

KIC 009369756

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})
009369756-01	OBS	No	0.909458	131.949151	73.6	2.294	8.3	6.2	0.81	5553	0.83	1765.43
009369756-02	OBS	No	0.909446	131.522026	59.8	2.994	8.6	5.9	0.81	5553	0.67	1765.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009369756-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
009369756-02	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET

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

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

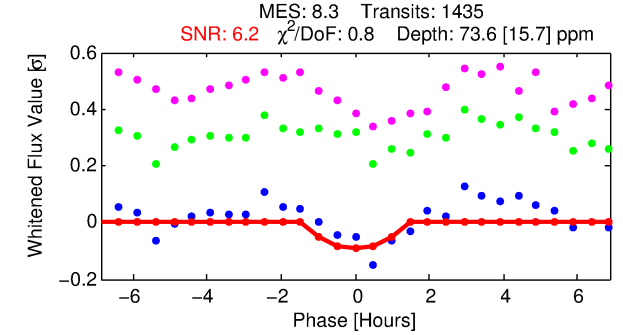
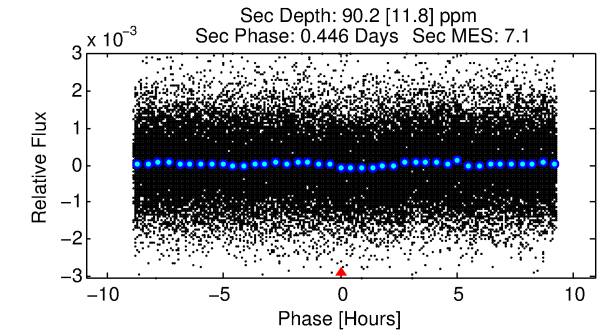
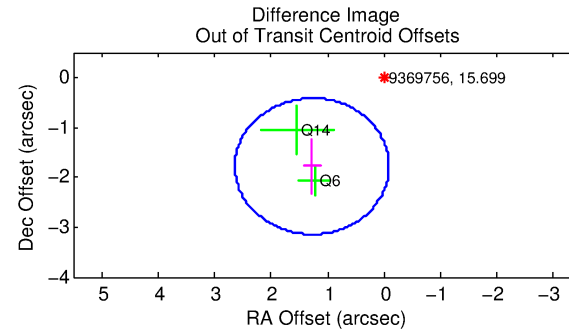
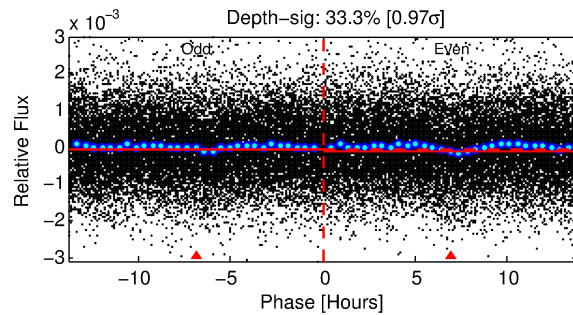
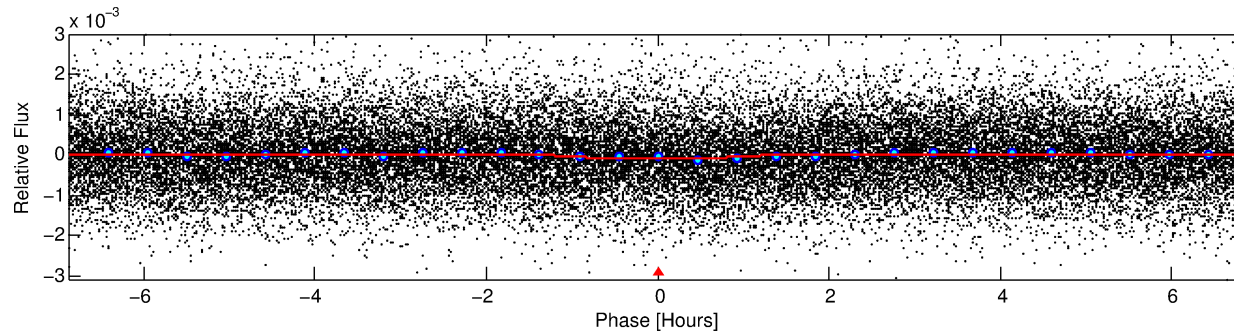
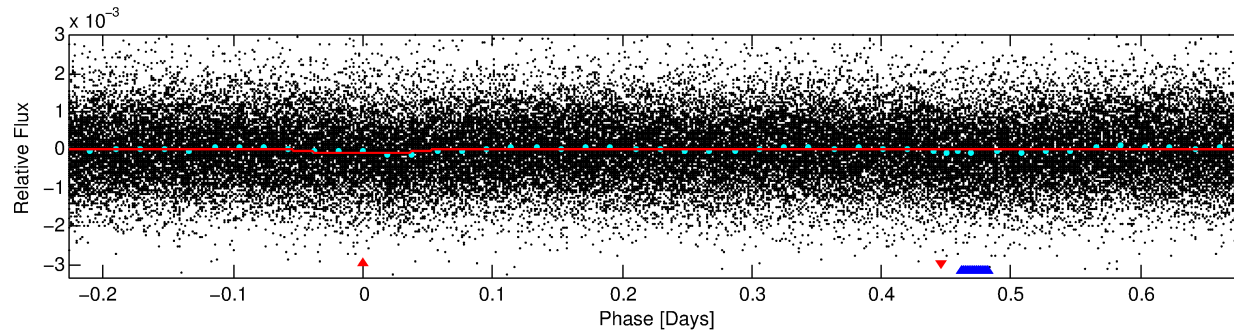
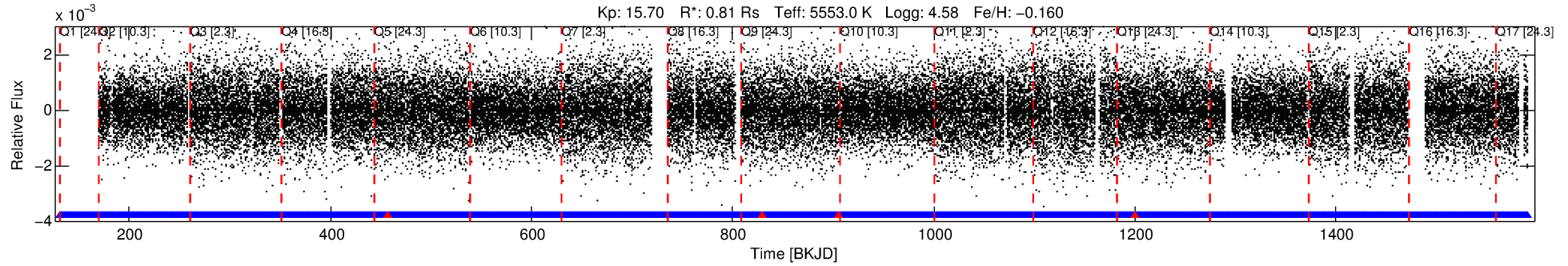
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009369756-01

No Significant Match Found

DV One-Page Summary

KIC: 9369756 Candidate: 1 of 2 Period: 0.909 d



DV Fit Results:

Period = 0.90946 [0.00002] d
Epoch = 131.9492 [0.0051] BKJD
Rp/R* = 0.0094 [0.0125]
a/R* = 1.65 [6.50]
b = 0.90 [1.28]
Seff = 1765.43 [471.43]
Teq = 1653 [110] K
Rp = 0.83 [1.12] Re
a = 0.0177 [0.0030] AU
Ag = 22.58 [60.30] [0.36 σ]
Teffp = 5571 [3708] K [1.06 σ]

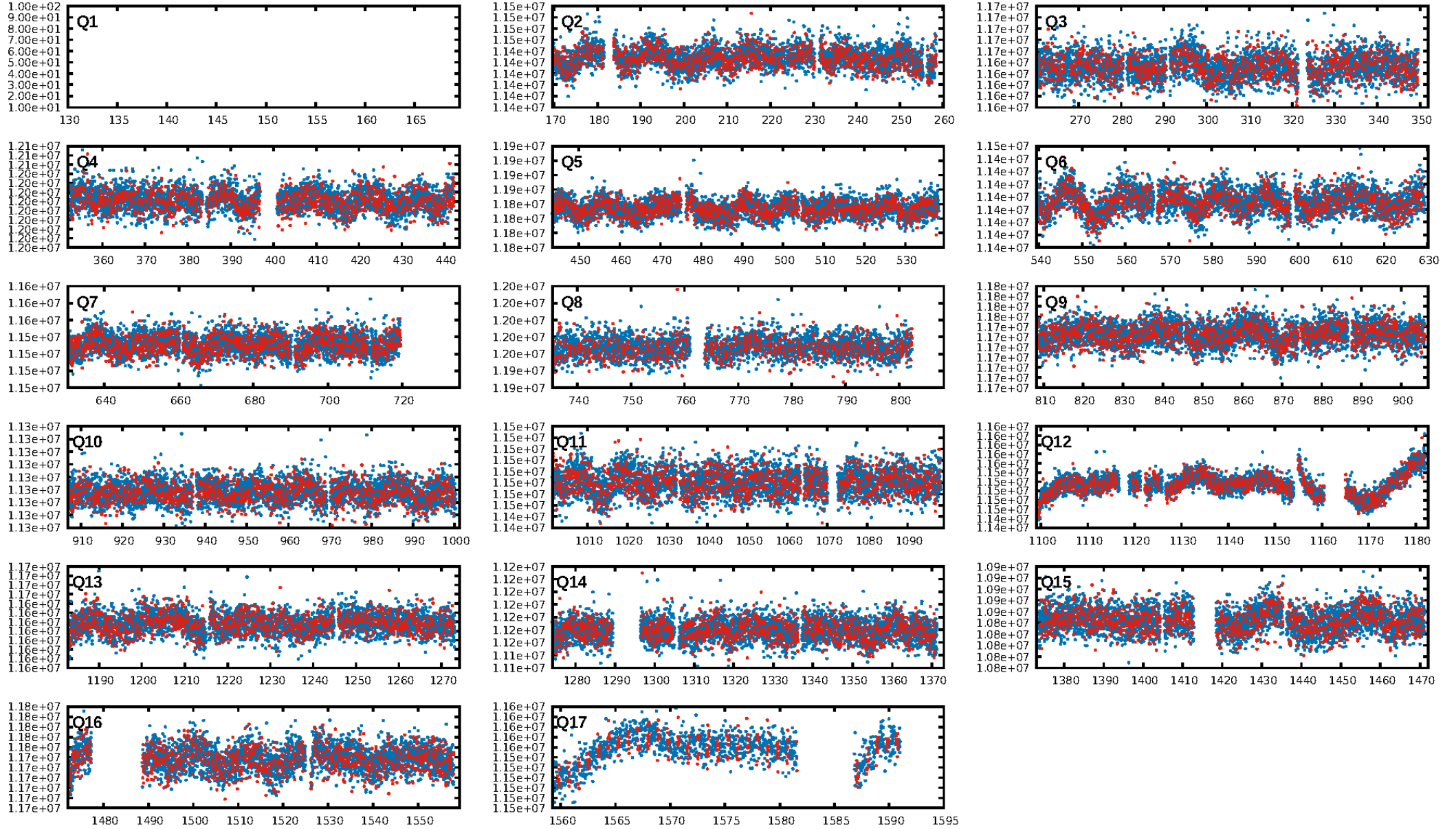
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.37e-15
RollingBand-fgt: 1.00 [1401/1405]
GhostDiagnostic-chr: -0.8513
Centroid-sig: 12.7%
Centroid-so: 4.278 arcsec [1.90 σ]
OotOffset-rm: 2.194 arcsec [4.83 σ]
KicOffset-rm: 2.279 arcsec [5.40 σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [16/16]

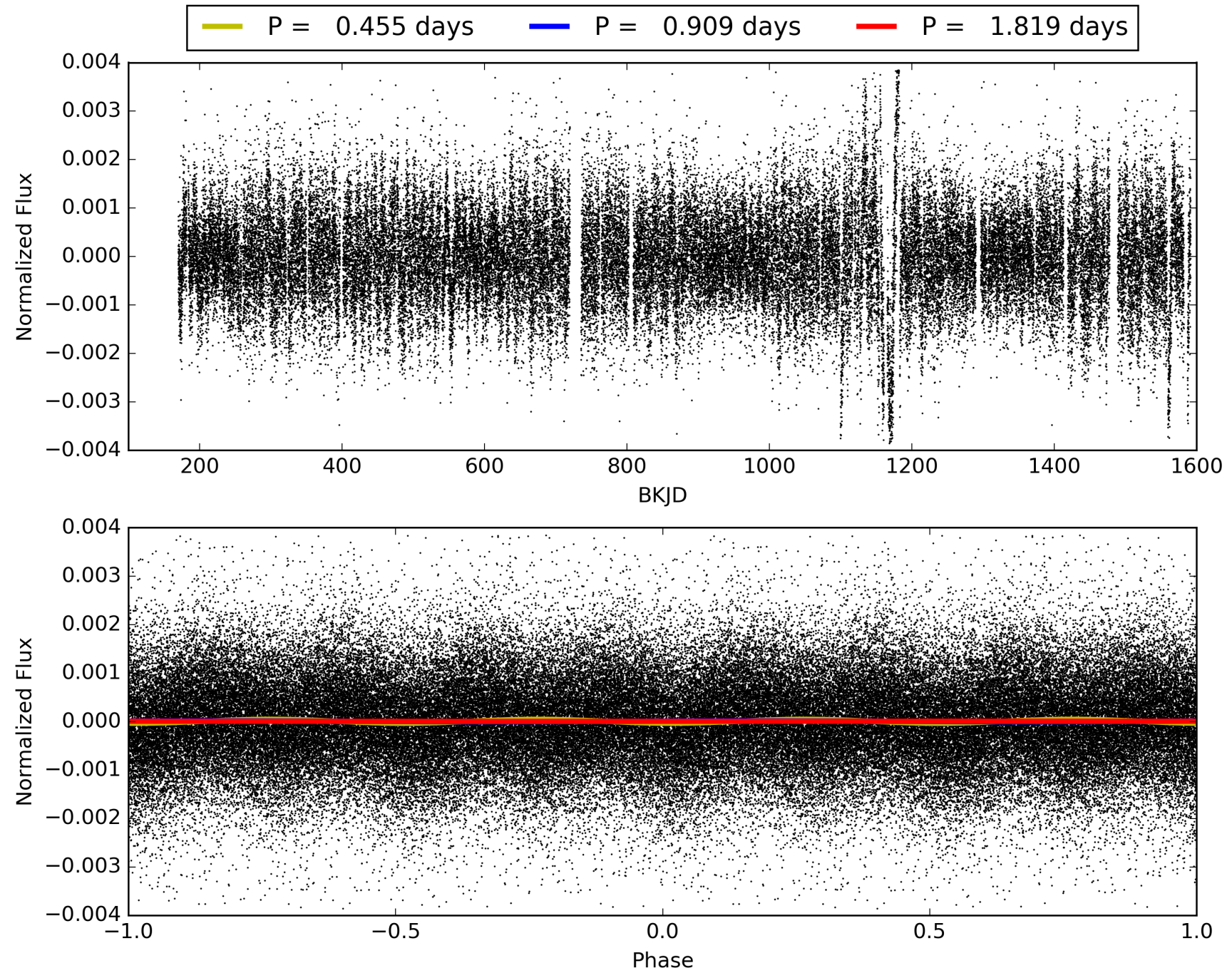
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:42:13 Z

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

TCE 009369756-01, PDC Light Curves

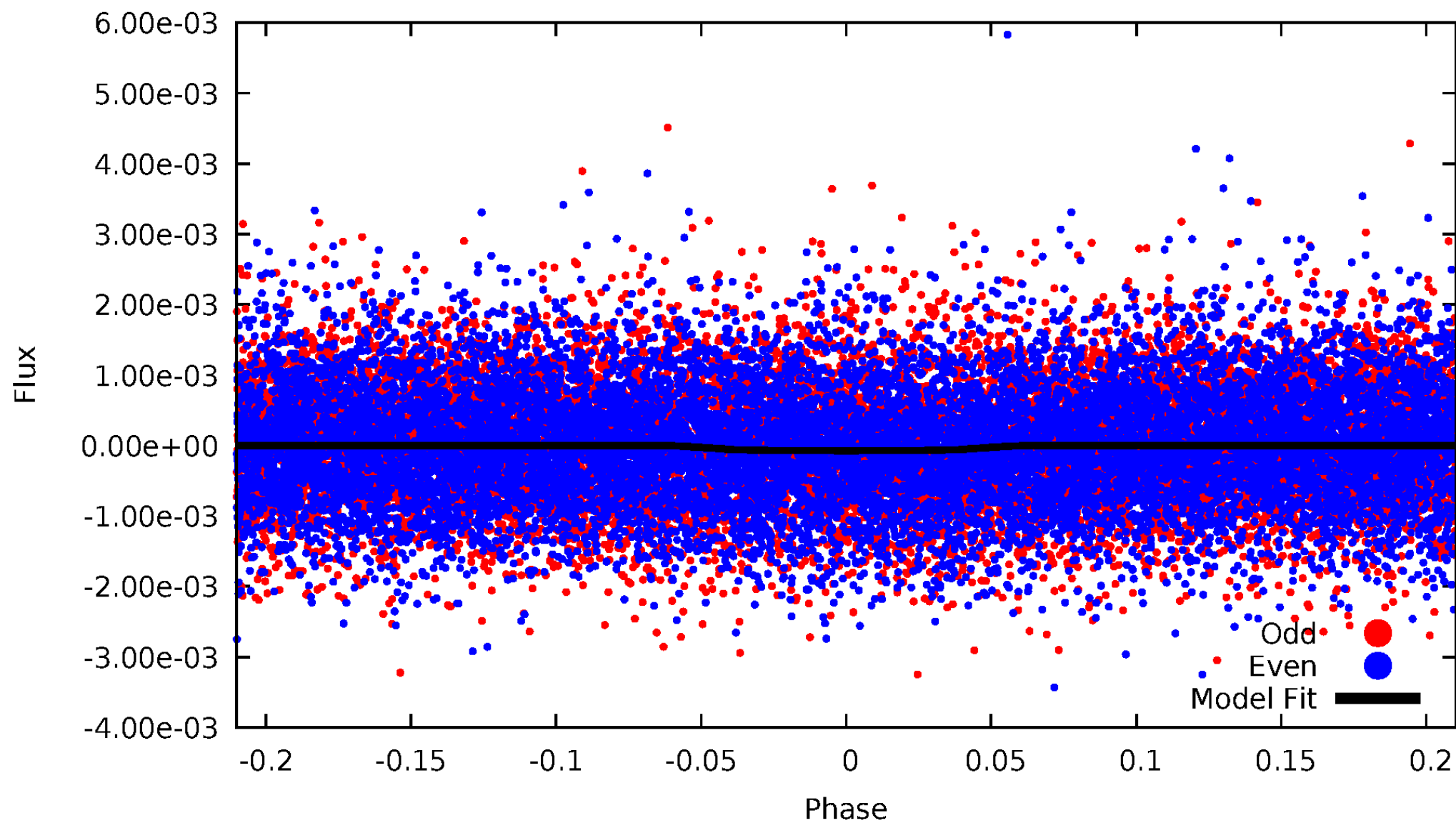


TCE 009369756-01



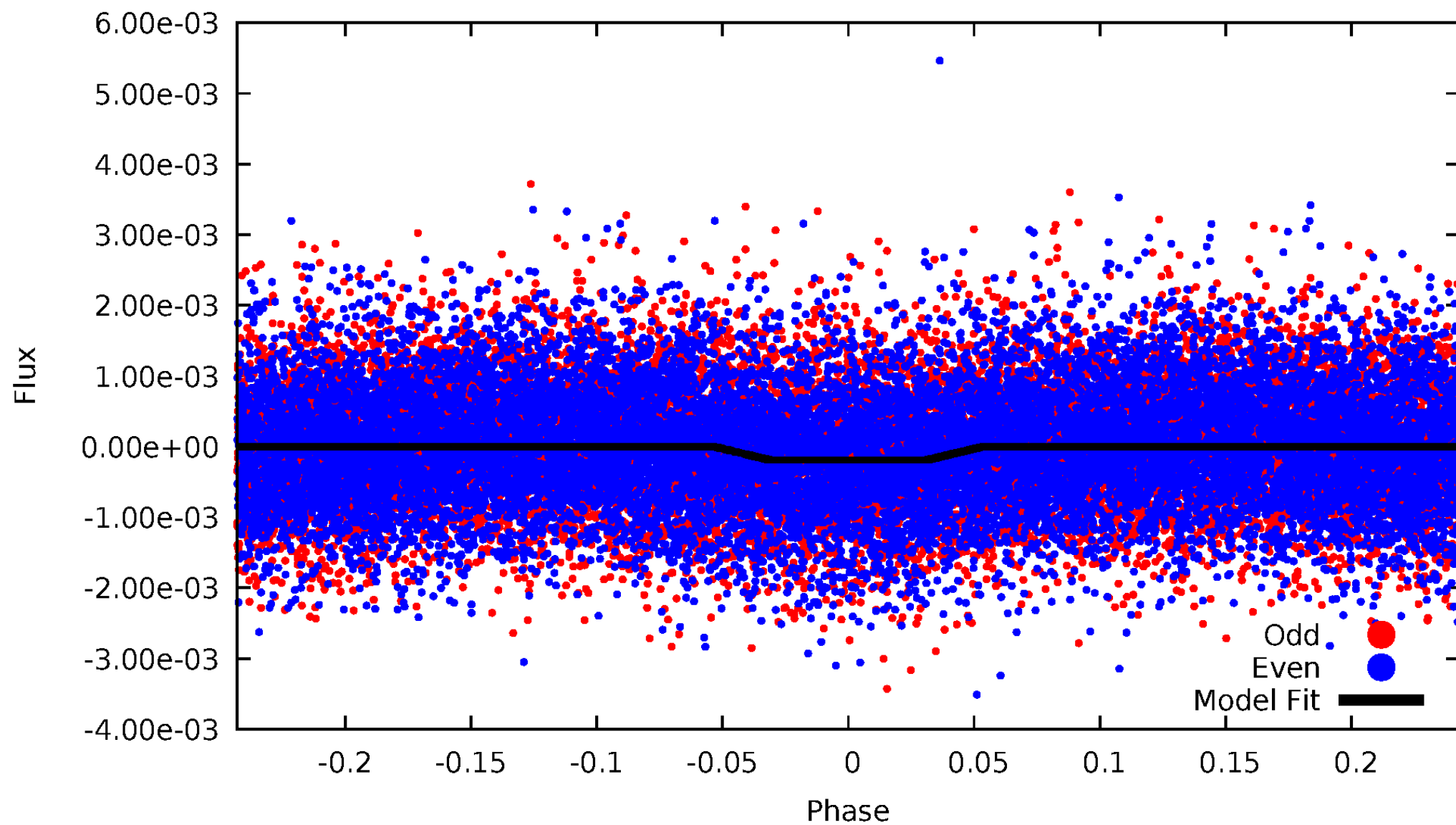
DV Odd/Even

TCE 009369756-01



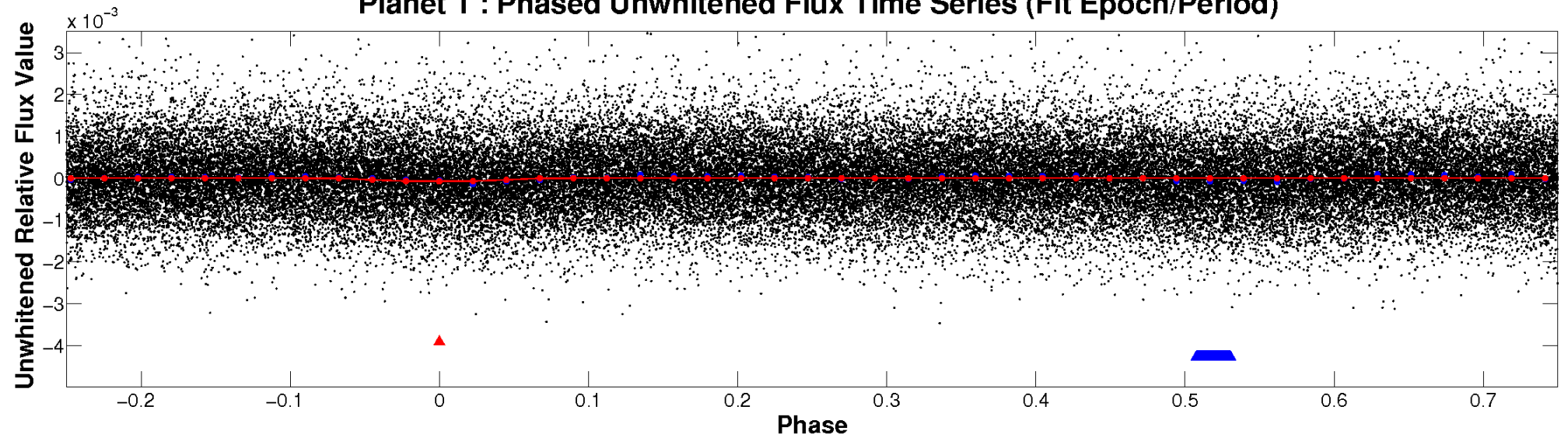
ALT Odd/Even

TCE 009369756-01

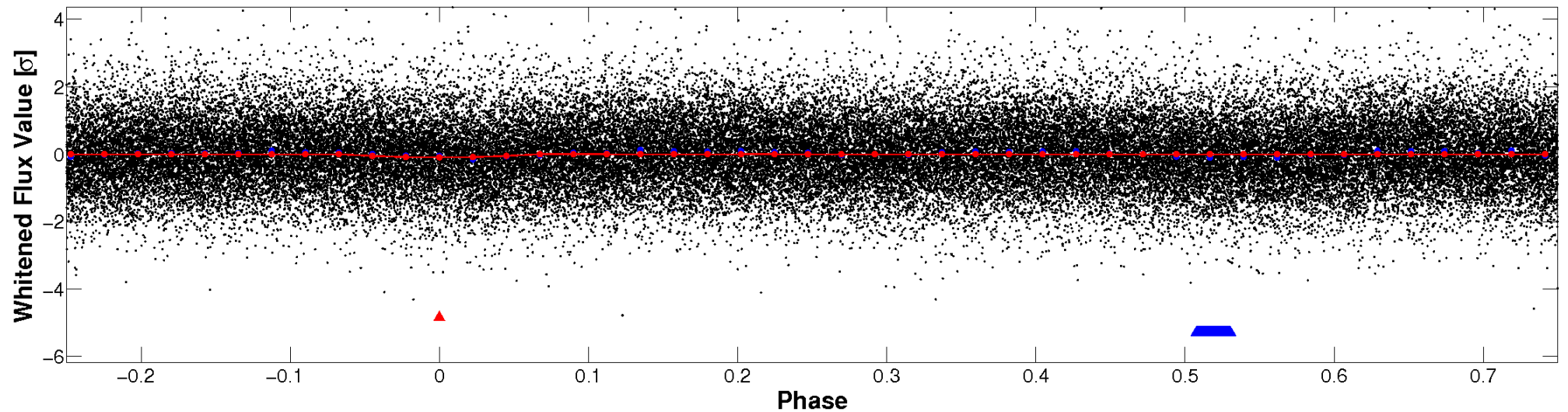


Non-Whitened Vs. Whitened Light Curve

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

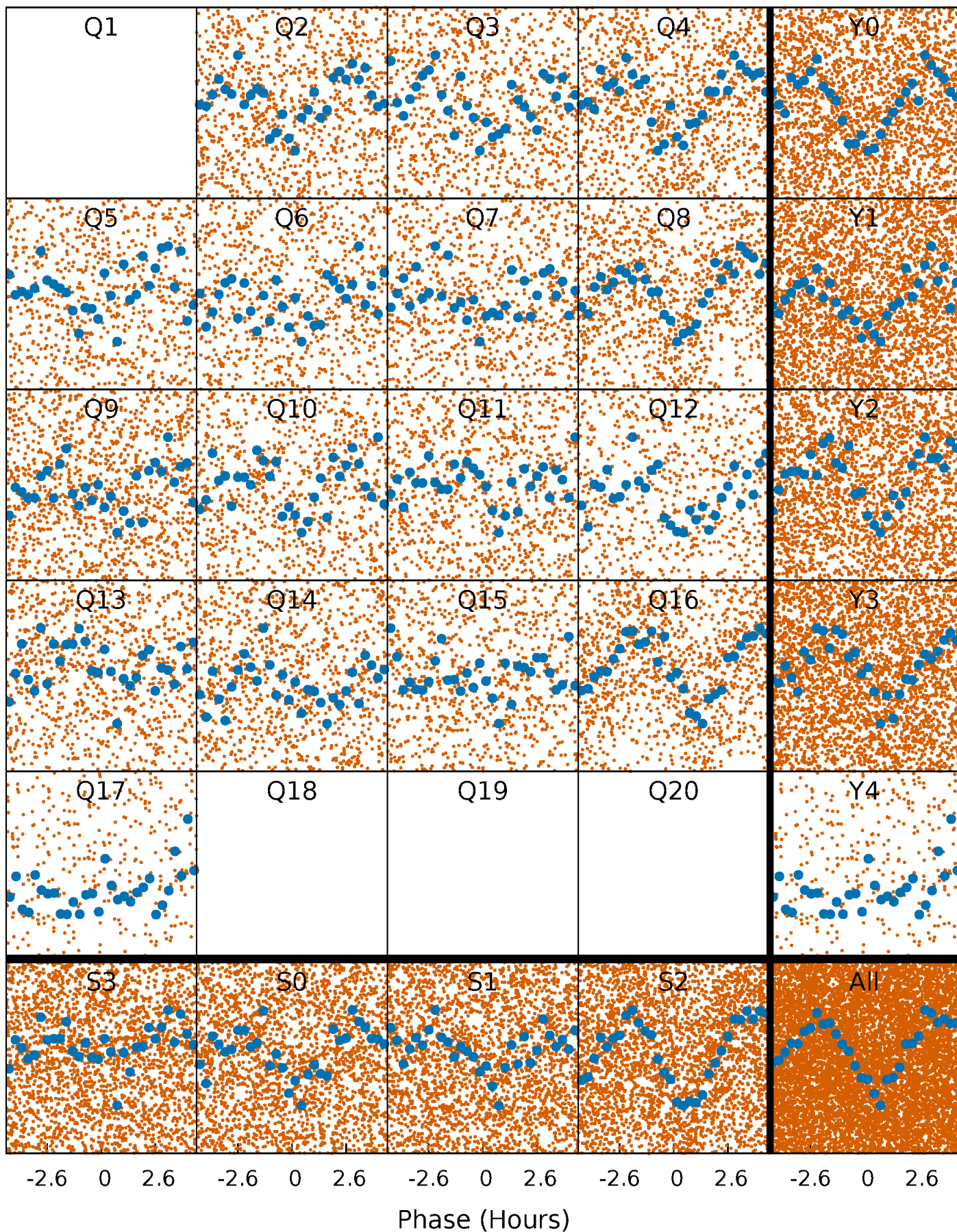


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



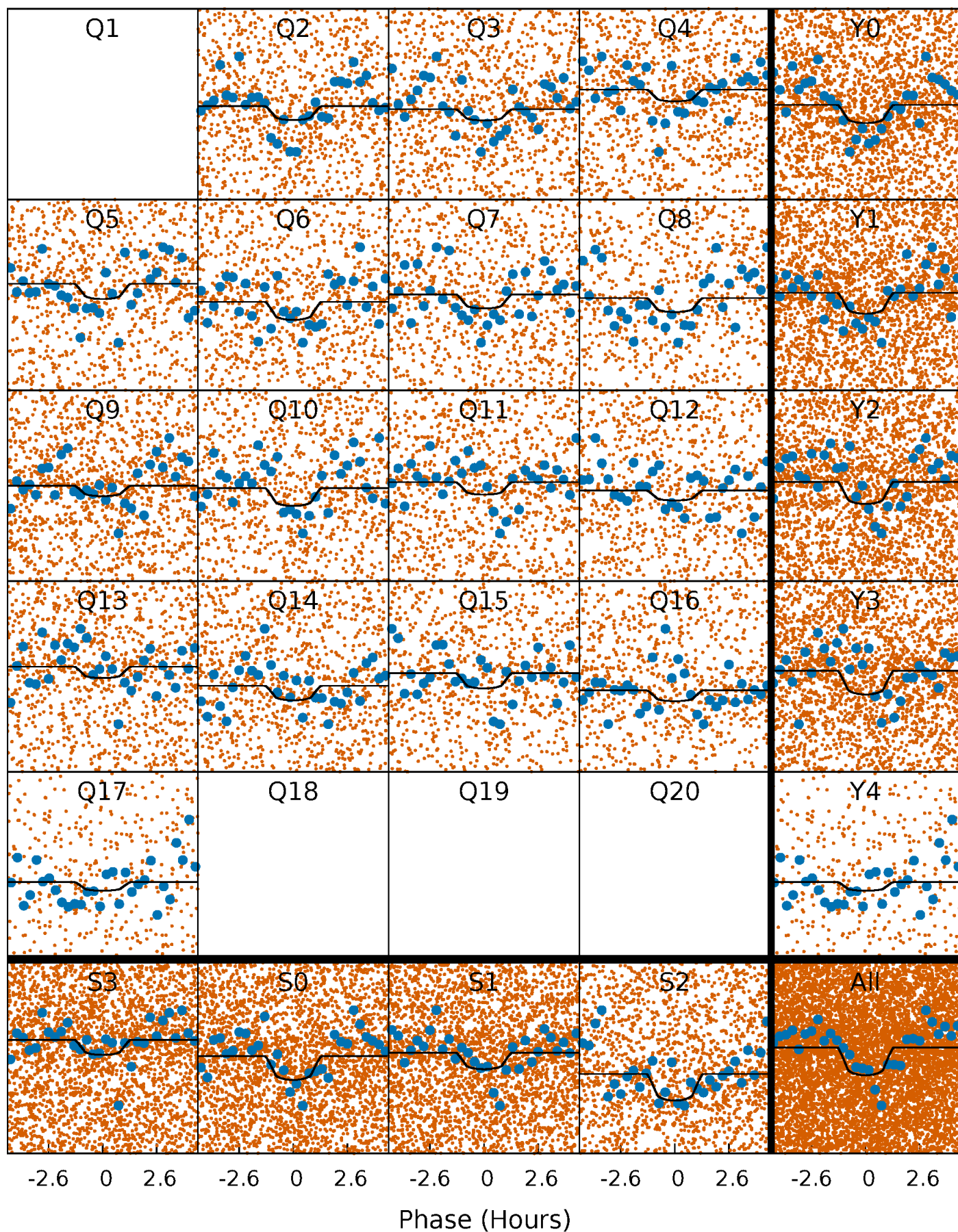
PDC Quarter-Phased Transit Curves

TCE 009369756-01 P= 0.909458 Days $T_0=131.949151$ (BKJD)



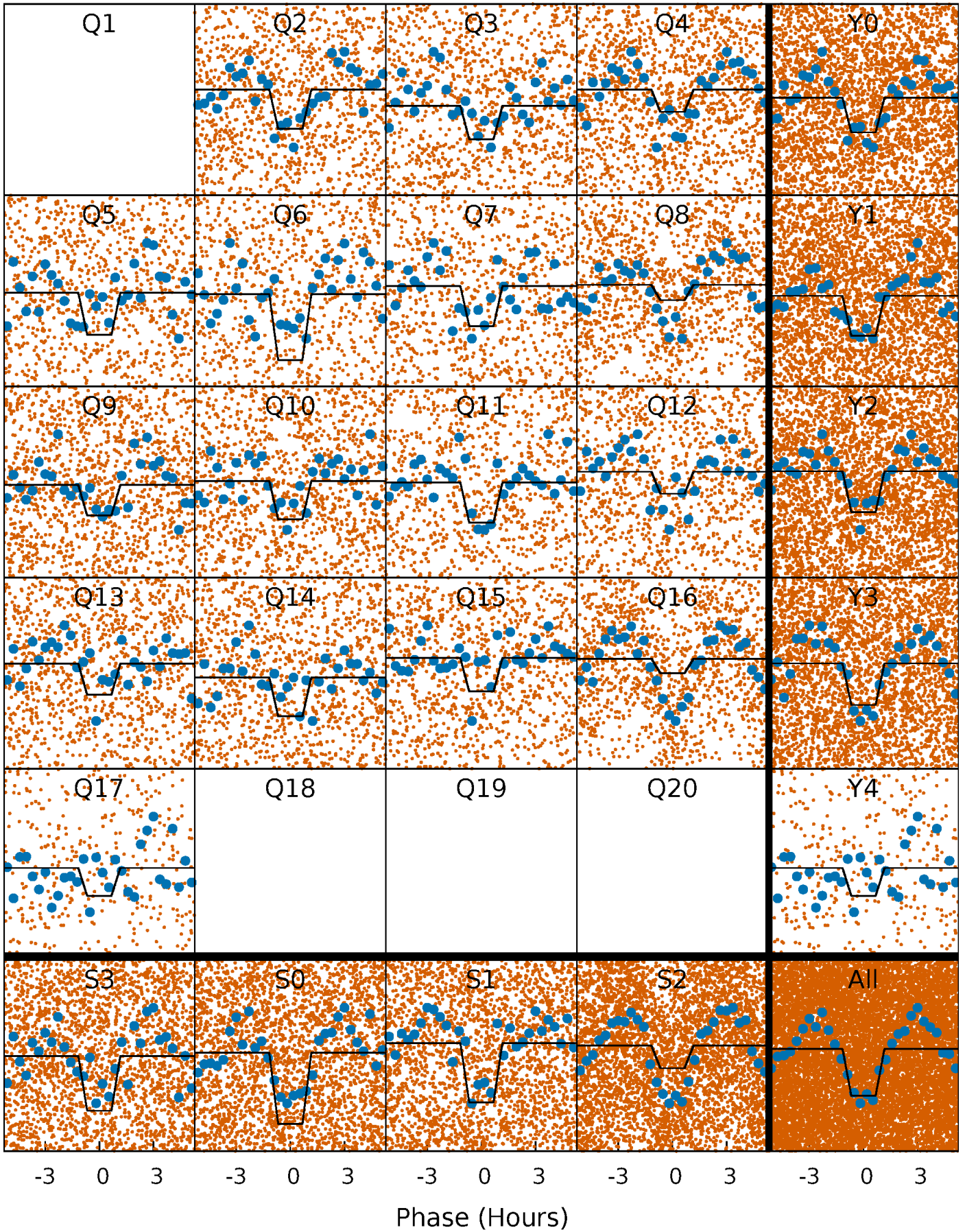
DV Quarter-Phased Transit Curves

TCE 009369756-01 P= 0.909458 Days $T_0=131.949151$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

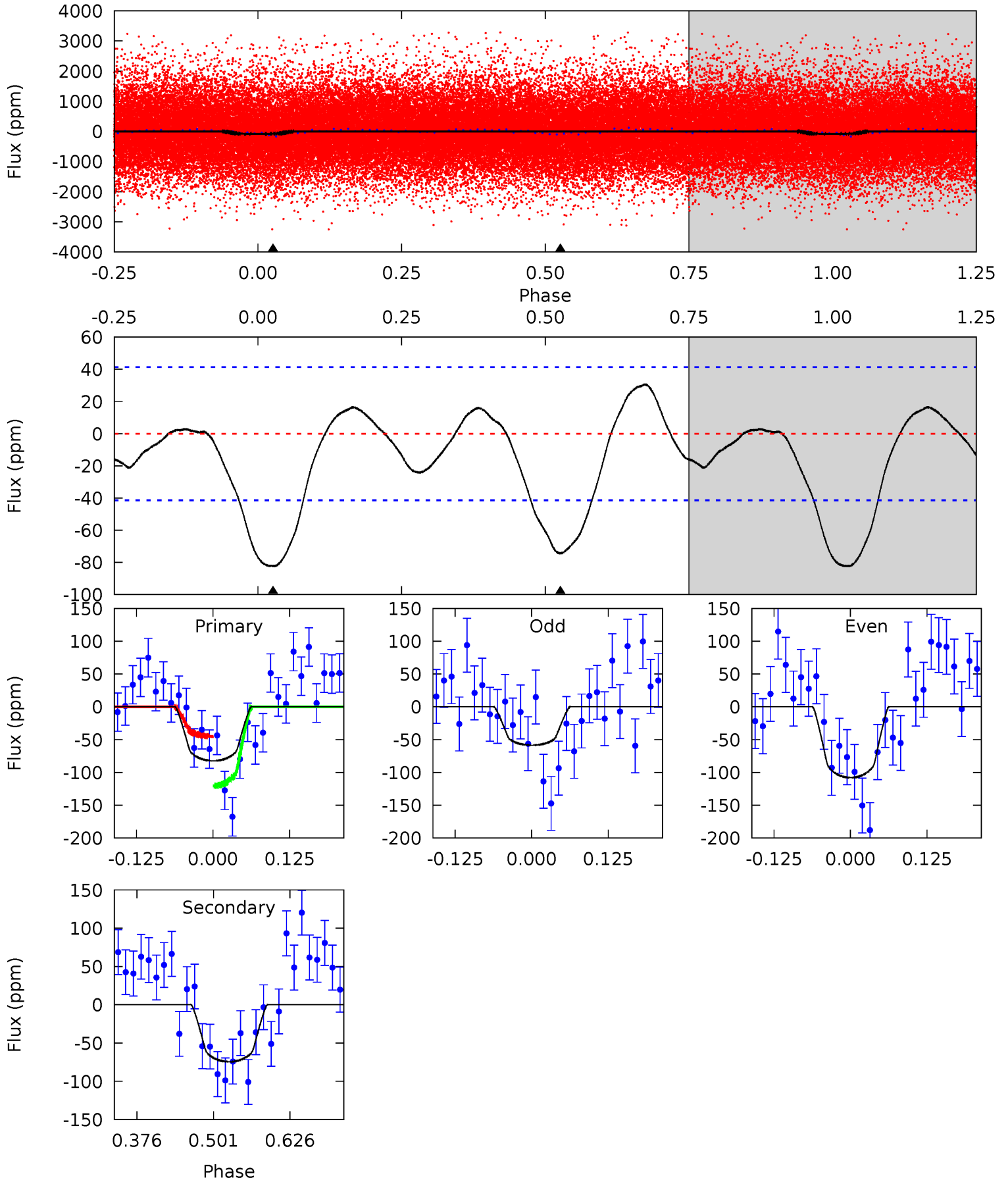
TCE 009369756-01 P= 0.909496 Days $T_0=131.940816$ (BKJD)



DV Model-Shift Uniqueness Test

009369756-01, P = 0.909458 Days, E = 131.949151 Days

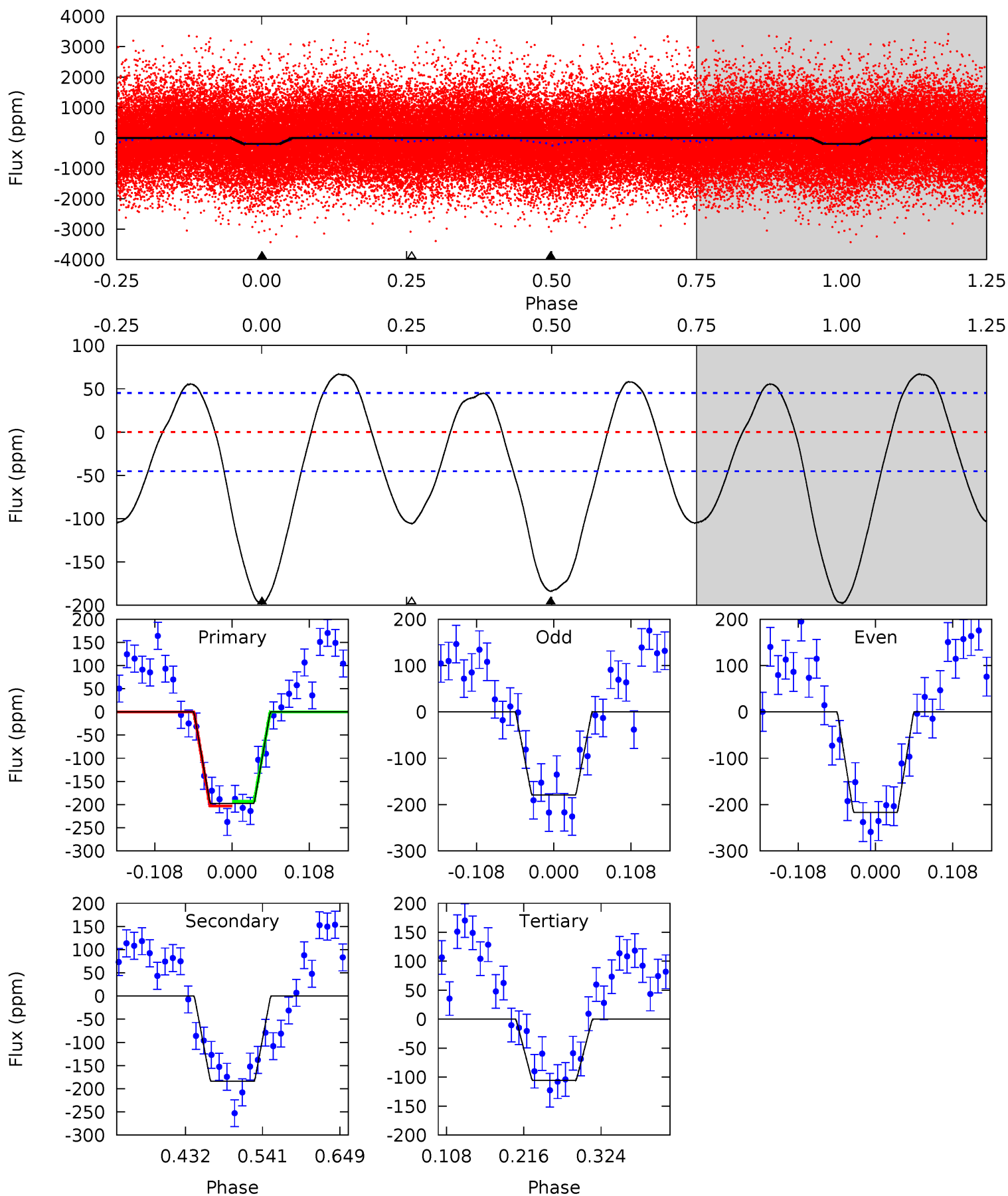
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.00	8.13	0	0	4.52	1.53	1.61	9.00	9.00	8.13	8.13	2.71	0.84	0.27	4.13



Alt Model-Shift Uniqueness Test

009369756-01, P = 0.909496 Days, E = 131.940816 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.9	18.5	10.6	0	4.55	1.61	6.02	9.23	19.9	7.86	18.5	1.89	1.03	0.25	0.52



Stellar Parameters For KIC 009369756

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5553^{+149}_{-166}	$4.577^{+0.032}_{-0.128}$	$-0.160^{+0.300}_{-0.300}$	$0.806^{+0.164}_{-0.070}$	$0.903^{+0.074}_{-0.111}$	$2.425^{+0.420}_{-0.921}$
	+3%/-3%	+1%/-3%	+188%/-188%	+20%/-9%	+8%/-12%	+17%/-38%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009369756-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-74 ± 9	$1.20^{+1.02}_{-0.79}$	2345^{+110}_{-92}	4580^{+3329}_{-962}	$8.754^{+71.211}_{-6.248}$
Alt.	-184 ± 10	$1.46^{+1.05}_{-0.91}$	2354^{+119}_{-91}	5214^{+3535}_{-1092}	15^{+87}_{-10}

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

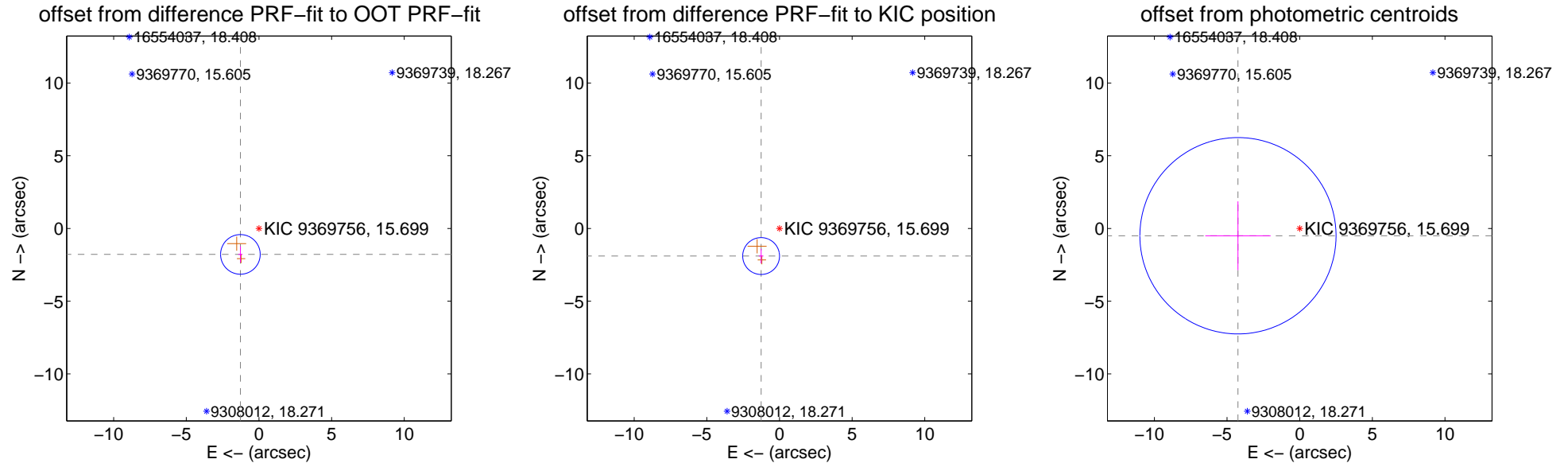
DV Centroid Data

Supplemental centroid analysis for 009369756-01. Kepler magnitude: 15.70. Transit SNR 6.17

There are 0 quarters with good PRF difference image offsets

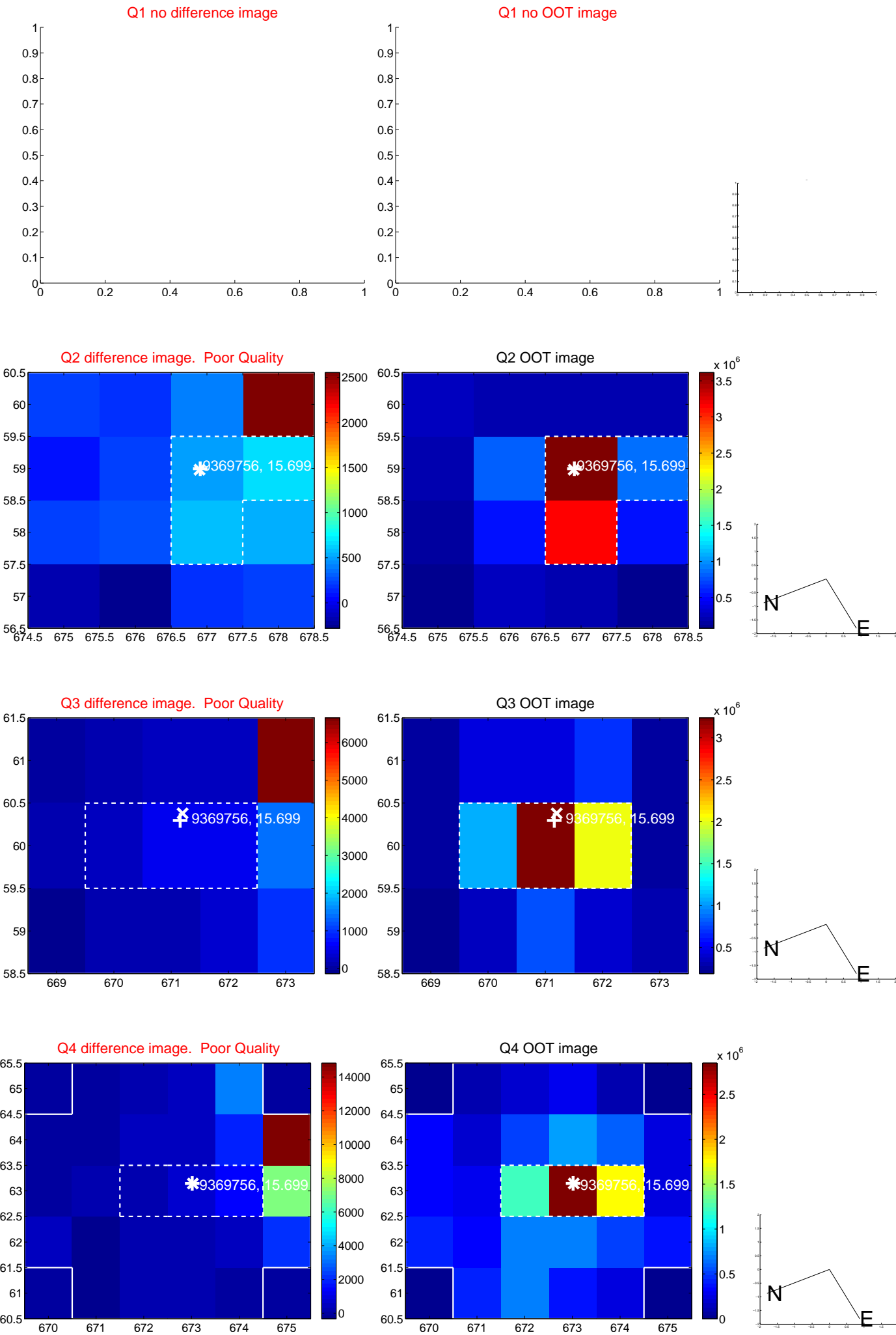
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.194 ± 0.454	4.83	1.277 ± 0.147	-1.784 ± 0.549
PRF-fit source offset from KIC position	2.279 ± 0.422	5.40	1.263 ± 0.157	-1.896 ± 0.497
photometric centroid source offset	4.28 ± 2.25	1.90	4.25 ± 2.25	-0.50 ± 2.36

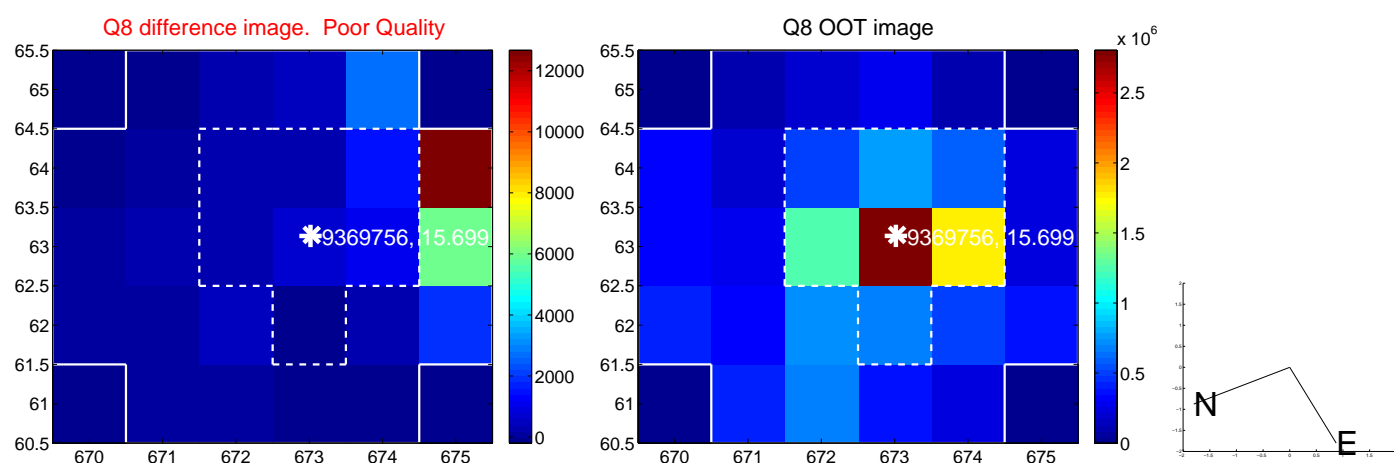
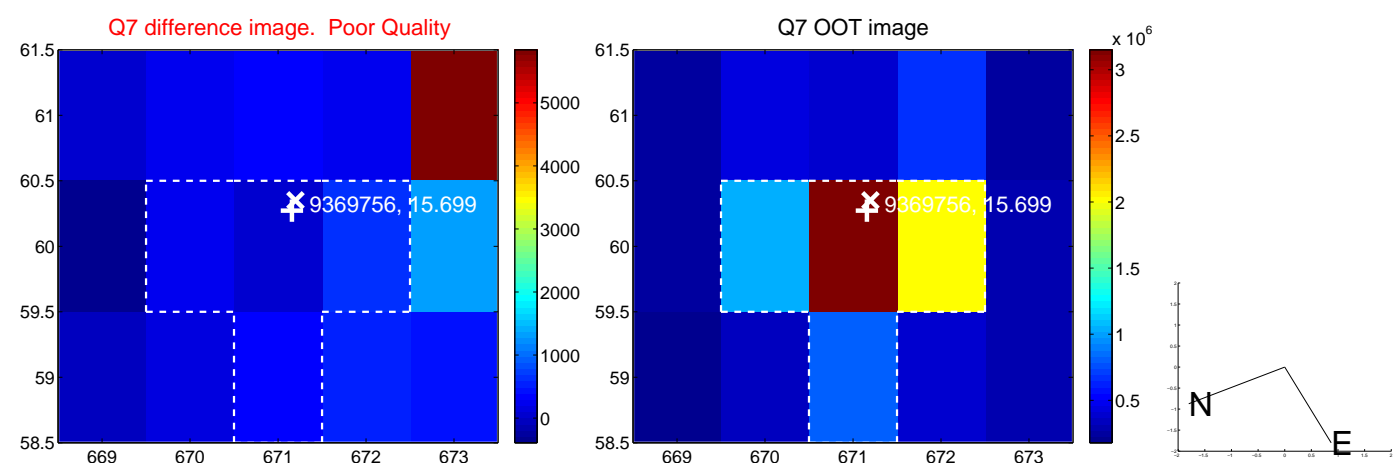
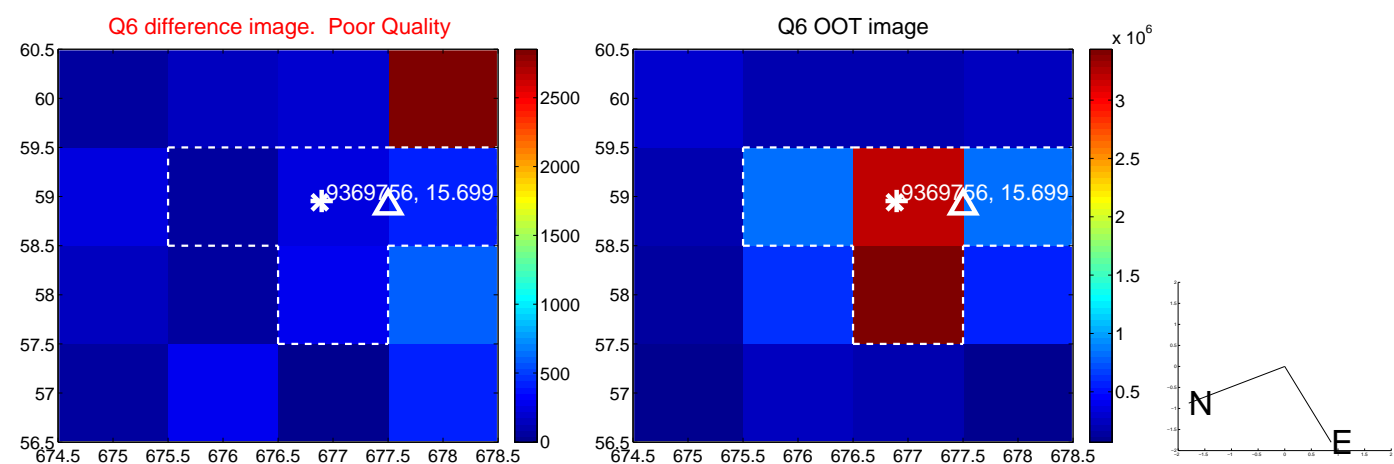
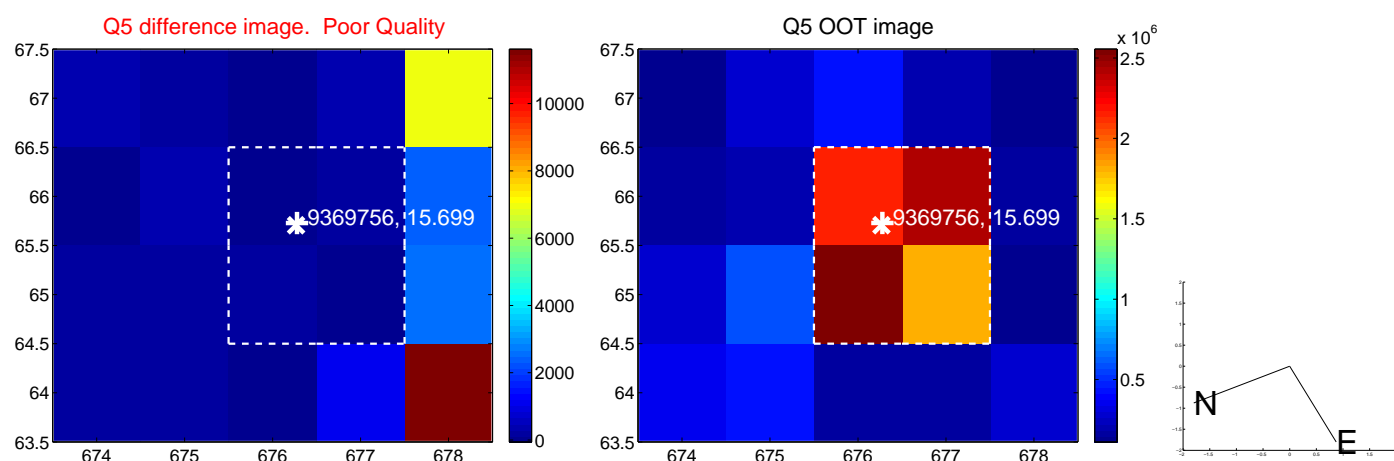


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

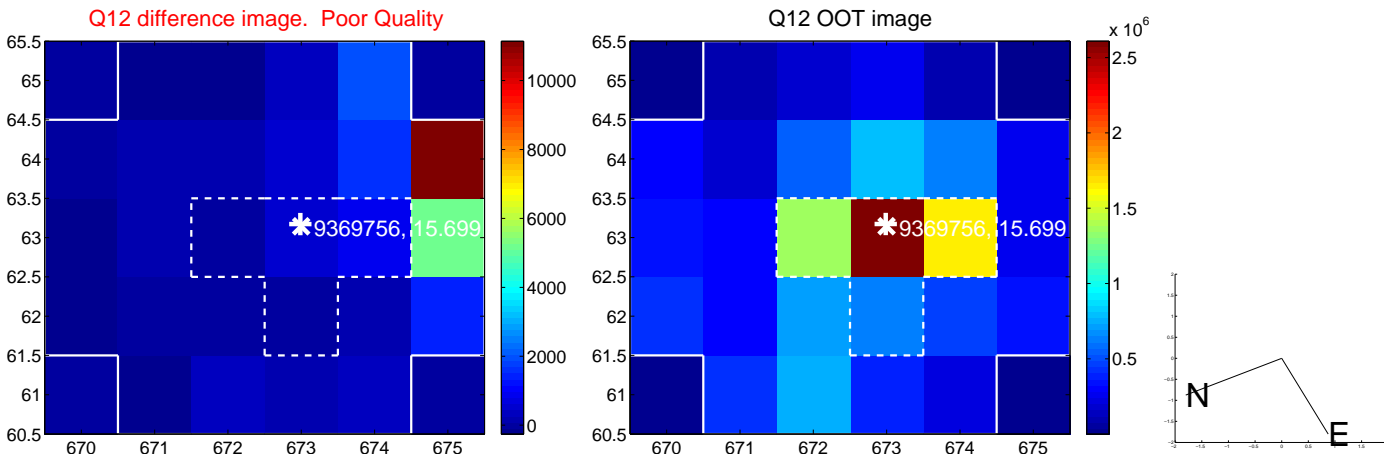
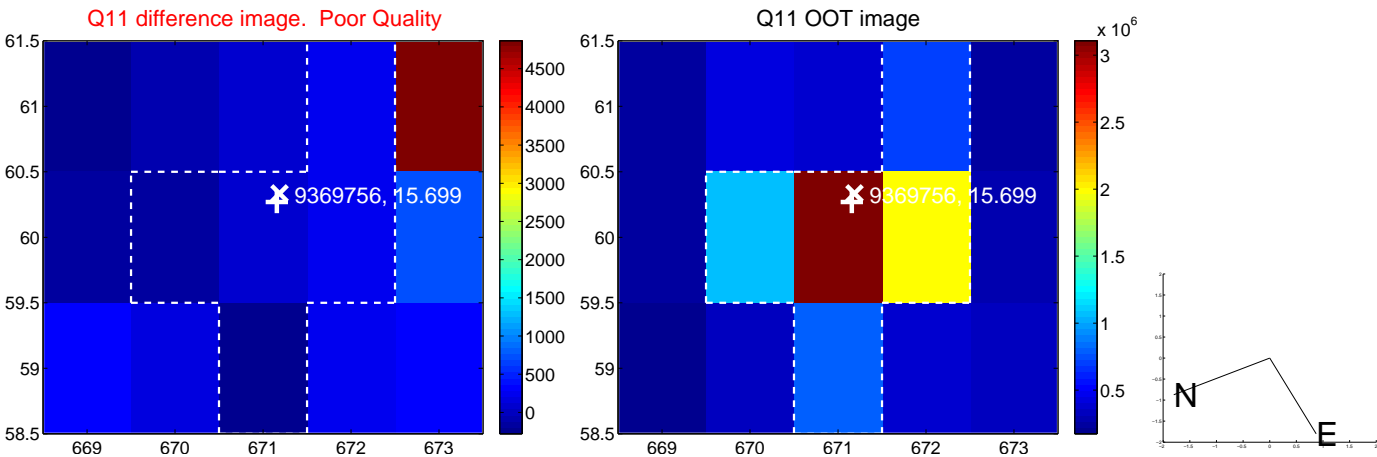
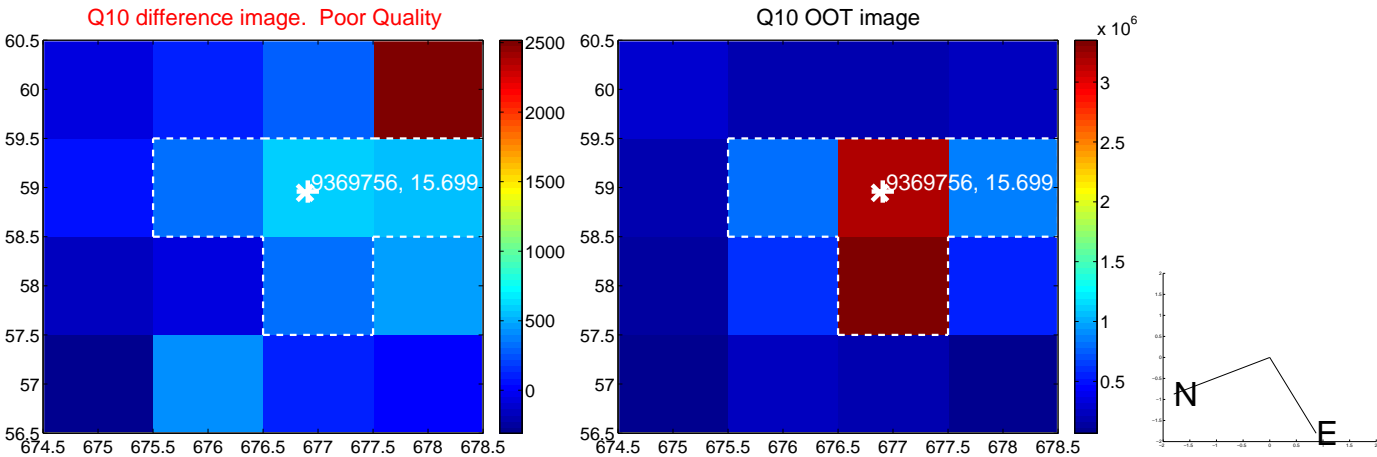
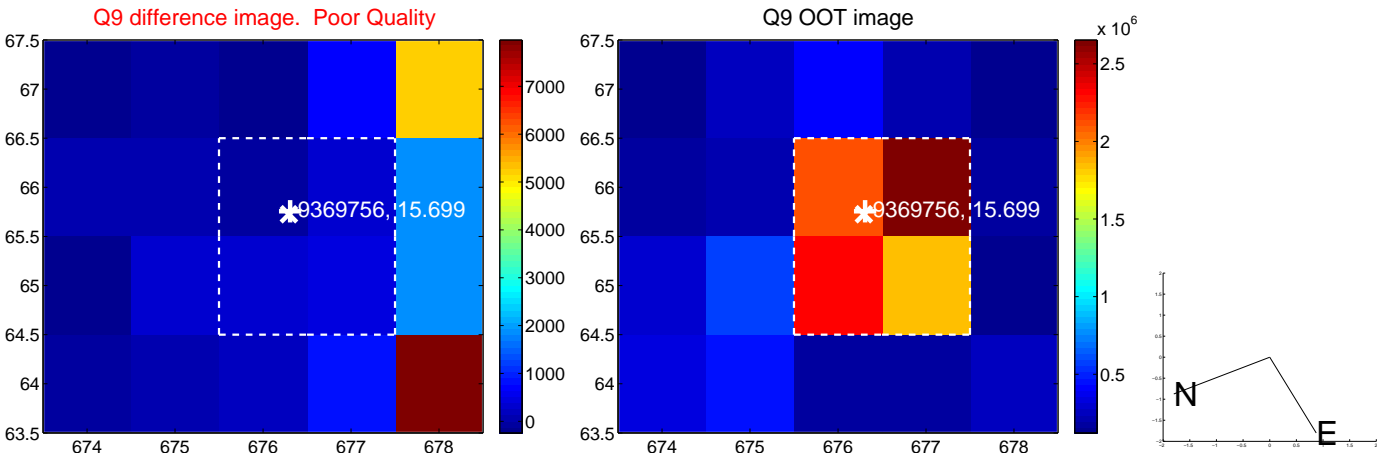
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



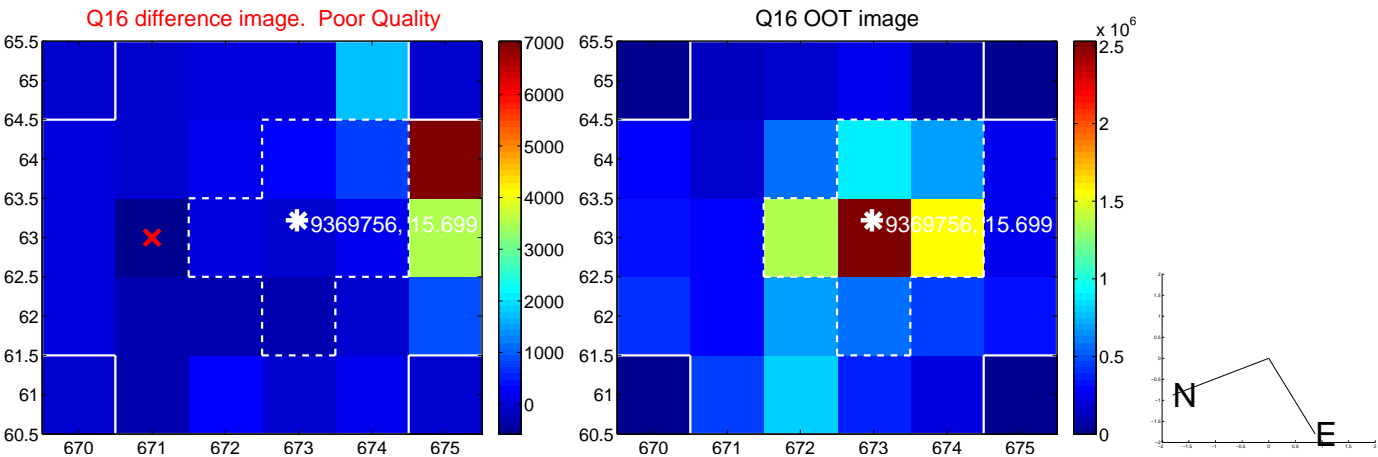
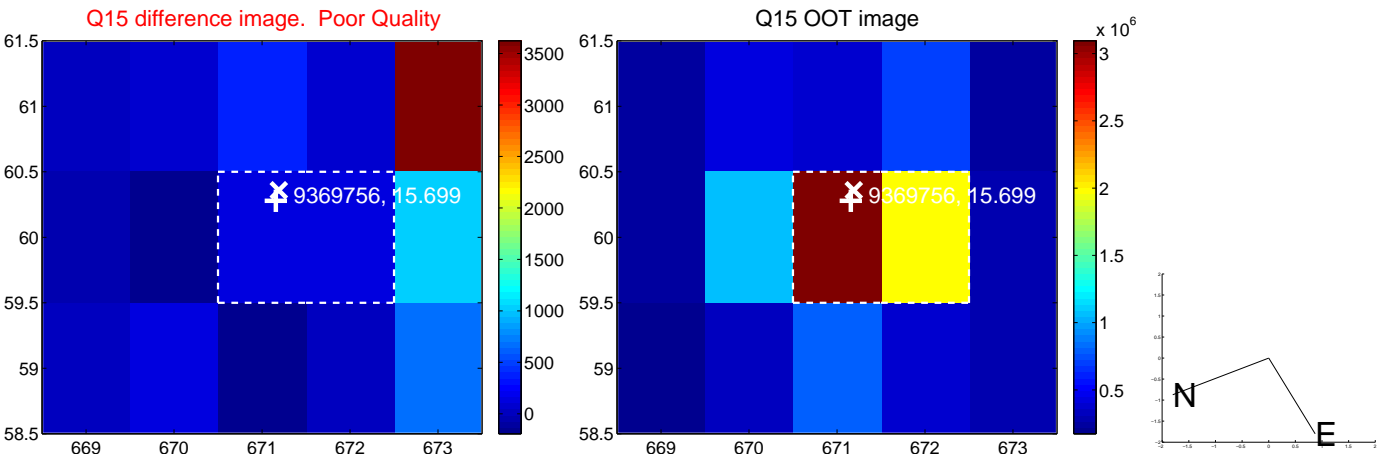
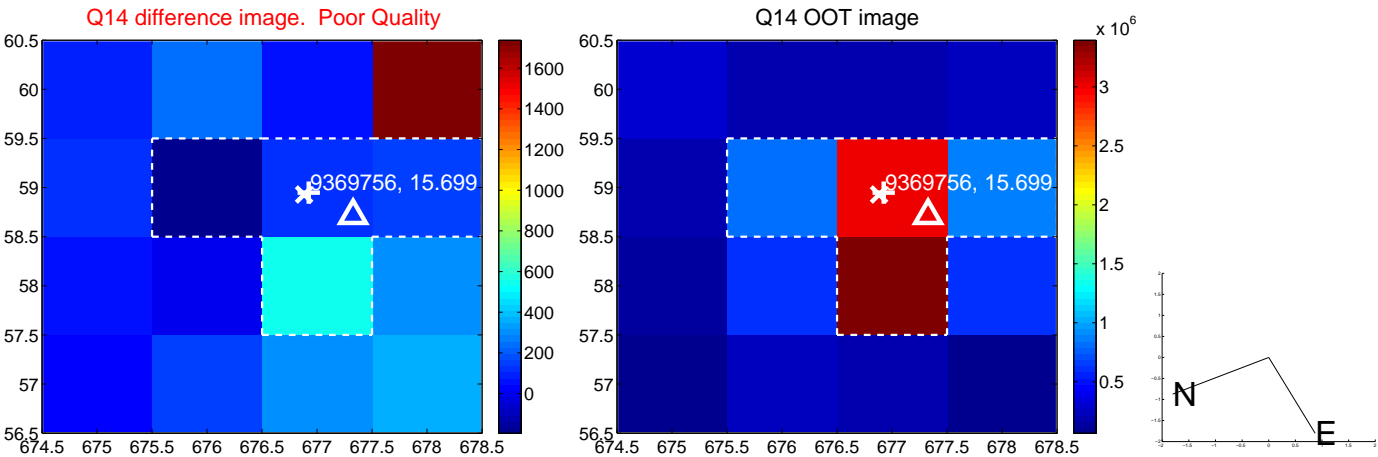
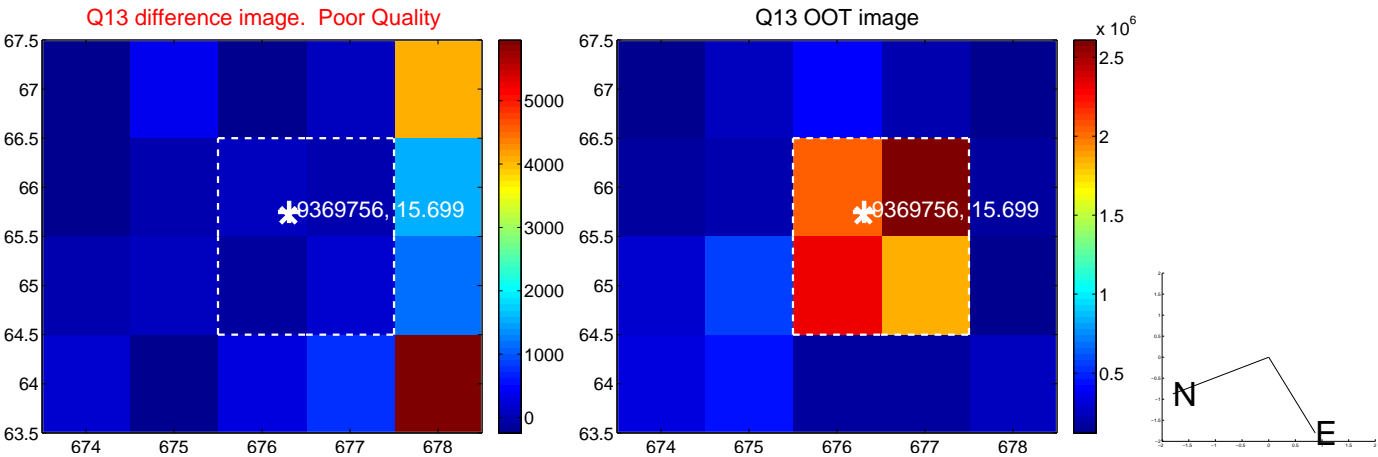
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



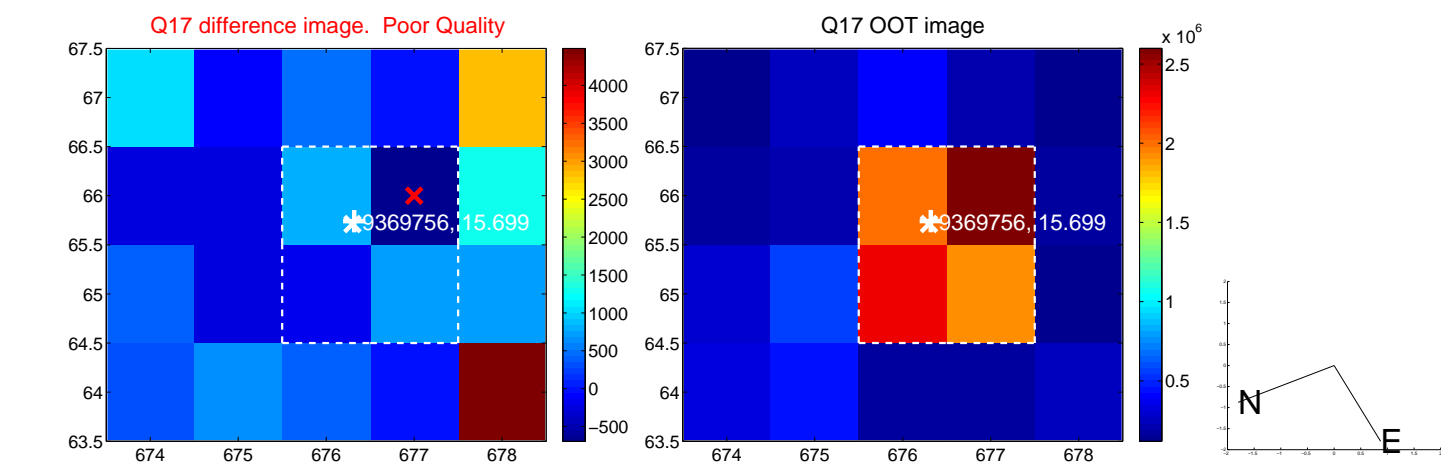
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



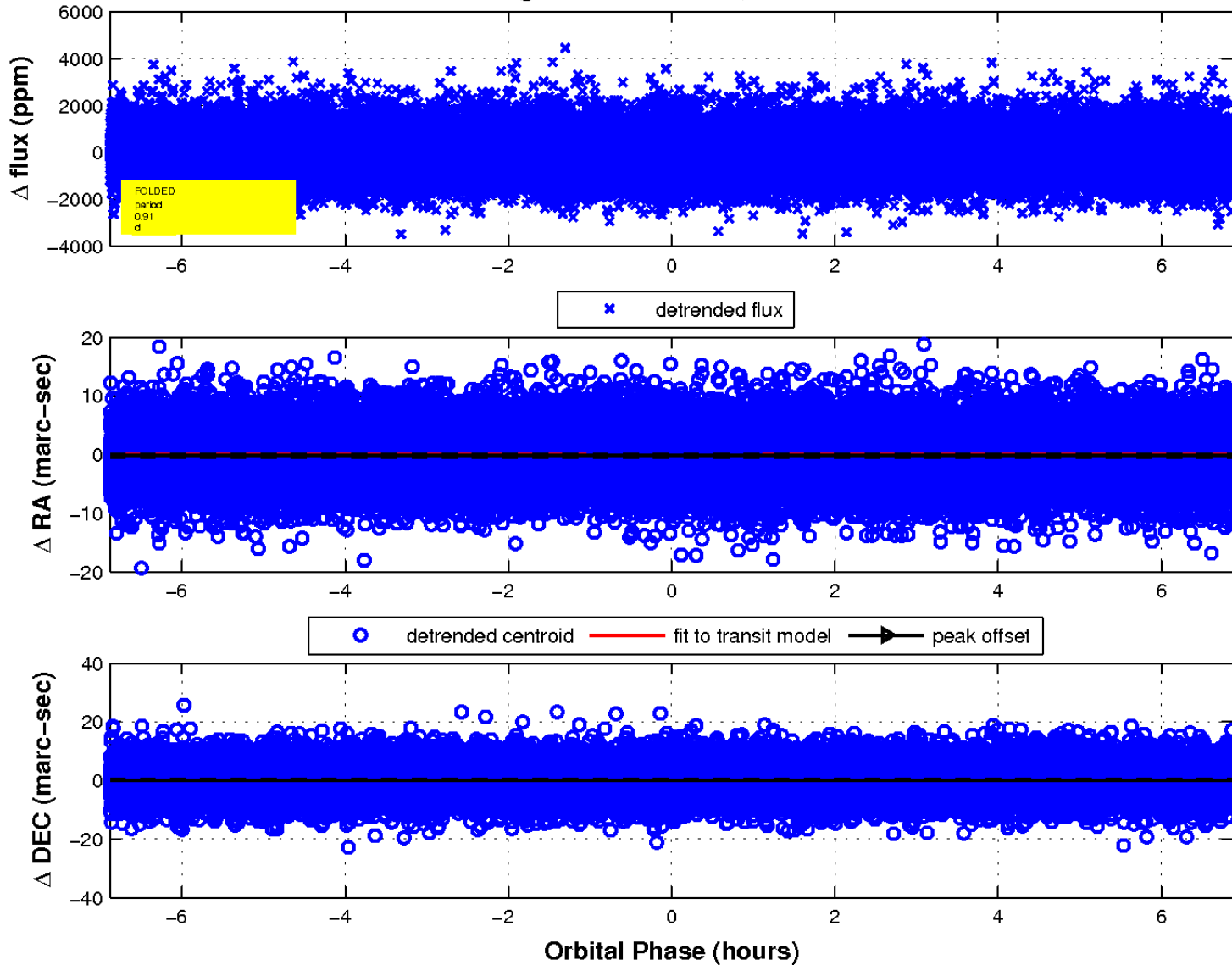
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

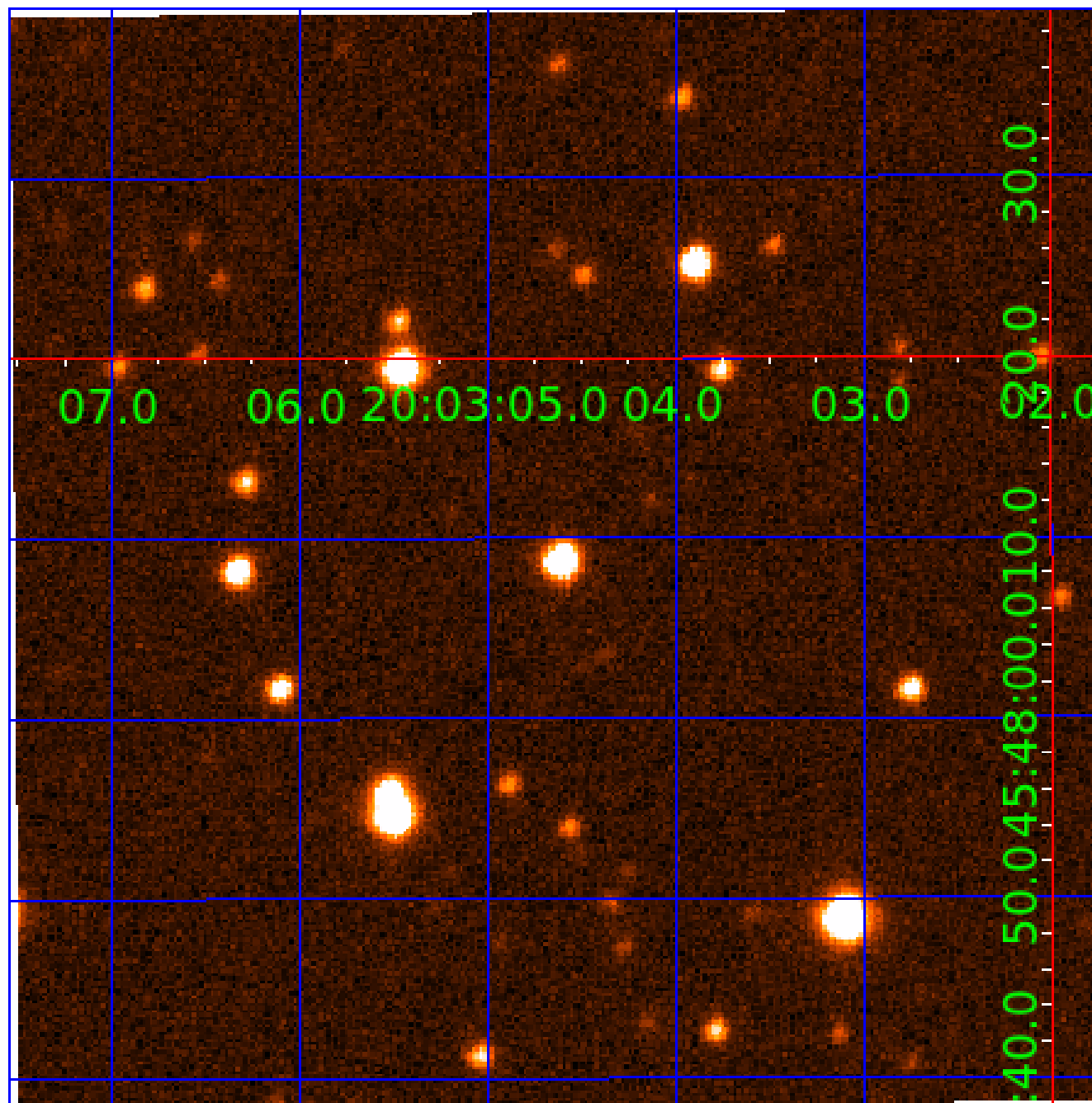


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009369756

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})
009369756-01	OBS	No	0.909458	131.949151	73.6	2.294	8.3	6.2	0.81	5553	0.83	1765.43
009369756-02	OBS	No	0.909446	131.522026	59.8	2.994	8.6	5.9	0.81	5553	0.67	1765.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009369756-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
009369756-02	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET

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

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

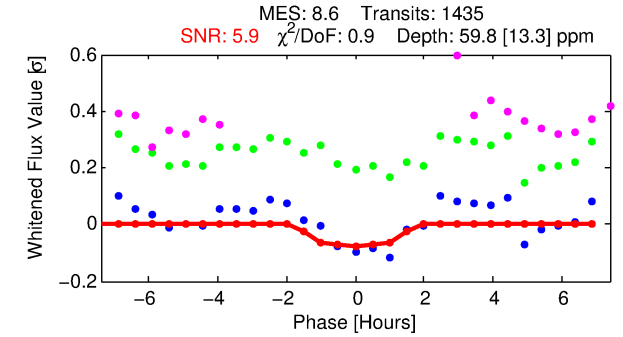
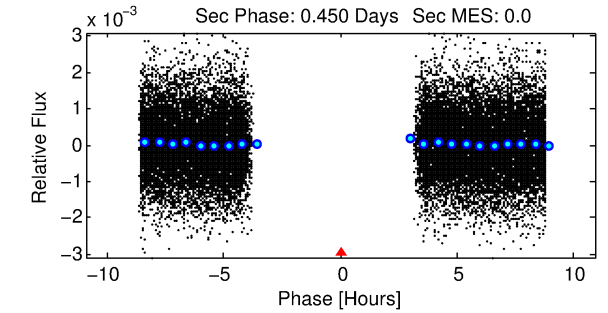
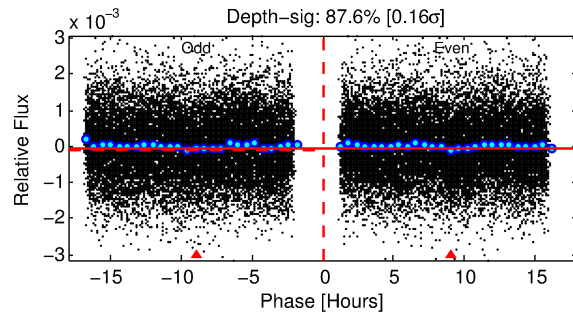
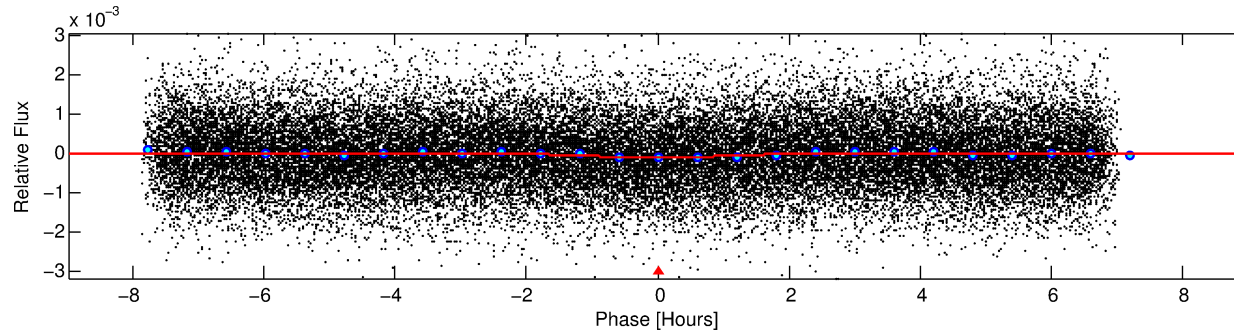
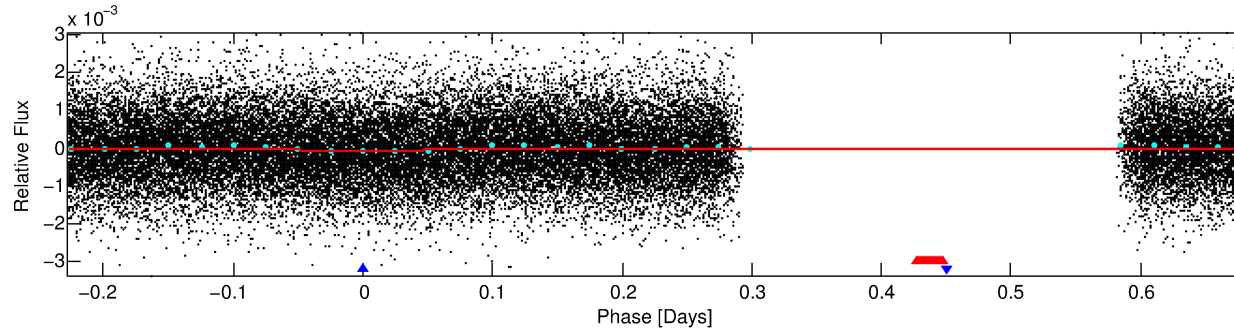
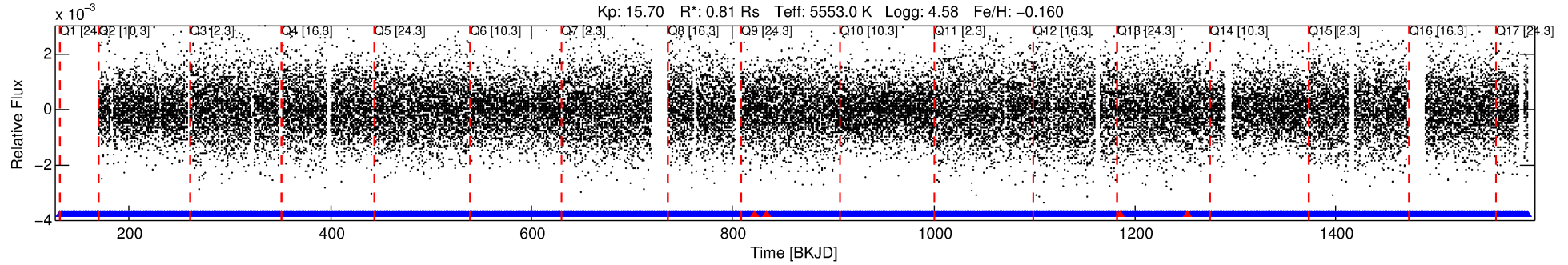
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009369756-02

No Significant Match Found

DV One-Page Summary

KIC: 9369756 Candidate: 2 of 2 Period: 0.909 d



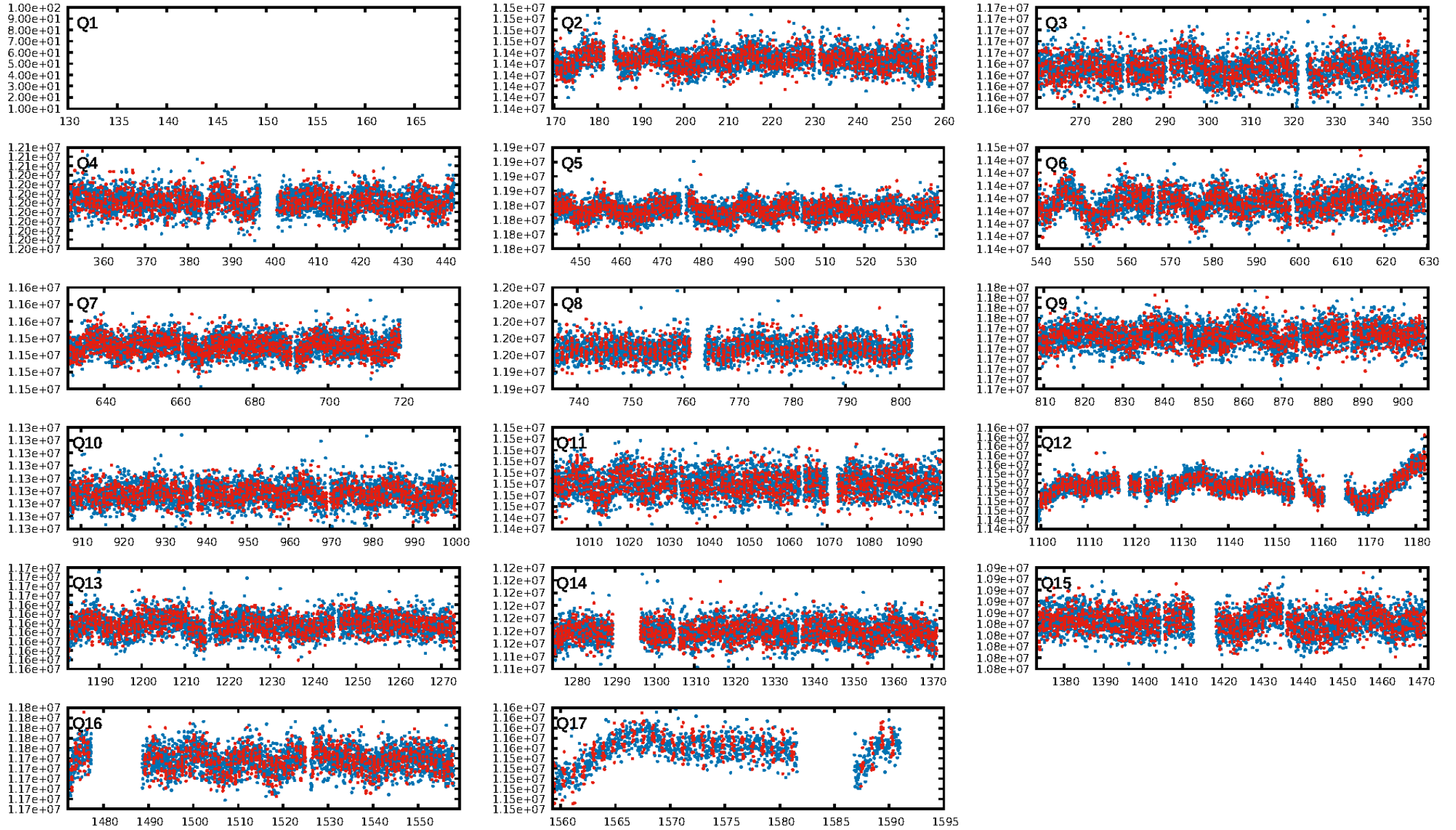
DV Fit Results:

Period = 0.90945 [0.00002] d
Epoch = 131.5220 [0.0069] BKJD
Rp/R* = 0.0076 [0.0089]
a/R* = 1.87 [6.57]
b = 0.70 [3.65]
Seff = 1765.47 [471.44]
Teq = 1653 [110] K
Rp = 0.67 [0.79] Re
a = 0.0177 [0.0030] AU
Ag = N/A
Teffp = N/A

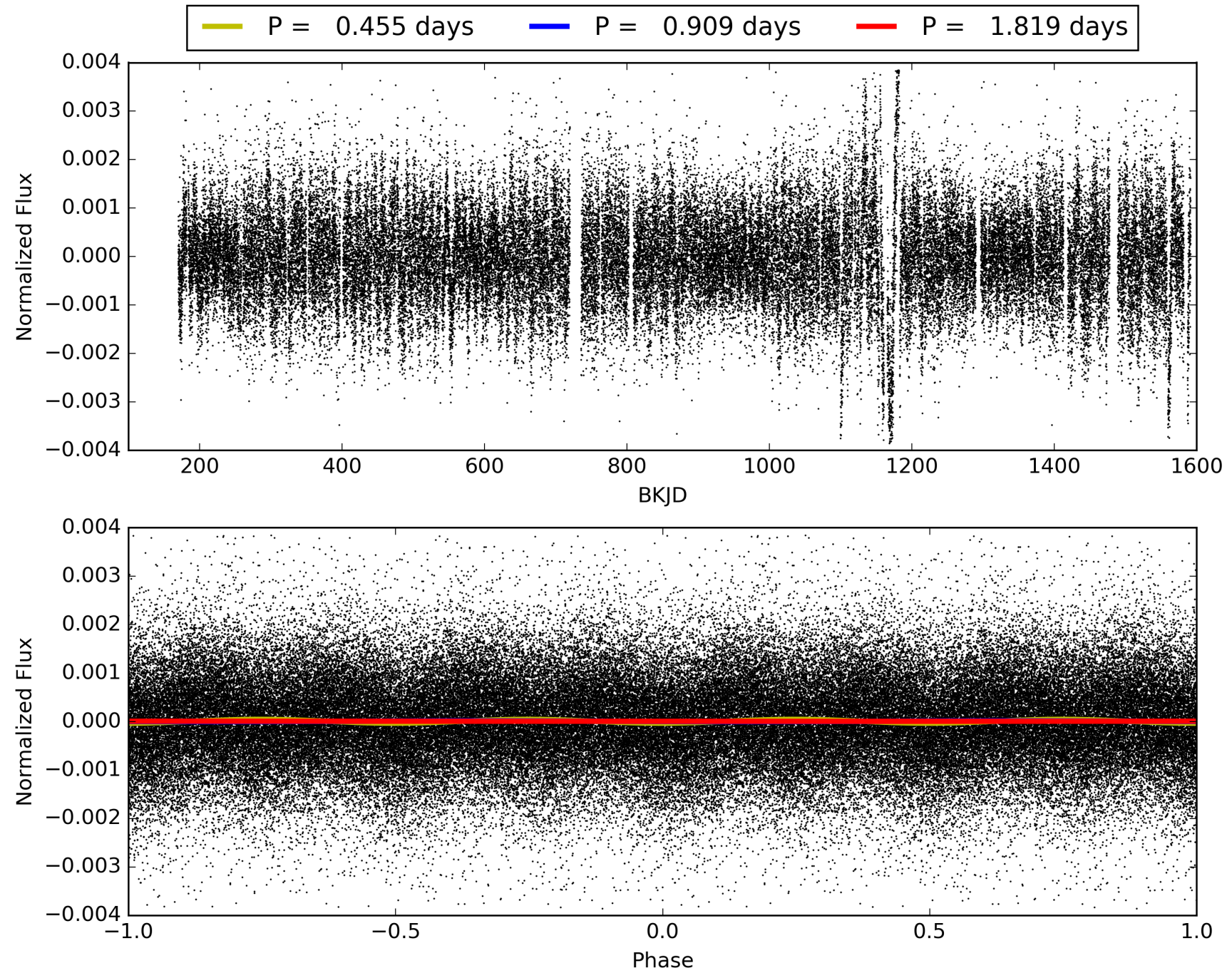
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.03e-18
RollingBand-fgt: 1.00 [1402/1406]
GhostDiagnostic-chr: -0.8064
Centroid-sig: 0.0%
Centroid-so: 9.208 arcsec [3.75 σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [16/16]

TCE 009369756-02, PDC Light Curves

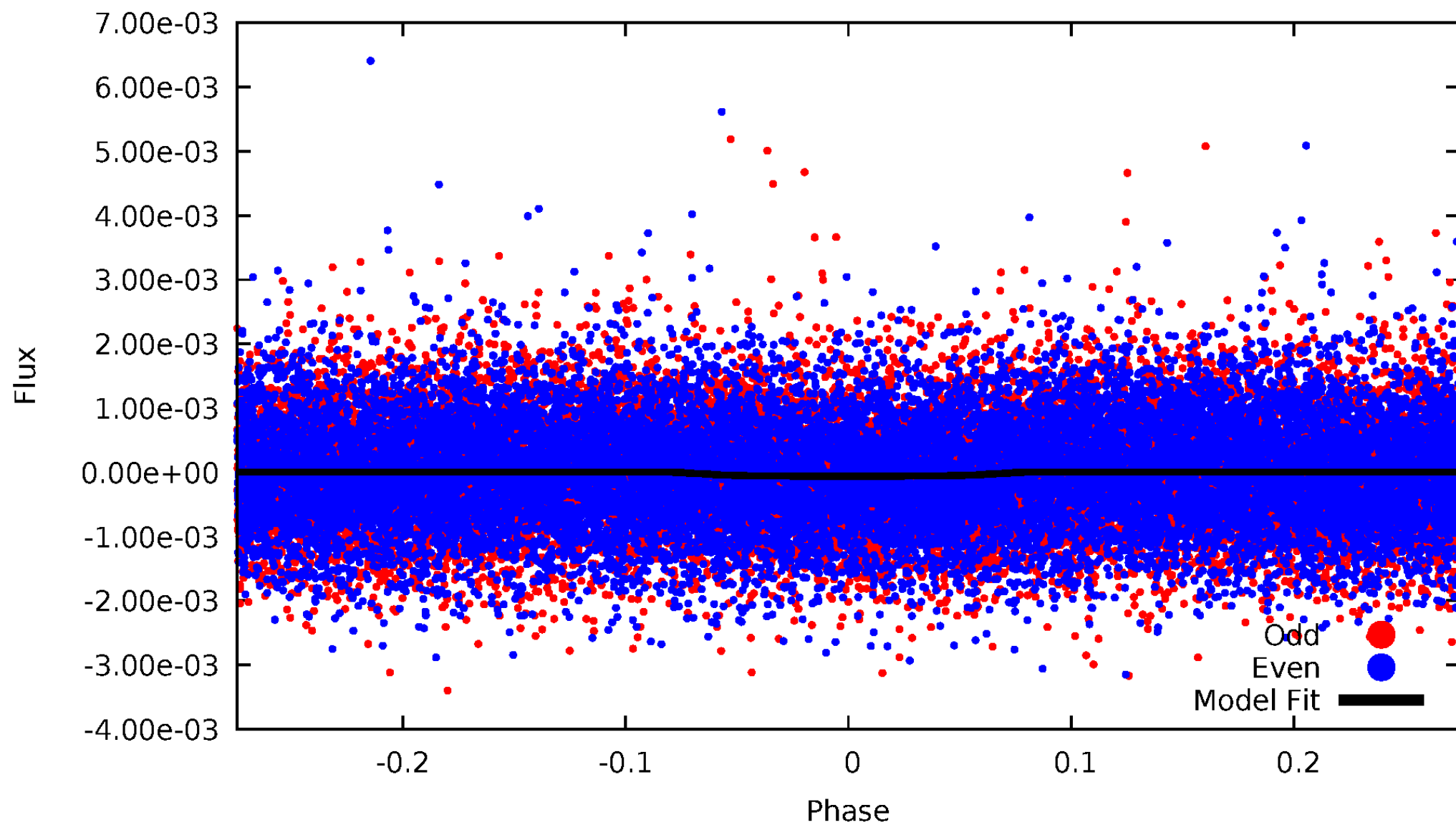


TCE 009369756-02



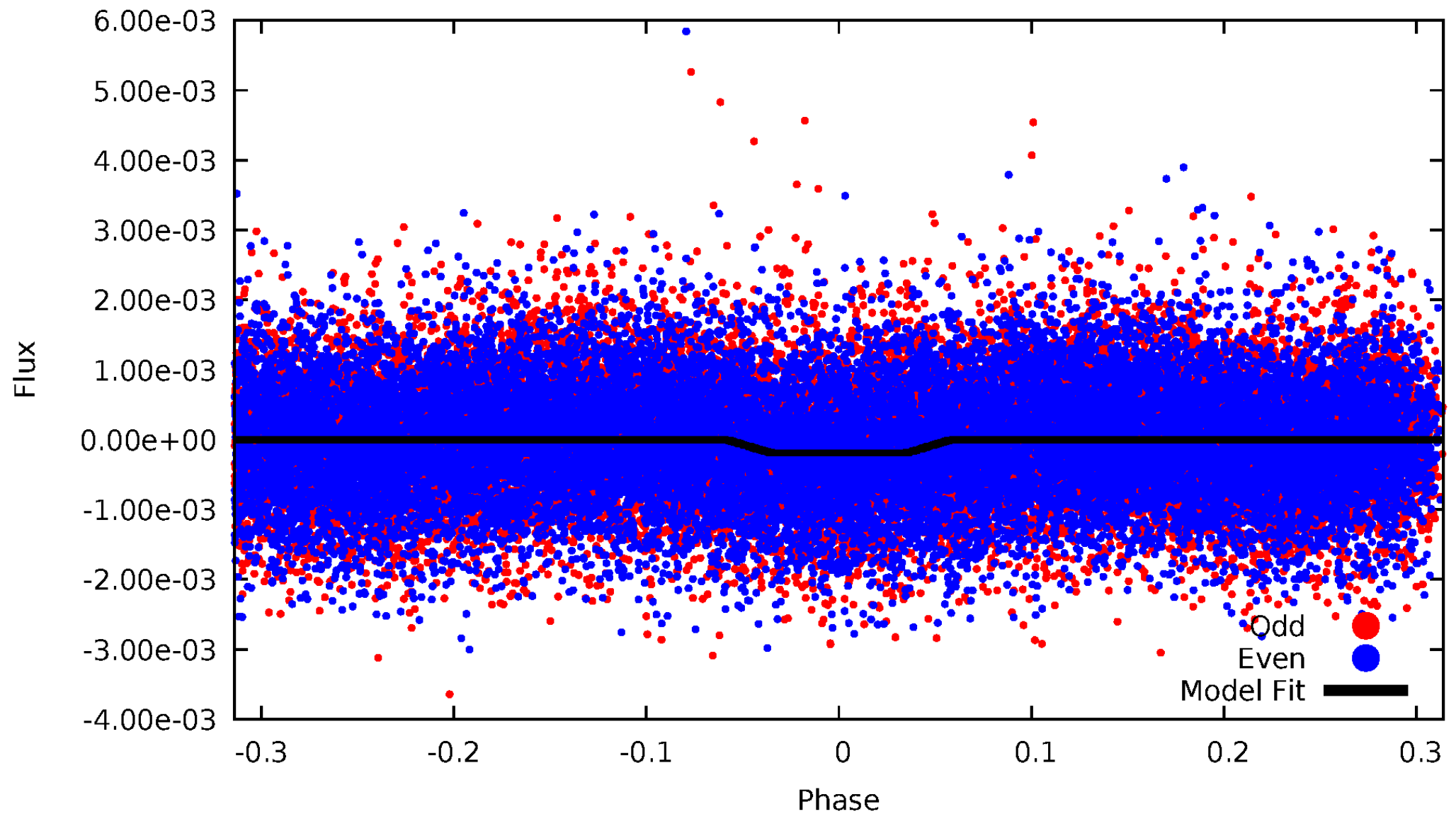
DV Odd/Even

TCE 009369756-02



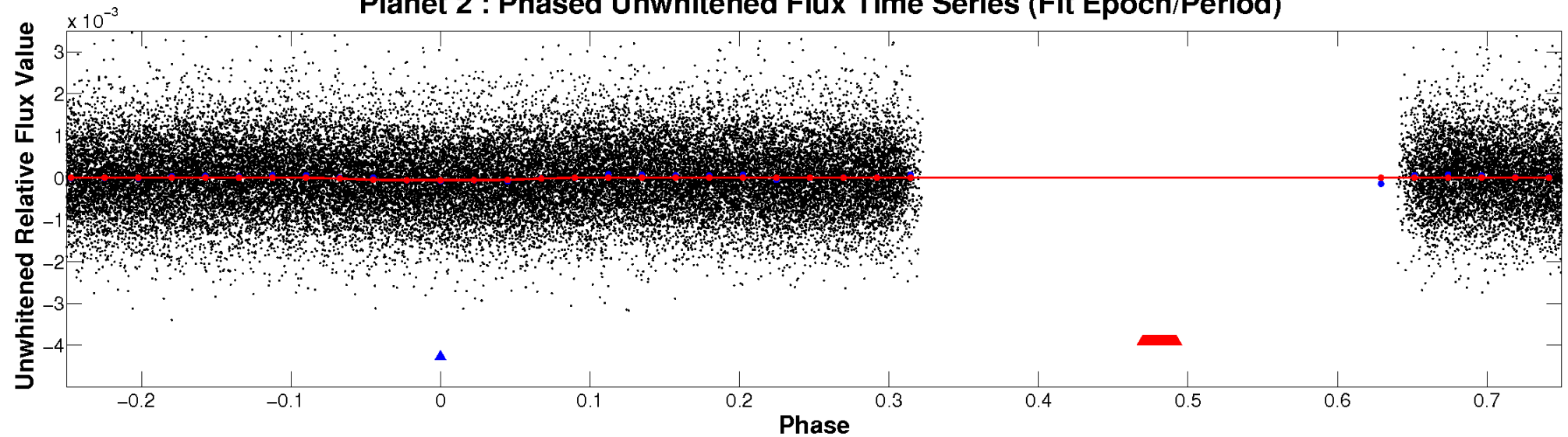
ALT Odd/Even

TCE 009369756-02

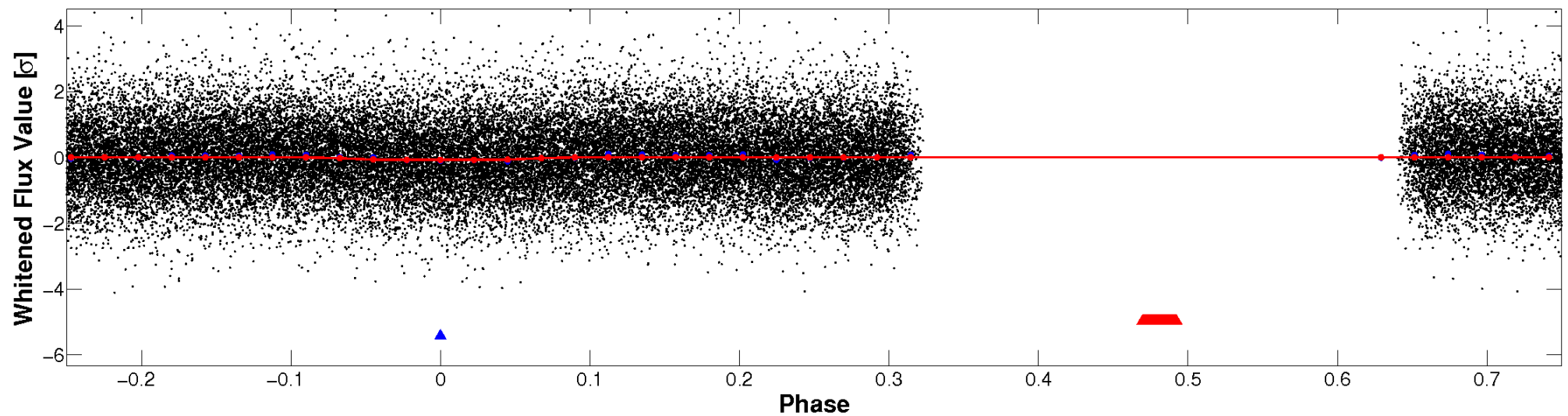


Non-Whitened Vs. Whitened Light Curve

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

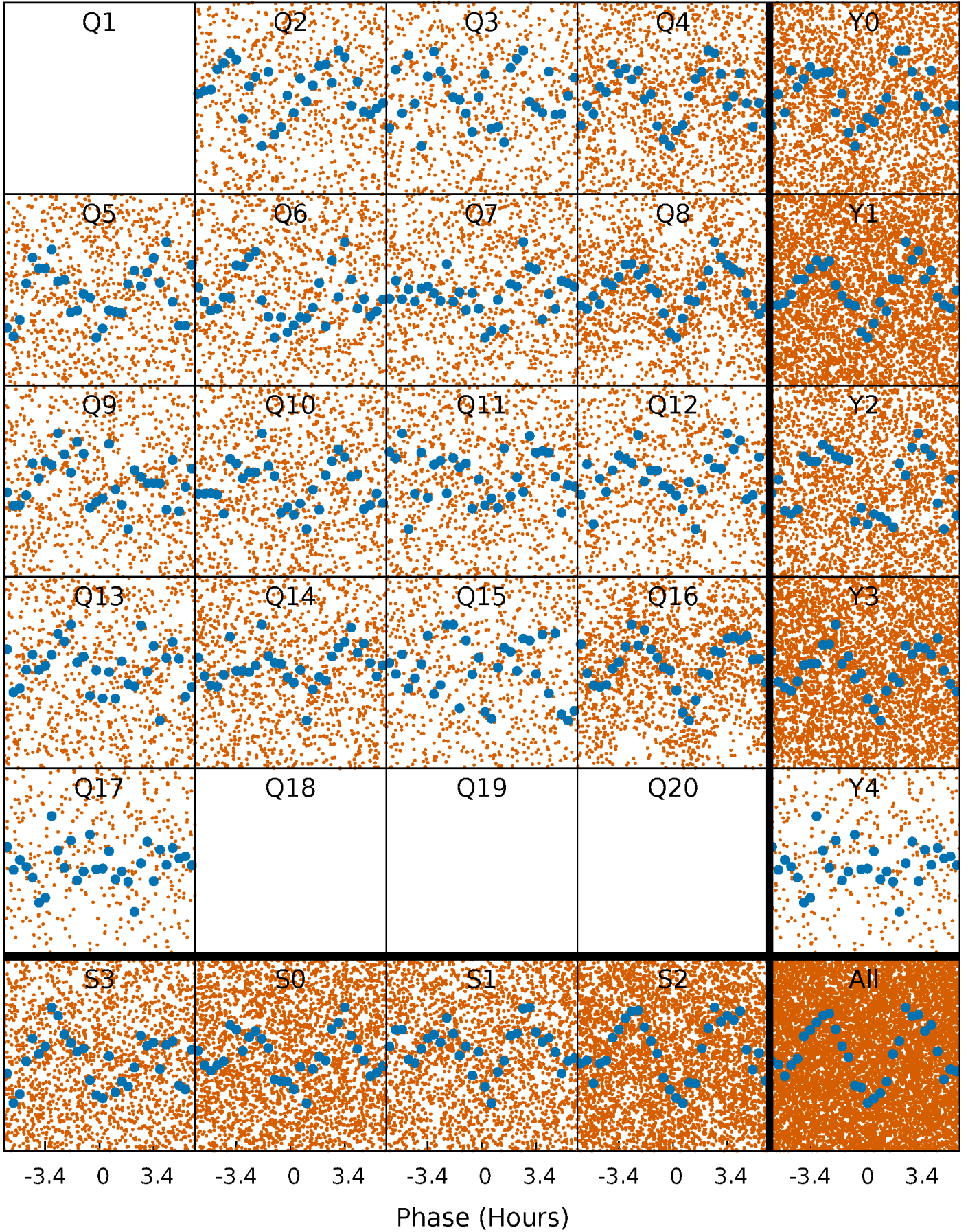


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



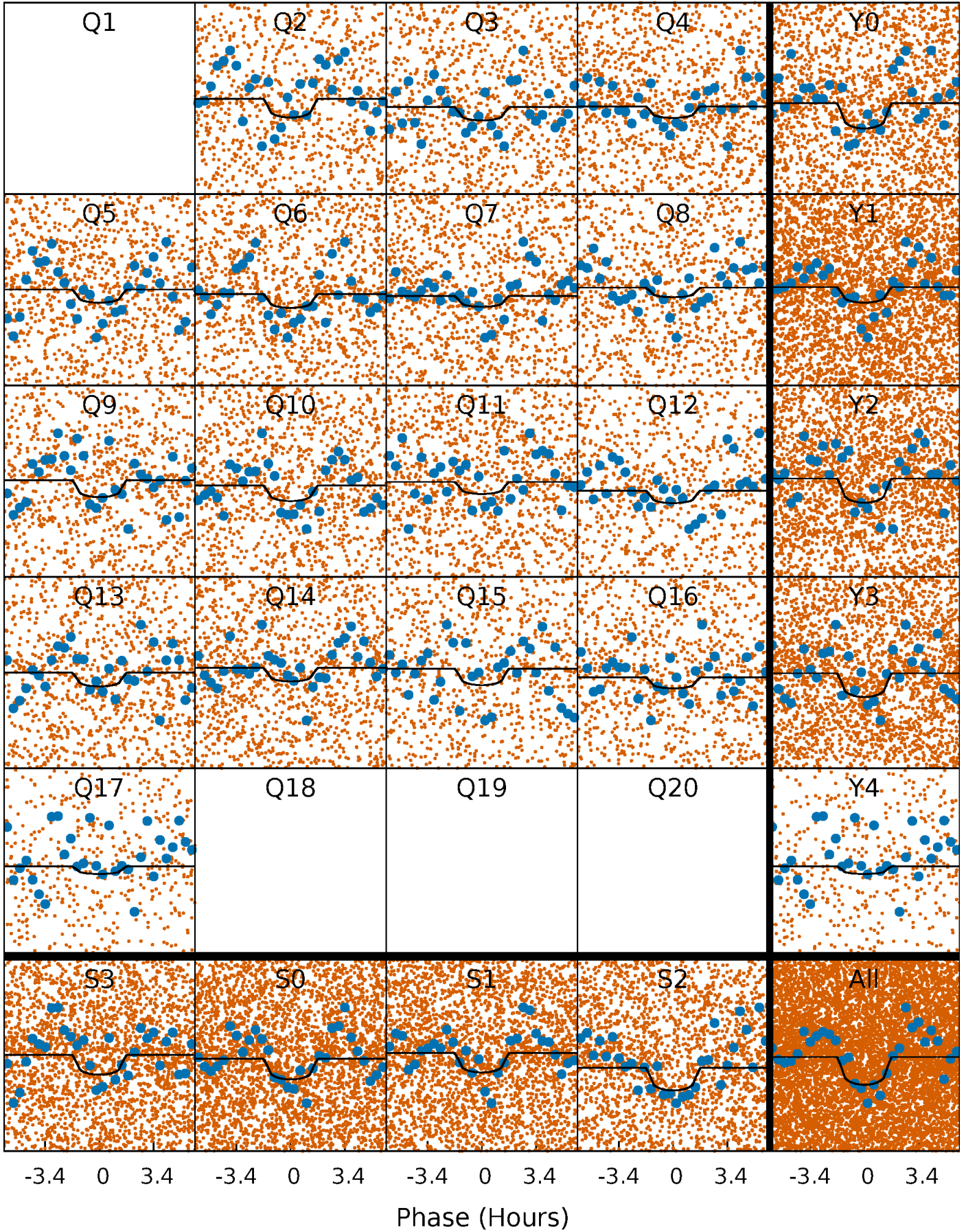
PDC Quarter-Phased Transit Curves

TCE 009369756-02 P= 0.909446 Days $T_0=131.522026$ (BKJD)



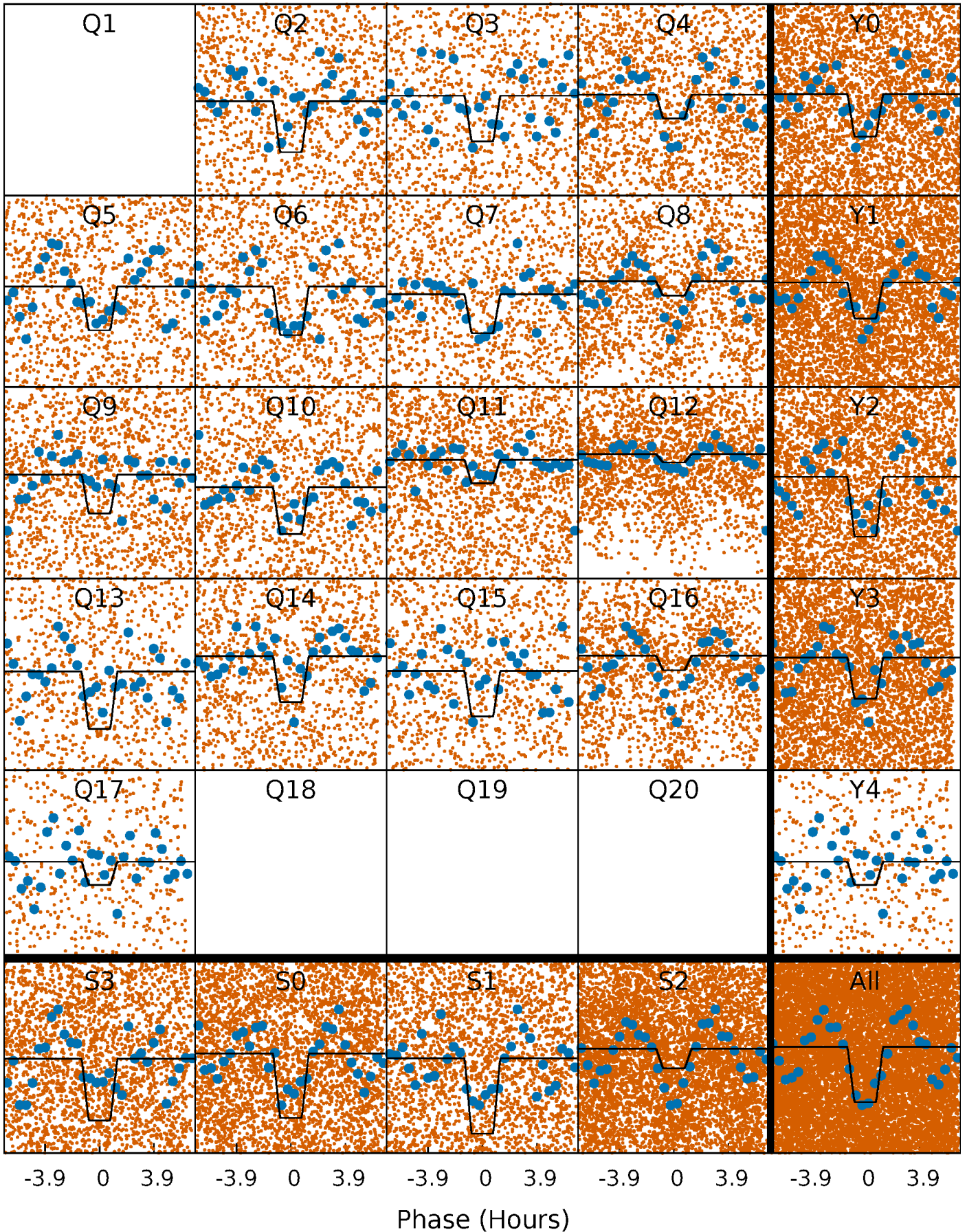
DV Quarter-Phased Transit Curves

TCE 009369756-02 P= 0.909446 Days $T_0=131.522026$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

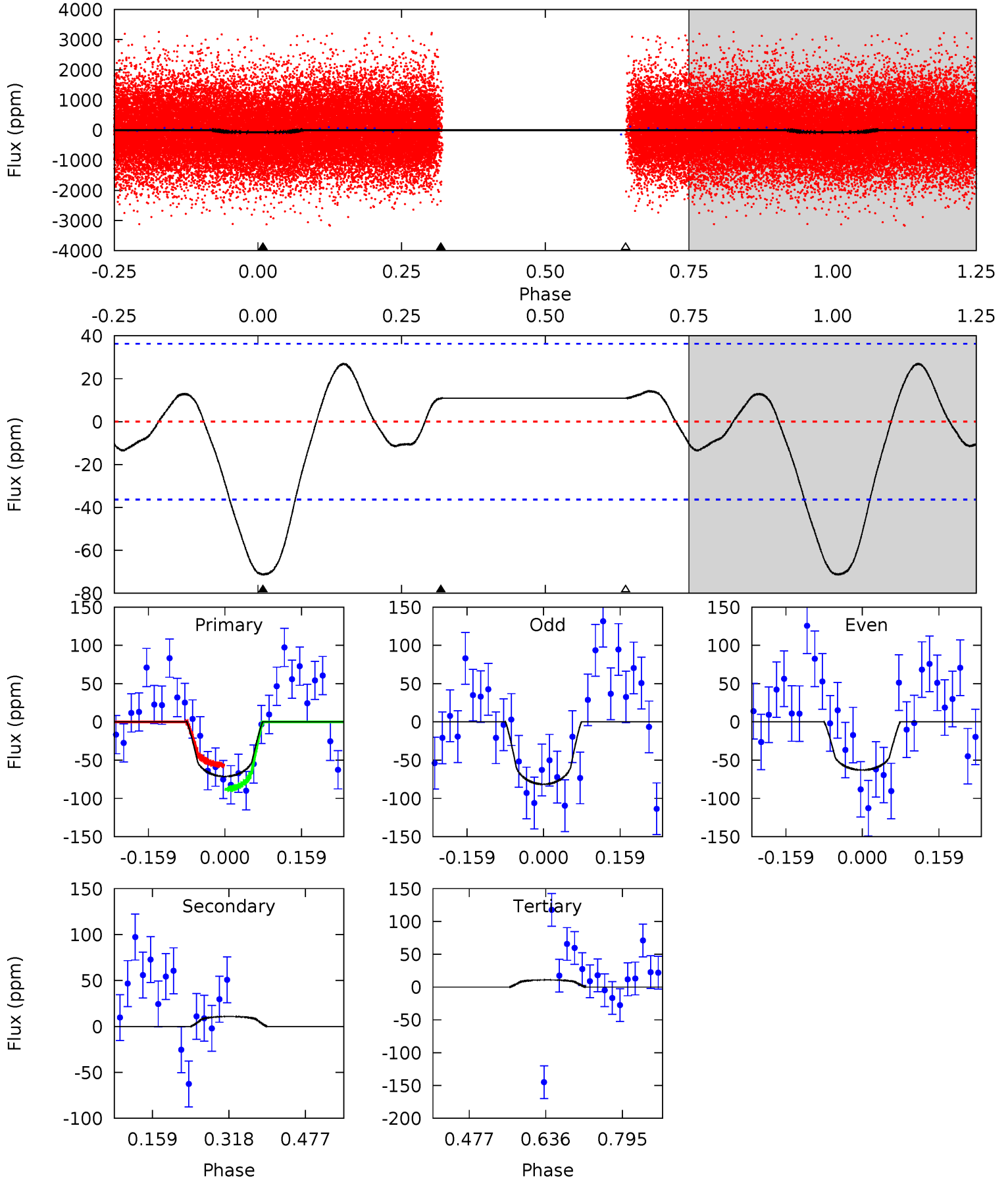
TCE 009369756-02 $P = 0.909478$ Days $T_0 = 131.507833$ (BKJD)



DV Model-Shift Uniqueness Test

009369756-02, P = 0.909446 Days, E = 131.522026 Days

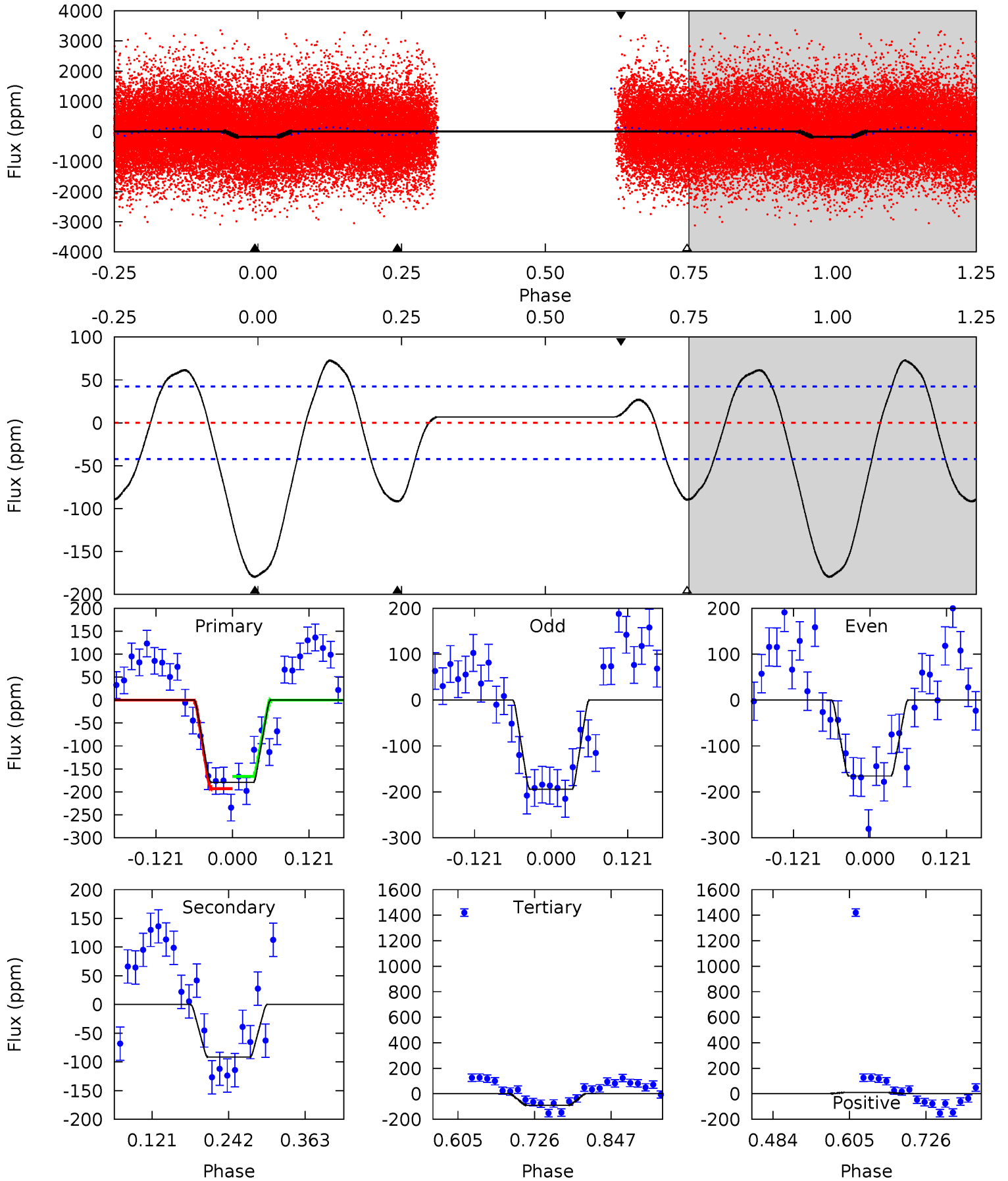
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.77	-1.33	-1.34	0	4.47	1.41	1.20	10.1	8.77	0.01	-1.33	1.14	1.17	0.27	1.95



Alt Model-Shift Uniqueness Test

009369756-02, P = 0.909478 Days, E = 131.507833 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	9.78	9.58	1.07	4.52	1.55	5.47	9.61	18.1	0.20	8.71	1.53	1.05	0.29	1.41



Stellar Parameters For KIC 009369756

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5553^{+149}_{-166}	$4.577^{+0.032}_{-0.128}$	$-0.160^{+0.300}_{-0.300}$	$0.806^{+0.164}_{-0.070}$	$0.903^{+0.074}_{-0.111}$	$2.425^{+0.420}_{-0.921}$
	+3%/-3%	+1%/-3%	+188%/-188%	+20%/-9%	+8%/-12%	+17%/-38%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009369756-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	11 ± 8	$0.90^{+0.75}_{-0.59}$	2354^{+116}_{-87}	-3595^{+664}_{-1786}	$-1.866^{+1.609}_{-15.677}$
Alt.	-91 ± 9	$1.35^{+0.81}_{-0.74}$	2349^{+119}_{-89}	4572^{+2022}_{-776}	$8.598^{+33.906}_{-5.236}$

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 009369756-02. Kepler magnitude: 15.70. Transit SNR 5.92

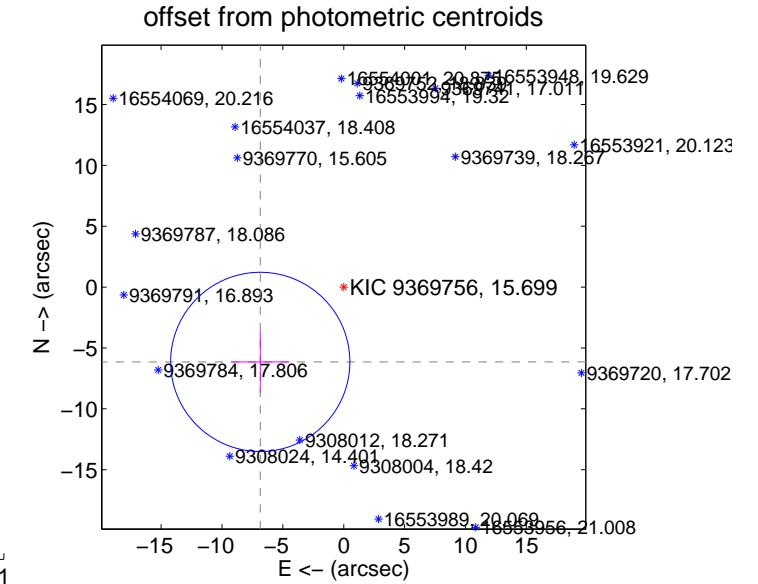
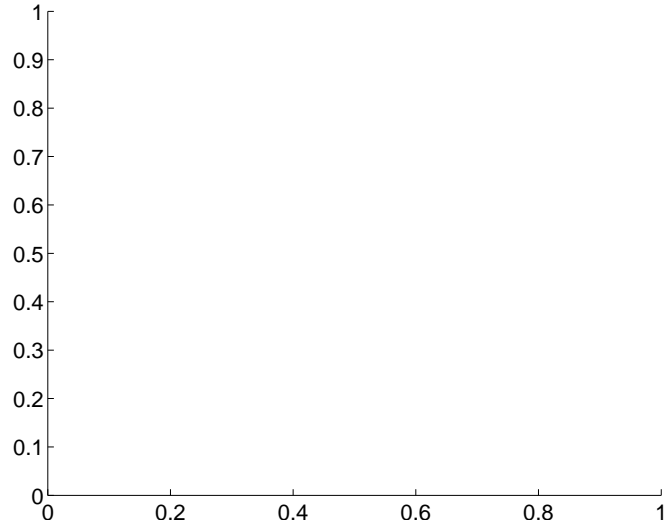
There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	9.21 ± 2.45	3.75	6.86 ± 2.40	-6.15 ± 2.52

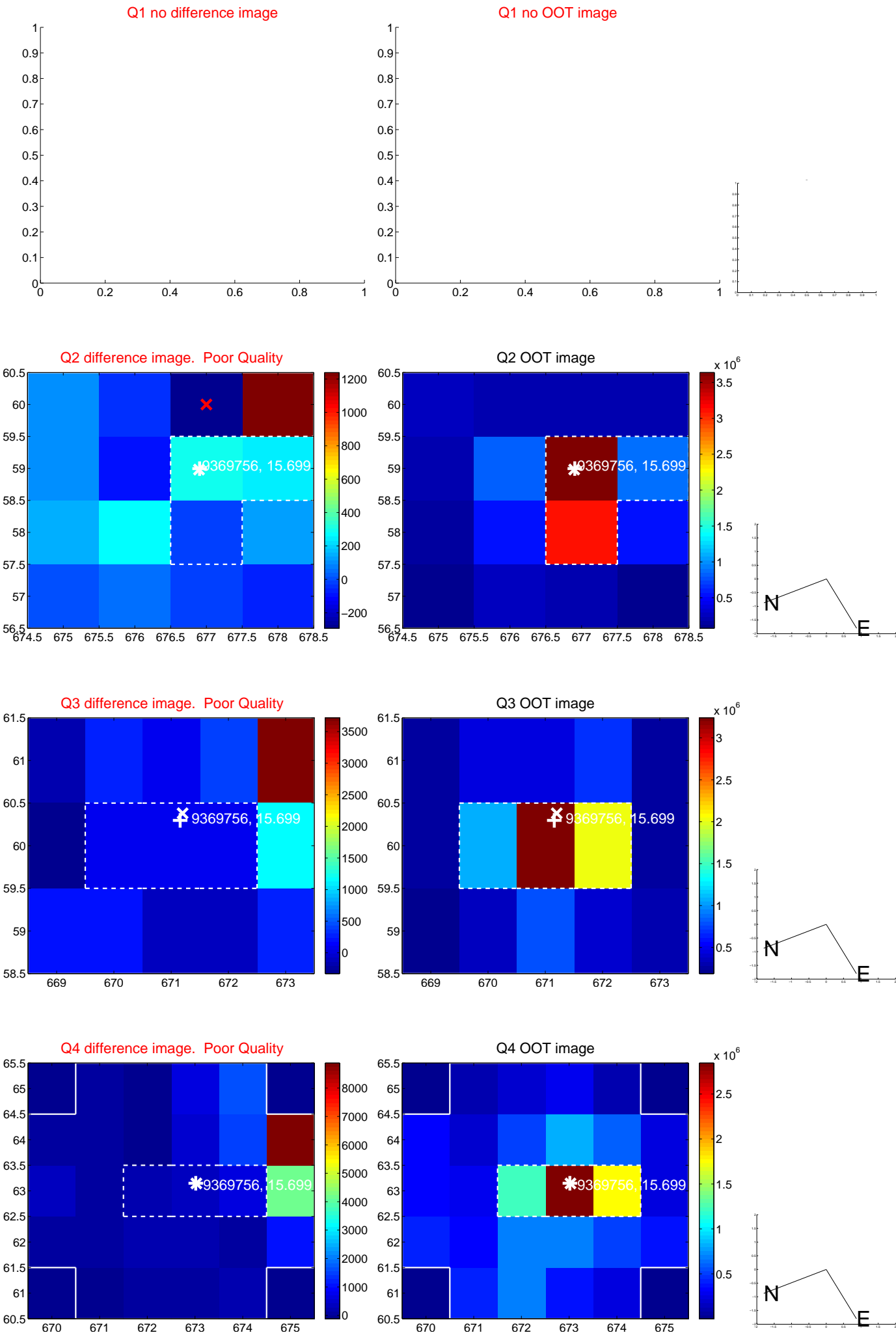
There is no PRF-fit offset from OOT-fit

There is no PRF-fit offset from KIC

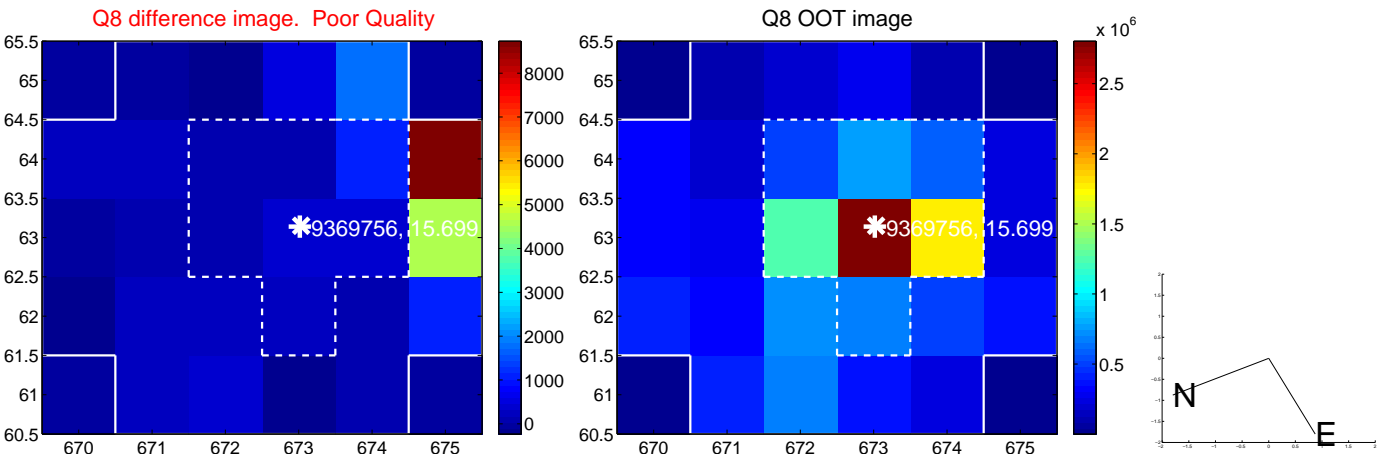
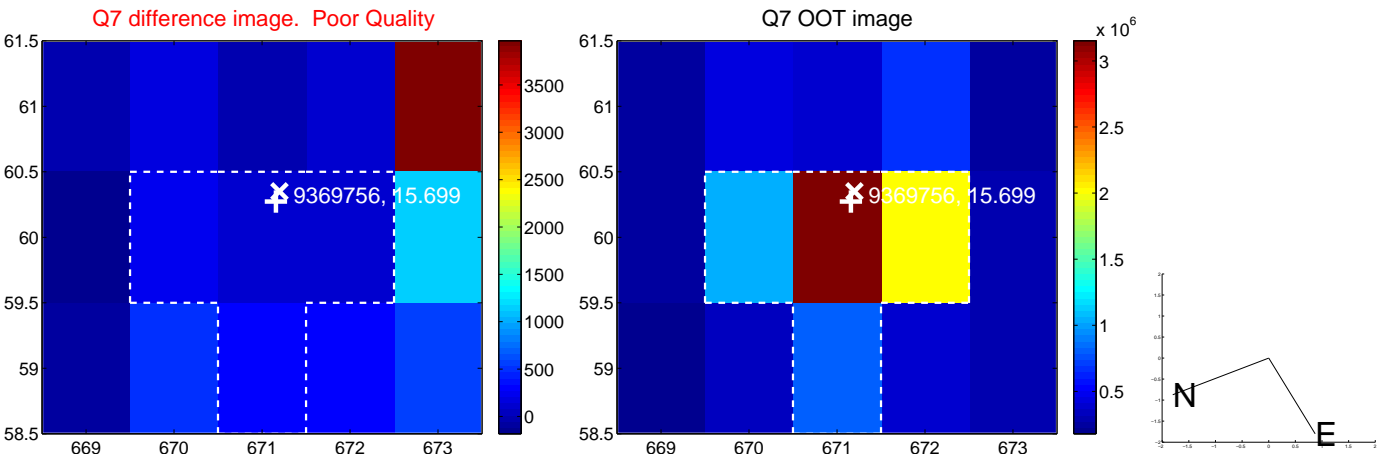
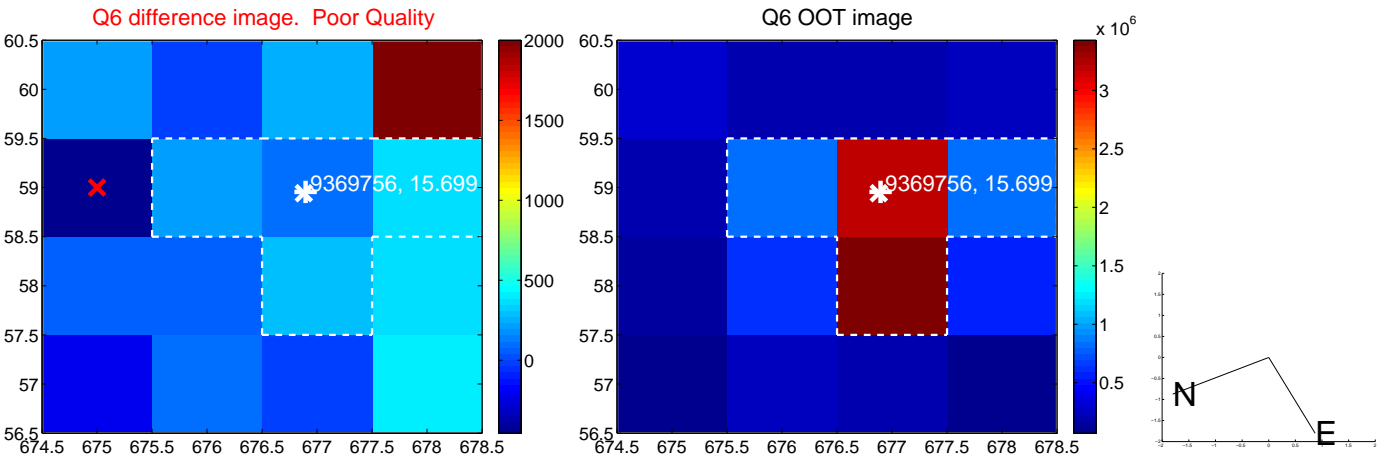
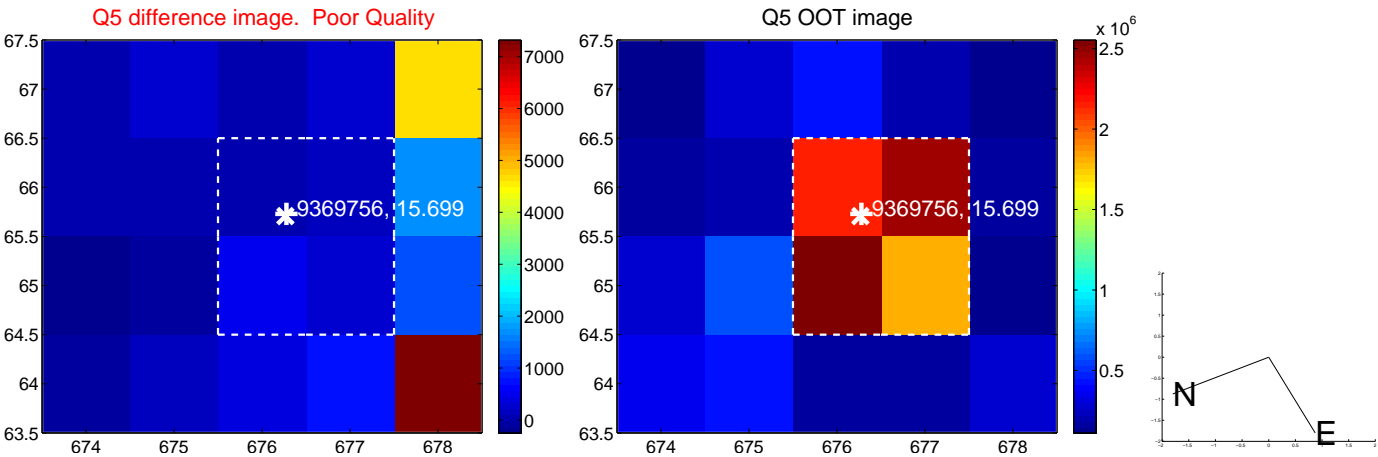


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

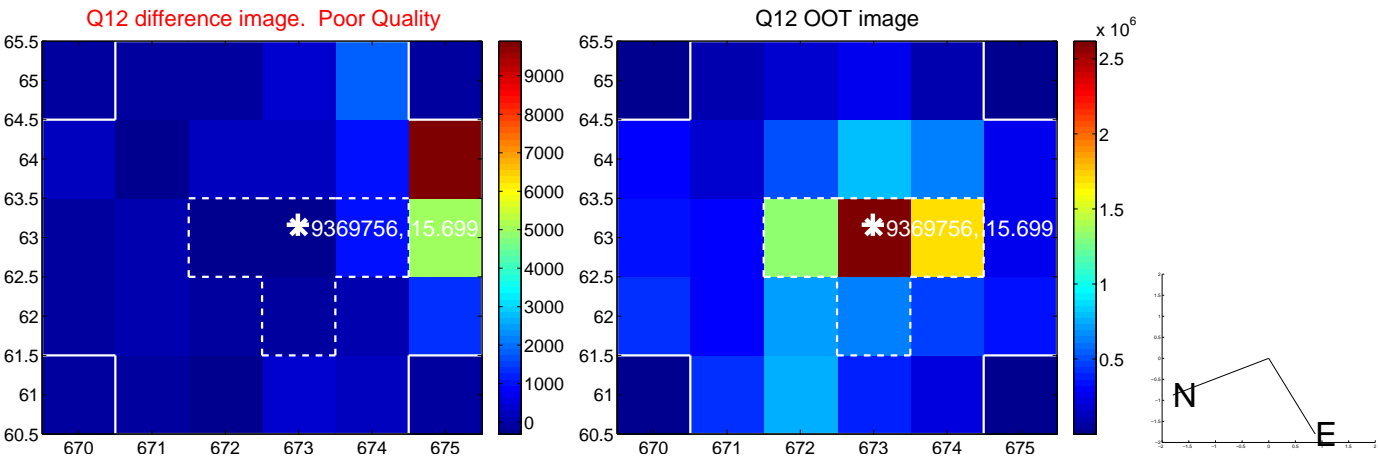
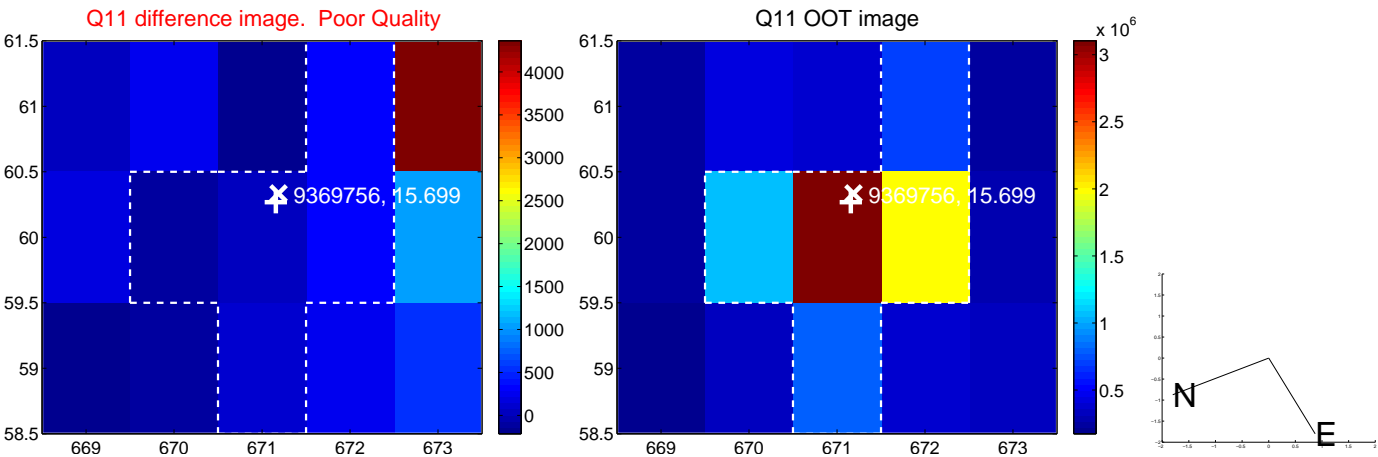
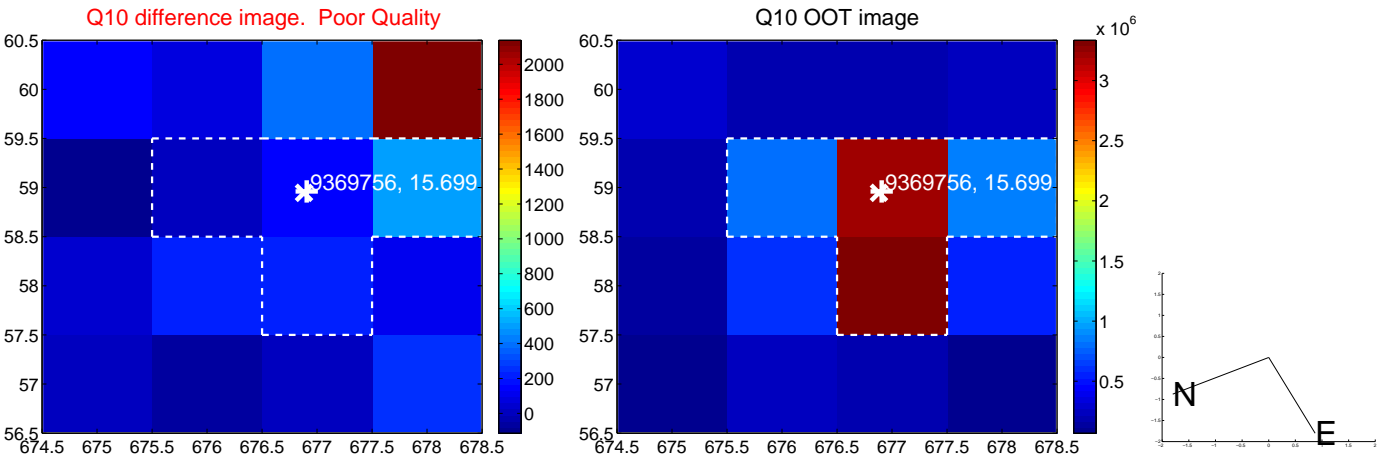
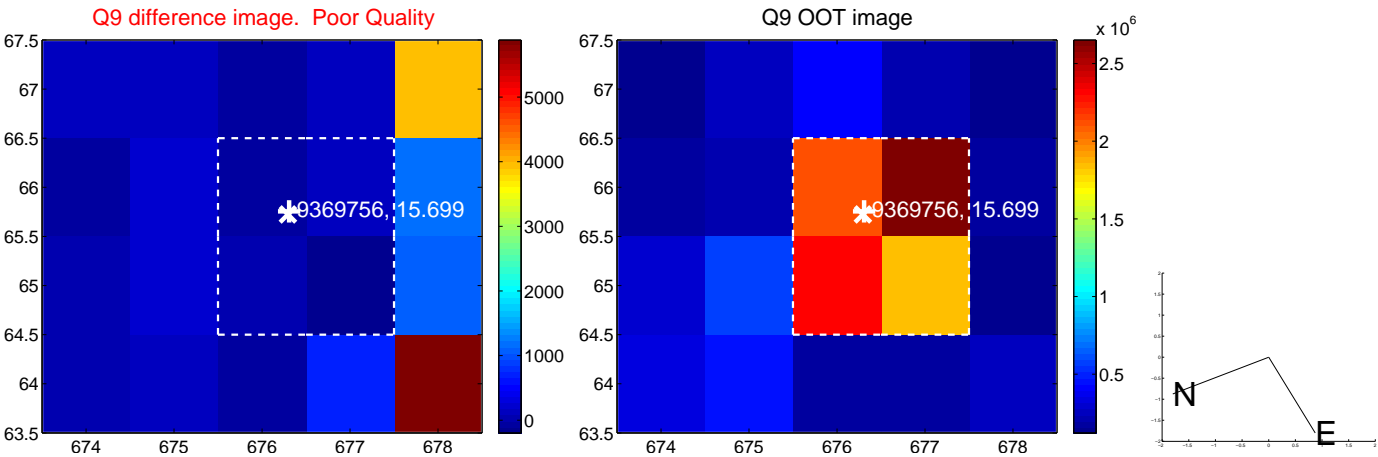
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



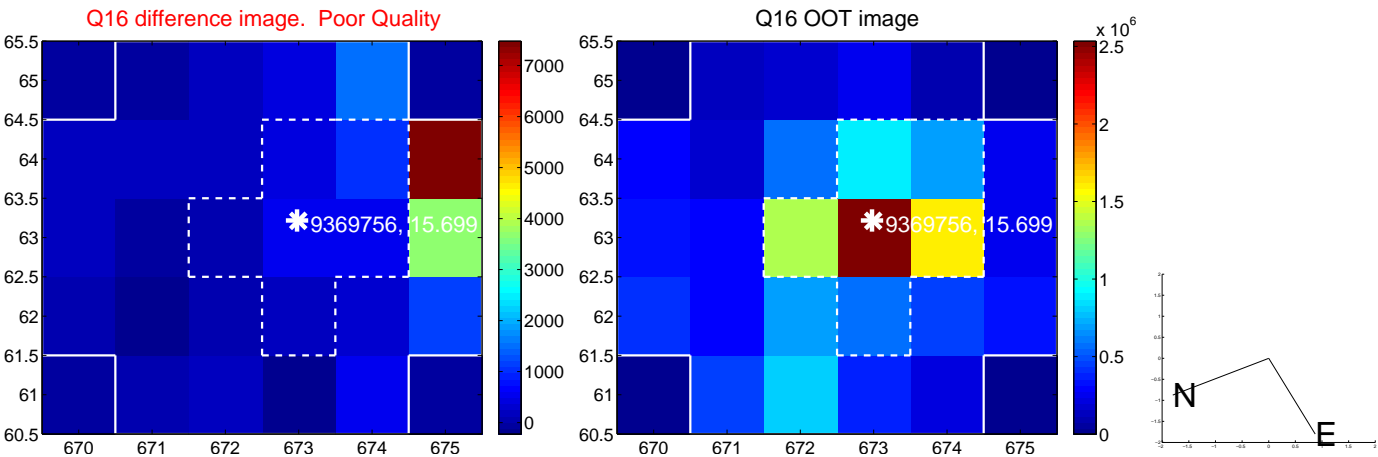
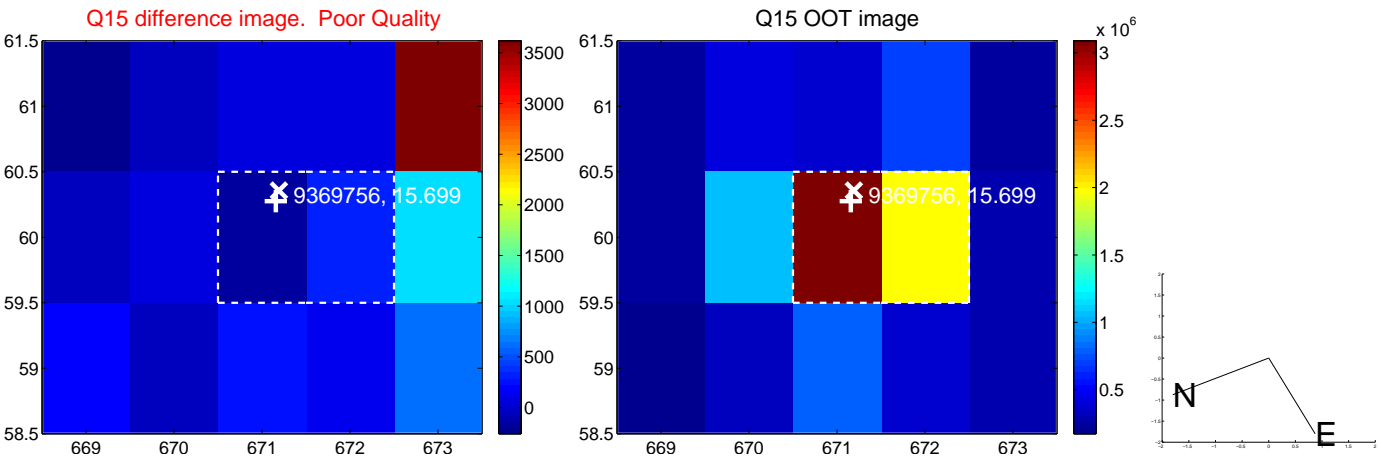
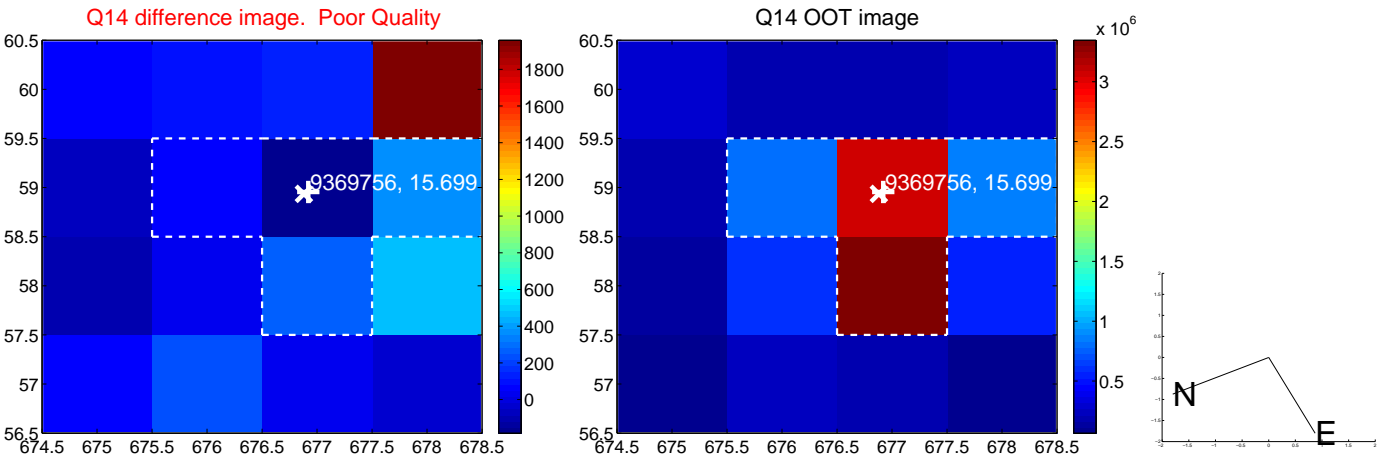
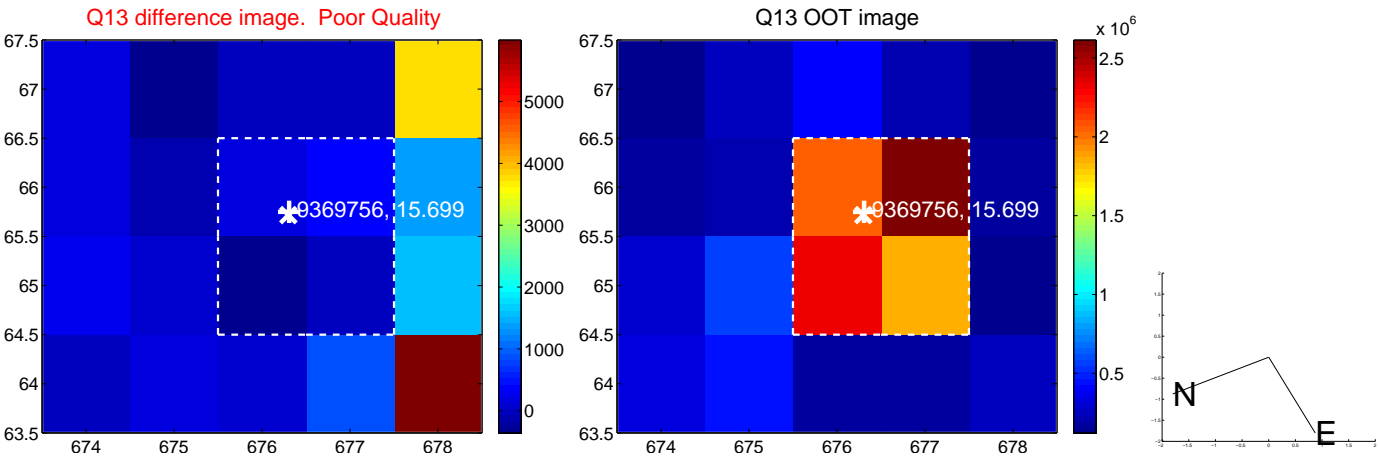
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



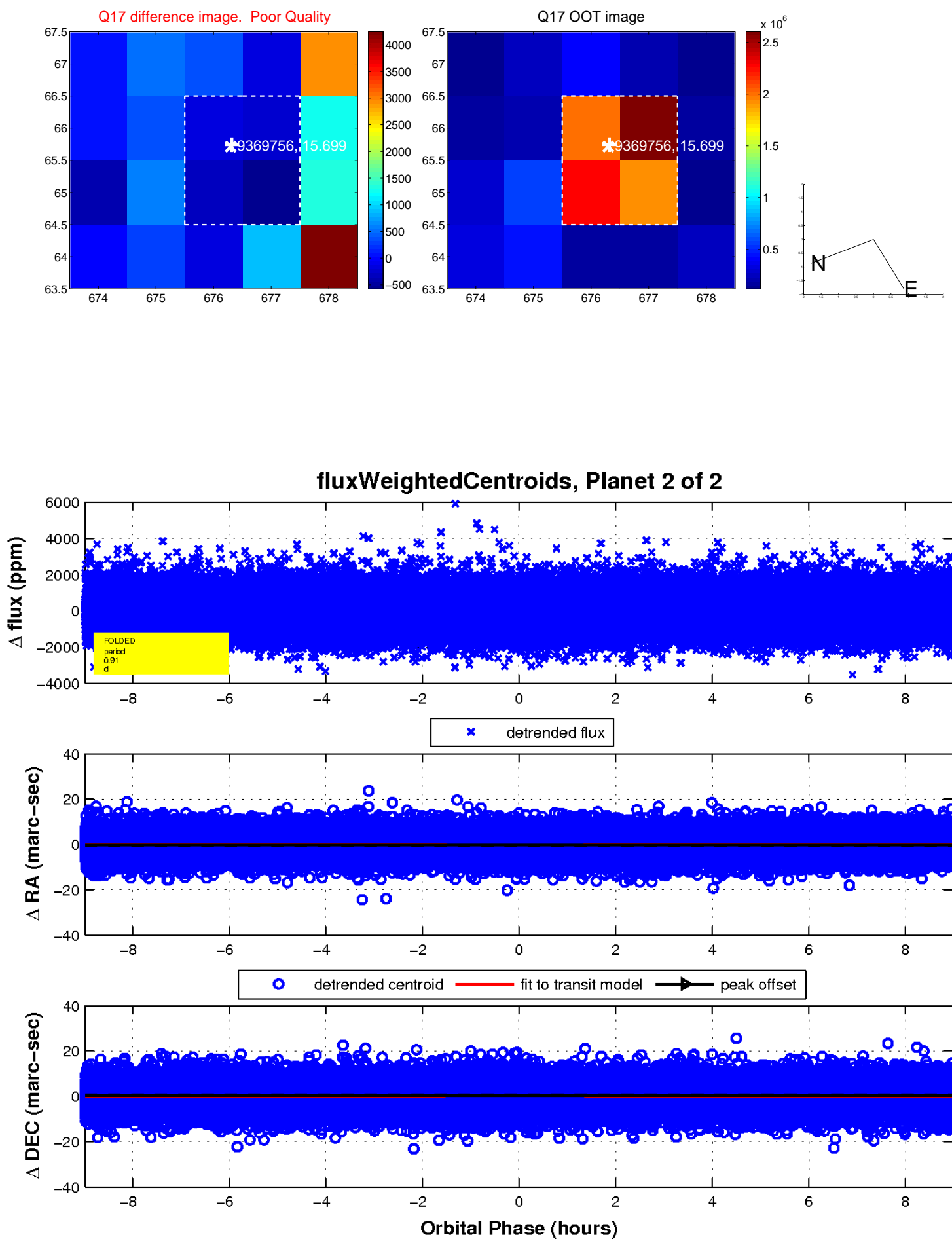
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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.



UKIRT Image

Declination

