

KIC 007516809

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})
007516809-01	OBS	No	0.967359	131.876153	136.2	0.835	10.1	11.5	0.79	5808	1.09	1895.97
007516809-02	OBS	No	0.967357	132.357420	110.1	1.179	9.6	11.4	0.79	5808	0.98	1895.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007516809-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
007516809-02	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET—HALO_GHOST

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 007516809-01

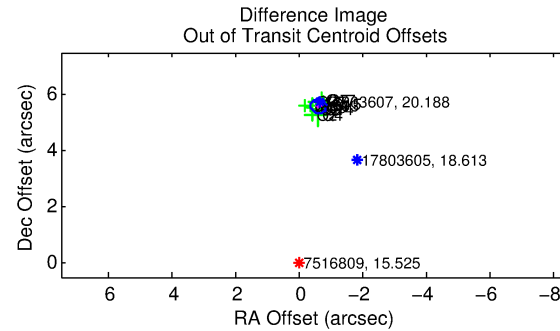
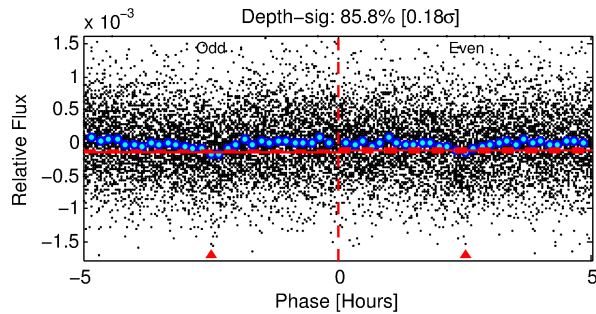
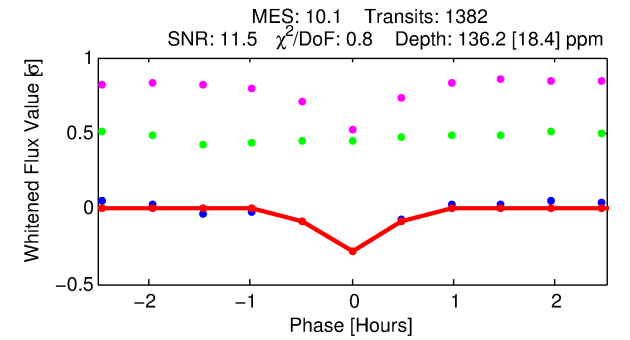
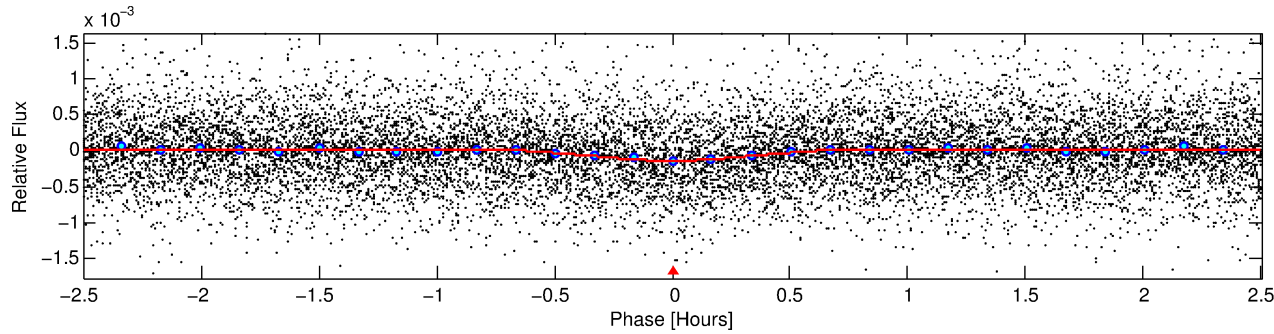
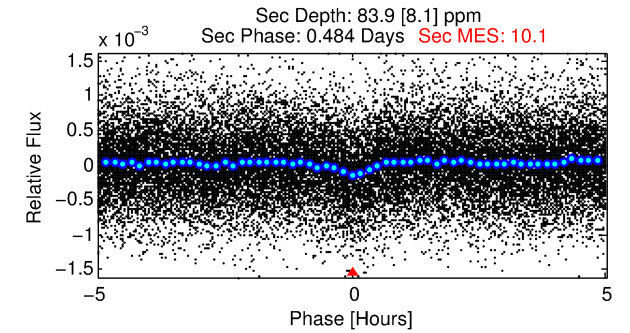
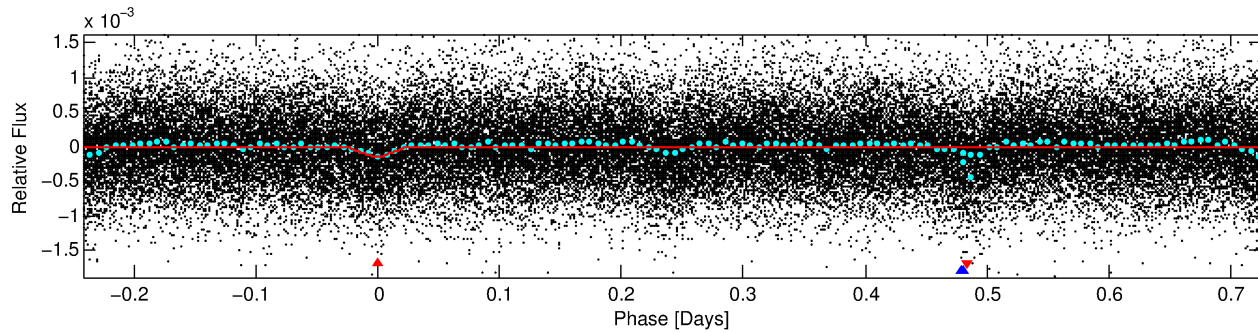
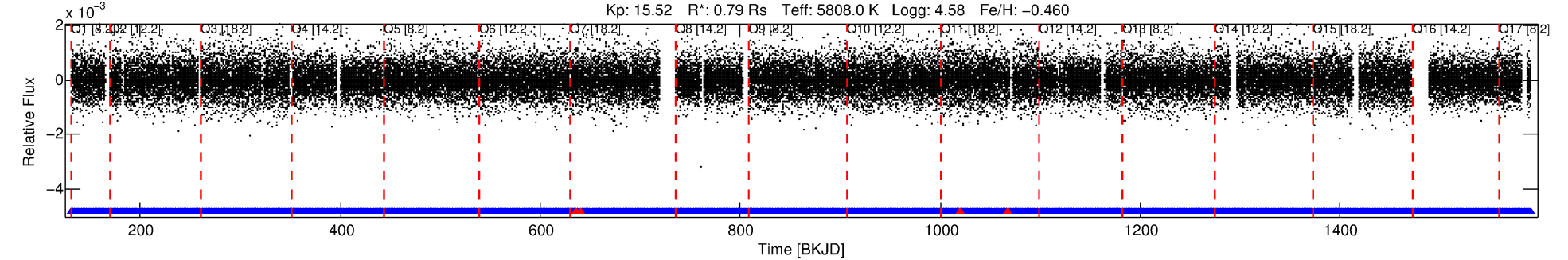
No Significant Match Found

DV One-Page Summary

KIC: 7516809 Candidate: 1 of 2 Period: 0.967 d

KOI: K03133 Corr: No Ephemeris Match

Kp: 15.52 R*: 0.79 Rs Teff: 5808.0 K Logg: 4.58 Fe/H: -0.460



DV Fit Results:

Period = 0.96736 [0.00001] d
Epoch = 131.8762 [0.0013] BKJD
Rp/R* = 0.0128 [0.0055]
a/R* = 4.27 [8.81]
b = 0.90 [0.49]
Seff = 1895.97 [537.53]
Teq = 1683 [119] K
Rp = 1.09 [0.53] Re
a = 0.0182 [0.0033] AU
Ag = 12.81 [11.69] [1.01σ]
Teffp = 4922 [1084] K [2.97σ]

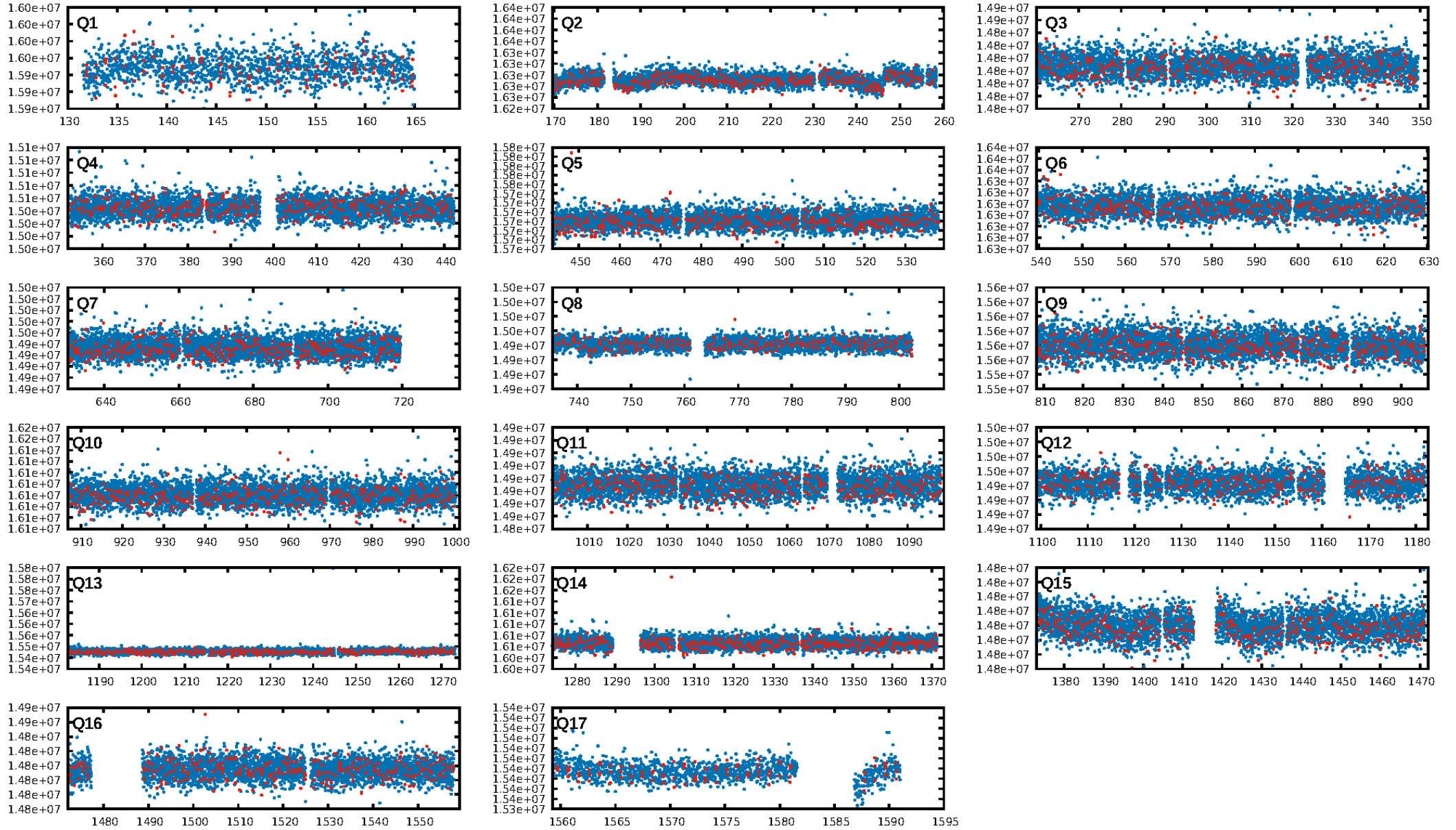
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.03e-25
RollingBand-fgt: 1.00 [1316/1320]
GhostDiagnostic-chr: -0.2186
Centroid-sig: 0.0%
Centroid-so: 3.931 arcsec [2.90σ]
OotOffset-rm: 5.617 arcsec [66.65σ]
KicOffset-rm: 5.691 arcsec [64.63σ]
OotOffset-st: 4/4/1/4 [13]
KicOffset-st: 4/4/1/4 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [17/17]

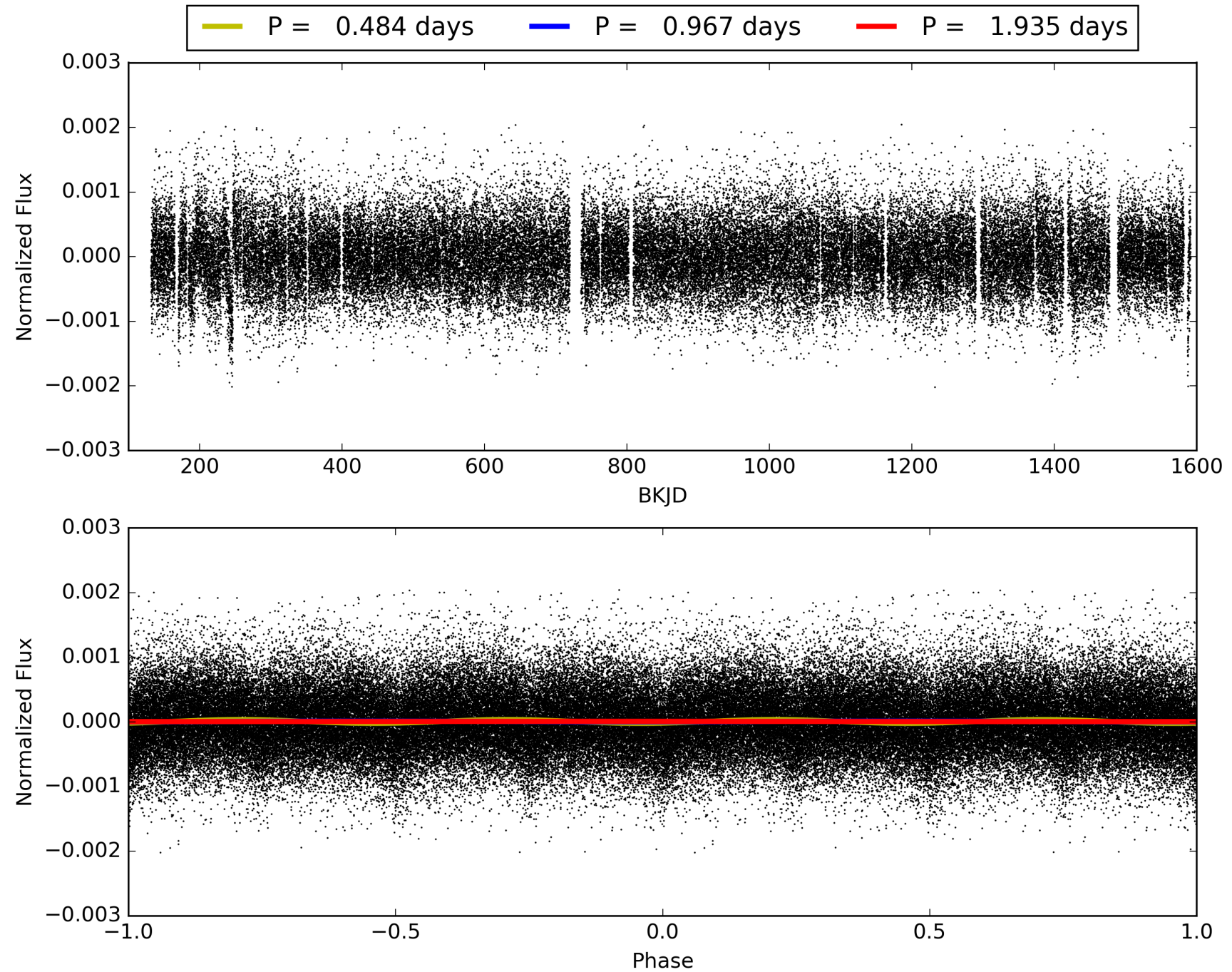
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:52:45 Z

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

TCE 007516809-01, PDC Light Curves

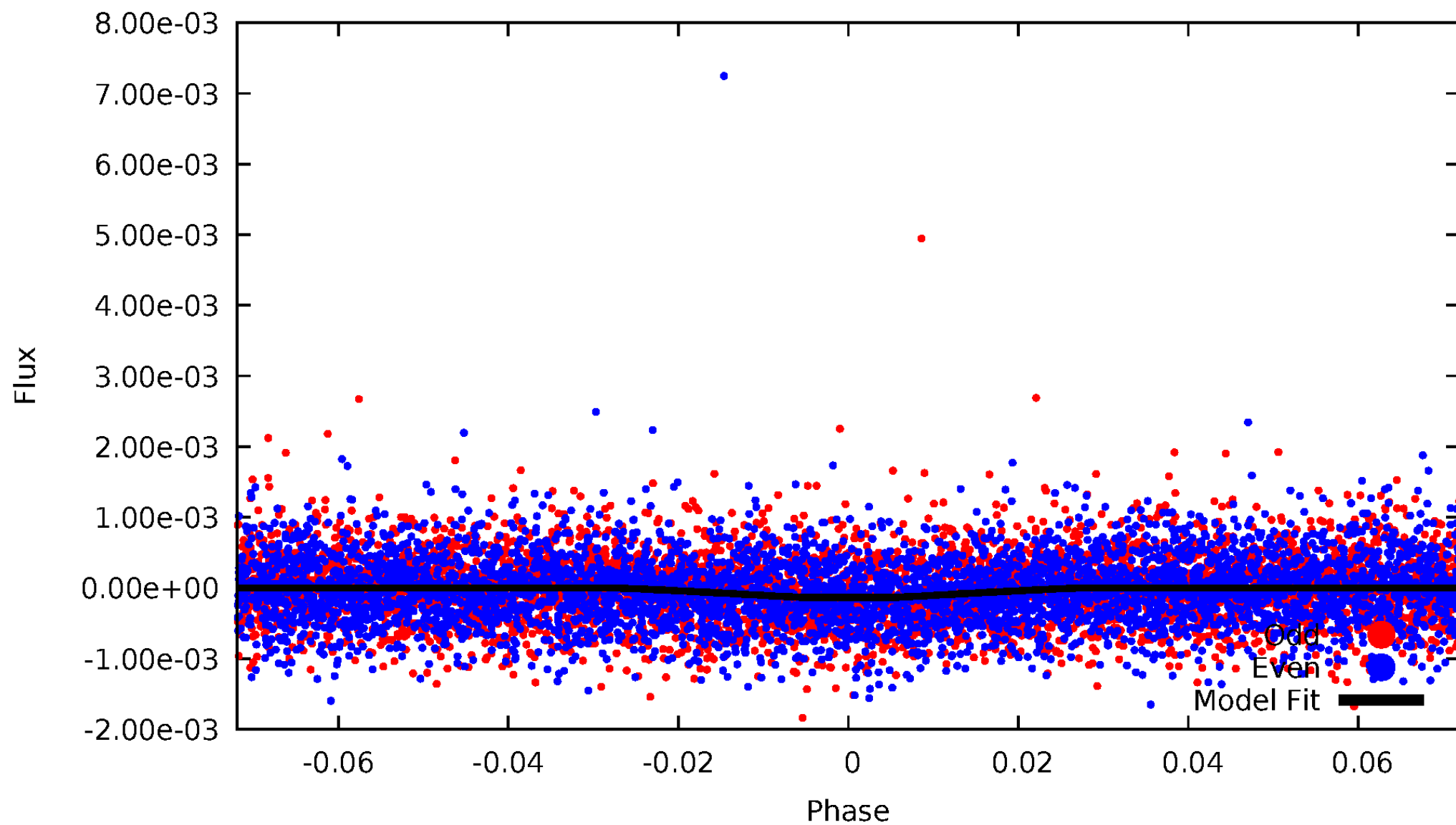


TCE 007516809-01



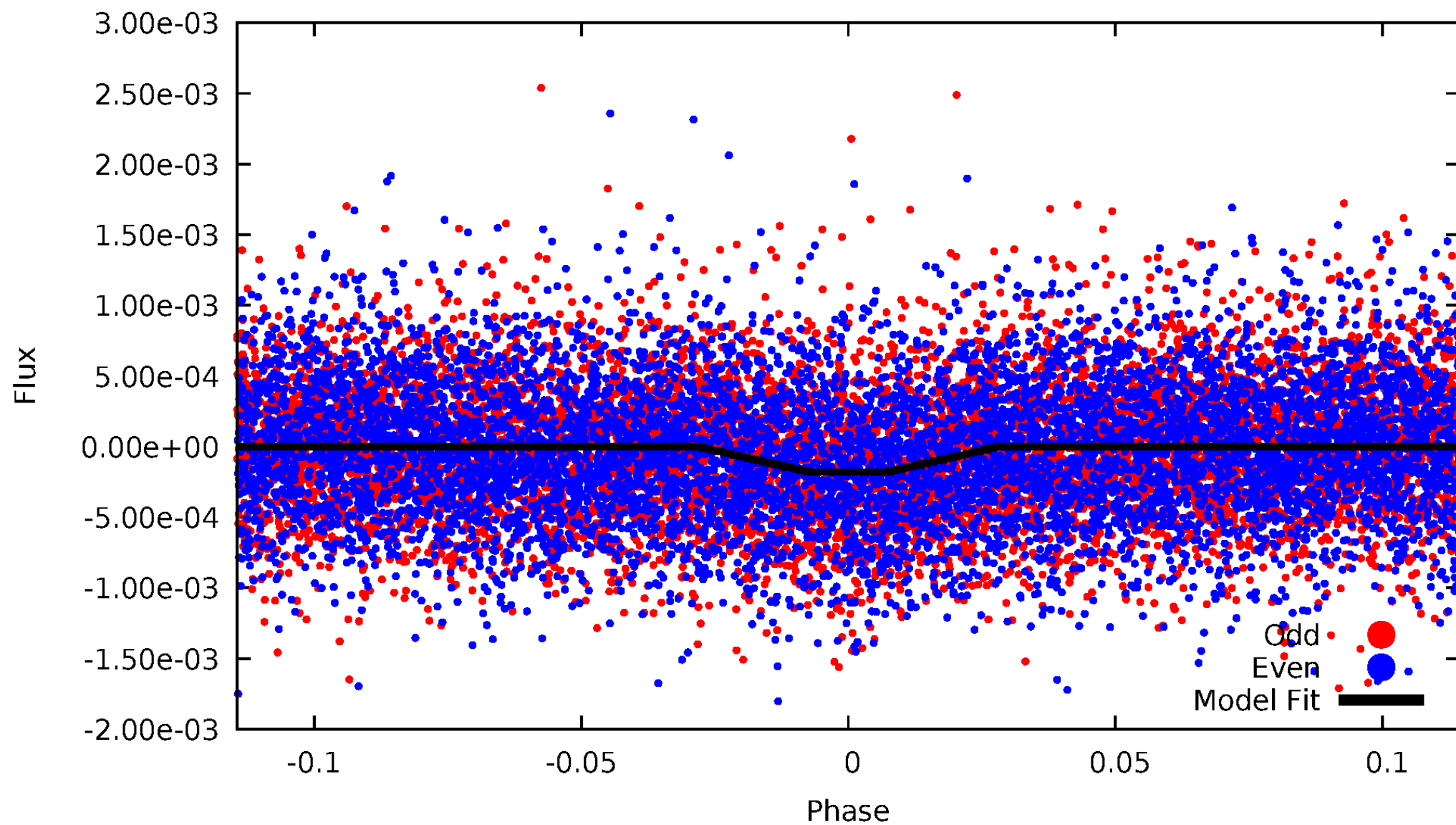
DV Odd/Even

TCE 007516809-01



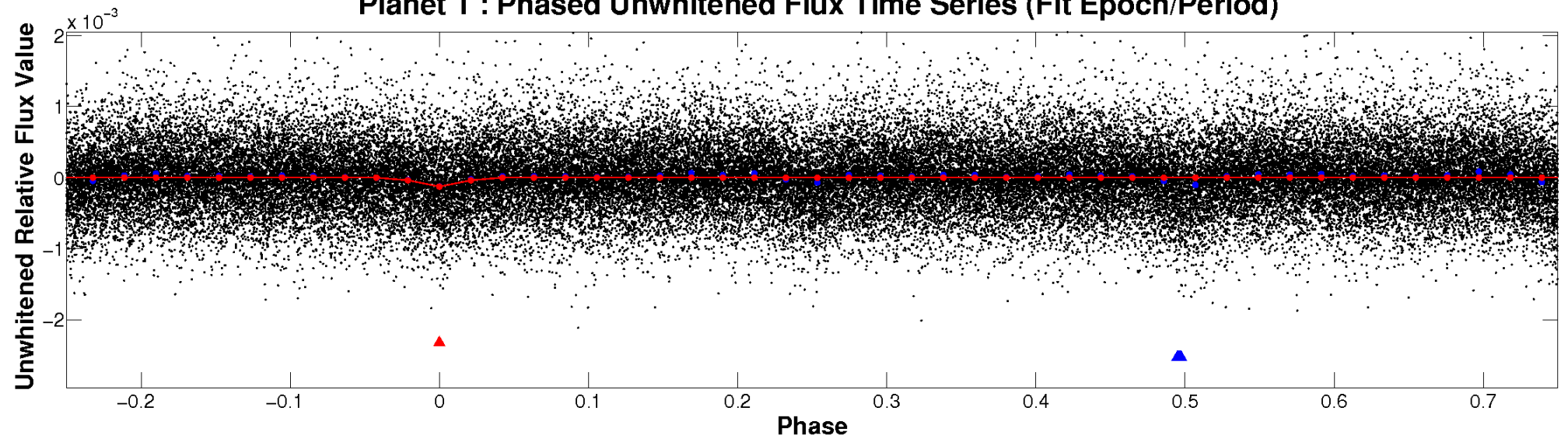
ALT Odd/Even

TCE 007516809-01

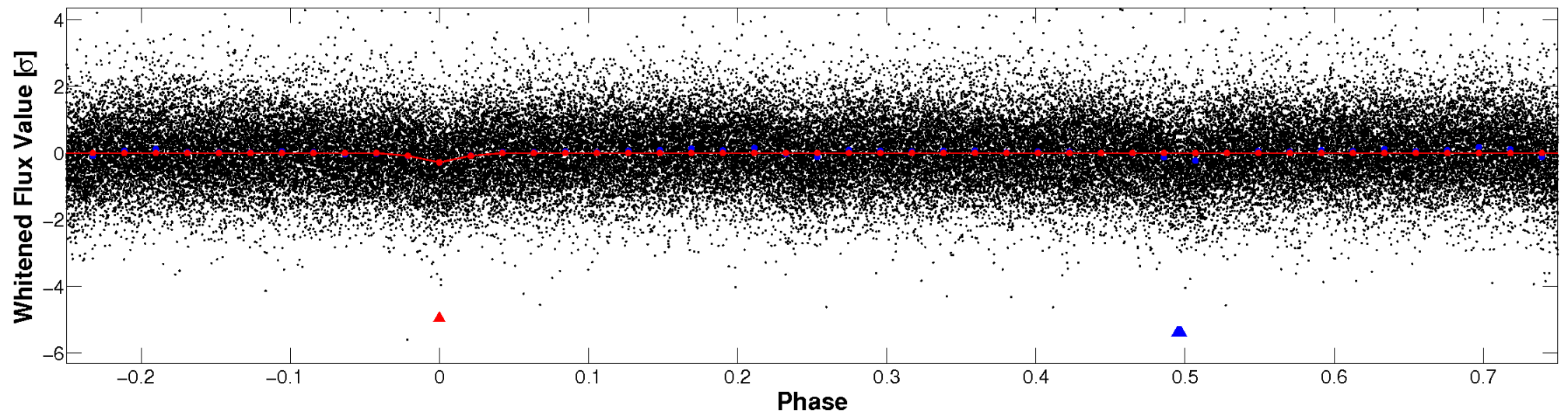


Non-Whitened Vs. Whitened Light Curve

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

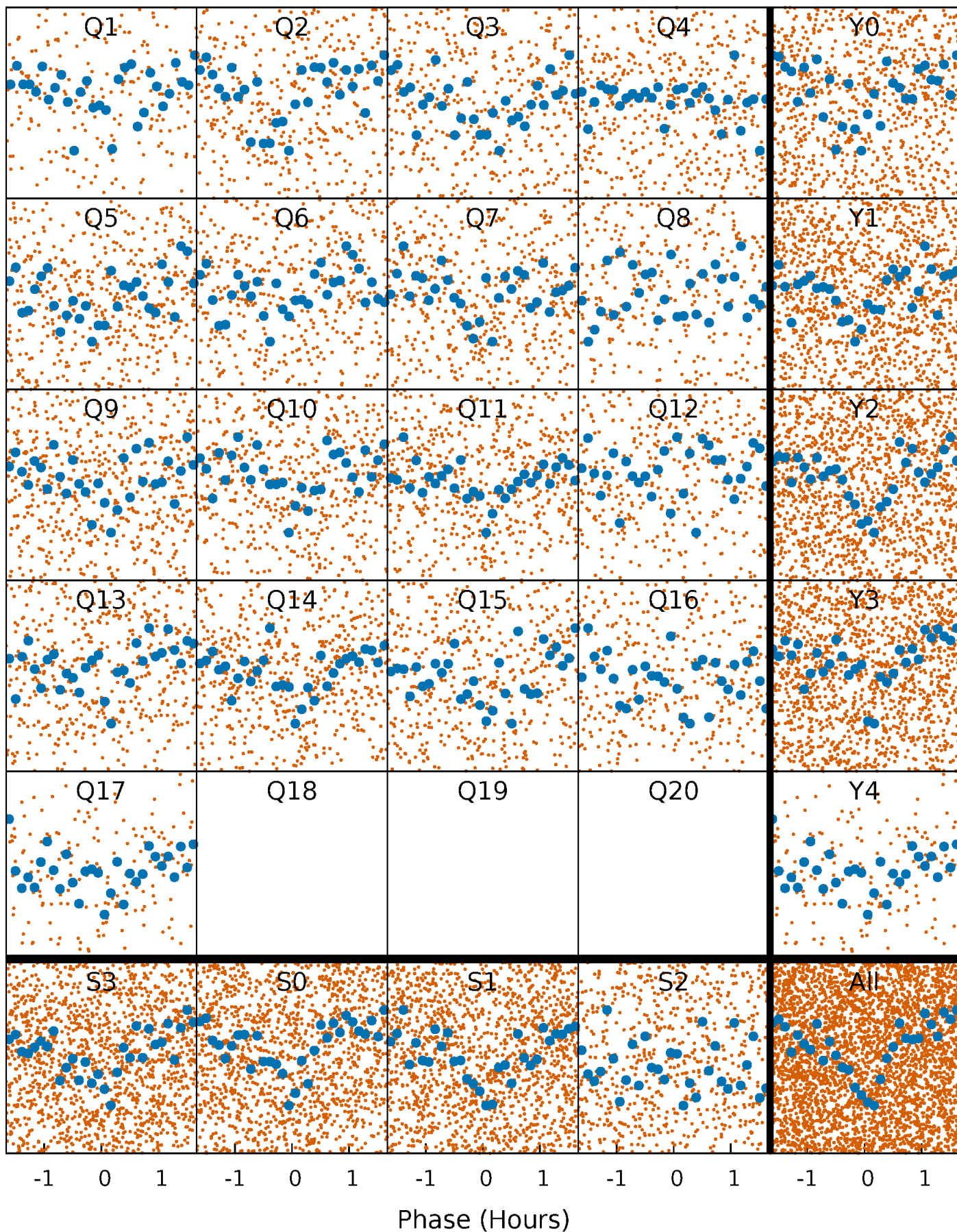


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



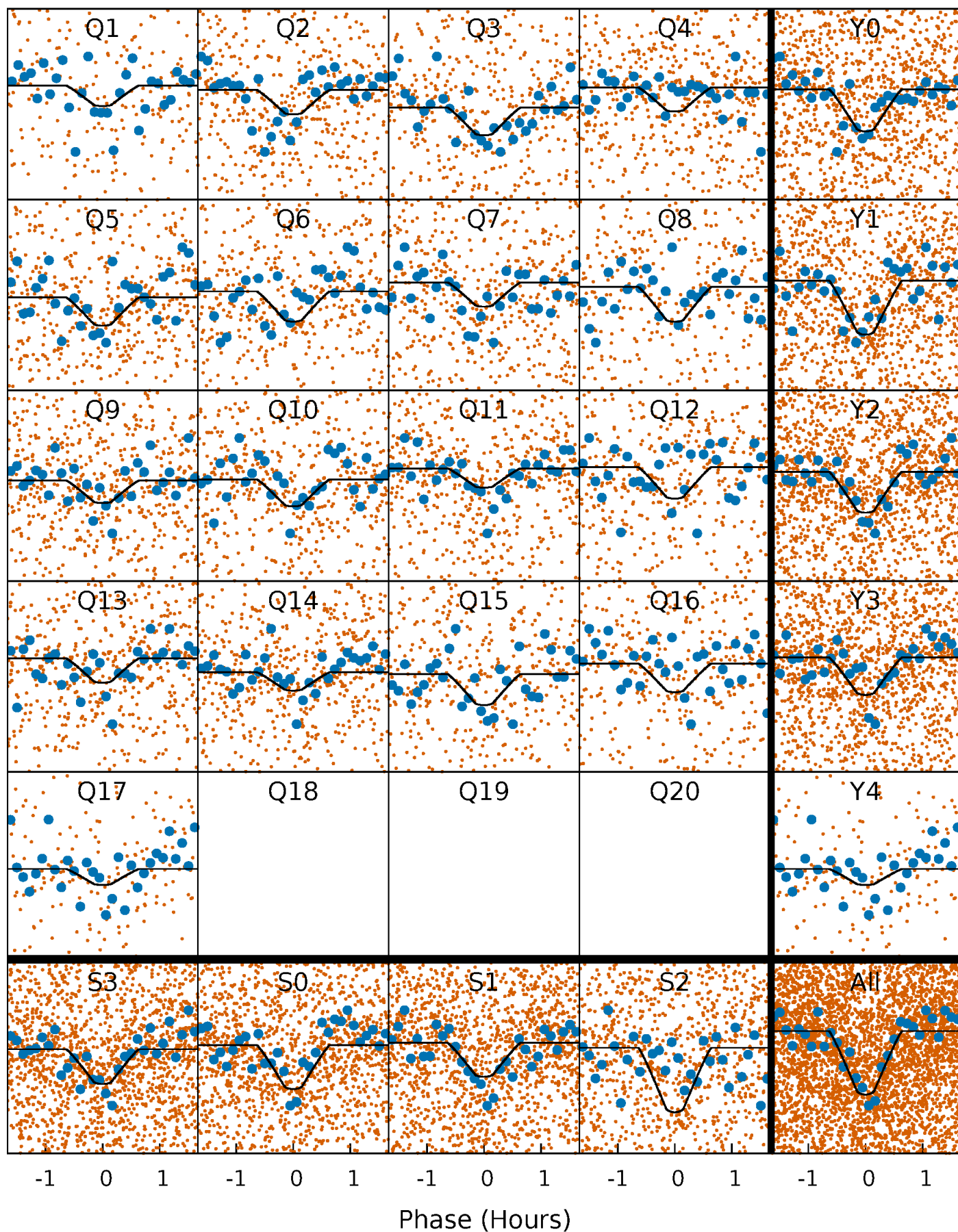
PDC Quarter-Phased Transit Curves

TCE 007516809-01 P= 0.967359 Days $T_0=131.876153$ (BKJD)



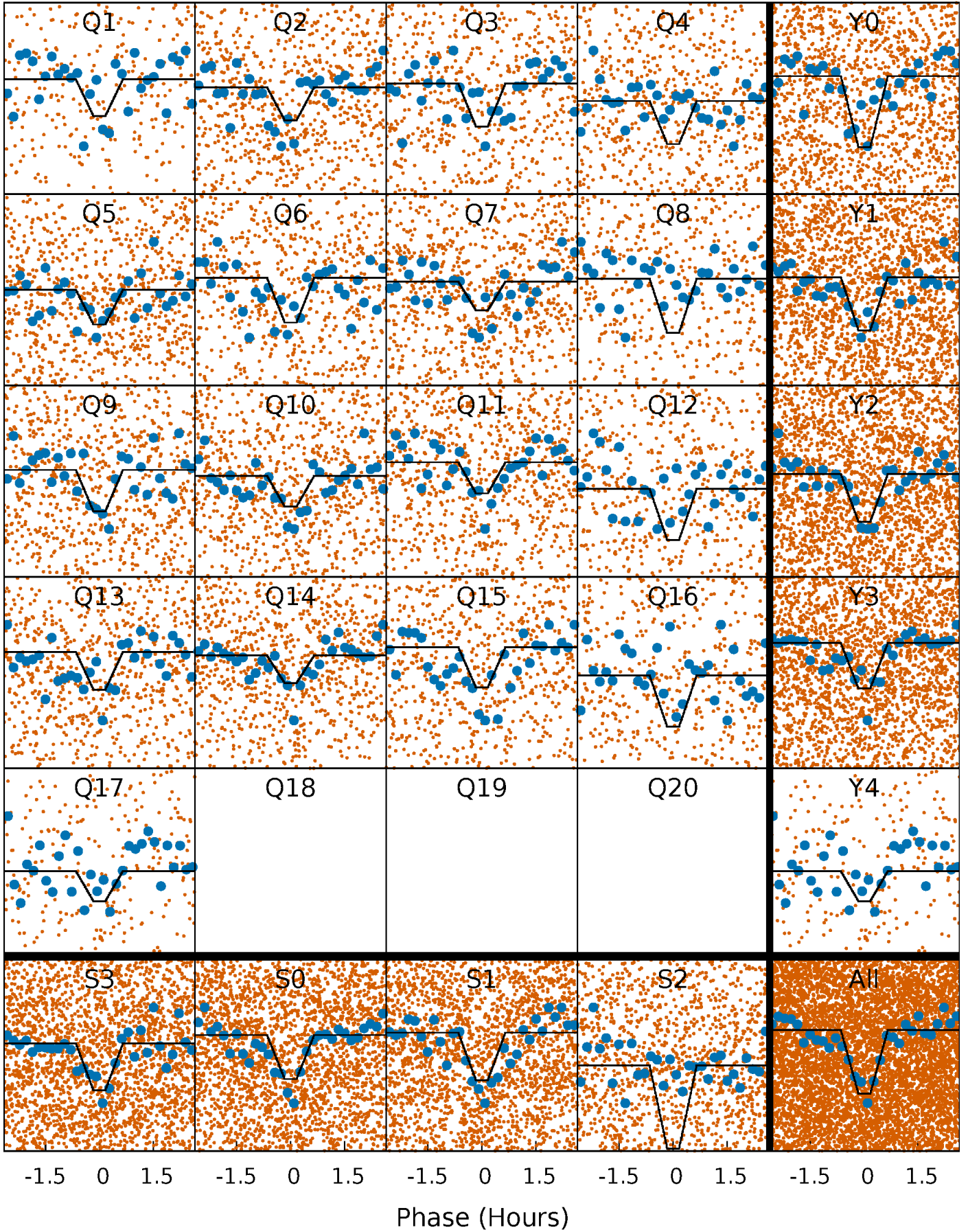
DV Quarter-Phased Transit Curves

TCE 007516809-01 P= 0.967359 Days $T_0=131.876153$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

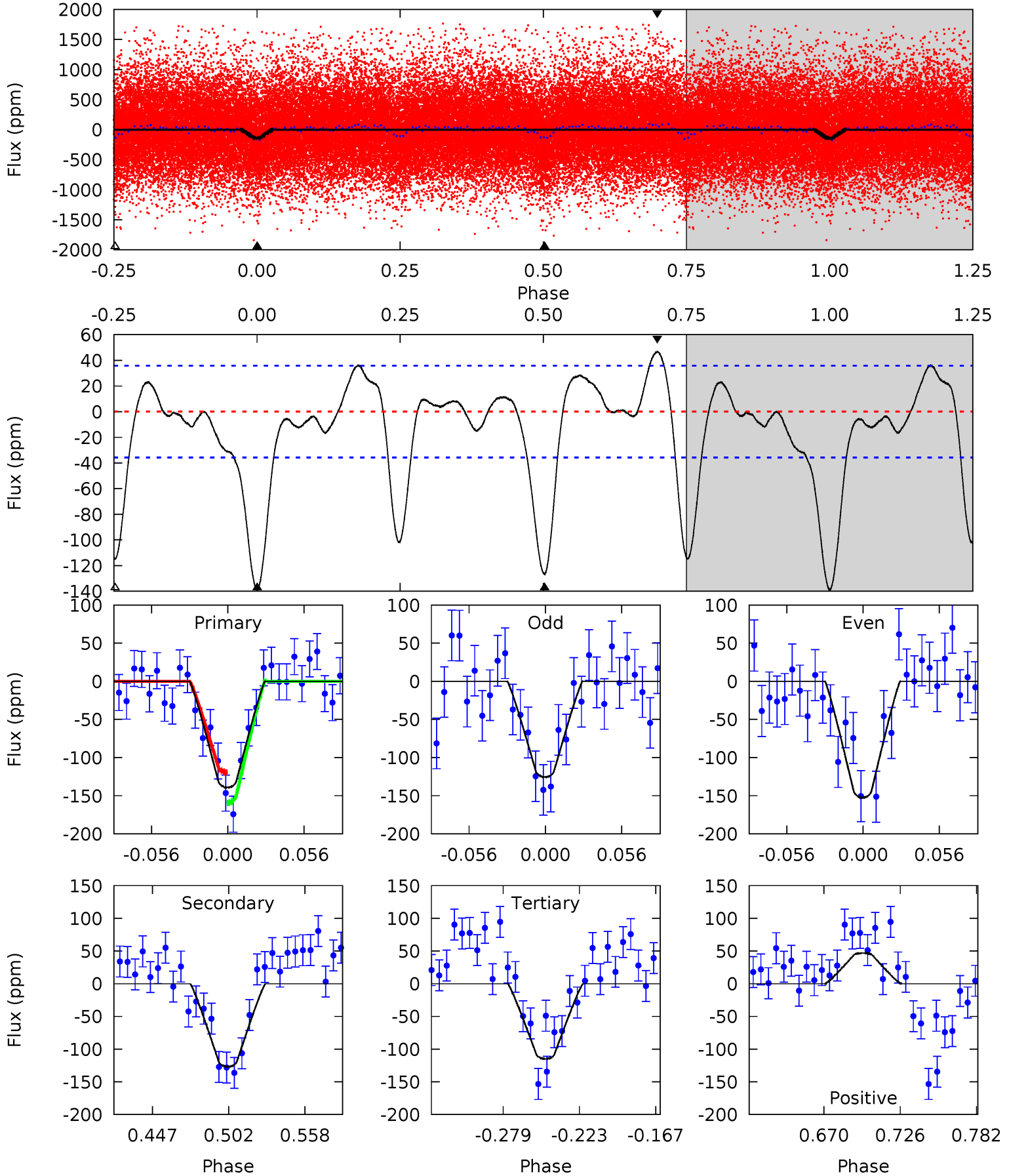
TCE 007516809-01 P= 0.967363 Days $T_0=131.871833$ (BKJD)



DV Model-Shift Uniqueness Test

007516809-01, P = 0.967359 Days, E = 130.908794 Days

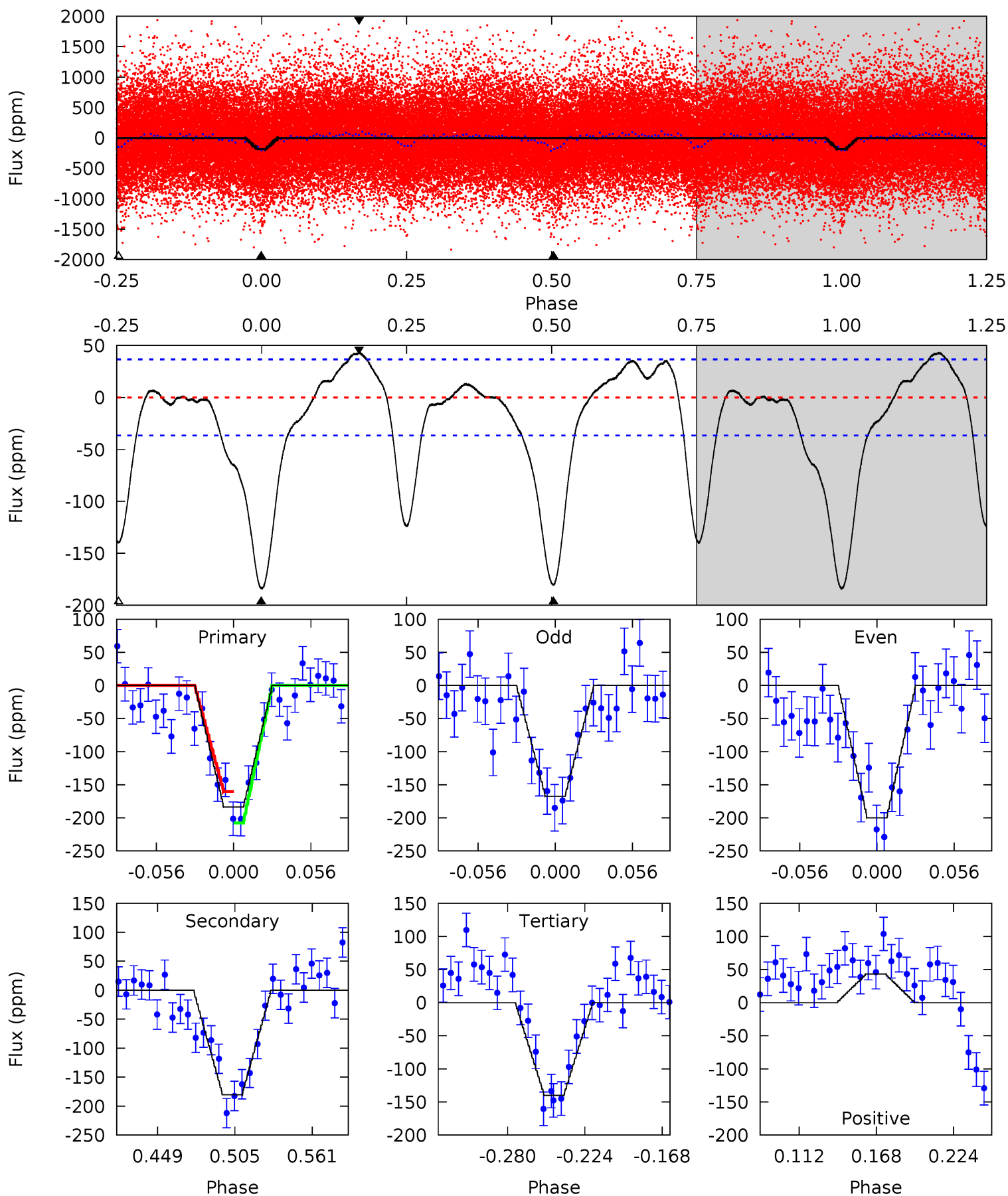
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	16.6	15.1	6.14	4.69	1.91	4.16	3.20	12.1	1.58	10.5	1.77	0.95	0.25	2.61



Alt Model-Shift Uniqueness Test

007516809-01, P = 0.967363 Days, E = 130.904470 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.5	23.0	17.9	5.49	4.68	1.91	5.14	5.63	18.0	5.16	17.5	2.07	0.98	0.19	3.03



Stellar Parameters For KIC 007516809

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5808^{+157}_{-157}	$4.583^{+0.036}_{-0.144}$	$-0.460^{+0.300}_{-0.300}$	$0.786^{+0.166}_{-0.059}$	$0.871^{+0.085}_{-0.095}$	$2.528^{+0.477}_{-1.023}$
	+3%/-3%	+1%/-3%	+65%/-65%	+21%/-8%	+10%/-11%	+19%/-40%
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 007516809-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-127 ± 8	$1.12^{+0.50}_{-0.46}$	2394^{+118}_{-97}	5499^{+1633}_{-819}	19^{+33}_{-10}
Alt.	-180 ± 8	$1.24^{+0.49}_{-0.52}$	2393^{+124}_{-95}	5696^{+1820}_{-807}	21^{+42}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

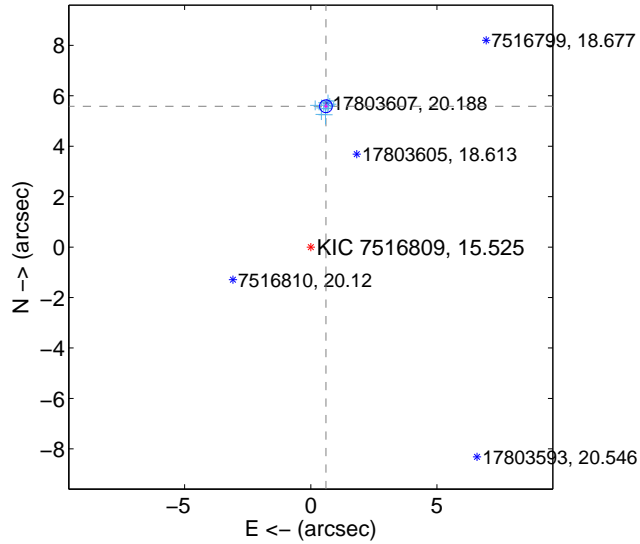
Supplemental centroid analysis for 007516809-01. Kepler magnitude: 15.53. Transit SNR 11.52

There are 13 quarters with good PRF difference image offsets

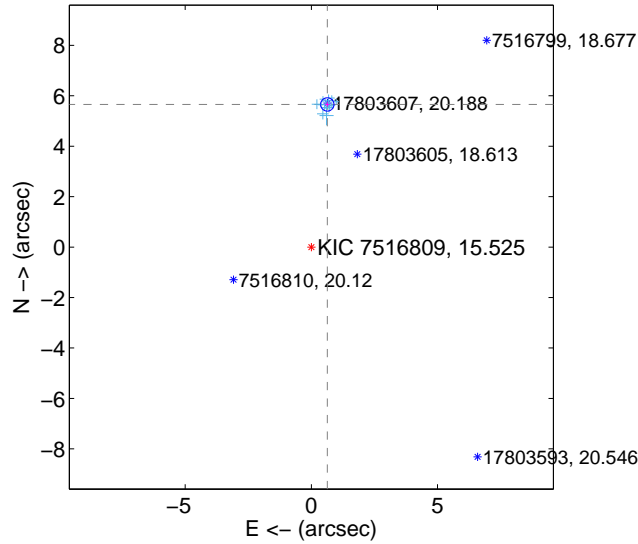
The direct PRF centroid is offset from the target star catalog position by about 0.00 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.617 \pm 0.084	66.65	-0.601 \pm 0.083	5.585 \pm 0.084
PRF-fit source offset from KIC position	5.691 \pm 0.088	64.63	-0.633 \pm 0.086	5.656 \pm 0.087
photometric centroid source offset	3.93 \pm 1.36	2.90	-1.74 \pm 1.24	3.52 \pm 1.38

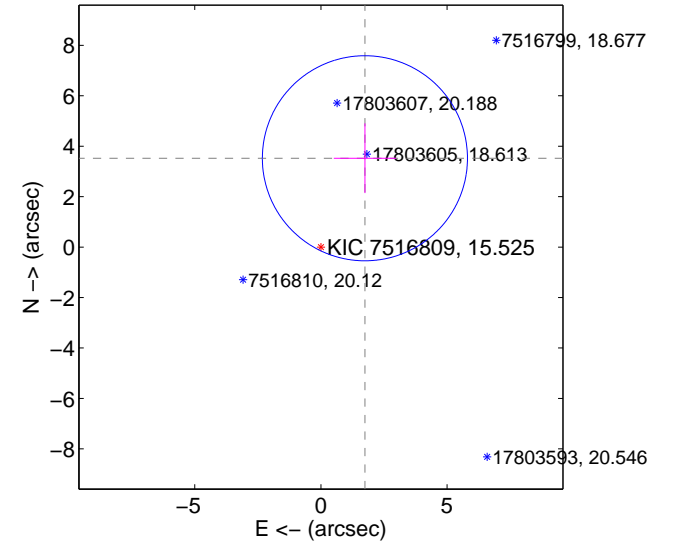
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

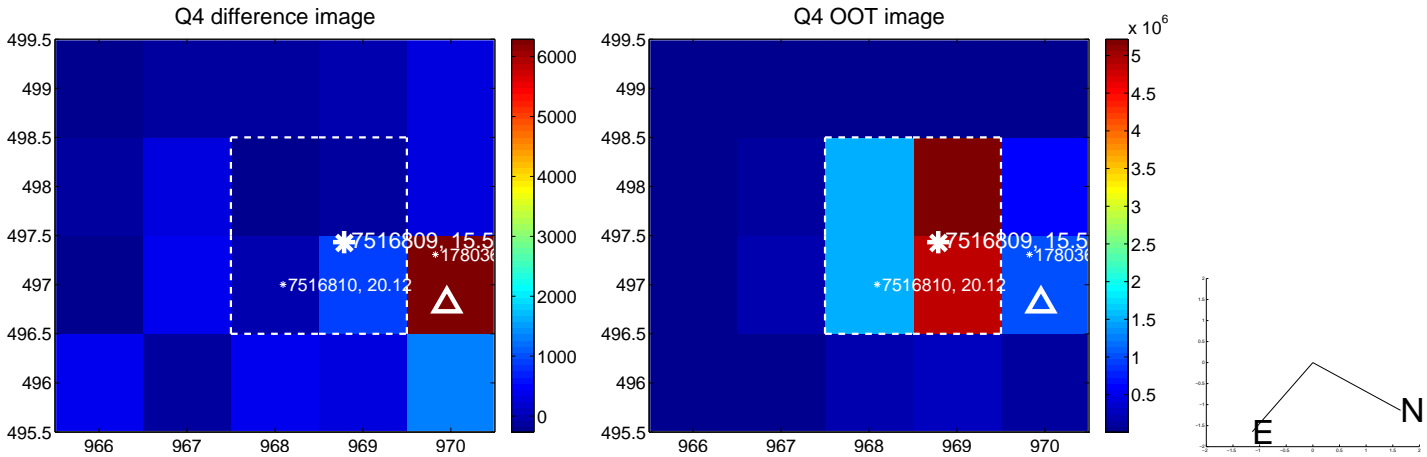
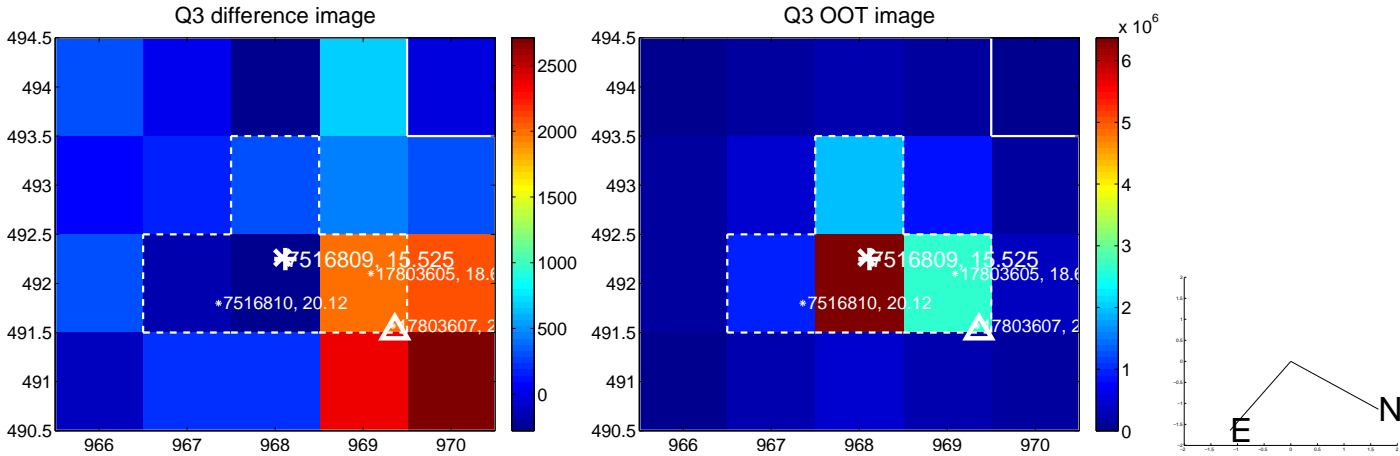
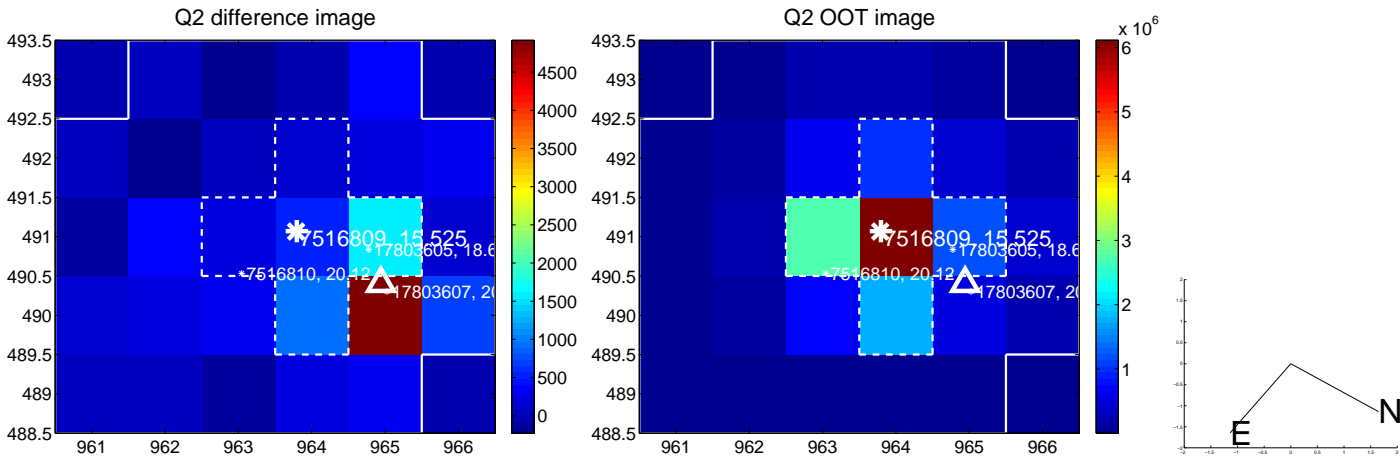
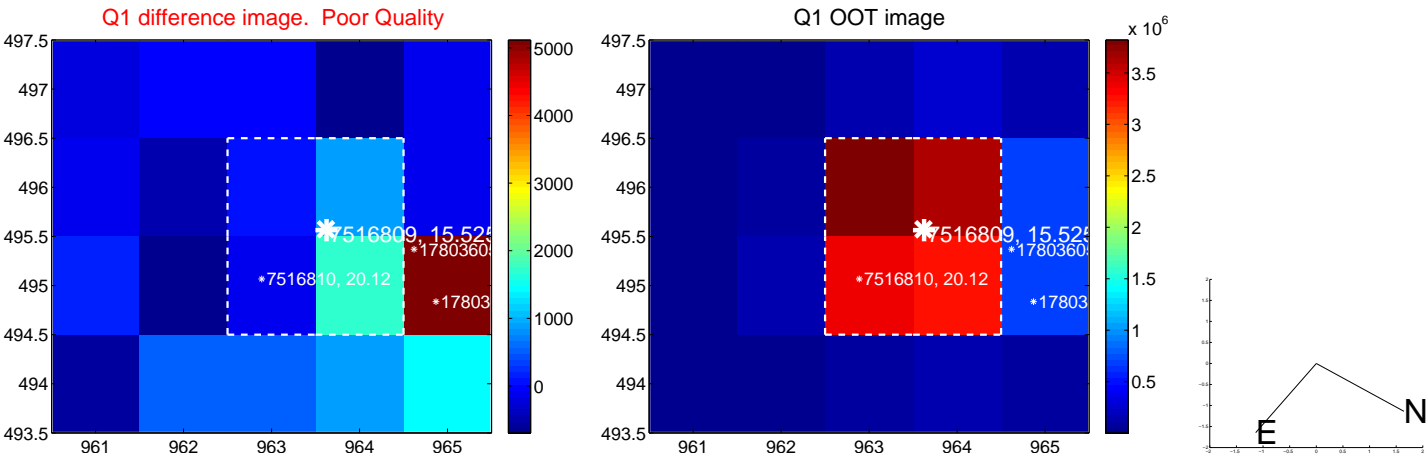


offset from photometric centroids

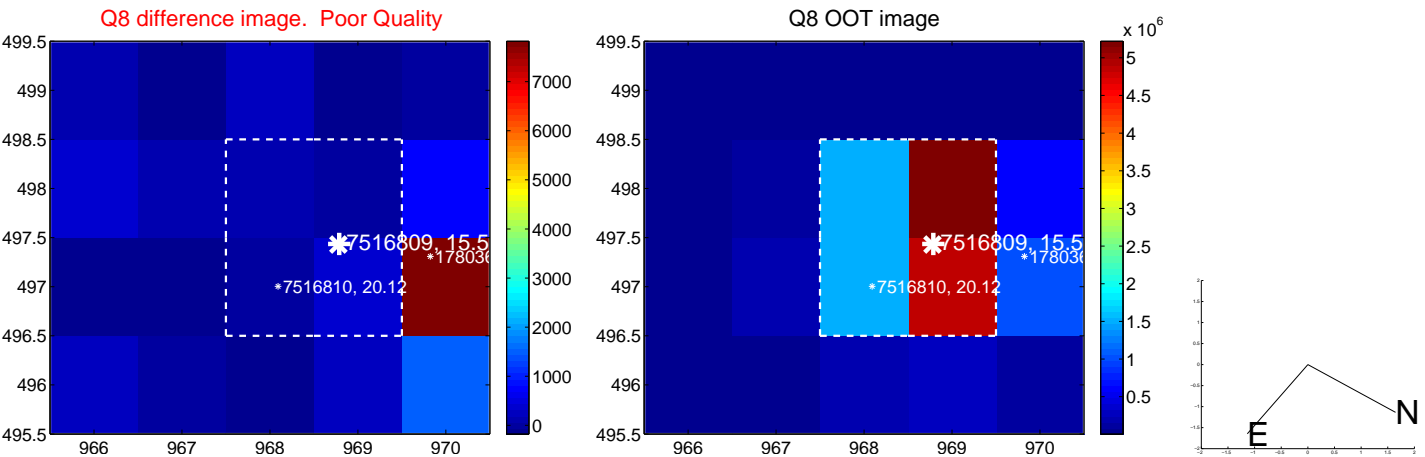
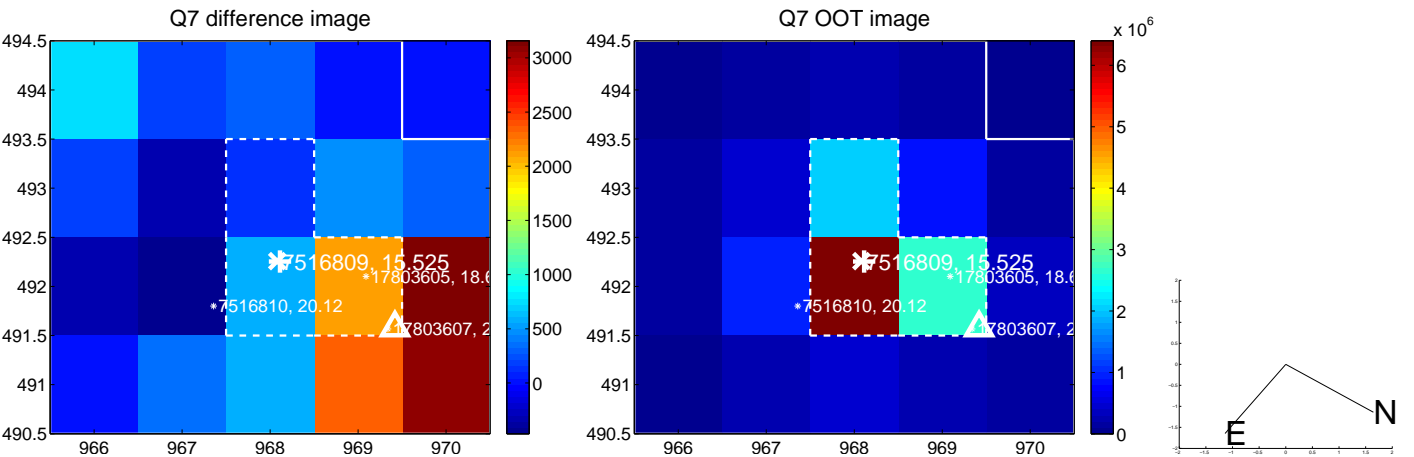
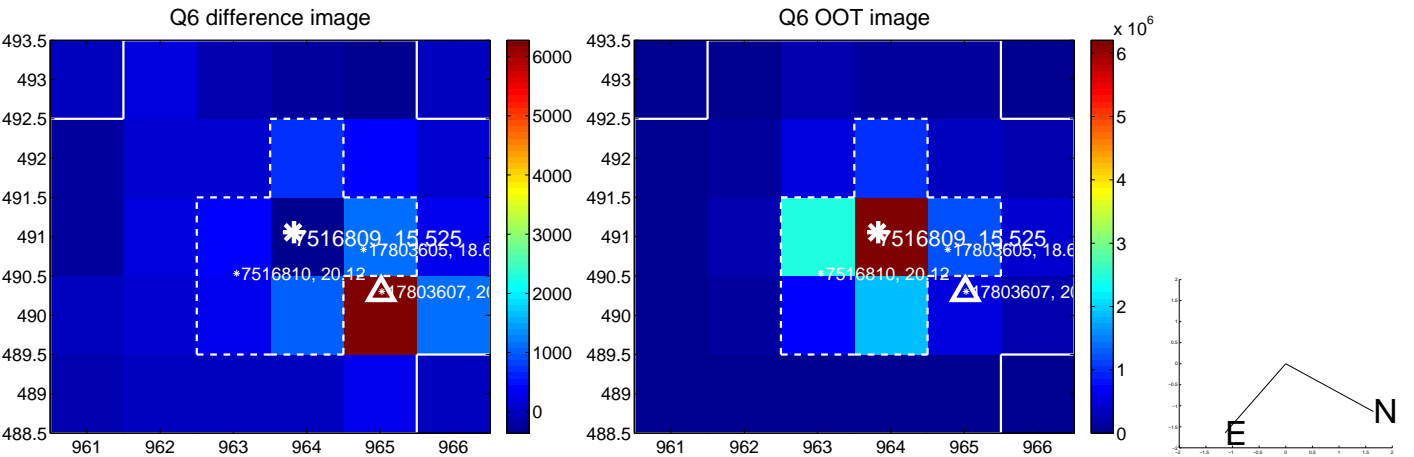
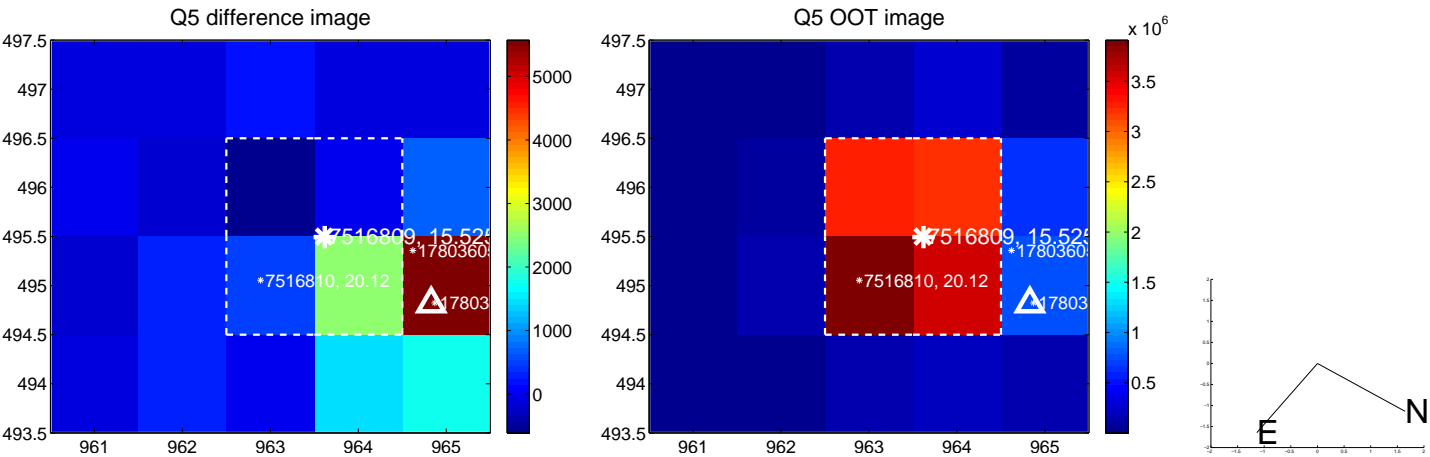


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

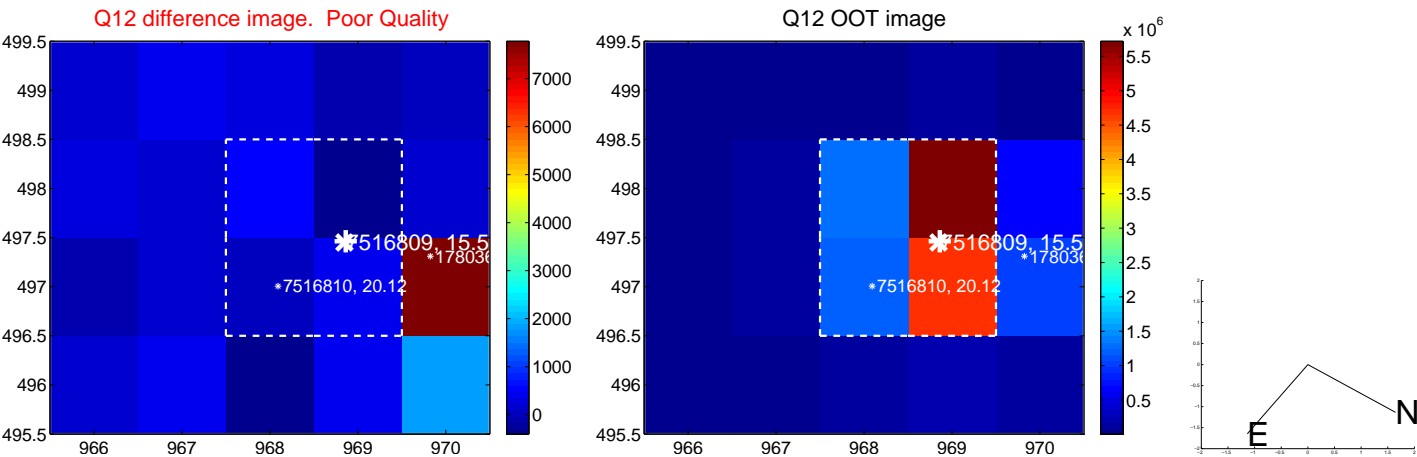
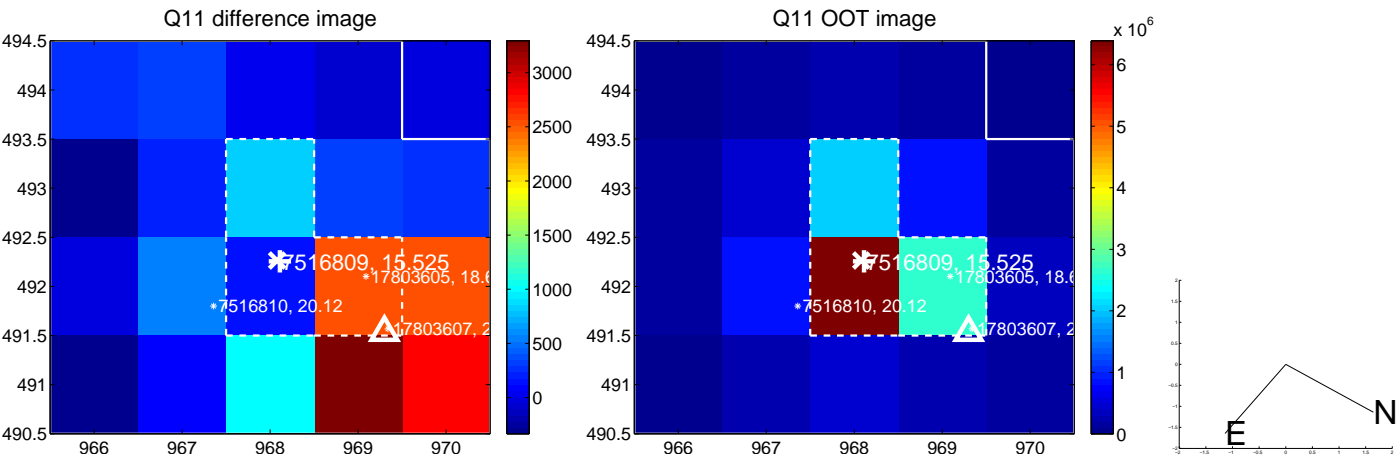
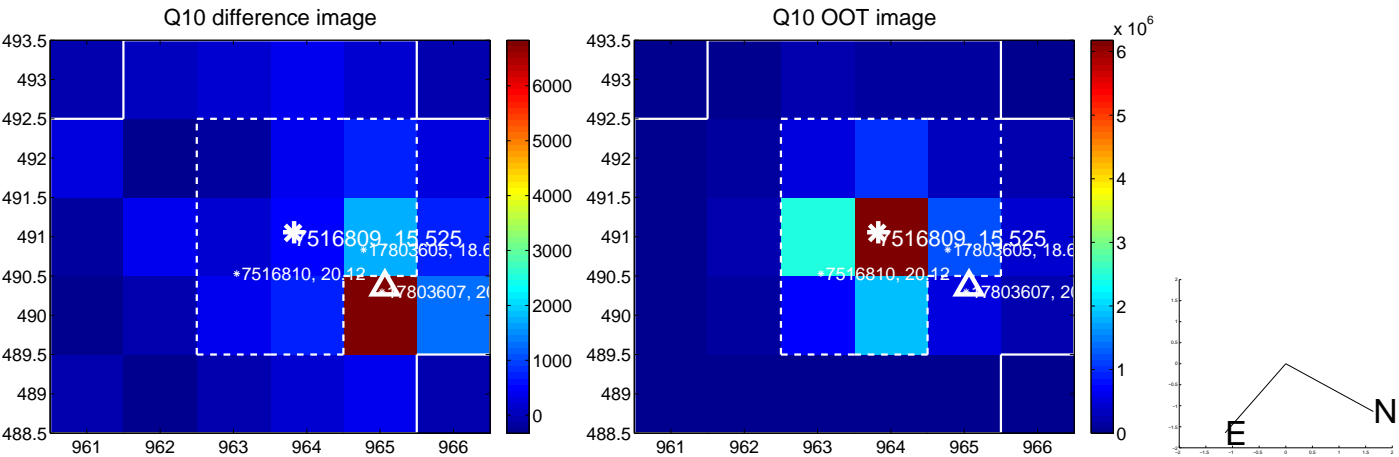
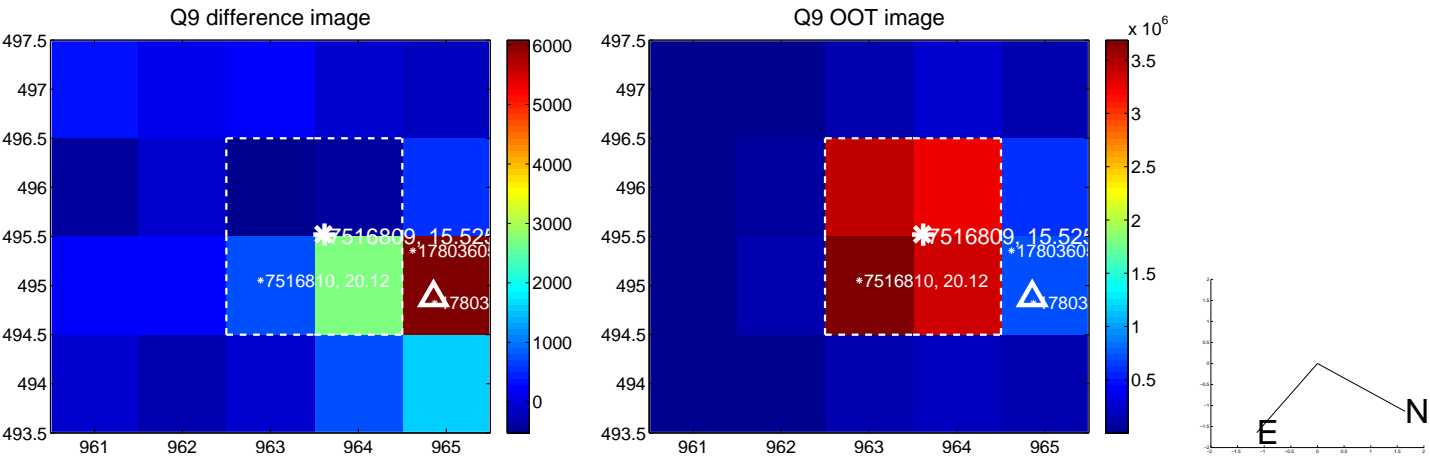
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



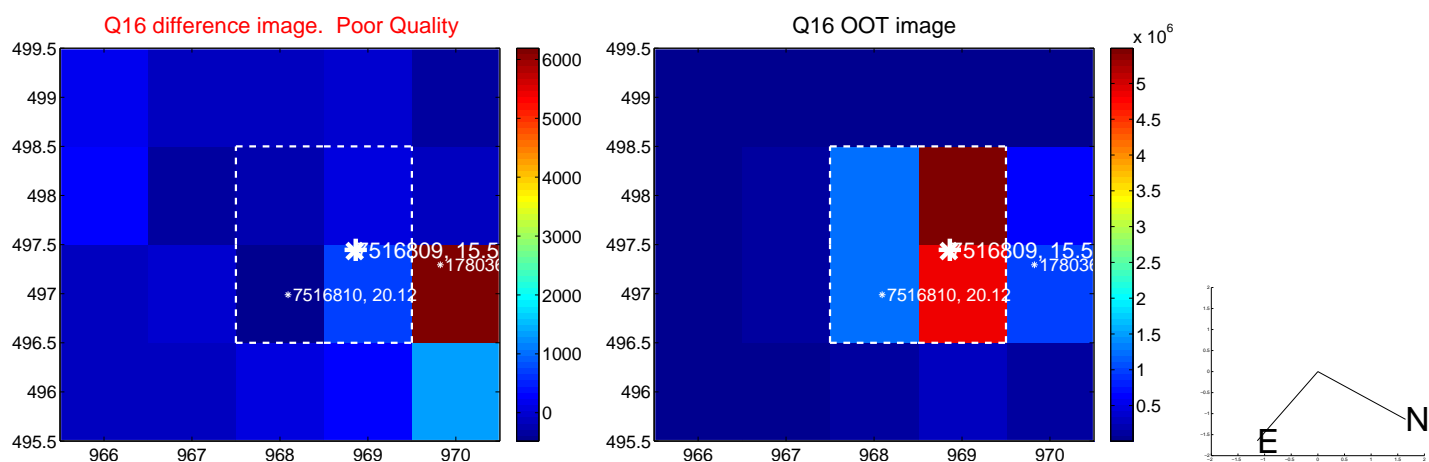
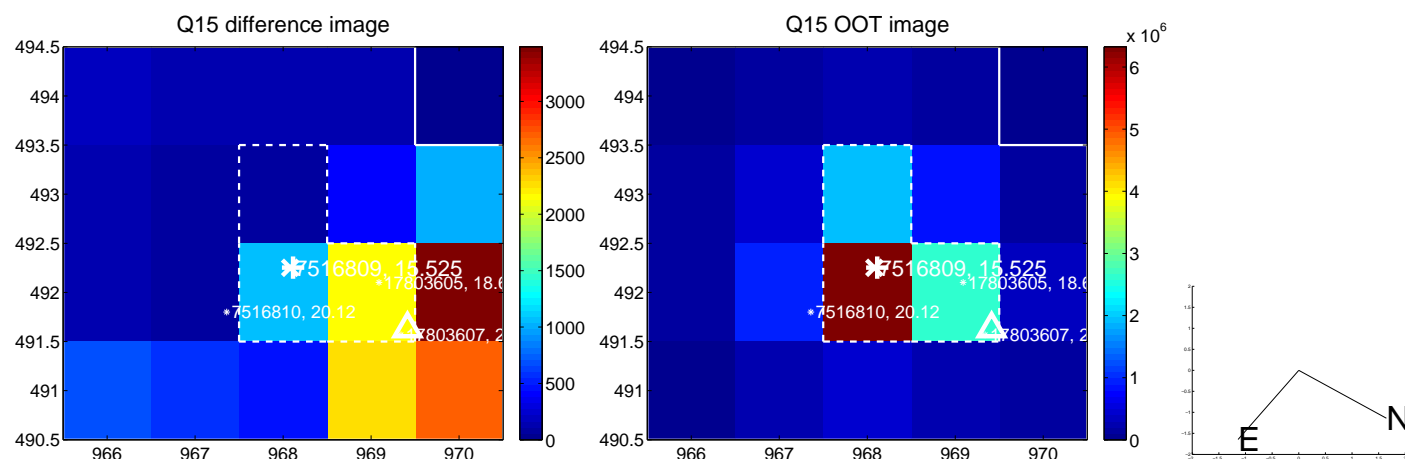
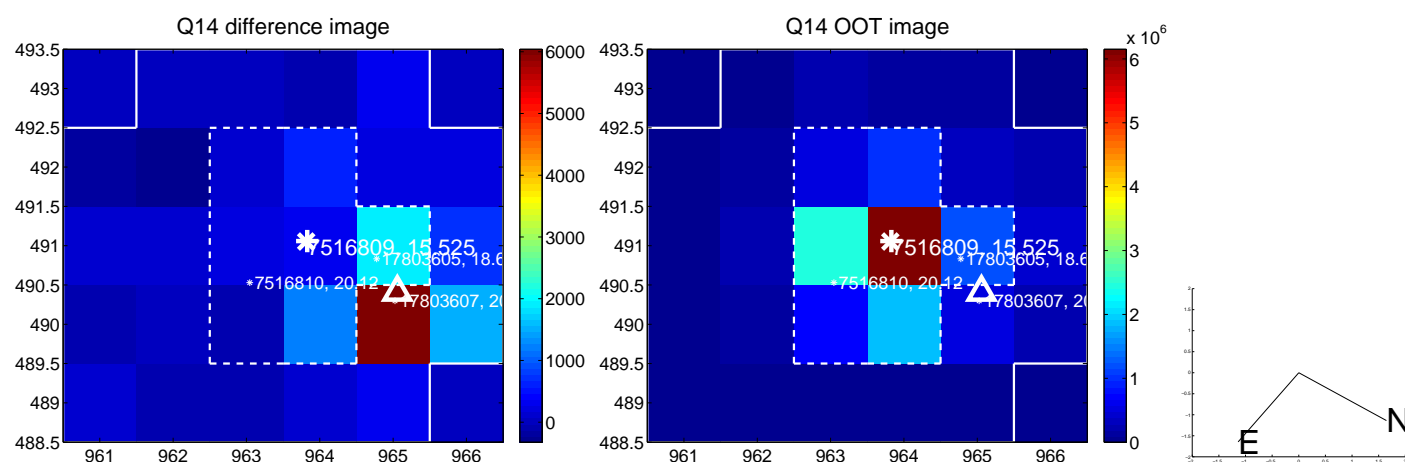
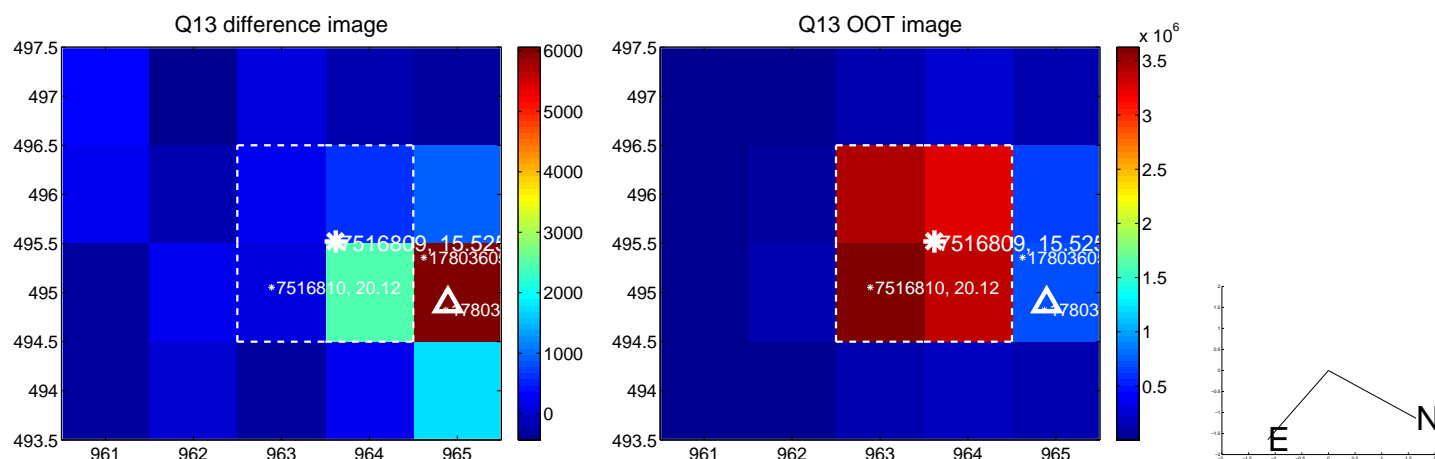
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



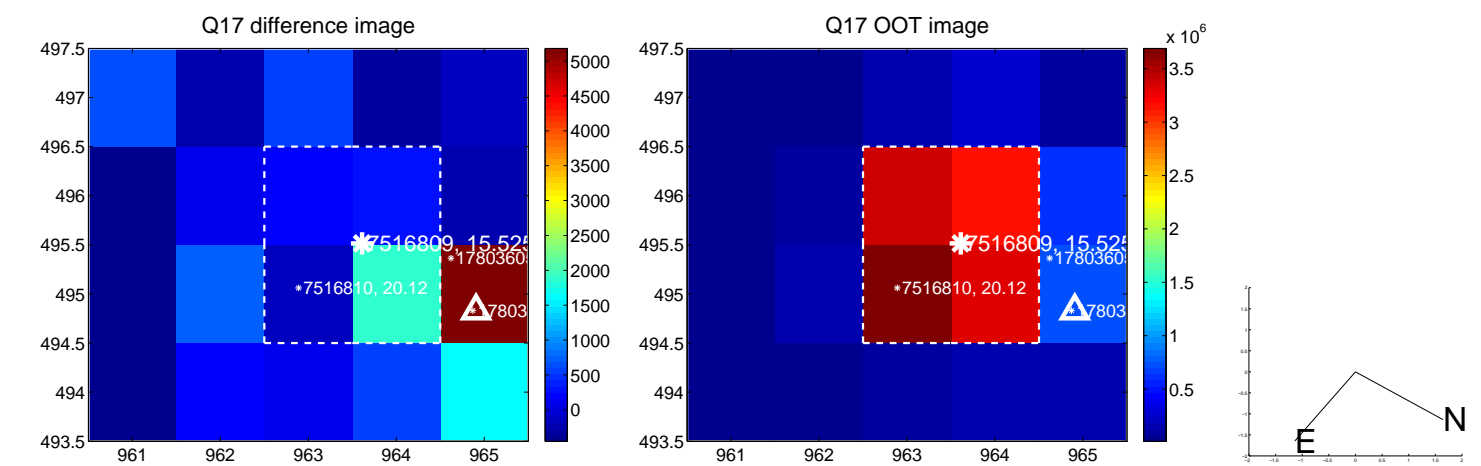
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



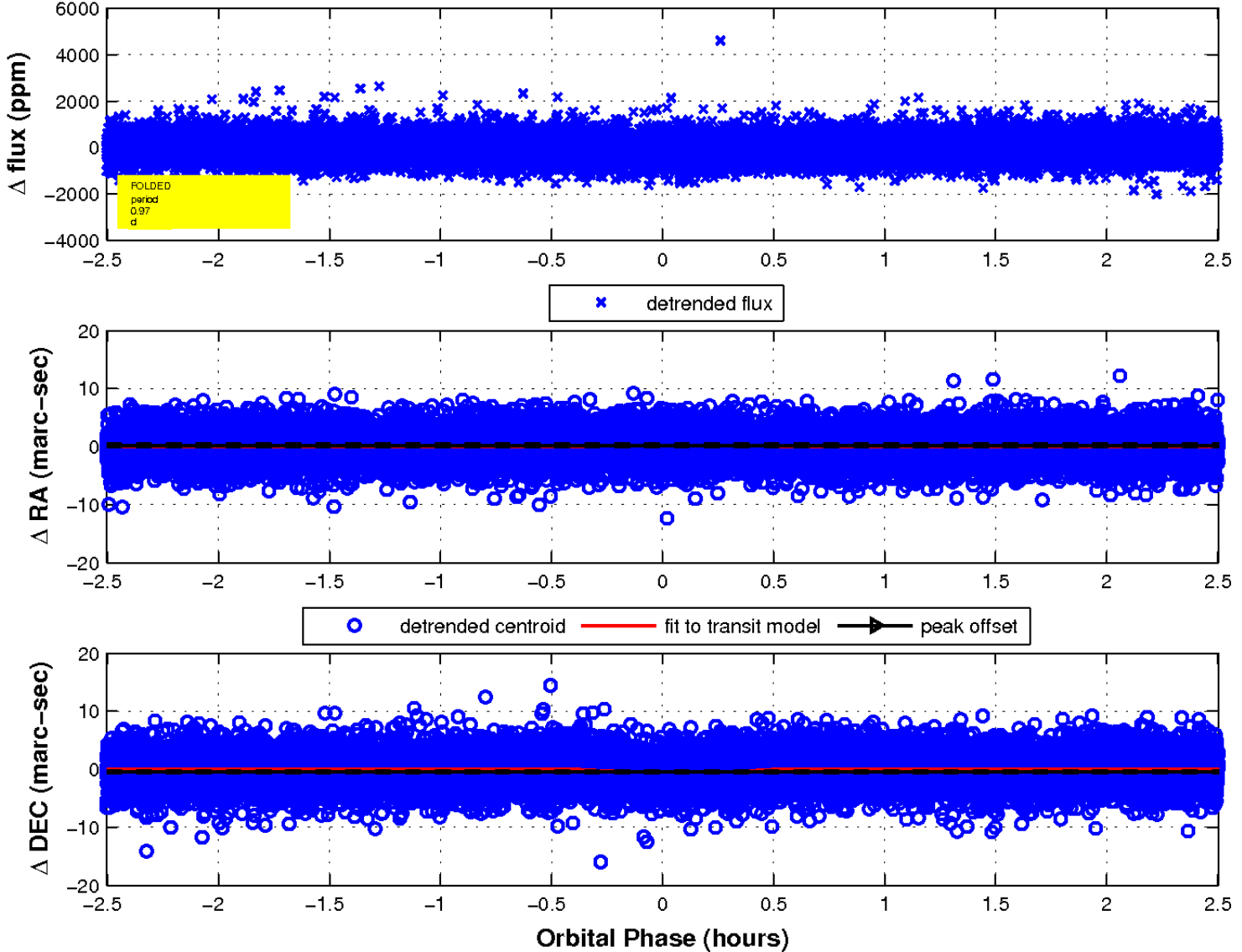
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

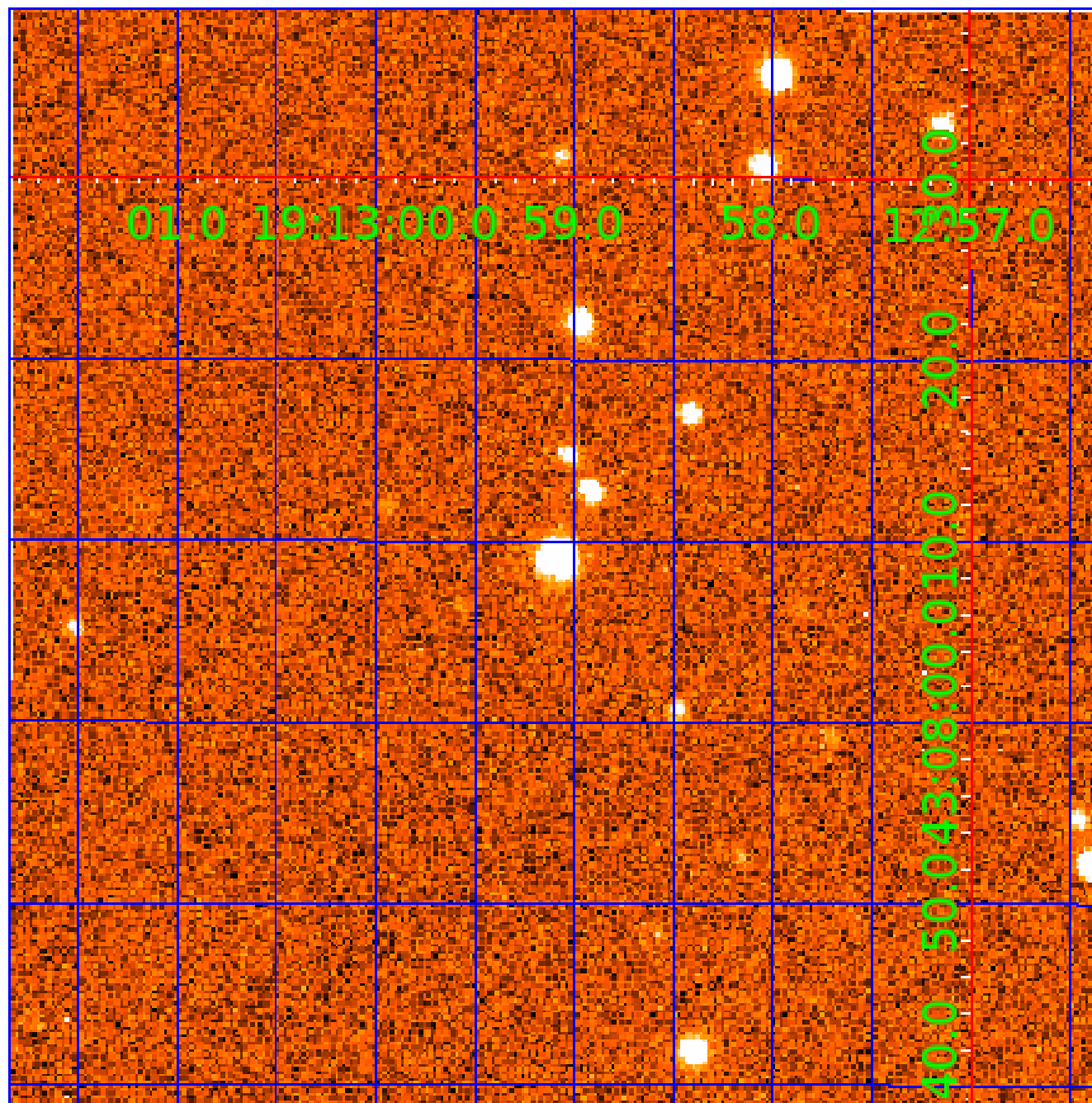


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 007516809

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})
007516809-01	OBS	No	0.967359	131.876153	136.2	0.835	10.1	11.5	0.79	5808	1.09	1895.97
007516809-02	OBS	No	0.967357	132.357420	110.1	1.179	9.6	11.4	0.79	5808	0.98	1895.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007516809-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
007516809-02	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET—HALO_GHOST

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 007516809-02

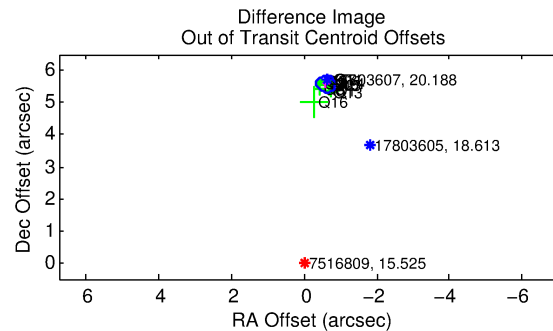
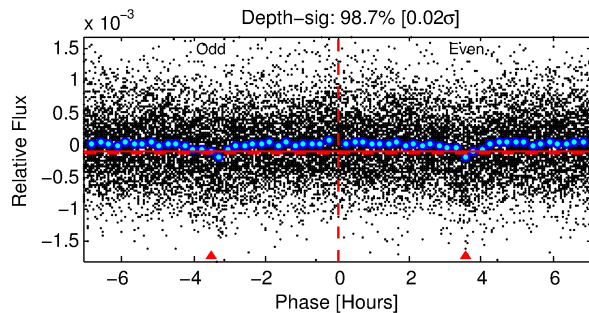
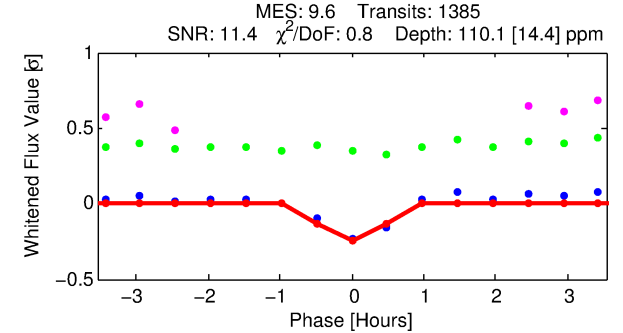
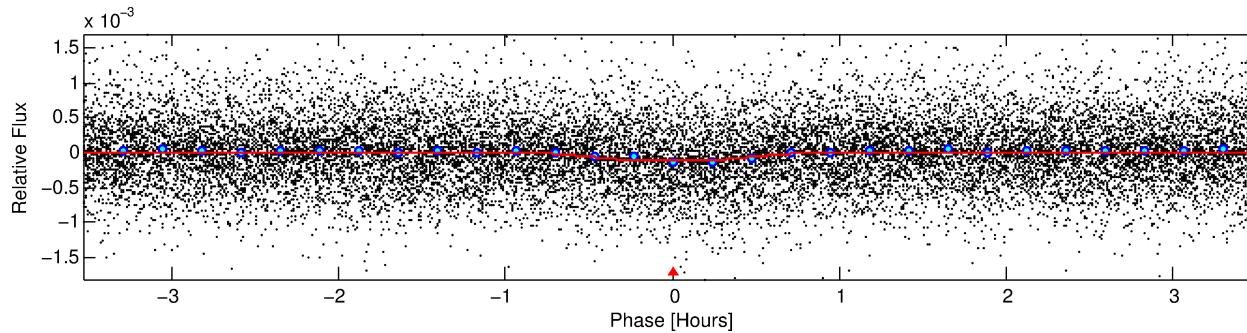
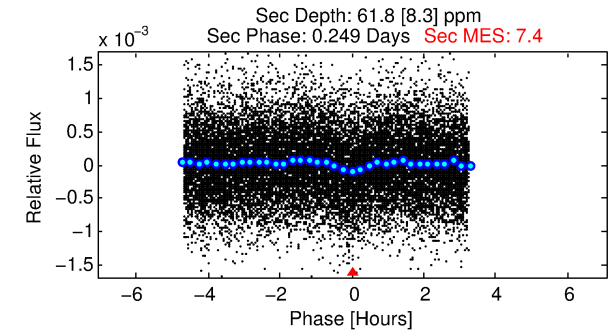
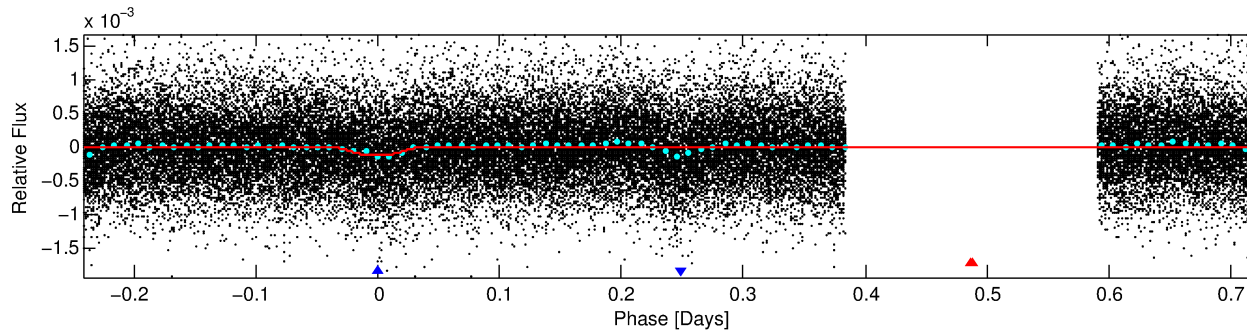
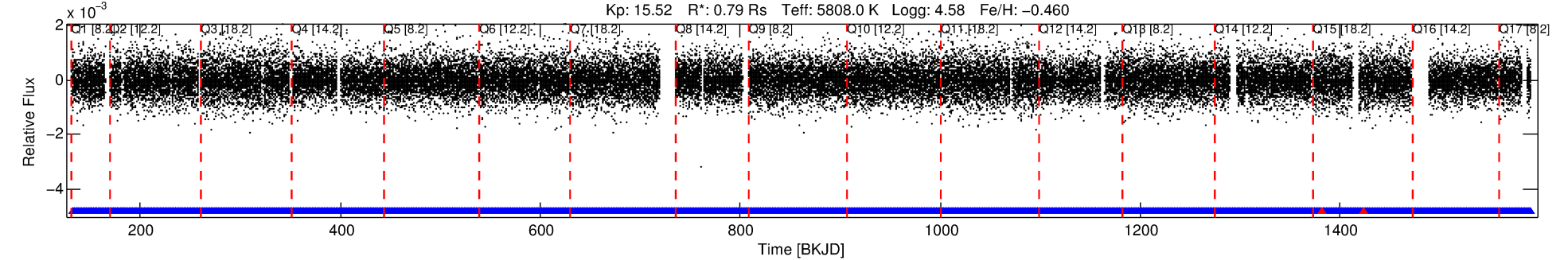
No Significant Match Found

DV One-Page Summary

KIC: 7516809 Candidate: 2 of 2 Period: 0.967 d

KOI: K03133 Corr: No Ephemeris Match

Kp: 15.52 R*: 0.79 Rs Teff: 5808.0 K Logg: 4.58 Fe/H: -0.460



DV Fit Results:

Period = 0.96736 [0.00001] d
Epoch = 132.3574 [0.0017] BKJD
Rp/R* = 0.0114 [0.0084]
a/R* = 3.03 [10.23]
b = 0.90 [0.81]
Seff = 1895.98 [537.53]
Teq = 1683 [119] K
Rp = 0.98 [0.75] Re
a = 0.0182 [0.0033] AU
Ag = 11.77 [17.73] [0.61σ]
Teffp = 4818 [1792] K [1.75σ]

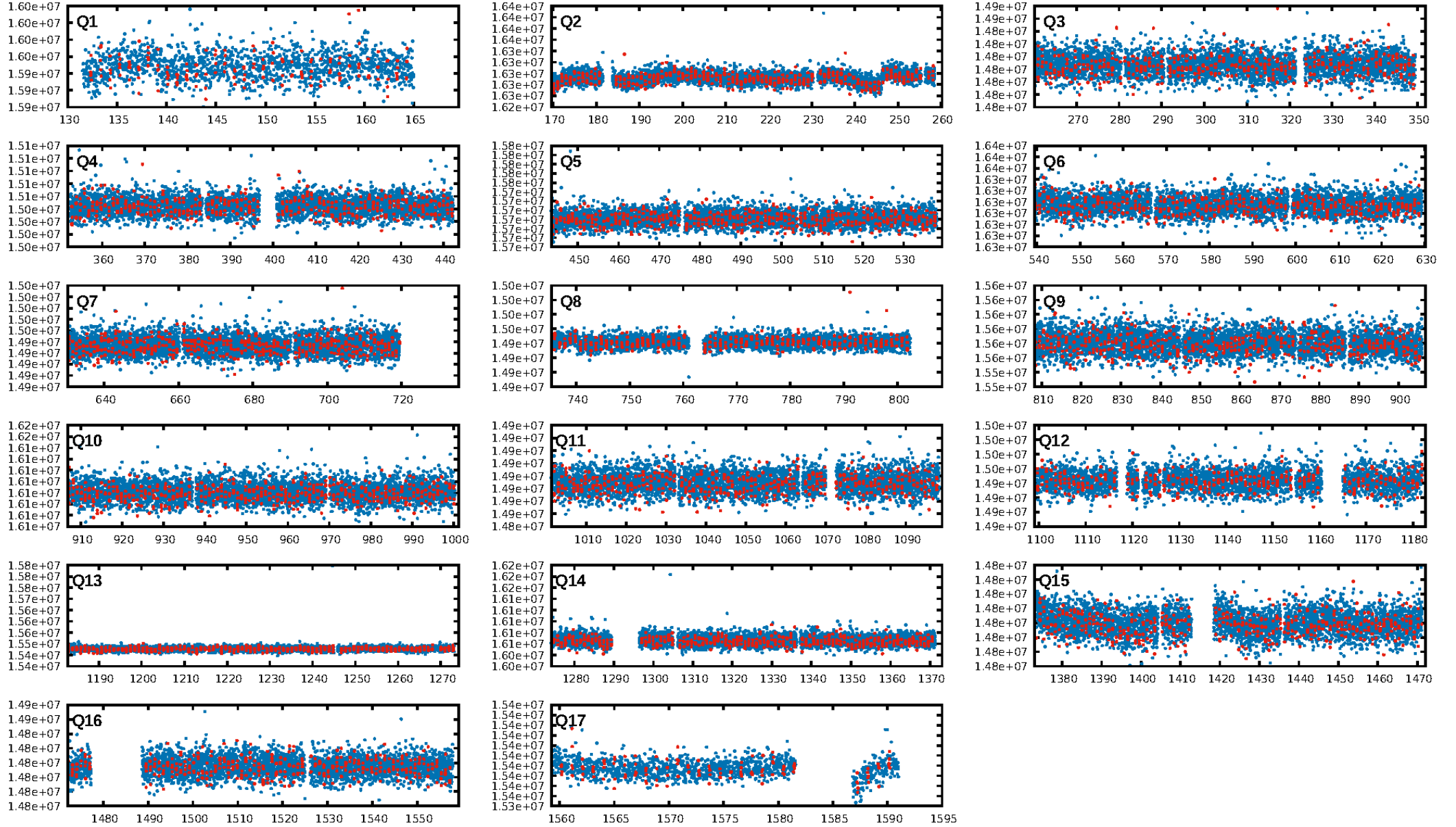
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.14e-23
RollingBand-fgt: 1.00 [1321/1323]
GhostDiagnostic-chr: -0.09795
Centroid-sig: 85.8%
Centroid-so: 0.684 arcsec [0.52σ]
OotOffset-rm: 5.613 arcsec [64.06σ]
KicOffset-rm: 5.694 arcsec [61.16σ]
OotOffset-st: 4/4/1/3 [12]
KicOffset-st: 4/4/1/3 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [17/17]

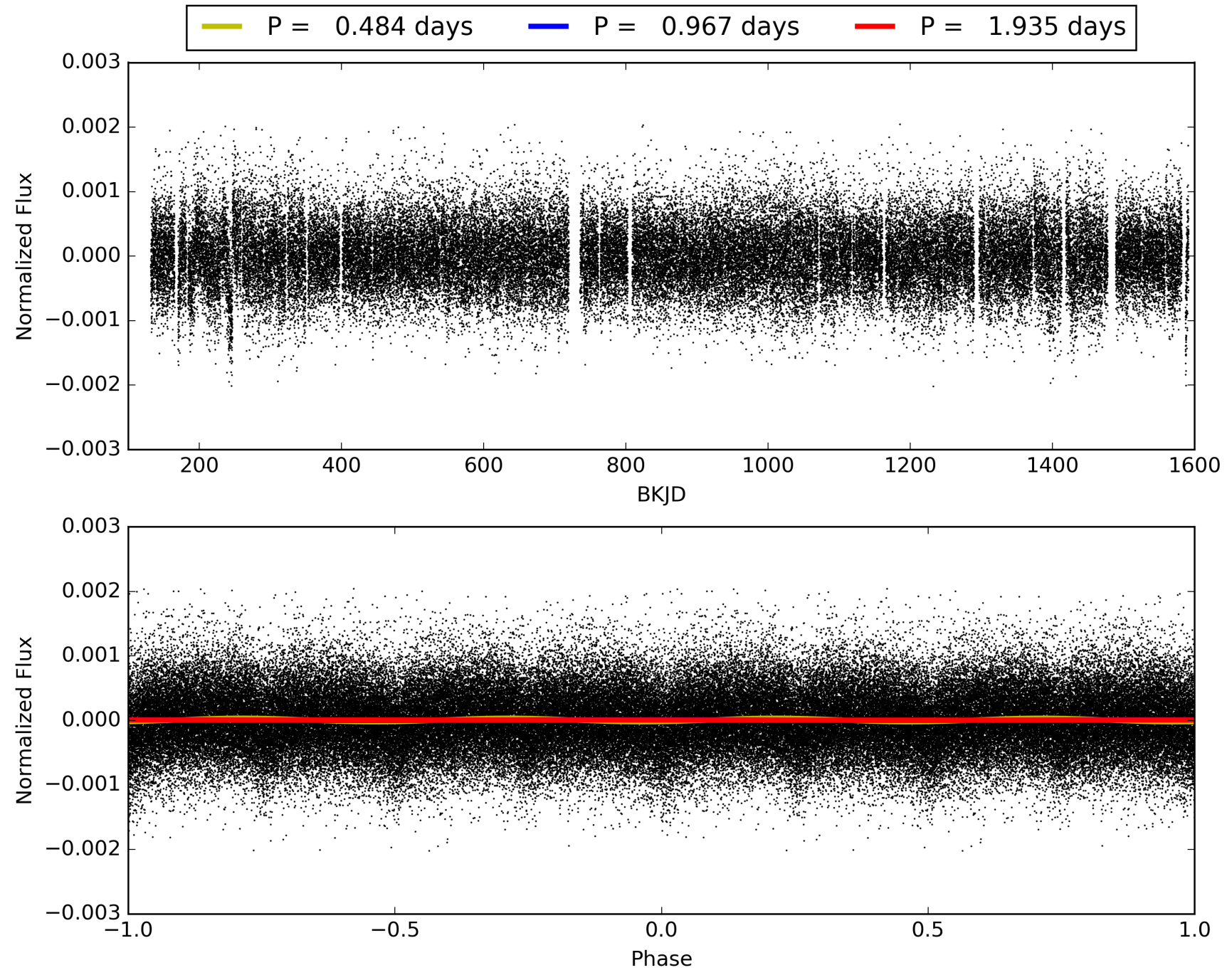
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:52:53 Z

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

TCE 007516809-02, PDC Light Curves

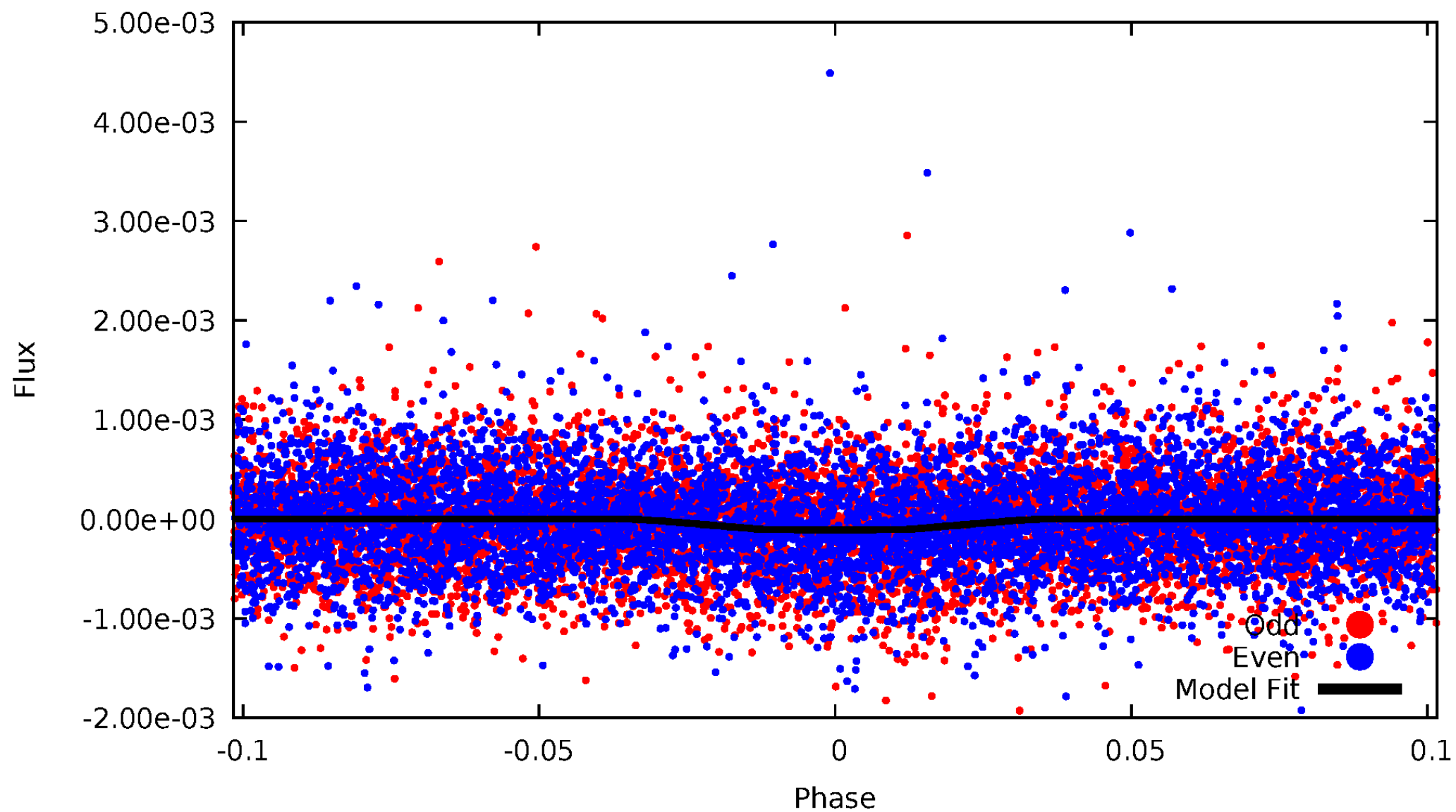


TCE 007516809-02



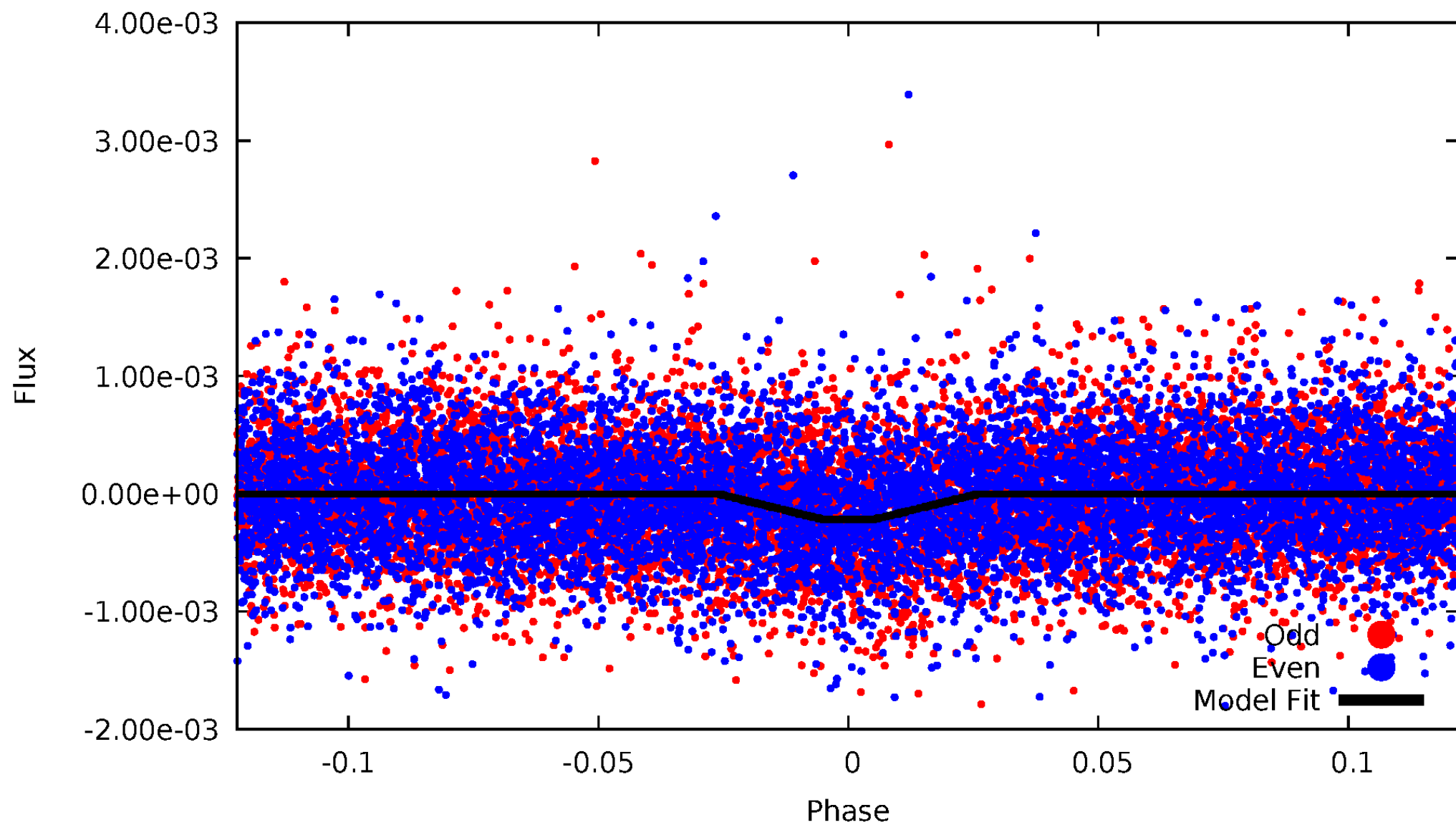
DV Odd/Even

TCE 007516809-02



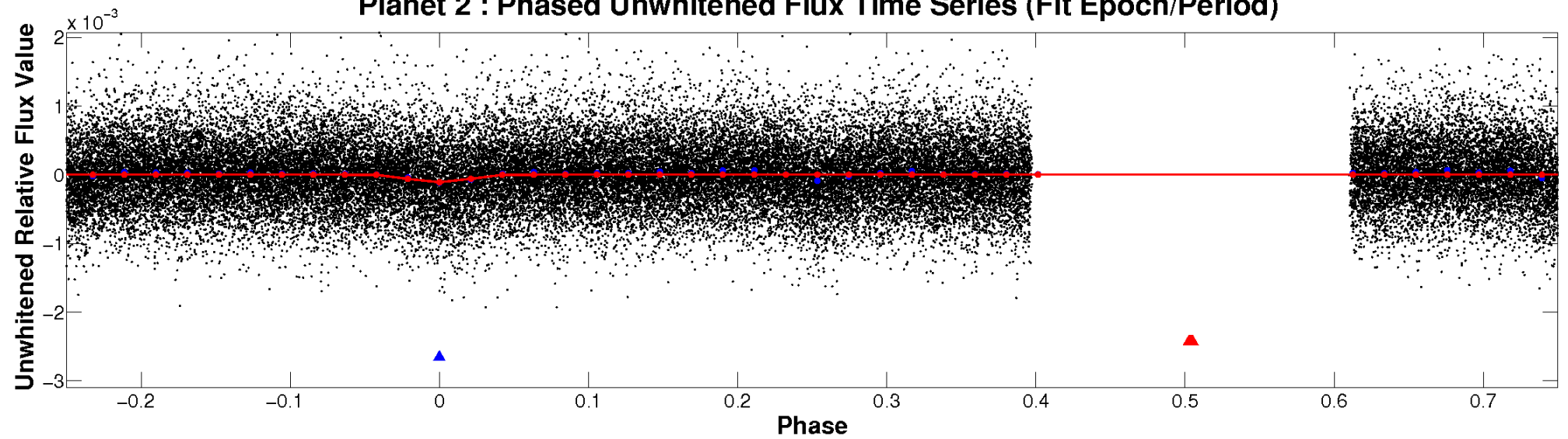
ALT Odd/Even

TCE 007516809-02

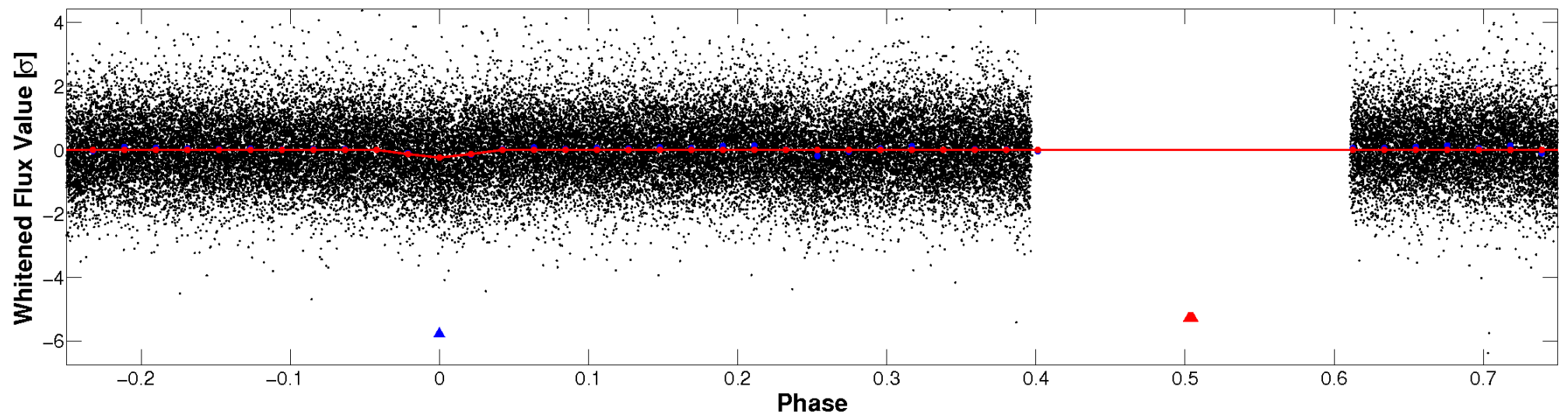


Non-Whitened Vs. Whitened Light Curve

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

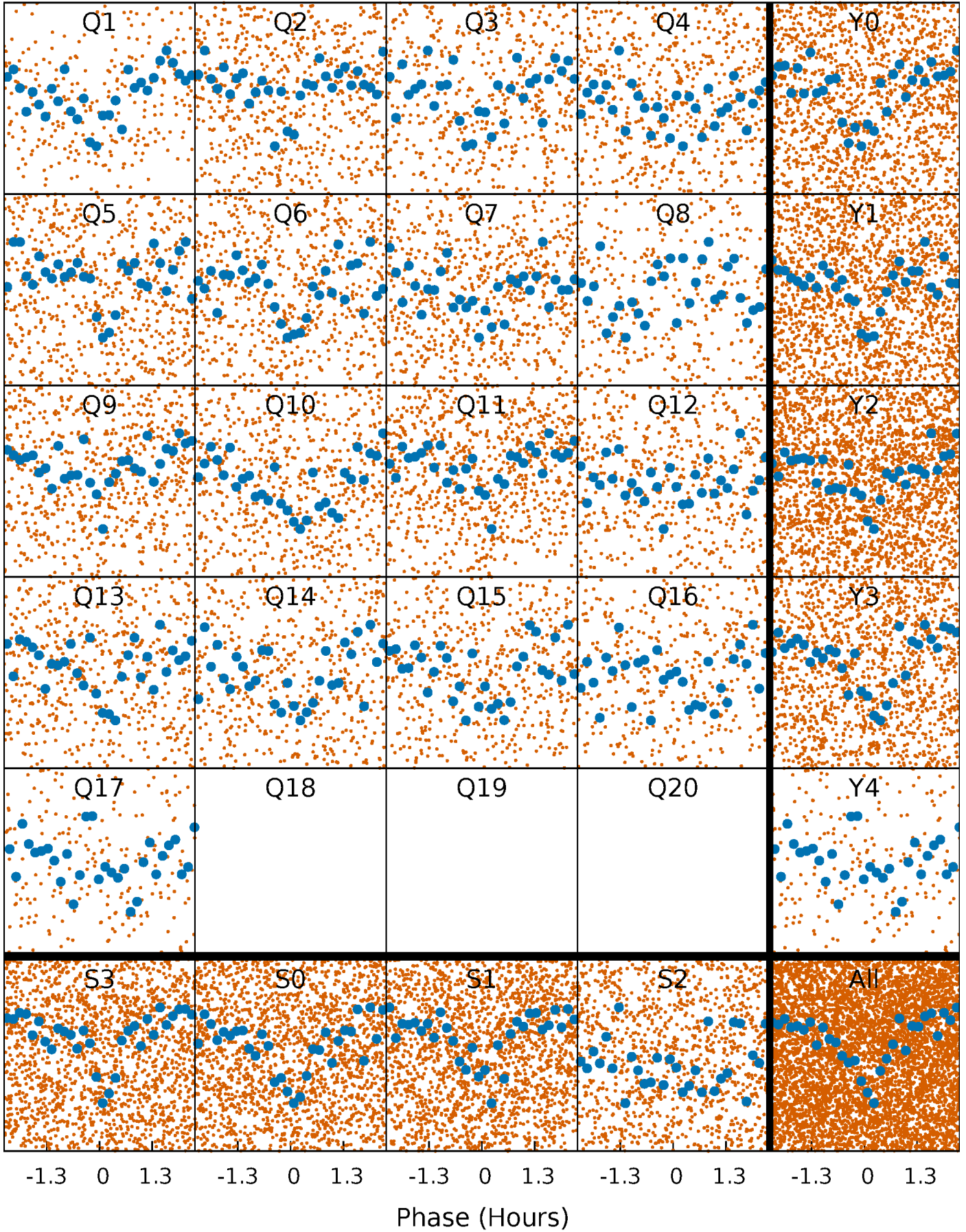


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



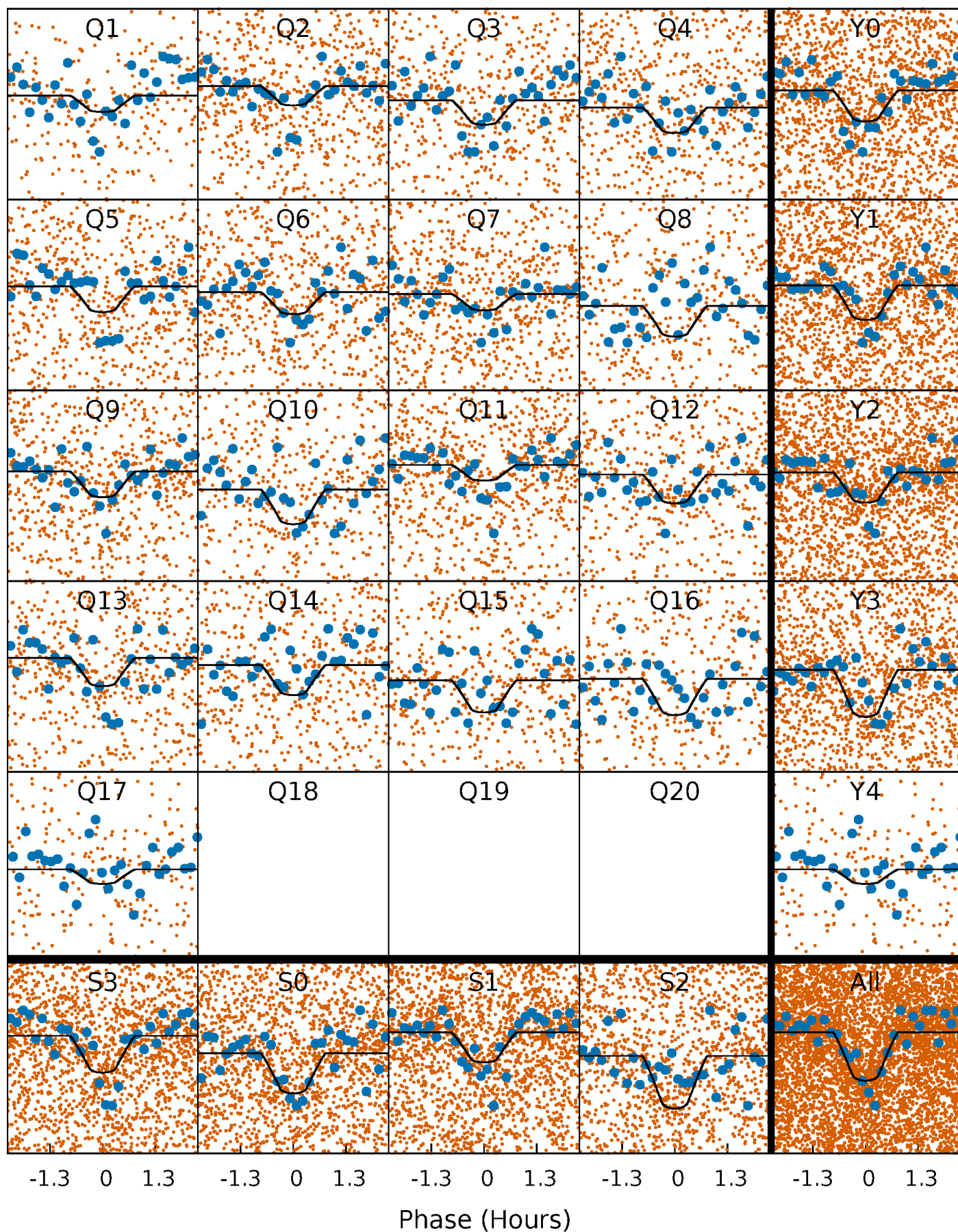
PDC Quarter-Phased Transit Curves

TCE 007516809-02 P= 0.967357 Days $T_0=132.357419$ (BKJD)



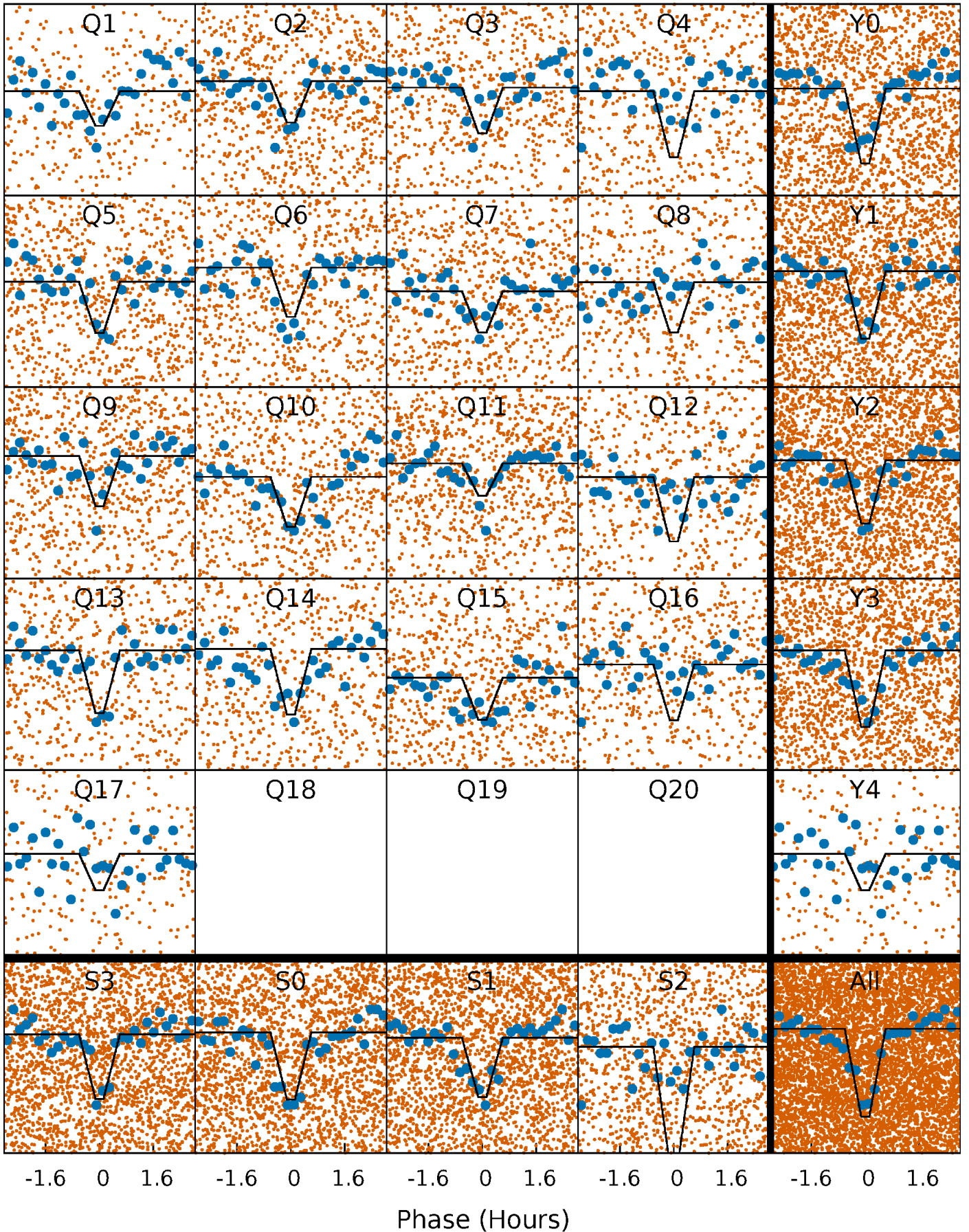
DV Quarter-Phased Transit Curves

TCE 007516809-02 P= 0.967357 Days $T_0=132.357419$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

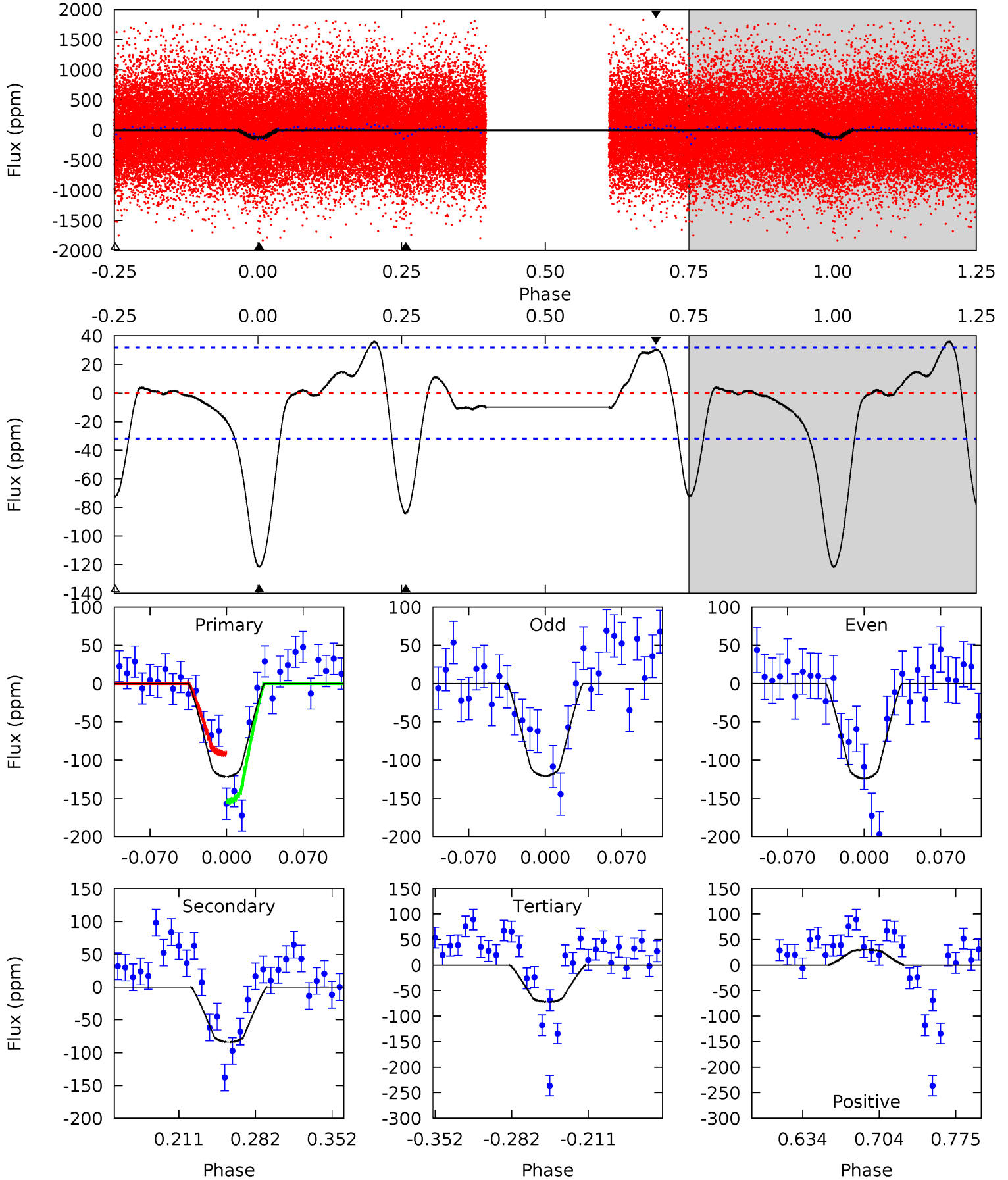
TCE 007516809-02 P= 0.967363 Days $T_0=132.357249$ (BKJD)



DV Model-Shift Uniqueness Test

007516809-02, P = 0.967357 Days, E = 131.390062 Days

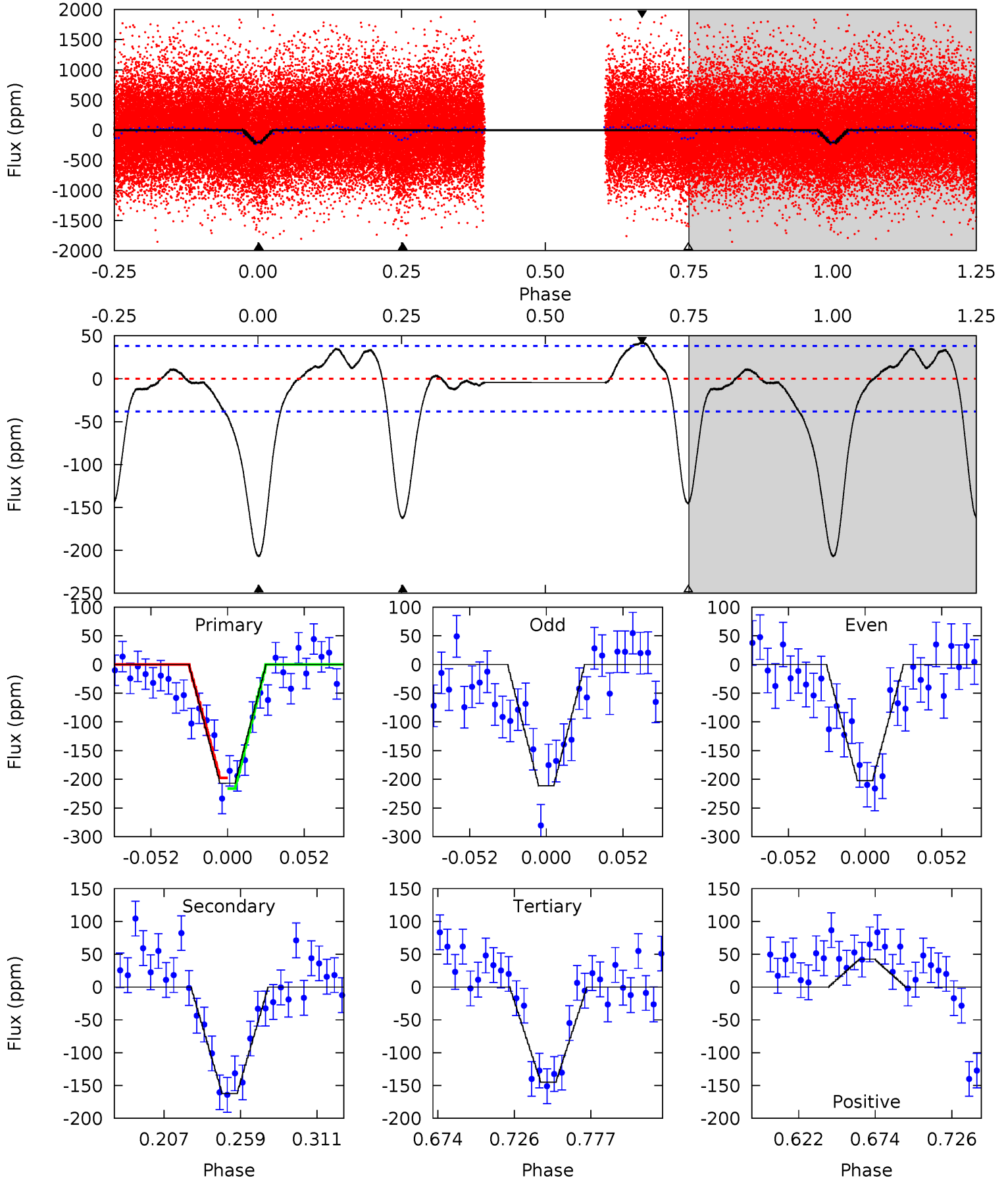
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	12.2	10.5	4.41	4.64	1.81	3.07	7.20	13.3	1.73	7.82	0.24	1.04	0.23	4.56



Alt Model-Shift Uniqueness Test

007516809-02, P = 0.967363 Days, E = 131.389886 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.5	20.0	17.9	5.25	4.70	1.94	4.52	7.60	20.2	2.08	14.7	0.54	1.03	0.17	1.14



Stellar Parameters For KIC 007516809

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5808^{+157}_{-157}	$4.583^{+0.036}_{-0.144}$	$-0.460^{+0.300}_{-0.300}$	$0.786^{+0.166}_{-0.059}$	$0.871^{+0.085}_{-0.095}$	$2.528^{+0.477}_{-1.023}$
	+3%/-3%	+1%/-3%	+65%/-65%	+21%/-8%	+10%/-11%	+19%/-40%
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 007516809-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-84 ± 7	$1.06^{+0.76}_{-0.61}$	2394^{+119}_{-91}	5135^{+2731}_{-1018}	13^{+60}_{-9}
Alt.	-162 ± 8	$1.37^{+0.83}_{-0.72}$	2393^{+115}_{-96}	5318^{+2626}_{-975}	16^{+56}_{-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

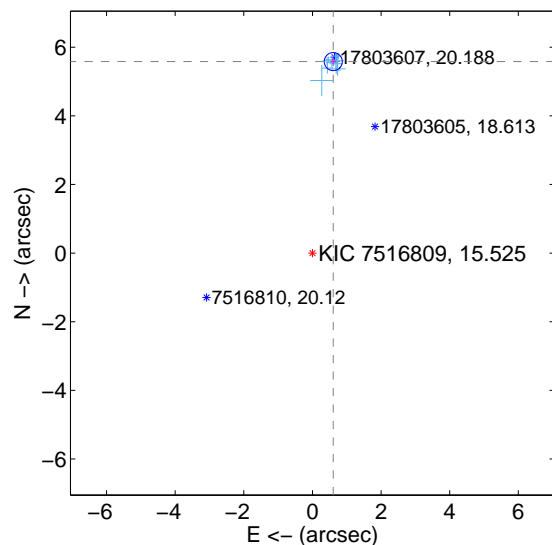
Supplemental centroid analysis for 007516809-02. Kepler magnitude: 15.53. Transit SNR 11.41

There are 12 quarters with good PRF difference image offsets

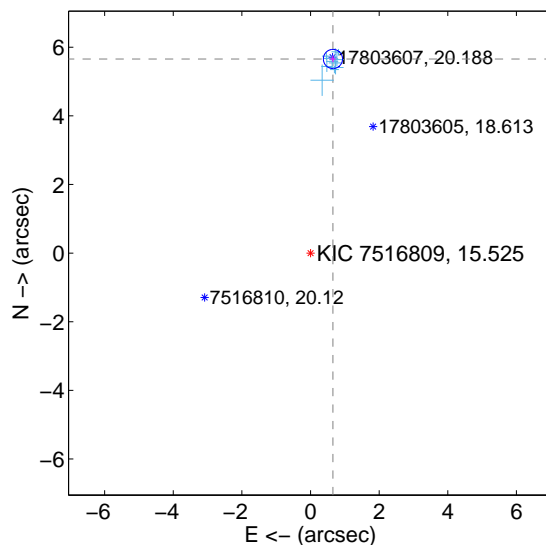
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.613 \pm 0.088	64.06	-0.607 \pm 0.078	5.580 \pm 0.086
PRF-fit source offset from KIC position	5.694 \pm 0.093	61.16	-0.653 \pm 0.077	5.657 \pm 0.092
photometric centroid source offset	0.68 \pm 1.31	0.52	-0.61 \pm 1.28	0.30 \pm 1.42

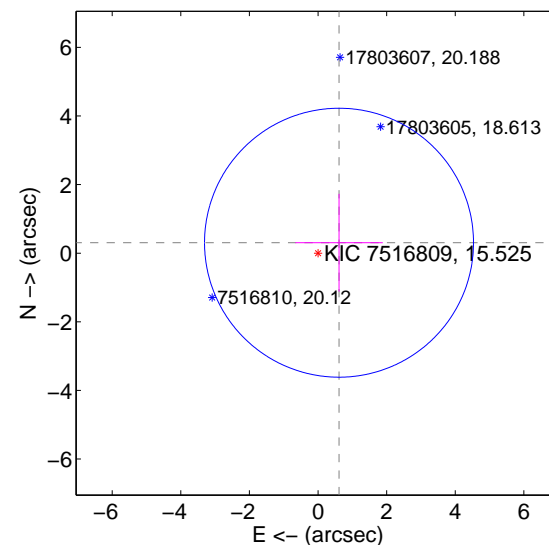
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

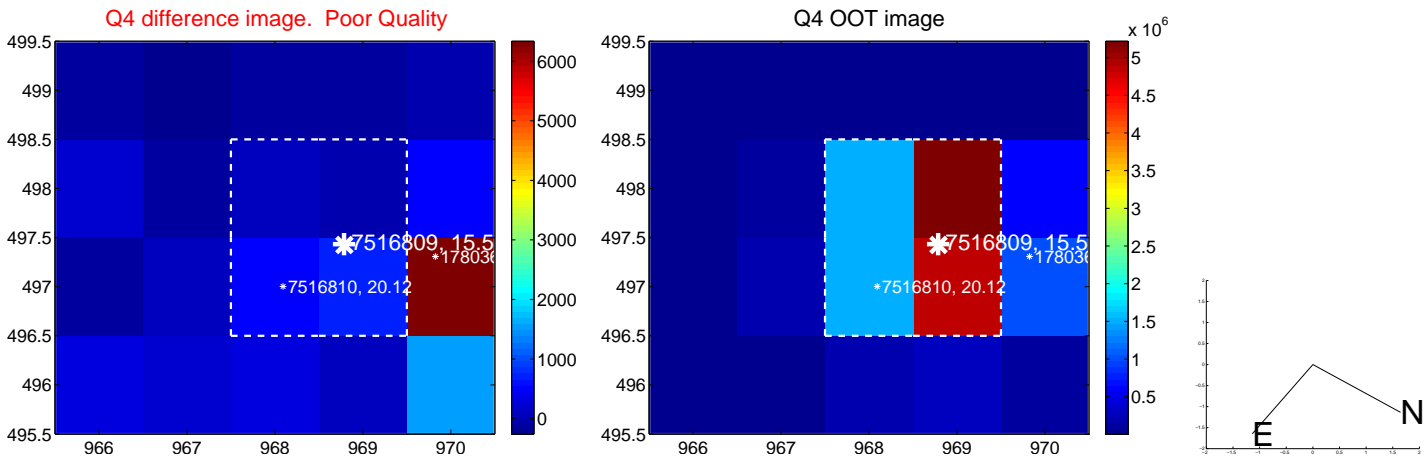
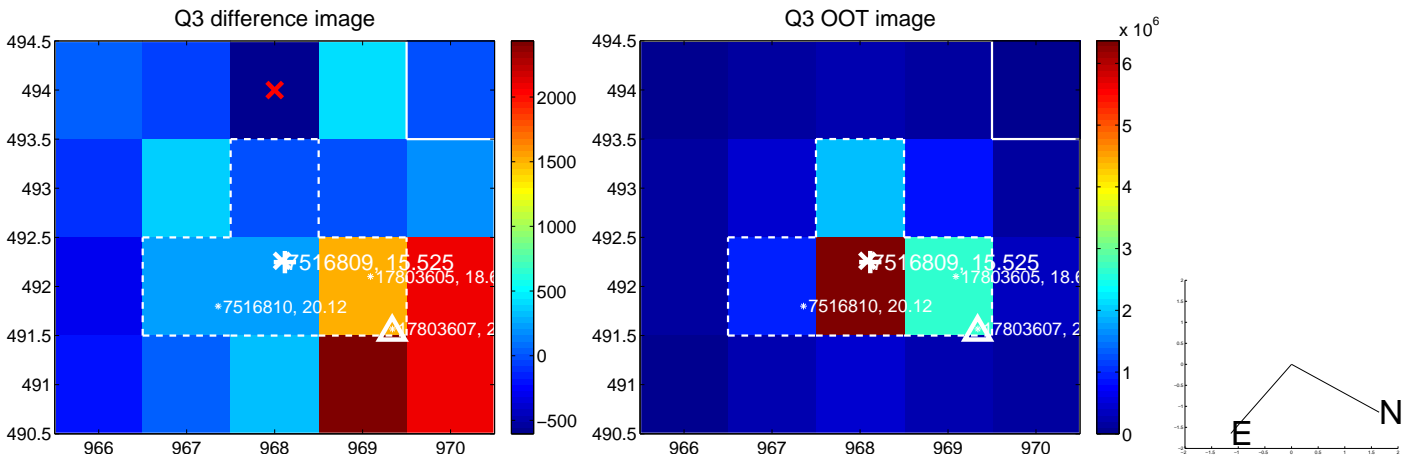
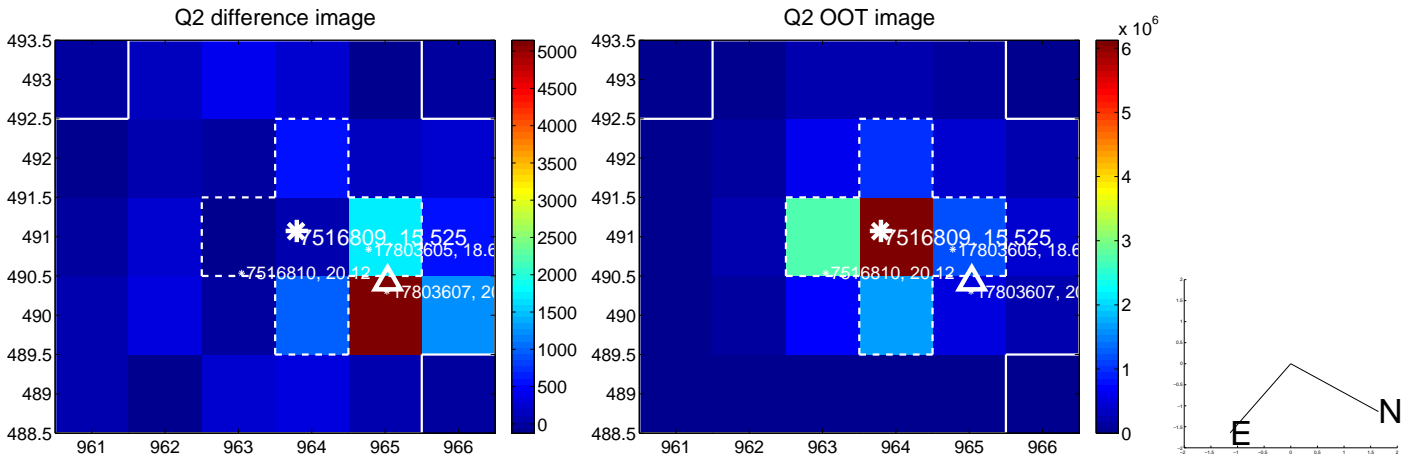
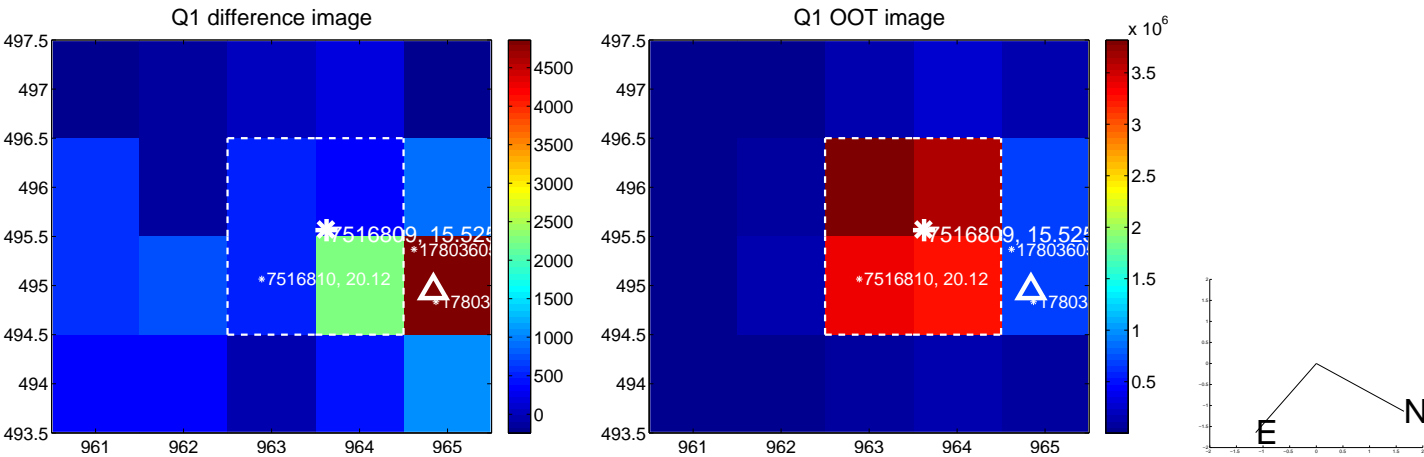


offset from photometric centroids

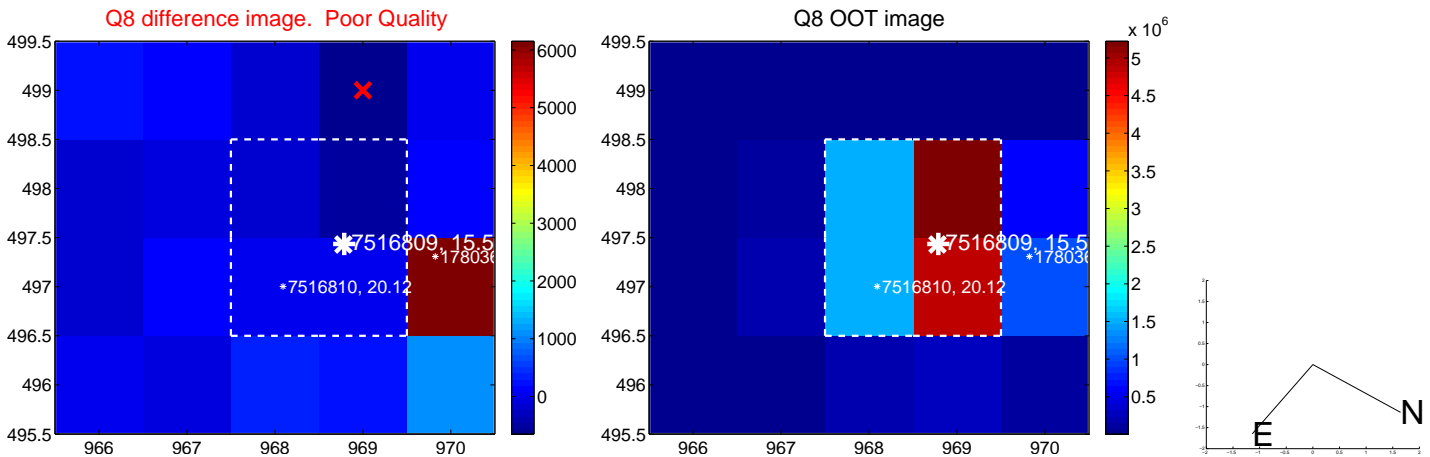
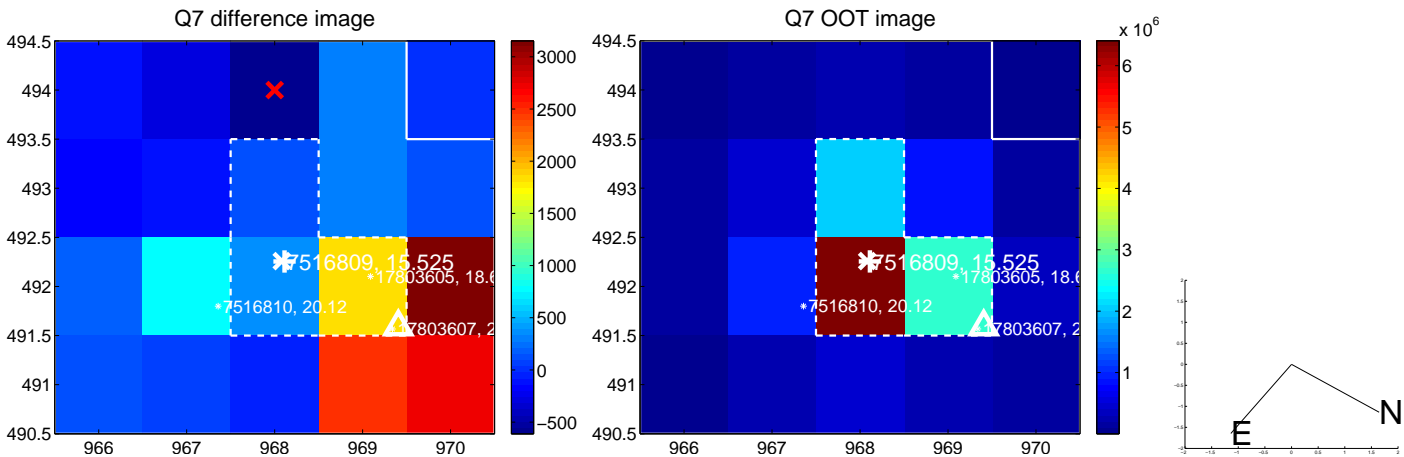
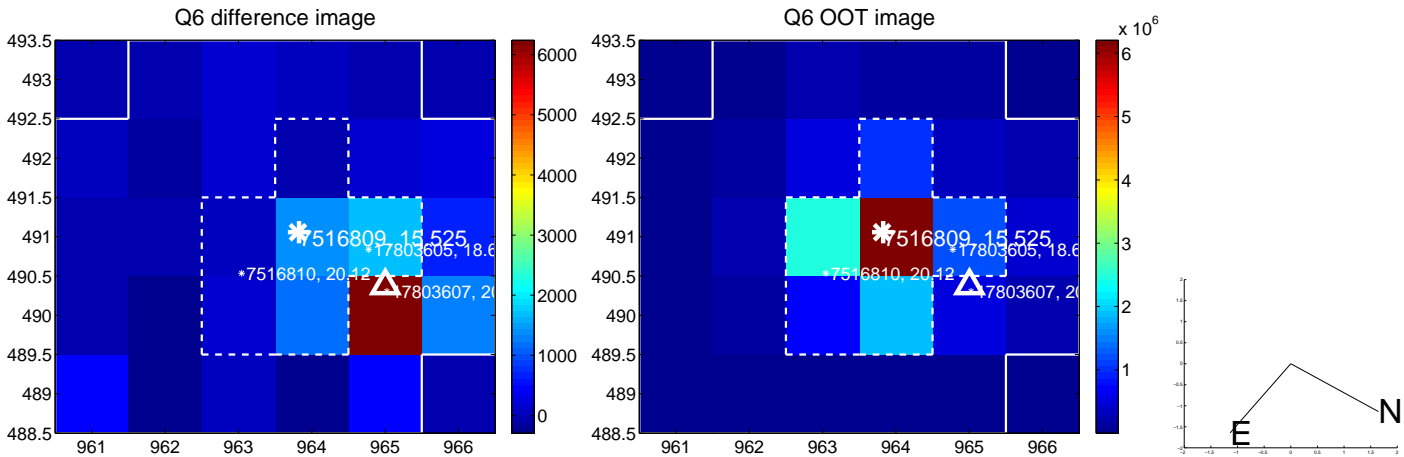
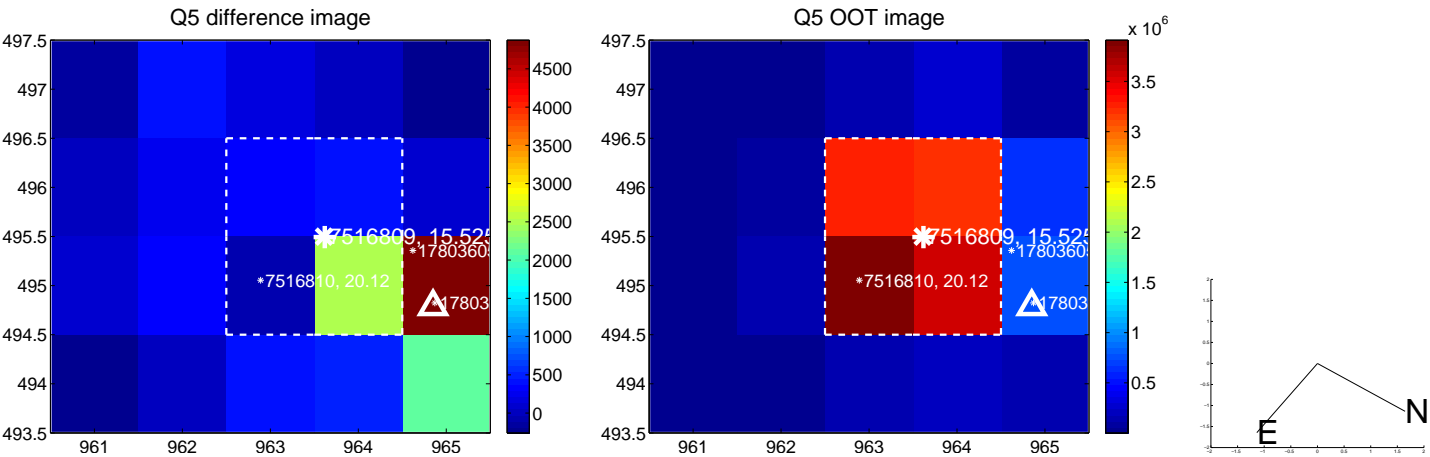


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

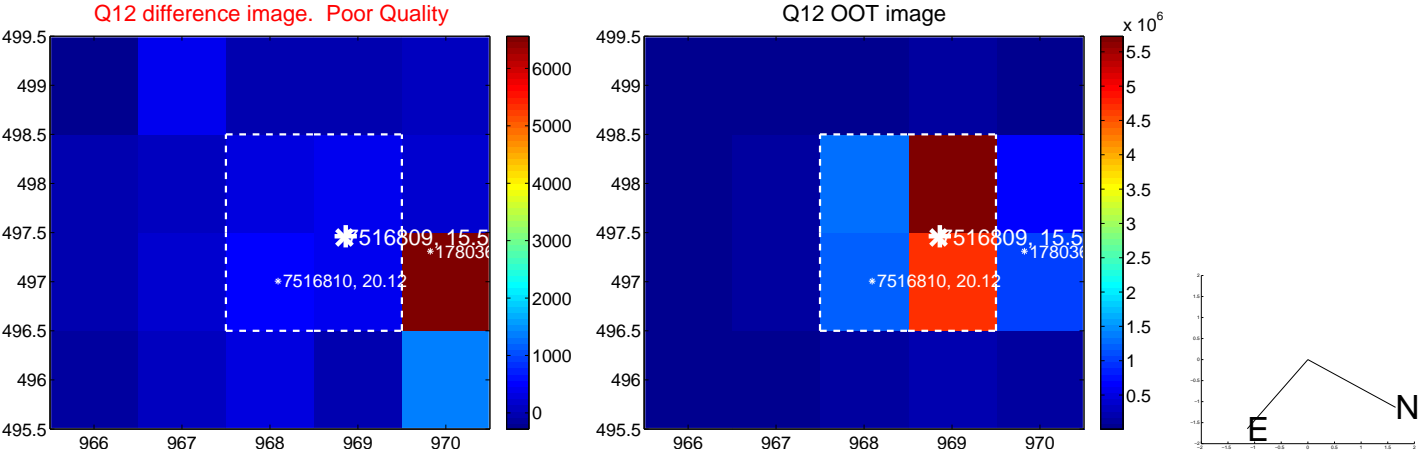
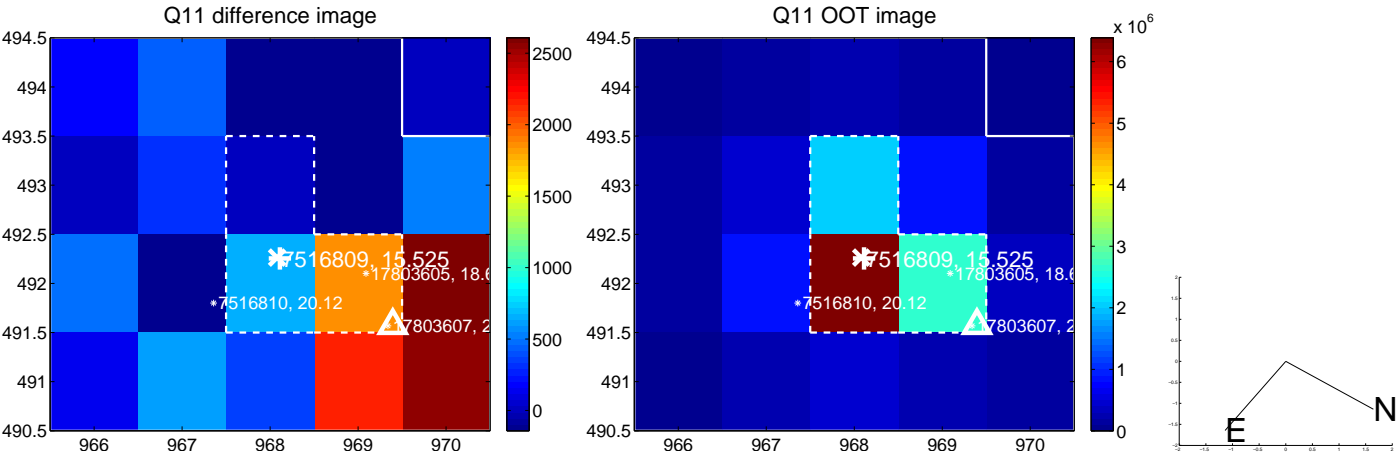
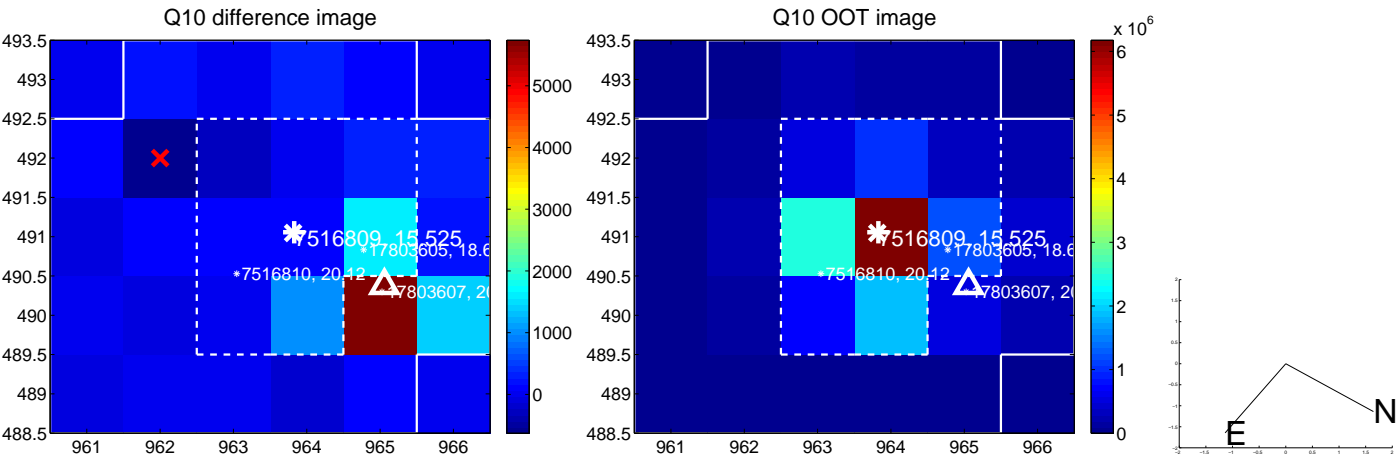
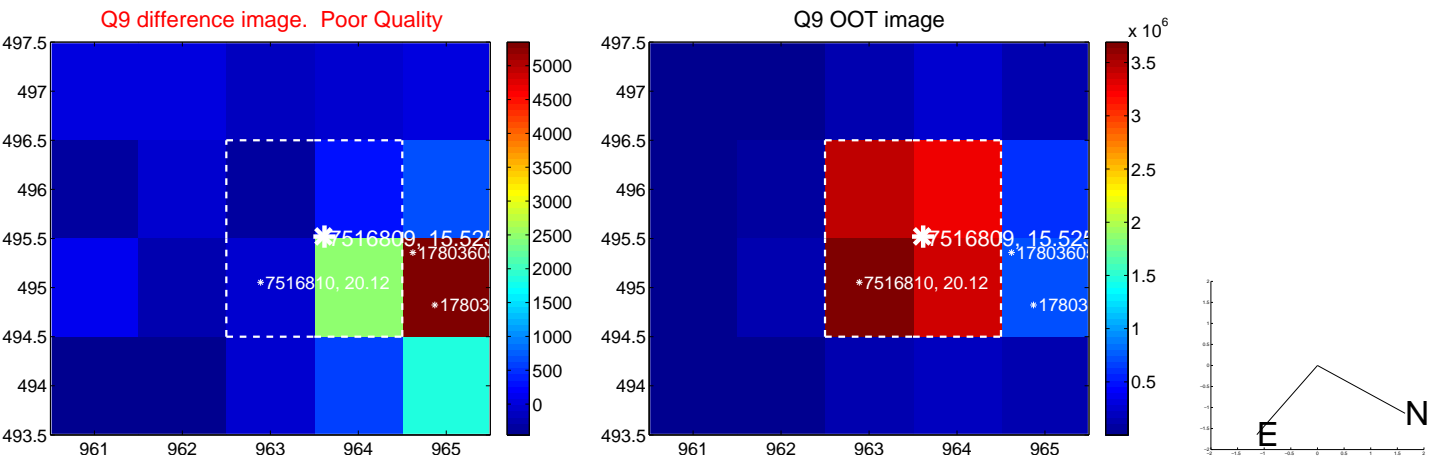
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



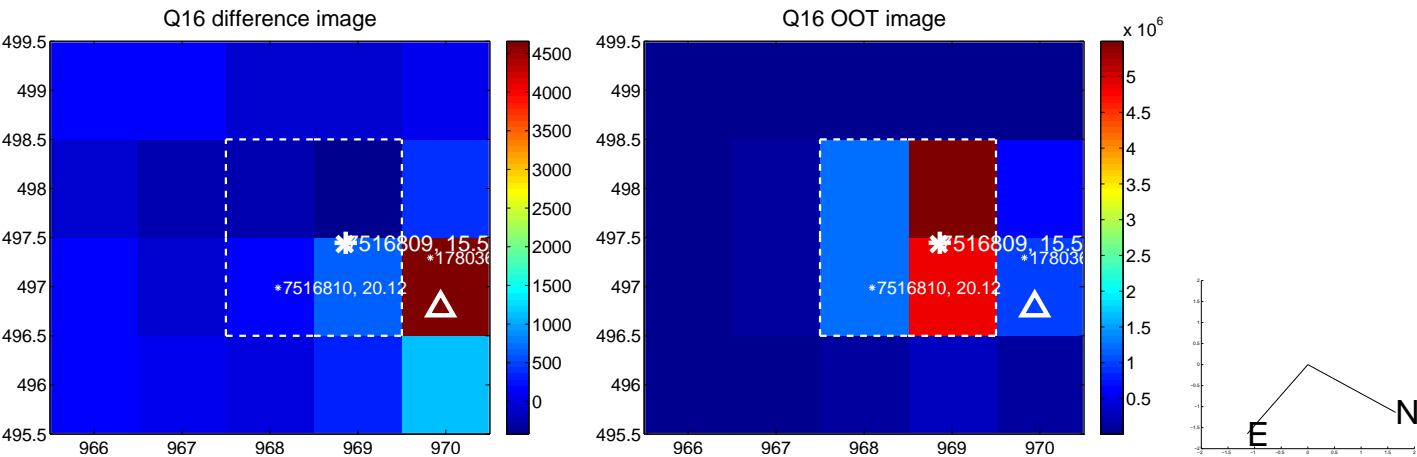
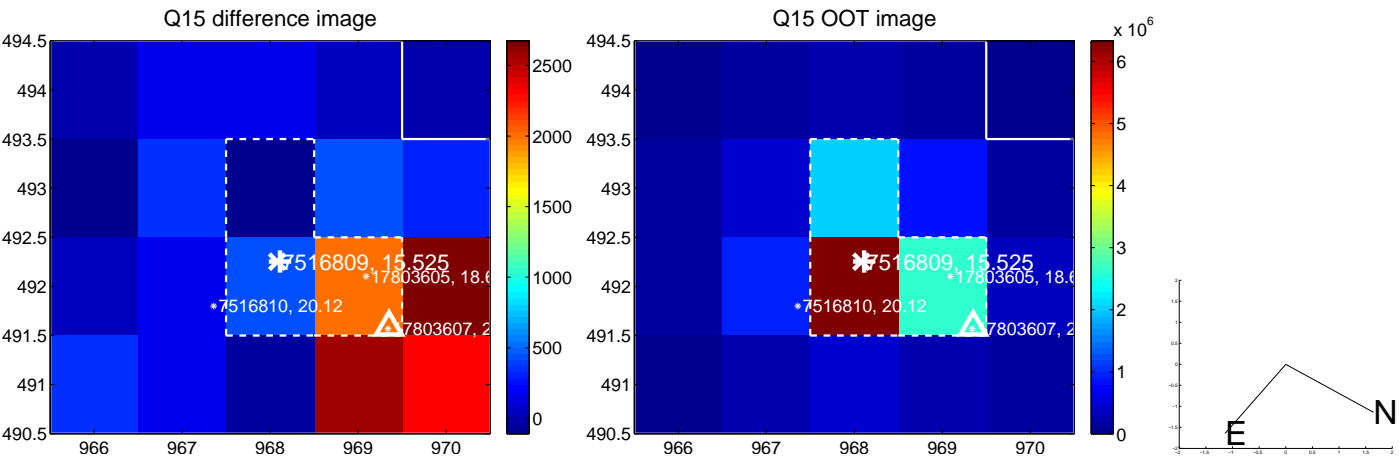
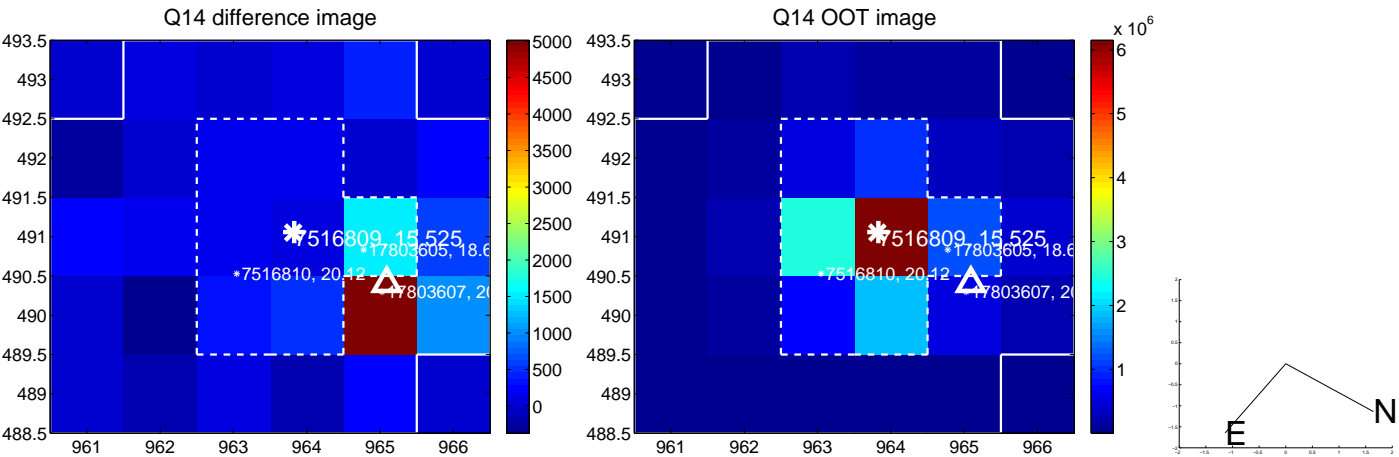
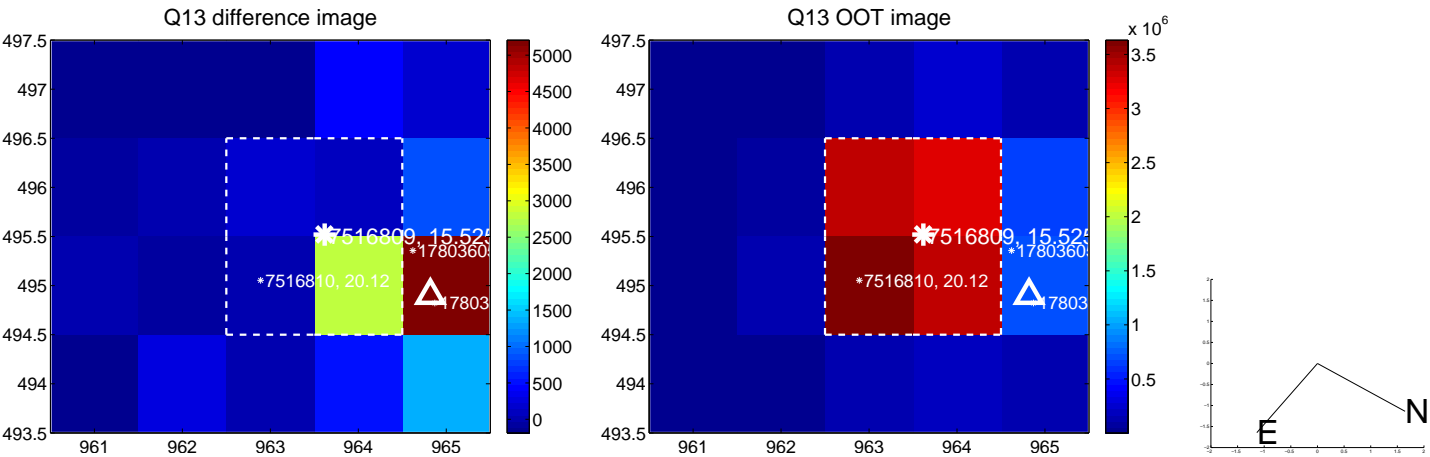
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



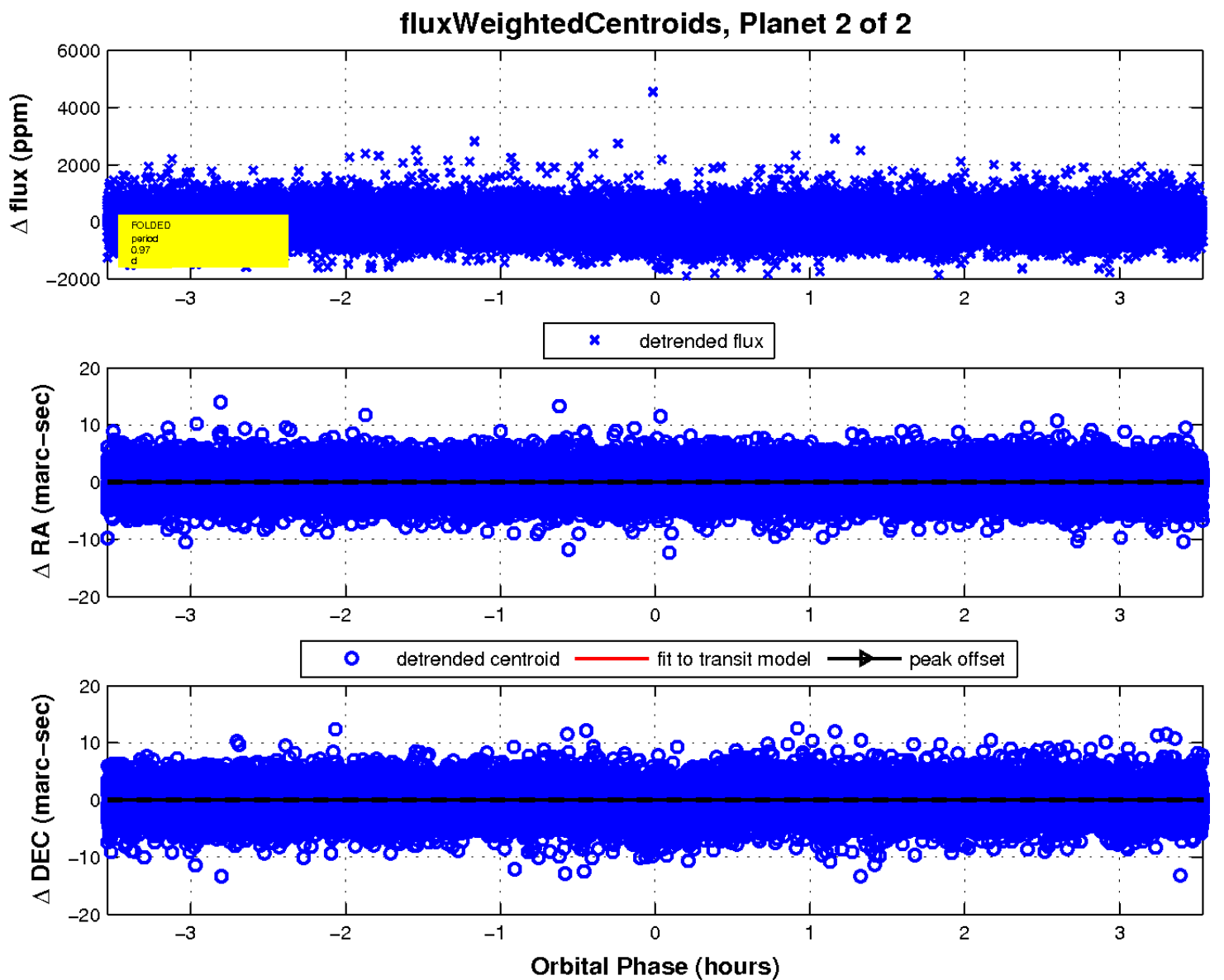
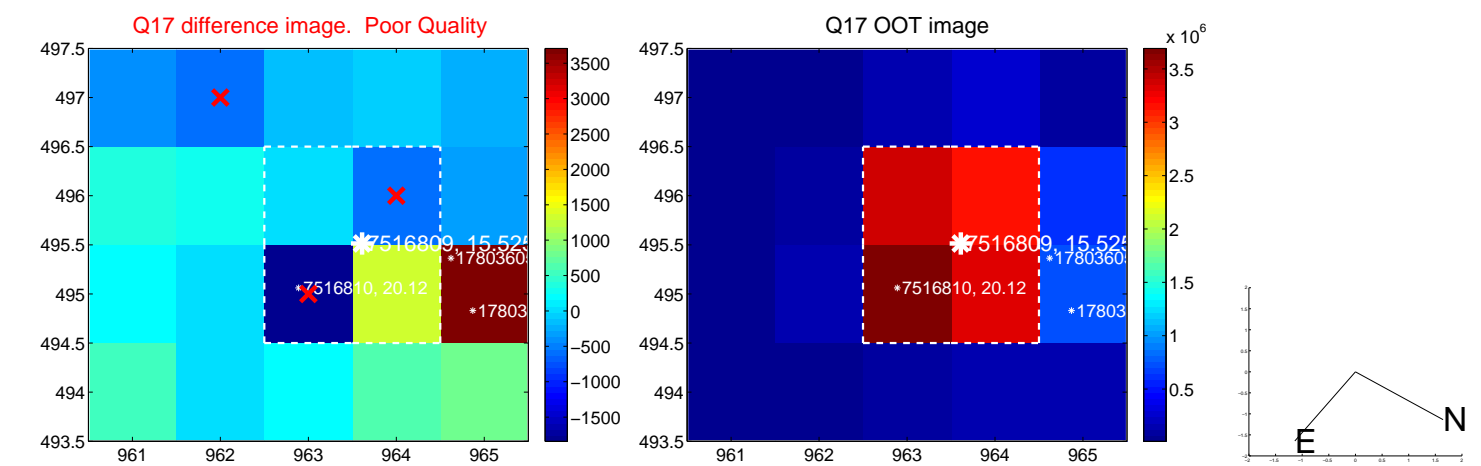
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

