

KIC 010863286

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})
010863286-01	OBS	No	3.723967	133.659737	52.6	7.183	13.9	16.4	1.52	7300	1.58	2066.86
010863286-02	OBS	No	499.031639	208.692915	216.3	7.723	10.0	7.2	1.52	7300	2.33	3.01
010863286-03	OBS	No	1.640071	131.829171	21.1	8.300	9.5	10.6	1.52	7300	0.93	6168.35
010863286-04	OBS	No	330.099447	186.568567	240.3	4.277	8.4	7.9	1.52	7300	3.54	5.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010863286-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010863286-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010863286-03	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_DV—HALO_GHOST
010863286-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

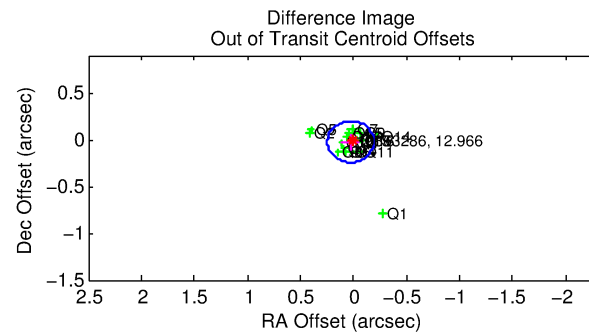
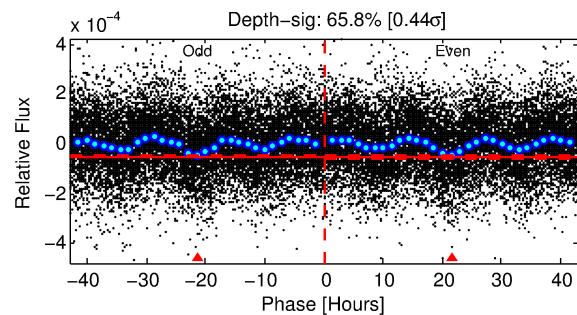
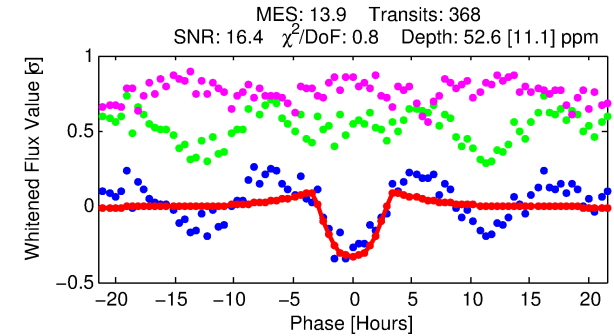
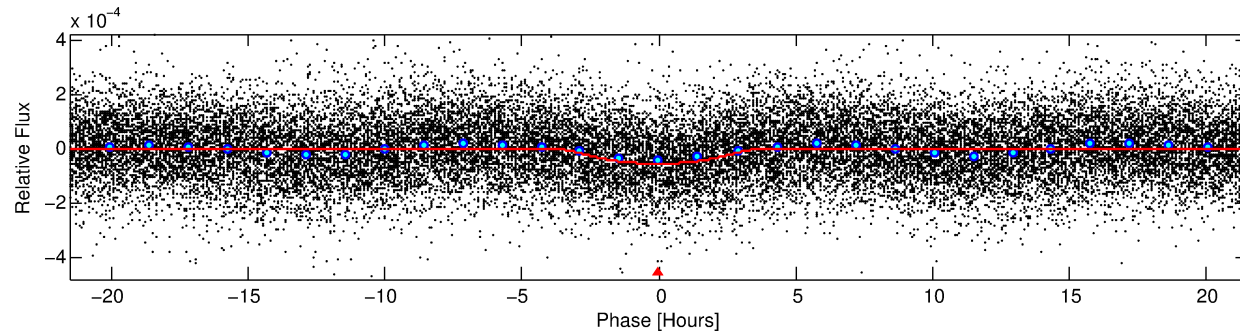
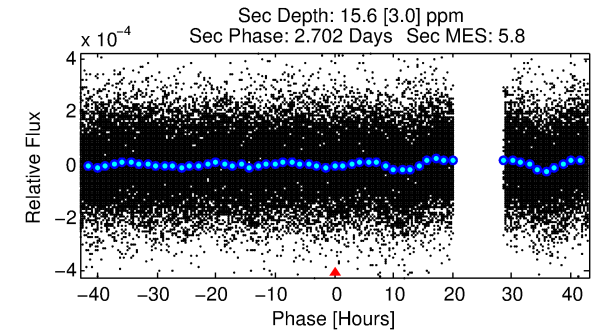
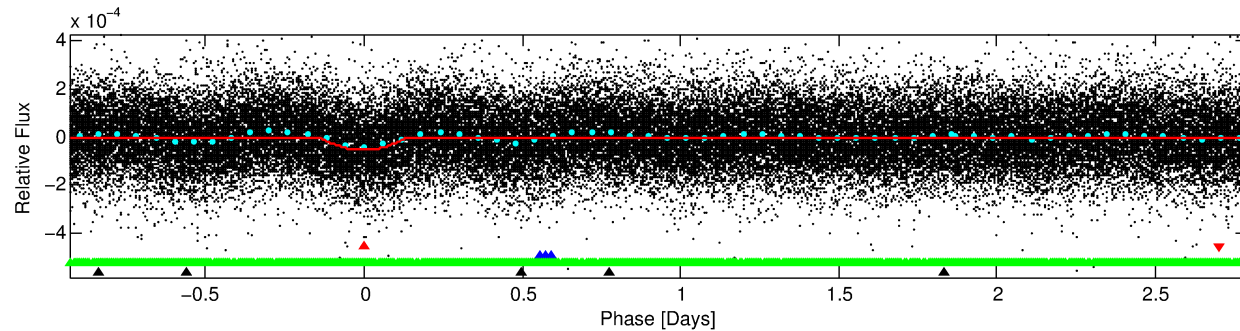
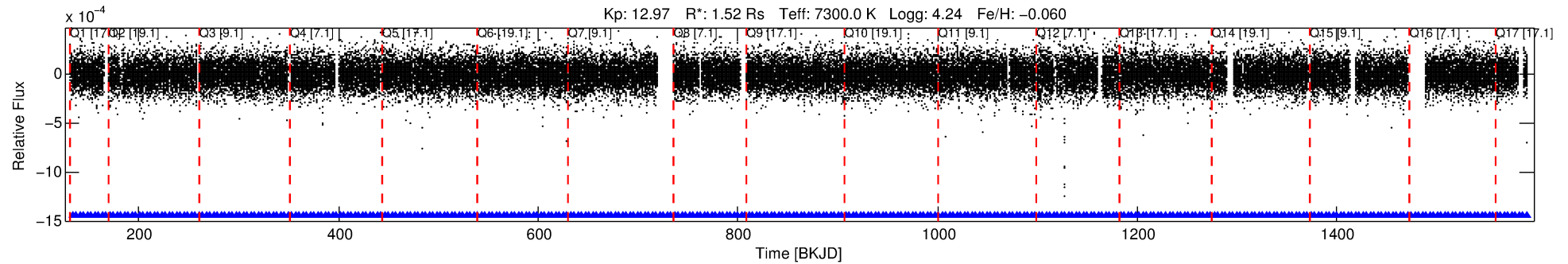
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010863286-01

No Significant Match Found

DV One-Page Summary

KIC: 10863286 Candidate: 1 of 4 Period: 3.724 d



DV Fit Results:

Period = 3.72397 [0.00004] d
Epoch = 133.6597 [0.0076] BKJD
Rp/R* = 0.0095 [0.0016]
a/R* = 1.24 [0.06]
b = 0.99 [0.00]
Seff = 2066.86 [940.77]
Teq = 1719 [196] K
Rp = 1.58 [0.63] Re
a = 0.0534 [0.0158] AU
Ag = 9.85 [5.65] [1.57σ]
Teffp = 4710 [504] K [5.53σ]

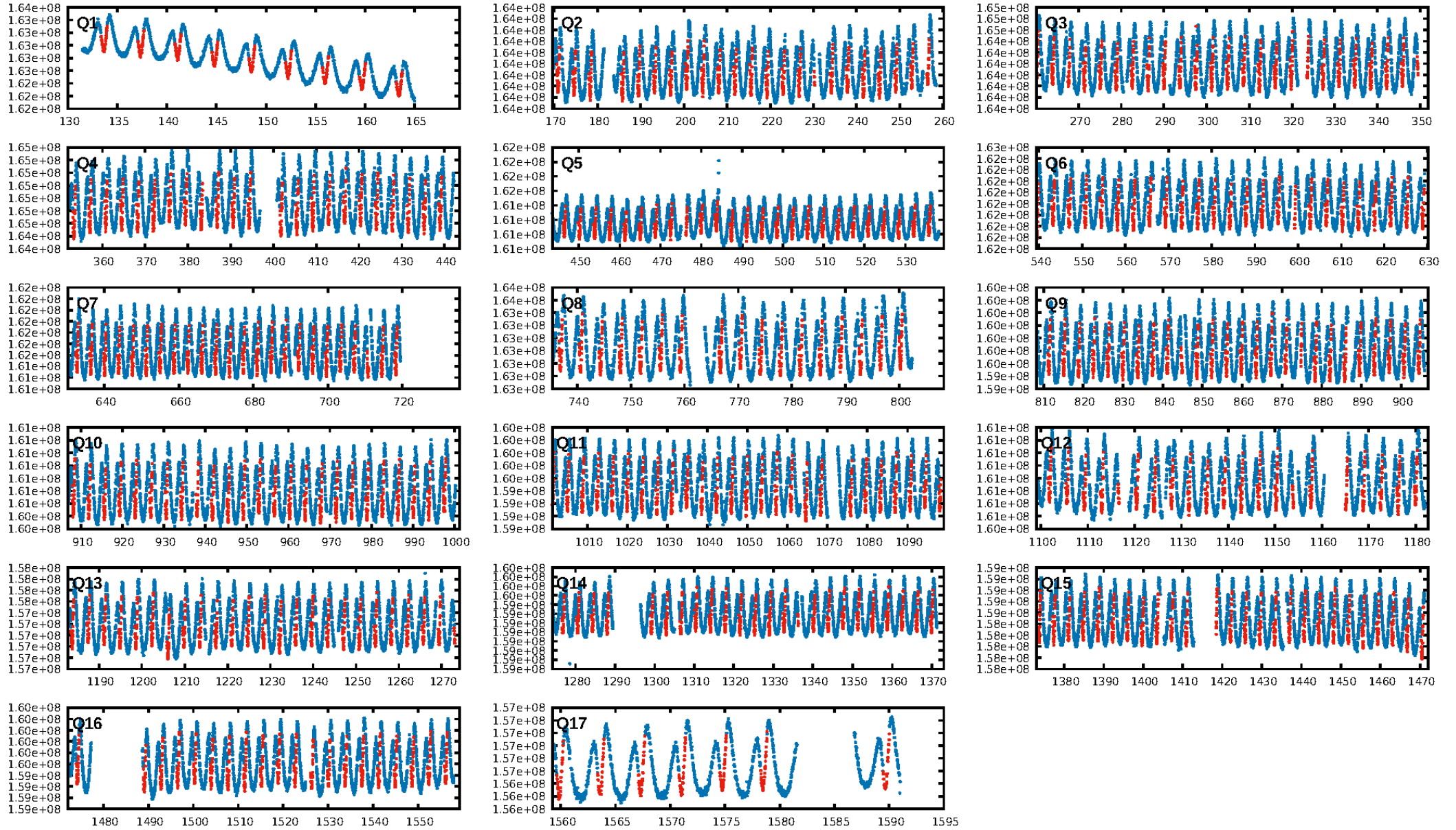
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.56σ]
LongPeriod-sig: 100.0% [936.98σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.78e-29
RollingBand-fgt: 1.00 [352/352]
GhostDiagnostic-chr: 0.6793
Centroid-sig: 0.0%
Centroid-so: 3.287 arcsec [6.36σ]
OotOffset-rm: 0.035 arcsec [0.47σ]
KicOffset-rm: 0.085 arcsec [1.02σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.94 [16/17]

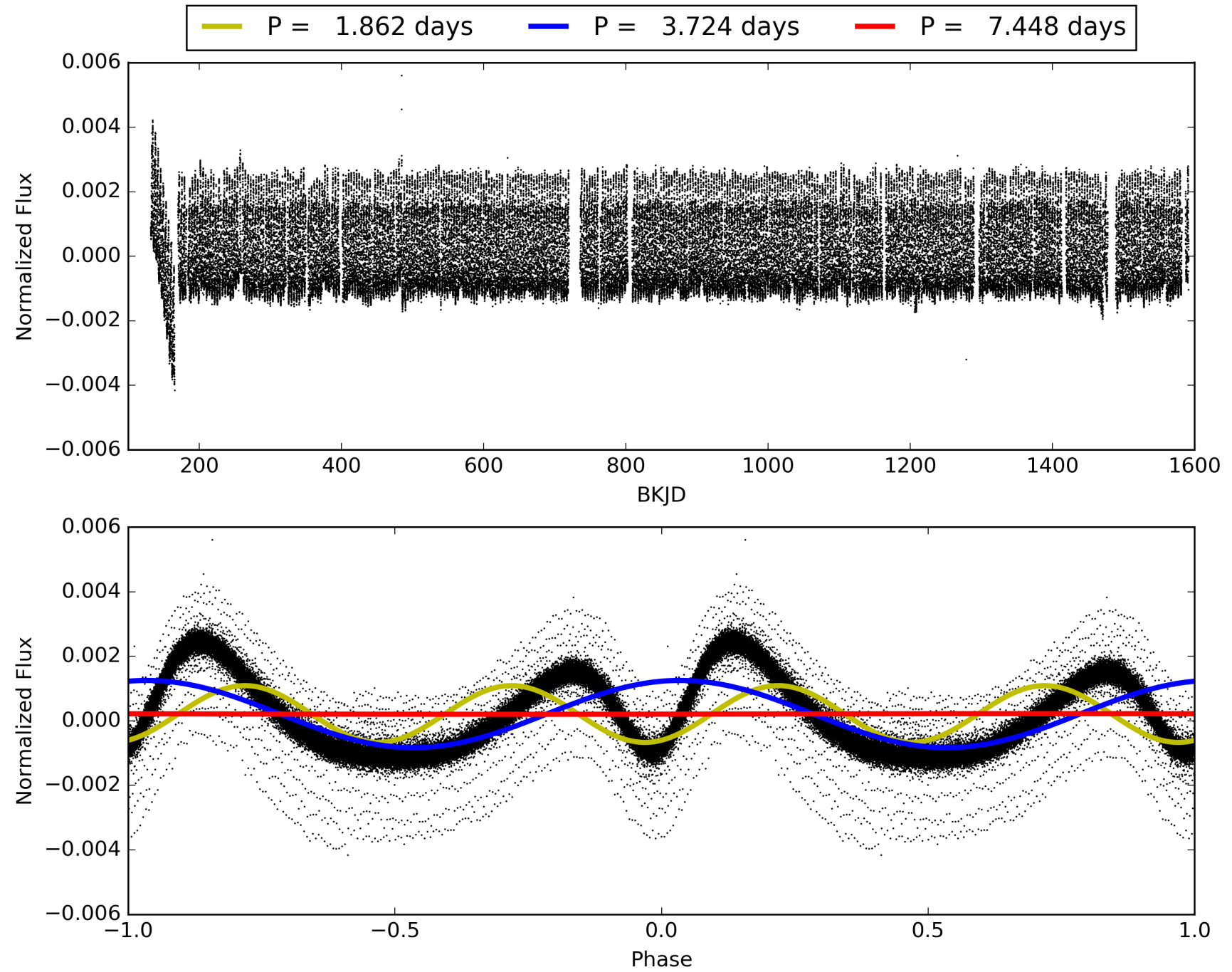
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:52:01 Z

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

TCE 010863286-01, PDC Light Curves

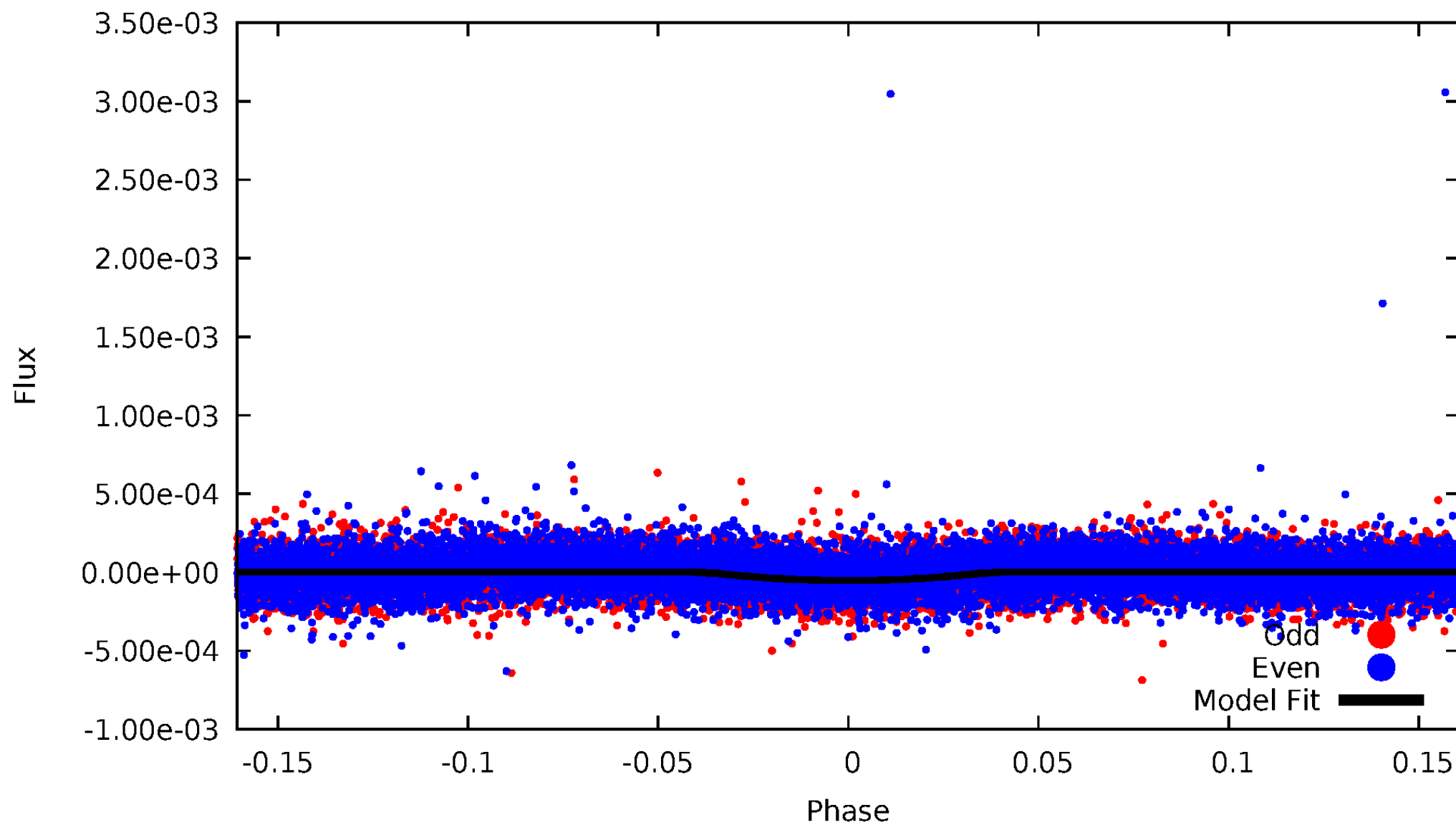


TCE 010863286-01



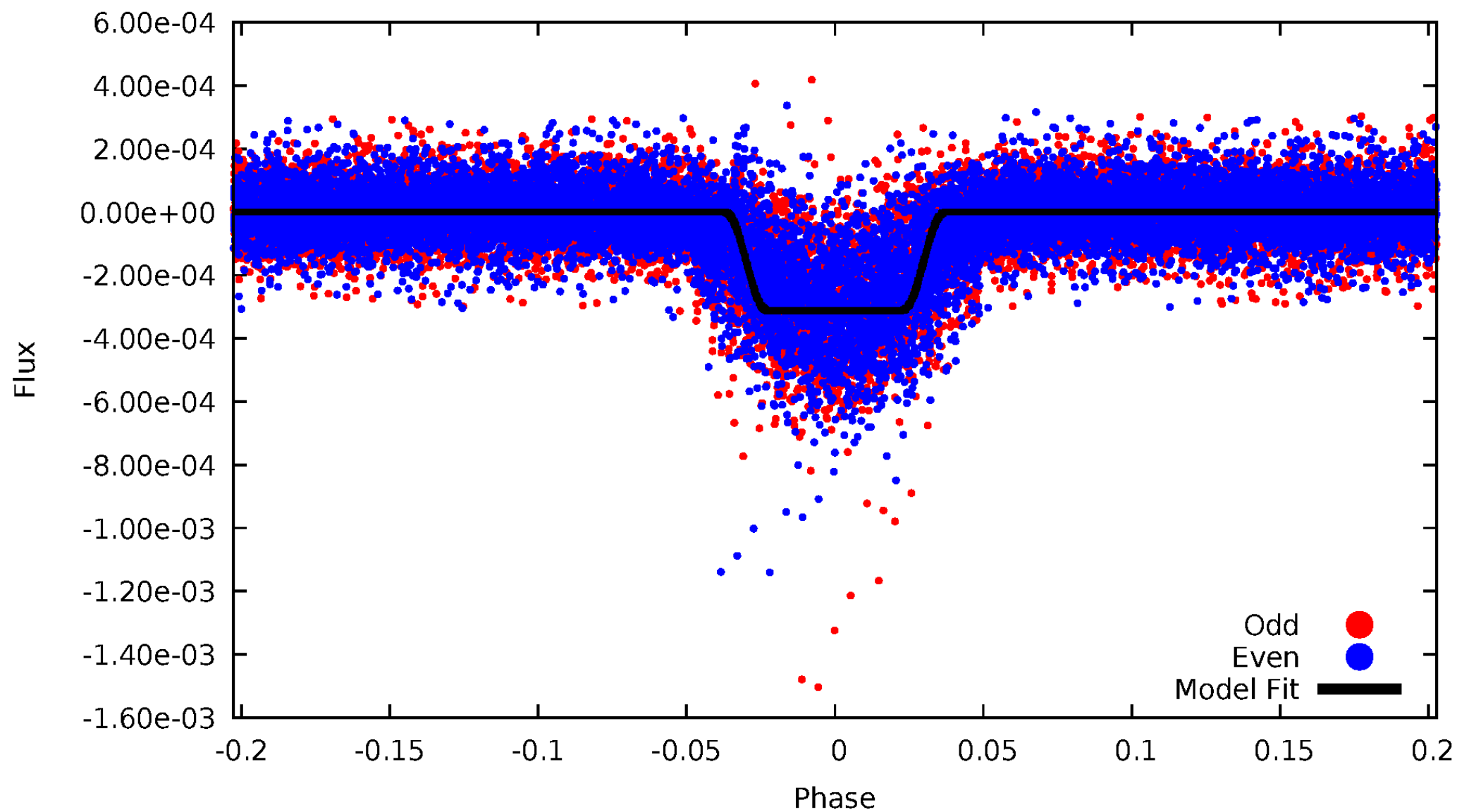
DV Odd/Even

TCE 010863286-01



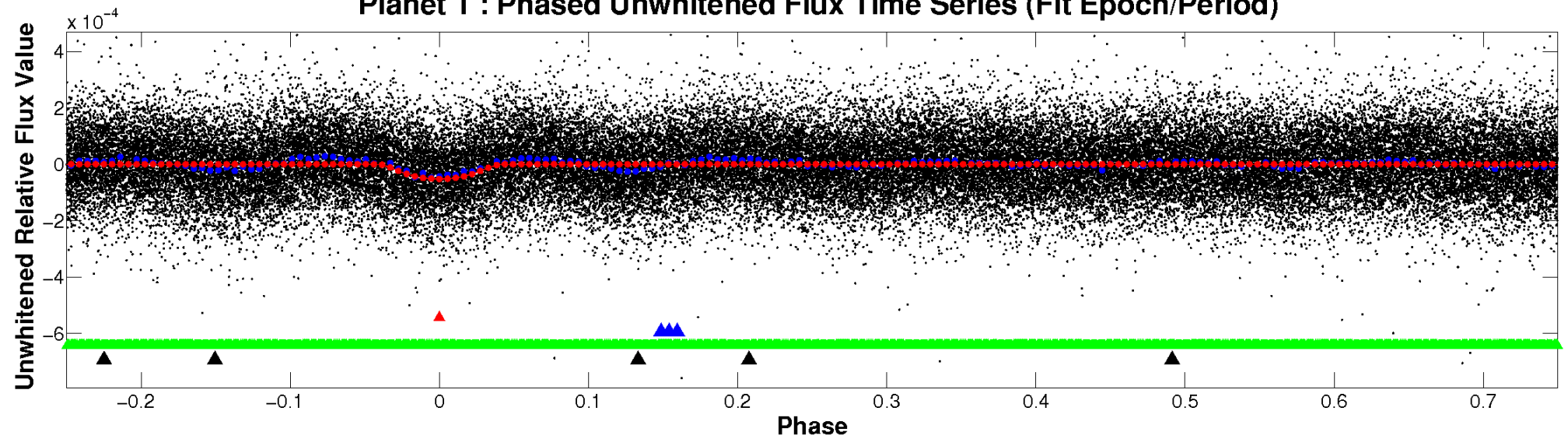
ALT Odd/Even

TCE 010863286-01

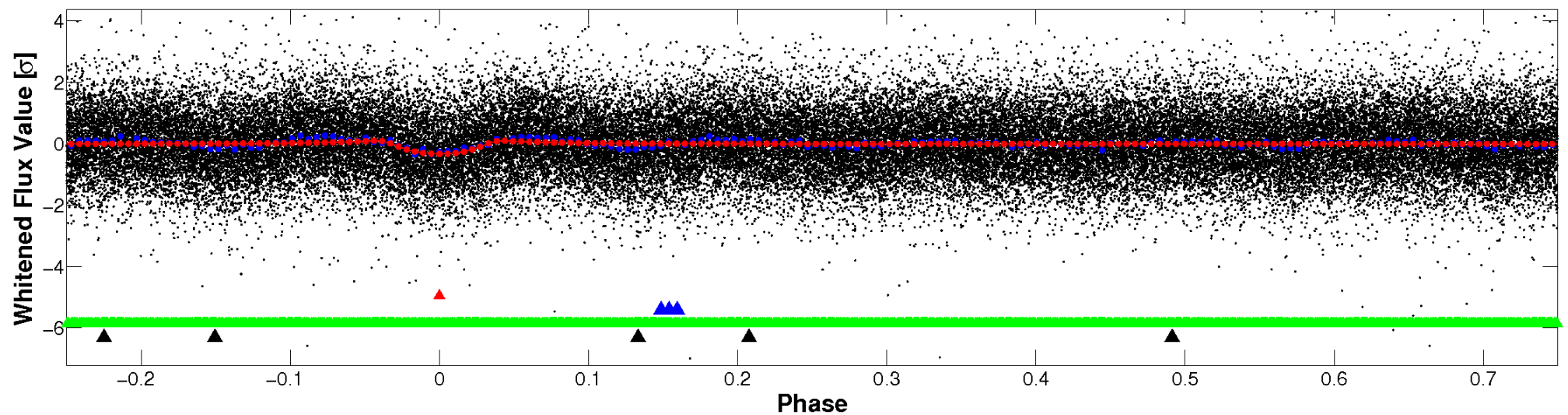


Non-Whitened Vs. Whitened Light Curve

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

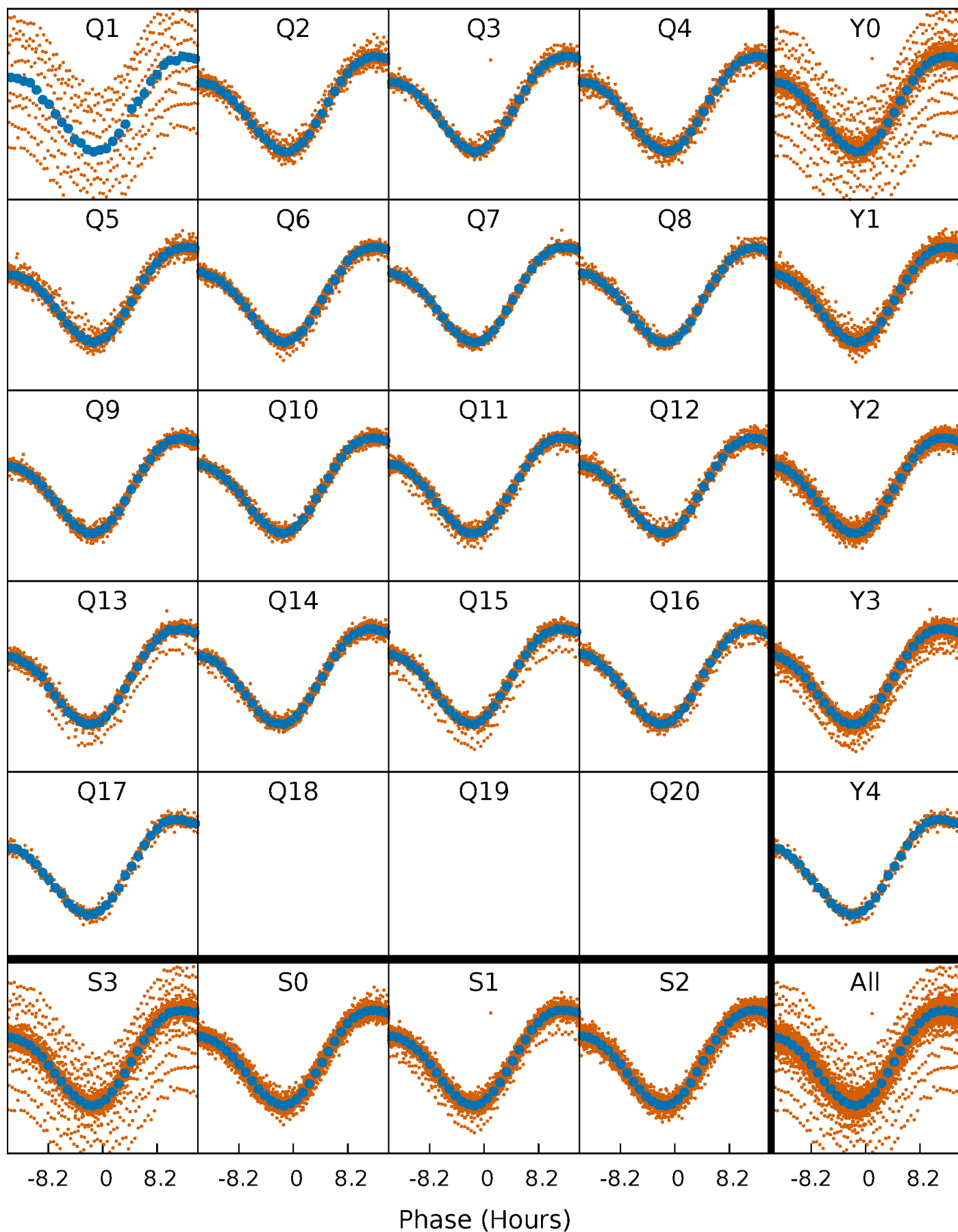


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



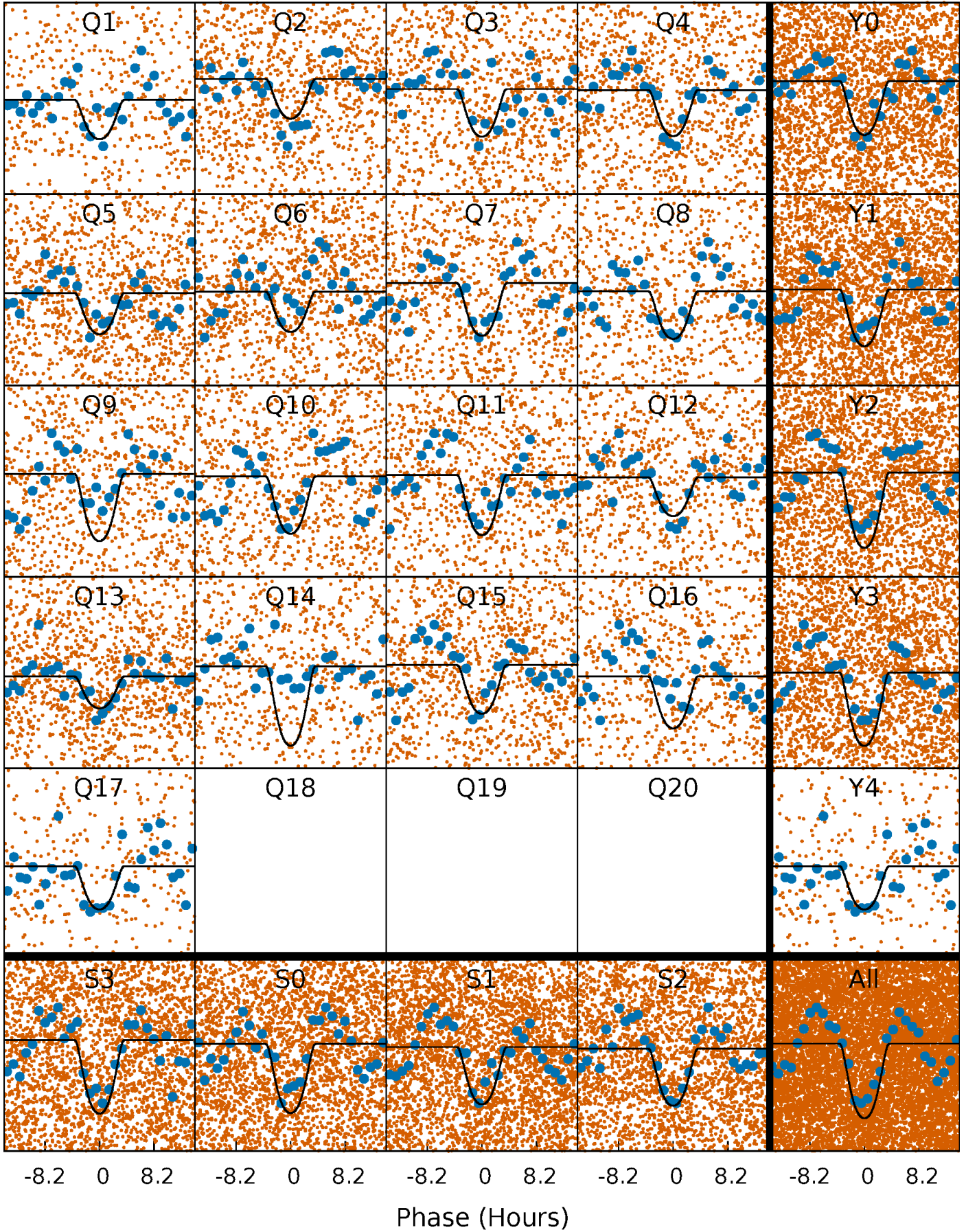
PDC Quarter-Phased Transit Curves

TCE 010863286-01 P= 3.723967 Days $T_0=133.659737$ (BKJD)



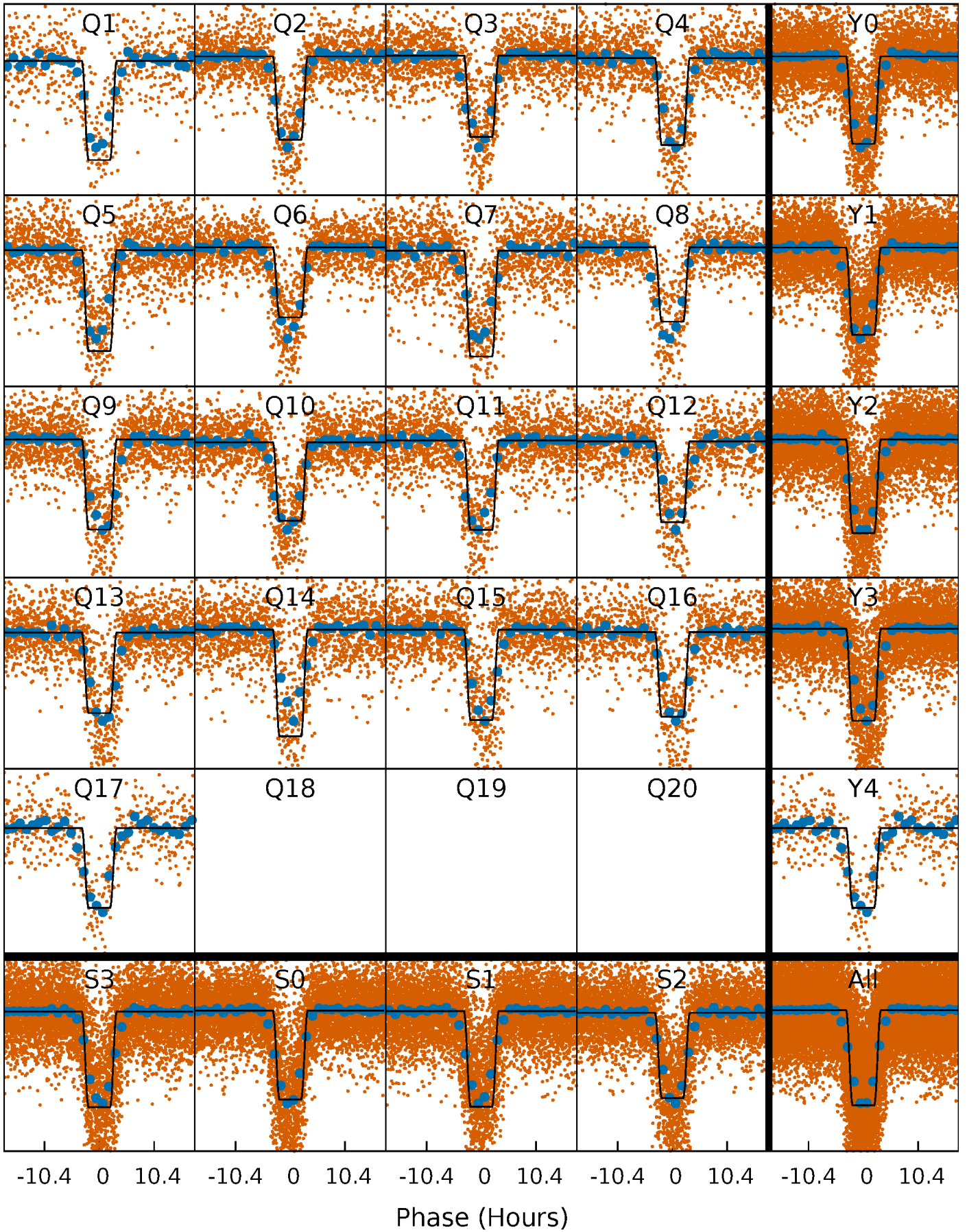
DV Quarter-Phased Transit Curves

TCE 010863286-01 P= 3.723967 Days $T_0=133.659737$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

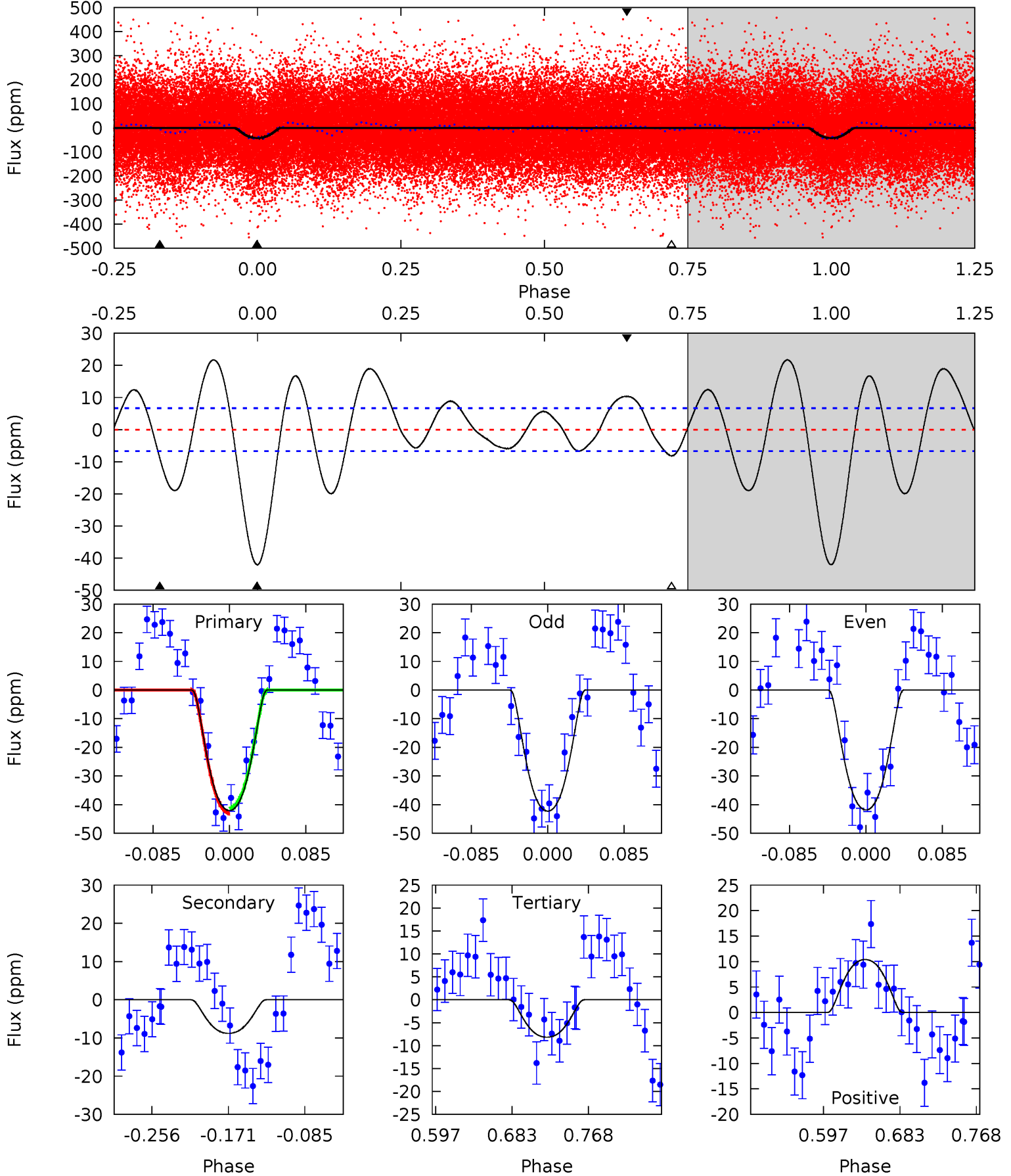
TCE 010863286-01 P= 3.723961 Days $T_0=133.661048$ (BKJD)



DV Model-Shift Uniqueness Test

010863286-01, P = 3.723967 Days, E = 129.935770 Days

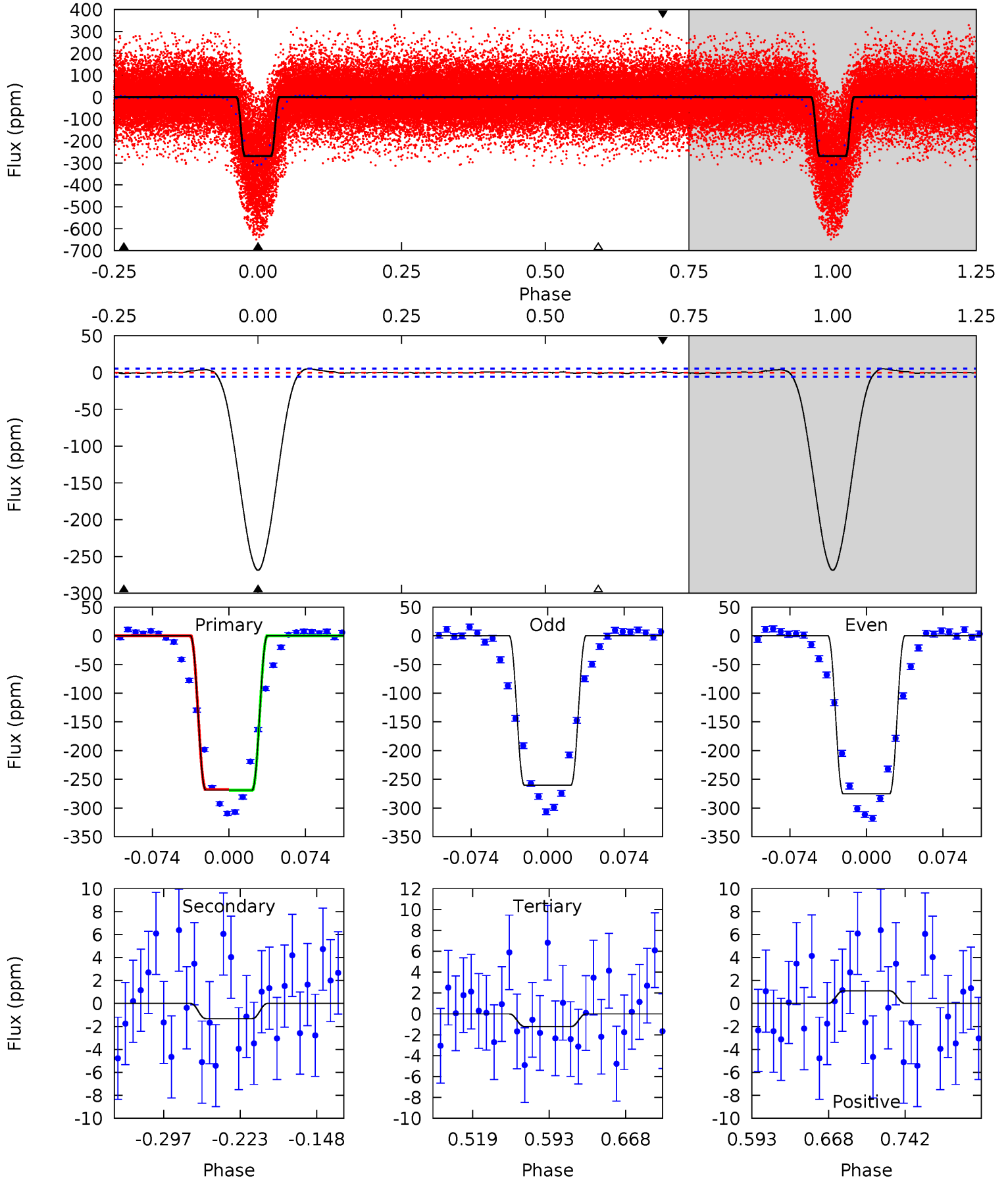
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.9	6.05	5.62	7.14	4.60	1.72	5.53	23.3	21.8	0.43	-1.10	0.15	0.71	0.34	0.55



Alt Model-Shift Uniqueness Test

010863286-01, P = 3.723961 Days, E = 129.937087 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
227.3	1.12	1.02	0.93	4.63	1.79	1.05	226.3	226.4	0.09	0.19	6.32	0.98	0.02	0.62



Stellar Parameters For KIC 010863286

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7300^{+232}_{-319}	$4.239^{+0.075}_{-0.225}$	$-0.060^{+0.200}_{-0.400}$	$1.523^{+0.547}_{-0.235}$	$1.466^{+0.219}_{-0.219}$	$0.585^{+0.254}_{-0.337}$
	+3%/-4%	+2%/-5%	+333%/-667%	+36%/-15%	+15%/-15%	+43%/-58%
Source	KIC0	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 010863286-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-9 ± 1	$1.64^{+0.40}_{-0.31}$	2453^{+189}_{-153}	4206^{+398}_{-298}	$4.983^{+2.915}_{-1.900}$
Alt.	-1 ± 1	$3.06^{+0.61}_{-0.41}$	2443^{+216}_{-148}	-2413^{+4871}_{-329}	$0.201^{+0.223}_{-0.165}$

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 $A_{obs} \gg 1.0$

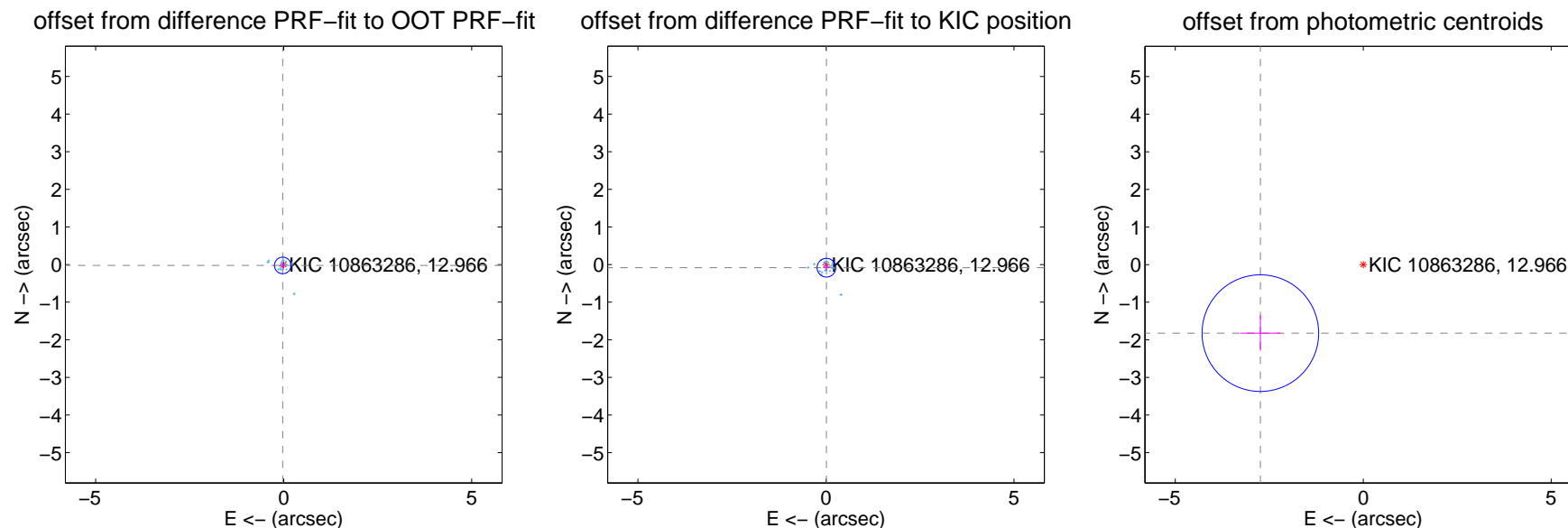
DV Centroid Data

Supplemental centroid analysis for 010863286-01. Kepler magnitude: 12.97. Transit SNR 16.40

There are 17 quarters with good PRF difference image offsets

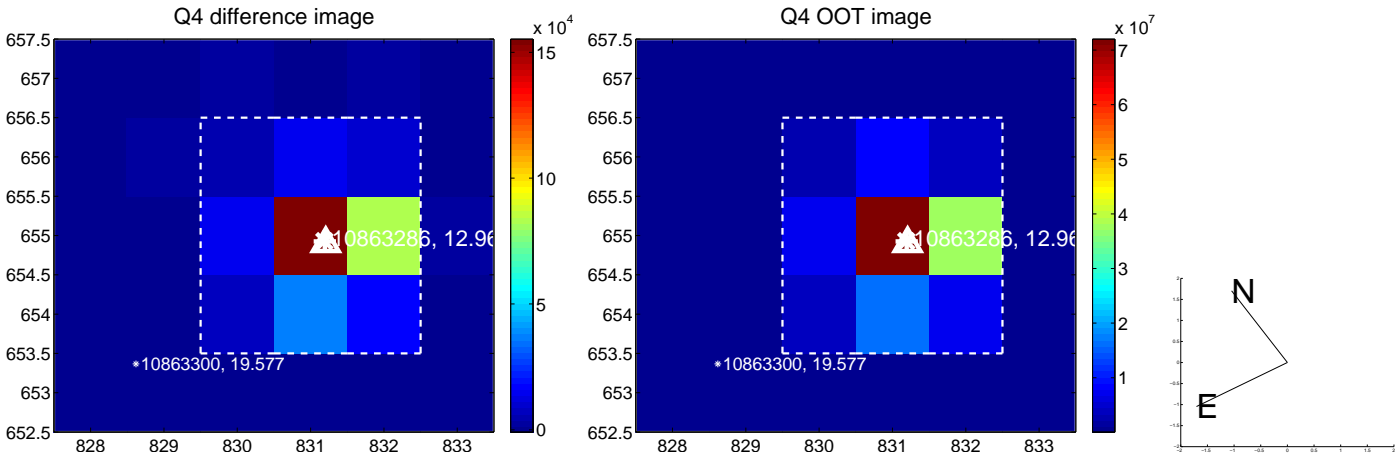
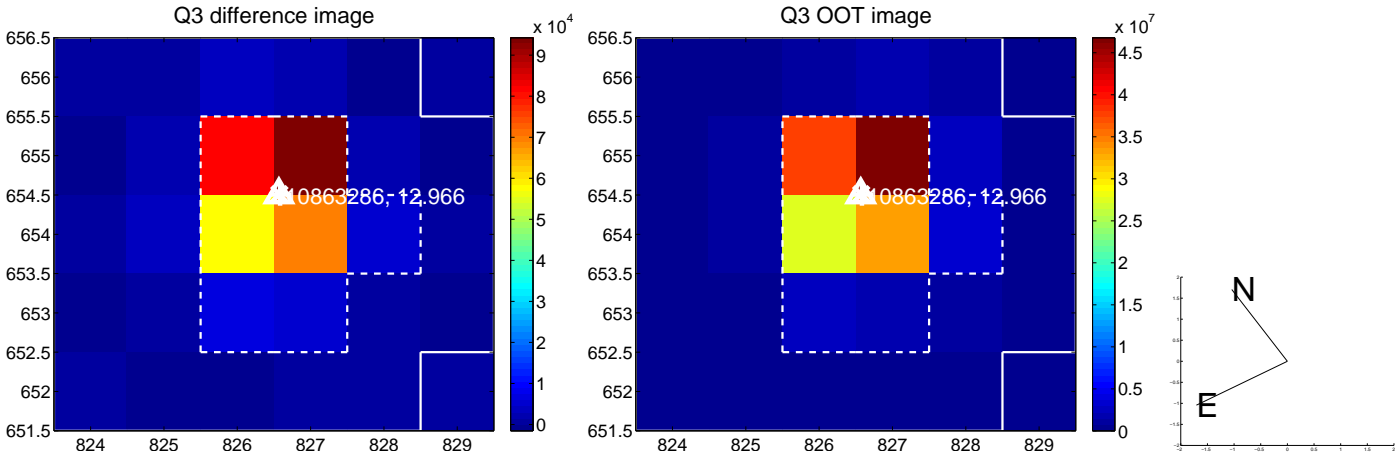
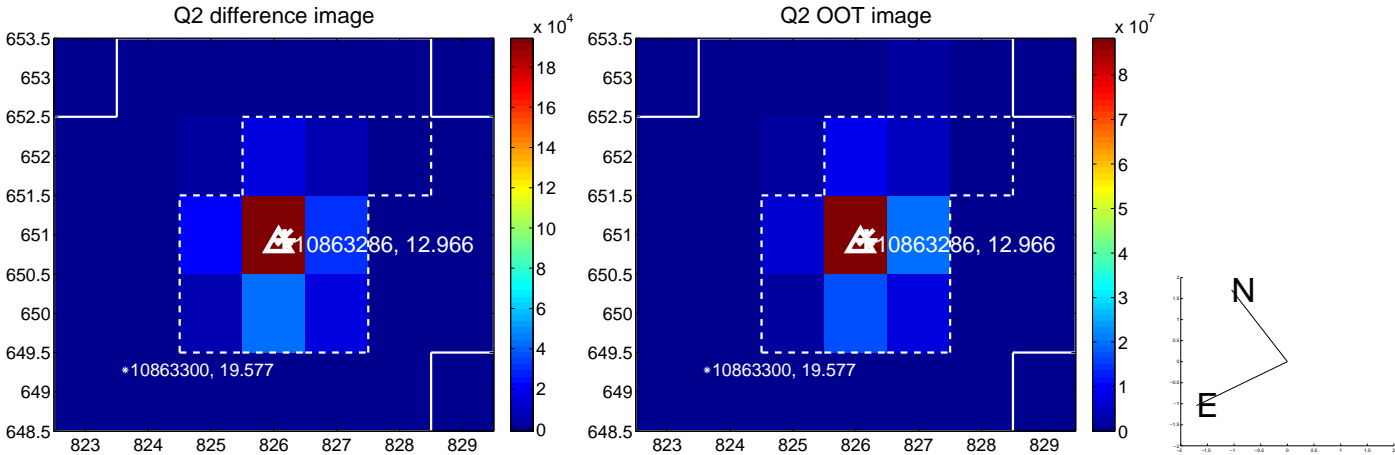
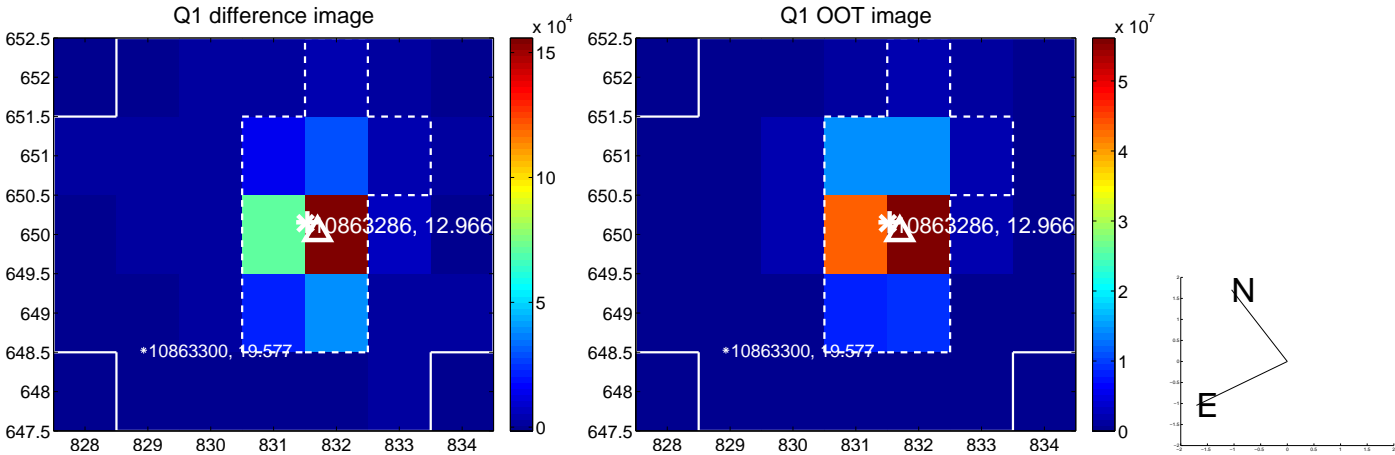
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.035 ± 0.073	0.47	0.025 ± 0.077	-0.024 ± 0.081
PRF-fit source offset from KIC position	0.085 ± 0.083	1.02	-0.012 ± 0.081	-0.084 ± 0.082
photometric centroid source offset	3.29 ± 0.52	6.36	2.74 ± 0.54	-1.82 ± 0.47

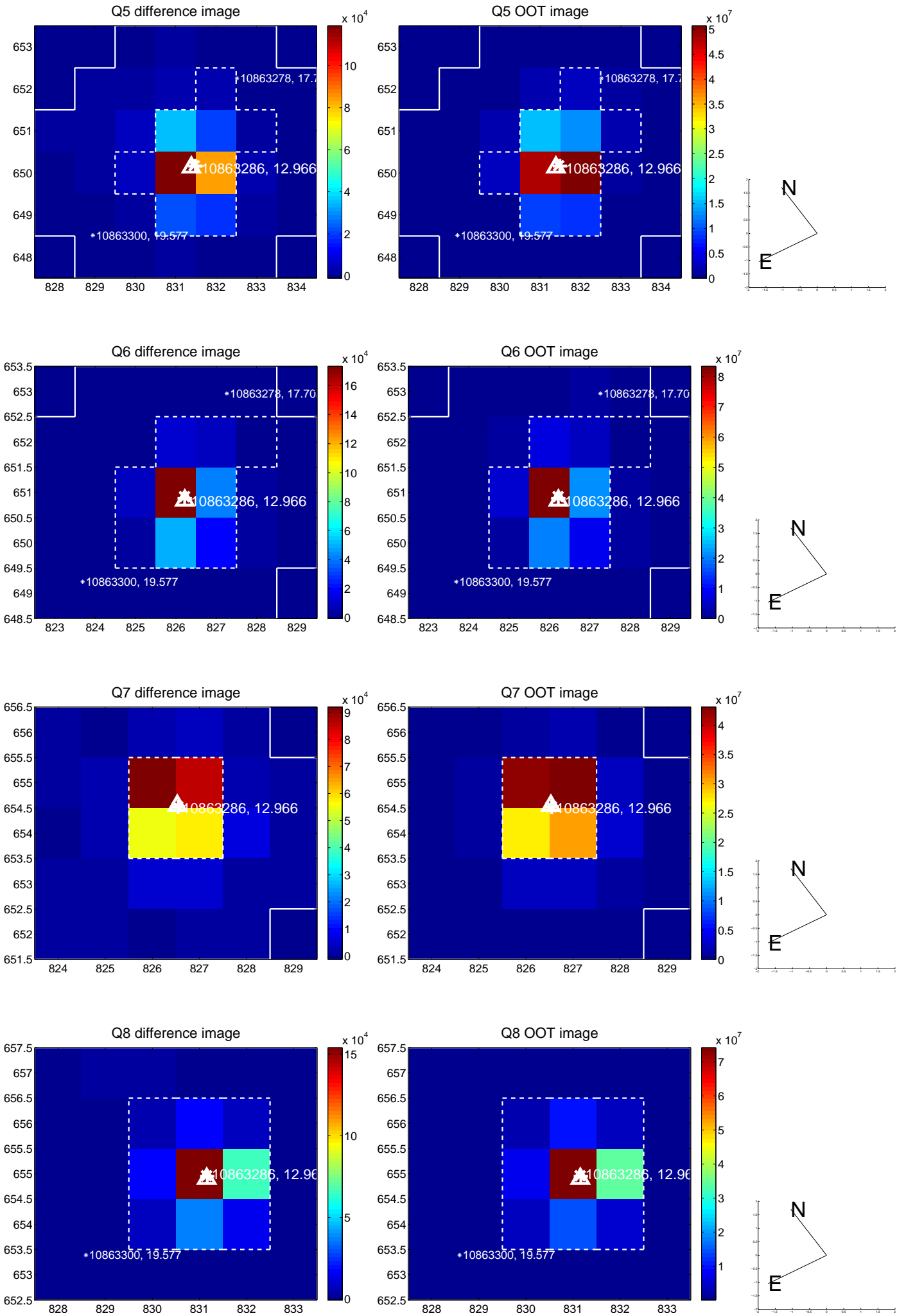


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

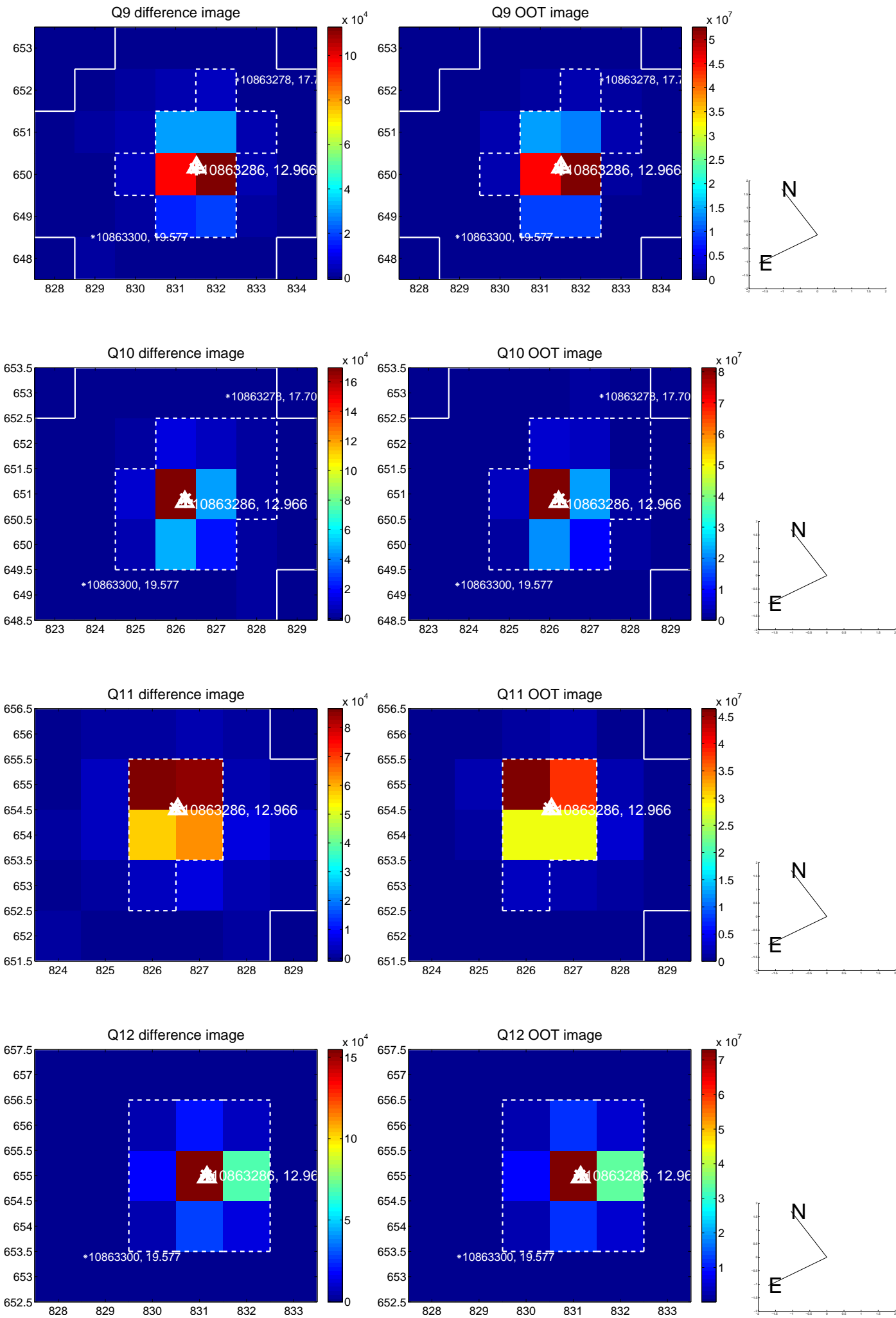
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



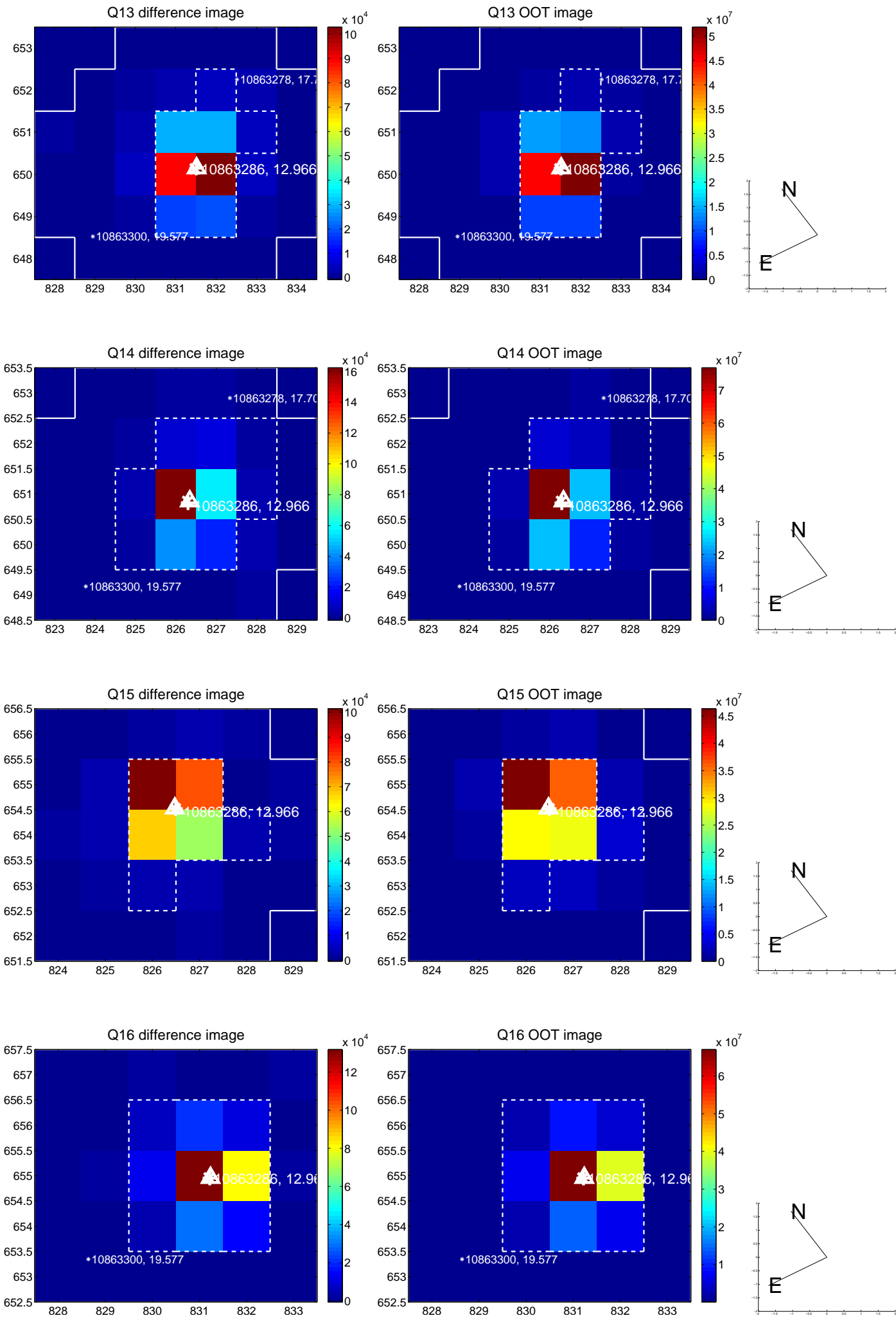
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

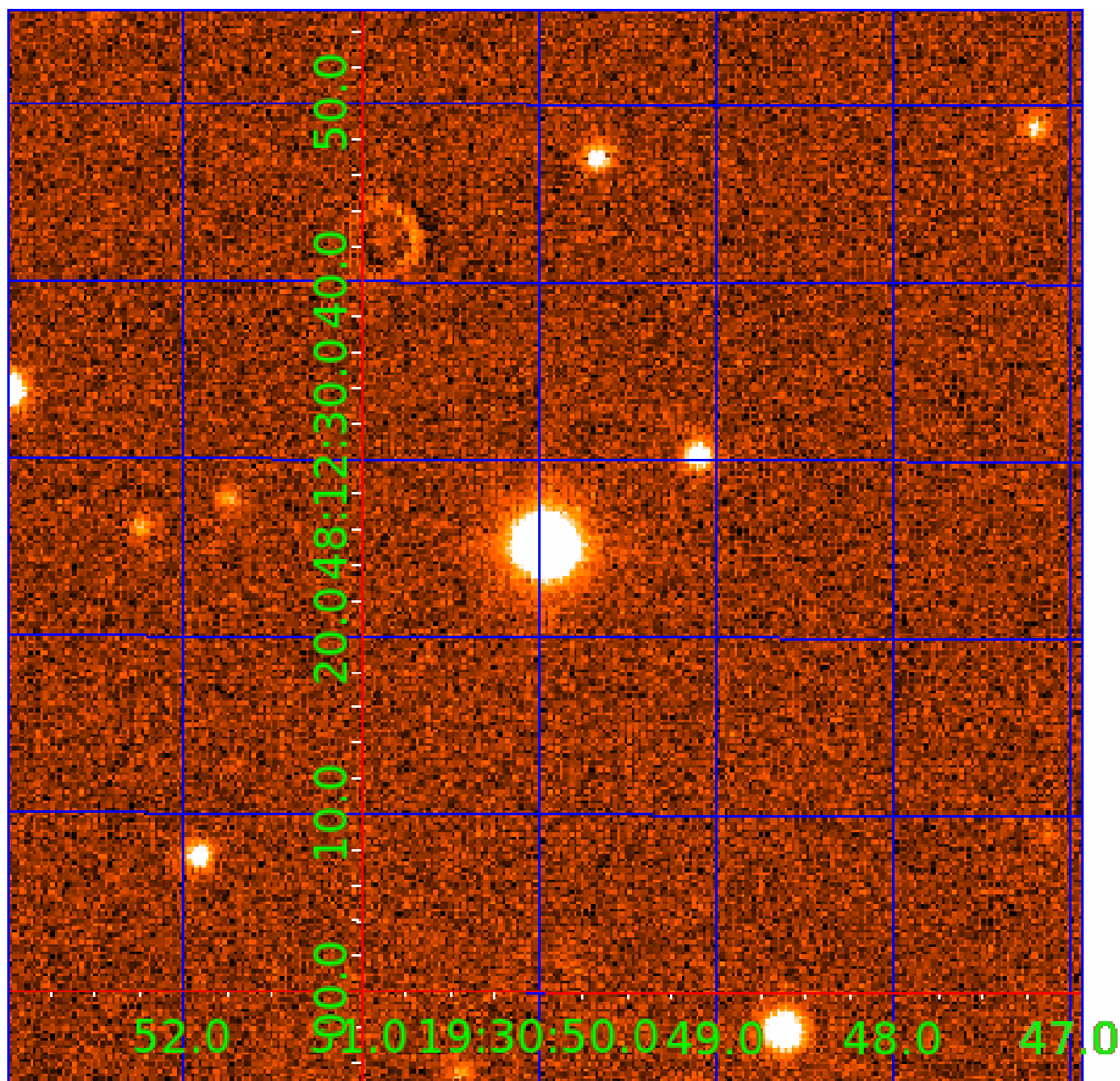


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010863286

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})
010863286-01	OBS	No	3.723967	133.659737	52.6	7.183	13.9	16.4	1.52	7300	1.58	2066.86
010863286-02	OBS	No	499.031639	208.692915	216.3	7.723	10.0	7.2	1.52	7300	2.33	3.01
010863286-03	OBS	No	1.640071	131.829171	21.1	8.300	9.5	10.6	1.52	7300	0.93	6168.35
010863286-04	OBS	No	330.099447	186.568567	240.3	4.277	8.4	7.9	1.52	7300	3.54	5.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010863286-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010863286-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010863286-03	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_DV—HALO_GHOST
010863286-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

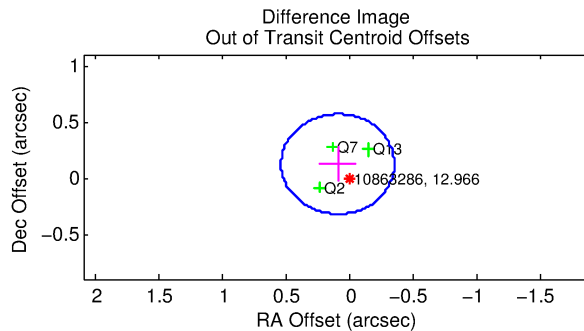
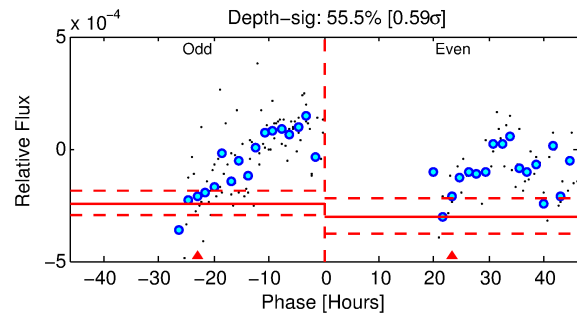
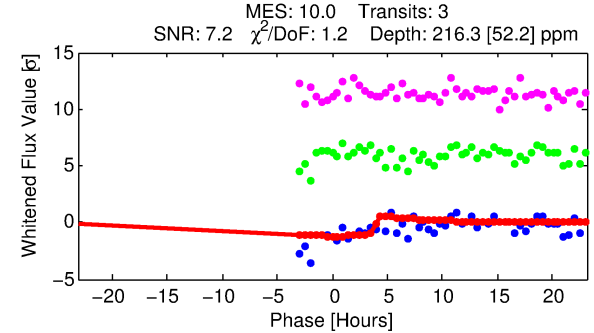
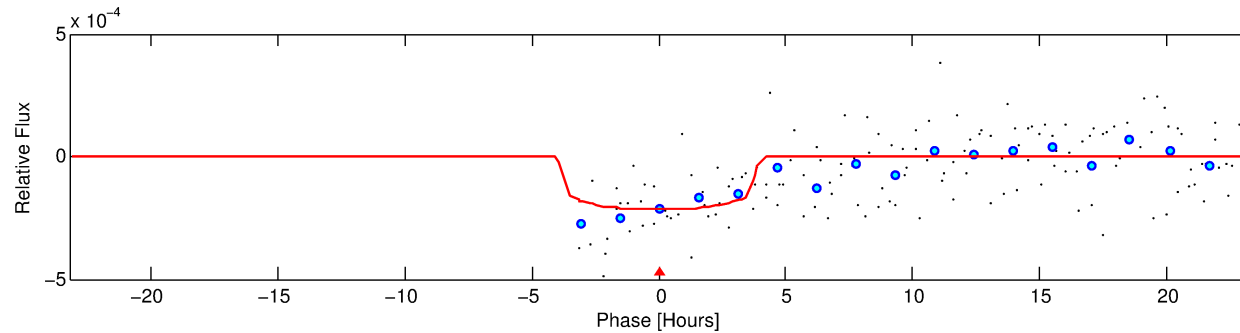
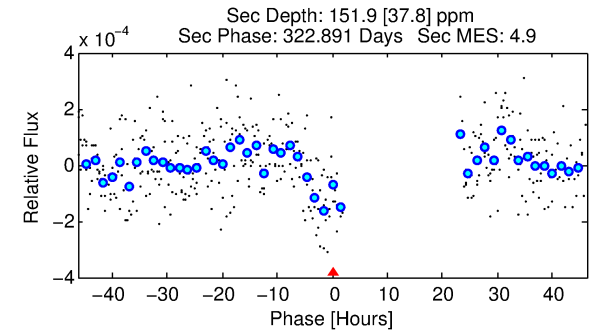
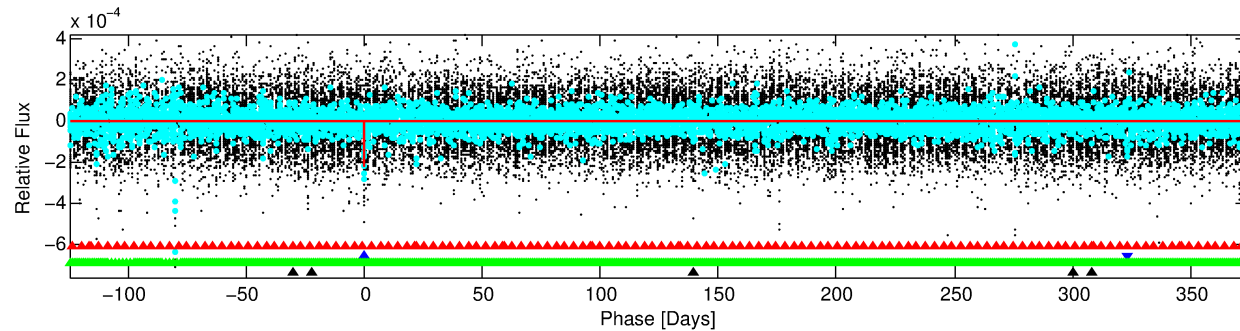
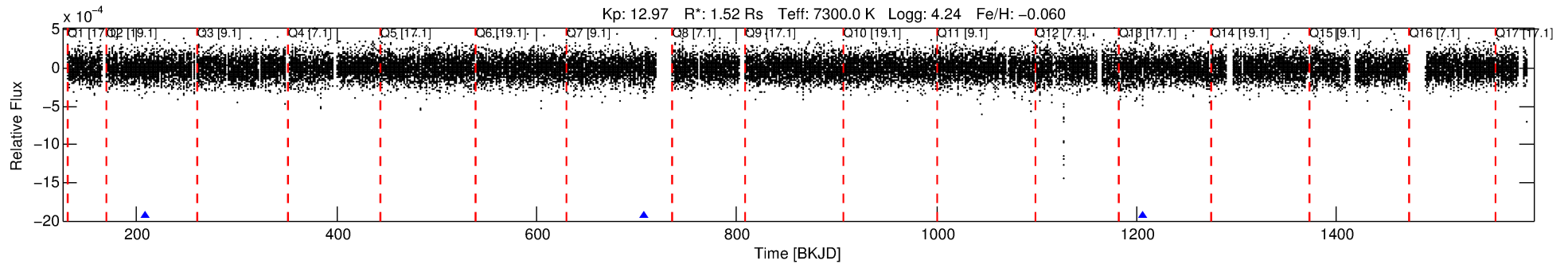
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010863286-02

No Significant Match Found

DV One-Page Summary

KIC: 10863286 Candidate: 2 of 4 Period: 499.032 d



DV Fit Results:

Period = 499.03164 [0.01252] d
Epoch = 208.6929 [0.0717] BKJD
Rp/R* = 0.0140 [0.0292]
a/R* = 434.40 [5498.93]
b = 0.50 [19.00]
Seff = 3.01 [1.37]
Teq = 336 [38] K
Rp = 2.33 [4.92] Re
a = 1.3993 [0.4131] AU
Ag = 30243.25 [126959.93] [0.24σ]
Teffp = 6850 [7159] K [0.91σ]

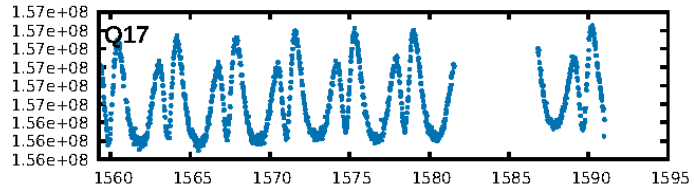
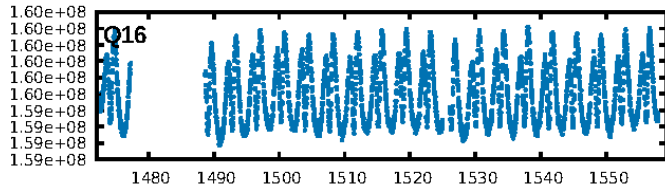
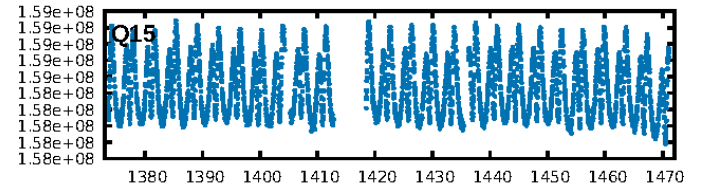
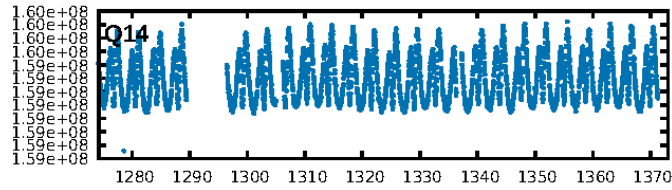
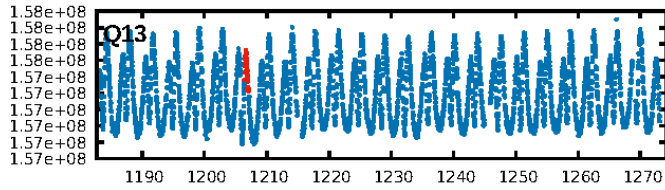
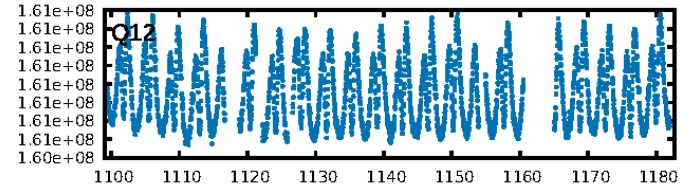
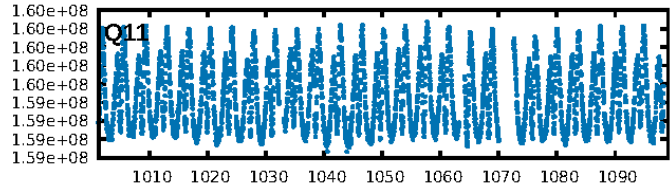
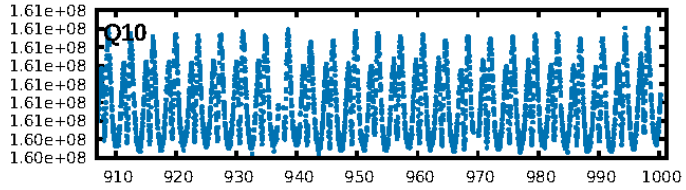
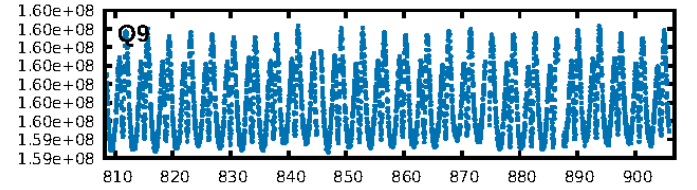
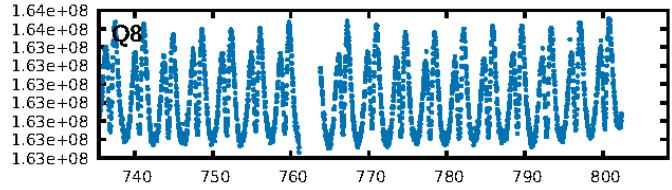
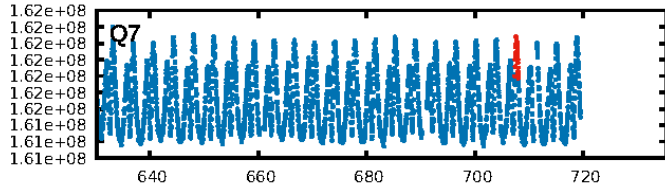
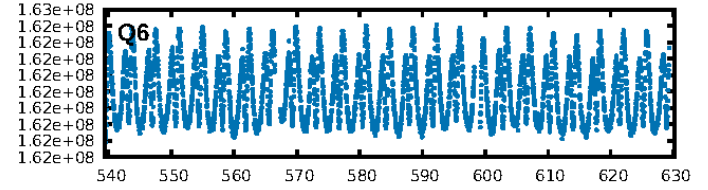
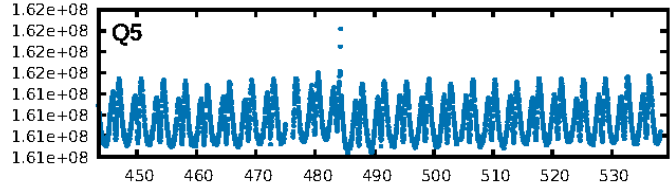
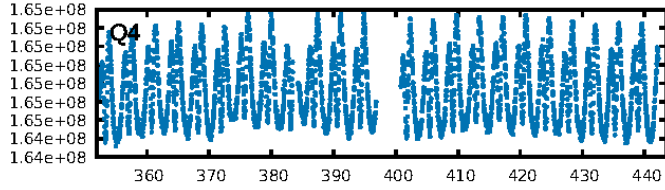
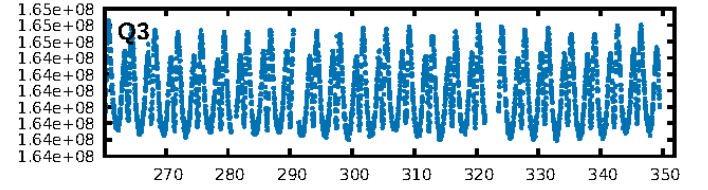
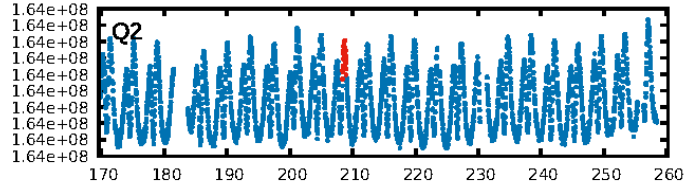
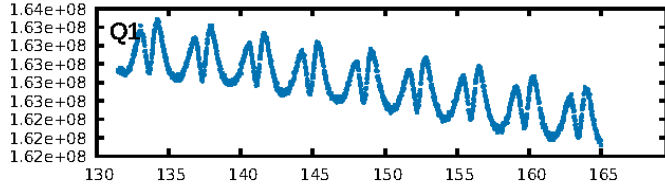
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [459.23σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 36.9%
ModelChiSquareGof-sig: 99.2%
Bootstrap-pfa: 8.98e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.144
Centroid-sig: 9.4%
Centroid-so: 1.291 arcsec [1.25σ]
OotOffset-rm: 0.159 arcsec [1.07σ]
KicOffset-rm: 0.083 arcsec [0.44σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
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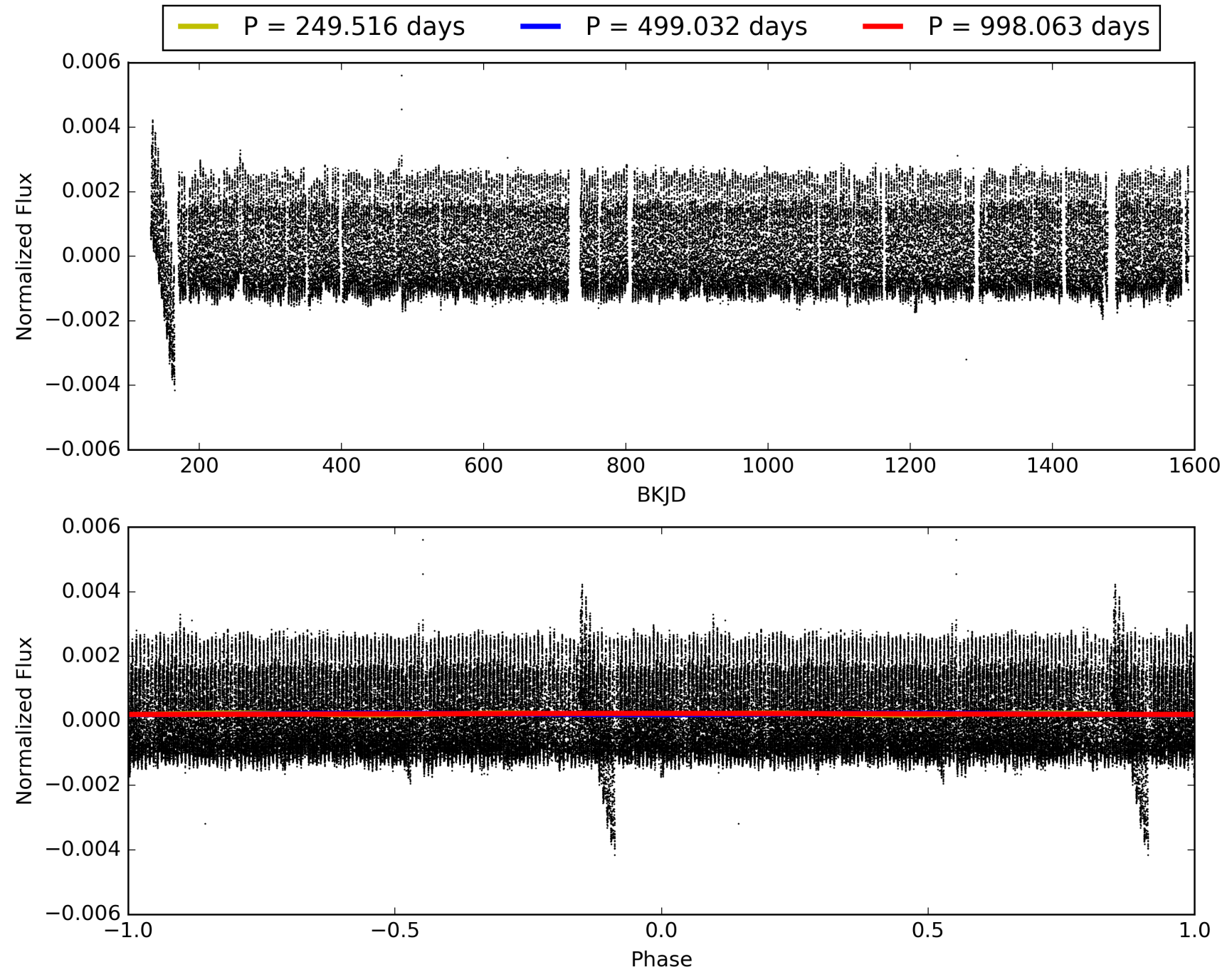
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:52:14 Z

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

TCE 010863286-02, PDC Light Curves

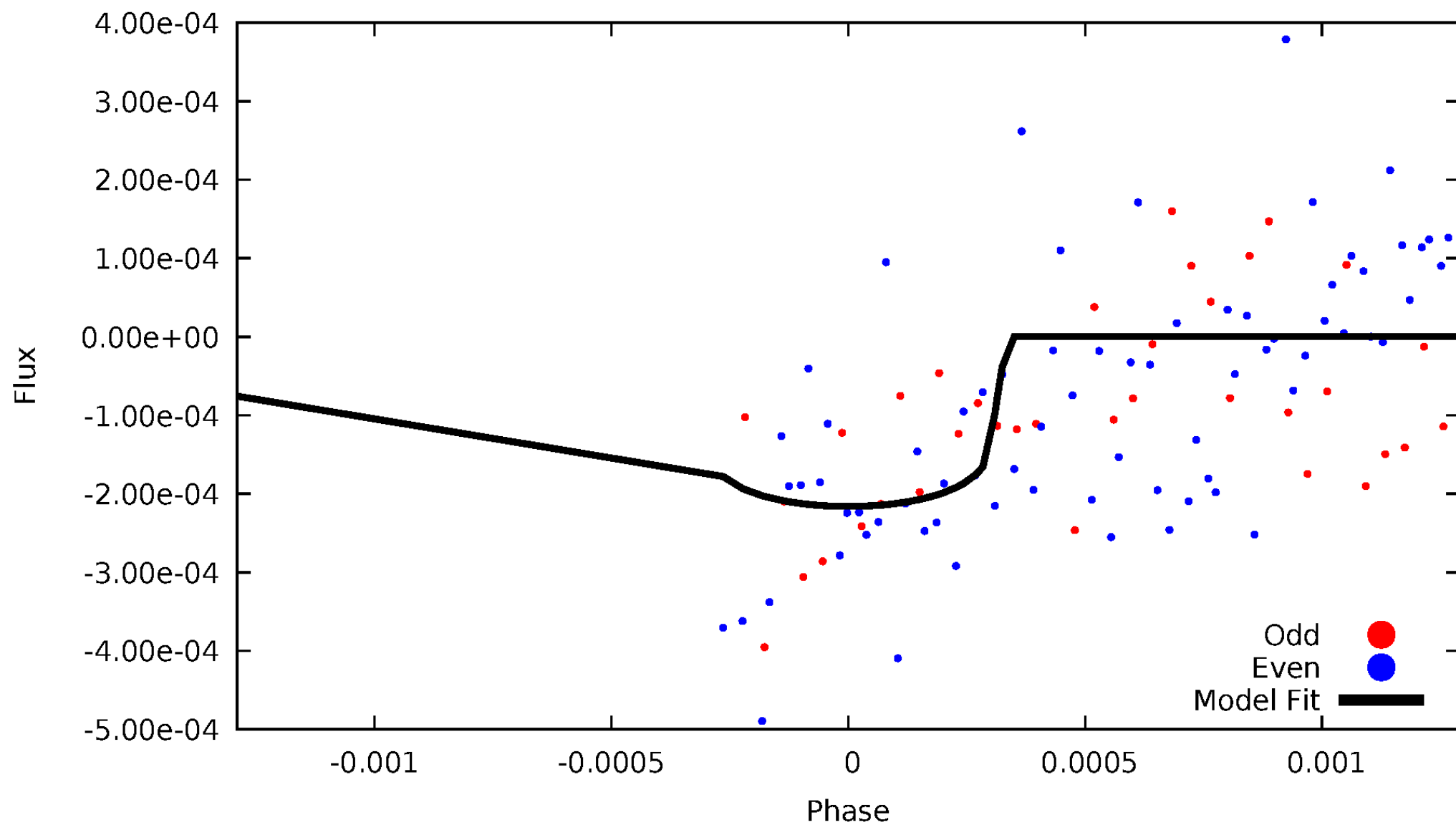


TCE 010863286-02



DV Odd/Even

TCE 010863286-02

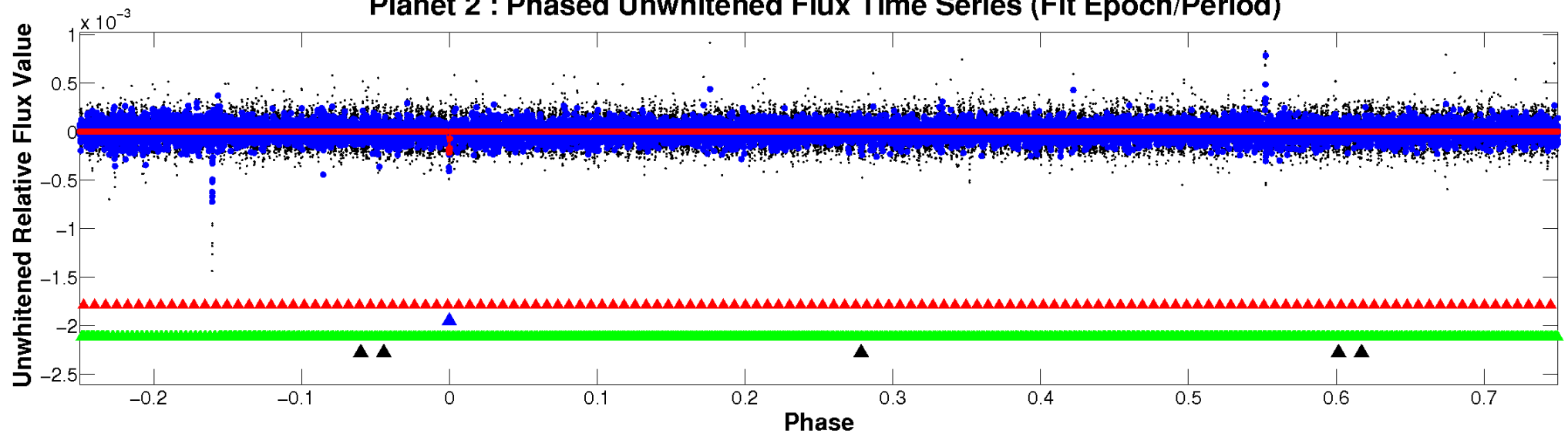


ALT Odd/Even

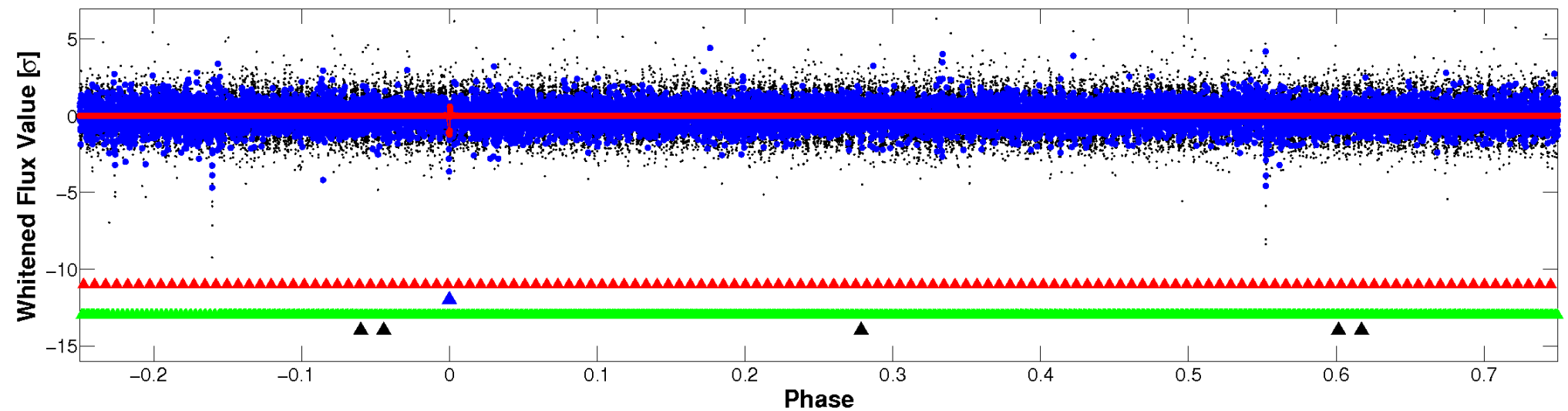
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

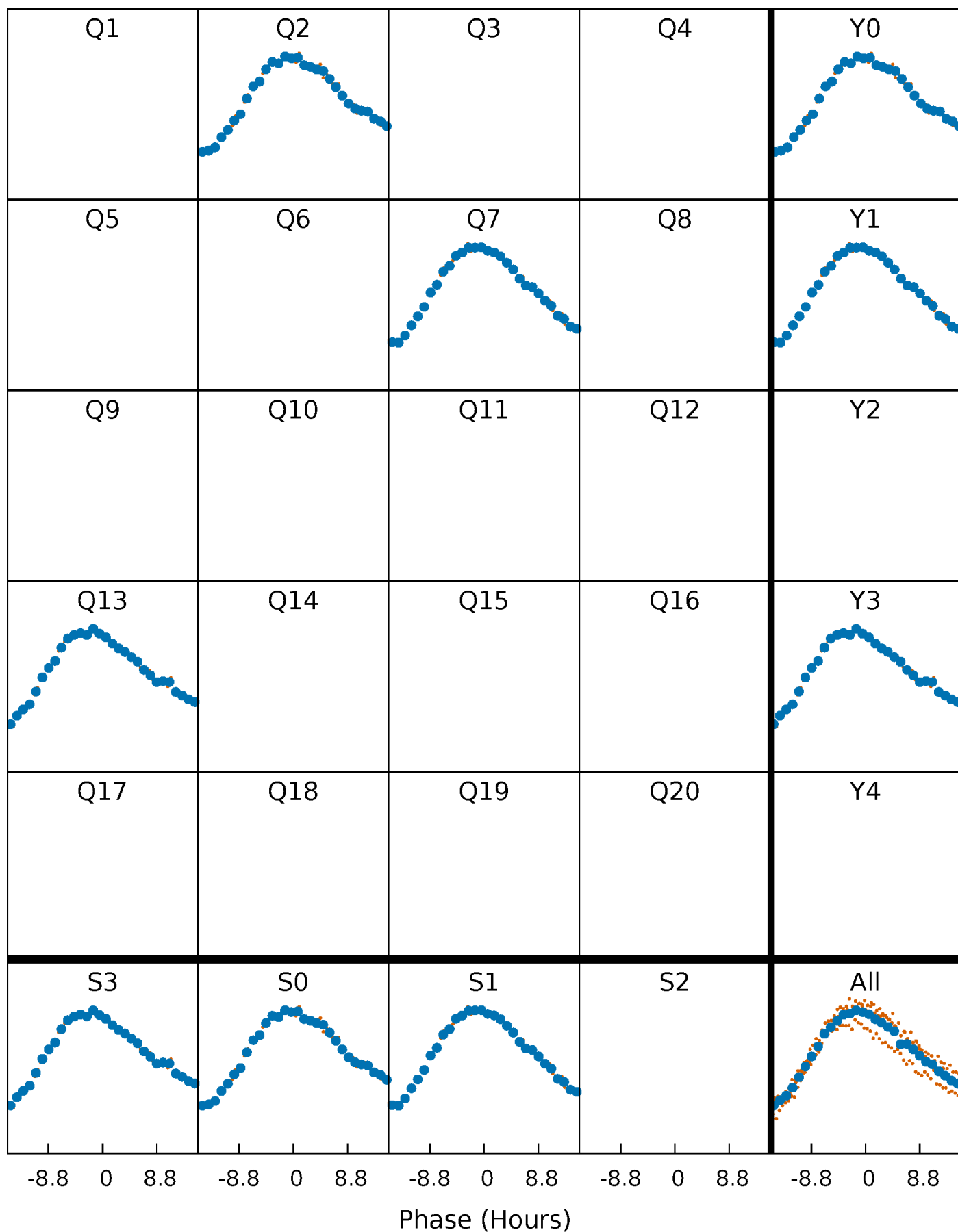


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 010863286-02 P=499.031639 Days $T_0=208.692915$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 010863286-02 $P=499.031639$ Days $T_0=208.692915$ (BKJD)

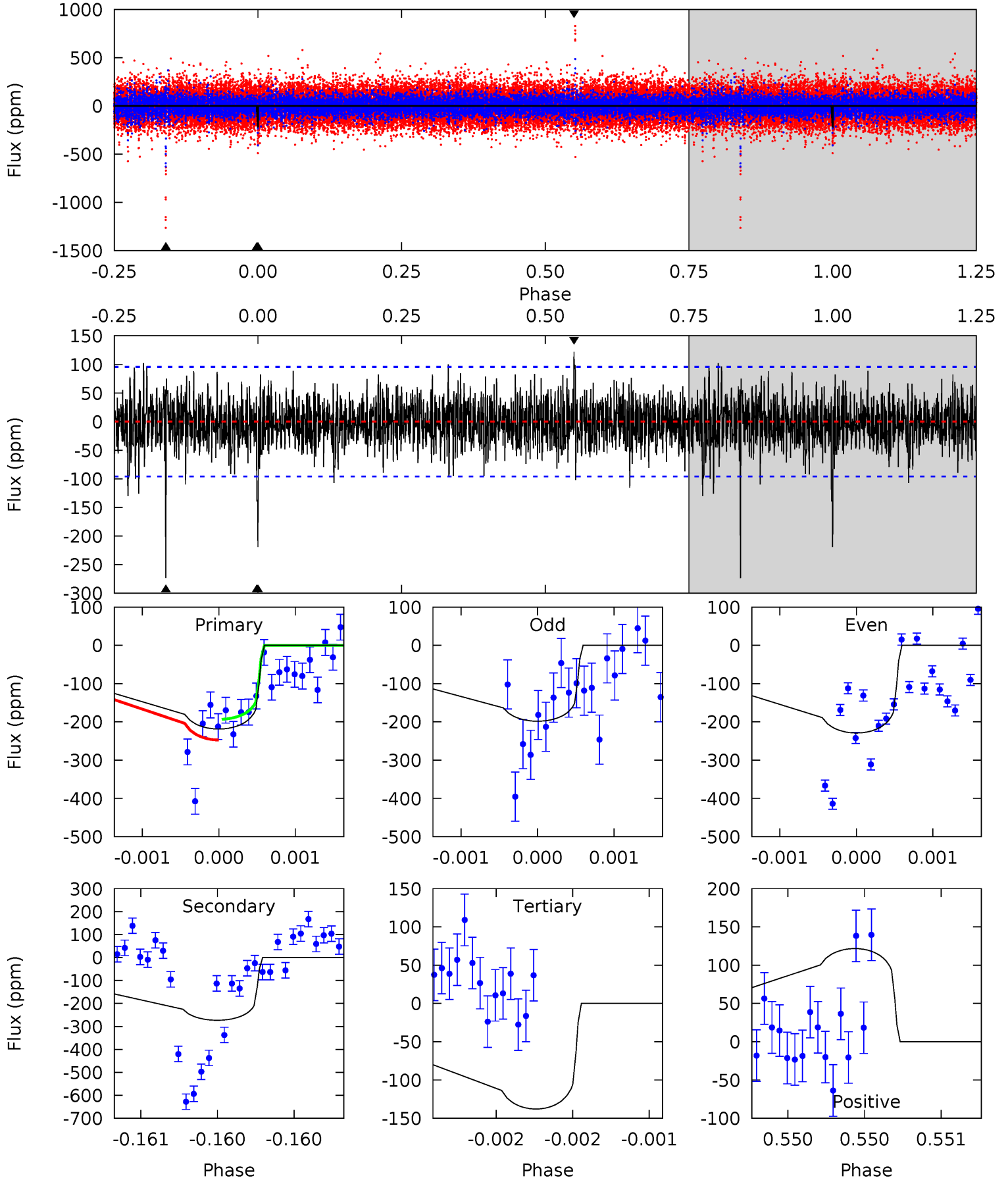


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

010863286-02, P = 499.031639 Days, E = 208.692915 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	15.8	7.98	7.04	5.54	3.44	1.70	4.67	5.61	7.83	8.76	0.86	1.09	0.31	1.55



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 010863286

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7300^{+232}_{-319}	$4.239^{+0.075}_{-0.225}$	$-0.060^{+0.200}_{-0.400}$	$1.523^{+0.547}_{-0.235}$	$1.466^{+0.219}_{-0.219}$	$0.585^{+0.254}_{-0.337}$
	+3%/-4%	+2%/-5%	+333%/-667%	+36%/-15%	+15%/-15%	+43%/-58%
Source	KIC0	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 010863286-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-273 ± 17	$4.55^{+4.07}_{-3.11}$	479^{+37}_{-30}	5760^{+6276}_{-1350}	$14291^{+130326}_{-10319}$
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 $A_{obs} \gg 1.0$

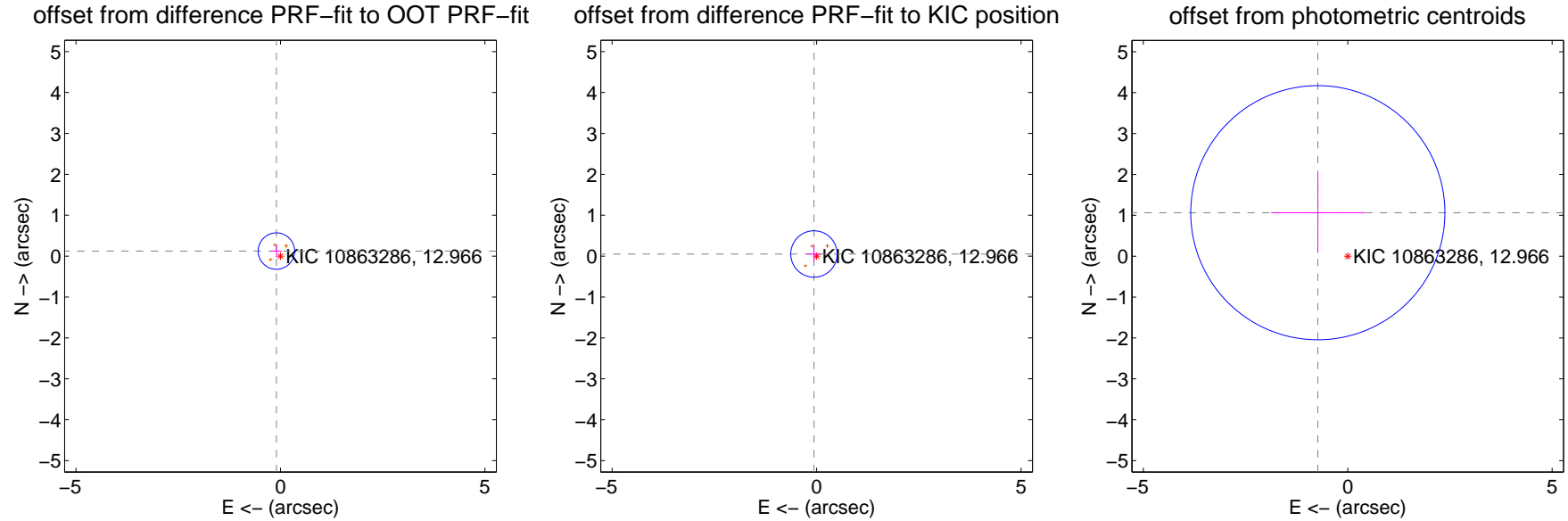
DV Centroid Data

Supplemental centroid analysis for 010863286-02. Kepler magnitude: 12.97. Transit SNR 7.19

There are 0 quarters with good PRF difference image offsets

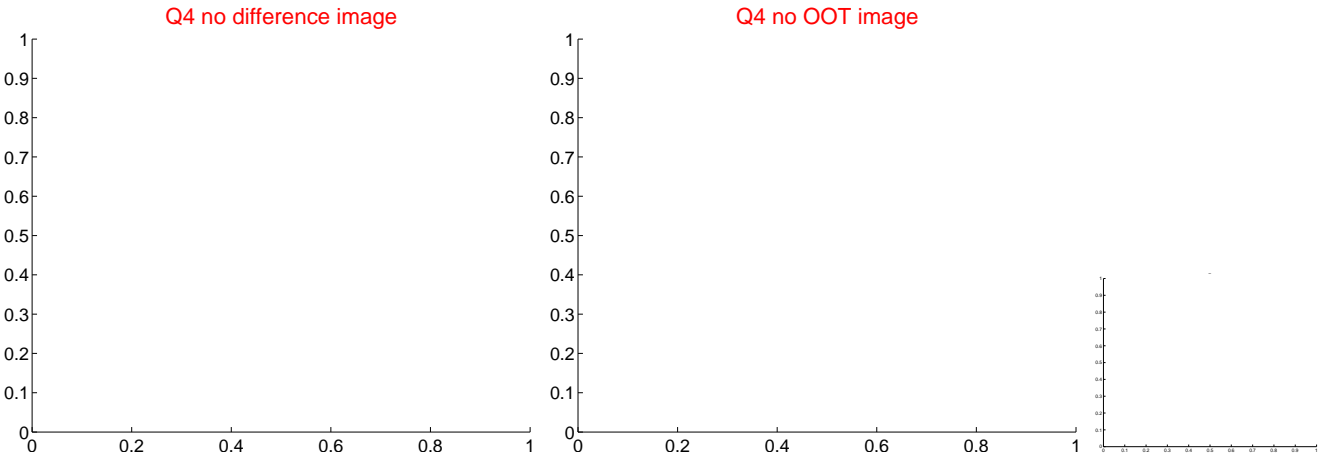
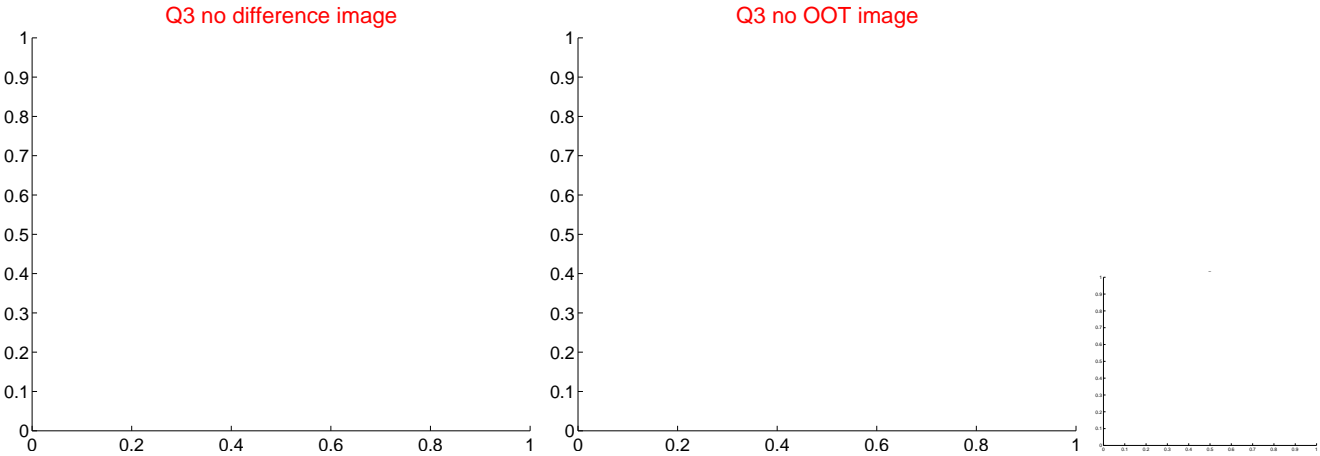
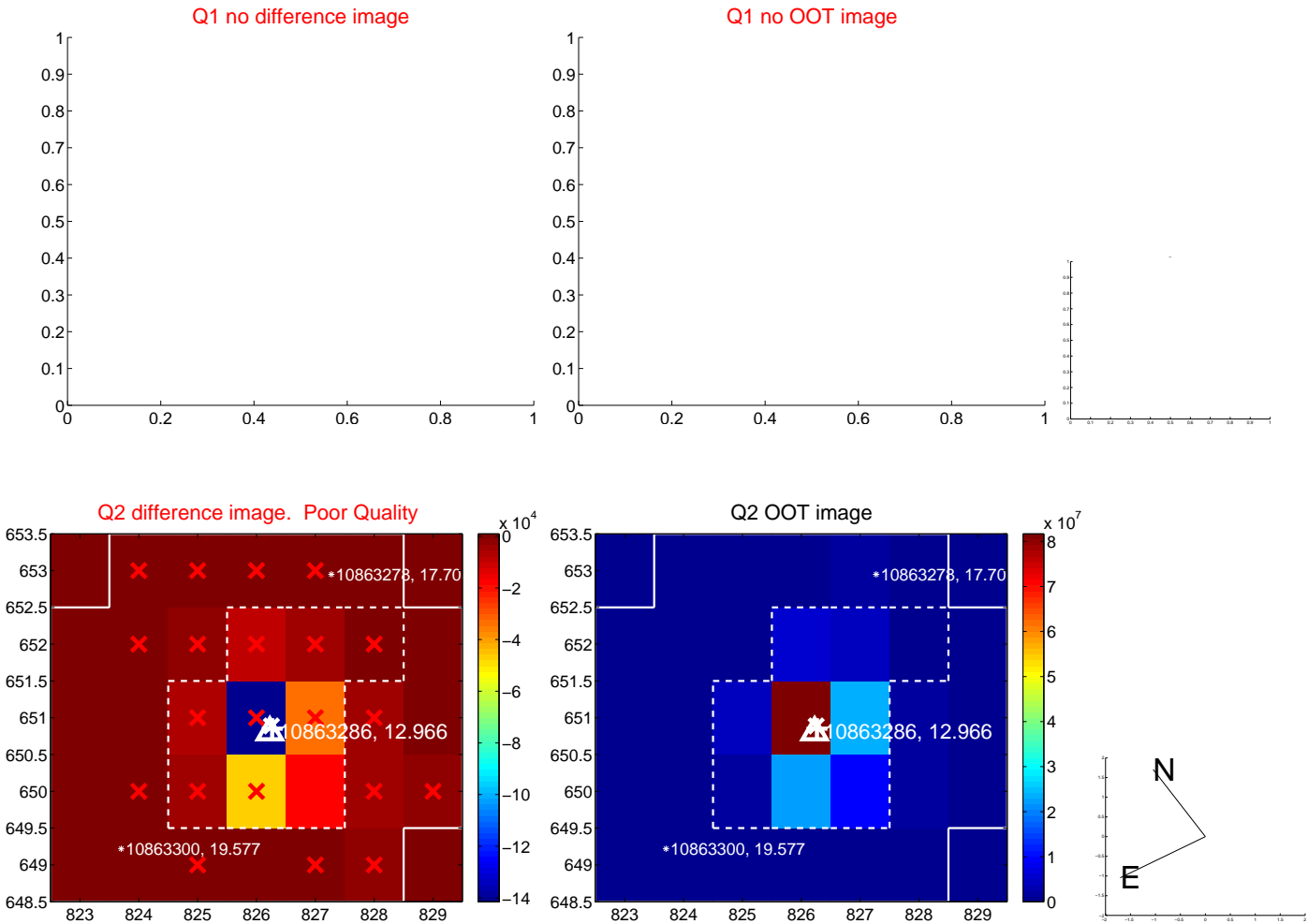
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.159 ± 0.148	1.07	0.099 ± 0.136	0.124 ± 0.156
PRF-fit source offset from KIC position	0.083 ± 0.189	0.44	0.064 ± 0.176	0.052 ± 0.207
photometric centroid source offset	1.29 ± 1.04	1.25	0.73 ± 1.14	1.06 ± 0.98



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

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



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

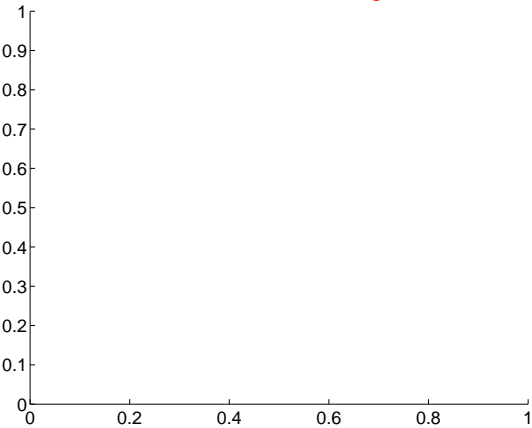
Q5 no difference image



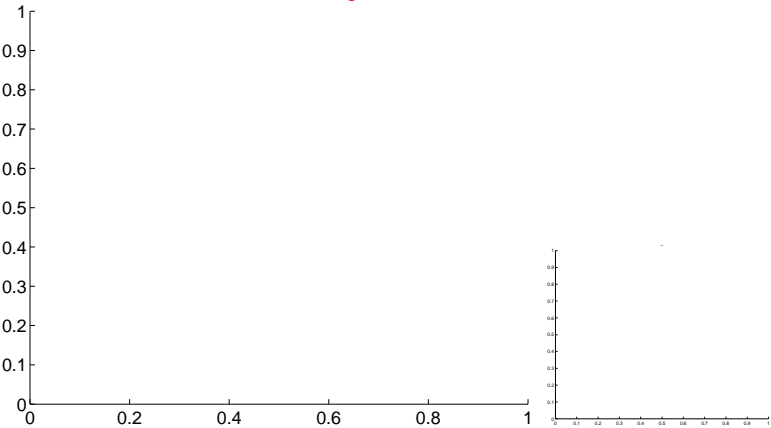
Q5 no OOT image



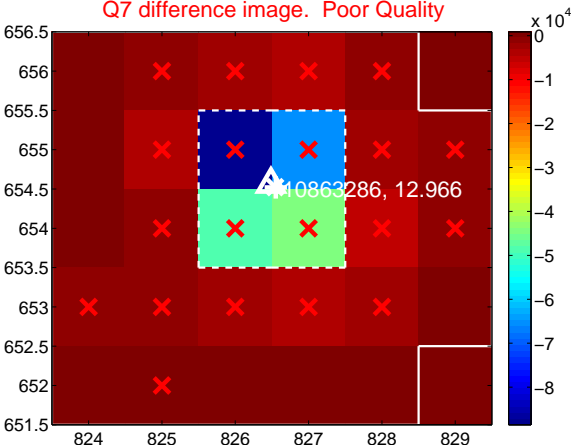
Q6 no difference image



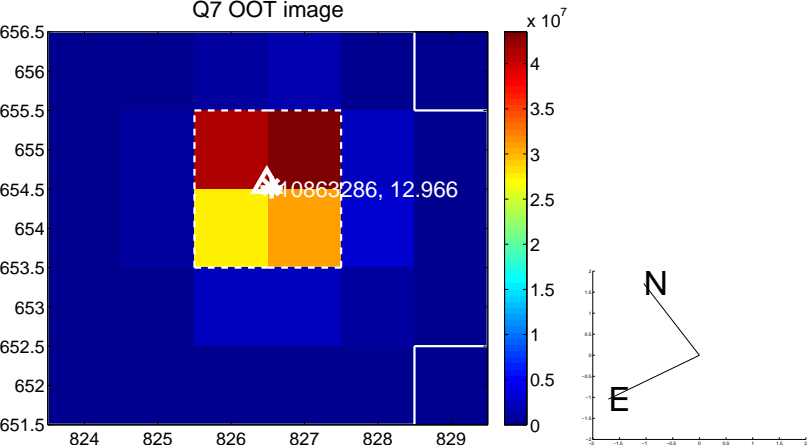
Q6 no OOT image



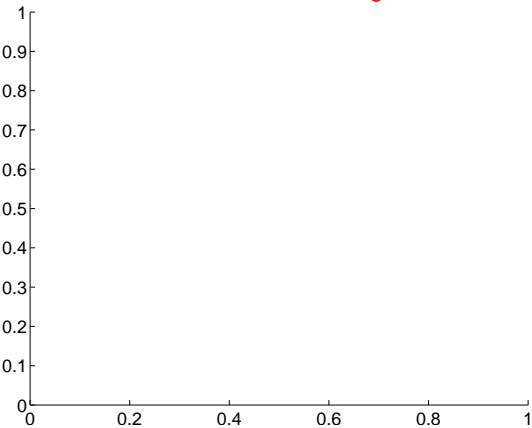
Q7 difference image. Poor Quality



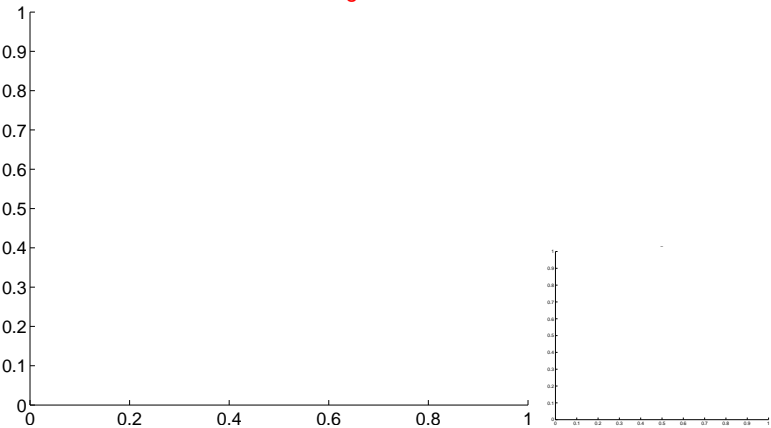
Q7 OOT image



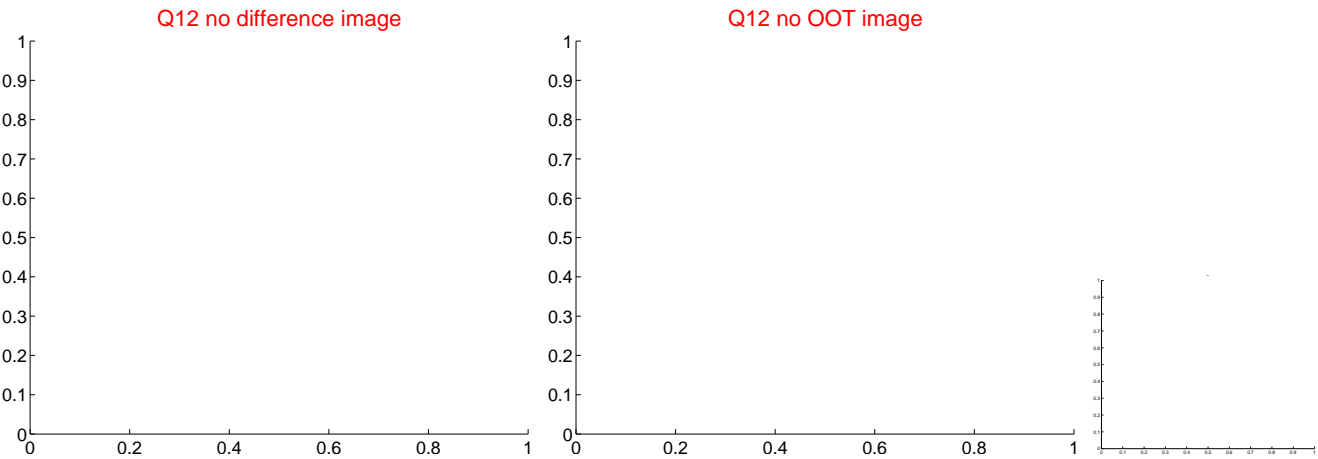
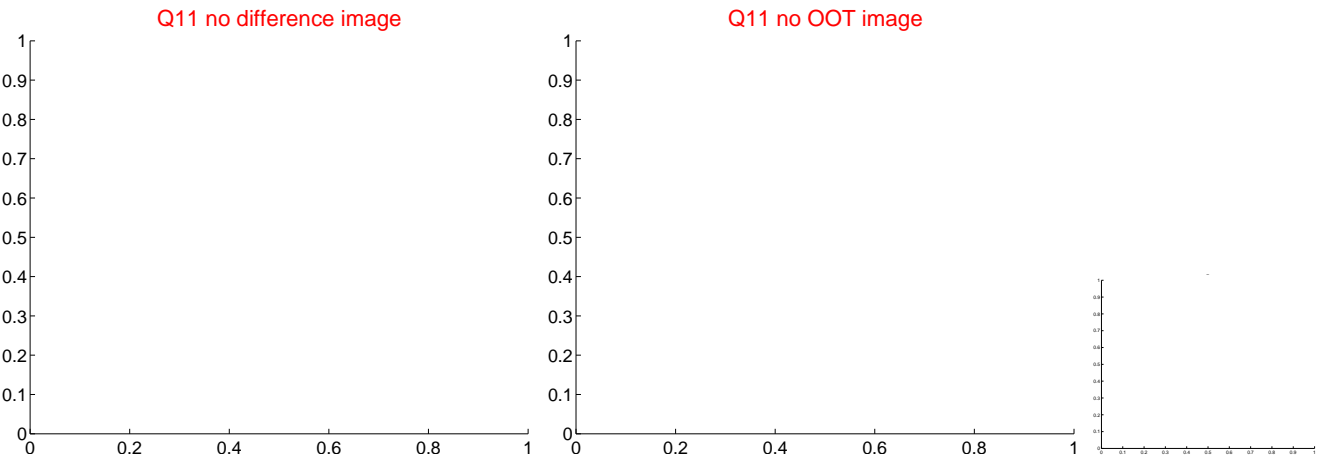
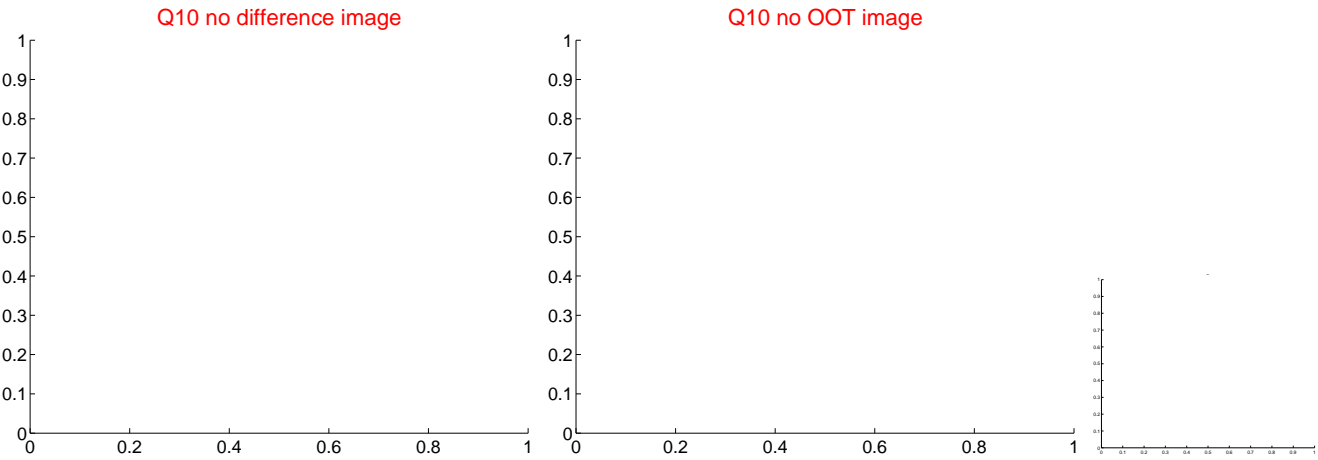
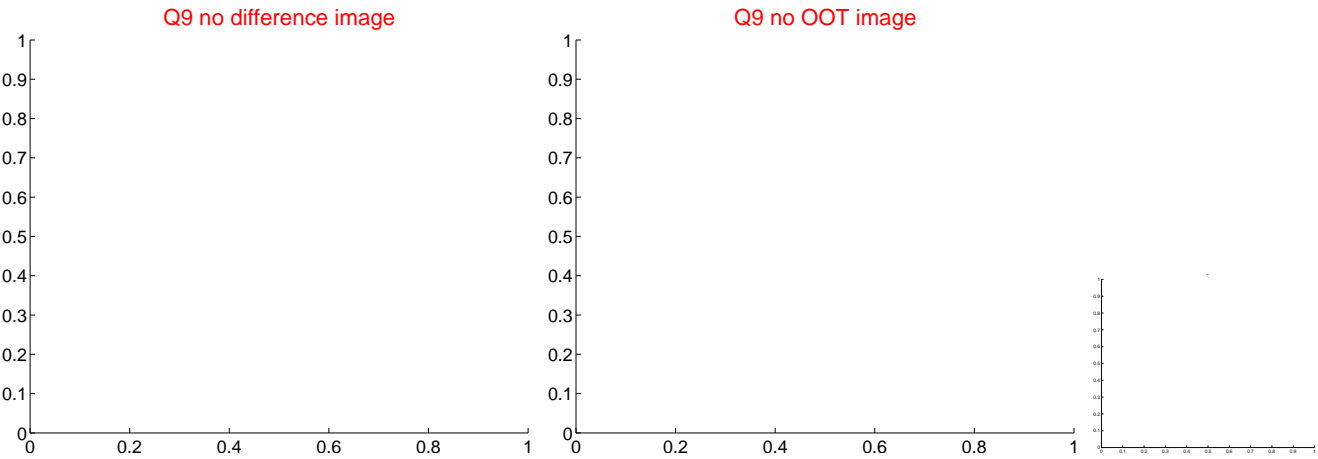
Q8 no difference image



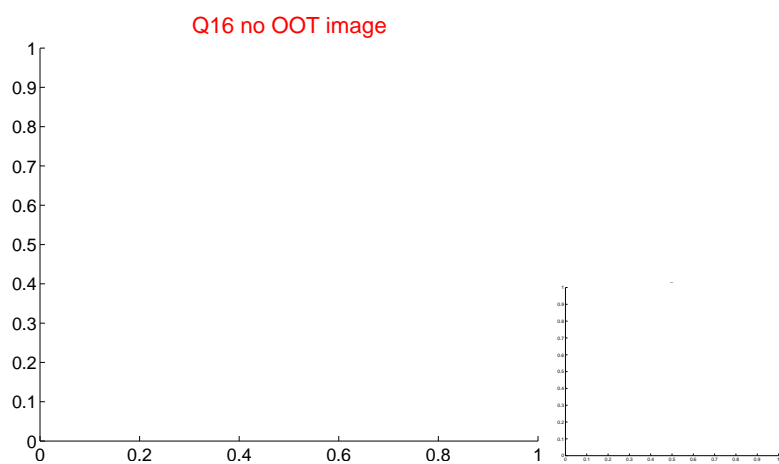
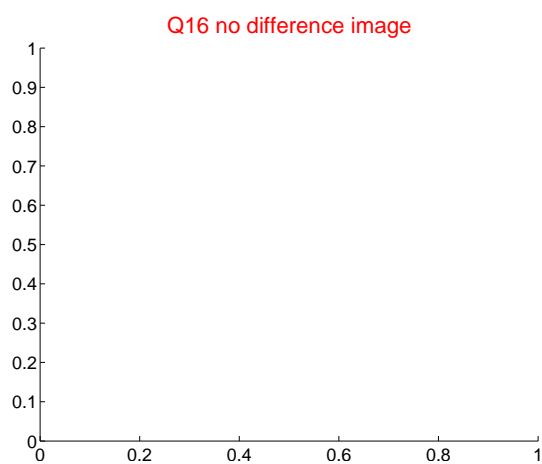
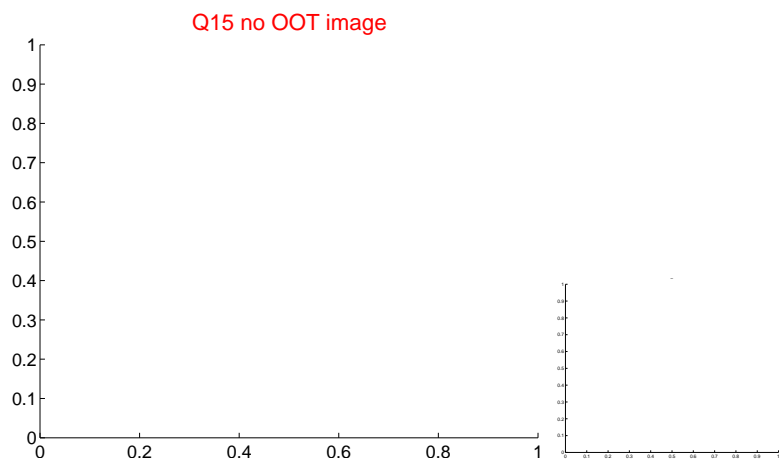
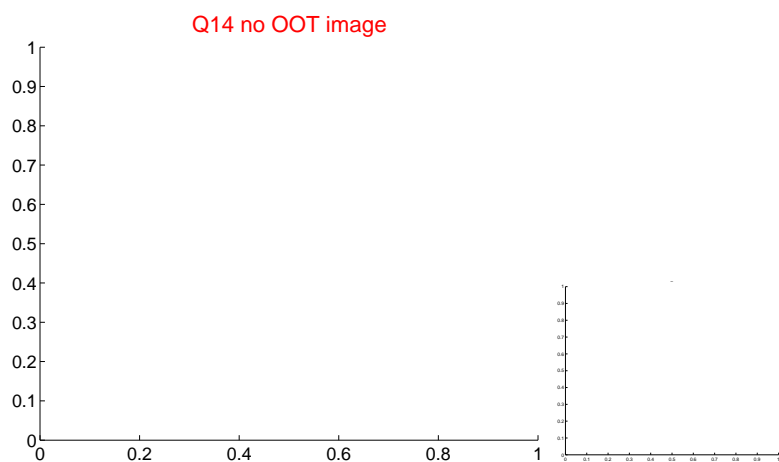
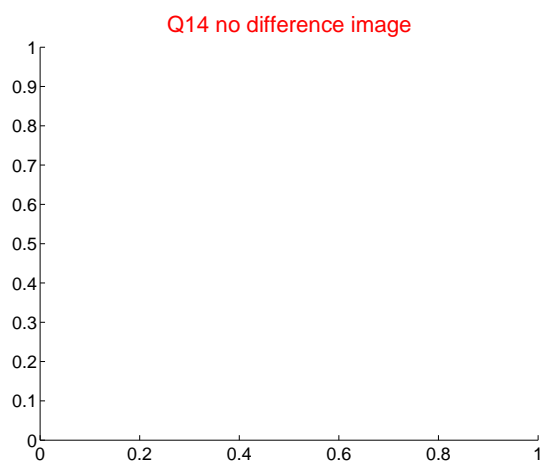
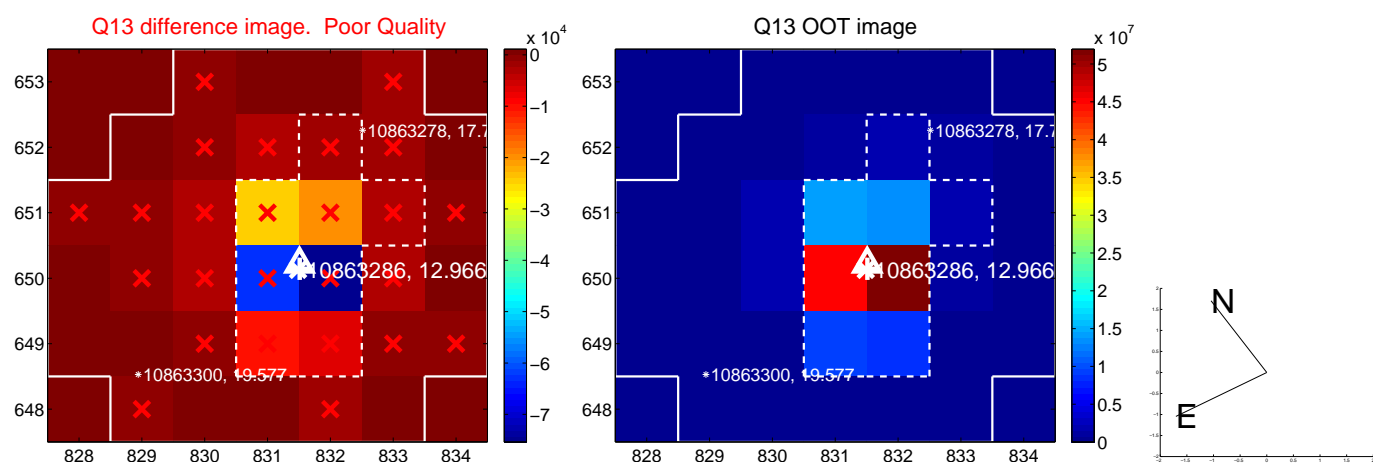
Q8 no OOT image



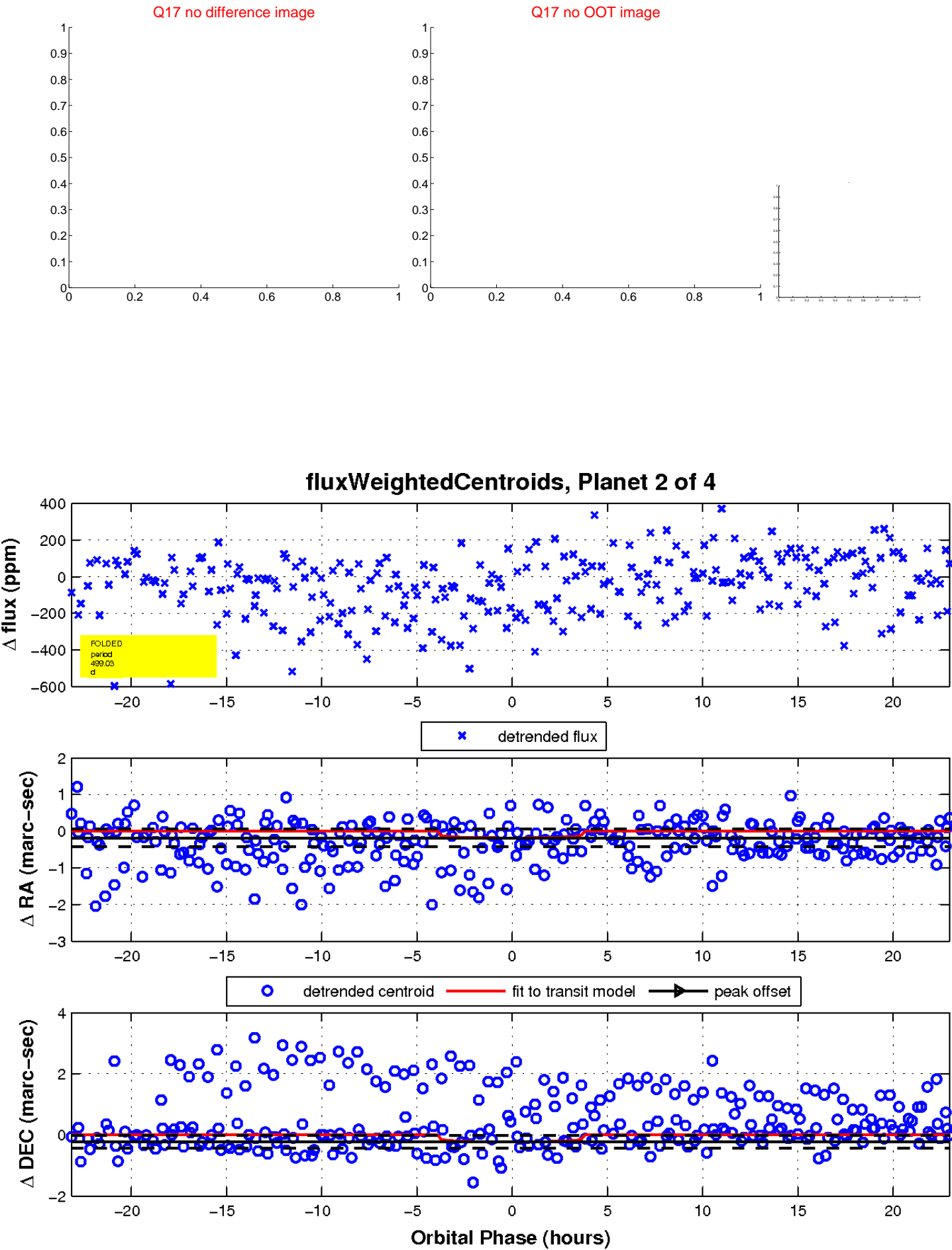
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

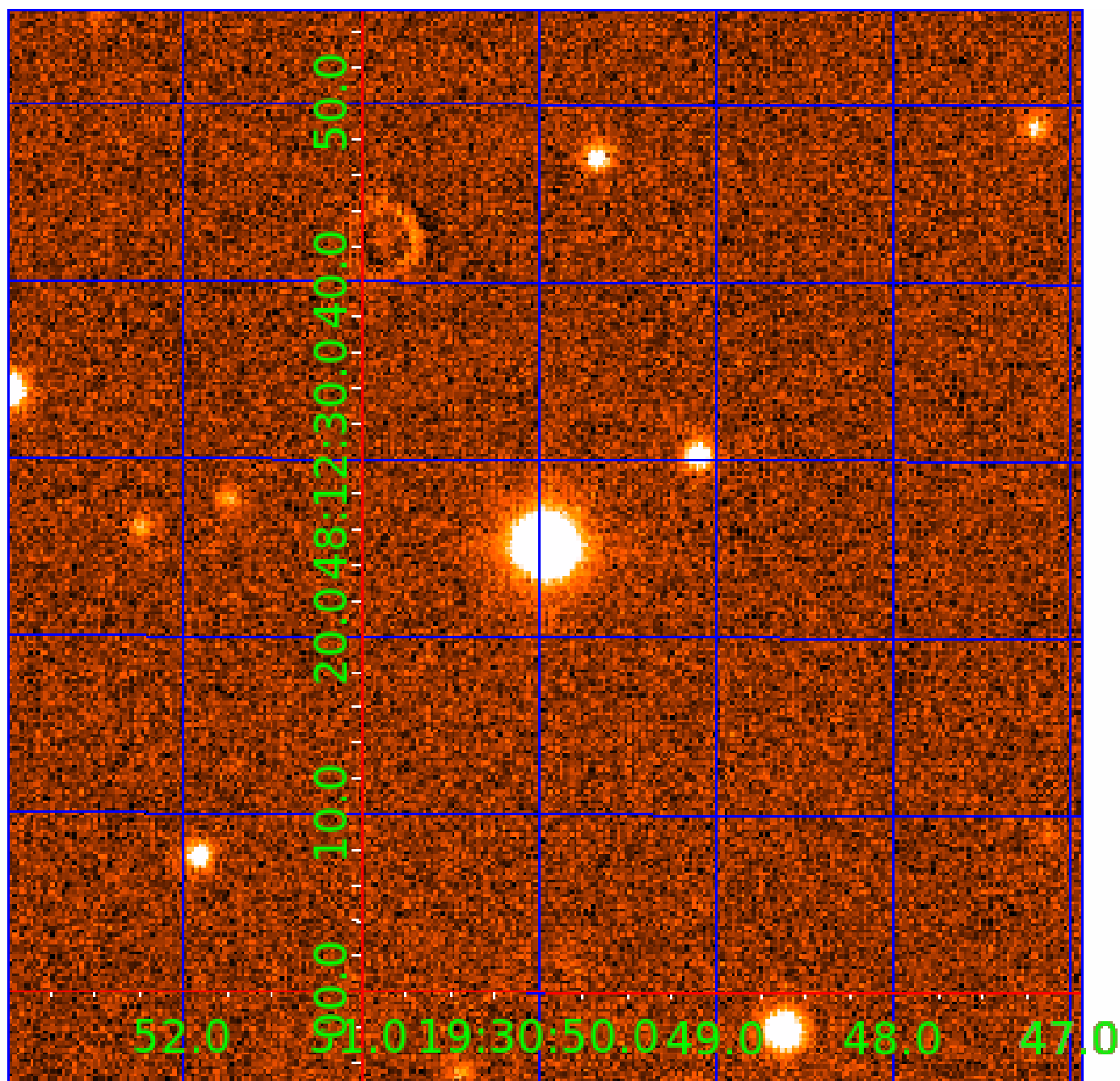


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010863286

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})
010863286-01	OBS	No	3.723967	133.659737	52.6	7.183	13.9	16.4	1.52	7300	1.58	2066.86
010863286-02	OBS	No	499.031639	208.692915	216.3	7.723	10.0	7.2	1.52	7300	2.33	3.01
010863286-03	OBS	No	1.640071	131.829171	21.1	8.300	9.5	10.6	1.52	7300	0.93	6168.35
010863286-04	OBS	No	330.099447	186.568567	240.3	4.277	8.4	7.9	1.52	7300	3.54	5.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010863286-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010863286-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010863286-03	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_DV—HALO_GHOST
010863286-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

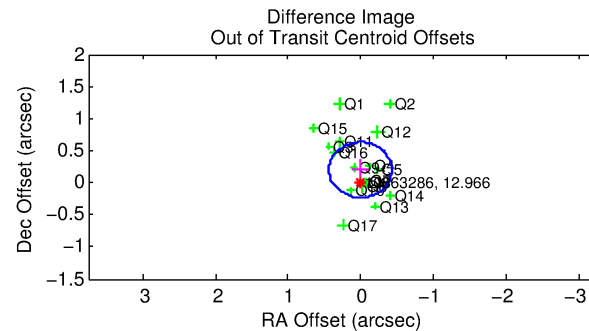
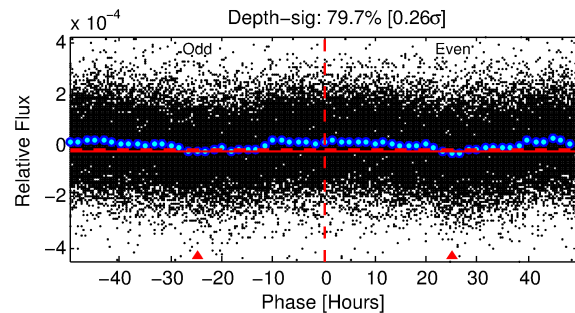
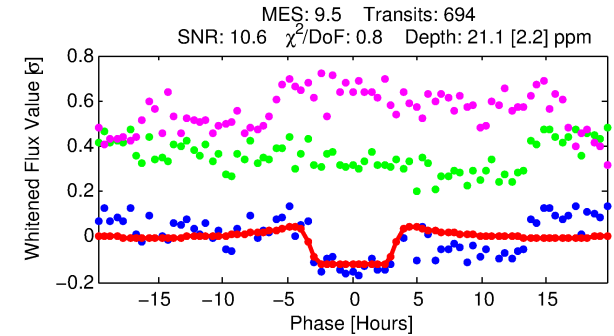
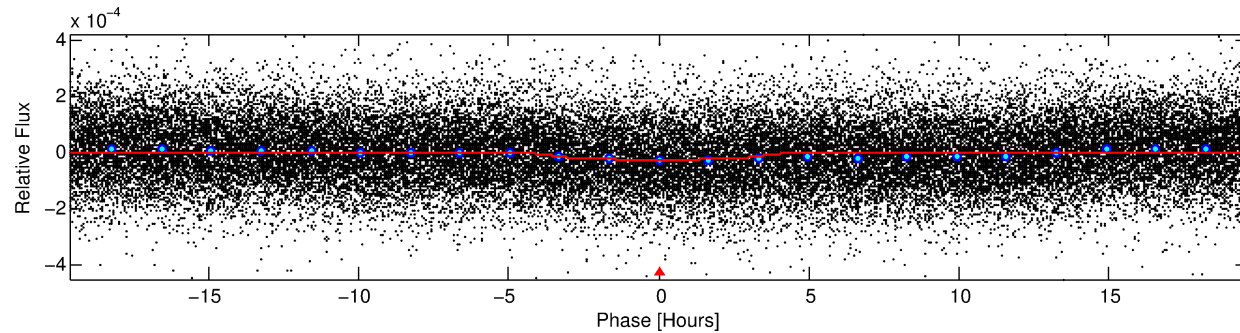
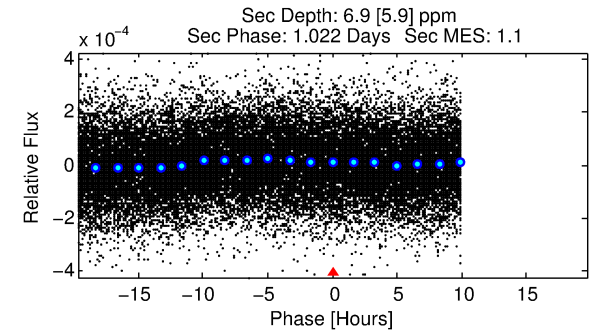
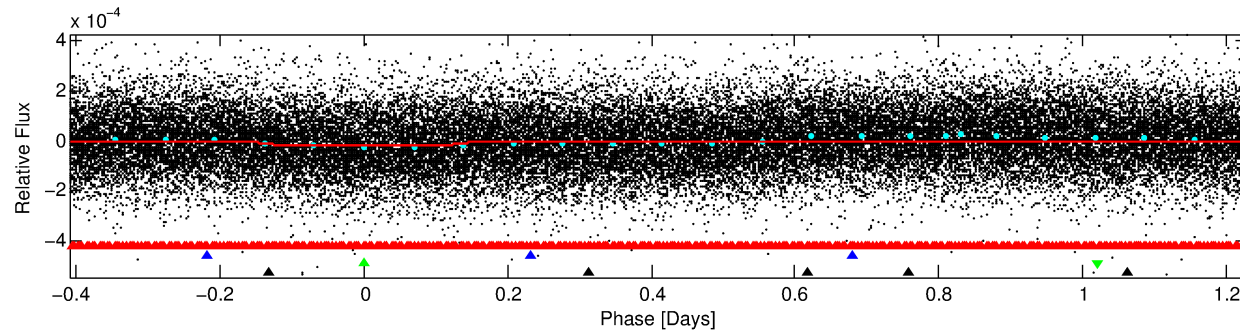
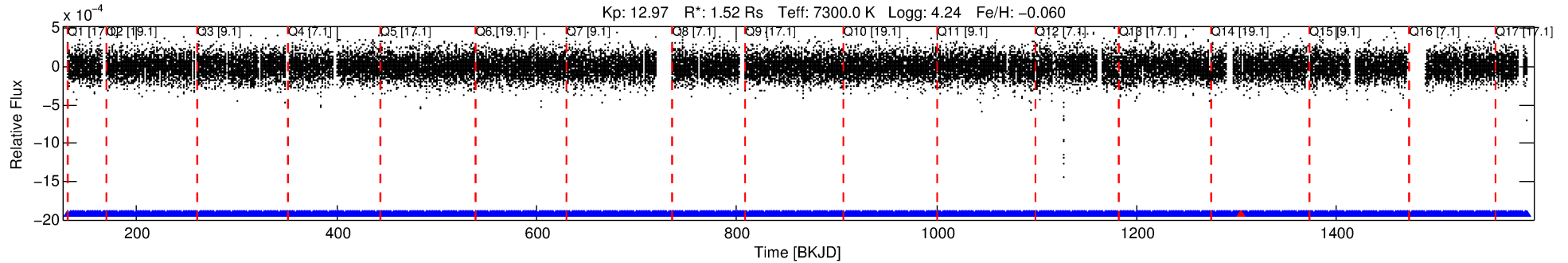
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010863286-03

No Significant Match Found

DV One-Page Summary

KIC: 10863286 Candidate: 3 of 4 Period: 1.640 d



DV Fit Results:

Period = 1.64007 [0.00002] d
Epoch = 131.8292 [0.0081] BKJD
Rp/R* = 0.0056 [0.0004]
a/R* = 1.04 [0.02]
b = 0.99 [0.01]
Seff = 6168.35 [2807.63]
Teff = 2260 [257] K
Rp = 0.93 [0.34] Re
a = 0.0309 [0.0091] AU
Ag = 4.21 [4.03] [0.80σ]
Teffp = 5004 [1099] K [2.43σ]

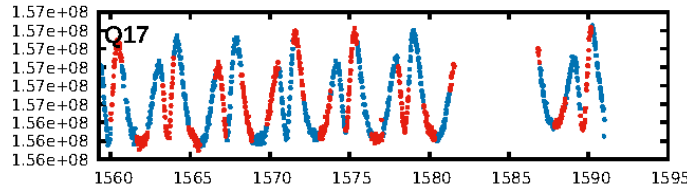
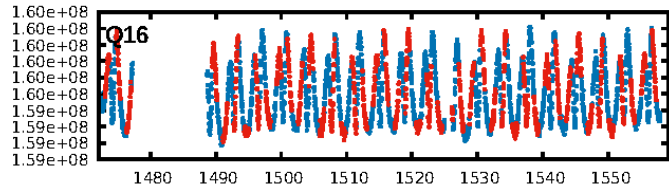
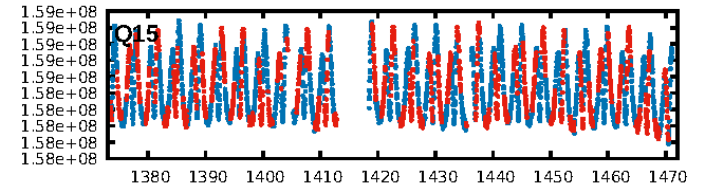
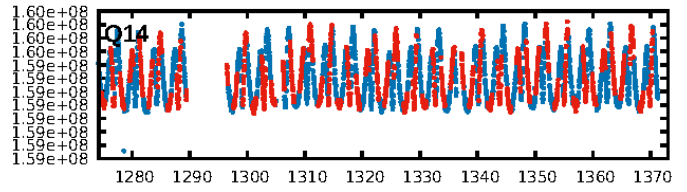
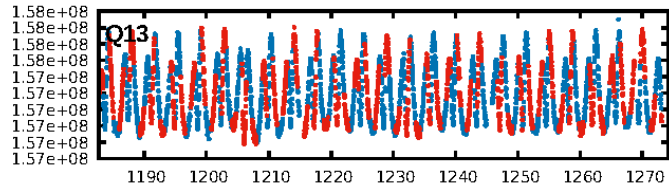
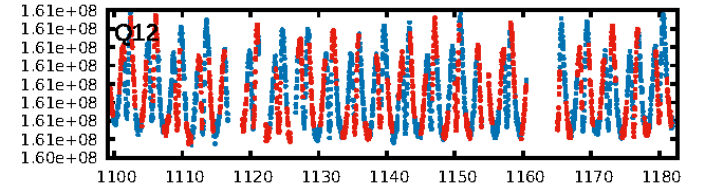
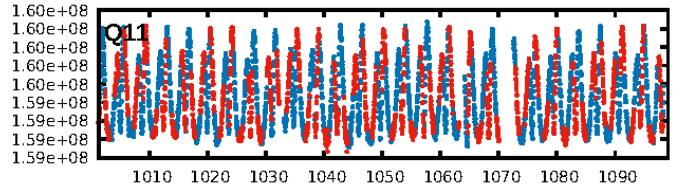
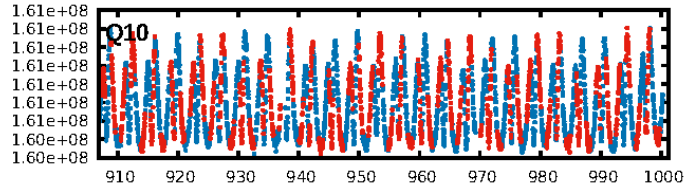
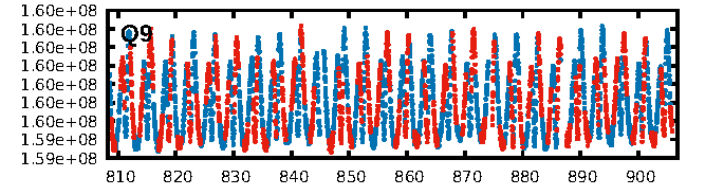
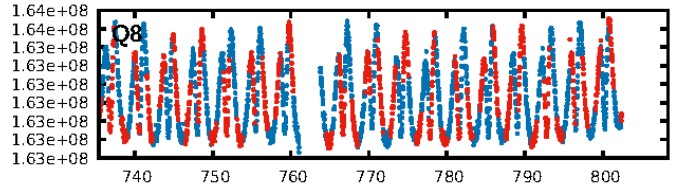
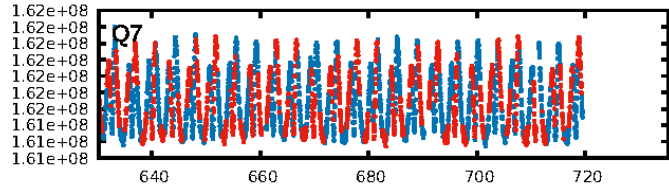
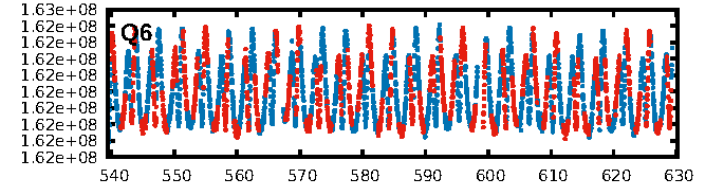
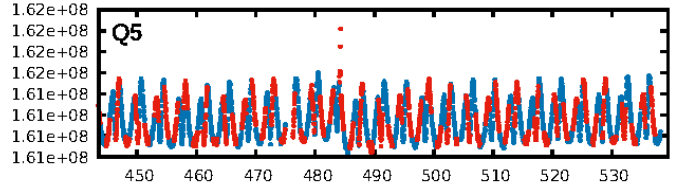
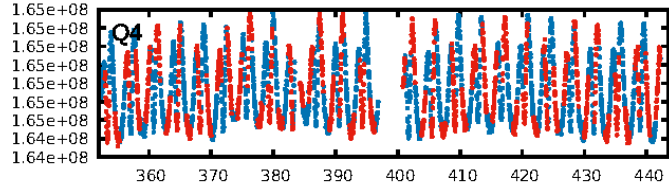
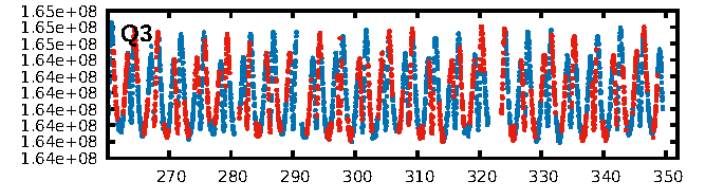
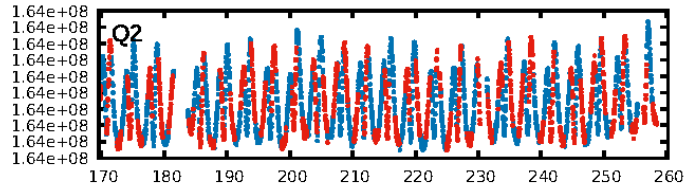
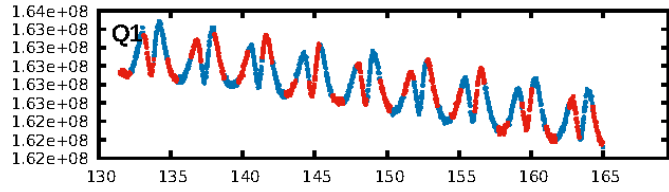
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.56σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.42e-17
RollingBand-fgt: 1.00 [663/664]
GhostDiagnostic-chr: 0.1998
Centroid-sig: 0.1%
Centroid-so: 1.238 arcsec [2.01σ]
OotOffset-rm: 0.200 arcsec [1.39σ]
KicOffset-rm: 0.137 arcsec [0.96σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

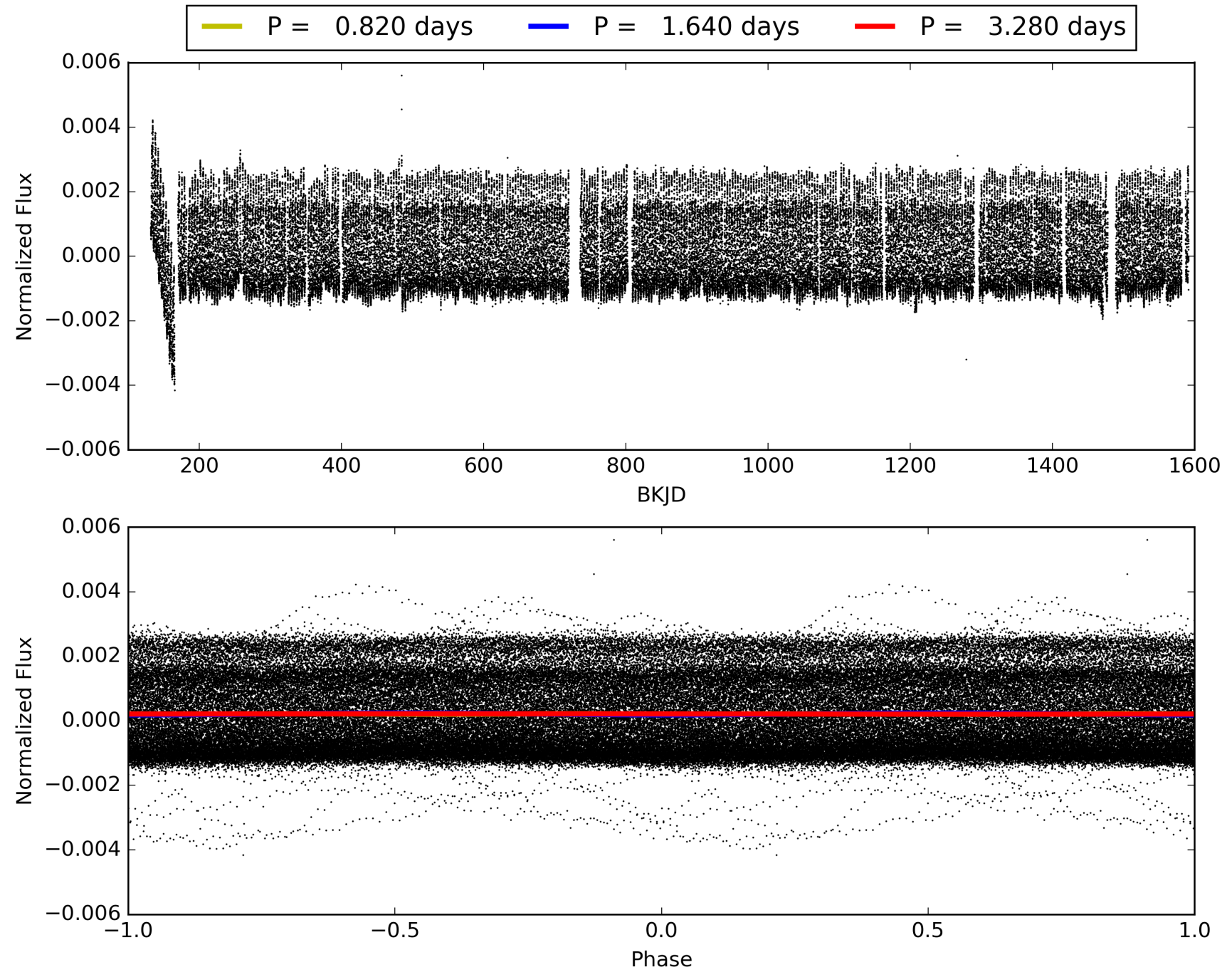
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:52:22 Z

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

TCE 010863286-03, PDC Light Curves

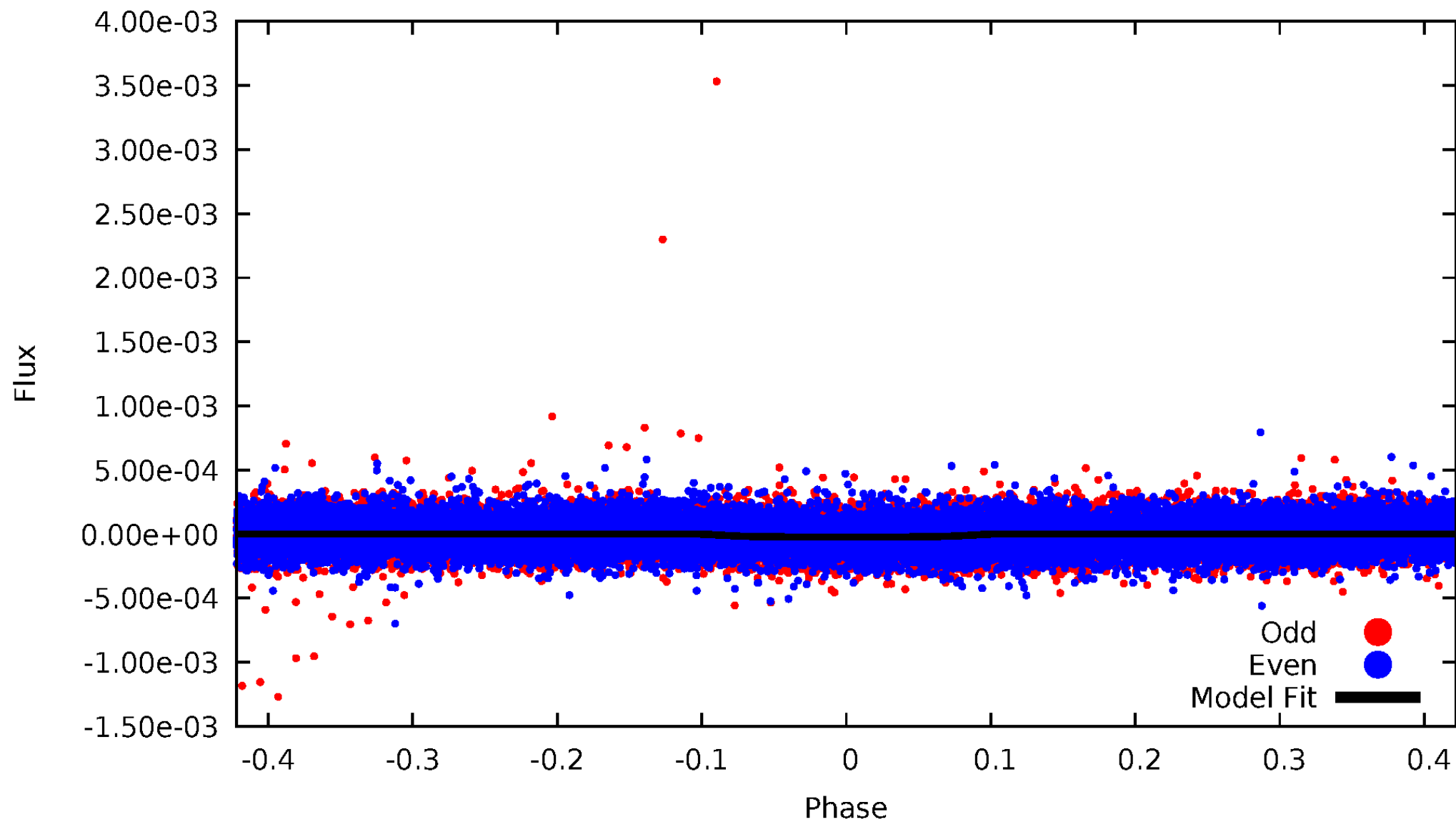


TCE 010863286-03



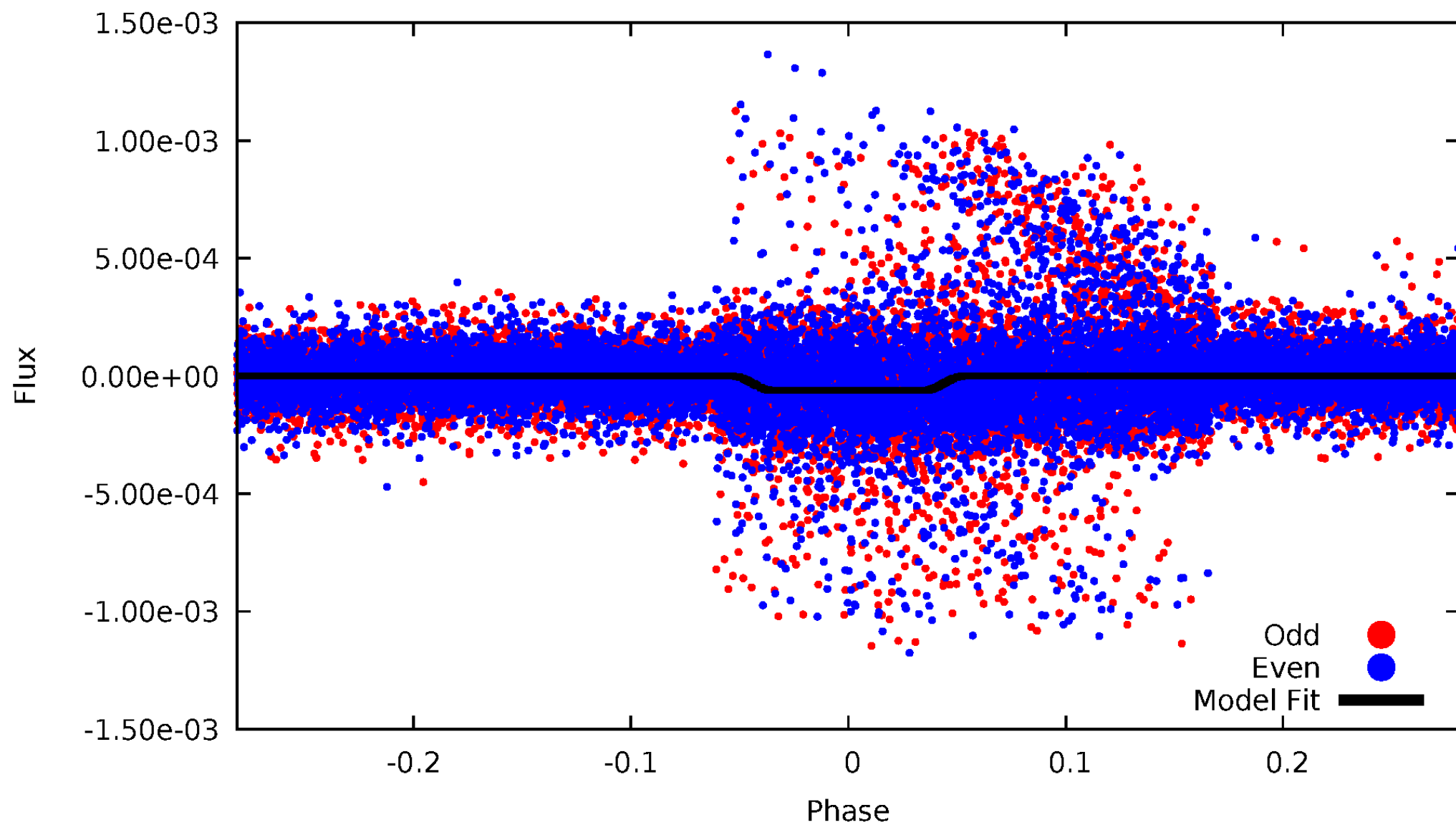
DV Odd/Even

TCE 010863286-03



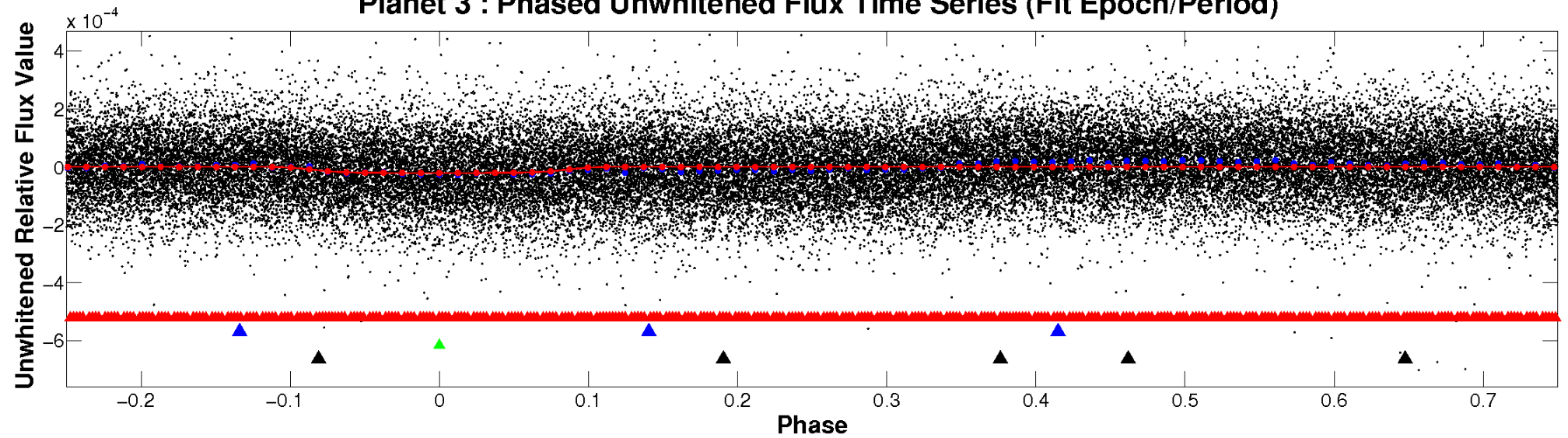
ALT Odd/Even

TCE 010863286-03

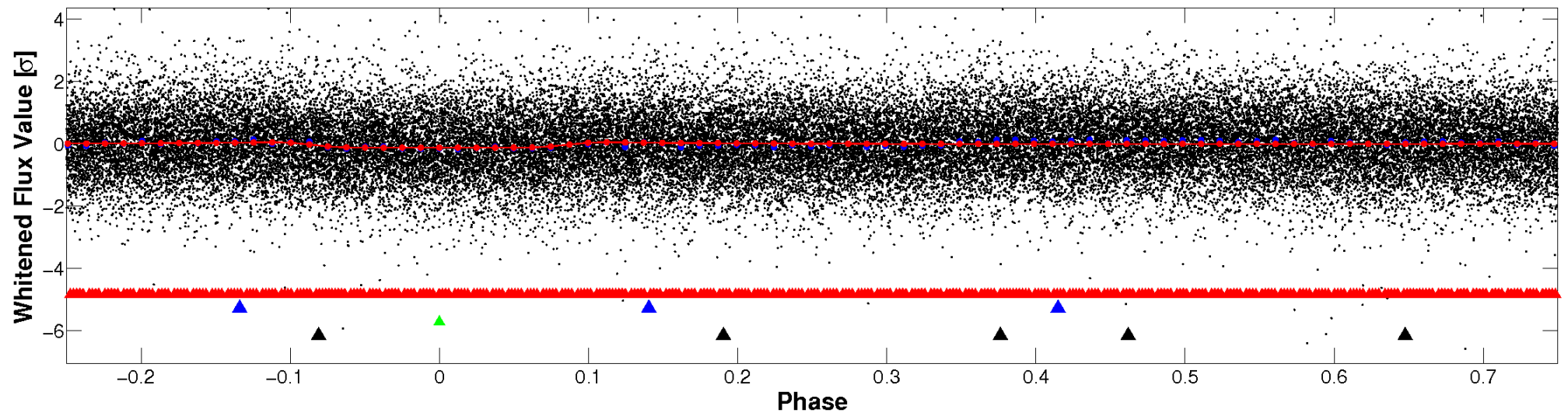


Non-Whitened Vs. Whitened Light Curve

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

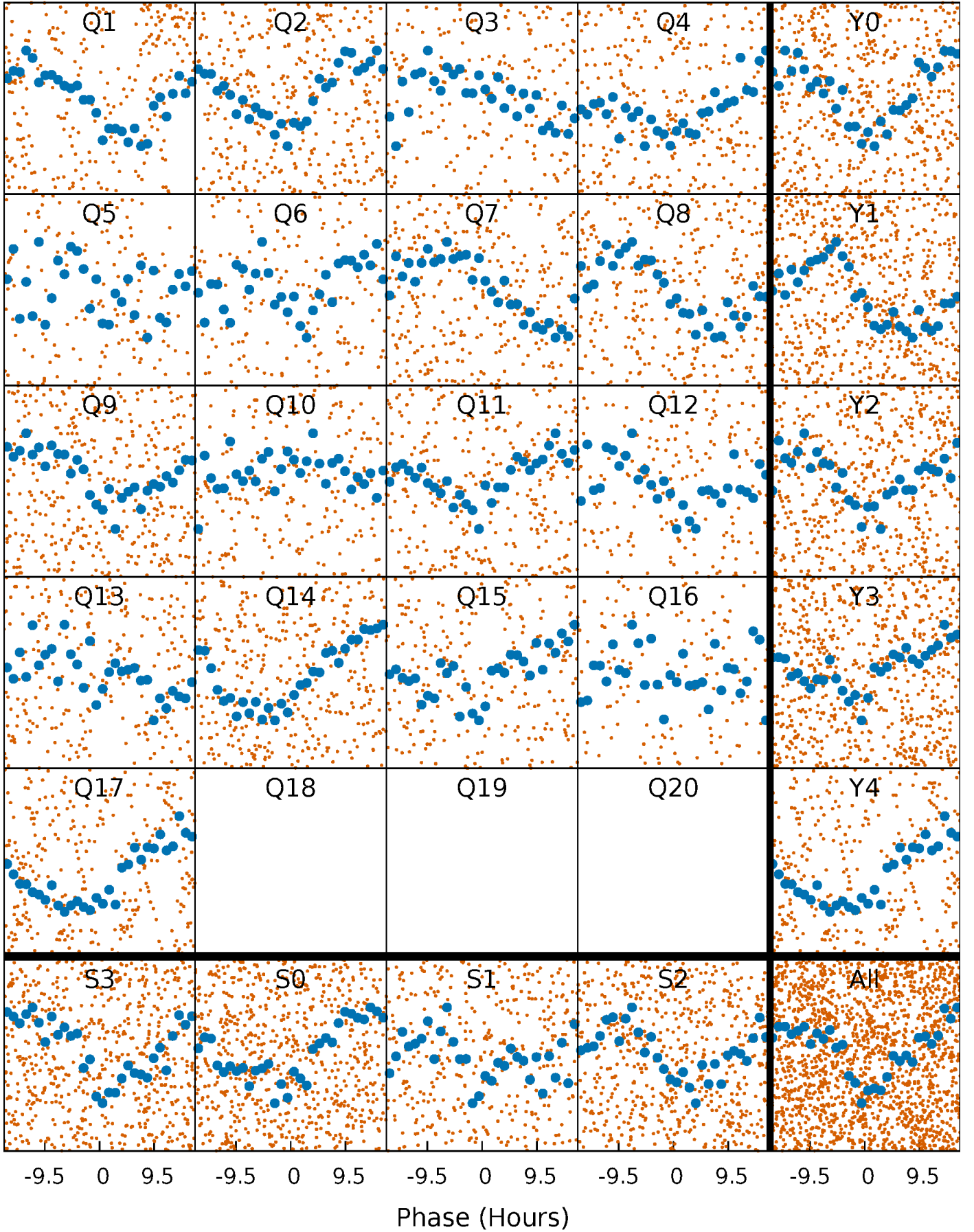


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



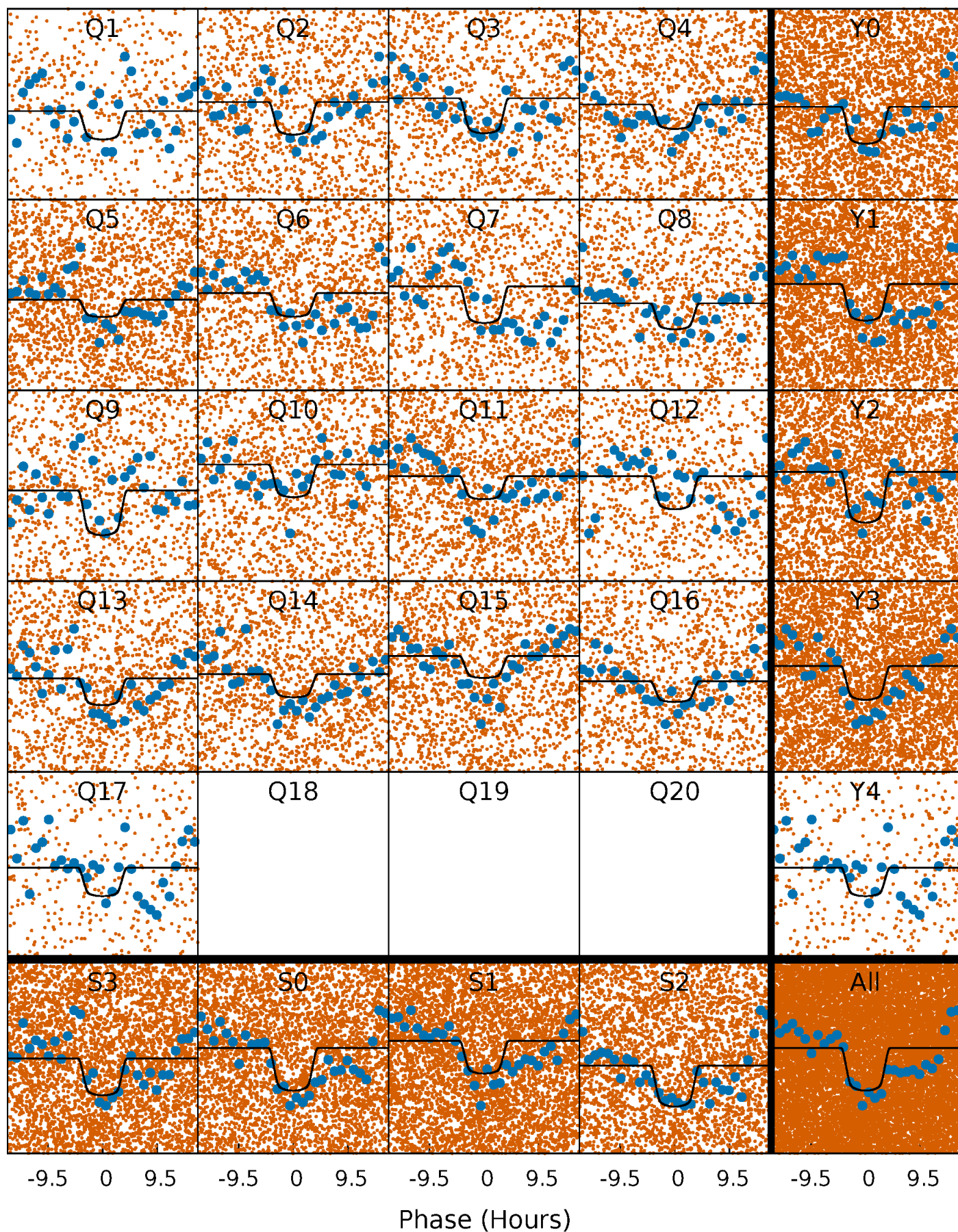
PDC Quarter-Phased Transit Curves

TCE 010863286-03 P= 1.640071 Days $T_0=131.829171$ (BKJD)



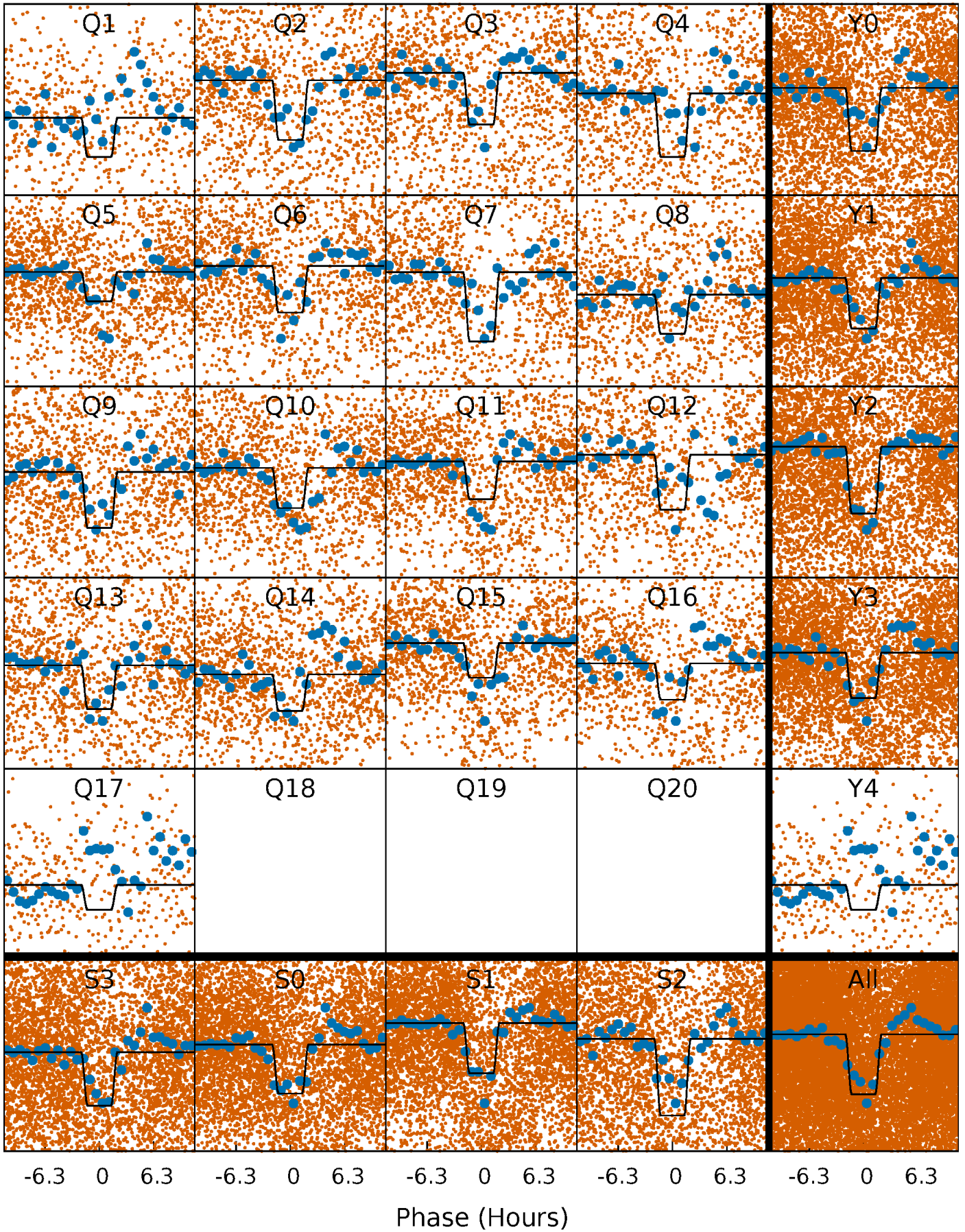
DV Quarter-Phased Transit Curves

TCE 010863286-03 P= 1.640071 Days $T_0=131.829171$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

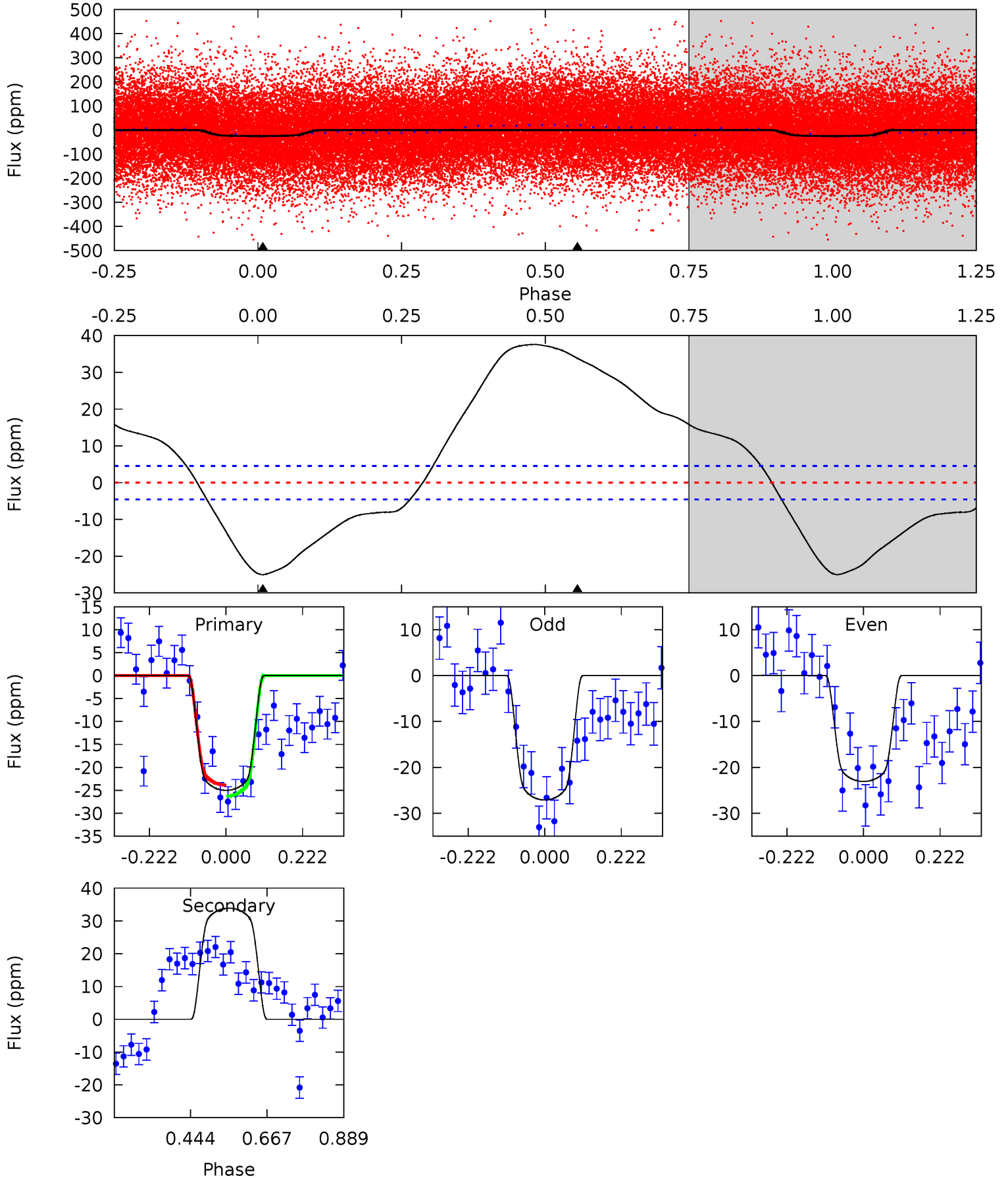
TCE 010863286-03 P= 1.639951 Days $T_0=131.792805$ (BKJD)



DV Model-Shift Uniqueness Test

010863286-03, P = 1.640071 Days, E = 130.189100 Days

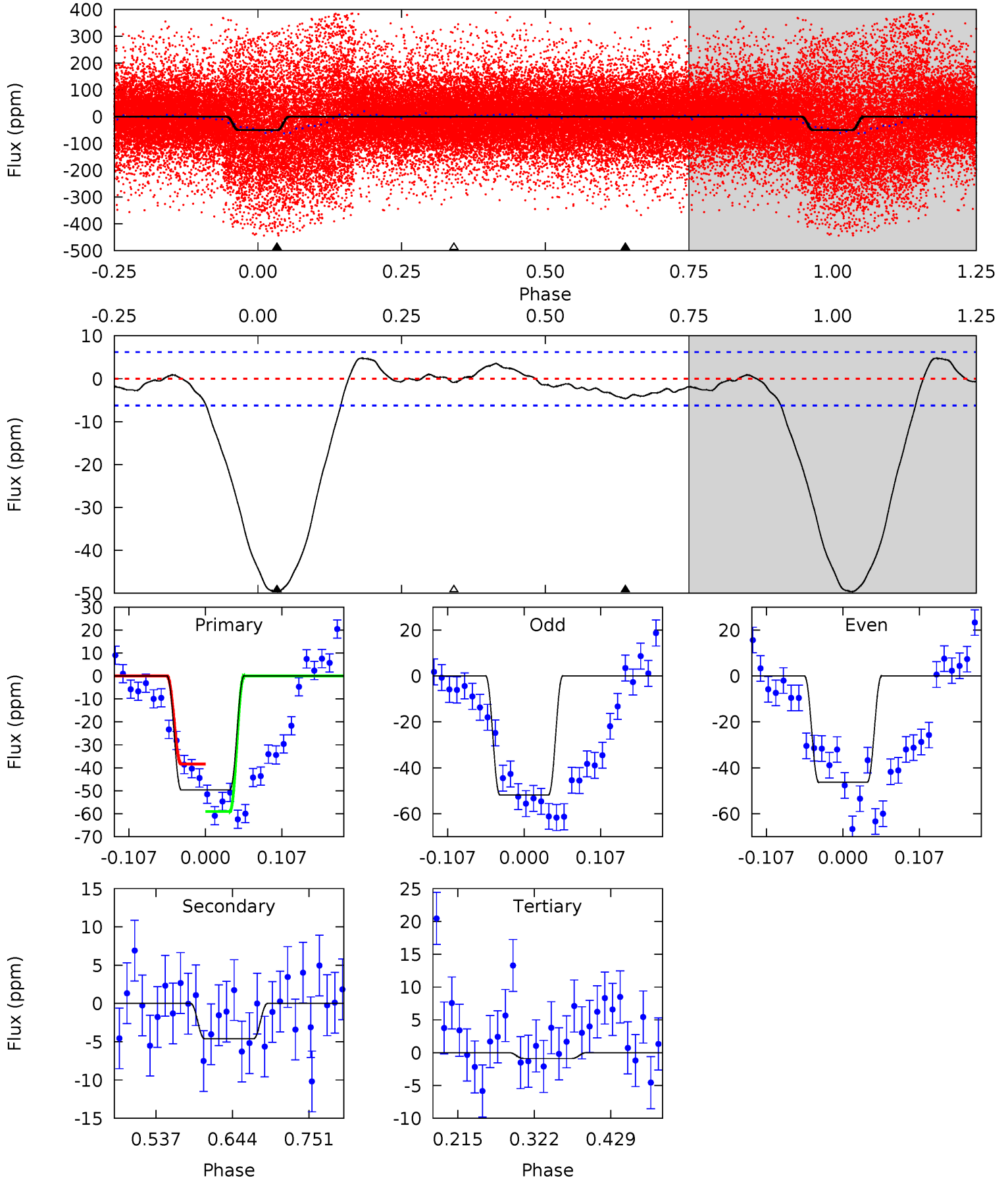
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.1	-32.6	0	0	4.39	1.22	6.86	24.1	24.1	-32.6	-32.6	1.95	1.01	0.60	1.17



Alt Model-Shift Uniqueness Test

010863286-03, P = 1.639951 Days, E = 130.152854 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.3	3.38	0.65	0	4.55	1.61	1.95	35.7	36.3	2.73	3.38	2.04	0.96	0.09	7.30



Stellar Parameters For KIC 010863286

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7300^{+232}_{-319}	$4.239^{+0.075}_{-0.225}$	$-0.060^{+0.200}_{-0.400}$	$1.523^{+0.547}_{-0.235}$	$1.466^{+0.219}_{-0.219}$	$0.585^{+0.254}_{-0.337}$
	+3%/-4%	+2%/-5%	+333%/-667%	+36%/-15%	+15%/-15%	+43%/-58%
Source	KIC0	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 010863286-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	34 ± 1	$0.96^{+0.20}_{-0.11}$	3213^{+268}_{-194}	-7449^{+373}_{-405}	$-18.835^{+5.310}_{-4.902}$
Alt.	-5 ± 1	$1.35^{+0.25}_{-0.15}$	3223^{+248}_{-187}	3861^{+285}_{-308}	$1.288^{+0.534}_{-0.491}$

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 $A_{obs} \gg 1.0$

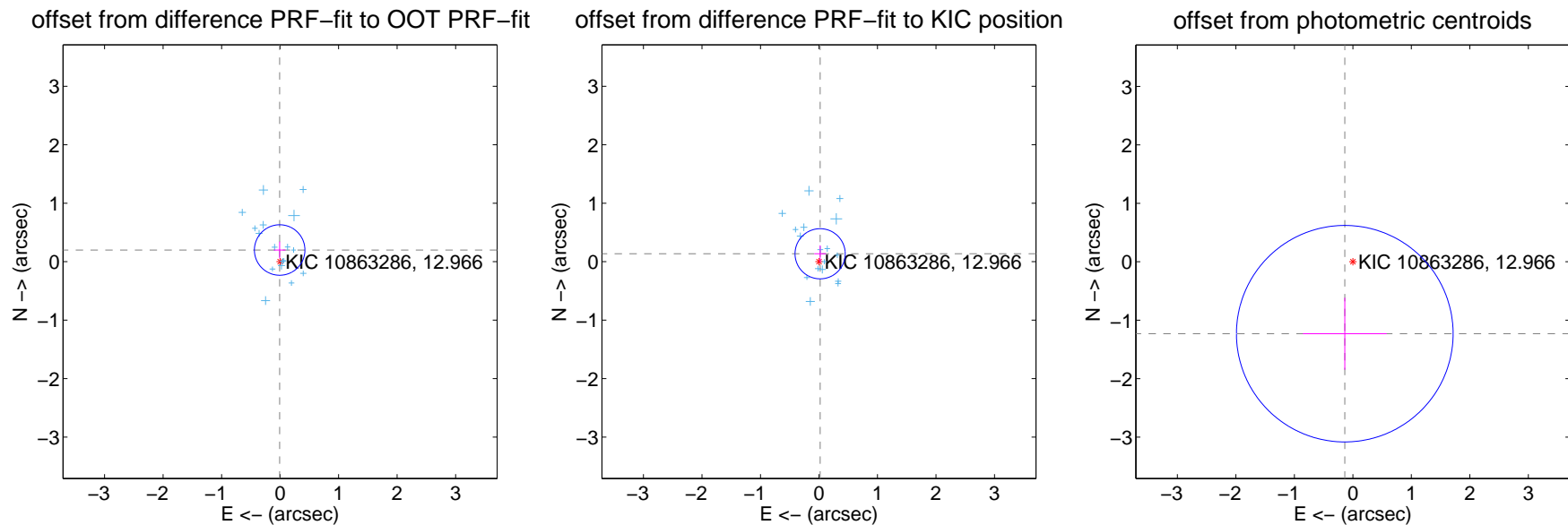
DV Centroid Data

Supplemental centroid analysis for 010863286-03. Kepler magnitude: 12.97. Transit SNR 10.63

There are 17 quarters with good PRF difference image offsets

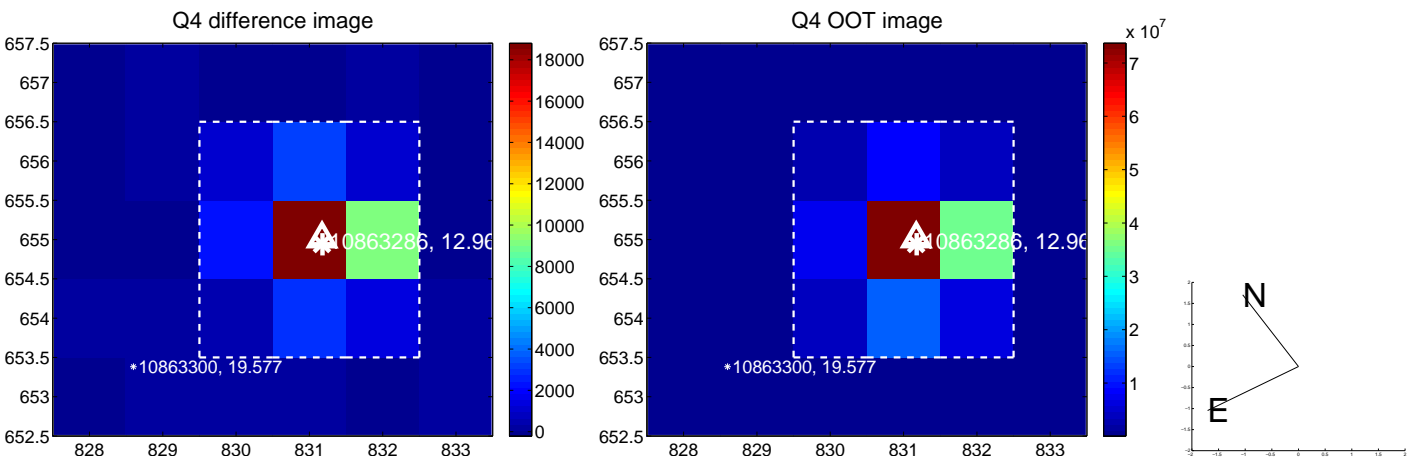
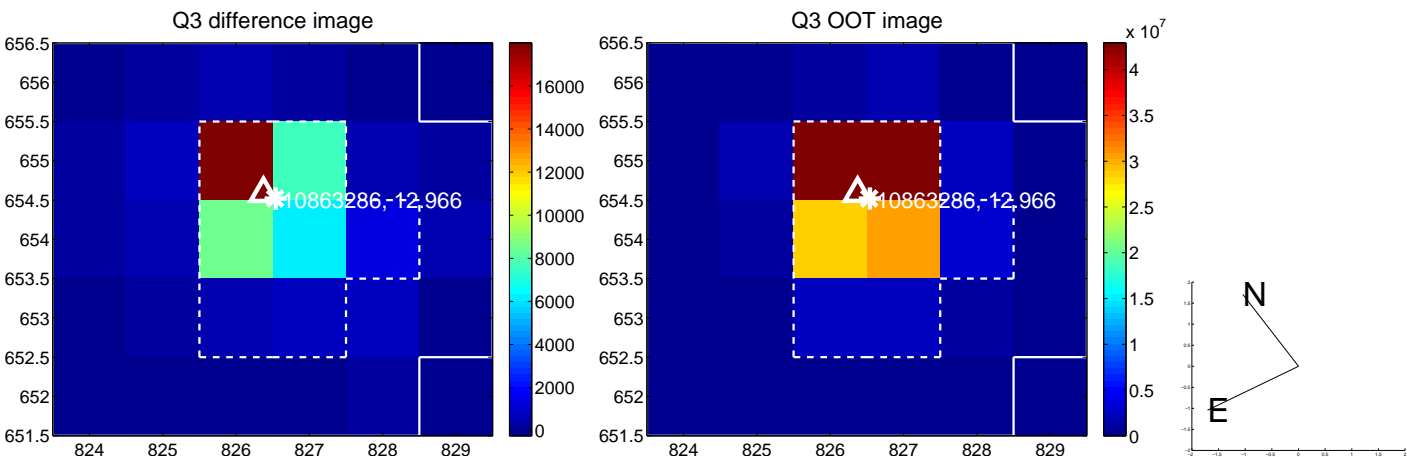
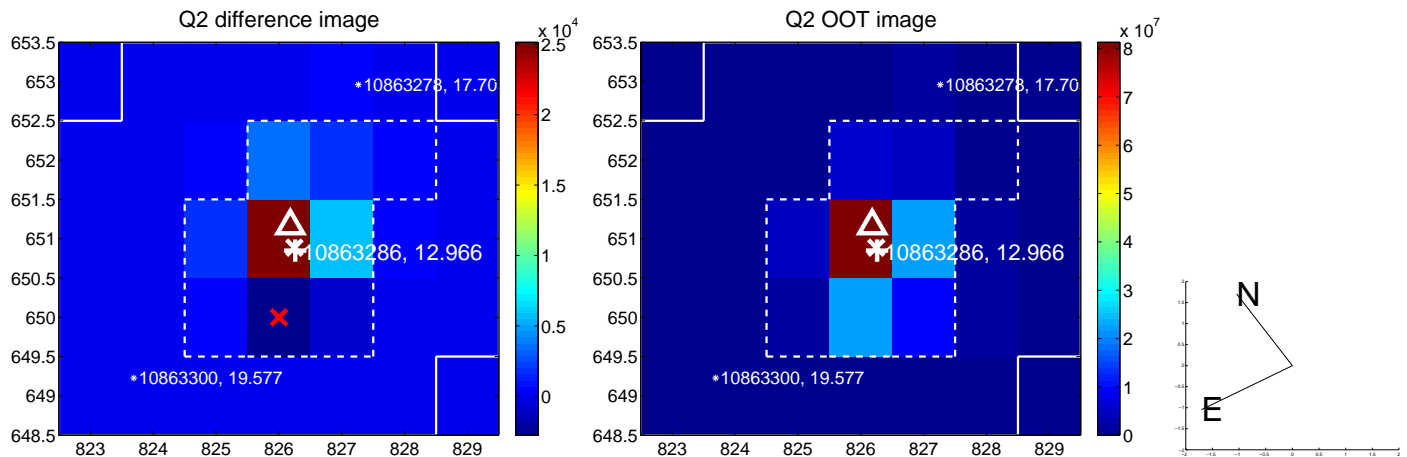
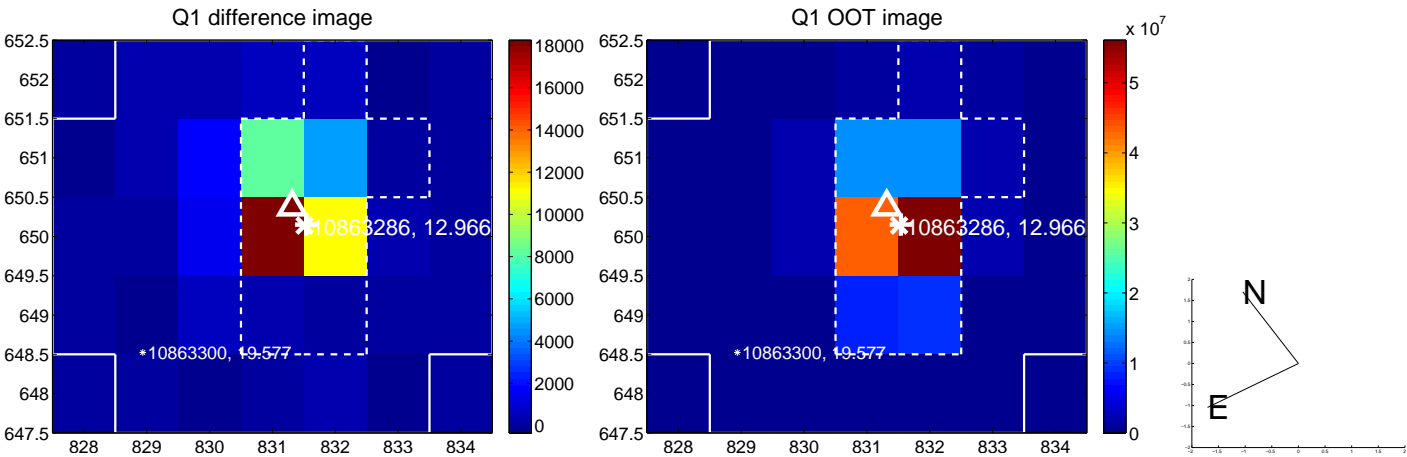
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.200 ± 0.144	1.39	0.007 ± 0.099	0.200 ± 0.143
PRF-fit source offset from KIC position	0.137 ± 0.143	0.96	-0.019 ± 0.099	0.136 ± 0.144
photometric centroid source offset	1.24 ± 0.62	2.01	0.14 ± 0.72	-1.23 ± 0.62

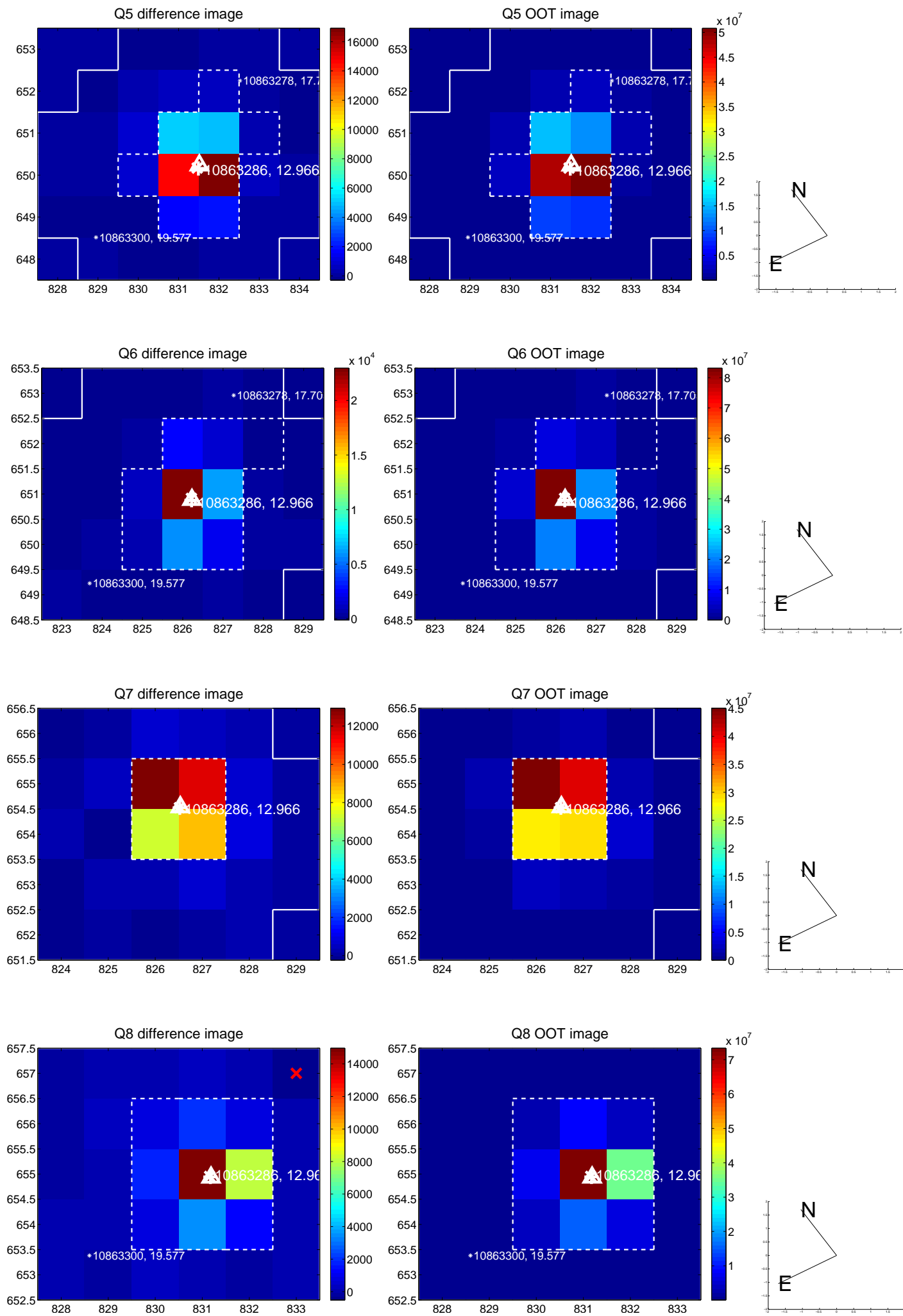


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

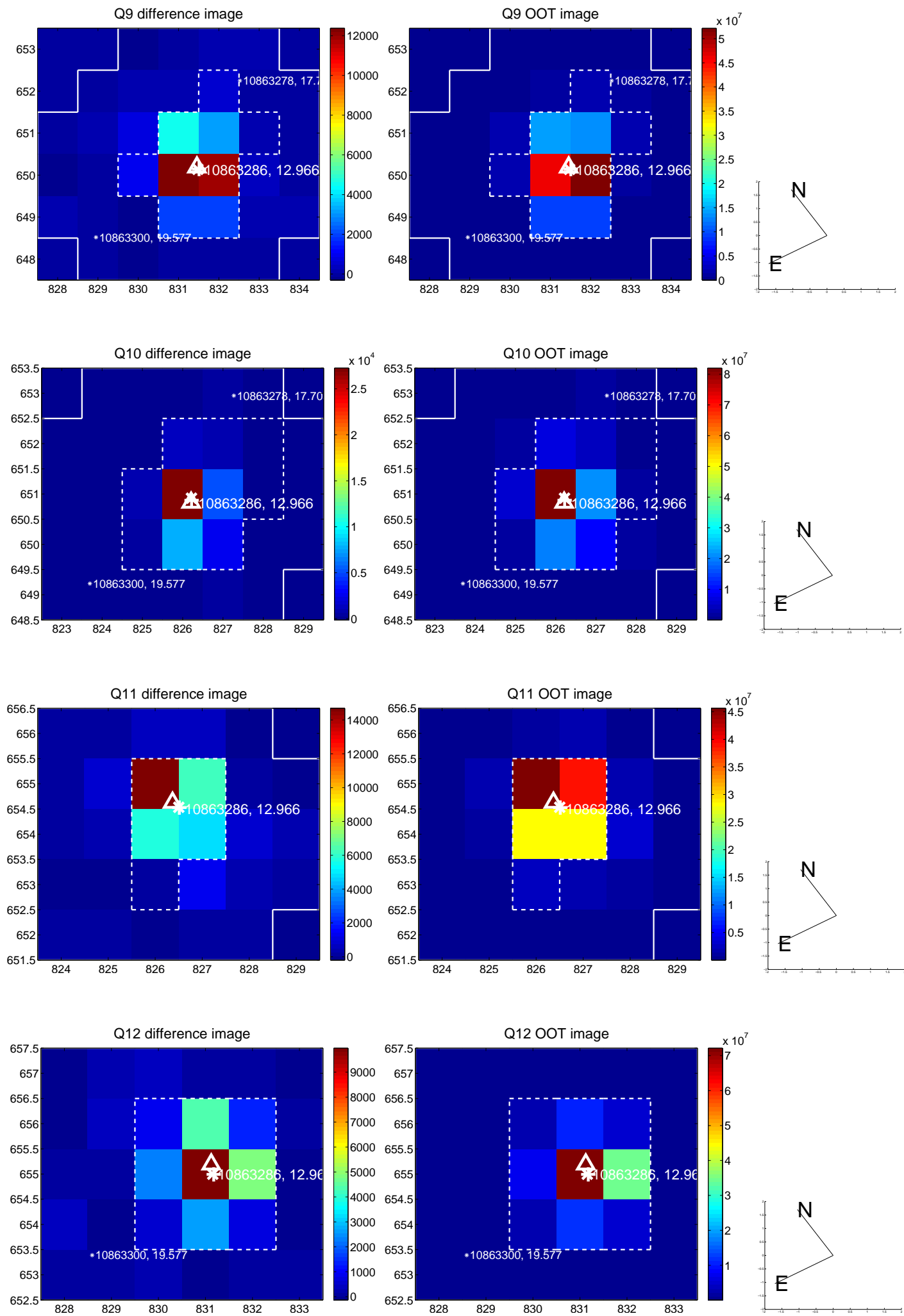
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



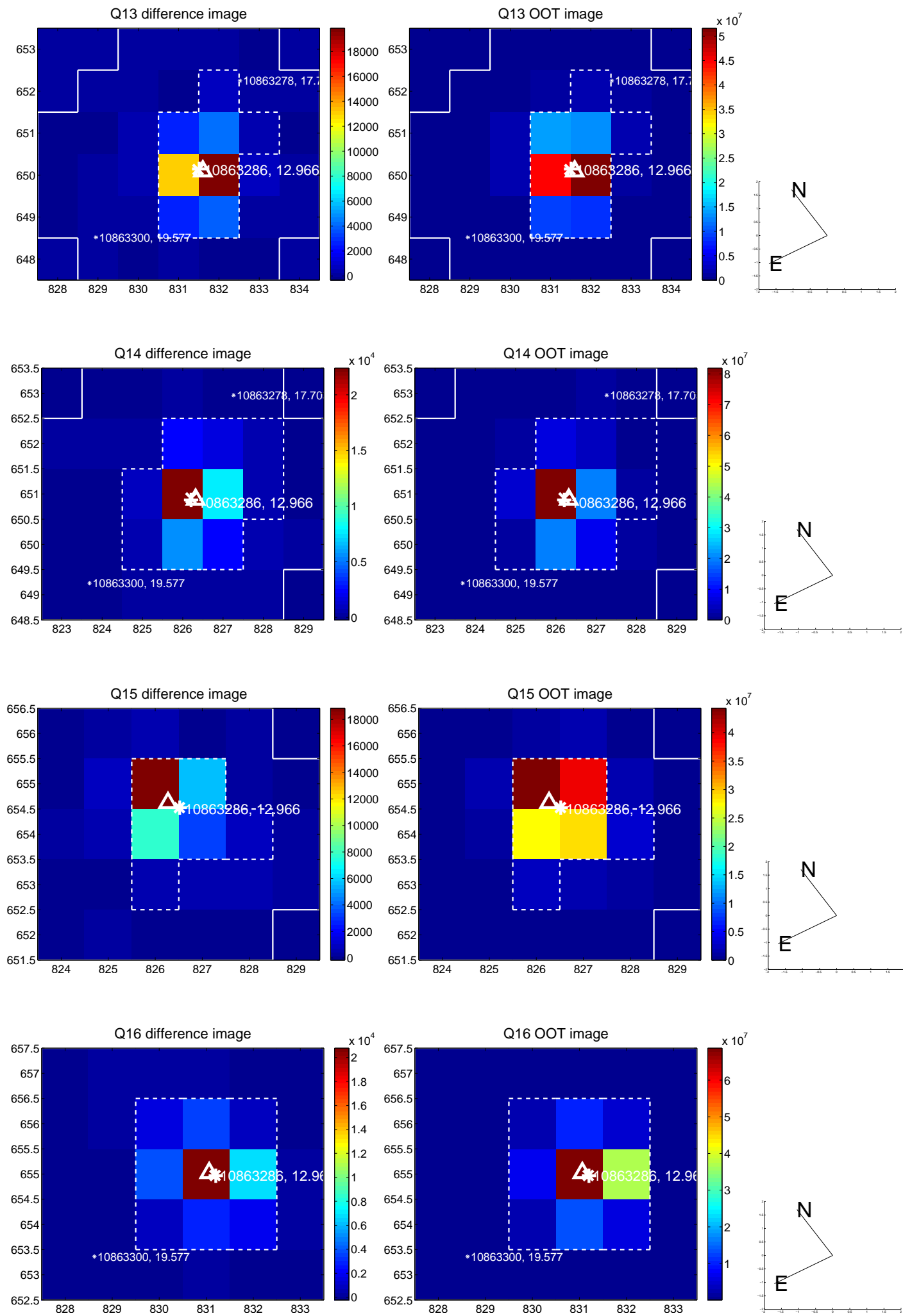
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



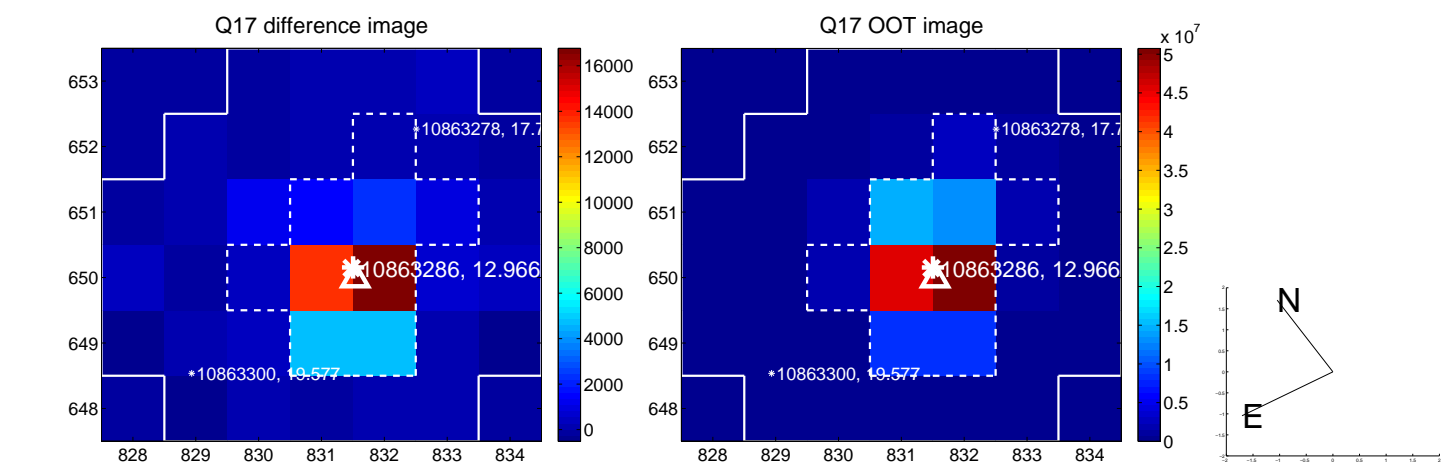
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



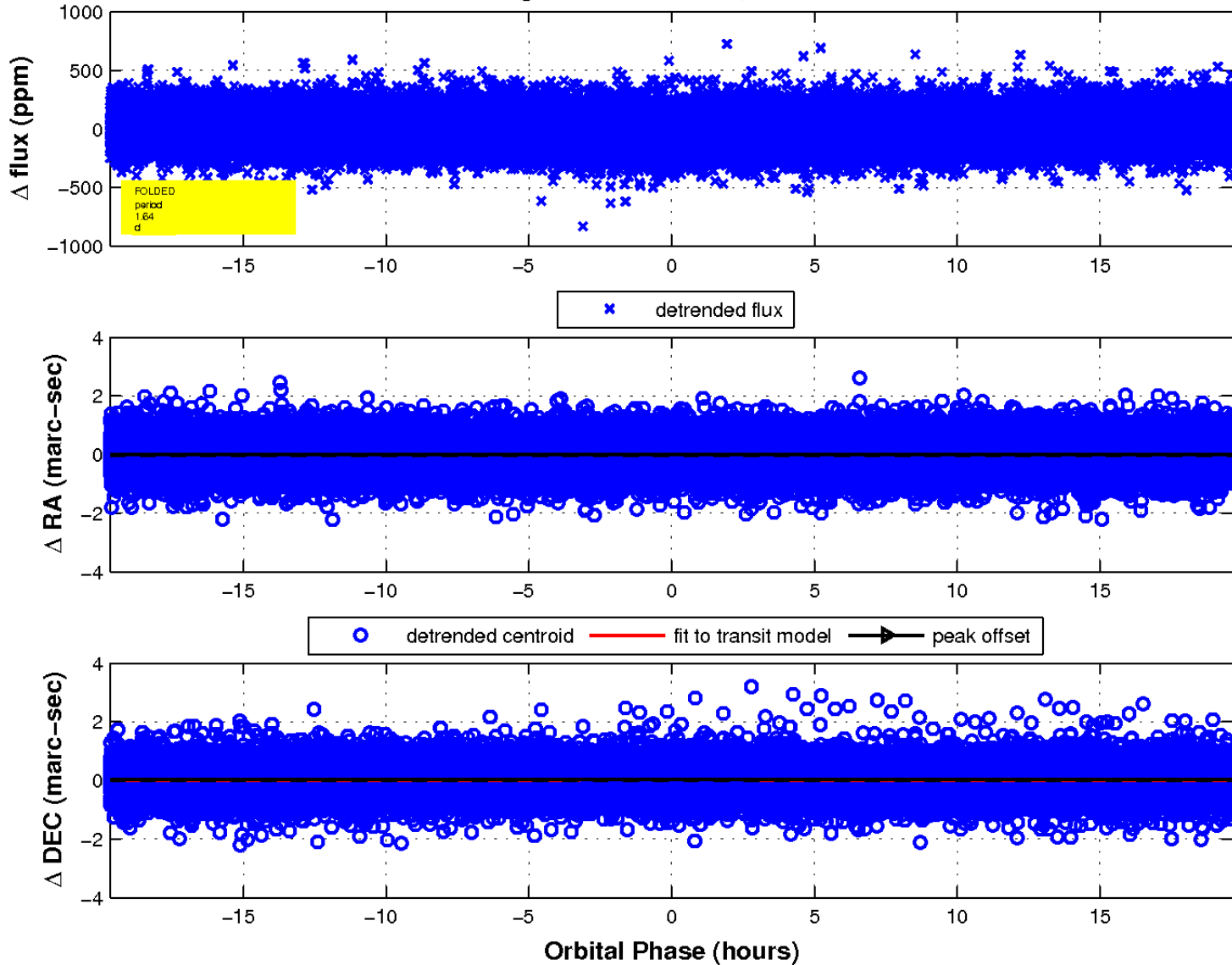
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

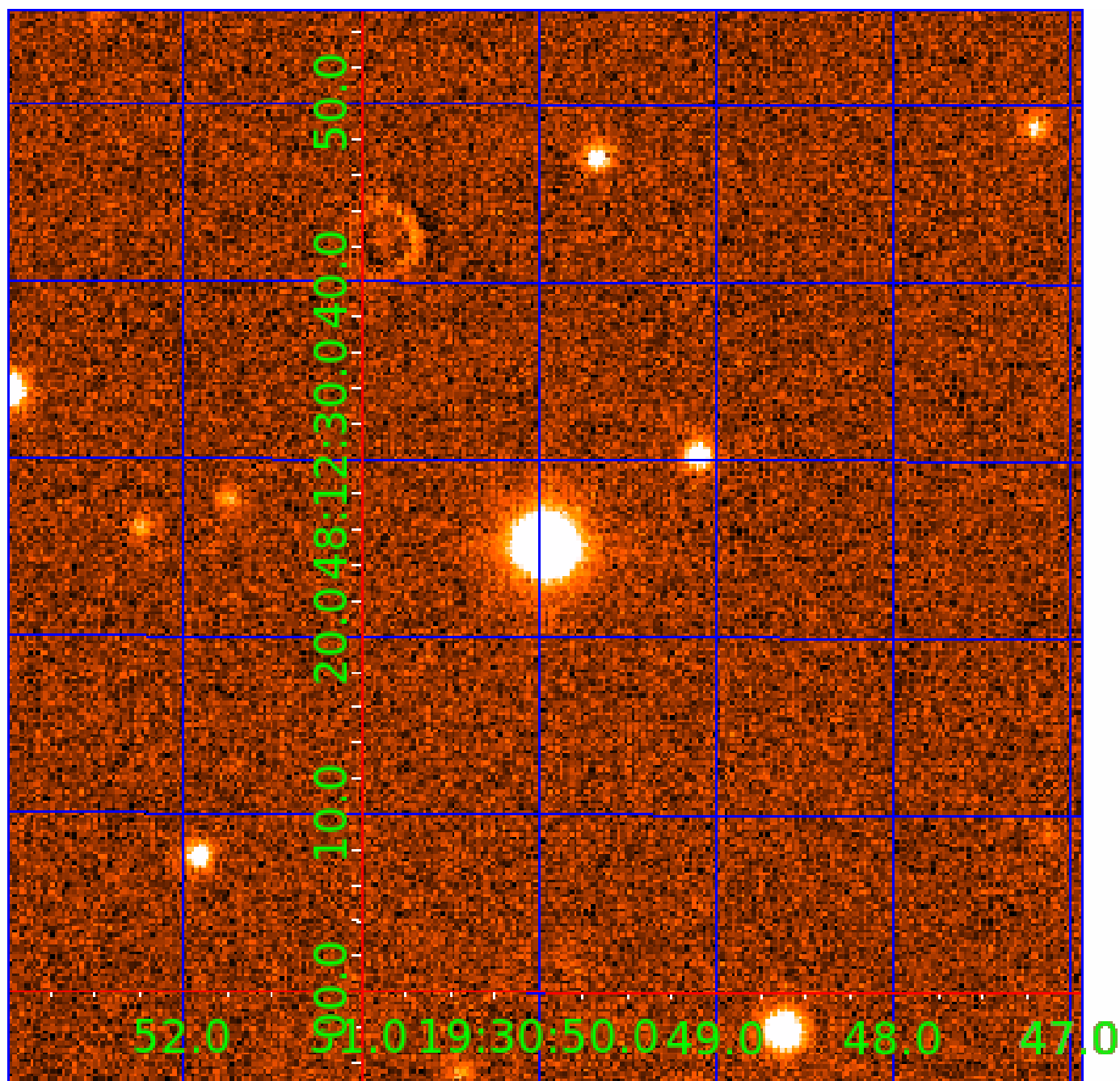


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 010863286

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})
010863286-01	OBS	No	3.723967	133.659737	52.6	7.183	13.9	16.4	1.52	7300	1.58	2066.86
010863286-02	OBS	No	499.031639	208.692915	216.3	7.723	10.0	7.2	1.52	7300	2.33	3.01
010863286-03	OBS	No	1.640071	131.829171	21.1	8.300	9.5	10.6	1.52	7300	0.93	6168.35
010863286-04	OBS	No	330.099447	186.568567	240.3	4.277	8.4	7.9	1.52	7300	3.54	5.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010863286-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010863286-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010863286-03	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_DV—HALO_GHOST
010863286-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

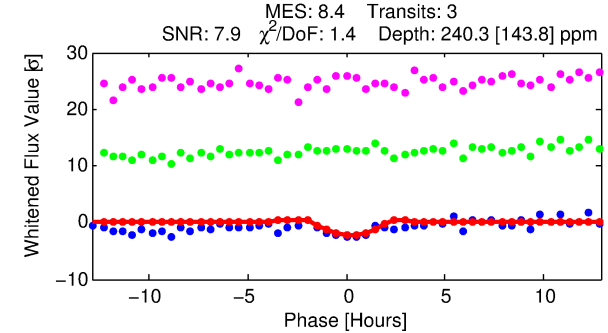
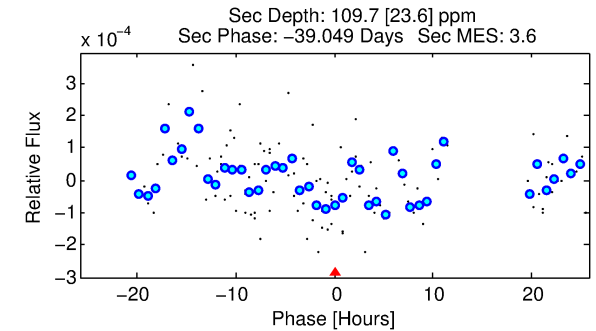
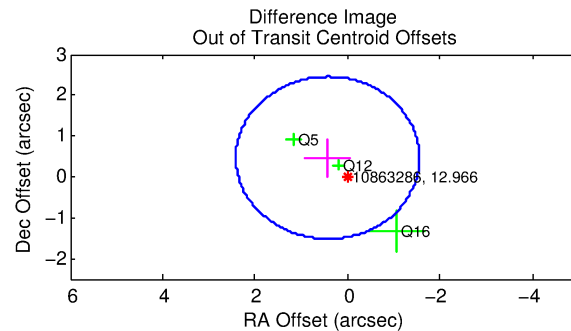
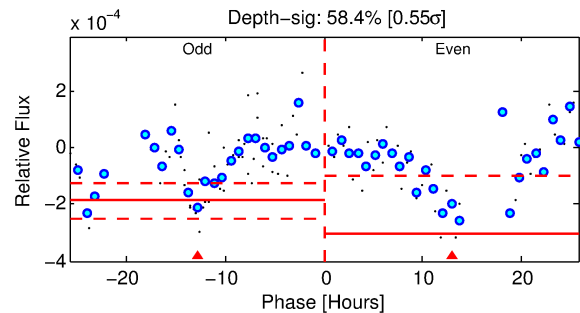
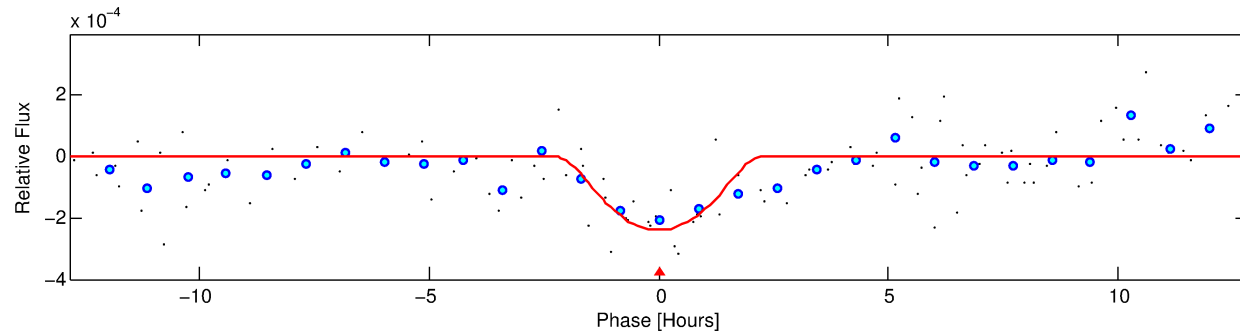
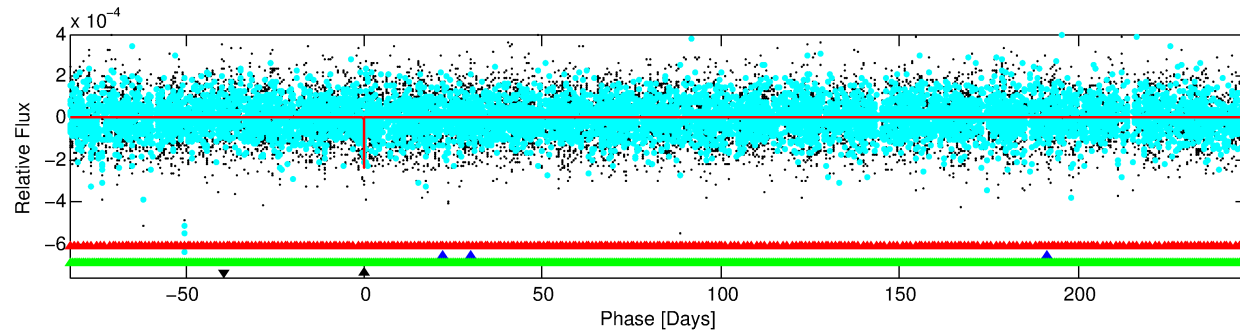
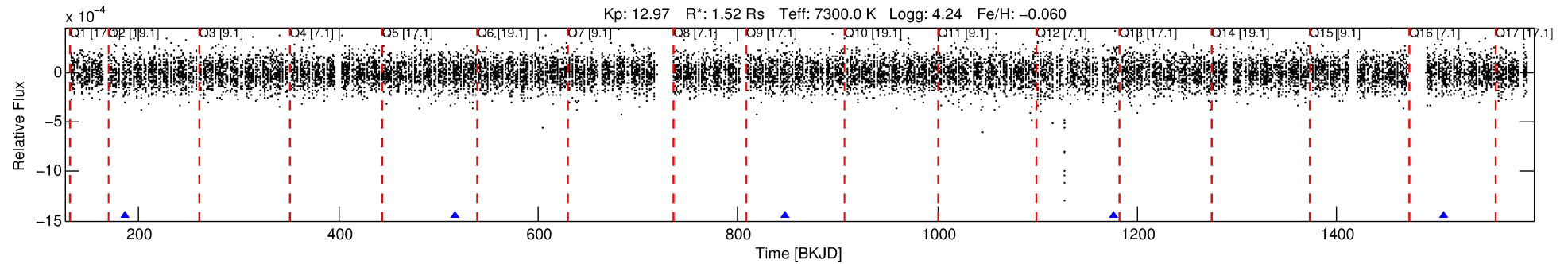
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010863286-04

No Significant Match Found

DV One-Page Summary

KIC: 10863286 Candidate: 4 of 4 Period: 330.099 d



DV Fit Results:

Period = 330.09945 [0.00442] d
Epoch = 186.5686 [0.0126] BKJD
Rp/R* = 0.0213 [0.0372]
a/R* = 149.39 [124.17]
b = 0.99 [0.08]
Seff = 5.23 [2.38]
Teq = 386 [44] K
Rp = 3.54 [6.31] Re
a = 1.0623 [0.3136] AU
Ag = 5429.37 [19119.55] [0.28 σ]
Teffp = 5118 [4479] K [1.06 σ]

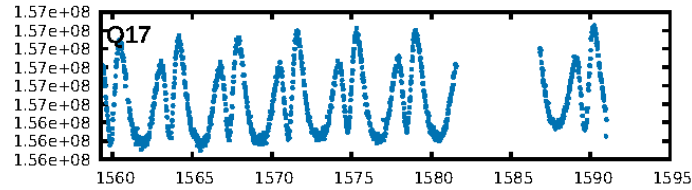
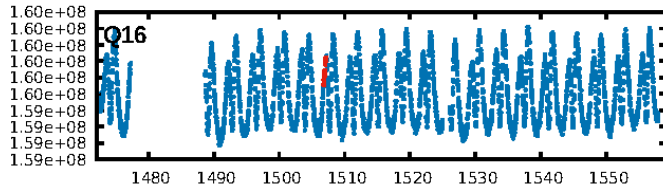
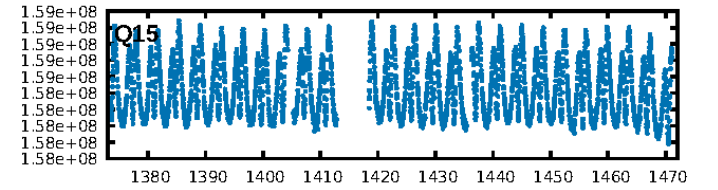
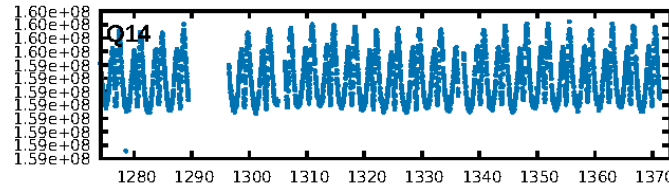
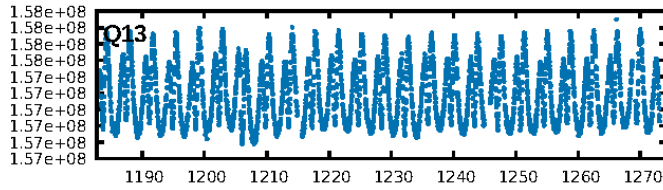
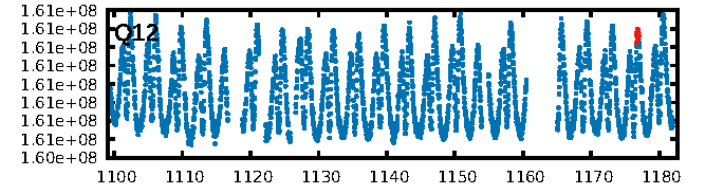
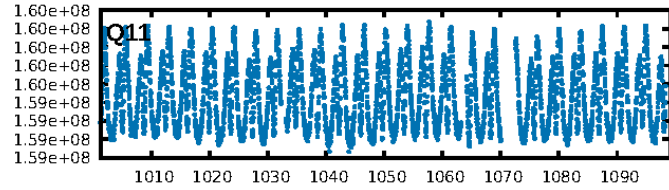
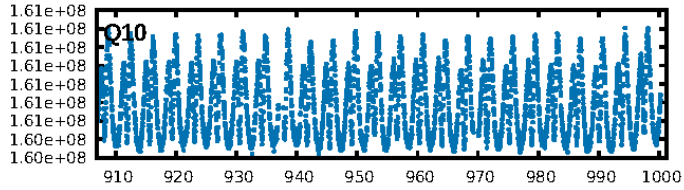
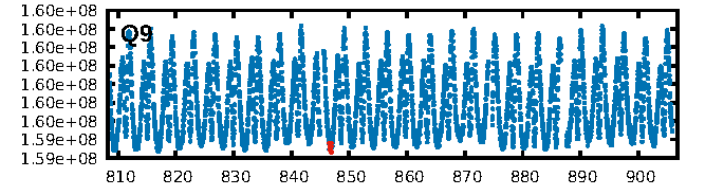
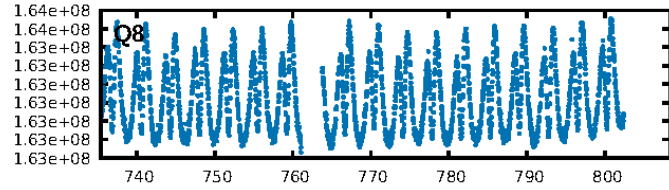
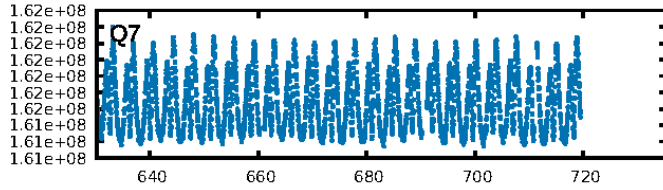
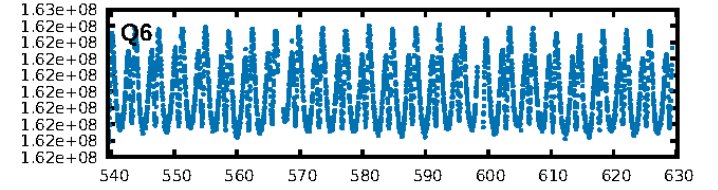
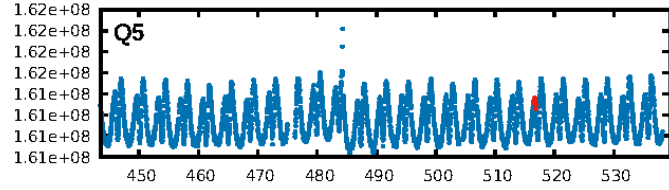
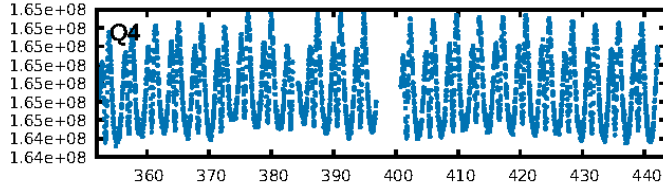
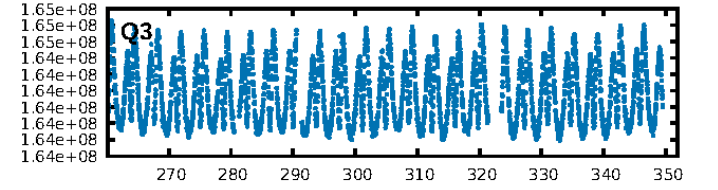
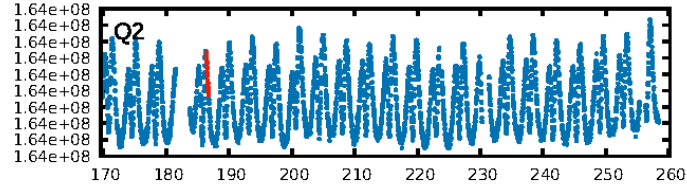
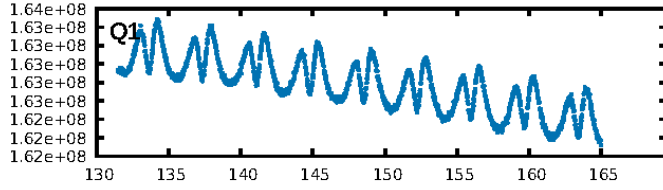
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [936.98 σ]
LongPeriod-sig: 100.0% [459.23 σ]
ModelChiSquare2-sig: 8.8%
ModelChiSquareGof-sig: 68.9%
Bootstrap-pfa: 2.35e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.56
Centroid-sig: 4.7%
Centroid-so: 1.452 arcsec [1.22 σ]
OotOffset-rm: 0.637 arcsec [0.96 σ]
OotOffset-st: 0/0/2/1 [3]
KicOffset-rm: 0.544 arcsec [0.63 σ]
KicOffset-st: 0/0/2/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.75 [3/4]

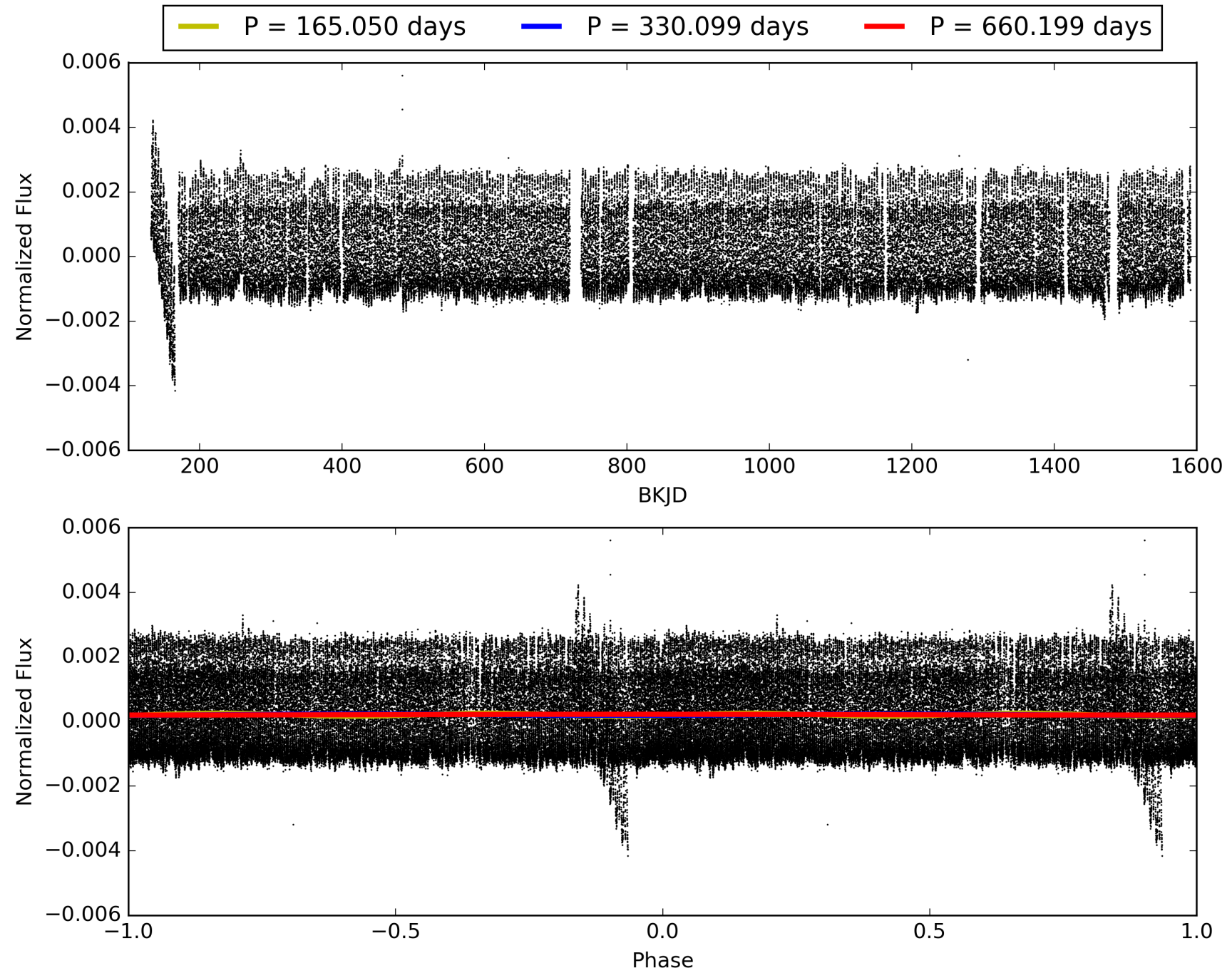
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:52:33 Z

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

TCE 010863286-04, PDC Light Curves

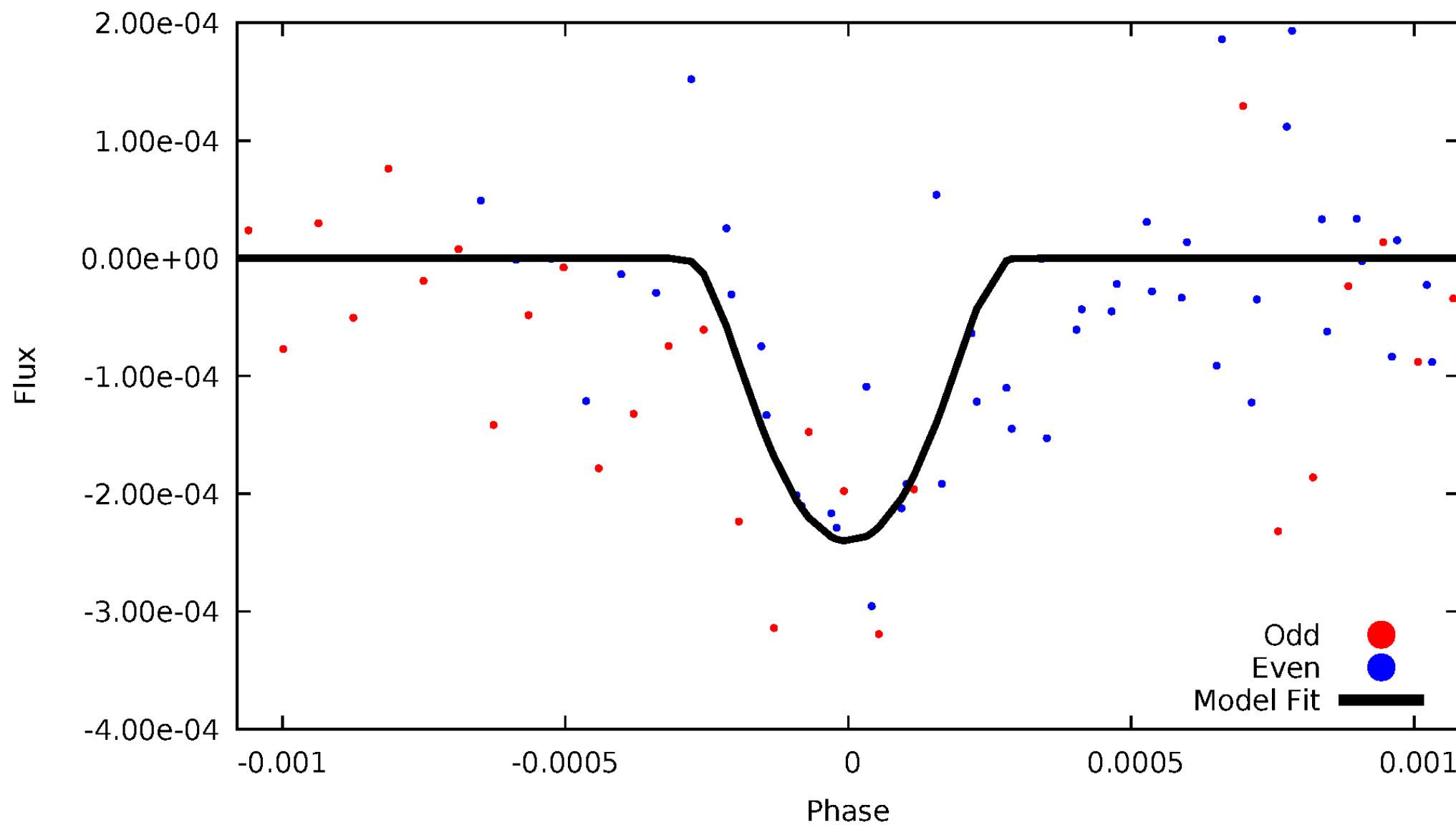


TCE 010863286-04



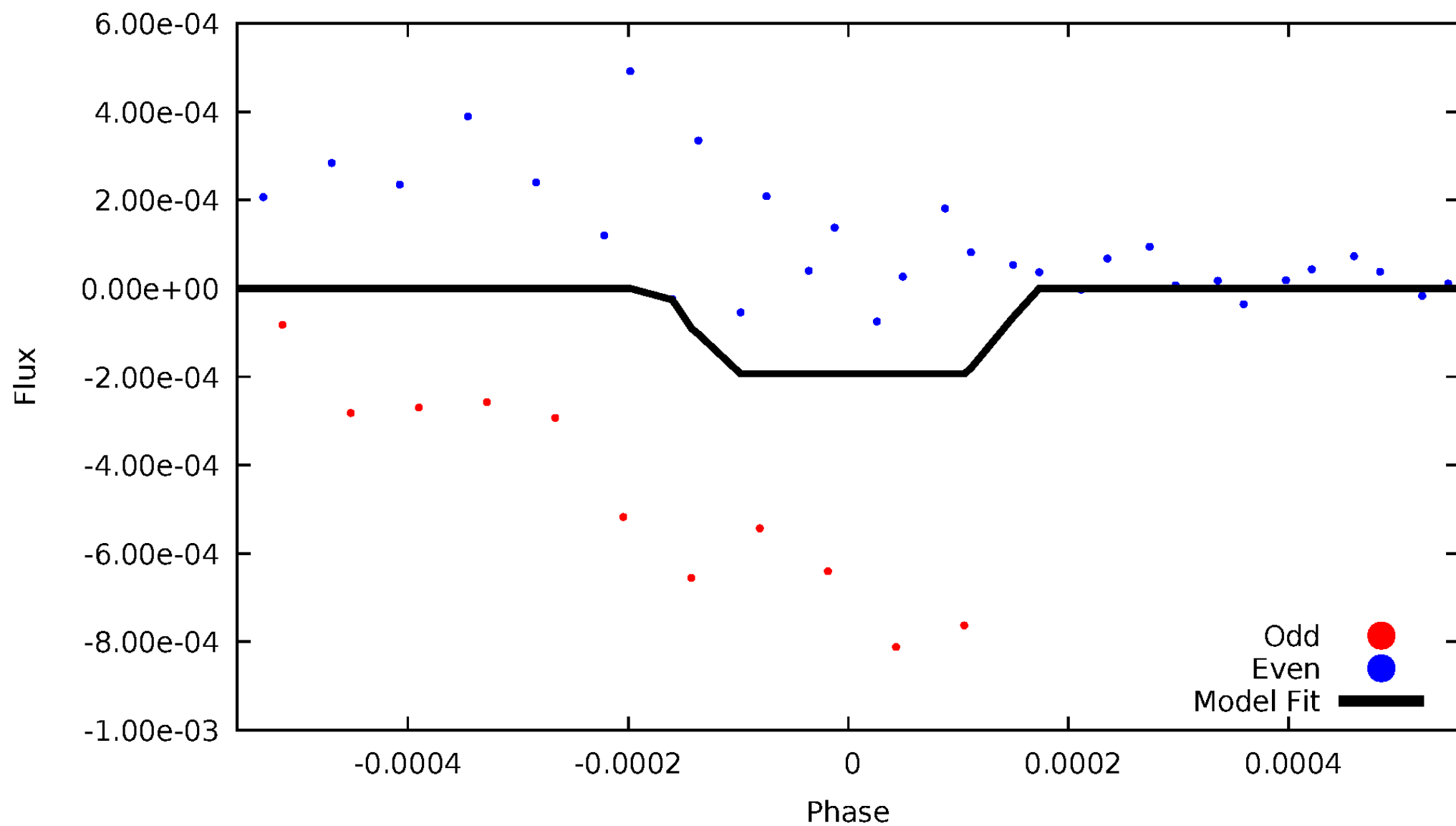
DV Odd/Even

TCE 010863286-04



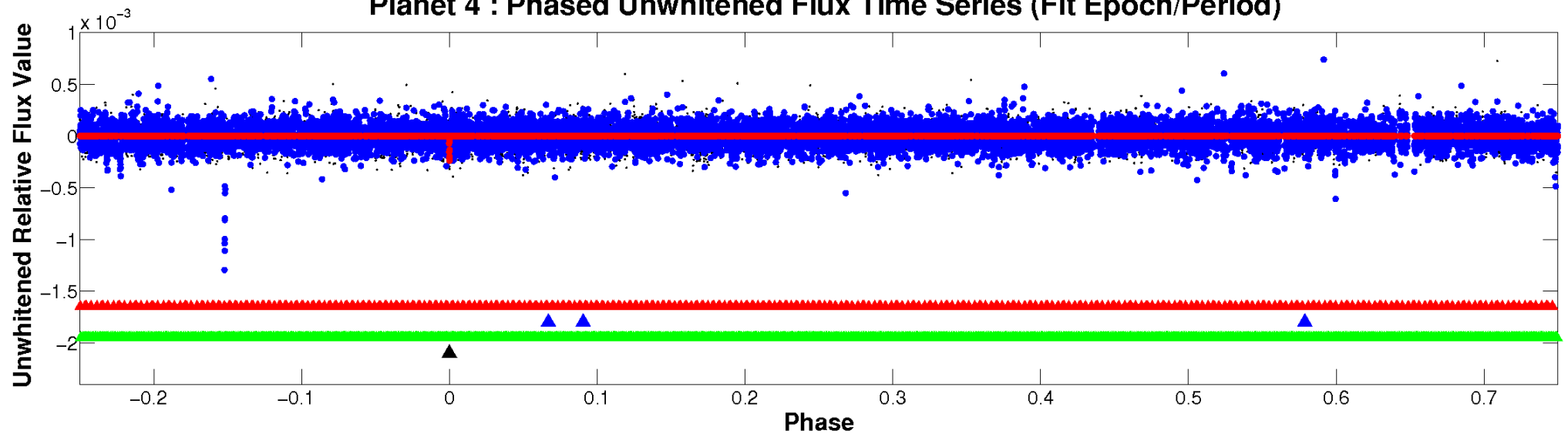
ALT Odd/Even

TCE 010863286-04

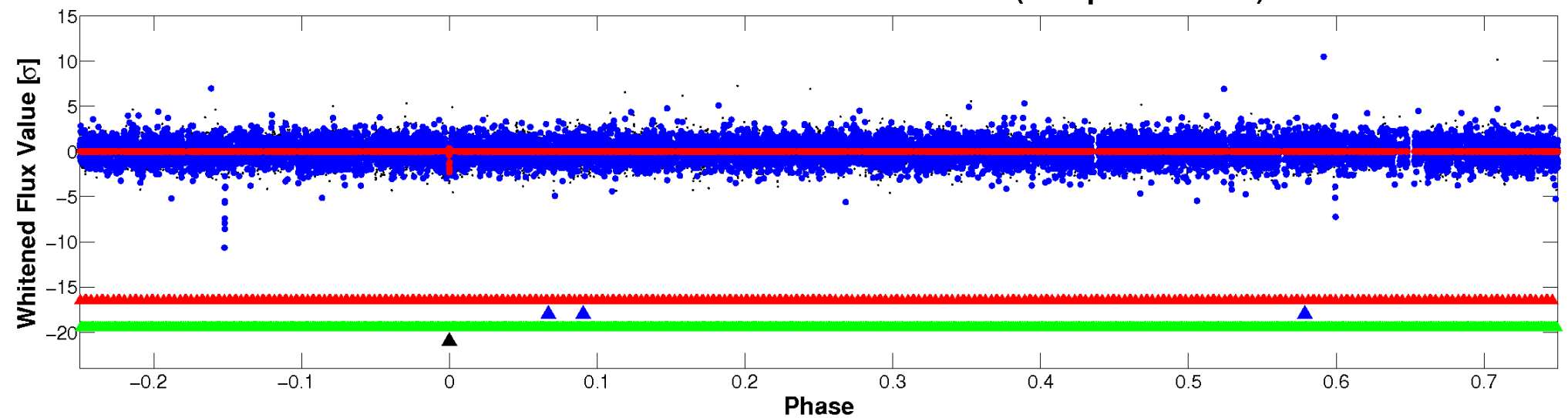


Non-Whitened Vs. Whitened Light Curve

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

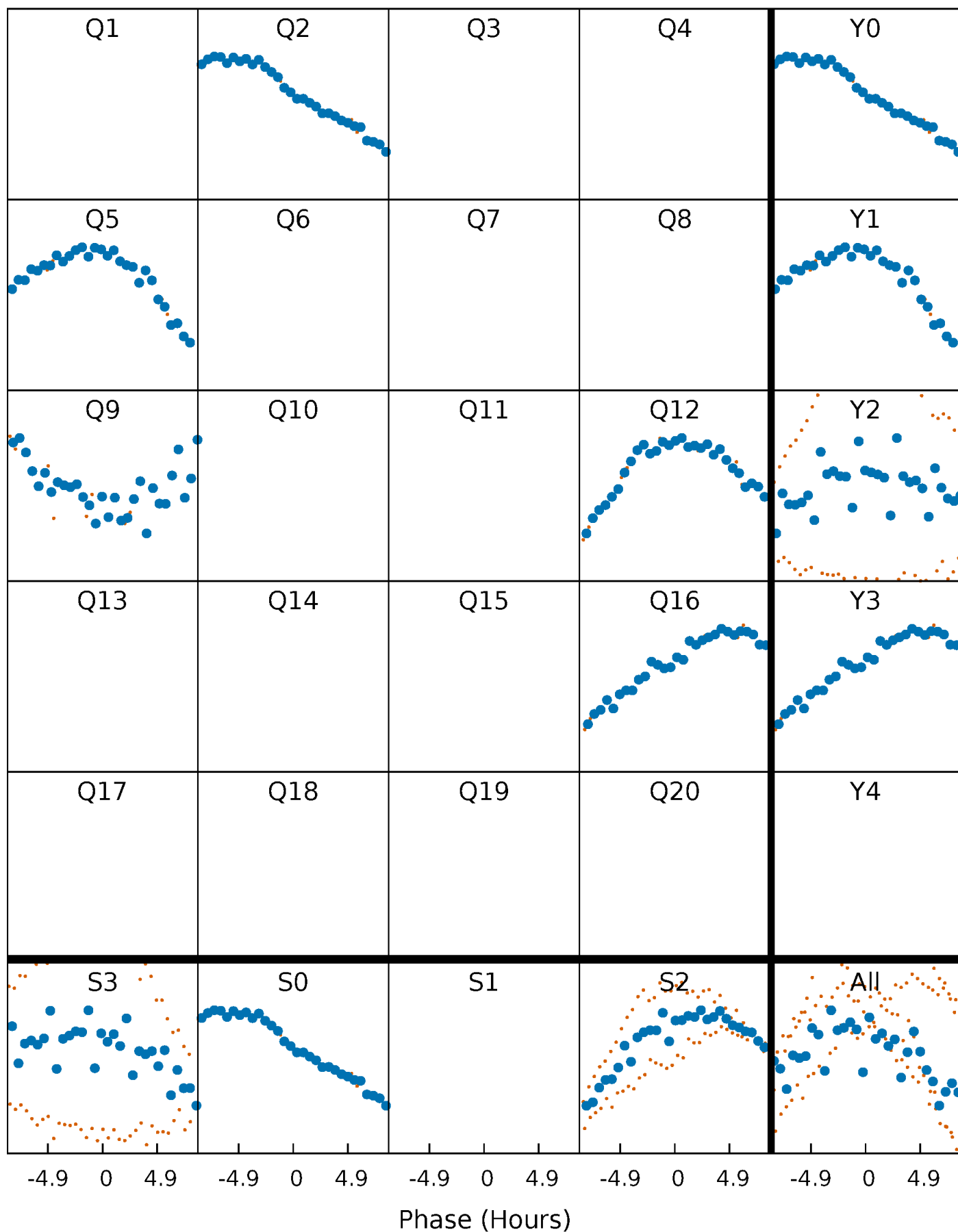


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



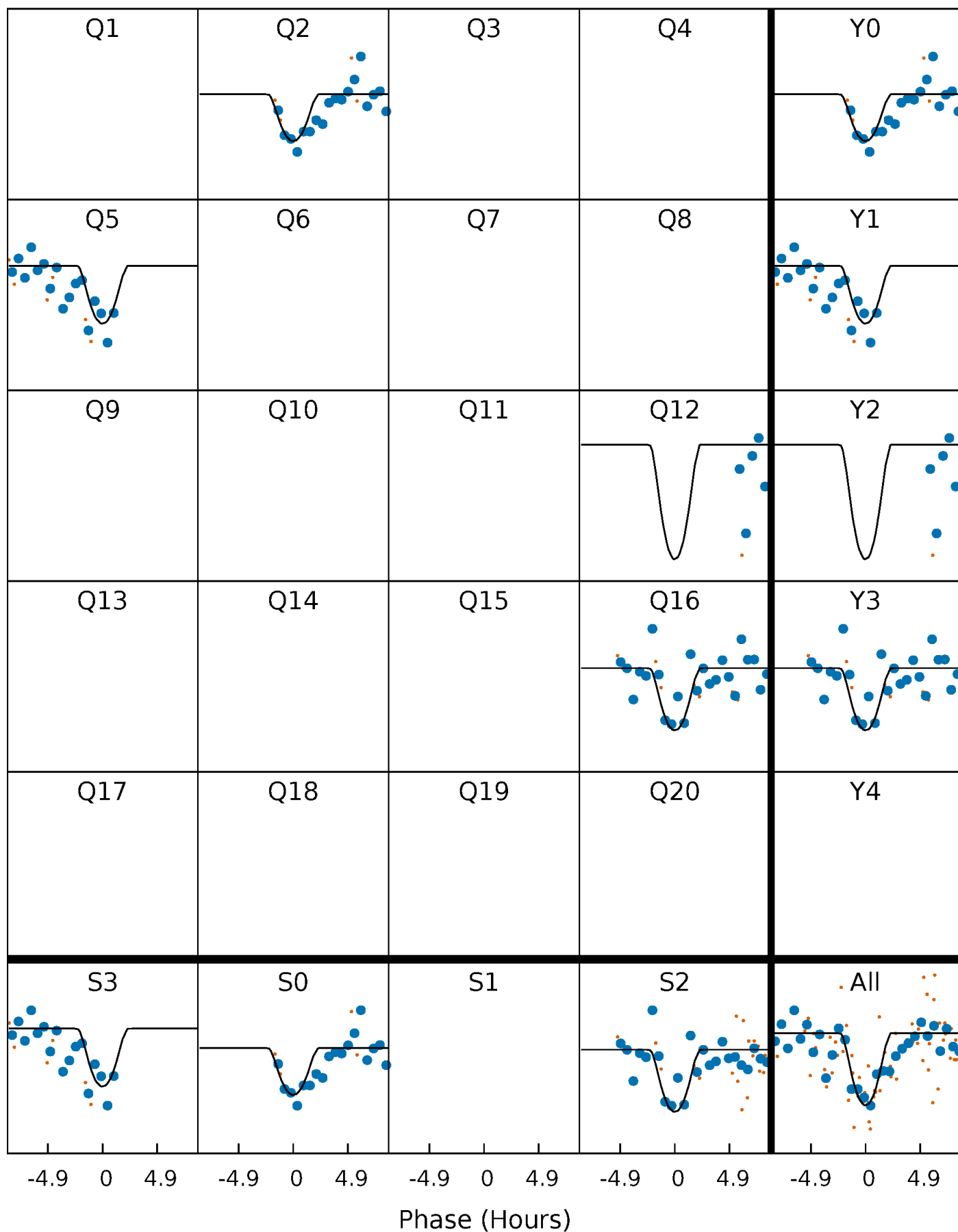
PDC Quarter-Phased Transit Curves

TCE 010863286-04 $P=330.099447$ Days $T_0=186.568567$ (BKJD)



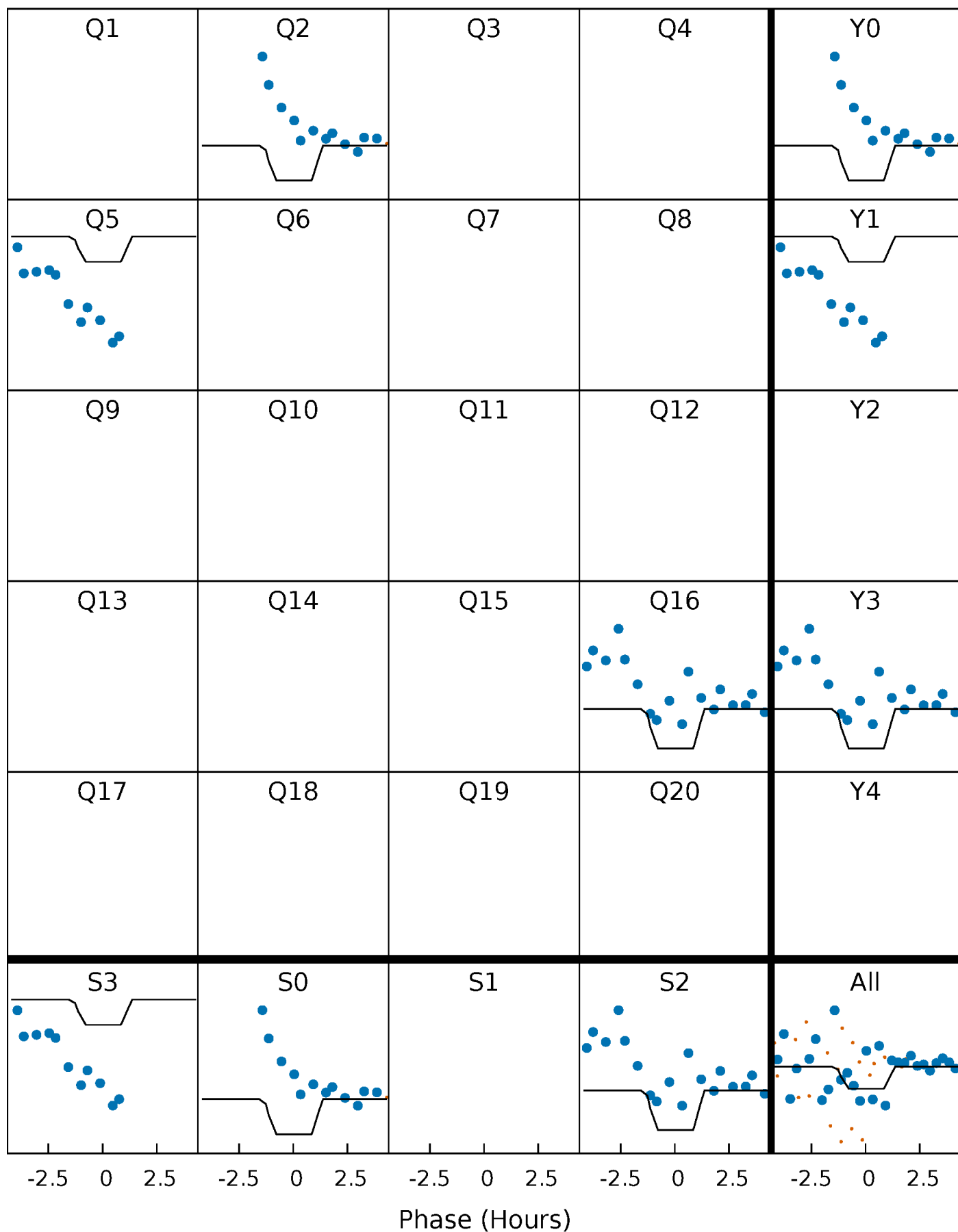
DV Quarter-Phased Transit Curves

TCE 010863286-04 $P=330.099447$ Days $T_0=186.568567$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

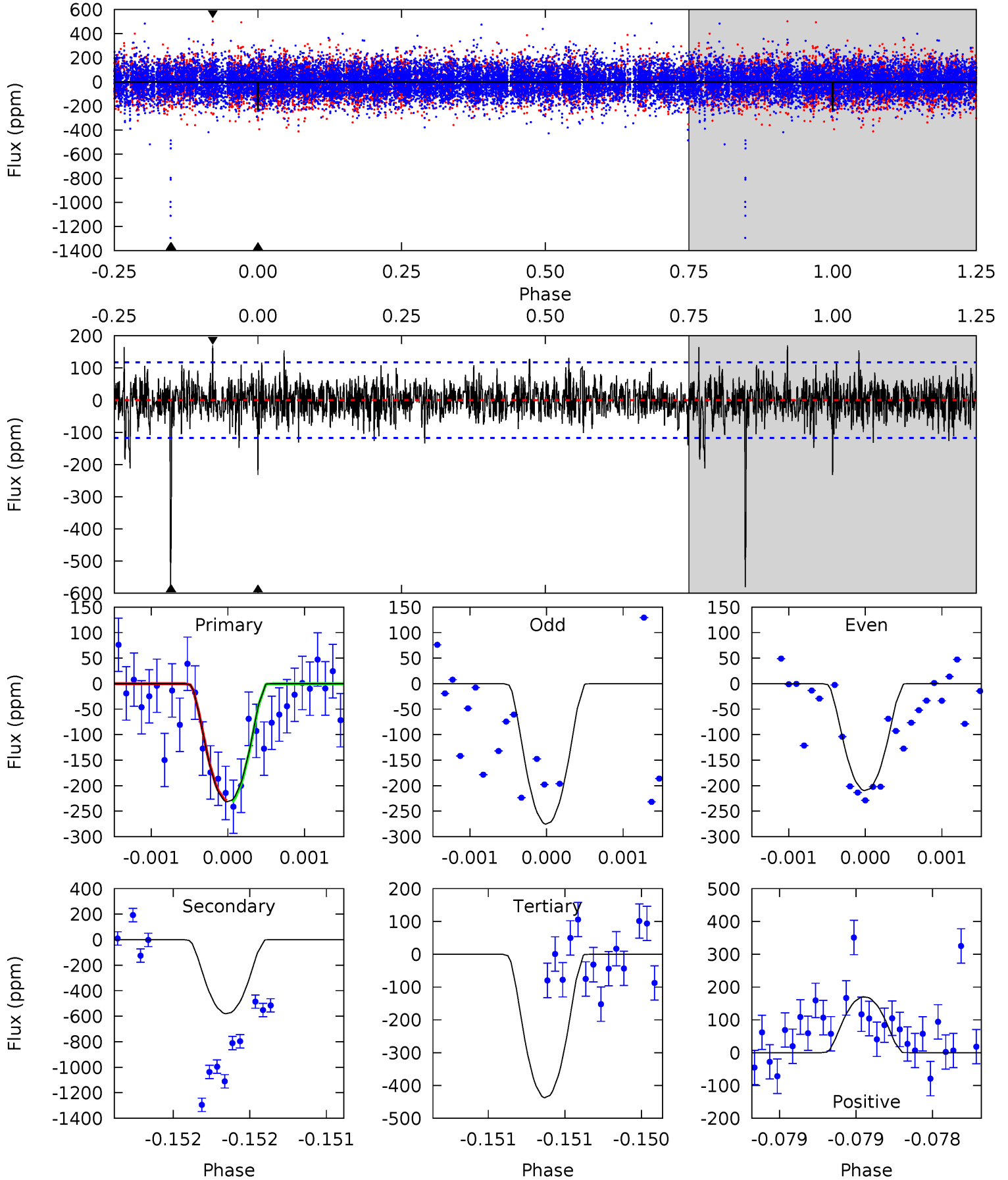
TCE 010863286-04 P=330.105738 Days $T_0=186.565806$ (BKJD)



DV Model-Shift Uniqueness Test

010863286-04, P = 330.099447 Days, E = 186.568567 Days

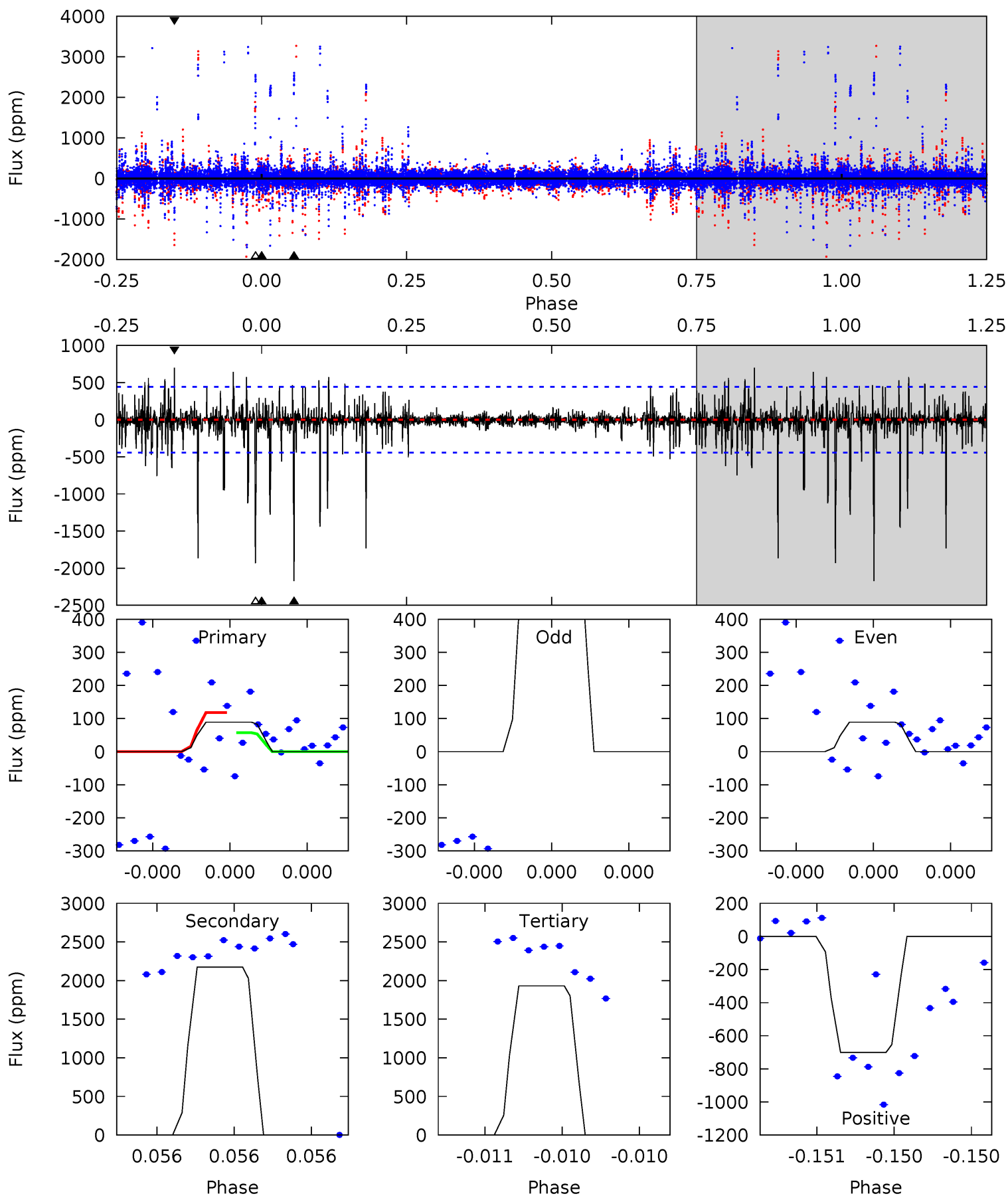
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	27.4	20.7	8.05	5.55	3.45	1.82	-9.72	2.90	6.76	19.4	1.41	0.91	0.23	0.05



Alt Model-Shift Uniqueness Test

010863286-04, P = 330.105738 Days, E = 186.565806 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.13	27.7	24.6	8.92	5.65	3.60	1.83	-23.5	-7.79	3.08	18.8	4.18	-7.06	0.24	0.39



Stellar Parameters For KIC 010863286

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7300^{+232}_{-319}	$4.239^{+0.075}_{-0.225}$	$-0.060^{+0.200}_{-0.400}$	$1.523^{+0.547}_{-0.235}$	$1.466^{+0.219}_{-0.219}$	$0.585^{+0.254}_{-0.337}$
	+3%/-4%	+2%/-5%	+333%/-667%	+36%/-15%	+15%/-15%	+43%/-58%
Source	KIC0	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 010863286-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-580 ± 21	$6.26^{+4.71}_{-4.40}$	550^{+42}_{-34}	5949^{+7595}_{-1379}	$8971^{+100627}_{-6080}$
Alt.	-2173 ± 78	$5.45^{+5.34}_{-3.62}$	548^{+45}_{-33}	9298^{+16062}_{-3045}	$45378^{+351981}_{-34307}$

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

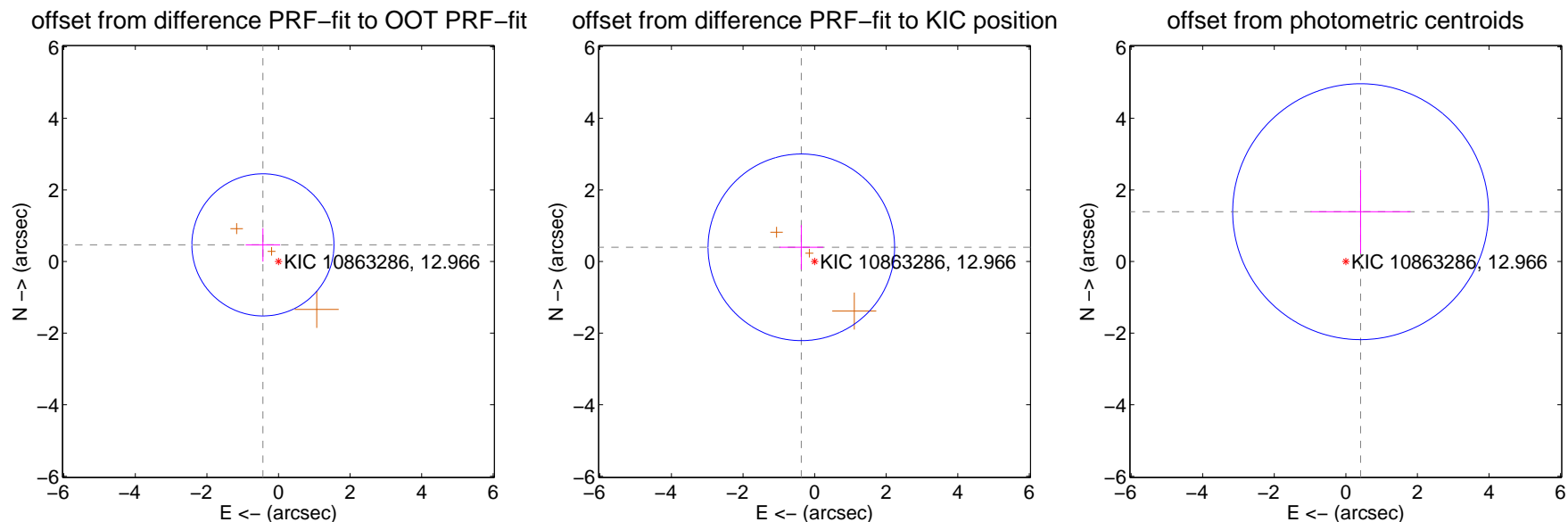
DV Centroid Data

Supplemental centroid analysis for 010863286-04. Kepler magnitude: 12.97. Transit SNR 7.92

There are 0 quarters with good PRF difference image offsets

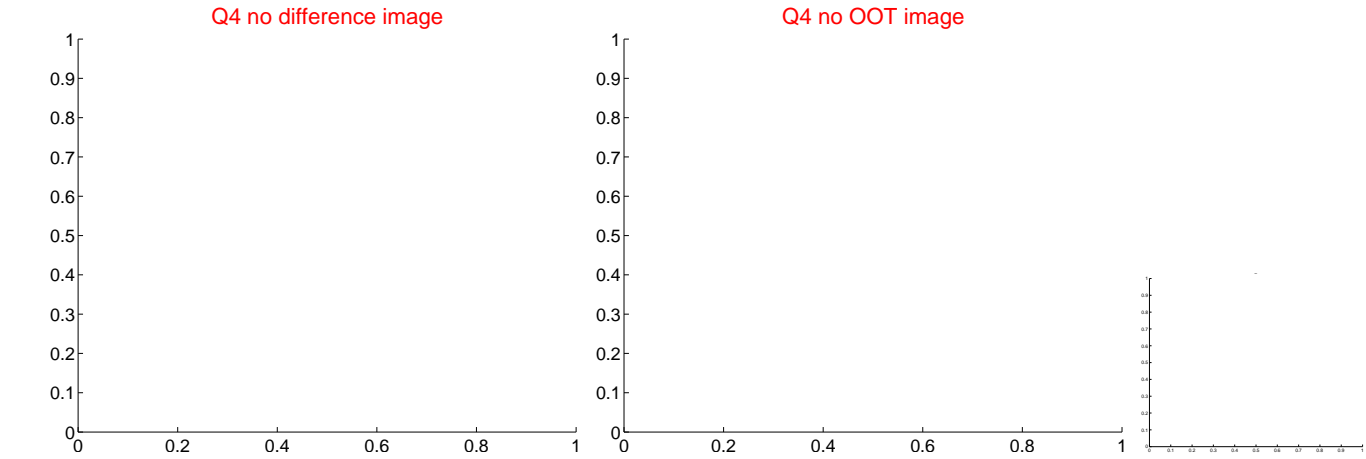
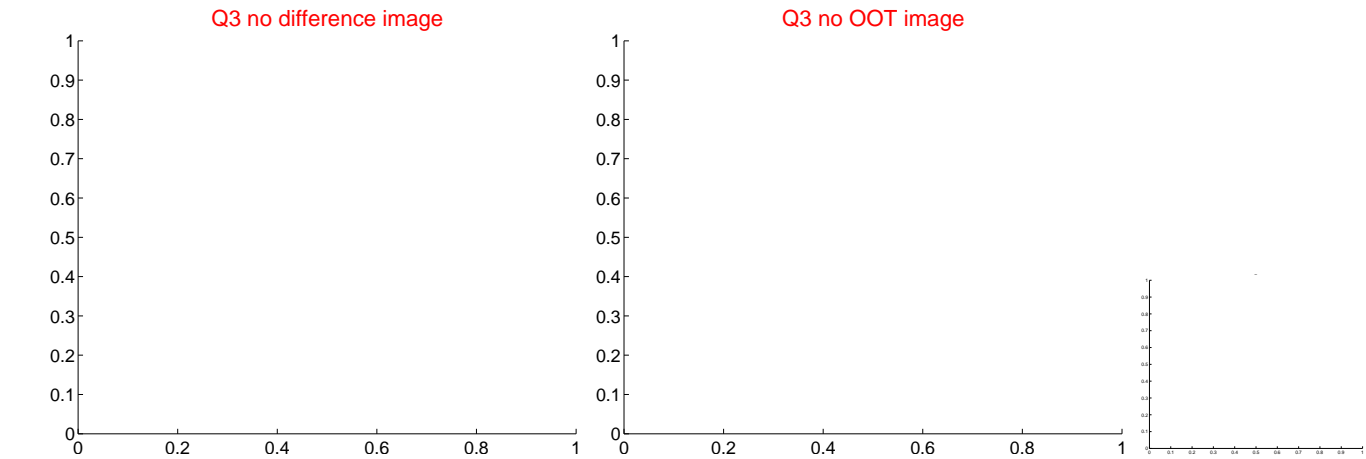
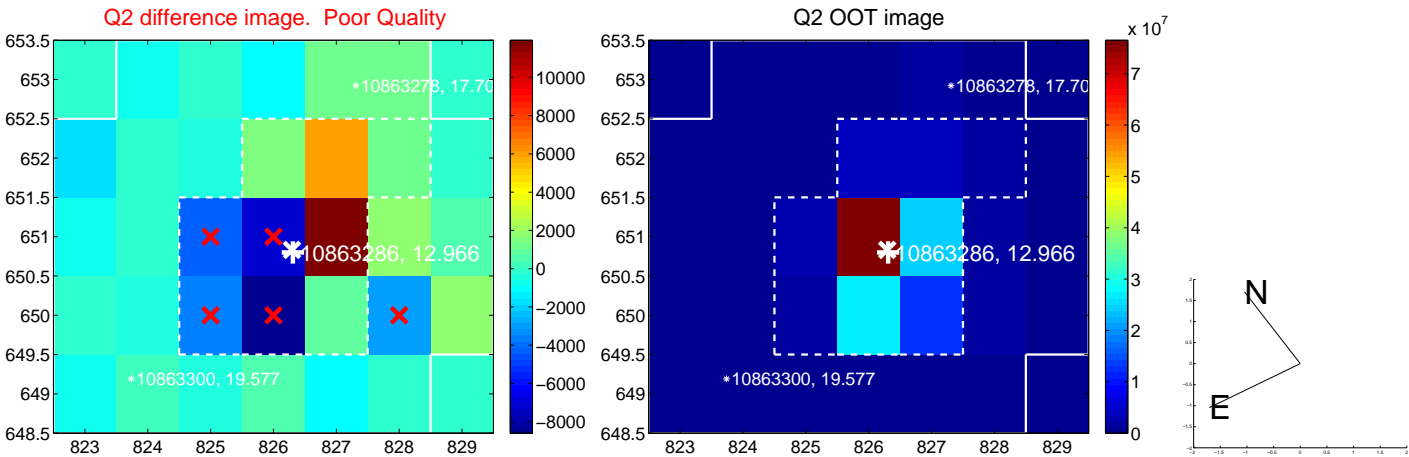
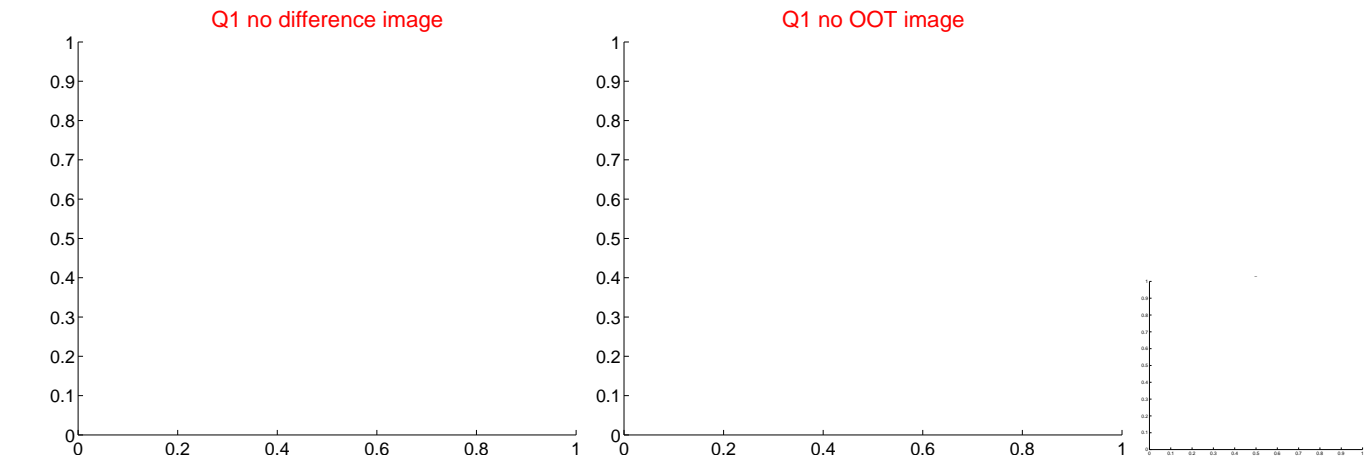
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.637 ± 0.662	0.96	0.435 ± 0.482	0.466 ± 0.467
PRF-fit source offset from KIC position	0.544 ± 0.869	0.63	0.371 ± 0.613	0.397 ± 0.622
photometric centroid source offset	1.45 ± 1.19	1.22	-0.41 ± 1.40	1.39 ± 1.17

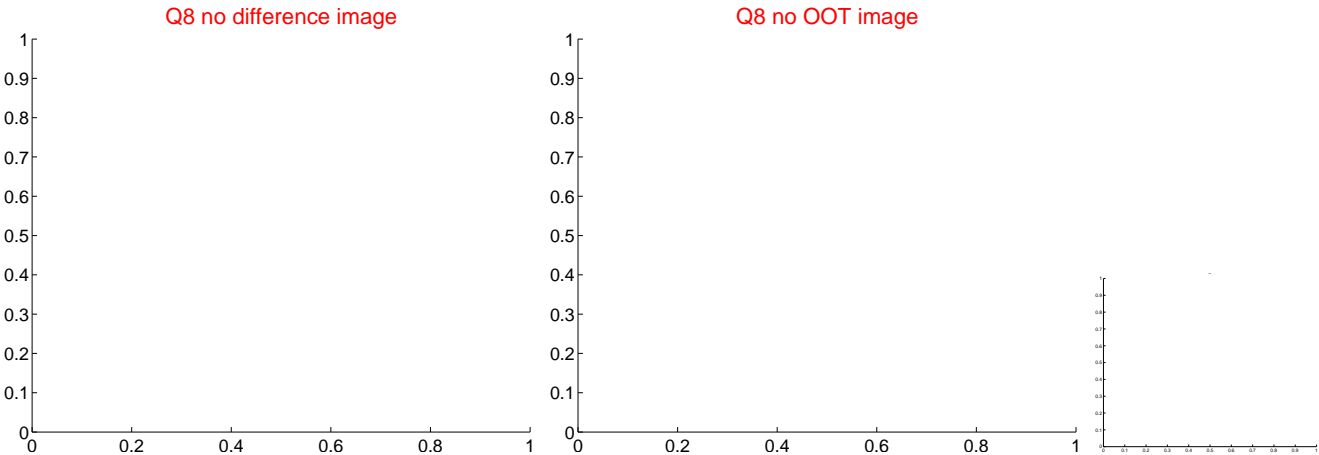
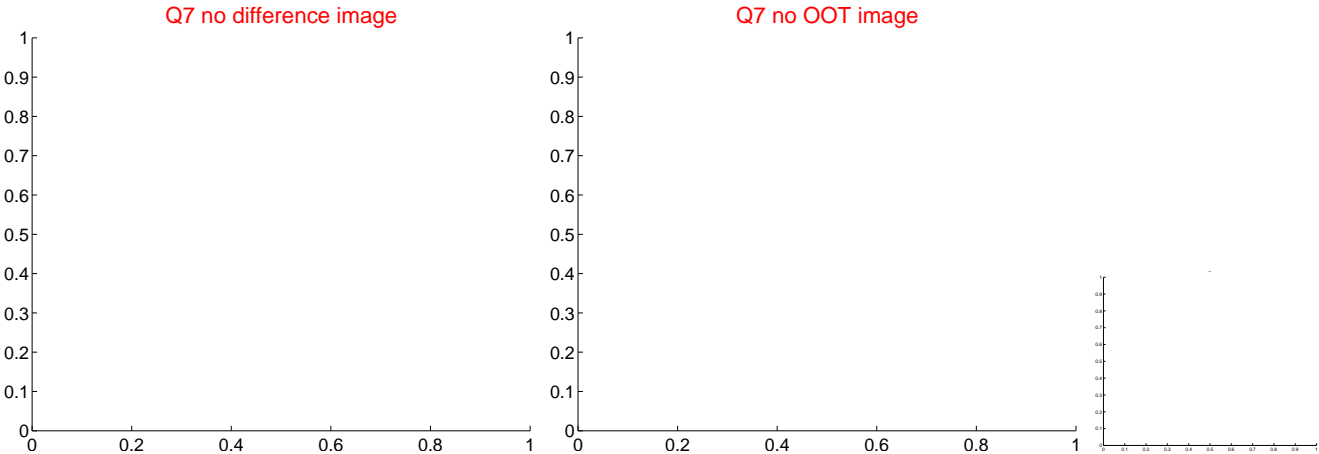
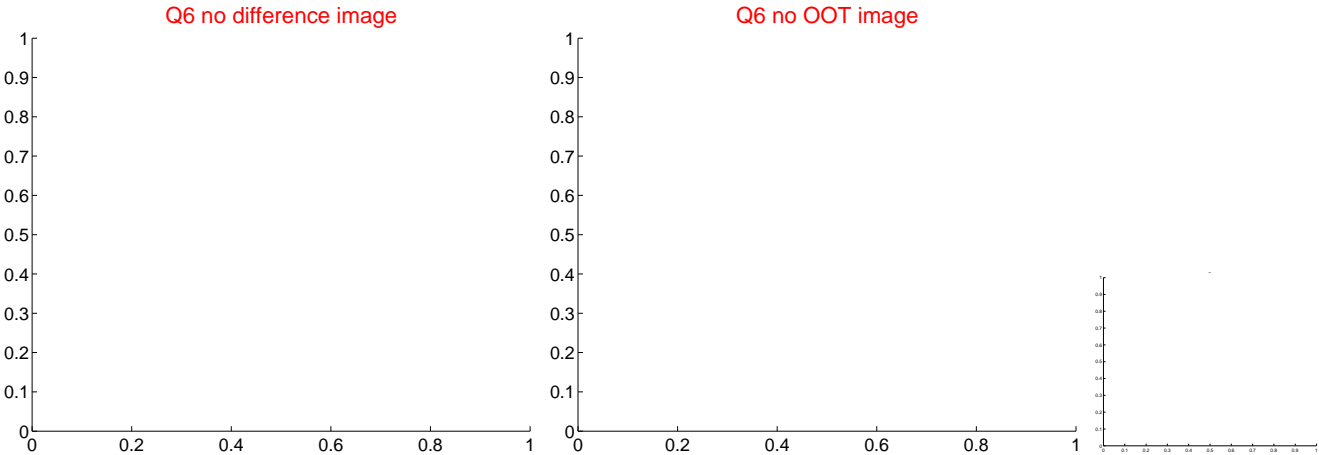
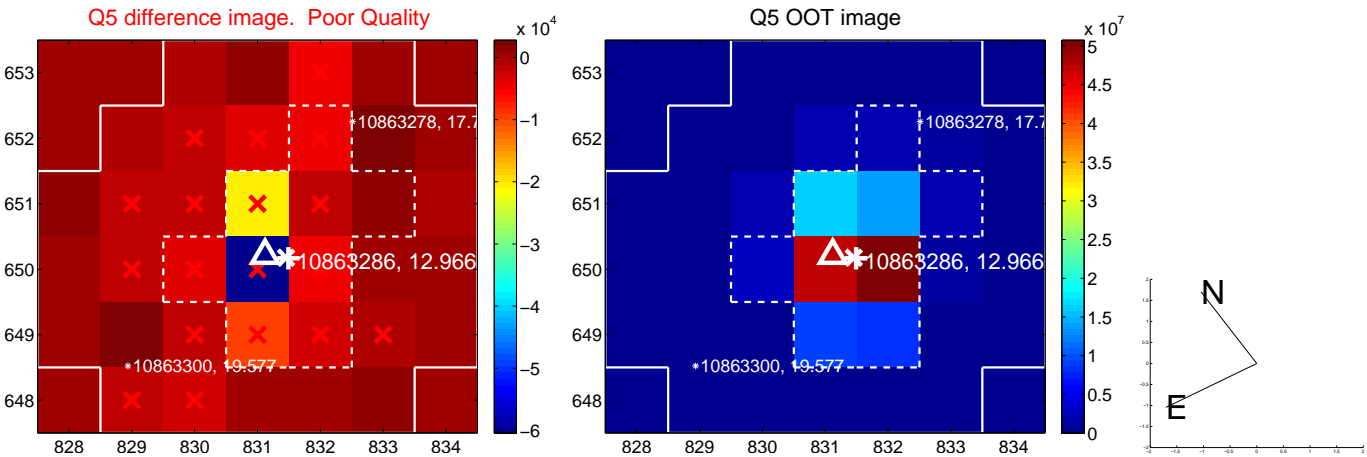


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

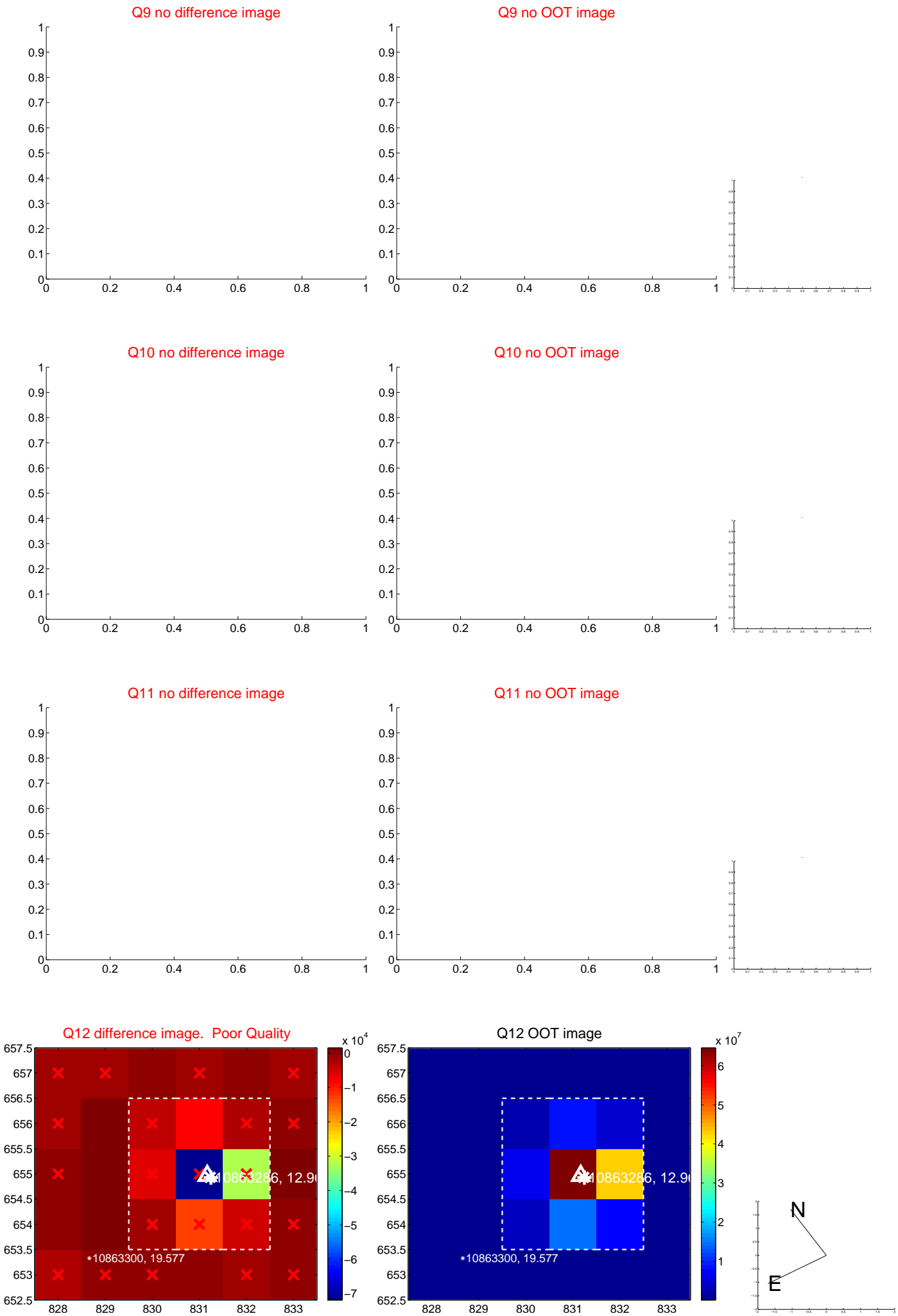
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



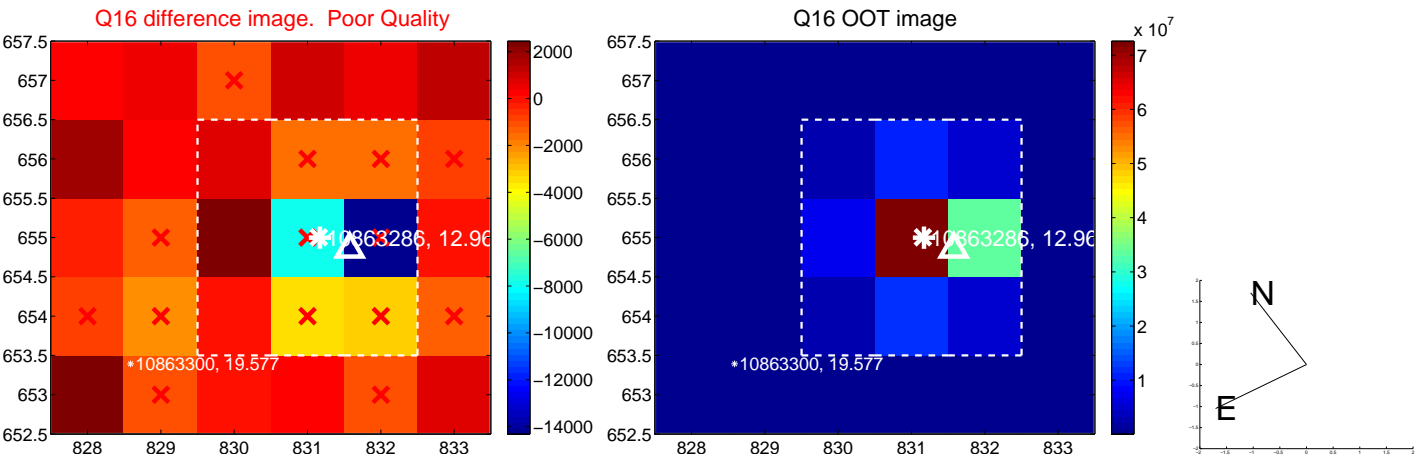
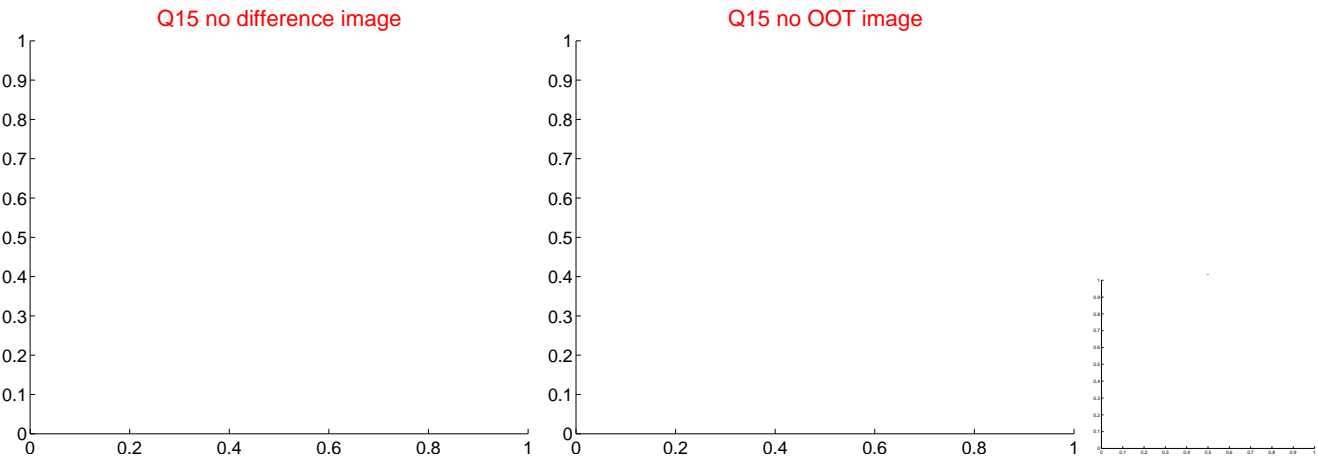
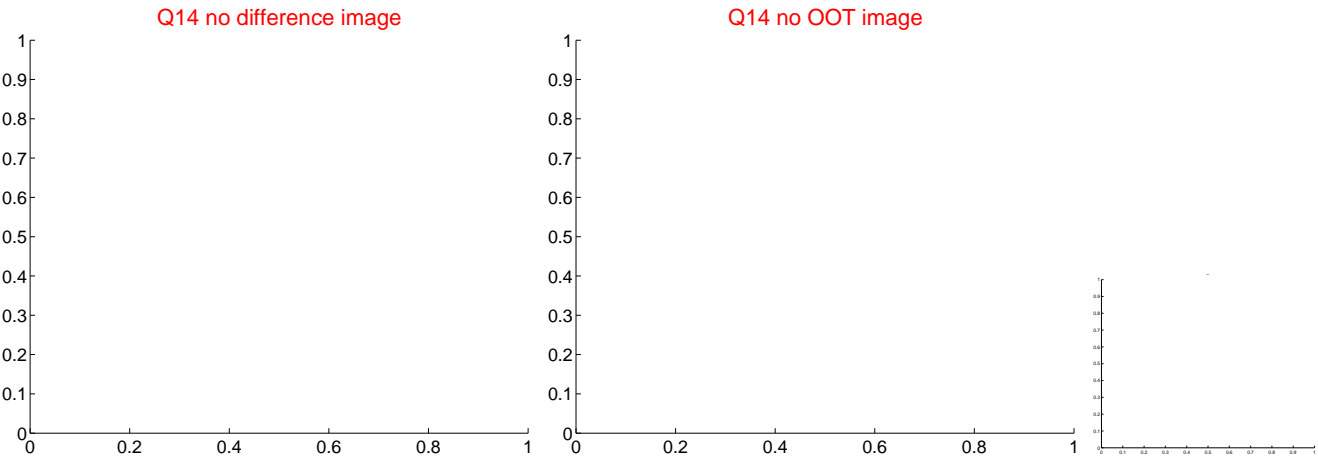
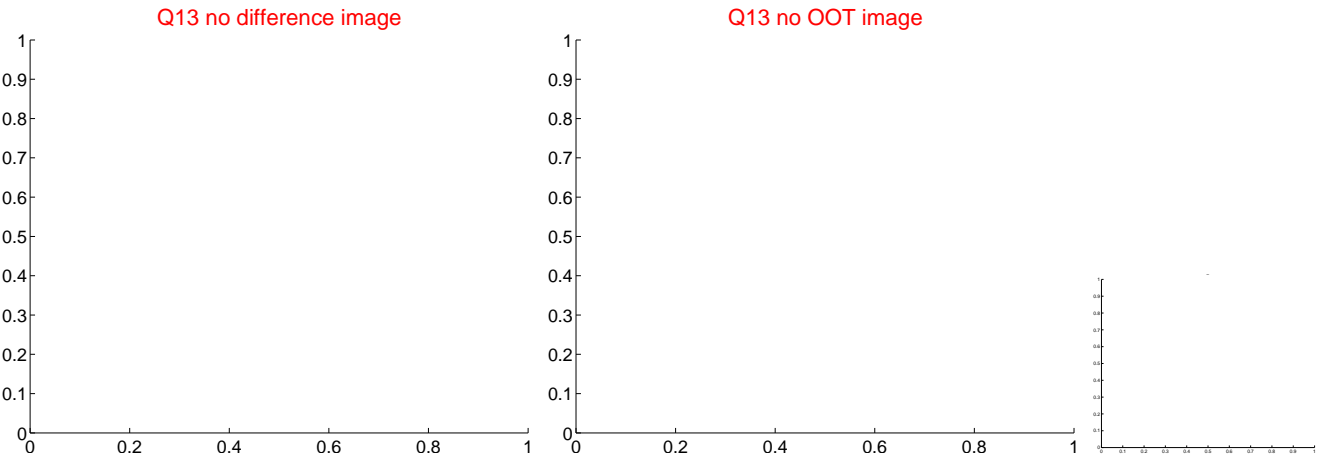
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



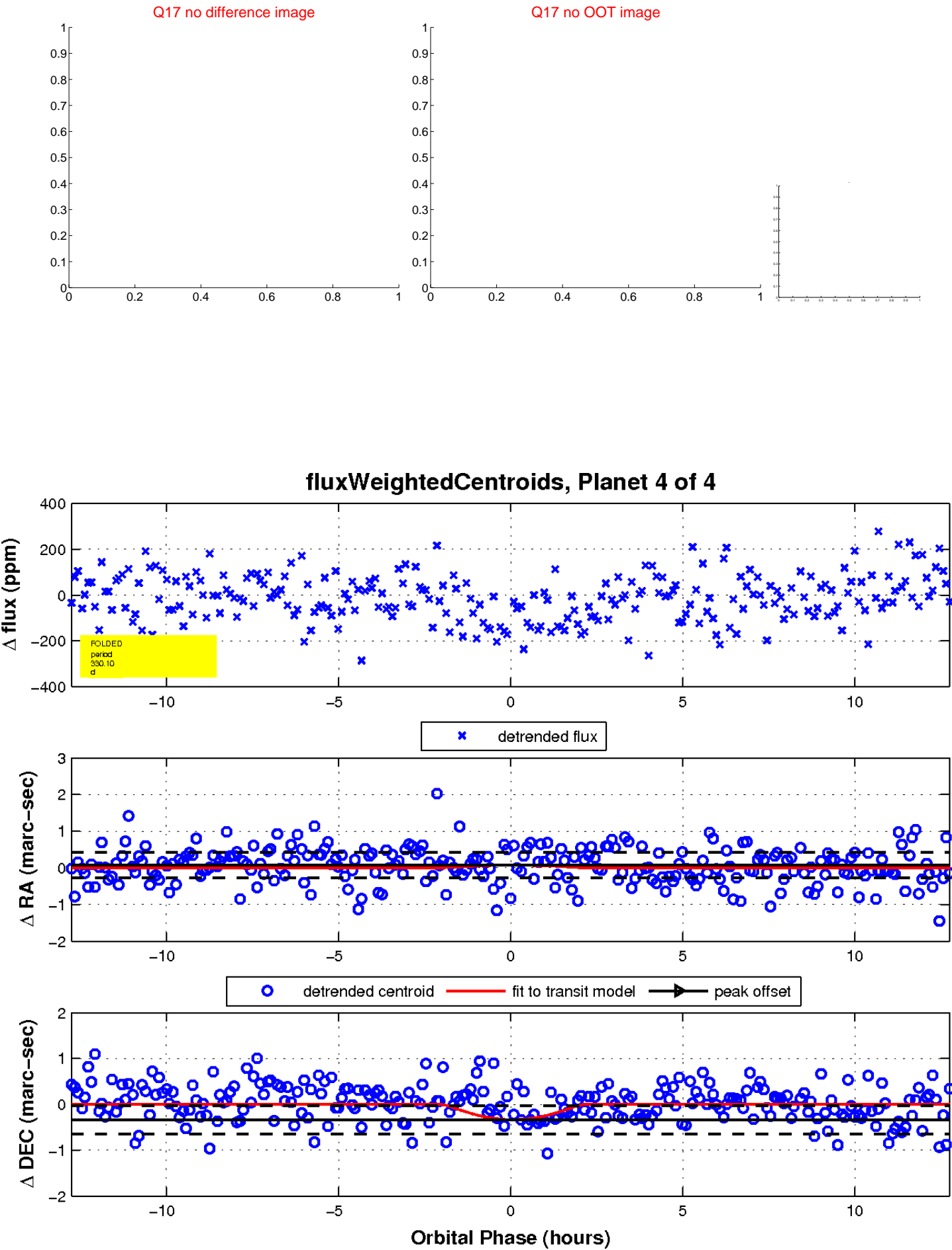
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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.



UKIRT Image

Declination

