

KIC 012206271

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})
012206271-01	OBS	No	1.532863	133.021356	3.9	3.133	8.6	1.8	1.91	6426	0.48	6677.50
012206271-02	OBS	No	190.471484	304.996393	131.3	8.635	7.5	7.0	1.91	6426	2.50	10.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012206271-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
012206271-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

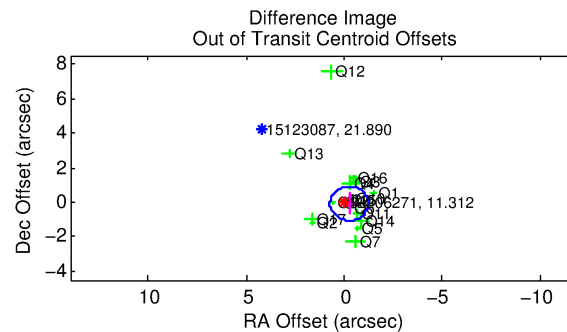
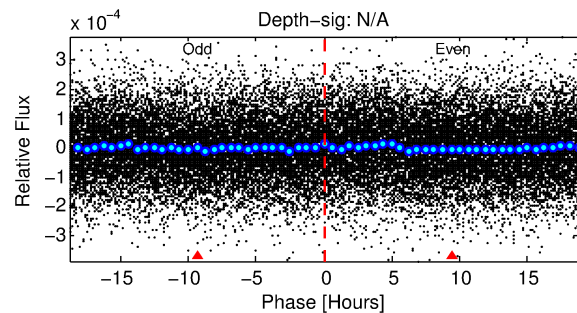
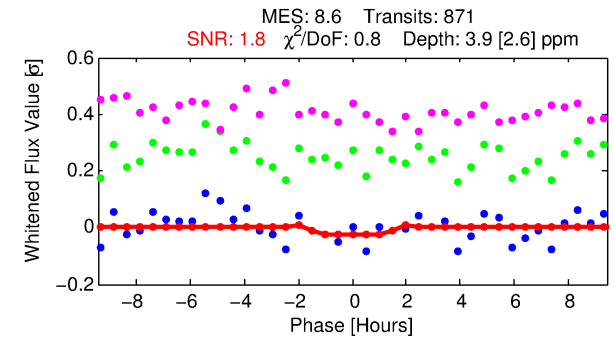
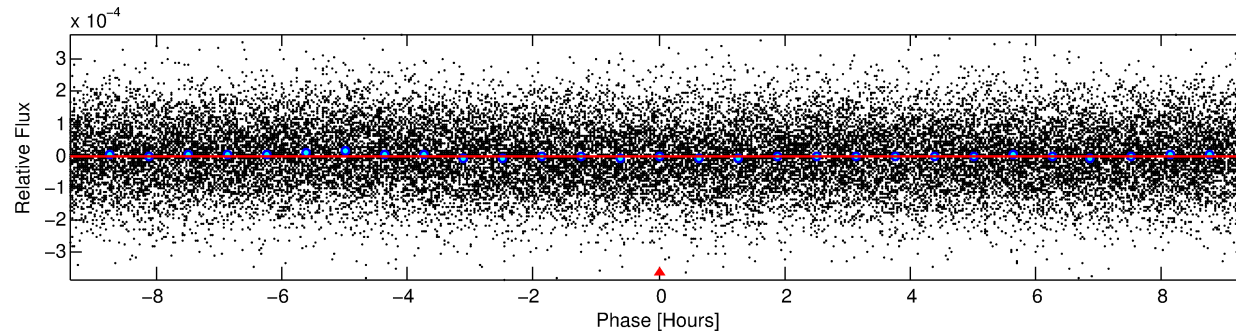
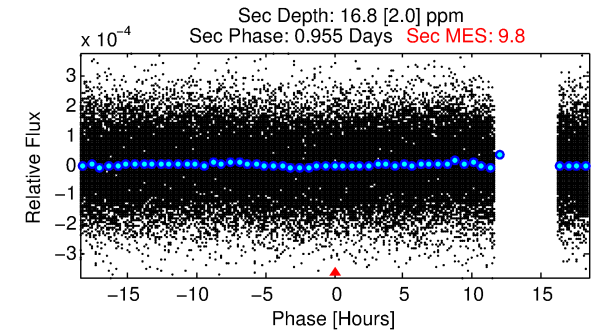
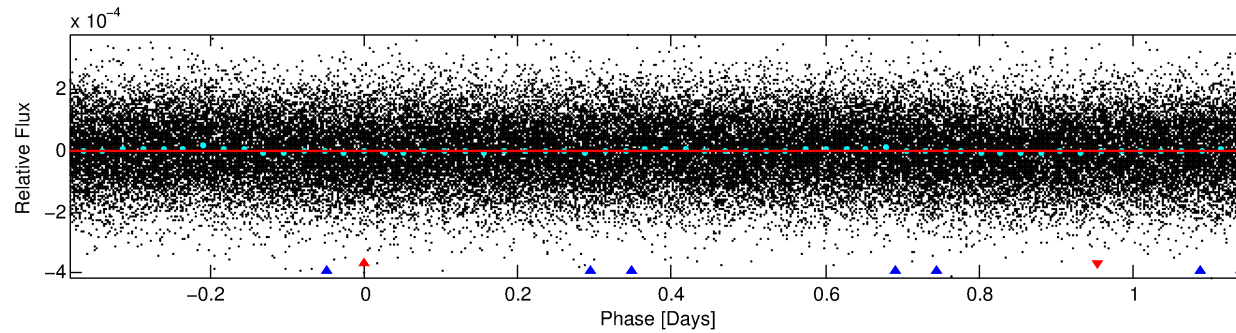
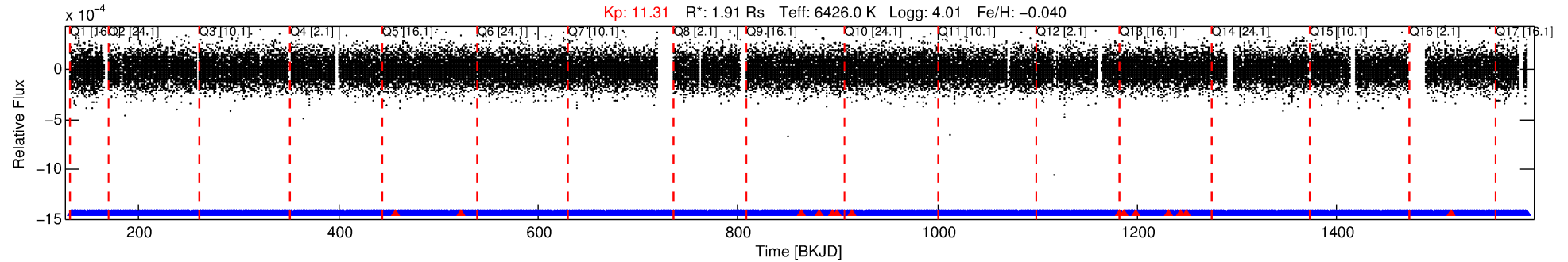
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012206271-01

No Significant Match Found

DV One-Page Summary

KIC: 12206271 Candidate: 1 of 2 Period: 1.533 d



DV Fit Results:

Period = 1.53286 [0.00007] d
Epoch = 133.0214 [0.0152] BKJD
Rp/R* = 0.0023 [0.0021]
a/R* = 1.38 [3.48]
b = 0.97 [0.35]
Seff = 6677.50 [3654.73]
Teq = 2305 [315] K
Rp = 0.48 [0.47] Re
a = 0.0290 [0.0096] AU
Ag = 32.90 [61.62] [0.52σ]
Teffp = 8536 [3850] K [1.61σ]

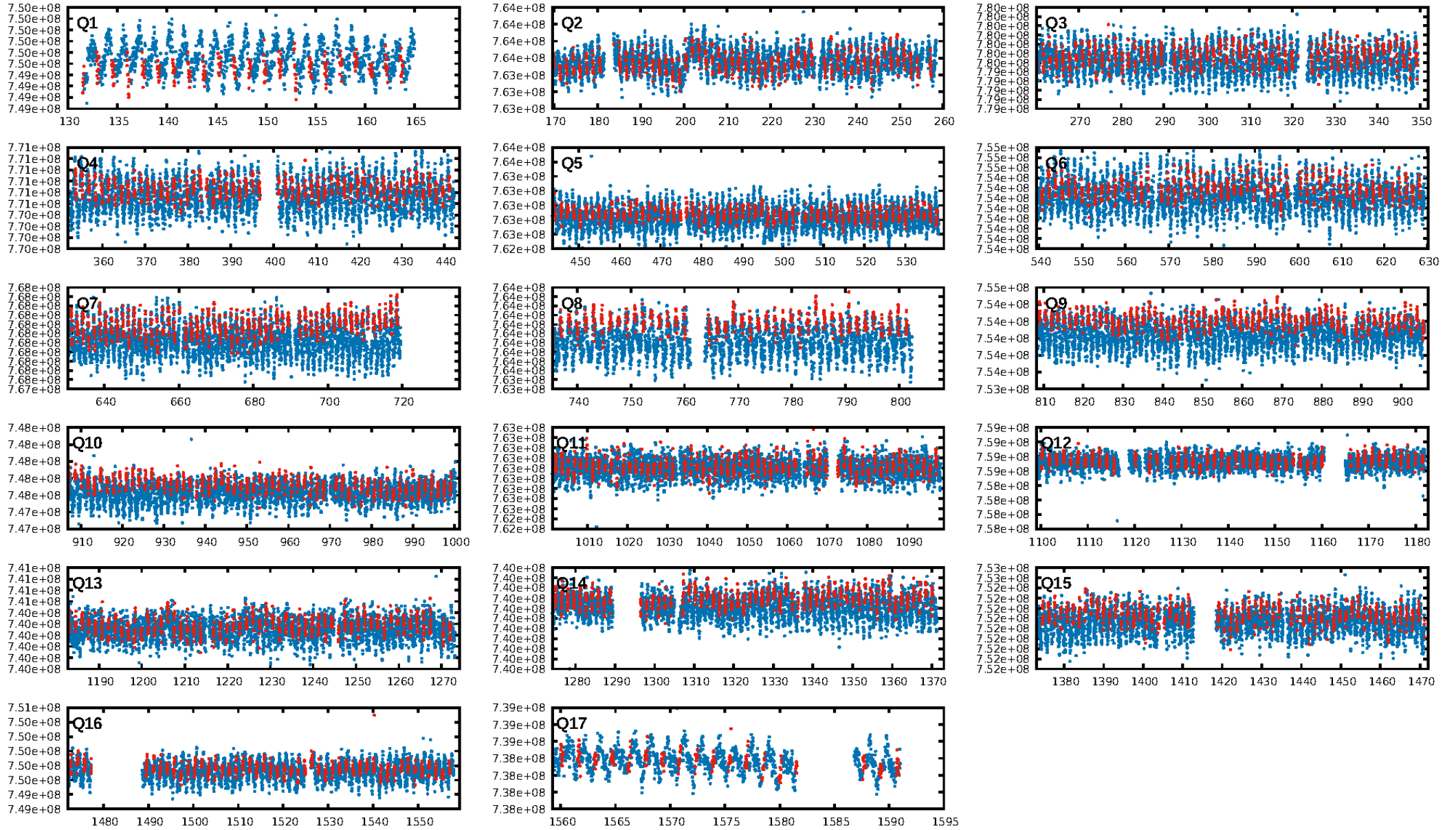
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [493.64σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.98e-15
RollingBand-fgt: 0.98 [817/831]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.266 arcsec [0.81σ]
KicOffset-rm: 0.297 arcsec [0.75σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.29 [5/17]
DiffImageOverlap-fno: 1.00 [17/17]

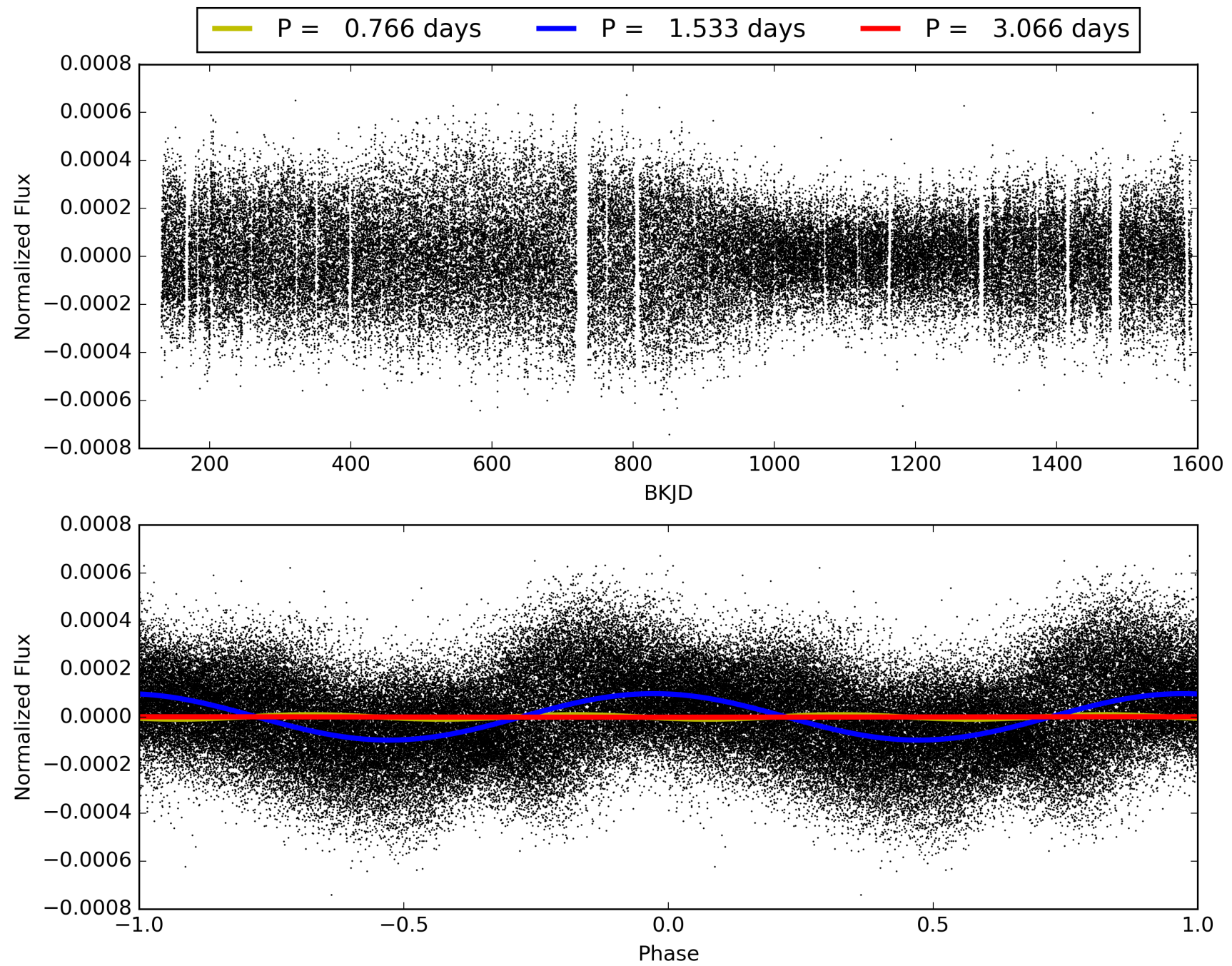
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 012206271-01, PDC Light Curves

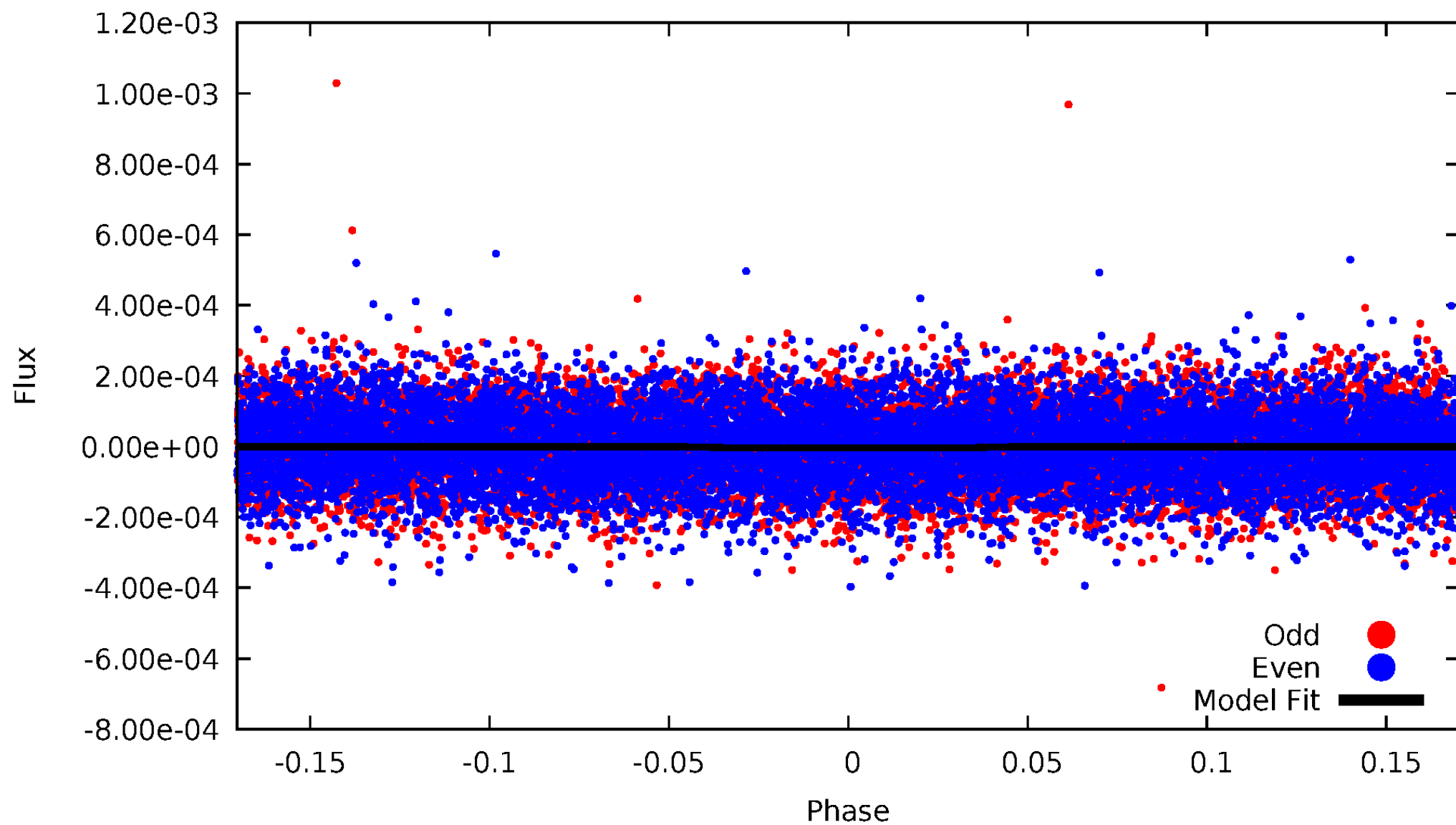


TCE 012206271-01



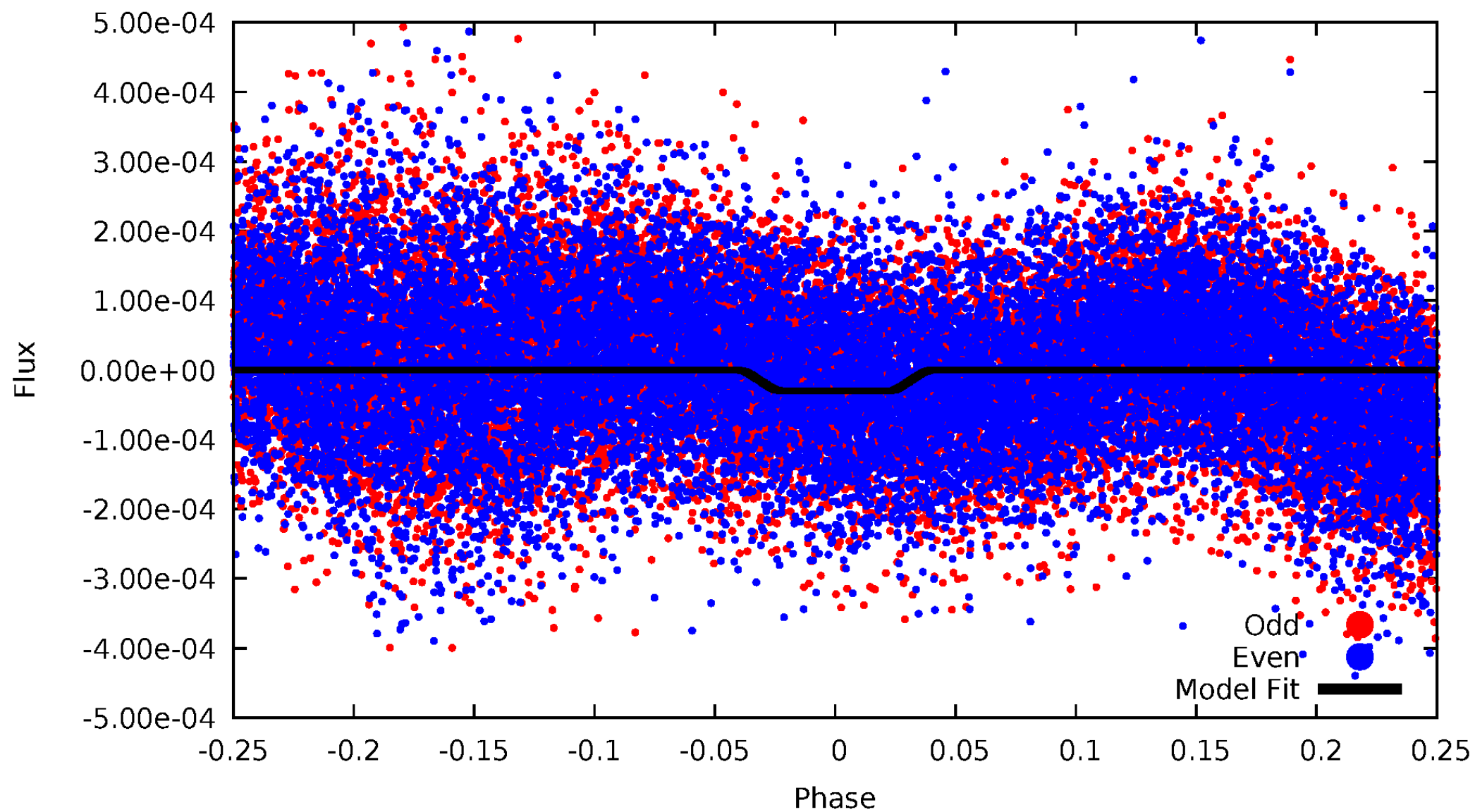
DV Odd/Even

TCE 012206271-01



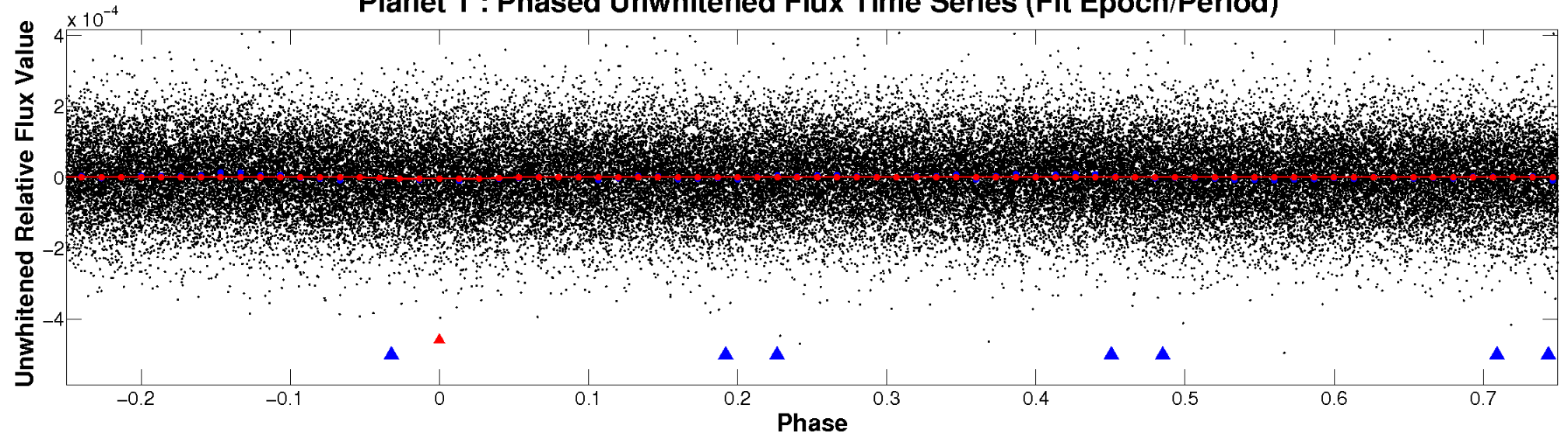
ALT Odd/Even

TCE 012206271-01

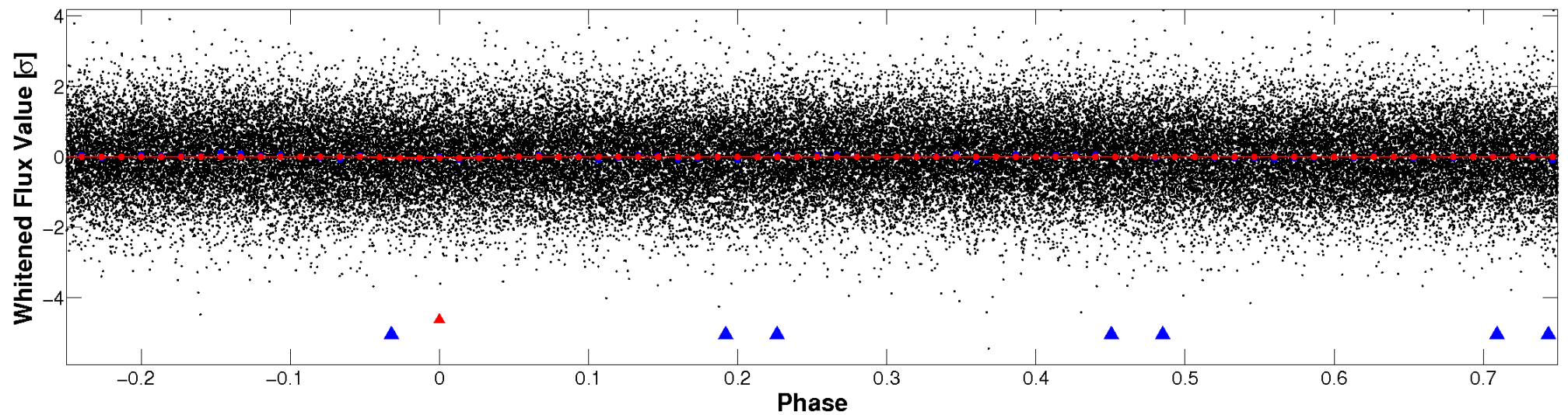


Non-Whitened Vs. Whitened Light Curve

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

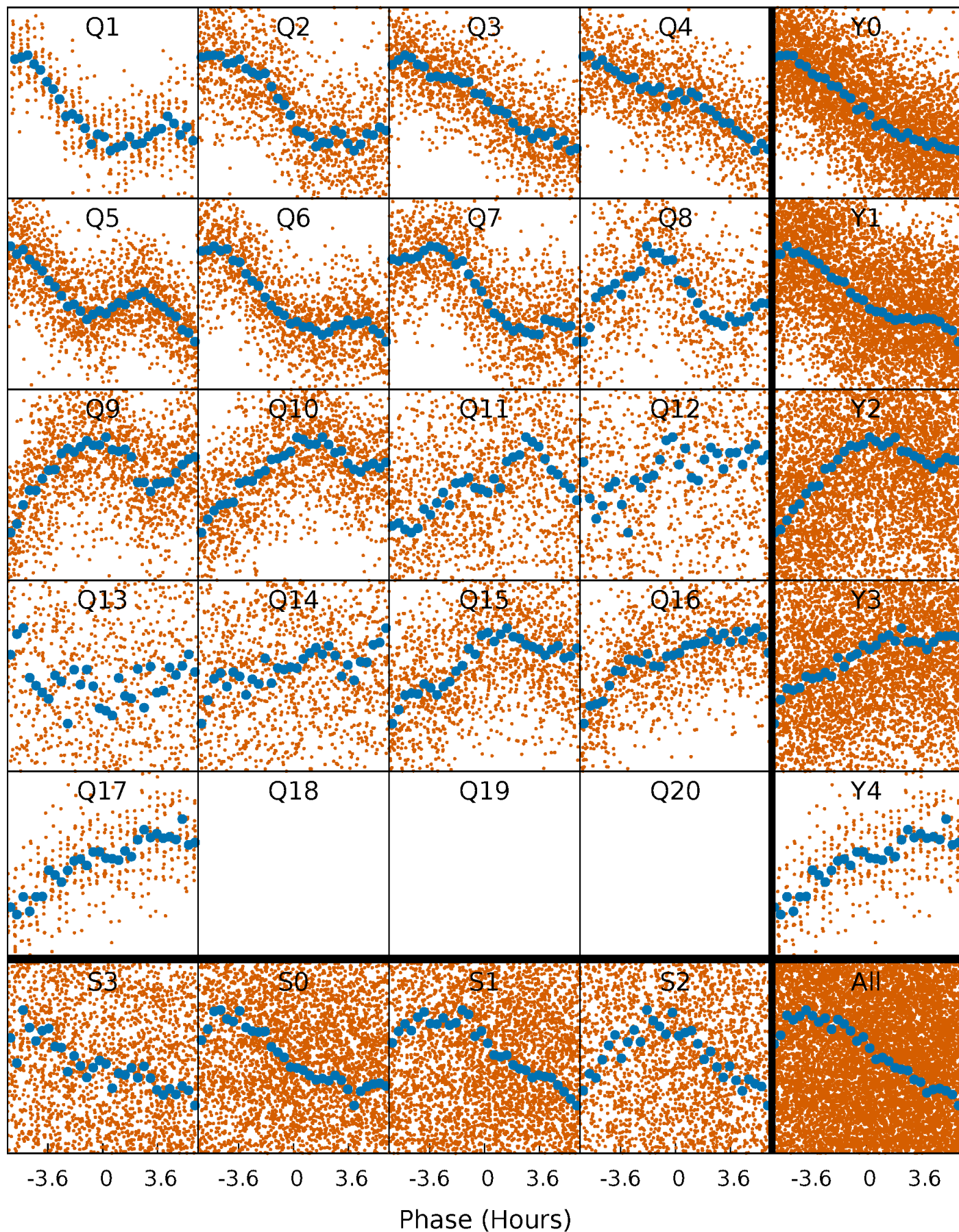


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



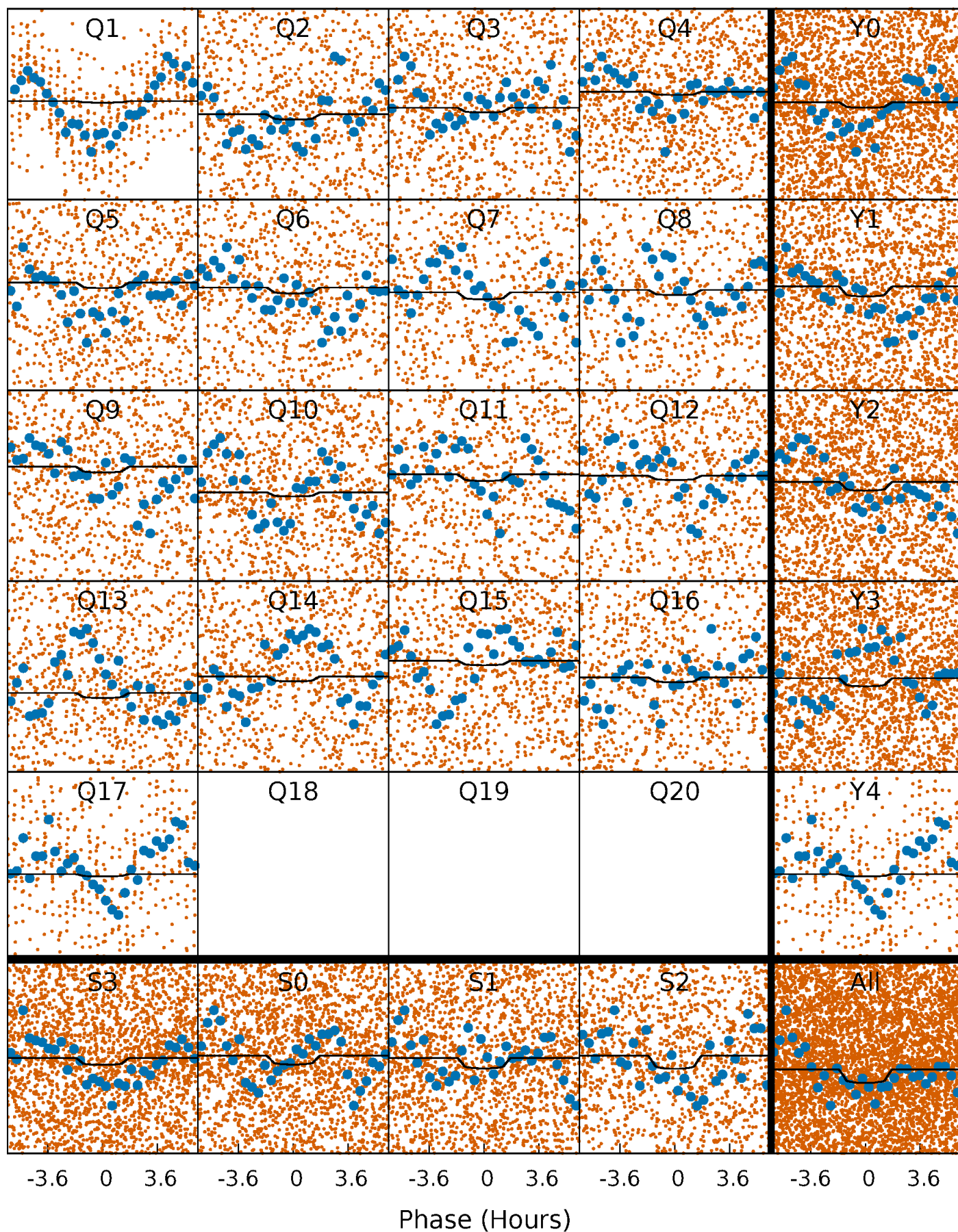
PDC Quarter-Phased Transit Curves

TCE 012206271-01 P= 1.532863 Days $T_0=133.021356$ (BKJD)



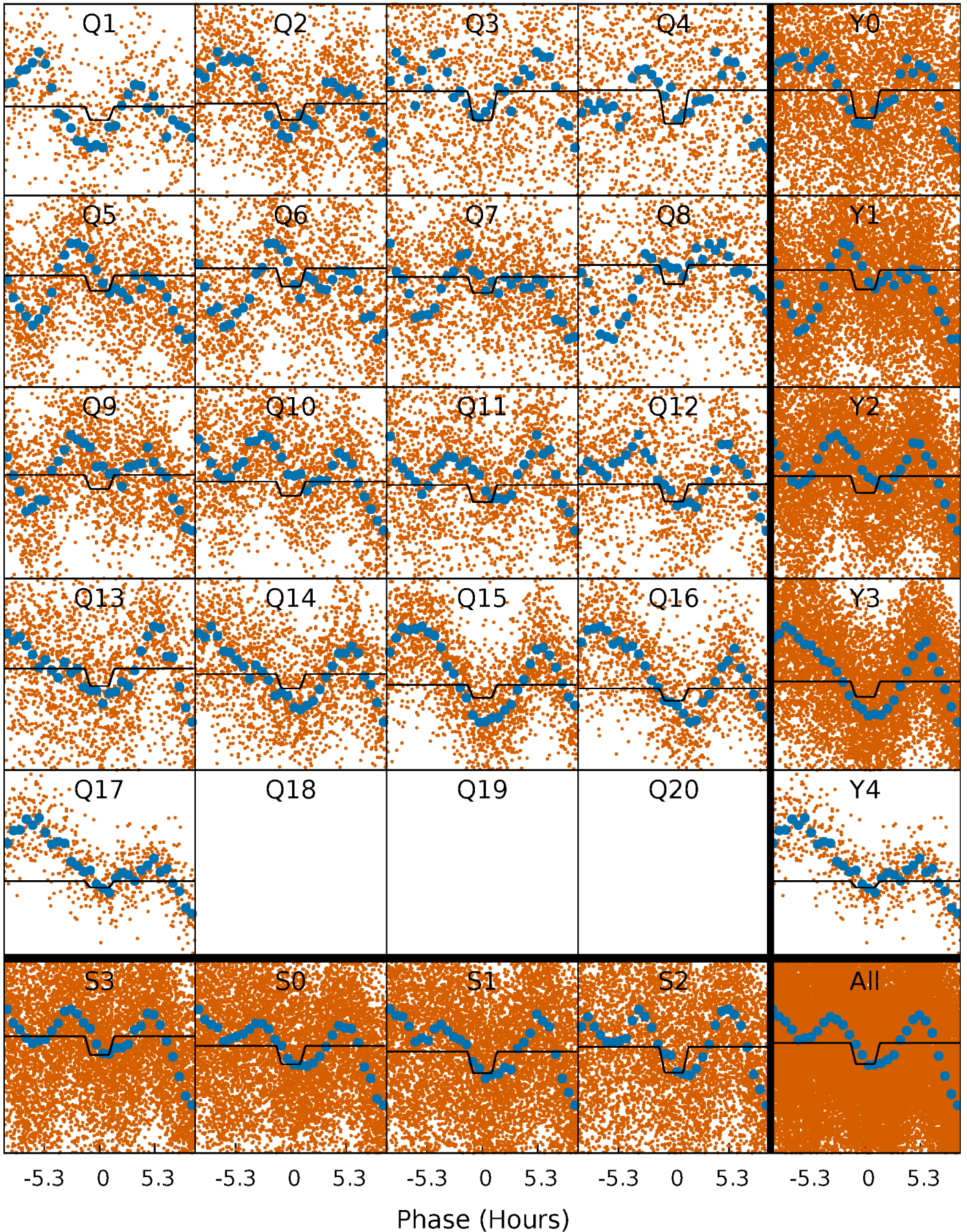
DV Quarter-Phased Transit Curves

TCE 012206271-01 P= 1.532863 Days $T_0=133.021356$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

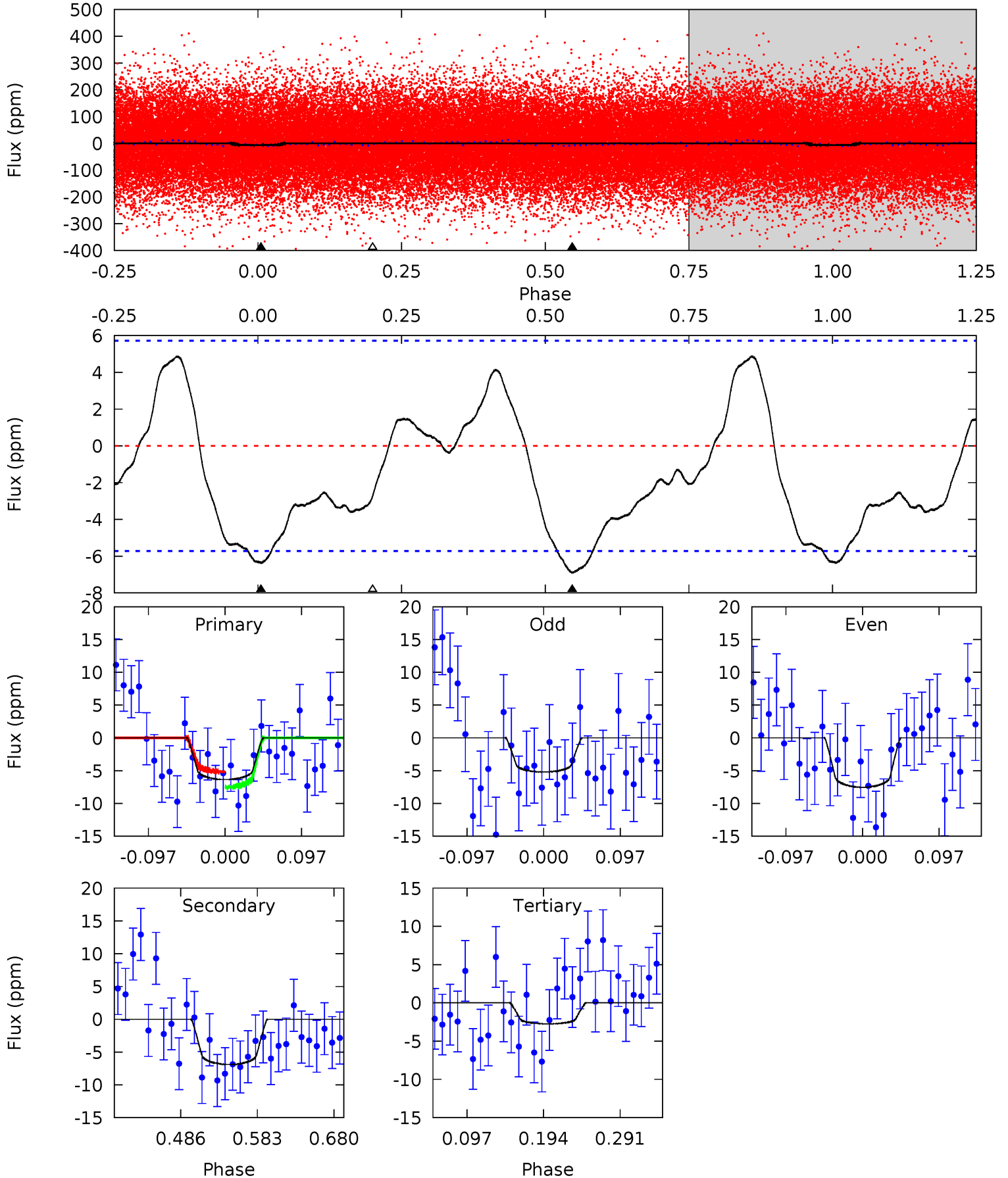
TCE 012206271-01 P= 1.533654 Days $T_0=133.059019$ (BKJD)



DV Model-Shift Uniqueness Test

012206271-01, P = 1.532863 Days, E = 131.488493 Days

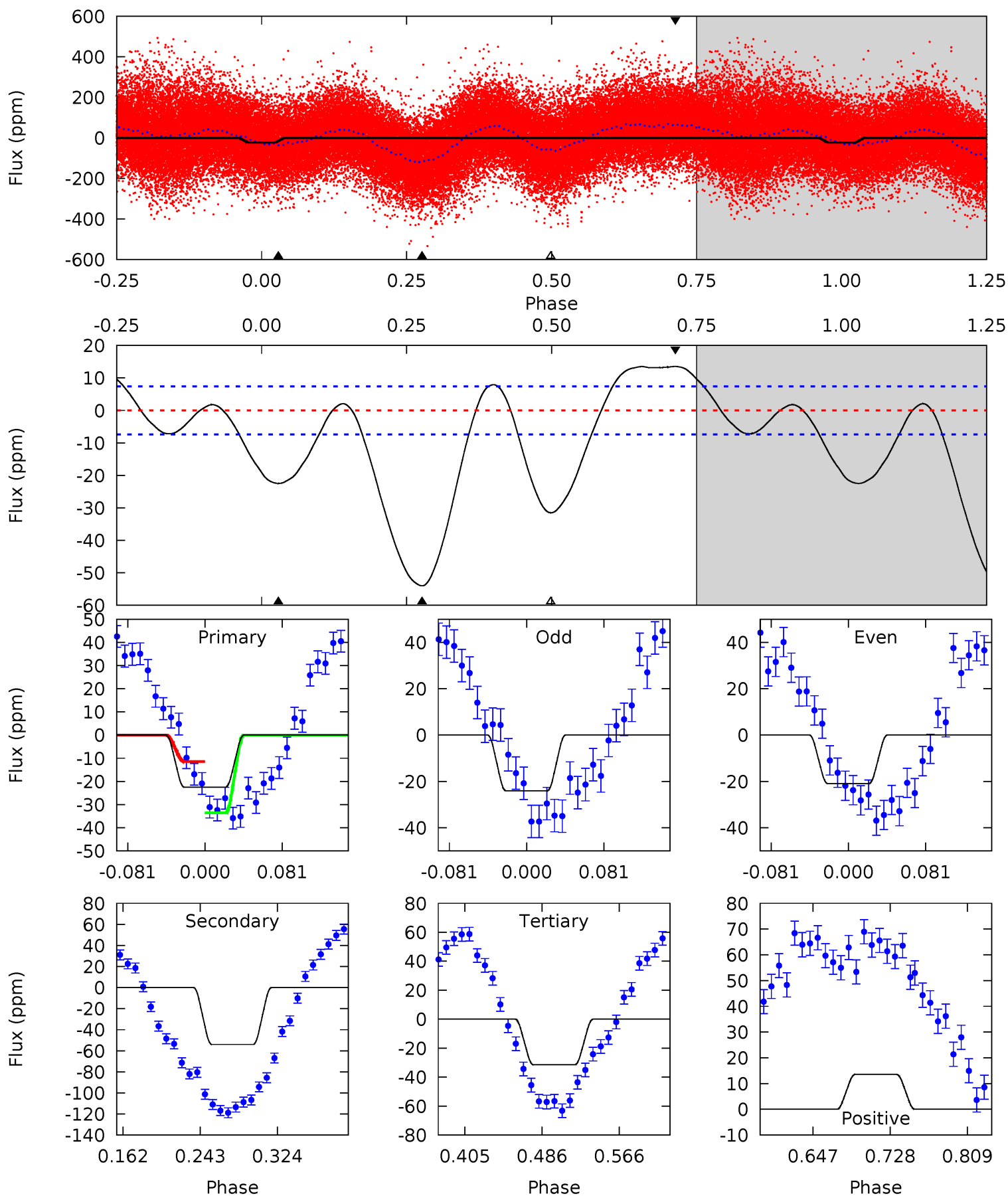
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.09	5.52	2.19	0	4.57	1.66	1.98	2.90	5.09	3.33	5.52	0.94	0.94	0.41	0.95



Alt Model-Shift Uniqueness Test

012206271-01, P = 1.533654 Days, E = 129.991711 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	33.6	19.6	8.42	4.61	1.75	7.65	-5.62	5.56	14.0	25.2	0.97	1.00	0.20	6.87



Stellar Parameters For KIC 012206271

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6426^{+179}_{-247}	$4.013^{+0.306}_{-0.165}$	$-0.040^{+0.250}_{-0.300}$	$1.914^{+0.552}_{-0.675}$	$1.382^{+0.197}_{-0.296}$	$0.278^{+0.598}_{-0.128}$
	+3%/-4%	+8%/-4%	+625%/-750%	+29%/-35%	+14%/-21%	+215%/-46%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012206271-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-7 ± 1	$0.54^{+0.39}_{-0.33}$	3177^{+253}_{-303}	6231^{+4865}_{-1452}	11^{+60}_{-7}
Alt.	-54 ± 2	$1.11^{+0.46}_{-0.46}$	3175^{+273}_{-297}	7411^{+2850}_{-1119}	20^{+35}_{-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 $A_{obs} \gg 1.0$

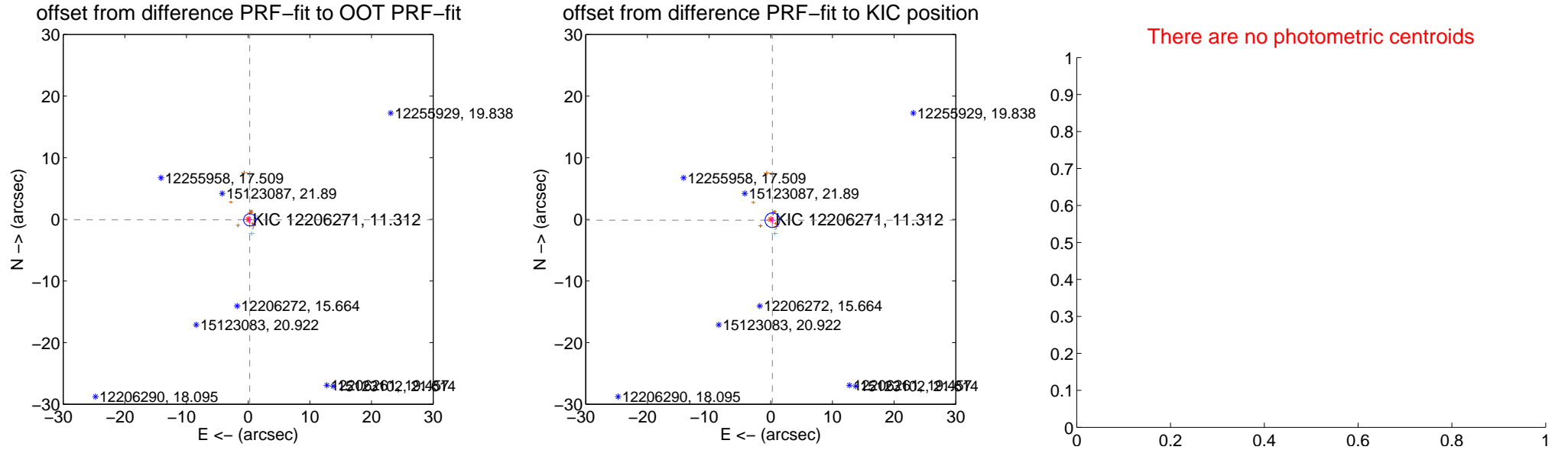
DV Centroid Data

Supplemental centroid analysis for 012206271-01. **Kepler magnitude: 11.31.** Transit SNR 1.76

There are 5 quarters with good PRF difference image offsets

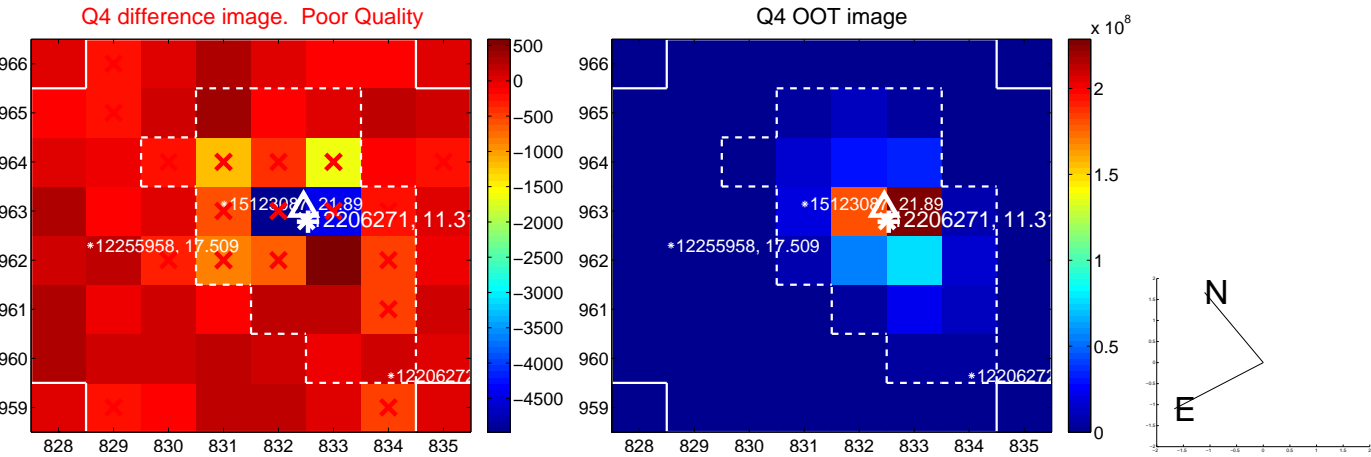
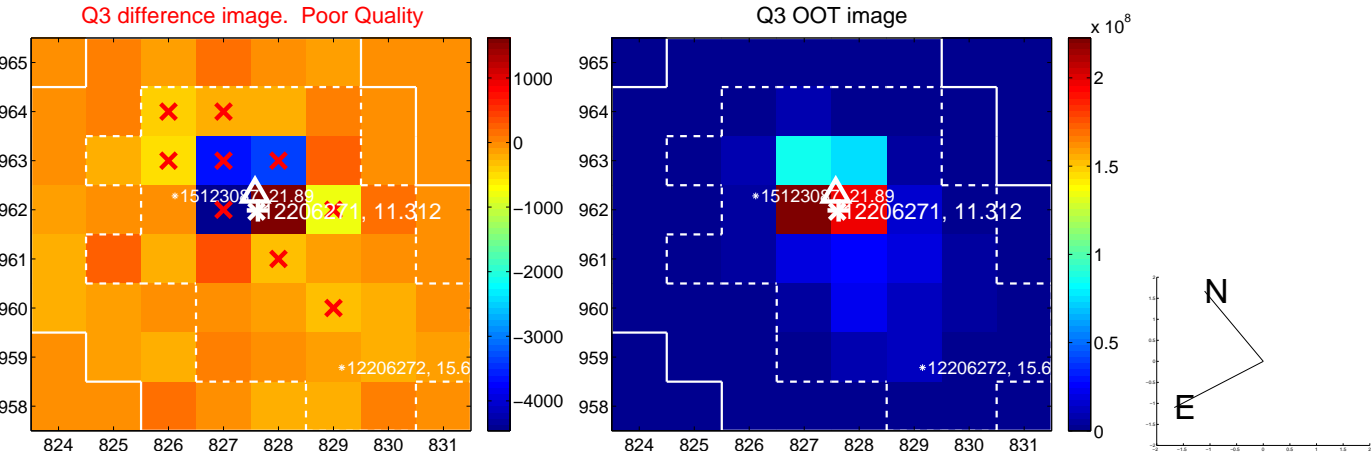
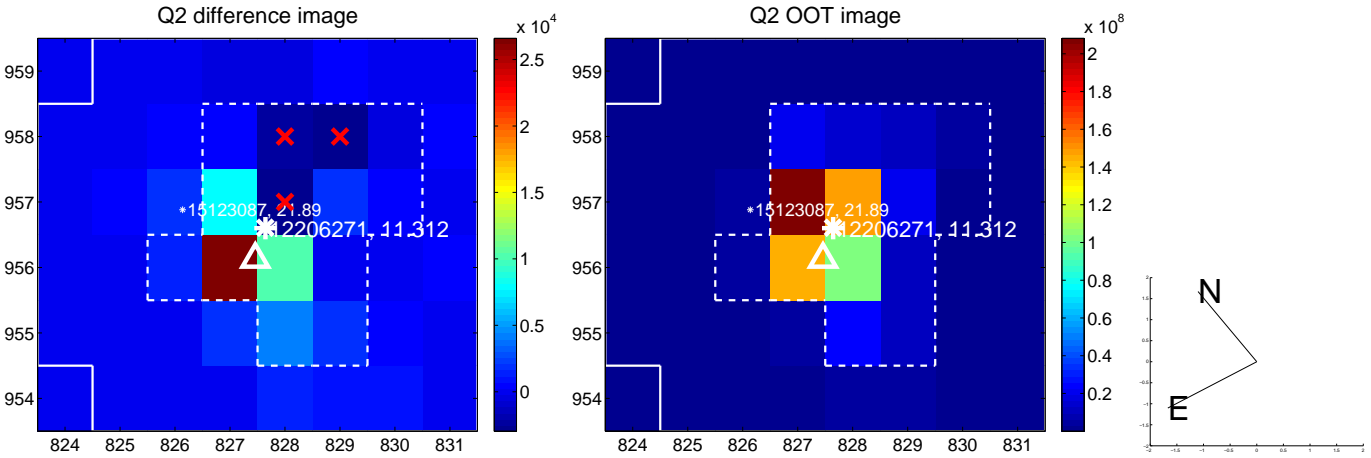
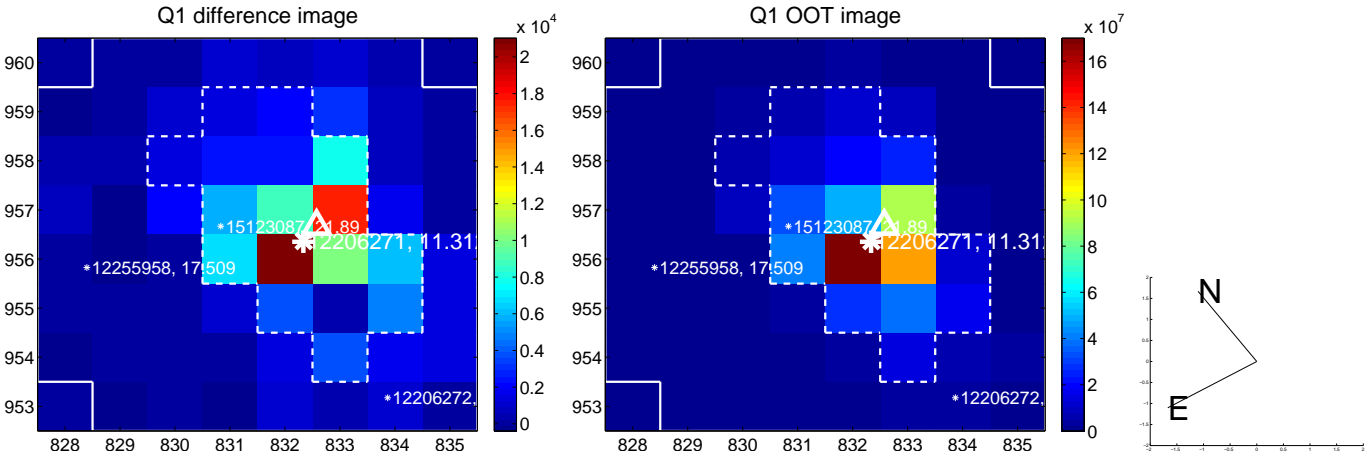
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.266 ± 0.329	0.81	-0.255 ± 0.264	-0.076 ± 0.562
PRF-fit source offset from KIC position	0.297 ± 0.398	0.75	-0.263 ± 0.272	-0.138 ± 0.536
photometric centroid source offset	—	—	—	—

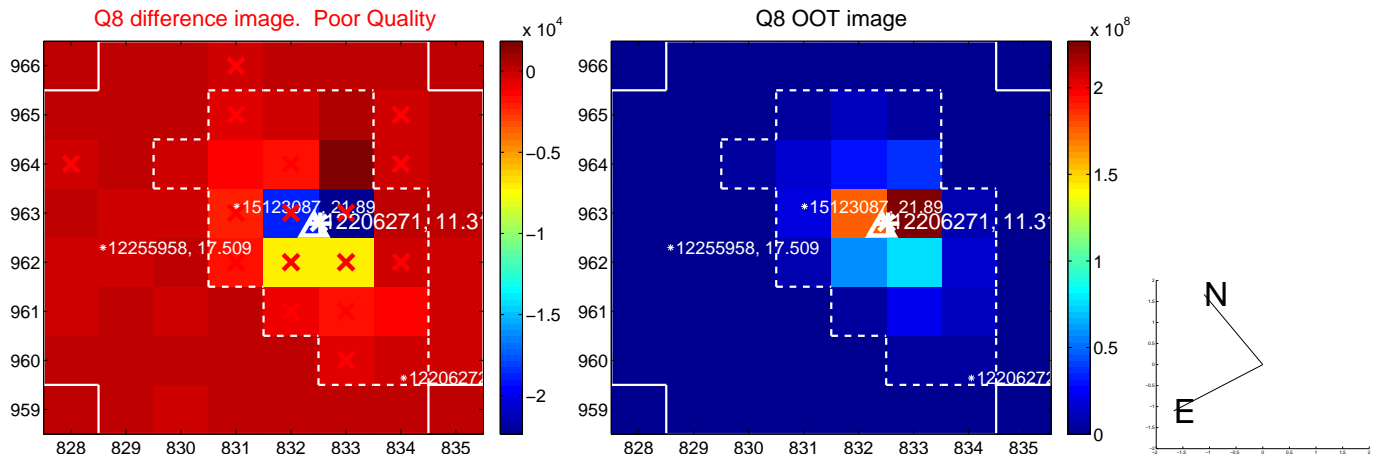
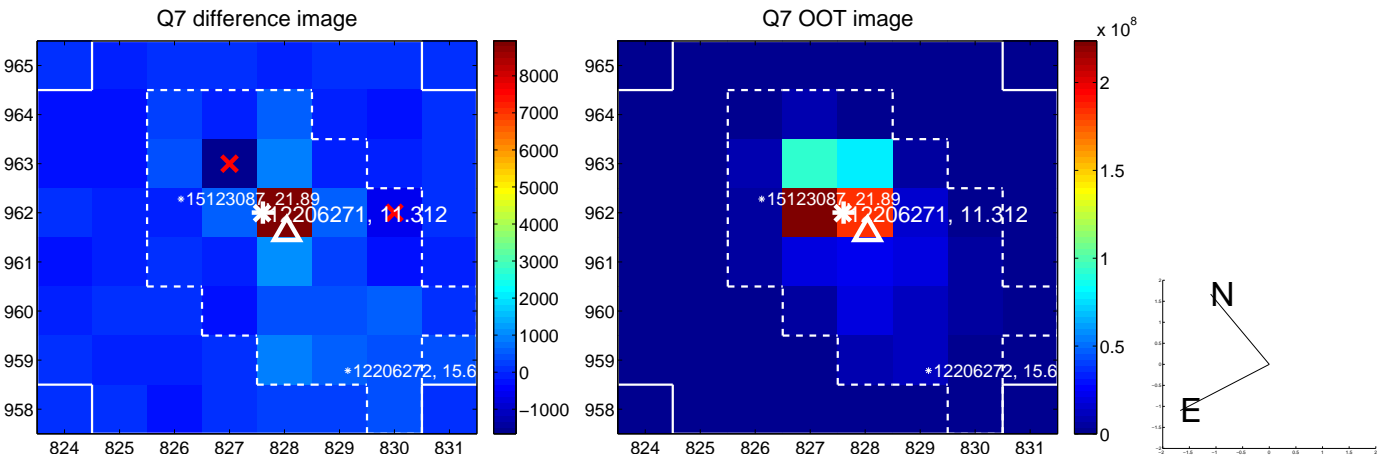
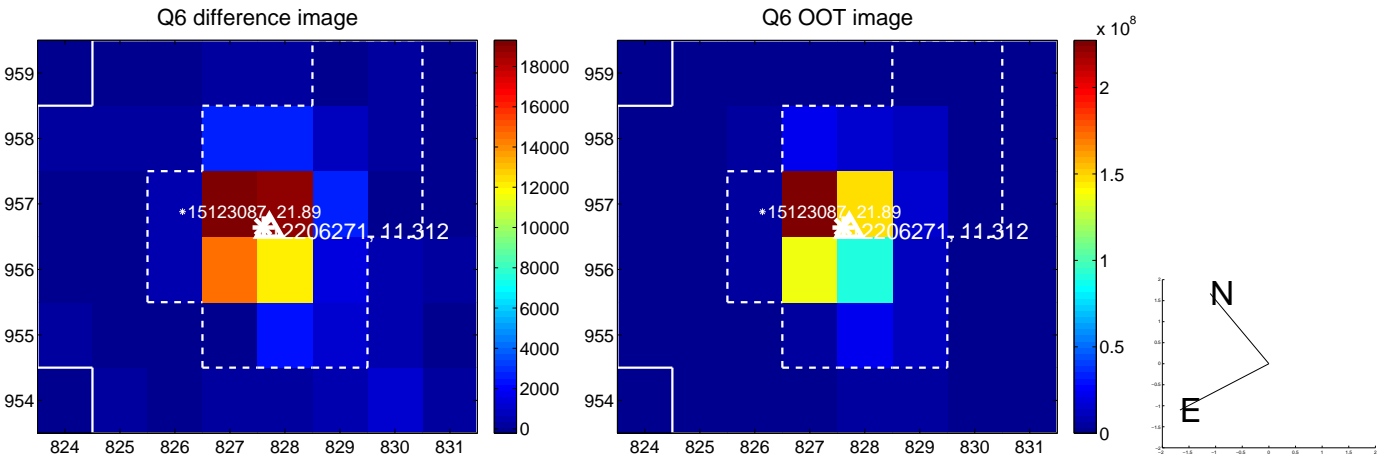
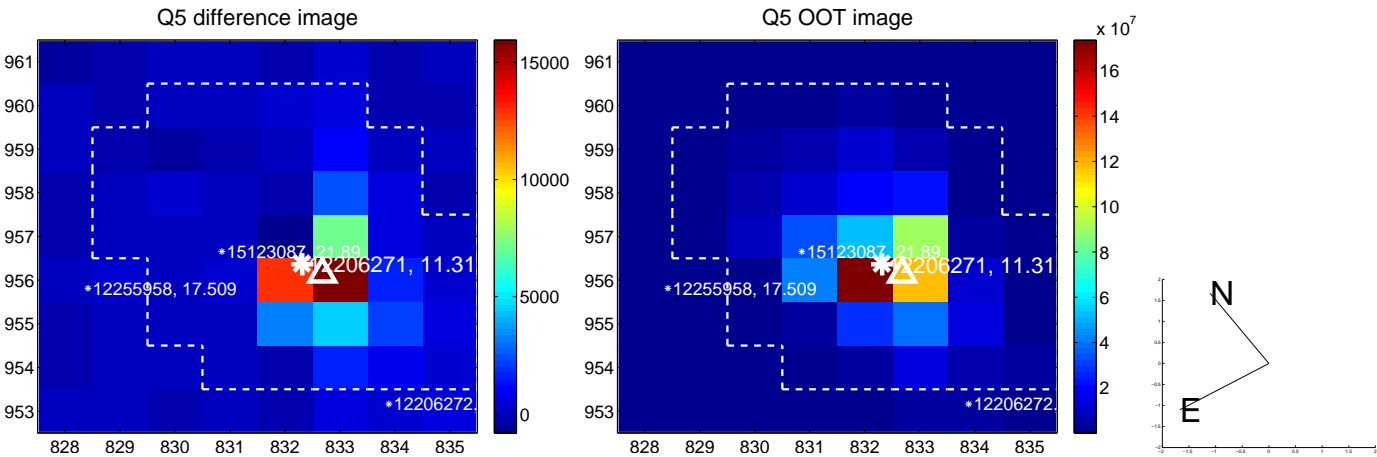


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

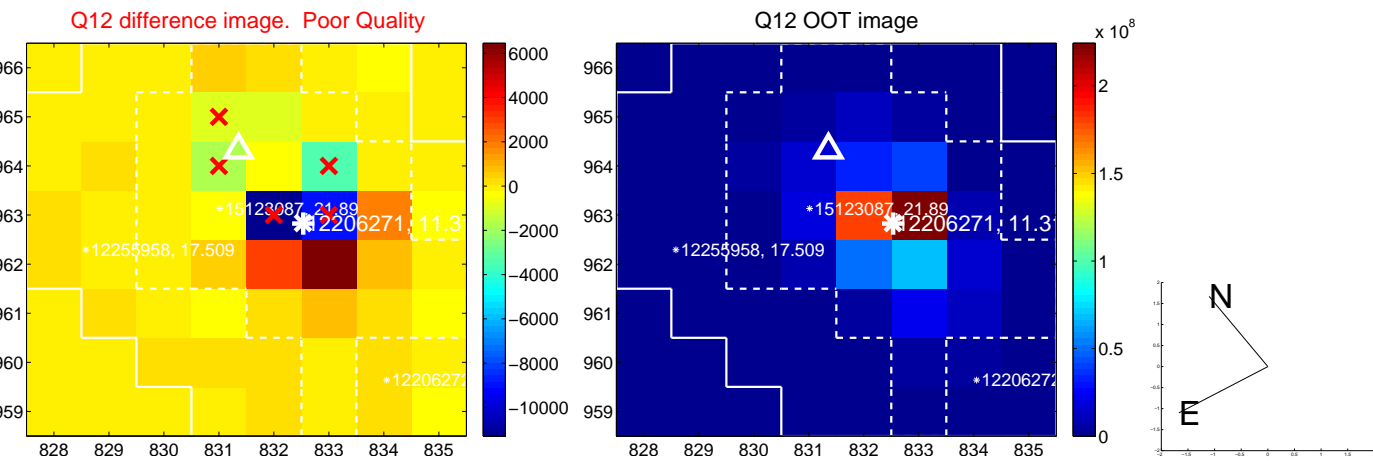
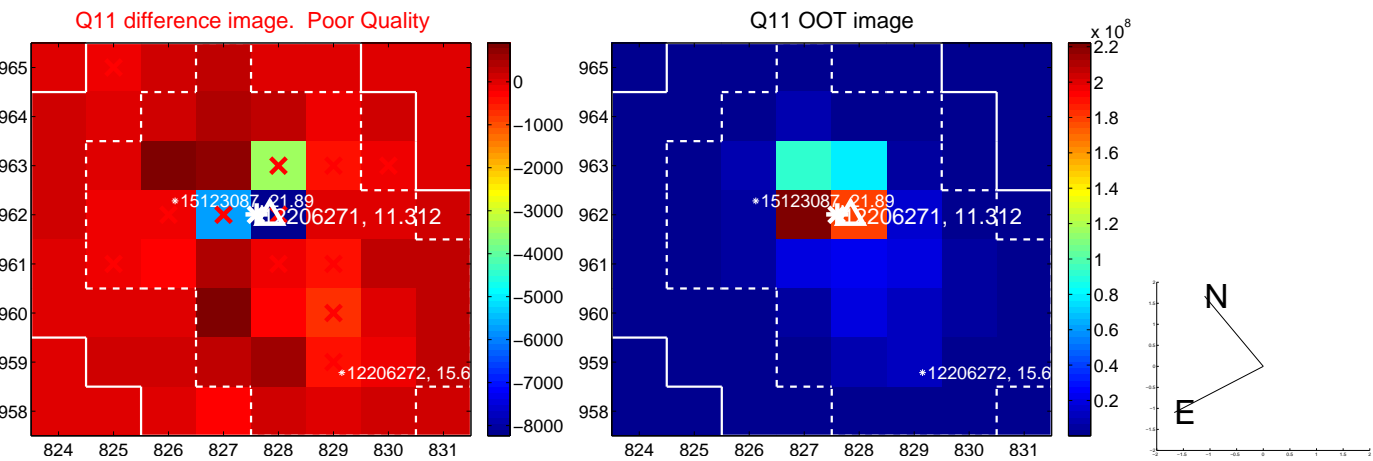
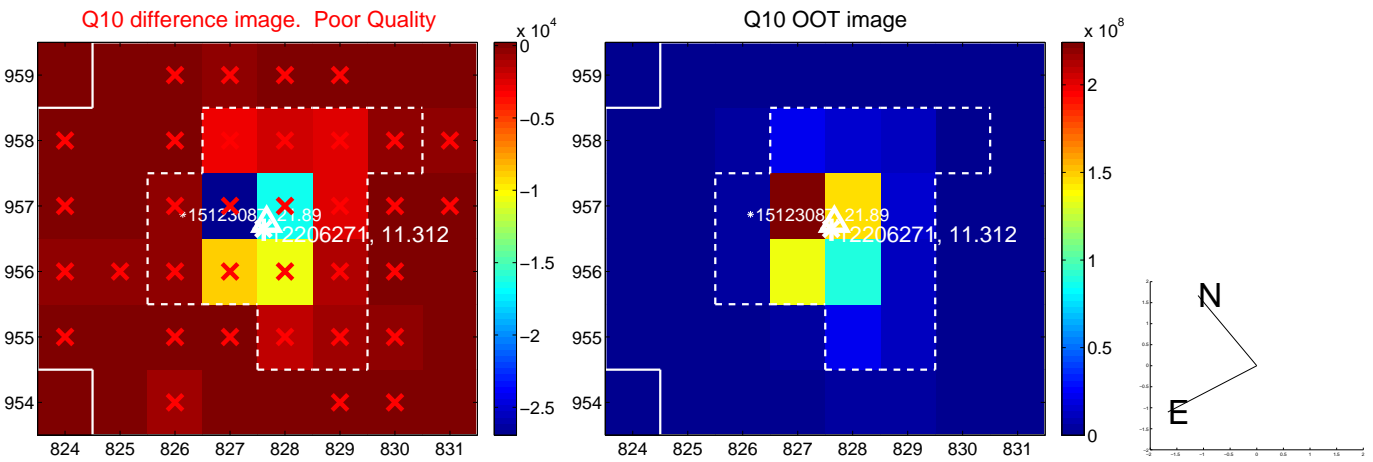
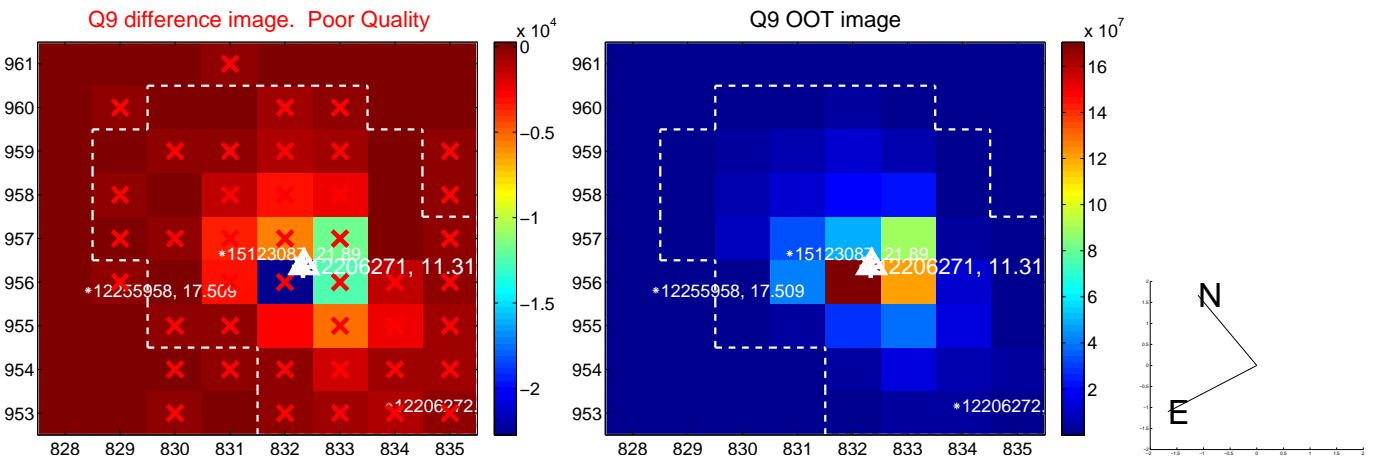
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



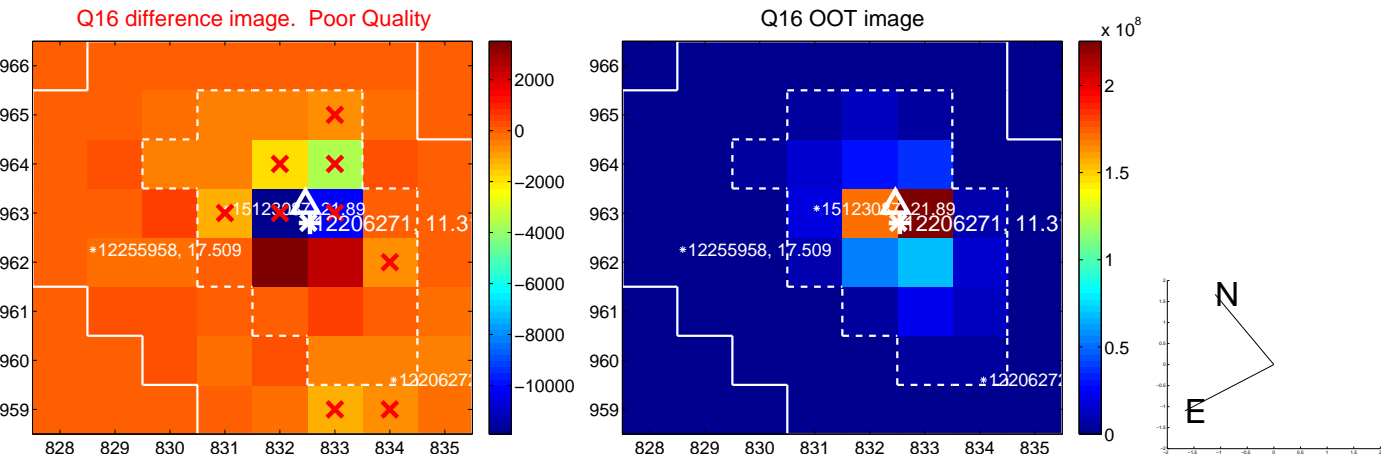
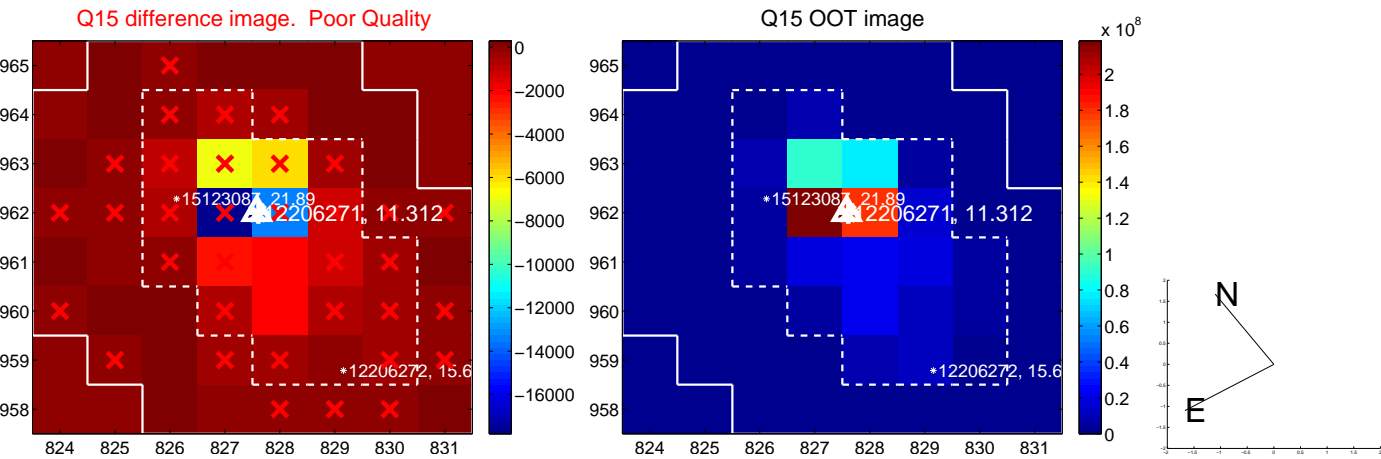
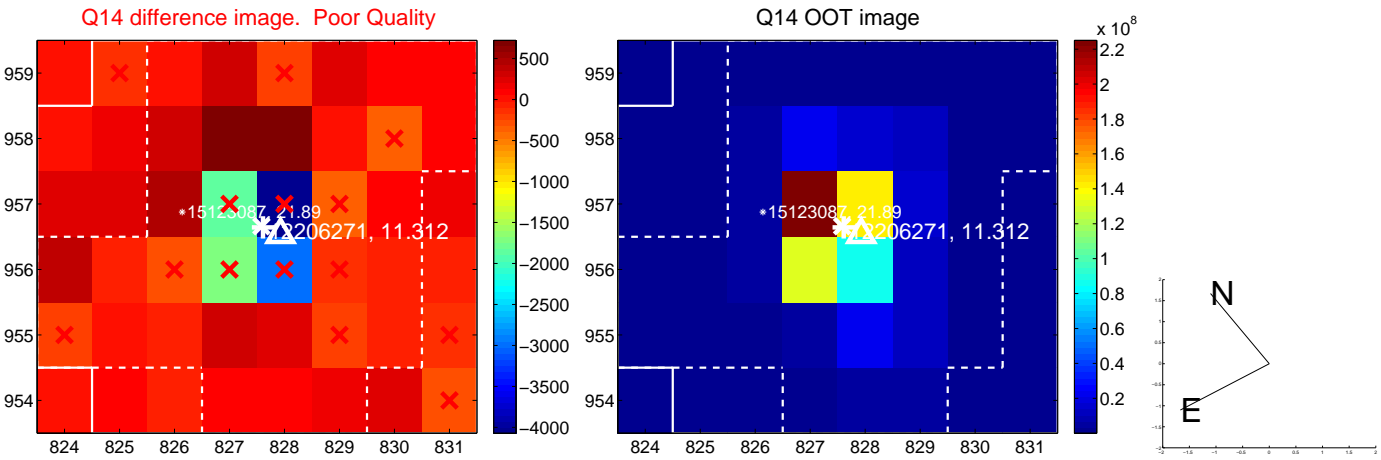
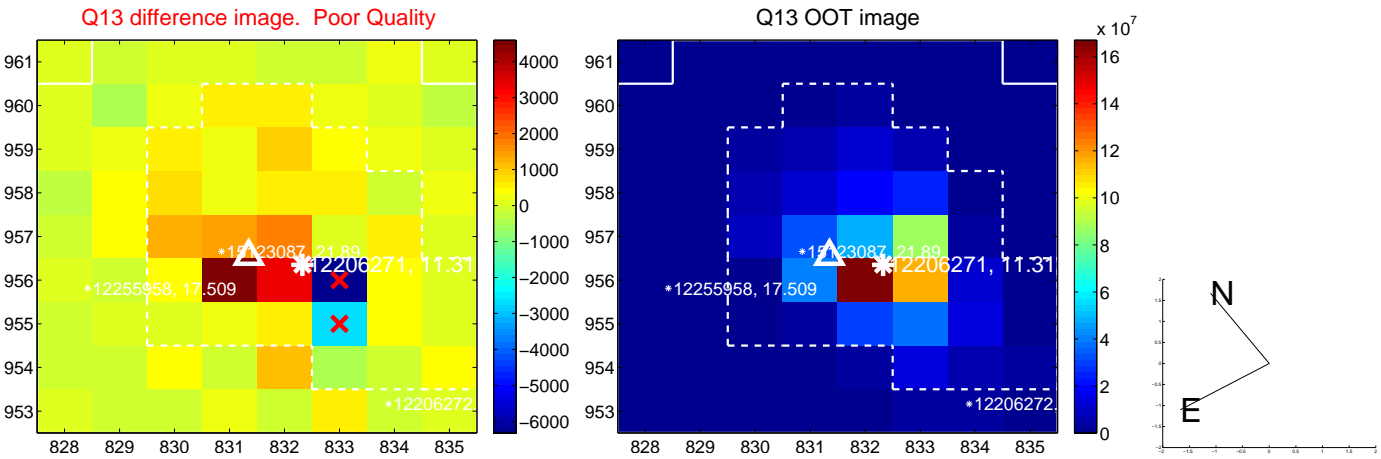
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



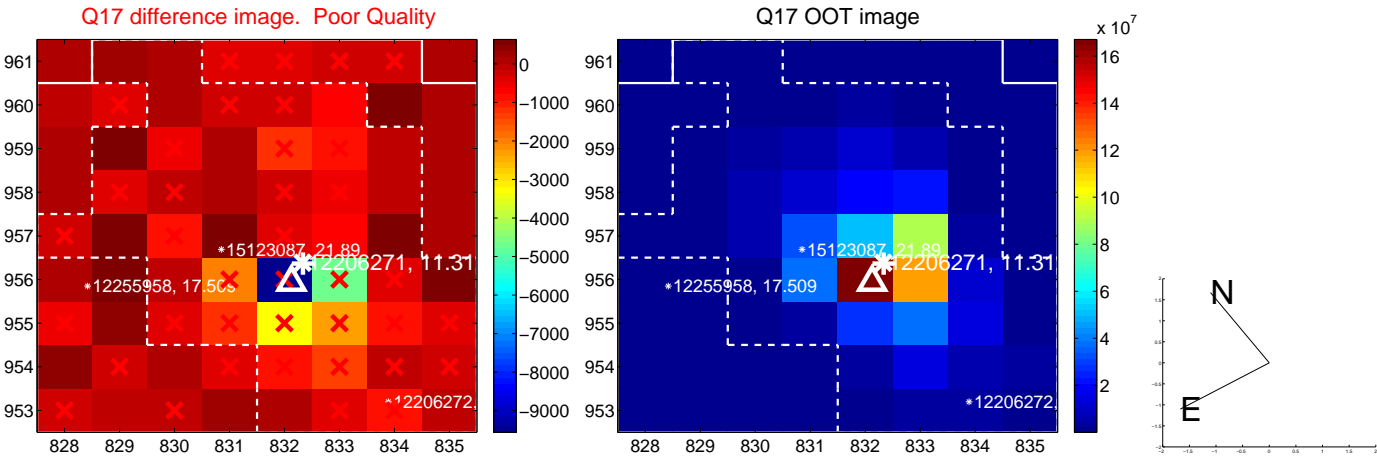
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



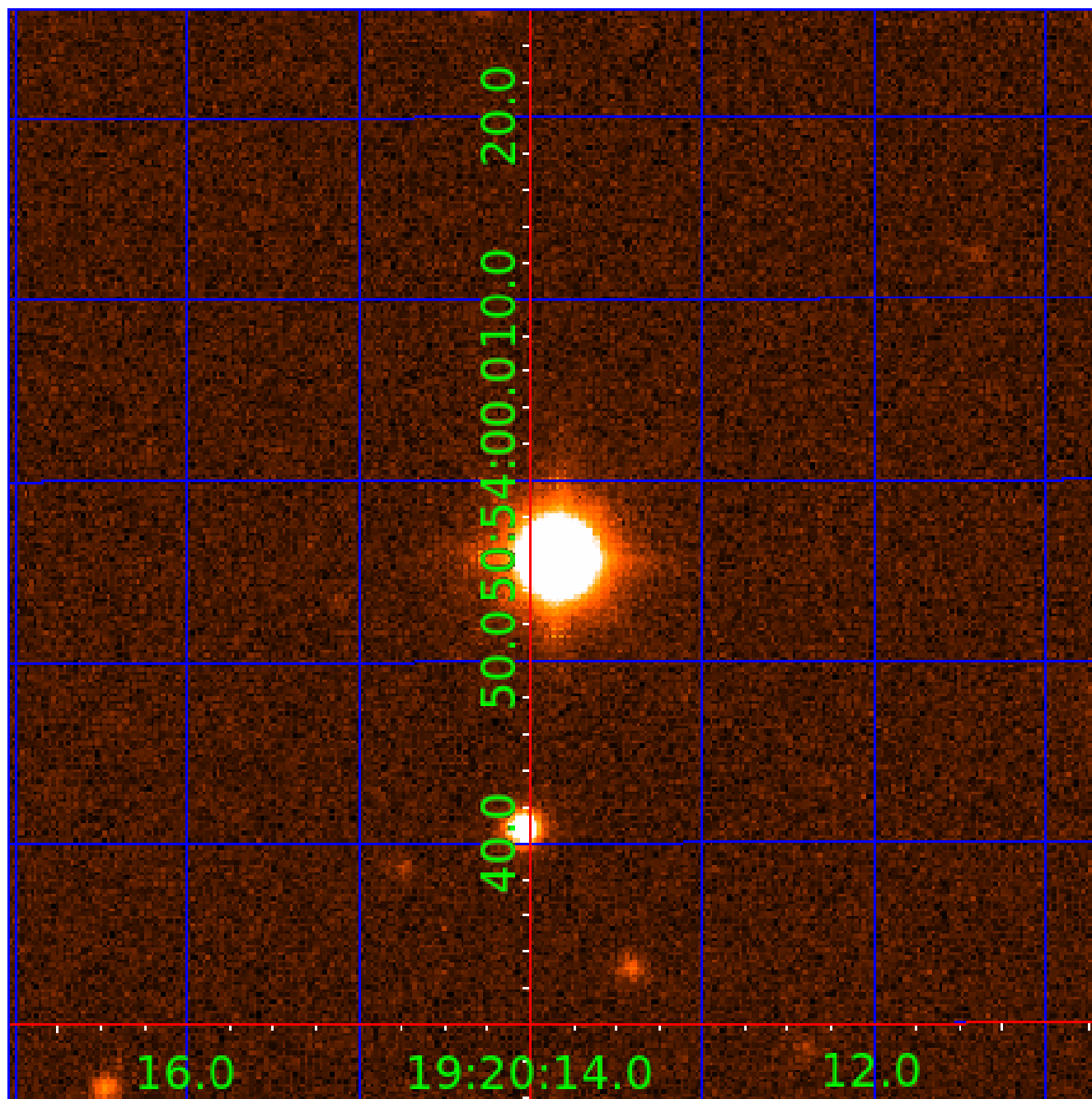
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 012206271

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})
012206271-01	OBS	No	1.532863	133.021356	3.9	3.133	8.6	1.8	1.91	6426	0.48	6677.50
012206271-02	OBS	No	190.471484	304.996393	131.3	8.635	7.5	7.0	1.91	6426	2.50	10.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012206271-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
012206271-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

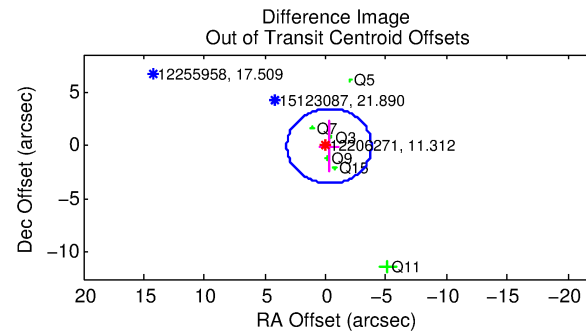
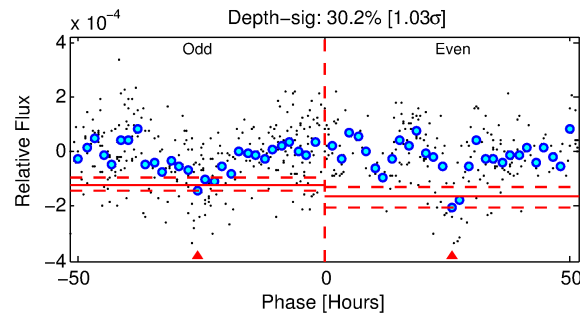
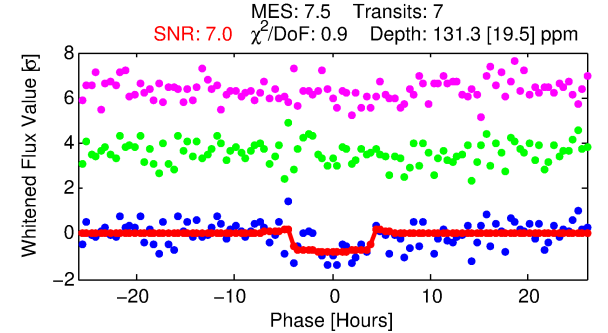
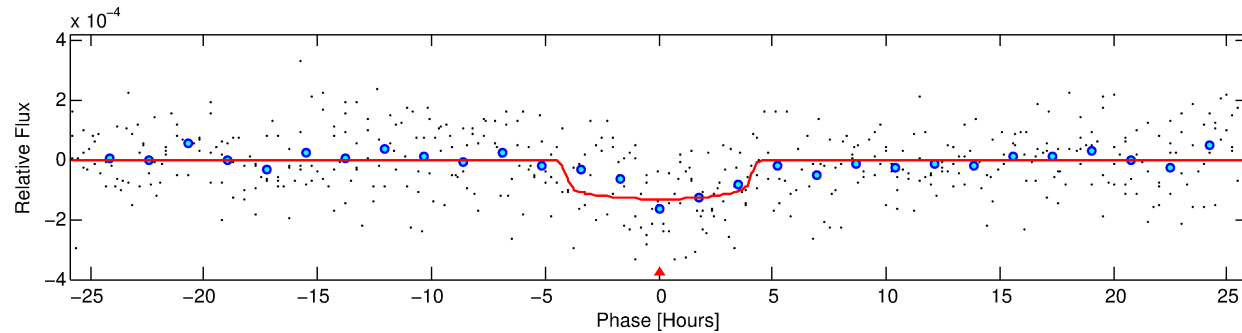
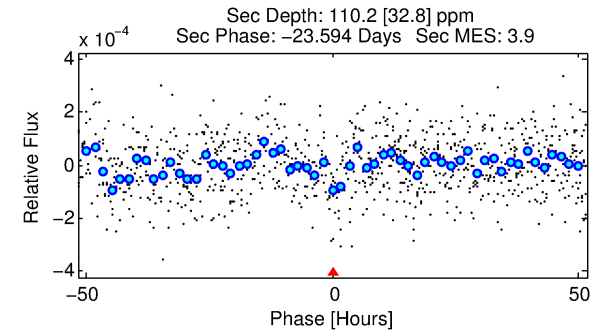
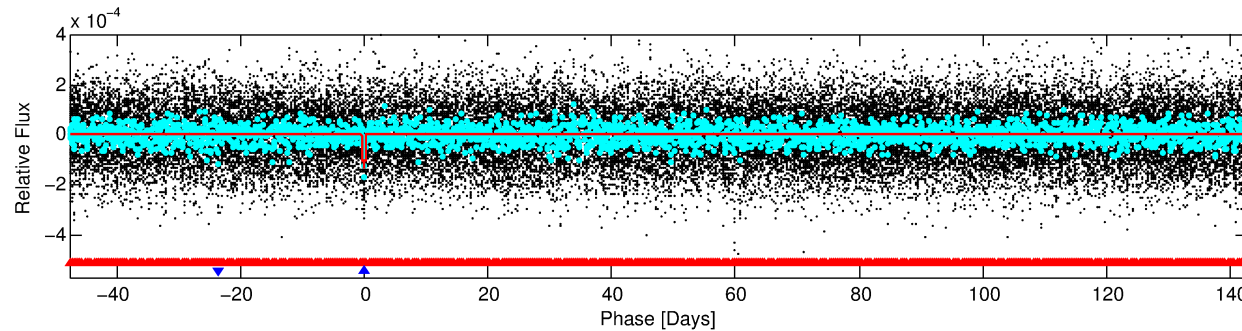
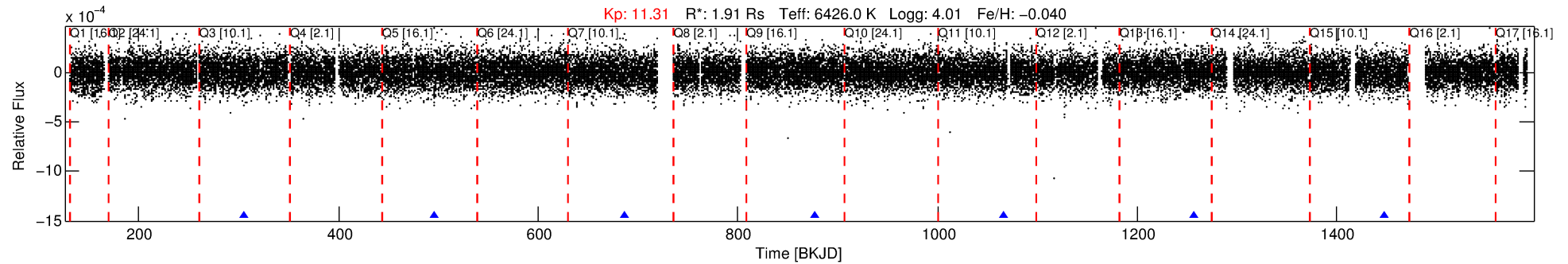
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012206271-02

No Significant Match Found

DV One-Page Summary

KIC: 12206271 Candidate: 2 of 2 Period: 190.471 d



DV Fit Results:

Period = 190.47148 [0.00388] d
Epoch = 304.9964 [0.0150] BKJD
Rp/R* = 0.0120 [0.0028]
a/R* = 89.55 [107.95]
b = 0.86 [0.36]
Seff = 10.77 [5.89]
Teq = 462 [63] K
Rp = 2.50 [1.06] Re
a = 0.7209 [0.2396] AU
Ag = 5052.79 [3876.02] [1.30σ]
Teffp = 6021 [873] K [6.35σ]

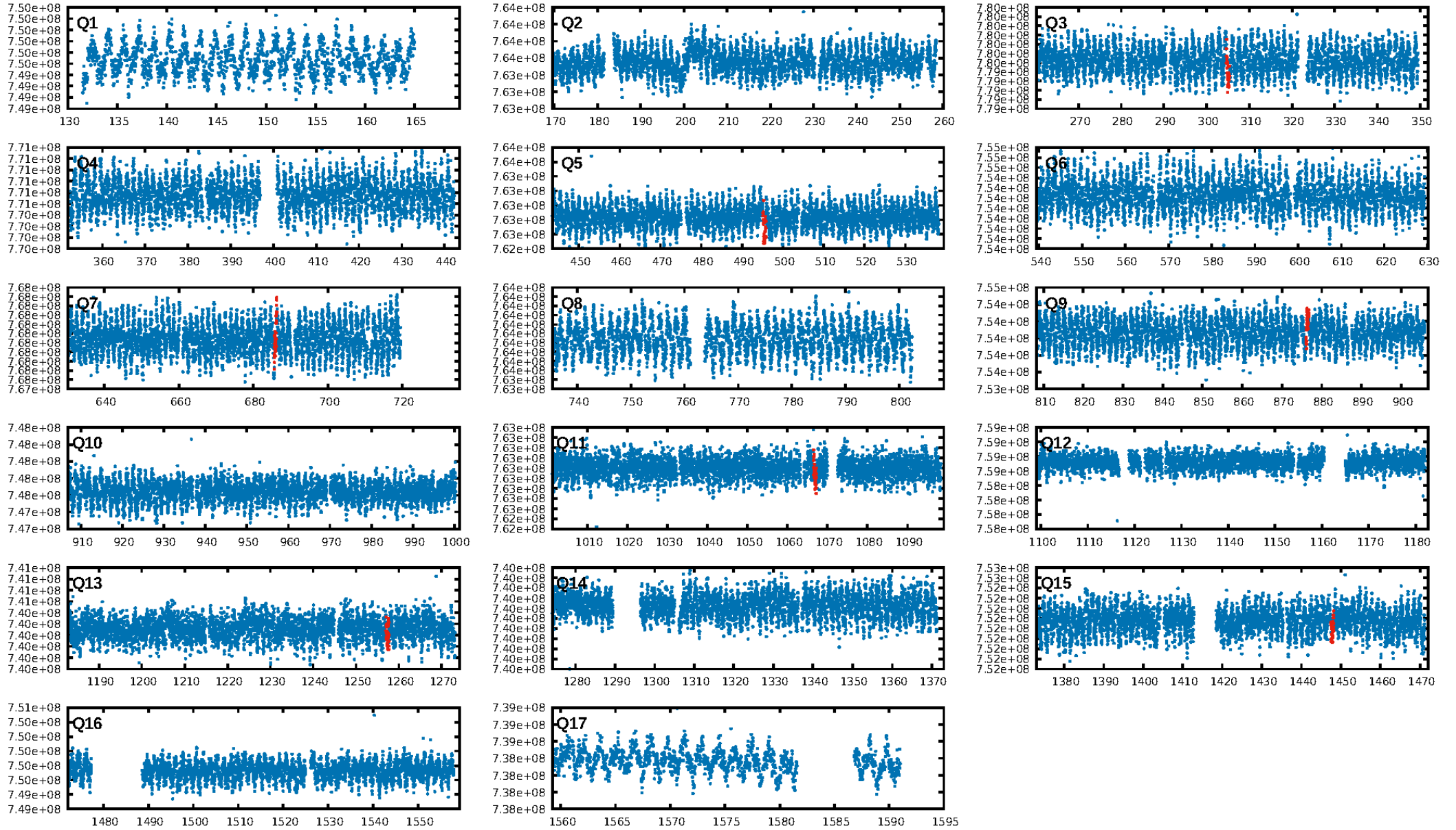
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [493.64σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 5.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.68e-11
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 5.371
Centroid-sig: 0.0%
Centroid-so: 2.483 arcsec [2.18σ]
OotOffset-rm: 0.310 arcsec [0.27σ]
KicOffset-rm: 0.407 arcsec [0.48σ]
OotOffset-st: 0/4/0/2 [6]
KicOffset-st: 0/4/0/2 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 0.14 [1/7]

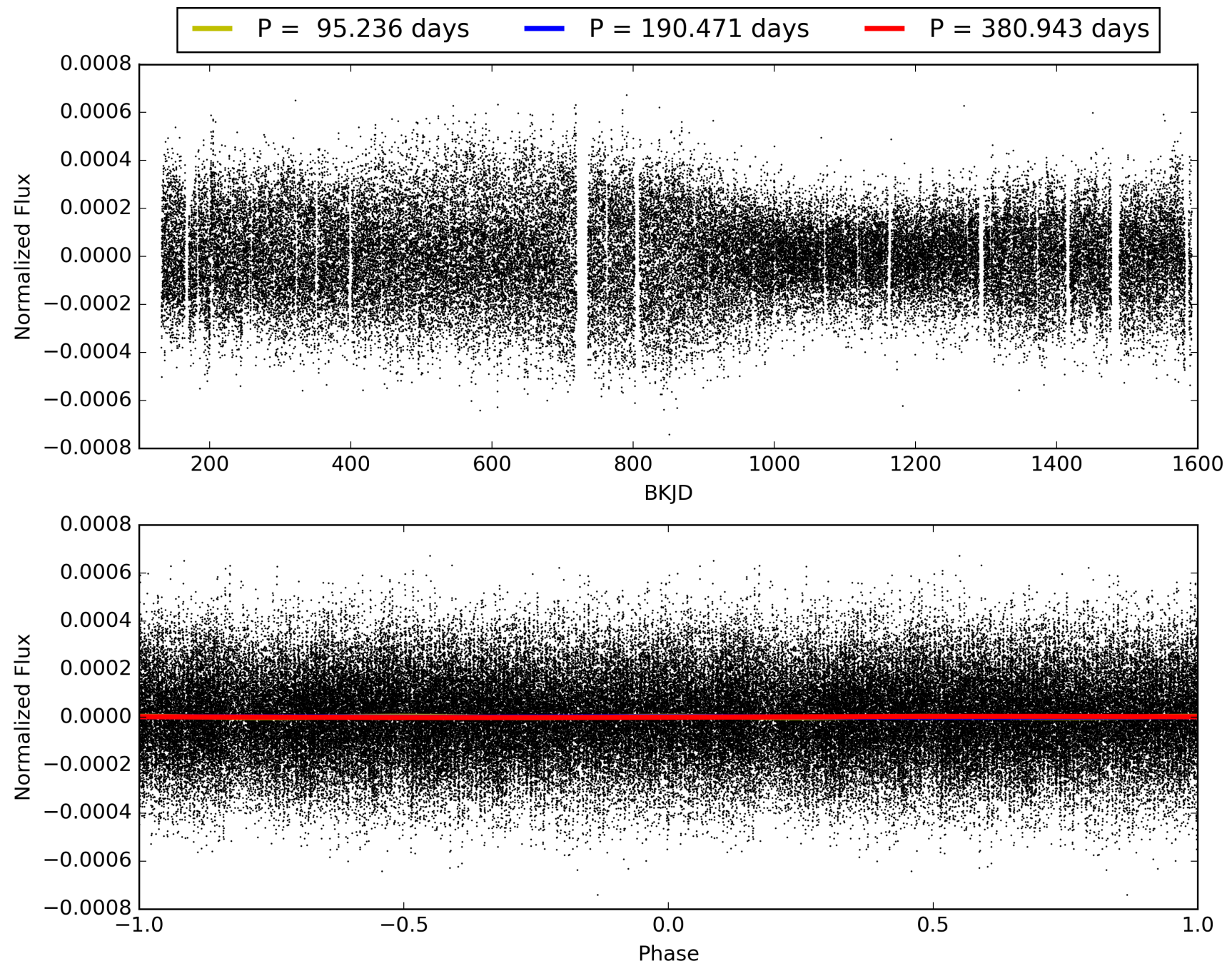
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:32:26 Z

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

TCE 012206271-02, PDC Light Curves

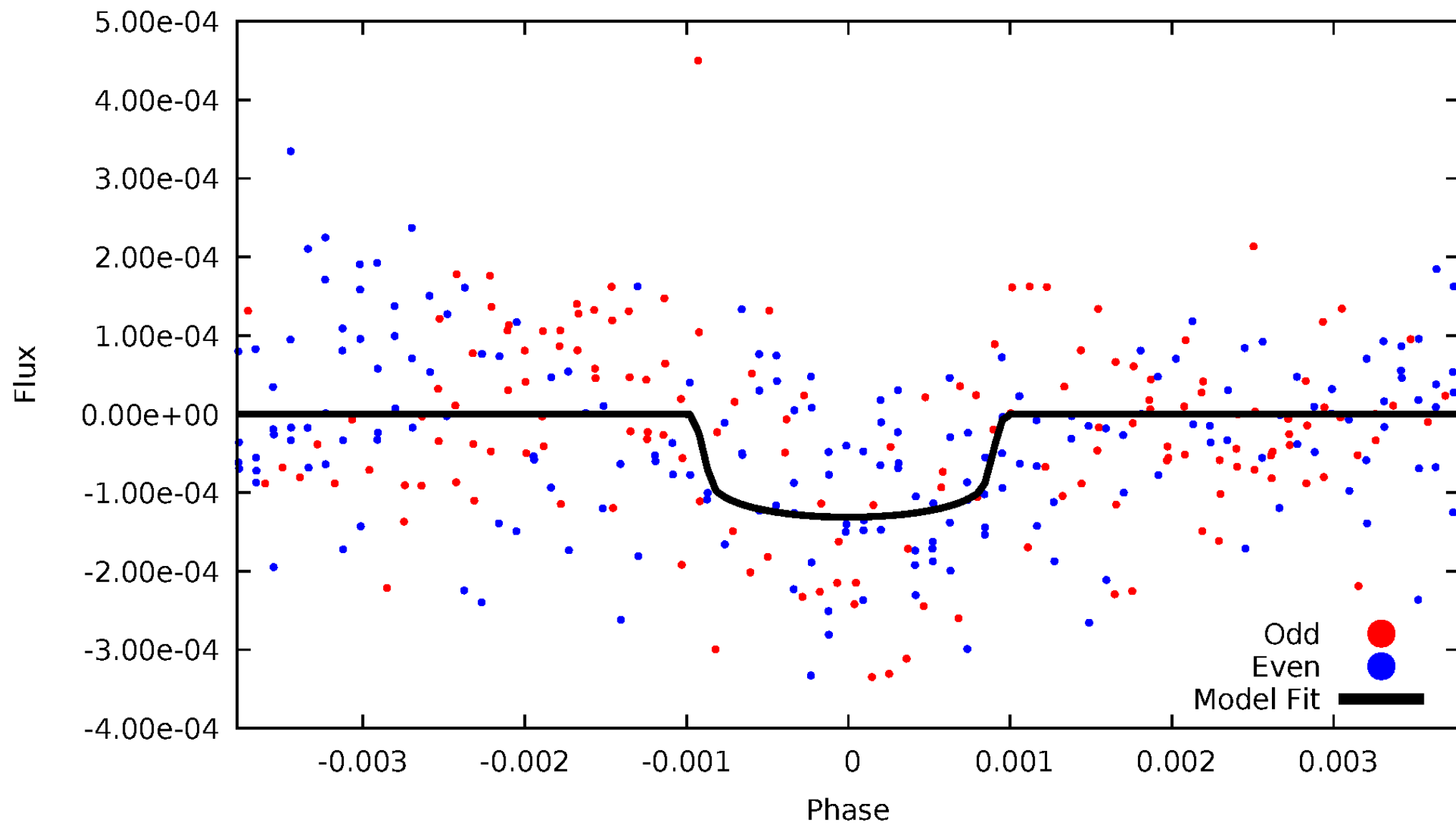


TCE 012206271-02



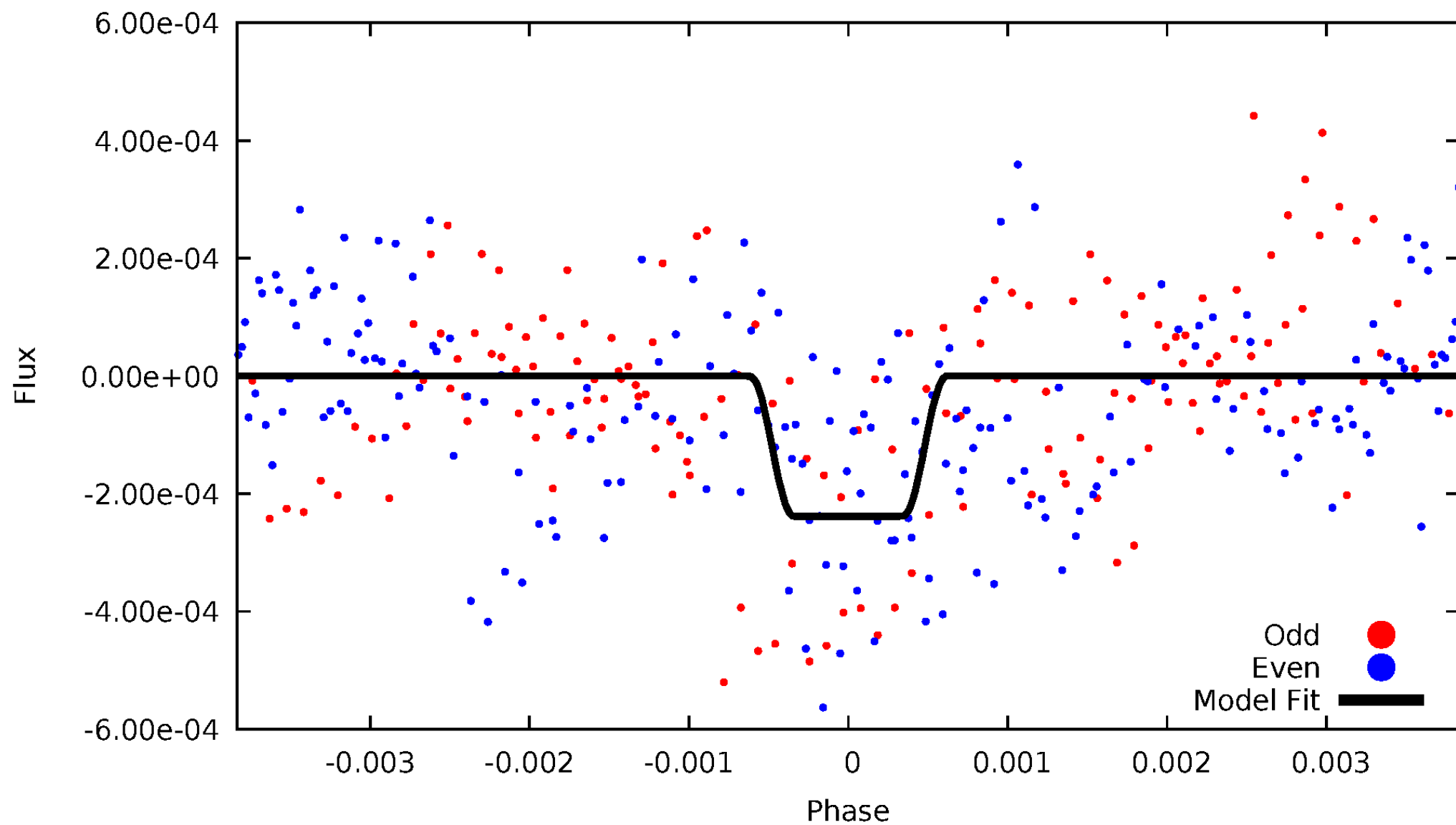
DV Odd/Even

TCE 012206271-02



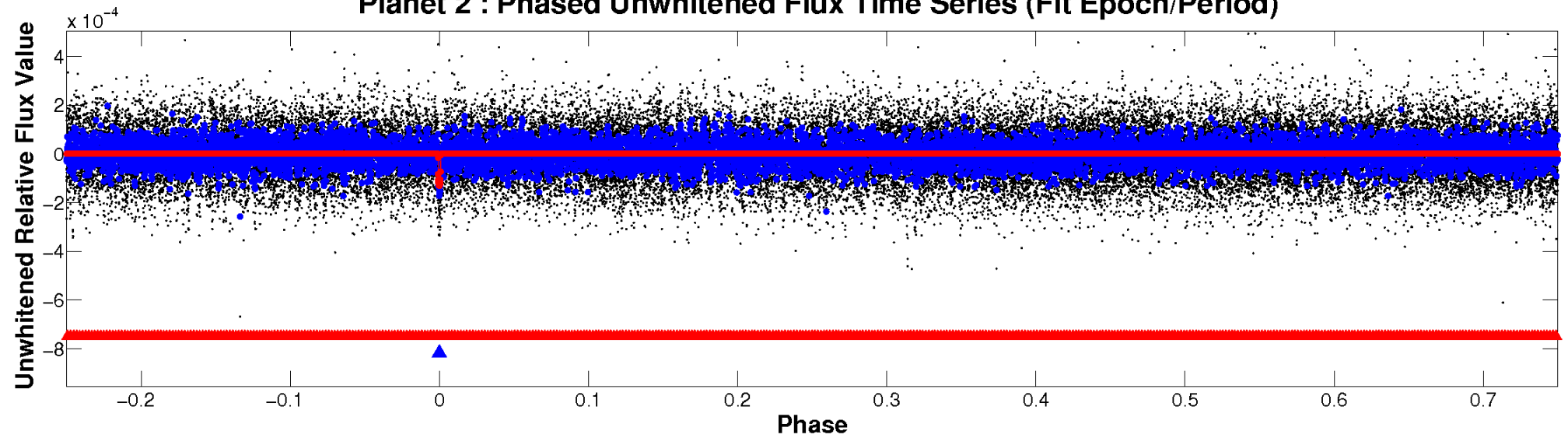
ALT Odd/Even

TCE 012206271-02

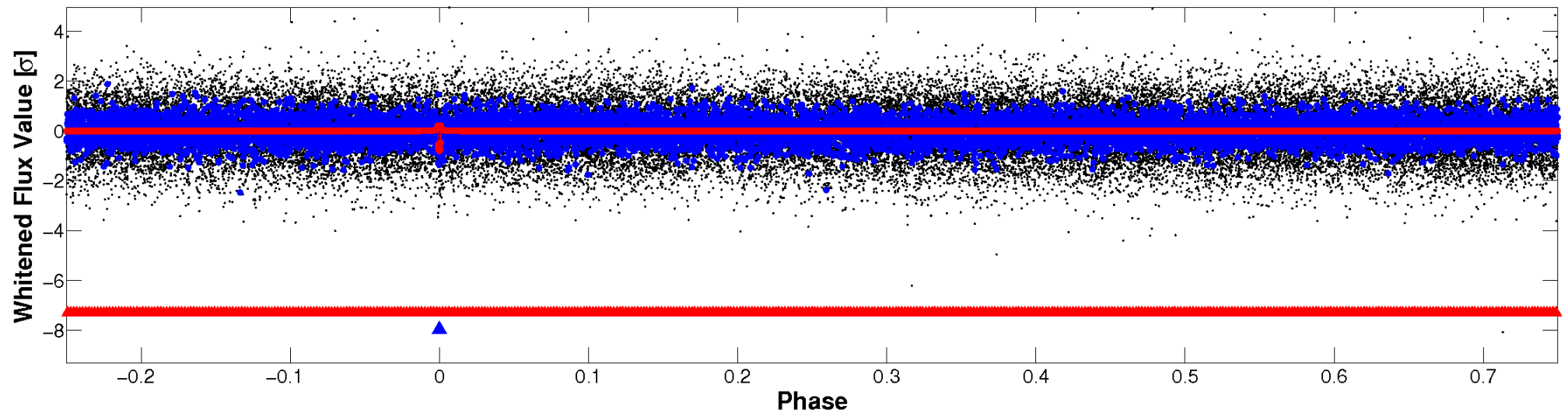


Non-Whitened Vs. Whitened Light Curve

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

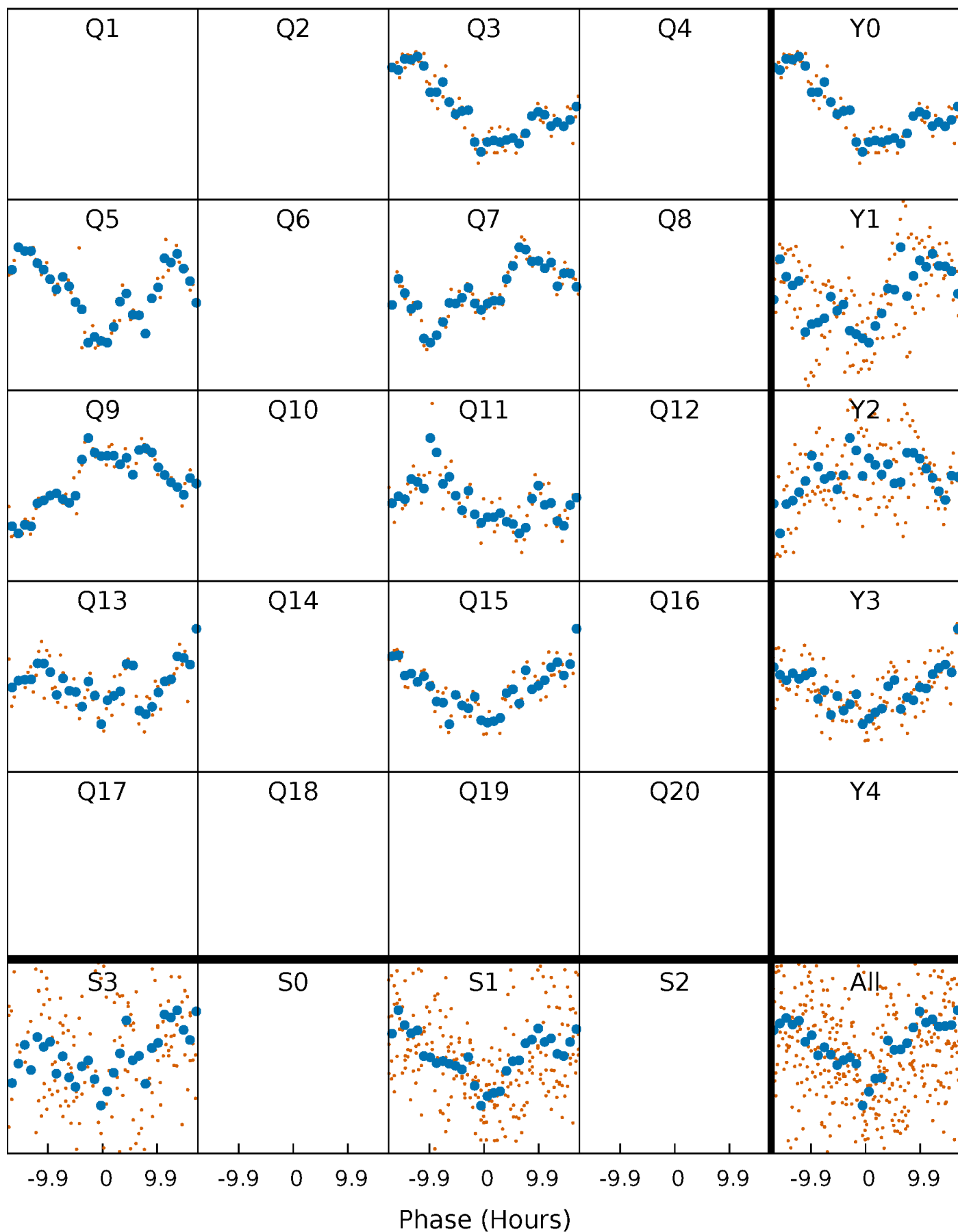


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 012206271-02 P=190.471484 Days $T_0=304.996393$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 012206271-02 $P=190.471484$ Days $T_0=304.996393$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

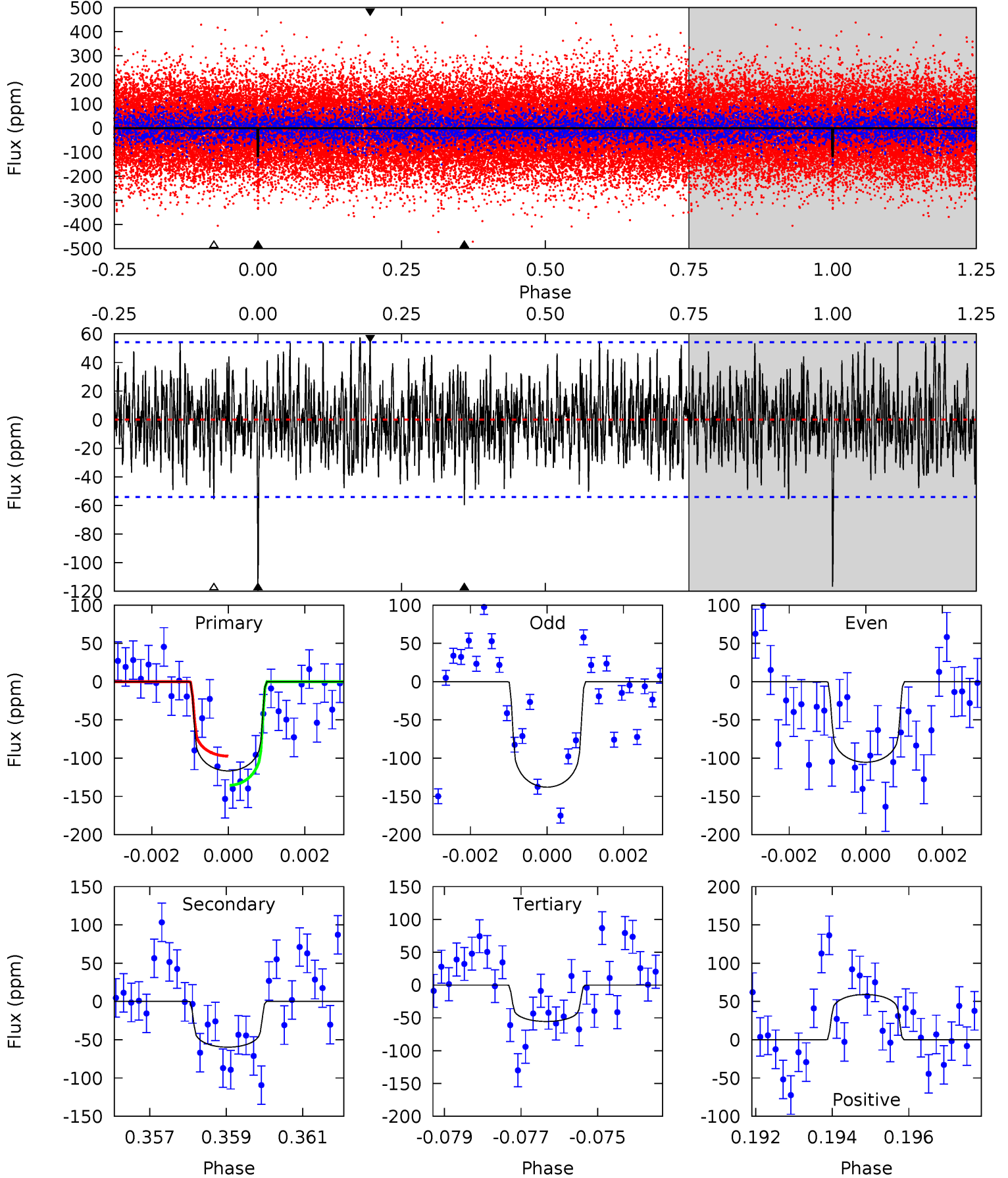
TCE 012206271-02 $P=190.477819$ Days $T_0=304.982555$ (BKJD)



DV Model-Shift Uniqueness Test

012206271-02, P = 190.471484 Days, E = 114.524909 Days

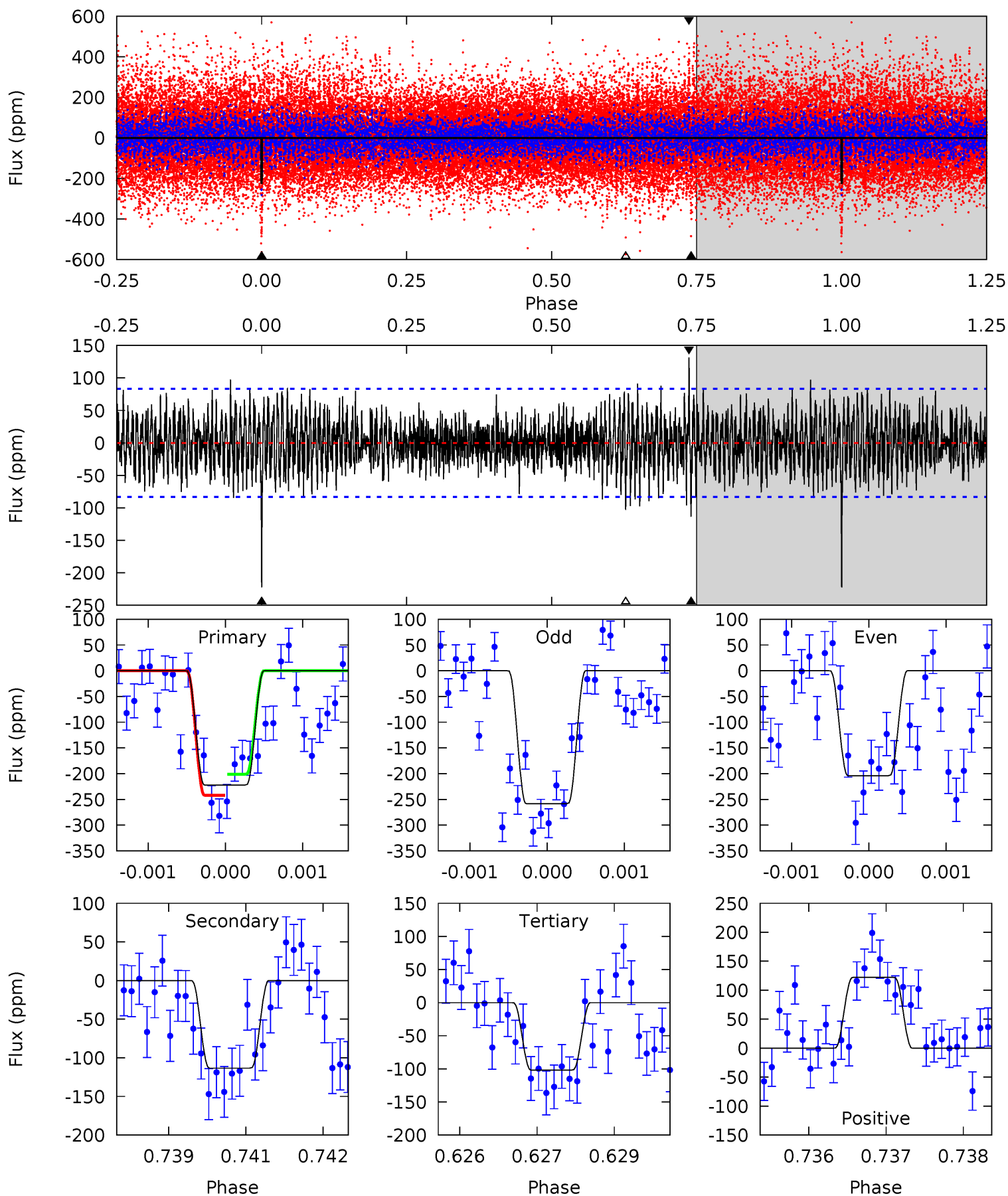
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	5.88	5.46	5.81	5.33	3.09	1.82	6.02	5.67	0.41	0.06	1.52	1.09	0.34	1.88



Alt Model-Shift Uniqueness Test

012206271-02, P = 190.477819 Days, E = 114.504736 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	7.37	6.63	7.95	5.41	3.23	1.95	7.83	6.51	0.74	-0.58	1.69	1.19	0.37	1.33



Stellar Parameters For KIC 012206271

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6426^{+179}_{-247}	$4.013^{+0.306}_{-0.165}$	$-0.040^{+0.250}_{-0.300}$	$1.914^{+0.552}_{-0.675}$	$1.382^{+0.197}_{-0.296}$	$0.278^{+0.598}_{-0.128}$
	+3%/-4%	+8%/-4%	+625%/-750%	+29%/-35%	+14%/-21%	+215%/-46%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012206271-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-60 ± 10	$2.40^{+0.81}_{-0.76}$	636^{+53}_{-60}	5205^{+694}_{-500}	2957^{+2841}_{-1335}
Alt.	-113 ± 15	$3.05^{+0.85}_{-0.77}$	630^{+52}_{-64}	5345^{+529}_{-441}	3442^{+2560}_{-1398}

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

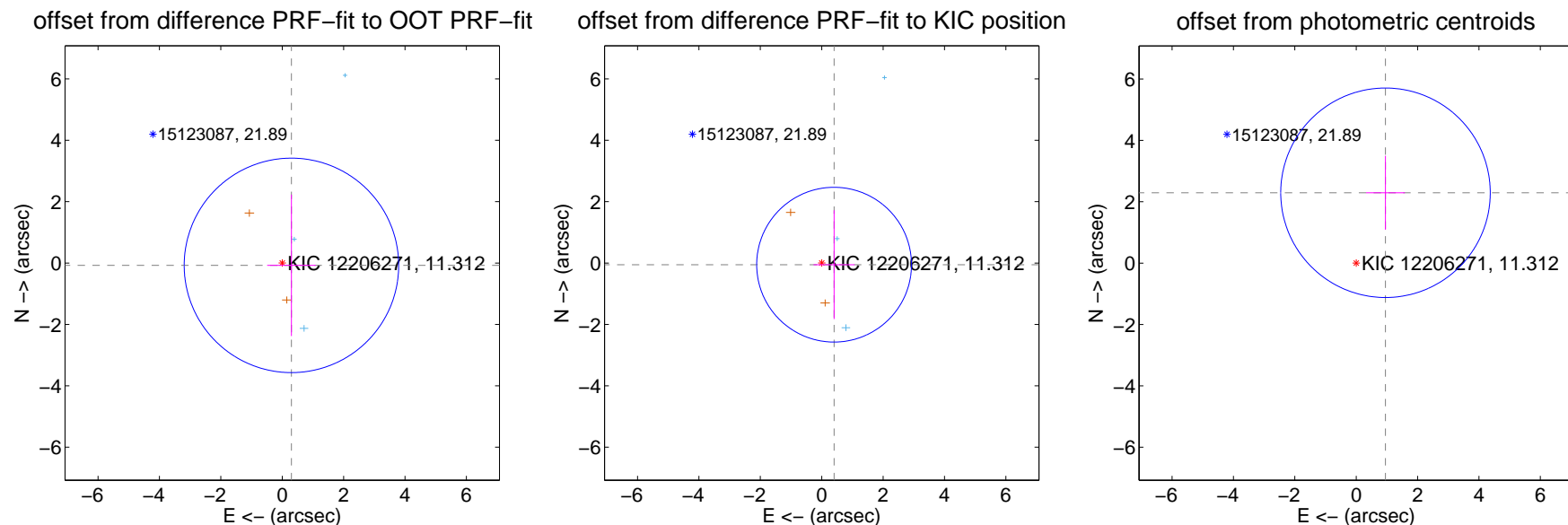
DV Centroid Data

Supplemental centroid analysis for 012206271-02. **Kepler magnitude: 11.31.** Transit SNR 7.03

There are 3 quarters with good PRF difference image offsets

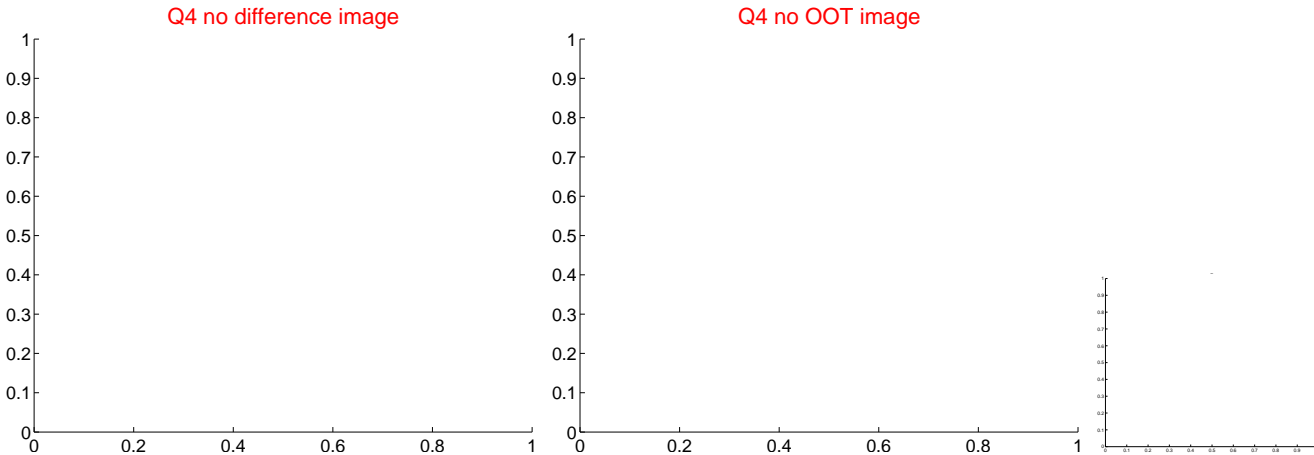
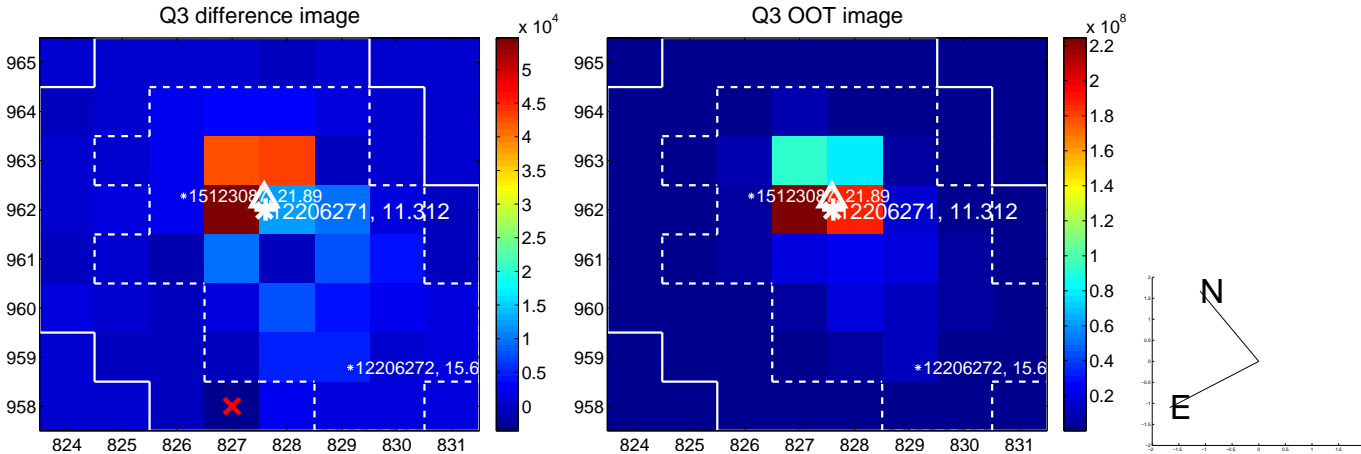
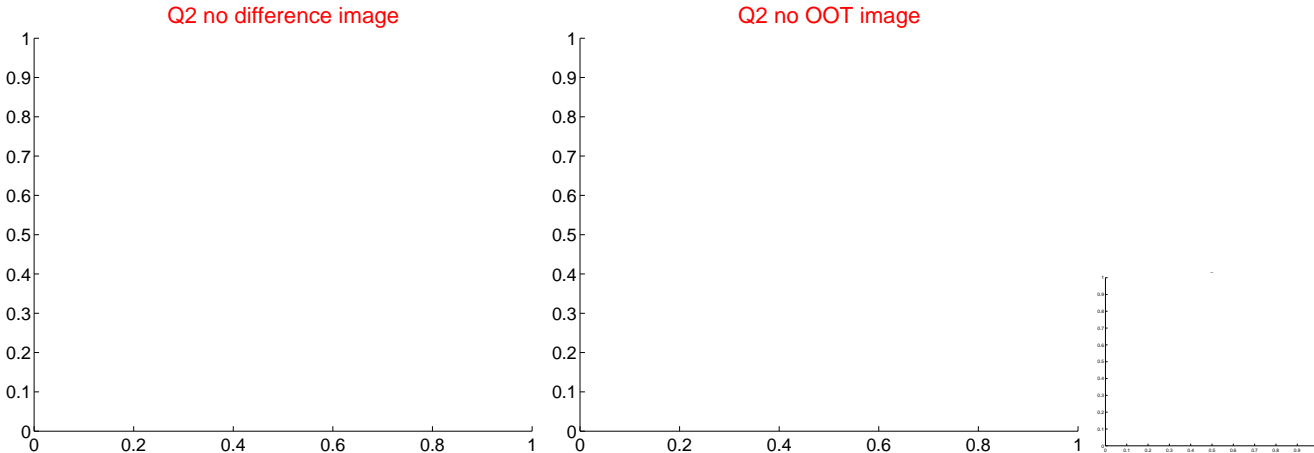
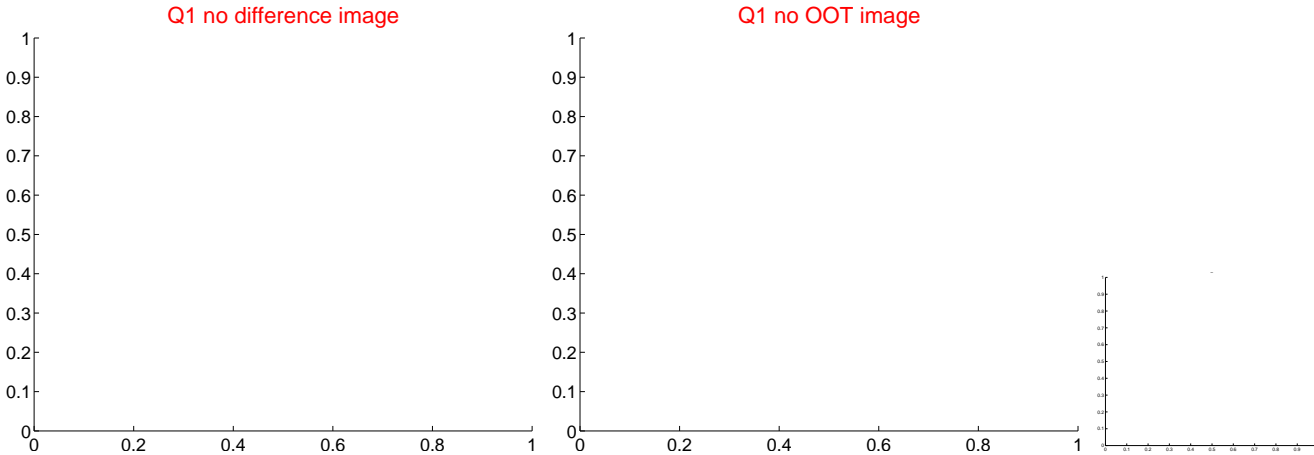
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.310 ± 1.164	0.27	-0.300 ± 0.790	-0.076 ± 2.303
PRF-fit source offset from KIC position	0.407 ± 0.840	0.48	-0.403 ± 0.668	-0.054 ± 1.772
photometric centroid source offset	2.48 ± 1.14	2.18	-0.95 ± 0.63	2.29 ± 1.20

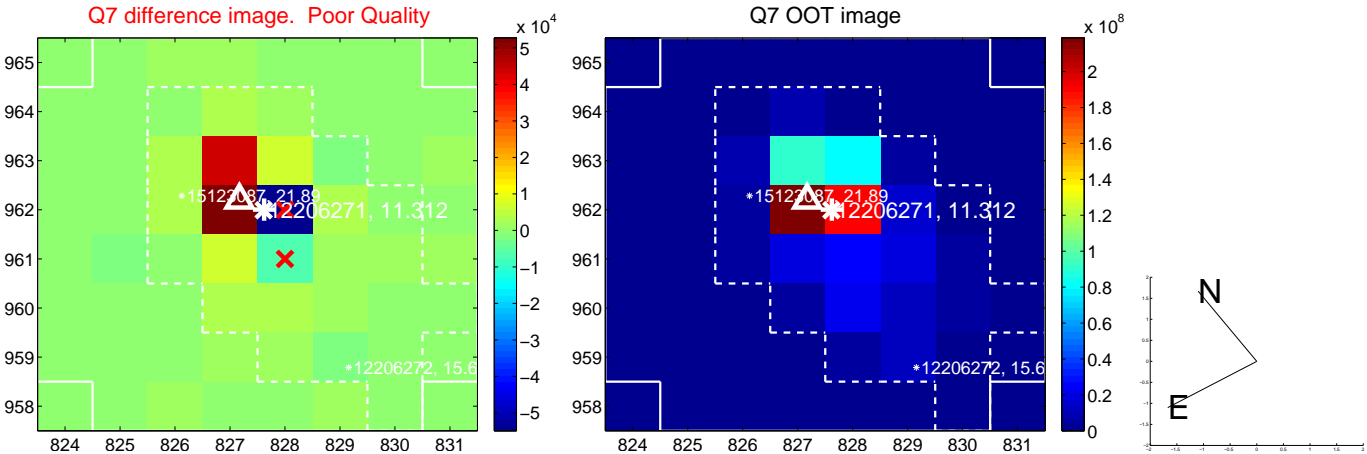
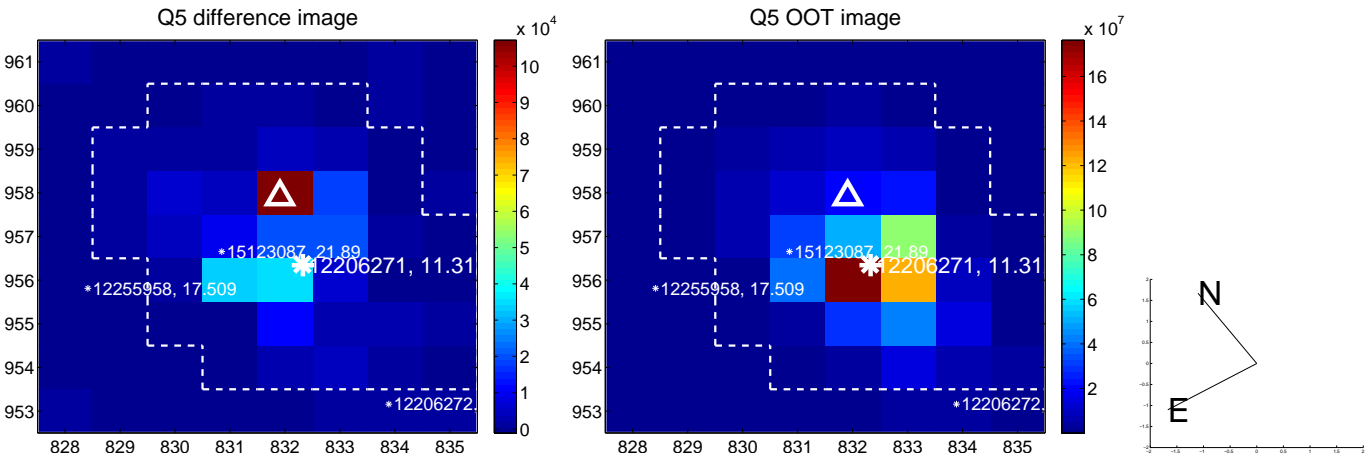


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

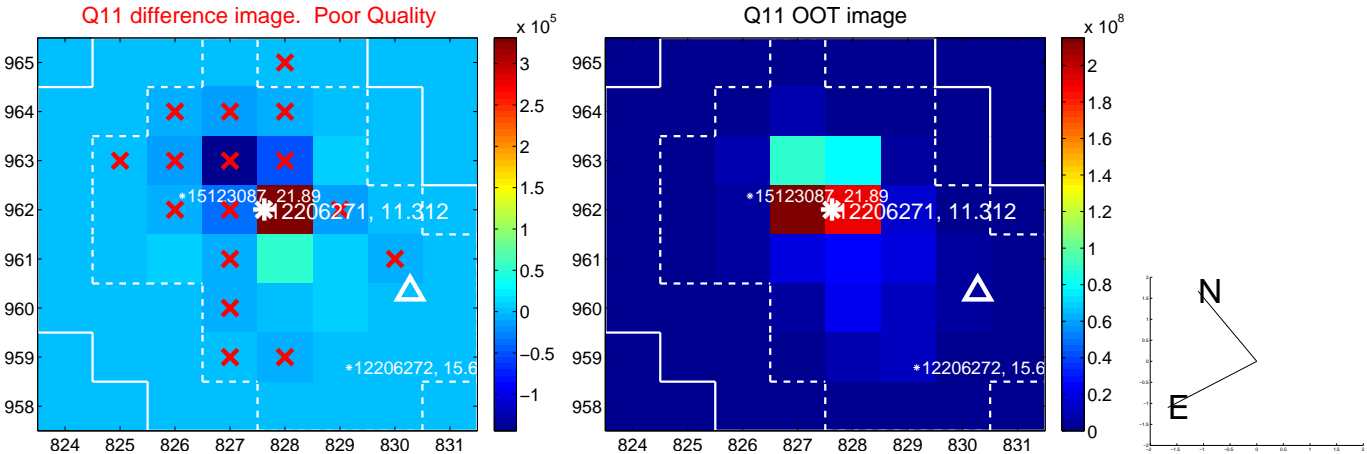
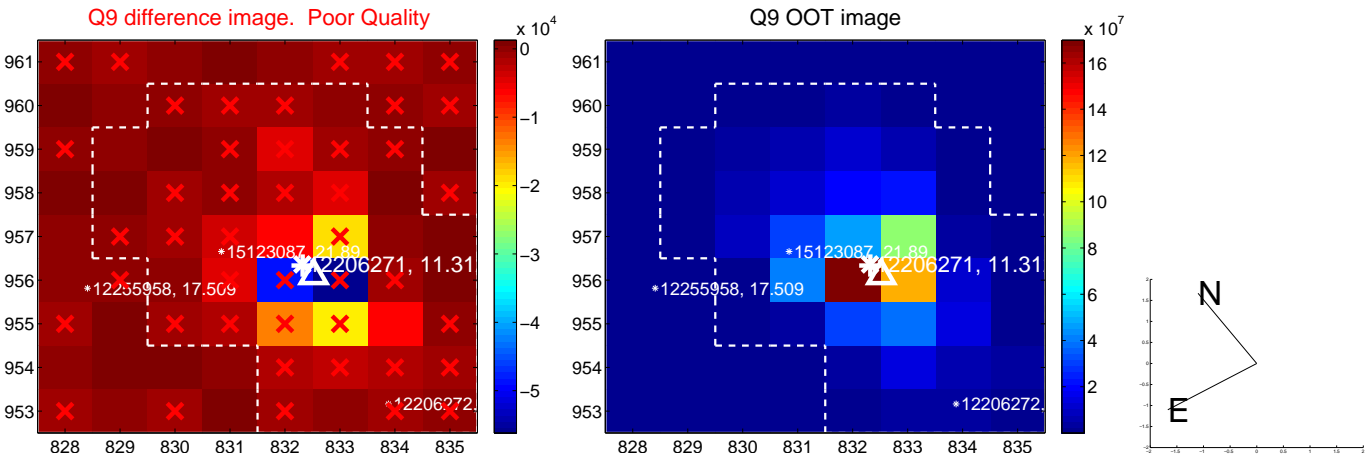
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



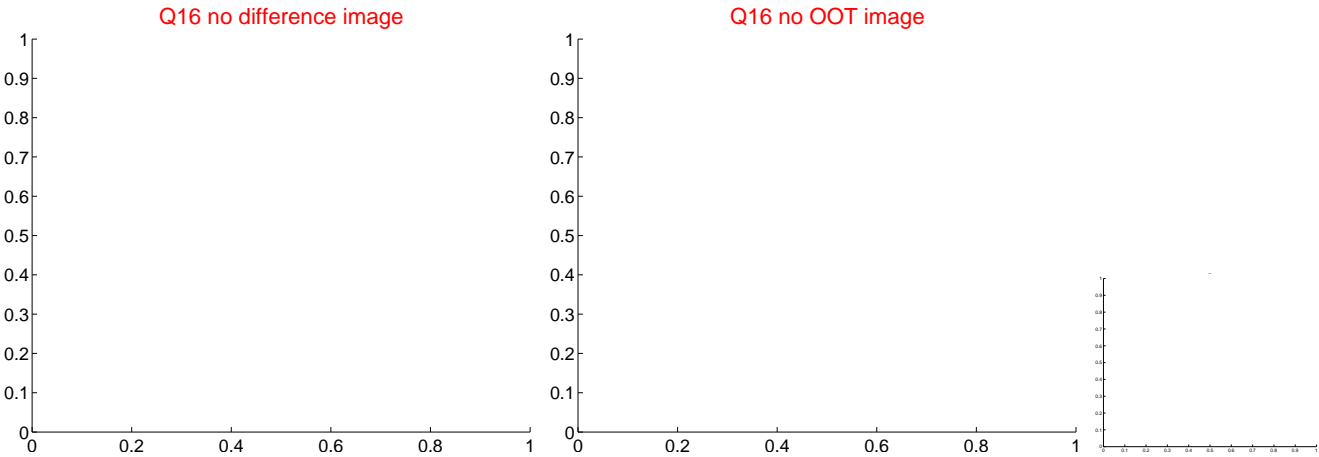
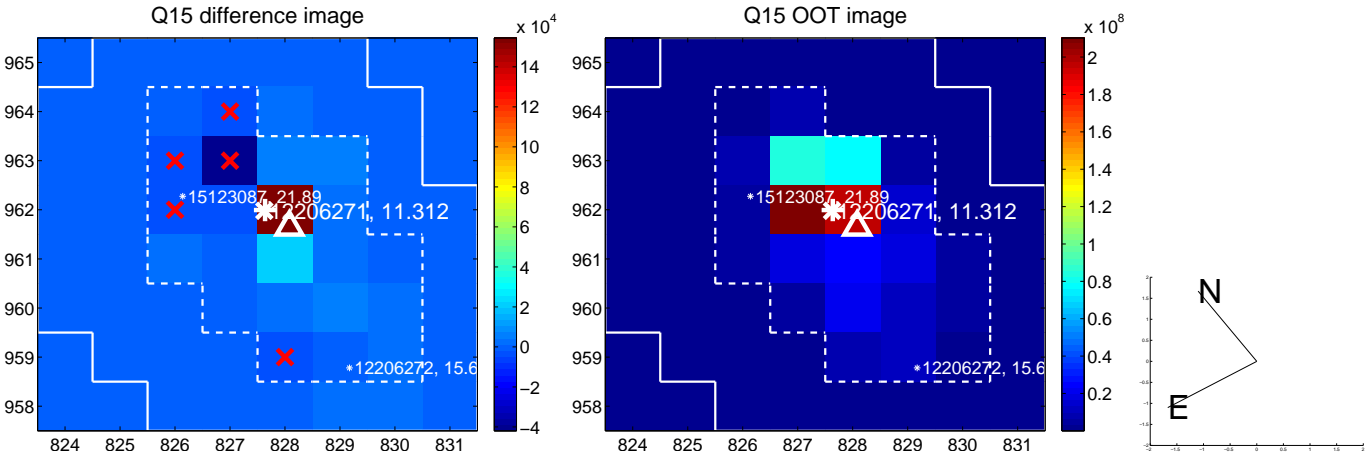
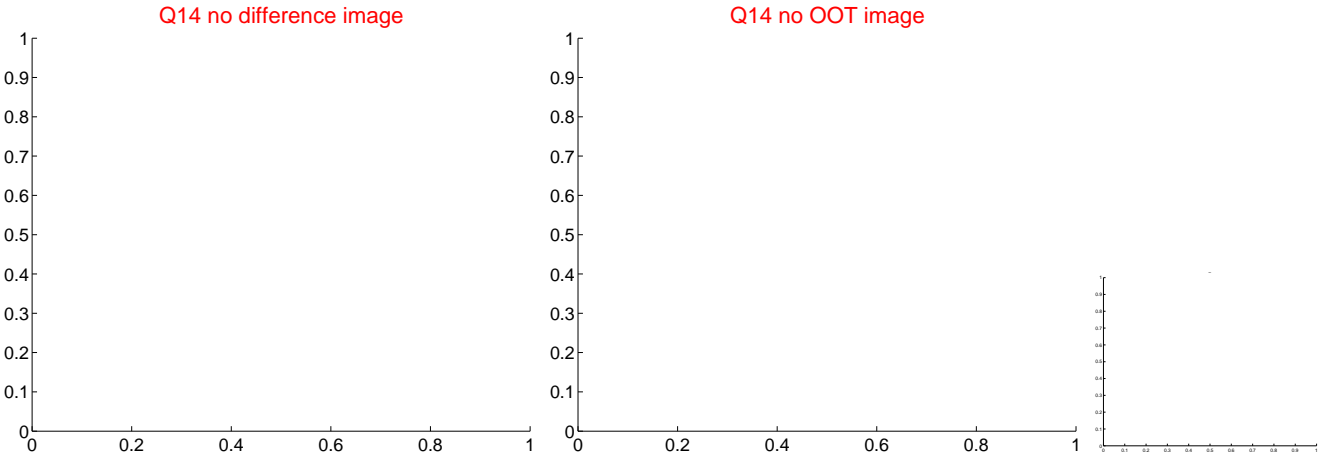
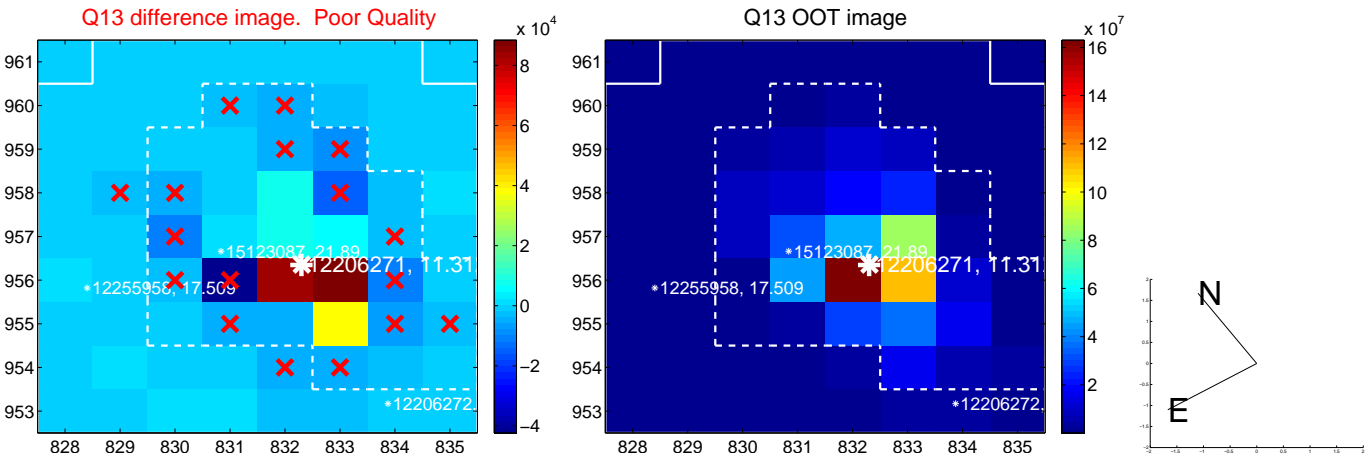
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



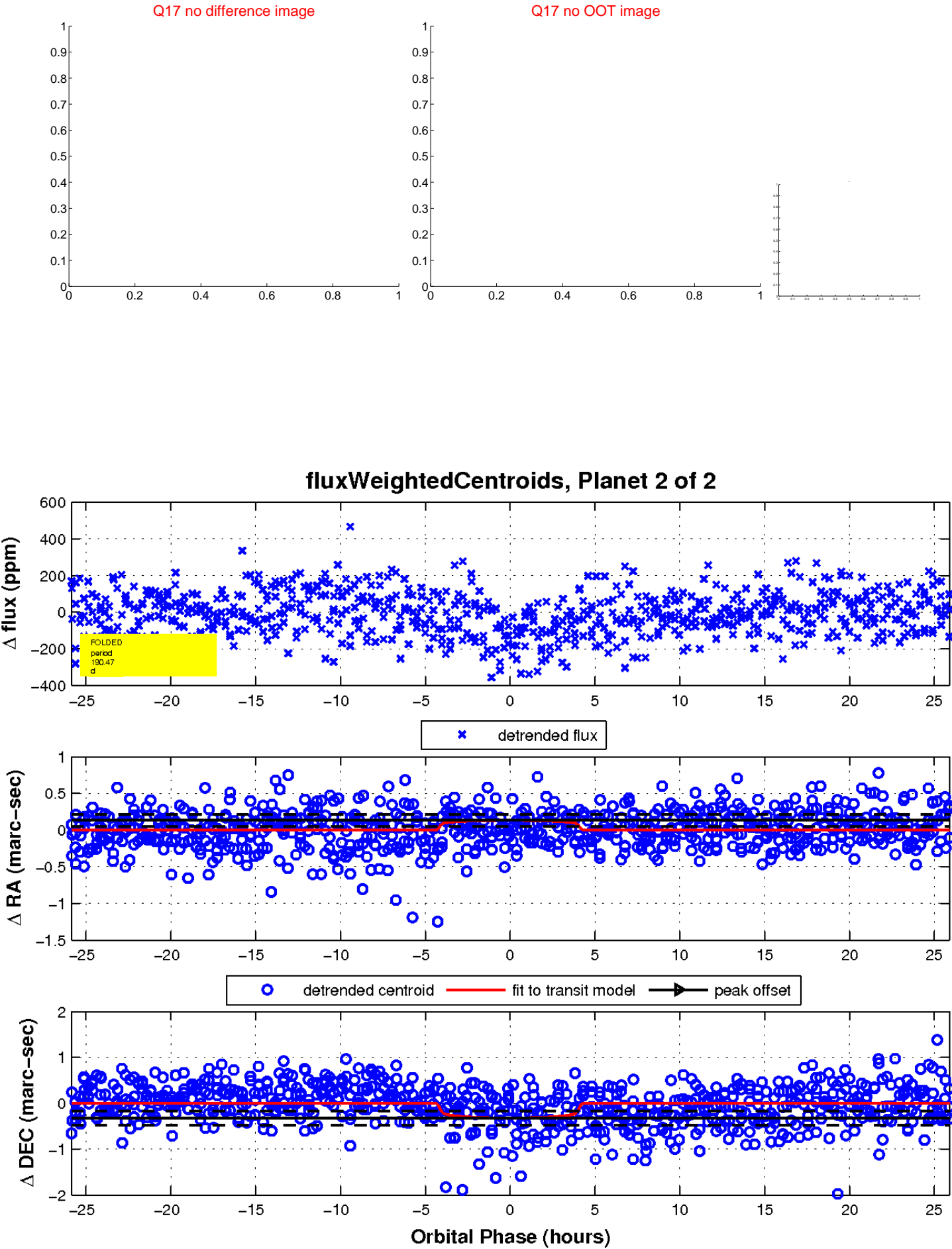
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

