

KIC 005389856

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})
005389856-01	OBS	No	0.622533	131.784127	23.7	1.809	9.9	9.9	3.34	7883	1.69	118103.18
005389856-02	OBS	No	0.622544	131.569291	21.9	2.420	8.2	9.3	3.34	7883	1.81	118100.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005389856-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
005389856-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

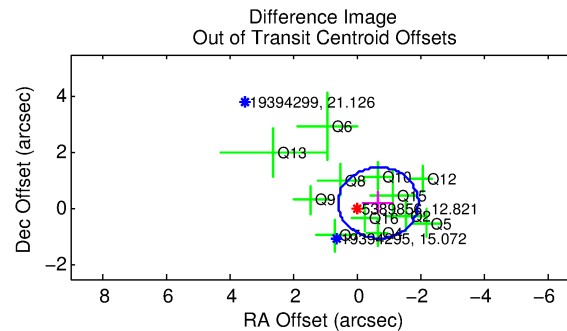
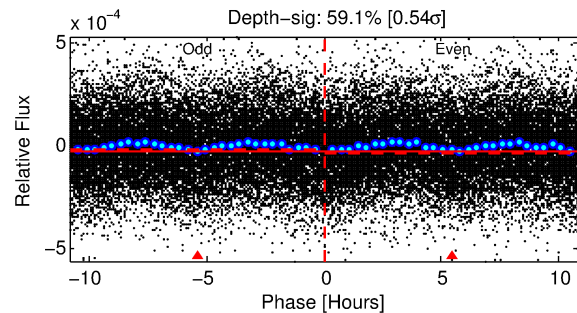
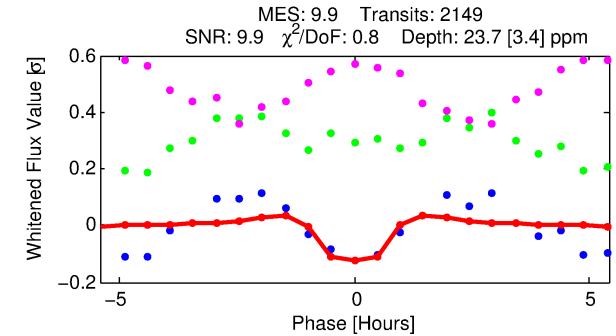
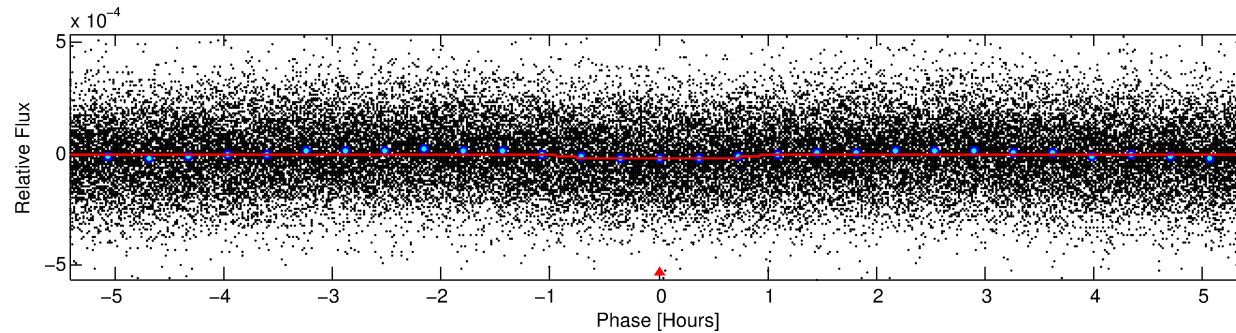
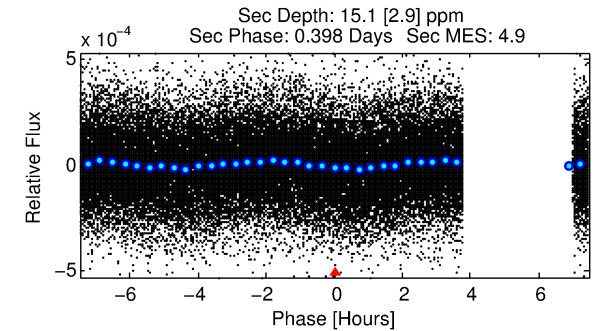
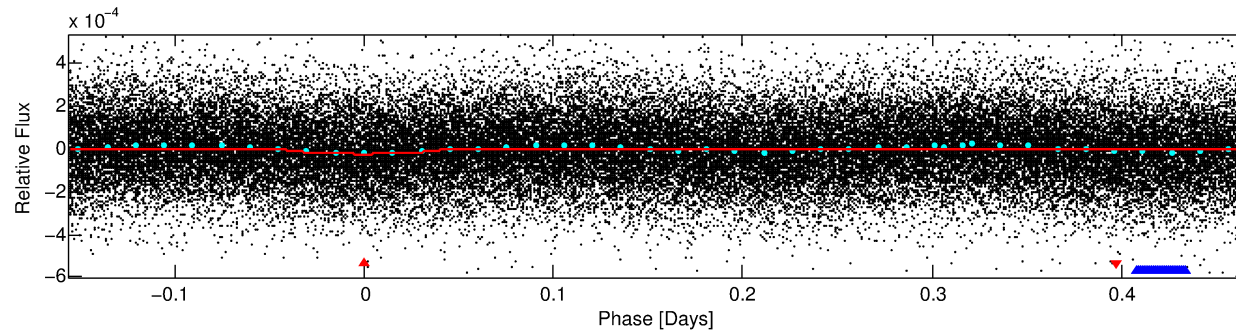
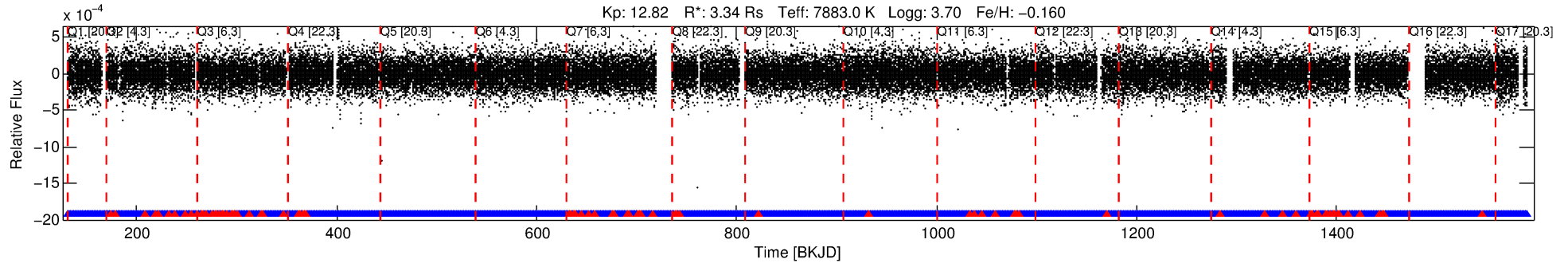
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005389856-01

No Significant Match Found

DV One-Page Summary

KIC: 5389856 Candidate: 1 of 2 Period: 0.623 d



DV Fit Results:

Period = 0.62253 [0.00001] d
Epoch = 131.7841 [0.0020] BKJD
Rp/R* = 0.0046 [0.0010]
a/R* = 2.39 [2.39]
b = 0.51 [1.77]
Seff = 118103.18 [91884.30]
Teq = 4727 [919] K
Rp = 1.69 [0.89] Re
a = 0.0181 [0.0085] AU
Ag = 0.95 [0.86] [-0.06σ]
Teffp = 7211 [931] K [1.90σ]

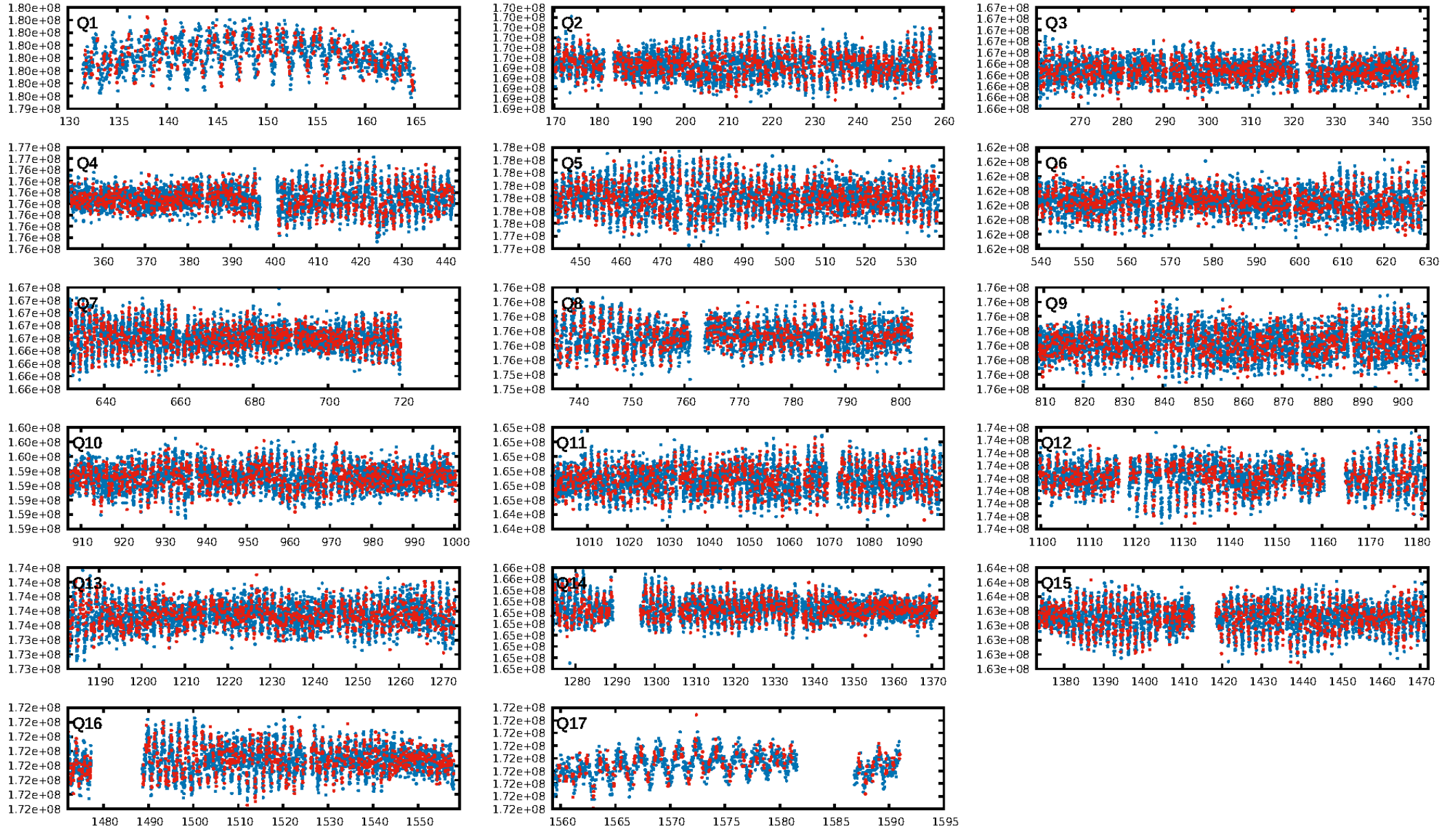
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.28e-17
RollingBand-fgt: 0.96 [1962/2052]
GhostDiagnostic-chr: 1.416
Centroid-sig: 0.3%
Centroid-so: 1.159 arcsec [1.41σ]
OotOffset-rm: 0.717 arcsec [1.71σ]
KicOffset-rm: 0.724 arcsec [1.90σ]
OotOffset-st: 3/2/4/3 [12]
KicOffset-st: 3/2/4/3 [12]
DiffImageQuality-fgm: 0.83 [10/12]
DiffImageOverlap-fno: 0.00 [0/17]

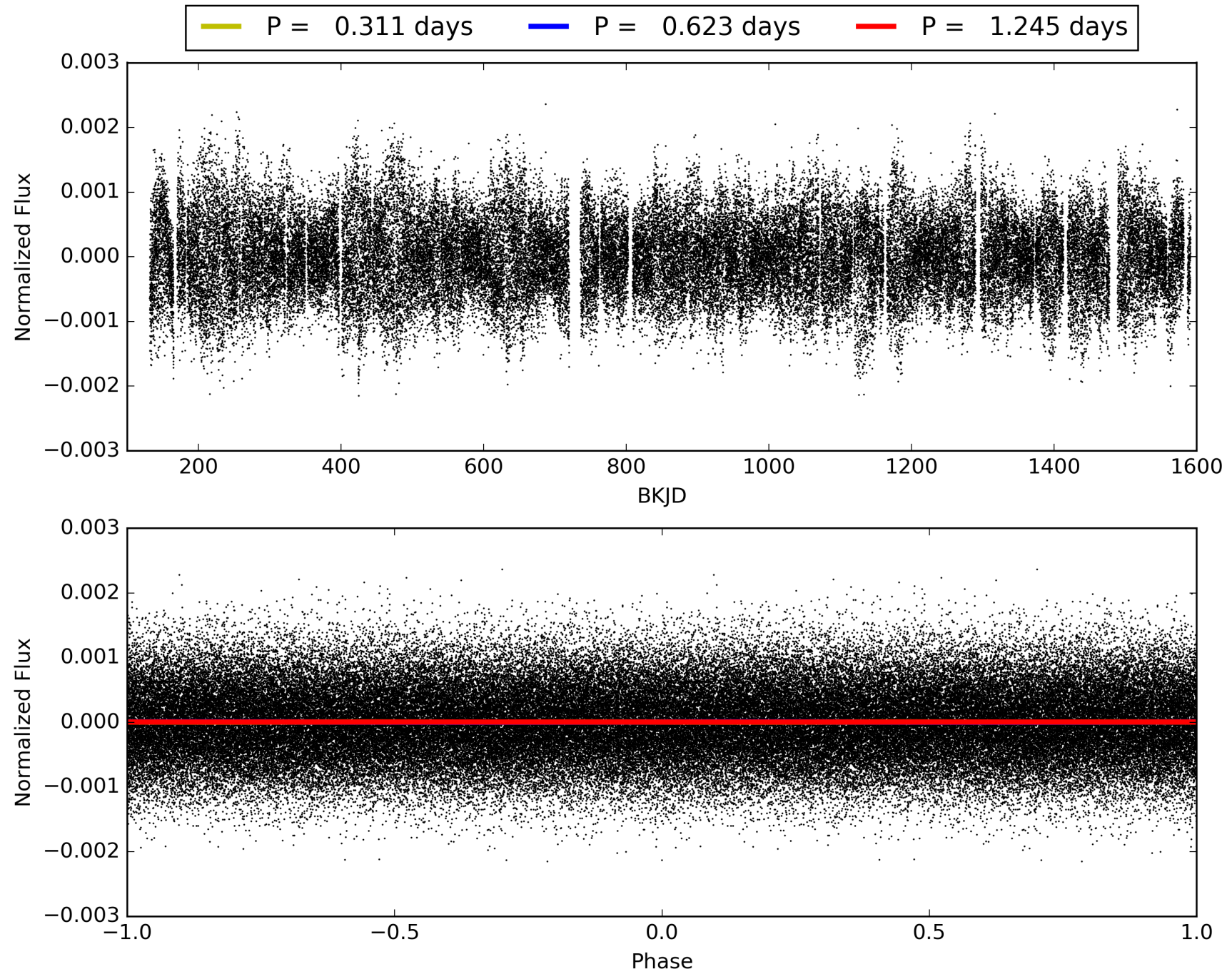
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:40:23 Z

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

TCE 005389856-01, PDC Light Curves

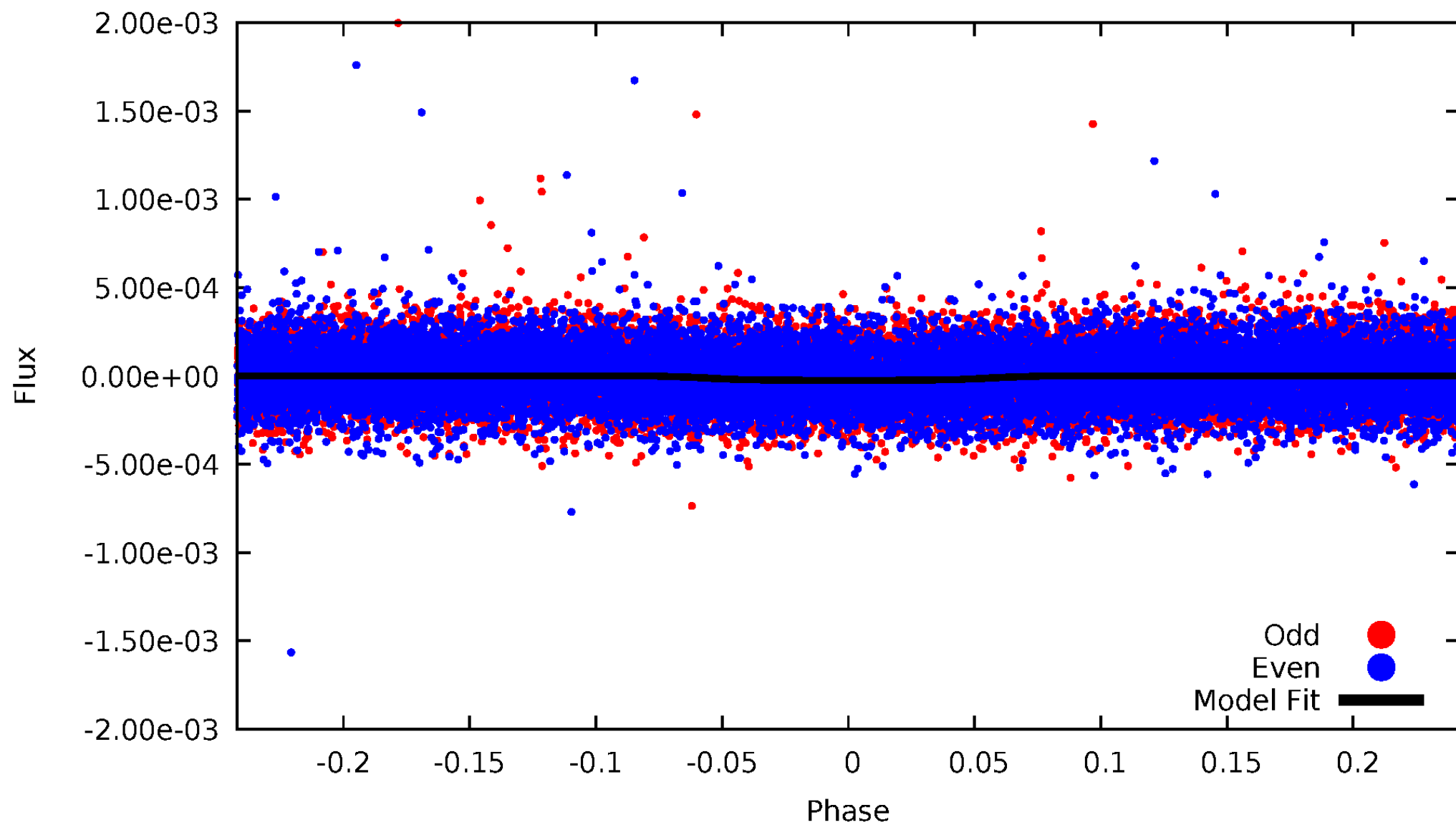


TCE 005389856-01



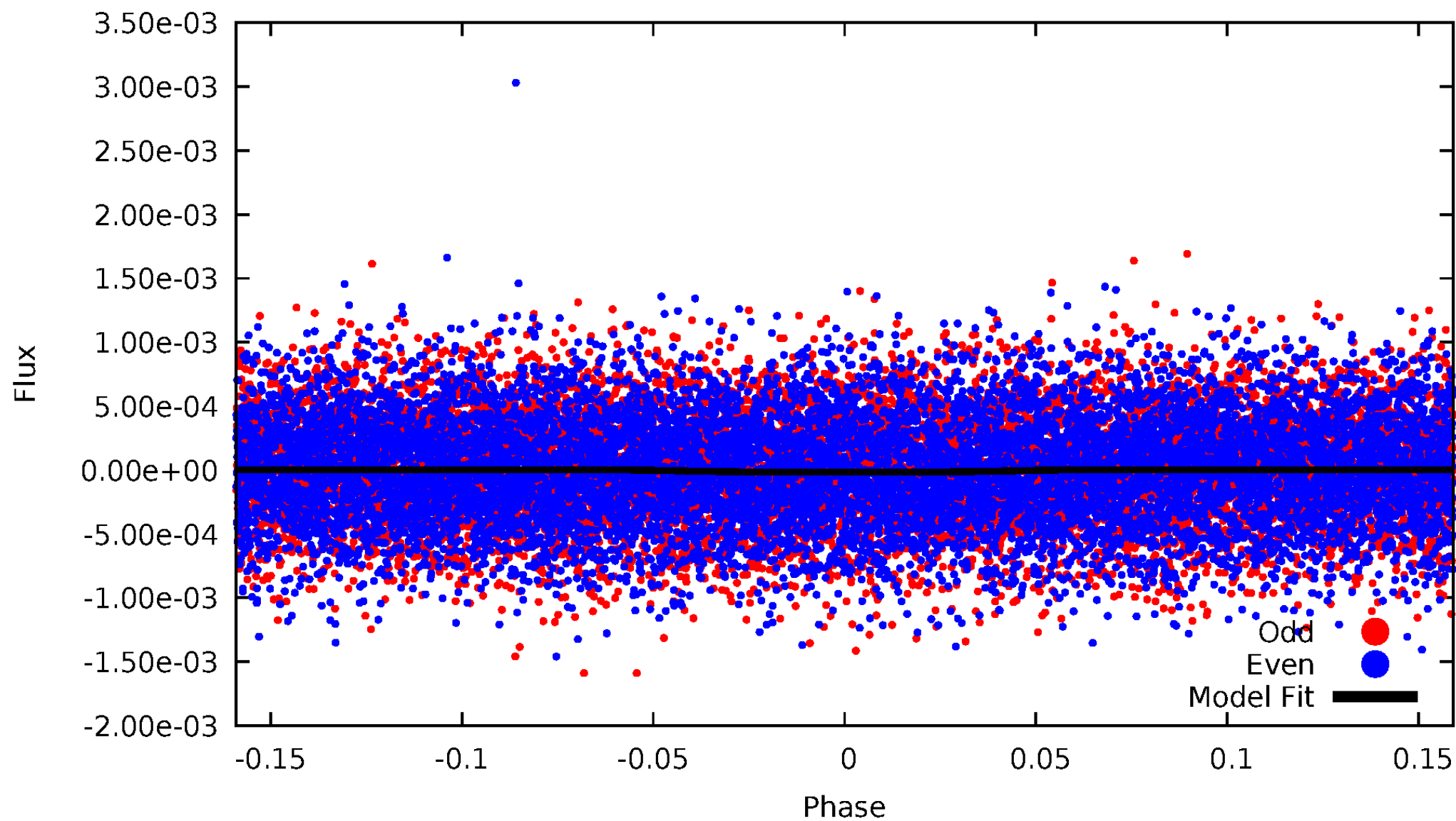
DV Odd/Even

TCE 005389856-01



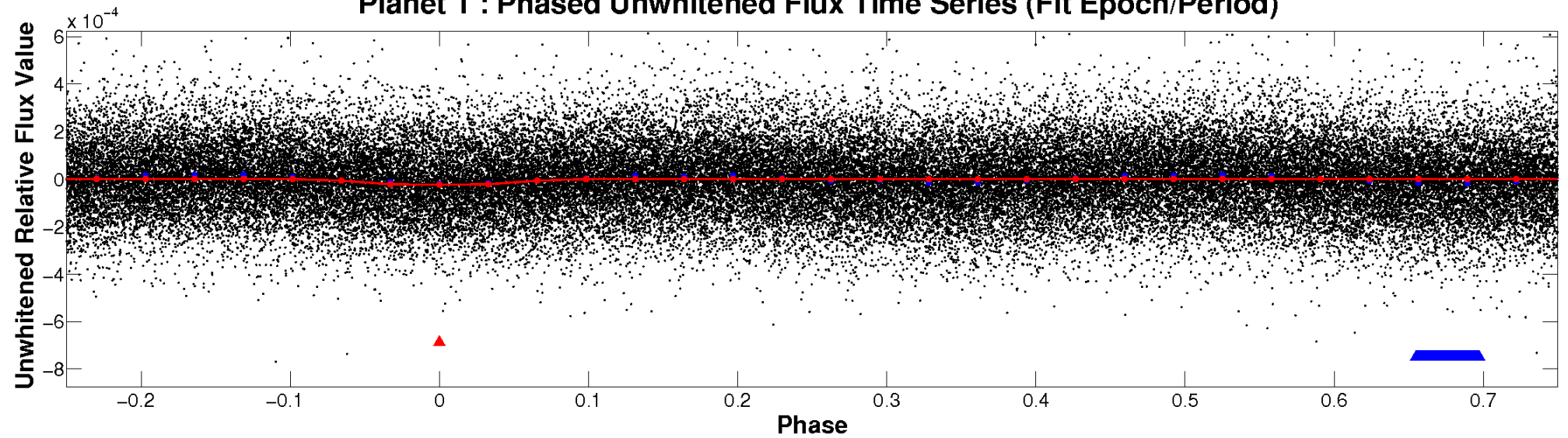
ALT Odd/Even

TCE 005389856-01

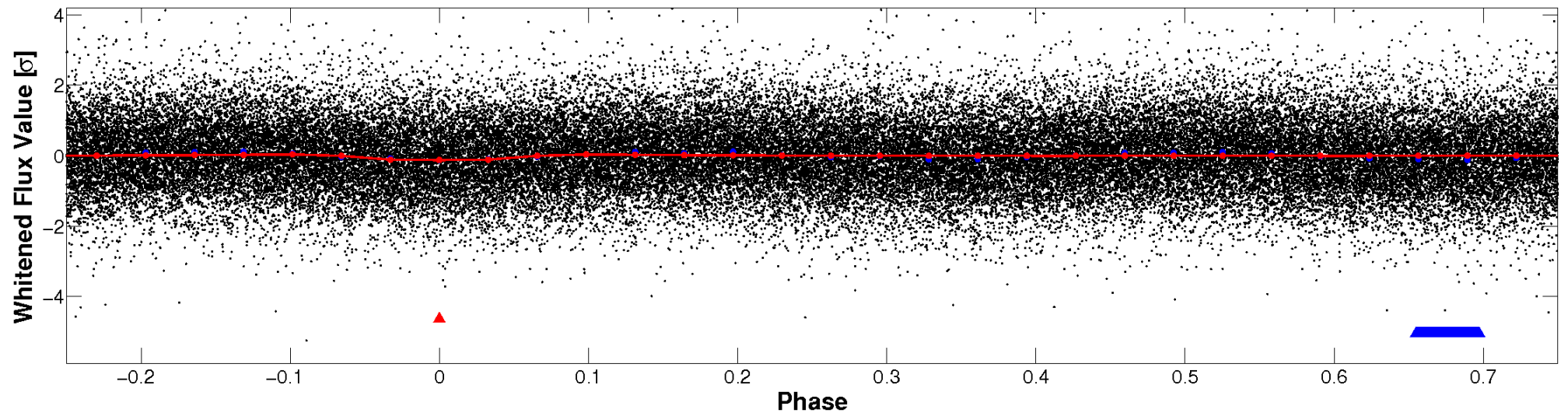


Non-Whitened Vs. Whitened Light Curve

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

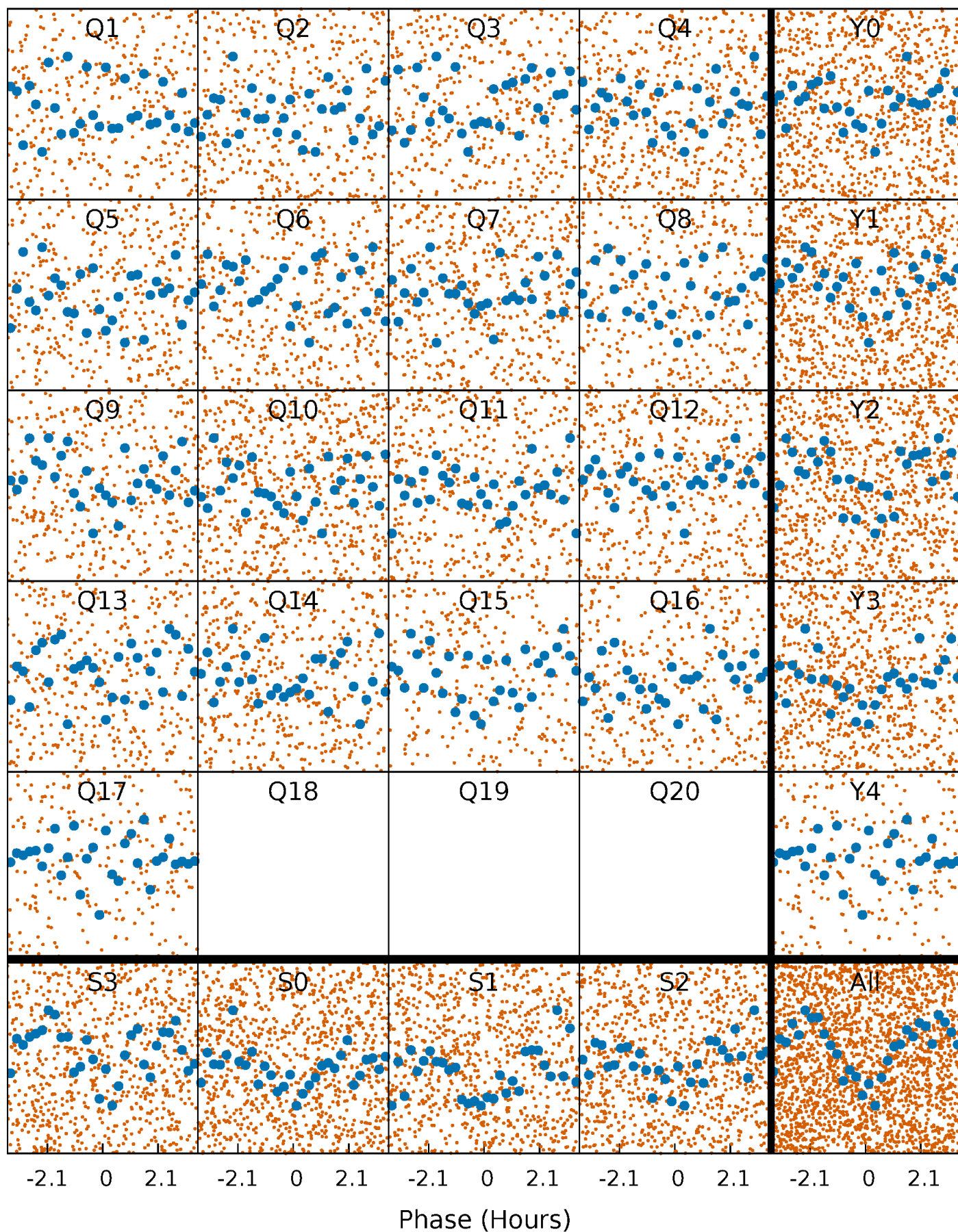


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



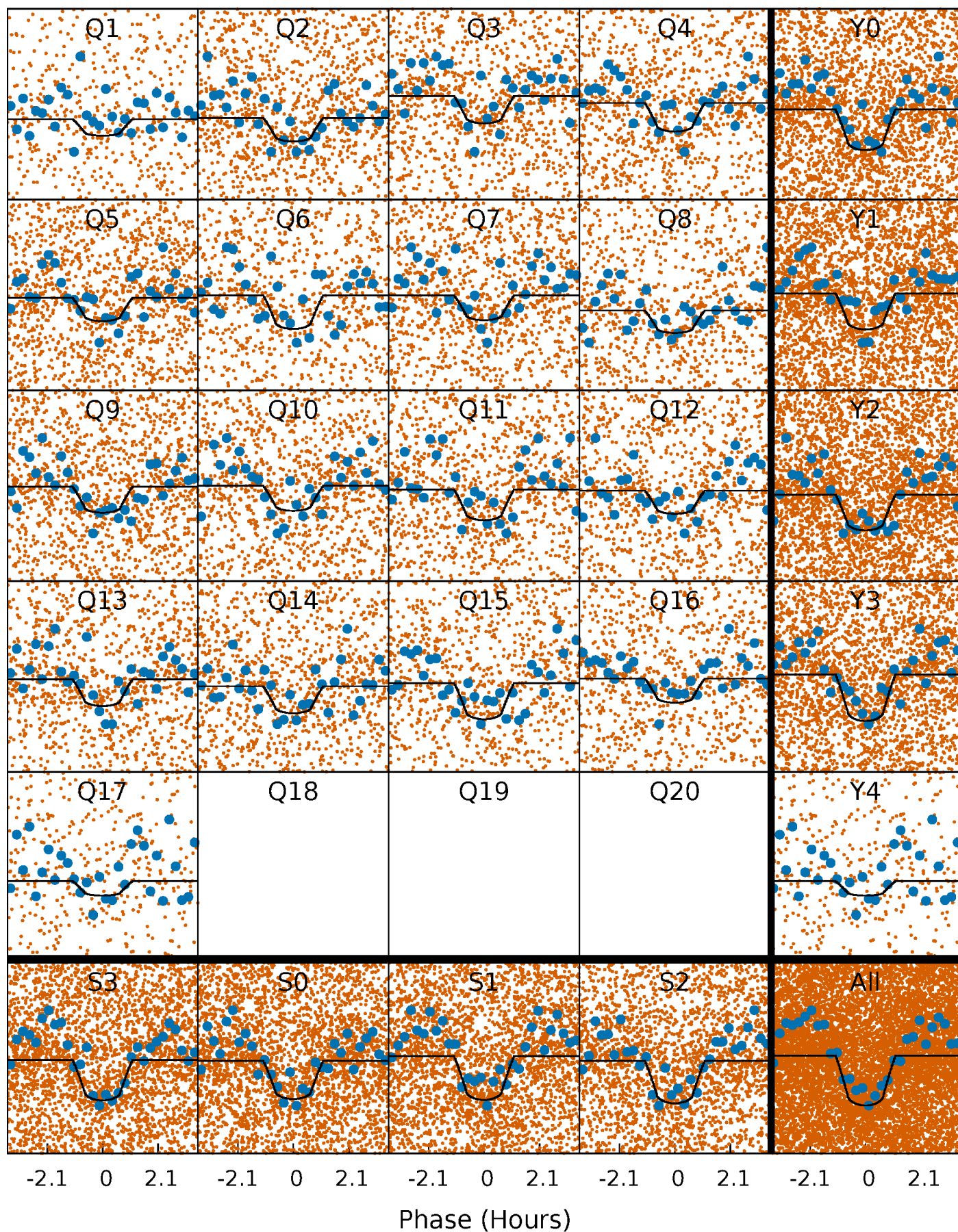
PDC Quarter-Phased Transit Curves

TCE 005389856-01 P= 0.622533 Days $T_0=131.784127$ (BKJD)



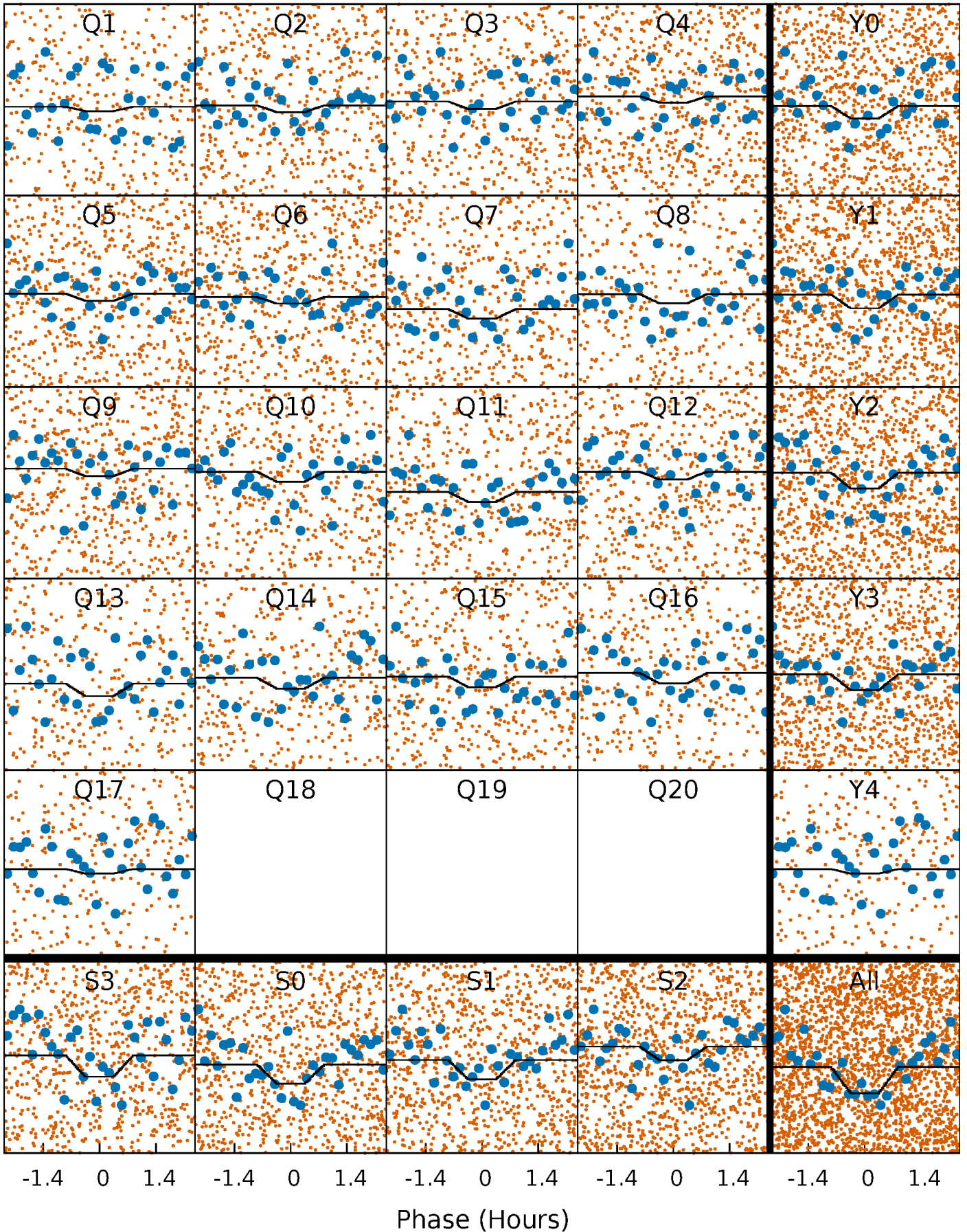
DV Quarter-Phased Transit Curves

TCE 005389856-01 P= 0.622533 Days $T_0=131.784127$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

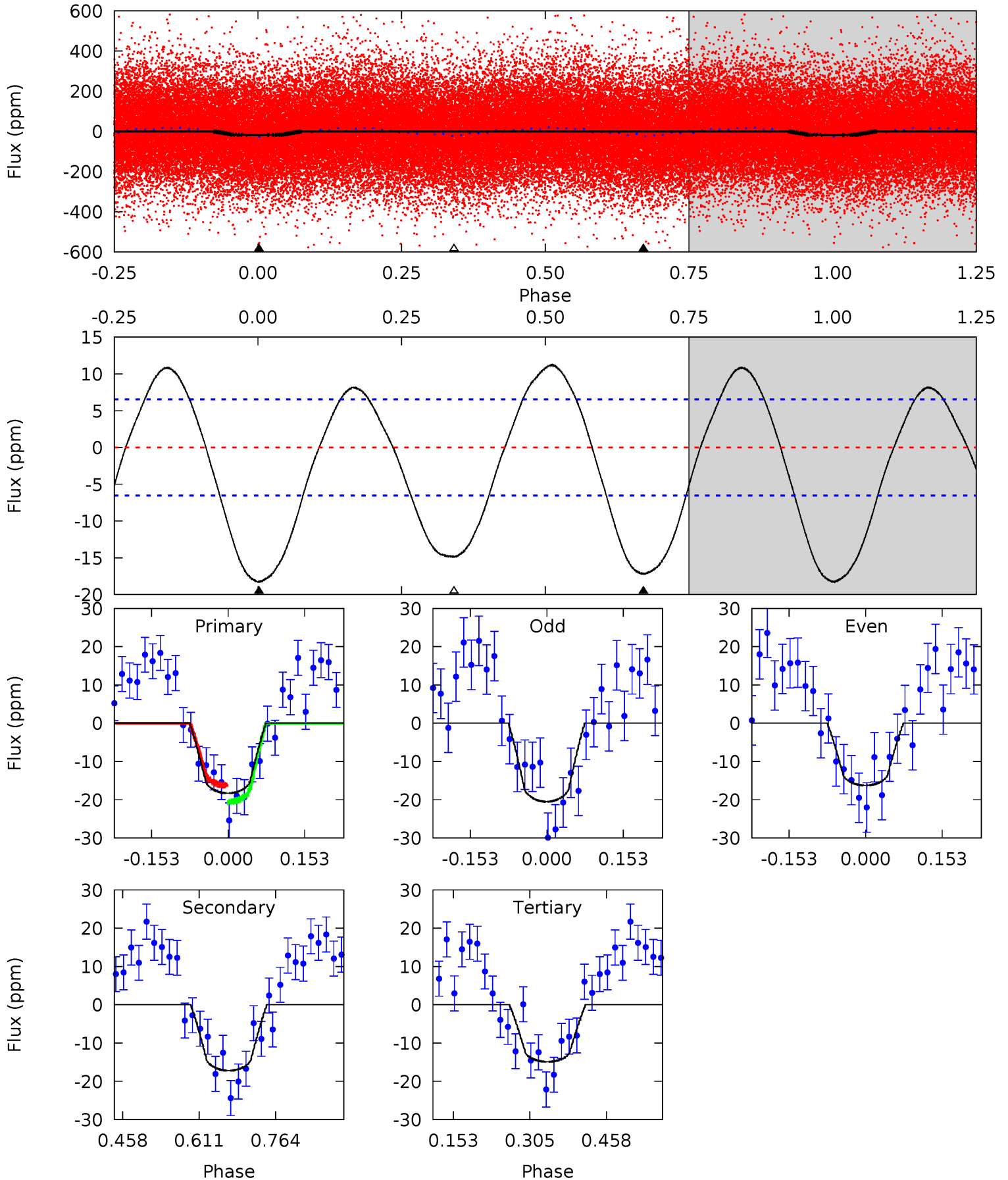
TCE 005389856-01 P= 0.622535 Days $T_0=131.784286$ (BKJD)



DV Model-Shift Uniqueness Test

005389856-01, P = 0.622533 Days, E = 131.161594 Days

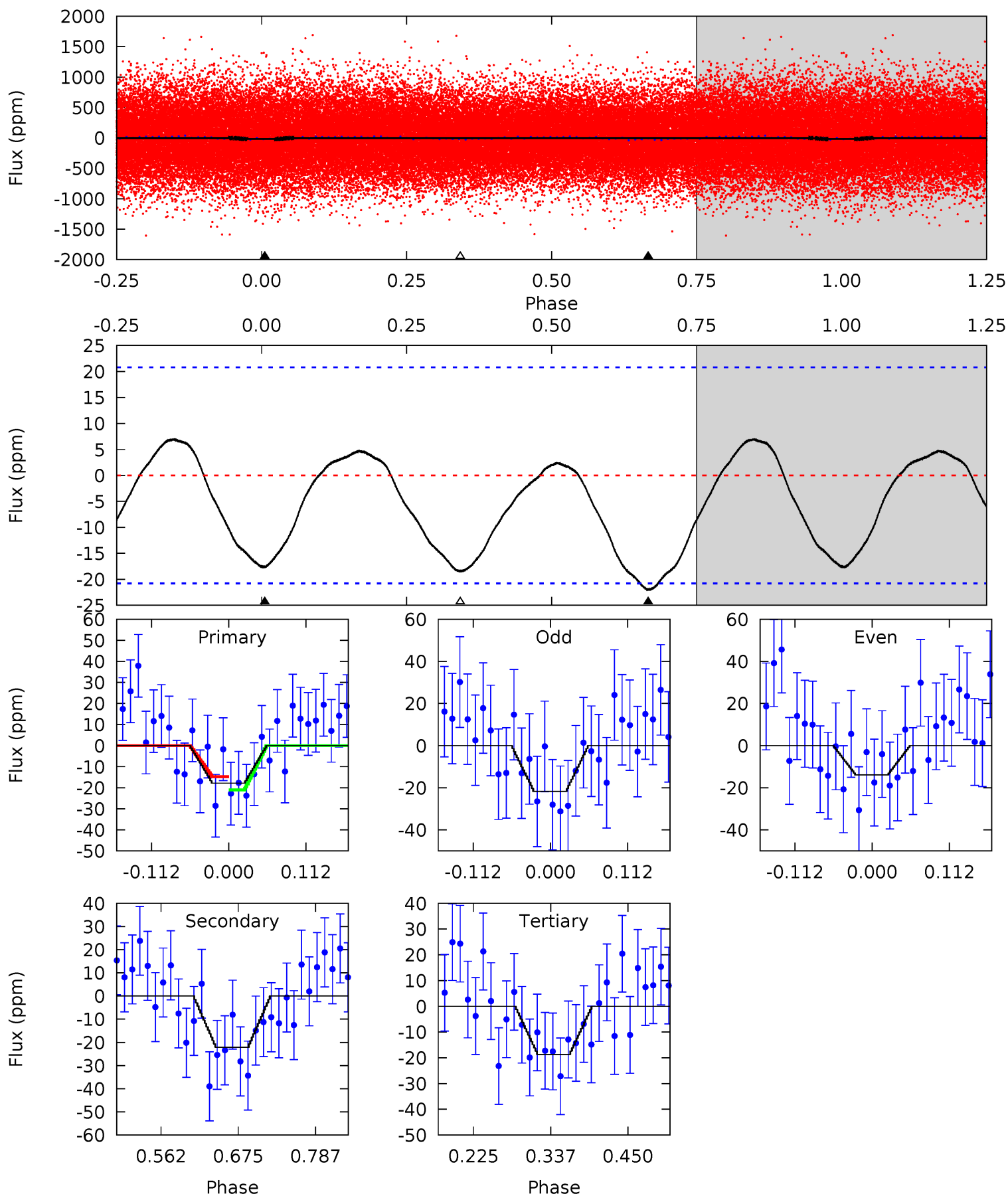
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	11.8	10.2	0	4.48	1.43	6.31	2.32	12.5	1.58	11.8	1.46	1.10	0.38	1.48



Alt Model-Shift Uniqueness Test

005389856-01, P = 0.622535 Days, E = 131.161751 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.90	4.85	4.08	0	4.54	1.59	1.70	-0.18	3.90	0.77	4.85	0.86	1.68	0.24	0.68



Stellar Parameters For KIC 005389856

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7883^{+218}_{-327}	$3.698^{+0.450}_{-0.079}$	$-0.160^{+0.200}_{-0.350}$	$3.336^{+0.529}_{-1.587}$	$2.023^{+0.299}_{-0.513}$	$0.077^{+0.329}_{-0.021}$
	+3%/-4%	+12%/-2%	+125%/-219%	+16%/-48%	+15%/-25%	+428%/-27%
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 005389856-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-17 ± 1	$1.52^{+0.48}_{-0.49}$	6381^{+437}_{-814}	6886^{+1476}_{-1066}	$1.355^{+1.482}_{-0.575}$
Alt.	-22 ± 5	$1.35^{+0.46}_{-0.44}$	6378^{+439}_{-762}	8105^{+2151}_{-1319}	$2.167^{+2.543}_{-0.974}$

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 $A_{obs} \gg 1.0$

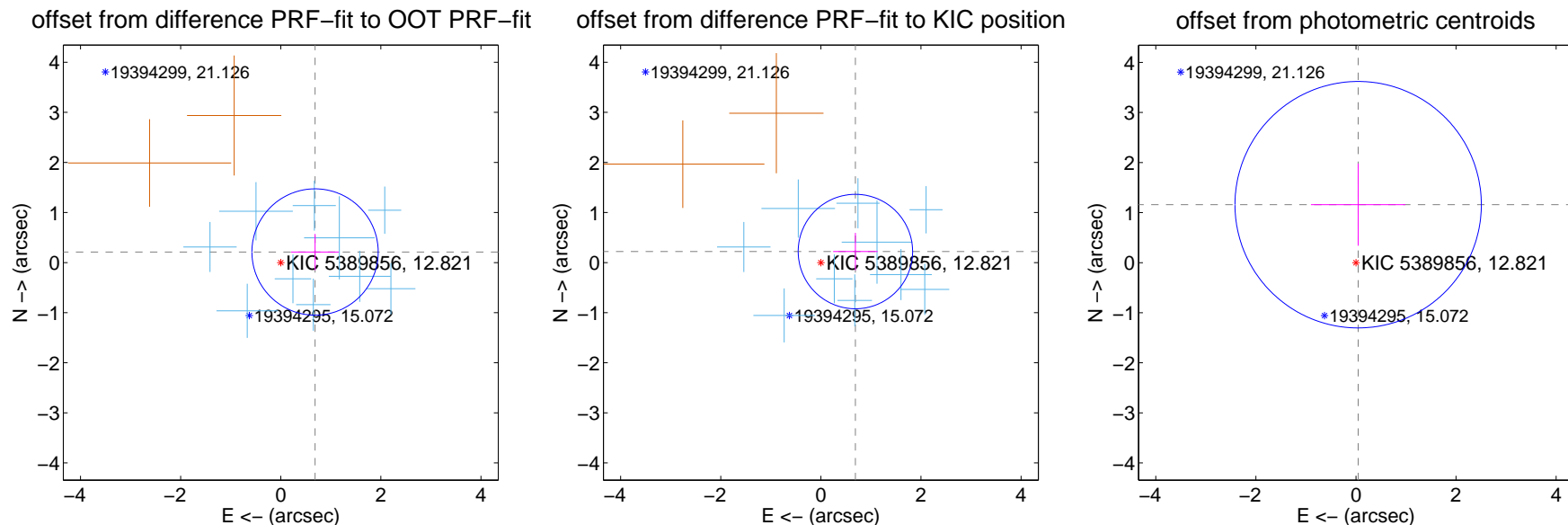
DV Centroid Data

Supplemental centroid analysis for 005389856-01. Kepler magnitude: 12.82. Transit SNR 9.88

There are 10 quarters with good PRF difference image offsets

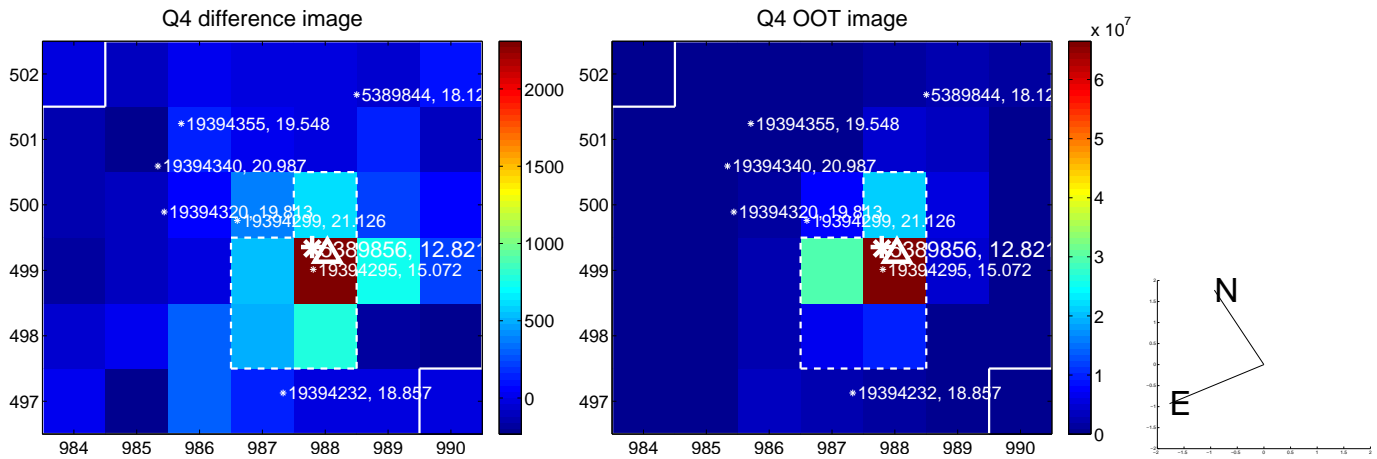
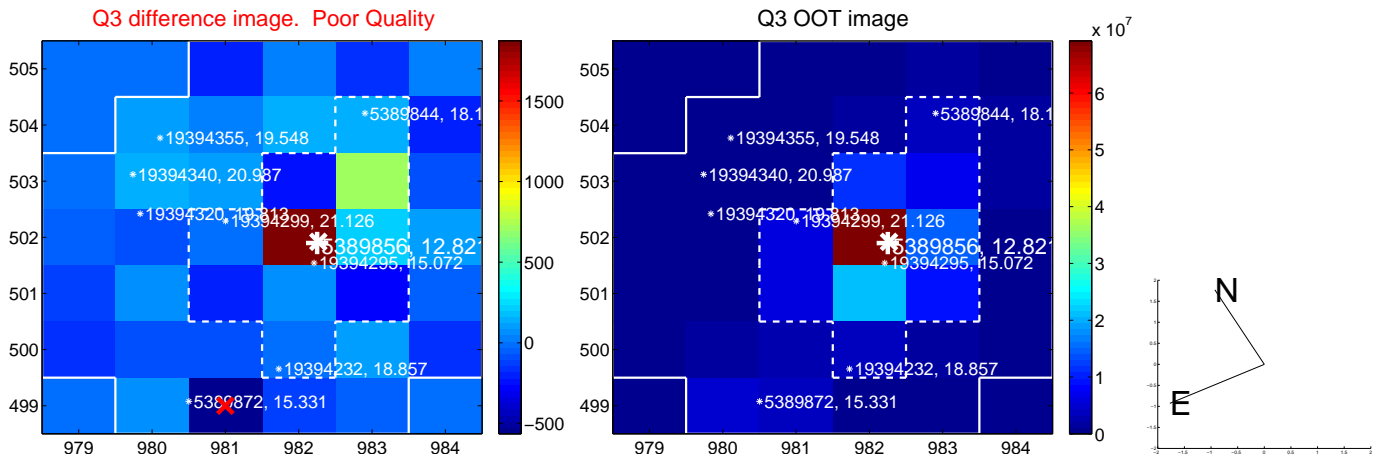
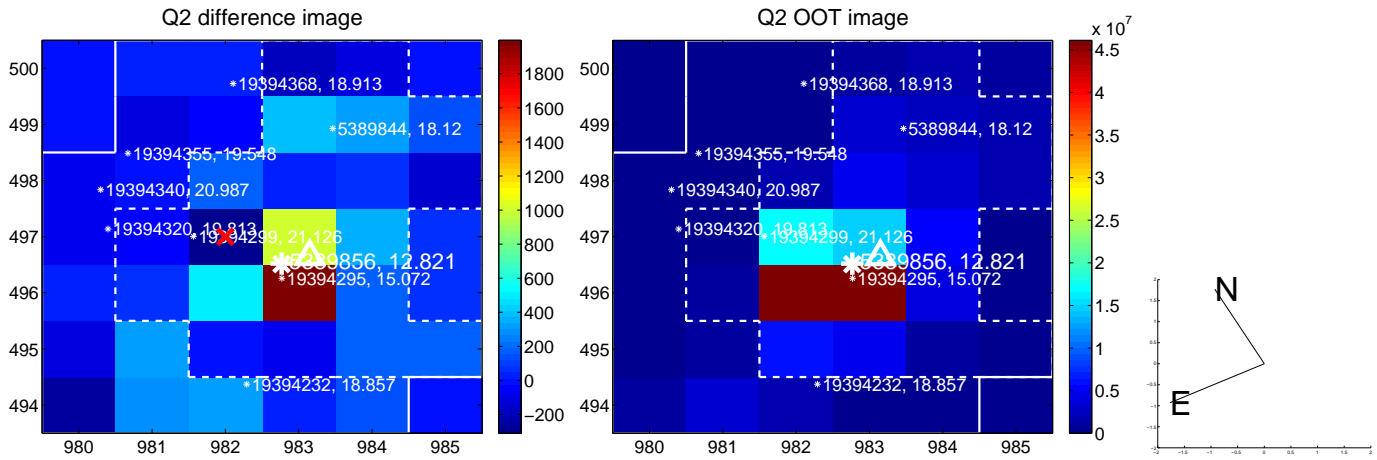
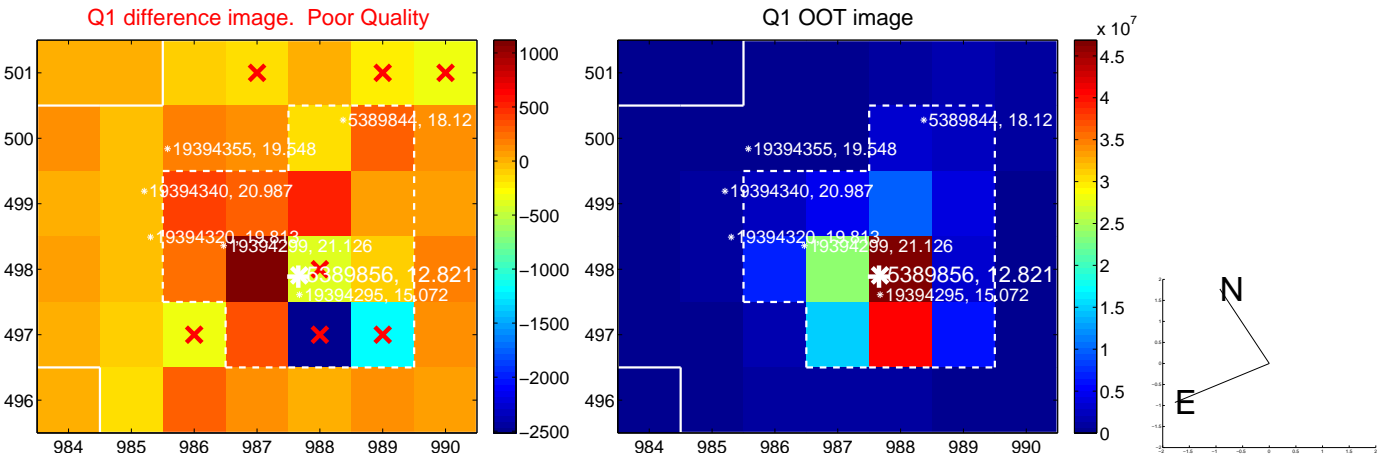
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.717 ± 0.420	1.71	-0.685 ± 0.478	0.211 ± 0.362
PRF-fit source offset from KIC position	0.724 ± 0.381	1.90	-0.690 ± 0.444	0.221 ± 0.372
photometric centroid source offset	1.16 ± 0.82	1.41	-0.04 ± 0.94	1.16 ± 0.82

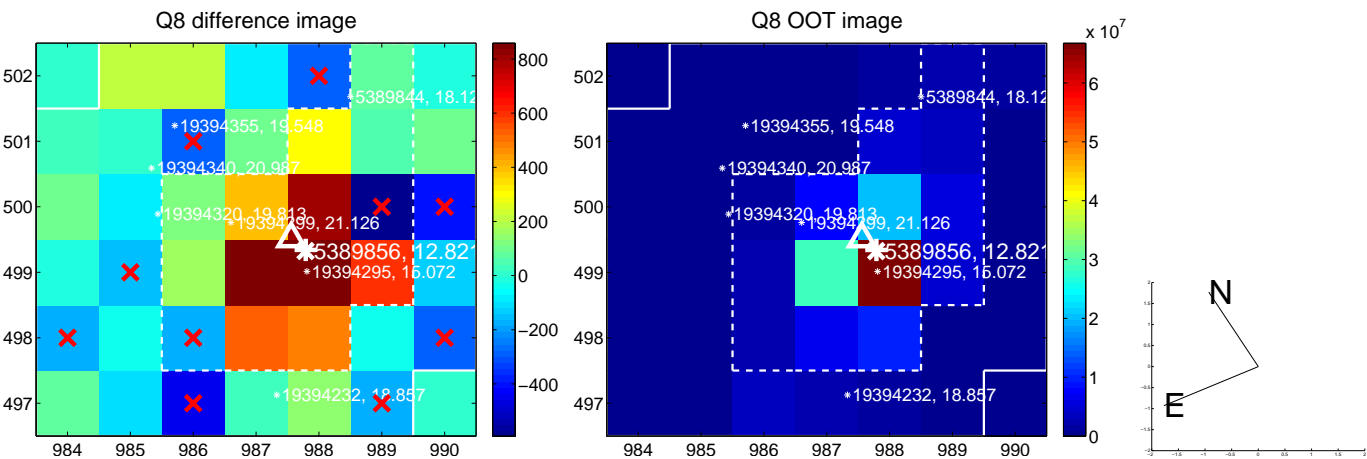
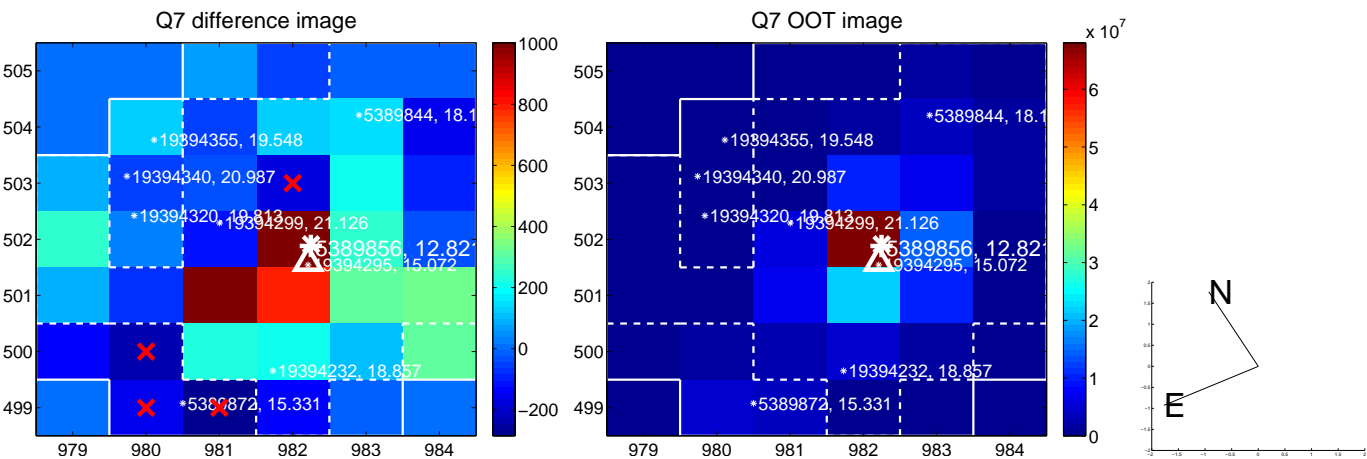
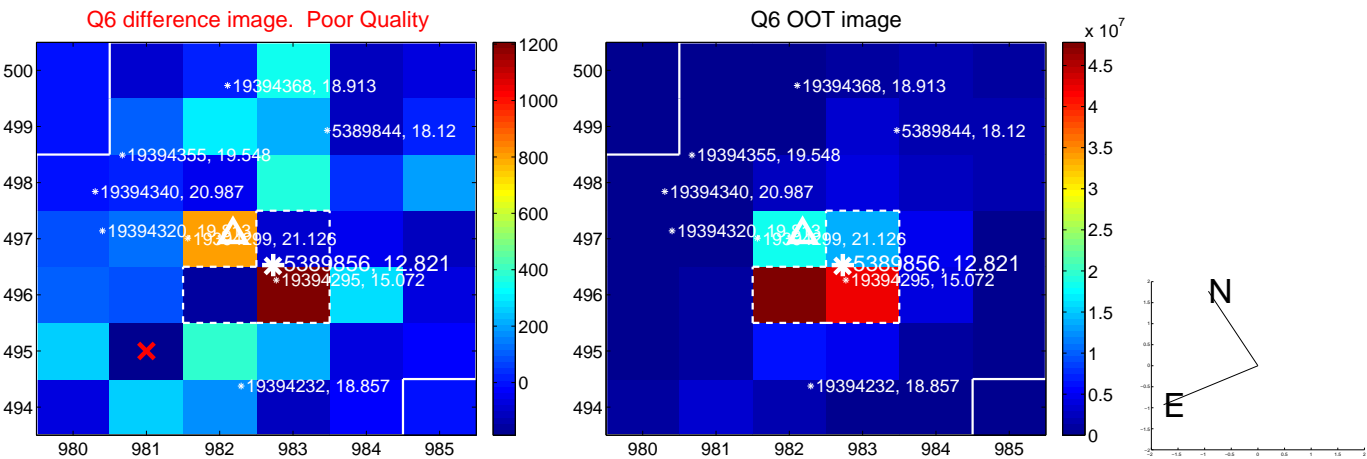
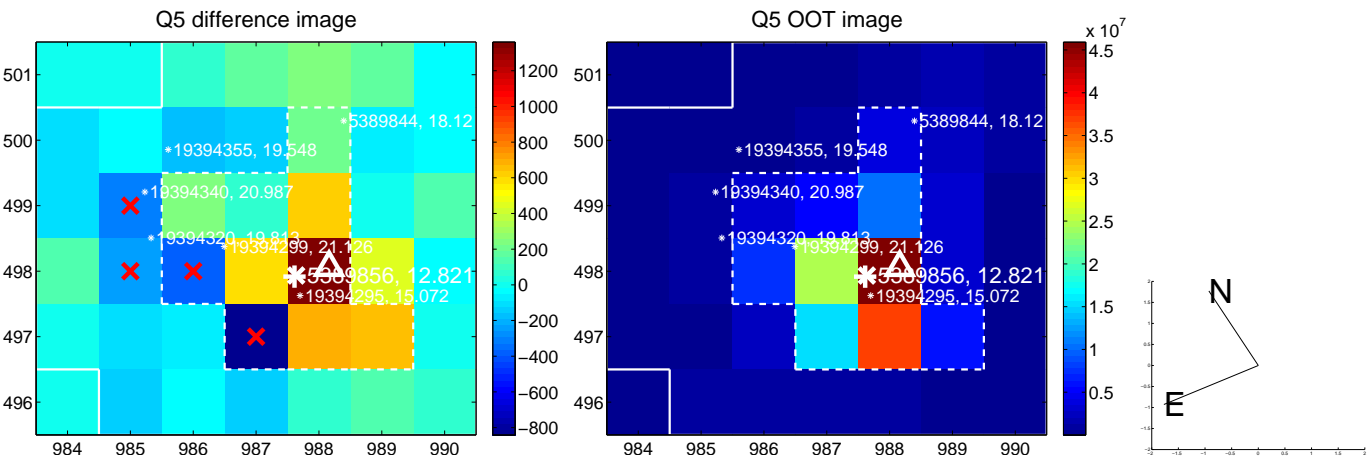


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

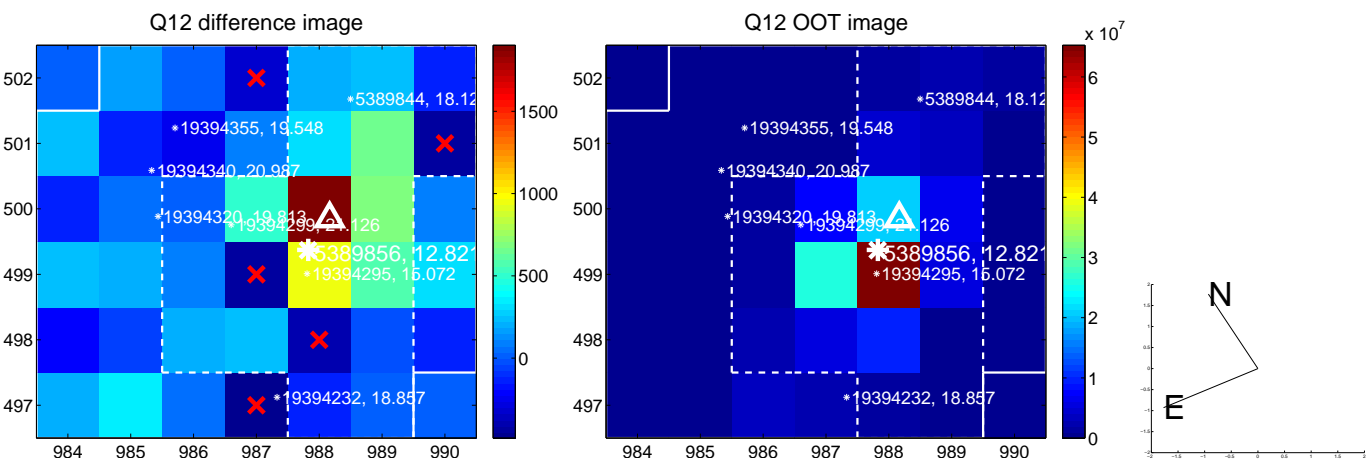
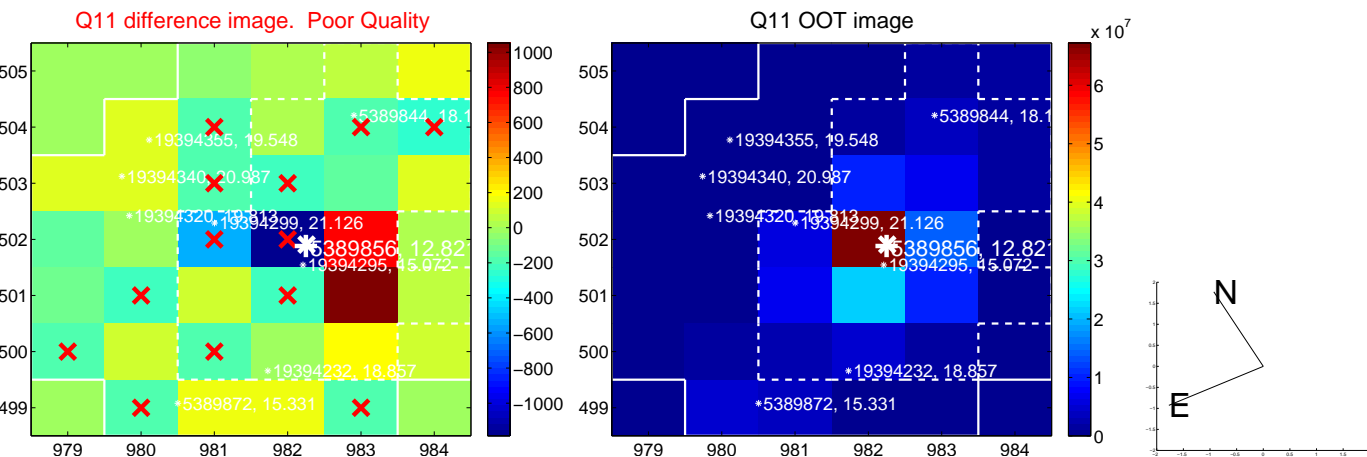
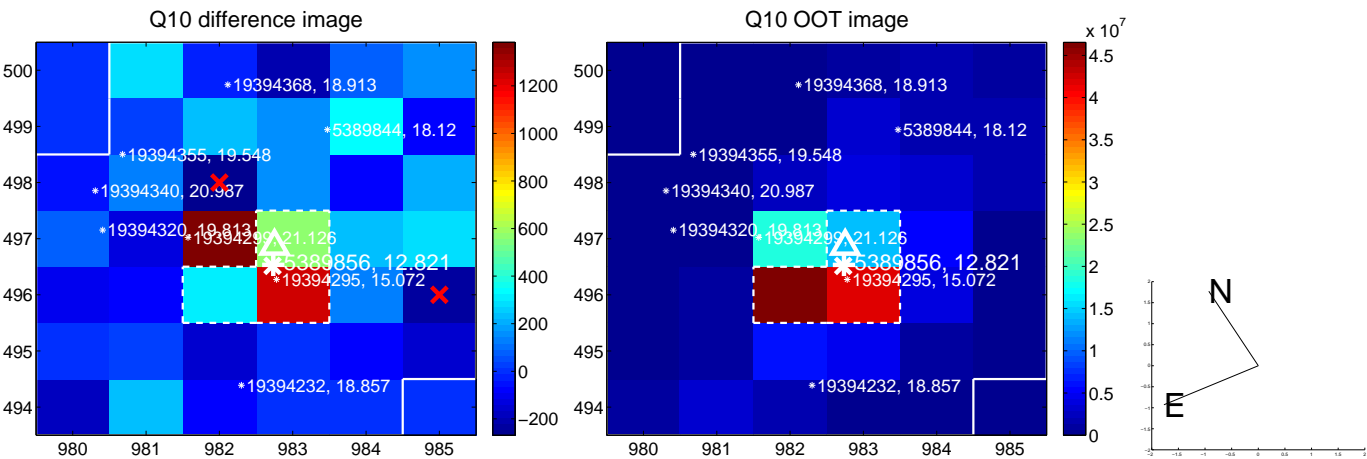
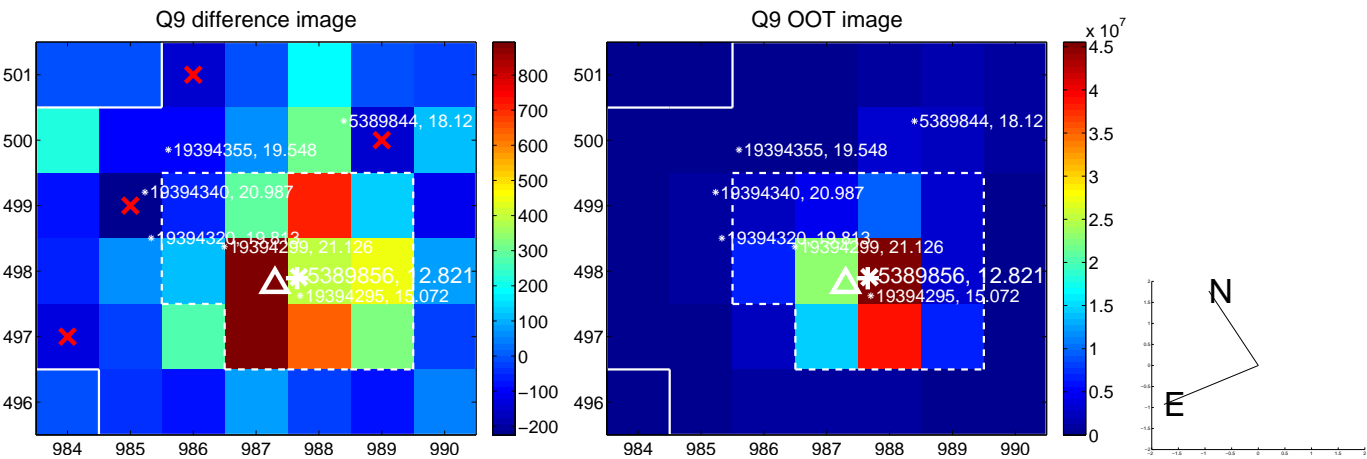
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



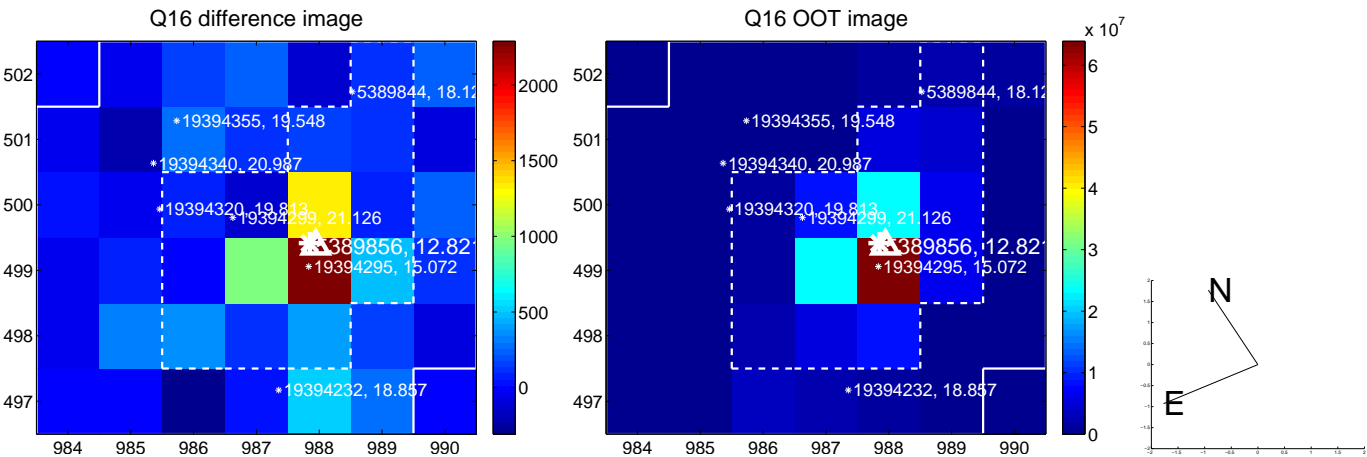
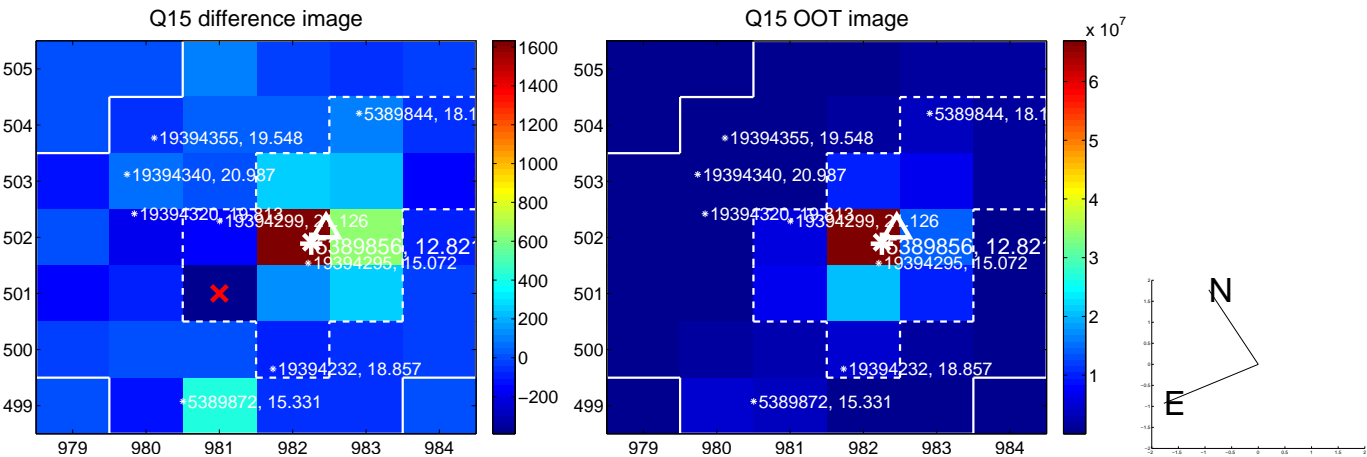
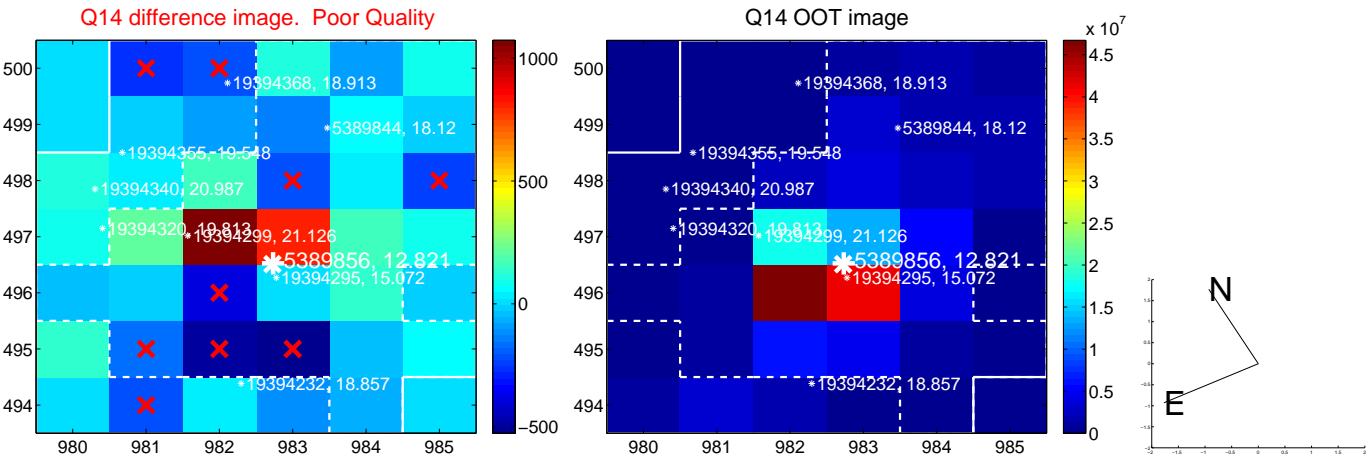
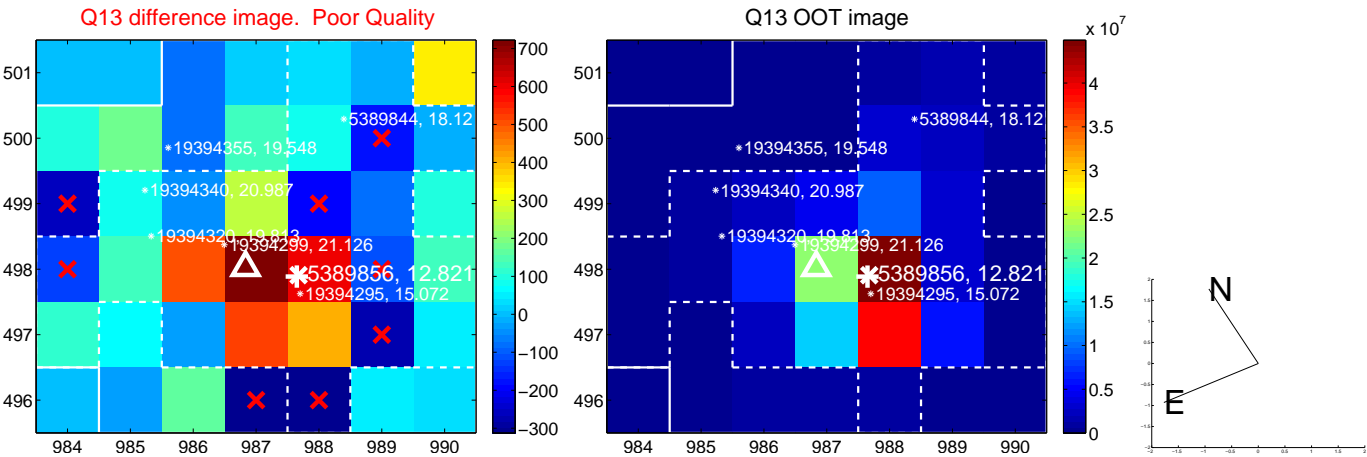
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



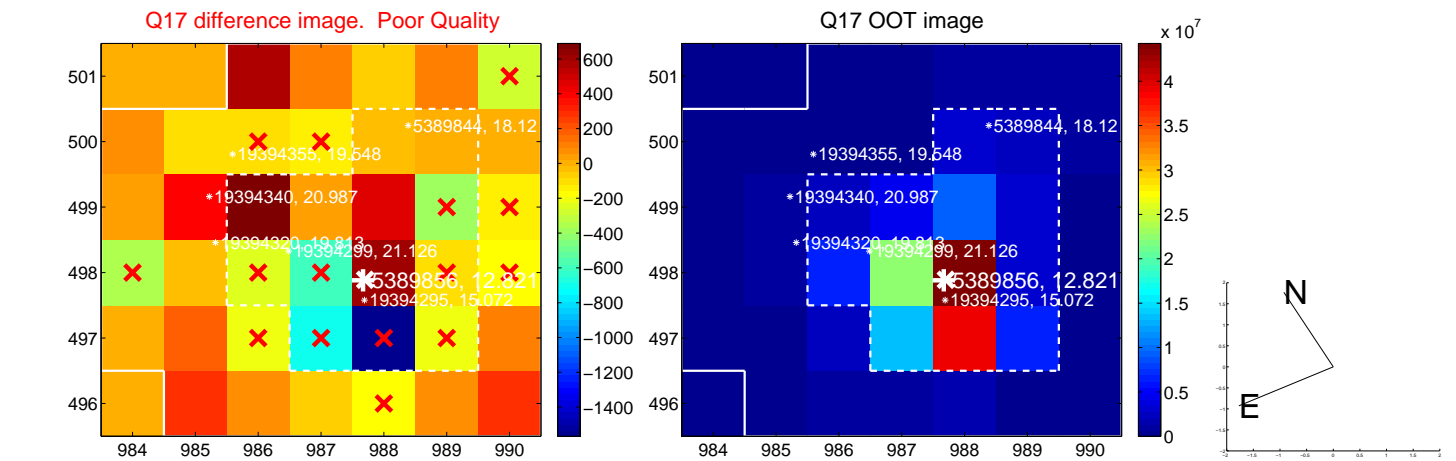
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



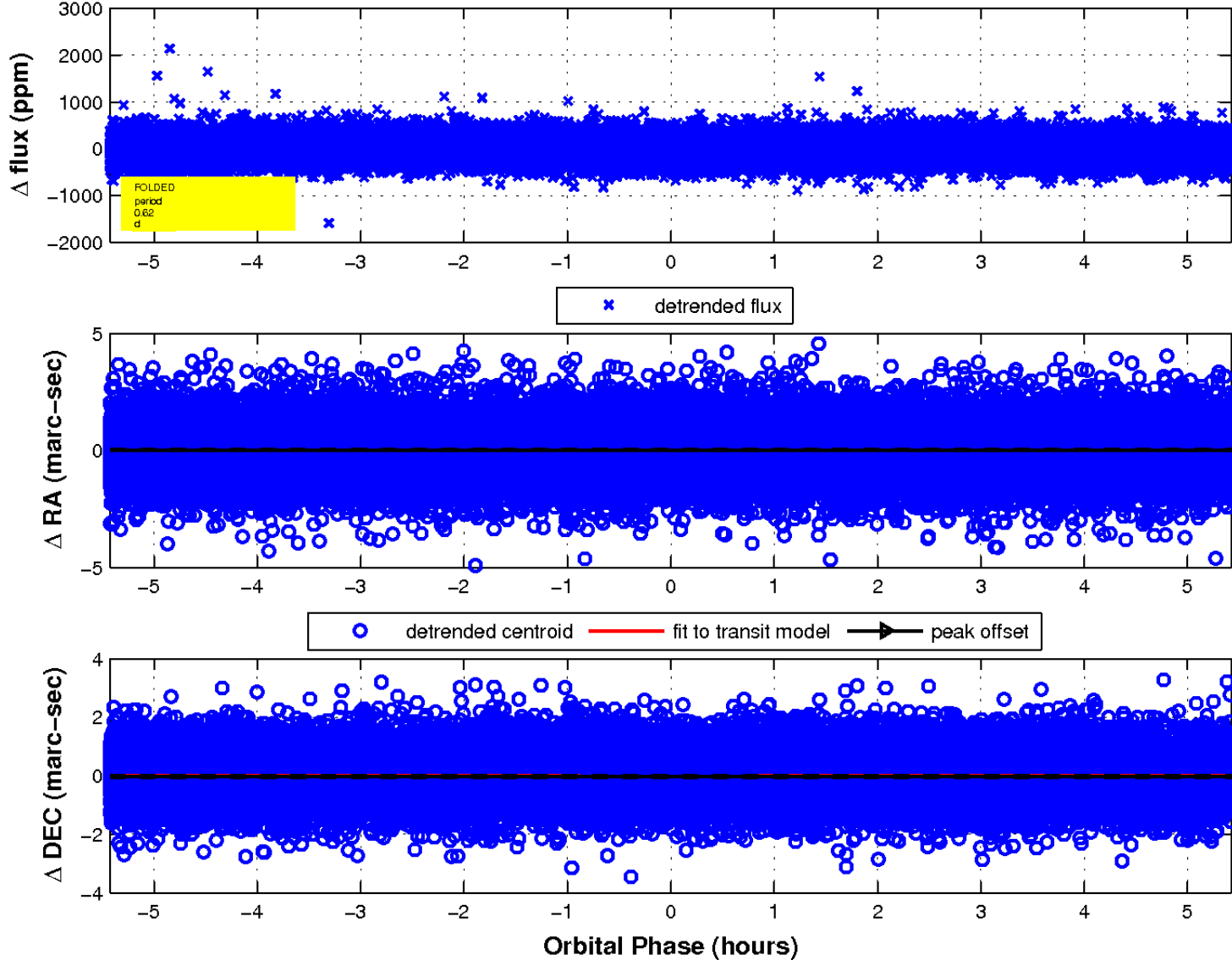
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

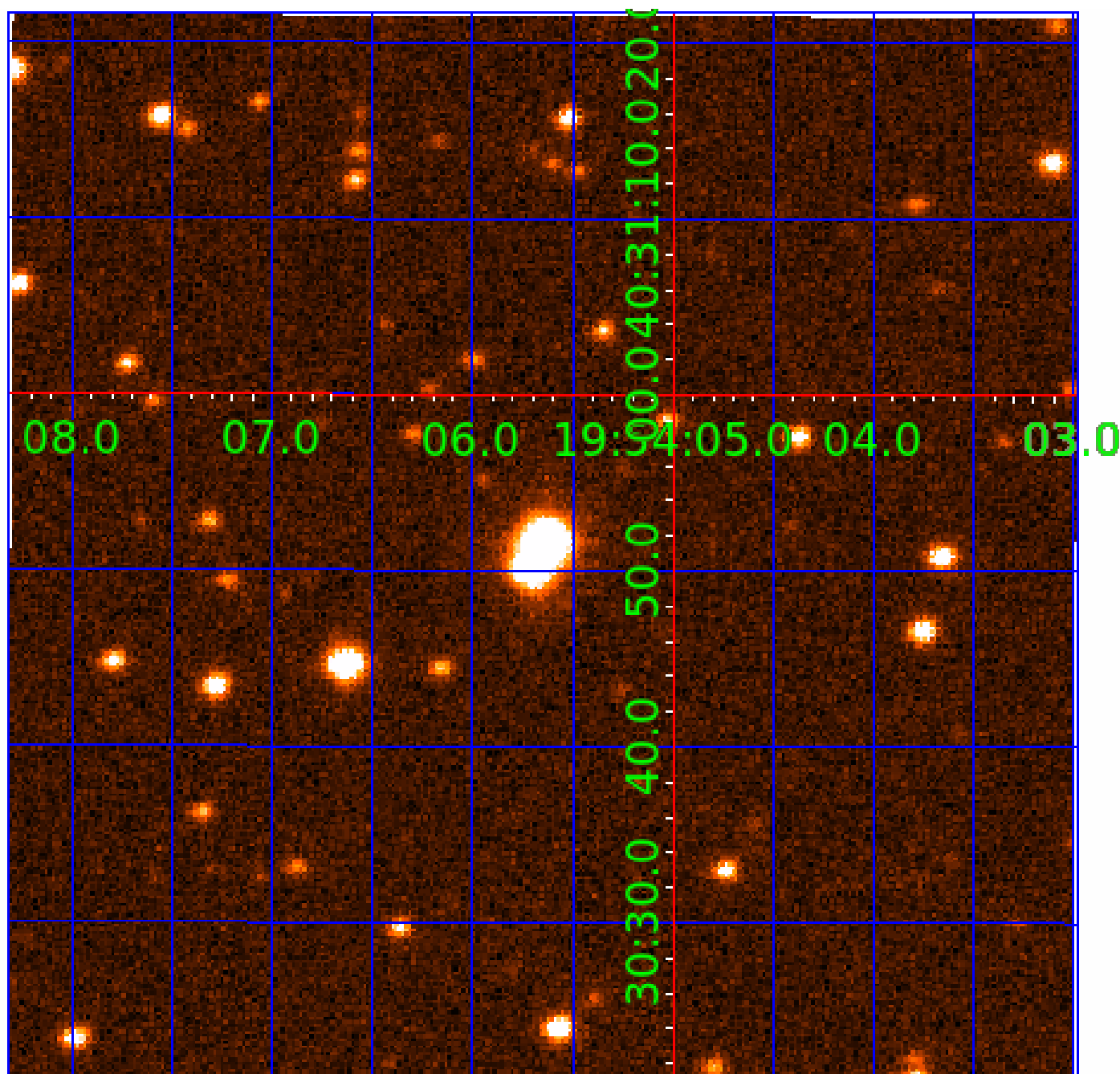


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005389856

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})
005389856-01	OBS	No	0.622533	131.784127	23.7	1.809	9.9	9.9	3.34	7883	1.69	118103.18
005389856-02	OBS	No	0.622544	131.569291	21.9	2.420	8.2	9.3	3.34	7883	1.81	118100.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005389856-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
005389856-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

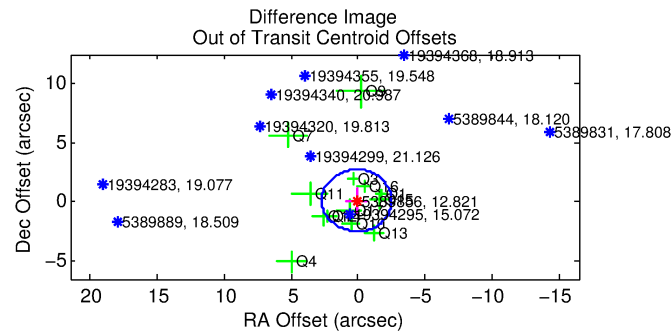
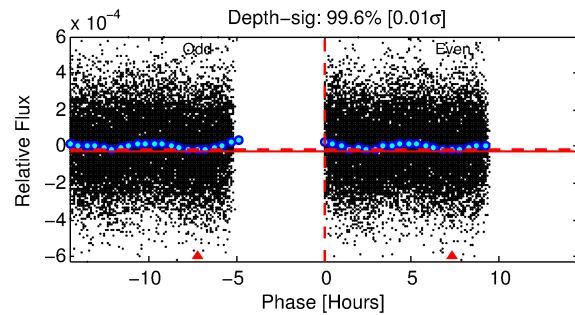
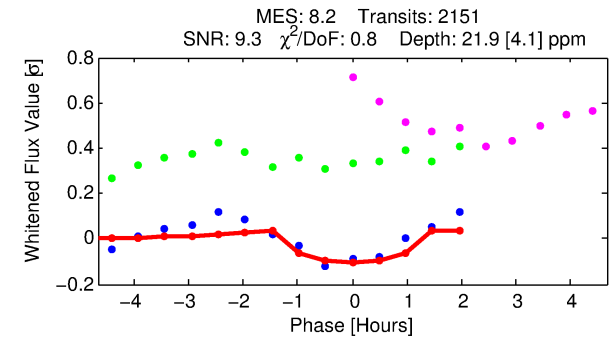
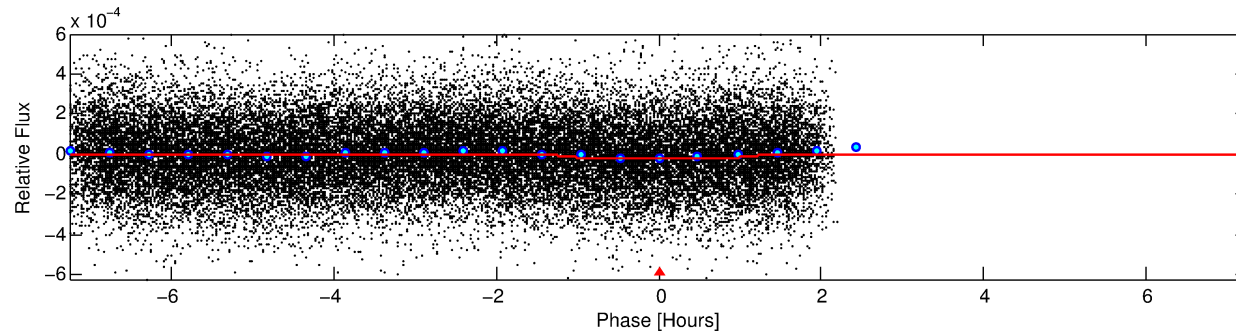
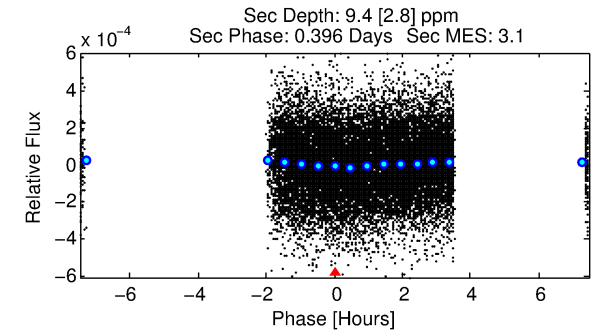
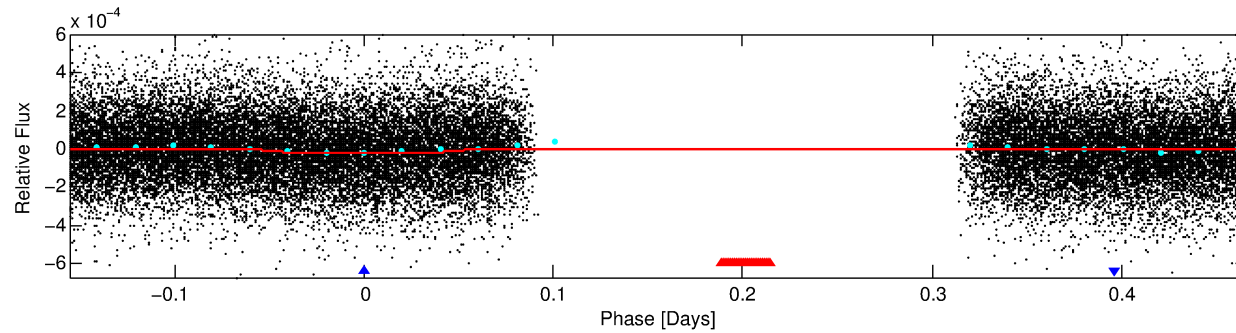
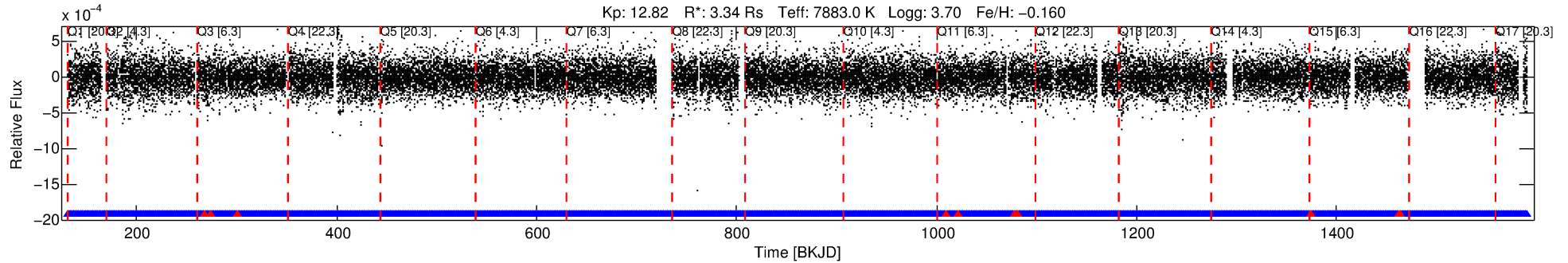
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005389856-02

No Significant Match Found

DV One-Page Summary

KIC: 5389856 Candidate: 2 of 2 Period: 0.623 d



DV Fit Results:

Period = 0.62254 [0.00002] d
Epoch = 131.5693 [0.0024] BKJD
Rp/R* = 0.0050 [0.0016]
a/R* = 1.29 [1.02]
b = 0.90 [0.44]
Seff = 118100.33 [91882.08]
Teq = 4727 [919] K
Rp = 1.82 [1.05] Re
a = 0.0181 [0.0085] AU
Ag = 0.51 [0.54] [-0.91σ]
Teffp = 6184 [1144] K [0.99σ]

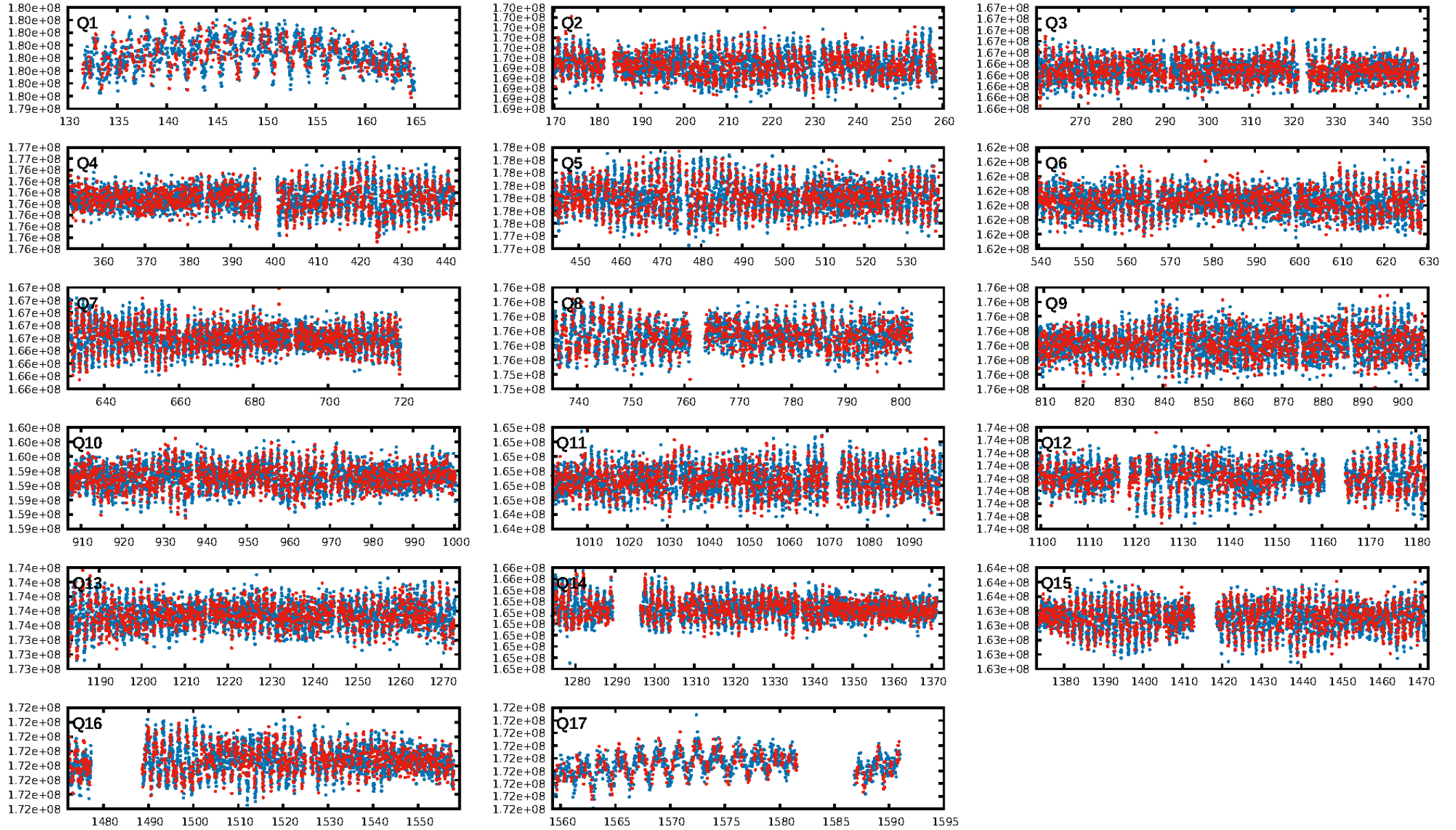
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.76e-11
RollingBand-fgt: 1.00 [2044/2054]
GhostDiagnostic-chr: 1.915
Centroid-sig: 20.8%
Centroid-so: 0.848 arcsec [1.06σ]
OotOffset-rm: 0.177 arcsec [0.20σ]
OotOffset-st: 2/4/3/4 [13]
KicOffset-rm: 0.202 arcsec [0.26σ]
KicOffset-st: 2/4/3/4 [13]
DiffImageQuality-fgm: 0.62 [8/13]
DiffImageOverlap-fno: 0.00 [0/17]

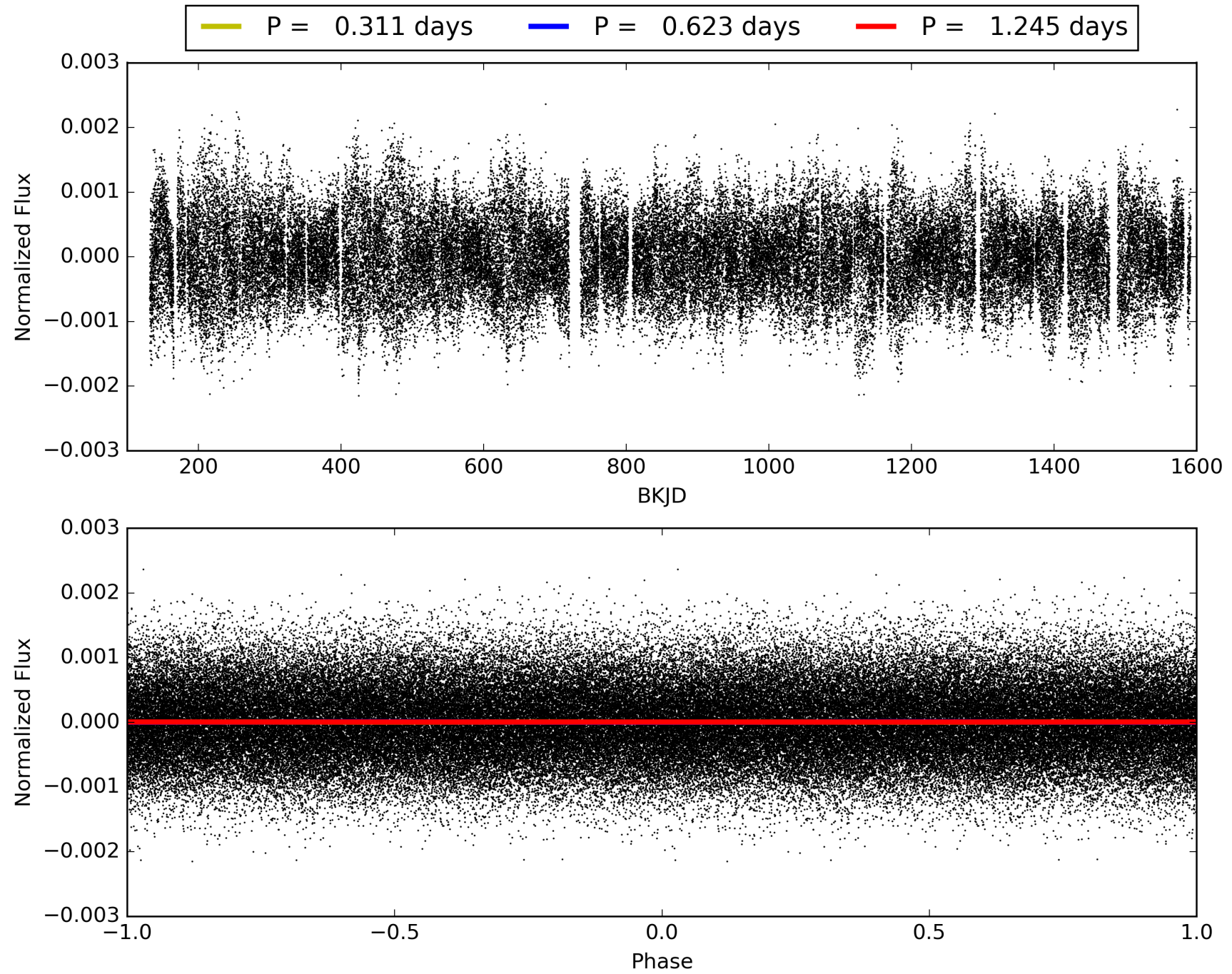
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:40:35 Z

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

TCE 005389856-02, PDC Light Curves

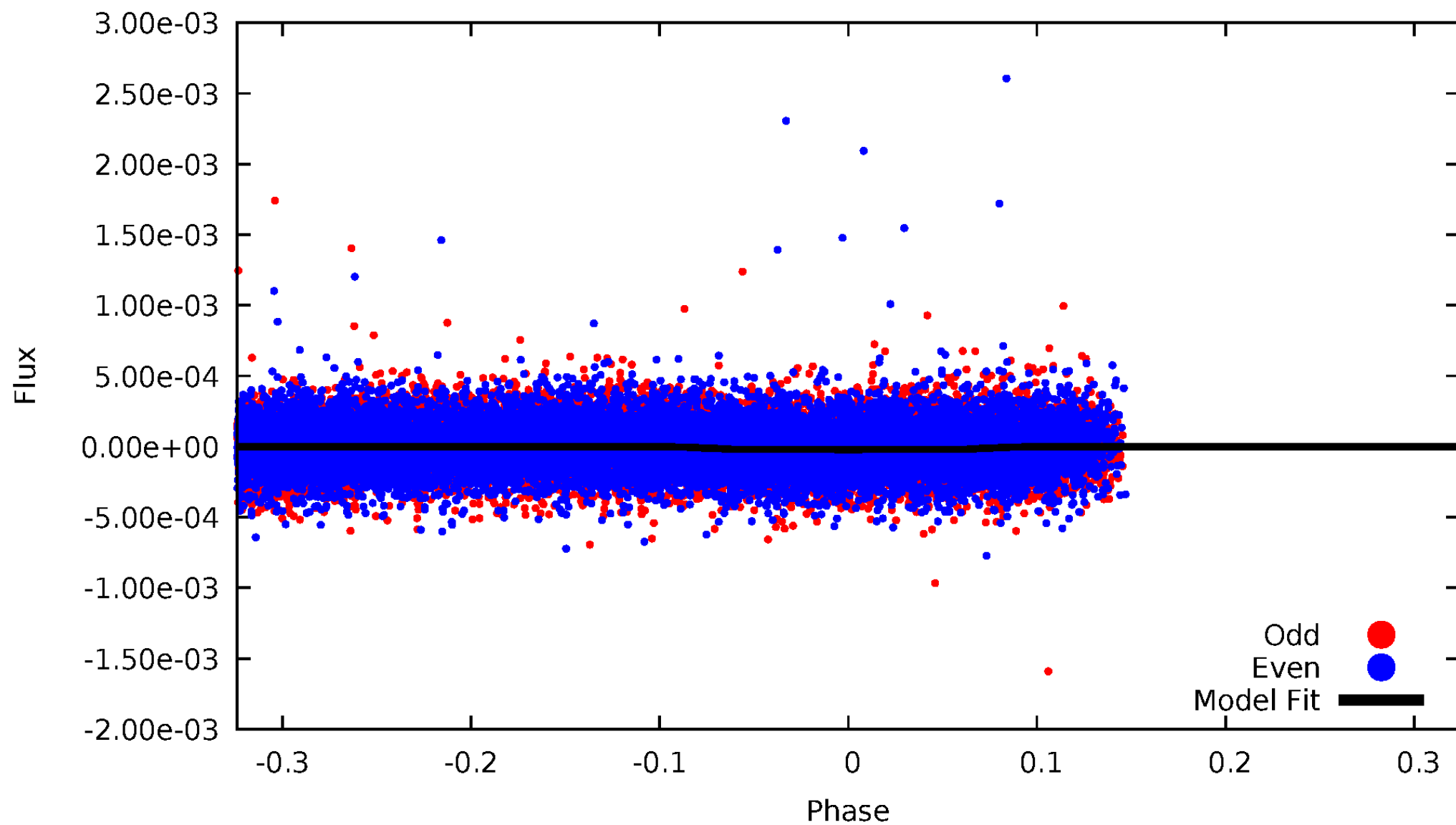


TCE 005389856-02



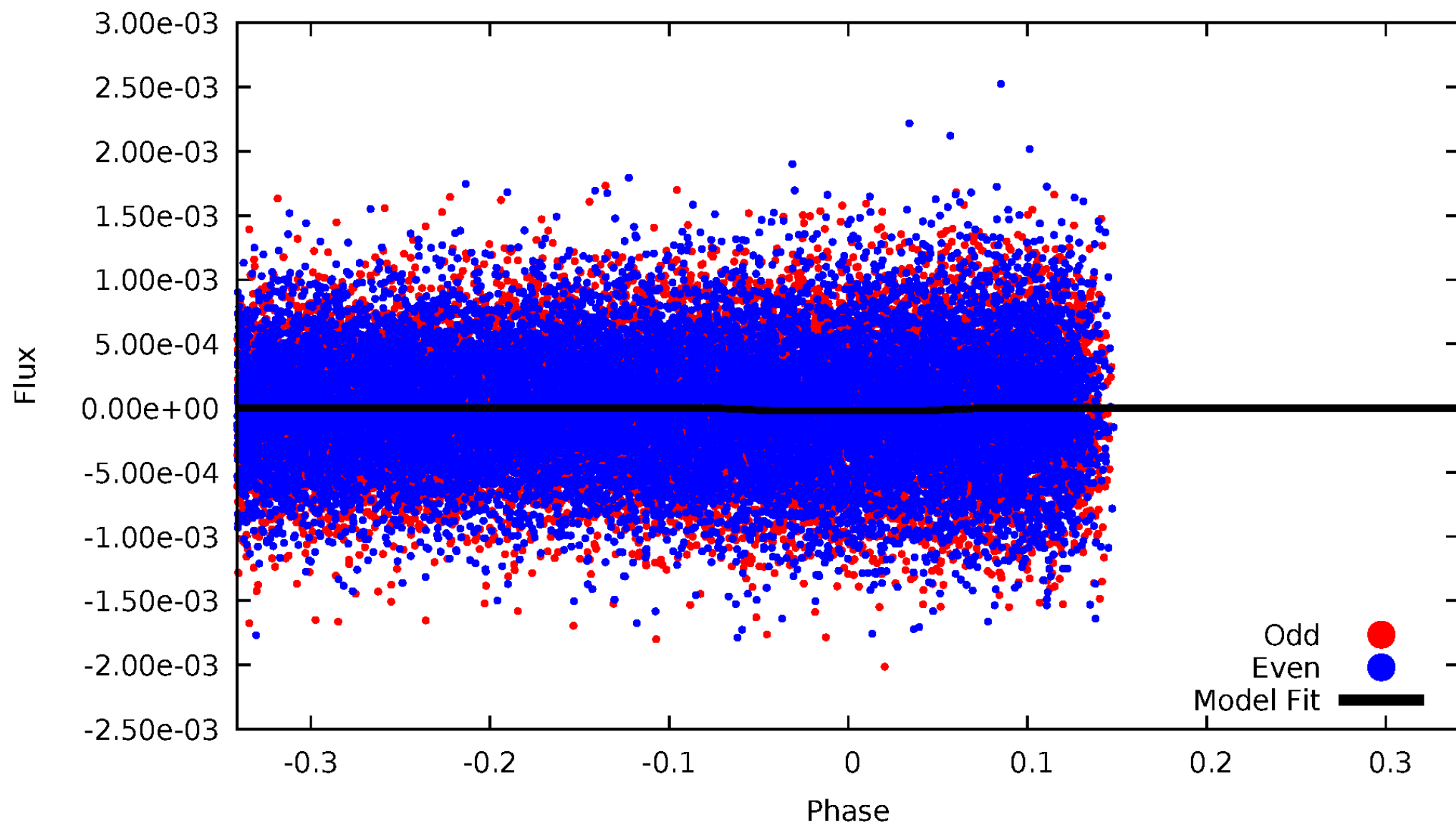
DV Odd/Even

TCE 005389856-02



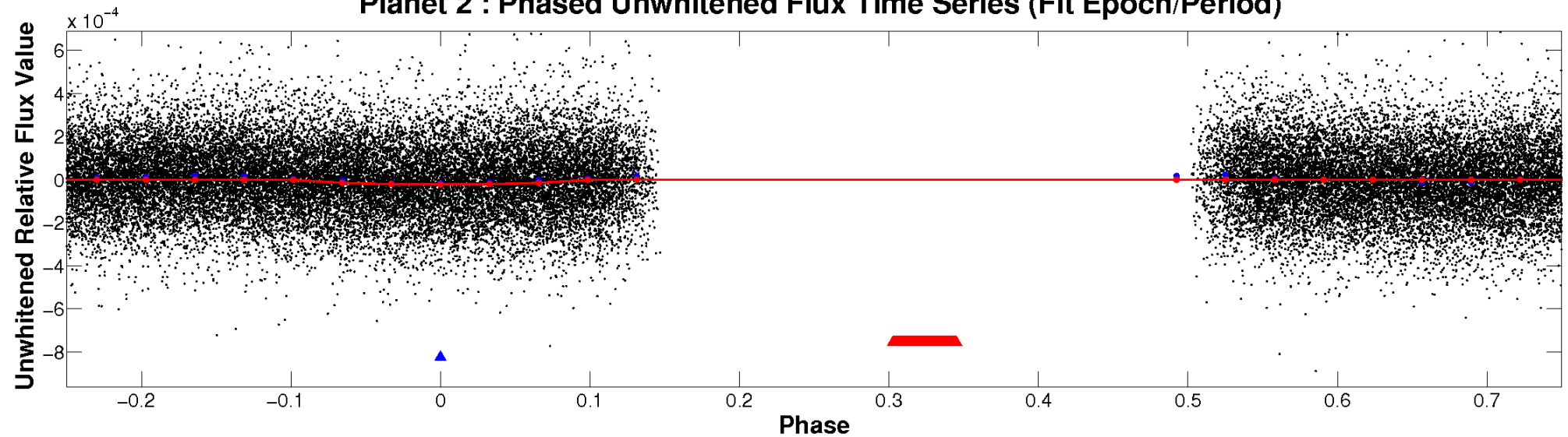
ALT Odd/Even

TCE 005389856-02

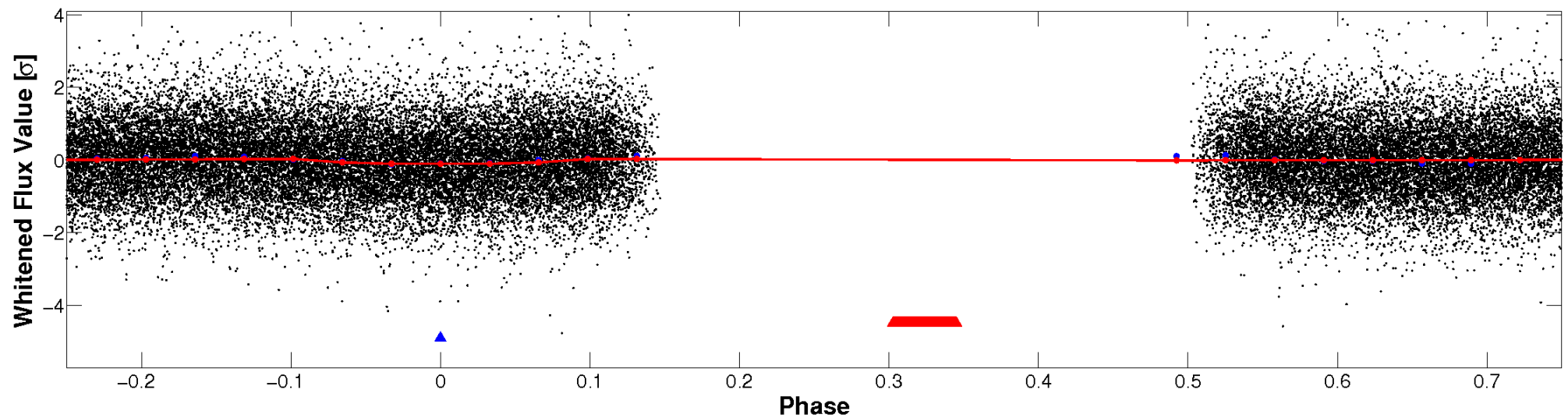


Non-Whitened Vs. Whitened Light Curve

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

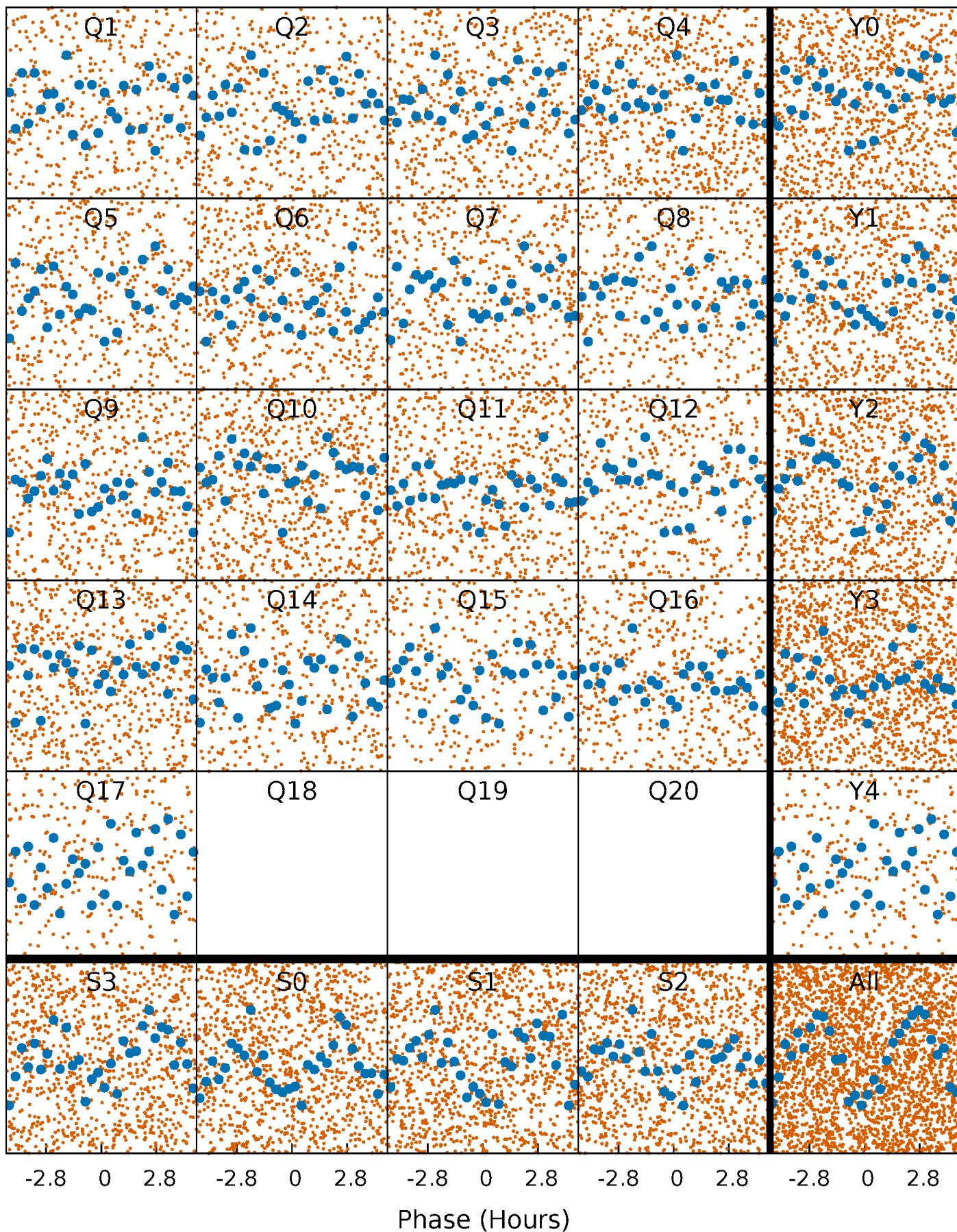


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



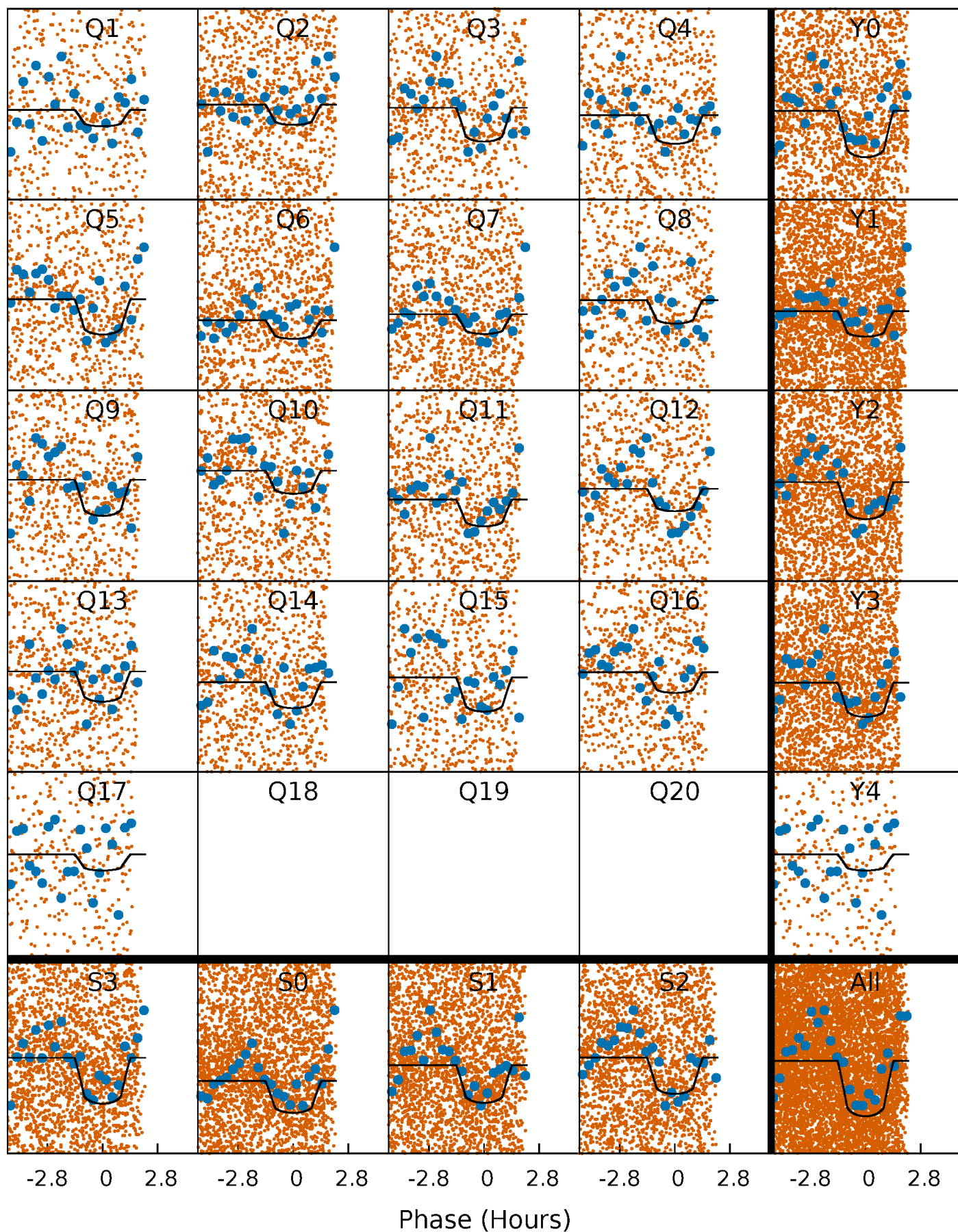
PDC Quarter-Phased Transit Curves

TCE 005389856-02 P= 0.622544 Days $T_0=131.569291$ (BKJD)



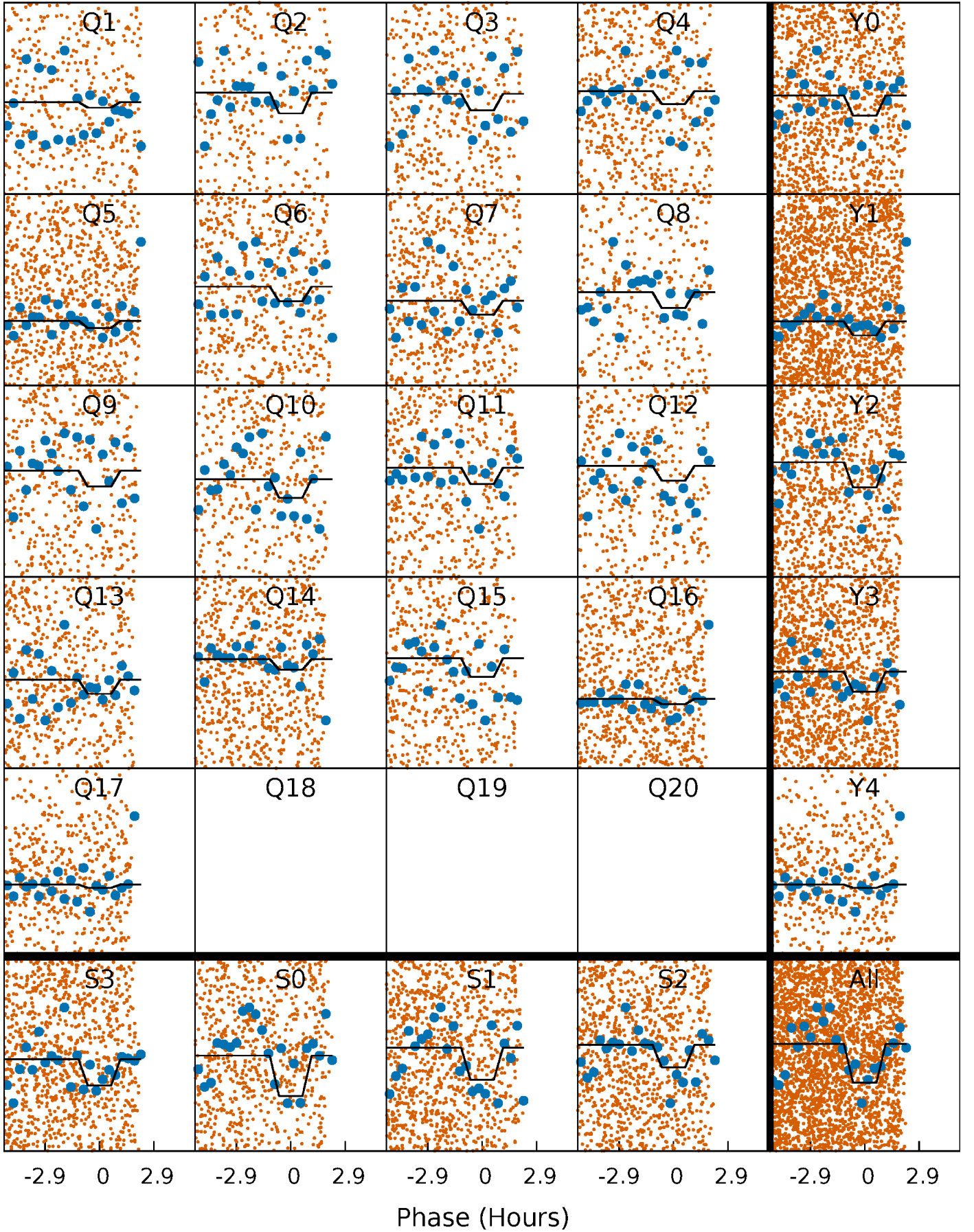
DV Quarter-Phased Transit Curves

TCE 005389856-02 P= 0.622544 Days $T_0=131.569291$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

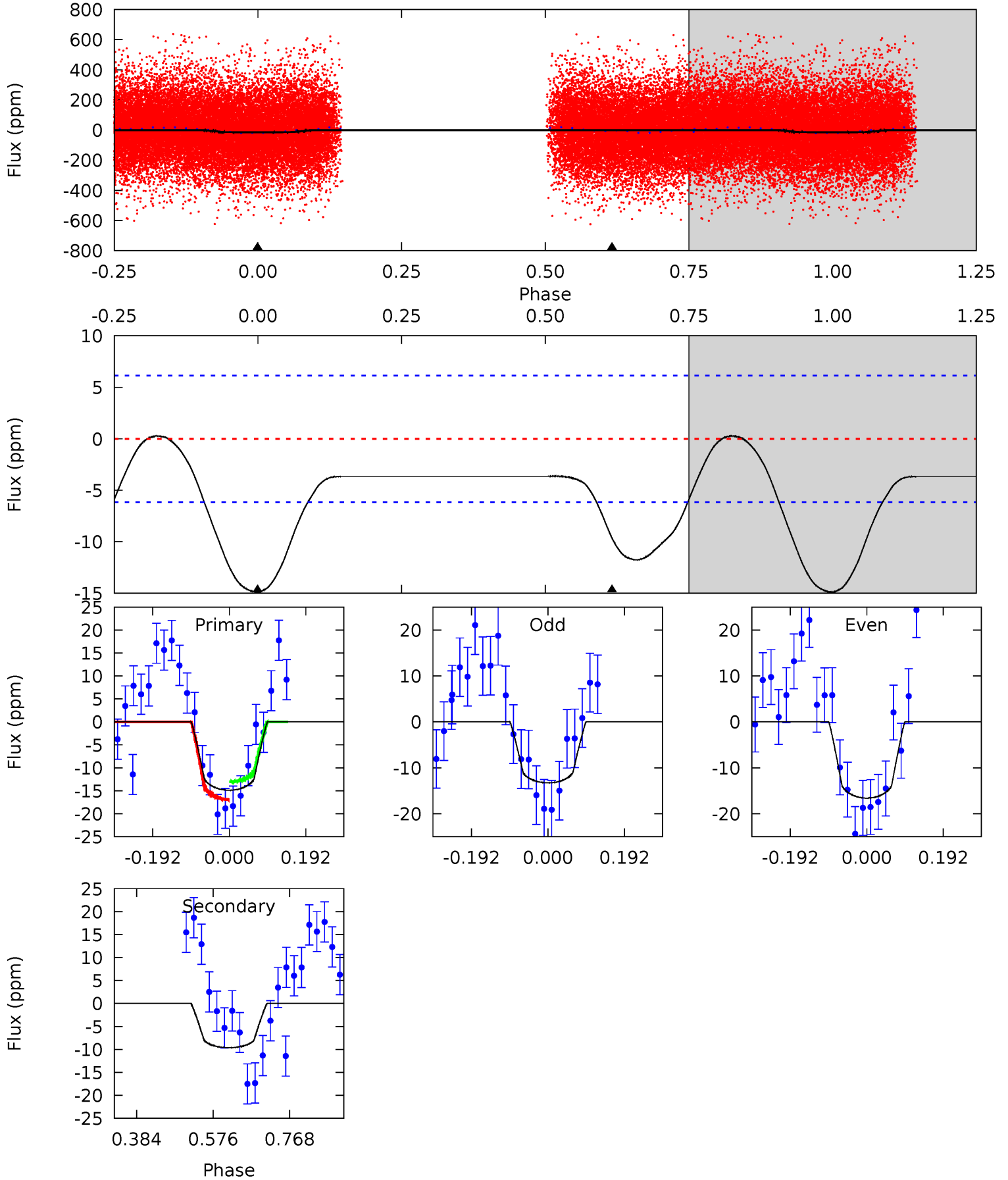
TCE 005389856-02 P= 0.622542 Days $T_0=131.568537$ (BKJD)



DV Model-Shift Uniqueness Test

005389856-02, P = 0.622544 Days, E = 130.946747 Days

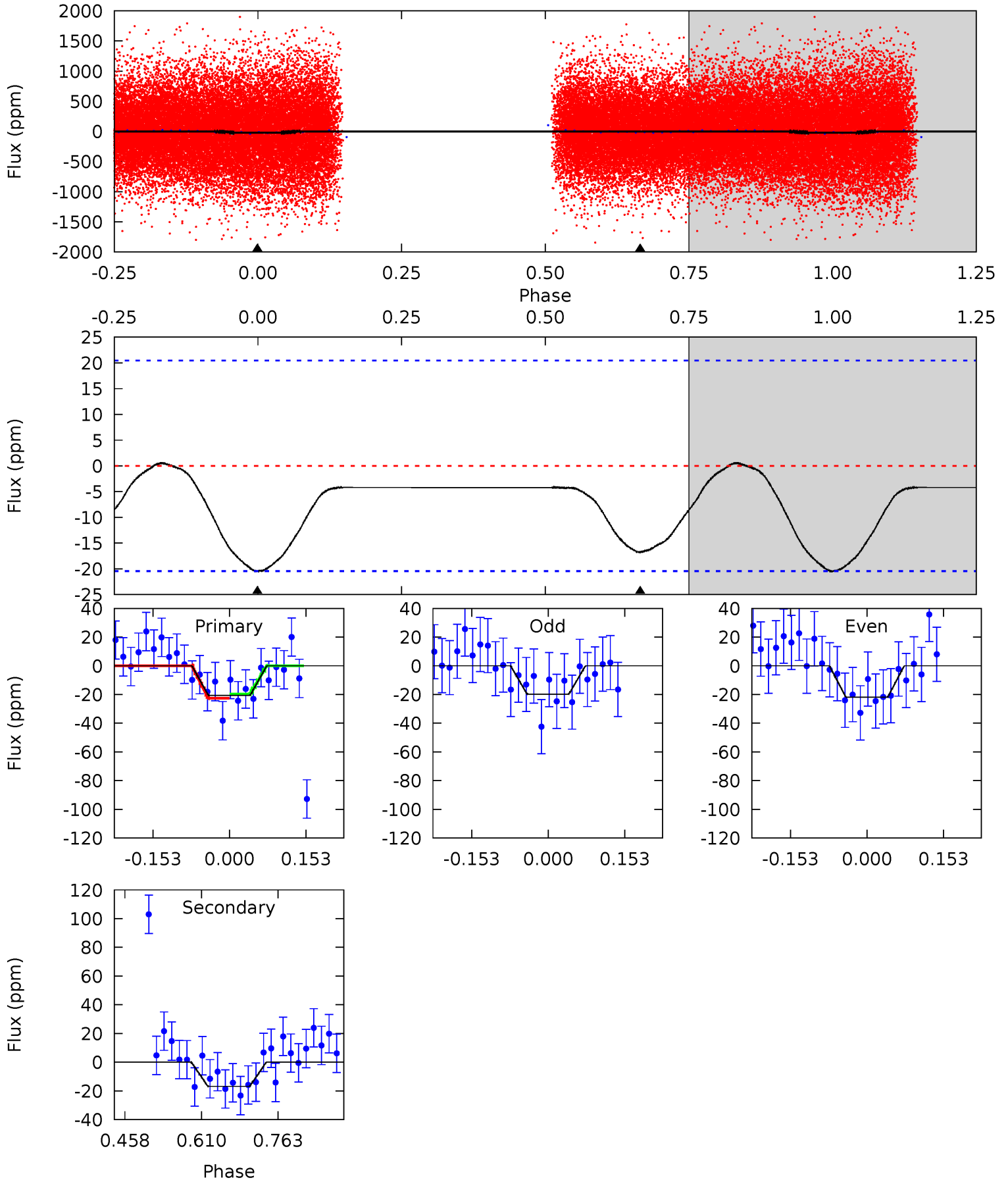
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	6.94	0	0	4.43	1.30	0.55	10.7	10.7	6.94	6.94	1.20	0.75	0.02	1.35



Alt Model-Shift Uniqueness Test

005389856-02, P = 0.622542 Days, E = 130.945995 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.49	3.68	0	0	4.48	1.43	0.28	4.49	4.49	3.68	3.68	0.23	0.80	0.03	0.30



Stellar Parameters For KIC 005389856

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7883^{+218}_{-327}	$3.698^{+0.450}_{-0.079}$	$-0.160^{+0.200}_{-0.350}$	$3.336^{+0.529}_{-1.587}$	$2.023^{+0.299}_{-0.513}$	$0.077^{+0.329}_{-0.021}$
	+3%/-4%	+12%/-2%	+125%/-219%	+16%/-48%	+15%/-25%	+428%/-27%
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 005389856-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-10 ± 1	$1.64^{+0.72}_{-0.60}$	6363^{+449}_{-755}	5212^{+1638}_{-2105}	$0.658^{+0.940}_{-0.344}$
Alt.	-17 ± 5	$1.56^{+0.68}_{-0.62}$	6376^{+447}_{-819}	6601^{+2700}_{-1544}	$1.267^{+2.287}_{-0.685}$

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 $A_{obs} \gg 1.0$

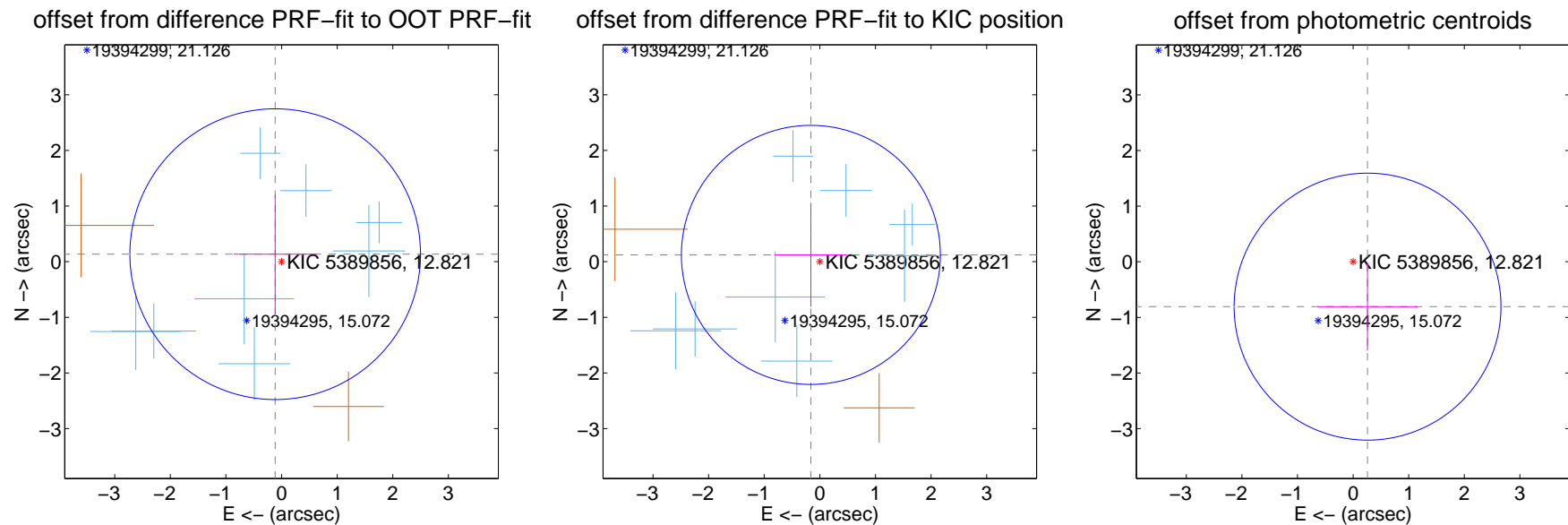
DV Centroid Data

Supplemental centroid analysis for 005389856-02. Kepler magnitude: 12.82. Transit SNR 9.34

There are 8 quarters with good PRF difference image offsets

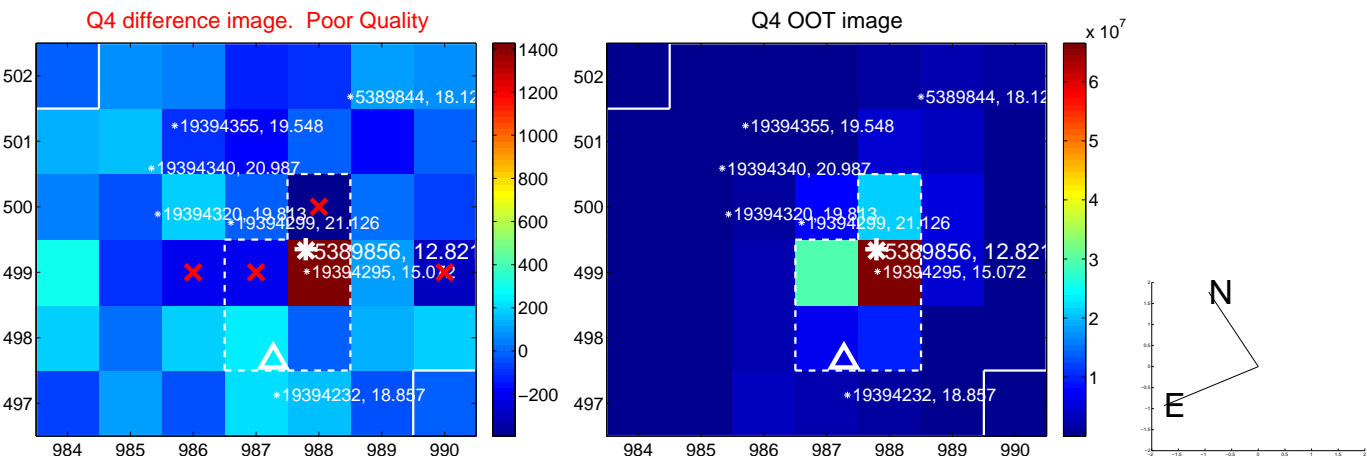
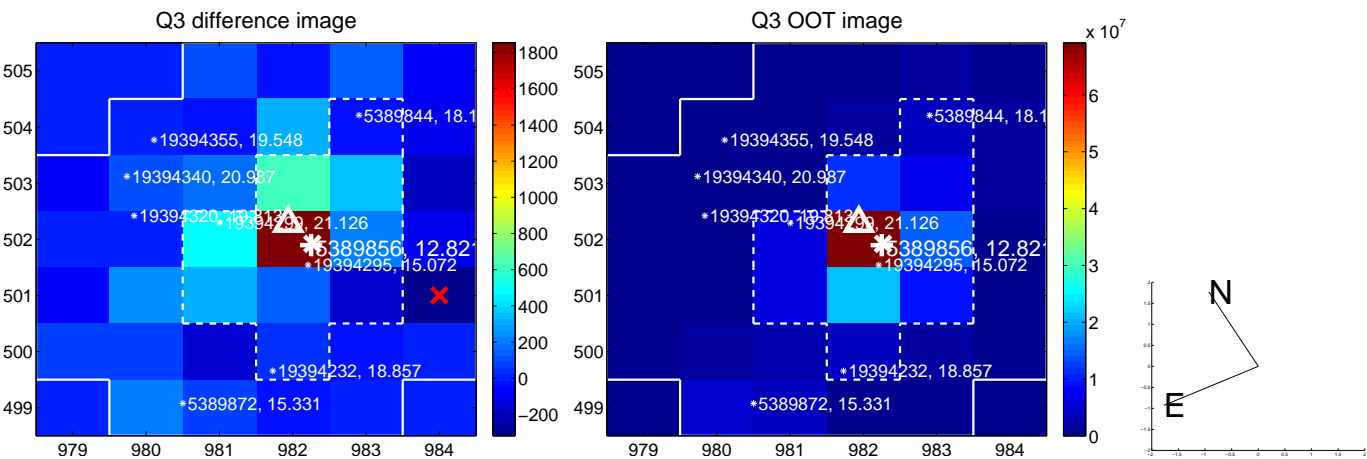
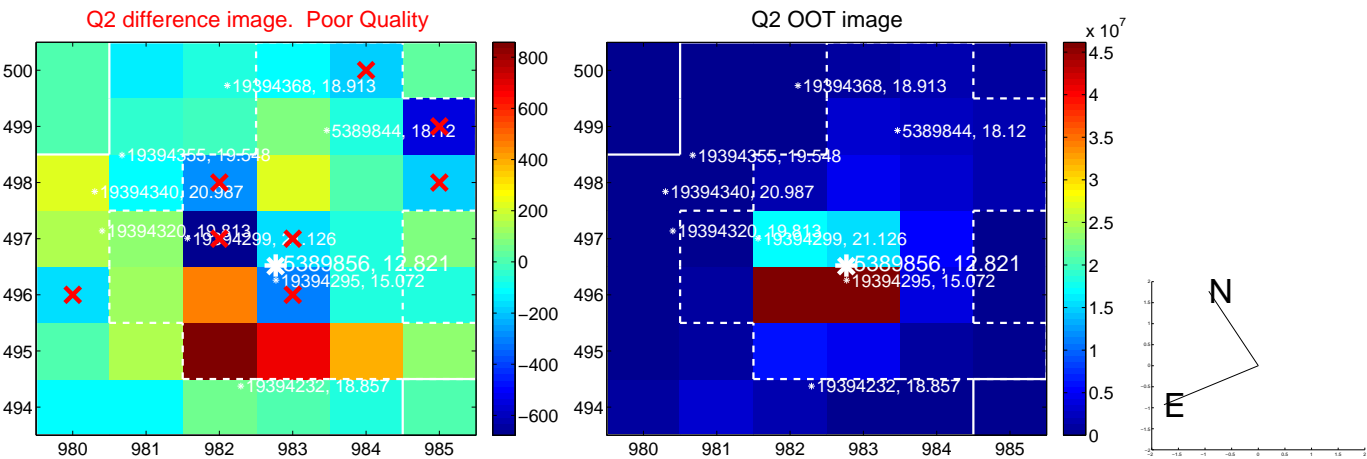
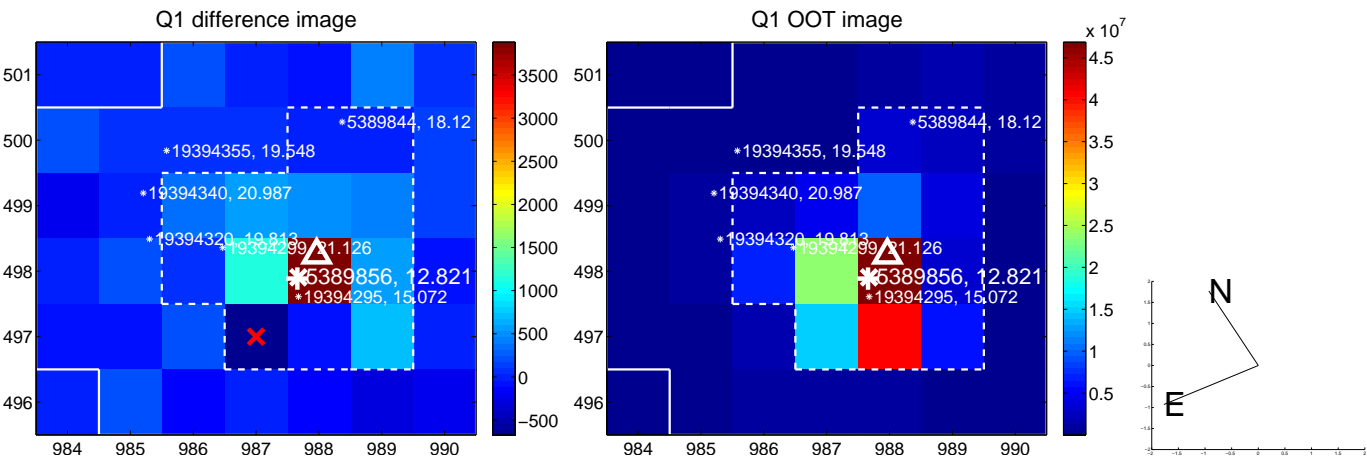
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.177 ± 0.871	0.20	0.115 ± 0.746	0.135 ± 1.075
PRF-fit source offset from KIC position	0.202 ± 0.776	0.26	0.161 ± 0.656	0.122 ± 0.933
photometric centroid source offset	0.85 ± 0.80	1.06	-0.26 ± 0.90	-0.81 ± 0.79

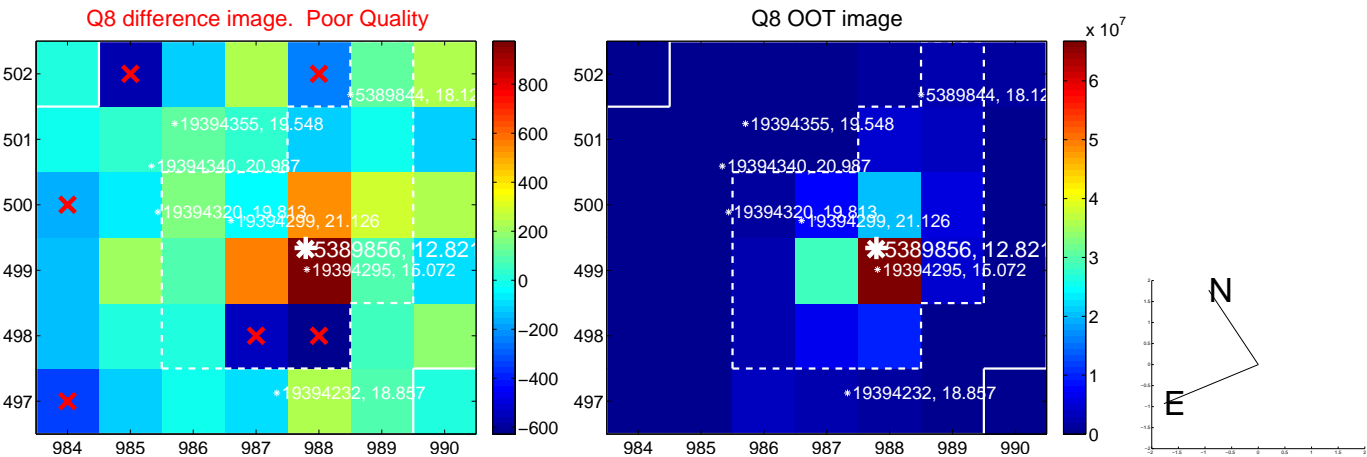
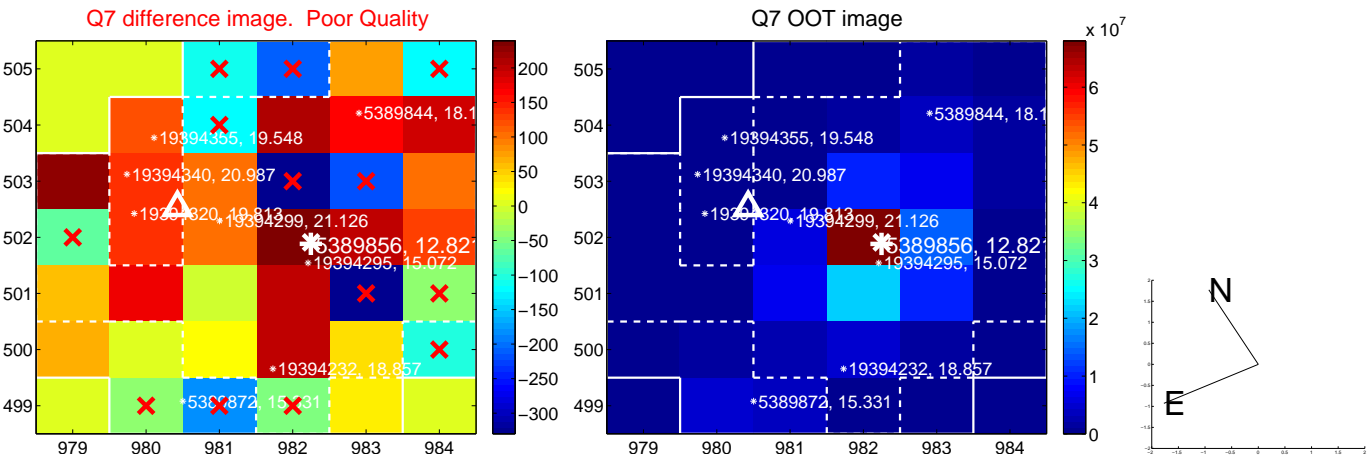
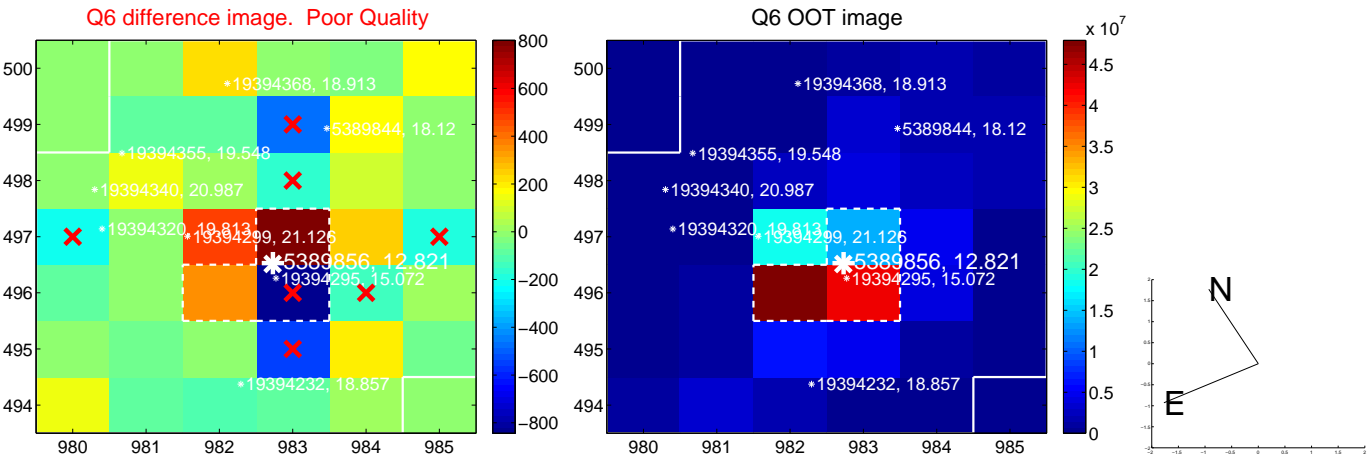
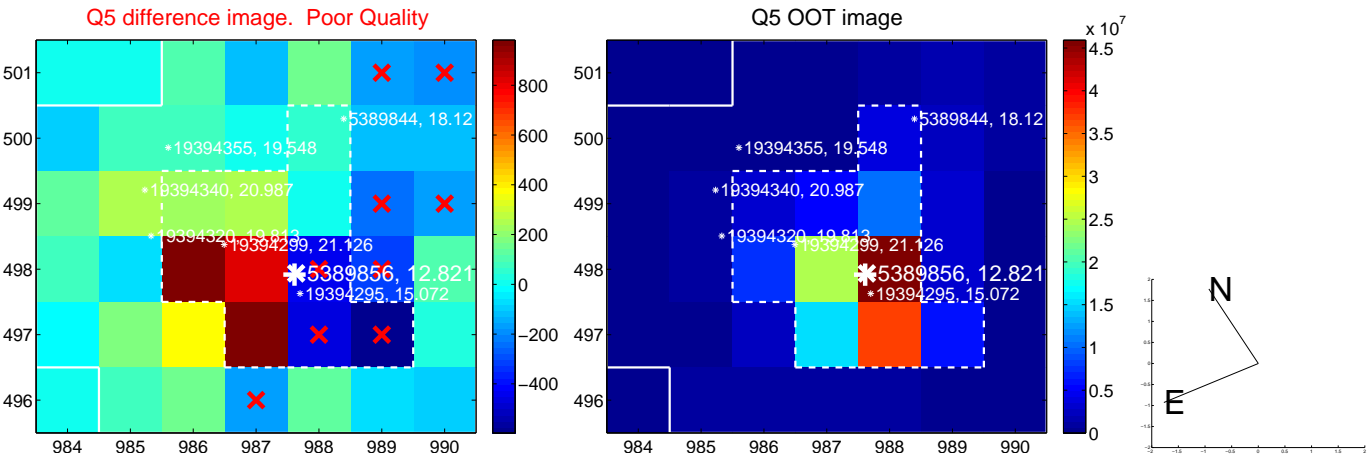


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

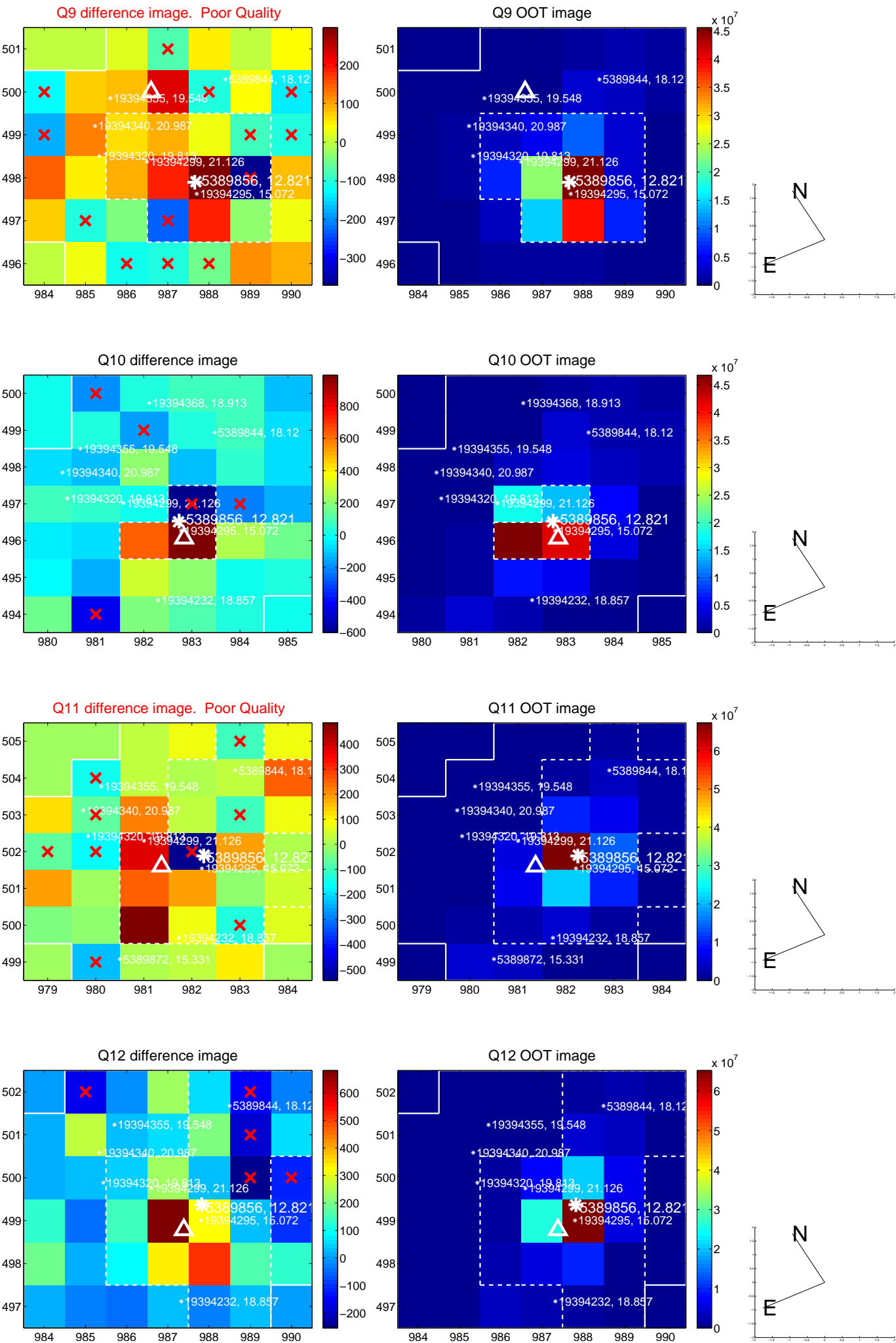
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



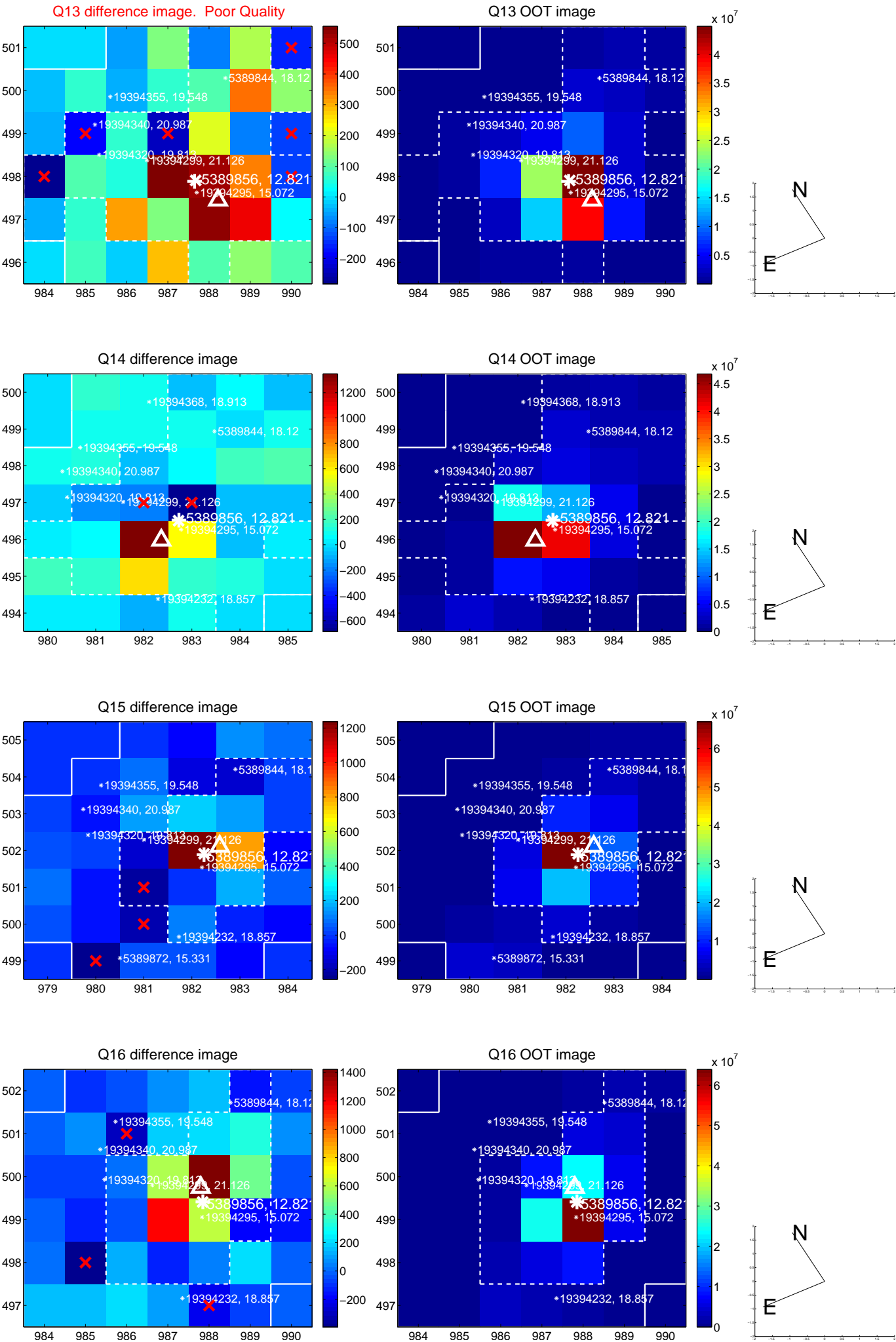
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



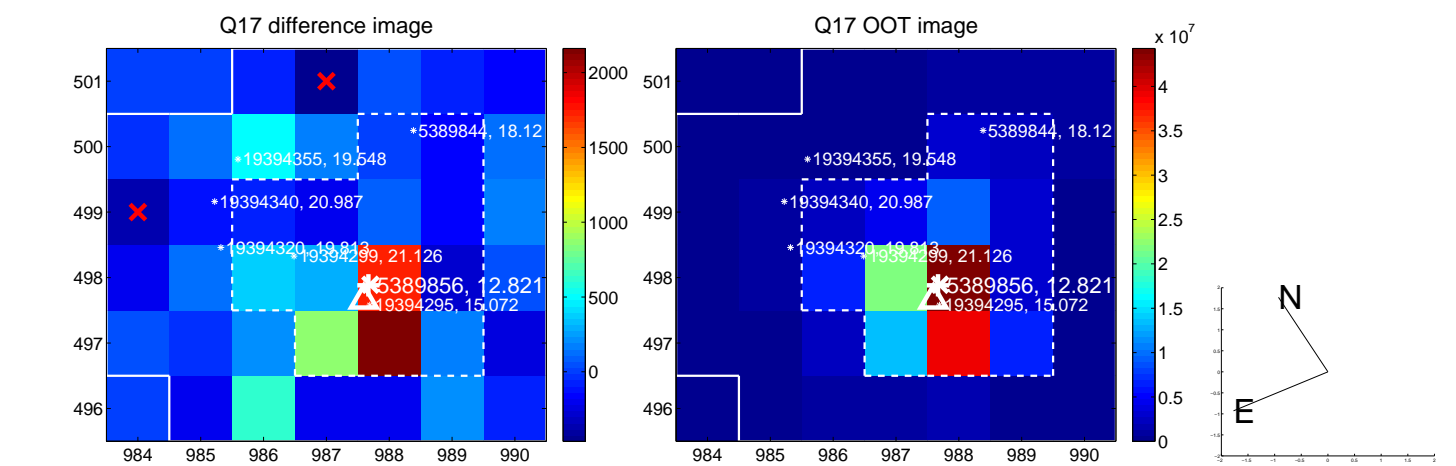
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



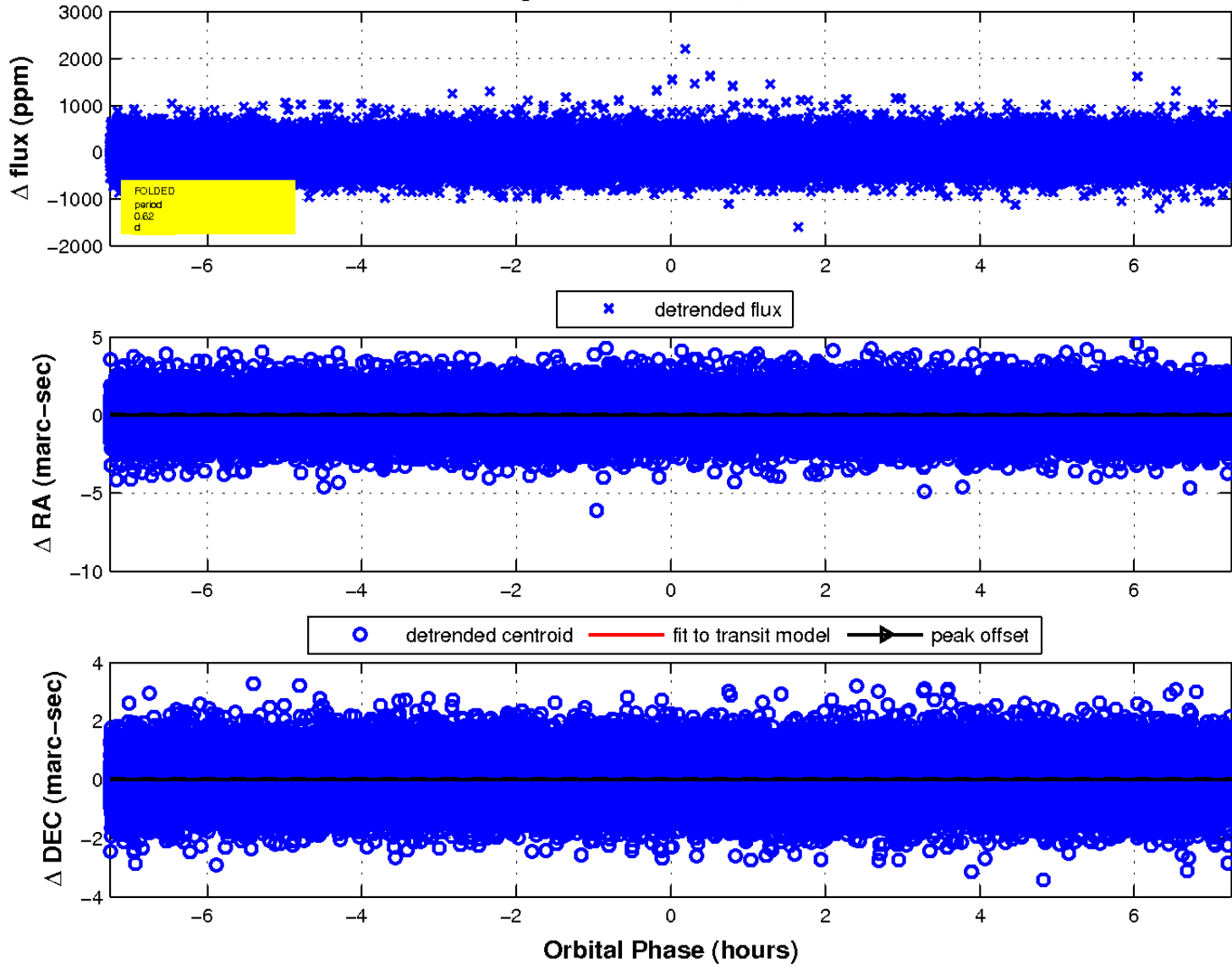
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

