

KIC 007869590

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})
007869590-01	OBS	No	18.849935	144.605702	1193.5	13.163	23.6	27.5	8.10	4649	32.48	1357.92
007869590-02	OBS	No	18.850016	145.459802	1113.4	2.077	55.7	43.5	8.10	4649	25.95	1357.91
007869590-03	OBS	No	464.087424	185.960392	1939.8	13.365	16.4	10.0	8.10	4649	43.39	18.96
007869590-04	OBS	No	444.298942	410.004716	1333.6	5.782	18.2	8.9	8.10	4649	37.00	20.09
007869590-05	OBS	No	336.894953	238.216147	1753.4	9.694	15.5	8.4	8.10	4649	43.85	29.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007869590-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
007869590-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
007869590-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007869590-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007869590-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

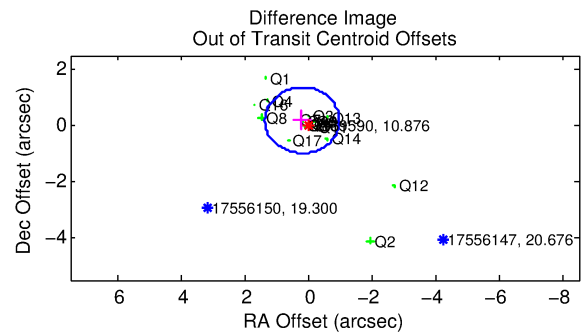
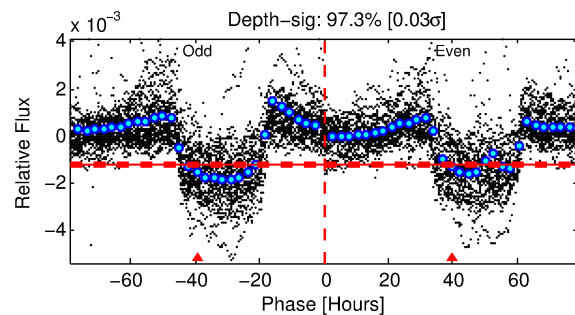
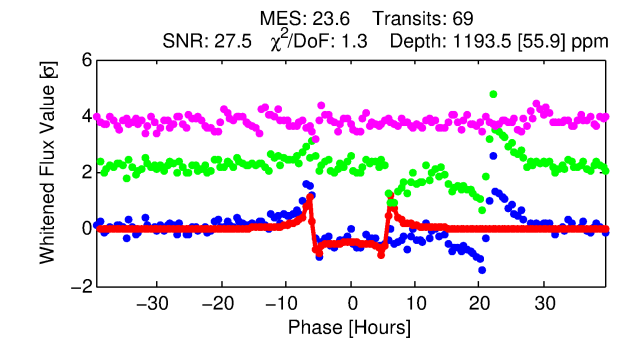
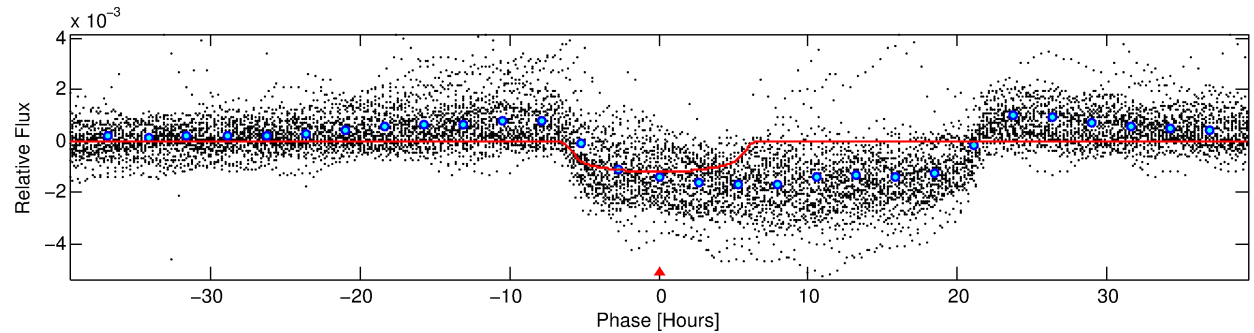
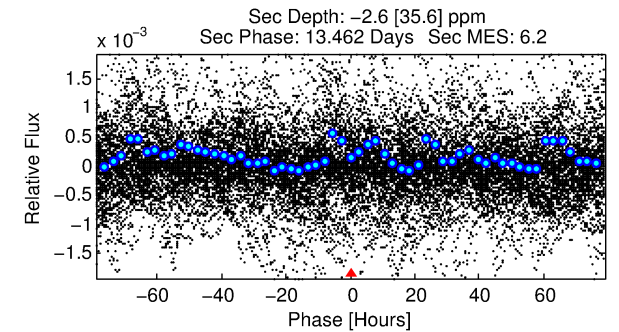
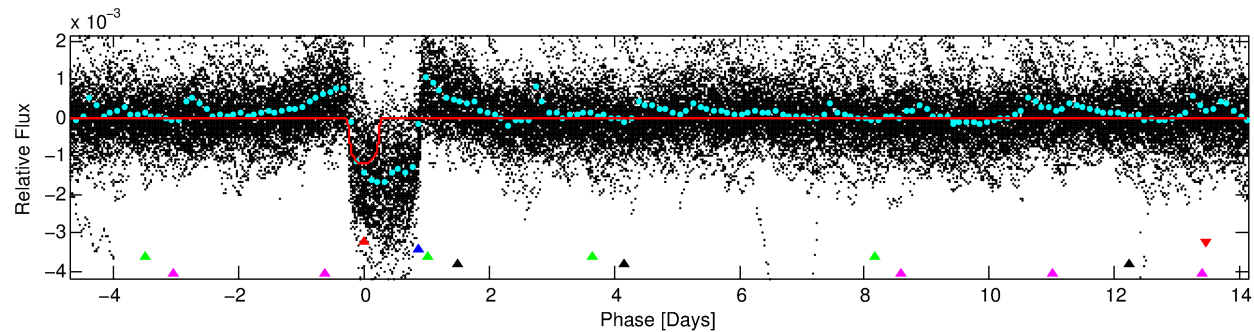
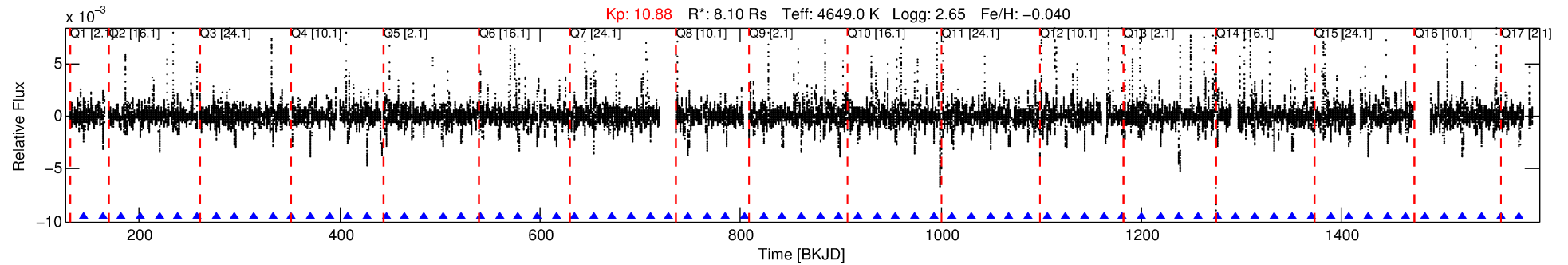
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007869590-01

No Significant Match Found

DV One-Page Summary

KIC: 7869590 Candidate: 1 of 5 Period: 18.850 d



DV Fit Results:

Period = 18.84993 [0.00006] d
Epoch = 144.6057 [0.0027] BKJD
Rp/R* = 0.0368 [0.0009]
a/R* = 6.66 [0.16]
b = 0.84 [0.01]
Seff = 1357.92 [900.58]
Teq = 1548 [257] K
Rp = 32.48 [14.74] Re
a = 0.1422 [0.0595] AU
Ag = N/A
Teffp = N/A

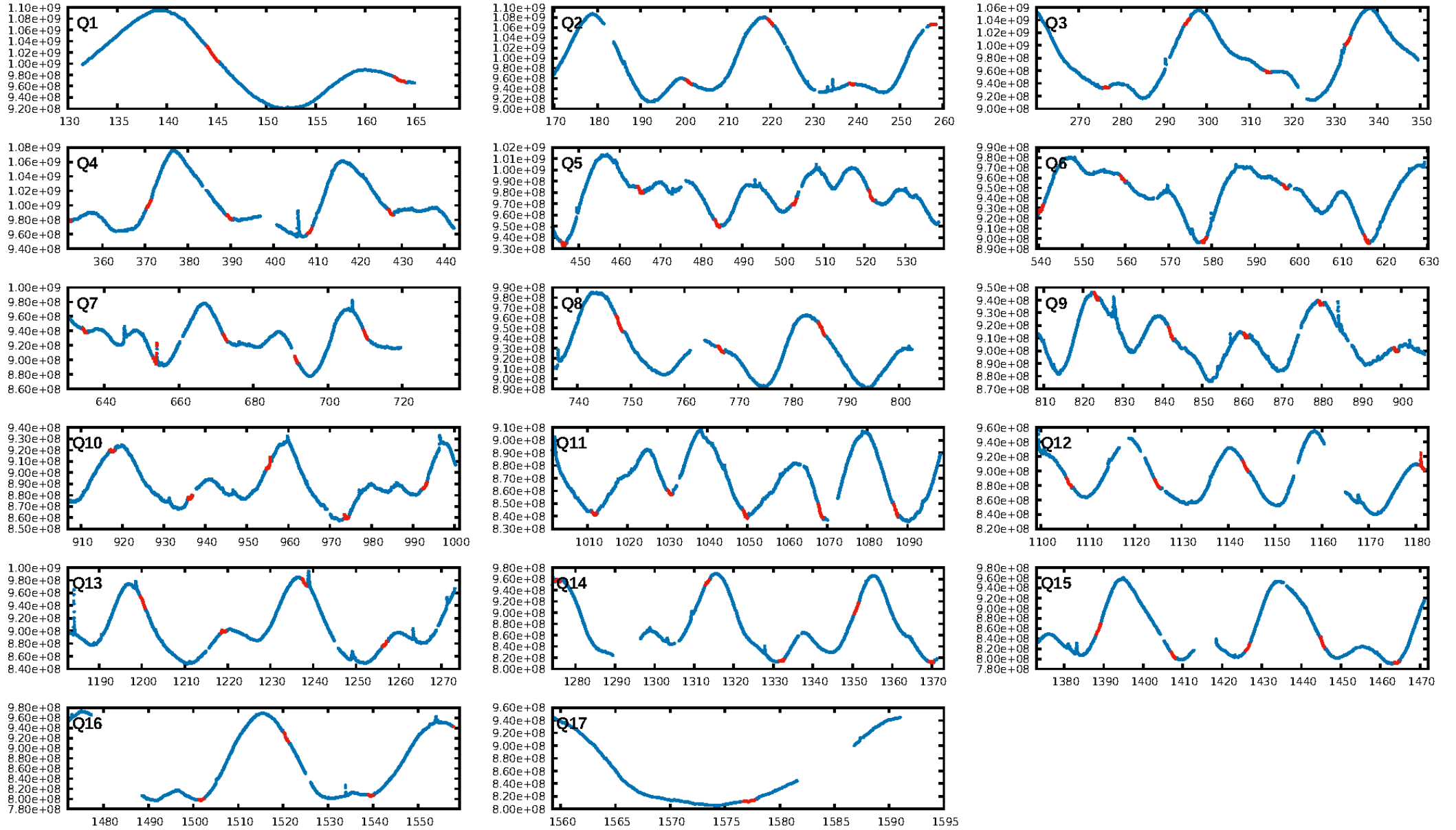
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 4.1%
ModelChiSquareGof-sig: 46.0%
Bootstrap-pfa: 8.06e-57
RollingBand-fgt: 1.00 [66/66]
GhostDiagnostic-chr: 0.4175
Centroid-sig: N/A
Centroid-so: 0.431 arcsec [8.35σ]
OotOffset-rm: 0.281 arcsec [0.72σ]
KicOffset-rm: 0.475 arcsec [1.13σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 0.00 [0/17]

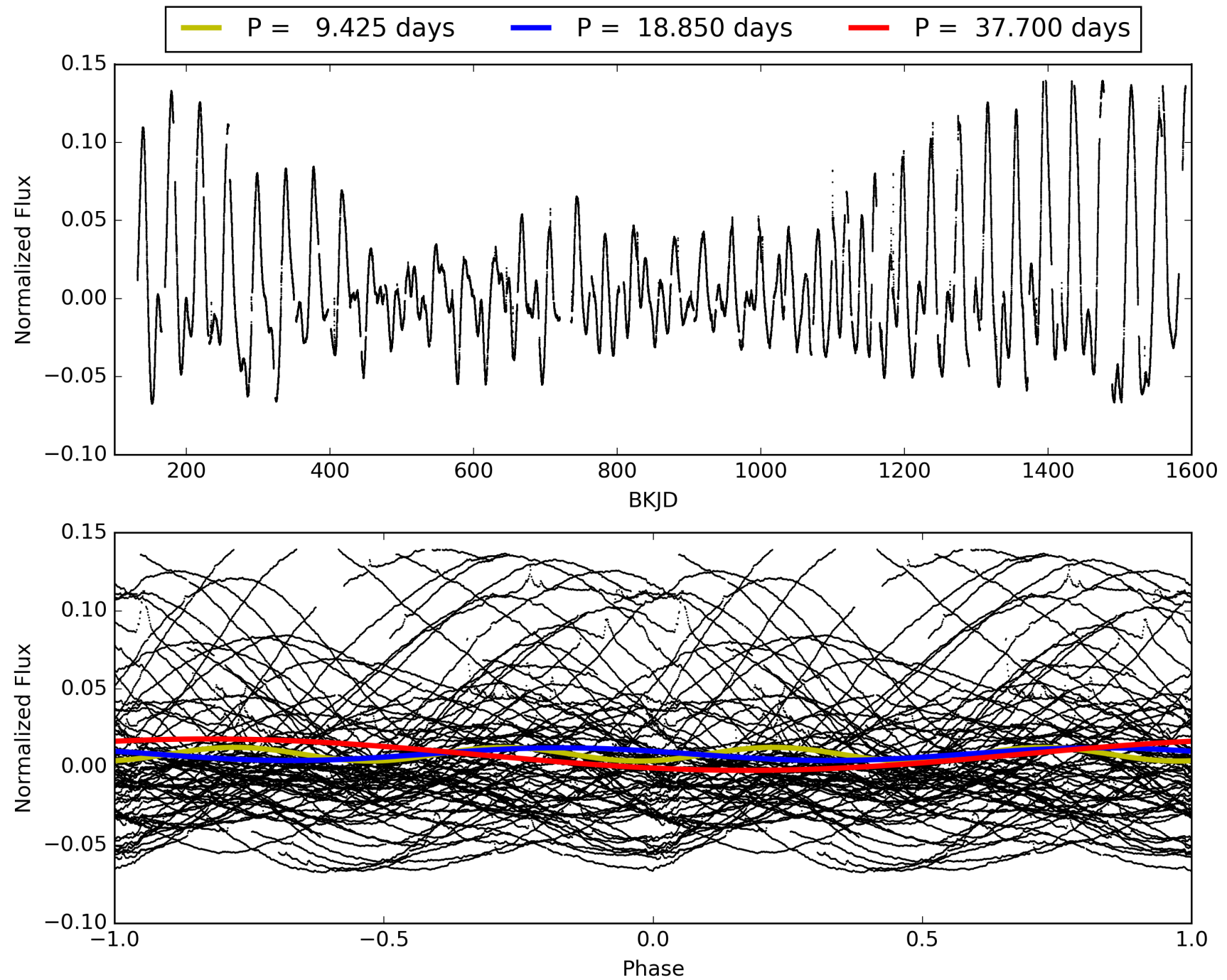
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:45:21 Z

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

TCE 007869590-01, PDC Light Curves

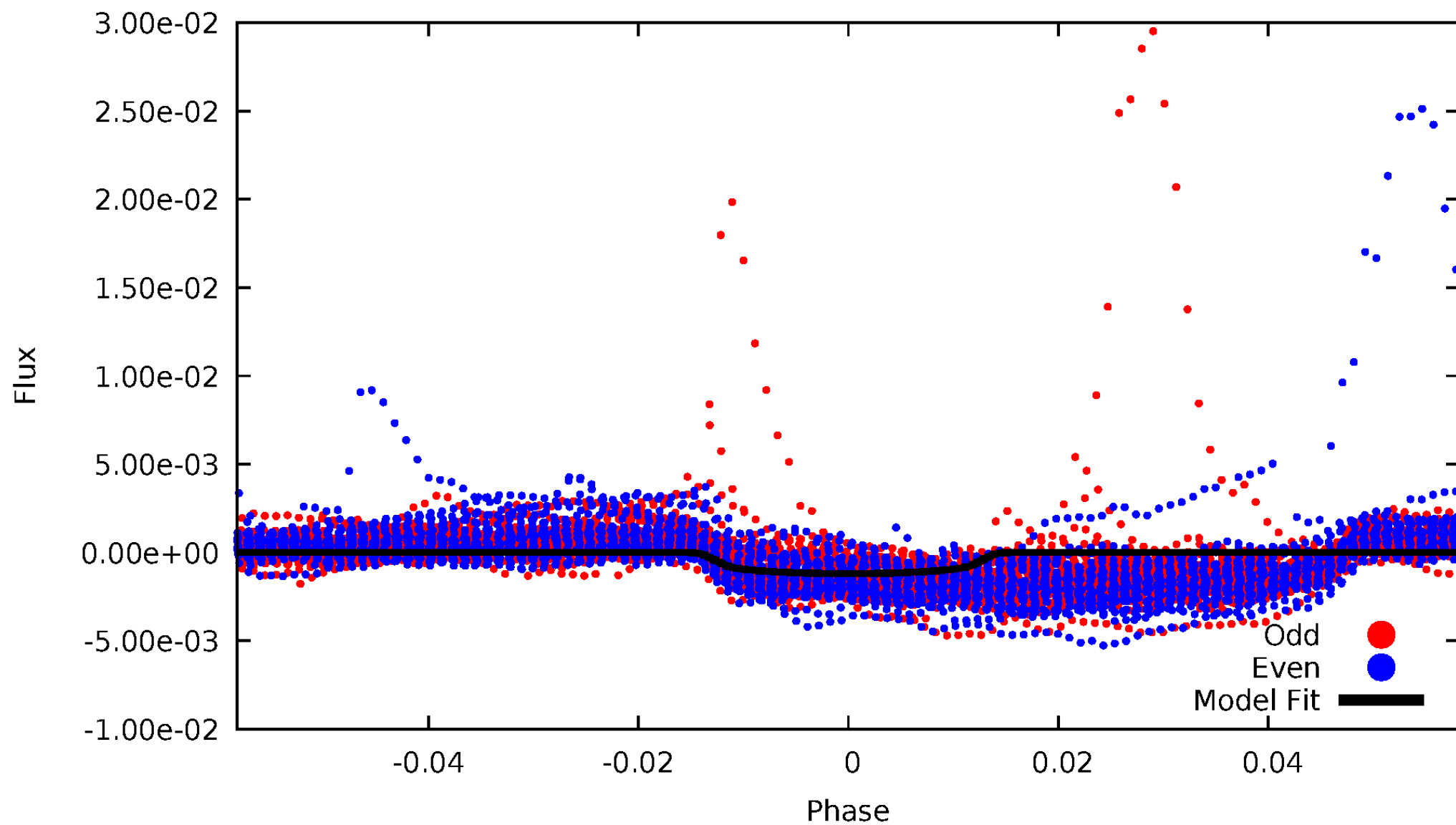


TCE 007869590-01



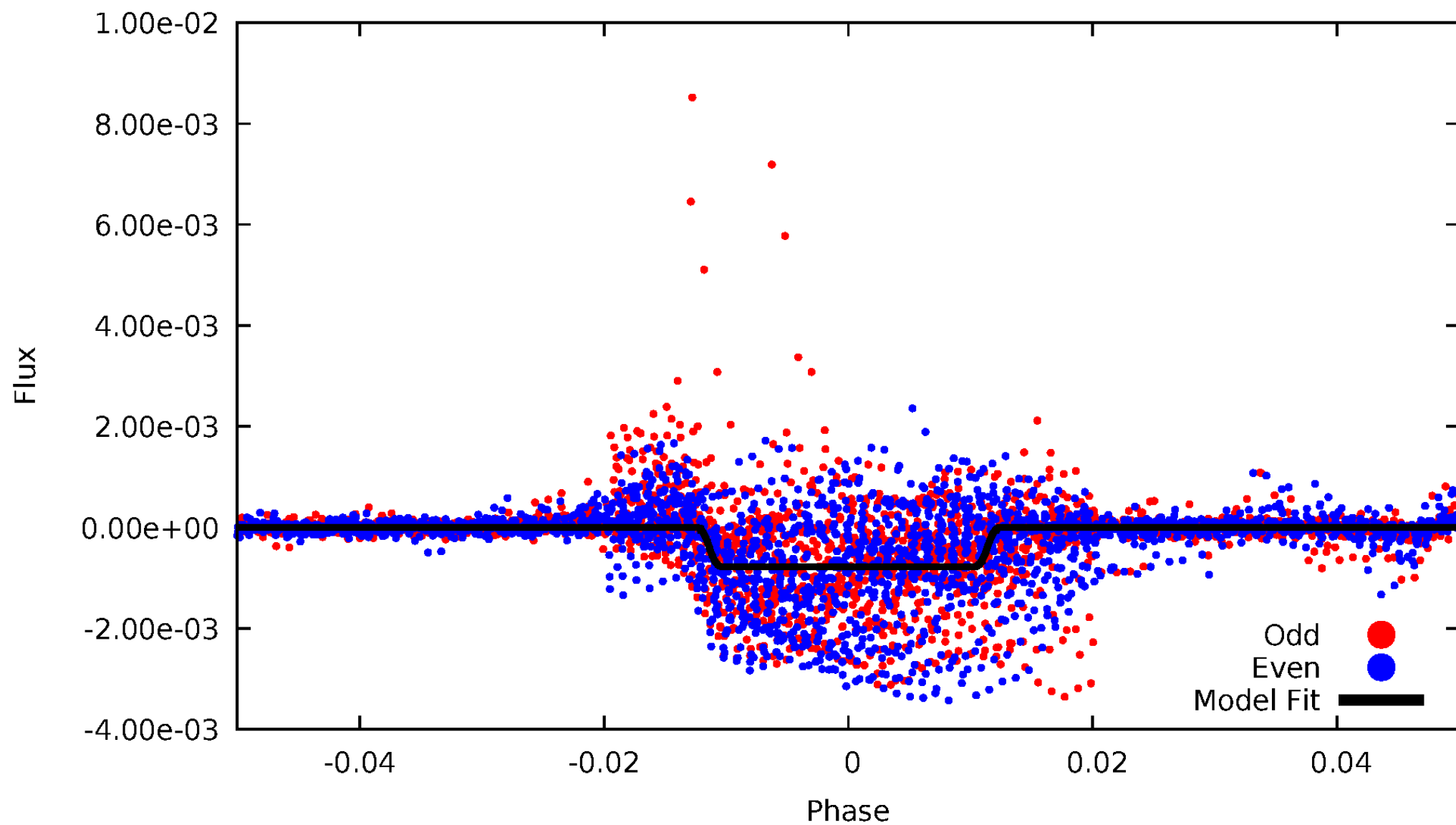
DV Odd/Even

TCE 007869590-01



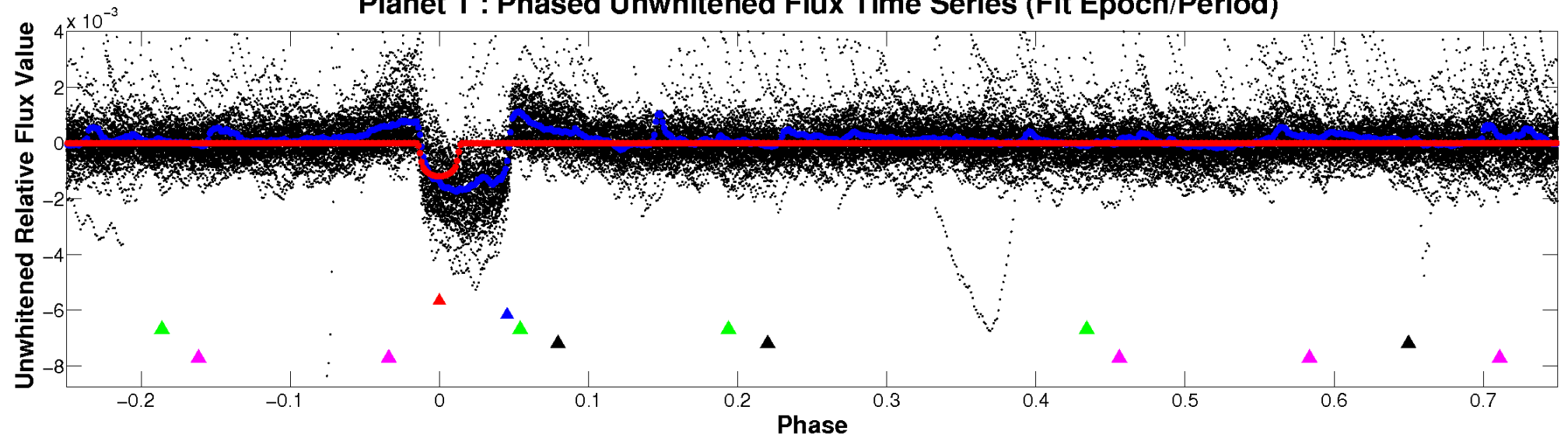
ALT Odd/Even

TCE 007869590-01

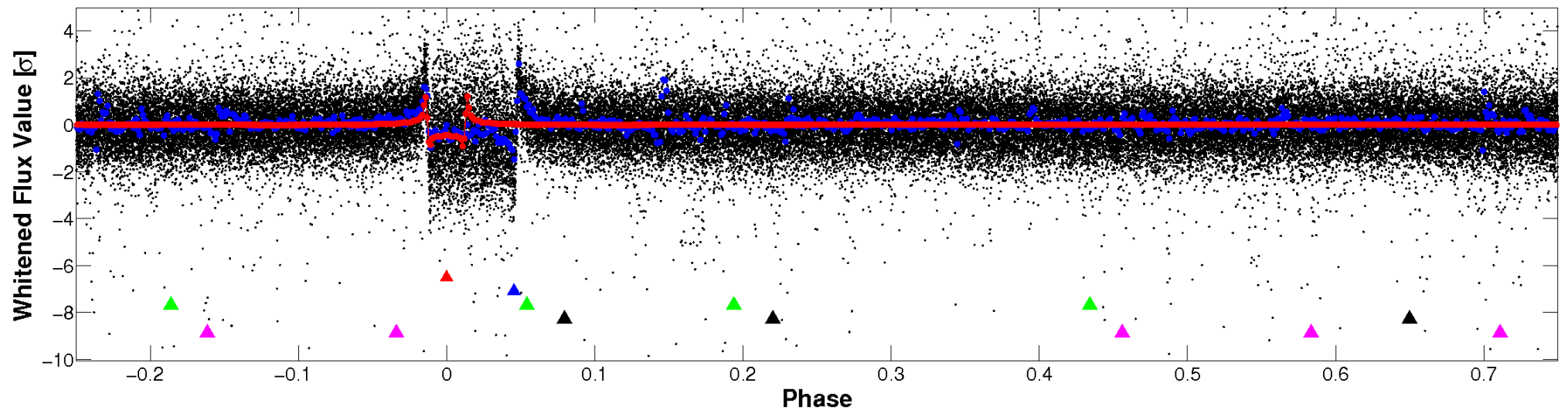


Non-Whitened Vs. Whitened Light Curve

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

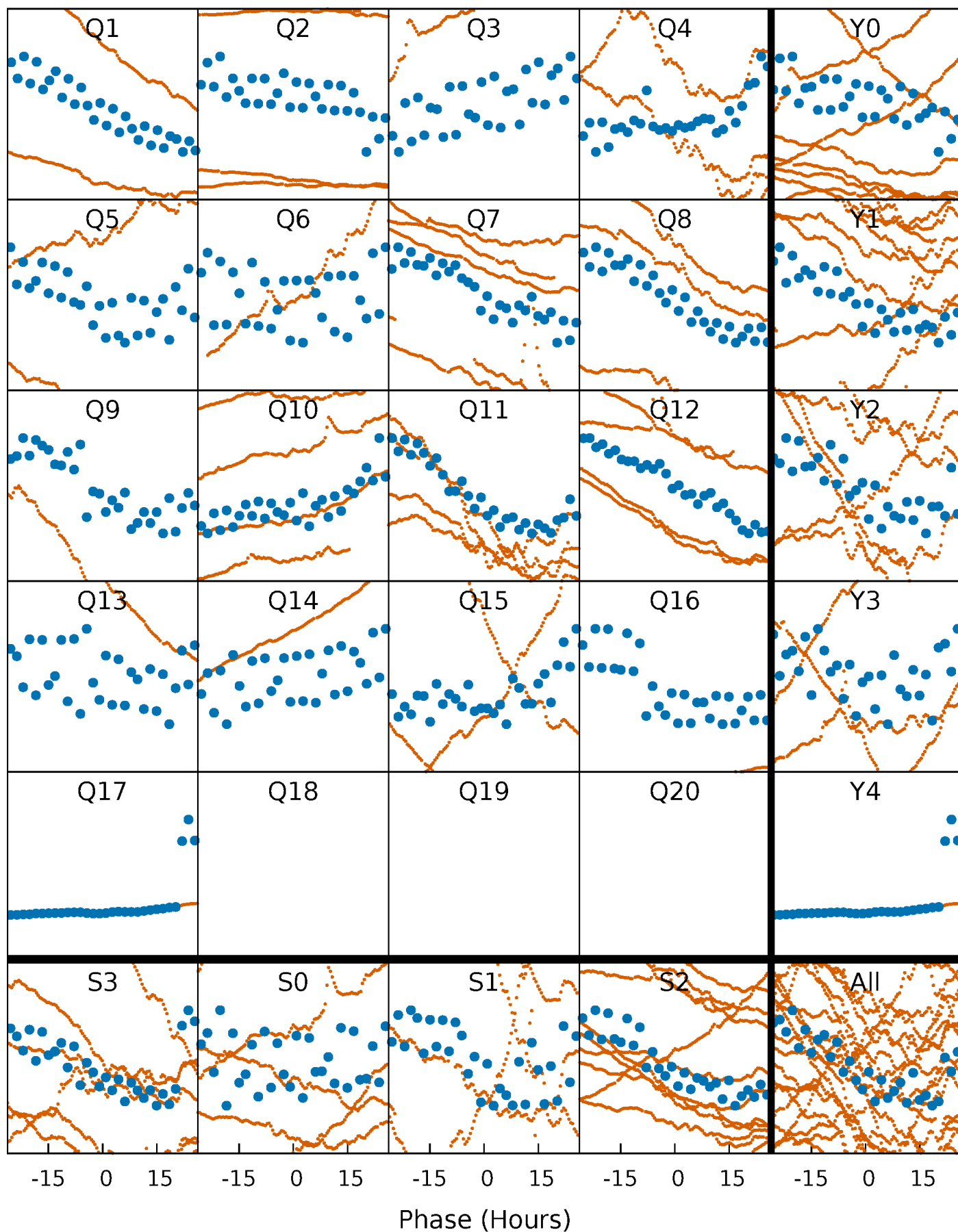


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



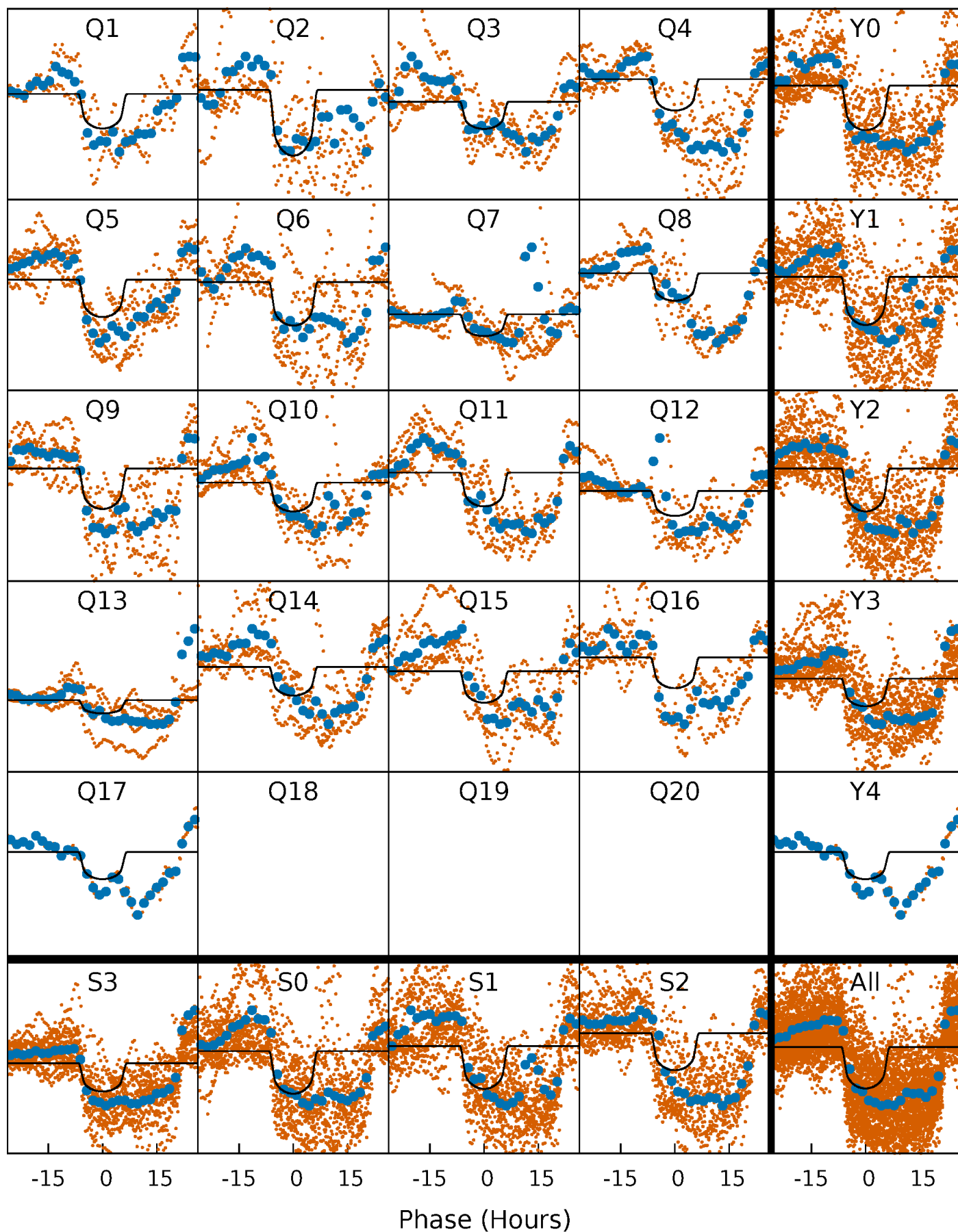
PDC Quarter-Phased Transit Curves

TCE 007869590-01 P= 18.849935 Days $T_0=144.605702$ (BKJD)



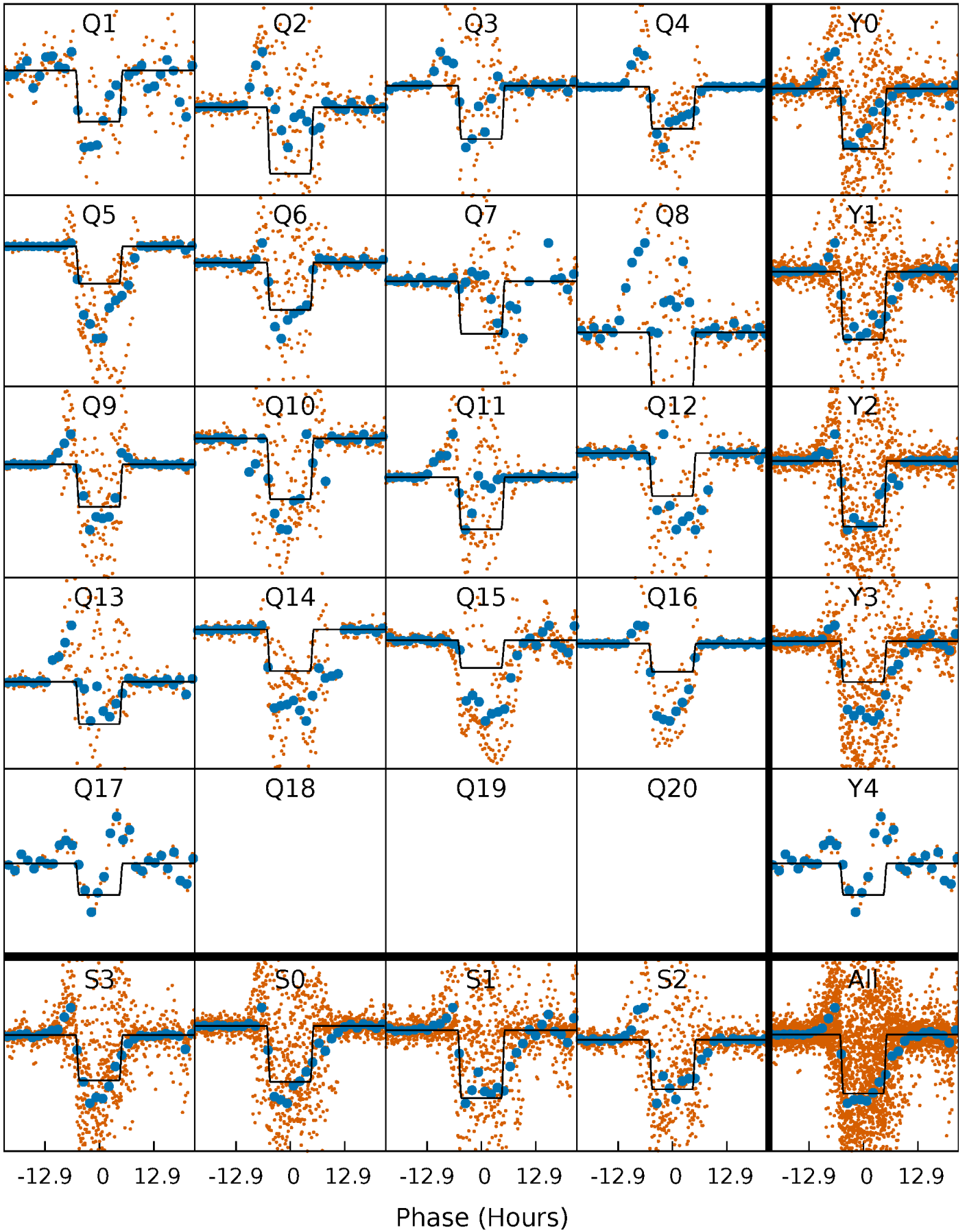
DV Quarter-Phased Transit Curves

TCE 007869590-01 P= 18.849935 Days $T_0=144.605702$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

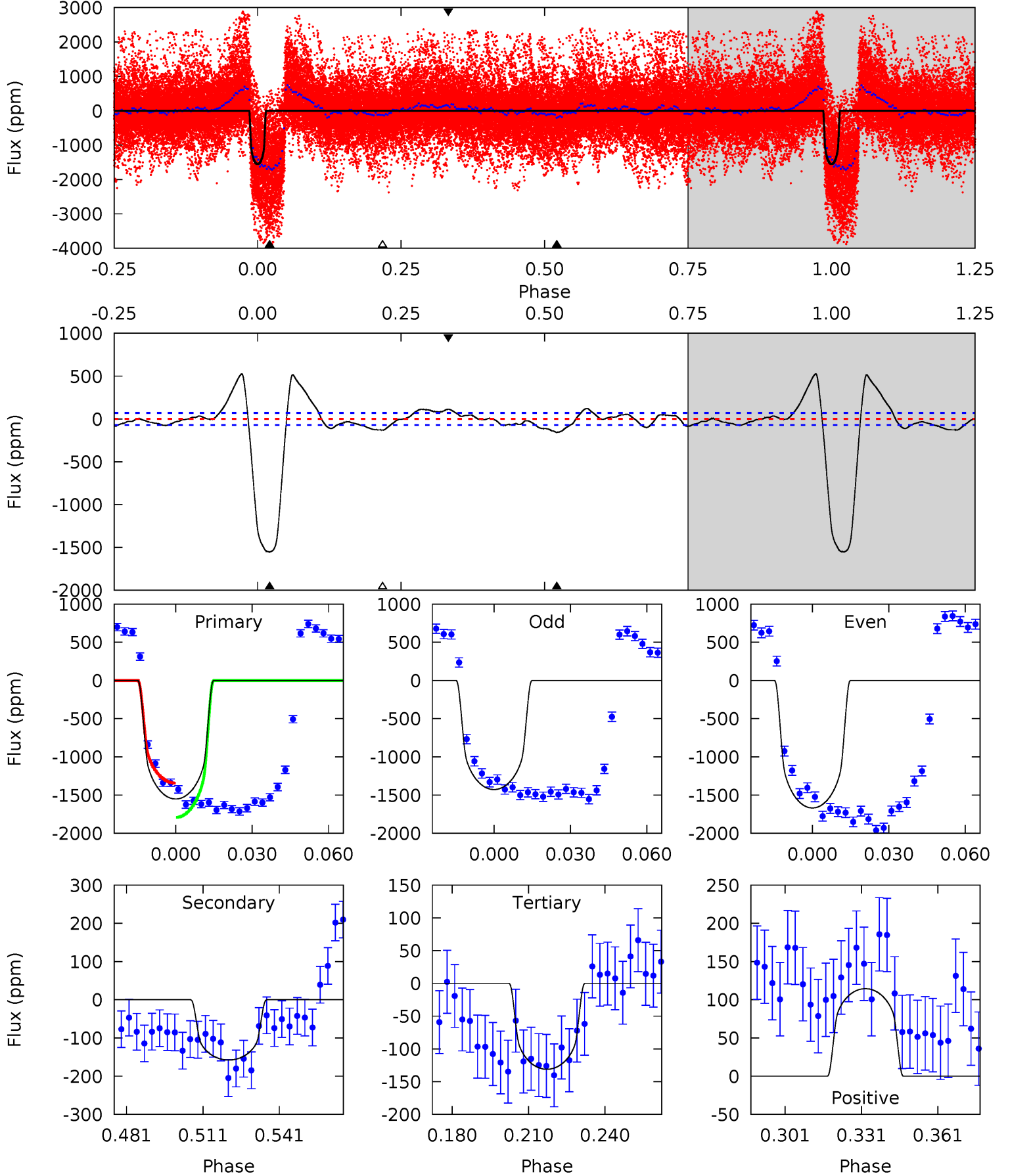
TCE 007869590-01 P= 18.850141 Days $T_0=144.585632$ (BKJD)



DV Model-Shift Uniqueness Test

007869590-01, $P = 18.849935$ Days, $E = 125.755767$ Days

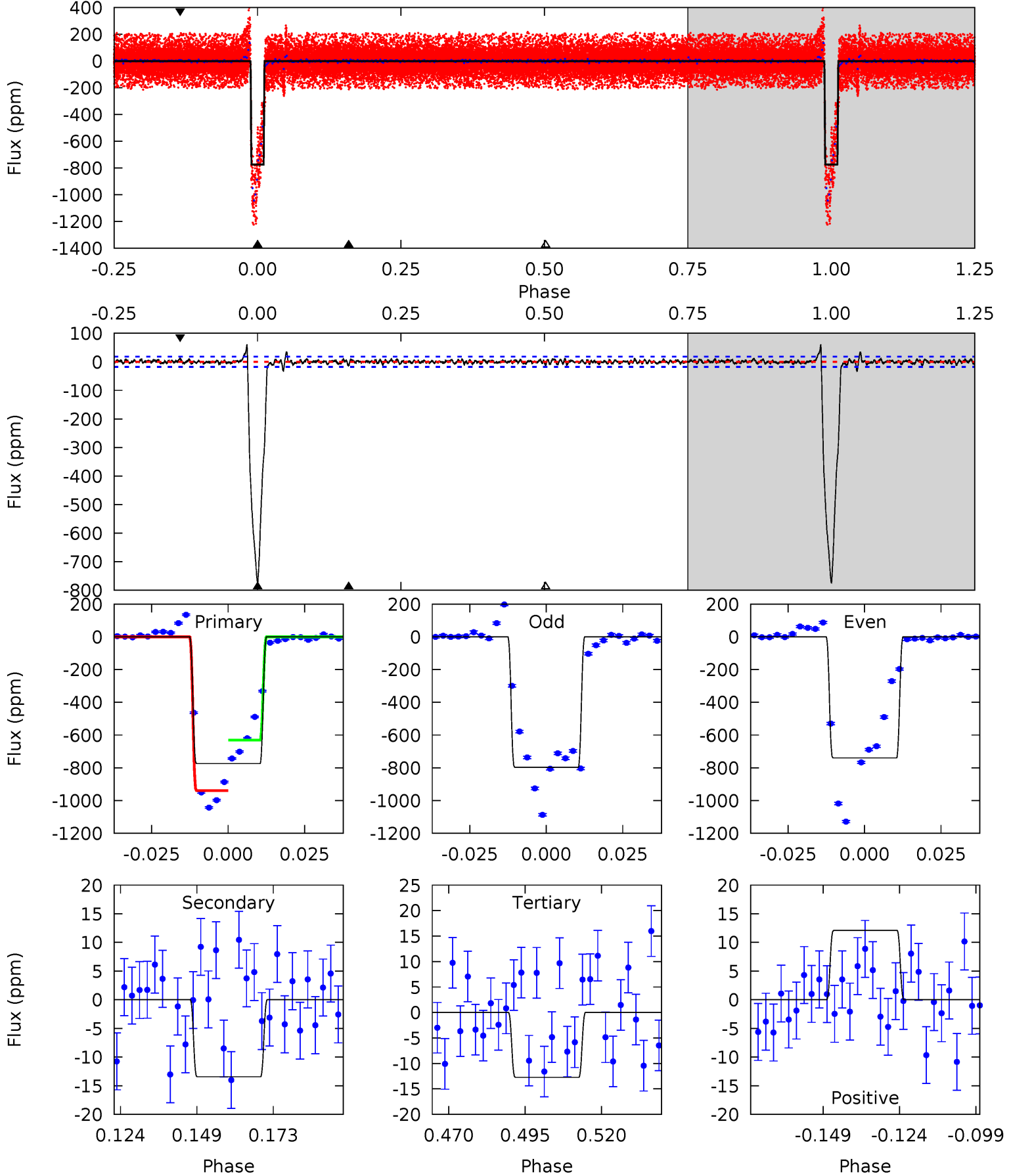
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
105.8	10.8	8.94	7.81	4.81	2.17	8.75	96.8	98.0	1.81	2.95	8.24	0.91	0.25	15.6



Alt Model-Shift Uniqueness Test

007869590-01, P = 18.850141 Days, E = 125.735491 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
208.7	3.62	3.43	3.26	4.85	2.25	1.22	205.2	205.4	0.19	0.37	7.92	1.00	0.07	0



Stellar Parameters For KIC 007869590

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4649^{+127}_{-104}	$2.654^{+0.378}_{-0.252}$	$-0.040^{+0.250}_{-0.200}$	$8.099^{+3.669}_{-3.002}$	$1.081^{+0.425}_{-0.100}$	$0.003^{+0.008}_{-0.002}$
	+3%/-2%	+14%/-9%	+625%/-500%	+45%/-37%	+39%/-9%	+293%/-66%
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 007869590-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-158 ± 15	$32.81^{+8.93}_{-6.78}$	2153^{+236}_{-235}	3125^{+89}_{-97}	$1.703^{+0.986}_{-0.599}$
Alt.	-13 ± 4	$24.53^{+6.77}_{-5.23}$	2133^{+249}_{-245}	-2058^{+4268}_{-386}	$0.254^{+0.190}_{-0.106}$

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 $A_{obs} \gg 1.0$

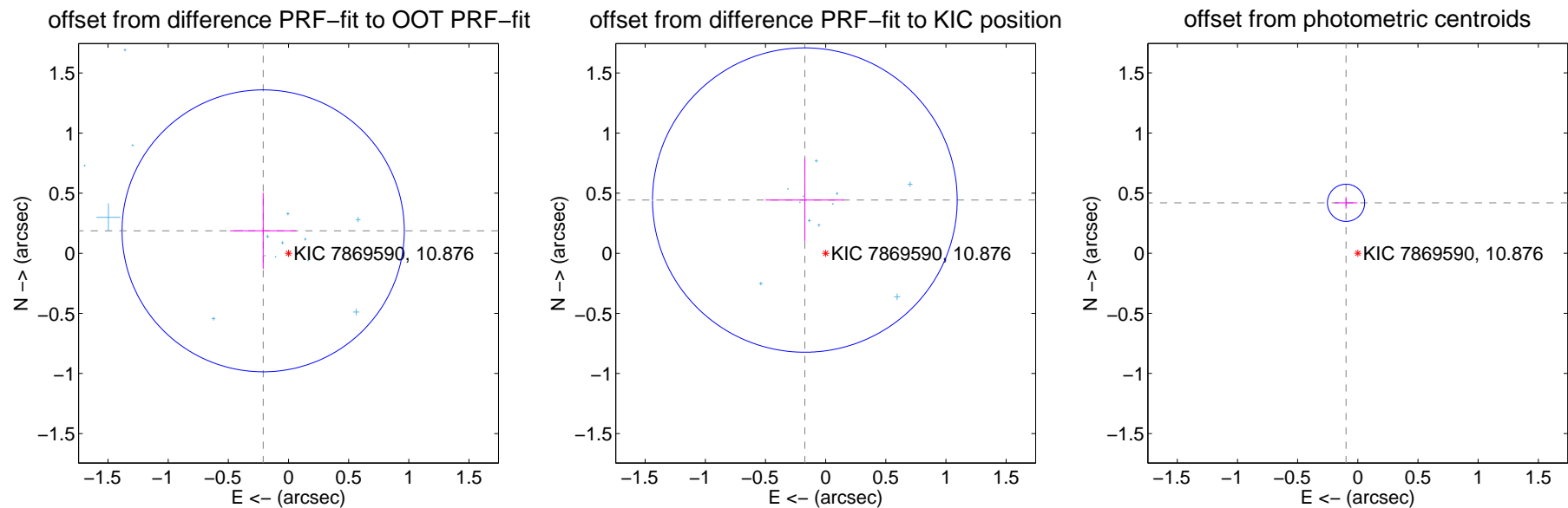
DV Centroid Data

Supplemental centroid analysis for 007869590-01. **Kepler magnitude: 10.88.** Transit SNR 27.48

There are 16 quarters with good PRF difference image offsets

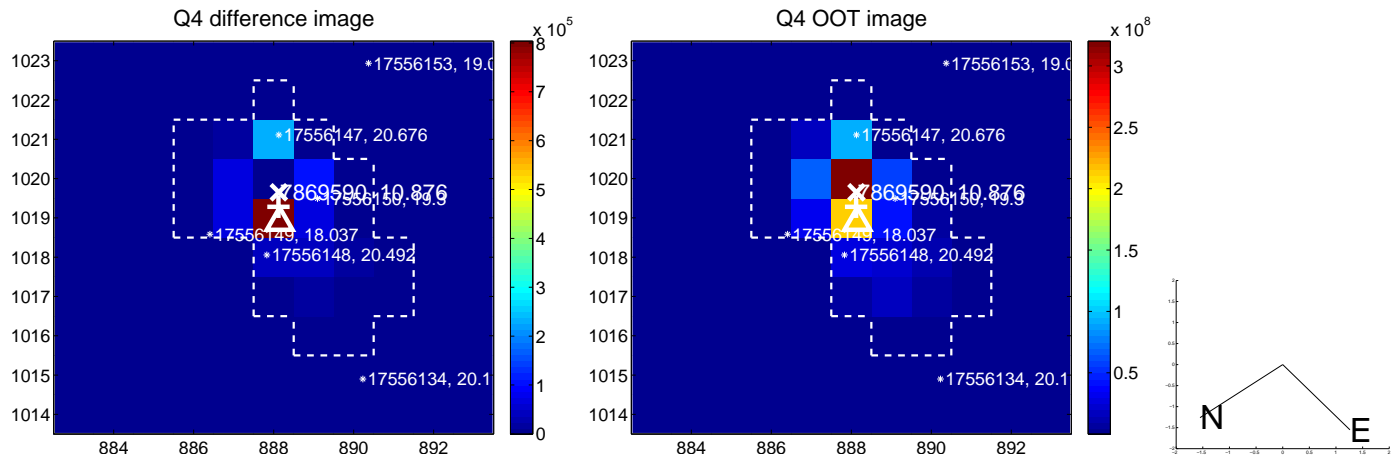
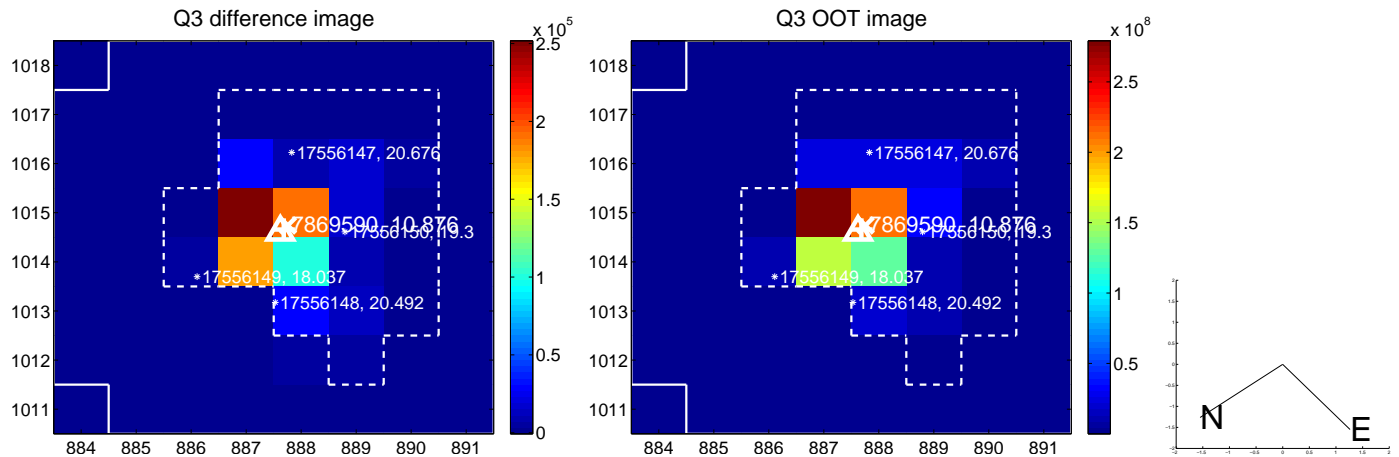
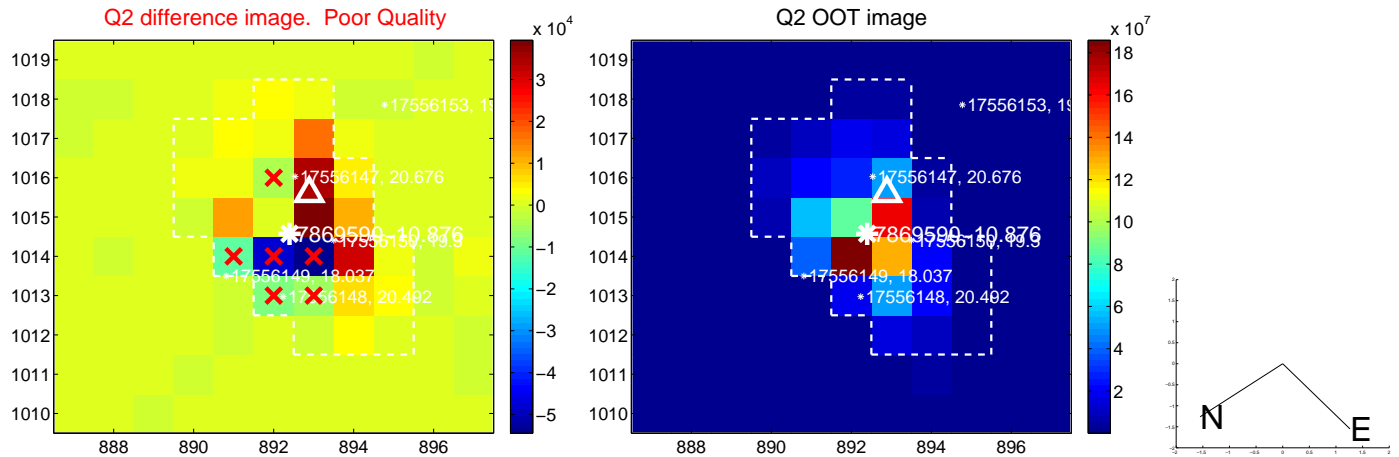
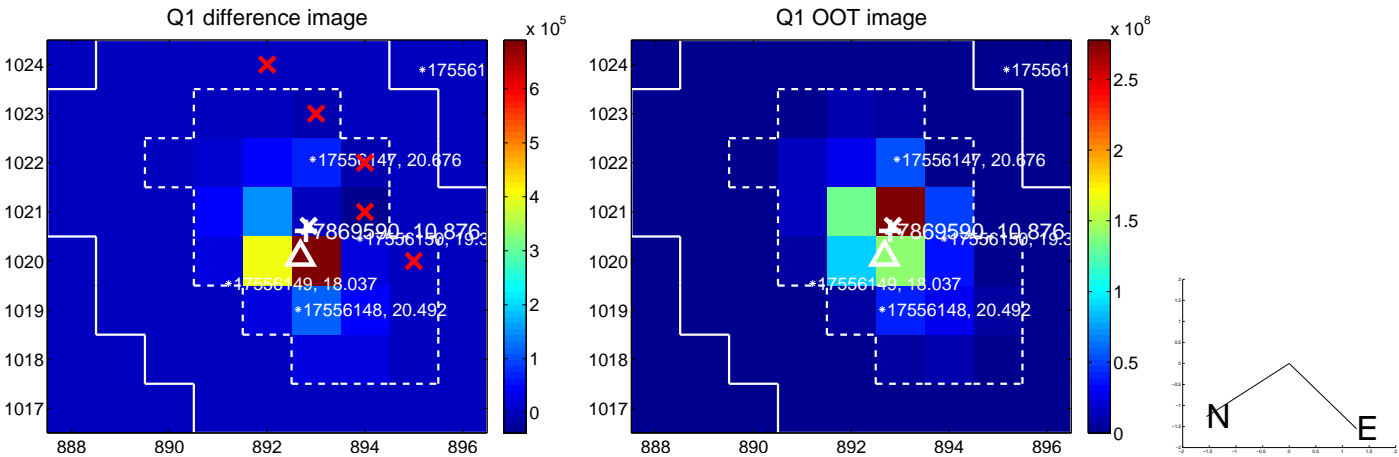
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.281 ± 0.391	0.72	0.210 ± 0.275	0.187 ± 0.316
PRF-fit source offset from KIC position	0.475 ± 0.422	1.13	0.173 ± 0.326	0.443 ± 0.344
photometric centroid source offset	0.43 ± 0.05	8.35	0.10 ± 0.10	0.42 ± 0.05

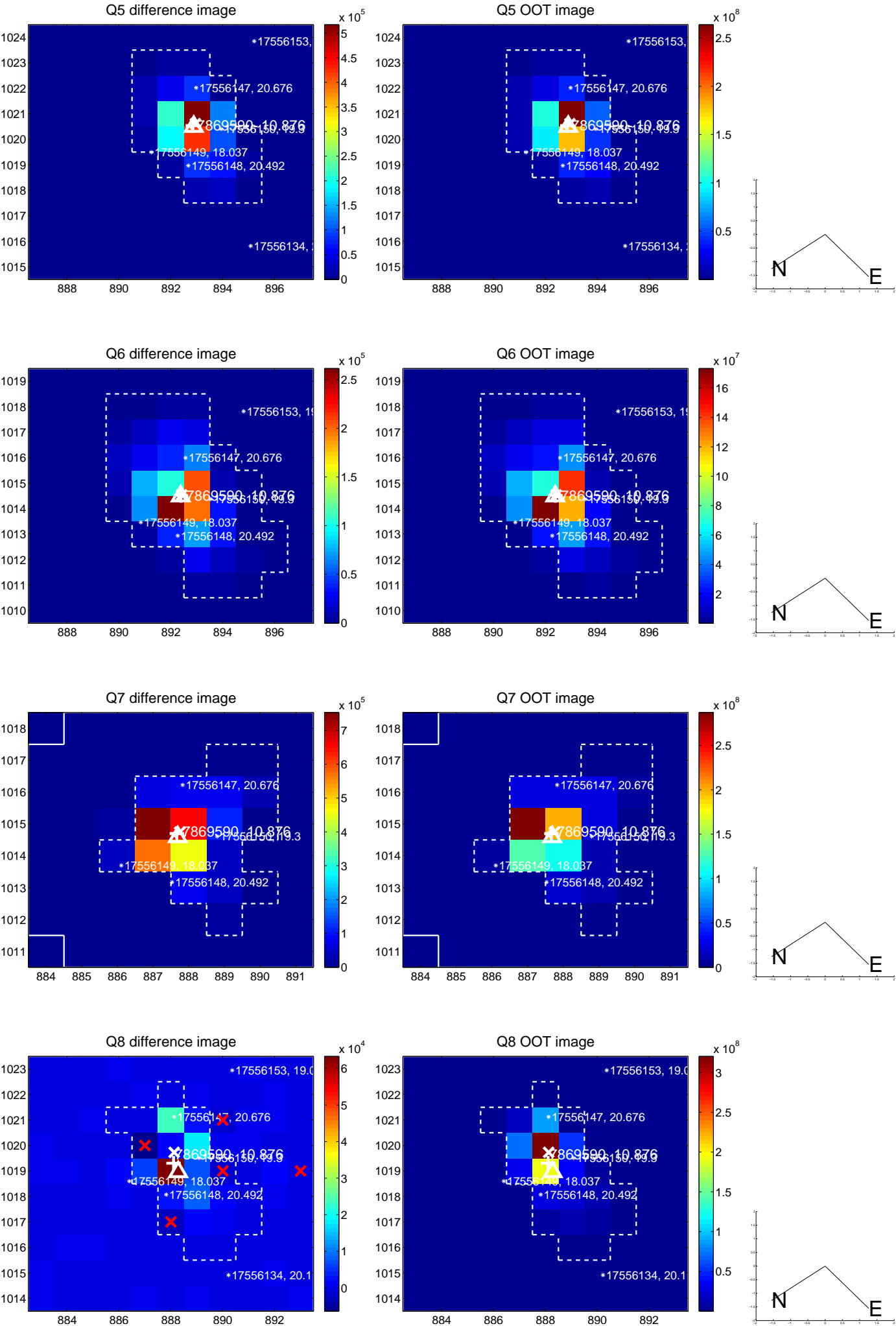


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

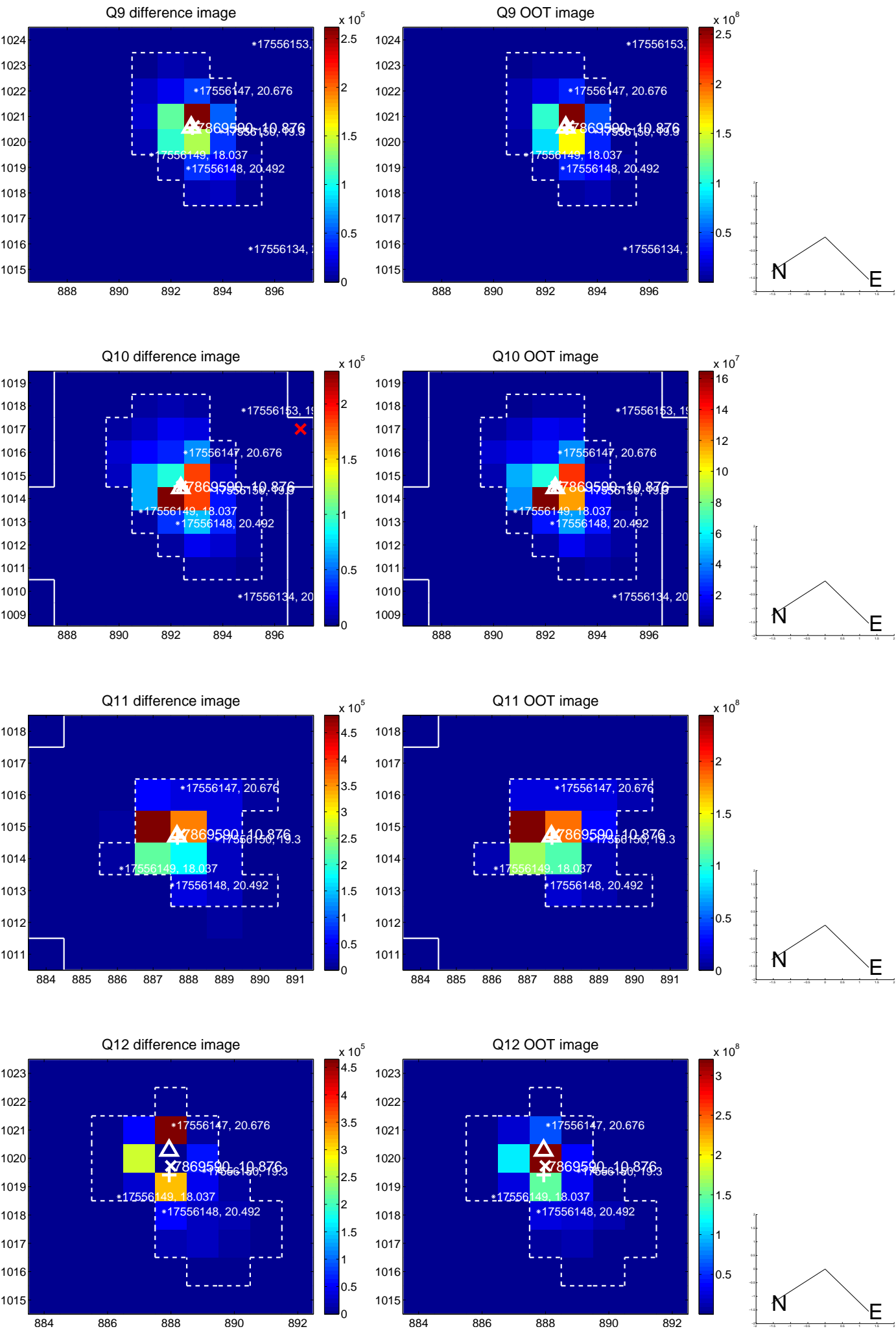
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



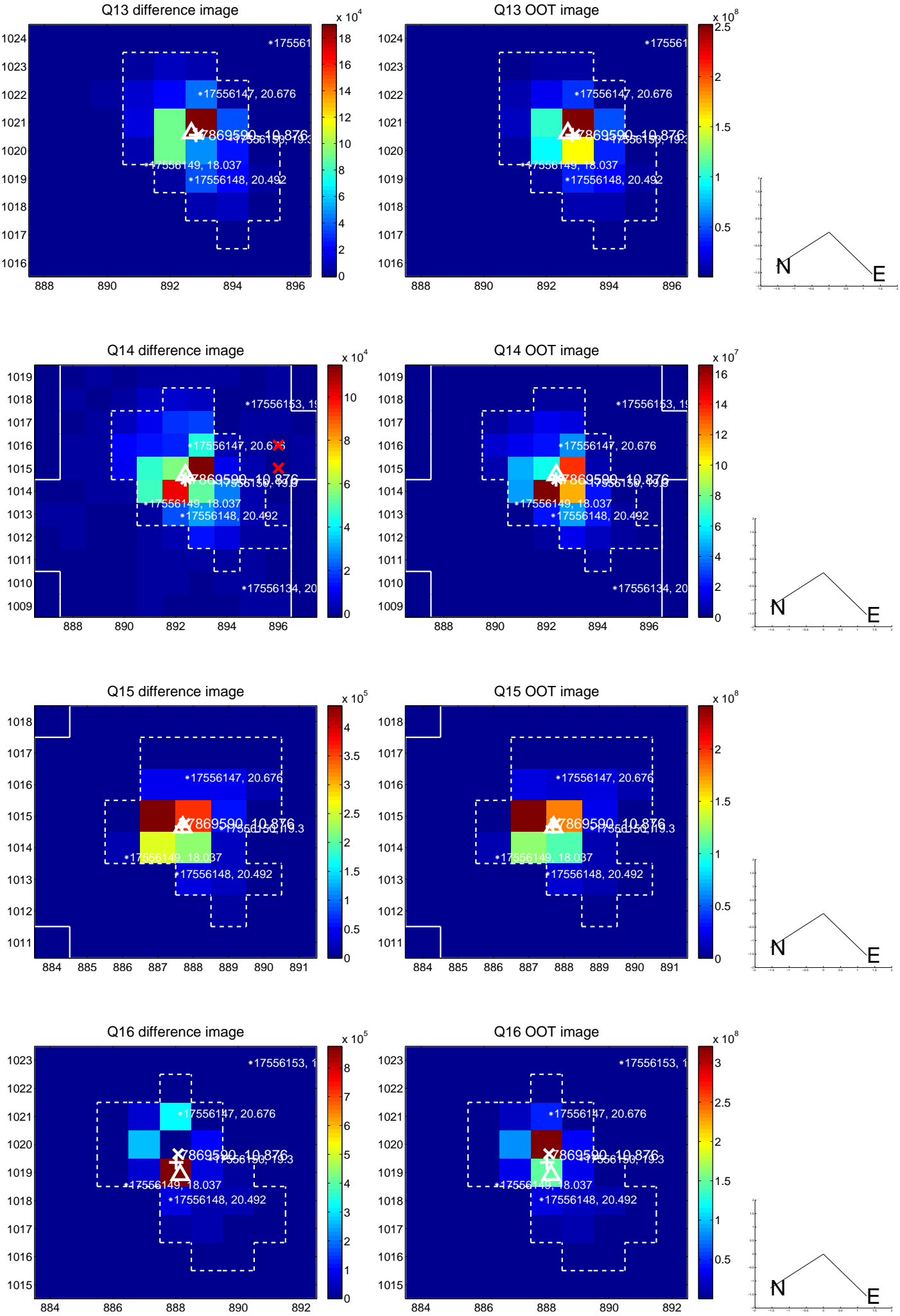
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



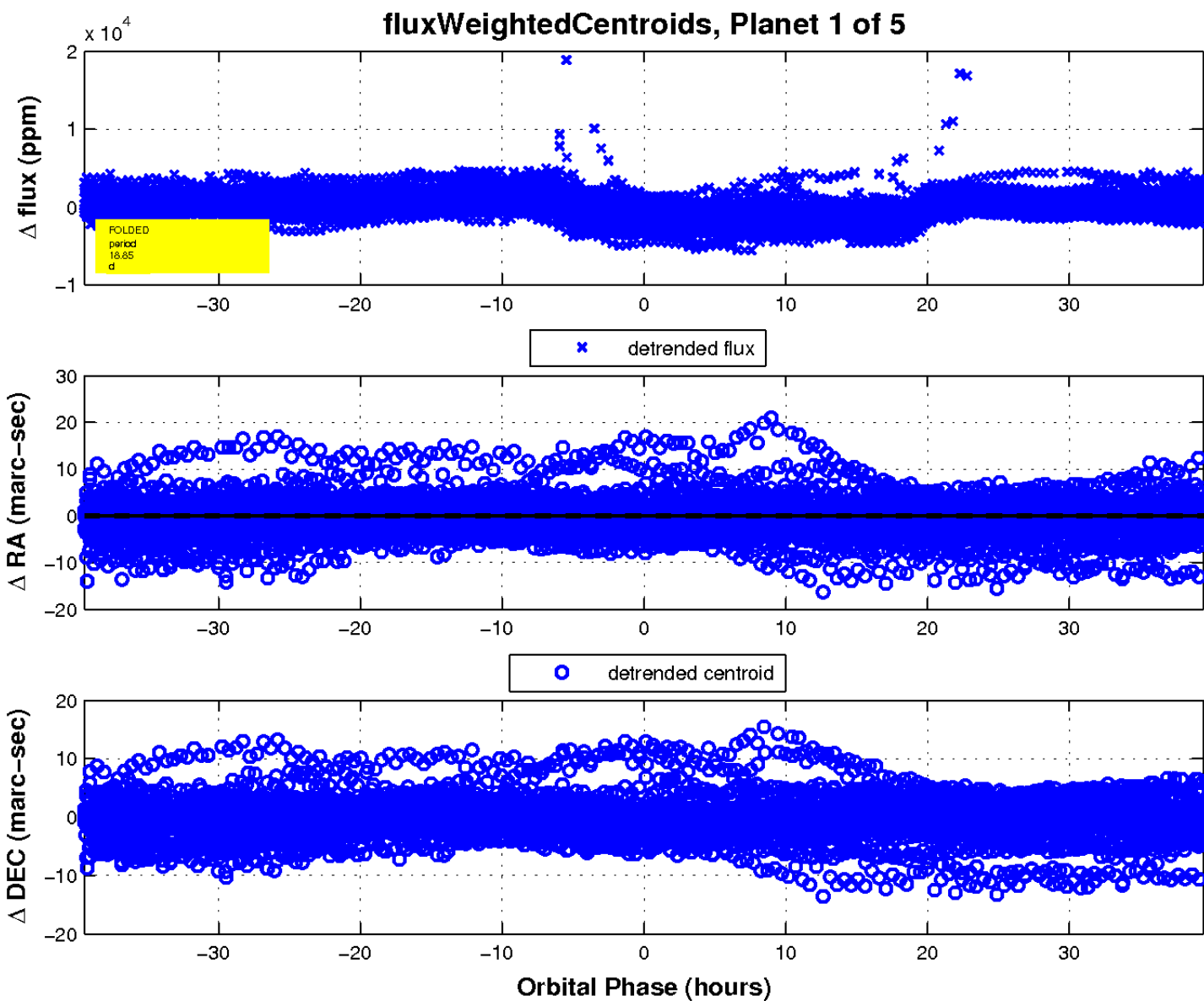
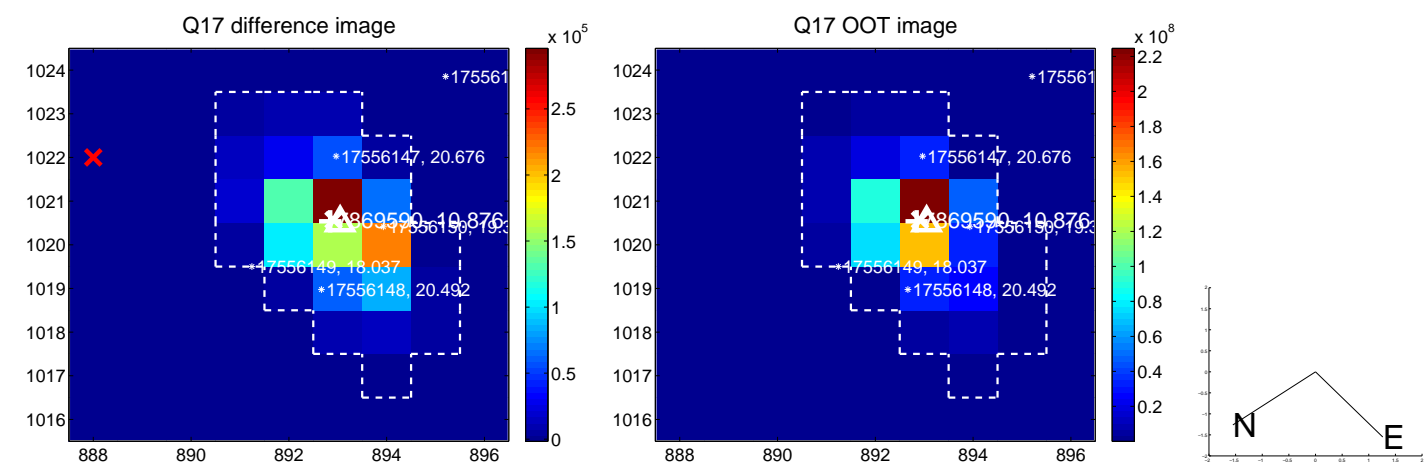
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



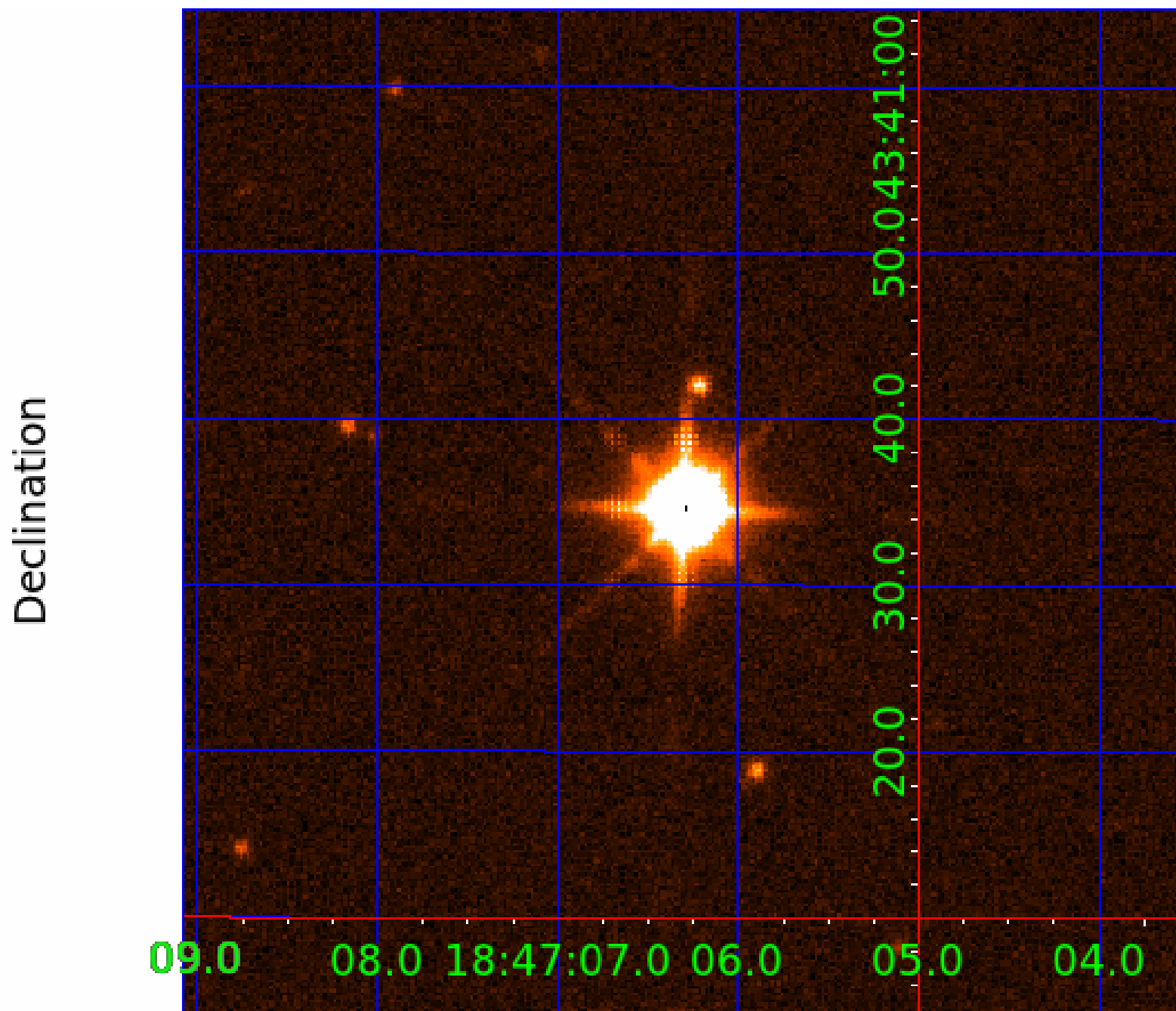
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 007869590

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})
007869590-01	OBS	No	18.849935	144.605702	1193.5	13.163	23.6	27.5	8.10	4649	32.48	1357.92
007869590-02	OBS	No	18.850016	145.459802	1113.4	2.077	55.7	43.5	8.10	4649	25.95	1357.91
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007869590-04	OBS	No	444.298942	410.004716	1333.6	5.782	18.2	8.9	8.10	4649	37.00	20.09
007869590-05	OBS	No	336.894953	238.216147	1753.4	9.694	15.5	8.4	8.10	4649	43.85	29.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007869590-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
007869590-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
007869590-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007869590-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007869590-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

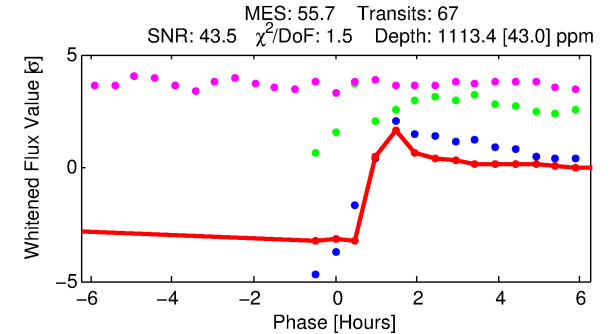
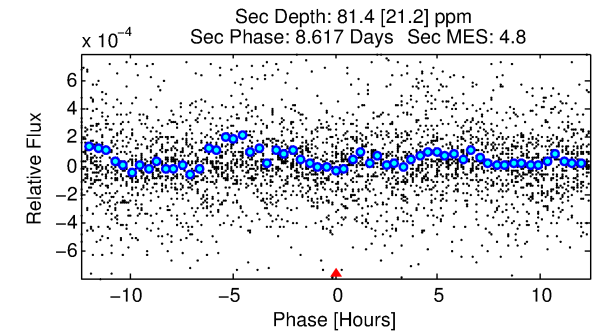
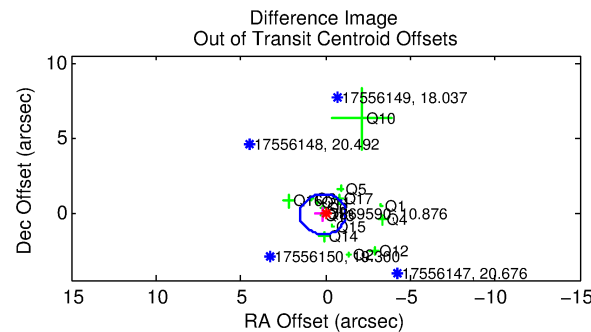
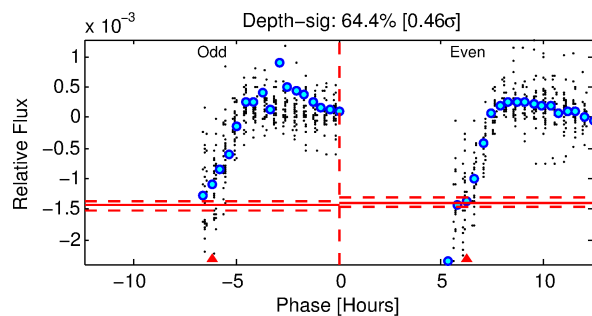
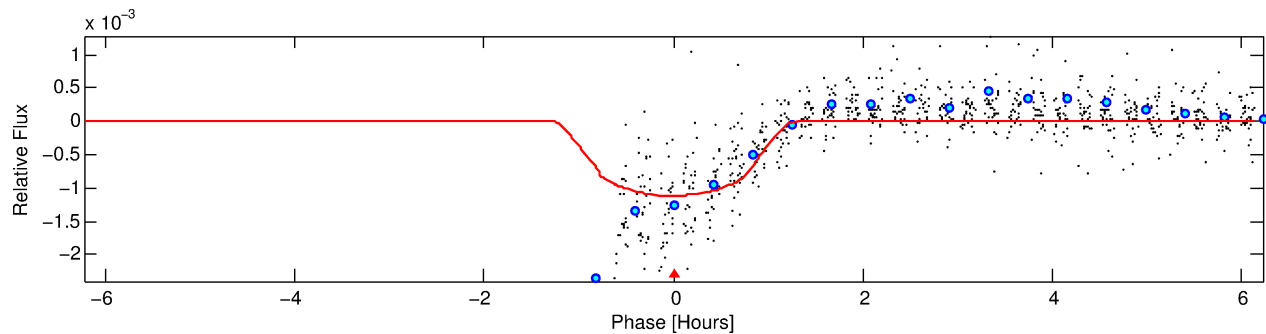
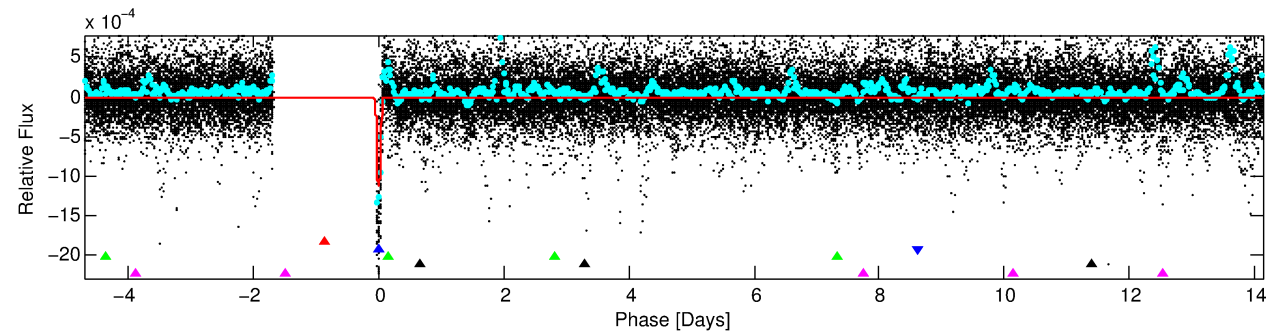
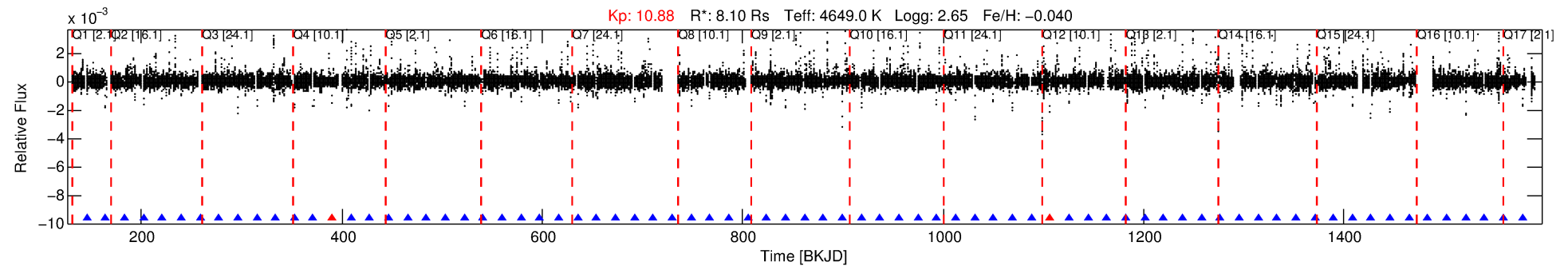
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007869590-02

No Significant Match Found

DV One-Page Summary

KIC: 7869590 Candidate: 2 of 5 Period: 18.850 d



DV Fit Results:

Period = 18.85002 [0.00003] d
Epoch = 145.4598 [0.0021] BKJD
Rp/R* = 0.0294 [0.0129]
a/R* = 71.38 [94.42]
b = 0.01 [104.96]
Seff = 1357.91 [900.58]
Teff = 1548 [257] K
Rp = 25.95 [16.36] Re
a = 0.1422 [0.0595] AU
Ag = 1.34 [1.51] [0.23 σ]
Teffp = 2577 [593] K [1.59 σ]

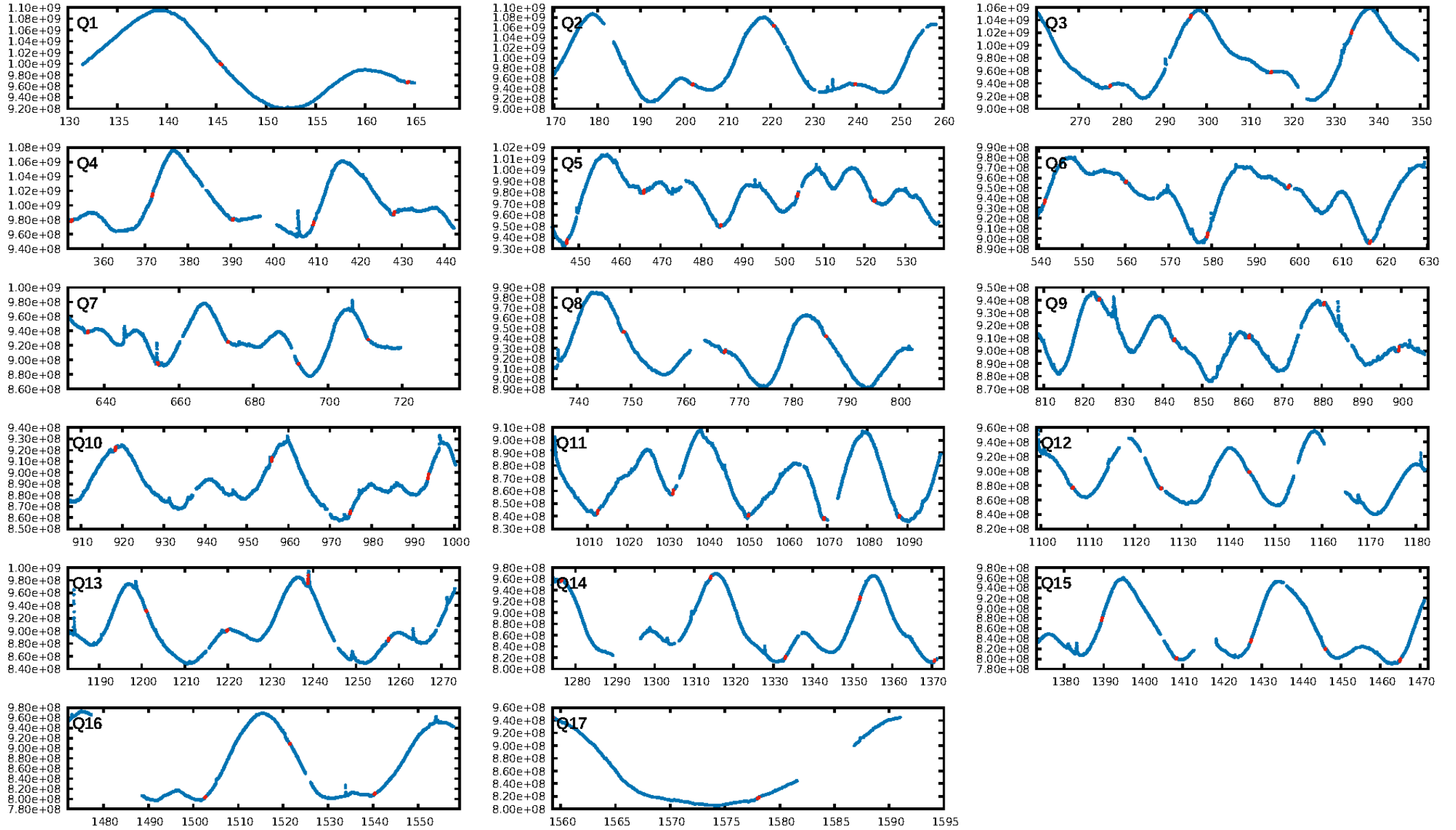
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [769.90 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 49.7%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.97 [61/63]
GhostDiagnostic-chr: 2.778
Centroid-sig: N/A
Centroid-so: 0.405 arcsec [5.85 σ]
OotOffset-rm: 0.188 arcsec [0.42 σ]
KicOffset-rm: 0.249 arcsec [0.52 σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.62 [10/16]
DiffImageOverlap-fno: 0.94 [16/17]

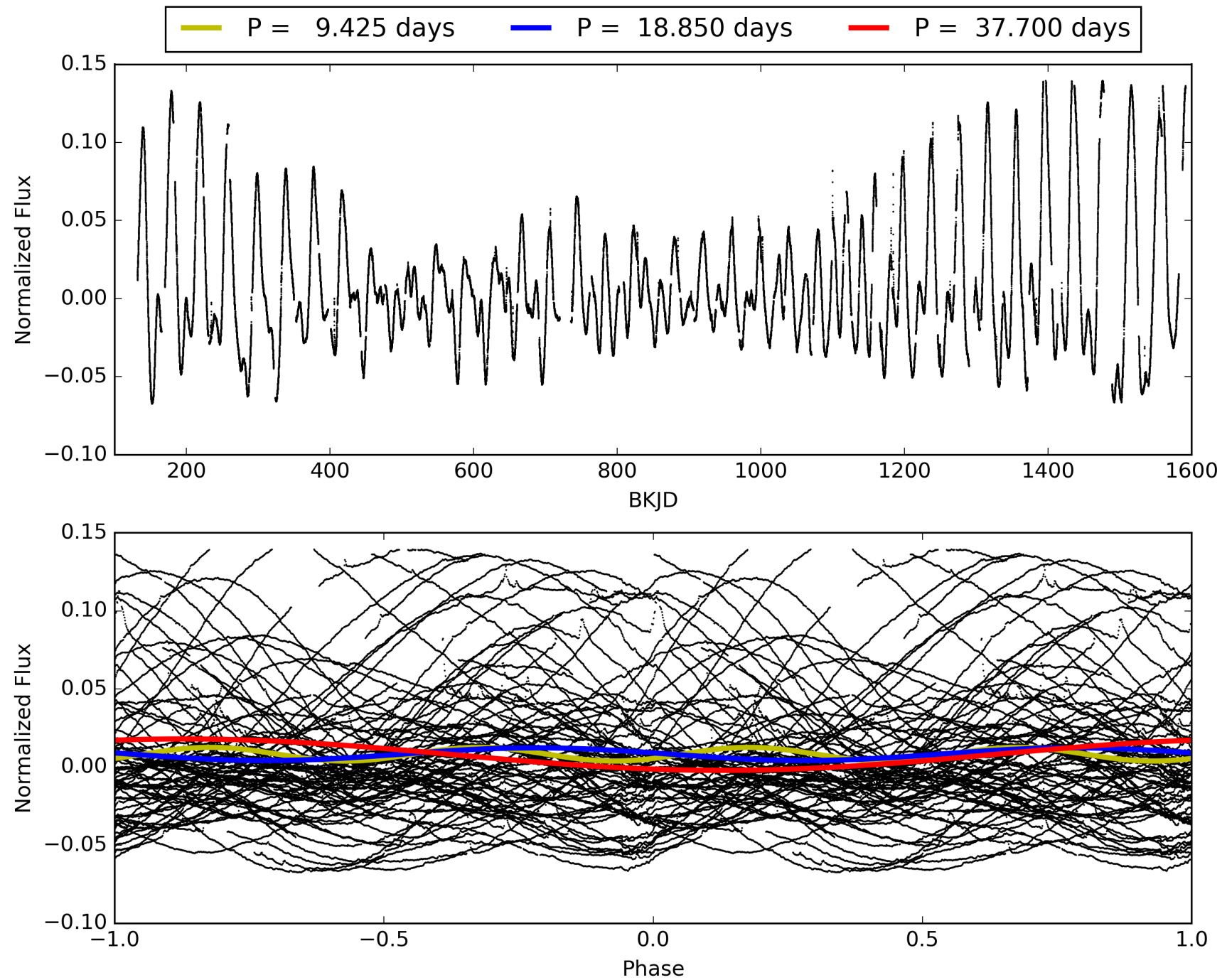
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:45:29 Z

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

TCE 007869590-02, PDC Light Curves

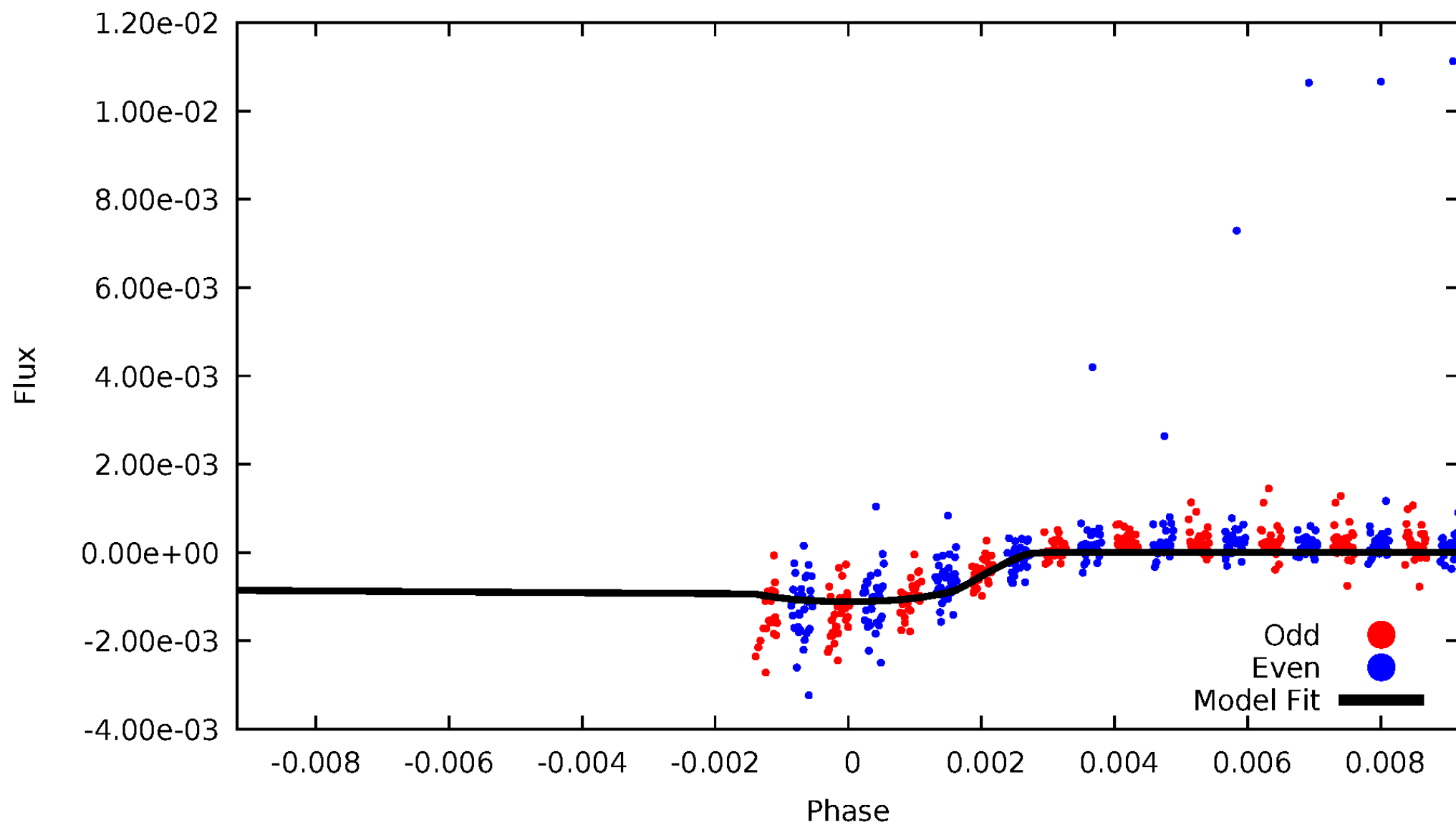


TCE 007869590-02



DV Odd/Even

TCE 007869590-02

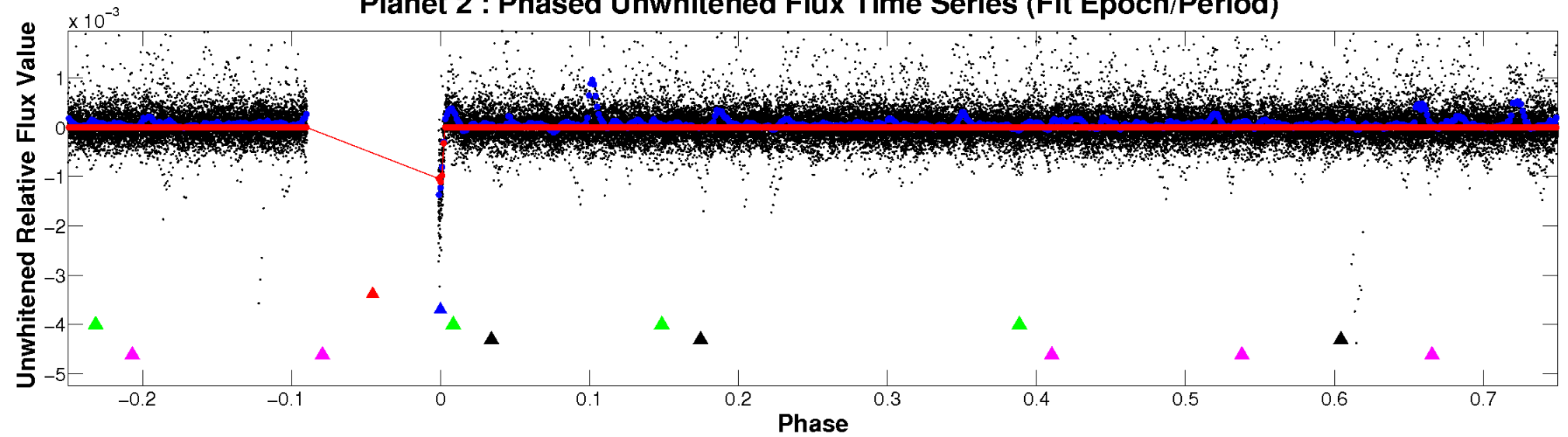


ALT Odd/Even

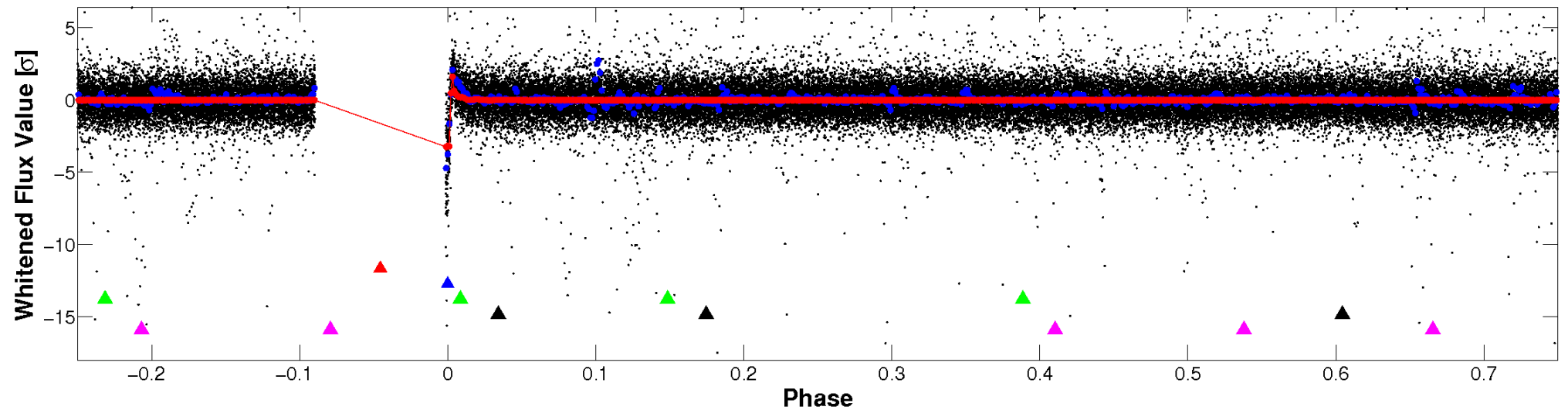
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

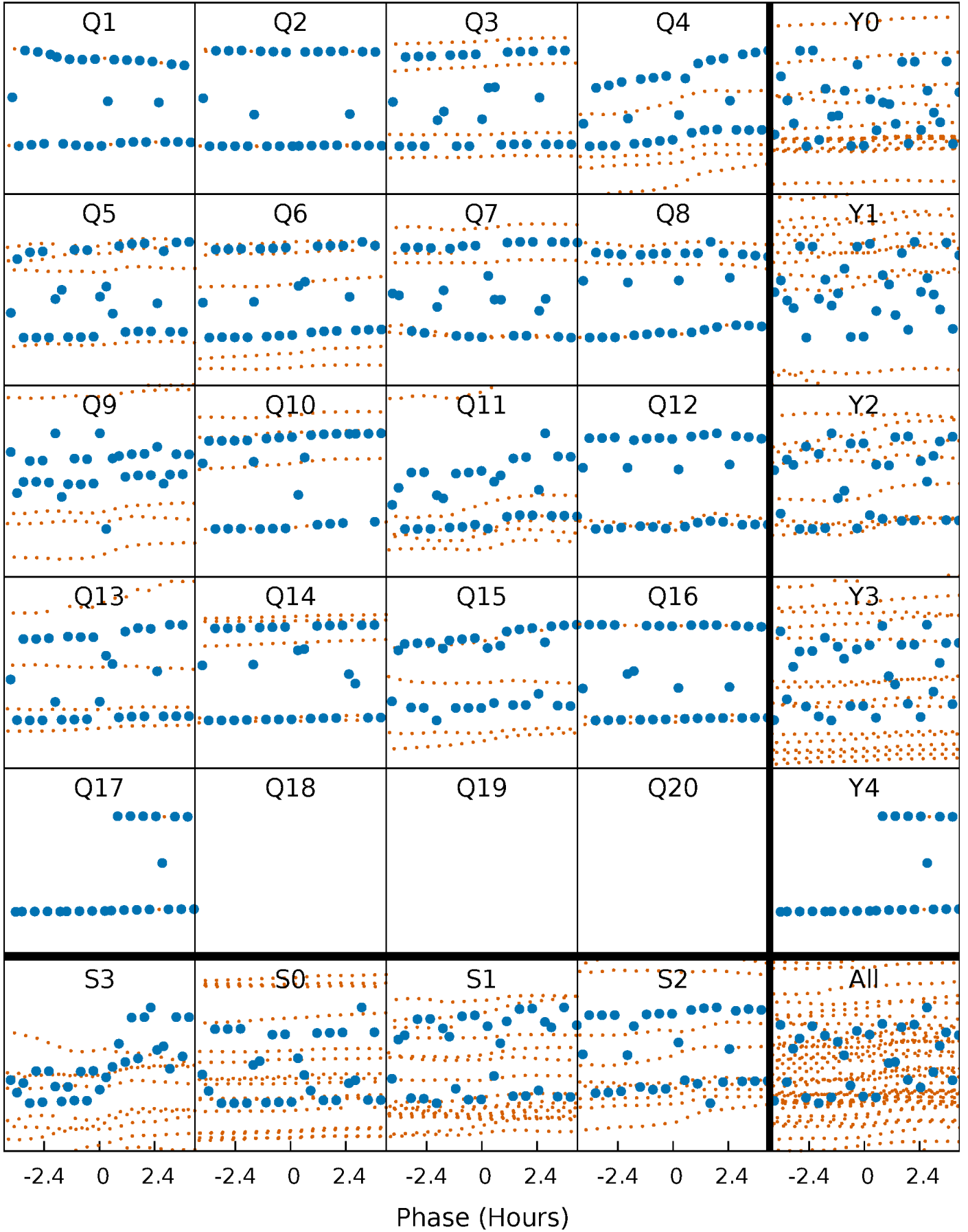


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



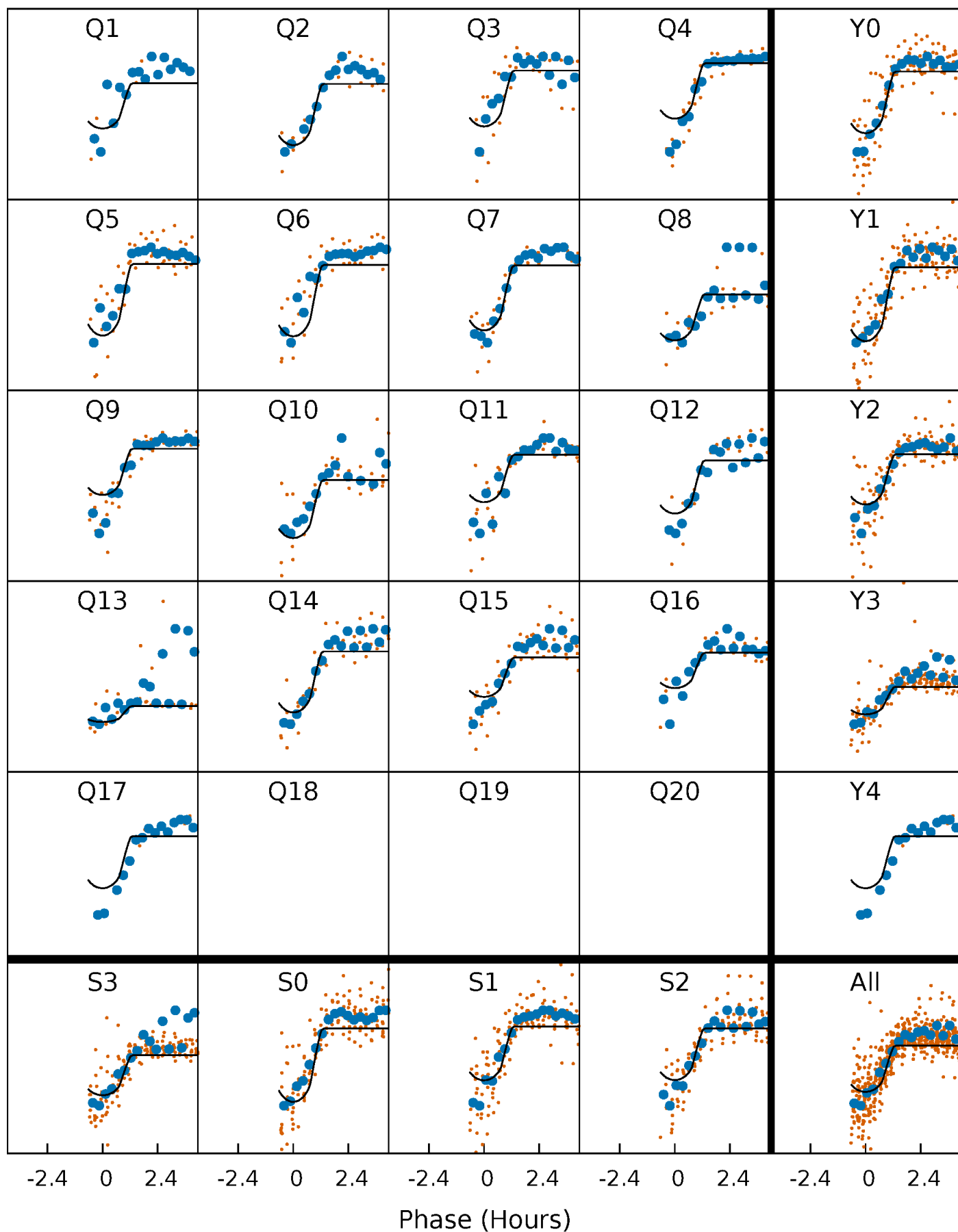
PDC Quarter-Phased Transit Curves

TCE 007869590-02 $P = 18.850016$ Days $T_0 = 145.459802$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 007869590-02 P= 18.850016 Days $T_0=145.459802$ (BKJD)

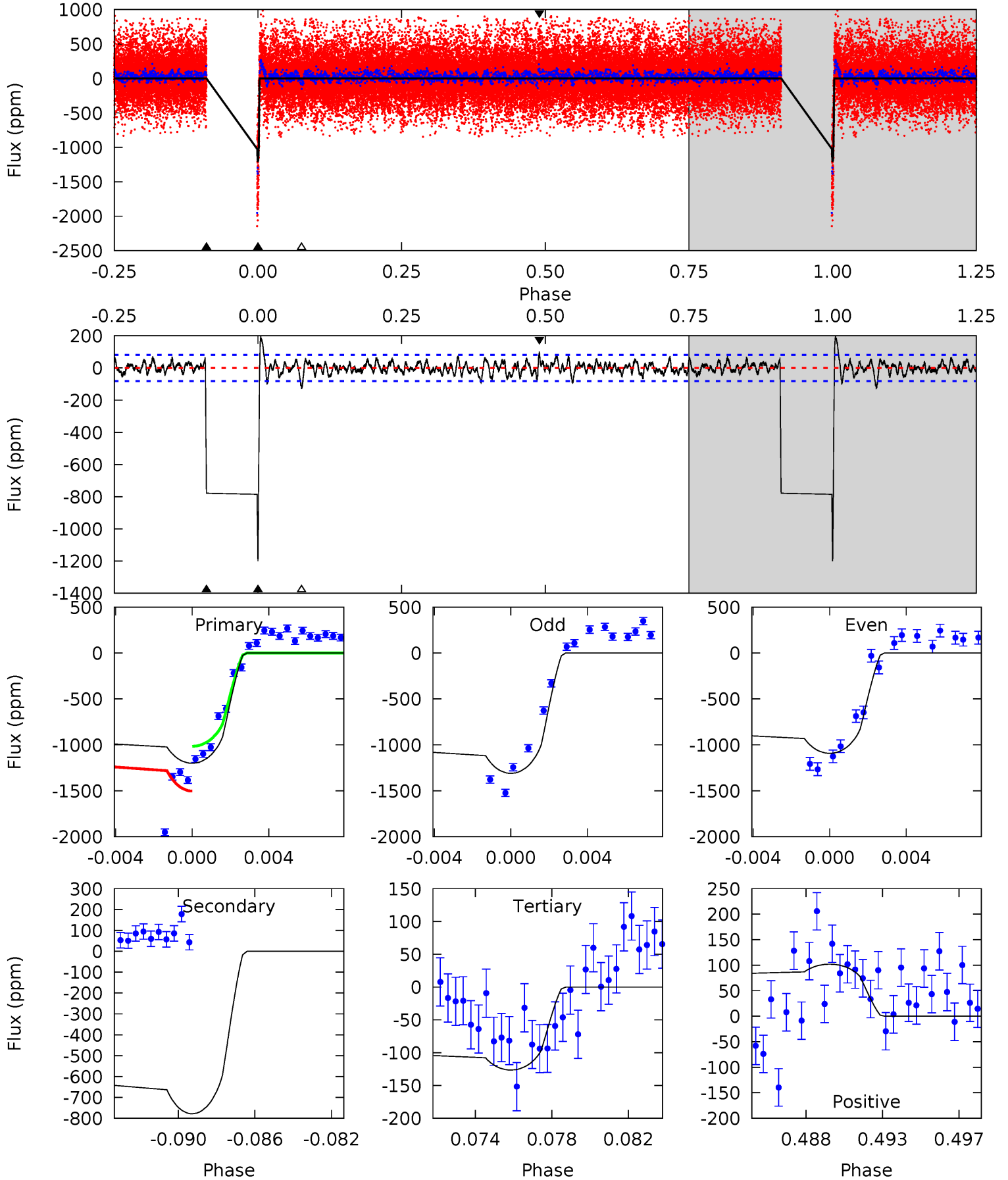


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

007869590-02, P = 18.850016 Days, E = 126.609786 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
76.7	49.7	8.08	6.52	5.19	2.87	2.00	68.7	70.2	41.7	43.2	7.10	0.98	0.14	14.5



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 007869590

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4649^{+127}_{-104}	$2.654^{+0.378}_{-0.252}$	$-0.040^{+0.250}_{-0.200}$	$8.099^{+3.669}_{-3.002}$	$1.081^{+0.425}_{-0.100}$	$0.003^{+0.008}_{-0.002}$
	+3%/-2%	+14%/-9%	+625%/-500%	+45%/-37%	+39%/-9%	+293%/-66%
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 007869590-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-778 ± 16	$25.48^{+14.10}_{-10.79}$	2149^{+232}_{-244}	4520^{+1336}_{-593}	14^{+29}_{-8}
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 $A_{obs} \gg 1.0$

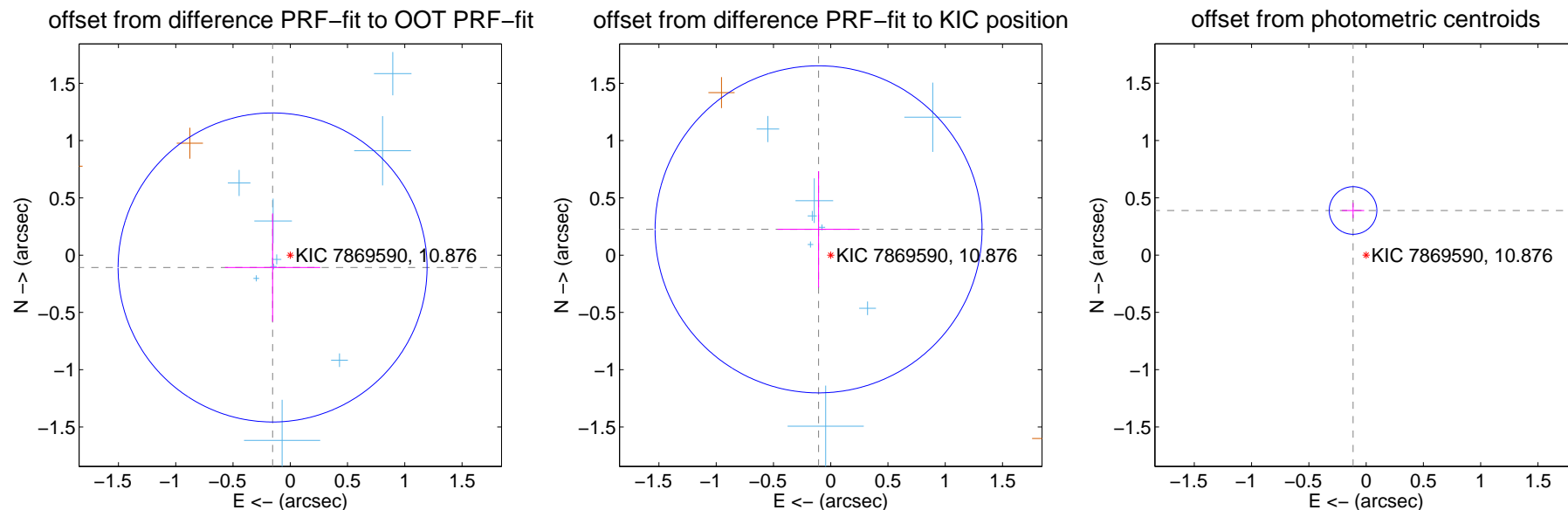
DV Centroid Data

Supplemental centroid analysis for 007869590-02. **Kepler magnitude: 10.88.** Transit SNR 43.48

There are 10 quarters with good PRF difference image offsets

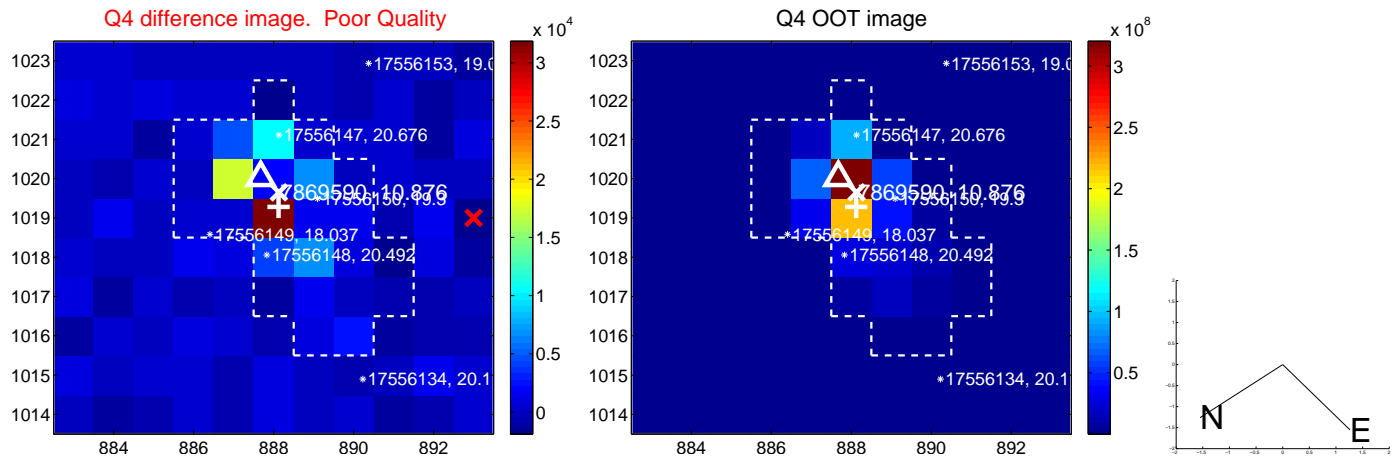
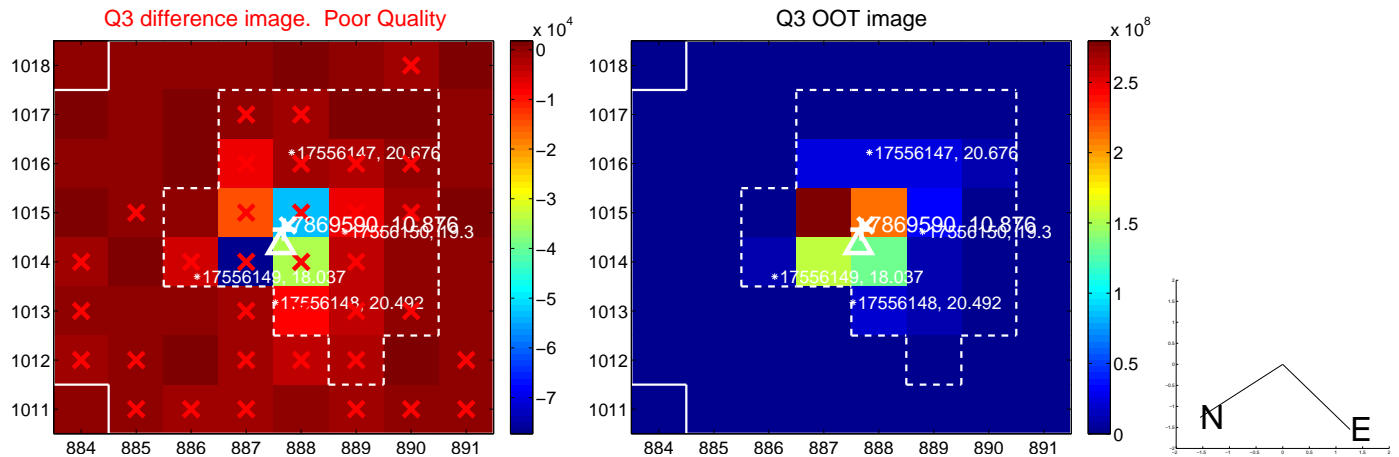
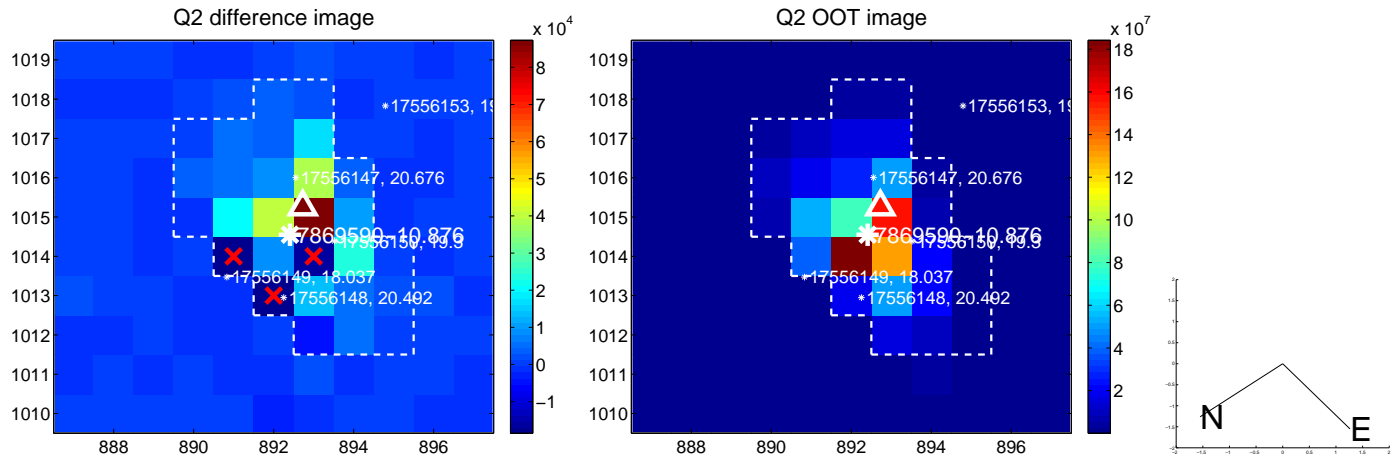
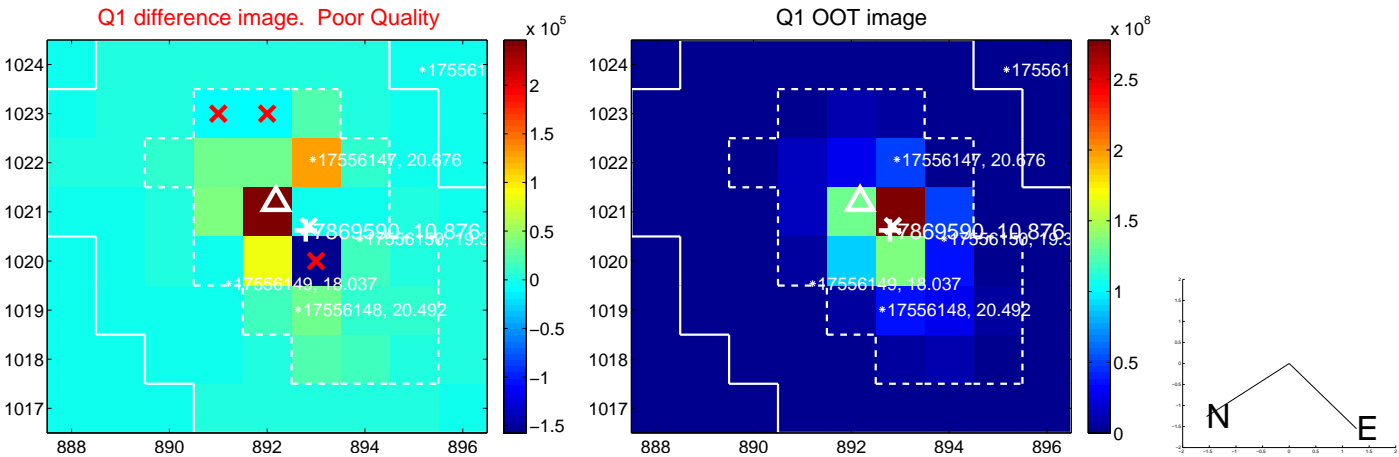
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.188 ± 0.450	0.42	0.154 ± 0.416	-0.108 ± 0.472
PRF-fit source offset from KIC position	0.249 ± 0.476	0.52	0.106 ± 0.358	0.225 ± 0.508
photometric centroid source offset	0.41 ± 0.07	5.85	0.11 ± 0.10	0.39 ± 0.07

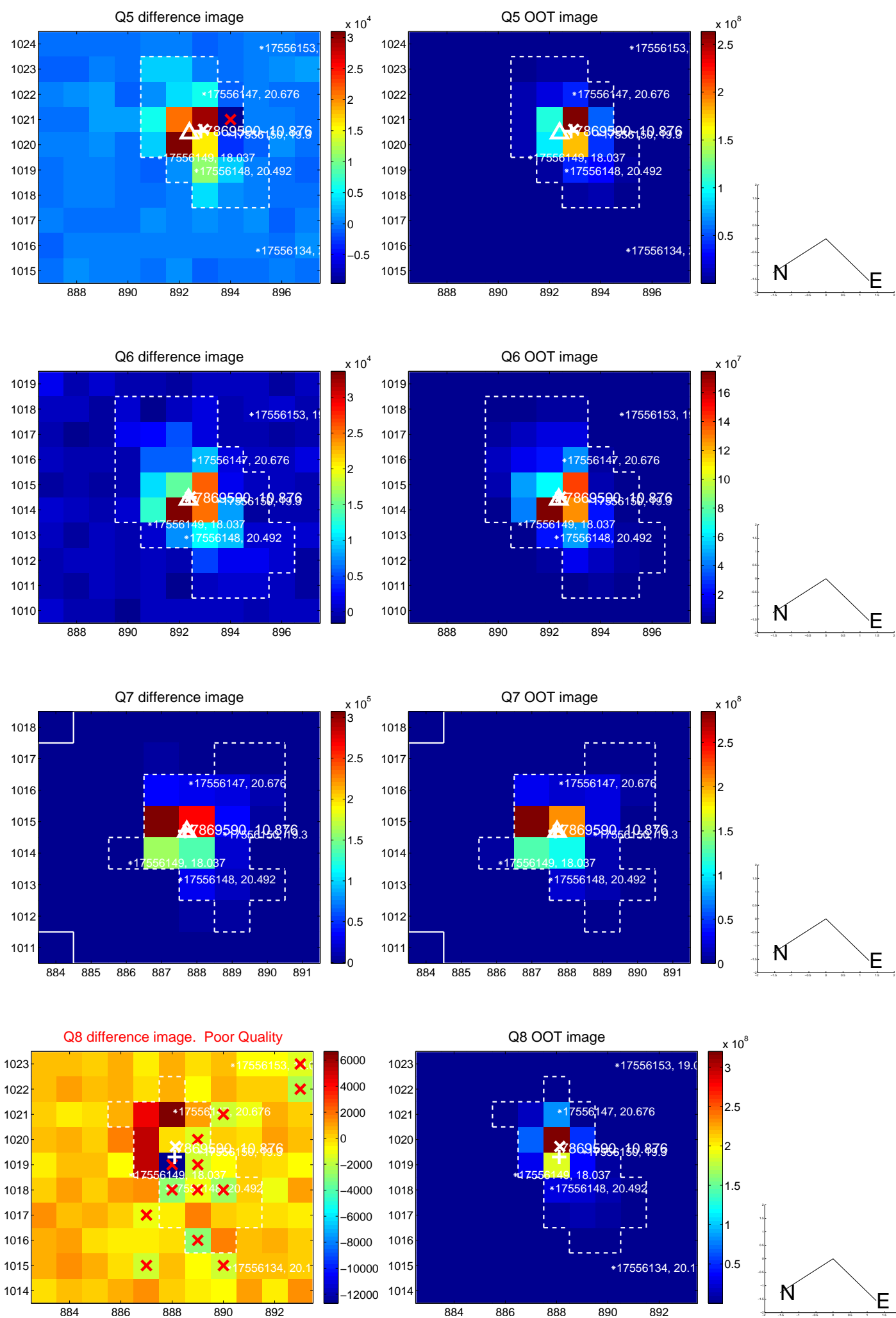


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

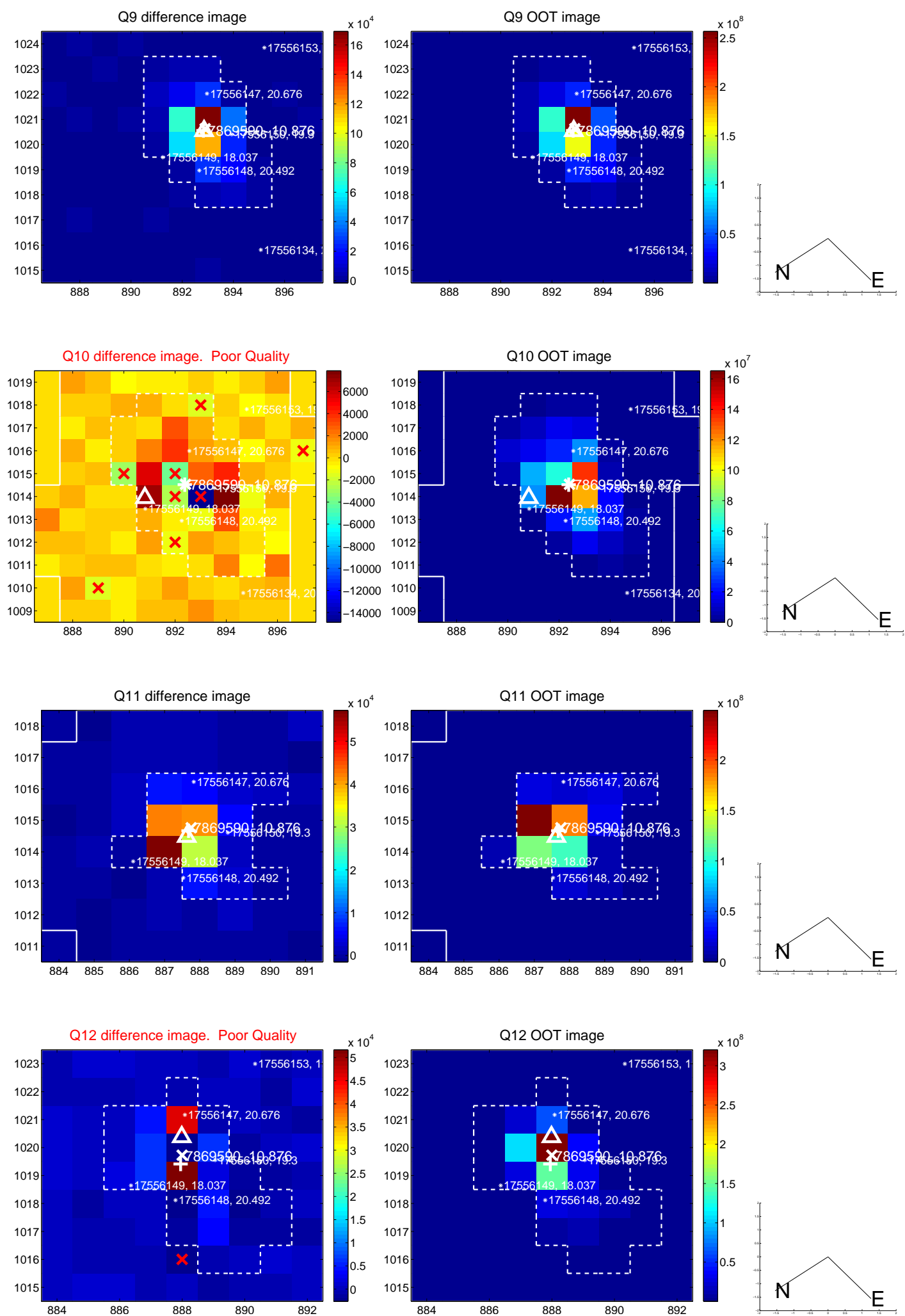
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



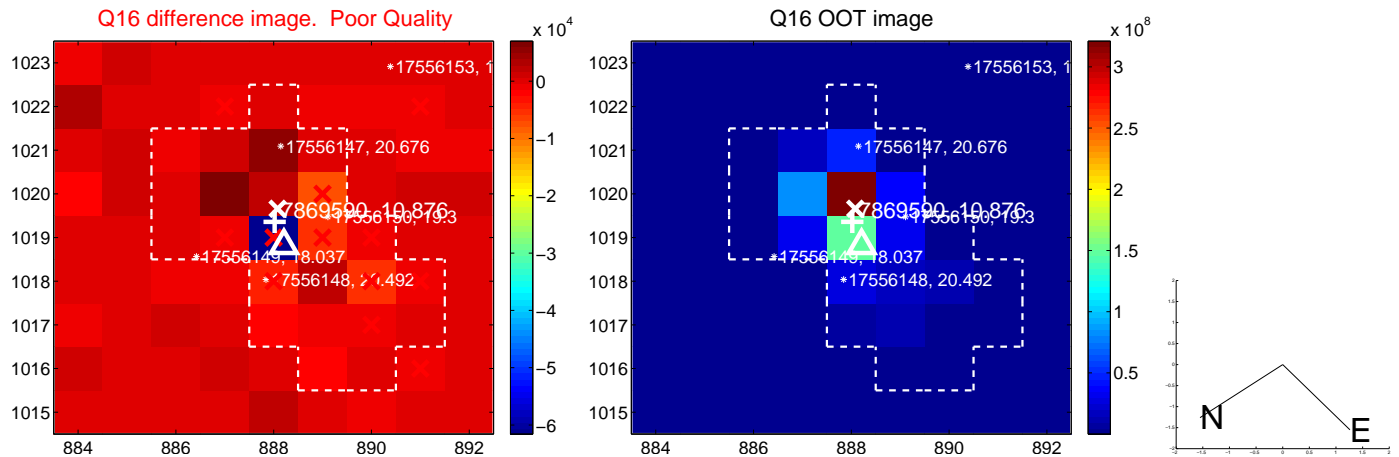
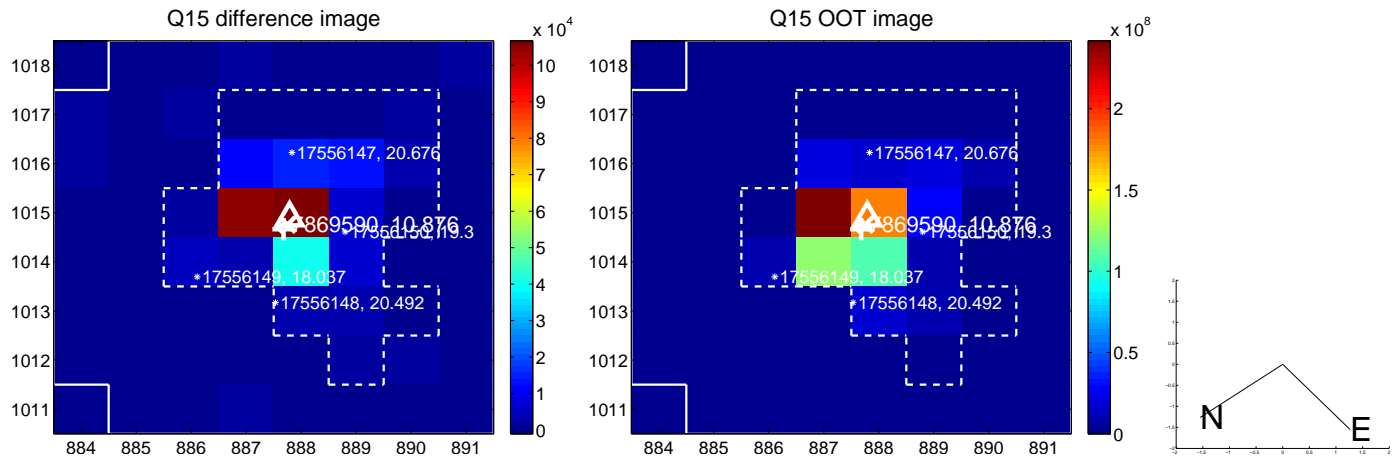
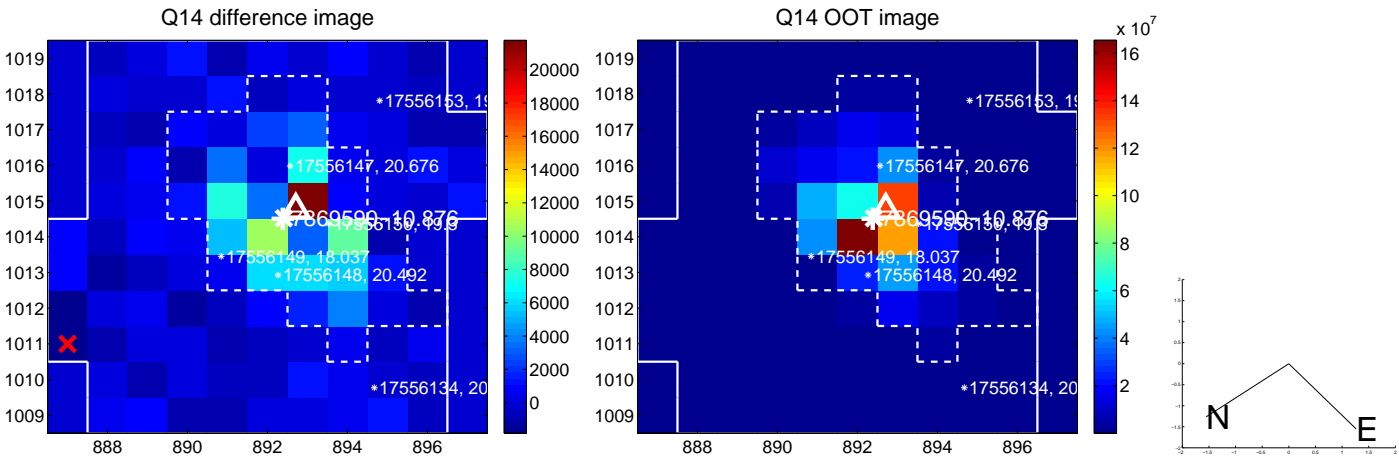
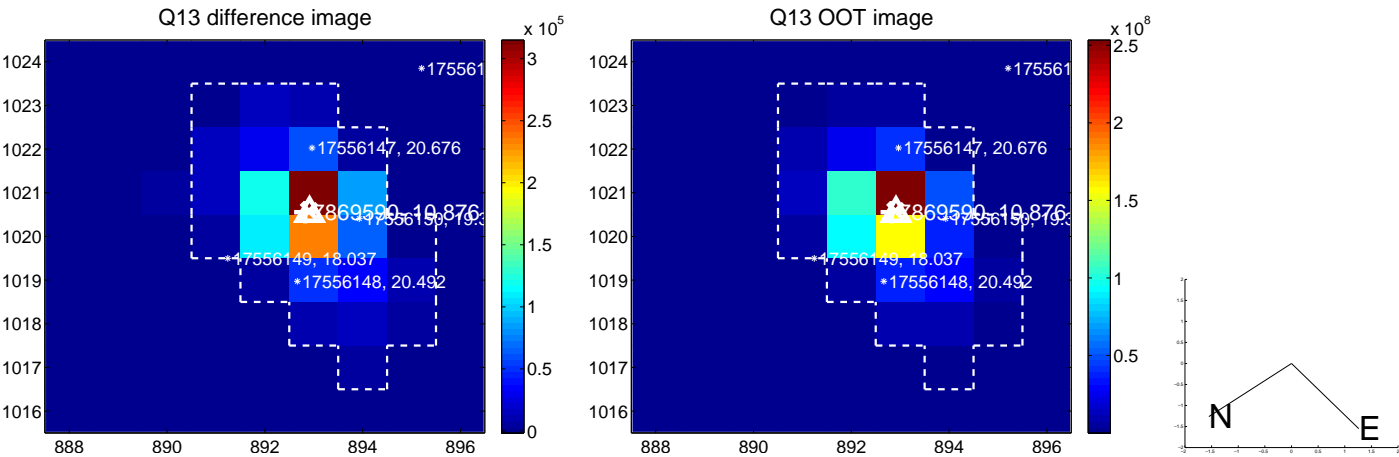
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



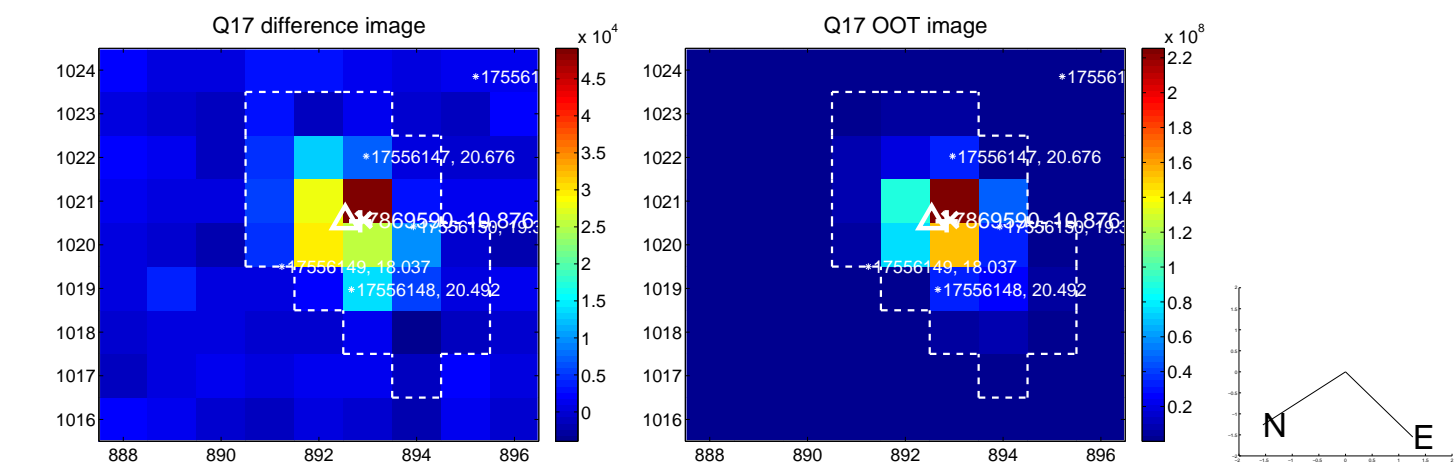
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



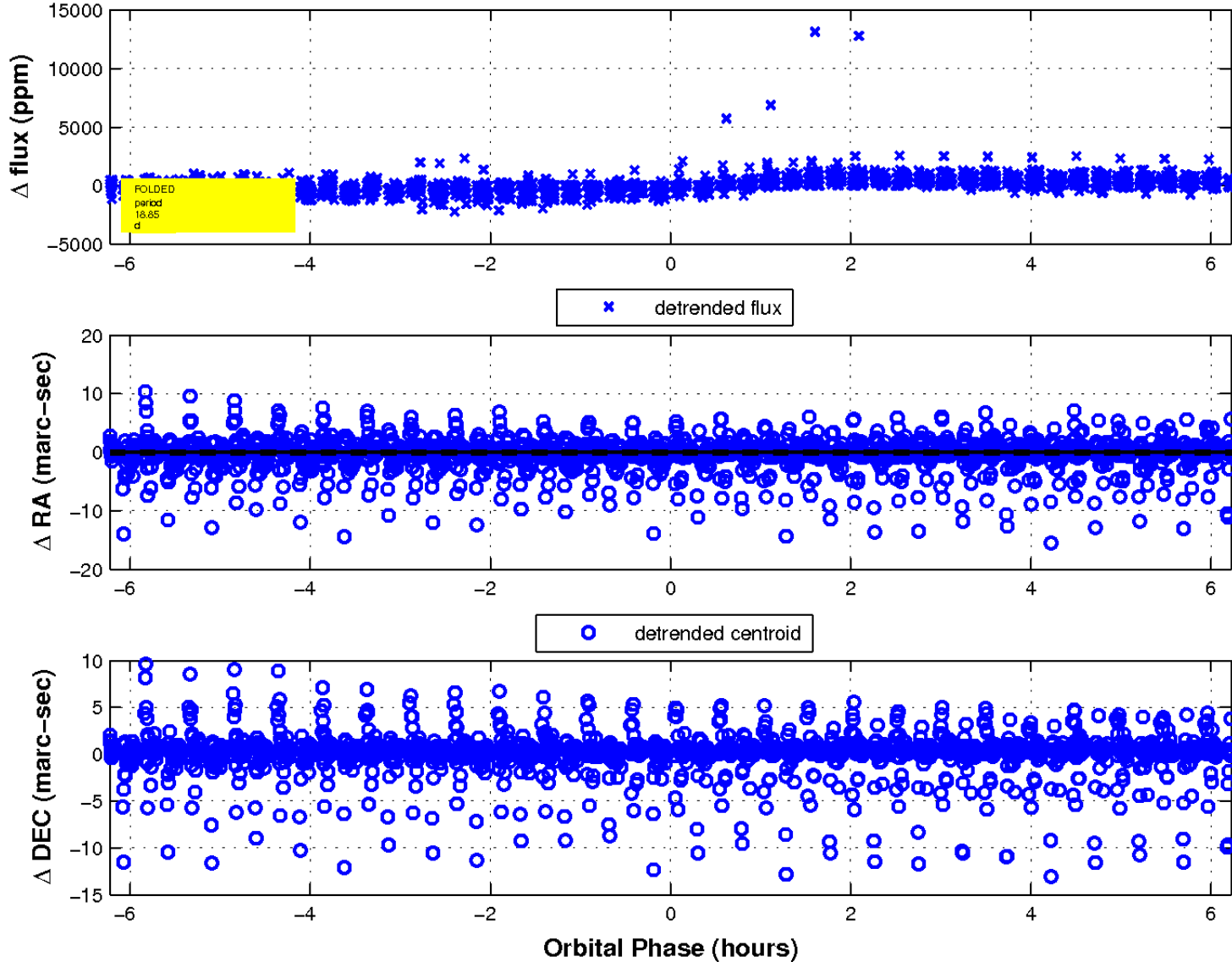
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



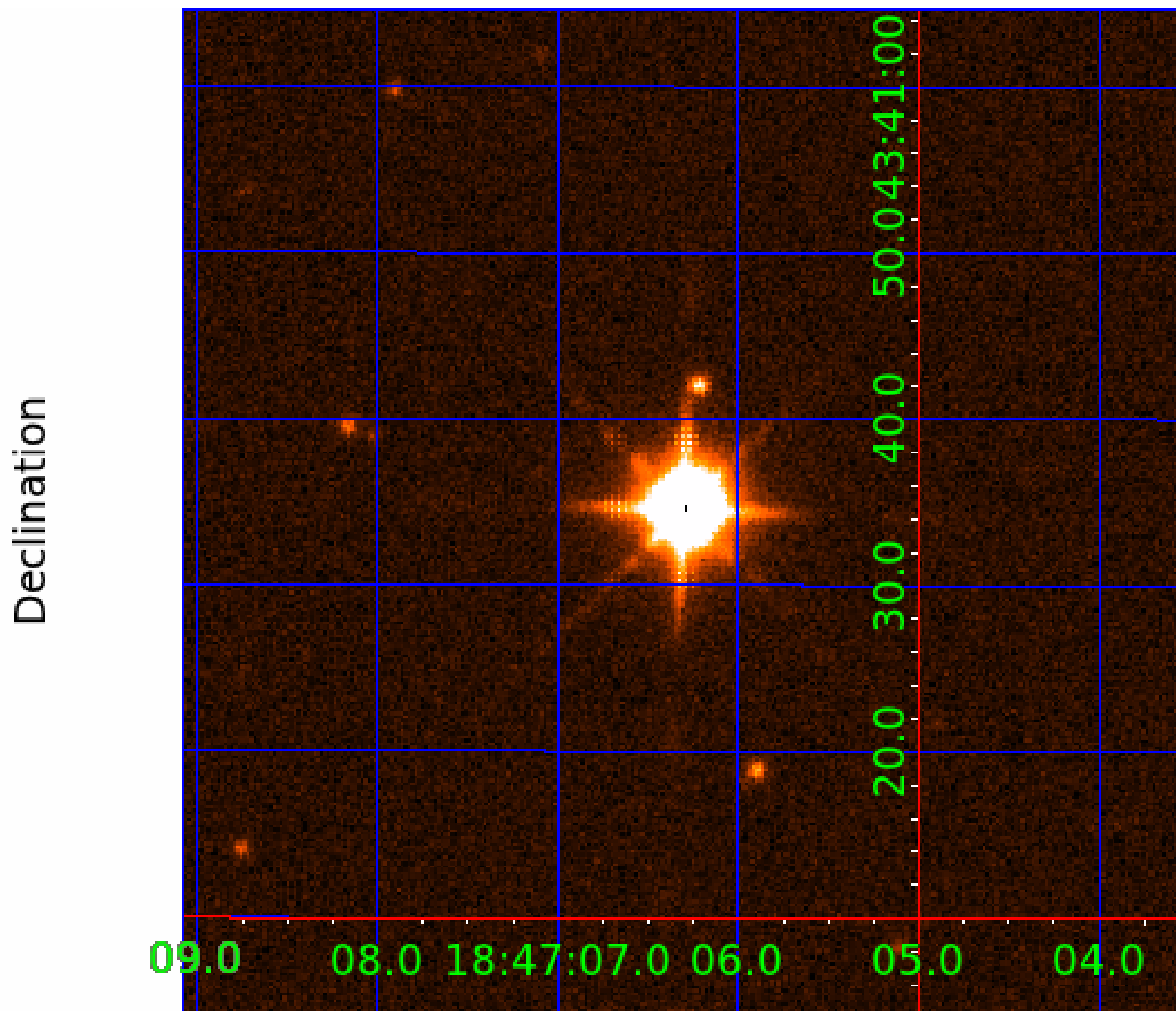
white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 5



UKIRT Image



KIC 007869590

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})
007869590-01	OBS	No	18.849935	144.605702	1193.5	13.163	23.6	27.5	8.10	4649	32.48	1357.92
007869590-02	OBS	No	18.850016	145.459802	1113.4	2.077	55.7	43.5	8.10	4649	25.95	1357.91
007869590-03	OBS	No	464.087424	185.960392	1939.8	13.365	16.4	10.0	8.10	4649	43.39	18.96
007869590-04	OBS	No	444.298942	410.004716	1333.6	5.782	18.2	8.9	8.10	4649	37.00	20.09
007869590-05	OBS	No	336.894953	238.216147	1753.4	9.694	15.5	8.4	8.10	4649	43.85	29.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007869590-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
007869590-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
007869590-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007869590-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007869590-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

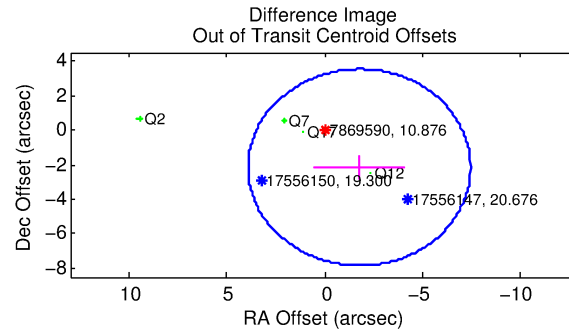
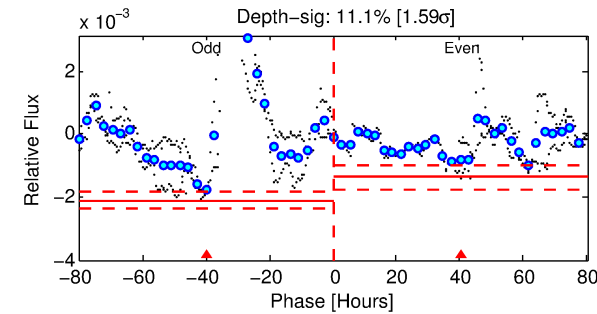
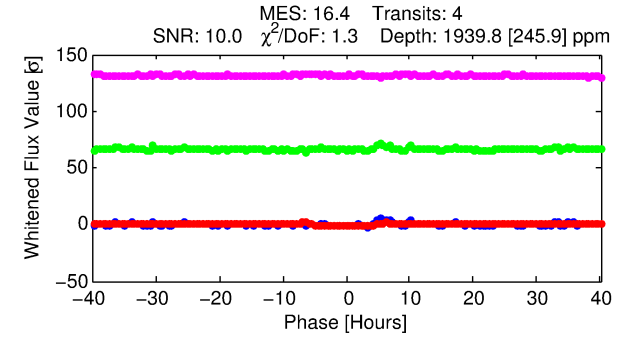
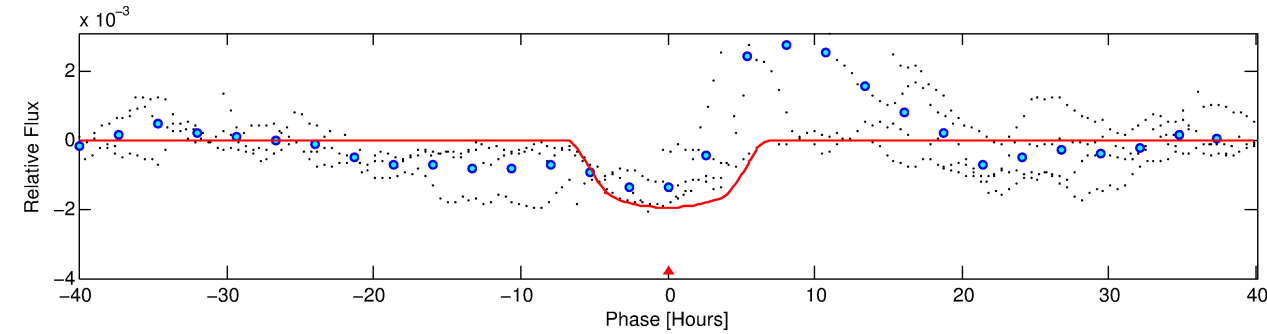
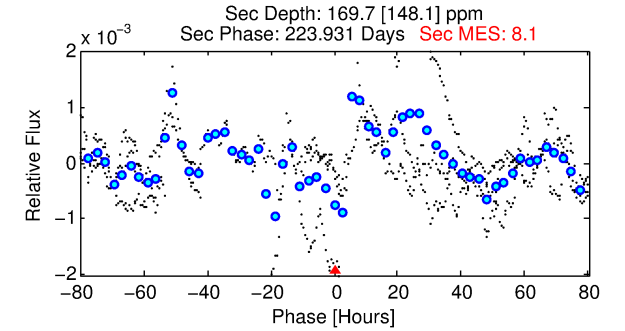
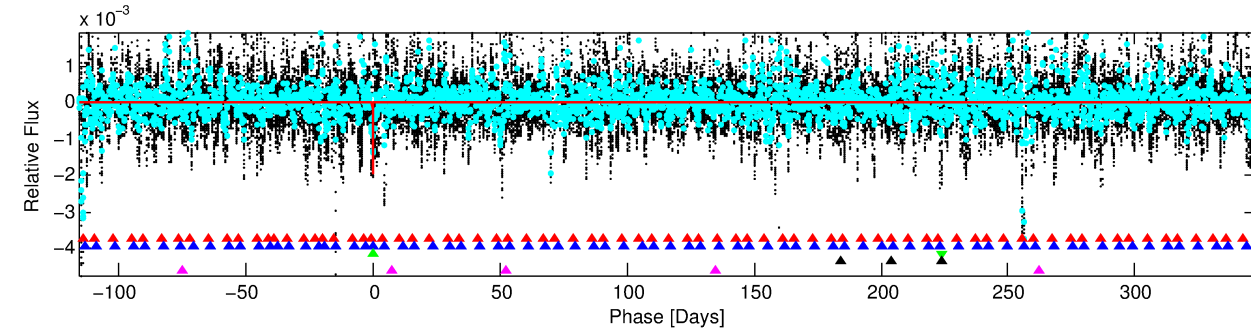
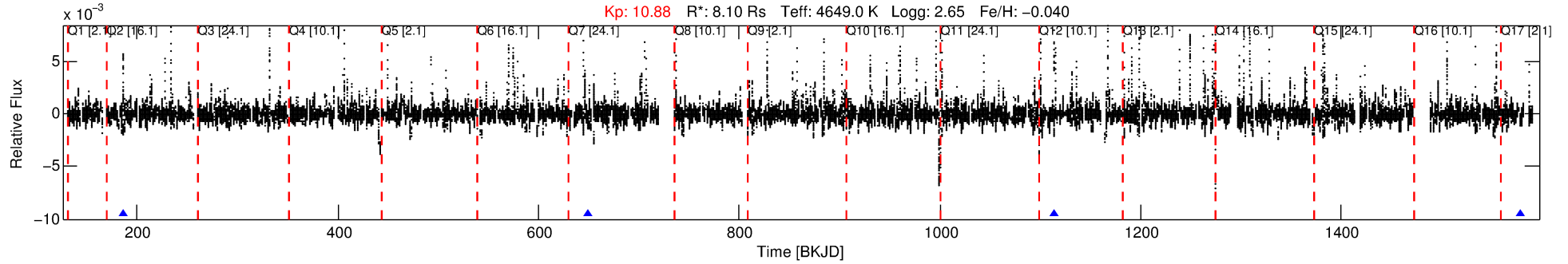
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007869590-03

No Significant Match Found

DV One-Page Summary

KIC: 7869590 Candidate: 3 of 5 Period: 464.087 d



DV Fit Results:

Period = 464.08742 [0.00616] d
Epoch = 185.9604 [0.0104] BKJD
Rp/R* = 0.0491 [0.0033]
a/R* = 147.55 [10.26]
b = 0.89 [0.02]
Seff = 18.96 [12.57]
Teq = 532 [88] K
Rp = 43.39 [19.87] Re
a = 1.2033 [0.5039] AU
Ag = 71.79 [78.87] [0.90σ]
Teffp = 2395 [532] K [3.45σ]

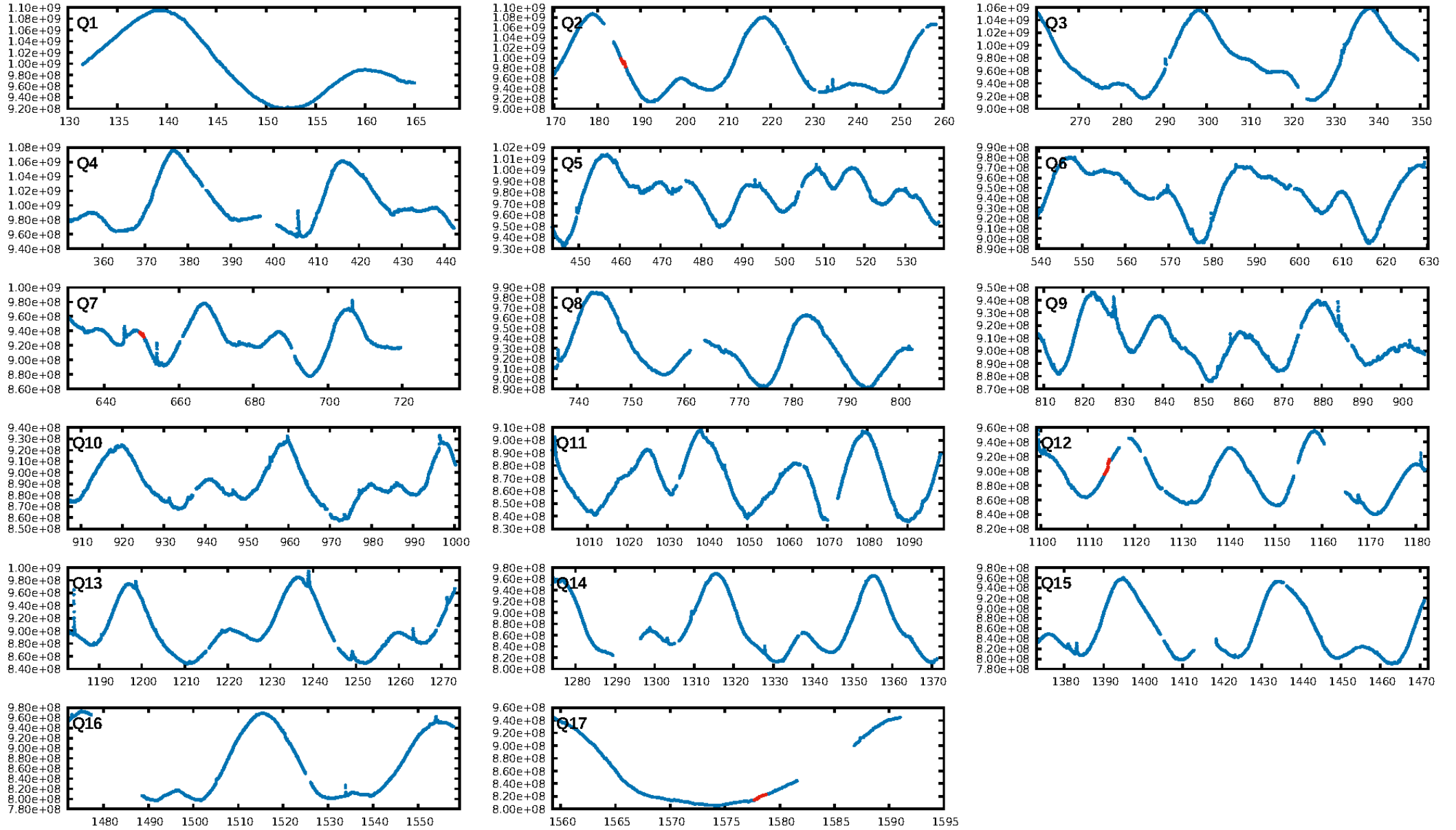
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.61σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 99.5%
Bootstrap-pfa: 5.19e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.241
Centroid-sig: N/A
Centroid-so: 0.333 arcsec [3.23σ]
OotOffset-rm: 2.793 arcsec [1.47σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-rm: 1.900 arcsec [1.46σ]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 0.75 [3/4]

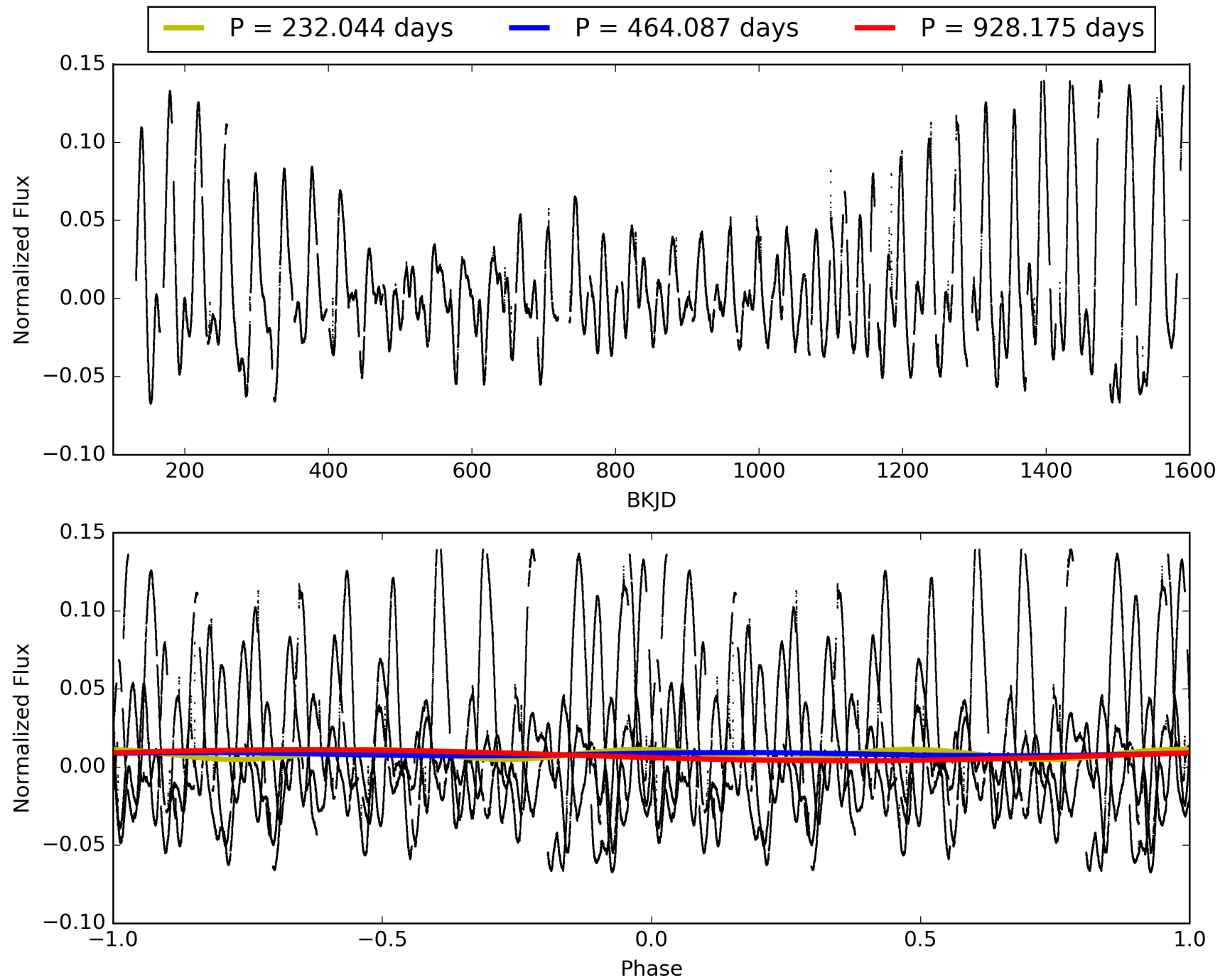
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:45:37 Z

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

TCE 007869590-03, PDC Light Curves

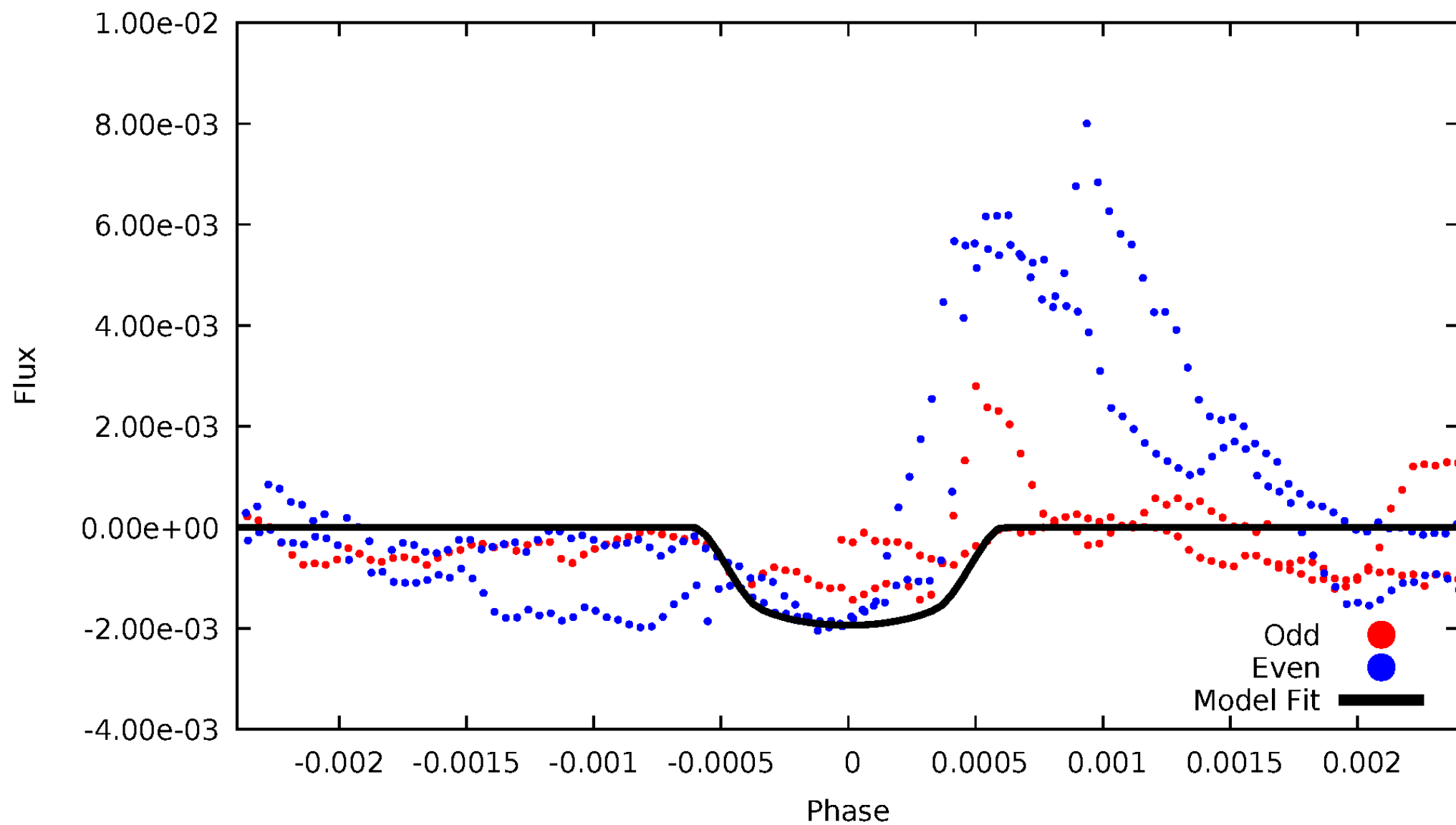


TCE 007869590-03



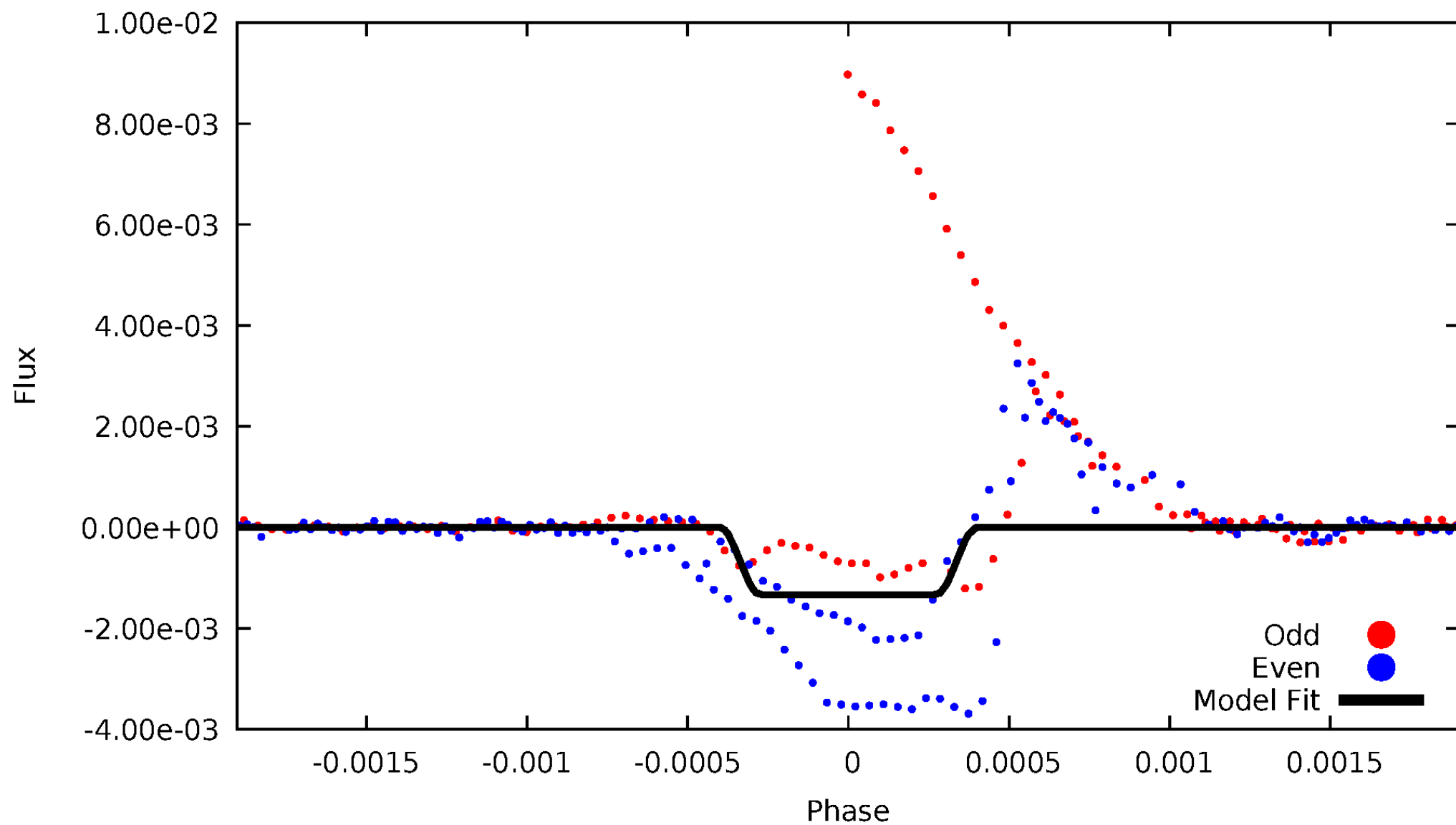
DV Odd/Even

TCE 007869590-03



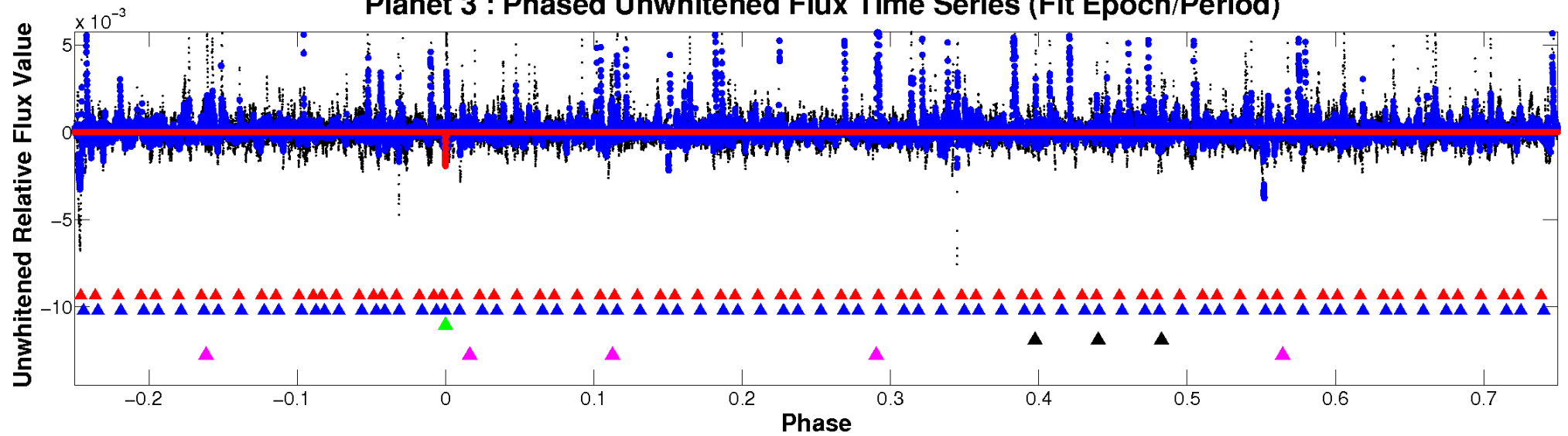
ALT Odd/Even

TCE 007869590-03

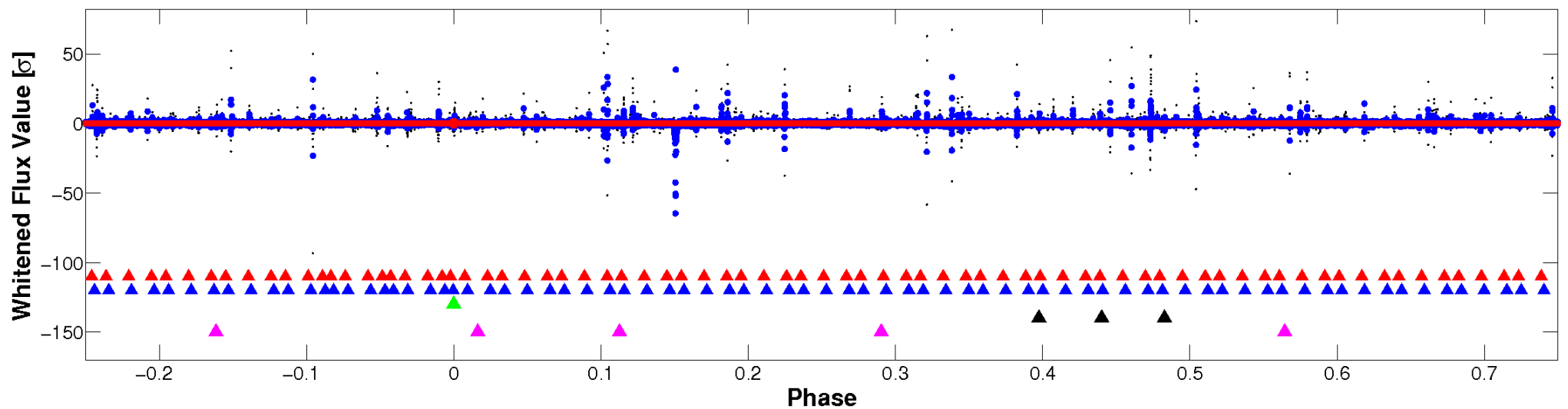


Non-Whitened Vs. Whitened Light Curve

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

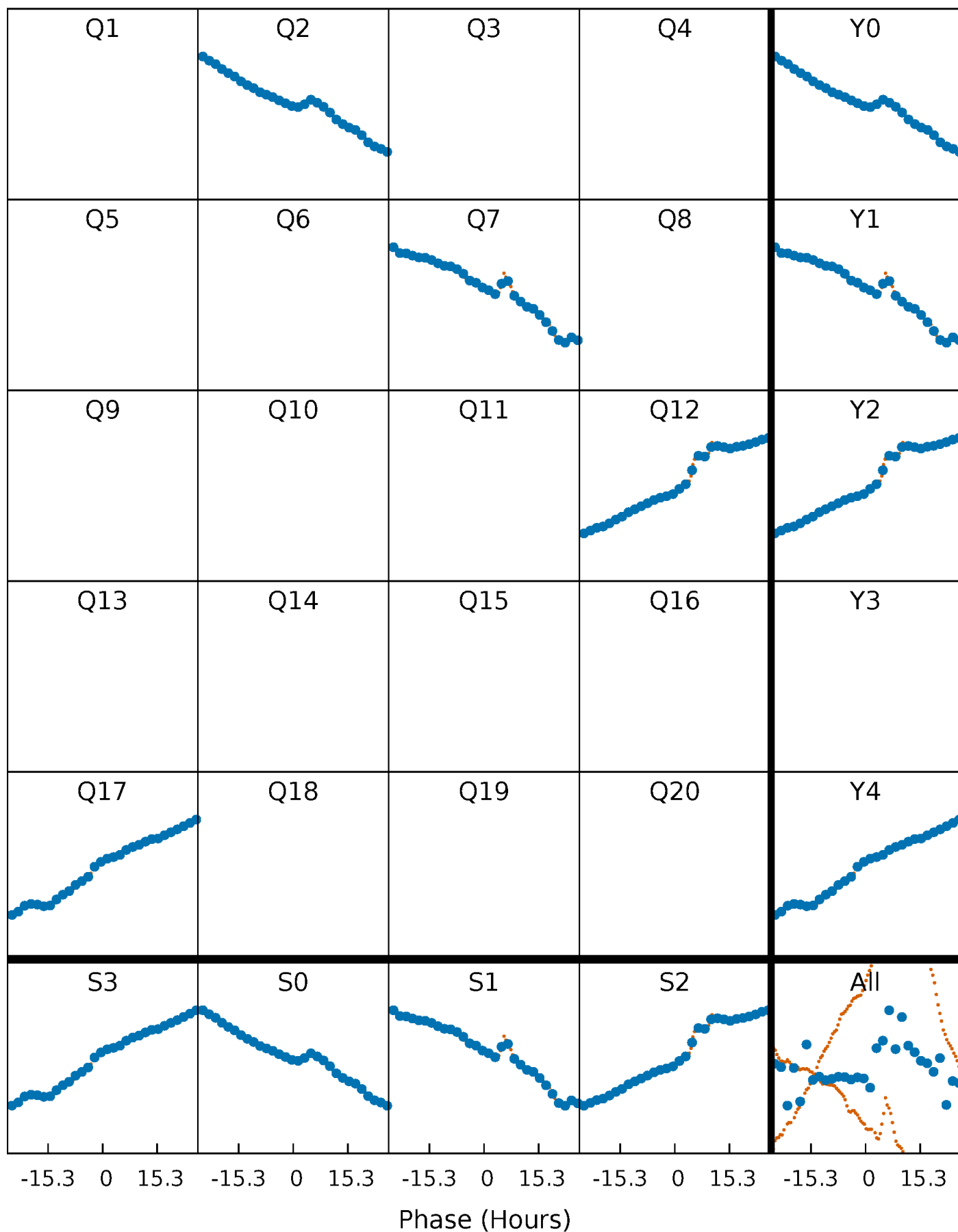


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



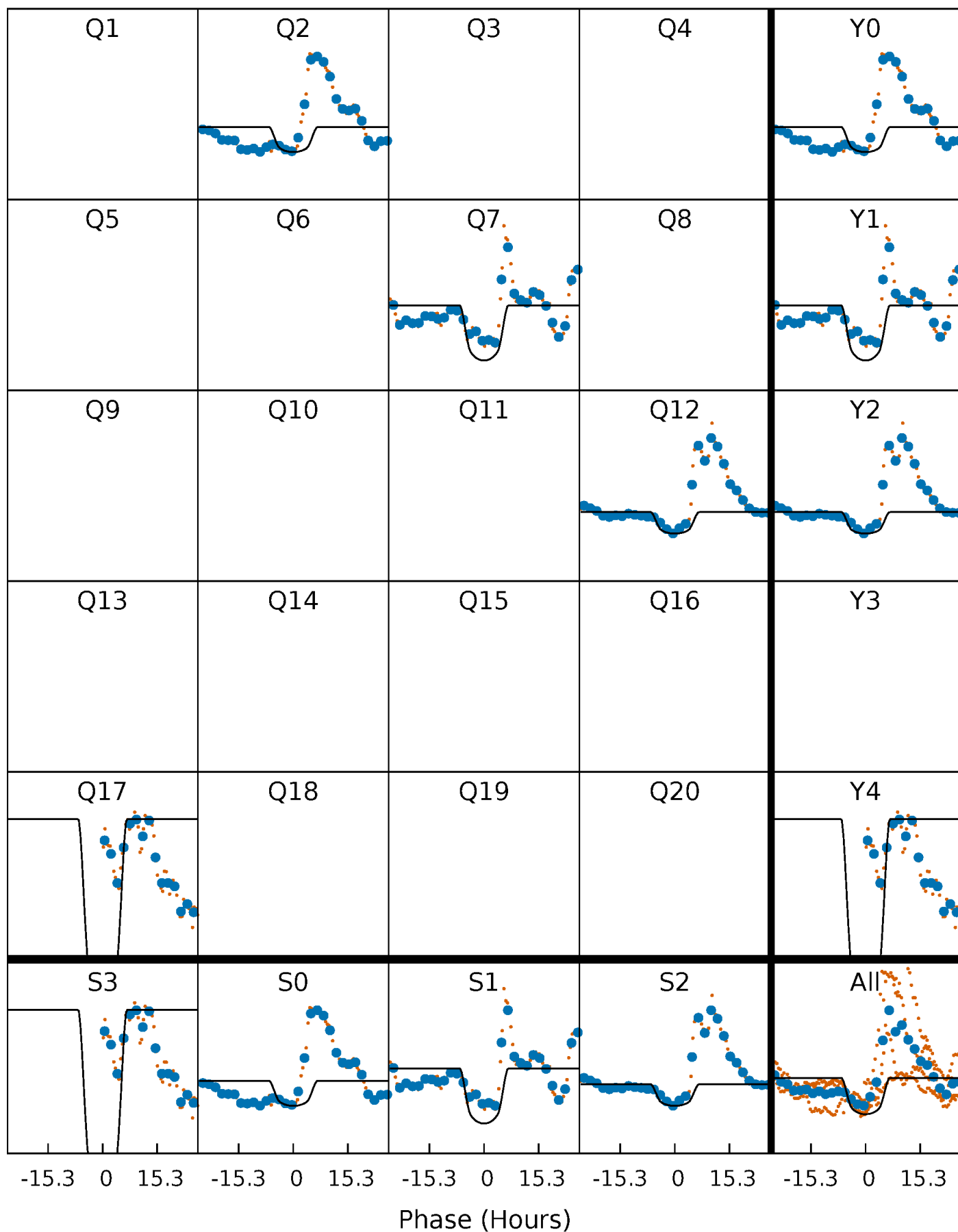
PDC Quarter-Phased Transit Curves

TCE 007869590-03 $P=464.087424$ Days $T_0=185.960392$ (BKJD)



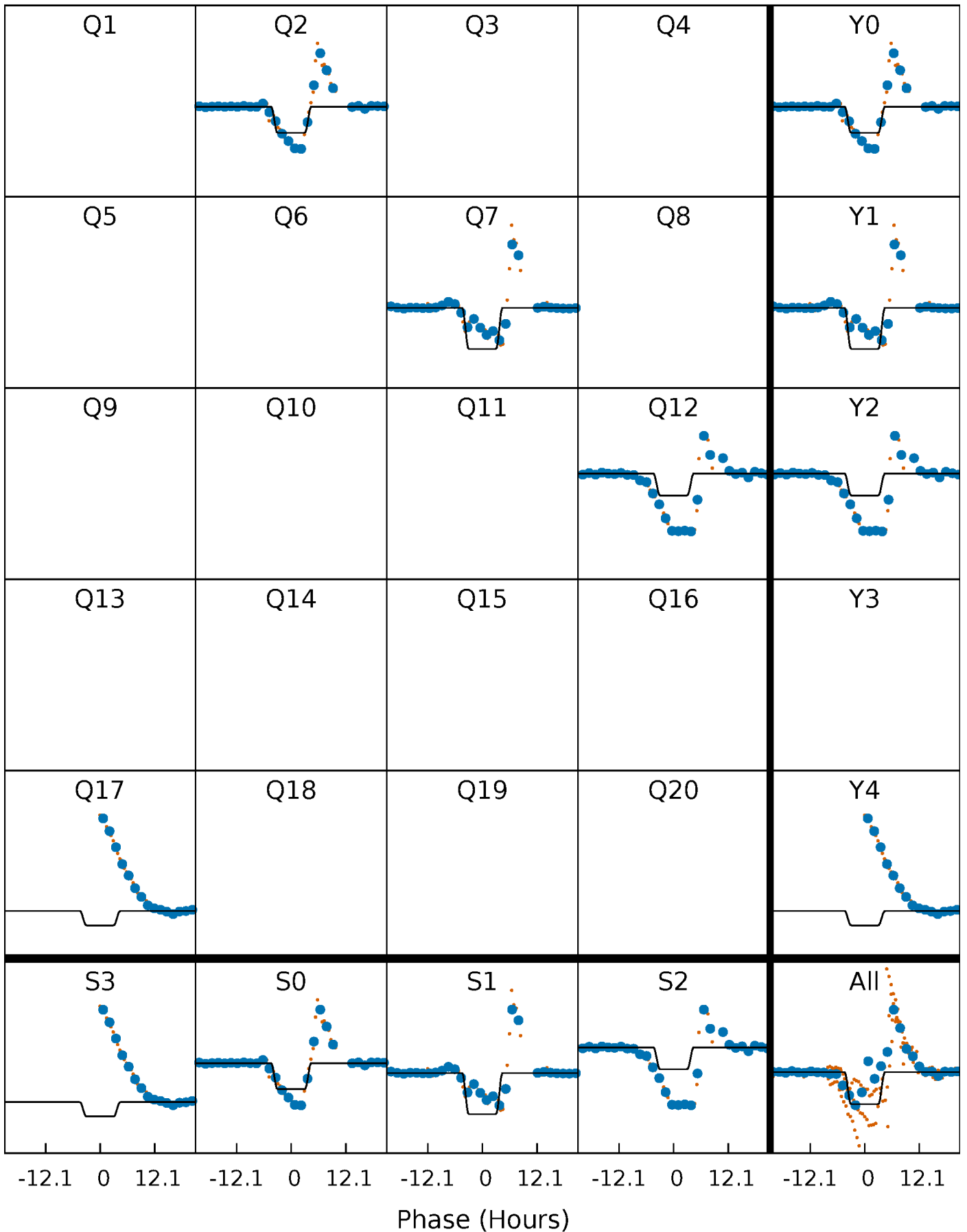
DV Quarter-Phased Transit Curves

TCE 007869590-03 $P=464.087424$ Days $T_0=185.960392$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

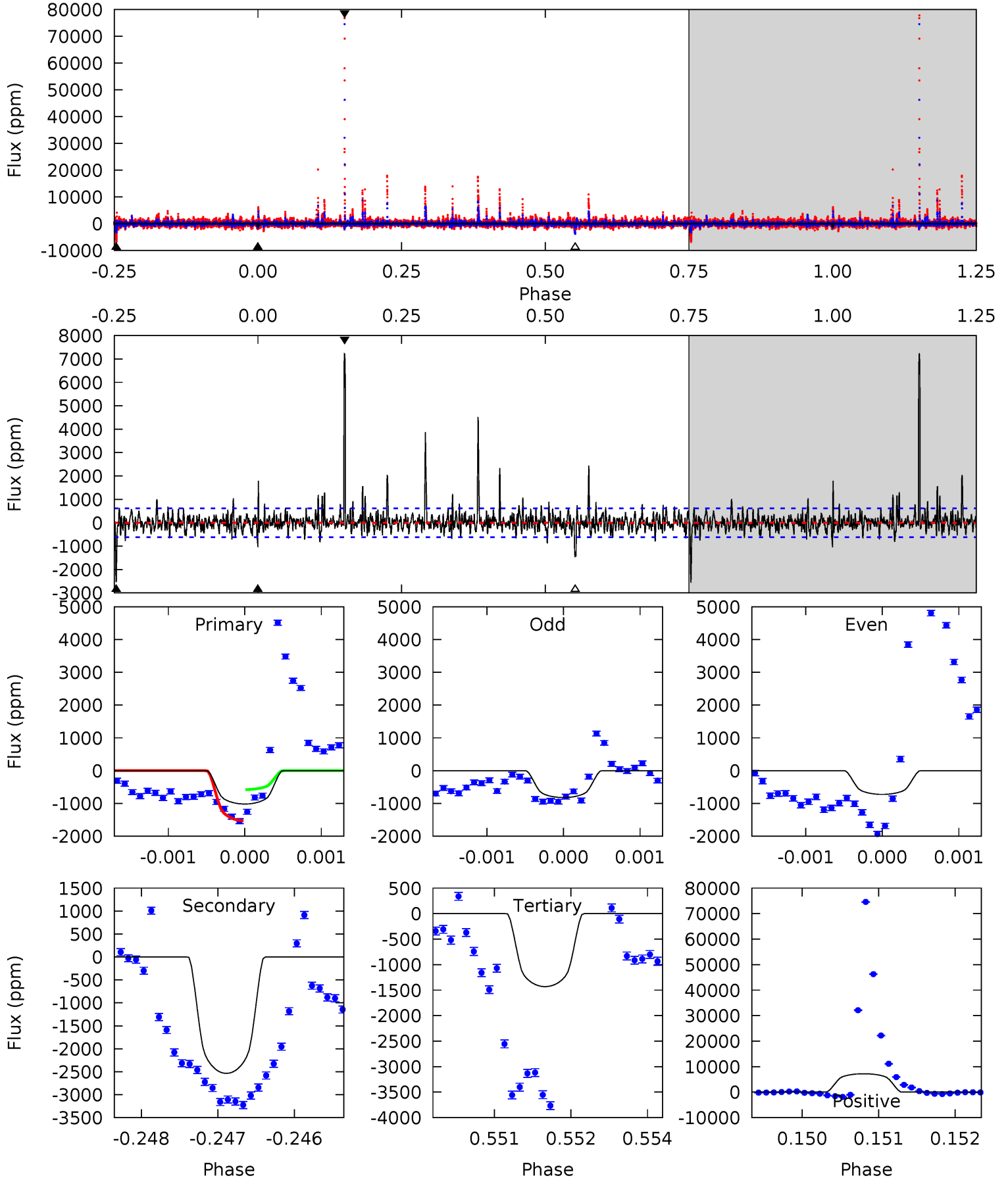
TCE 007869590-03 P=464.100637 Days $T_0=185.909059$ (BKJD)



DV Model-Shift Uniqueness Test

007869590-03, P = 464.087424 Days, E = 185.960392 Days

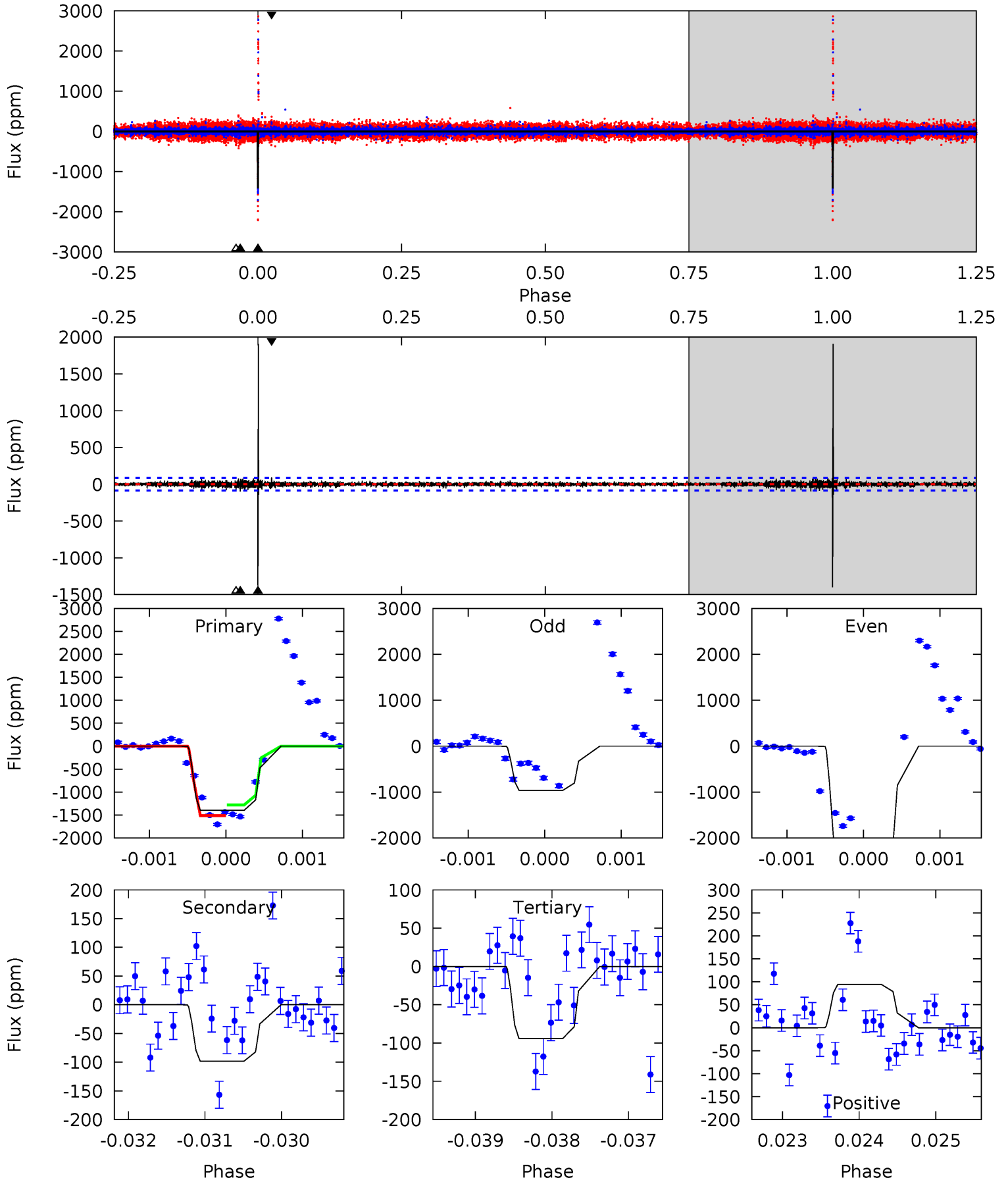
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.94	22.3	12.6	63.4	5.41	3.23	3.62	-3.63	-54.4	9.69	-41.1	0.39	0.97	0.74	4.19



Alt Model-Shift Uniqueness Test

007869590-03, P = 464.100637 Days, E = 185.909059 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
91.2	6.41	6.14	6.14	5.49	3.36	1.10	85.0	85.0	0.27	0.27	53.7	-0.49	0.58	7.23



Stellar Parameters For KIC 007869590

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4649^{+127}_{-104}	$2.654^{+0.378}_{-0.252}$	$-0.040^{+0.250}_{-0.200}$	$8.099^{+3.669}_{-3.002}$	$1.081^{+0.425}_{-0.100}$	$0.003^{+0.008}_{-0.002}$
	+3%/-2%	+14%/-9%	+625%/-500%	+45%/-37%	+39%/-9%	+293%/-66%
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 007869590-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2535 ± 114	$43.97^{+10.36}_{-8.94}$	740^{+76}_{-83}	4703^{+180}_{-163}	1096^{+659}_{-340}
Alt.	-98 ± 15	$32.68^{+9.11}_{-7.20}$	738^{+83}_{-78}	2999^{+114}_{-110}	75^{+52}_{-26}

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

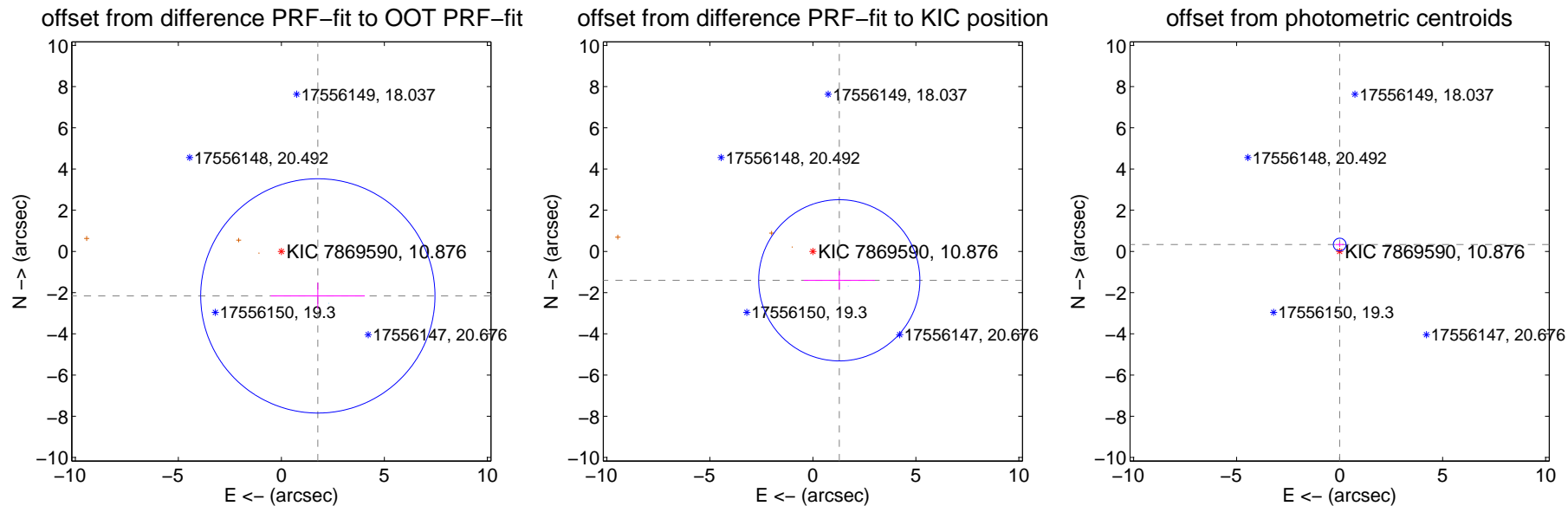
DV Centroid Data

Supplemental centroid analysis for 007869590-03. **Kepler magnitude: 10.88.** Transit SNR 9.97

There are 1 quarters with good PRF difference image offsets

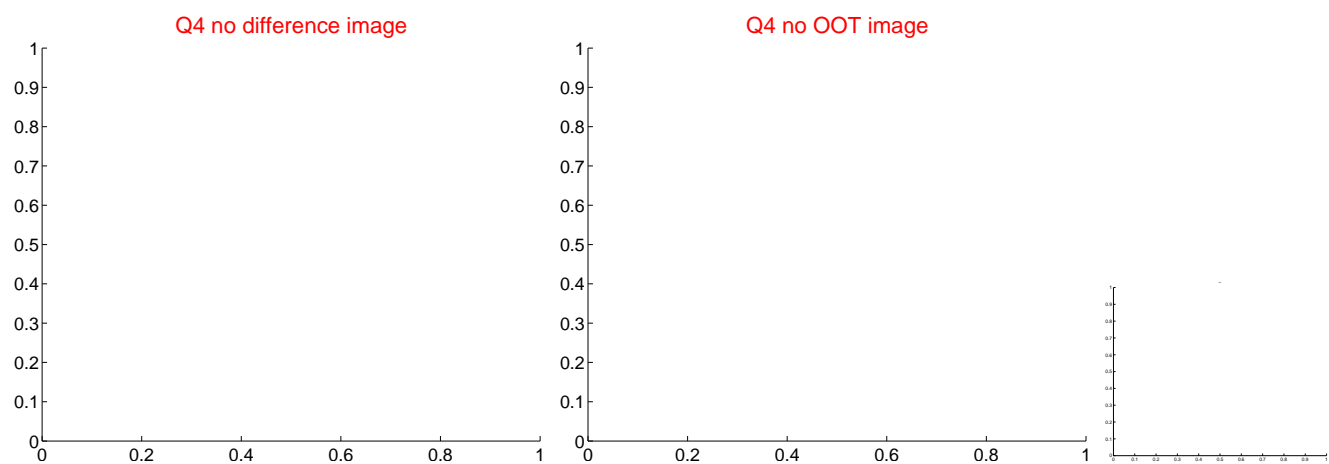
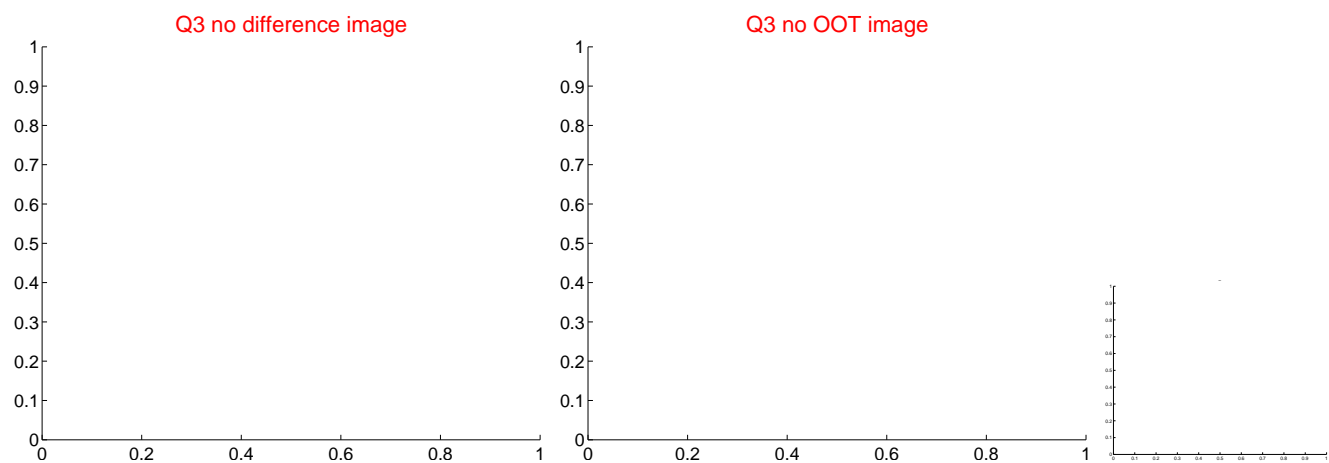
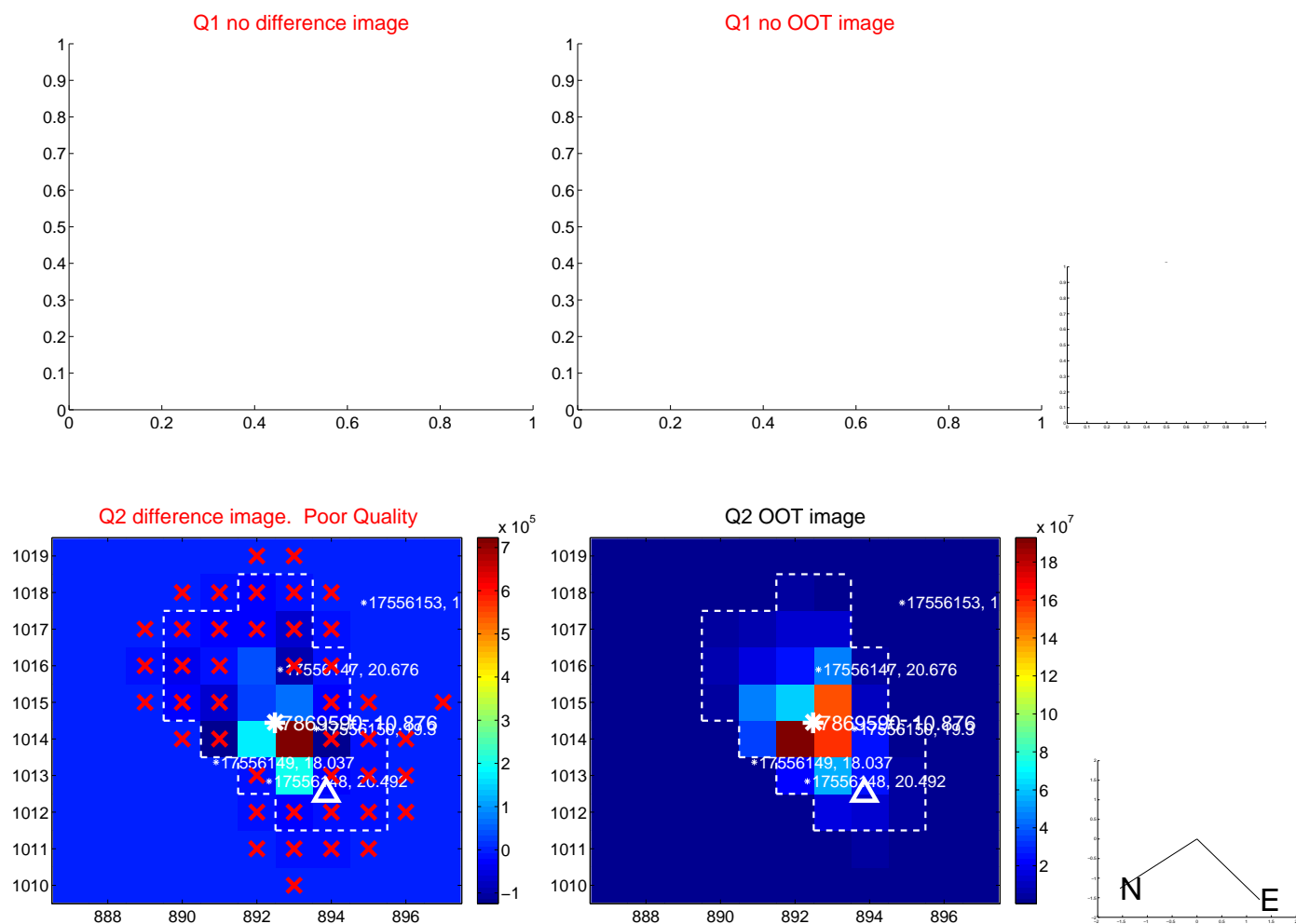
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.793 ± 1.895	1.47	-1.771 ± 2.282	-2.159 ± 0.643
PRF-fit source offset from KIC position	1.900 ± 1.304	1.46	-1.282 ± 1.727	-1.402 ± 0.457
photometric centroid source offset	0.33 ± 0.10	3.23	-0.00 ± 0.21	0.33 ± 0.10

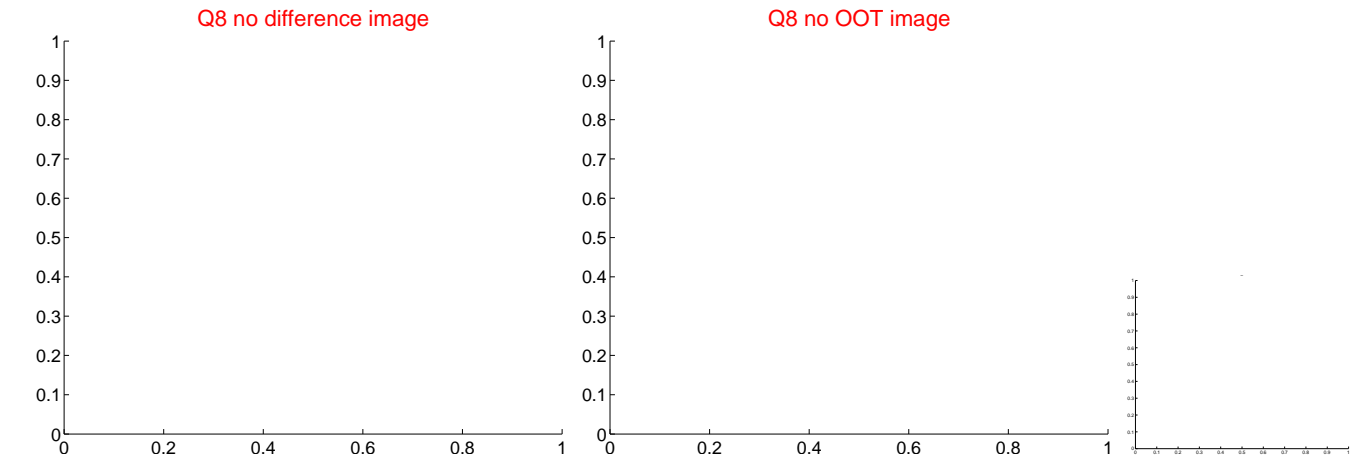
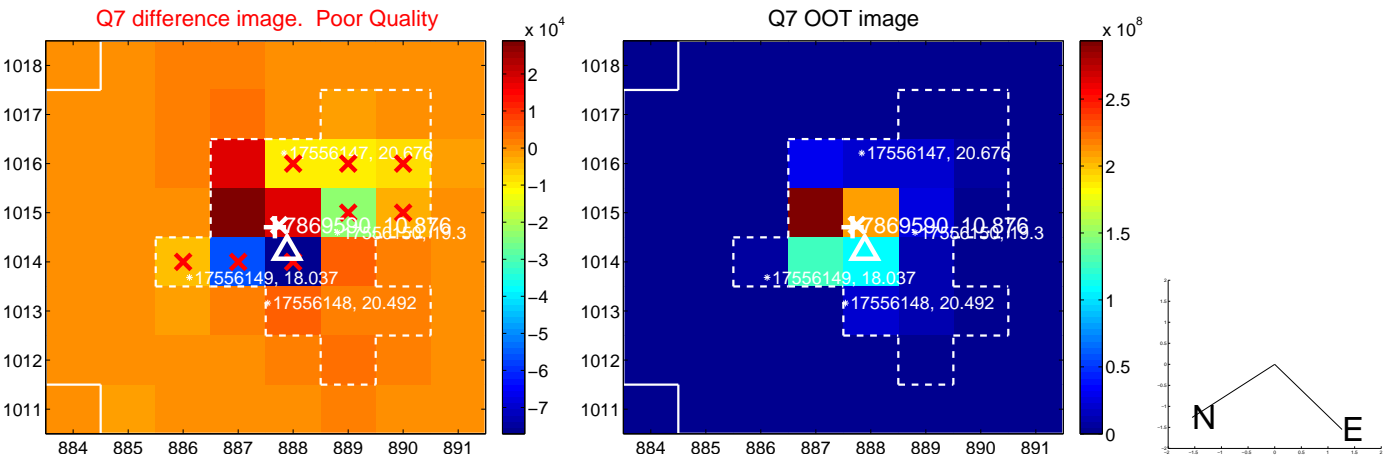
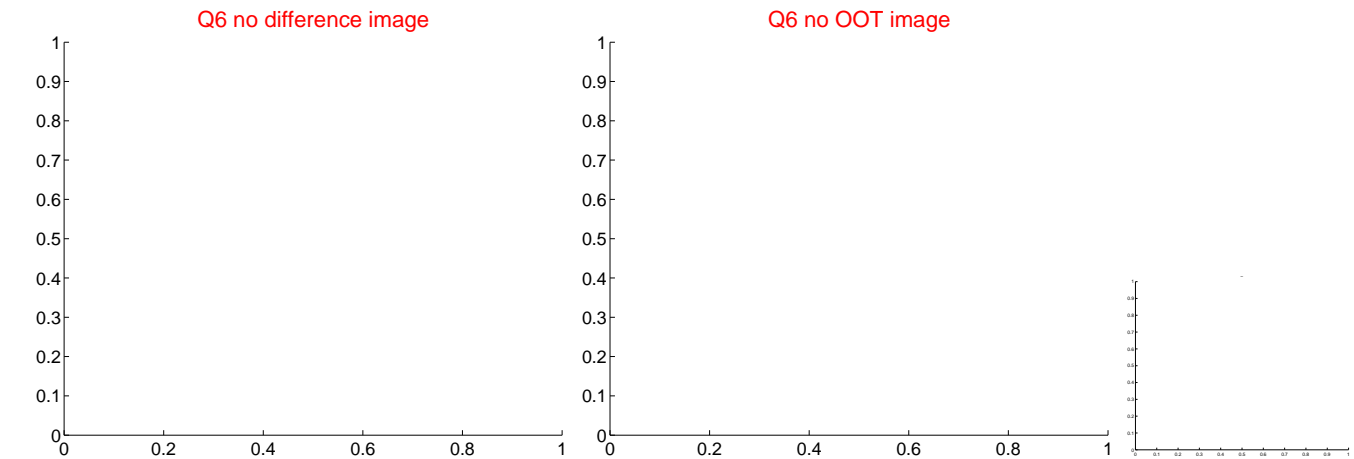
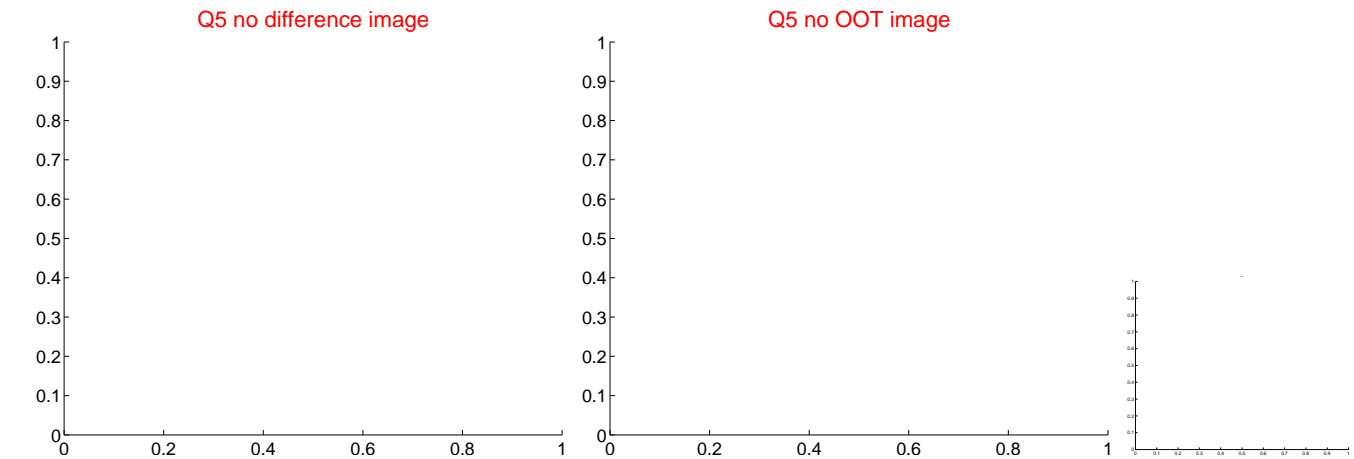


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

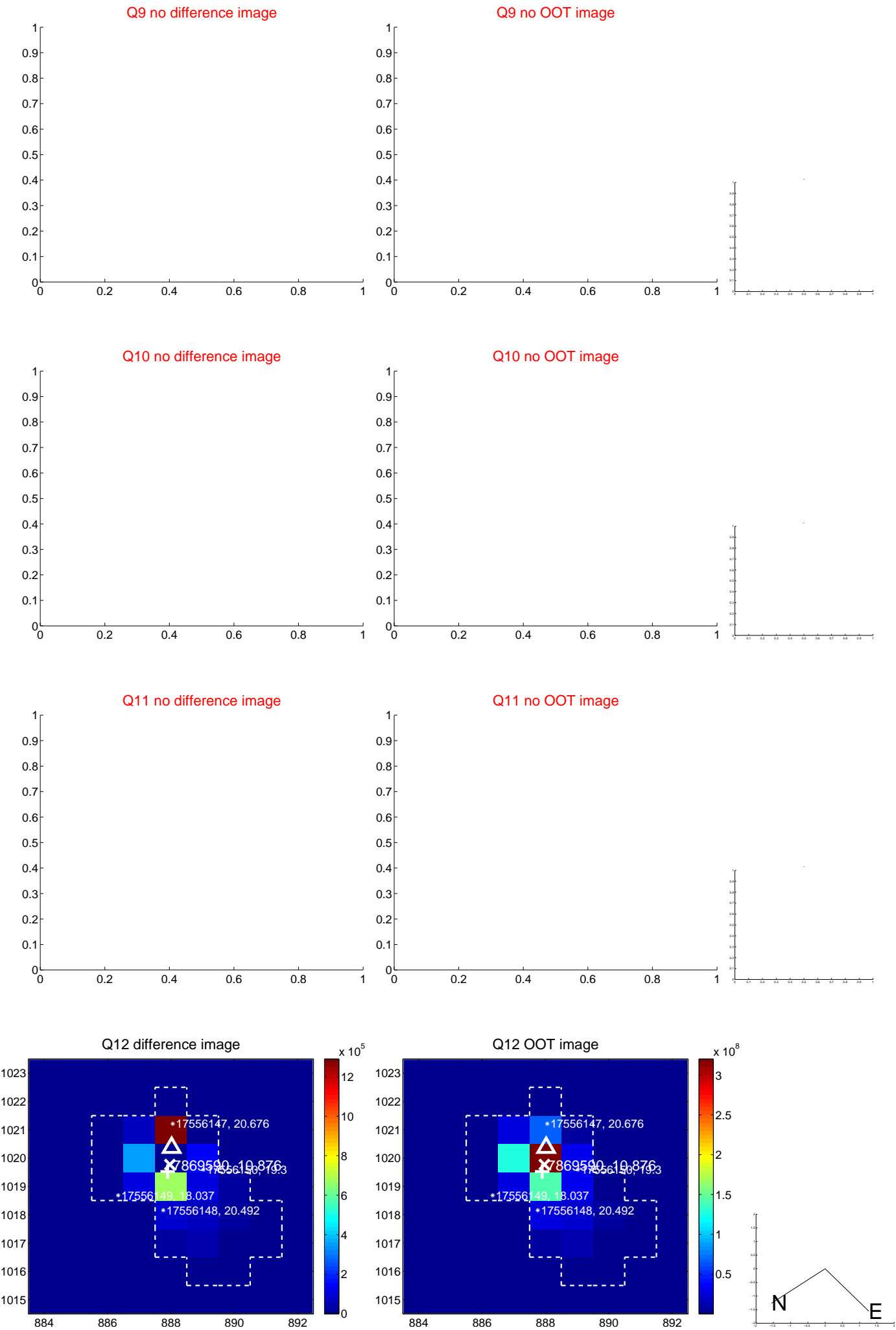
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



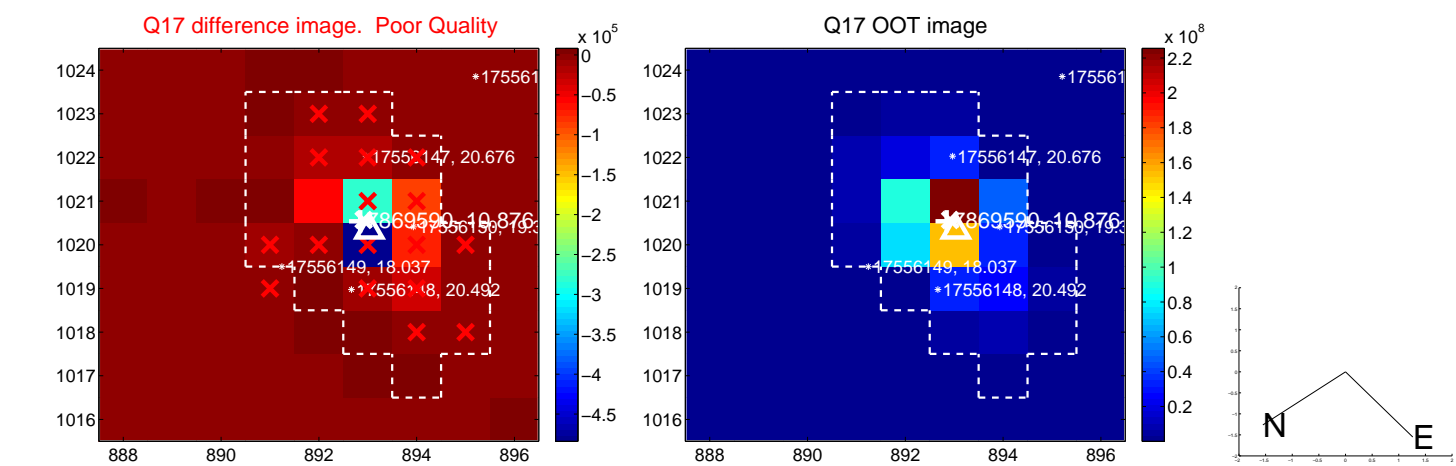
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



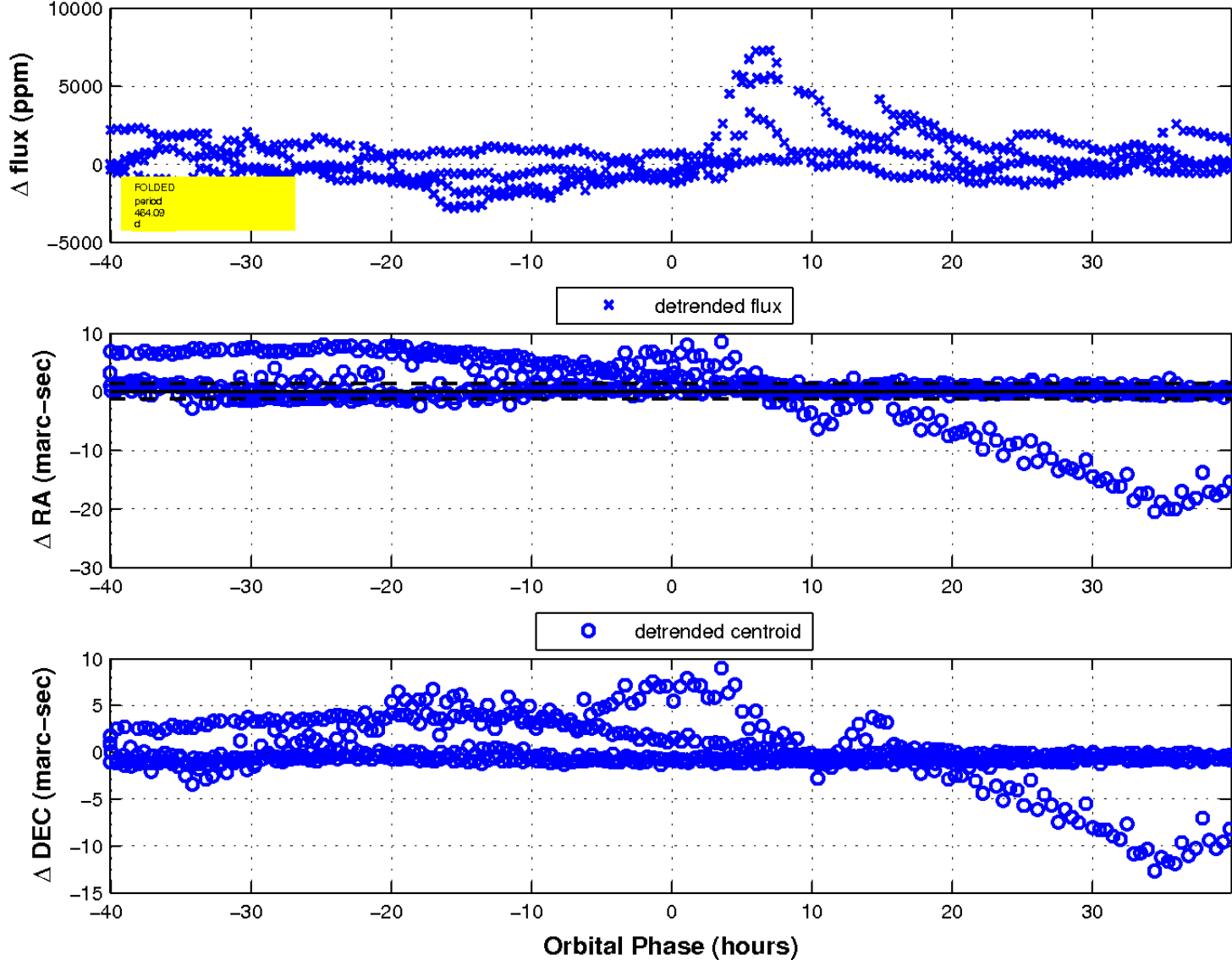
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



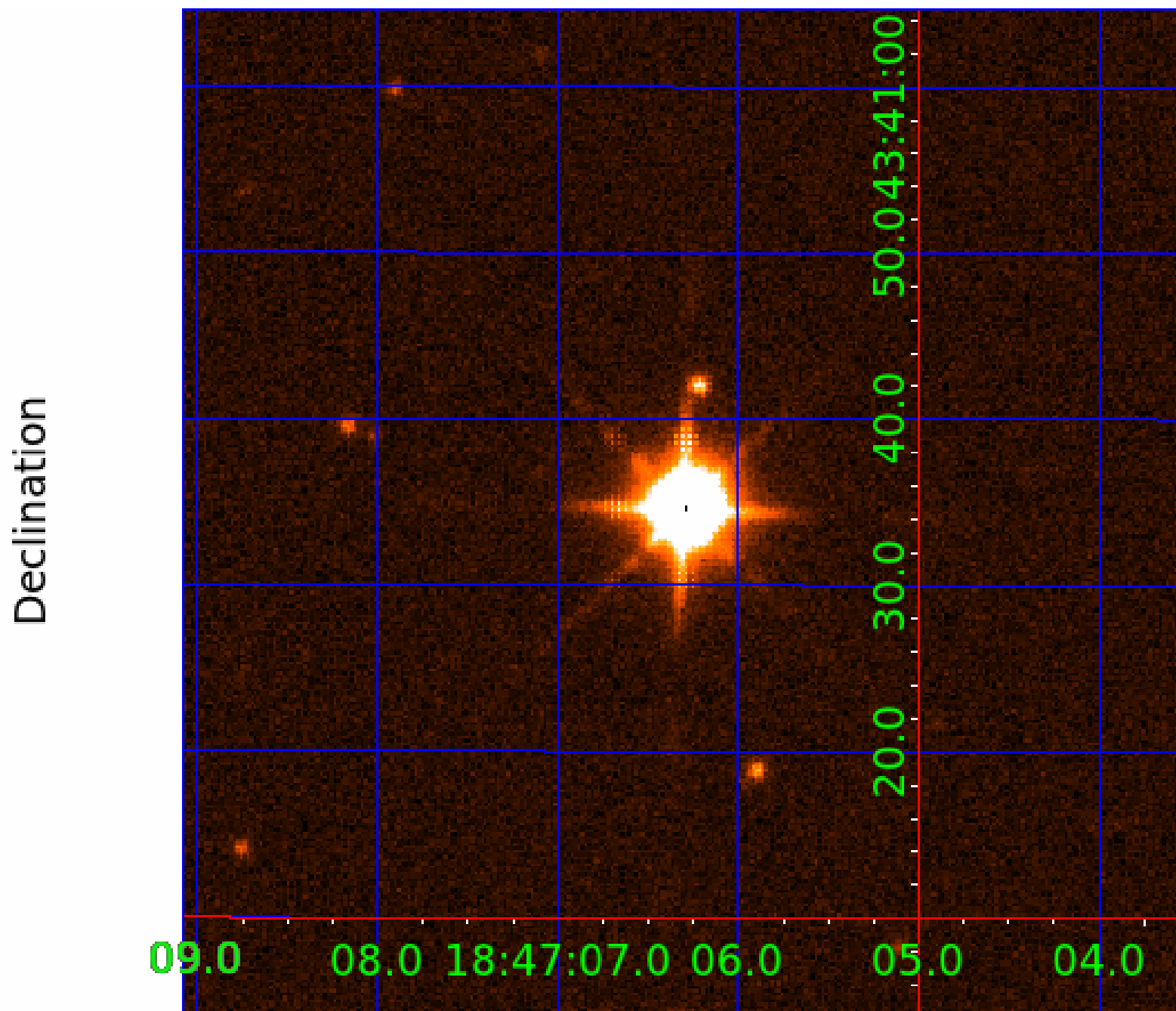
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 5



UKIRT Image



KIC 007869590

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})
007869590-01	OBS	No	18.849935	144.605702	1193.5	13.163	23.6	27.5	8.10	4649	32.48	1357.92
007869590-02	OBS	No	18.850016	145.459802	1113.4	2.077	55.7	43.5	8.10	4649	25.95	1357.91
007869590-03	OBS	No	464.087424	185.960392	1939.8	13.365	16.4	10.0	8.10	4649	43.39	18.96
007869590-04	OBS	No	444.298942	410.004716	1333.6	5.782	18.2	8.9	8.10	4649	37.00	20.09
007869590-05	OBS	No	336.894953	238.216147	1753.4	9.694	15.5	8.4	8.10	4649	43.85	29.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007869590-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
007869590-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
007869590-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007869590-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007869590-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

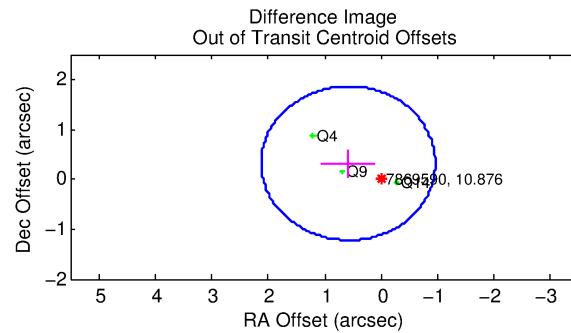
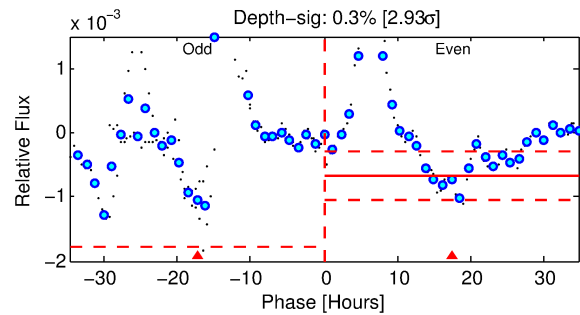
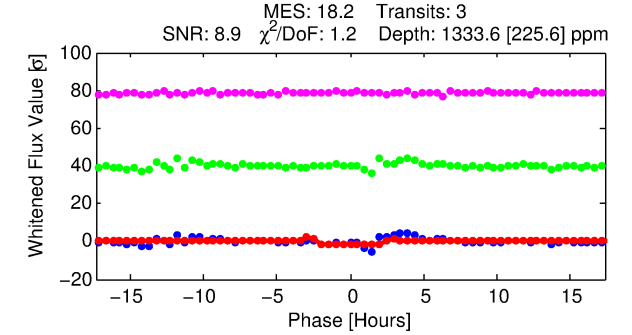
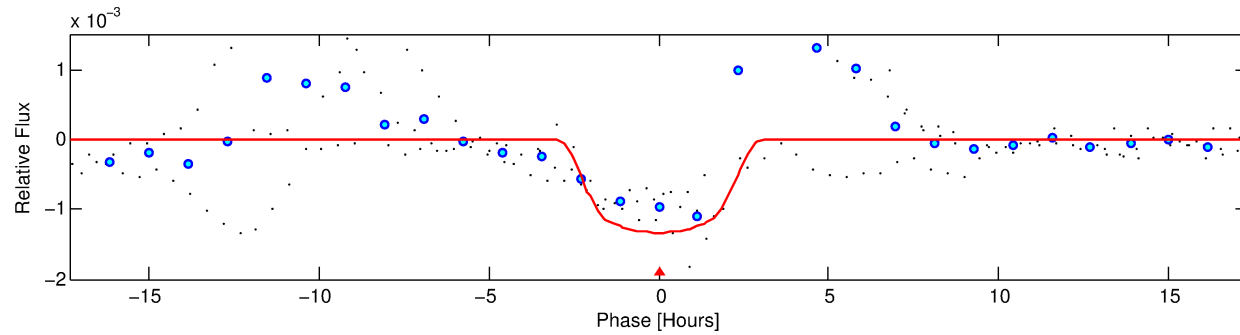
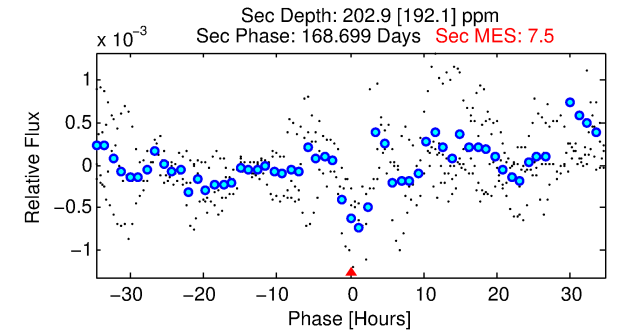
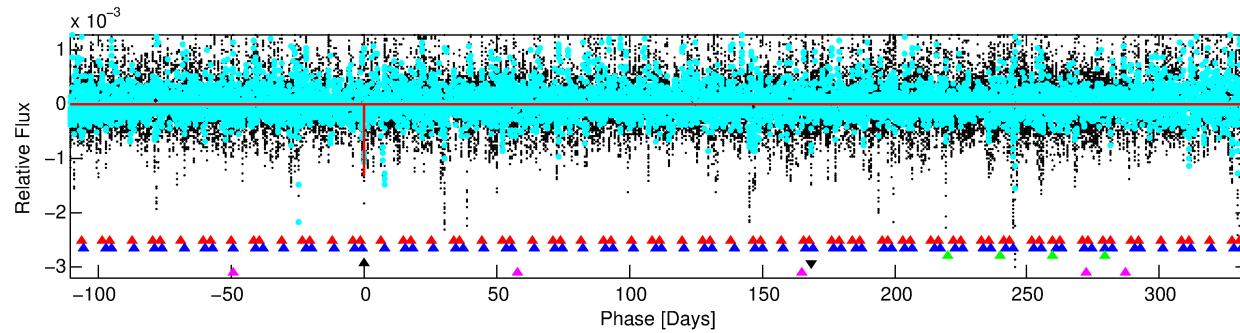
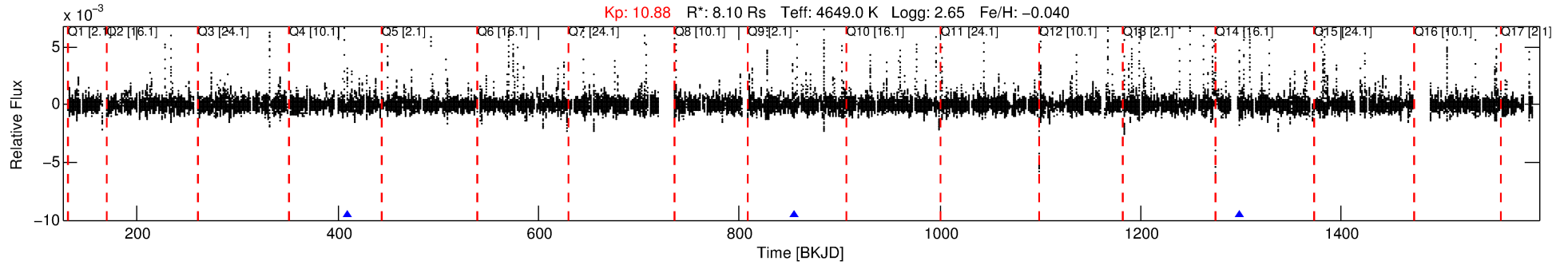
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007869590-04

No Significant Match Found

DV One-Page Summary

KIC: 7869590 Candidate: 4 of 5 Period: 444.299 d



DV Fit Results:

Period = 444.29894 [0.00470] d
Epoch = 410.0047 [0.0058] BKJD
 R_p/R^* = 0.0419 [0.0040]
 a/R^* = 296.38 [34.67]
 b = 0.91 [0.02]
 S_{eff} = 20.09 [13.33]
 T_{eq} = 540 [90] K
 R_p = 37.00 [17.13] R_e
 a = 1.1689 [0.4895] AU
 A_g = 111.41 [130.00] [0.85 σ]
 T_{eff} = 2712 [659] K [3.26 σ]

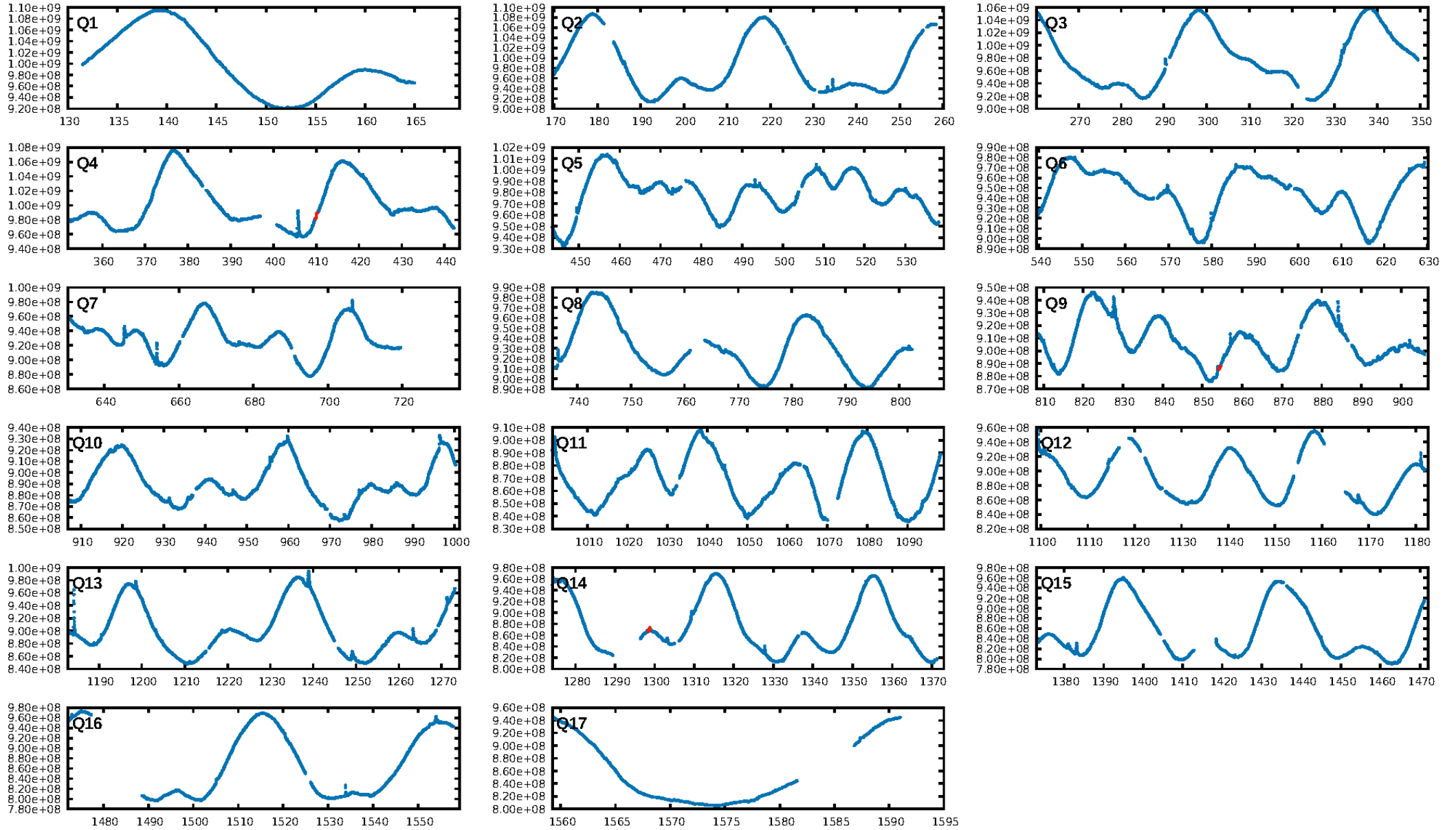
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [228.36 σ]
LongPeriod-sig: 100.0% [32.61 σ]
ModelChiSquare2-sig: 0.9%
ModelChiSquareGof-sig: 92.0%
Bootstrap-pfa: 3.33e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.221
Centroid-sig: N/A
Centroid-so: 0.730 arcsec [3.57 σ]
OotOffset-rm: 0.663 arcsec [1.29 σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-rm: 1.187 arcsec [1.62 σ]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

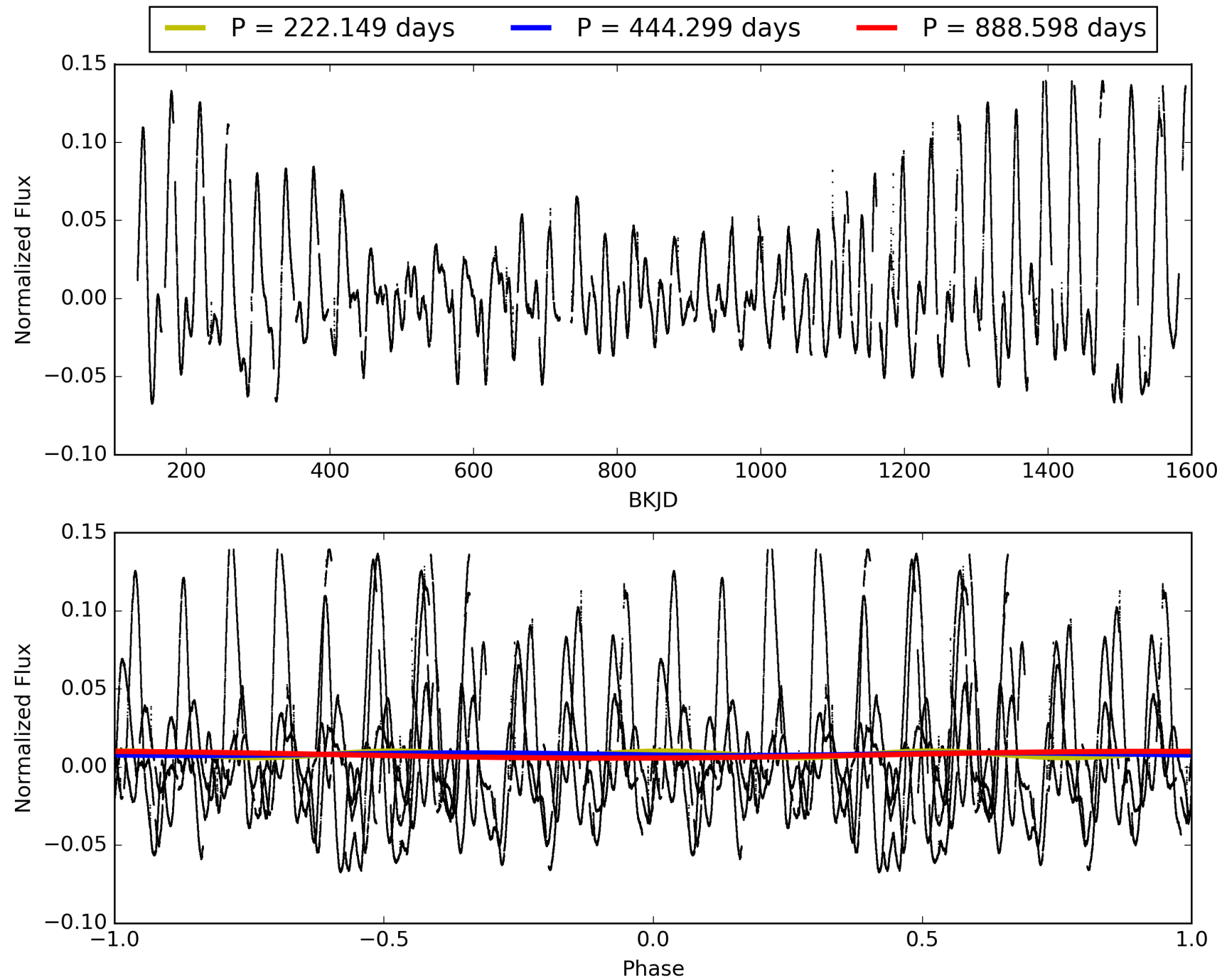
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:45:49 Z

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

TCE 007869590-04, PDC Light Curves

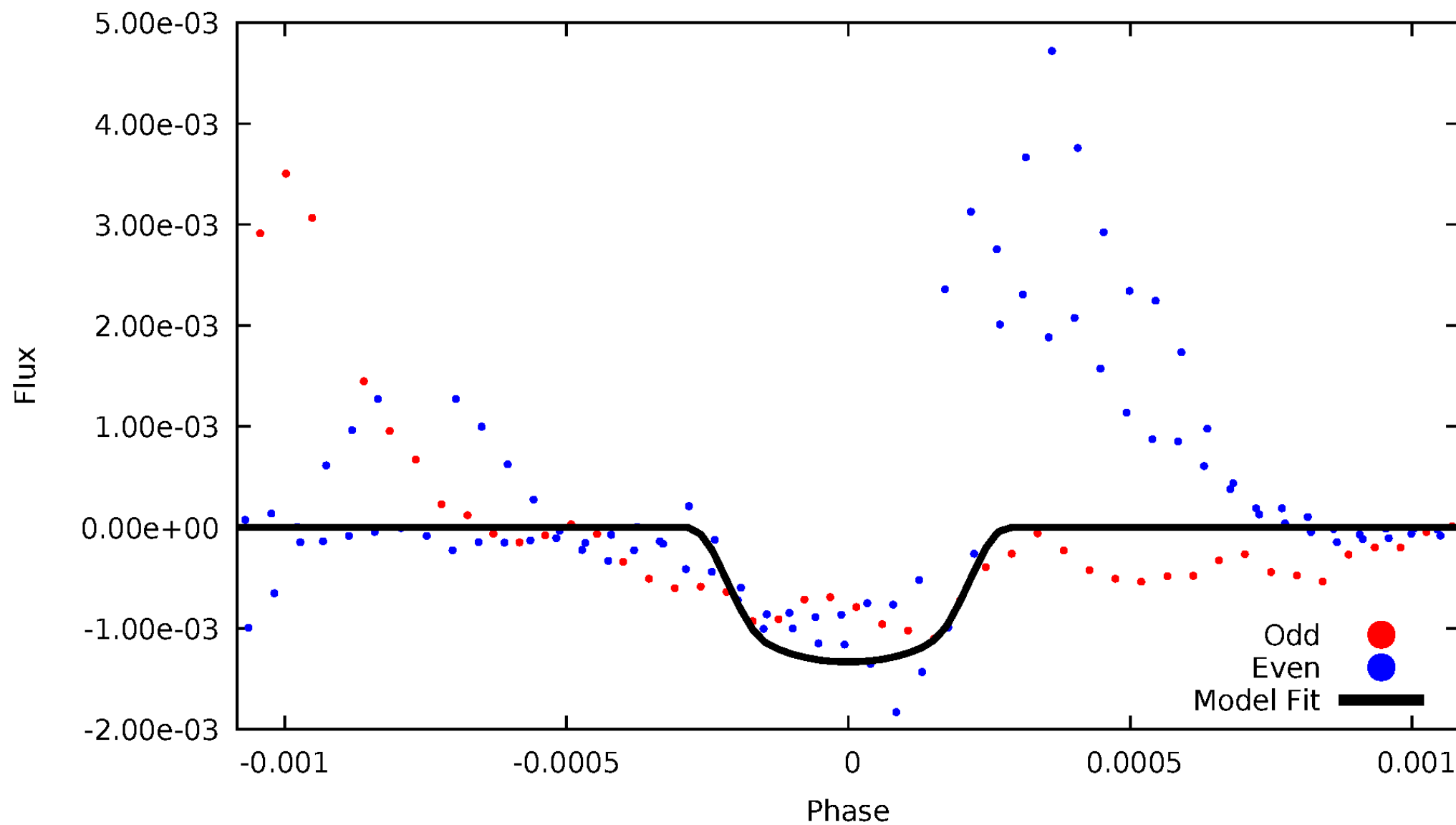


TCE 007869590-04



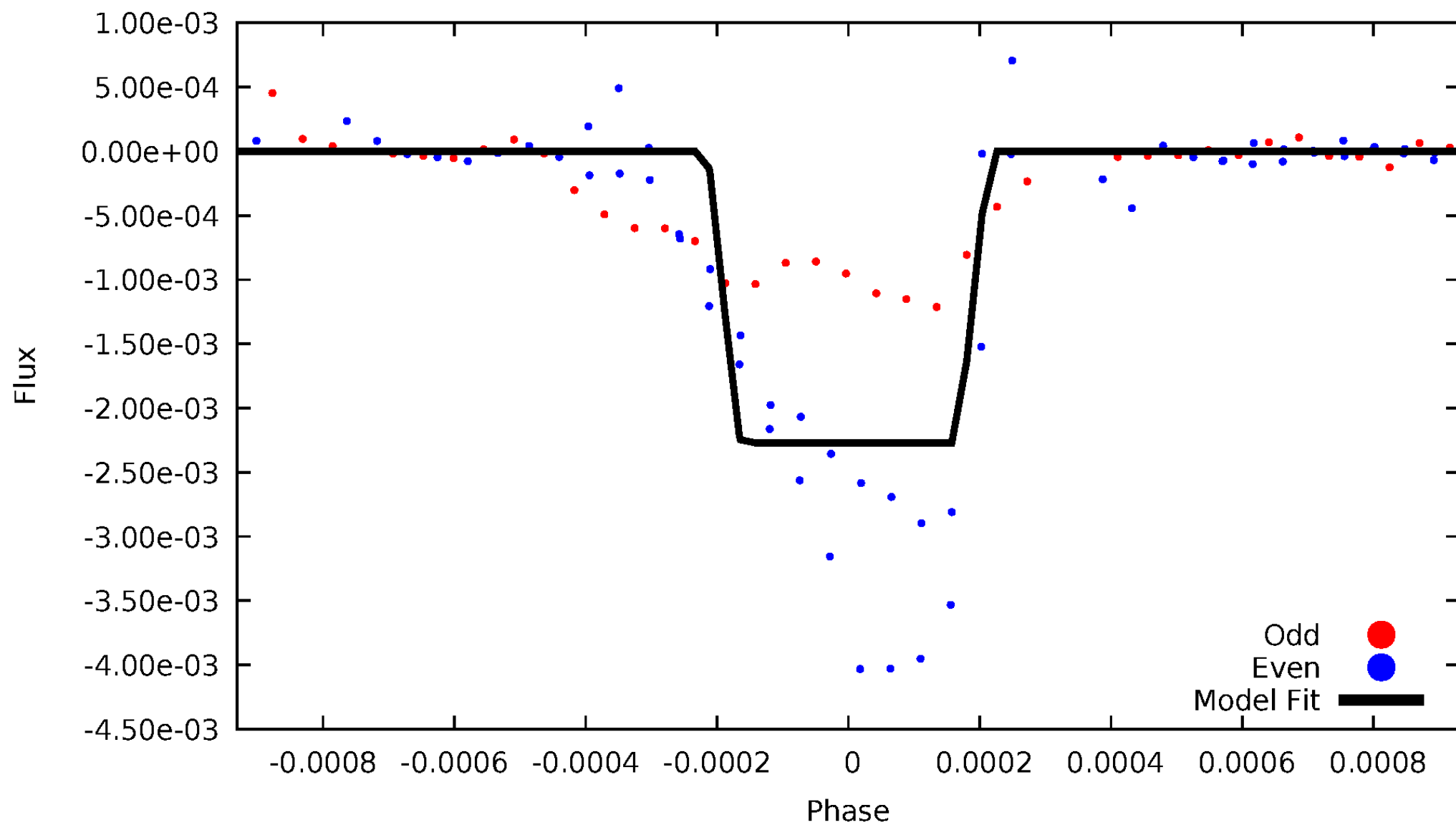
DV Odd/Even

TCE 007869590-04



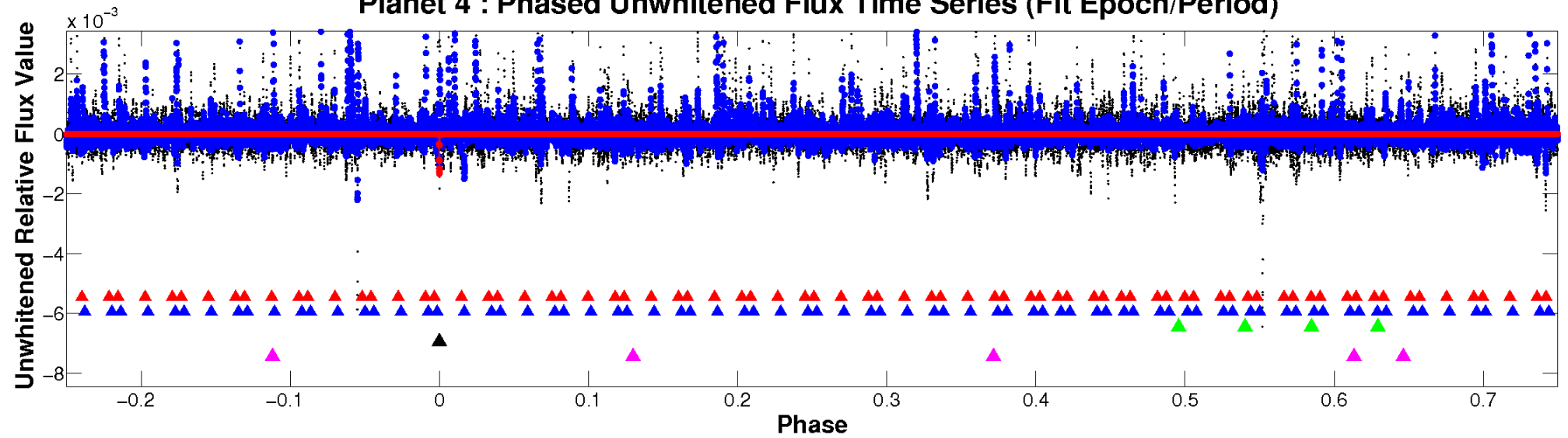
ALT Odd/Even

TCE 007869590-04

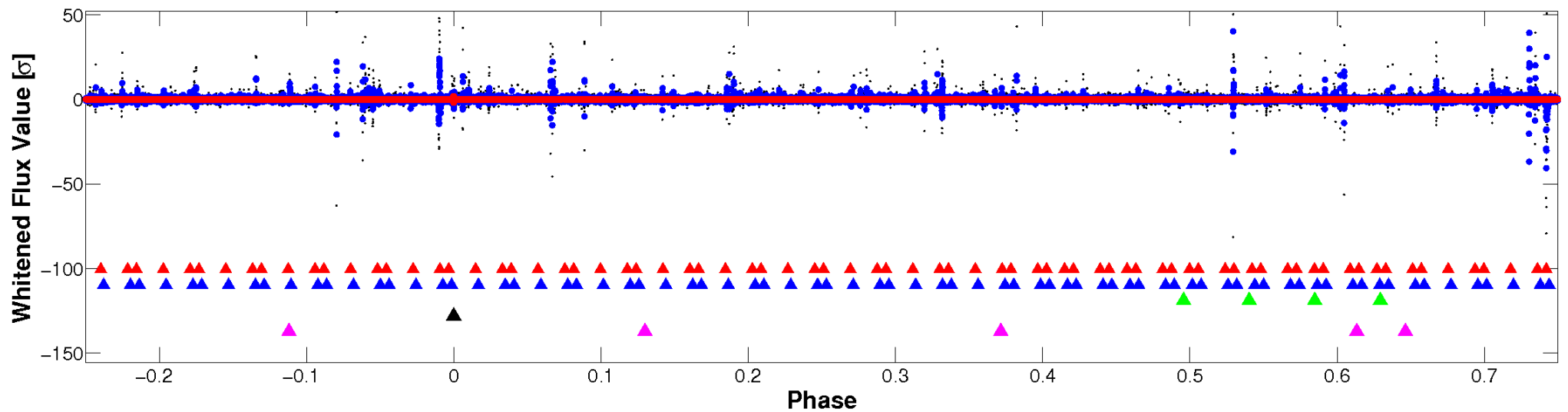


Non-Whitened Vs. Whitened Light Curve

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

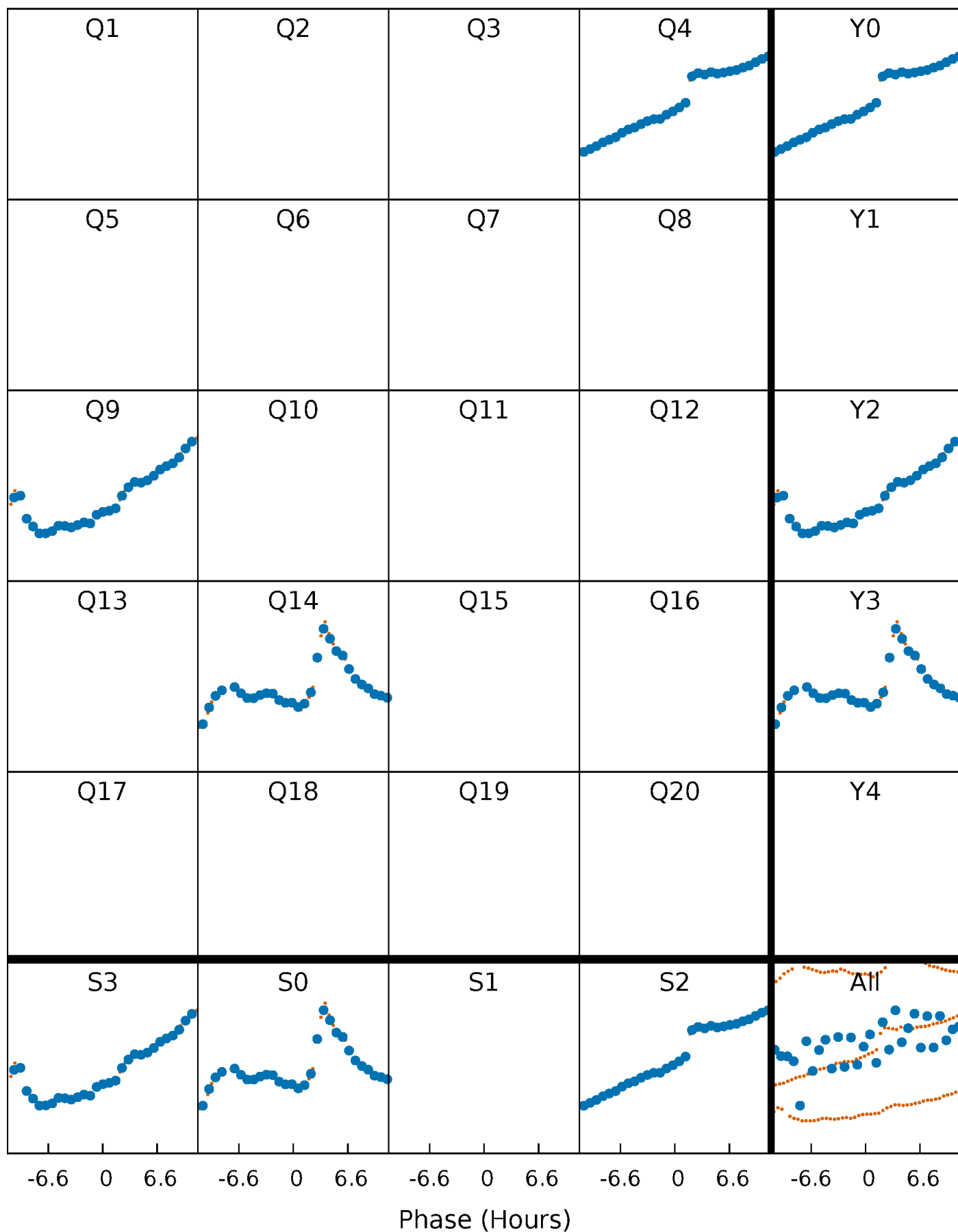


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



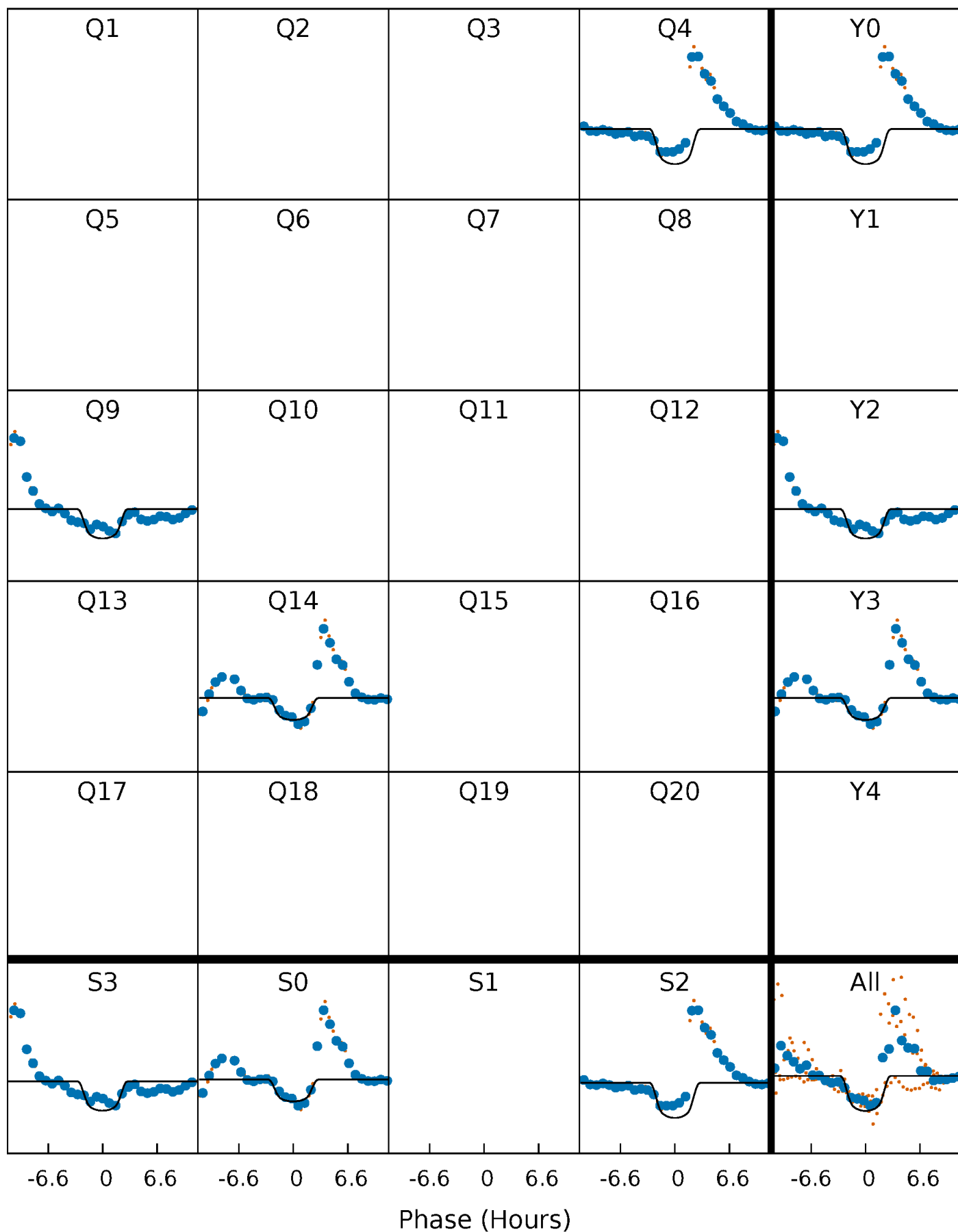
PDC Quarter-Phased Transit Curves

TCE 007869590-04 P=444.298942 Days $T_0=410.004716$ (BKJD)



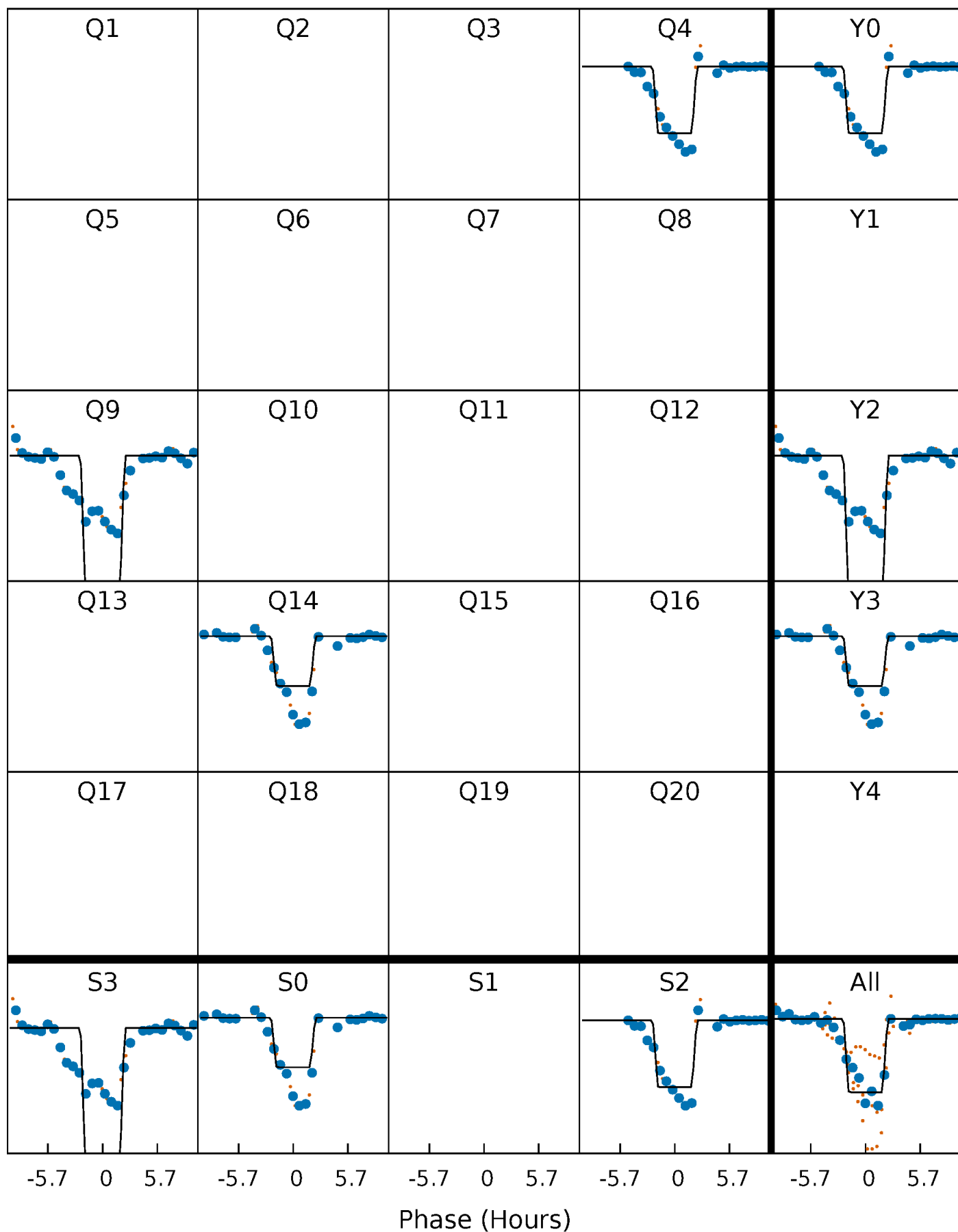
DV Quarter-Phased Transit Curves

TCE 007869590-04 P=444.298942 Days $T_0=410.004716$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

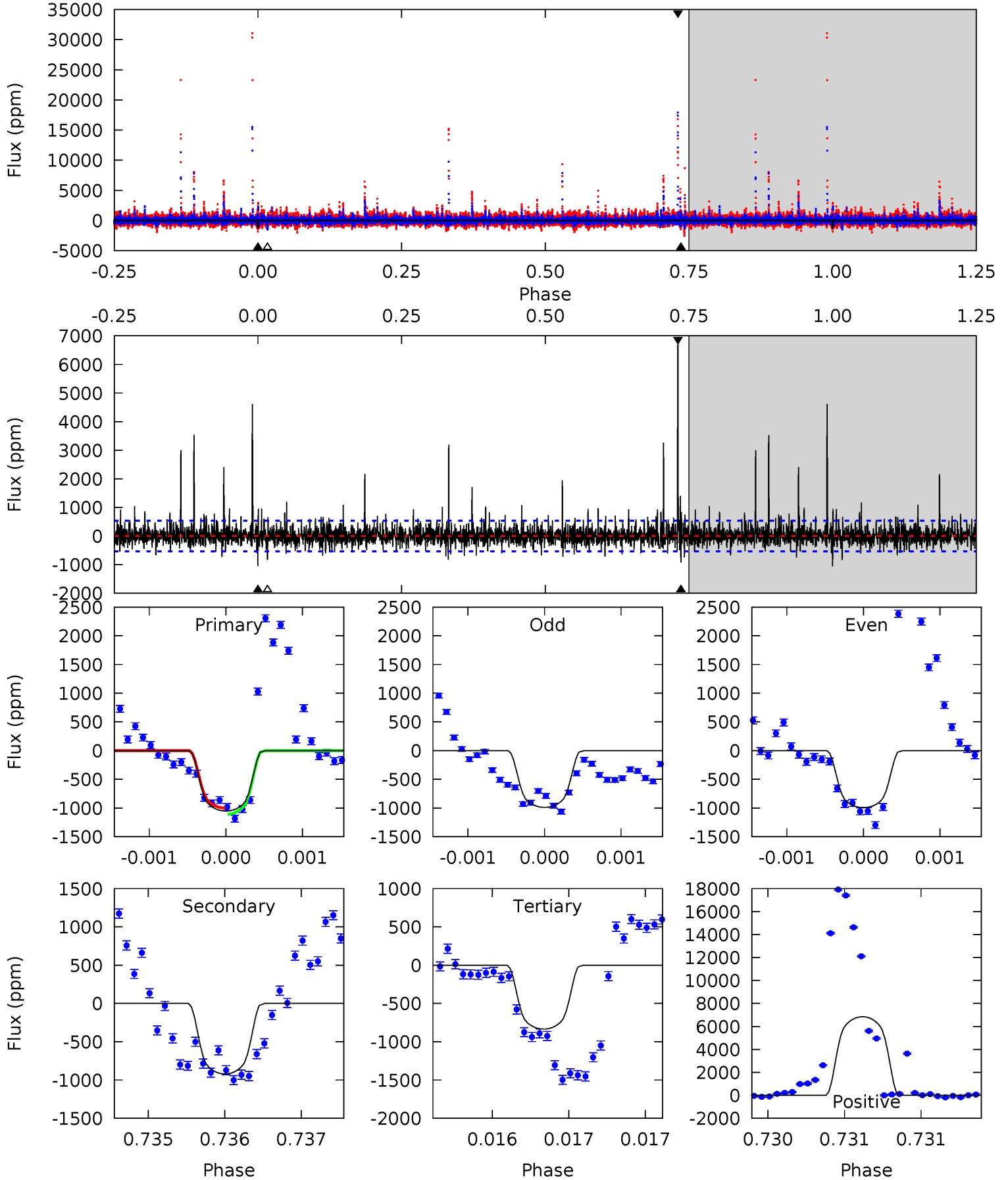
TCE 007869590-04 P=444.320951 Days $T_0=409.990507$ (BKJD)



DV Model-Shift Uniqueness Test

007869590-04, P = 444.298942 Days, E = 410.004716 Days

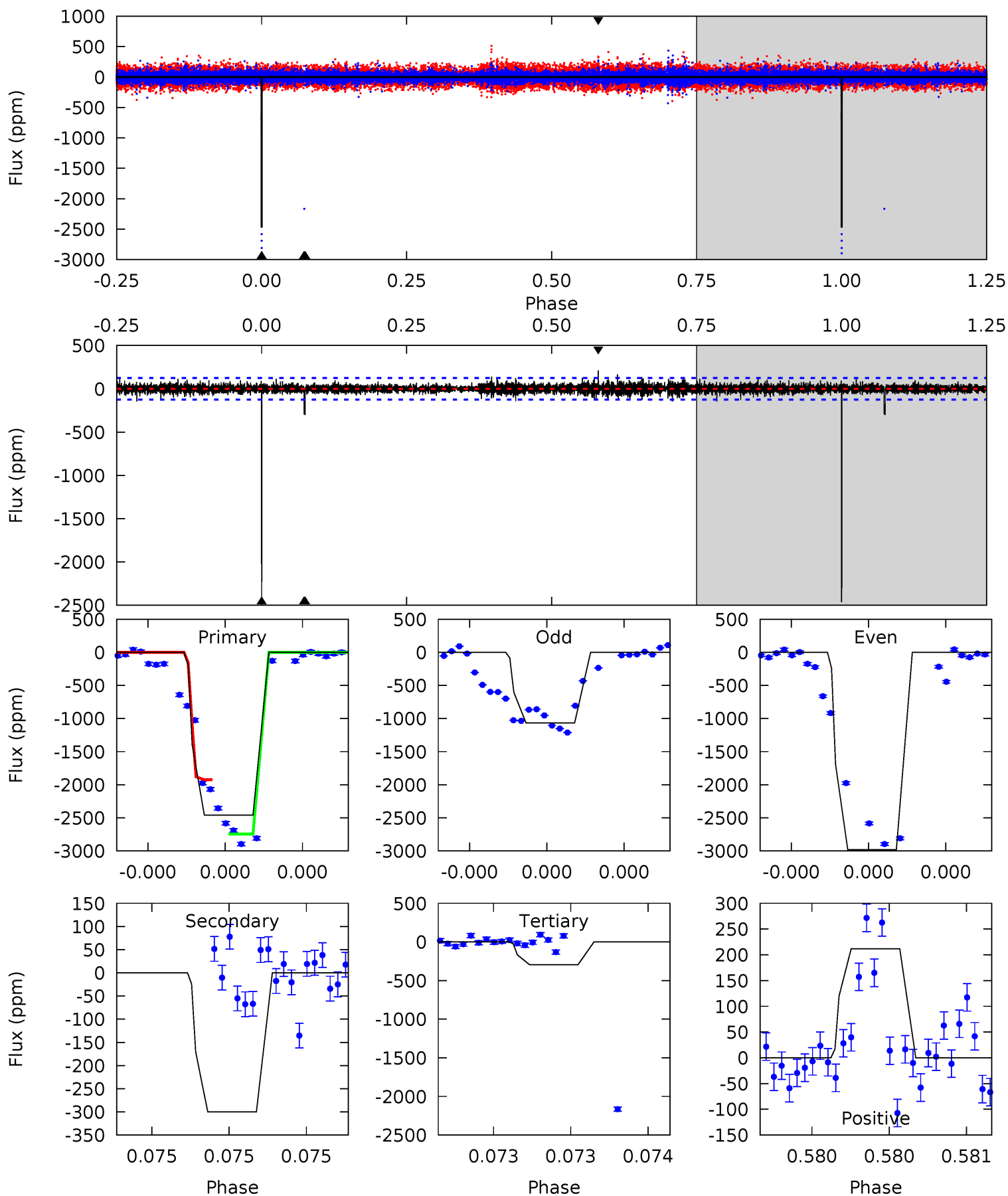
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	9.56	8.66	71.0	5.54	3.43	3.21	2.26	-60.1	0.89	-61.4	0.01	0.90	0.87	0.57



Alt Model-Shift Uniqueness Test

007869590-04, P = 444.320951 Days, E = 409.990507 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
111.0	13.5	13.2	9.54	5.60	3.52	1.17	97.7	101.4	0.29	4.00	46.3	0.94	0.08	0



Stellar Parameters For KIC 007869590

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4649^{+127}_{-104}	$2.654^{+0.378}_{-0.252}$	$-0.040^{+0.250}_{-0.200}$	$8.099^{+3.669}_{-3.002}$	$1.081^{+0.425}_{-0.100}$	$0.003^{+0.008}_{-0.002}$
	+3%/-2%	+14%/-9%	+625%/-500%	+45%/-37%	+39%/-9%	+293%/-66%
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 007869590-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-921 ± 96	$36.80^{+9.55}_{-7.93}$	741^{+85}_{-74}	4115^{+200}_{-179}	536^{+334}_{-195}
Alt.	-300 ± 22	$43.31^{+11.01}_{-10.52}$	753^{+79}_{-86}	3270^{+114}_{-97}	130^{+93}_{-49}

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

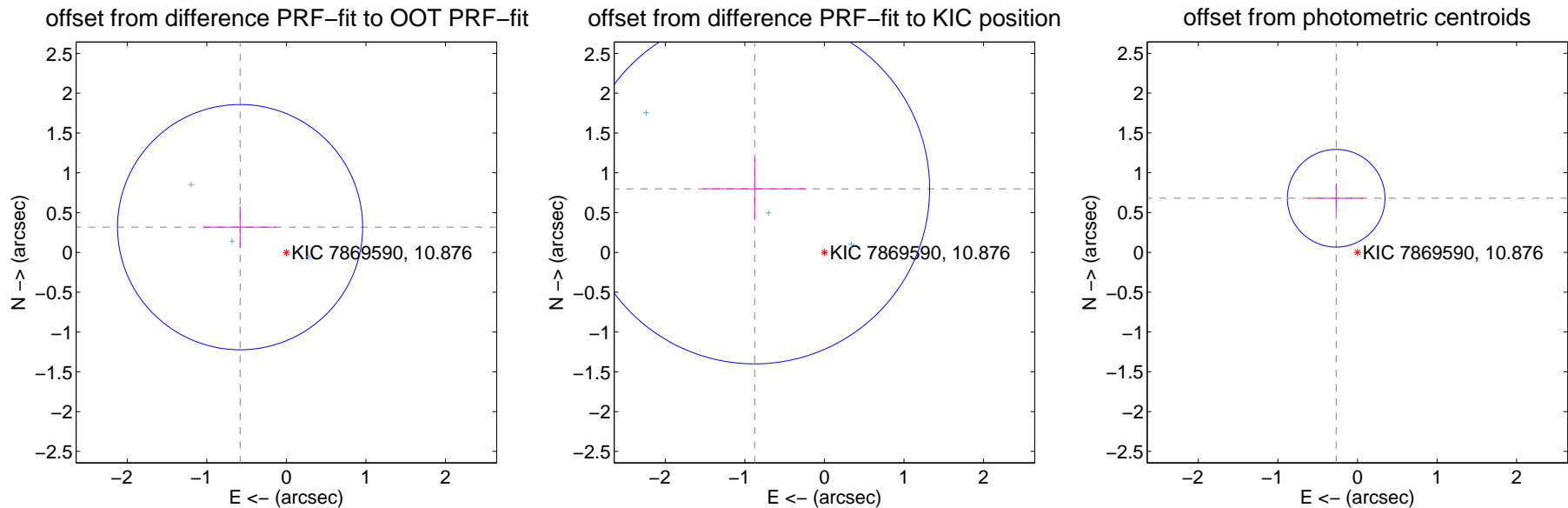
DV Centroid Data

Supplemental centroid analysis for 007869590-04. **Kepler magnitude: 10.88.** Transit SNR 8.87

There are 3 quarters with good PRF difference image offsets

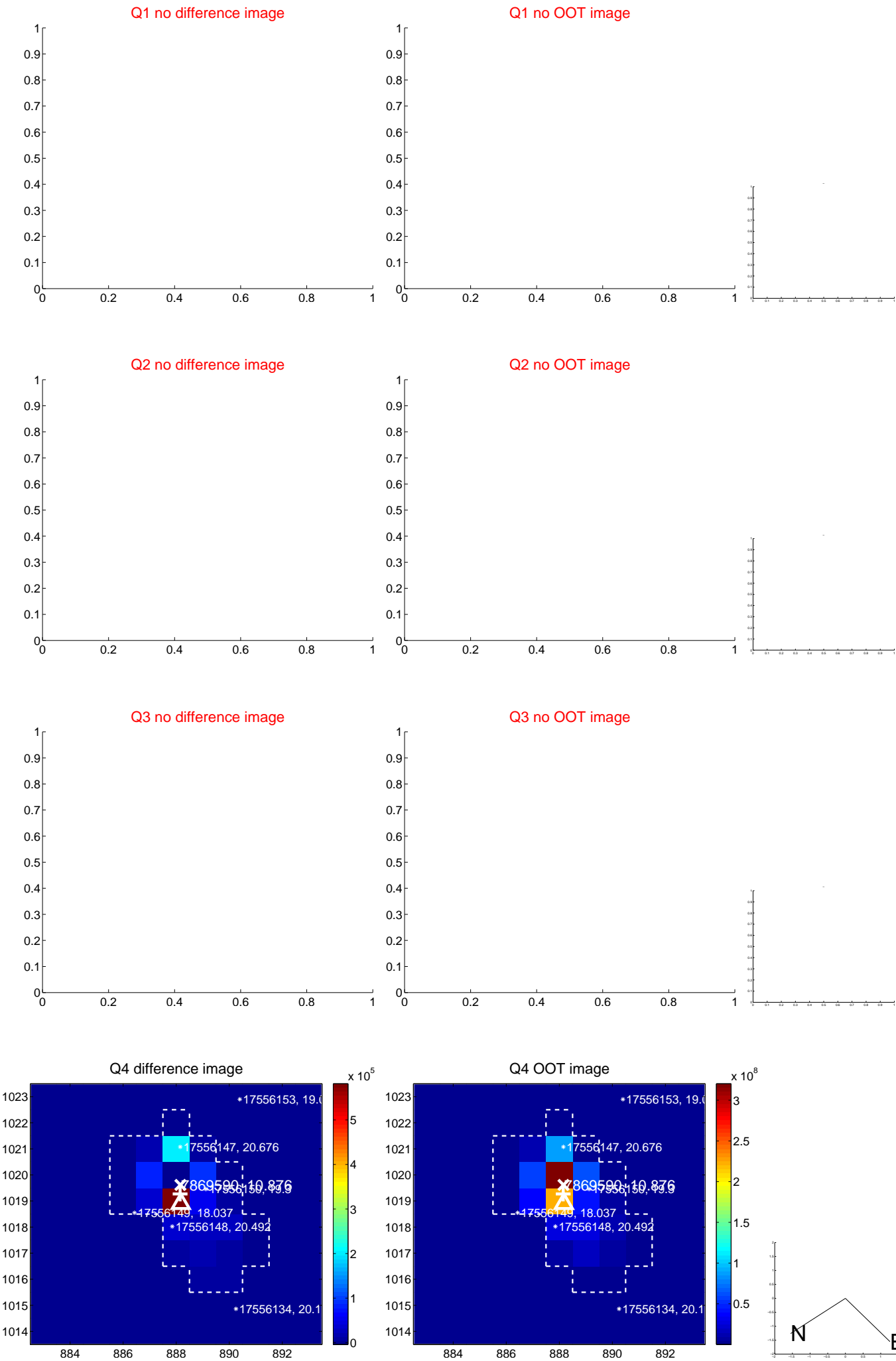
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.663 ± 0.514	1.29	0.582 ± 0.458	0.318 ± 0.261
PRF-fit source offset from KIC position	1.187 ± 0.733	1.62	0.877 ± 0.647	0.799 ± 0.391
photometric centroid source offset	0.73 ± 0.20	3.57	0.27 ± 0.35	0.68 ± 0.17



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.

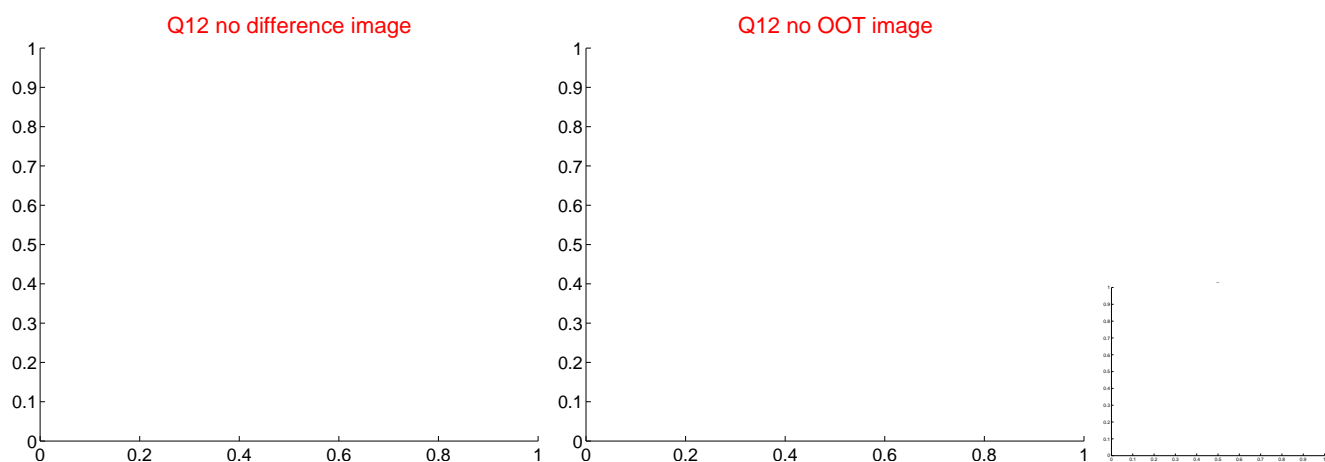
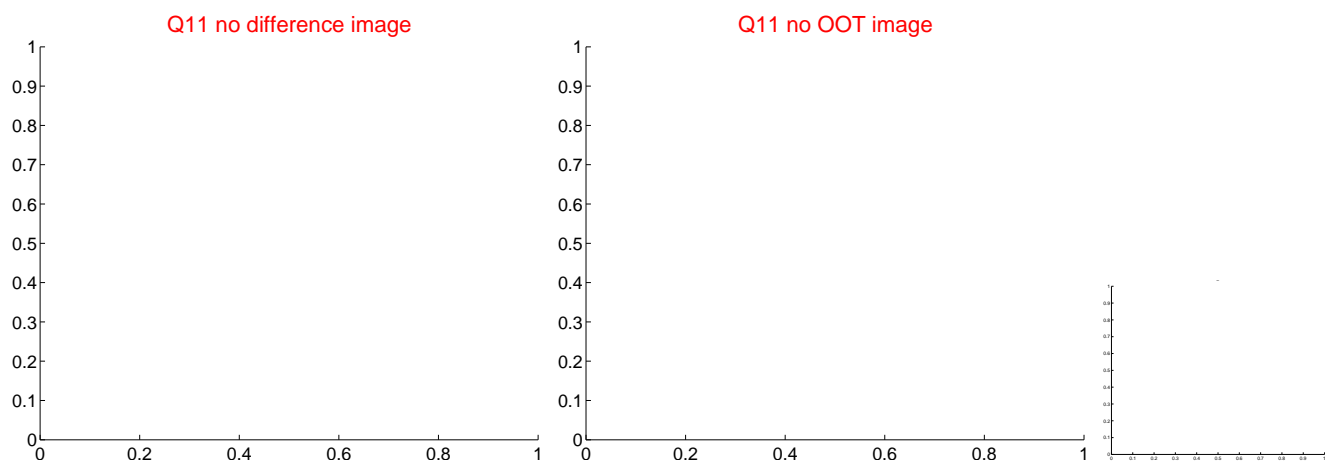
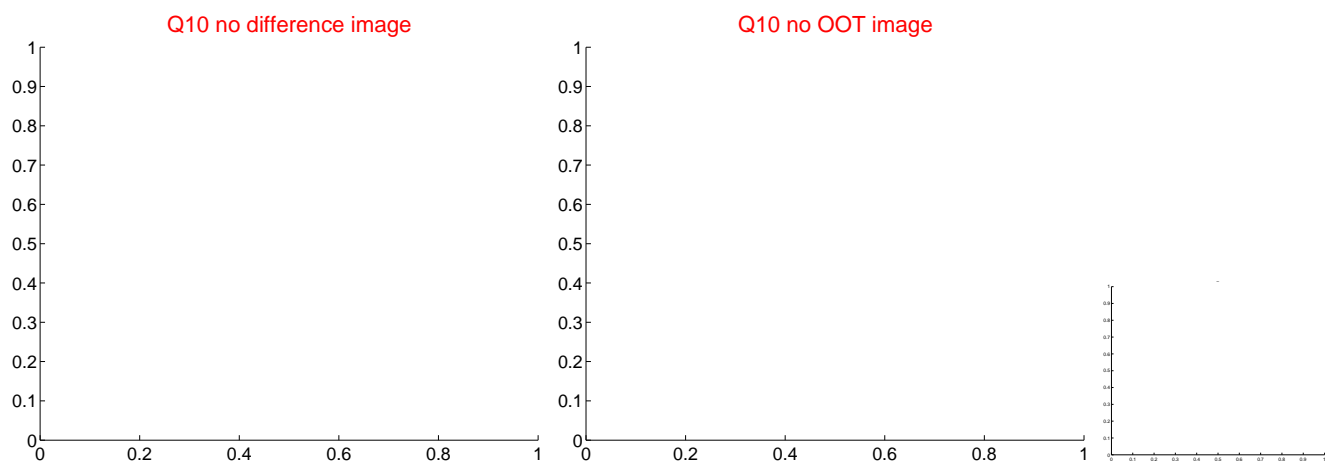
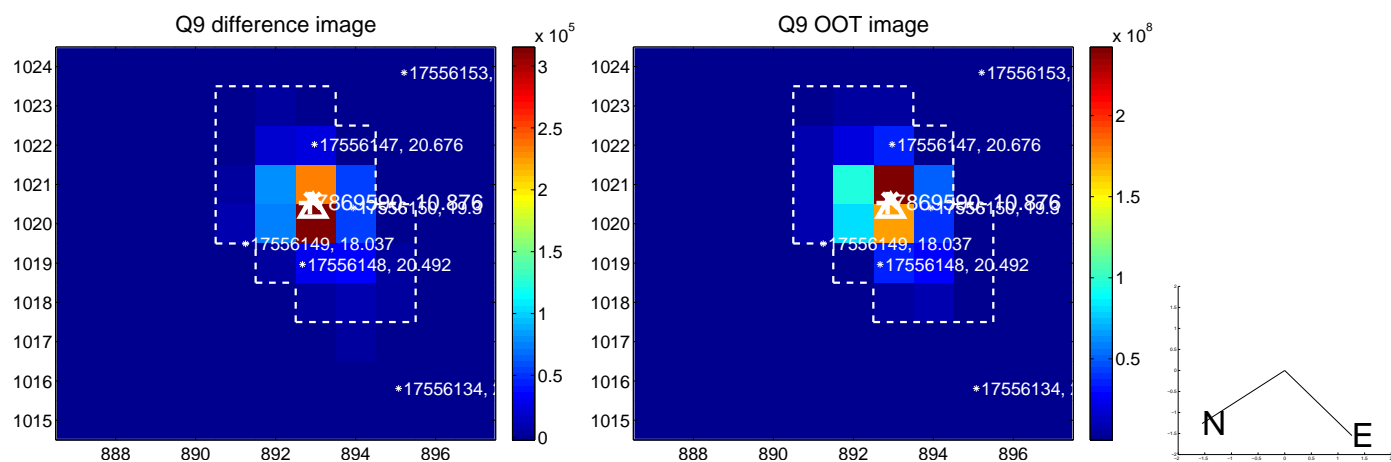
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



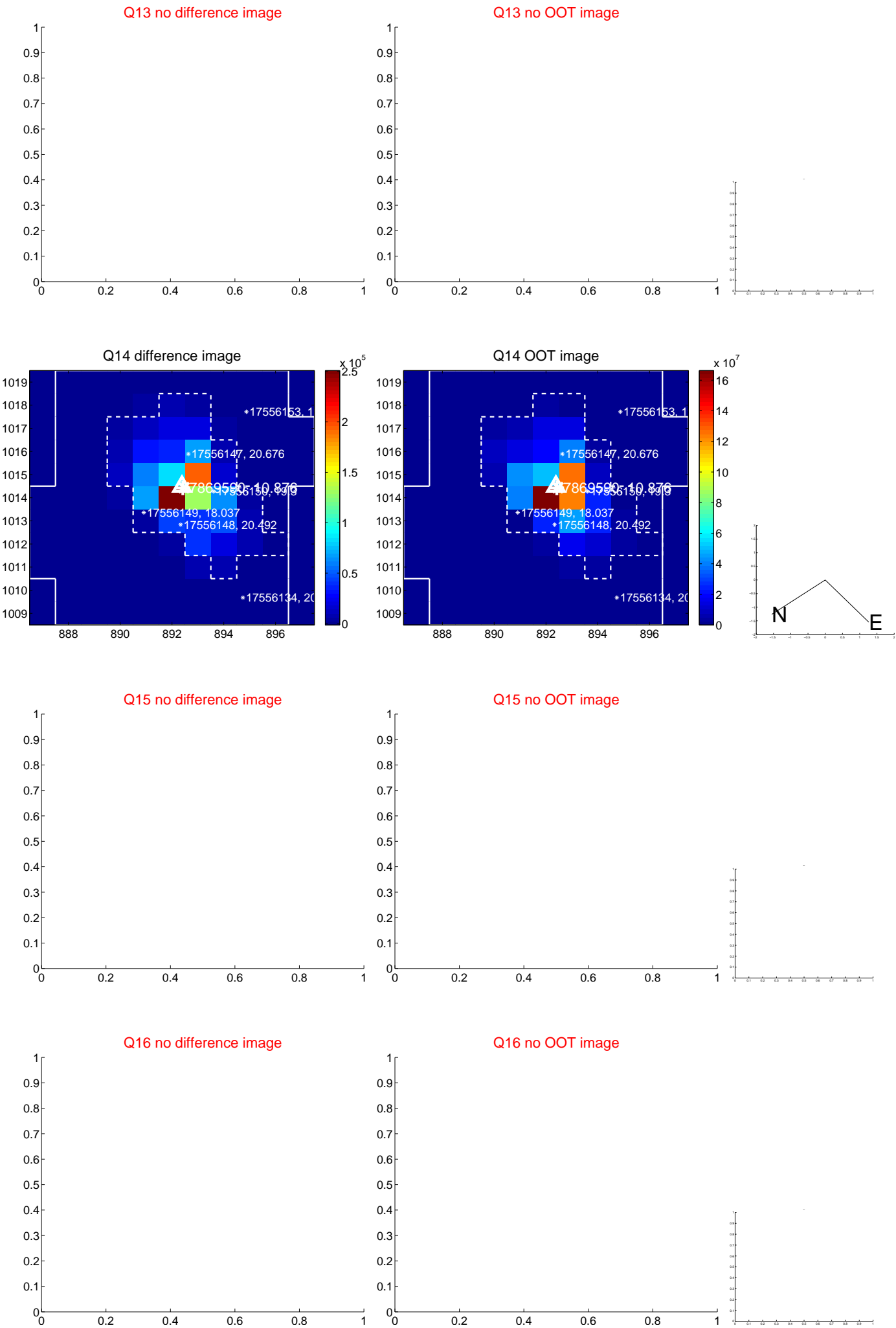
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



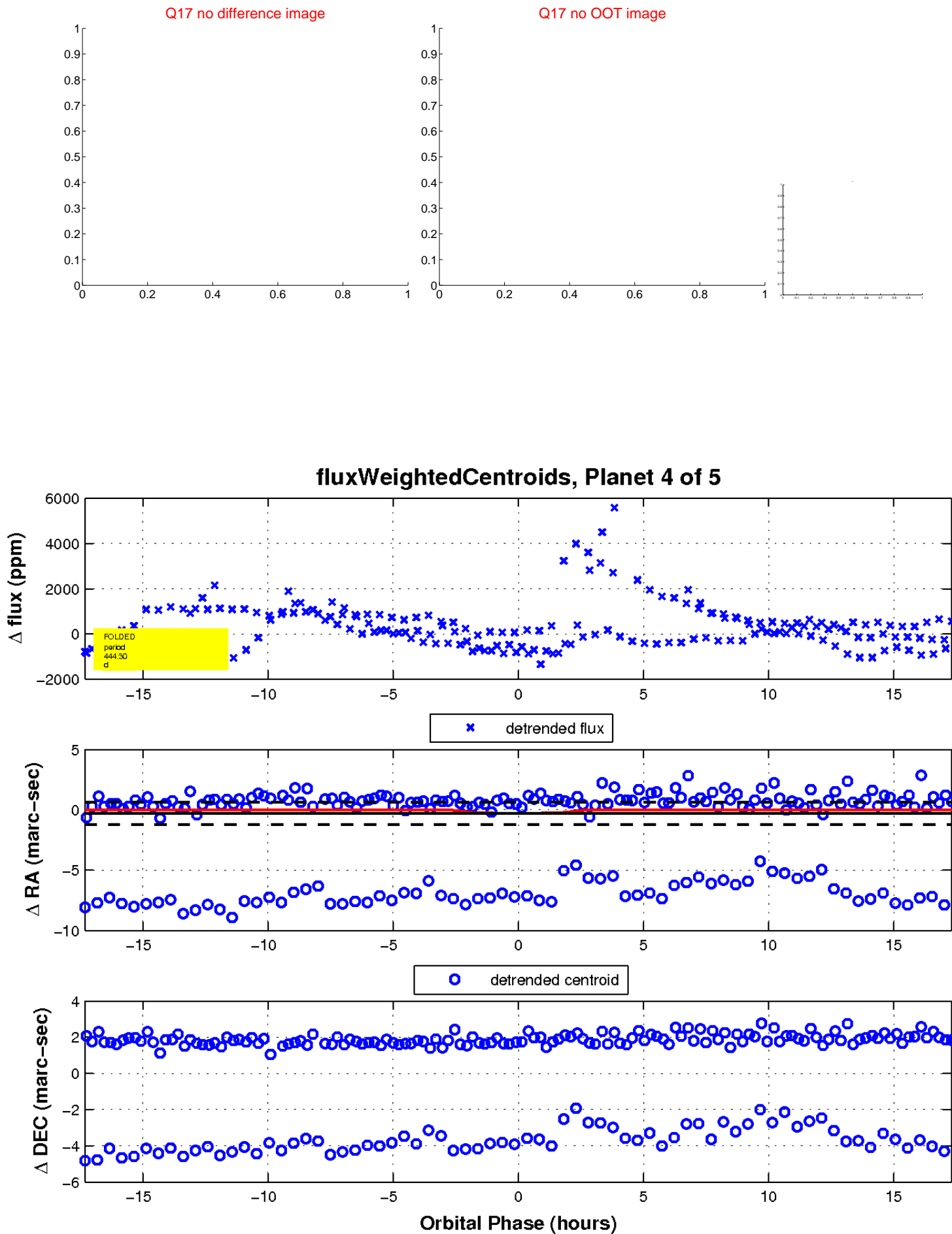
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



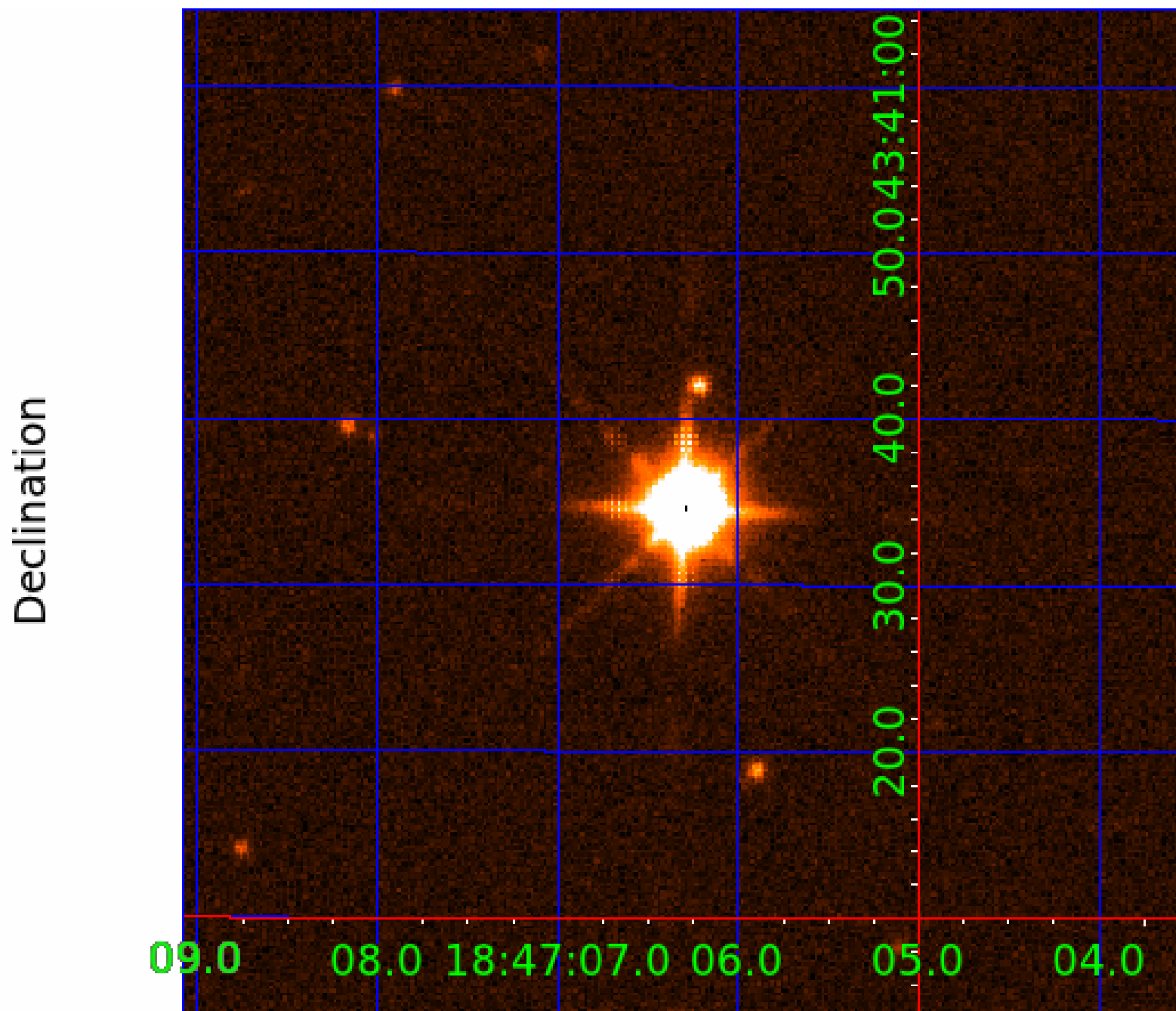
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 007869590

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})
007869590-01	OBS	No	18.849935	144.605702	1193.5	13.163	23.6	27.5	8.10	4649	32.48	1357.92
007869590-02	OBS	No	18.850016	145.459802	1113.4	2.077	55.7	43.5	8.10	4649	25.95	1357.91
007869590-03	OBS	No	464.087424	185.960392	1939.8	13.365	16.4	10.0	8.10	4649	43.39	18.96
007869590-04	OBS	No	444.298942	410.004716	1333.6	5.782	18.2	8.9	8.10	4649	37.00	20.09
007869590-05	OBS	No	336.894953	238.216147	1753.4	9.694	15.5	8.4	8.10	4649	43.85	29.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007869590-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
007869590-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
007869590-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007869590-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007869590-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

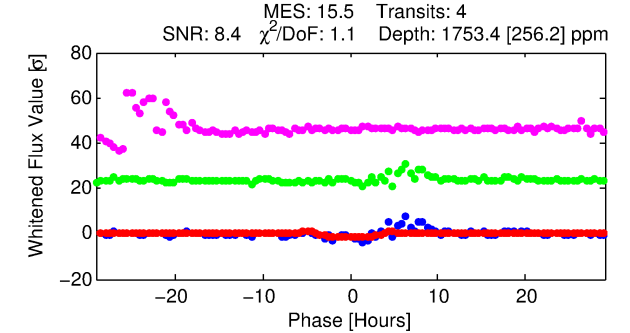
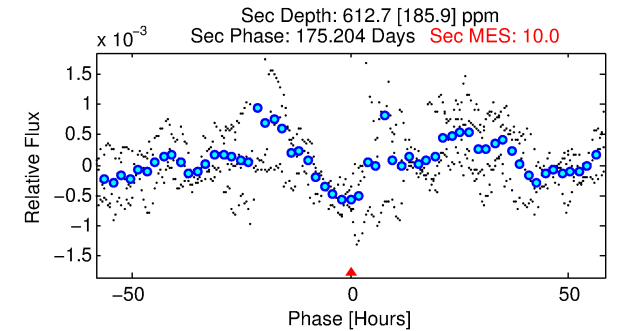
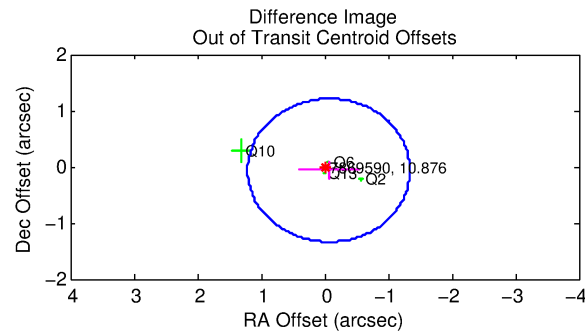
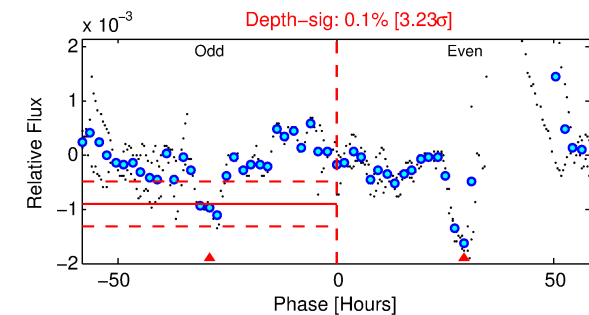
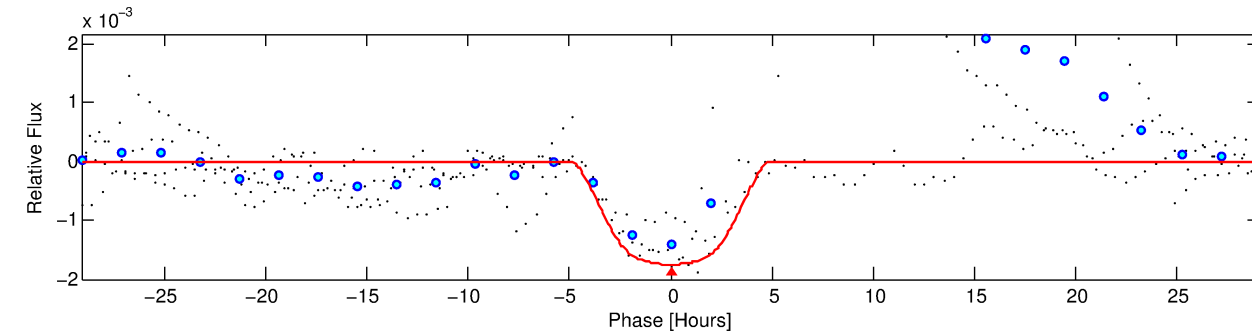
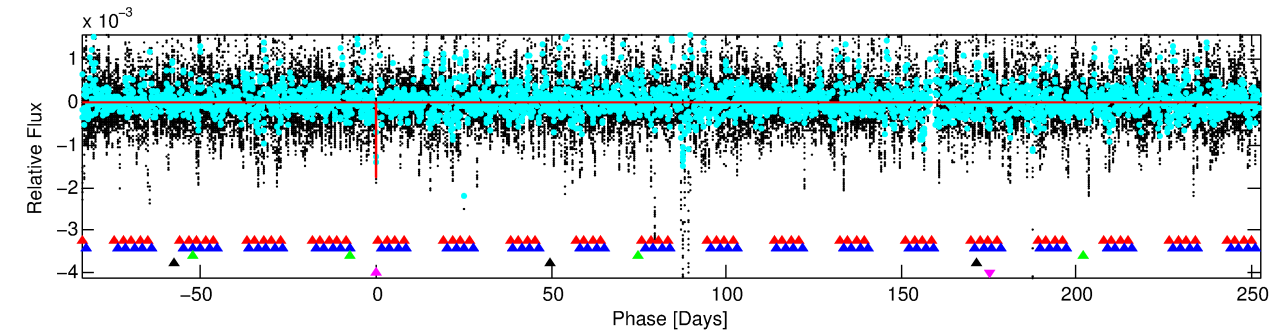
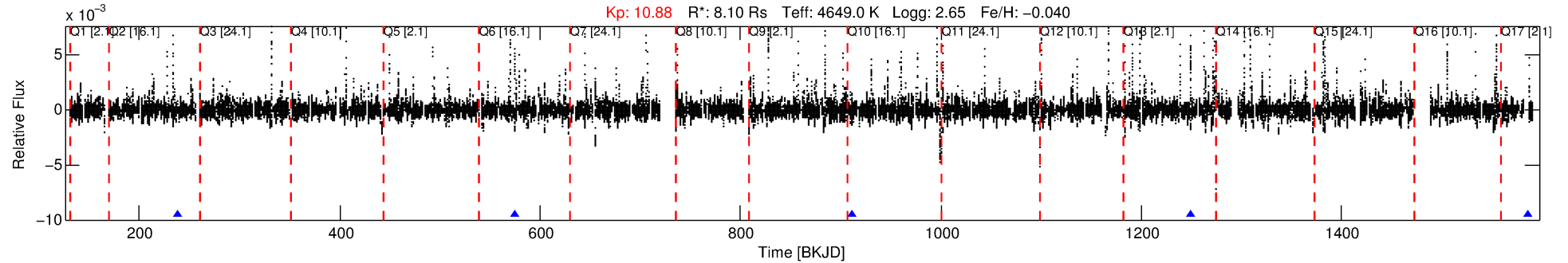
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007869590-05

No Significant Match Found

DV One-Page Summary

KIC: 7869590 Candidate: 5 of 5 Period: 336.895 d



DV Fit Results:

Period = 336.89495 [0.00705] d
Epoch = 238.2161 [0.0143] BKJD
Rp/R* = 0.0496 [0.0039]
a/R* = 128.59 [9.04]
b = 0.93 [0.01]
Seff = 29.06 [19.27]
Teq = 592 [98] K
Rp = 43.85 [20.16] Re
a = 0.9720 [0.4070] AU
Ag = 165.61 [122.21] [1.35 σ]
Teffp = 3284 [294] K [8.67 σ]

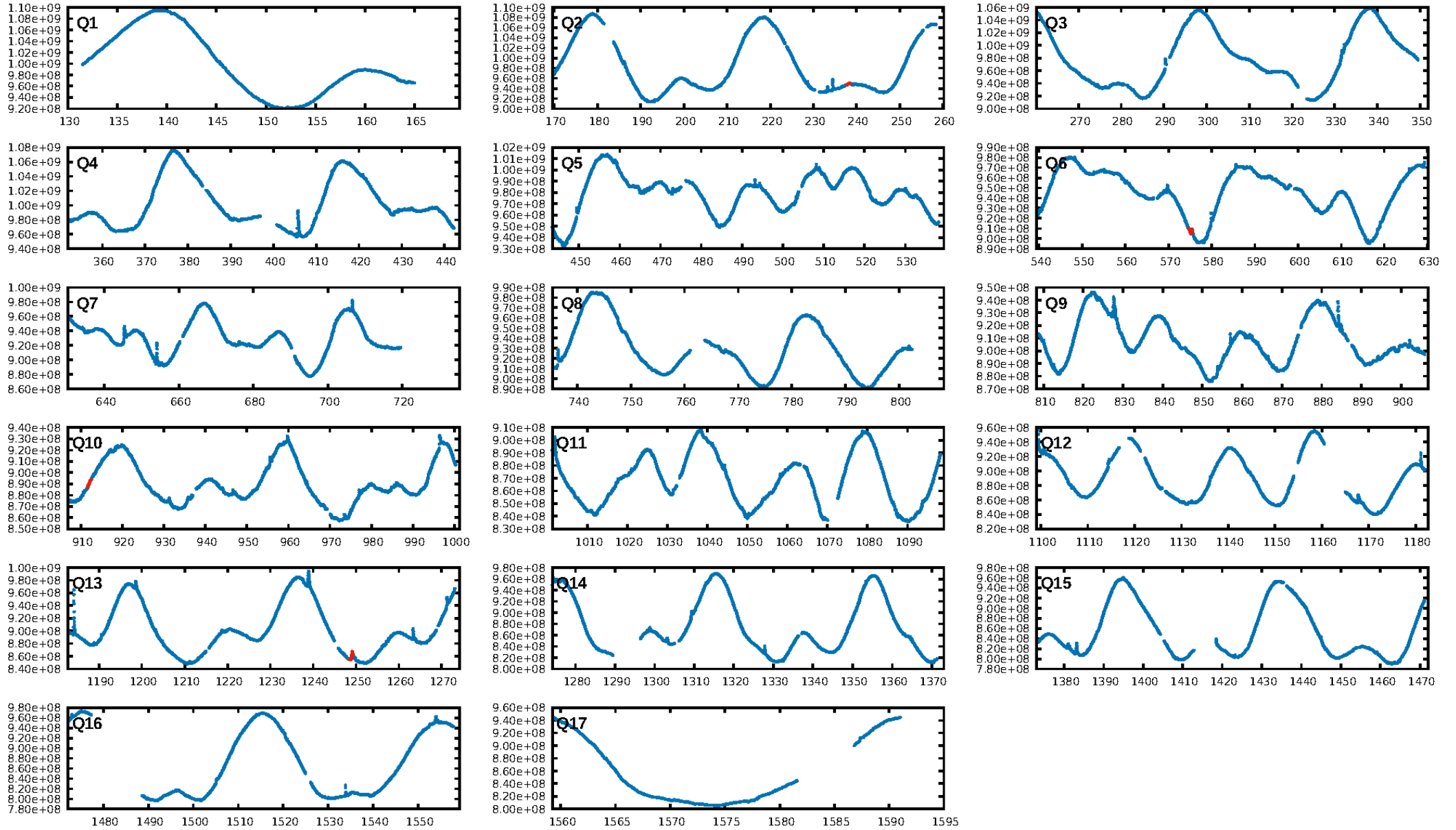
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [769.90 σ]
LongPeriod-sig: 100.0% [228.36 σ]
ModelChiSquare2-sig: 12.1%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: 3.68e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.8171
Centroid-sig: N/A
Centroid-so: 0.570 arcsec [3.00 σ]
OotOffset-rm: 0.093 arcsec [0.22 σ]
OotOffset-st: 3/0/0/1 [4]
KicOffset-rm: 0.261 arcsec [2.21 σ]
KicOffset-st: 3/0/0/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.75 [3/4]

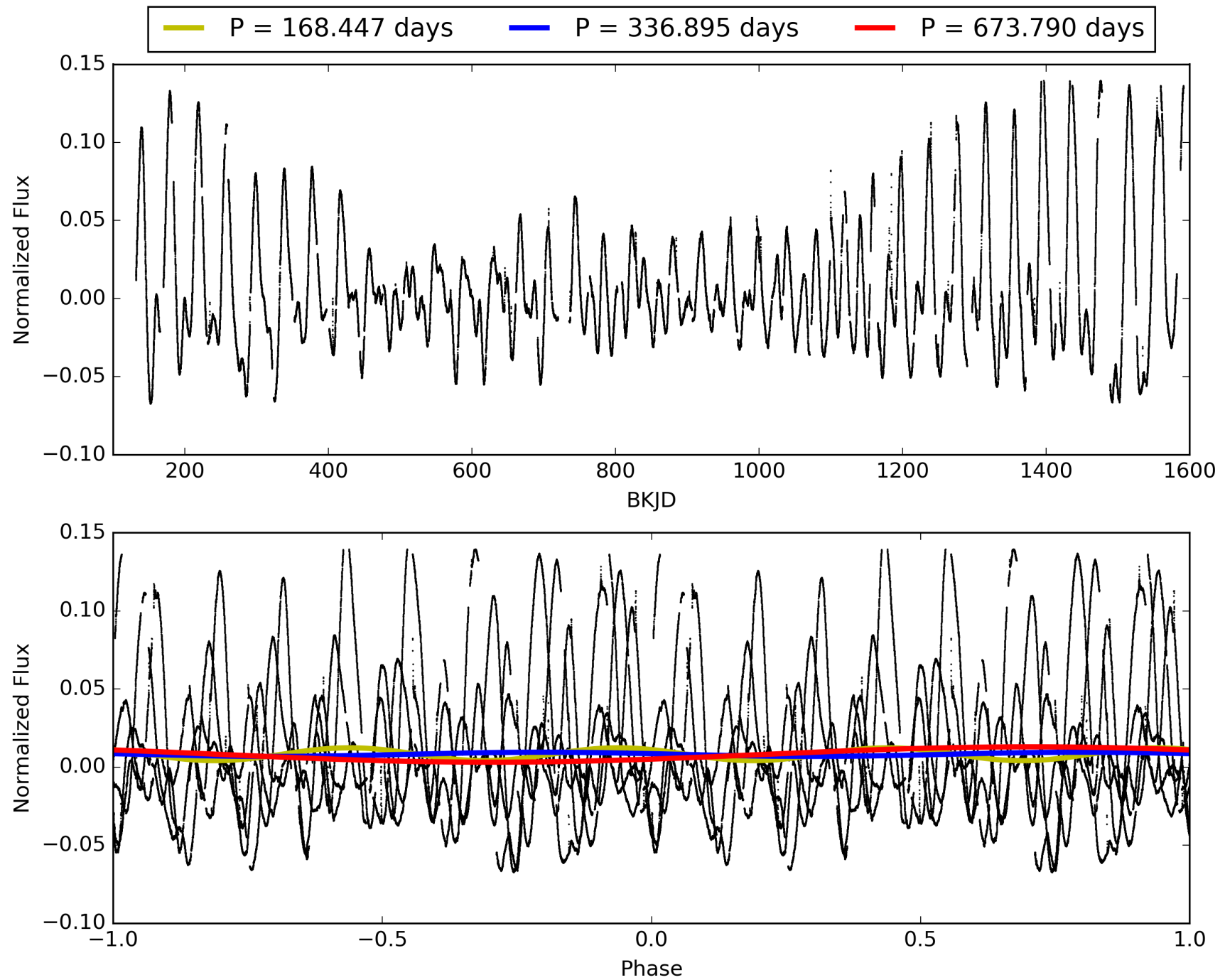
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:45:58 Z

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

TCE 007869590-05, PDC Light Curves

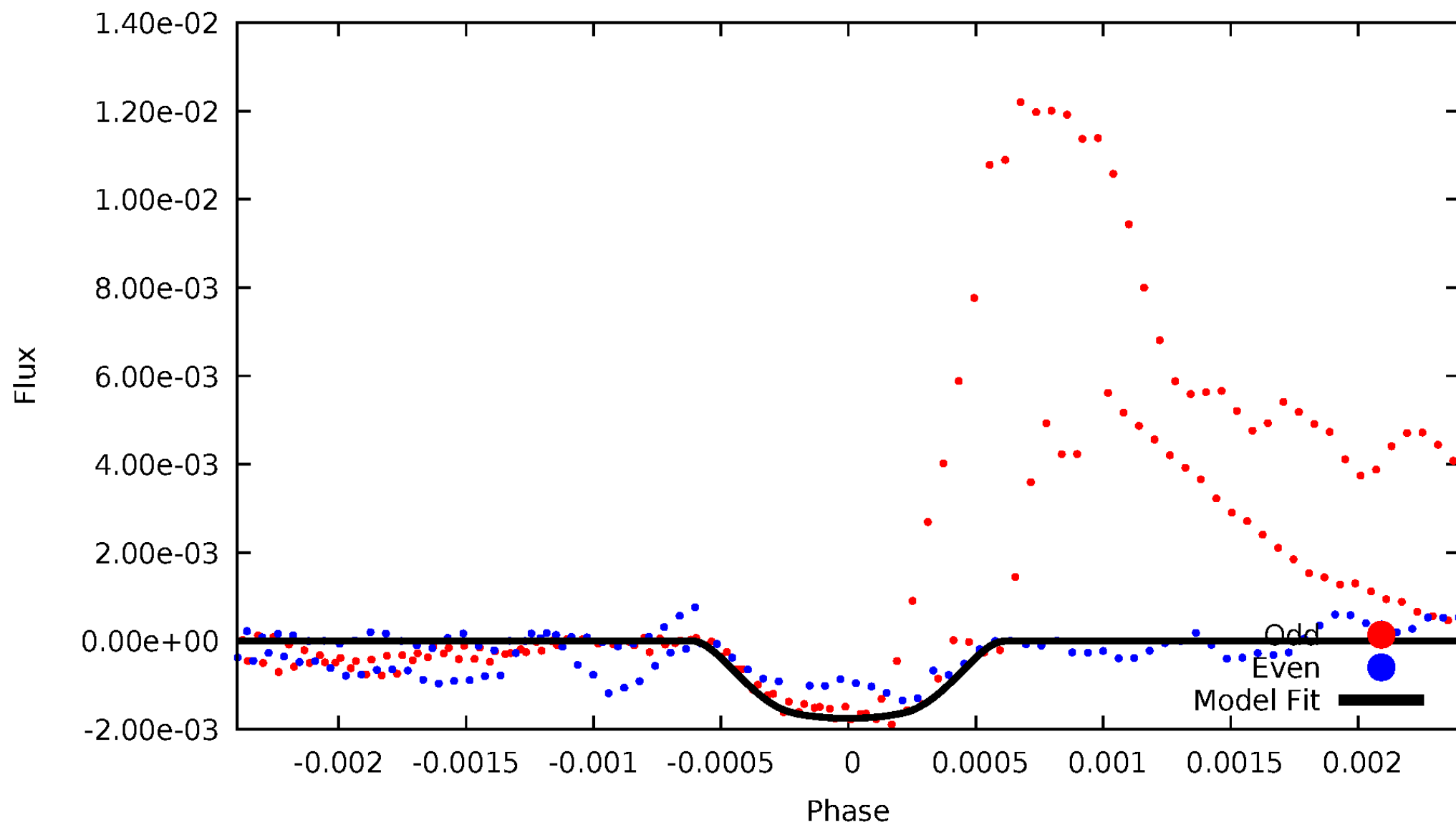


TCE 007869590-05



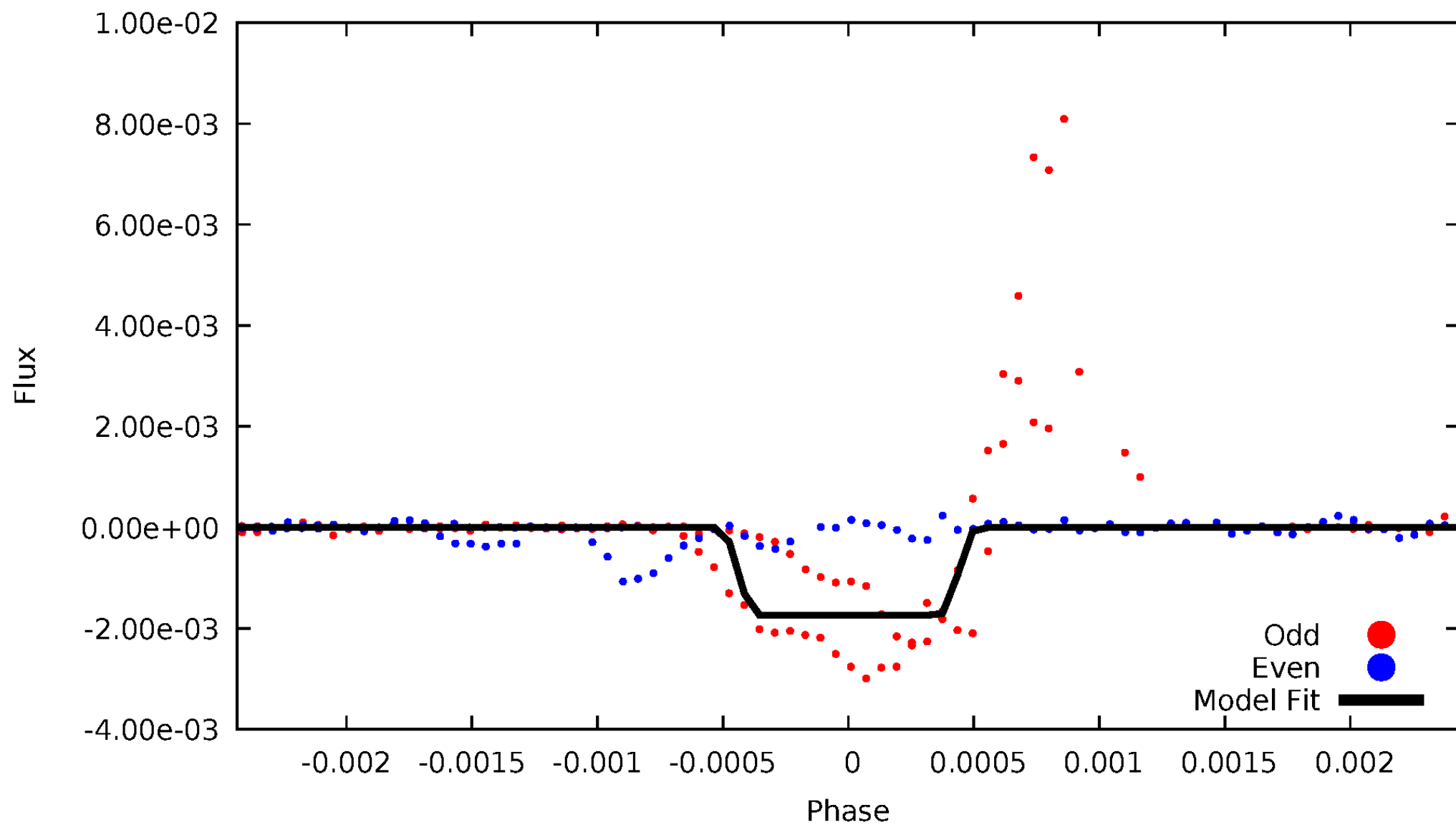
DV Odd/Even

TCE 007869590-05



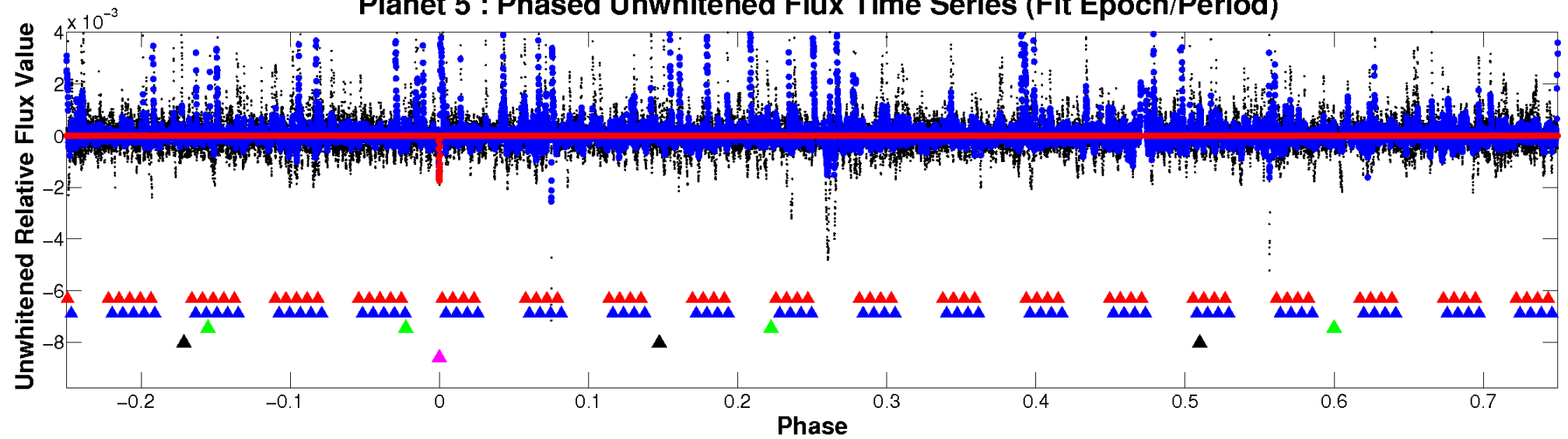
ALT Odd/Even

TCE 007869590-05

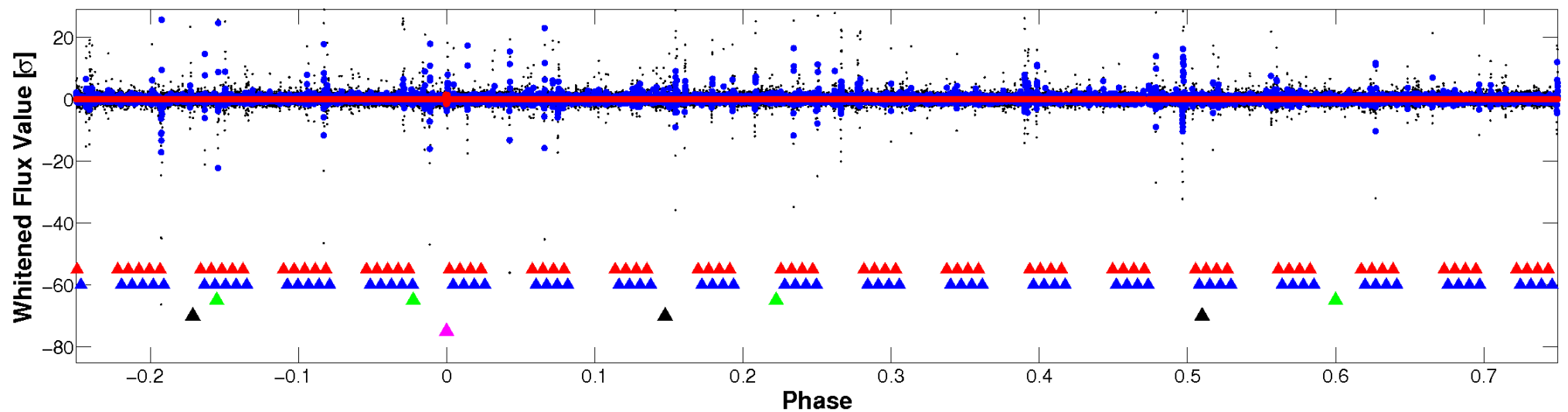


Non-Whitened Vs. Whitened Light Curve

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

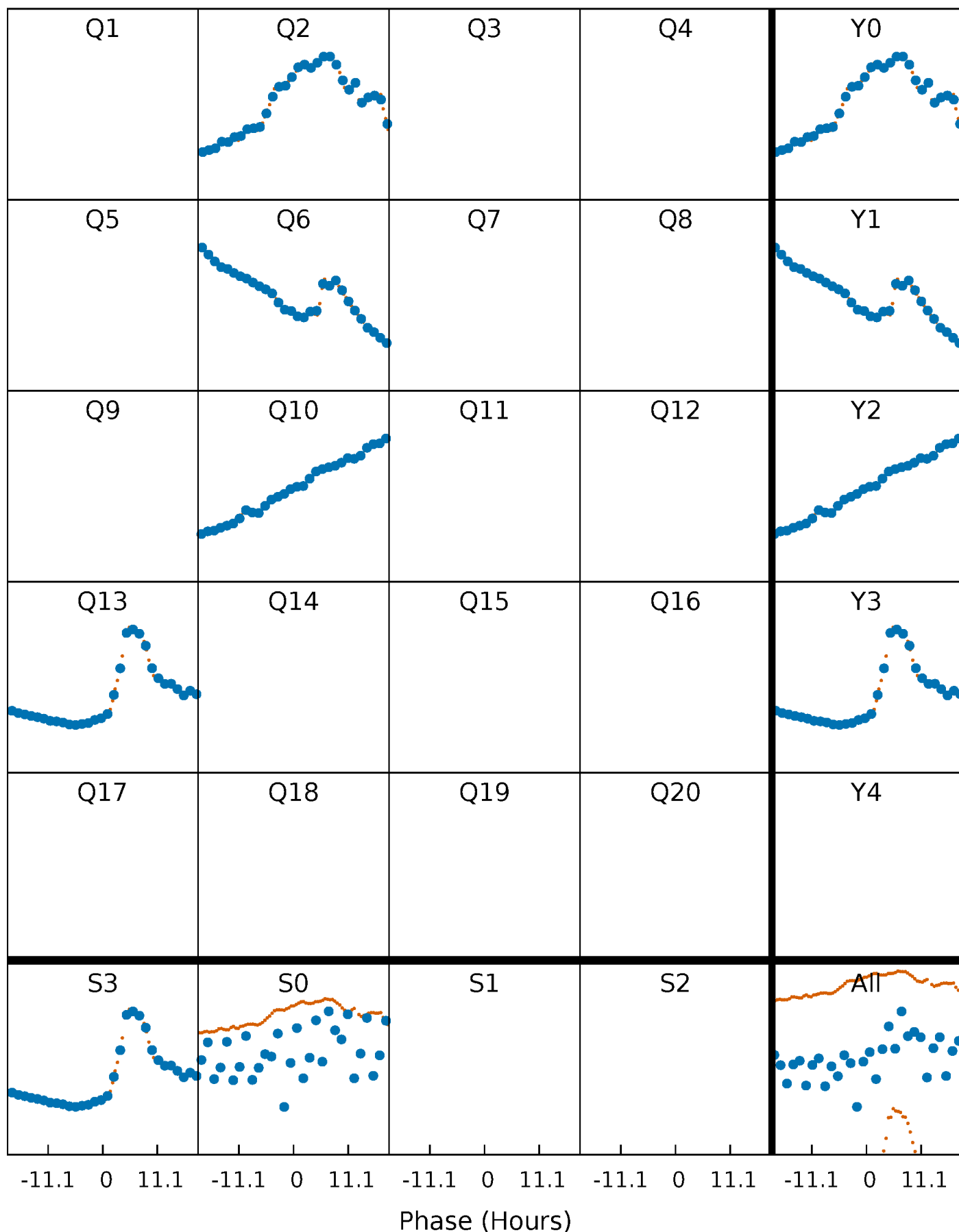


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



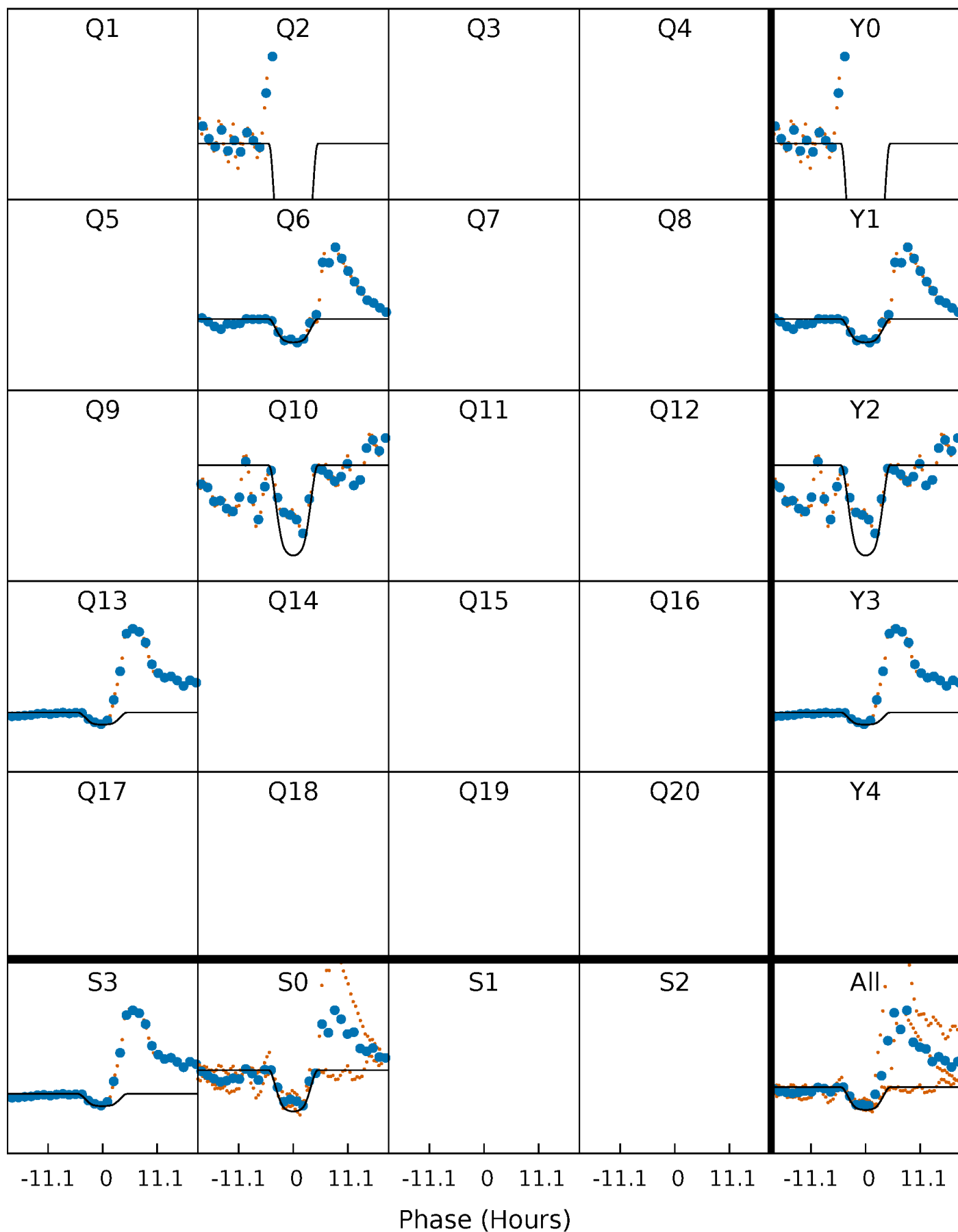
PDC Quarter-Phased Transit Curves

TCE 007869590-05 $P=336.894953$ Days $T_0=238.216147$ (BKJD)



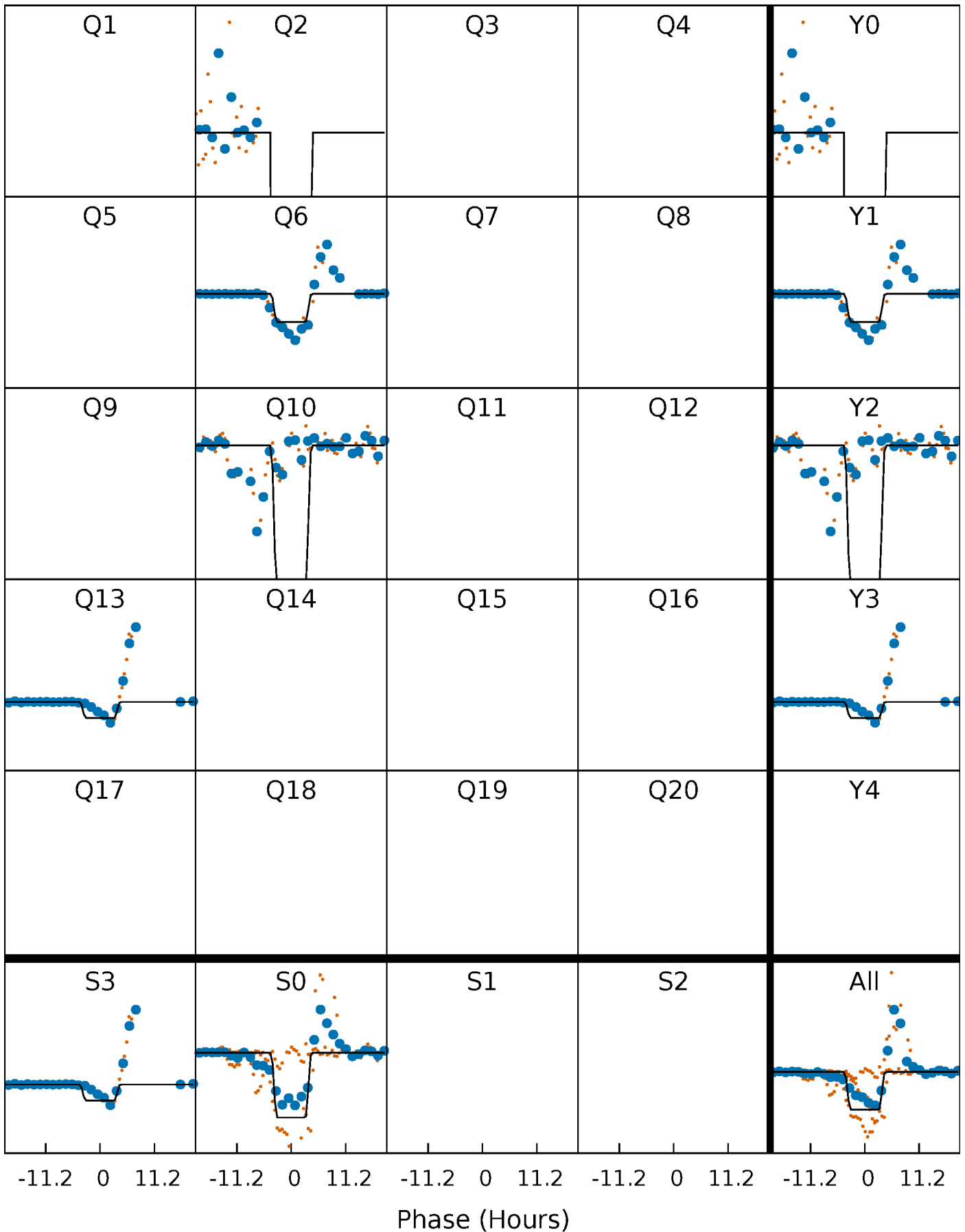
DV Quarter-Phased Transit Curves

TCE 007869590-05 $P=336.894953$ Days $T_0=238.216147$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

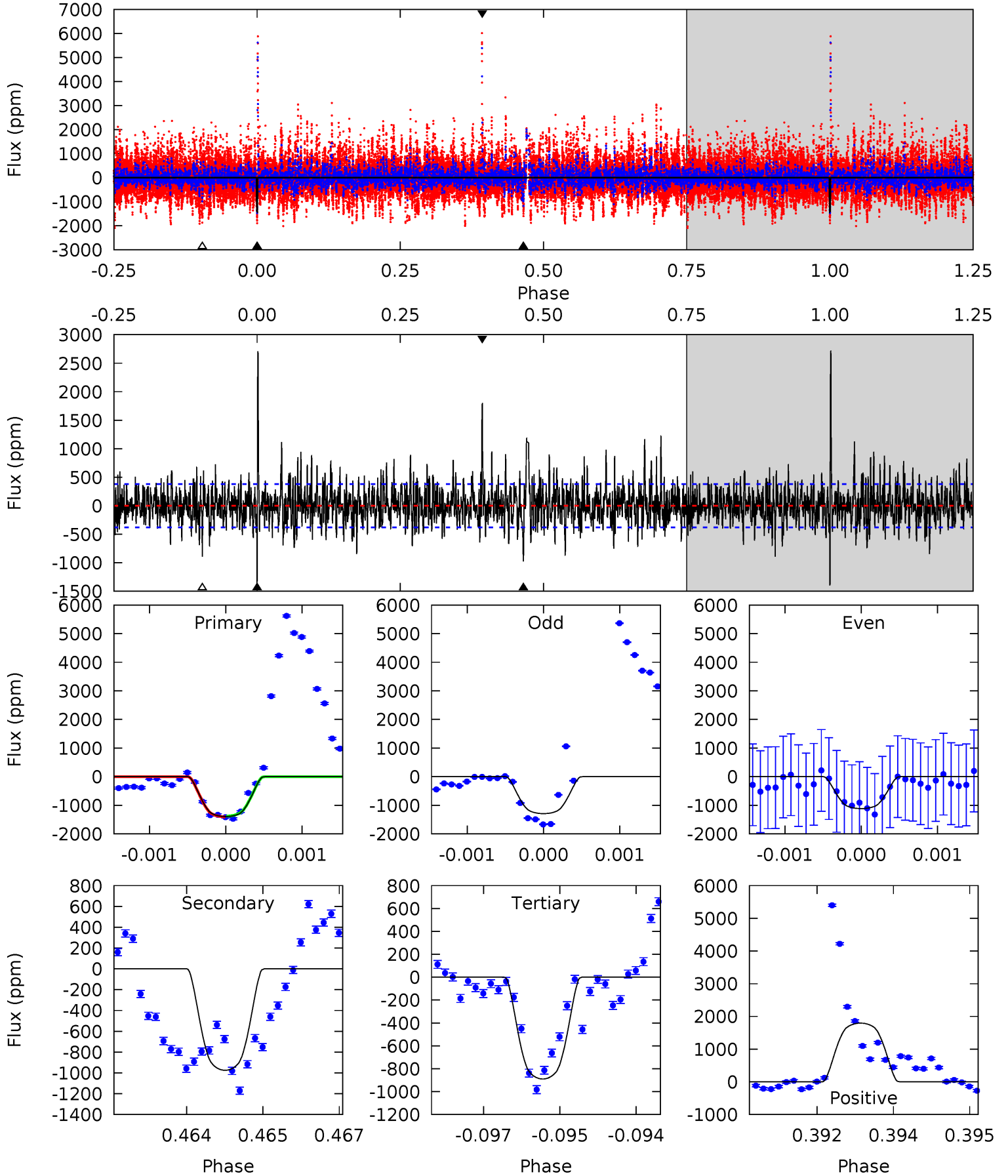
TCE 007869590-05 $P=336.847237$ Days $T_0=238.297350$ (BKJD)



DV Model-Shift Uniqueness Test

007869590-05, P = 336.894953 Days, E = 238.216147 Days

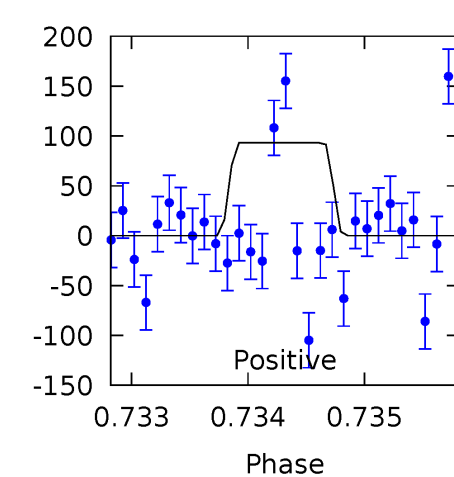
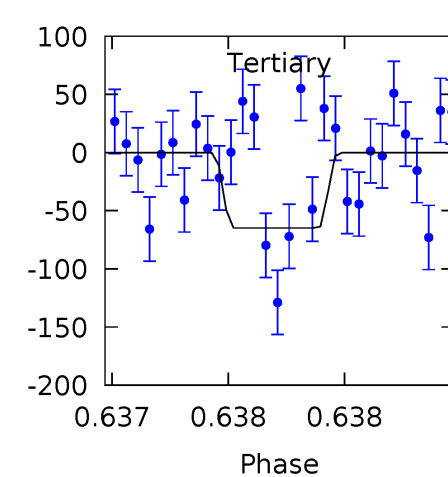
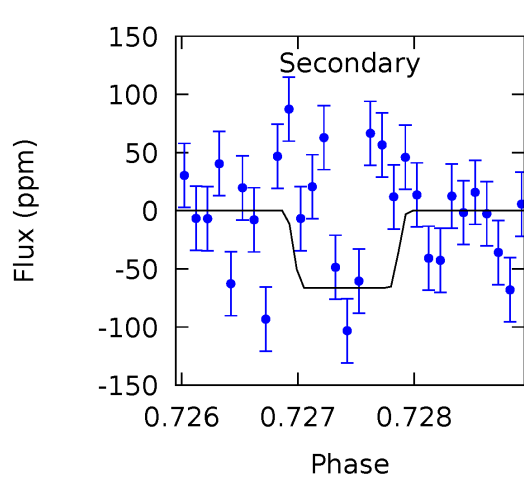
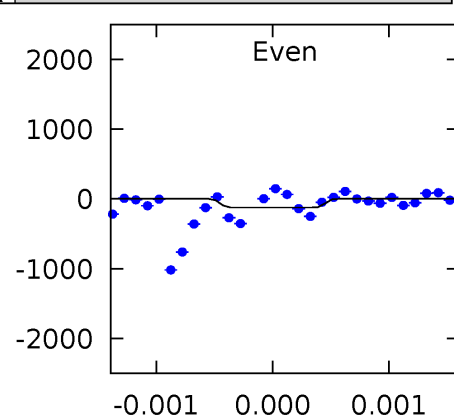
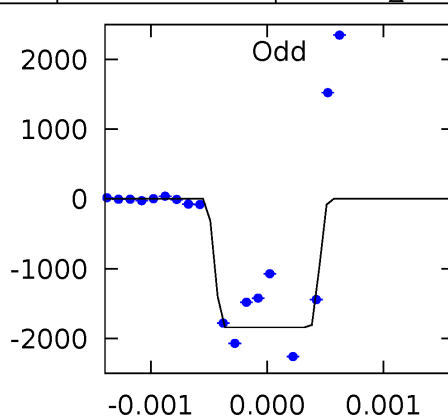
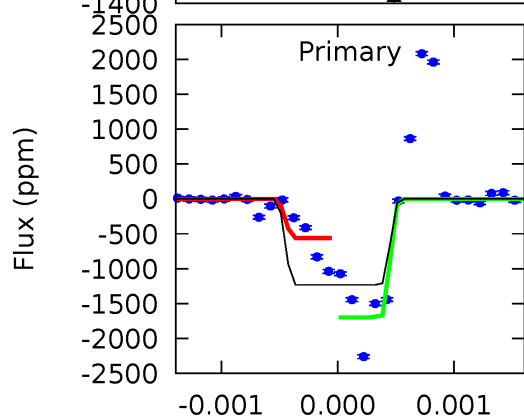
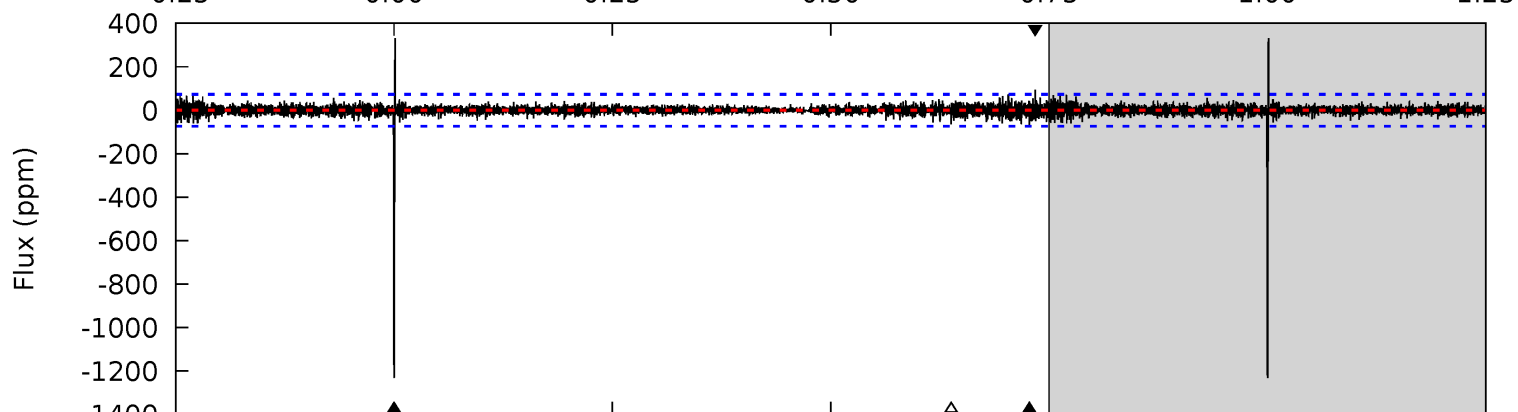
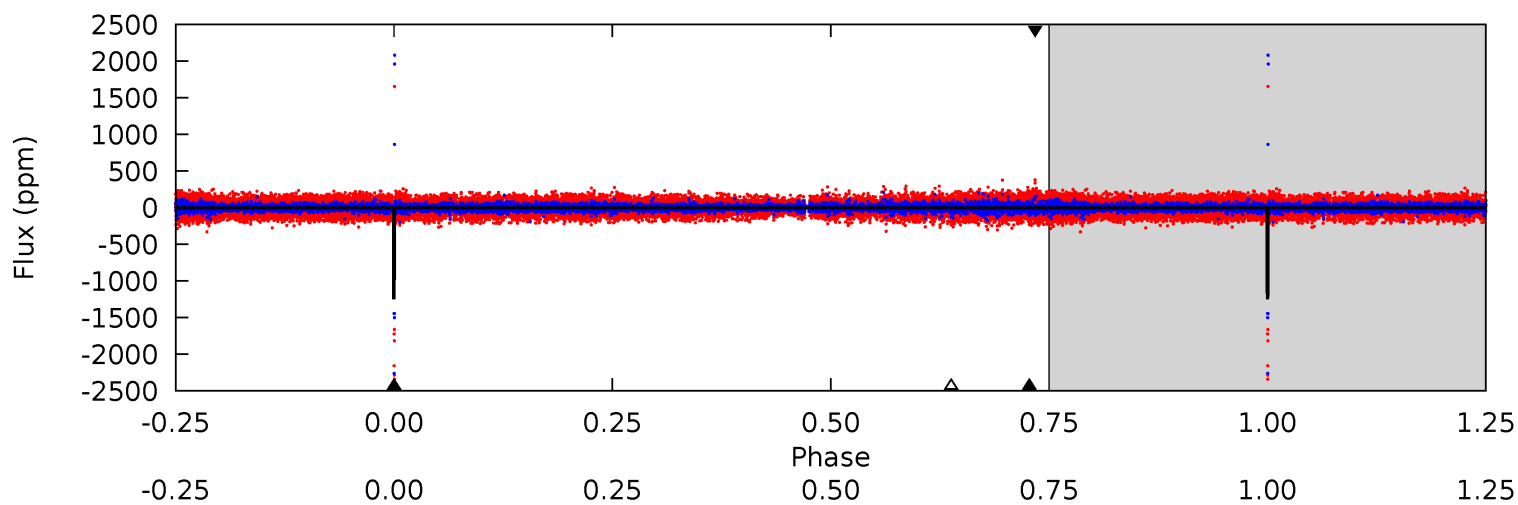
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.9	13.9	12.7	25.7	5.41	3.23	3.84	7.23	-5.71	1.22	-11.7	0.72	0.88	0.66	0.18



Alt Model-Shift Uniqueness Test

007869590-05, P = 336.847237 Days, E = 238.297350 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
91.8	4.95	4.82	6.94	5.46	3.30	0.98	87.0	84.8	0.12	-1.99	72.8	0.99	0.21	0



Stellar Parameters For KIC 007869590

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4649^{+127}_{-104}	$2.654^{+0.378}_{-0.252}$	$-0.040^{+0.250}_{-0.200}$	$8.099^{+3.669}_{-3.002}$	$1.081^{+0.425}_{-0.100}$	$0.003^{+0.008}_{-0.002}$
	+3%/-2%	+14%/-9%	+625%/-500%	+45%/-37%	+39%/-9%	+293%/-66%
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 007869590-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-975 ± 70	$43.54^{+13.49}_{-9.79}$	817^{+93}_{-97}	3908^{+158}_{-130}	282^{+187}_{-104}
Alt.	-66 ± 13	$36.72^{+11.08}_{-8.25}$	822^{+93}_{-97}	2753^{+113}_{-115}	27^{+19}_{-11}

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 $A_{obs} \gg 1.0$

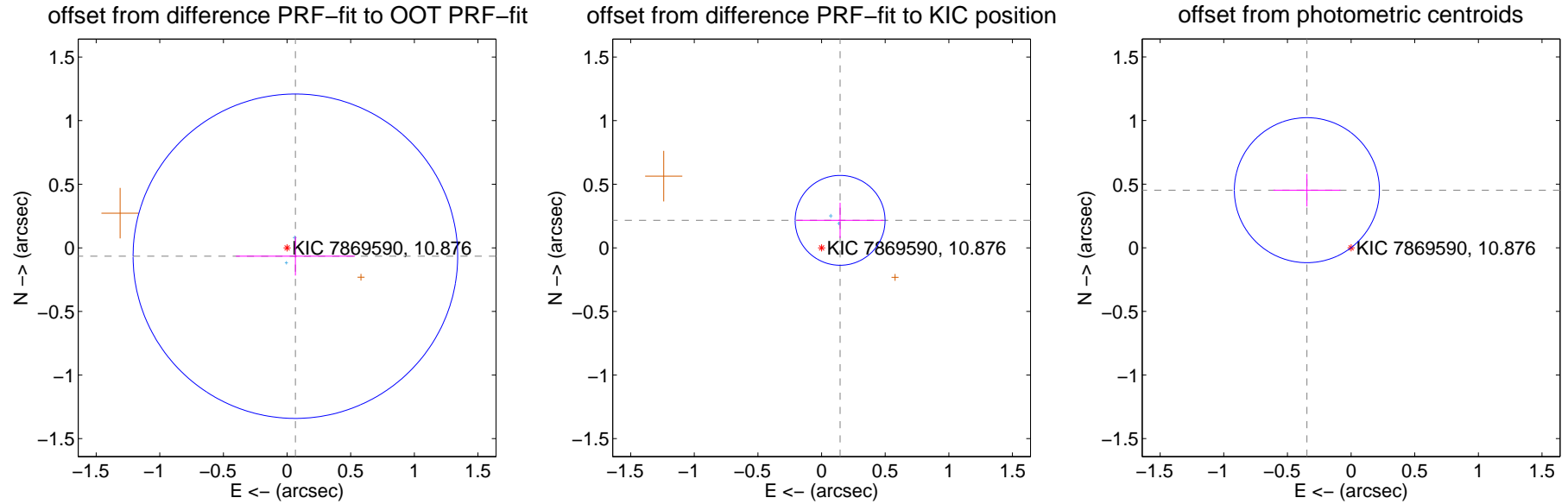
DV Centroid Data

Supplemental centroid analysis for 007869590-05. **Kepler magnitude: 10.88.** Transit SNR 8.35

There are 2 quarters with good PRF difference image offsets

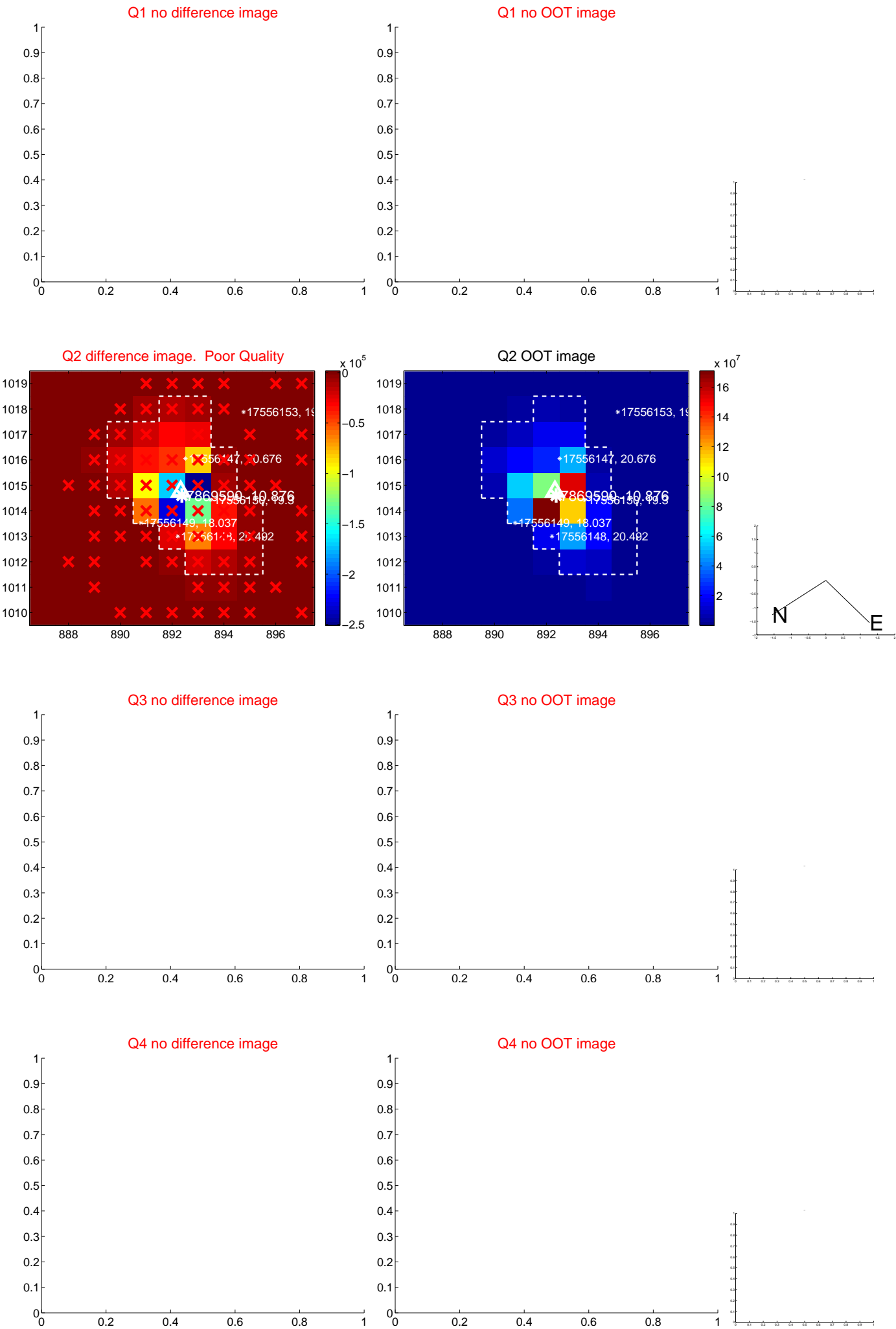
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.093 ± 0.425	0.22	-0.065 ± 0.468	-0.066 ± 0.152
PRF-fit source offset from KIC position	0.261 ± 0.118	2.21	-0.146 ± 0.341	0.216 ± 0.139
photometric centroid source offset	0.57 ± 0.19	3.00	0.35 ± 0.26	0.45 ± 0.13



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

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



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

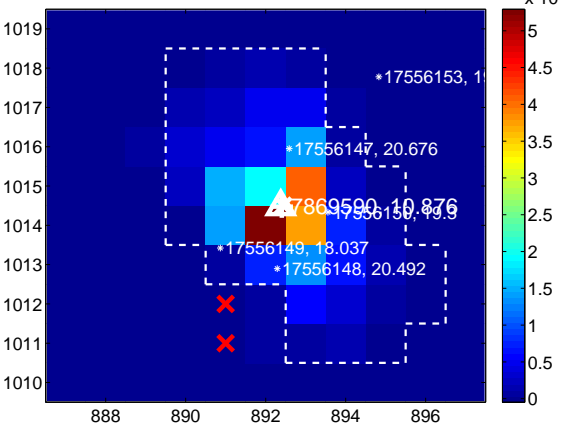
Q5 no difference image



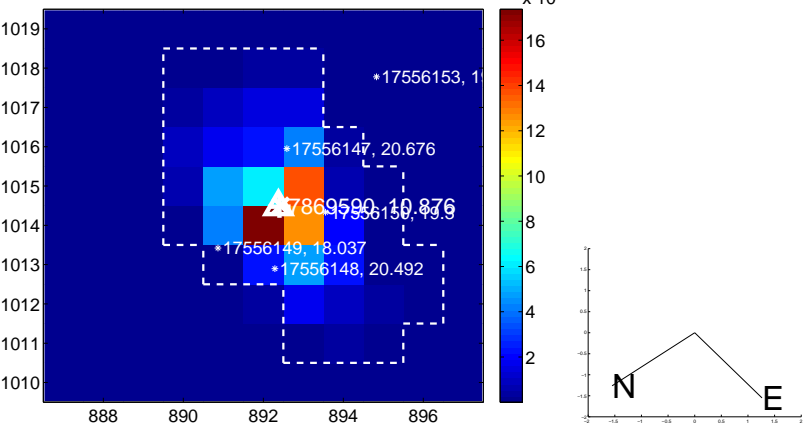
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



Q7 no OOT image



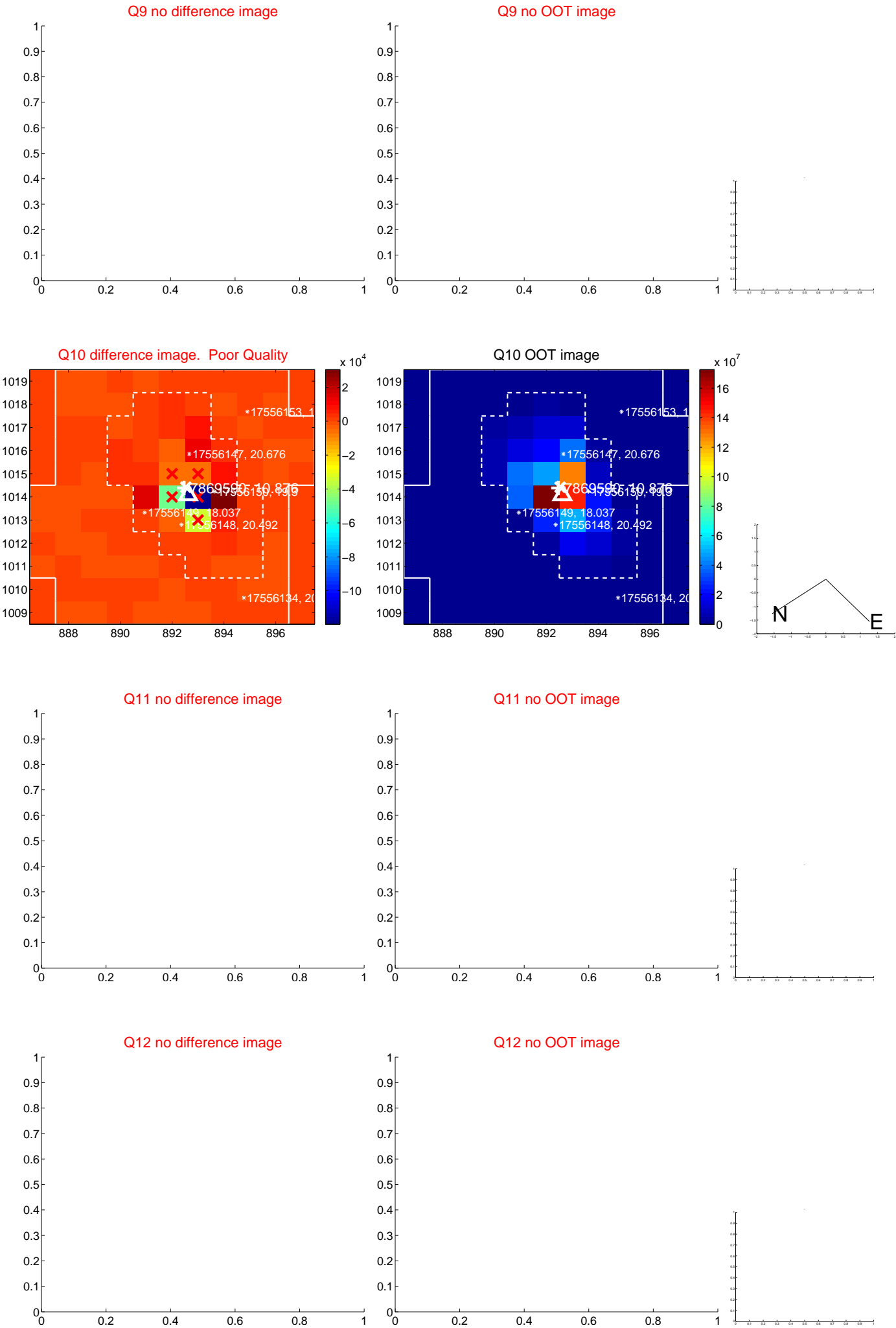
Q8 no difference image



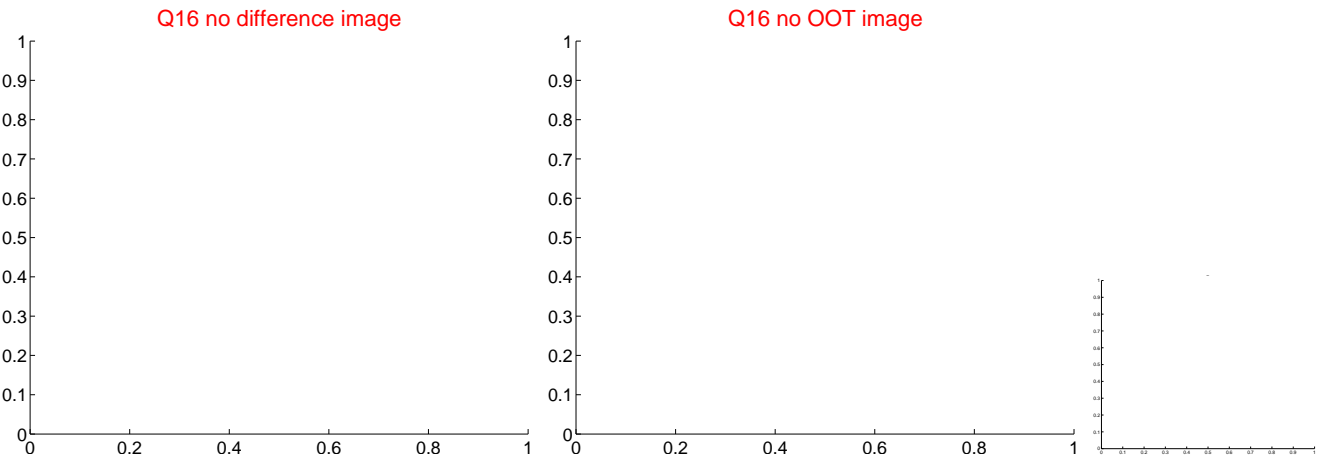
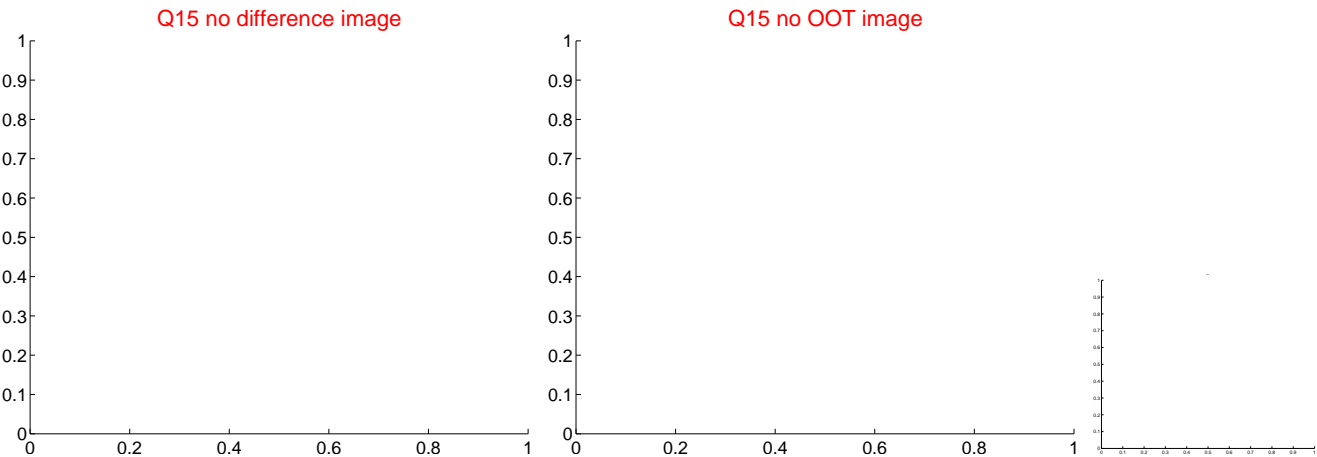
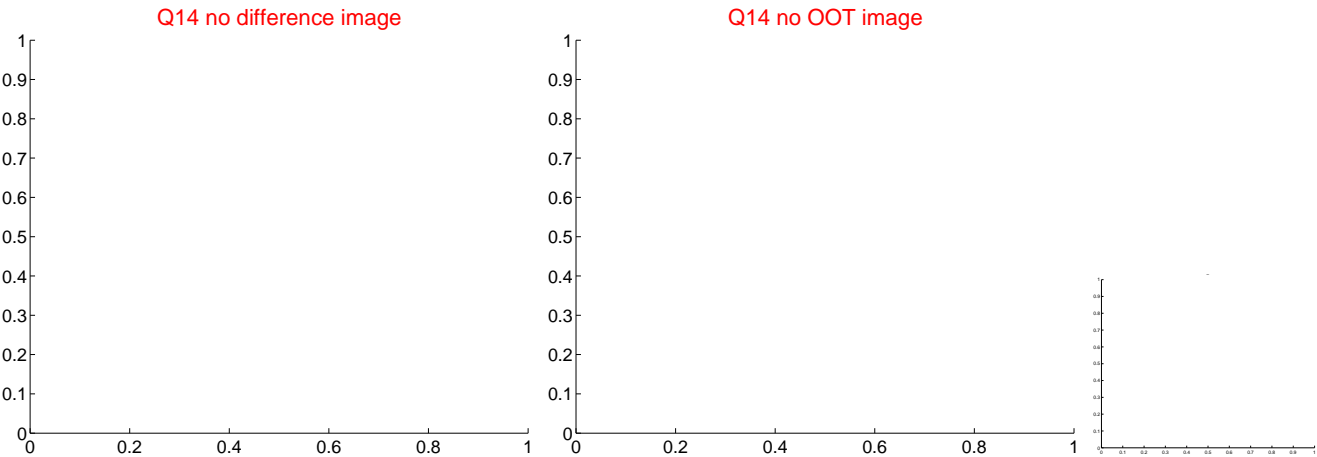
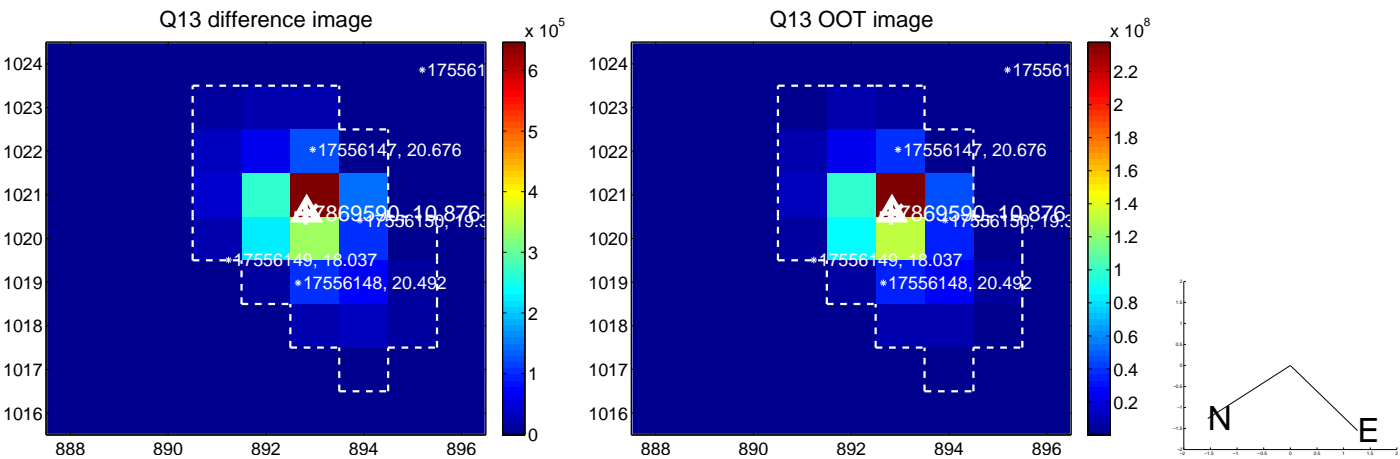
Q8 no OOT image



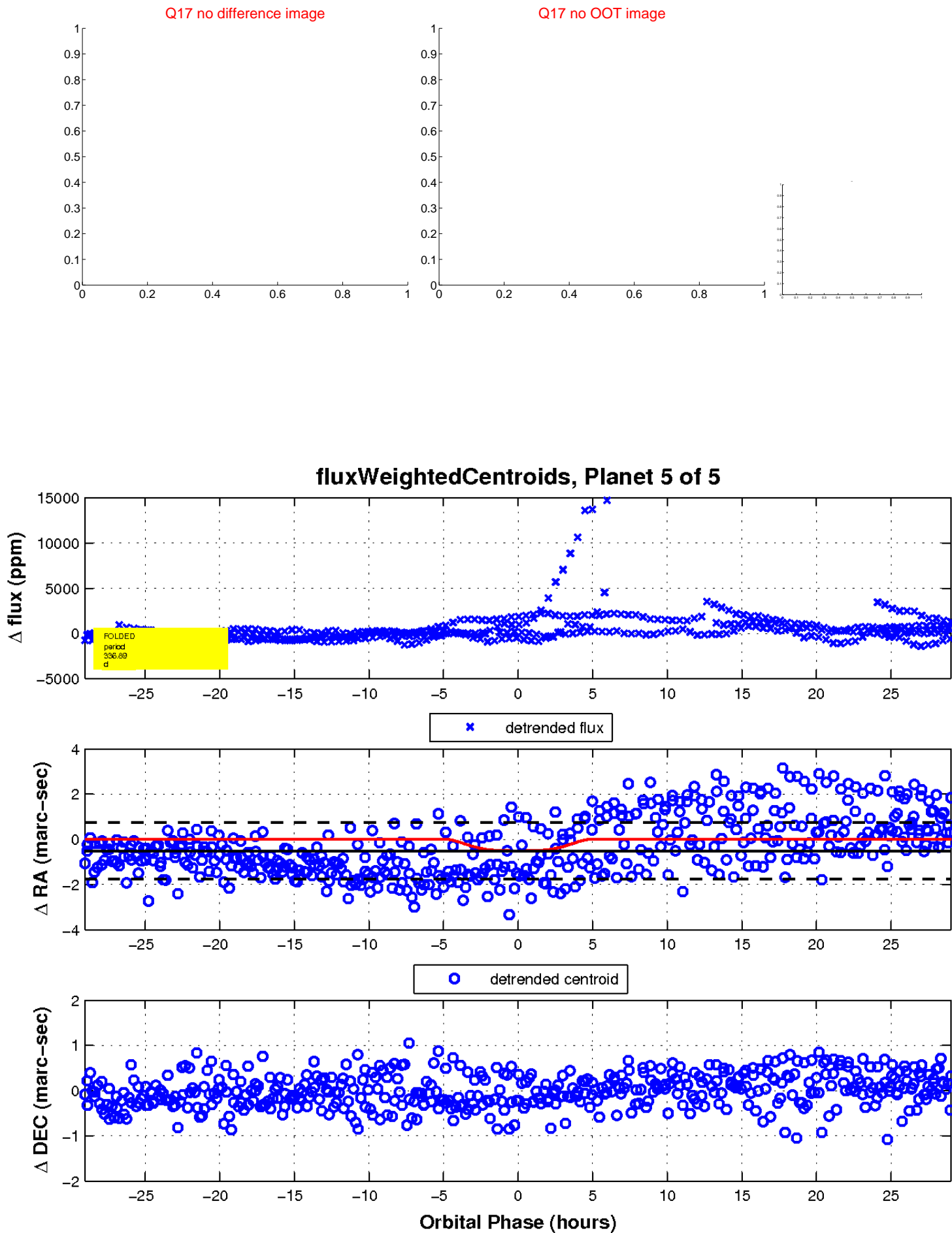
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

