13 σ]
Teffp = 6445 [1375] K [4.29 σ]

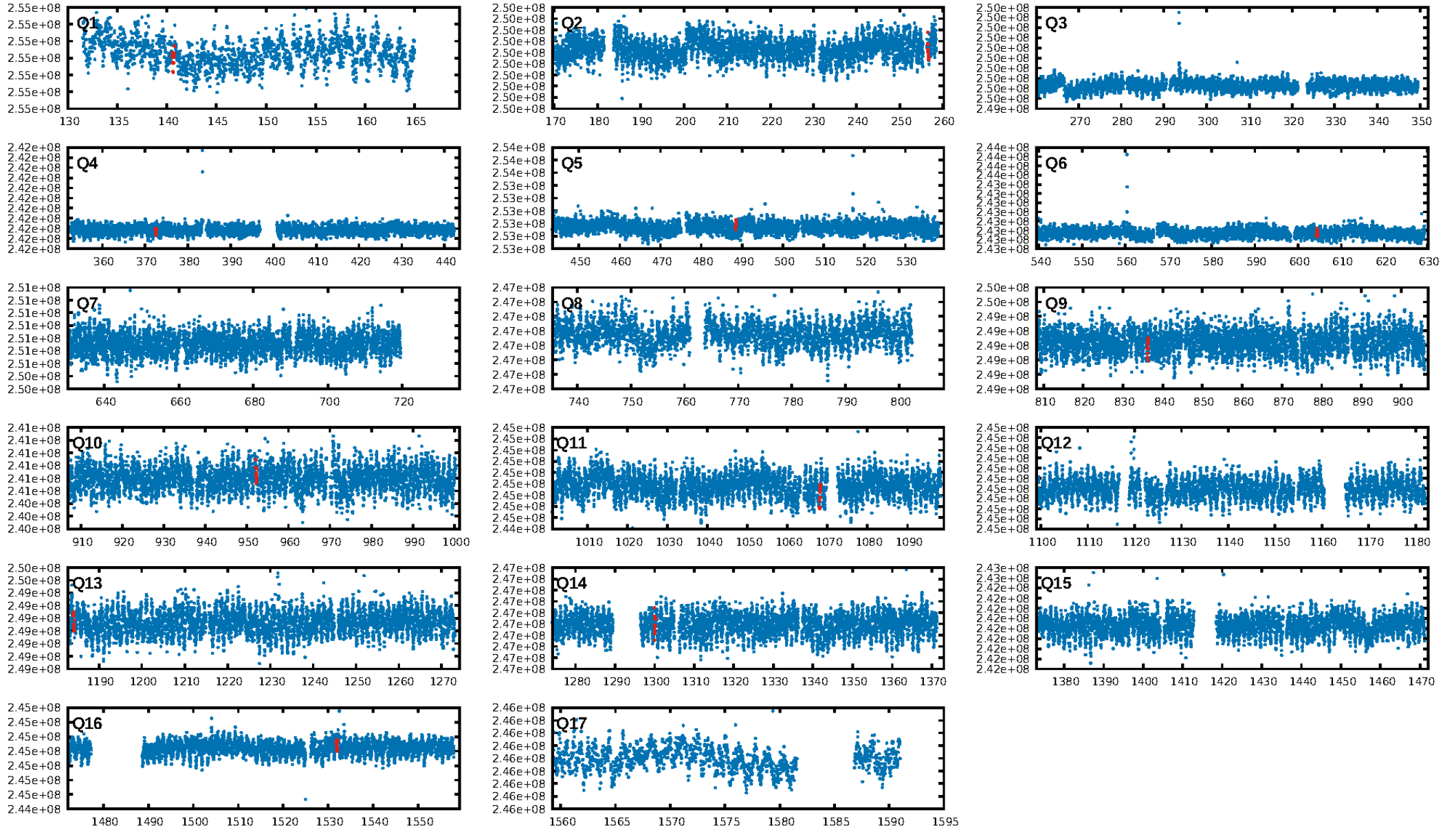
DV Diagnostic Results:

ShortPeriod-sig: 99.9% [3.46 σ]
LongPeriod-sig: 100.0% [57.58 σ]
ModelChiSquare2-sig: 57.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.96e-09
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: 0.5678
Centroid-sig: 77.8%
Centroid-so: 0.247 arcsec [0.32 σ]
OotOffset-rm: 0.958 arcsec [1.01 σ]
OotOffset-st: 3/1/2/2 [8]
KicOffset-rm: 0.885 arcsec [0.84 σ]
KicOffset-st: 3/1/2/2 [8]
DiffImageQuality-fgm: 0.75 [6/8]
DiffImageOverlap-fno: 0.18 [2/11]

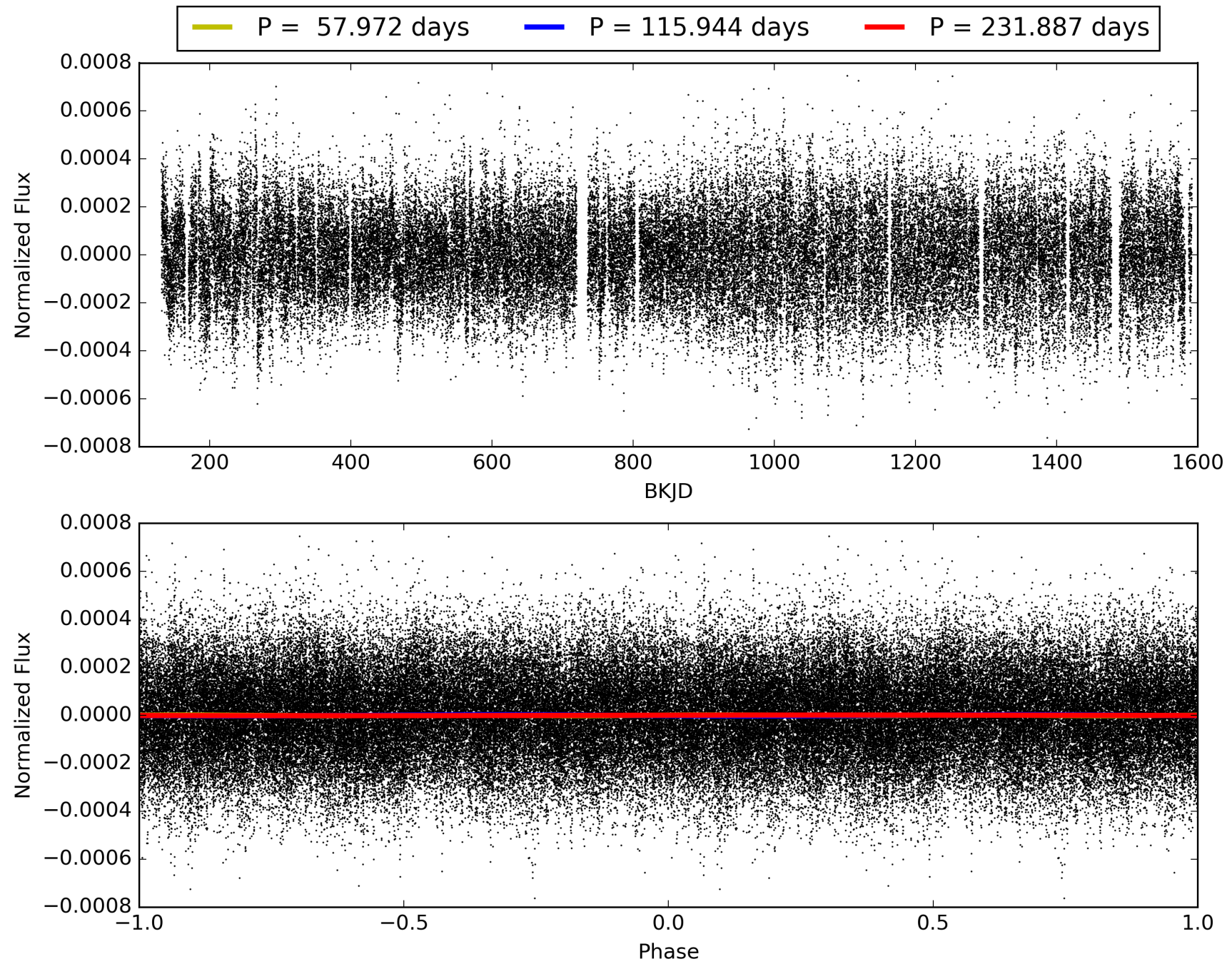
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:17:27 Z

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

TCE 008747865-06, PDC Light Curves

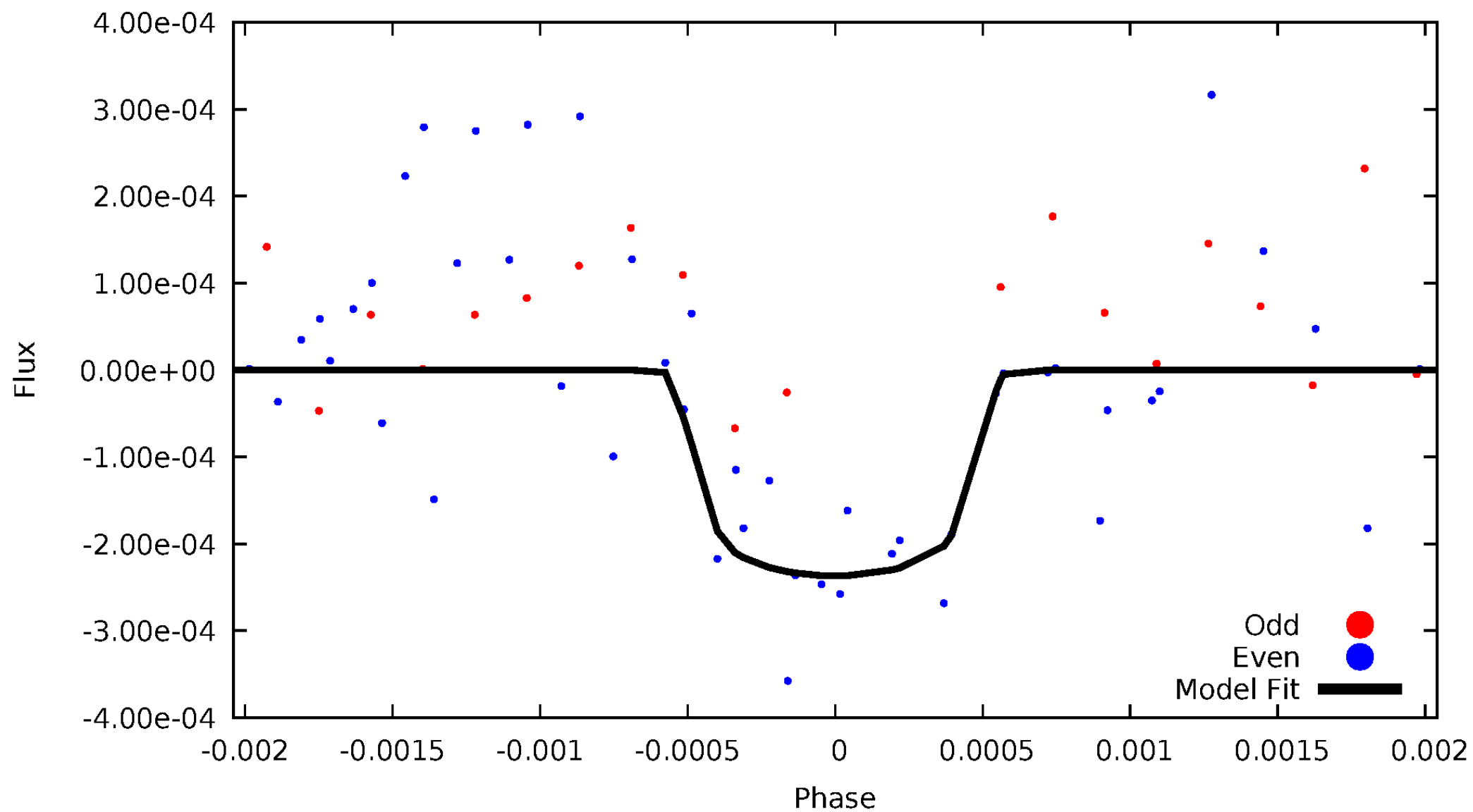


TCE 008747865-06



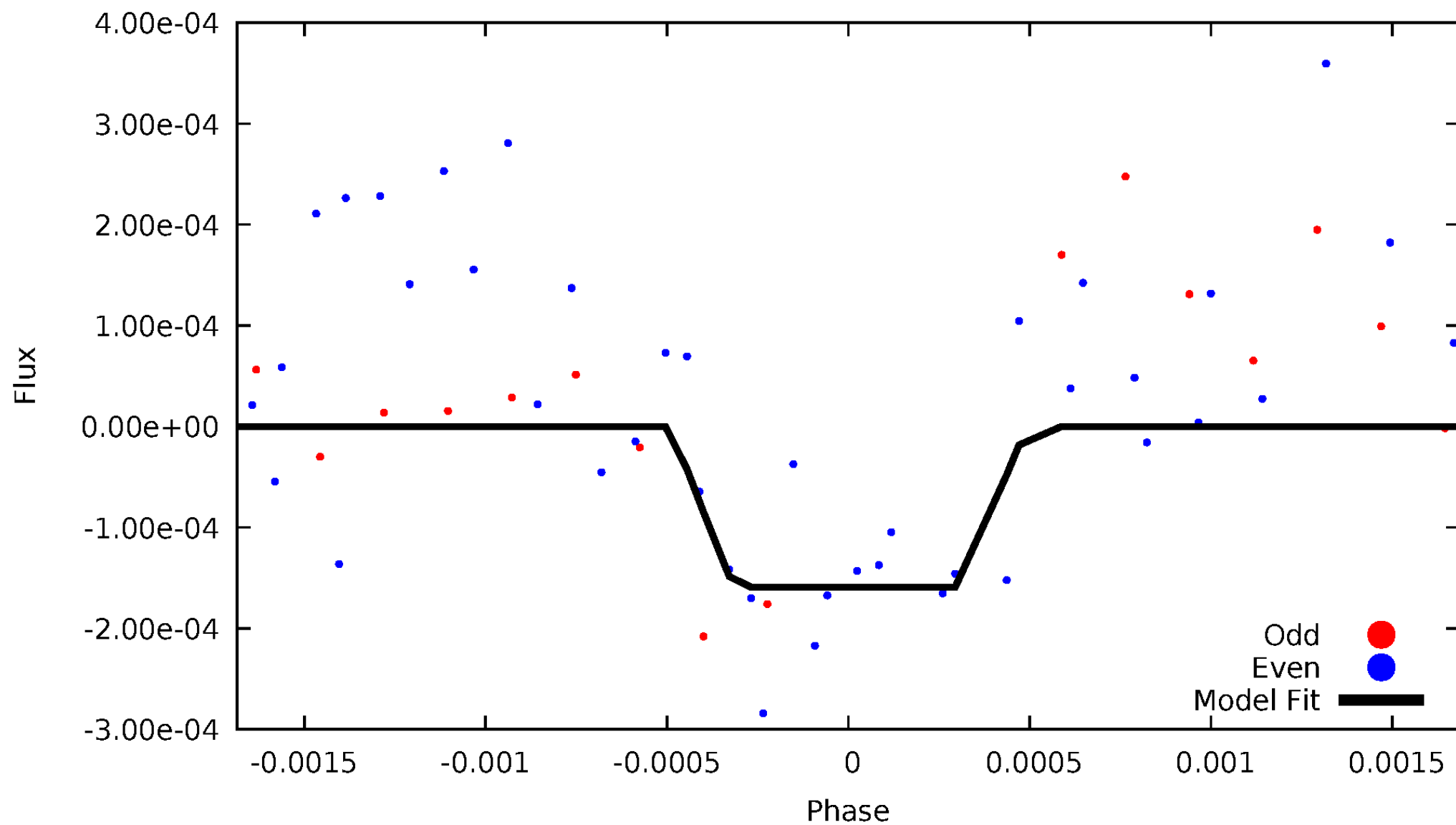
DV Odd/Even

TCE 008747865-06



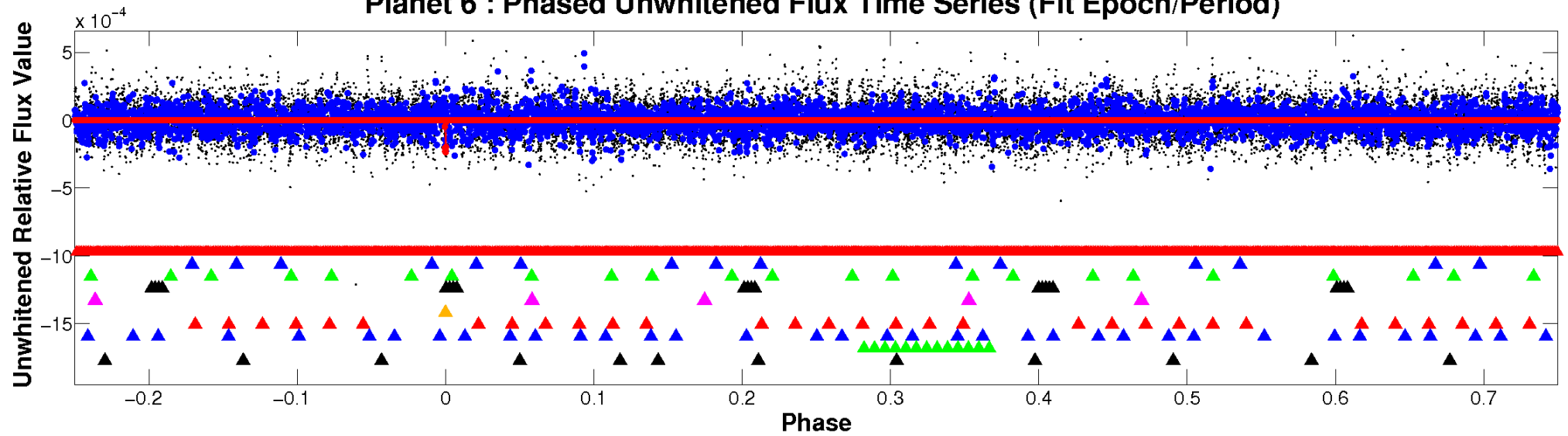
ALT Odd/Even

TCE 008747865-06

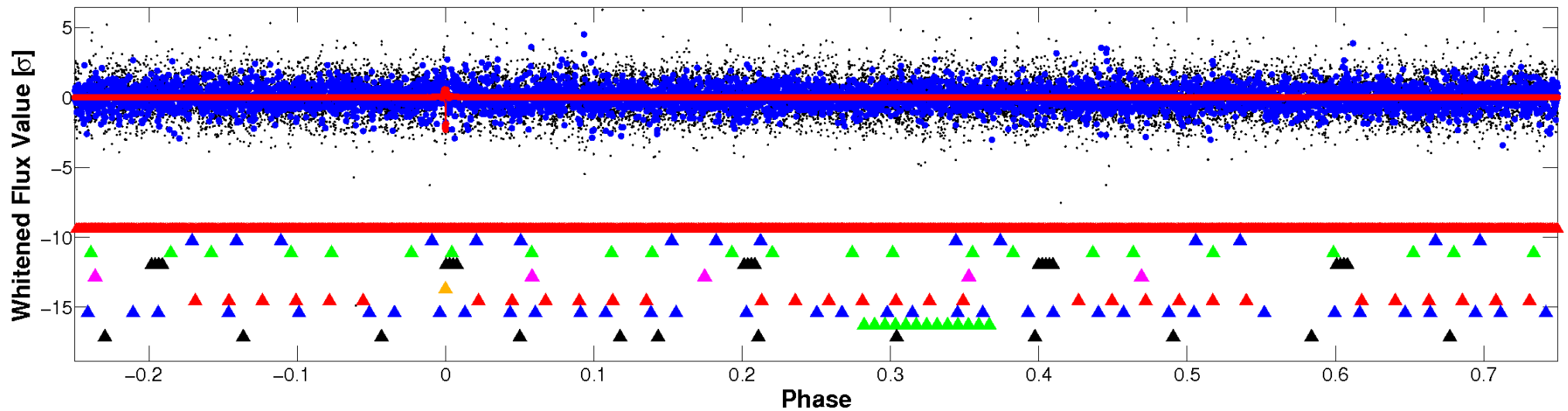


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

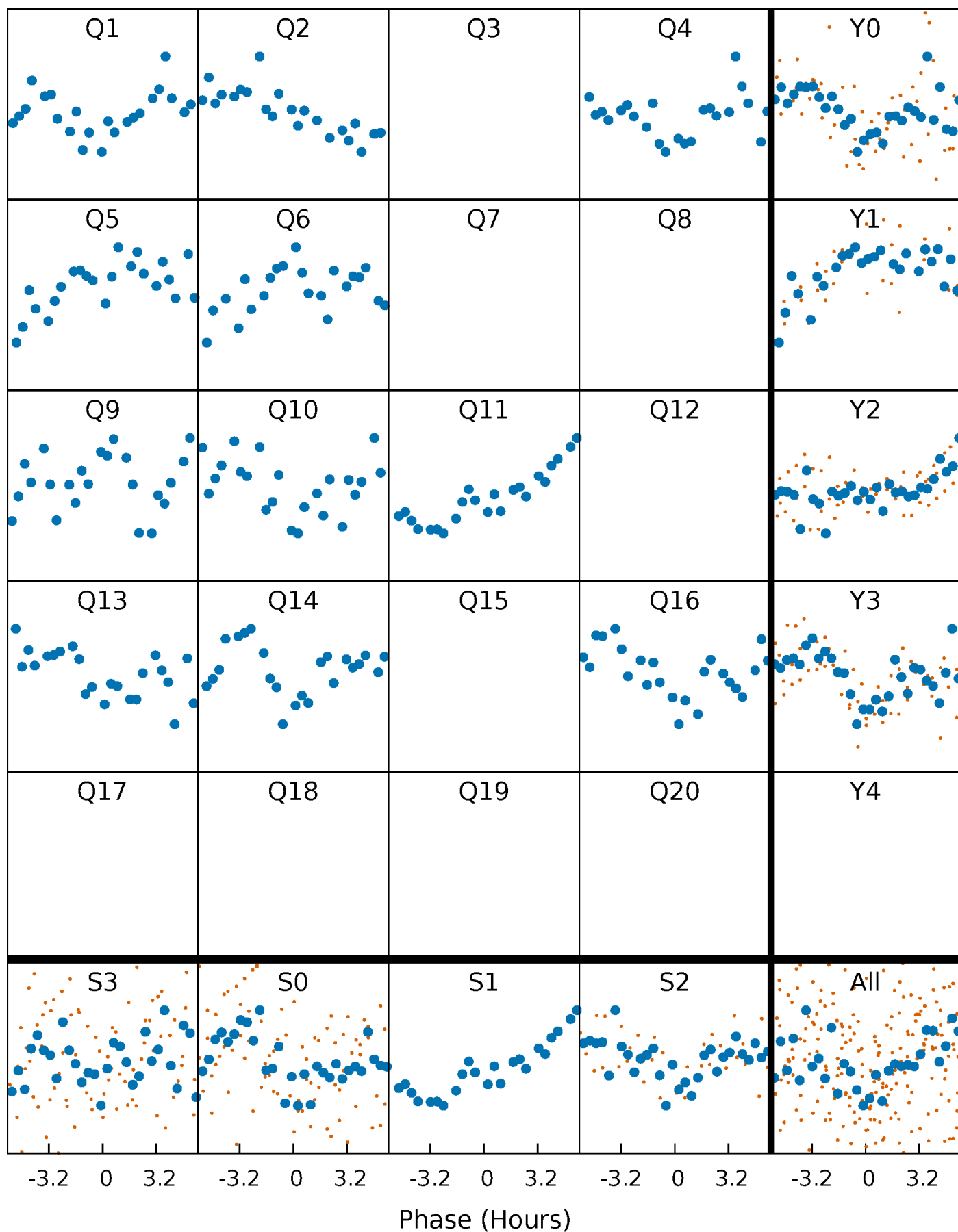


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



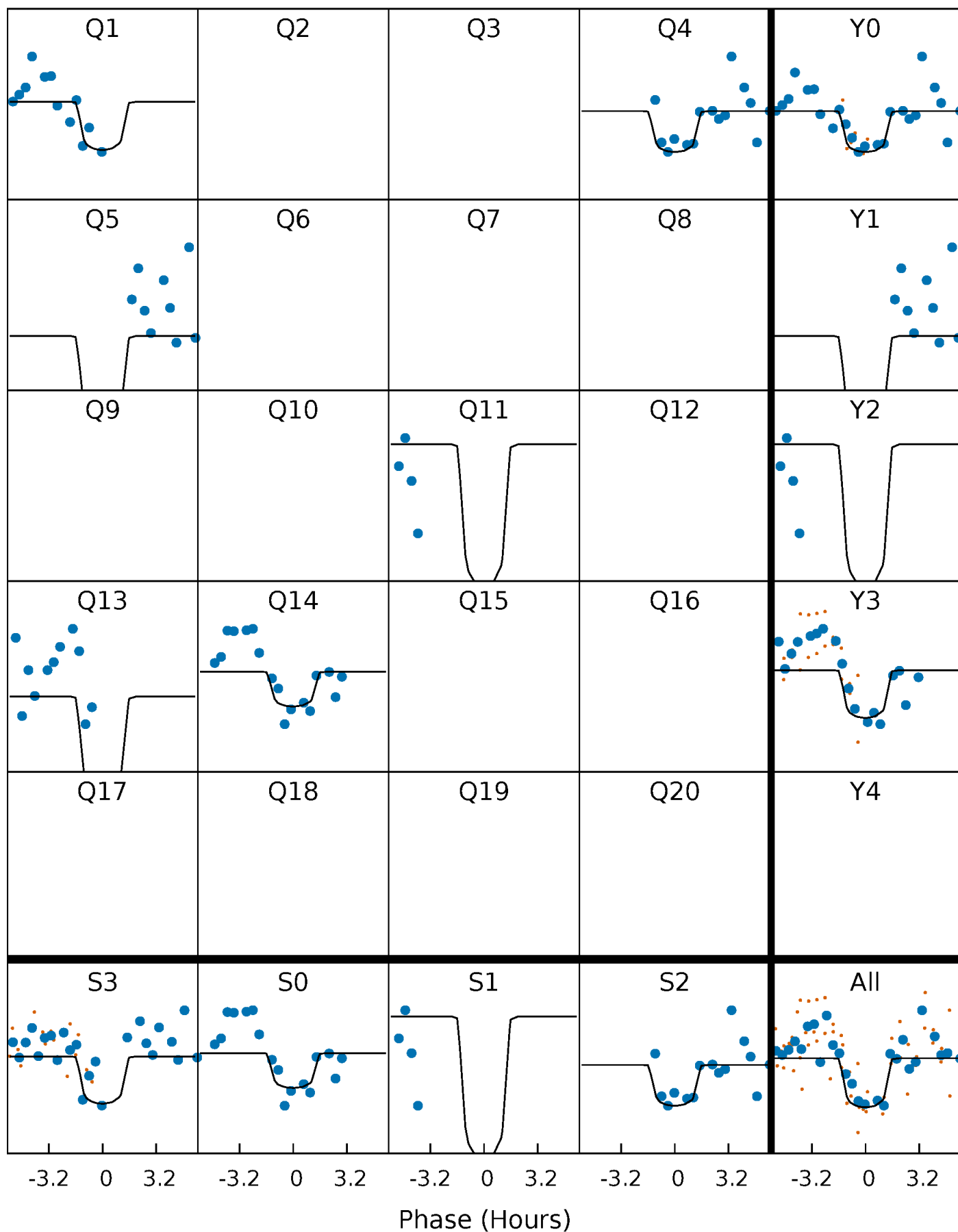
PDC Quarter-Phased Transit Curves

TCE 008747865-06 P=115.943719 Days $T_0=140.631570$ (BKJD)



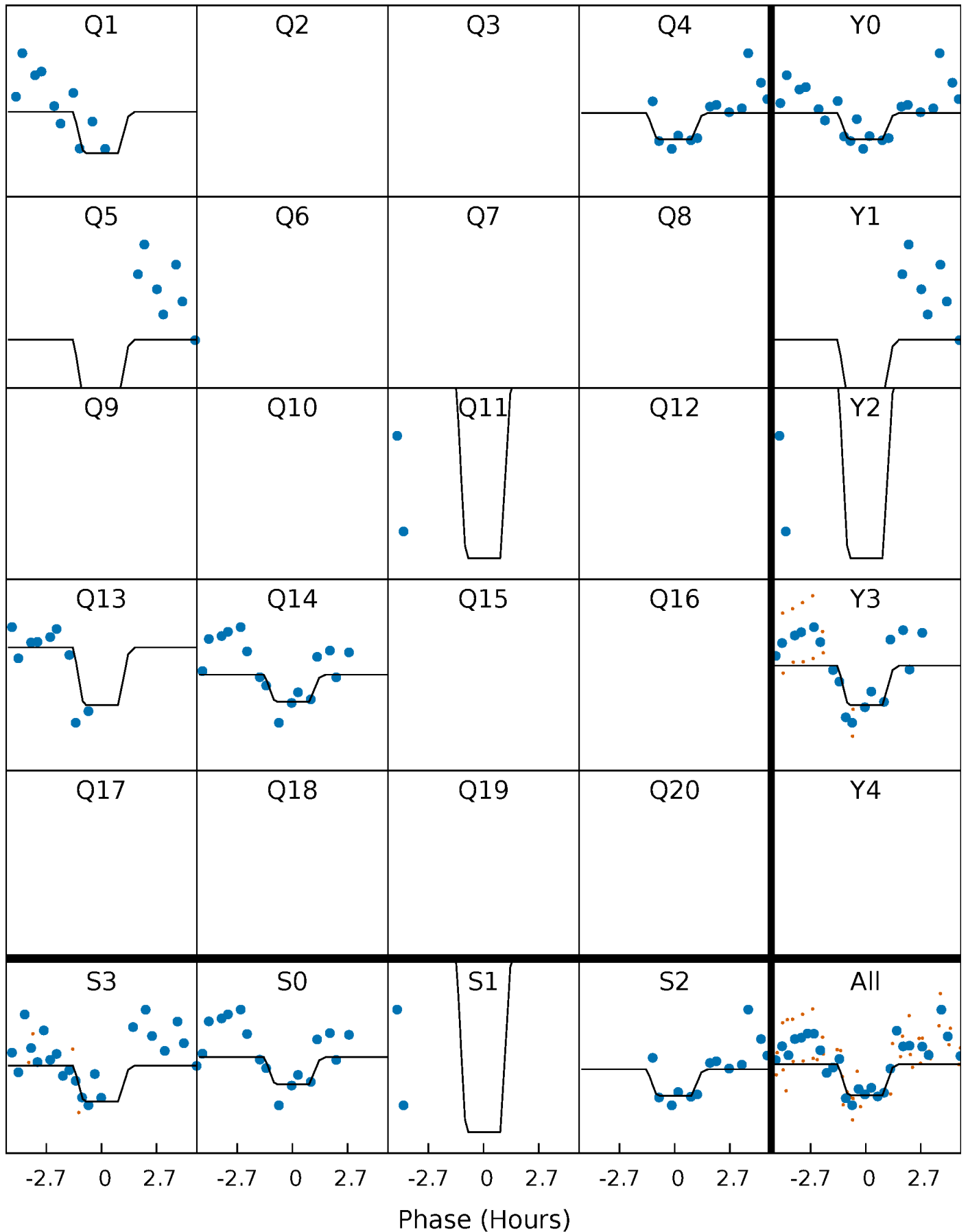
DV Quarter-Phased Transit Curves

TCE 008747865-06 P=115.943719 Days $T_0=140.631570$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

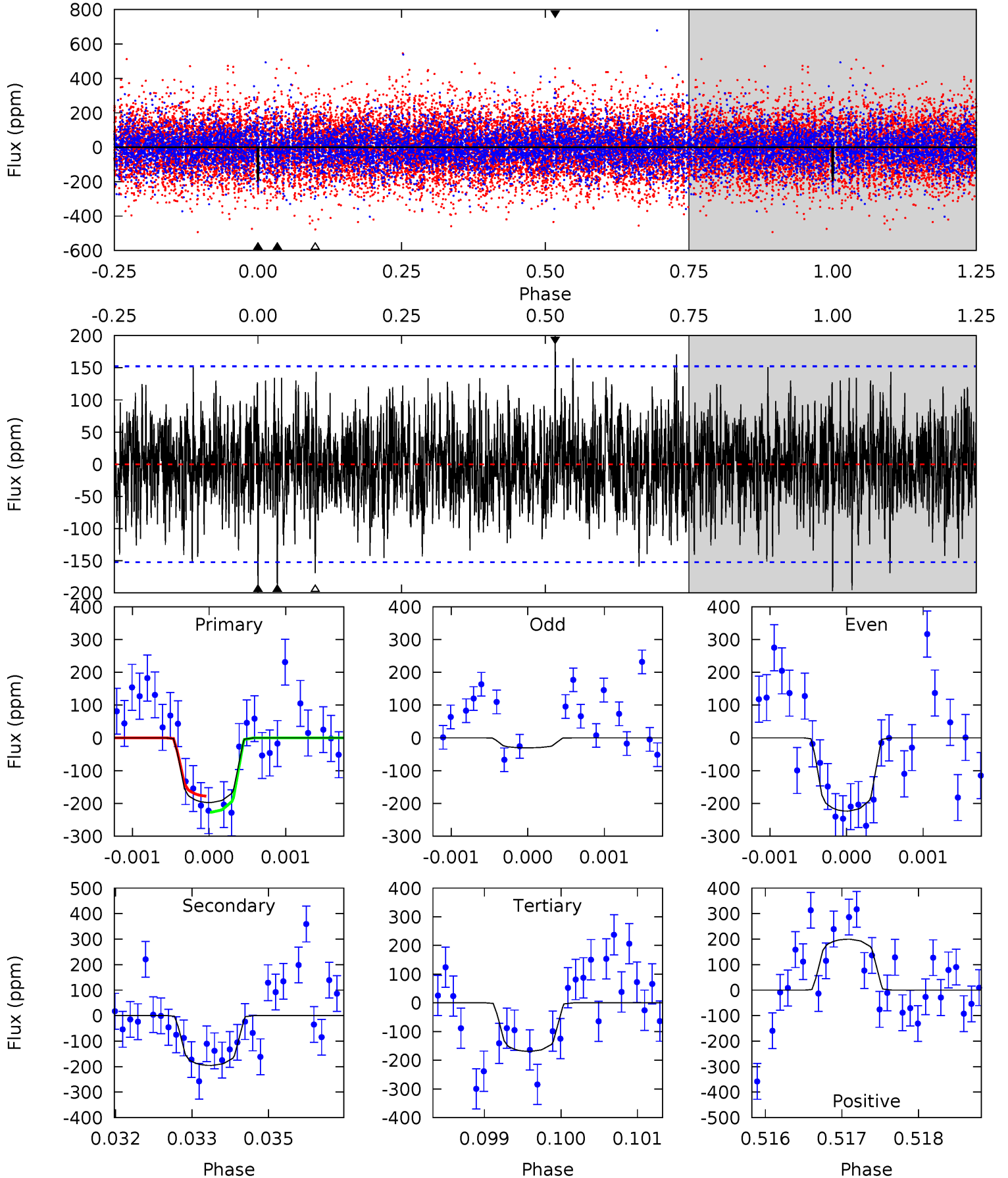
TCE 008747865-06 P=115.945399 Days $T_0=140.623310$ (BKJD)



DV Model-Shift Uniqueness Test

008747865-06, $P = 115.943719$ Days, $E = 24.687851$ Days

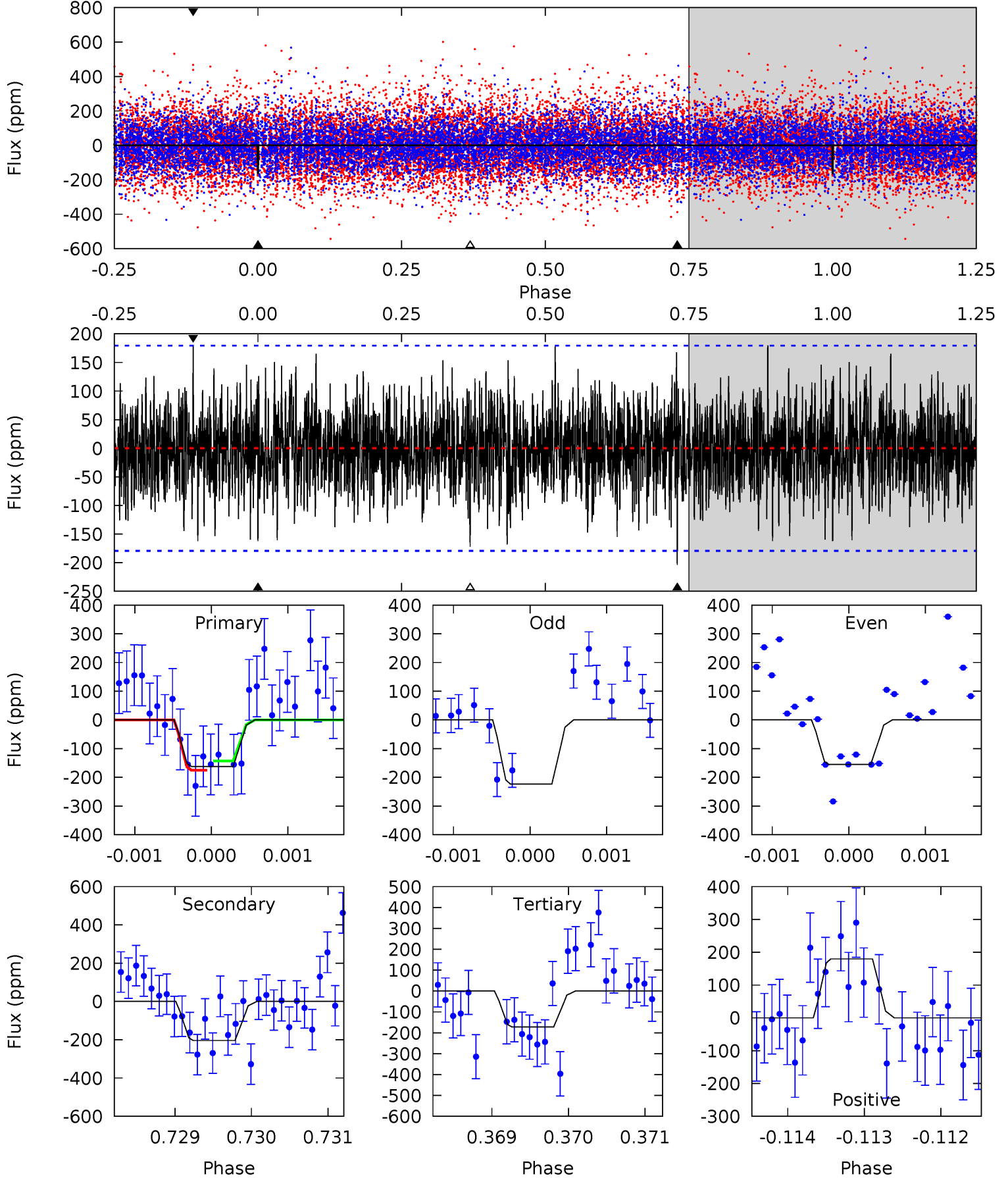
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.02	6.95	6.01	7.10	5.41	3.23	1.77	1.01	-0.07	0.93	-0.15	2.46	0.86	0.50	0.87



Alt Model-Shift Uniqueness Test

008747865-06, $P = 115.945399$ Days, $E = 24.677911$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.93	6.19	5.22	5.45	5.45	3.28	1.58	-0.29	-0.52	0.97	0.73	0.69	0.98	0.47	0.49



Stellar Parameters For KIC 008747865

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6770^{+81}_{-81}	$4.114^{+0.132}_{-0.108}$	$-0.060^{+0.150}_{-0.150}$	$1.717^{+0.274}_{-0.274}$	$1.405^{+0.109}_{-0.098}$	$0.391^{+0.240}_{-0.127}$
	+1%/-1%	+3%/-3%	+250%/-250%	+16%/-16%	+8%/-7%	+62%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 008747865-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-195 ± 28	$2.97^{+1.25}_{-1.25}$	758^{+31}_{-31}	6298^{+2420}_{-978}	3326^{+6987}_{-1805}
Alt.	-204 ± 33	$2.43^{+1.24}_{-1.17}$	757^{+32}_{-34}	7164^{+3711}_{-1415}	5305^{+14373}_{-3078}

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 $A_{obs} \gg 1.0$

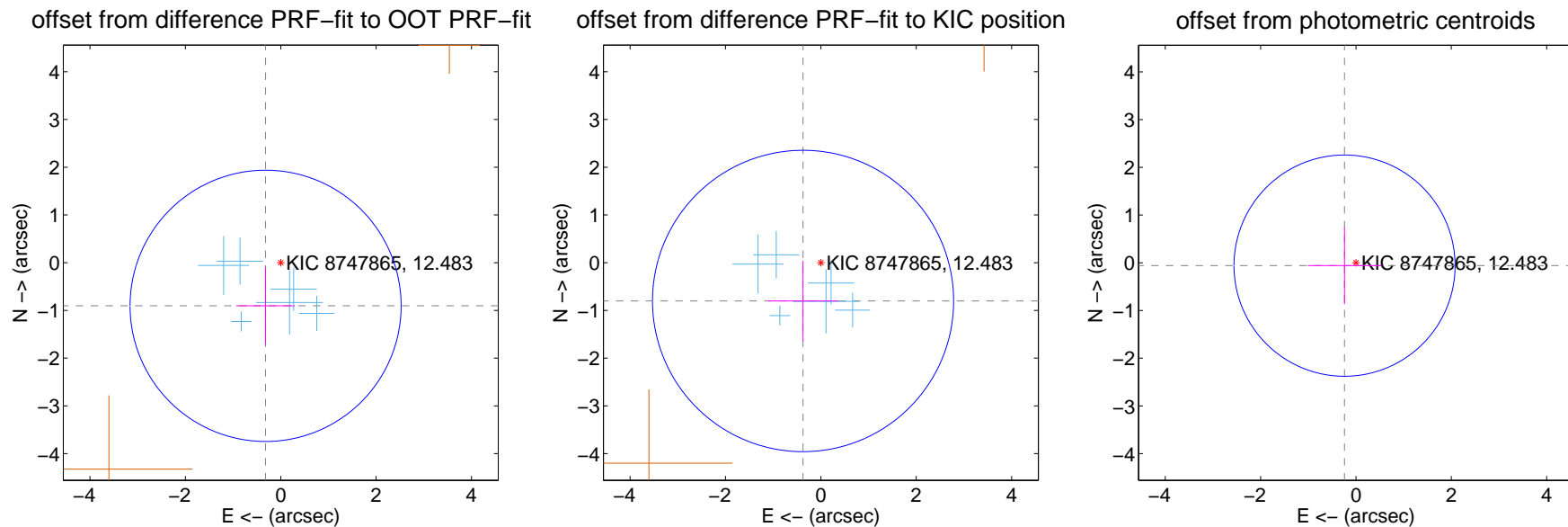
DV Centroid Data

Supplemental centroid analysis for 008747865-06. Kepler magnitude: 12.48. Transit SNR 8.27

There are 6 quarters with good PRF difference image offsets

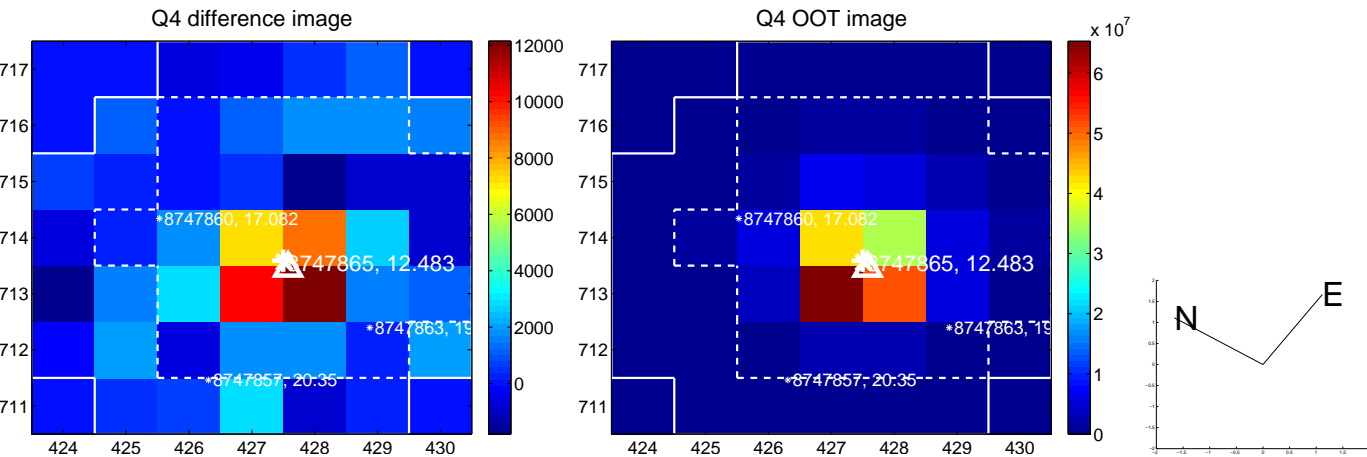
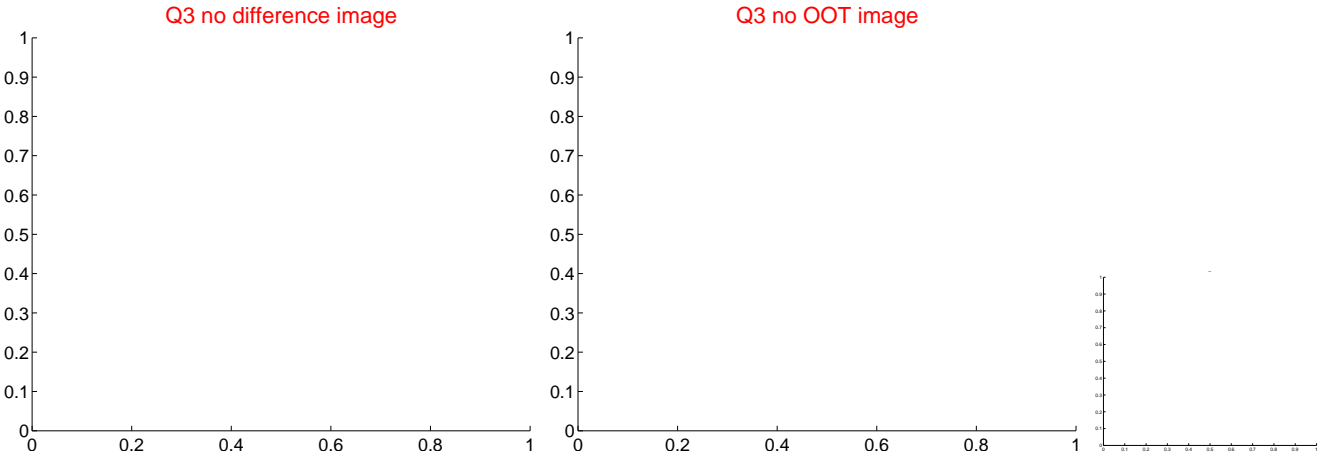
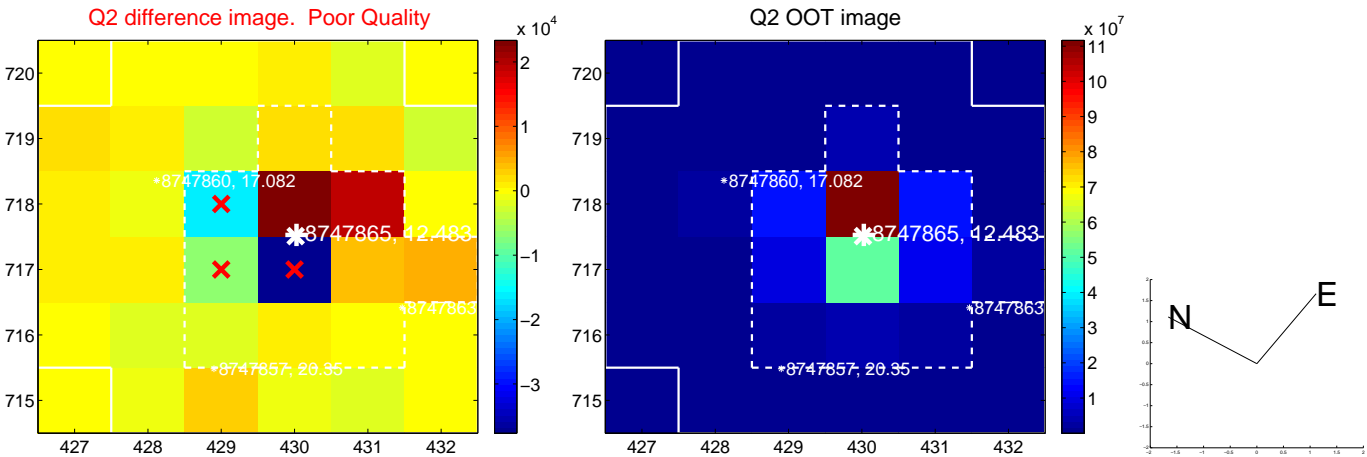
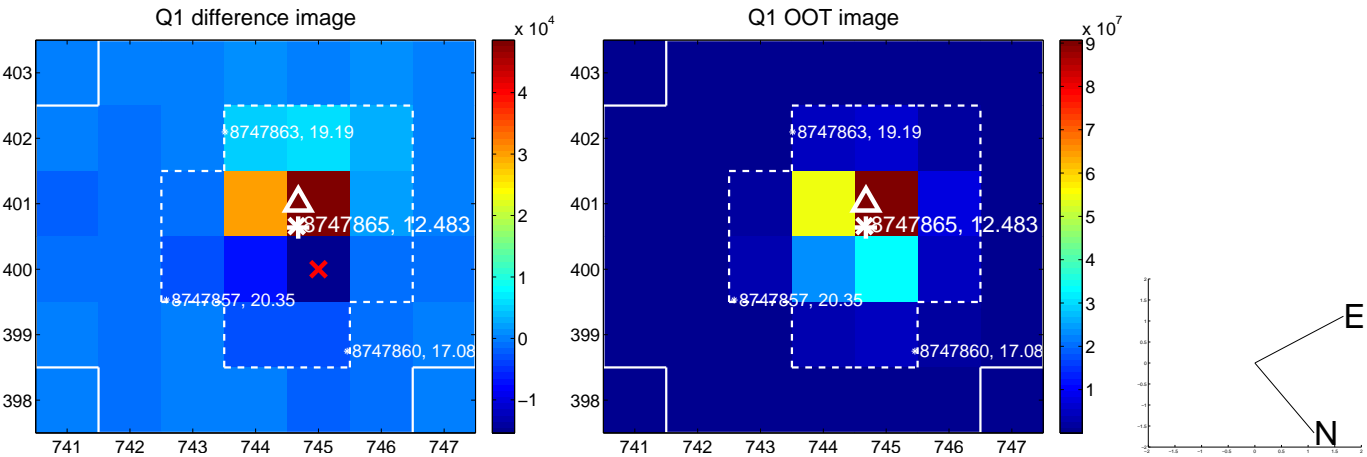
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.958 ± 0.947	1.01	0.318 ± 0.613	-0.904 ± 0.808
PRF-fit source offset from KIC position	0.885 ± 1.052	0.84	0.373 ± 0.738	-0.802 ± 0.841
photometric centroid source offset	0.25 ± 0.77	0.32	0.24 ± 0.77	-0.06 ± 0.81

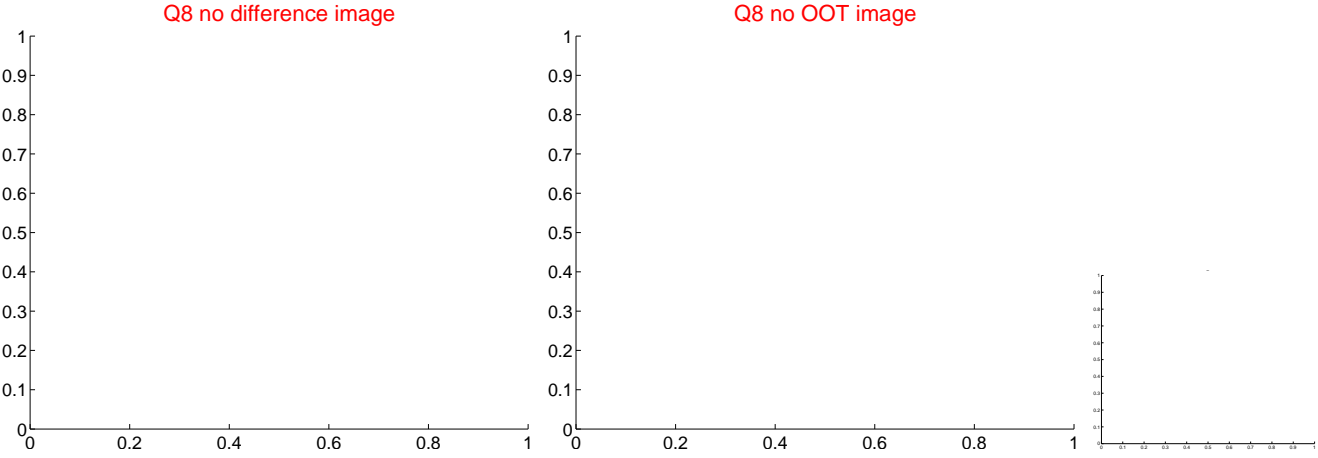
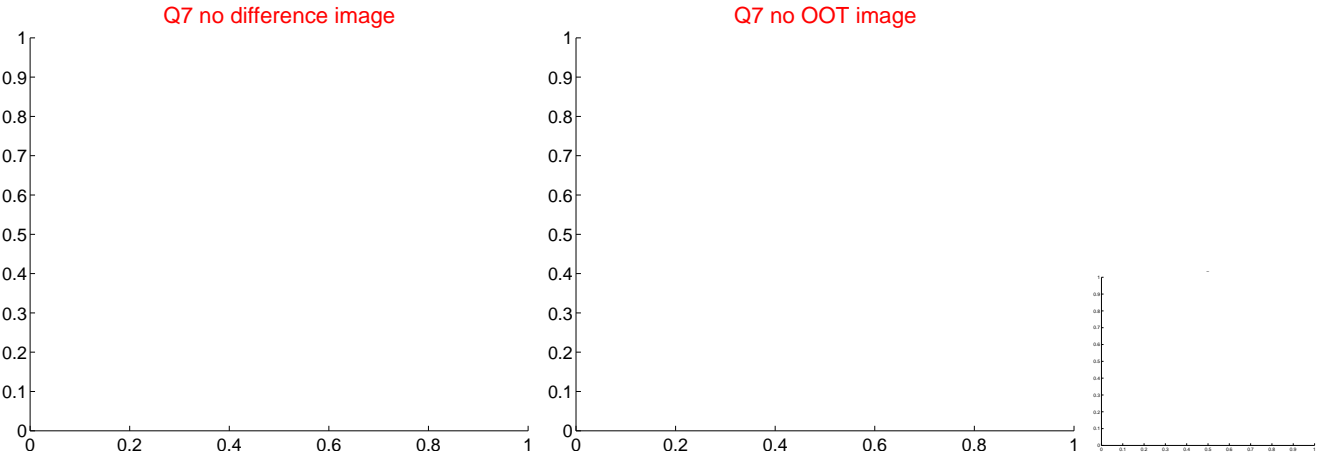
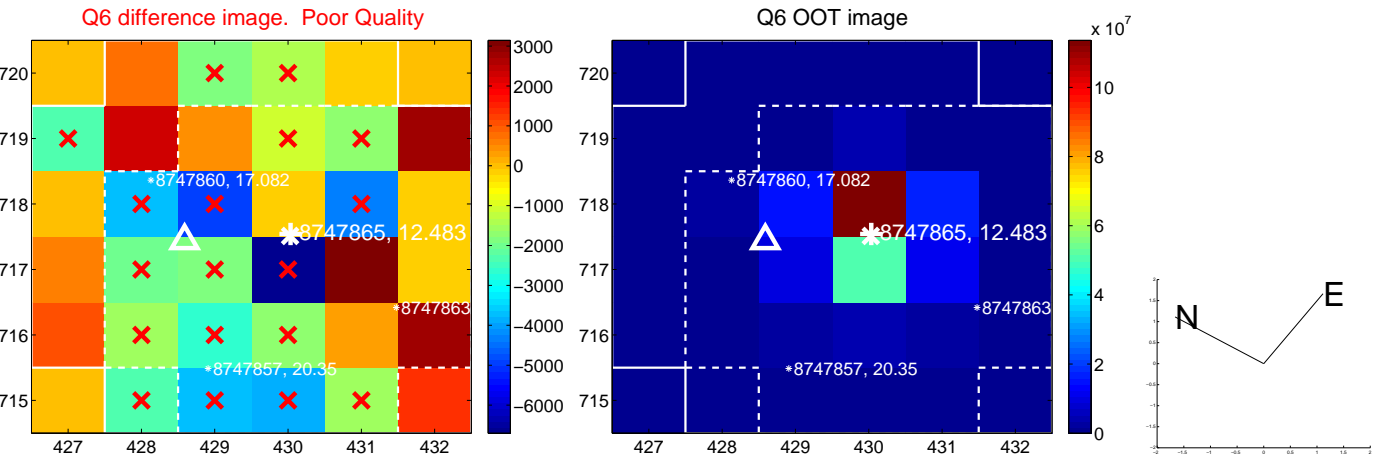
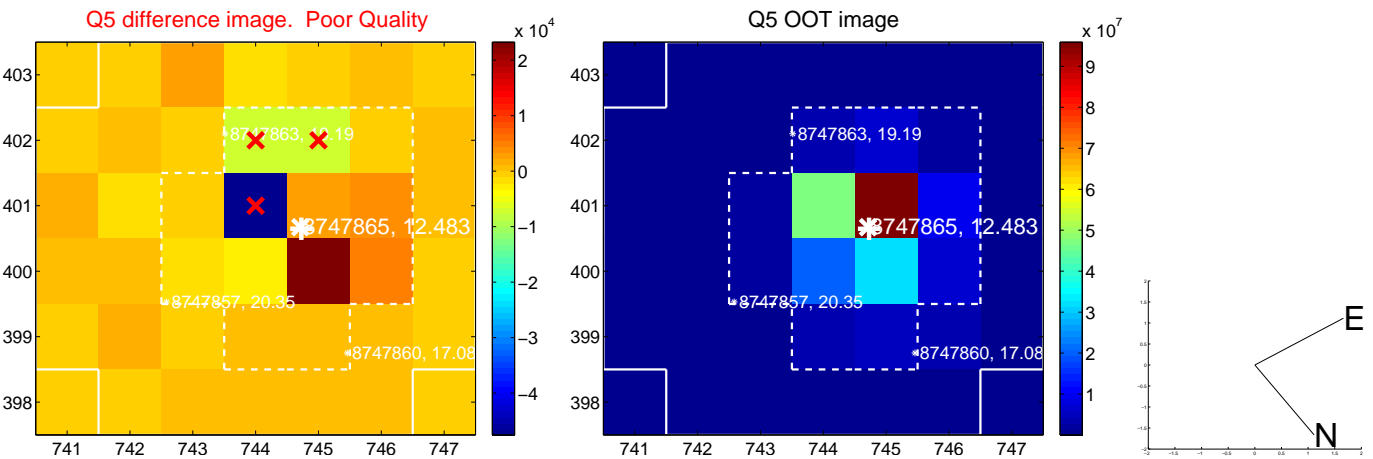


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

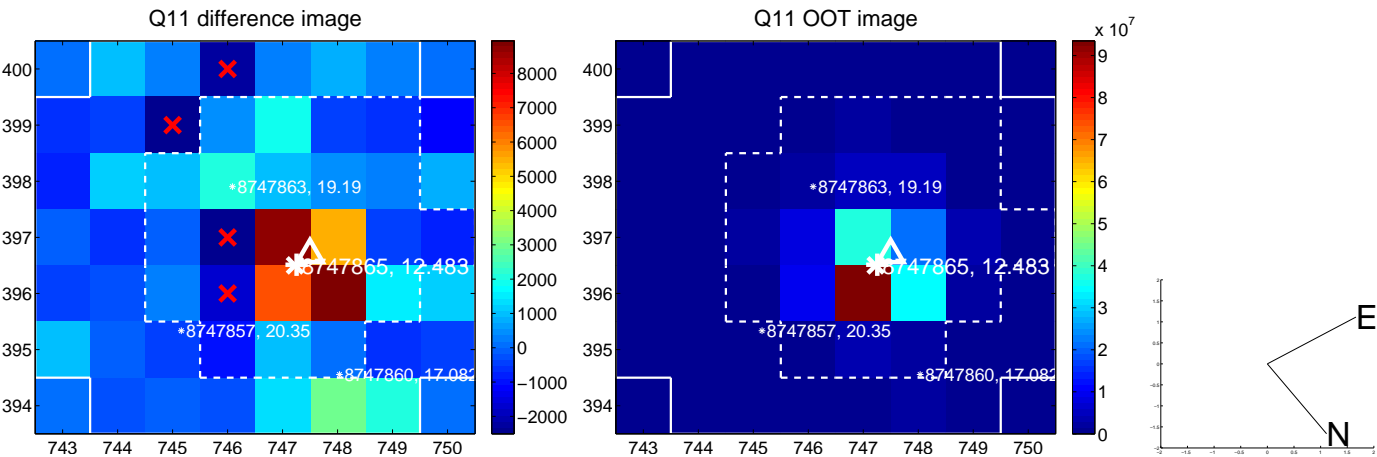
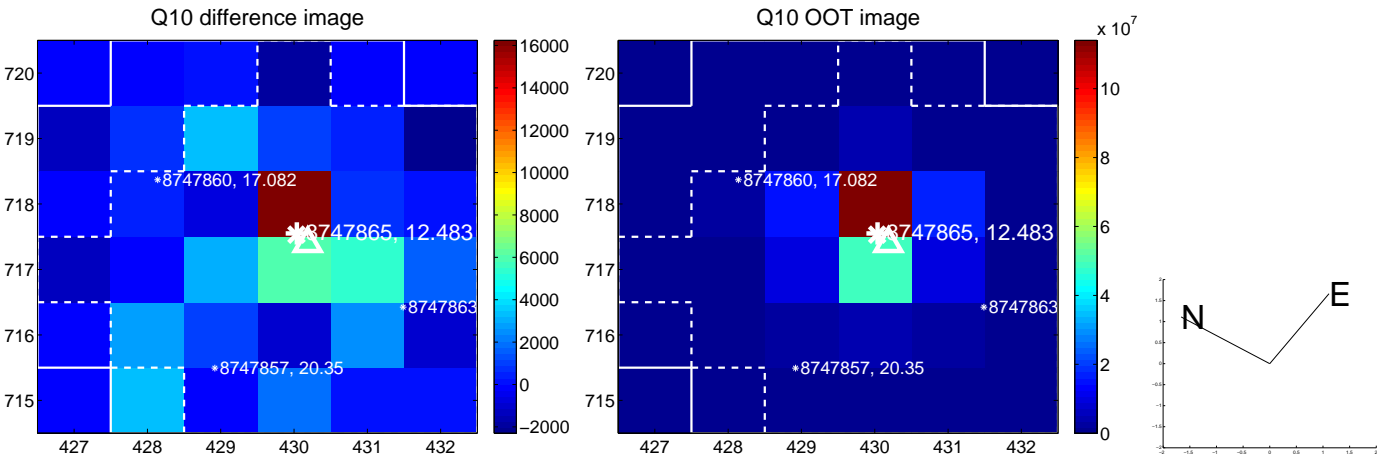
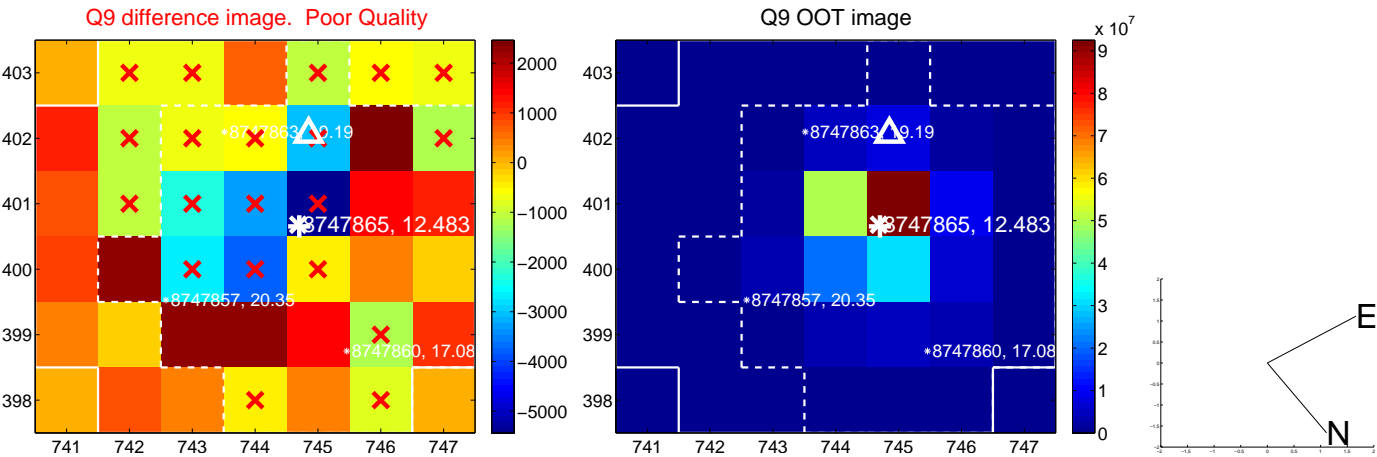
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



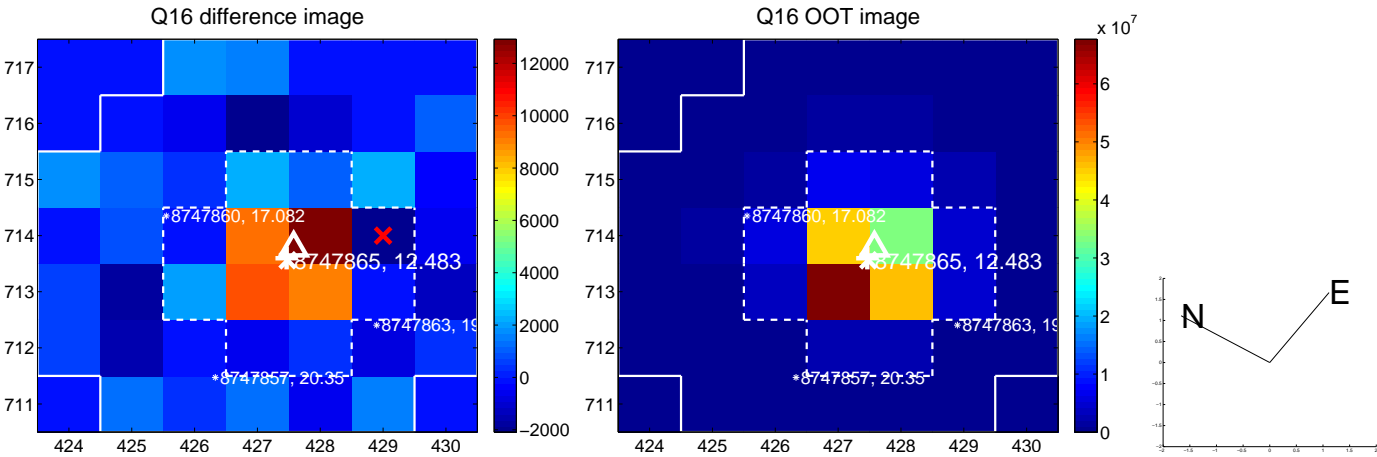
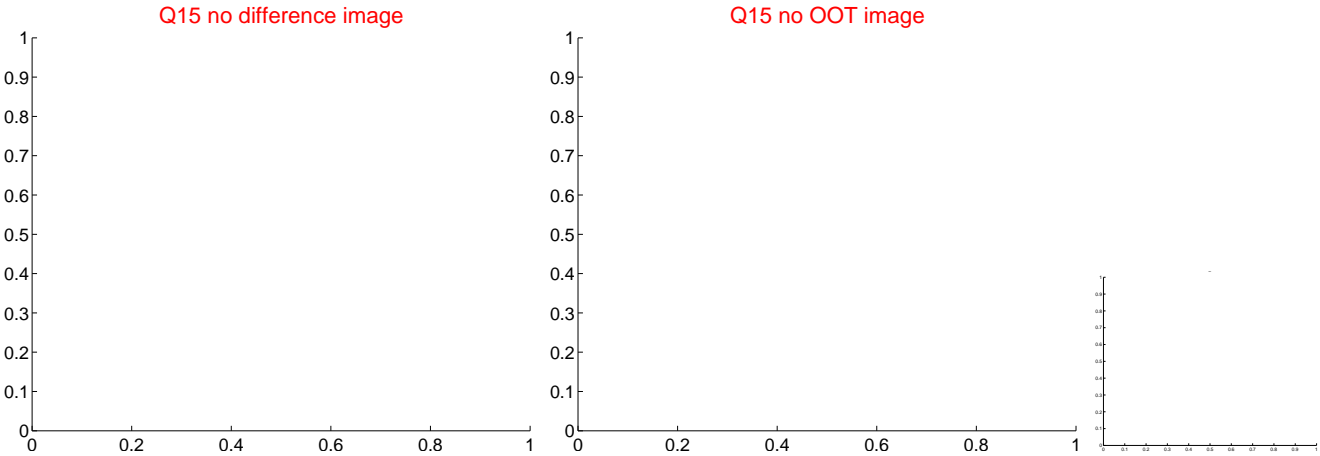
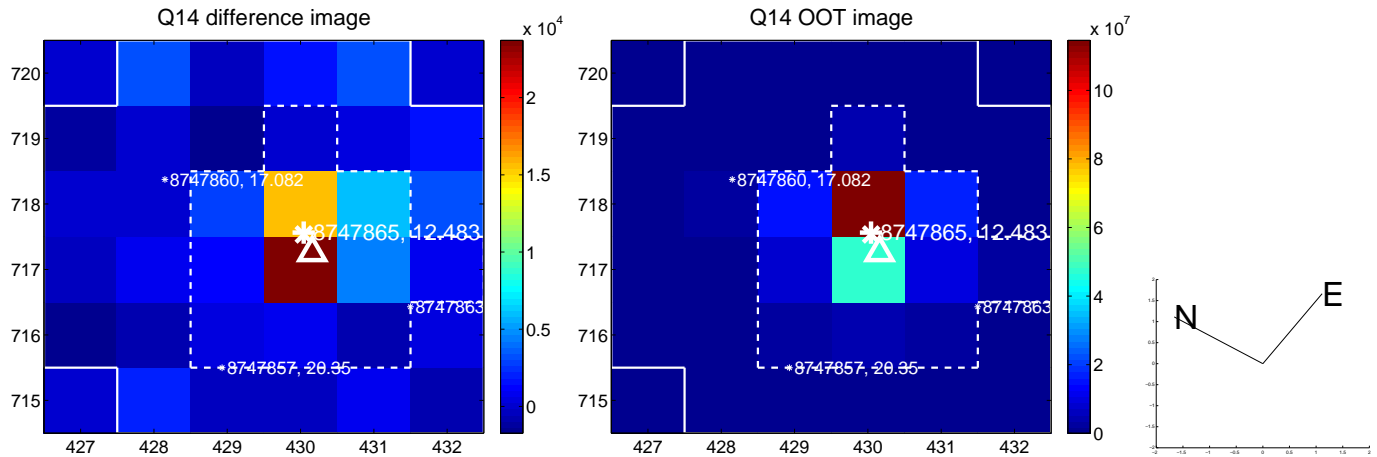
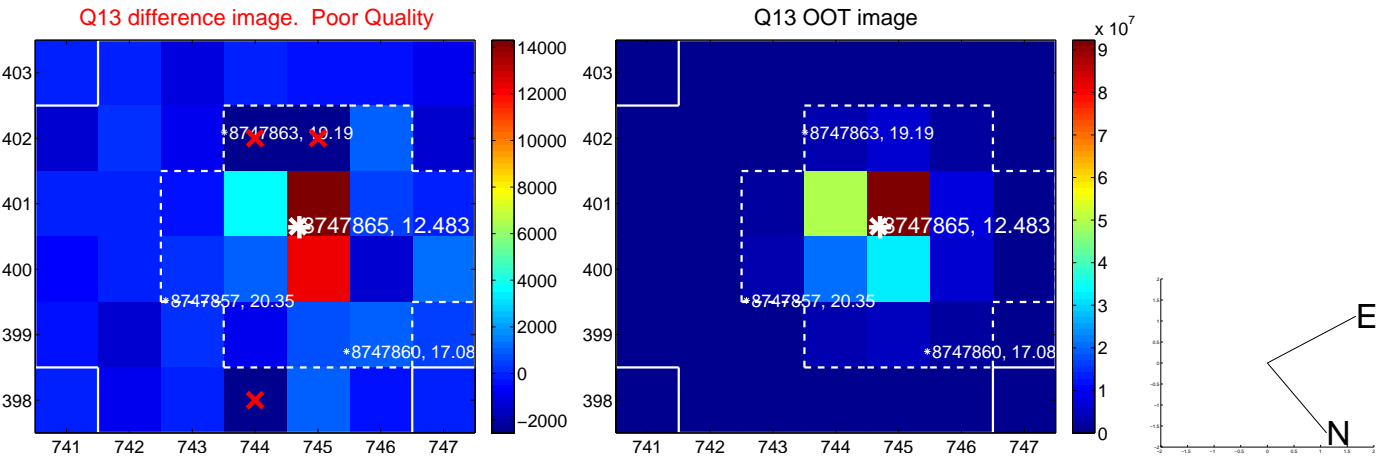
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



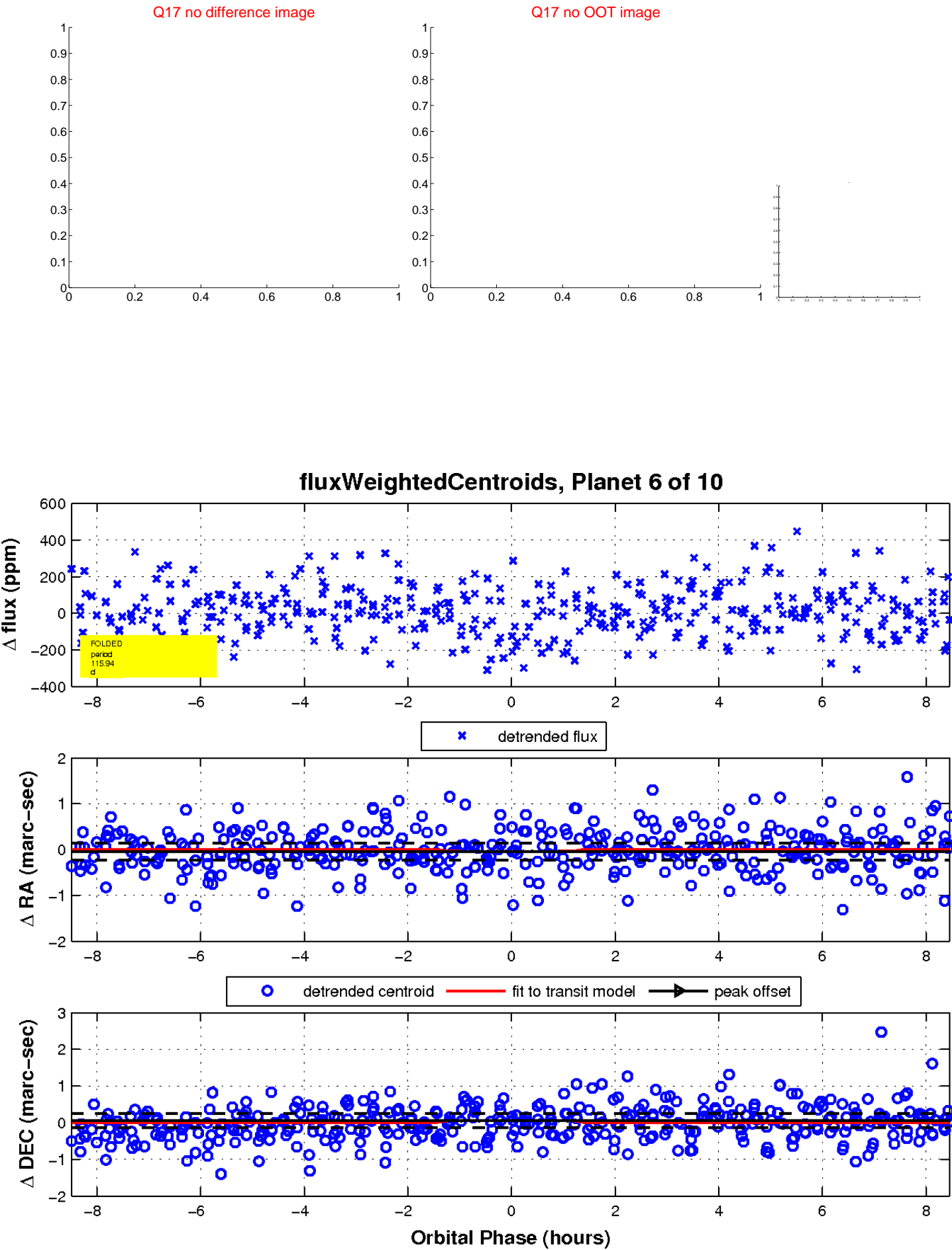
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

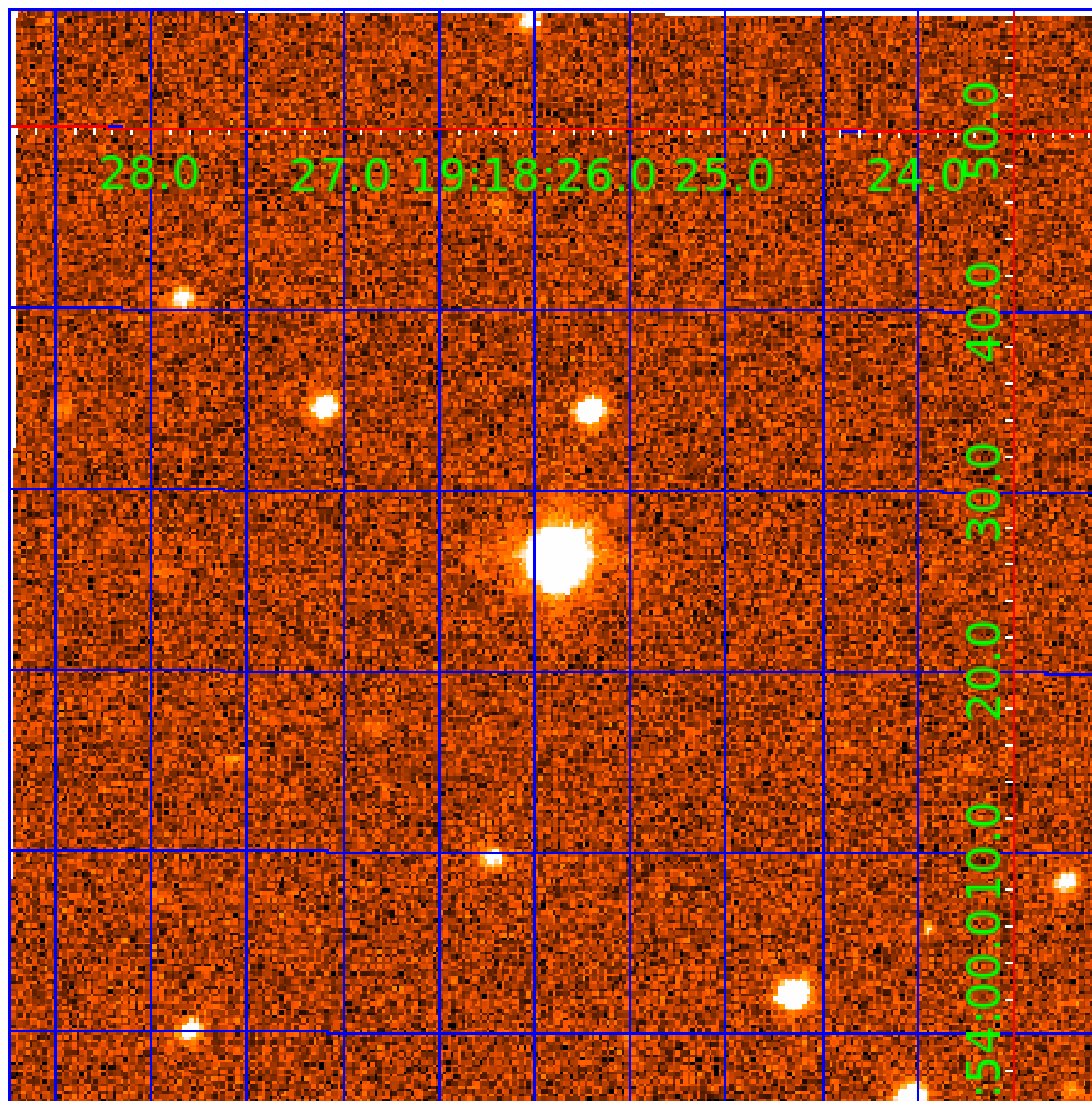


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008747865

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})
008747865-01	OBS	No	1.209131	132.607616	12.5	6.765	8.4	6.4	1.72	6770	0.64	8990.79
008747865-02	OBS	No	97.198270	158.316789	263.6	3.940	8.2	9.0	1.72	6770	3.15	25.91
008747865-04	OBS	No	69.622216	186.999204	143.5	5.632	8.4	6.8	1.72	6770	2.21	40.44
008747865-05	OBS	No	266.037473	392.777979	198.4	21.247	8.2	7.6	1.72	6770	2.75	6.77
008747865-06	OBS	No	115.943719	140.631570	236.8	2.837	8.0	8.3	1.72	6770	2.96	20.48
008747865-07	OBS	No	46.902202	165.353757	175.3	2.299	8.1	7.6	1.72	6770	2.58	68.47
008747865-08	OBS	No	40.482062	171.627250	113.5	9.685	7.2	8.2	1.72	6770	1.98	83.32
008747865-09	OBS	No	115.128340	183.140863	287.1	4.893	7.5	9.6	1.72	6770	4.52	20.68
008747865-10	OBS	No	126.754341	154.280346	261.3	3.501	8.0	8.4	1.72	6770	3.08	18.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008747865-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008747865-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008747865-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
008747865-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008747865-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

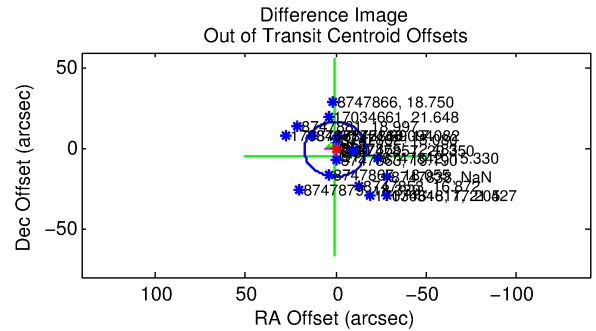
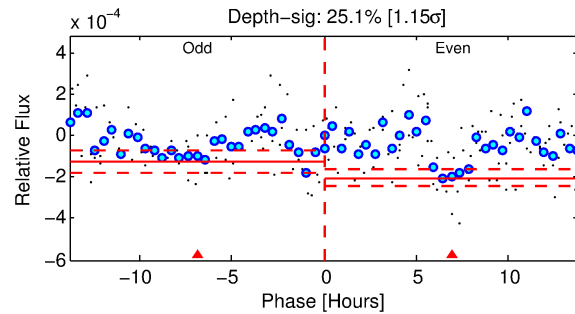
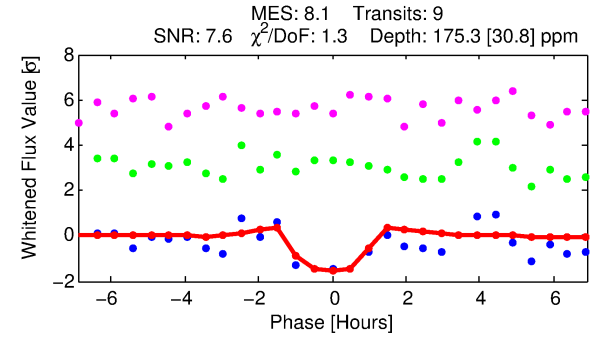
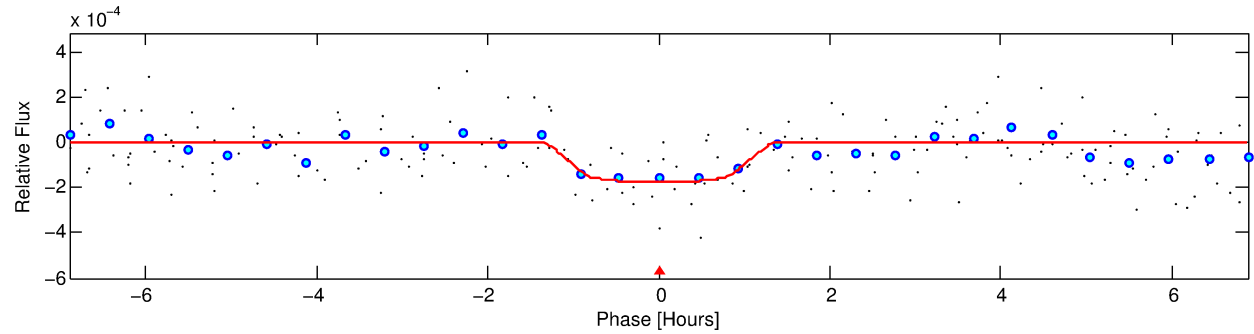
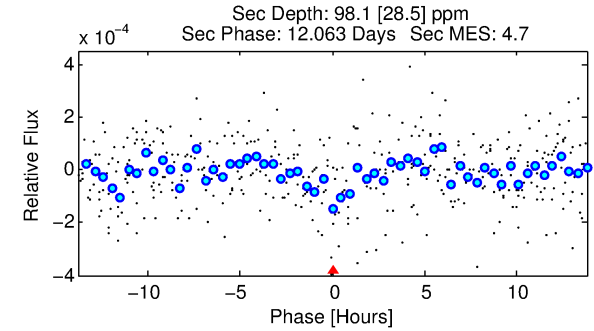
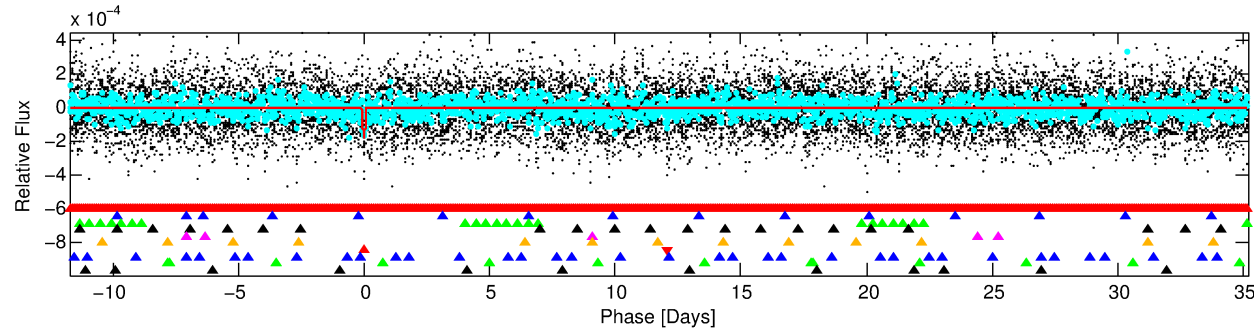
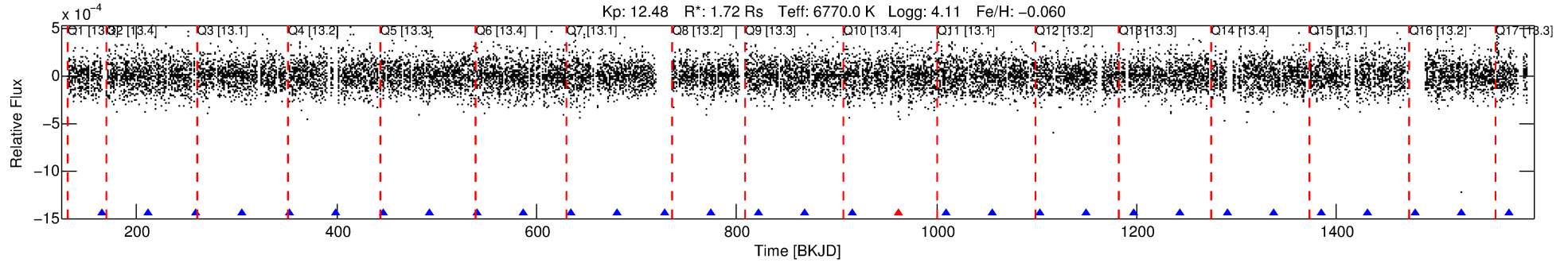
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008747865-07

No Significant Match Found

DV One-Page Summary

KIC: 8747865 Candidate: 7 of 10 Period: 46.902 d



DV Fit Results:

Period = 46.90220 [0.00048] d
Epoch = 165.3538 [0.0087] BKJD
Rp/R* = 0.0138 [0.0178]
a/R* = 83.34 [628.65]
b = 0.86 [2.29]
Seff = 68.47 [16.01]
Teq = 734 [43] K
Rp = 2.58 [3.36] Re
a = 0.2847 [0.0418] AU
Ag = 655.26 [1710.09] [0.38σ]
Teffp = 5738 [3730] K [1.34σ]

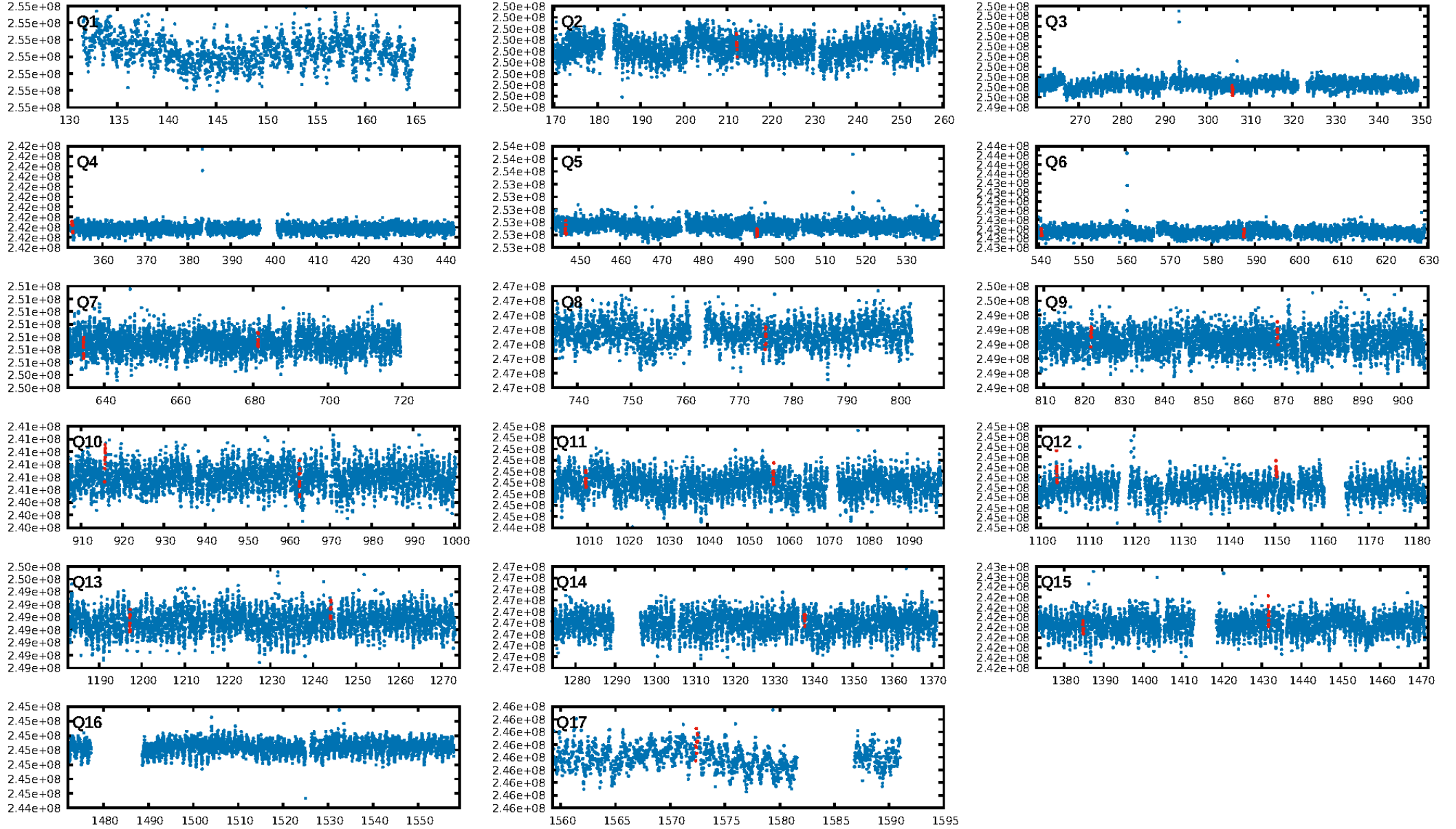
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.48σ]
LongPeriod-sig: 100.0% [34.08σ]
ModelChiSquare2-sig: 15.1%
ModelChiSquareGof-sig: 97.6%
Bootstrap-pfa: 4.78e-09
RollingBand-fgt: 0.89 [8/9]
GhostDiagnostic-chr: 0.384
Centroid-sig: 97.9%
Centroid-so: 0.273 arcsec [0.33σ]
OotOffset-rm: 0.533 arcsec [0.09σ]
OotOffset-st: 2/4/2/2 [10]
KicOffset-rm: 0.542 arcsec [0.10σ]
KicOffset-st: 2/4/2/2 [10]
DiffImageQuality-fgm: 0.40 [4/10]
DiffImageOverlap-fno: 0.38 [5/13]

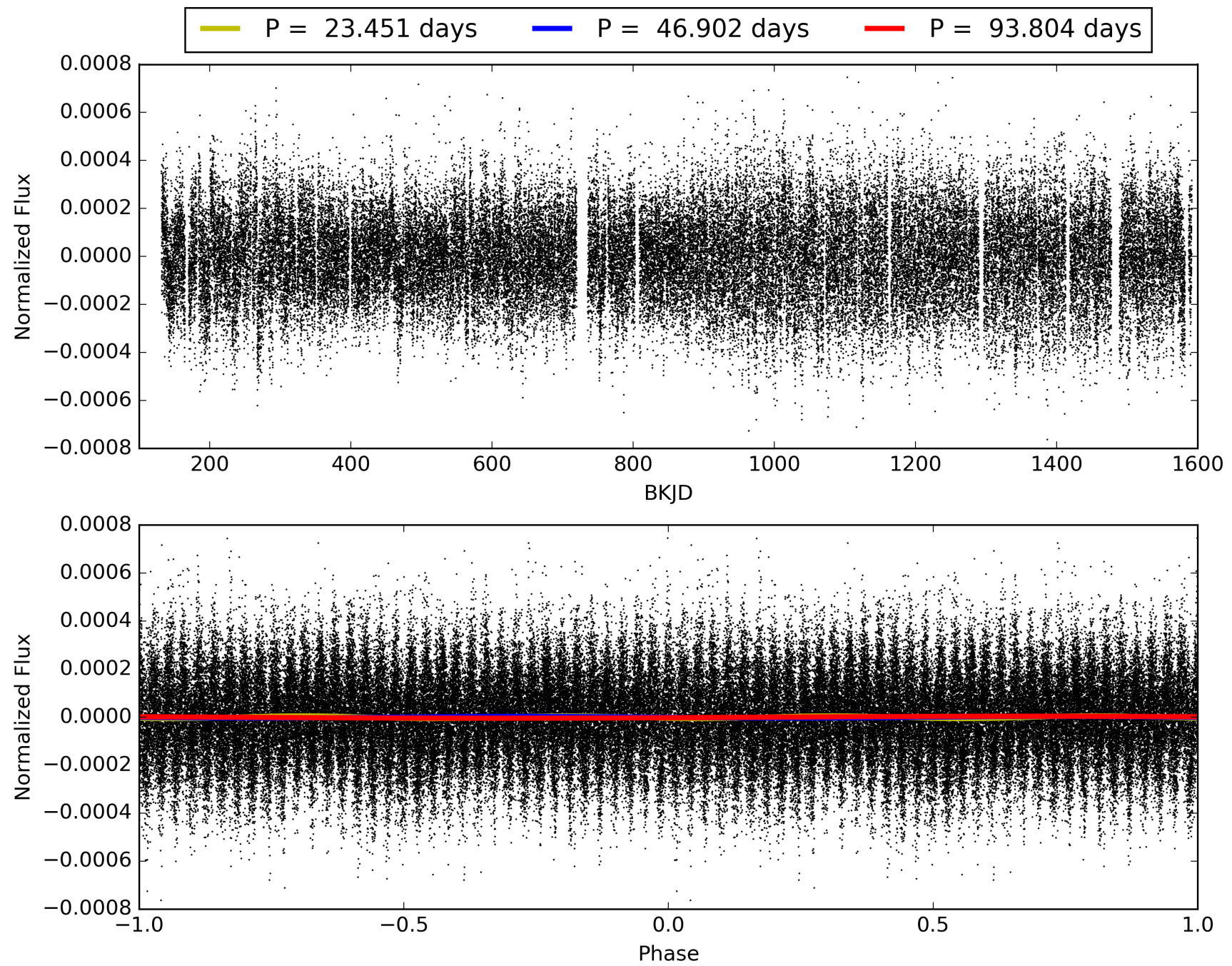
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:17:32 Z

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

TCE 008747865-07, PDC Light Curves

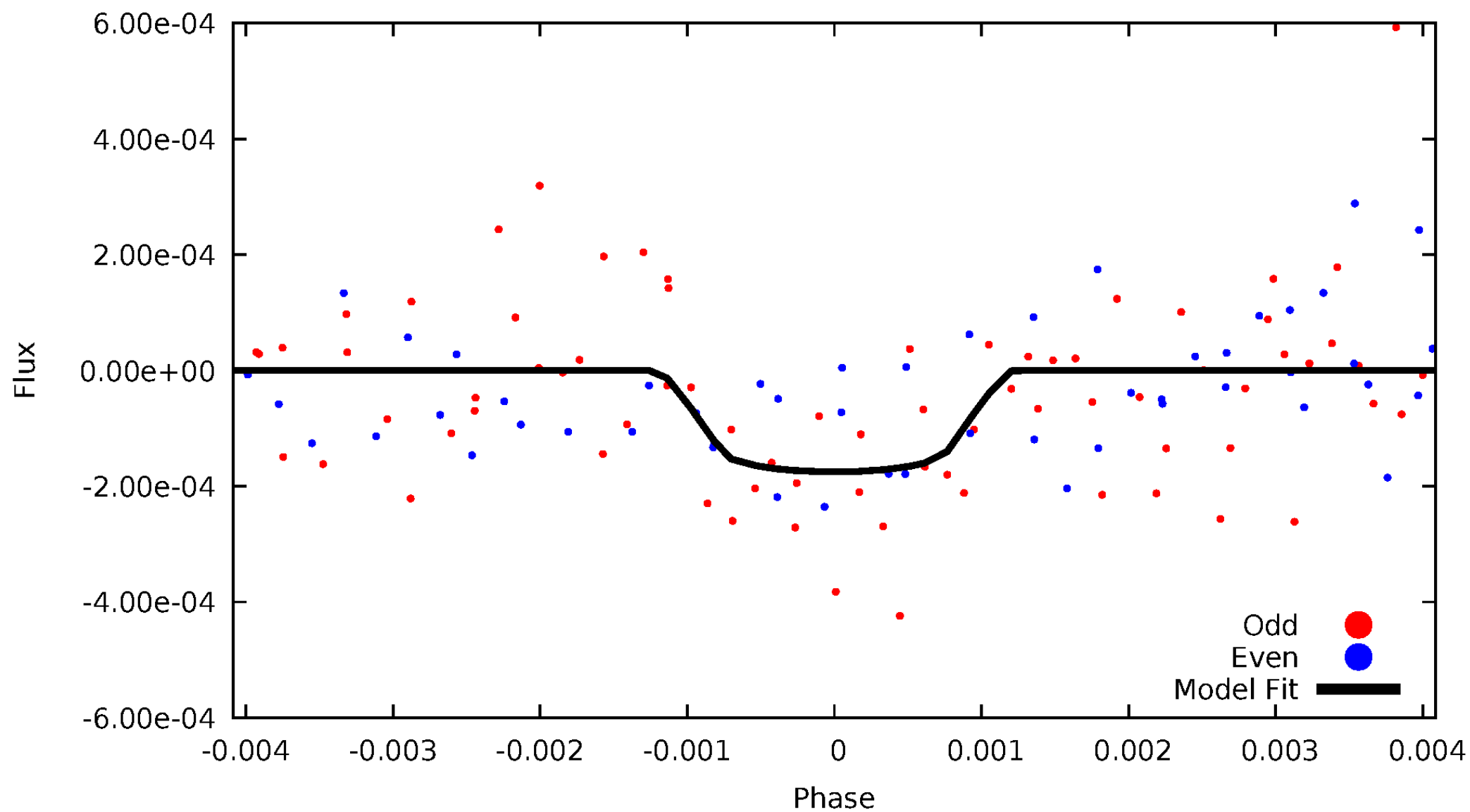


TCE 008747865-07



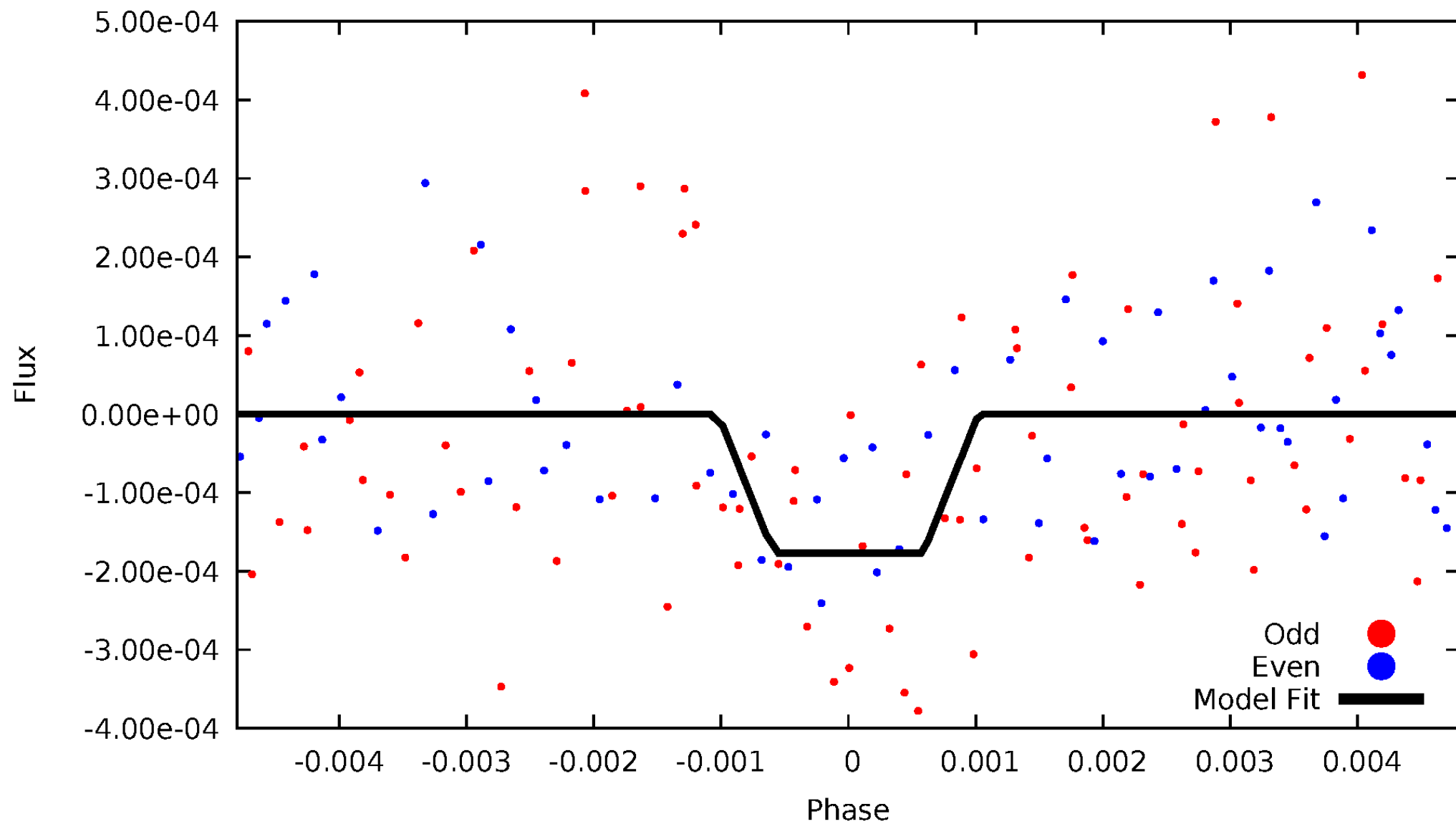
DV Odd/Even

TCE 008747865-07



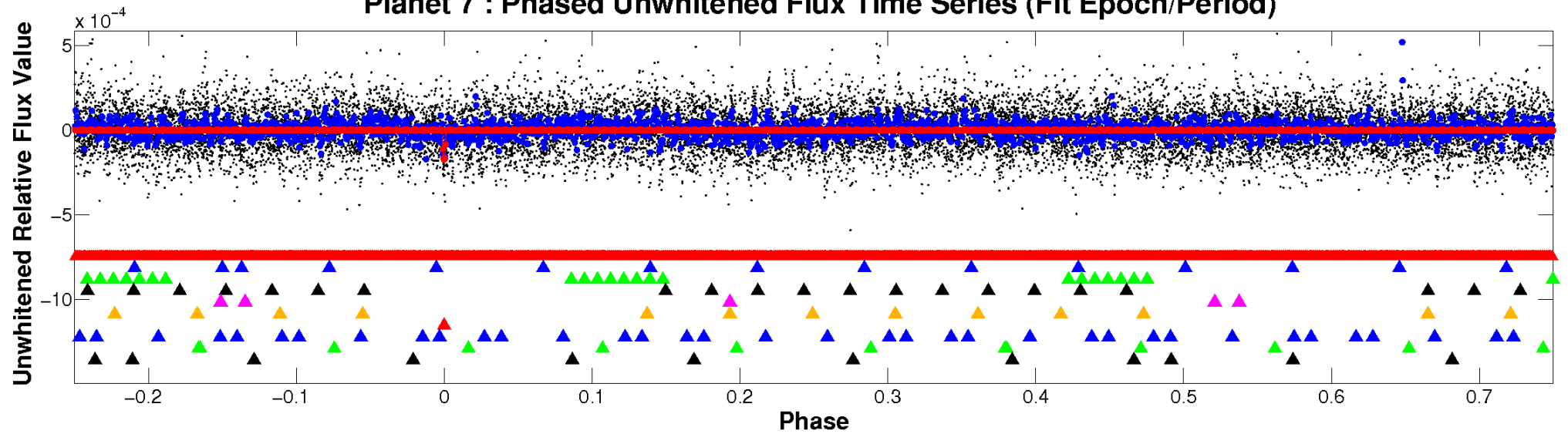
ALT Odd/Even

TCE 008747865-07

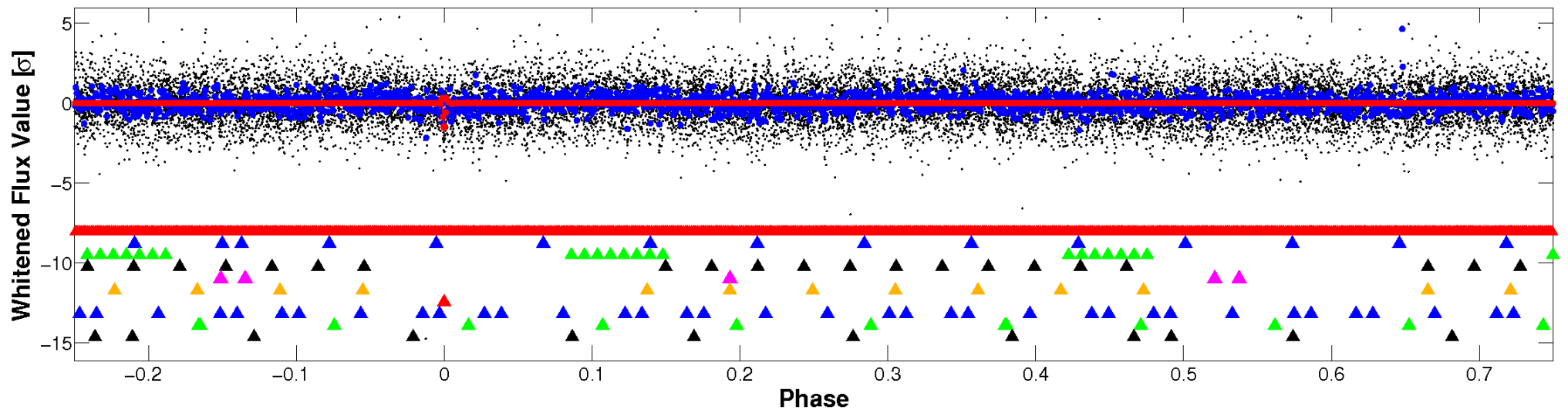


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

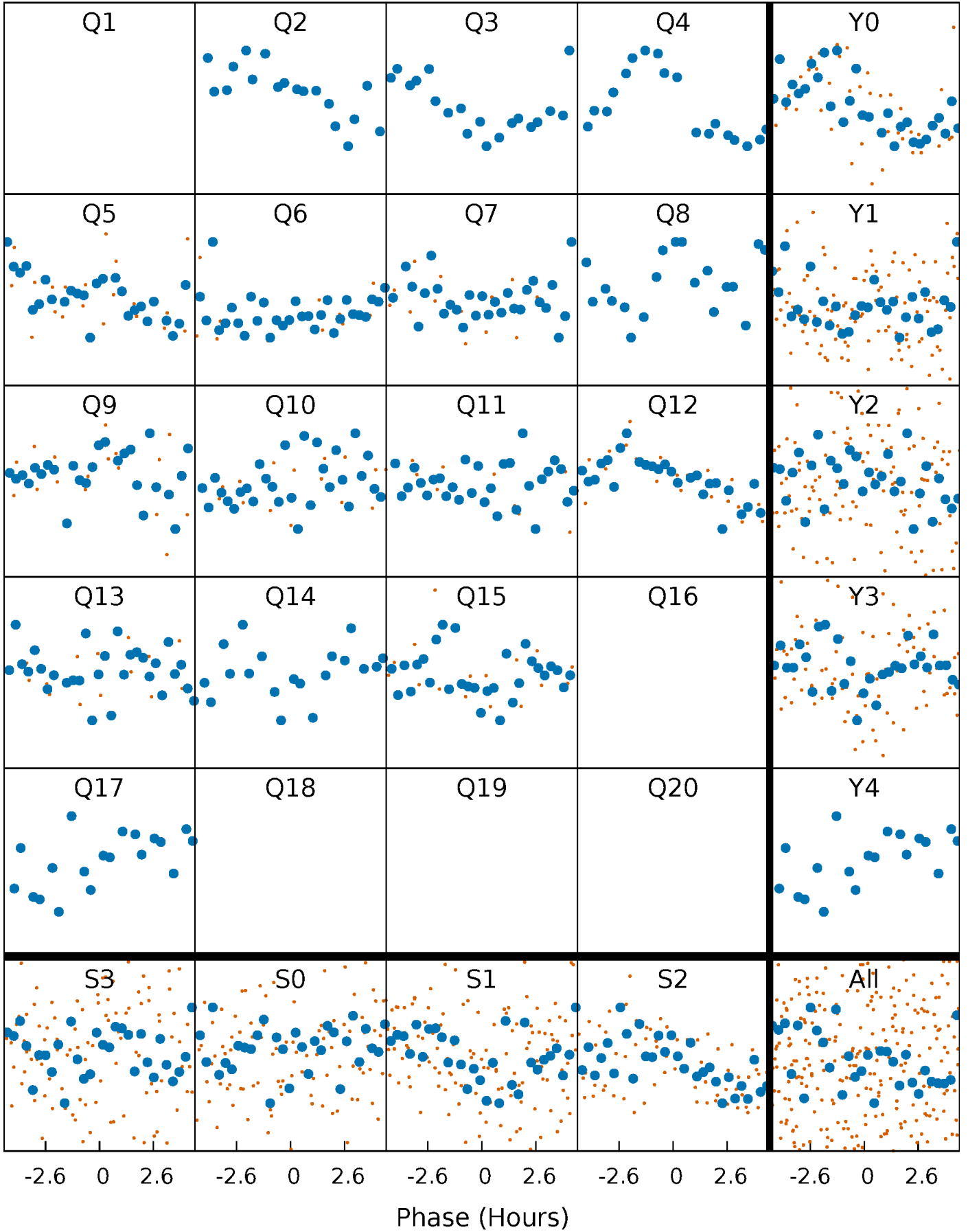


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



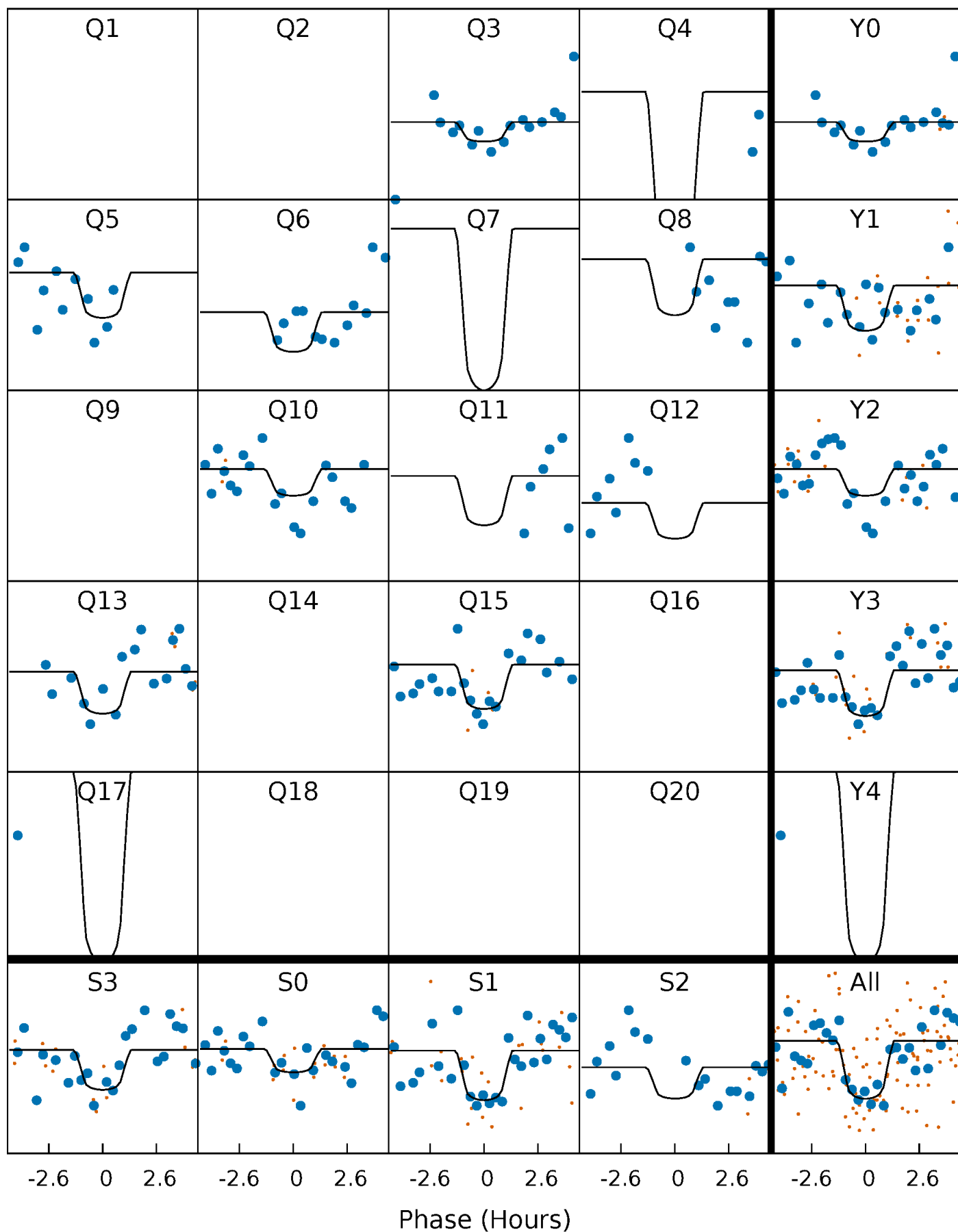
PDC Quarter-Phased Transit Curves

TCE 008747865-07 $P = 46.902202$ Days $T_0 = 165.353757$ (BKJD)



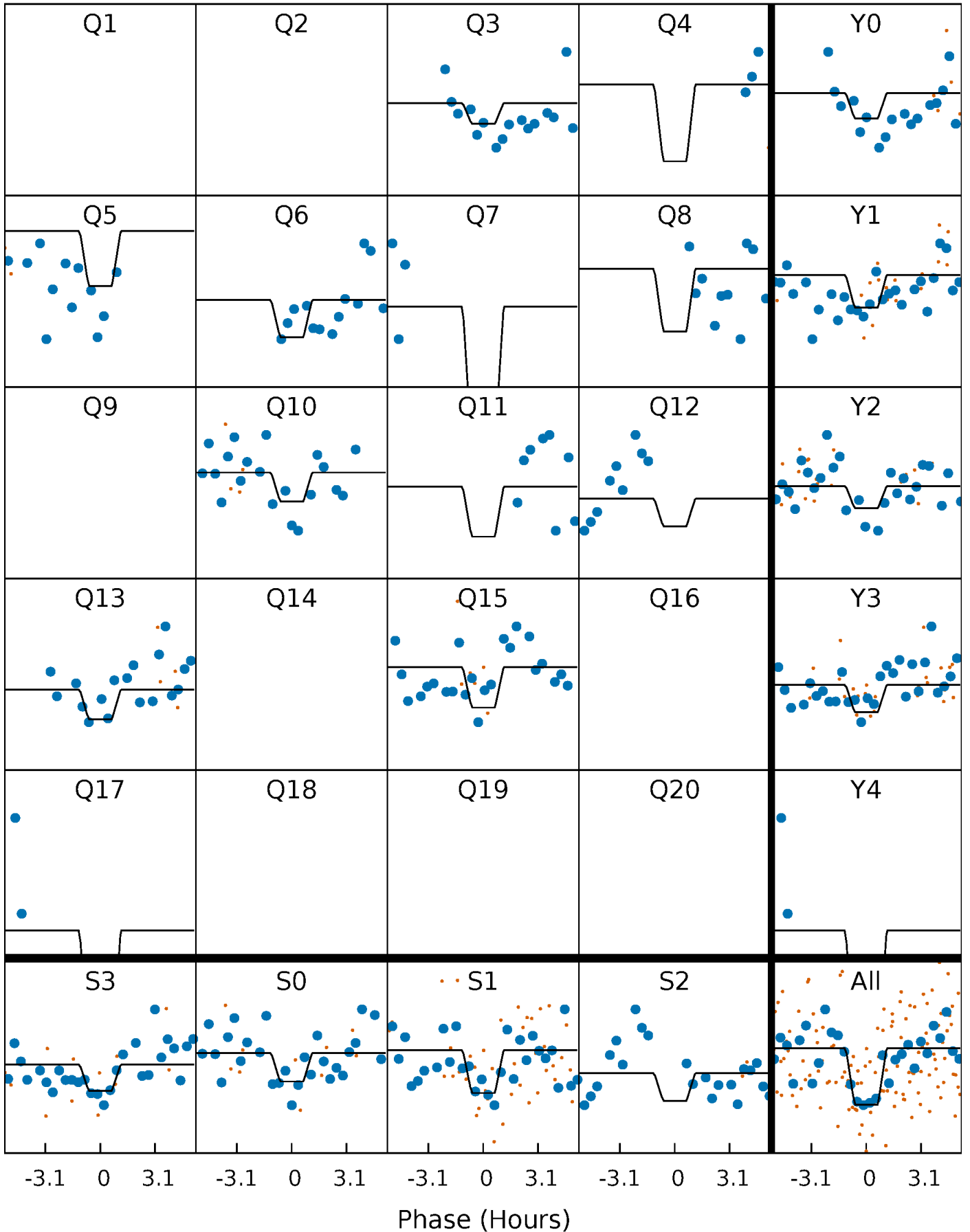
DV Quarter-Phased Transit Curves

TCE 008747865-07 $P = 46.902202$ Days $T_0 = 165.353757$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

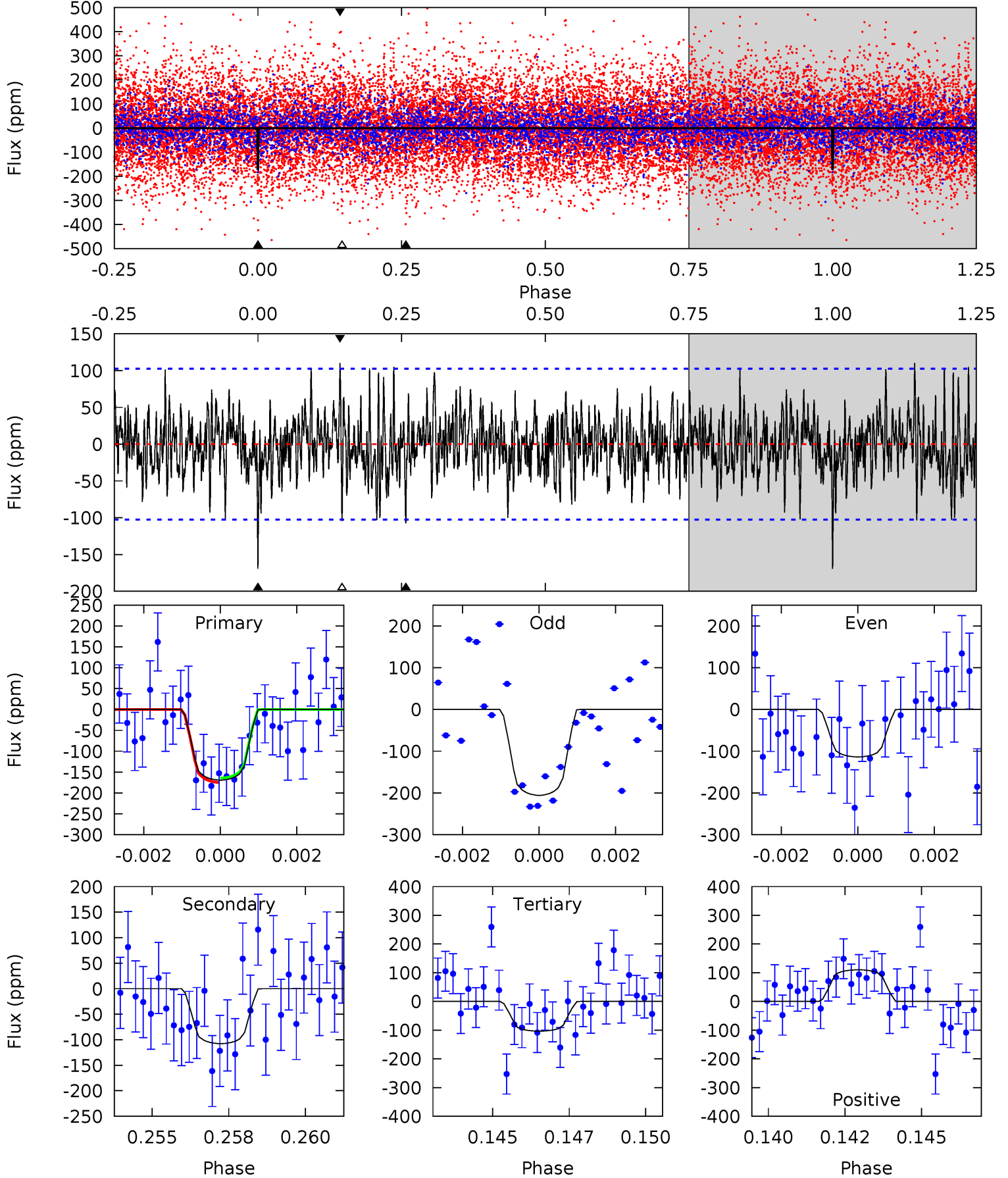
TCE 008747865-07 $P = 46.902938$ Days $T_0 = 165.341441$ (BKJD)



DV Model-Shift Uniqueness Test

008747865-07, P = 46.902202 Days, E = 118.451555 Days

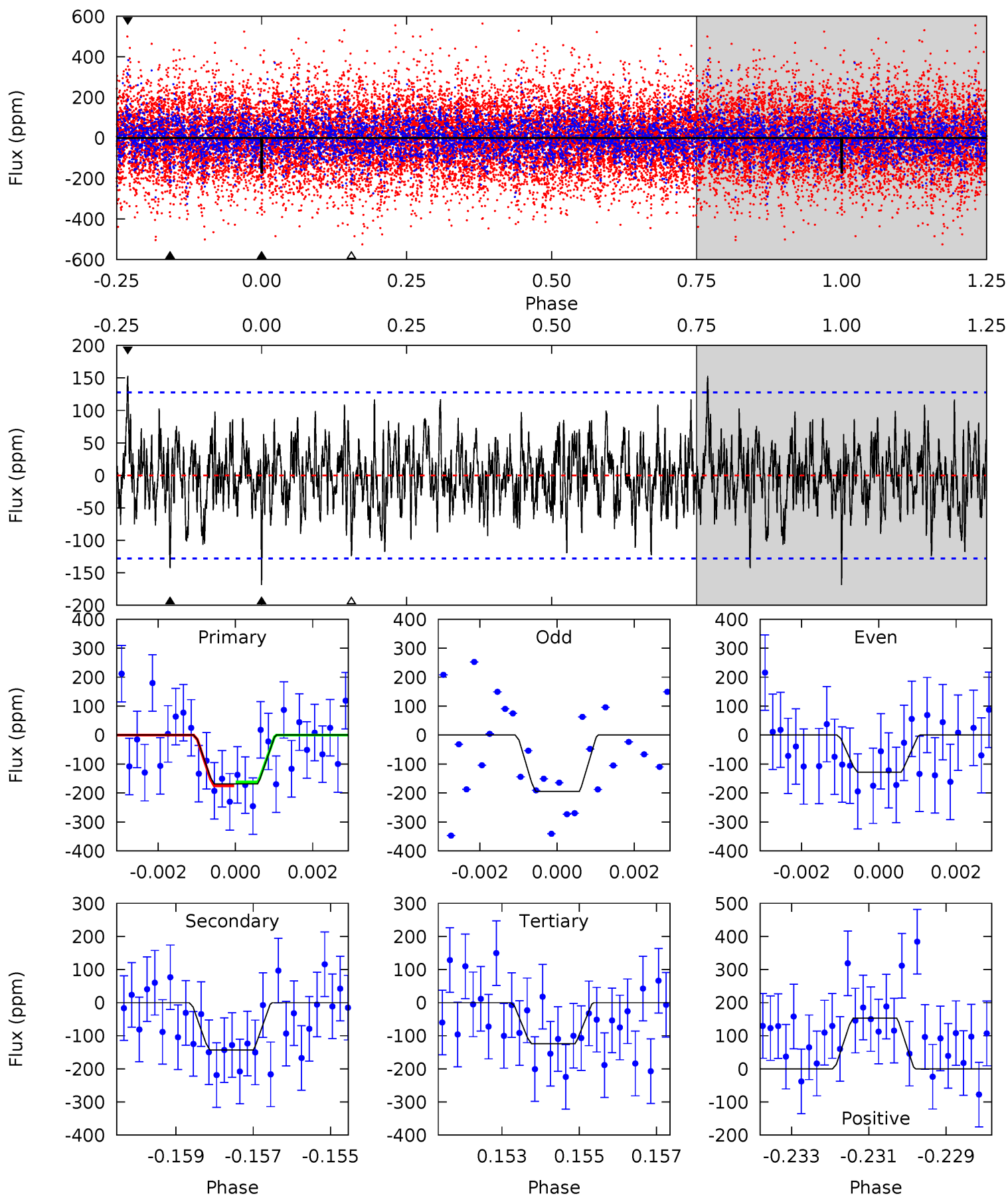
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.73	5.55	5.34	5.69	5.29	3.03	1.69	3.40	3.05	0.22	-0.13	2.28	0.94	0.39	0.27



Alt Model-Shift Uniqueness Test

008747865-07, P = 46.902938 Days, E = 118.438503 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.02	5.95	5.17	6.40	5.33	3.09	1.69	1.85	0.62	0.78	-0.45	1.34	0.99	0.48	0.26



Stellar Parameters For KIC 008747865

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6770^{+81}_{-81}	$4.114^{+0.132}_{-0.108}$	$-0.060^{+0.150}_{-0.150}$	$1.717^{+0.274}_{-0.274}$	$1.405^{+0.109}_{-0.098}$	$0.391^{+0.240}_{-0.127}$
	+1%/-1%	+3%/-3%	+250%/-250%	+16%/-16%	+8%/-7%	+62%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 008747865-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-108 ± 19	$3.41^{+3.03}_{-2.11}$	1022^{+47}_{-45}	5173^{+3526}_{-1154}	427^{+2621}_{-315}
Alt.	-143 ± 24	$3.48^{+2.94}_{-2.36}$	1021^{+46}_{-43}	5437^{+4917}_{-1297}	523^{+4563}_{-373}

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 $A_{obs} \gg 1.0$

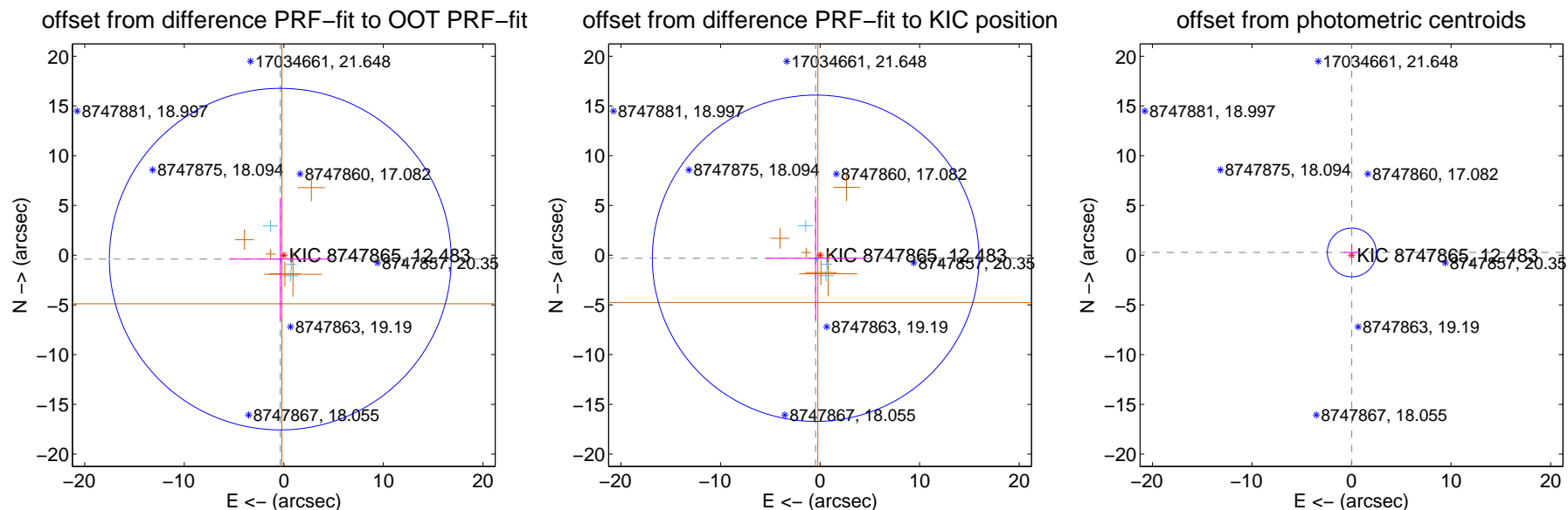
DV Centroid Data

Supplemental centroid analysis for 008747865-07. Kepler magnitude: 12.48. Transit SNR 7.62

There are 4 quarters with good PRF difference image offsets

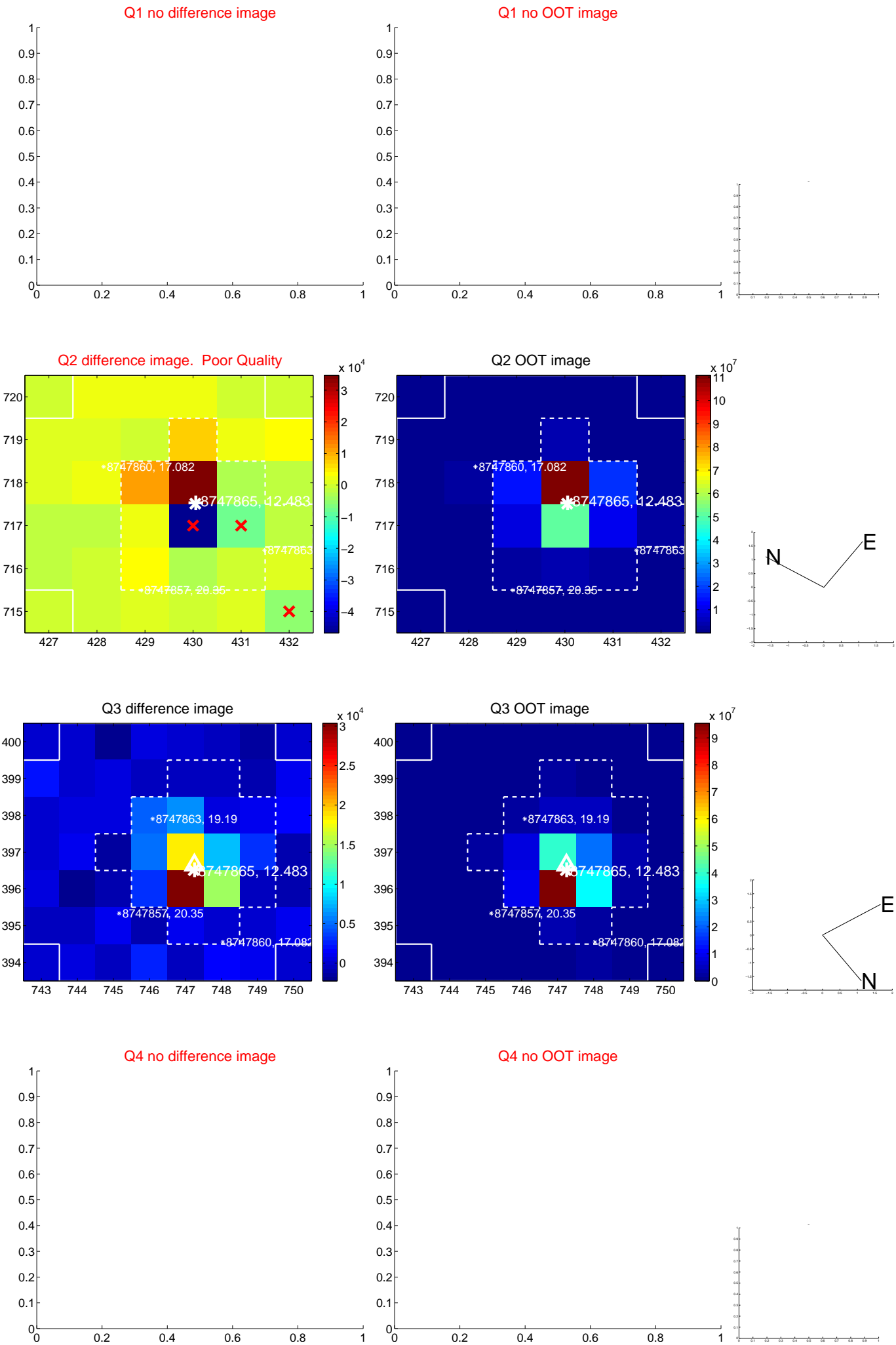
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.533 ± 5.723	0.09	0.355 ± 5.073	-0.398 ± 6.192
PRF-fit source offset from KIC position	0.542 ± 5.469	0.10	0.443 ± 5.073	-0.311 ± 6.192
photometric centroid source offset	0.27 ± 0.82	0.33	-0.03 ± 0.78	0.27 ± 0.82

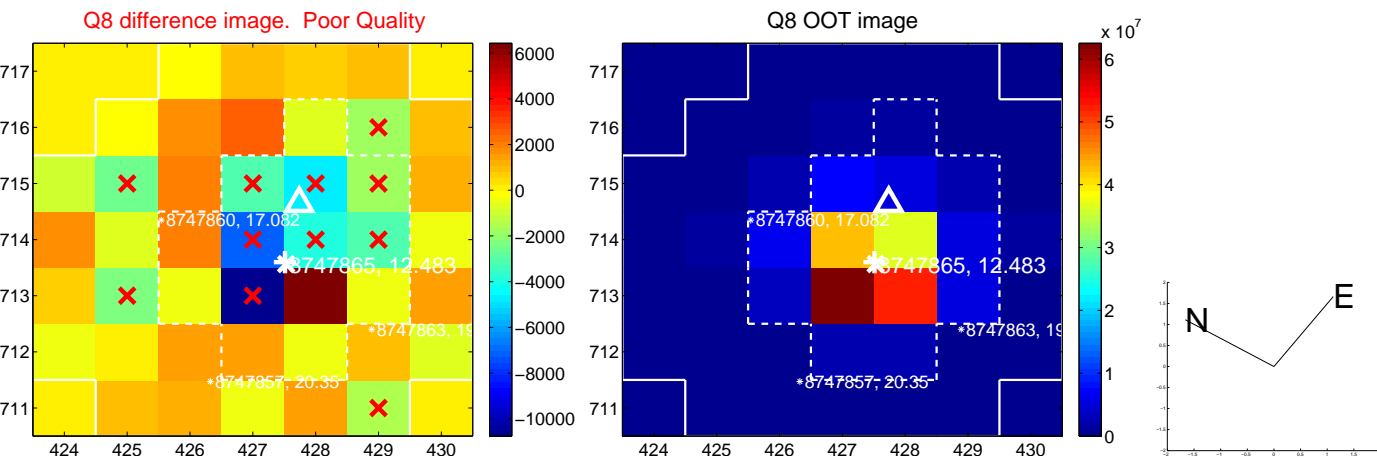
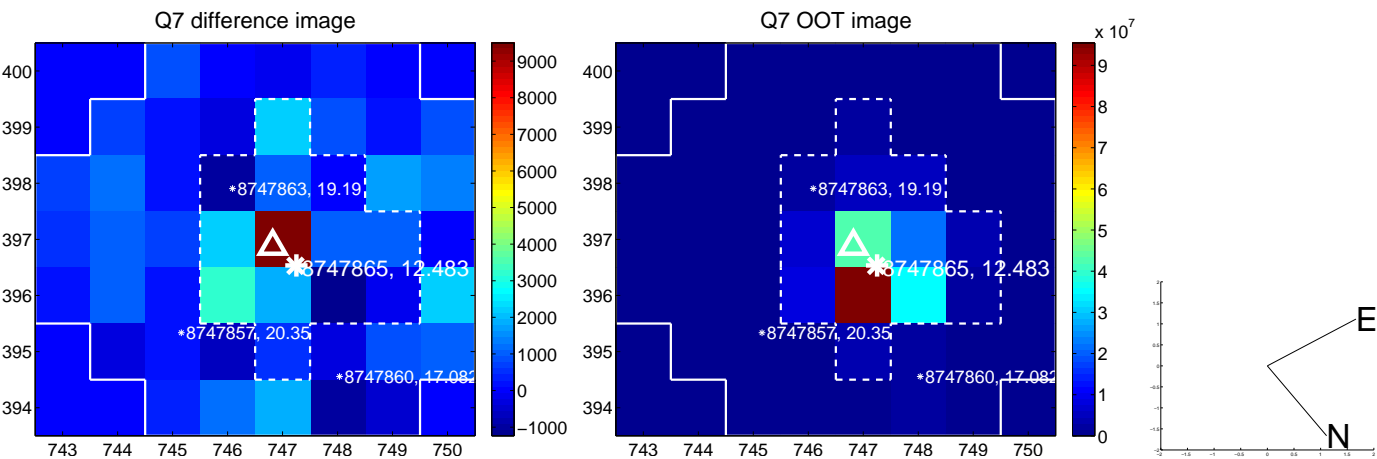
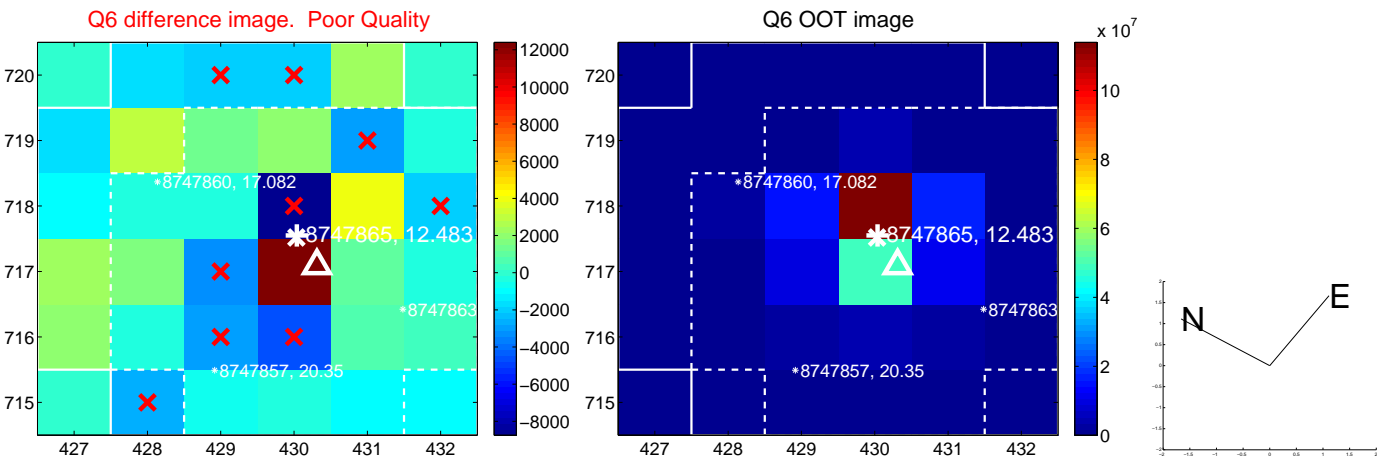
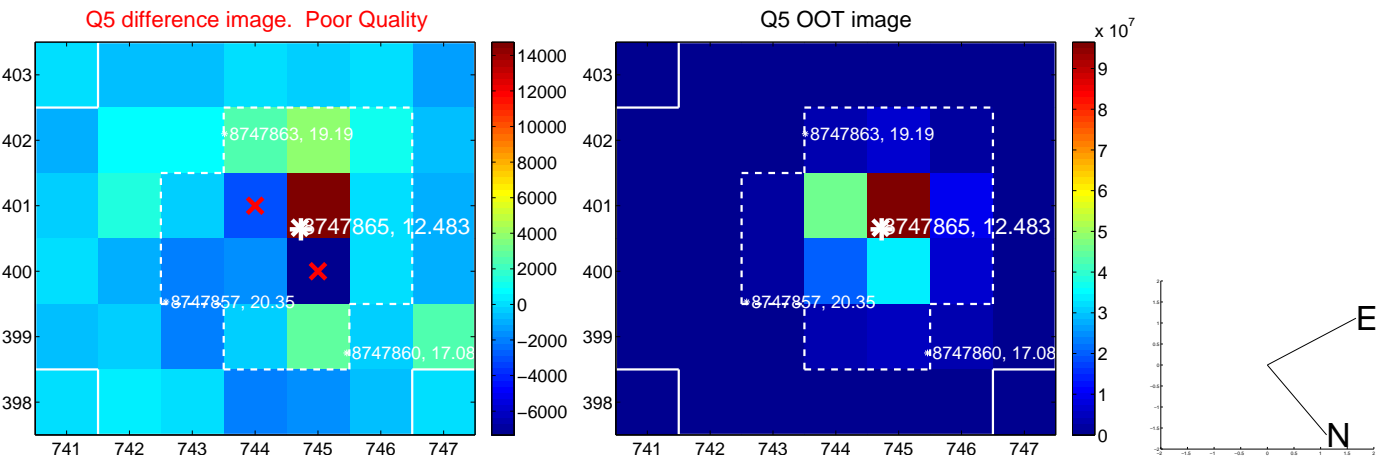


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

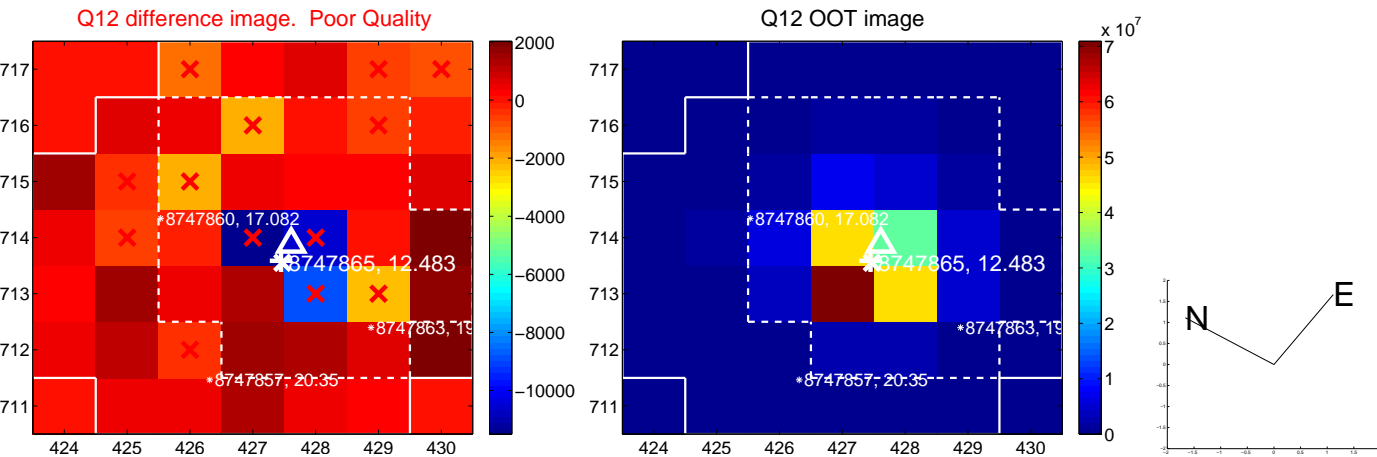
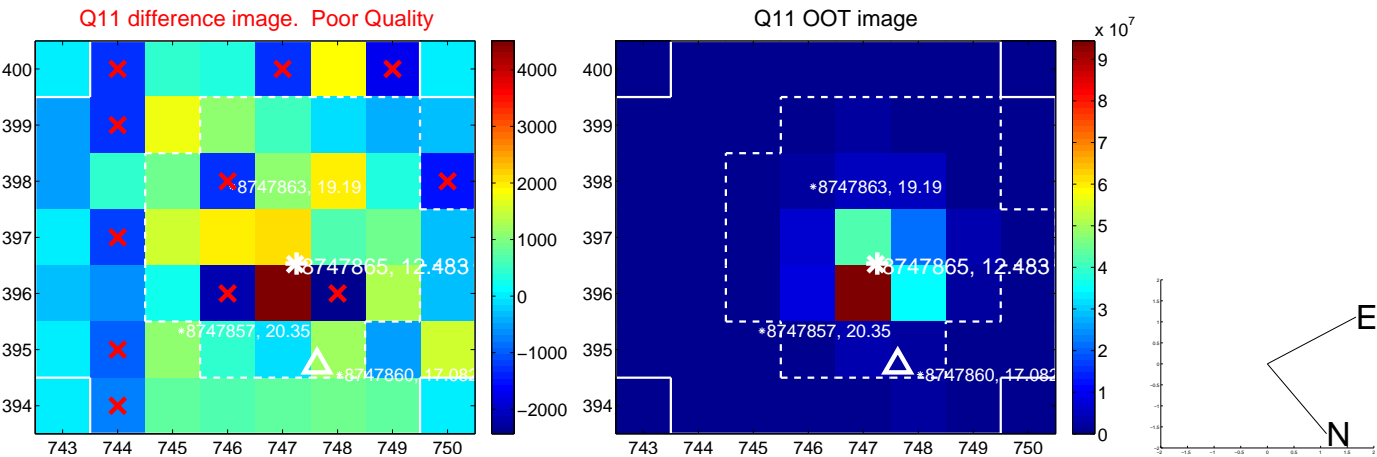
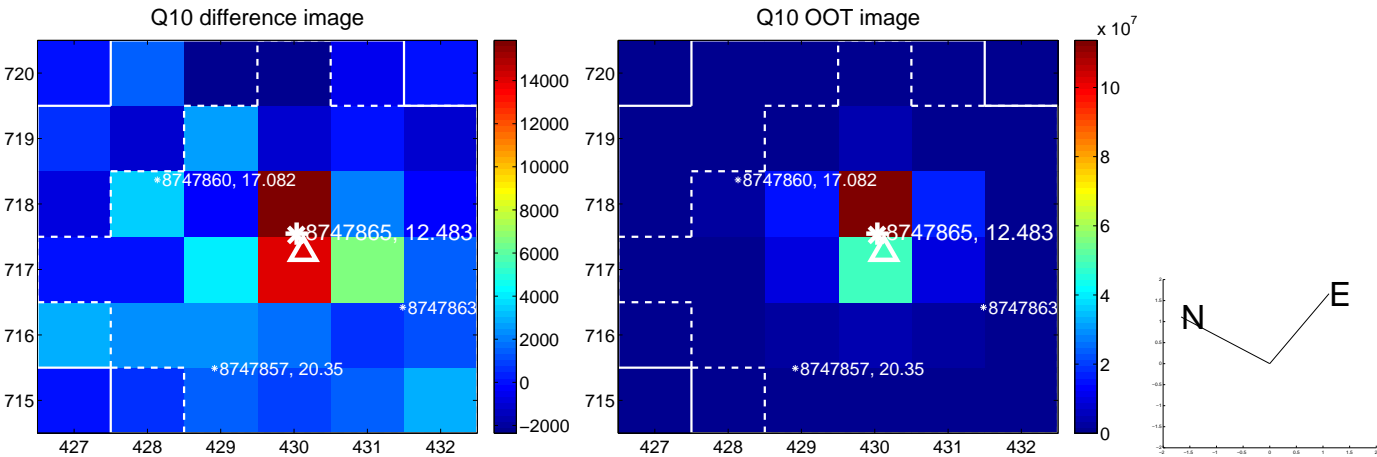
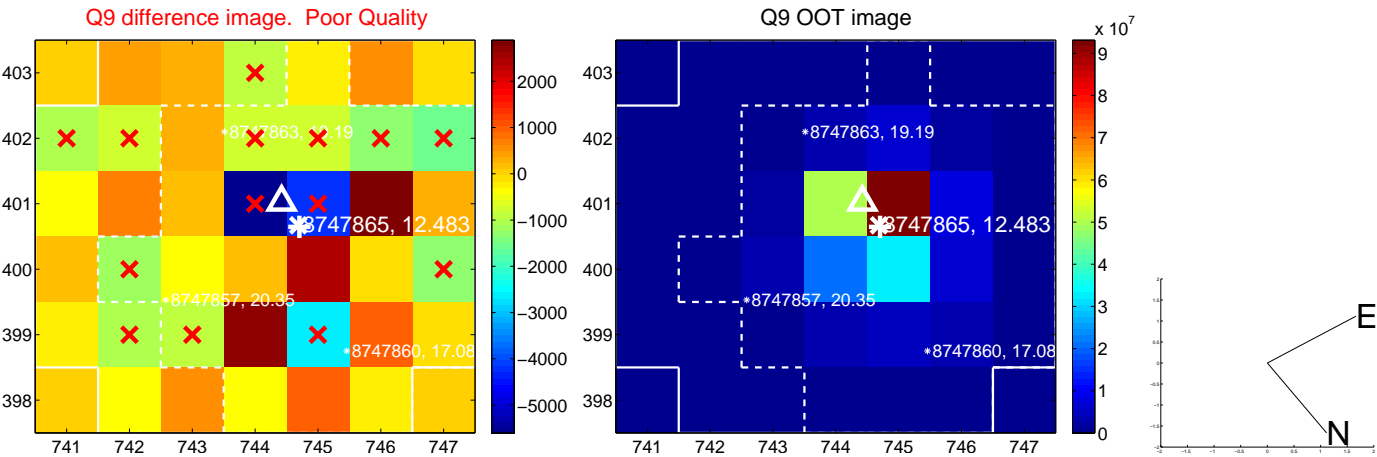
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



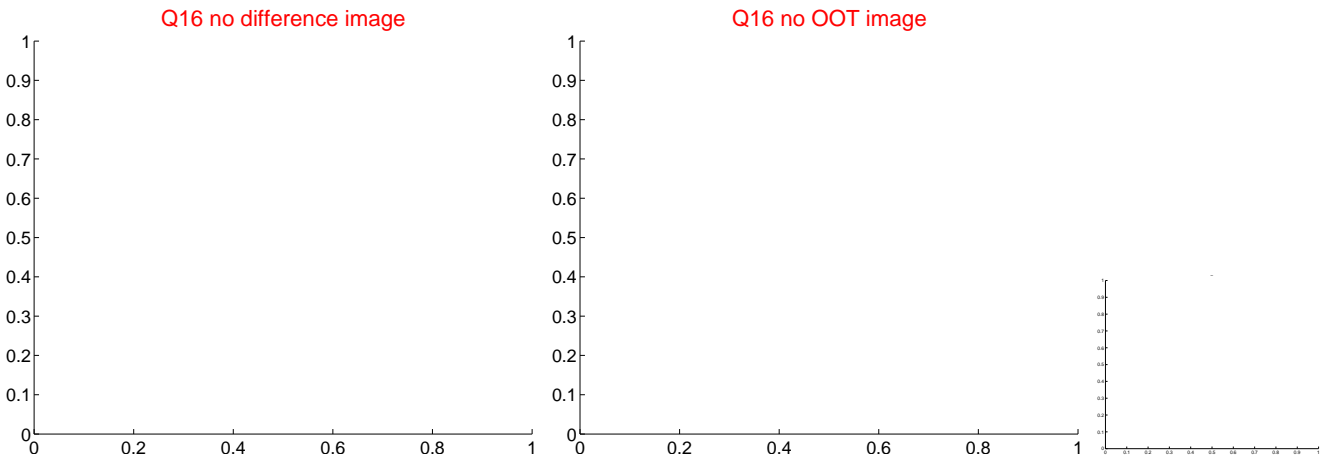
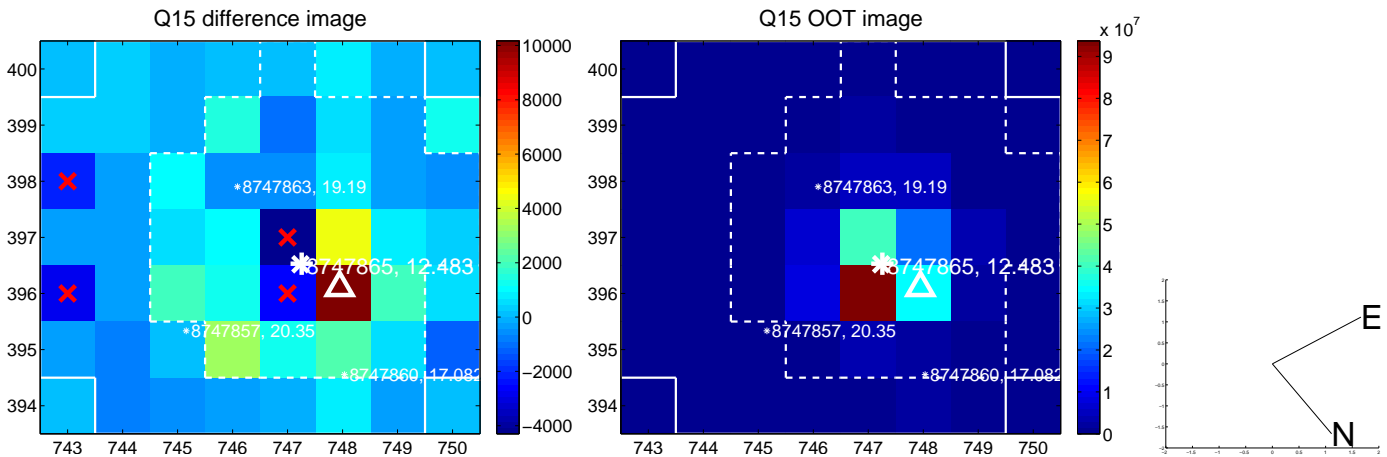
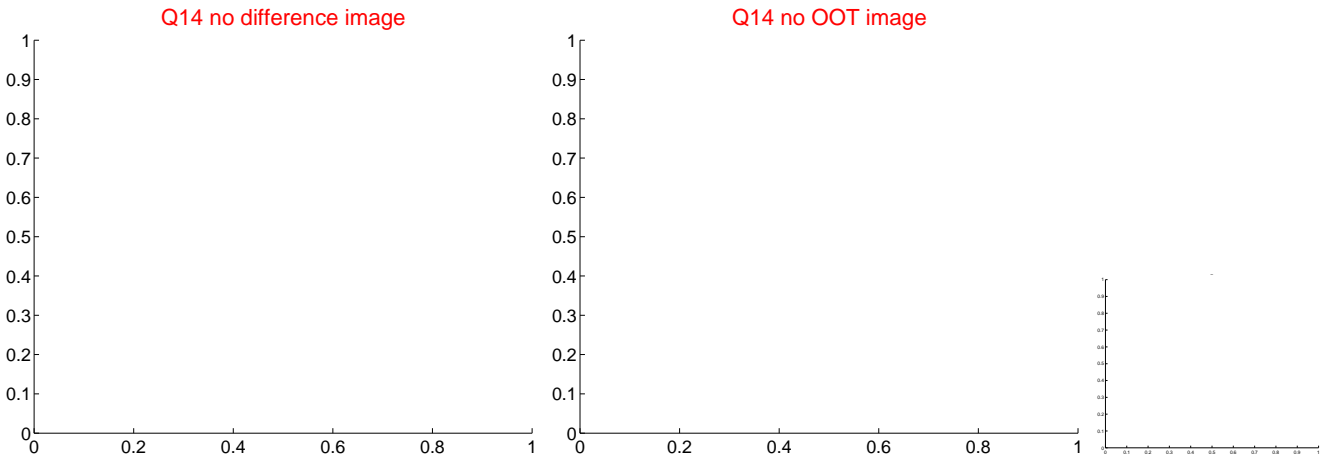
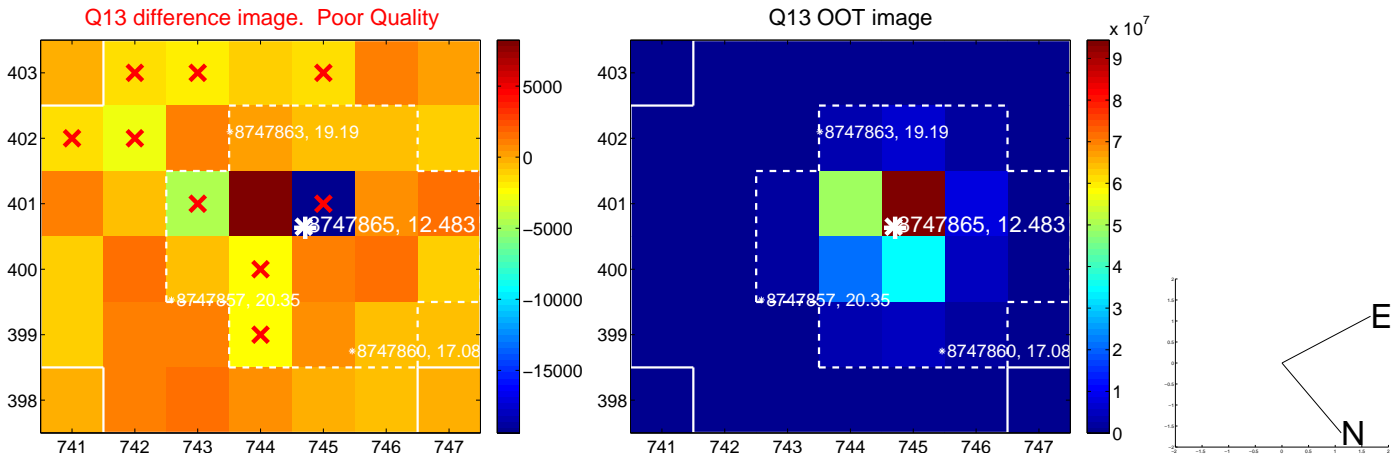
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



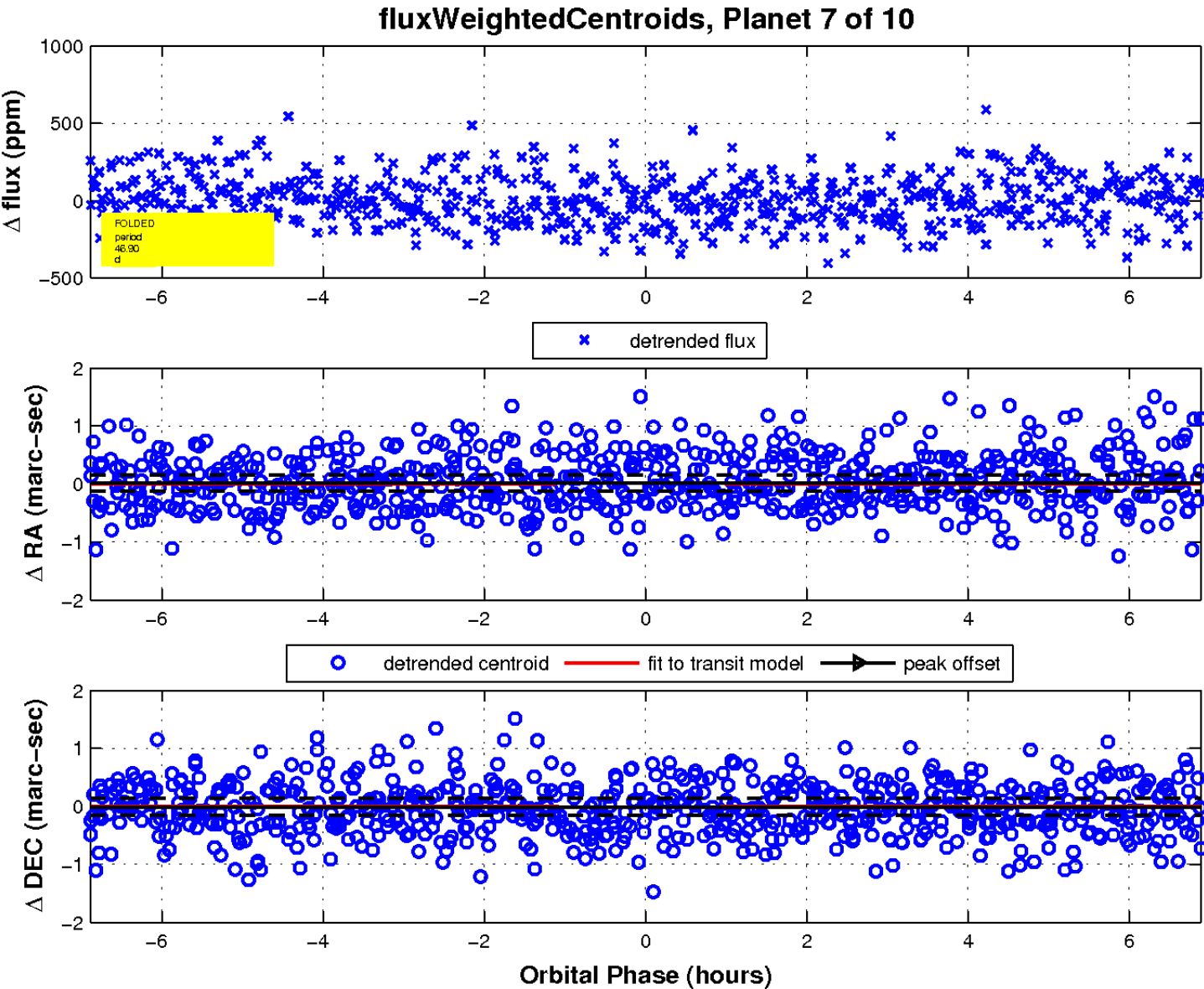
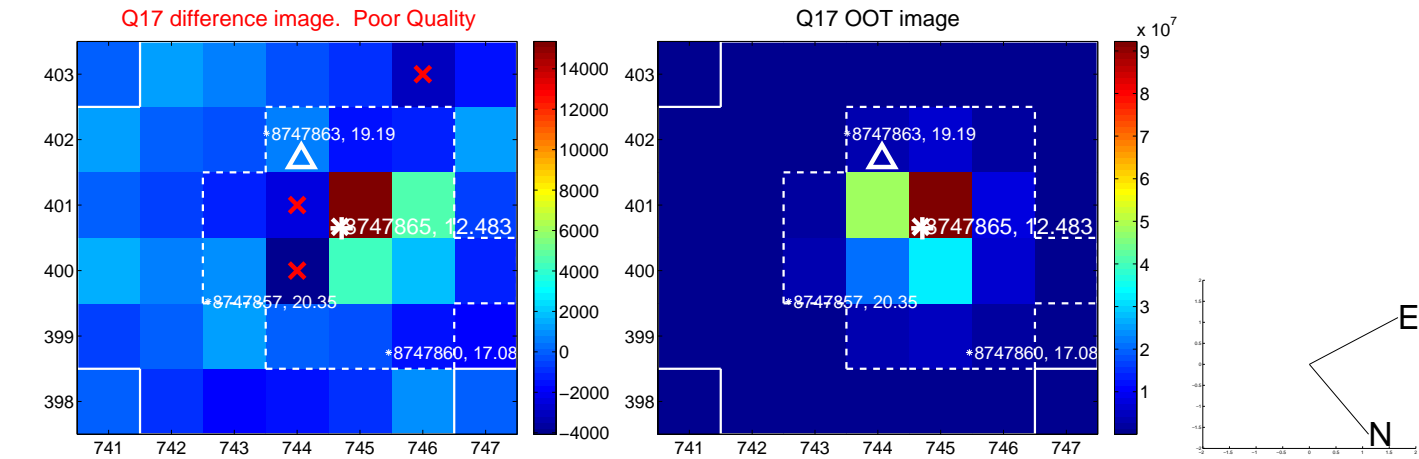
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

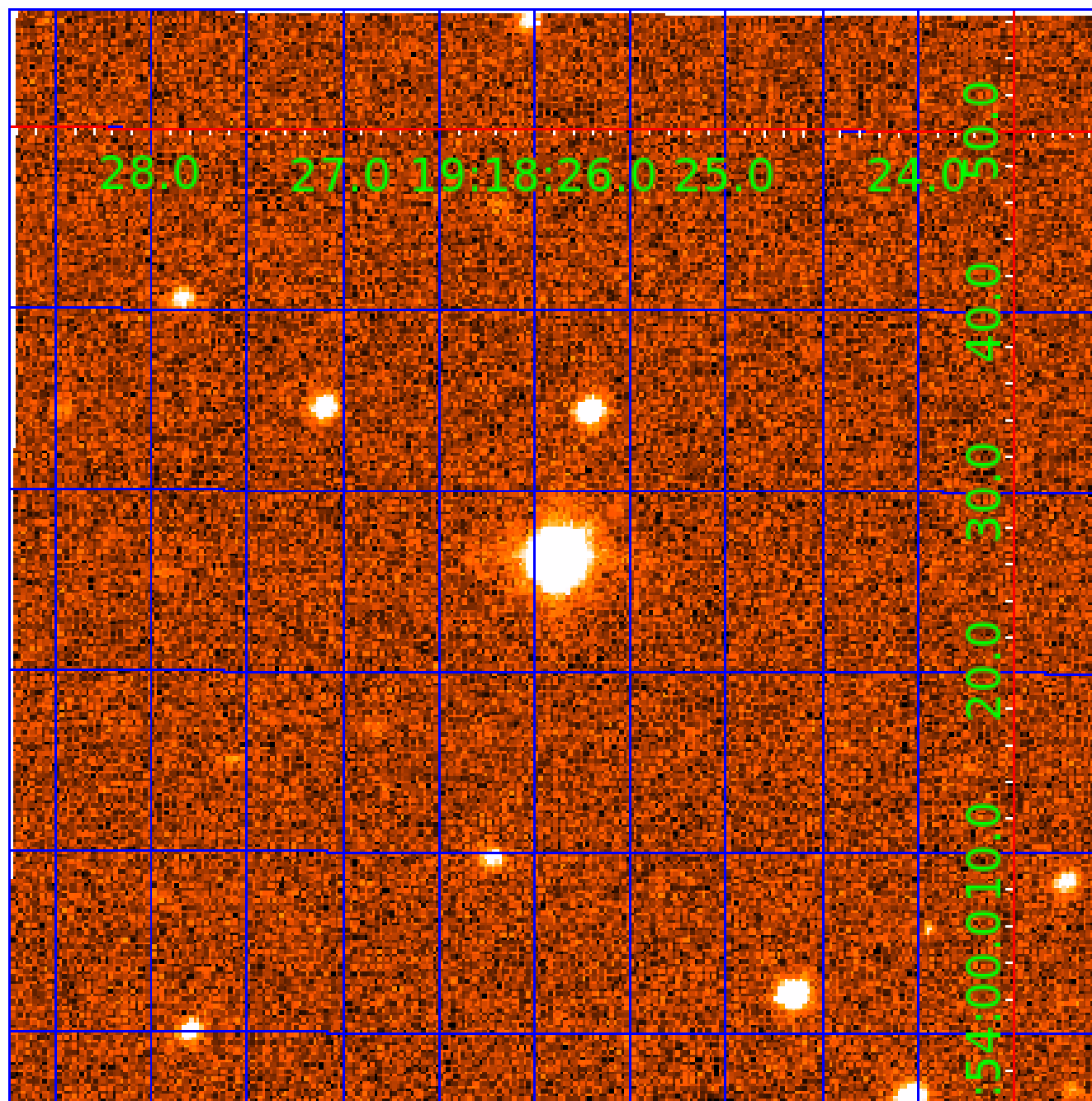


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008747865

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})
008747865-01	OBS	No	1.209131	132.607616	12.5	6.765	8.4	6.4	1.72	6770	0.64	8990.79
008747865-02	OBS	No	97.198270	158.316789	263.6	3.940	8.2	9.0	1.72	6770	3.15	25.91
008747865-04	OBS	No	69.622216	186.999204	143.5	5.632	8.4	6.8	1.72	6770	2.21	40.44
008747865-05	OBS	No	266.037473	392.777979	198.4	21.247	8.2	7.6	1.72	6770	2.75	6.77
008747865-06	OBS	No	115.943719	140.631570	236.8	2.837	8.0	8.3	1.72	6770	2.96	20.48
008747865-07	OBS	No	46.902202	165.353757	175.3	2.299	8.1	7.6	1.72	6770	2.58	68.47
008747865-08	OBS	No	40.482062	171.627250	113.5	9.685	7.2	8.2	1.72	6770	1.98	83.32
008747865-09	OBS	No	115.128340	183.140863	287.1	4.893	7.5	9.6	1.72	6770	4.52	20.68
008747865-10	OBS	No	126.754341	154.280346	261.3	3.501	8.0	8.4	1.72	6770	3.08	18.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008747865-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008747865-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008747865-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
008747865-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008747865-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

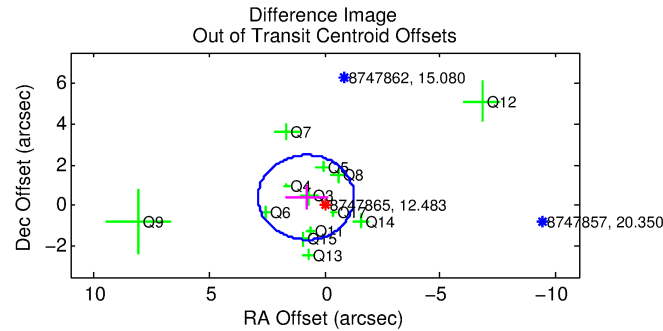
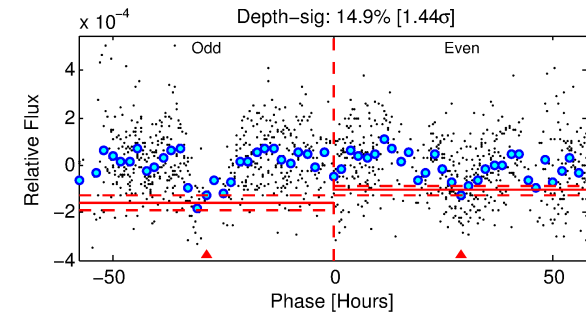
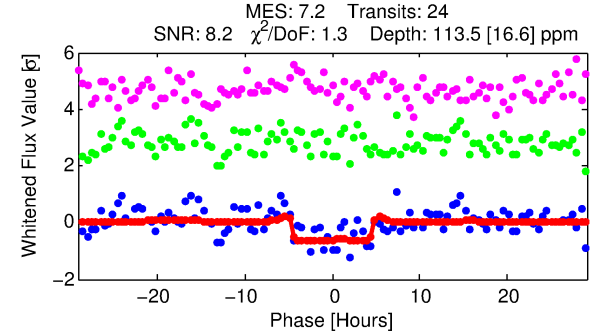
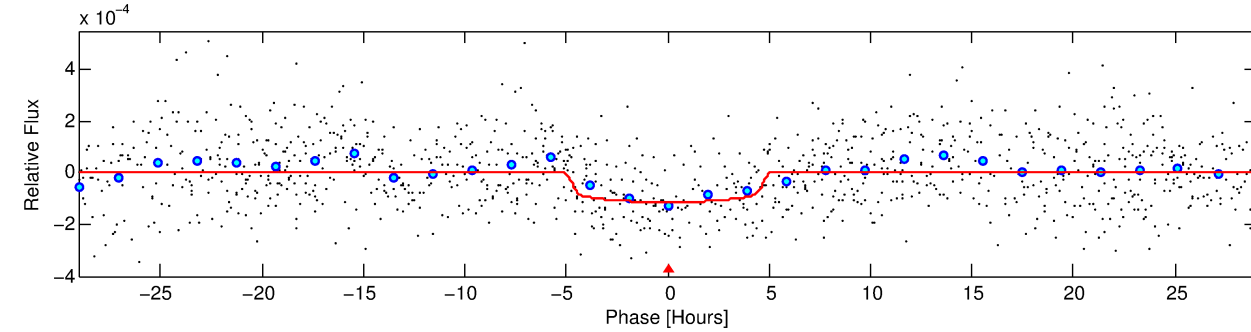
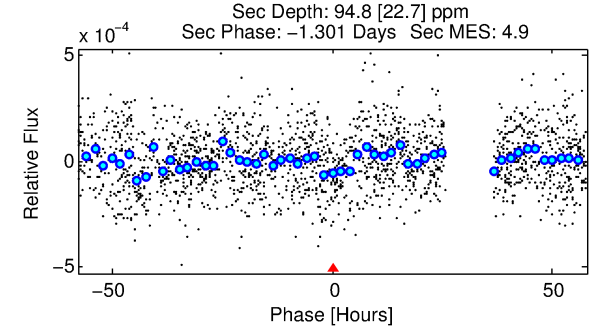
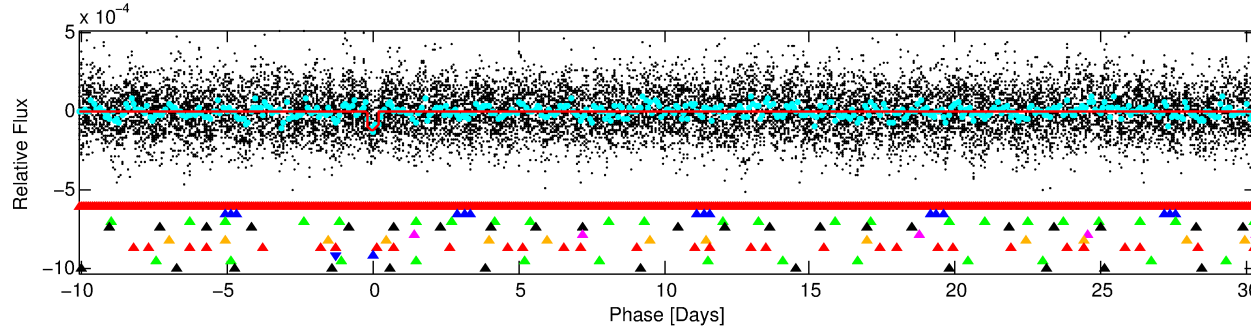
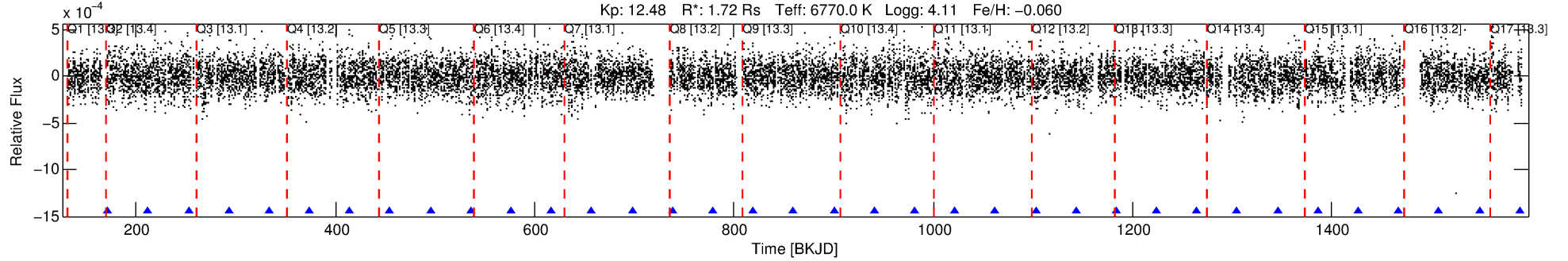
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008747865-08

No Significant Match Found

DV One-Page Summary

KIC: 8747865 Candidate: 8 of 10 Period: 40.482 d



DV Fit Results:

Period = 40.48206 [0.00059] d
Epoch = 171.6273 [0.0129] BKJD
Rp/R* = 0.0105 [0.0044]
a/R* = 22.23 [52.48]
b = 0.73 [1.50]
Seff = 83.32 [19.48]
Teq = 770 [45] K
Rp = 1.97 [0.89] Re
a = 0.2581 [0.0379] AU
Ag = 890.63 [803.35] [1.11σ]
Teffp = 6507 [1421] K [4.03σ]

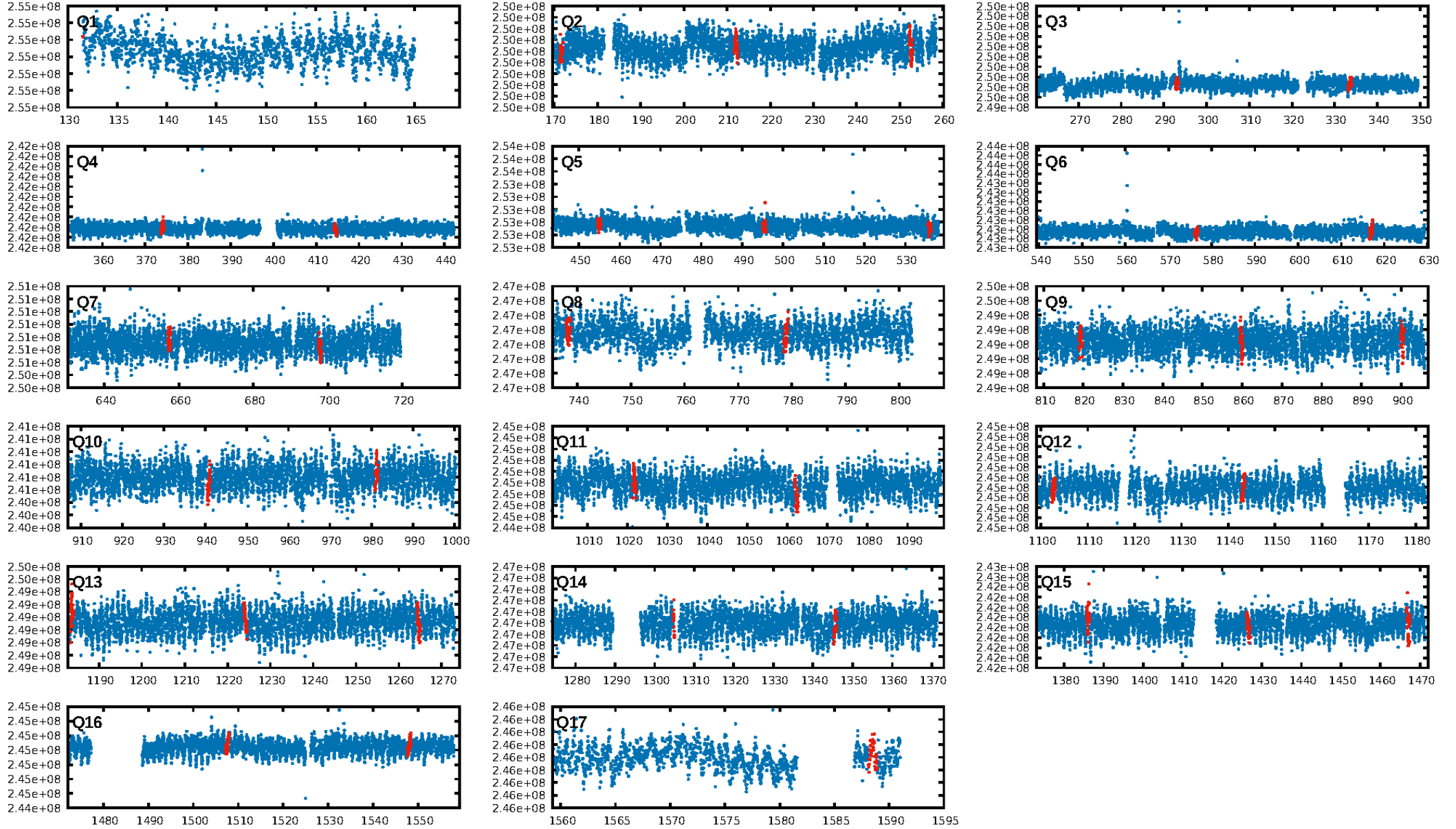
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [79.79σ]
LongPeriod-sig: 100.0% [15.48σ]
ModelChiSquare2-sig: 48.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.74e-07
RollingBand-fgt: 1.00 [24/24]
GhostDiagnostic-chr: -2.533
Centroid-sig: 70.6%
Centroid-so: 0.442 arcsec [0.78σ]
OotOffset-rm: 0.889 arcsec [1.29σ]
OotOffset-st: 2/4/3/4 [13]
KicOffset-rm: 0.999 arcsec [1.56σ]
KicOffset-st: 2/4/3/4 [13]
DiffImageQuality-fgm: 0.38 [5/13]
DiffImageOverlap-fno: 0.00 [0/16]

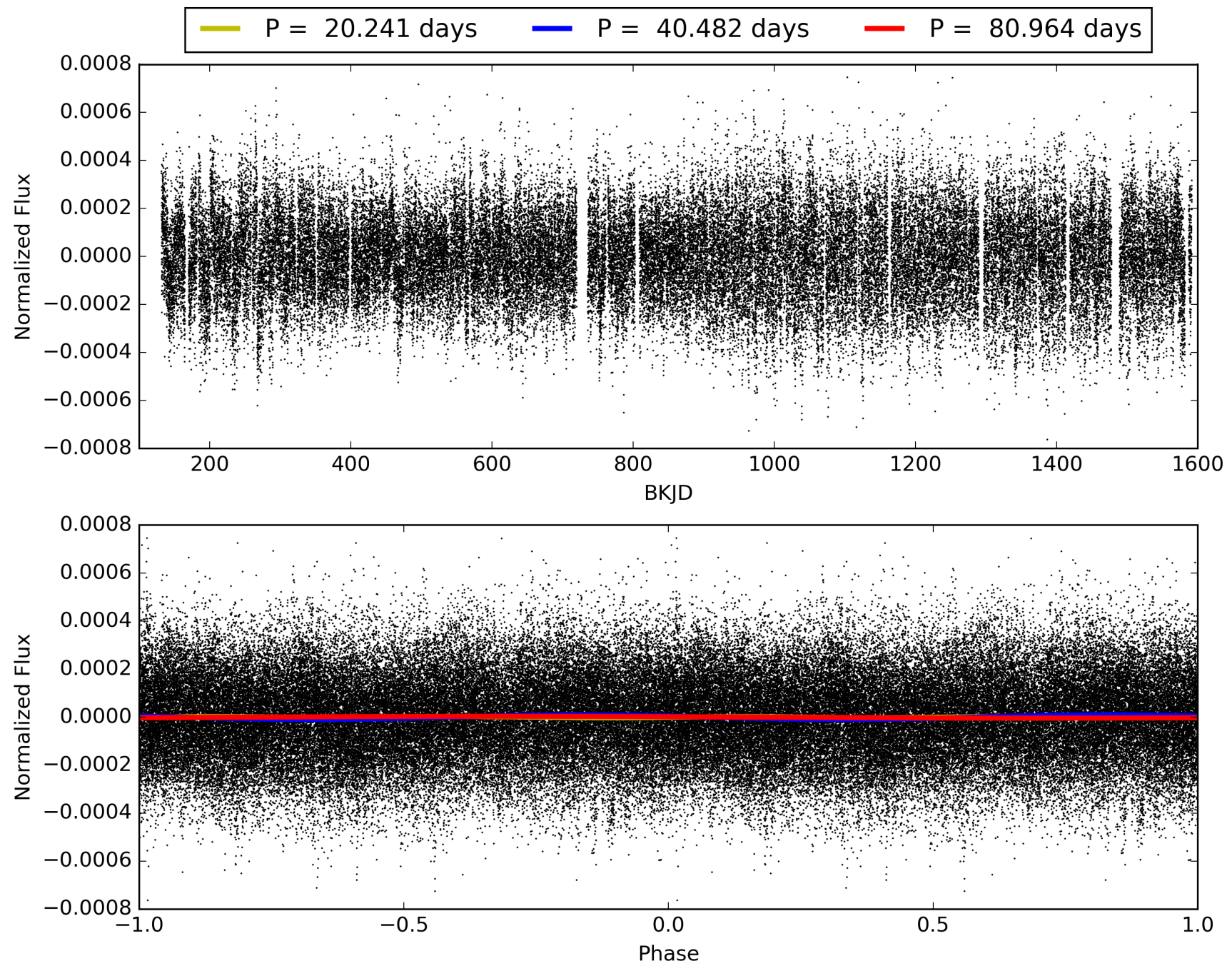
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:17:36 Z

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

TCE 008747865-08, PDC Light Curves

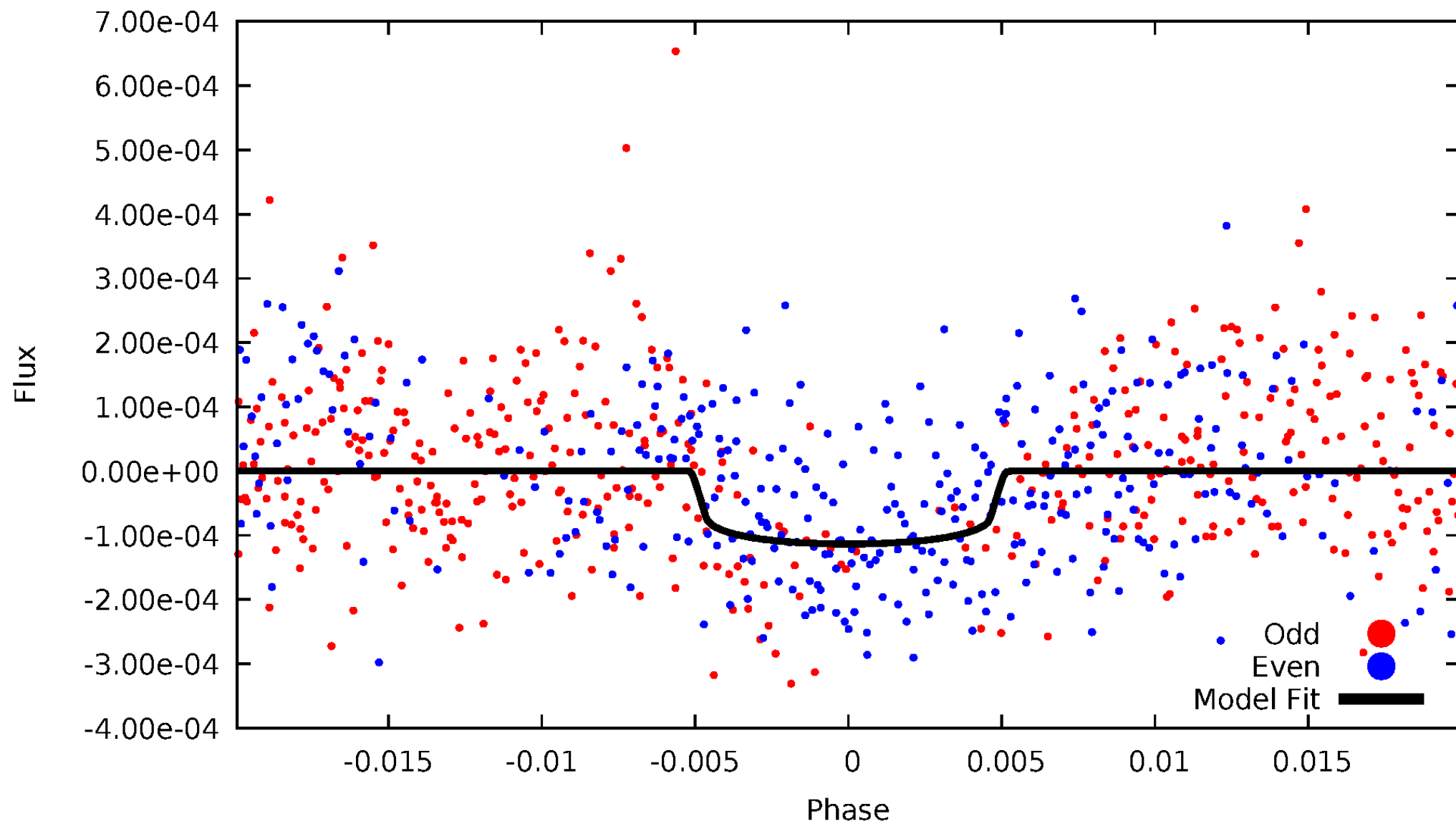


TCE 008747865-08



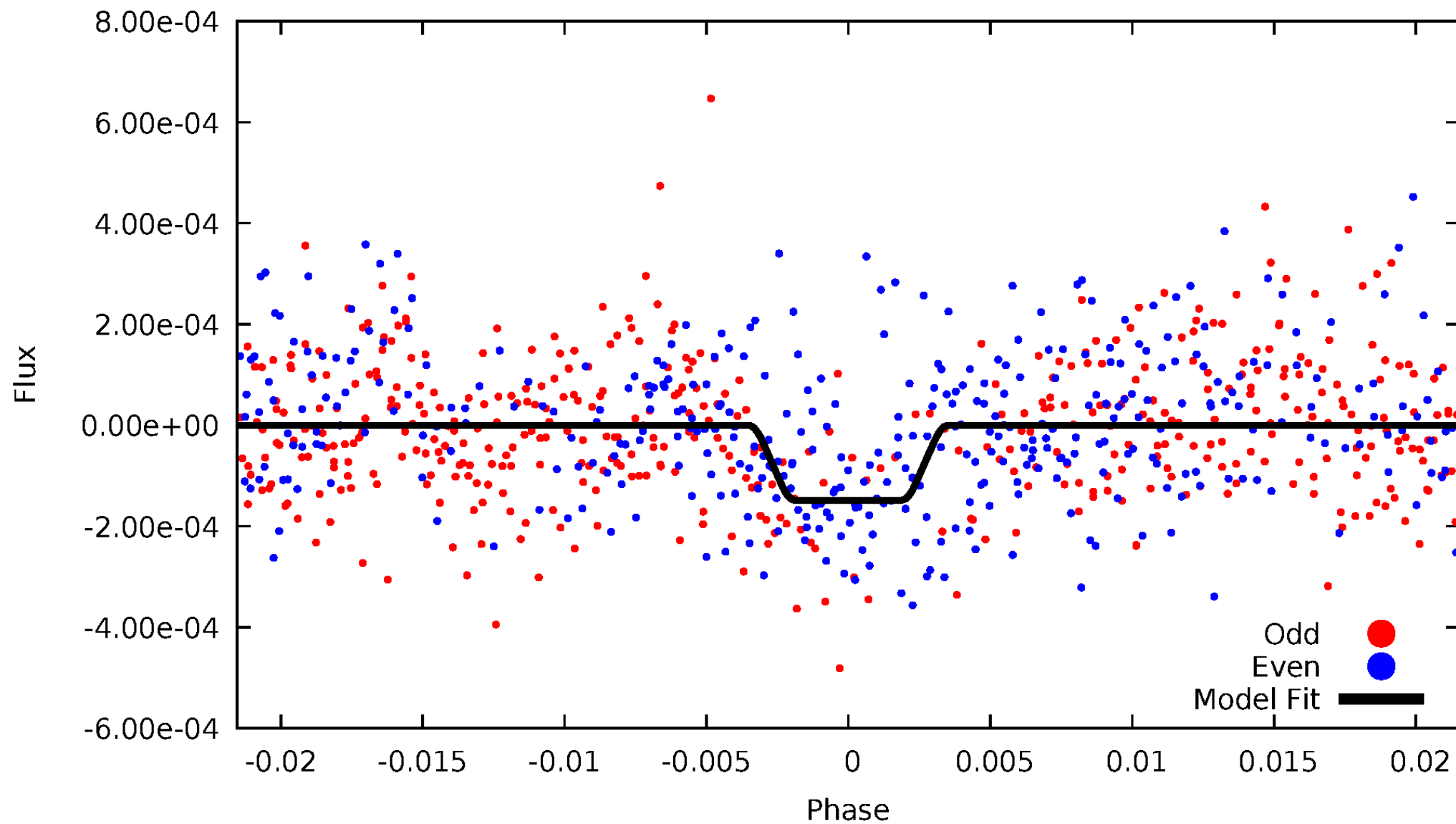
DV Odd/Even

TCE 008747865-08



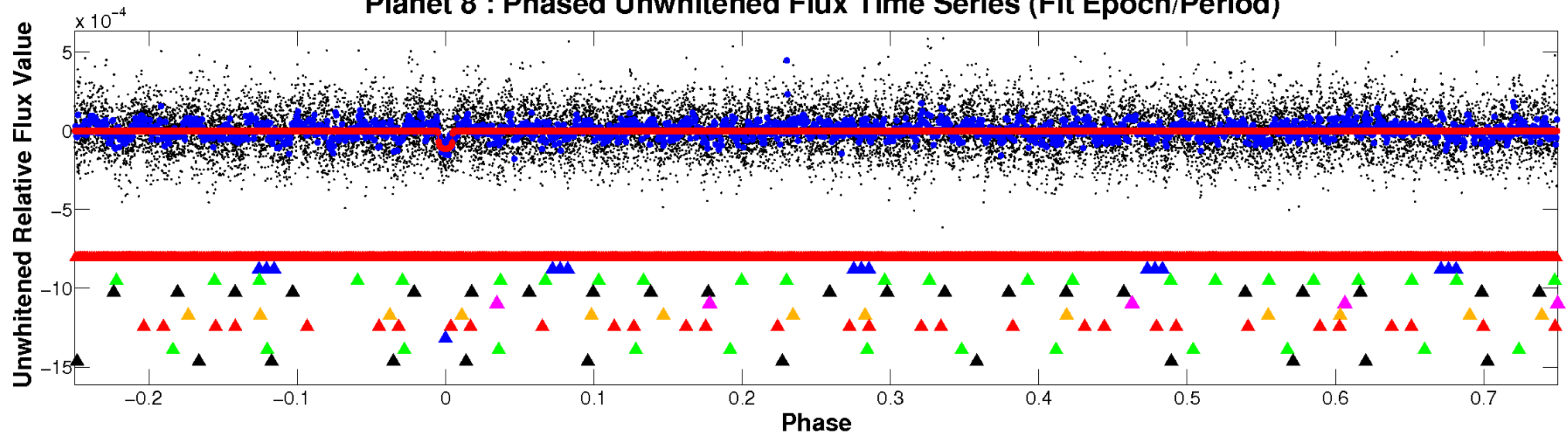
ALT Odd/Even

TCE 008747865-08

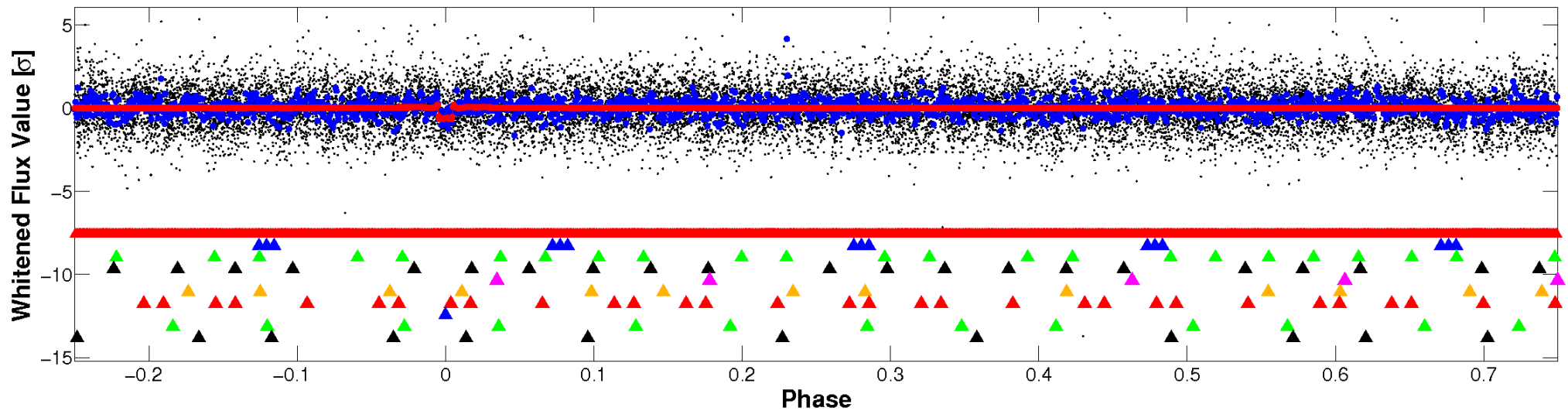


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

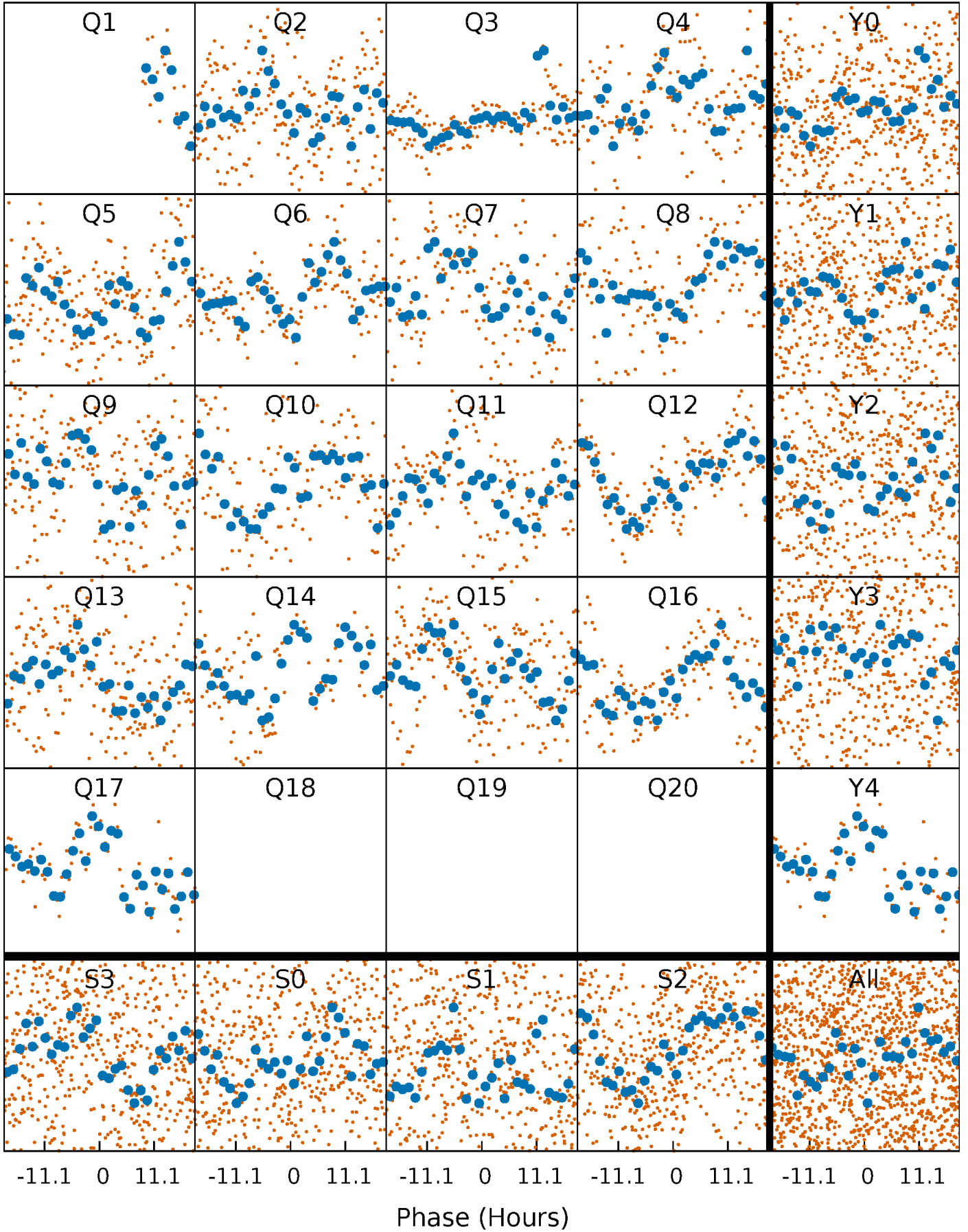


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



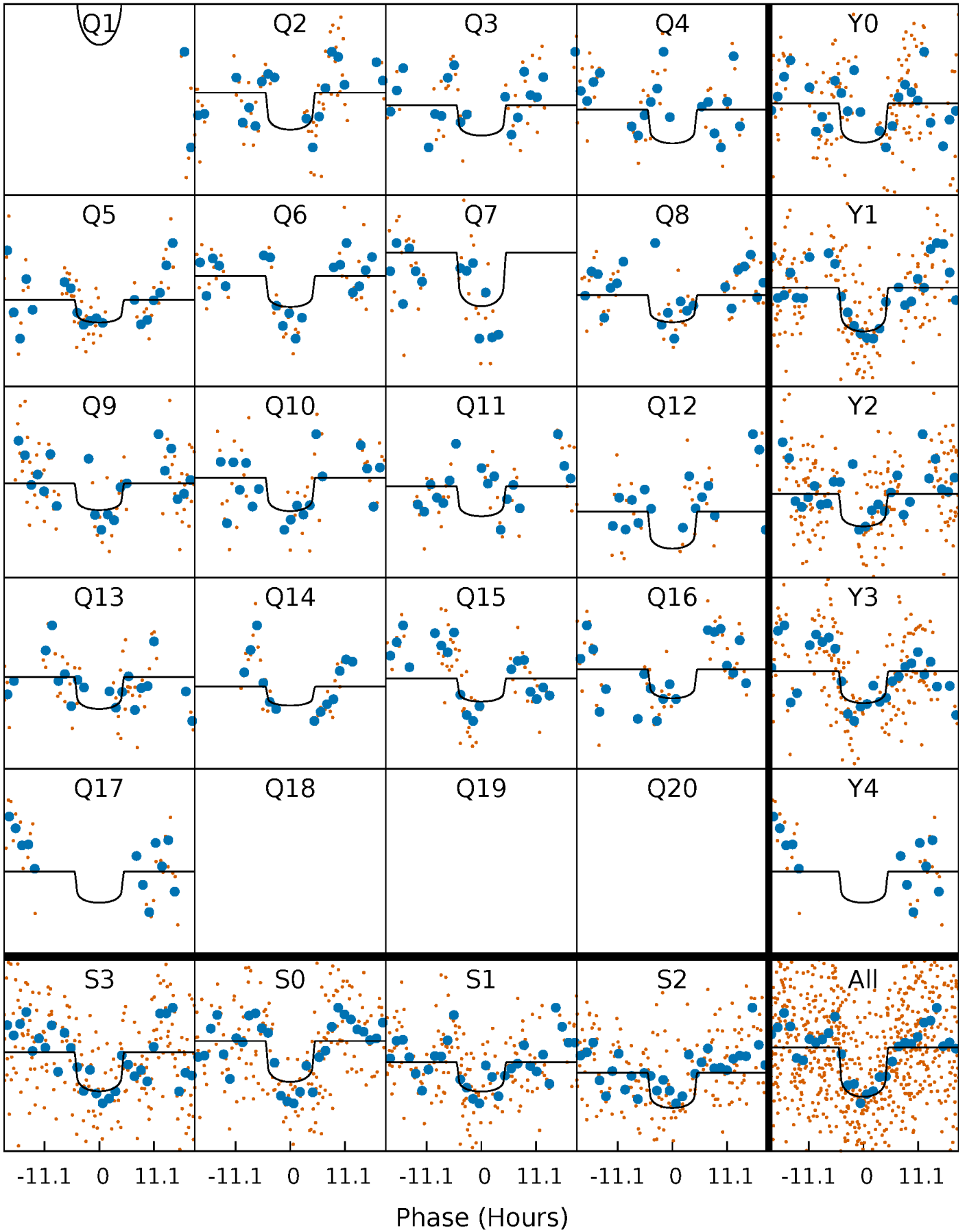
PDC Quarter-Phased Transit Curves

TCE 008747865-08 P= 40.482062 Days $T_0=171.627250$ (BKJD)



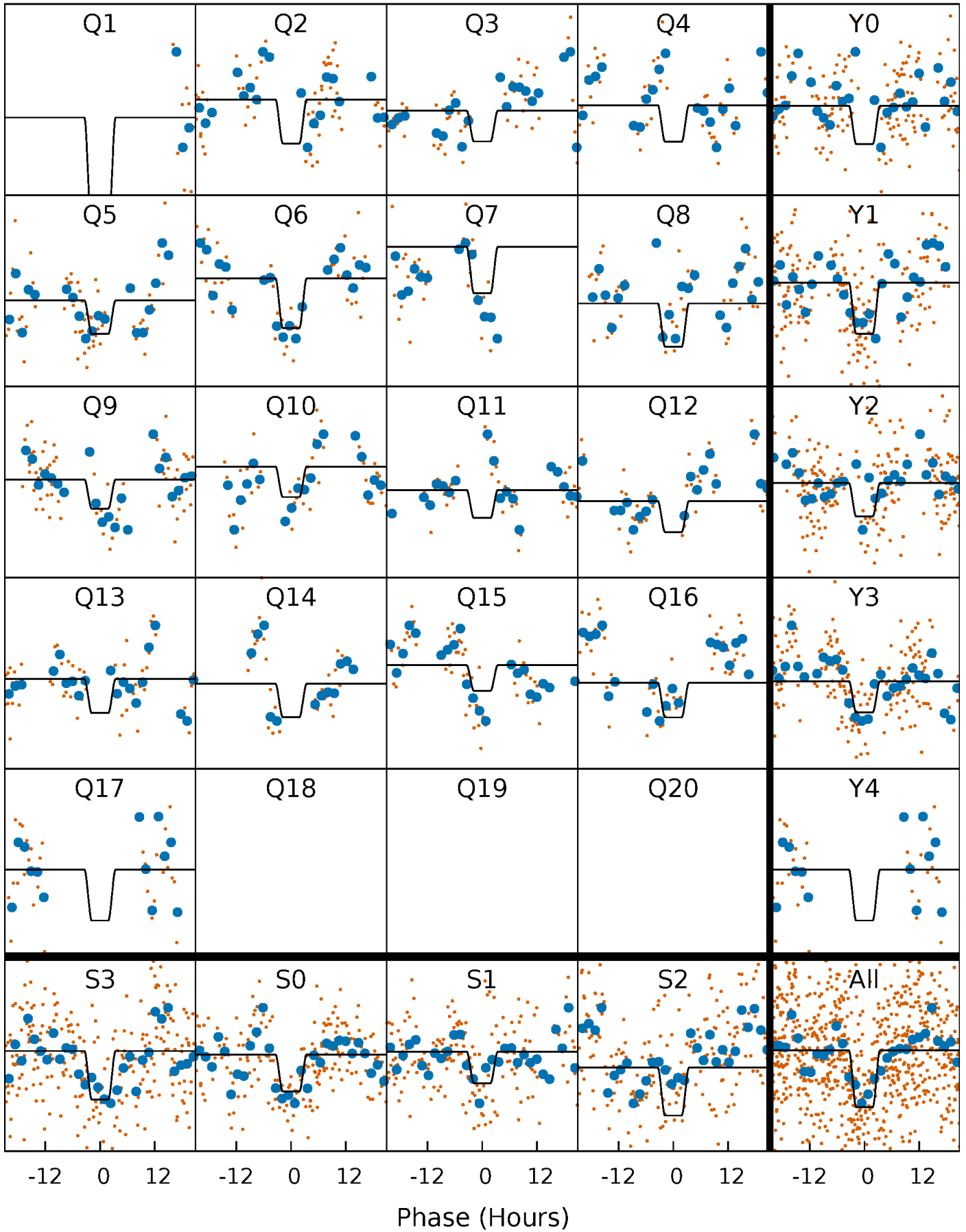
DV Quarter-Phased Transit Curves

TCE 008747865-08 P= 40.482062 Days $T_0=171.627250$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

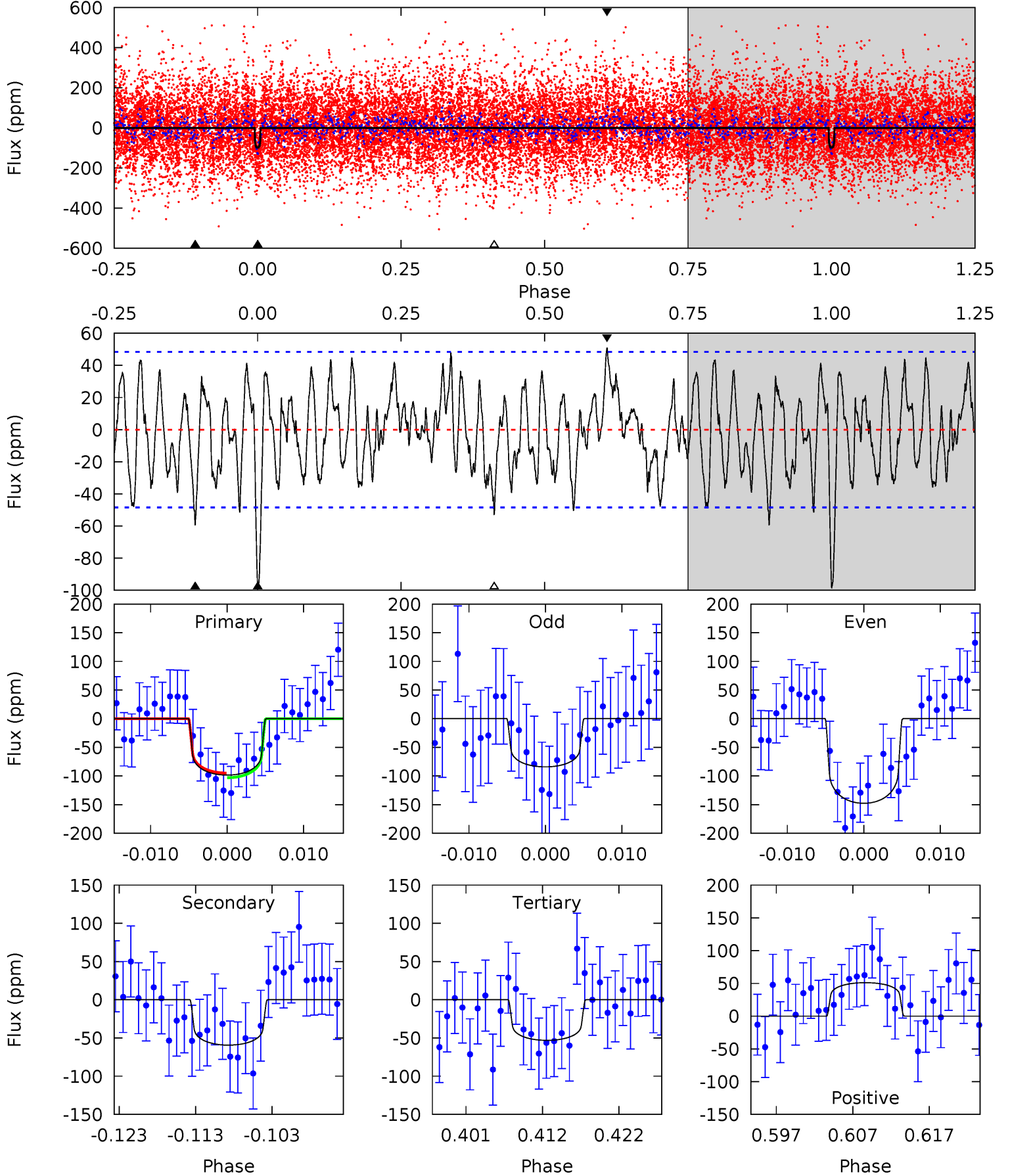
TCE 008747865-08 P= 40.480314 Days $T_0=171.651342$ (BKJD)



DV Model-Shift Uniqueness Test

008747865-08, $P = 40.482062$ Days, $E = 131.145188$ Days

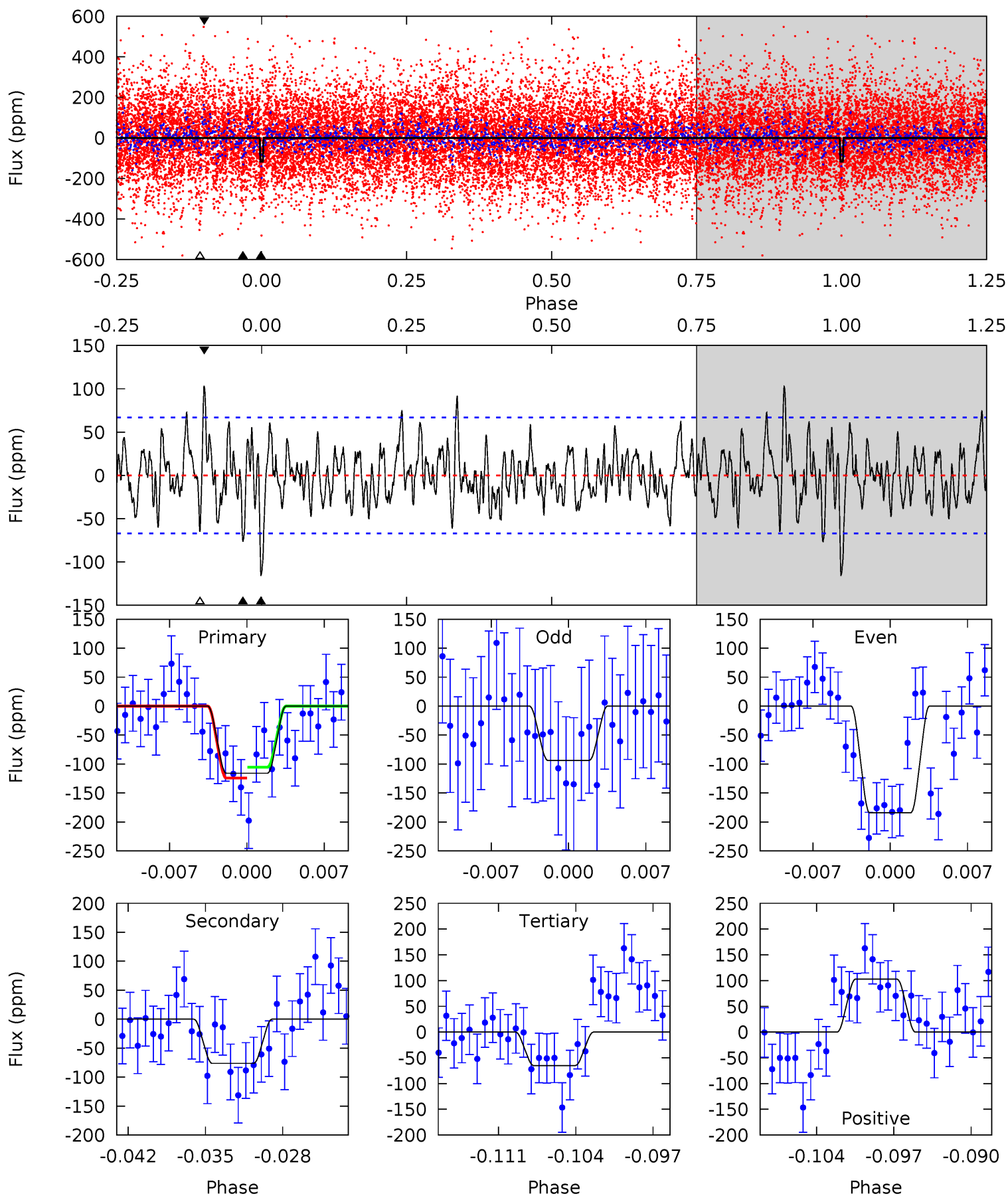
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	6.16	5.51	5.30	5.02	2.57	2.25	4.71	4.92	0.65	0.85	2.89	0.87	0.34	0.42



Alt Model-Shift Uniqueness Test

008747865-08, P = 40.480314 Days, E = 131.171028 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.81	5.81	4.95	7.83	5.10	2.70	1.98	3.86	0.99	0.86	-2.02	3.03	0.61	0.47	0.70



Stellar Parameters For KIC 008747865

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6770^{+81}_{-81}	$4.114^{+0.132}_{-0.108}$	$-0.060^{+0.150}_{-0.150}$	$1.717^{+0.274}_{-0.274}$	$1.405^{+0.109}_{-0.098}$	$0.391^{+0.240}_{-0.127}$
	+1%/-1%	+3%/-3%	+250%/-250%	+16%/-16%	+8%/-7%	+62%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 008747865-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-59 ± 10	$2.02^{+0.85}_{-0.82}$	1074^{+48}_{-49}	5644^{+1923}_{-751}	527^{+1032}_{-271}
Alt.	-76 ± 13	$2.24^{+0.92}_{-0.84}$	1072^{+47}_{-47}	5738^{+1654}_{-823}	552^{+949}_{-275}

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 $A_{obs} \gg 1.0$

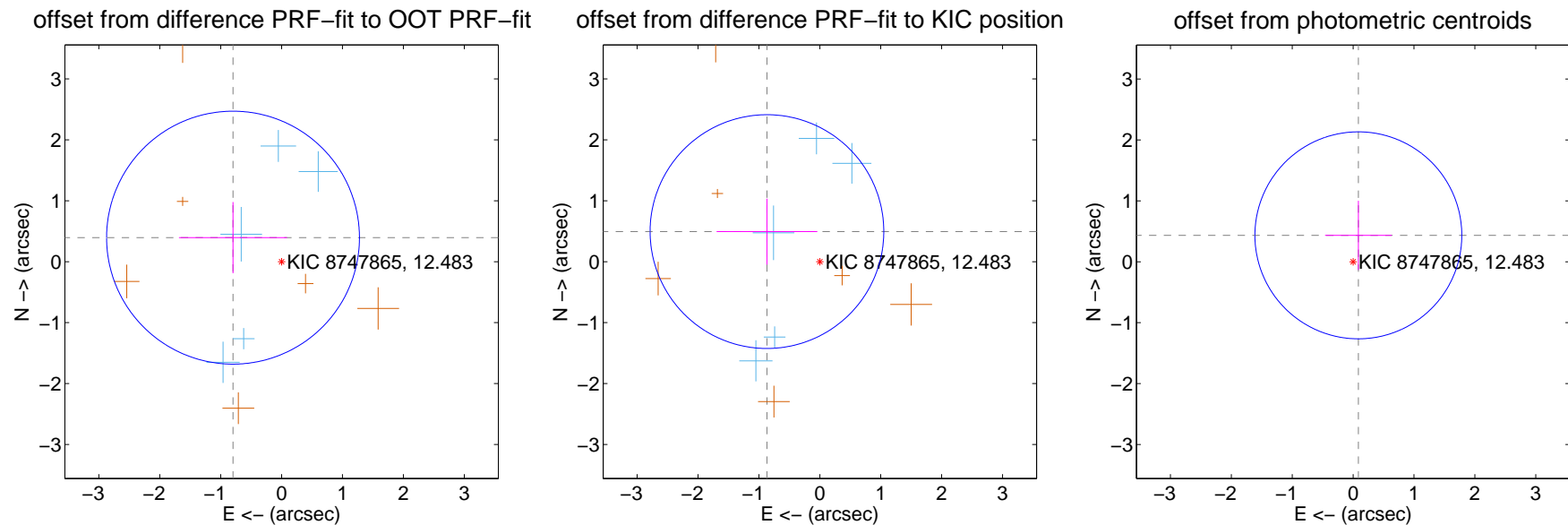
DV Centroid Data

Supplemental centroid analysis for 008747865-08. Kepler magnitude: 12.48. Transit SNR 8.22

There are 5 quarters with good PRF difference image offsets

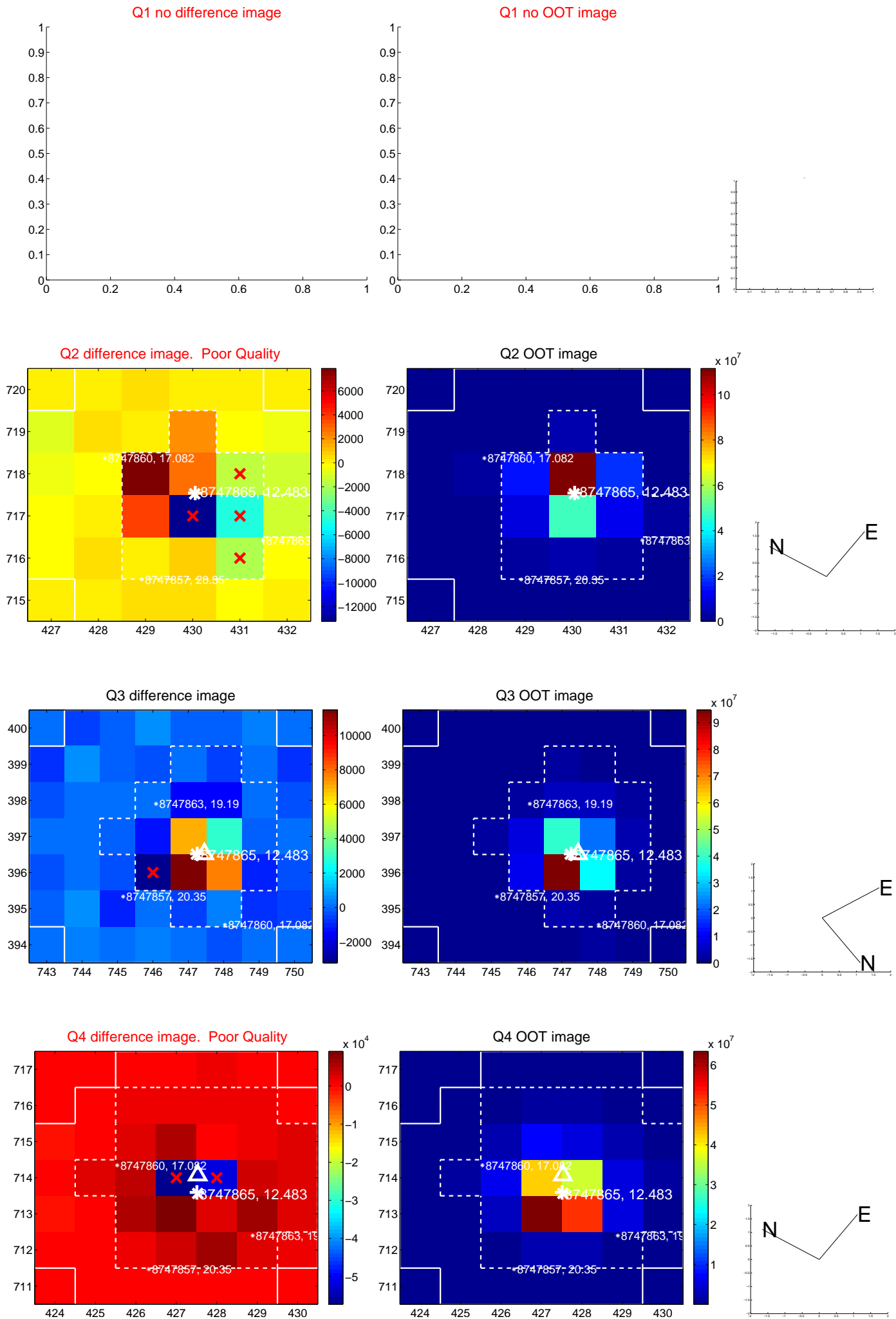
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.889 ± 0.692	1.29	0.797 ± 0.887	0.394 ± 0.584
PRF-fit source offset from KIC position	0.999 ± 0.639	1.56	0.868 ± 0.827	0.494 ± 0.541
photometric centroid source offset	0.44 ± 0.57	0.78	-0.09 ± 0.55	0.43 ± 0.57

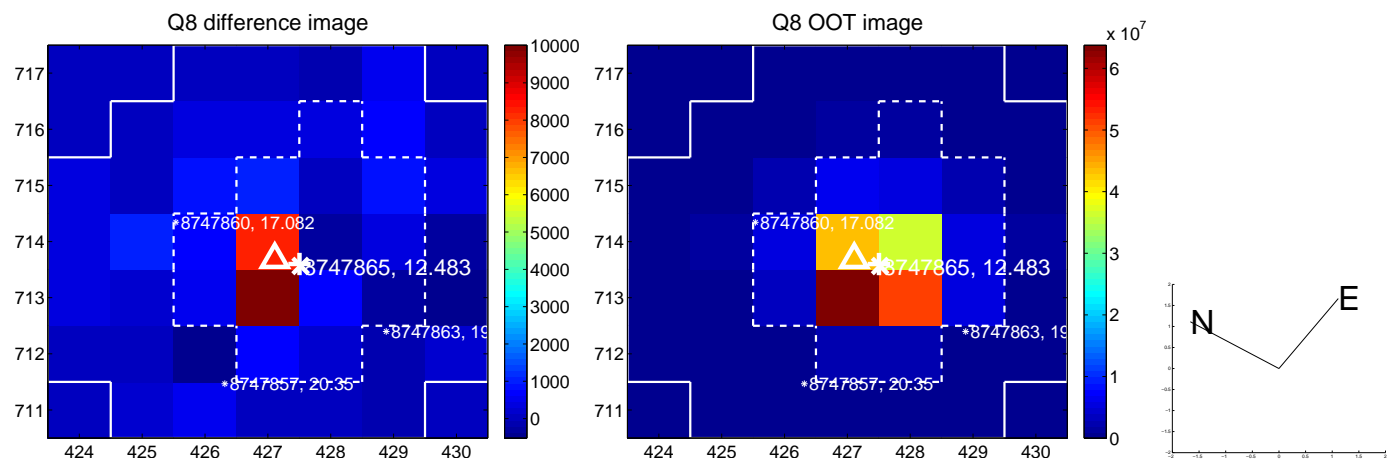
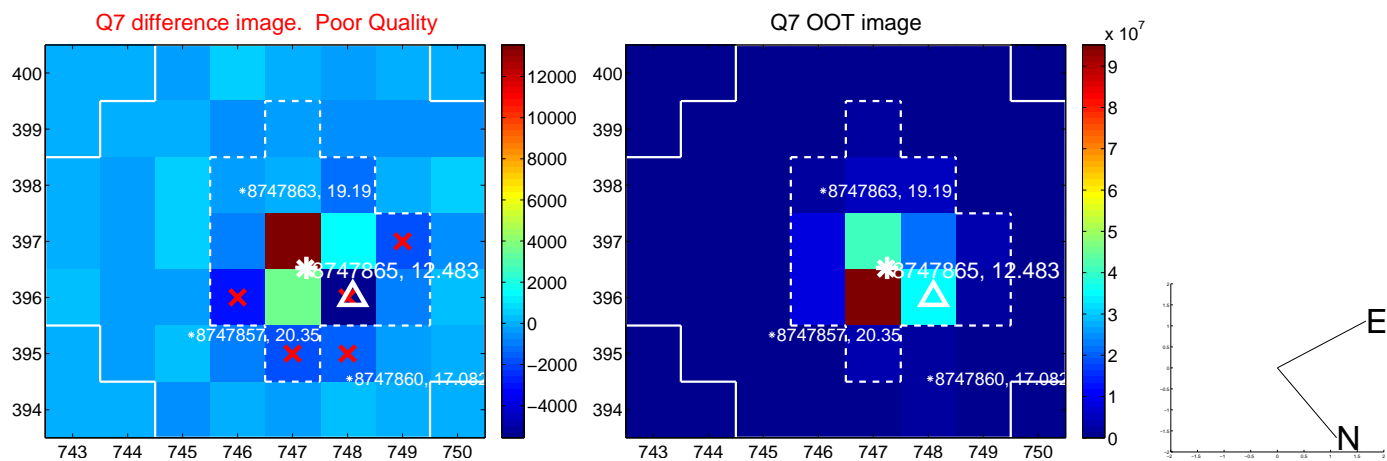
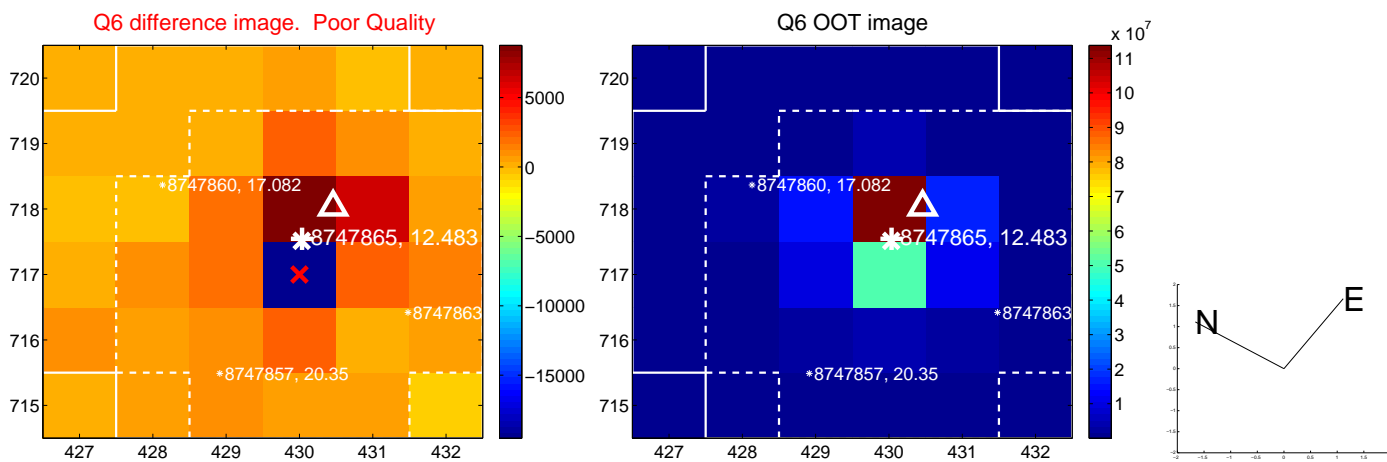
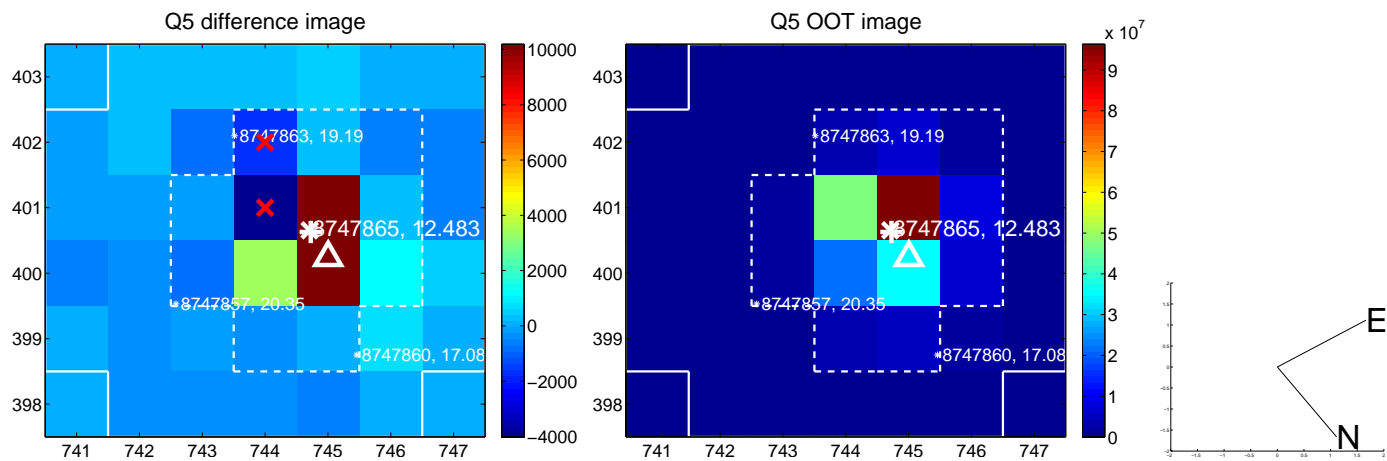


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

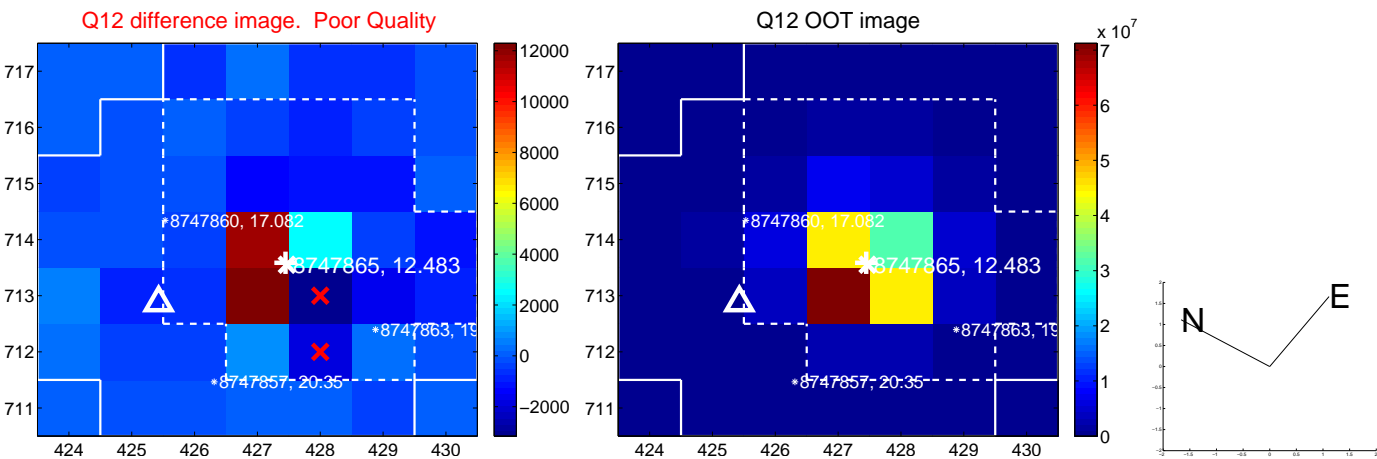
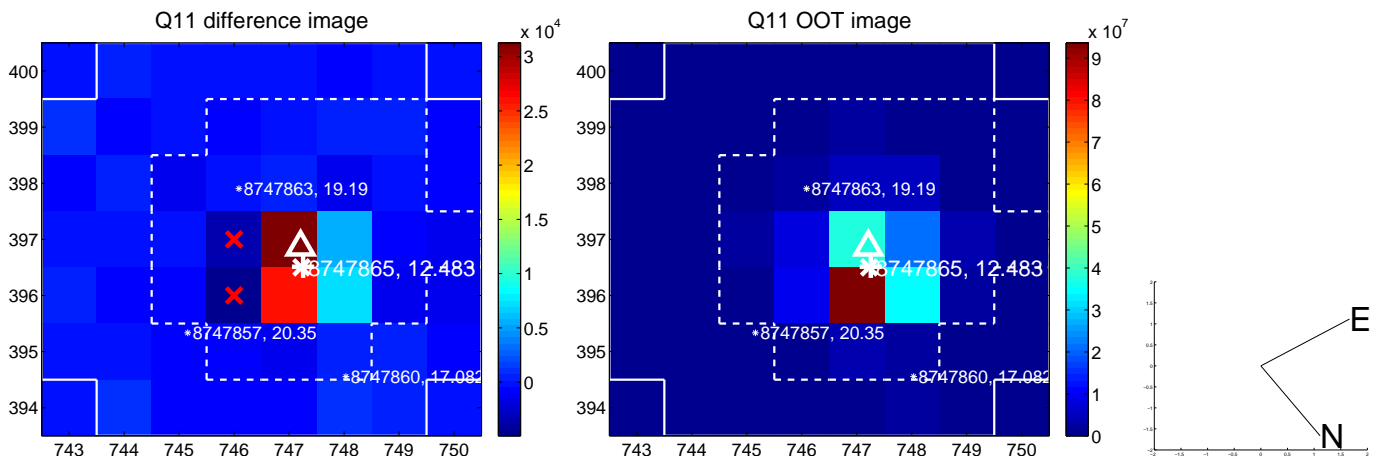
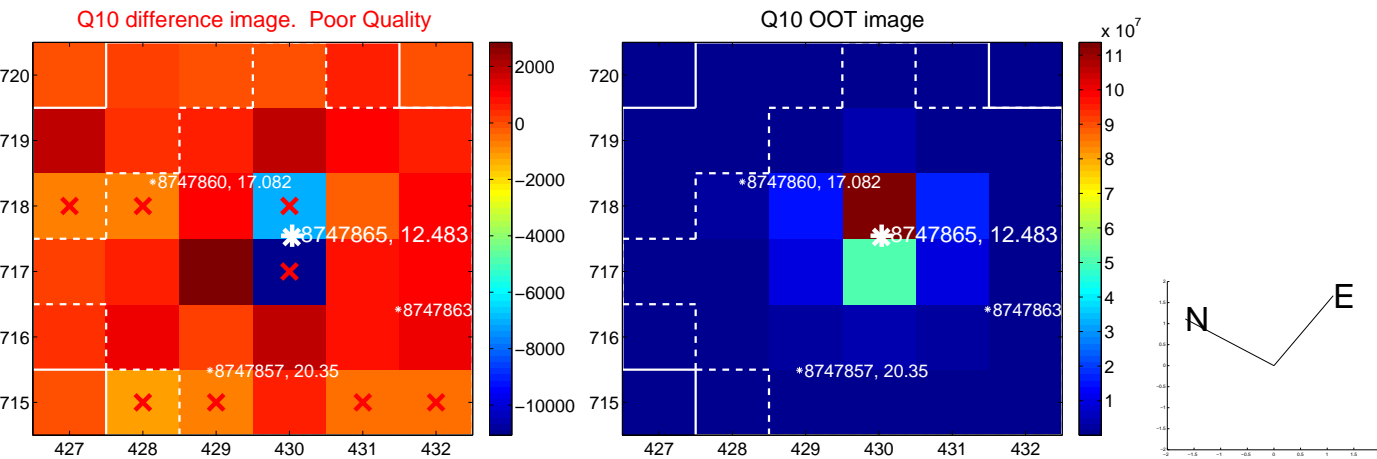
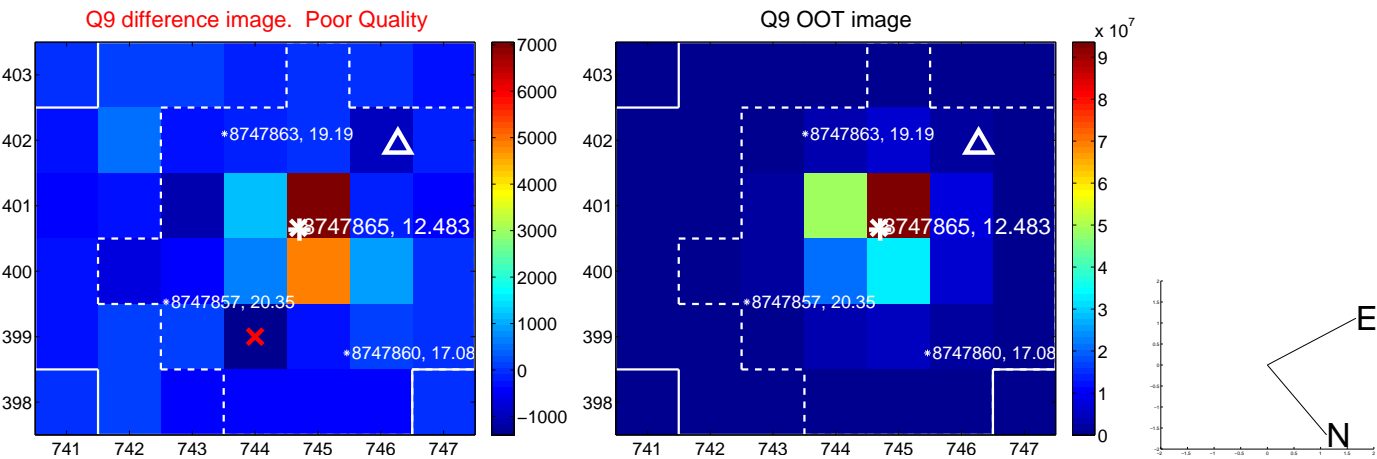
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



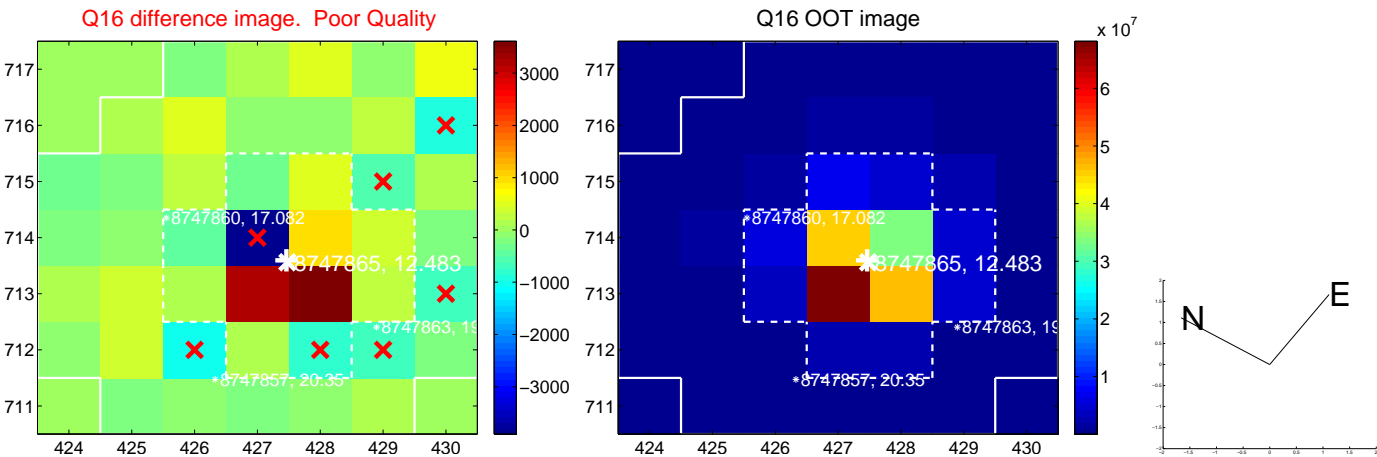
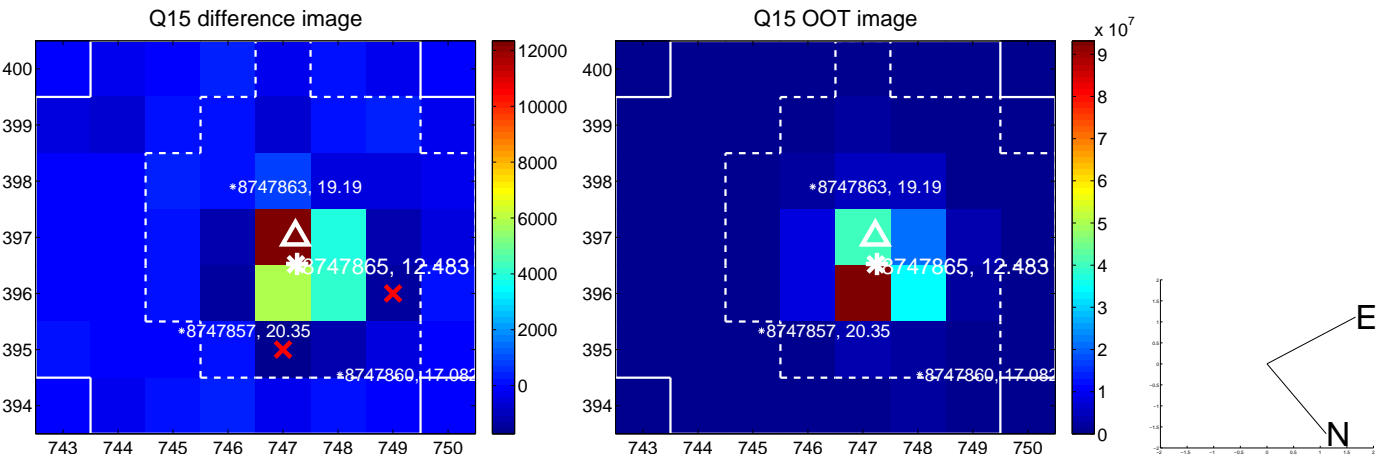
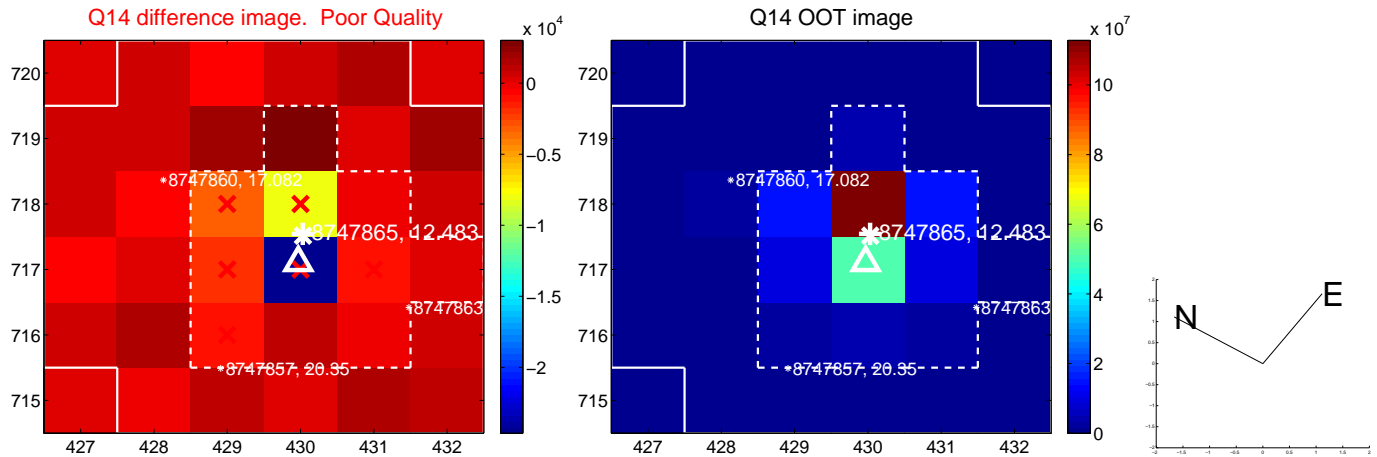
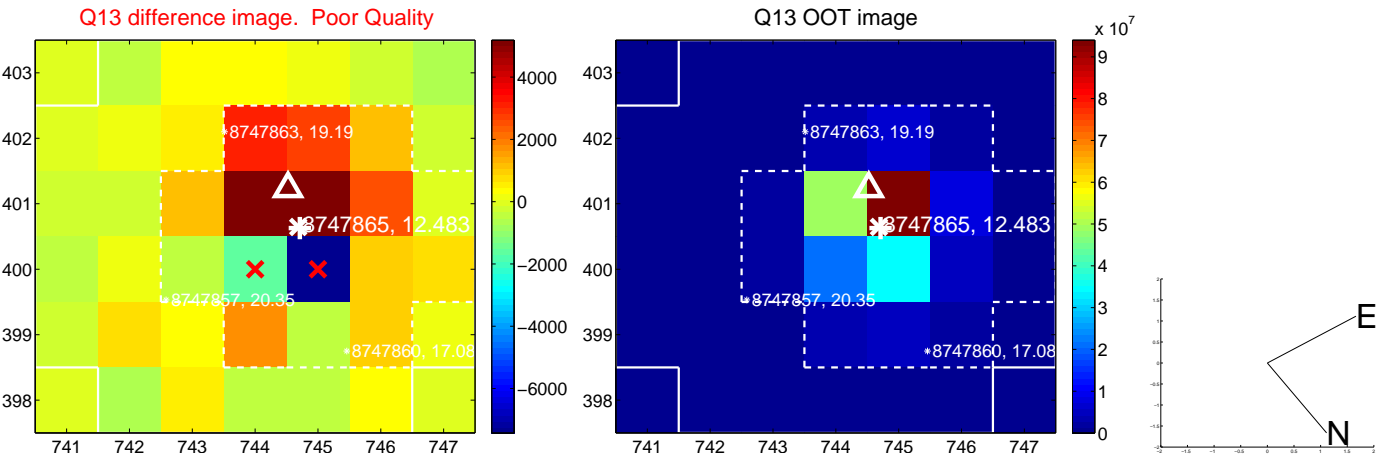
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



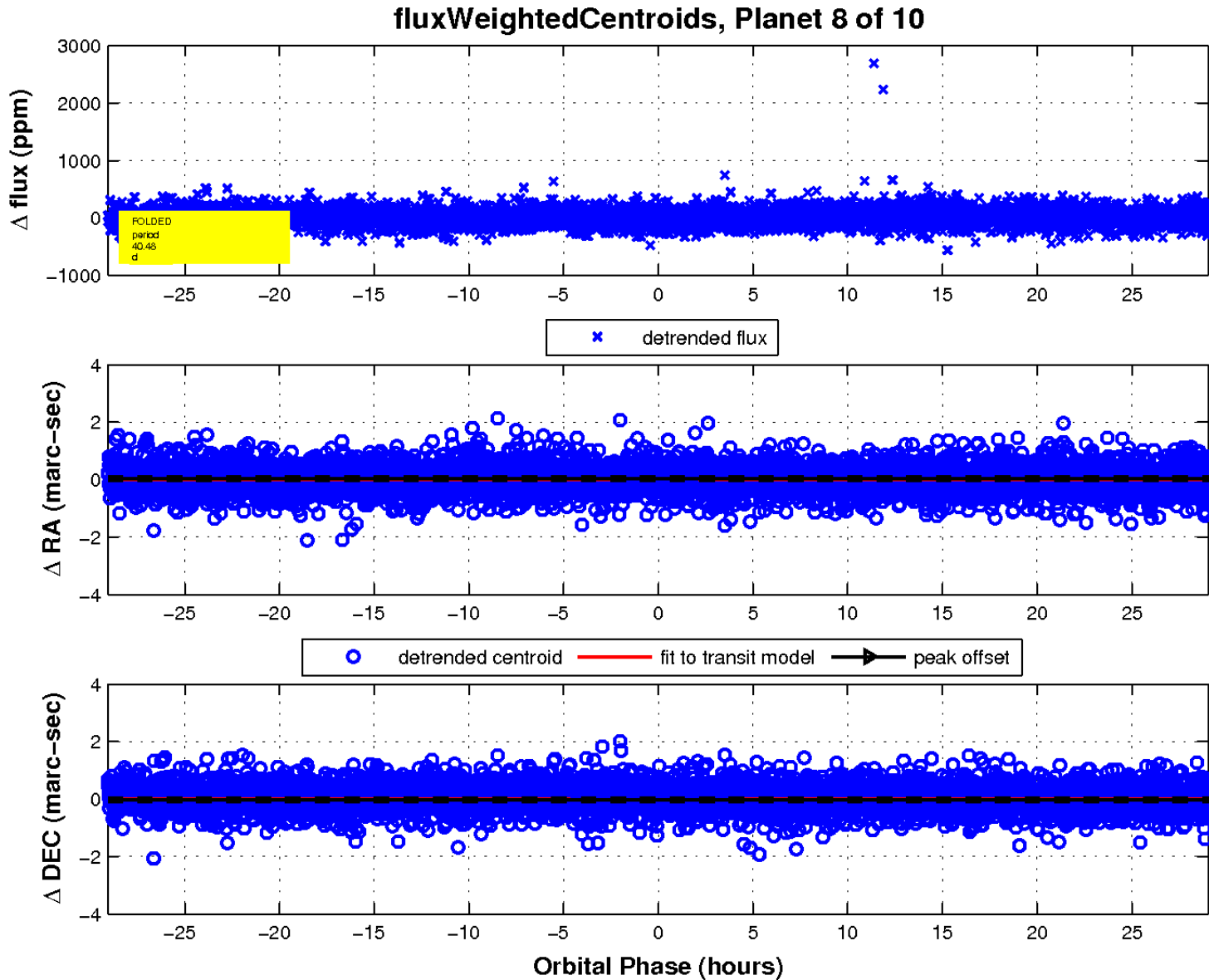
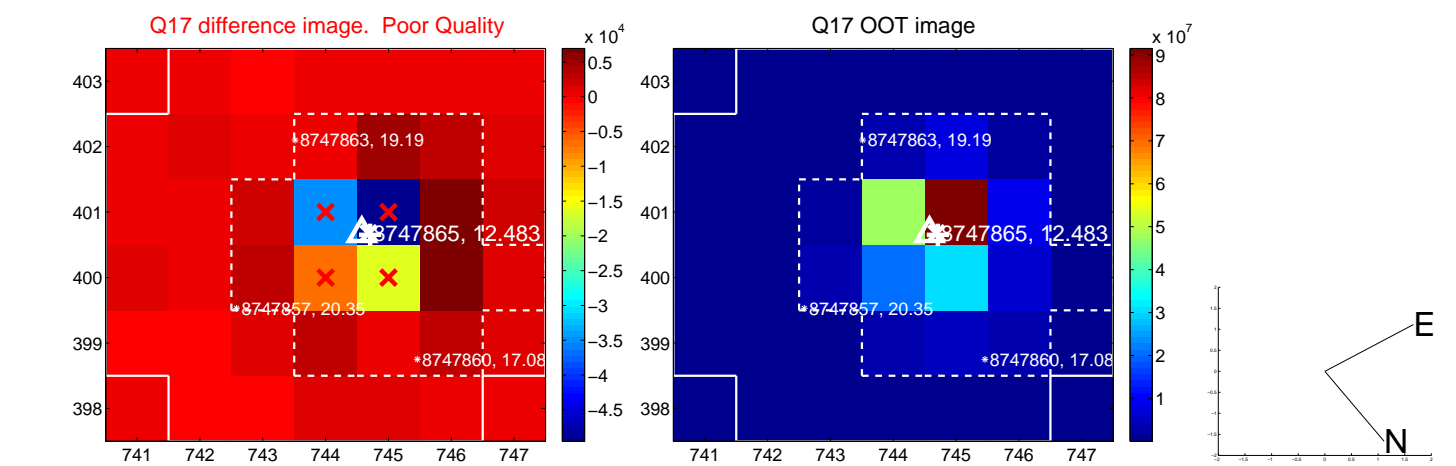
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

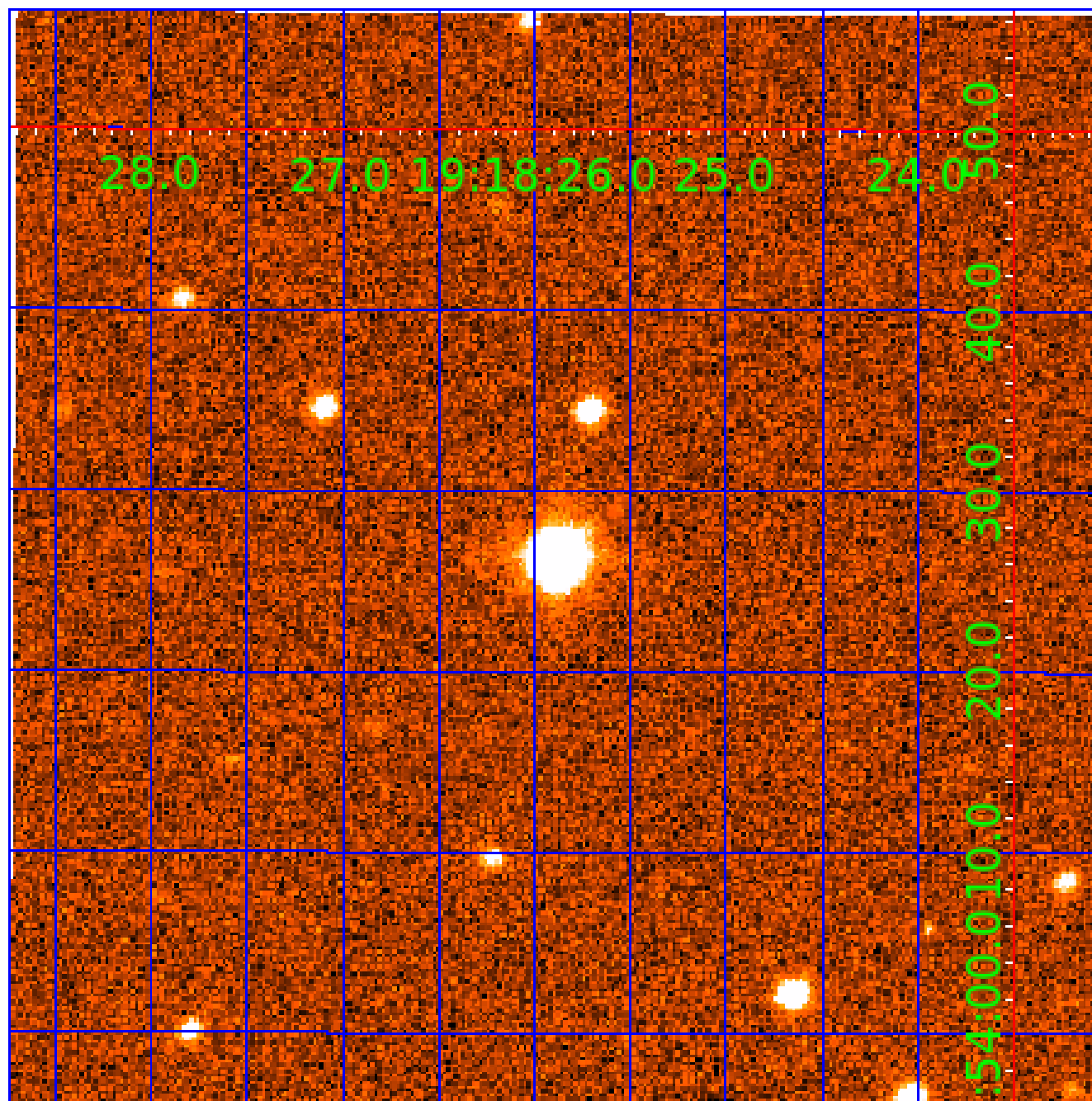


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008747865

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})
008747865-01	OBS	No	1.209131	132.607616	12.5	6.765	8.4	6.4	1.72	6770	0.64	8990.79
008747865-02	OBS	No	97.198270	158.316789	263.6	3.940	8.2	9.0	1.72	6770	3.15	25.91
008747865-04	OBS	No	69.622216	186.999204	143.5	5.632	8.4	6.8	1.72	6770	2.21	40.44
008747865-05	OBS	No	266.037473	392.777979	198.4	21.247	8.2	7.6	1.72	6770	2.75	6.77
008747865-06	OBS	No	115.943719	140.631570	236.8	2.837	8.0	8.3	1.72	6770	2.96	20.48
008747865-07	OBS	No	46.902202	165.353757	175.3	2.299	8.1	7.6	1.72	6770	2.58	68.47
008747865-08	OBS	No	40.482062	171.627250	113.5	9.685	7.2	8.2	1.72	6770	1.98	83.32
008747865-09	OBS	No	115.128340	183.140863	287.1	4.893	7.5	9.6	1.72	6770	4.52	20.68
008747865-10	OBS	No	126.754341	154.280346	261.3	3.501	8.0	8.4	1.72	6770	3.08	18.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008747865-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008747865-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008747865-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
008747865-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008747865-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

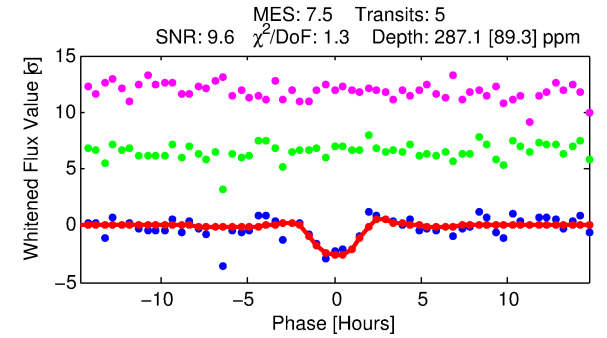
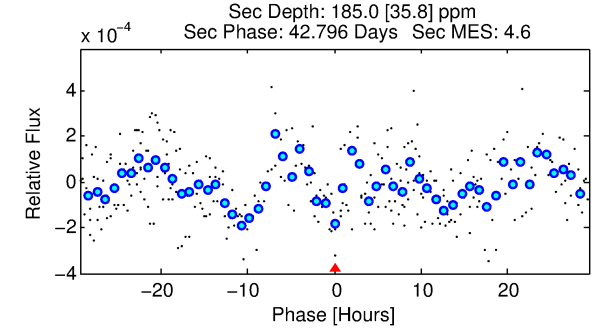
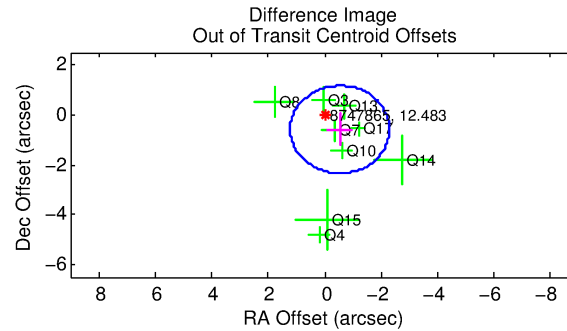
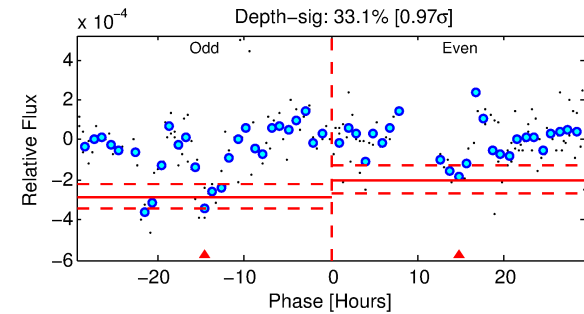
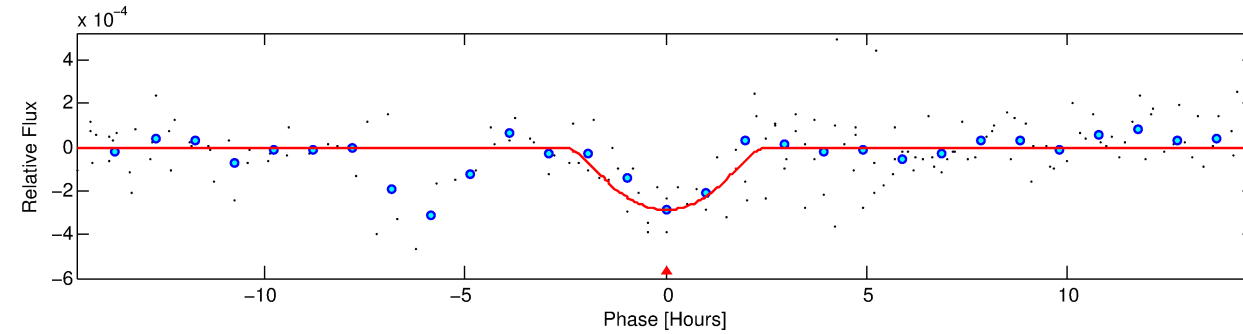
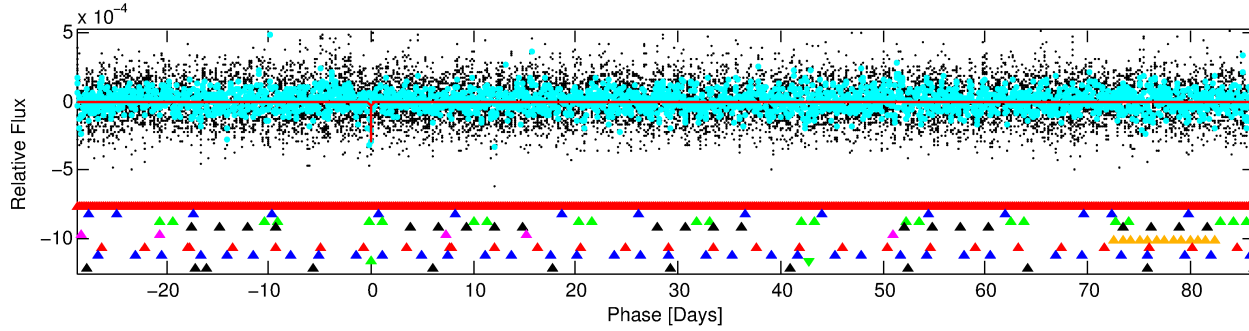
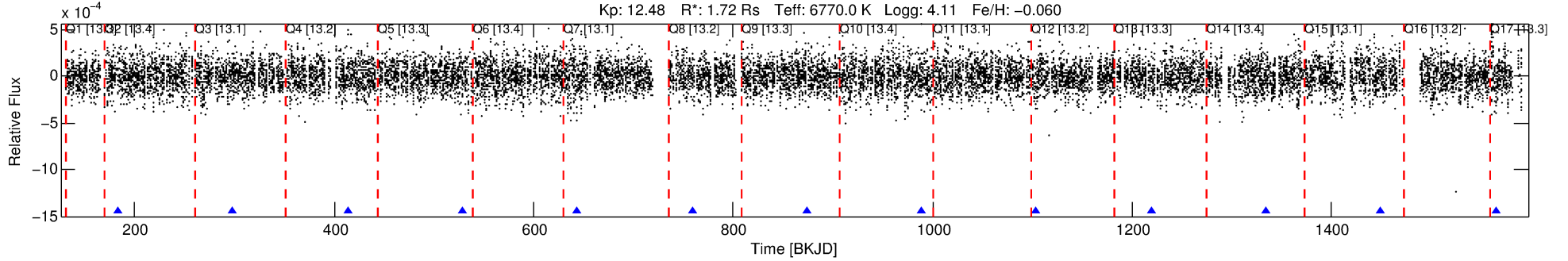
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008747865-09

No Significant Match Found

DV One-Page Summary

KIC: 8747865 Candidate: 9 of 10 Period: 115.128 d



DV Fit Results:

Period = 115.12834 [0.00211] d
Epoch = 183.1409 [0.0134] BKJD
Rp/R* = 0.0241 [0.0312]
a/R* = 47.34 [25.16]
b = 0.99 [0.06]
Seff = 20.68 [4.83]
Teff = 544 [32] K
Rp = 4.52 [5.89] Re
a = 0.5180 [0.0761] AU
Ag = 1335.97 [3477.78] [0.38σ]
Teffp = 5083 [3296] K [1.38σ]

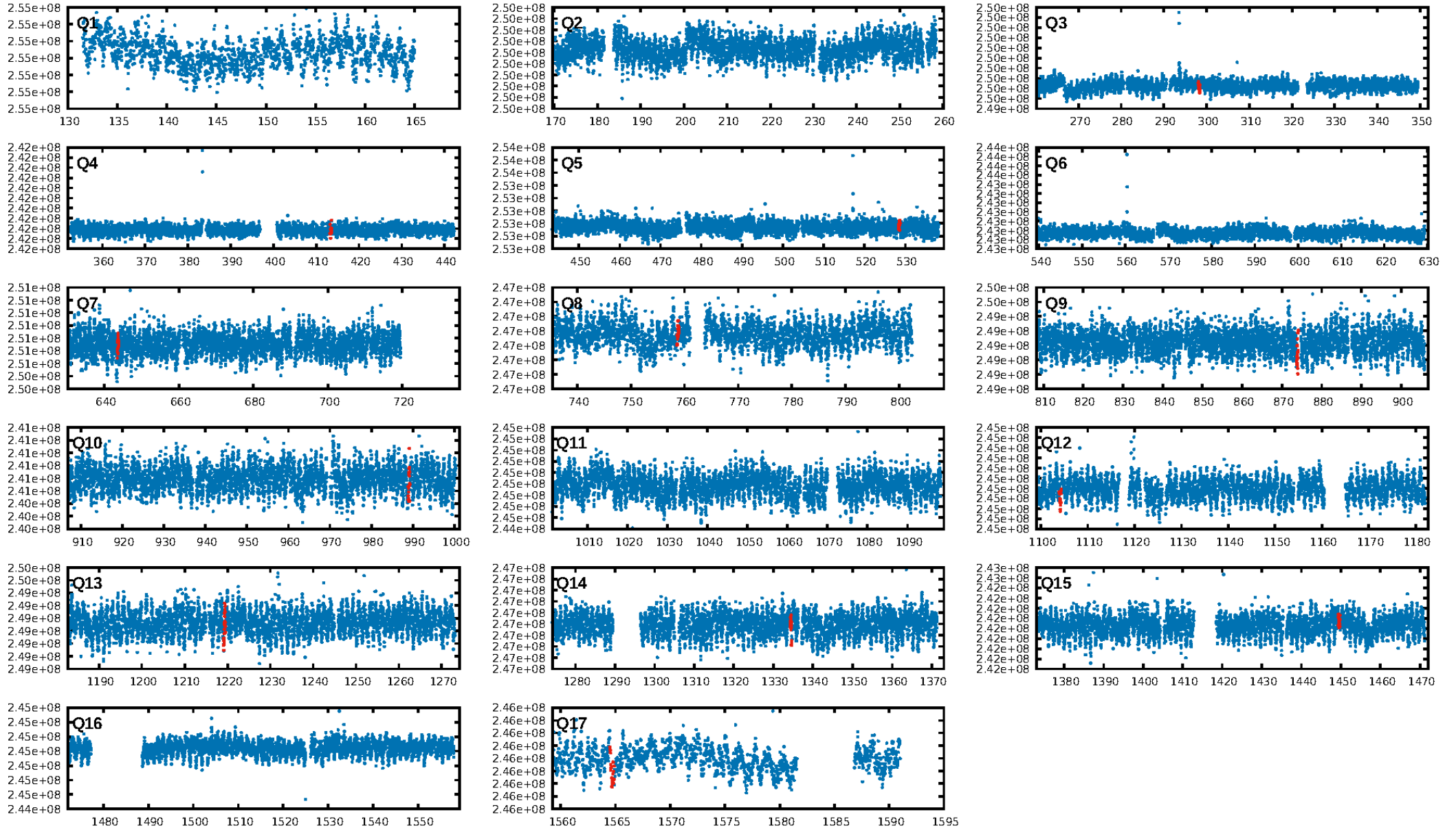
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [68.50σ]
LongPeriod-sig: 99.9% [3.46σ]
ModelChiSquare2-sig: 27.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.05e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.57
Centroid-sig: 40.5%
Centroid-so: 0.630 arcsec [1.04σ]
OotOffset-rm: 0.796 arcsec [1.36σ]
OotOffset-st: 2/3/2/2 [9]
KicOffset-rm: 0.697 arcsec [1.19σ]
KicOffset-st: 2/3/2/2 [9]
DiffImageQuality-fgm: 0.22 [2/9]
DiffImageOverlap-fno: 0.00 [0/10]

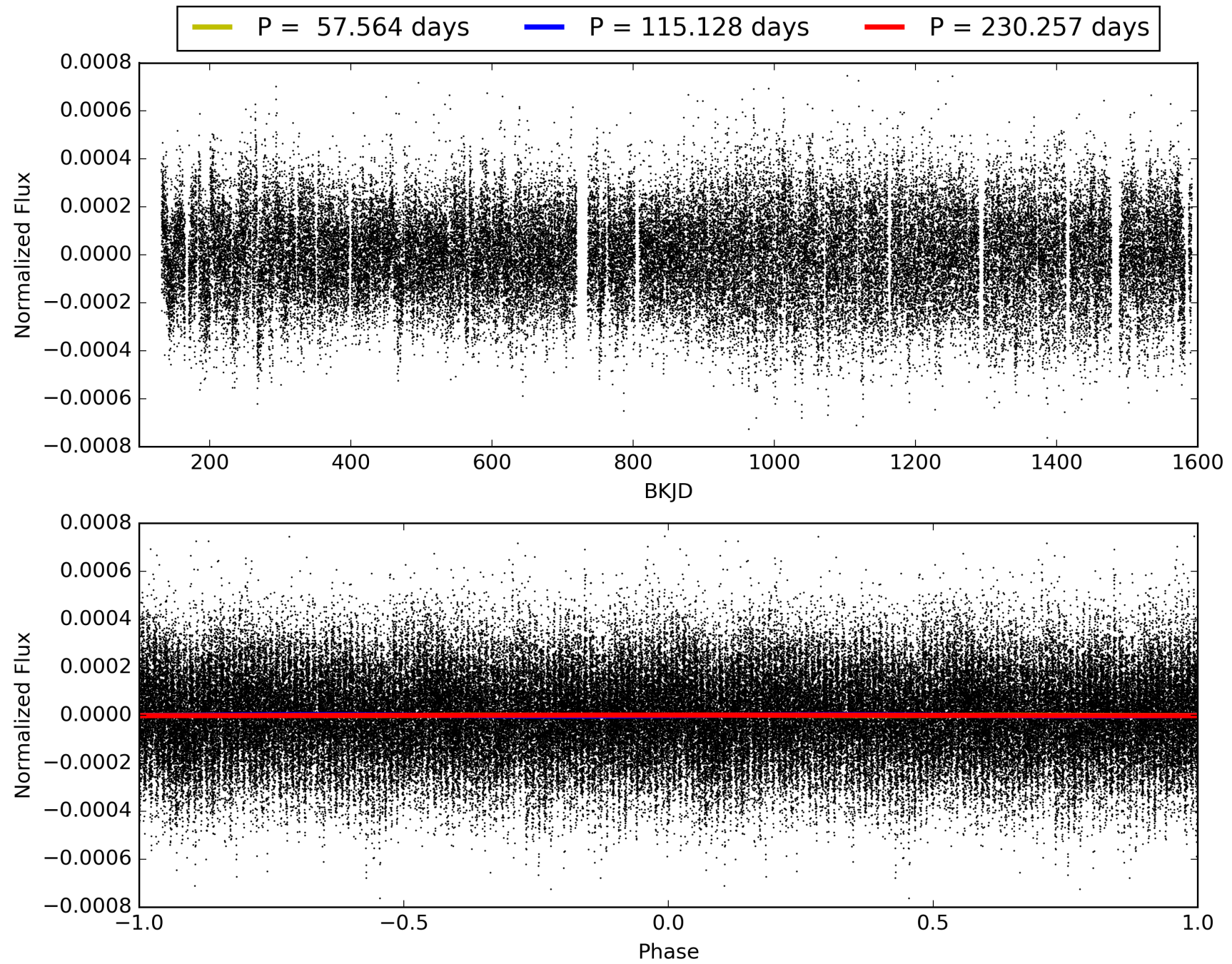
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:17:41 Z

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

TCE 008747865-09, PDC Light Curves

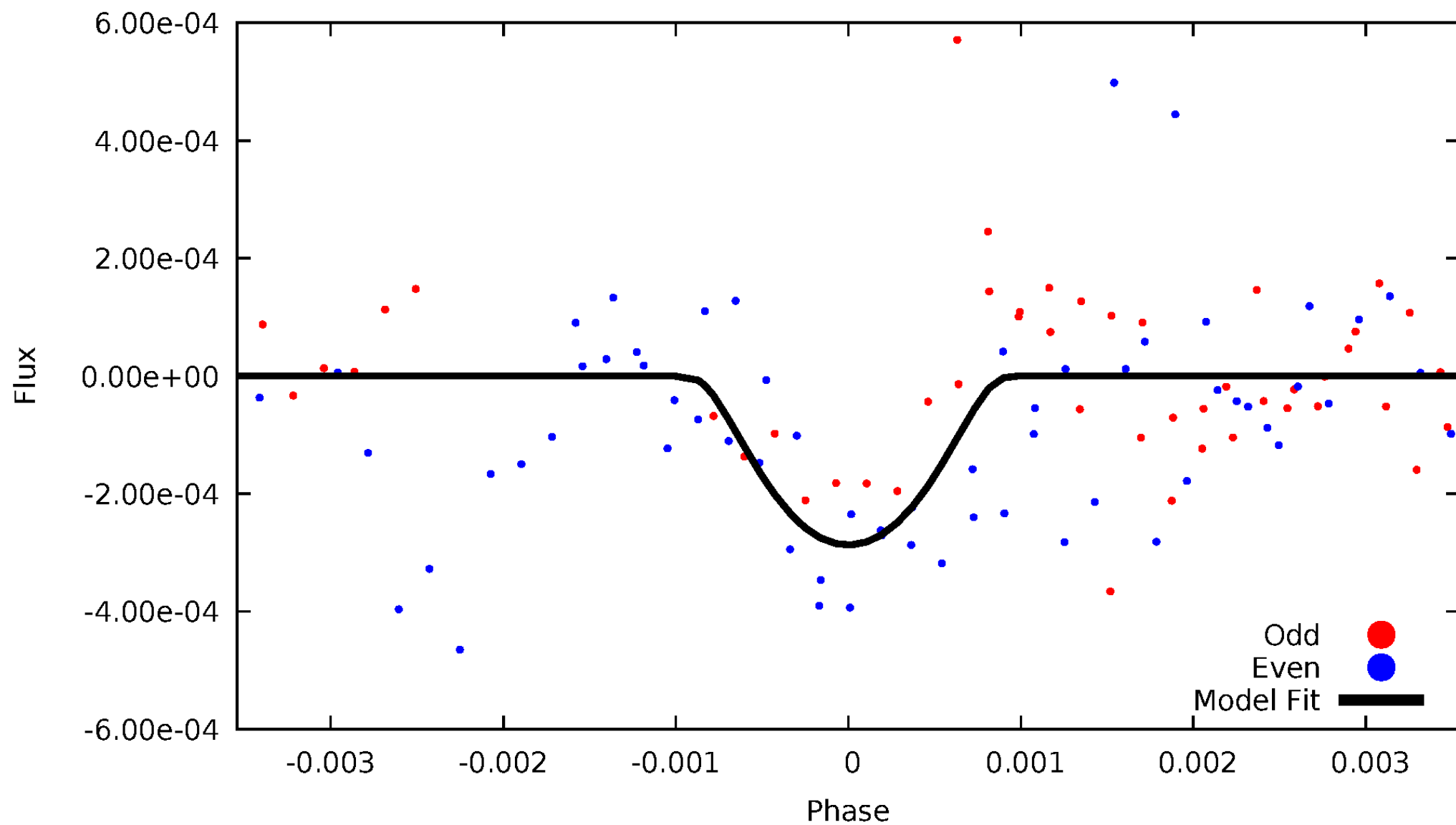


TCE 008747865-09



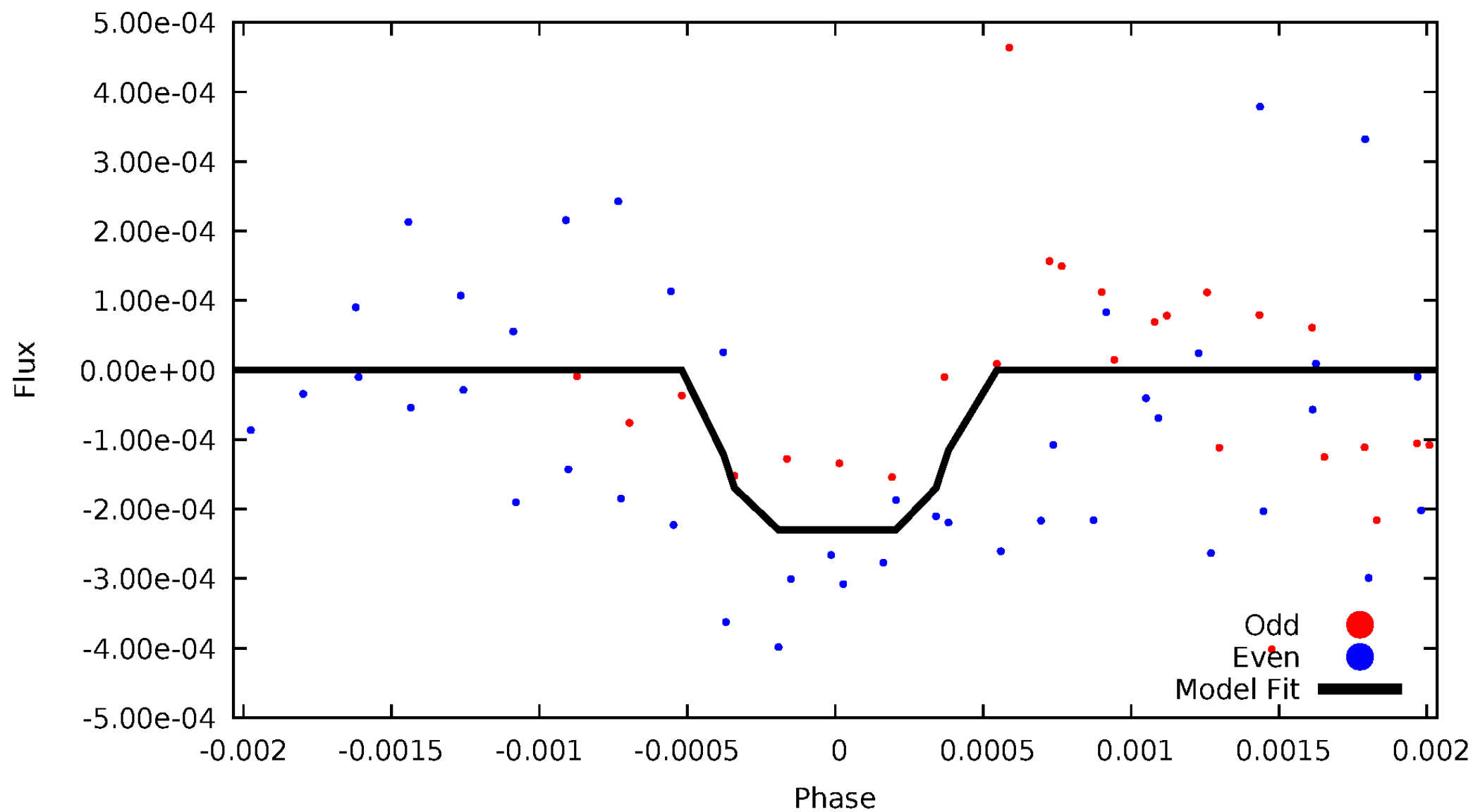
DV Odd/Even

TCE 008747865-09



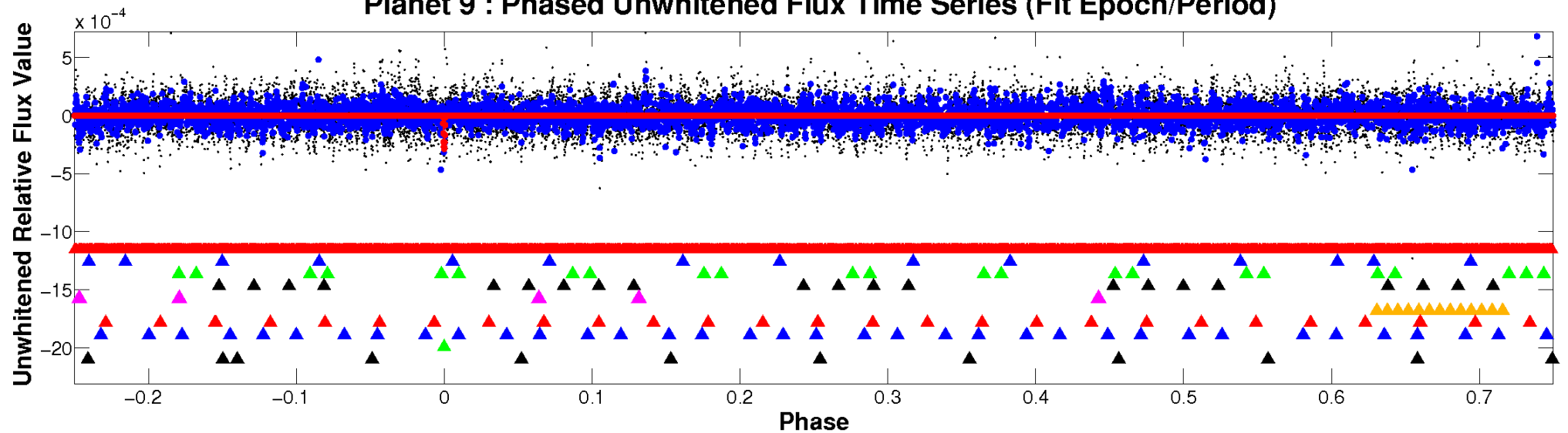
ALT Odd/Even

TCE 008747865-09

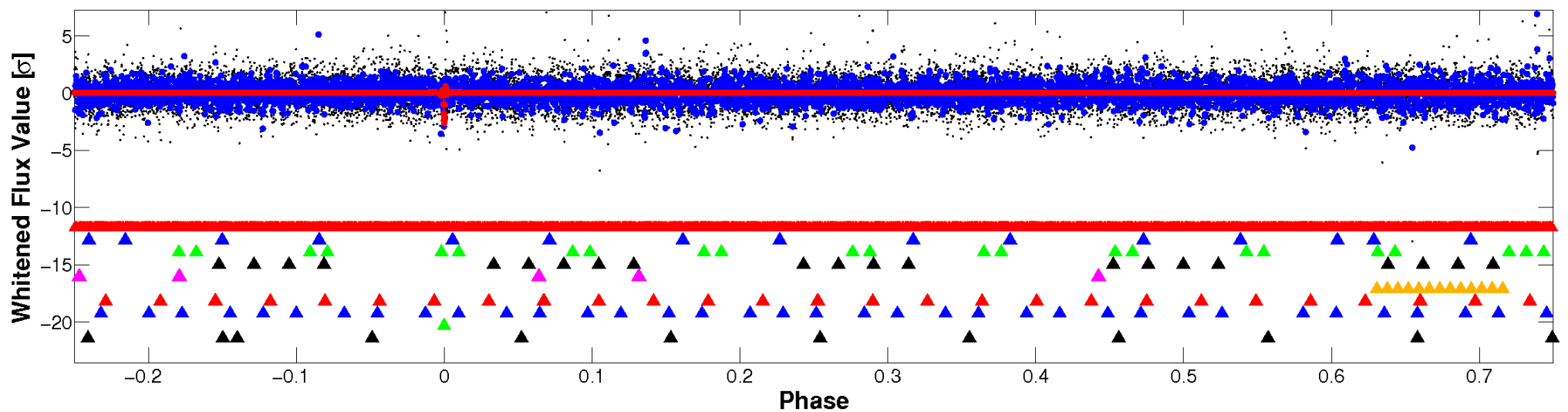


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

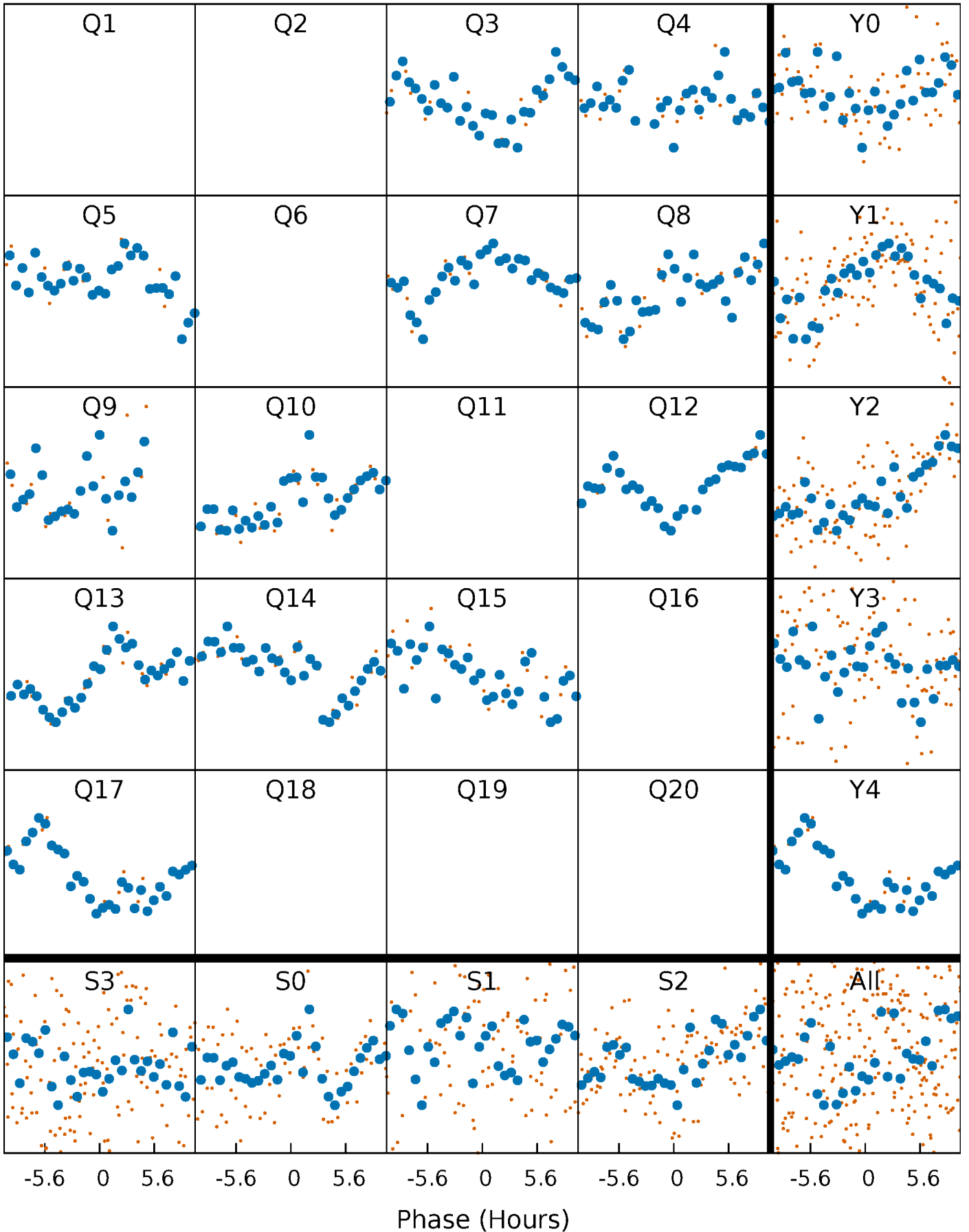


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



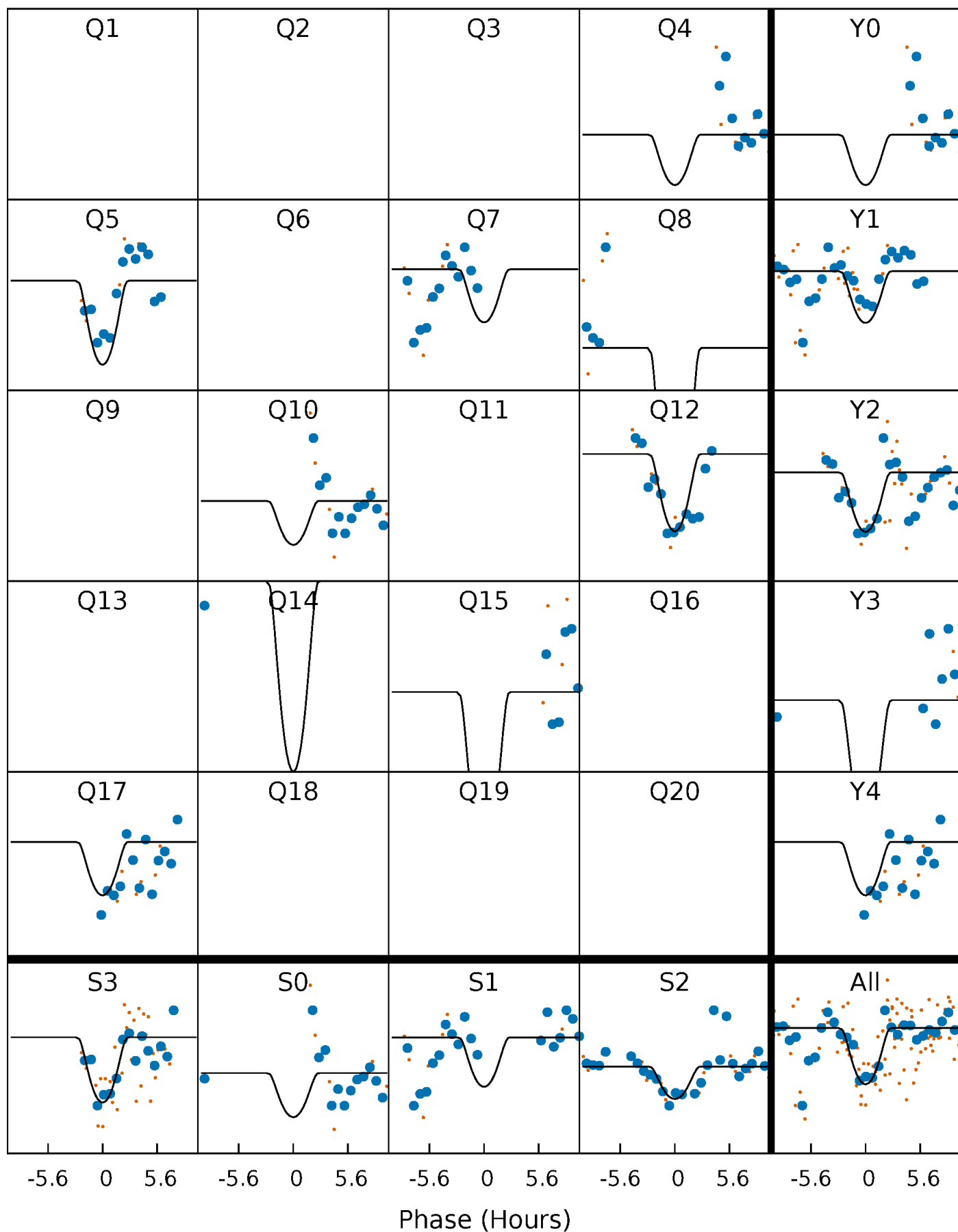
PDC Quarter-Phased Transit Curves

TCE 008747865-09 P=115.128340 Days $T_0=183.140863$ (BKJD)



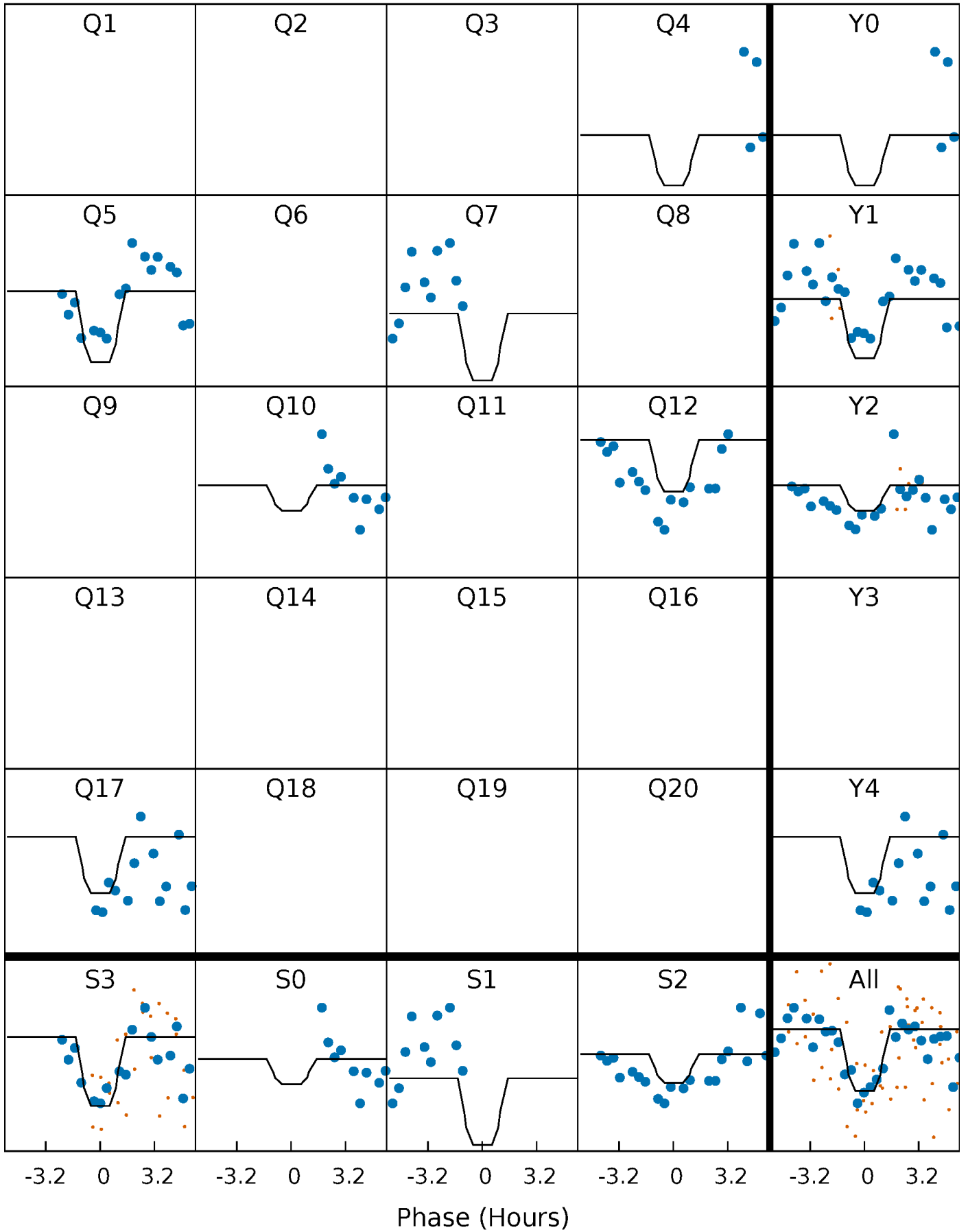
DV Quarter-Phased Transit Curves

TCE 008747865-09 P=115.128340 Days $T_0=183.140863$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

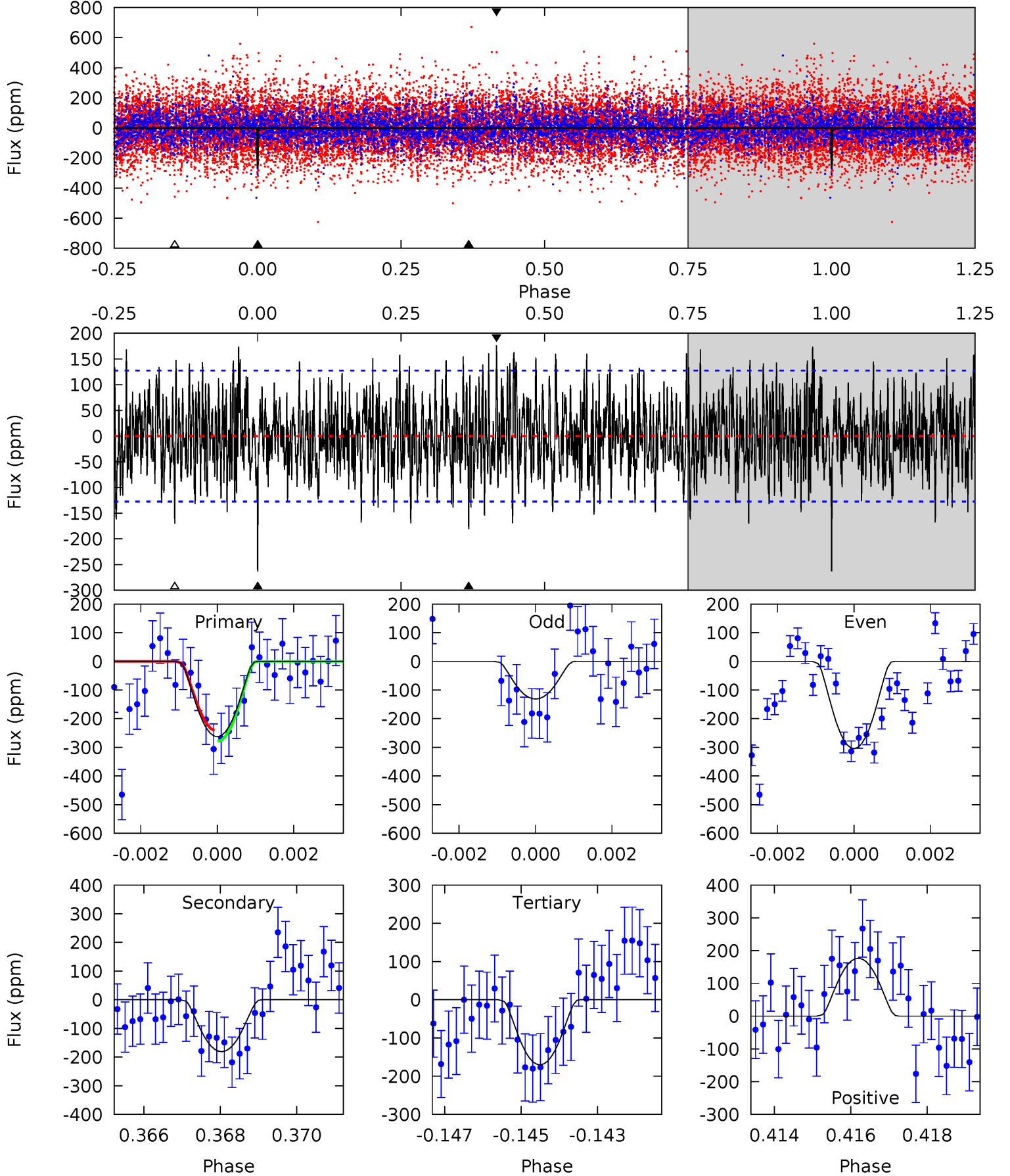
TCE 008747865-09 P=115.126932 Days $T_0=183.155707$ (BKJD)



DV Model-Shift Uniqueness Test

008747865-09, P = 115.128340 Days, E = 68.012523 Days

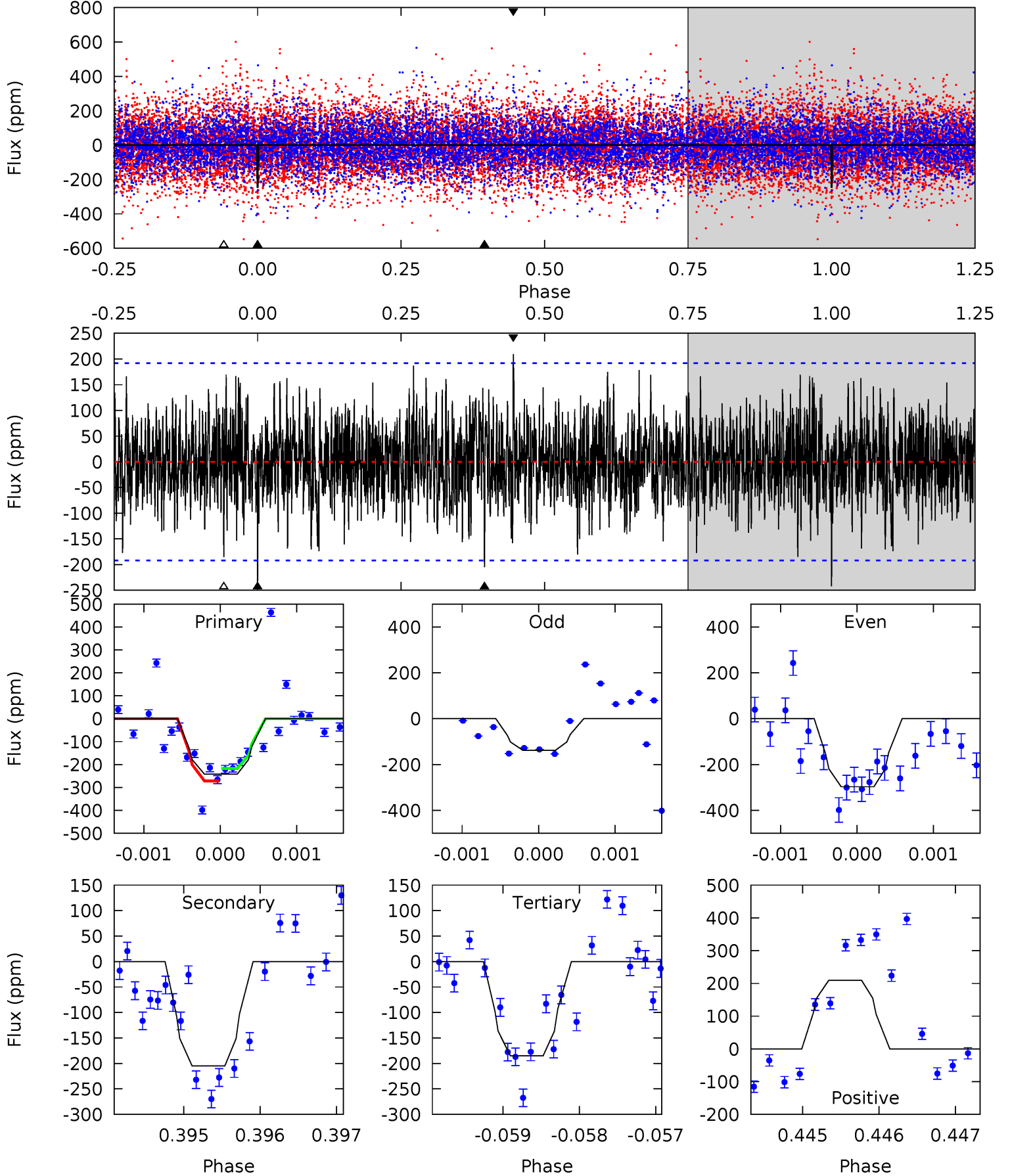
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	7.59	7.14	7.41	5.34	3.11	2.47	3.88	3.62	0.45	0.18	3.60	-0.77	0.40	0.79



Alt Model-Shift Uniqueness Test

008747865-09, P = 115.126932 Days, E = 68.028775 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.90	5.83	5.27	5.97	5.47	3.31	1.63	1.63	0.93	0.56	-0.14	2.16	0.90	0.46	0.77



Stellar Parameters For KIC 008747865

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6770^{+81}_{-81}	$4.114^{+0.132}_{-0.108}$	$-0.060^{+0.150}_{-0.150}$	$1.717^{+0.274}_{-0.274}$	$1.405^{+0.109}_{-0.098}$	$0.391^{+0.240}_{-0.127}$
	+1%/-1%	+3%/-3%	+250%/-250%	+16%/-16%	+8%/-7%	+62%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 008747865-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-181 ± 24	$5.83^{+5.10}_{-3.79}$	758^{+32}_{-31}	4584^{+2995}_{-936}	795^{+5851}_{-568}
Alt.	-205 ± 35	$5.06^{+4.82}_{-3.24}$	756^{+34}_{-33}	4957^{+3326}_{-1129}	1196^{+8113}_{-895}

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

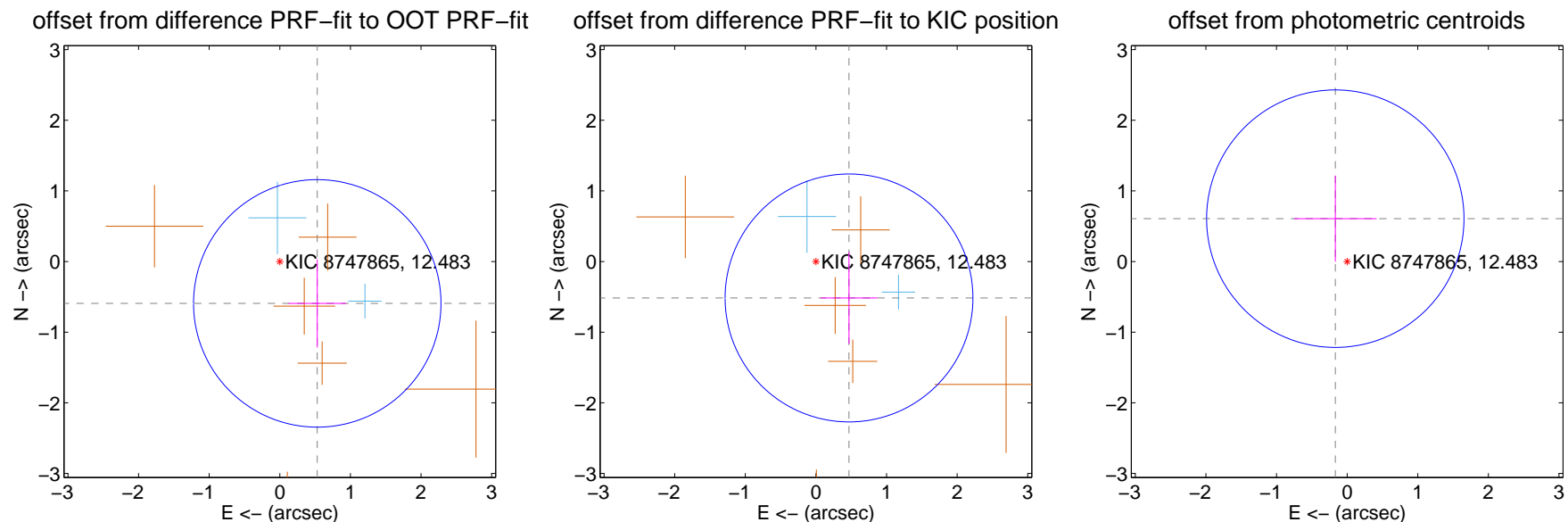
DV Centroid Data

Supplemental centroid analysis for 008747865-09. Kepler magnitude: 12.48. Transit SNR 9.58

There are 2 quarters with good PRF difference image offsets

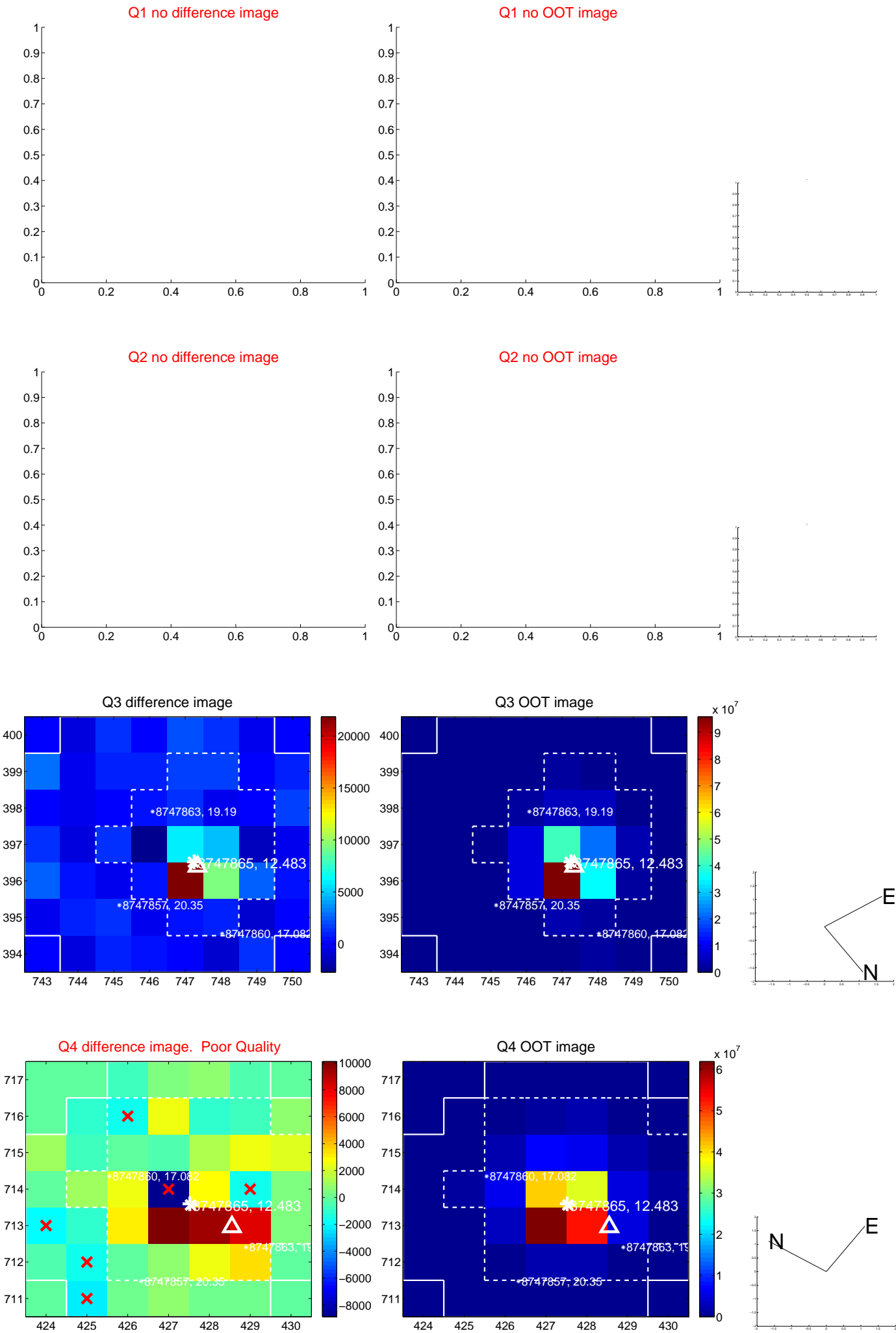
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.796 ± 0.584	1.36	-0.531 ± 0.407	-0.593 ± 0.624
PRF-fit source offset from KIC position	0.697 ± 0.585	1.19	-0.469 ± 0.401	-0.516 ± 0.650
photometric centroid source offset	0.63 ± 0.61	1.04	0.17 ± 0.58	0.61 ± 0.61

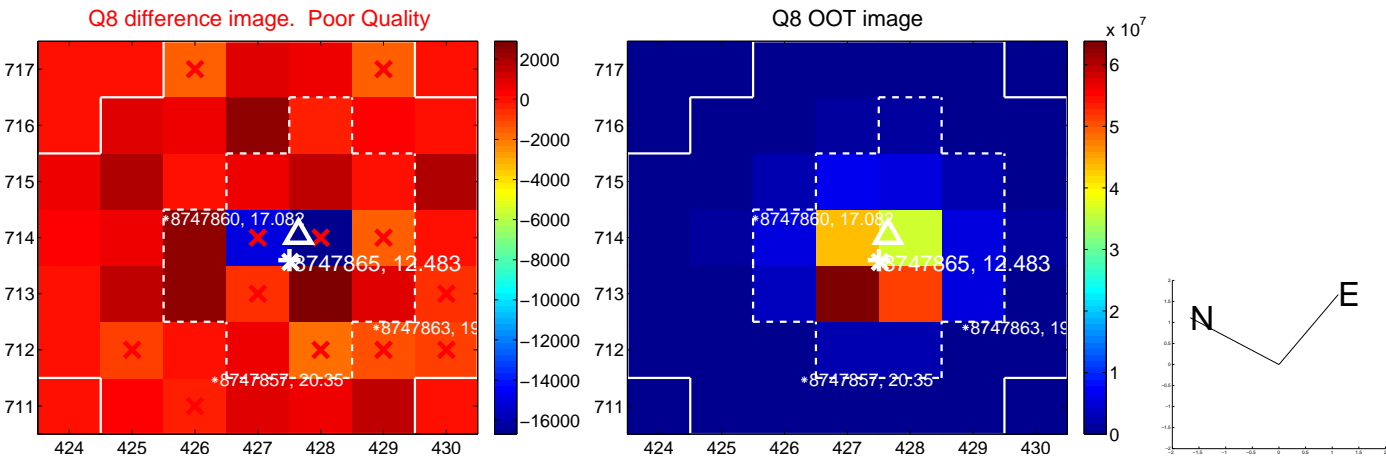
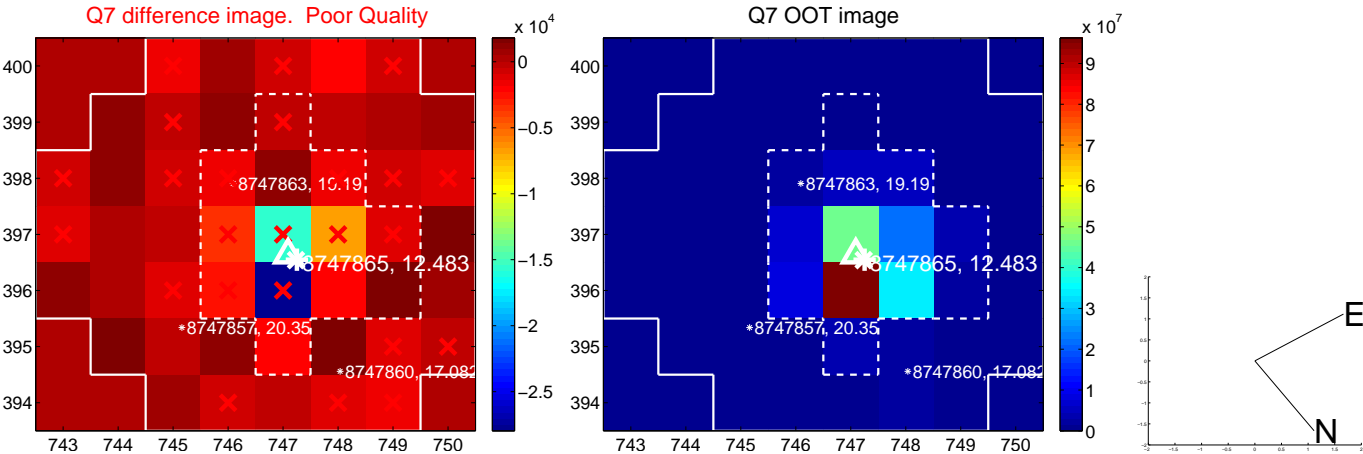
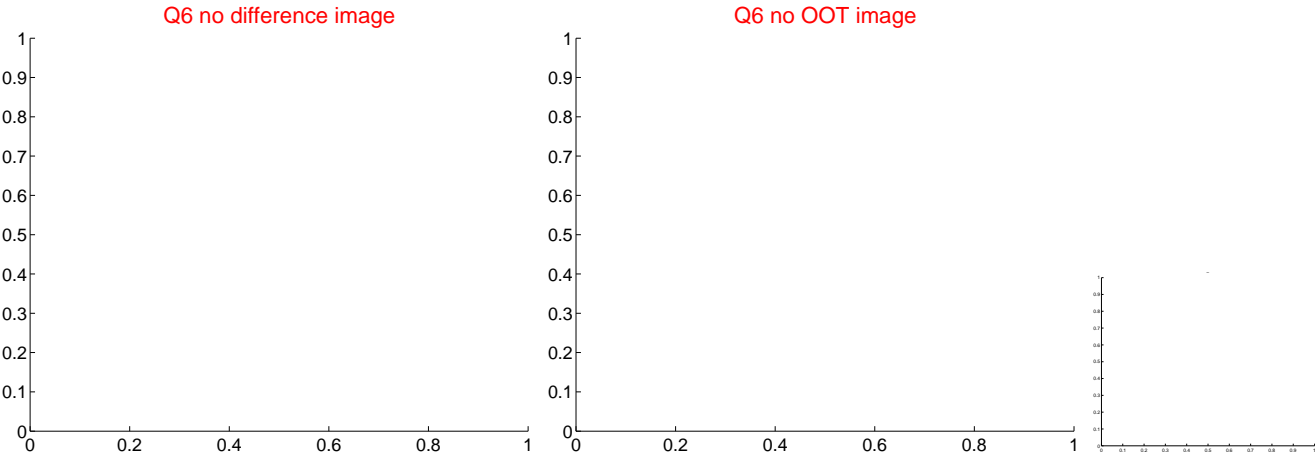
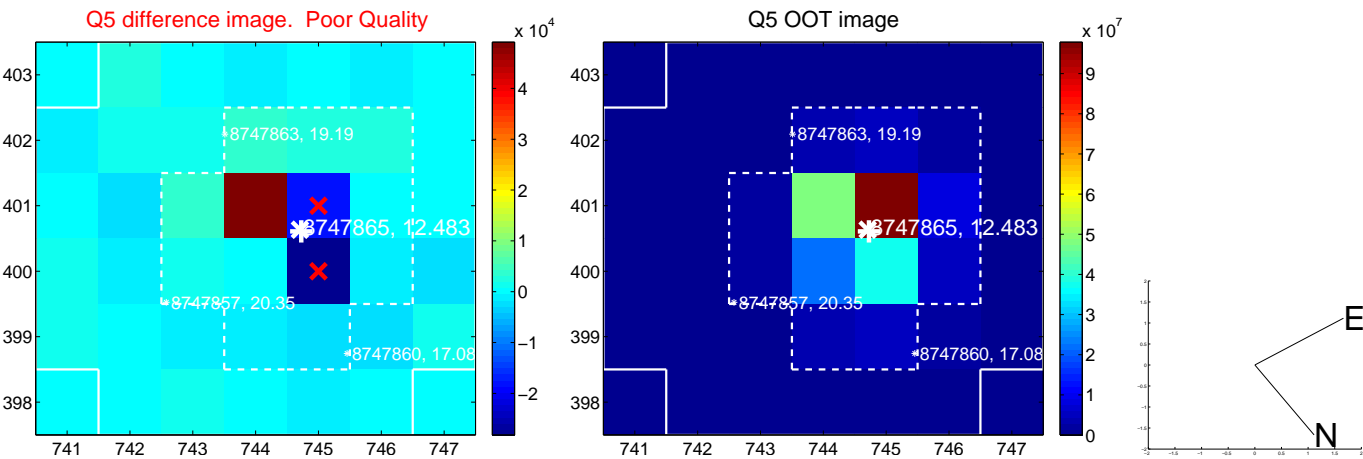


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

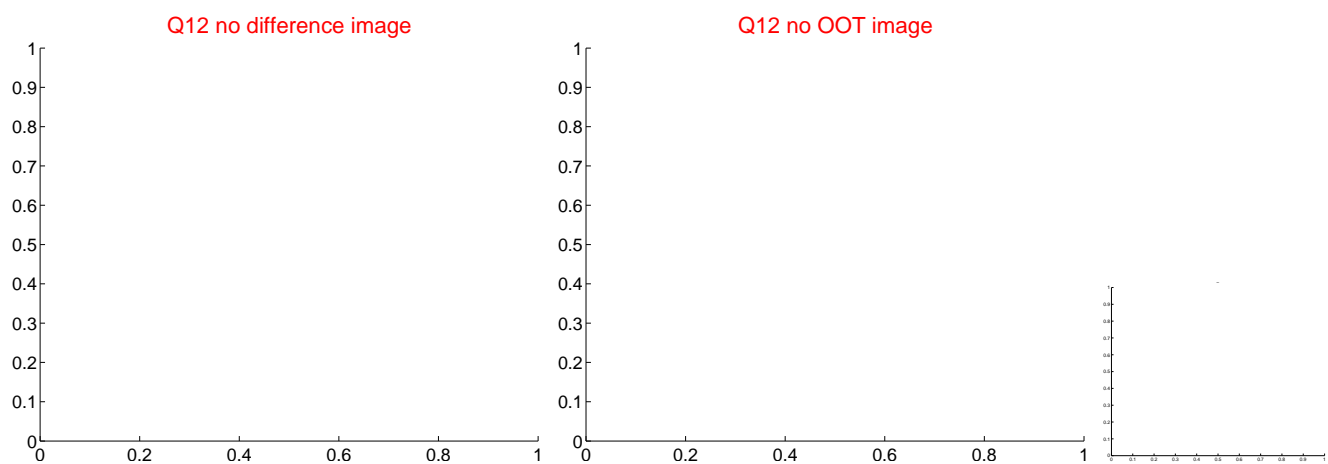
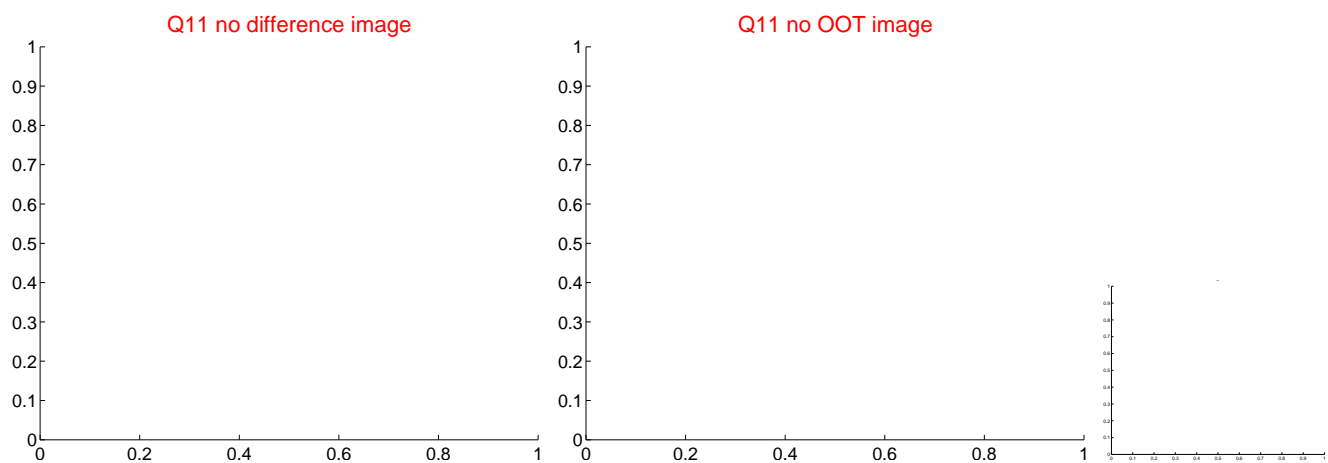
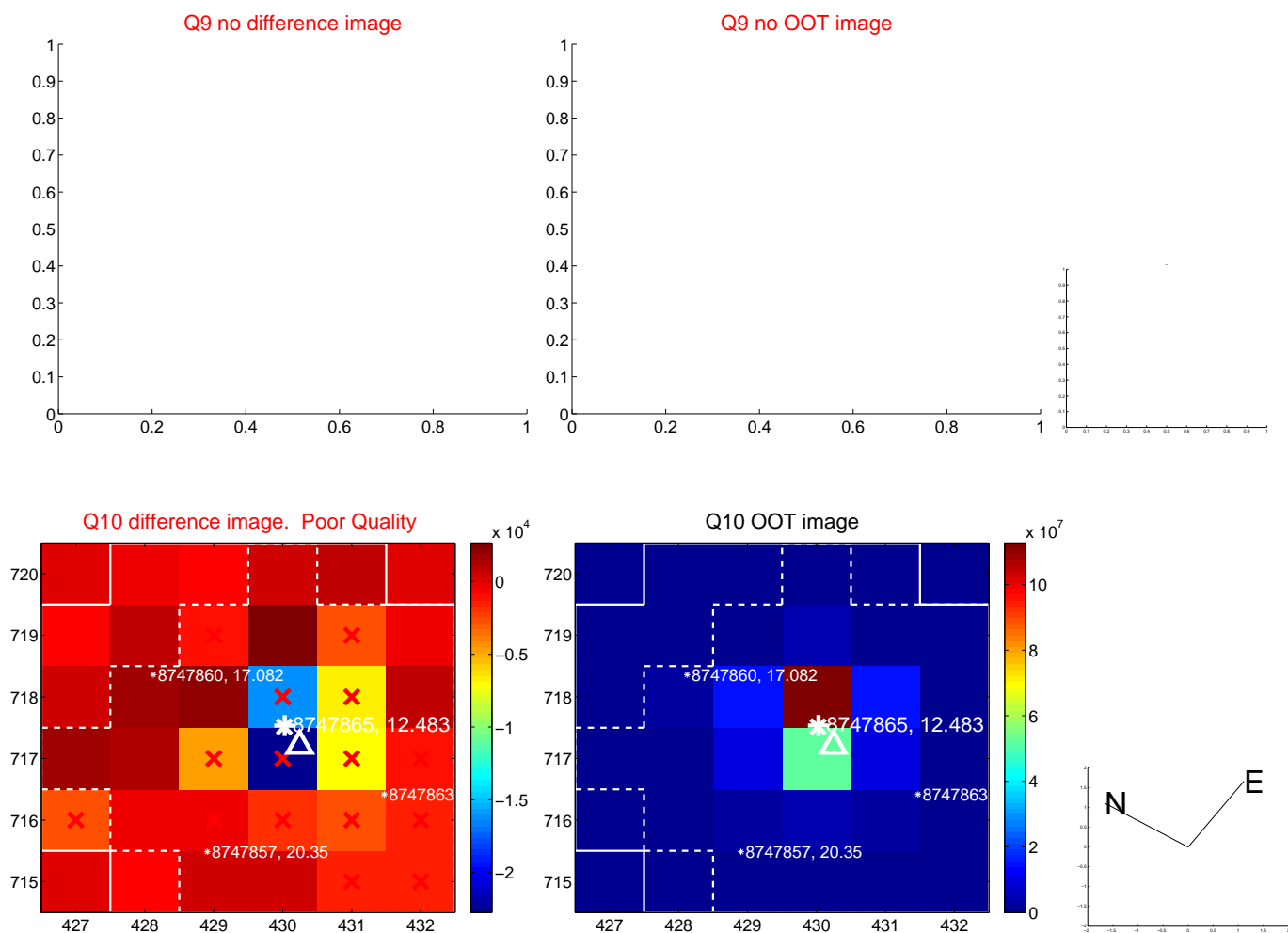
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



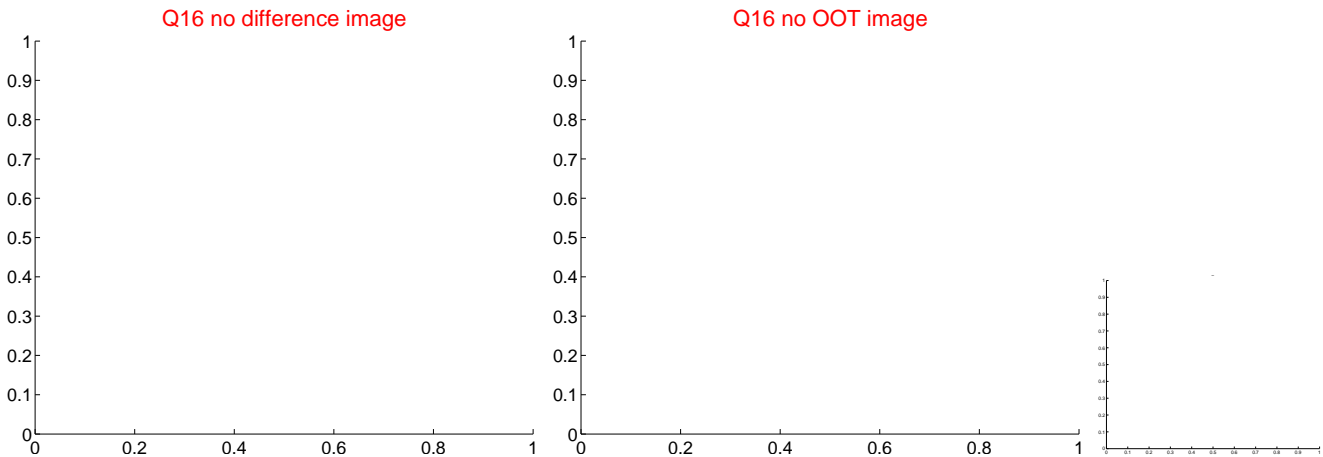
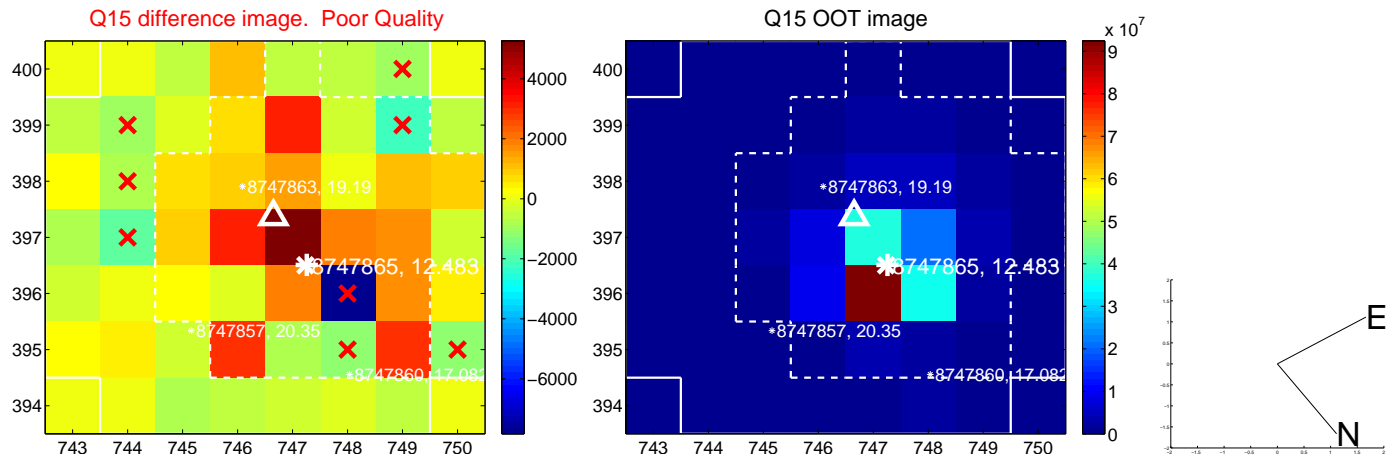
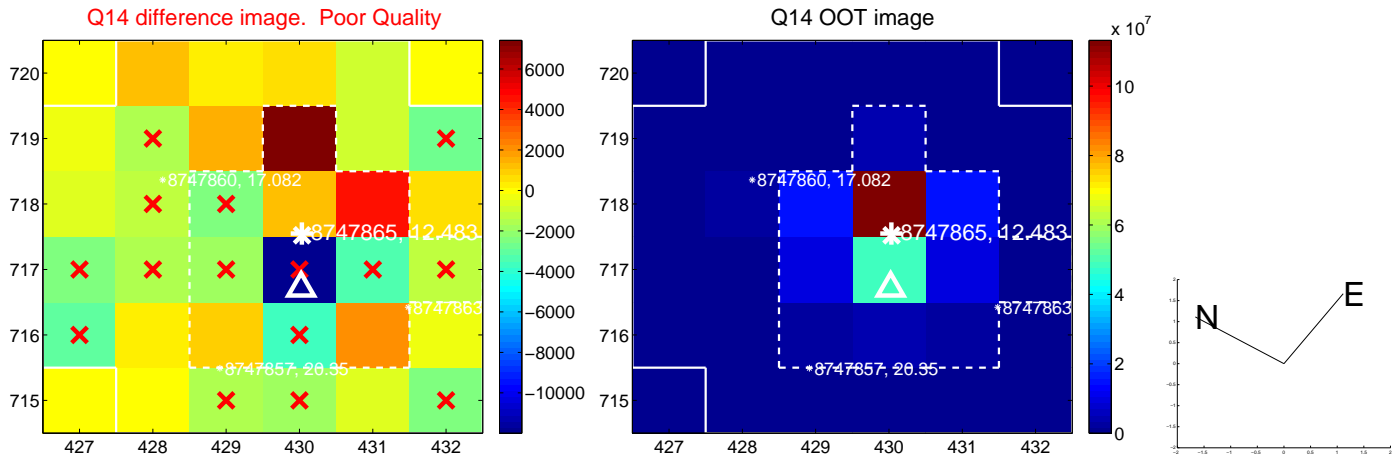
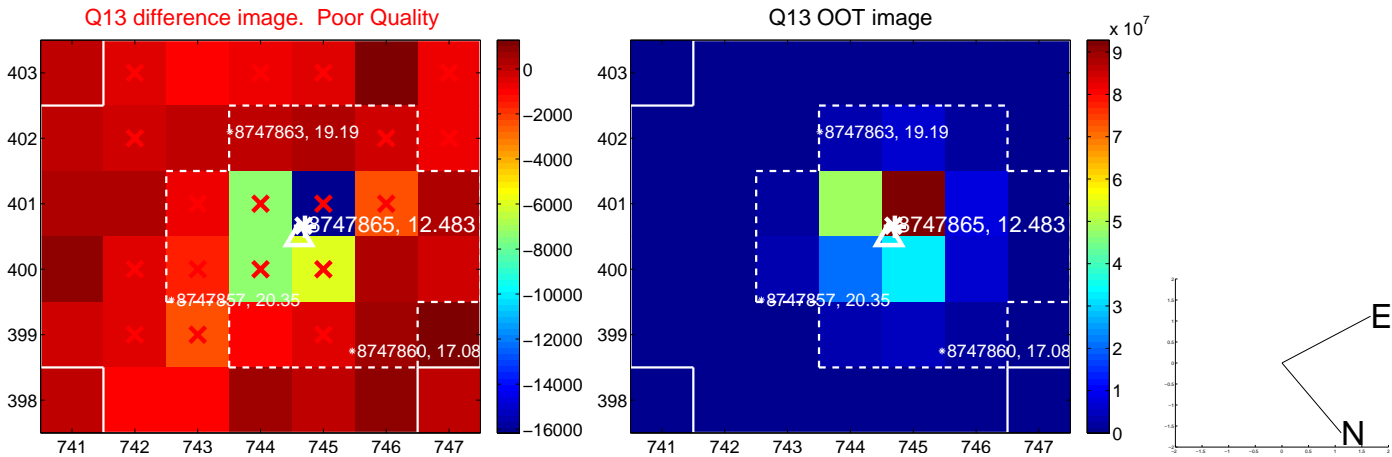
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



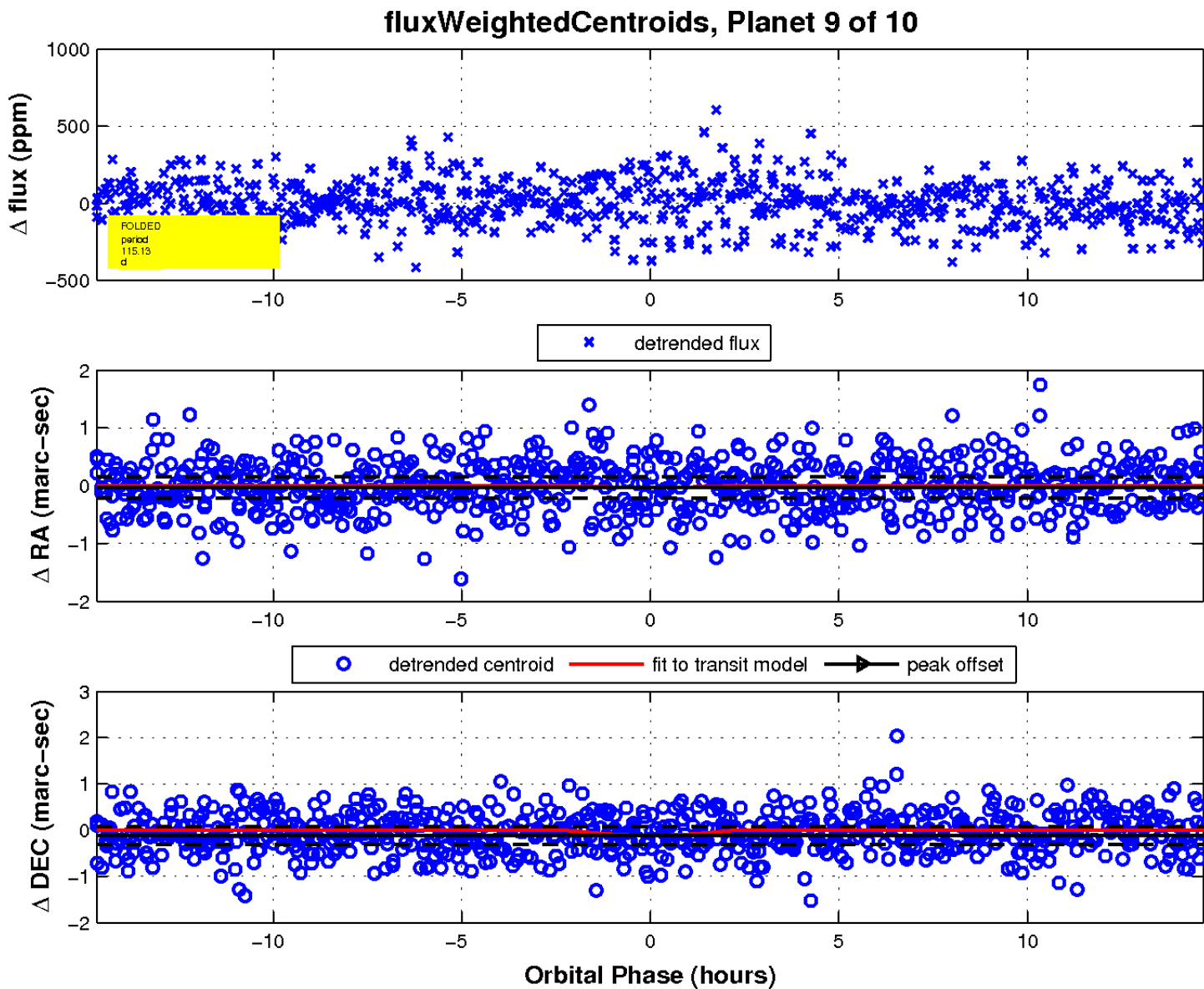
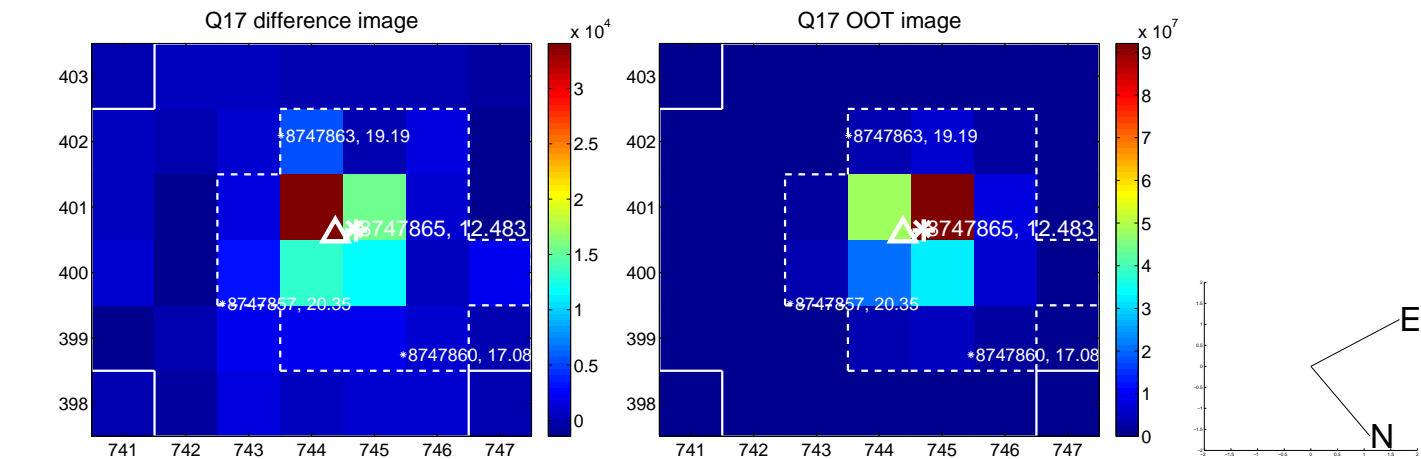
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

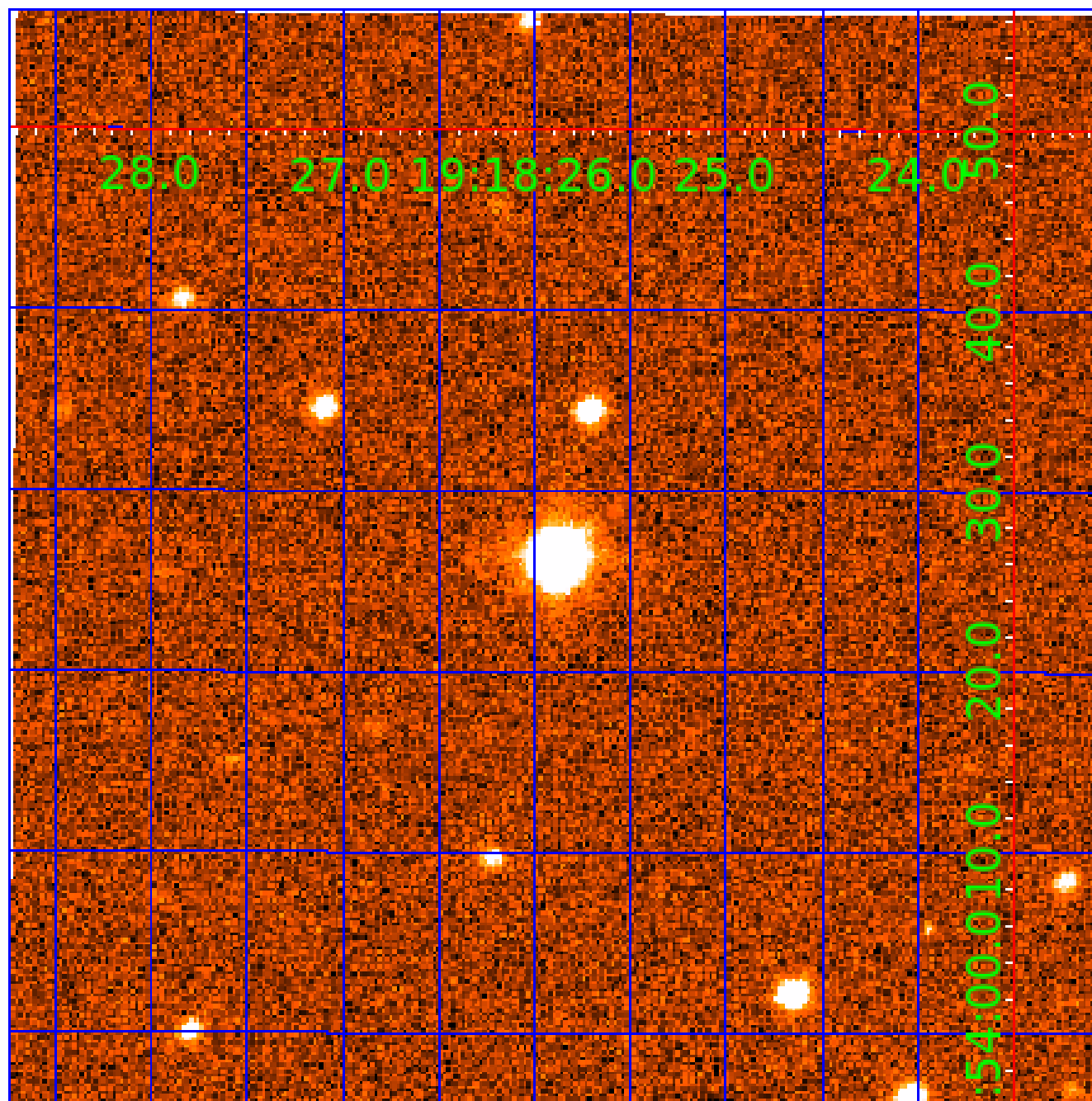


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008747865

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})
008747865-01	OBS	No	1.209131	132.607616	12.5	6.765	8.4	6.4	1.72	6770	0.64	8990.79
008747865-02	OBS	No	97.198270	158.316789	263.6	3.940	8.2	9.0	1.72	6770	3.15	25.91
008747865-04	OBS	No	69.622216	186.999204	143.5	5.632	8.4	6.8	1.72	6770	2.21	40.44
008747865-05	OBS	No	266.037473	392.777979	198.4	21.247	8.2	7.6	1.72	6770	2.75	6.77
008747865-06	OBS	No	115.943719	140.631570	236.8	2.837	8.0	8.3	1.72	6770	2.96	20.48
008747865-07	OBS	No	46.902202	165.353757	175.3	2.299	8.1	7.6	1.72	6770	2.58	68.47
008747865-08	OBS	No	40.482062	171.627250	113.5	9.685	7.2	8.2	1.72	6770	1.98	83.32
008747865-09	OBS	No	115.128340	183.140863	287.1	4.893	7.5	9.6	1.72	6770	4.52	20.68
008747865-10	OBS	No	126.754341	154.280346	261.3	3.501	8.0	8.4	1.72	6770	3.08	18.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008747865-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008747865-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
008747865-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008747865-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008747865-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
008747865-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008747865-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

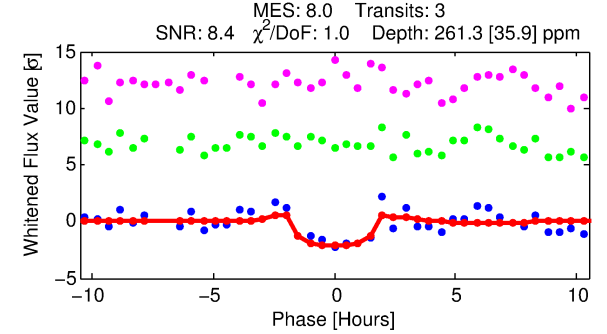
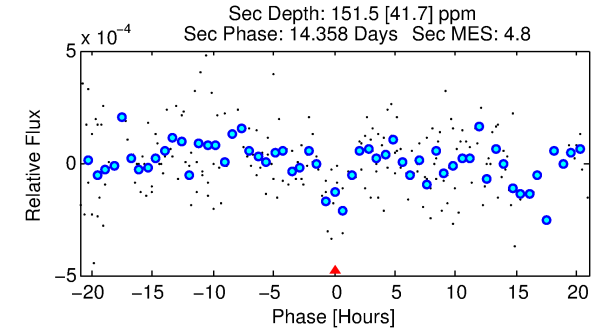
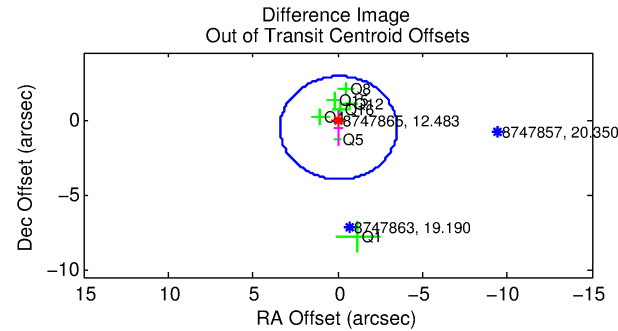
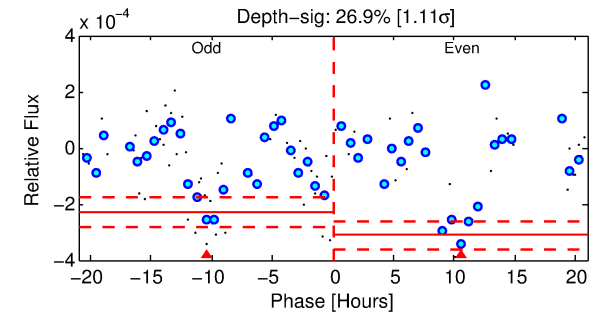
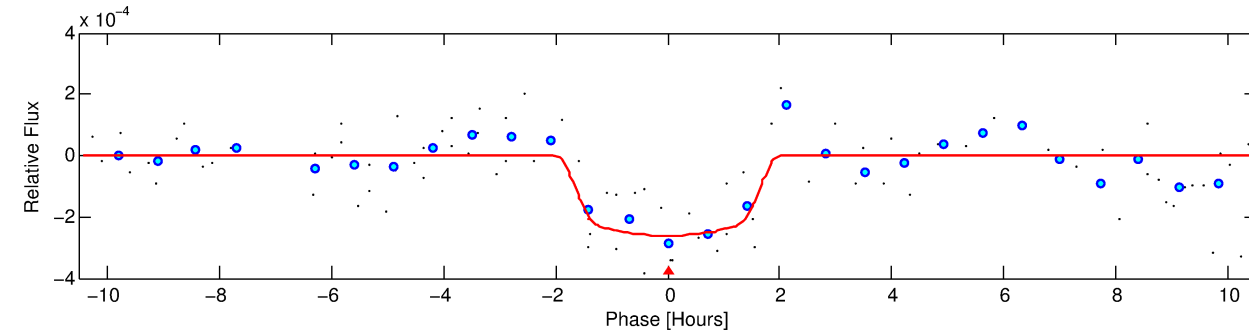
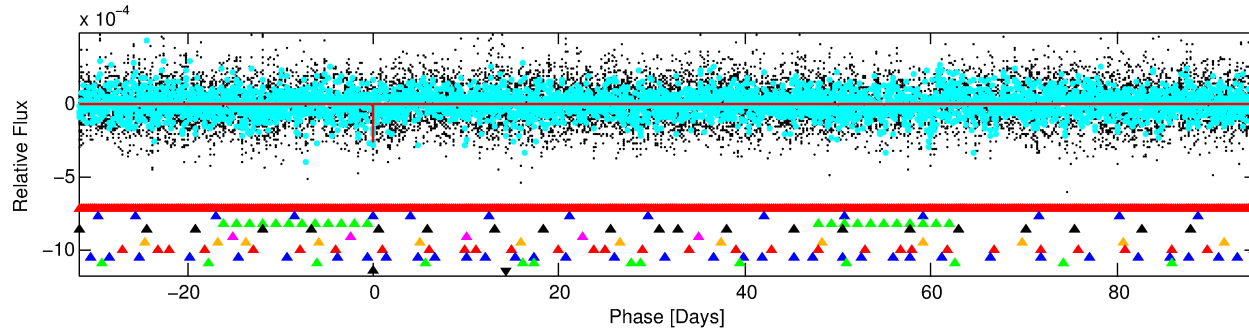
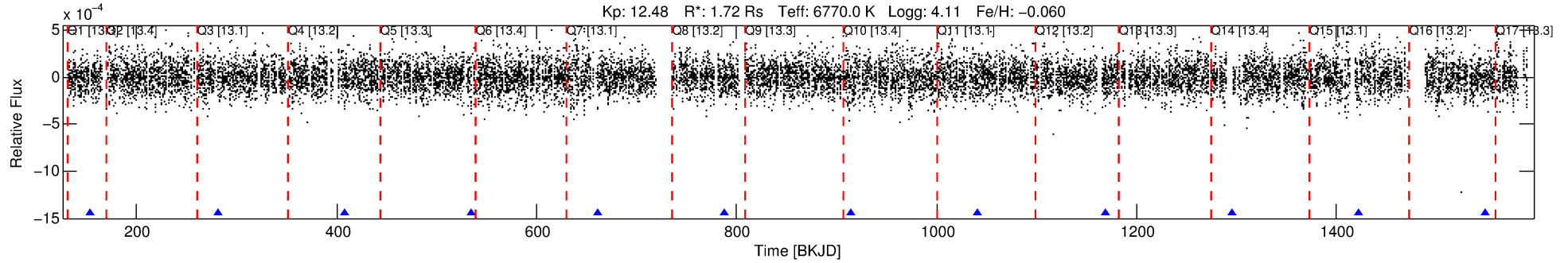
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008747865-10

No Significant Match Found

DV One-Page Summary

KIC: 8747865 Candidate: 10 of 10 Period: 126.754 d



DV Fit Results:

Period = 126.75434 [0.00173] d
Epoch = 154.2803 [0.0101] BKJD
Rp/R* = 0.0164 [0.0134]
a/R* = 169.95 [797.28]
b = 0.81 [2.00]
Seff = 18.19 [4.25]
Teq = 527 [31] K
Rp = 3.08 [2.56] Re
a = 0.5523 [0.0811] AU
Ag = 2687.15 [4487.86] [0.60σ]
Teffp = 5862 [2425] K [2.20σ]

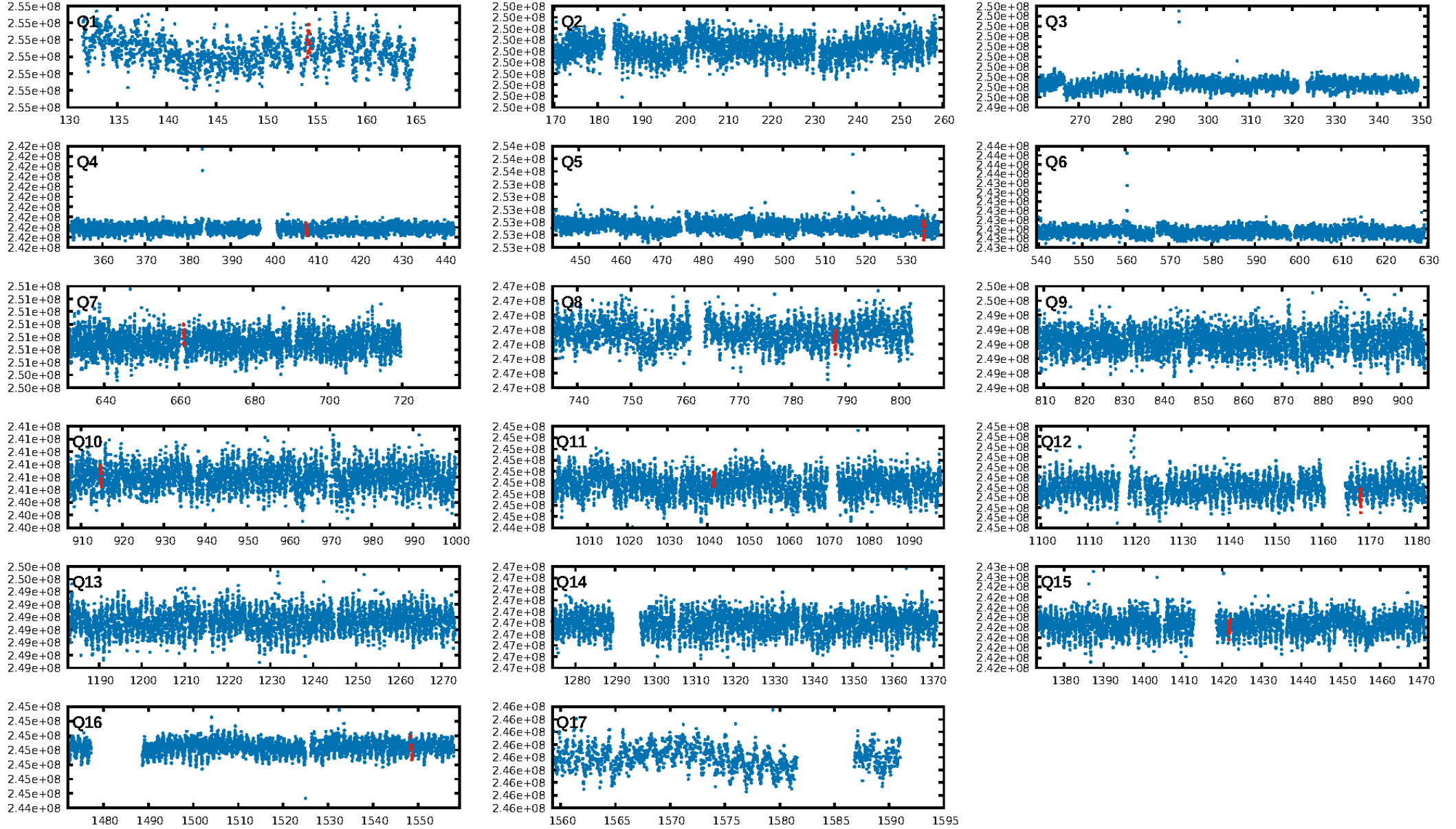
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [57.58σ]
LongPeriod-sig: 100.0% [155.23σ]
ModelChiSquare2-sig: 35.2%
ModelChiSquareGof-sig: 81.0%
Bootstrap-pfa: 3.15e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.42
Centroid-sig: 78.6%
Centroid-so: 0.378 arcsec [0.58σ]
OotOffset-rm: 0.545 arcsec [0.47σ]
OotOffset-st: 0/1/4/2 [7]
KicOffset-rm: 0.422 arcsec [0.44σ]
KicOffset-st: 0/1/4/2 [7]
DiffImageQuality-fgm: 0.86 [6/7]
DiffImageOverlap-fno: 0.25 [2/8]

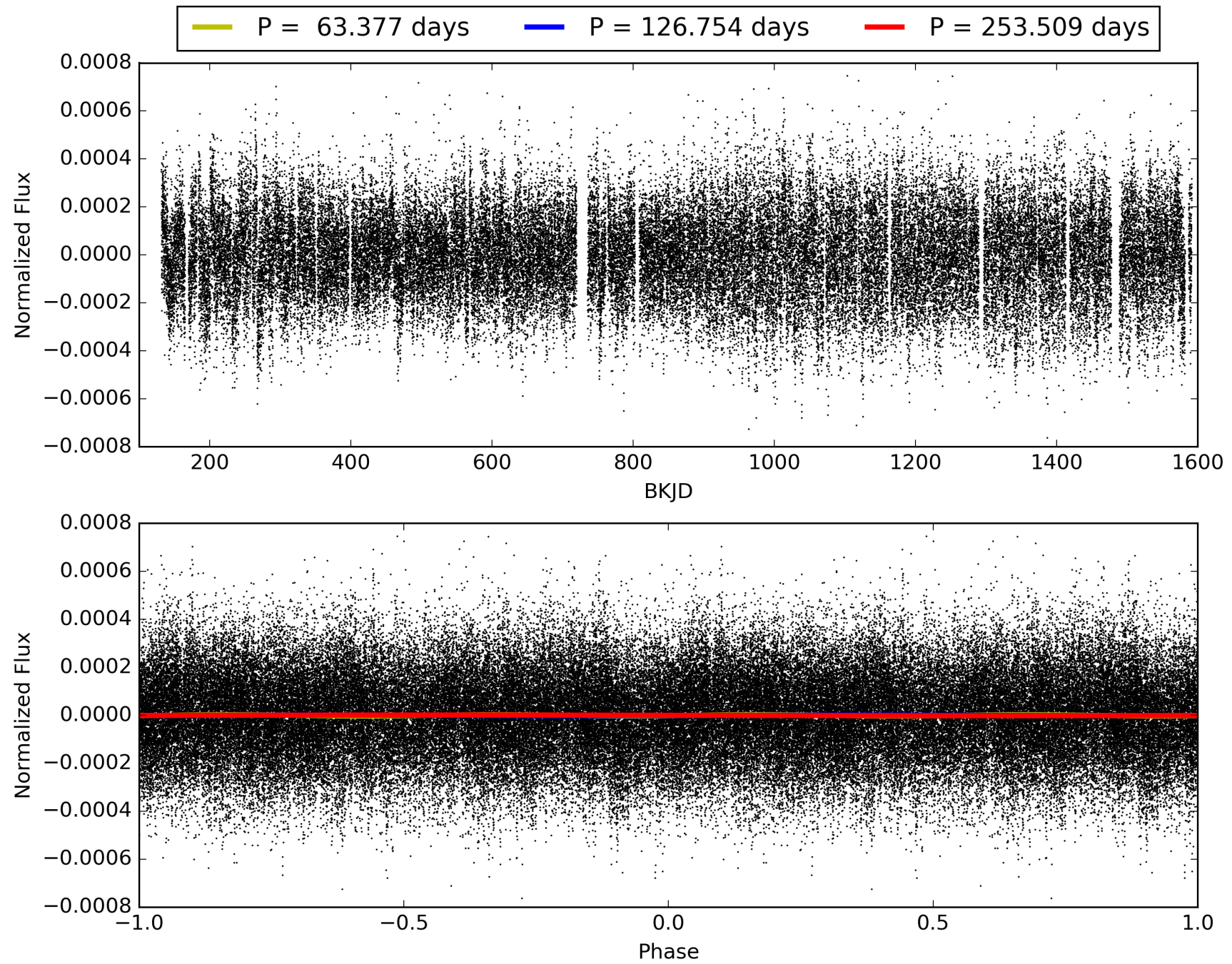
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:17:45 Z

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

TCE 008747865-10, PDC Light Curves

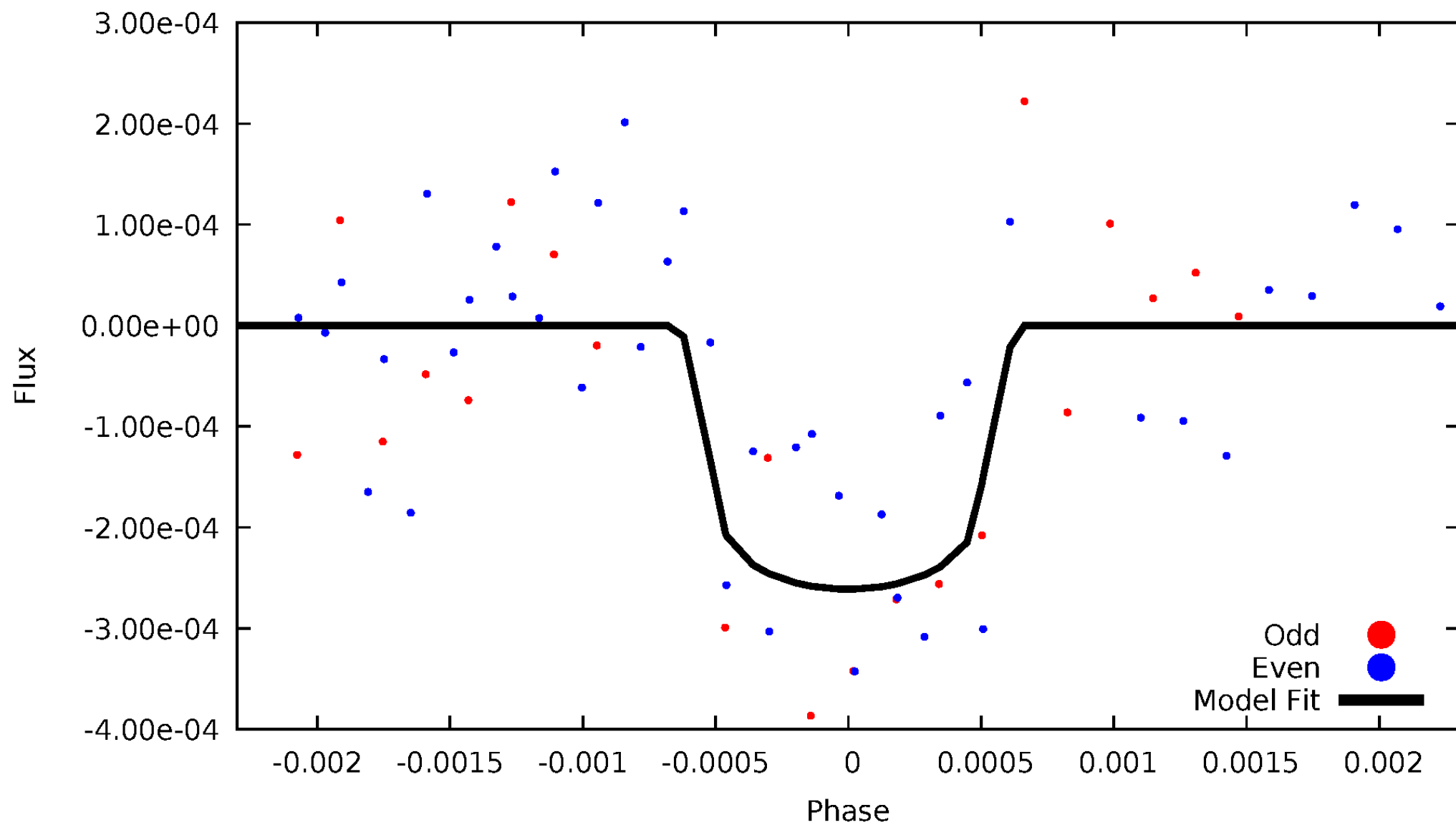


TCE 008747865-10



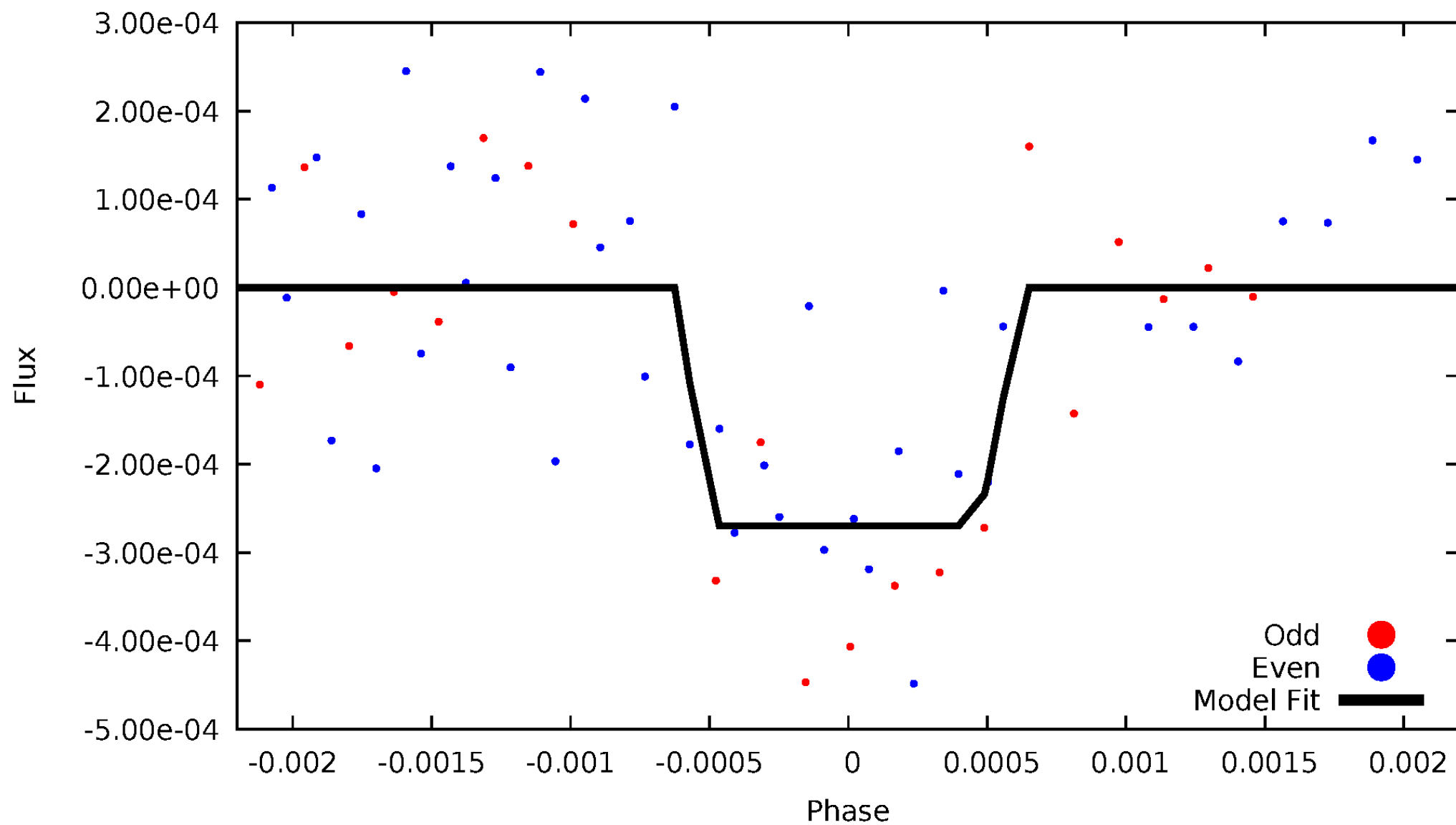
DV Odd/Even

TCE 008747865-10



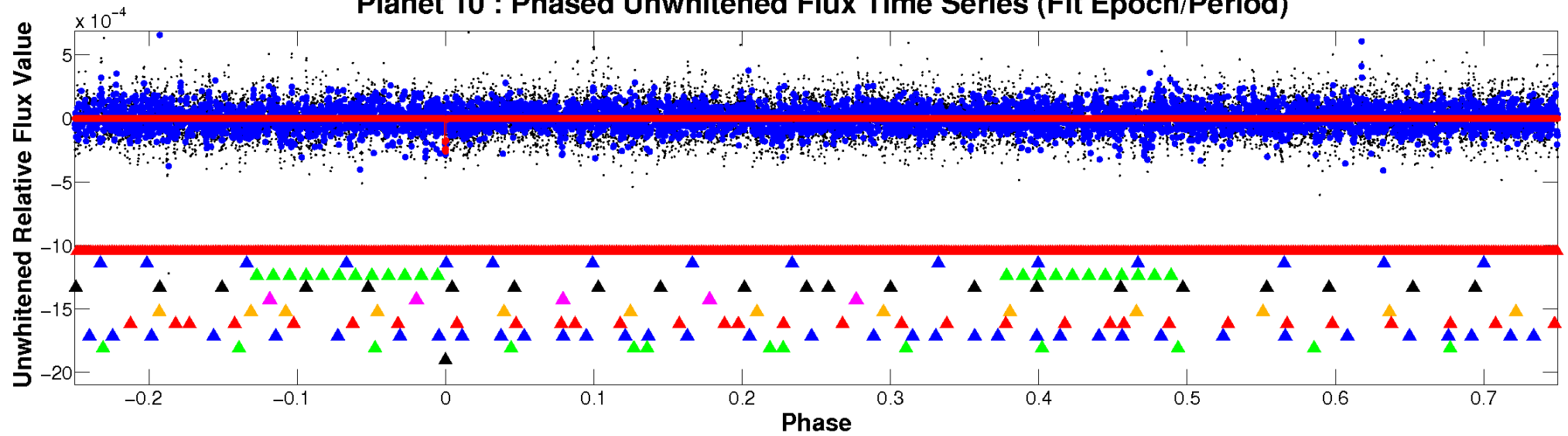
ALT Odd/Even

TCE 008747865-10

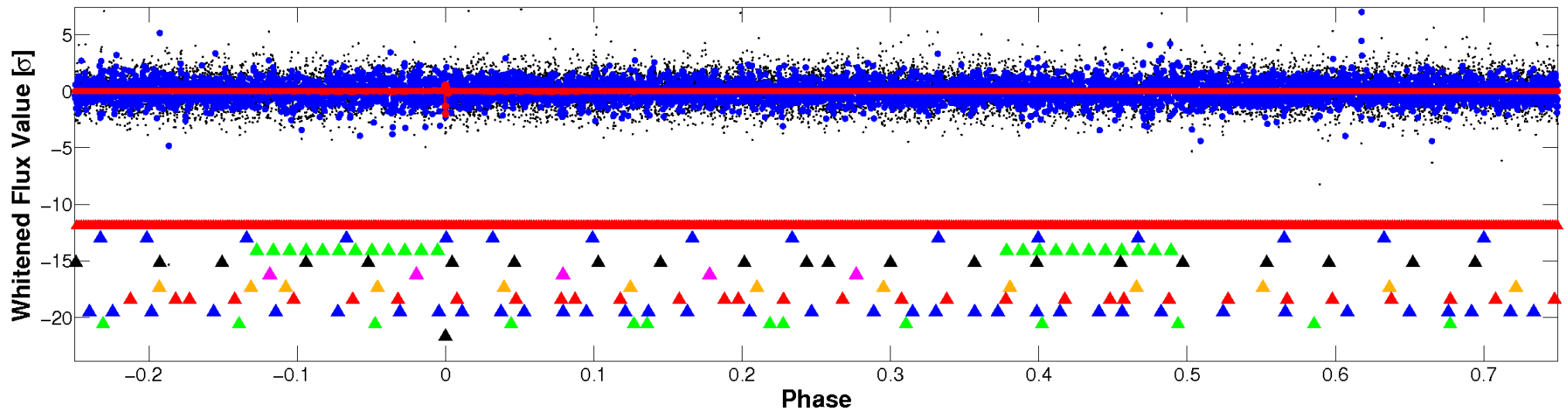


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

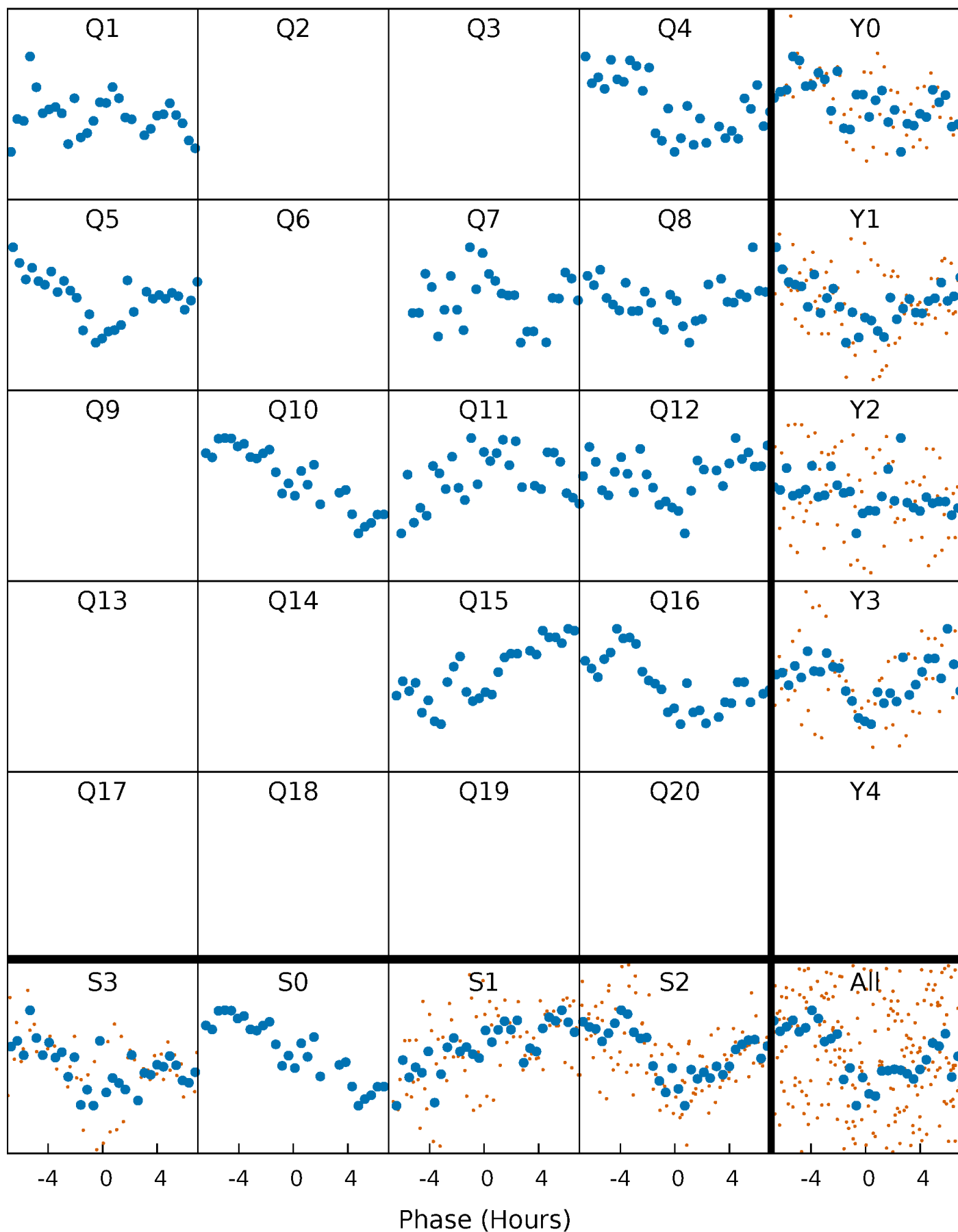


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



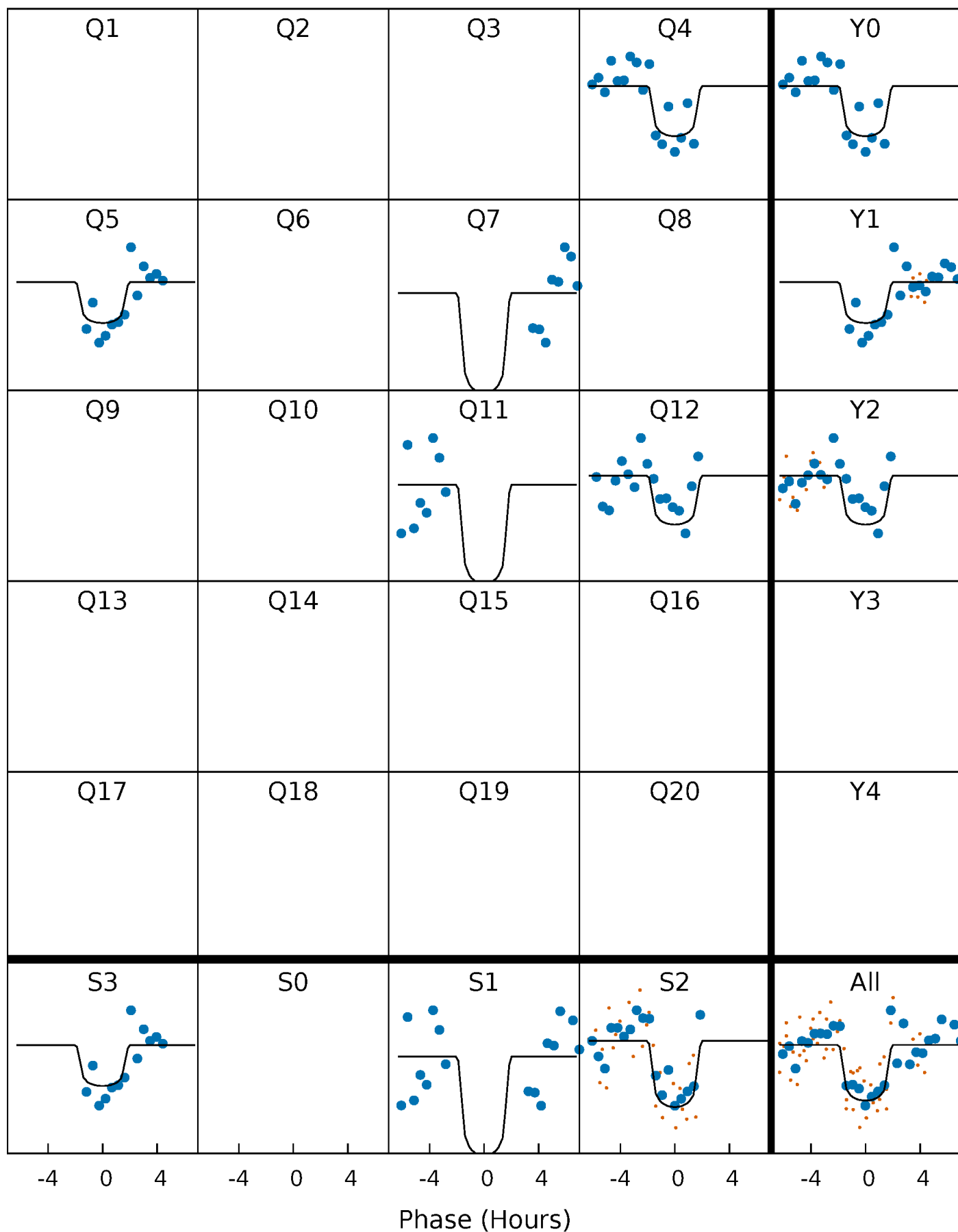
PDC Quarter-Phased Transit Curves

TCE 008747865-10 P=126.754341 Days $T_0=154.280346$ (BKJD)



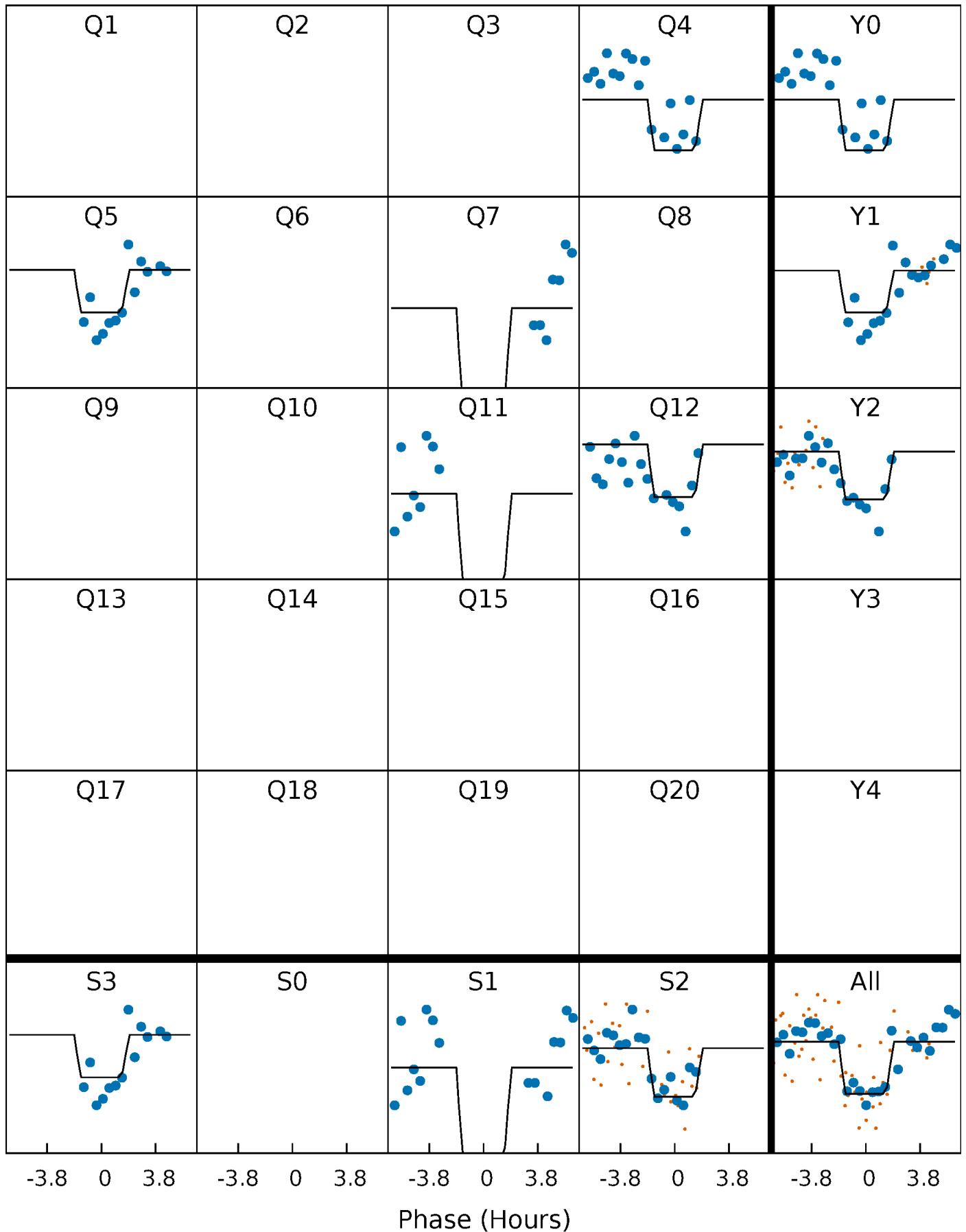
DV Quarter-Phased Transit Curves

TCE 008747865-10 P=126.754341 Days $T_0=154.280346$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

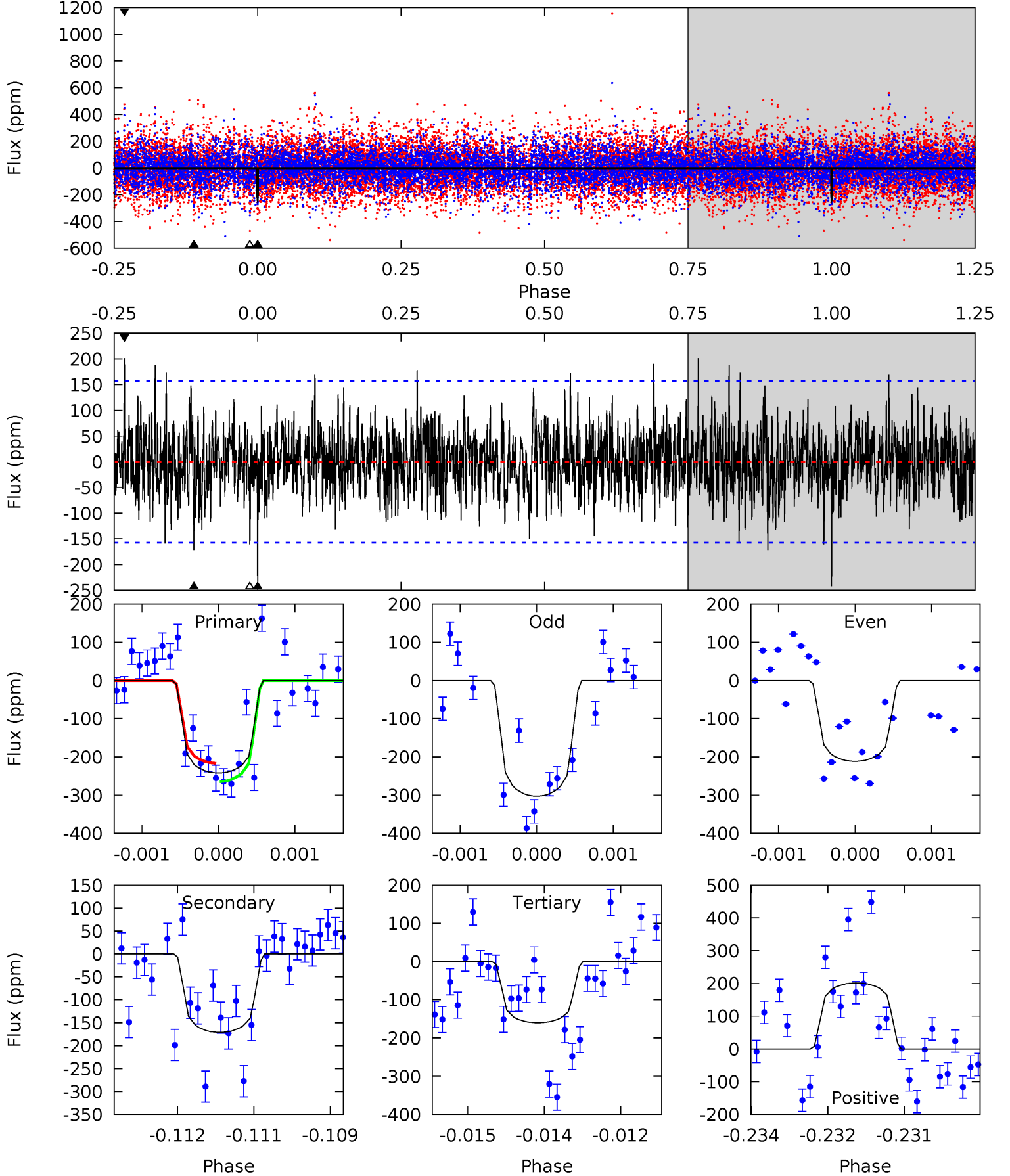
TCE 008747865-10 P=126.755321 Days $T_0=154.279007$ (BKJD)



DV Model-Shift Uniqueness Test

008747865-10, $P = 126.754341$ Days, $E = 27.526005$ Days

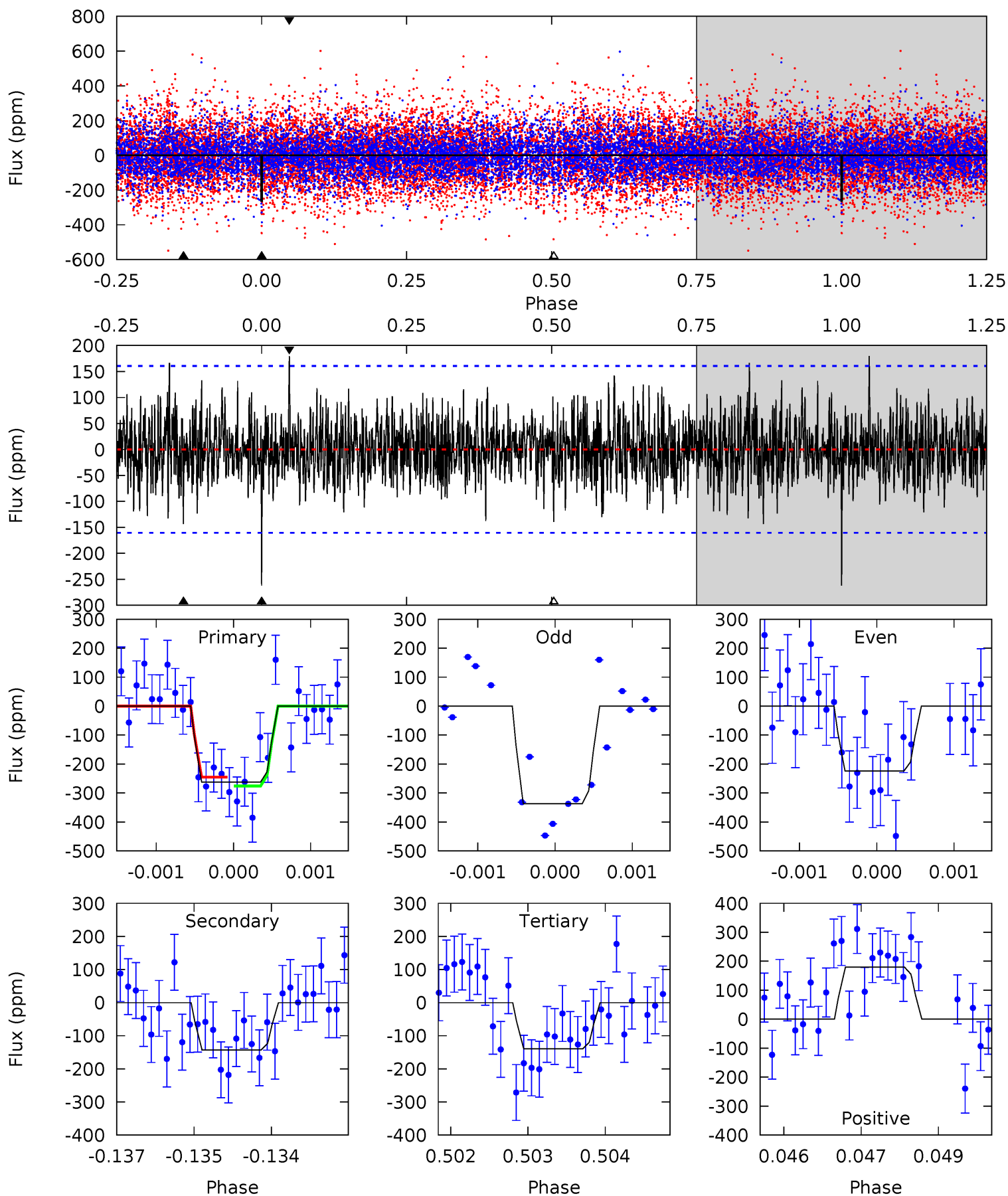
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.37	5.92	5.54	6.96	5.43	3.26	1.73	2.83	1.41	0.38	-1.04	1.51	0.94	0.45	0.82



Alt Model-Shift Uniqueness Test

008747865-10, $P = 126.755321$ Days, $E = 27.523686$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.85	4.84	4.71	6.08	5.43	3.26	1.49	4.14	2.78	0.13	-1.24	1.87	0.88	0.41	0.51



Stellar Parameters For KIC 008747865

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6770^{+81}_{-81}	$4.114^{+0.132}_{-0.108}$	$-0.060^{+0.150}_{-0.150}$	$1.717^{+0.274}_{-0.274}$	$1.405^{+0.109}_{-0.098}$	$0.391^{+0.240}_{-0.127}$
	+1%/-1%	+3%/-3%	+250%/-250%	+16%/-16%	+8%/-7%	+62%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 008747865-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-171 ± 29	$3.41^{+2.48}_{-2.06}$	734^{+30}_{-33}	5668^{+4023}_{-1104}	2436^{+13876}_{-1608}
Alt.	-143 ± 30	$3.40^{+2.36}_{-2.09}$	736^{+33}_{-32}	5436^{+3873}_{-1029}	1960^{+12450}_{-1266}

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 $A_{obs} \gg 1.0$

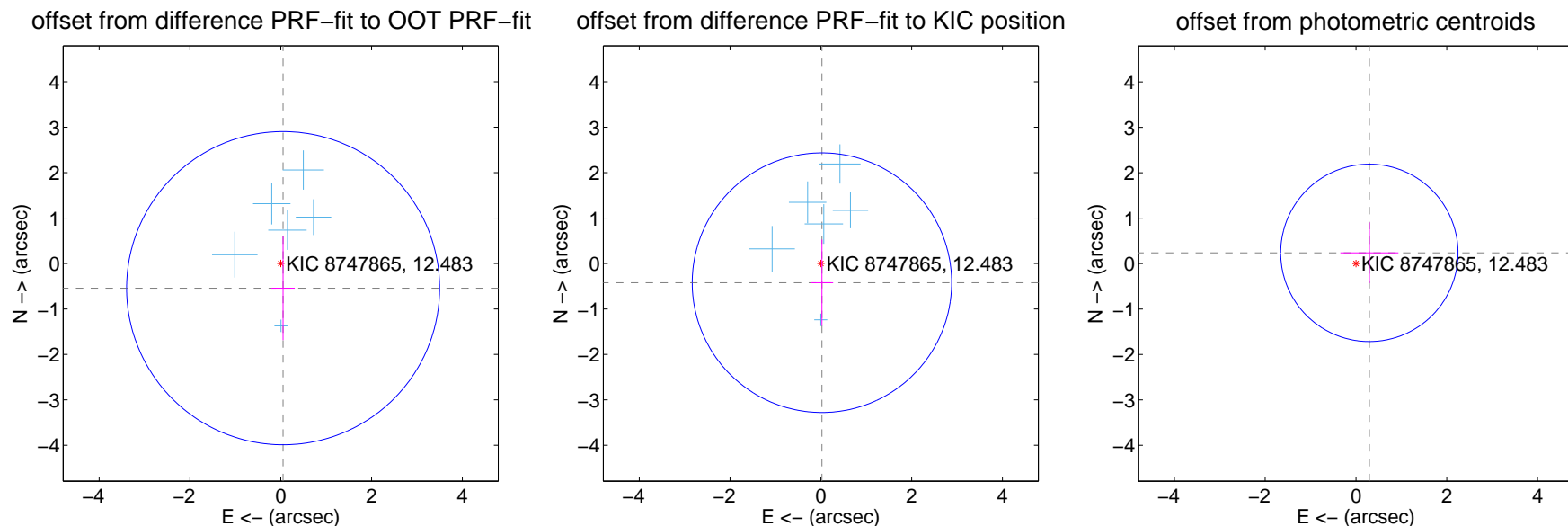
DV Centroid Data

Supplemental centroid analysis for 008747865-10. Kepler magnitude: 12.48. Transit SNR 8.41

There are 6 quarters with good PRF difference image offsets

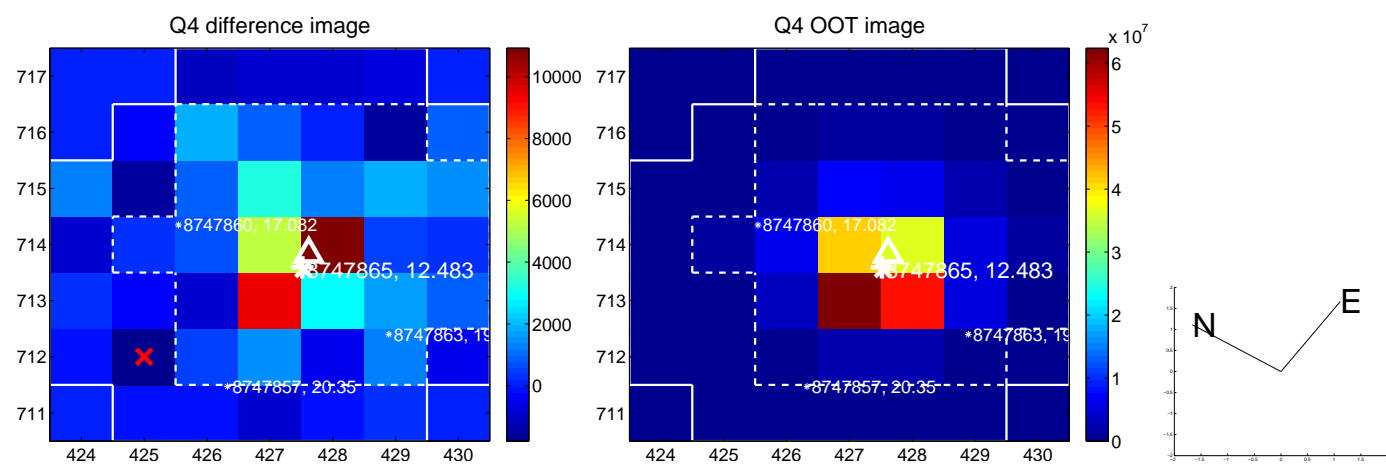
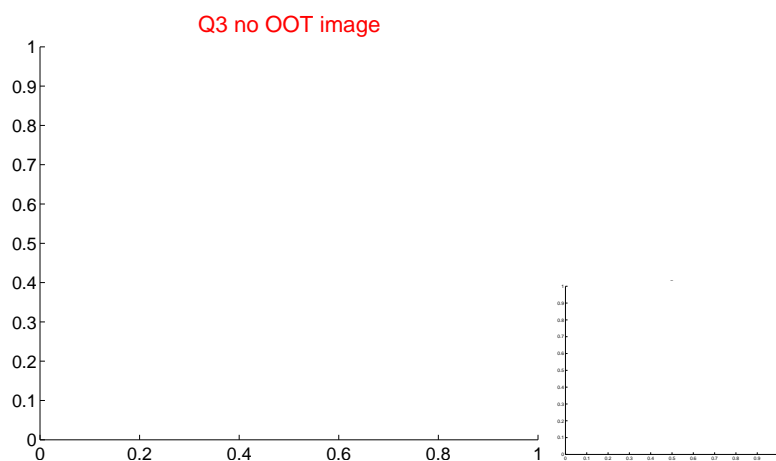
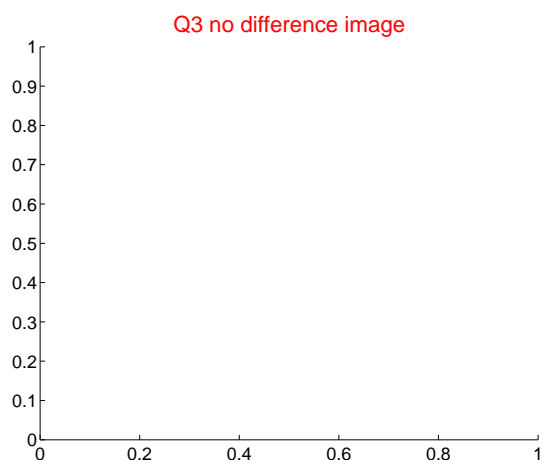
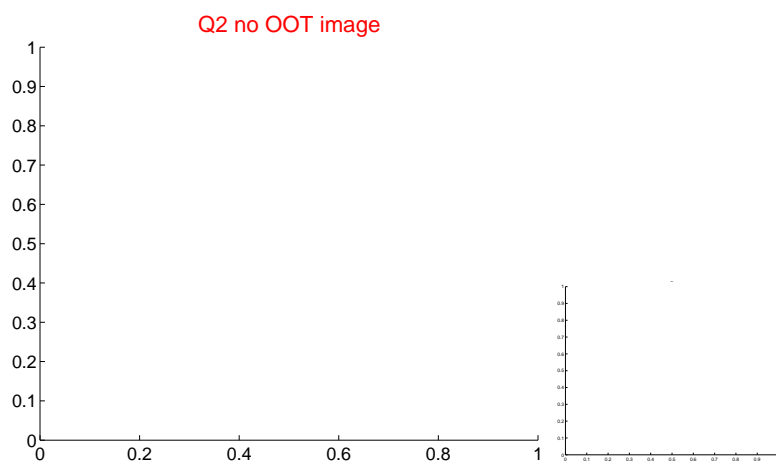
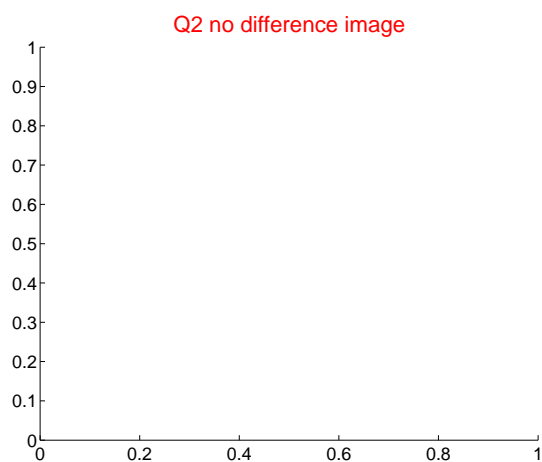
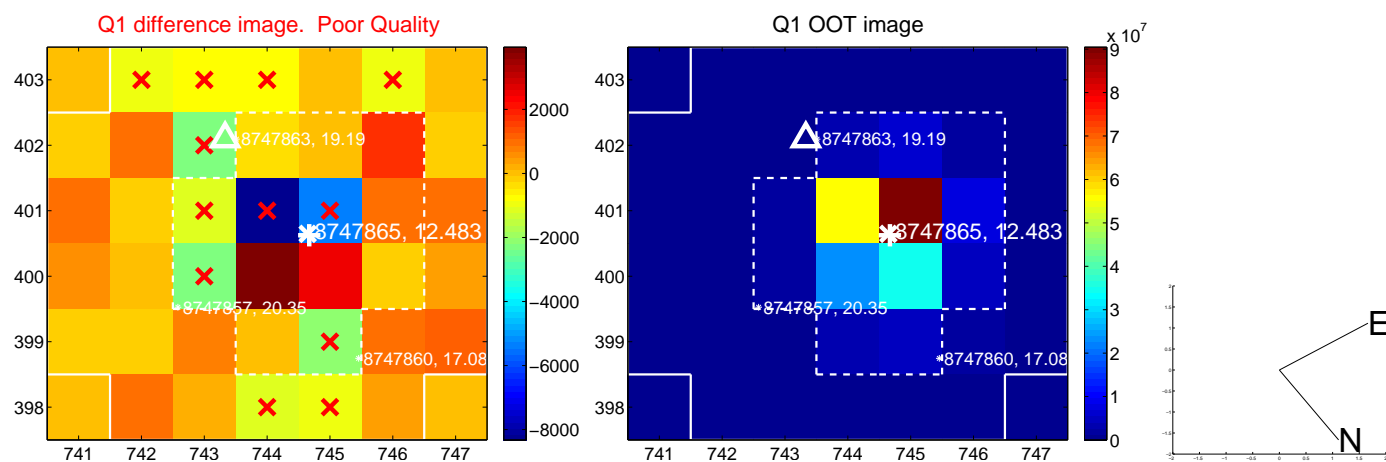
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.545 ± 1.149	0.47	-0.052 ± 0.258	-0.542 ± 1.143
PRF-fit source offset from KIC position	0.422 ± 0.952	0.44	-0.024 ± 0.247	-0.422 ± 0.949
photometric centroid source offset	0.38 ± 0.65	0.58	-0.29 ± 0.64	0.24 ± 0.67

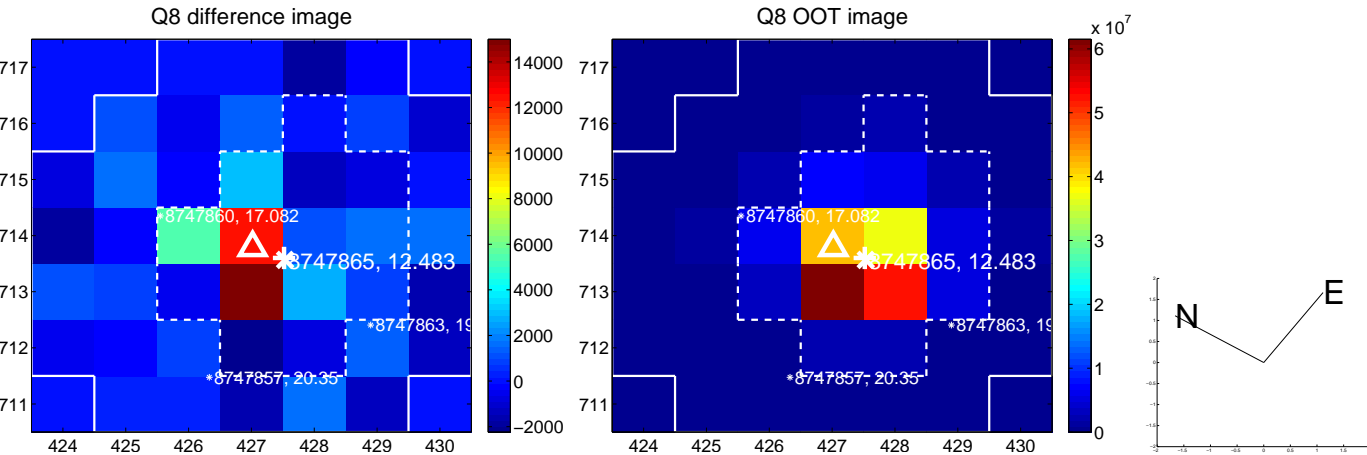
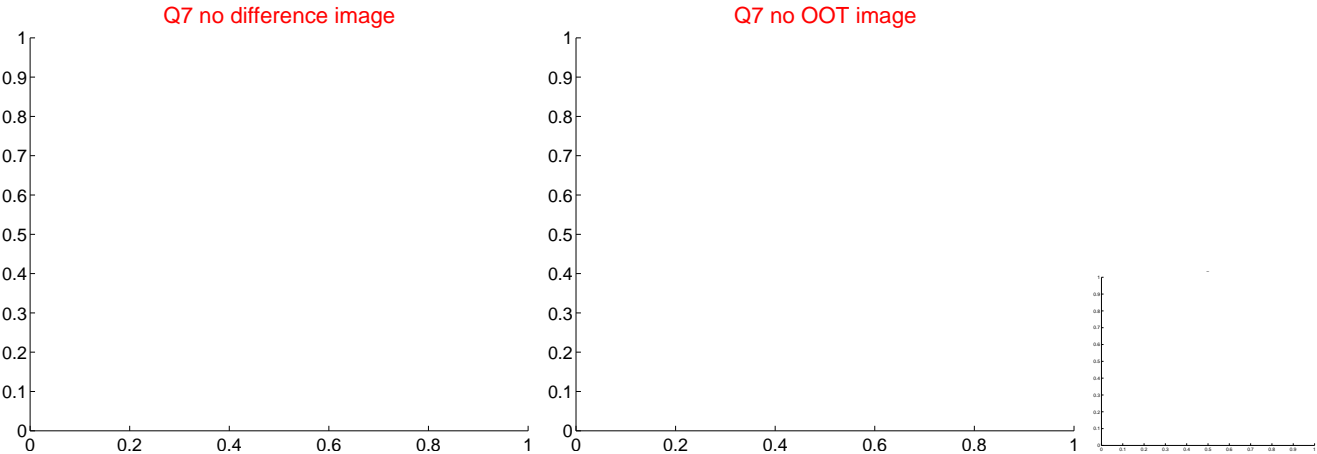
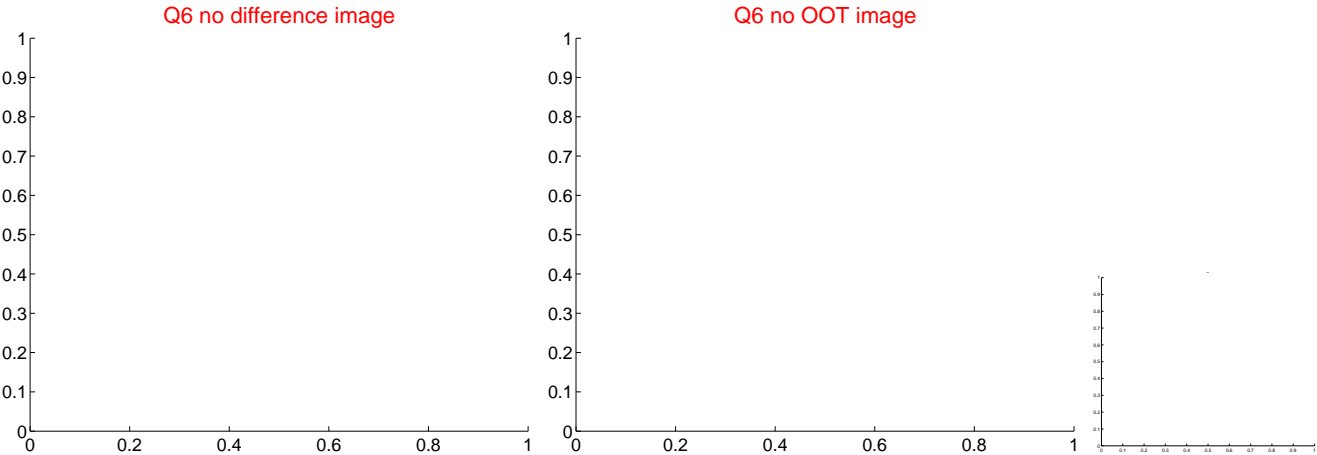
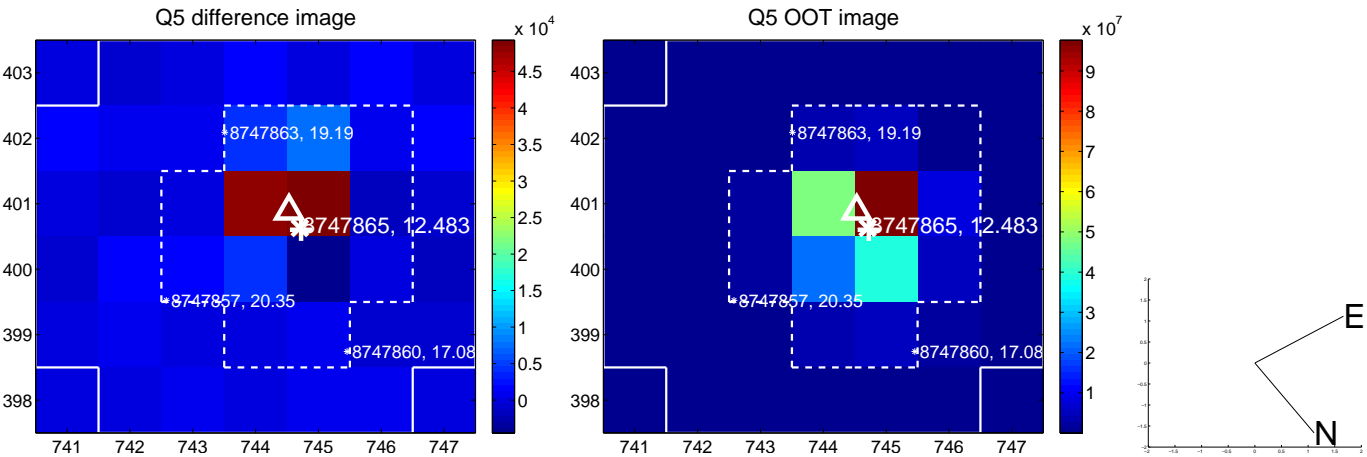


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

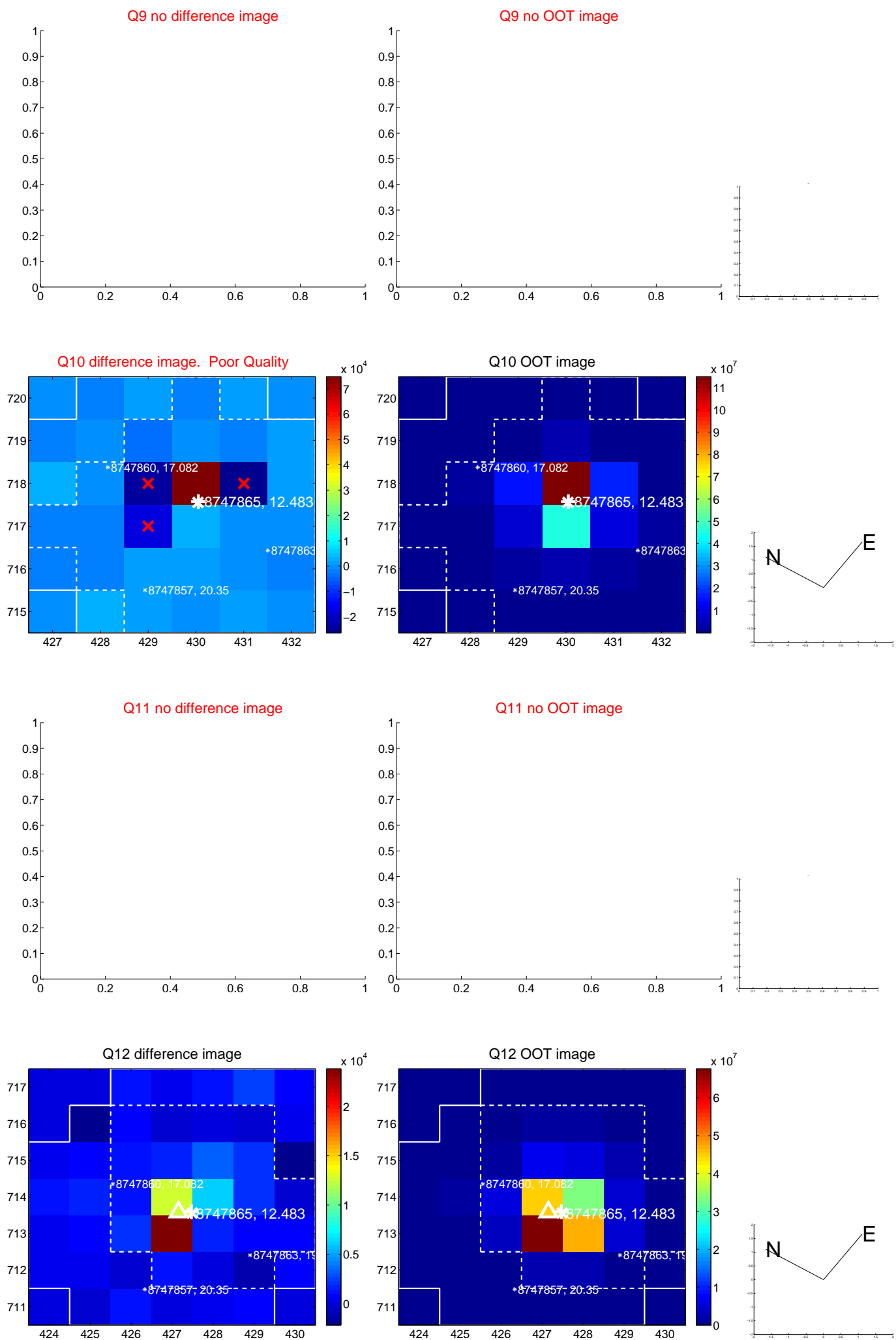
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



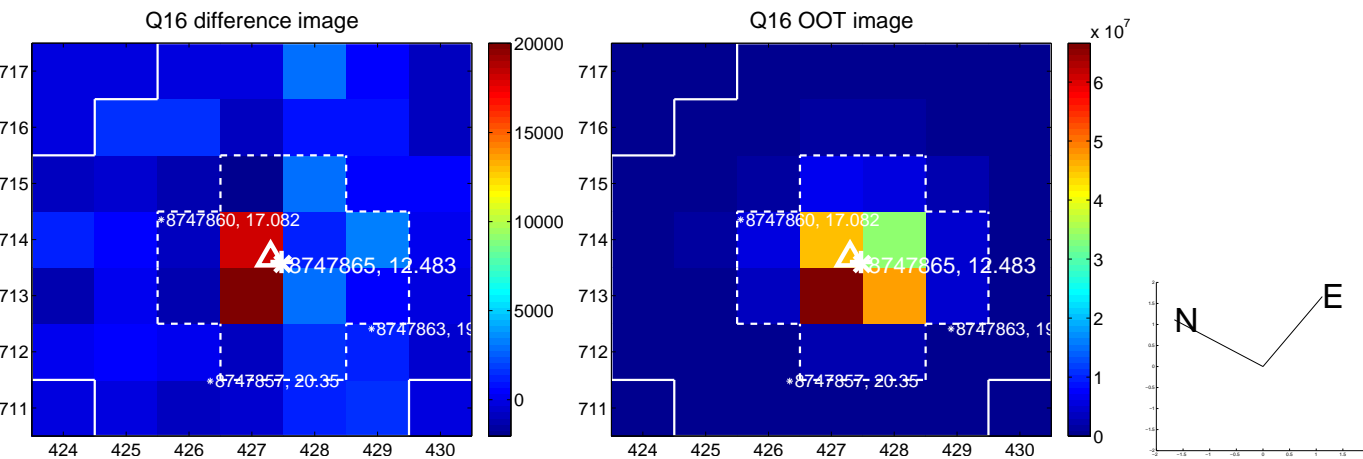
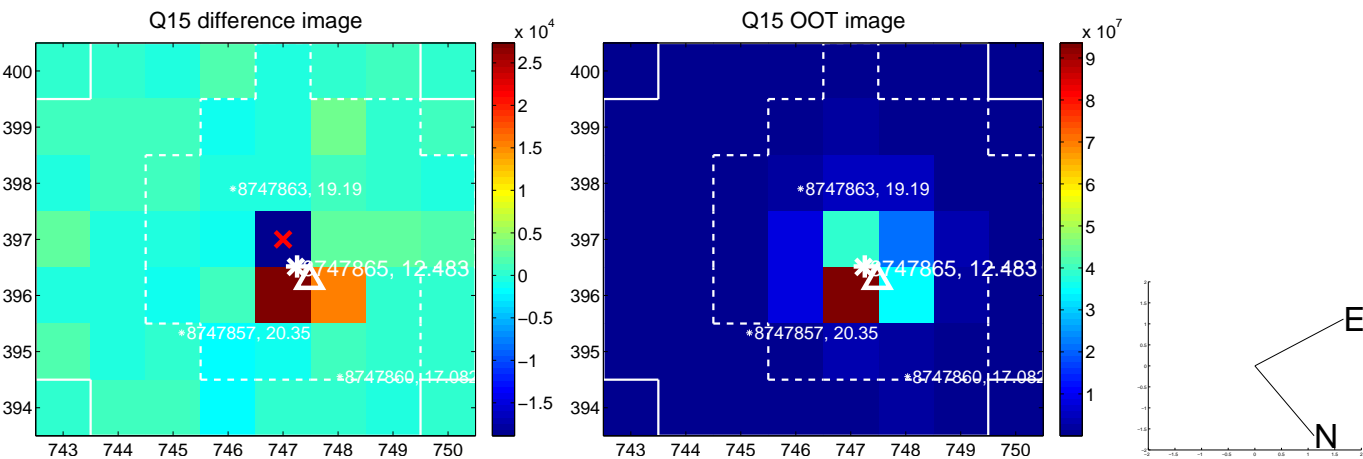
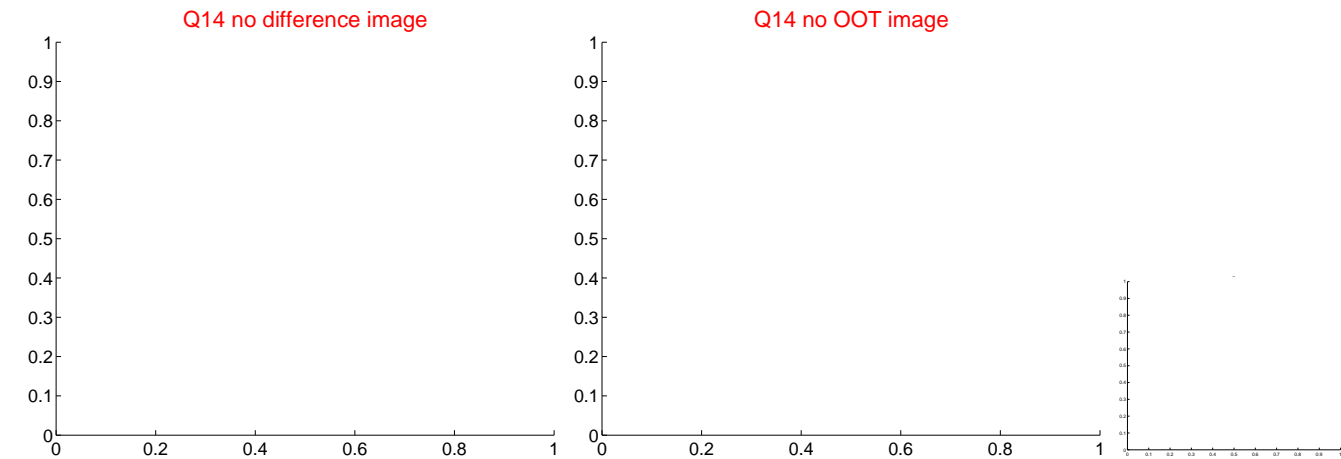
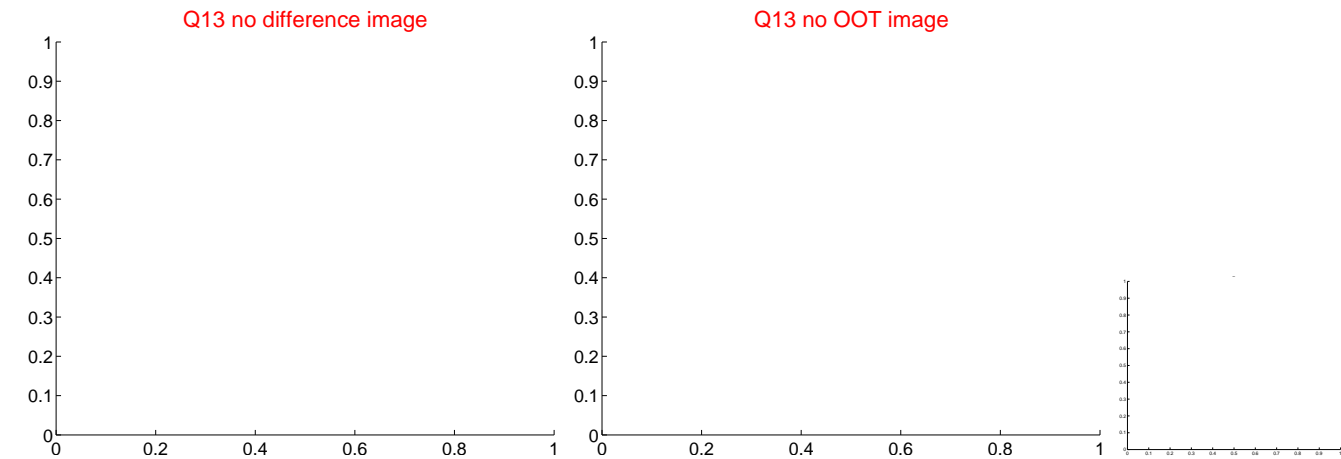
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



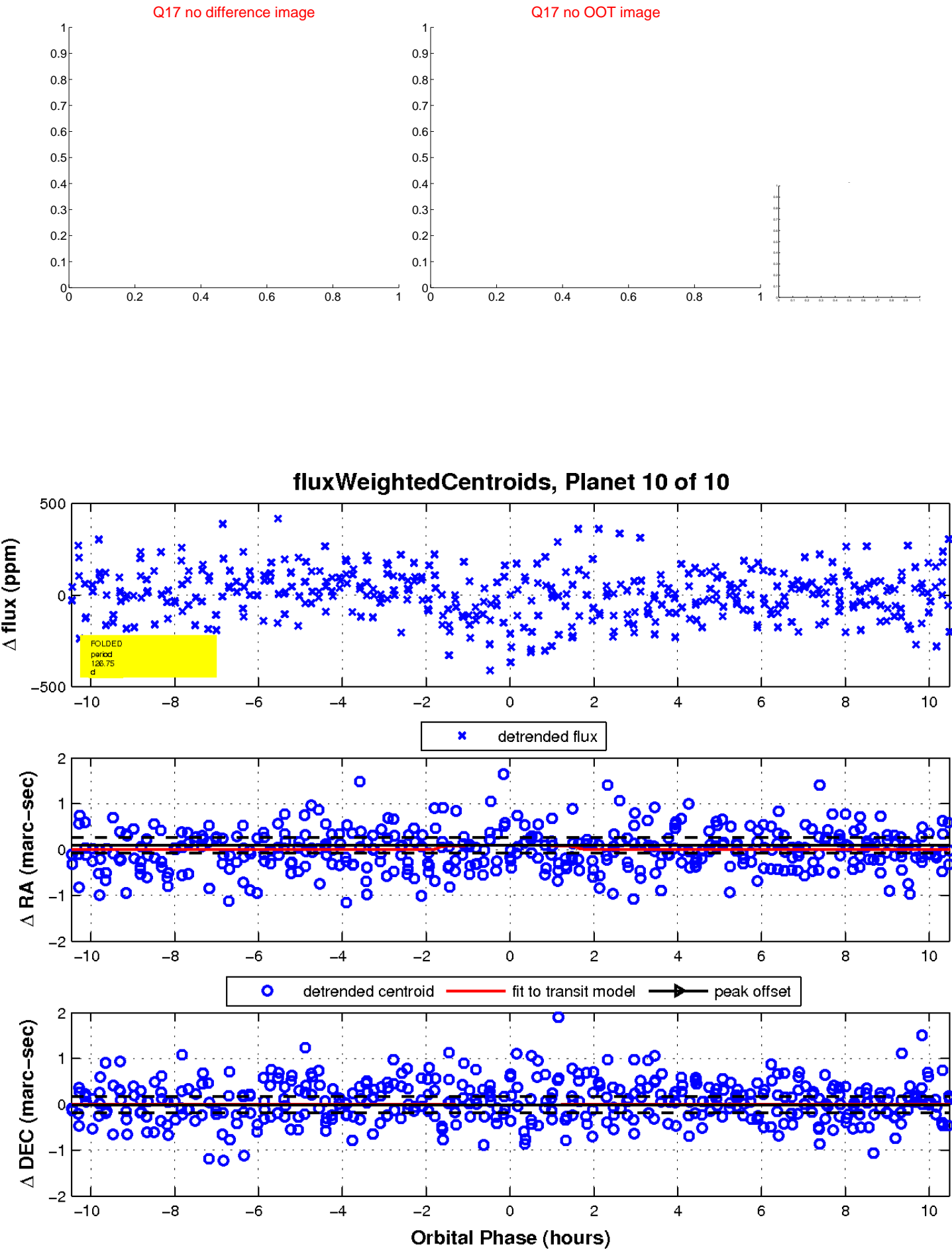
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



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



UKIRT Image

Declination

