

KIC 011027806

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})
011027806-01	OBS	No	399.687243	499.803039	311.9	3.178	10.7	8.9	5.40	9155	10.90	83.81
011027806-02	OBS	No	0.512051	131.678810	8.9	0.903	8.6	7.4	5.40	9155	1.66	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011027806-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011027806-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

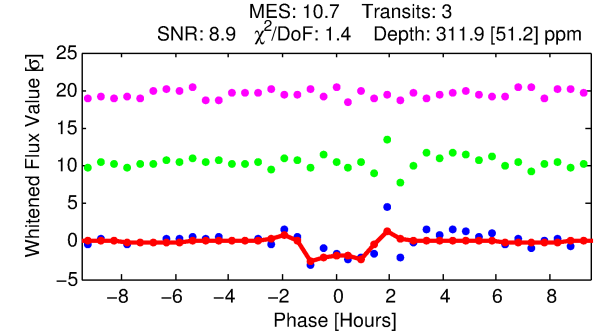
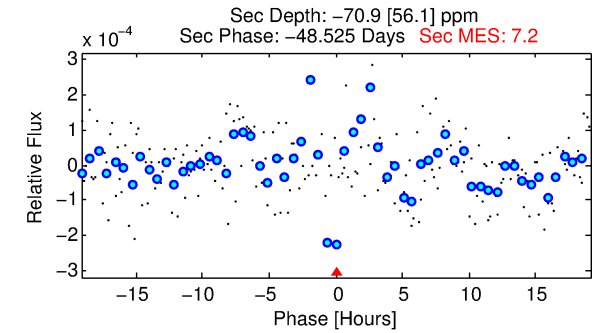
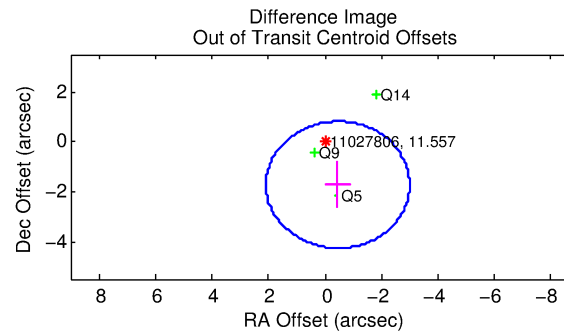
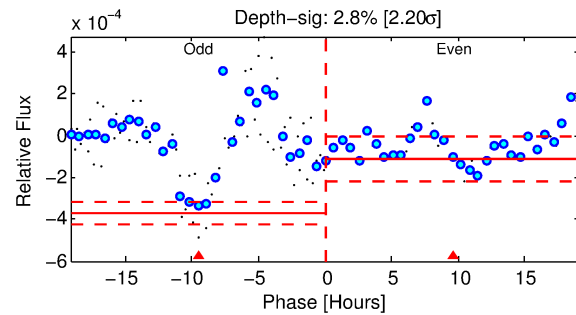
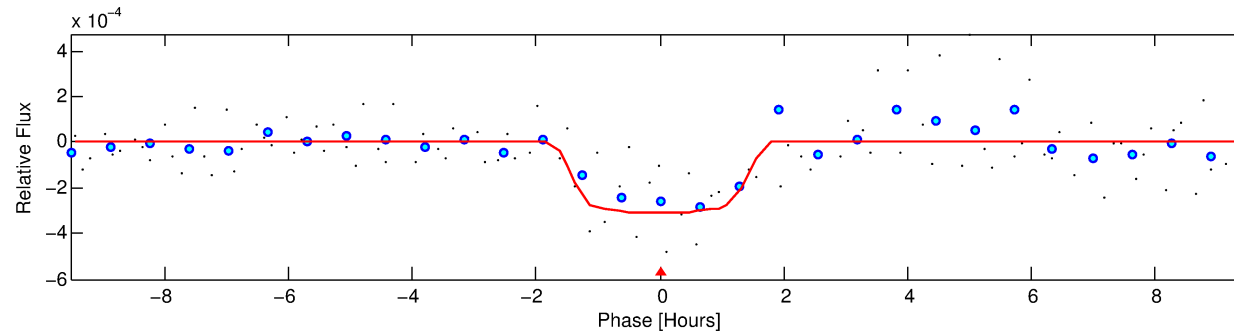
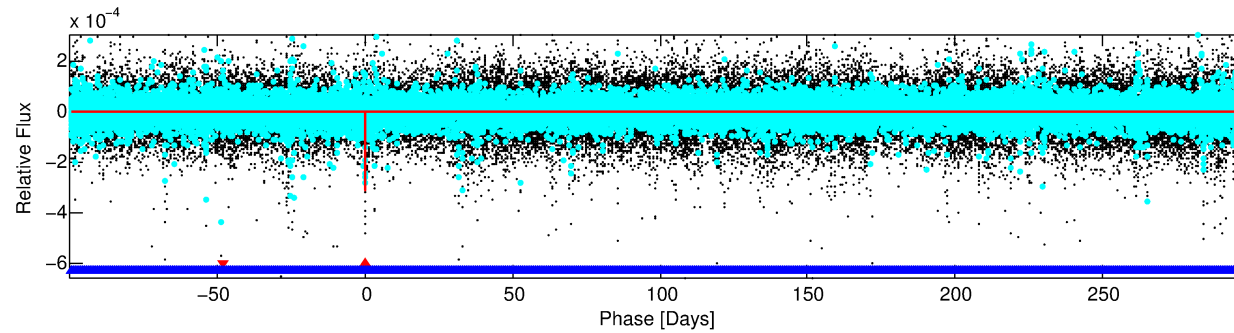
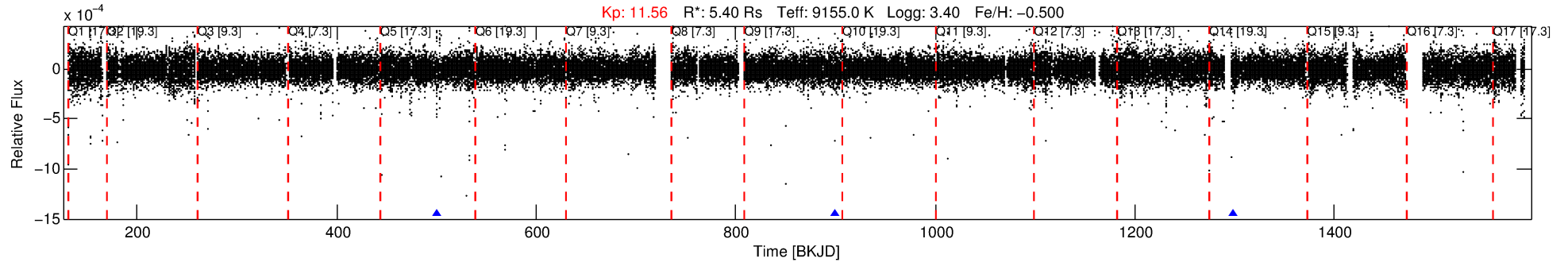
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011027806-01

No Significant Match Found

DV One-Page Summary

KIC: 11027806 Candidate: 1 of 2 Period: 399.687 d



DV Fit Results:

Period = 399.68724 [0.00397] d
Epoch = 499.8030 [0.0045] BKJD
Rp/R* = 0.0185 [0.0081]
a/R* = 481.60 [1453.80]
b = 0.89 [0.74]
Seff = 83.81 [108.86]
Teq = 772 [251] K
Rp = 10.90 [8.86] Re
a = 1.4787 [1.1150] AU
Ag = N/A
Teffp = N/A

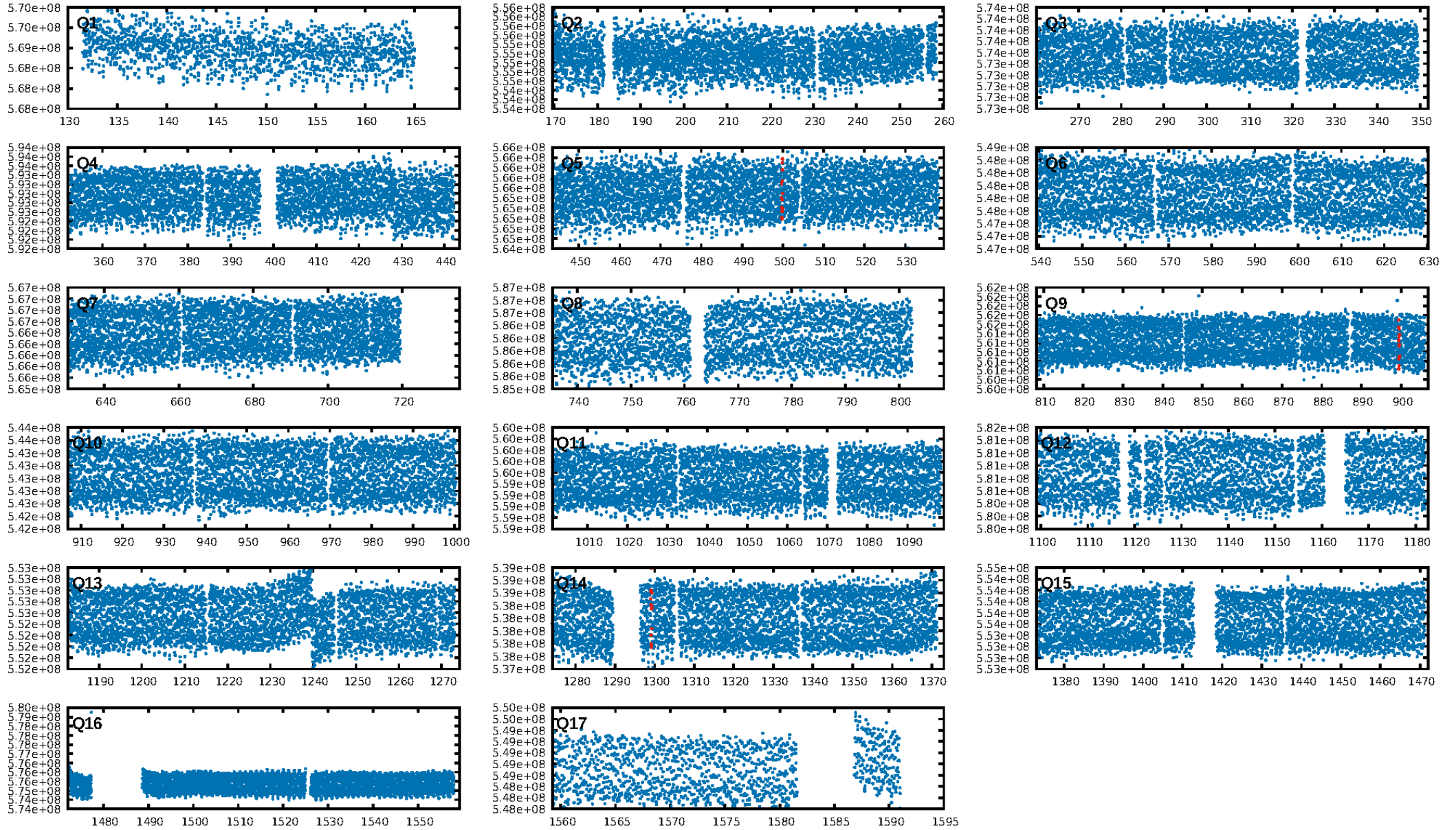
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [2899.87 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.9%
ModelChiSquareGof-sig: 42.4%
Bootstrap-pfa: 2.12e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.956
Centroid-sig: N/A
Centroid-so: 1.133 arcsec [1.80 σ]
OotOffset-rm: 1.786 arcsec [2.11 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-rm: 1.894 arcsec [1.77 σ]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.00 [0/3]

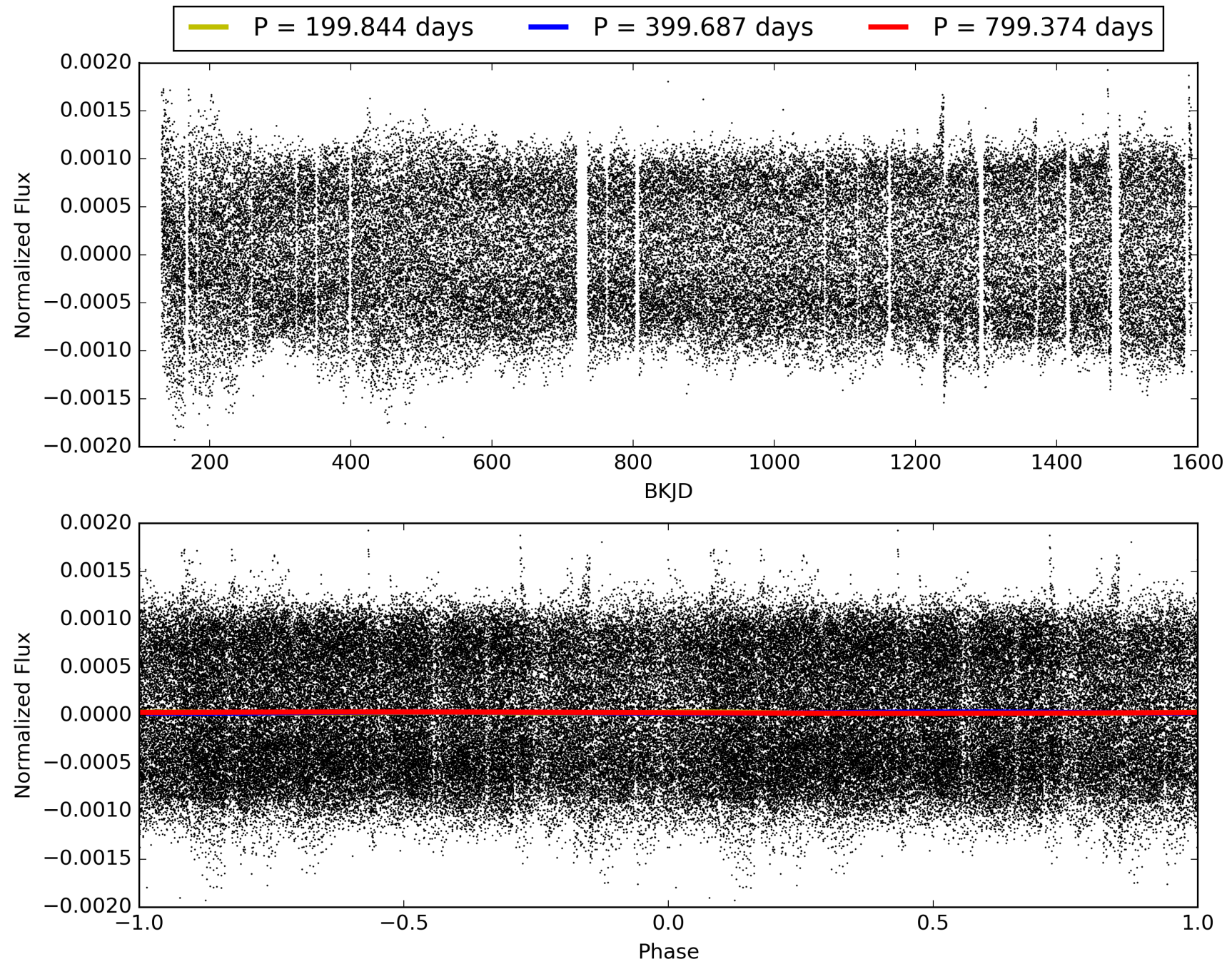
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:10:10 Z

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

TCE 011027806-01, PDC Light Curves

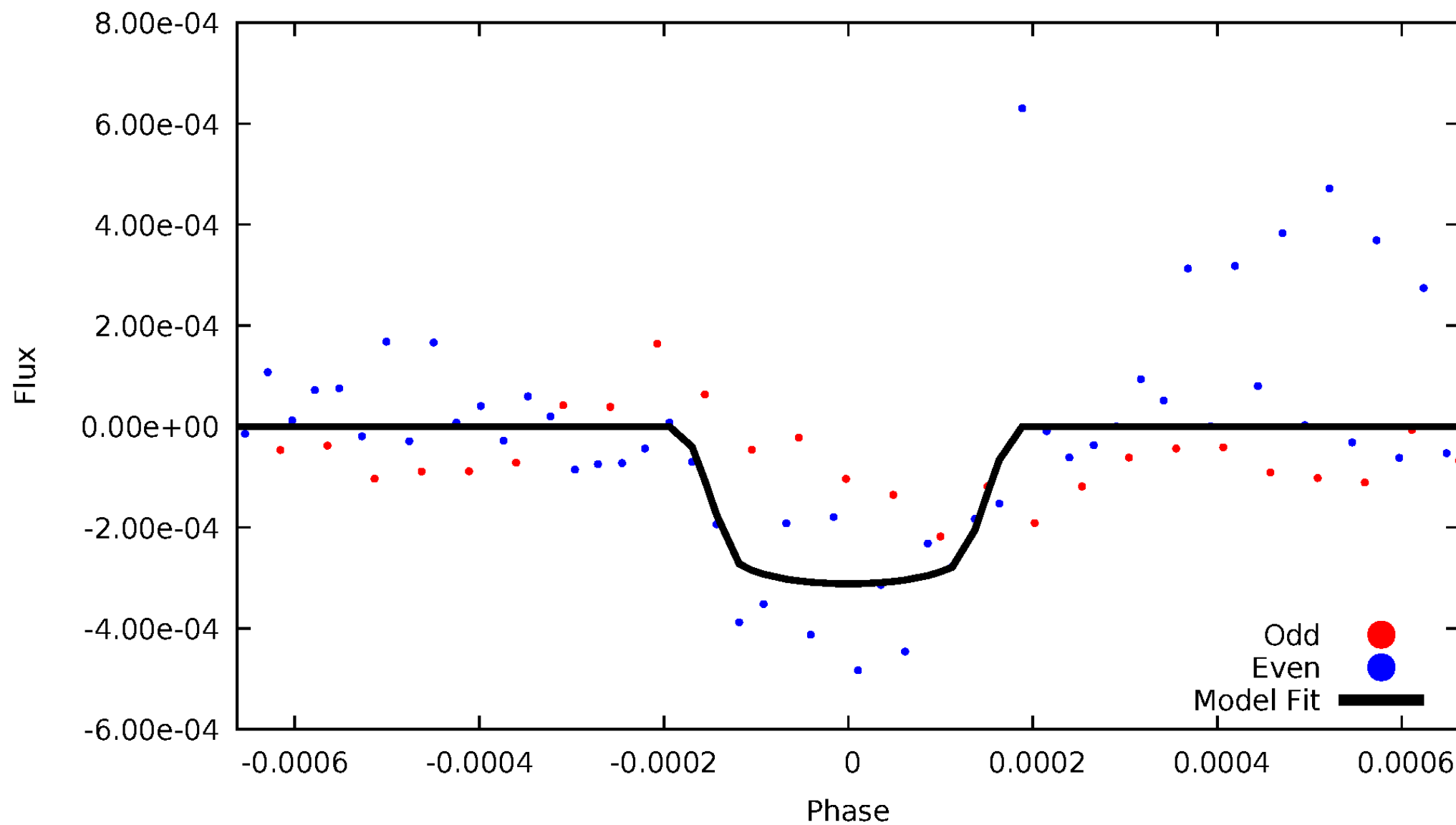


TCE 011027806-01



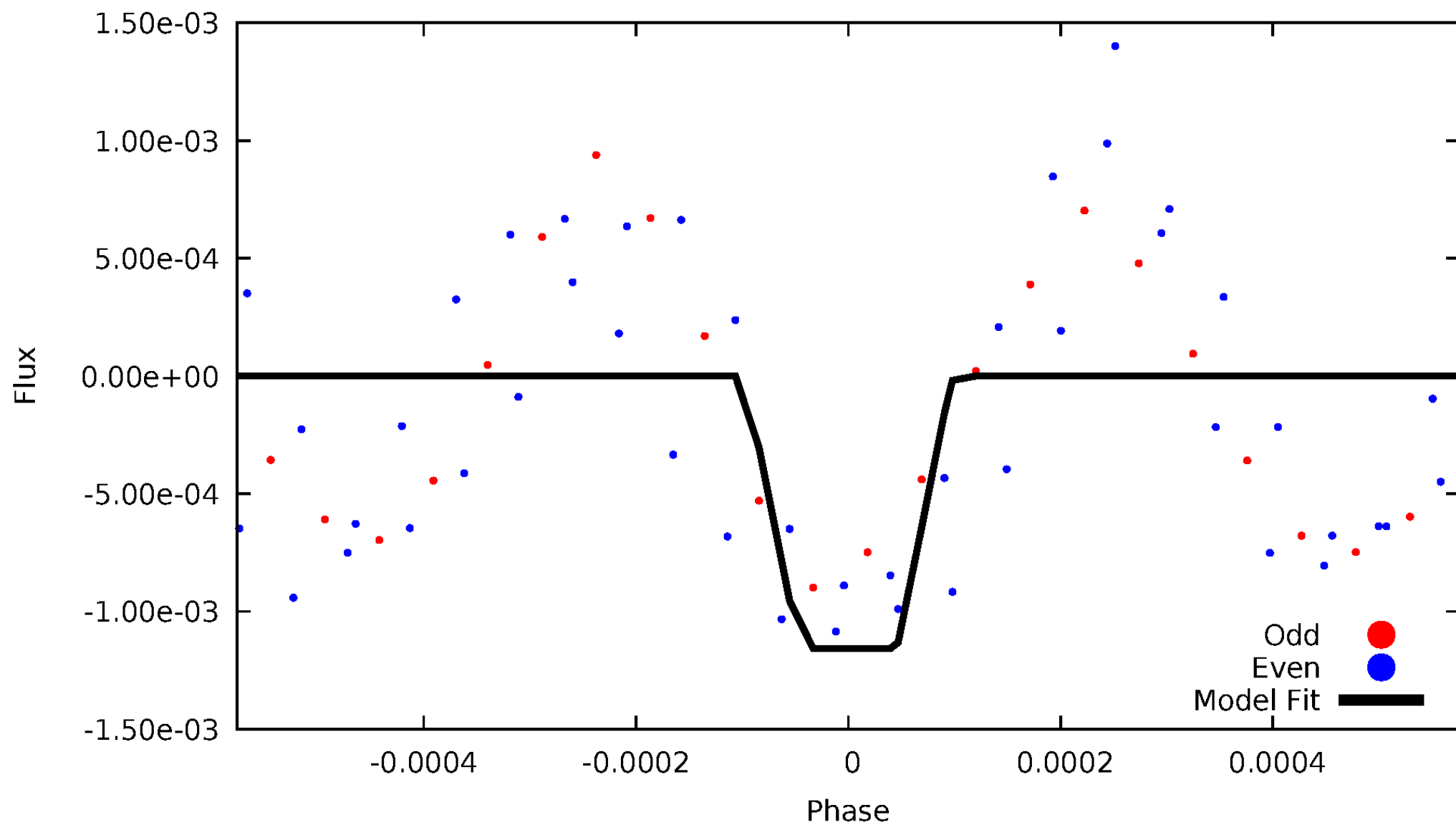
DV Odd/Even

TCE 011027806-01

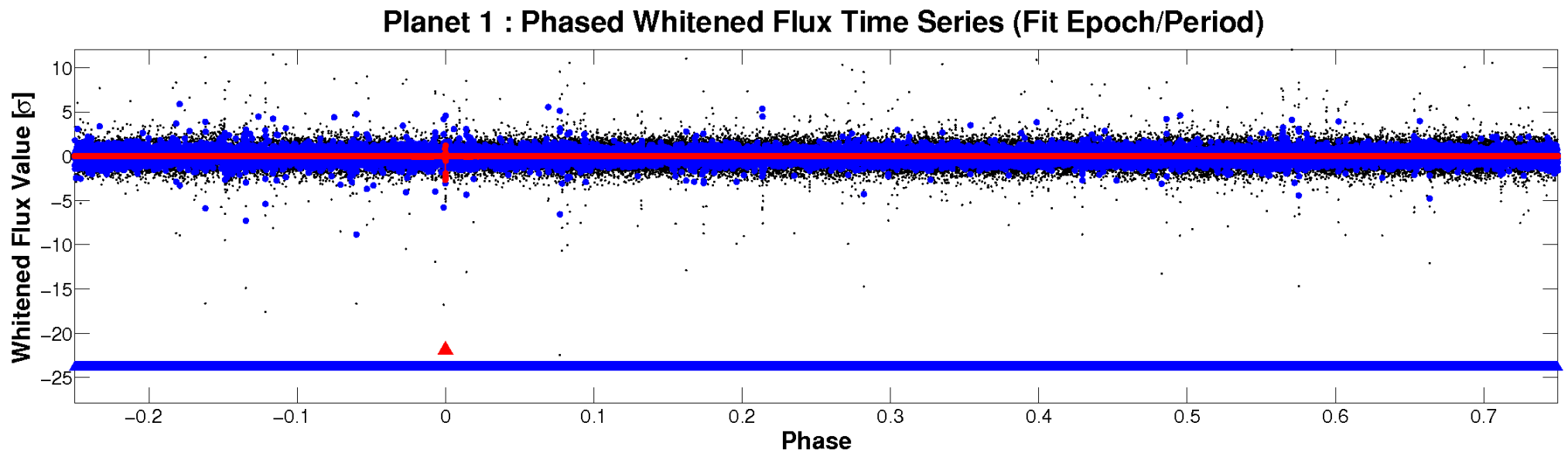
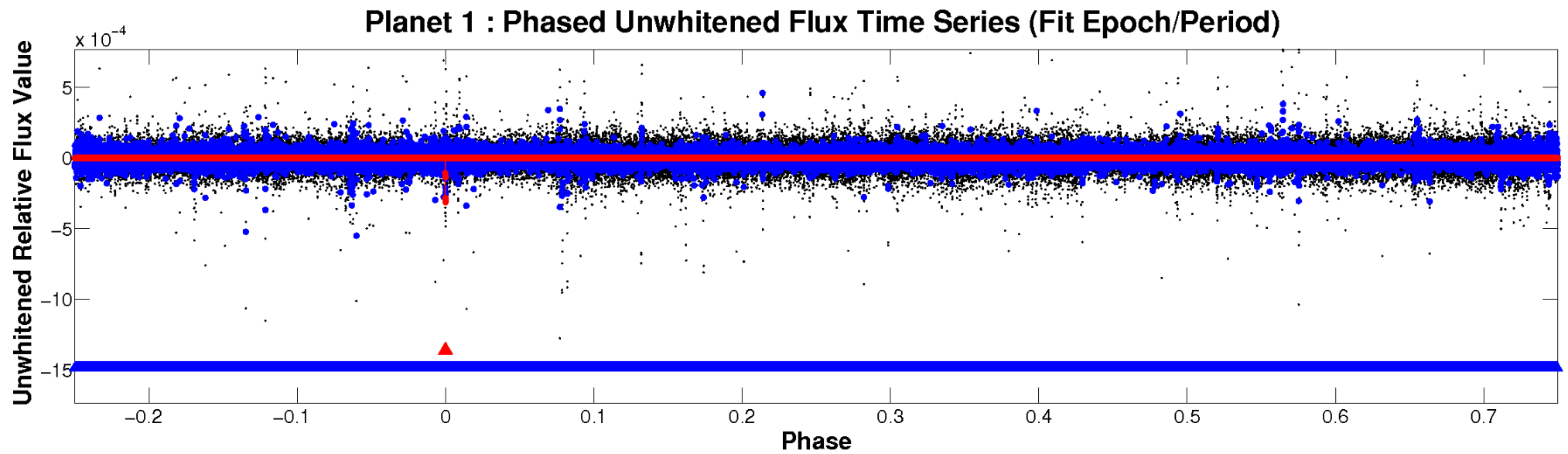


ALT Odd/Even

TCE 011027806-01

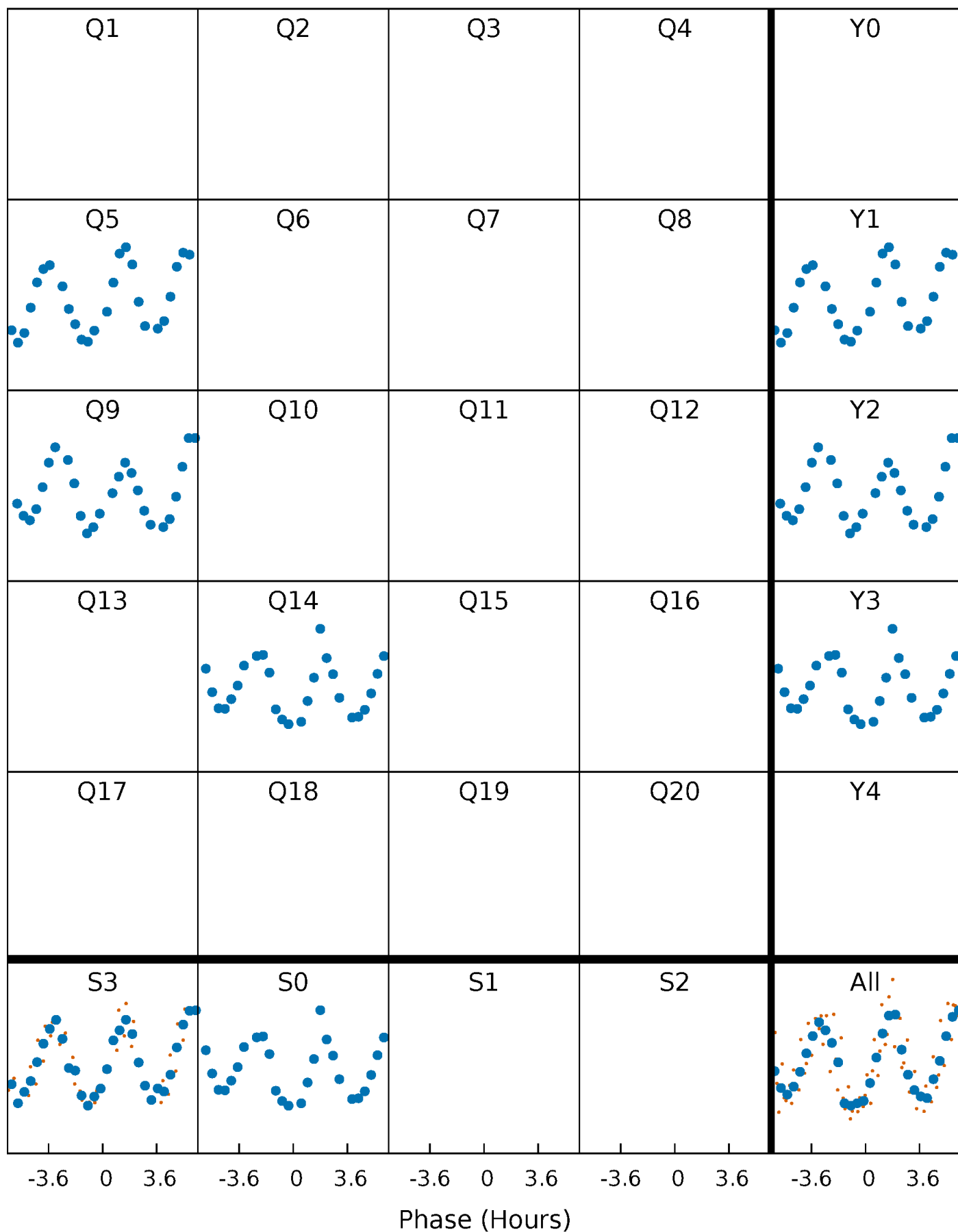


Non-Whitened Vs. Whitened Light Curve



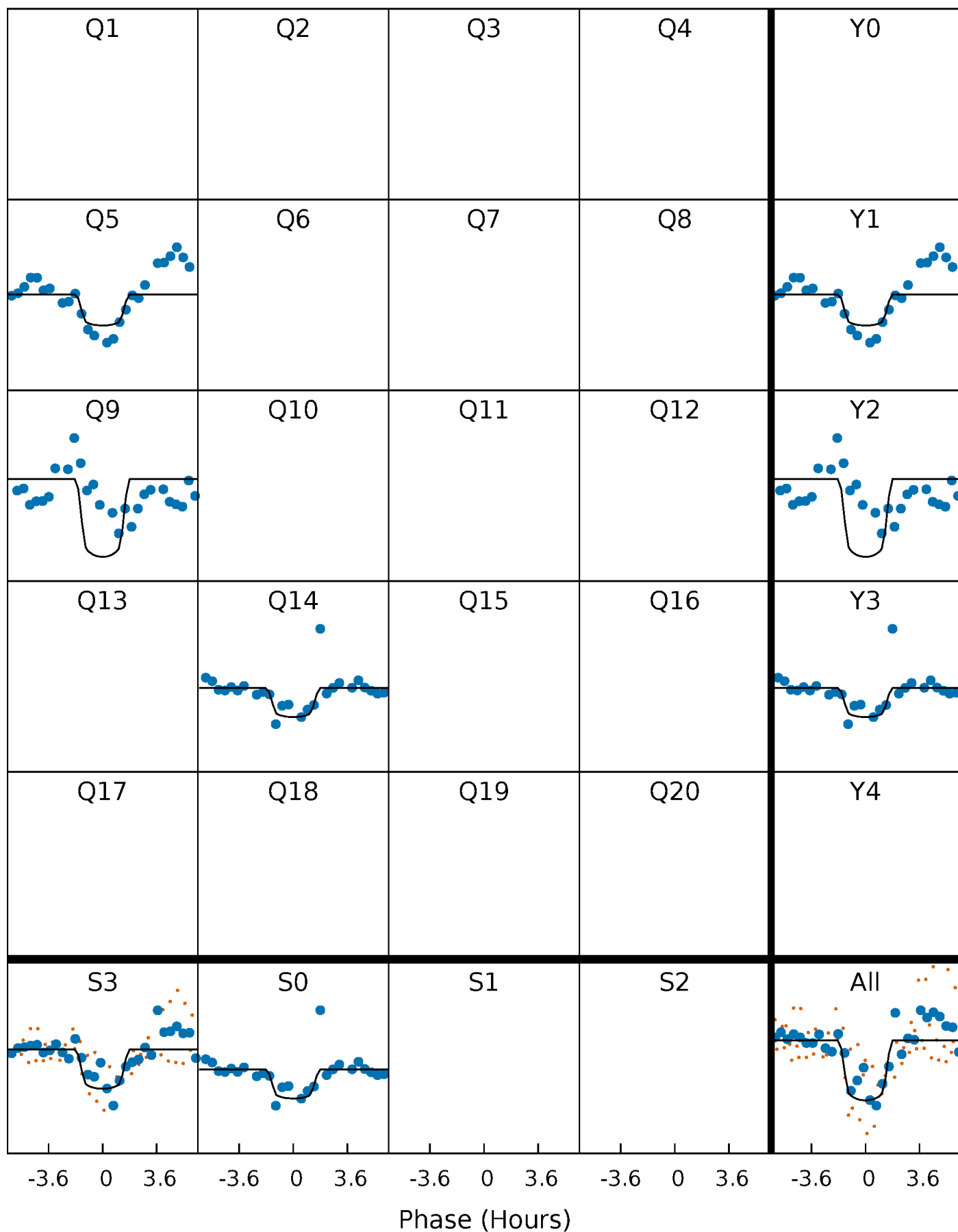
PDC Quarter-Phased Transit Curves

TCE 011027806-01 P=399.687243 Days $T_0=499.803039$ (BKJD)



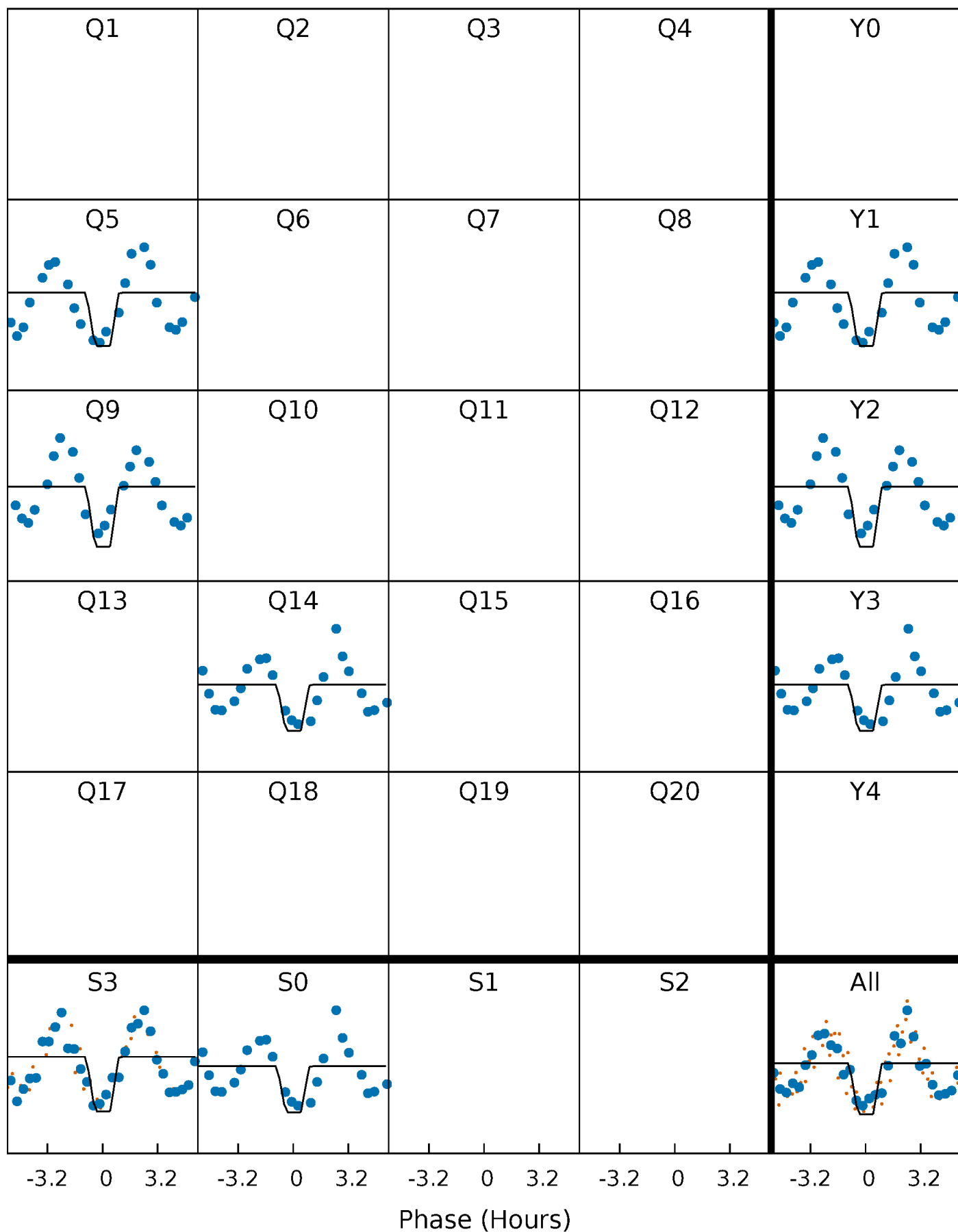
DV Quarter-Phased Transit Curves

TCE 011027806-01 P=399.687243 Days $T_0=499.803039$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

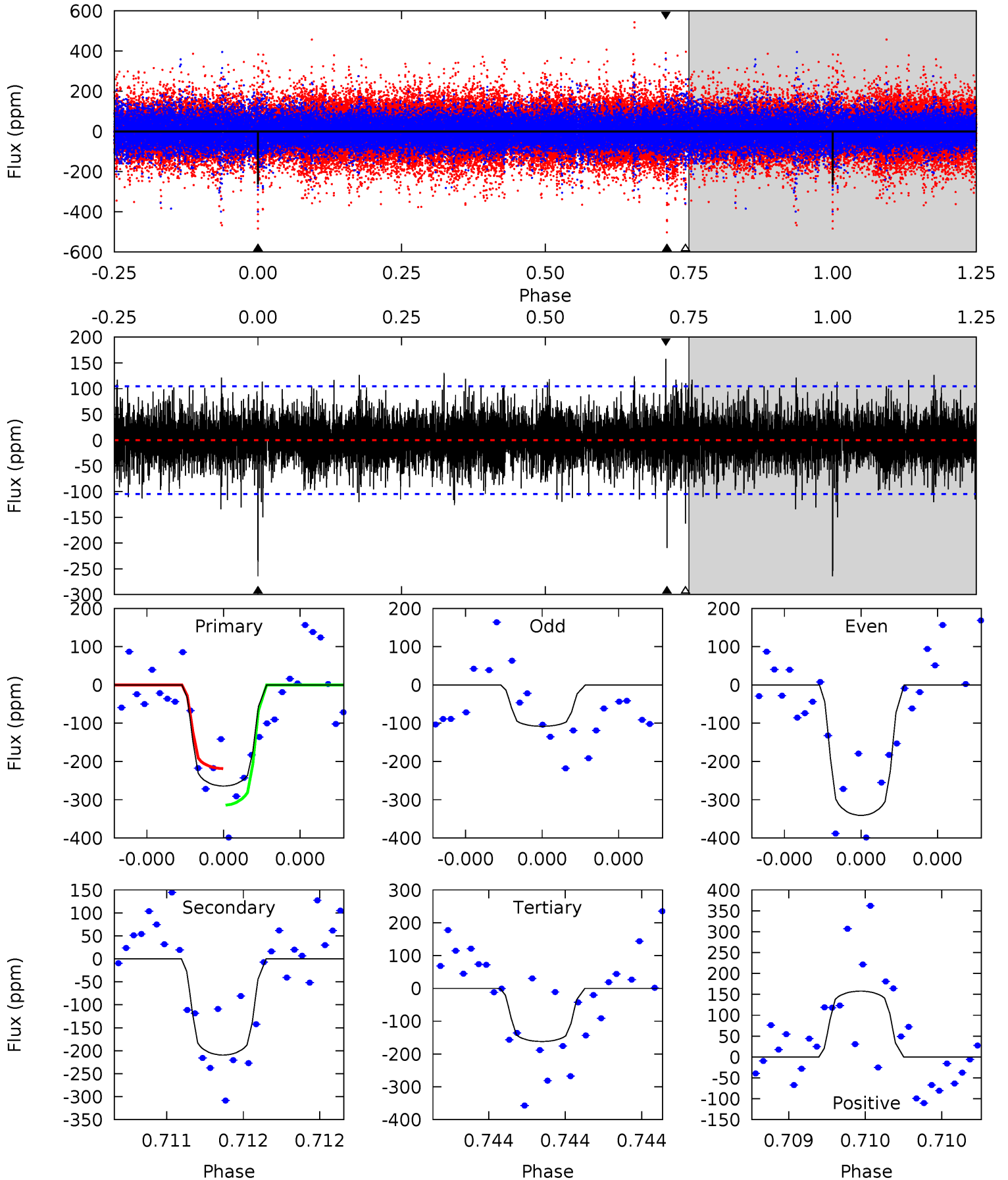
TCE 011027806-01 $P=399.690695$ Days $T_0=499.770979$ (BKJD)



DV Model-Shift Uniqueness Test

011027806-01, P = 399.687243 Days, E = 100.115796 Days

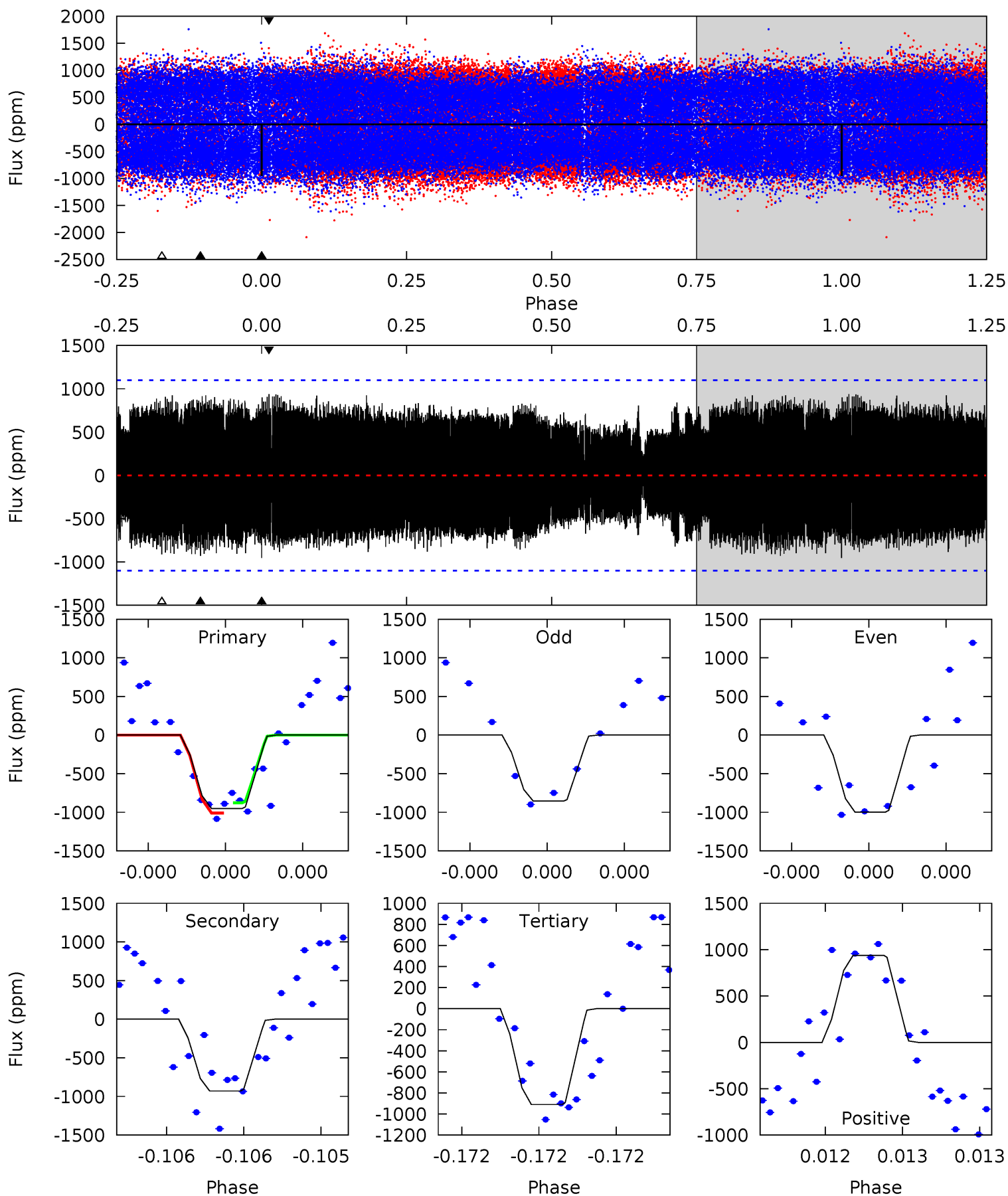
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	11.3	8.72	8.49	5.63	3.57	1.83	5.51	5.74	2.56	2.79	5.83	0.97	0.37	2.58



Alt Model-Shift Uniqueness Test

011027806-01, P = 399.690695 Days, E = 100.080284 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.97	4.86	4.76	4.91	5.75	3.74	2.20	0.22	0.07	0.10	-0.05	0.34	1.04	0.50	0.34



Stellar Parameters For KIC 011027806

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	9155^{+251}_{-430}	$3.405^{+0.783}_{-0.130}$	$-0.500^{+0.550}_{-0.250}$	$5.396^{+1.024}_{-3.686}$	$2.695^{+0.279}_{-1.117}$	$0.024^{+0.433}_{-0.009}$
	+3%/-5%	+23%/-4%	+110%/-50%	+19%/-68%	+10%/-41%	+1792%/-37%
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 011027806-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-210 ± 19	$9.36^{+5.52}_{-5.10}$	1039^{+95}_{-175}	7724^{+4516}_{-1449}	2756^{+9970}_{-1635}
Alt.	-929 ± 191	$17.60^{+6.40}_{-7.52}$	1043^{+91}_{-203}	8543^{+2061}_{-1242}	3617^{+5960}_{-1782}

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

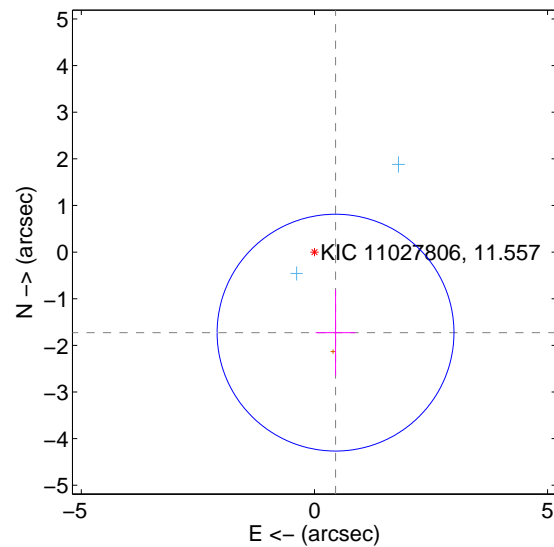
Supplemental centroid analysis for 011027806-01. **Kepler magnitude: 11.56.** Transit SNR 8.89

There are 2 quarters with good PRF difference image offsets

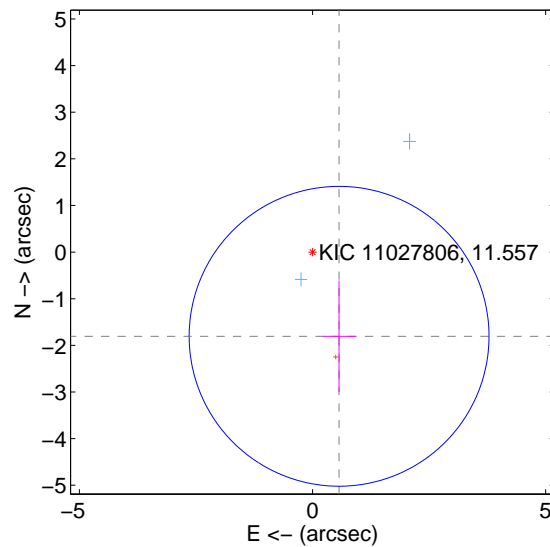
The direct PRF centroid is offset from the target star catalog position by about 0.57 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.786 ± 0.847	2.11	-0.453 ± 0.428	-1.728 ± 0.921
PRF-fit source offset from KIC position	1.894 ± 1.072	1.77	-0.570 ± 0.355	-1.806 ± 1.195
photometric centroid source offset	1.13 ± 0.63	1.80	-1.13 ± 0.63	-0.10 ± 0.72

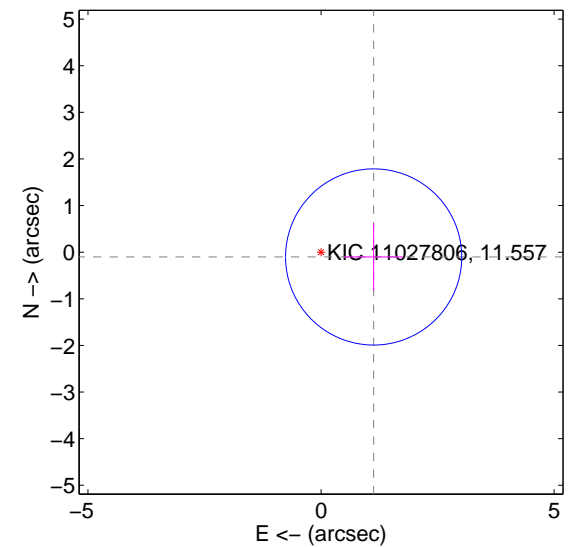
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

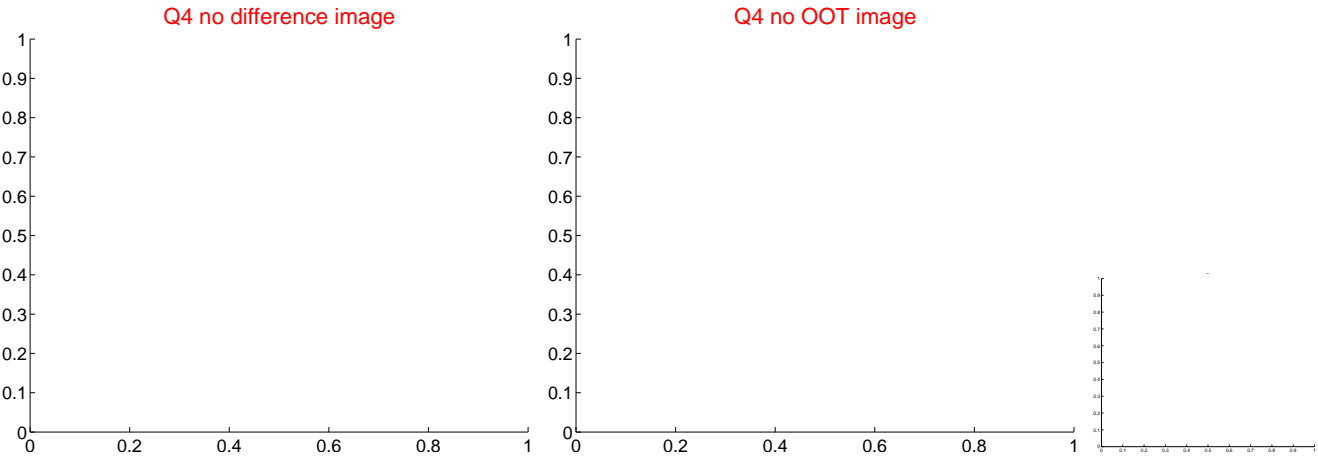
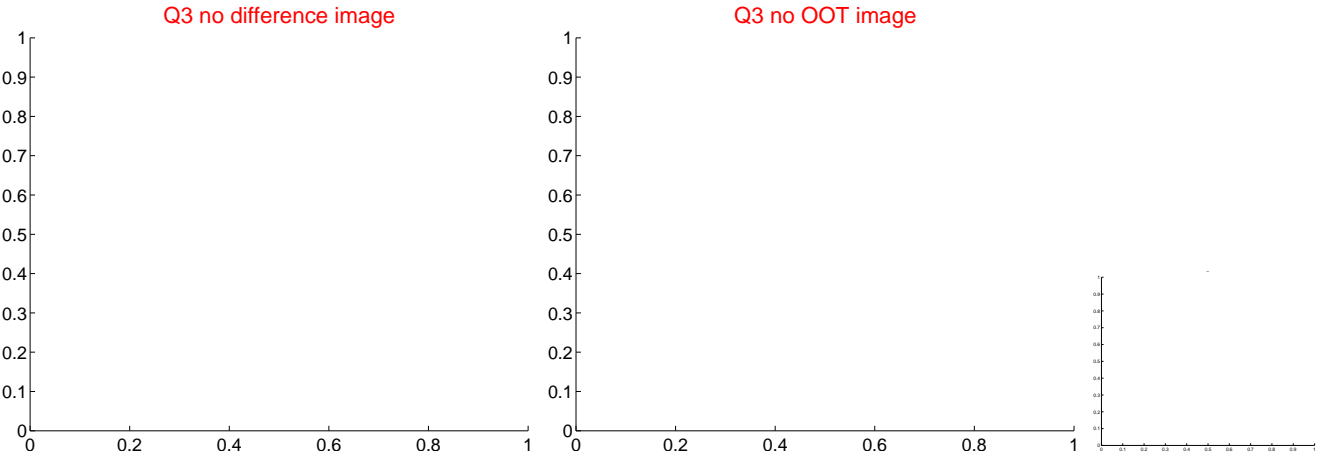
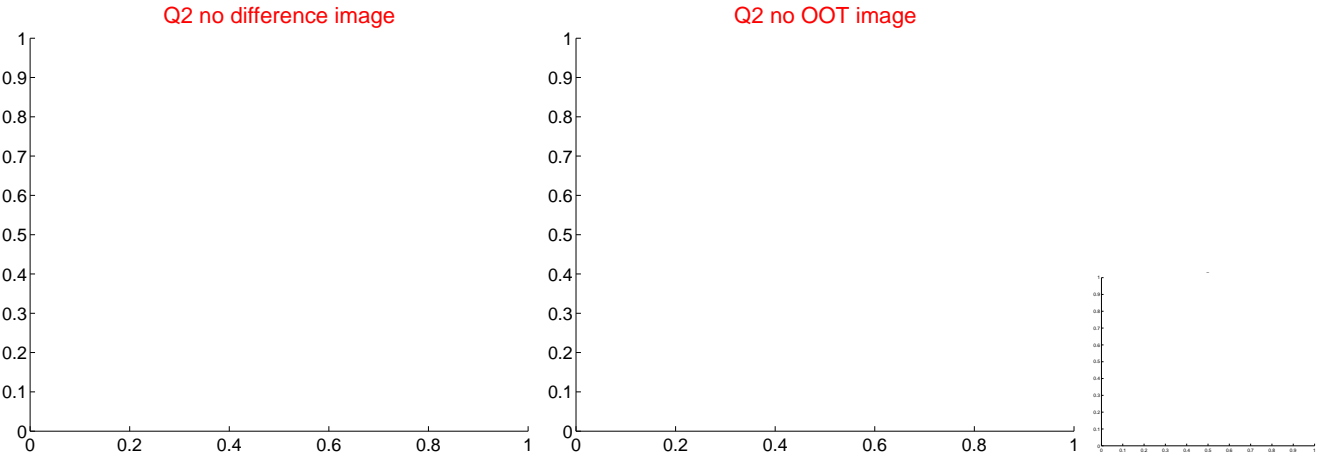
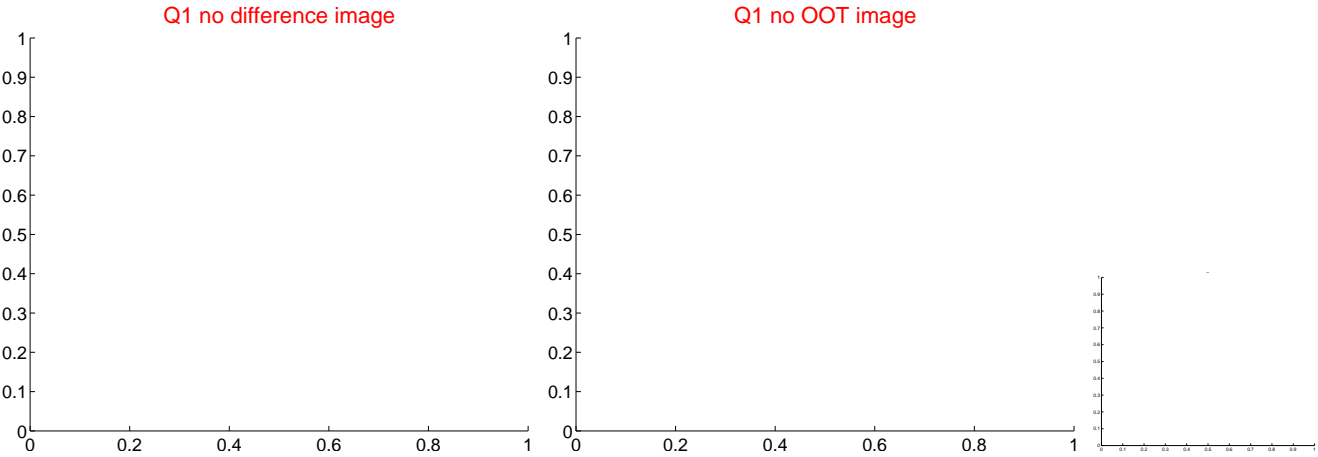


offset from photometric centroids

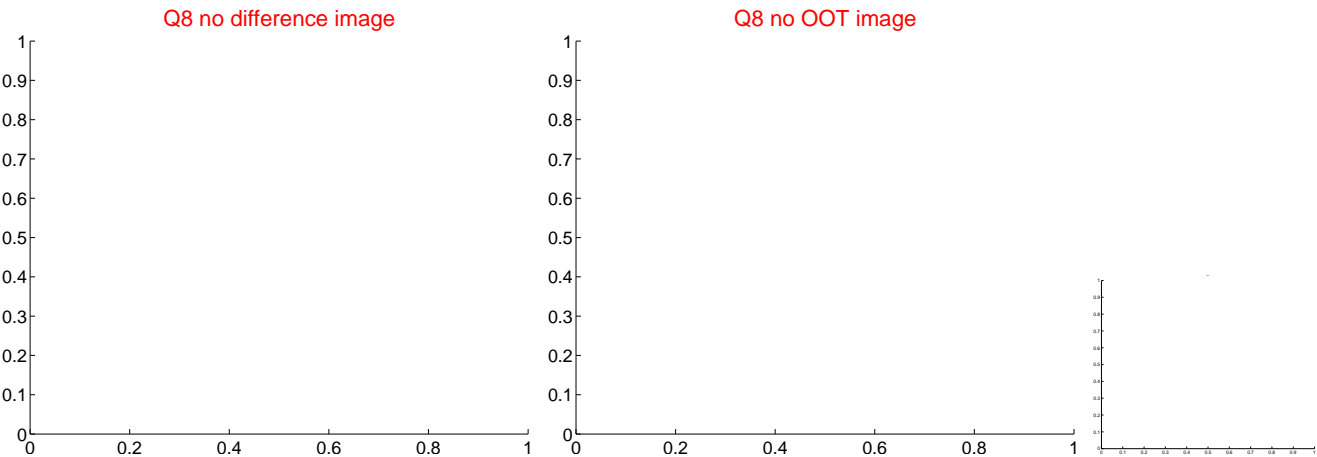
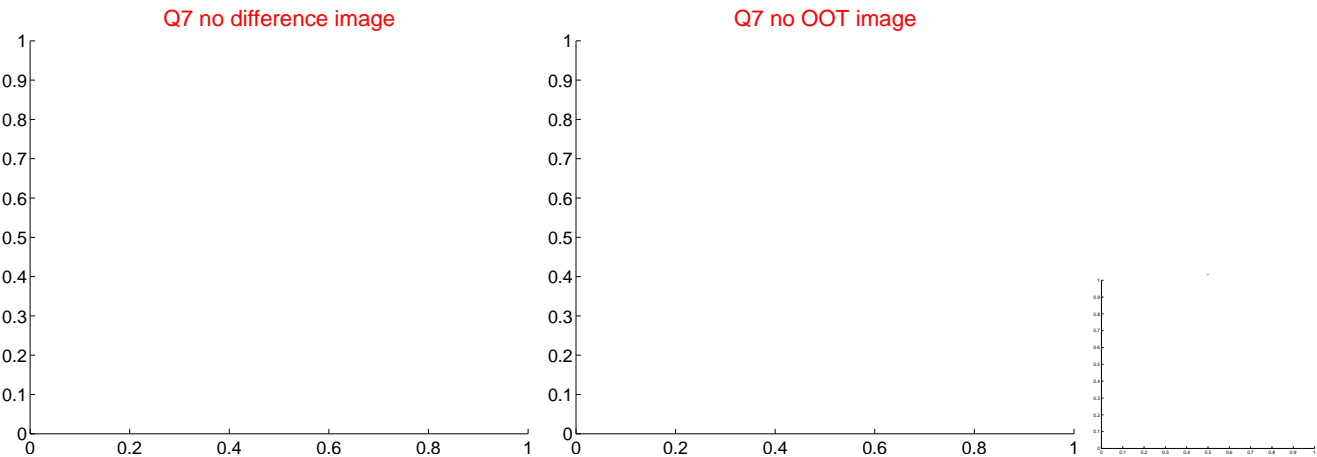
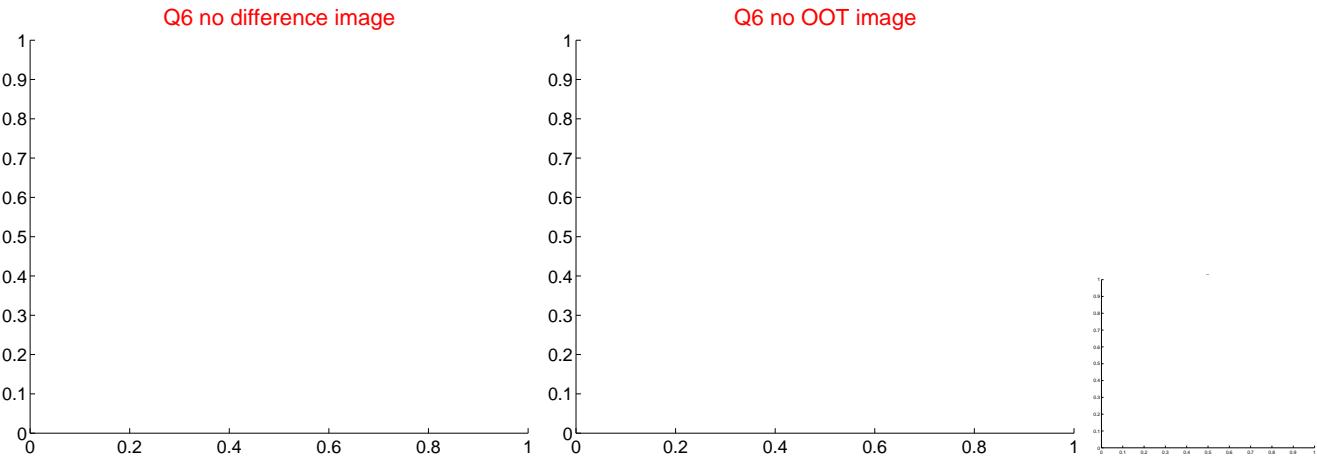
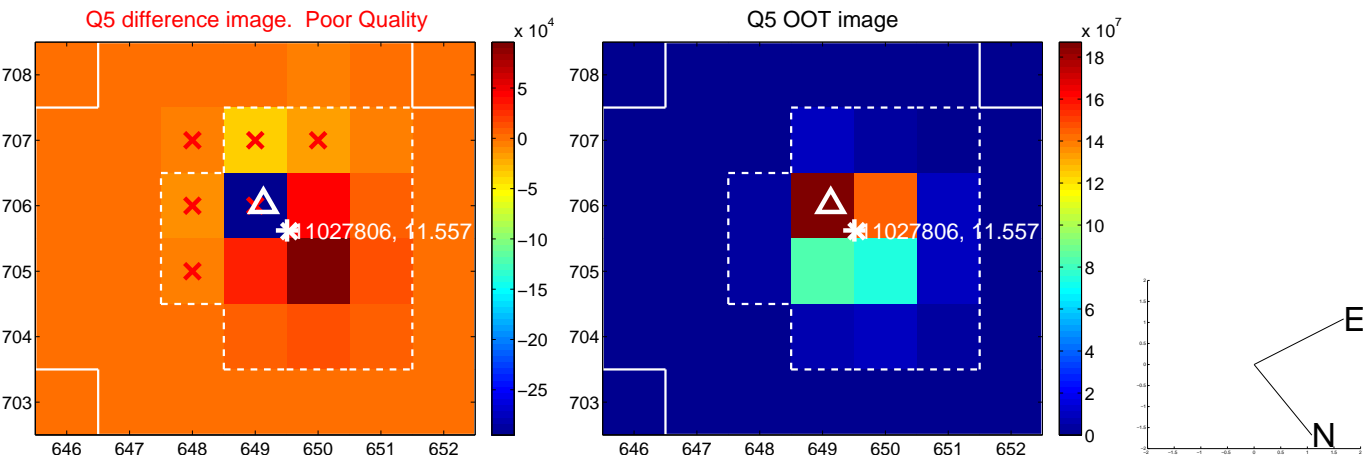


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

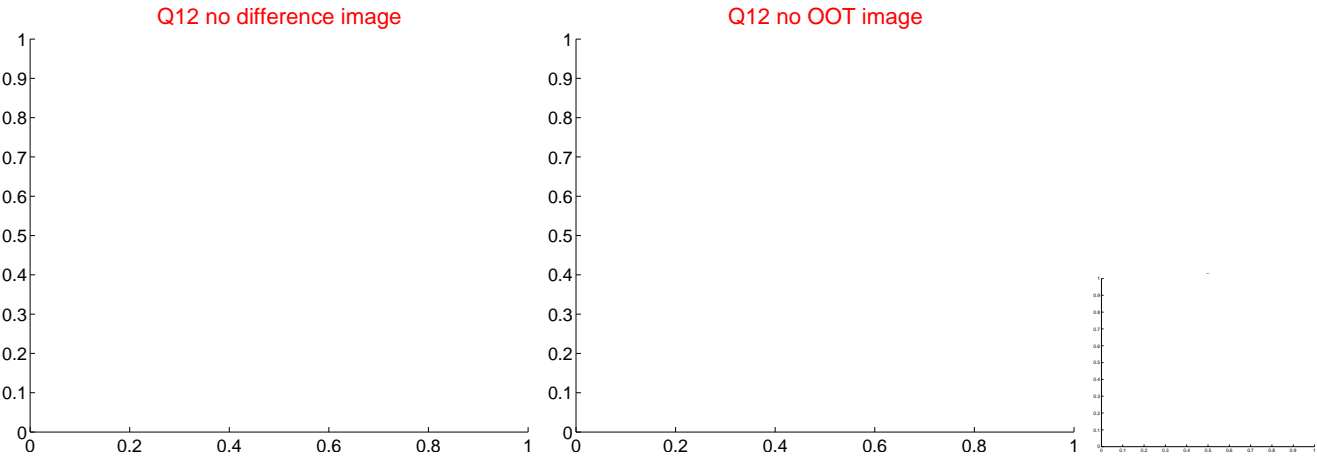
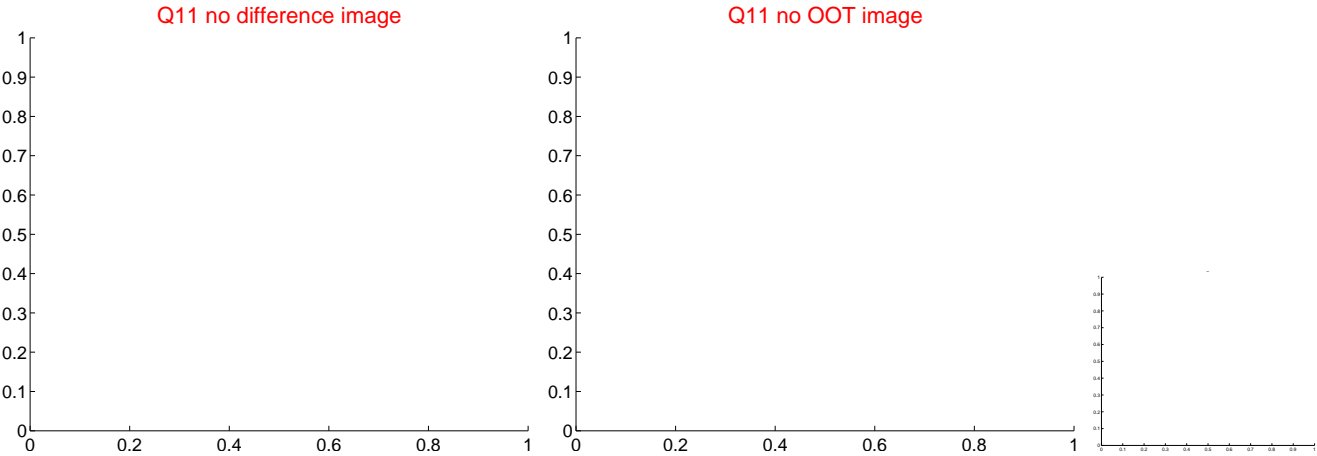
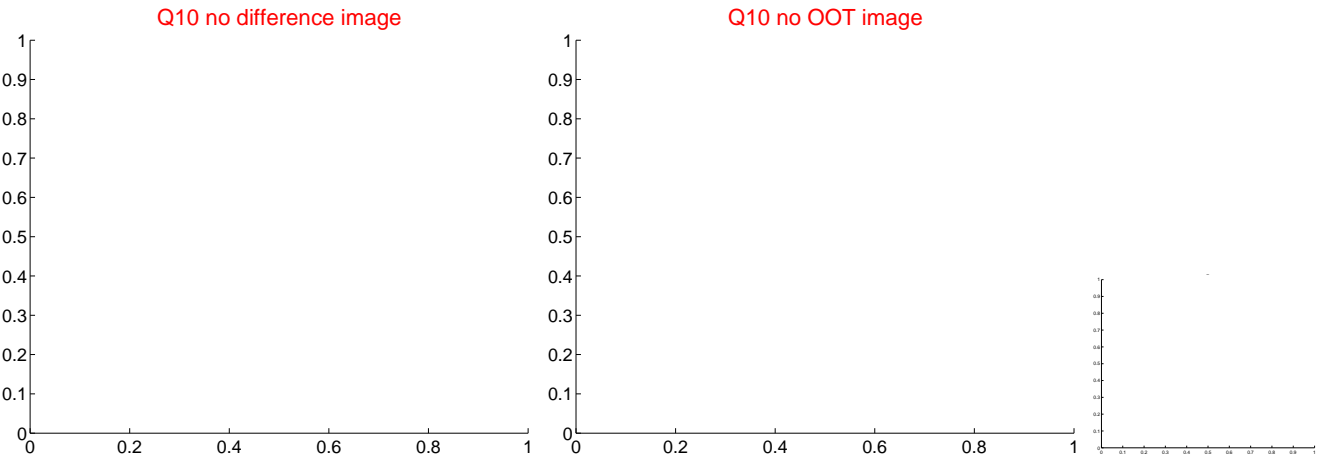
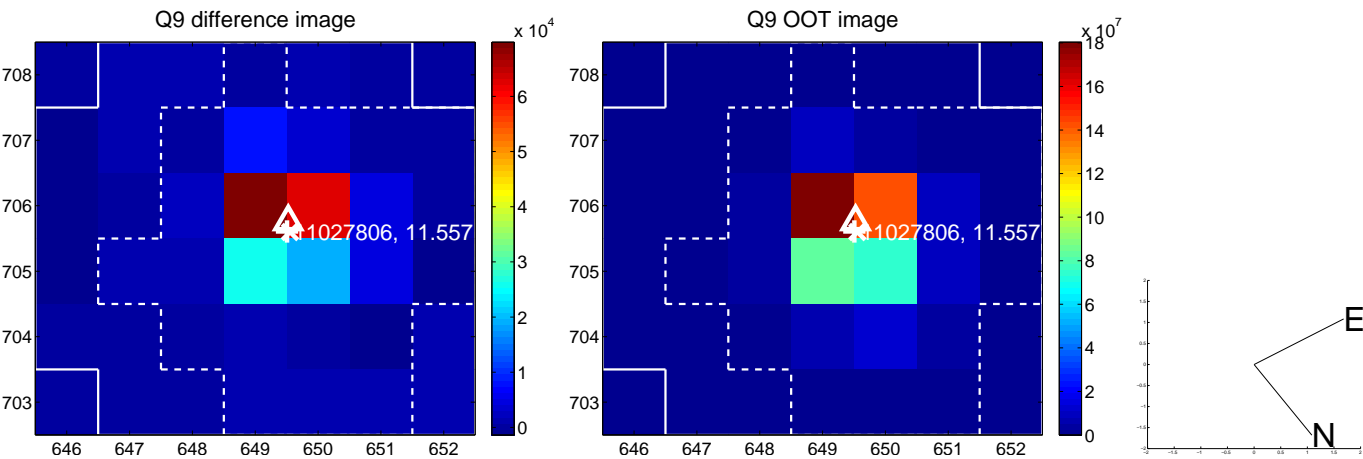
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

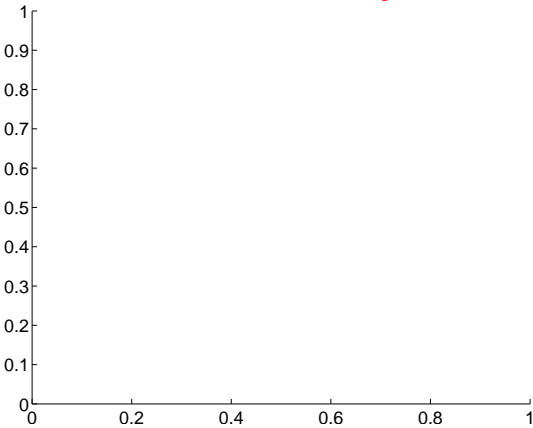


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

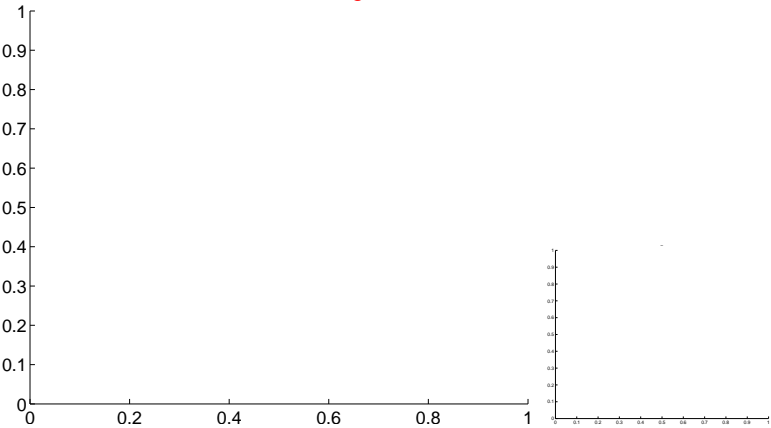


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

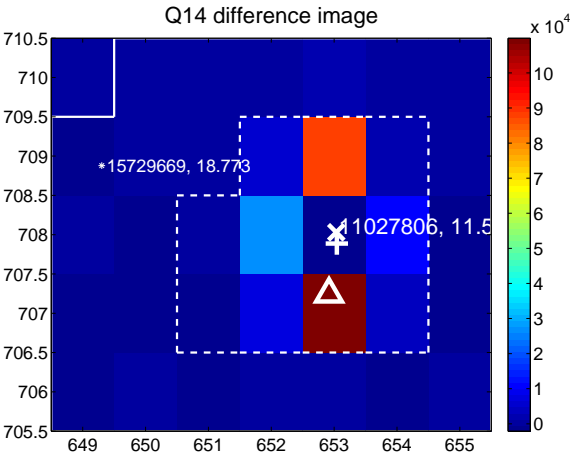
Q13 no difference image



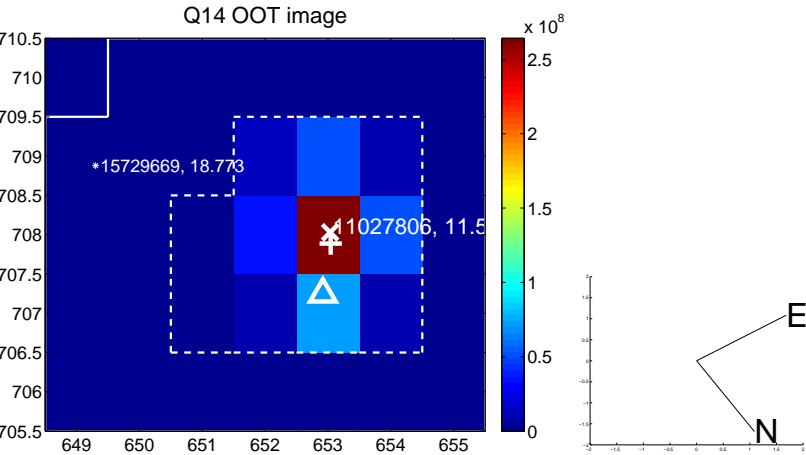
Q13 no OOT image



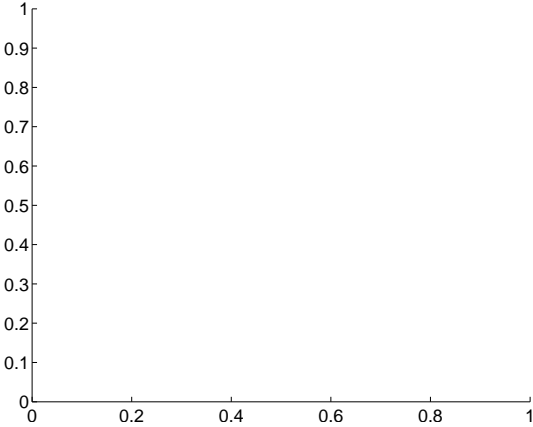
Q14 difference image



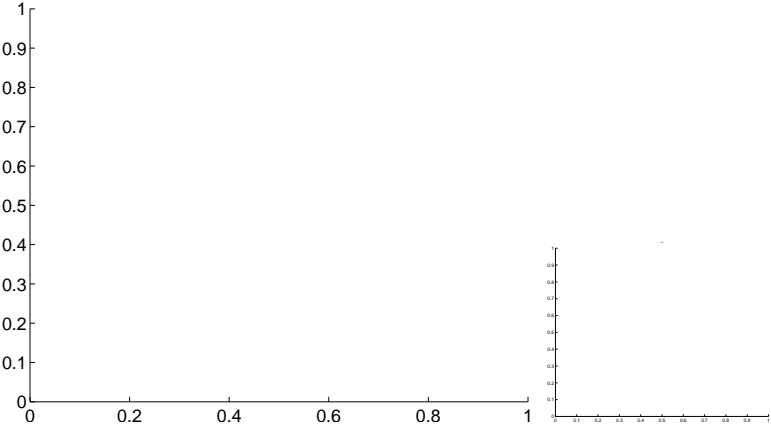
Q14 OOT image



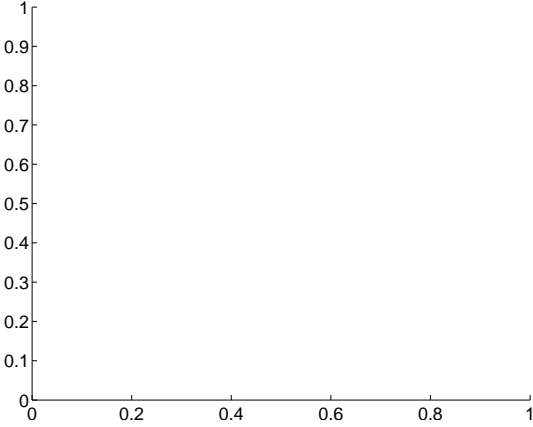
Q15 no difference image



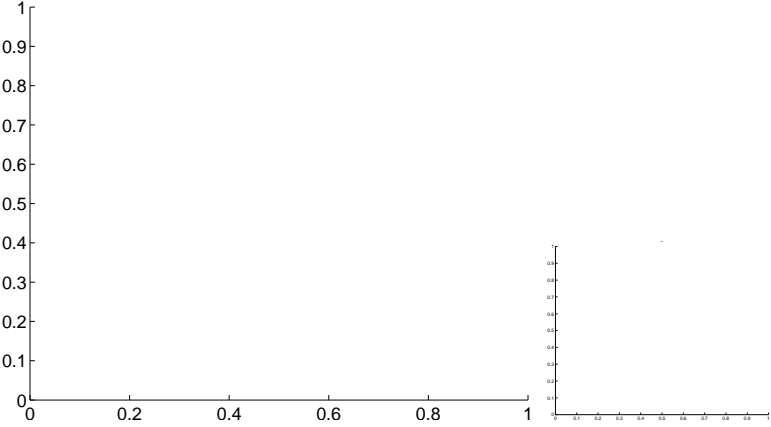
Q15 no OOT image



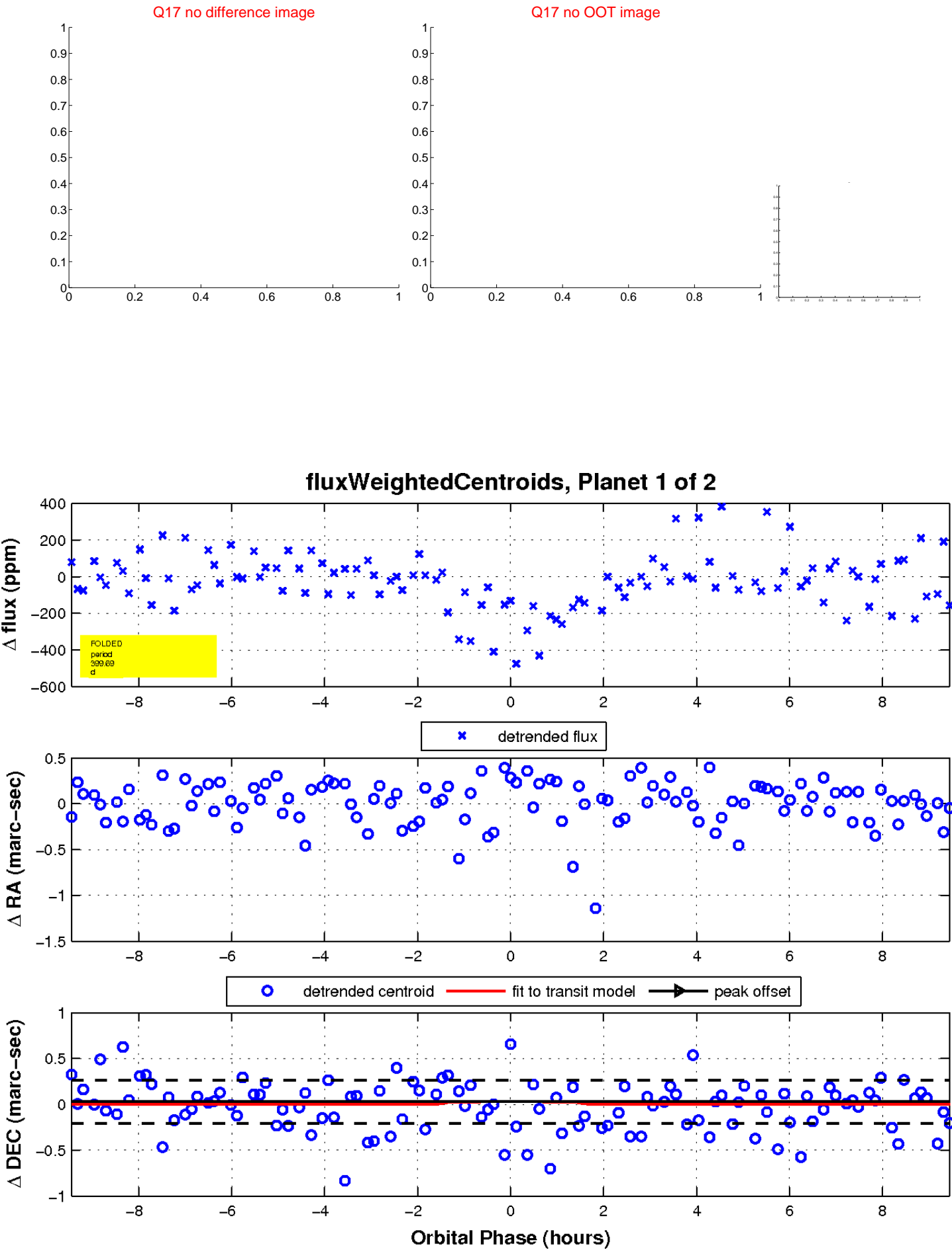
Q16 no difference image



Q16 no OOT image

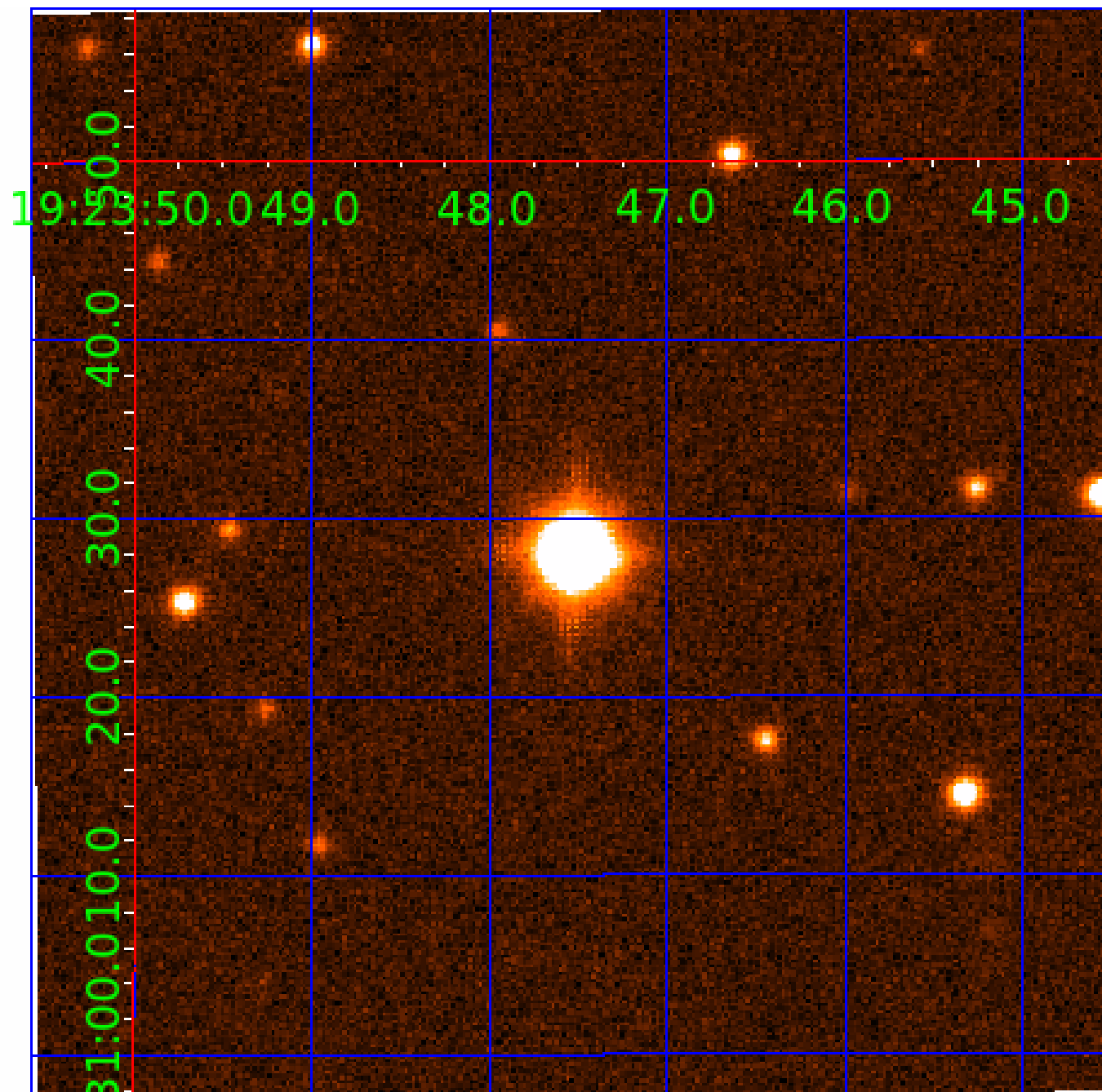


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011027806

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})
011027806-01	OBS	No	399.687243	499.803039	311.9	3.178	10.7	8.9	5.40	9155	10.90	83.81
011027806-02	OBS	No	0.512051	131.678810	8.9	0.903	8.6	7.4	5.40	9155	1.66	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011027806-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011027806-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

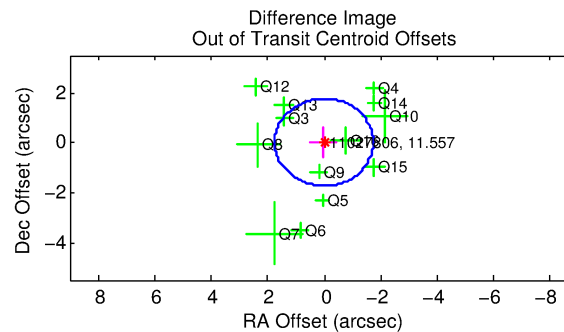
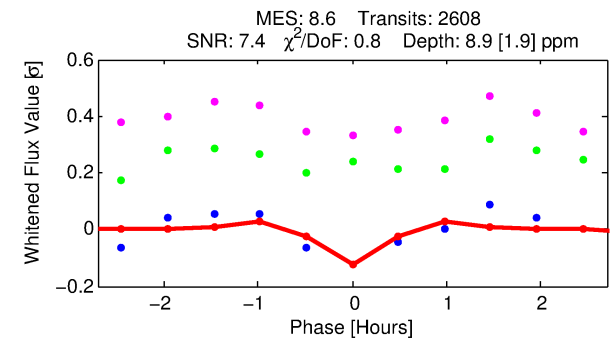
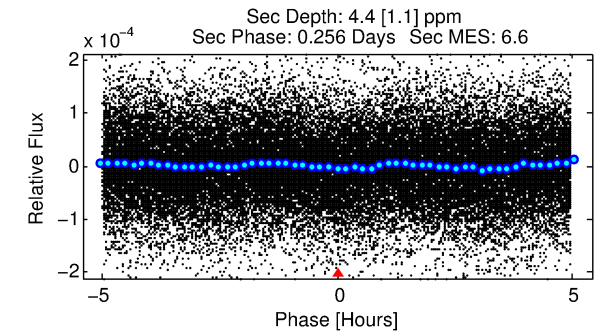
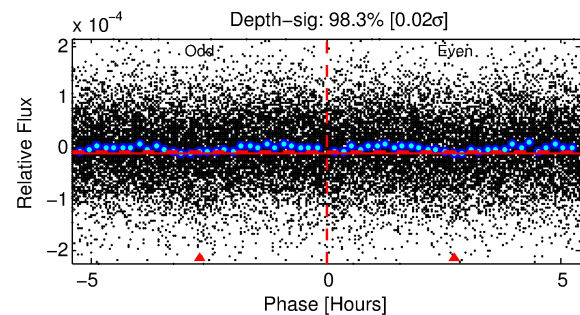
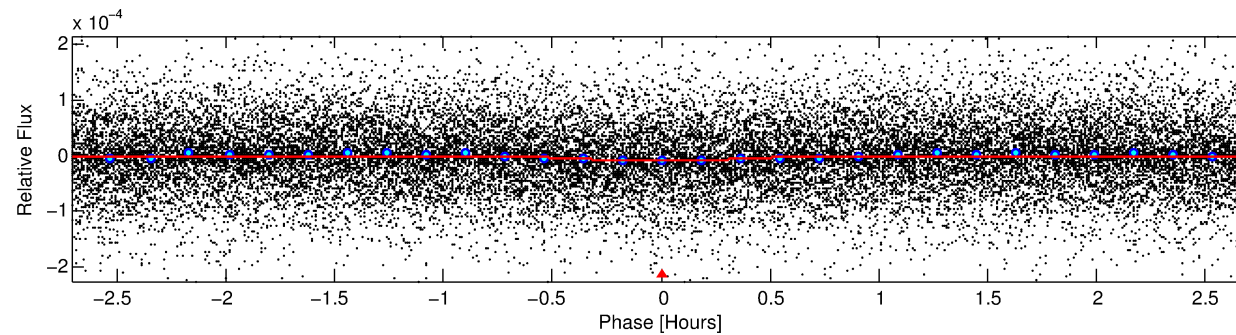
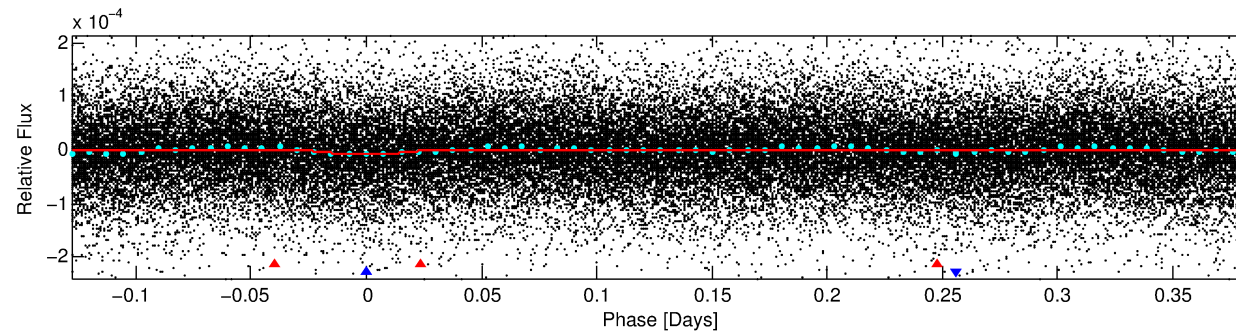
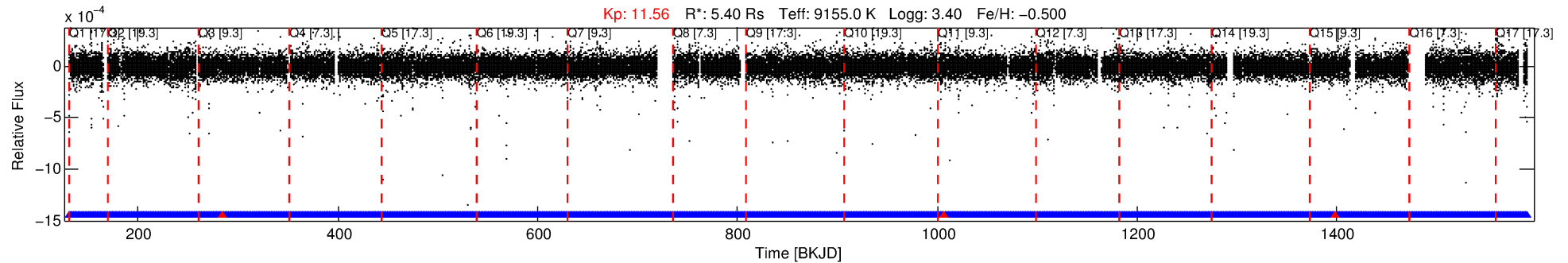
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011027806-02

No Significant Match Found

DV One-Page Summary

KIC: 11027806 Candidate: 2 of 2 Period: 0.512 d



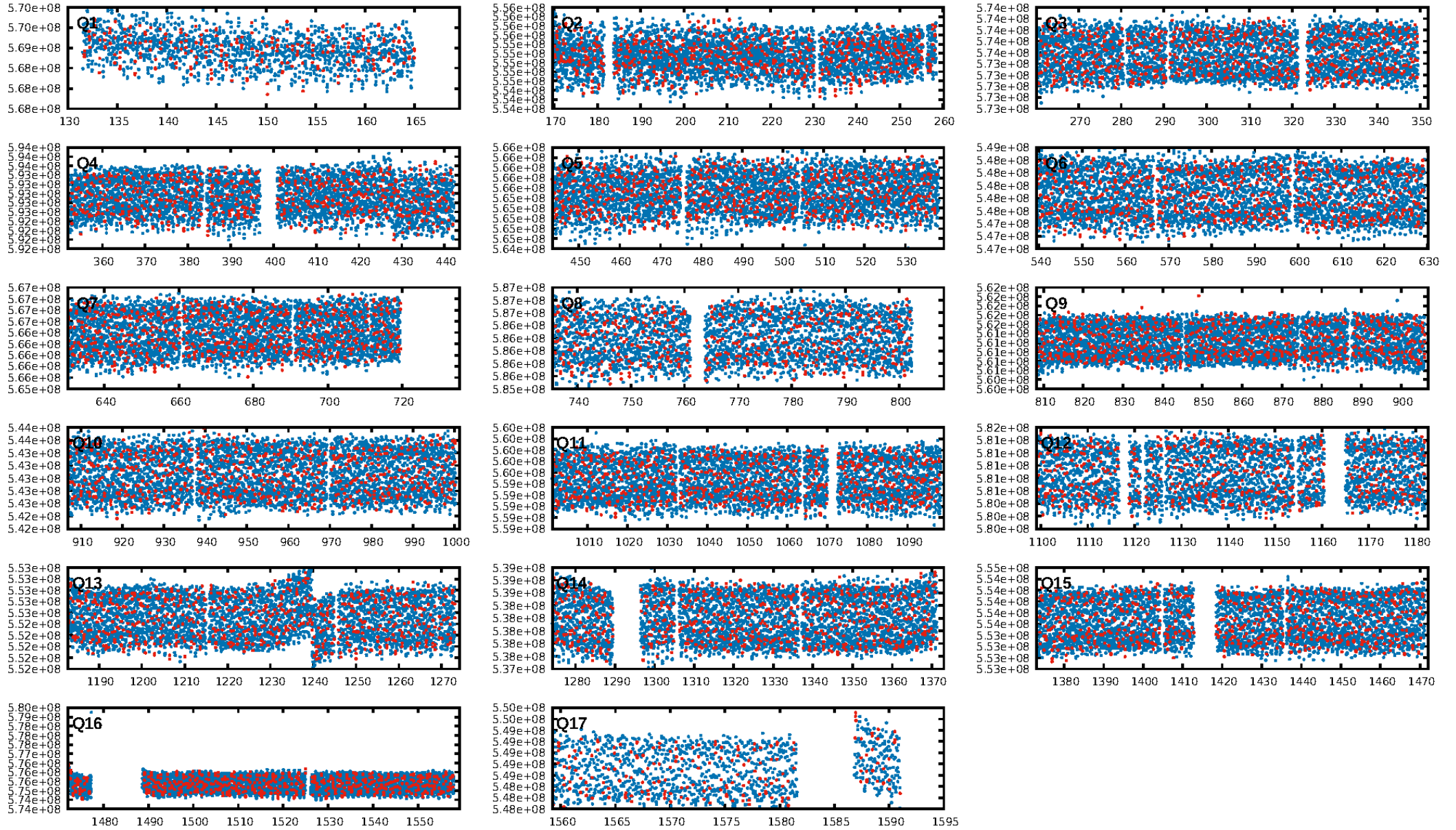
DV Fit Results:

Period = 0.51205 [0.00002] d
Epoch = 131.6788 [0.0018] BKJD
Rp/R* = 0.0028 [0.0039]
a/R* = 4.38 [37.07]
b = 0.01 [650.78]
Seff = N/A
Teq = N/A
Rp = 1.66 [2.55] Re
a = N/A
Ag = N/A
Teffp = N/A

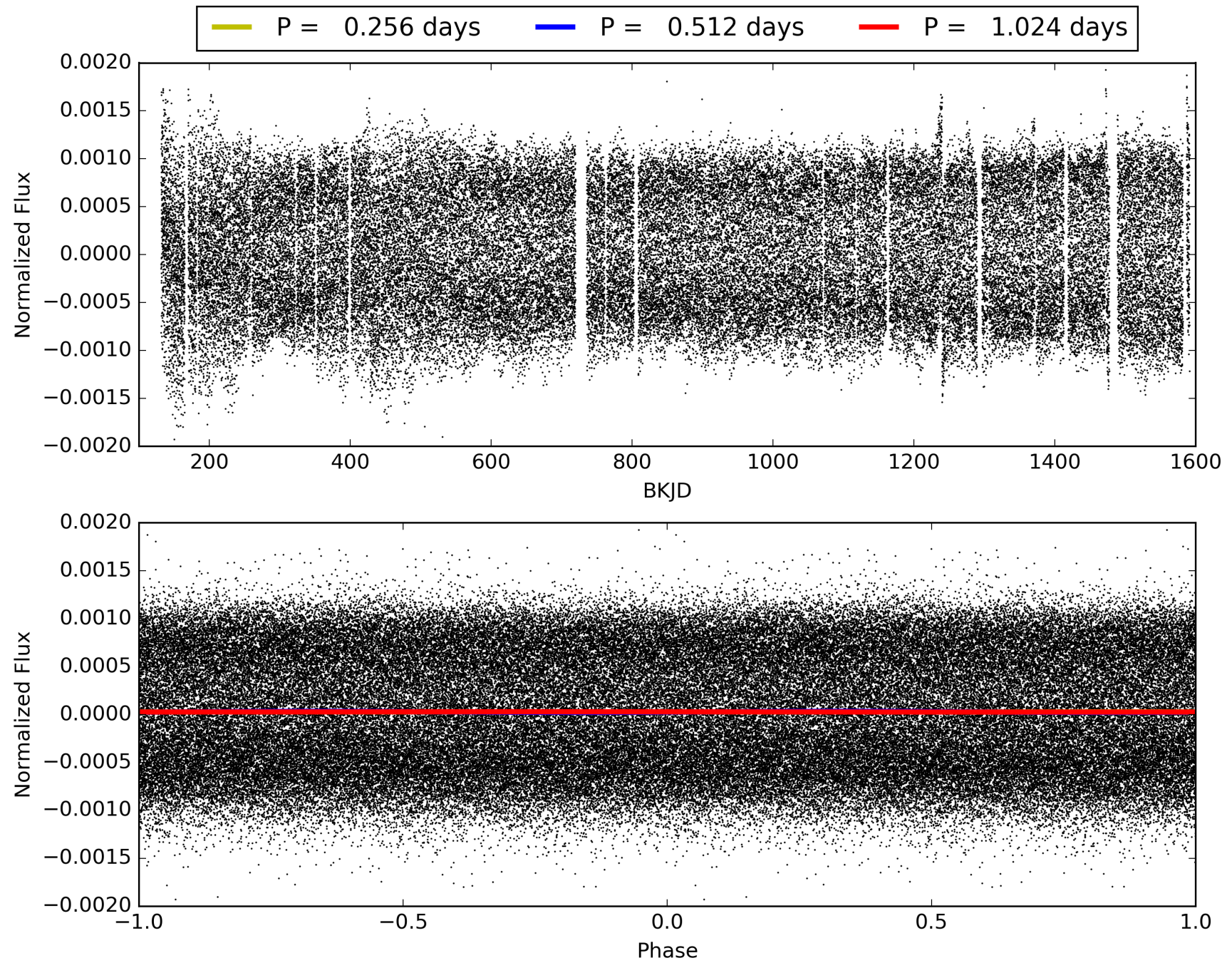
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [2899.87σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.61e-15
RollingBand-fgt: 1.00 [2486/2489]
GhostDiagnostic-chr: 2.659
Centroid-sig: N/A
Centroid-so: 0.824 arcsec [0.69σ]
OotOffset-rm: 0.023 arcsec [0.04σ]
KicOffset-rm: 0.162 arcsec [0.28σ]
OotOffset-st: 3/3/4/3 [13]
KicOffset-st: 3/3/4/3 [13]
DiffImageQuality-fgm: 0.38 [5/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 011027806-02, PDC Light Curves

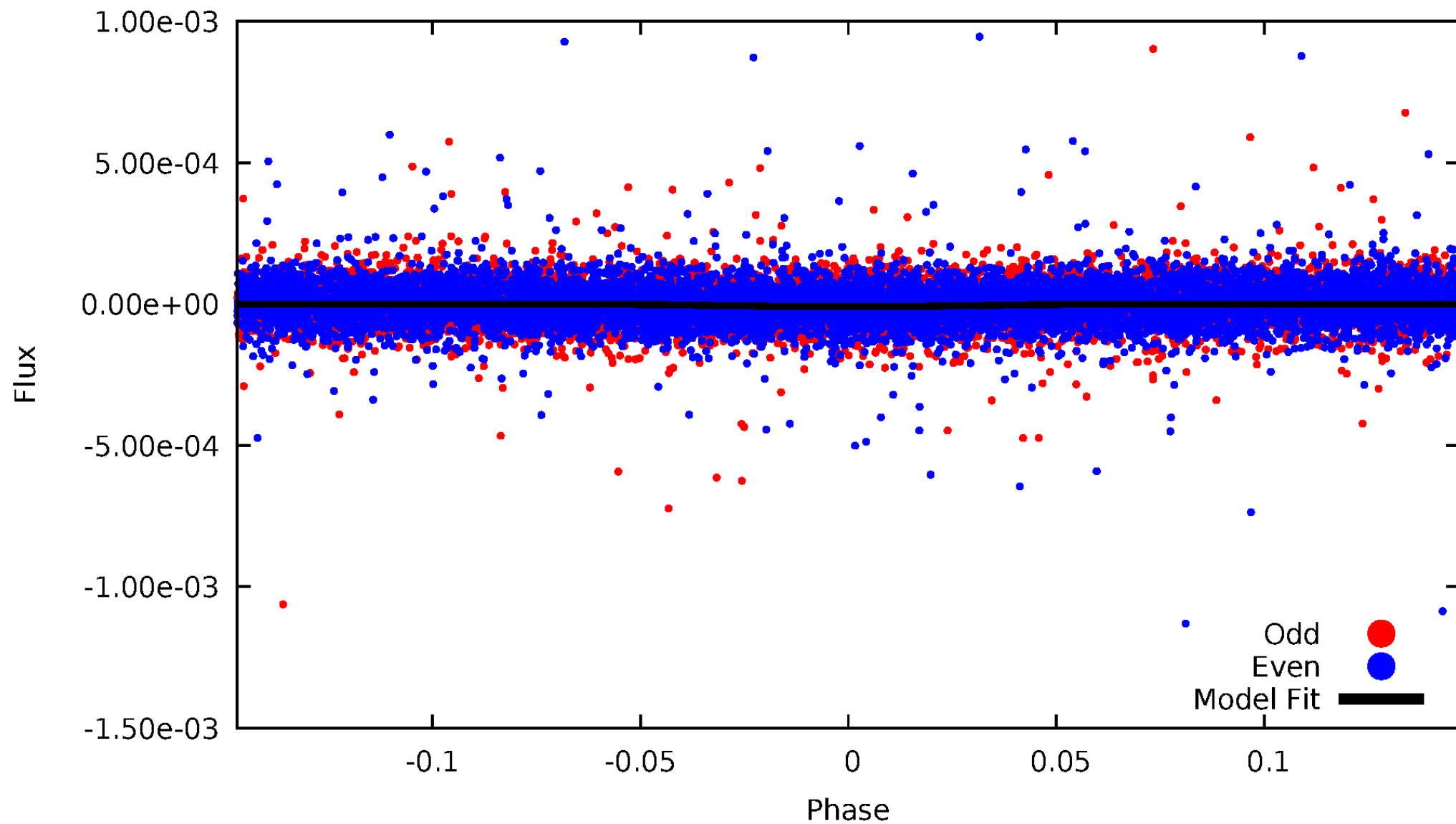


TCE 011027806-02



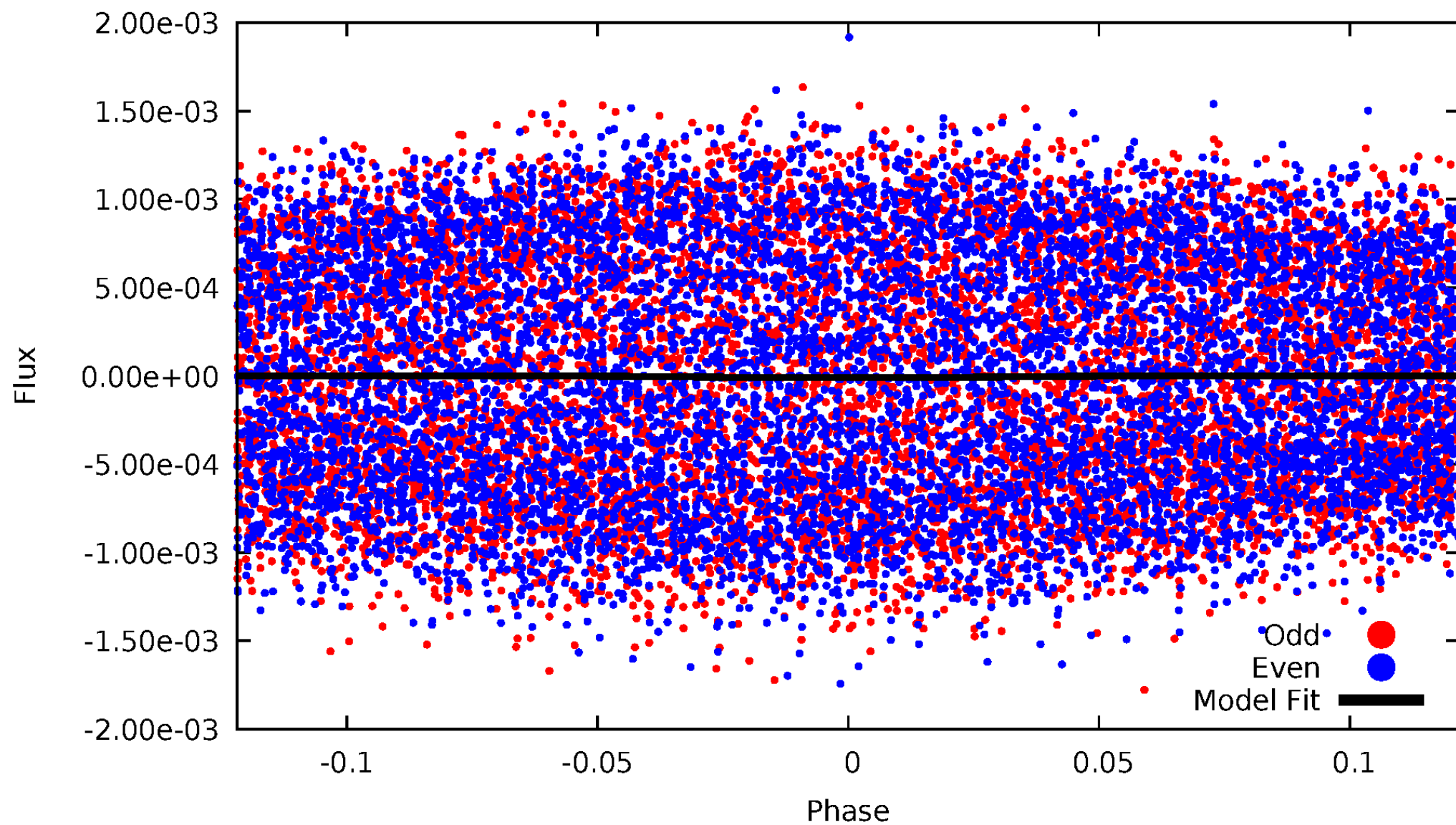
DV Odd/Even

TCE 011027806-02



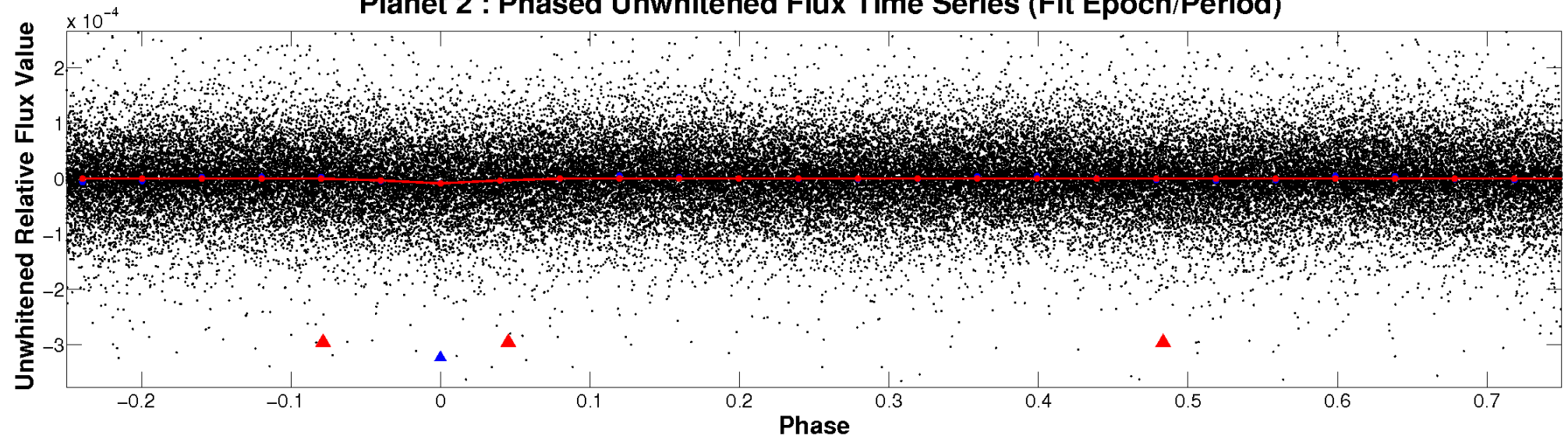
ALT Odd/Even

TCE 011027806-02

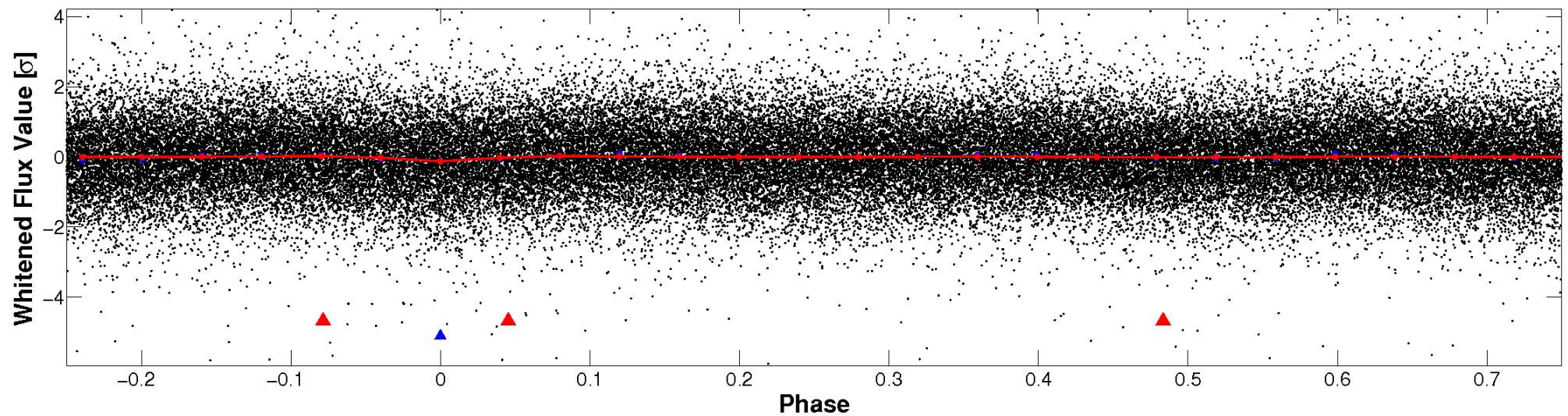


Non-Whitened Vs. Whitened Light Curve

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

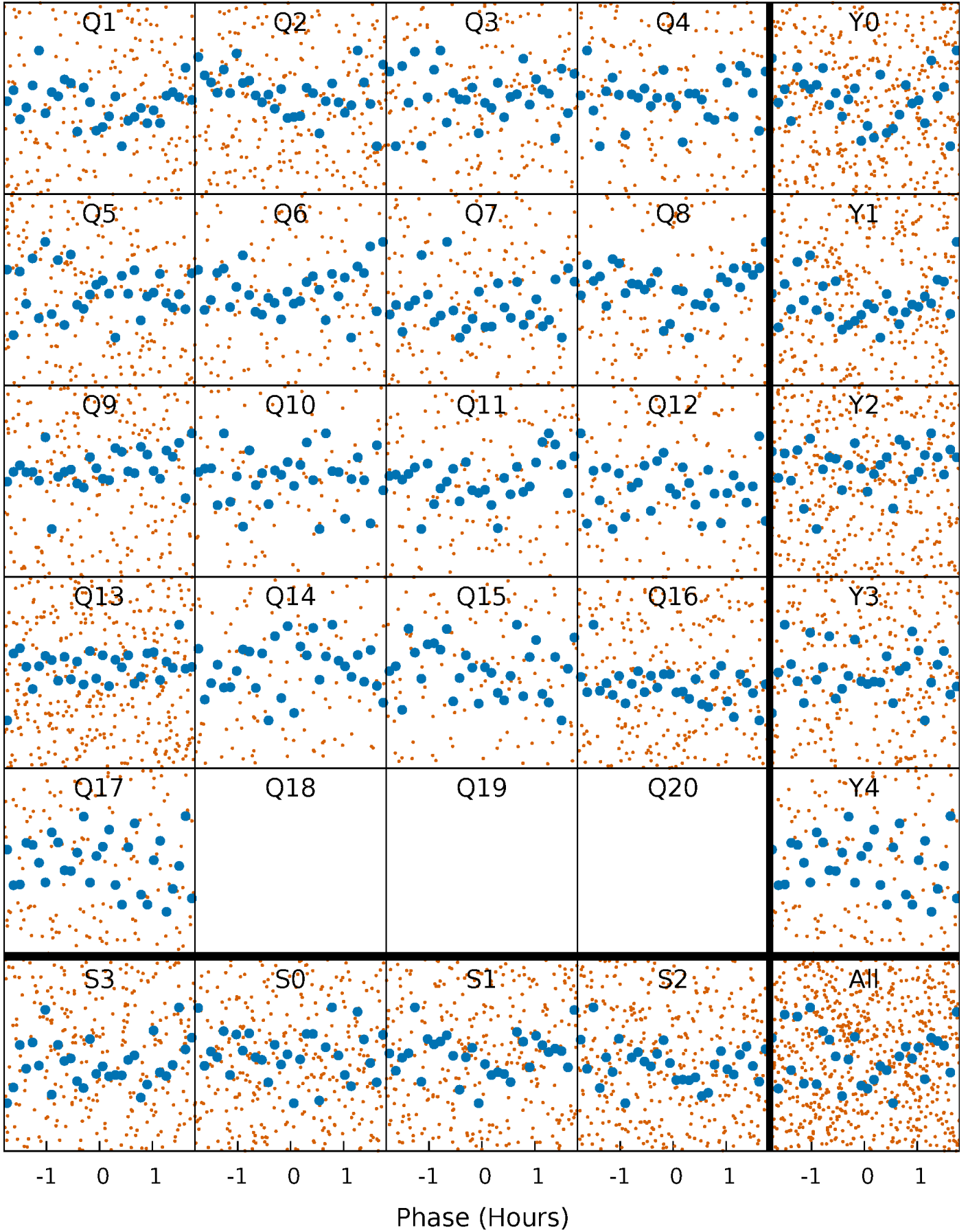


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



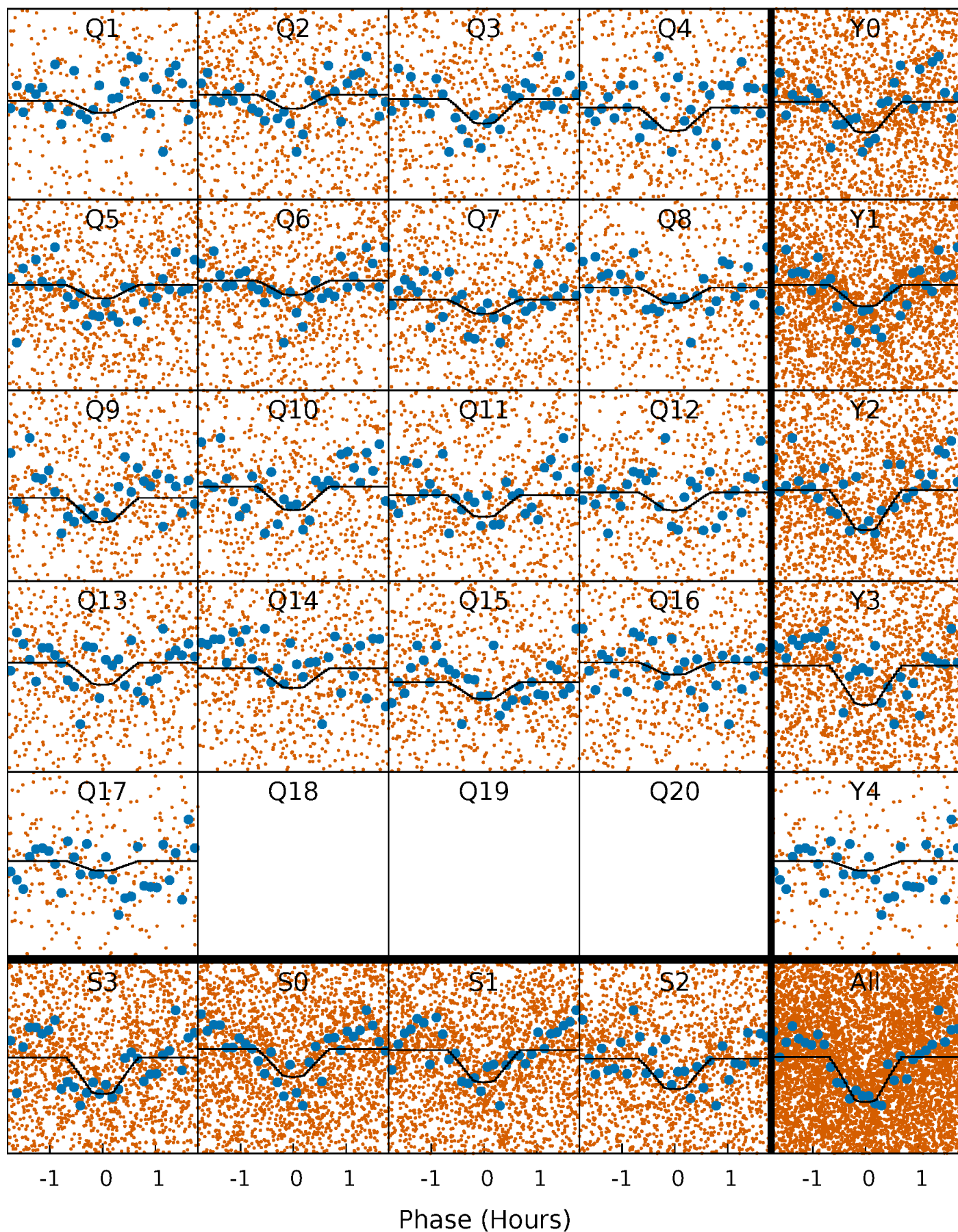
PDC Quarter-Phased Transit Curves

TCE 011027806-02 P= 0.512051 Days $T_0=131.678810$ (BKJD)



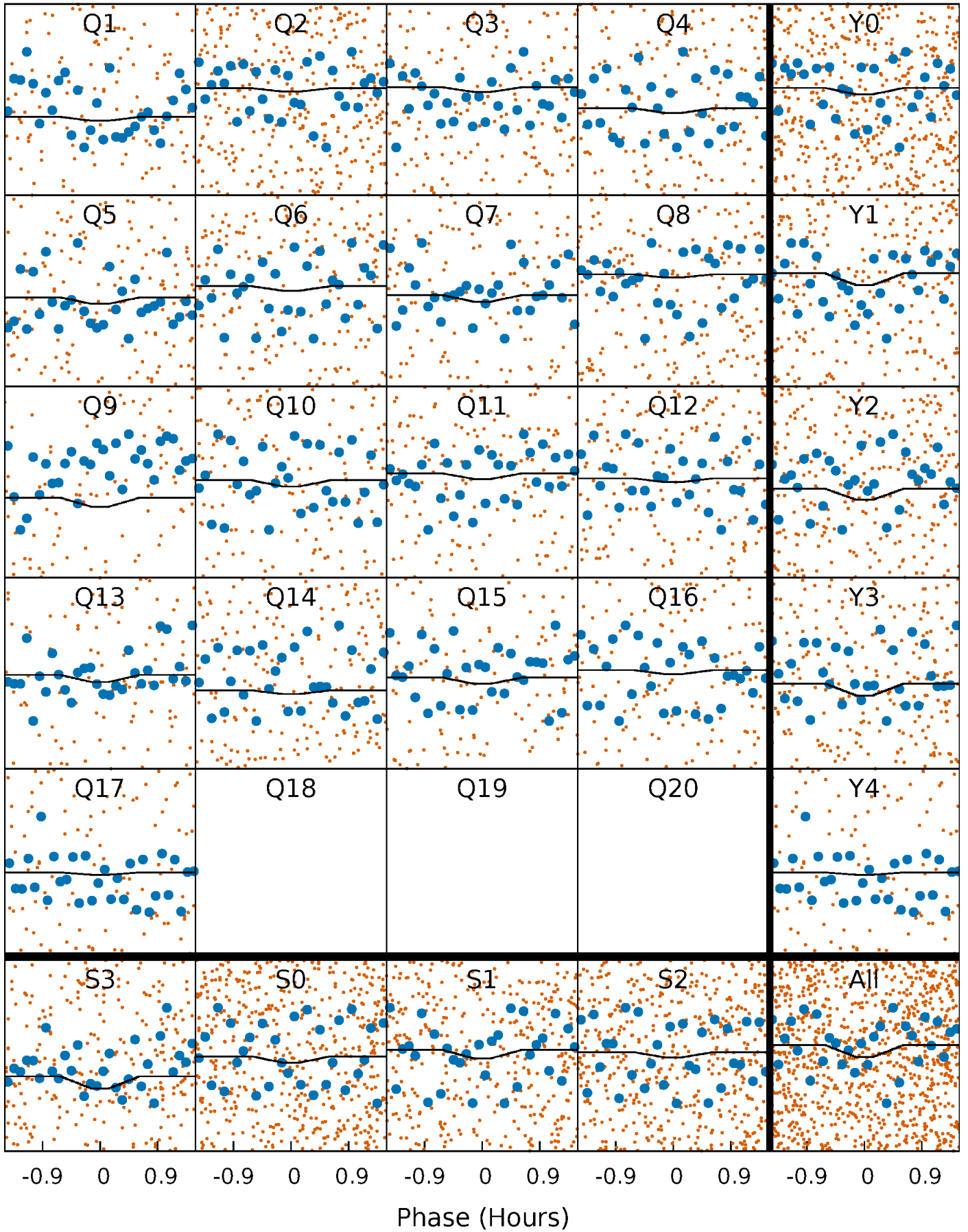
DV Quarter-Phased Transit Curves

TCE 011027806-02 P= 0.512051 Days $T_0=131.678810$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

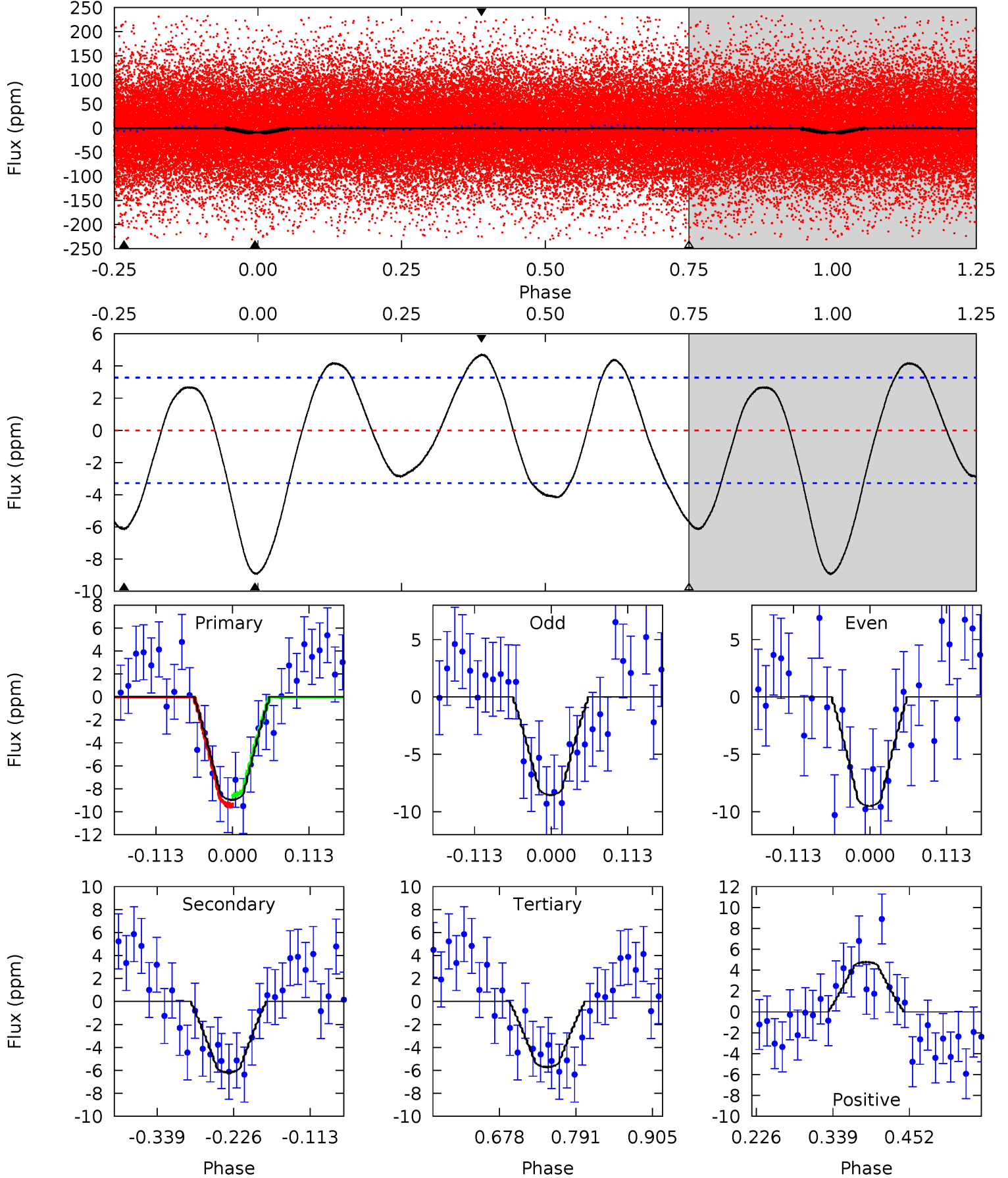
TCE 011027806-02 P= 0.512059 Days $T_0=131.683816$ (BKJD)



DV Model-Shift Uniqueness Test

011027806-02, P = 0.512051 Days, E = 131.166759 Days

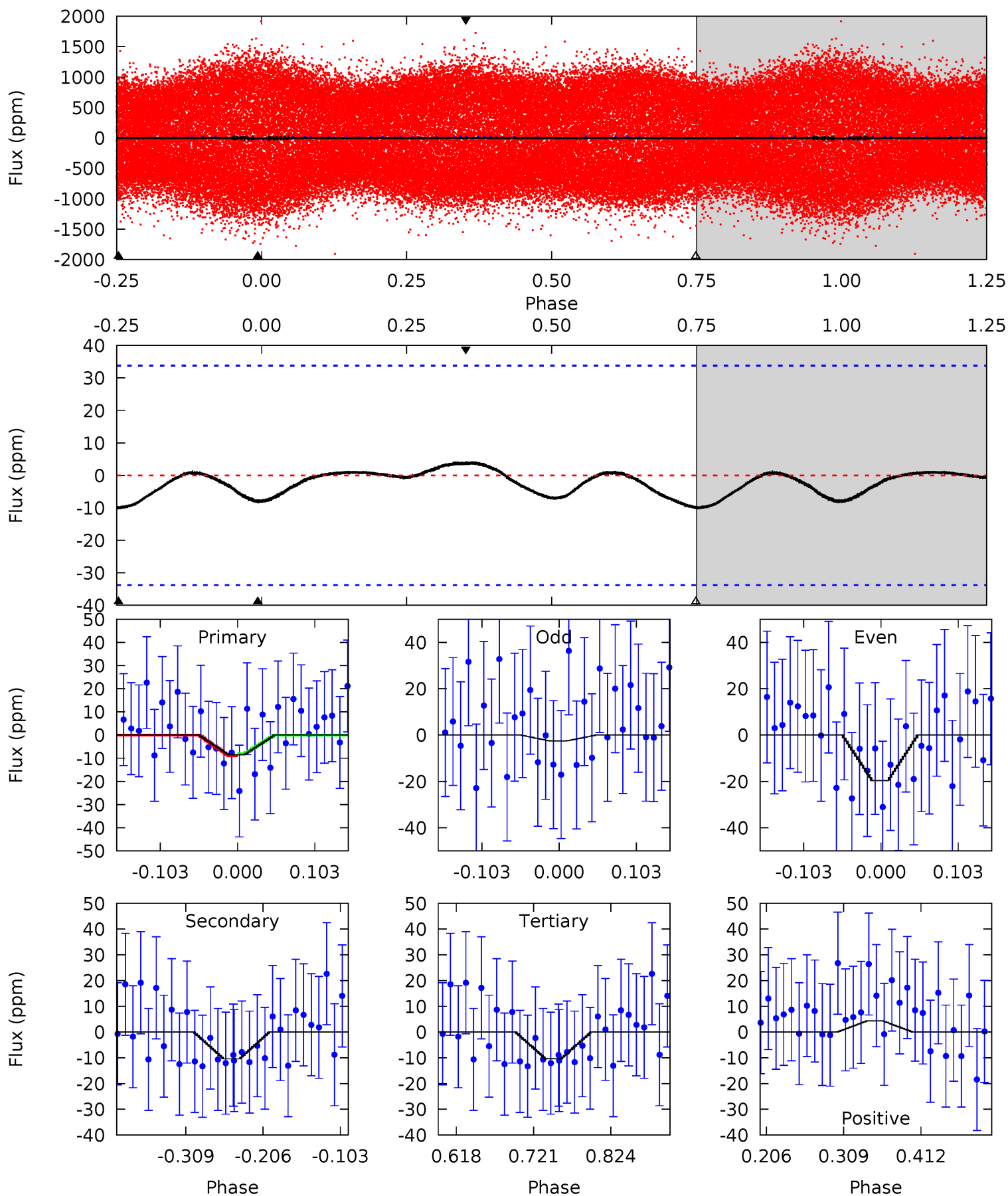
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	8.55	7.90	6.60	4.54	1.58	4.21	4.51	5.81	0.65	1.95	0.67	0.95	0.35	0.60



Alt Model-Shift Uniqueness Test

011027806-02, P = 0.512059 Days, E = 131.171757 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.15	1.40	1.39	0.58	4.56	1.63	0.48	-0.24	0.56	0.01	0.82	1.16	1.34	0.29	0.06



Stellar Parameters For KIC 011027806

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	9155^{+251}_{-430}	$3.405^{+0.783}_{-0.130}$	$-0.500^{+0.550}_{-0.250}$	$5.396^{+1.024}_{-3.686}$	$2.695^{+0.279}_{-1.117}$	$0.024^{+0.433}_{-0.009}$
	+3%/-5%	+23%/-4%	+110%/-50%	+19%/-68%	+10%/-41%	+1792%/-37%
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 011027806-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 1	$1.95^{+1.84}_{-1.31}$	9582^{+816}_{-1682}	-3932^{+16489}_{-3239}	$0.272^{+1.949}_{-0.202}$
Alt.	-10 ± 7	$2.13^{+1.99}_{-1.44}$	9558^{+864}_{-1677}	2000^{+12364}_{-9413}	$0.301^{+2.344}_{-0.250}$

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

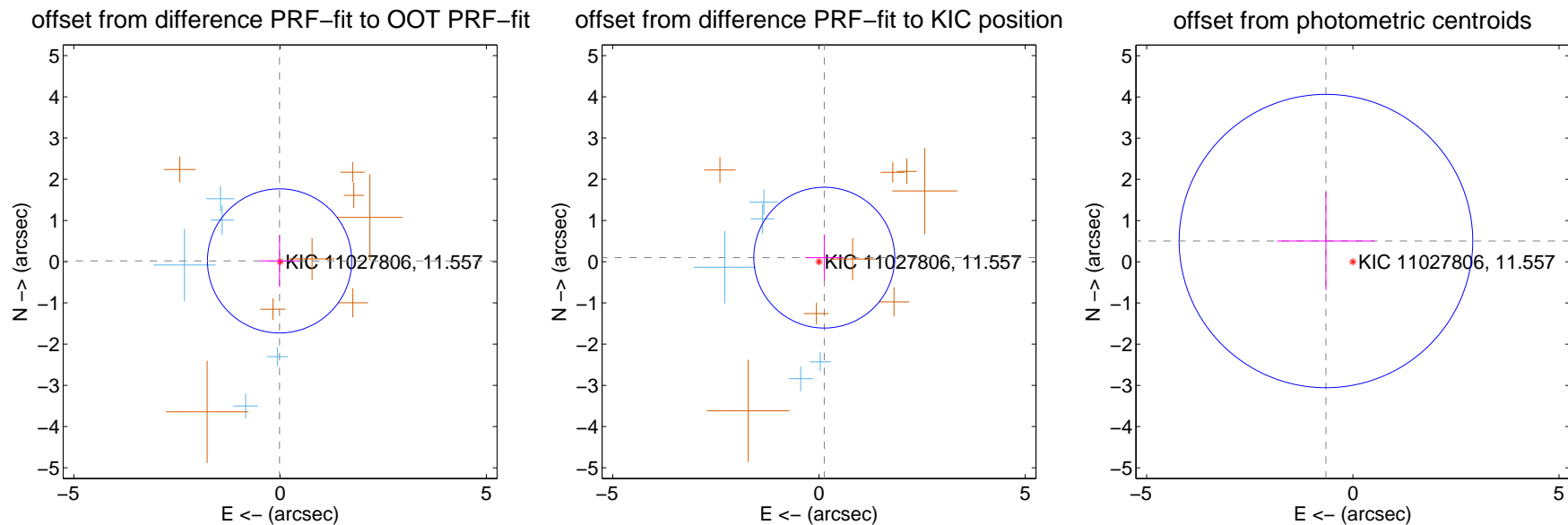
DV Centroid Data

Supplemental centroid analysis for 011027806-02. **Kepler magnitude: 11.56.** Transit SNR 7.36

There are 5 quarters with good PRF difference image offsets

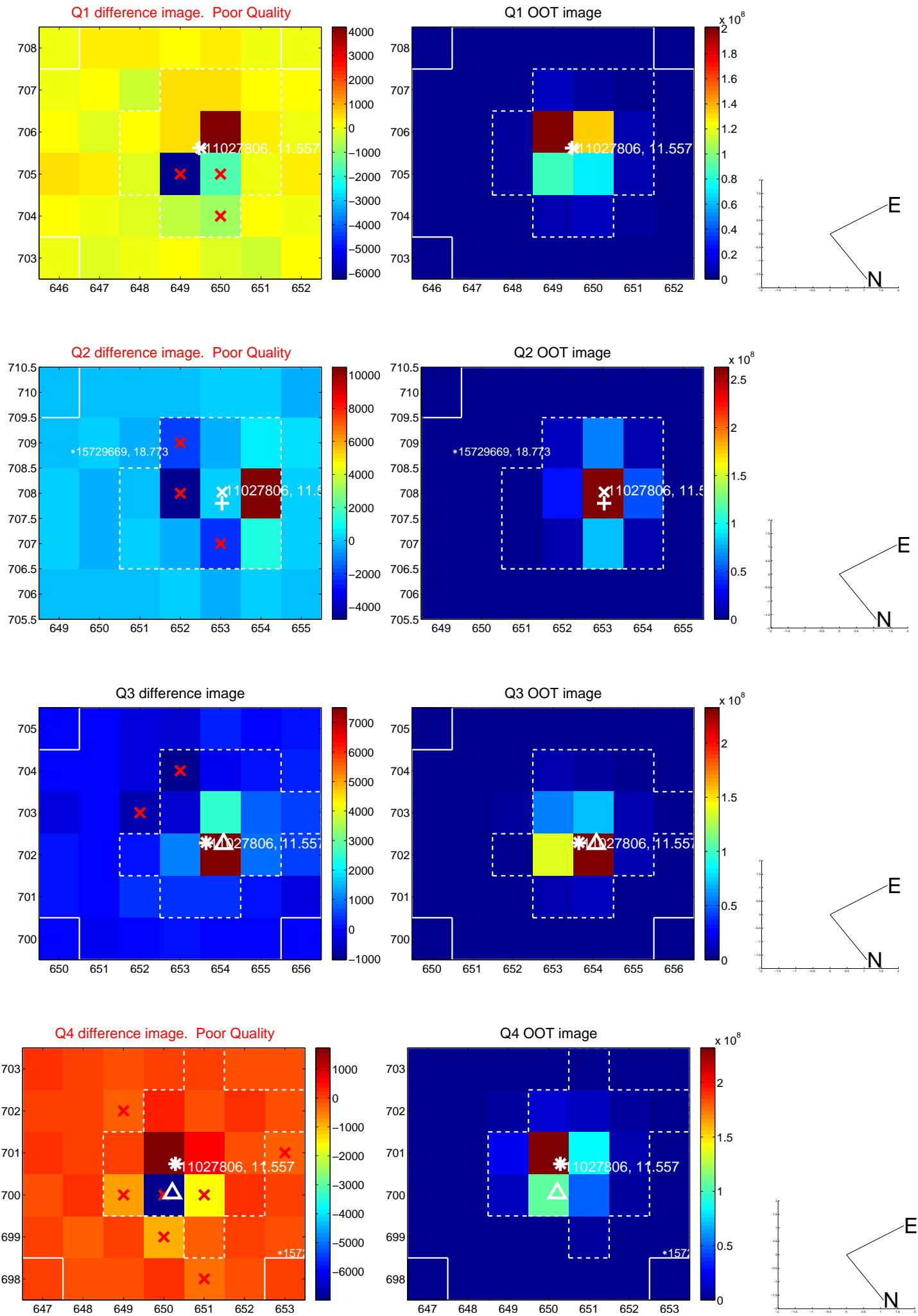
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.023 ± 0.583	0.04	0.013 ± 0.476	0.019 ± 0.624
PRF-fit source offset from KIC position	0.162 ± 0.569	0.28	-0.129 ± 0.463	0.098 ± 0.564
photometric centroid source offset	0.82 ± 1.19	0.69	0.65 ± 1.18	0.50 ± 1.19

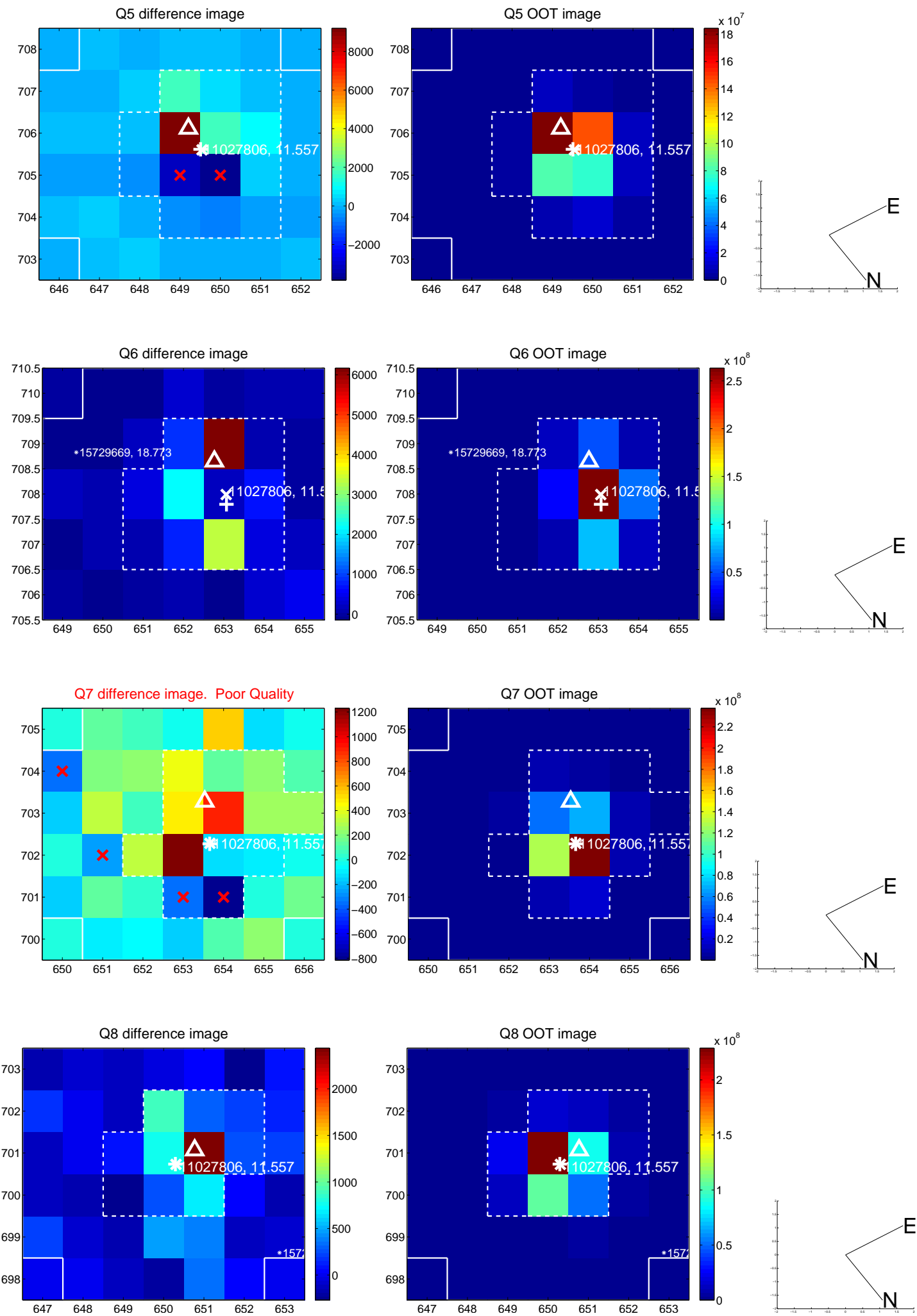


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

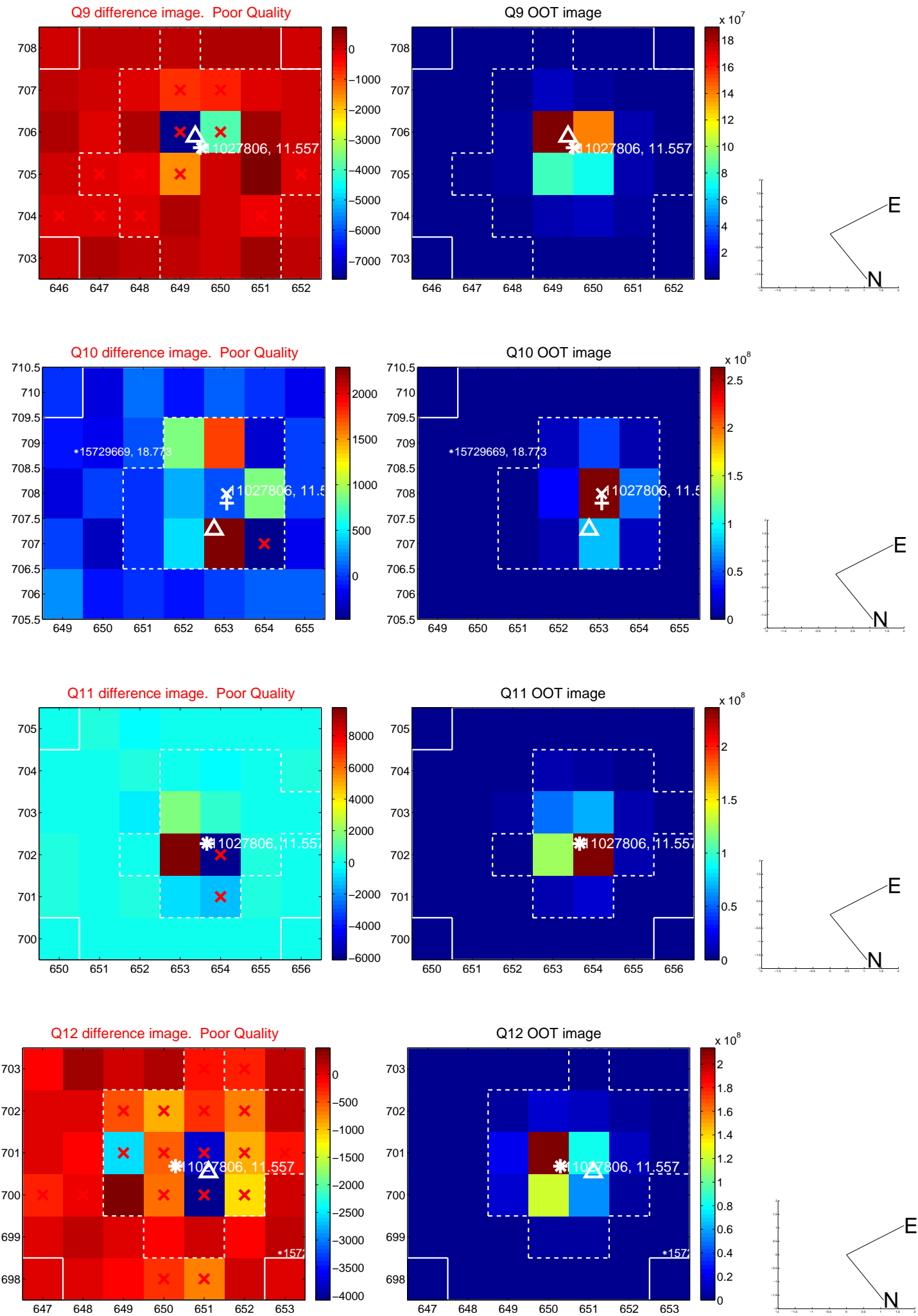
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



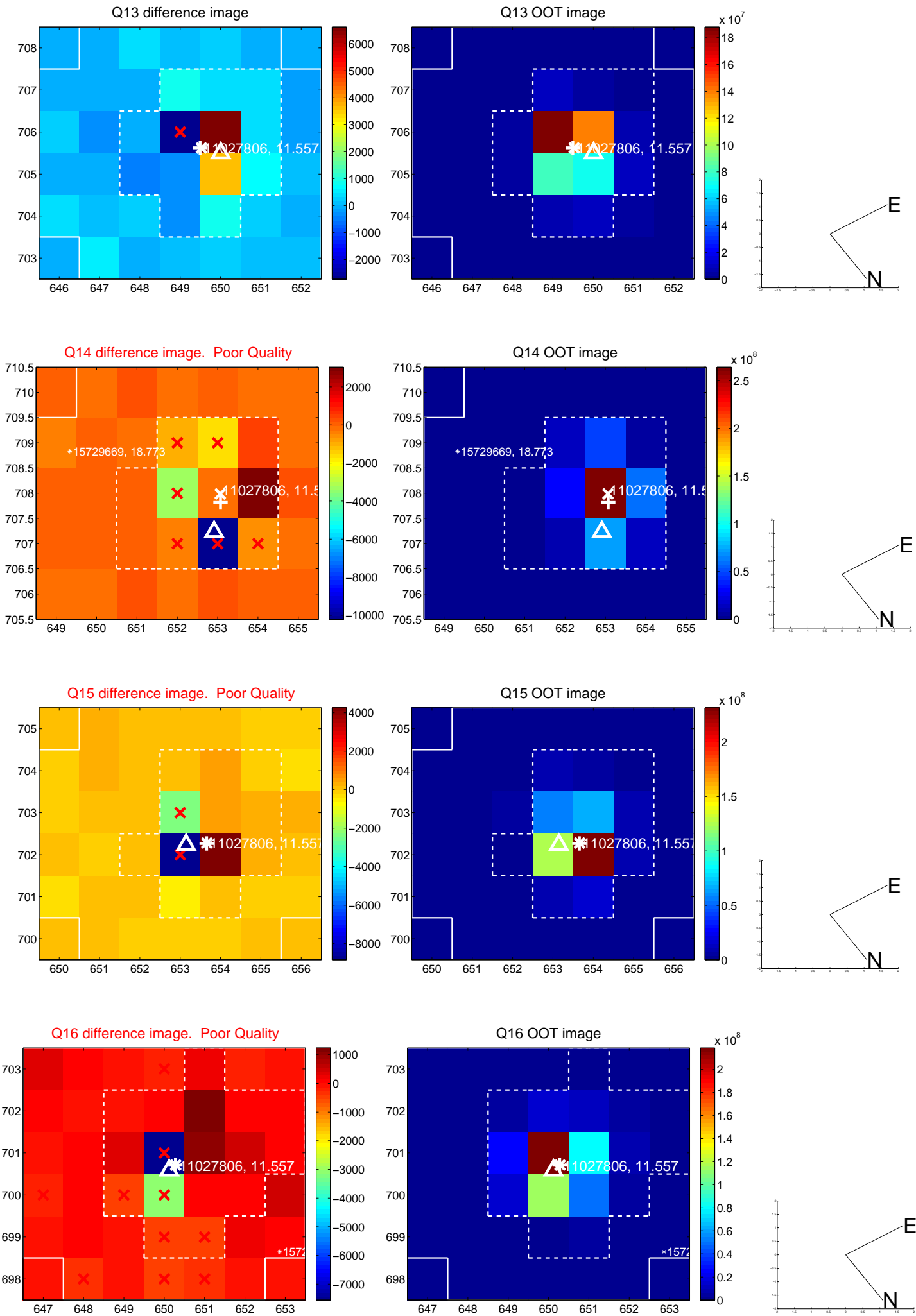
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



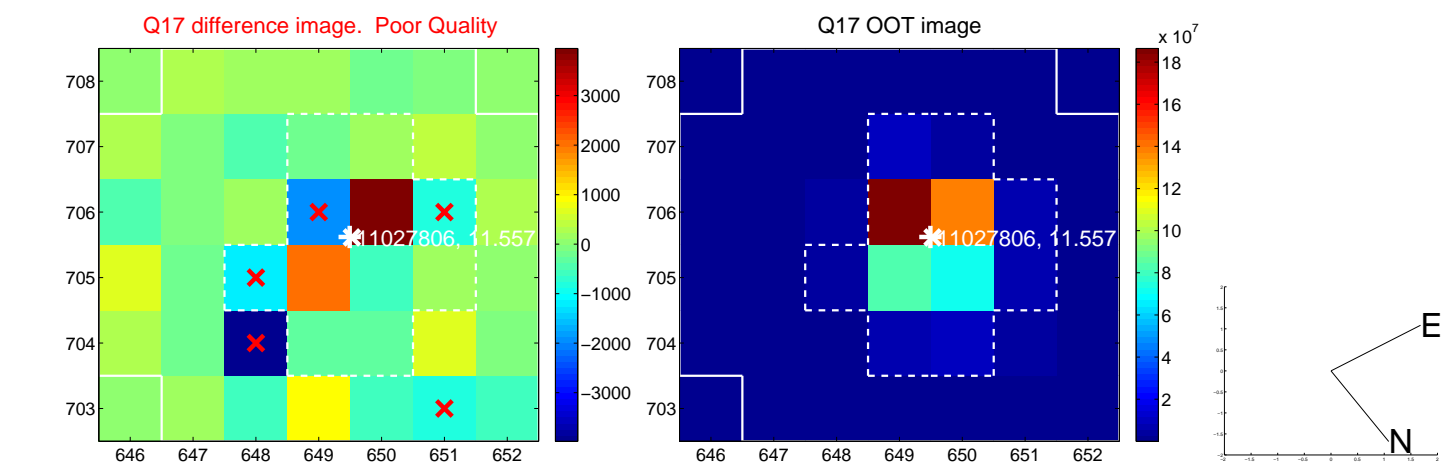
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



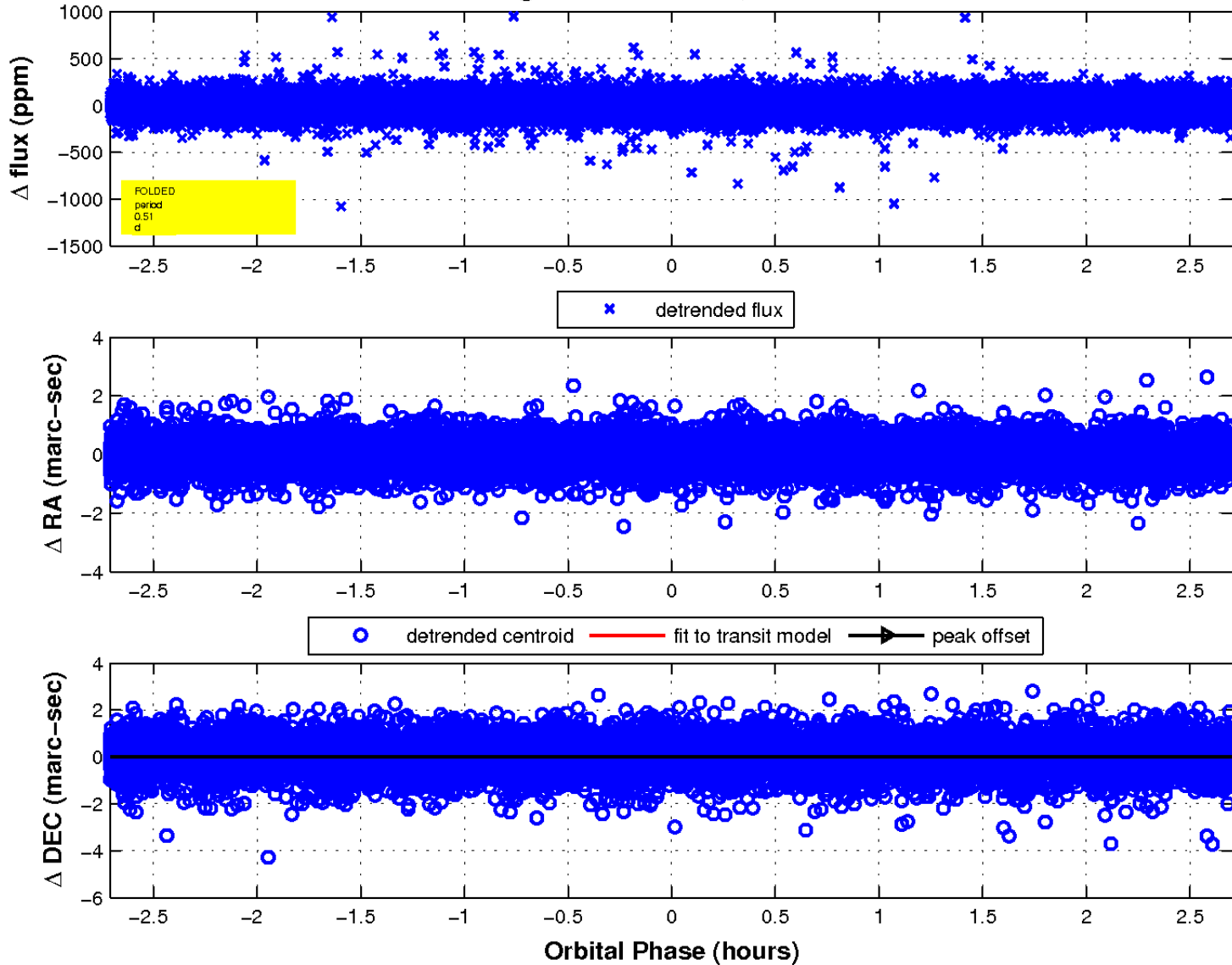
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

