

KIC 006116129

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})
006116129-02	OBS	No	492.895316	189.722077	1066.6	11.972	11.9	7.7	0.60	4008	2.21	0.08
006116129-03	OBS	No	508.585826	140.633314	1132.4	3.466	10.7	9.1	0.60	4008	2.04	0.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006116129-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
006116129-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—MOD_TER_ALT—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.

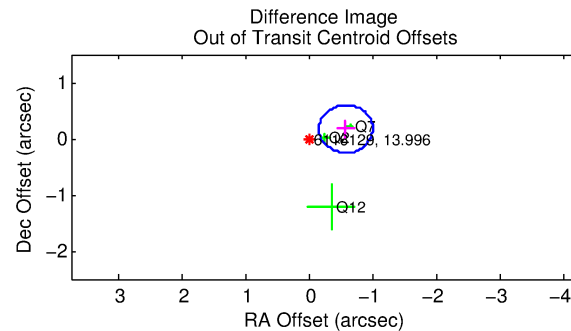
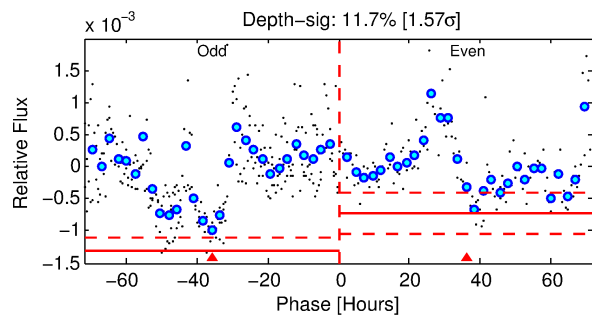
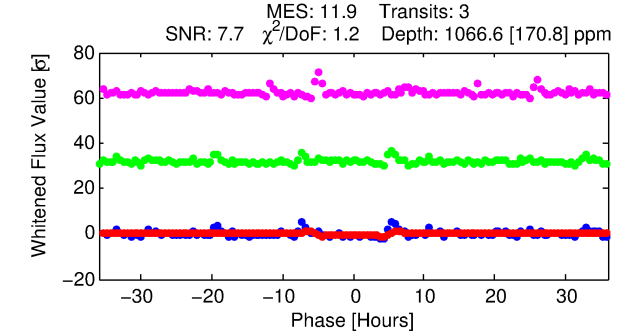
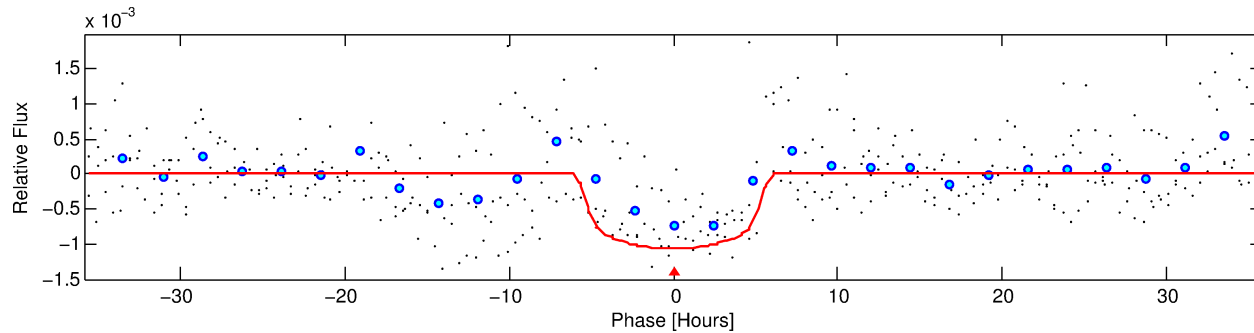
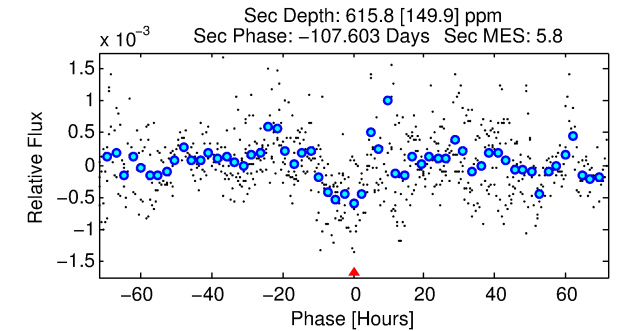
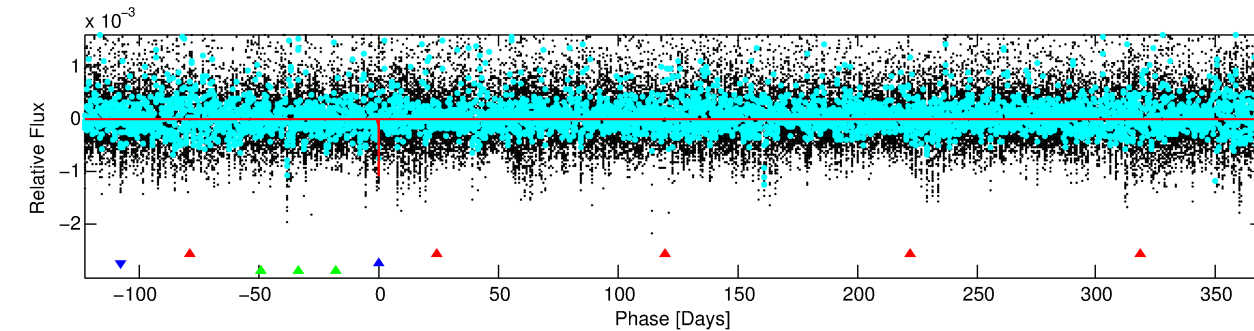
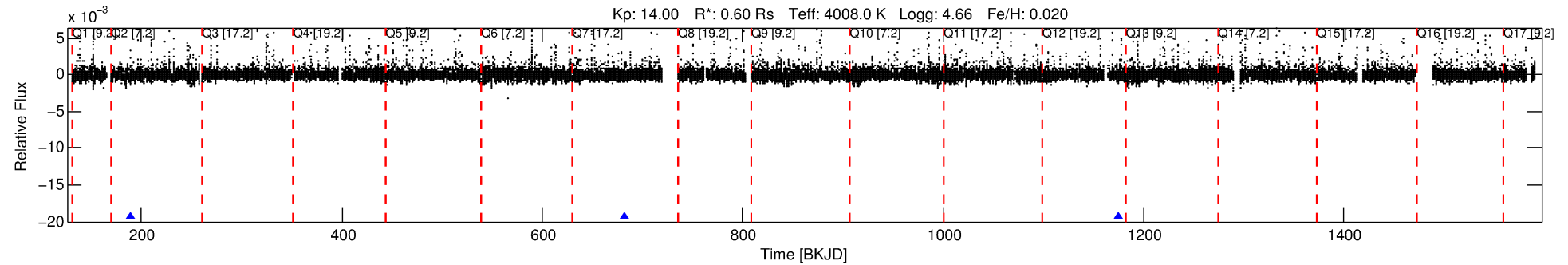
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006116129-02

No Significant Match Found

DV One-Page Summary

KIC: 6116129 Candidate: 2 of 3 Period: 492.895 d



DV Fit Results:

Period = 492.89532 [0.00980] d
Epoch = 189.7221 [0.0126] BKJD
Rp/R* = 0.0340 [0.0042]
a/R* = 195.11 [63.10]
b = 0.83 [0.13]
Seff = 0.08 [0.02]
Teq = 135 [7] K
Rp = 2.21 [0.38] Re
a = 1.0253 [0.0950] AU
Ag = 72609.54 [26774.92] [2.71σ]
Teffp = 3424 [325] K [10.11σ]

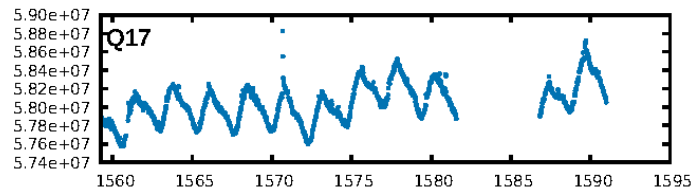
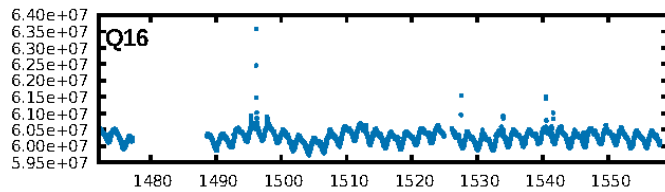
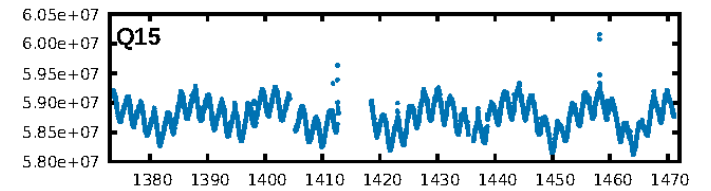
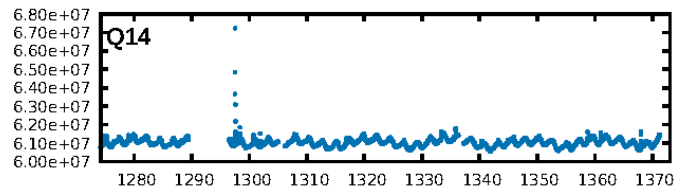
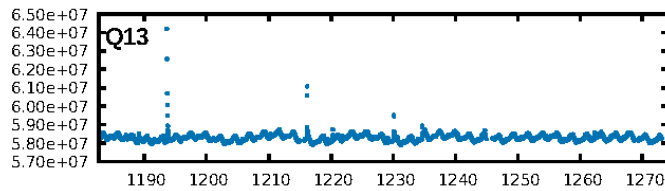
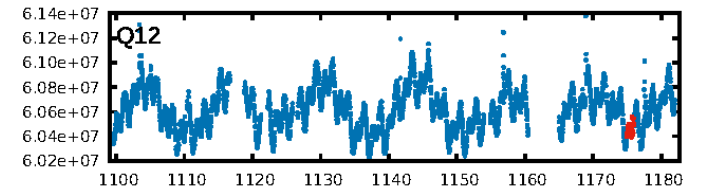
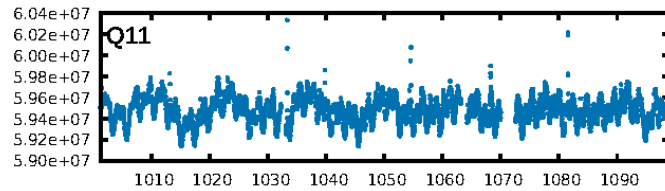
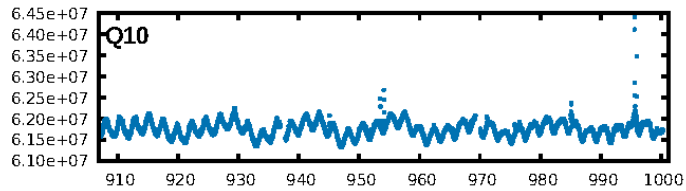
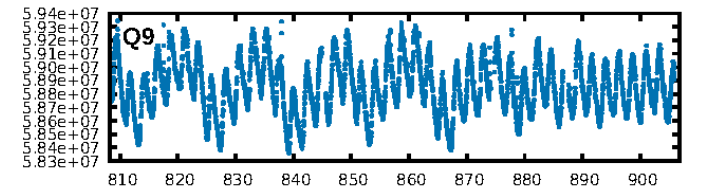
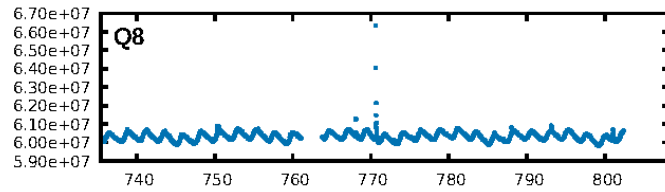
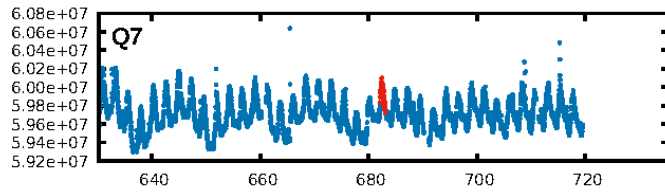
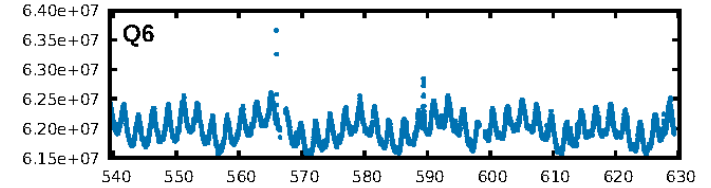
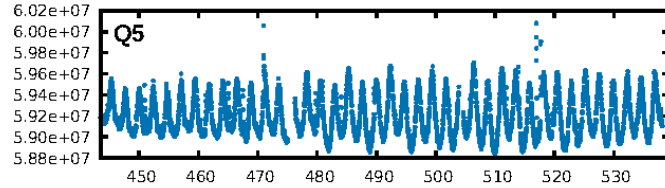
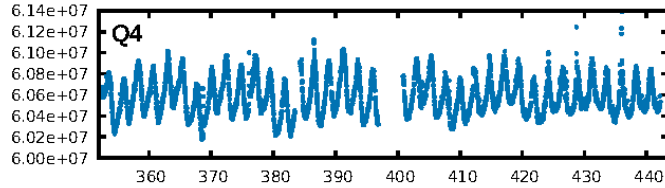
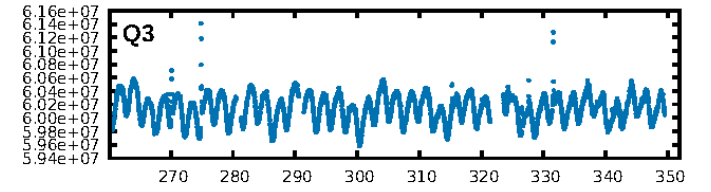
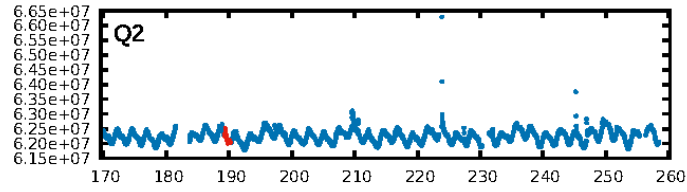
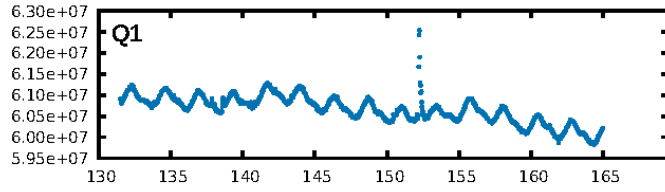
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [388.35σ]
LongPeriod-sig: 100.0% [30.21σ]
ModelChiSquare2-sig: 2.4%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: 5.48e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.048
Centroid-sig: 72.3%
Centroid-so: 0.373 arcsec [0.60σ]
OotOffset-rm: 0.593 arcsec [4.19σ]
KicOffset-rm: 0.537 arcsec [3.50σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

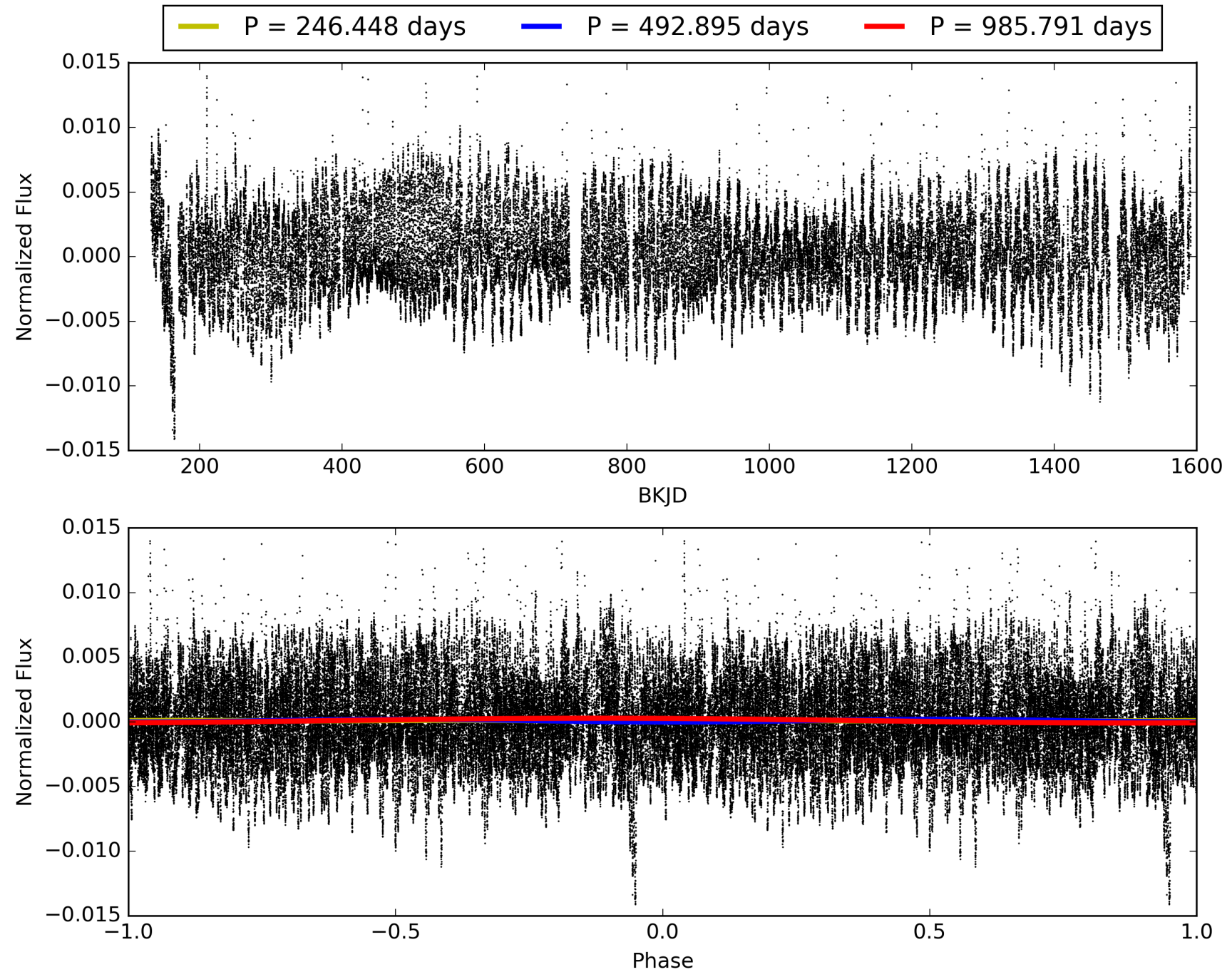
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:40:06 Z

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

TCE 006116129-02, PDC Light Curves

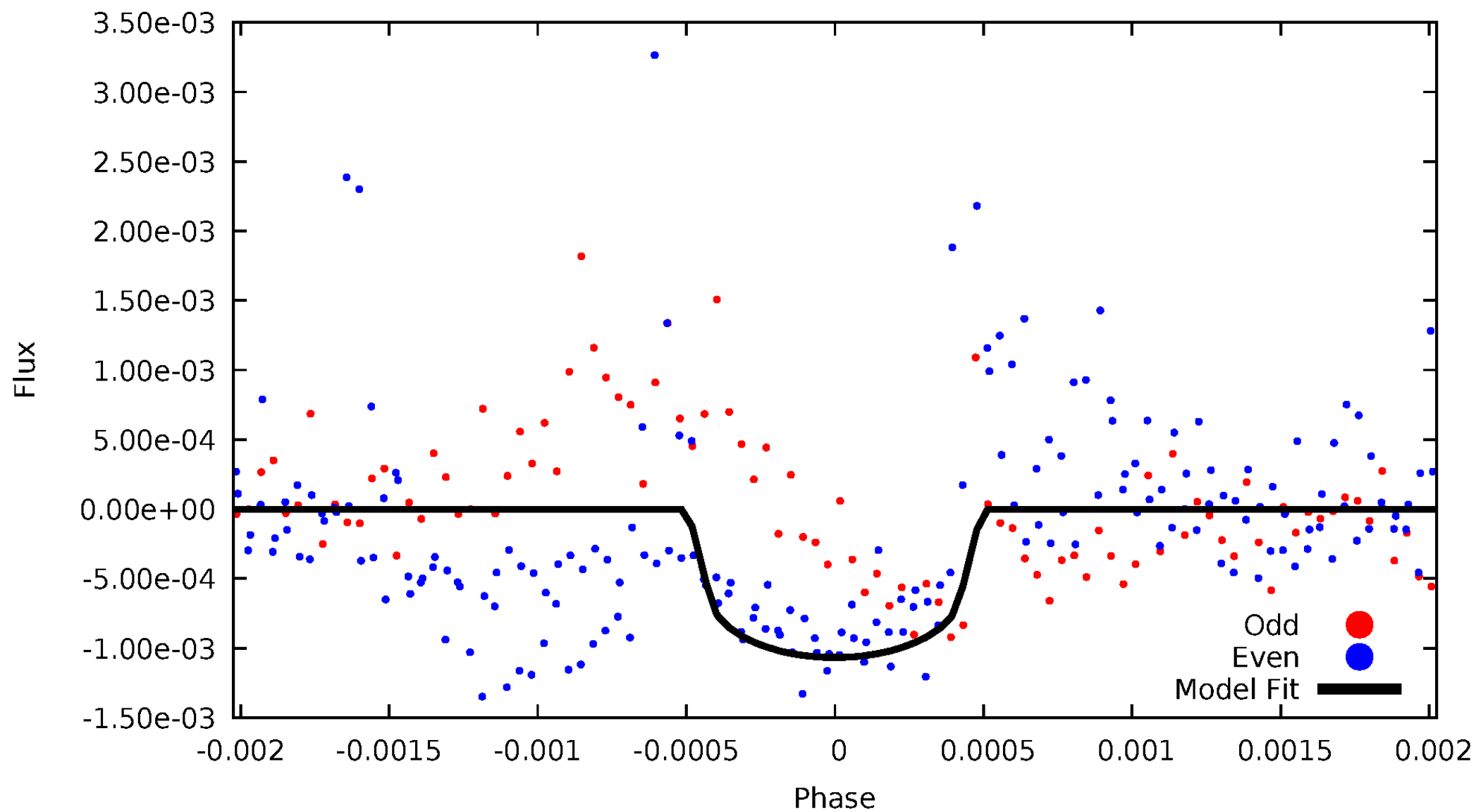


TCE 006116129-02



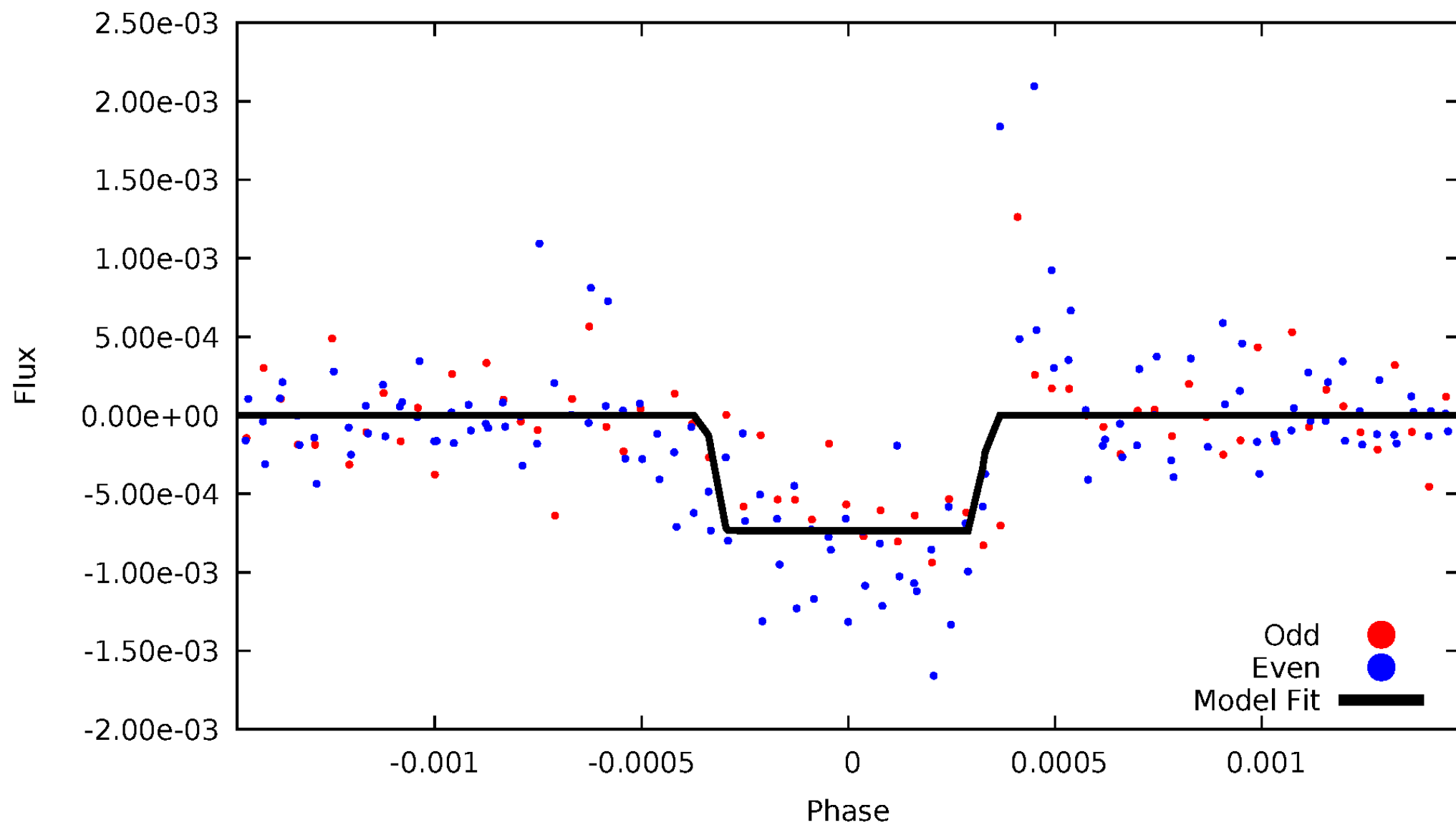
DV Odd/Even

TCE 006116129-02



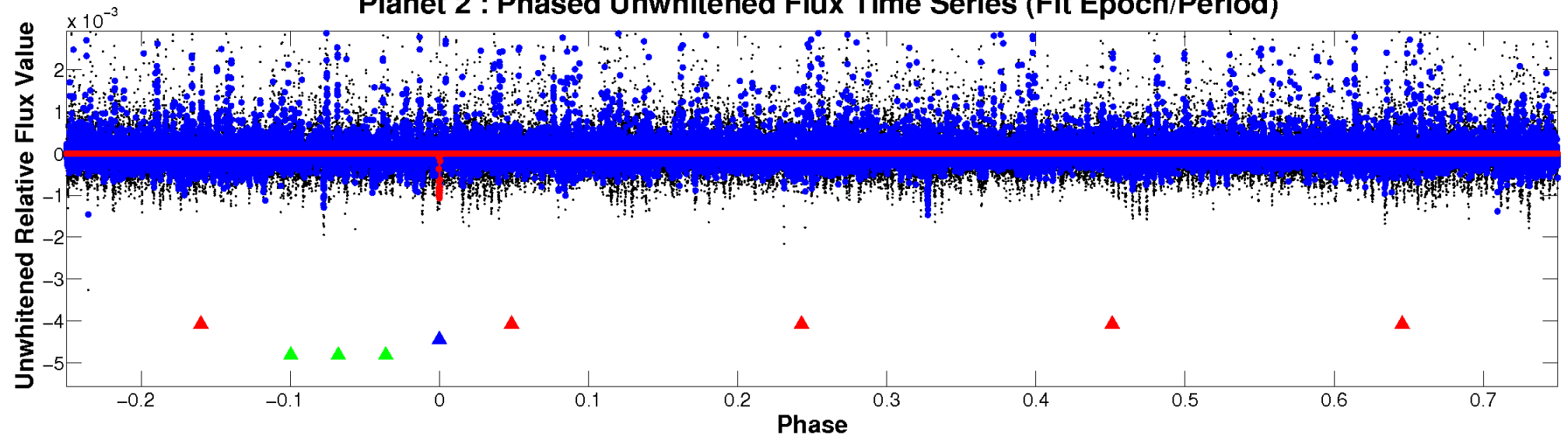
ALT Odd/Even

TCE 006116129-02

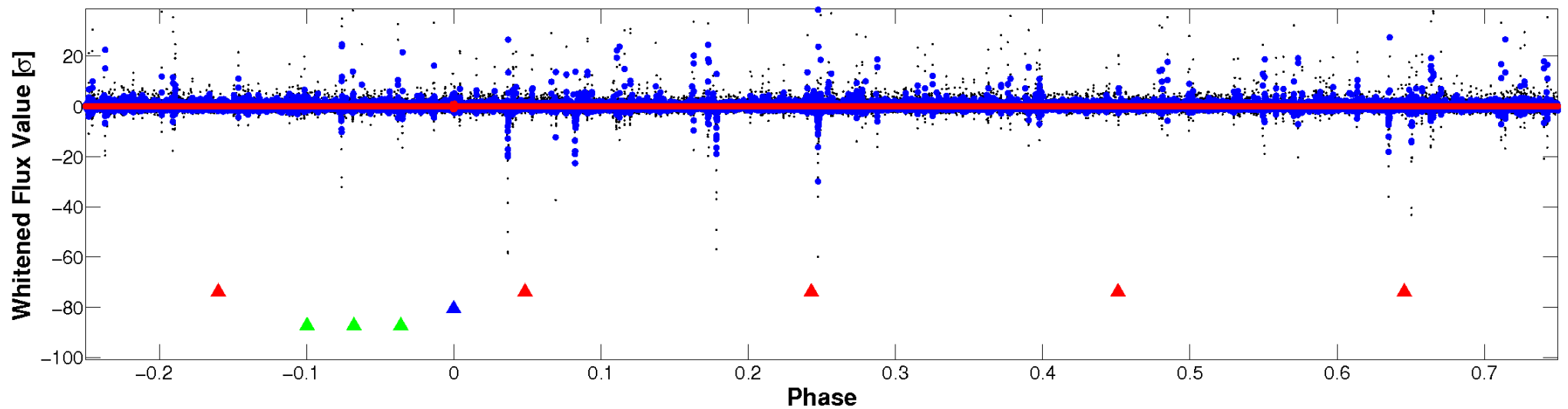


Non-Whitened Vs. Whitened Light Curve

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

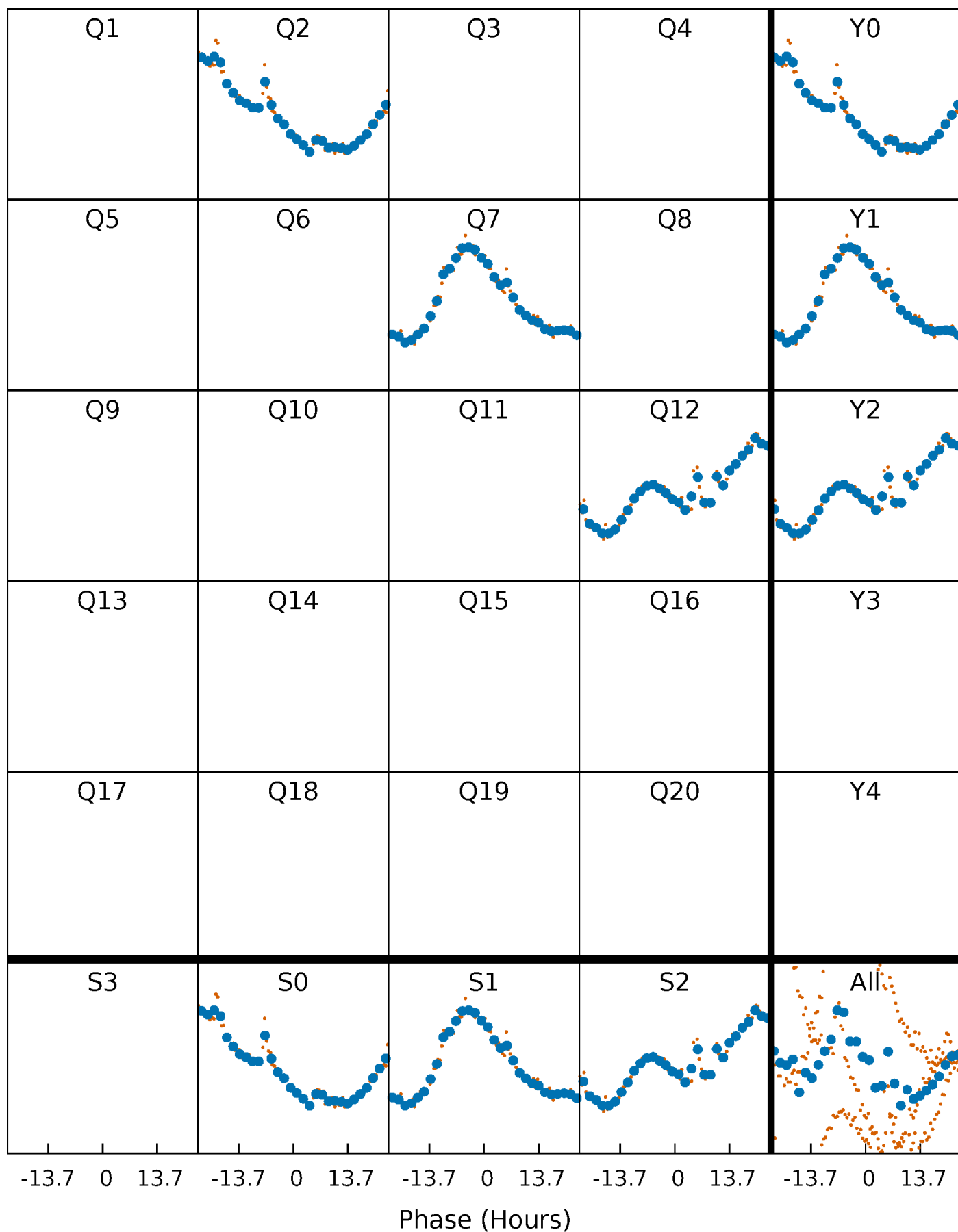


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



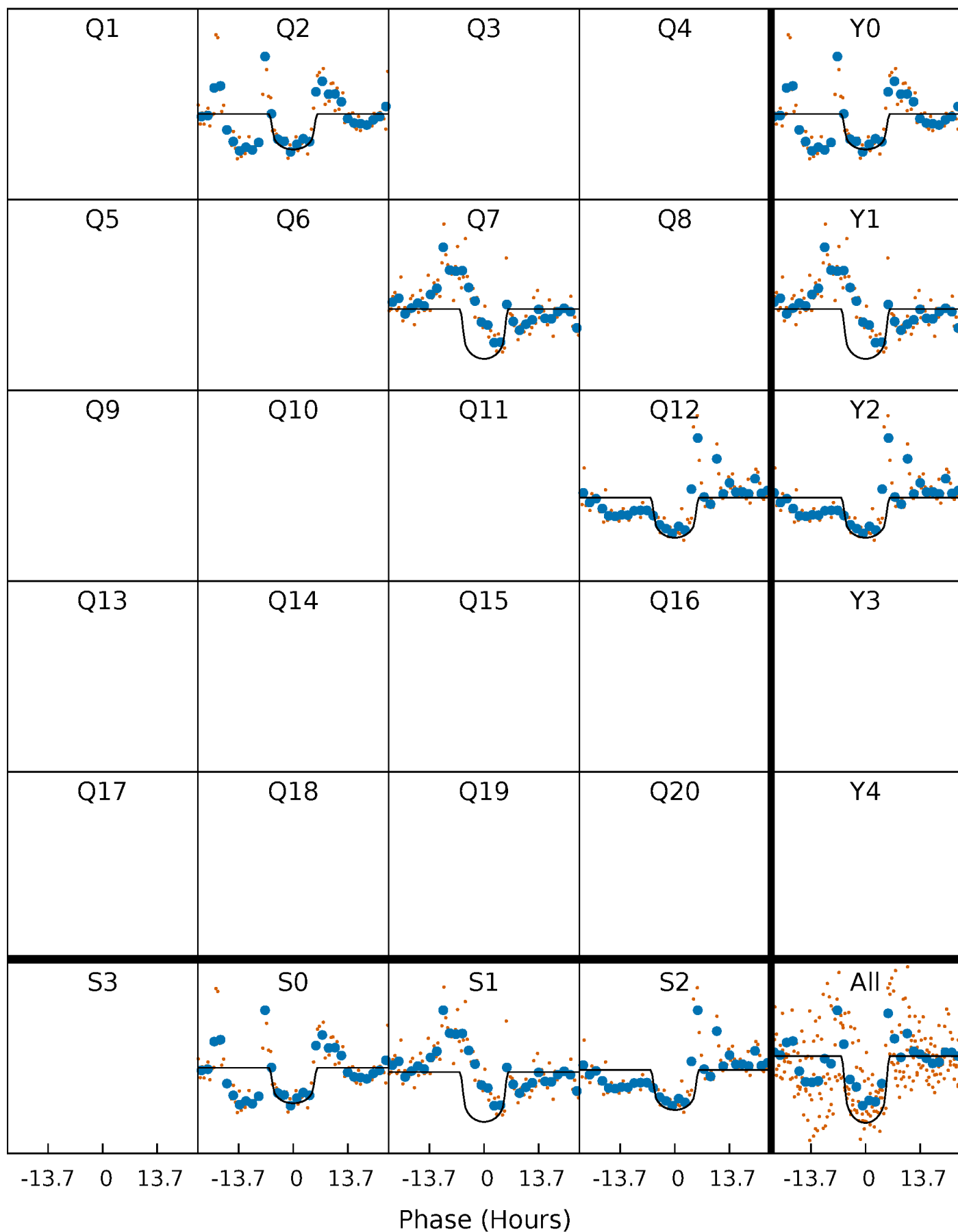
PDC Quarter-Phased Transit Curves

TCE 006116129-02 P=492.895316 Days $T_0=189.722077$ (BKJD)



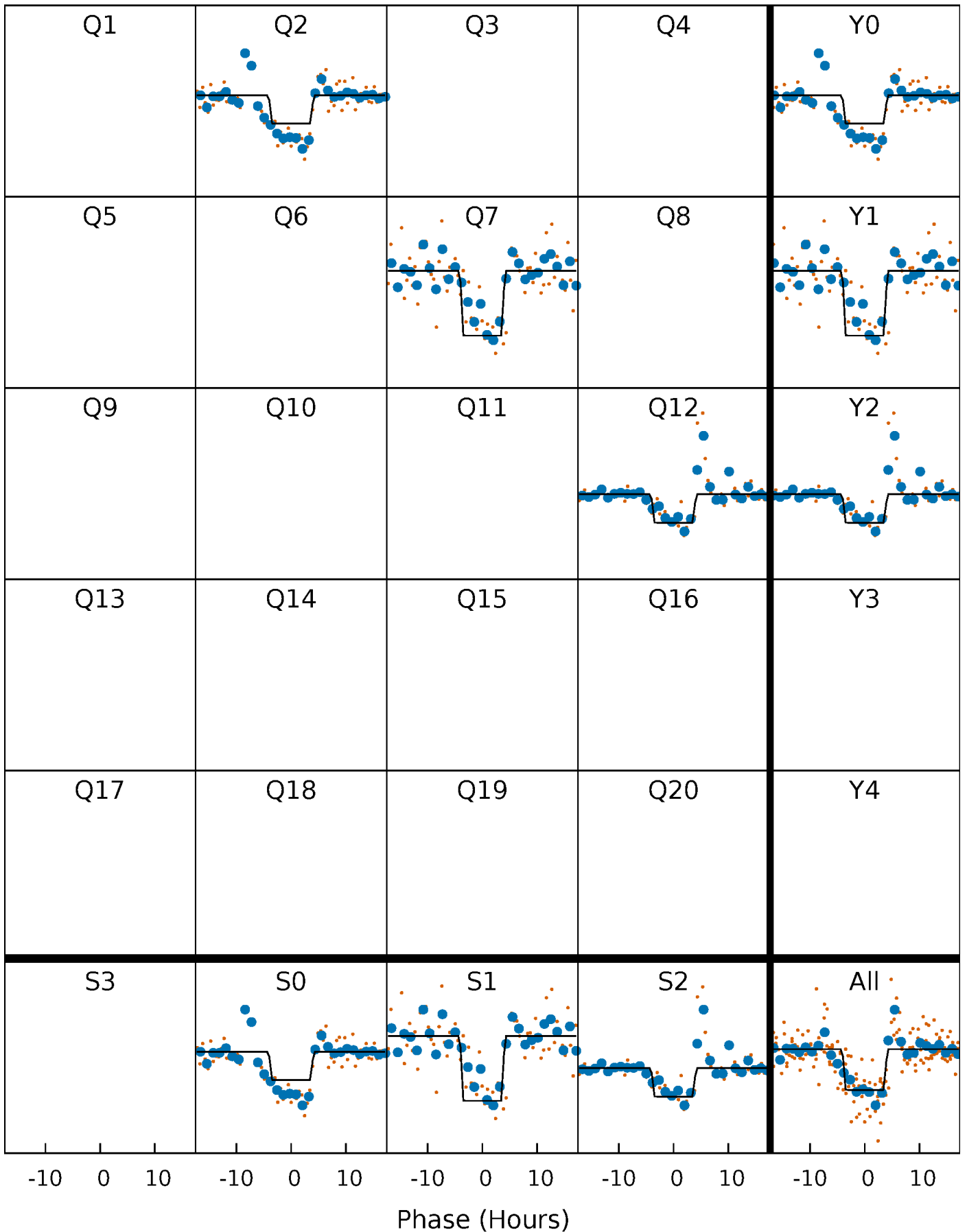
DV Quarter-Phased Transit Curves

TCE 006116129-02 P=492.895316 Days $T_0=189.722077$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

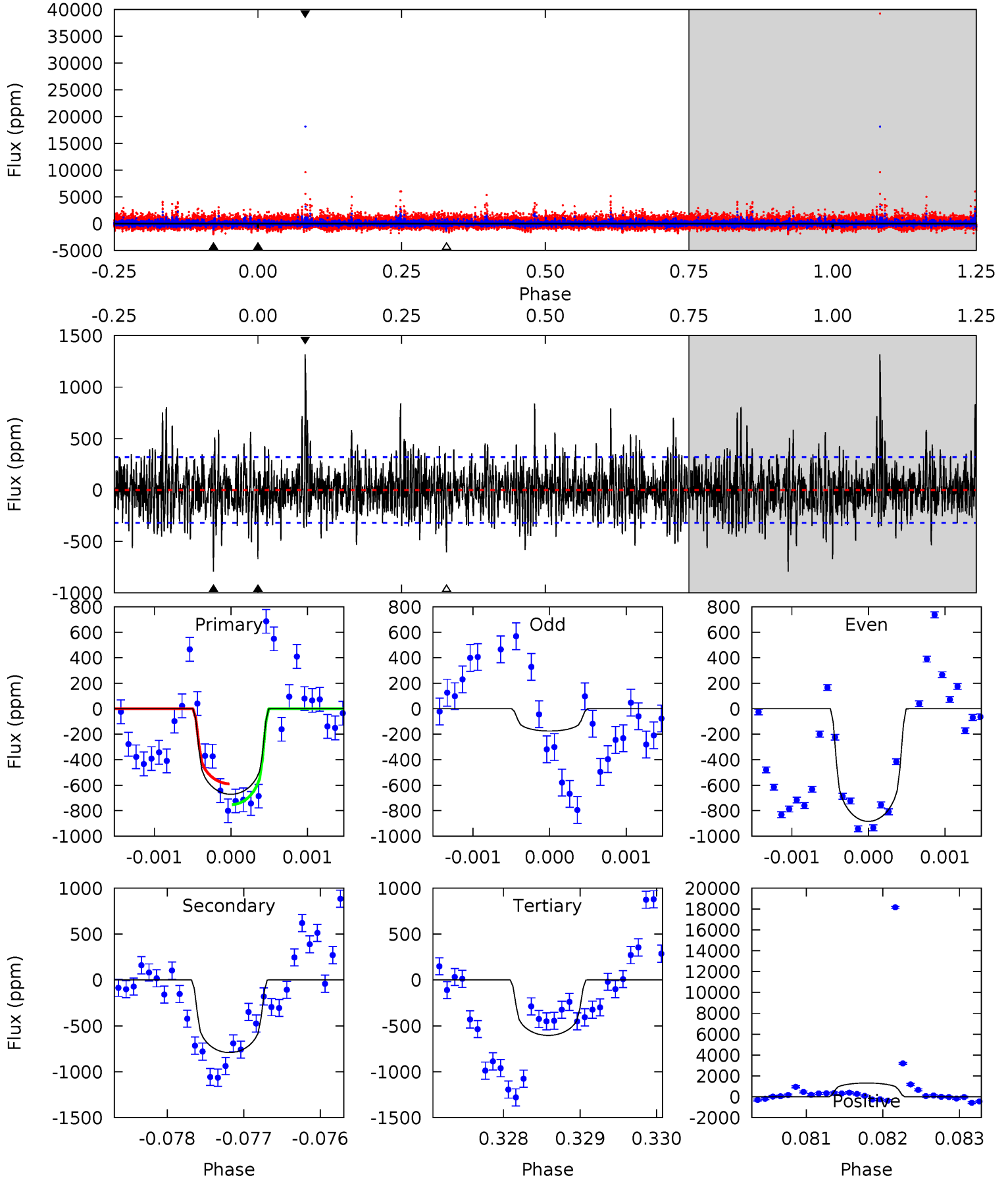
TCE 006116129-02 P=492.877901 Days $T_0=189.770914$ (BKJD)



DV Model-Shift Uniqueness Test

006116129-02, P = 492.895316 Days, E = 189.722077 Days

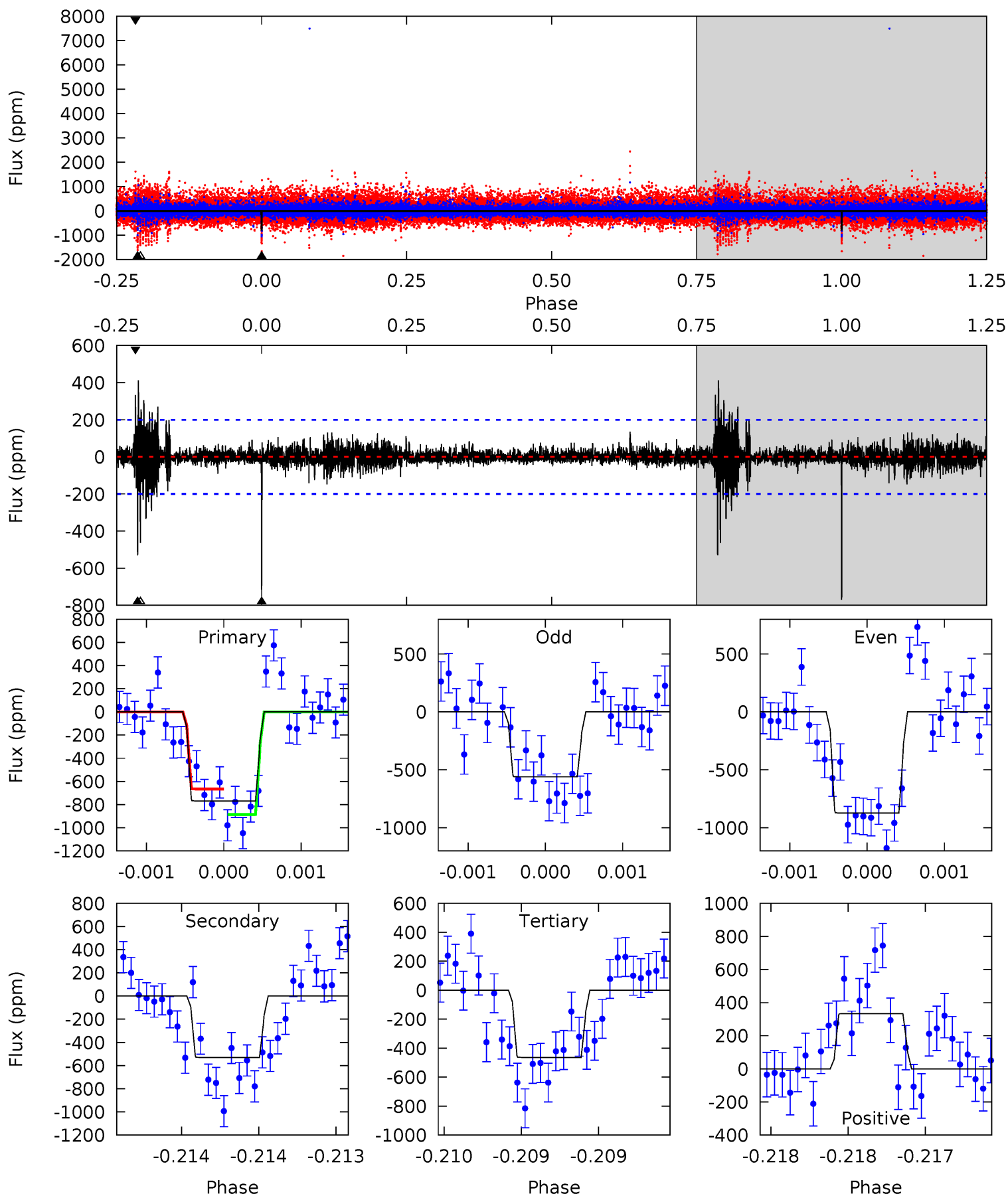
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	13.5	10.3	22.4	5.44	3.28	3.24	1.14	-11.0	3.18	-8.97	4.14	0.82	0.62	1.40



Alt Model-Shift Uniqueness Test

006116129-02, P = 492.877901 Days, E = 189.770914 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.3	14.7	12.8	9.22	5.51	3.39	1.17	8.45	12.0	1.84	5.44	3.68	1.24	0.35	3.06



Stellar Parameters For KIC 006116129

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4008^{+125}_{-153}	$4.658^{+0.060}_{-0.024}$	$0.020^{+0.250}_{-0.300}$	$0.597^{+0.036}_{-0.072}$	$0.593^{+0.054}_{-0.066}$	$3.913^{+1.243}_{-0.437}$
	+3%/-4%	+1%/-1%	+1250%/-1500%	+6%/-12%	+9%/-11%	+32%/-11%
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 006116129-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-791 ± 59	$2.17^{+0.29}_{-0.28}$	187^{+7}_{-8}	3758^{+219}_{-193}	98406^{+30474}_{-22879}
Alt.	-531 ± 36	$1.76^{+0.27}_{-0.29}$	187^{+7}_{-8}	3784^{+272}_{-227}	101565^{+43538}_{-25896}

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 $A_{obs} \gg 1.0$

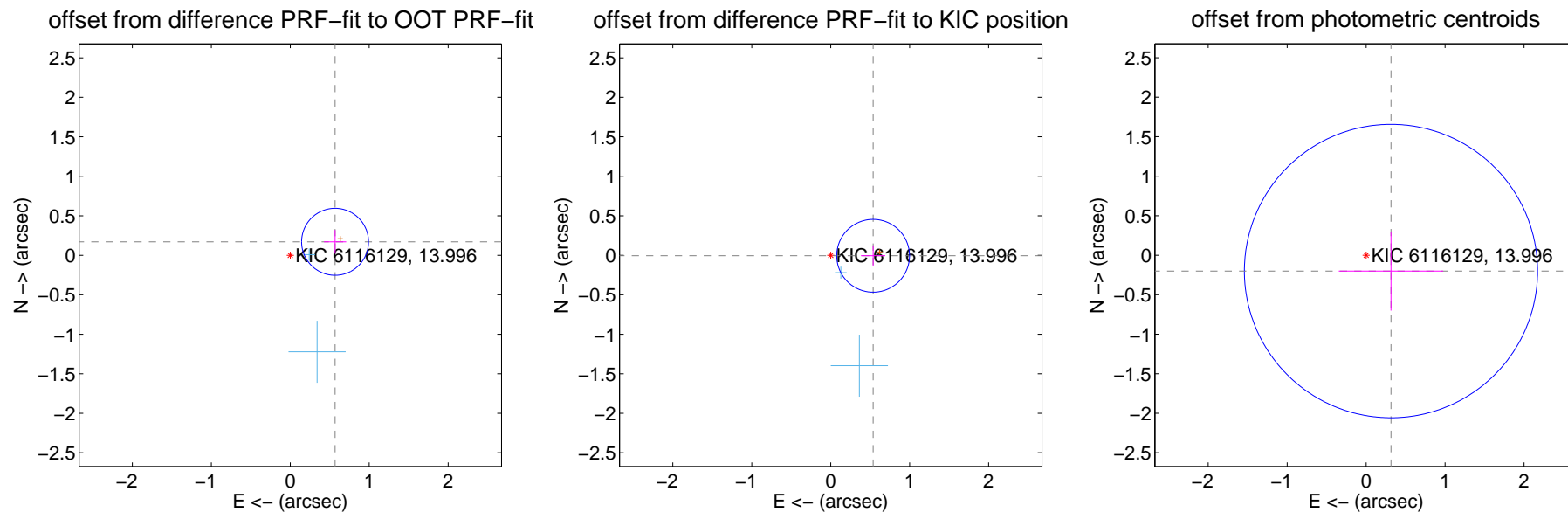
DV Centroid Data

Supplemental centroid analysis for 006116129-02. Kepler magnitude: 14.00. Transit SNR 7.70

There are 2 quarters with good PRF difference image offsets

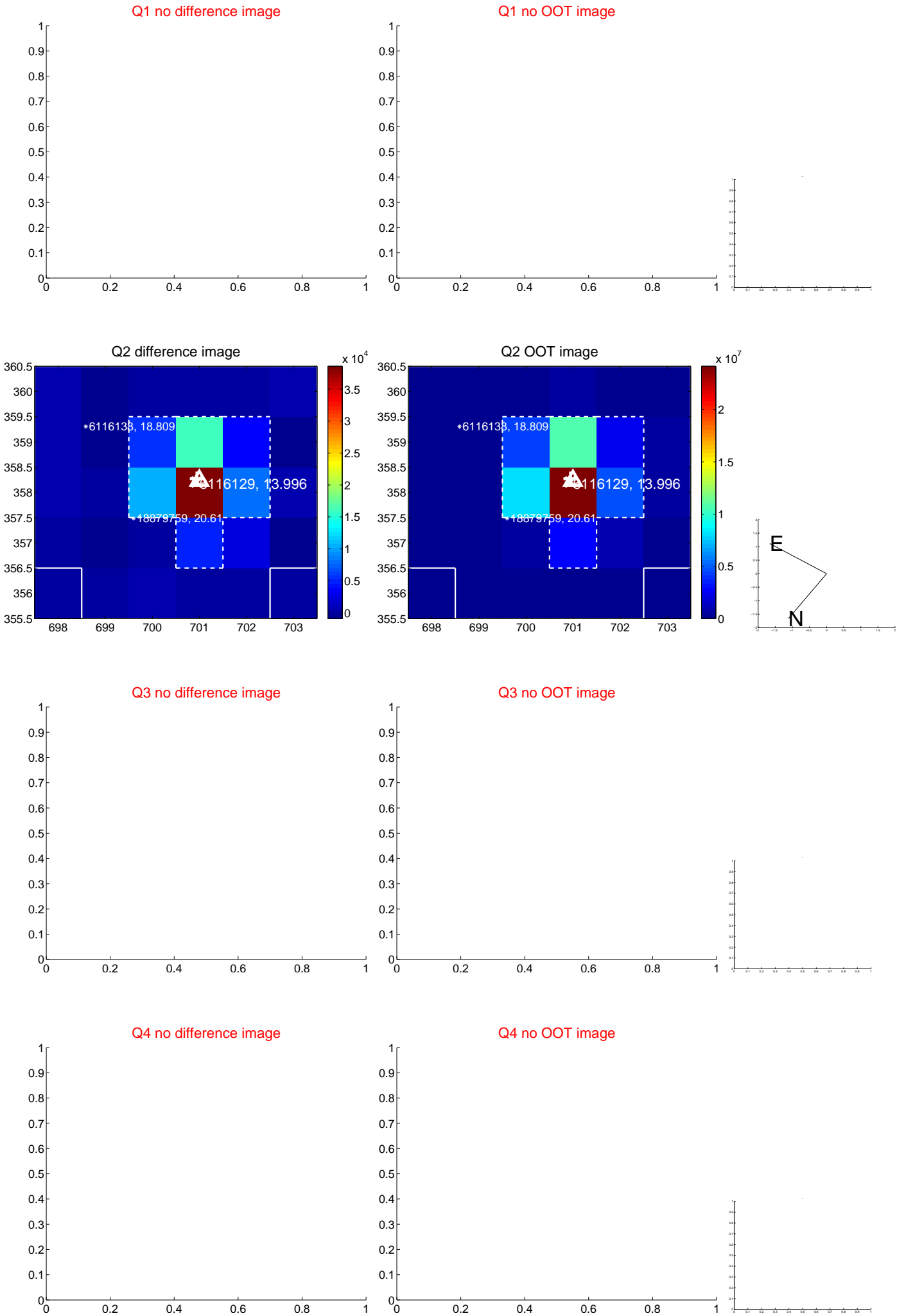
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.593 ± 0.141	4.19	-0.568 ± 0.141	0.171 ± 0.149
PRF-fit source offset from KIC position	0.537 ± 0.154	3.50	-0.537 ± 0.154	-0.006 ± 0.132
photometric centroid source offset	0.37 ± 0.62	0.60	-0.31 ± 0.66	-0.20 ± 0.50



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



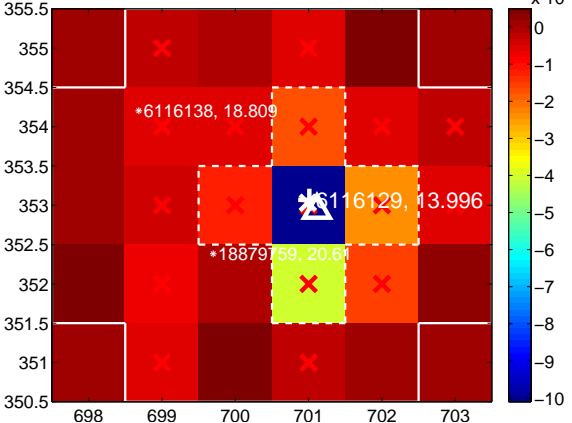
Q6 no difference image



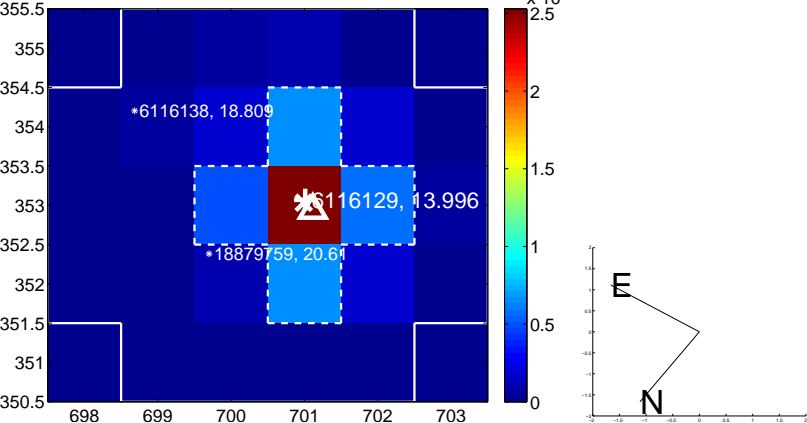
Q6 no OOT image



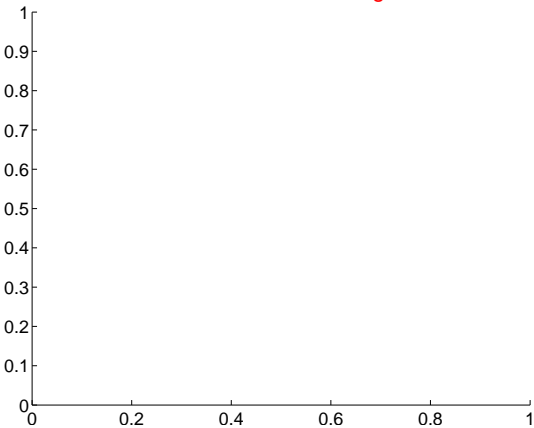
Q7 difference image. Poor Quality



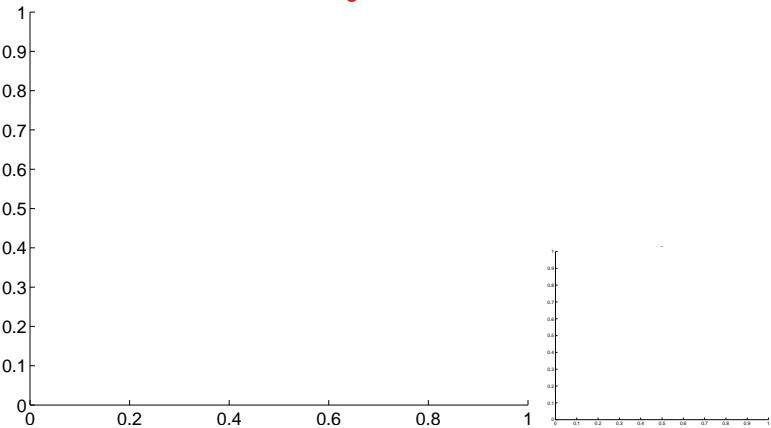
Q7 OOT image



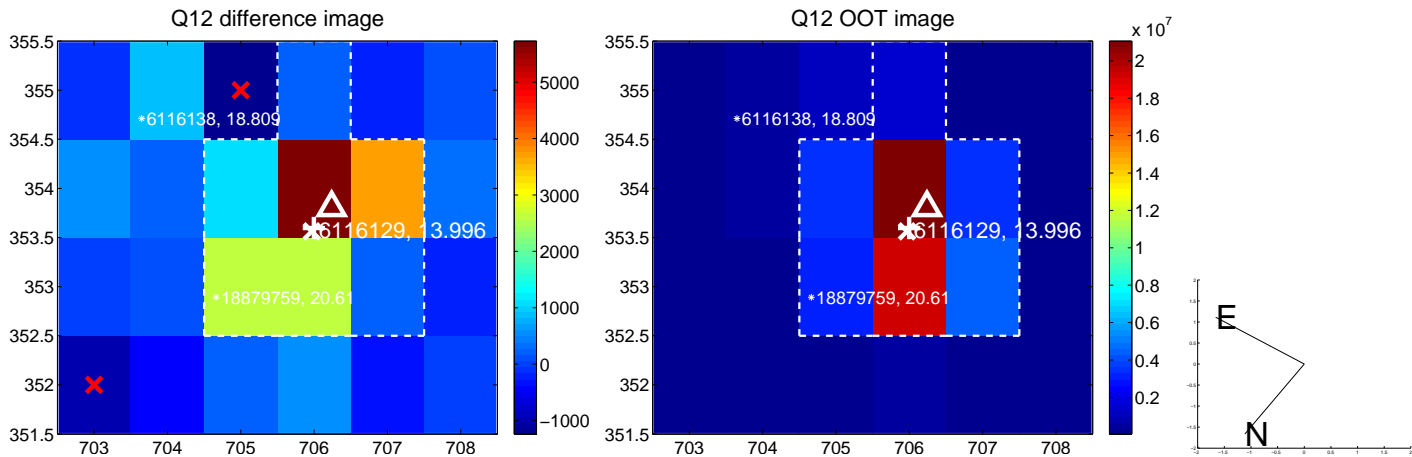
Q8 no difference image



Q8 no OOT image



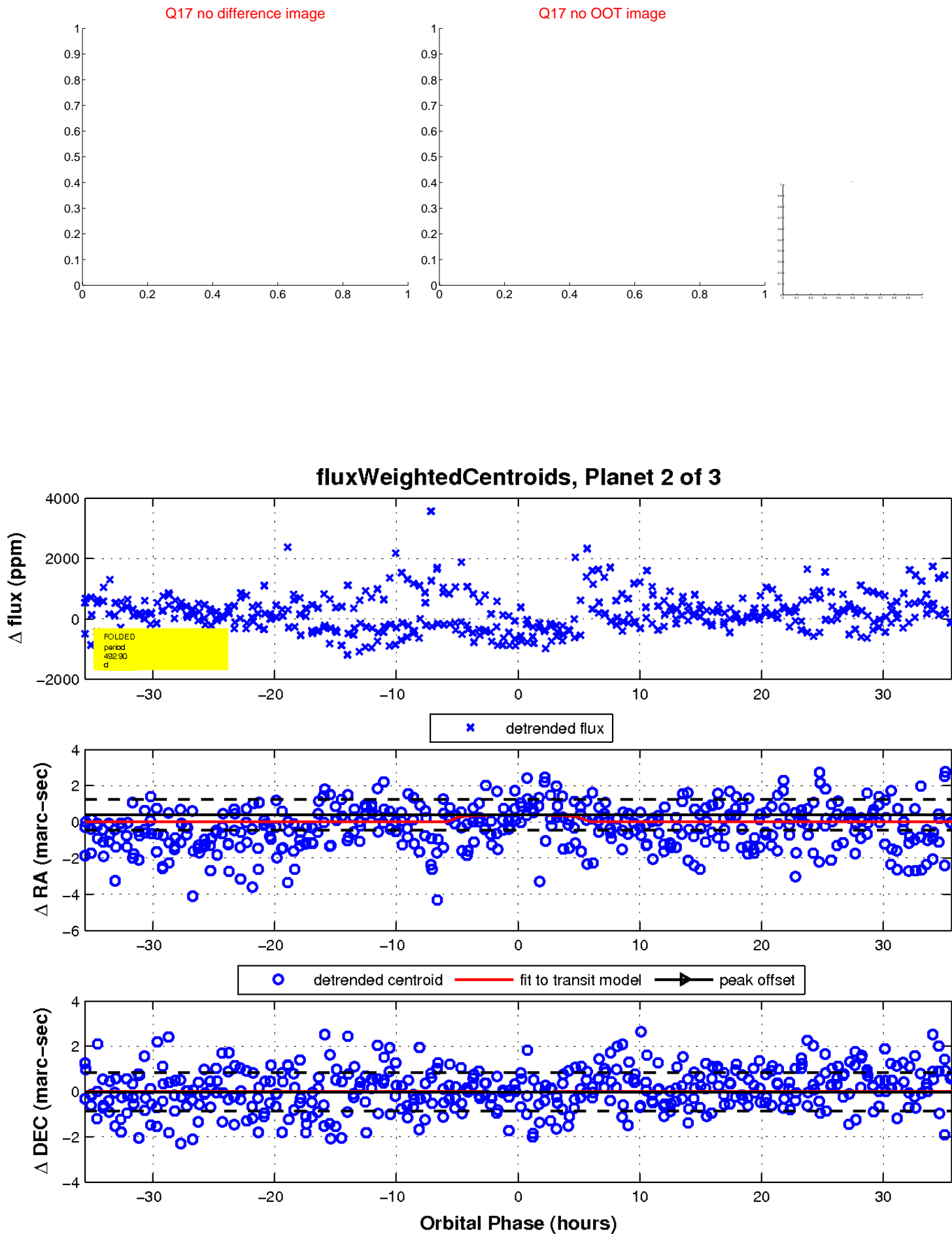
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

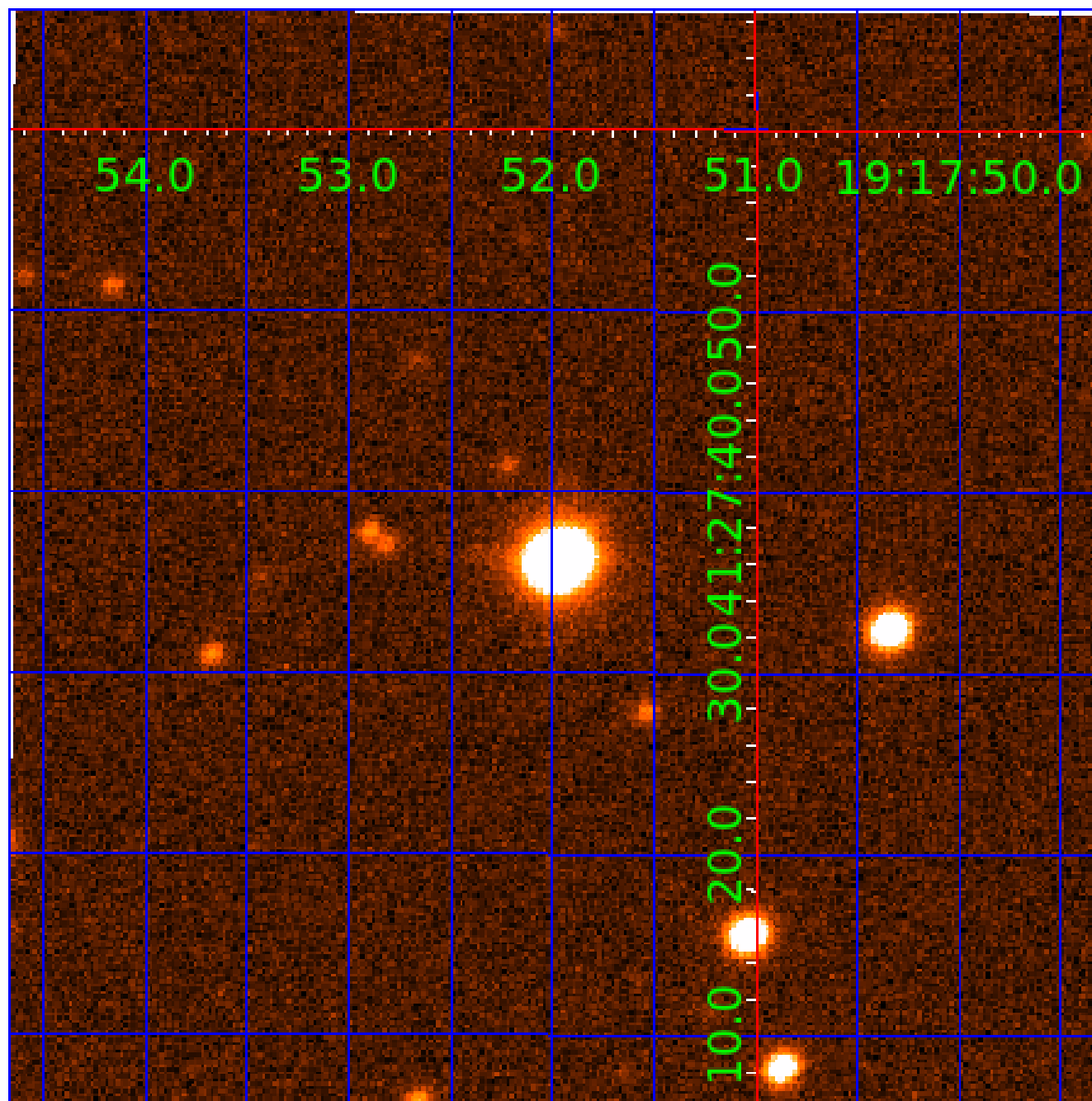


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006116129

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006116129-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
006116129-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—MOD_TER_ALT—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.

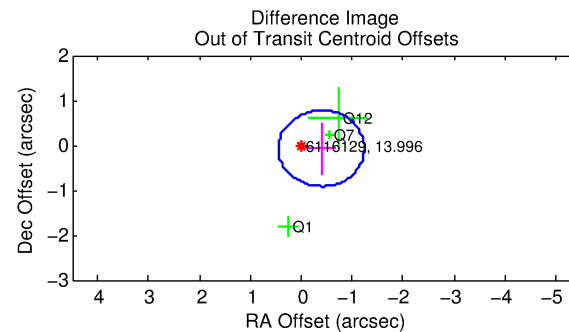
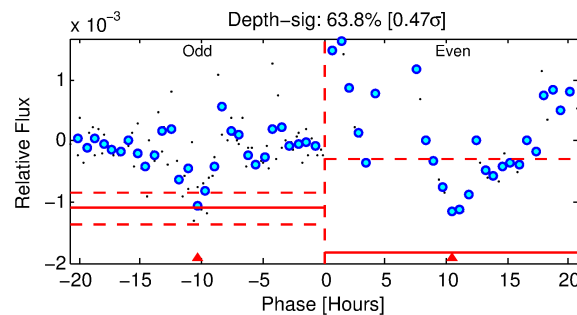
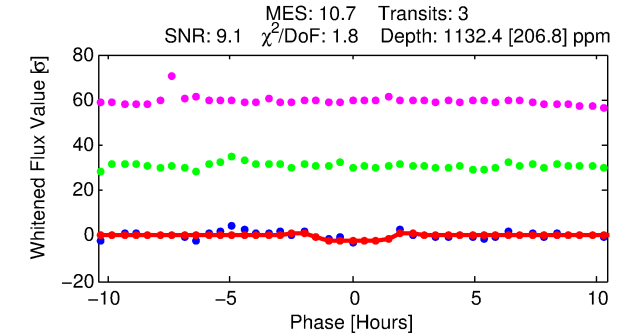
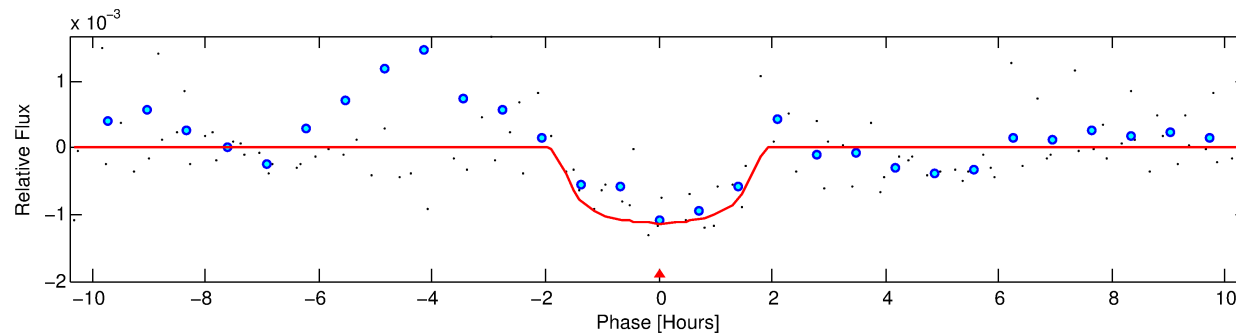
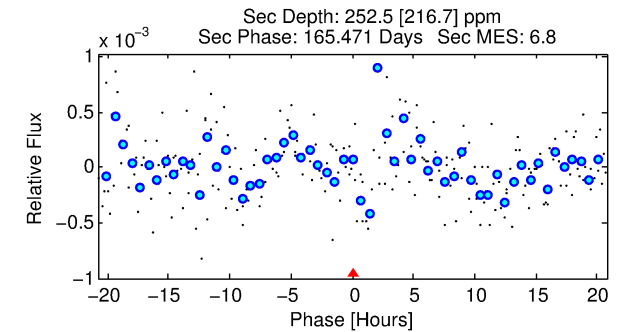
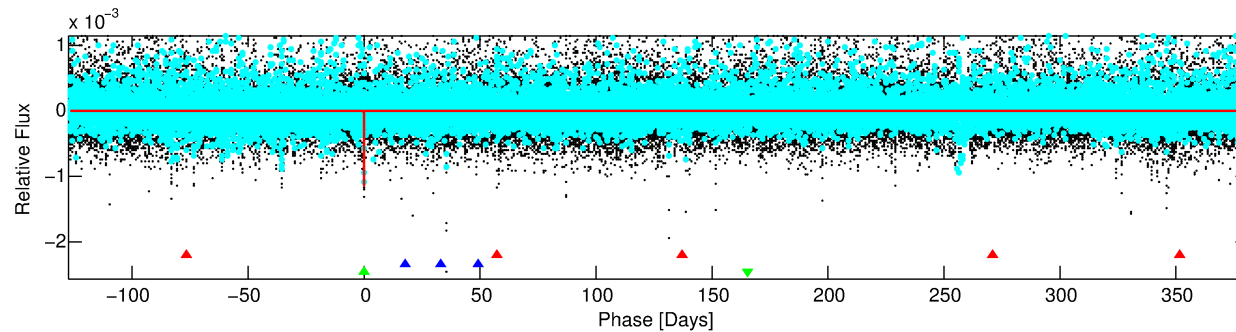
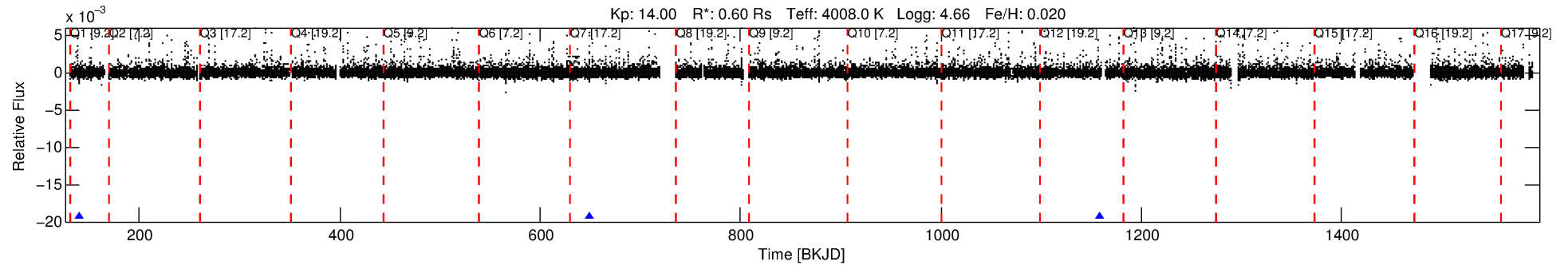
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006116129-03

No Significant Match Found

DV One-Page Summary

KIC: 6116129 Candidate: 3 of 3 Period: 508.586 d



DV Fit Results:

Period = 508.58583 [0.00548] d
Epoch = 140.6333 [0.0077] BKJD
Rp/R* = 0.0312 [0.0453]
a/R* = 1009.35 [5198.71]
b = 0.50 [7.77]
Seff = 0.08 [0.01]
Teq = 134 [7] K
Rp = 2.03 [2.96] Re
a = 1.0469 [0.0970] AU
Ag = 36772.49 [111243.86] [0.33 σ]
Teffp = 2859 [2163] K [1.26 σ]

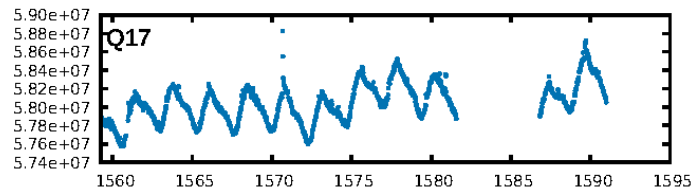
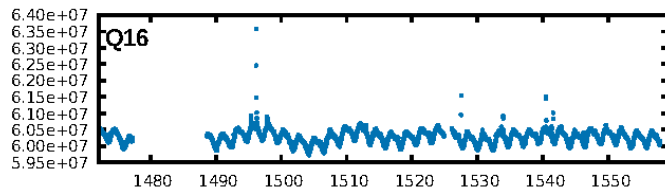
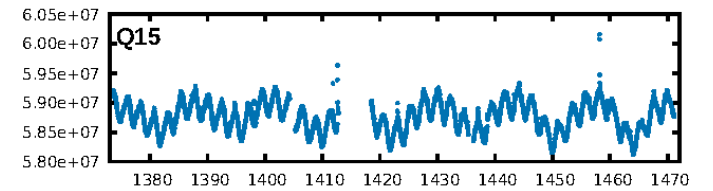
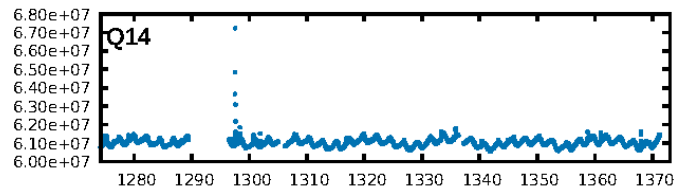
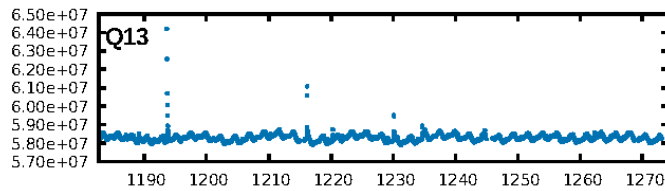
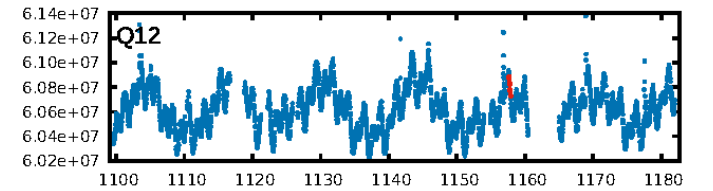
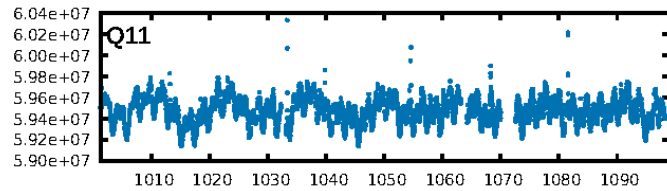
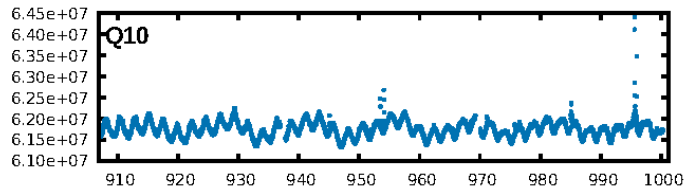
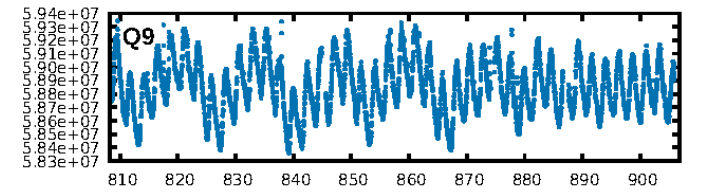
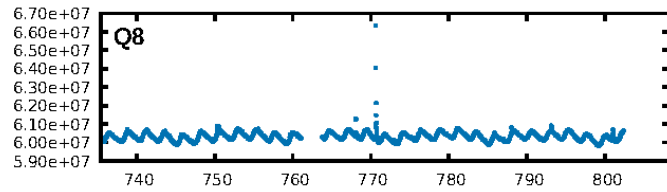
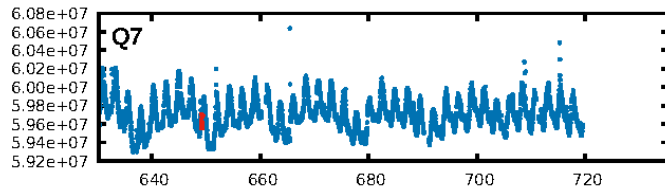
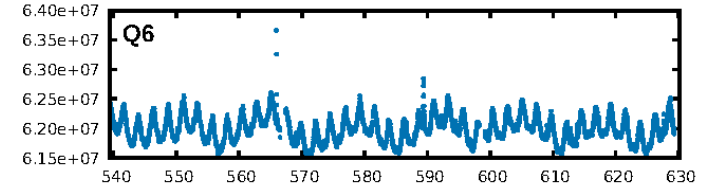
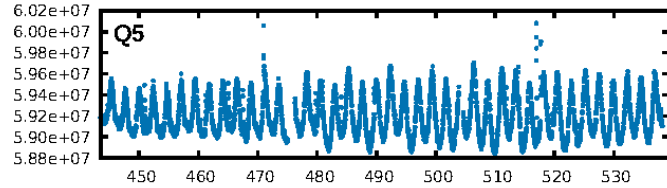
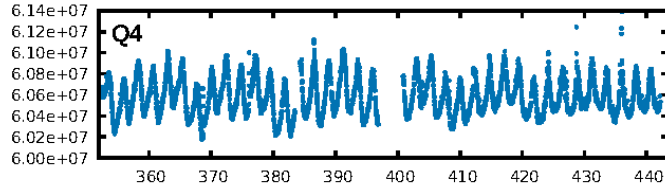
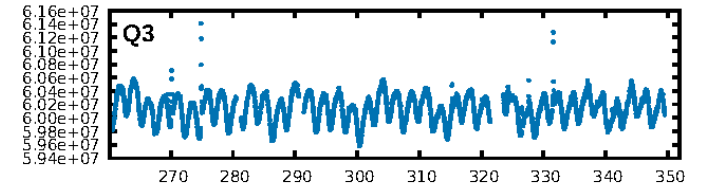
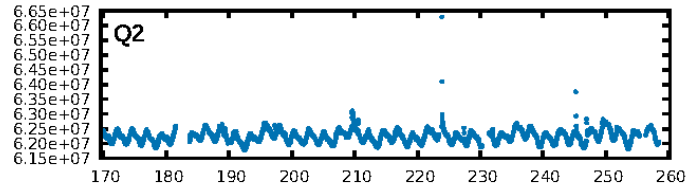
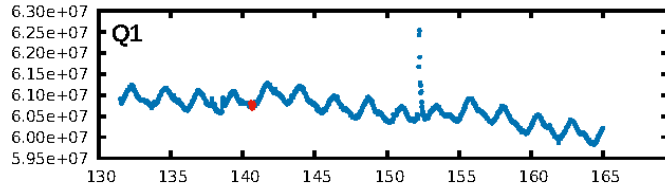
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [30.21 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 7.0%
ModelChiSquareGof-sig: 89.5%
Bootstrap-pfa: 2.70e-09
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 6.76
Centroid-sig: 73.9%
Centroid-so: 0.446 arcsec [0.50 σ]
OotOffset-rm: 0.402 arcsec [1.42 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 0.456 arcsec [1.11 σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

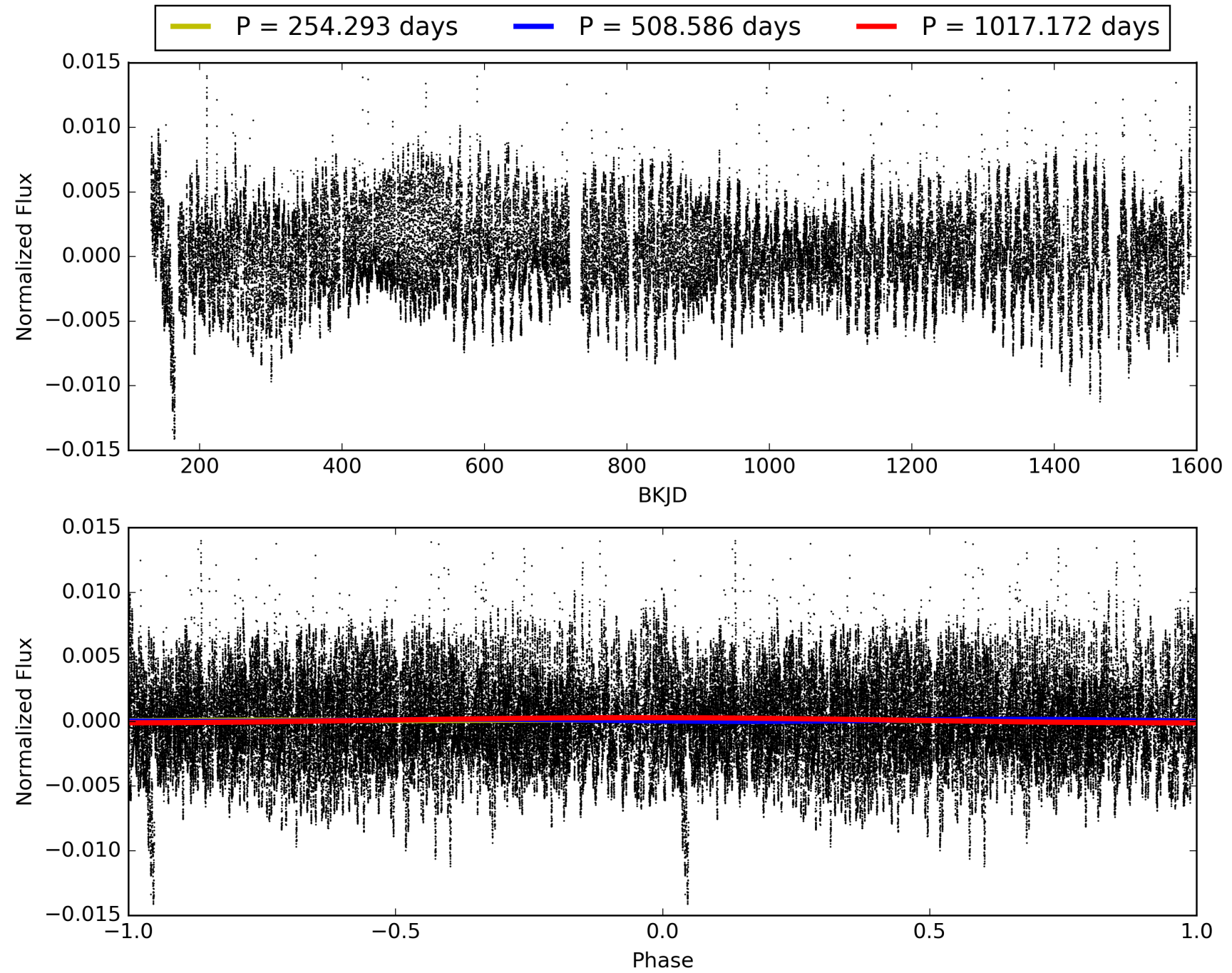
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:40:26 Z

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

TCE 006116129-03, PDC Light Curves

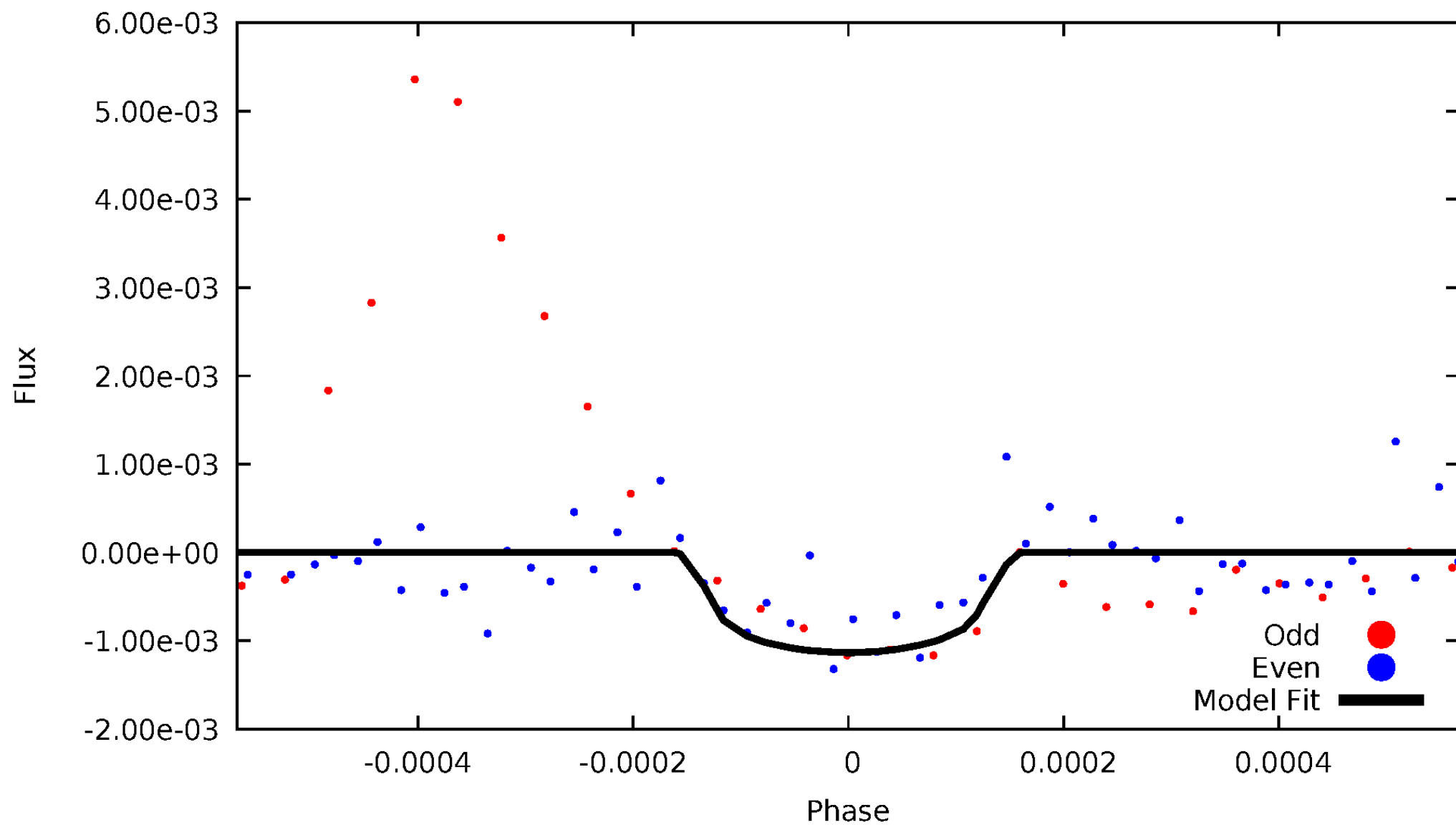


TCE 006116129-03



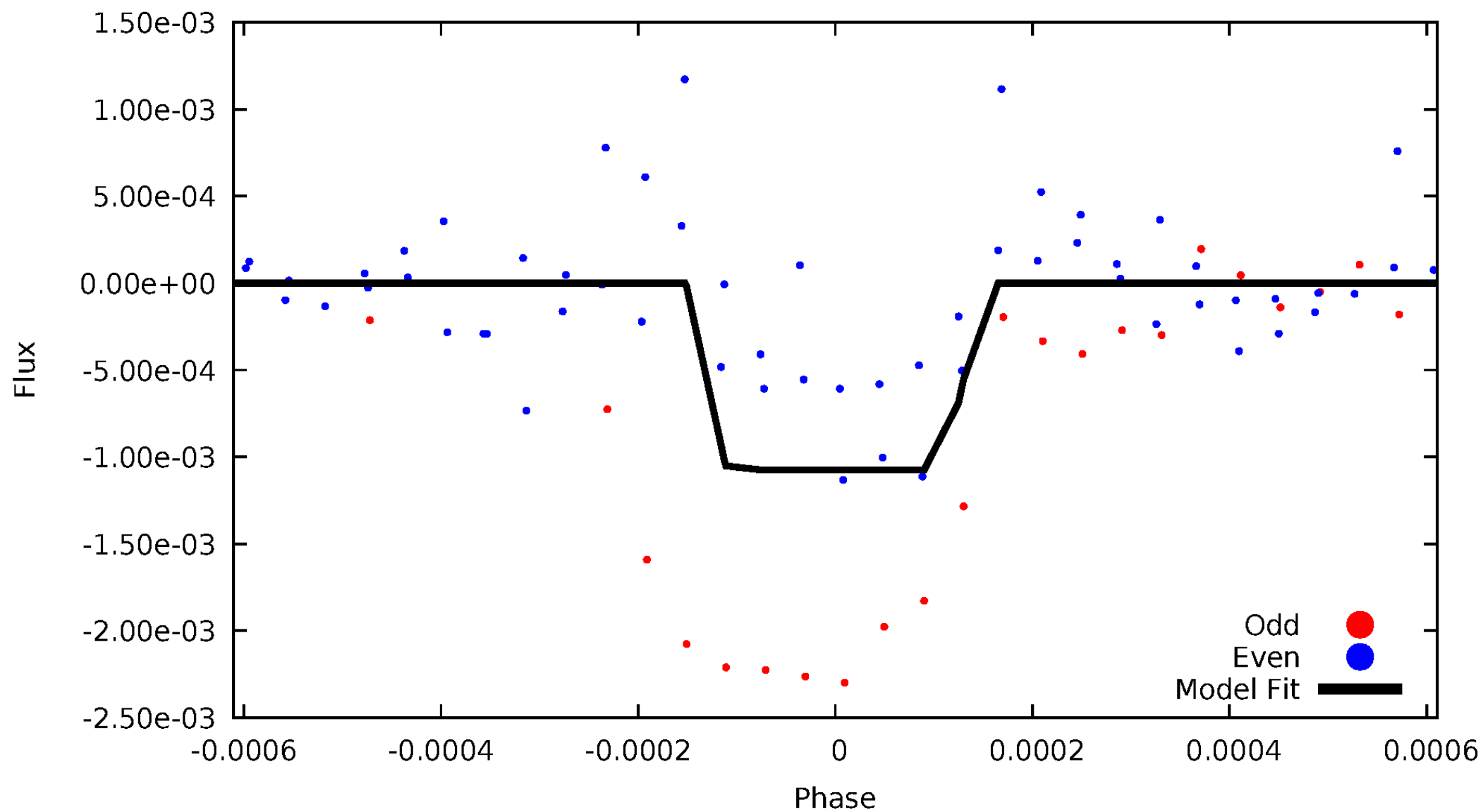
DV Odd/Even

TCE 006116129-03



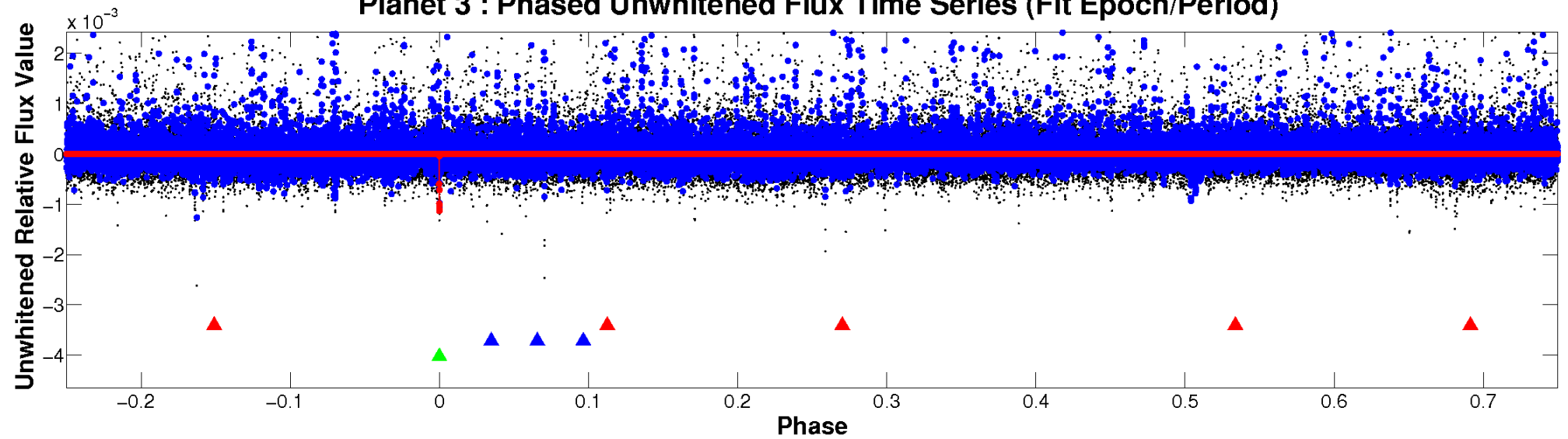
ALT Odd/Even

TCE 006116129-03

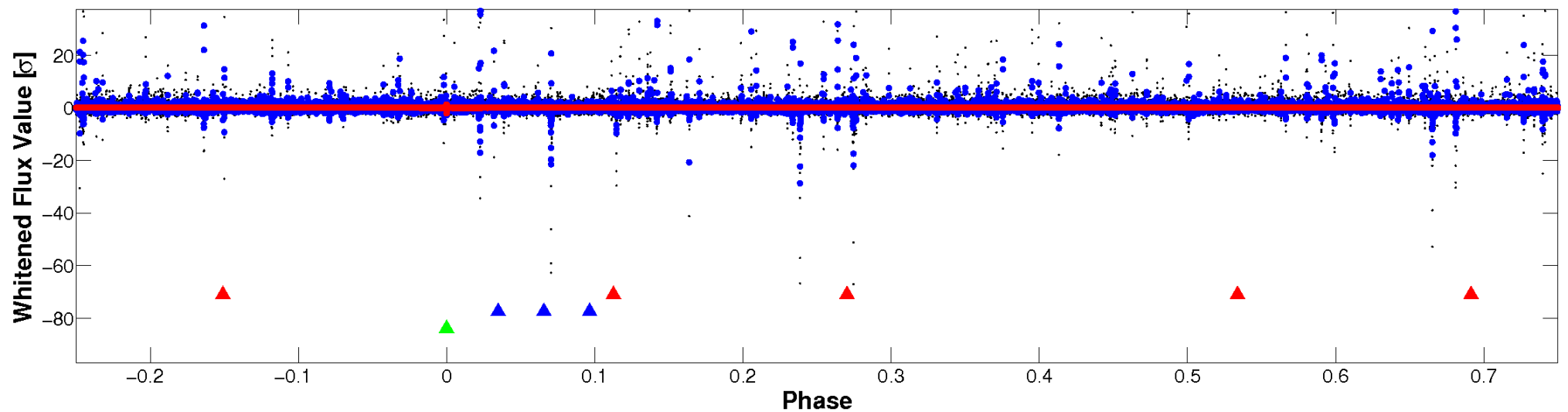


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

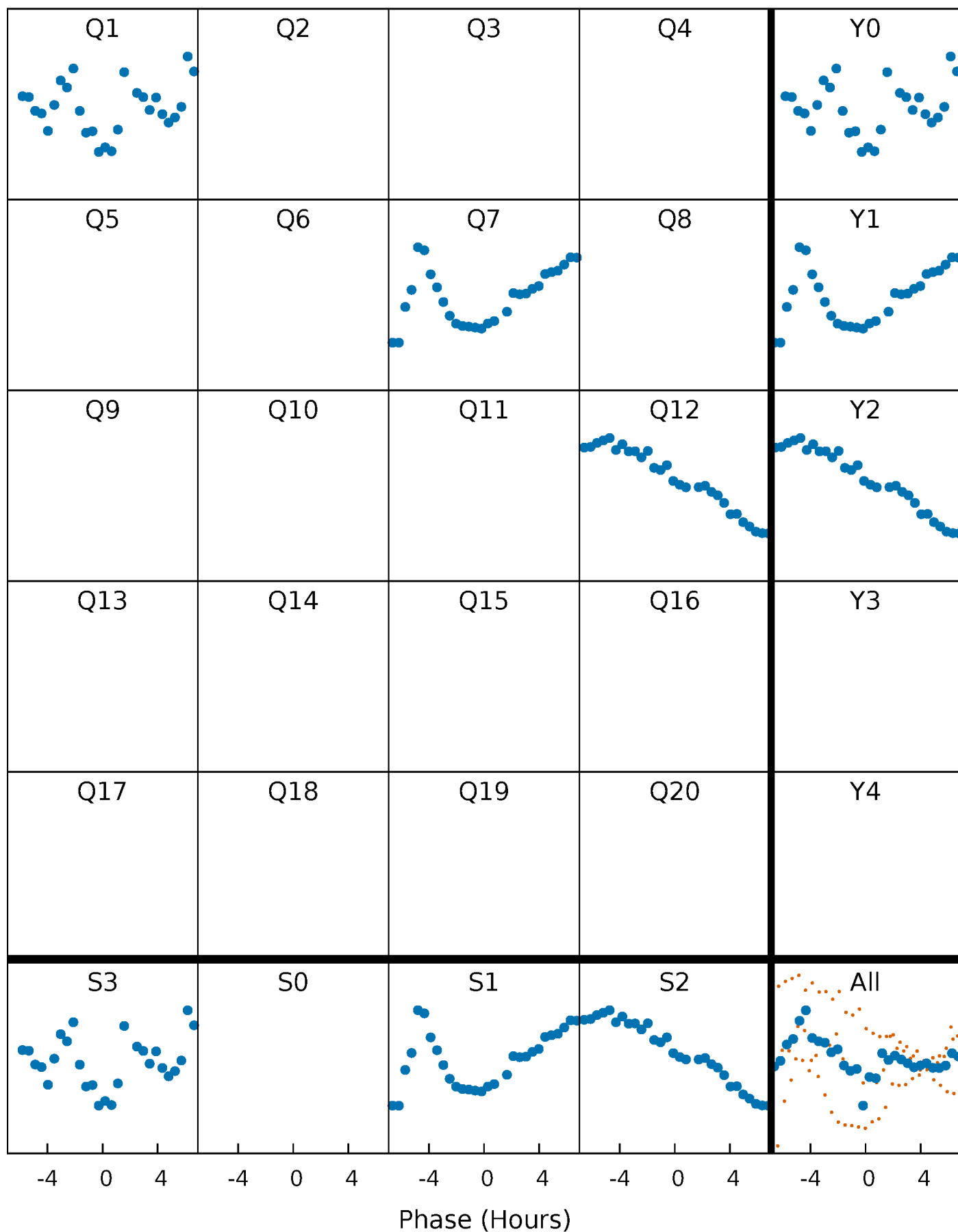


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 006116129-03 P=508.585826 Days $T_0=140.633314$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 006116129-03 $P=508.585826$ Days $T_0=140.633314$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

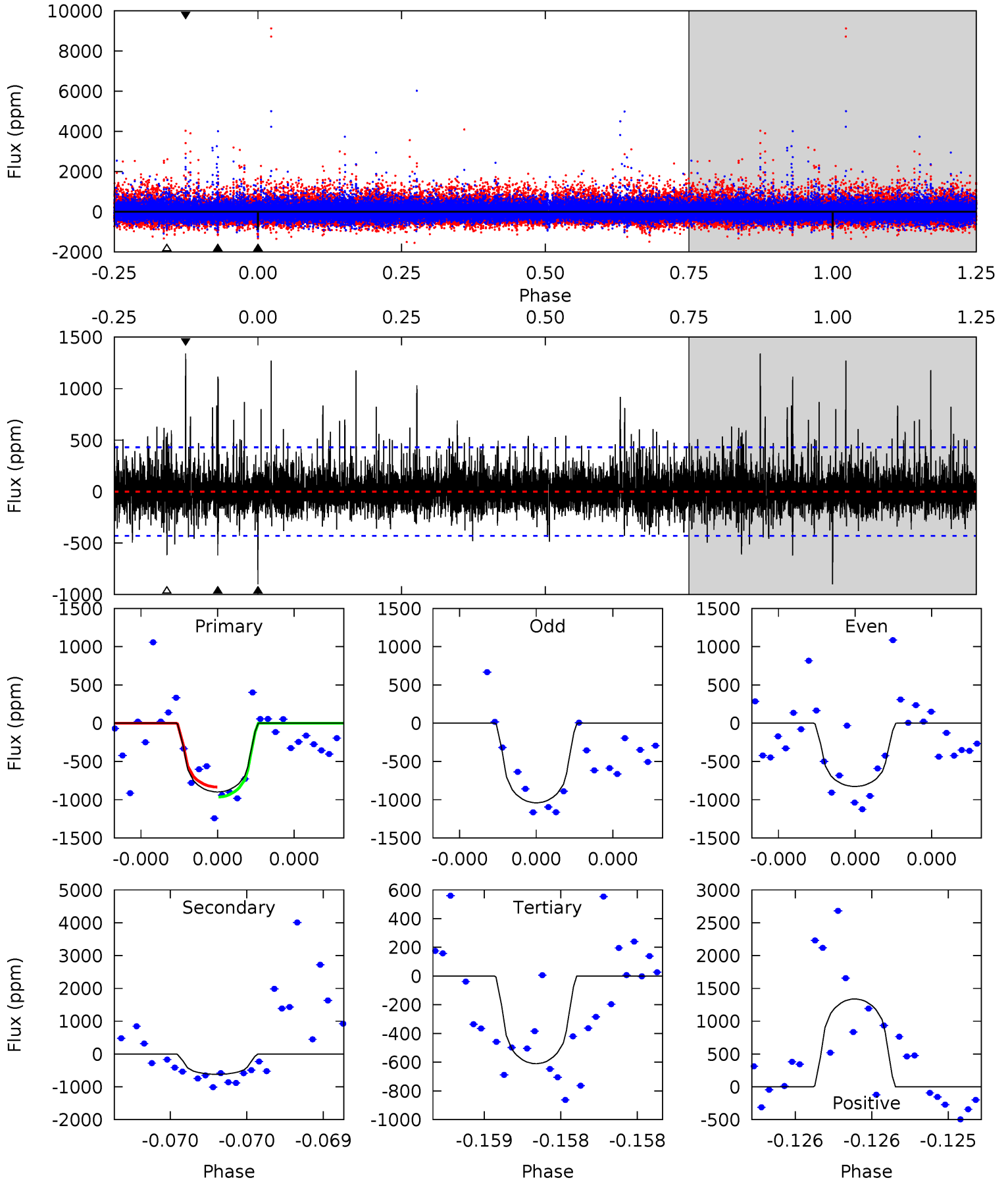
TCE 006116129-03 P=508.591308 Days $T_0=140.622287$ (BKJD)



DV Model-Shift Uniqueness Test

006116129-03, P = 508.585826 Days, E = 140.633314 Days

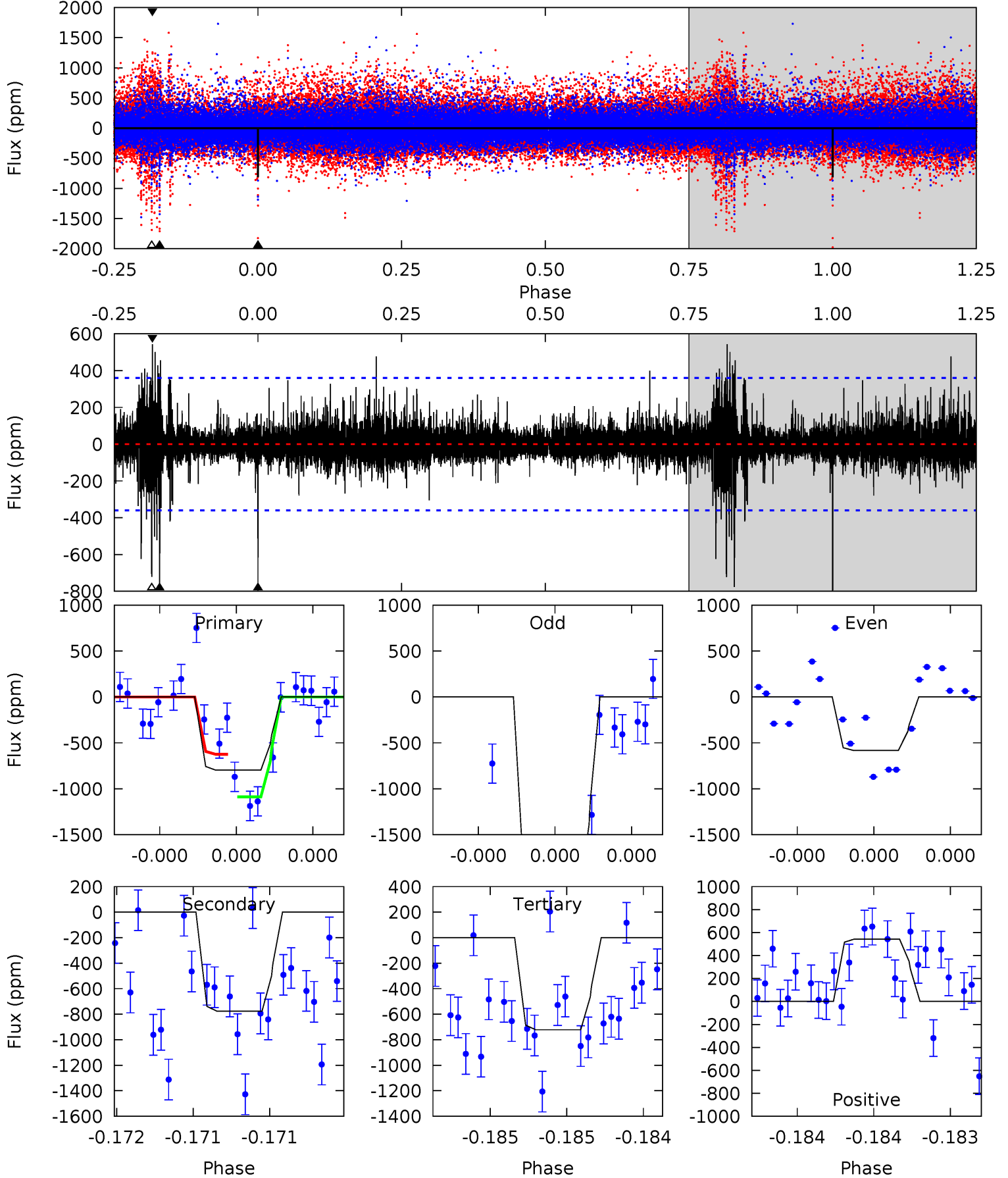
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	8.17	8.04	17.6	5.66	3.62	1.94	3.79	-5.80	0.13	-9.47	0.78	0.86	0.60	0.87



Alt Model-Shift Uniqueness Test

006116129-03, P = 508.591308 Days, E = 140.622287 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	12.2	11.4	8.57	5.67	3.63	1.14	1.19	4.00	0.87	3.68	11.3	1.47	0.41	3.73



Stellar Parameters For KIC 006116129

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4008^{+125}_{-153}	$4.658^{+0.060}_{-0.024}$	$0.020^{+0.250}_{-0.300}$	$0.597^{+0.036}_{-0.072}$	$0.593^{+0.054}_{-0.066}$	$3.913^{+1.243}_{-0.437}$
	+3%/-4%	+1%/-1%	+1250%/-1500%	+6%/-12%	+9%/-11%	+32%/-11%
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 006116129-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-620 ± 76	$2.81^{+2.62}_{-1.95}$	185^{+7}_{-7}	3345^{+1789}_{-597}	$48328^{+493990}_{-35455}$
Alt.	-777 ± 63	$3.12^{+2.60}_{-2.13}$	185^{+7}_{-9}	3330^{+1659}_{-528}	$48783^{+442185}_{-33929}$

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 $A_{obs} \gg 1.0$

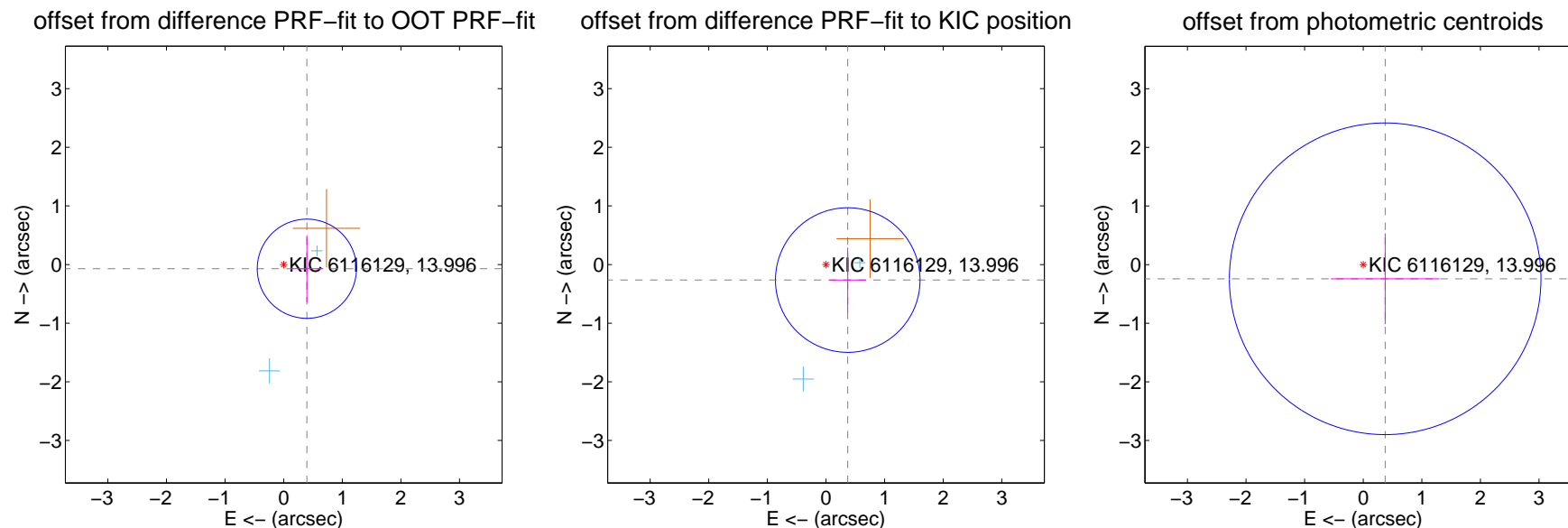
DV Centroid Data

Supplemental centroid analysis for 006116129-03. Kepler magnitude: 14.00. Transit SNR 9.07

There are 2 quarters with good PRF difference image offsets

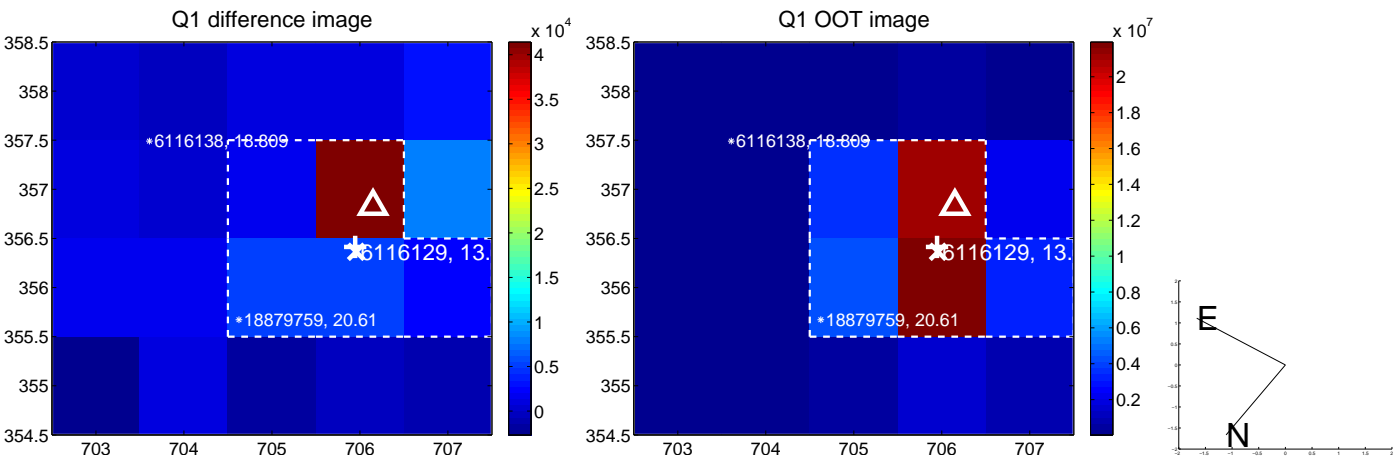
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.402 ± 0.282	1.42	-0.395 ± 0.267	-0.071 ± 0.571
PRF-fit source offset from KIC position	0.456 ± 0.411	1.11	-0.371 ± 0.315	-0.264 ± 0.554
photometric centroid source offset	0.45 ± 0.89	0.50	-0.37 ± 0.93	-0.24 ± 0.77



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



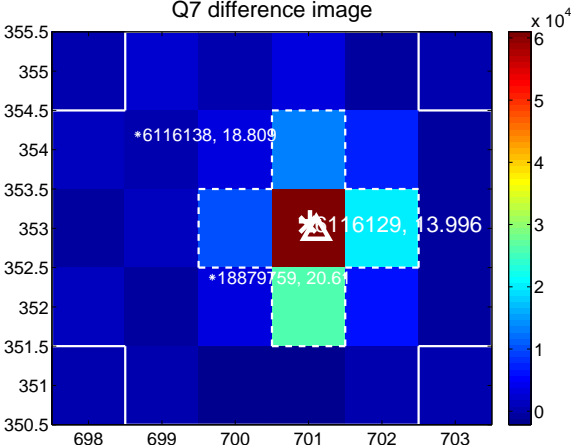
Q6 no difference image



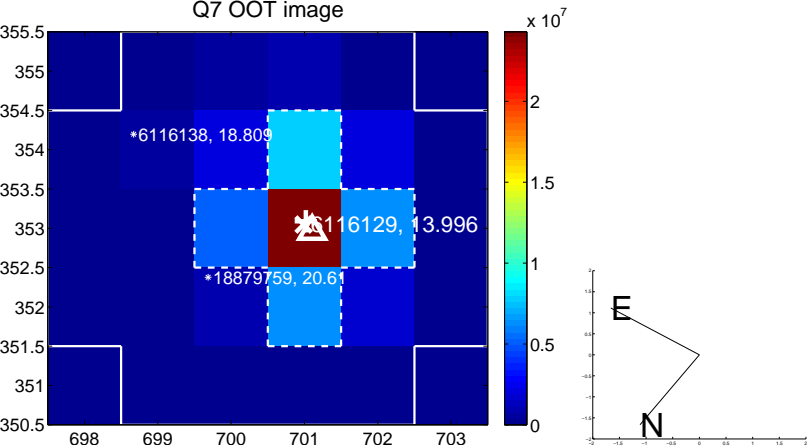
Q6 no OOT image



Q7 difference image



Q7 OOT image



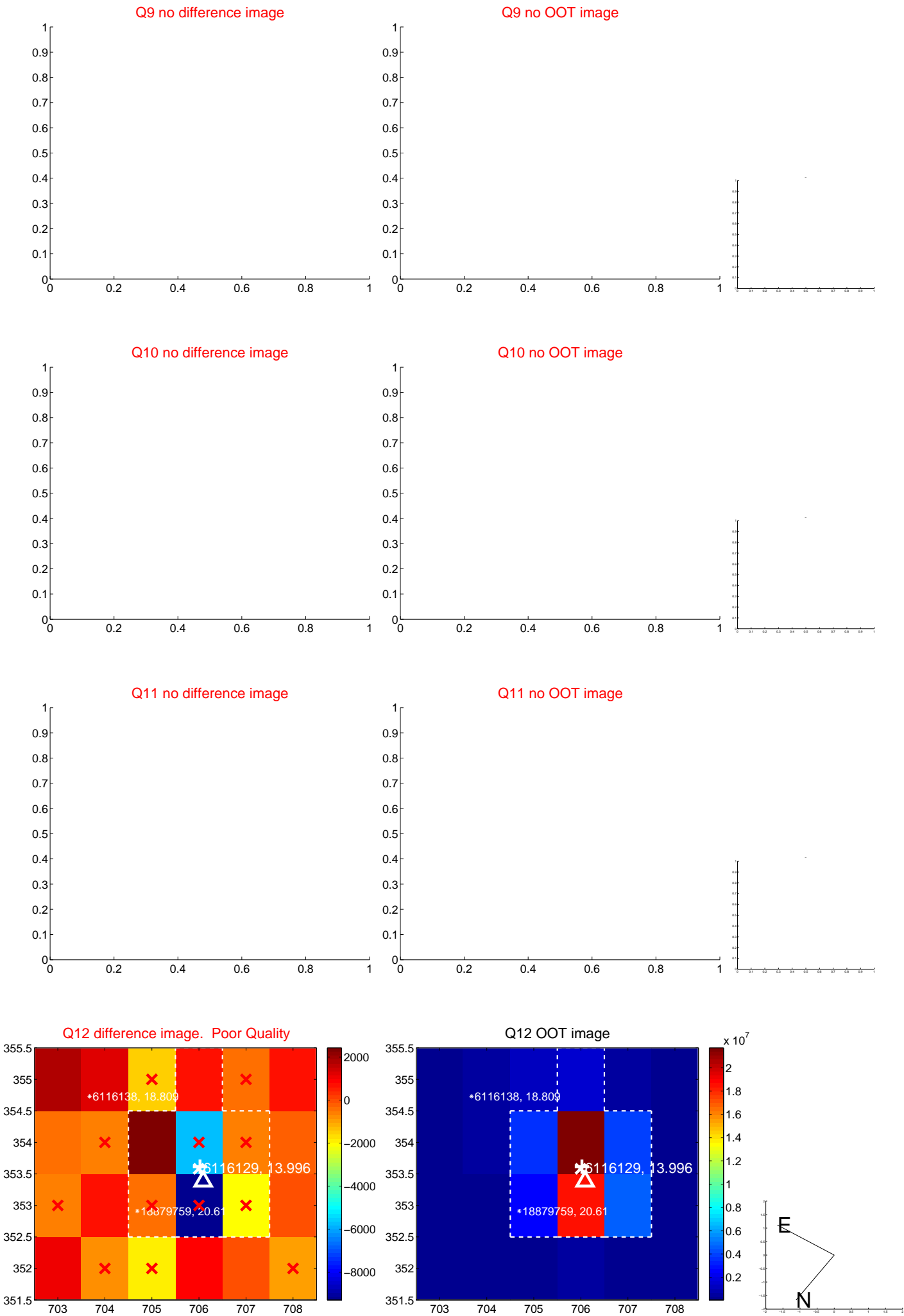
Q8 no difference image



Q8 no OOT image



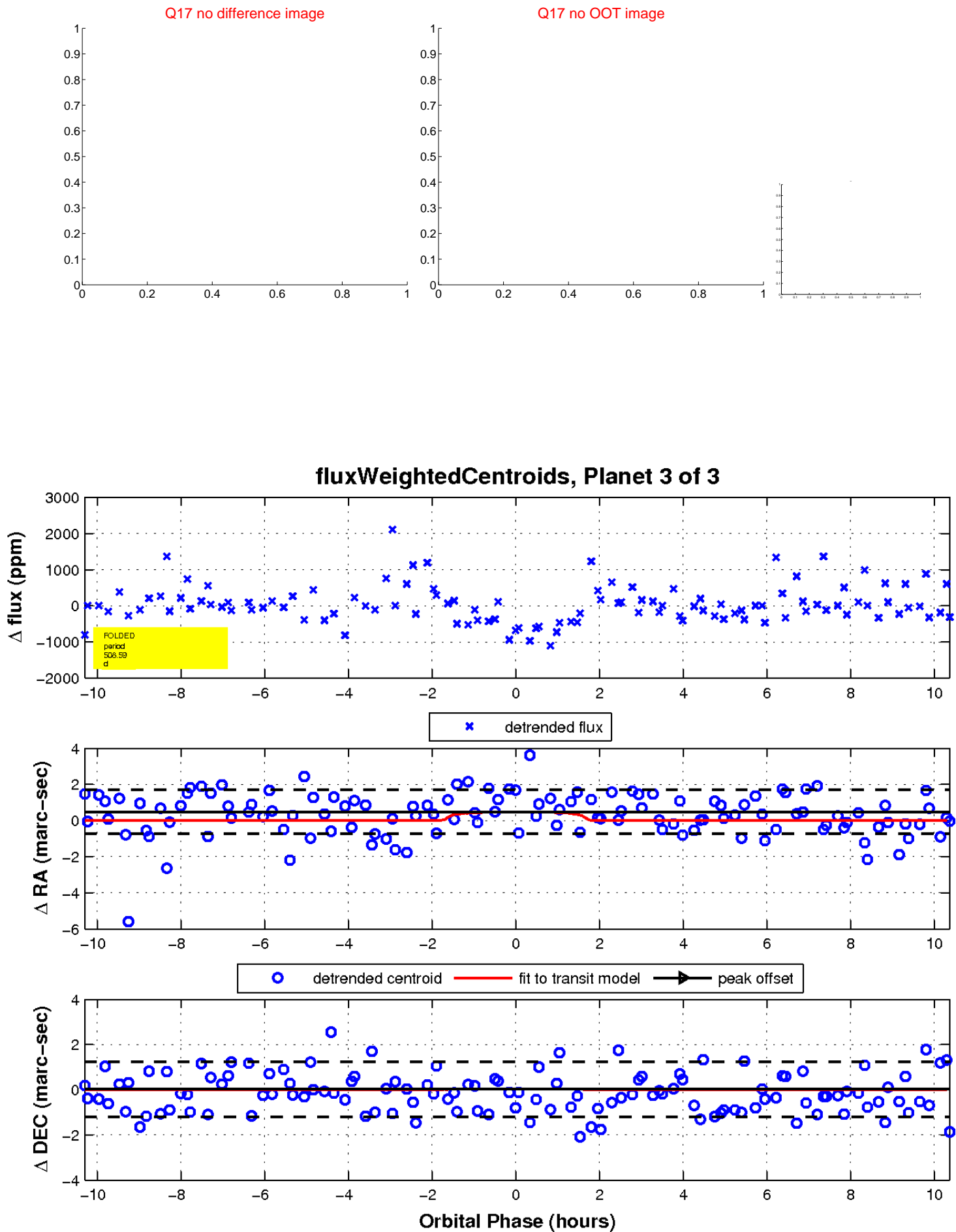
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



UKIRT Image

Declination

