

KIC 004768919

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})
004768919-01	OBS	No	1.581462	132.456317	23.6	7.188	8.9	7.8	12.64	6734	6.17	0.00
004768919-02	OBS	No	224.117133	191.097441	300.6	14.224	10.3	7.2	12.64	6734	23.08	257.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004768919-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004768919-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

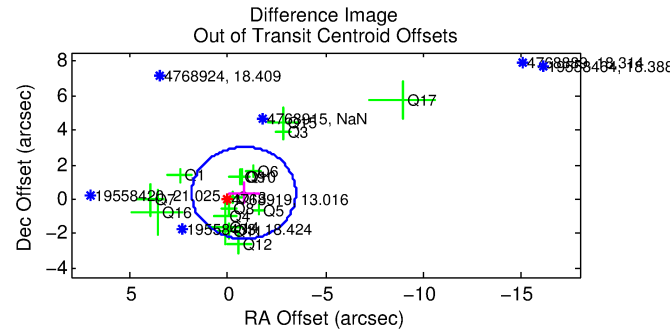
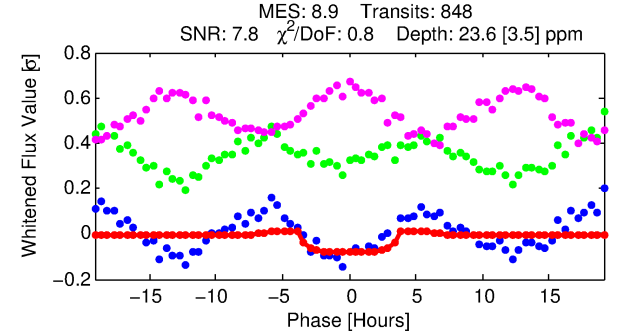
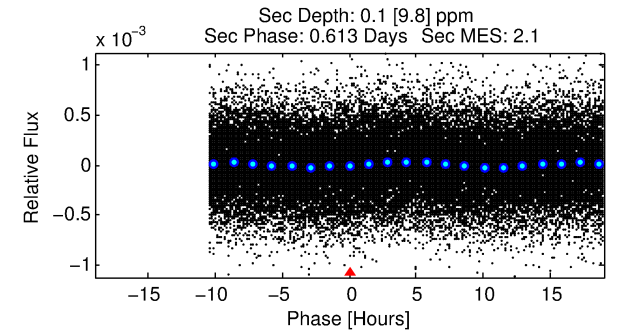
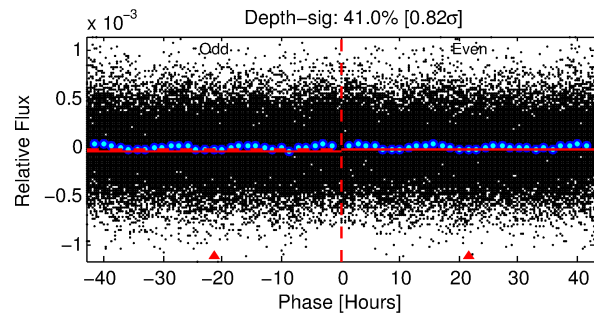
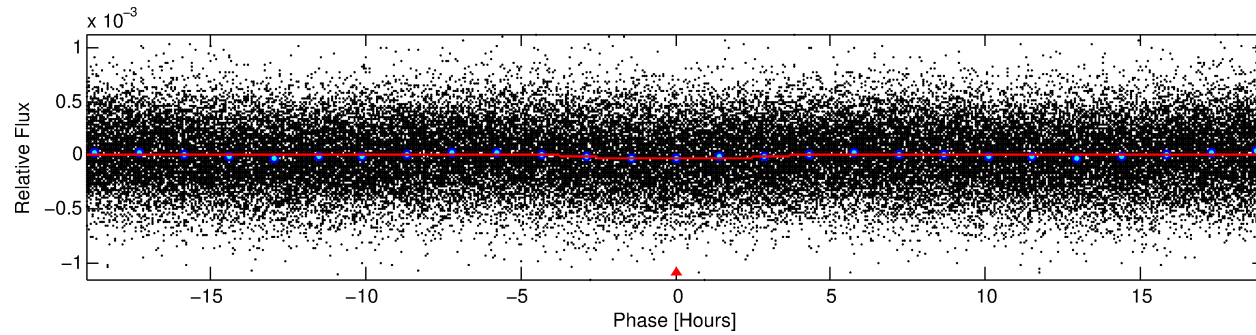
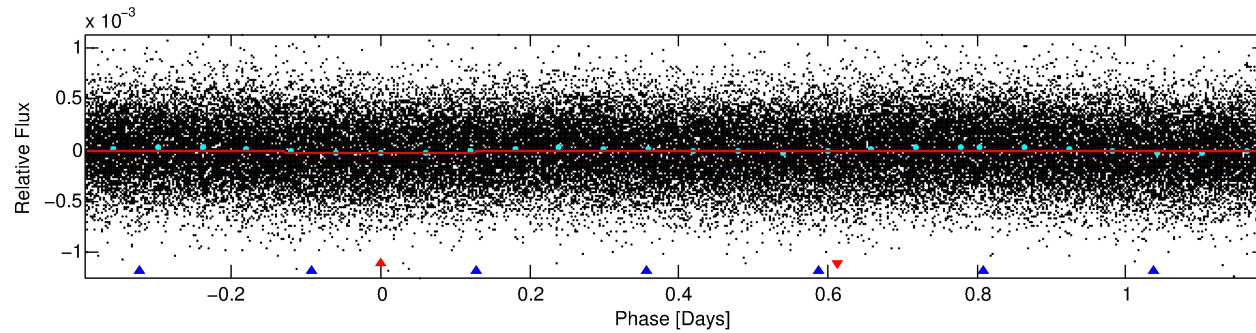
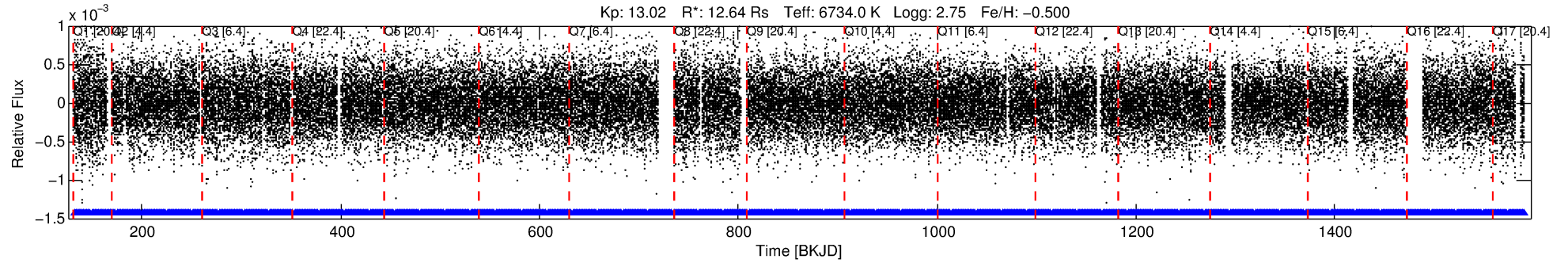
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004768919-01

No Significant Match Found

DV One-Page Summary

KIC: 4768919 Candidate: 1 of 2 Period: 1.581 d



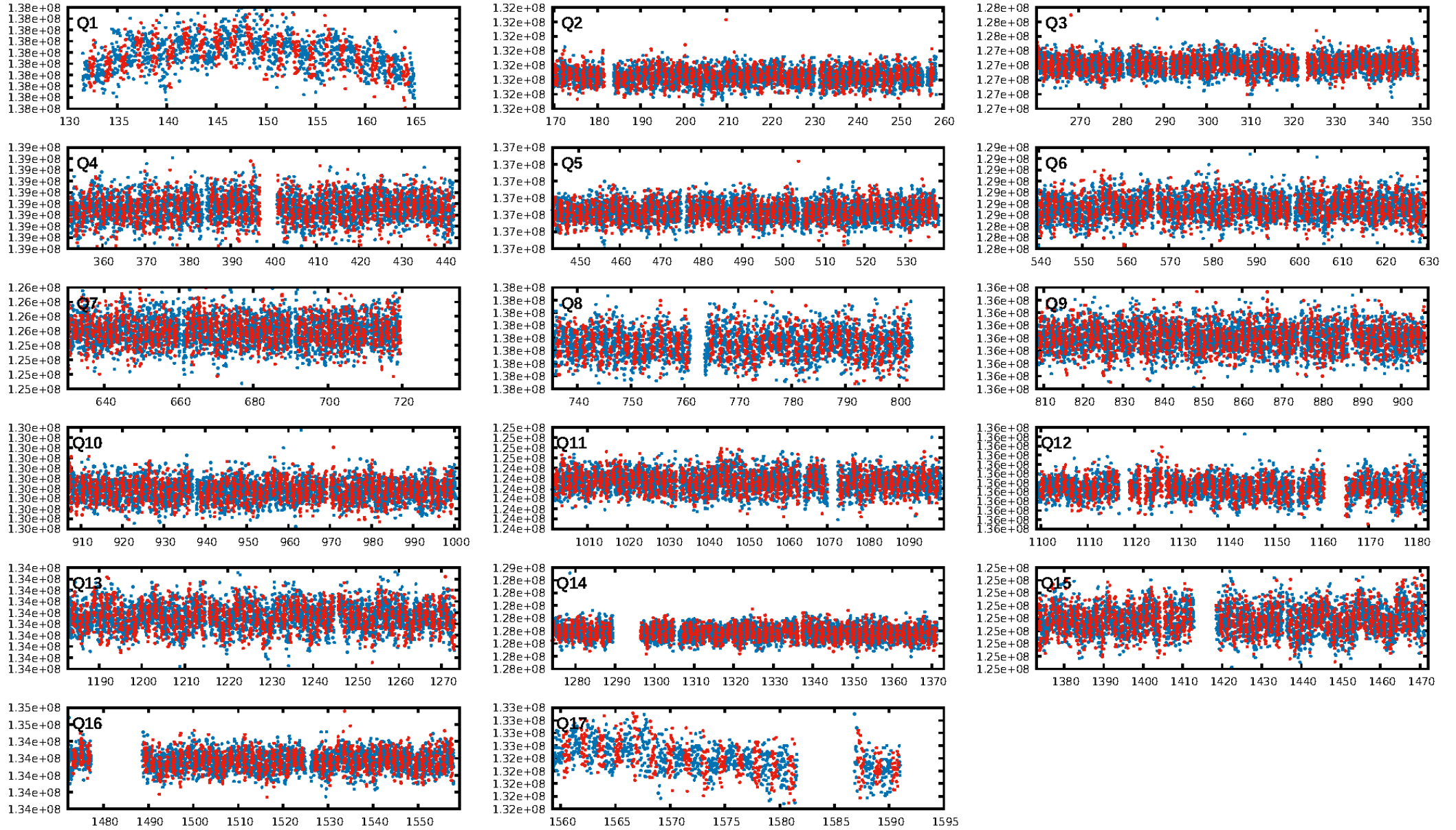
DV Fit Results:

Period = 1.58146 [0.00003] d
Epoch = 132.4563 [0.0084] BKJD
Rp/R* = 0.0045 [0.0034]
a/R* = 1.79 [4.79]
b = 0.05 [83.63]
Seff = N/A
Teq = N/A
Rp = 6.17 [5.28] Re
a = N/A
Ag = N/A
Teffp = N/A

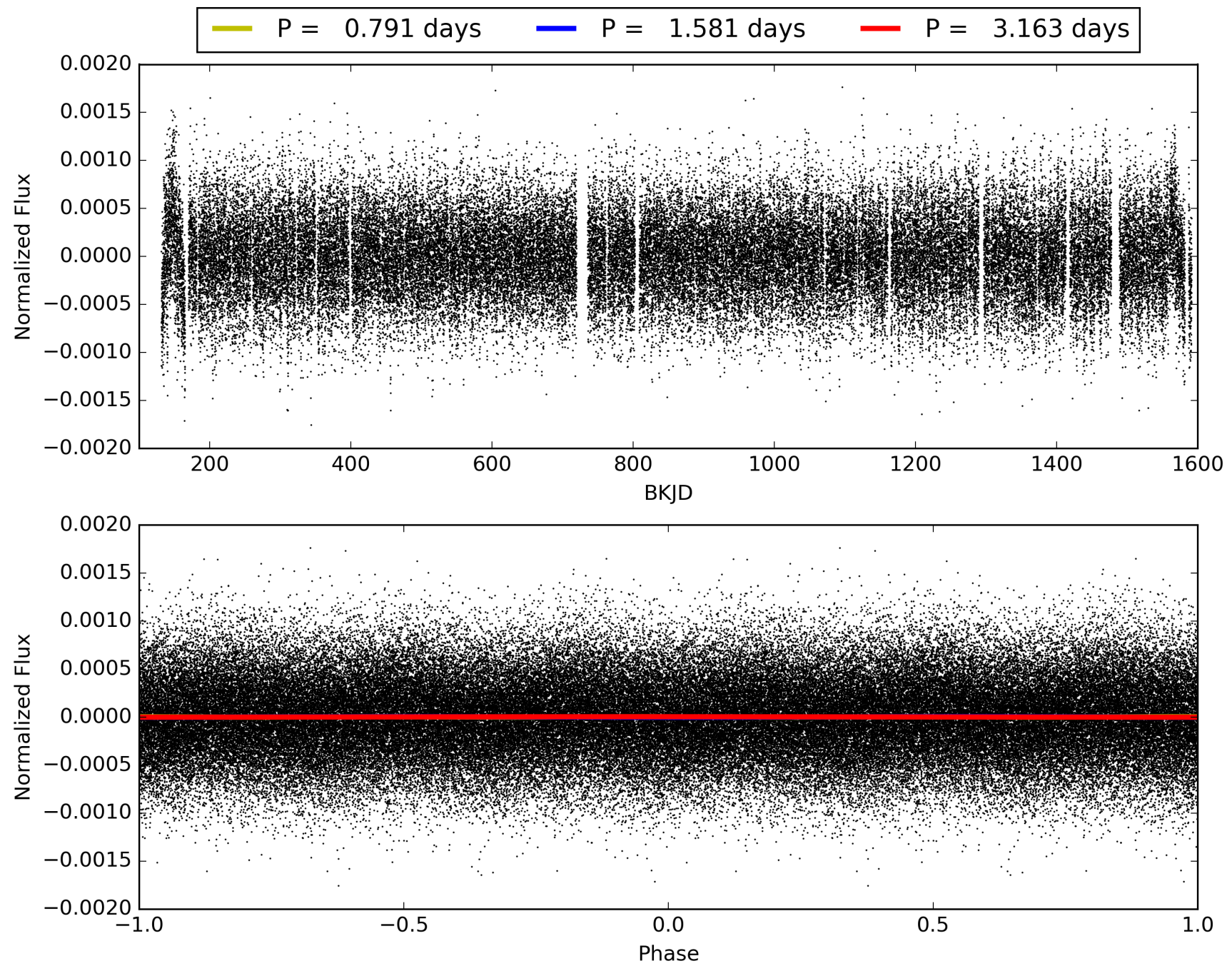
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [335.13 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.54e-17
RollingBand-fgt: 1.00 [810/810]
GhostDiagnostic-chr: 5.175
Centroid-sig: 0.0%
Centroid-so: 3.431 arcsec [3.65 σ]
OotOffset-rm: 0.905 arcsec [1.02 σ]
KicOffset-rm: 0.892 arcsec [1.06 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.69 [11/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 004768919-01, PDC Light Curves

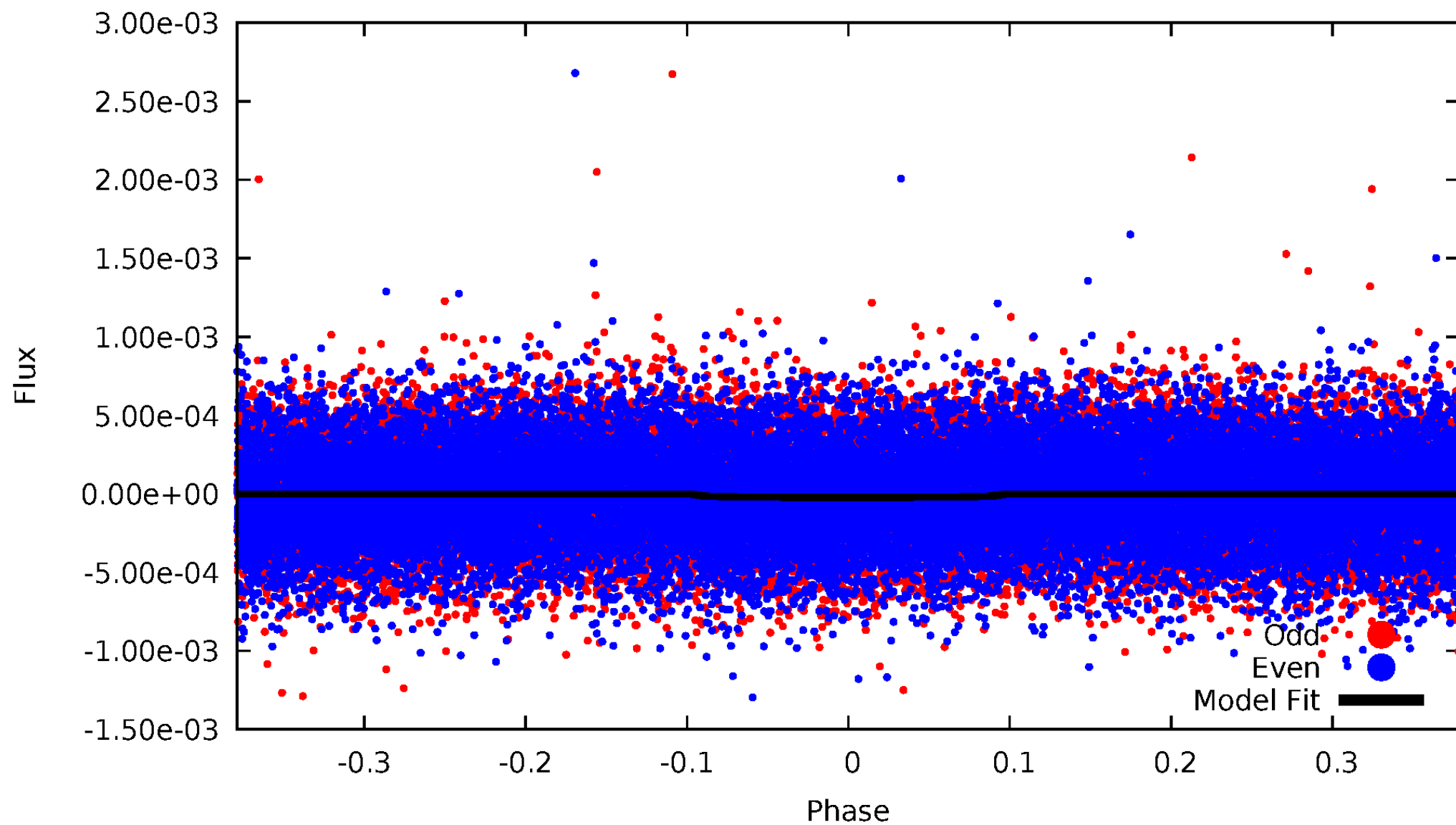


TCE 004768919-01



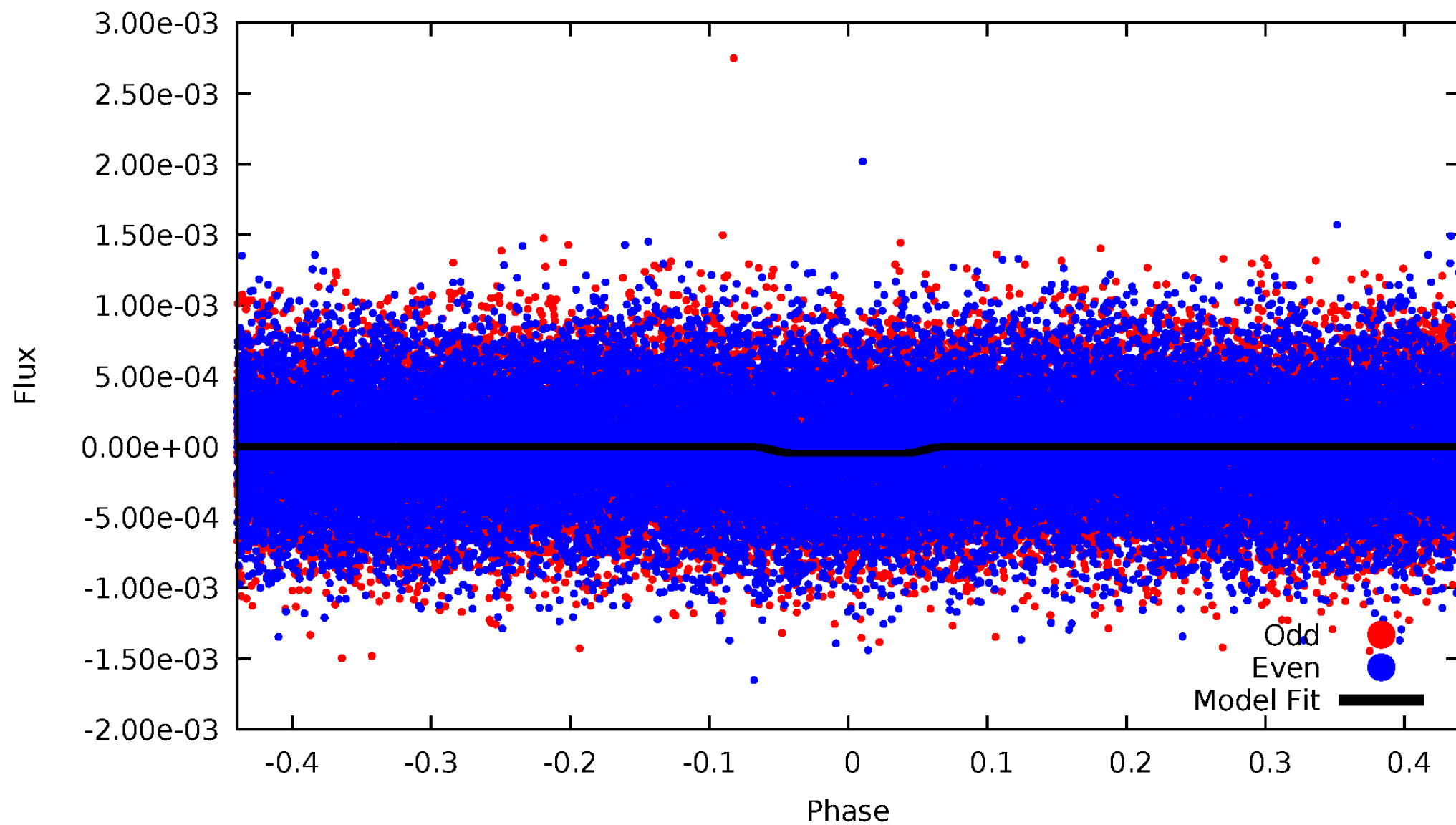
DV Odd/Even

TCE 004768919-01

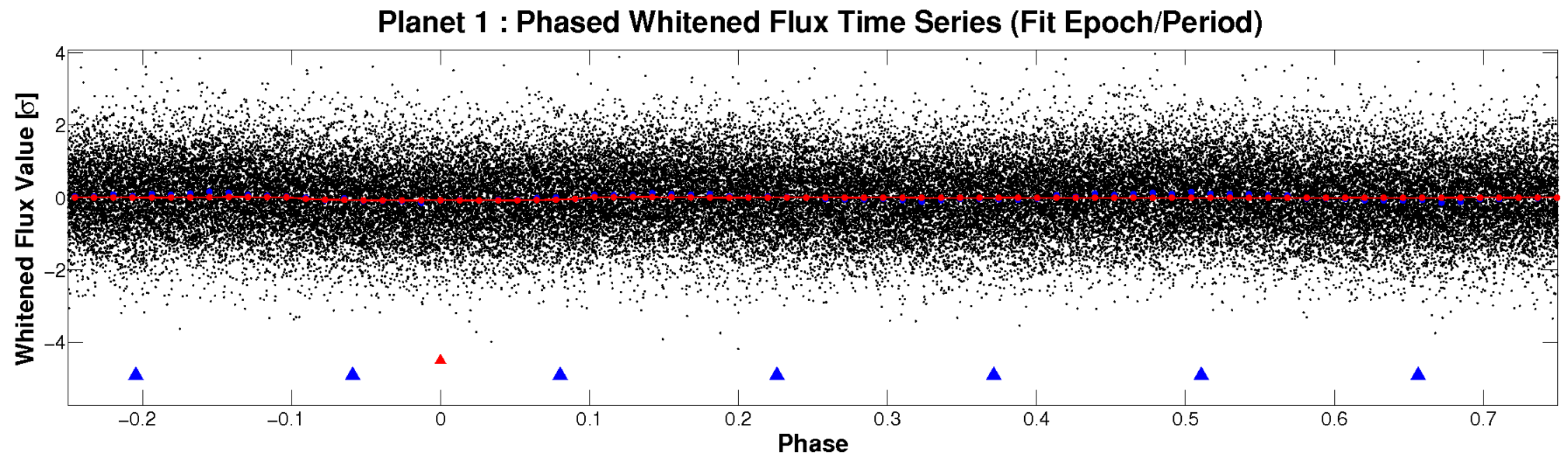
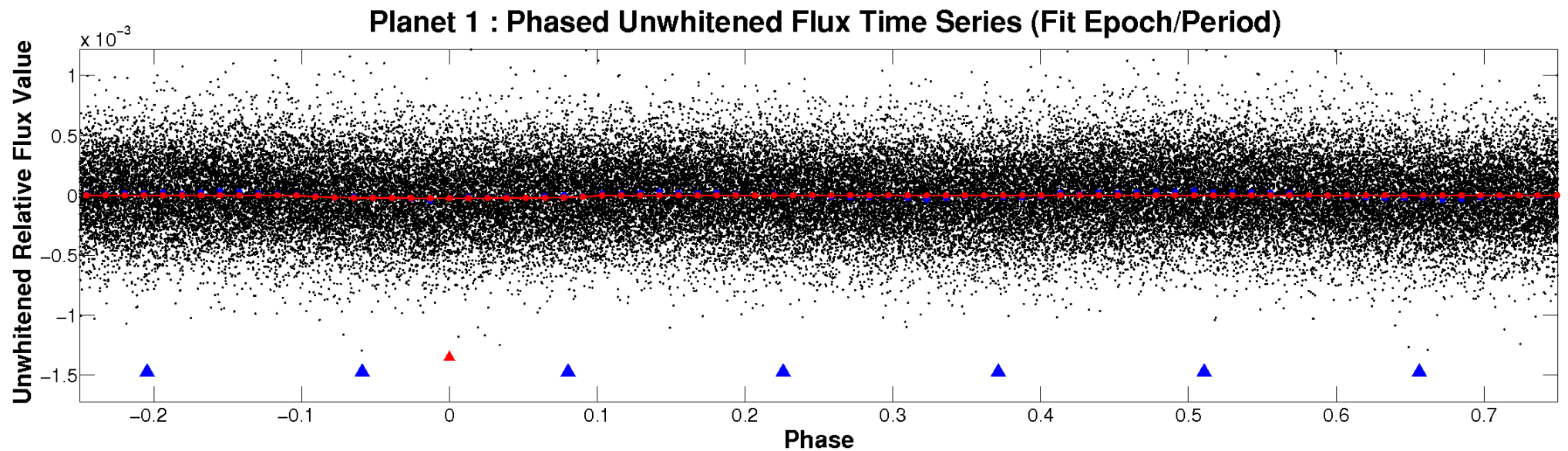


ALT Odd/Even

TCE 004768919-01

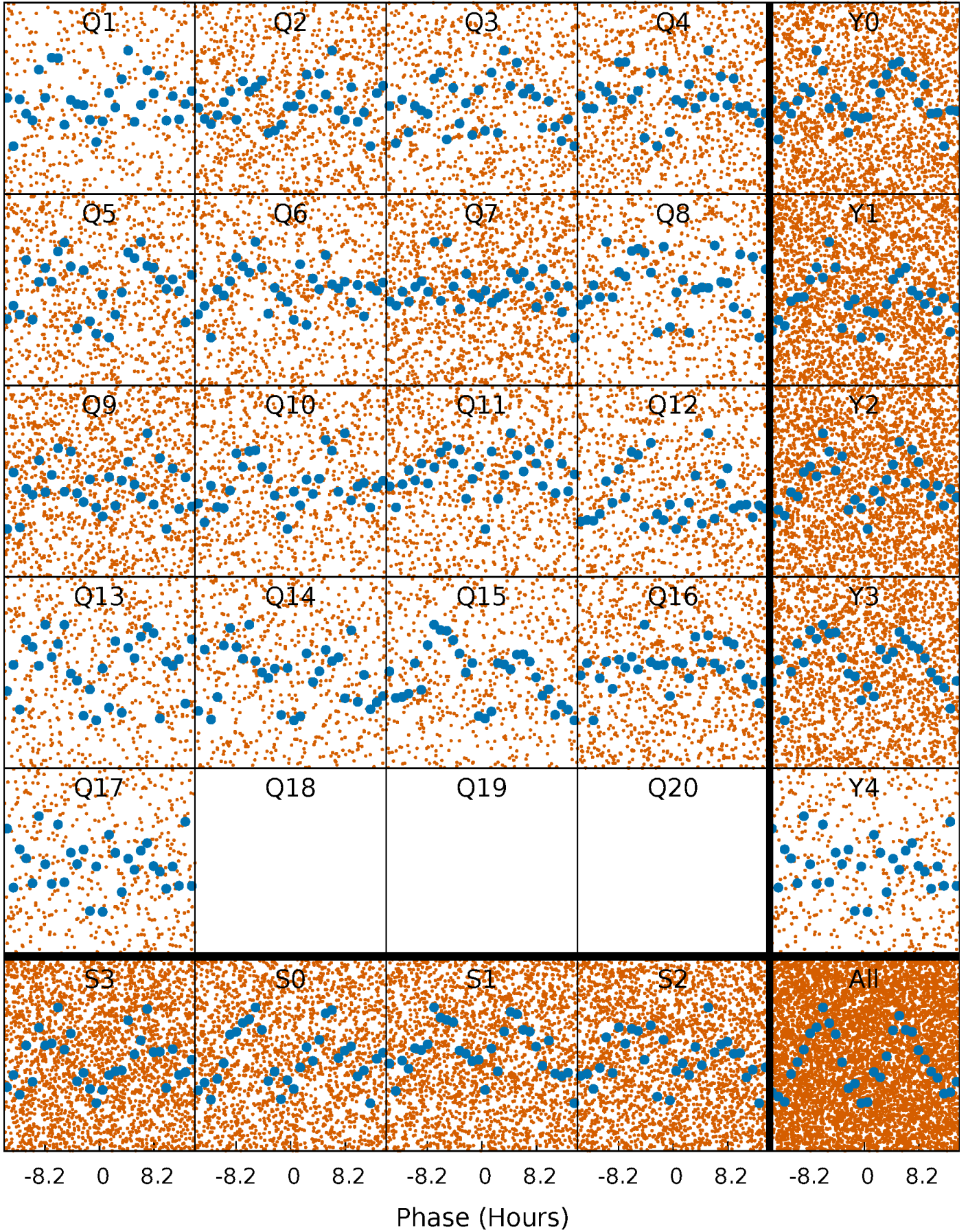


Non-Whitened Vs. Whitened Light Curve



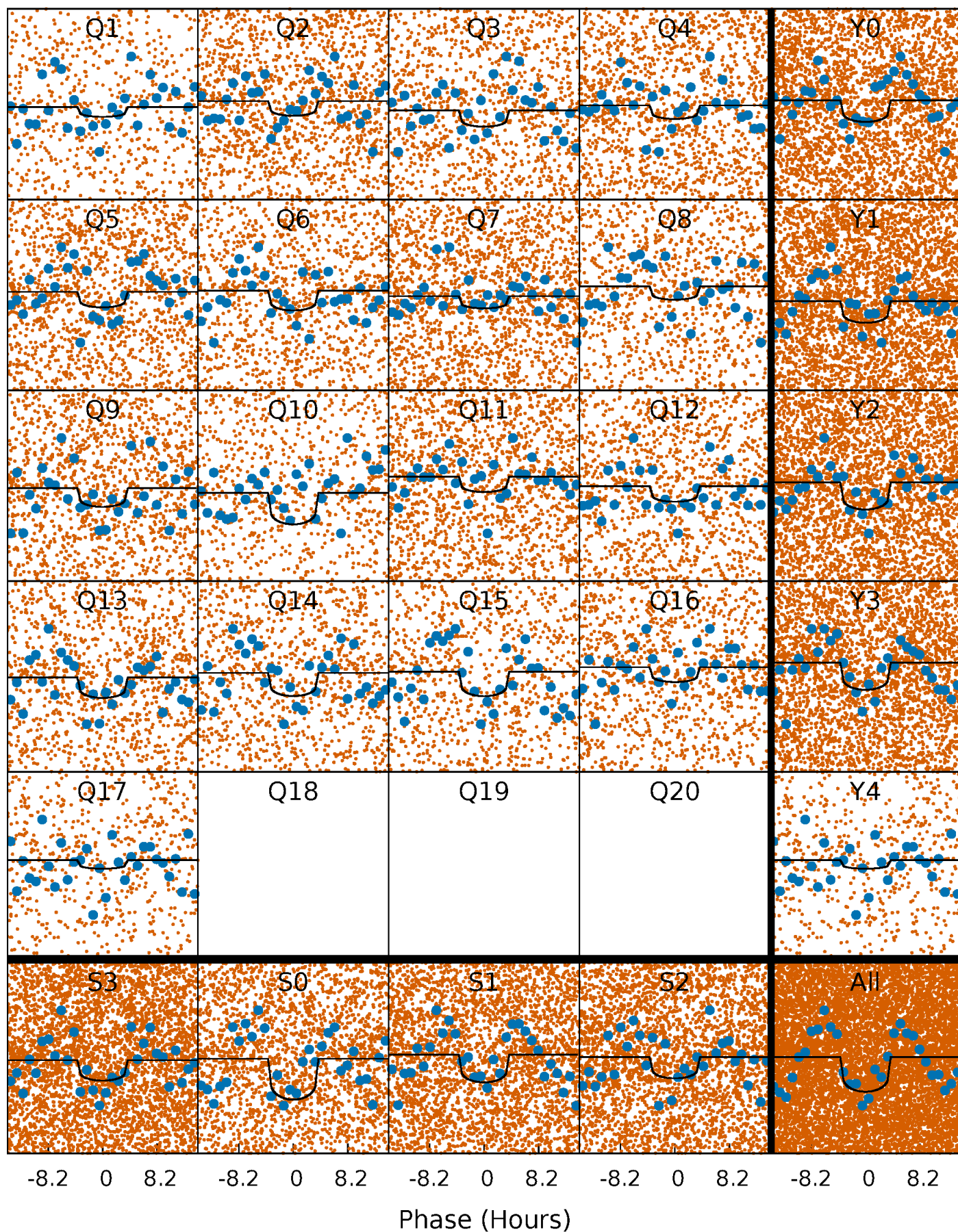
PDC Quarter-Phased Transit Curves

TCE 004768919-01 P= 1.581462 Days $T_0=132.456317$ (BKJD)



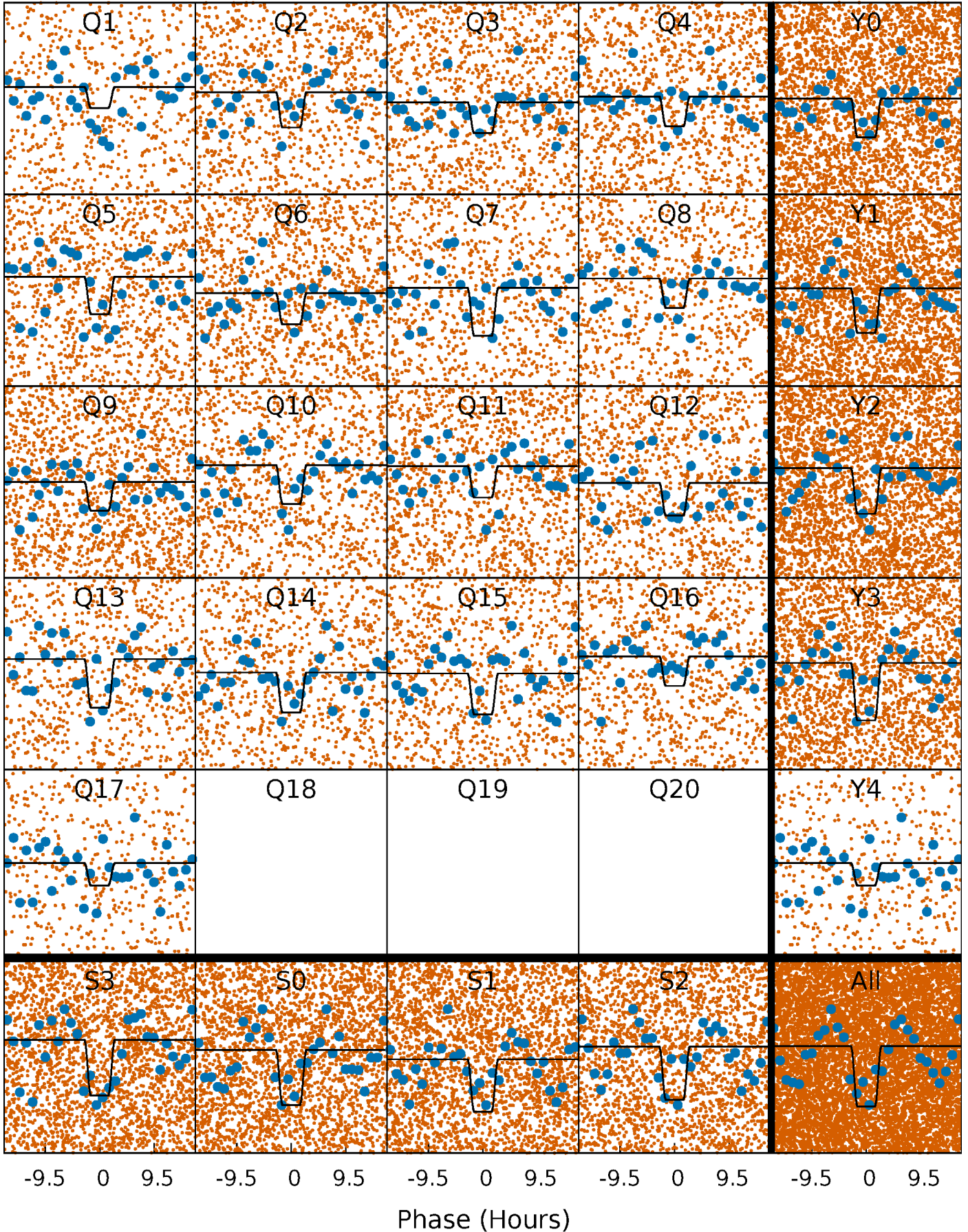
DV Quarter-Phased Transit Curves

TCE 004768919-01 P= 1.581462 Days $T_0=132.456317$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

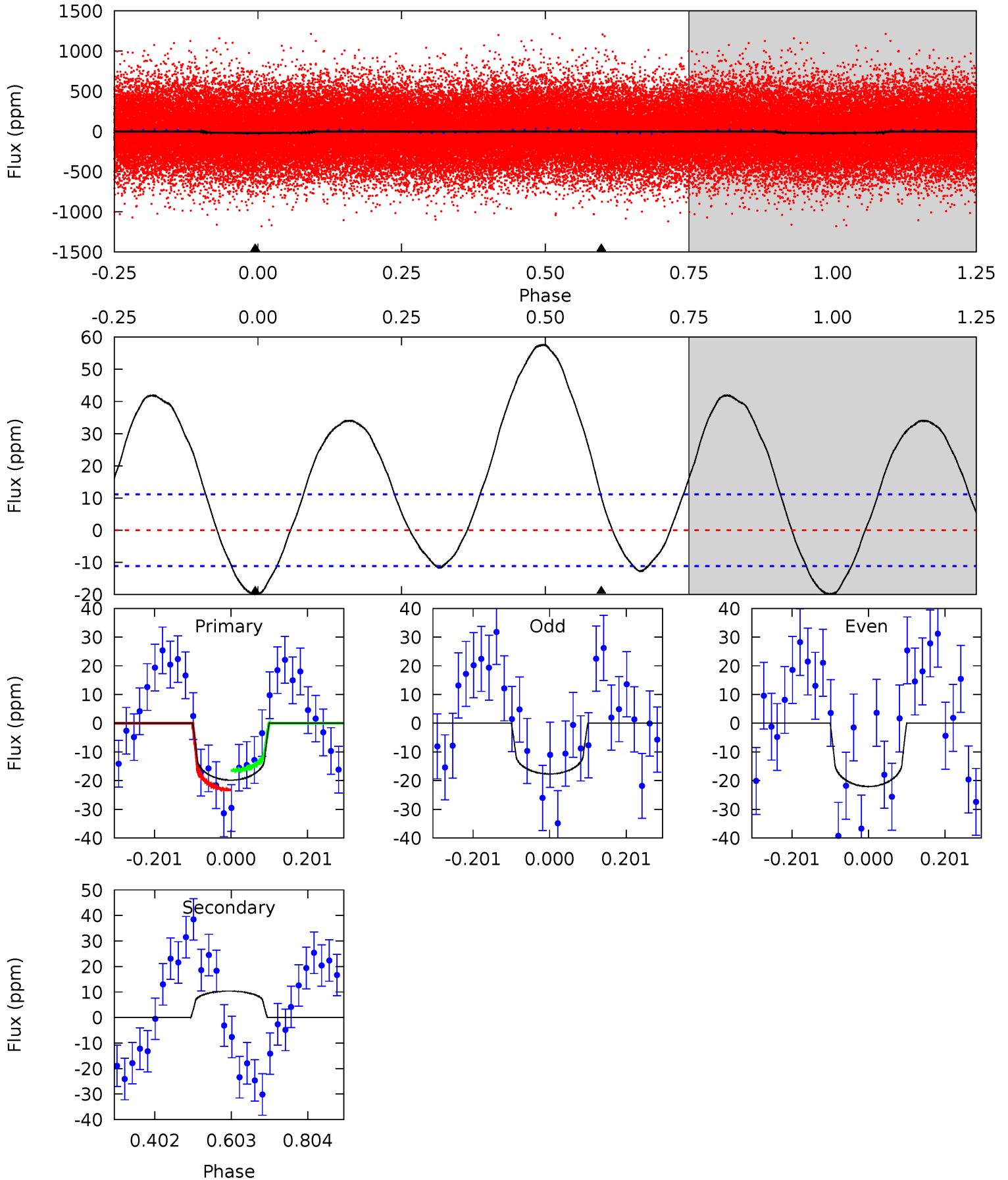
TCE 004768919-01 P= 1.581554 Days $T_0=132.409610$ (BKJD)



DV Model-Shift Uniqueness Test

004768919-01, P = 1.581462 Days, E = 130.874855 Days

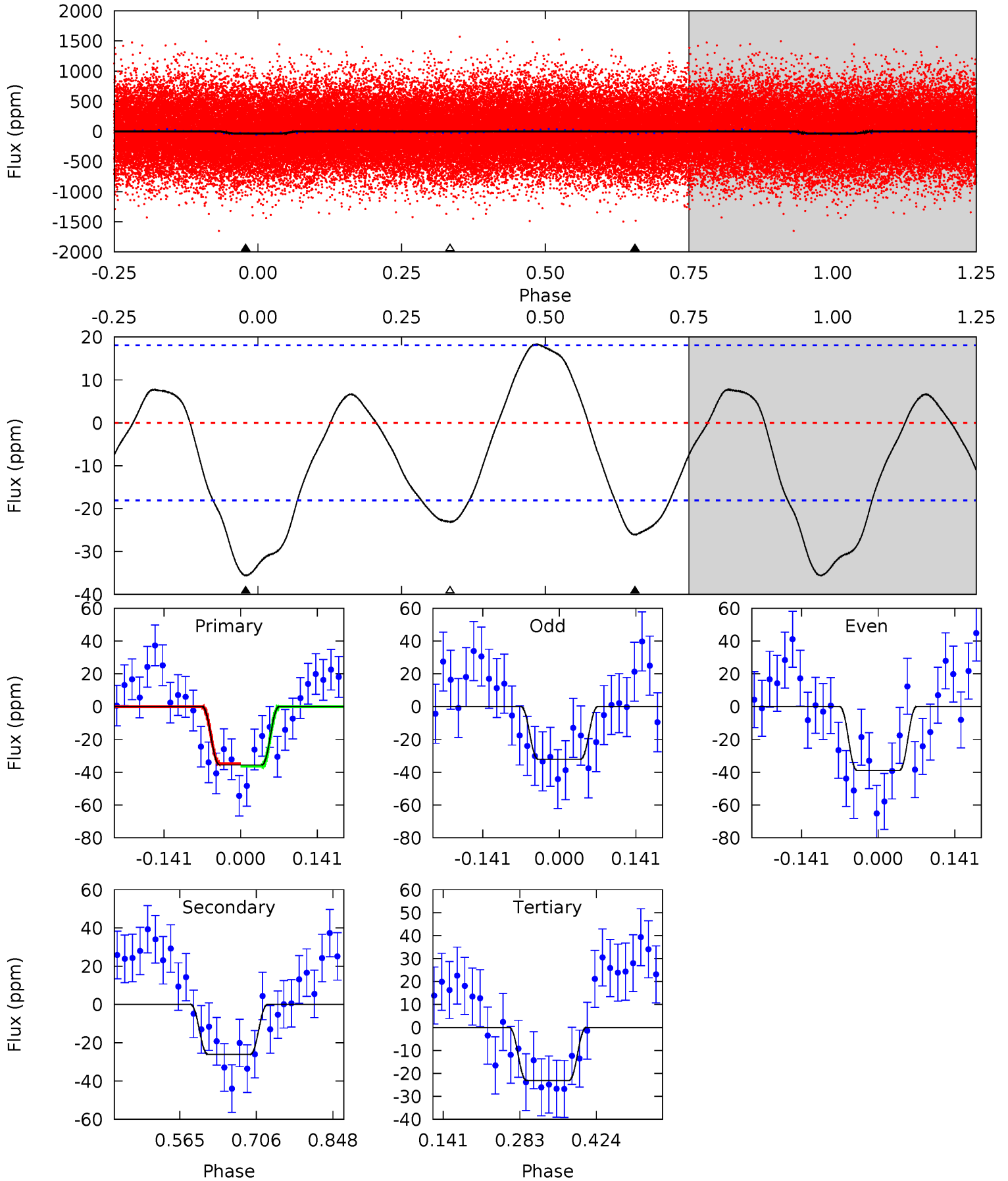
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.85	-4.10	0	0	4.42	1.28	4.61	7.85	7.85	-4.10	-4.10	0.87	0.94	0.74	1.32



Alt Model-Shift Uniqueness Test

004768919-01, P = 1.581554 Days, E = 130.828056 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.83	6.47	5.74	0	4.49	1.47	3.24	3.09	8.83	0.73	6.47	0.84	1.07	0.34	0.20



Stellar Parameters For KIC 004768919

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6734^{+272}_{-408}	$2.745^{+0.332}_{-0.179}$	$-0.500^{+0.550}_{-0.500}$	$12.643^{+1.696}_{-5.088}$	$3.239^{+0.051}_{-0.921}$	$0.002^{+0.005}_{-0.001}$
	+4%/-6%	+12%/-7%	+110%/-100%	+13%/-40%	+2%/-28%	+238%/-40%
Source	PHO1	FLK73	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 004768919-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	10 ± 3	$6.05^{+4.61}_{-3.66}$	7388^{+591}_{-822}	-7031^{+877}_{-2760}	$-0.219^{+0.148}_{-1.197}$
Alt.	-26 ± 4	$8.66^{+4.86}_{-4.33}$	7411^{+567}_{-792}	-3722^{+11322}_{-1843}	$0.267^{+0.813}_{-0.156}$

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

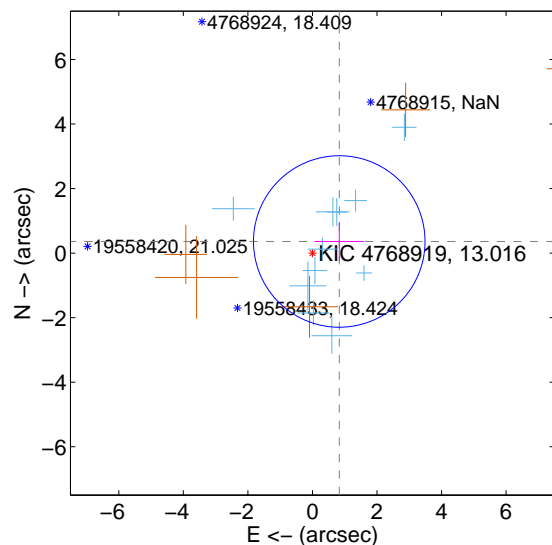
Supplemental centroid analysis for 004768919-01. Kepler magnitude: 13.02. Transit SNR 7.85

There are 11 quarters with good PRF difference image offsets

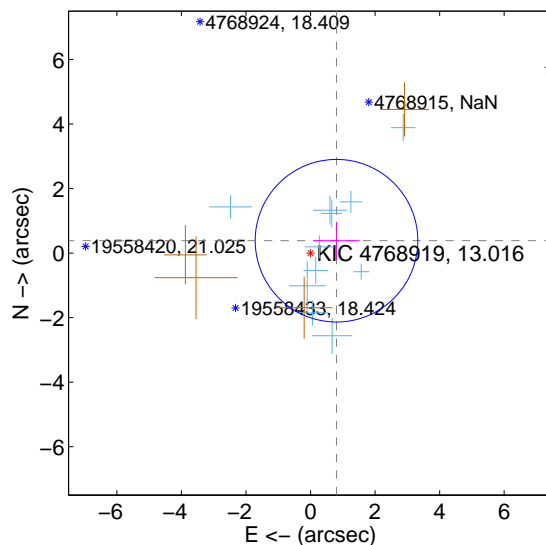
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.905 ± 0.886	1.02	-0.831 ± 0.767	0.360 ± 0.603
PRF-fit source offset from KIC position	0.892 ± 0.840	1.06	-0.805 ± 0.722	0.384 ± 0.584
photometric centroid source offset	3.43 ± 0.94	3.65	-3.27 ± 0.94	1.05 ± 0.91

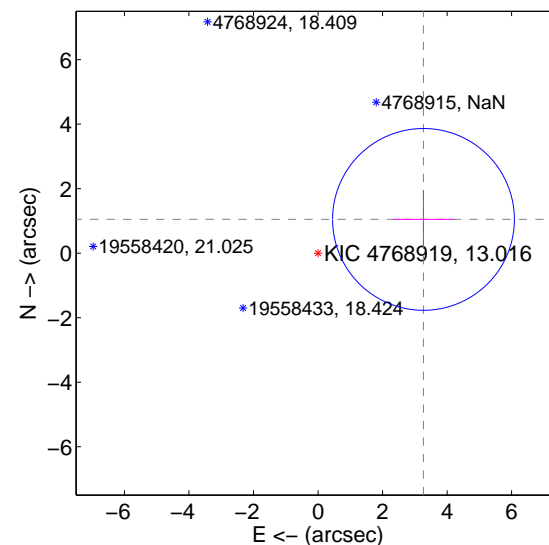
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

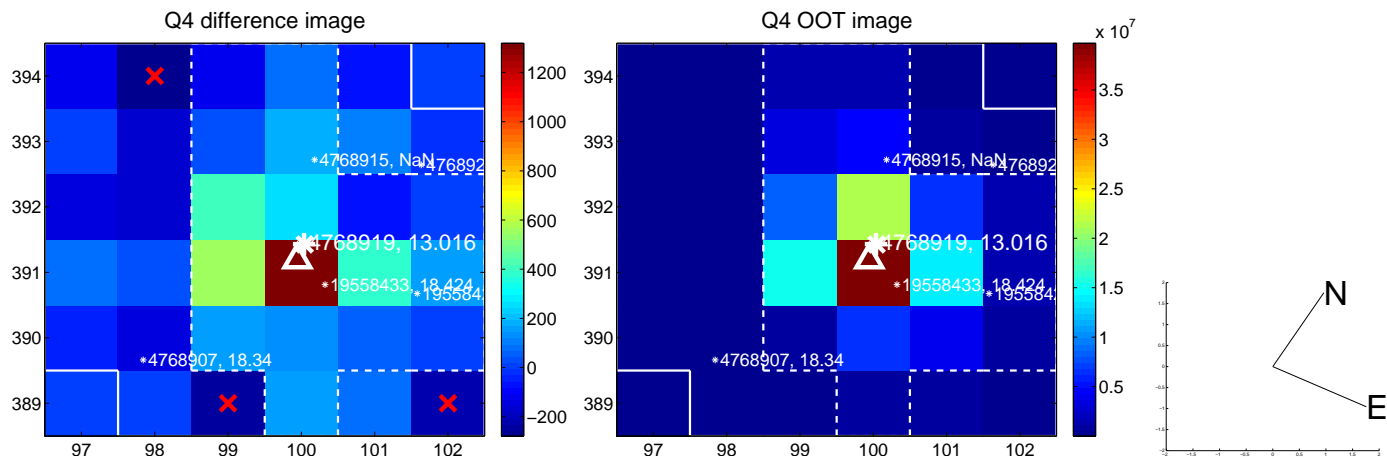
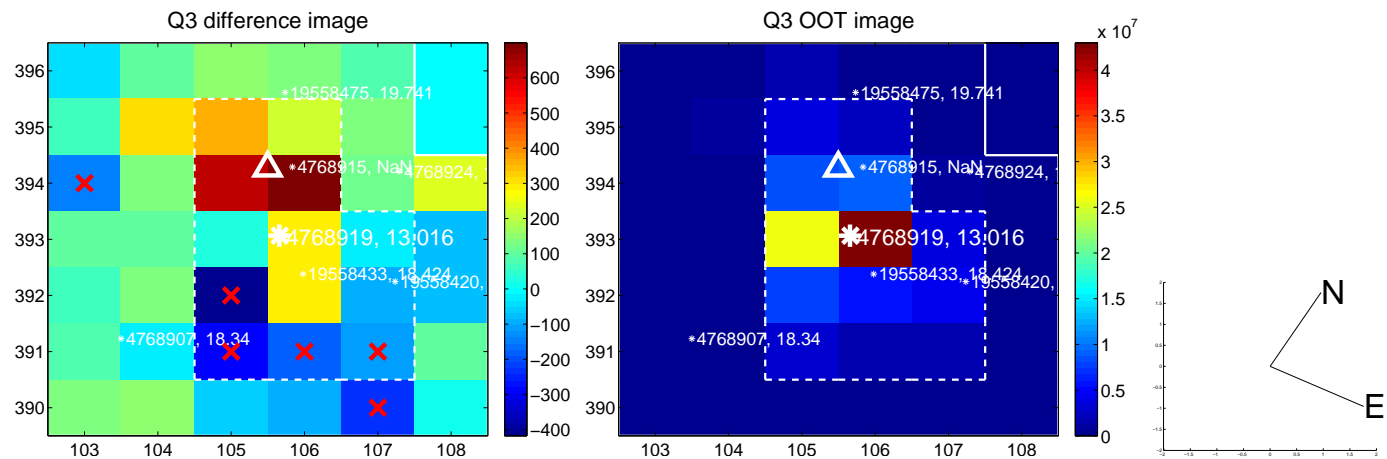
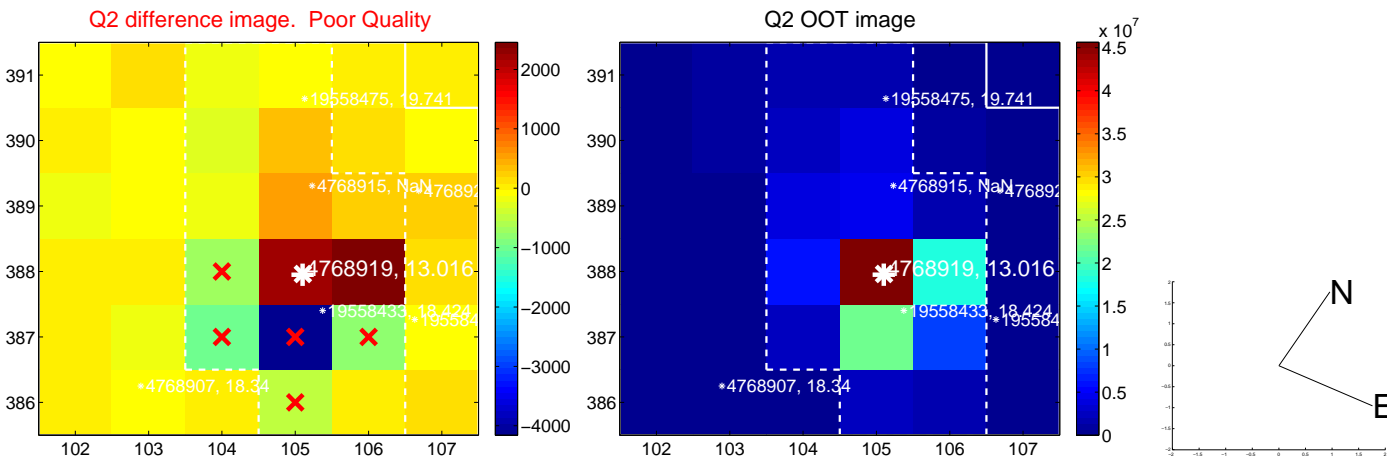
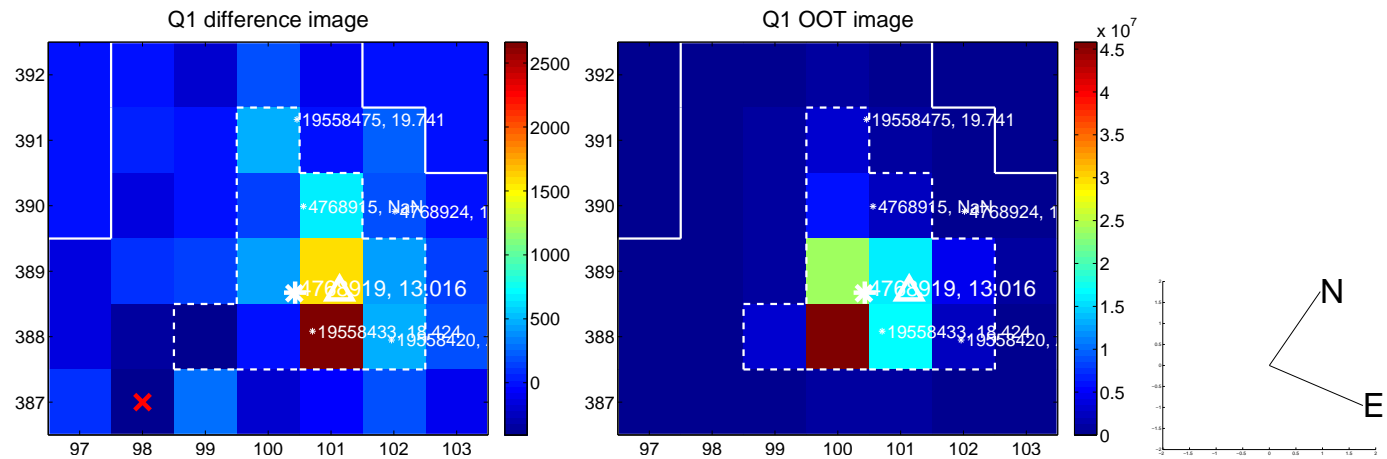


offset from photometric centroids

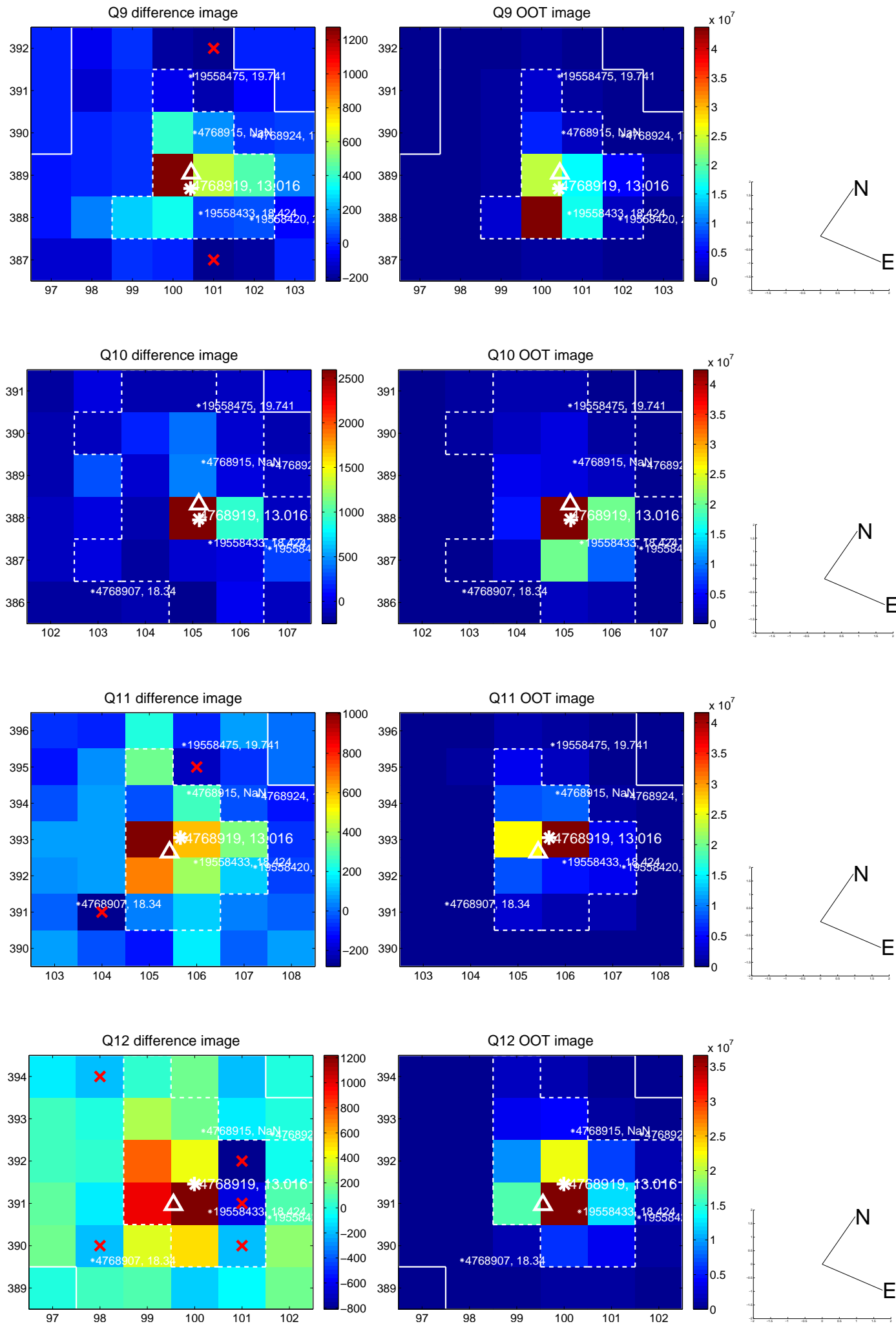


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

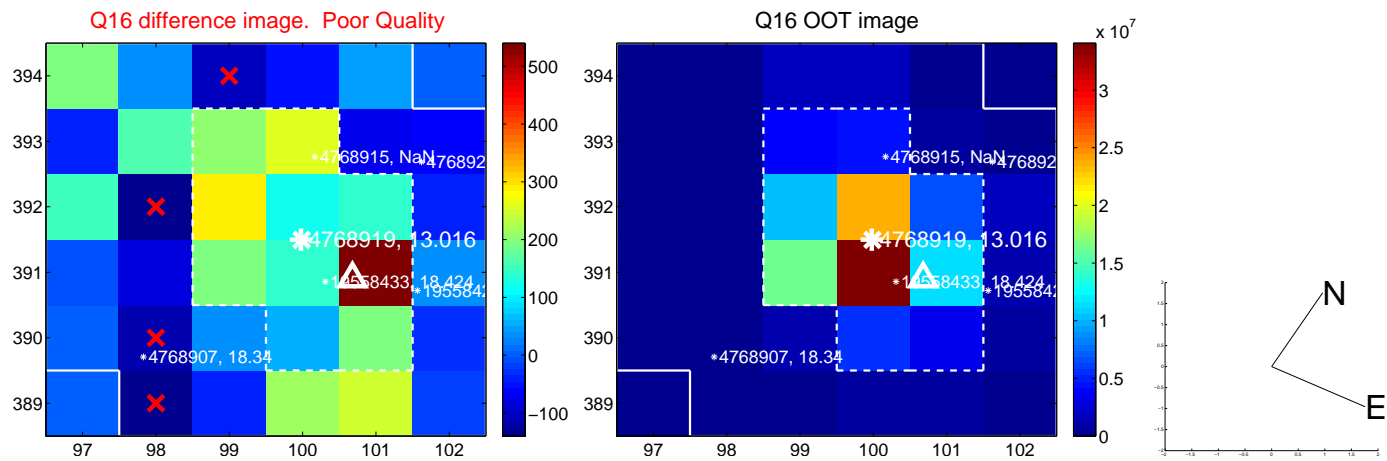
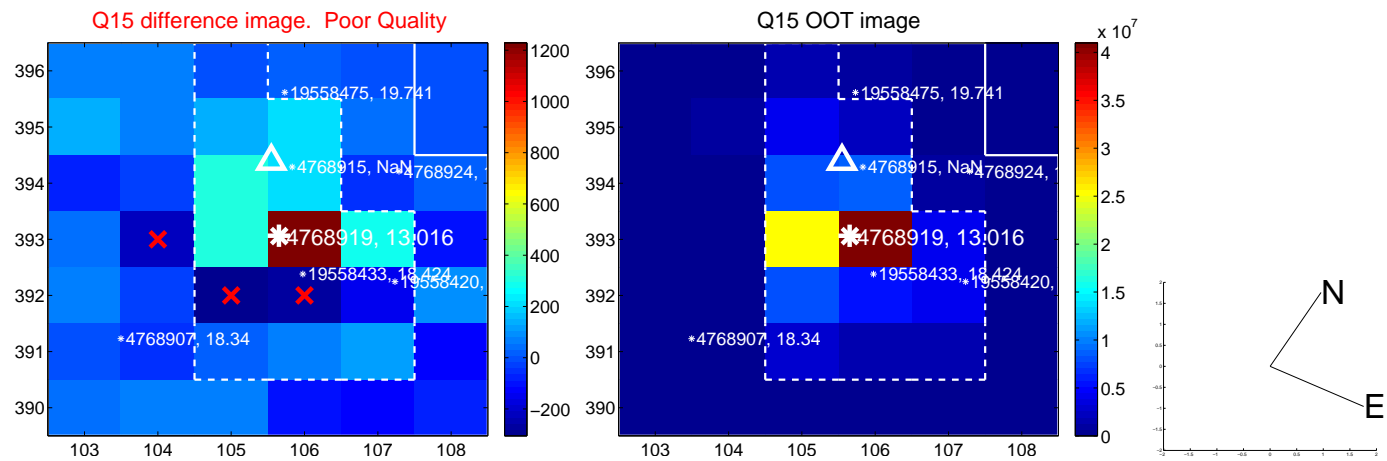
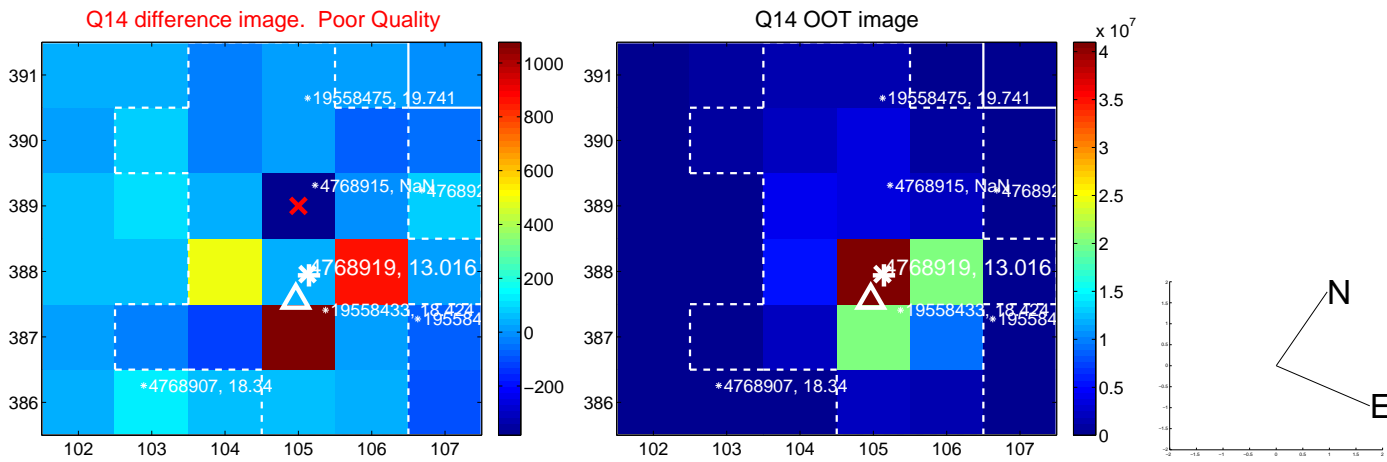
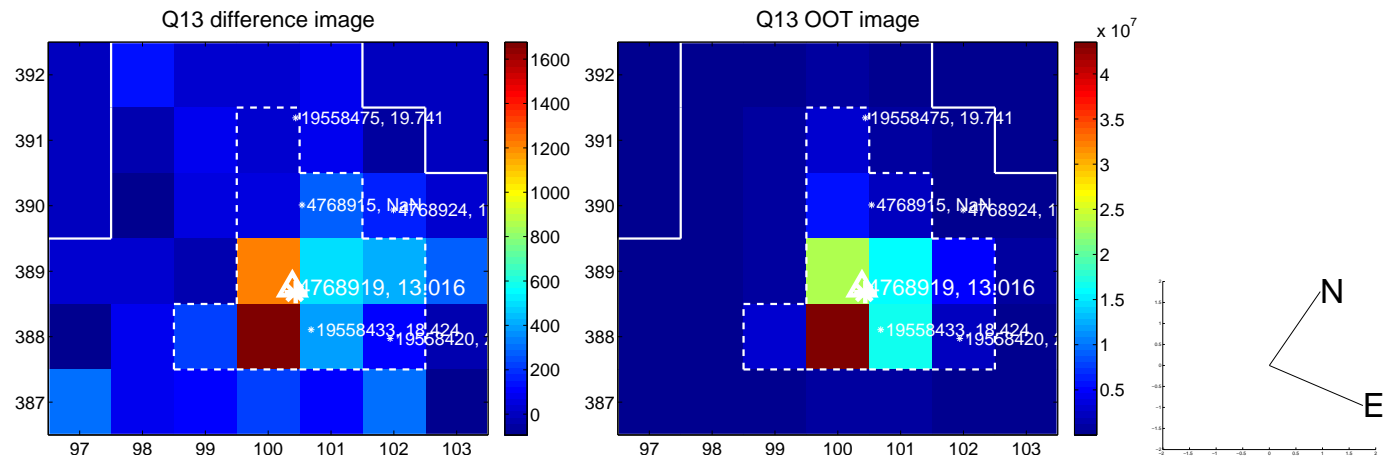
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



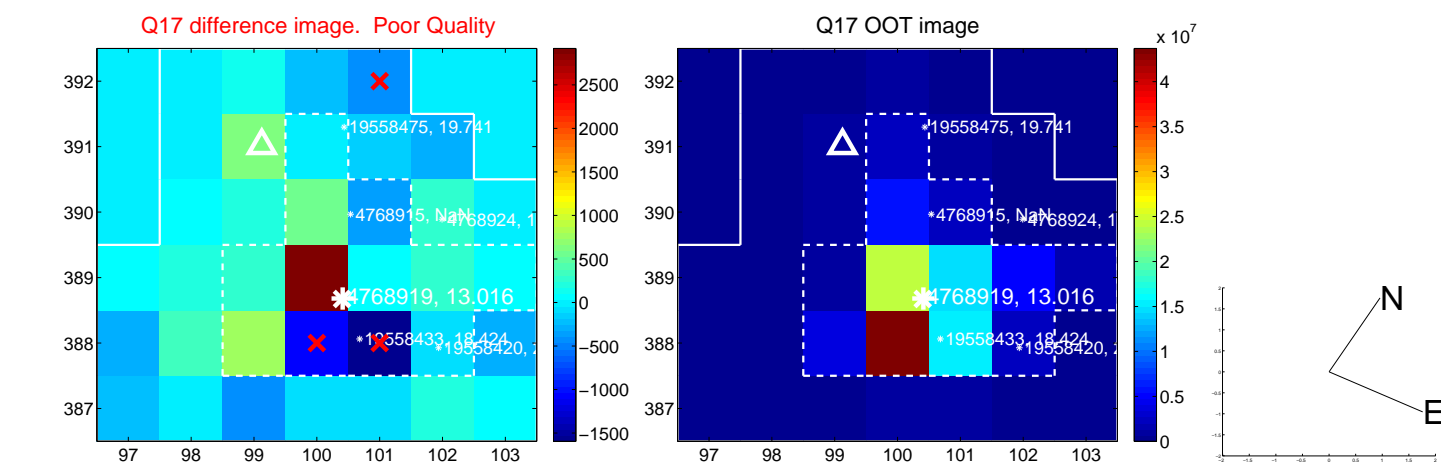
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



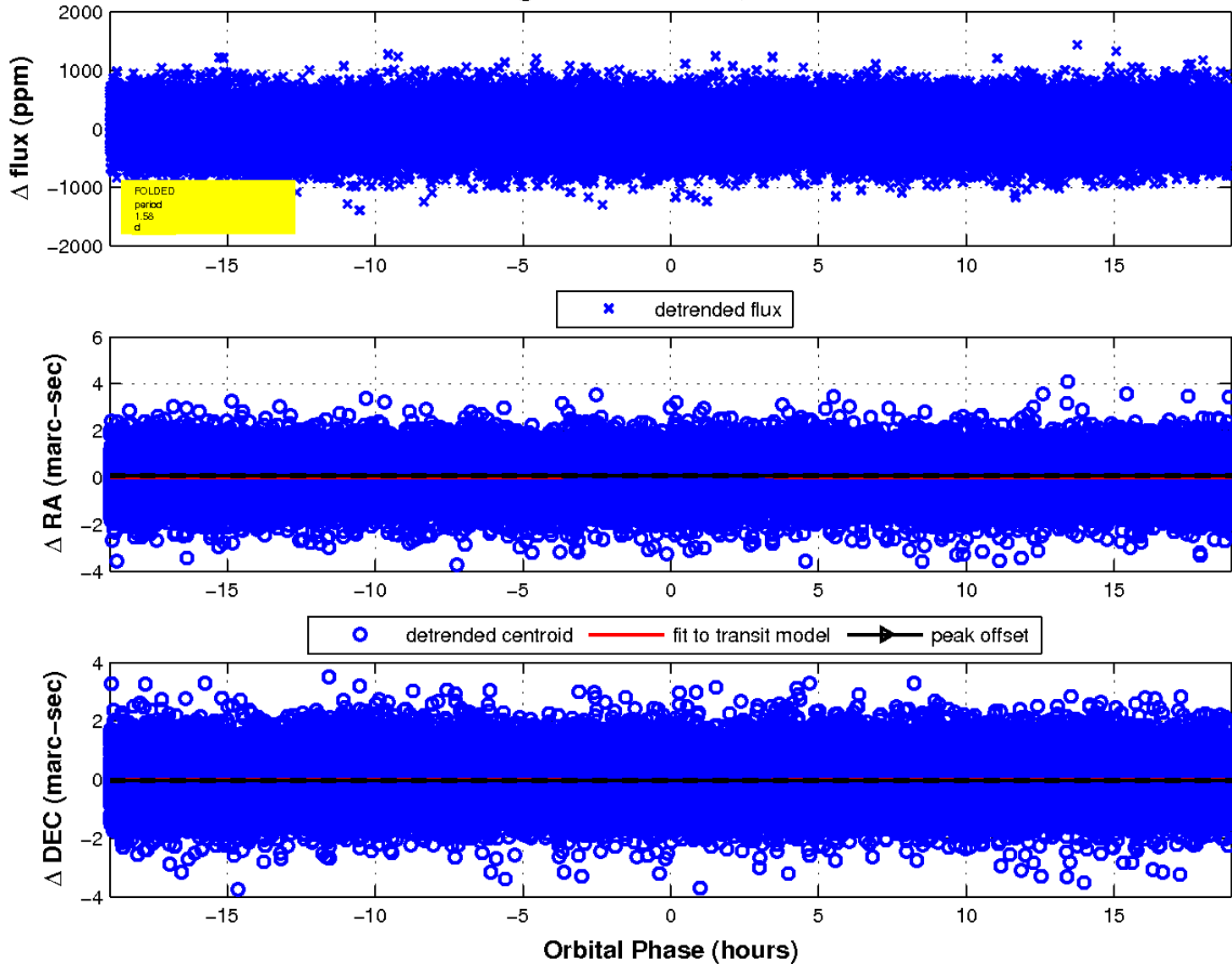
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

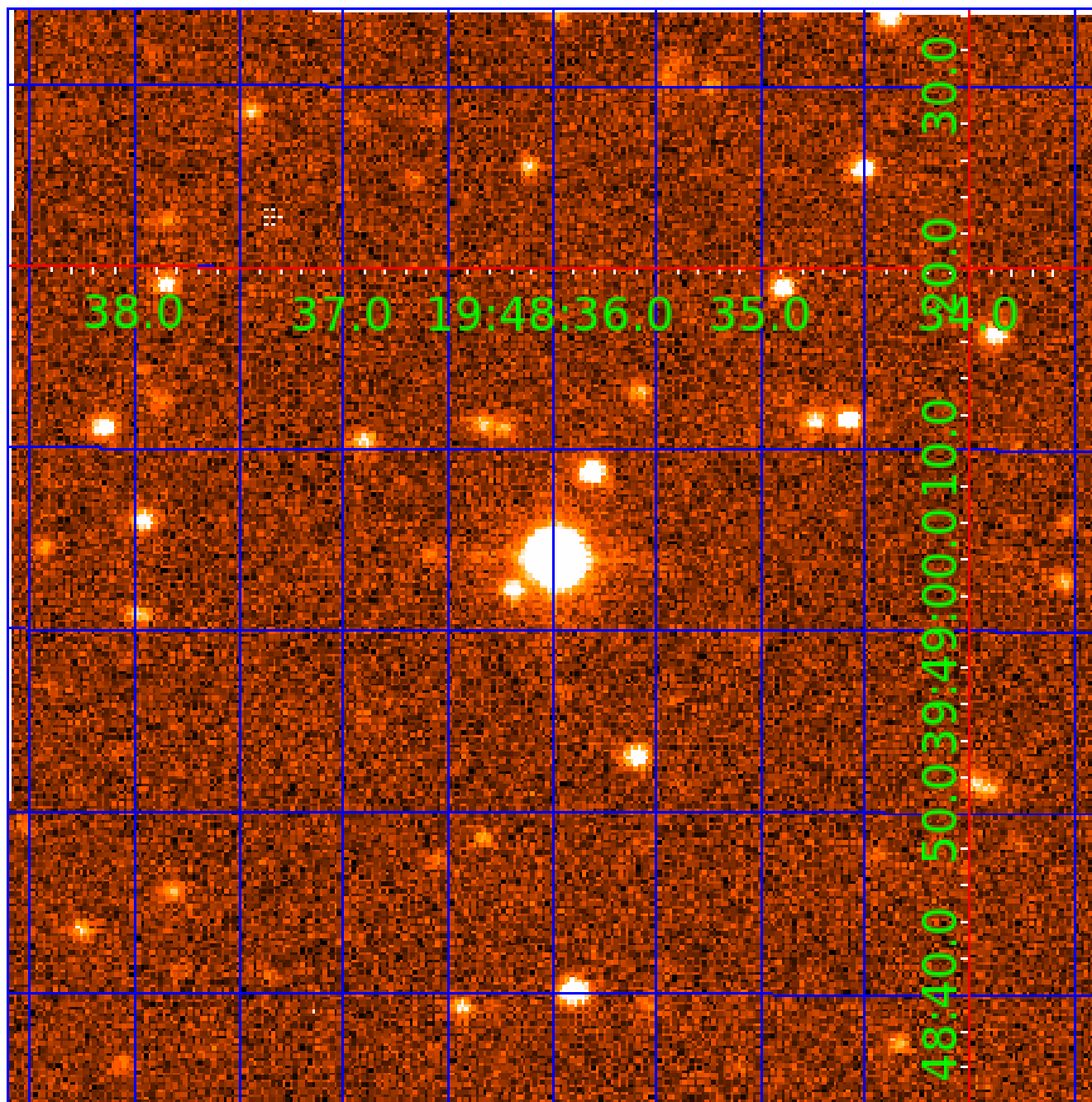


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 004768919

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})
004768919-01	OBS	No	1.581462	132.456317	23.6	7.188	8.9	7.8	12.64	6734	6.17	0.00
004768919-02	OBS	No	224.117133	191.097441	300.6	14.224	10.3	7.2	12.64	6734	23.08	257.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004768919-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004768919-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

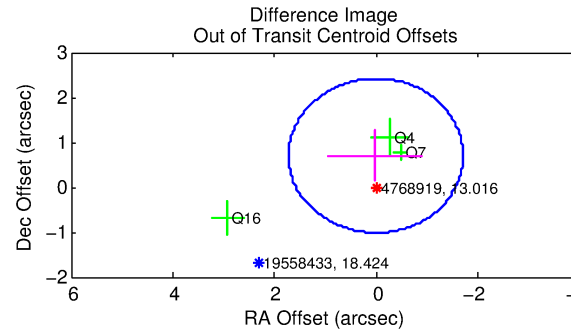
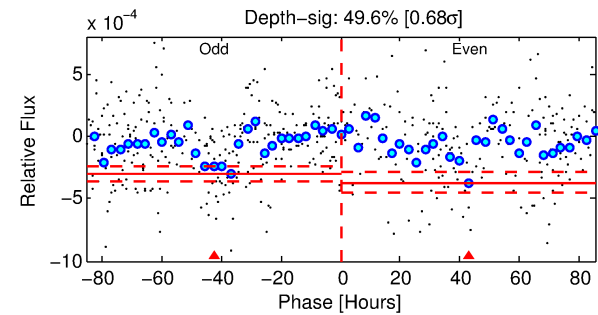
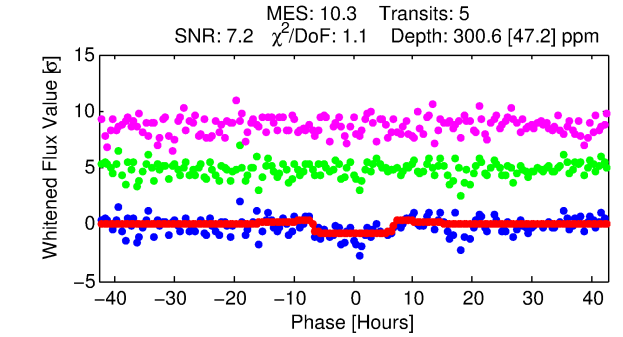
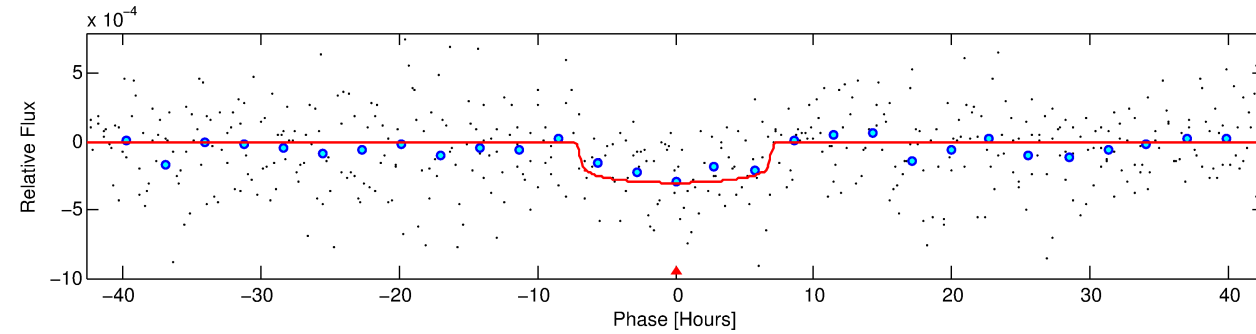
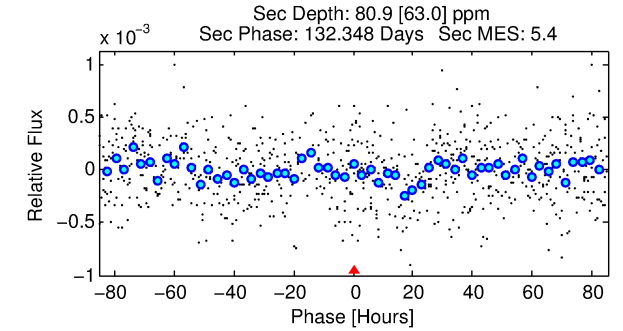
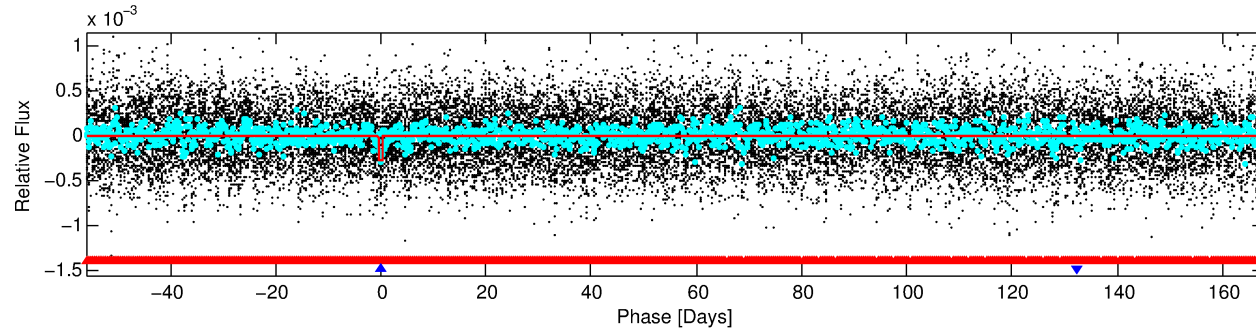
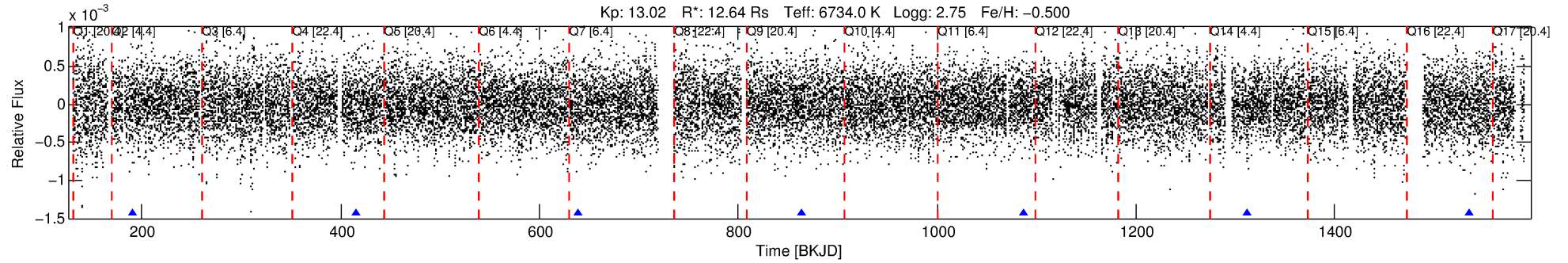
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004768919-02

No Significant Match Found

DV One-Page Summary

KIC: 4768919 Candidate: 2 of 2 Period: 224.117 d



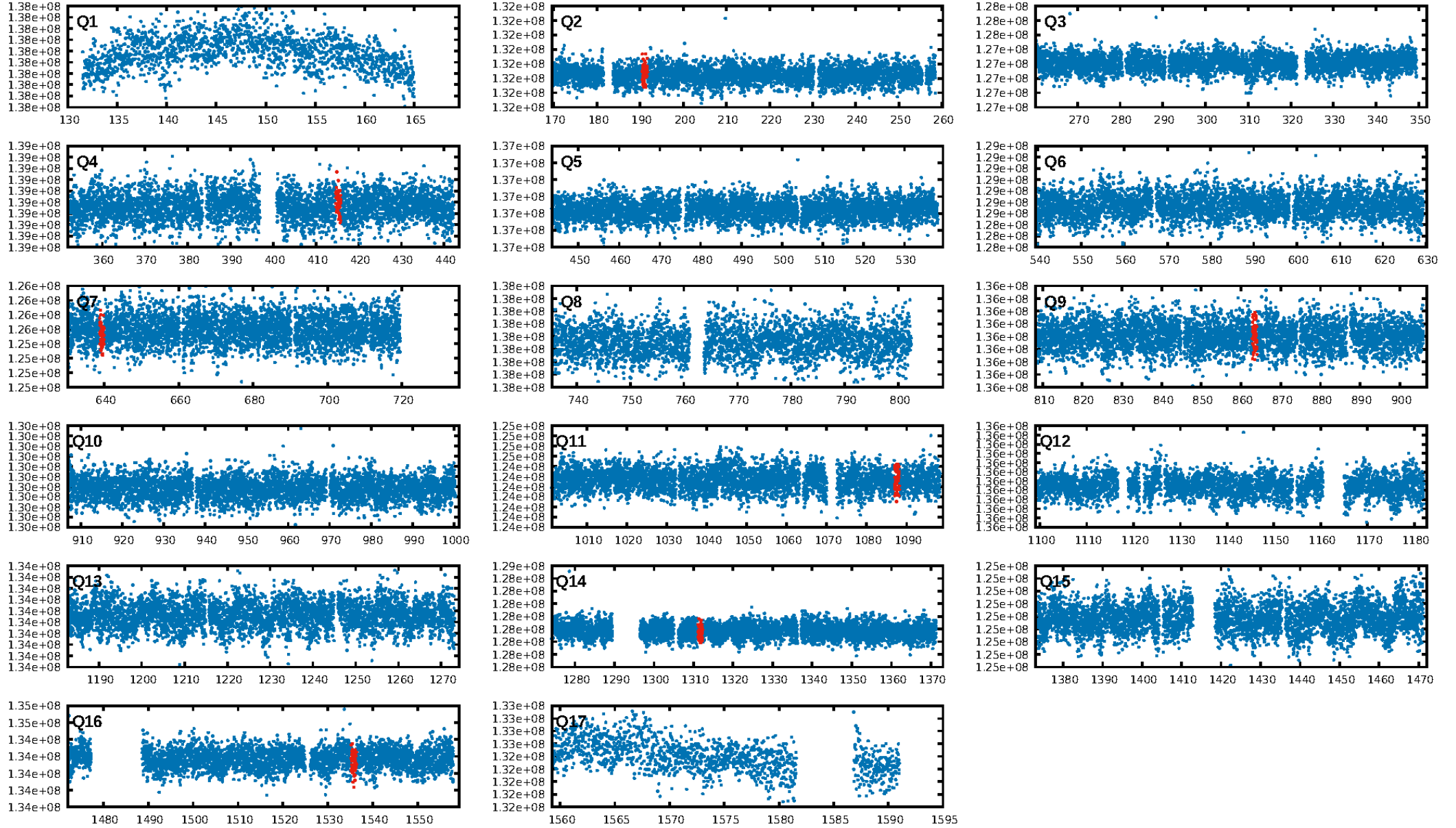
DV Fit Results:

Period = 224.11713 [0.00681] d
Epoch = 191.0974 [0.0257] BKJD
Rp/R* = 0.0167 [0.0091]
a/R* = 97.34 [290.13]
b = 0.62 [3.02]
Seff = 257.78 [161.08]
Teq = 1022 [160] K
Rp = 23.08 [15.60] Re
a = 1.0688 [0.3955] AU
Ag = 95.49 [138.93] [0.68 σ]
Teffp = 4938 [1676] K [2.33 σ]

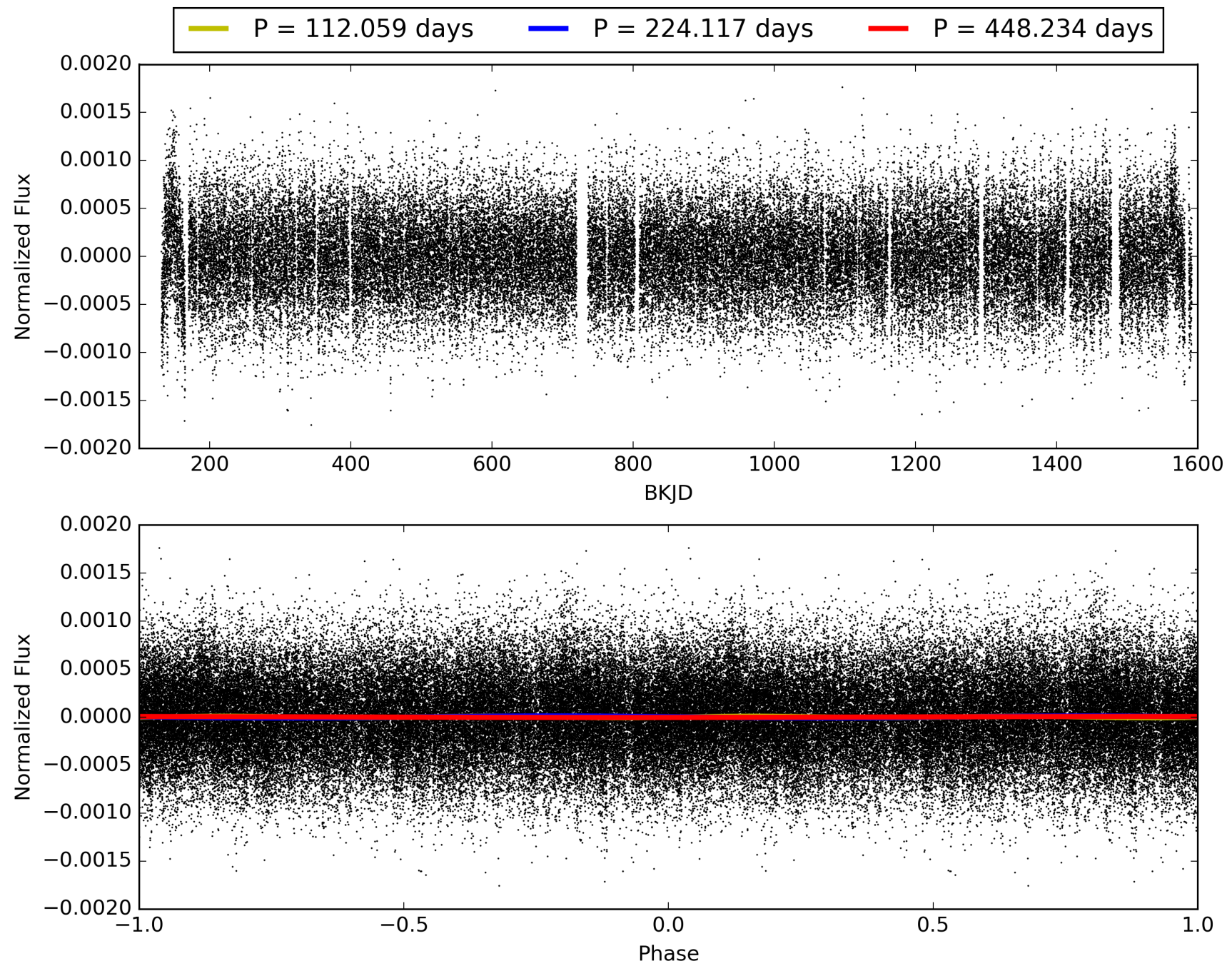
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [335.13 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 13.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.05e-21
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 2.208
Centroid-sig: 13.9%
Centroid-so: 0.807 arcsec [1.21 σ]
OotOffset-rm: 0.699 arcsec [1.22 σ]
OotOffset-st: 0/1/2/0 [3]
KicOffset-rm: 0.687 arcsec [1.08 σ]
KicOffset-st: 0/1/2/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.00 [0/7]

TCE 004768919-02, PDC Light Curves

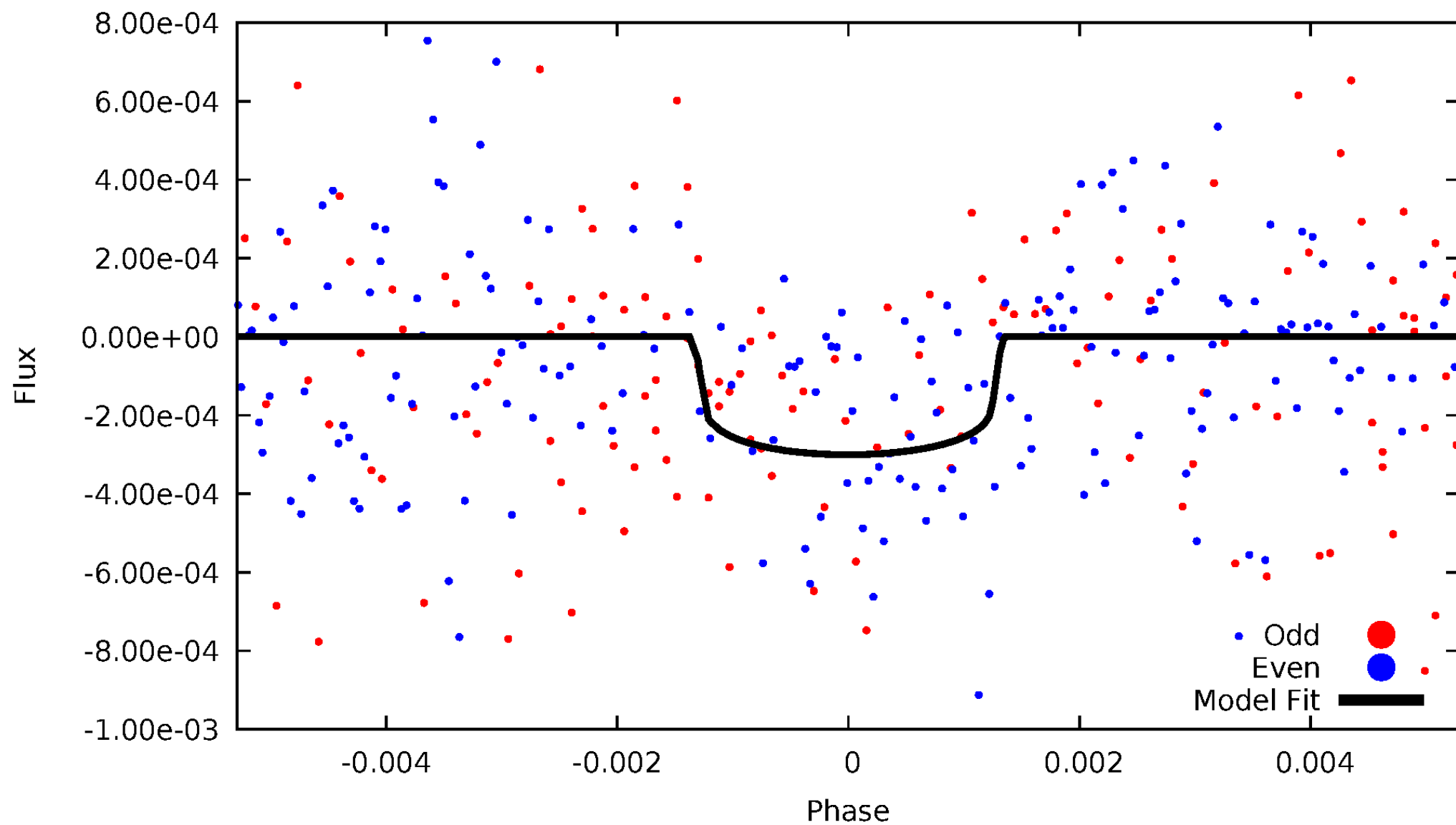


TCE 004768919-02



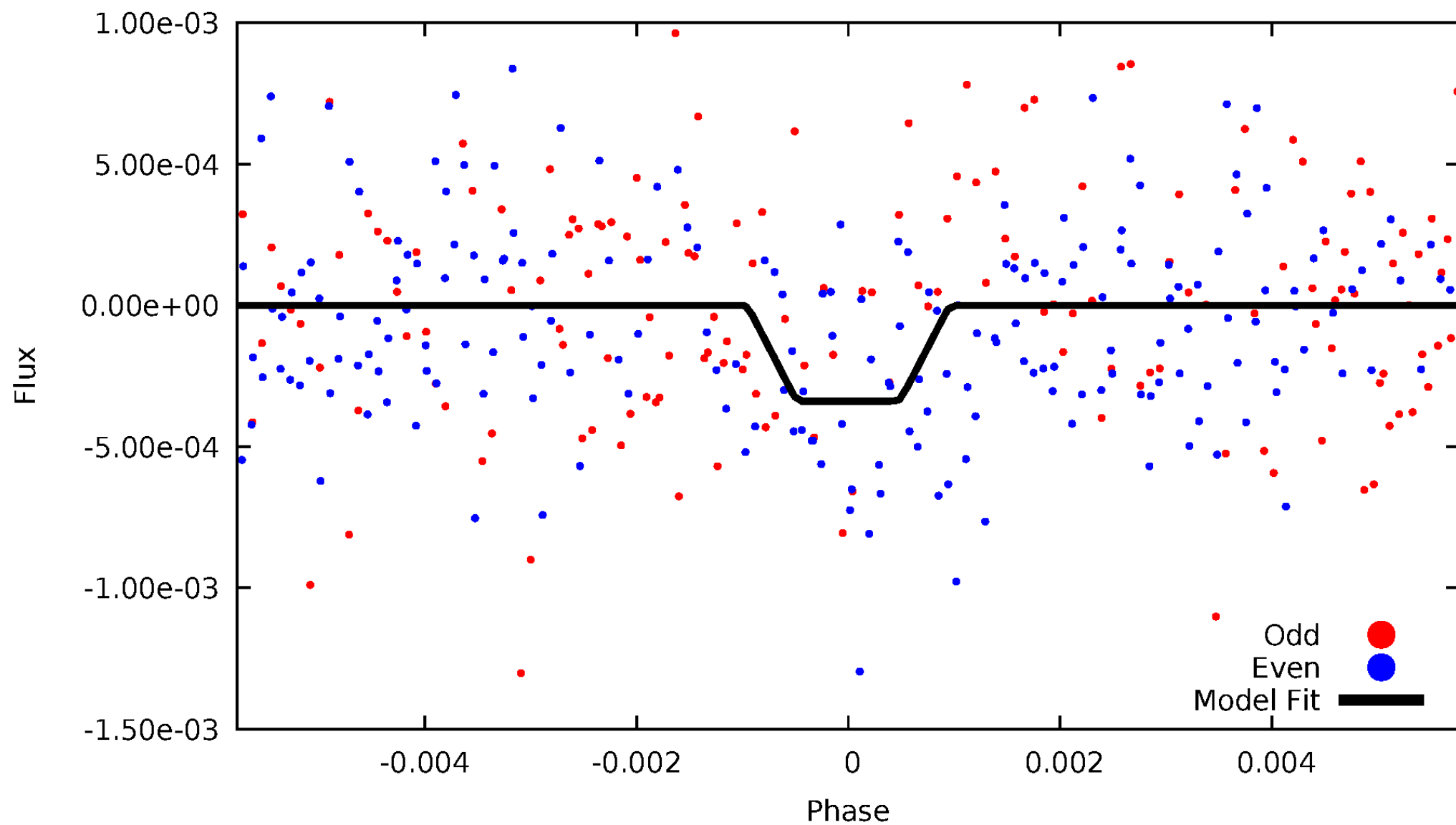
DV Odd/Even

TCE 004768919-02



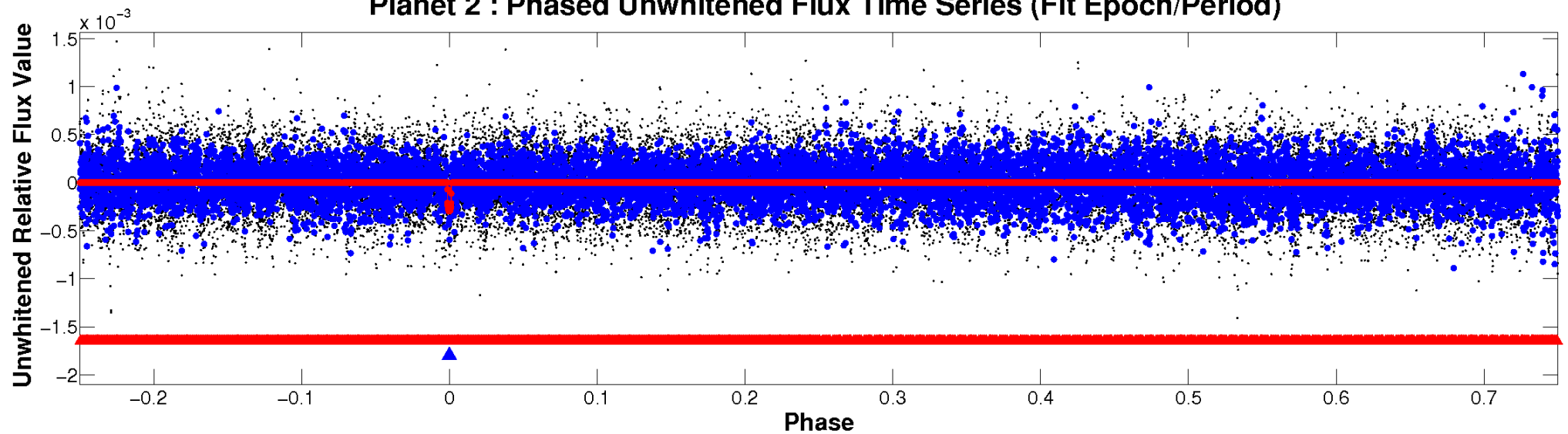
ALT Odd/Even

TCE 004768919-02

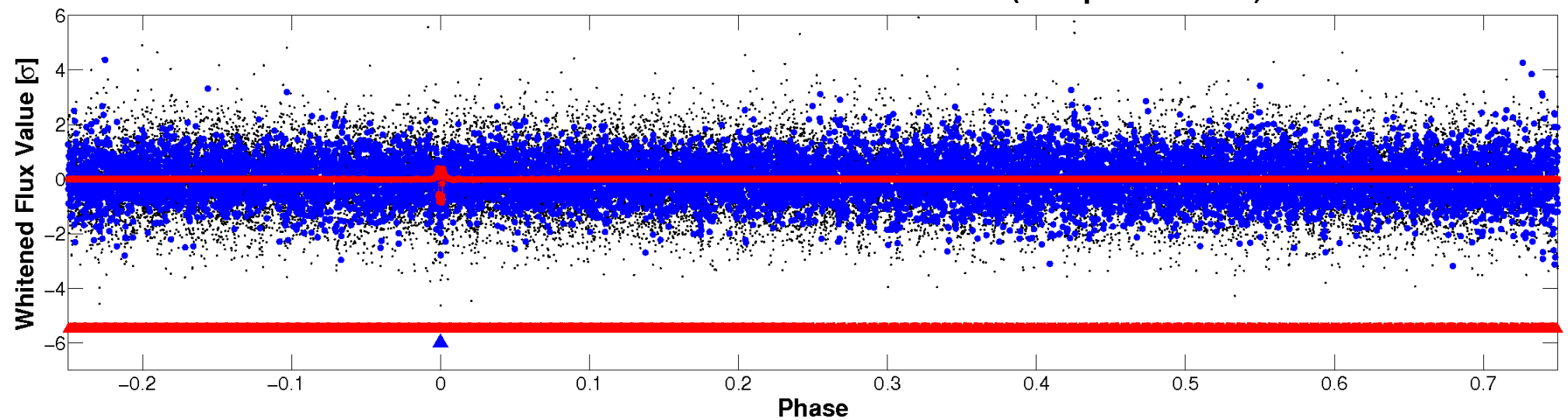


Non-Whitened Vs. Whitened Light Curve

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

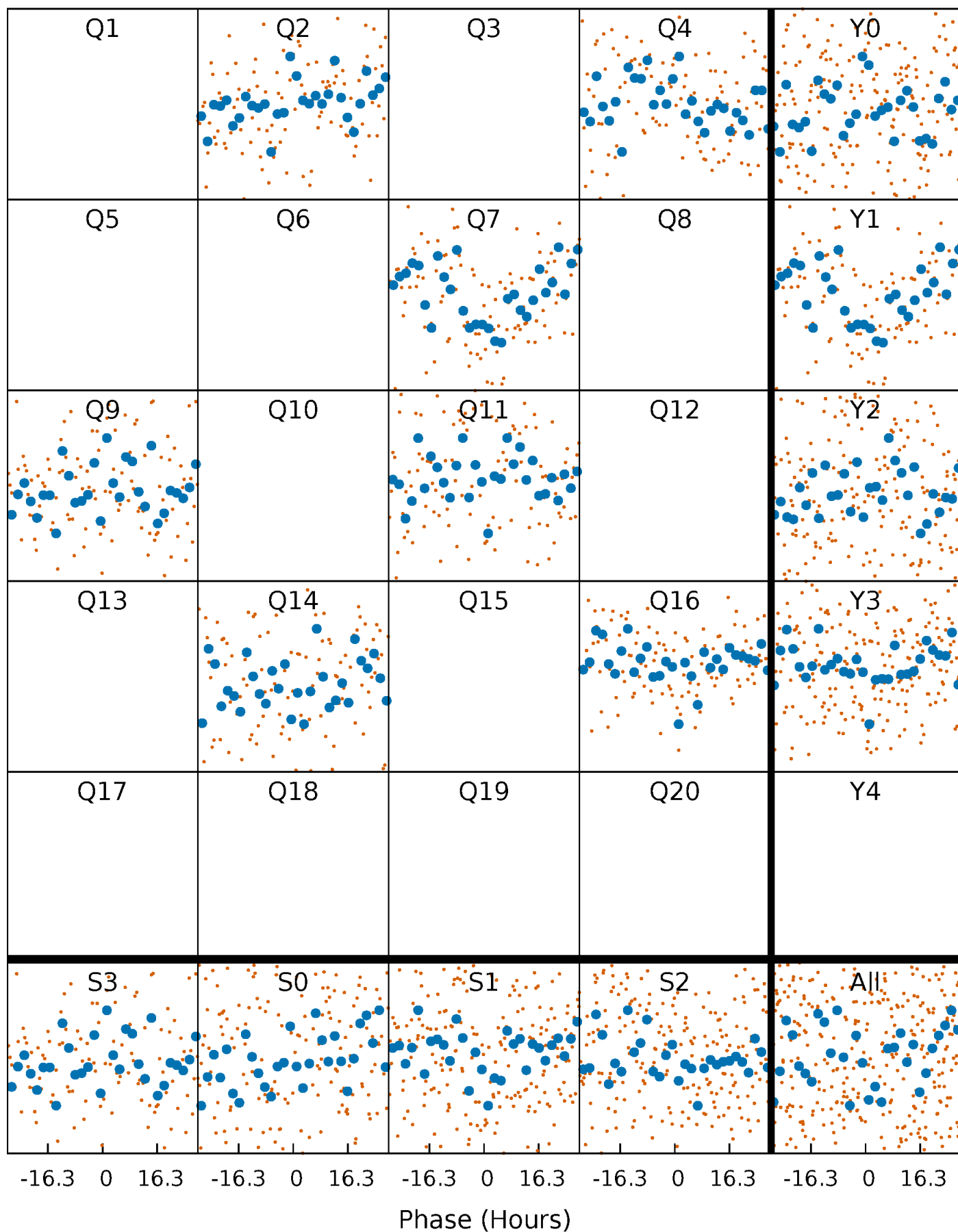


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



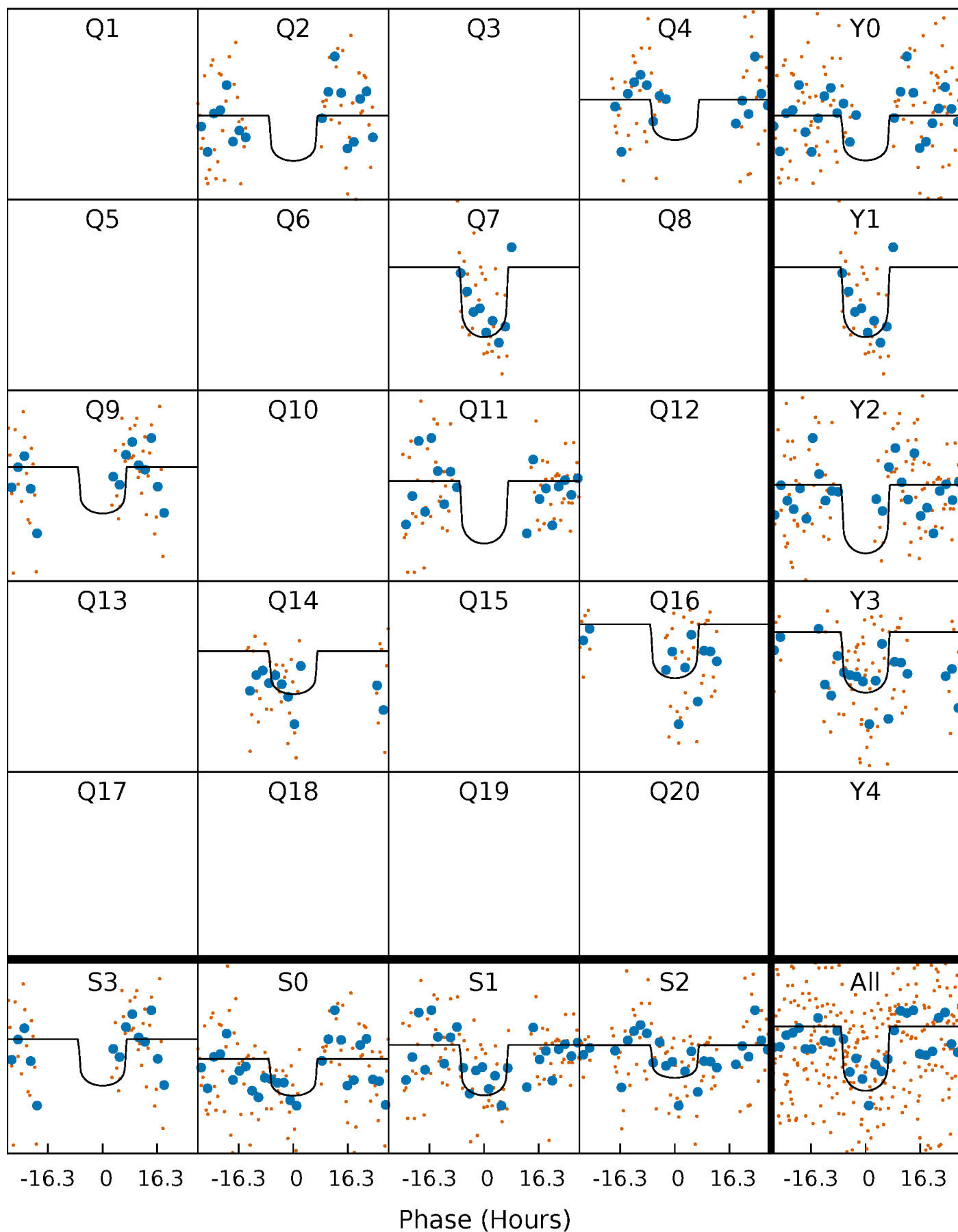
PDC Quarter-Phased Transit Curves

TCE 004768919-02 P=224.117133 Days $T_0=191.097441$ (BKJD)



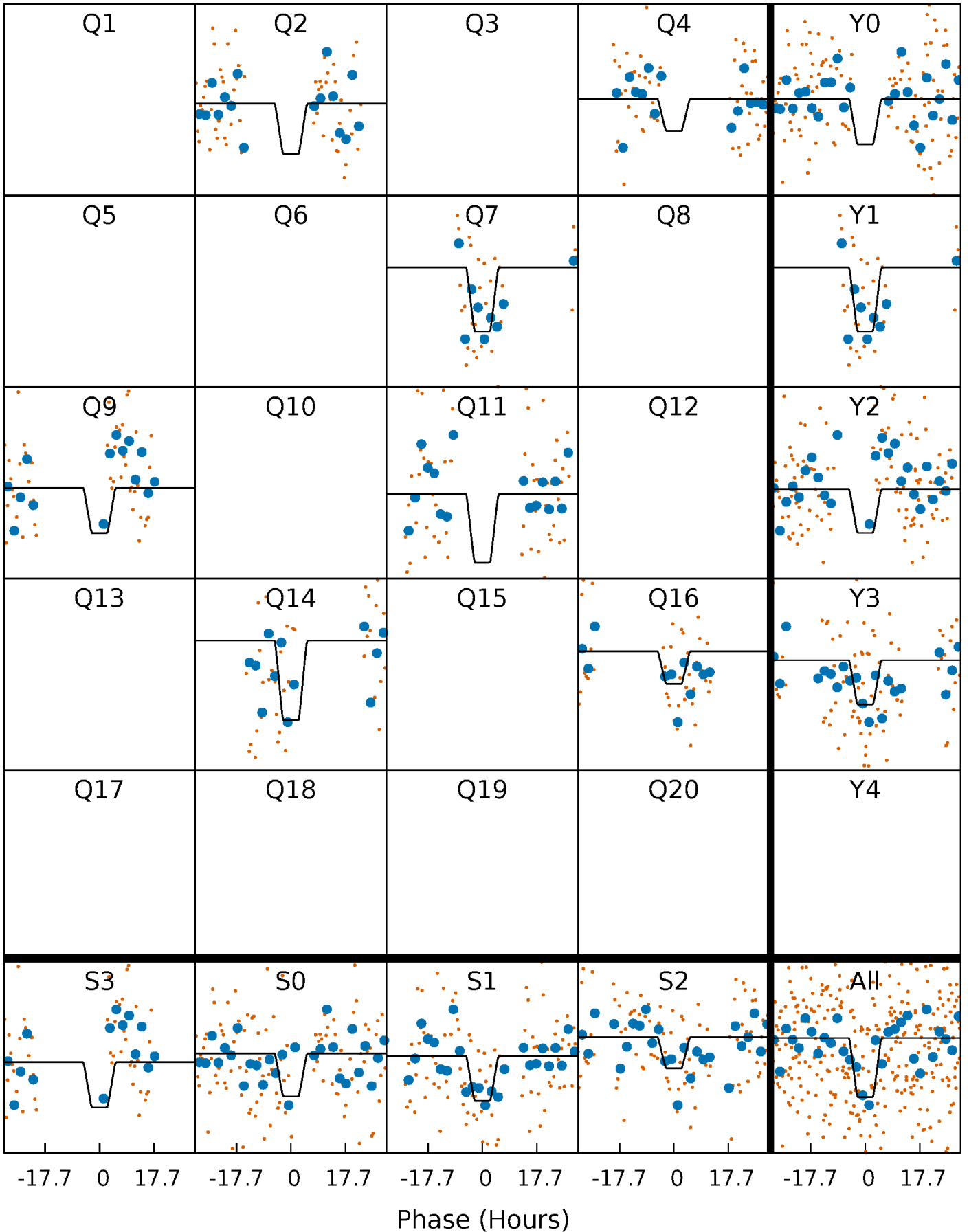
DV Quarter-Phased Transit Curves

TCE 004768919-02 P=224.117133 Days $T_0=191.097441$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

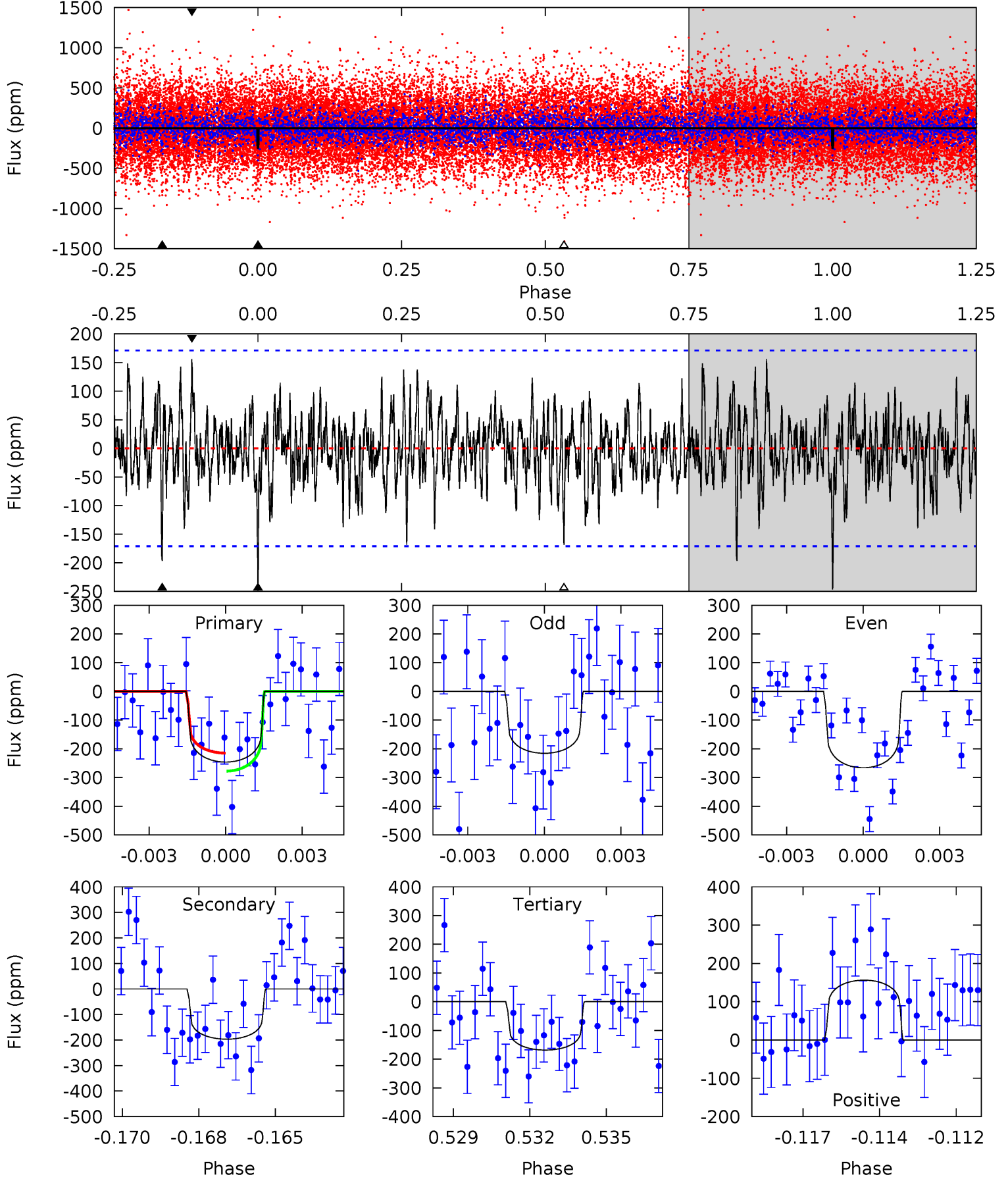
TCE 004768919-02 P=224.115286 Days $T_0=191.132937$ (BKJD)



DV Model-Shift Uniqueness Test

004768919-02, P = 224.117133 Days, E = 191.097441 Days

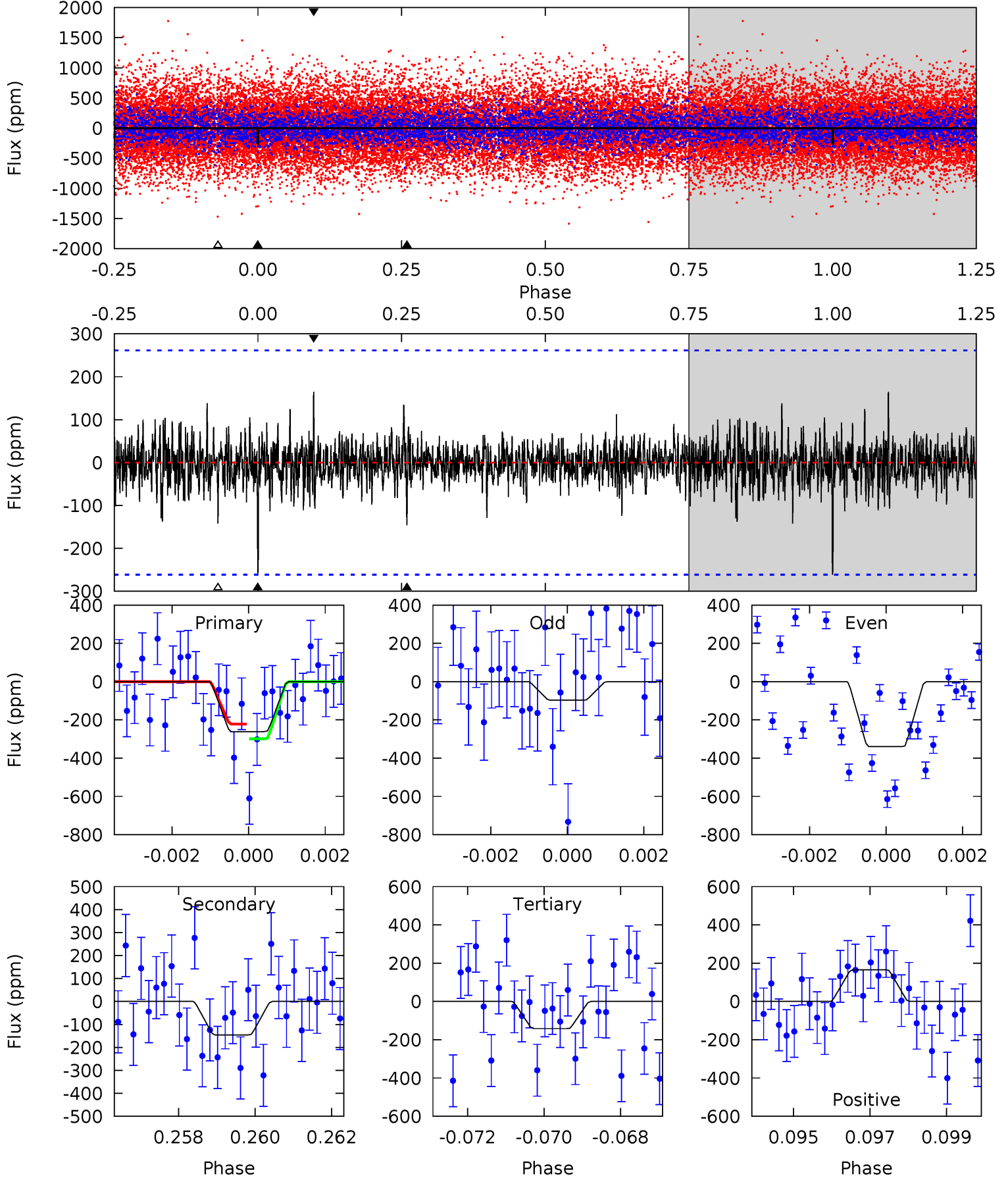
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.60	6.07	5.20	4.82	5.27	3.00	1.54	2.40	2.77	0.87	1.24	0.77	0.86	0.39	0.97



Alt Model-Shift Uniqueness Test

004768919-02, P = 224.115286 Days, E = 191.132937 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.32	2.97	2.89	3.37	5.33	3.10	0.73	2.43	1.96	0.08	-0.39	2.39	-0.42	0.39	0.79



Stellar Parameters For KIC 004768919

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6734^{+272}_{-408}	$2.745^{+0.332}_{-0.179}$	$-0.500^{+0.550}_{-0.500}$	$12.643^{+1.696}_{-5.088}$	$3.239^{+0.051}_{-0.921}$	$0.002^{+0.005}_{-0.001}$
	+4%/-6%	+12%/-7%	+110%/-100%	+13%/-40%	+2%/-28%	+238%/-40%
Source	PHO1	FLK73	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 004768919-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-197 ± 32	$21.86^{+13.56}_{-11.63}$	1410^{+114}_{-141}	6017^{+3240}_{-1020}	239^{+917}_{-147}
Alt.	-146 ± 49	$24.47^{+12.67}_{-11.18}$	1413^{+120}_{-151}	5294^{+1898}_{-905}	133^{+375}_{-81}

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

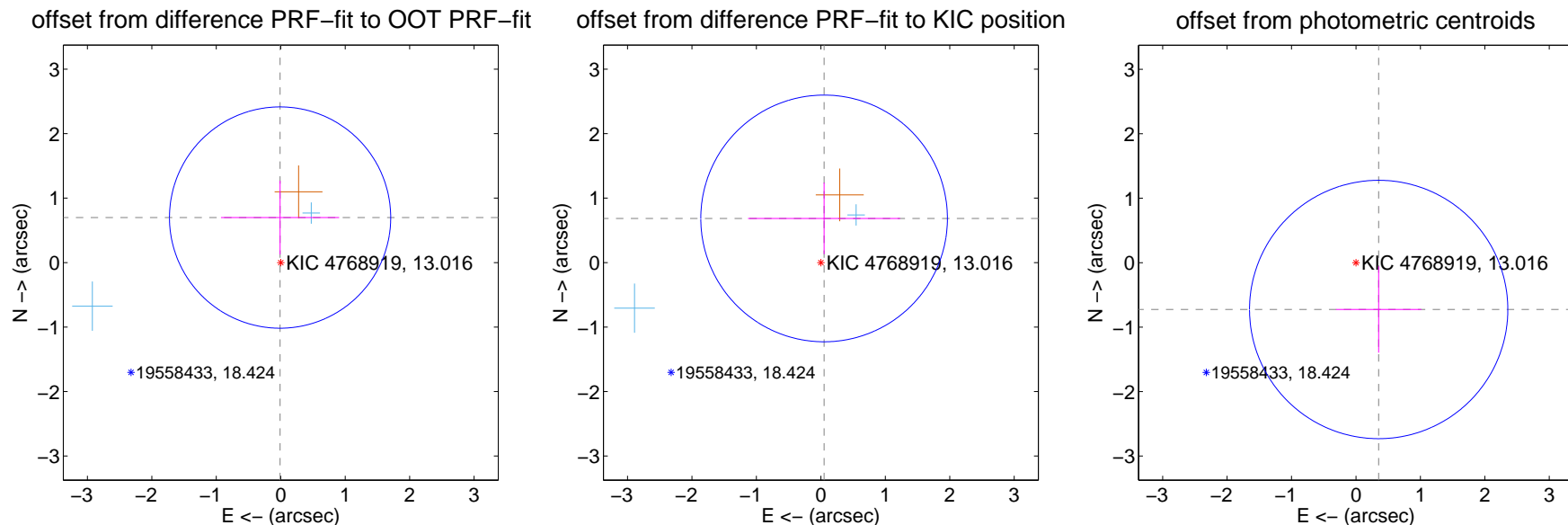
DV Centroid Data

Supplemental centroid analysis for 004768919-02. Kepler magnitude: 13.02. Transit SNR 7.22

There are 2 quarters with good PRF difference image offsets

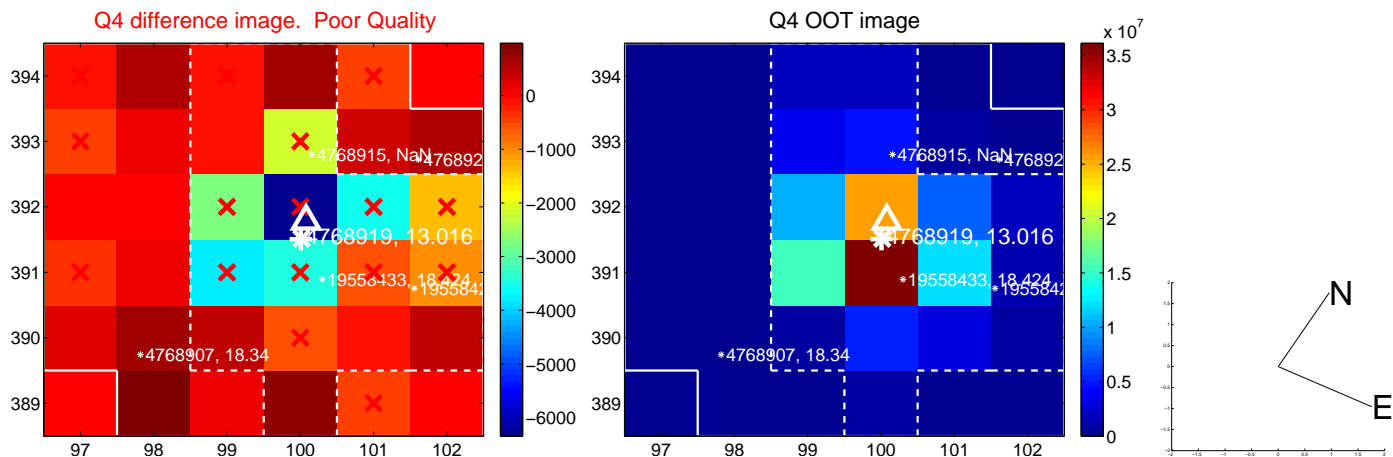
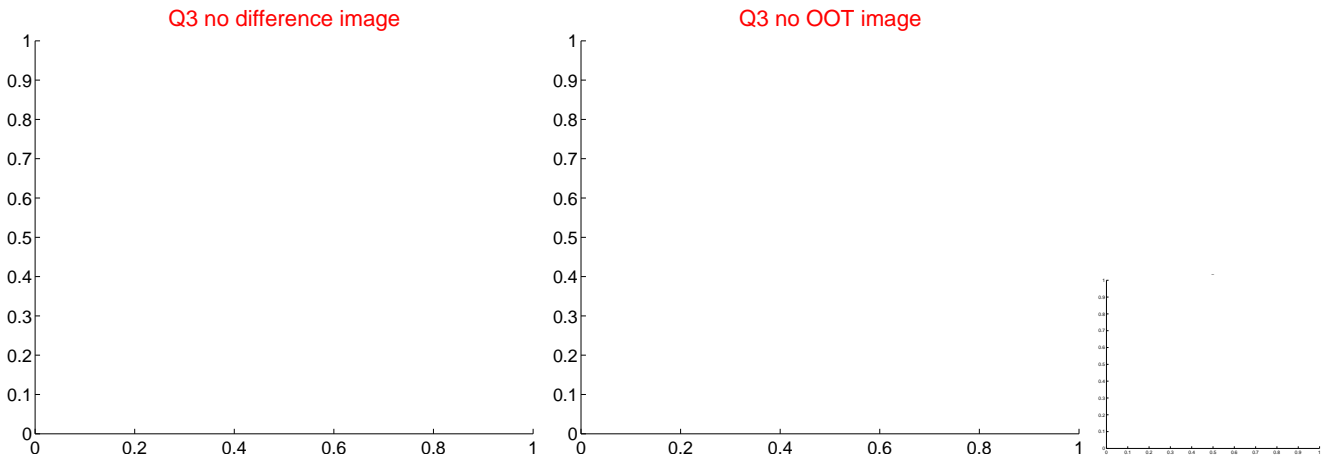
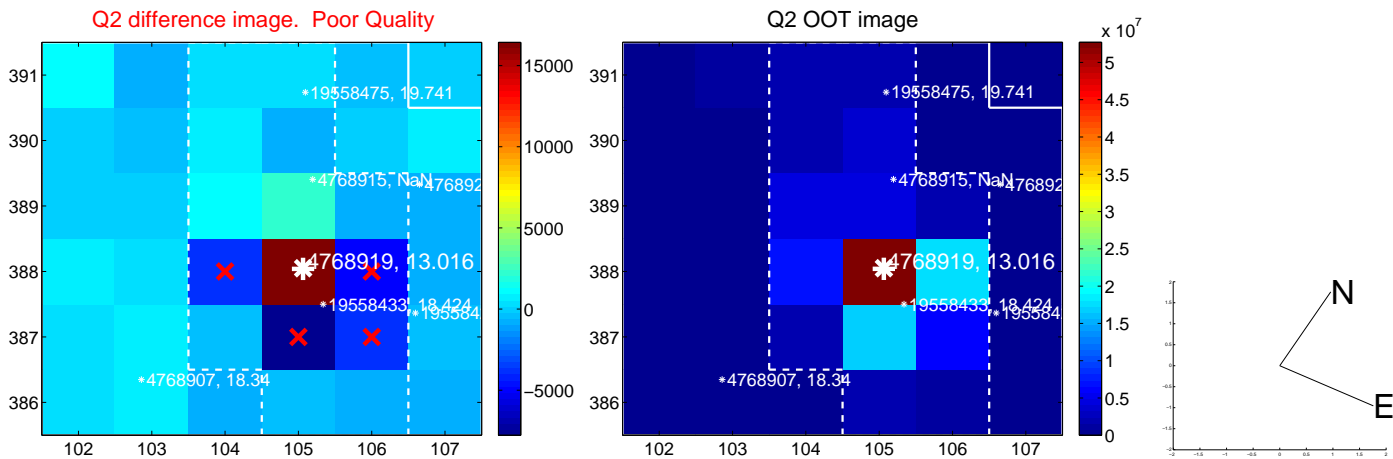
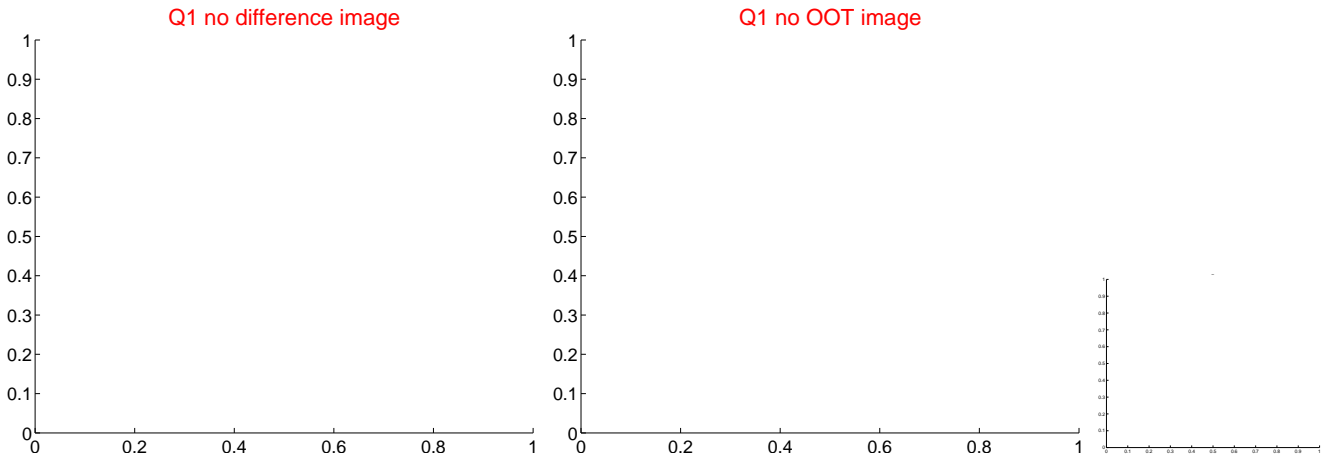
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.699 ± 0.572	1.22	0.010 ± 0.917	0.698 ± 0.572
PRF-fit source offset from KIC position	0.687 ± 0.638	1.08	-0.050 ± 1.180	0.685 ± 0.555
photometric centroid source offset	0.81 ± 0.67	1.21	-0.35 ± 0.66	-0.73 ± 0.67



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

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



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

Q5 no difference image



Q5 no OOT image



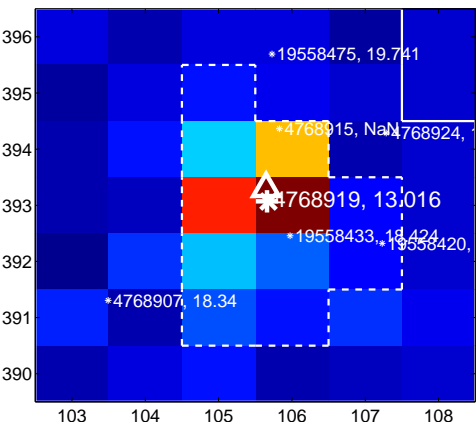
Q6 no difference image



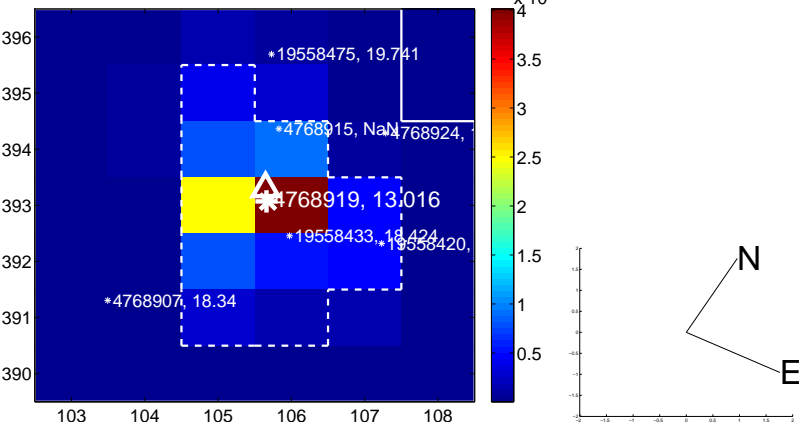
Q6 no OOT image



Q7 difference image



Q7 OOT image



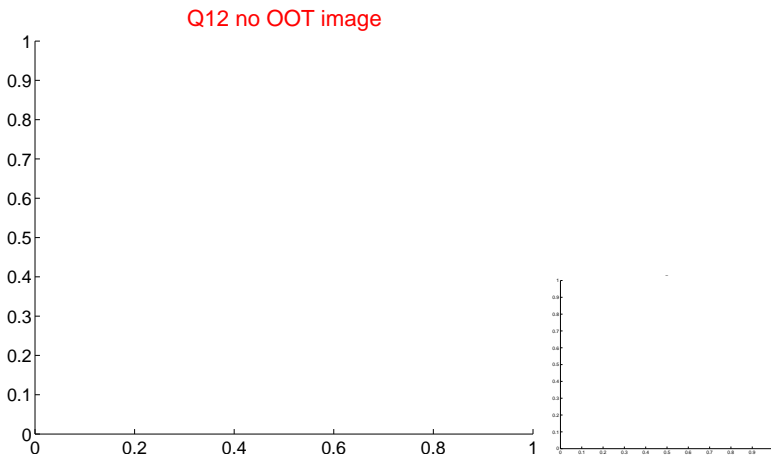
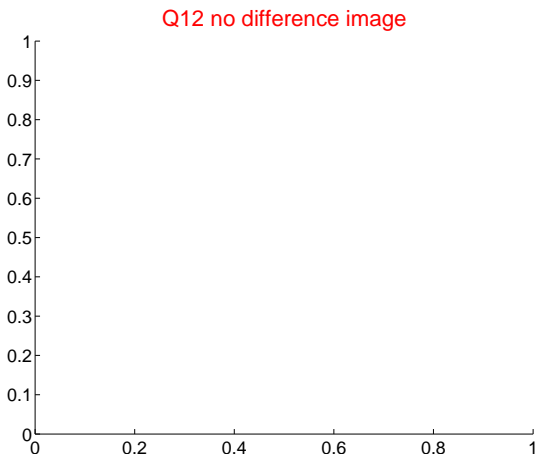
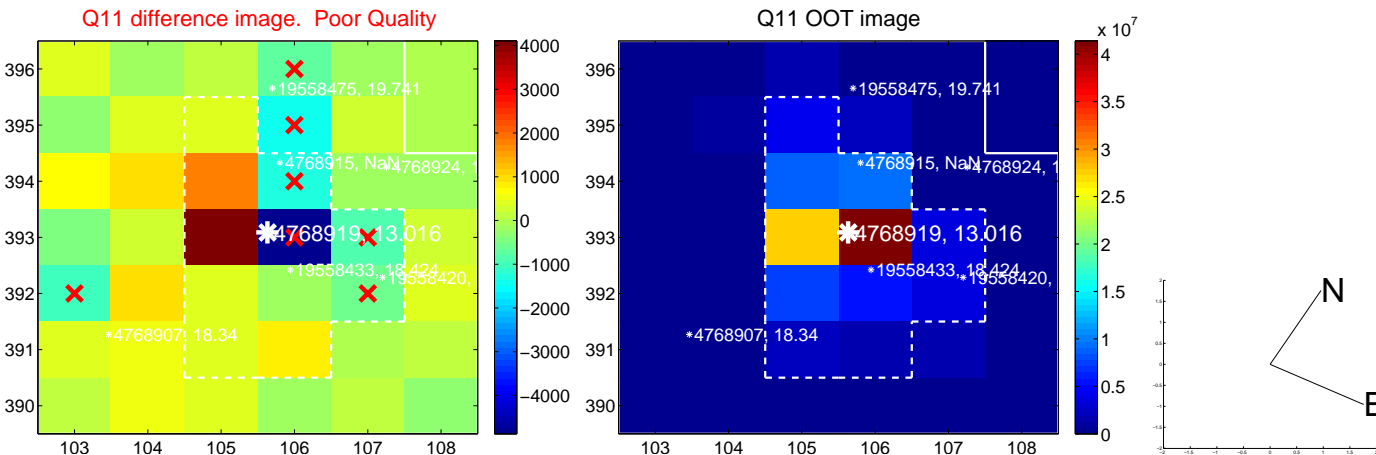
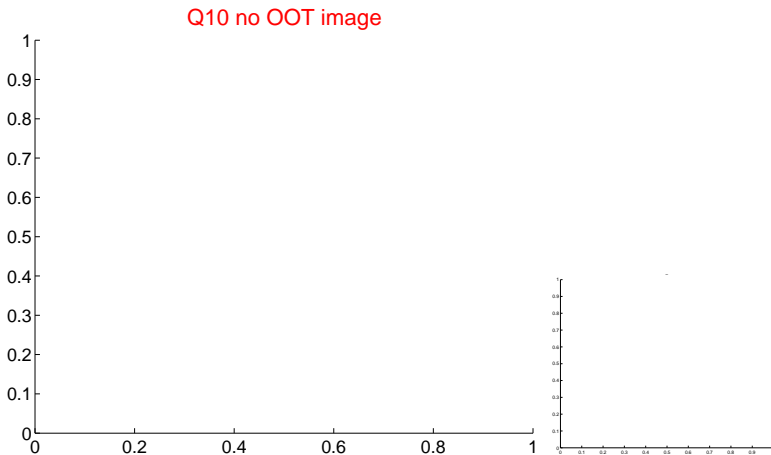
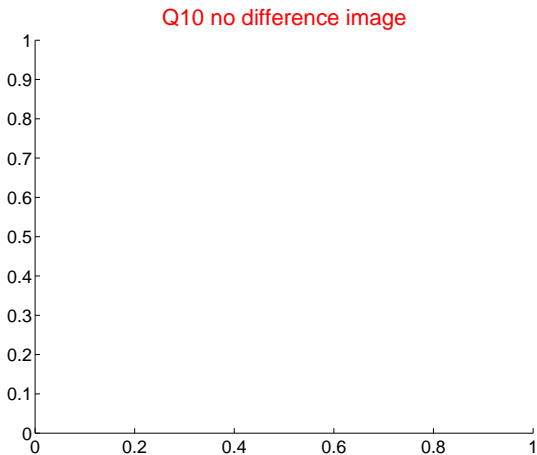
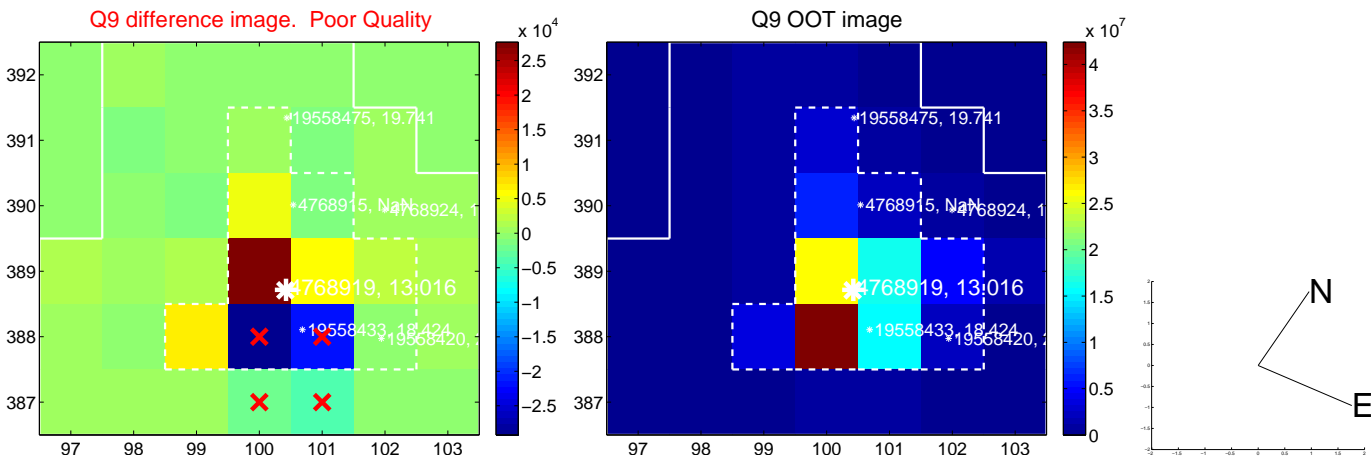
Q8 no difference image



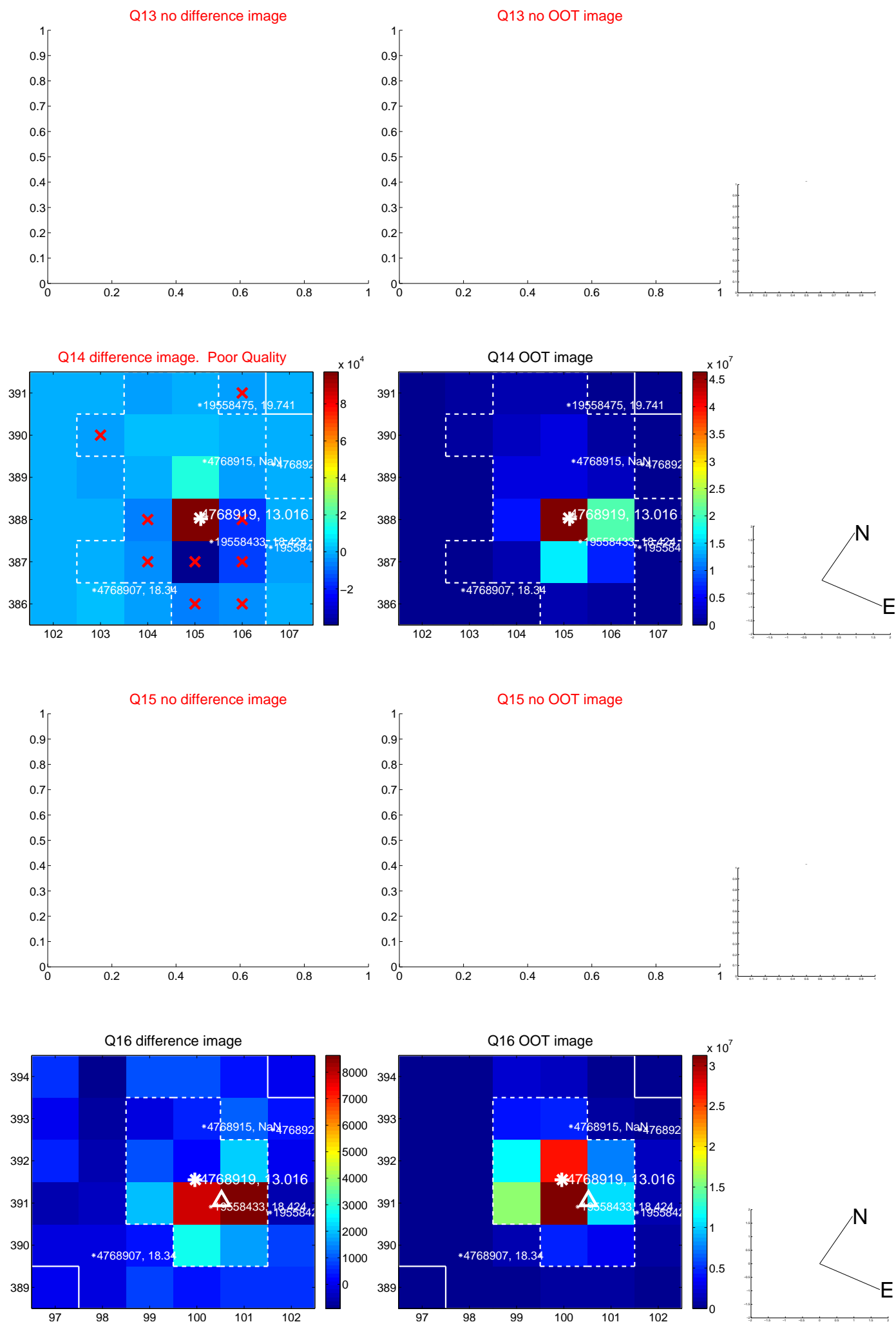
Q8 no OOT image



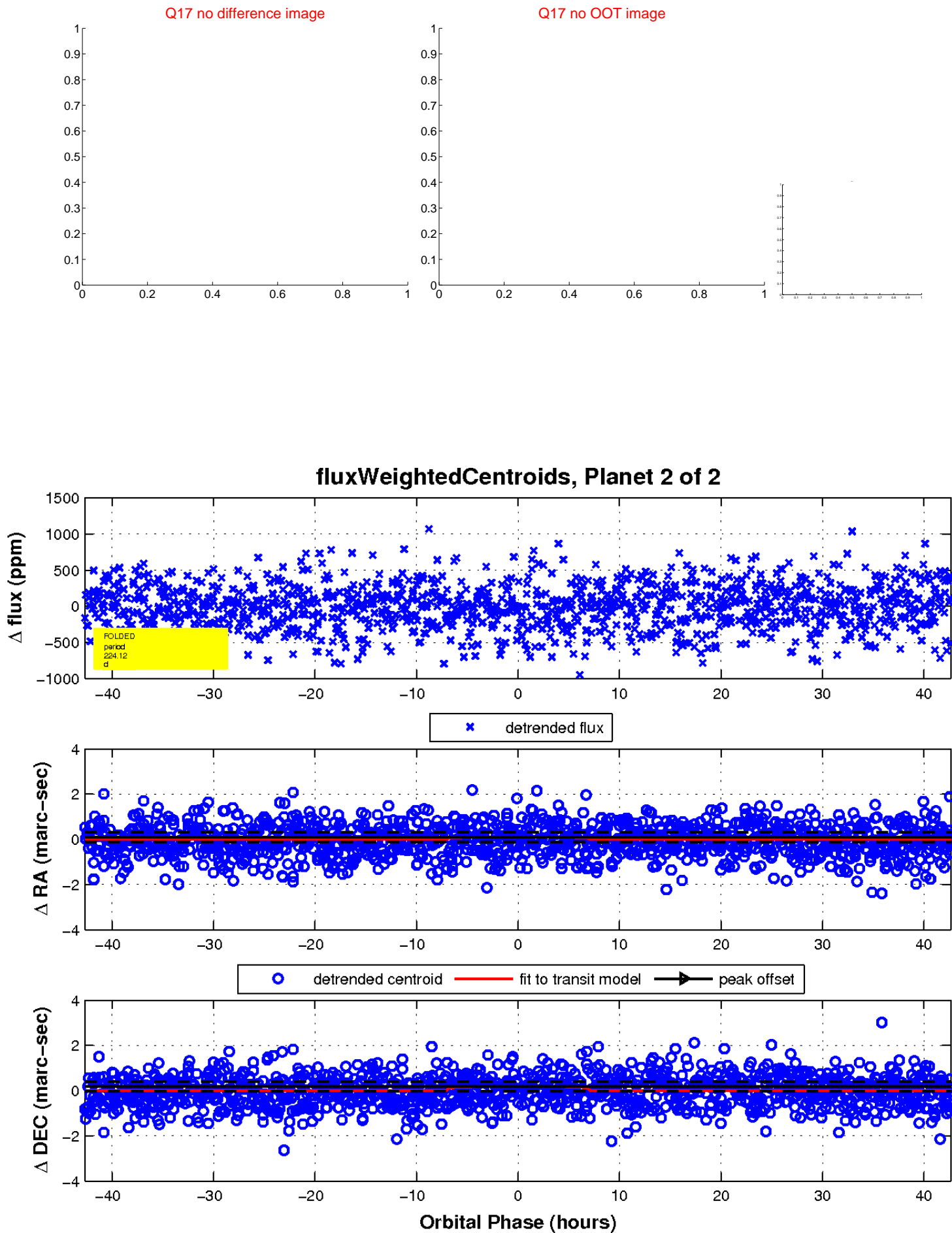
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UKIRT Image

Declination

