

KIC 008560867

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})
008560867-01	OBS	No	1.724050	132.780561	149.7	2.077	12.0	8.9	2.24	7582	3.17	13049.41
008560867-02	OBS	No	1.724063	133.133774	204.3	2.321	10.9	12.2	2.24	7582	3.69	13049.27
008560867-03	OBS	No	1.609885	131.641581	180.6	1.638	8.6	8.7	2.24	7582	3.23	14297.64
008560867-04	OBS	No	2.092809	133.585064	211.2	1.719	7.9	8.2	2.24	7582	4.05	10077.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008560867-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008560867-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
008560867-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008560867-04	OBS	FP	0.00	1	0	0	0	LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

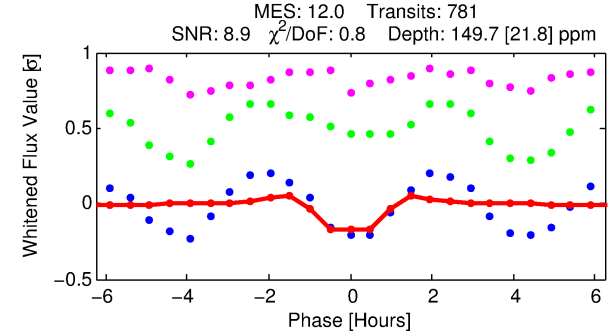
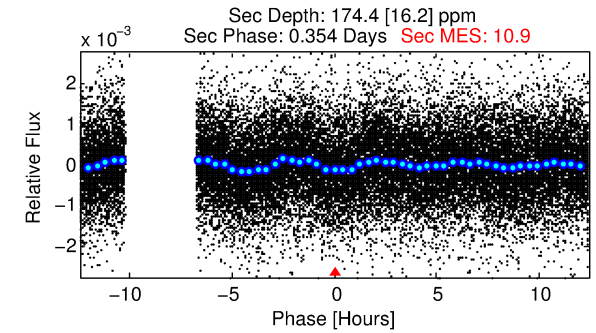
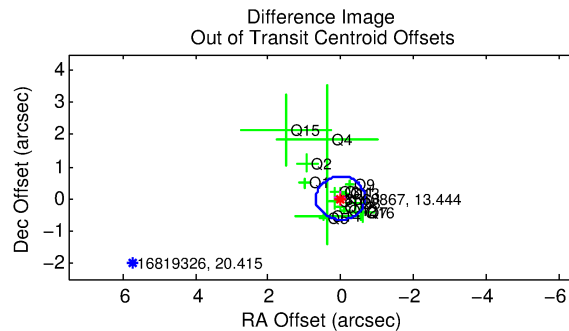
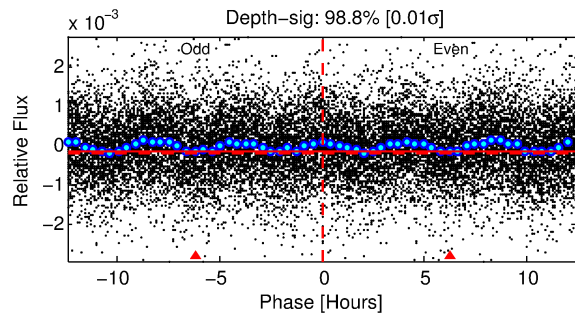
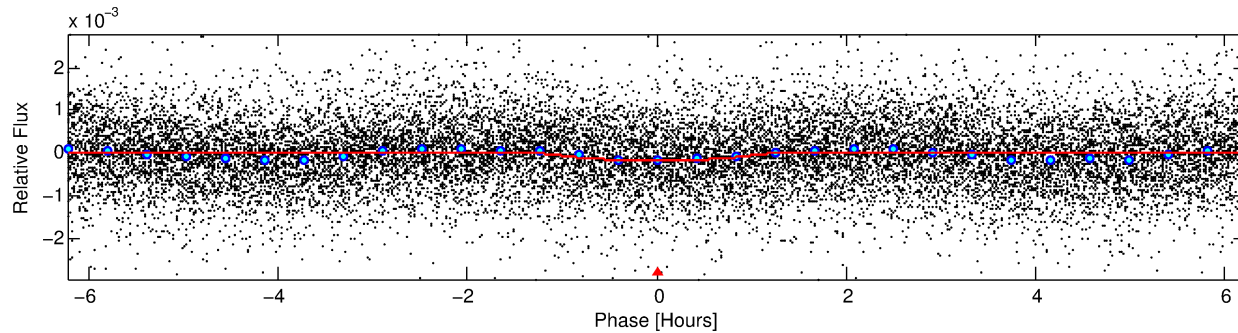
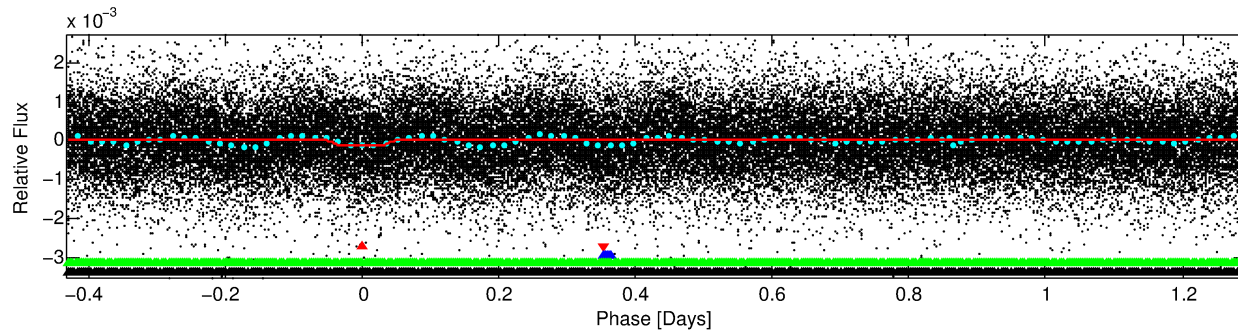
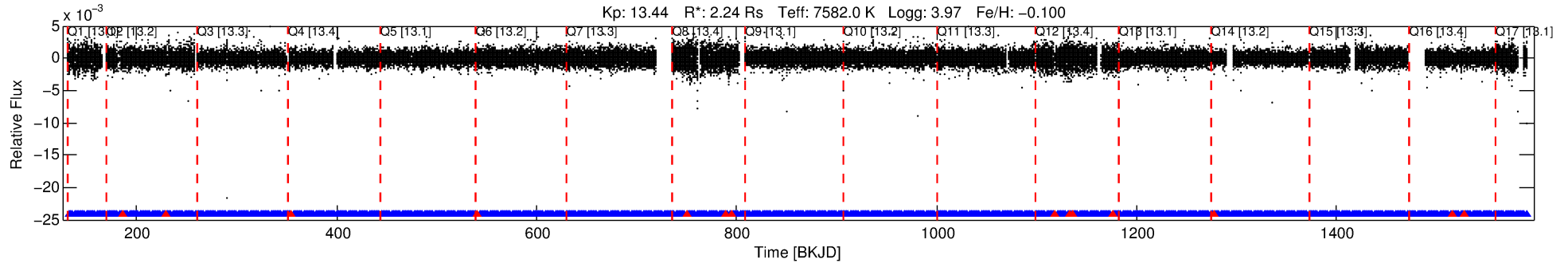
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008560867-01

No Significant Match Found

DV One-Page Summary

KIC: 8560867 Candidate: 1 of 4 Period: 1.724 d



DV Fit Results:

Period = 1.72405 [0.00001] d
Epoch = 132.7806 [0.0025] BKJD
Rp/R* = 0.0130 [0.0053]
a/R* = 3.14 [7.27]
b = 0.90 [0.57]
Seff = 13049.41 [5556.59]
Teq = 2725 [290] K
Rp = 3.17 [1.58] Re
a = 0.0338 [0.0087] AU
Ag = 10.90 [9.89] [1.00σ]
Teffp = 7656 [1598] K [3.04σ]

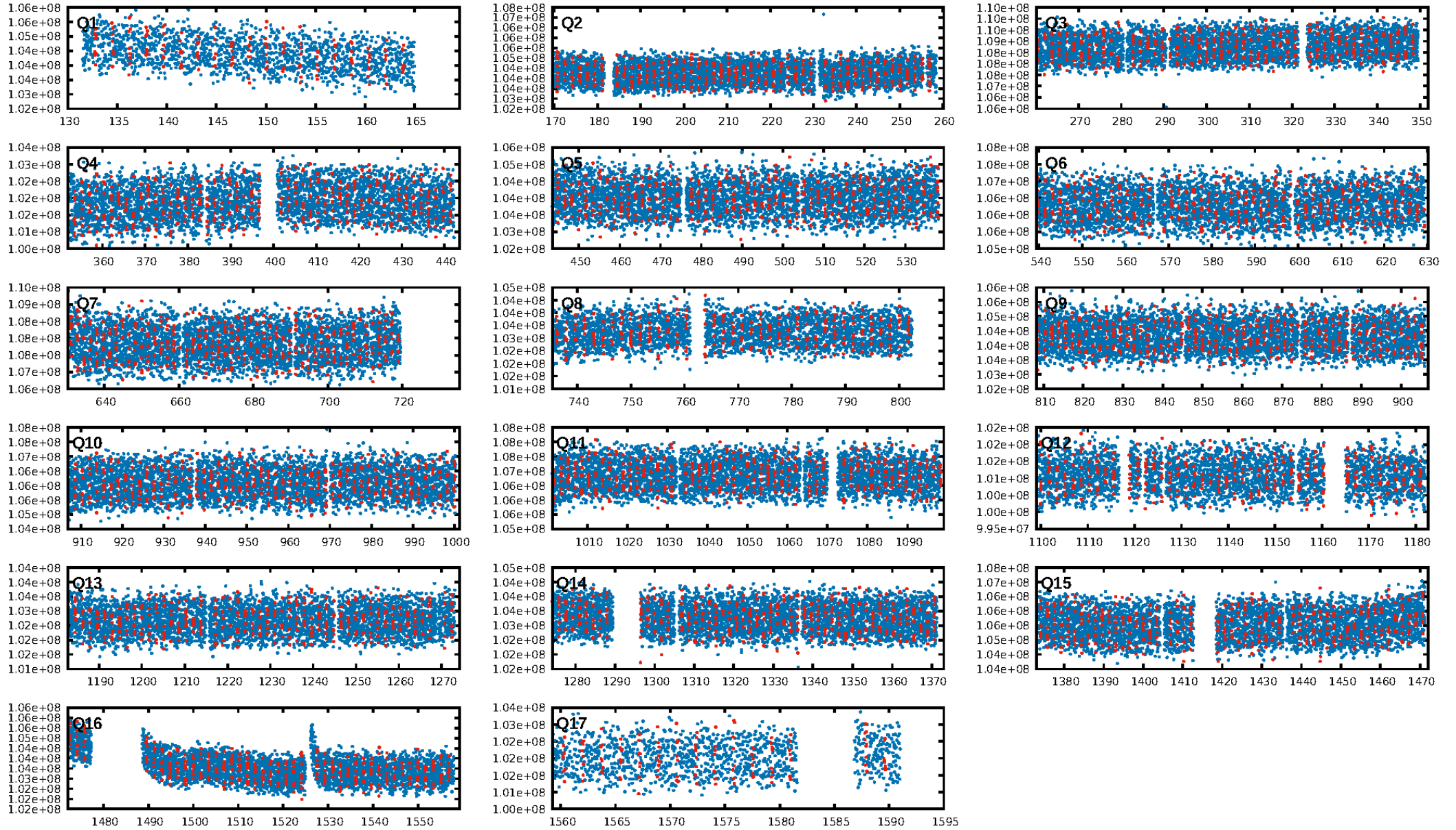
DV Diagnostic Results:

ShortPeriod-sig: 70.0% [1.04σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.13e-28
RollingBand-fgt: 0.98 [733/747]
GhostDiagnostic-chr: 1.616
Centroid-sig: N/A
Centroid-so: 0.215 arcsec [0.78σ]
OotOffset-rm: 0.027 arcsec [0.12σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-rm: 0.068 arcsec [0.45σ]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.38 [6/16]
DiffImageOverlap-fno: 1.00 [17/17]

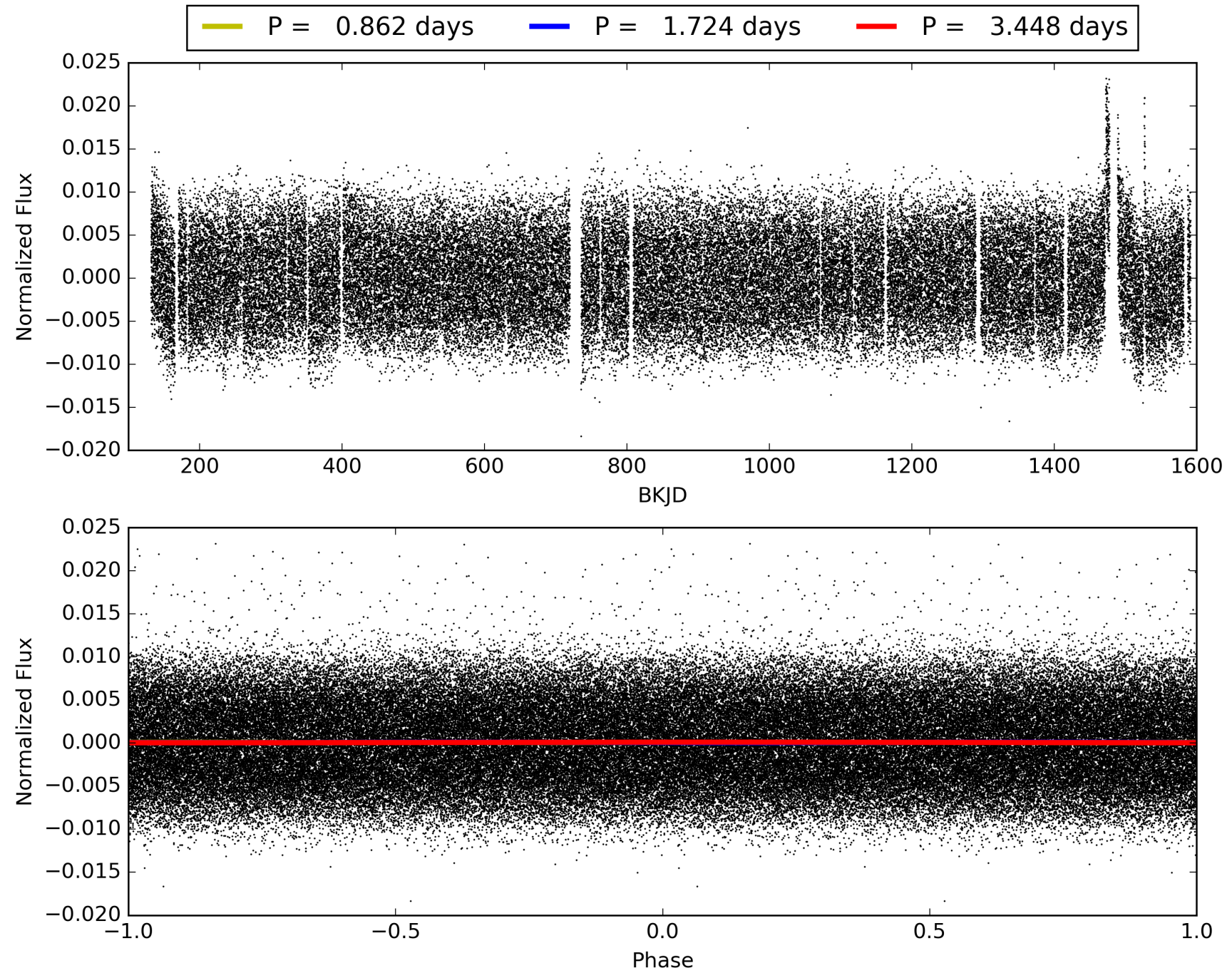
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:15:51 Z

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

TCE 008560867-01, PDC Light Curves

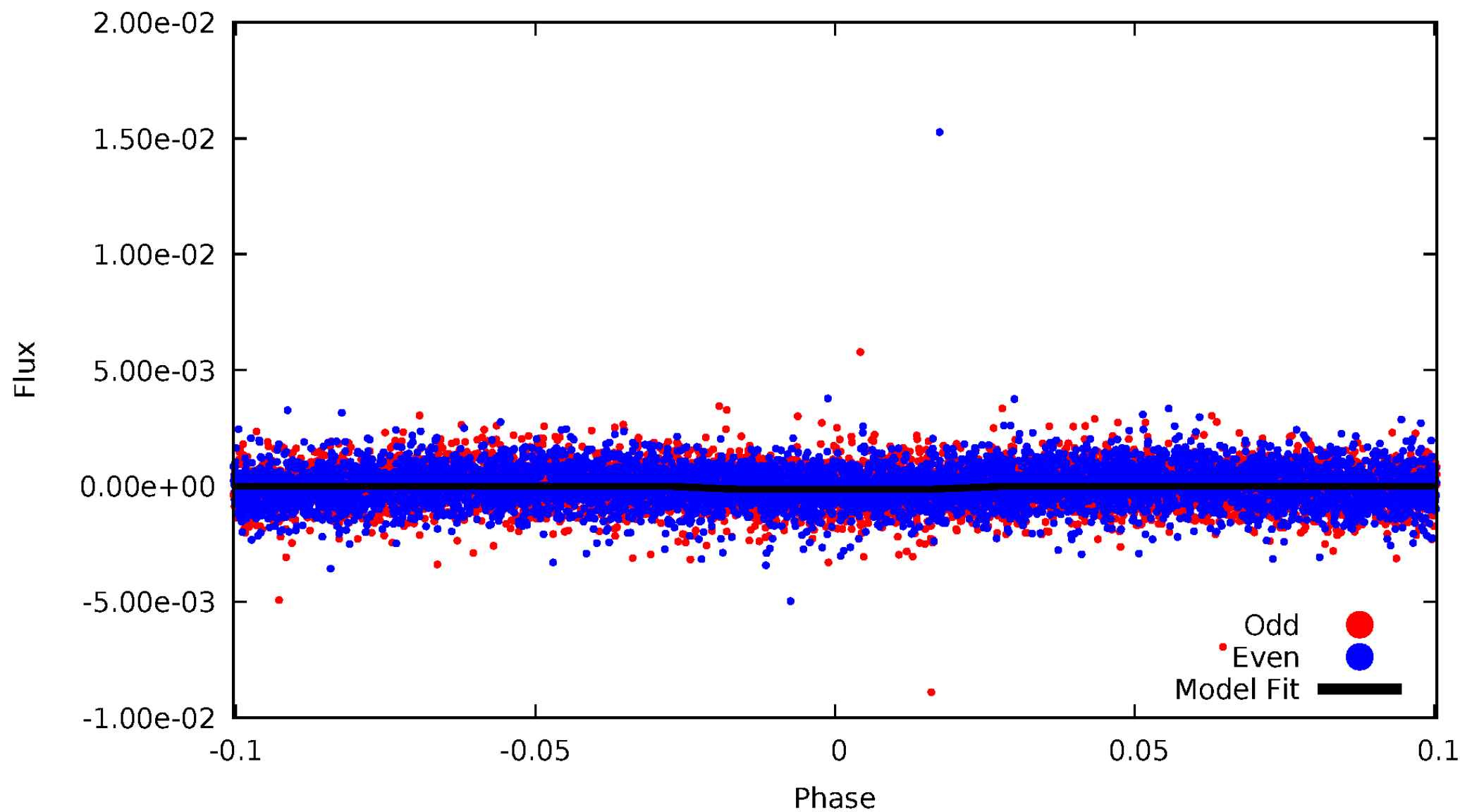


TCE 008560867-01



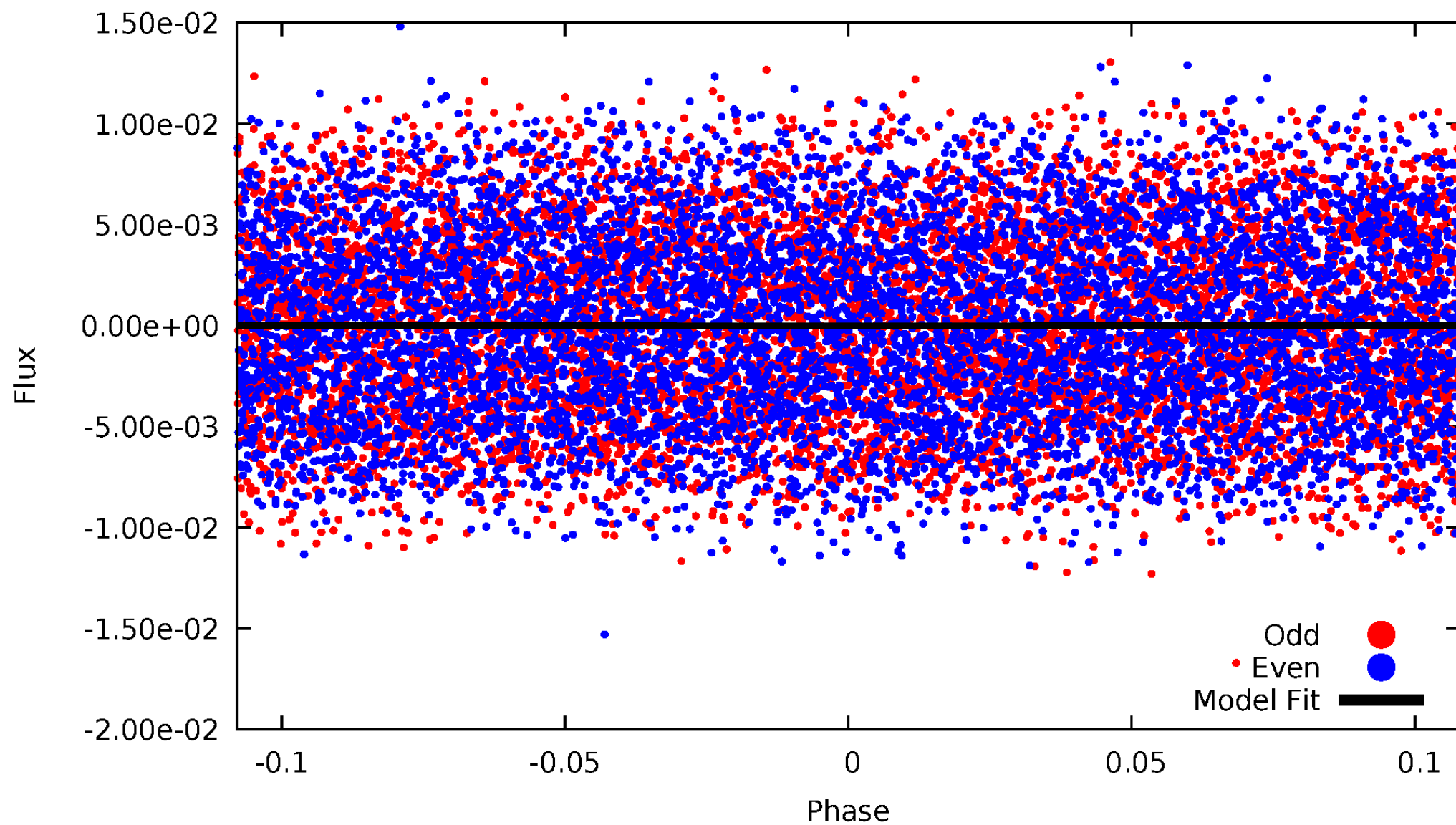
DV Odd/Even

TCE 008560867-01



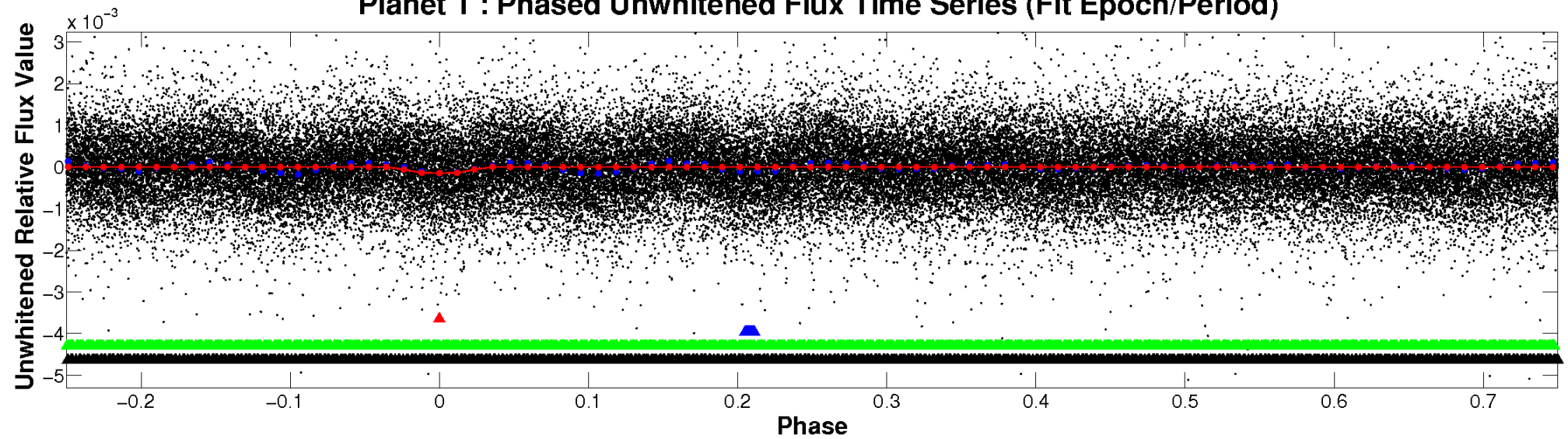
ALT Odd/Even

TCE 008560867-01

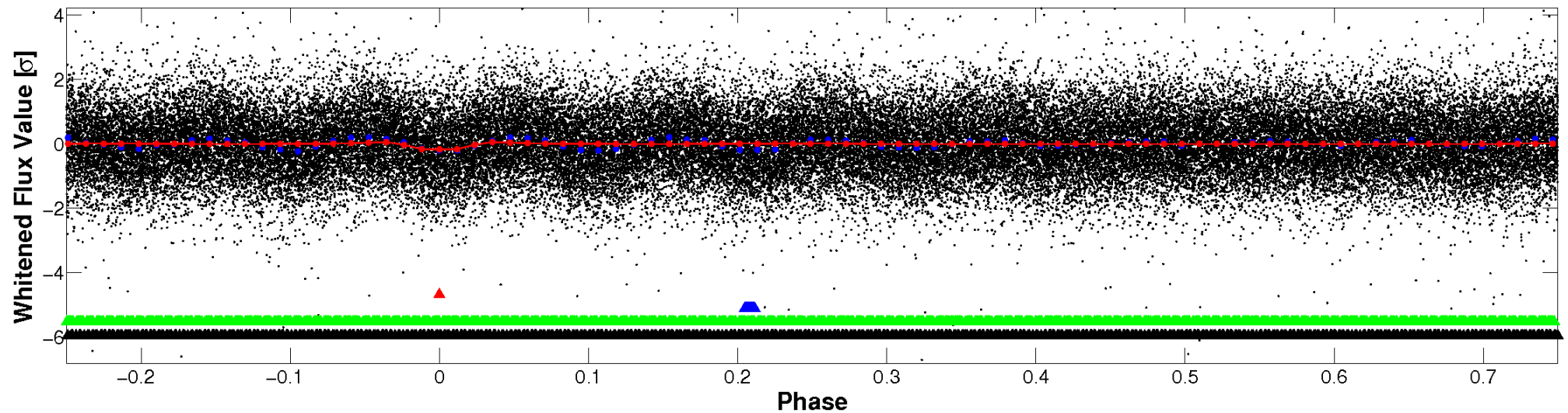


Non-Whitened Vs. Whitened Light Curve

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

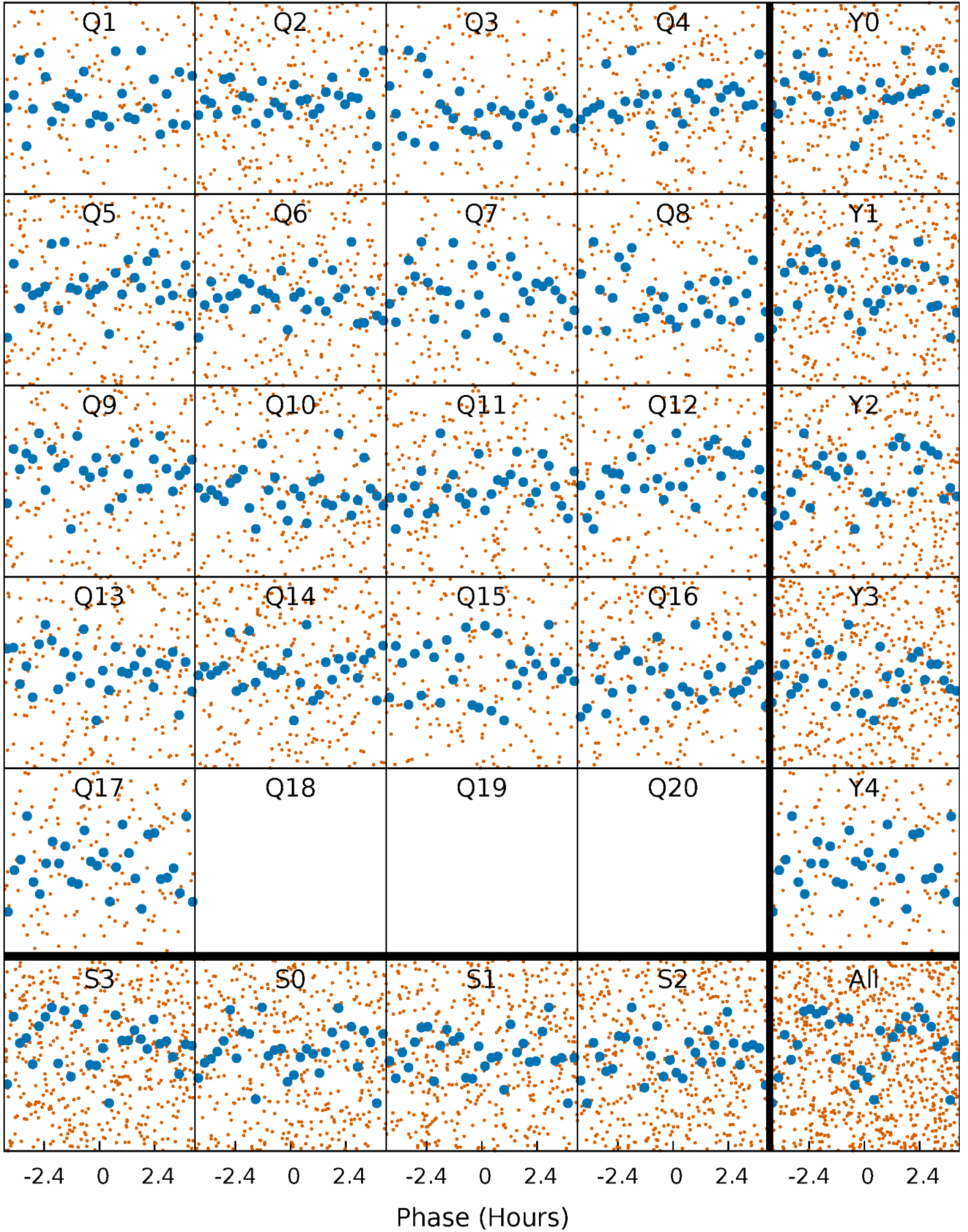


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



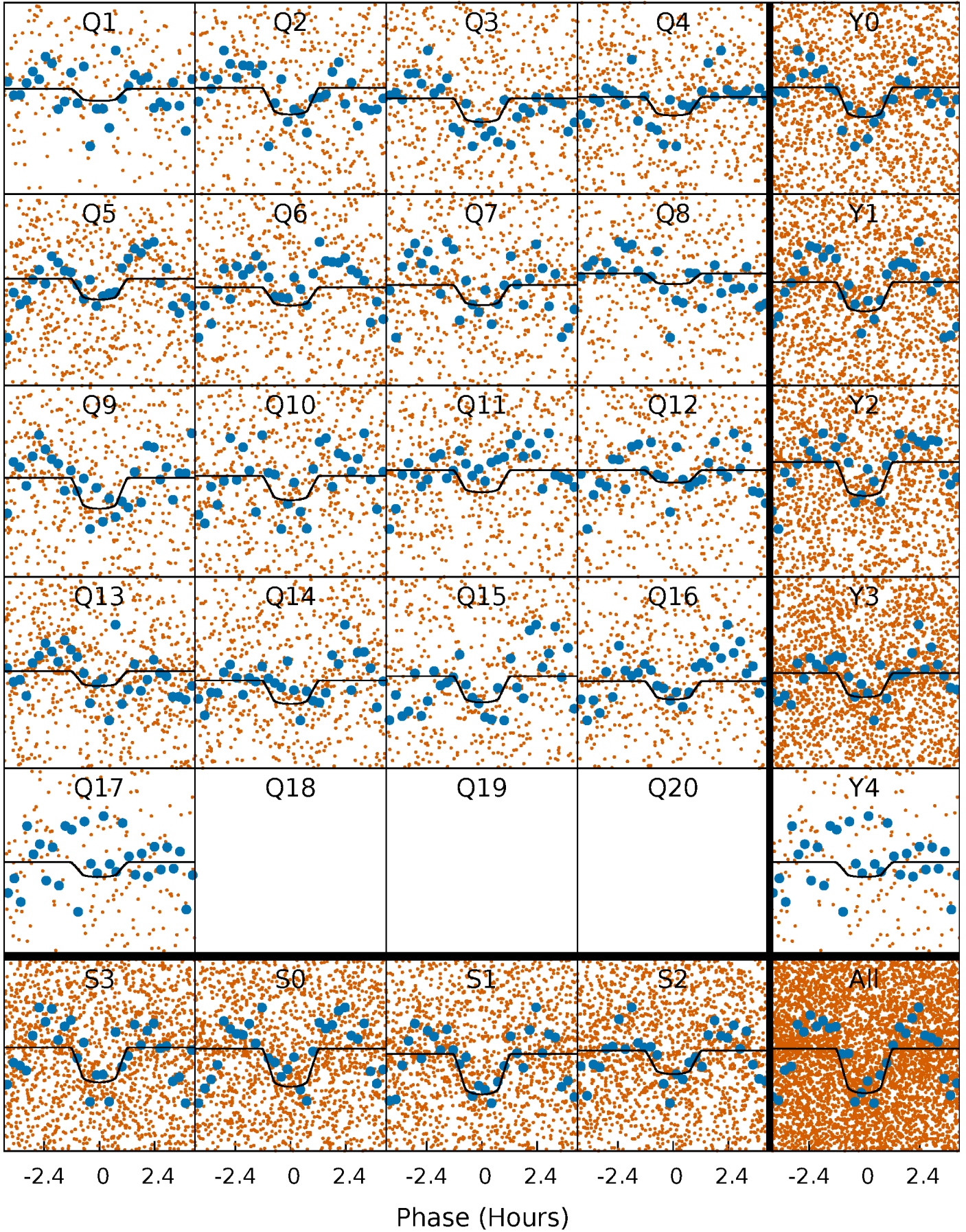
PDC Quarter-Phased Transit Curves

TCE 008560867-01 P= 1.724050 Days $T_0=132.780561$ (BKJD)



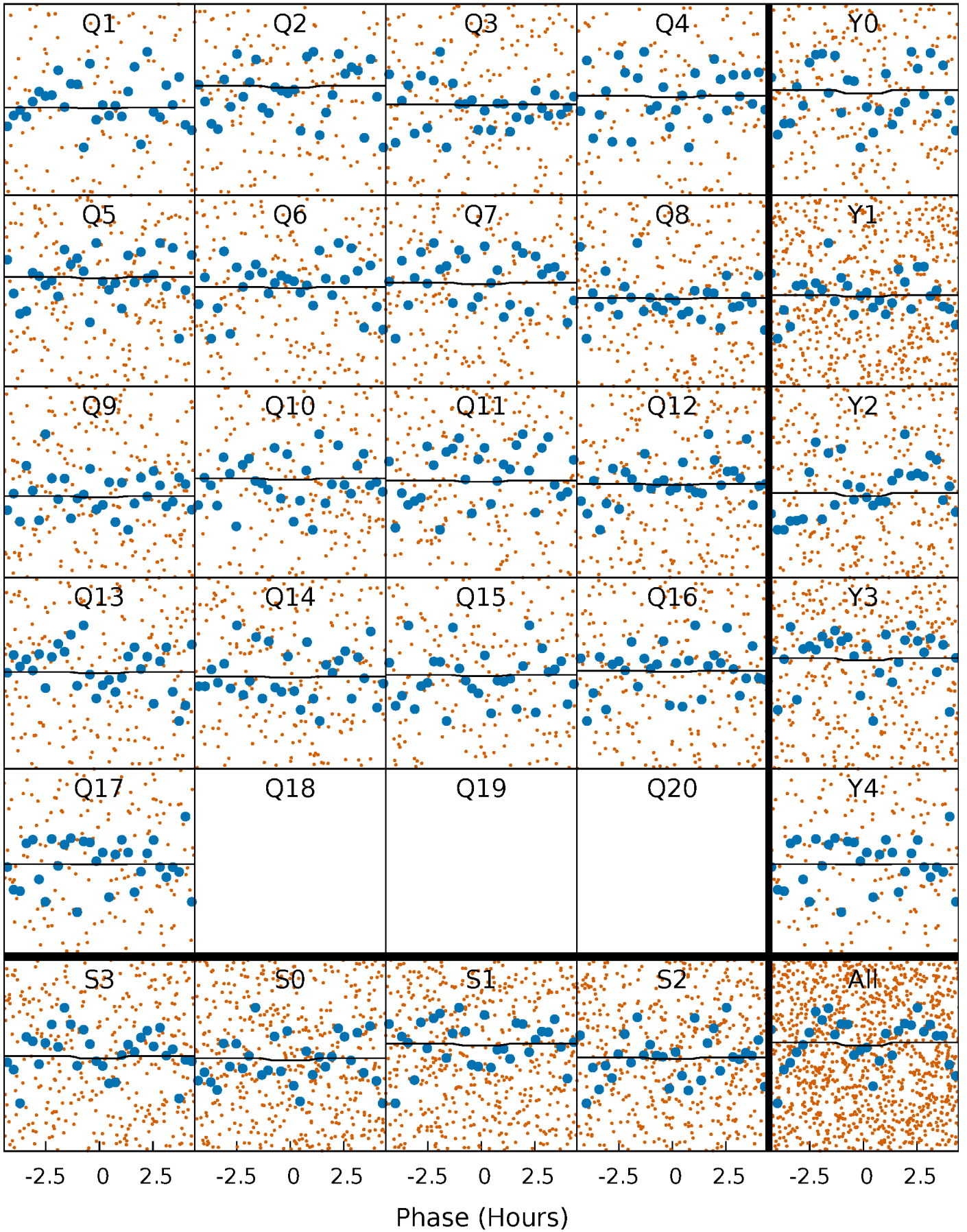
DV Quarter-Phased Transit Curves

TCE 008560867-01 P= 1.724050 Days $T_0=132.780561$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

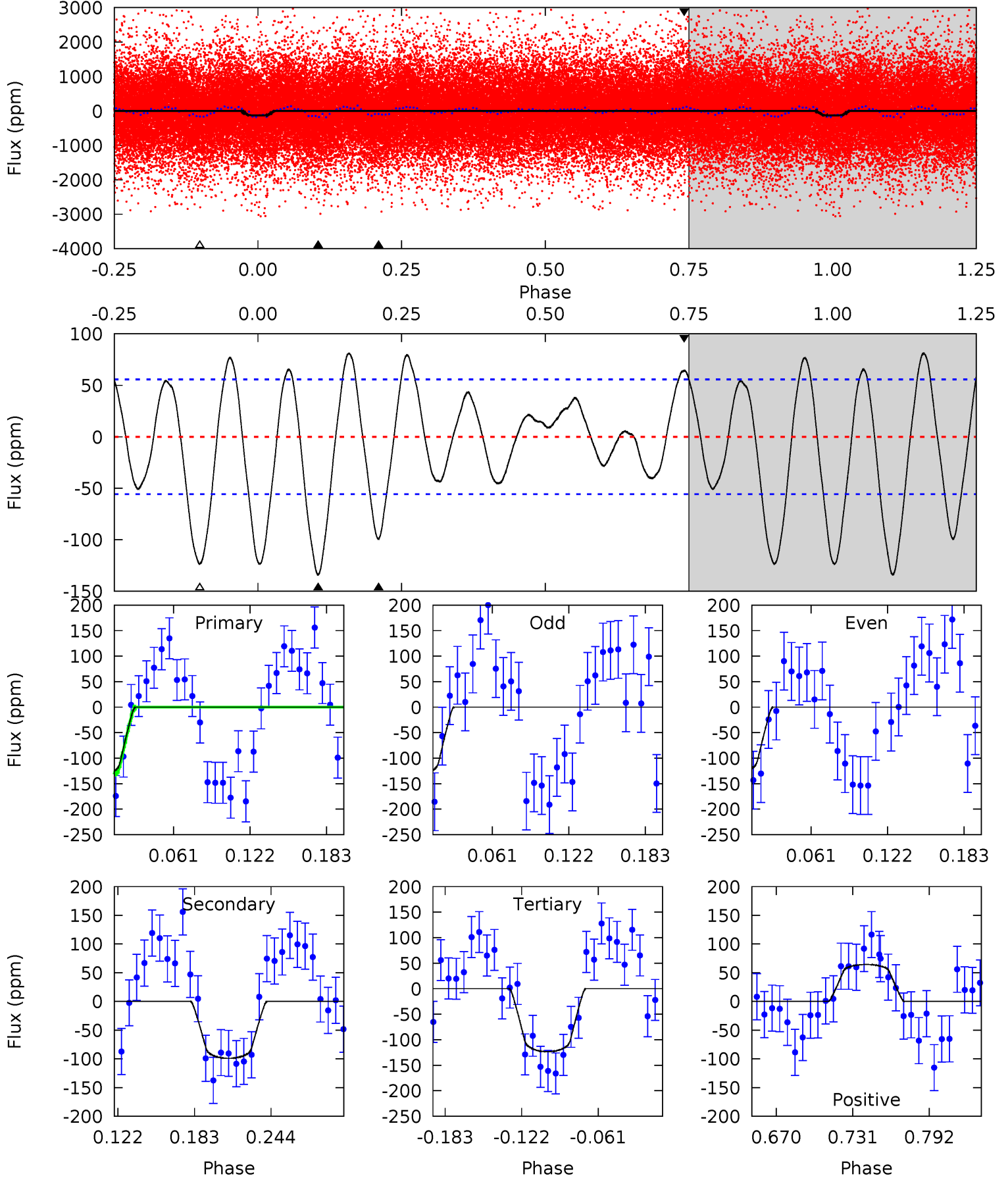
TCE 008560867-01 P= 1.724077 Days $T_0=132.755614$ (BKJD)



DV Model-Shift Uniqueness Test

008560867-01, P = 1.724050 Days, E = 131.056511 Days

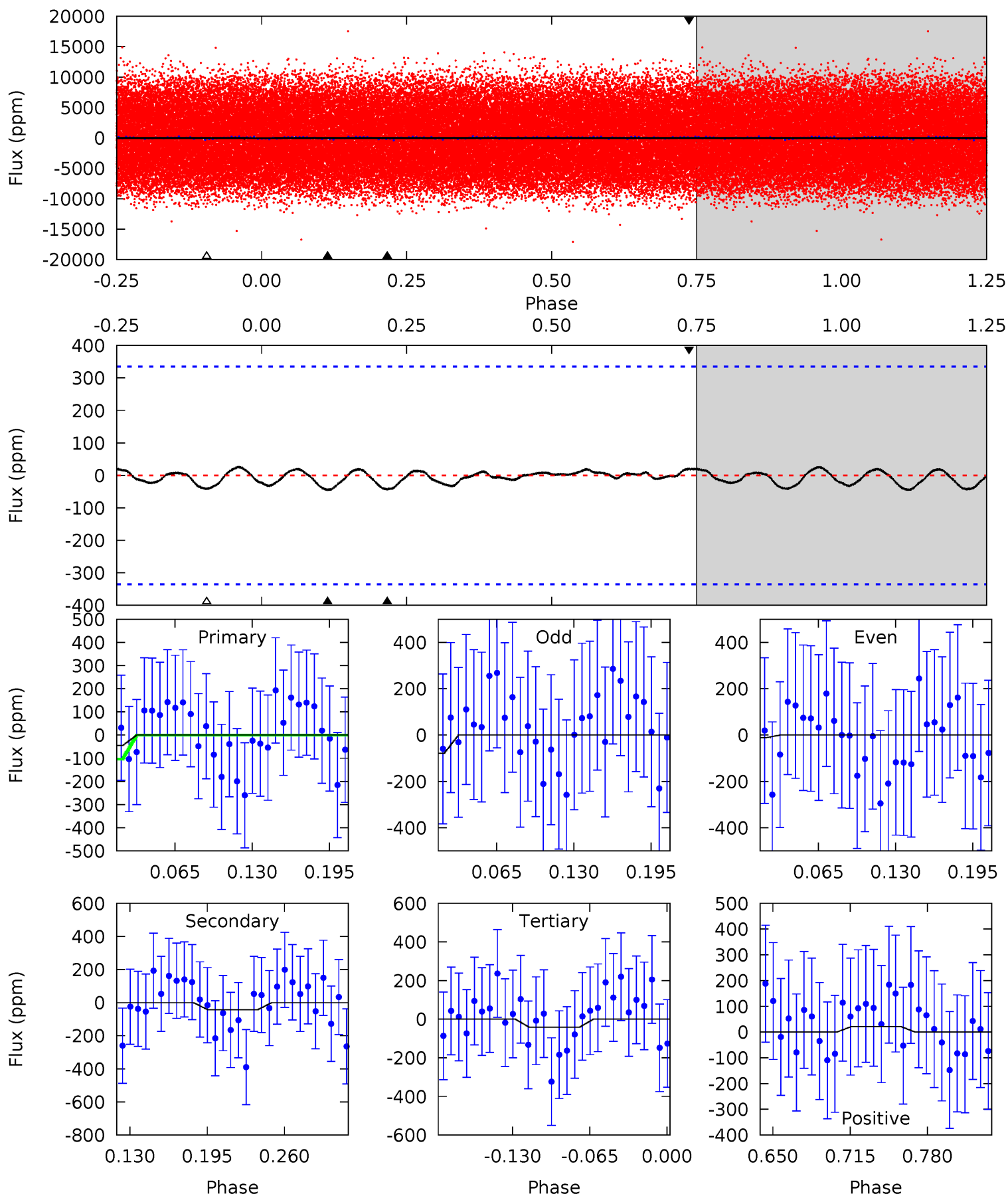
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	8.30	10.3	5.39	4.67	1.87	3.73	0.87	5.82	-2.04	2.91	0.15	0.77	0.38	0.73



Alt Model-Shift Uniqueness Test

008560867-01, P = 1.724077 Days, E = 131.031537 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.62	0.60	0.58	0.29	4.65	1.85	0.21	0.04	0.34	0.02	0.31	0.47	1.47	0.37	0.63



Stellar Parameters For KIC 008560867

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7582^{+211}_{-316}	$3.974^{+0.222}_{-0.148}$	$-0.100^{+0.200}_{-0.300}$	$2.241^{+0.532}_{-0.650}$	$1.726^{+0.184}_{-0.315}$	$0.216^{+0.281}_{-0.091}$
	+3%/-4%	+6%/-4%	+200%/-300%	+24%/-29%	+11%/-18%	+130%/-42%
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 008560867-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-99 ± 12	$3.05^{+1.43}_{-1.28}$	3762^{+260}_{-295}	6403^{+2366}_{-1052}	$6.702^{+13.076}_{-3.721}$
Alt.	-43 ± 72	$1.38^{+1.23}_{-0.90}$	3750^{+270}_{-288}	7225^{+10855}_{-14247}	$9.443^{+89.497}_{-17.699}$

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

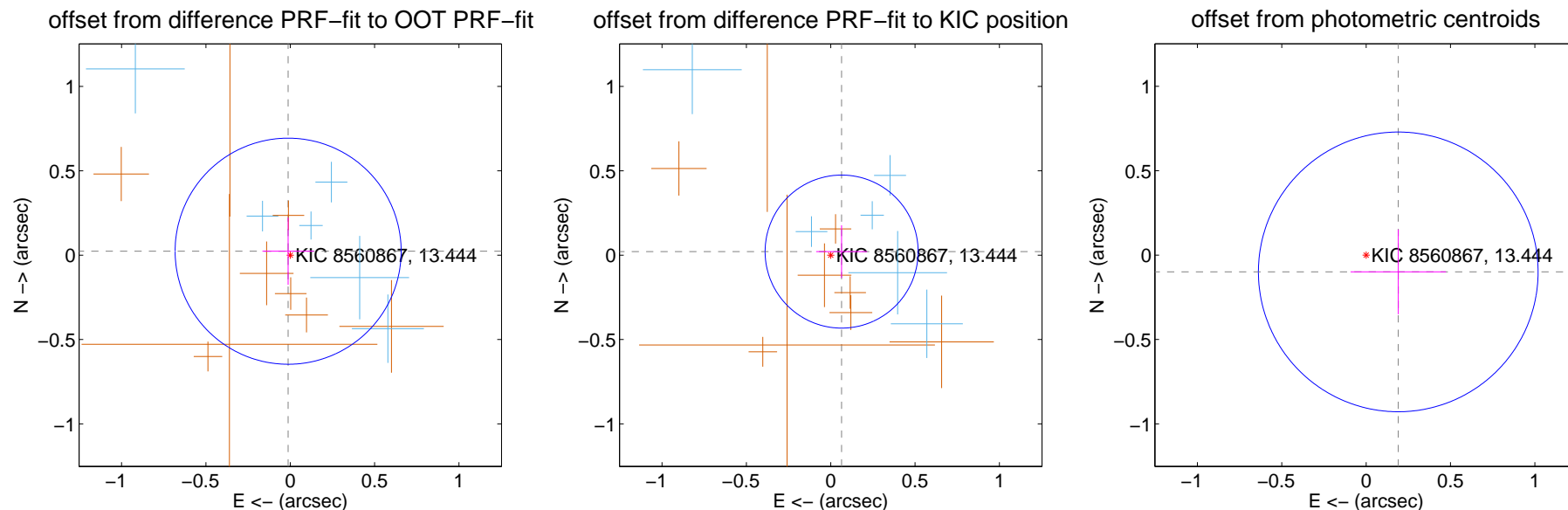
DV Centroid Data

Supplemental centroid analysis for 008560867-01. Kepler magnitude: 13.44. Transit SNR 8.87

There are 6 quarters with good PRF difference image offsets

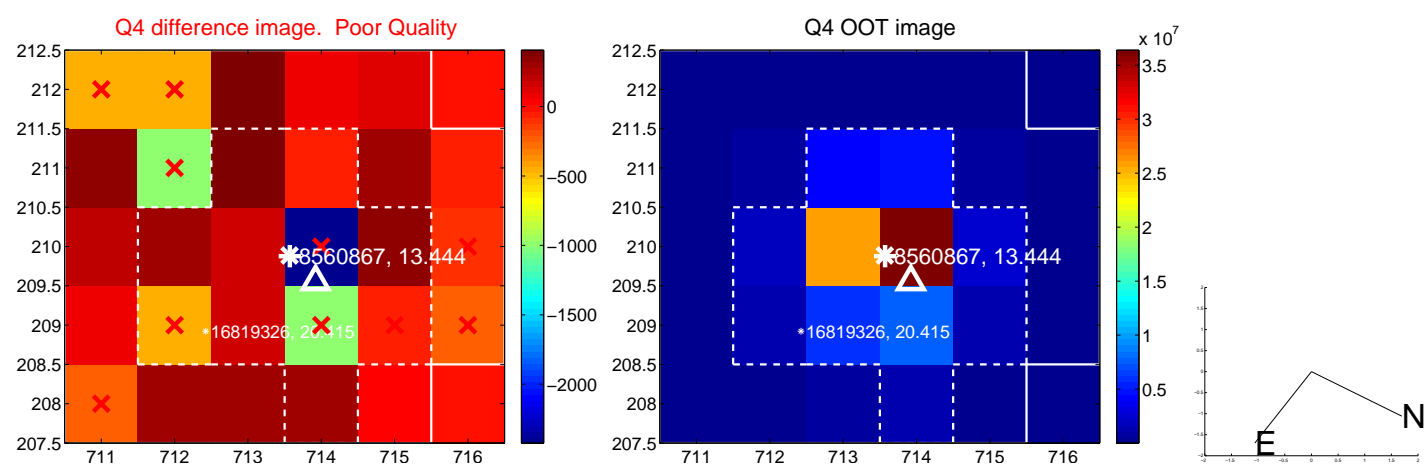
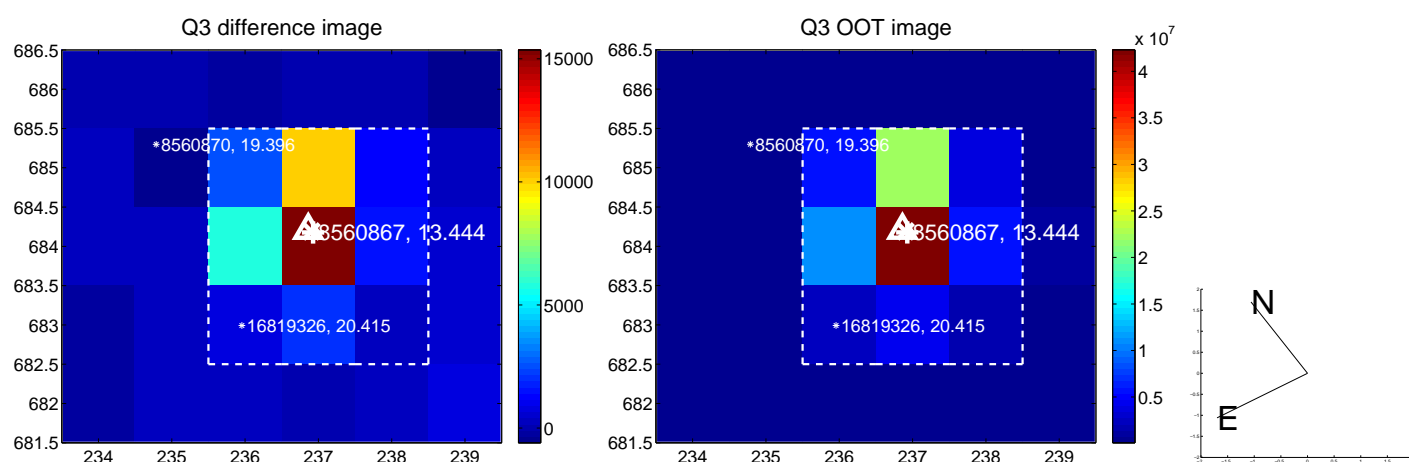
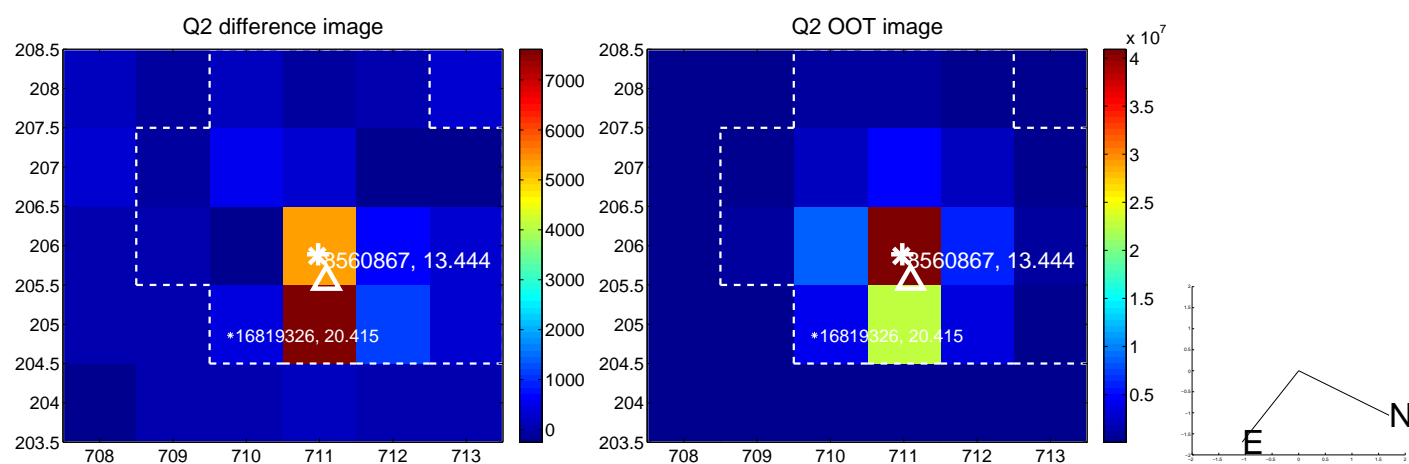
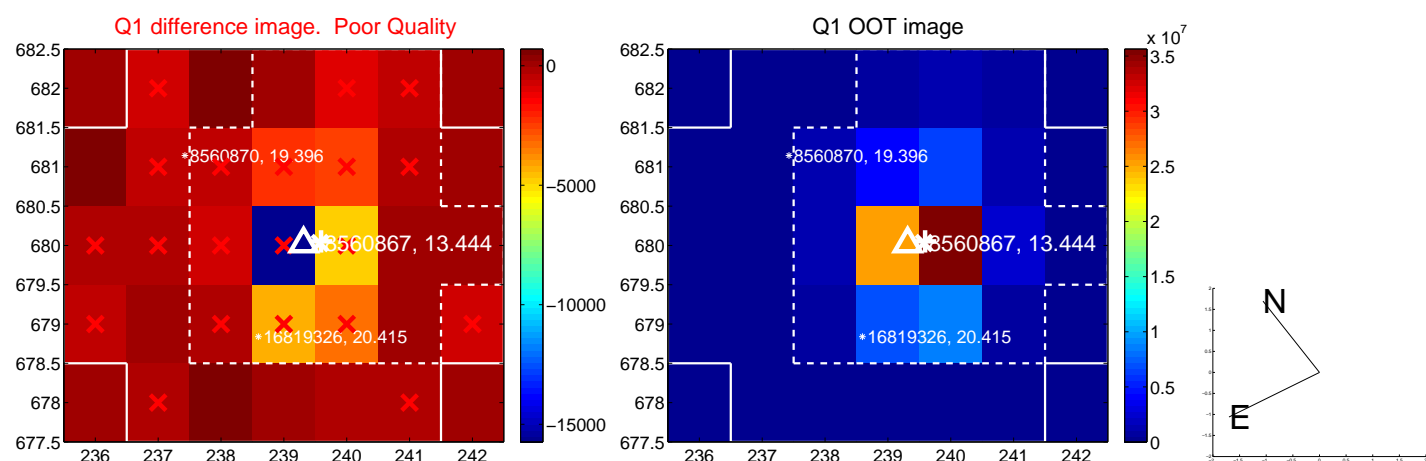
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.027 ± 0.223	0.12	0.013 ± 0.152	0.023 ± 0.199
PRF-fit source offset from KIC position	0.068 ± 0.151	0.45	-0.065 ± 0.151	0.021 ± 0.156
photometric centroid source offset	0.21 ± 0.28	0.78	-0.19 ± 0.28	-0.10 ± 0.25

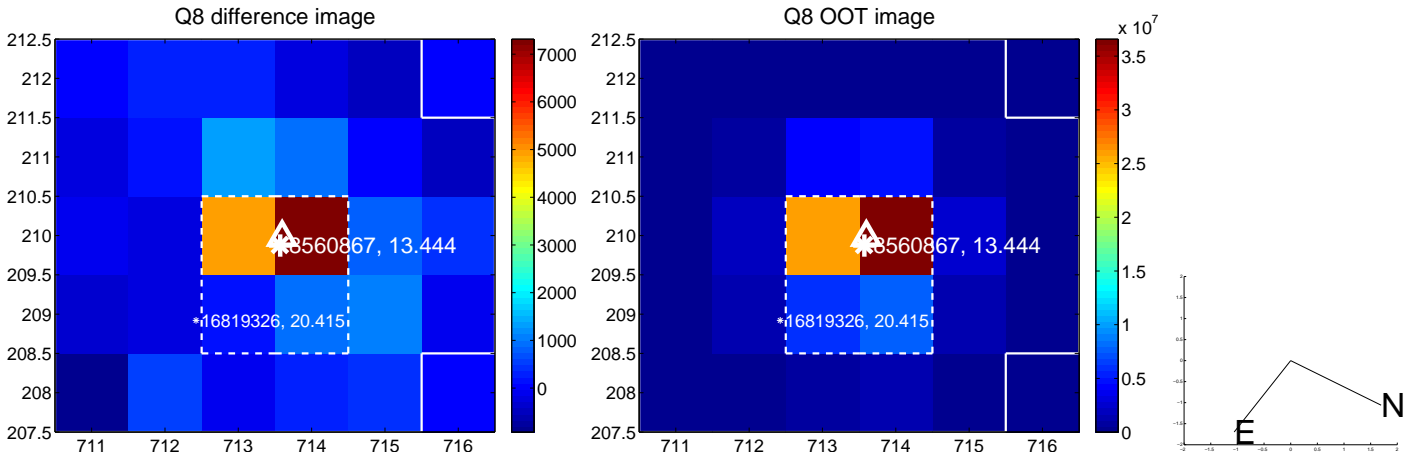
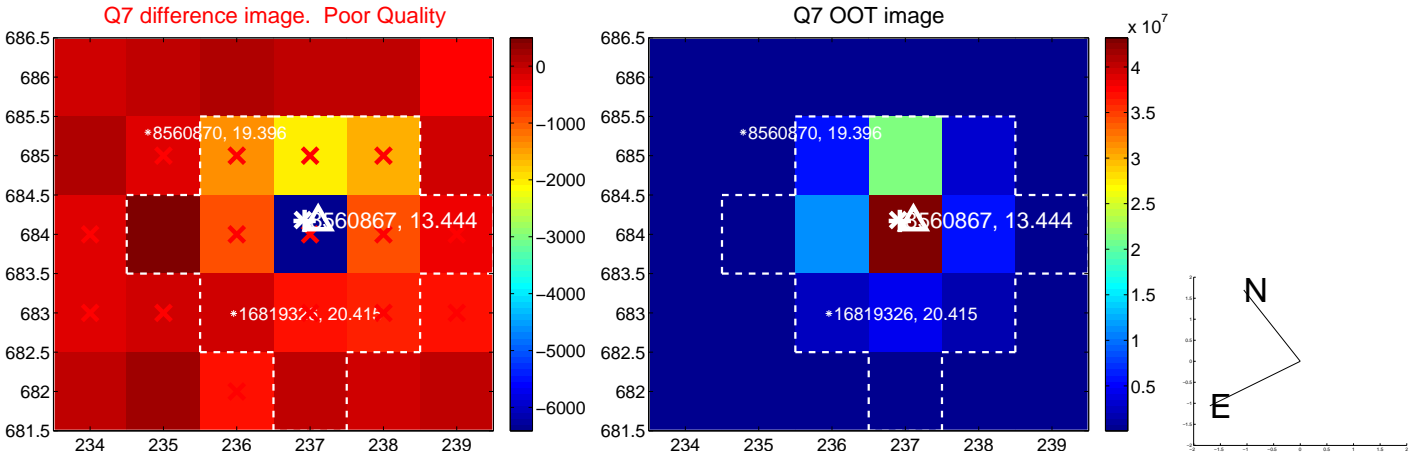
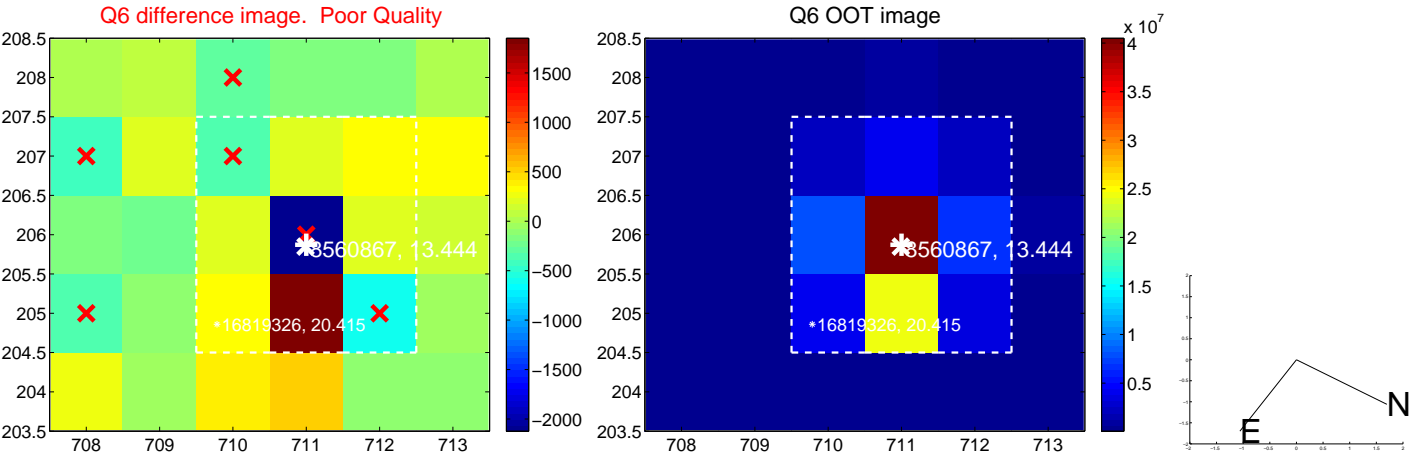
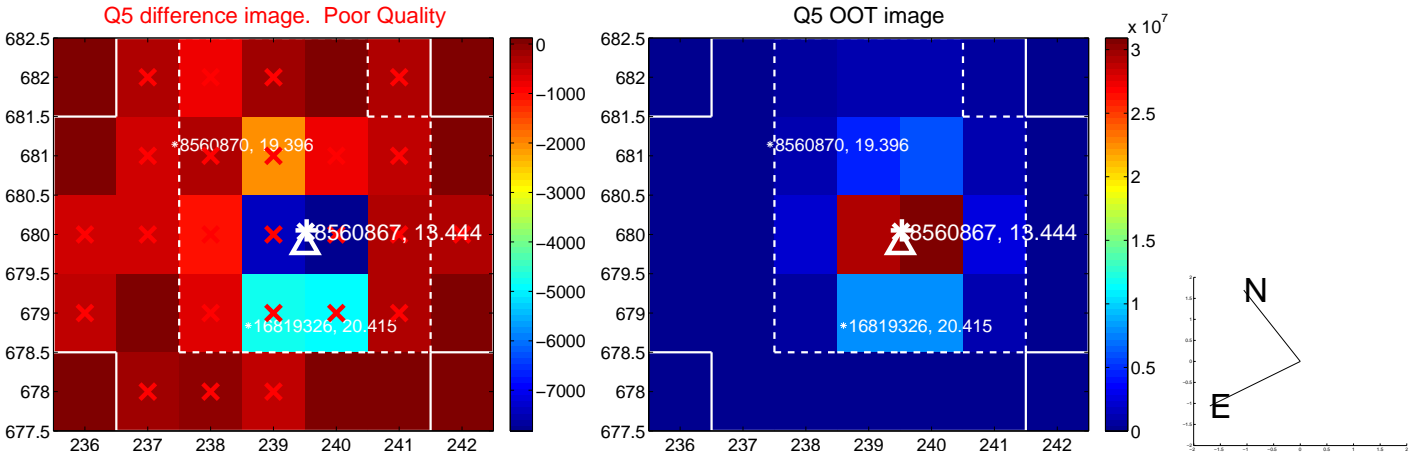


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

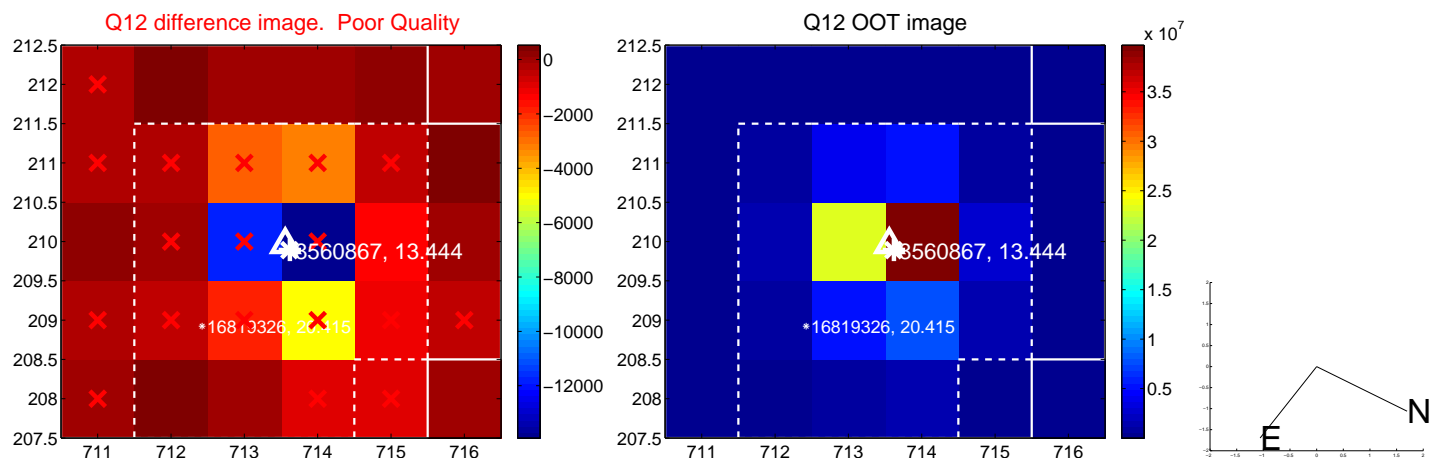
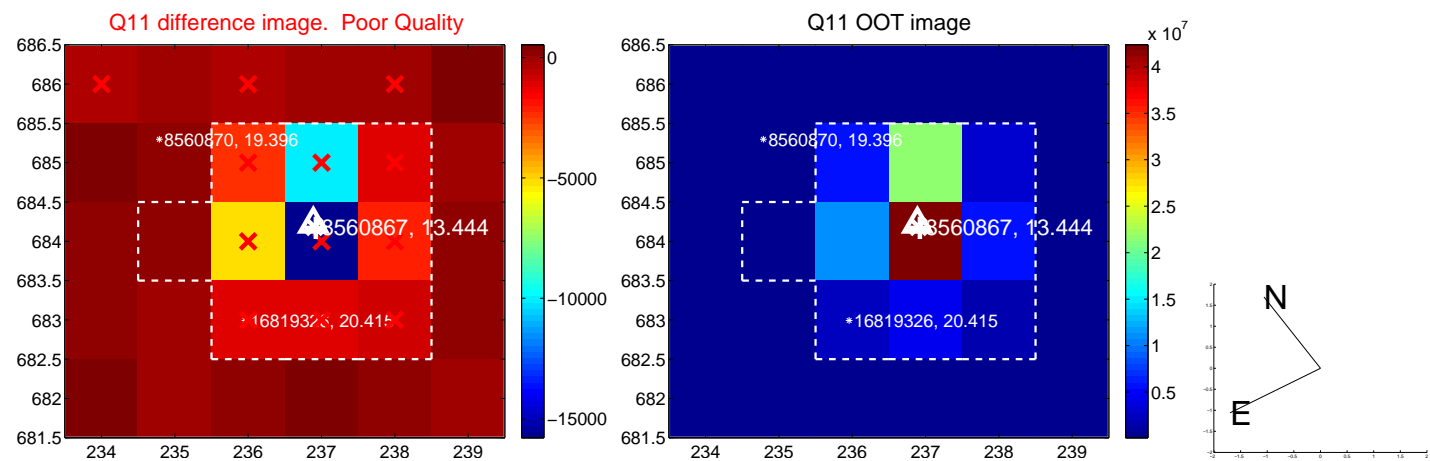
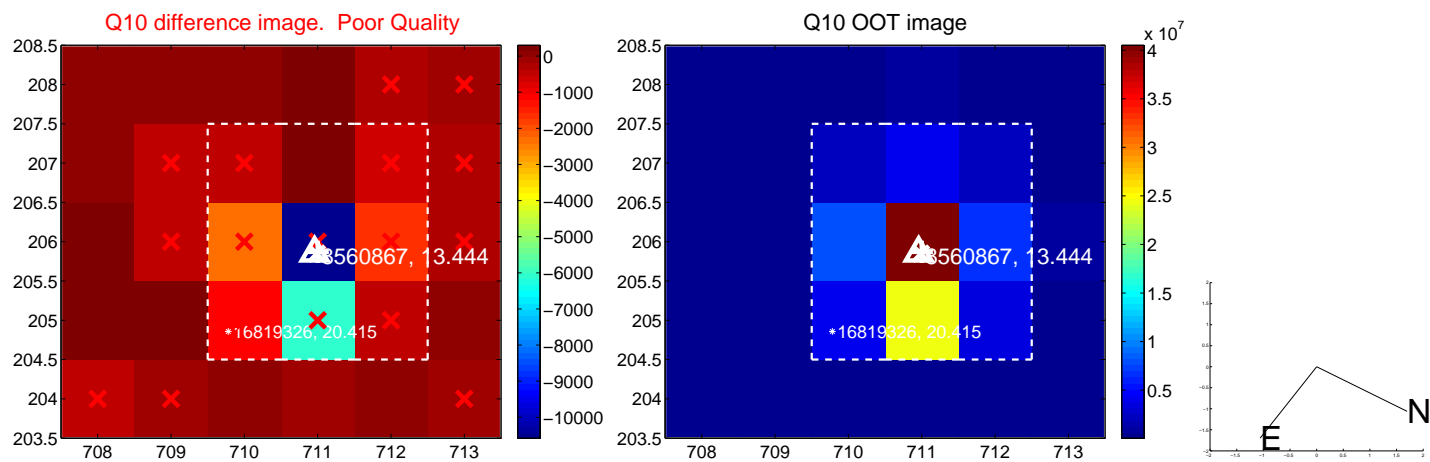
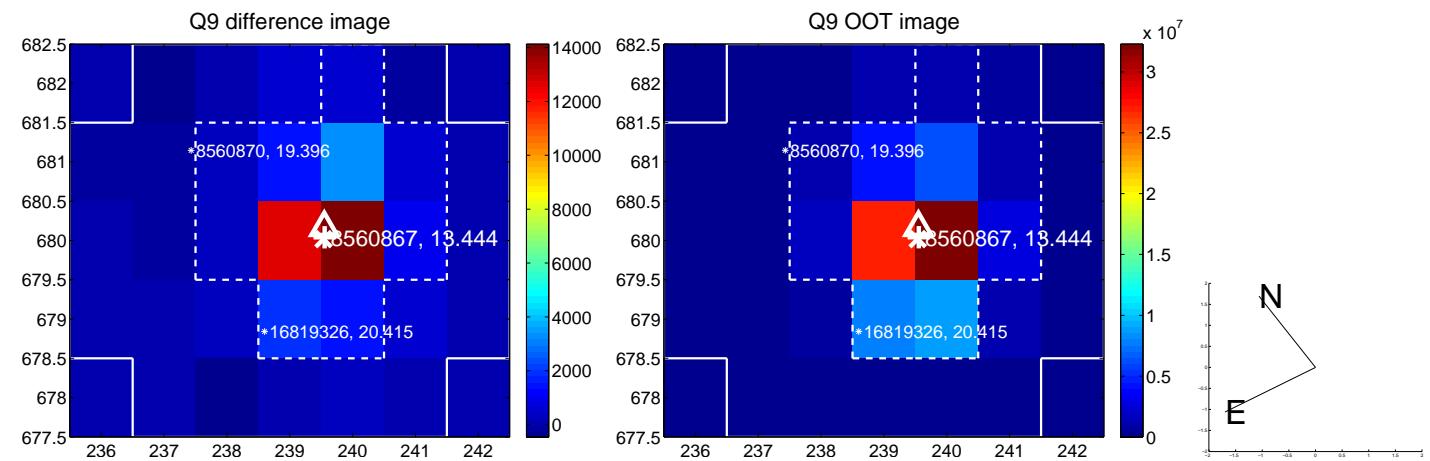
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



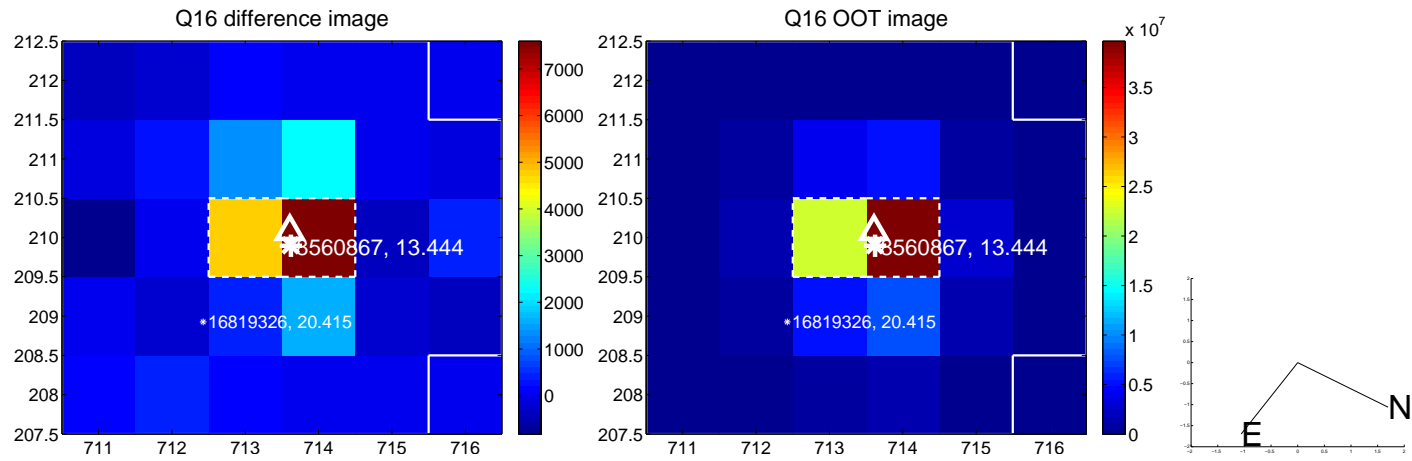
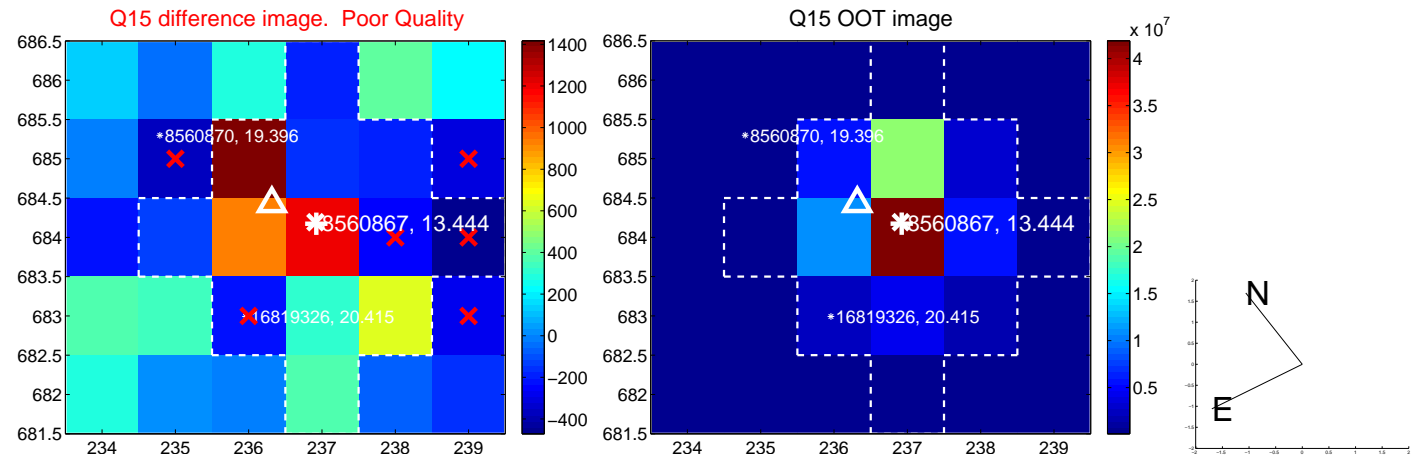
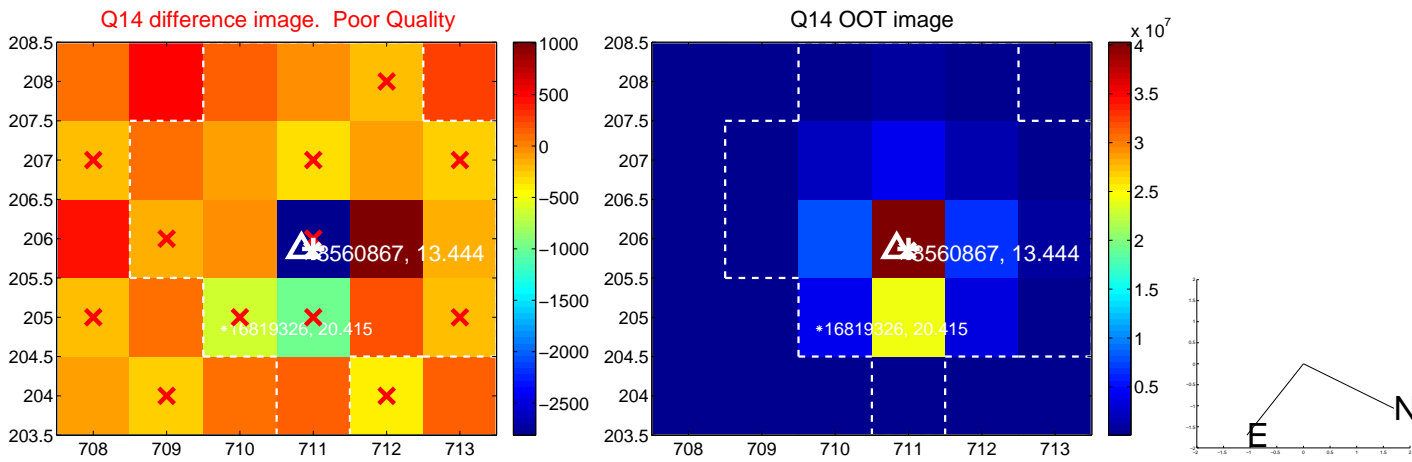
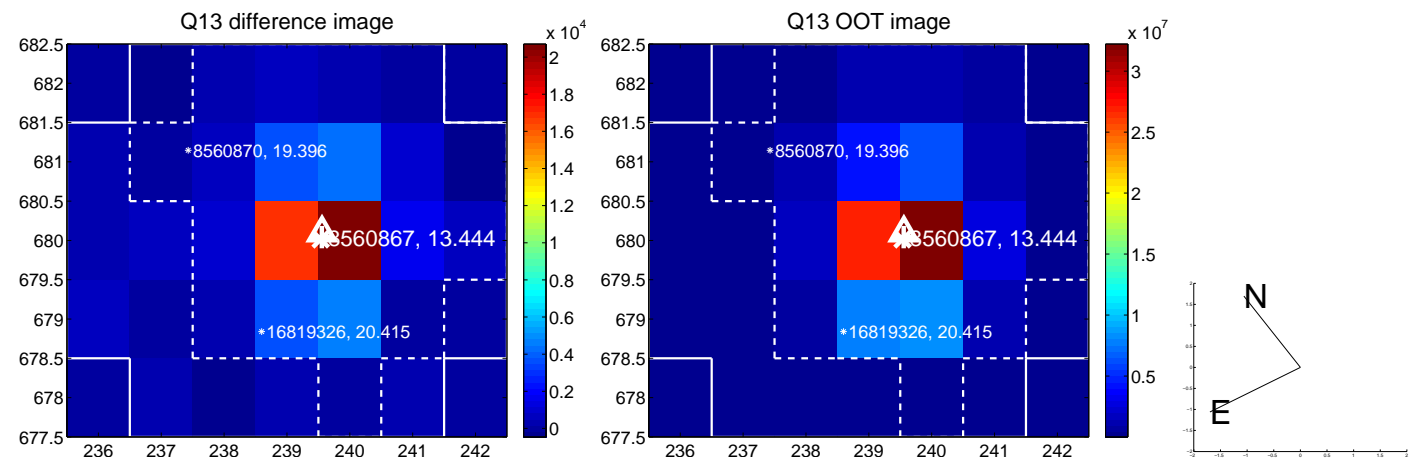
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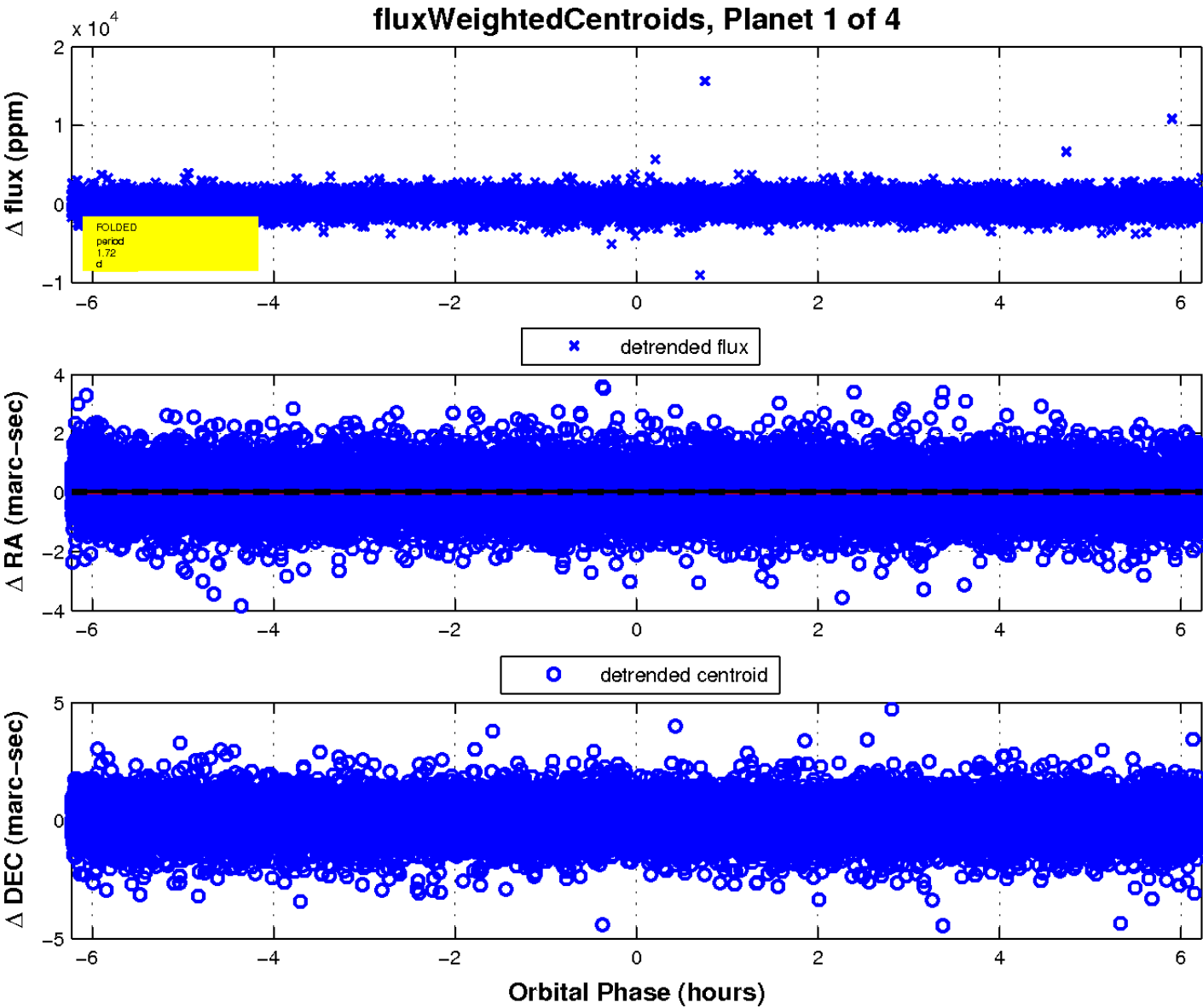
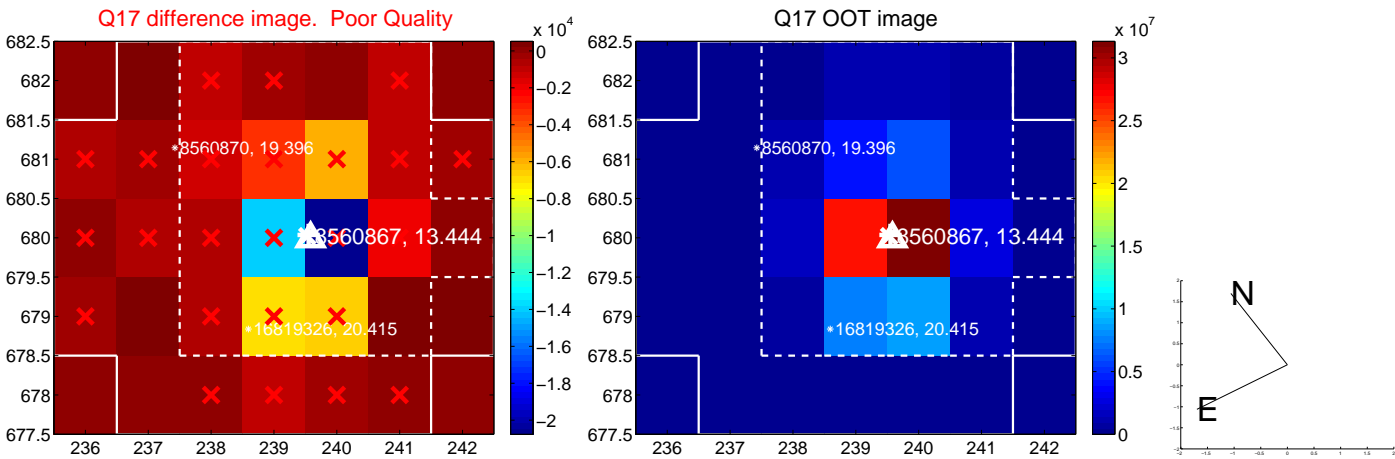
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

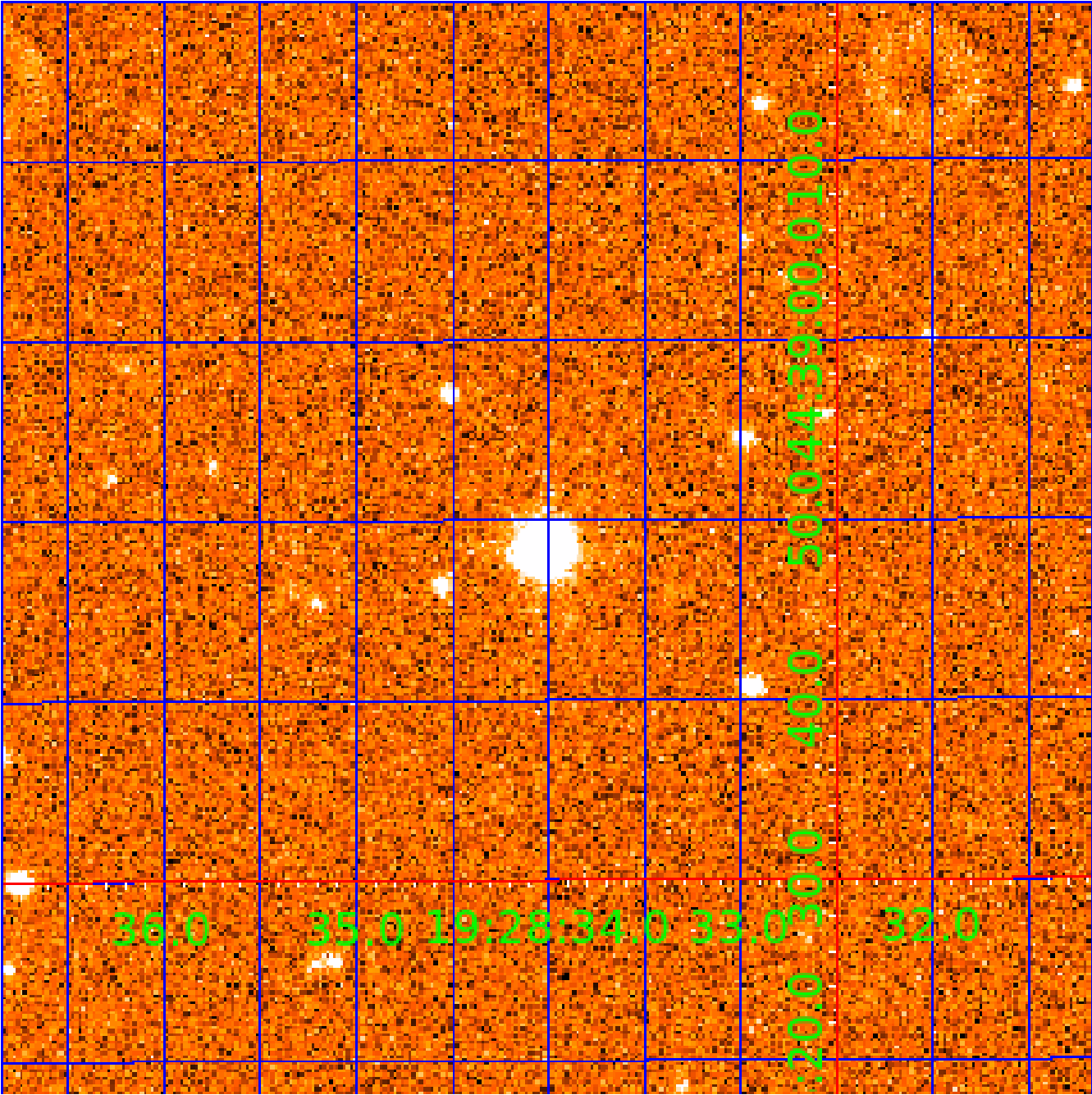


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008560867

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})
008560867-01	OBS	No	1.724050	132.780561	149.7	2.077	12.0	8.9	2.24	7582	3.17	13049.41
008560867-02	OBS	No	1.724063	133.133774	204.3	2.321	10.9	12.2	2.24	7582	3.69	13049.27
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008560867-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008560867-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
008560867-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008560867-04	OBS	FP	0.00	1	0	0	0	LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

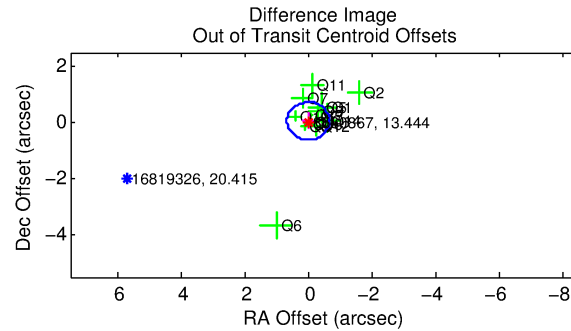
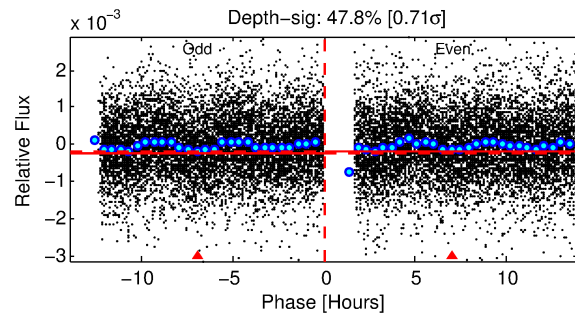
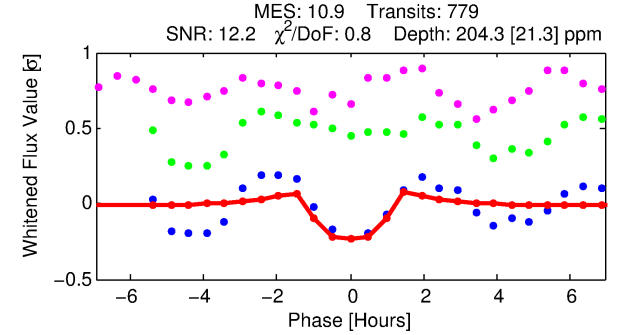
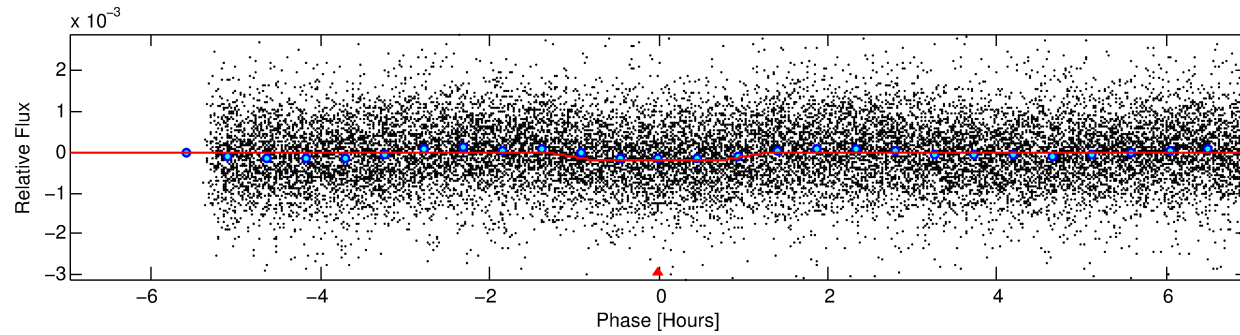
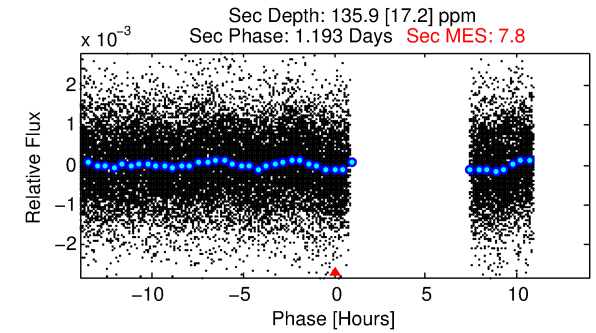
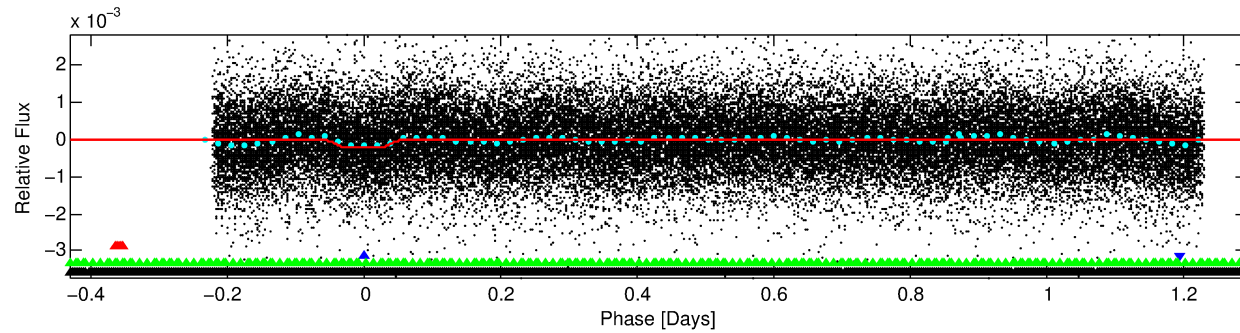
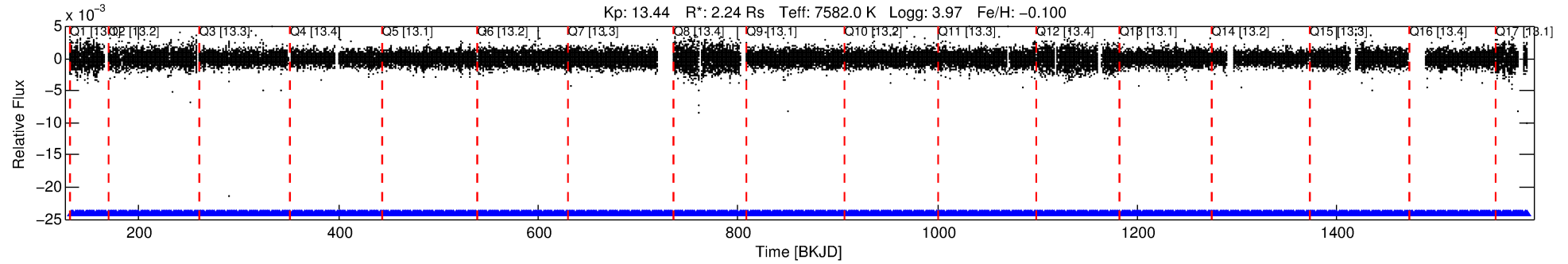
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008560867-02

No Significant Match Found

DV One-Page Summary

KIC: 8560867 Candidate: 2 of 4 Period: 1.724 d



DV Fit Results:

Period = 1.72406 [0.00001] d
Epoch = 133.1338 [0.0020] BKJD
Rp/R* = 0.0151 [0.0045]
a/R* = 2.93 [4.88]
b = 0.89 [0.45]
Seff = 13049.27 [5556.53]
Teq = 2725 [290] K
Rp = 3.68 [1.54] Re
a = 0.0338 [0.0087] AU
Ag = 6.27 [4.57] [1.15σ]
Teffp = 6669 [1061] K [3.58σ]

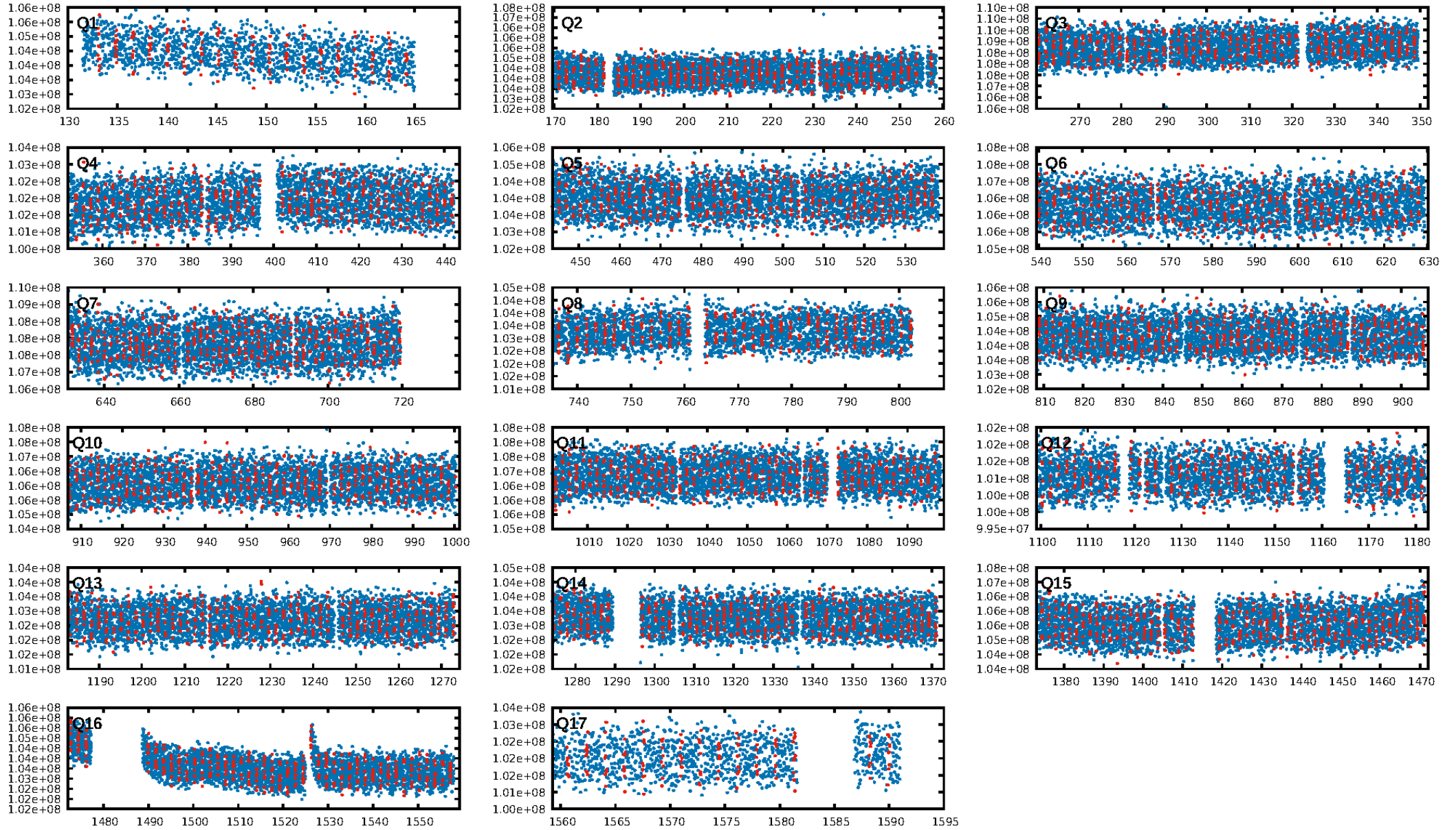
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 99.8% [3.06σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.86e-24
RollingBand-fgt: 1.00 [745/745]
GhostDiagnostic-chr: 1.427
Centroid-sig: N/A
Centroid-so: 0.203 arcsec [1.07σ]
OotOffset-rm: 0.062 arcsec [0.28σ]
KicOffset-rm: 0.076 arcsec [0.25σ]
OotOffset-st: 4/3/4/4 [15]
KicOffset-st: 4/3/4/4 [15]
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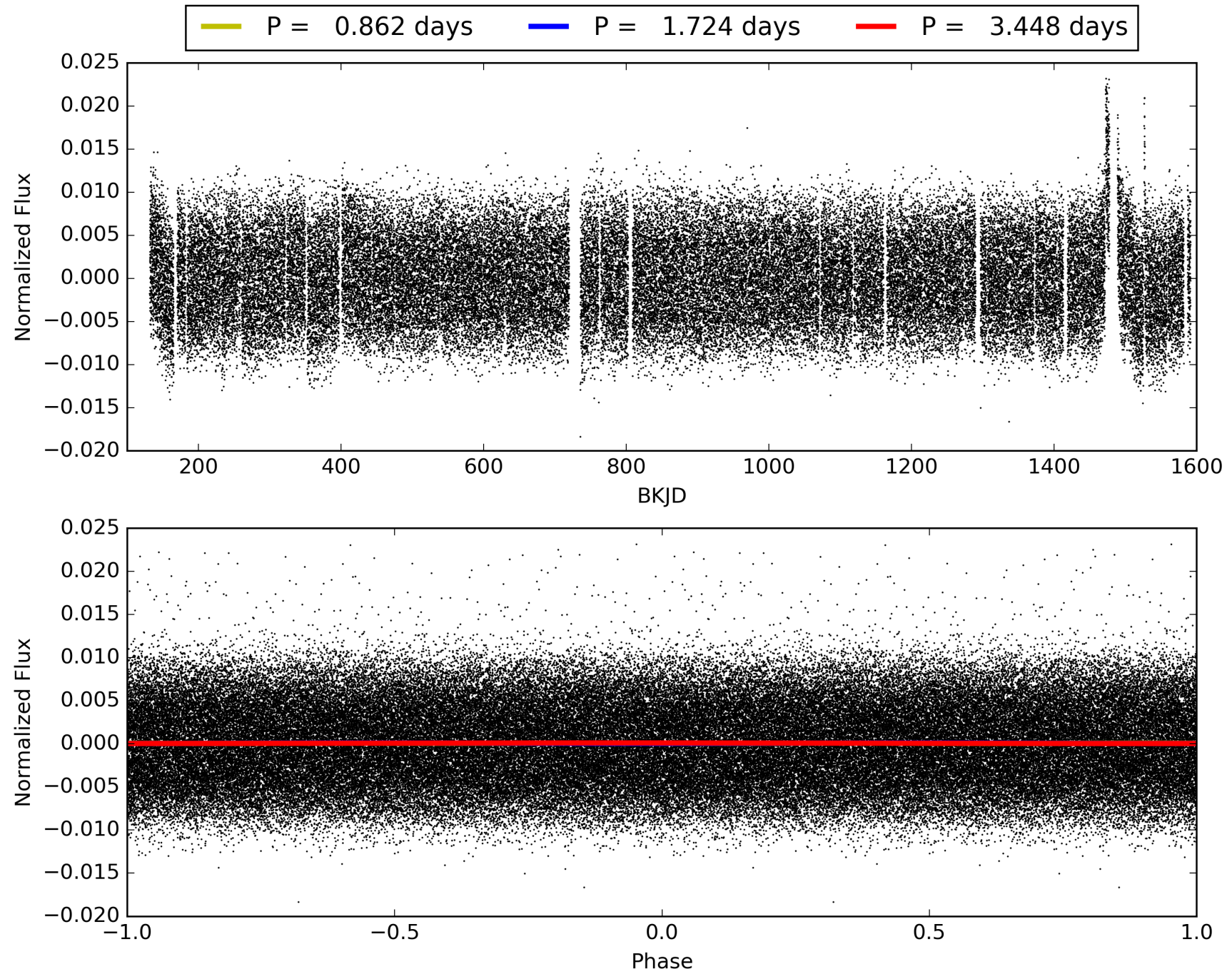
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:19:00 Z

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

TCE 008560867-02, PDC Light Curves

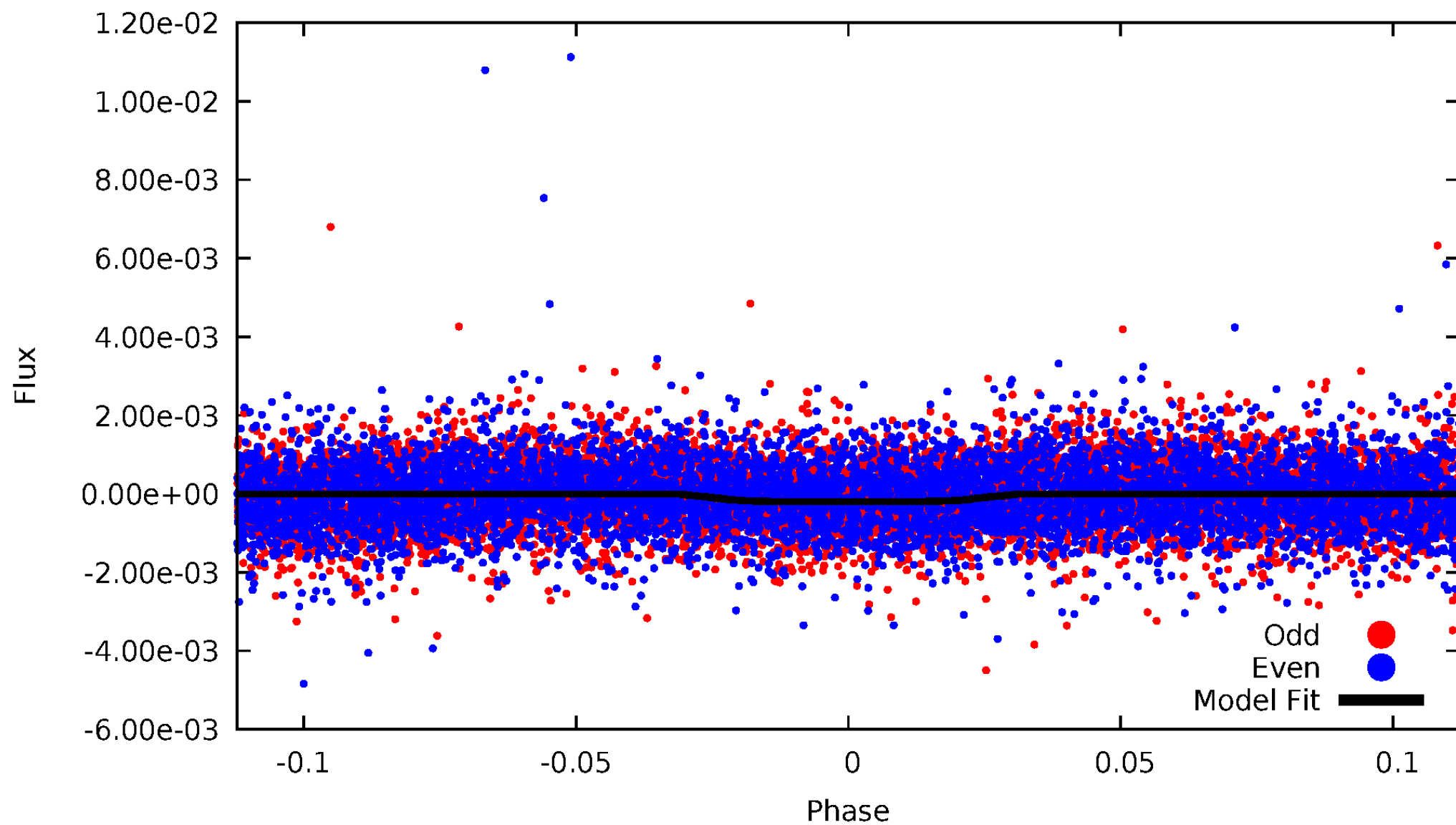


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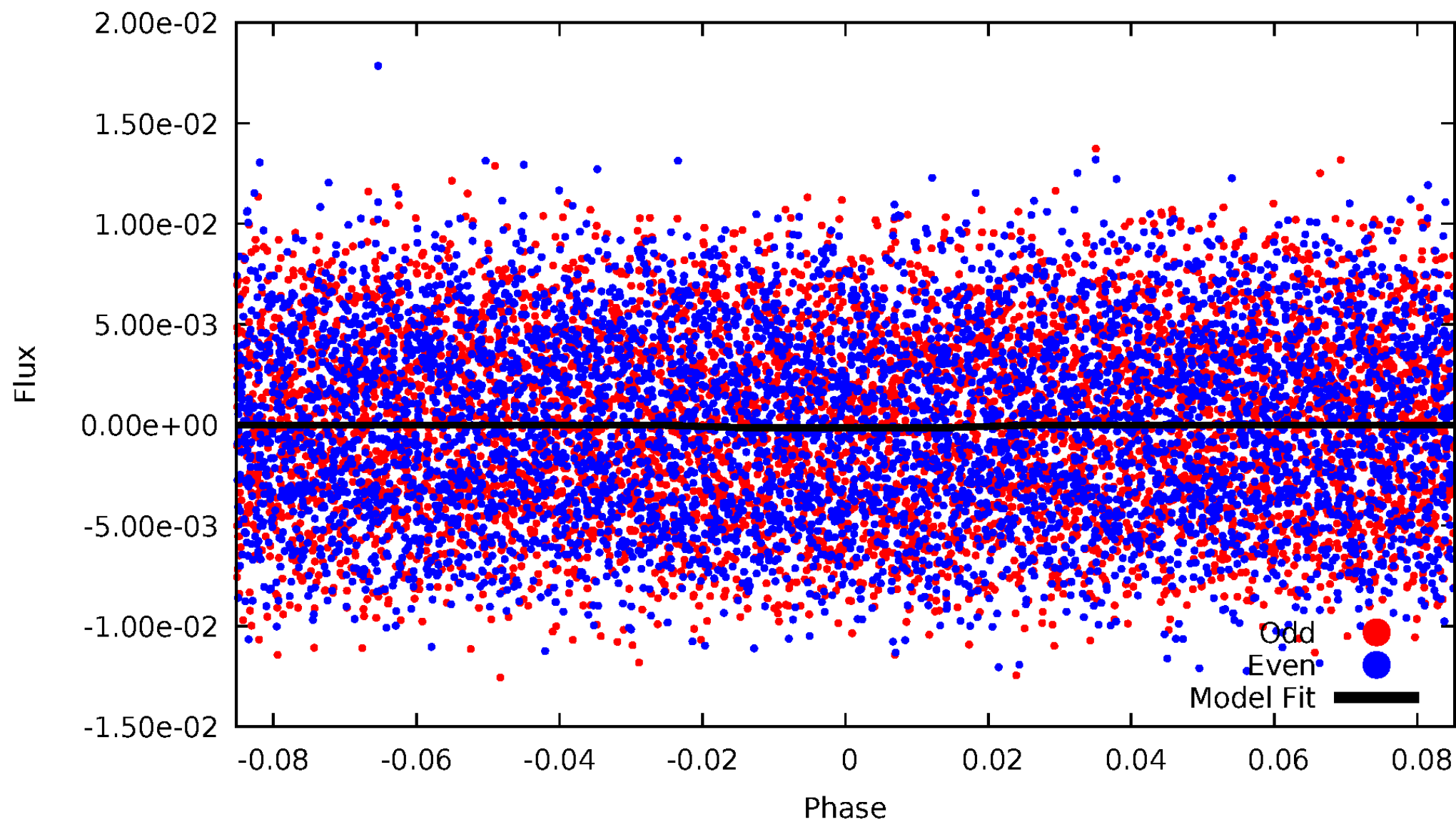
DV Odd/Even

TCE 008560867-02



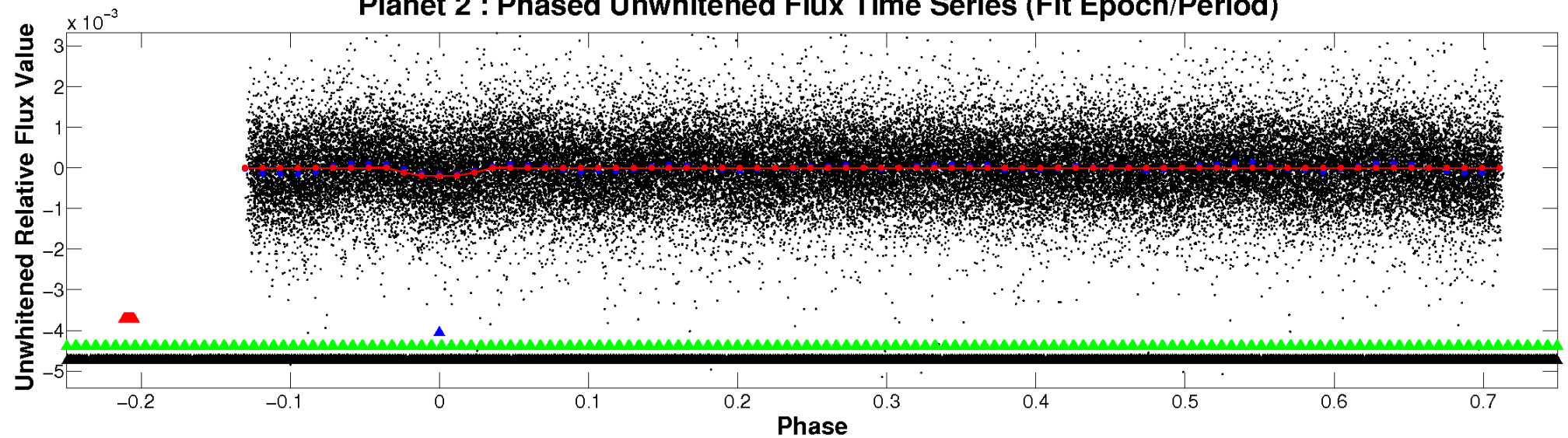
ALT Odd/Even

TCE 008560867-02

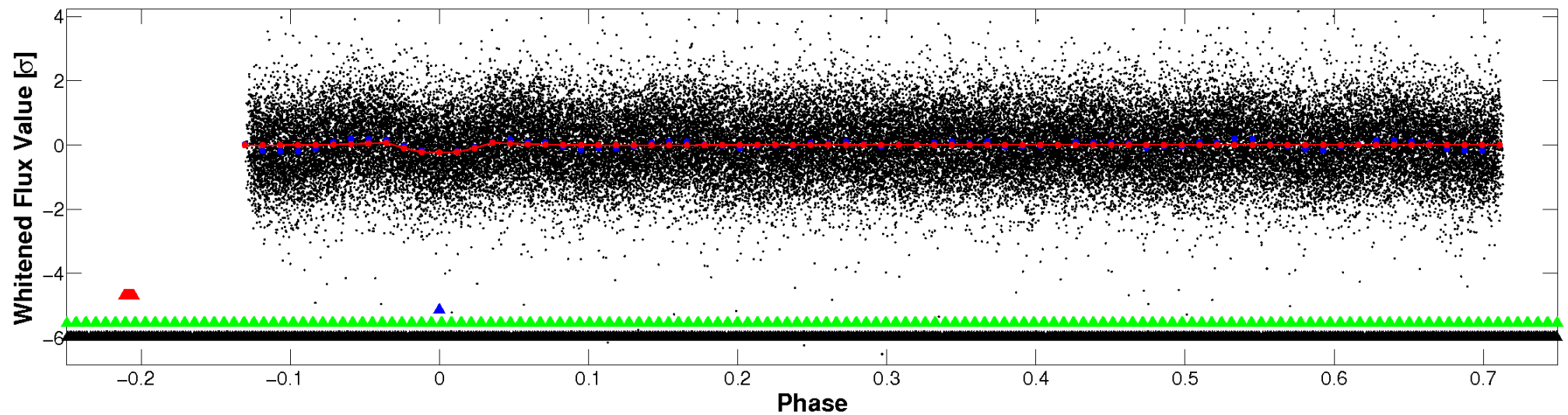


Non-Whitened Vs. Whitened Light Curve

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

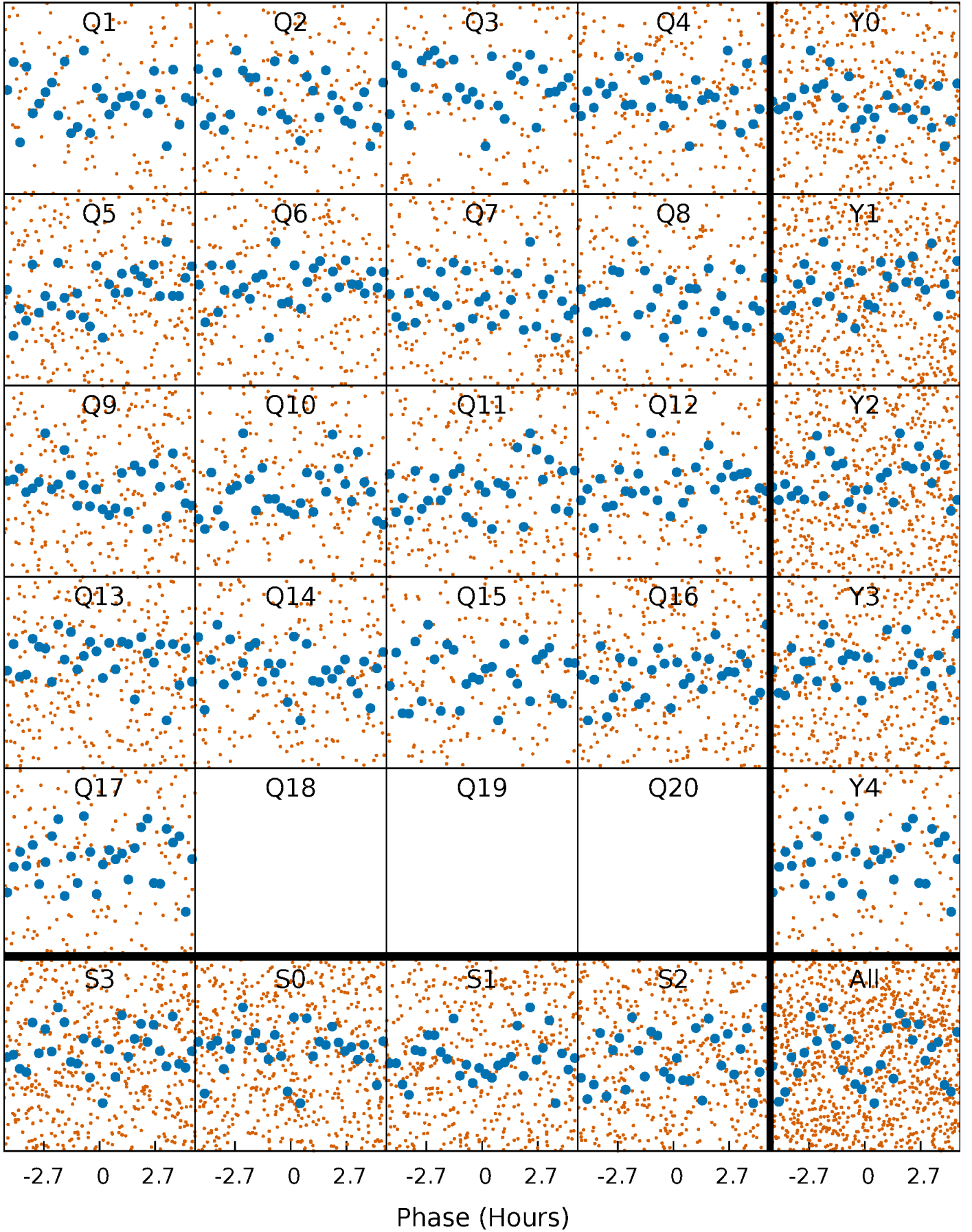


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



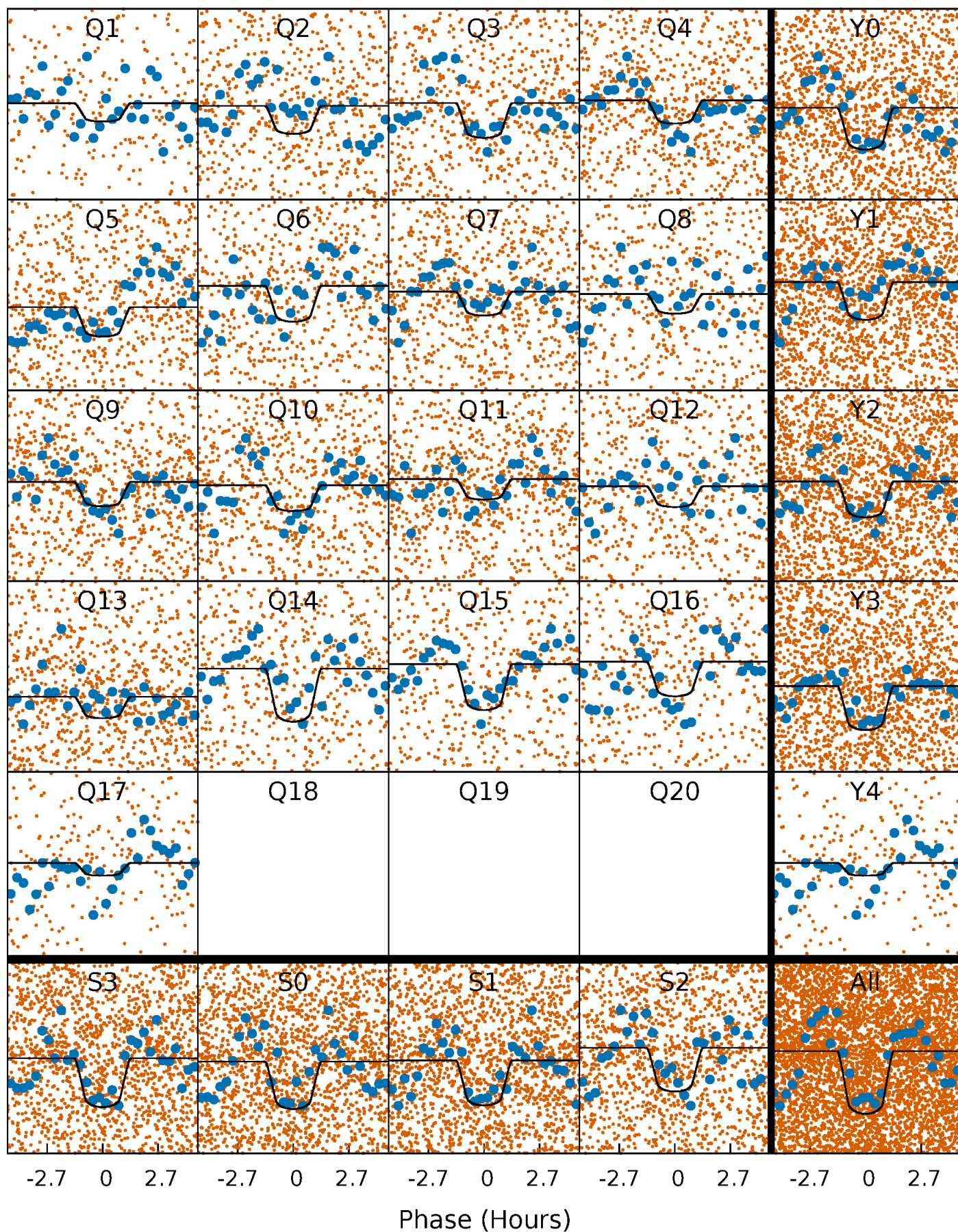
PDC Quarter-Phased Transit Curves

TCE 008560867-02 P= 1.724063 Days $T_0=133.133774$ (BKJD)



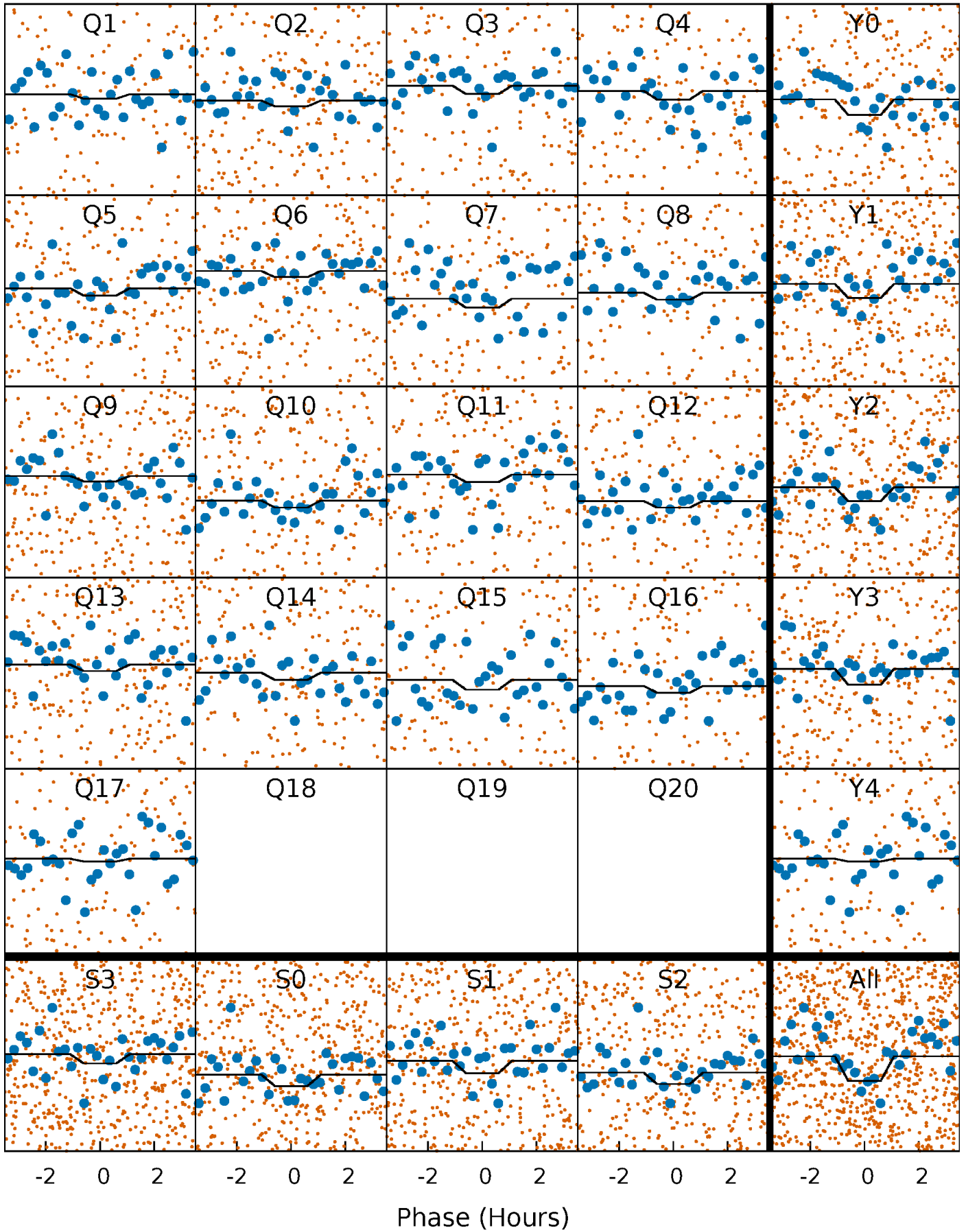
DV Quarter-Phased Transit Curves

TCE 008560867-02 P= 1.724063 Days $T_0=133.133774$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

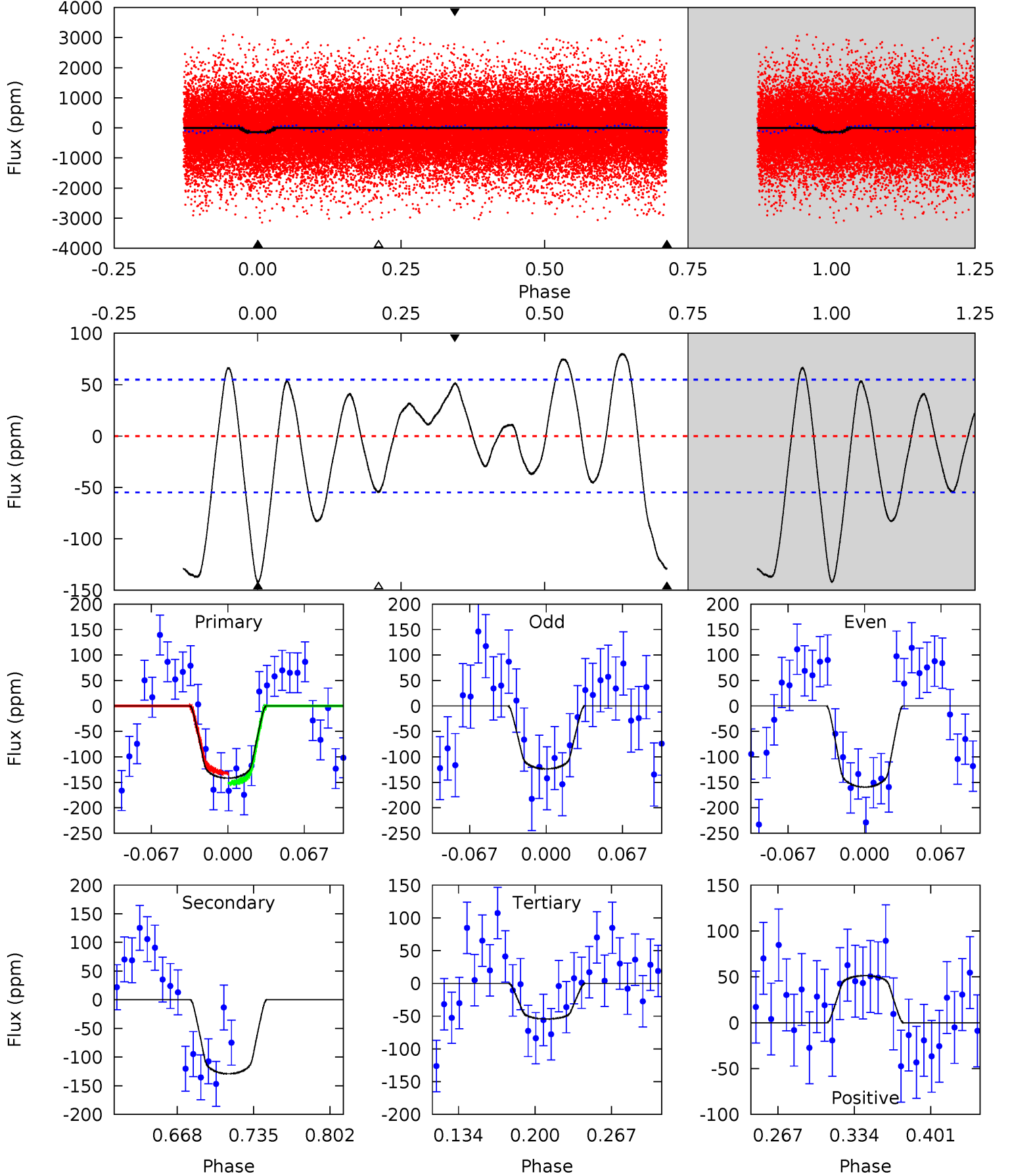
TCE 008560867-02 P= 1.724095 Days $T_0=133.116178$ (BKJD)



DV Model-Shift Uniqueness Test

008560867-02, P = 1.724063 Days, E = 131.409711 Days

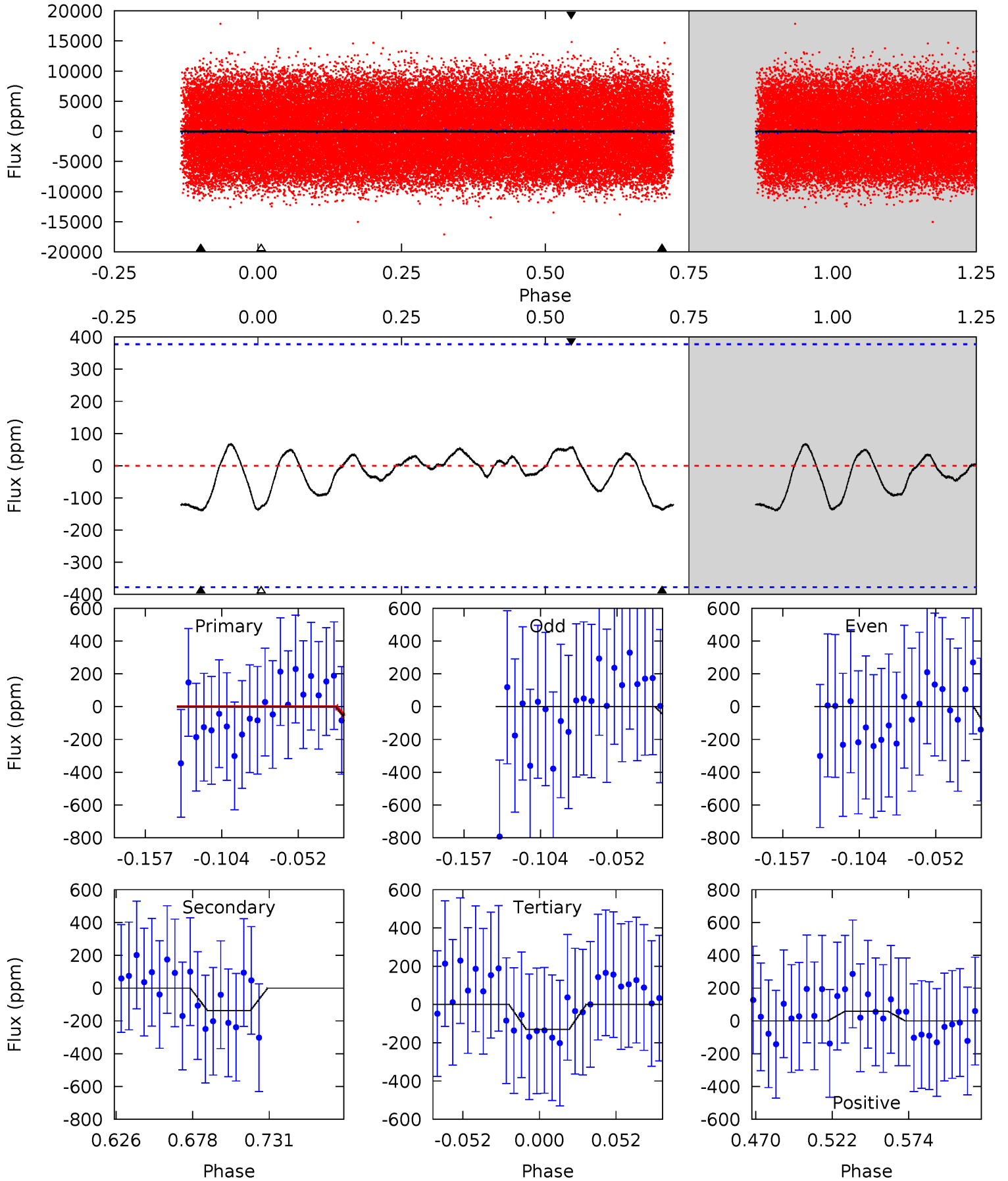
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	10.9	4.60	4.34	4.65	1.83	4.16	7.40	7.67	6.34	6.60	1.52	1.08	0.36	0.85



Alt Model-Shift Uniqueness Test

008560867-02, P = 1.724095 Days, E = 131.392083 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.73	1.70	1.62	0.74	4.70	1.94	0.55	0.11	1.00	0.08	0.97	0.44	0.77	0.33	0.27



Stellar Parameters For KIC 008560867

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7582^{+211}_{-316}	$3.974^{+0.222}_{-0.148}$	$-0.100^{+0.200}_{-0.300}$	$2.241^{+0.532}_{-0.650}$	$1.726^{+0.184}_{-0.315}$	$0.216^{+0.281}_{-0.091}$
	+3%/-4%	+6%/-4%	+200%/-300%	+24%/-29%	+11%/-18%	+130%/-42%
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 008560867-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-129 ± 12	$3.64^{+1.21}_{-1.20}$	3777^{+282}_{-302}	6344^{+1346}_{-800}	$6.043^{+7.214}_{-2.639}$
Alt.	-137 ± 80	$2.81^{+1.14}_{-1.10}$	3778^{+273}_{-299}	7311^{+3152}_{-1910}	10^{+19}_{-7}

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

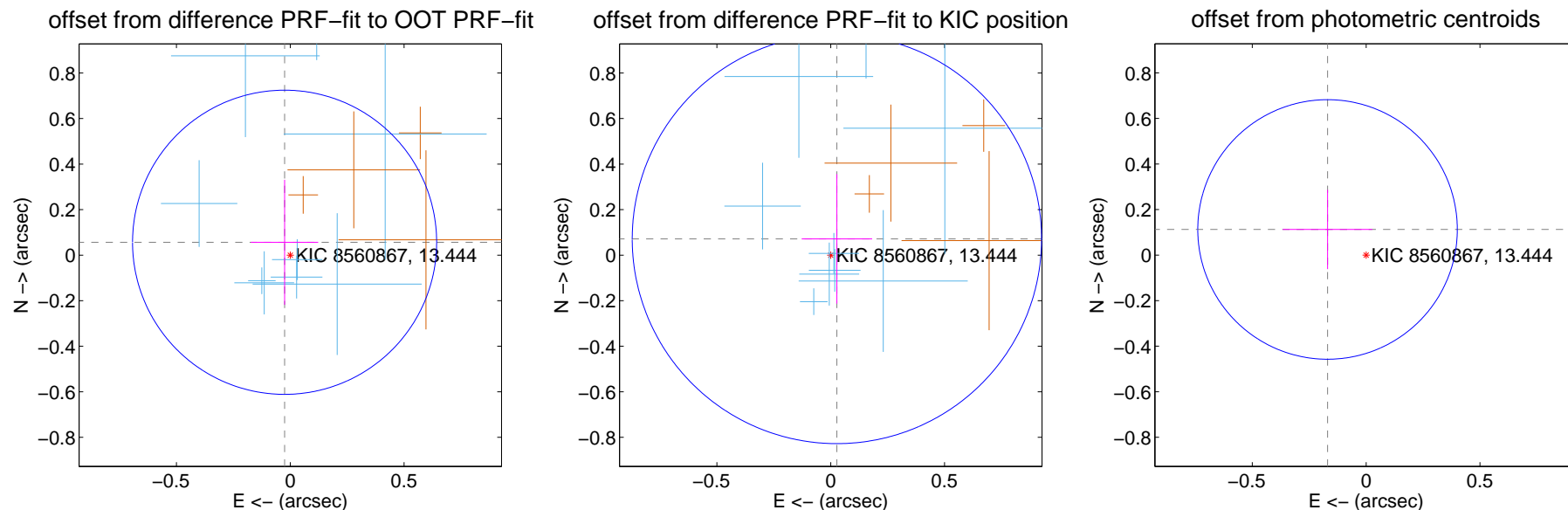
DV Centroid Data

Supplemental centroid analysis for 008560867-02. Kepler magnitude: 13.44. Transit SNR 12.18

There are 9 quarters with good PRF difference image offsets

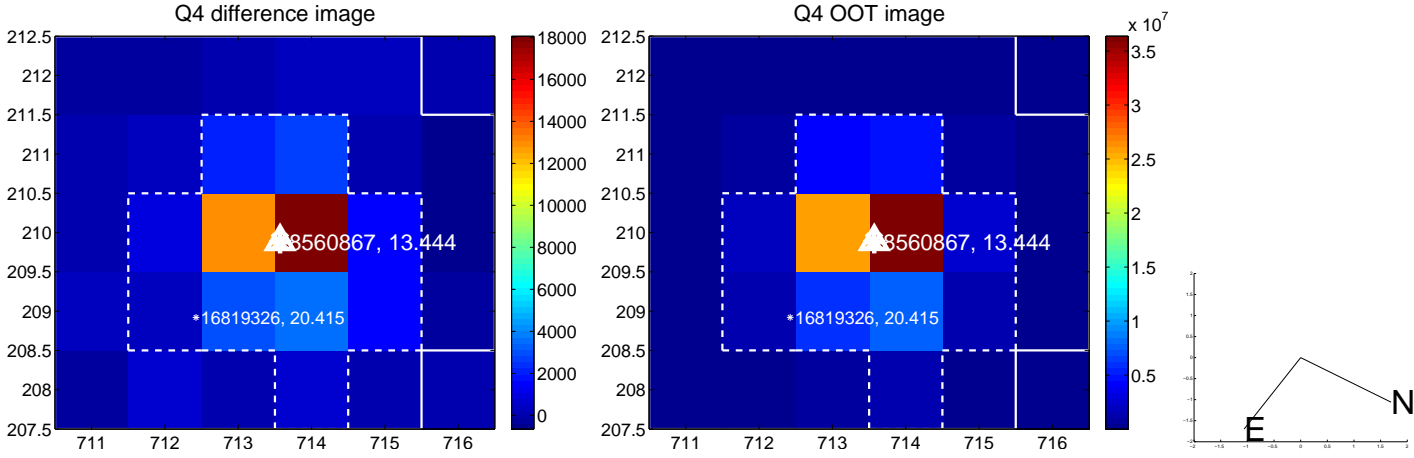
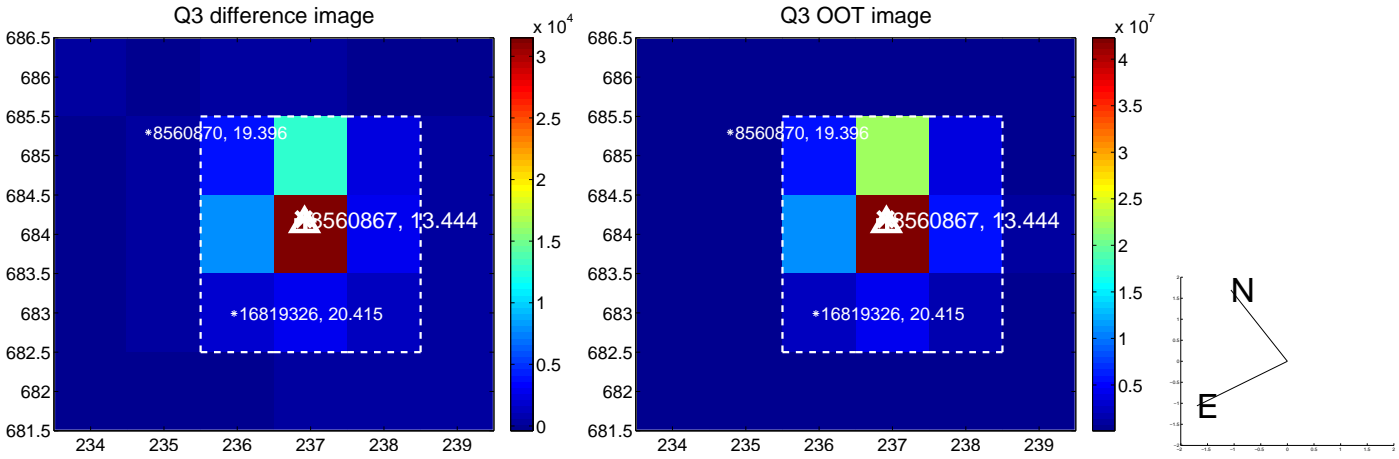
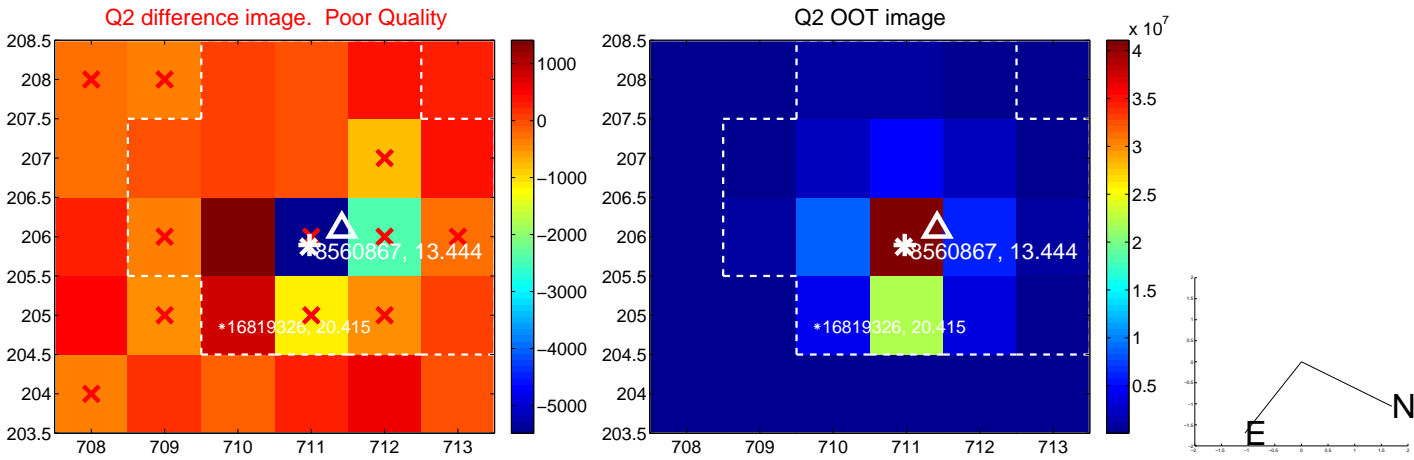
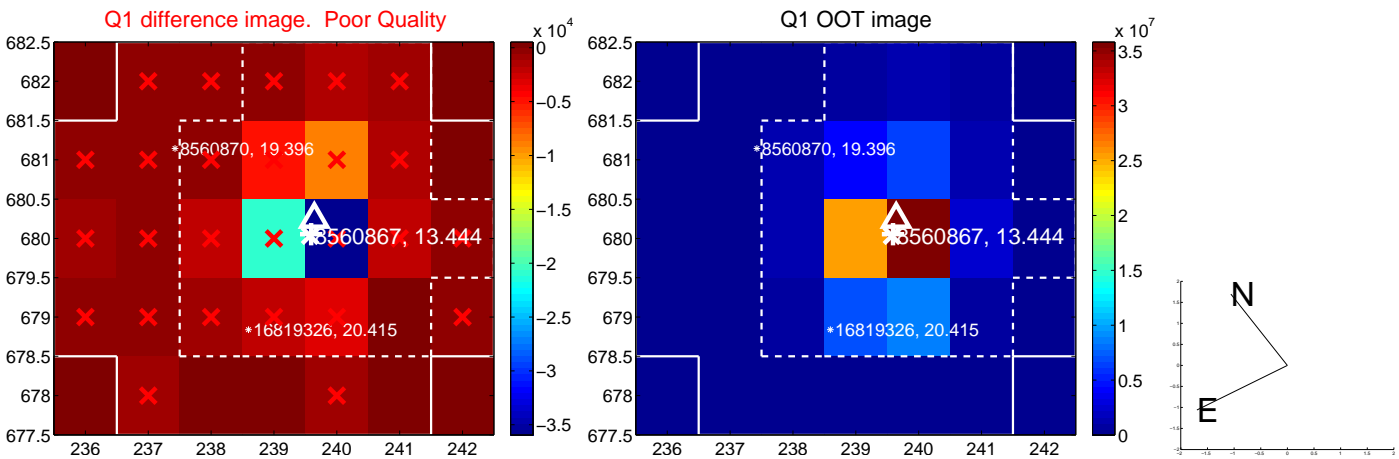
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.062 ± 0.223	0.28	0.025 ± 0.148	0.057 ± 0.274
PRF-fit source offset from KIC position	0.076 ± 0.300	0.25	-0.027 ± 0.155	0.071 ± 0.284
photometric centroid source offset	0.20 ± 0.19	1.07	0.17 ± 0.20	0.11 ± 0.17

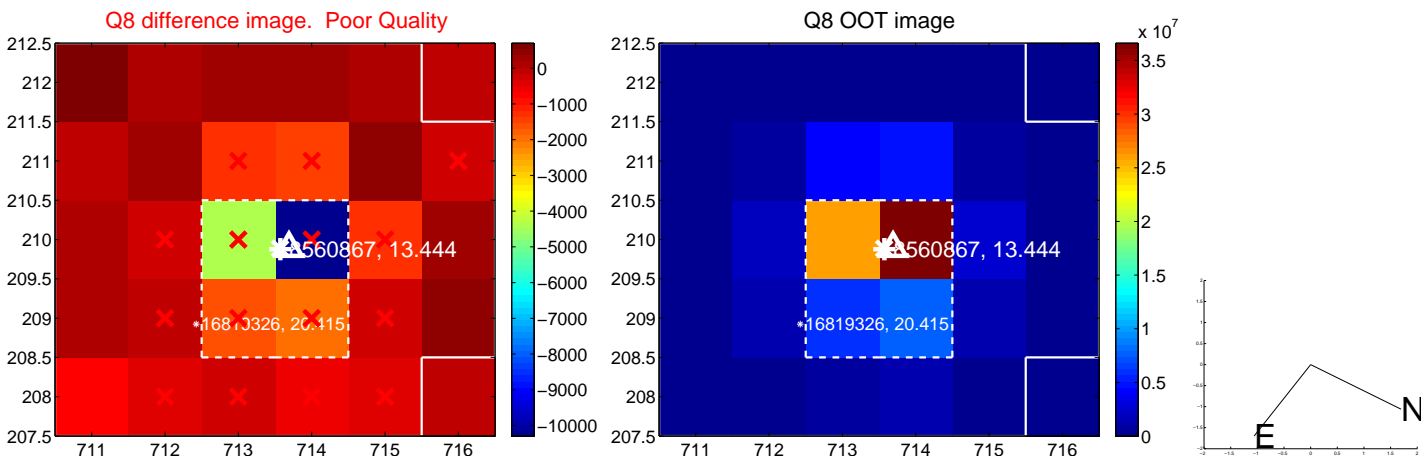
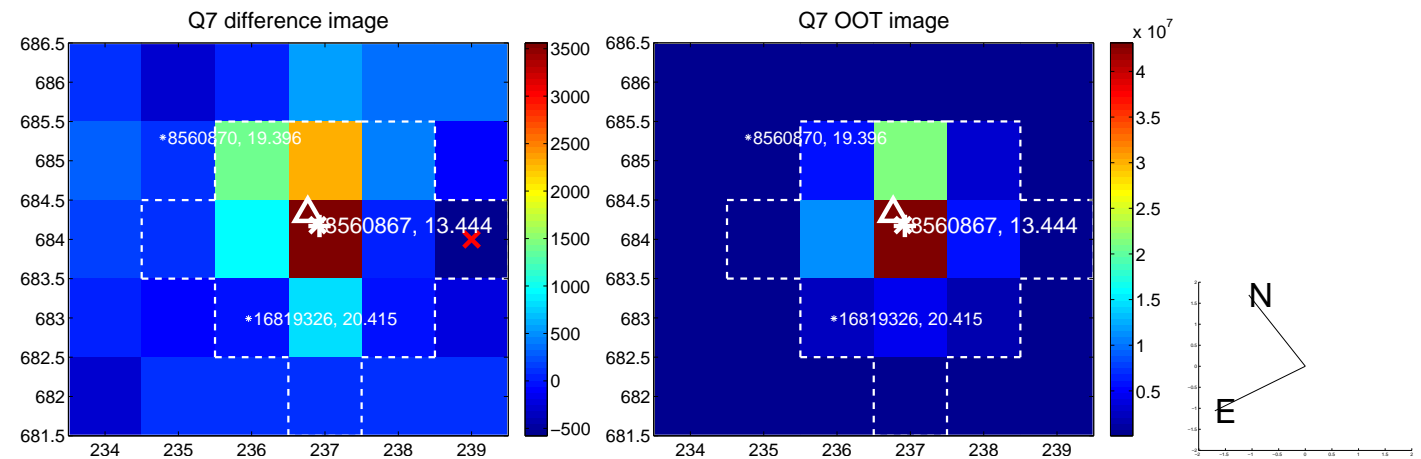
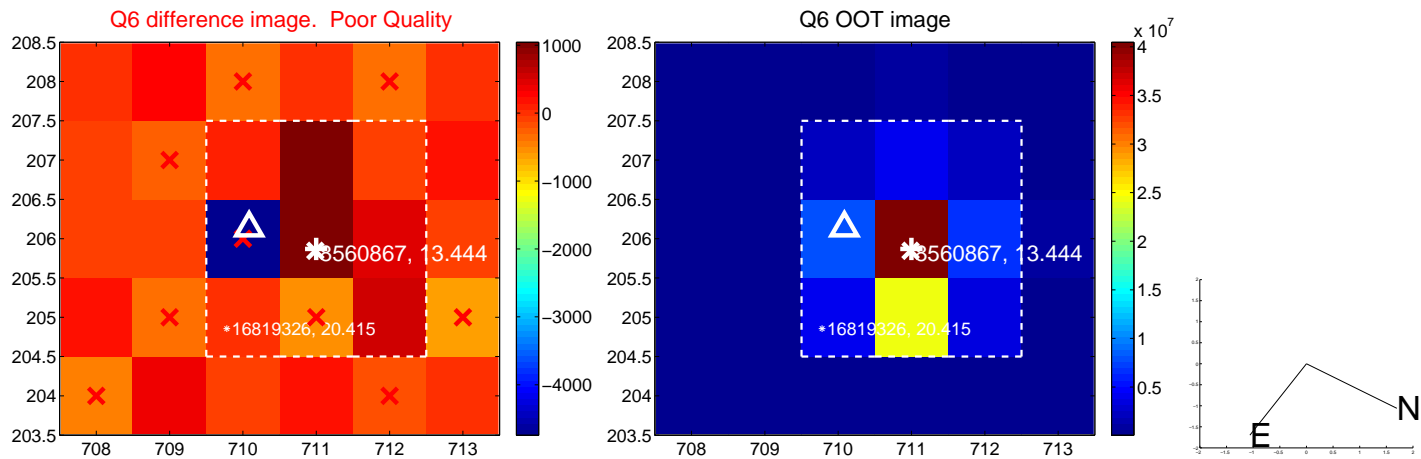
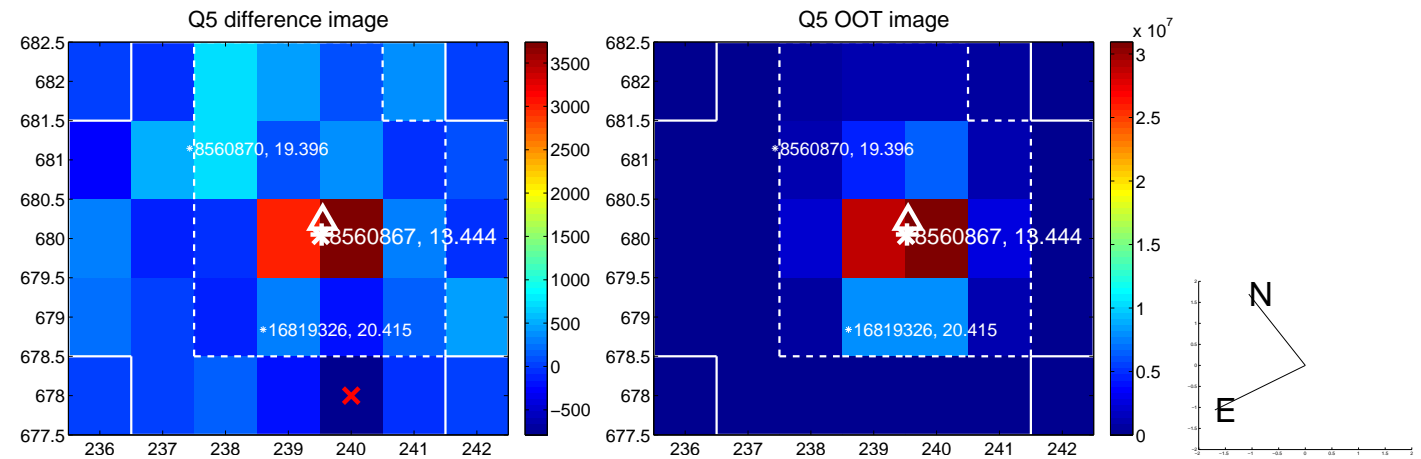


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

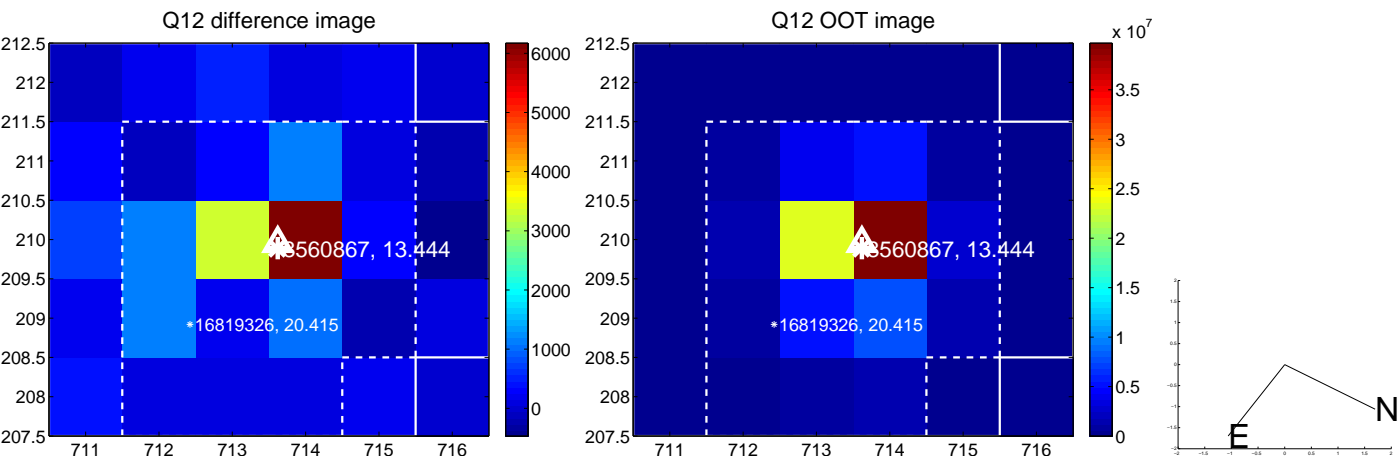
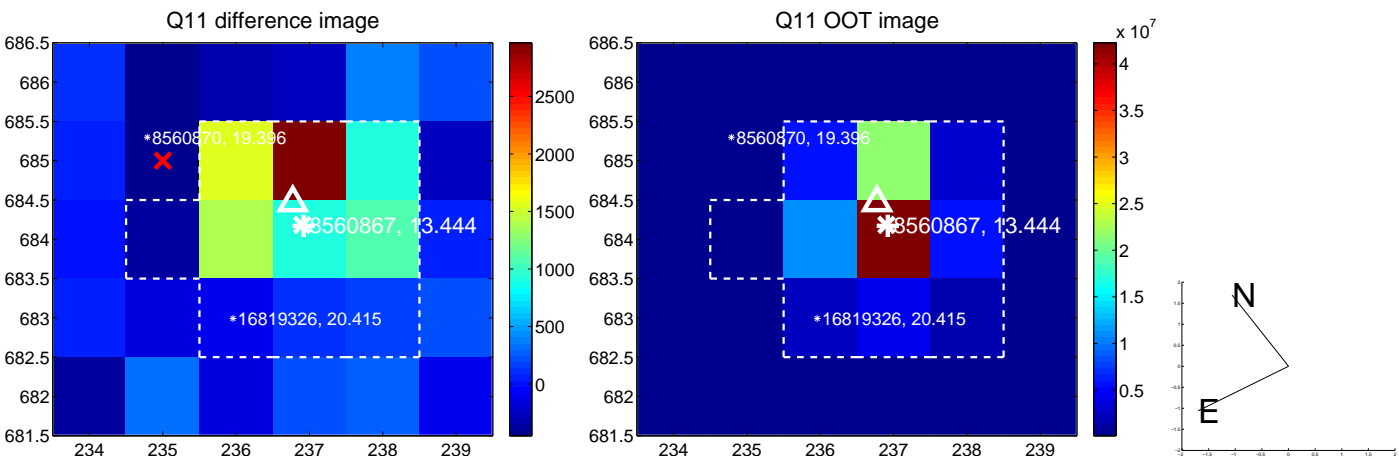
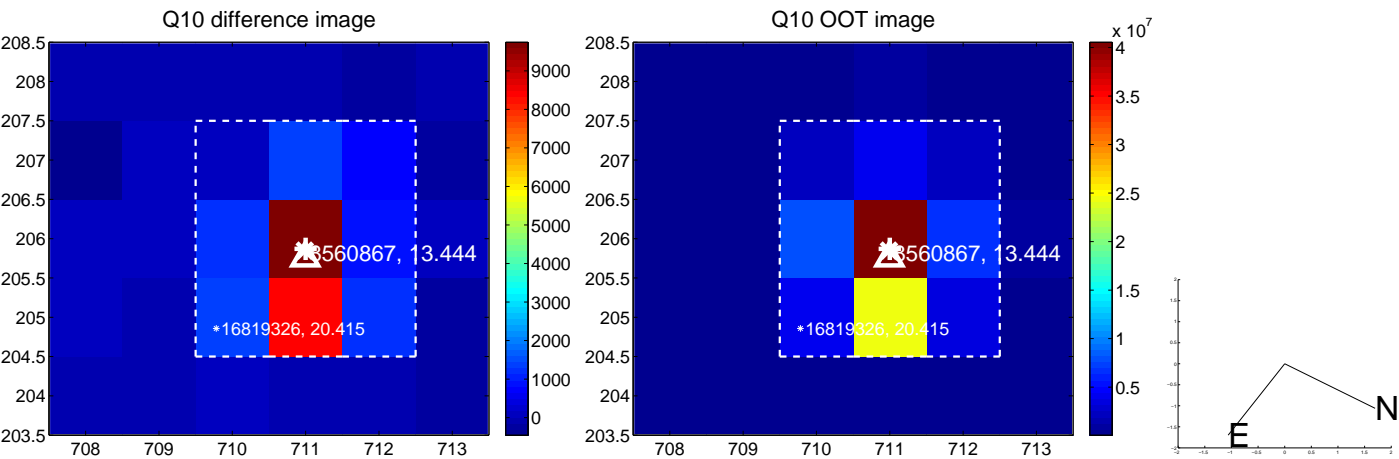
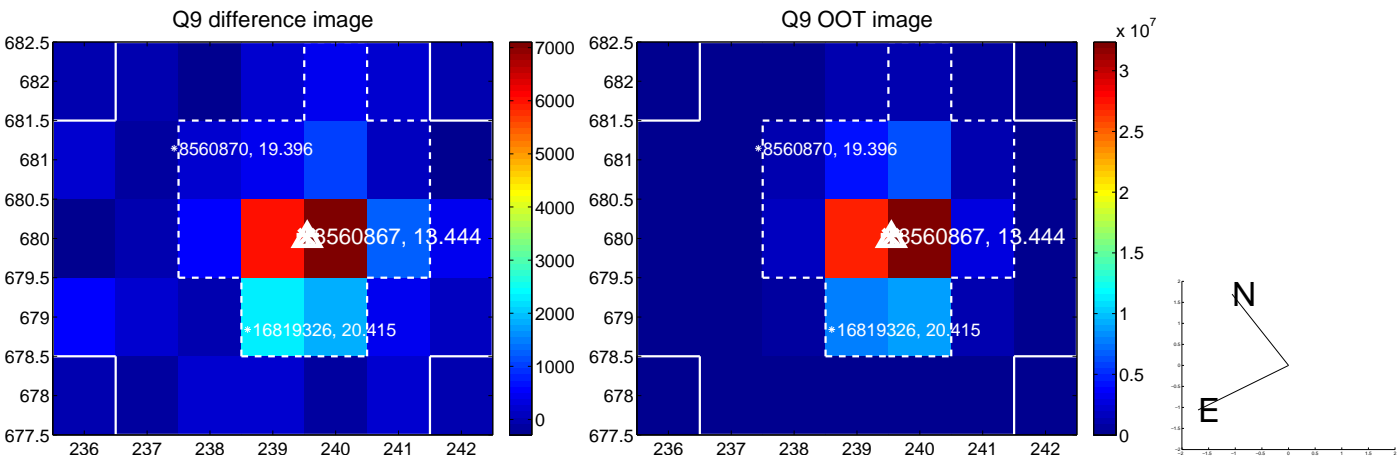
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



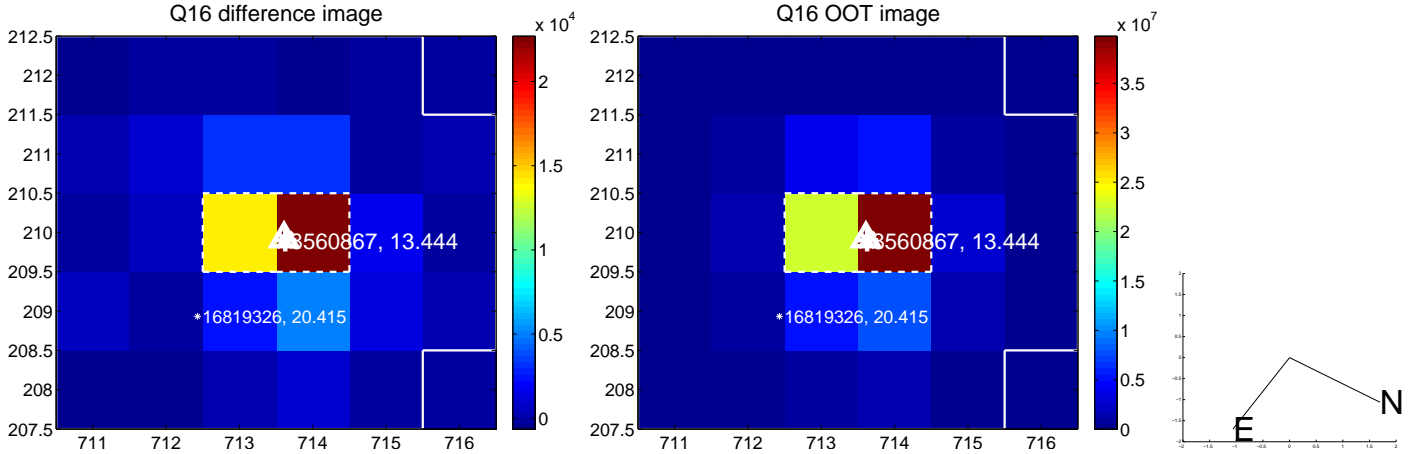
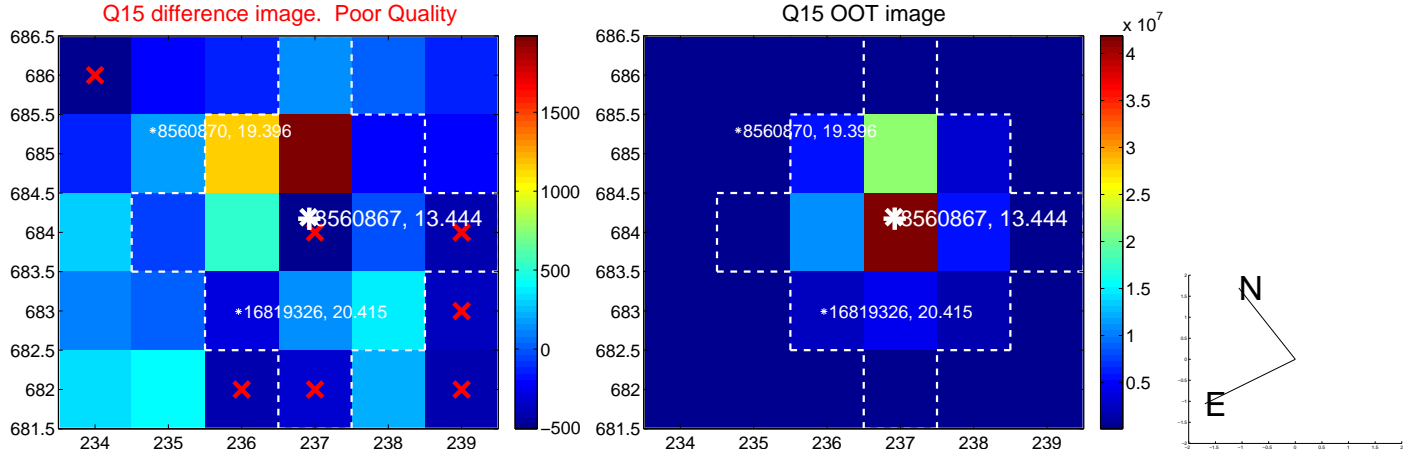
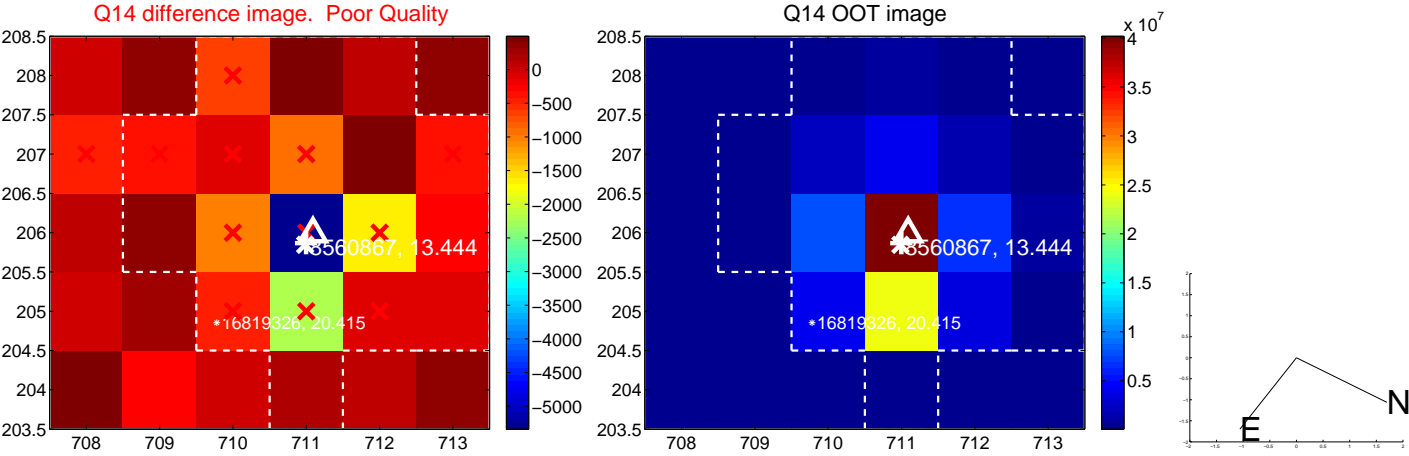
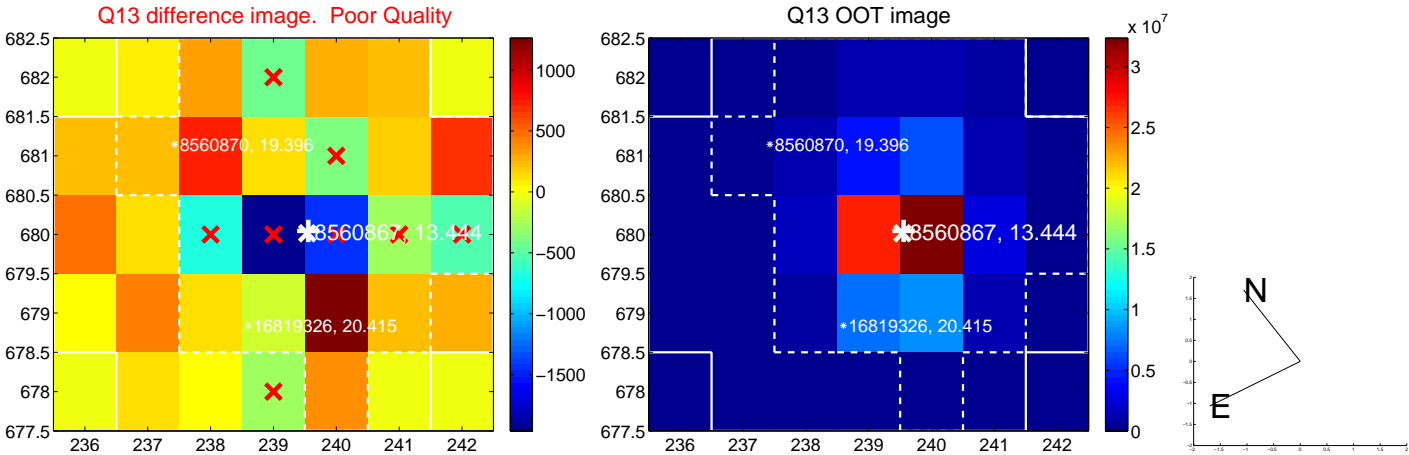
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



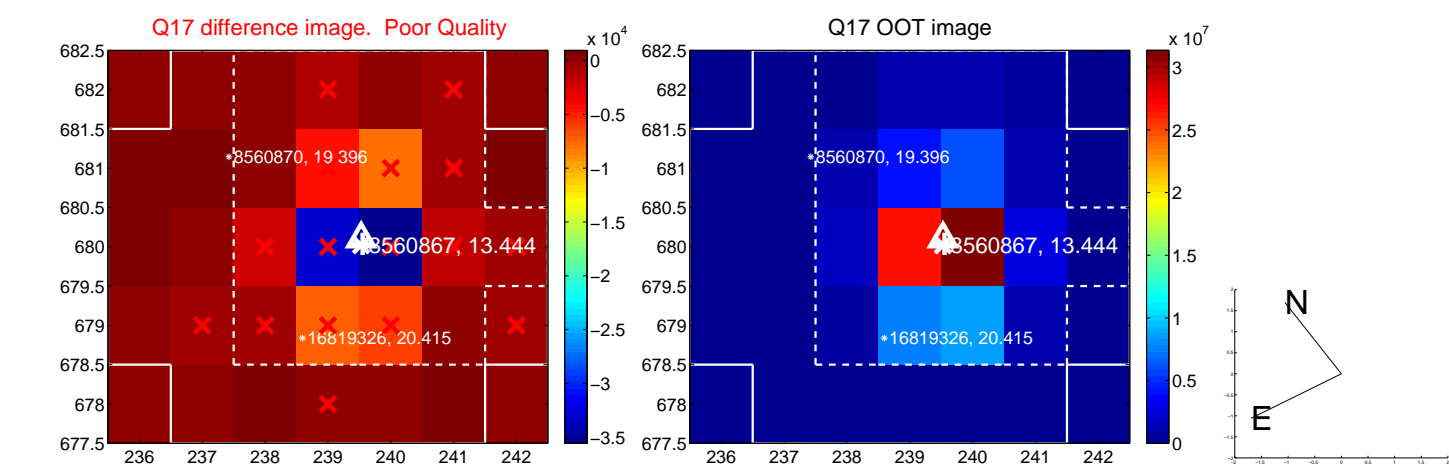
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



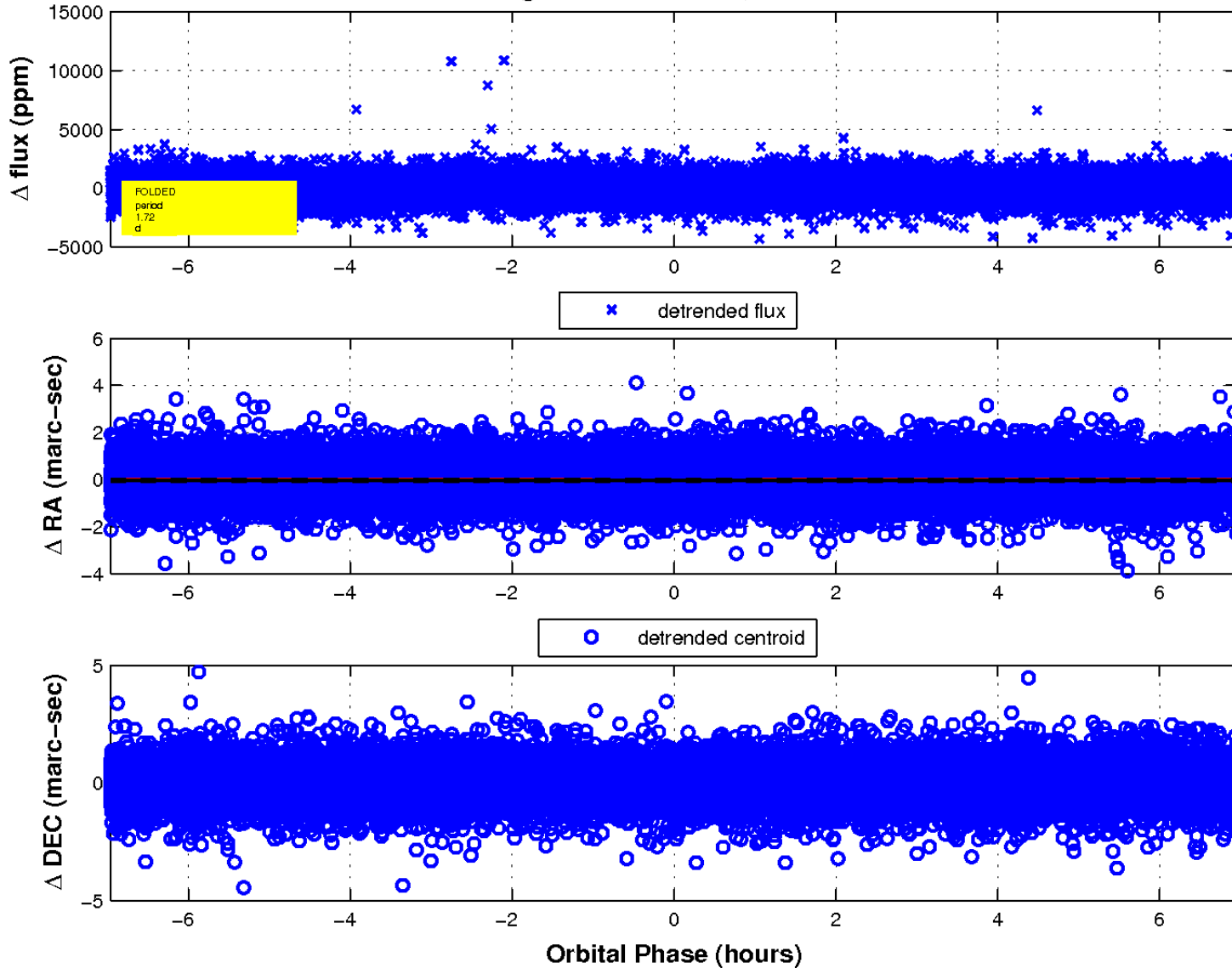
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

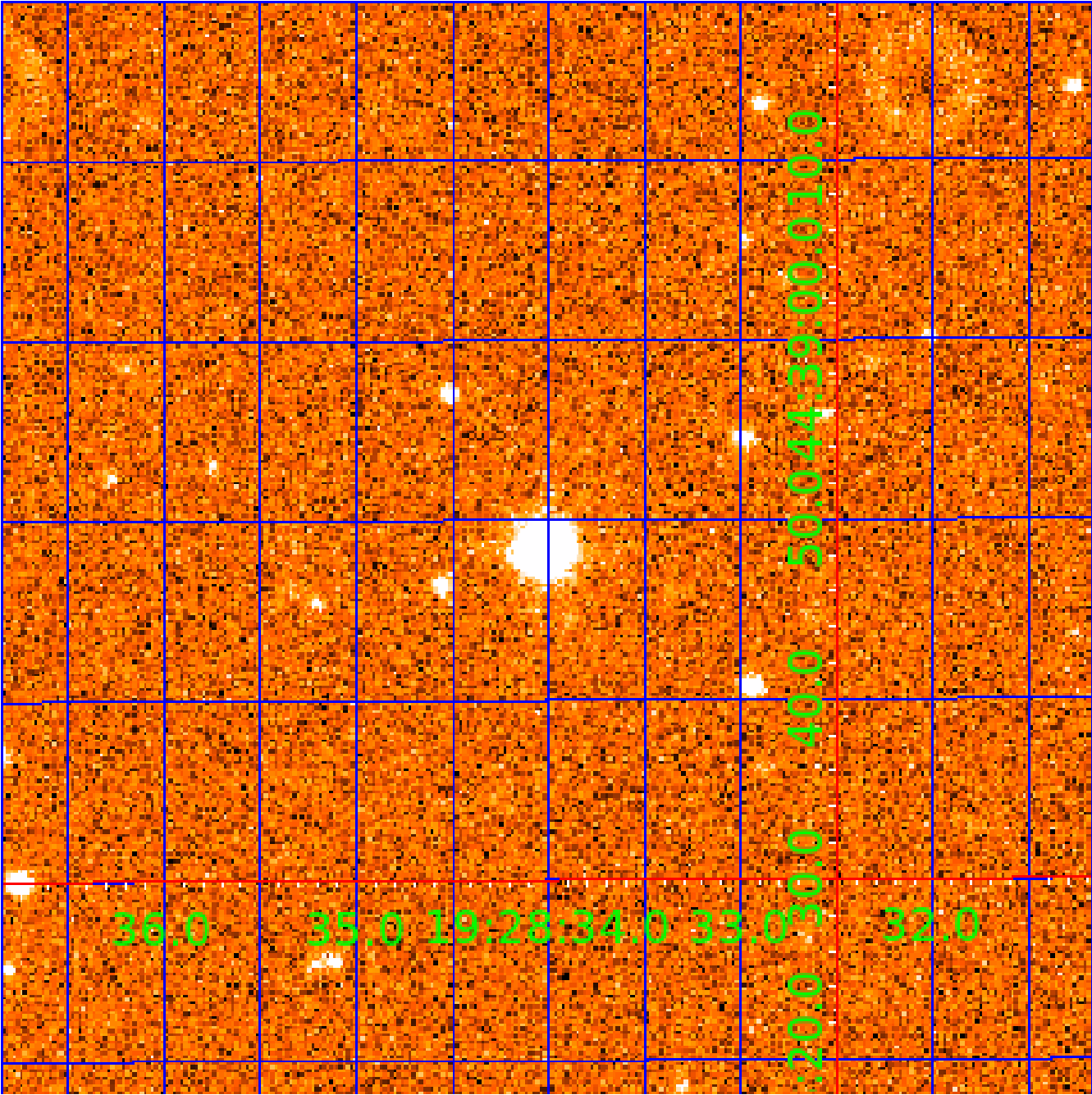


fluxWeightedCentroids, Planet 2 of 4



UKIRT Image

Declination



KIC 008560867

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})
008560867-01	OBS	No	1.724050	132.780561	149.7	2.077	12.0	8.9	2.24	7582	3.17	13049.41
008560867-02	OBS	No	1.724063	133.133774	204.3	2.321	10.9	12.2	2.24	7582	3.69	13049.27
008560867-03	OBS	No	1.609885	131.641581	180.6	1.638	8.6	8.7	2.24	7582	3.23	14297.64
008560867-04	OBS	No	2.092809	133.585064	211.2	1.719	7.9	8.2	2.24	7582	4.05	10077.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008560867-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008560867-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
008560867-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008560867-04	OBS	FP	0.00	1	0	0	0	LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

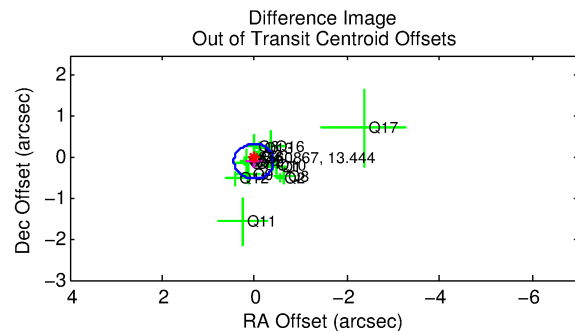
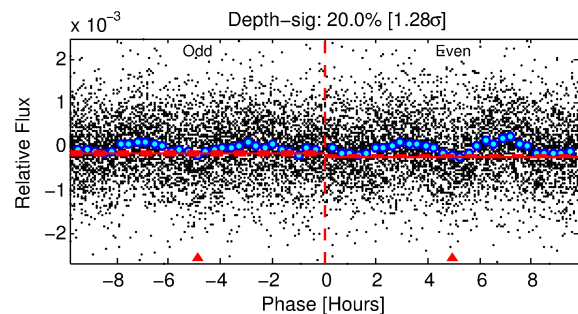
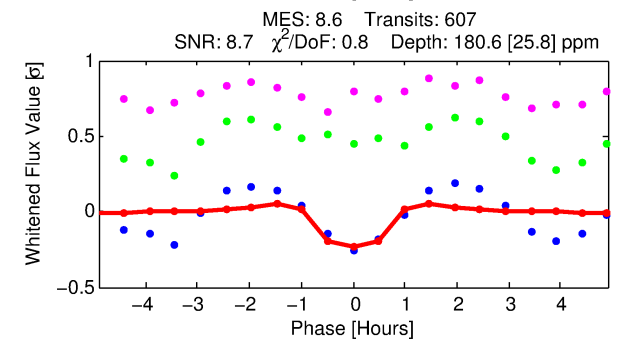
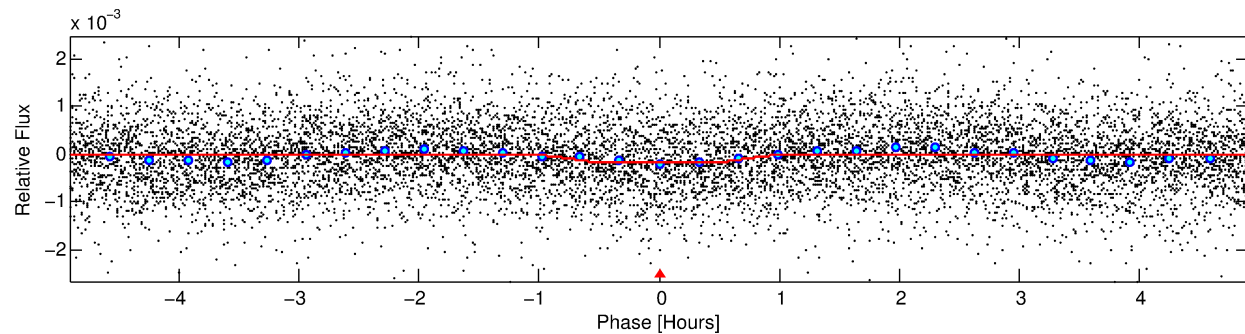
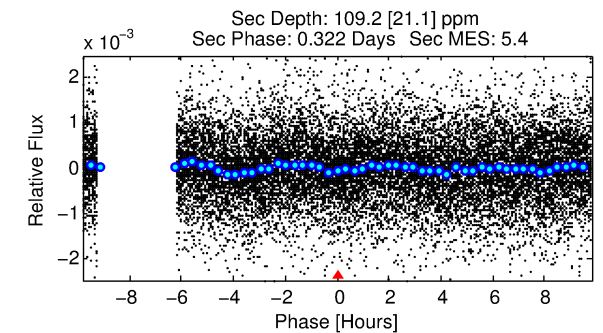
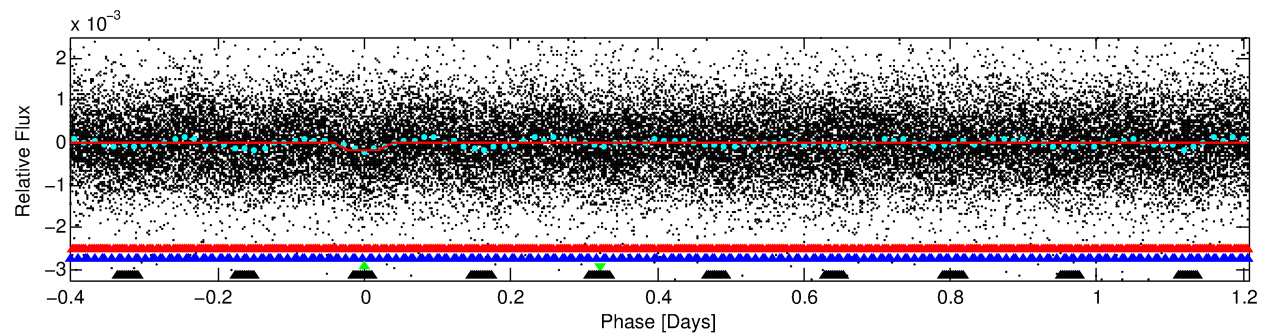
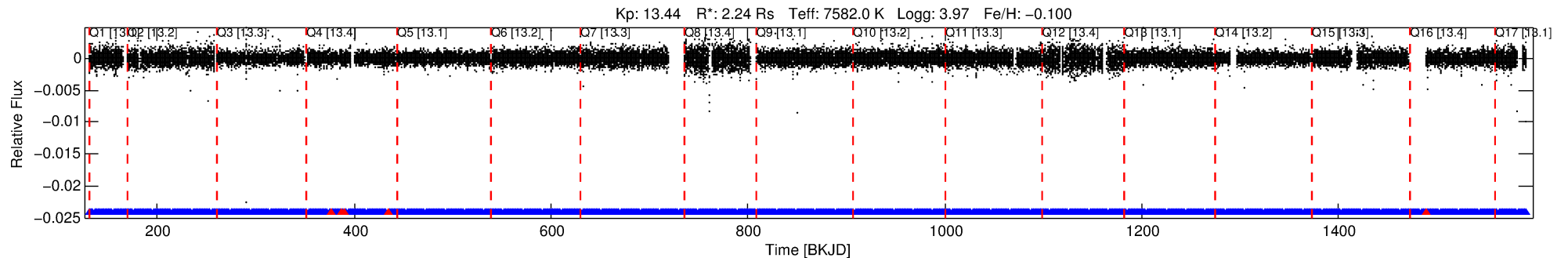
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008560867-03

No Significant Match Found

DV One-Page Summary

KIC: 8560867 Candidate: 3 of 4 Period: 1.610 d



DV Fit Results:

Period = 1.60988 [0.00001] d
Epoch = 131.6416 [0.0023] BKJD
Rp/R* = 0.0132 [0.0046]
a/R* = 5.59 [11.67]
b = 0.70 [1.61]
Seff = 14297.64 [6088.10]
Teq = 2788 [297] K
Rp = 3.23 [1.47] Re
a = 0.0322 [0.0083] AU
Ag = 5.98 [4.95] [1.01σ]
Teff = 6741 [1260] K [3.05σ]

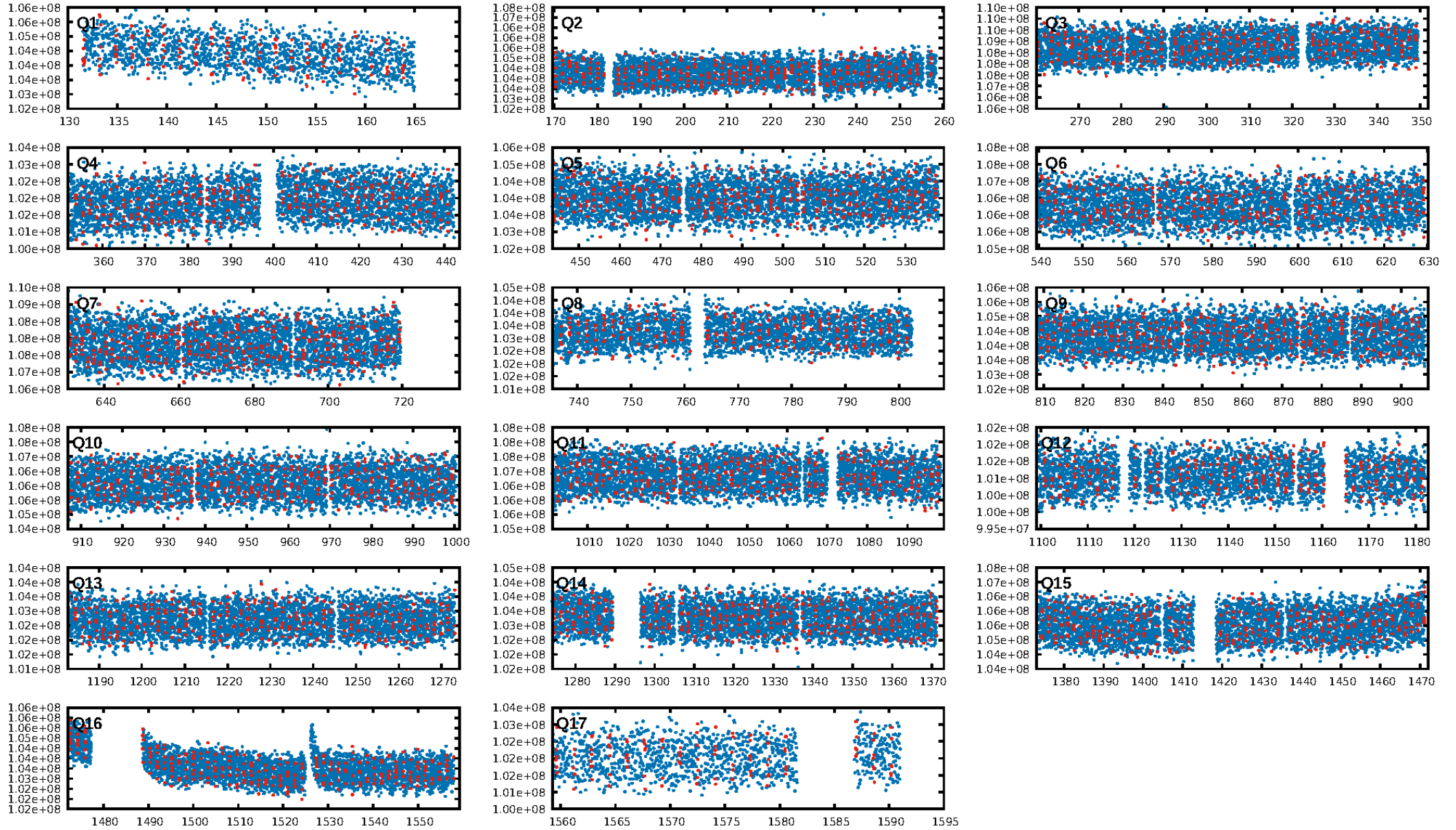
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 70.0% [1.04σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.82e-17
RollingBand-fgt: 0.99 [575/580]
GhostDiagnostic-chr: 20.78
Centroid-sig: N/A
Centroid-so: 0.190 arcsec [0.82σ]
OotOffset-rm: 0.099 arcsec [0.69σ]
KicOffset-rm: 0.165 arcsec [1.43σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.41 [7/17]
DiffImageOverlap-fno: 1.00 [17/17]

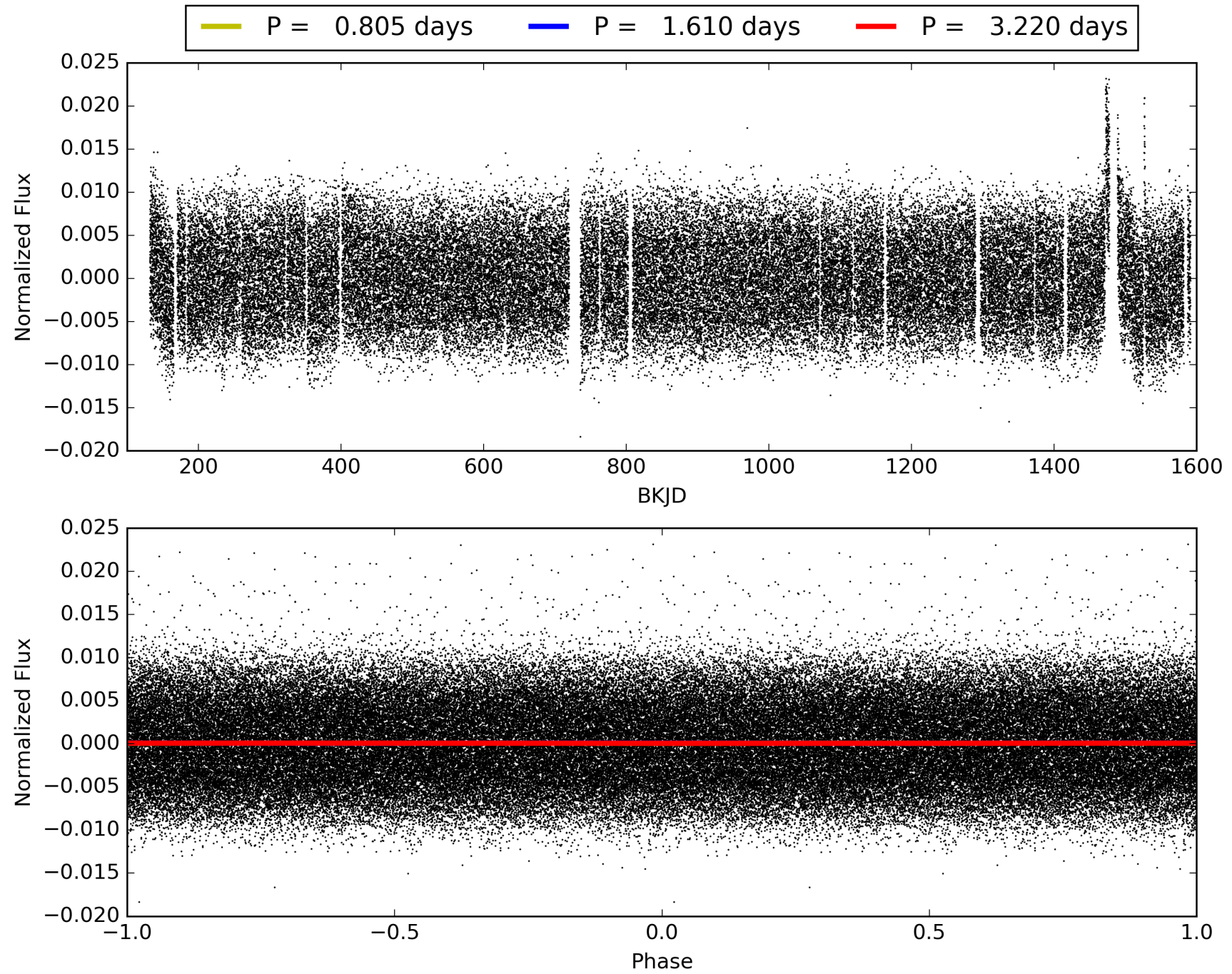
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:19:08 Z

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

TCE 008560867-03, PDC Light Curves

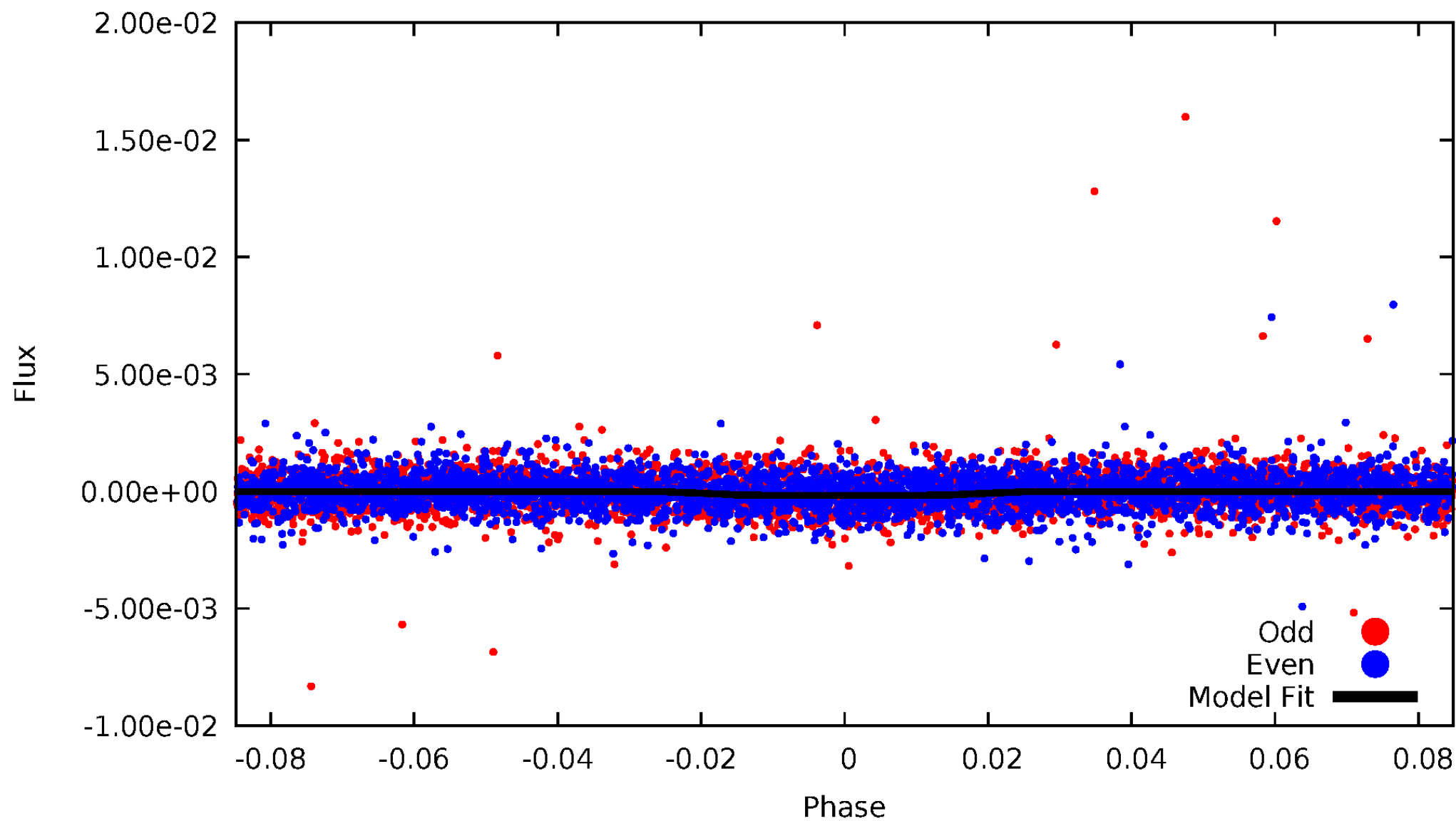


TCE 008560867-03



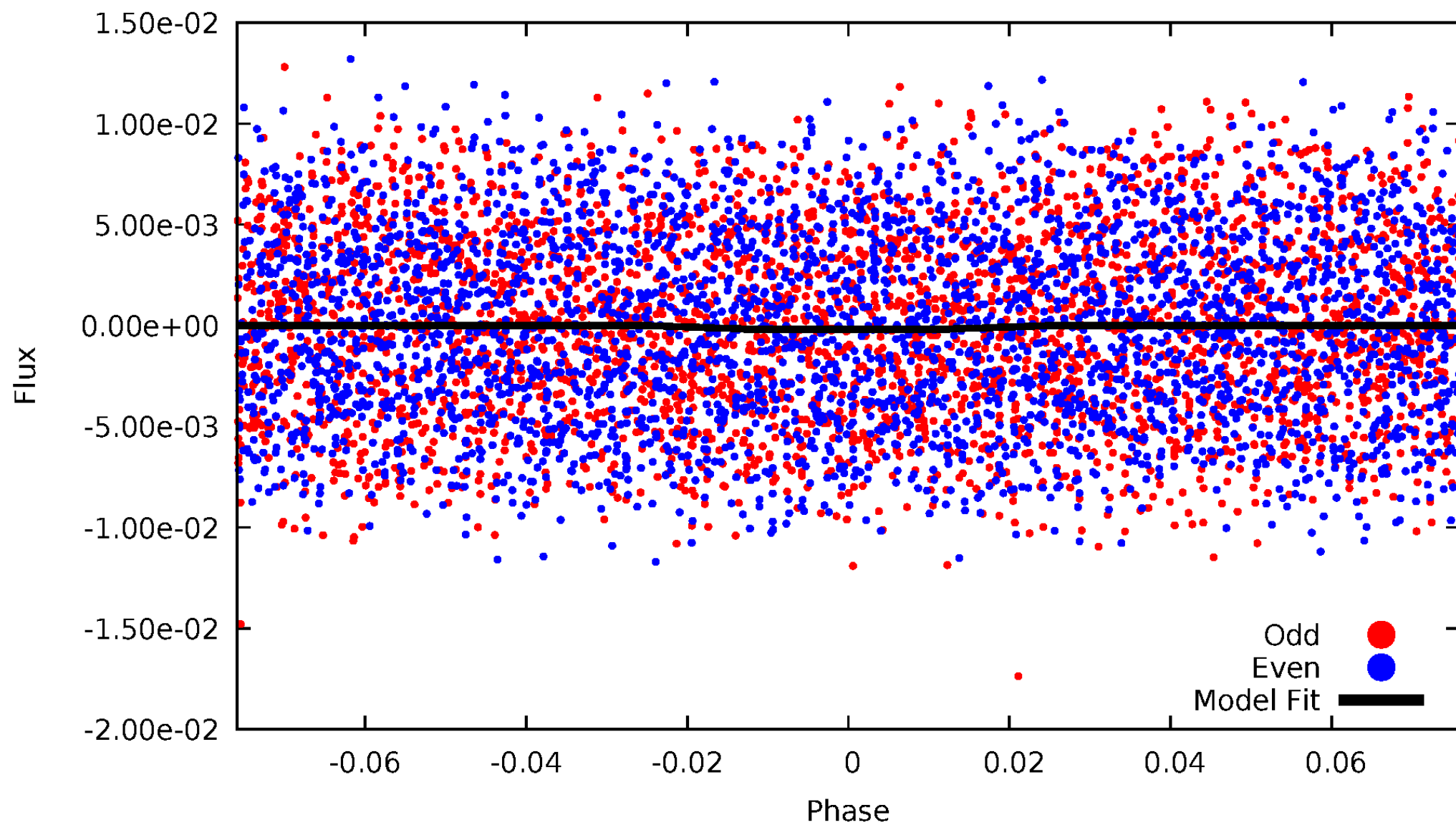
DV Odd/Even

TCE 008560867-03

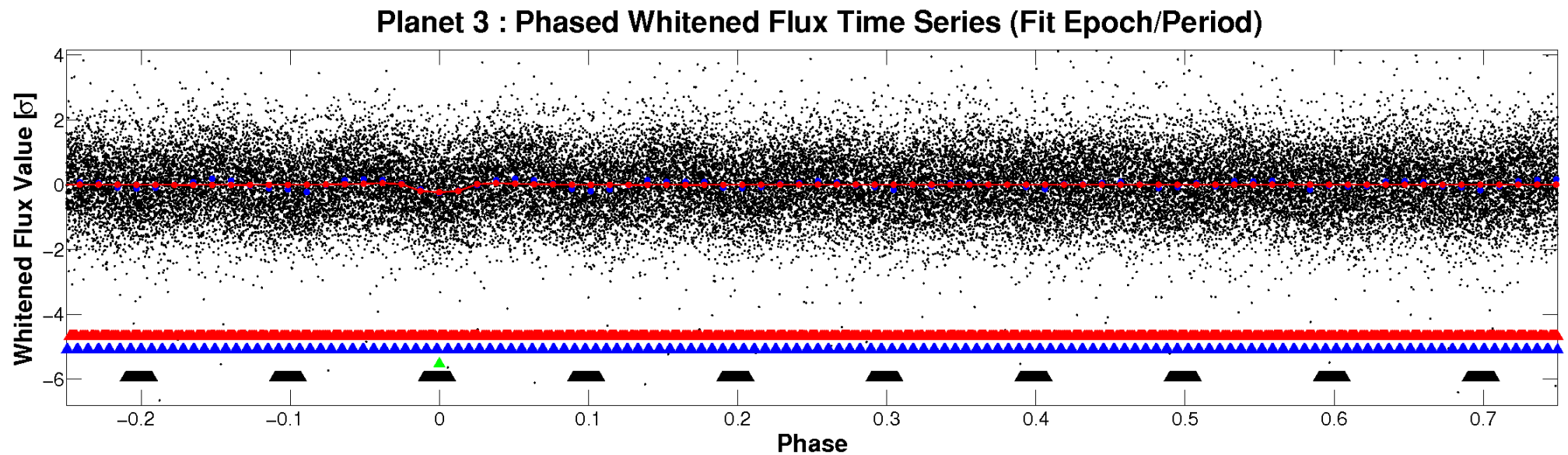
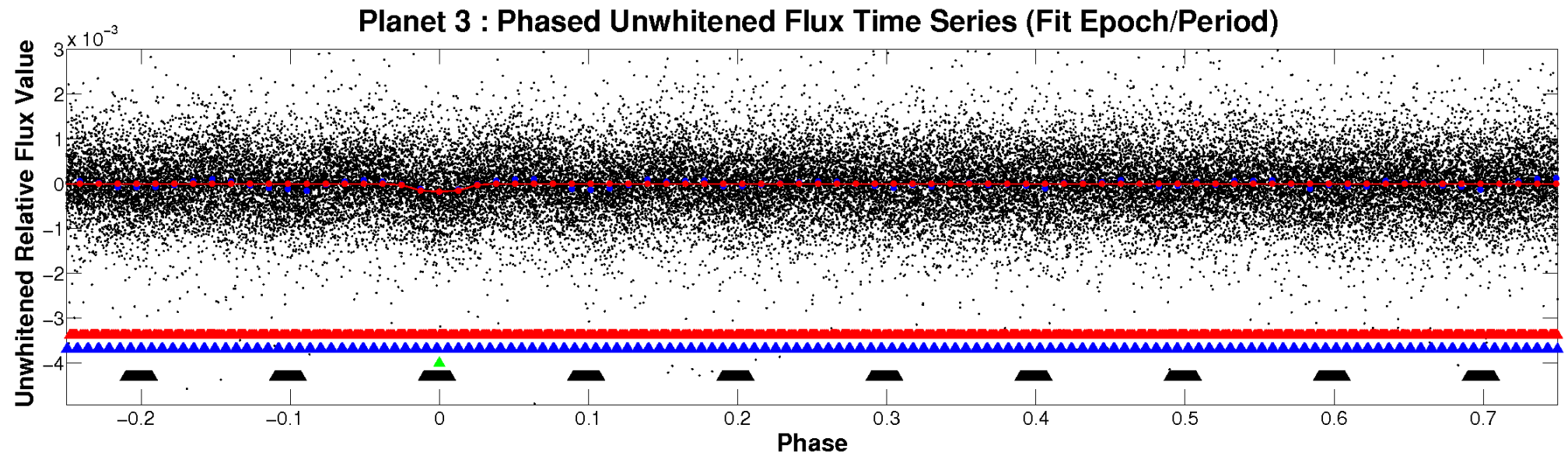


ALT Odd/Even

TCE 008560867-03

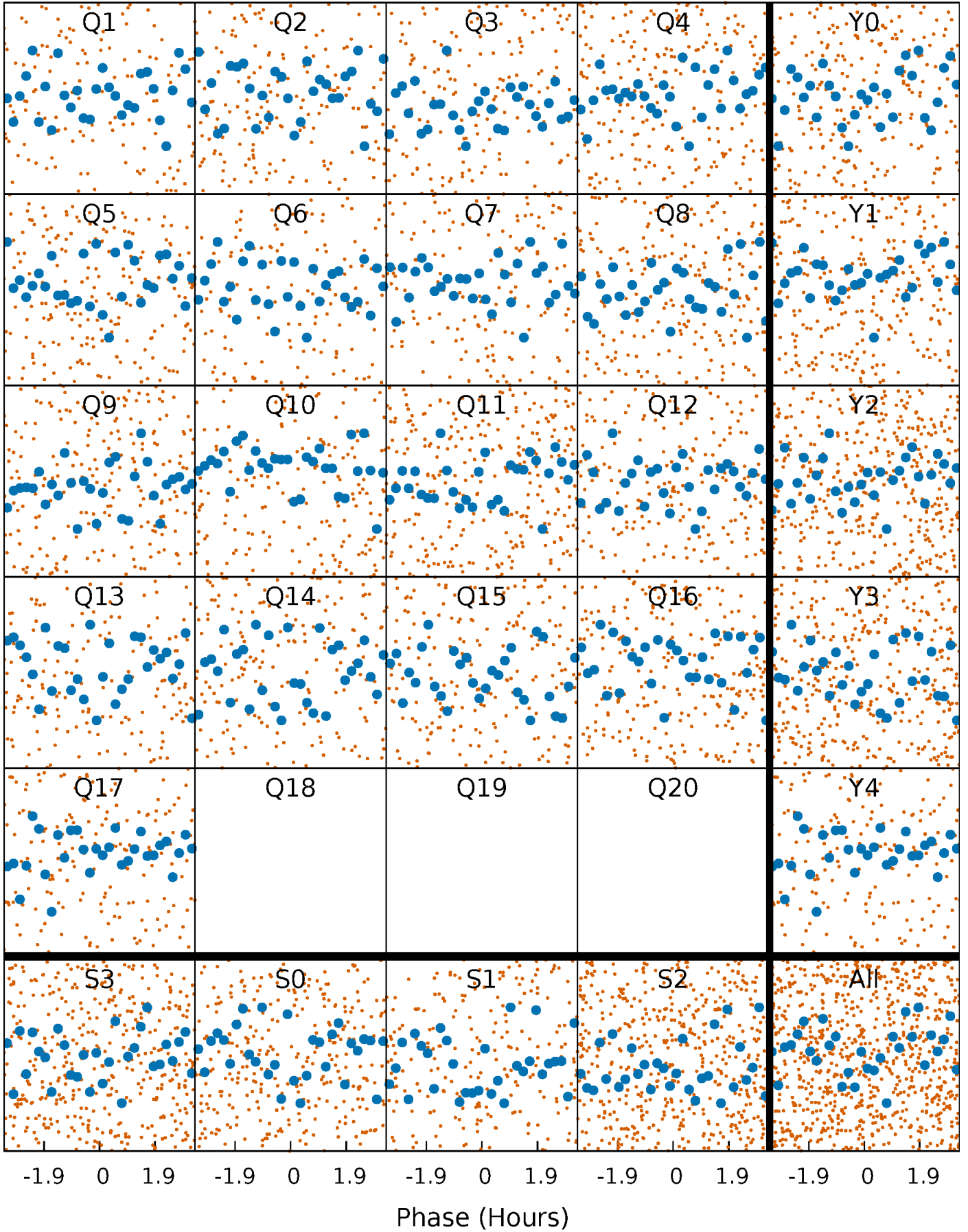


Non-Whitened Vs. Whitened Light Curve



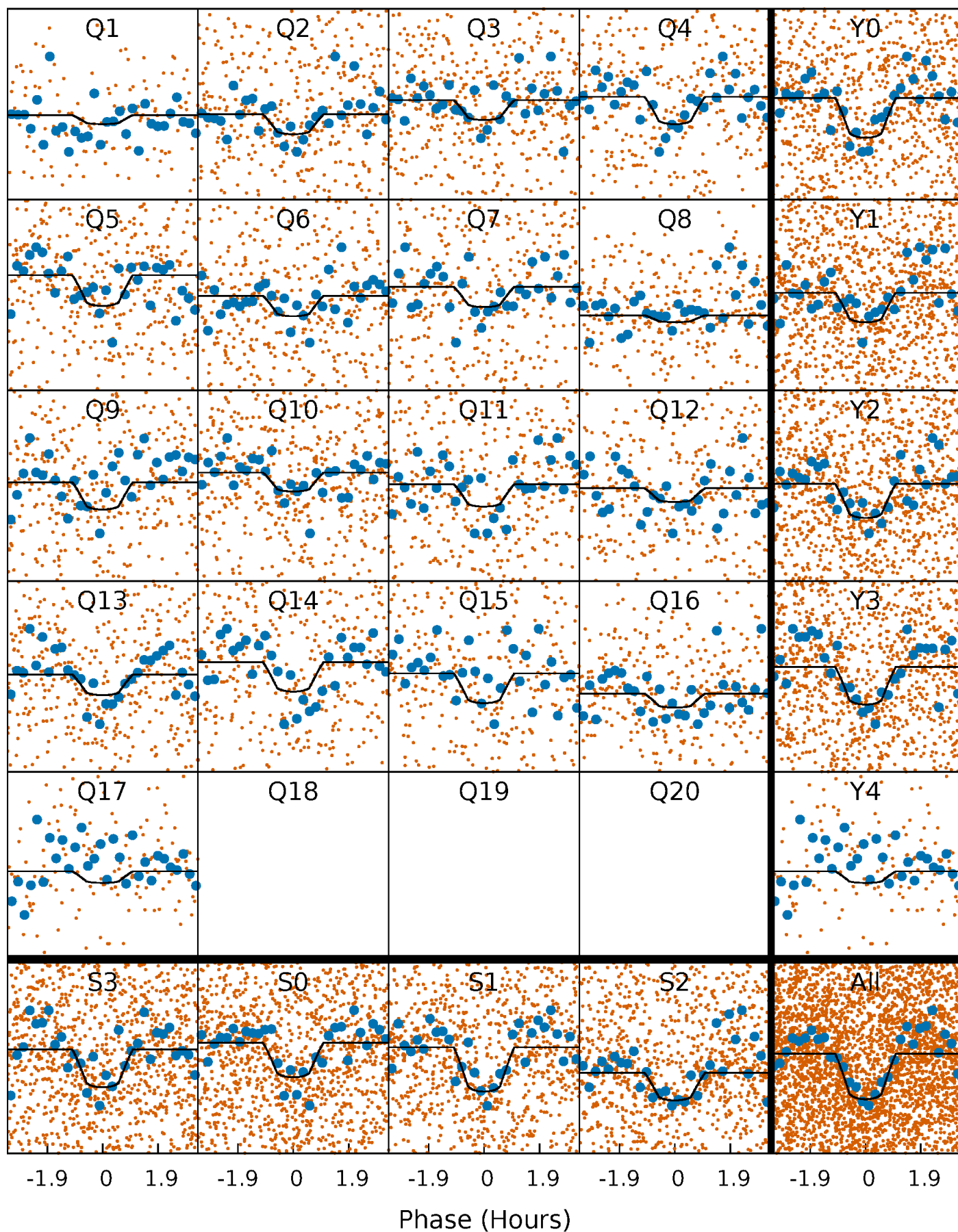
PDC Quarter-Phased Transit Curves

TCE 008560867-03 $P = 1.609885$ Days $T_0 = 131.641581$ (BKJD)



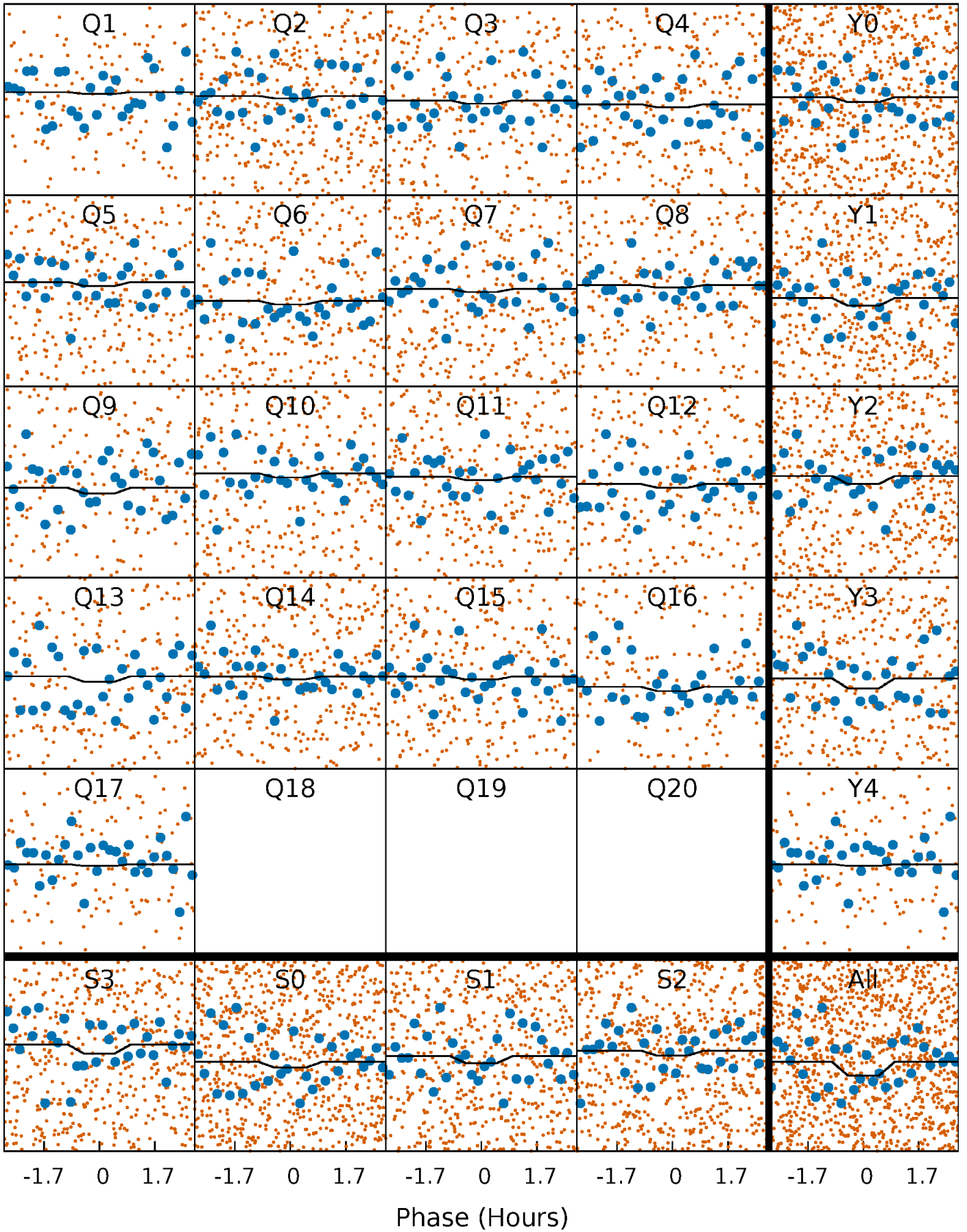
DV Quarter-Phased Transit Curves

TCE 008560867-03 P= 1.609885 Days $T_0=131.641581$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

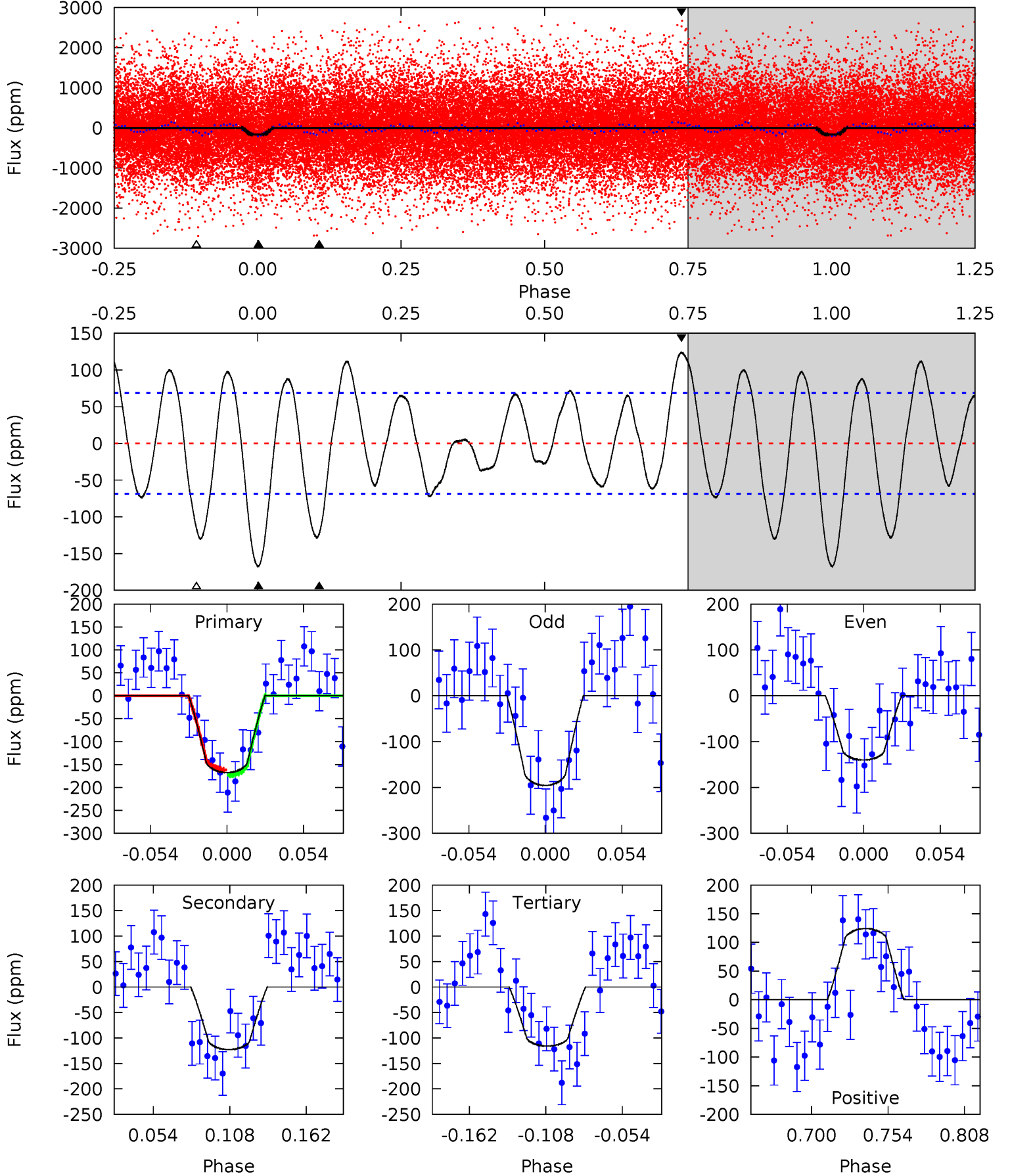
TCE 008560867-03 P= 1.609895 Days $T_0=131.639462$ (BKJD)



DV Model-Shift Uniqueness Test

008560867-03, P = 1.609885 Days, E = 130.031696 Days

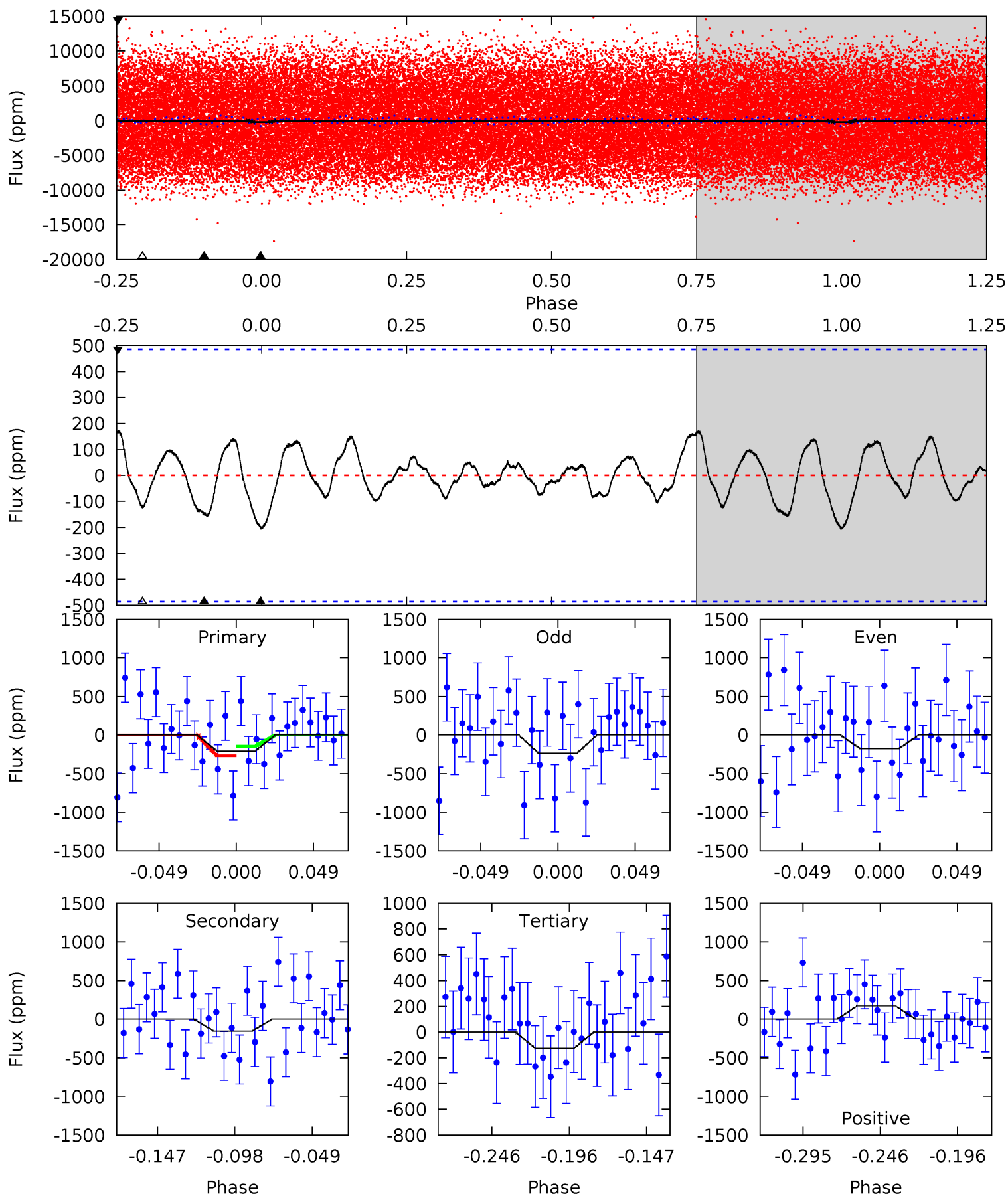
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	8.40	7.93	8.49	4.69	1.93	3.75	3.54	2.99	0.47	-0.09	1.91	0.98	0.43	0.40



Alt Model-Shift Uniqueness Test

008560867-03, P = 1.609895 Days, E = 130.029567 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.02	1.49	1.22	1.65	4.71	1.97	0.63	0.79	0.36	0.27	-0.16	0.28	1.02	0.46	0.59



Stellar Parameters For KIC 008560867

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7582^{+211}_{-316}	$3.974^{+0.222}_{-0.148}$	$-0.100^{+0.200}_{-0.300}$	$2.241^{+0.532}_{-0.650}$	$1.726^{+0.184}_{-0.315}$	$0.216^{+0.281}_{-0.091}$
	+3%/-4%	+6%/-4%	+200%/-300%	+24%/-29%	+11%/-18%	+130%/-42%
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 008560867-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-123 ± 15	$3.19^{+1.32}_{-1.08}$	3855^{+273}_{-287}	6663^{+1973}_{-996}	$6.704^{+8.715}_{-3.269}$
Alt.	-154 ± 103	$3.15^{+1.24}_{-1.11}$	3847^{+280}_{-327}	7054^{+2638}_{-2108}	$8.193^{+14.453}_{-6.055}$

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 $A_{obs} \gg 1.0$

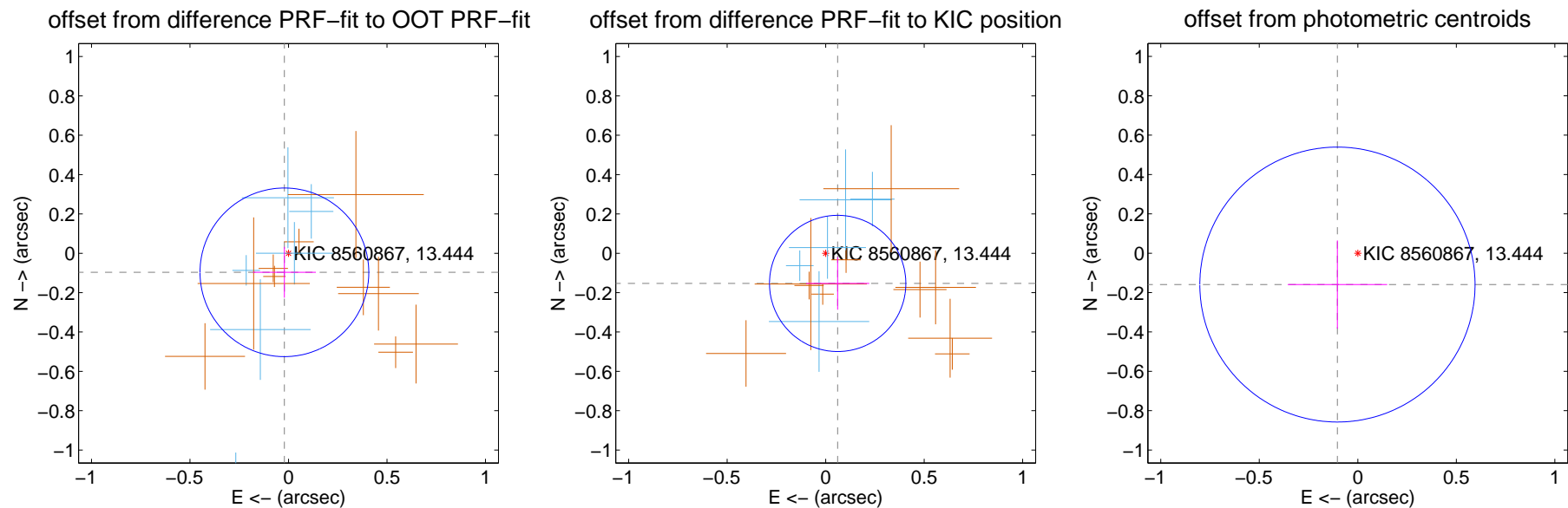
DV Centroid Data

Supplemental centroid analysis for 008560867-03. Kepler magnitude: 13.44. Transit SNR 8.69

There are 7 quarters with good PRF difference image offsets

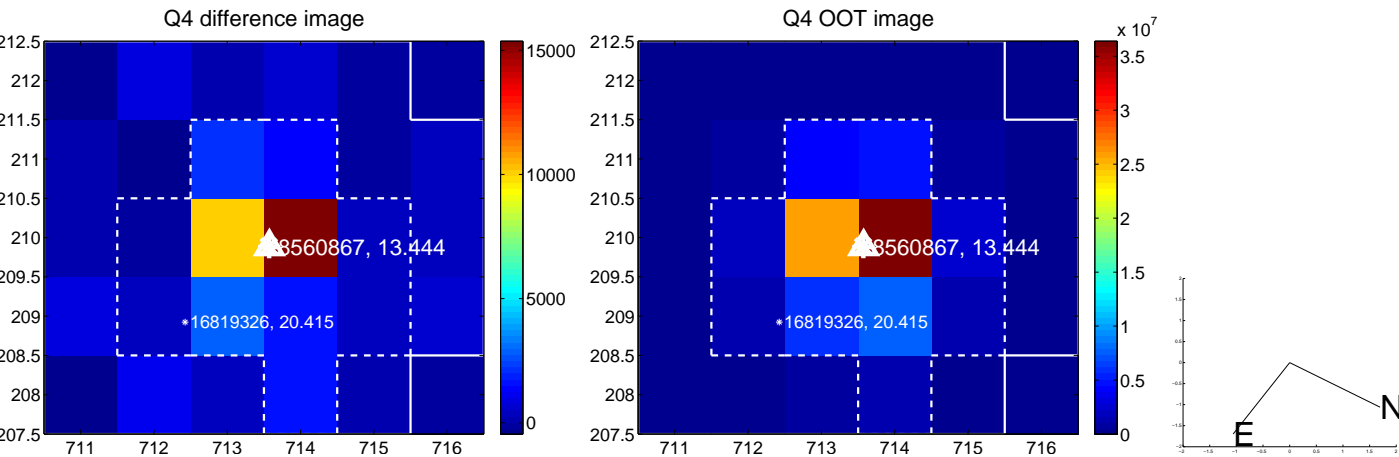
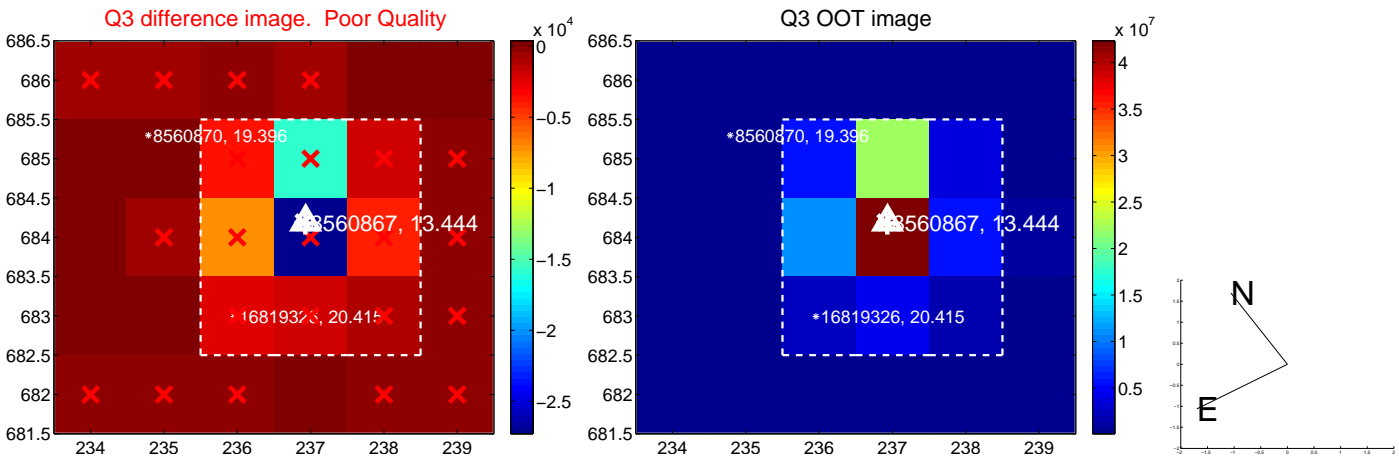
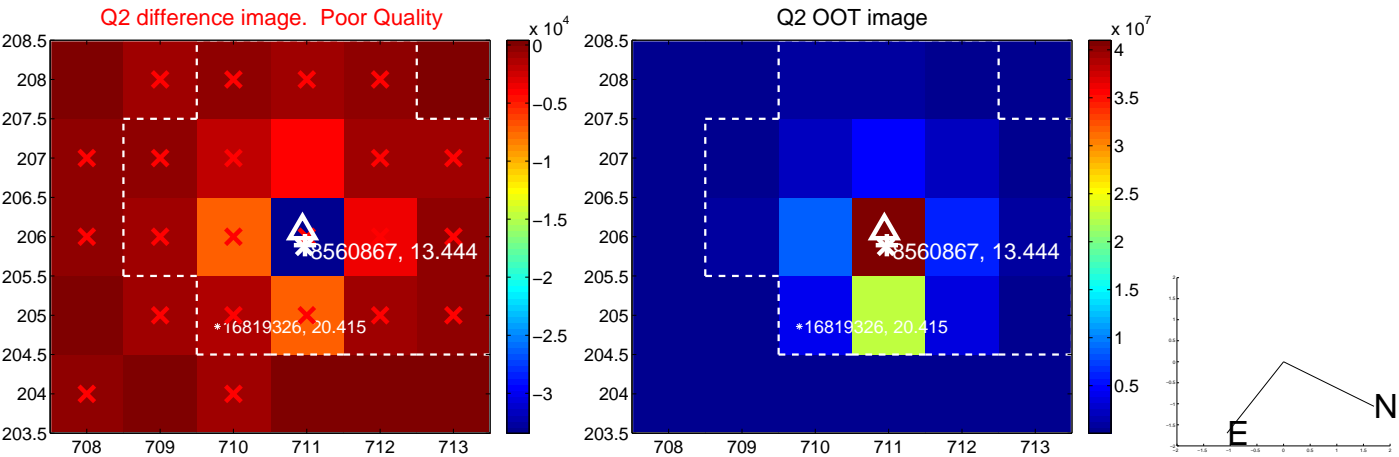
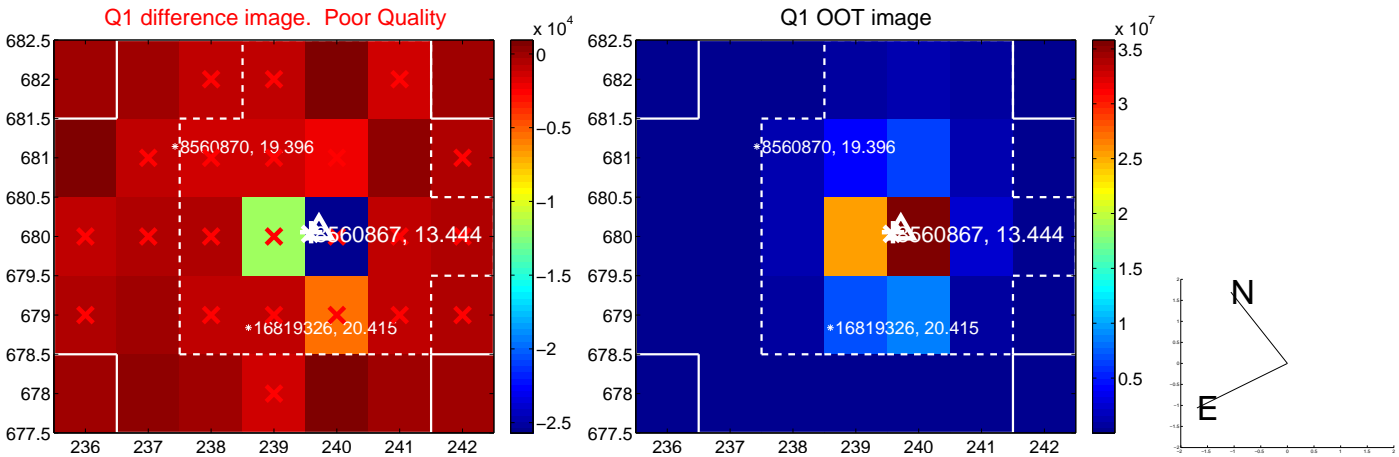
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.099 ± 0.143	0.69	0.021 ± 0.160	-0.097 ± 0.129
PRF-fit source offset from KIC position	0.165 ± 0.115	1.43	-0.061 ± 0.160	-0.153 ± 0.134
photometric centroid source offset	0.19 ± 0.23	0.82	0.10 ± 0.25	-0.16 ± 0.22

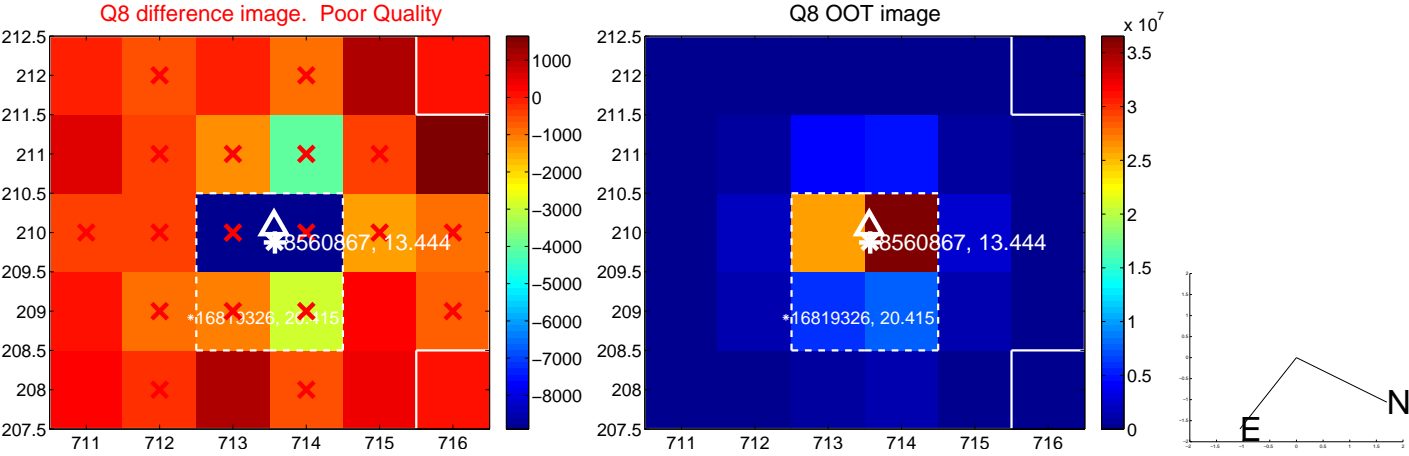
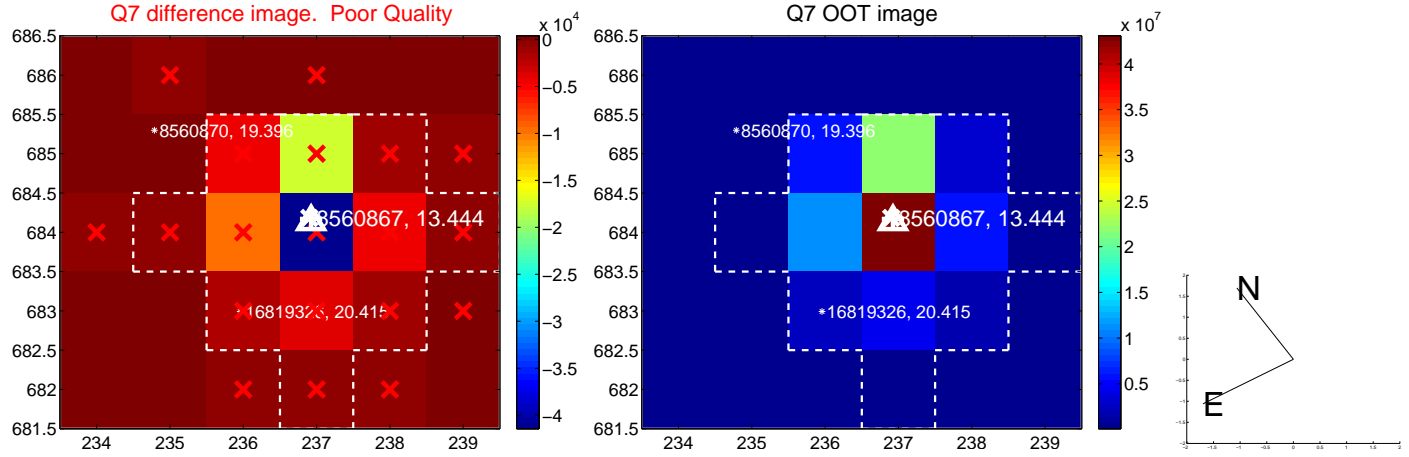
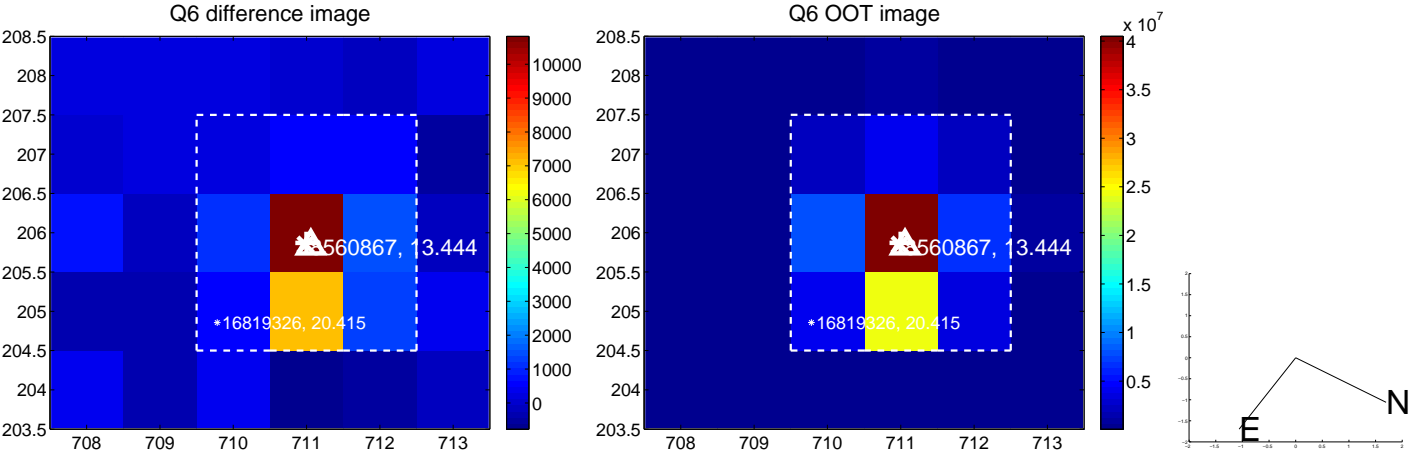
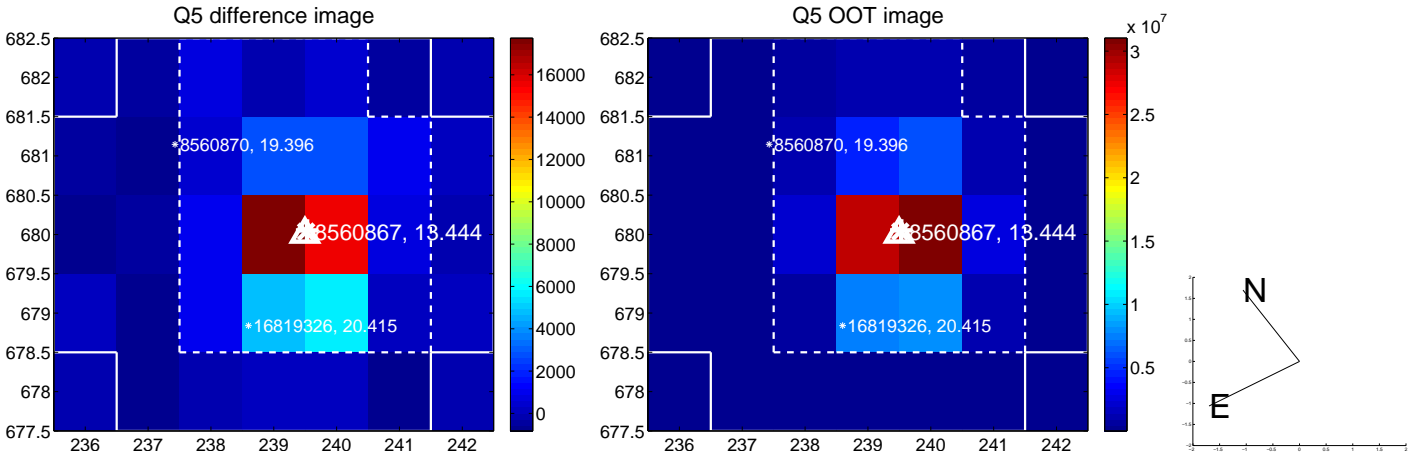


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

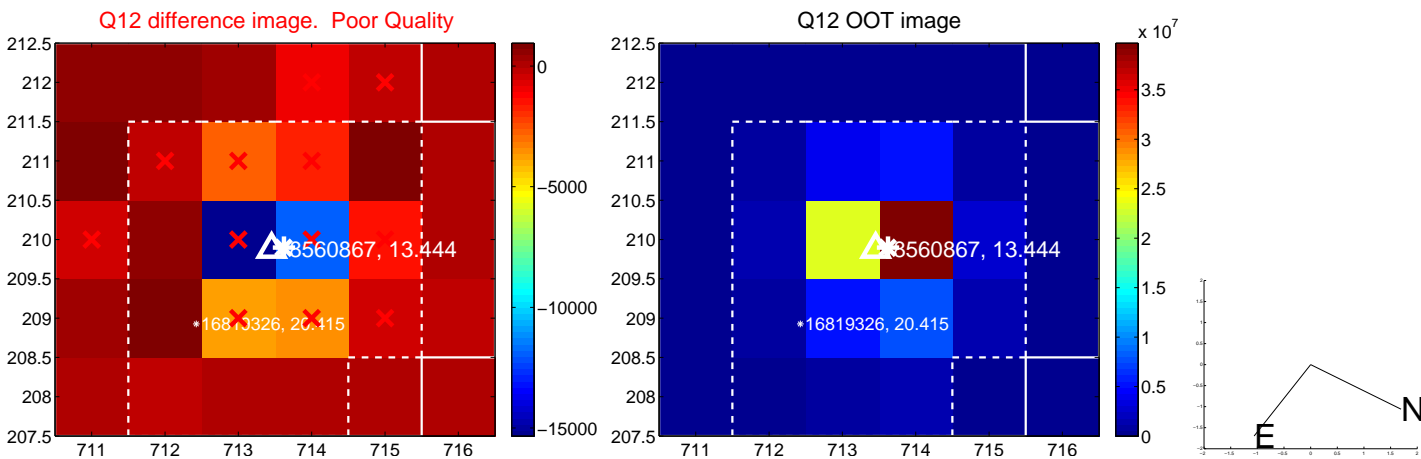
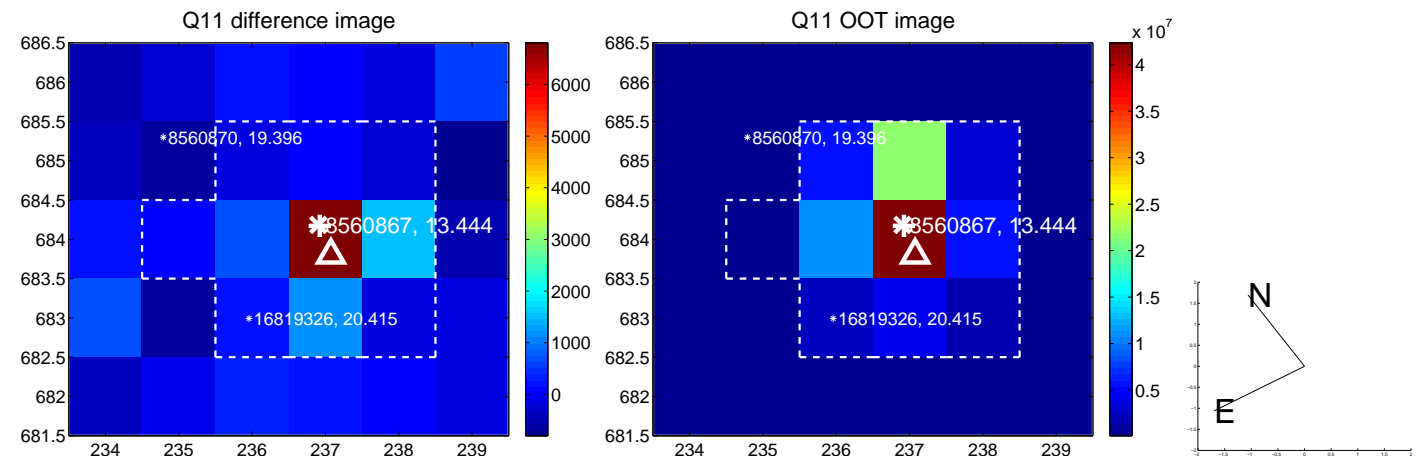
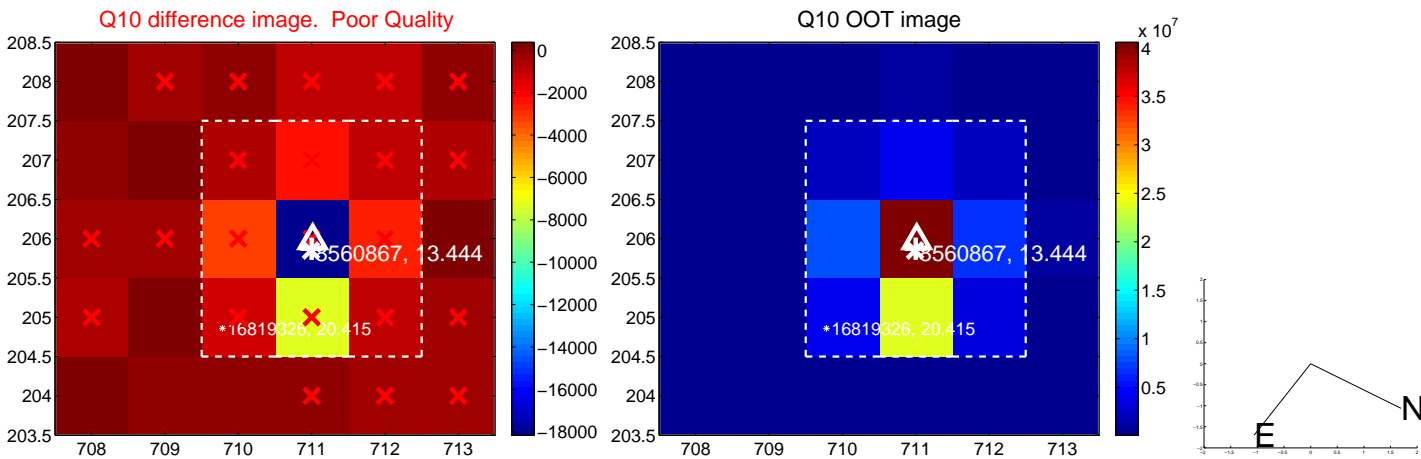
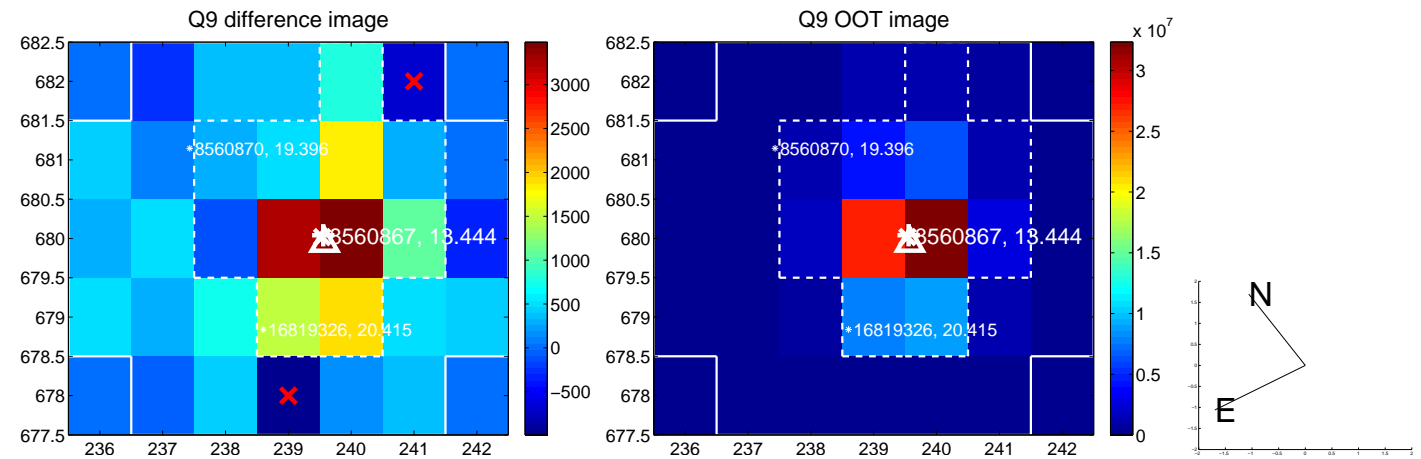
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



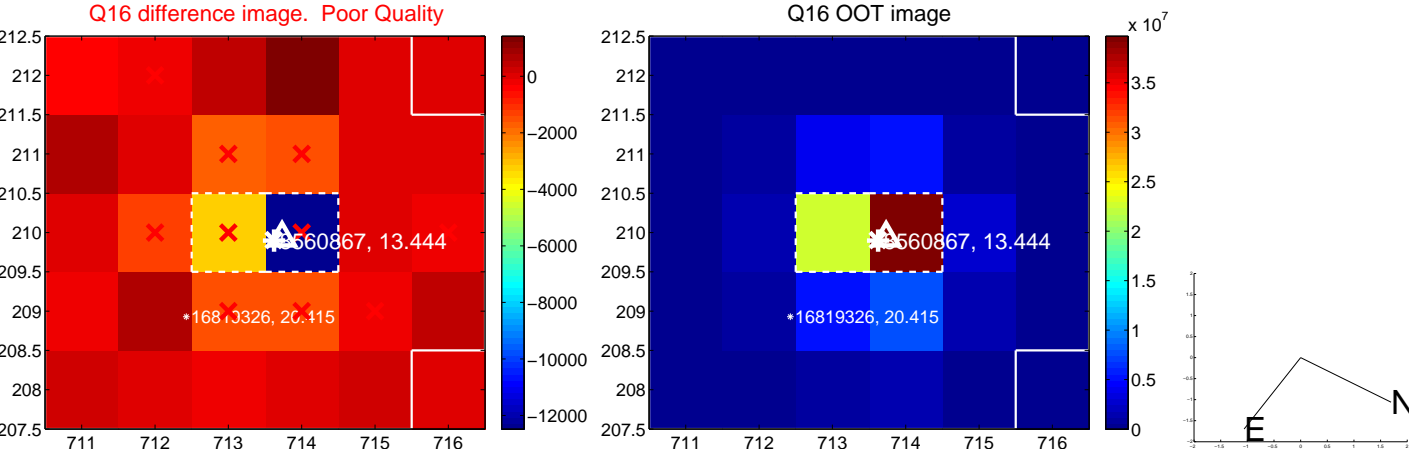
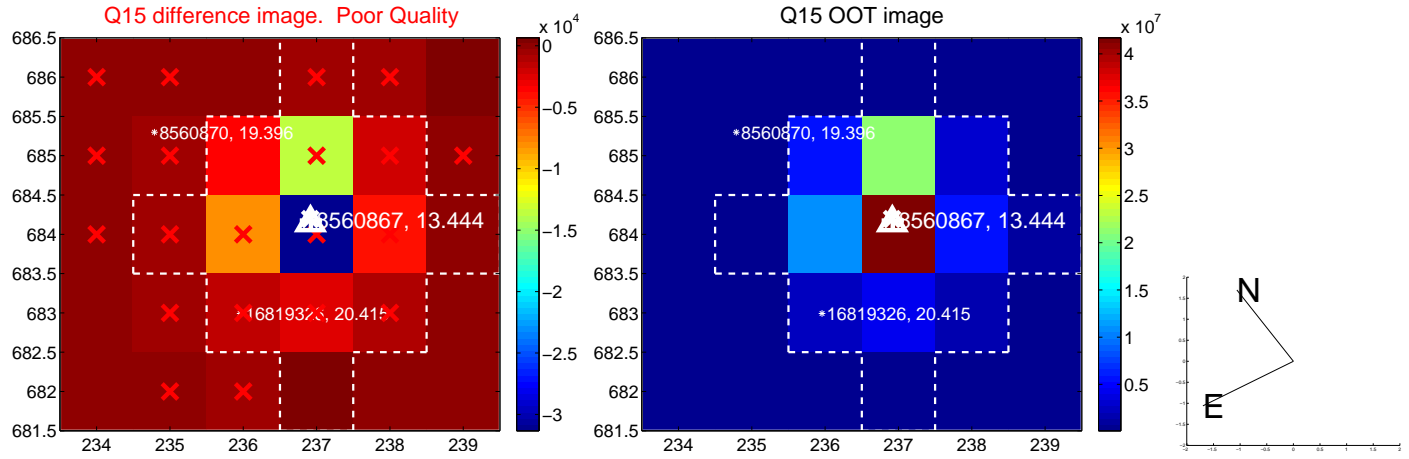
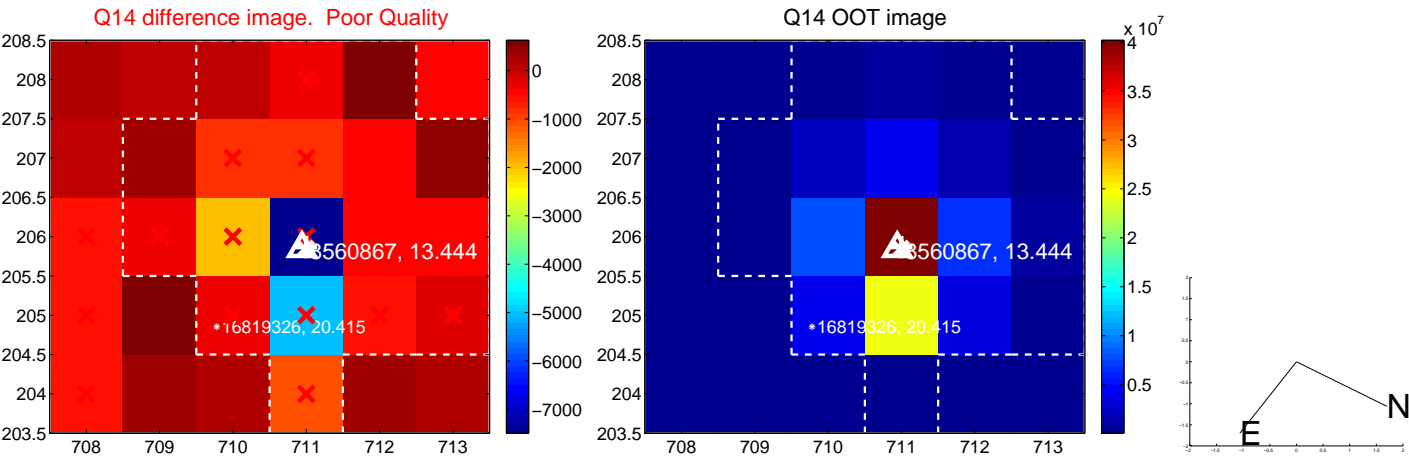
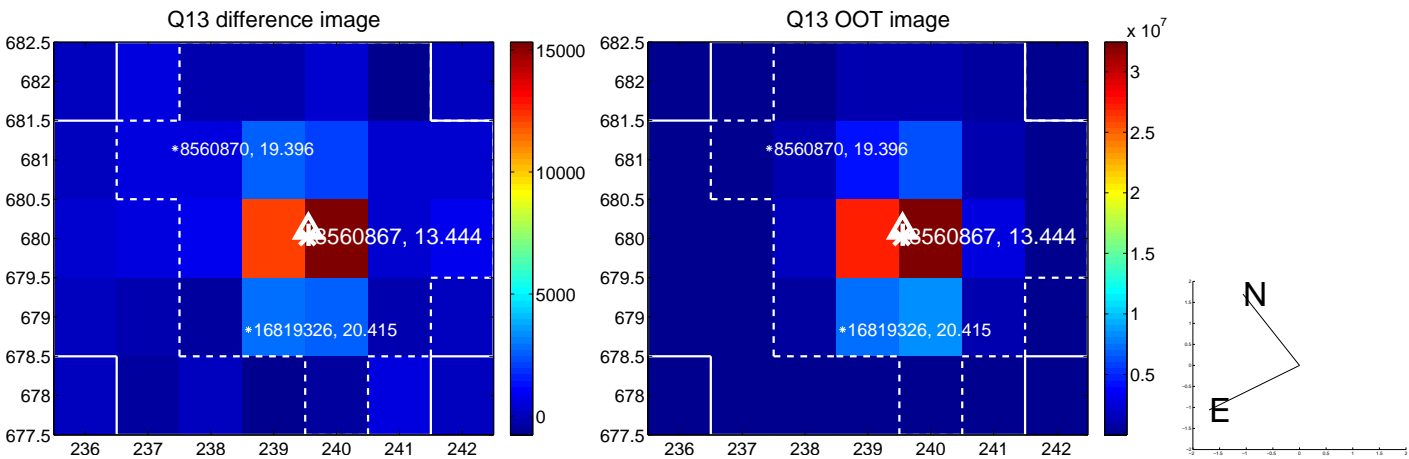
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



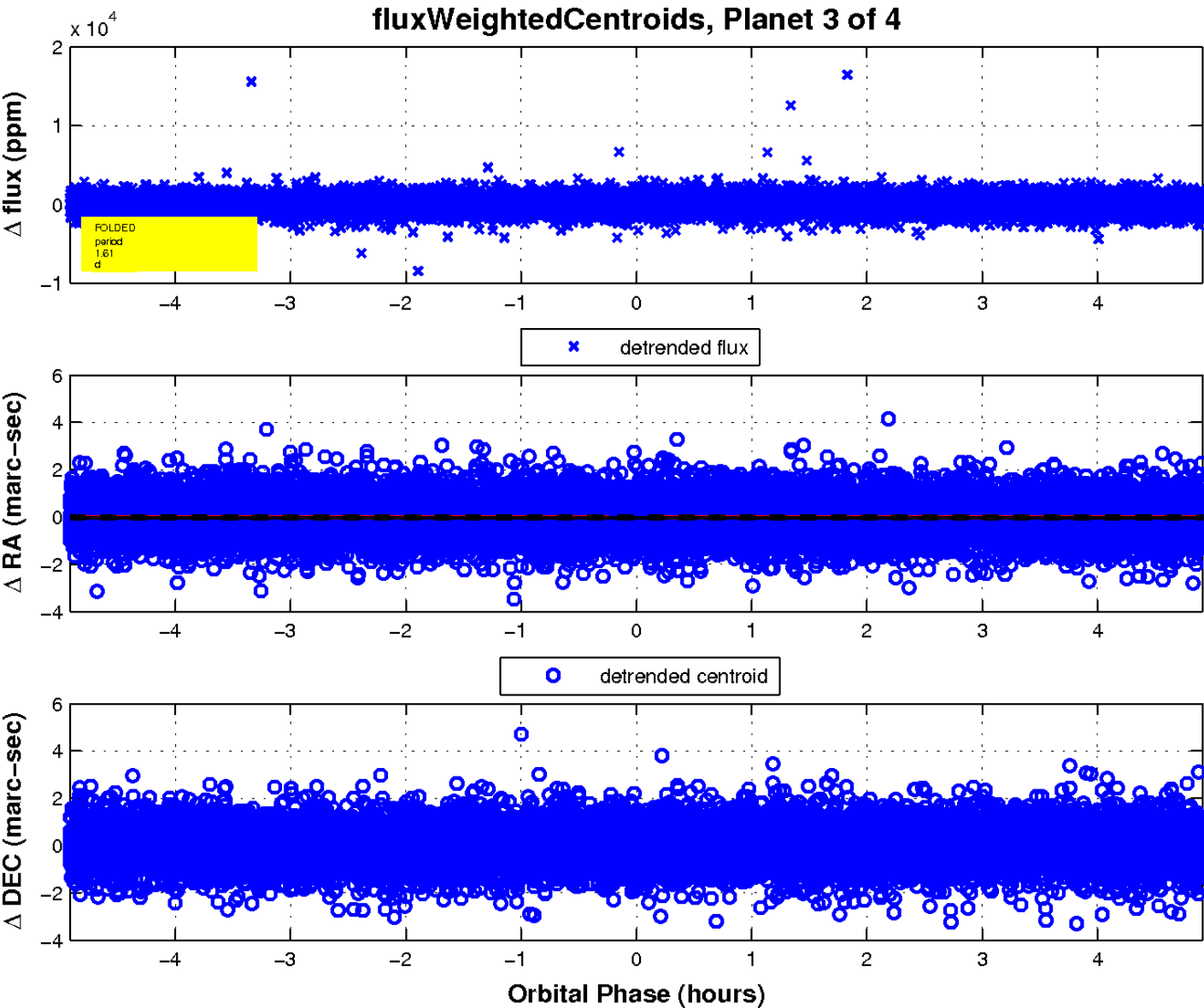
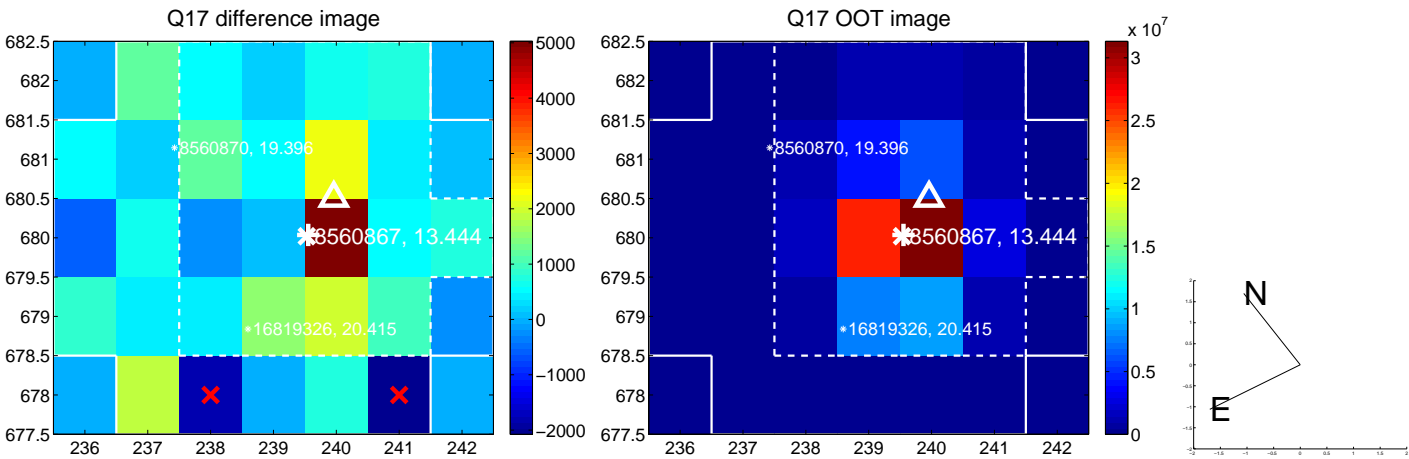
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

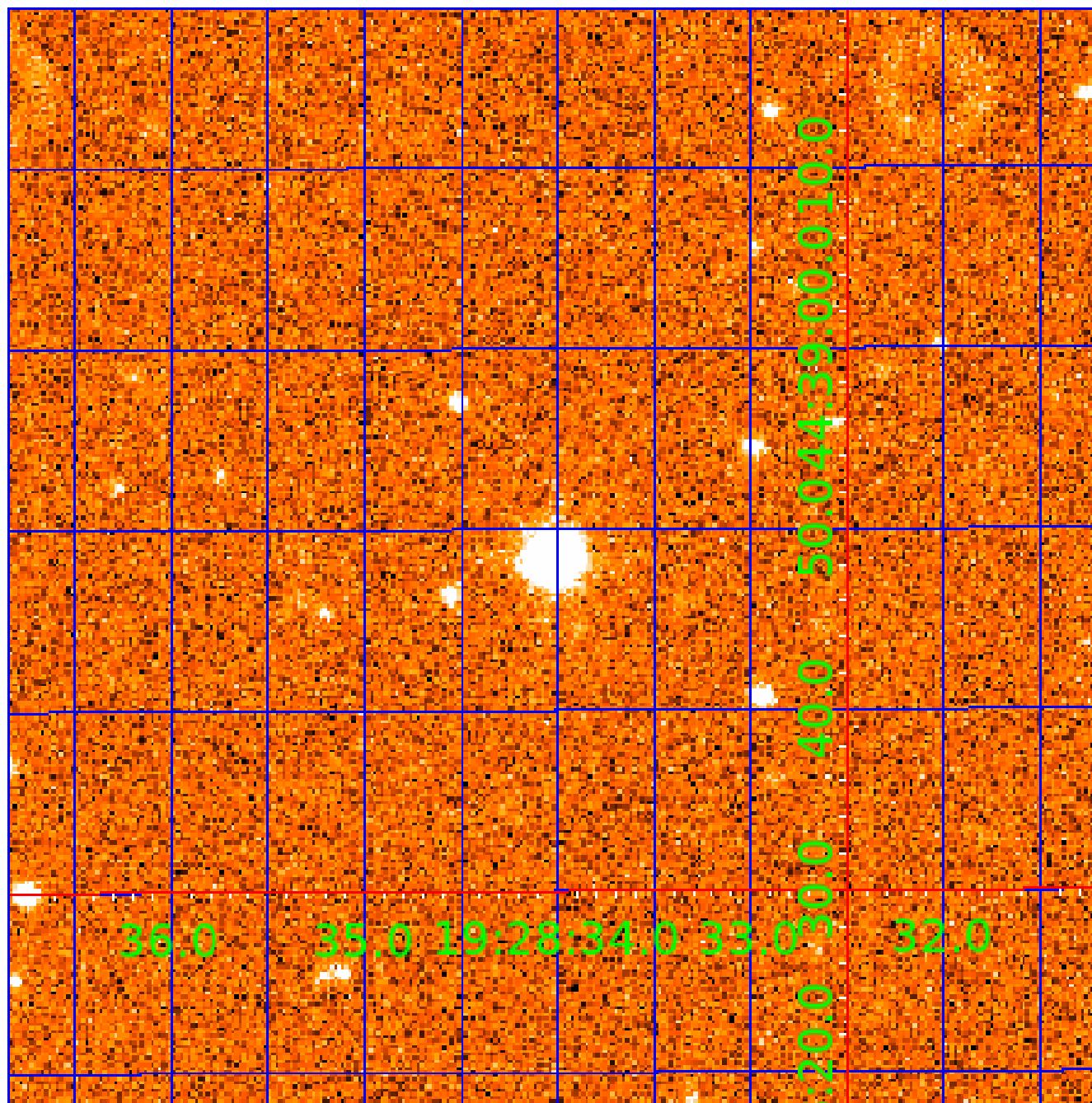


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008560867

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})
008560867-01	OBS	No	1.724050	132.780561	149.7	2.077	12.0	8.9	2.24	7582	3.17	13049.41
008560867-02	OBS	No	1.724063	133.133774	204.3	2.321	10.9	12.2	2.24	7582	3.69	13049.27
008560867-03	OBS	No	1.609885	131.641581	180.6	1.638	8.6	8.7	2.24	7582	3.23	14297.64
008560867-04	OBS	No	2.092809	133.585064	211.2	1.719	7.9	8.2	2.24	7582	4.05	10077.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008560867-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008560867-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
008560867-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008560867-04	OBS	FP	0.00	1	0	0	0	LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

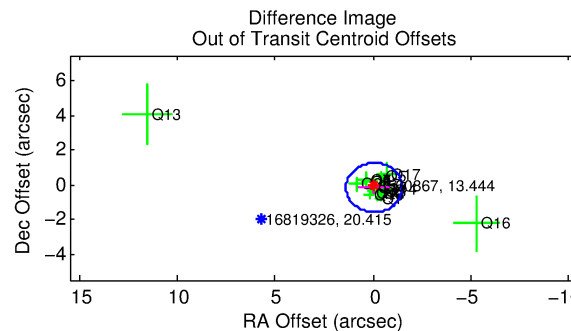
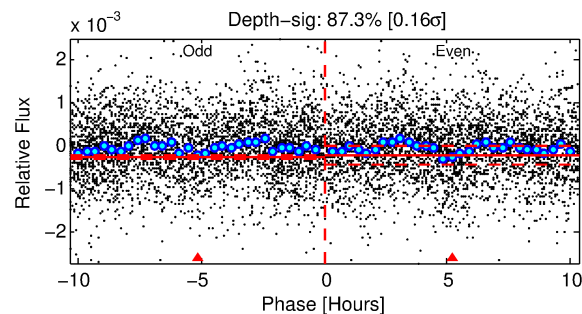
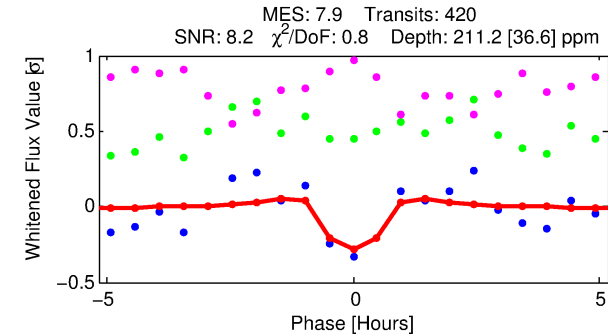
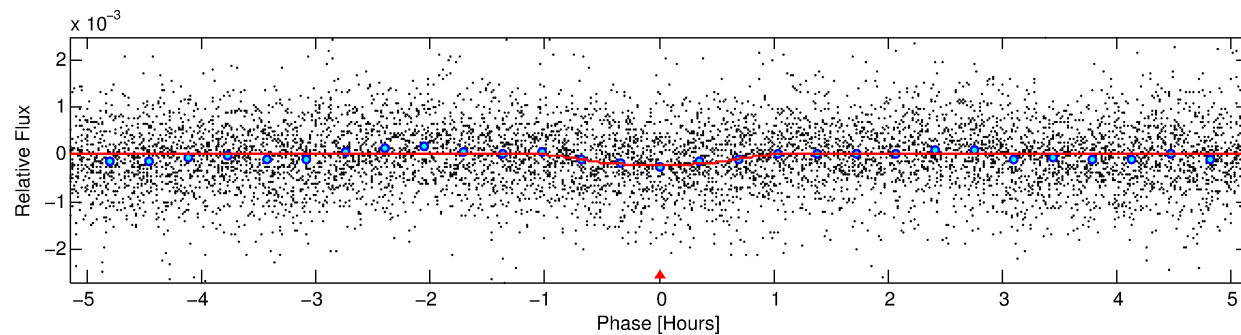
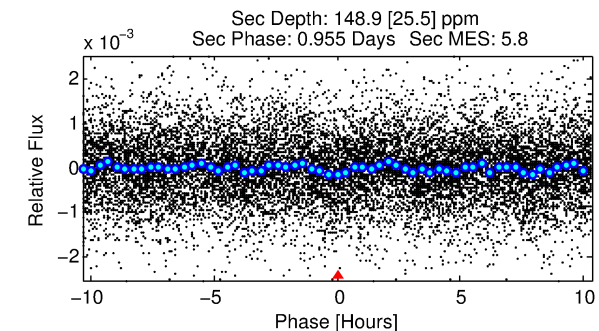
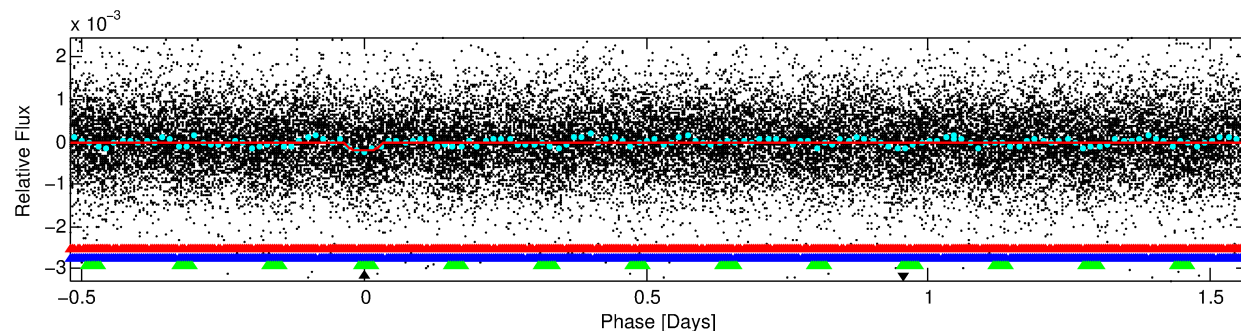
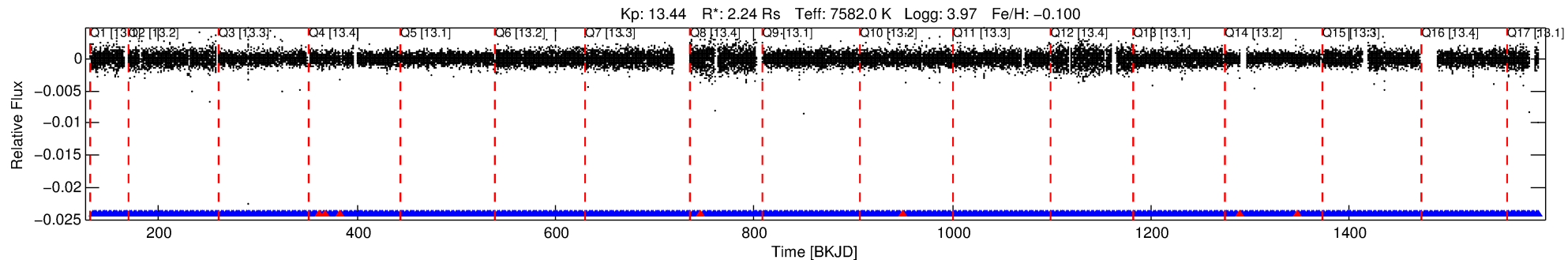
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008560867-04

No Significant Match Found

DV One-Page Summary

KIC: 8560867 Candidate: 4 of 4 Period: 2.093 d



DV Fit Results:

Period = 2.09281 [0.00001] d
Epoch = 133.5851 [0.0026] BKJD
Rp/R* = 0.0166 [0.0032]
a/R* = 3.20 [2.98]
b = 0.96 [0.08]
Seff = 10077.46 [4291.10]
Teq = 2555 [272] K
Rp = 4.05 [1.41] Re
a = 0.0384 [0.0099] AU
Ag = 7.36 [4.25] [1.50σ]
Teff = 6506 [741] K [5.01σ]

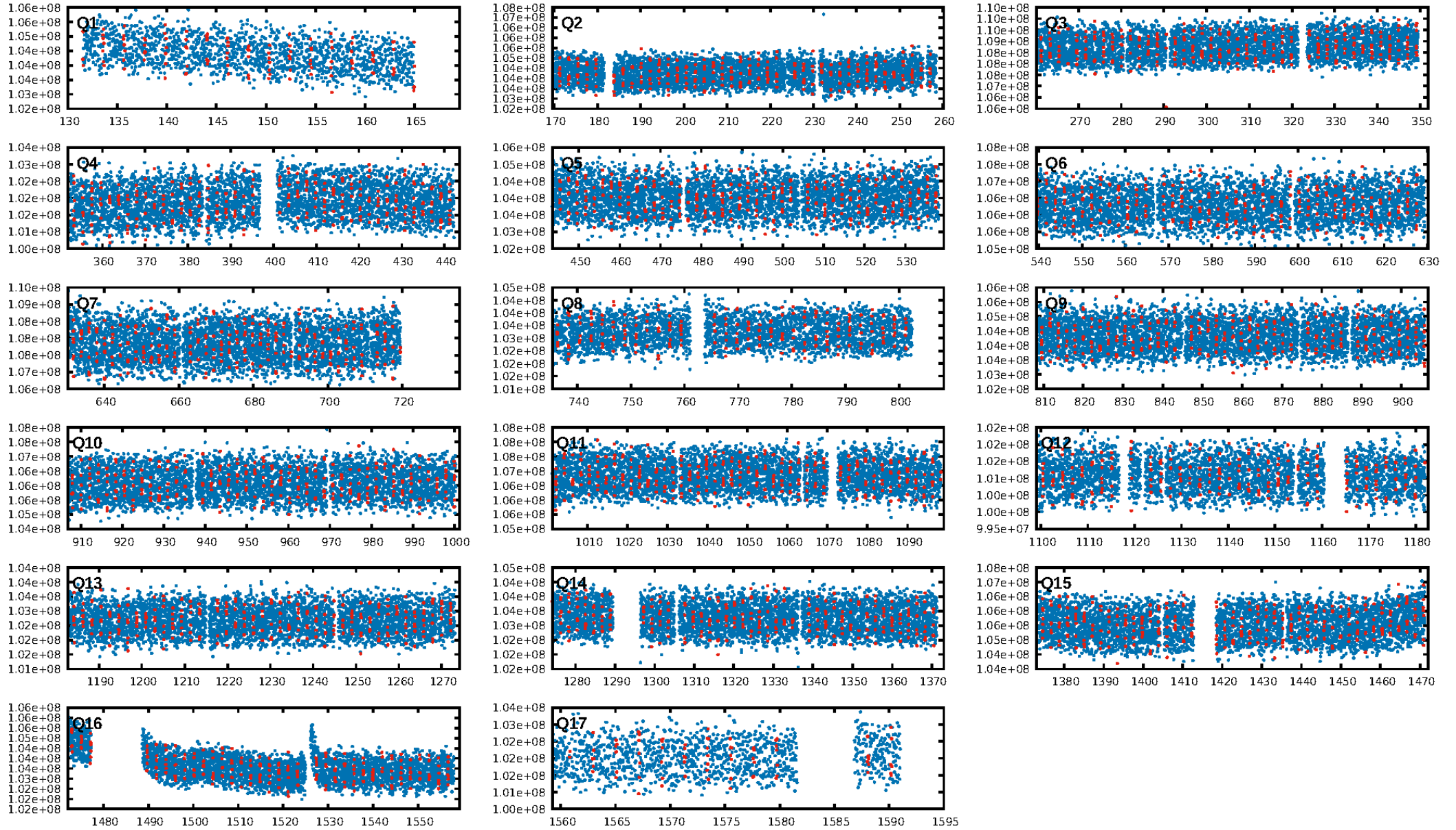
DV Diagnostic Results:

ShortPeriod-sig: 99.8% [3.06σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.12e-14
RollingBand-fgt: 0.98 [395/402]
GhostDiagnostic-chr: 3.828
Centroid-sig: N/A
Centroid-so: 0.327 arcsec [1.40σ]
OotOffset-rm: 0.154 arcsec [0.32σ]
KicOffset-rm: 0.248 arcsec [0.51σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.38 [6/16]
DiffImageOverlap-fno: 1.00 [17/17]

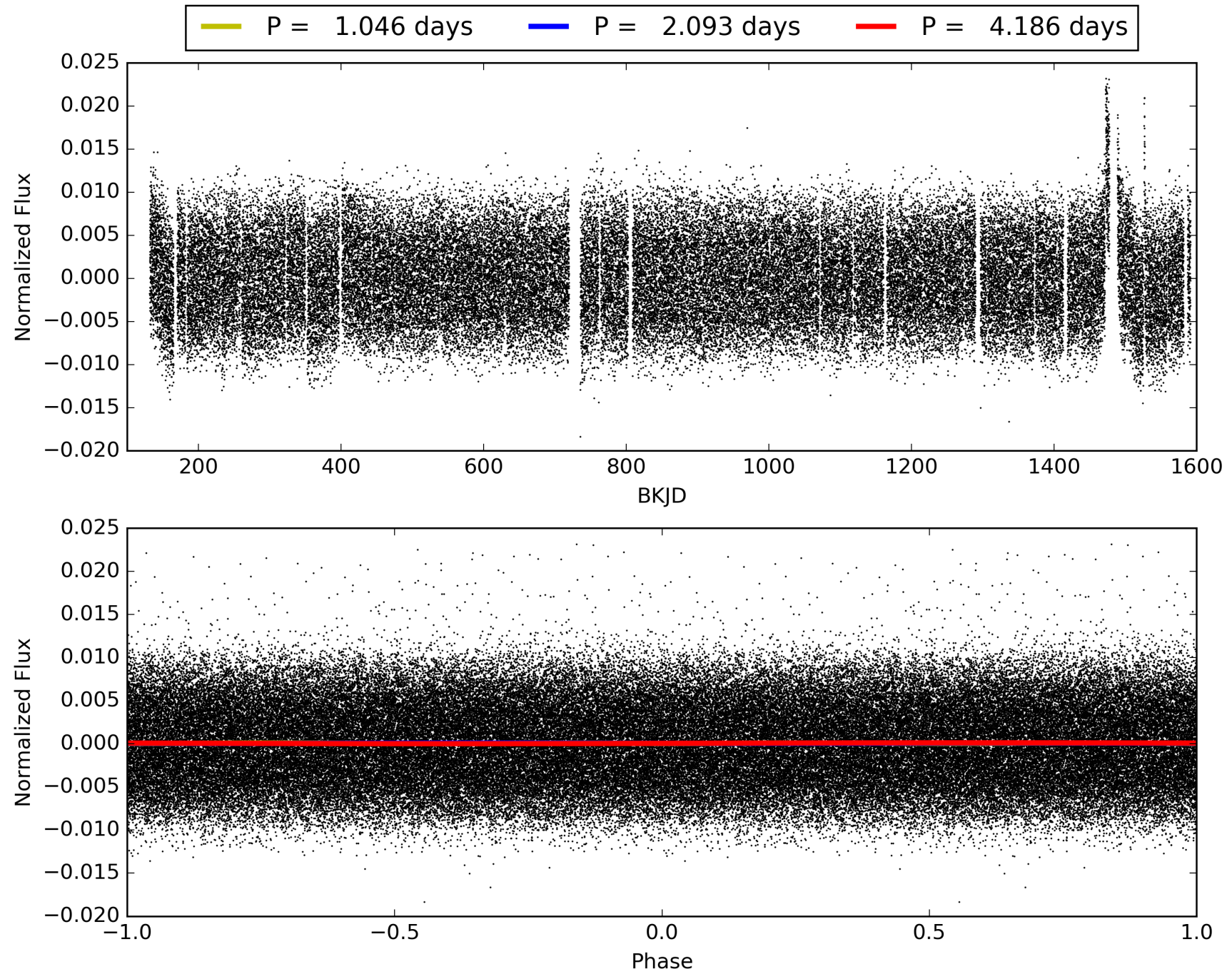
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:19:14 Z

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

TCE 008560867-04, PDC Light Curves

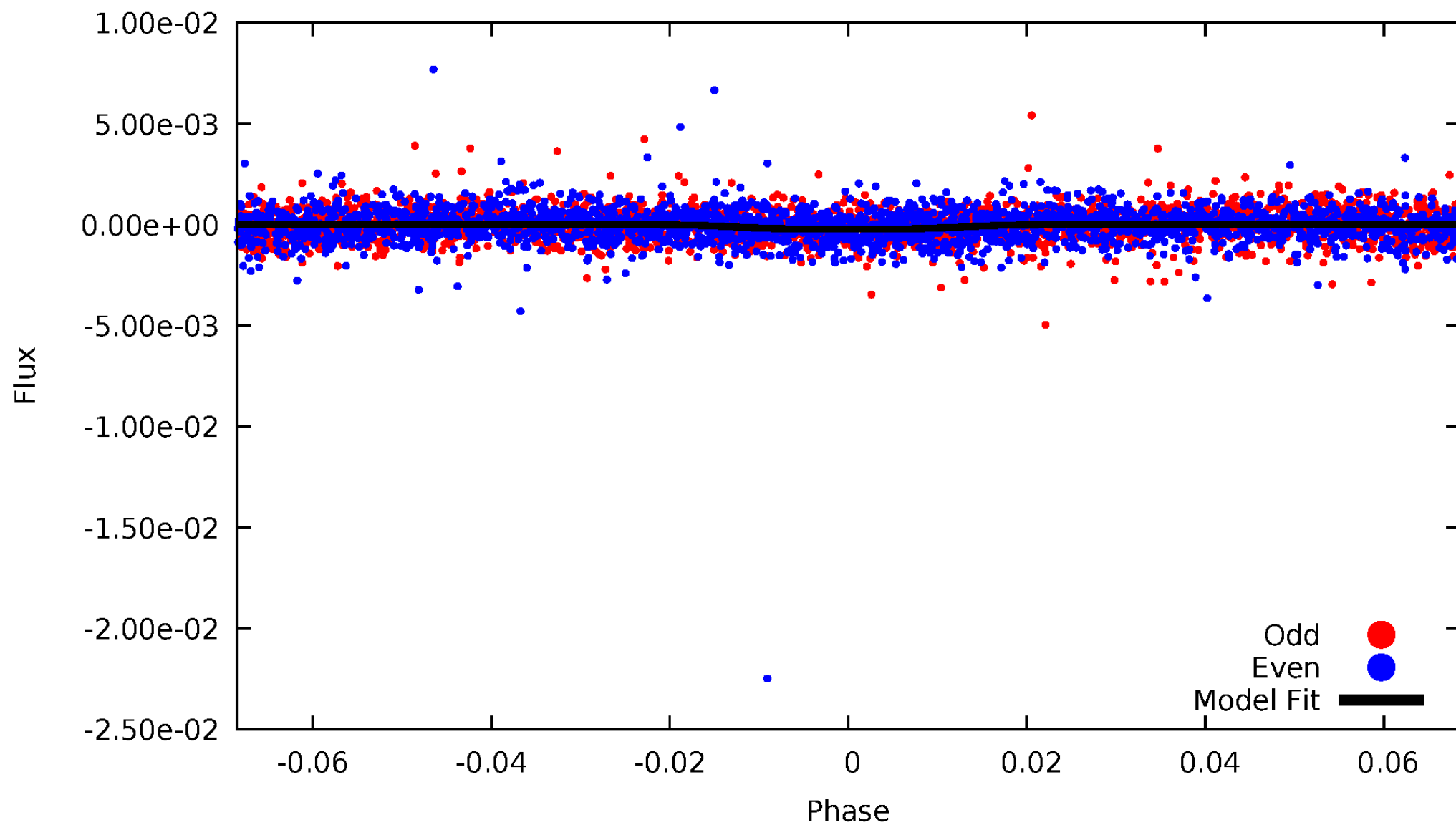


TCE 008560867-04



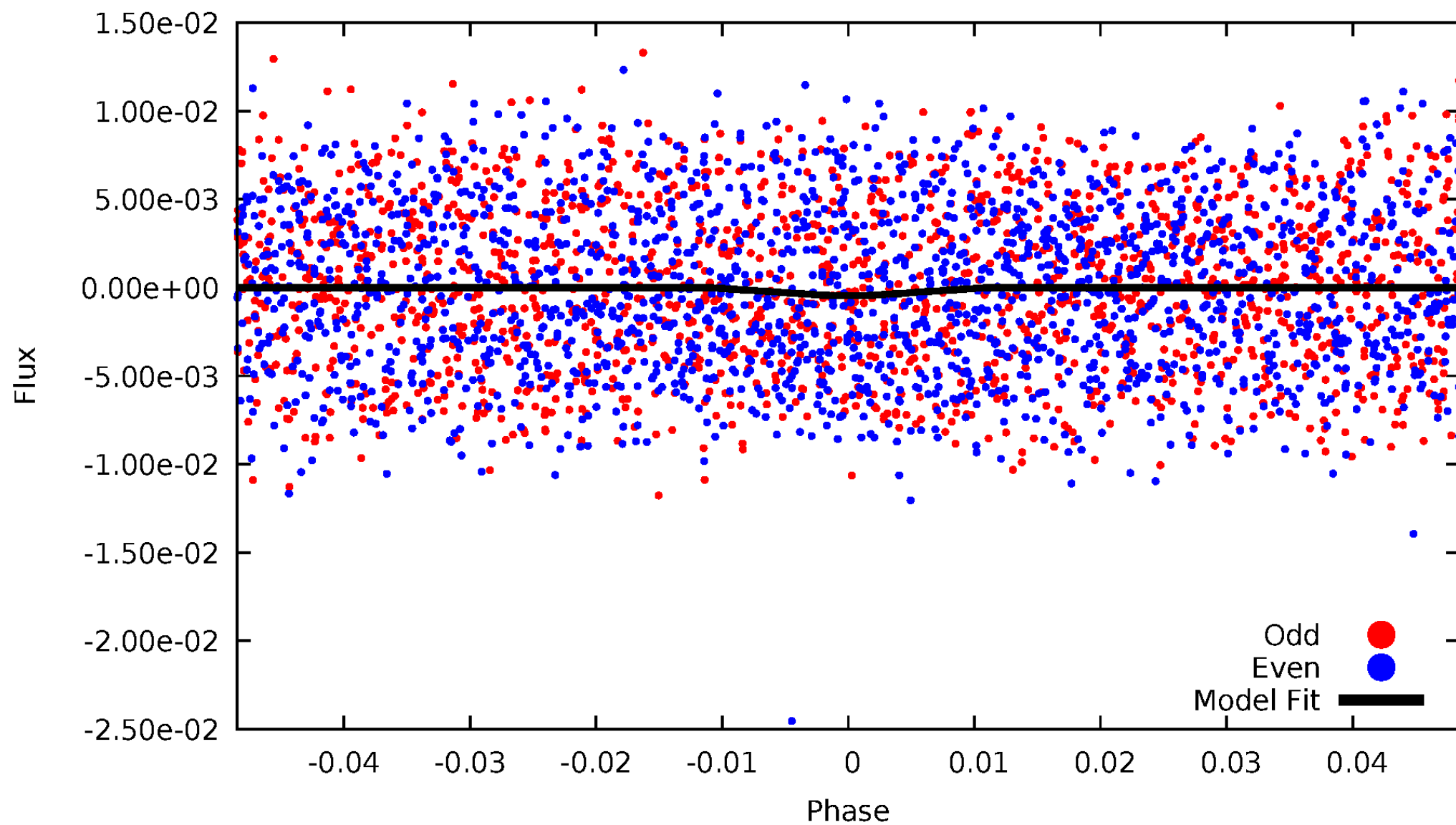
DV Odd/Even

TCE 008560867-04



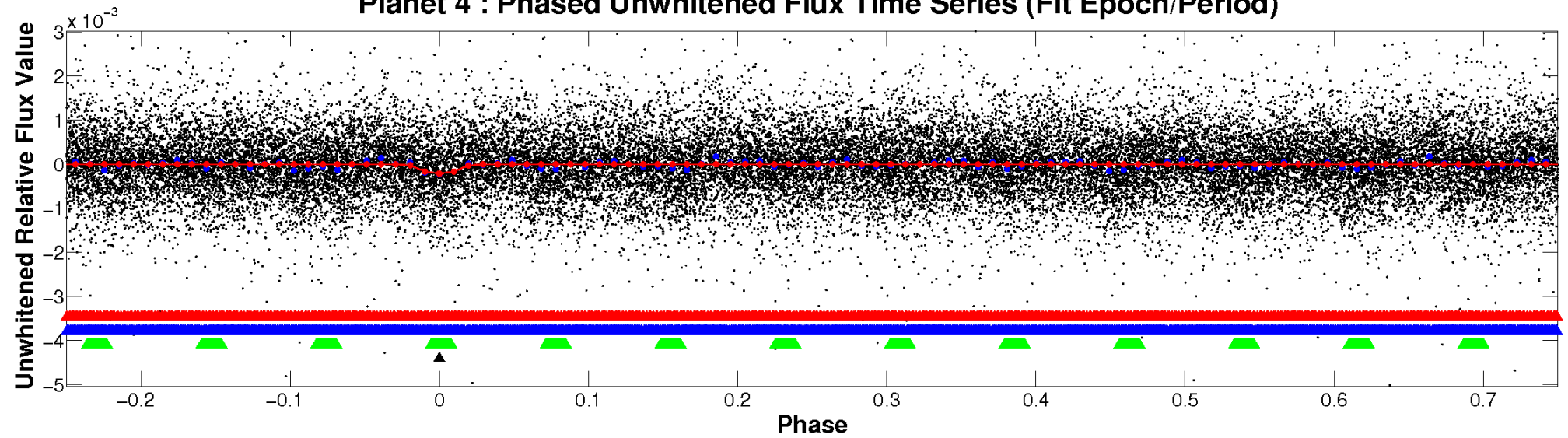
ALT Odd/Even

TCE 008560867-04

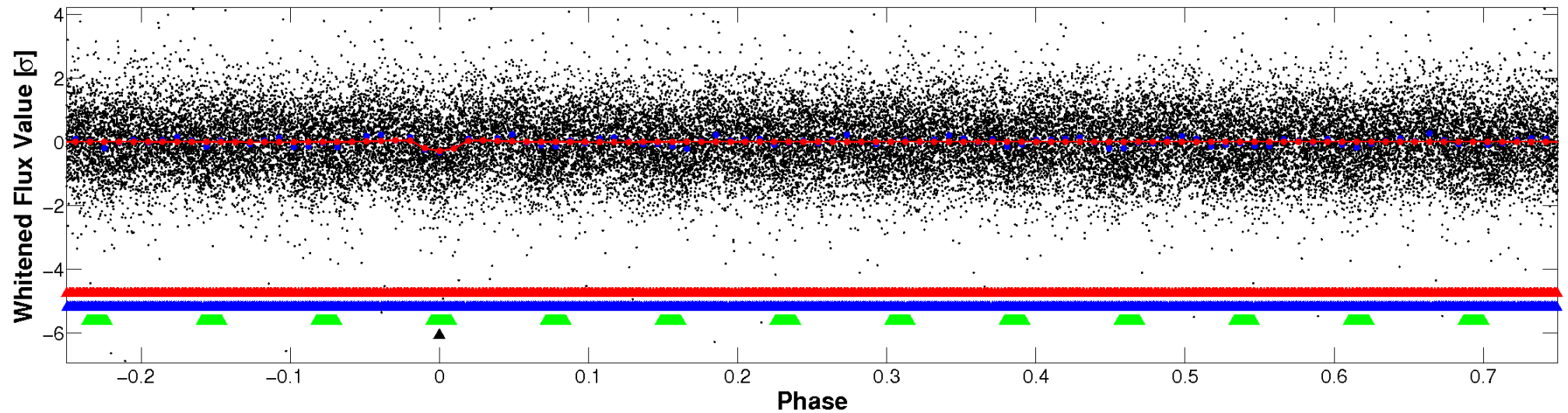


Non-Whitened Vs. Whitened Light Curve

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

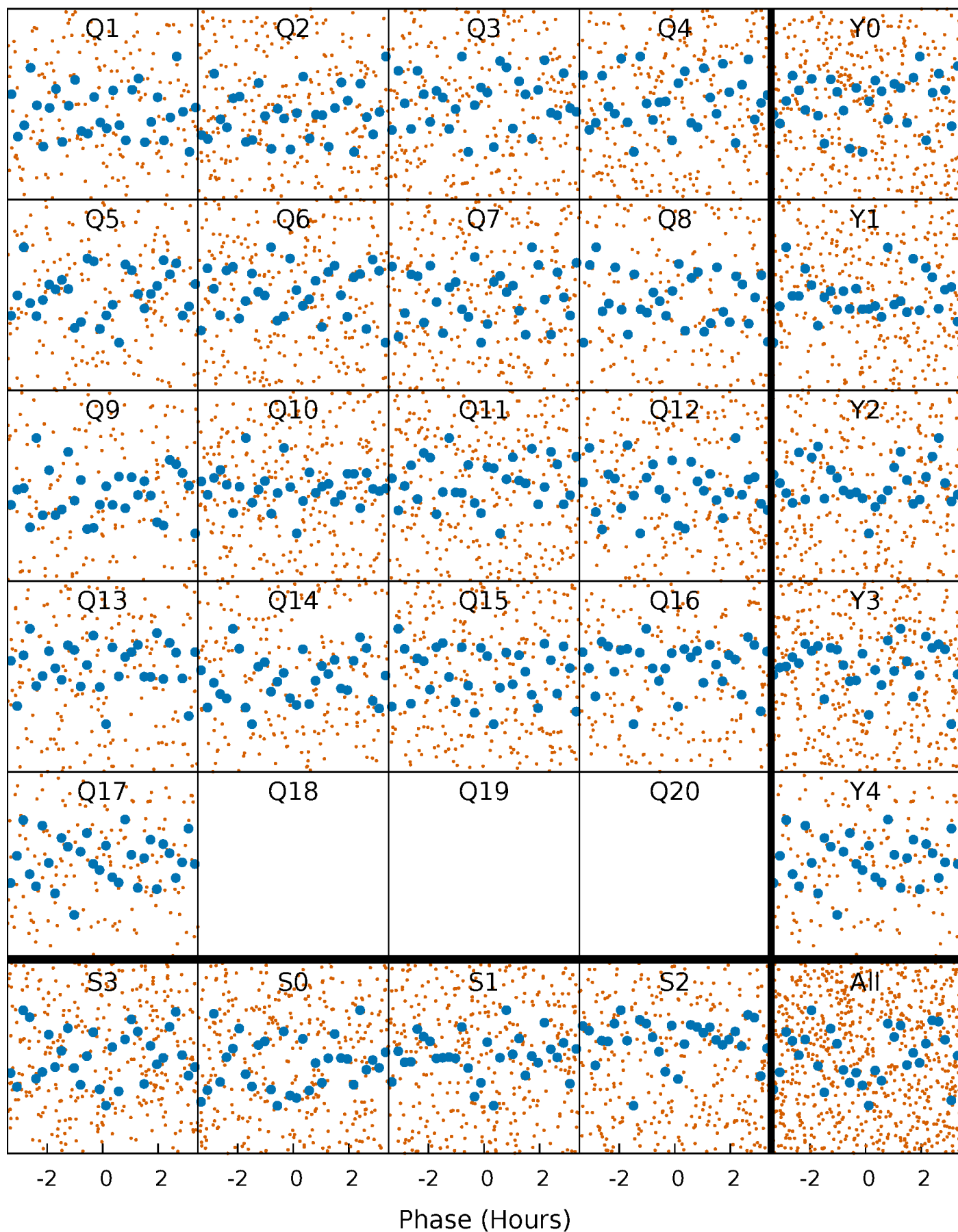


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



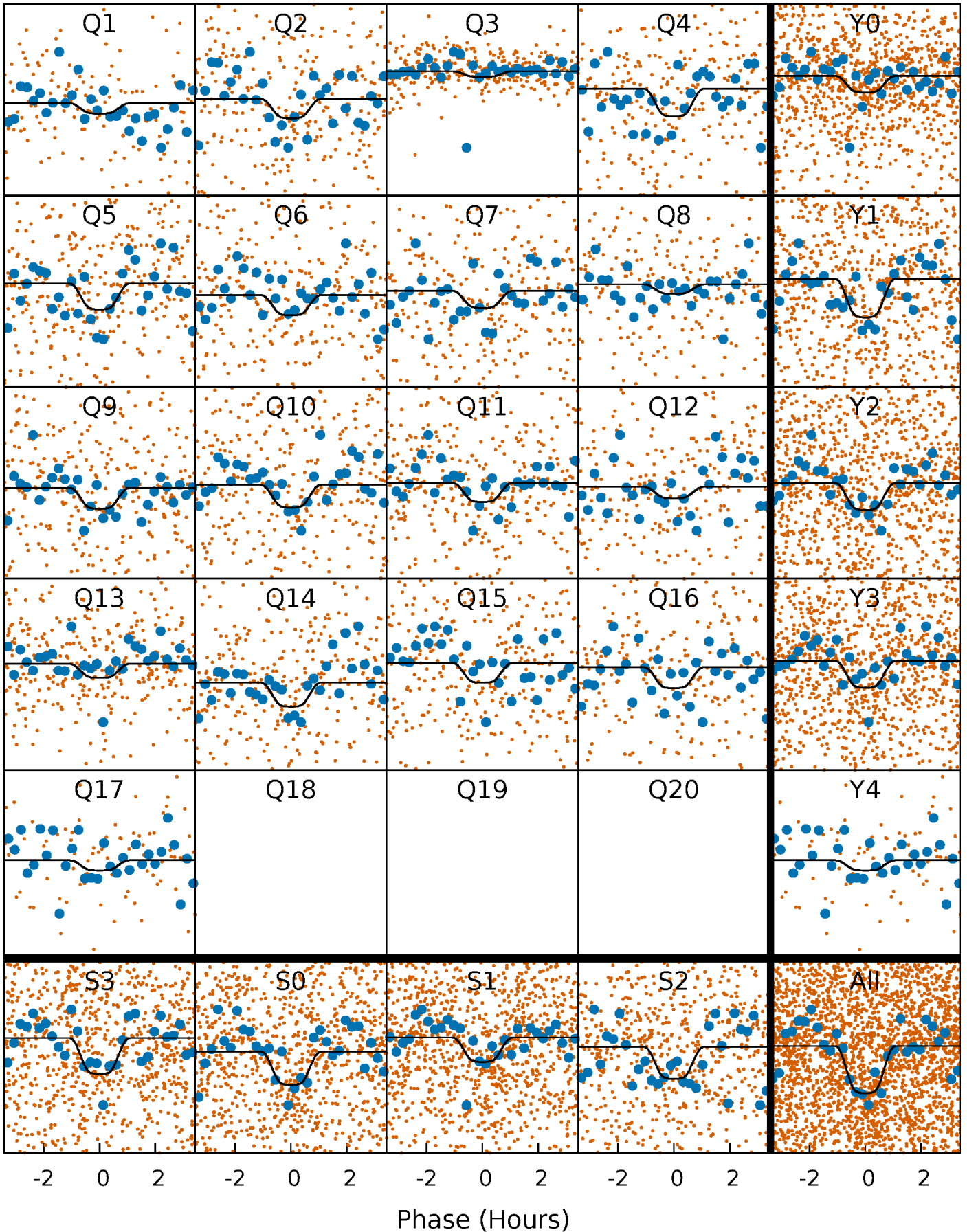
PDC Quarter-Phased Transit Curves

TCE 008560867-04 P= 2.092809 Days $T_0=133.585064$ (BKJD)



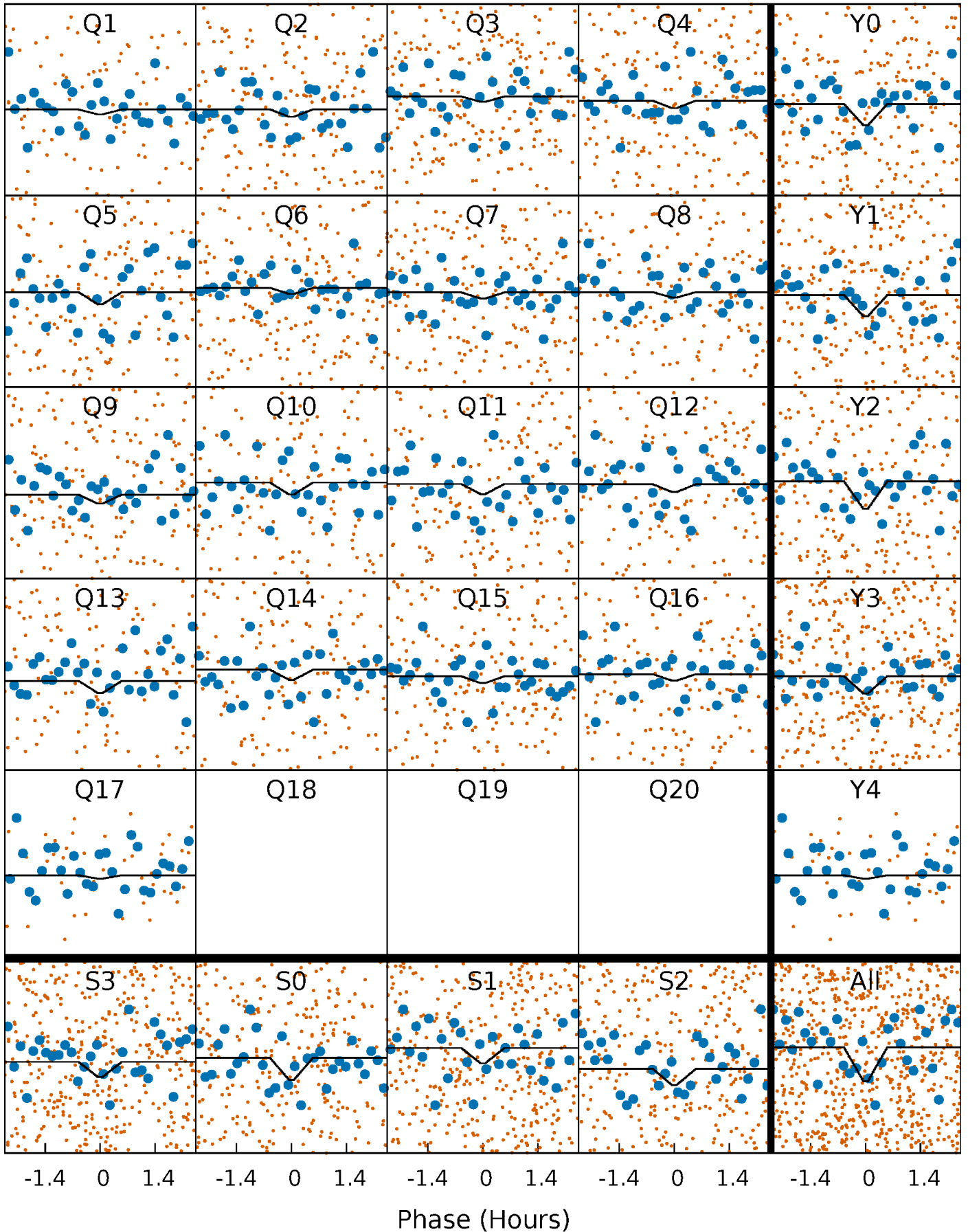
DV Quarter-Phased Transit Curves

TCE 008560867-04 P= 2.092809 Days $T_0=133.585064$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

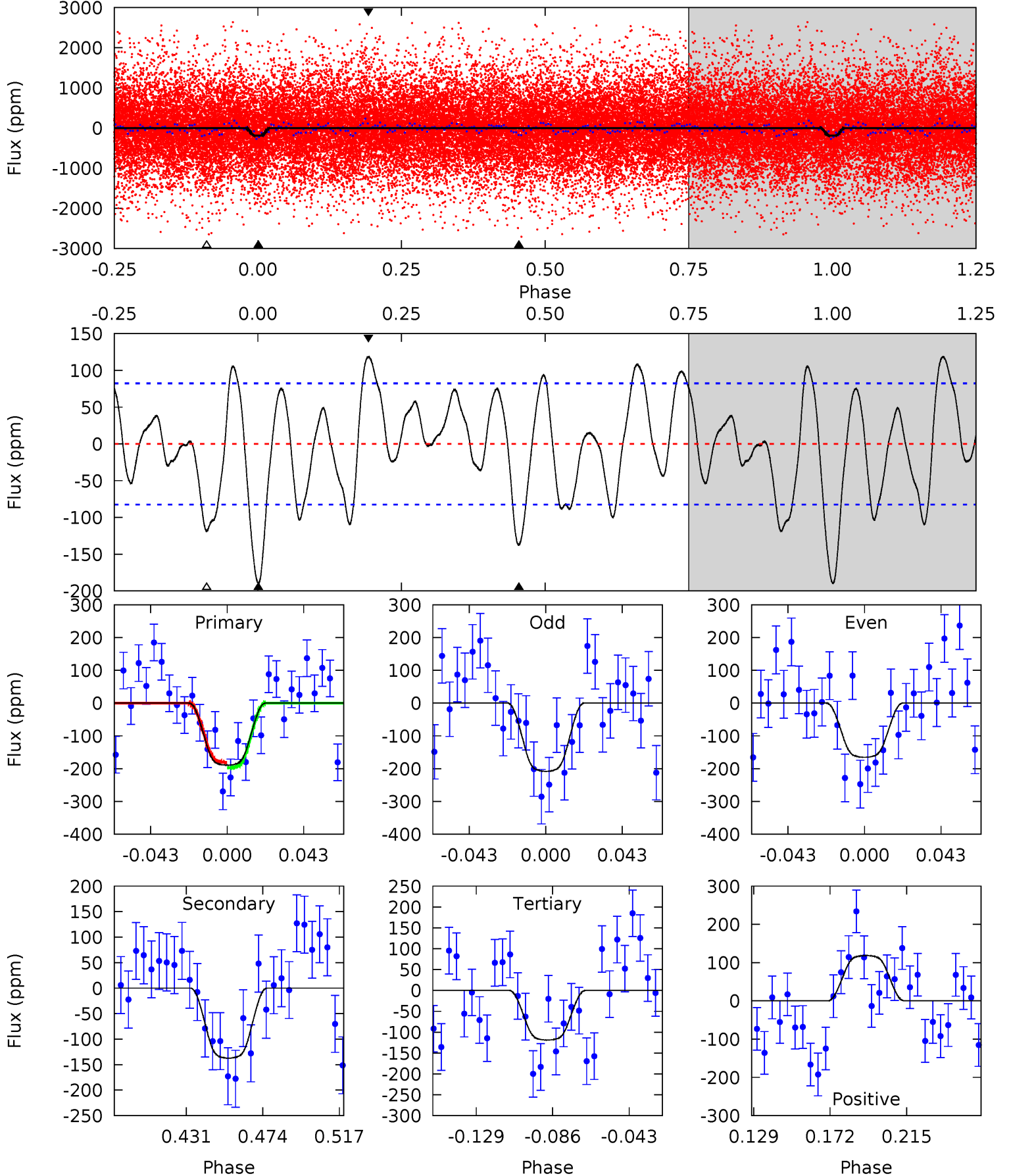
TCE 008560867-04 P= 2.092822 Days $T_0=133.574486$ (BKJD)



DV Model-Shift Uniqueness Test

008560867-04, P = 2.092809 Days, E = 131.492255 Days

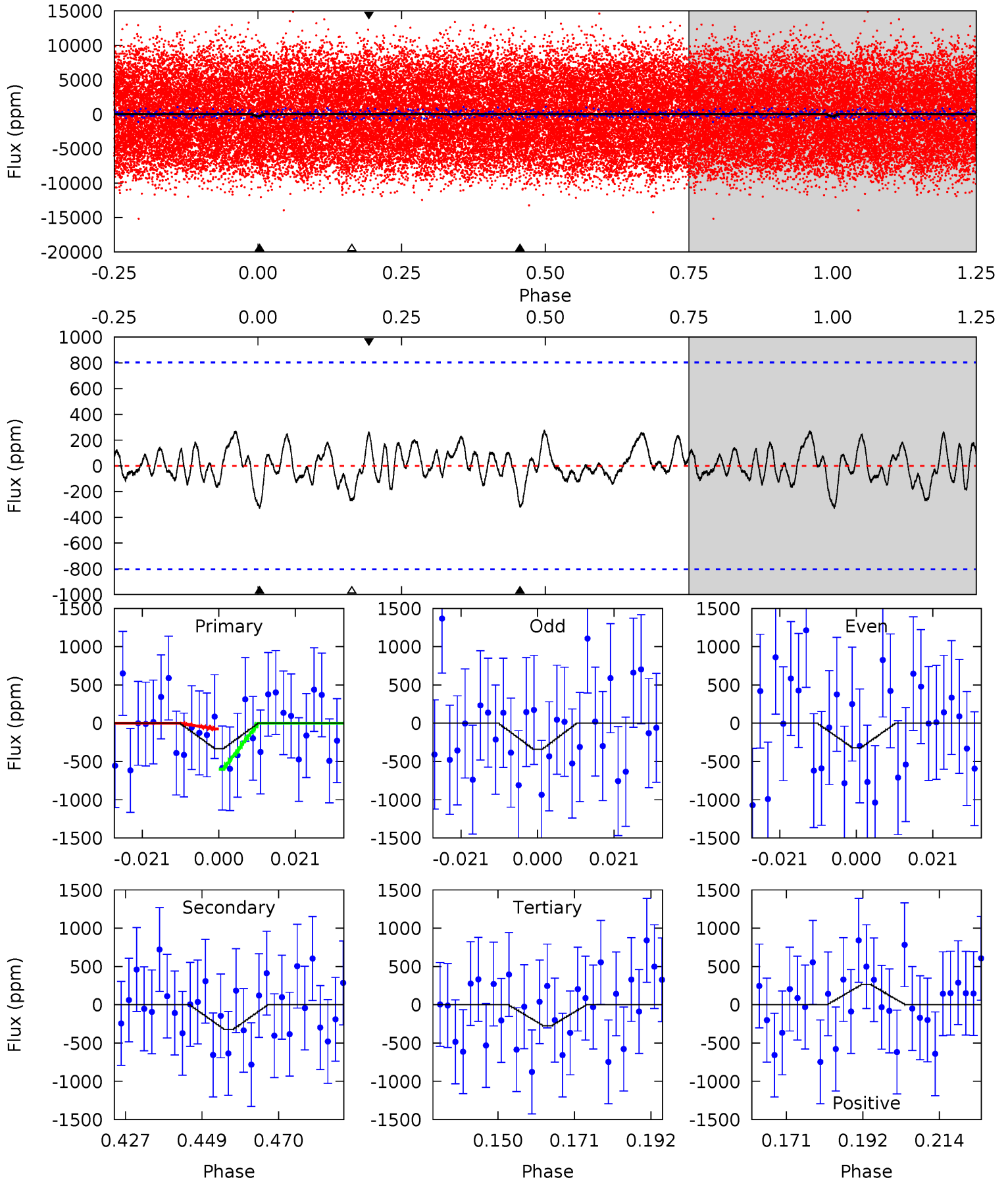
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	7.89	6.82	6.81	4.74	2.02	3.24	4.06	4.08	1.06	1.08	1.22	1.30	0.38	0.47



Alt Model-Shift Uniqueness Test

008560867-04, P = 2.092822 Days, E = 131.481664 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.02	1.96	1.66	1.62	4.88	2.30	0.65	0.36	0.40	0.31	0.34	0.06	0.84	0.46	1.60



Stellar Parameters For KIC 008560867

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7582^{+211}_{-316}	$3.974^{+0.222}_{-0.148}$	$-0.100^{+0.200}_{-0.300}$	$2.241^{+0.532}_{-0.650}$	$1.726^{+0.184}_{-0.315}$	$0.216^{+0.281}_{-0.091}$
	+3%/-4%	+6%/-4%	+200%/-300%	+24%/-29%	+11%/-18%	+130%/-42%
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 008560867-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-137 ± 17	$3.95^{+1.09}_{-0.90}$	3550^{+253}_{-280}	6165^{+889}_{-607}	$6.999^{+4.855}_{-2.680}$
Alt.	-323 ± 165	$5.06^{+1.21}_{-1.07}$	3539^{+247}_{-275}	6758^{+1208}_{-1177}	$9.955^{+8.406}_{-5.606}$

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

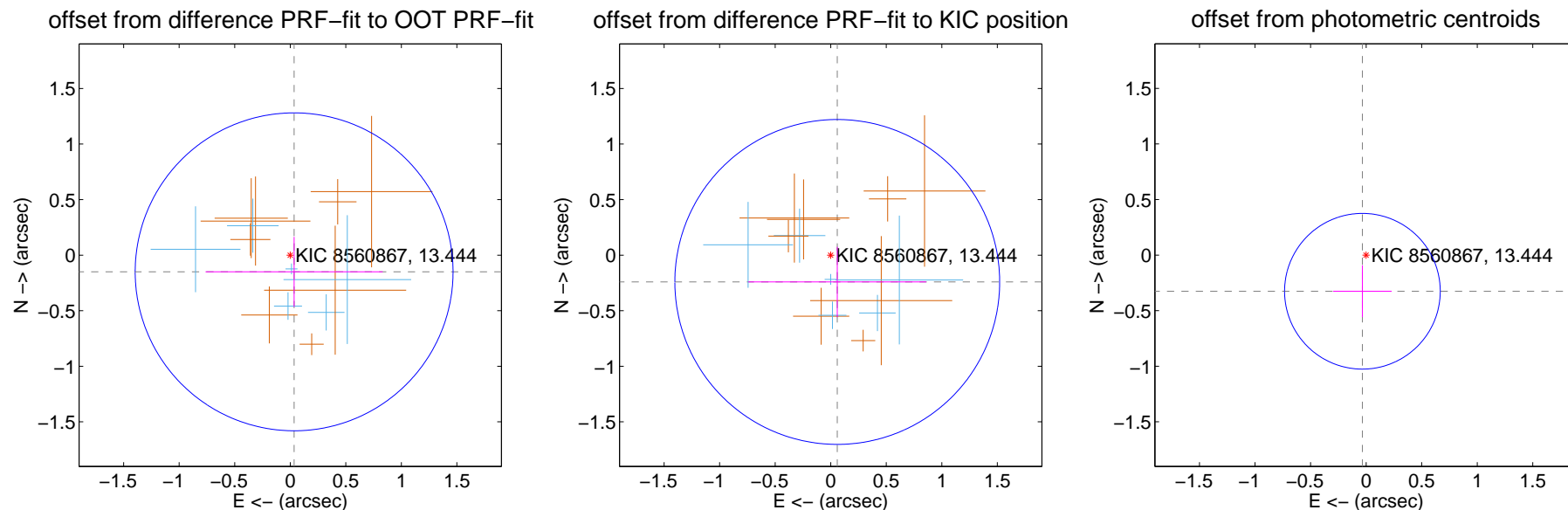
DV Centroid Data

Supplemental centroid analysis for 008560867-04. Kepler magnitude: 13.44. Transit SNR 8.17

There are 6 quarters with good PRF difference image offsets

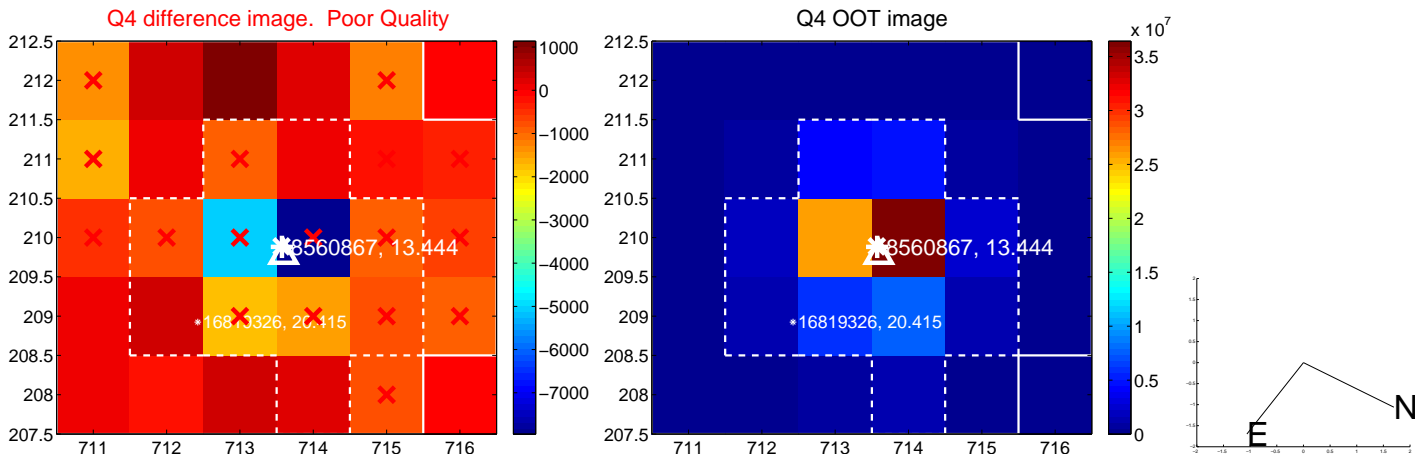
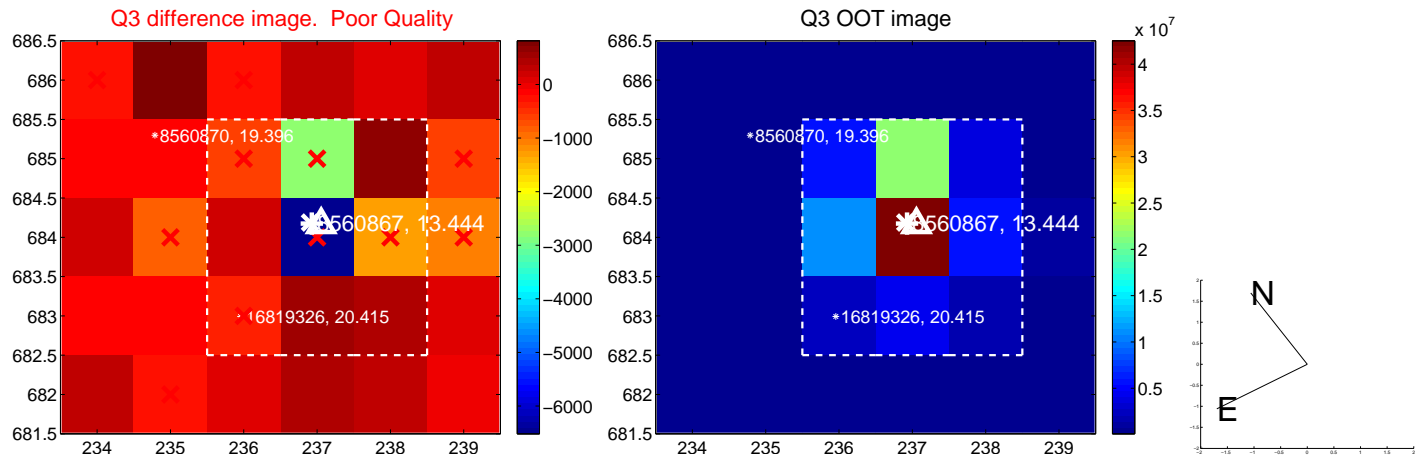
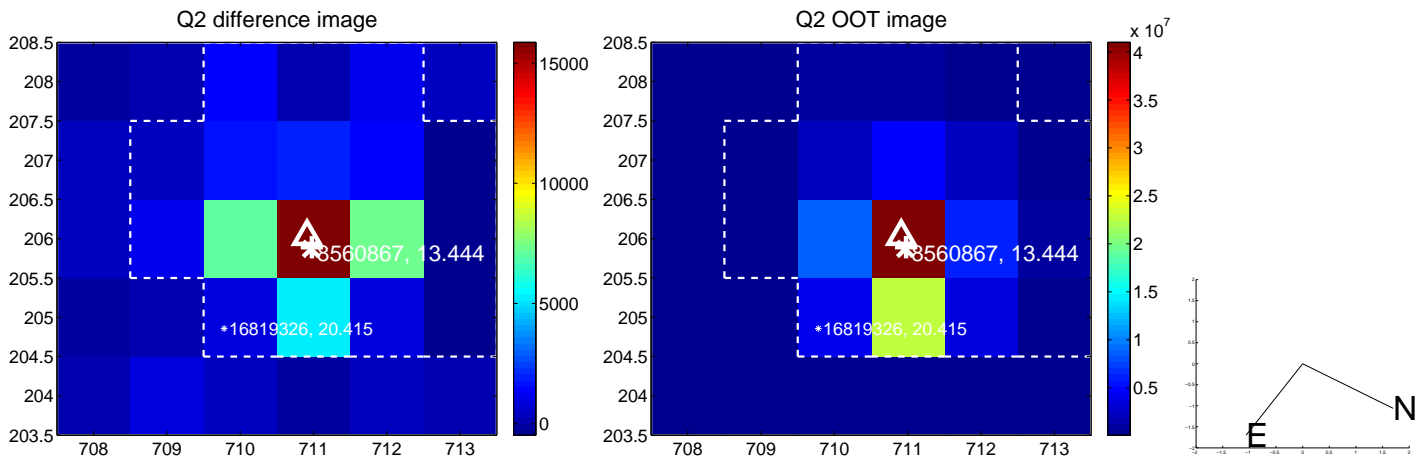
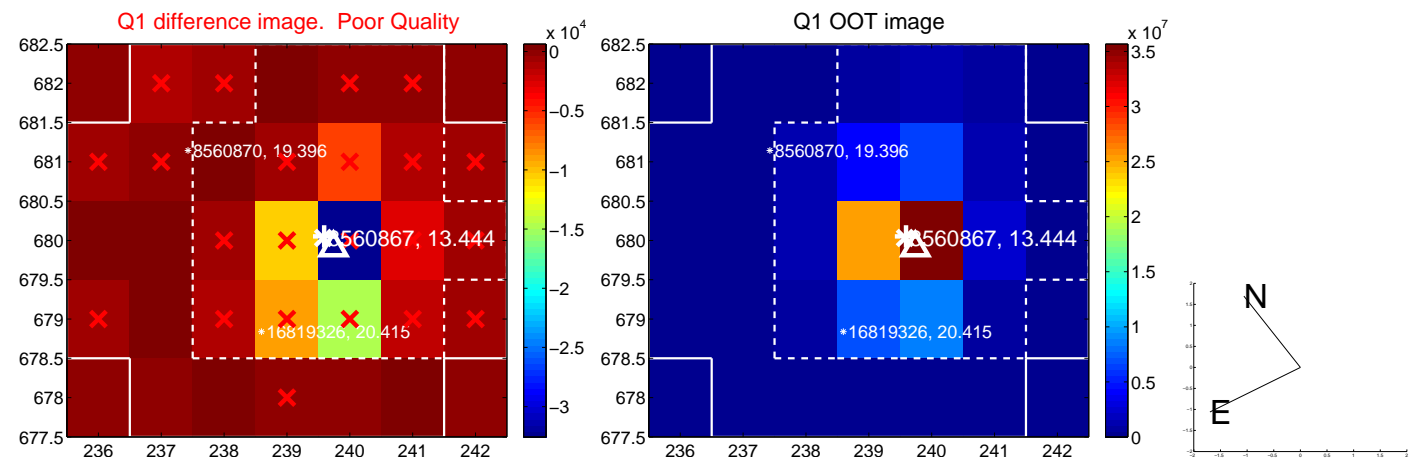
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.154 ± 0.477	0.32	-0.035 ± 0.798	-0.150 ± 0.314
PRF-fit source offset from KIC position	0.248 ± 0.487	0.51	-0.059 ± 0.801	-0.241 ± 0.316
photometric centroid source offset	0.33 ± 0.23	1.40	0.03 ± 0.26	-0.33 ± 0.23

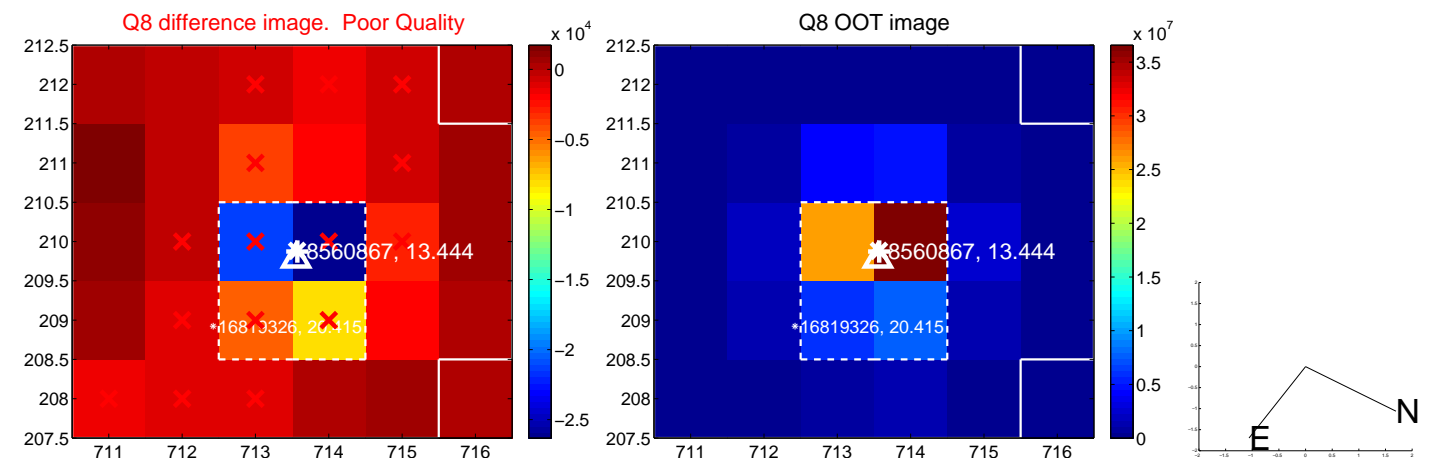
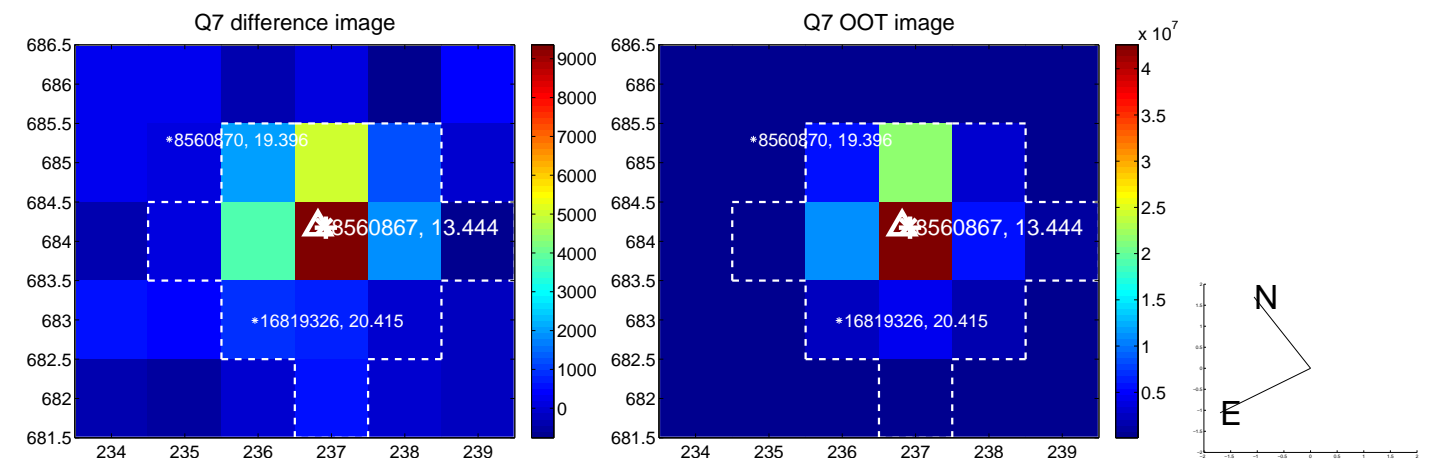
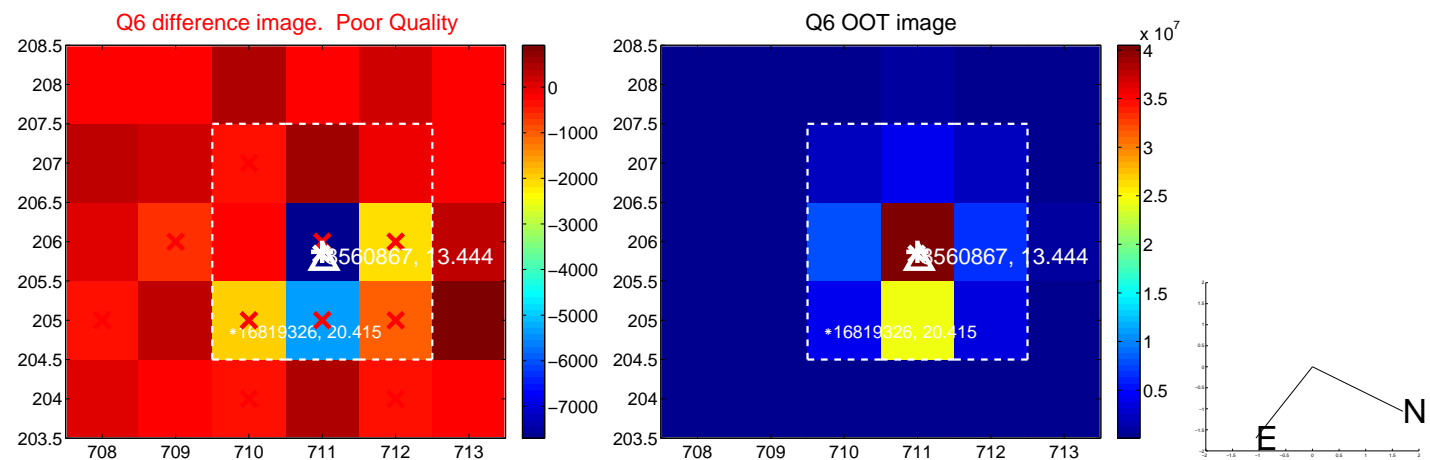
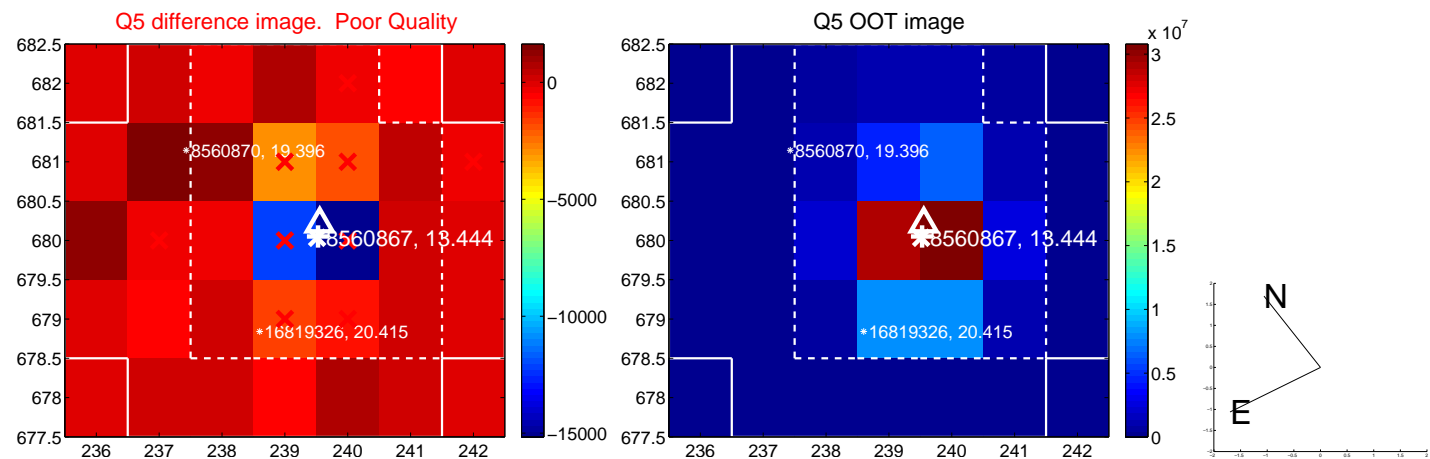


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

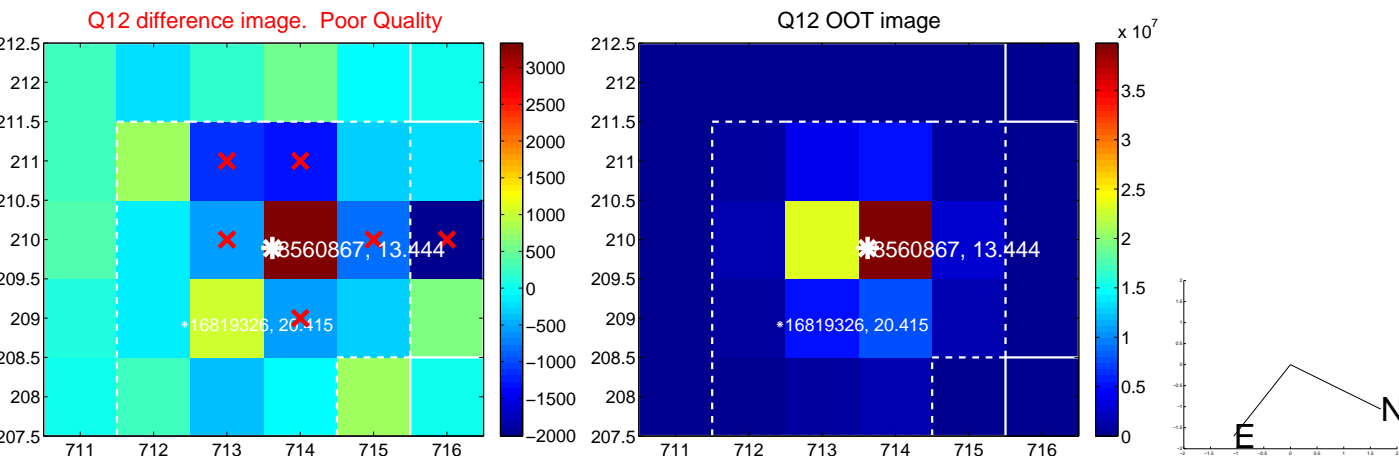
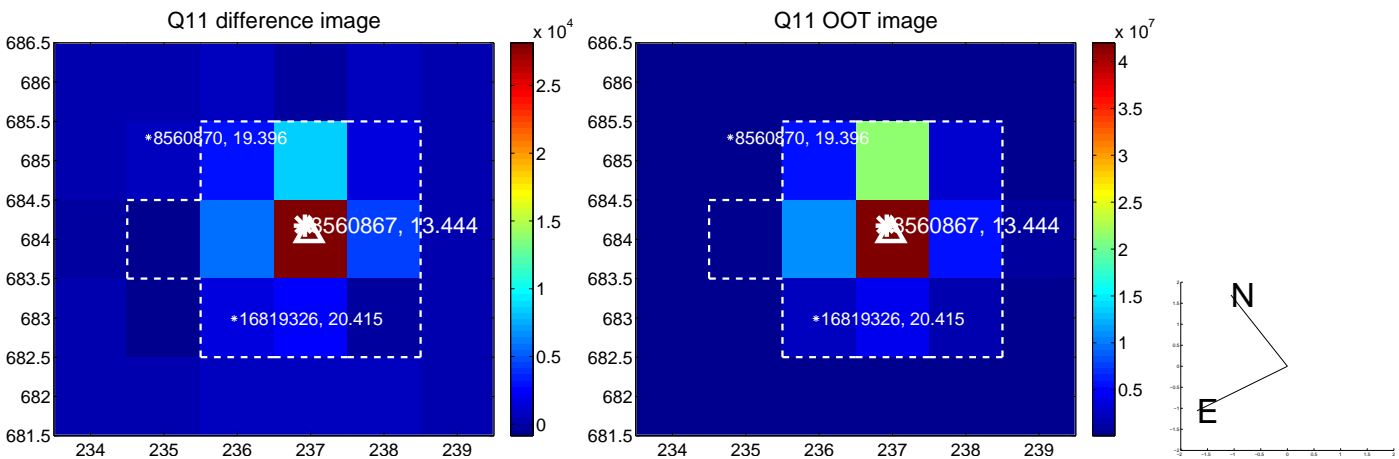
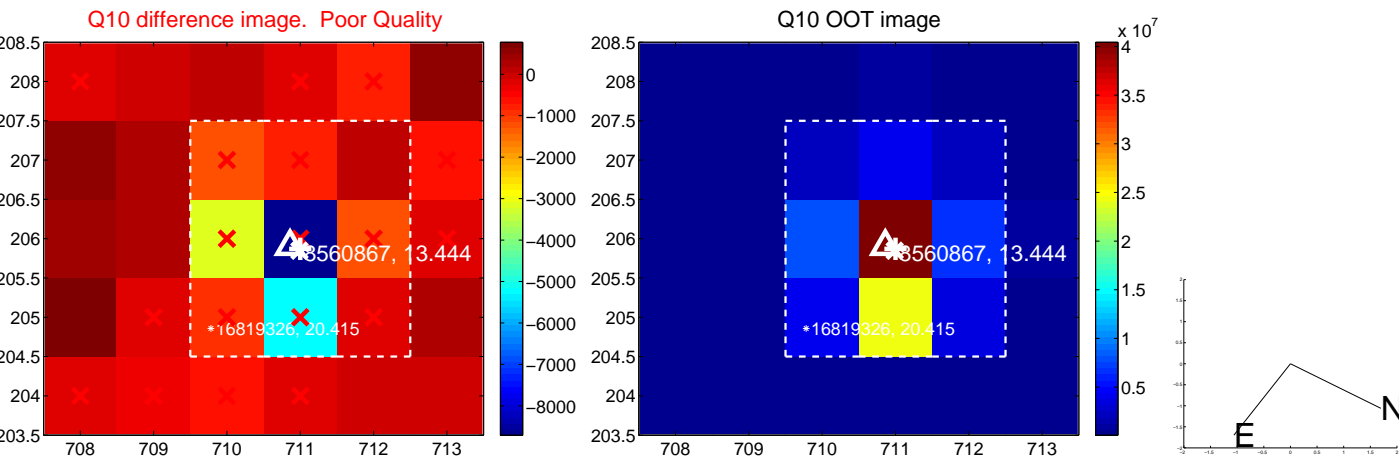
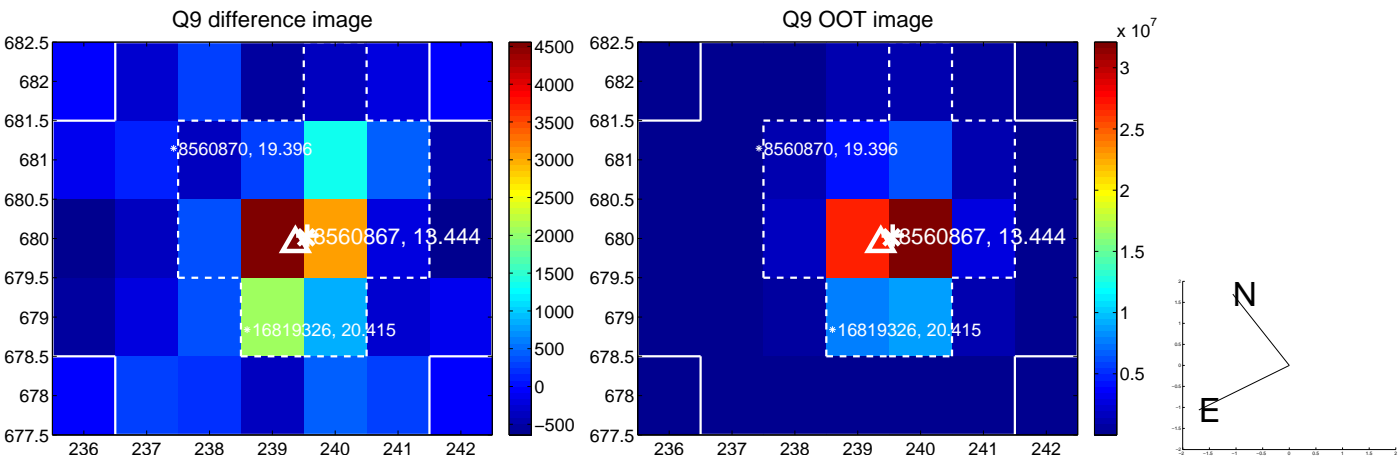
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



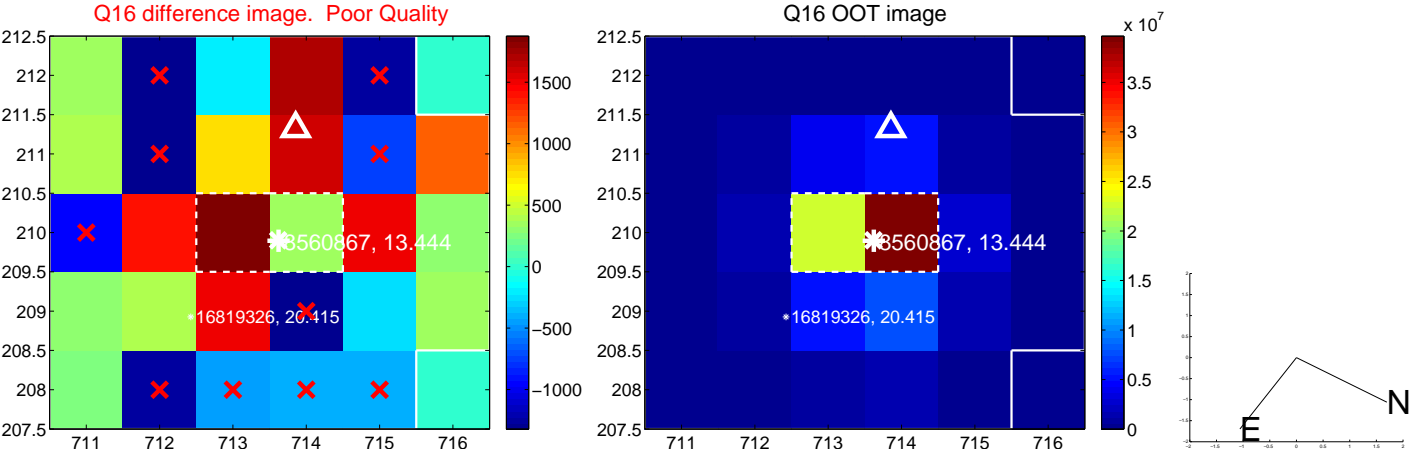
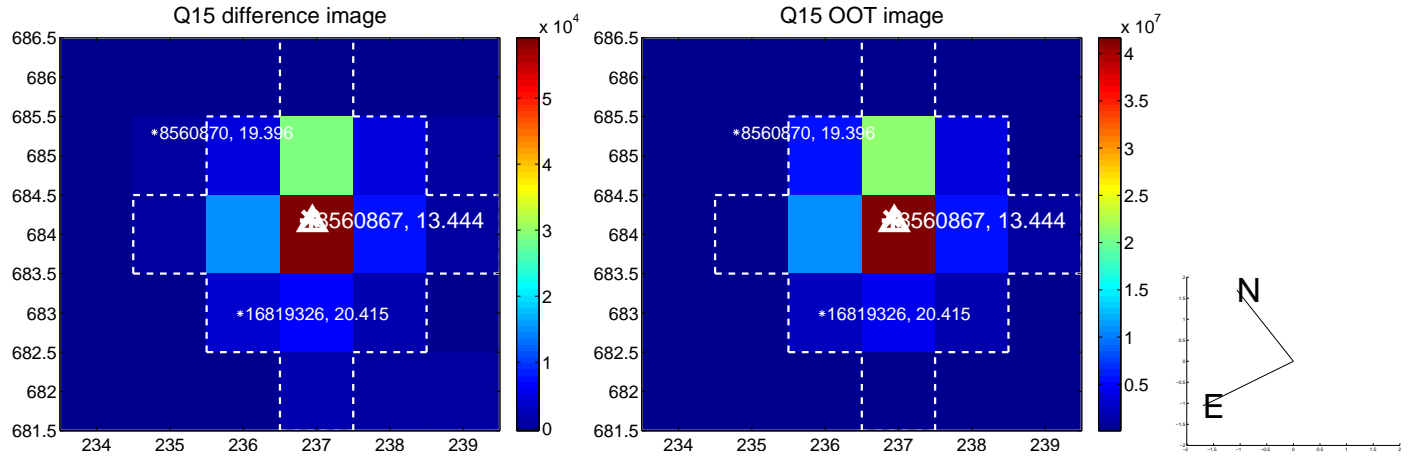
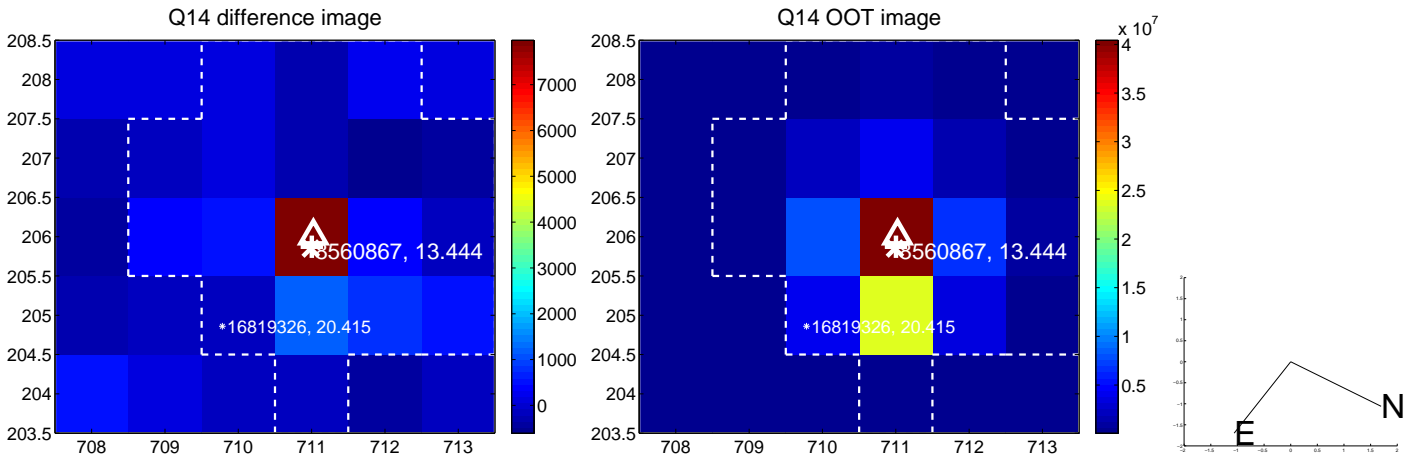
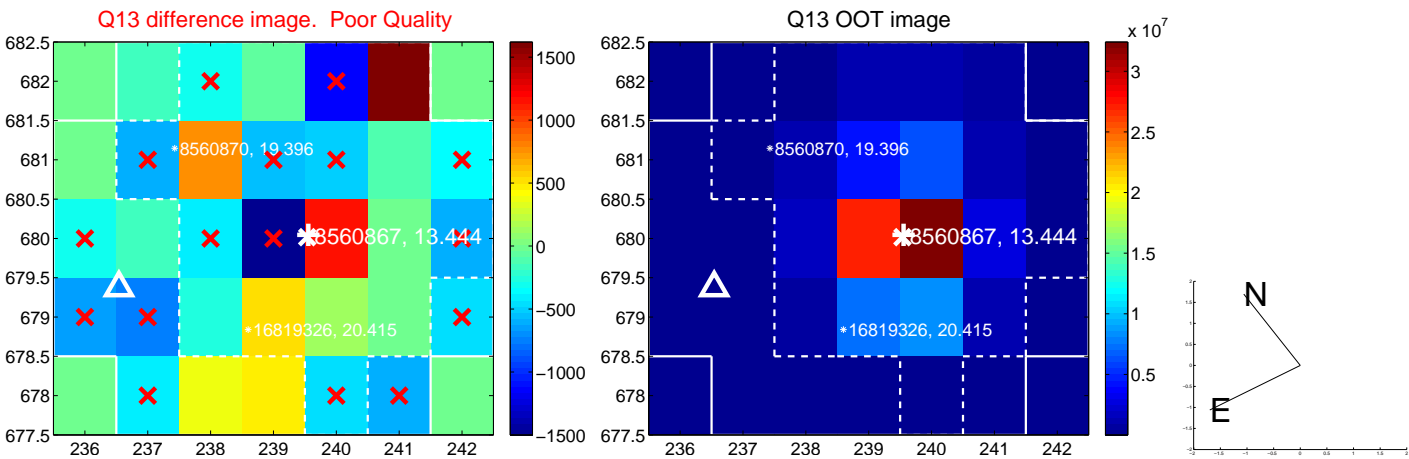
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



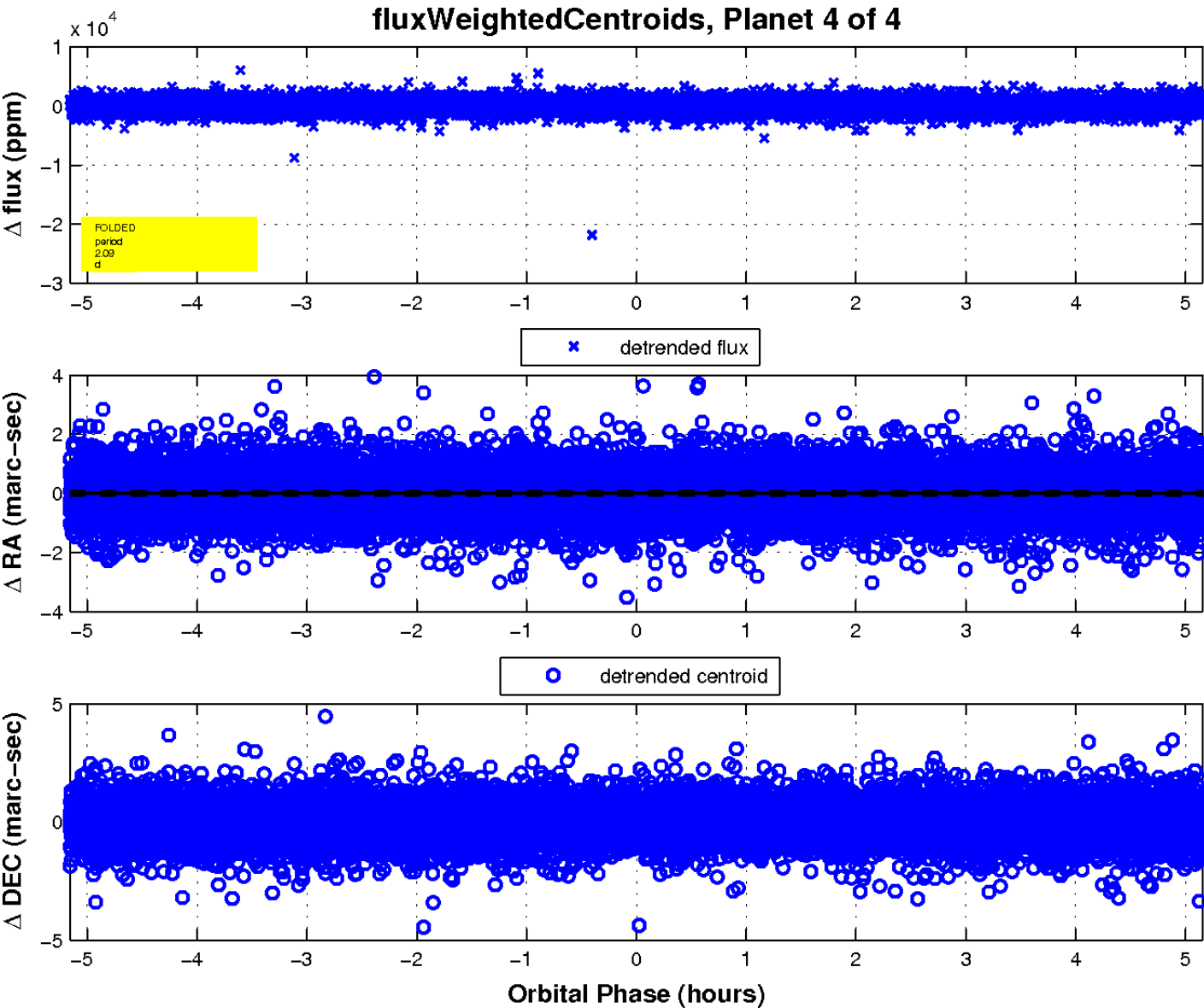
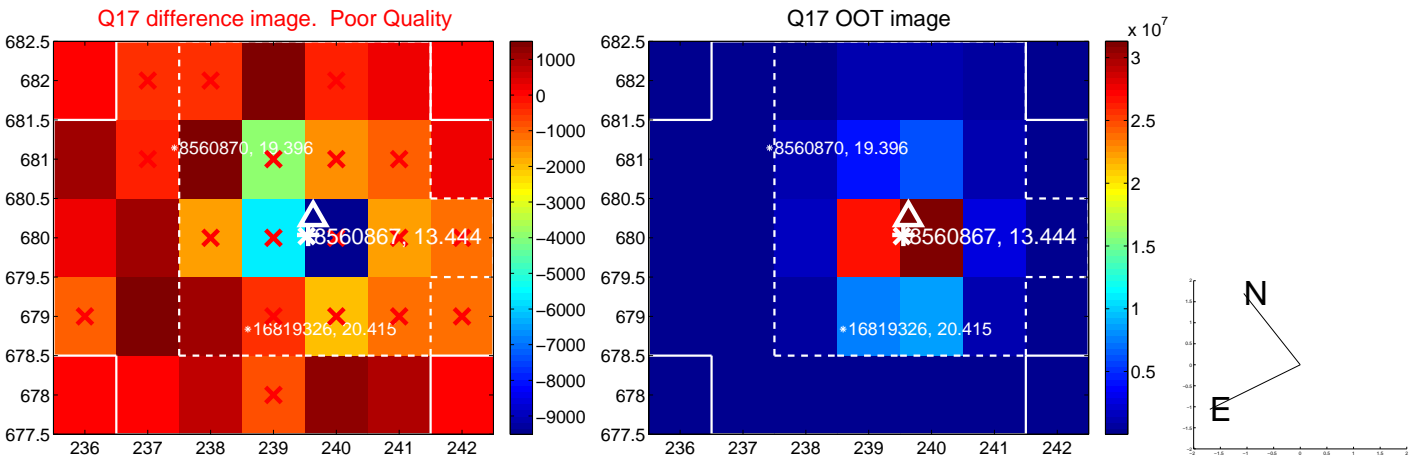
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

