

KIC 009786859

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})
009786859-01	OBS	No	1.058868	131.651251	10.4	7.158	7.9	3.8	1.44	6920	0.47	8412.09
009786859-02	OBS	No	40.259719	135.336066	436.9	2.888	11.5	10.5	1.44	6920	3.40	65.80
009786859-03	OBS	No	27.080605	158.044076	509.0	0.872	9.5	10.4	1.44	6920	3.50	111.64
009786859-04	OBS	No	30.961632	143.734249	365.1	1.367	9.3	8.7	1.44	6920	2.87	93.38
009786859-05	OBS	No	49.217092	172.911806	397.3	2.826	8.9	10.6	1.44	6920	3.16	50.34
009786859-06	OBS	No	72.046728	154.436153	436.7	7.800	9.8	8.5	1.44	6920	3.53	30.28
009786859-07	OBS	No	67.596962	184.282166	419.7	1.627	8.6	9.1	1.44	6920	3.44	32.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009786859-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009786859-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
009786859-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV
009786859-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_MEAS
009786859-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009786859-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009786859-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS—HALO_GHOST

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

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

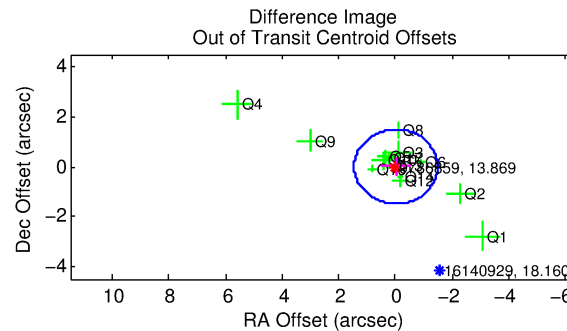
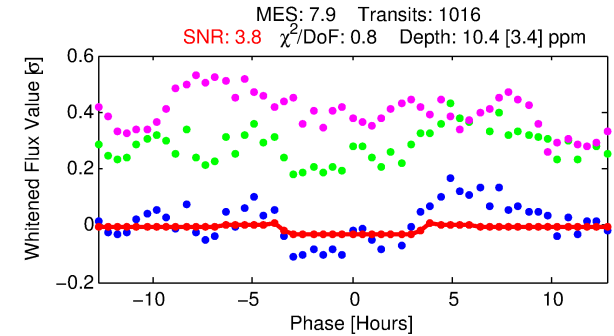
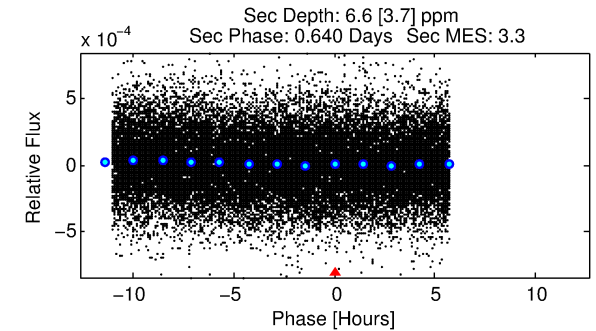
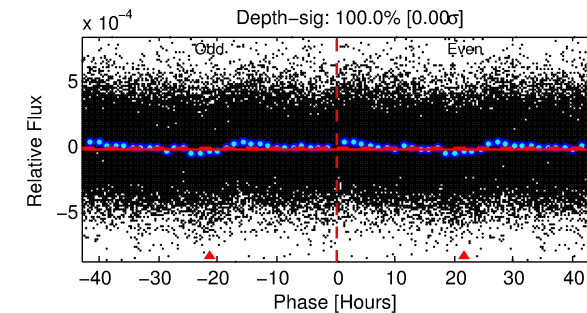
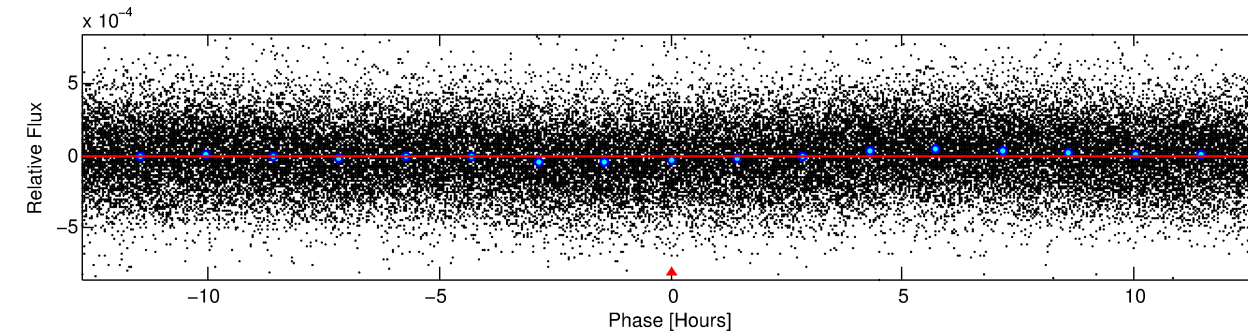
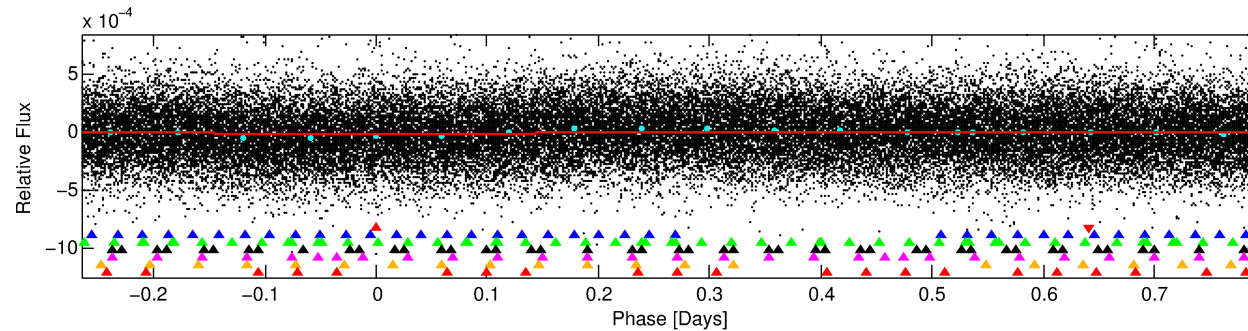
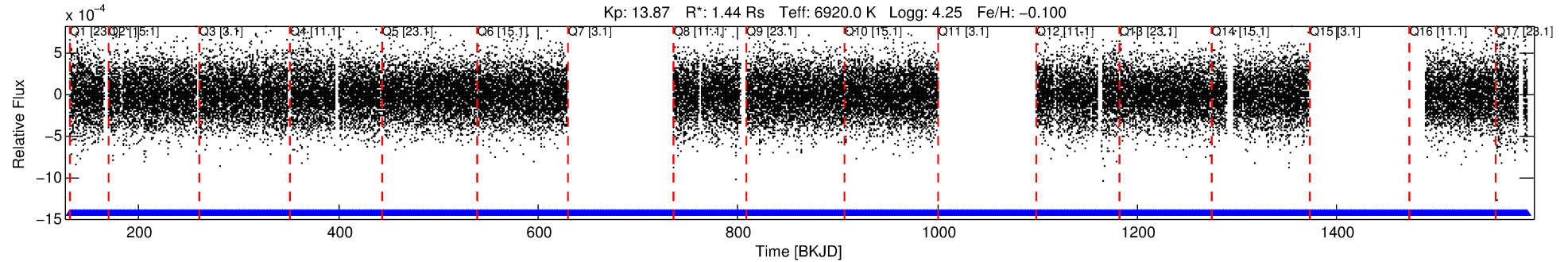
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009786859-01

No Significant Match Found

DV One-Page Summary

KIC: 9786859 Candidate: 1 of 7 Period: 1.059 d



DV Fit Results:

Period = 1.05887 [0.00004] d
Epoch = 131.6513 [0.0144] BKJD
Rp/R* = 0.0030 [0.0071]
a/R* = 1.29 [6.97]
b = 0.10 [133.53]
Seff = 8412.09 [3526.29]
Teq = 2442 [256] K
Rp = 0.47 [1.12] Re
a = 0.0225 [0.0062] AU
Ag = 8.36 [40.10] [0.18σ]
Teffp = 6420 [7680] K [0.52σ]

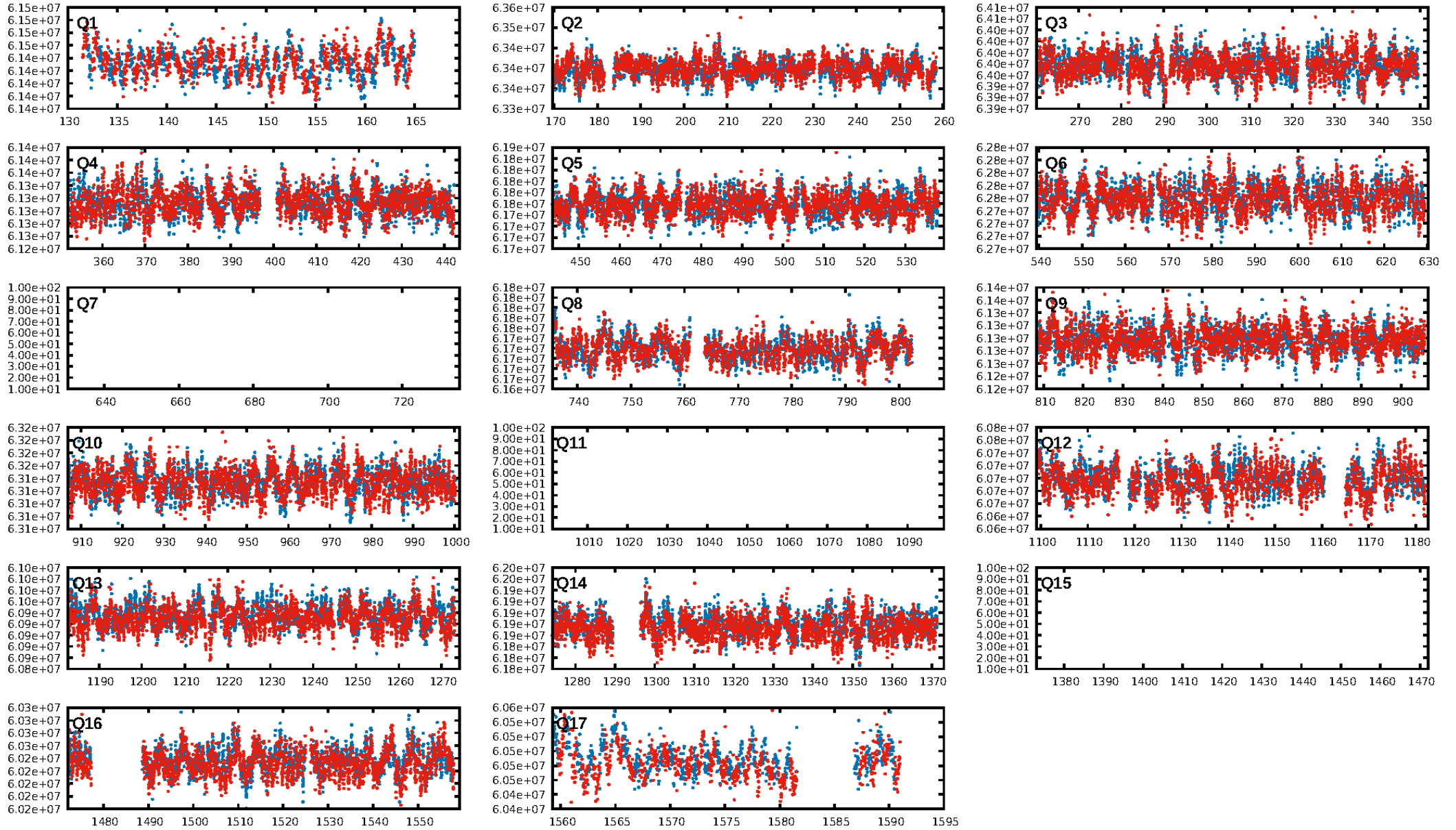
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [86.61σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.25e-09
RollingBand-fgt: 1.00 [959/959]
GhostDiagnostic-chr: 1.173
Centroid-sig: 11.1%
Centroid-so: 4.076 arcsec [1.64σ]
OotOffset-rm: 0.019 arcsec [0.04σ]
KicOffset-rm: 0.098 arcsec [0.22σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.86 [12/14]
DiffImageOverlap-fno: 1.00 [14/14]

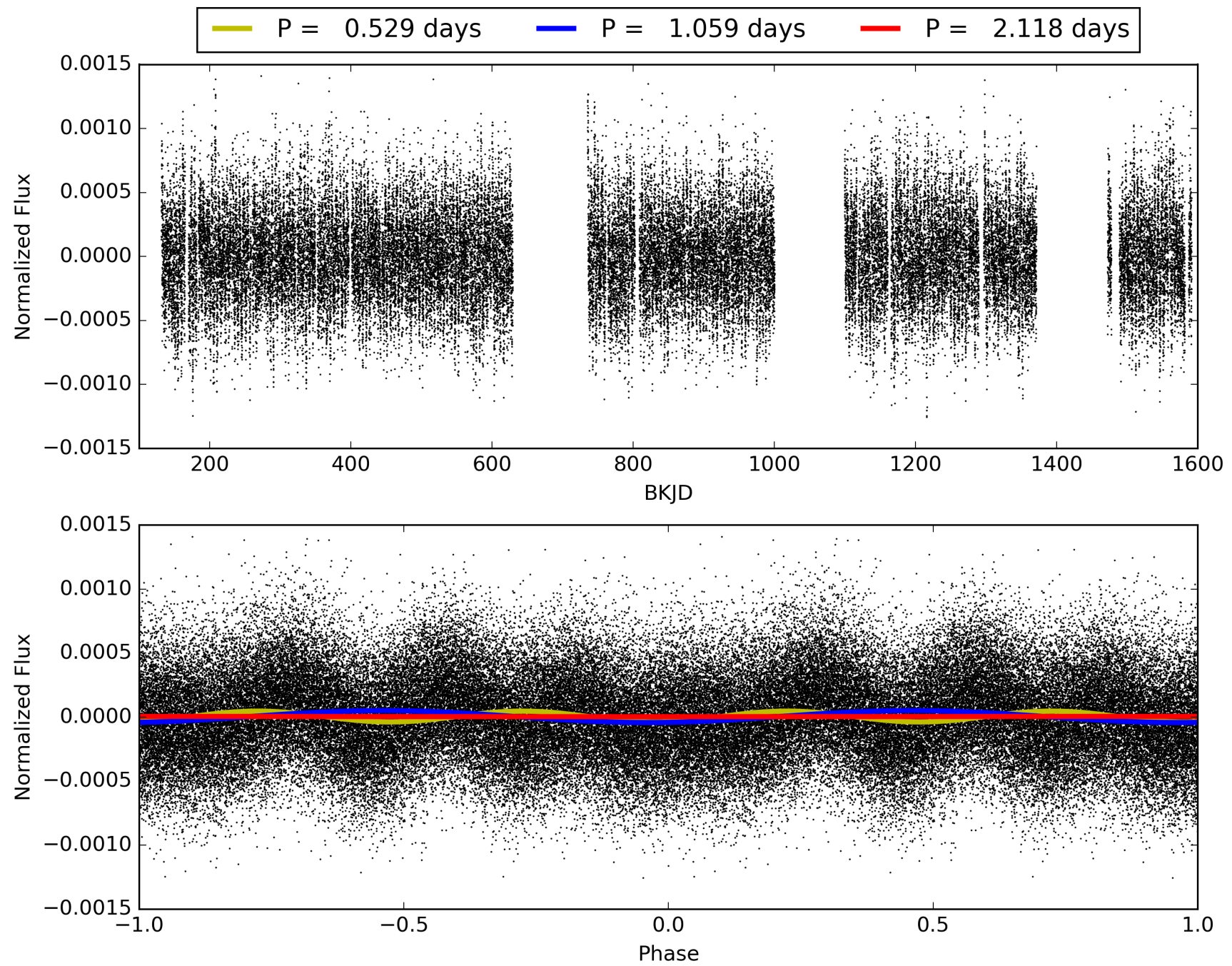
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:25:42 Z

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

TCE 009786859-01, PDC Light Curves

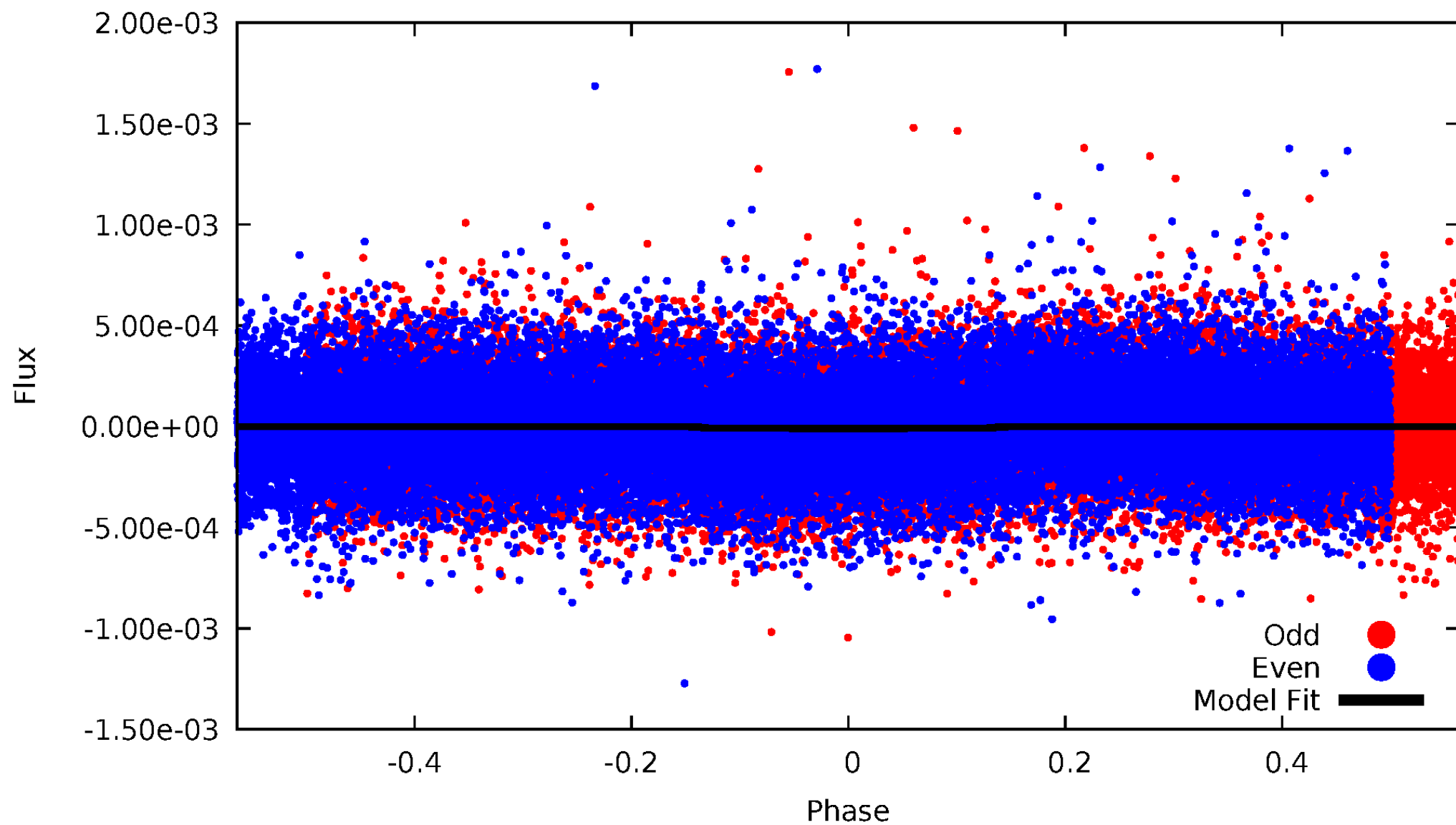


TCE 009786859-01



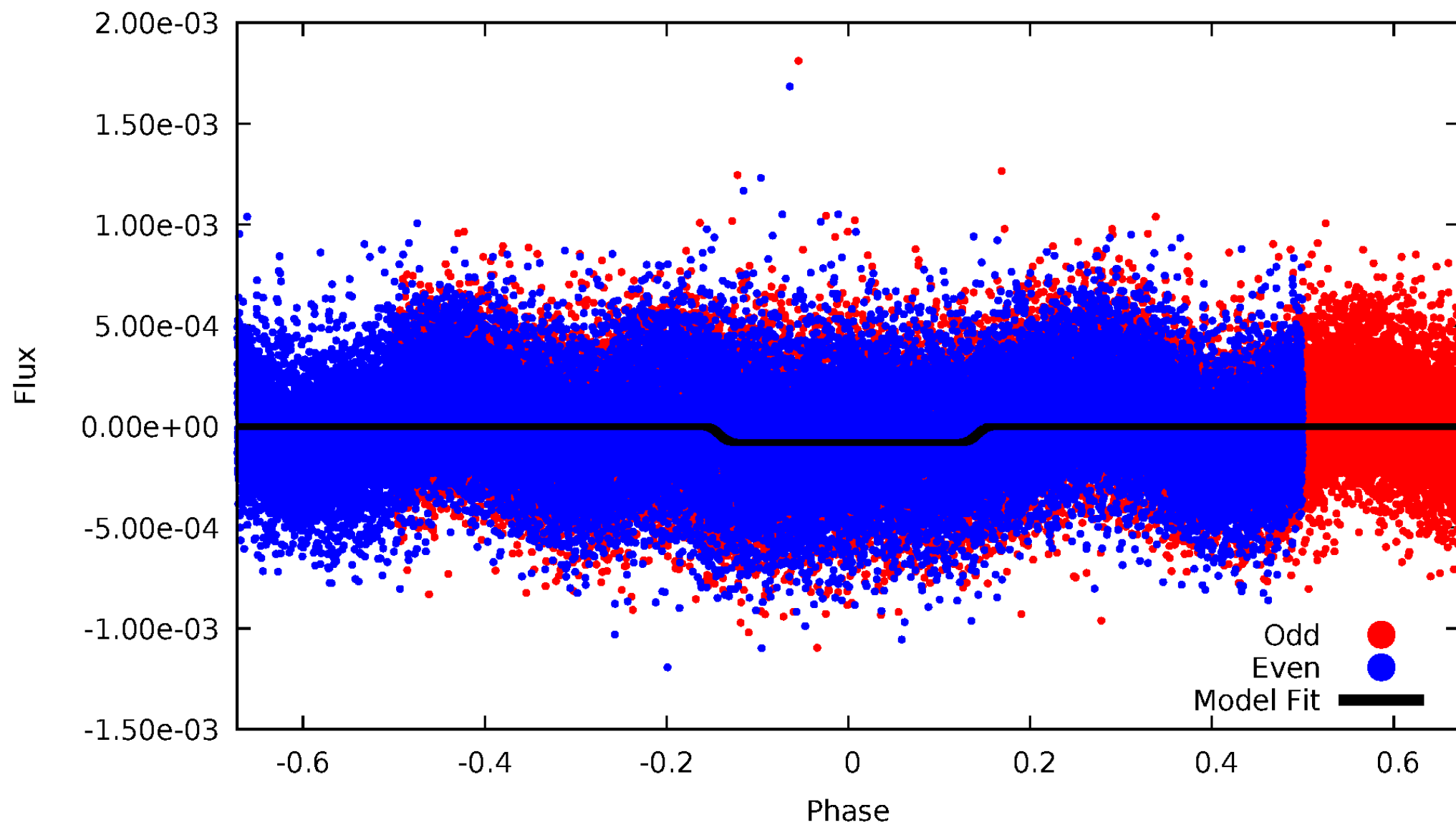
DV Odd/Even

TCE 009786859-01

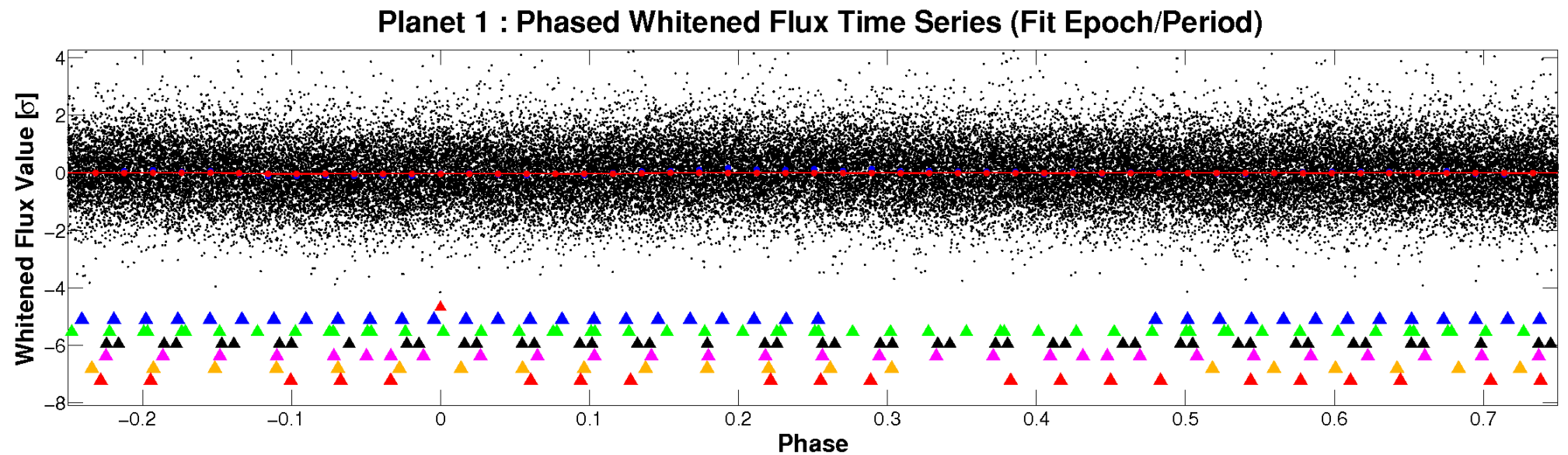
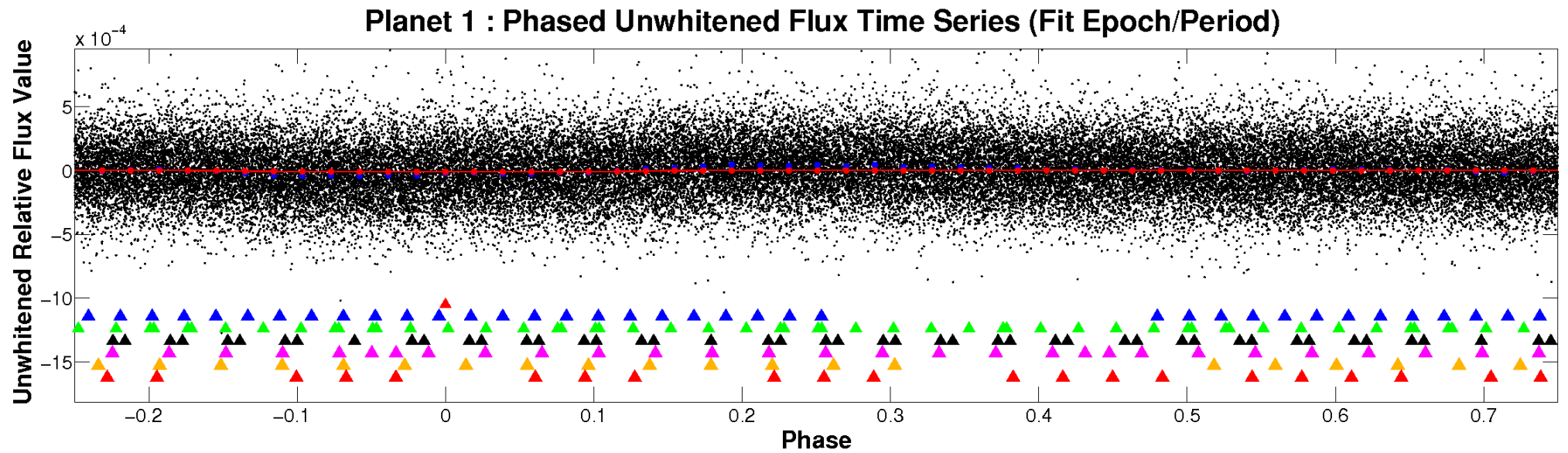


ALT Odd/Even

TCE 009786859-01

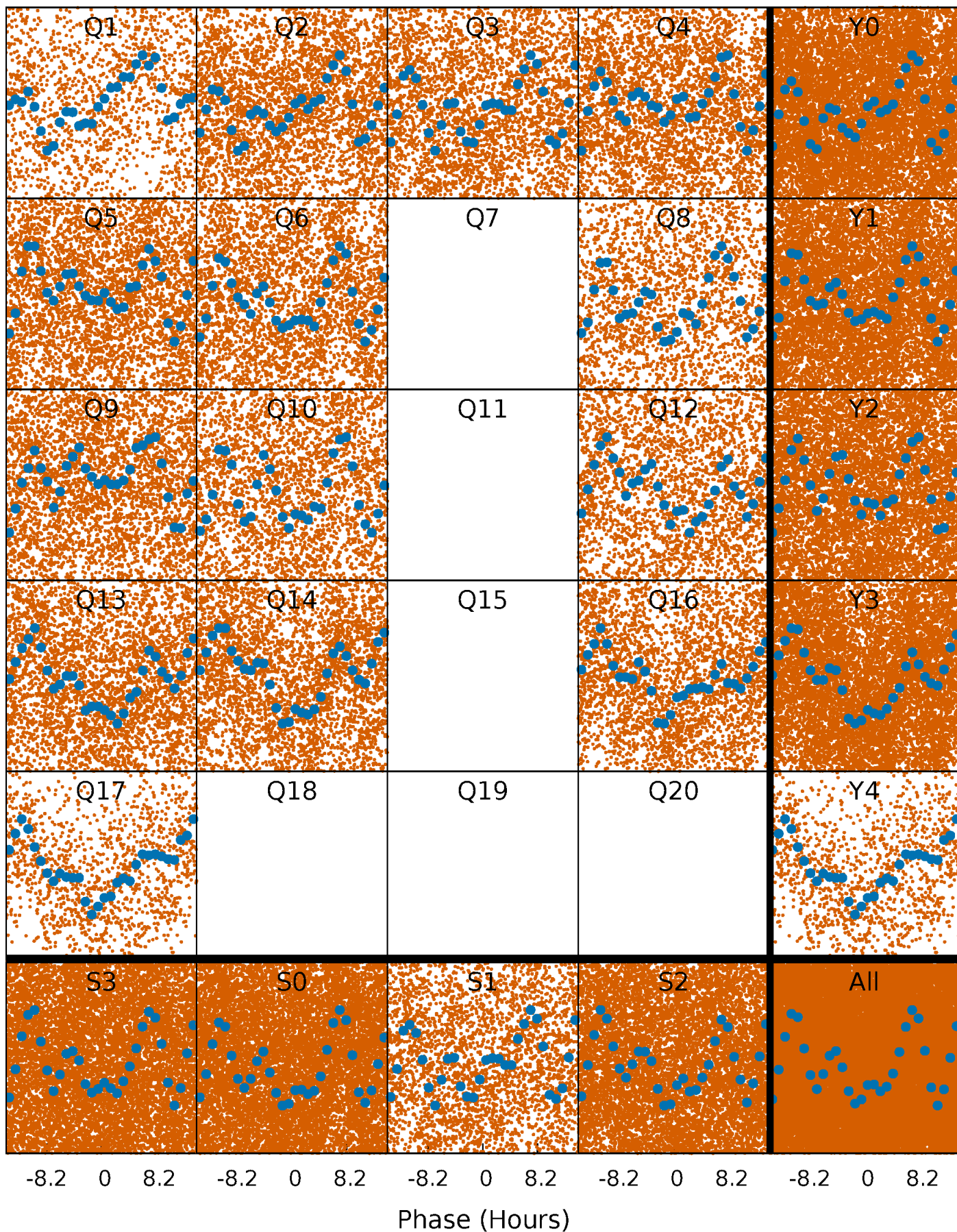


Non-Whitened Vs. Whitened Light Curve



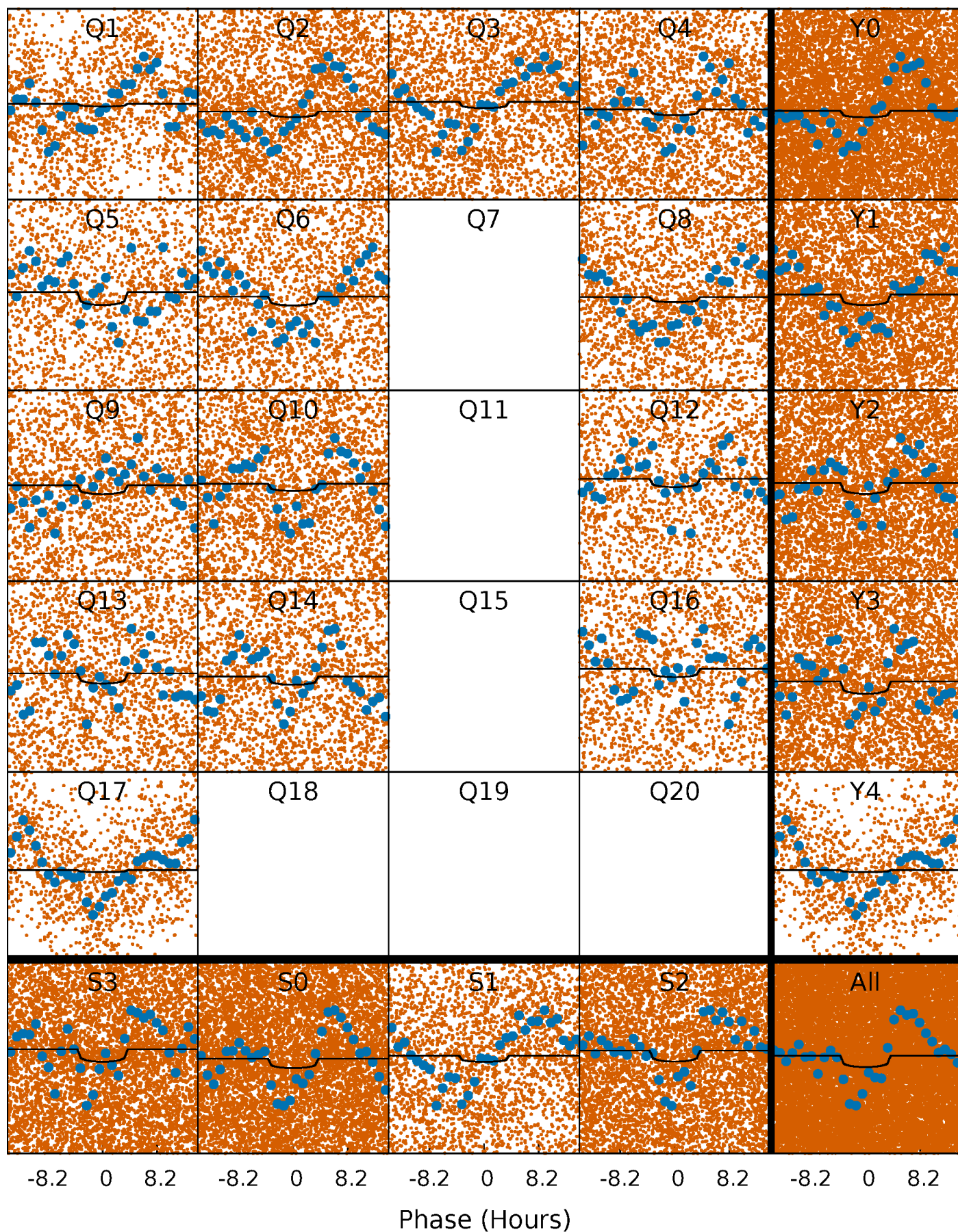
PDC Quarter-Phased Transit Curves

TCE 009786859-01 P= 1.058868 Days $T_0=131.651251$ (BKJD)



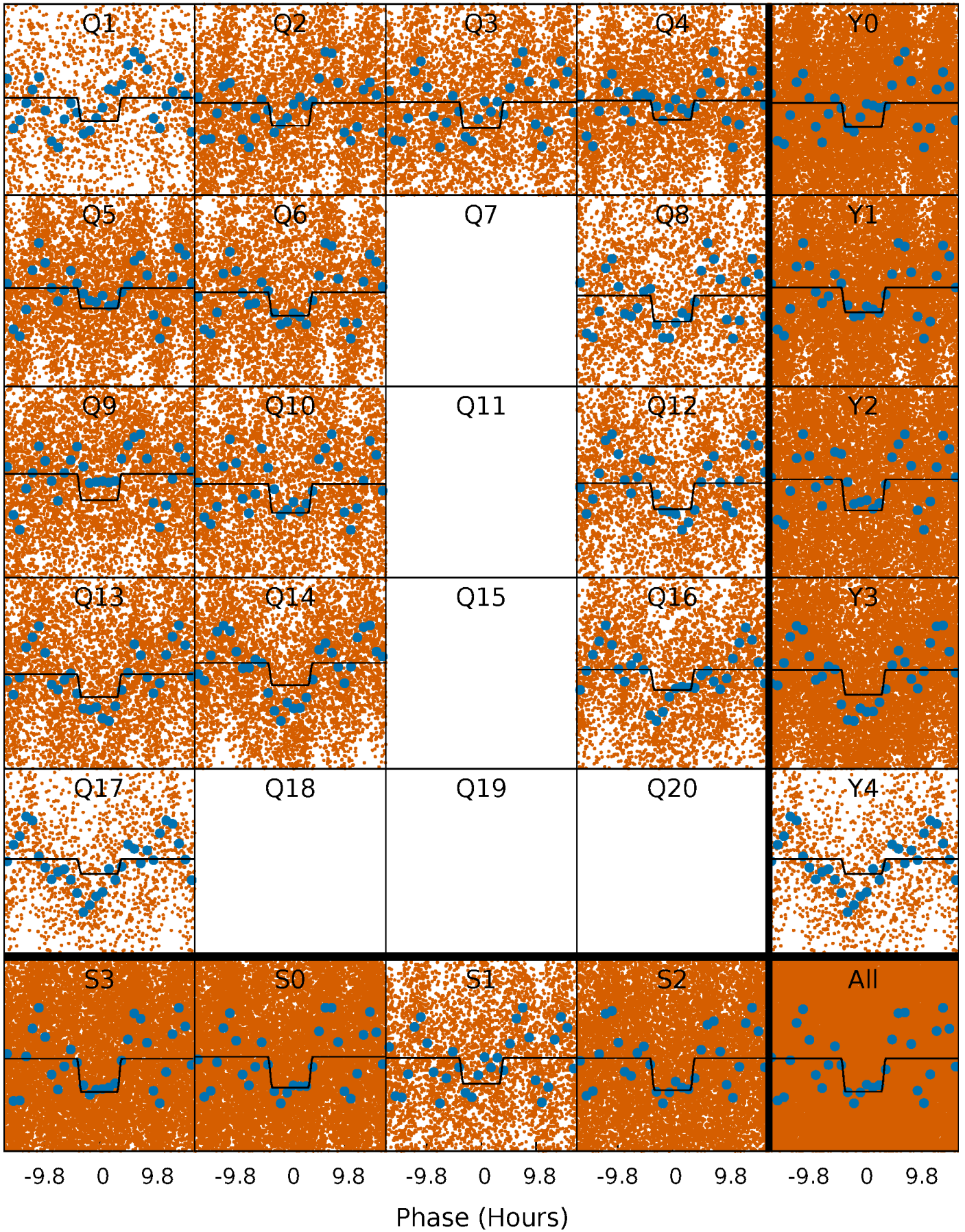
DV Quarter-Phased Transit Curves

TCE 009786859-01 P= 1.058868 Days $T_0=131.651251$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

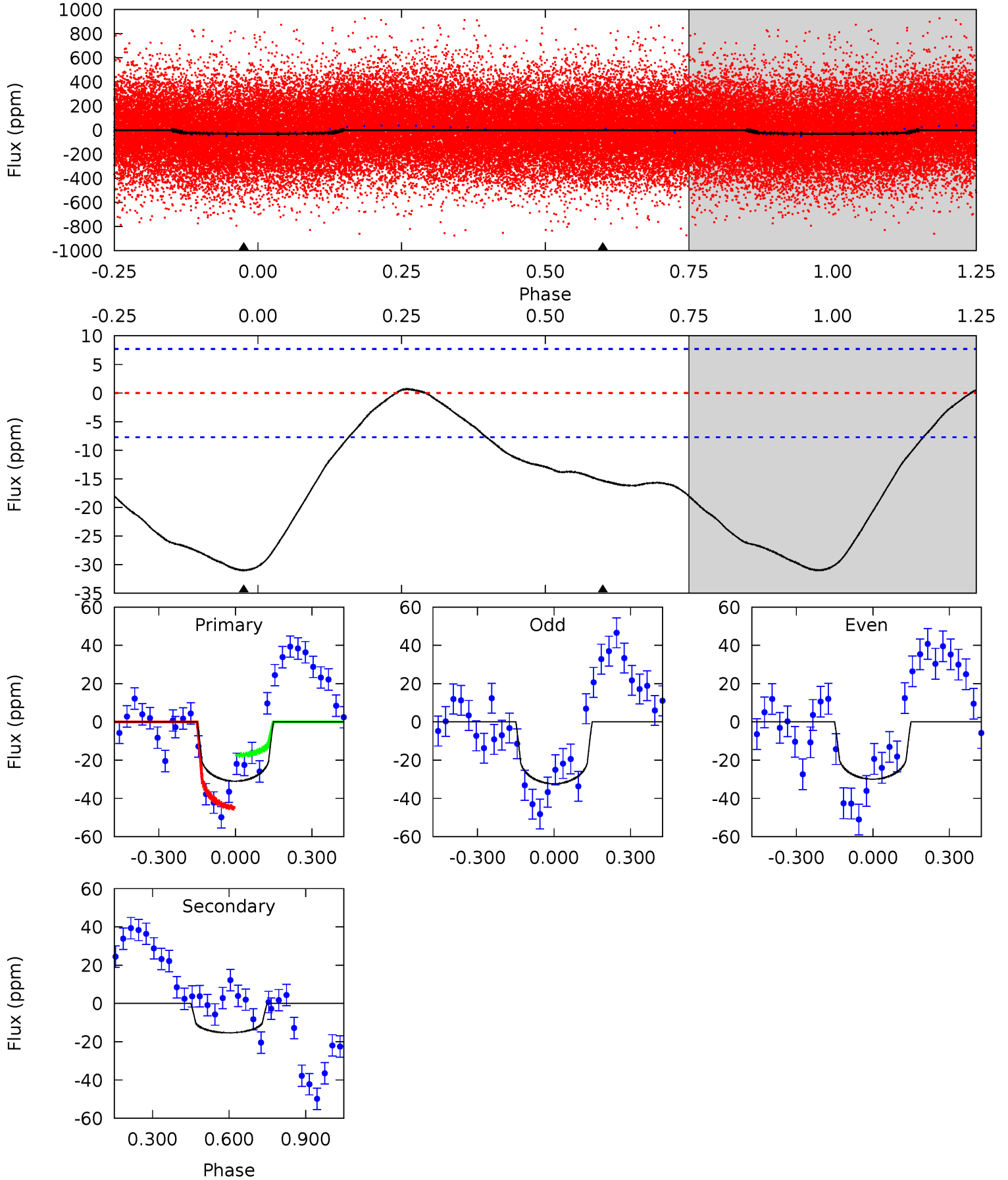
TCE 009786859-01 P= 1.058908 Days $T_0=131.648091$ (BKJD)



DV Model-Shift Uniqueness Test

009786859-01, P = 1.058868 Days, E = 130.592383 Days

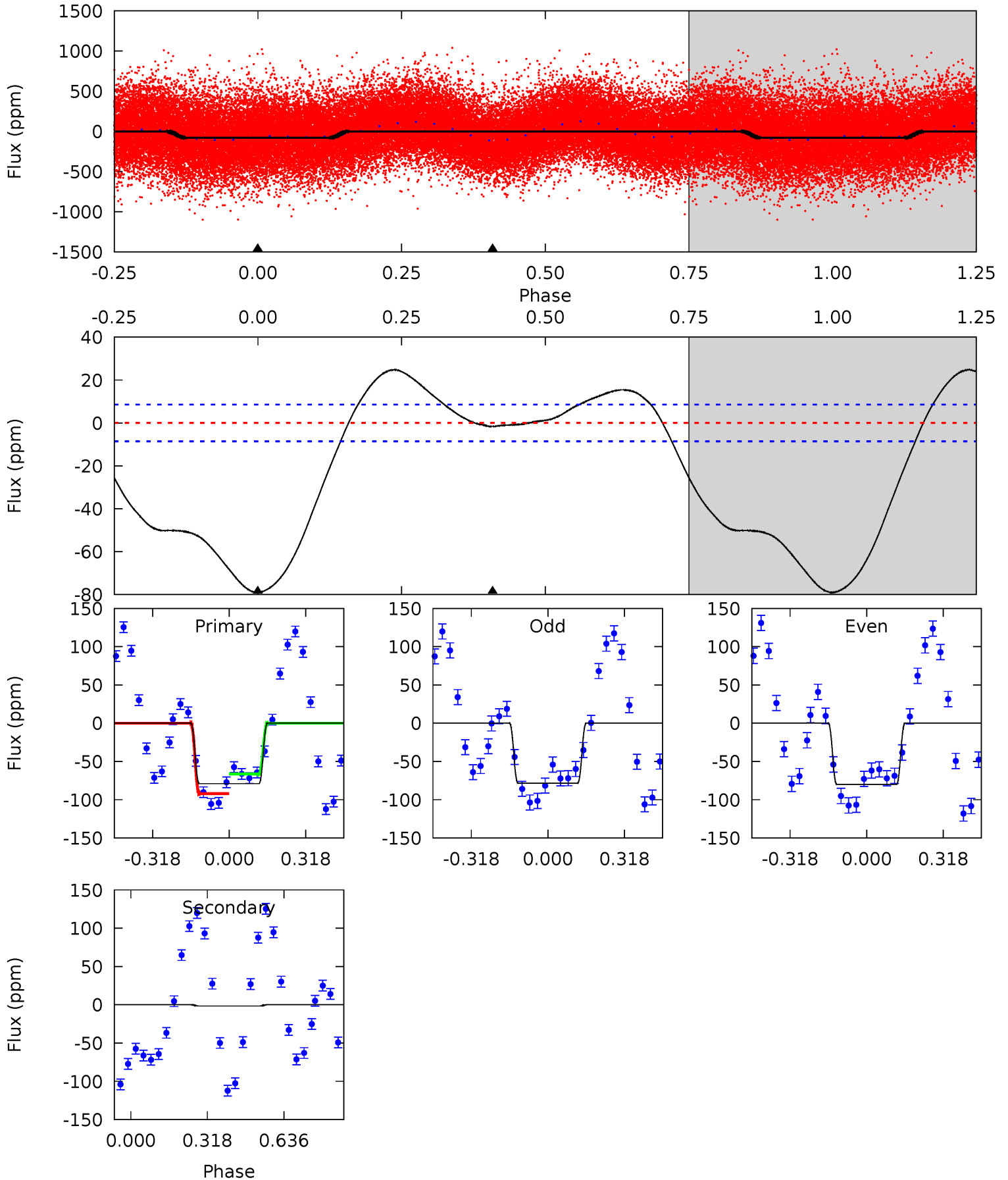
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	8.59	0	0	4.33	1.04	0.65	17.4	17.4	8.59	8.59	0.67	1.01	0.02	7.86



Alt Model-Shift Uniqueness Test

009786859-01, P = 1.058908 Days, E = 130.589183 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.9	0.84	0	0	4.32	1.00	6.67	39.9	39.9	0.84	0.84	0.44	0.98	0.24	6.28



Stellar Parameters For KIC 009786859

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6920^{+192}_{-288}	$4.253^{+0.087}_{-0.203}$	$-0.100^{+0.250}_{-0.350}$	$1.439^{+0.487}_{-0.209}$	$1.358^{+0.214}_{-0.214}$	$0.641^{+0.317}_{-0.340}$
	+3%/-4%	+2%/-5%	+250%/-350%	+34%/-15%	+16%/-16%	+49%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009786859-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-15 ± 2	$0.99^{+1.00}_{-0.68}$	3445^{+279}_{-188}	5455^{+5122}_{-1500}	$4.201^{+40.016}_{-3.137}$
Alt.	-2 ± 2	$1.56^{+1.21}_{-0.96}$	3451^{+282}_{-195}	-2994^{+7018}_{-506}	$0.165^{+1.021}_{-0.198}$

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 $A_{obs} \gg 1.0$

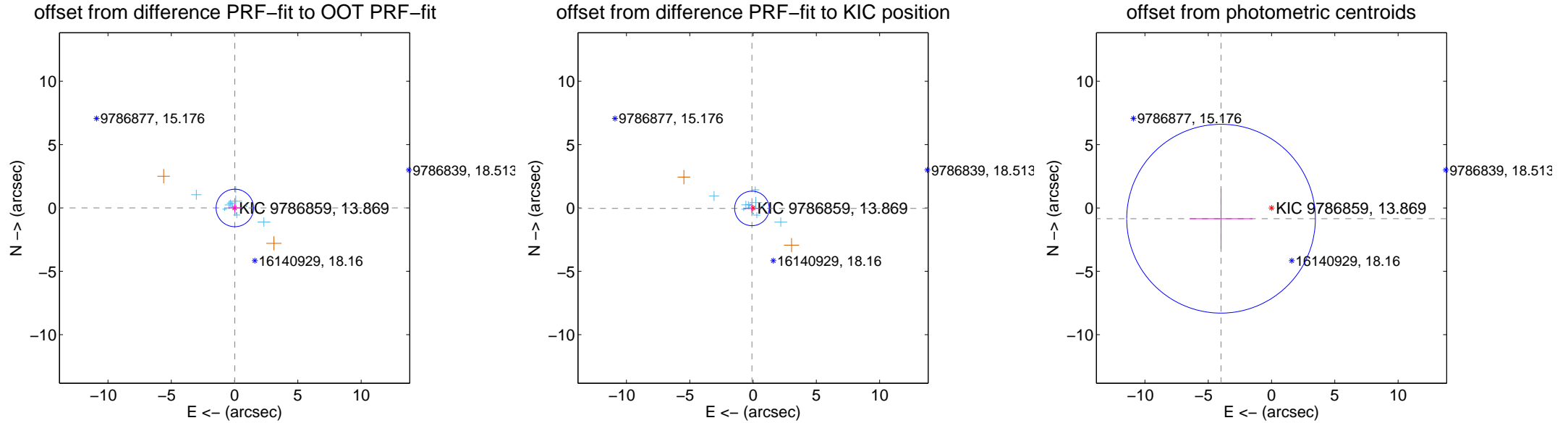
DV Centroid Data

Supplemental centroid analysis for 009786859-01. Kepler magnitude: 13.87. Transit SNR 3.77

There are 12 quarters with good PRF difference image offsets

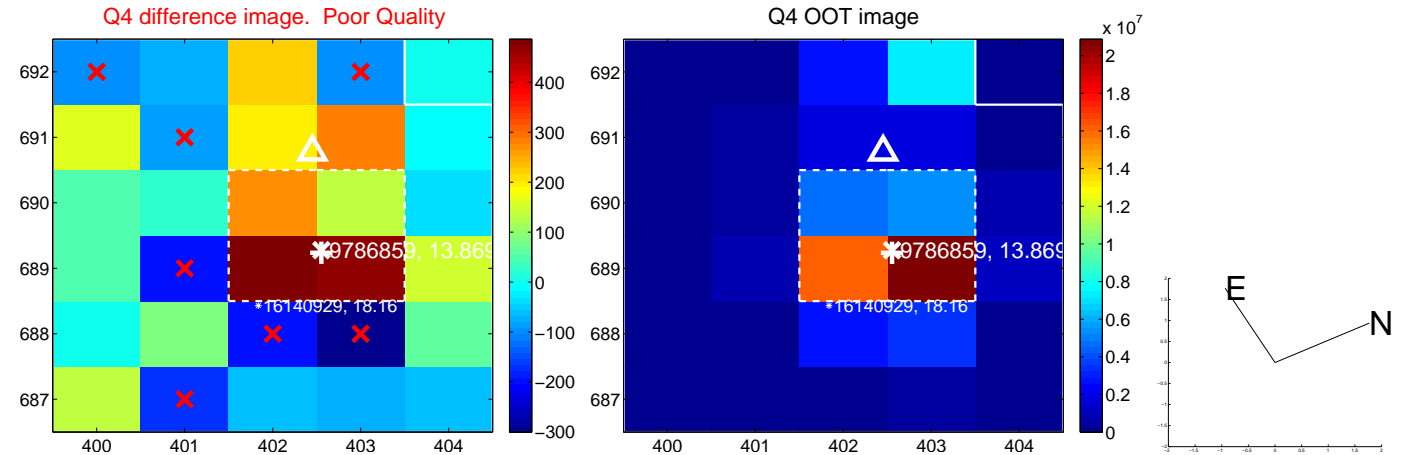
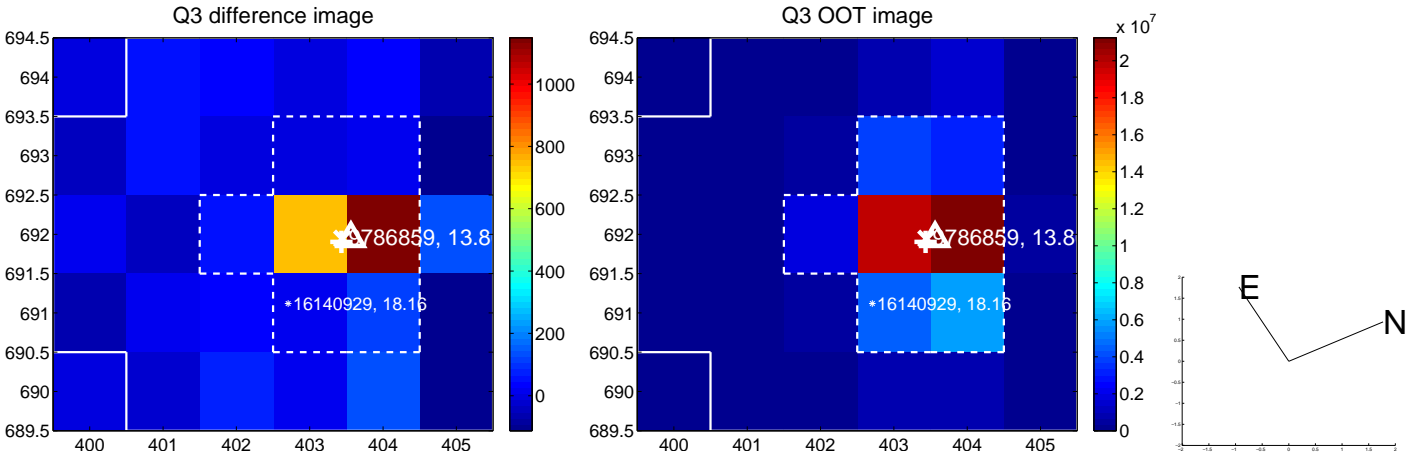
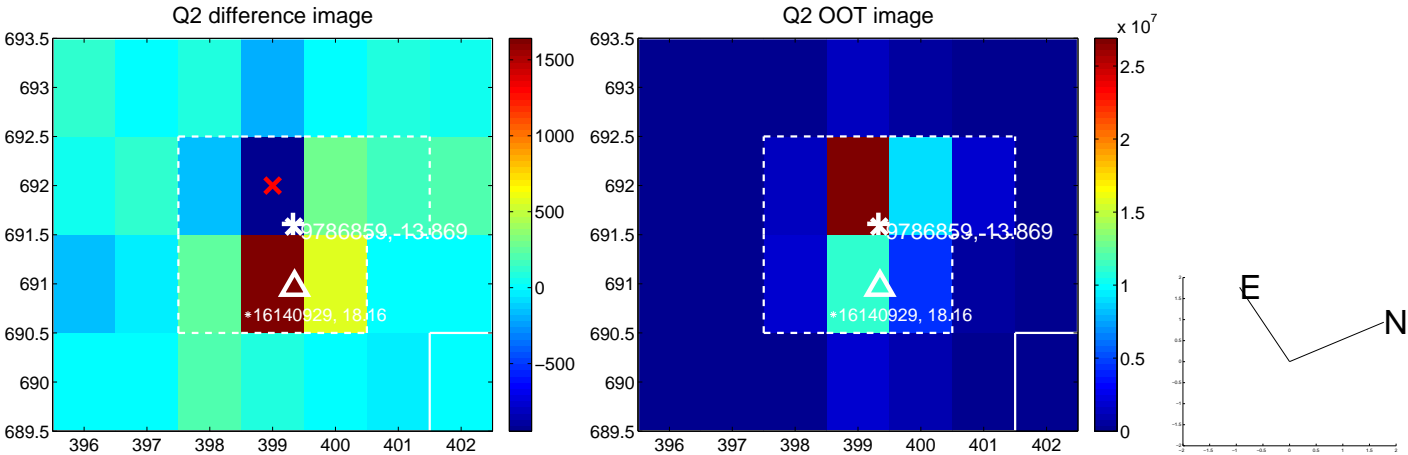
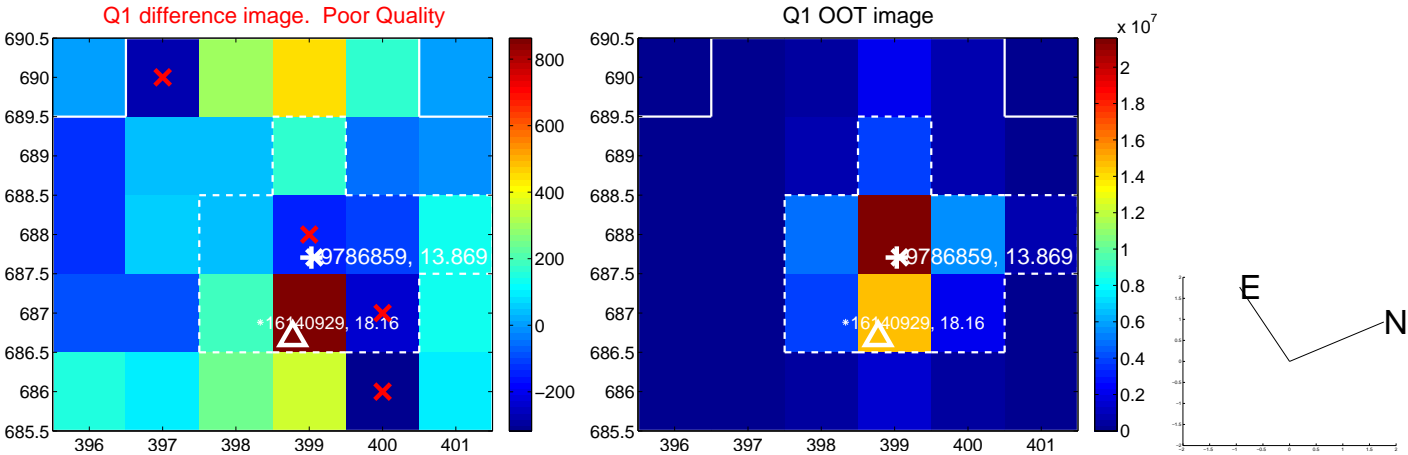
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.019 ± 0.493	0.04	-0.019 ± 0.503	0.001 ± 0.319
PRF-fit source offset from KIC position	0.098 ± 0.454	0.22	0.091 ± 0.610	-0.037 ± 0.356
photometric centroid source offset	4.08 ± 2.48	1.64	3.99 ± 2.49	-0.85 ± 2.39

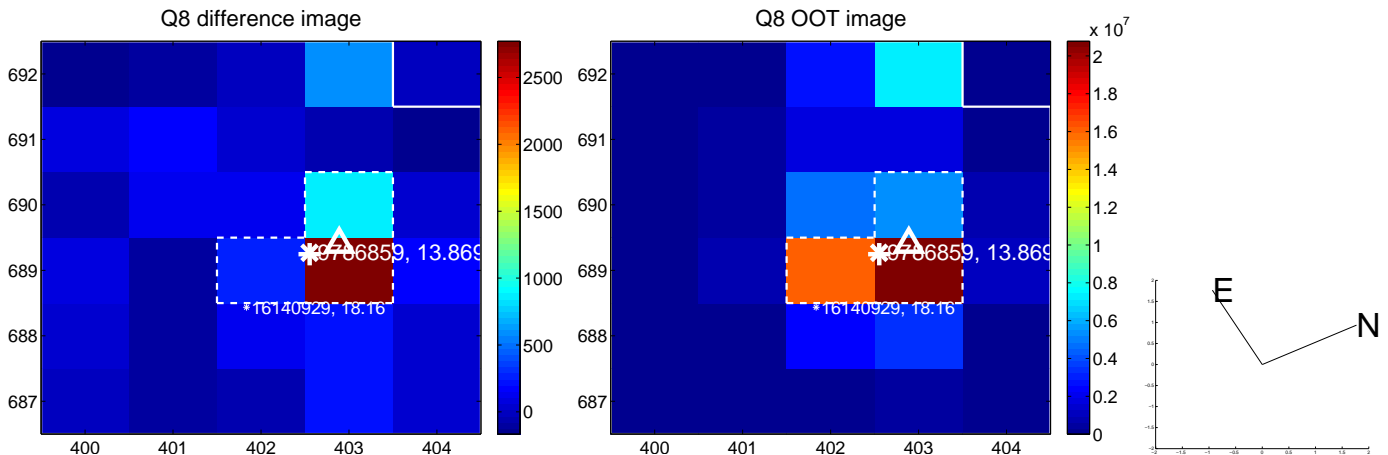
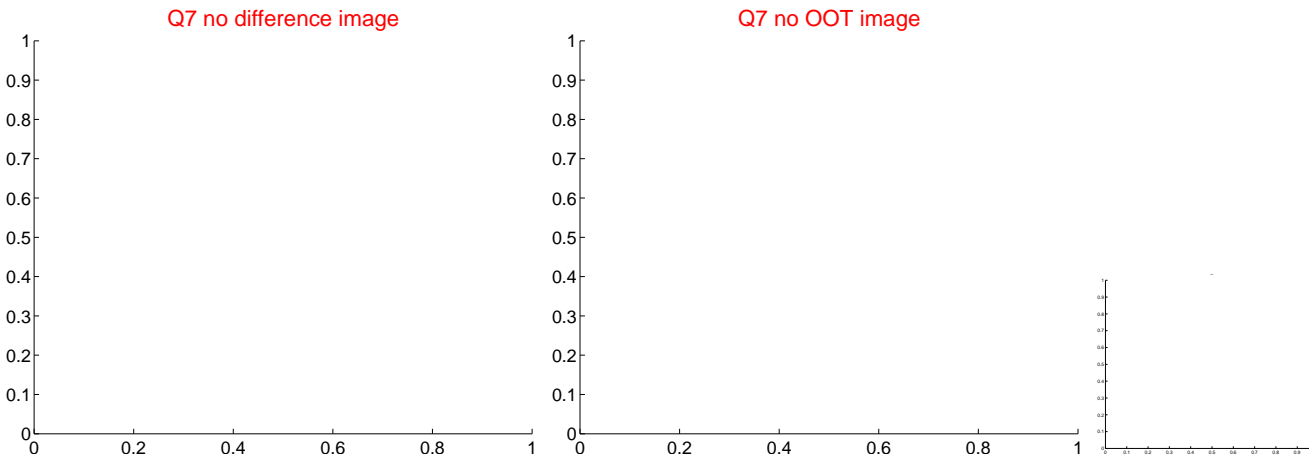
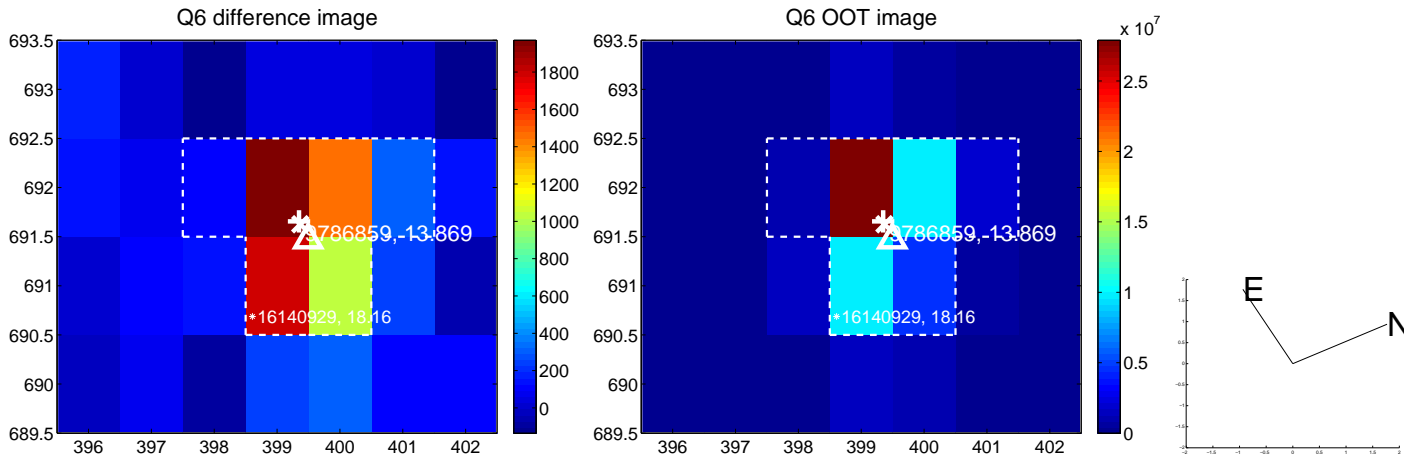
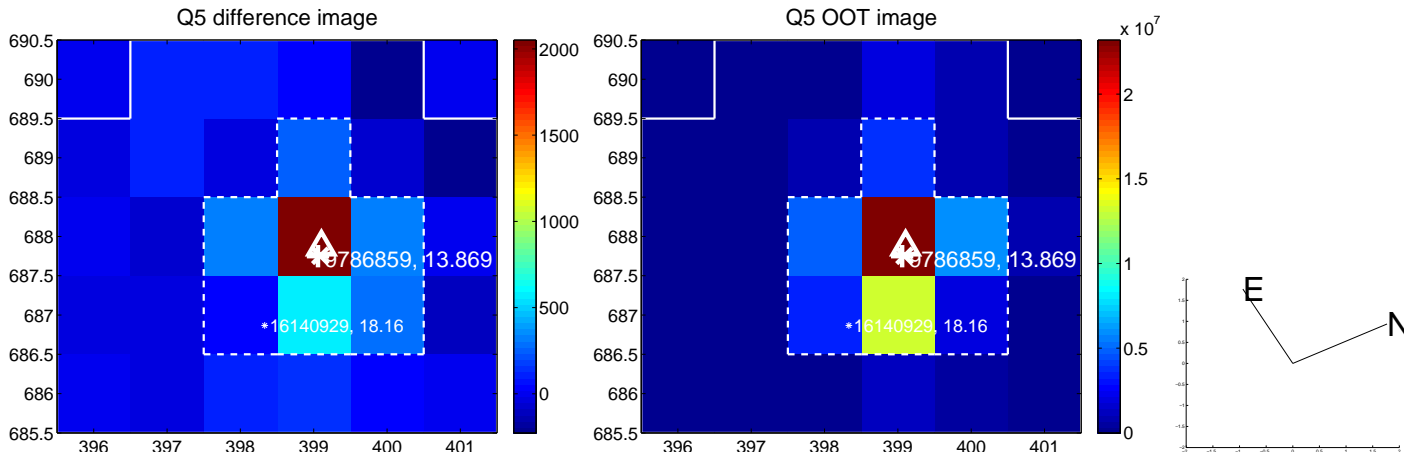


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

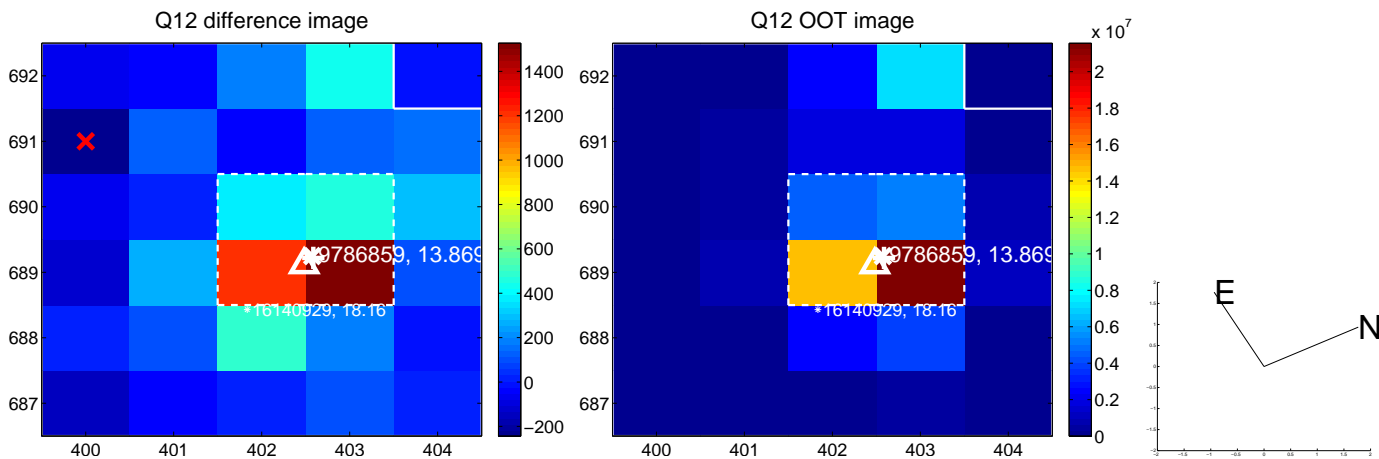
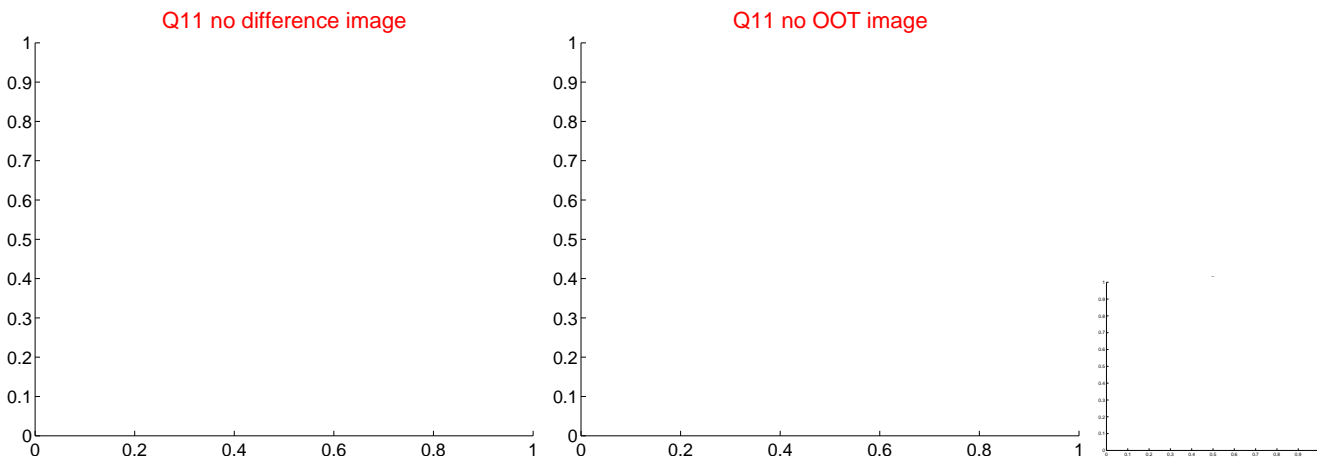
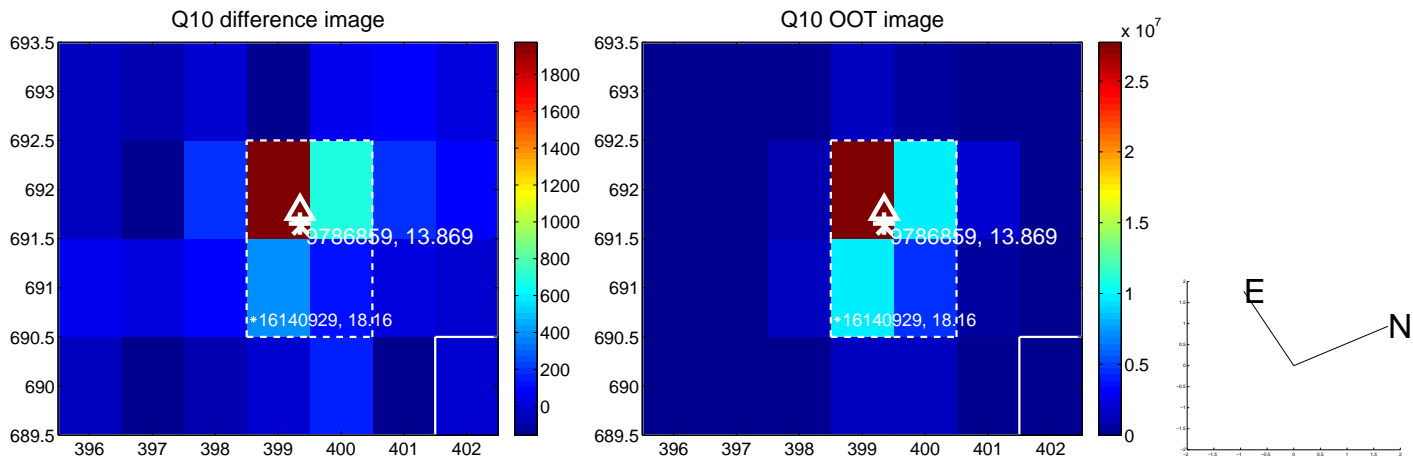
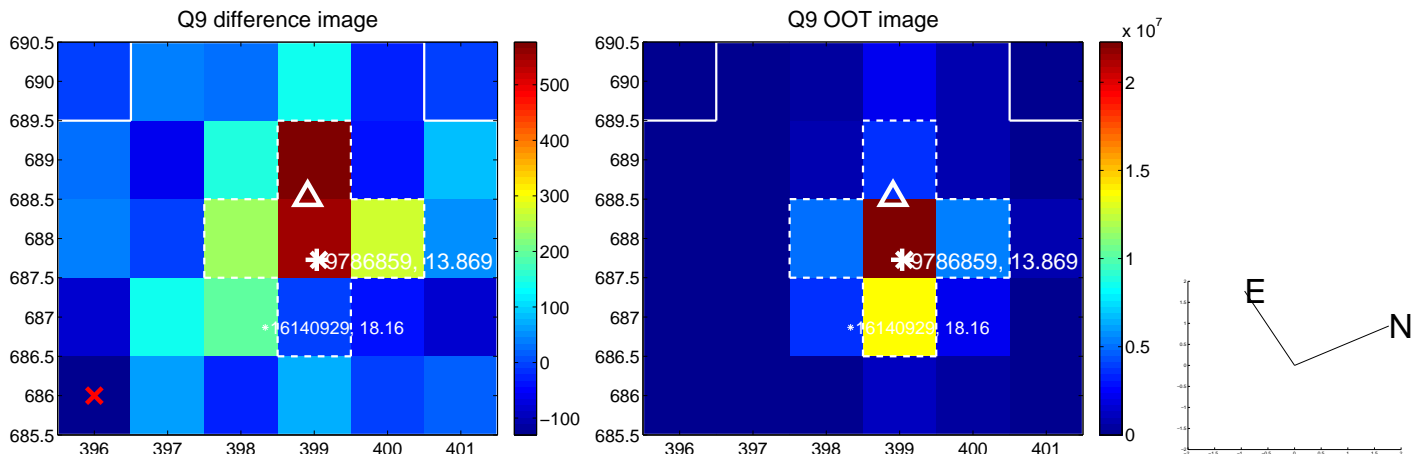
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



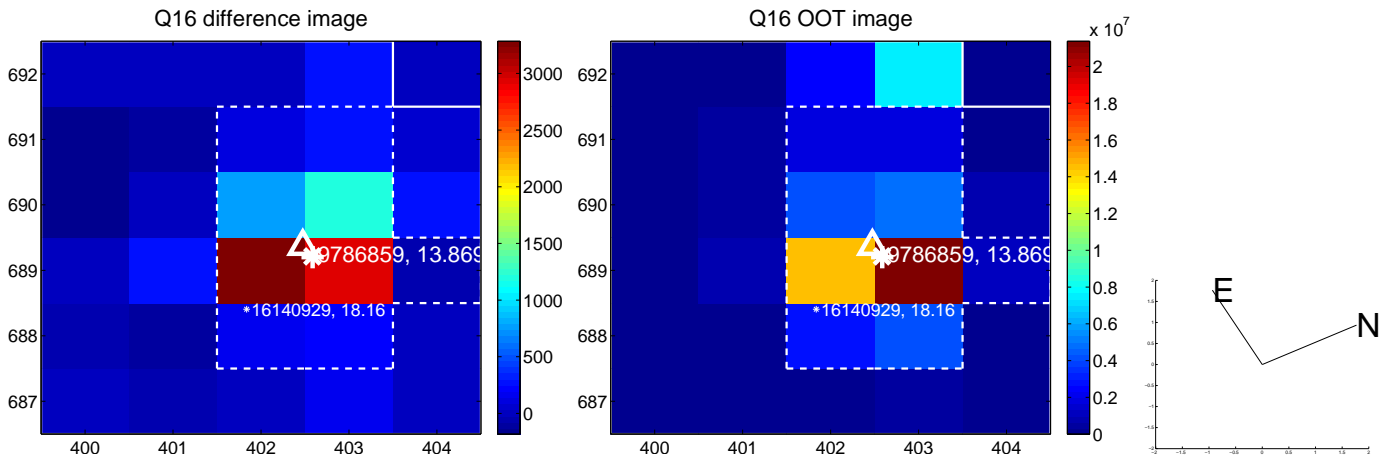
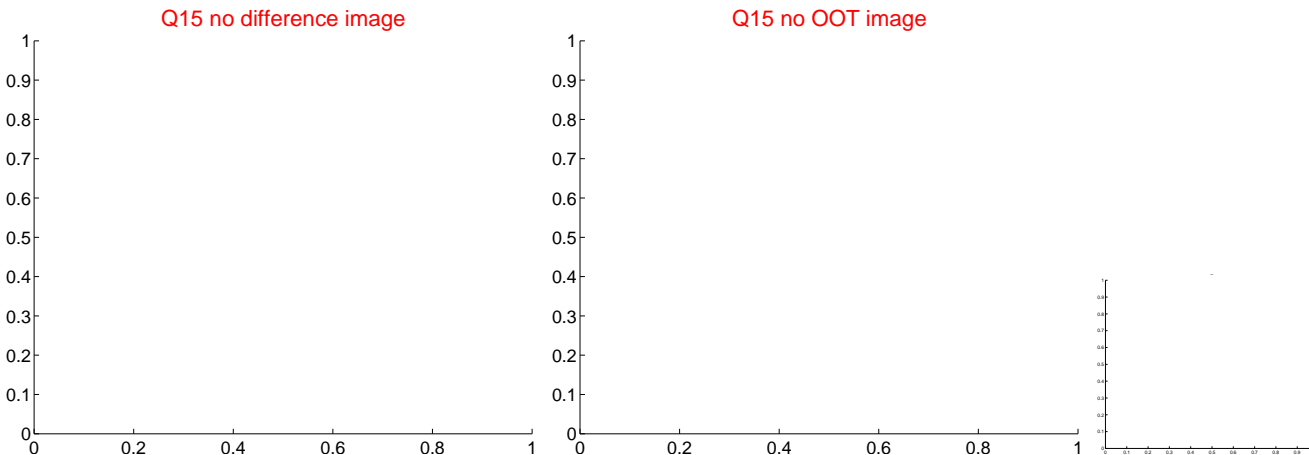
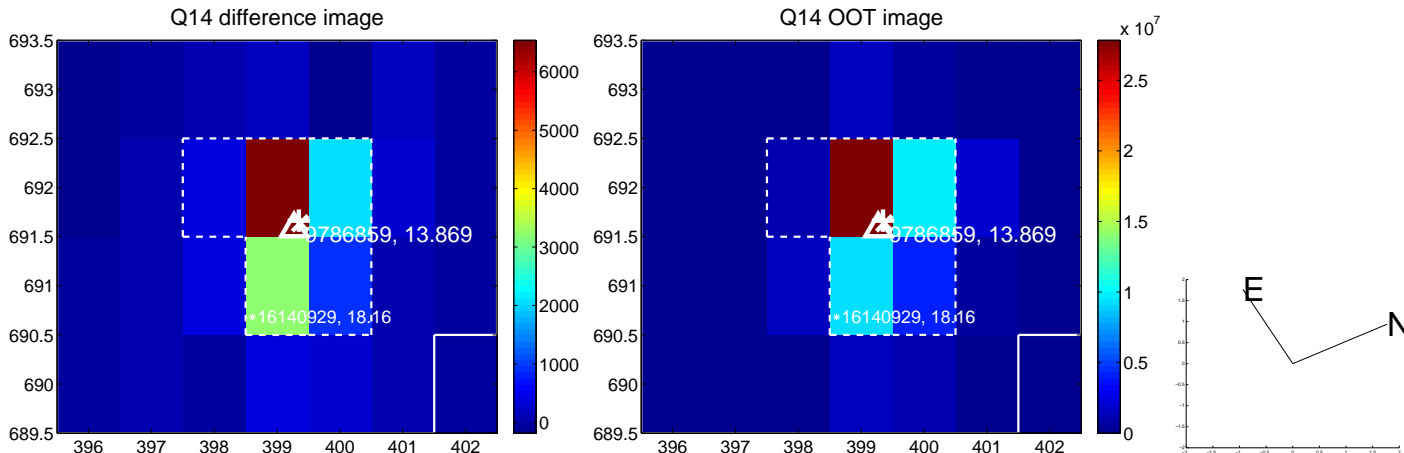
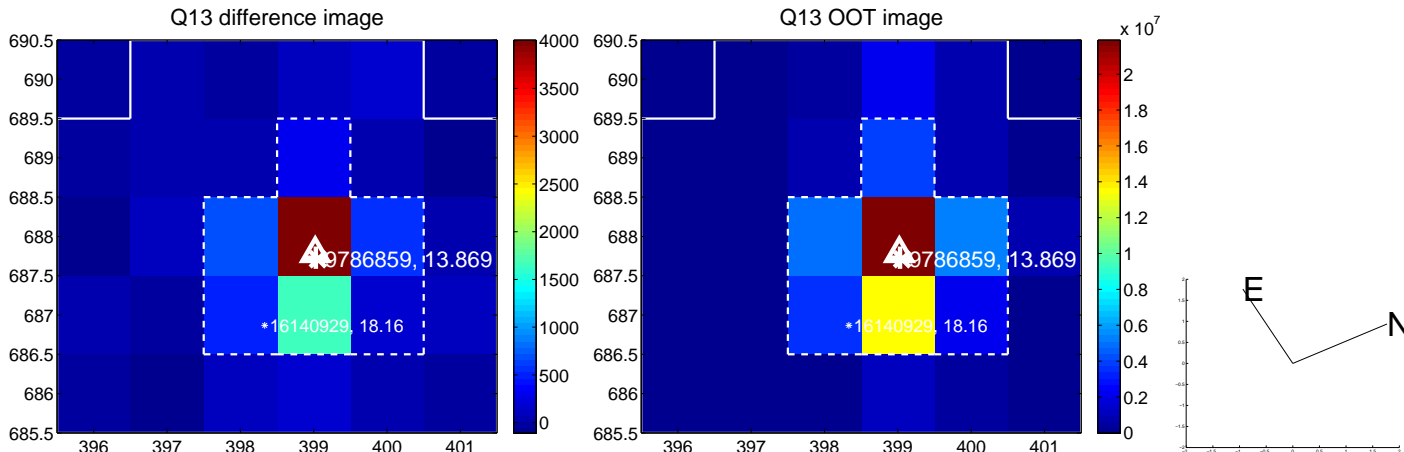
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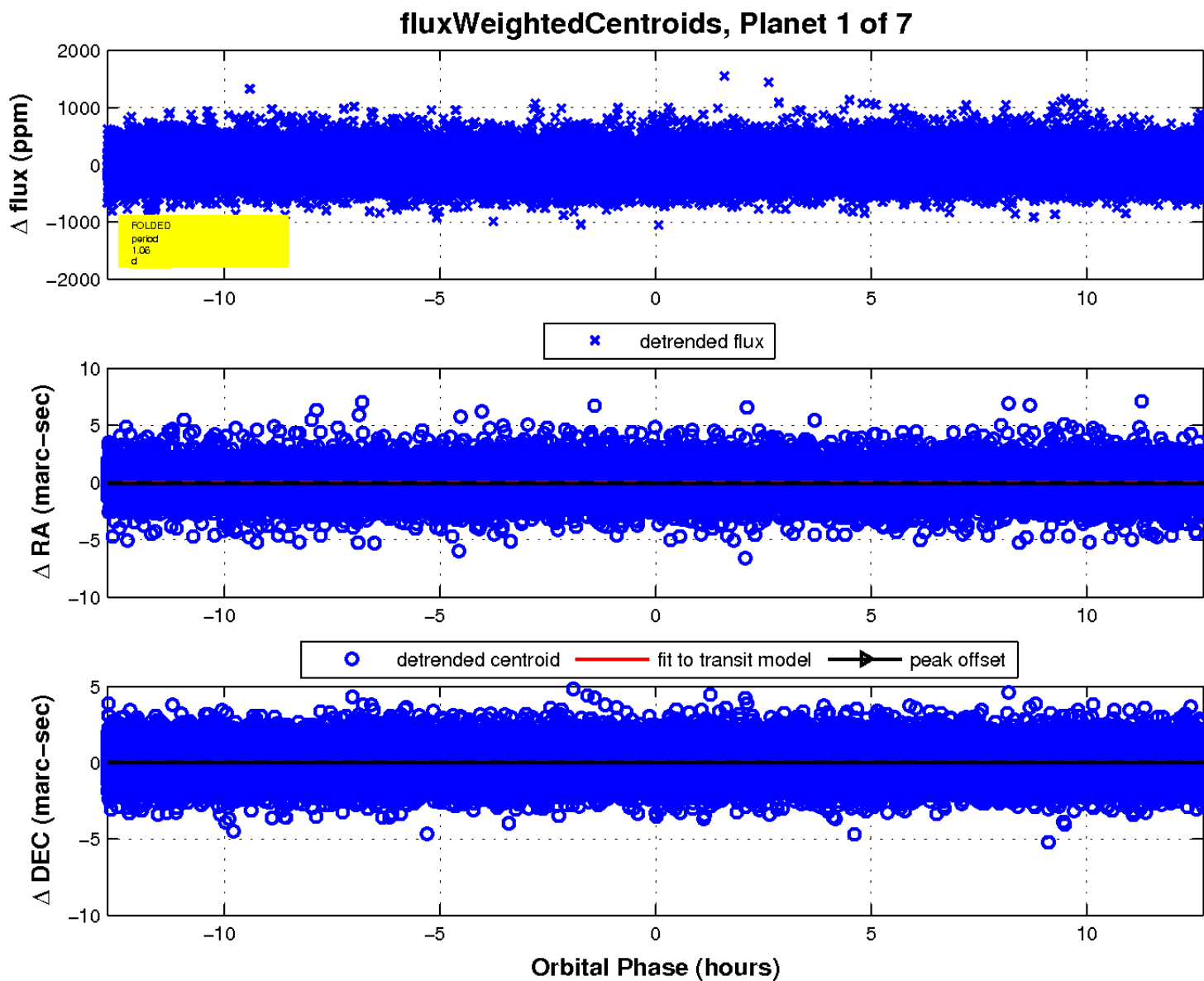
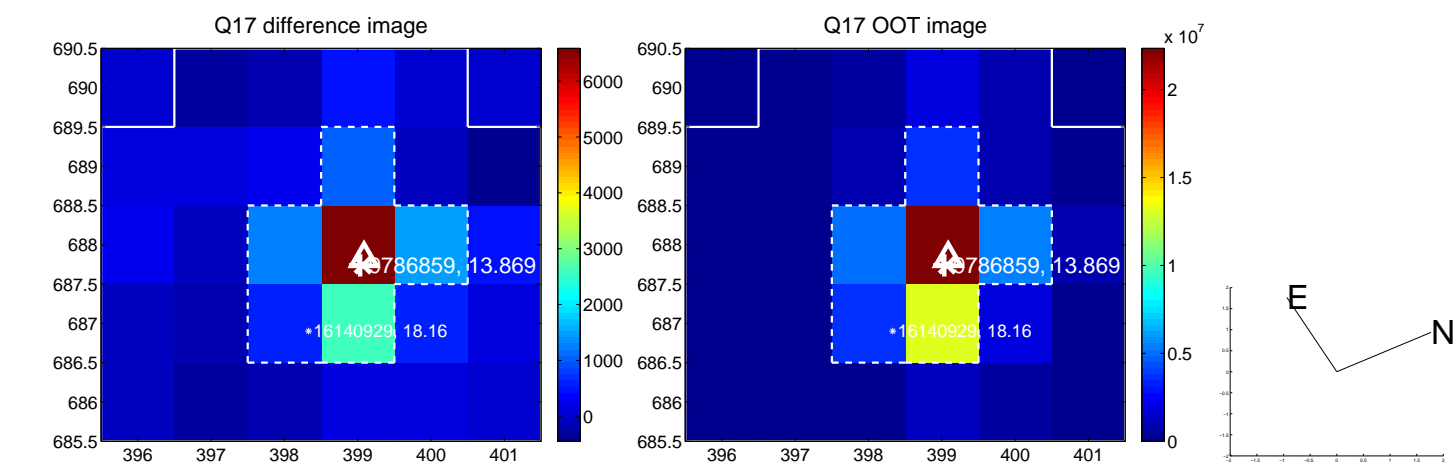
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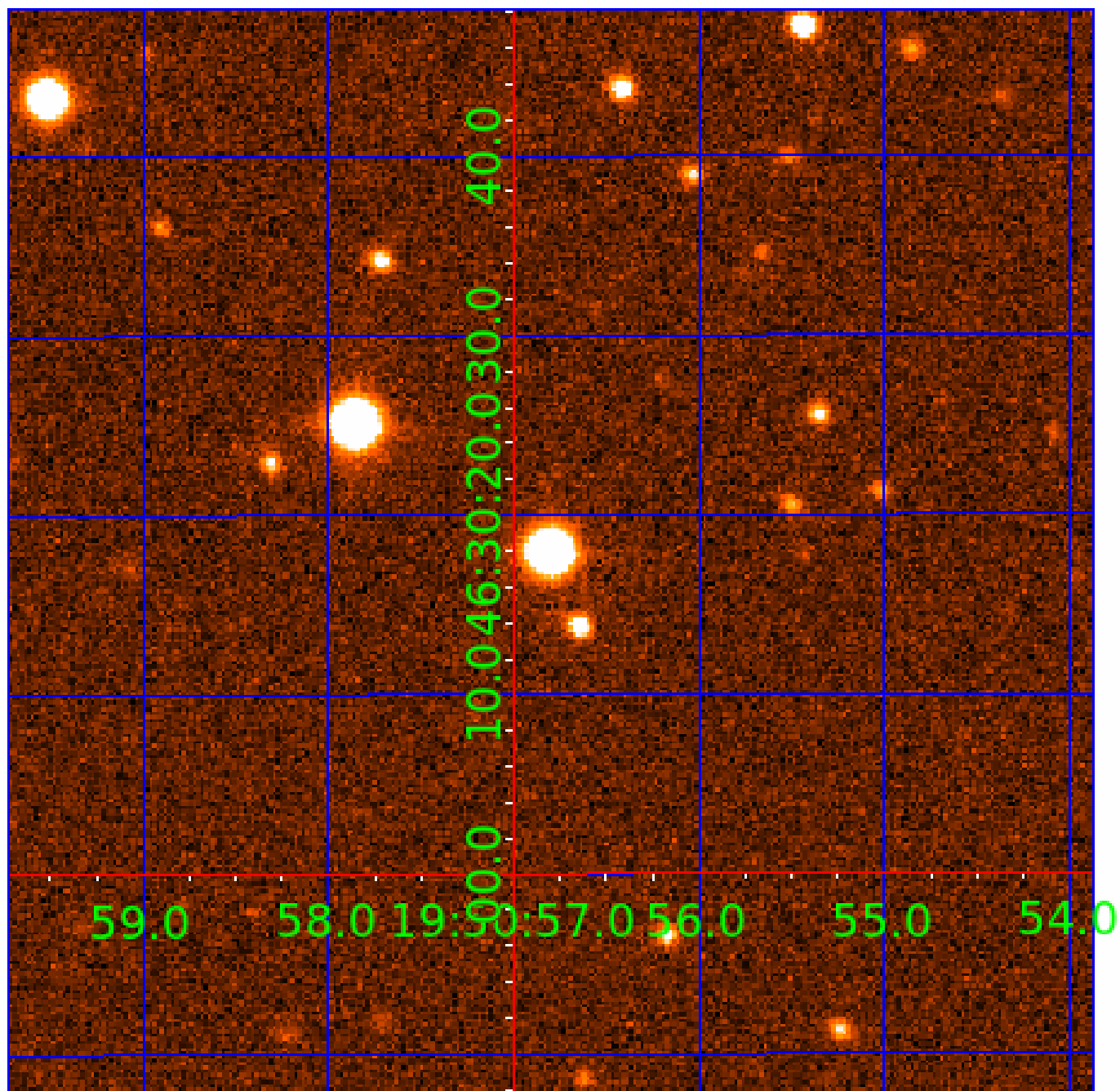


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009786859

Q1-17 DR25 TCE Parameters

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Robovetter Results

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009786859-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV
009786859-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_MEAS
009786859-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009786859-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009786859-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS—HALO_GHOST

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

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

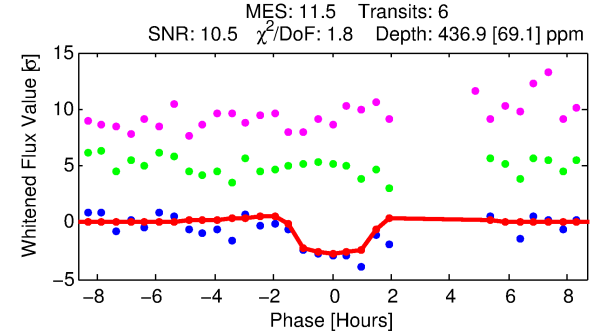
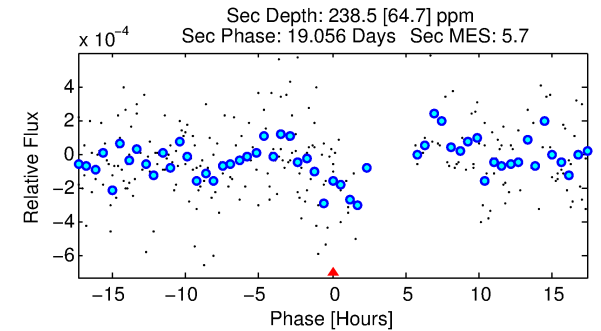
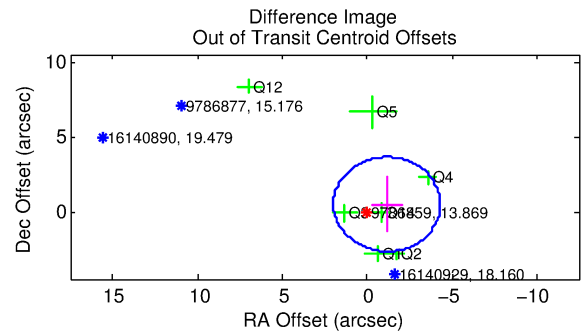
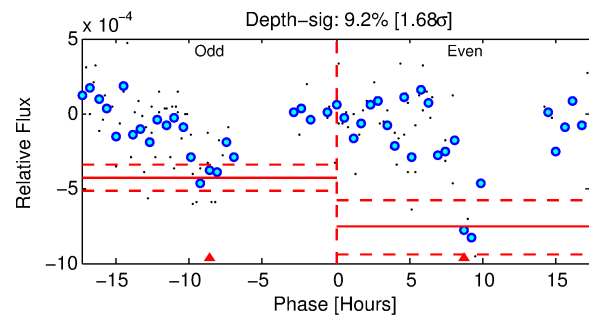
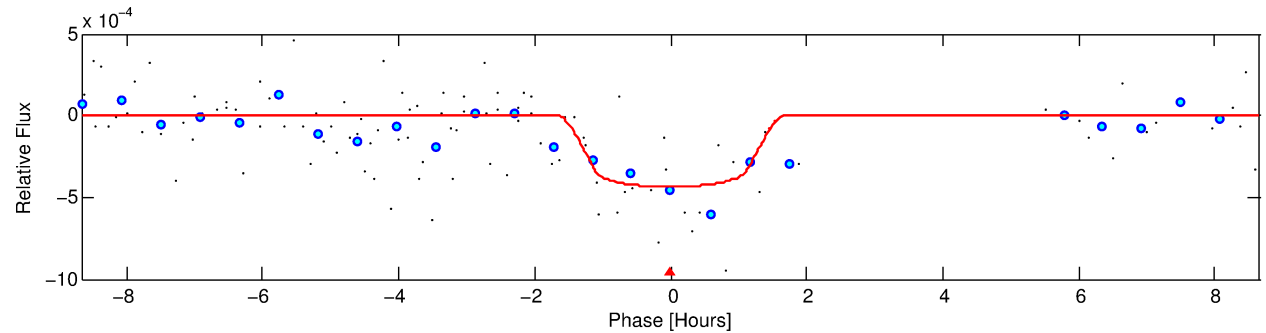
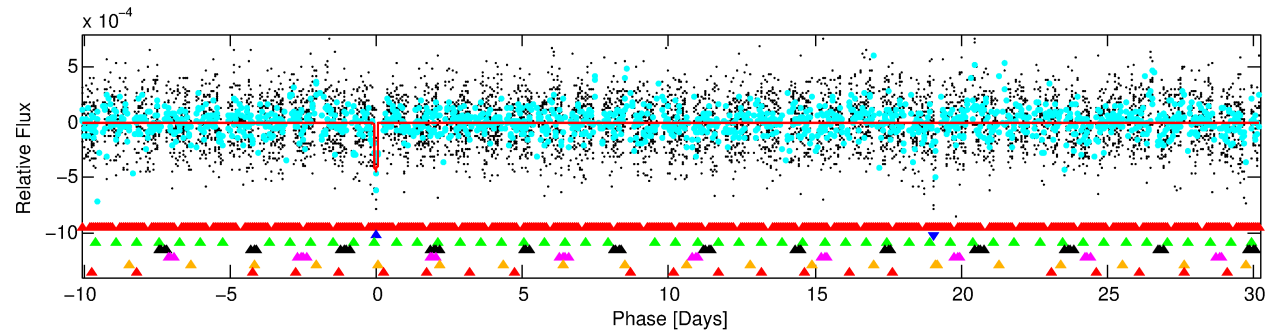
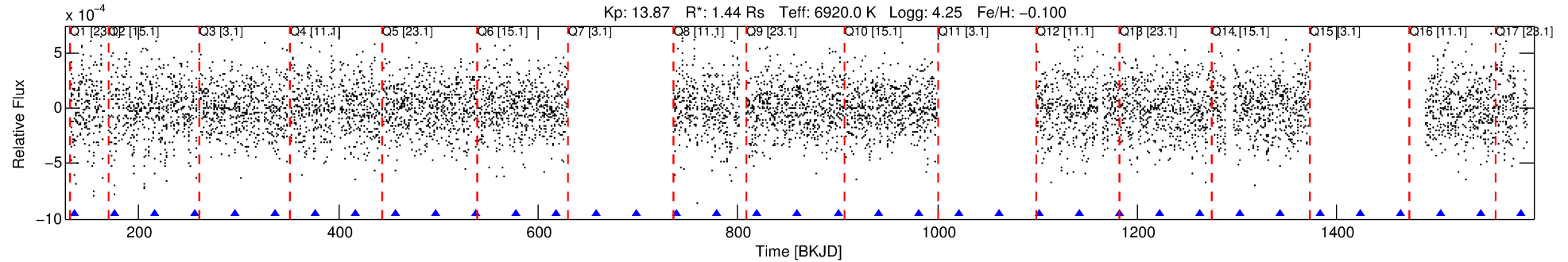
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009786859-02

No Significant Match Found

DV One-Page Summary

KIC: 9786859 Candidate: 2 of 7 Period: 40.260 d



DV Fit Results:

Period = 40.25972 [0.00280] d
Epoch = 135.3361 [0.0080] BKJD
Rp/R* = 0.0217 [0.0119]
a/R* = 59.64 [192.68]
b = 0.85 [1.02]
Seff = 65.80 [27.58]
Teq = 726 [76] K
Rp = 3.40 [2.20] Re
a = 0.2543 [0.0697] AU
Ag = 733.30 [879.20] [0.83 σ]
Teffp = 5843 [1677] K [3.05 σ]

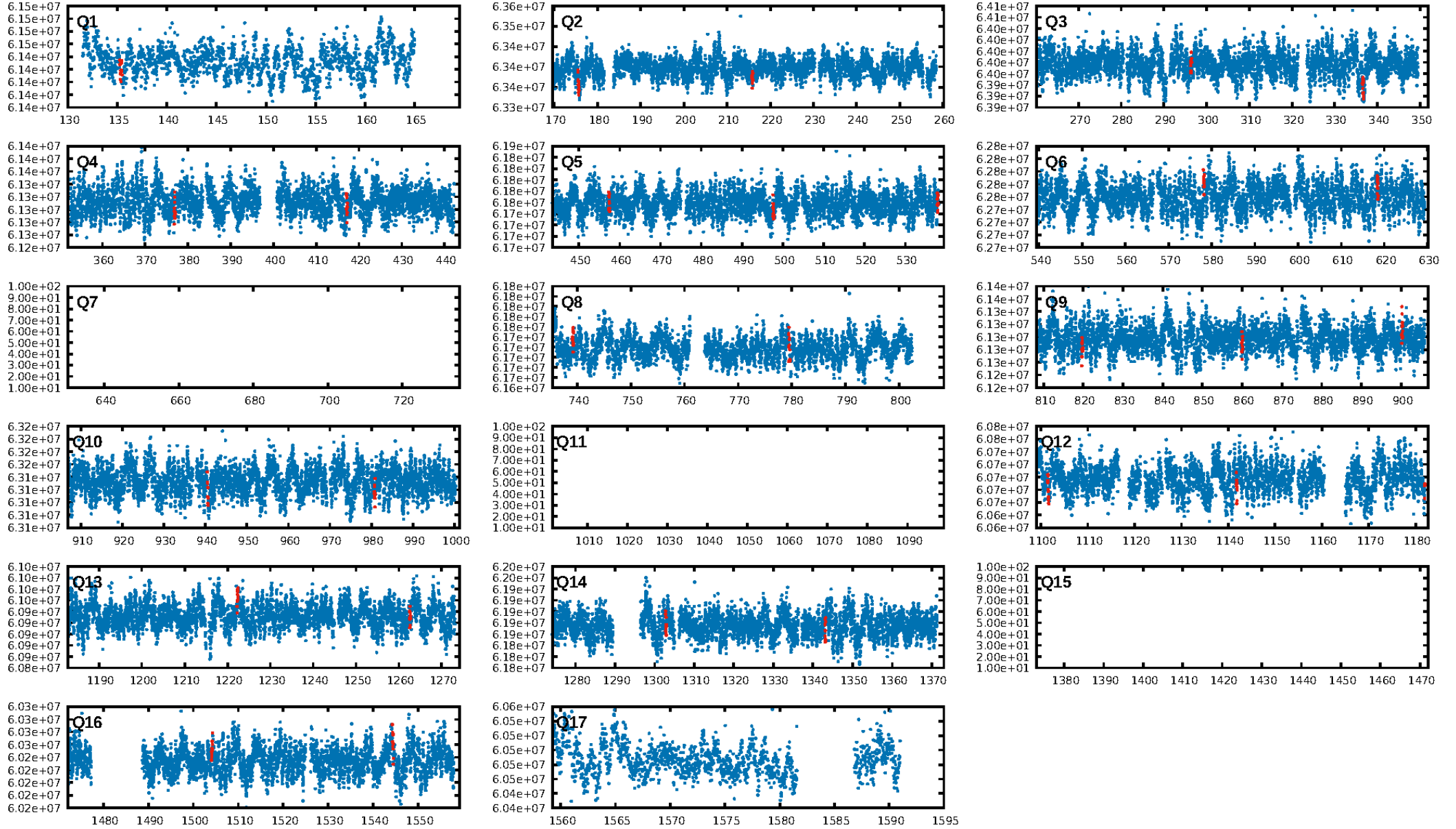
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [69.84 σ]
LongPeriod-sig: 100.0% [53.20 σ]
ModelChiSquare2-sig: 24.6%
ModelChiSquareGof-sig: 93.5%
Bootstrap-pfa: 5.75e-14
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -5.51
Centroid-sig: 40.0%
Centroid-so: 0.472 arcsec [0.86 σ]
OotOffset-rm: 1.265 arcsec [1.20 σ]
OotOffset-st: 2/1/2/2 [7]
KicOffset-rm: 1.100 arcsec [1.09 σ]
KicOffset-st: 2/1/2/2 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.15 [2/13]

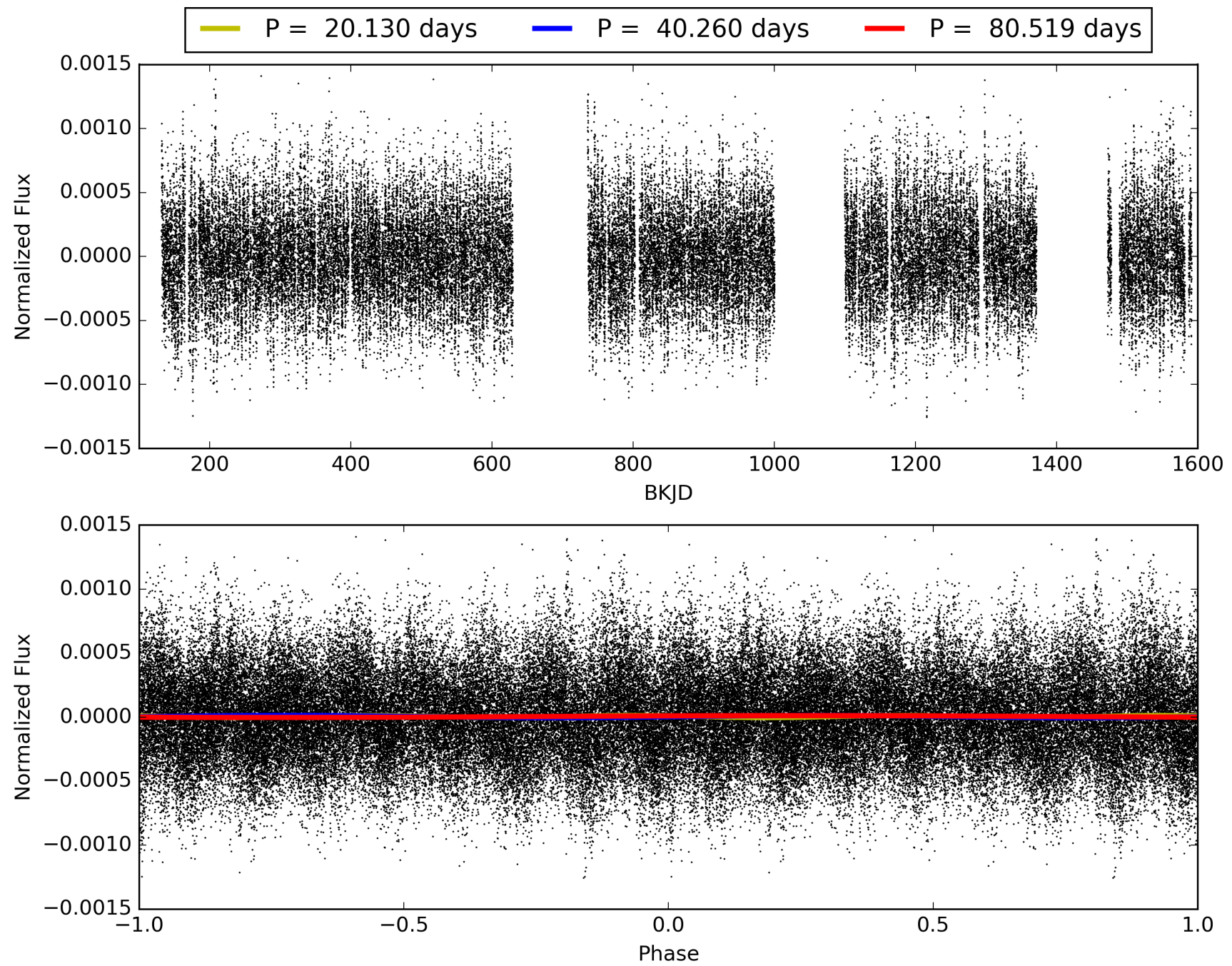
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:25:52 Z

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

TCE 009786859-02, PDC Light Curves

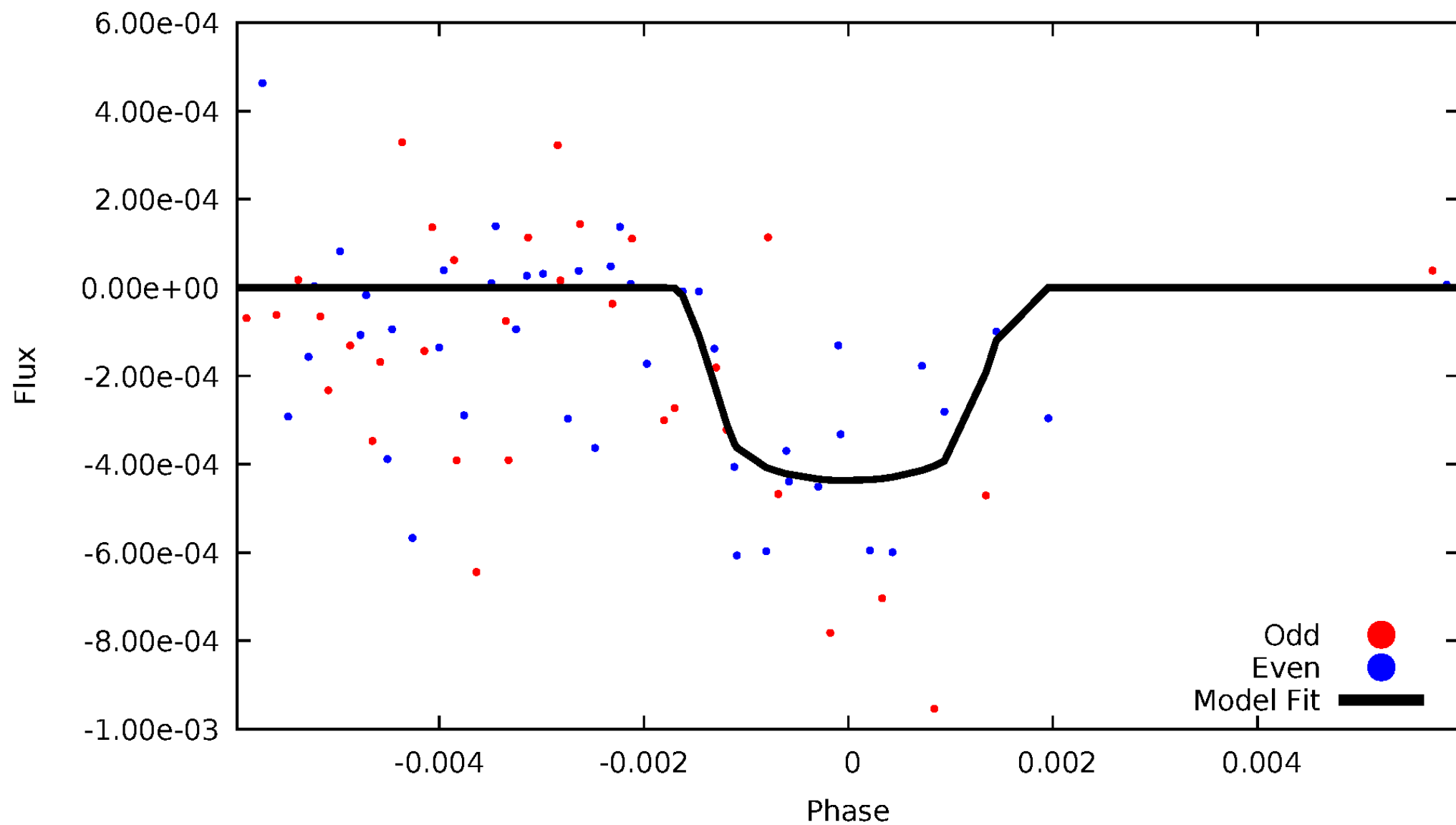


TCE 009786859-02



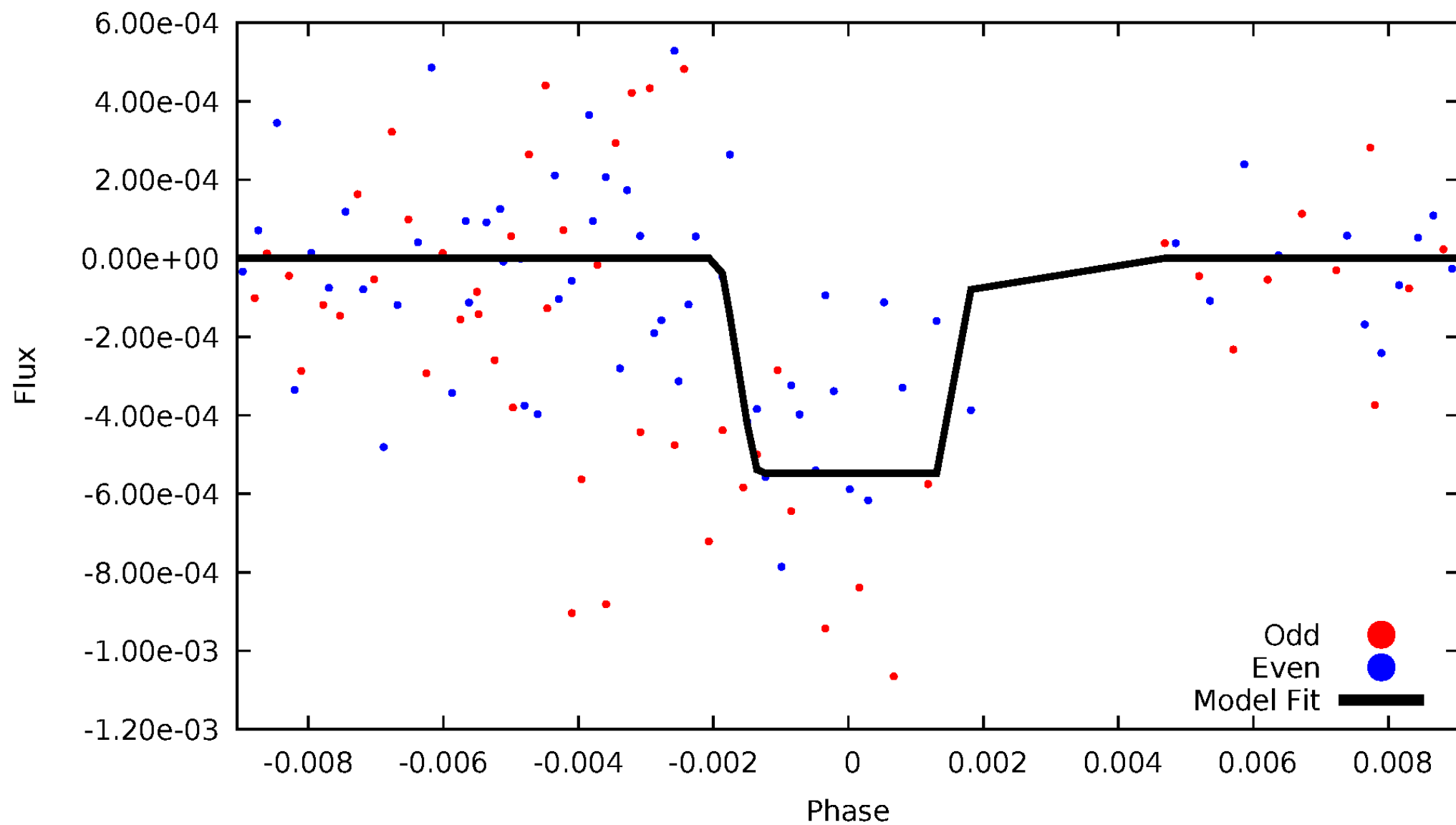
DV Odd/Even

TCE 009786859-02



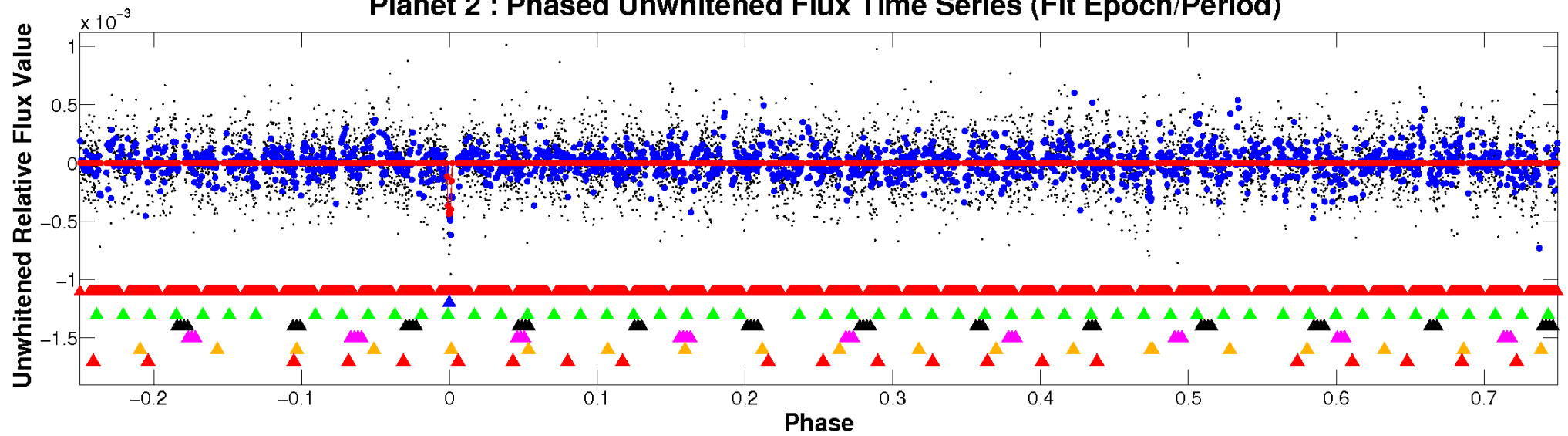
ALT Odd/Even

TCE 009786859-02

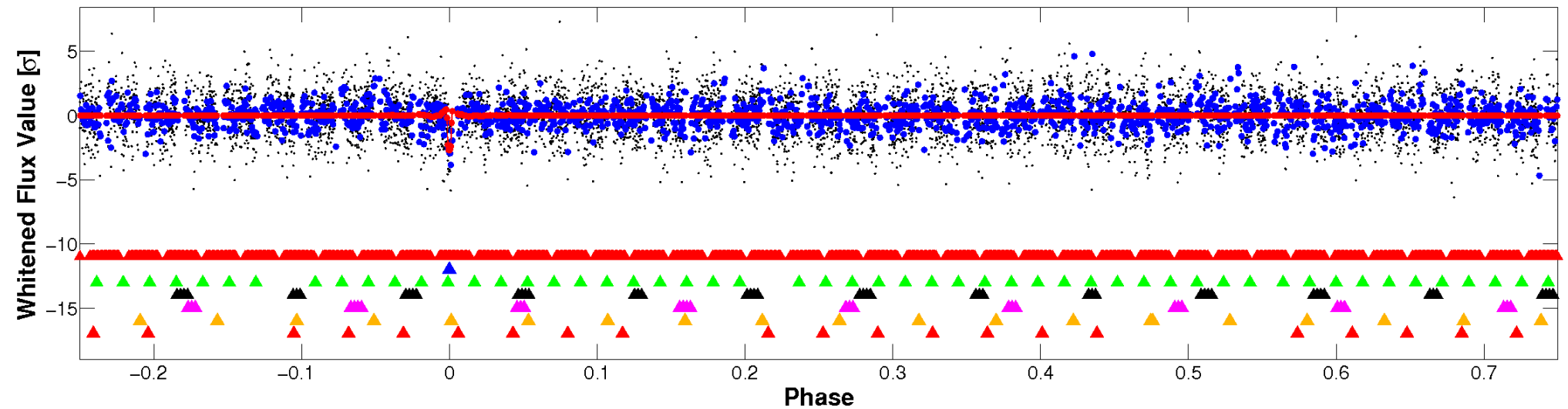


Non-Whitened Vs. Whitened Light Curve

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

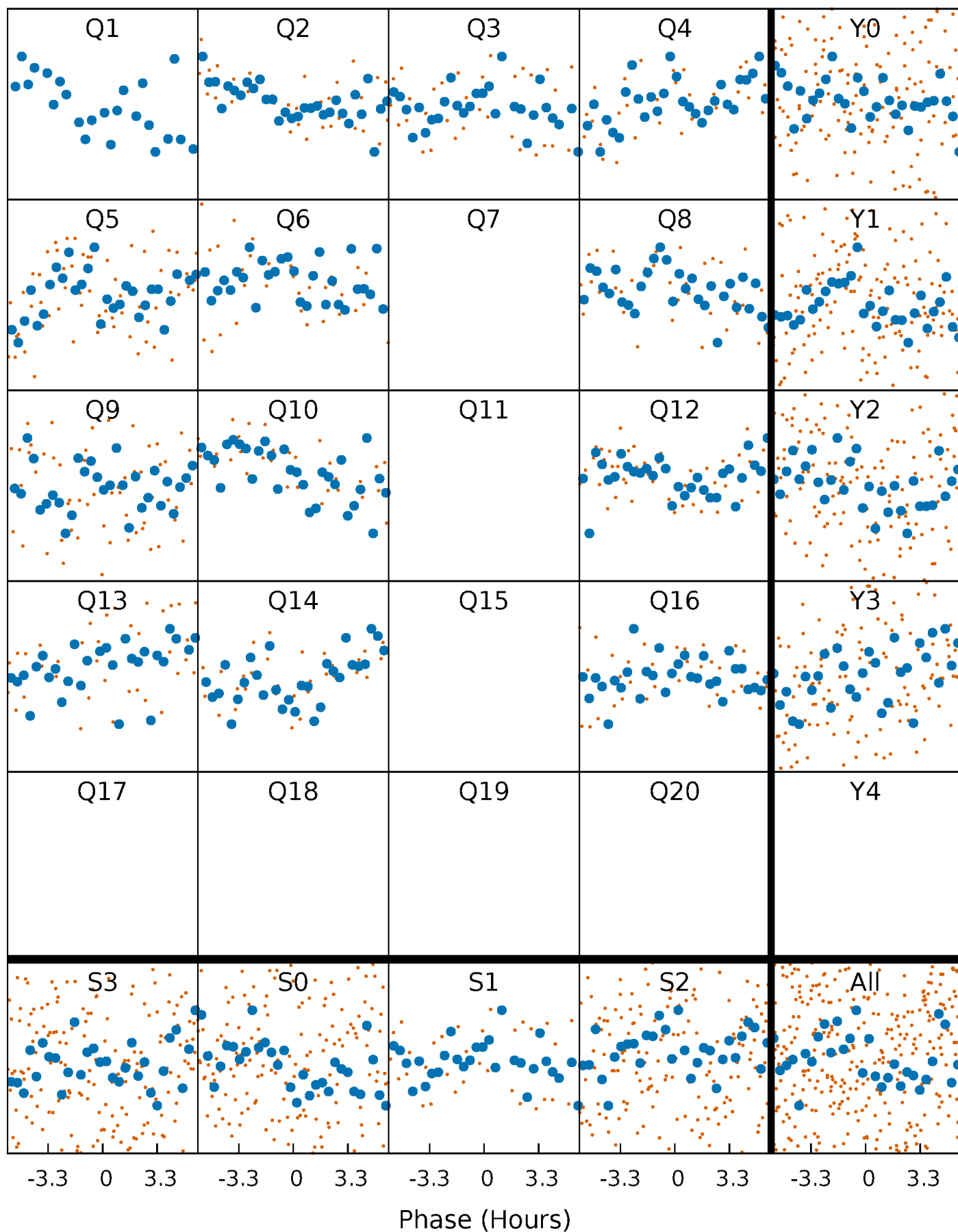


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



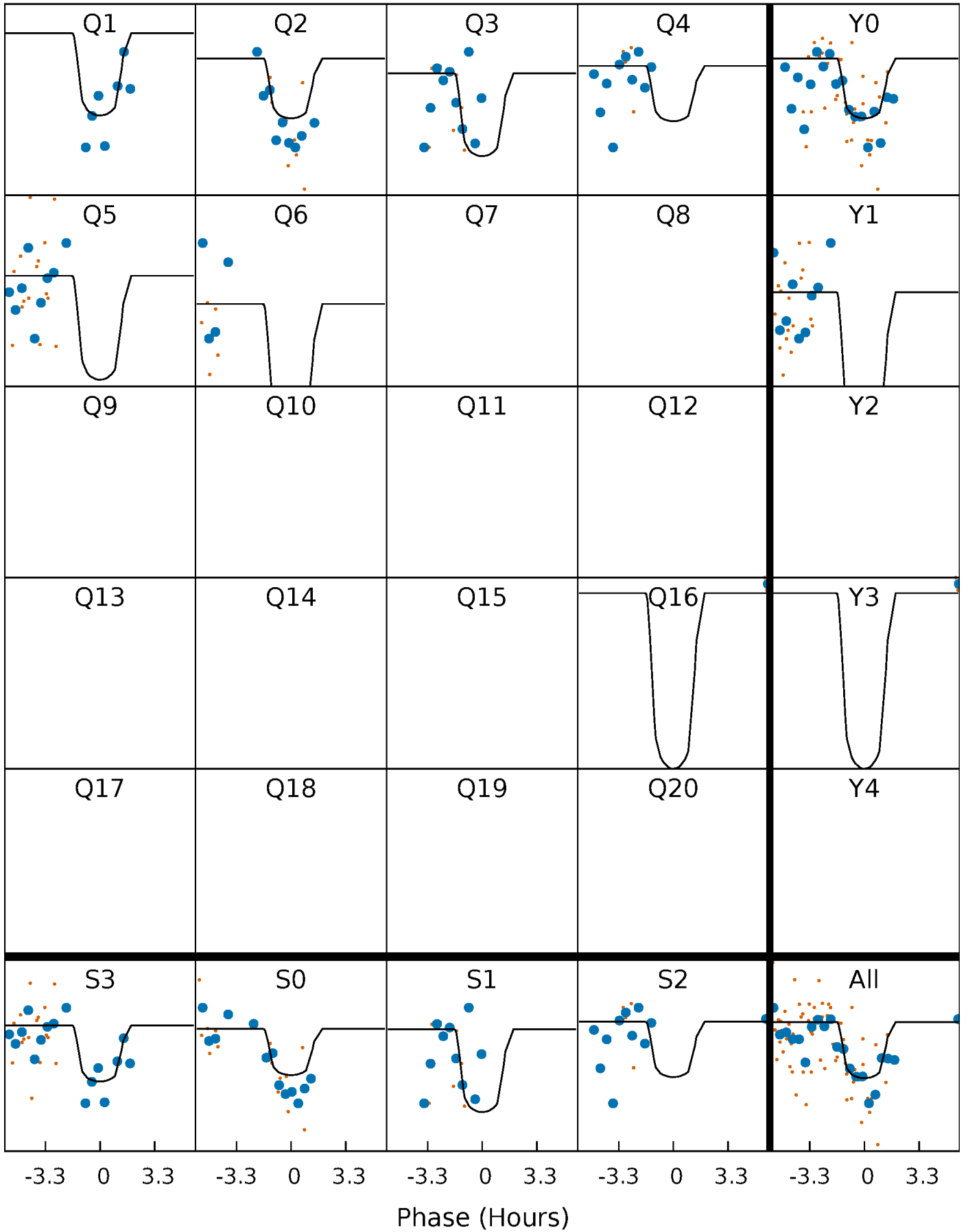
PDC Quarter-Phased Transit Curves

TCE 009786859-02 P= 40.259719 Days $T_0=135.336066$ (BKJD)



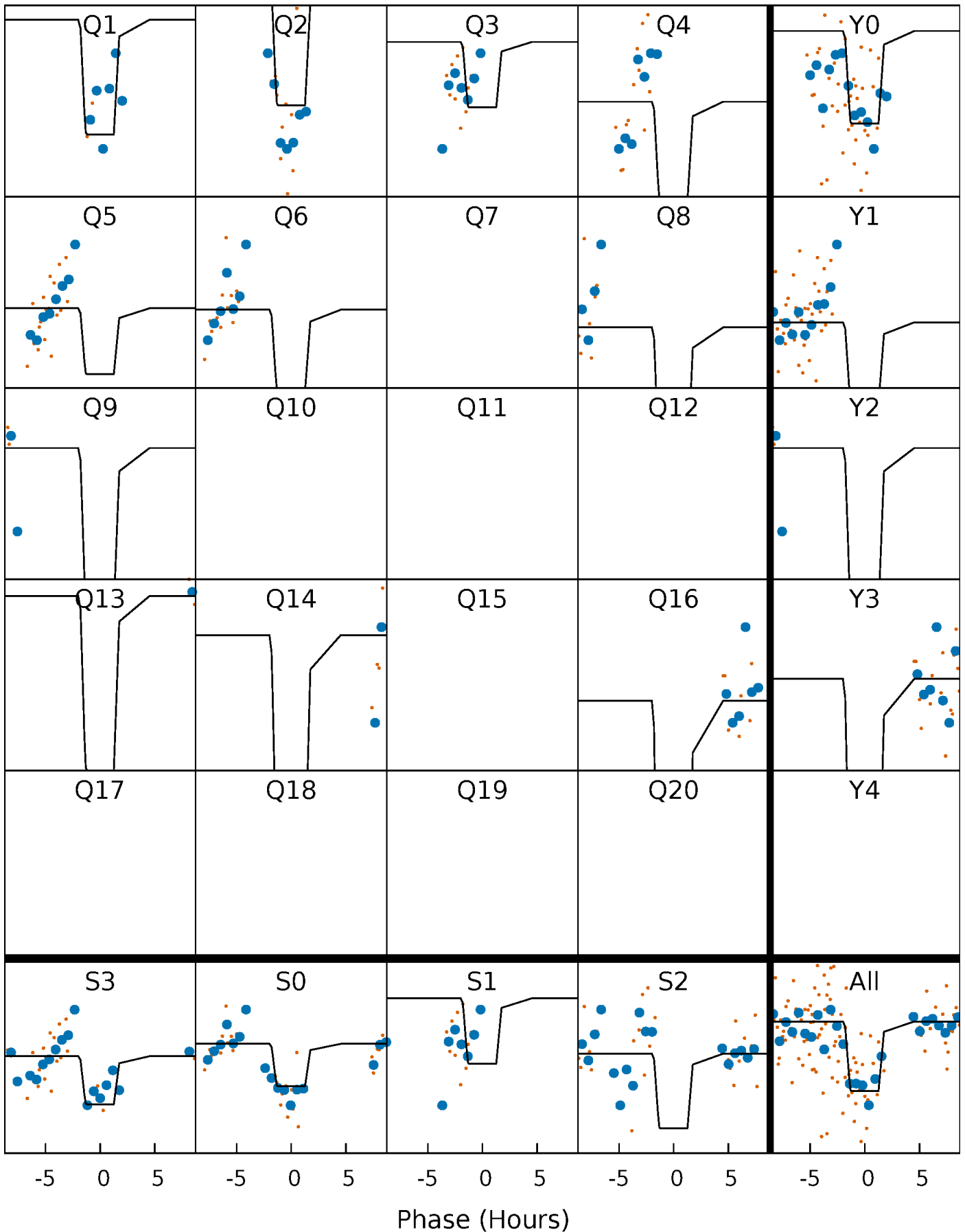
DV Quarter-Phased Transit Curves

TCE 009786859-02 $P = 40.259719$ Days $T_0 = 135.336066$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

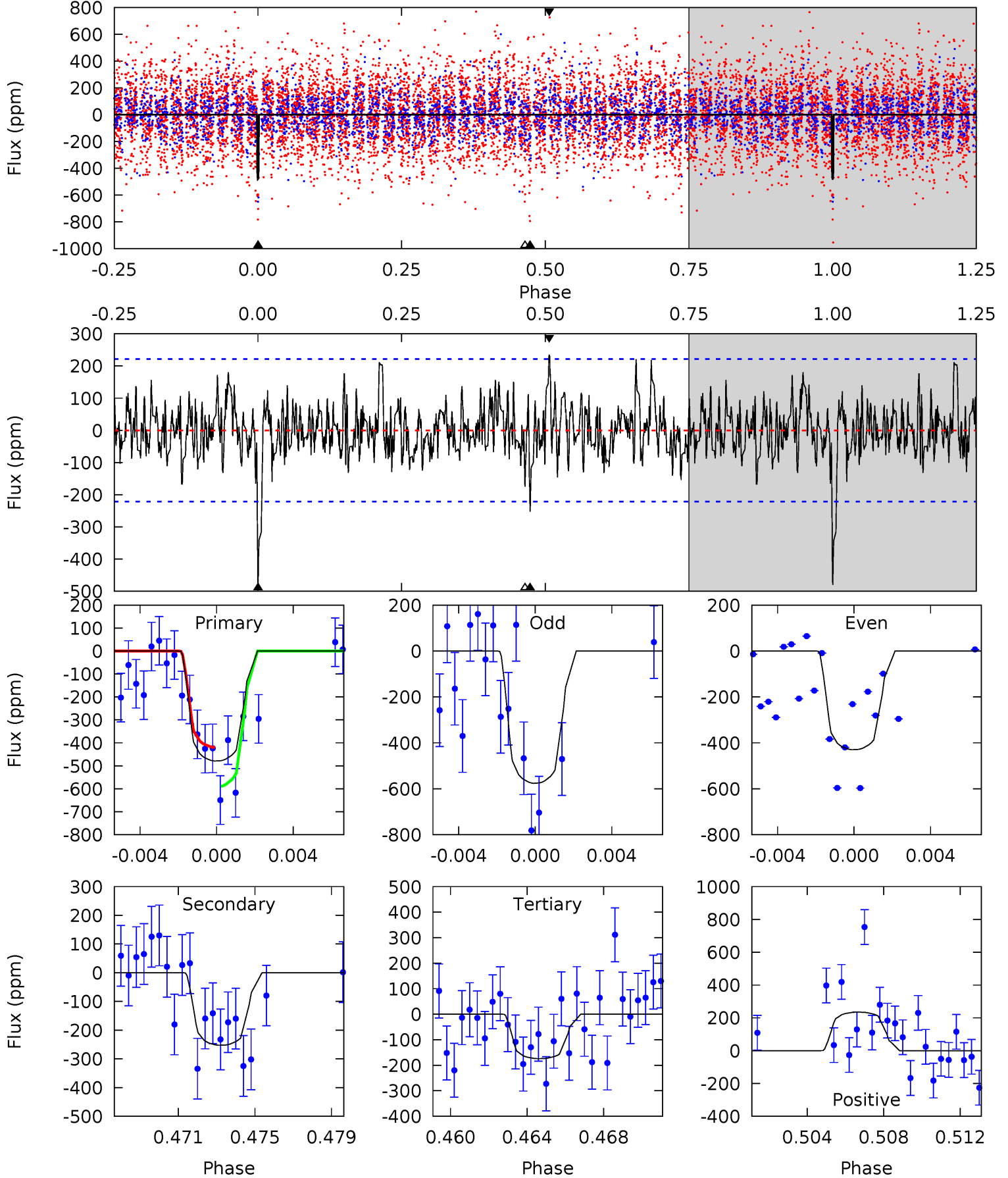
TCE 009786859-02 P= 40.260738 Days $T_0=135.341658$ (BKJD)



DV Model-Shift Uniqueness Test

009786859-02, P = 40.259719 Days, E = 95.076347 Days

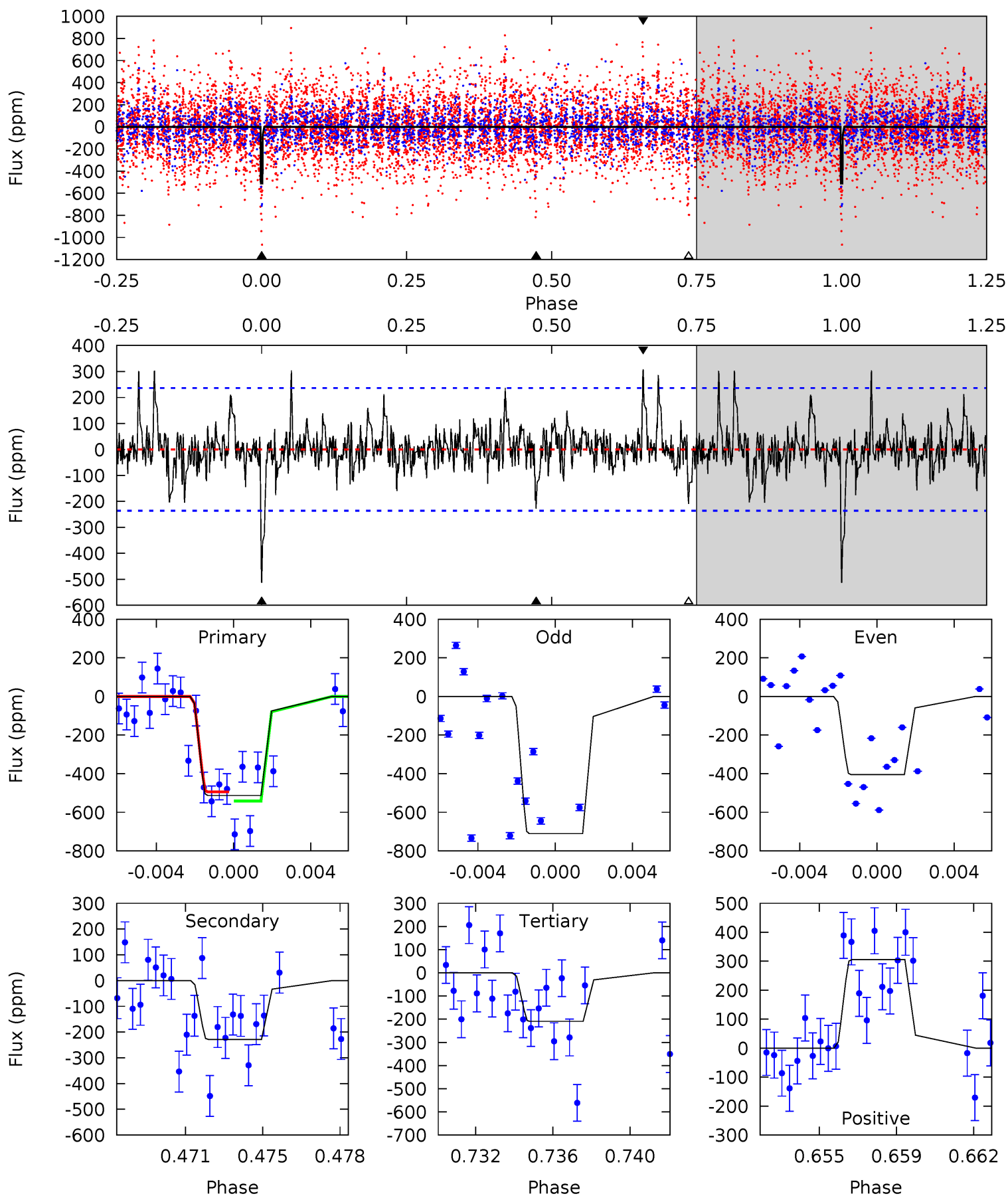
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	5.95	4.10	5.53	5.22	2.91	1.47	7.19	5.75	1.85	0.41	1.64	0.86	0.33	1.88



Alt Model-Shift Uniqueness Test

009786859-02, P = 40.260738 Days, E = 95.080920 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	5.04	4.62	6.74	5.21	2.90	1.40	6.69	4.57	0.42	-1.69	3.15	1.04	0.37	0.49



Stellar Parameters For KIC 009786859

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6920^{+192}_{-288}	$4.253^{+0.087}_{-0.203}$	$-0.100^{+0.250}_{-0.350}$	$1.439^{+0.487}_{-0.209}$	$1.358^{+0.214}_{-0.214}$	$0.641^{+0.317}_{-0.340}$
	+3%/-4%	+2%/-5%	+250%/-350%	+34%/-15%	+16%/-16%	+49%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009786859-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-253 ± 42	$3.58^{+1.99}_{-1.91}$	1024^{+80}_{-58}	5836^{+2992}_{-1006}	703^{+2319}_{-415}
Alt.	-228 ± 45	$3.98^{+2.06}_{-1.85}$	1026^{+75}_{-59}	5419^{+2111}_{-837}	493^{+1263}_{-270}

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 $A_{obs} \gg 1.0$

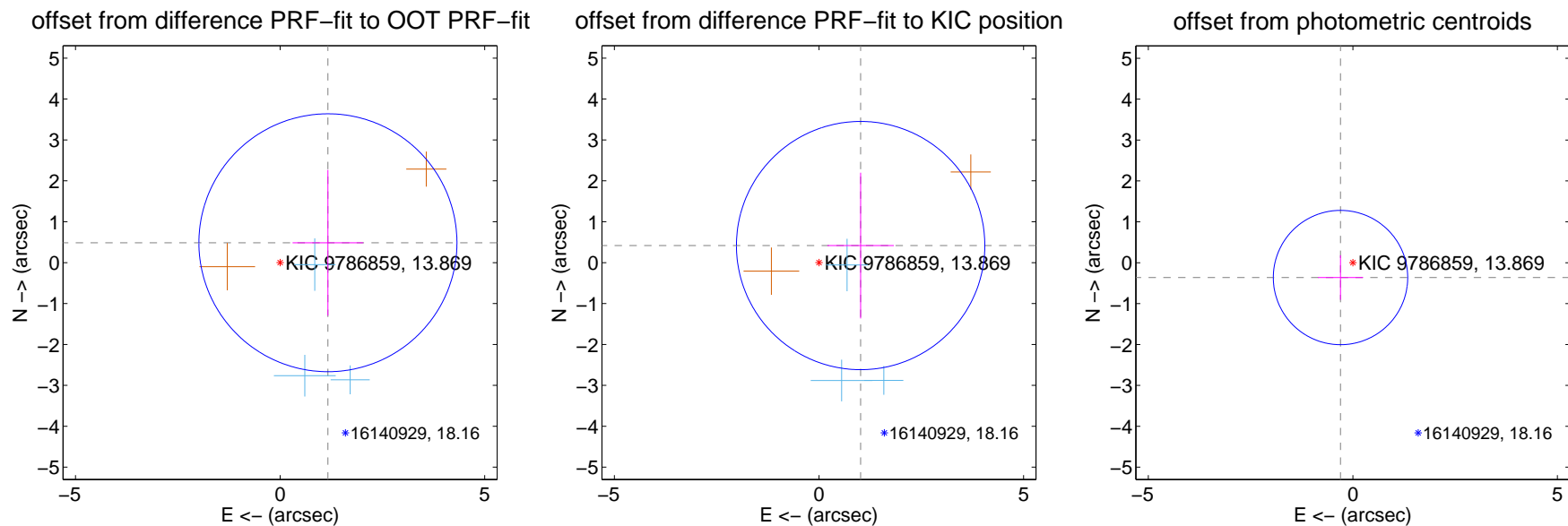
DV Centroid Data

Supplemental centroid analysis for 009786859-02. Kepler magnitude: 13.87. Transit SNR 10.50

There are 3 quarters with good PRF difference image offsets

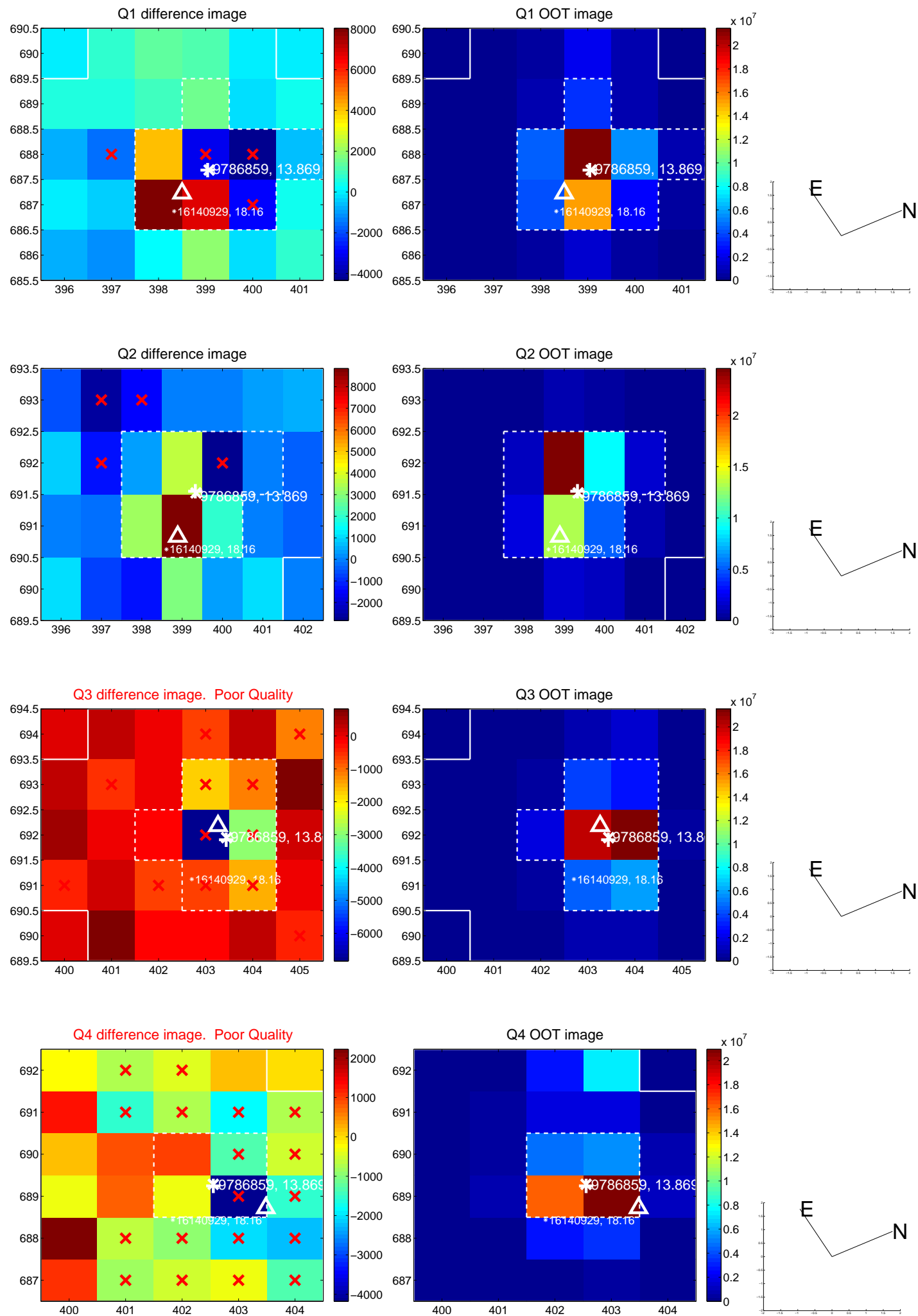
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.265 ± 1.051	1.20	-1.168 ± 0.864	0.486 ± 1.781
PRF-fit source offset from KIC position	1.100 ± 1.011	1.09	-1.017 ± 0.813	0.418 ± 1.782
photometric centroid source offset	0.47 ± 0.55	0.86	0.30 ± 0.55	-0.36 ± 0.54

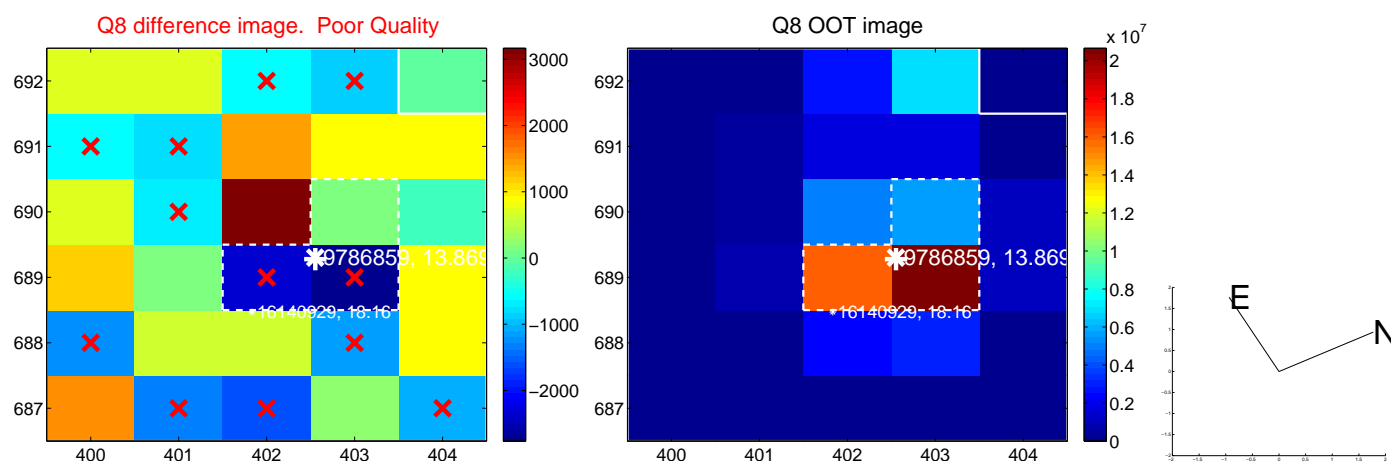
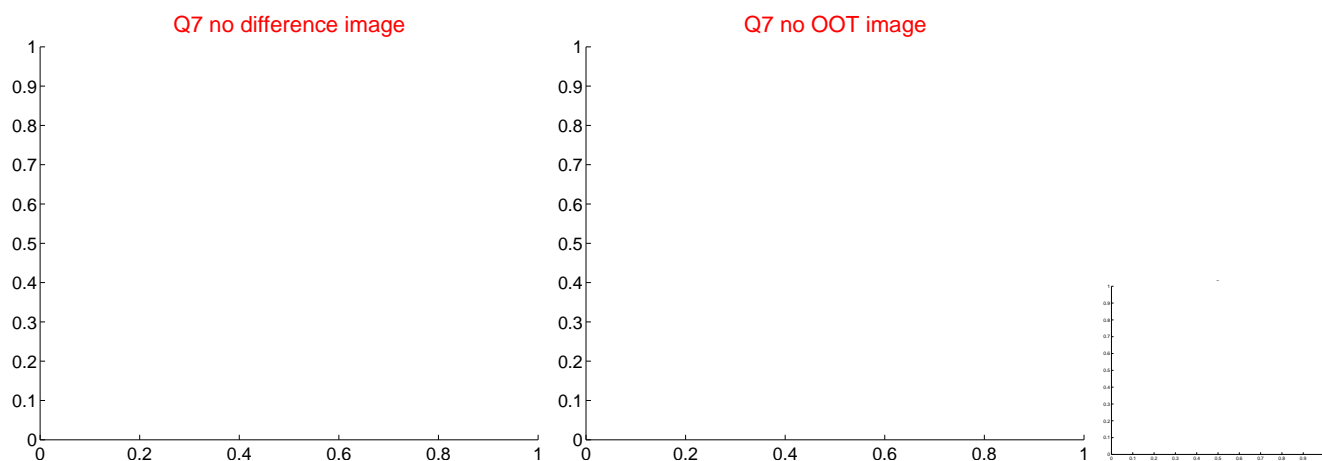
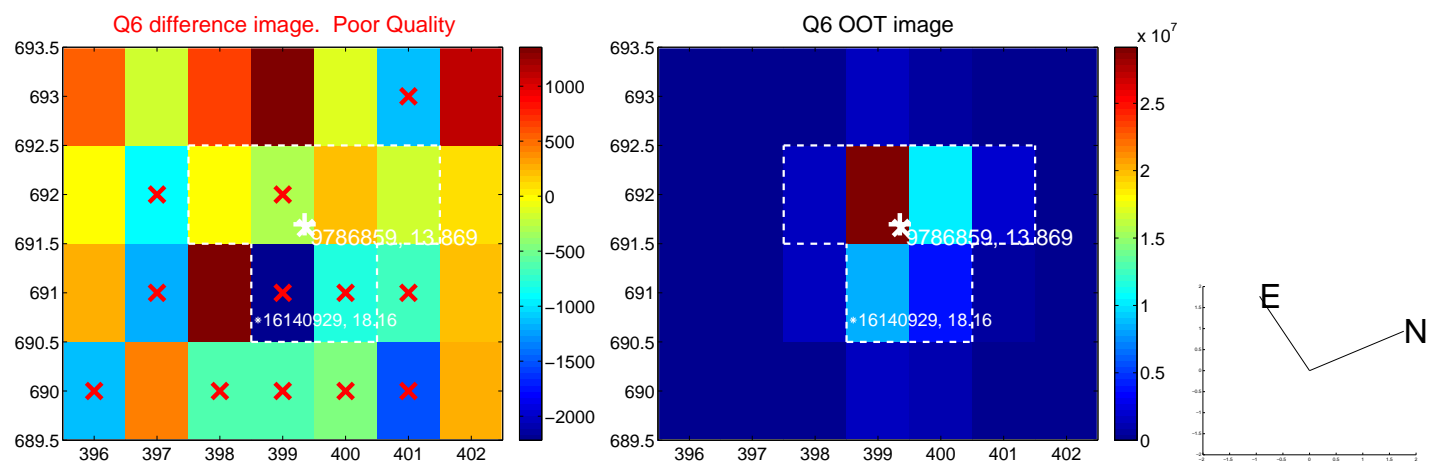
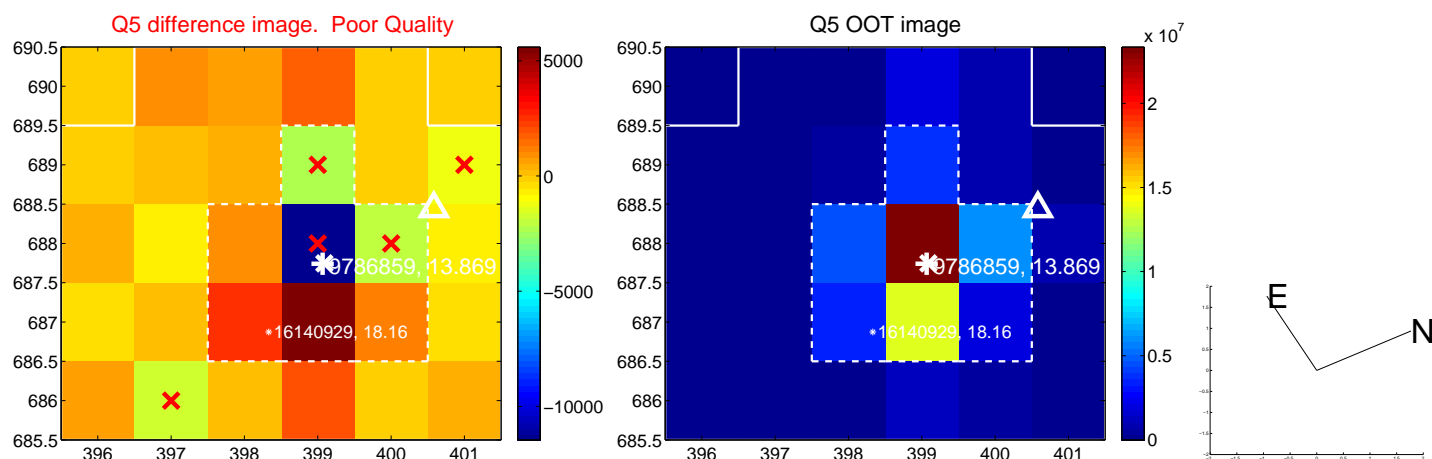


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

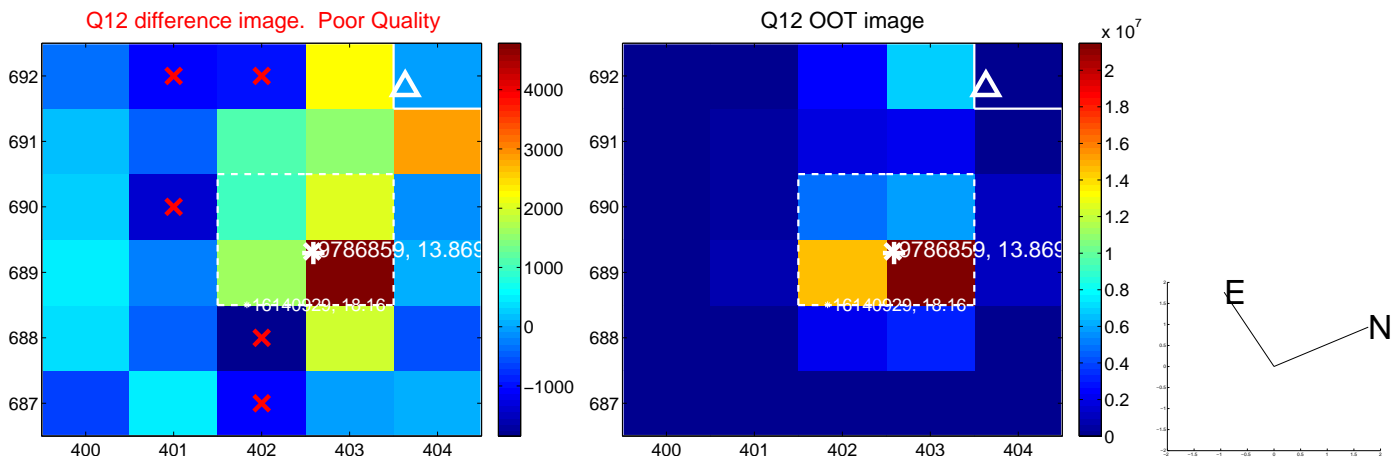
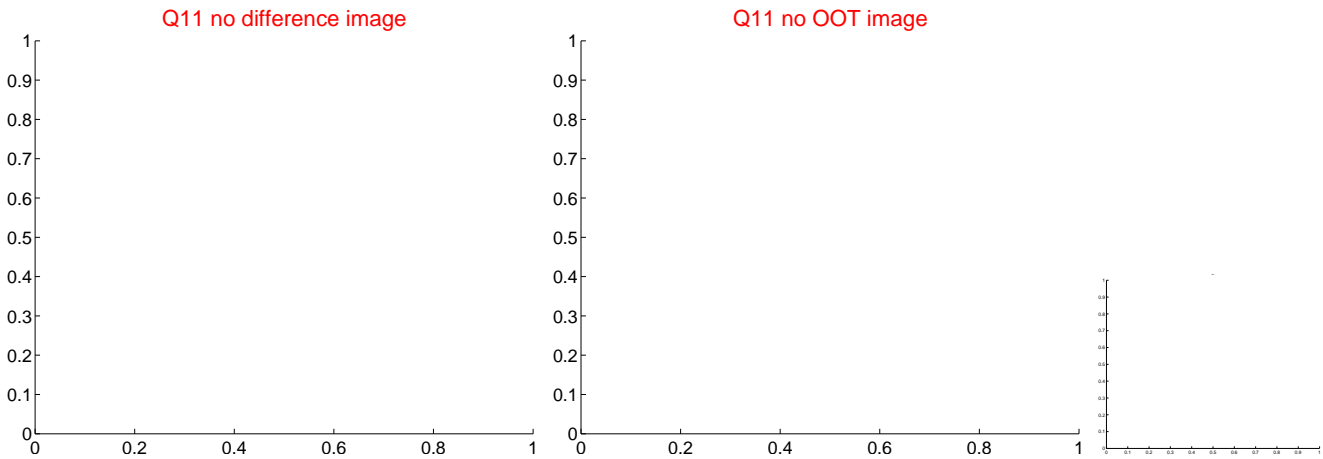
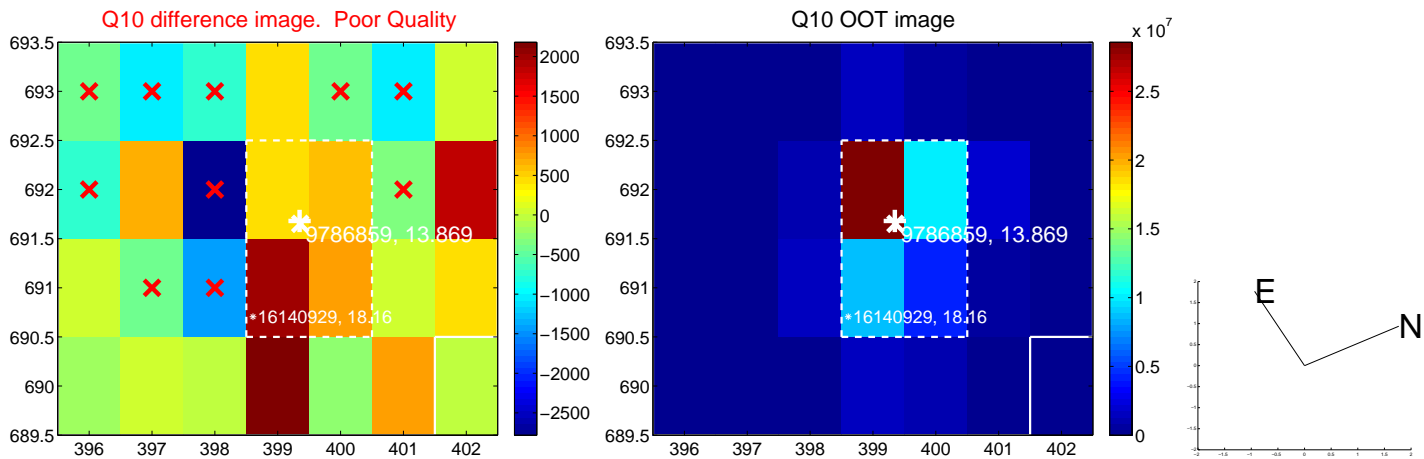
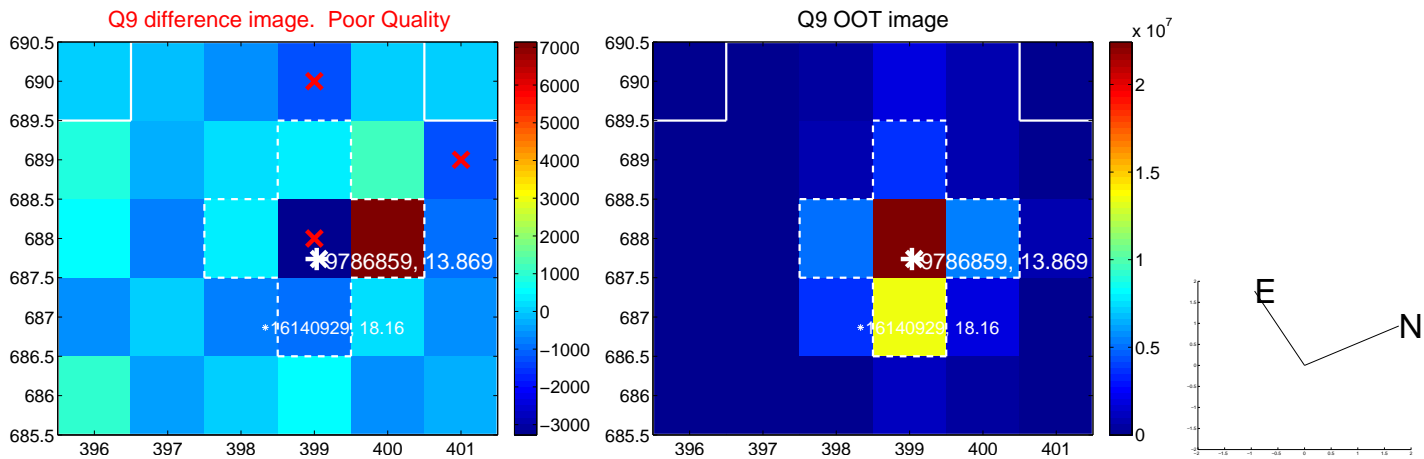
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



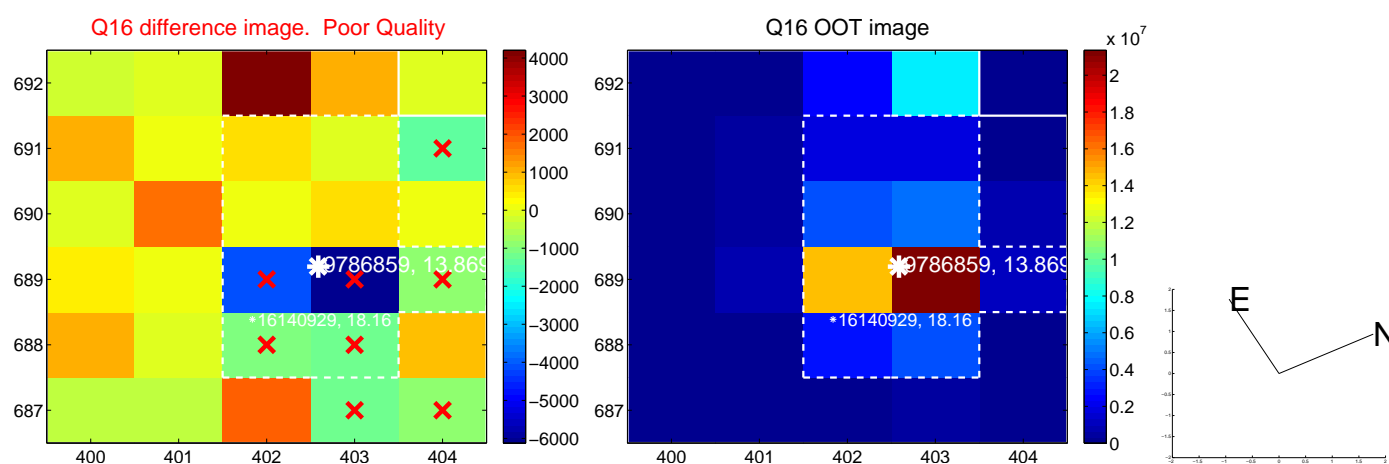
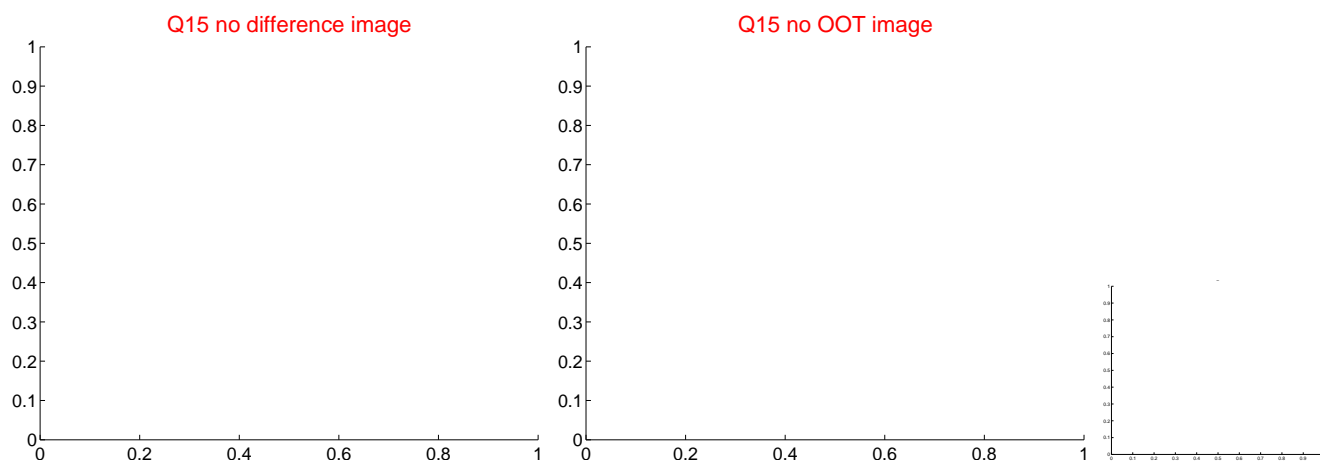
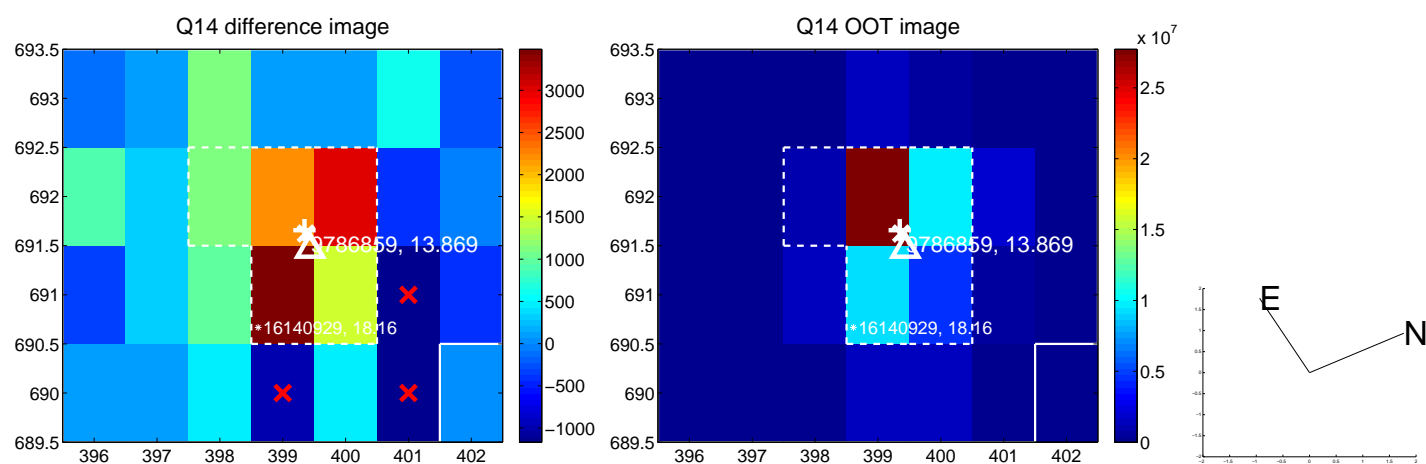
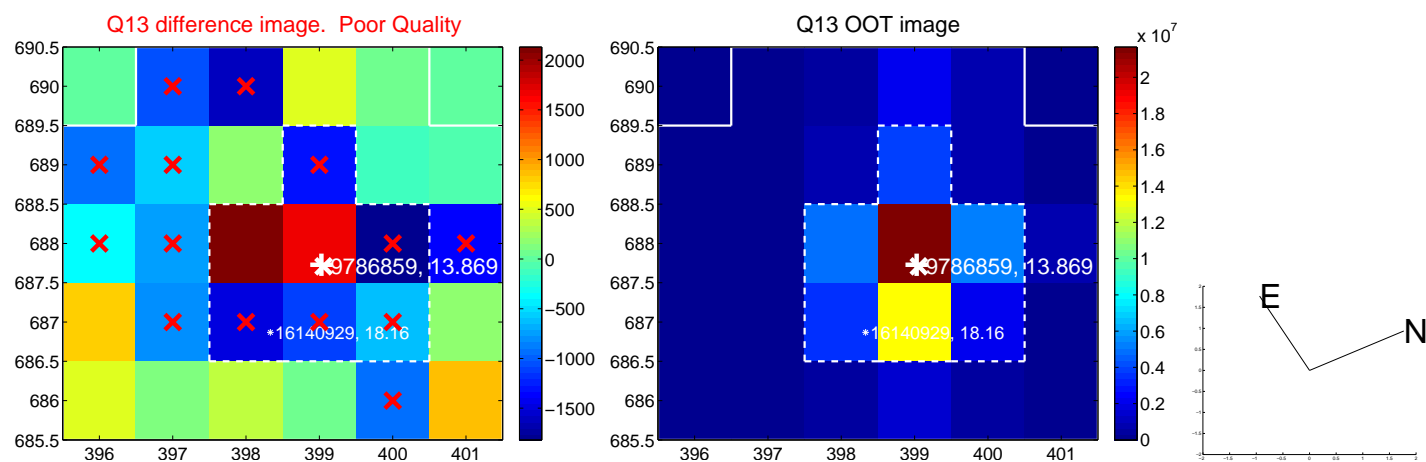
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



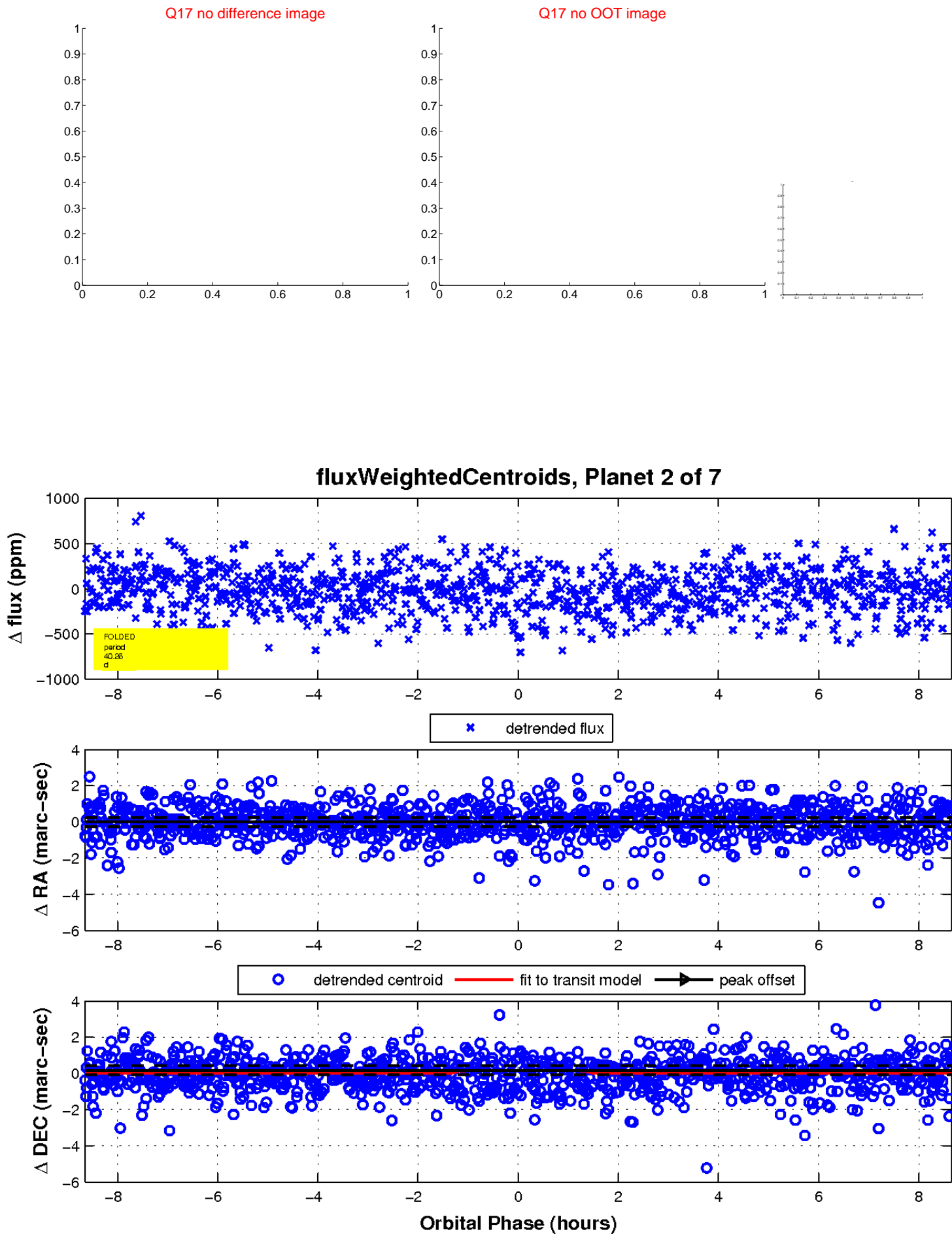
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

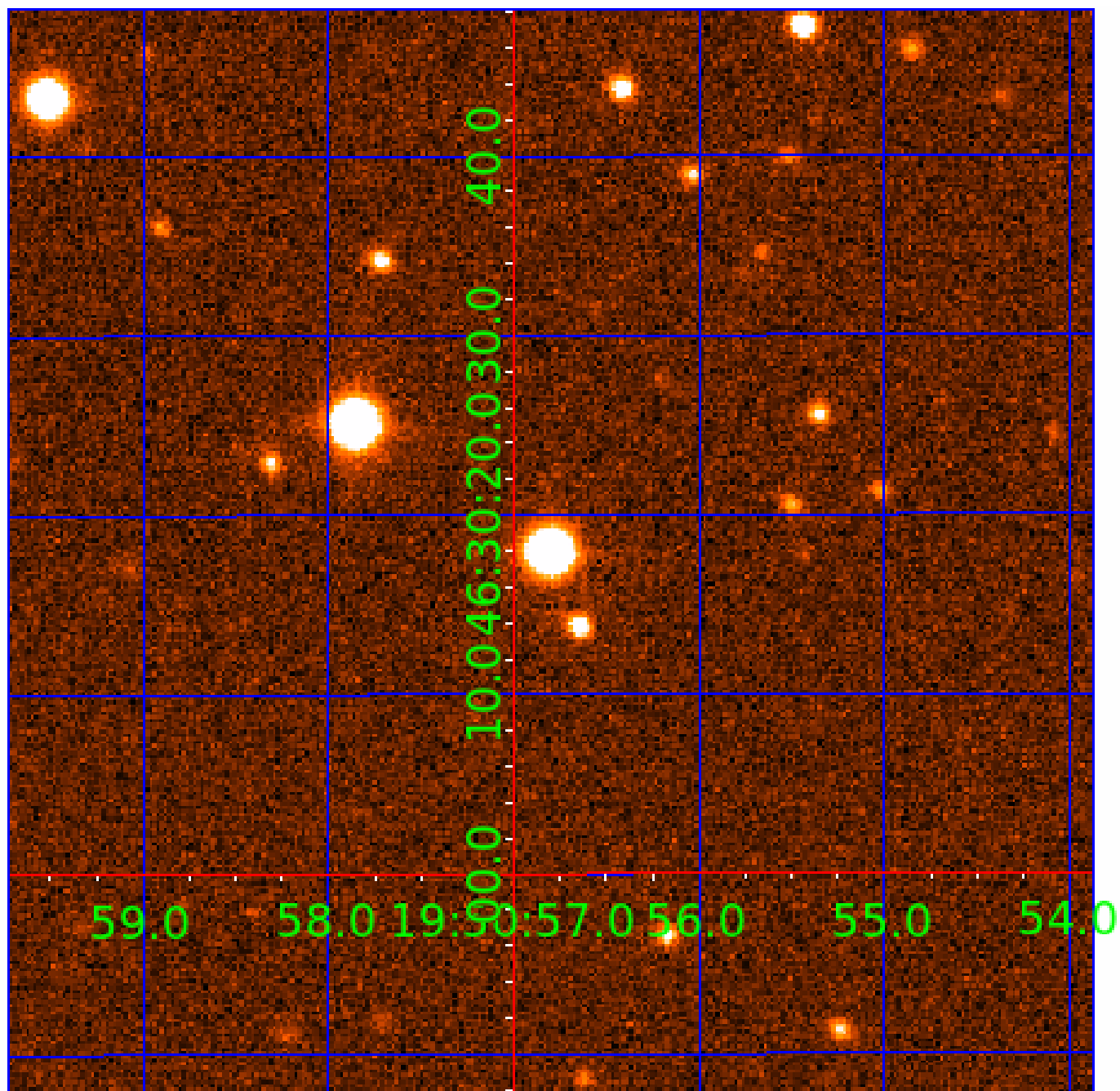


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009786859

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})
009786859-01	OBS	No	1.058868	131.651251	10.4	7.158	7.9	3.8	1.44	6920	0.47	8412.09
009786859-02	OBS	No	40.259719	135.336066	436.9	2.888	11.5	10.5	1.44	6920	3.40	65.80
009786859-03	OBS	No	27.080605	158.044076	509.0	0.872	9.5	10.4	1.44	6920	3.50	111.64
009786859-04	OBS	No	30.961632	143.734249	365.1	1.367	9.3	8.7	1.44	6920	2.87	93.38
009786859-05	OBS	No	49.217092	172.911806	397.3	2.826	8.9	10.6	1.44	6920	3.16	50.34
009786859-06	OBS	No	72.046728	154.436153	436.7	7.800	9.8	8.5	1.44	6920	3.53	30.28
009786859-07	OBS	No	67.596962	184.282166	419.7	1.627	8.6	9.1	1.44	6920	3.44	32.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009786859-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009786859-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
009786859-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV
009786859-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_MEAS
009786859-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009786859-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009786859-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS—HALO_GHOST

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

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

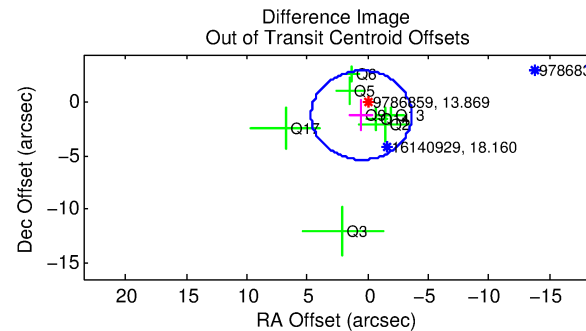
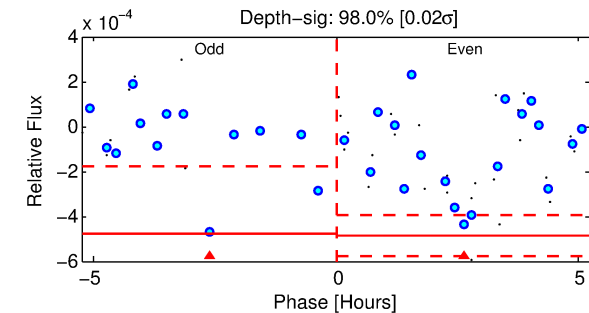
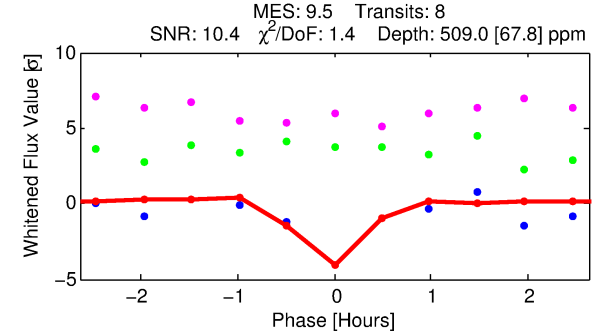
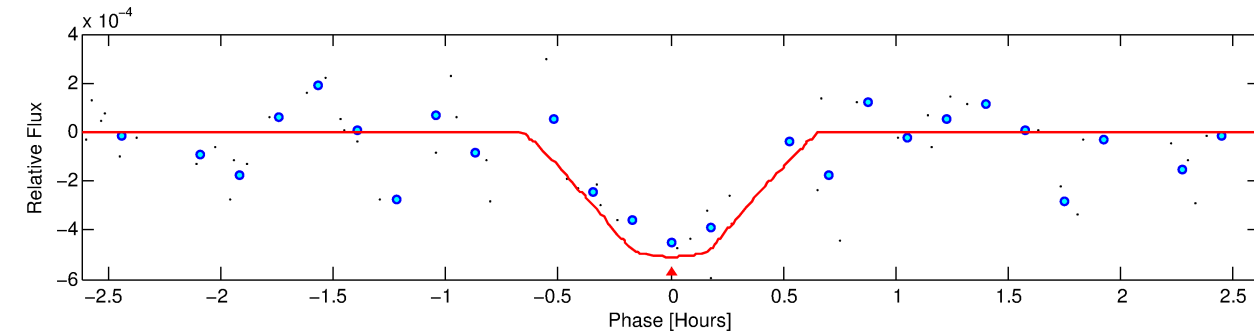
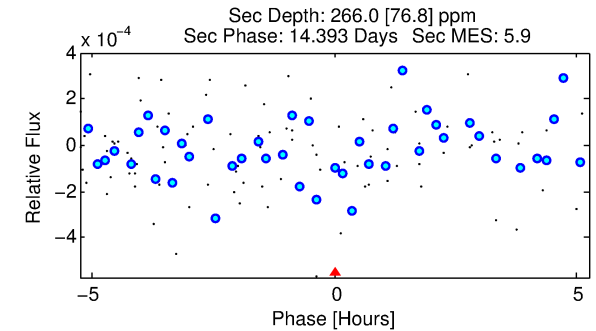
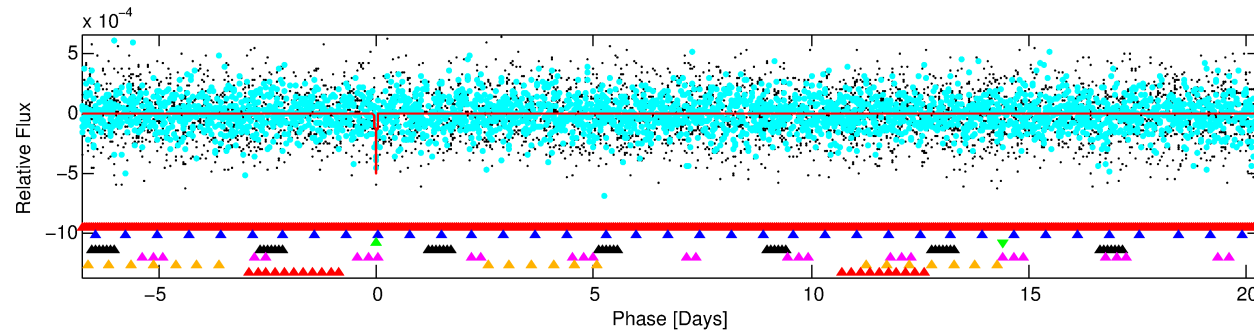
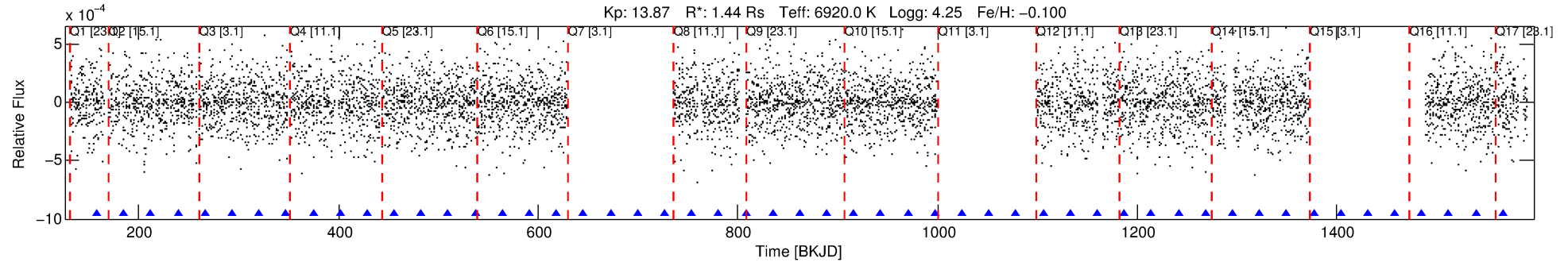
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009786859-03

No Significant Match Found

DV One-Page Summary

KIC: 9786859 Candidate: 3 of 7 Period: 27.081 d



DV Fit Results:

Period = 27.08060 [0.00017] d
Epoch = 158.0441 [0.0041] BKJD
Rp/R* = 0.0223 [0.0158]
a/R* = 179.18 [728.77]
b = 0.69 [3.14]
Seff = 111.64 [46.80]
Teq = 829 [87] K
Rp = 3.51 [2.76] Re
a = 0.1952 [0.0535] AU
Ag = 453.86 [680.41] [0.67σ]
Teffp = 5915 [2157] K [2.36σ]

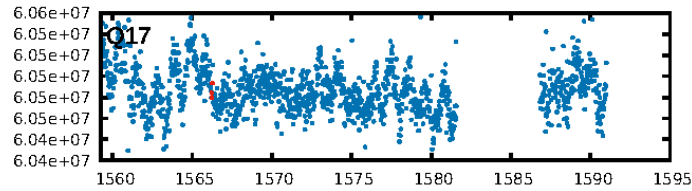
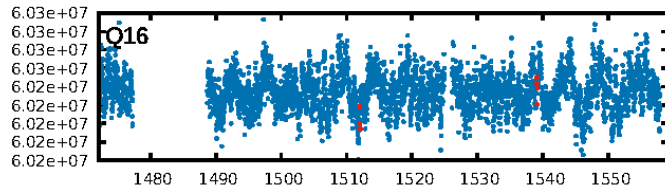
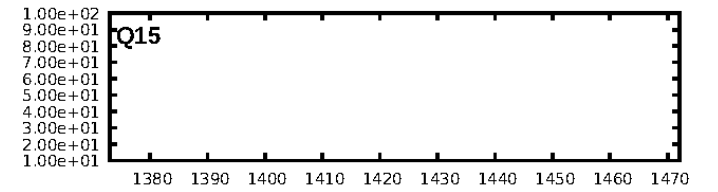
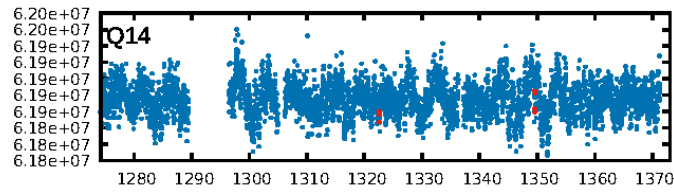
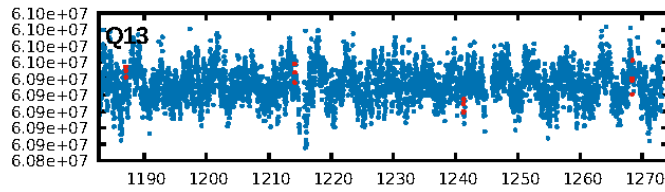
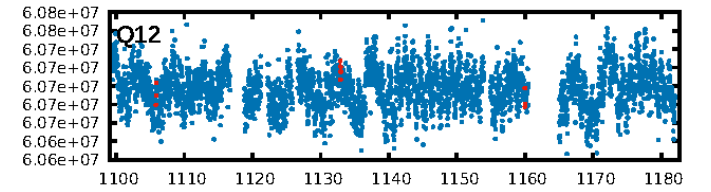
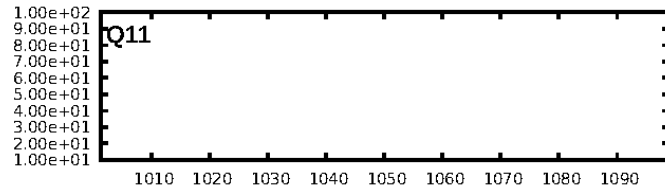
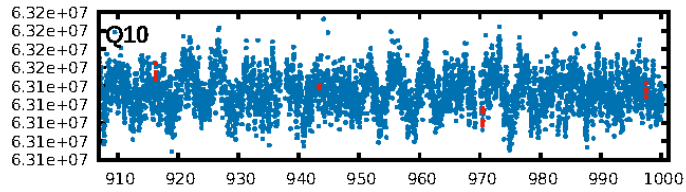
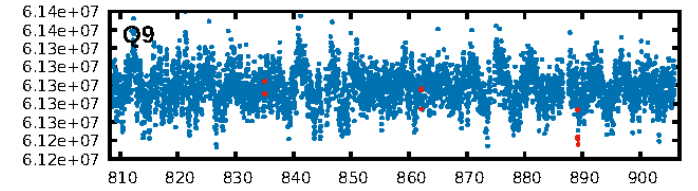
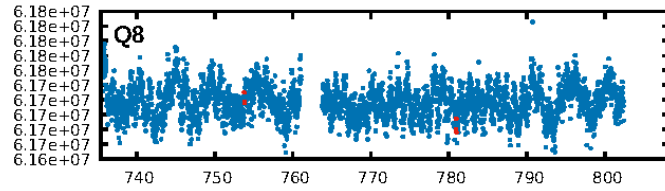
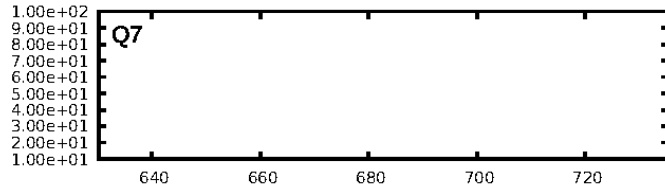
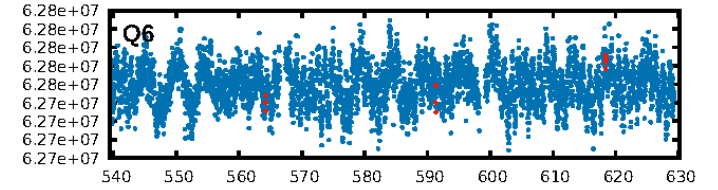
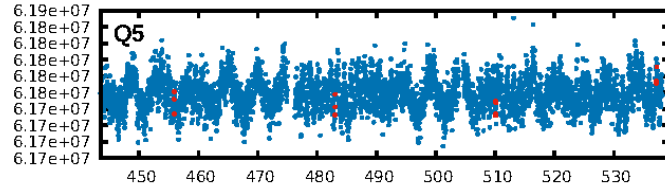
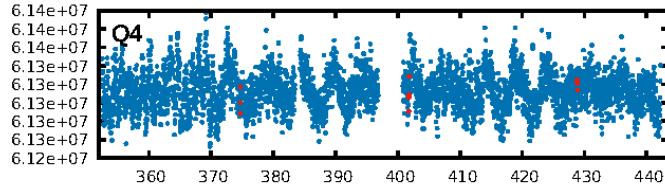
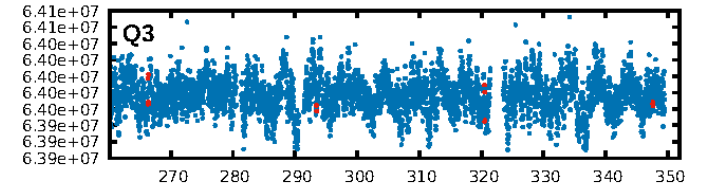
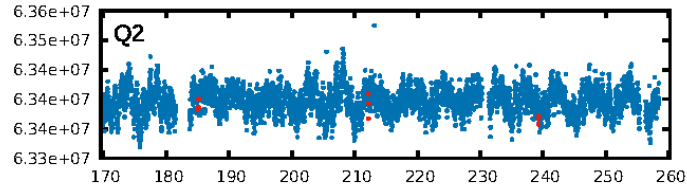
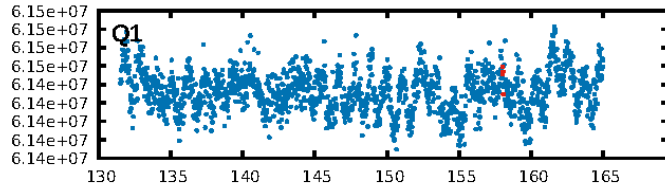
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [86.61σ]
LongPeriod-sig: 100.0% [57.43σ]
ModelChiSquare2-sig: 11.0%
ModelChiSquareGof-sig: 89.0%
Bootstrap-pfa: 2.12e-09
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -3.705
Centroid-sig: 58.6%
Centroid-so: 0.506 arcsec [0.70σ]
OotOffset-rm: 1.305 arcsec [0.94σ]
OotOffset-st: 3/1/0/4 [8]
KicOffset-rm: 1.473 arcsec [0.95σ]
KicOffset-st: 3/1/0/4 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 0.64 [9/14]

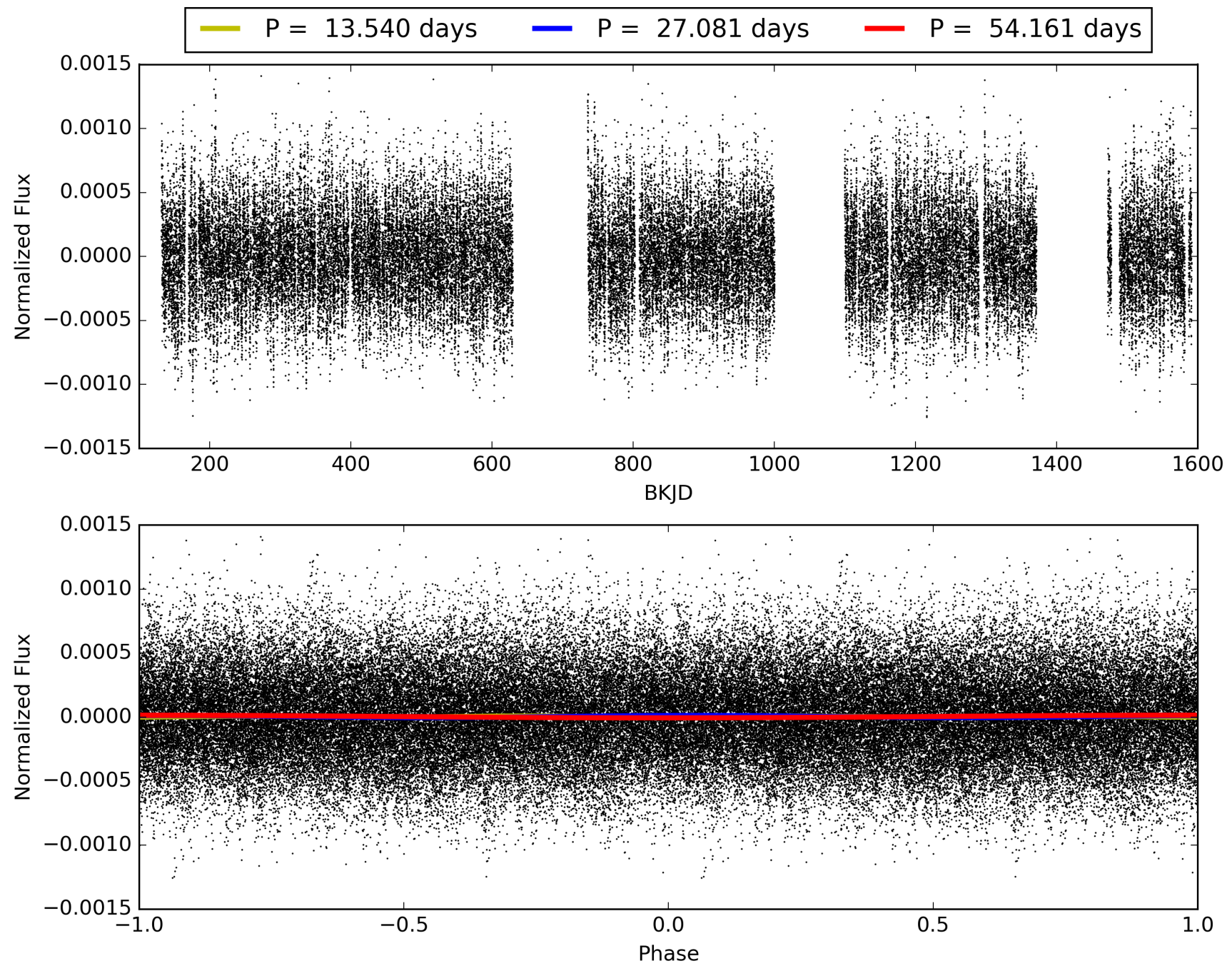
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:25:56 Z

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

TCE 009786859-03, PDC Light Curves

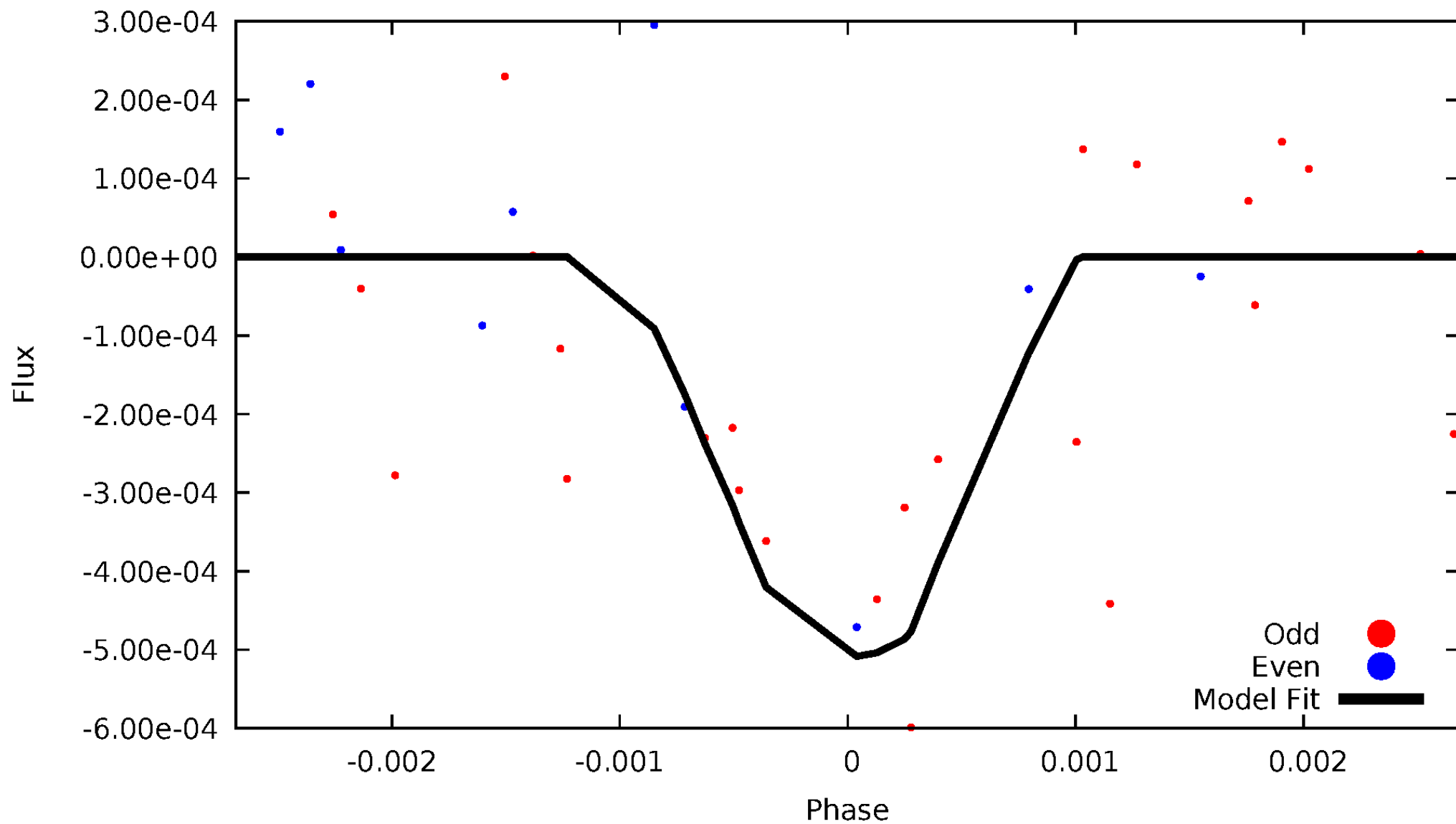


TCE 009786859-03



DV Odd/Even

TCE 009786859-03

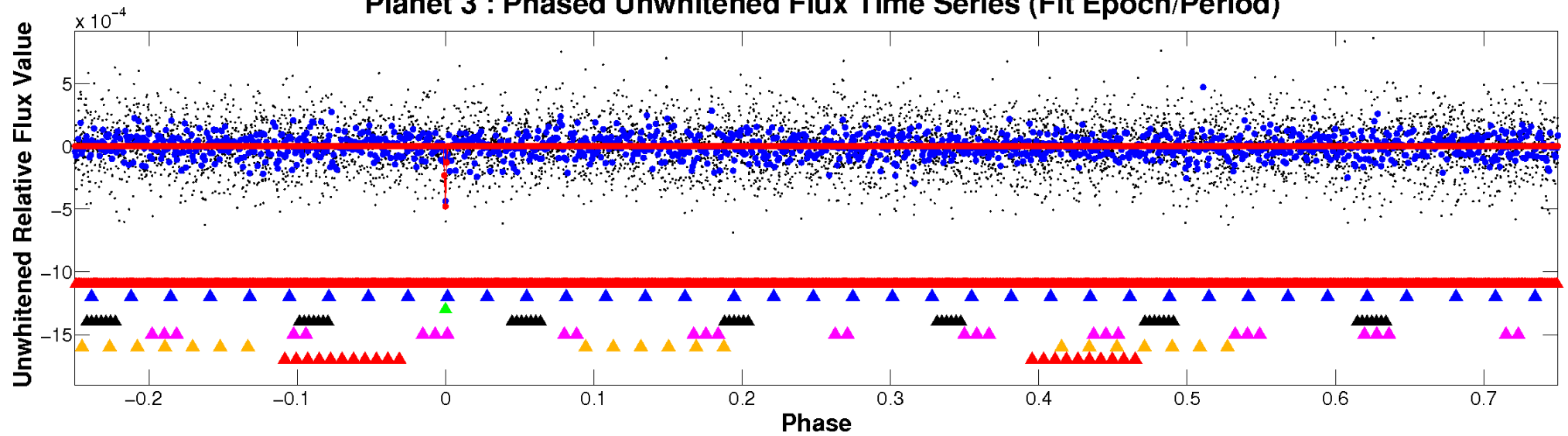


ALT Odd/Even

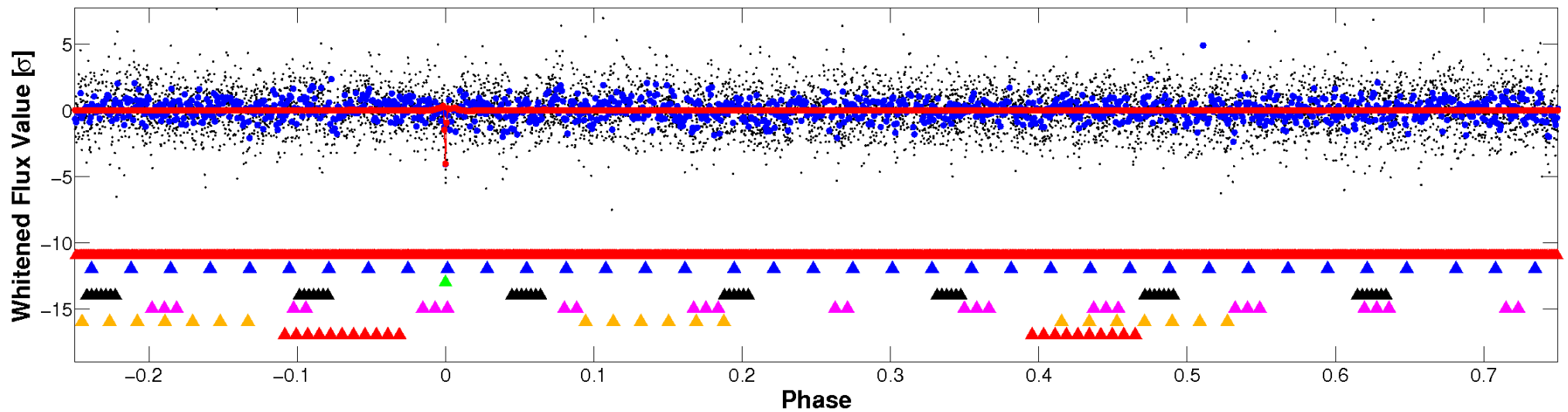
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

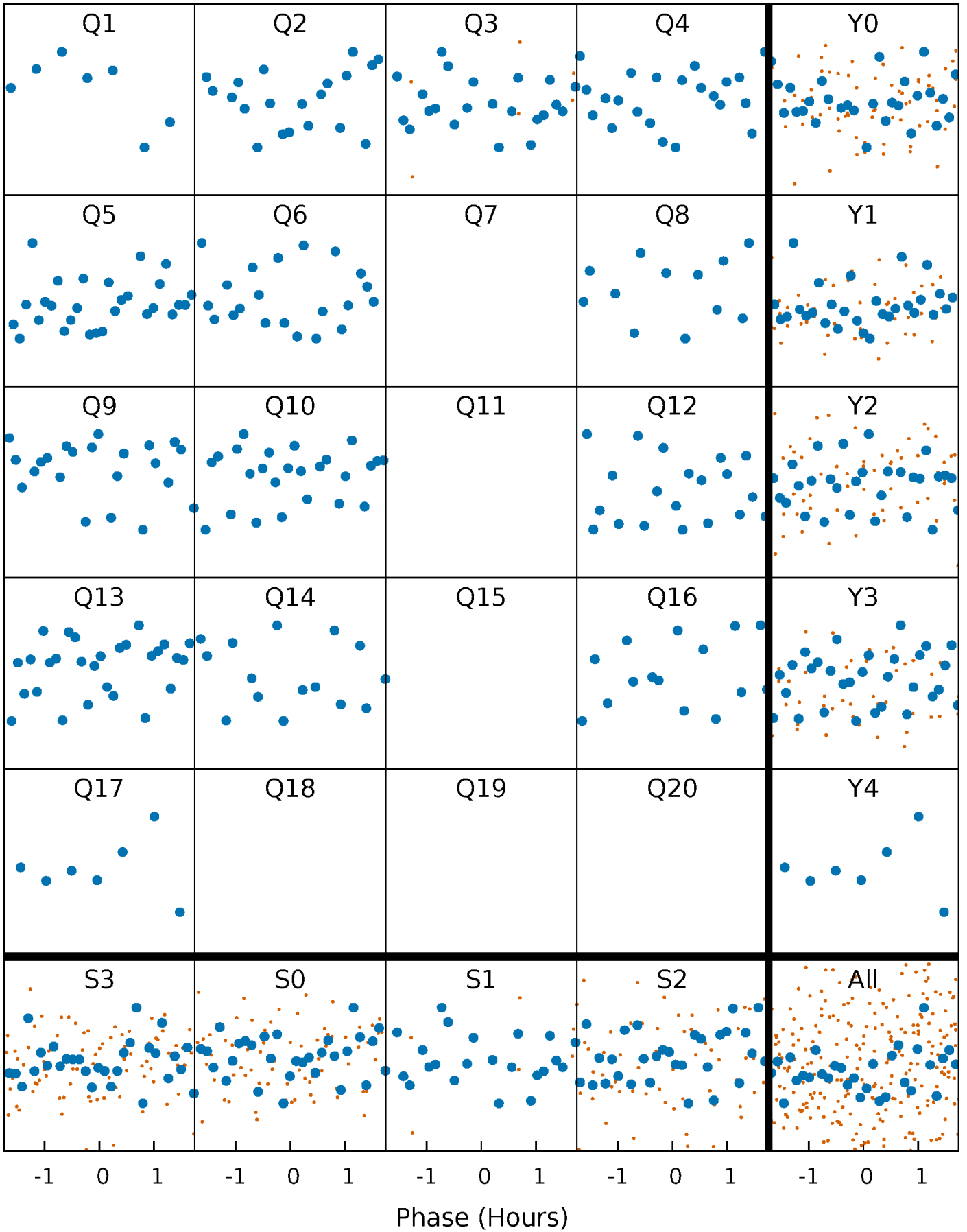


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



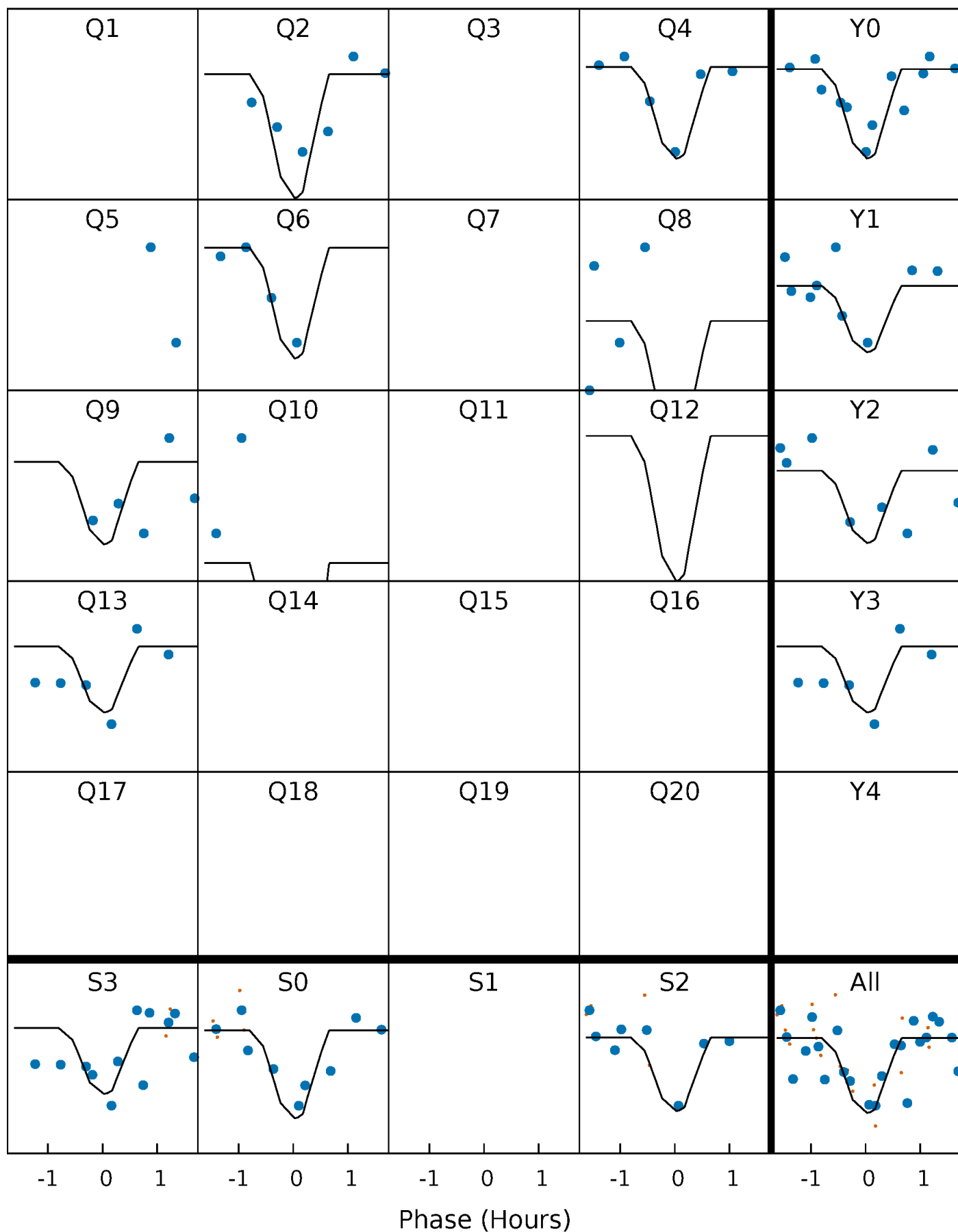
PDC Quarter-Phased Transit Curves

TCE 009786859-03 P= 27.080605 Days $T_0=158.044076$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009786859-03 P= 27.080605 Days $T_0=158.044076$ (BKJD)

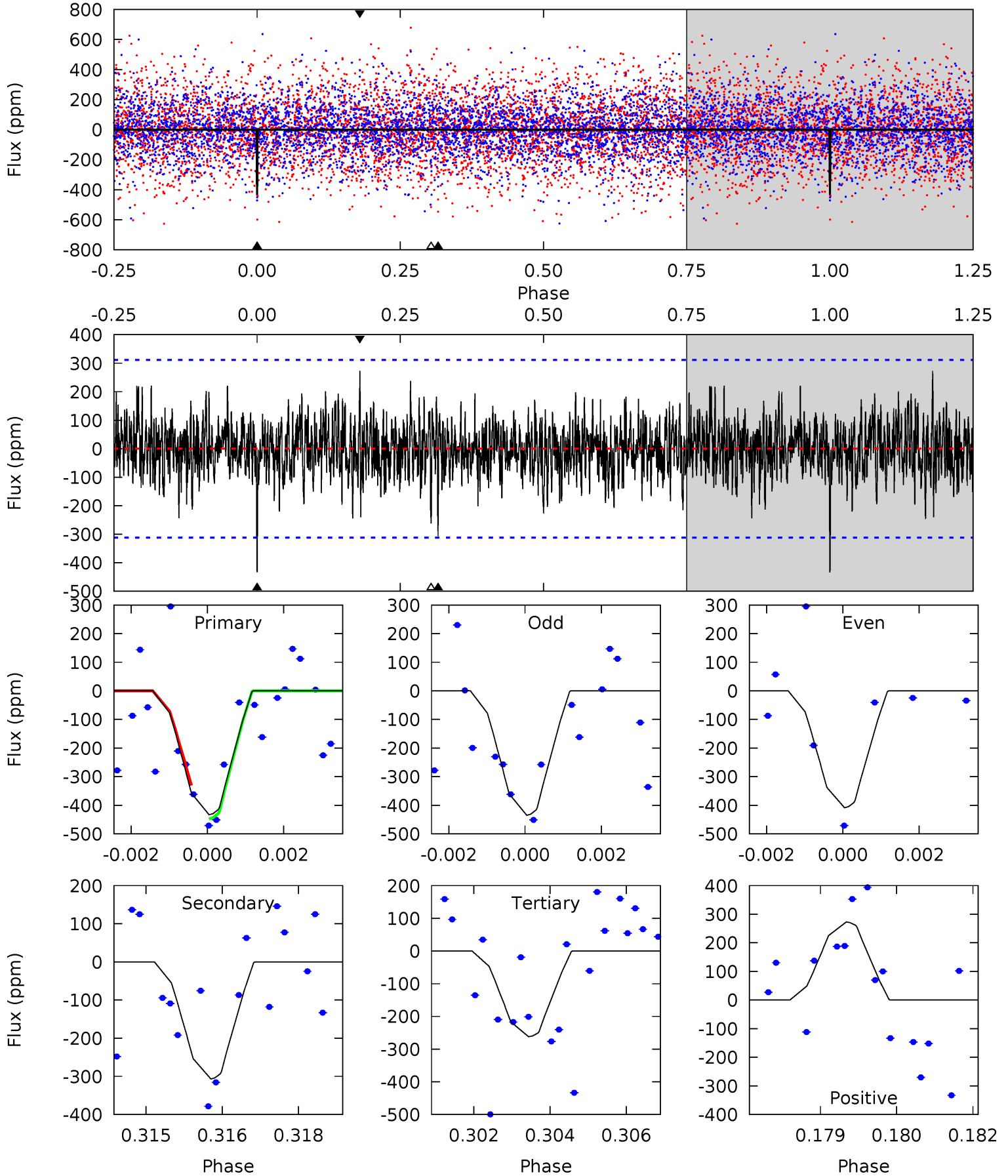


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

009786859-03, P = 27.080605 Days, E = 130.963471 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.44	5.27	4.51	4.69	5.35	3.13	1.29	2.94	2.76	0.77	0.58	0.18	0.99	0.39	0.99



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 009786859

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6920^{+192}_{-288}	$4.253^{+0.087}_{-0.203}$	$-0.100^{+0.250}_{-0.350}$	$1.439^{+0.487}_{-0.209}$	$1.358^{+0.214}_{-0.214}$	$0.641^{+0.317}_{-0.340}$
	+3%/-4%	+2%/-5%	+250%/-350%	+34%/-15%	+16%/-16%	+49%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009786859-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-307 ± 58	$3.82^{+2.29}_{-2.23}$	1173^{+89}_{-70}	5942^{+3788}_{-1199}	452^{+2054}_{-292}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

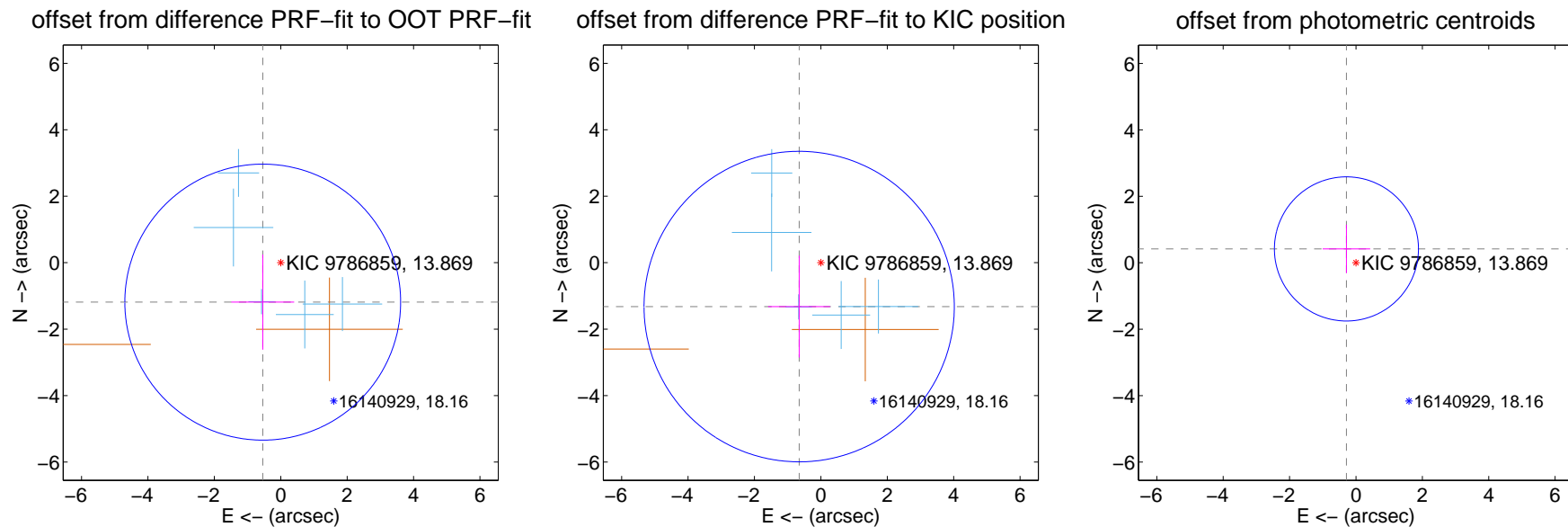
DV Centroid Data

Supplemental centroid analysis for 009786859-03. Kepler magnitude: 13.87. Transit SNR 10.42

There are 5 quarters with good PRF difference image offsets

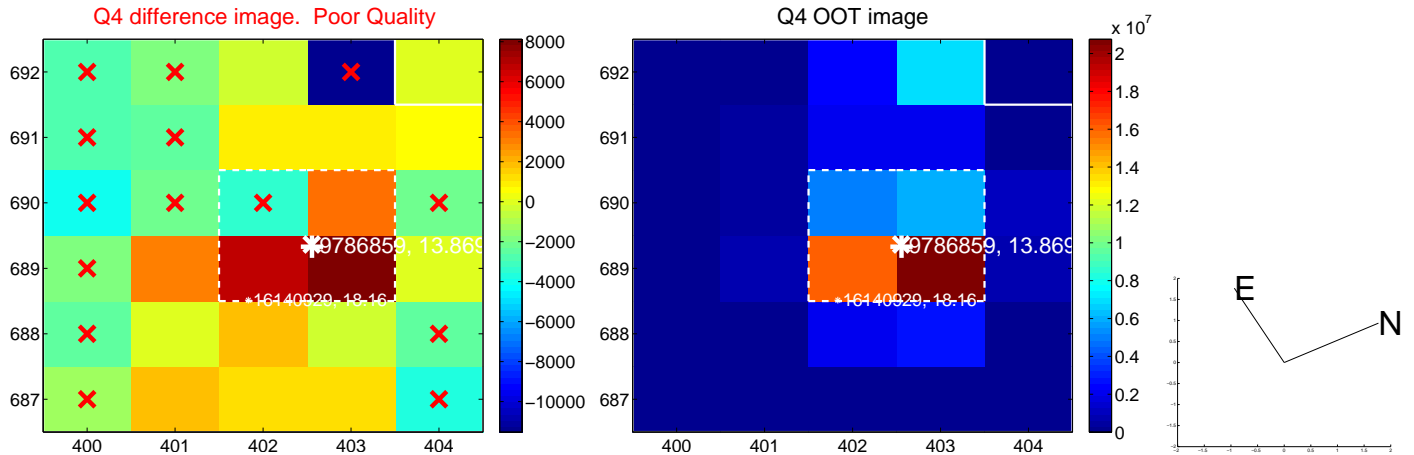
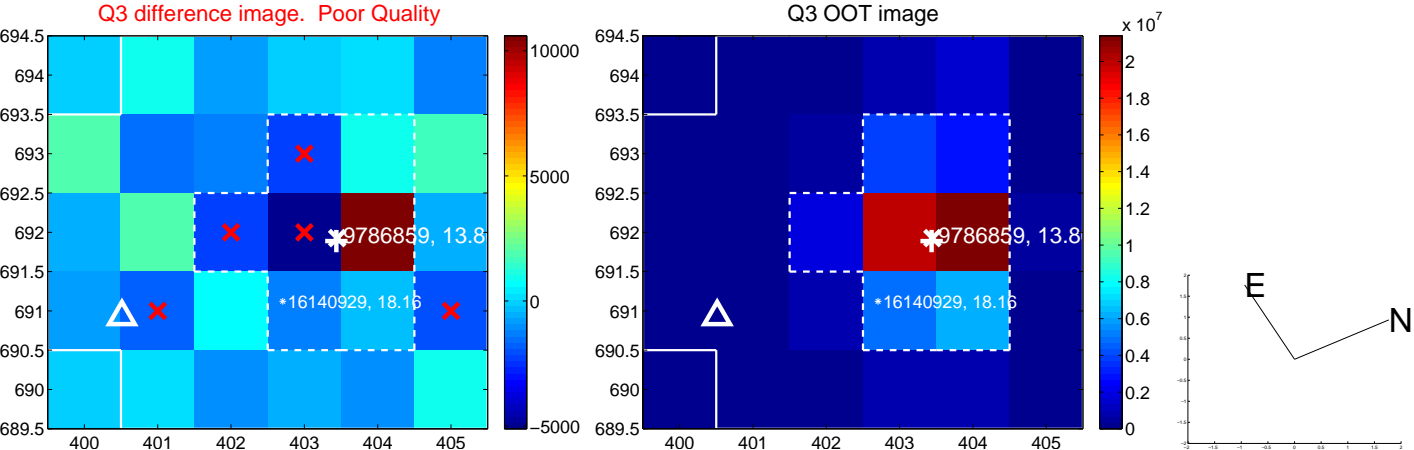
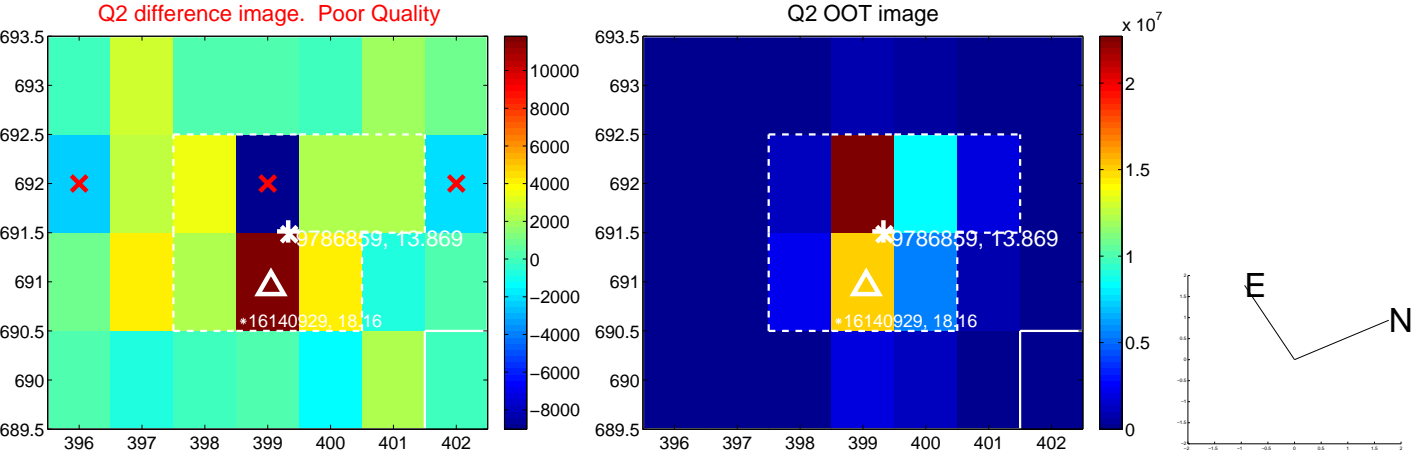
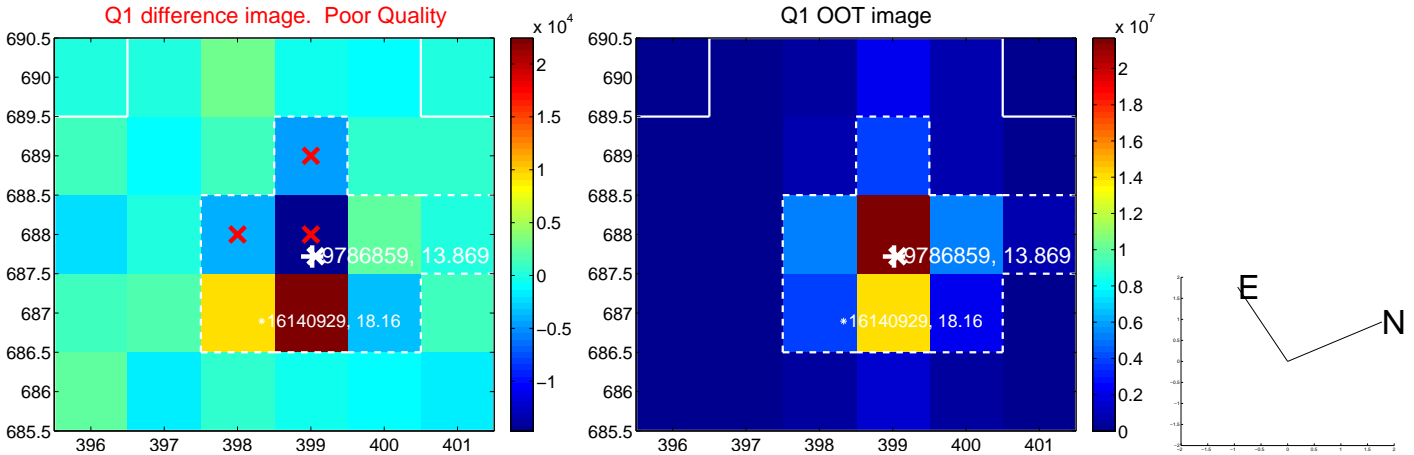
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.305 ± 1.384	0.94	0.542 ± 0.946	-1.187 ± 1.430
PRF-fit source offset from KIC position	1.473 ± 1.557	0.95	0.653 ± 0.935	-1.320 ± 1.533
photometric centroid source offset	0.51 ± 0.72	0.70	0.29 ± 0.71	0.42 ± 0.73

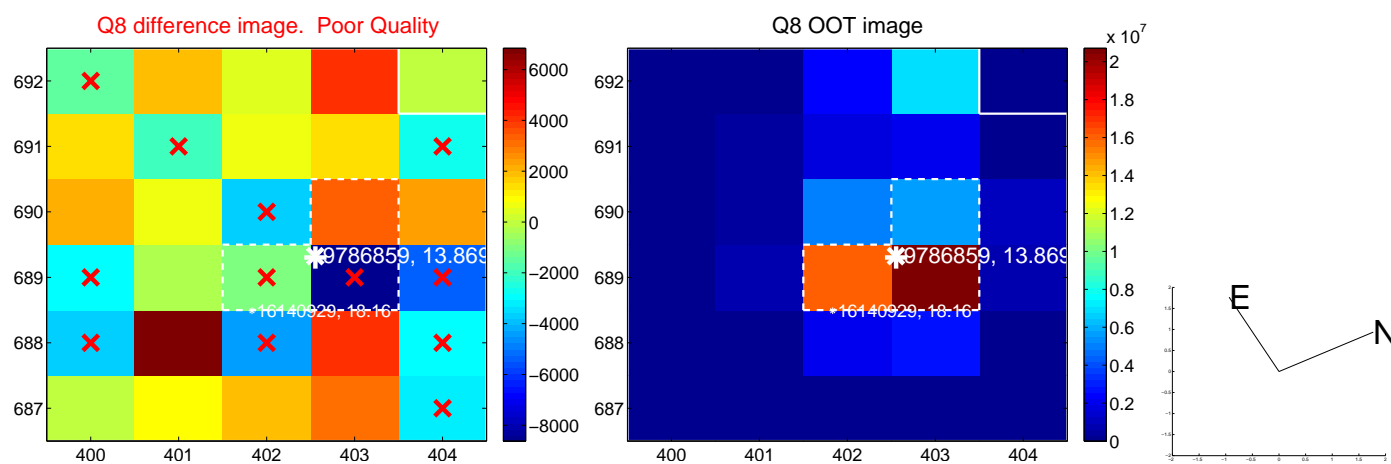
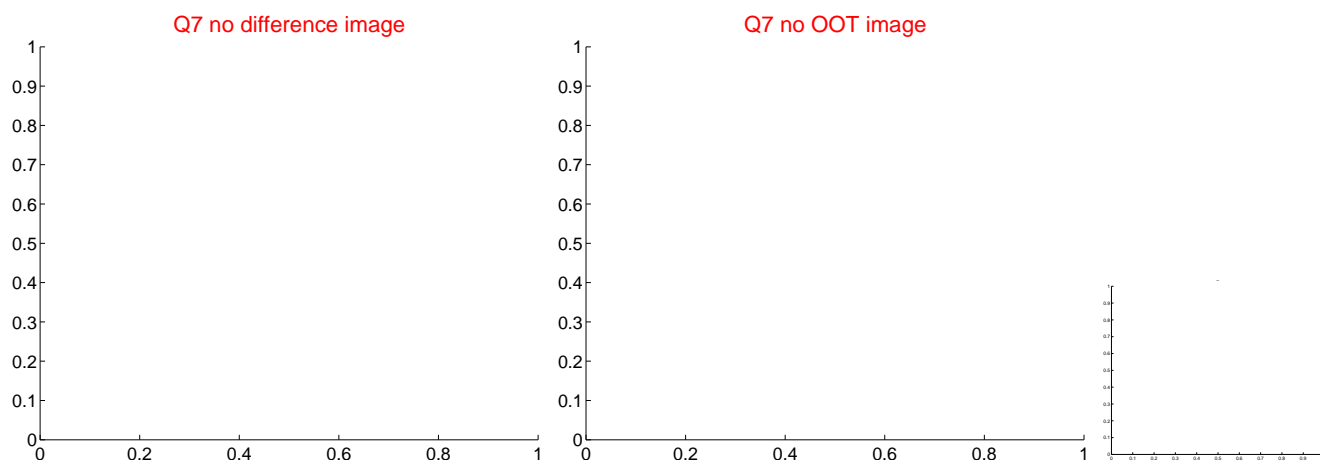
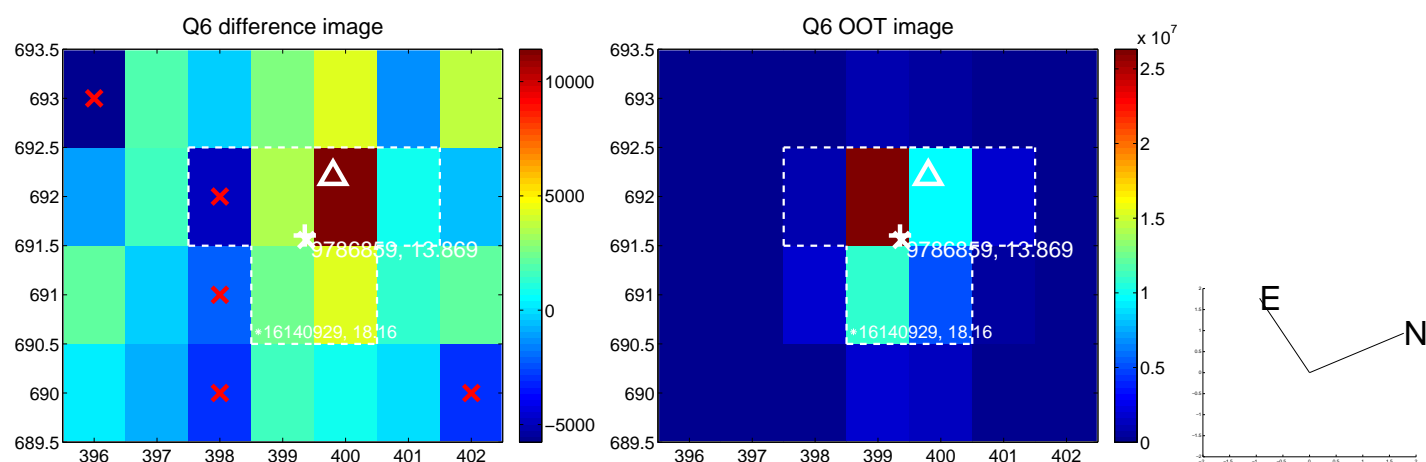
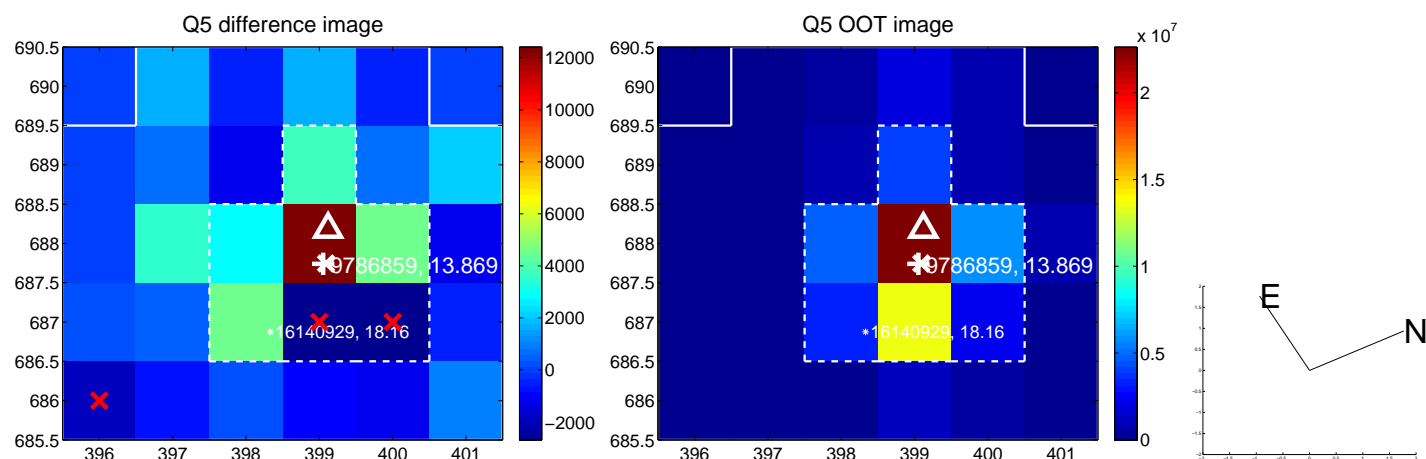


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

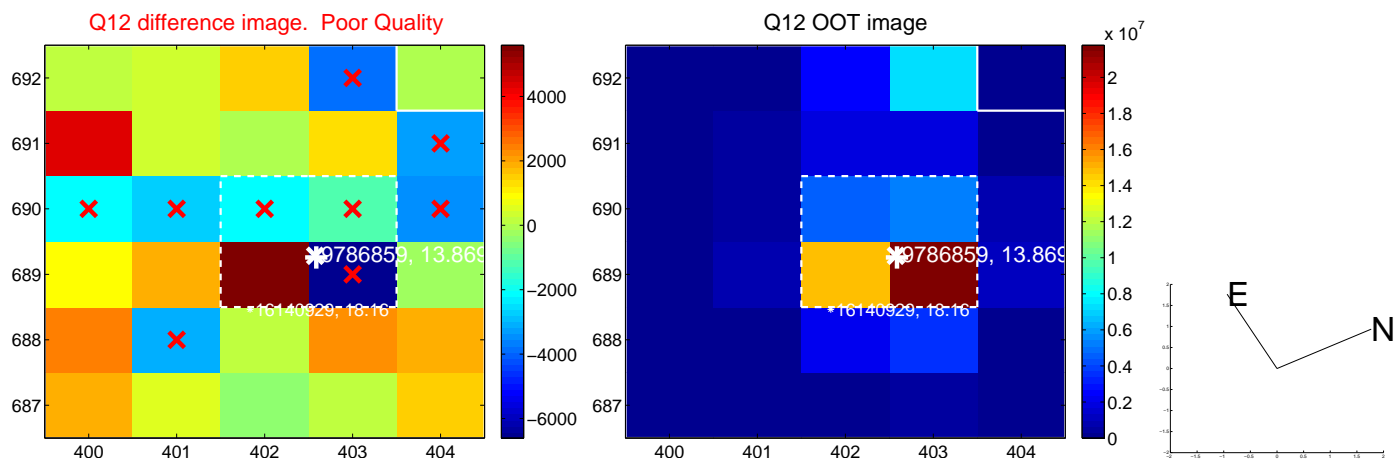
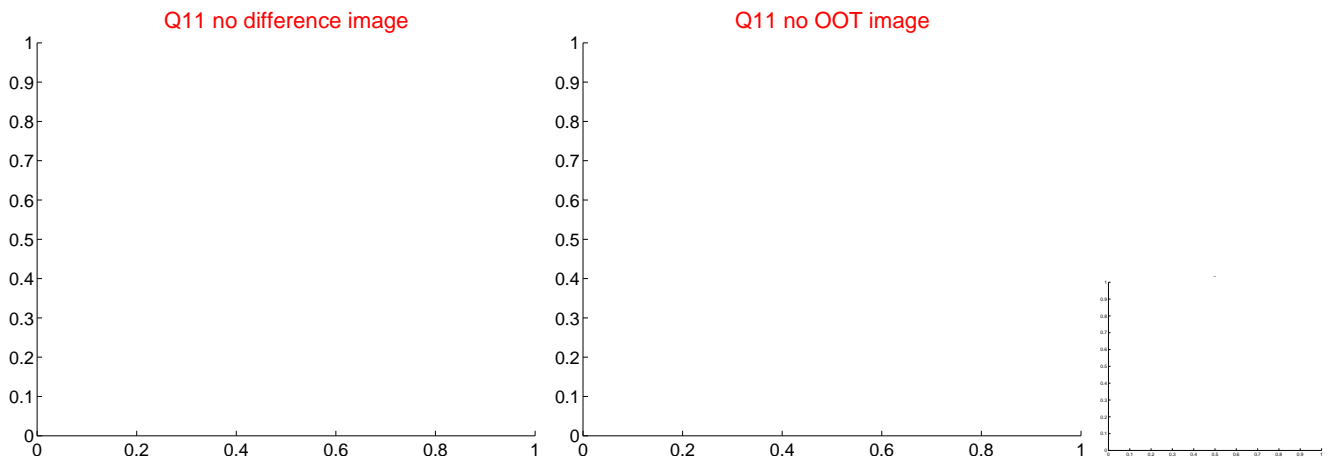
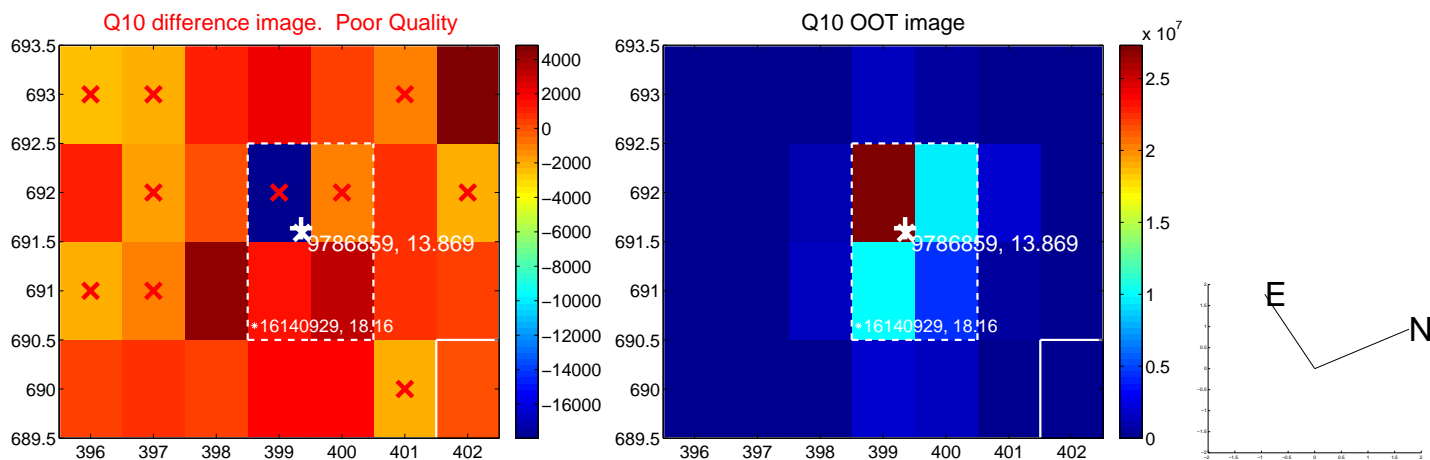
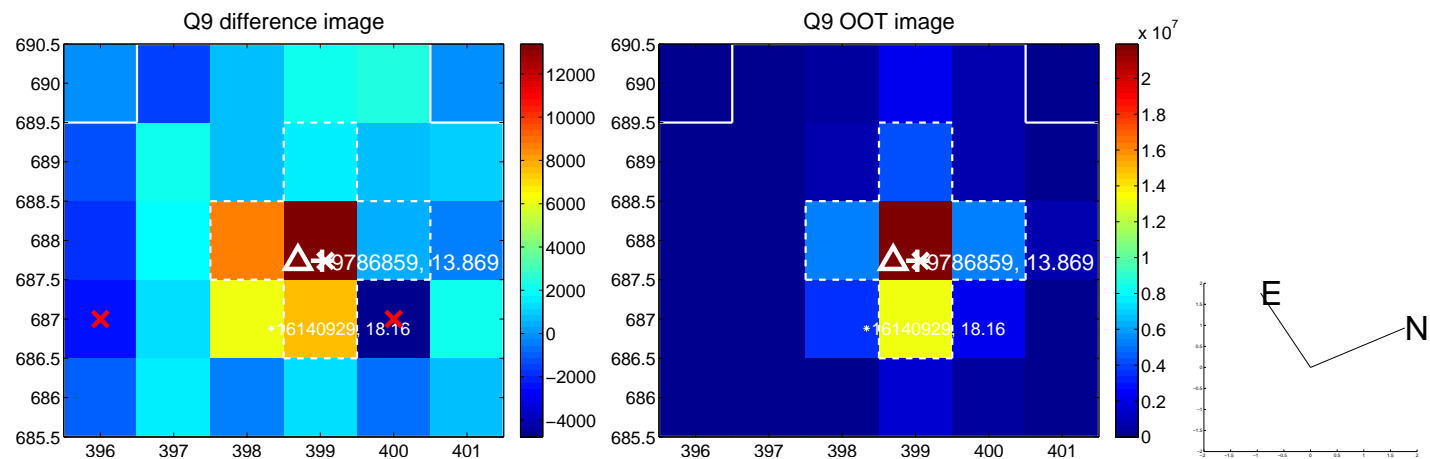
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



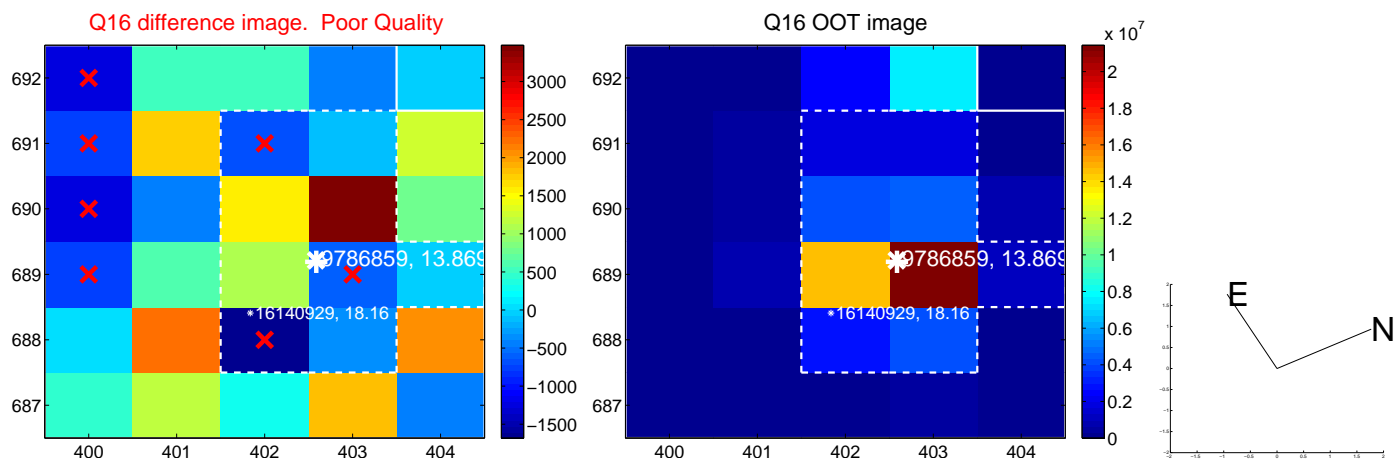
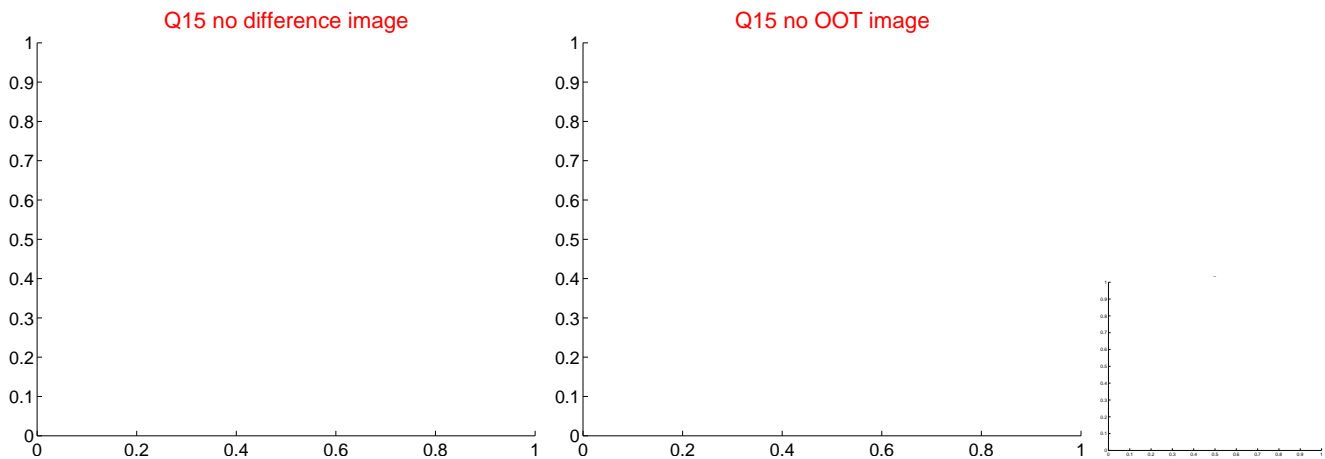
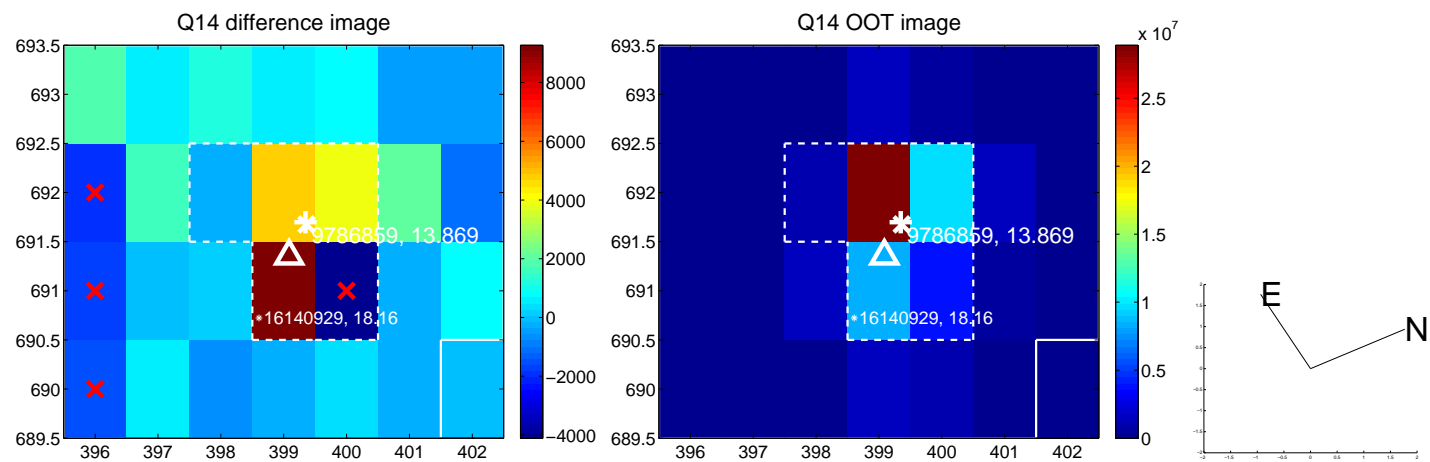
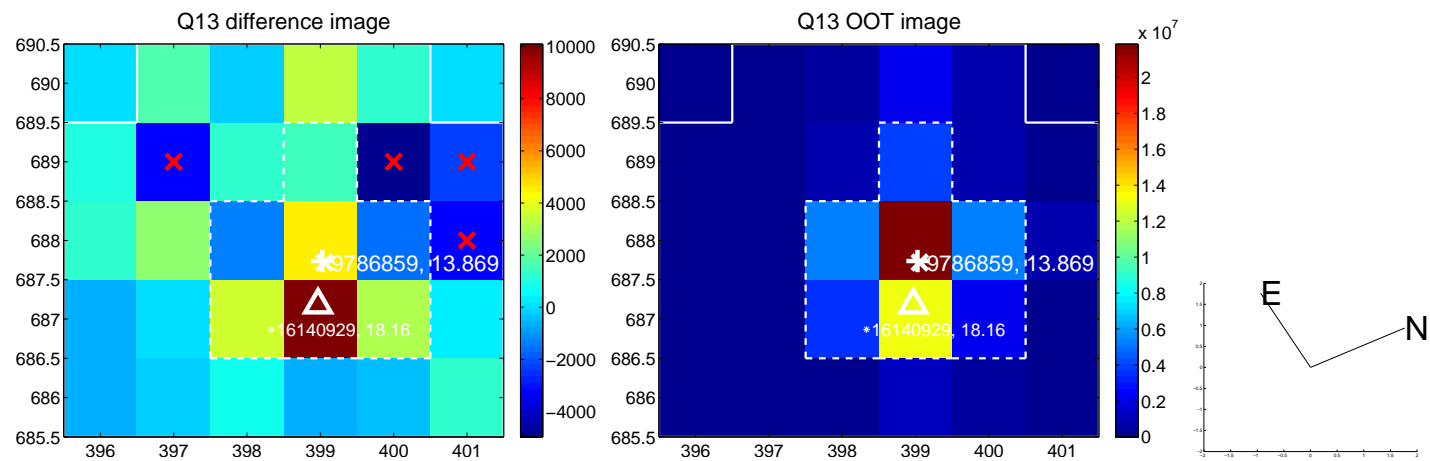
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



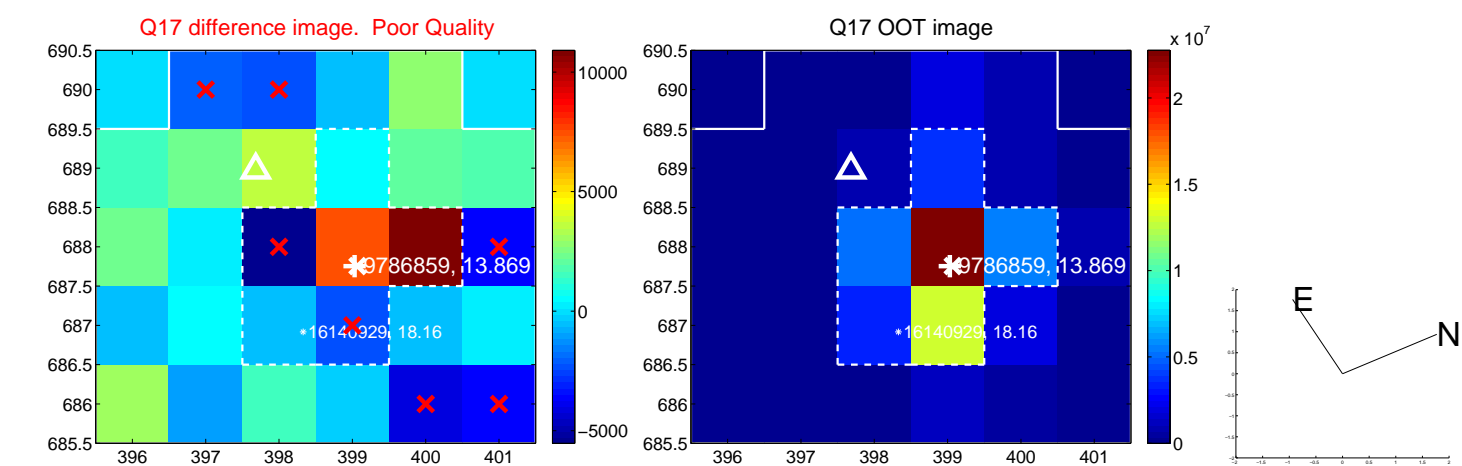
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



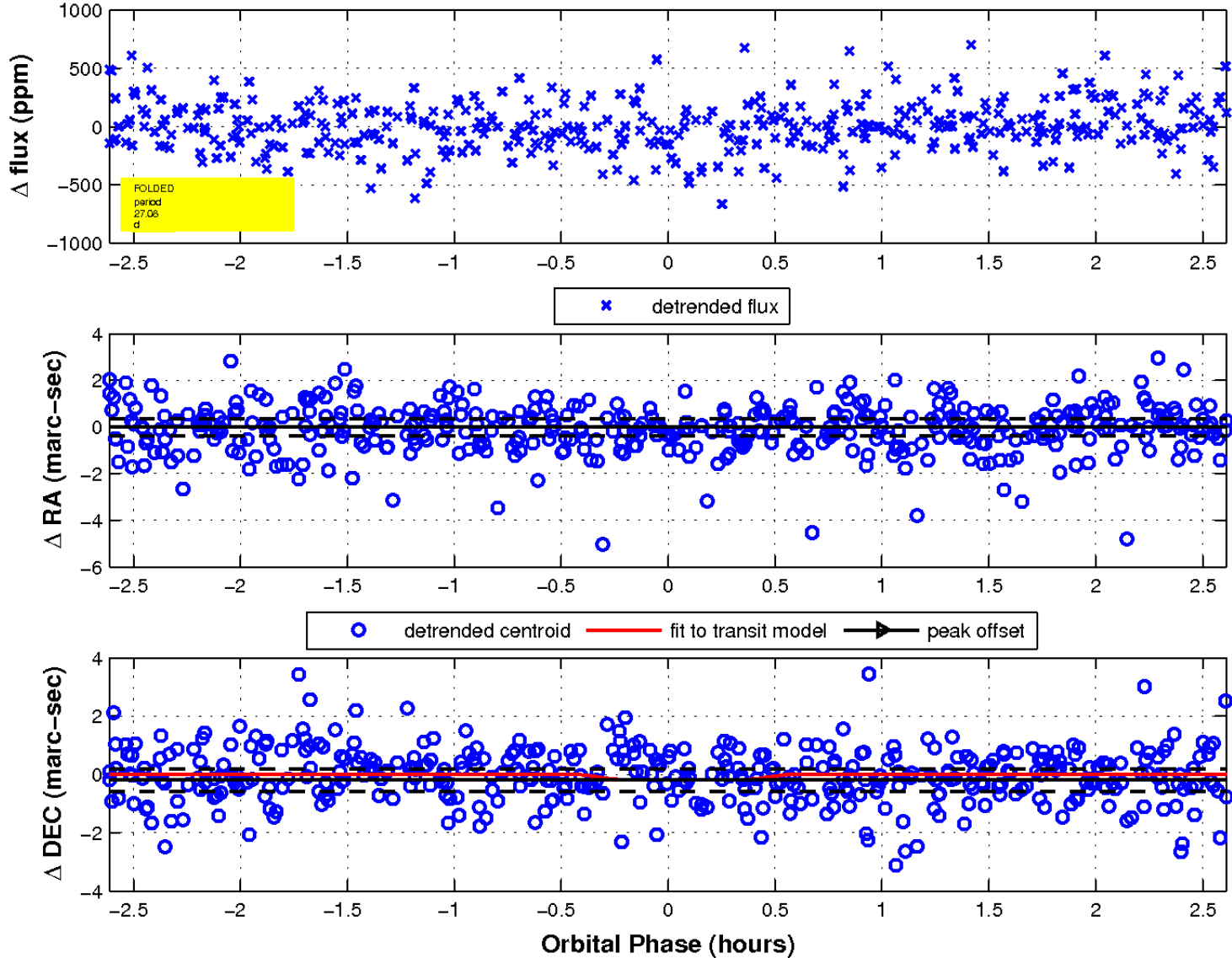
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

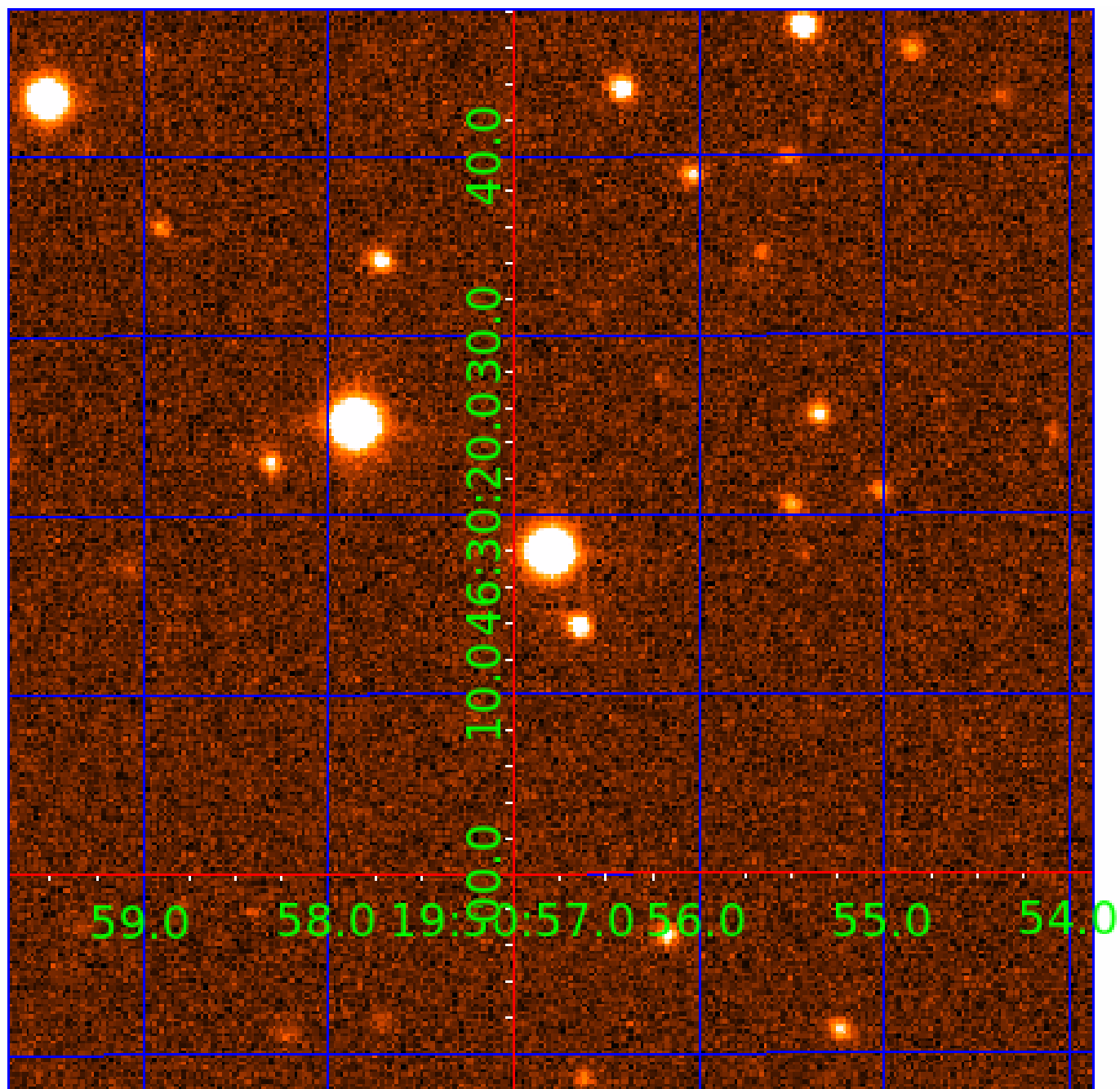


fluxWeightedCentroids, Planet 3 of 7



UKIRT Image

Declination



KIC 009786859

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})
009786859-01	OBS	No	1.058868	131.651251	10.4	7.158	7.9	3.8	1.44	6920	0.47	8412.09
009786859-02	OBS	No	40.259719	135.336066	436.9	2.888	11.5	10.5	1.44	6920	3.40	65.80
009786859-03	OBS	No	27.080605	158.044076	509.0	0.872	9.5	10.4	1.44	6920	3.50	111.64
009786859-04	OBS	No	30.961632	143.734249	365.1	1.367	9.3	8.7	1.44	6920	2.87	93.38
009786859-05	OBS	No	49.217092	172.911806	397.3	2.826	8.9	10.6	1.44	6920	3.16	50.34
009786859-06	OBS	No	72.046728	154.436153	436.7	7.800	9.8	8.5	1.44	6920	3.53	30.28
009786859-07	OBS	No	67.596962	184.282166	419.7	1.627	8.6	9.1	1.44	6920	3.44	32.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009786859-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009786859-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
009786859-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV
009786859-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_MEAS
009786859-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009786859-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009786859-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS—HALO_GHOST

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

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

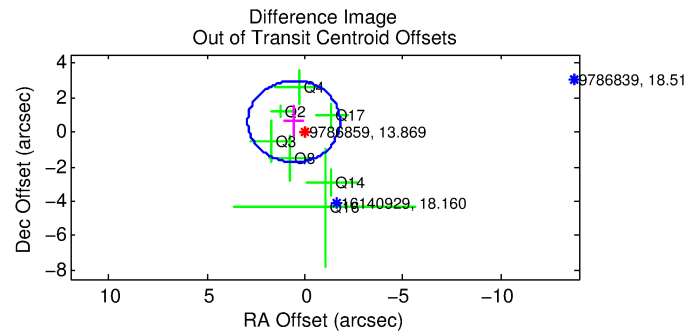
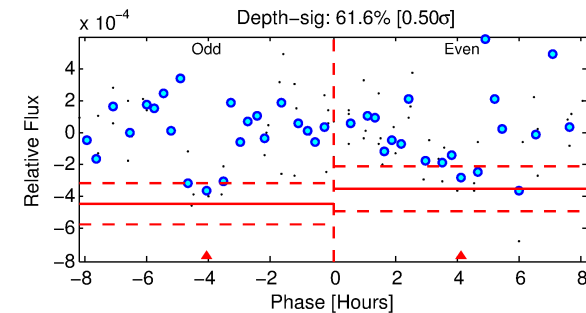
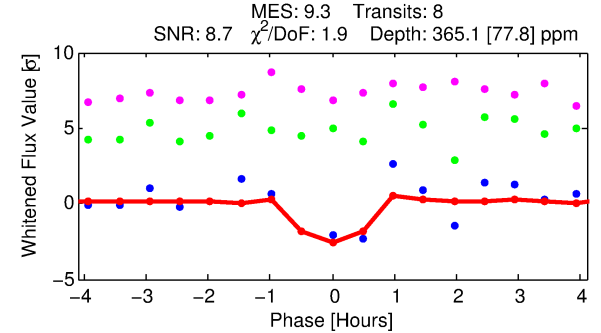
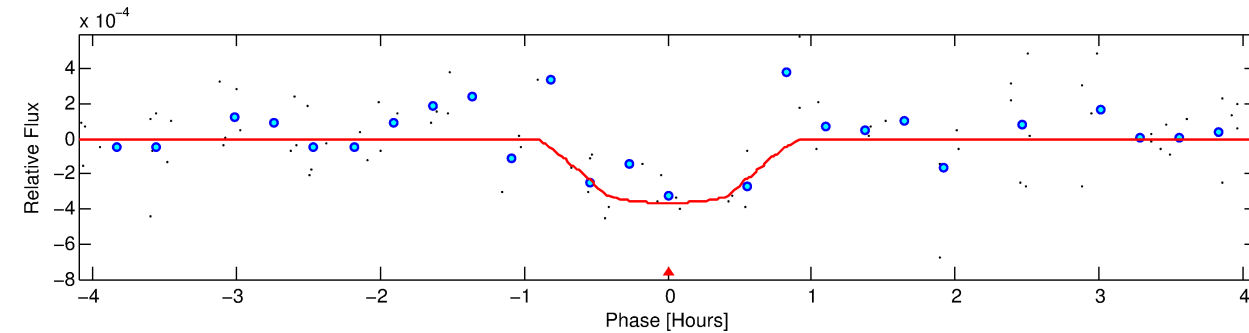
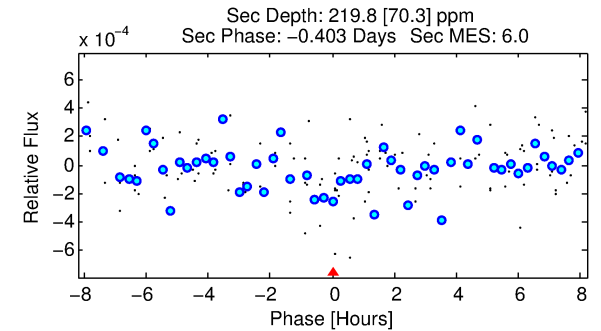
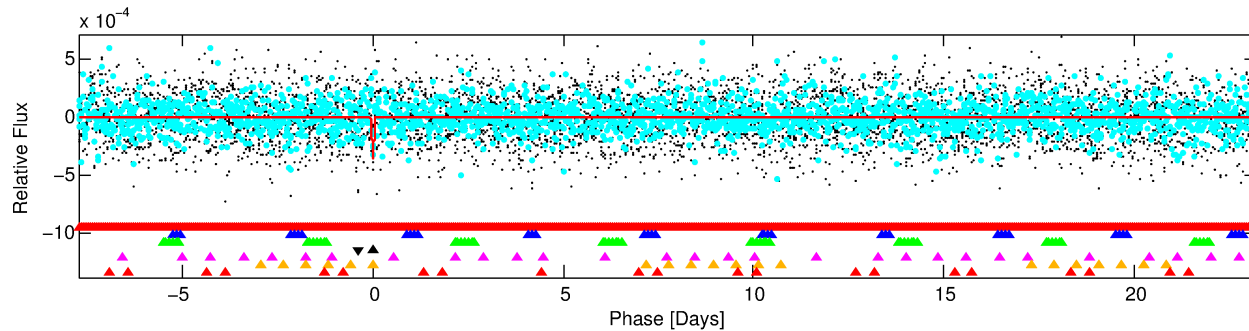
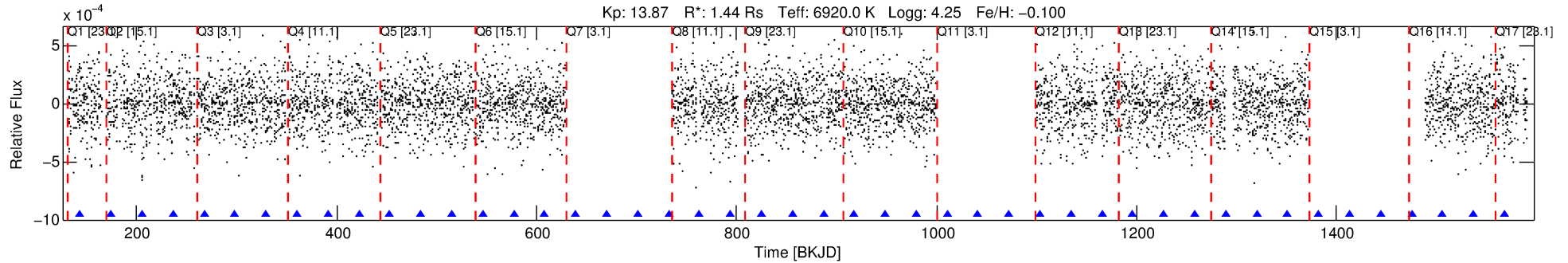
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009786859-04

No Significant Match Found

DV One-Page Summary

KIC: 9786859 Candidate: 4 of 7 Period: 30.962 d



DV Fit Results:

Period = 30.96163 [0.00027] d
Epoch = 143.7342 [0.0093] BKJD
Rp/R* = 0.0182 [0.0189]
a/R* = 151.53 [868.20]
b = 0.52 [8.17]
Seff = 93.38 [39.14]
Teq = 793 [83] K
Rp = 2.87 [3.12] Re
a = 0.2134 [0.0585] AU
Ag = 671.23 [1431.12] [0.47σ]
Teffp = 6238 [3281] K [1.66σ]

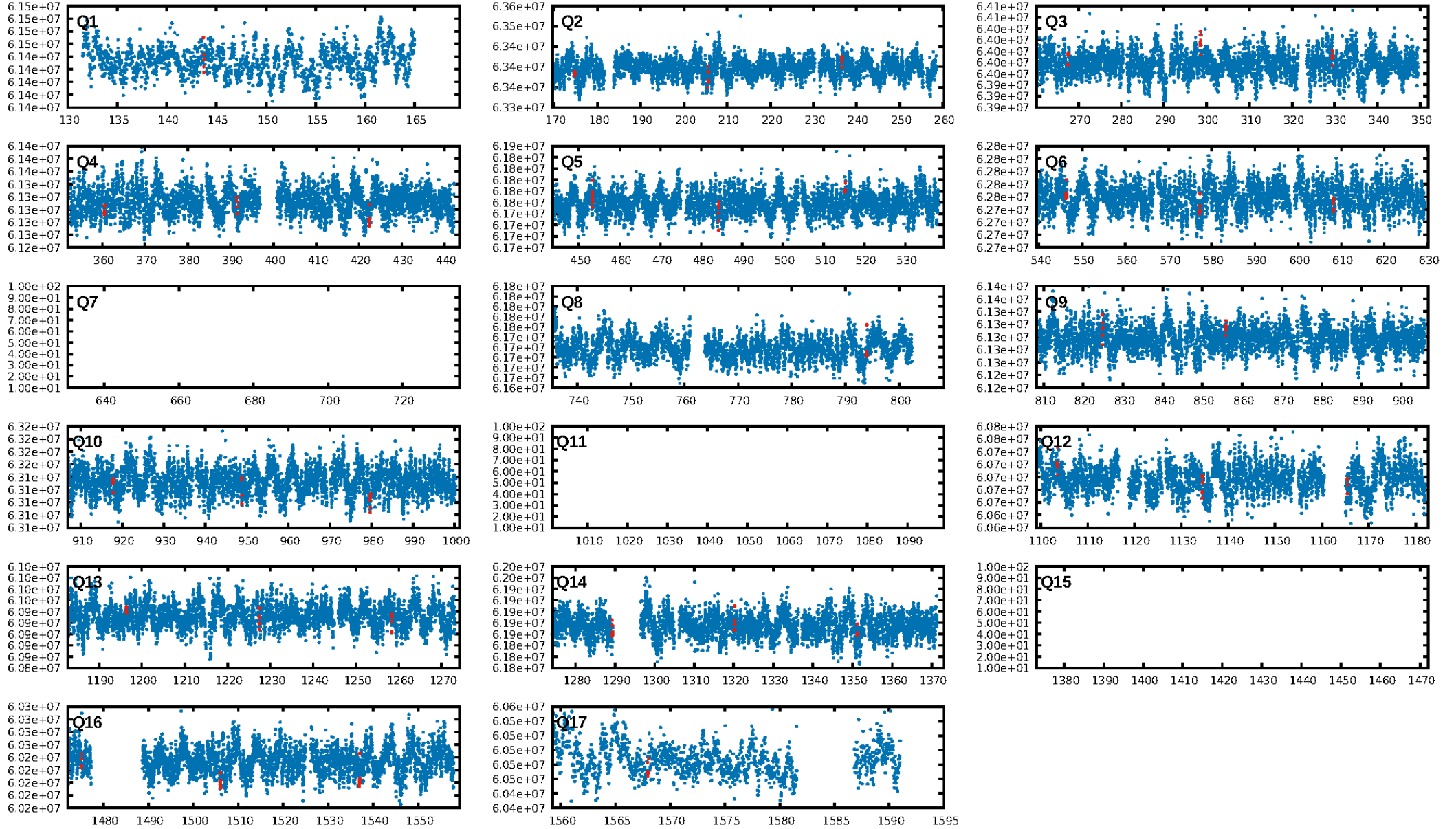
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [57.43σ]
LongPeriod-sig: 100.0% [69.84σ]
ModelChiSquare2-sig: 48.3%
ModelChiSquareGof-sig: 97.7%
Bootstrap-pfa: 4.42e-09
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 1.066
Centroid-sig: 34.3%
Centroid-so: 0.581 arcsec [0.70σ]
OotOffset-rm: 0.840 arcsec [1.07σ]
OotOffset-st: 2/1/3/1 [7]
KicOffset-rm: 0.851 arcsec [1.12σ]
KicOffset-st: 2/1/3/1 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 0.57 [8/14]

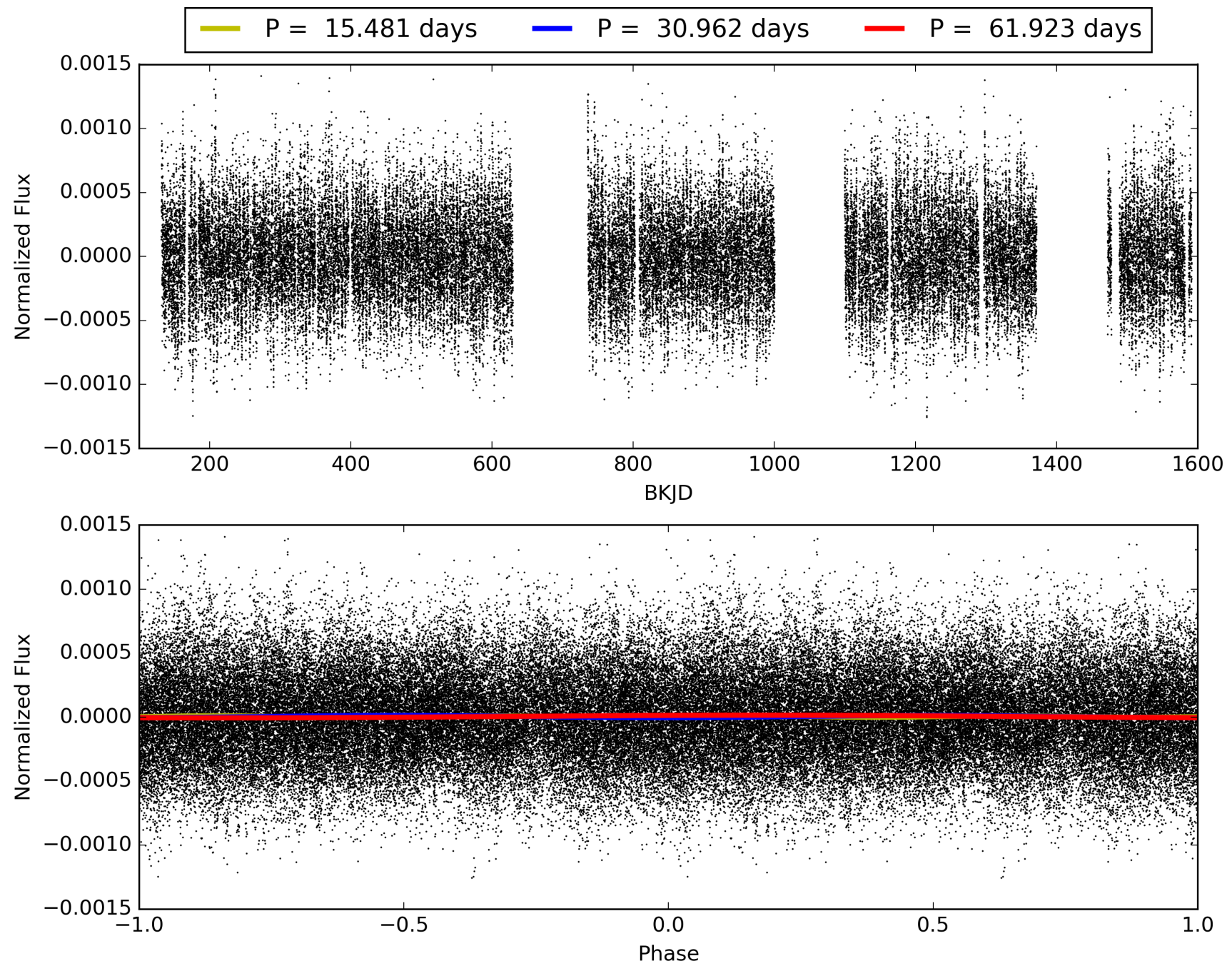
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:25:59 Z

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

TCE 009786859-04, PDC Light Curves

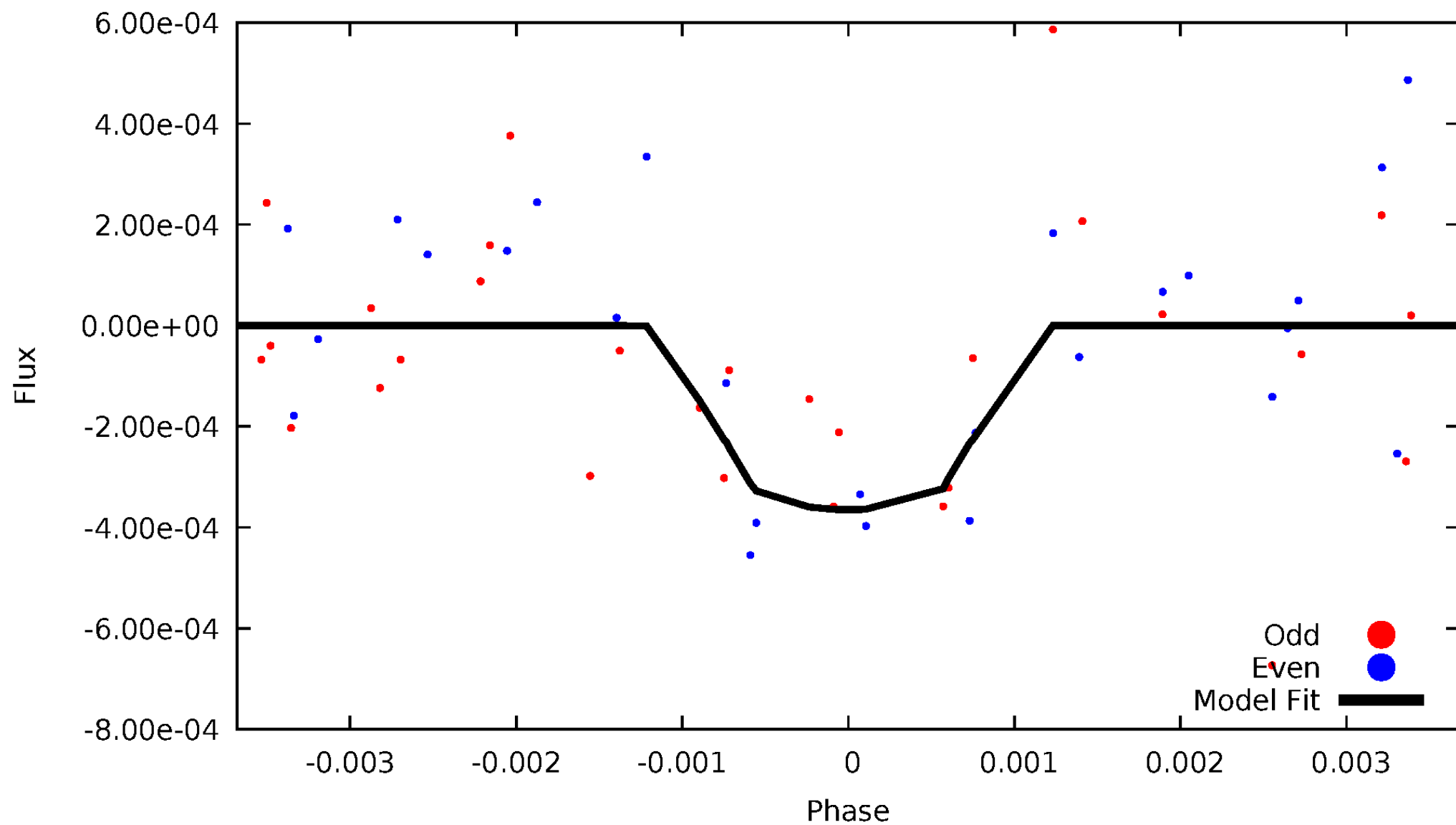


TCE 009786859-04



DV Odd/Even

TCE 009786859-04

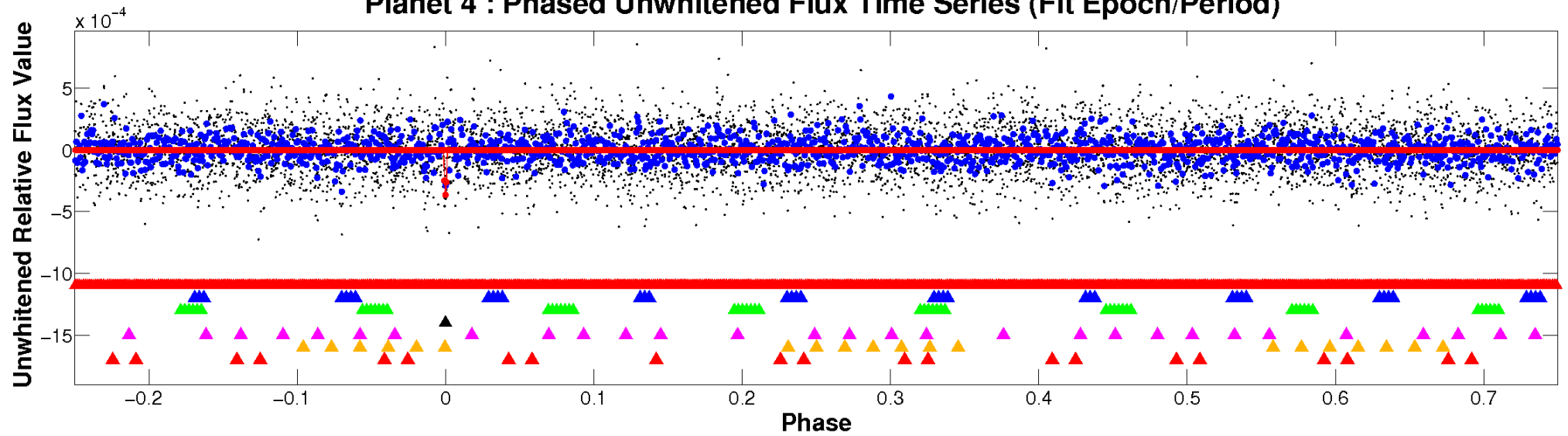


ALT Odd/Even

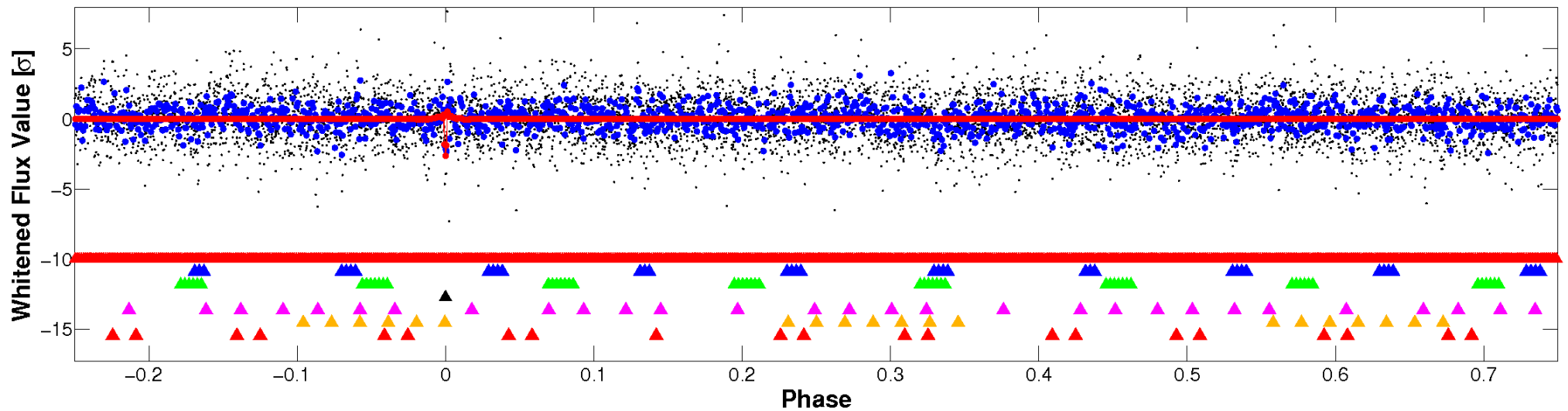
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

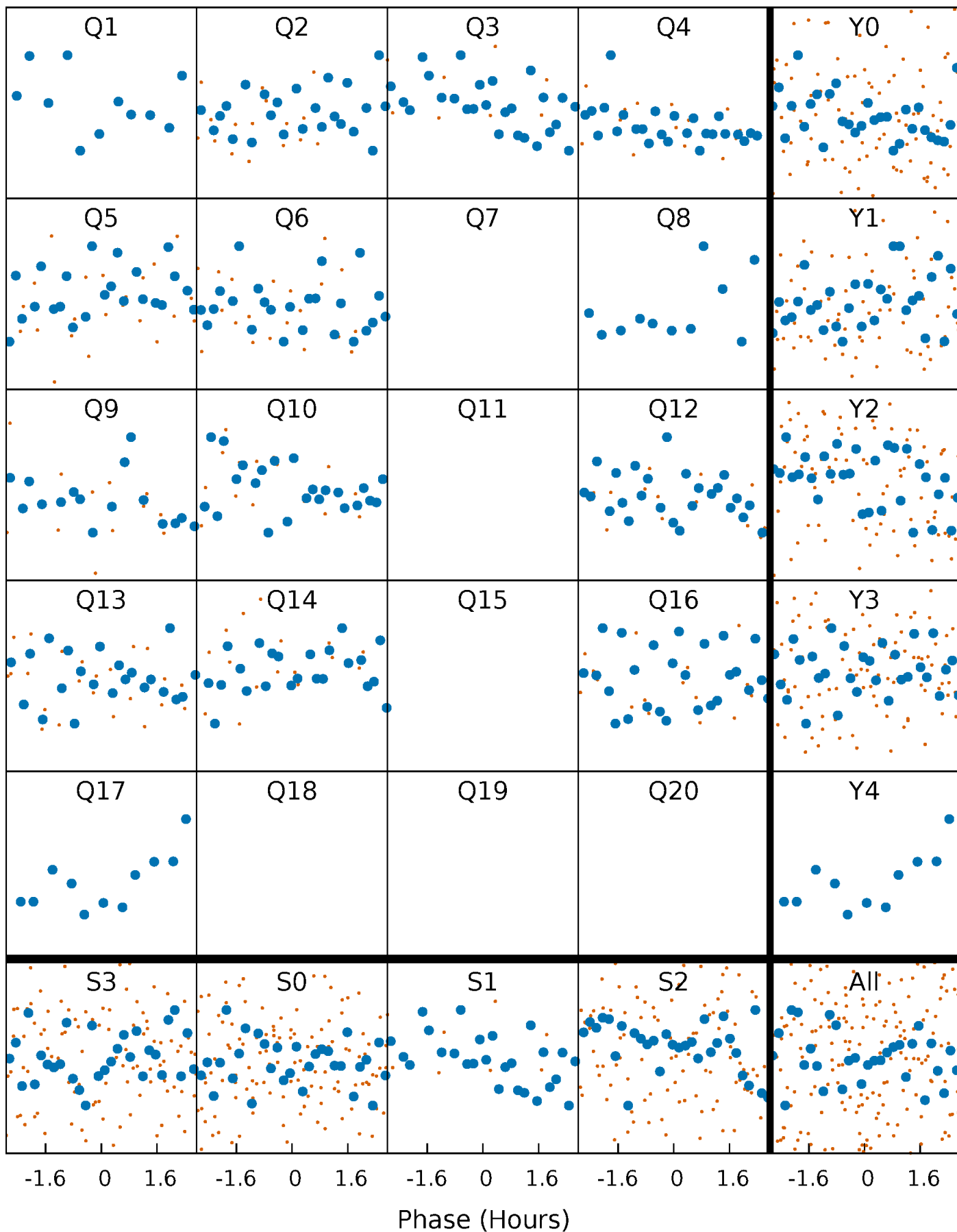


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



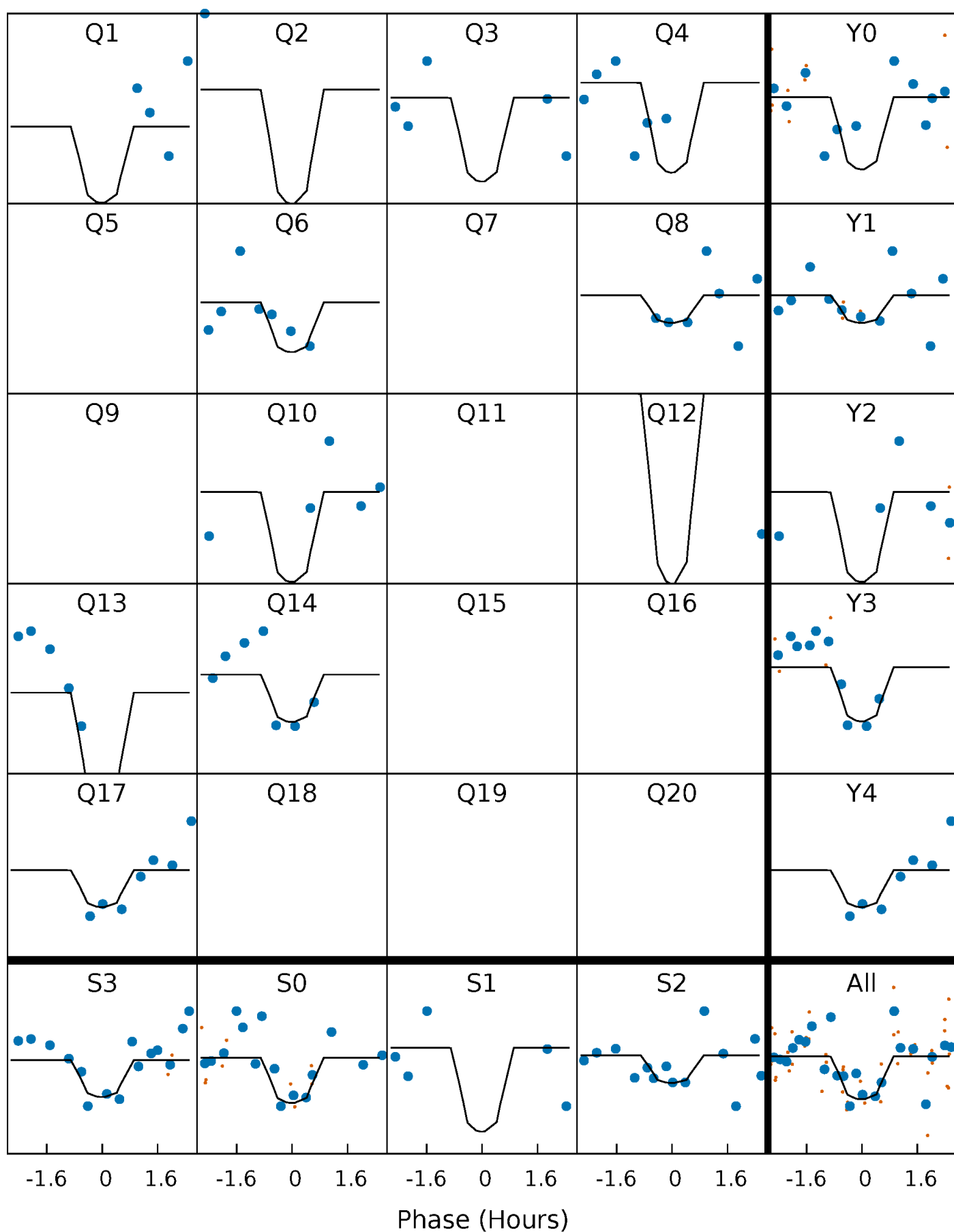
PDC Quarter-Phased Transit Curves

TCE 009786859-04 P= 30.961632 Days $T_0=143.734249$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009786859-04 P= 30.961632 Days $T_0=143.734249$ (BKJD)

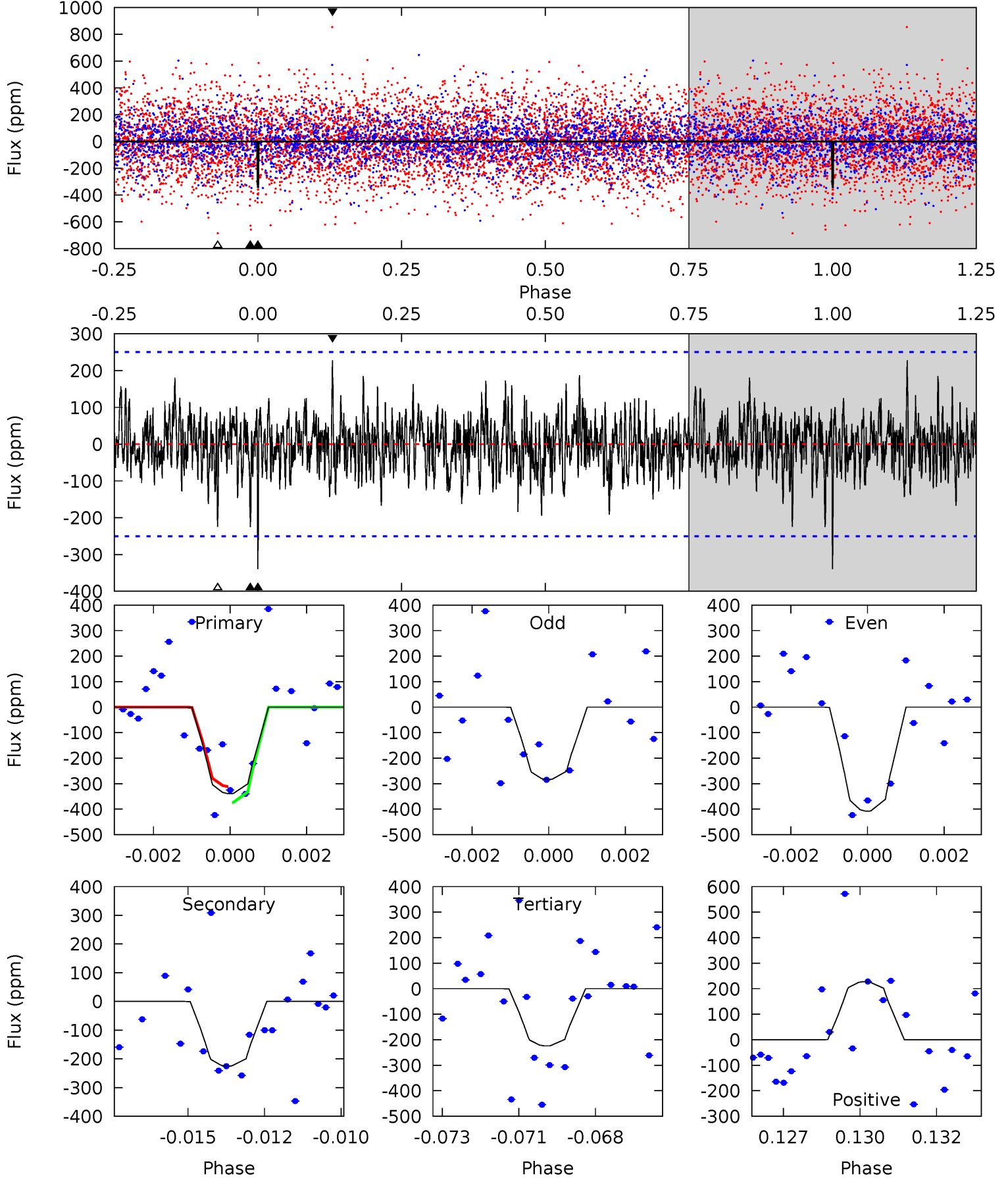


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

009786859-04, P = 30.961632 Days, E = 112.772617 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.16	4.75	4.73	4.81	5.29	3.03	1.29	2.43	2.35	0.02	-0.05	1.30	0.85	0.40	0.66



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 009786859

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6920^{+192}_{-288}	$4.253^{+0.087}_{-0.203}$	$-0.100^{+0.250}_{-0.350}$	$1.439^{+0.487}_{-0.209}$	$1.358^{+0.214}_{-0.214}$	$0.641^{+0.317}_{-0.340}$
	+3%/-4%	+2%/-5%	+250%/-350%	+34%/-15%	+16%/-16%	+49%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009786859-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-225 ± 47	$3.58^{+2.85}_{-2.17}$	1121^{+94}_{-72}	5592^{+3720}_{-1205}	417^{+2089}_{-287}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

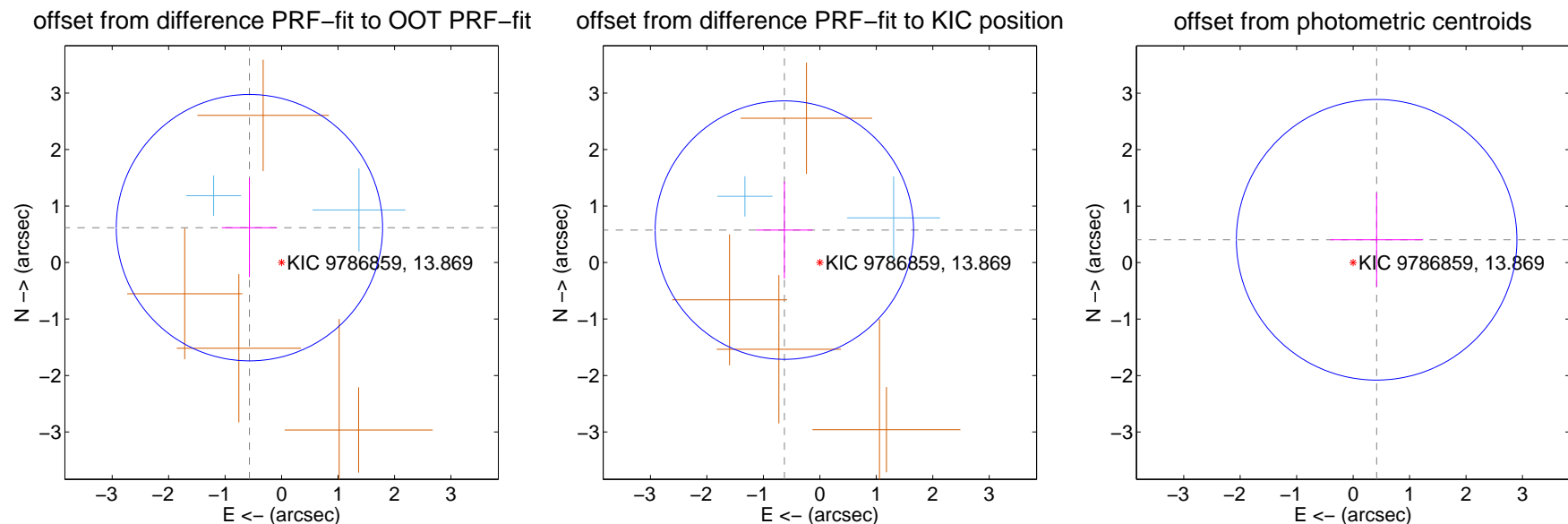
DV Centroid Data

Supplemental centroid analysis for 009786859-04. Kepler magnitude: 13.87. Transit SNR 8.74

There are 2 quarters with good PRF difference image offsets

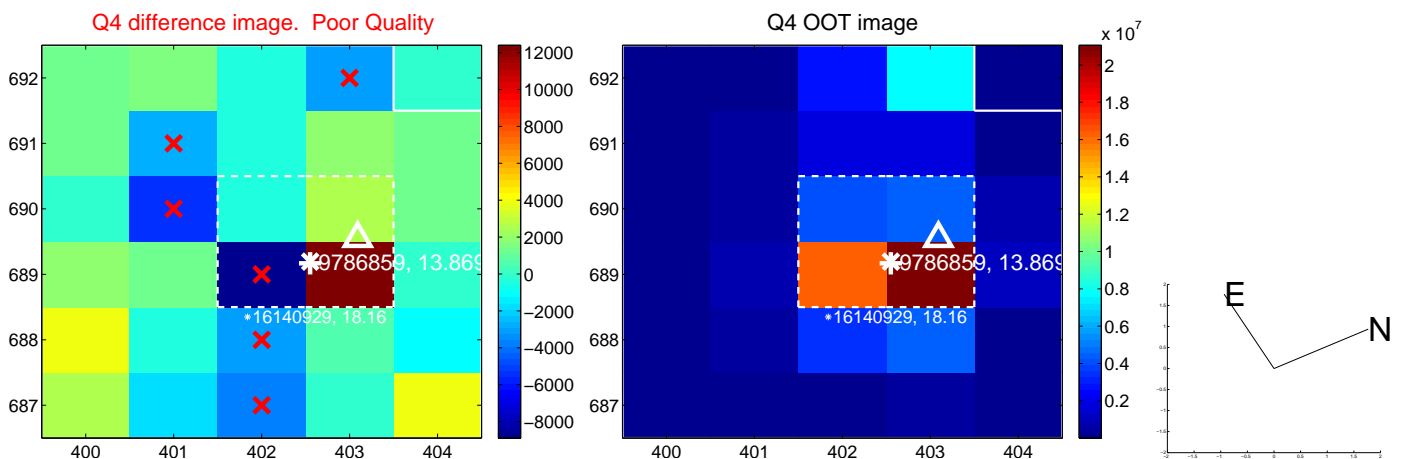
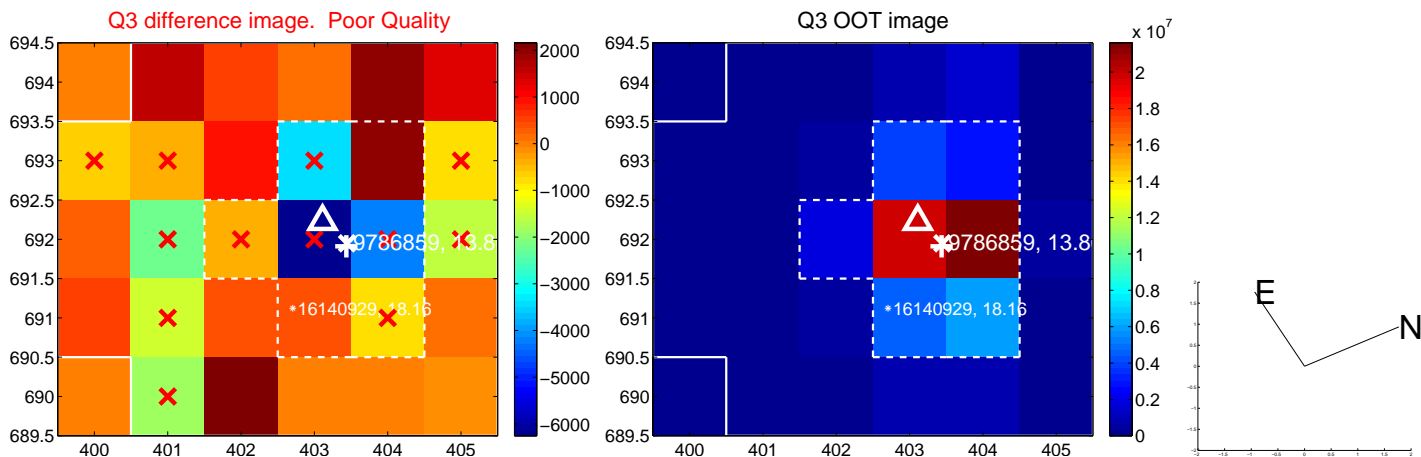
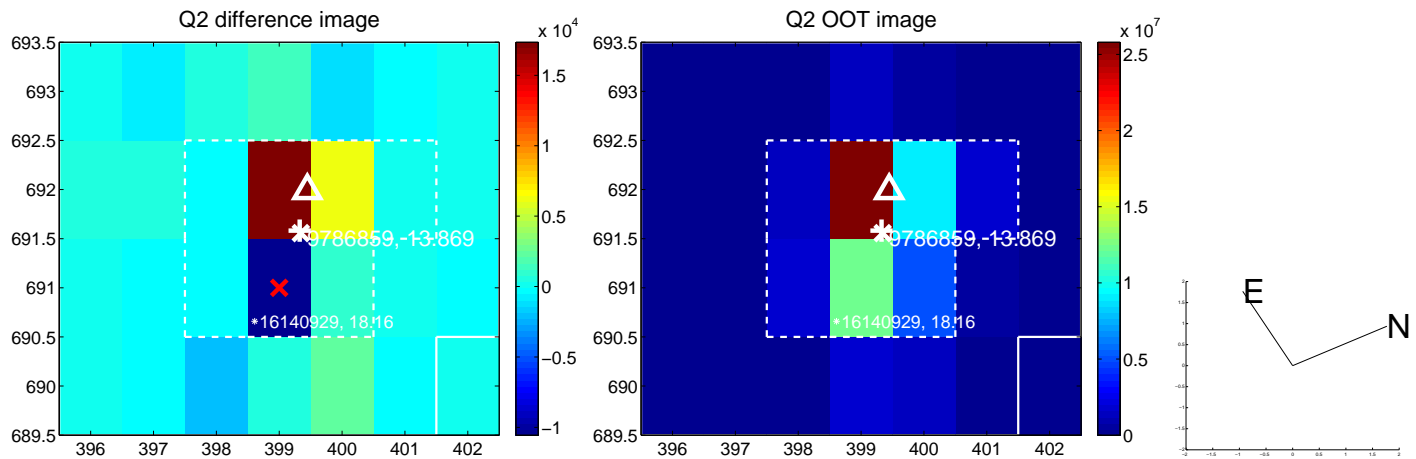
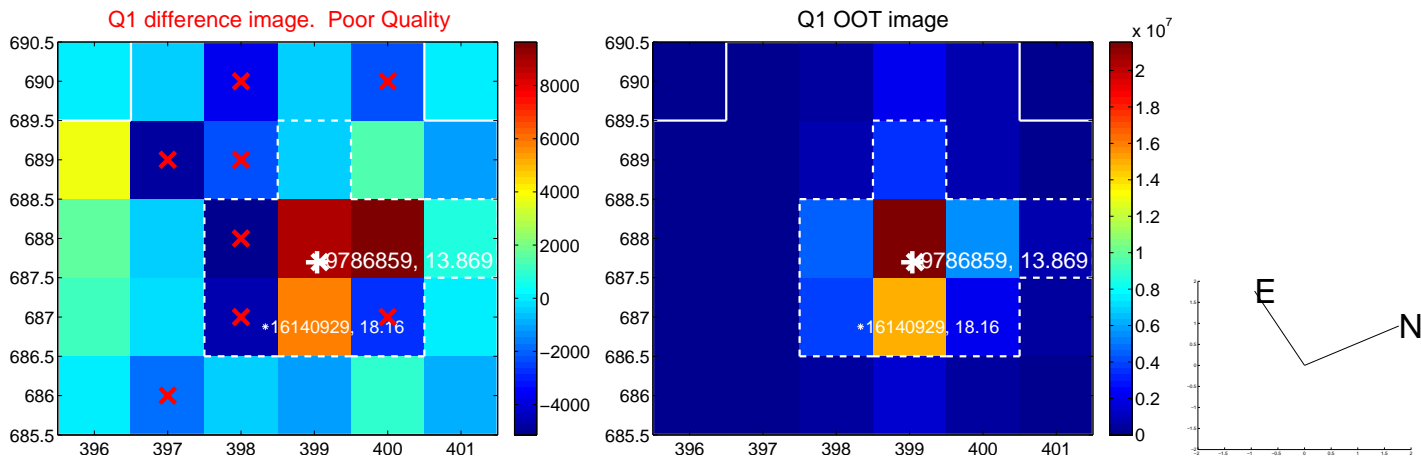
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.840 ± 0.786	1.07	0.570 ± 0.487	0.617 ± 0.875
PRF-fit source offset from KIC position	0.851 ± 0.763	1.12	0.628 ± 0.500	0.574 ± 0.859
photometric centroid source offset	0.58 ± 0.83	0.70	-0.42 ± 0.82	0.40 ± 0.83

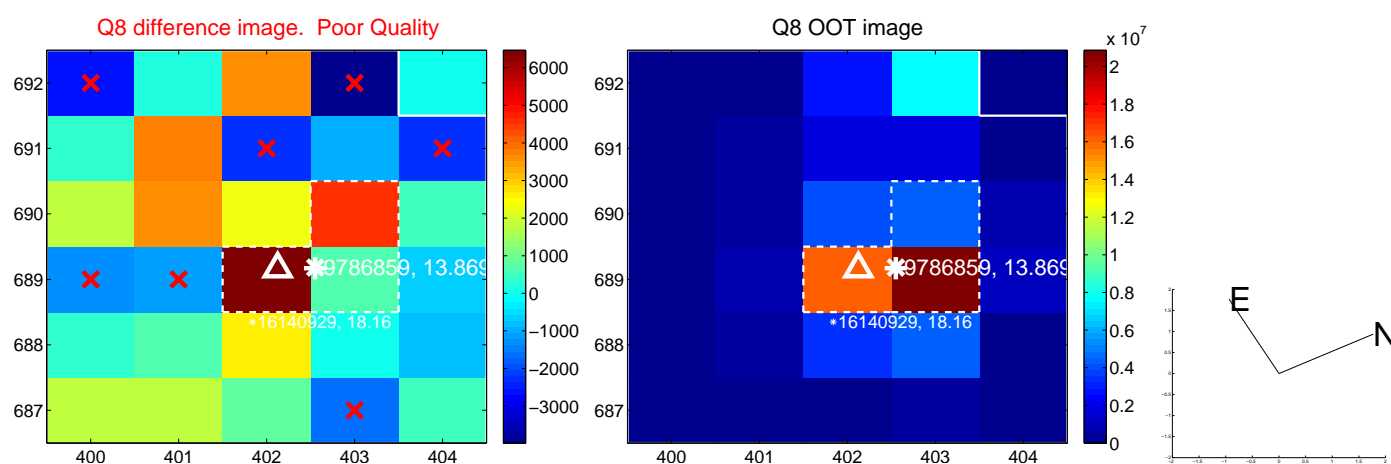
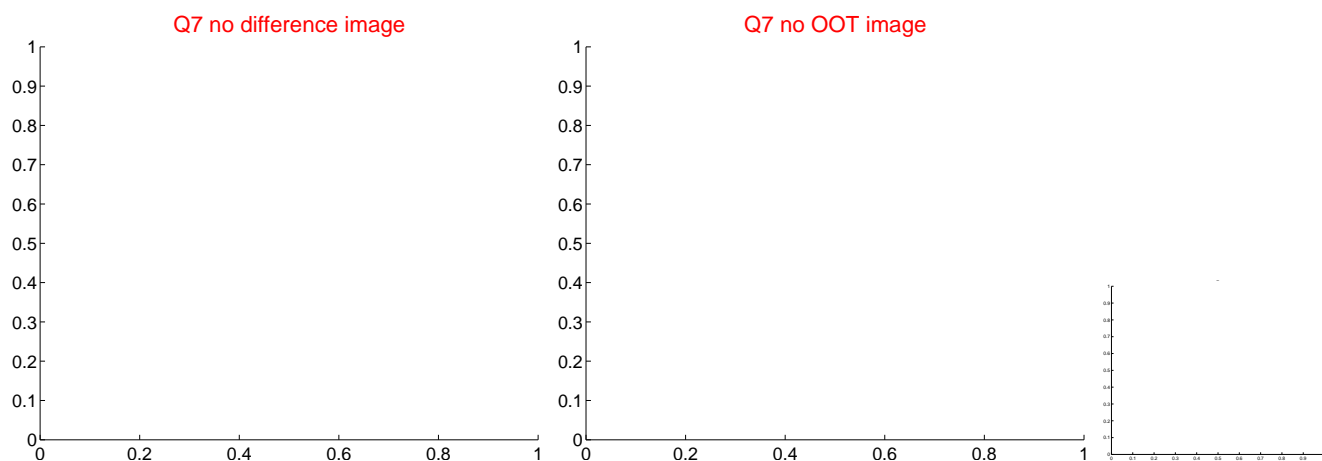
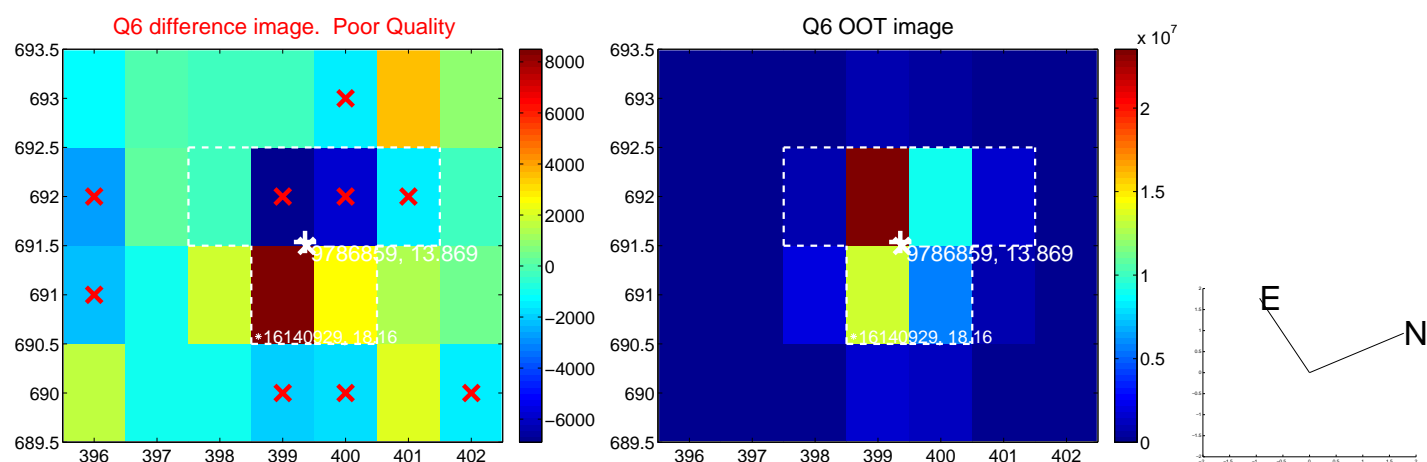
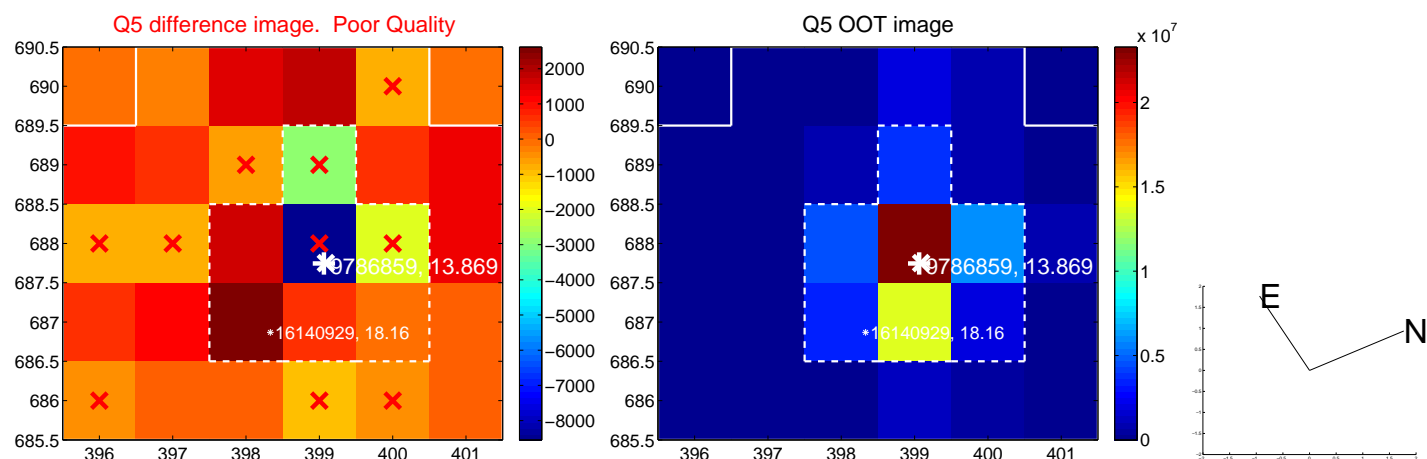


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

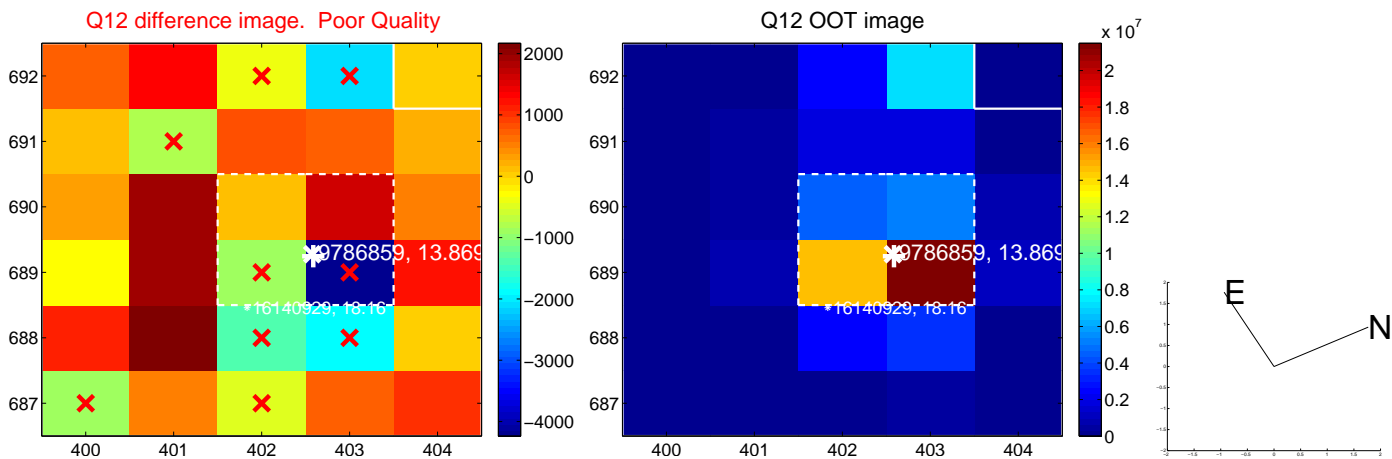
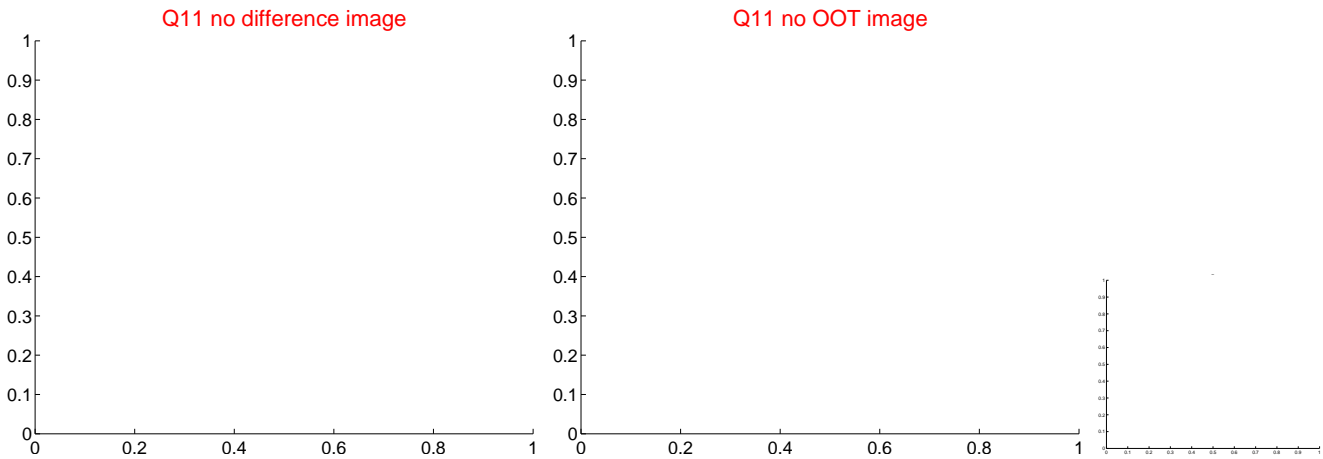
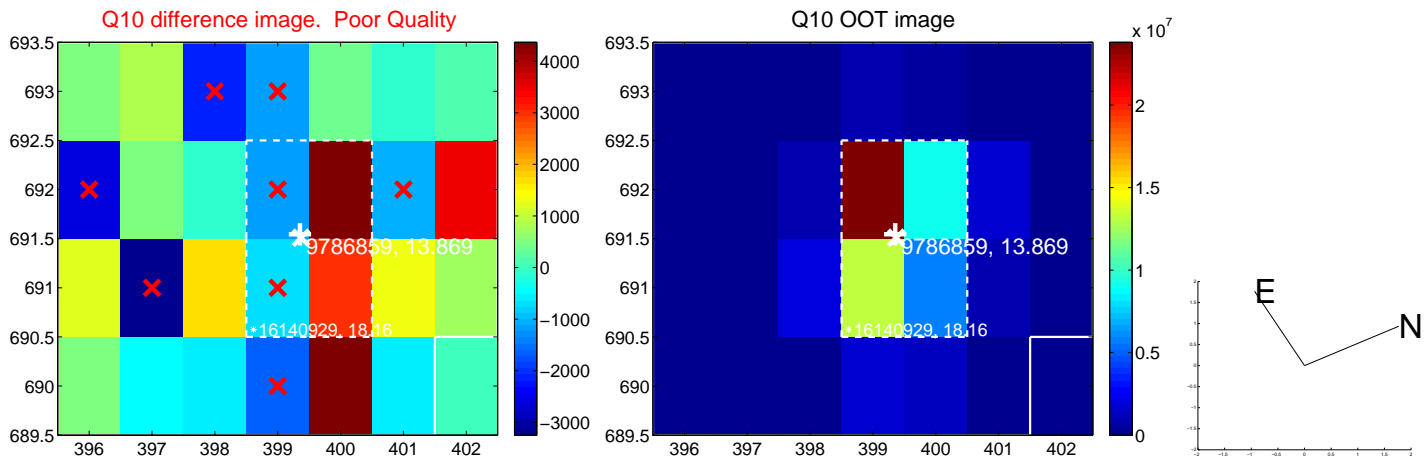
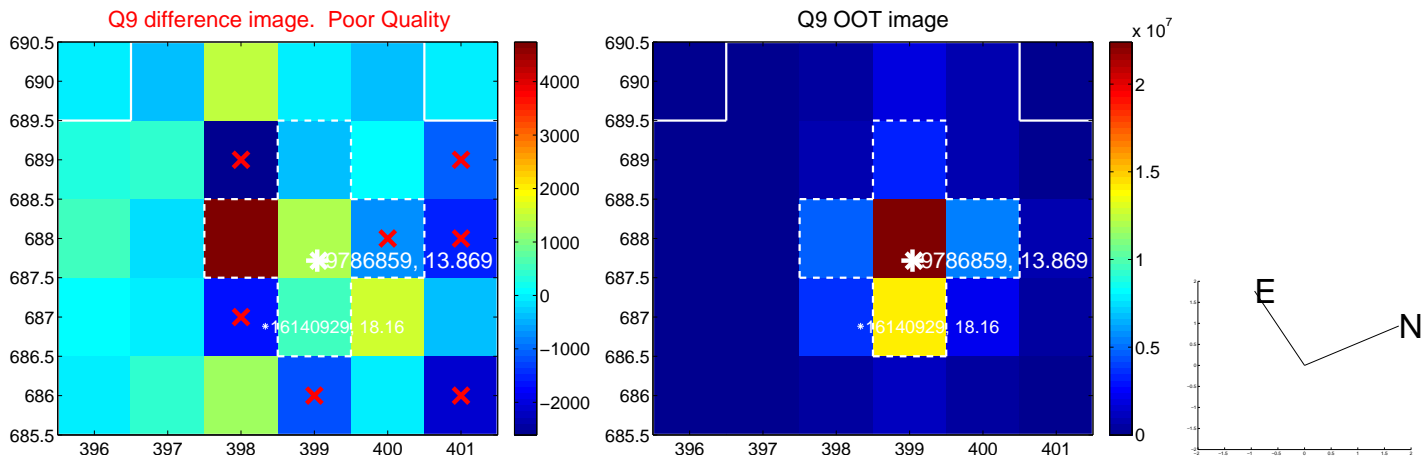
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



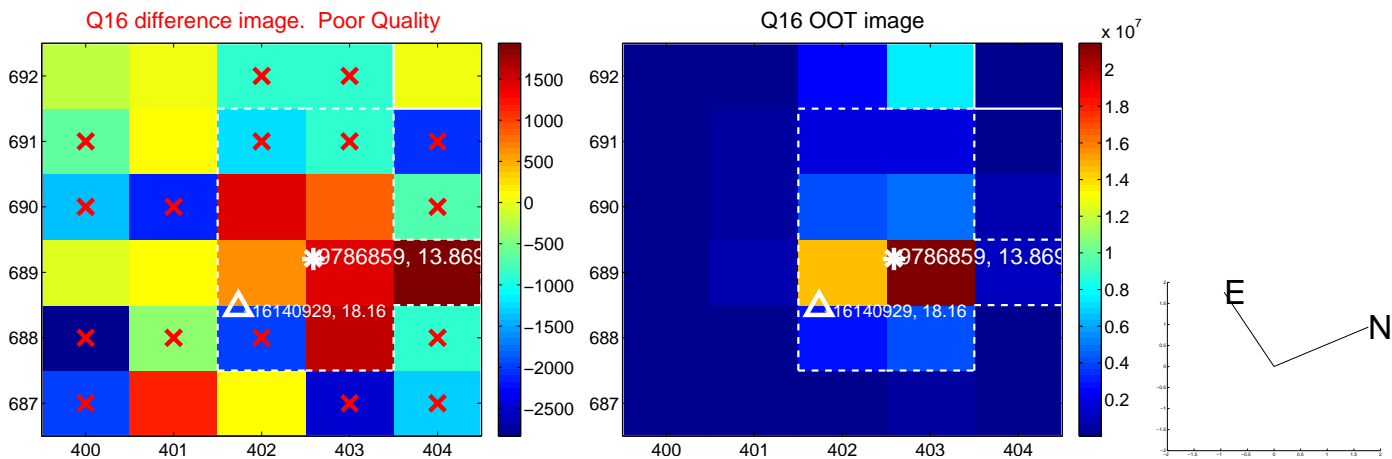
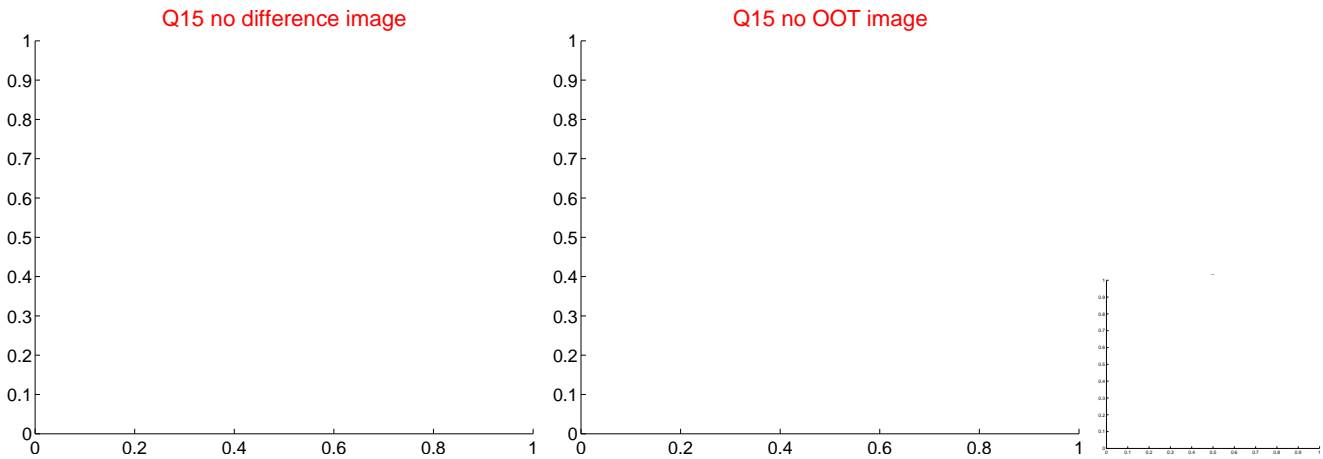
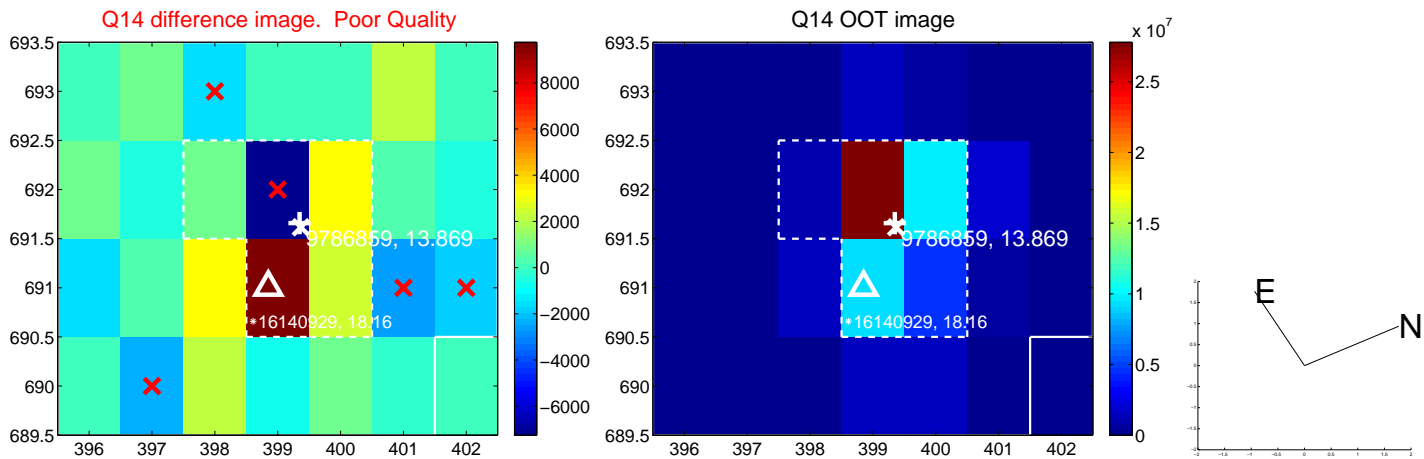
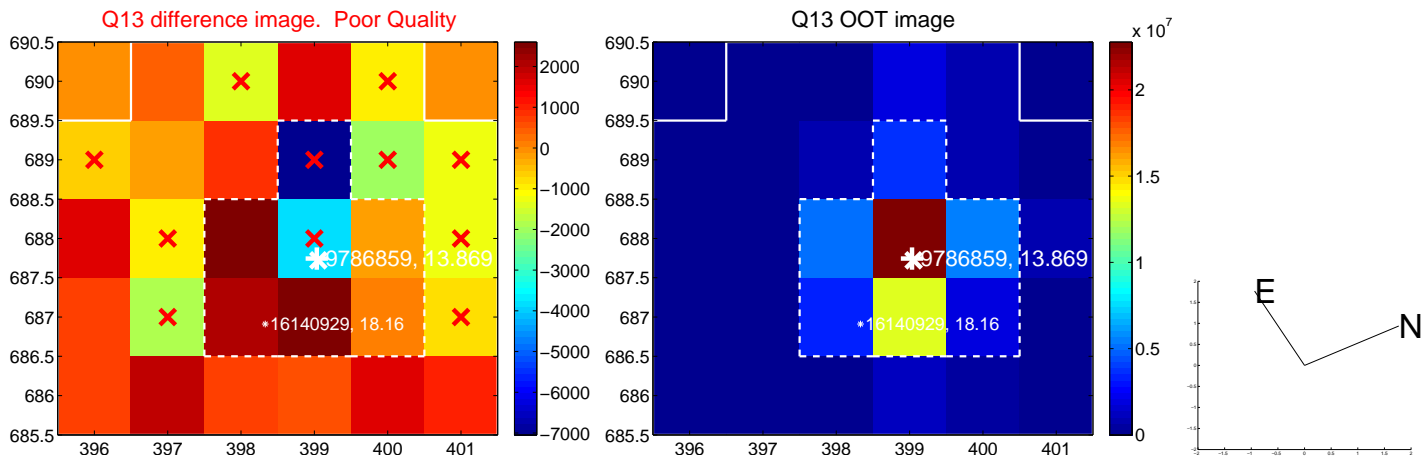
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



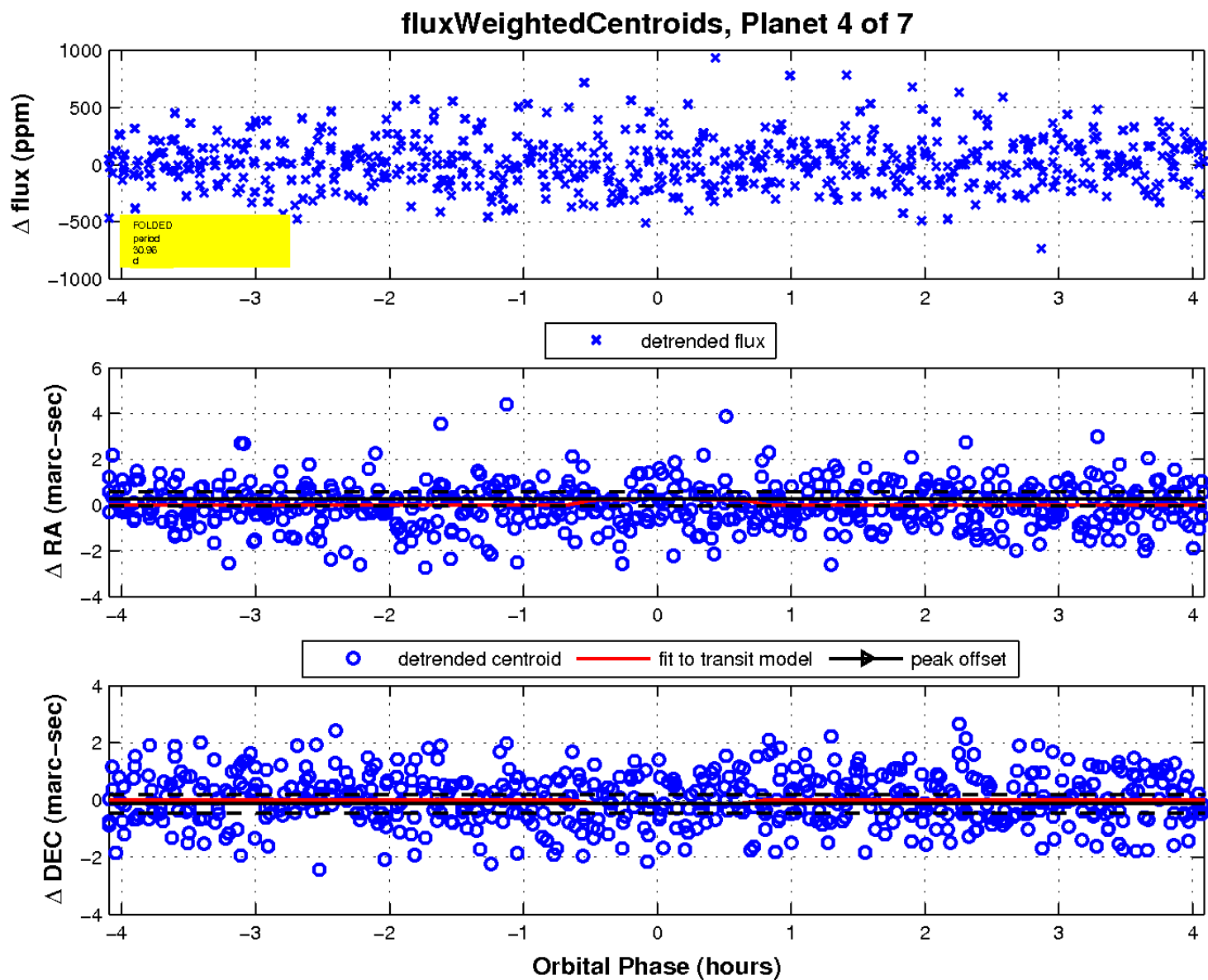
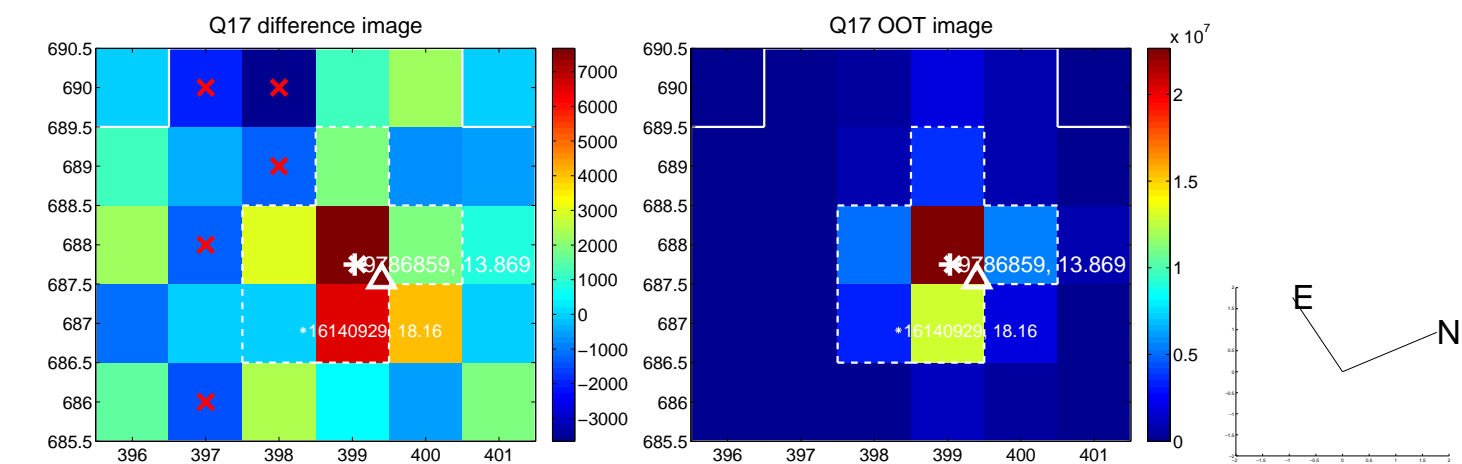
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

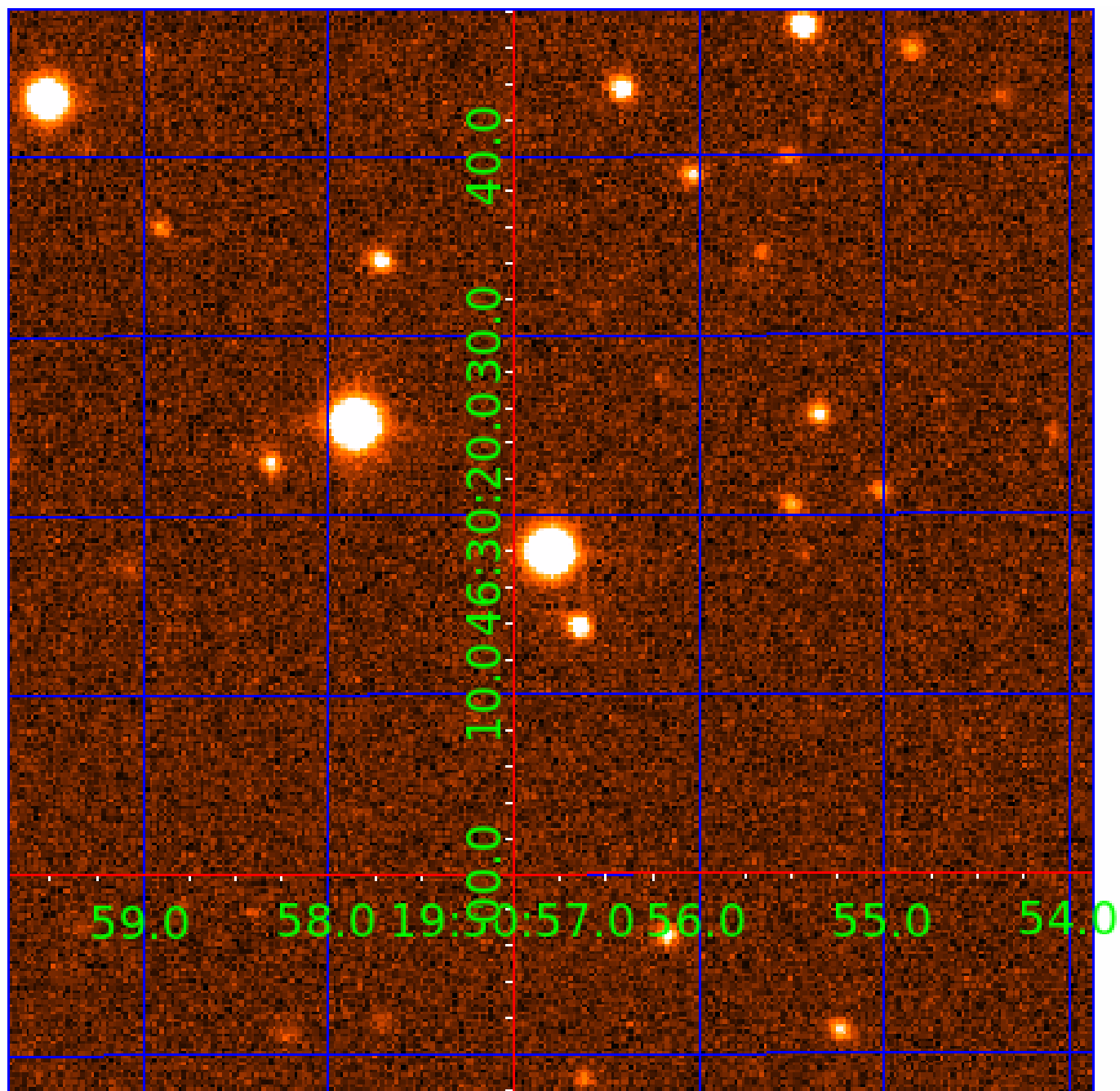


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009786859

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})
009786859-01	OBS	No	1.058868	131.651251	10.4	7.158	7.9	3.8	1.44	6920	0.47	8412.09
009786859-02	OBS	No	40.259719	135.336066	436.9	2.888	11.5	10.5	1.44	6920	3.40	65.80
009786859-03	OBS	No	27.080605	158.044076	509.0	0.872	9.5	10.4	1.44	6920	3.50	111.64
009786859-04	OBS	No	30.961632	143.734249	365.1	1.367	9.3	8.7	1.44	6920	2.87	93.38
009786859-05	OBS	No	49.217092	172.911806	397.3	2.826	8.9	10.6	1.44	6920	3.16	50.34
009786859-06	OBS	No	72.046728	154.436153	436.7	7.800	9.8	8.5	1.44	6920	3.53	30.28
009786859-07	OBS	No	67.596962	184.282166	419.7	1.627	8.6	9.1	1.44	6920	3.44	32.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009786859-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009786859-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
009786859-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV
009786859-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_MEAS
009786859-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009786859-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009786859-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS—HALO_GHOST

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

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

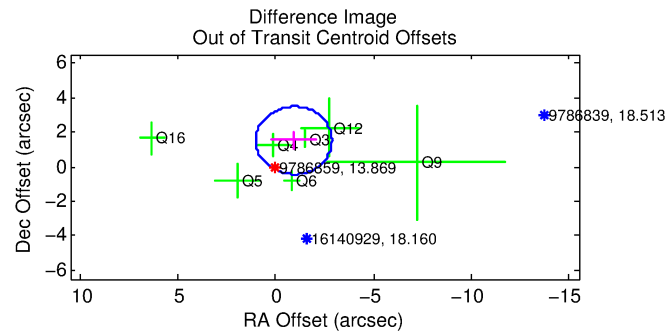
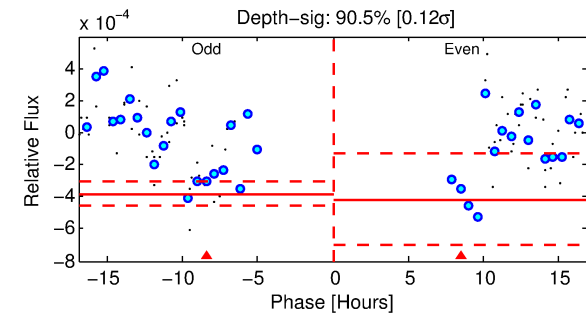
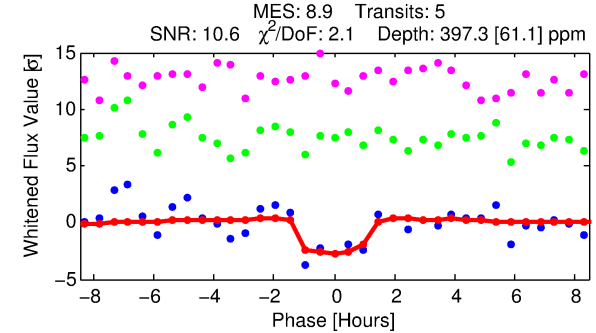
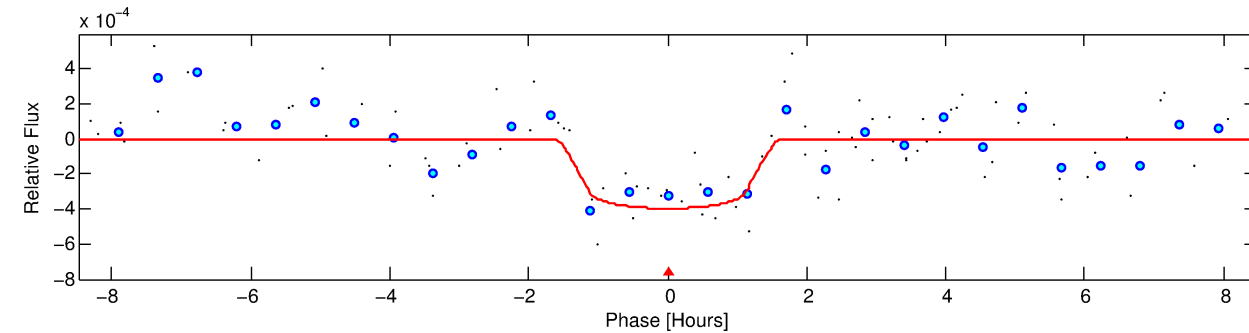
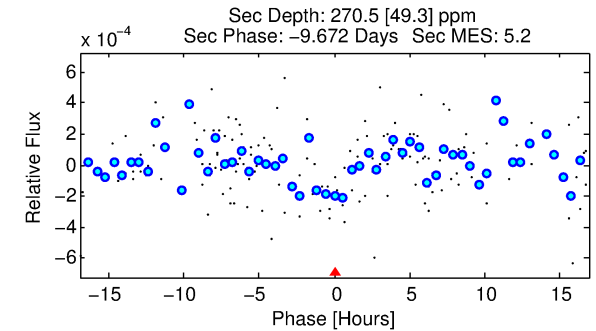
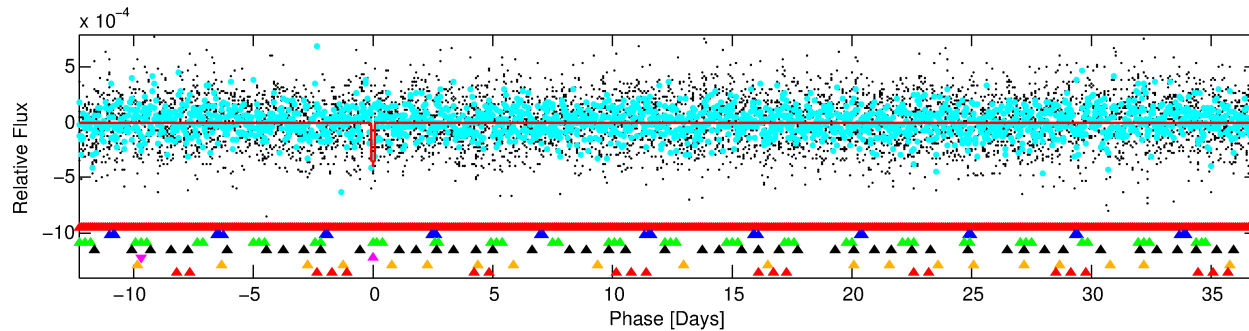
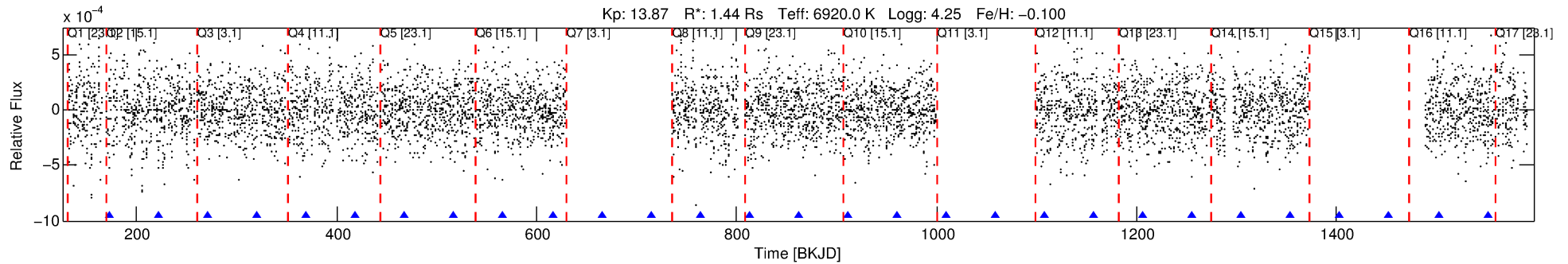
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009786859-05

No Significant Match Found

DV One-Page Summary

KIC: 9786859 Candidate: 5 of 7 Period: 49.217 d



DV Fit Results:

Period = 49.21709 [0.00069] d
Epoch = 172.9118 [0.0155] BKJD
Rp/R* = 0.0201 [0.0193]
a/R* = 85.00 [476.81]
b = 0.80 [2.62]
Seff = 50.34 [21.10]
Teq = 679 [71] K
Rp = 3.16 [3.22] Re
a = 0.2907 [0.0797] AU
Ag = 1259.04 [2476.71] [0.51 σ]
Teffp = 6255 [3028] K [1.84 σ]

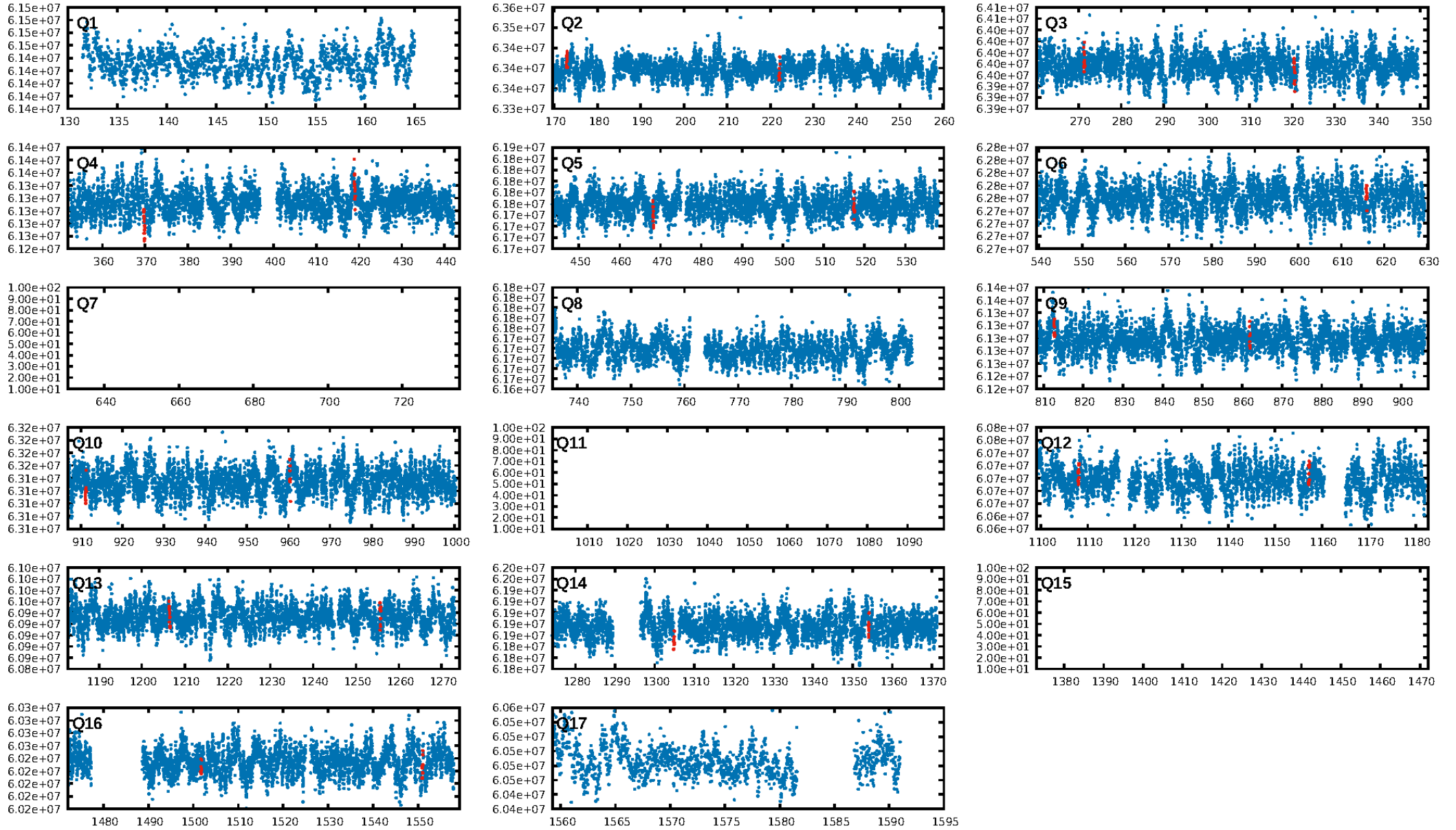
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [53.20 σ]
LongPeriod-sig: 100.0% [135.27 σ]
ModelChiSquare2-sig: 77.8%
ModelChiSquareGof-sig: 98.3%
Bootstrap-pfa: 5.48e-09
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.8568
Centroid-sig: 5.9%
Centroid-so: 0.860 arcsec [1.23 σ]
OotOffset-rm: 1.780 arcsec [2.73 σ]
OotOffset-st: 1/1/3/2 [7]
KicOffset-rm: 1.706 arcsec [1.90 σ]
KicOffset-st: 1/1/3/2 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 0.27 [3/11]

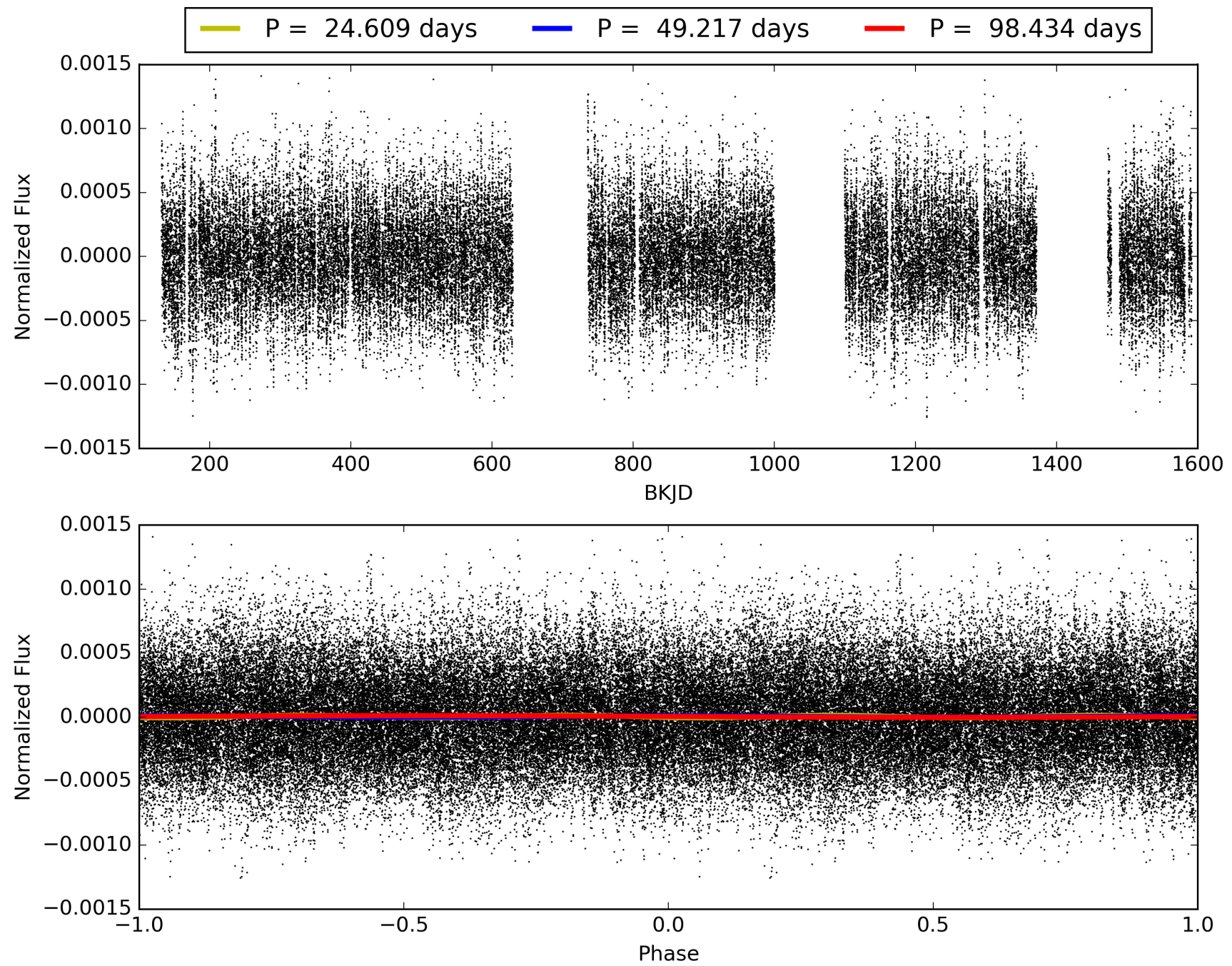
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:26:03 Z

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

TCE 009786859-05, PDC Light Curves

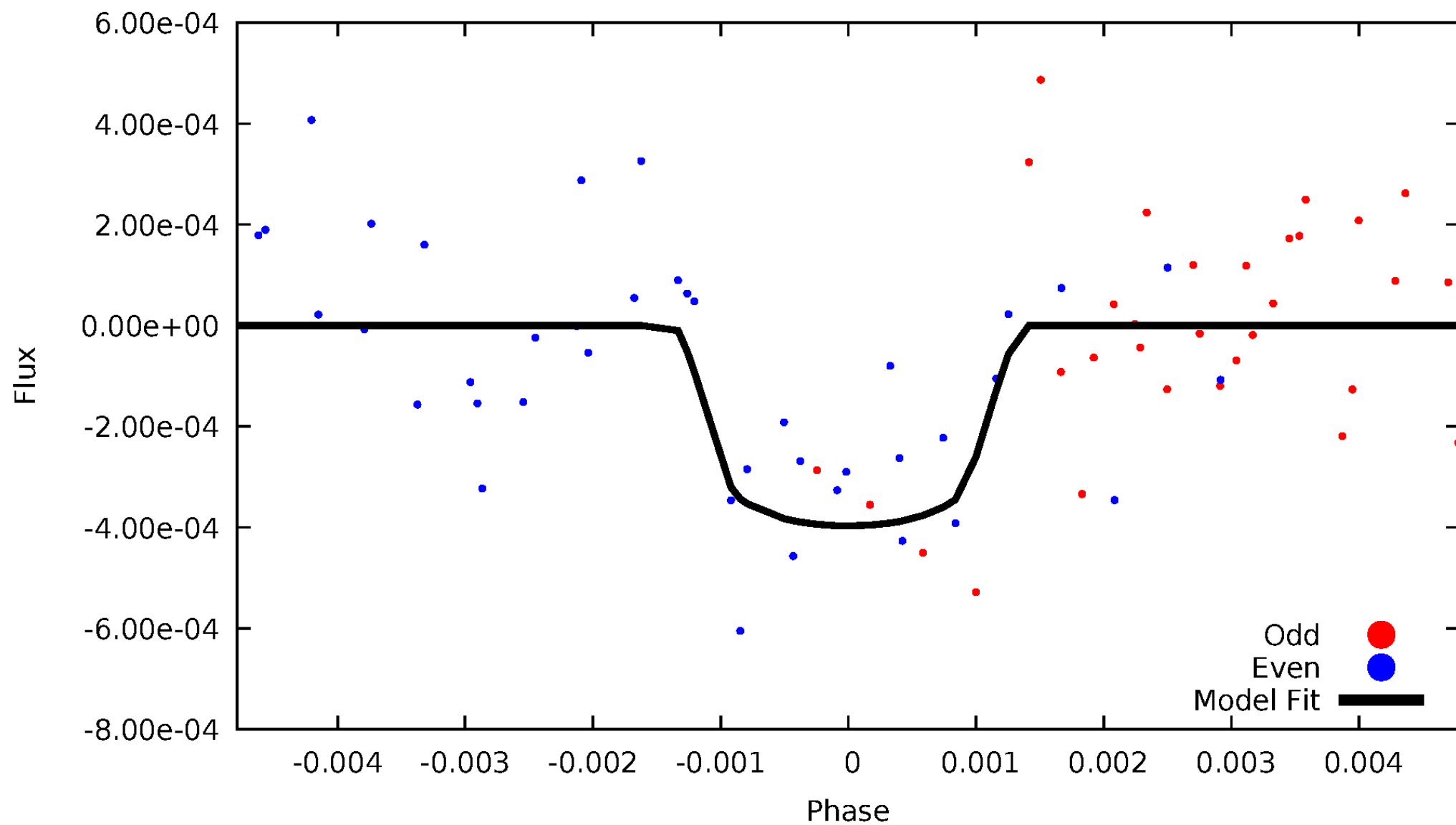


TCE 009786859-05



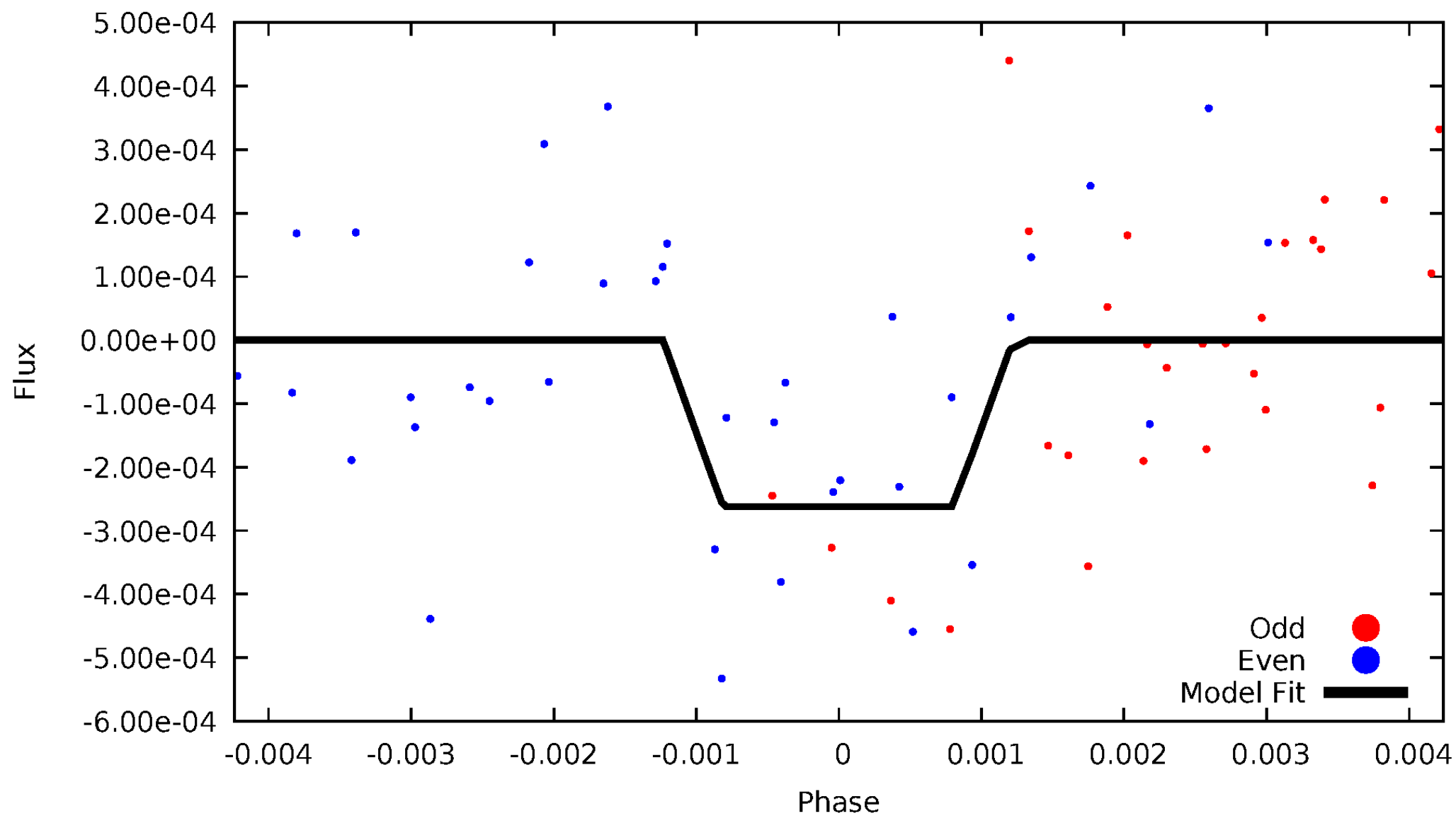
DV Odd/Even

TCE 009786859-05



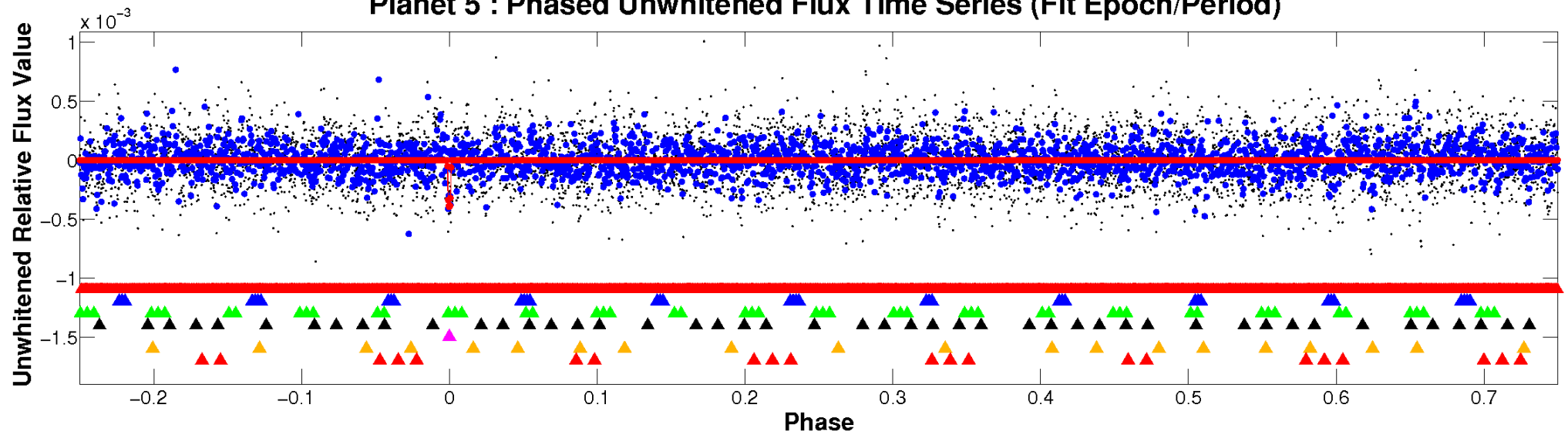
ALT Odd/Even

TCE 009786859-05

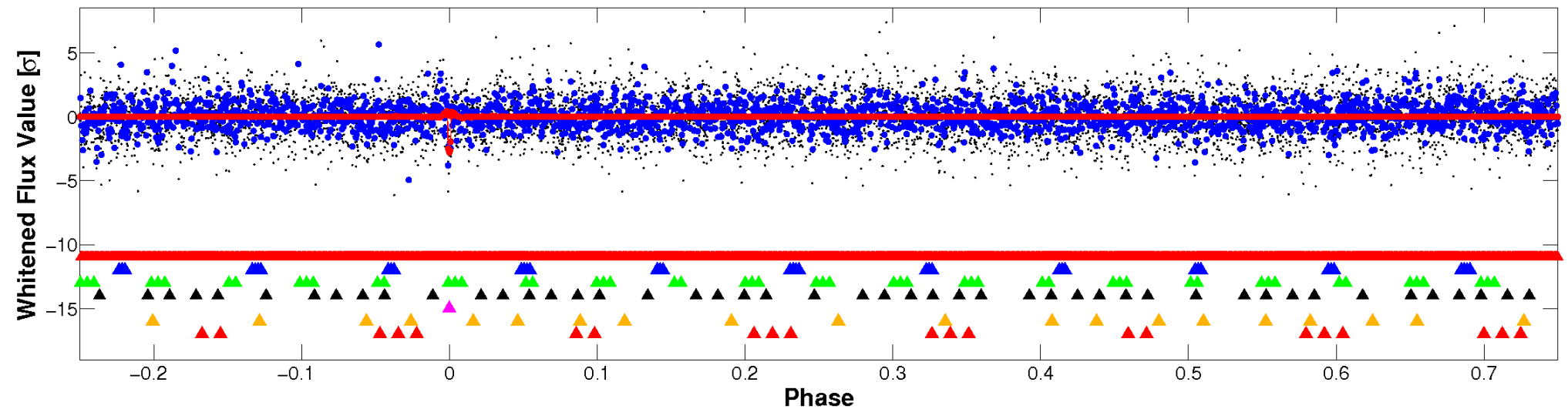


Non-Whitened Vs. Whitened Light Curve

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

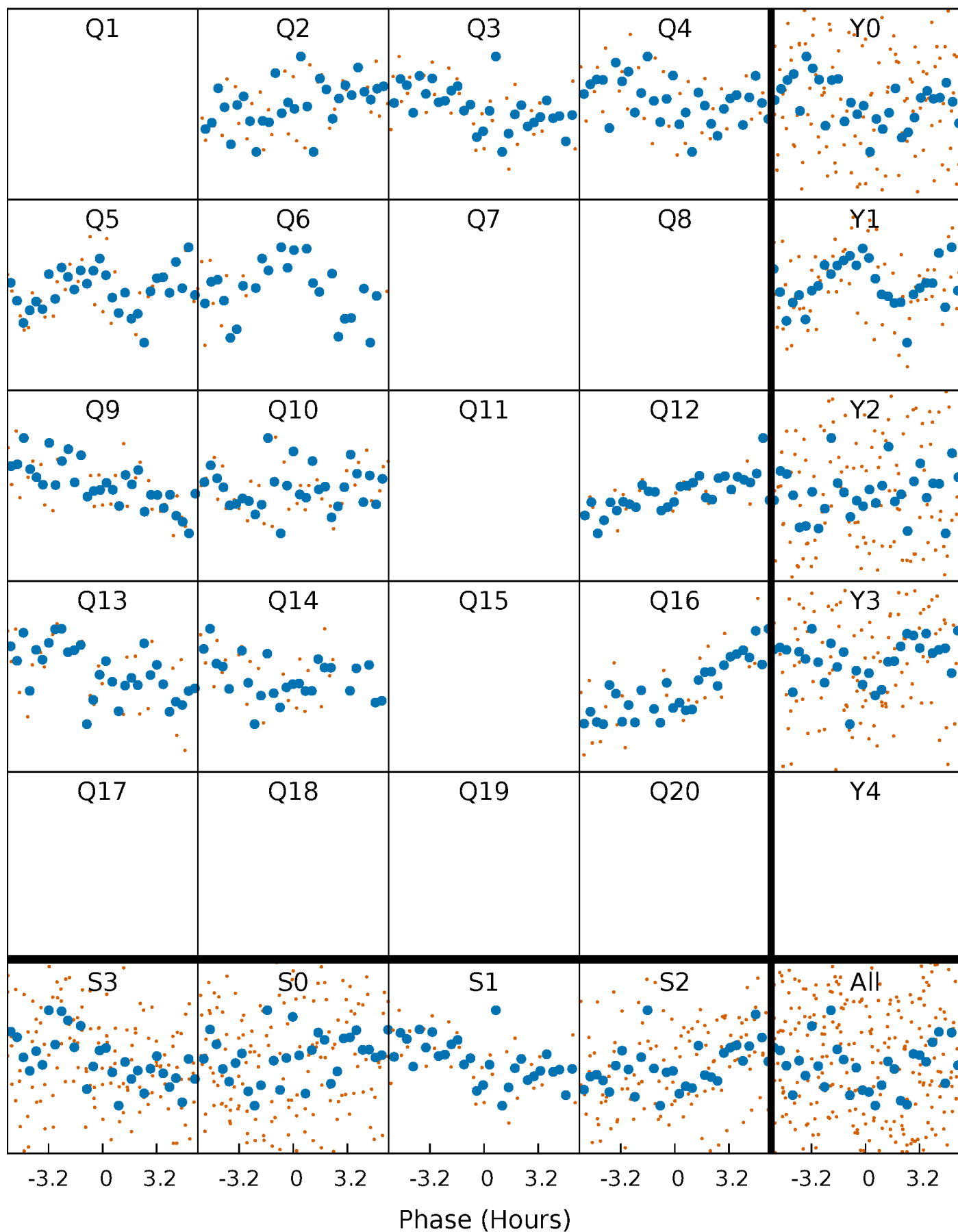


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



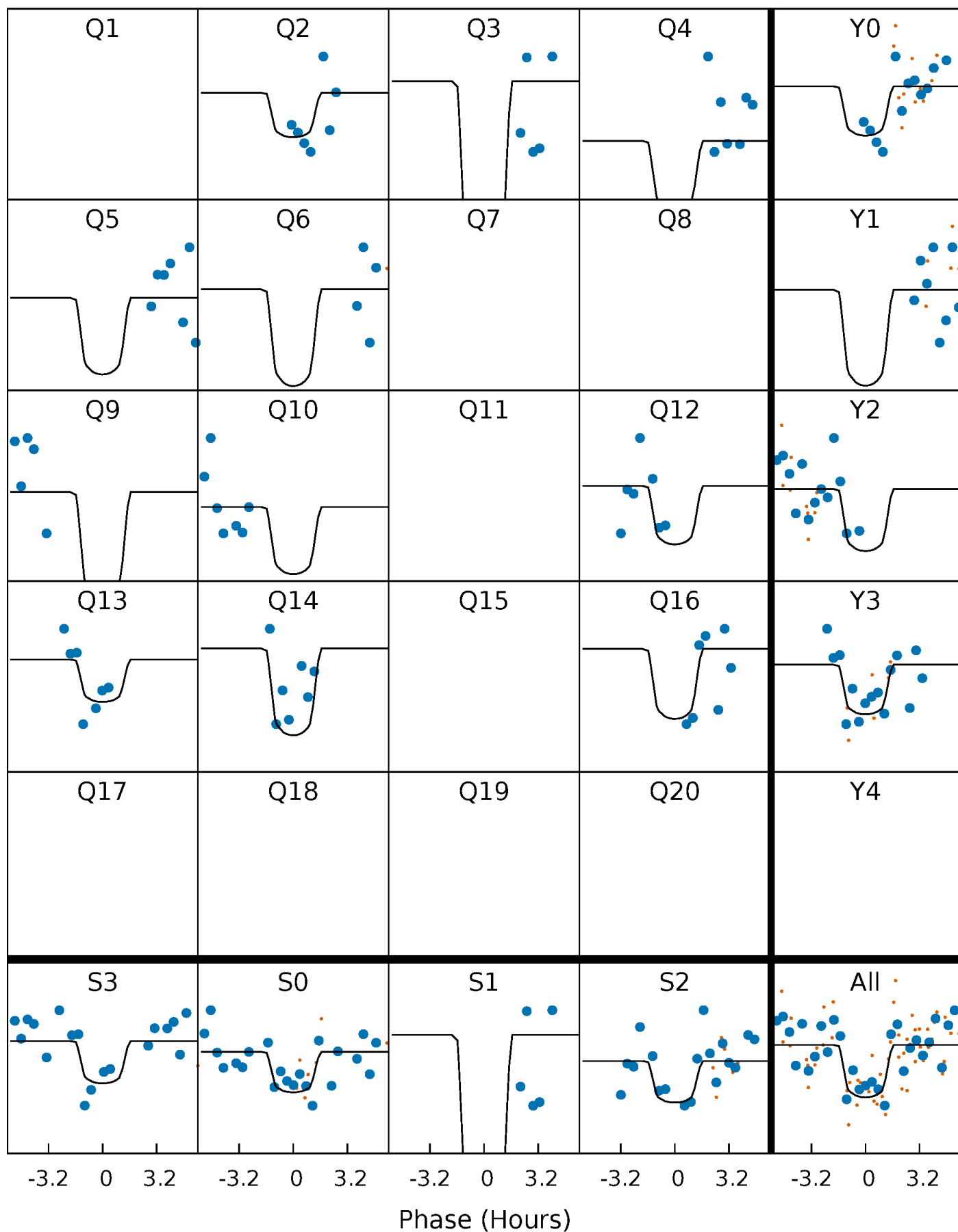
PDC Quarter-Phased Transit Curves

TCE 009786859-05 $P = 49.217092$ Days $T_0 = 172.911806$ (BKJD)



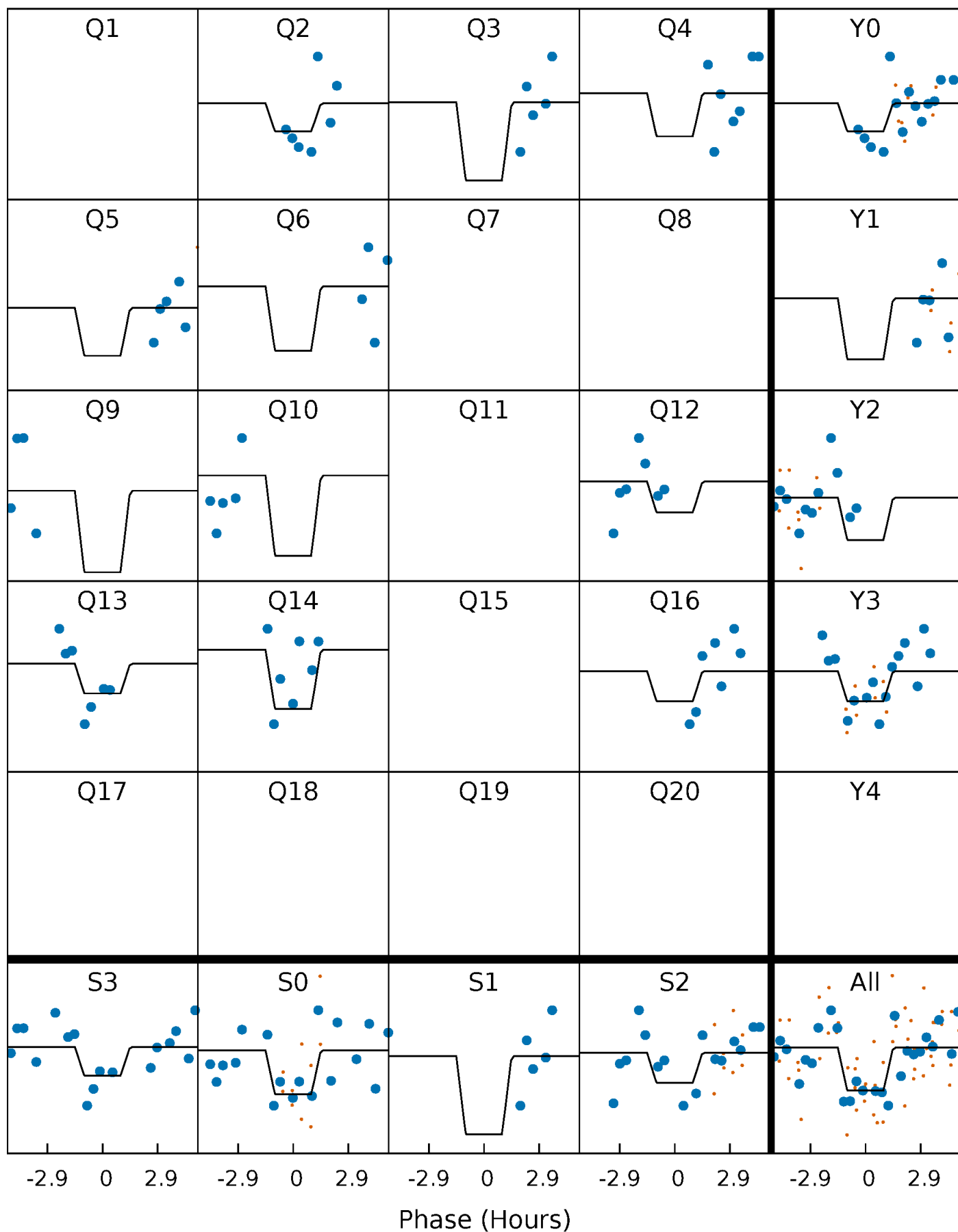
DV Quarter-Phased Transit Curves

TCE 009786859-05 P= 49.217092 Days $T_0=172.911806$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

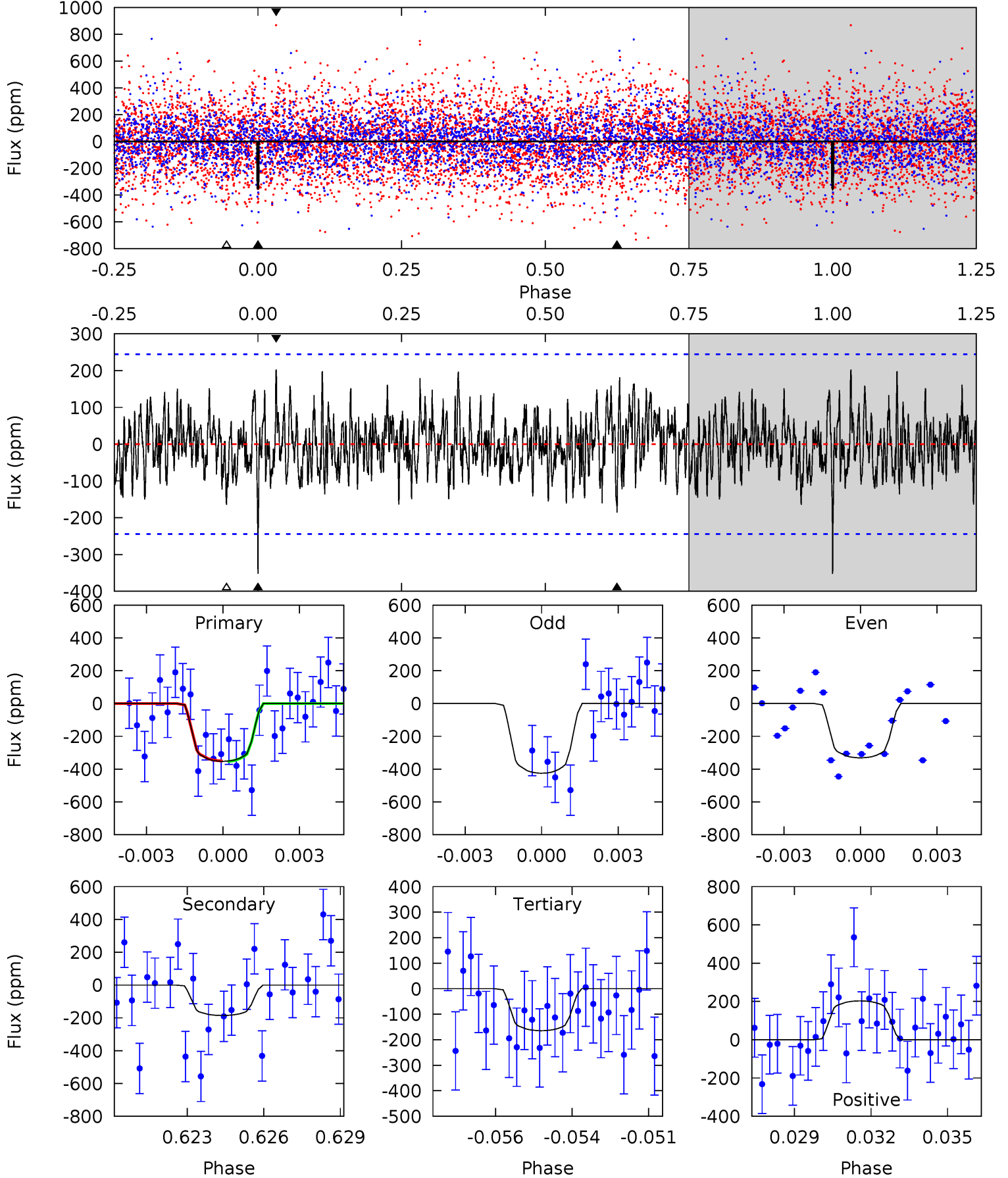
TCE 009786859-05 P= 49.216517 Days $T_0=172.923208$ (BKJD)



DV Model-Shift Uniqueness Test

009786859-05, P = 49.217092 Days, E = 123.694714 Days

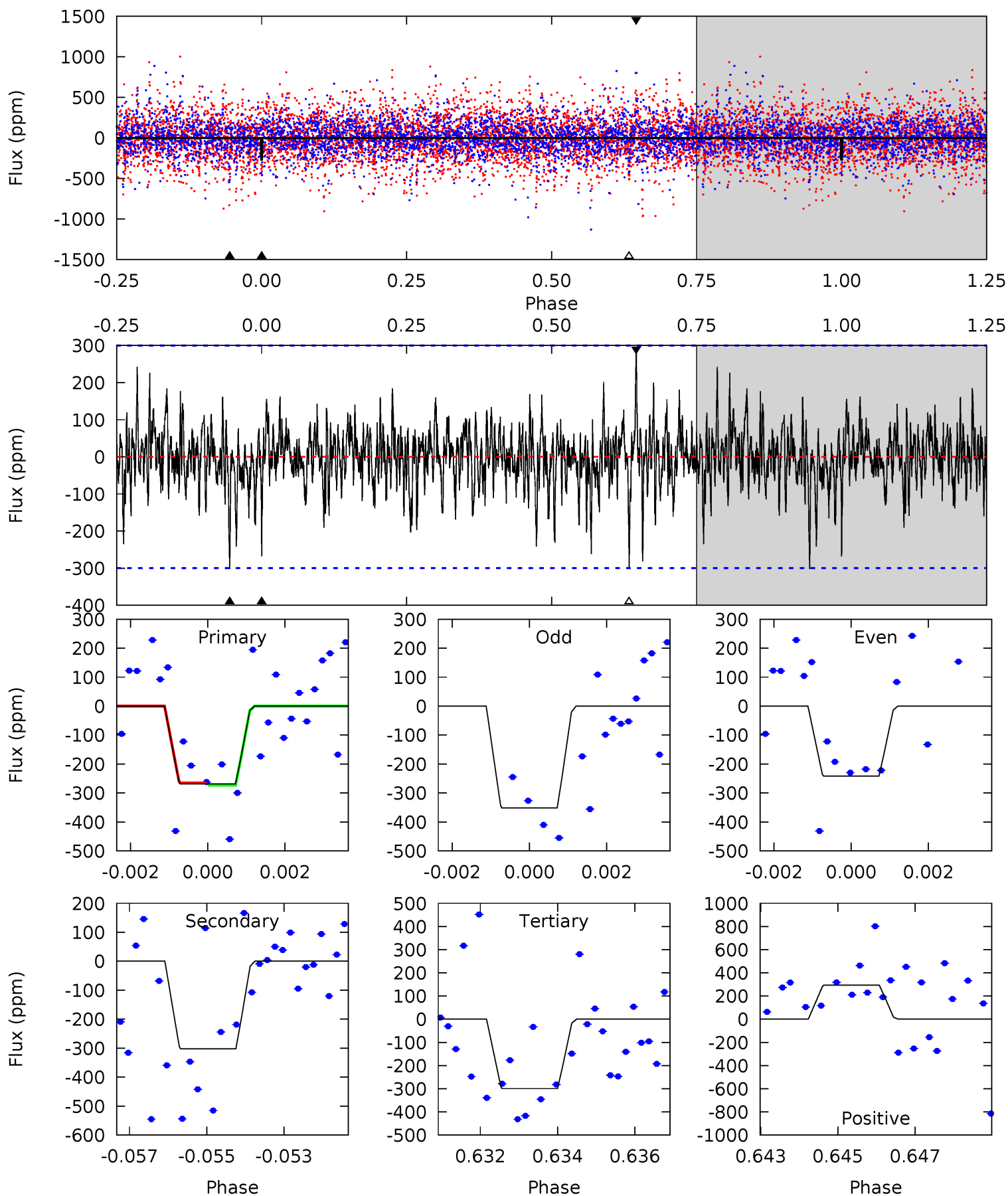
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.60	4.00	3.55	4.38	5.27	3.00	1.38	4.05	3.23	0.45	-0.37	0.82	0.88	0.37	0.04



Alt Model-Shift Uniqueness Test

009786859-05, P = 49.216517 Days, E = 123.706691 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.75	5.34	5.30	5.19	5.31	3.06	1.25	-0.55	-0.44	0.04	0.15	0.87	0.82	0.49	0.07



Stellar Parameters For KIC 009786859

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6920^{+192}_{-288}	$4.253^{+0.087}_{-0.203}$	$-0.100^{+0.250}_{-0.350}$	$1.439^{+0.487}_{-0.209}$	$1.358^{+0.214}_{-0.214}$	$0.641^{+0.317}_{-0.340}$
	+3%/-4%	+2%/-5%	+250%/-350%	+34%/-15%	+16%/-16%	+49%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009786859-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-186 ± 46	$3.66^{+3.23}_{-2.34}$	960^{+71}_{-58}	5308^{+4006}_{-1177}	616^{+3835}_{-443}
Alt.	-302 ± 57	$3.40^{+2.93}_{-2.14}$	959^{+71}_{-54}	6197^{+5643}_{-1477}	1150^{+7523}_{-818}

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 $A_{obs} \gg 1.0$

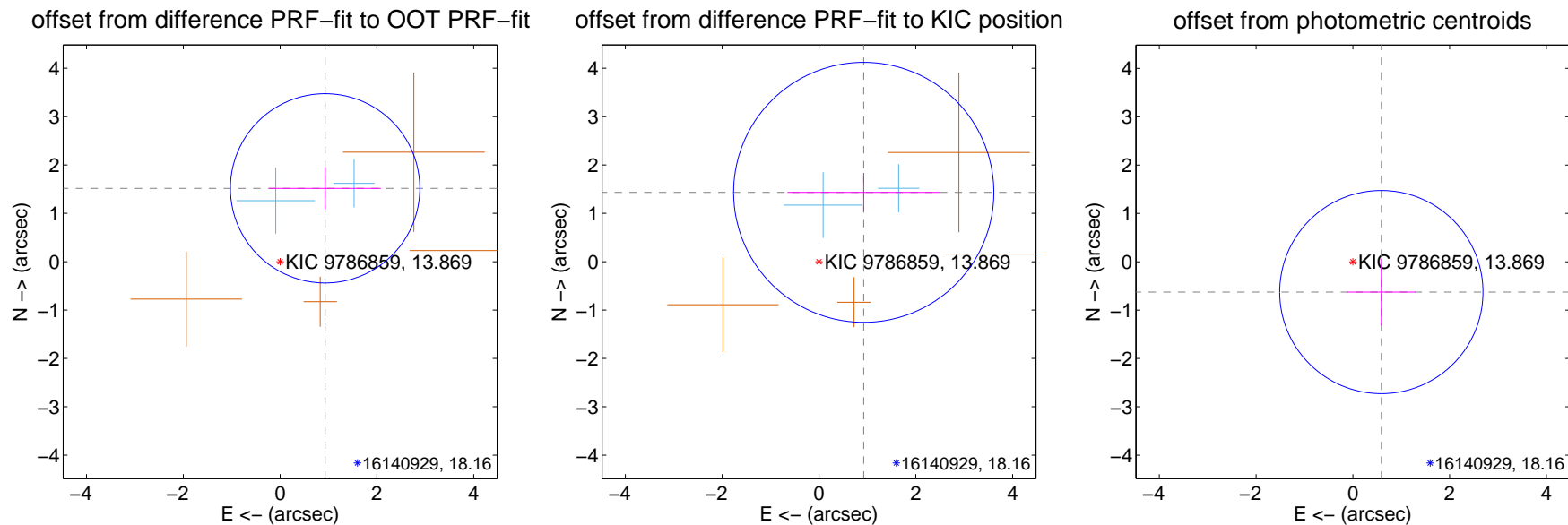
DV Centroid Data

Supplemental centroid analysis for 009786859-05. Kepler magnitude: 13.87. Transit SNR 10.55

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.780 ± 0.652	2.73	-0.930 ± 1.152	1.517 ± 0.434
PRF-fit source offset from KIC position	1.706 ± 0.896	1.90	-0.924 ± 1.574	1.434 ± 0.402
photometric centroid source offset	0.86 ± 0.70	1.23	-0.59 ± 0.71	-0.63 ± 0.69



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

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

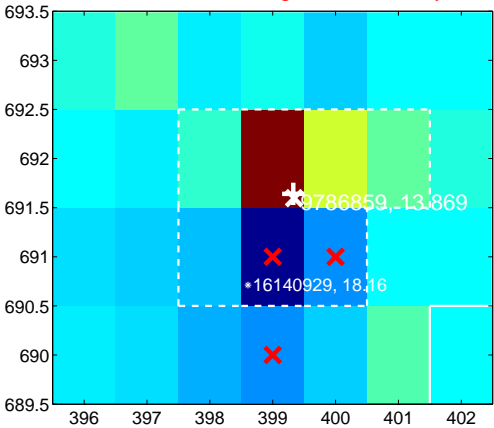
Q1 no difference image



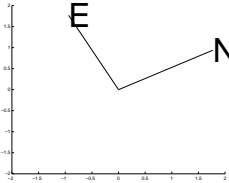
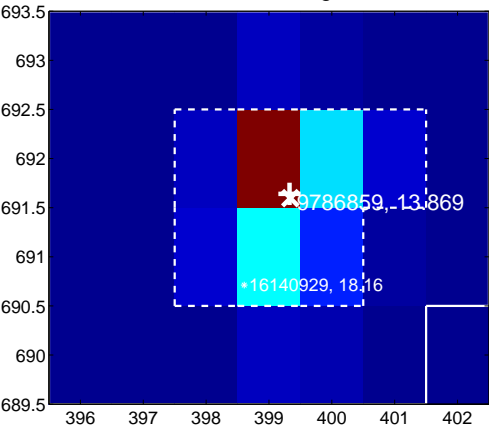
Q1 no OOT image



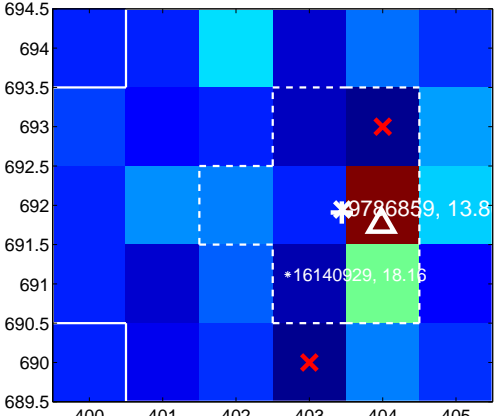
Q2 difference image. Poor Quality



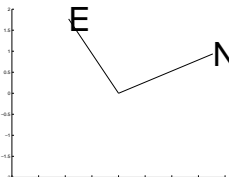
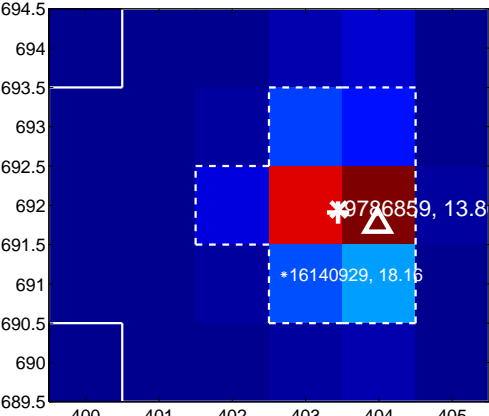
Q2 OOT image



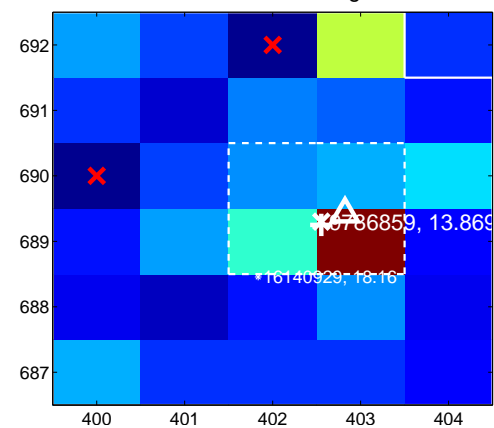
Q3 difference image



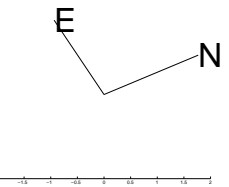
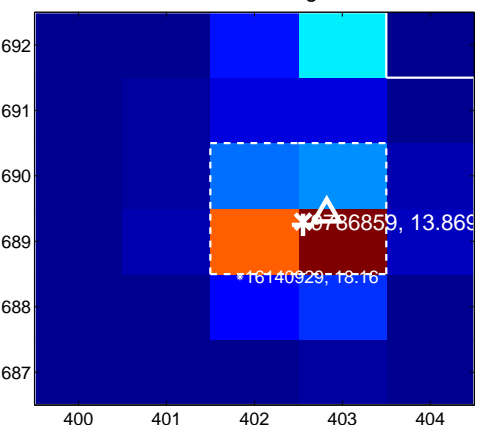
Q3 OOT image



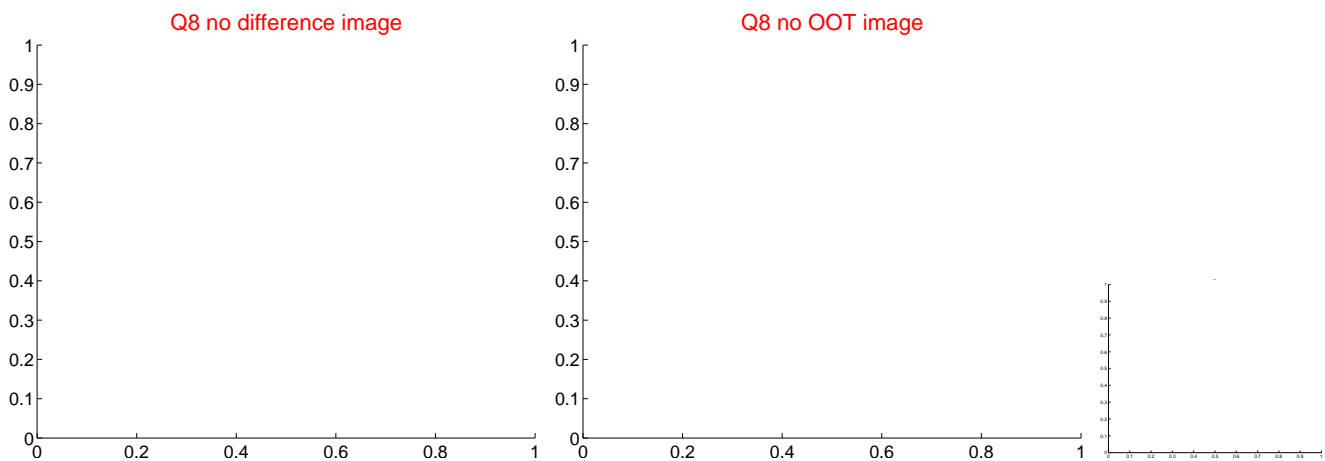
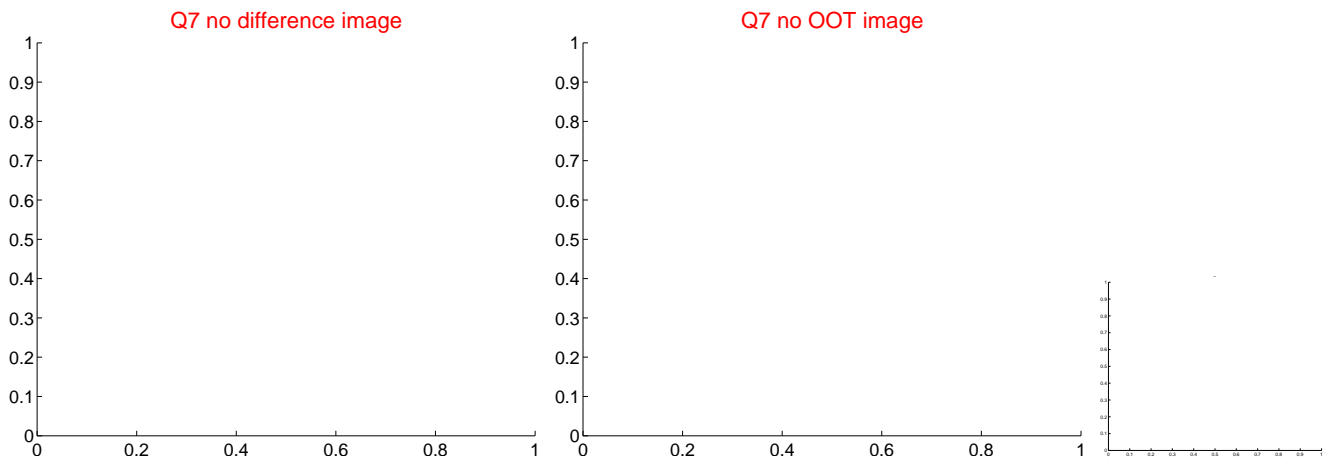
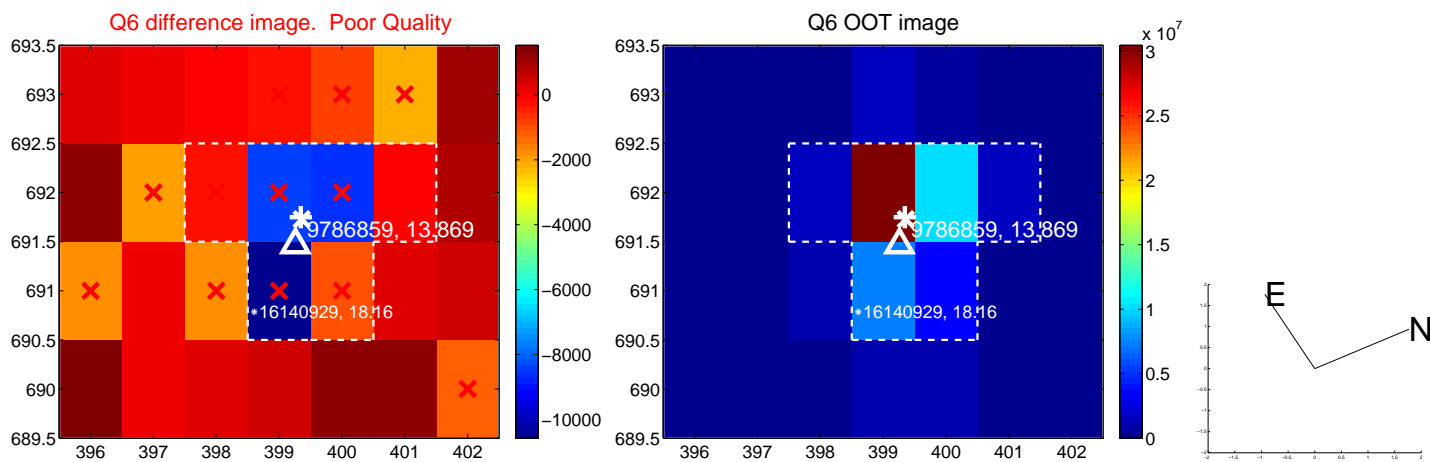
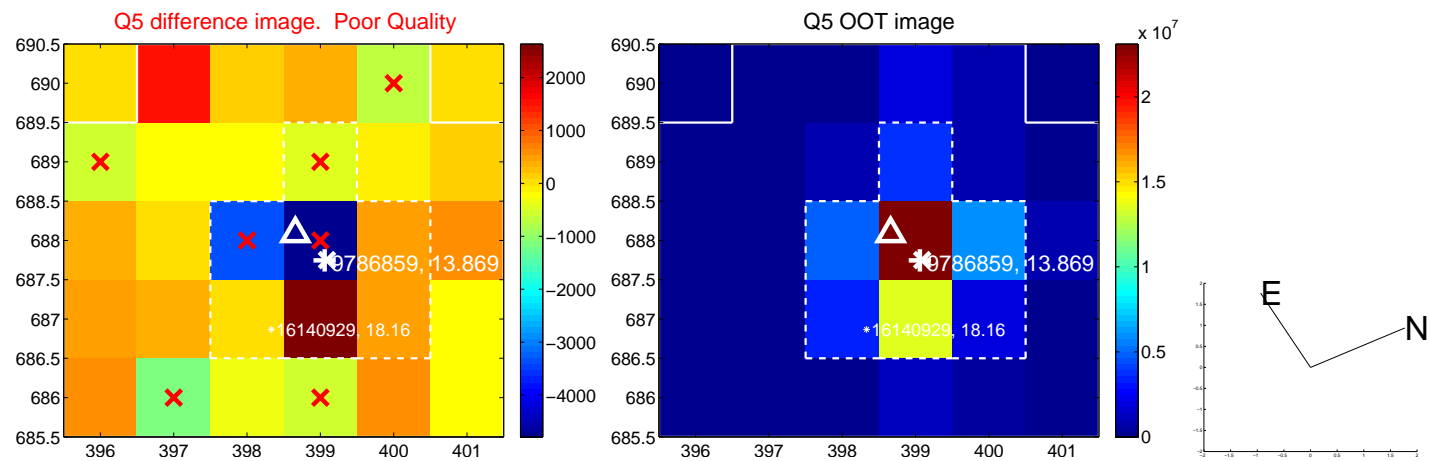
Q4 difference image



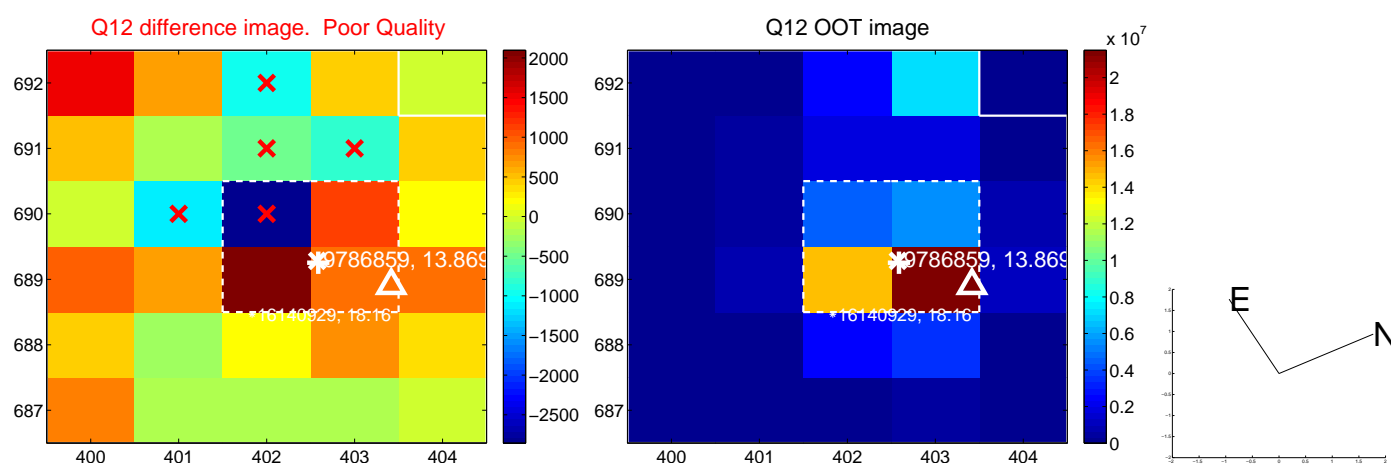
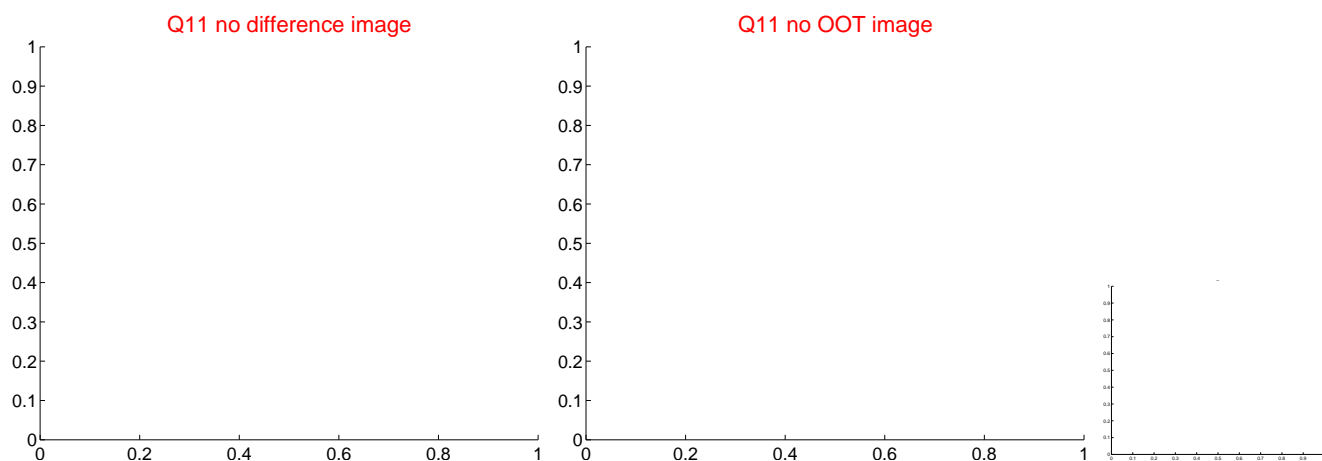
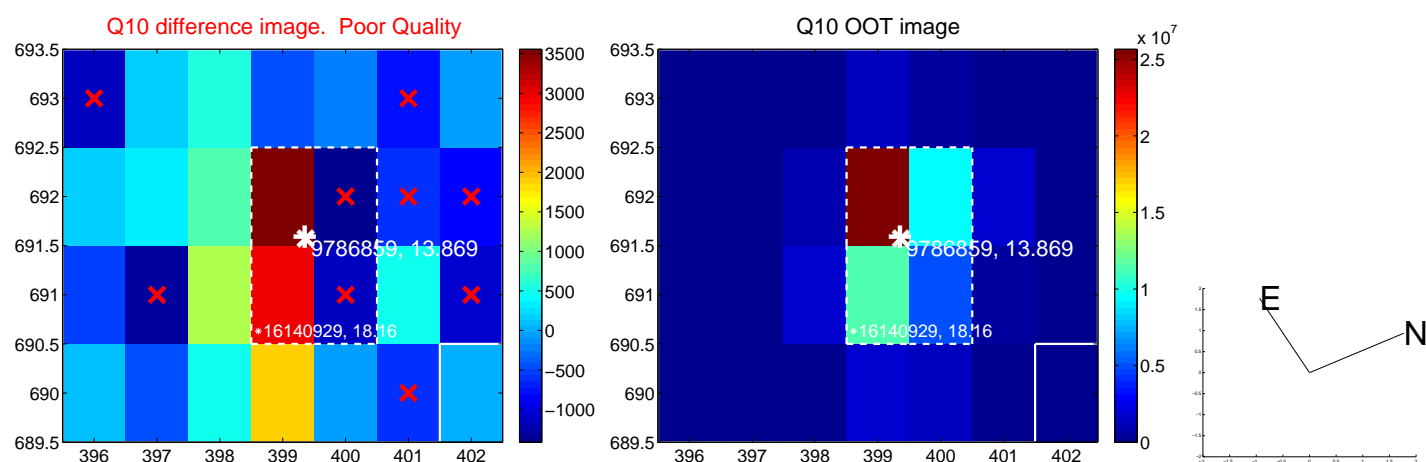
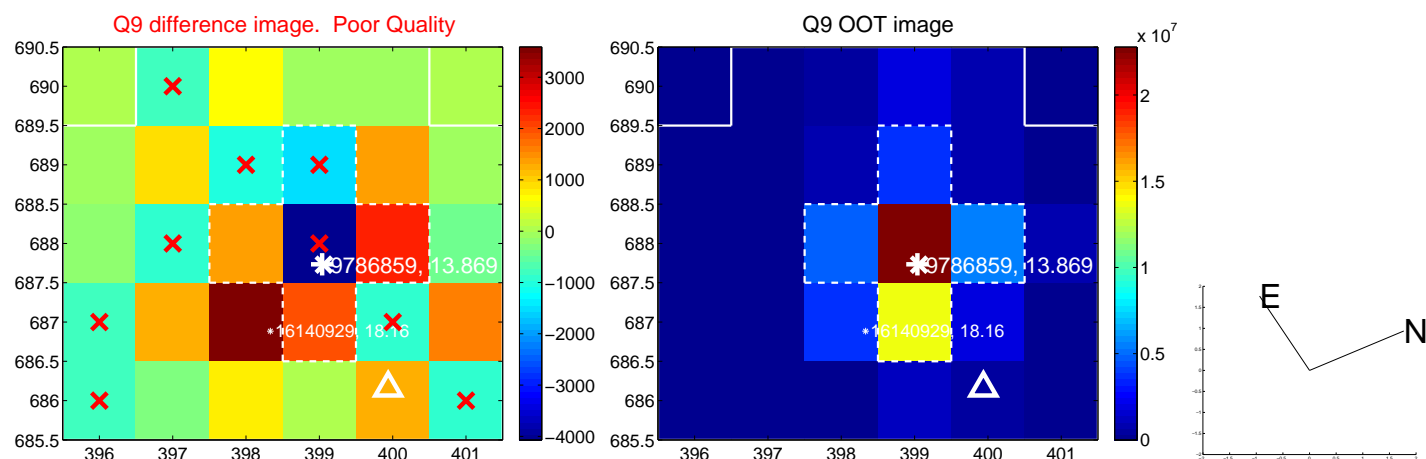
Q4 OOT image



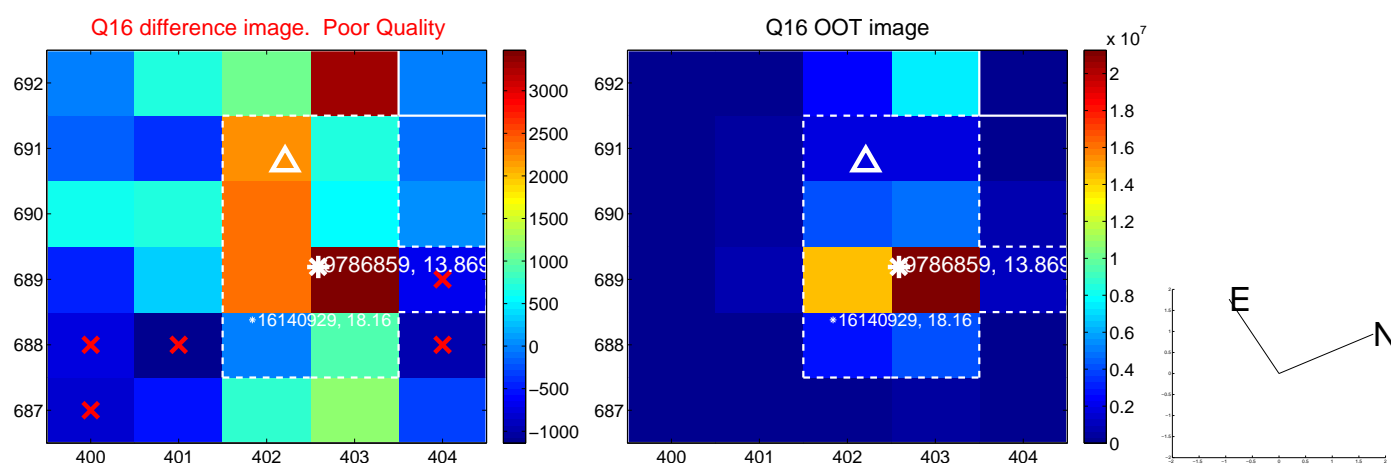
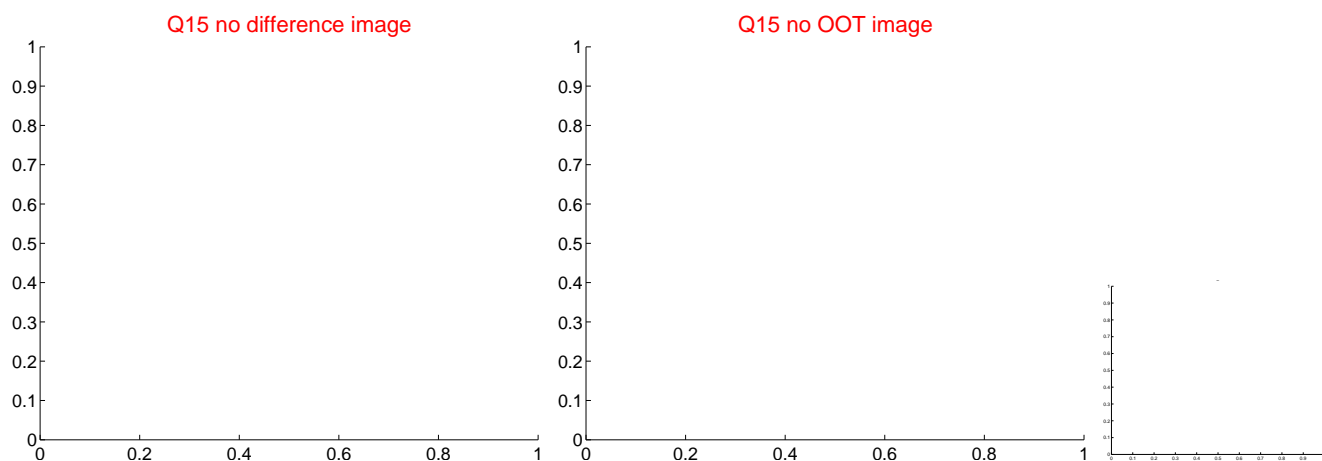
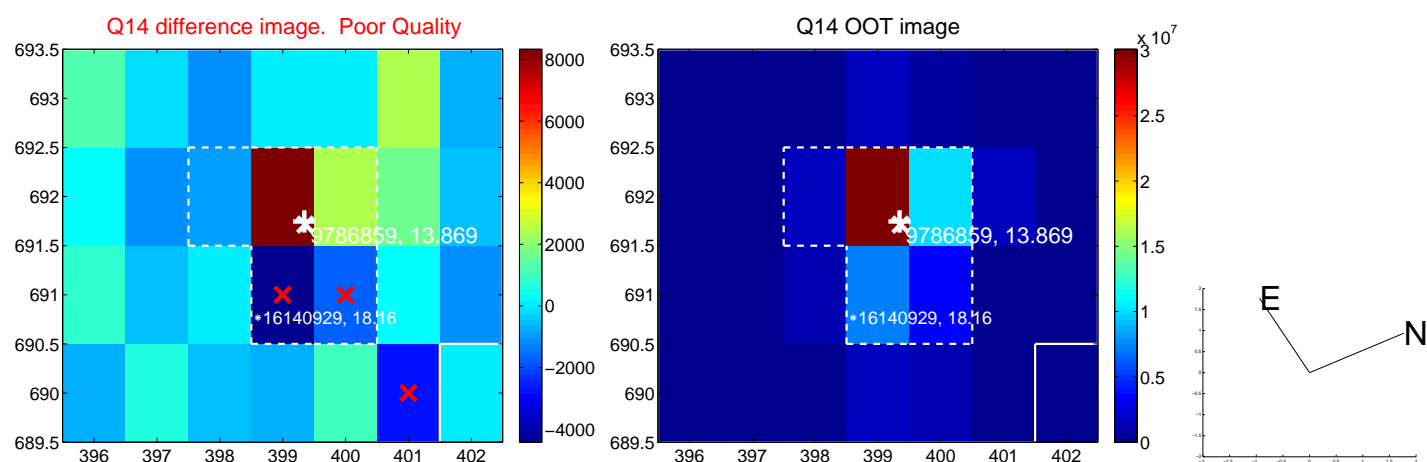
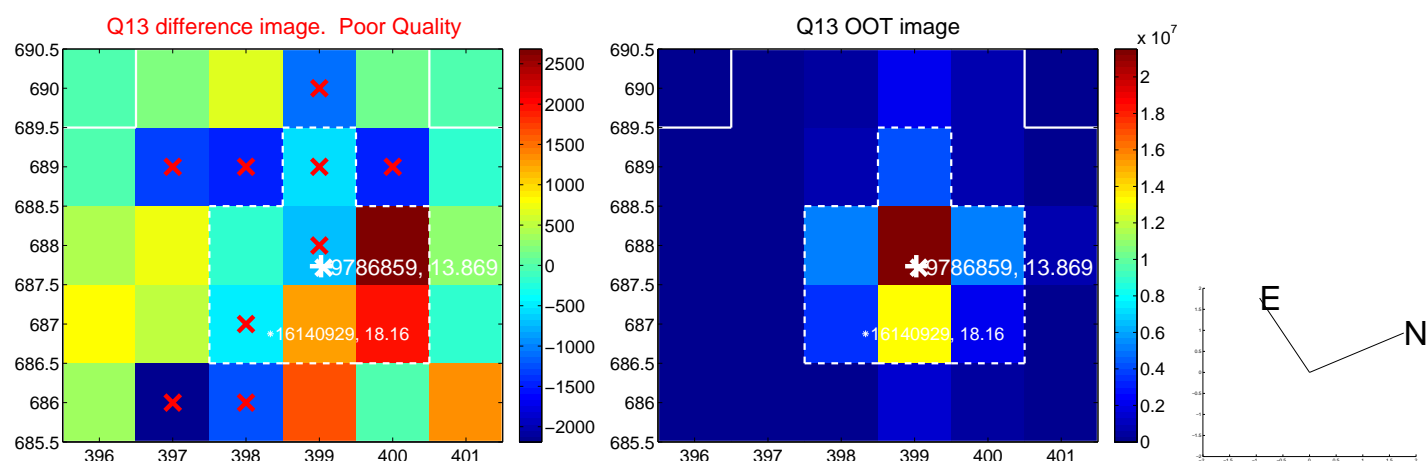
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



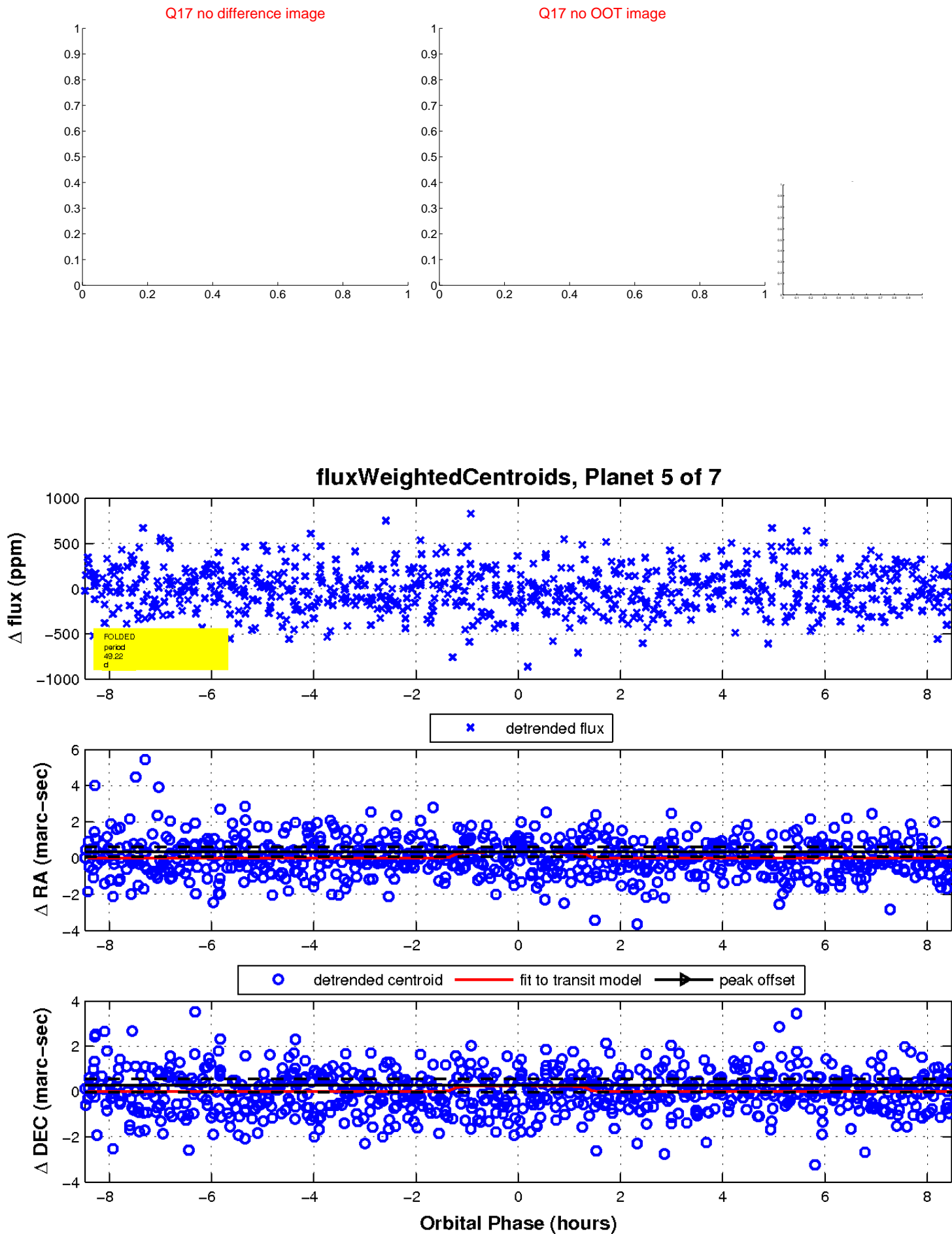
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

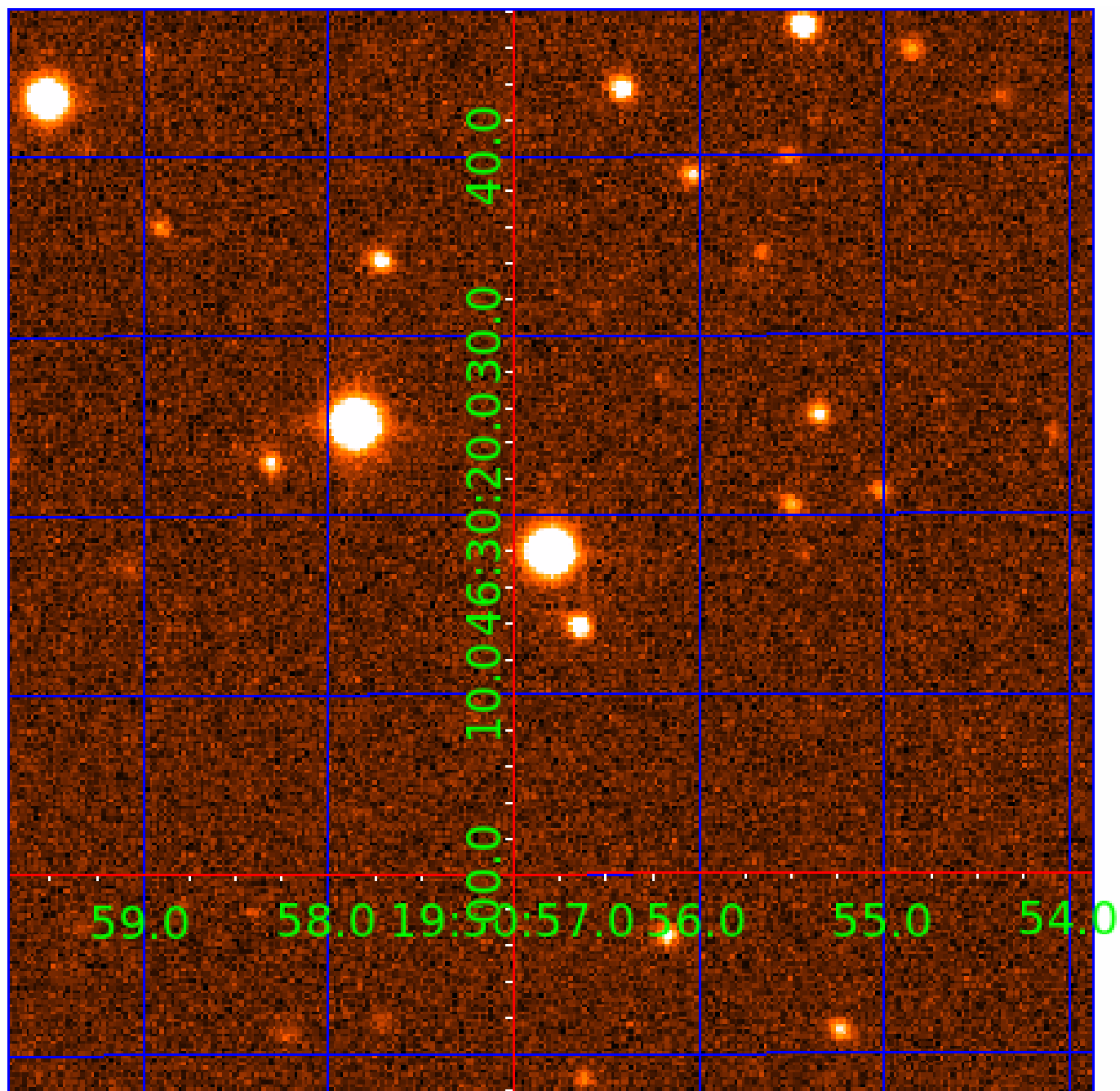


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009786859

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})
009786859-01	OBS	No	1.058868	131.651251	10.4	7.158	7.9	3.8	1.44	6920	0.47	8412.09
009786859-02	OBS	No	40.259719	135.336066	436.9	2.888	11.5	10.5	1.44	6920	3.40	65.80
009786859-03	OBS	No	27.080605	158.044076	509.0	0.872	9.5	10.4	1.44	6920	3.50	111.64
009786859-04	OBS	No	30.961632	143.734249	365.1	1.367	9.3	8.7	1.44	6920	2.87	93.38
009786859-05	OBS	No	49.217092	172.911806	397.3	2.826	8.9	10.6	1.44	6920	3.16	50.34
009786859-06	OBS	No	72.046728	154.436153	436.7	7.800	9.8	8.5	1.44	6920	3.53	30.28
009786859-07	OBS	No	67.596962	184.282166	419.7	1.627	8.6	9.1	1.44	6920	3.44	32.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009786859-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009786859-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
009786859-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV
009786859-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_MEAS
009786859-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009786859-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009786859-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS—HALO_GHOST

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

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

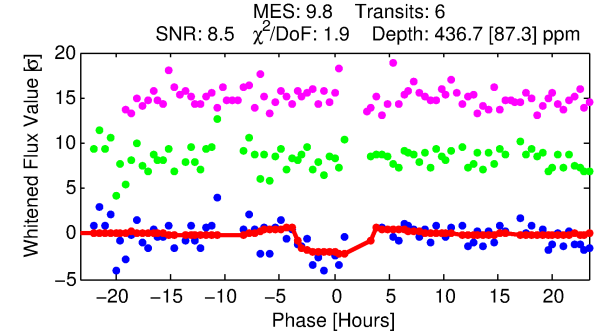
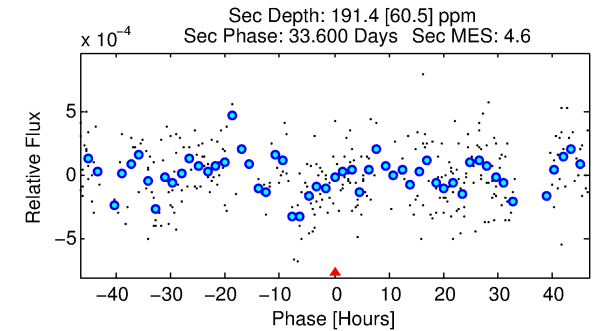
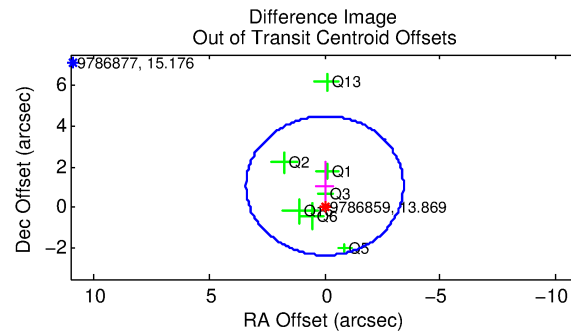
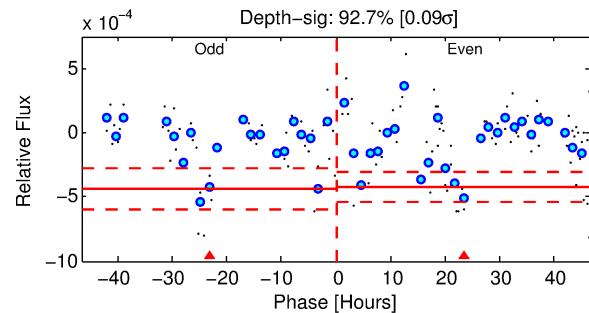
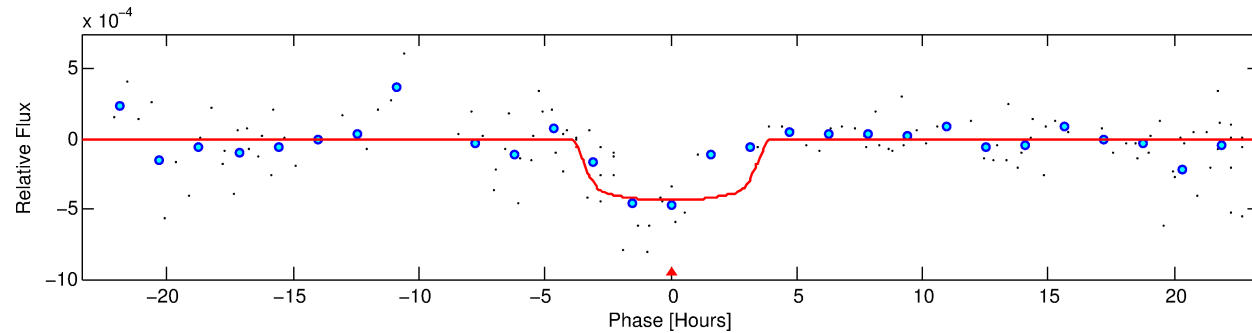
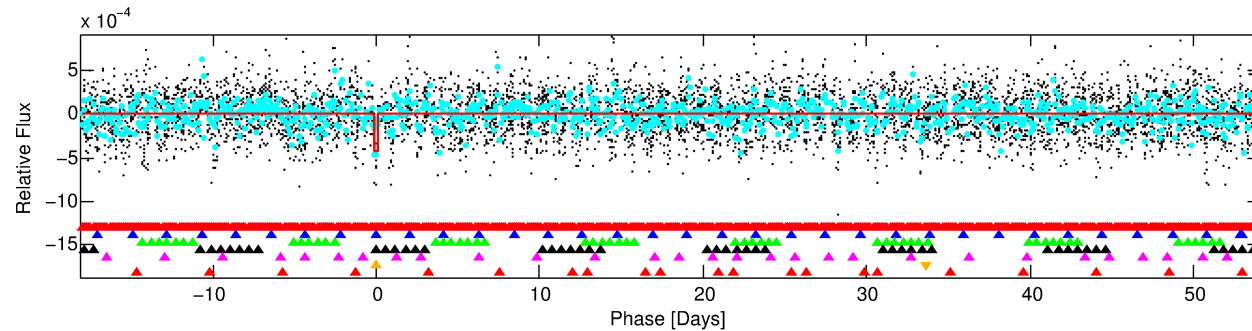
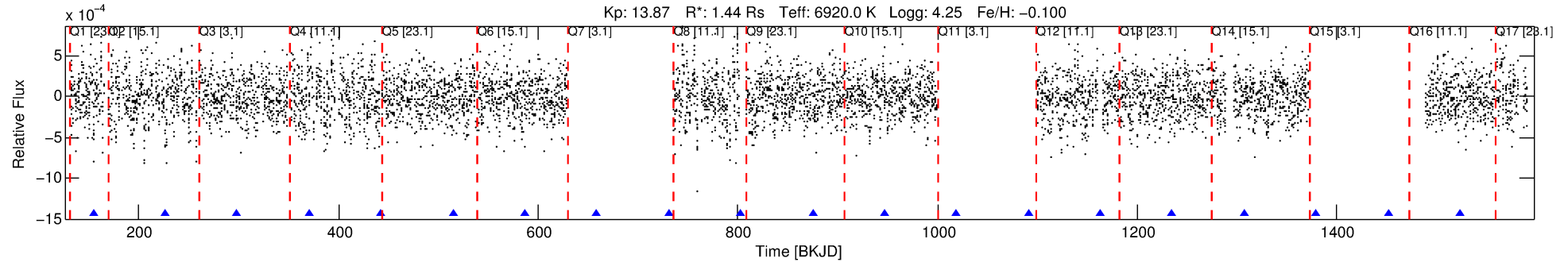
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009786859-06

No Significant Match Found

DV One-Page Summary

KIC: 9786859 Candidate: 6 of 7 Period: 72.047 d



DV Fit Results:

Period = 72.04673 [0.00624] d
Epoch = 154.4362 [0.0674] BKJD
Rp/R* = 0.0225 [0.0035]
a/R* = 32.90 [24.11]
b = 0.91 [0.17]
Seff = 30.28 [12.69]
Teq = 598 [63] K
Rp = 3.53 [1.31] Re
a = 0.3748 [0.1028] AU
Ag = 1190.24 [700.12] [1.70σ]
Teffp = 5432 [645] K [7.46σ]

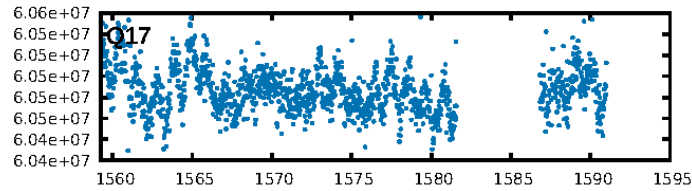
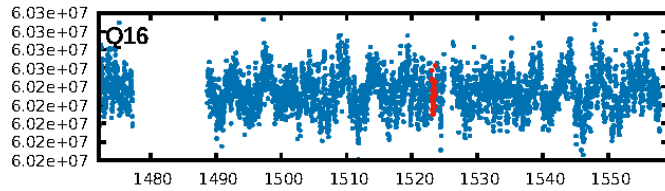
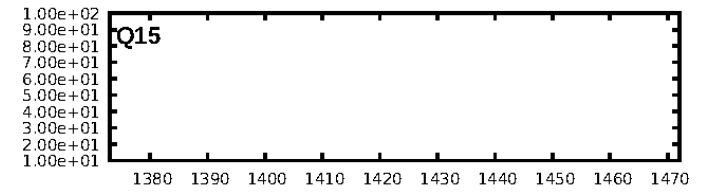
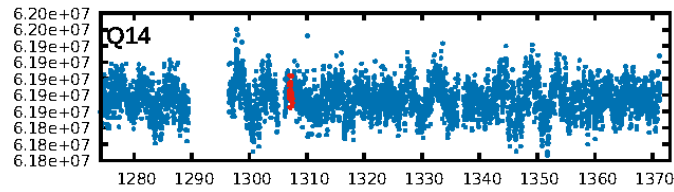
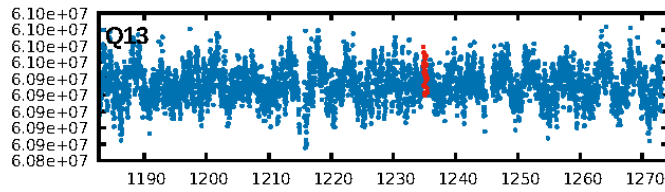
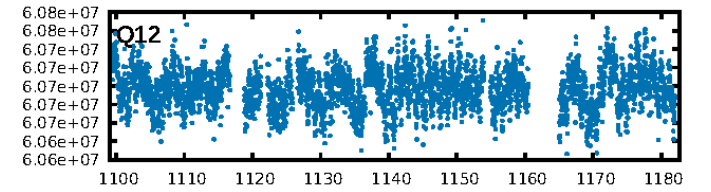
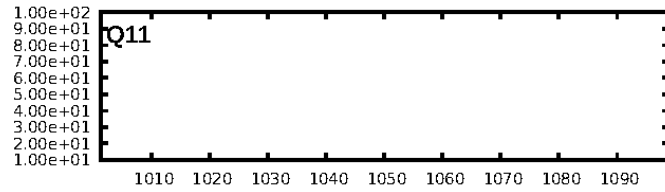
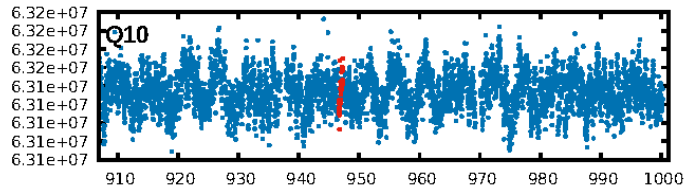
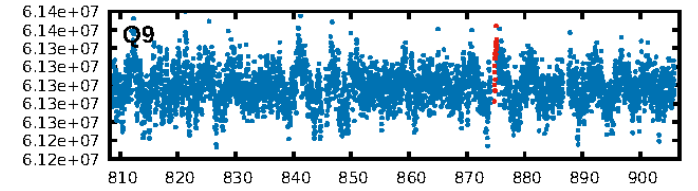
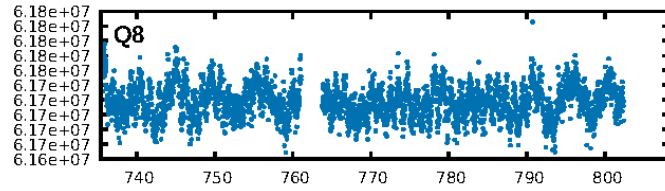
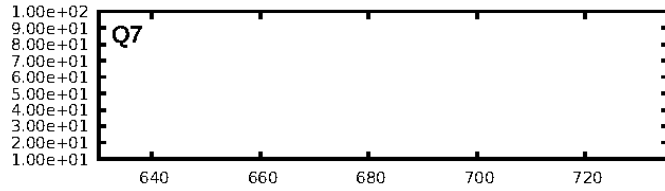
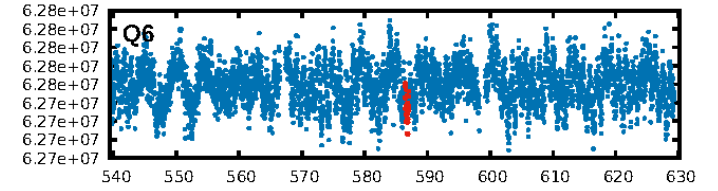
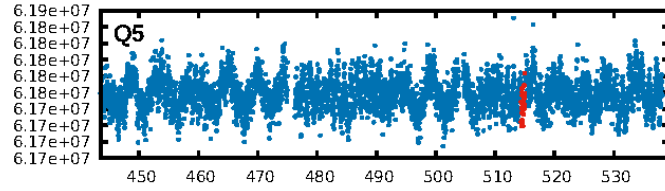
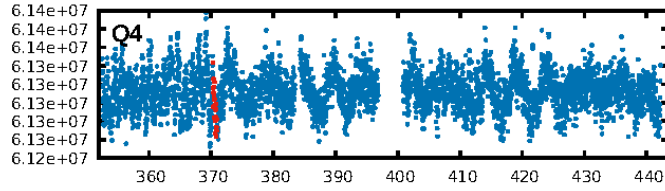
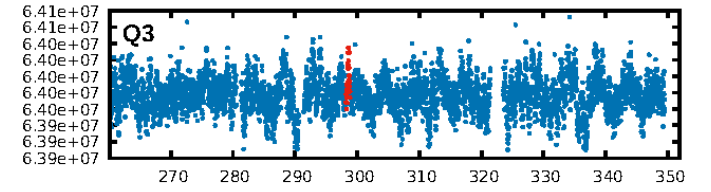
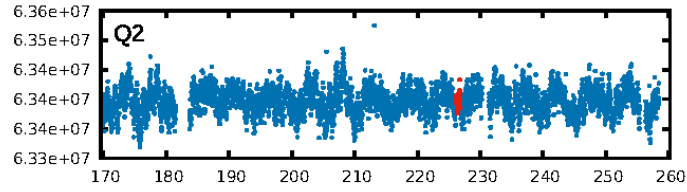
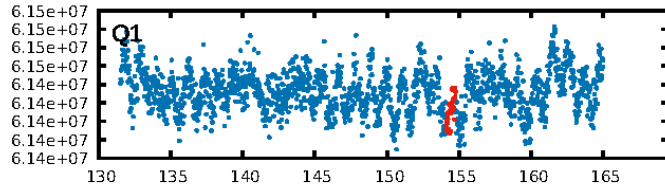
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.40σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 20.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.69e-12
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -10.51
Centroid-sig: 2.2%
Centroid-so: 0.793 arcsec [1.29σ]
OotOffset-rm: 1.067 arcsec [0.94σ]
OotOffset-st: 2/1/1/3 [7]
KicOffset-rm: 0.937 arcsec [0.99σ]
KicOffset-st: 2/1/1/3 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.00 [0/9]

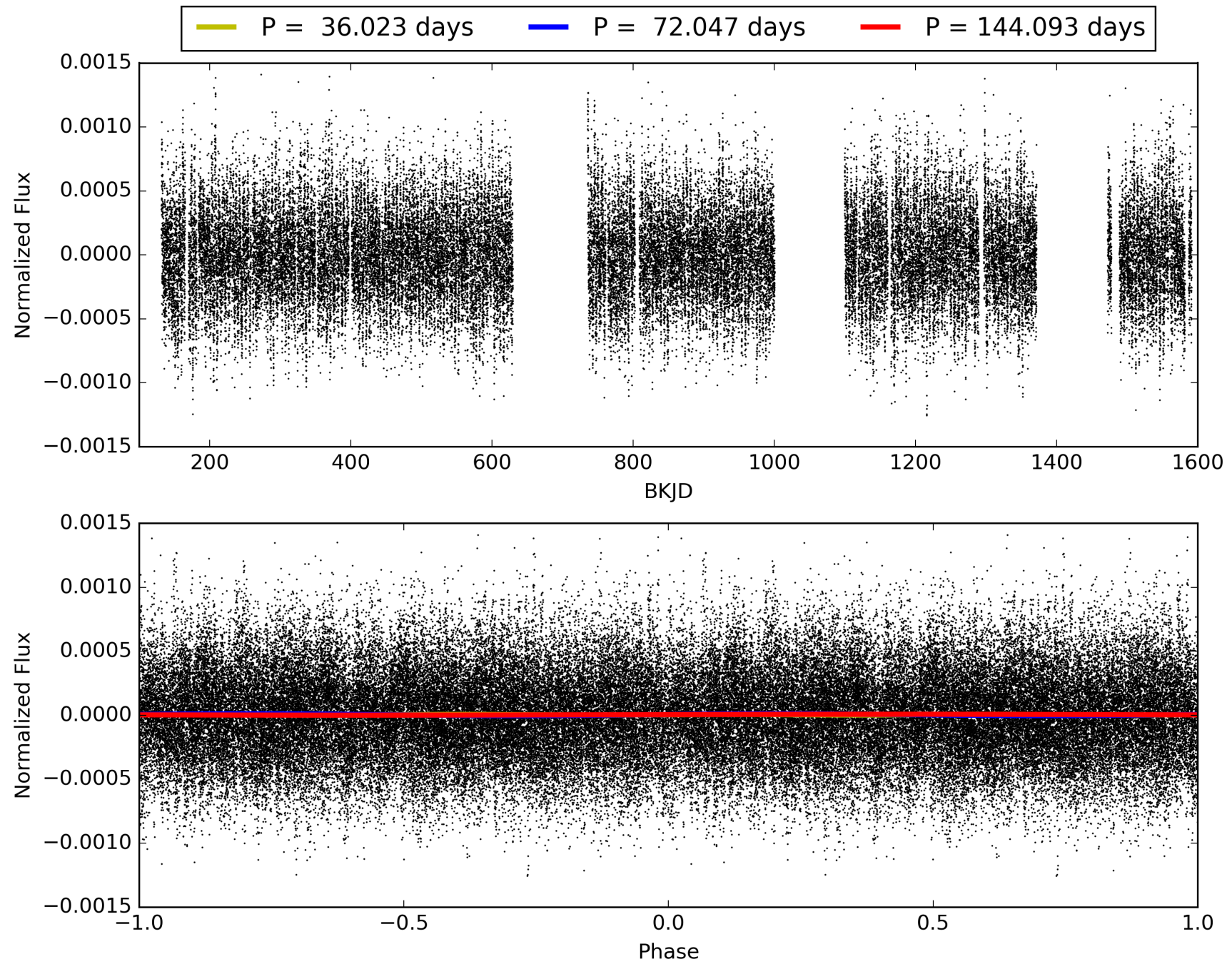
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:26:06 Z

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

TCE 009786859-06, PDC Light Curves

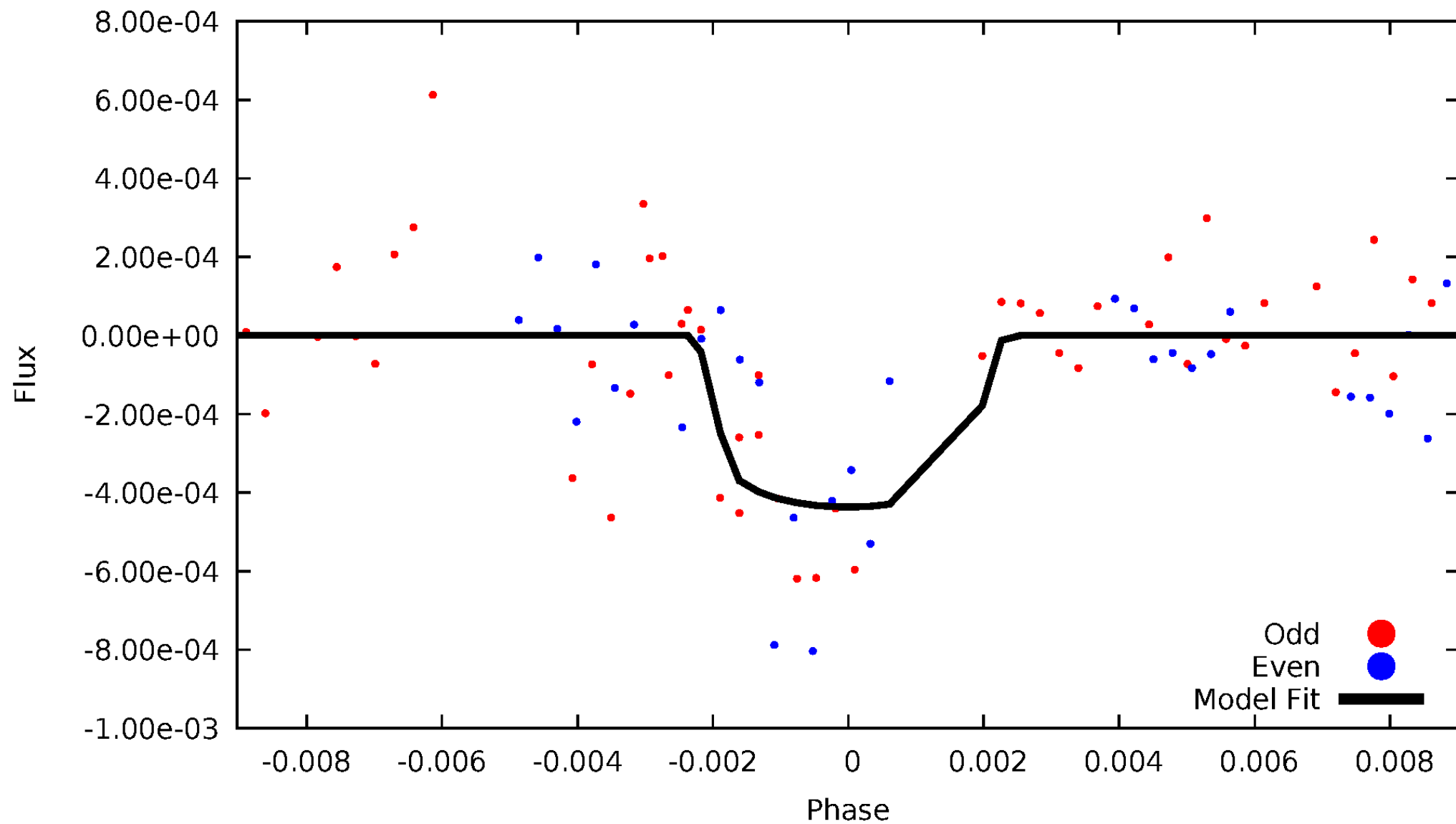


TCE 009786859-06



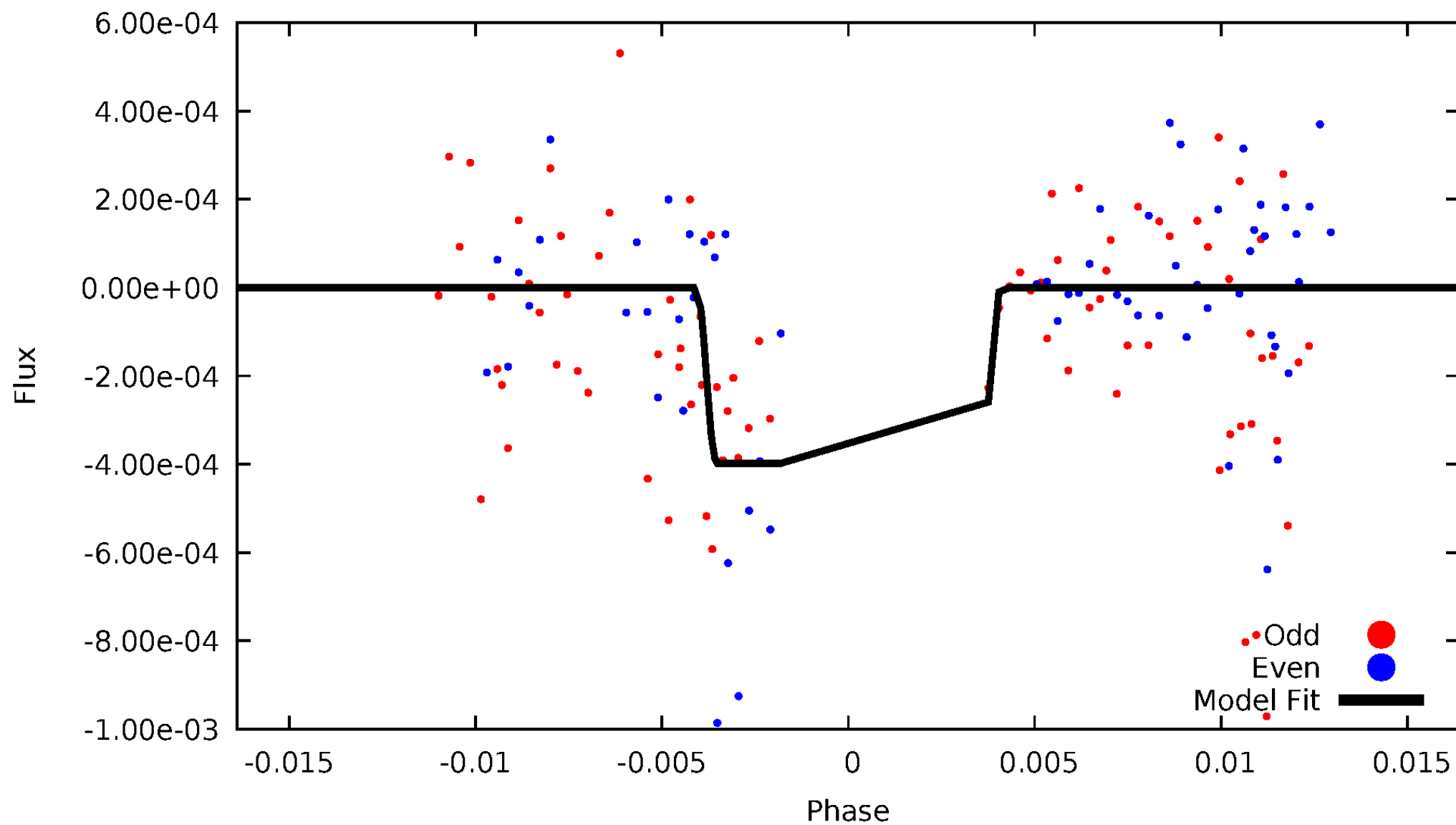
DV Odd/Even

TCE 009786859-06



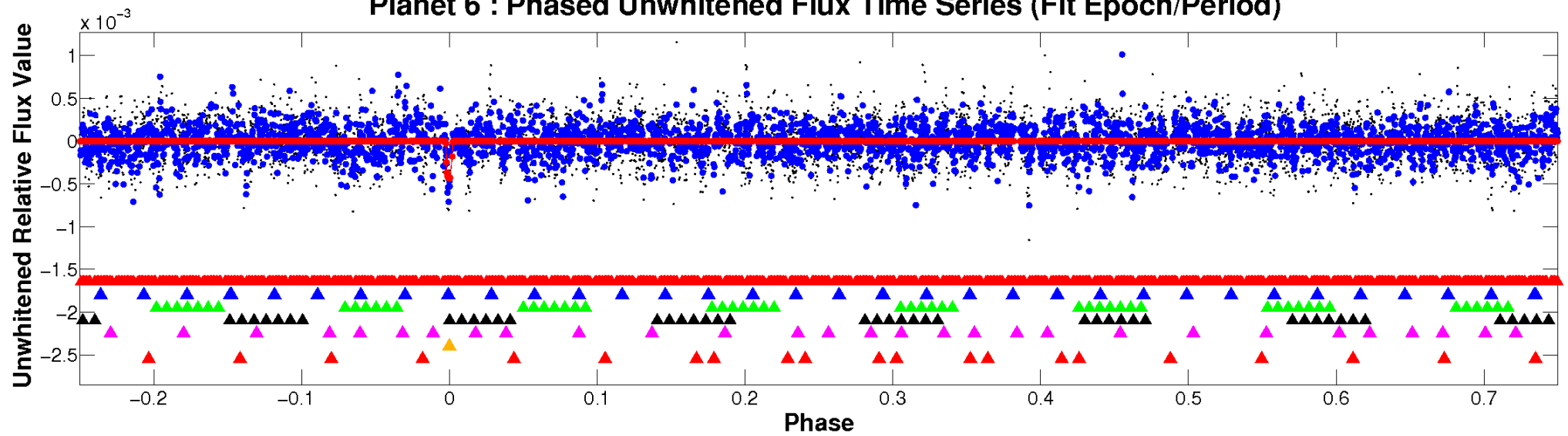
ALT Odd/Even

TCE 009786859-06

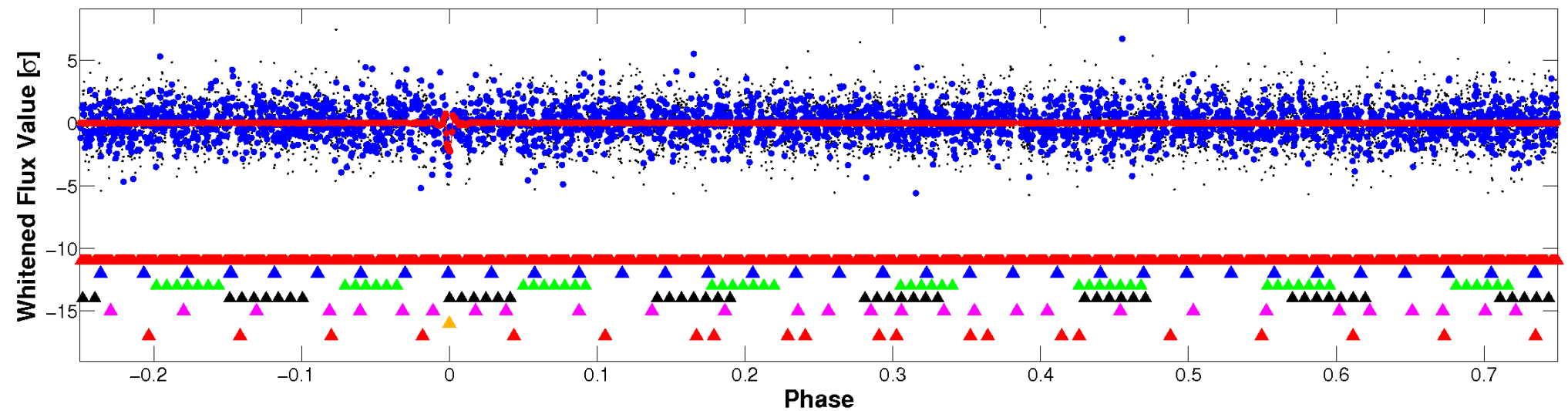


Non-Whitened Vs. Whitened Light Curve

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

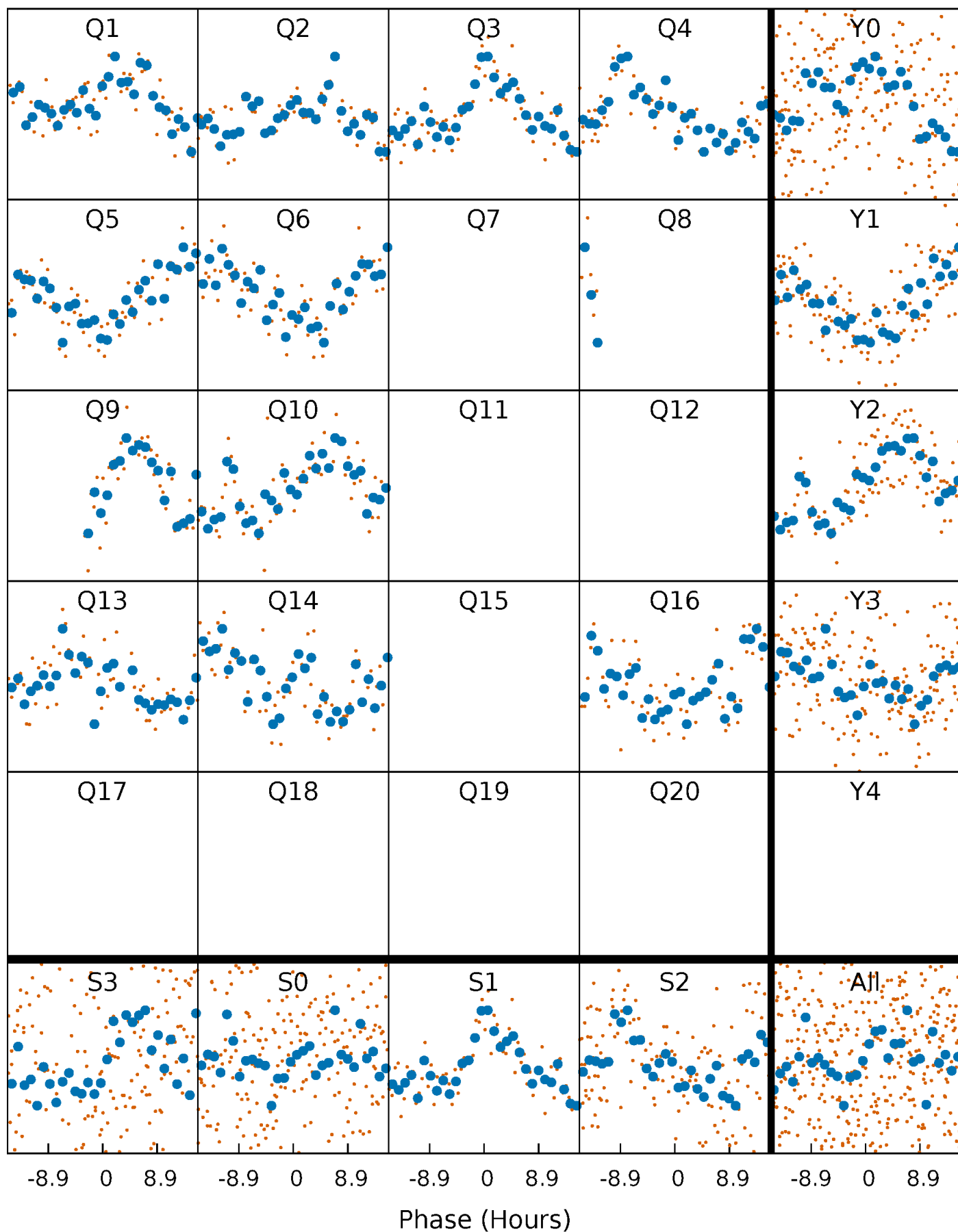


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



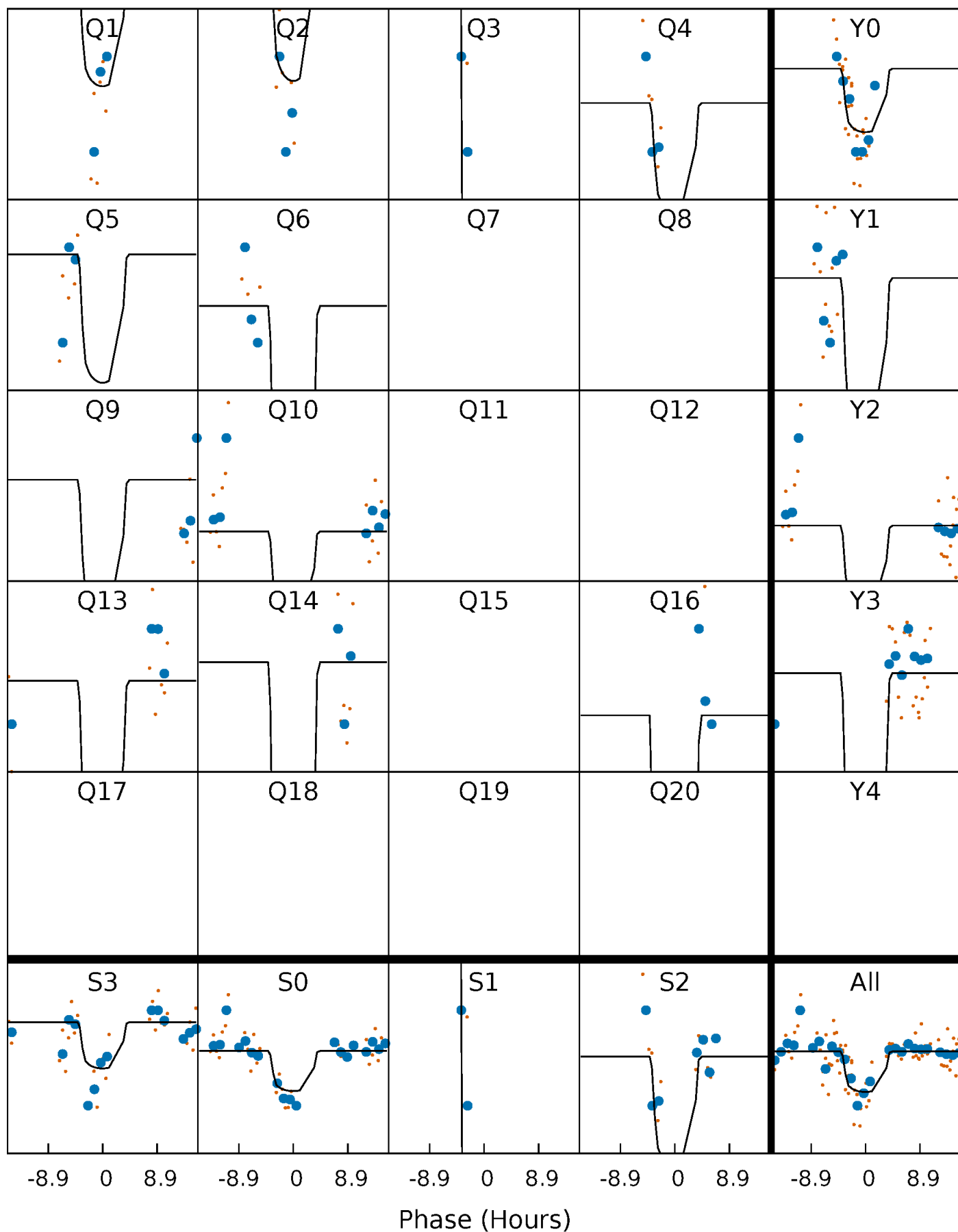
PDC Quarter-Phased Transit Curves

TCE 009786859-06 P= 72.046728 Days $T_0=154.436153$ (BKJD)



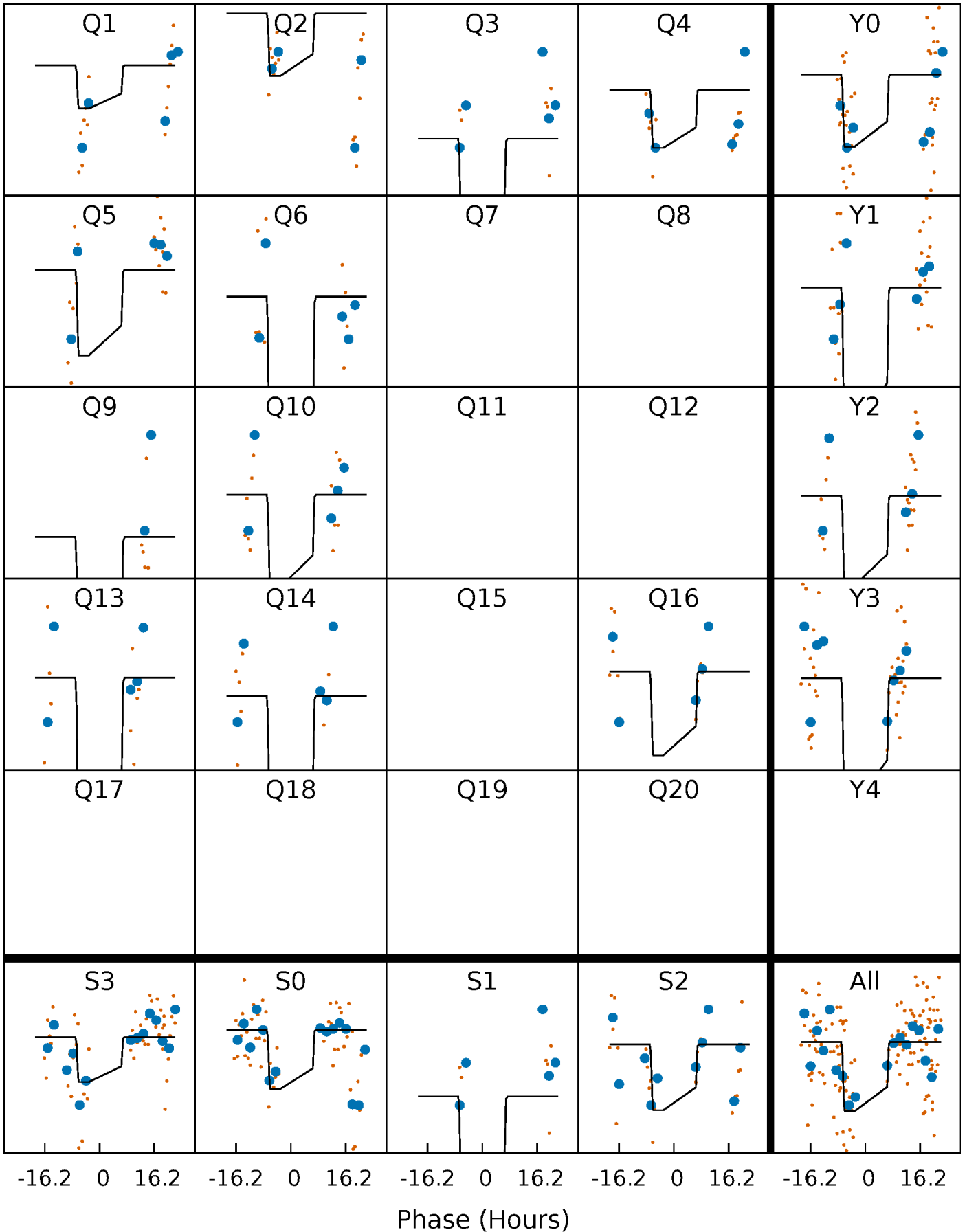
DV Quarter-Phased Transit Curves

TCE 009786859-06 P= 72.046728 Days $T_0=154.436153$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

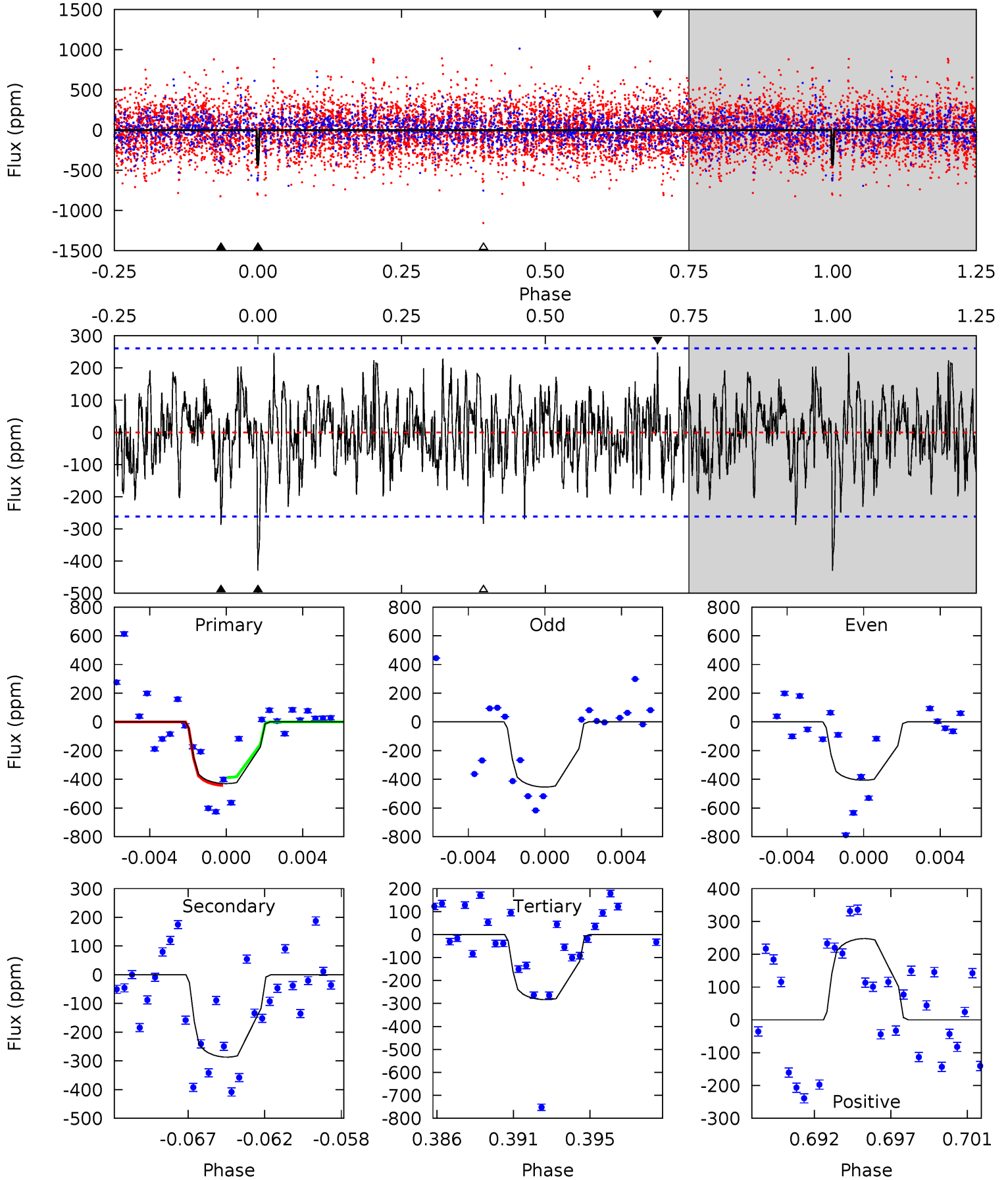
TCE 009786859-06 P= 72.030808 Days $T_0=154.610478$ (BKJD)



DV Model-Shift Uniqueness Test

009786859-06, P = 72.046728 Days, E = 82.389425 Days

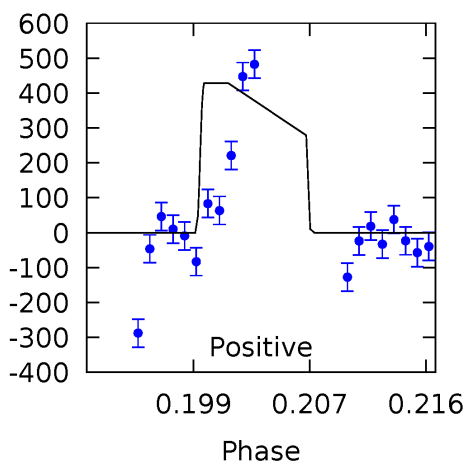
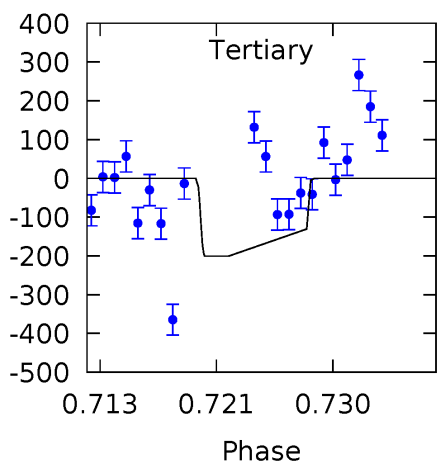
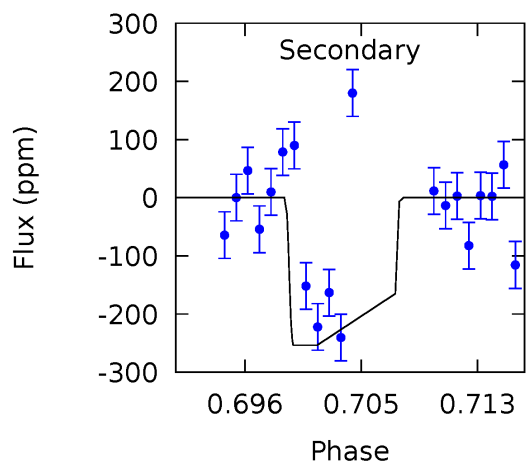
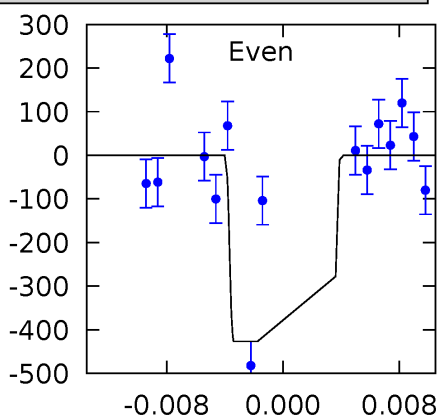
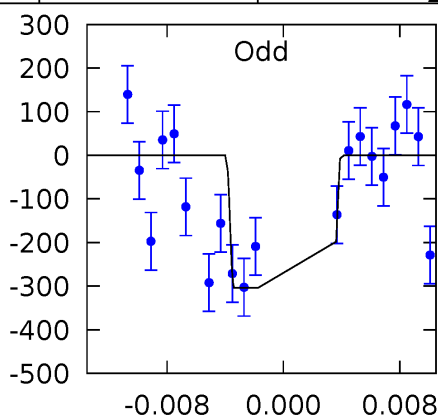
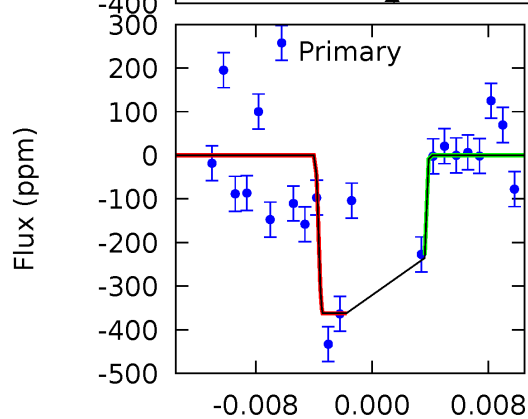
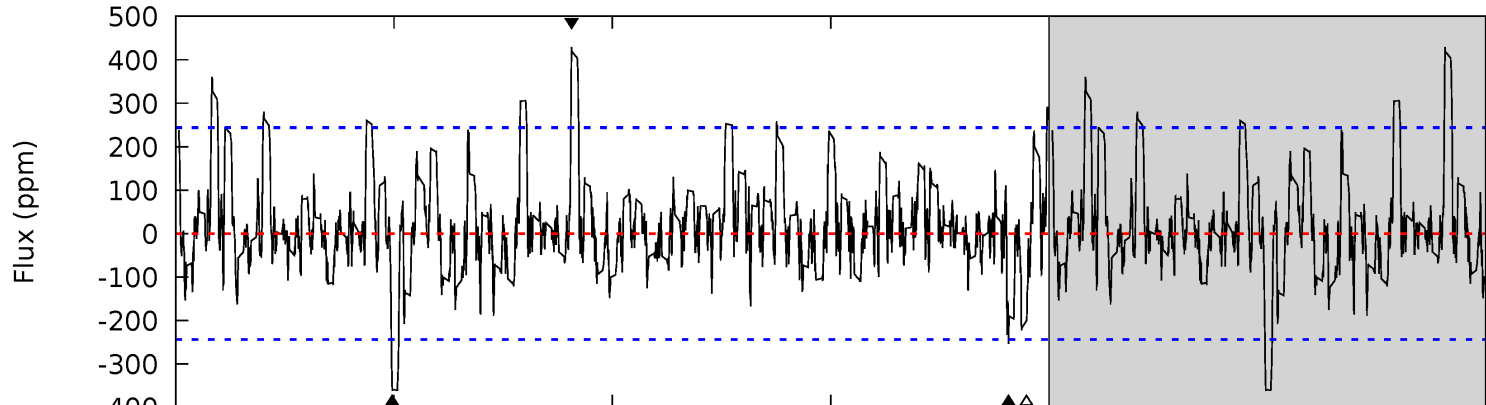
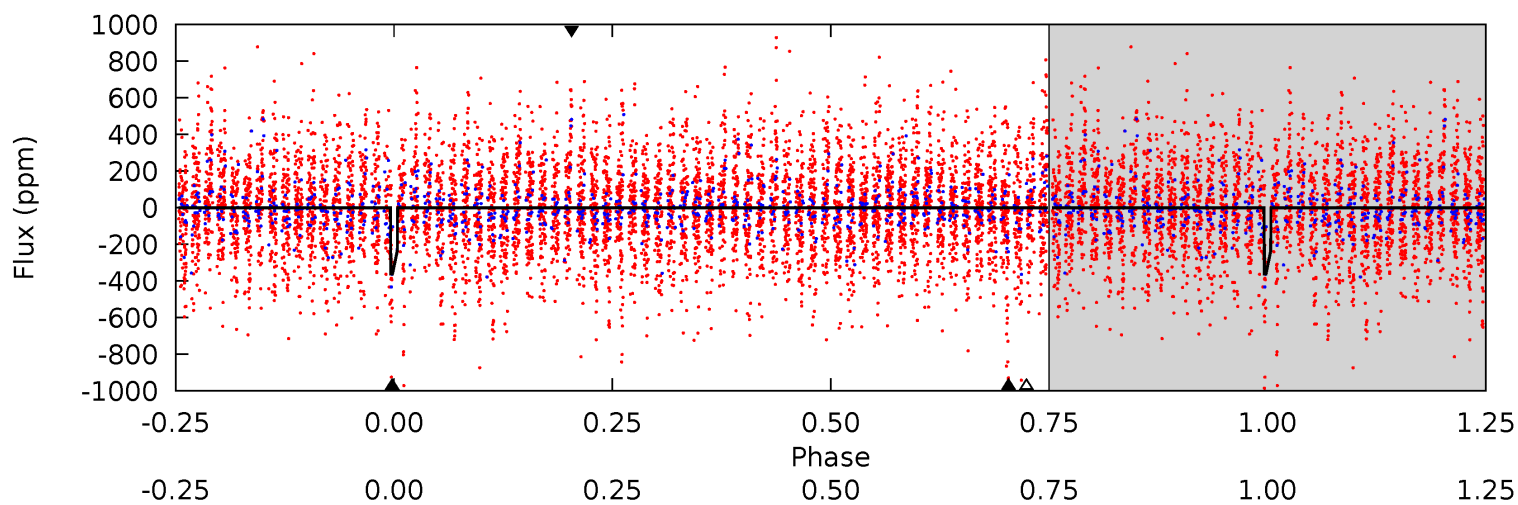
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.52	5.69	5.62	4.91	5.18	2.85	1.67	2.90	3.61	0.07	0.78	0.47	1.02	0.37	0.46



Alt Model-Shift Uniqueness Test

009786859-06, P = 72.030808 Days, E = 82.579670 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.52	5.27	4.17	8.90	5.06	2.64	1.55	3.35	-1.38	1.10	-3.63	1.26	0.72	0.54	0.76



Stellar Parameters For KIC 009786859

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6920^{+192}_{-288}	$4.253^{+0.087}_{-0.203}$	$-0.100^{+0.250}_{-0.350}$	$1.439^{+0.487}_{-0.209}$	$1.358^{+0.214}_{-0.214}$	$0.641^{+0.317}_{-0.340}$
	+3%/-4%	+2%/-5%	+250%/-350%	+34%/-15%	+16%/-16%	+49%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009786859-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-287 ± 50	$3.66^{+0.82}_{-0.62}$	845^{+67}_{-48}	5908^{+651}_{-514}	1610^{+831}_{-569}
Alt.	-254 ± 48	$3.27^{+0.78}_{-0.71}$	843^{+63}_{-47}	6079^{+769}_{-559}	1814^{+1083}_{-666}

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 $A_{obs} \gg 1.0$

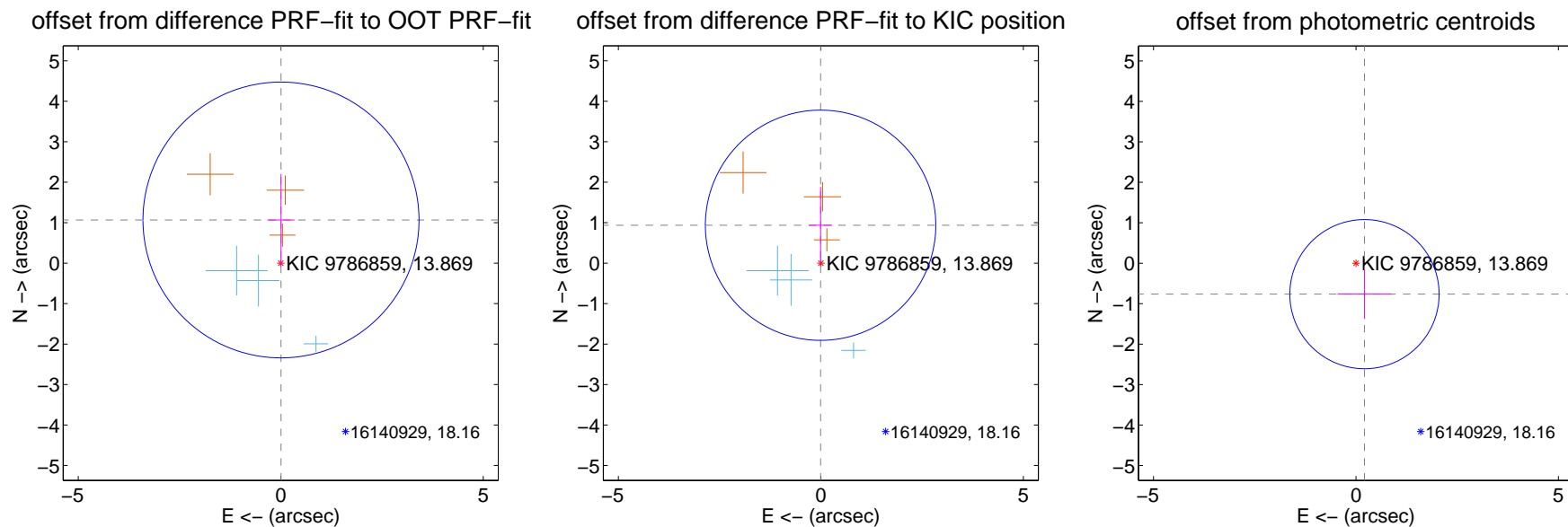
DV Centroid Data

Supplemental centroid analysis for 009786859-06. Kepler magnitude: 13.87. Transit SNR 8.54

There are 3 quarters with good PRF difference image offsets

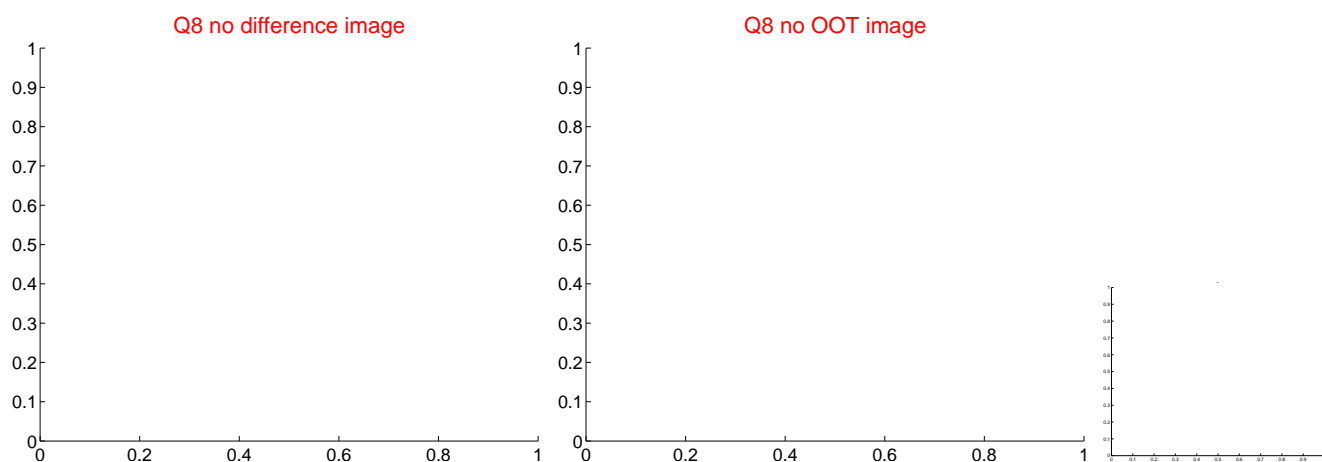
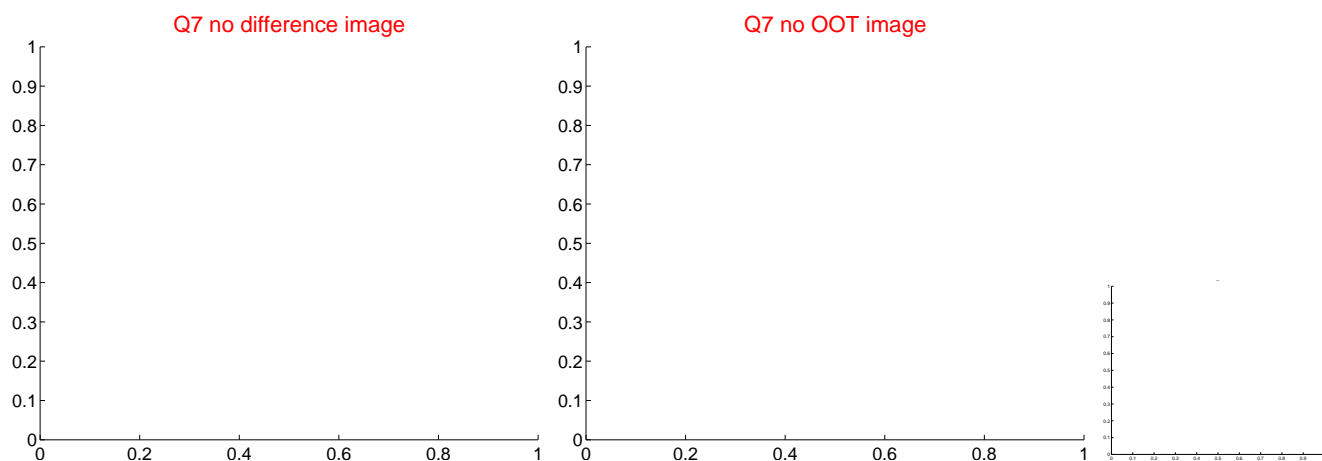
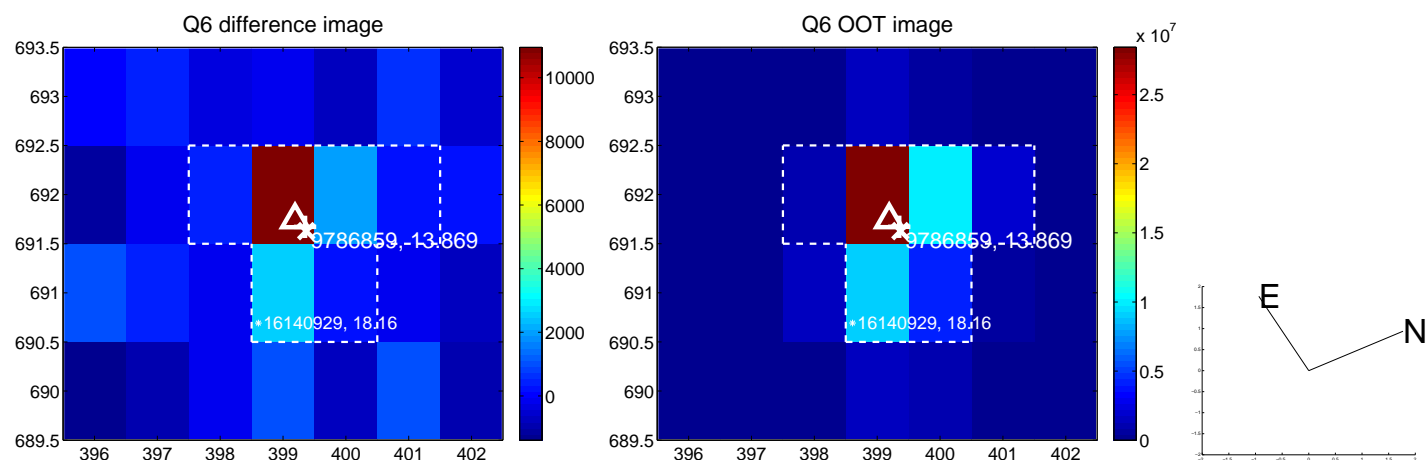
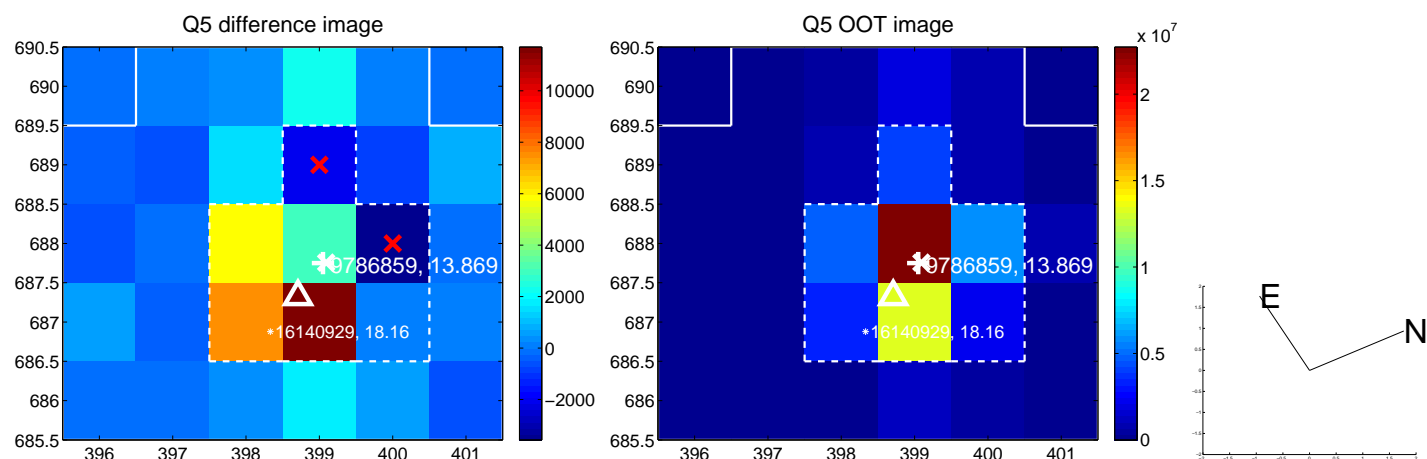
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.067 ± 1.136	0.94	-0.006 ± 0.336	1.067 ± 1.136
PRF-fit source offset from KIC position	0.937 ± 0.948	0.99	0.007 ± 0.287	0.937 ± 0.948
photometric centroid source offset	0.79 ± 0.61	1.29	-0.21 ± 0.66	-0.76 ± 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

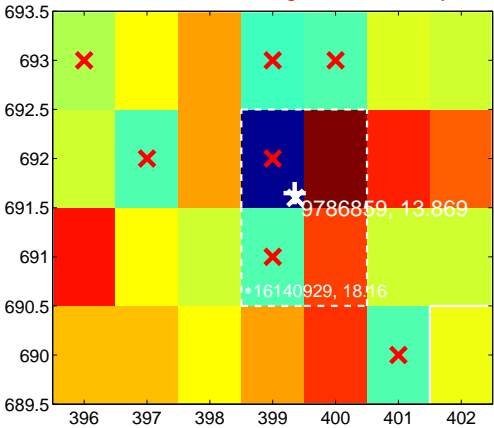
Q9 no difference image



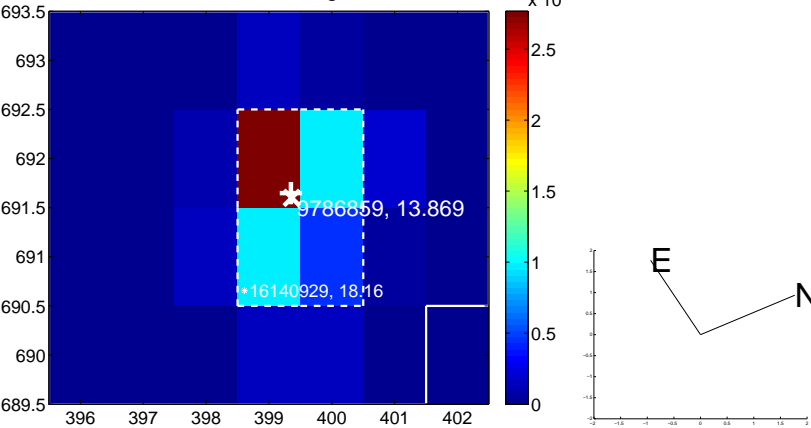
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



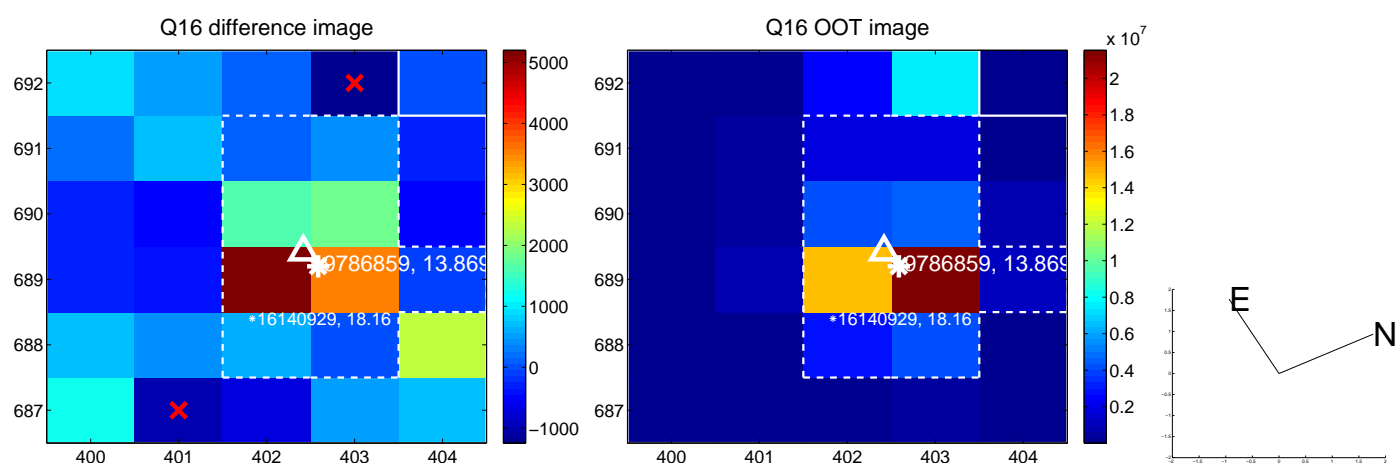
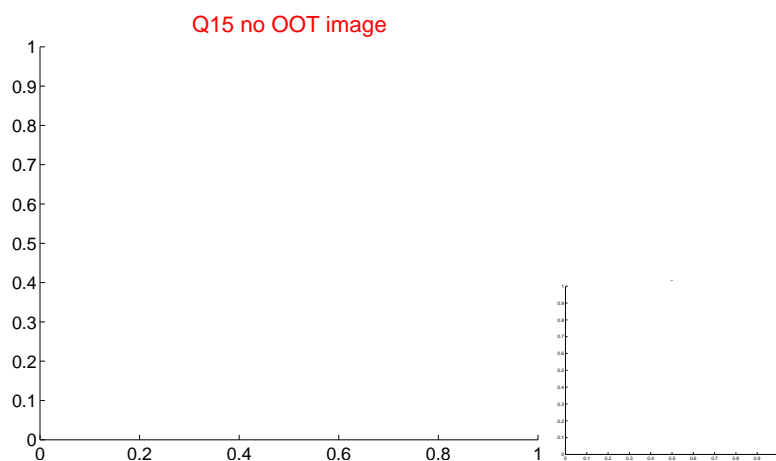
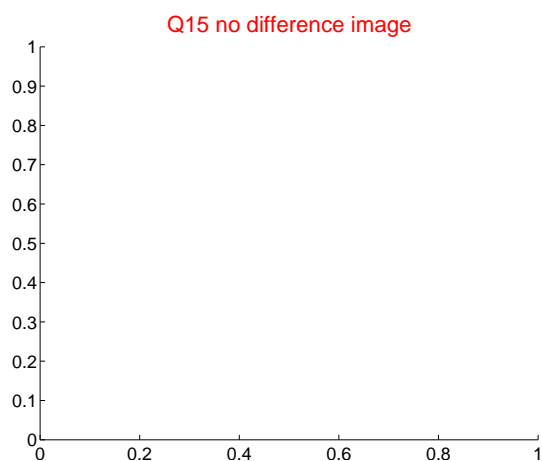
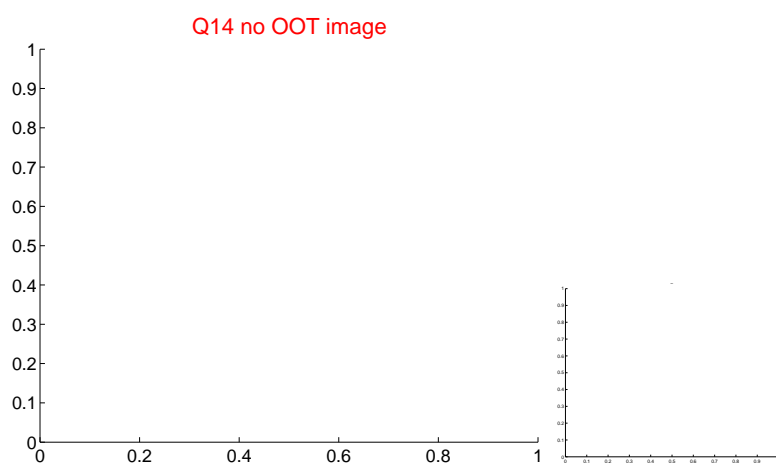
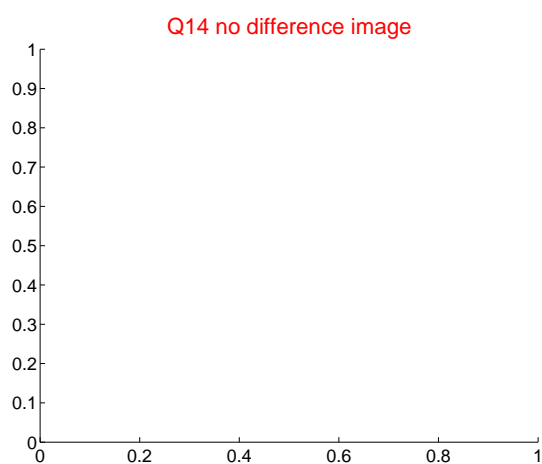
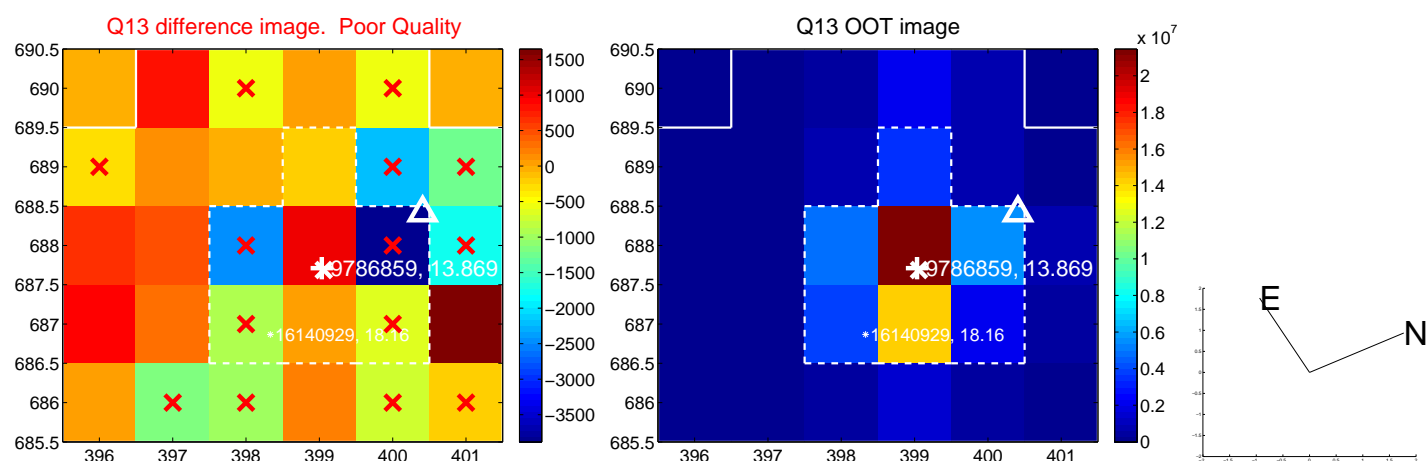
Q12 no difference image



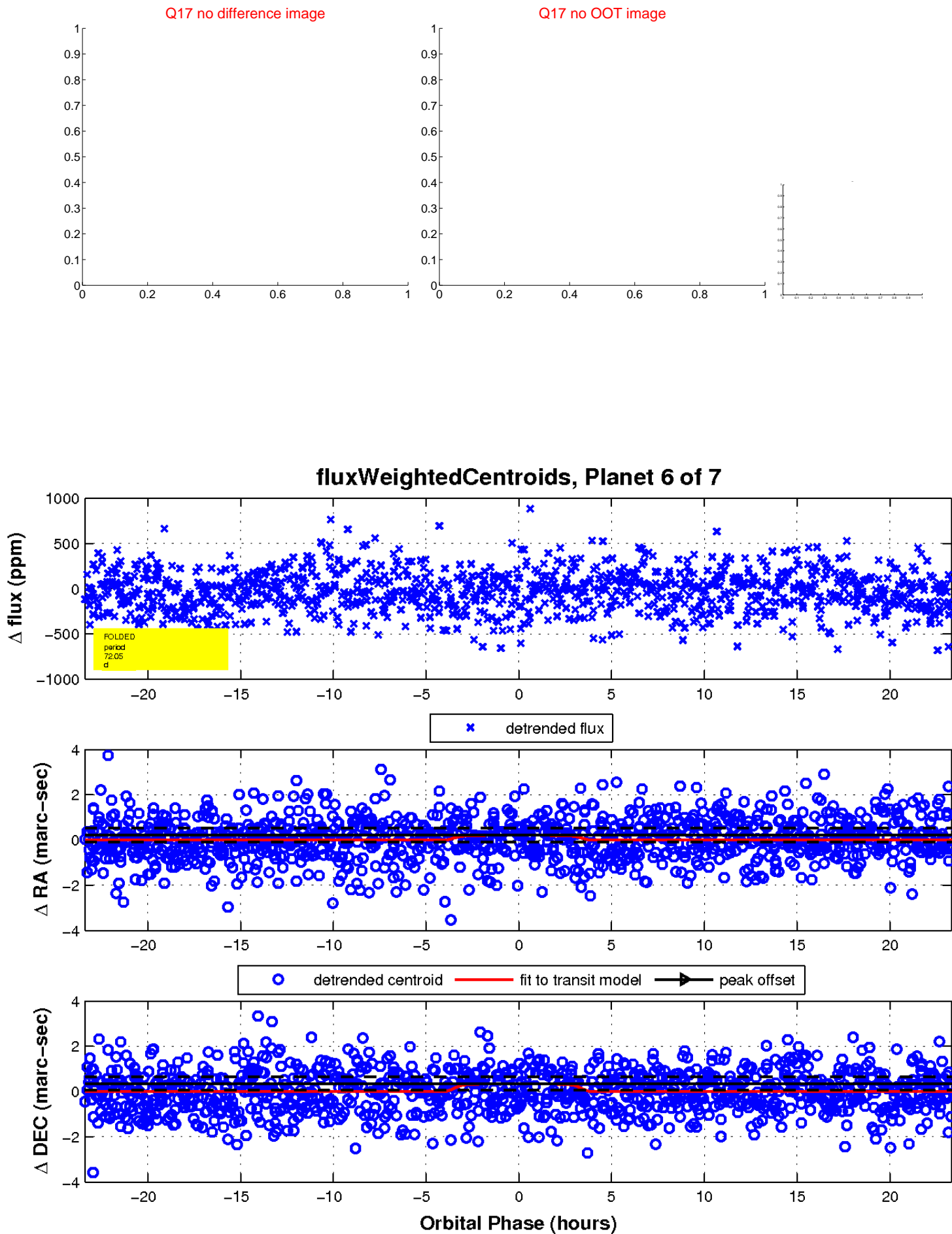
Q12 no OOT image



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

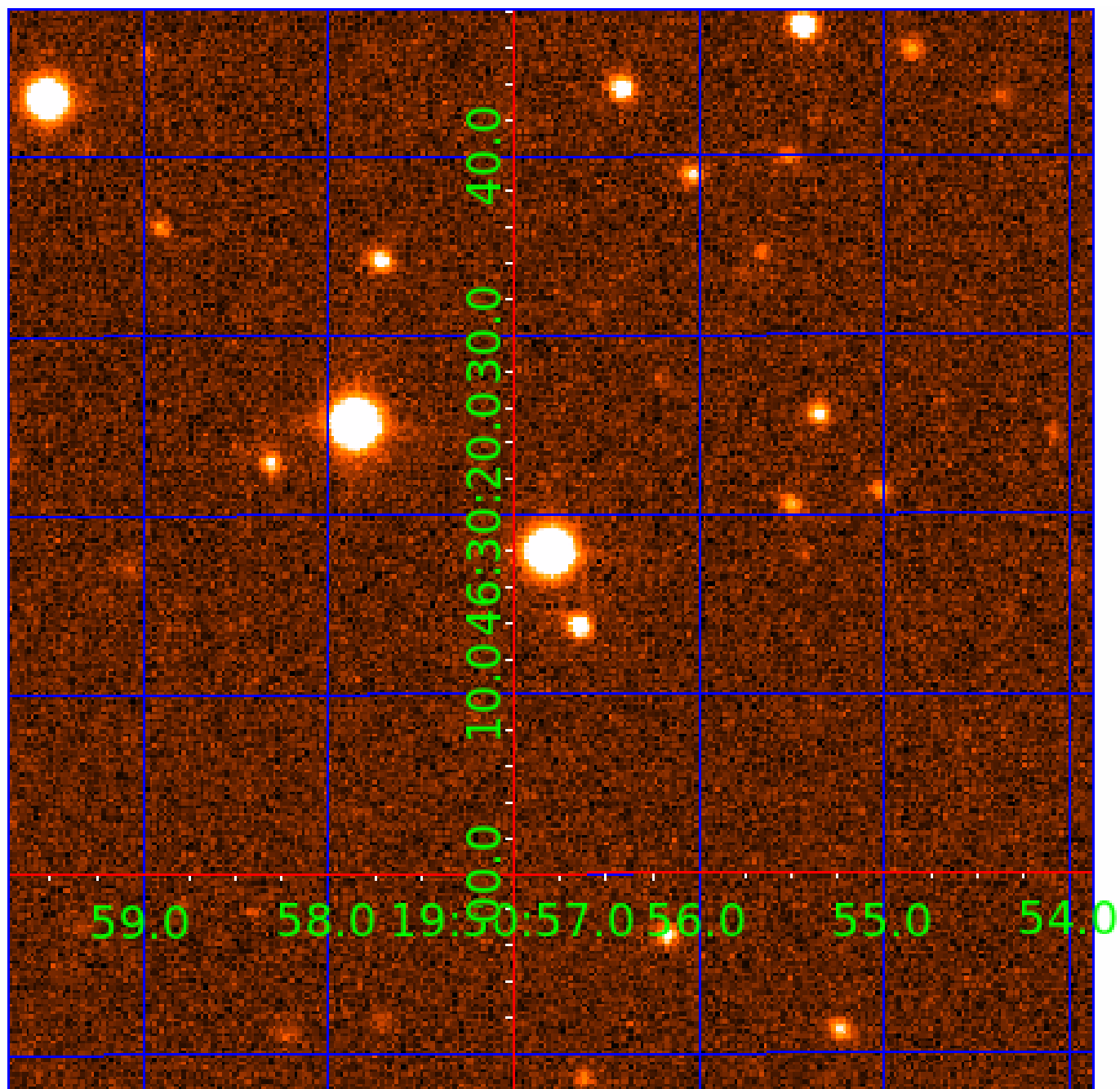


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009786859

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})
009786859-01	OBS	No	1.058868	131.651251	10.4	7.158	7.9	3.8	1.44	6920	0.47	8412.09
009786859-02	OBS	No	40.259719	135.336066	436.9	2.888	11.5	10.5	1.44	6920	3.40	65.80
009786859-03	OBS	No	27.080605	158.044076	509.0	0.872	9.5	10.4	1.44	6920	3.50	111.64
009786859-04	OBS	No	30.961632	143.734249	365.1	1.367	9.3	8.7	1.44	6920	2.87	93.38
009786859-05	OBS	No	49.217092	172.911806	397.3	2.826	8.9	10.6	1.44	6920	3.16	50.34
009786859-06	OBS	No	72.046728	154.436153	436.7	7.800	9.8	8.5	1.44	6920	3.53	30.28
009786859-07	OBS	No	67.596962	184.282166	419.7	1.627	8.6	9.1	1.44	6920	3.44	32.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009786859-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009786859-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
009786859-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV
009786859-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_MEAS
009786859-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009786859-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009786859-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS—HALO_GHOST

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

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

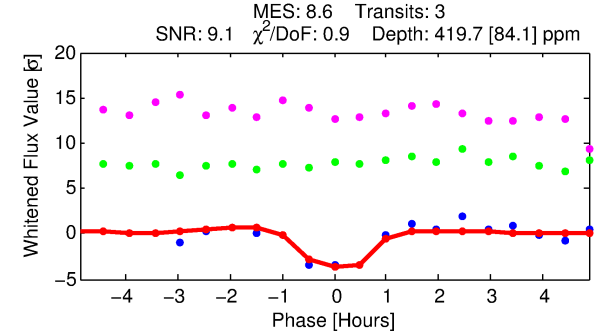
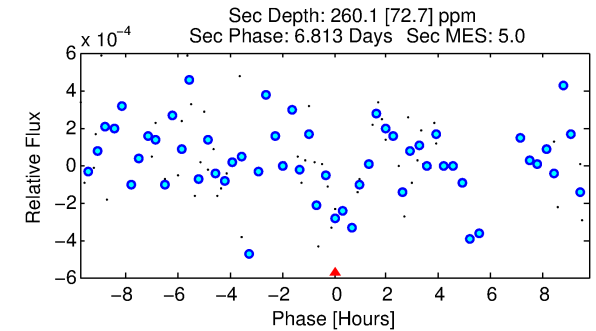
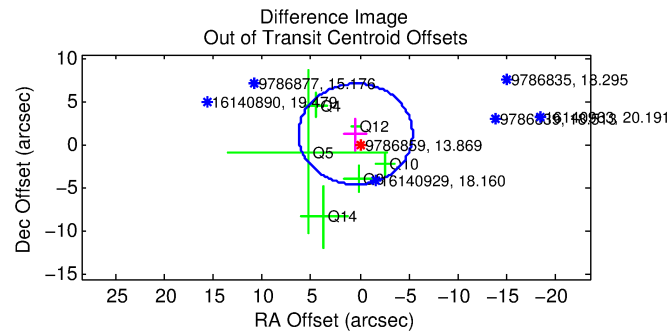
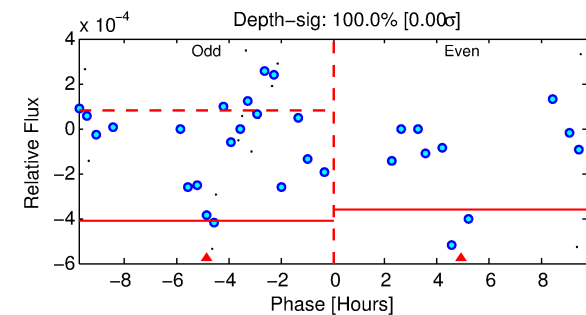
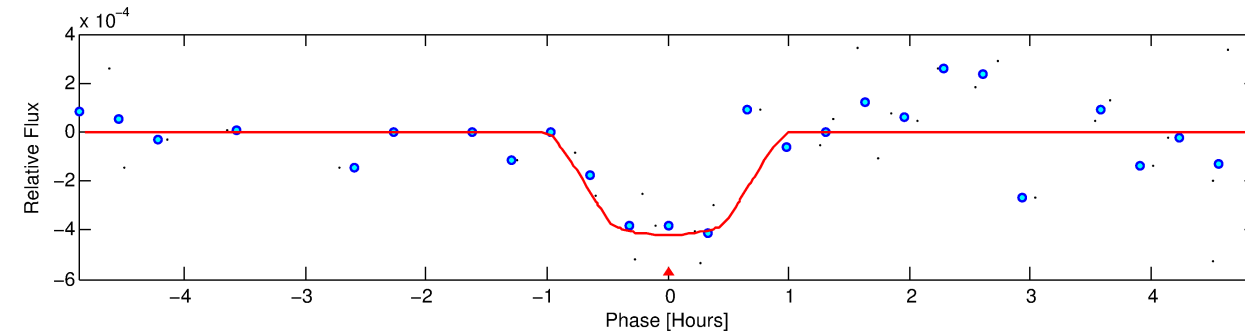
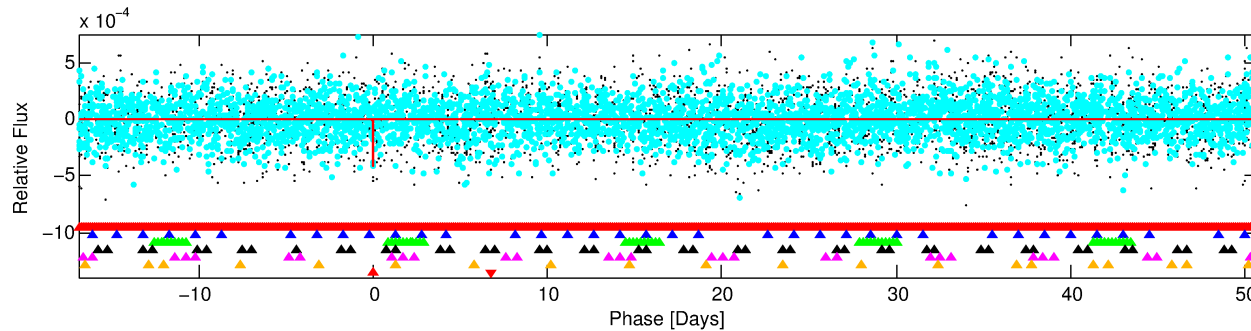
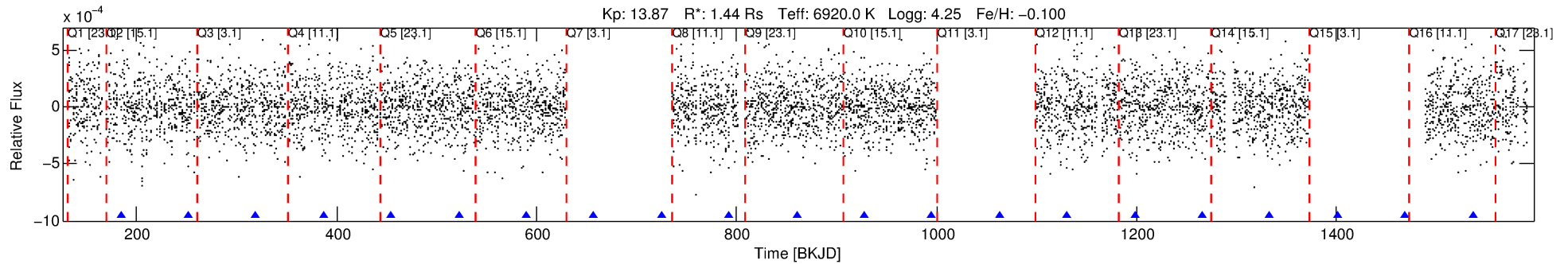
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009786859-07

No Significant Match Found

DV One-Page Summary

KIC: 9786859 Candidate: 7 of 7 Period: 67.597 d



DV Fit Results:

Period = 67.59696 [0.00042] d
Epoch = 184.2822 [0.0068] BKJD
Rp/R* = 0.0219 [0.0591]
a/R* = 154.02 [2538.20]
b = 0.90 [3.55]
Seff = 32.97 [13.82]
Teq = 611 [64] K
Rp = 3.44 [9.35] Re
a = 0.3592 [0.0985] AU
Ag = 1563.17 [8470.81] [0.18σ]
Teffp = 5940 [8031] K [0.66σ]

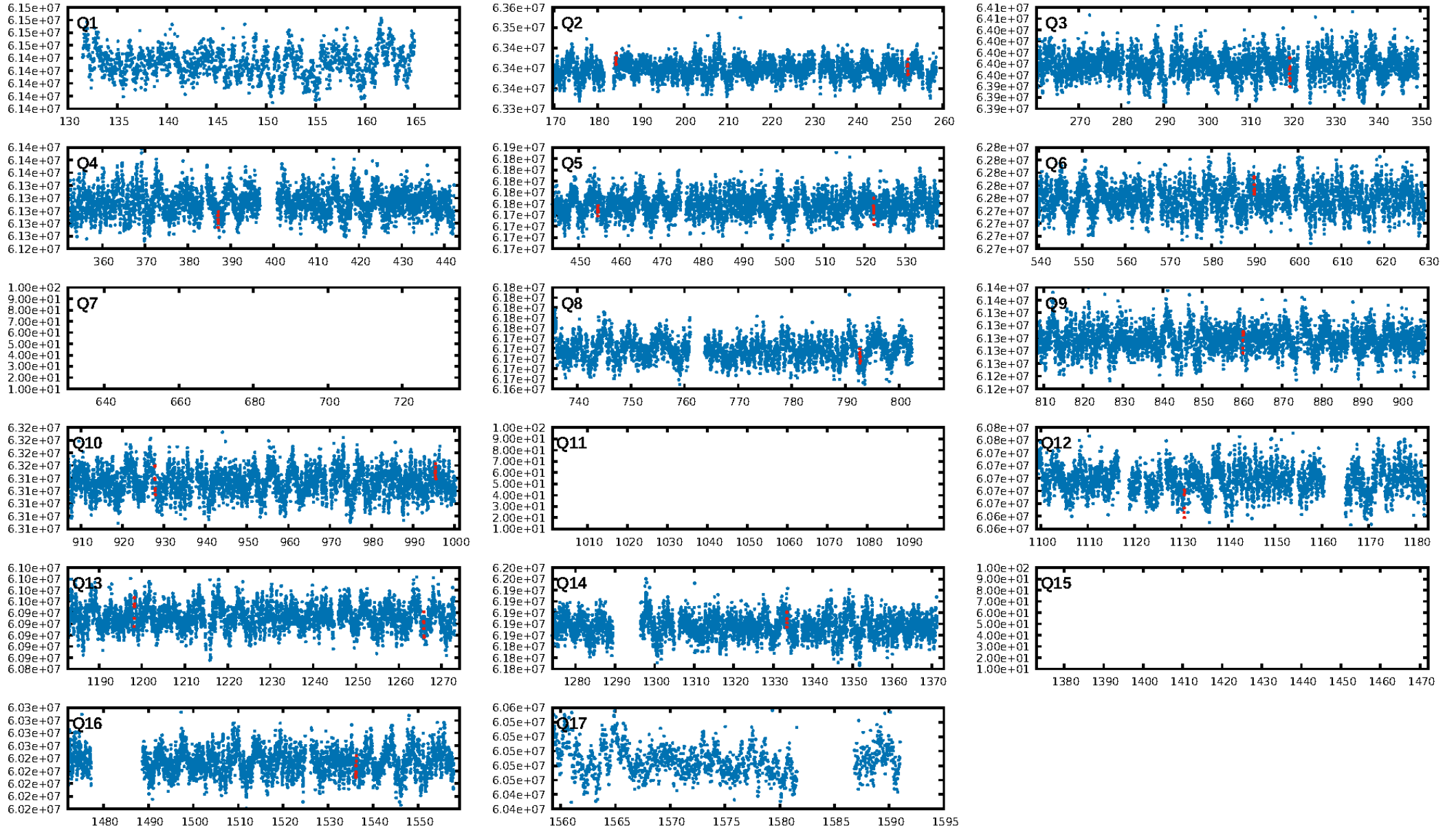
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [135.27σ]
LongPeriod-sig: 100.0% [13.40σ]
ModelChiSquare2-sig: 76.9%
ModelChiSquareGof-sig: 99.5%
Bootstrap-pfa: 2.82e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.2207
Centroid-sig: 36.0%
Centroid-so: 0.792 arcsec [0.80σ]
OotOffset-rm: 1.347 arcsec [0.69σ]
KicOffset-rm: 1.301 arcsec [0.76σ]
OotOffset-st: 2/0/3/1 [6]
KicOffset-st: 2/0/3/1 [6]
DiffImageQuality-fgm: 0.17 [1/6]
DiffImageOverlap-fno: 0.33 [4/12]

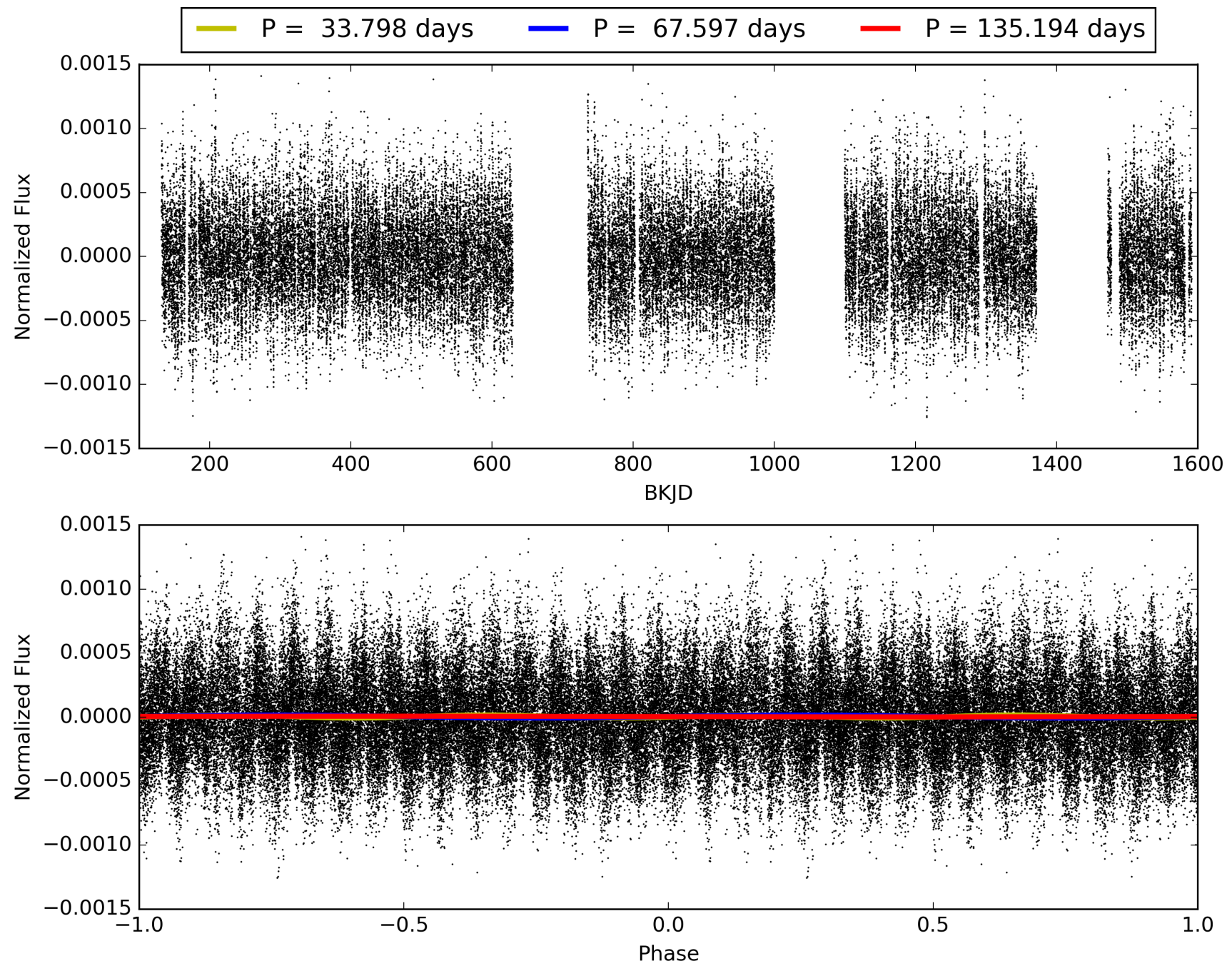
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:26:10 Z

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

TCE 009786859-07, PDC Light Curves

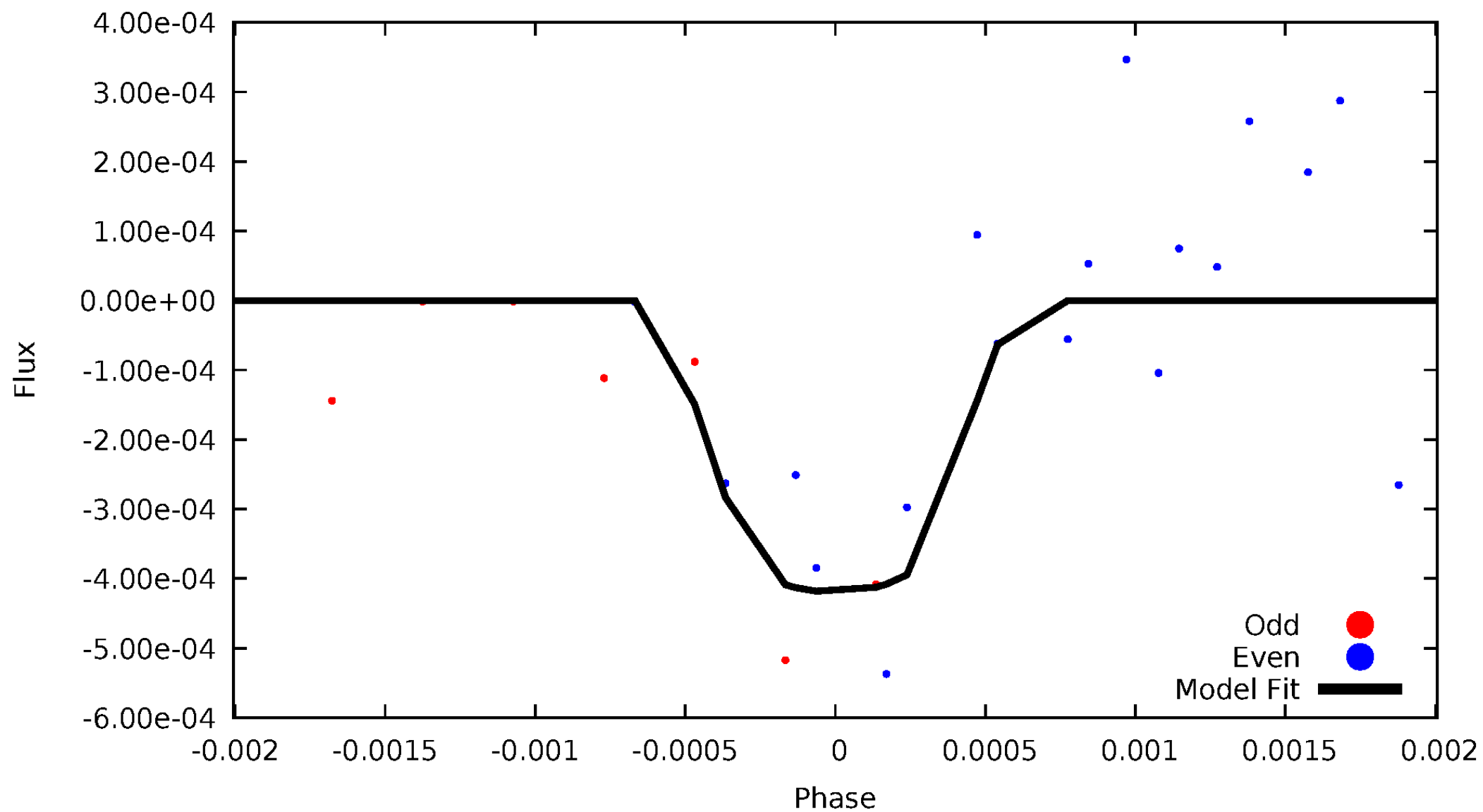


TCE 009786859-07



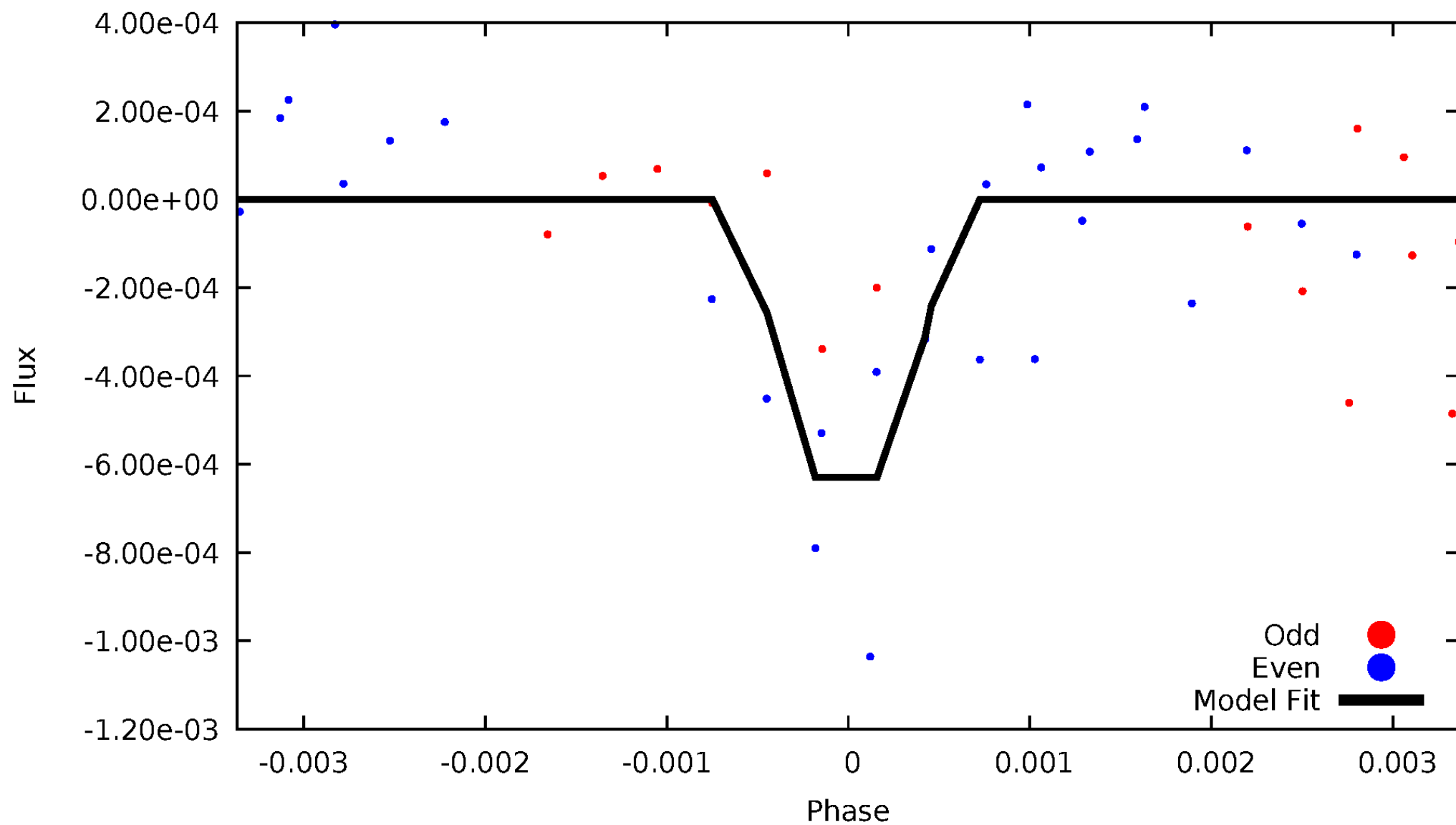
DV Odd/Even

TCE 009786859-07



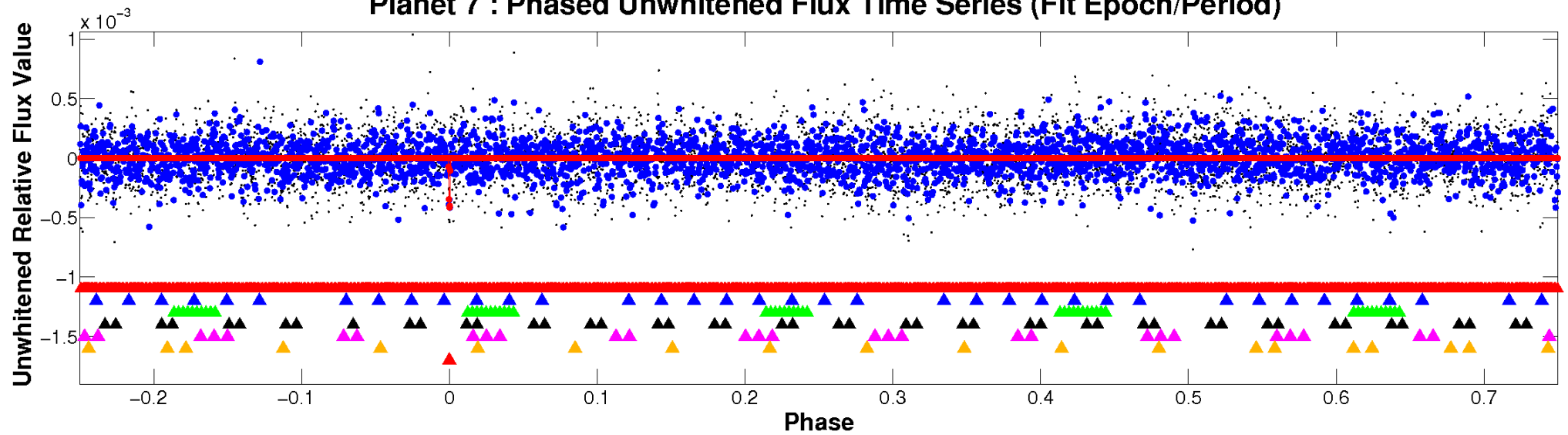
ALT Odd/Even

TCE 009786859-07

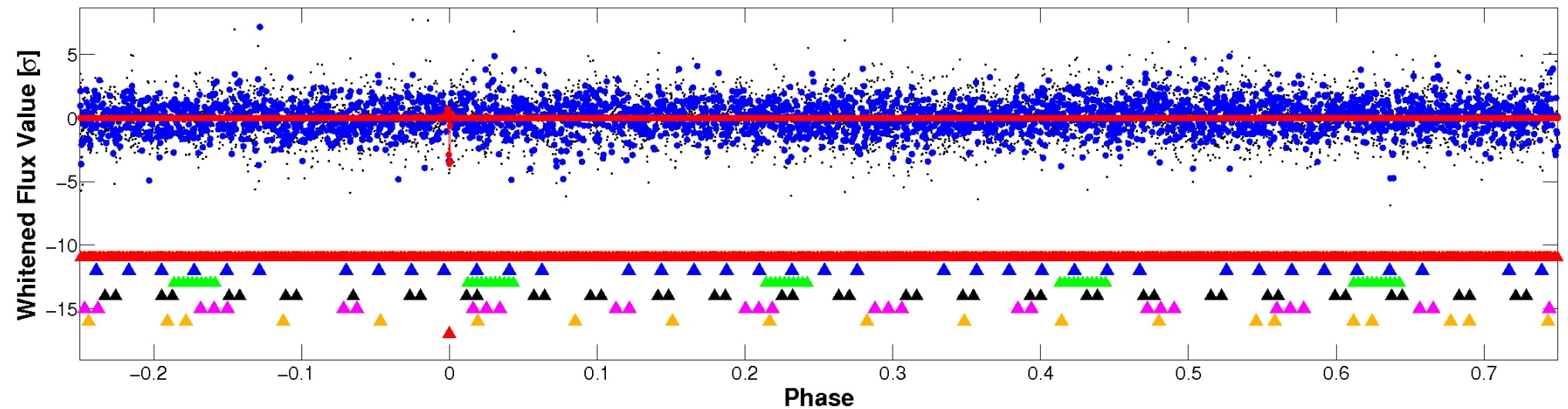


Non-Whitened Vs. Whitened Light Curve

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

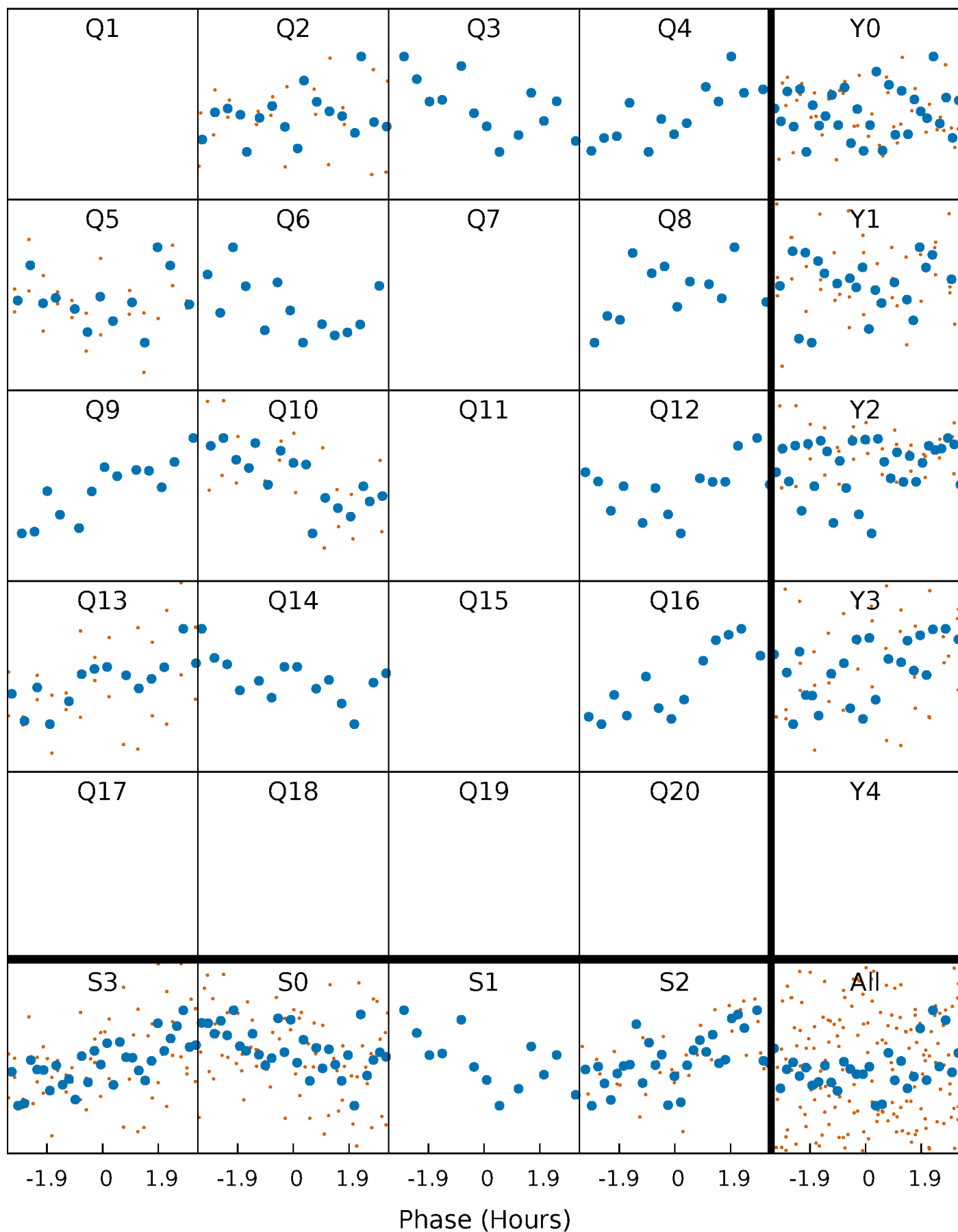


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



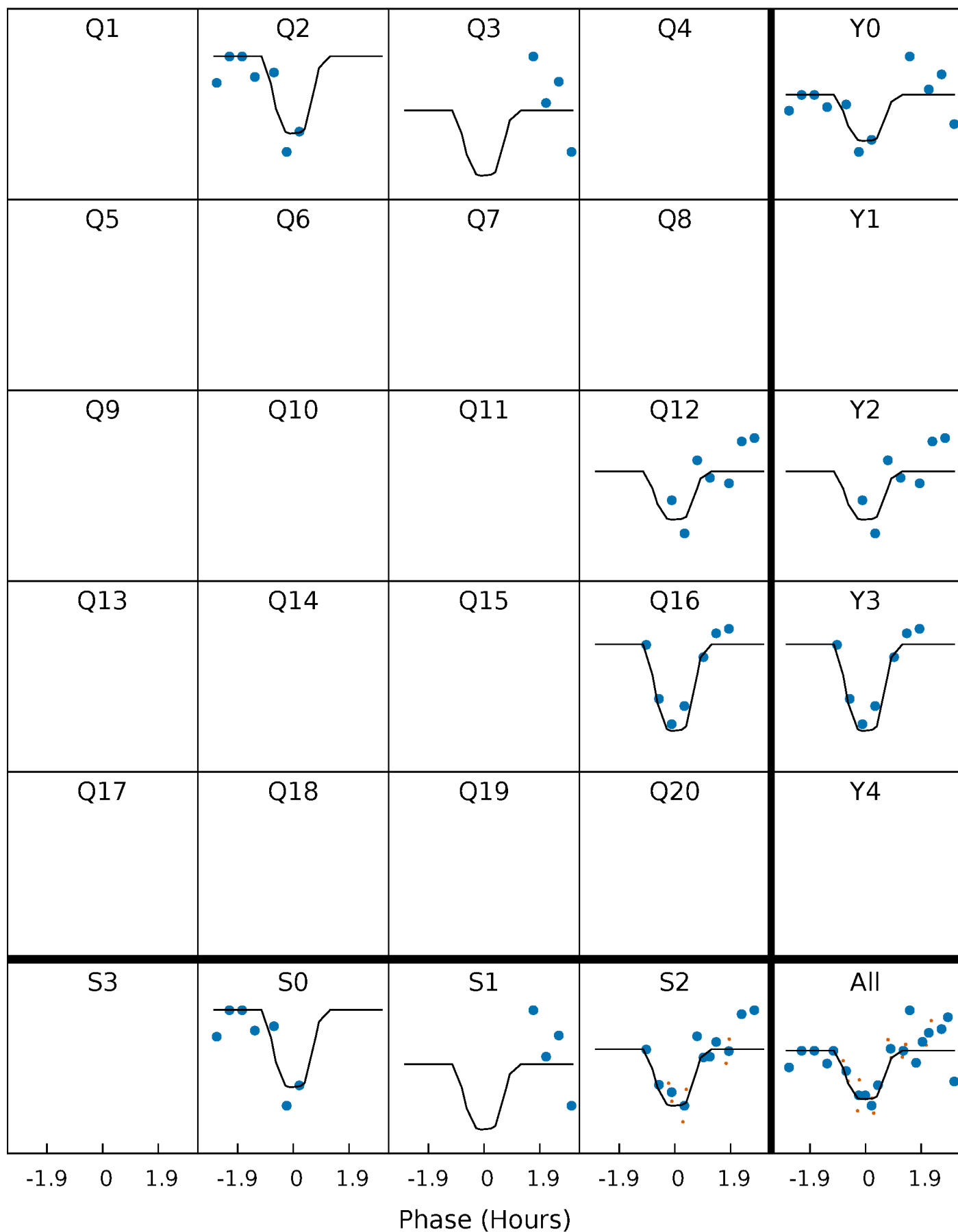
PDC Quarter-Phased Transit Curves

TCE 009786859-07 P= 67.596962 Days $T_0=184.282166$ (BKJD)



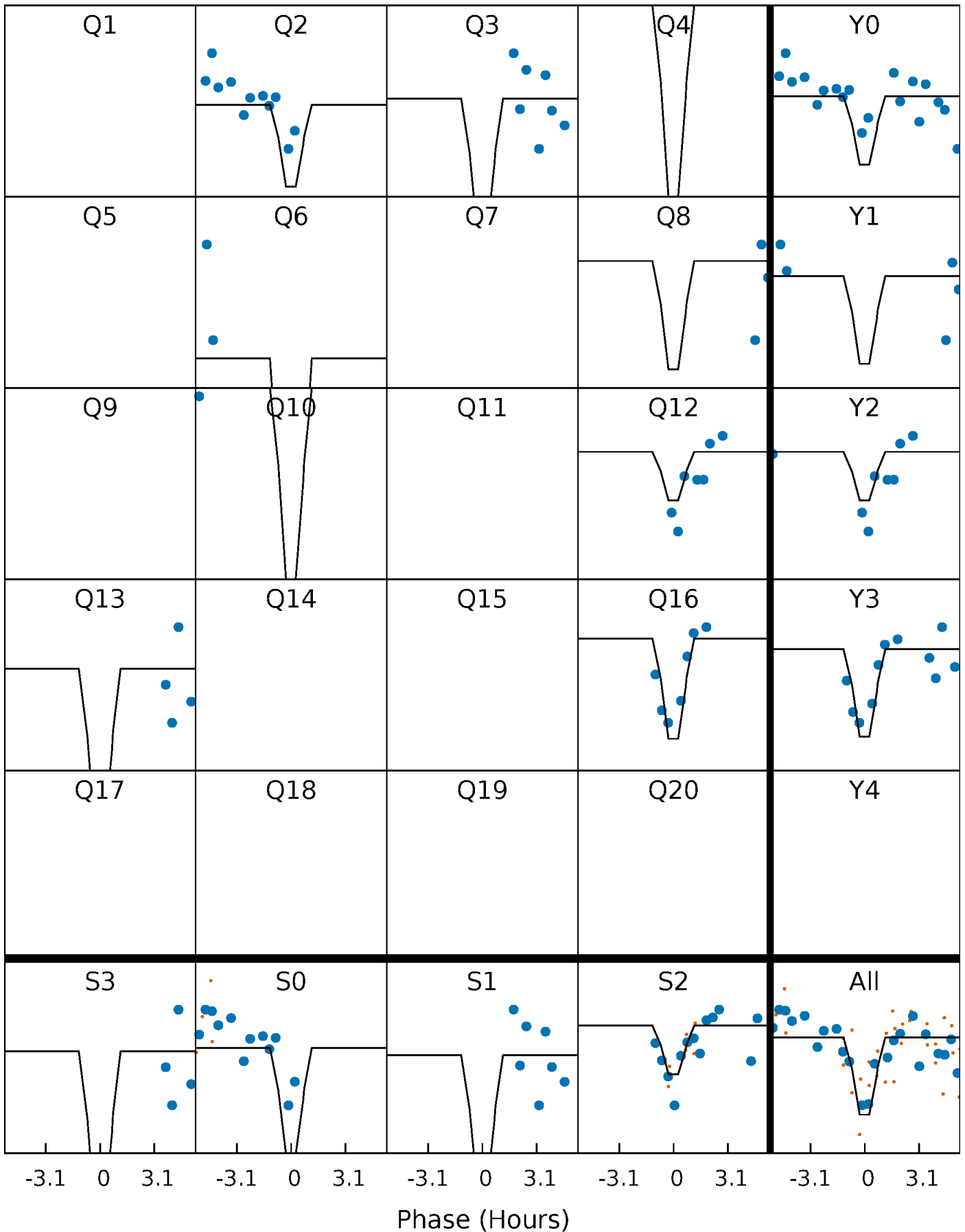
DV Quarter-Phased Transit Curves

TCE 009786859-07 P= 67.596962 Days $T_0=184.282166$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

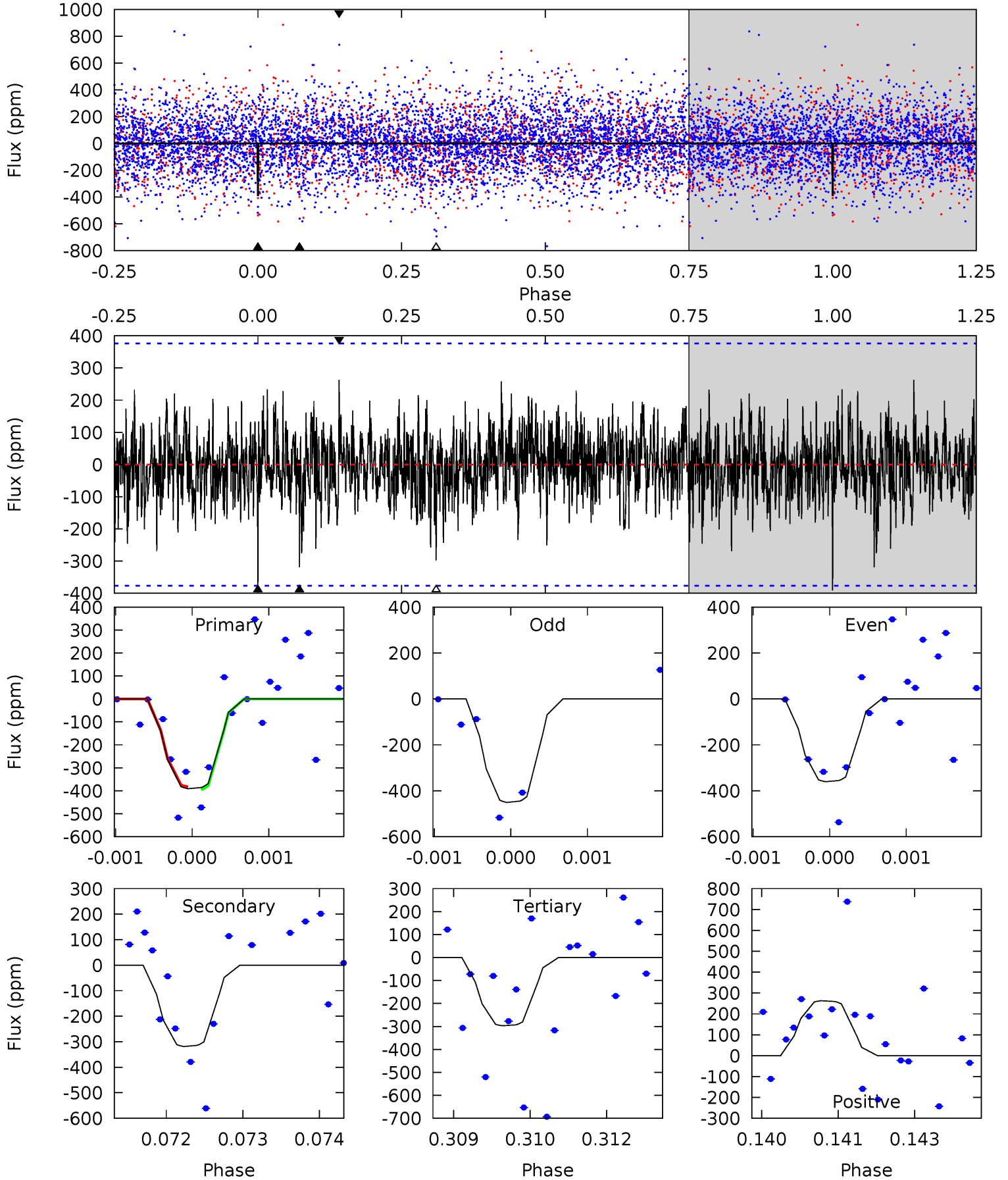
TCE 009786859-07 P= 67.597334 Days $T_0=184.280368$ (BKJD)



DV Model-Shift Uniqueness Test

009786859-07, P = 67.596962 Days, E = 116.685204 Days

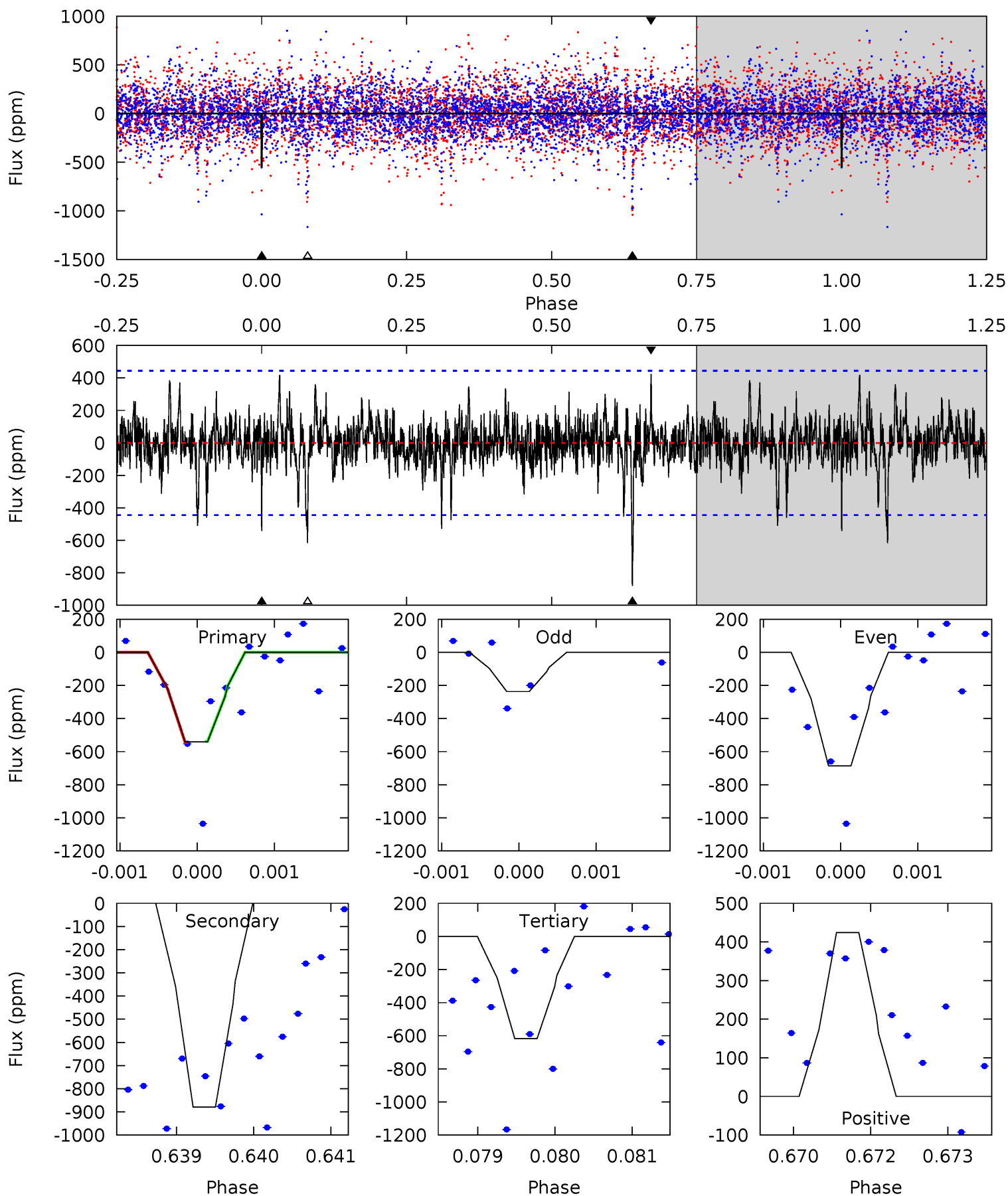
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.64	4.60	4.29	3.79	5.43	3.25	1.18	1.35	1.85	0.31	0.80	0.57	1.09	0.40	0.08



Alt Model-Shift Uniqueness Test

009786859-07, P = 67.597334 Days, E = 116.683034 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.62	10.7	7.54	5.18	5.42	3.25	1.41	-0.92	1.44	3.20	5.56	2.48	1.09	0.33	0.04



Stellar Parameters For KIC 009786859

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6920^{+192}_{-288}	$4.253^{+0.087}_{-0.203}$	$-0.100^{+0.250}_{-0.350}$	$1.439^{+0.487}_{-0.209}$	$1.358^{+0.214}_{-0.214}$	$0.641^{+0.317}_{-0.340}$
	+3%/-4%	+2%/-5%	+250%/-350%	+34%/-15%	+16%/-16%	+49%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009786859-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-319 ± 69	$8.10^{+7.67}_{-5.50}$	863^{+65}_{-49}	4345^{+2940}_{-927}	342^{+2978}_{-253}
Alt.	-879 ± 82	$8.48^{+8.29}_{-5.70}$	868^{+68}_{-50}	5210^{+4208}_{-1206}	846^{+6715}_{-629}

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

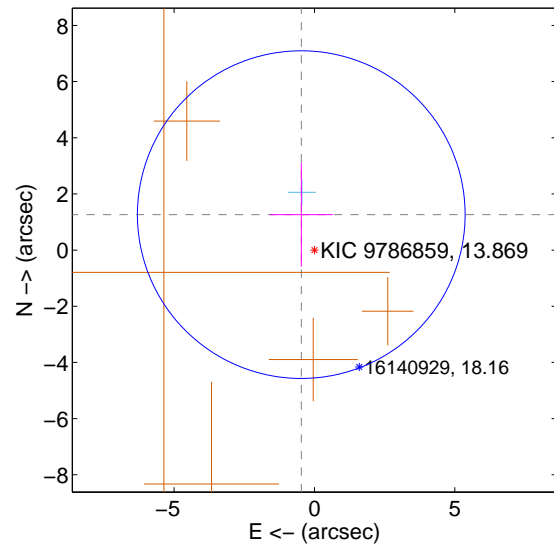
Supplemental centroid analysis for 009786859-07. Kepler magnitude: 13.87. Transit SNR 9.08

There are 1 quarters with good PRF difference image offsets

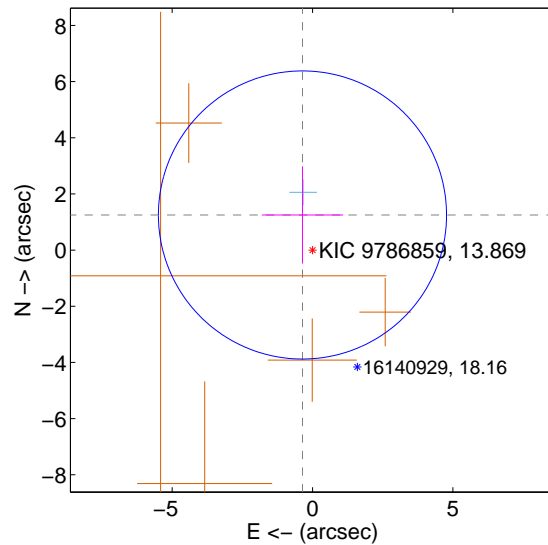
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.347 ± 1.945	0.69	0.469 ± 1.123	1.263 ± 1.855
PRF-fit source offset from KIC position	1.301 ± 1.710	0.76	0.358 ± 1.449	1.251 ± 1.730
photometric centroid source offset	0.79 ± 0.99	0.80	-0.76 ± 0.99	-0.22 ± 0.99

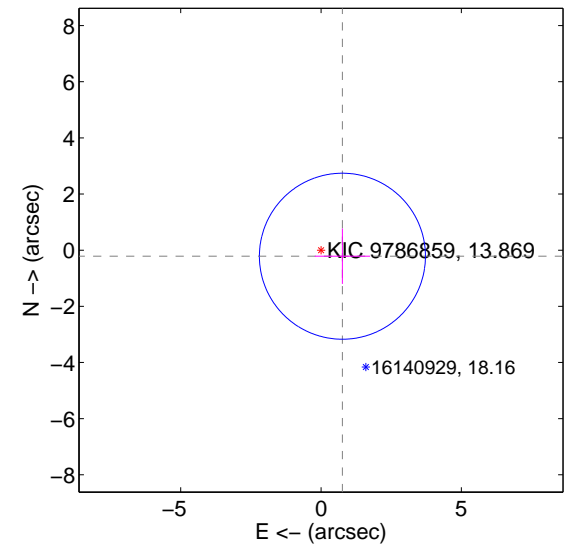
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

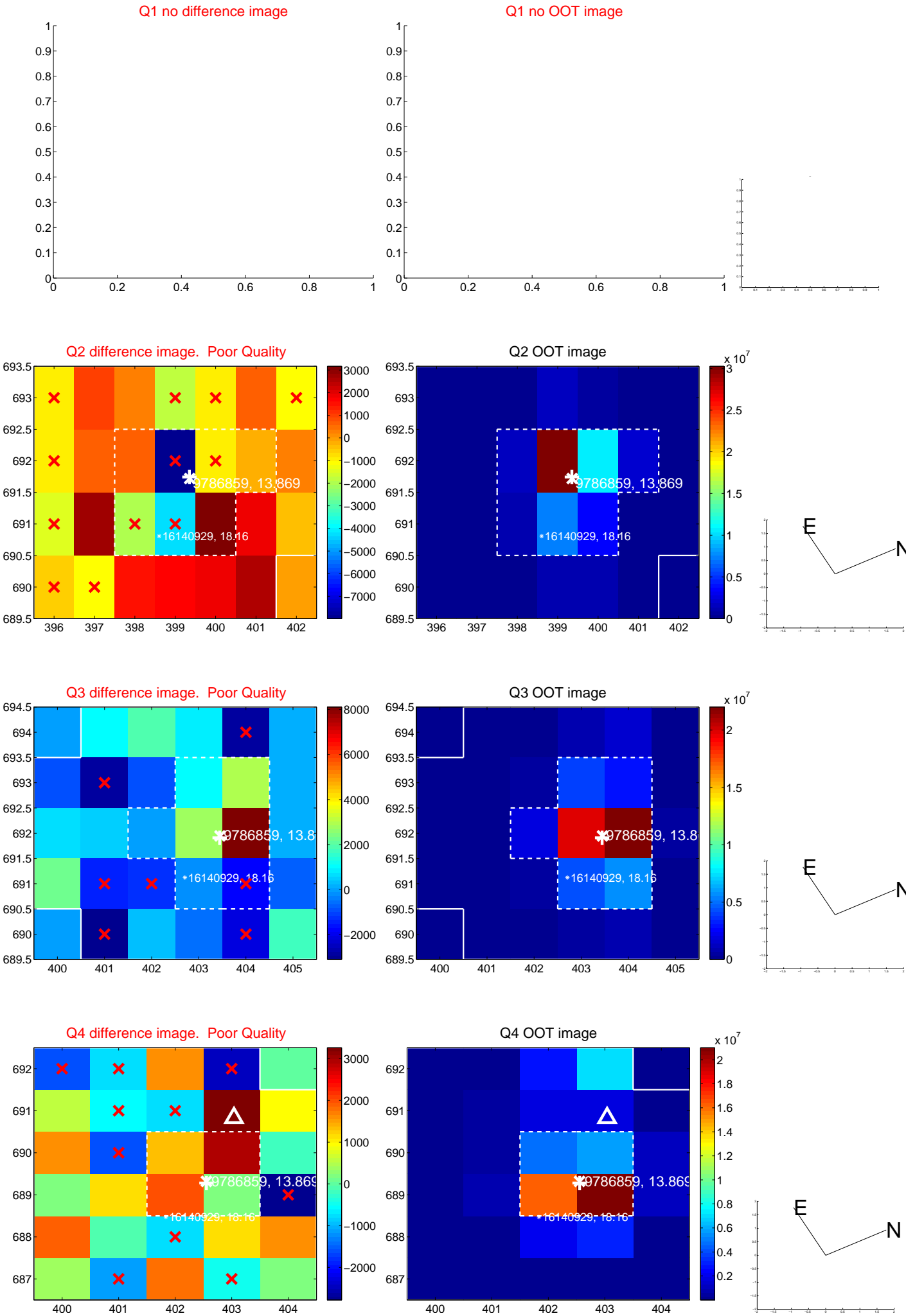


offset from photometric centroids

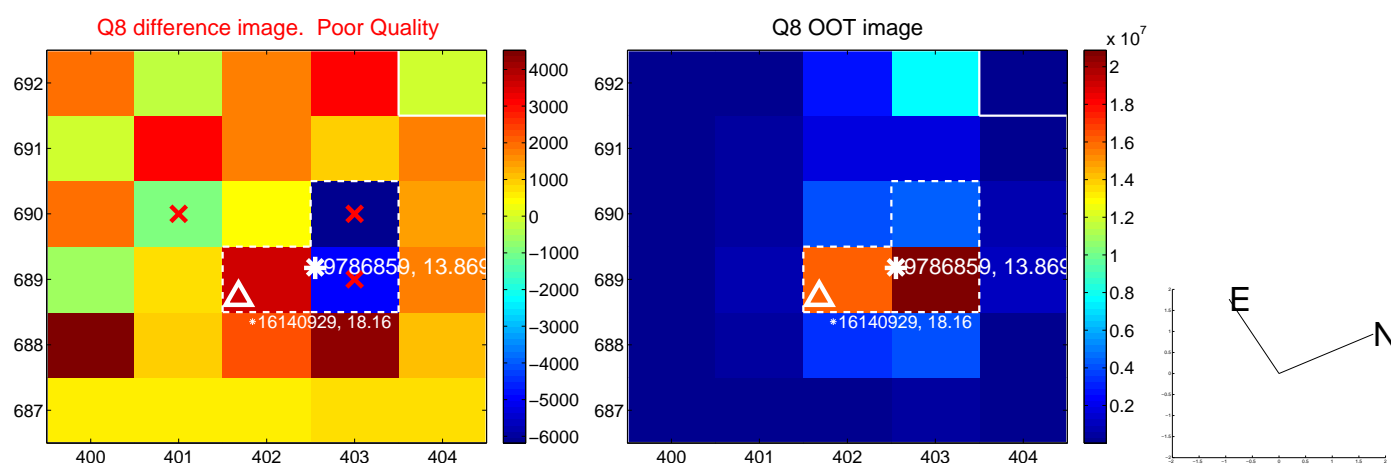
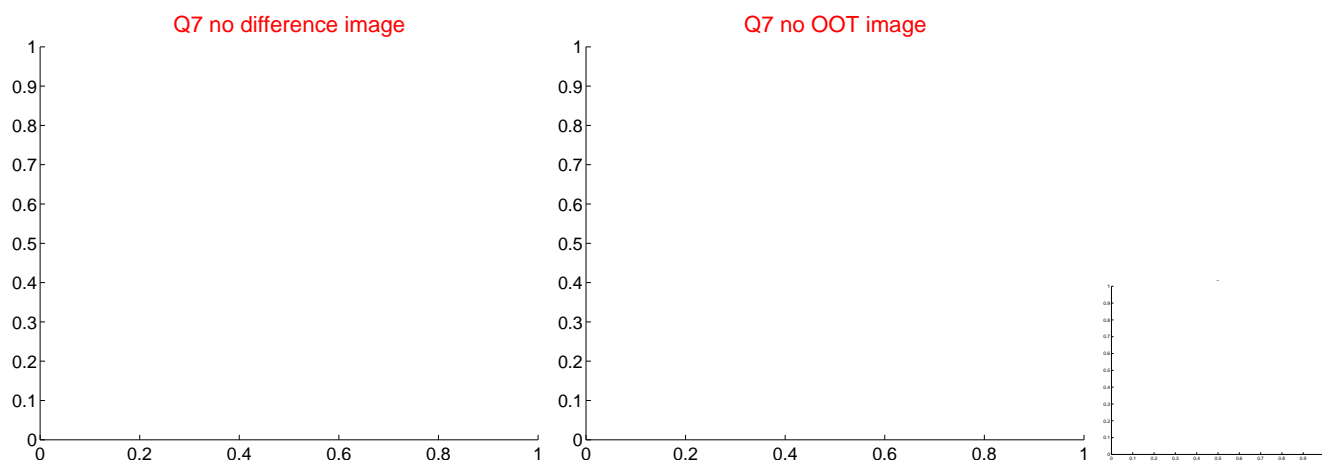
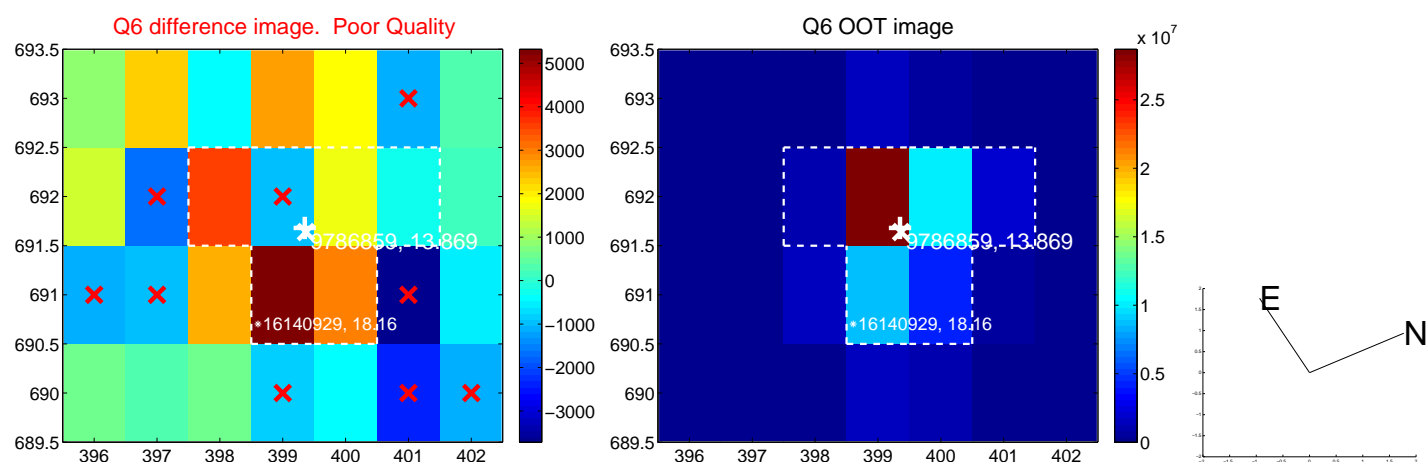
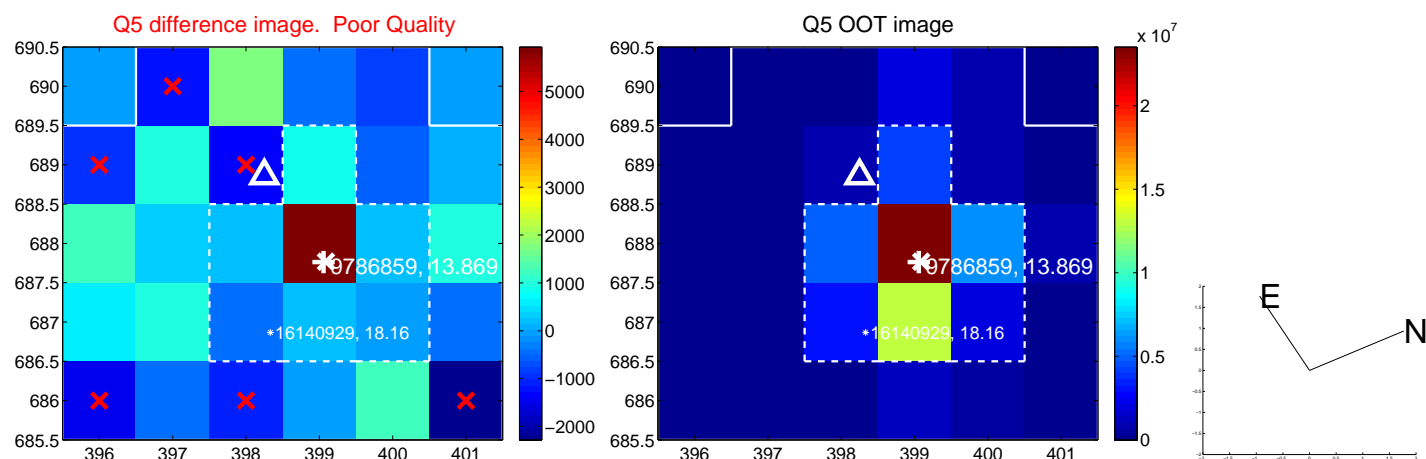


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

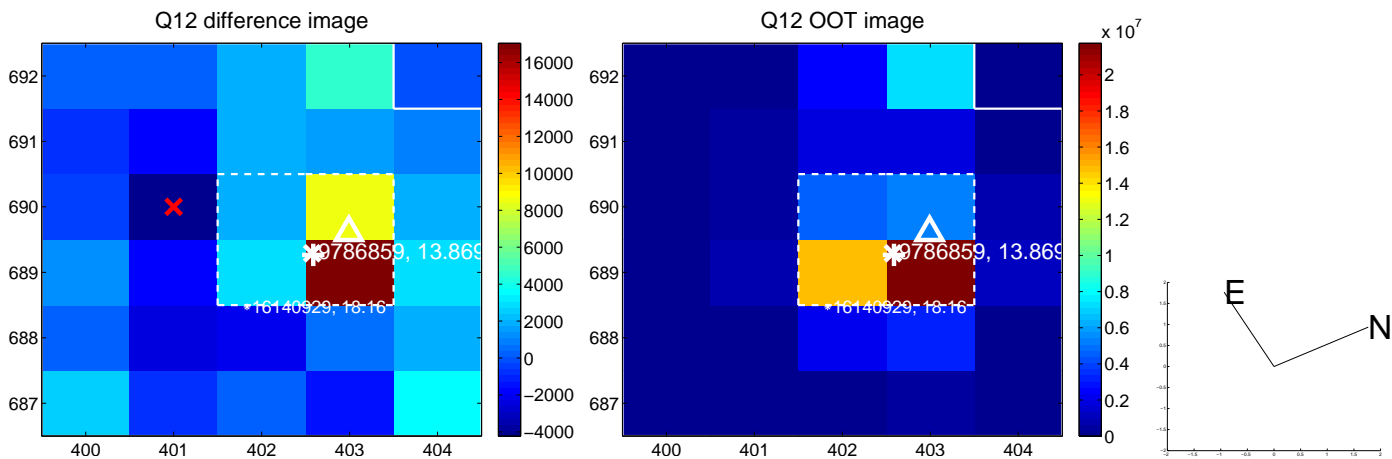
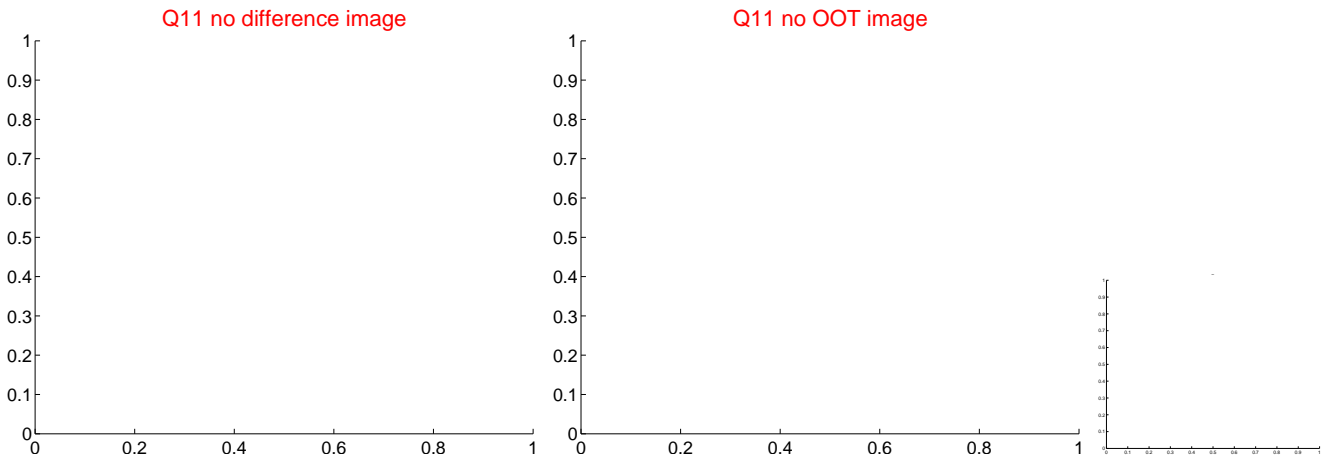
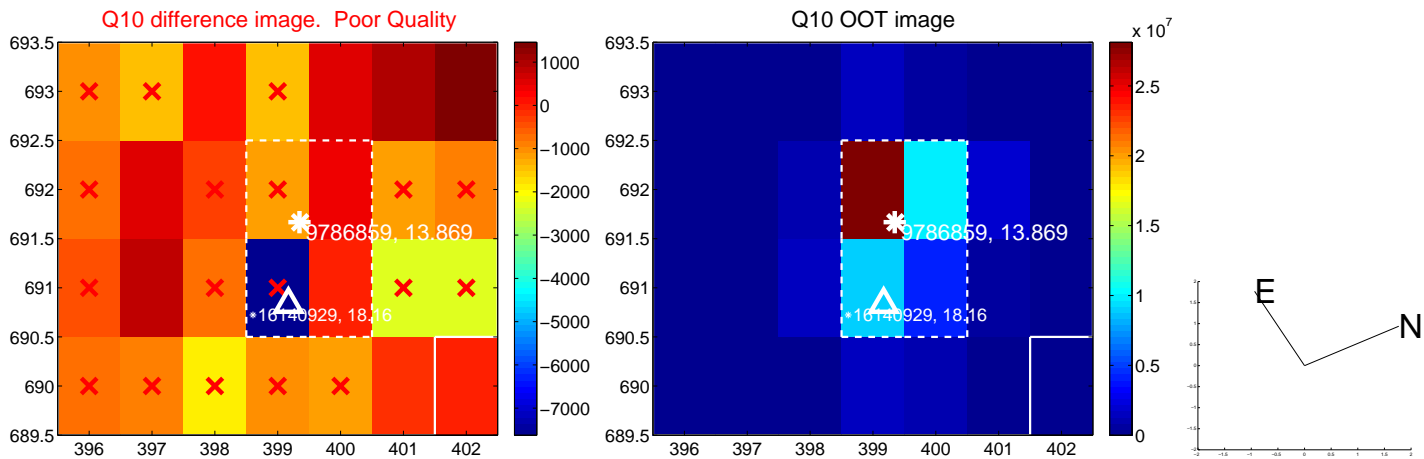
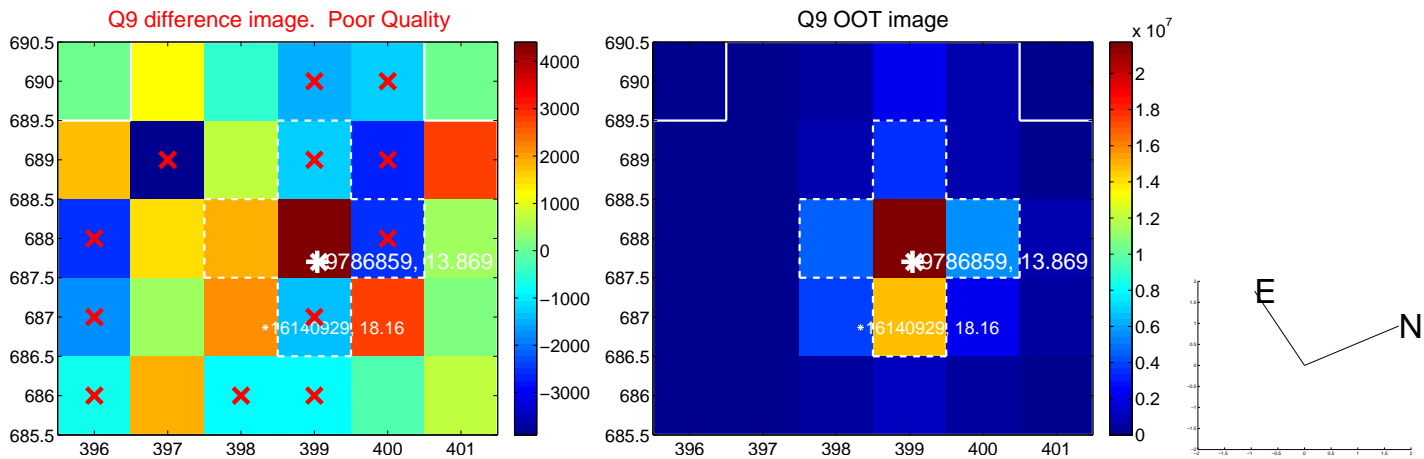
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



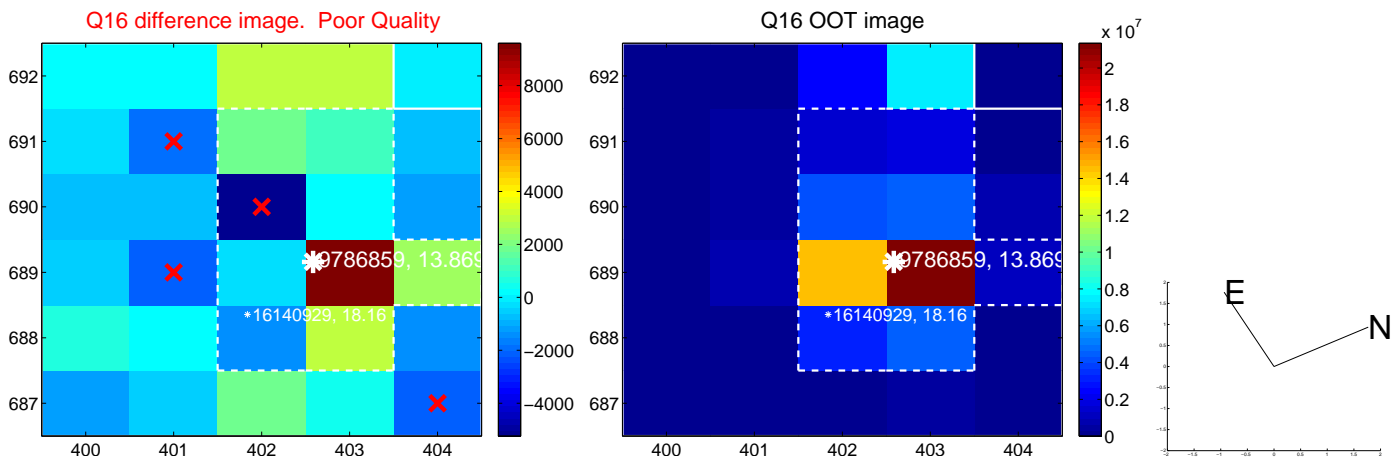
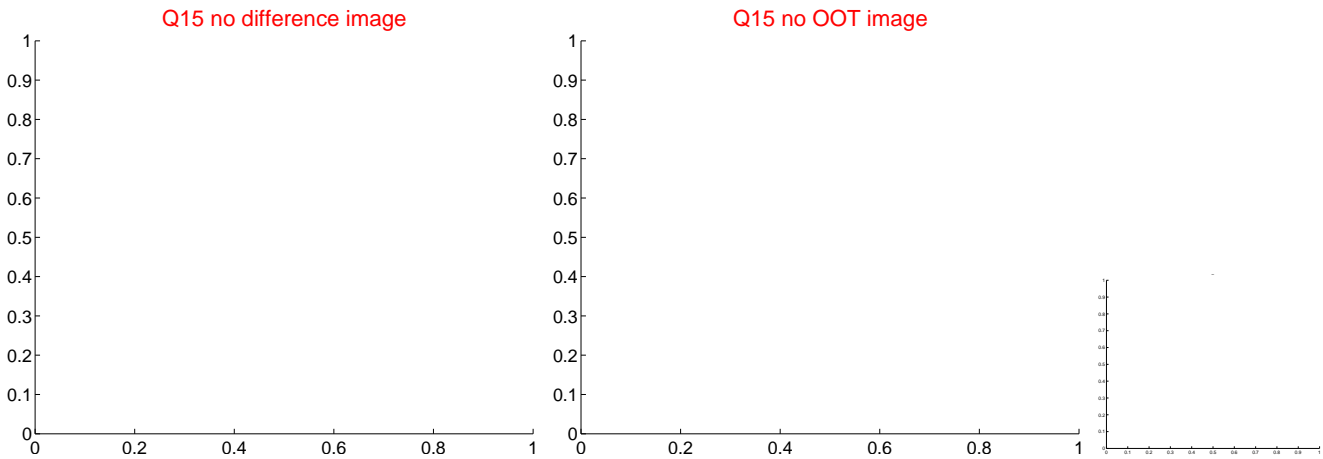
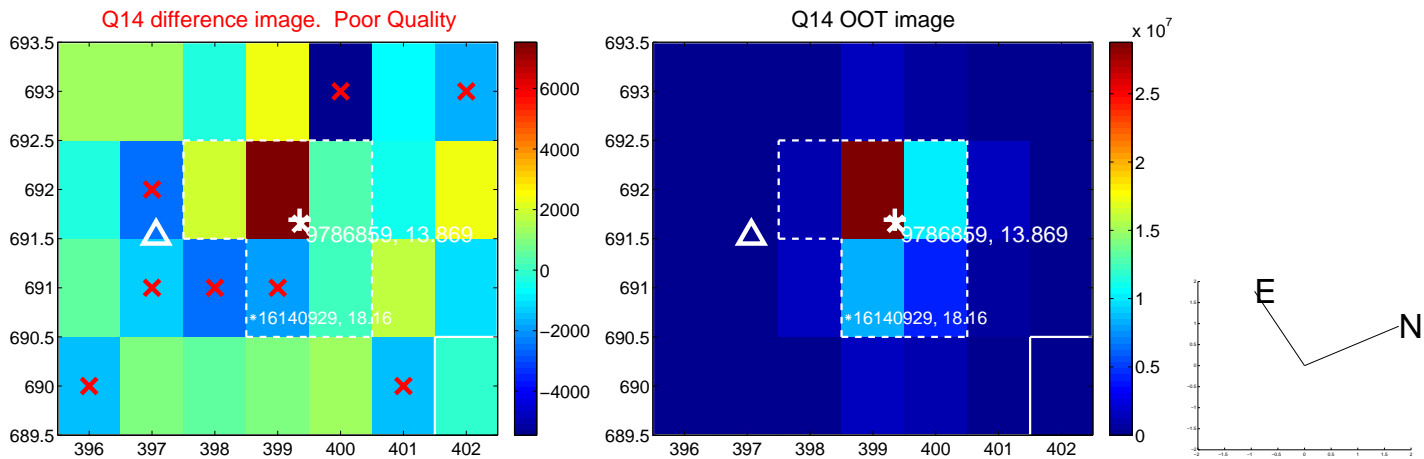
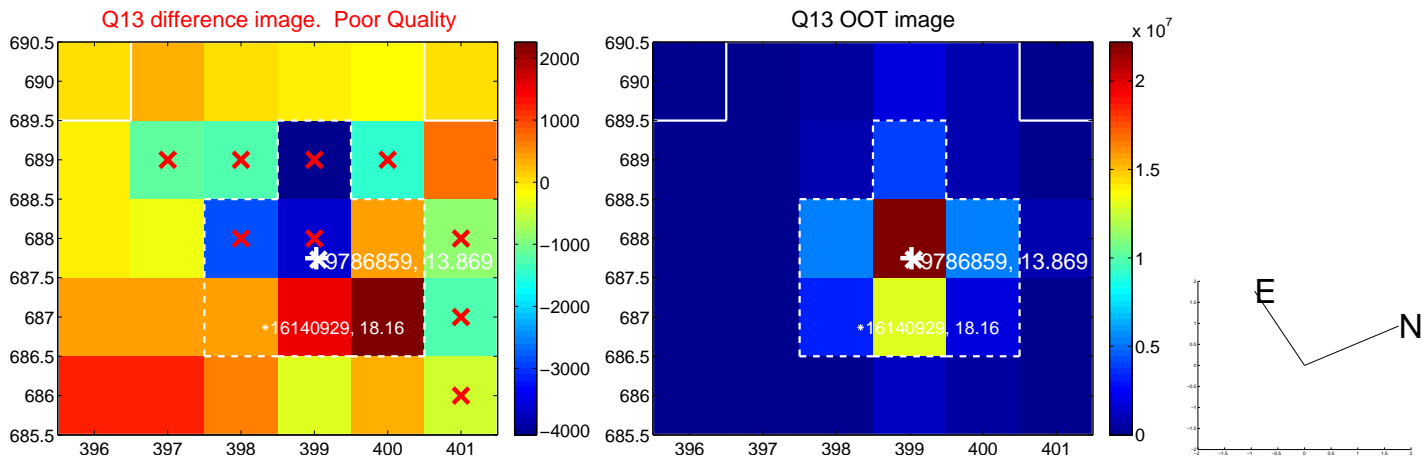
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



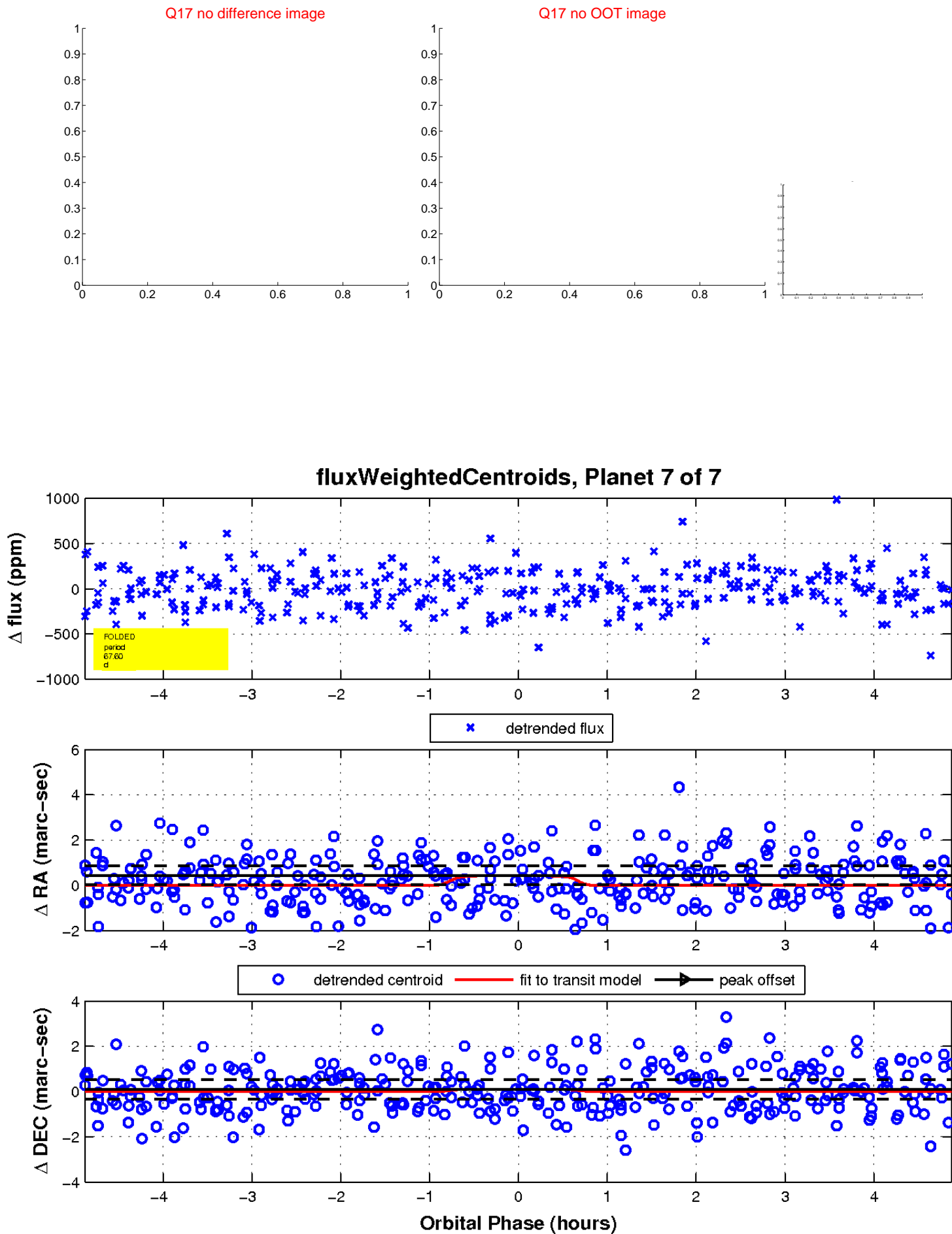
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

