

KIC 006389396

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})
006389396-01	OBS	No	1.781665	131.823623	66.3	10.999	8.9	10.9	0.58	4266	0.46	175.59
006389396-03	OBS	No	135.153257	149.220519	1180.0	12.571	24.0	10.9	0.58	4266	3.98	0.55
006389396-04	OBS	No	62.514289	171.918816	312.4	6.000	9.6	4.3	0.58	4266	1.08	1.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006389396-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
006389396-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006389396-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

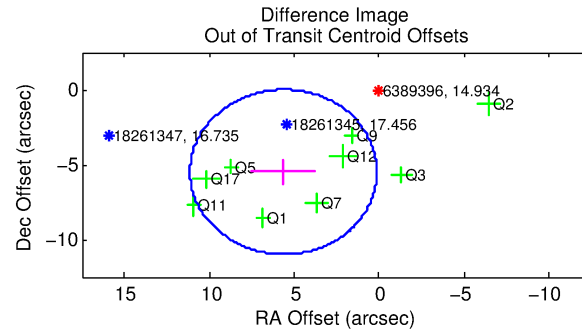
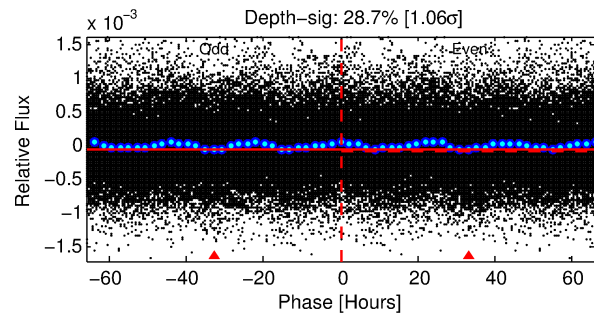
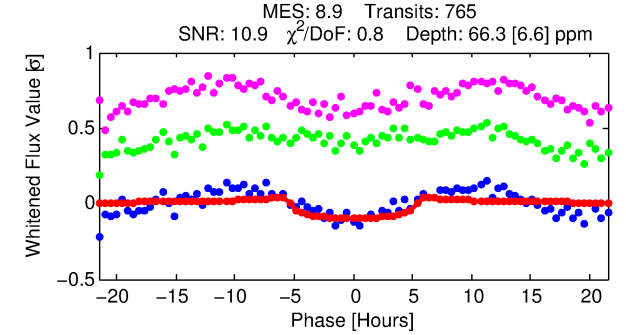
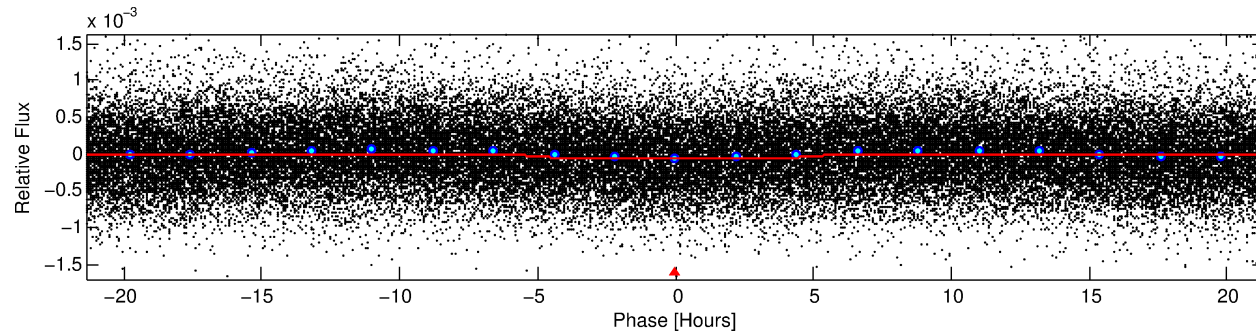
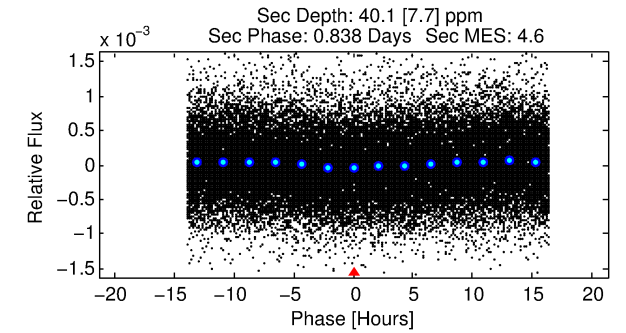
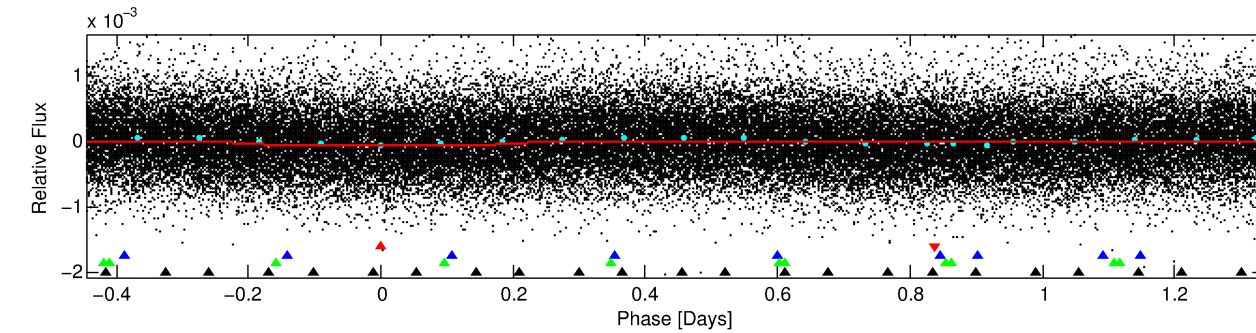
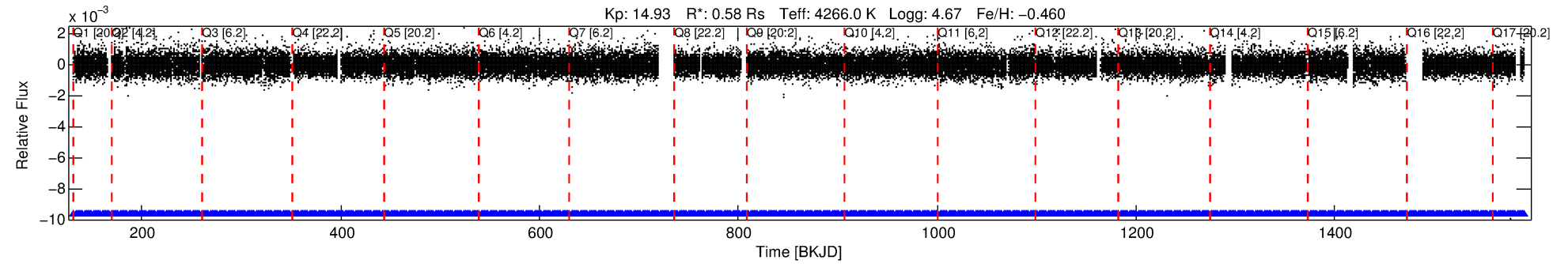
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006389396-01

No Significant Match Found

DV One-Page Summary

KIC: 6389396 Candidate: 1 of 4 Period: 1.782 d



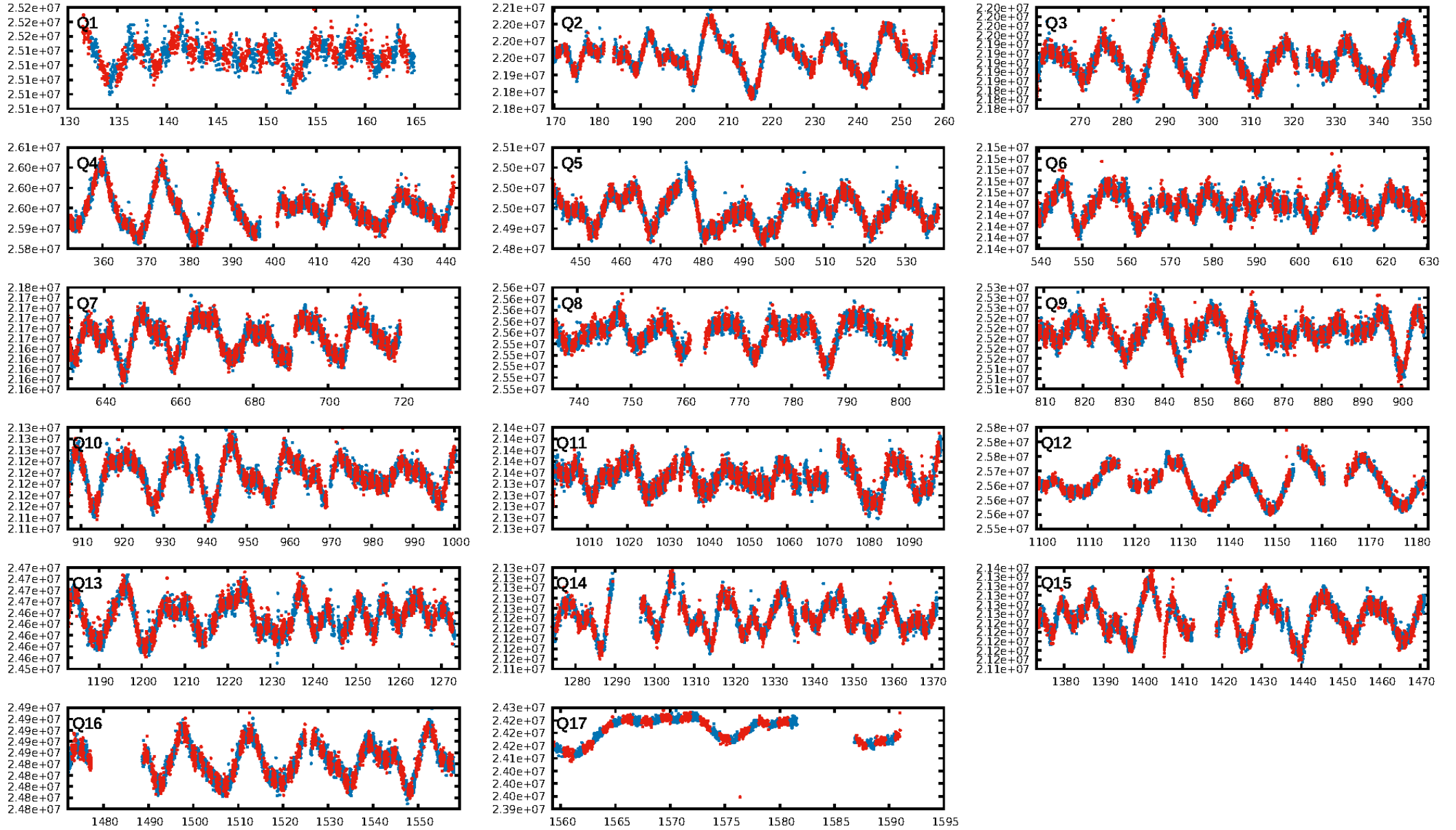
DV Fit Results:

Period = 1.78167 [0.00002] d
Epoch = 131.8236 [0.0075] BKJD
Rp/R* = 0.0072 [0.0036]
a/R* = 1.39 [1.15]
b = 0.03 [58.08]
Seff = 175.59 [31.10]
Teq = 928 [41] K
Rp = 0.46 [0.23] Re
a = 0.0238 [0.0020] AU
Ag = 59.84 [61.74] [0.95σ]
Teffp = 3992 [1031] K [2.97σ]

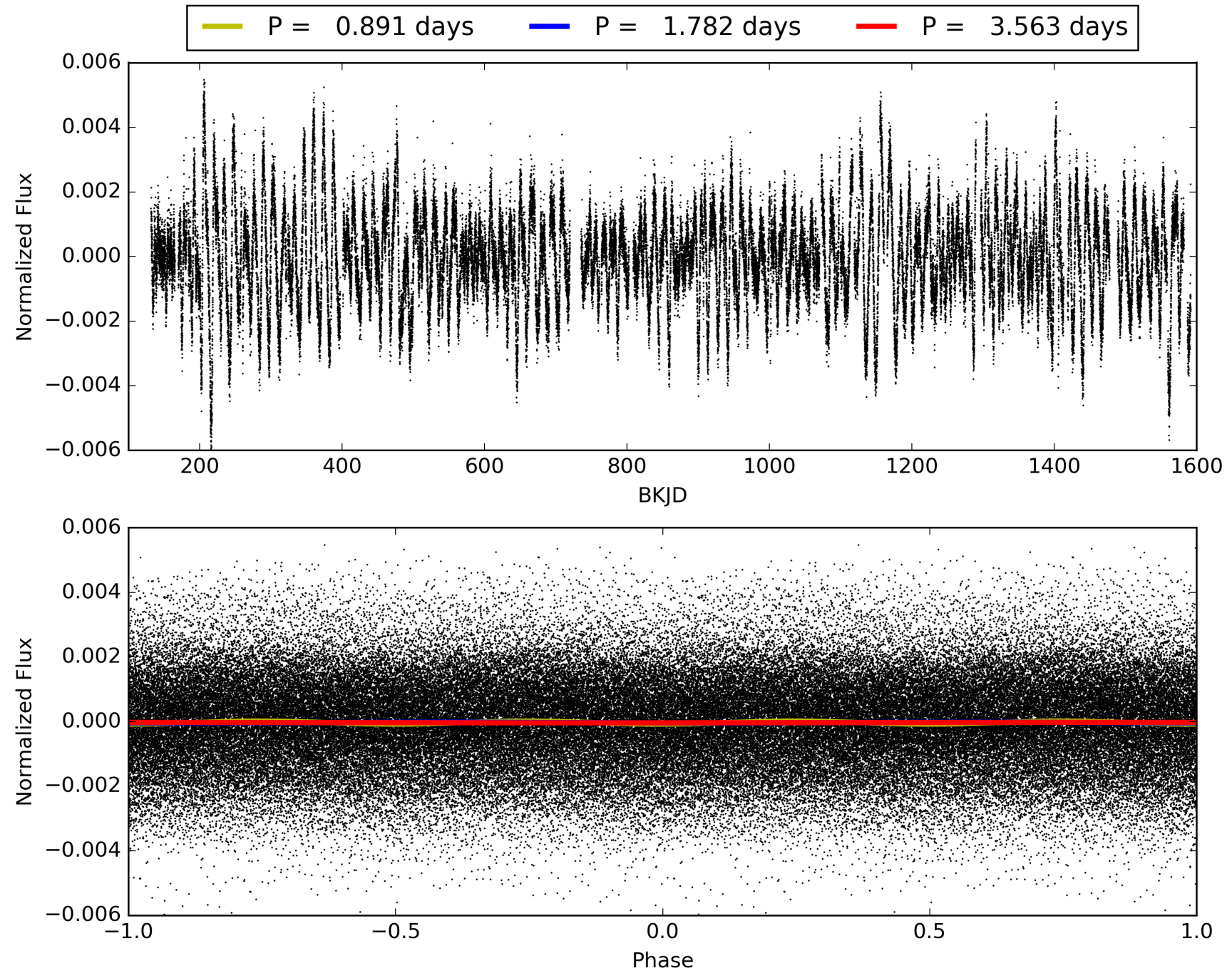
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [116.34σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.99e-13
RollingBand-fgt: 1.00 [731/731]
GhostDiagnostic-chr: 2.626
Centroid-sig: 0.0%
Centroid-so: 2.014 arcsec [2.90σ]
OotOffset-rm: 7.860 arcsec [4.28σ]
KicOffset-rm: 6.621 arcsec [4.01σ]
OotOffset-st: 1/3/1/4 [9]
KicOffset-st: 1/3/1/4 [9]
DiffImageQuality-fgm: 0.11 [1/9]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 006389396-01, PDC Light Curves

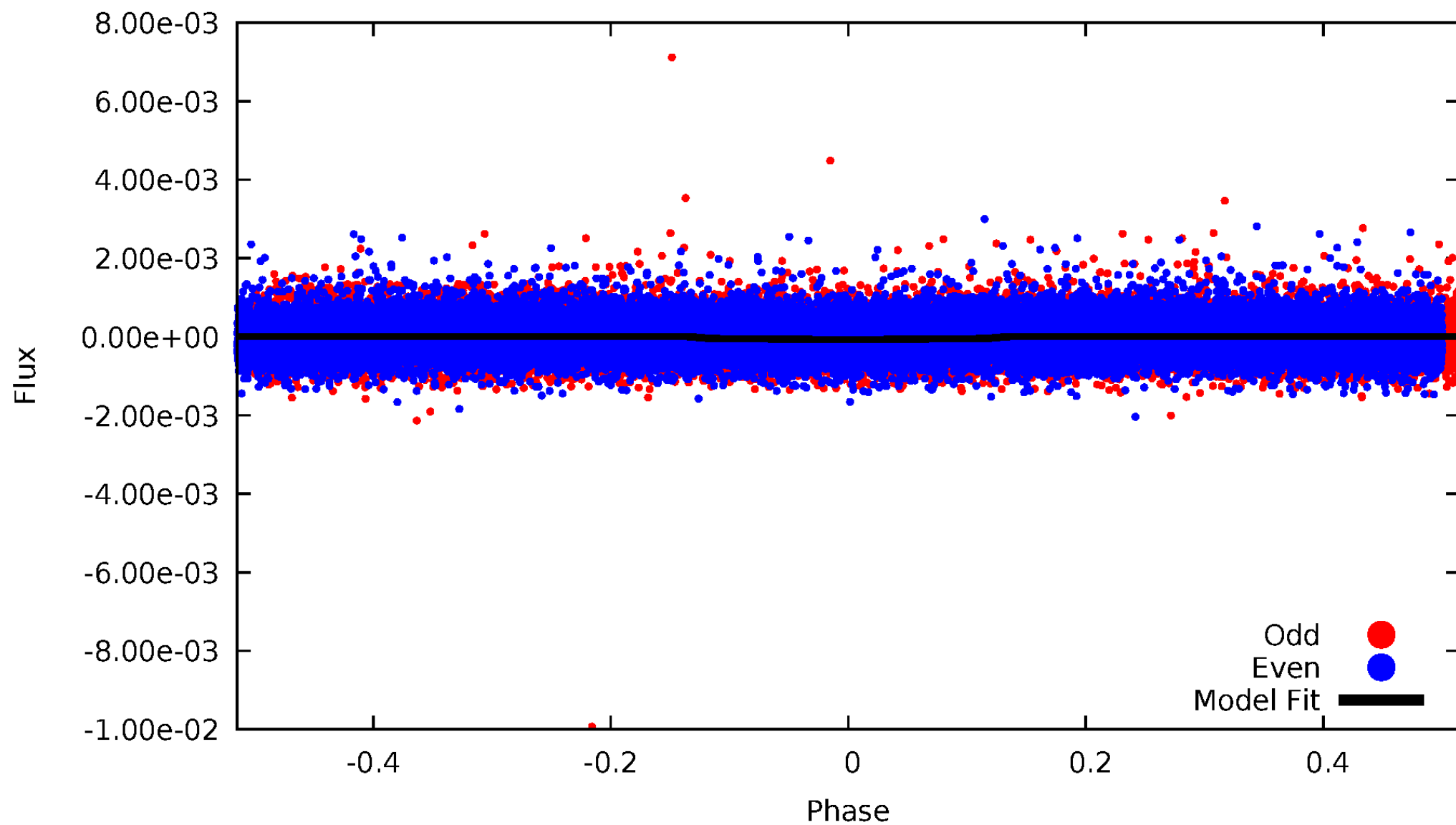


TCE 006389396-01



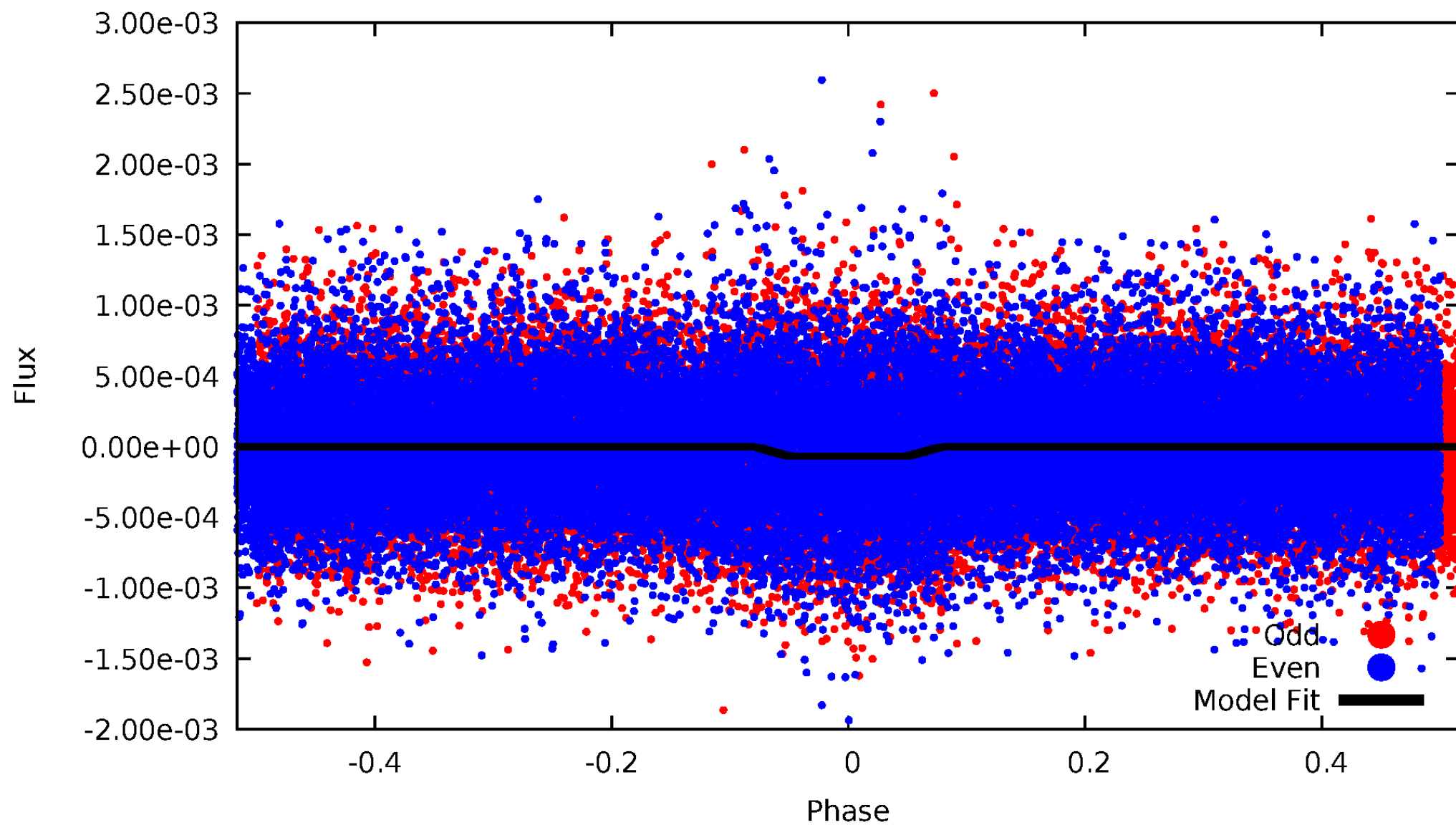
DV Odd/Even

TCE 006389396-01



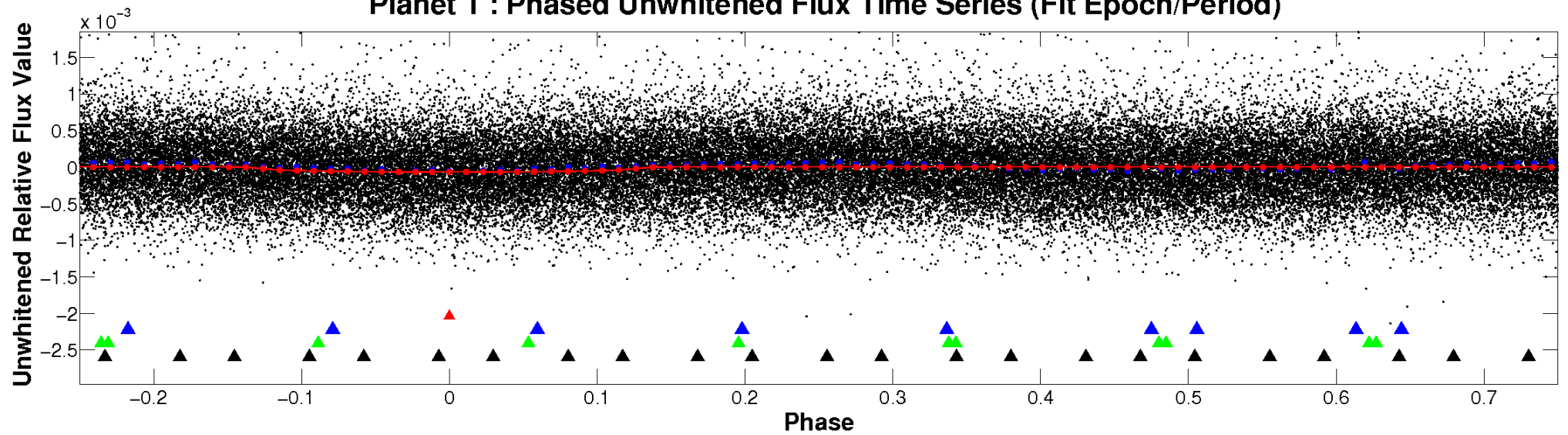
ALT Odd/Even

TCE 006389396-01

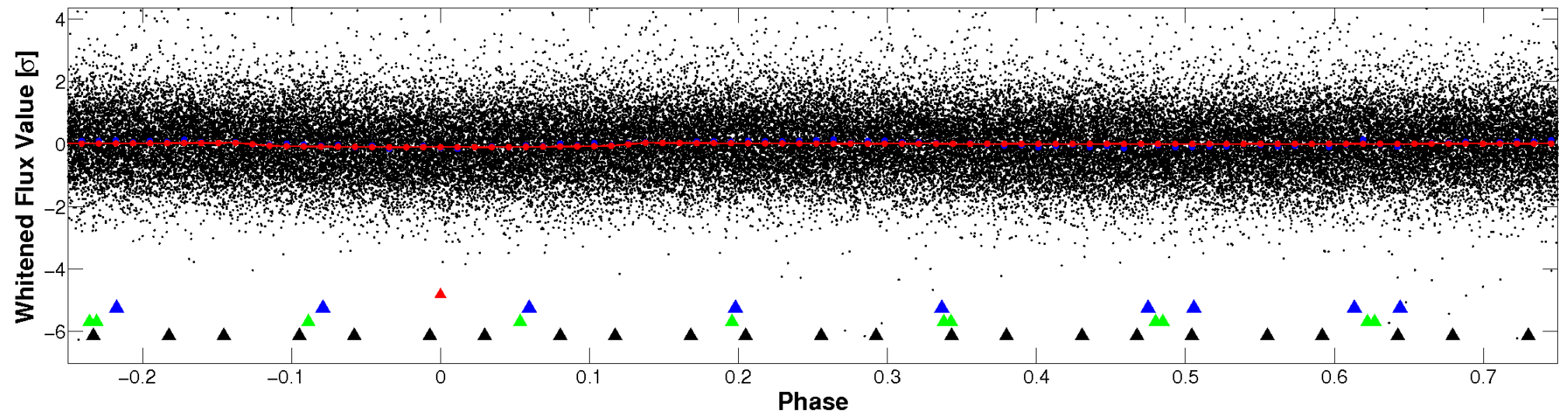


Non-Whitened Vs. Whitened Light Curve

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

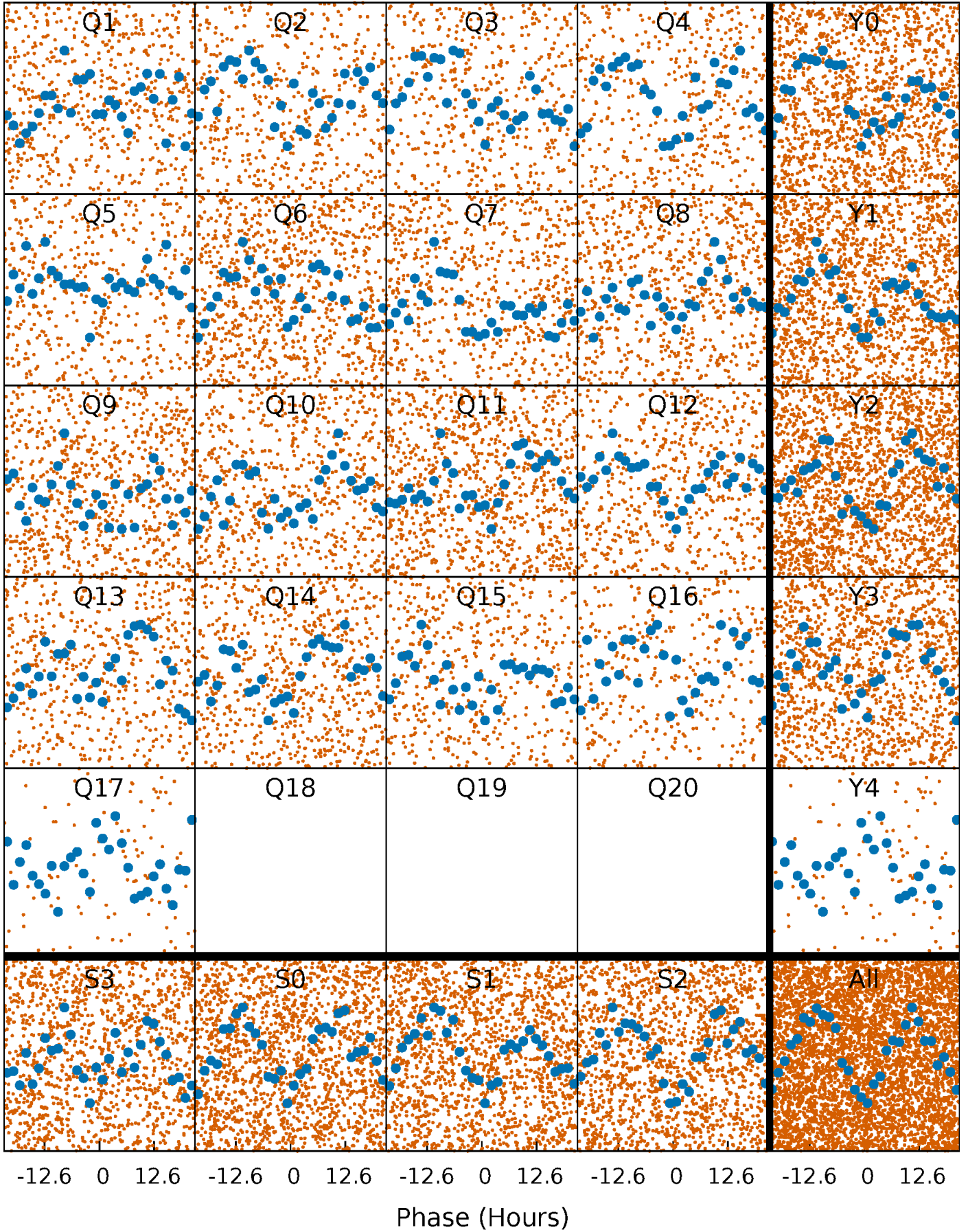


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



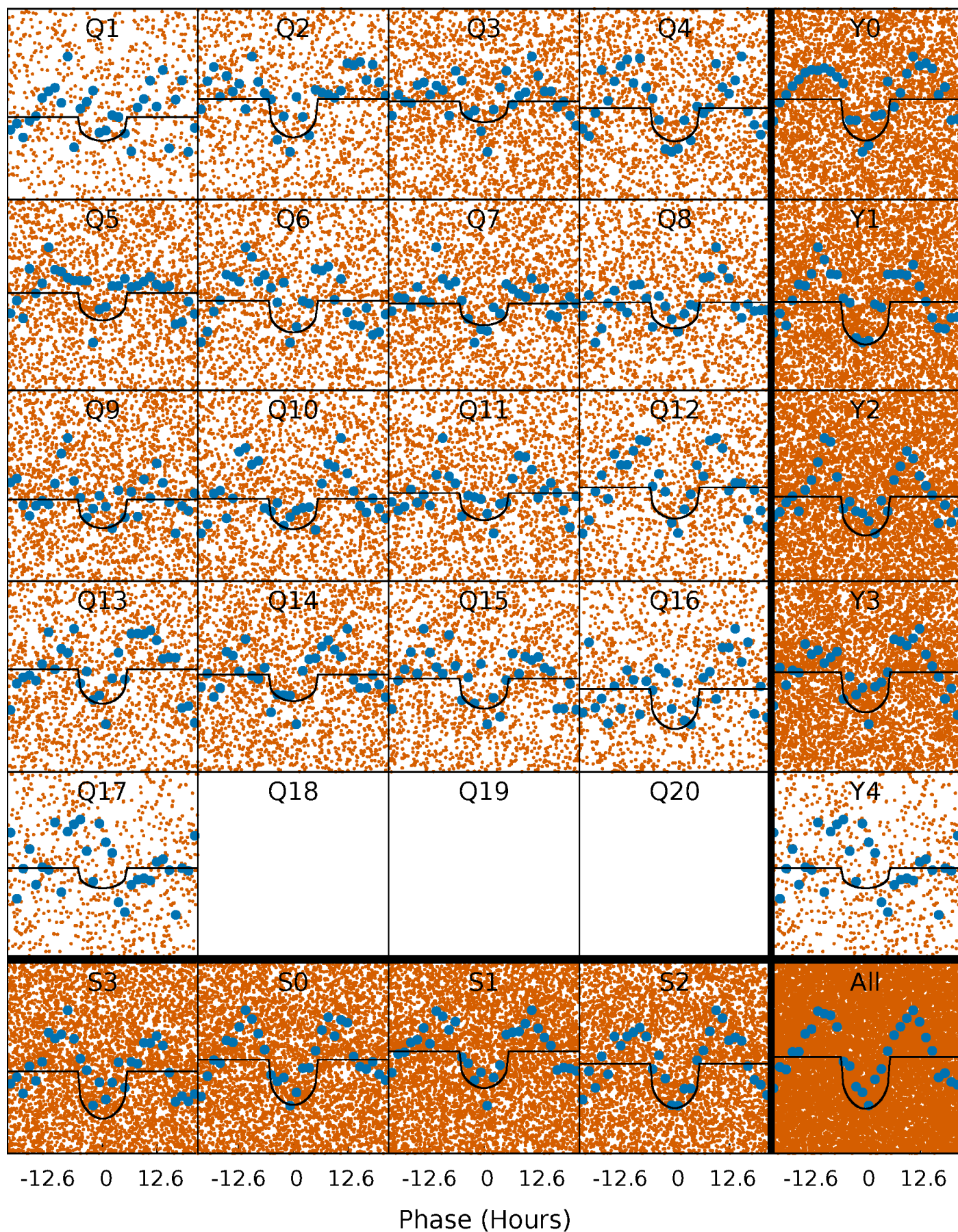
PDC Quarter-Phased Transit Curves

TCE 006389396-01 P= 1.781665 Days $T_0=131.823623$ (BKJD)



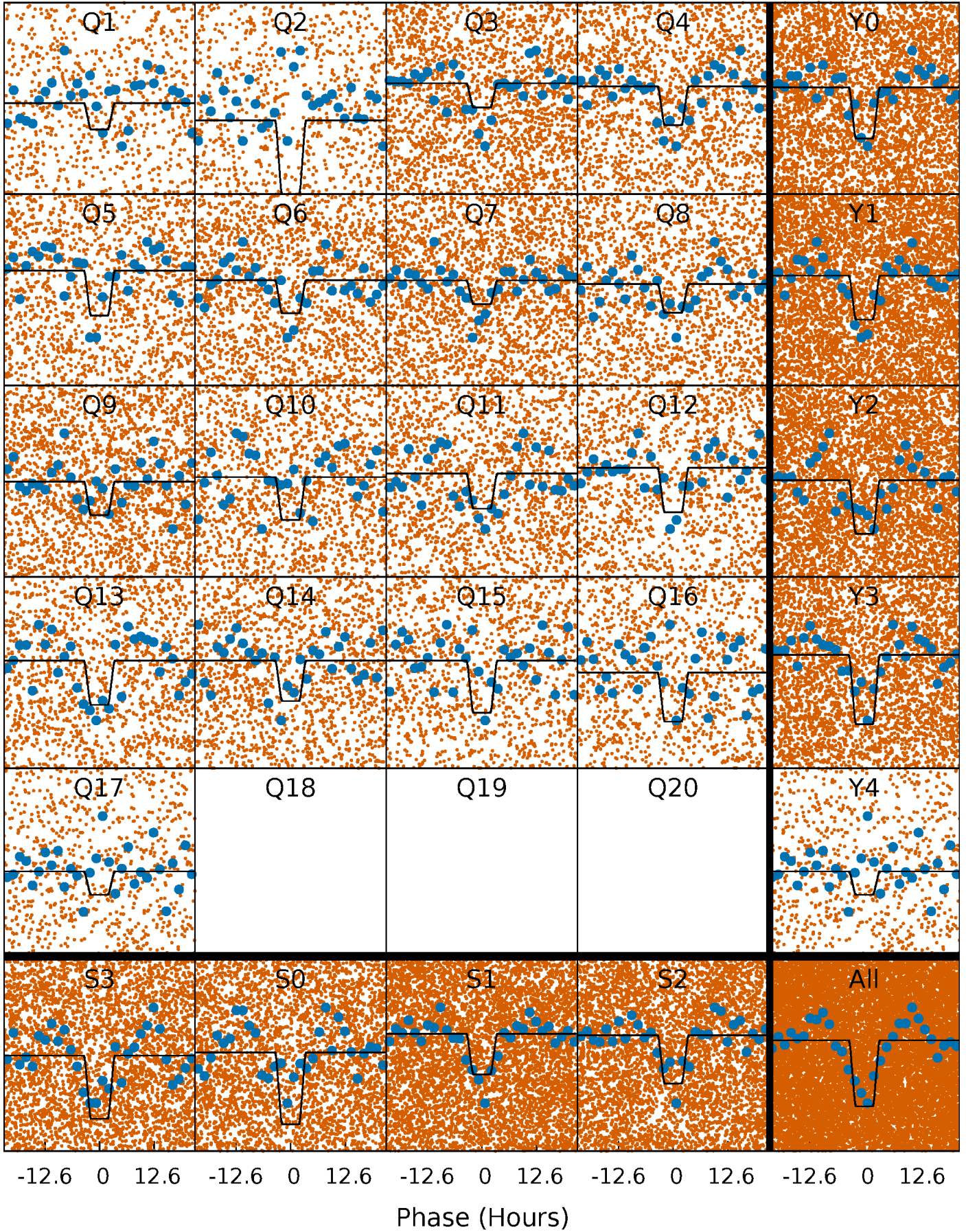
DV Quarter-Phased Transit Curves

TCE 006389396-01 P= 1.781665 Days $T_0=131.823623$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

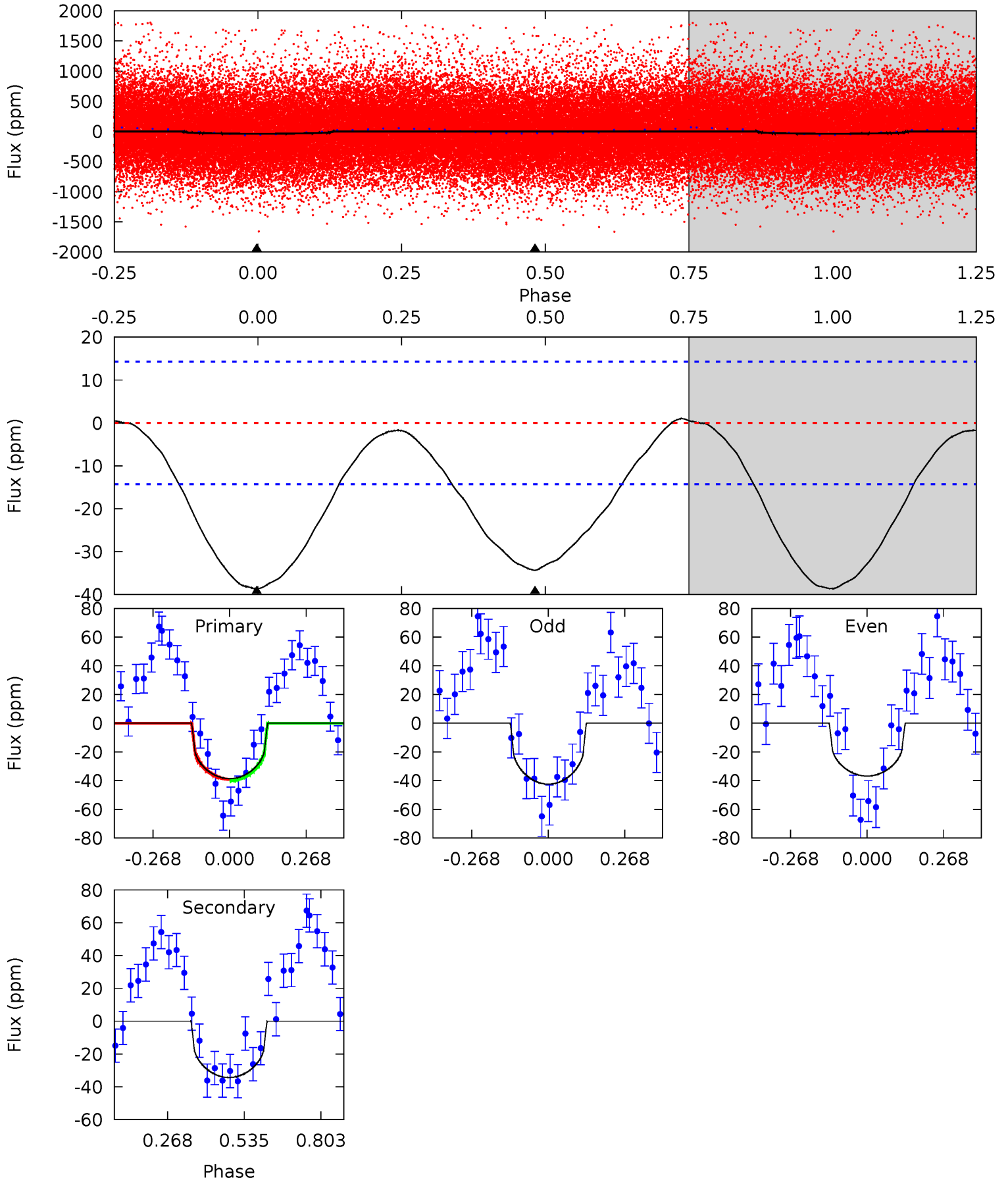
TCE 006389396-01 P= 1.781739 Days $T_0=131.801272$ (BKJD)



DV Model-Shift Uniqueness Test

006389396-01, P = 1.781665 Days, E = 130.041958 Days

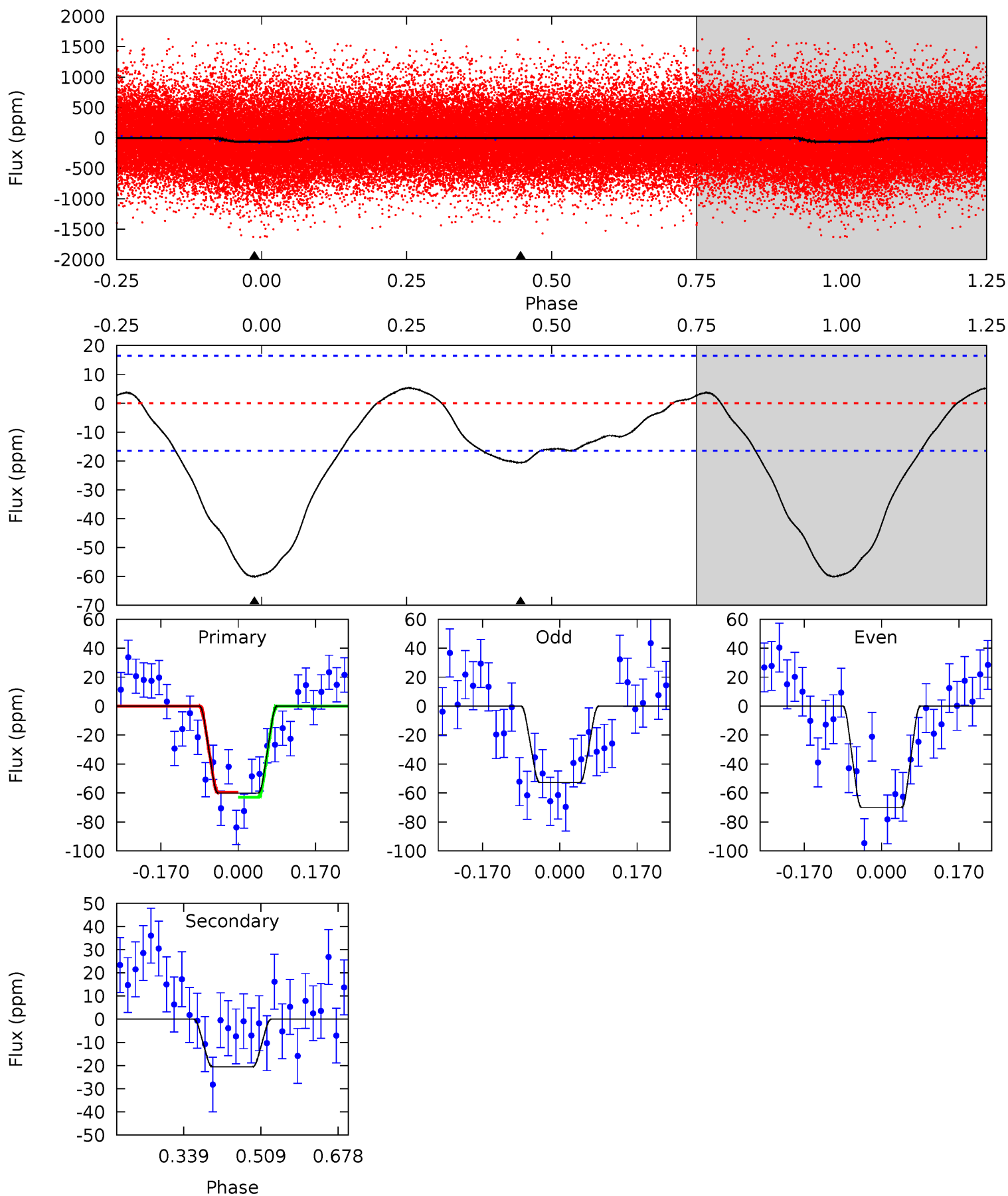
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	10.5	0	0	4.35	1.11	0.35	11.8	11.8	10.5	10.5	0.88	0.84	0.03	0.14



Alt Model-Shift Uniqueness Test

006389396-01, P = 1.781739 Days, E = 130.019533 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	5.56	0	0	4.45	1.37	1.33	16.2	16.2	5.56	5.56	2.32	1.07	0.08	0.45



Stellar Parameters For KIC 006389396

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4266^{+127}_{-140}	$4.665^{+0.063}_{-0.027}$	$-0.460^{+0.300}_{-0.300}$	$0.578^{+0.049}_{-0.060}$	$0.563^{+0.061}_{-0.046}$	$4.106^{+1.095}_{-0.529}$
	+3%/-3%	+1%/-1%	+65%/-65%	+8%/-10%	+11%/-8%	+27%/-13%
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 006389396-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-34 ± 3	$0.46^{+0.23}_{-0.21}$	1287^{+42}_{-49}	3935^{+1043}_{-529}	51^{+125}_{-29}
Alt.	-21 ± 4	$0.51^{+0.21}_{-0.24}$	1287^{+47}_{-48}	3476^{+787}_{-385}	25^{+59}_{-13}

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 $A_{obs} \gg 1.0$

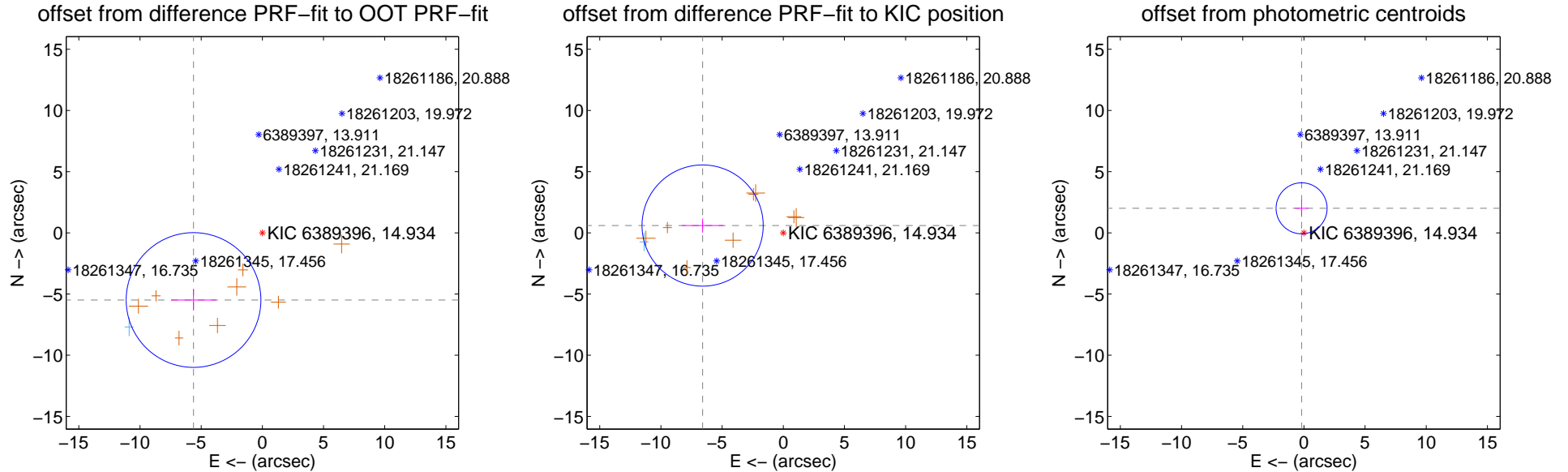
DV Centroid Data

Supplemental centroid analysis for 006389396-01. Kepler magnitude: 14.93. Transit SNR 10.94

There are 1 quarters with good PRF difference image offsets

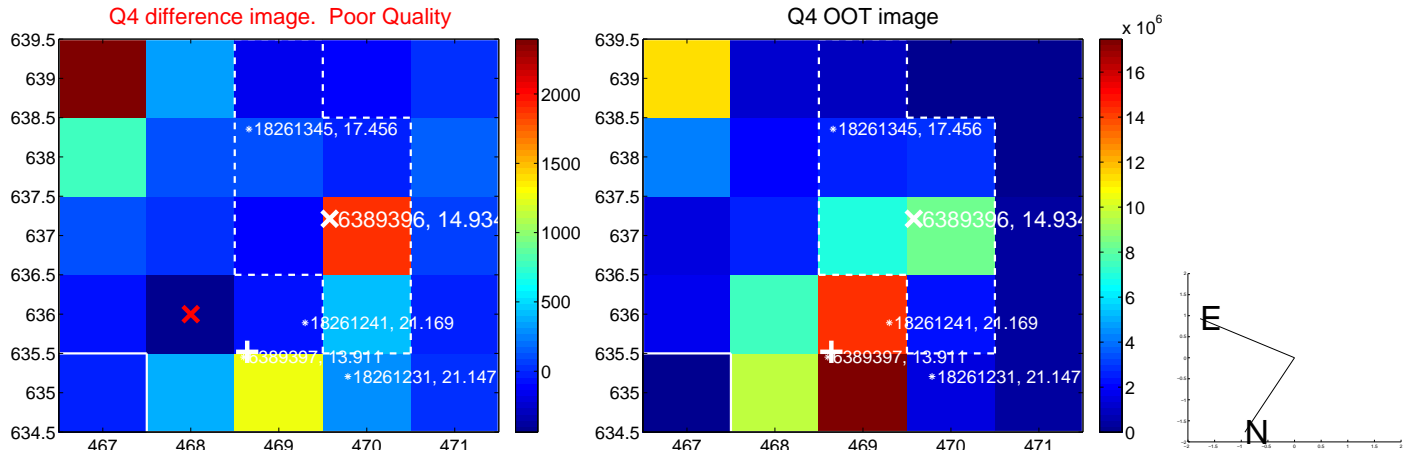
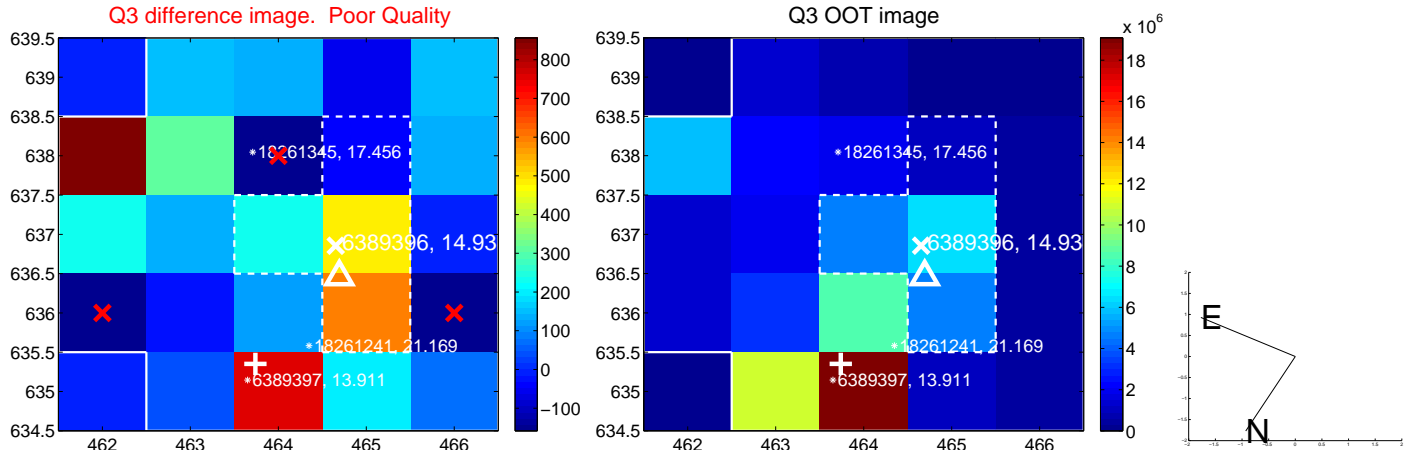
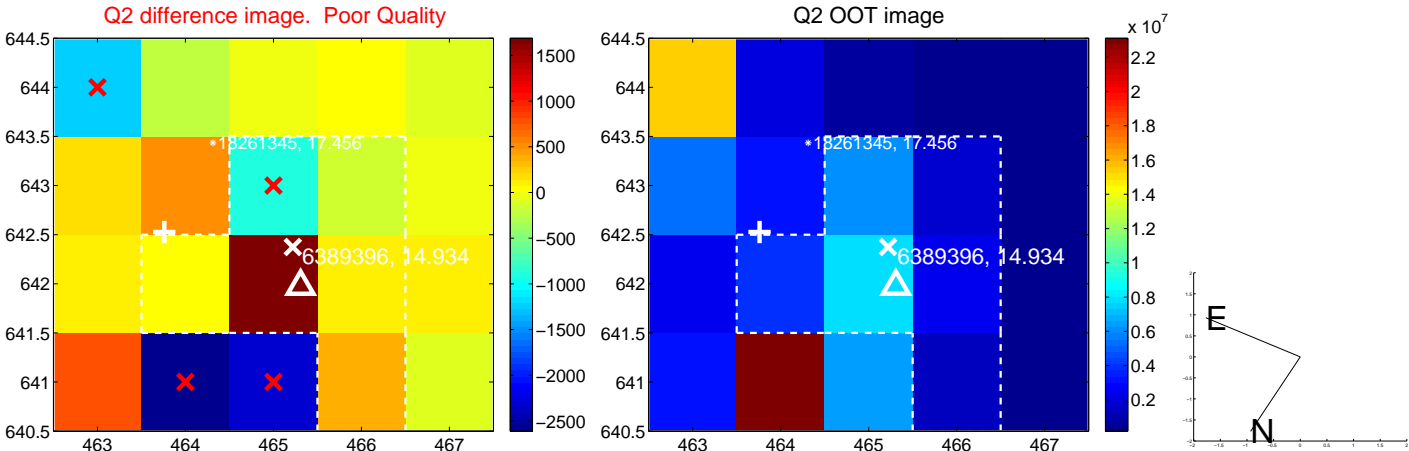
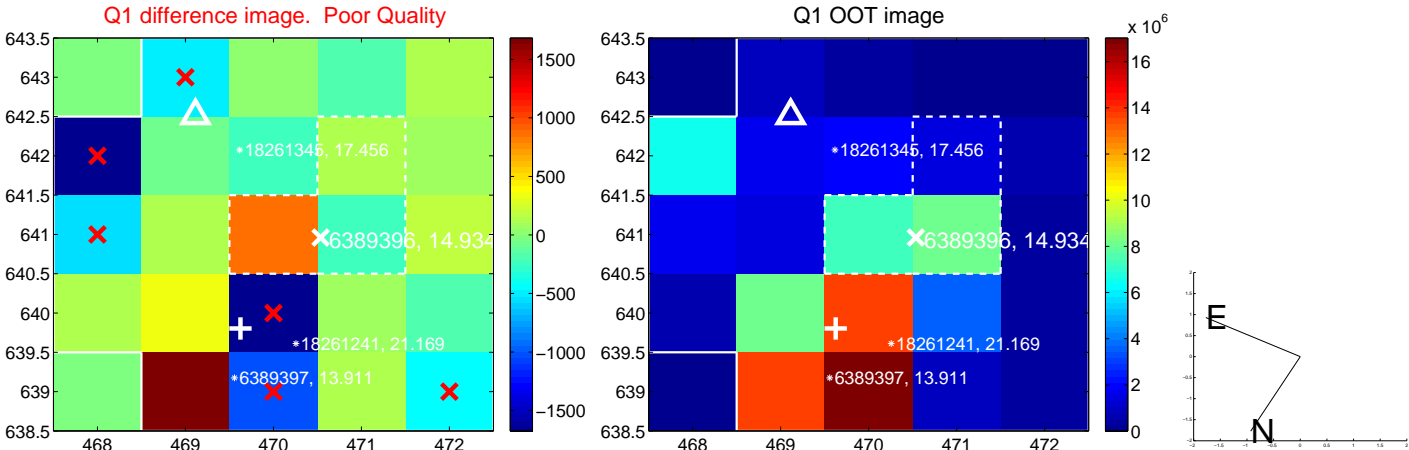
The OOT PRF centroid is offset from the target star catalog position by about 5.65 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.860 ± 1.835	4.28	5.626 ± 1.847	-5.489 ± 0.864
PRF-fit source offset from KIC position	6.621 ± 1.651	4.01	6.594 ± 1.690	0.595 ± 0.568
photometric centroid source offset	2.01 ± 0.69	2.90	0.19 ± 0.55	2.01 ± 0.70

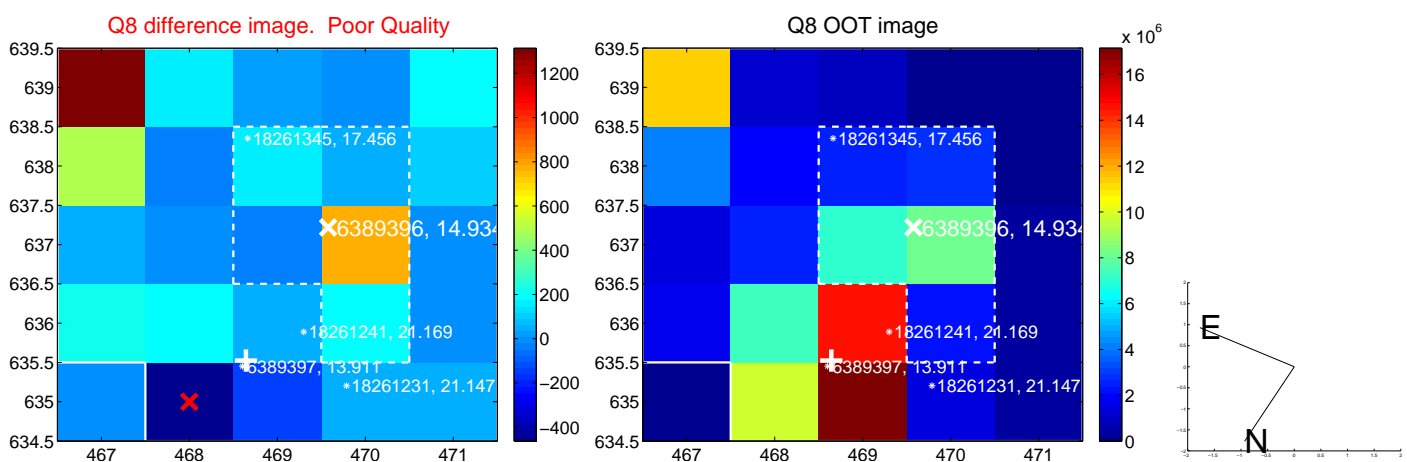
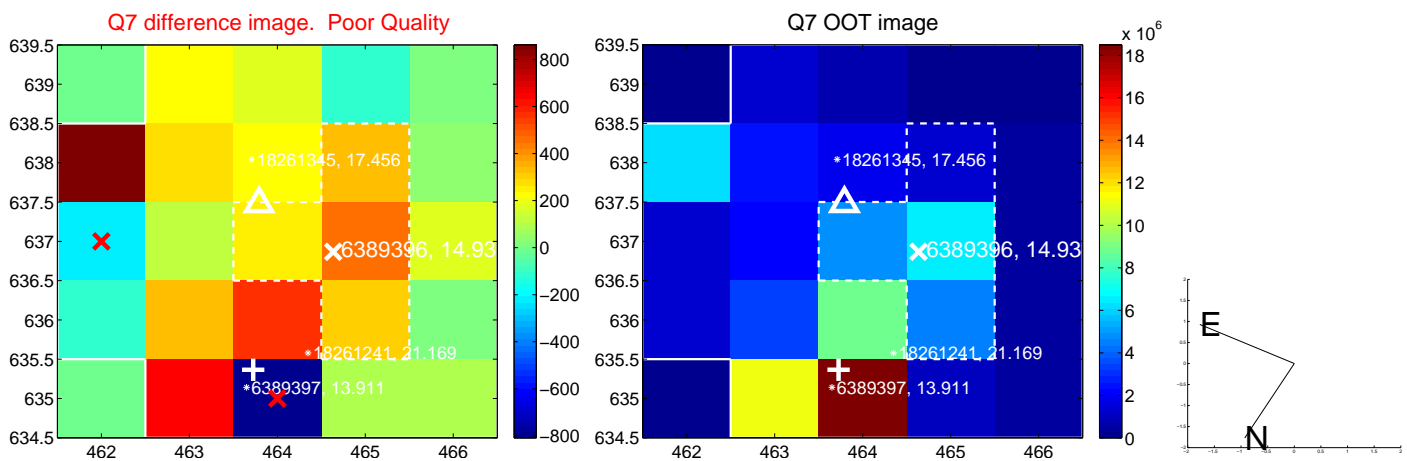
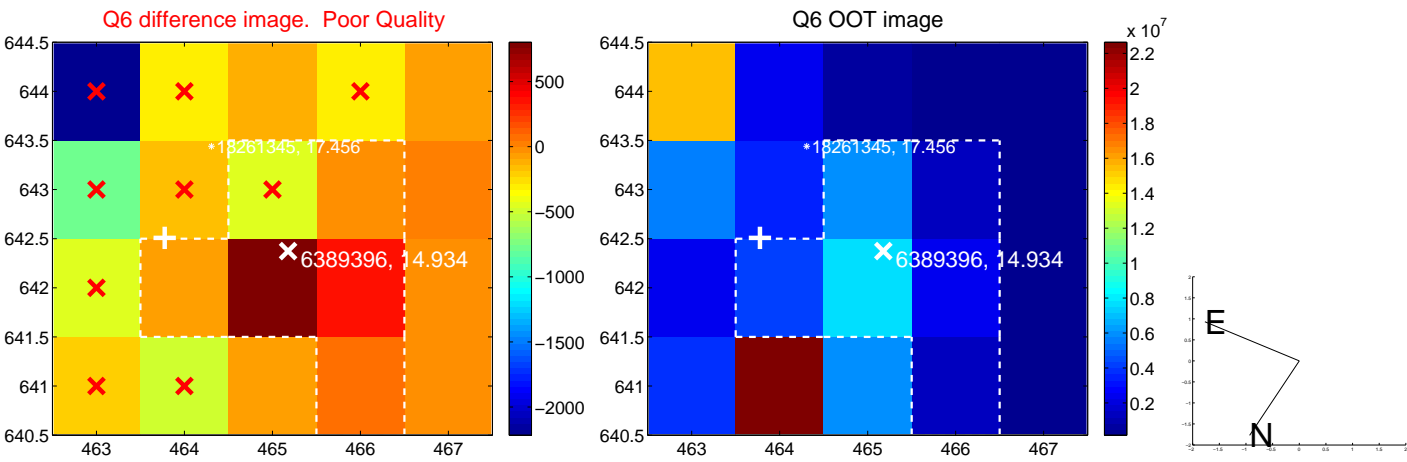
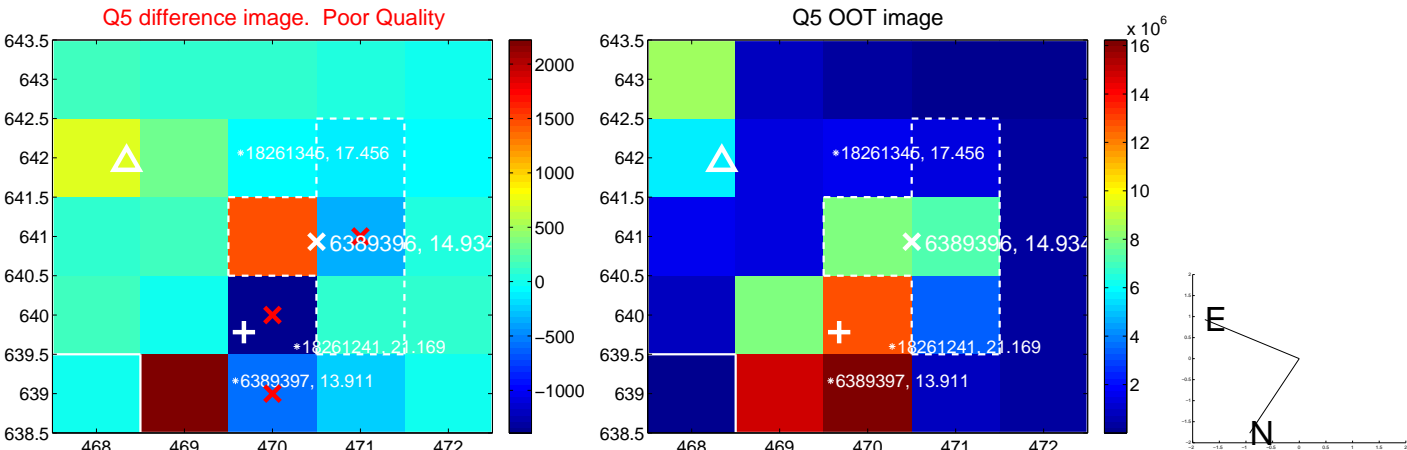


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

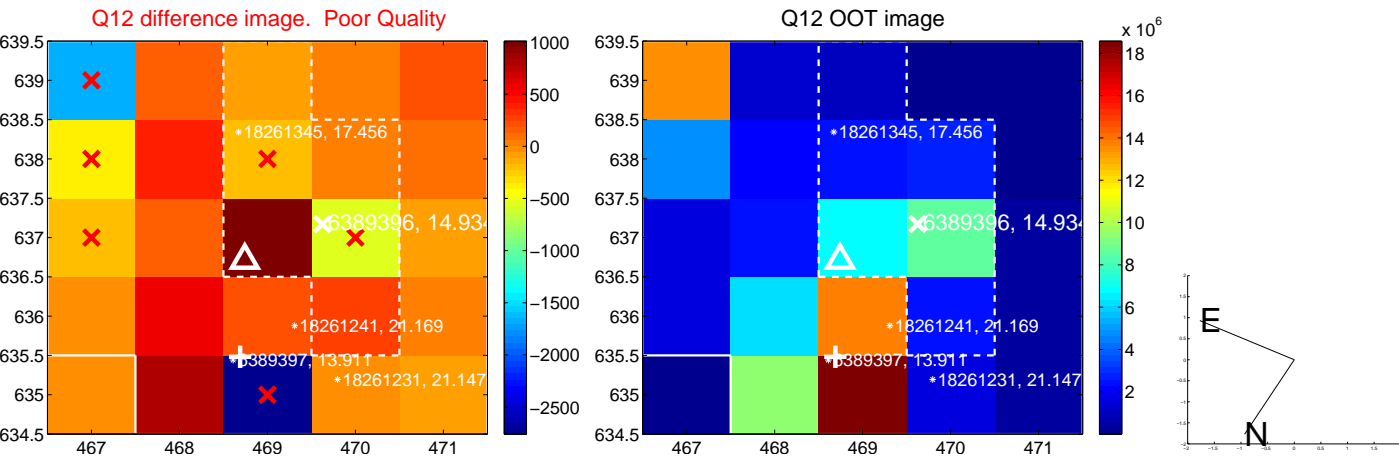
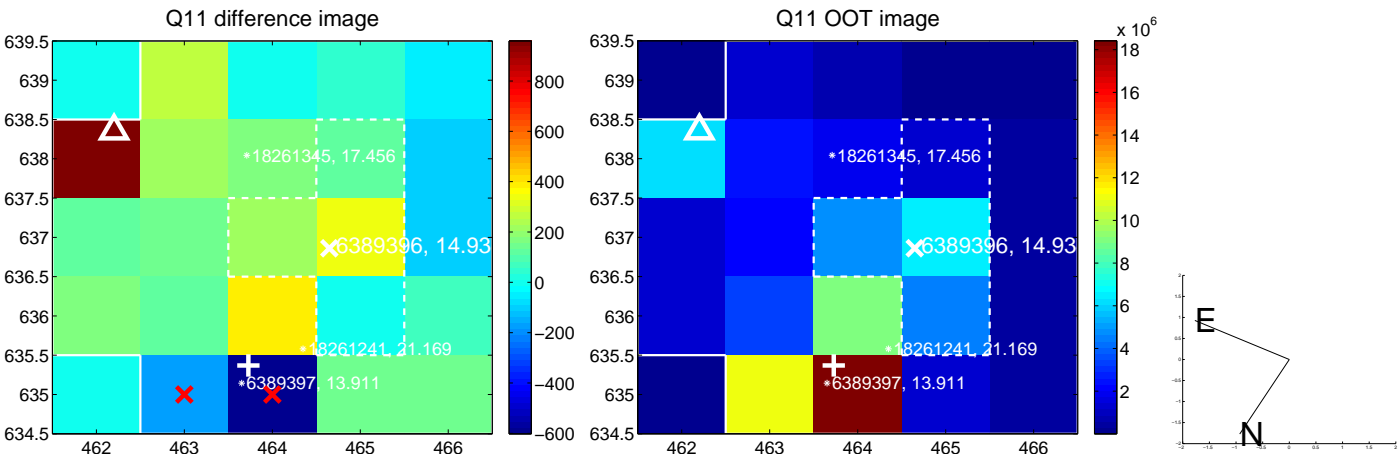
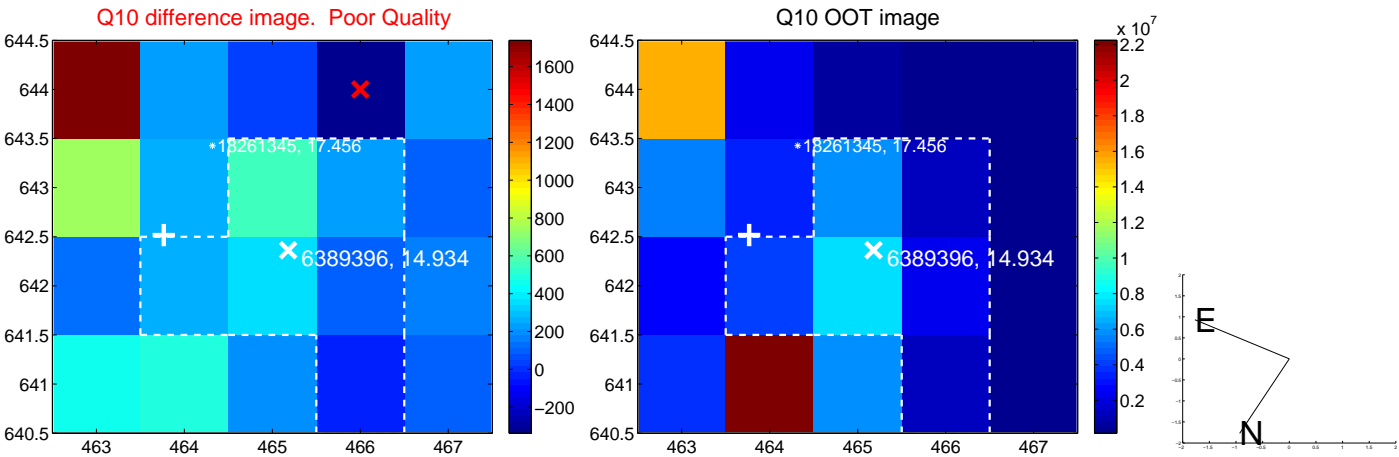
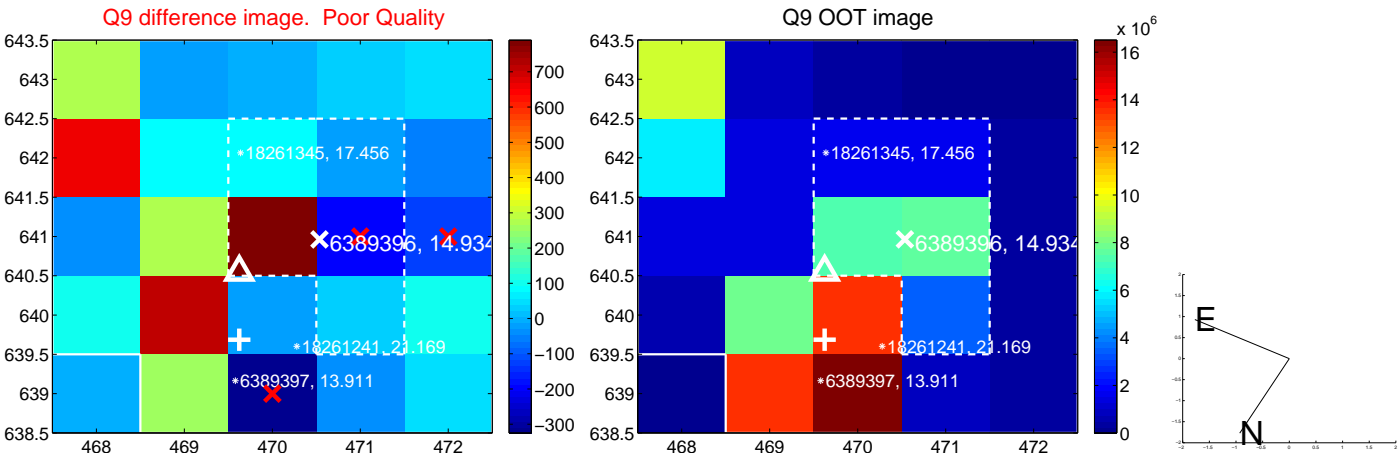
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



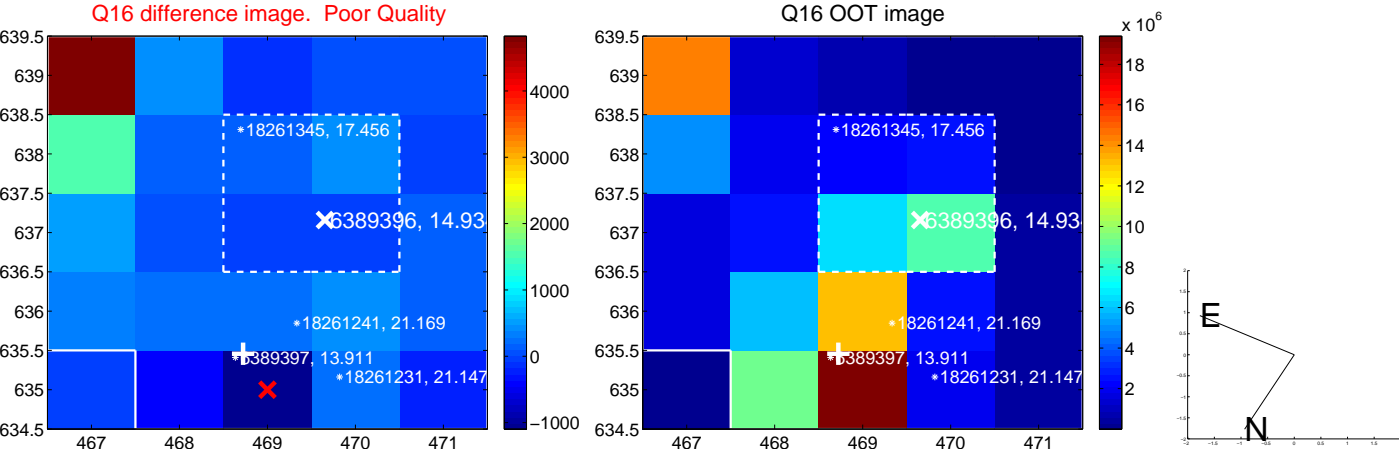
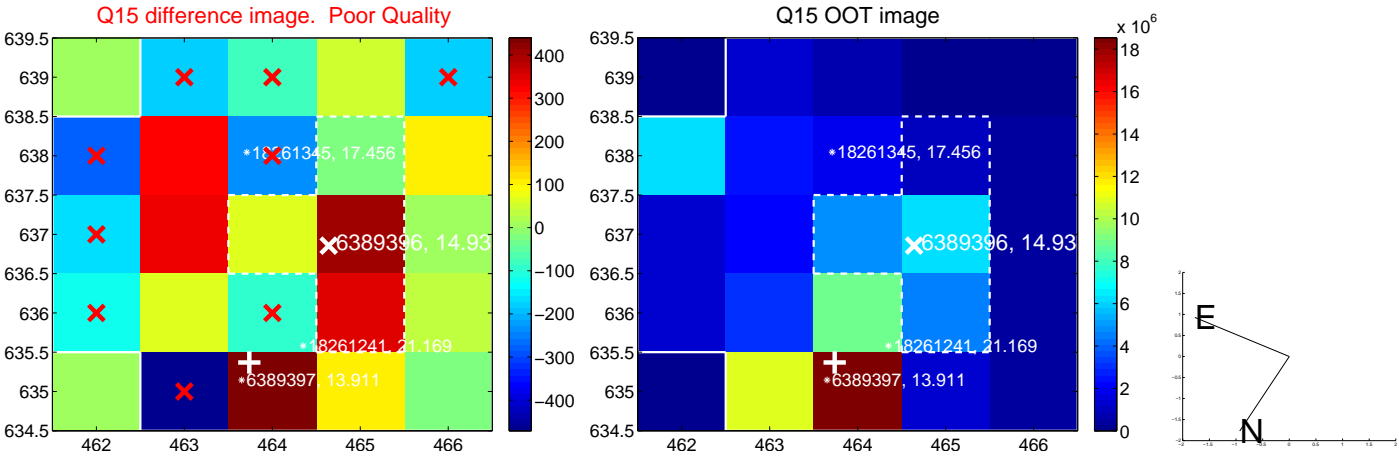
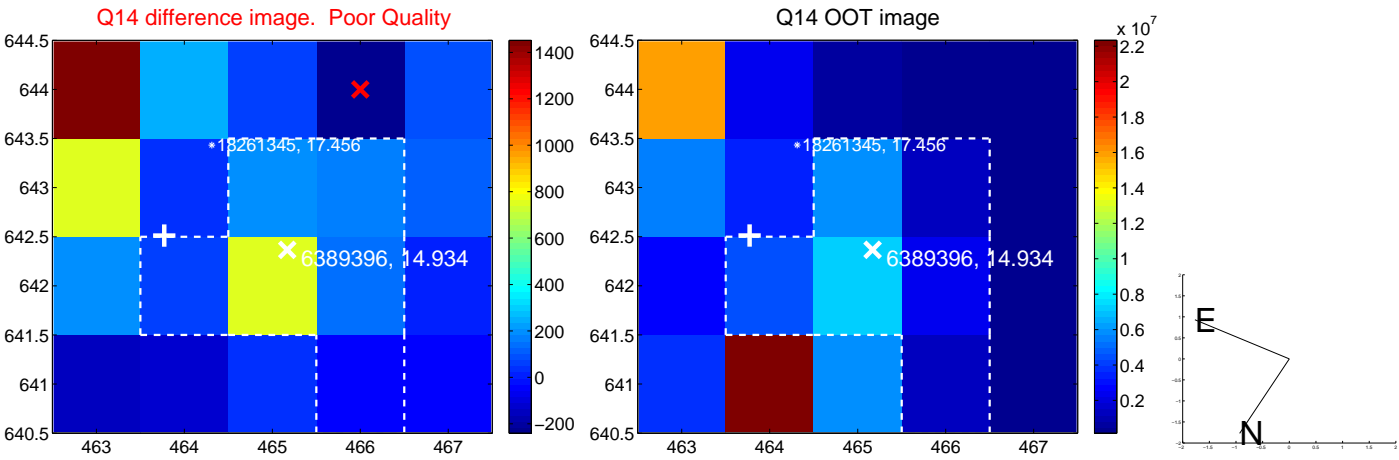
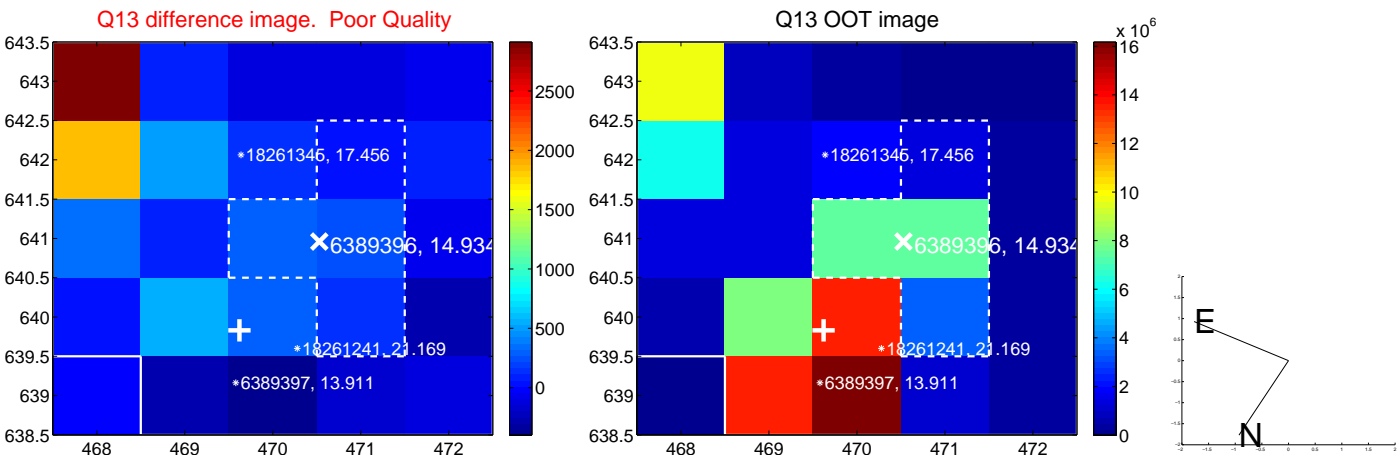
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



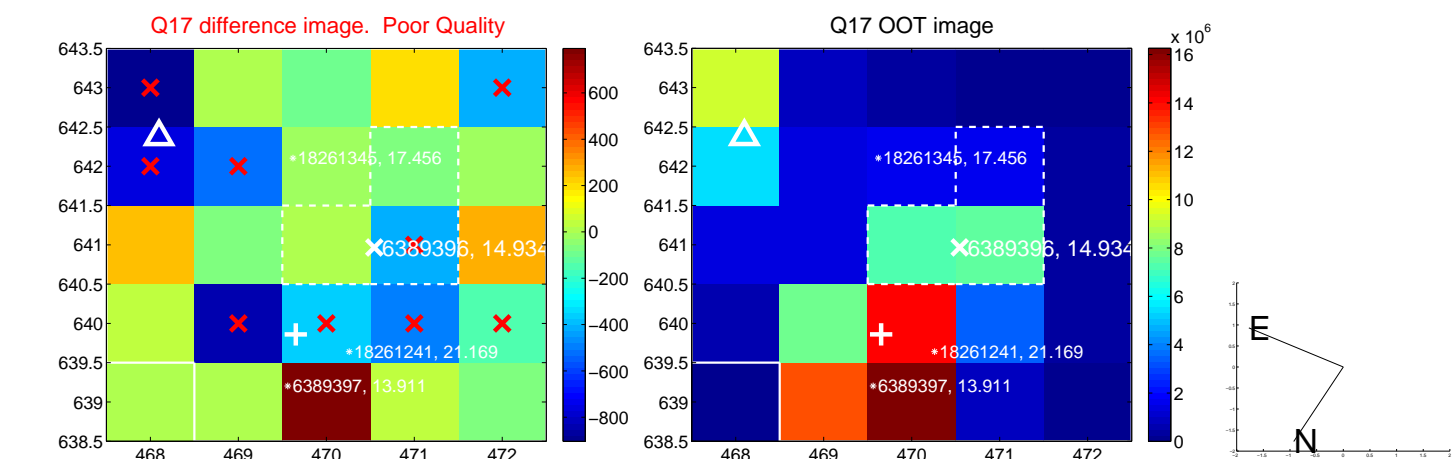
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



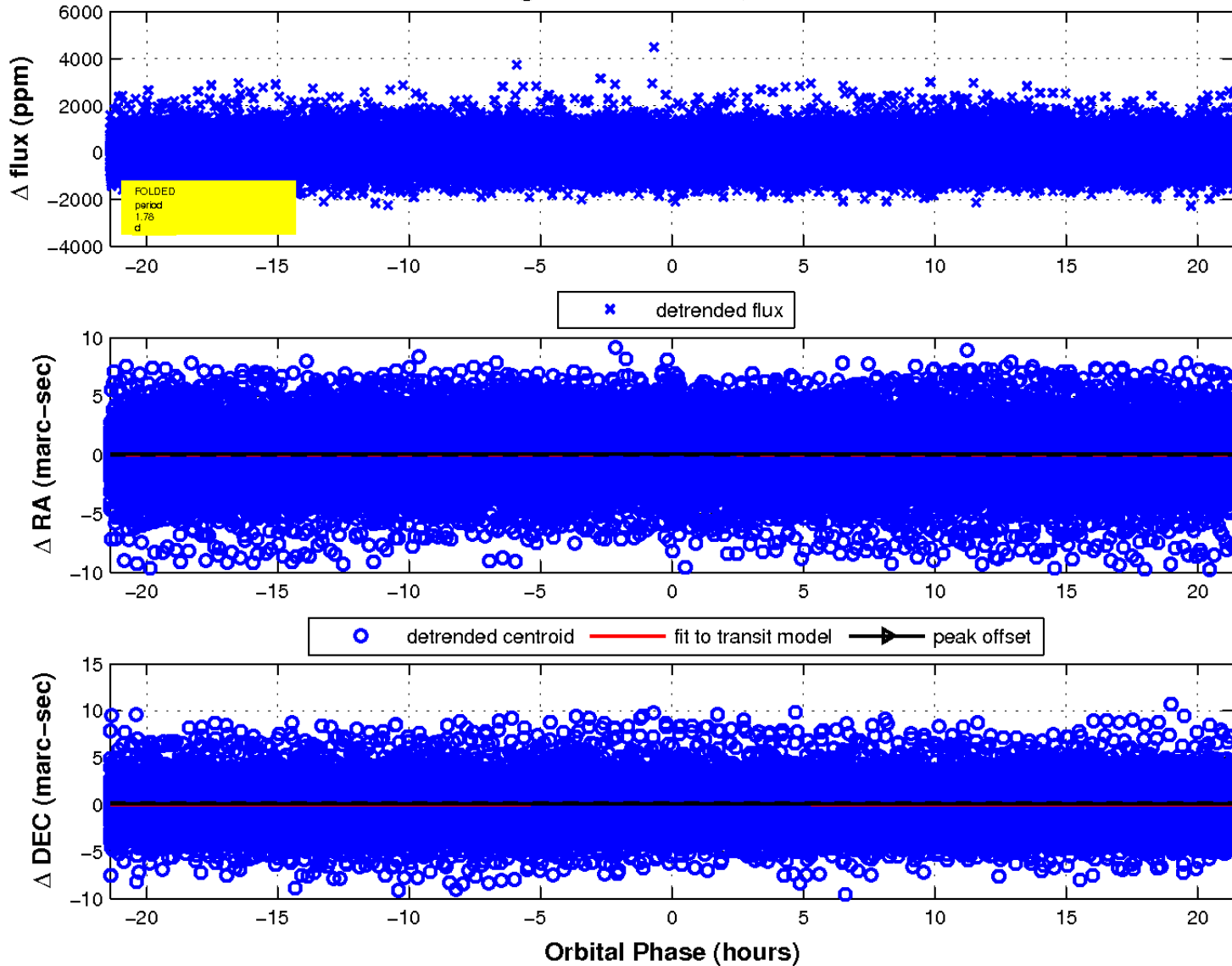
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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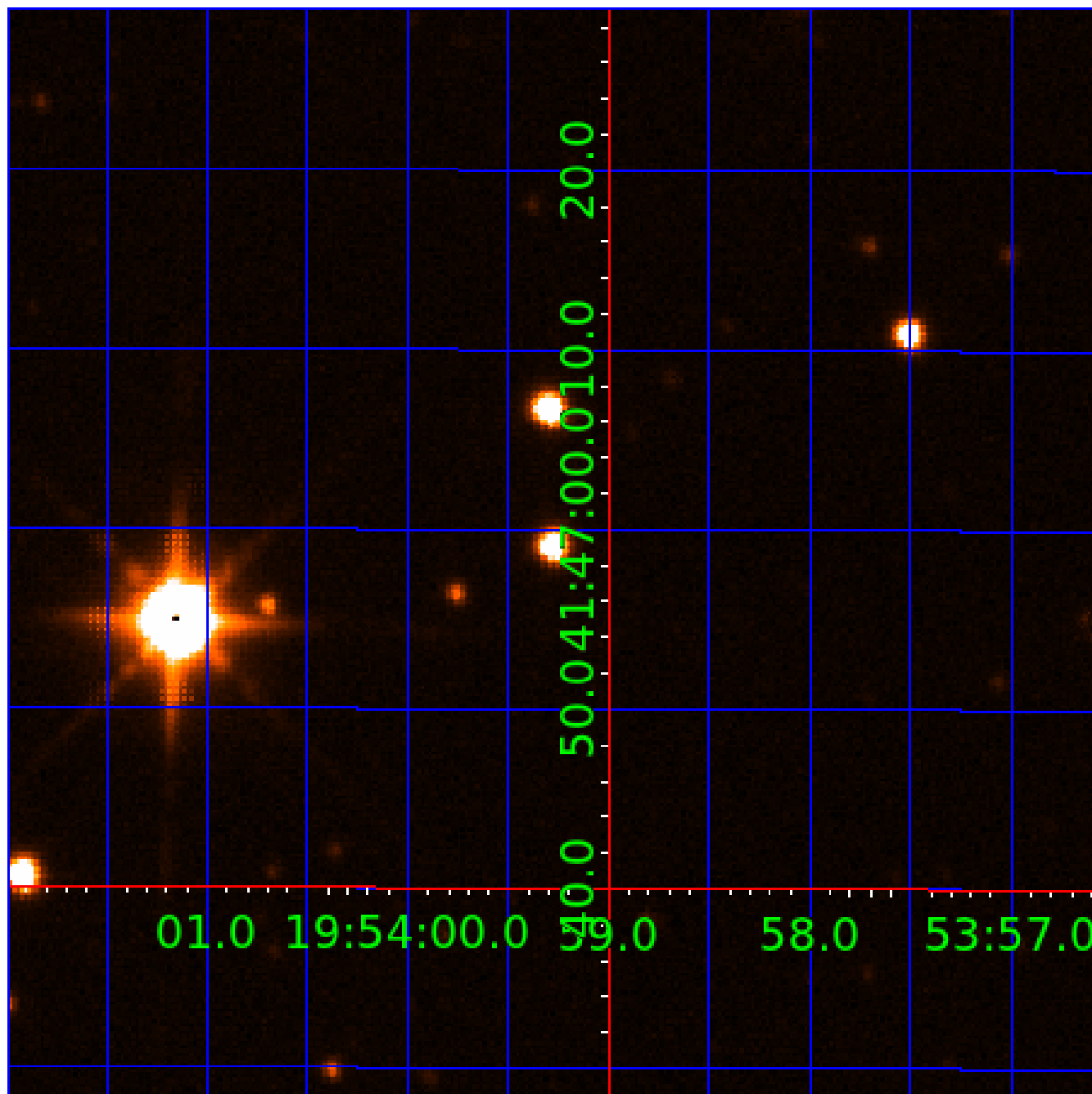


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 006389396

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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006389396-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006389396-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

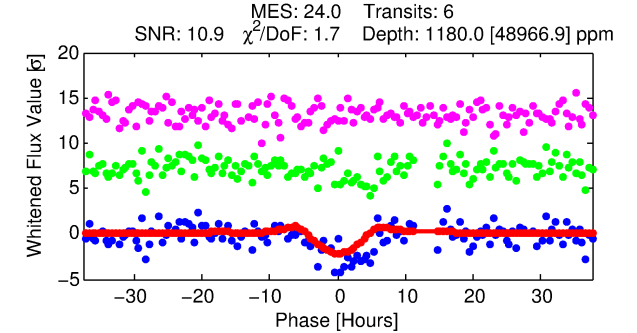
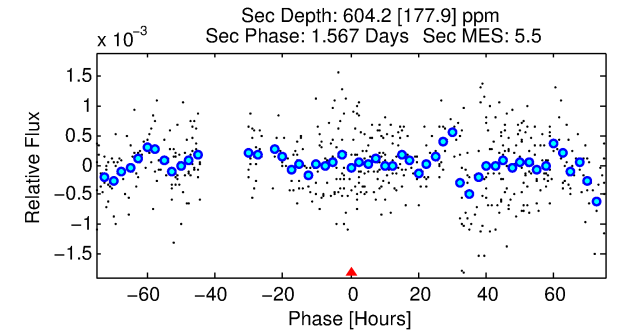
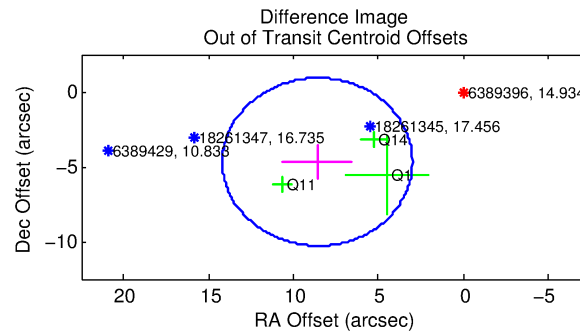
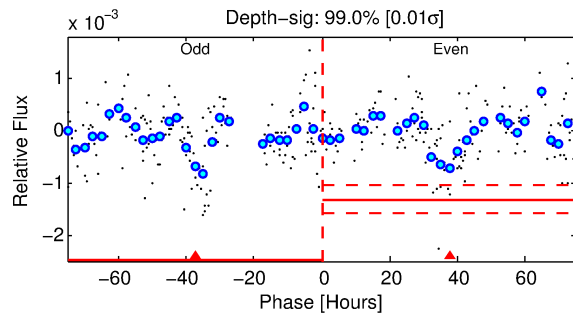
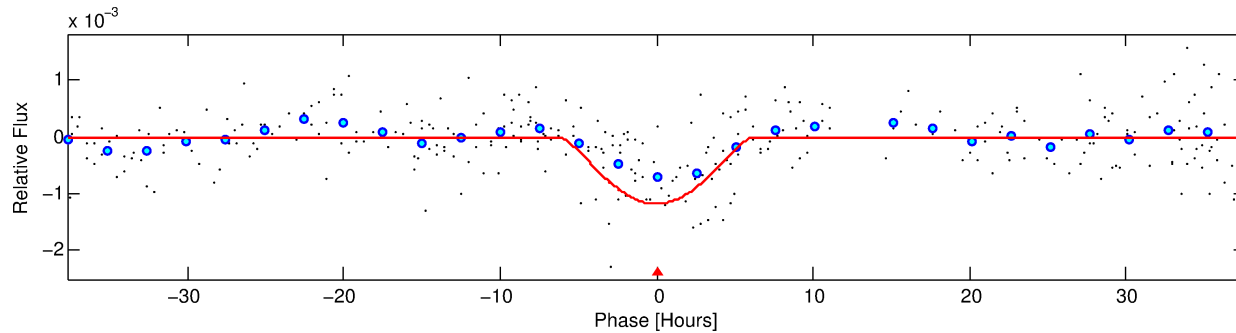
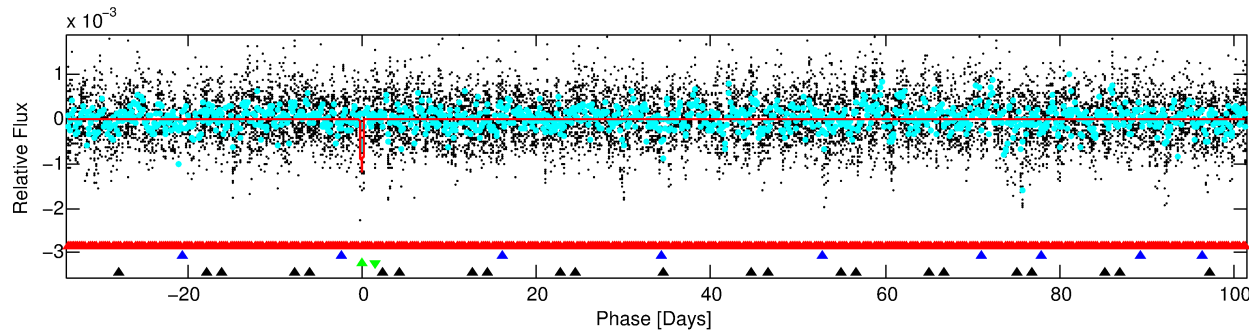
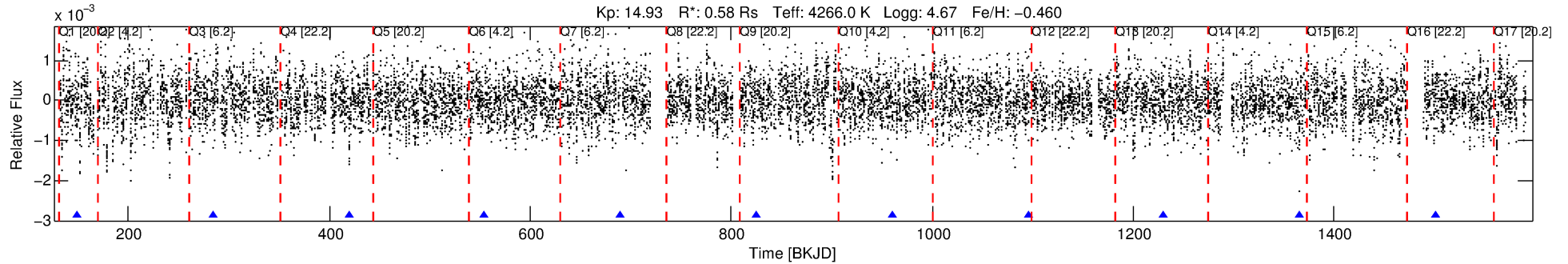
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006389396-03

No Significant Match Found

DV One-Page Summary

KIC: 6389396 Candidate: 3 of 4 Period: 135.153 d



DV Fit Results:

Period = 135.15326 [0.00379] d
Epoch = 149.2205 [0.0267] BKJD
Rp/R* = 0.0630 [0.2139]
a/R* = 29.64 [22.80]
b = 1.00 [1.42]
Seff = 0.55 [0.10]
Teq = 219 [10] K
Rp = 3.98 [13.50] Re
a = 0.4258 [0.0359] AU
Ag = 3812.37 [25906.33] [0.15 σ]
Teff = 2664 [4526] K [0.54 σ]

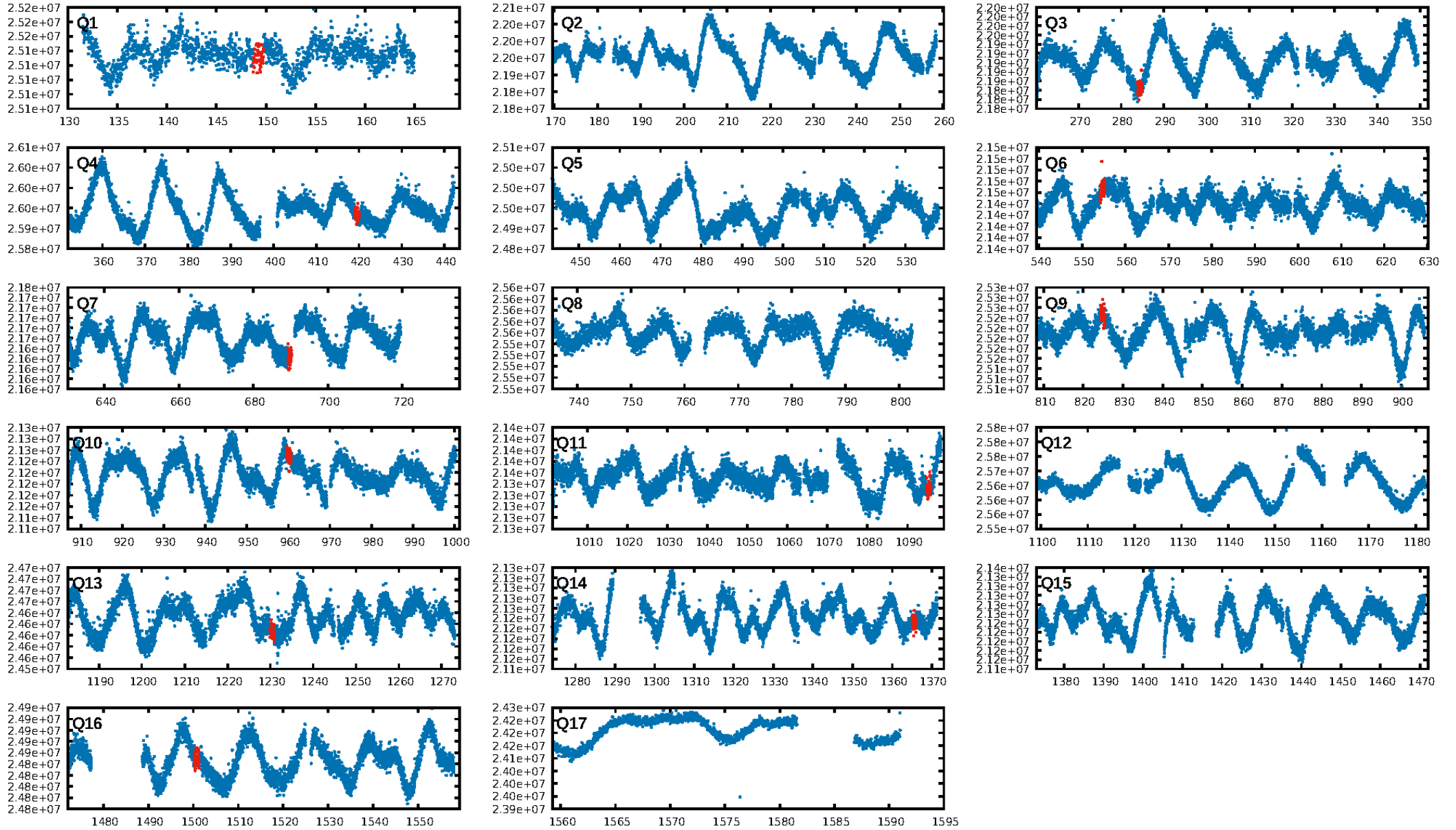
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [125.15 σ]
LongPeriod-sig: 100.0% [22.66 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.13e-37
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.2592
Centroid-sig: 11.3%
Centroid-so: 3.129 arcsec [8.41 σ]
OotOffset-rm: 9.774 arcsec [5.23 σ]
KicOffset-rm: 10.157 arcsec [8.16 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/10]

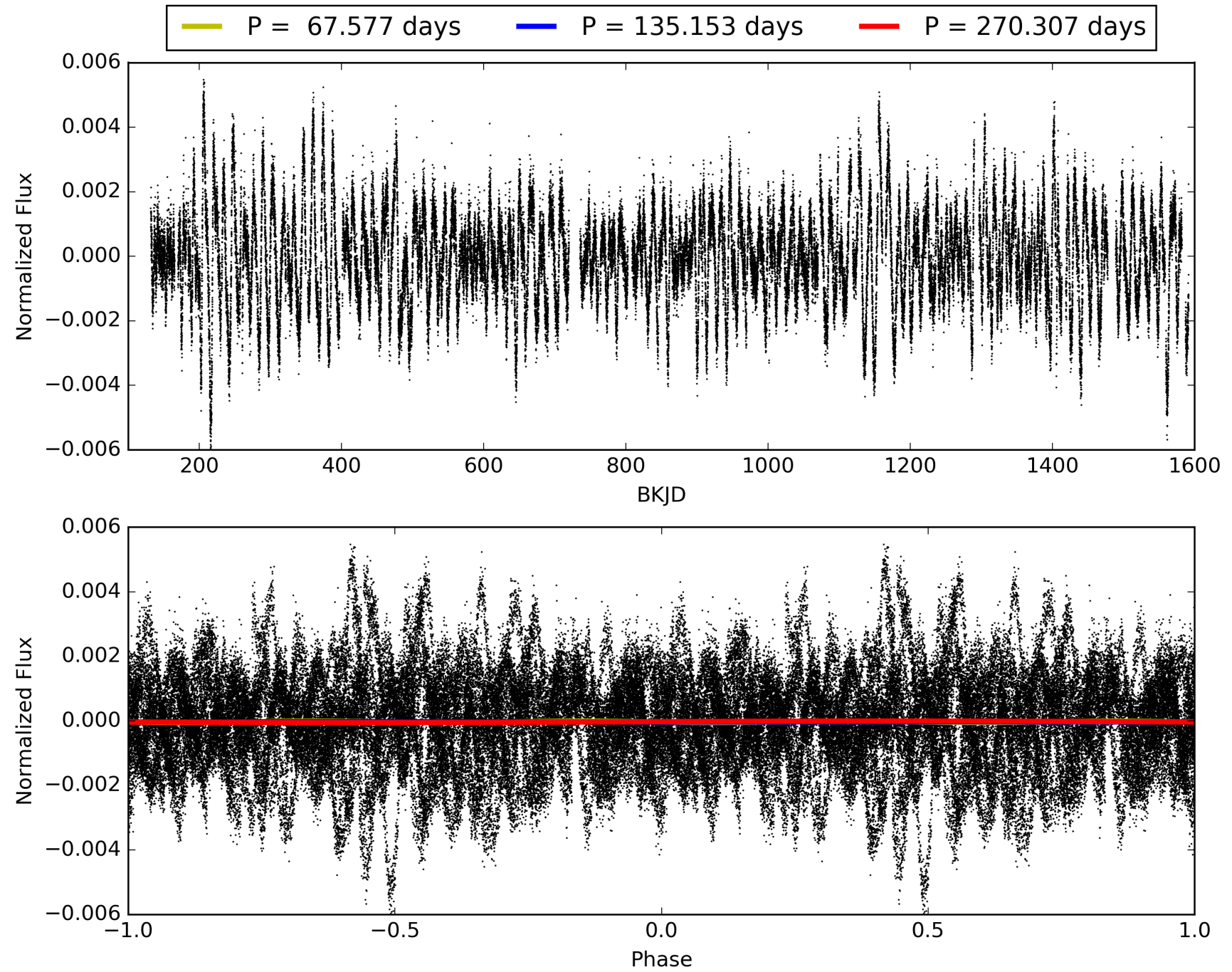
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 09:06:36 Z

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

TCE 006389396-03, PDC Light Curves

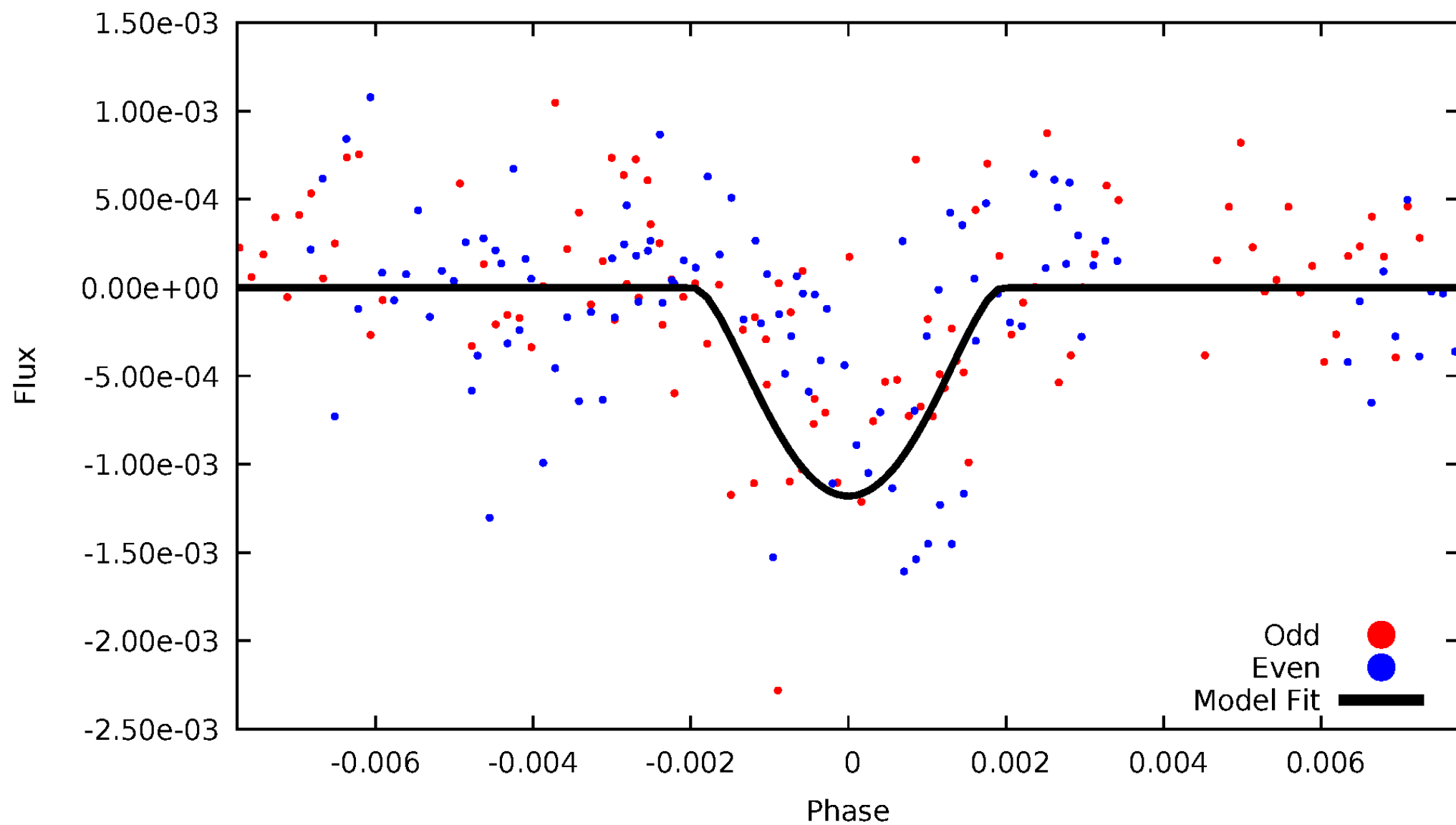


TCE 006389396-03



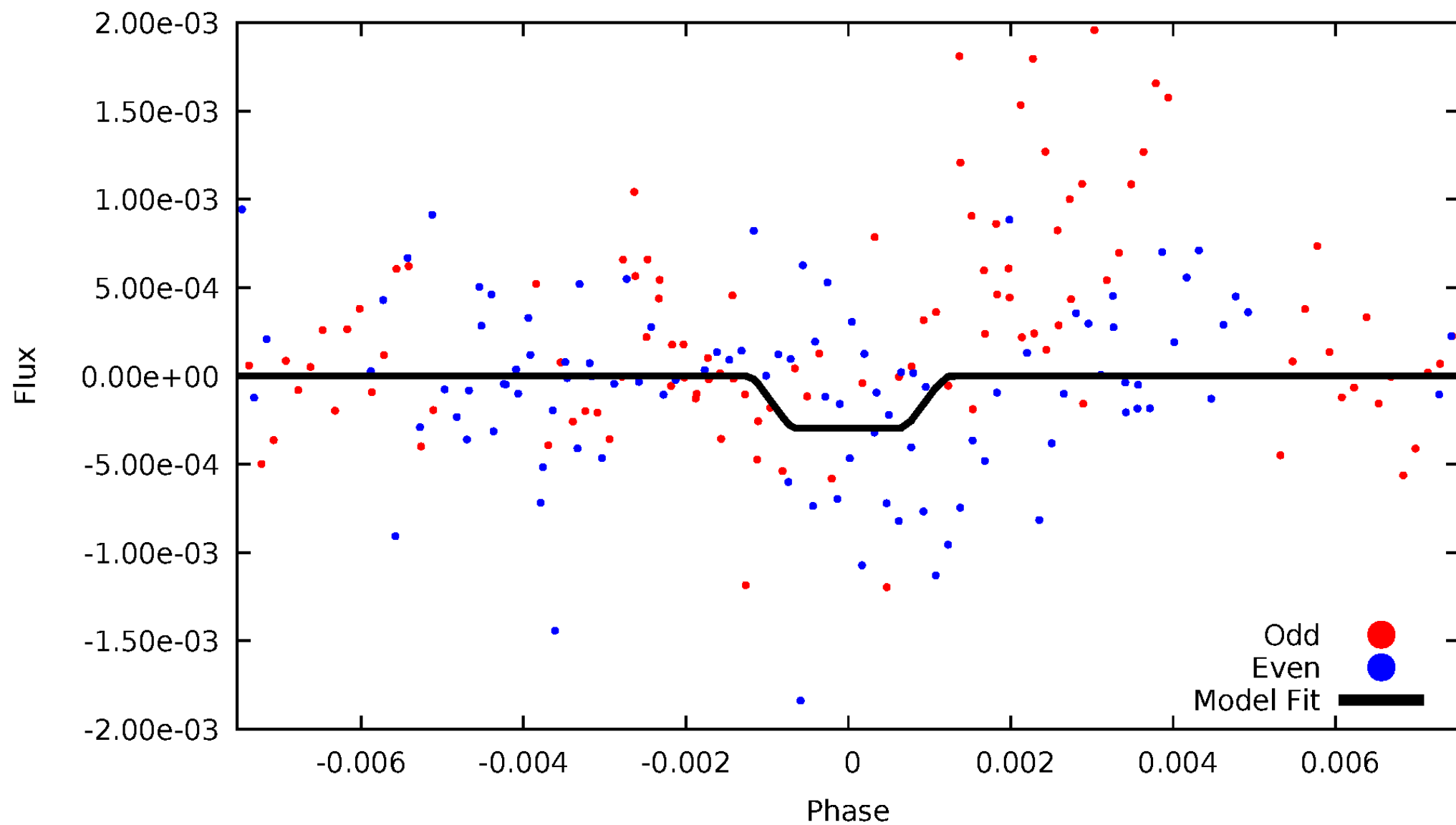
DV Odd/Even

TCE 006389396-03



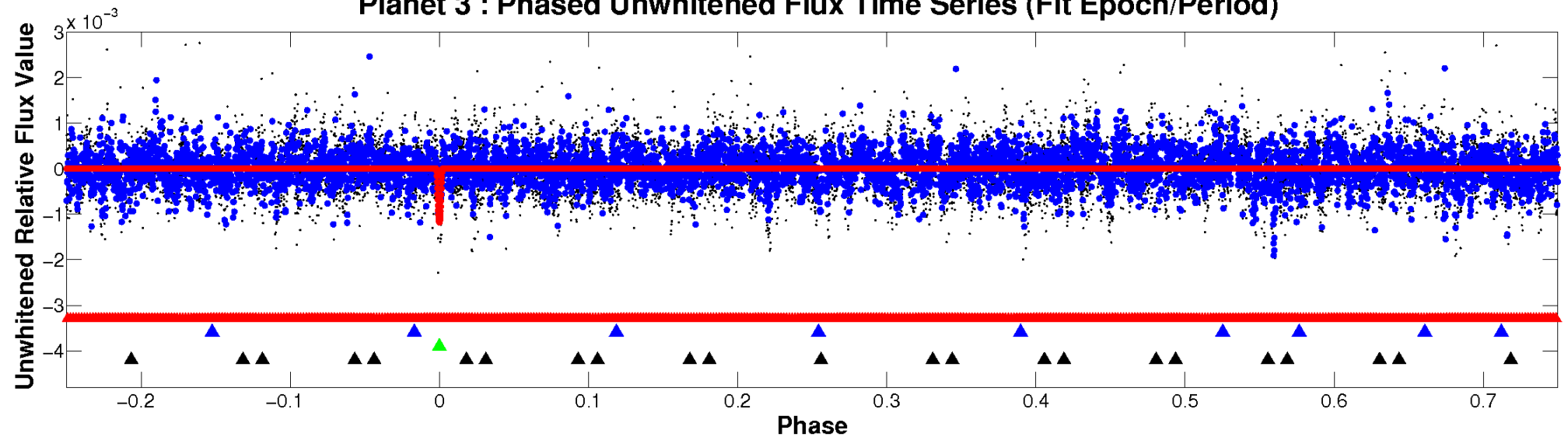
ALT Odd/Even

TCE 006389396-03

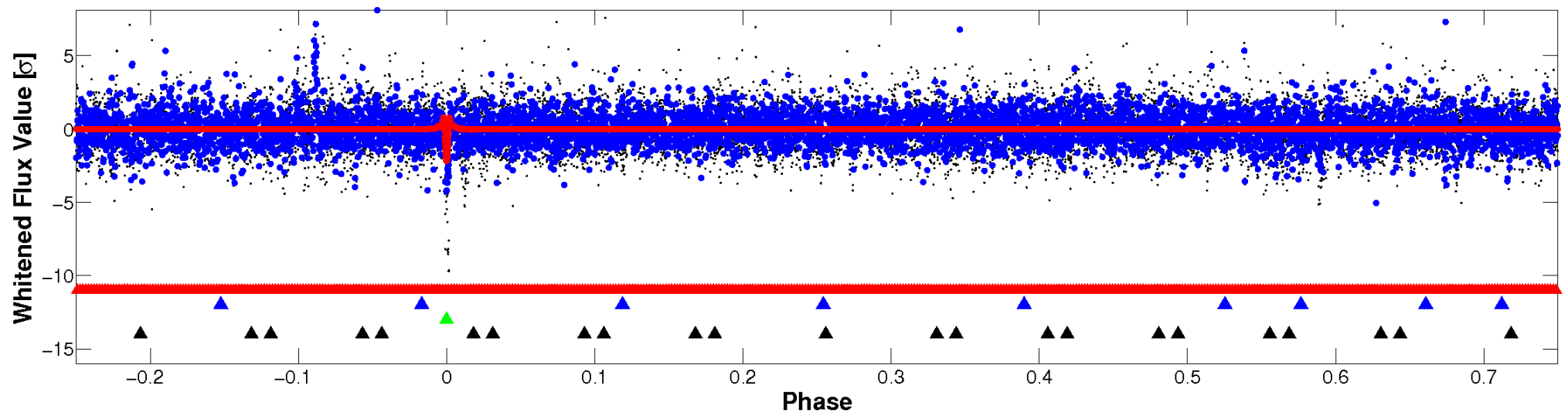


Non-Whitened Vs. Whitened Light Curve

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

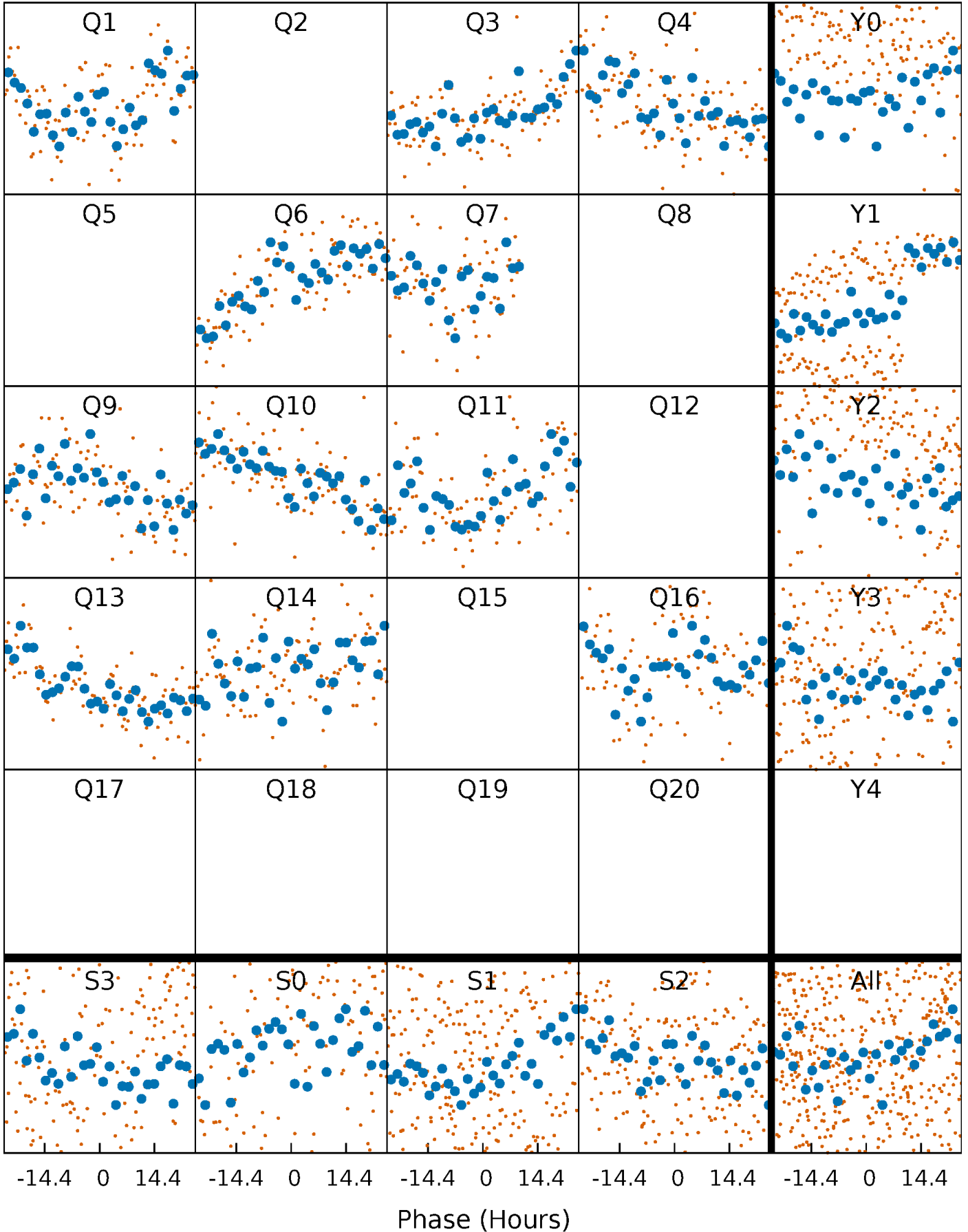


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



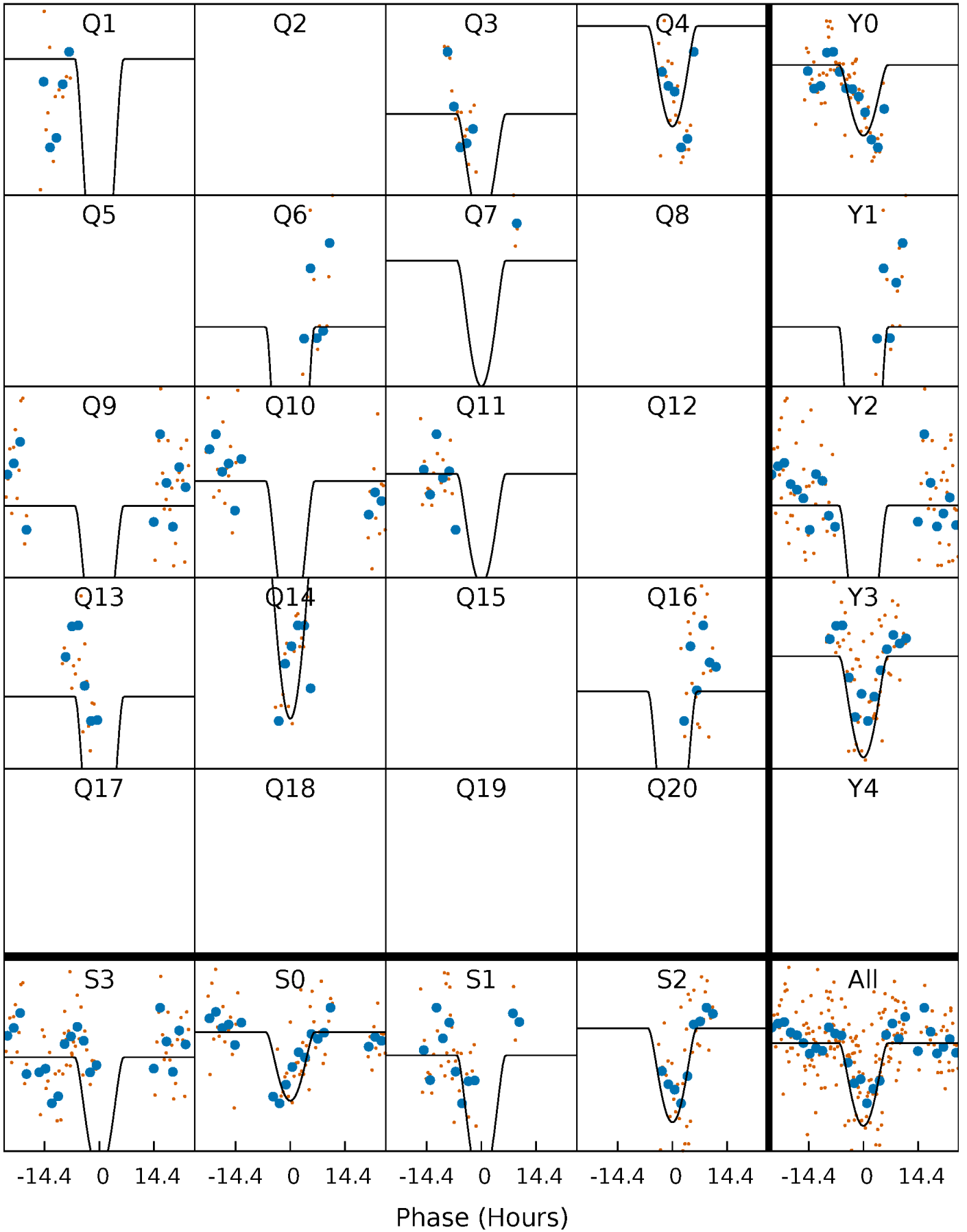
PDC Quarter-Phased Transit Curves

TCE 006389396-03 $P=135.153257$ Days $T_0=149.220519$ (BKJD)



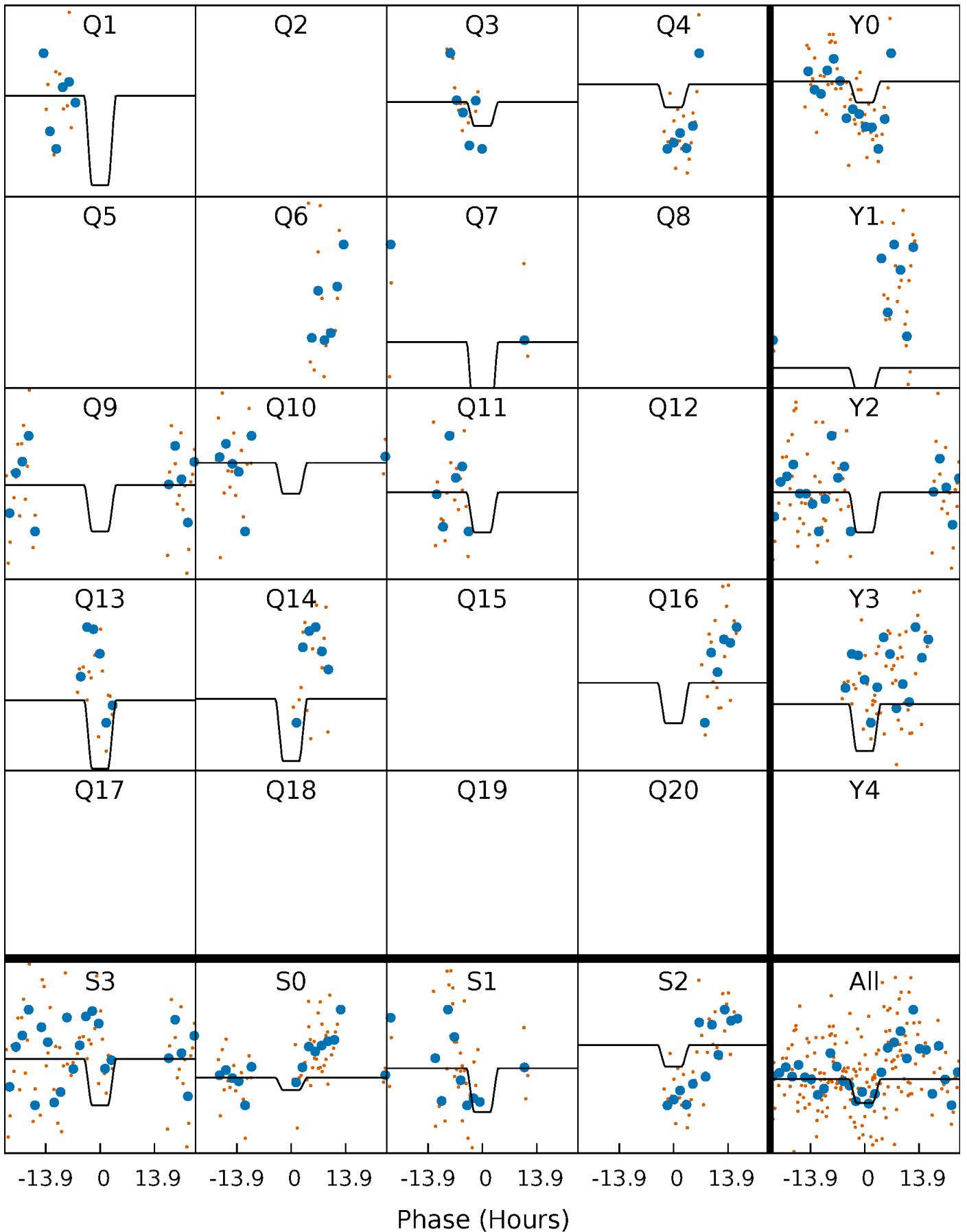
DV Quarter-Phased Transit Curves

TCE 006389396-03 P=135.153257 Days $T_0=149.220519$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

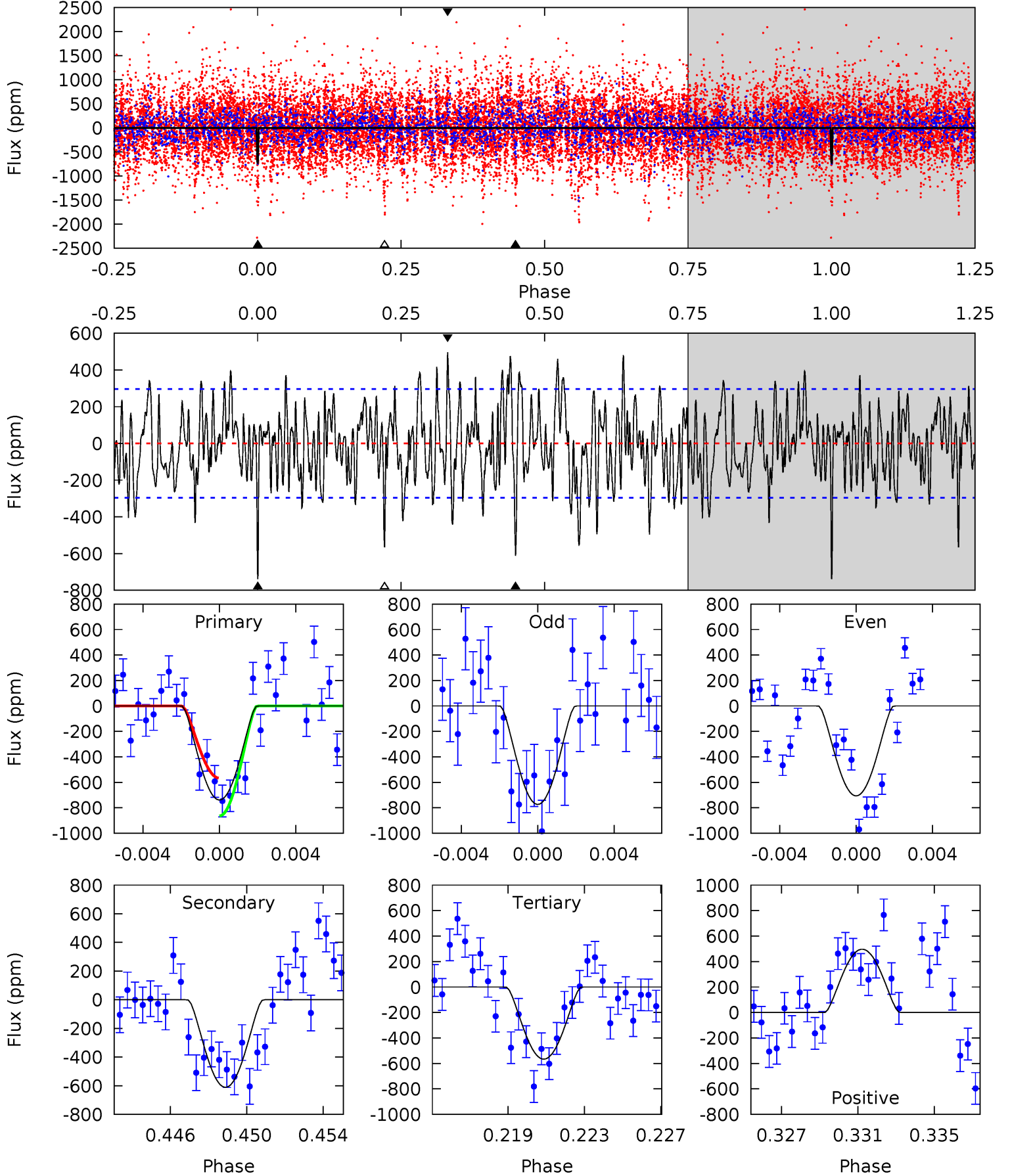
TCE 006389396-03 P=135.133943 Days $T_0=149.209455$ (BKJD)



DV Model-Shift Uniqueness Test

006389396-03, $P = 135.153257$ Days, $E = 14.067262$ Days

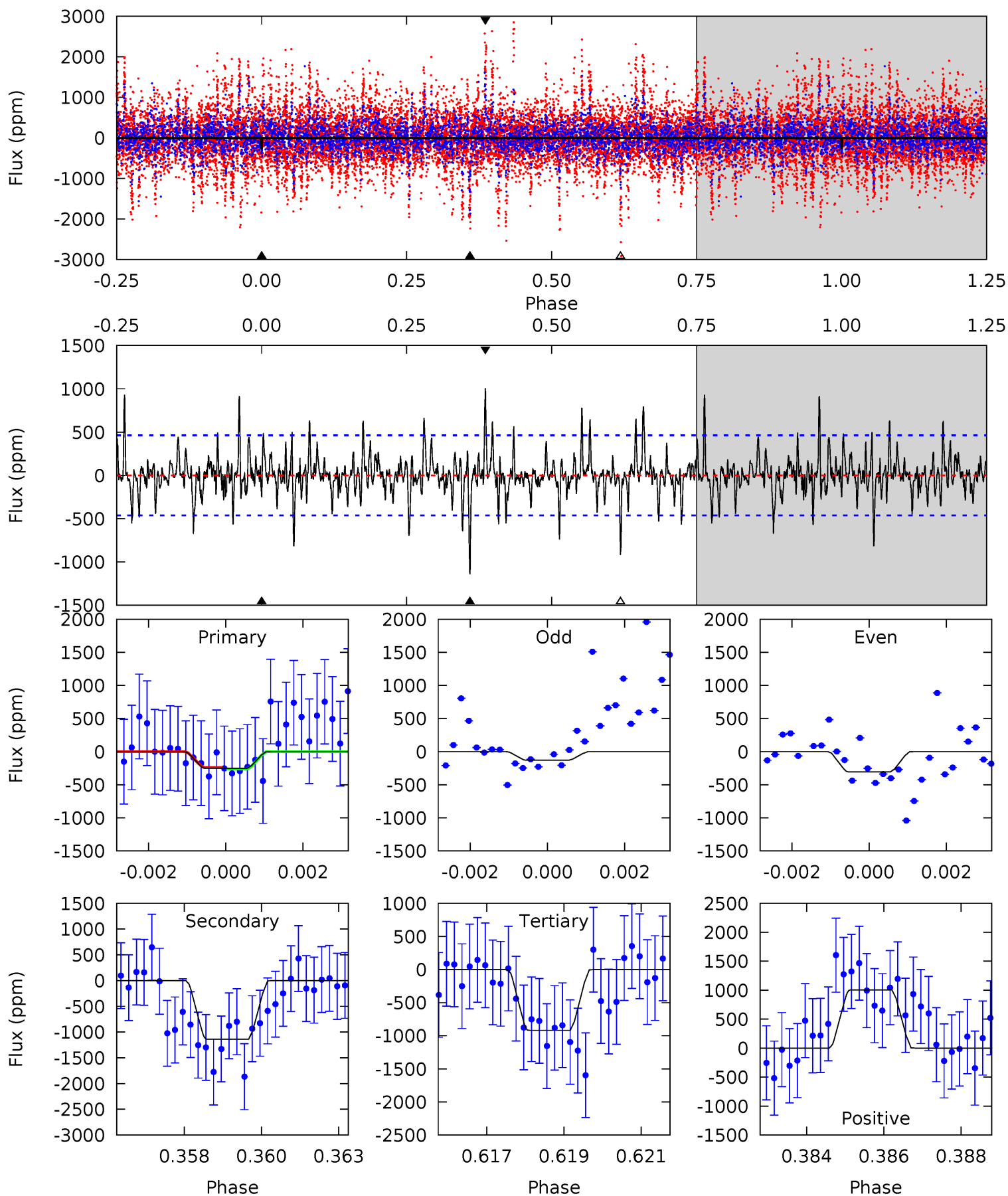
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	10.7	9.92	8.71	5.20	2.88	3.16	3.02	4.24	0.78	2.00	0.60	1.80	0.40	2.61



Alt Model-Shift Uniqueness Test

006389396-03, P = 135.133943 Days, E = 14.075512 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.89	13.1	10.5	11.5	5.30	3.04	2.45	-7.64	-8.64	2.53	1.53	0.93	1.74	0.47	0.13



Stellar Parameters For KIC 006389396

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4266^{+127}_{-140}	$4.665^{+0.063}_{-0.027}$	$-0.460^{+0.300}_{-0.300}$	$0.578^{+0.049}_{-0.060}$	$0.563^{+0.061}_{-0.046}$	$4.106^{+1.095}_{-0.529}$
	+3%/-3%	+1%/-1%	+65%/-65%	+8%/-10%	+11%/-8%	+27%/-13%
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 006389396-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-611 ± 57	$10.10^{+10.30}_{-6.76}$	304^{+11}_{-12}	2451^{+853}_{-379}	606^{+4862}_{-460}
Alt.	-1140 ± 87	$9.76^{+9.72}_{-6.89}$	304^{+11}_{-12}	2671^{+1116}_{-426}	1194^{+12601}_{-890}

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 $A_{obs} \gg 1.0$

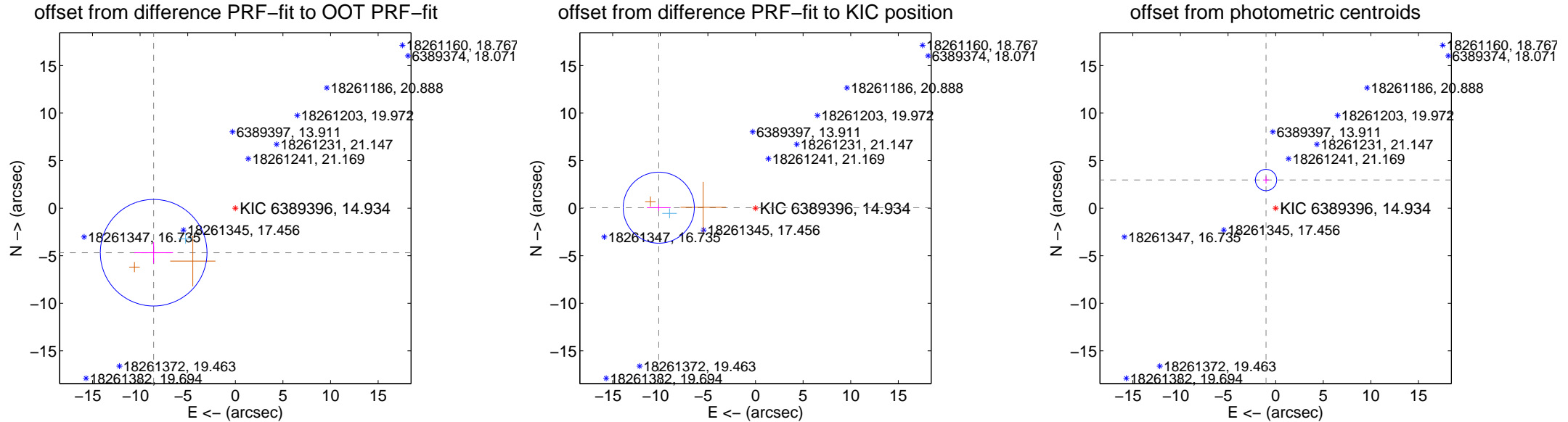
DV Centroid Data

Supplemental centroid analysis for 006389396-03. Kepler magnitude: 14.93. Transit SNR 10.85

There are 1 quarters with good PRF difference image offsets

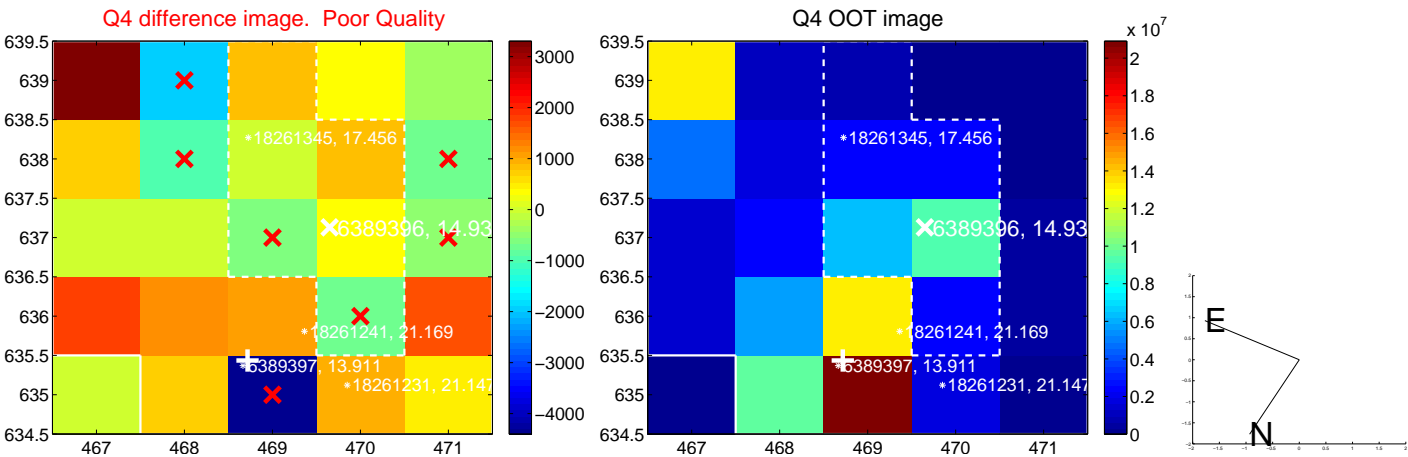
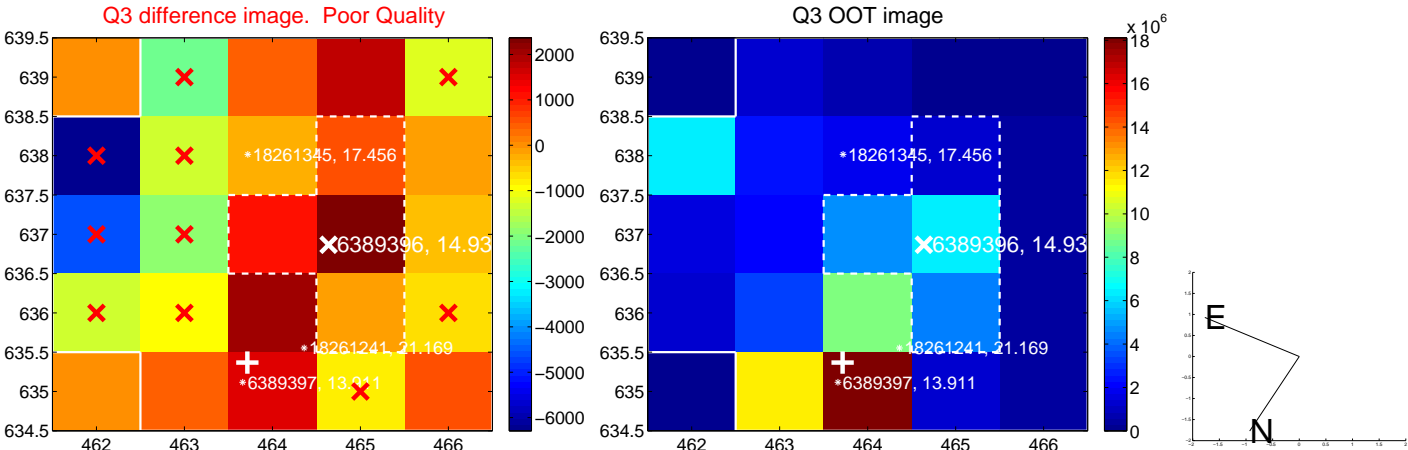
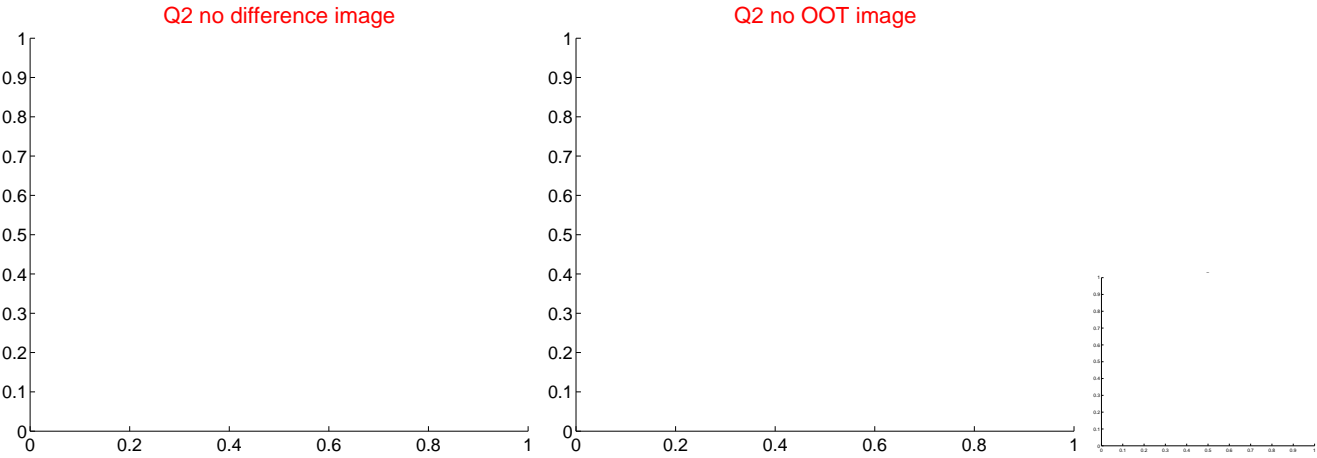
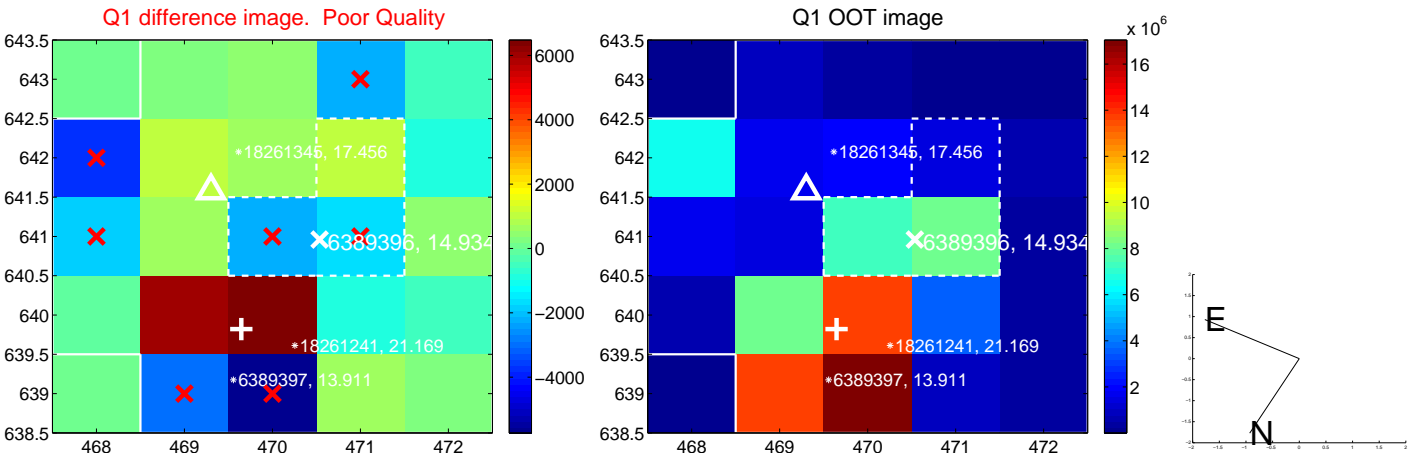
The OOT PRF centroid is offset from the target star catalog position by about 4.64 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.774 ± 1.867	5.23	8.578 ± 2.037	-4.685 ± 1.127
PRF-fit source offset from KIC position	10.157 ± 1.245	8.16	10.157 ± 1.244	0.052 ± 0.353
photometric centroid source offset	3.13 ± 0.37	8.41	1.01 ± 0.32	2.96 ± 0.38

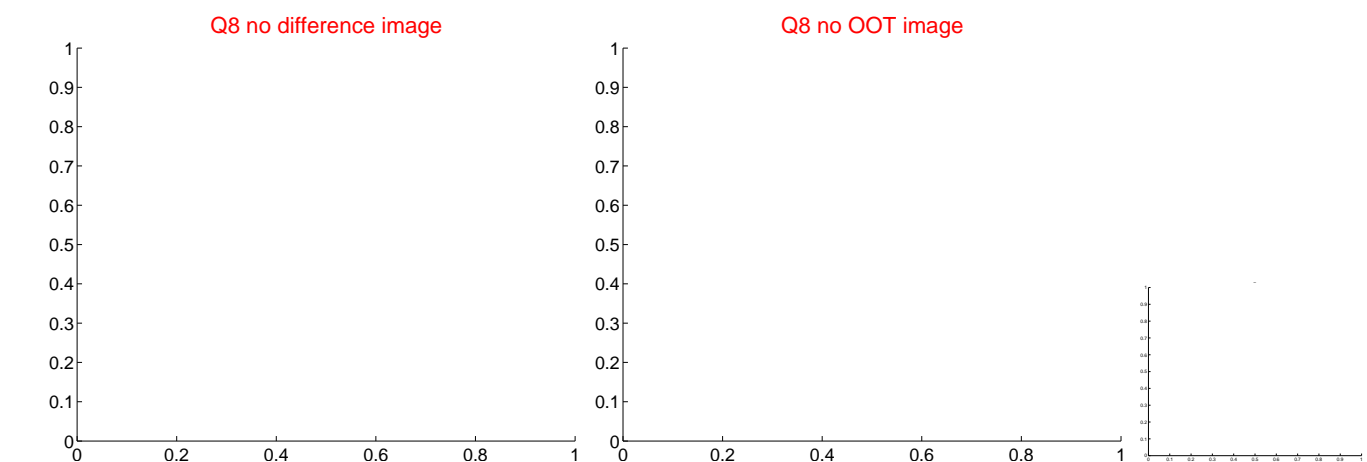
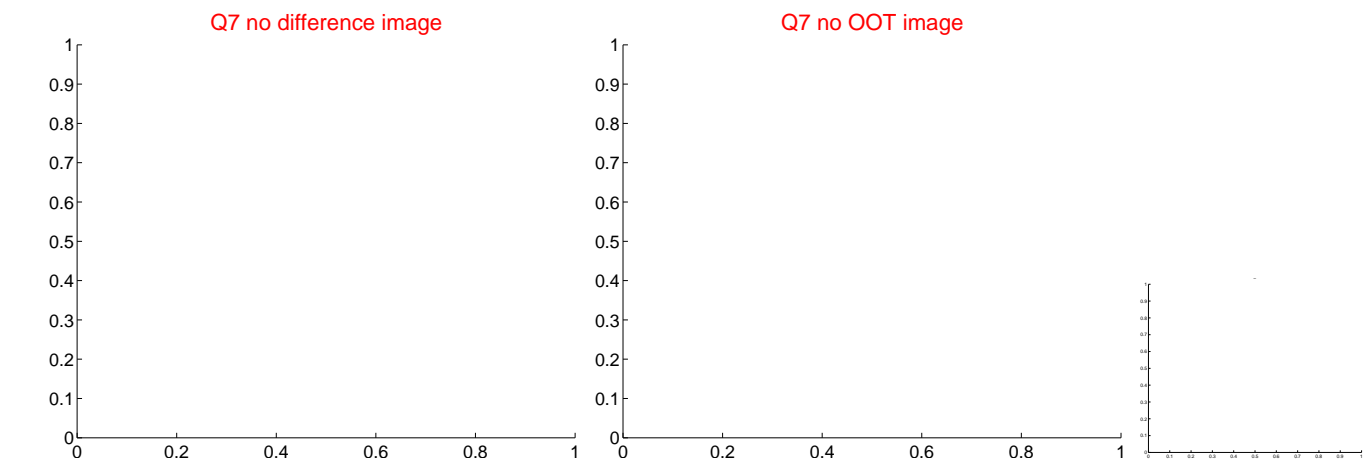
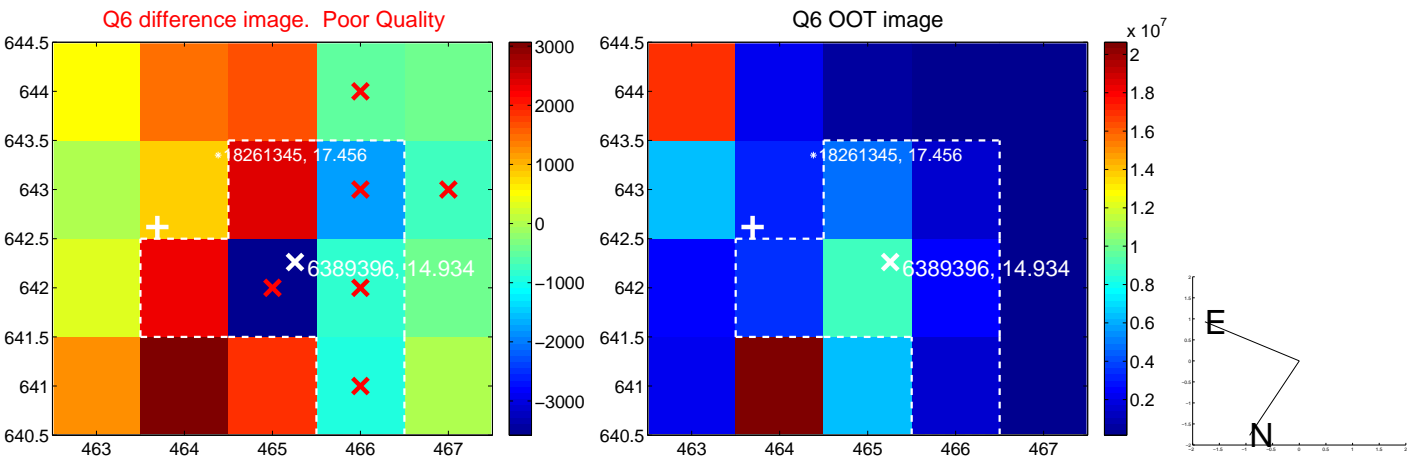
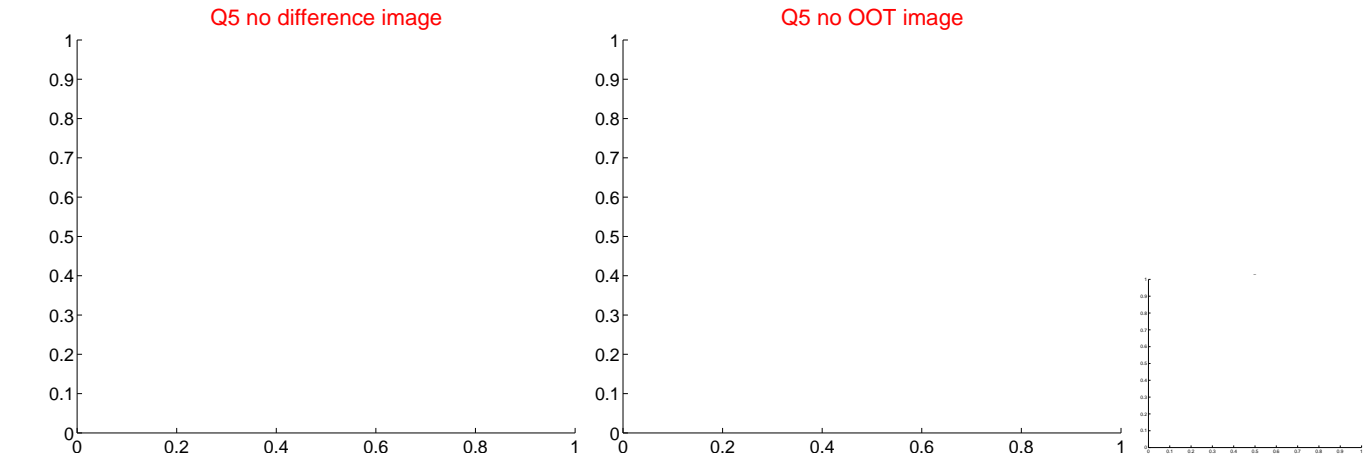


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

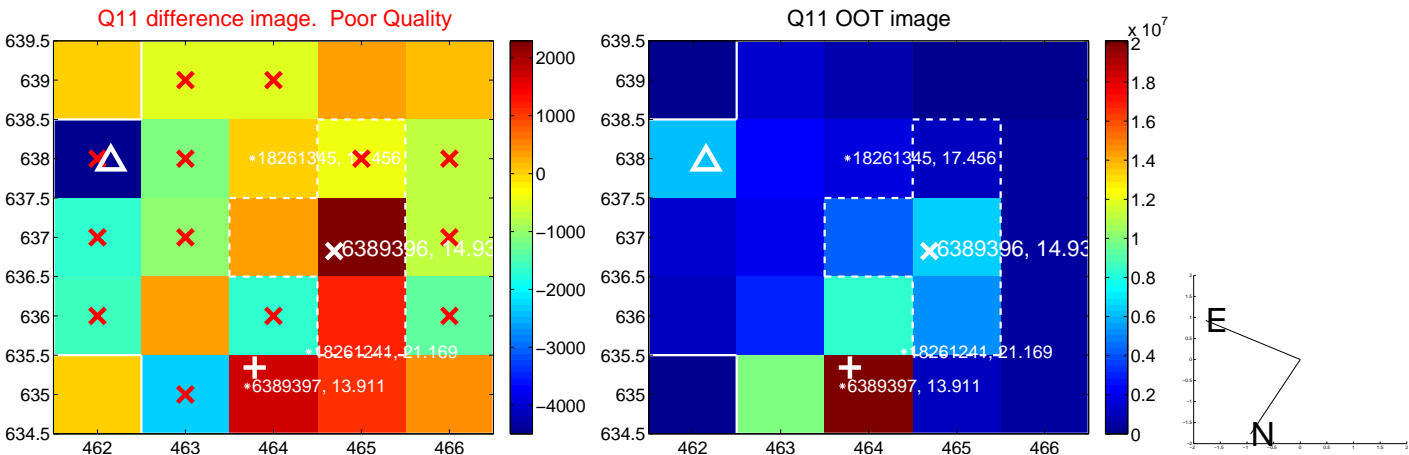
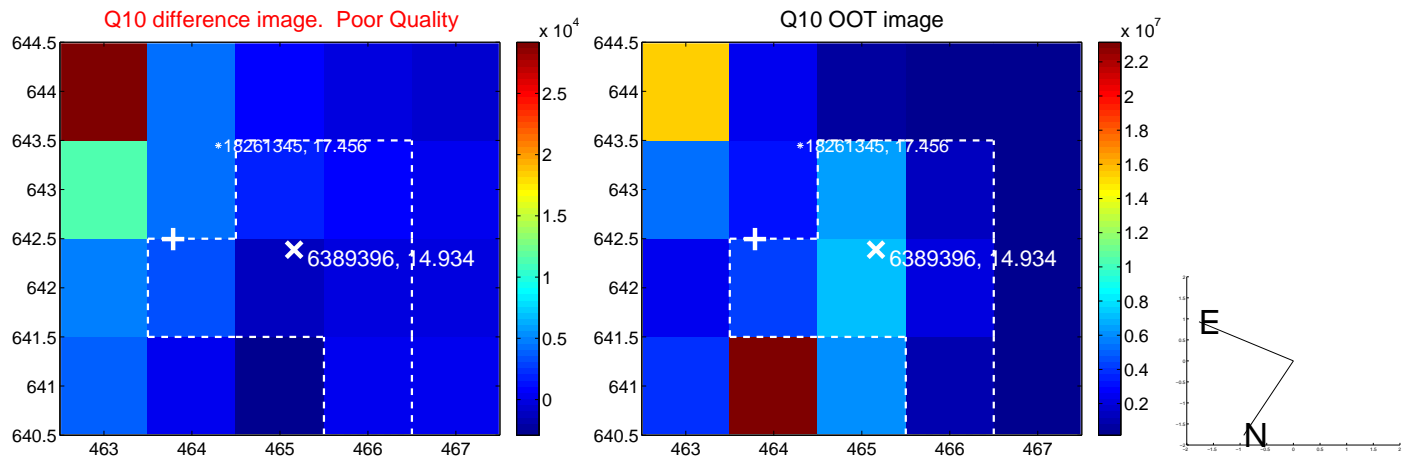
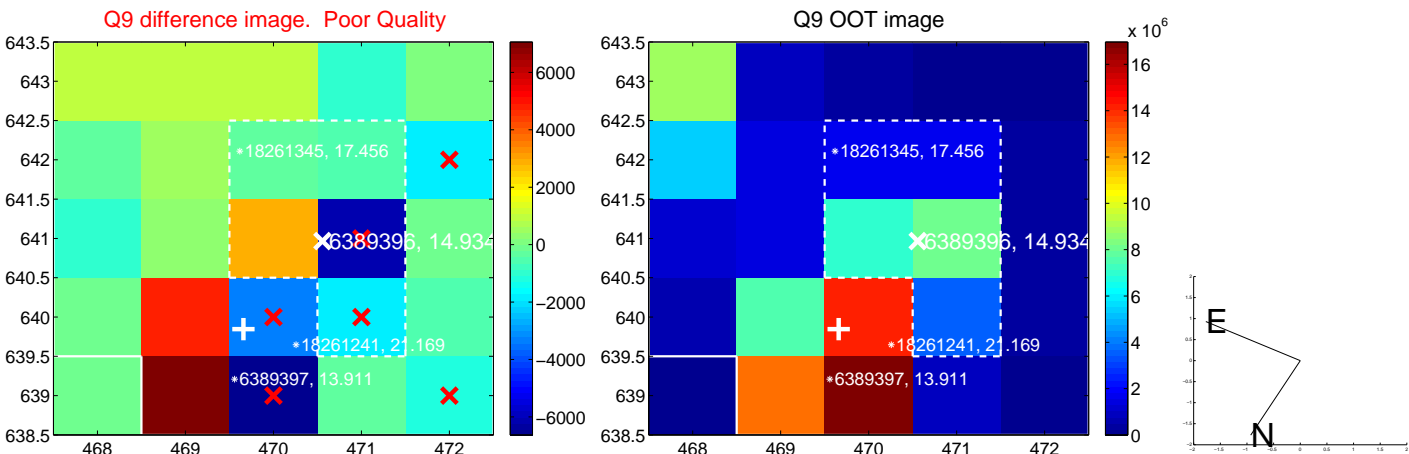
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



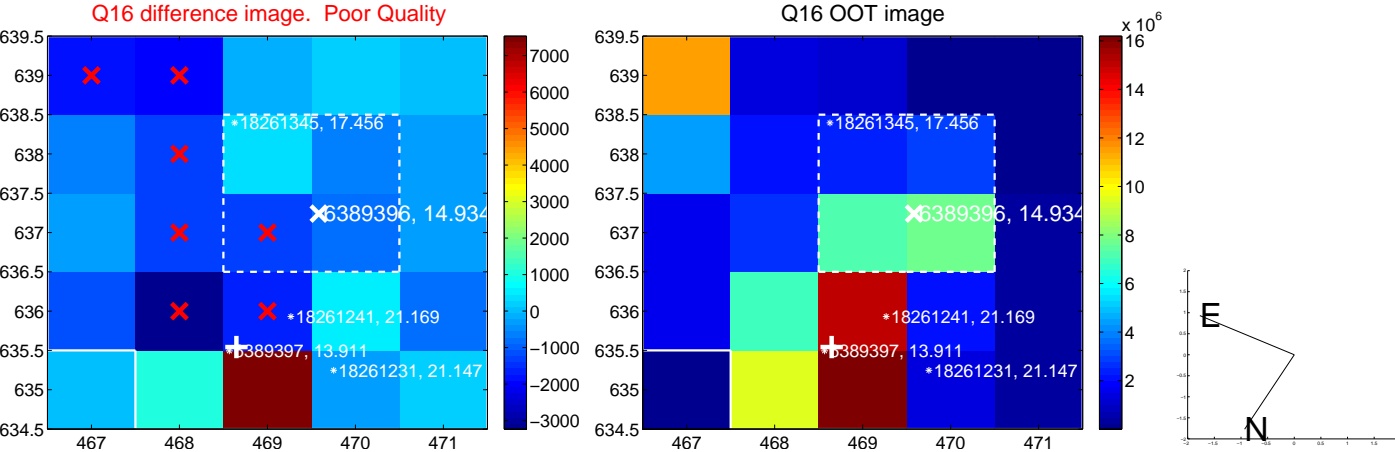
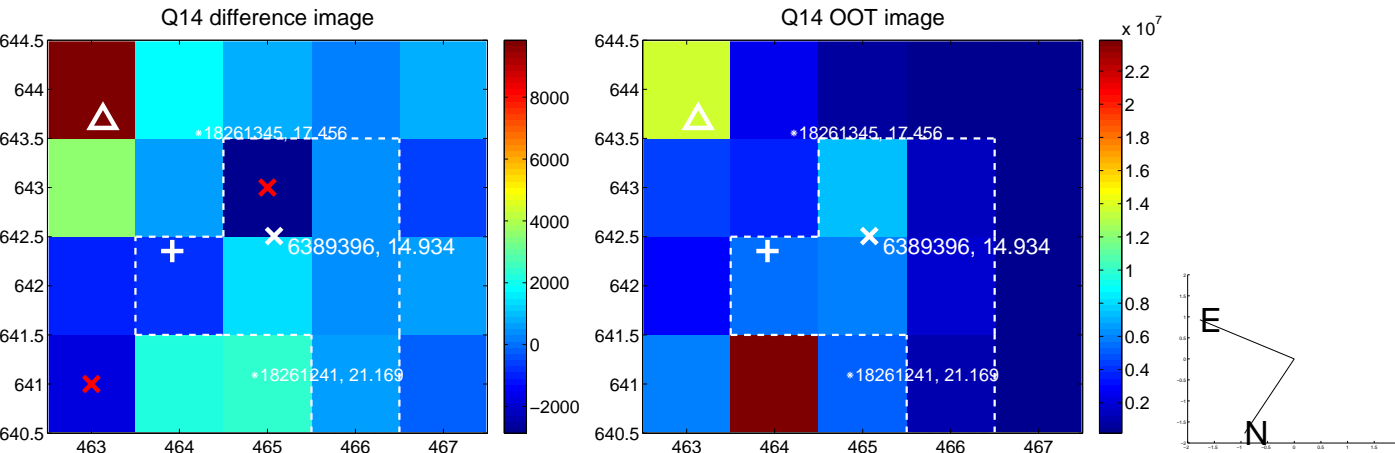
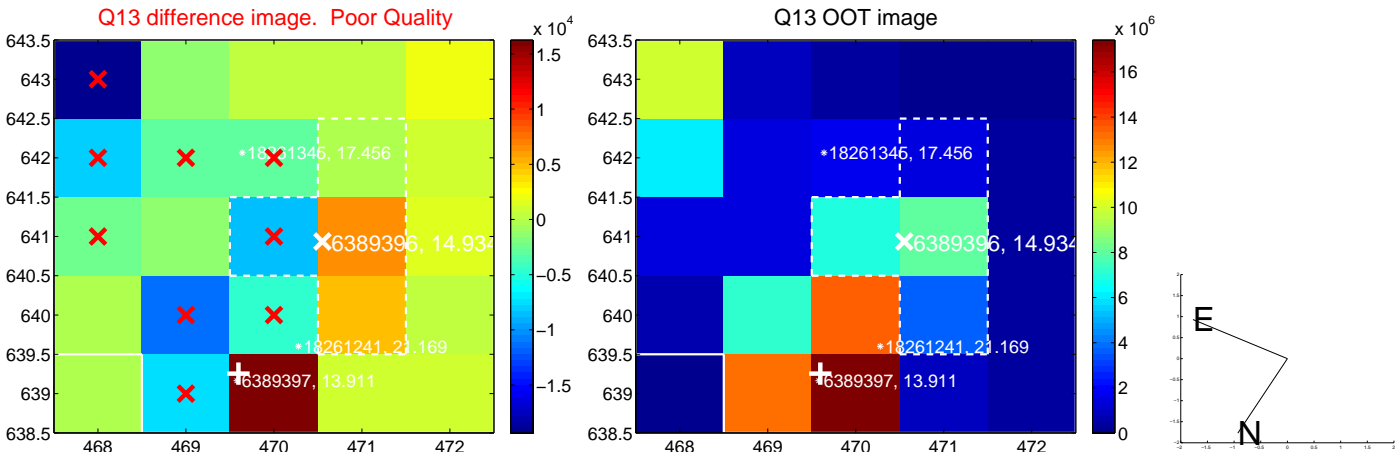
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



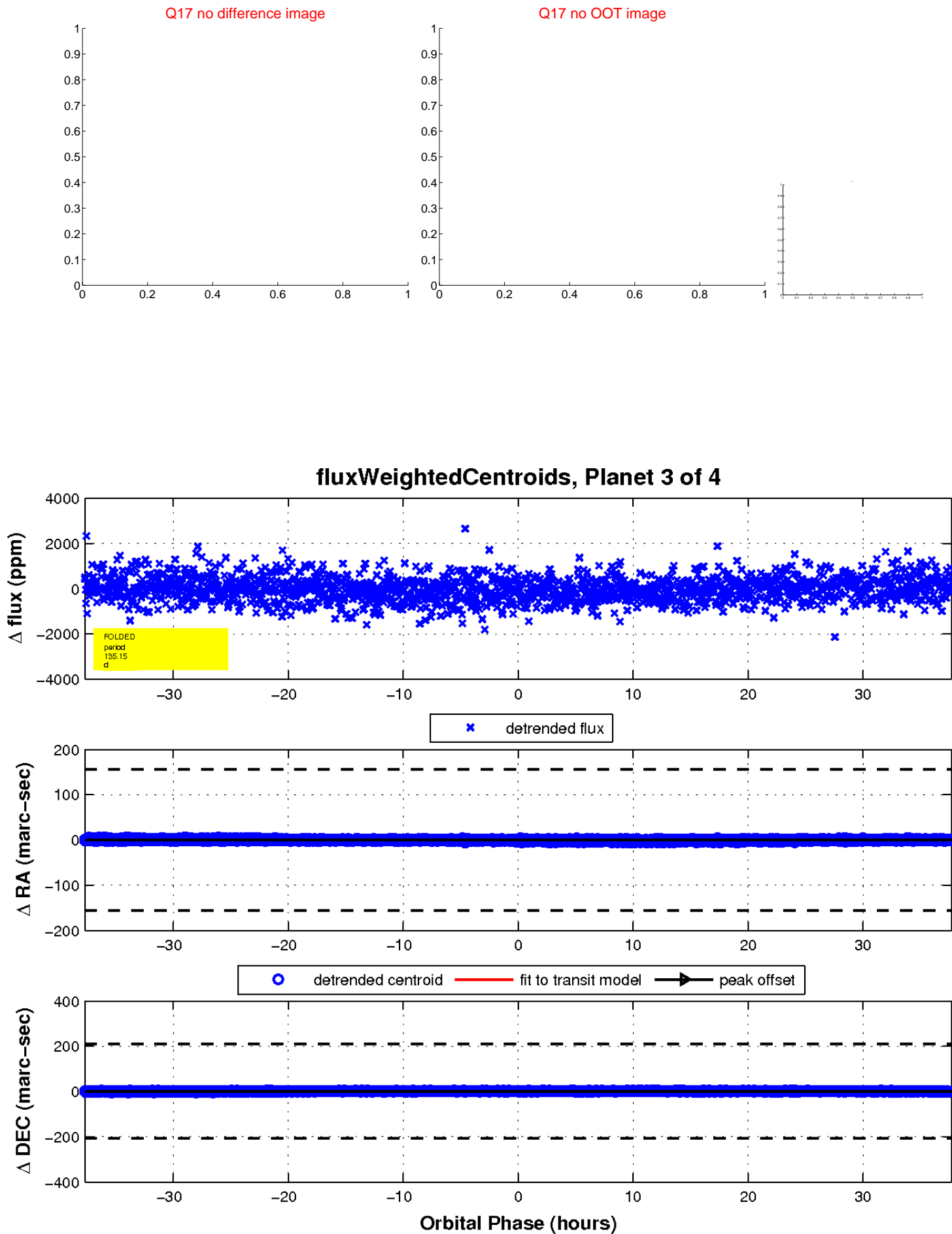
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

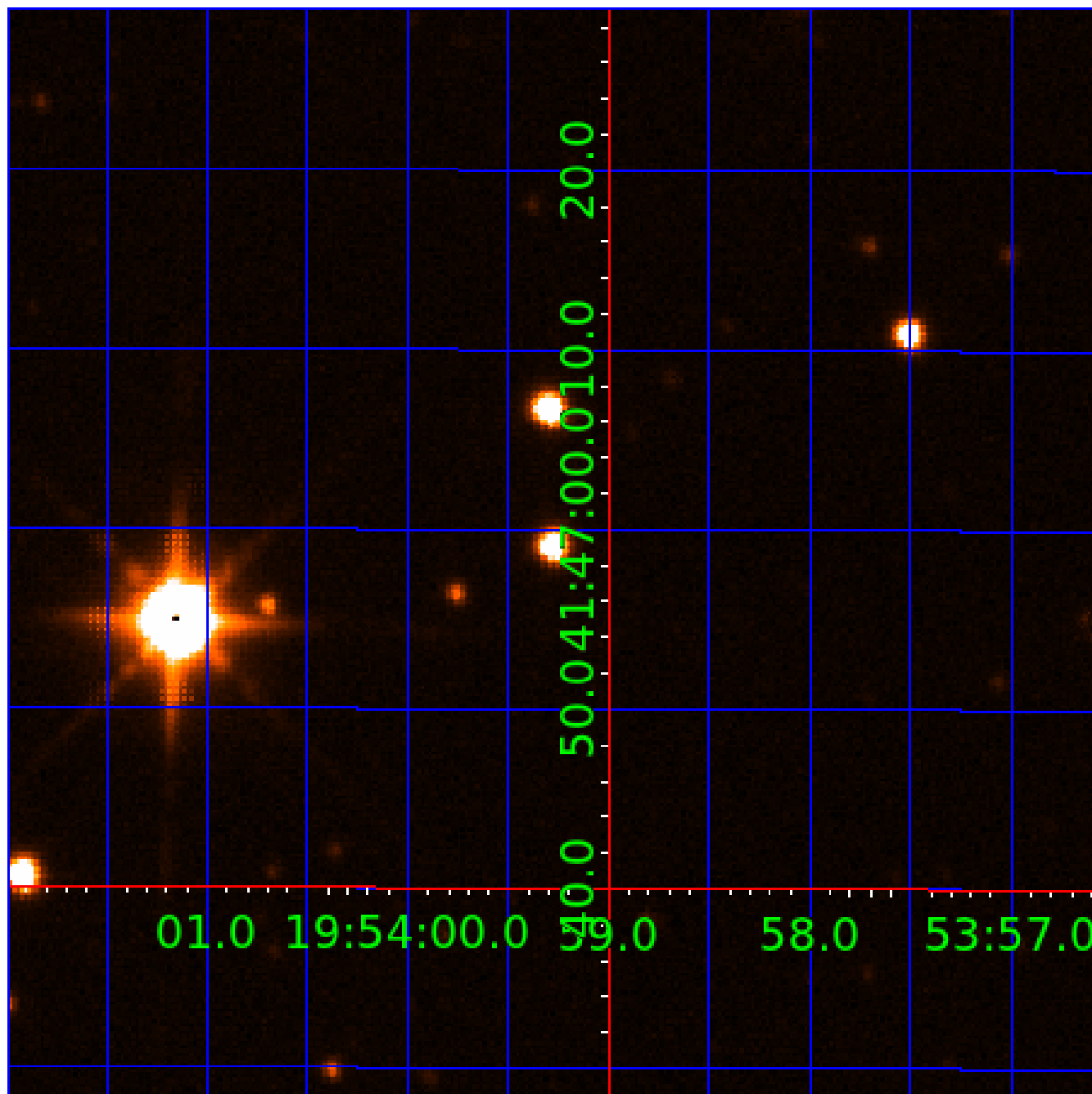


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006389396

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})
006389396-01	OBS	No	1.781665	131.823623	66.3	10.999	8.9	10.9	0.58	4266	0.46	175.59
006389396-03	OBS	No	135.153257	149.220519	1180.0	12.571	24.0	10.9	0.58	4266	3.98	0.55
006389396-04	OBS	No	62.514289	171.918816	312.4	6.000	9.6	4.3	0.58	4266	1.08	1.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006389396-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
006389396-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006389396-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

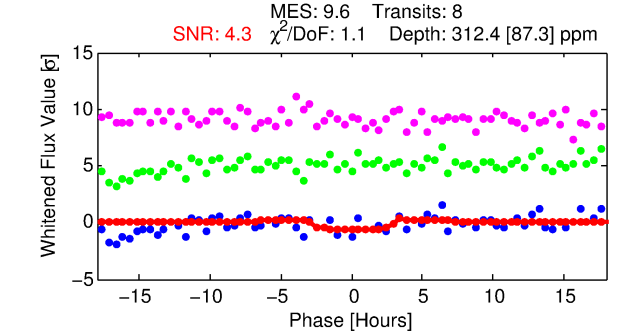
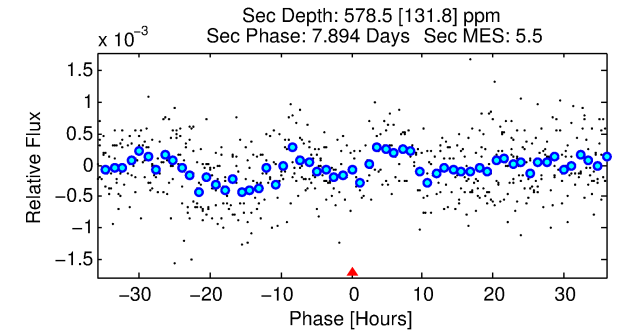
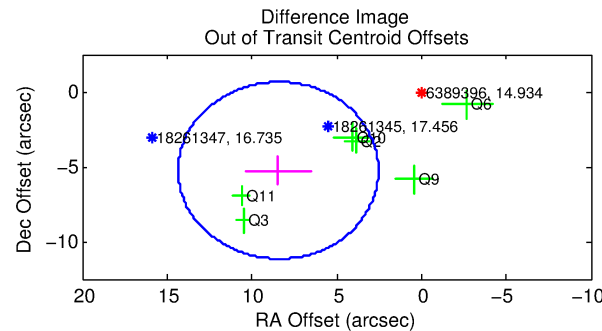
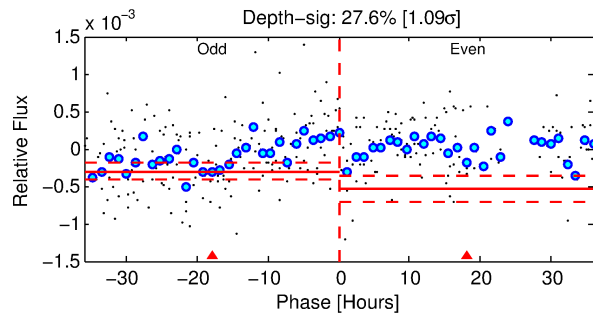
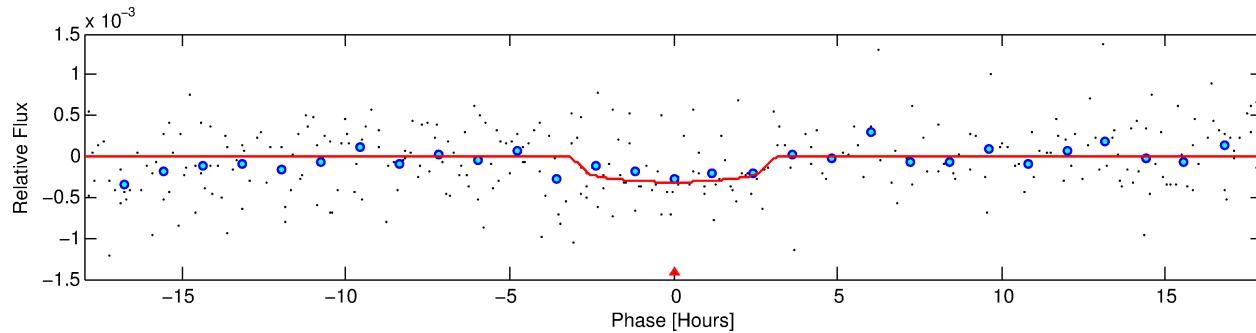
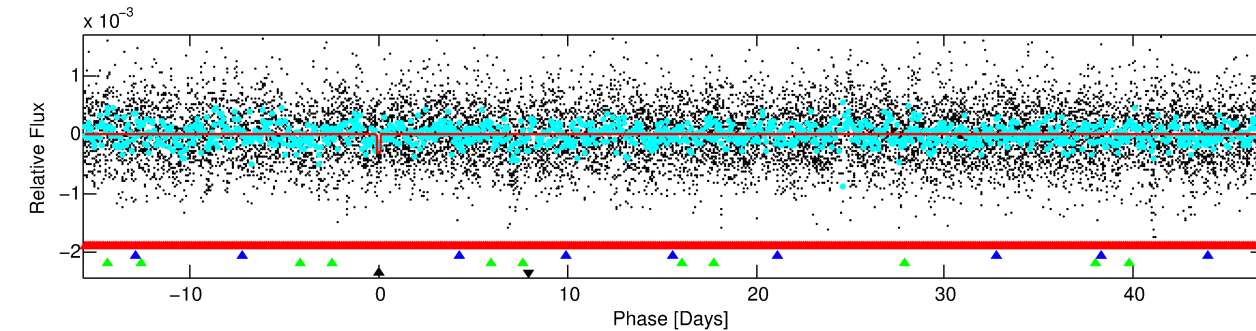
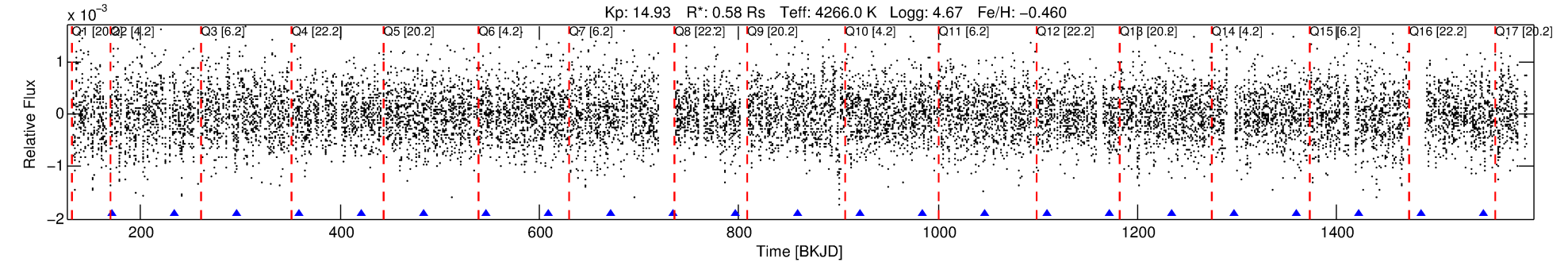
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006389396-04

No Significant Match Found

DV One-Page Summary

KIC: 6389396 Candidate: 4 of 4 Period: 62.514 d



DV Fit Results:

Period = 62.51429 [0.00185] d
Epoch = 171.9188 [0.0213] BKJD
Rp/R* = 0.0171 [0.0280]
a/R* = 60.73 [363.42]
b = 0.67 [4.95]
Seff = 1.53 [0.27]
Teq = 284 [13] K
Rp = 1.08 [1.77] Re
a = 0.2547 [0.0215] AU
Ag = 17686.93 [57946.40] [0.31 σ]
Teffp = 5055 [4141] K [1.15 σ]

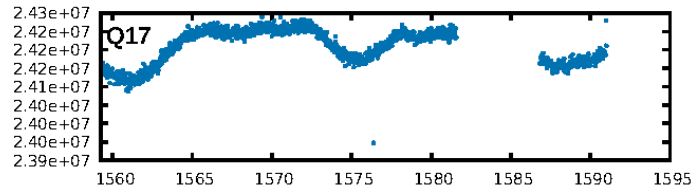
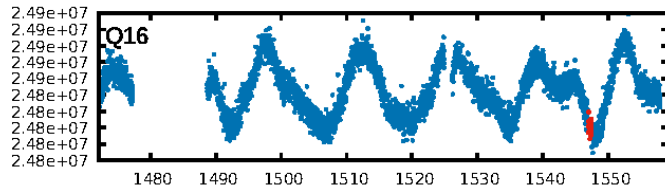
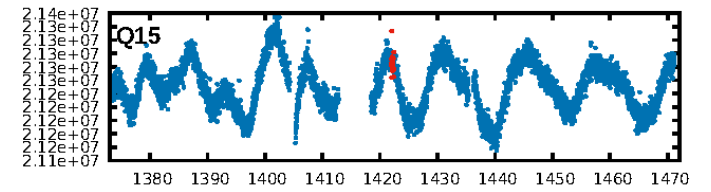
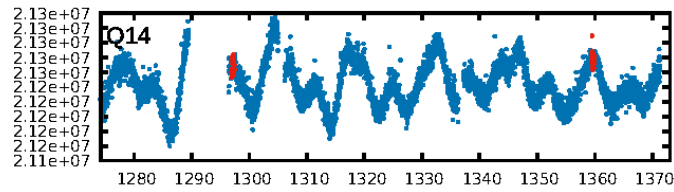
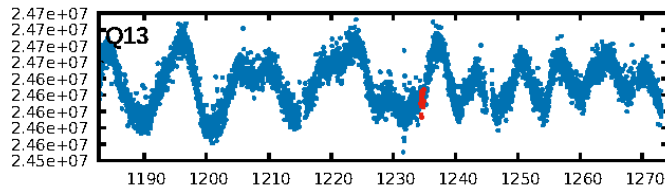
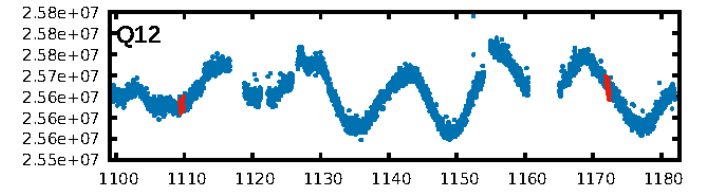
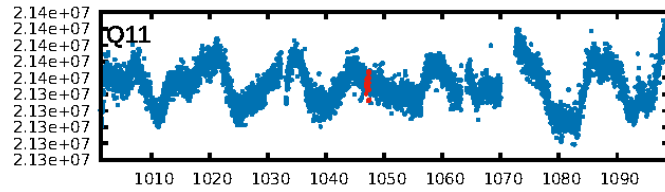
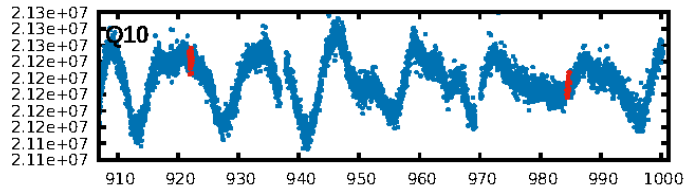
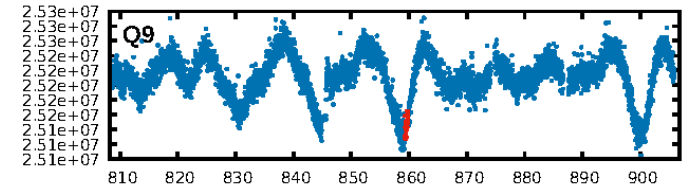
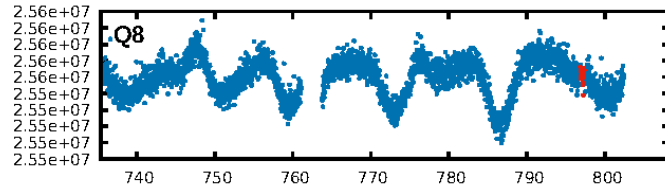
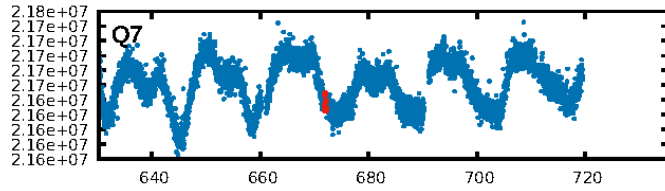
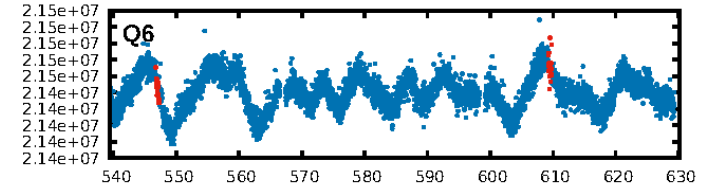
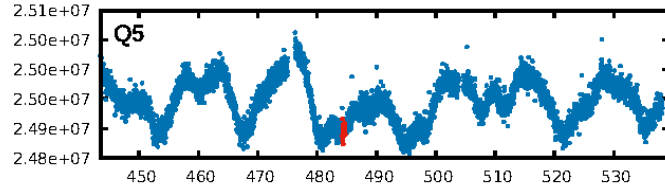
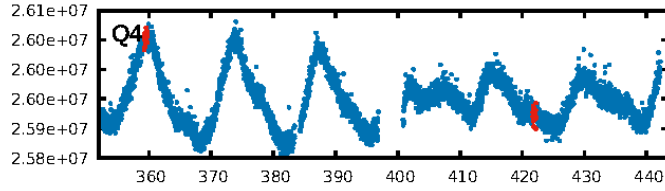
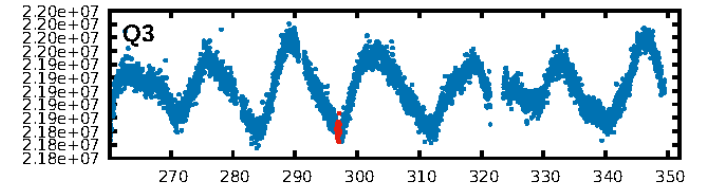
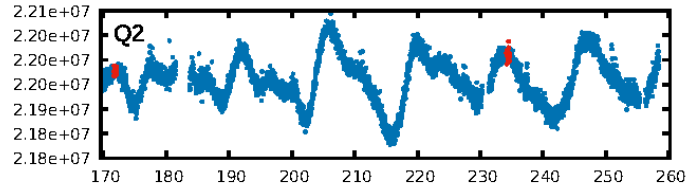
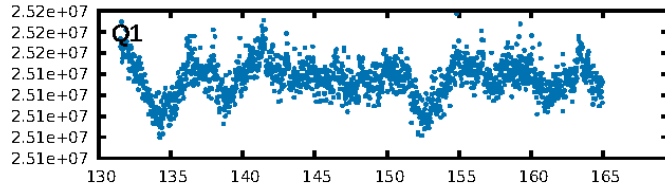
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [116.34 σ]
LongPeriod-sig: 100.0% [125.15 σ]
ModelChiSquare2-sig: 2.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.47e-10
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -1.899
Centroid-sig: 0.1%
Centroid-so: 4.237 arcsec [4.30 σ]
OotOffset-rm: 9.933 arcsec [5.05 σ]
KicOffset-rm: 10.899 arcsec [6.08 σ]
OotOffset-st: 3/2/0/1 [6]
KicOffset-st: 3/2/0/1 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.27 [4/15]

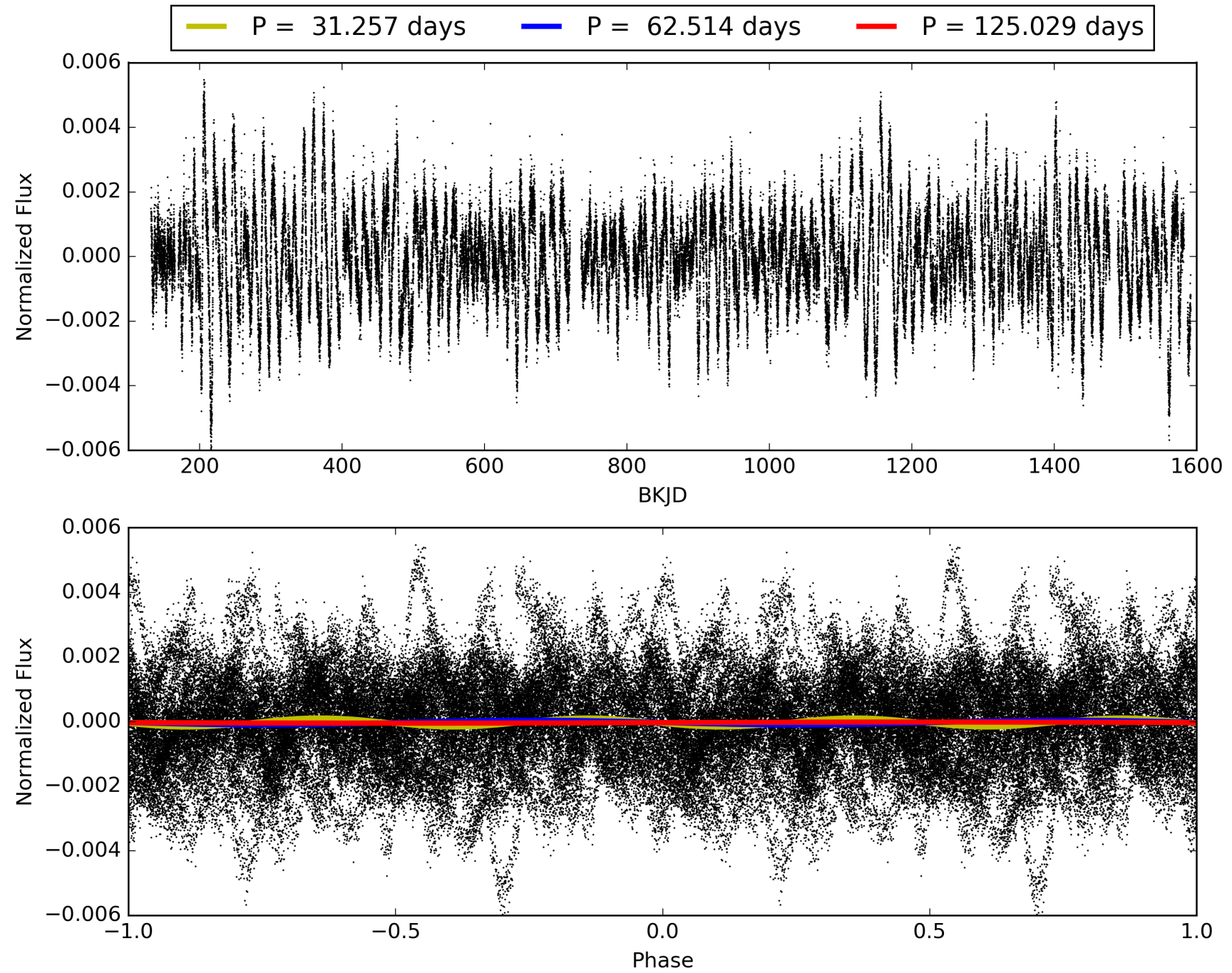
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 09:06:40 Z

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

TCE 006389396-04, PDC Light Curves

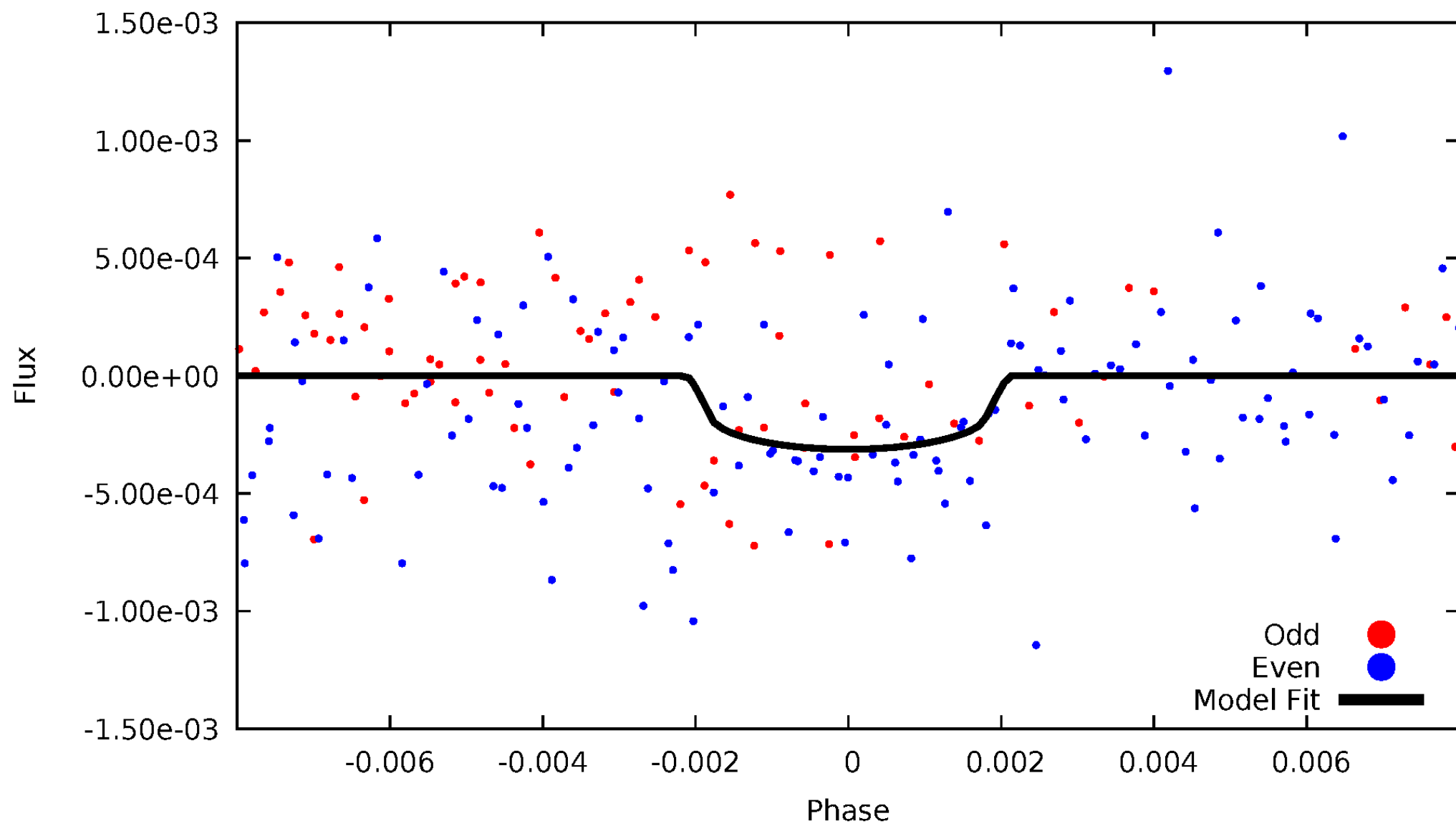


TCE 006389396-04



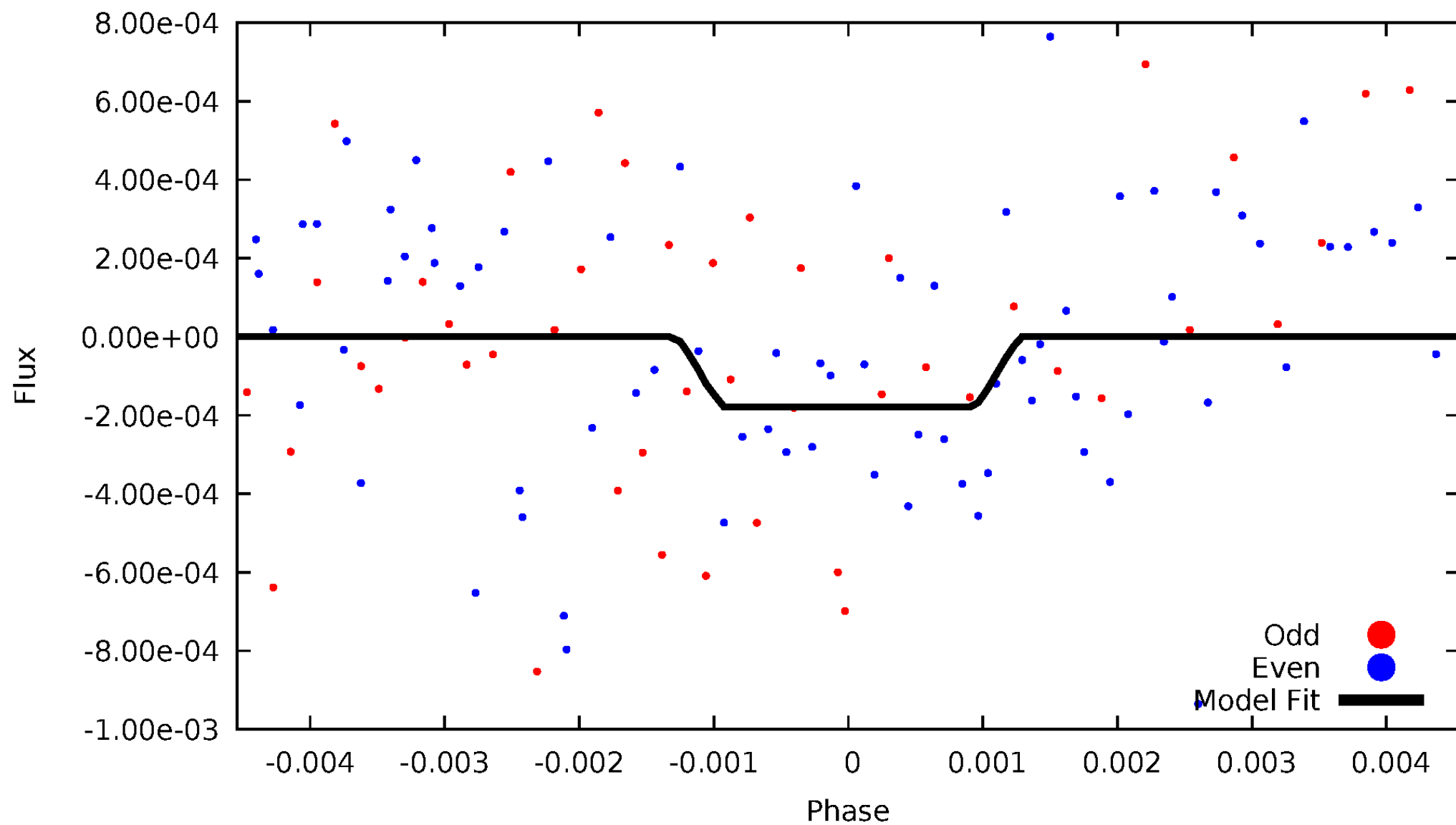
DV Odd/Even

TCE 006389396-04



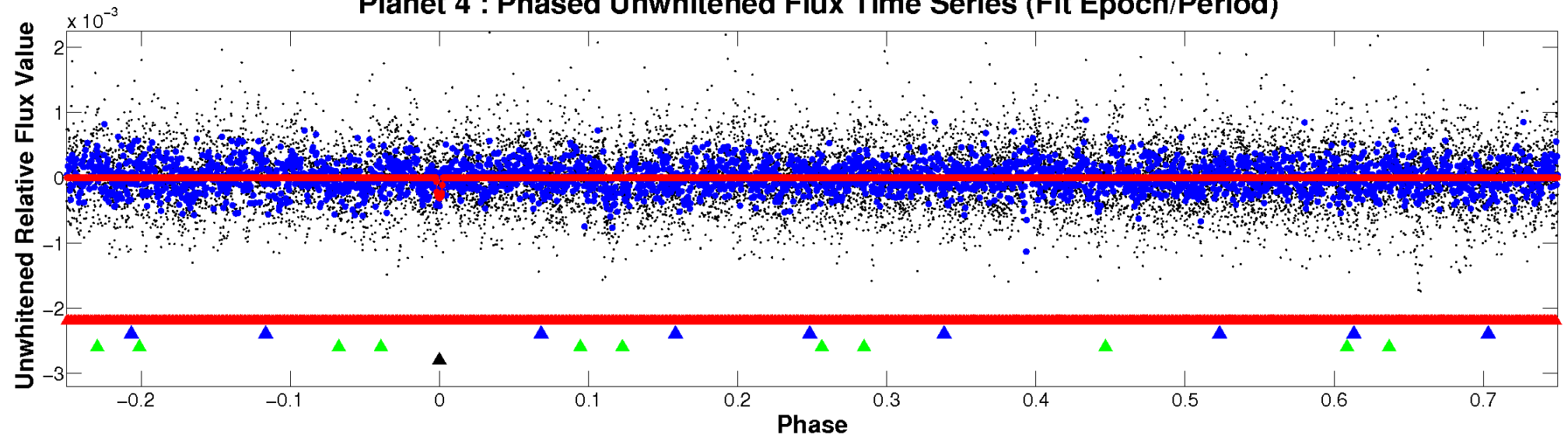
ALT Odd/Even

TCE 006389396-04

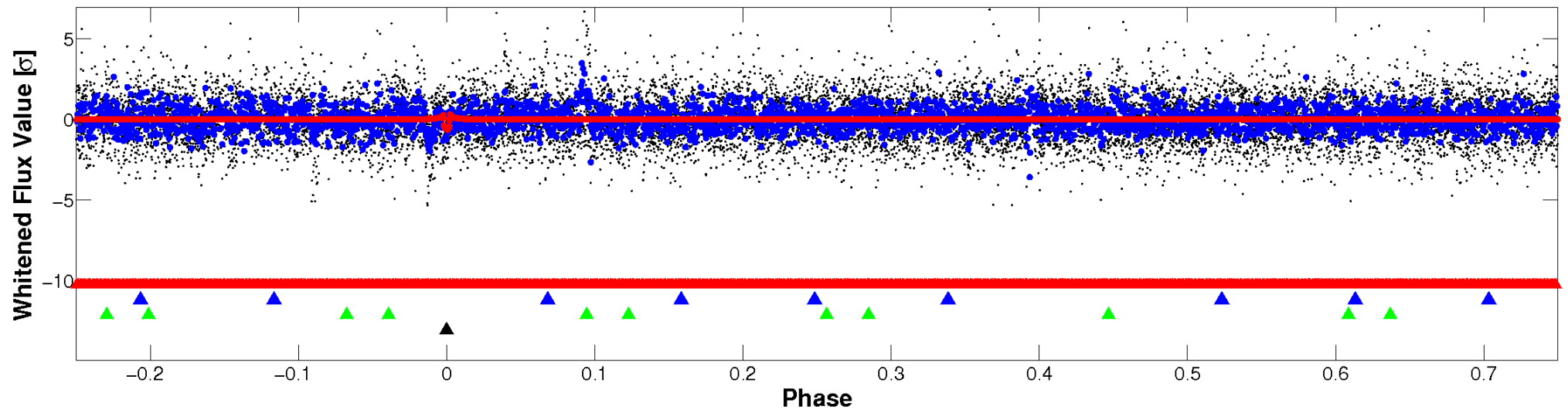


Non-Whitened Vs. Whitened Light Curve

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

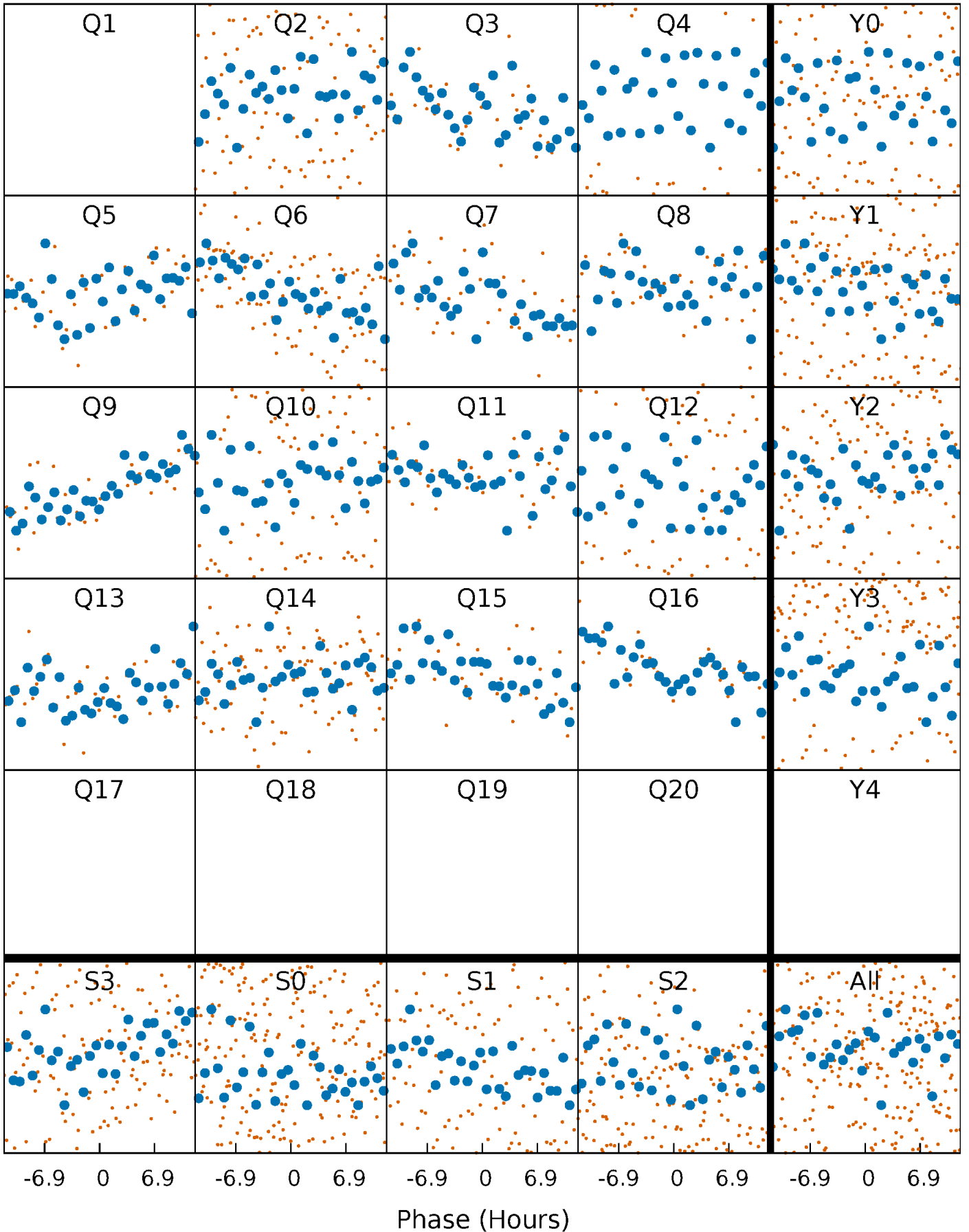


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



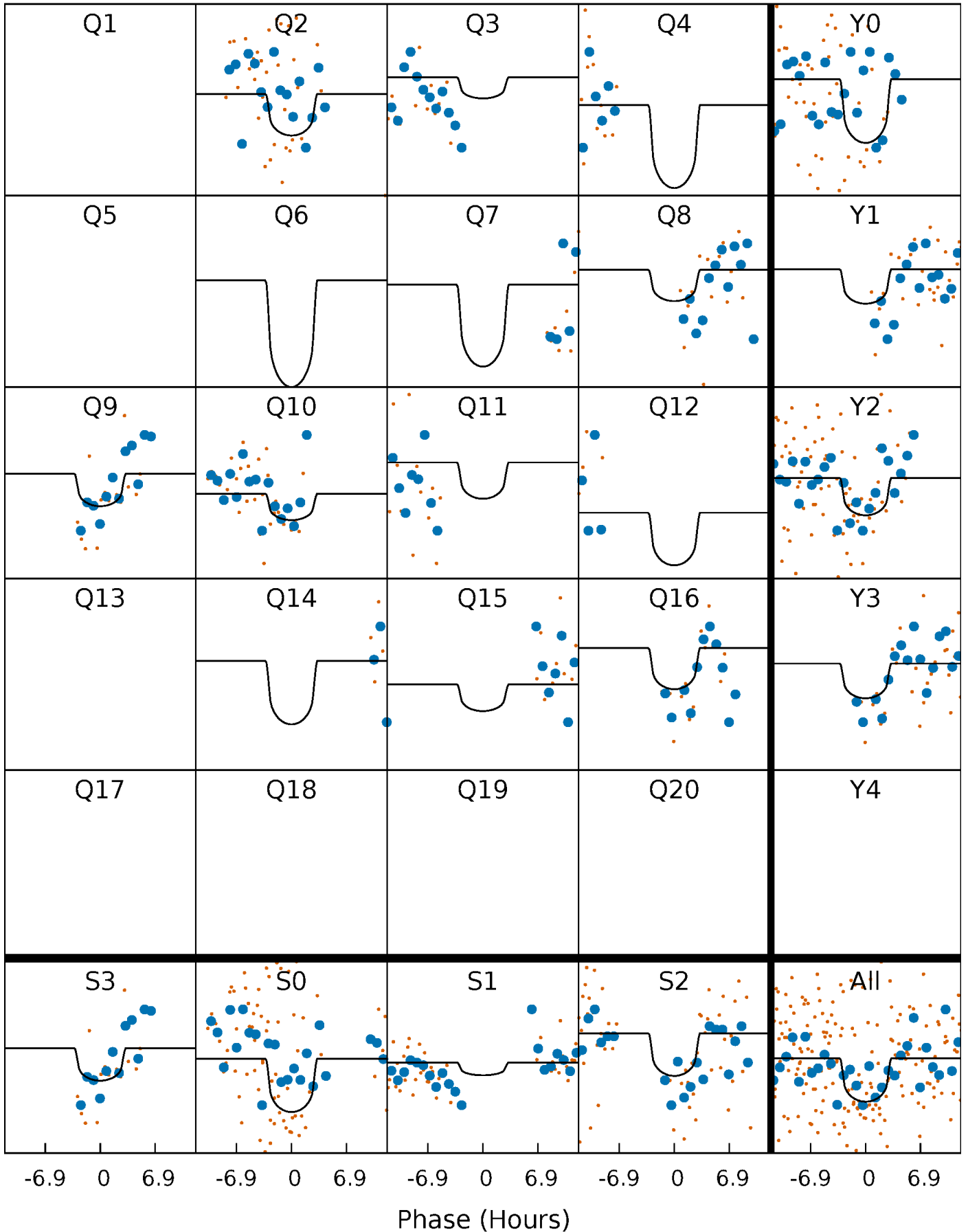
PDC Quarter-Phased Transit Curves

TCE 006389396-04 P= 62.514289 Days $T_0=171.918816$ (BKJD)



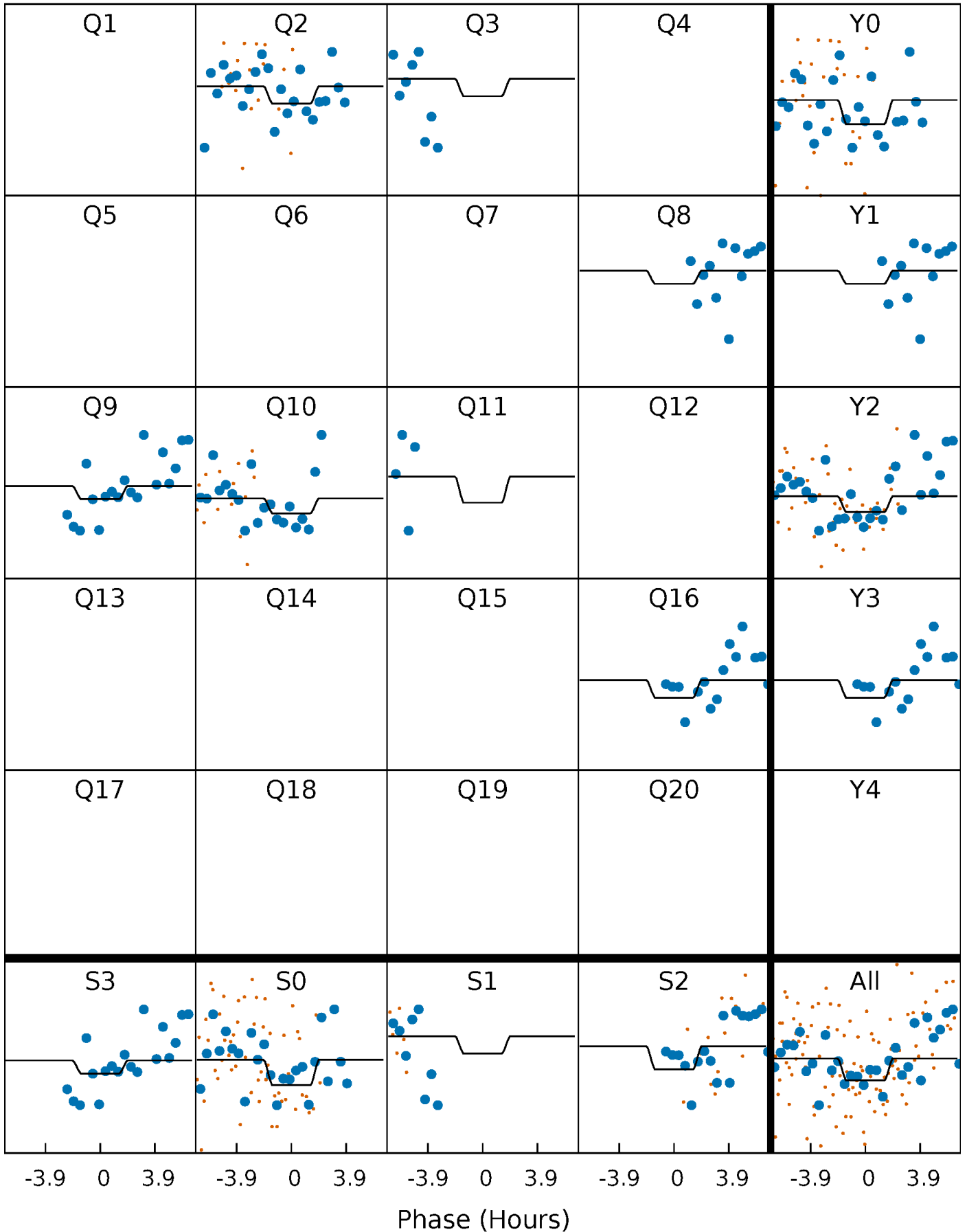
DV Quarter-Phased Transit Curves

TCE 006389396-04 P= 62.514289 Days $T_0=171.918816$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

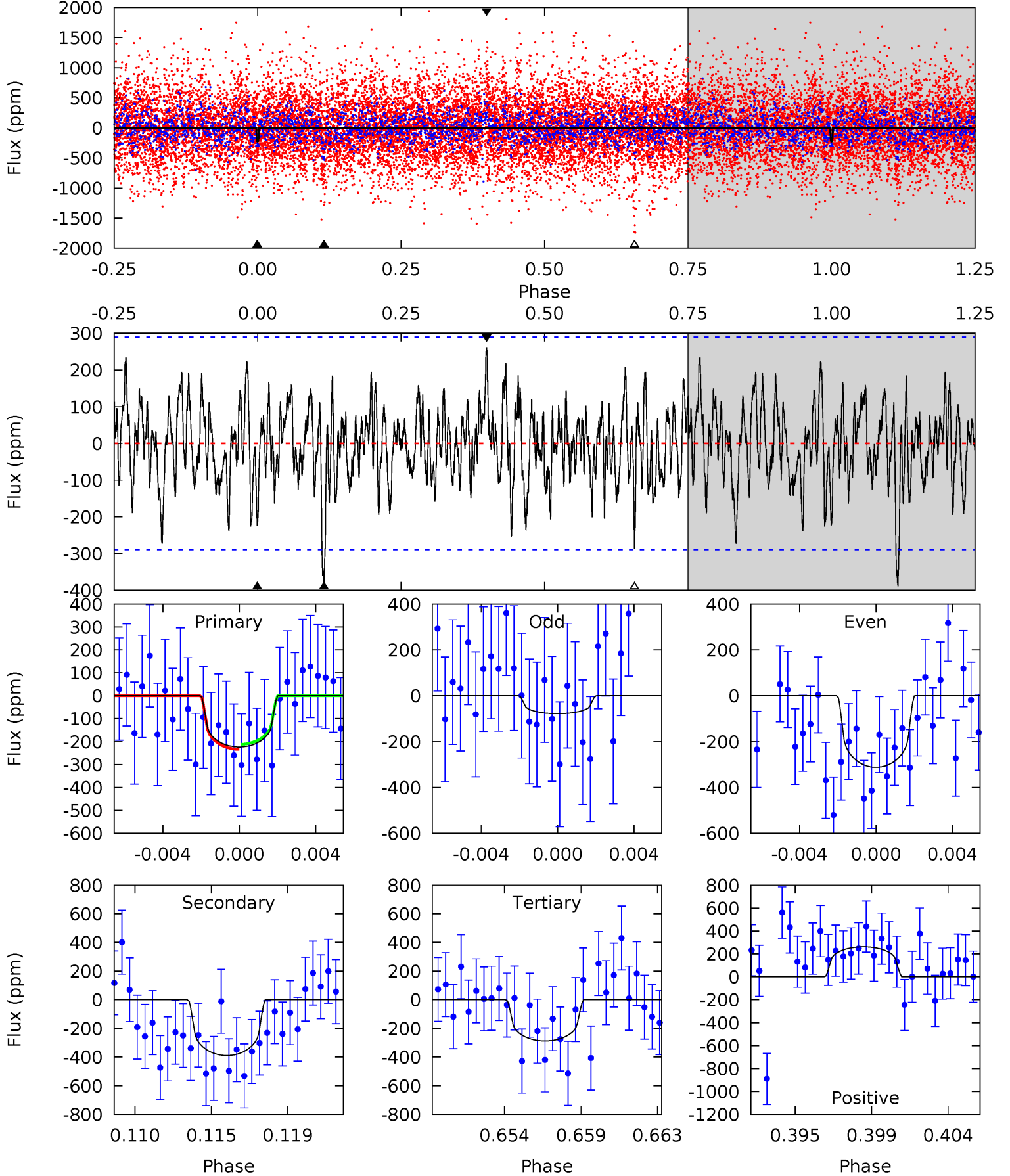
TCE 006389396-04 $P = 62.512504$ Days $T_0 = 171.927726$ (BKJD)



DV Model-Shift Uniqueness Test

006389396-04, P = 62.514289 Days, E = 109.404527 Days

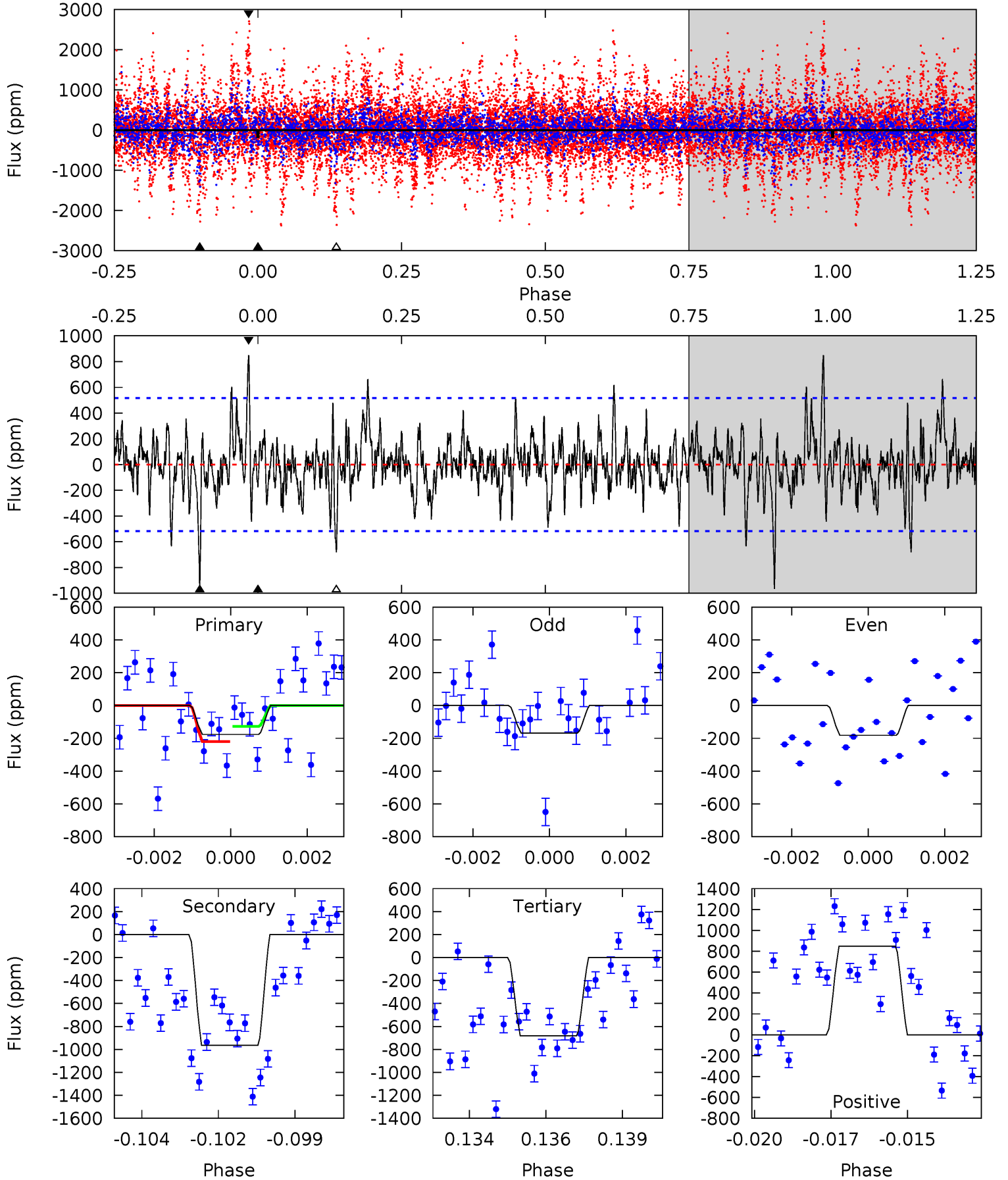
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.02	6.99	5.17	4.71	5.19	2.86	1.61	-1.15	-0.69	1.82	2.28	2.08	0.74	0.40	0.19



Alt Model-Shift Uniqueness Test

006389396-04, P = 62.512504 Days, E = 109.415222 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.80	9.86	6.96	8.68	5.29	3.03	1.81	-5.15	-6.88	2.90	1.18	0.07	1.06	0.47	0.48



Stellar Parameters For KIC 006389396

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4266^{+127}_{-140}	$4.665^{+0.063}_{-0.027}$	$-0.460^{+0.300}_{-0.300}$	$0.578^{+0.049}_{-0.060}$	$0.563^{+0.061}_{-0.046}$	$4.106^{+1.095}_{-0.529}$
	+3%/-3%	+1%/-1%	+65%/-65%	+8%/-10%	+11%/-8%	+27%/-13%
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 006389396-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-389 ± 56	$1.59^{+1.60}_{-1.11}$	392^{+14}_{-14}	3910^{+2414}_{-801}	5545^{+51247}_{-4186}
Alt.	-965 ± 98	$1.64^{+1.48}_{-1.09}$	393^{+14}_{-15}	4542^{+3286}_{-958}	12501^{+98533}_{-9062}

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 $A_{obs} \gg 1.0$

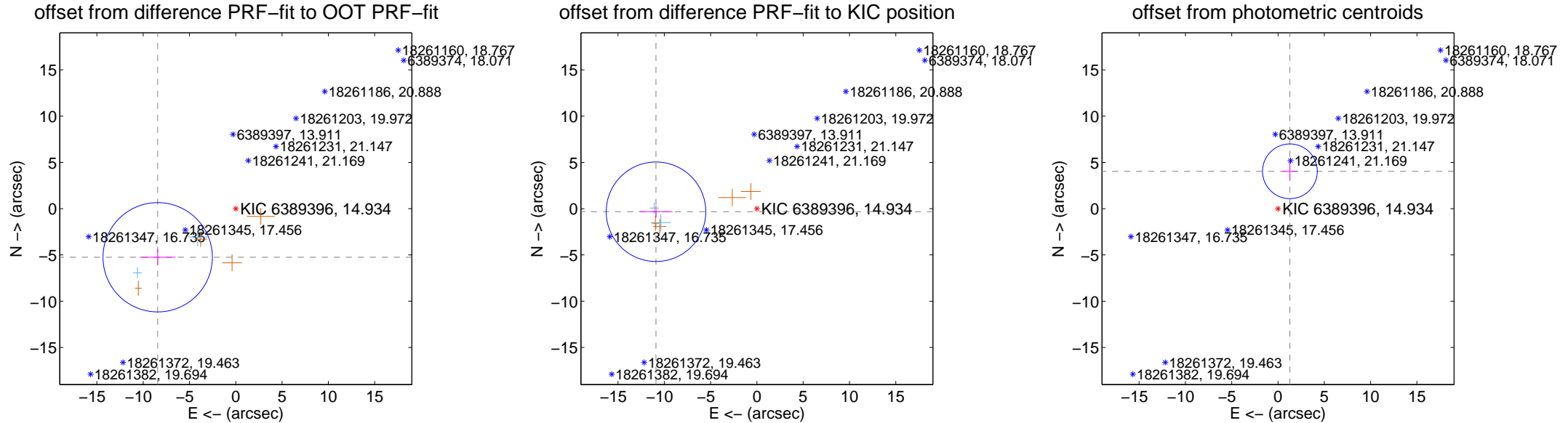
DV Centroid Data

Supplemental centroid analysis for 006389396-04. Kepler magnitude: 14.93. Transit SNR 4.29

There are 2 quarters with good PRF difference image offsets

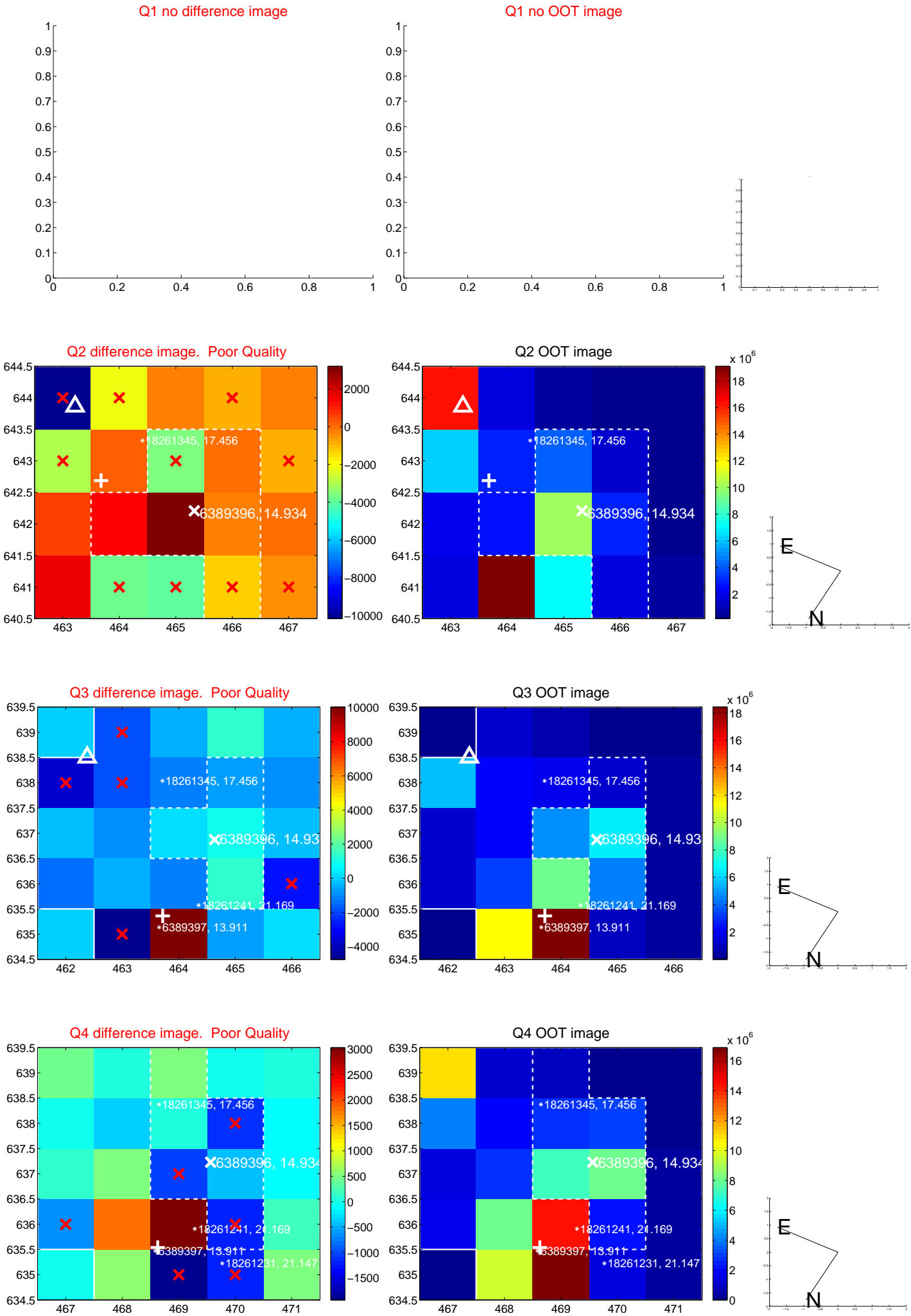
The OOT PRF centroid is offset from the target star catalog position by about 7.01 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.933 ± 1.968	5.05	8.432 ± 1.921	-5.251 ± 0.887
PRF-fit source offset from KIC position	10.899 ± 1.792	6.08	10.894 ± 1.775	-0.332 ± 0.649
photometric centroid source offset	4.24 ± 0.99	4.30	-1.29 ± 0.84	4.04 ± 1.00

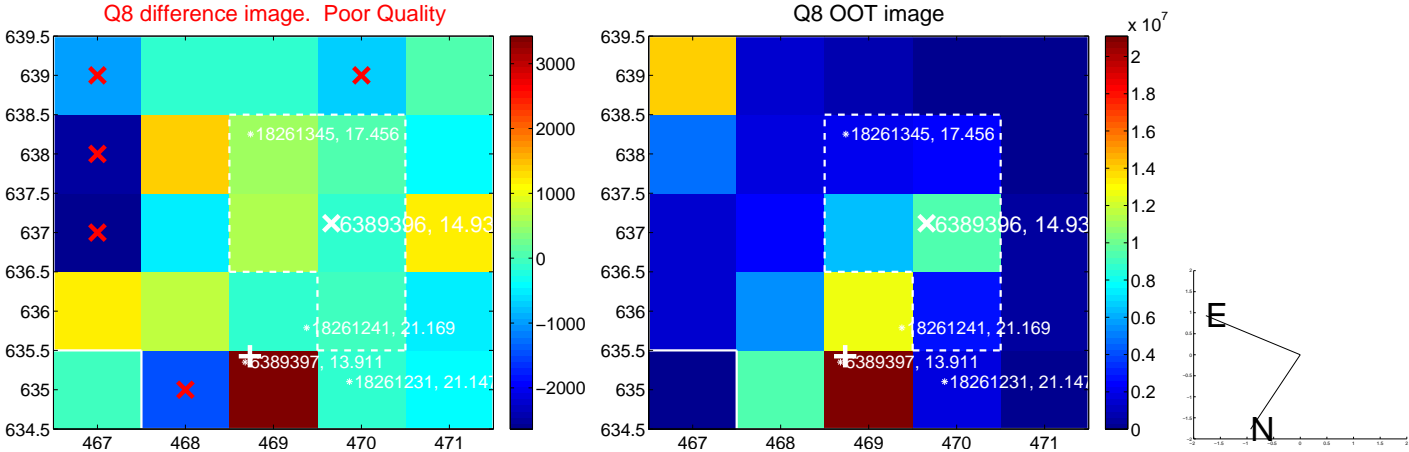
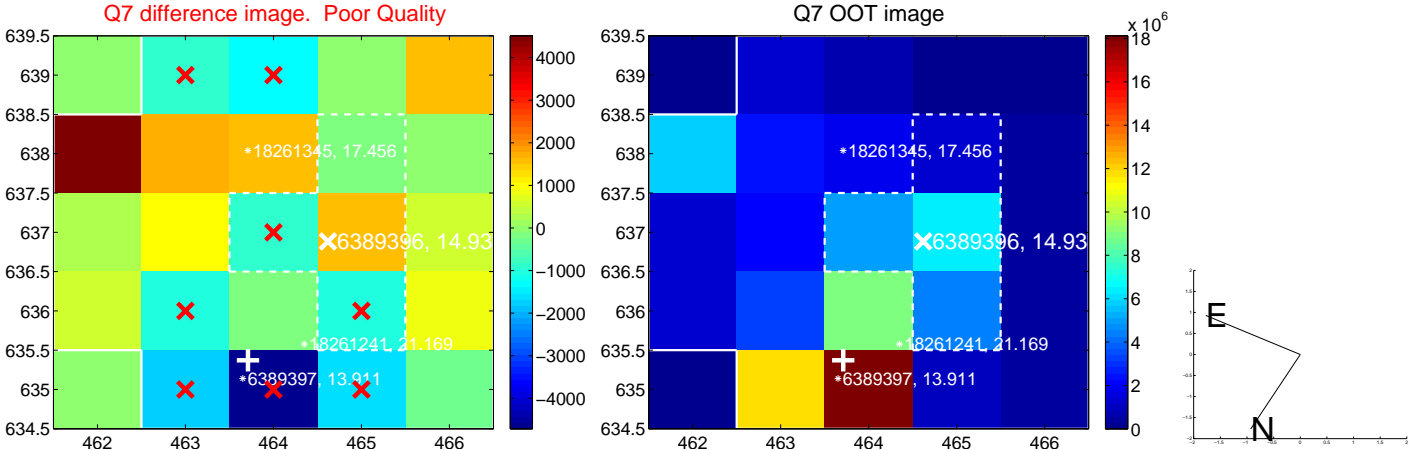
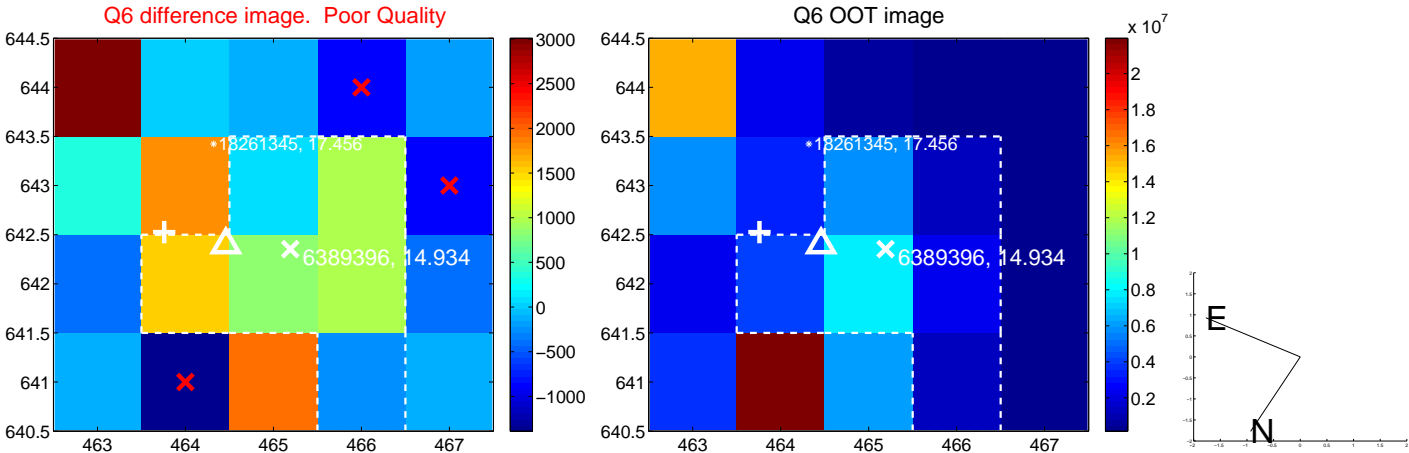
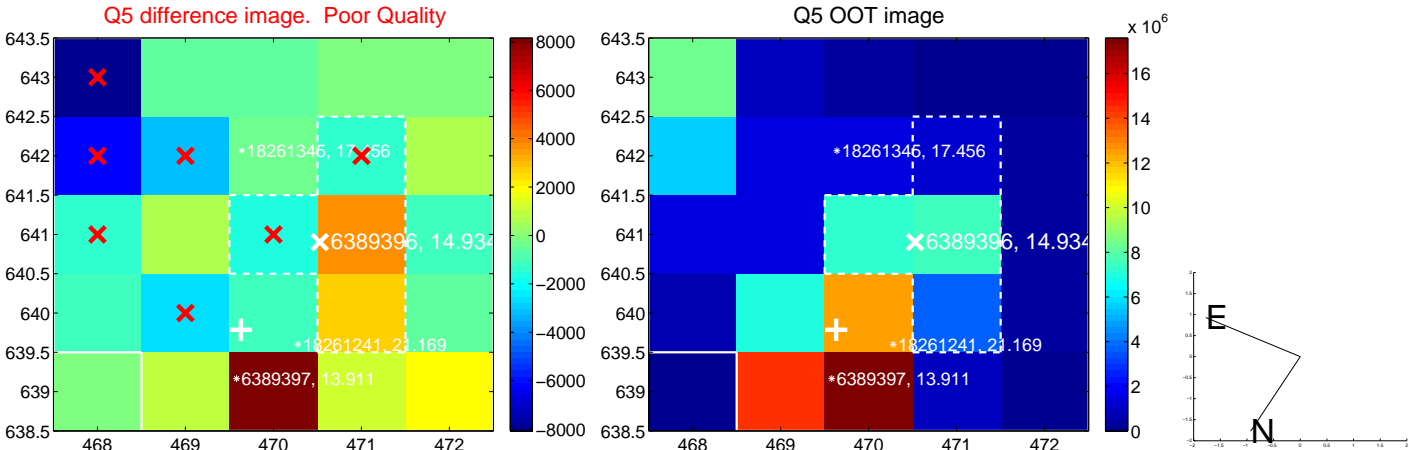


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

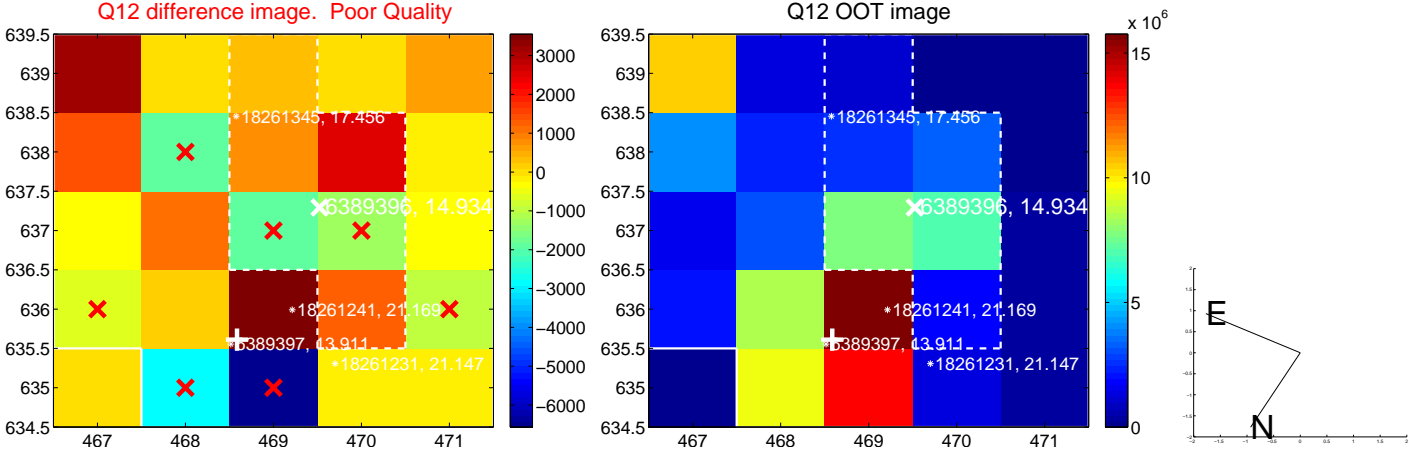
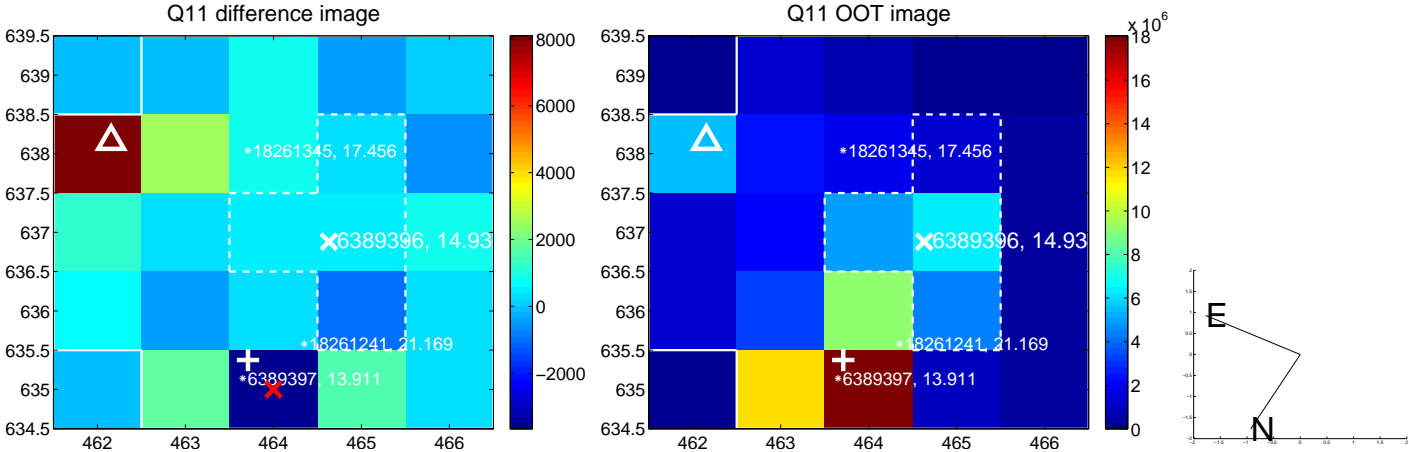
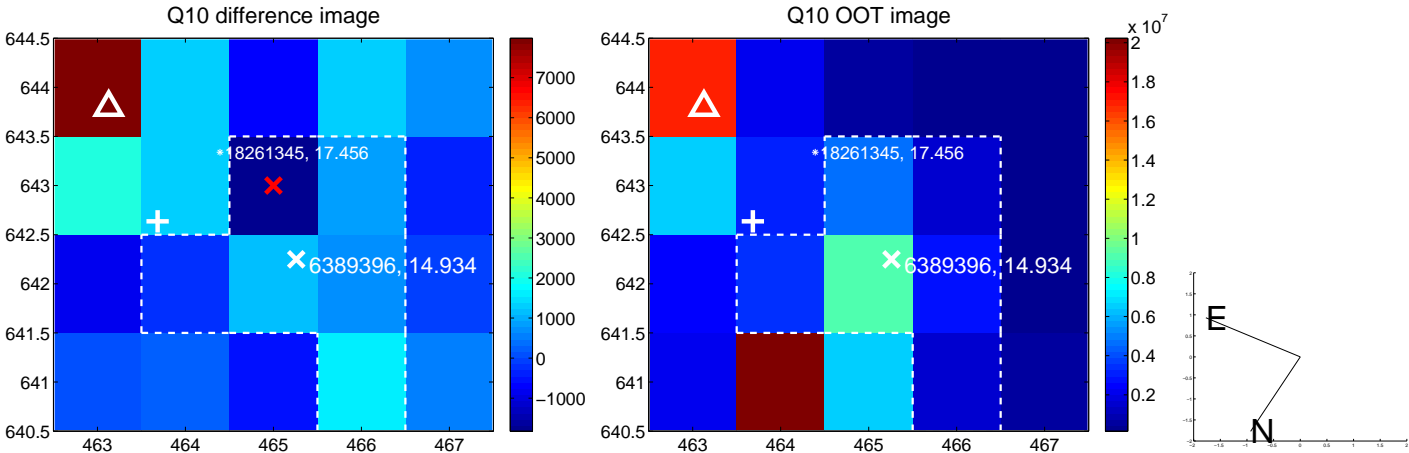
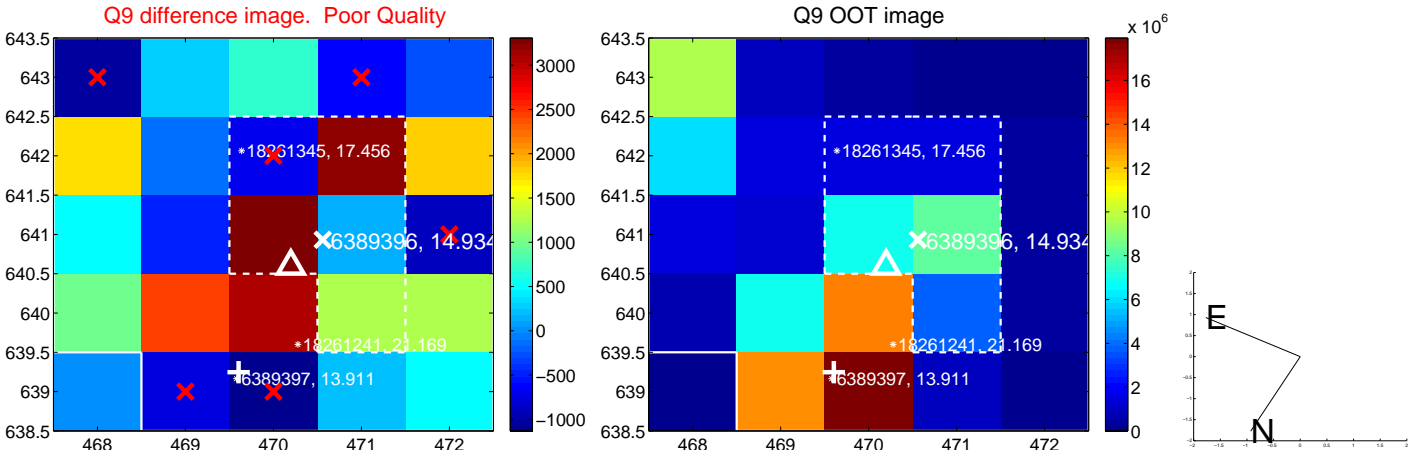
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



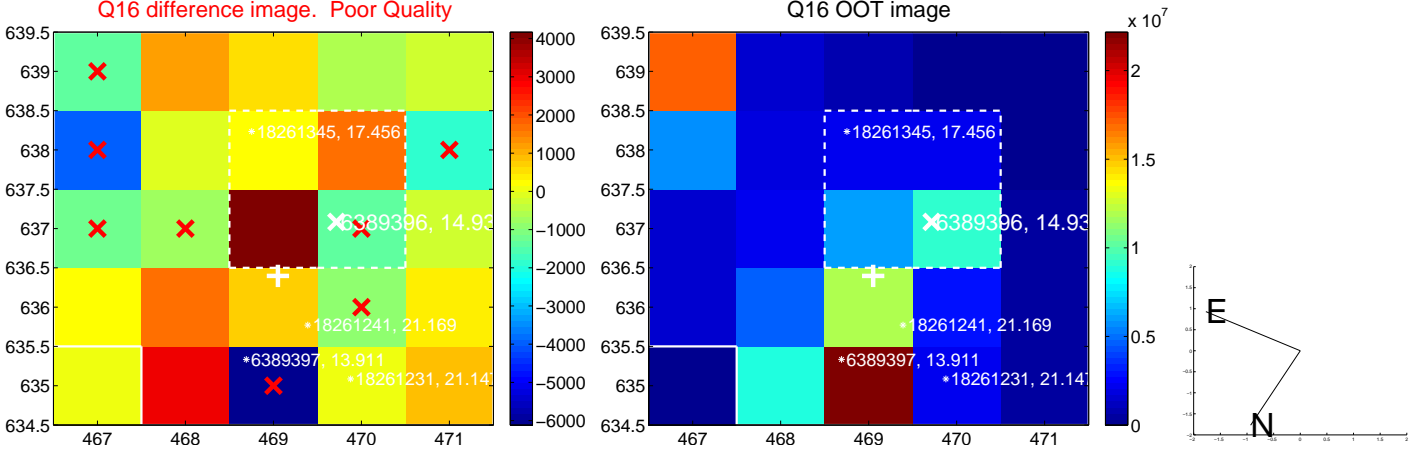
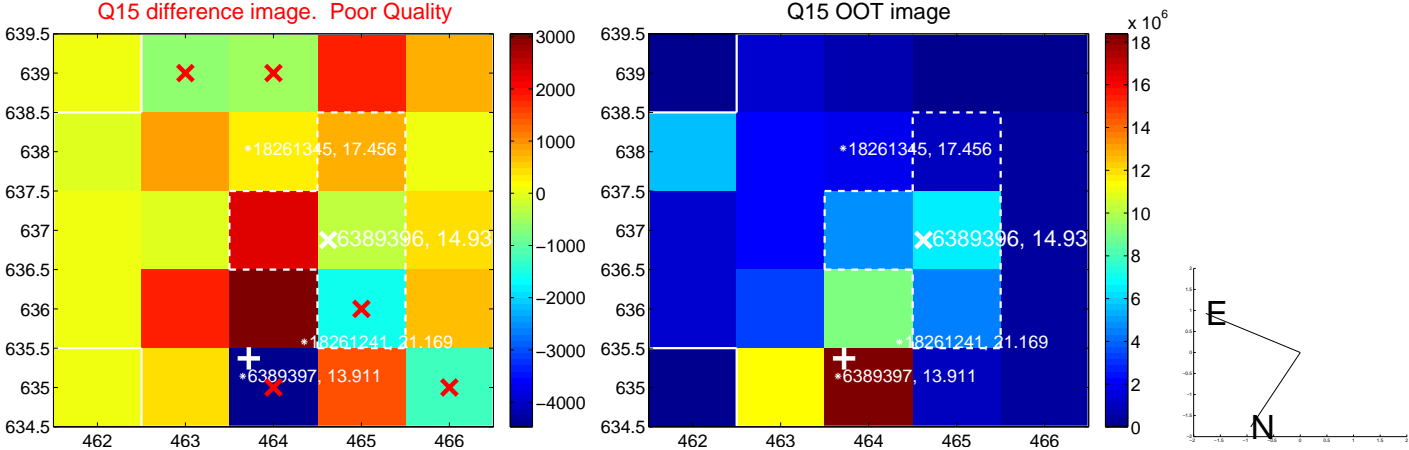
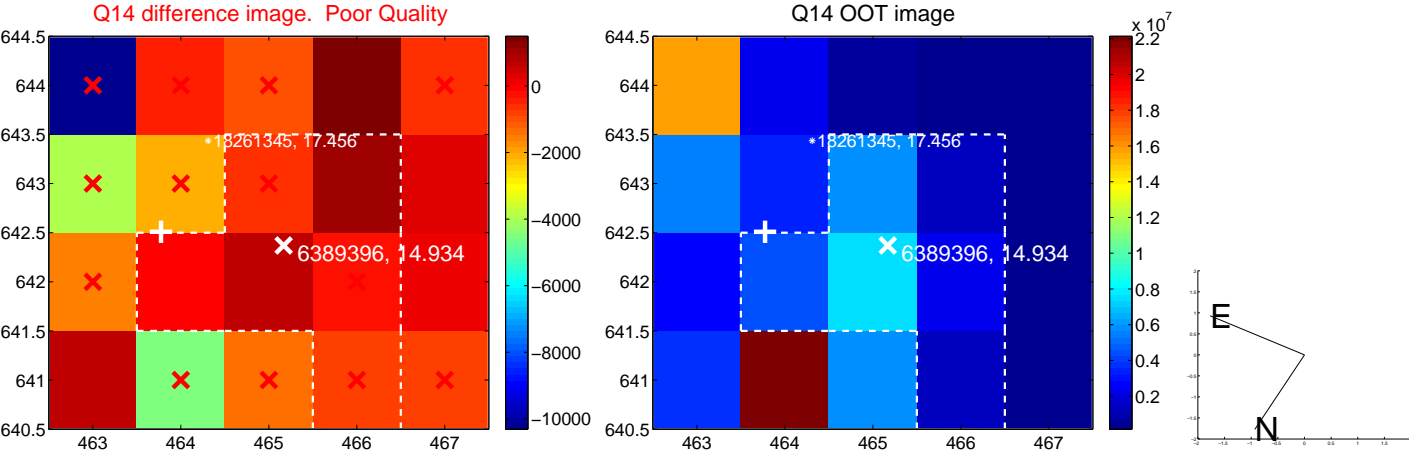
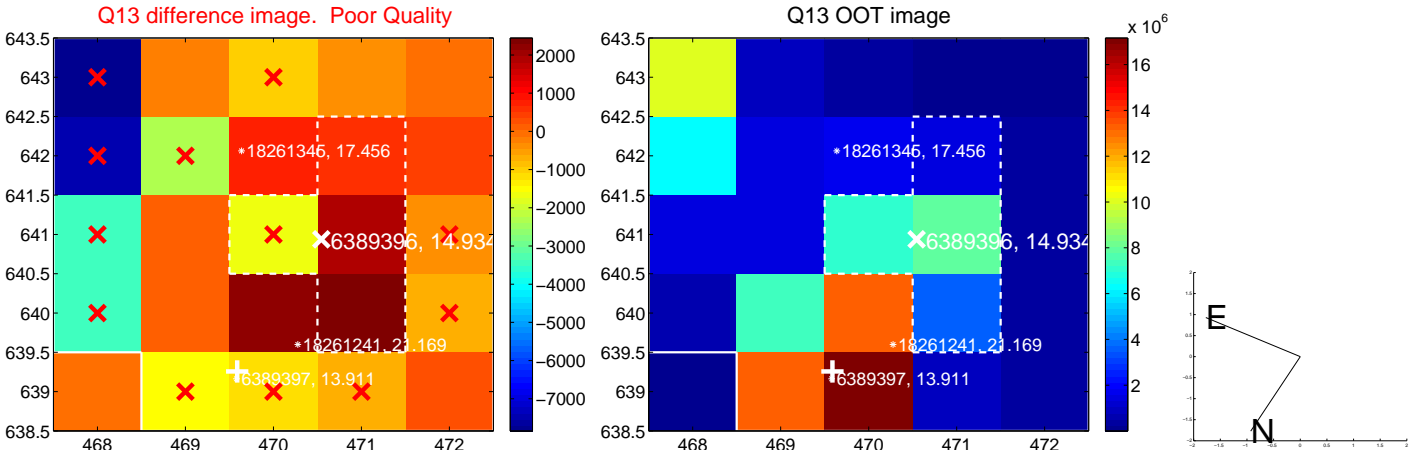
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



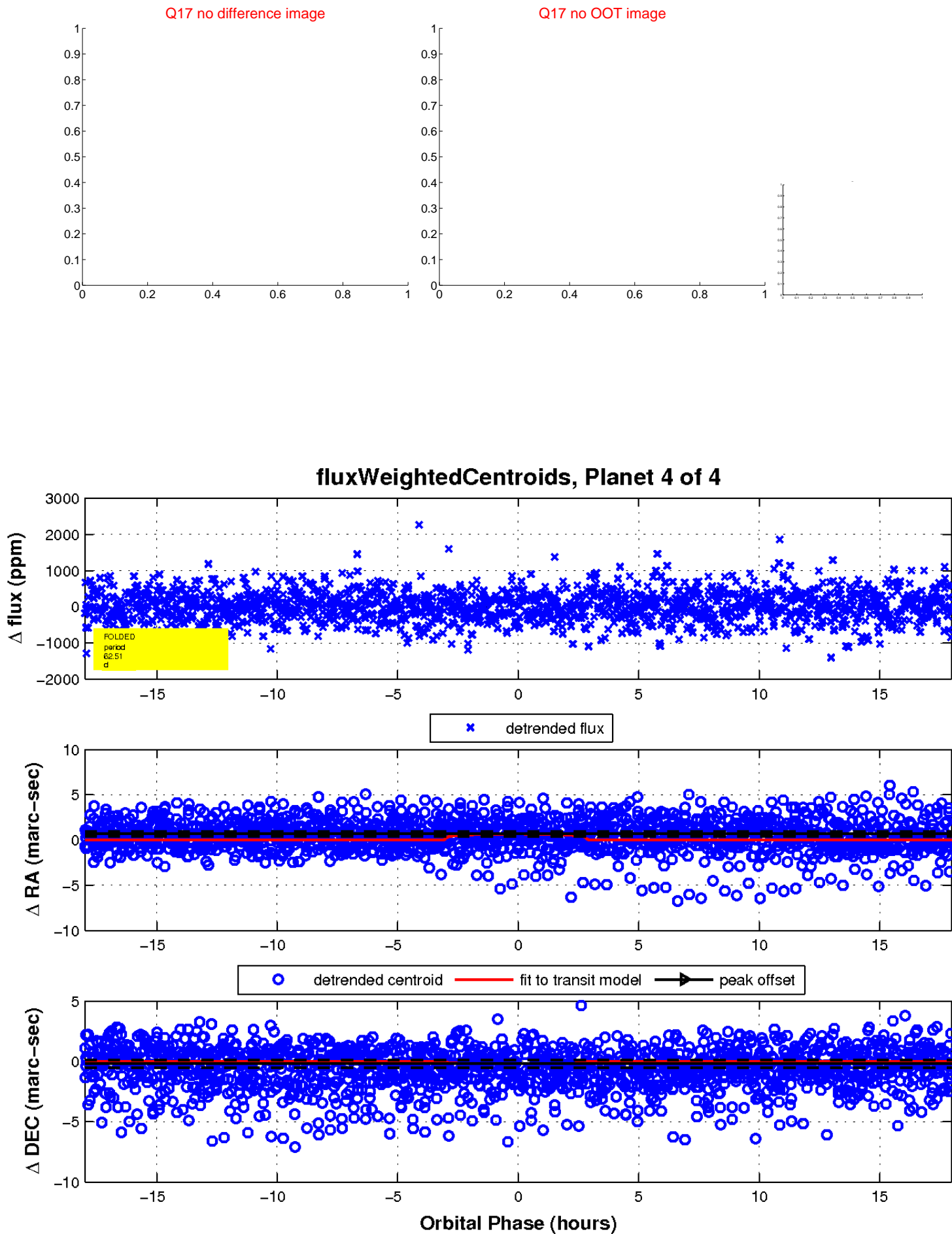
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

