

KIC 006128027

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})
006128027-01	OBS	6020.01	5.455766	136.907283	104137.2	2.908	3156.4	2220.6	0.69	5067	33.09	94.41
006128027-02	OBS	No	5.455767	134.161864	6529.5	2.775	203.8	204.6	0.69	5067	9.67	94.41
006128027-03	OBS	No	392.870197	251.202118	2445.1	4.015	12.5	8.0	0.69	5067	3.49	0.32
006128027-04	OBS	No	512.808333	434.938782	1653.8	4.043	8.8	6.7	0.69	5067	2.79	0.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006128027-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006128027-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
006128027-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006128027-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

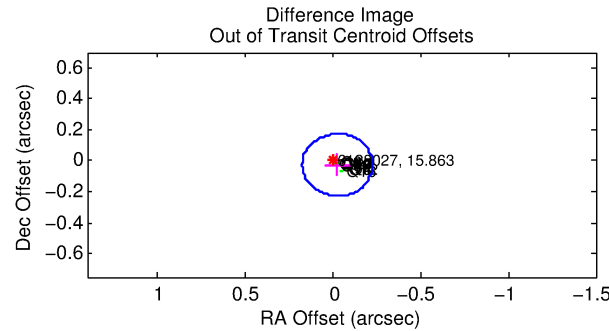
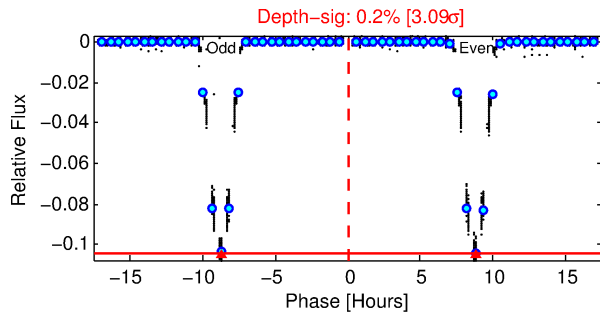
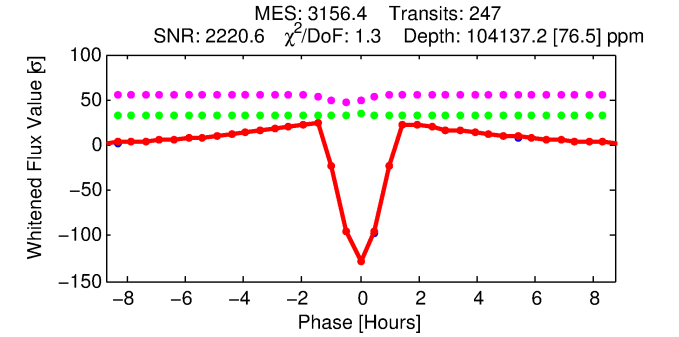
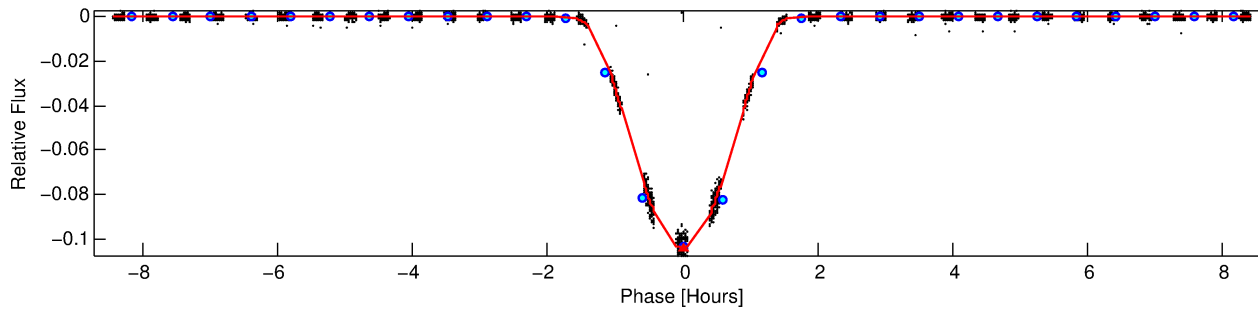
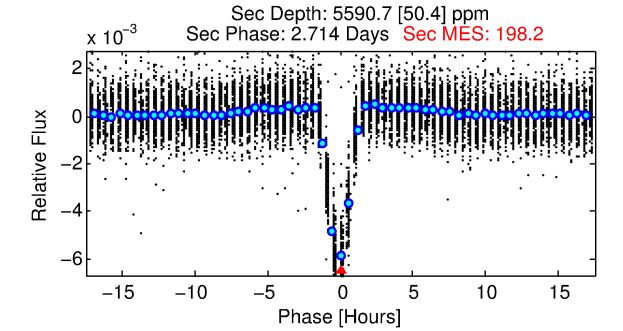
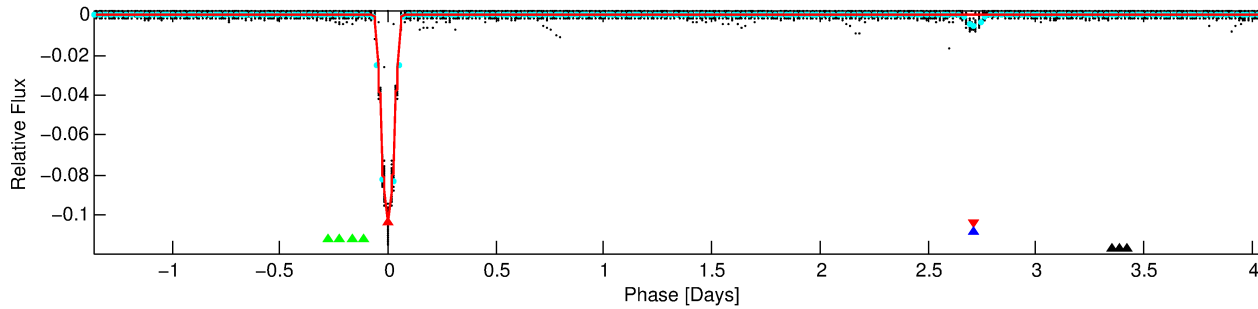
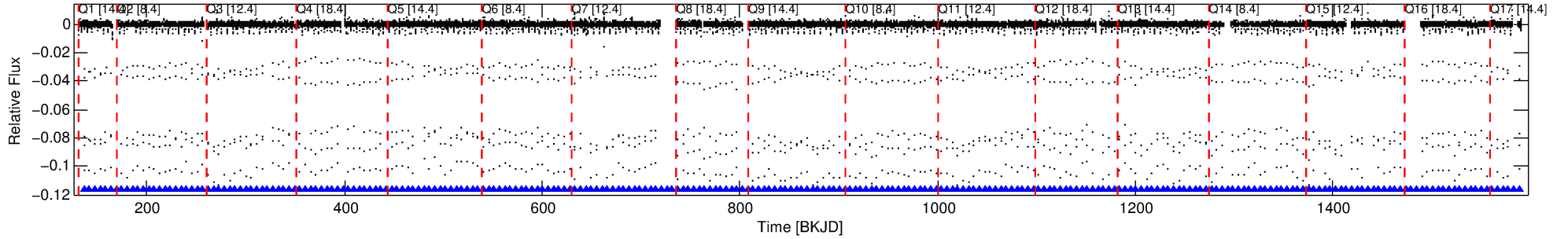
Ephemeris Match Information For 006128027-01

No Significant Match Found

DV One-Page Summary

KIC: 6128027 Candidate: 1 of 4 Period: 5.456 d
KOI: K06020.01 Corr: 0.997

Kp: 15.86 R*: 0.69 Rs Teff: 5067.0 K Logg: 4.62 Fe/H: -0.320



DV Fit Results:

Period = 5.45577 [0.00000] d
Epoch = 136.9073 [0.0000] BKJD
Rp/R* = 0.4369 [0.0268]
a/R* = 16.11 [0.04]
b = 0.90 [0.04]
Seff = 94.41 [16.70]
Teq = 795 [35] K
Rp = 33.09 [4.57] Re
a = 0.0549 [0.0053] AU
Ag = 8.47 [1.52] [4.91σ]
Teffp = 2096 [90] K [13.50σ]

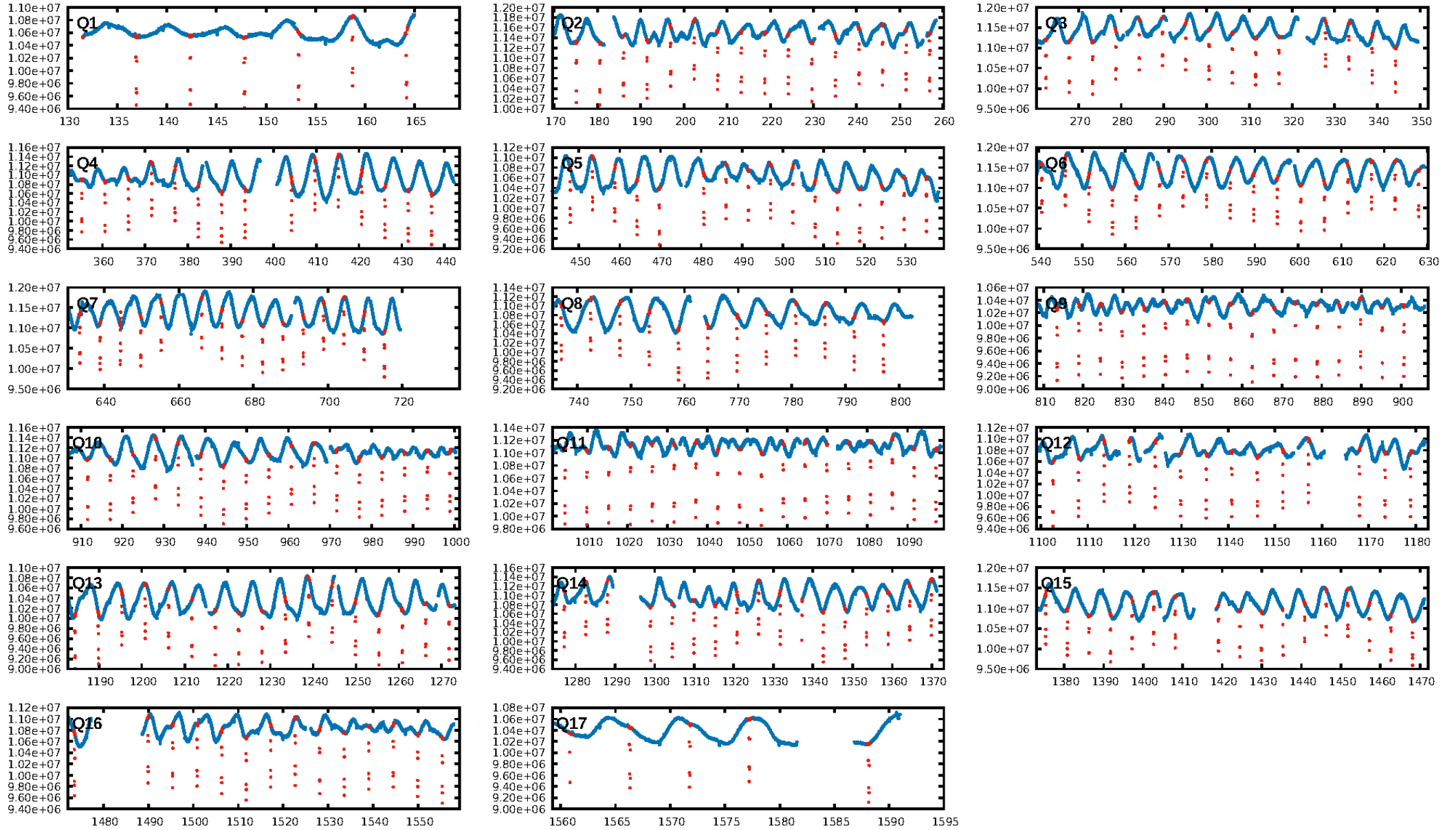
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [235/235]
GhostDiagnostic-chr: 2.896
Centroid-sig: 0.0%
Centroid-so: 0.194 arcsec [51.28σ]
OotOffset-rm: 0.038 arcsec [0.57σ]
KicOffset-rm: 0.048 arcsec [0.70σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
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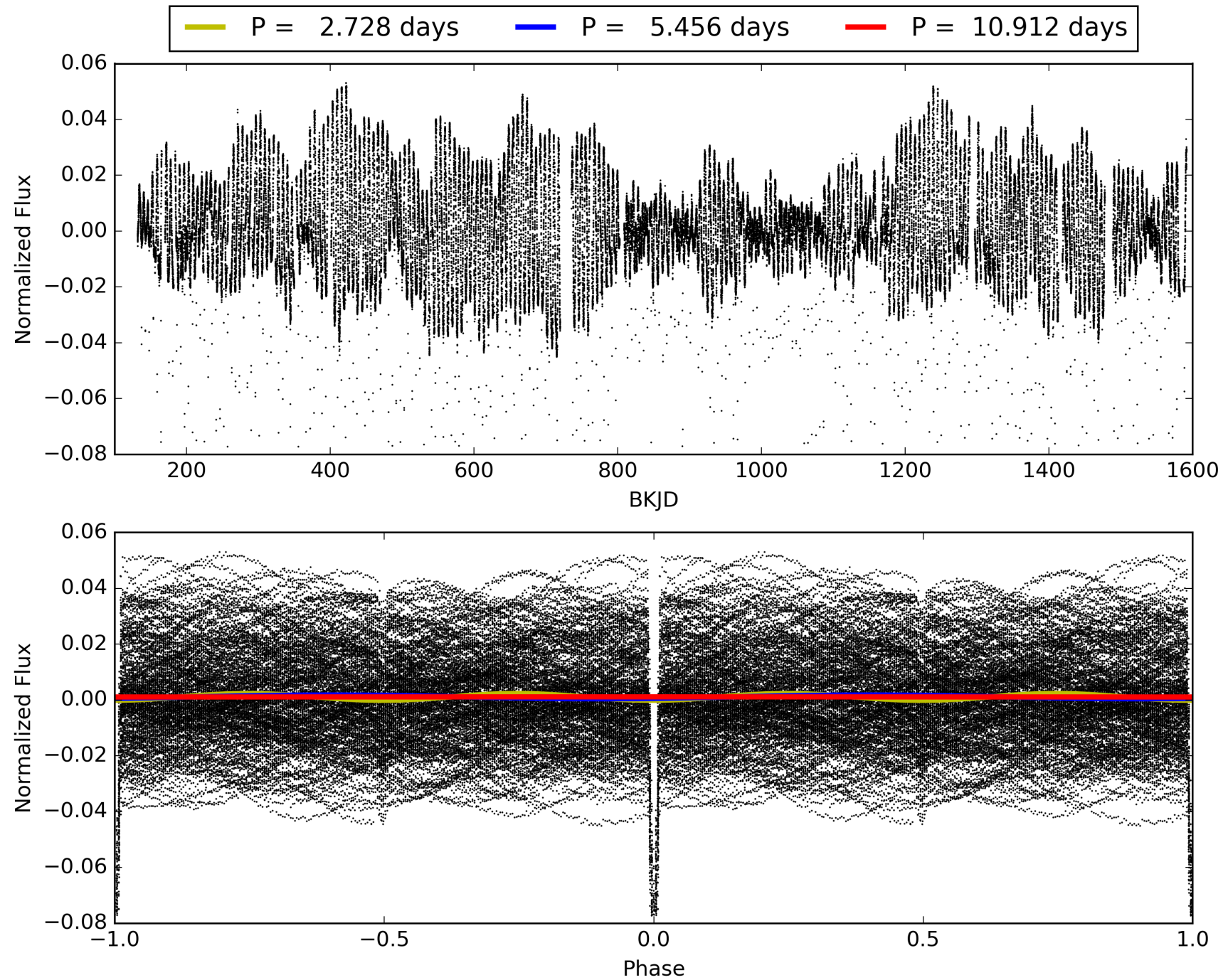
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006128027-01, PDC Light Curves

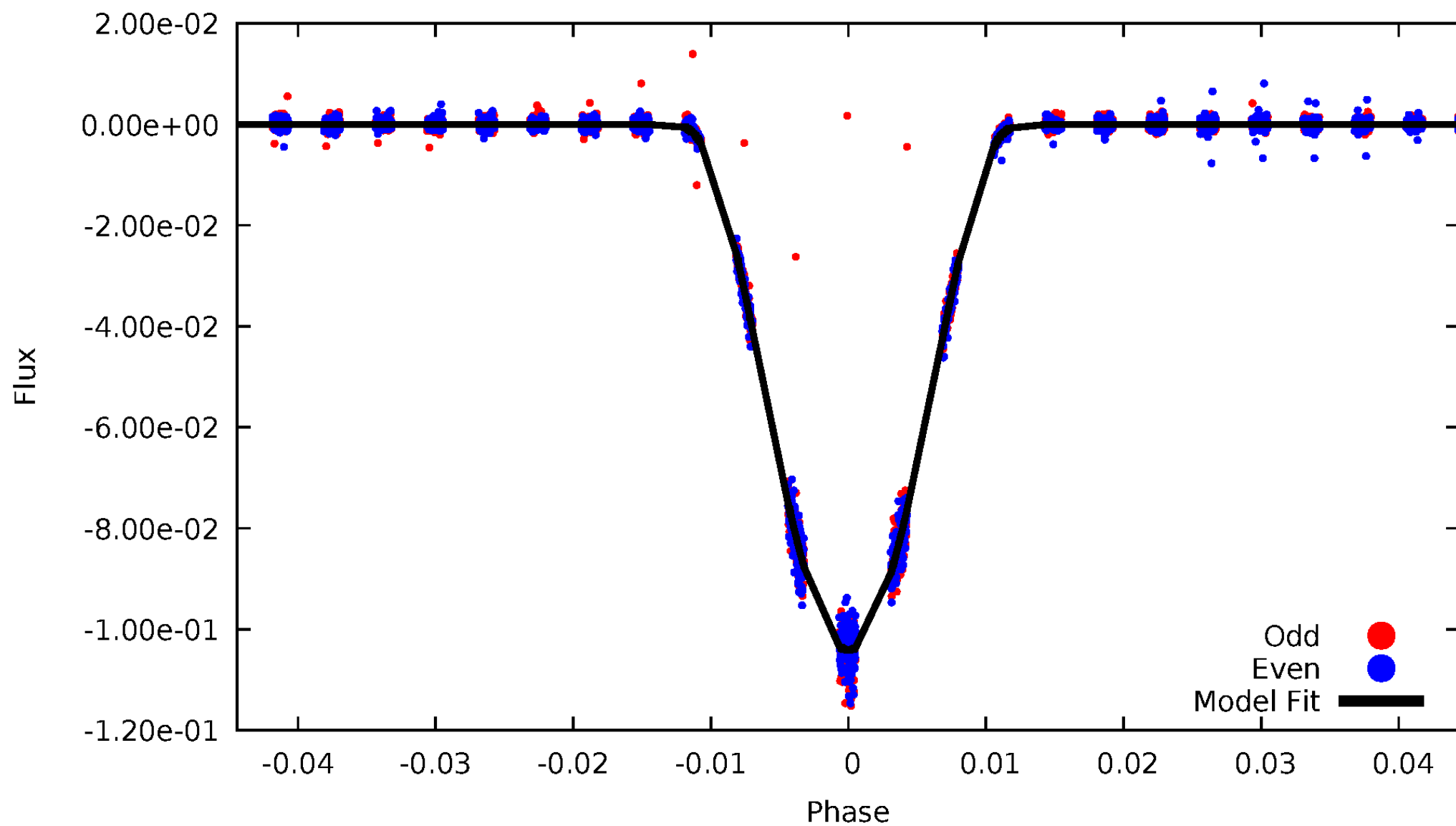


TCE 006128027-01



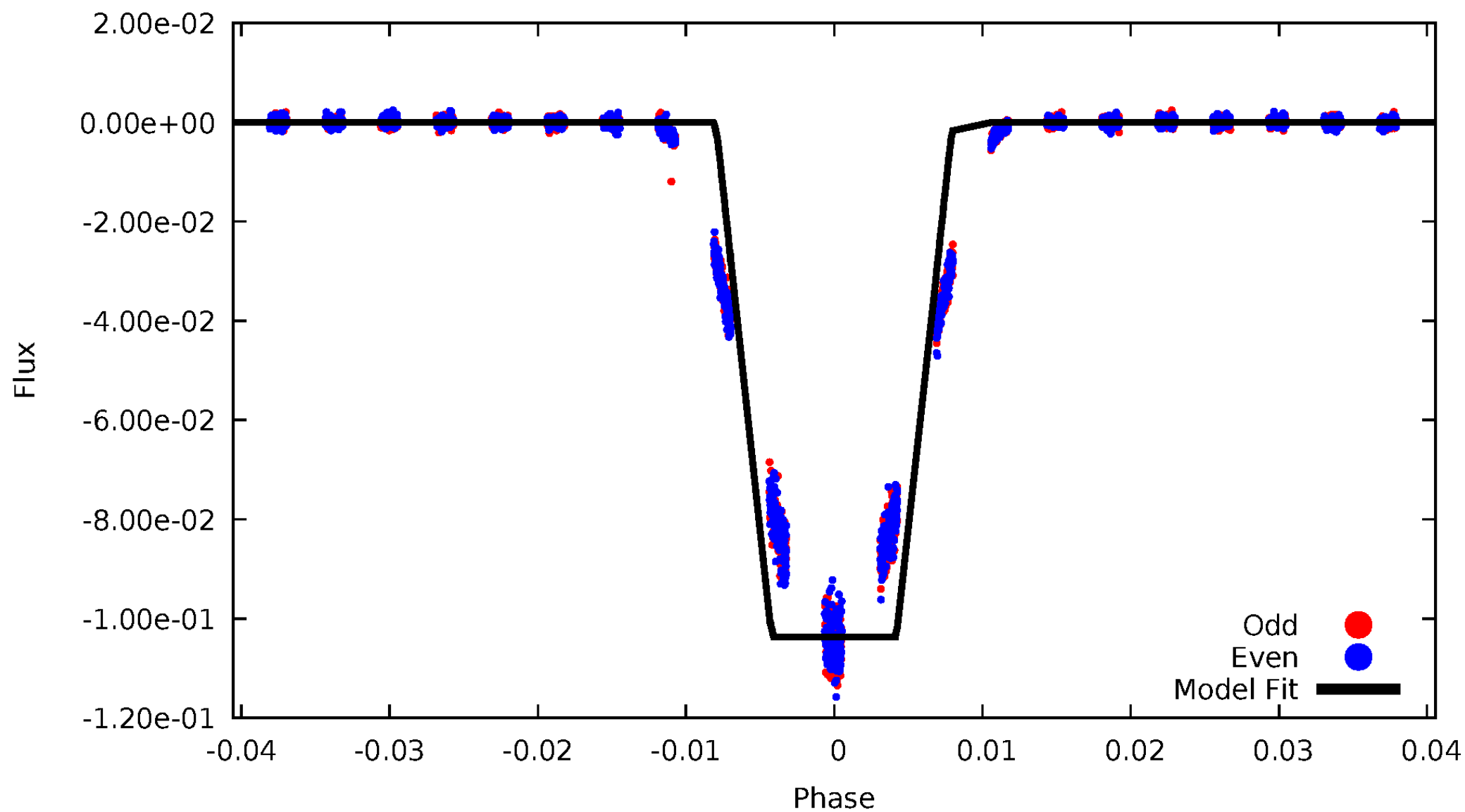
DV Odd/Even

TCE 006128027-01



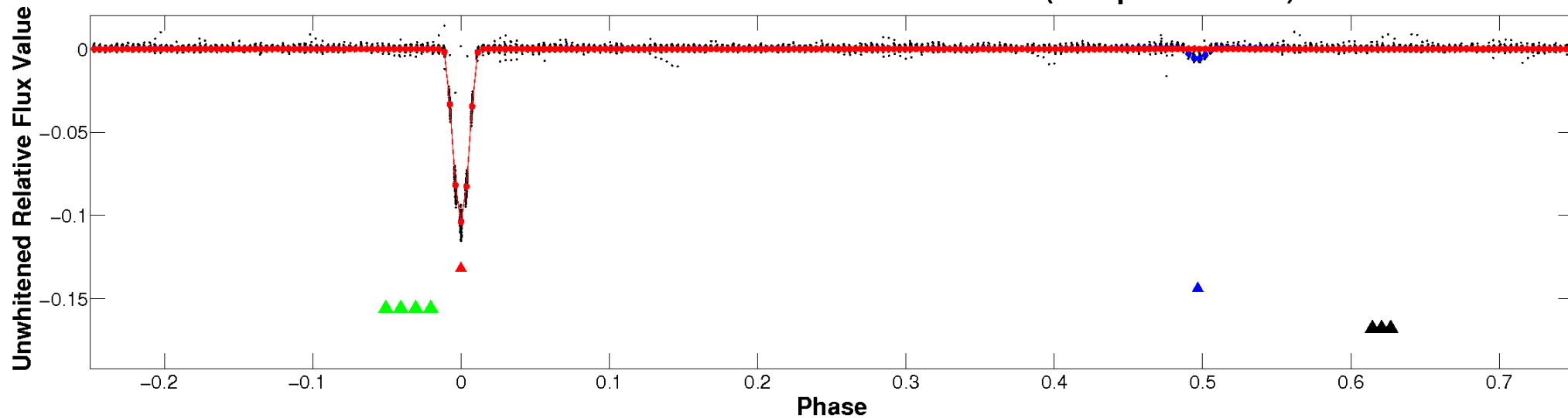
ALT Odd/Even

TCE 006128027-01

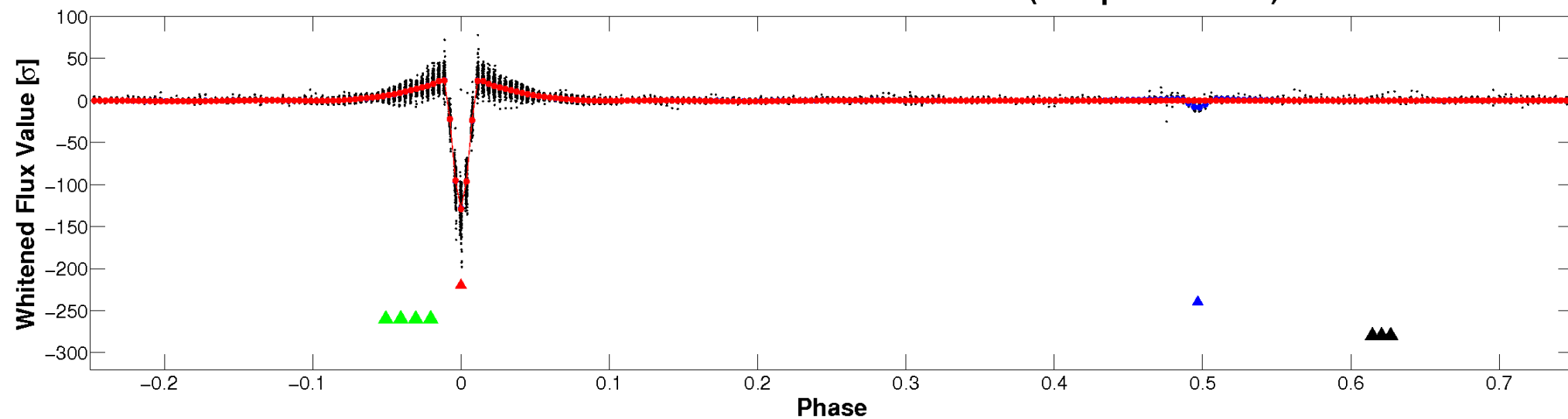


Non-Whitened Vs. Whitened Light Curve

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

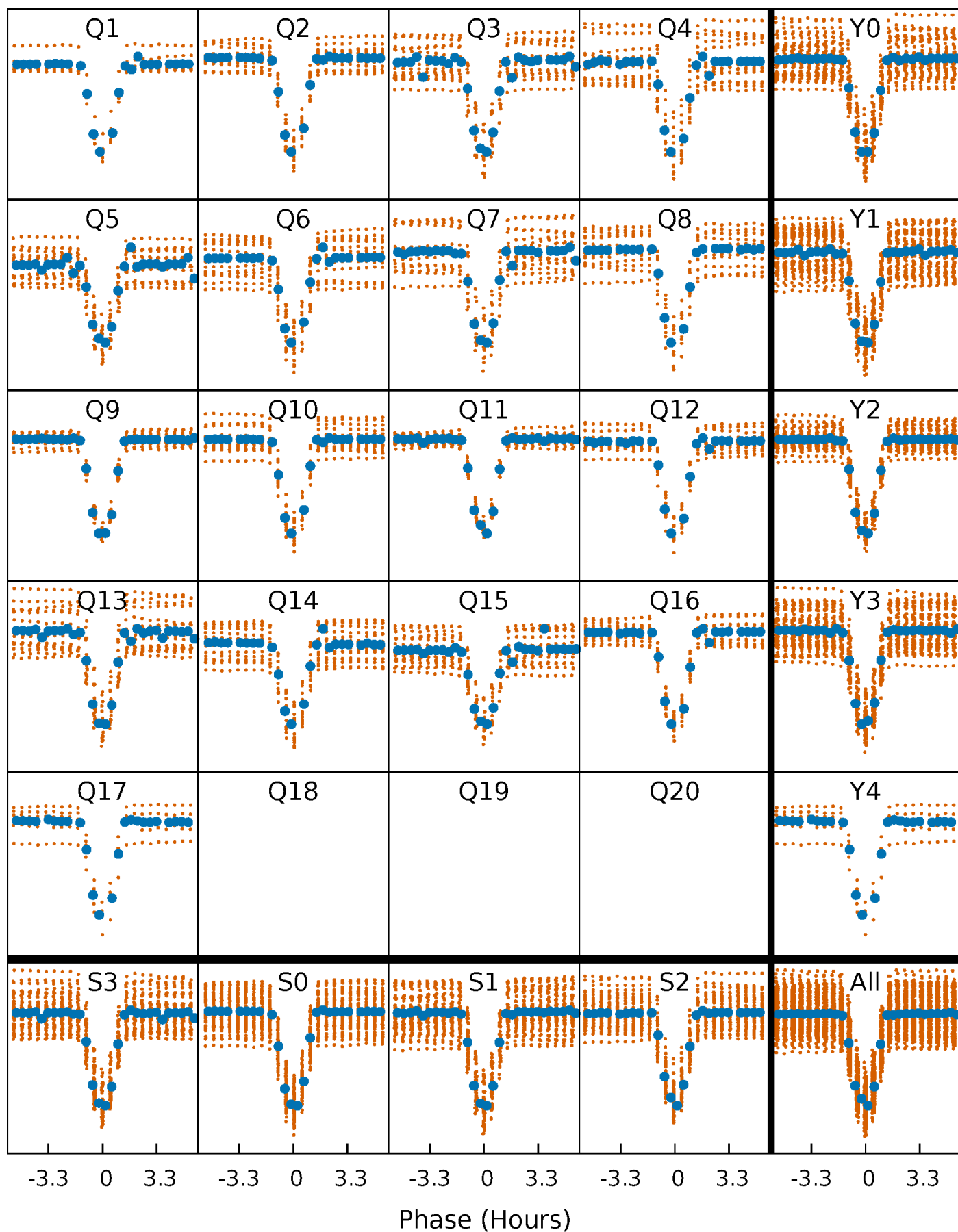


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



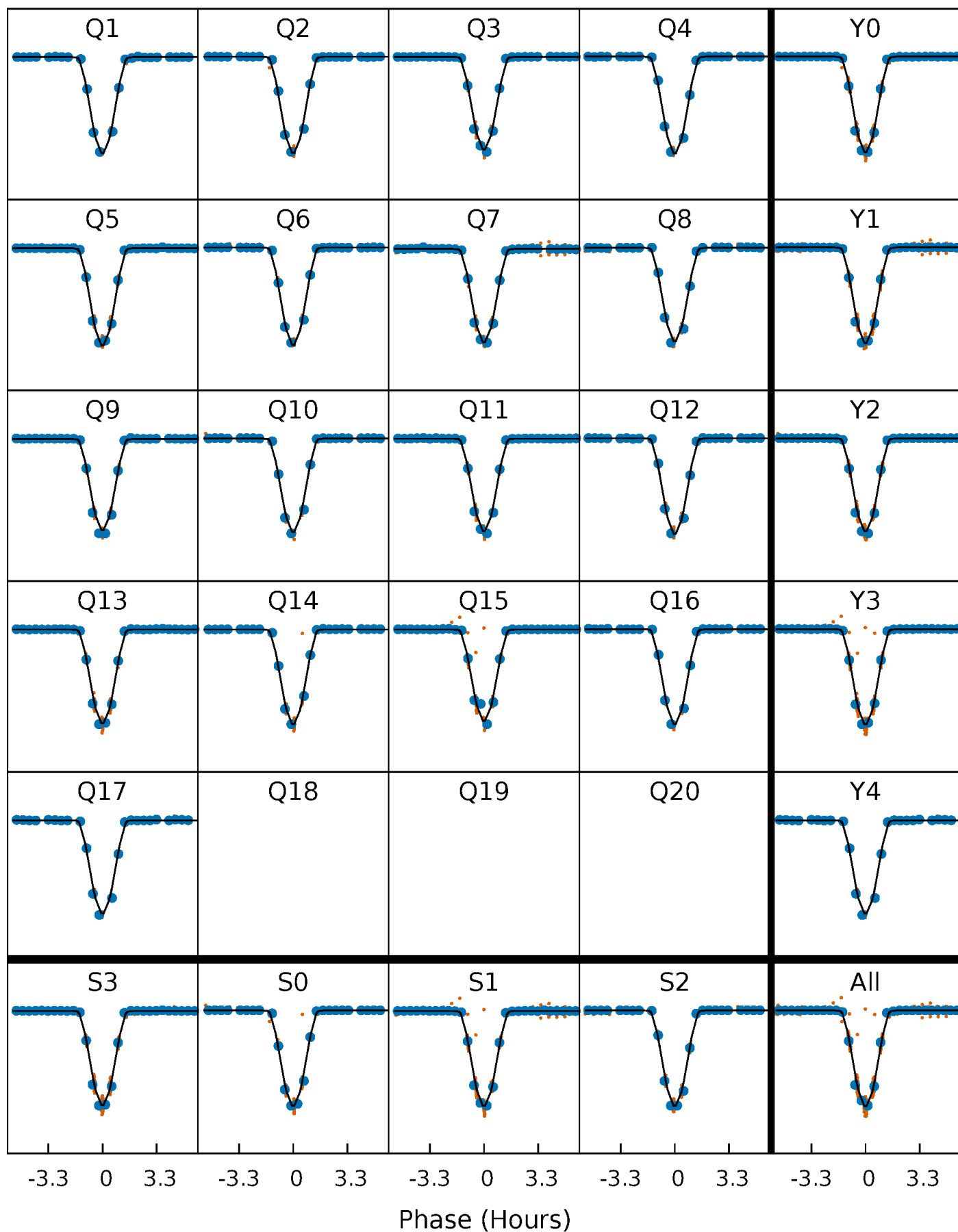
PDC Quarter-Phased Transit Curves

TCE 006128027-01 P= 5.455766 Days $T_0=136.907283$ (BKJD)



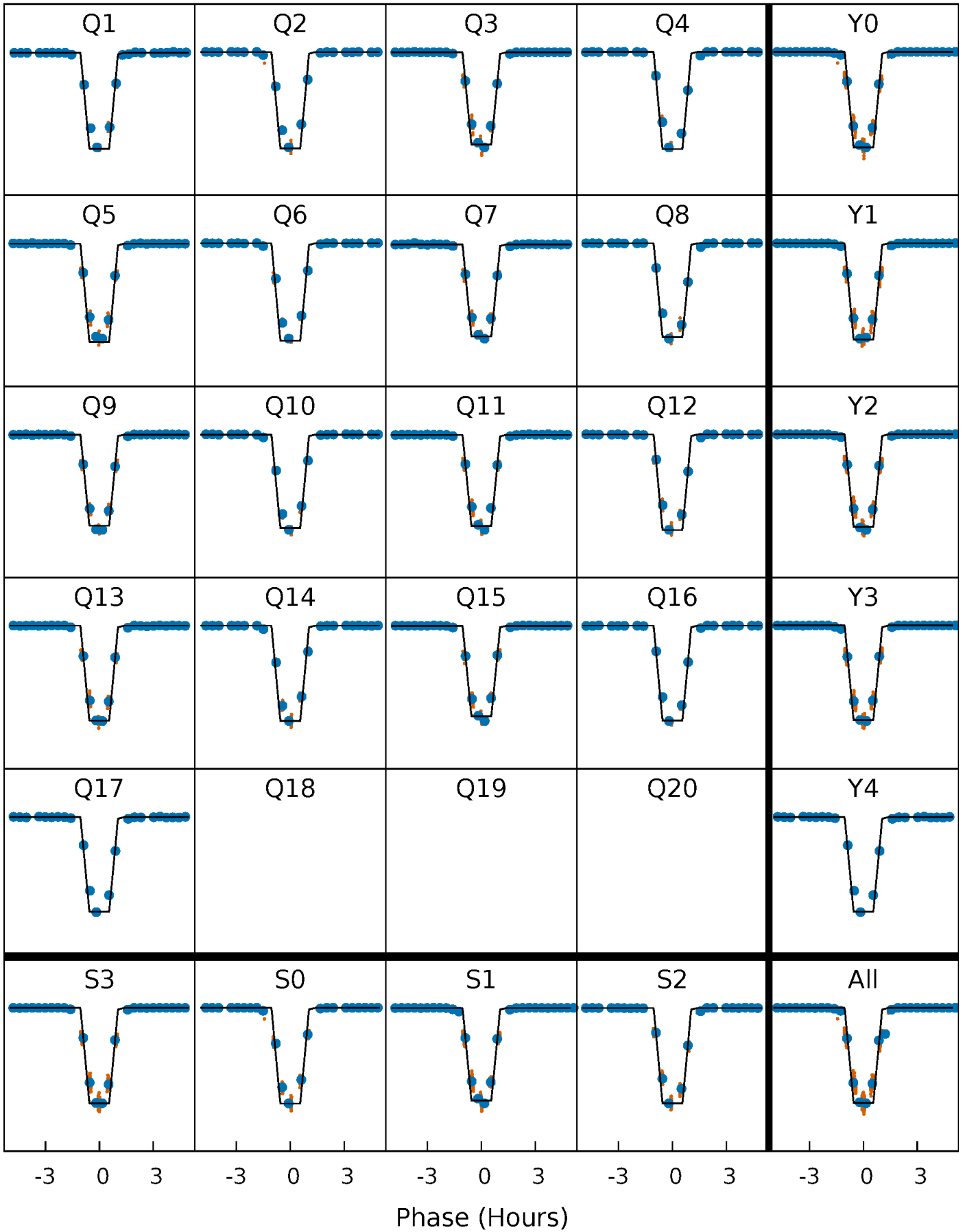
DV Quarter-Phased Transit Curves

TCE 006128027-01 P= 5.455766 Days $T_0=136.907283$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

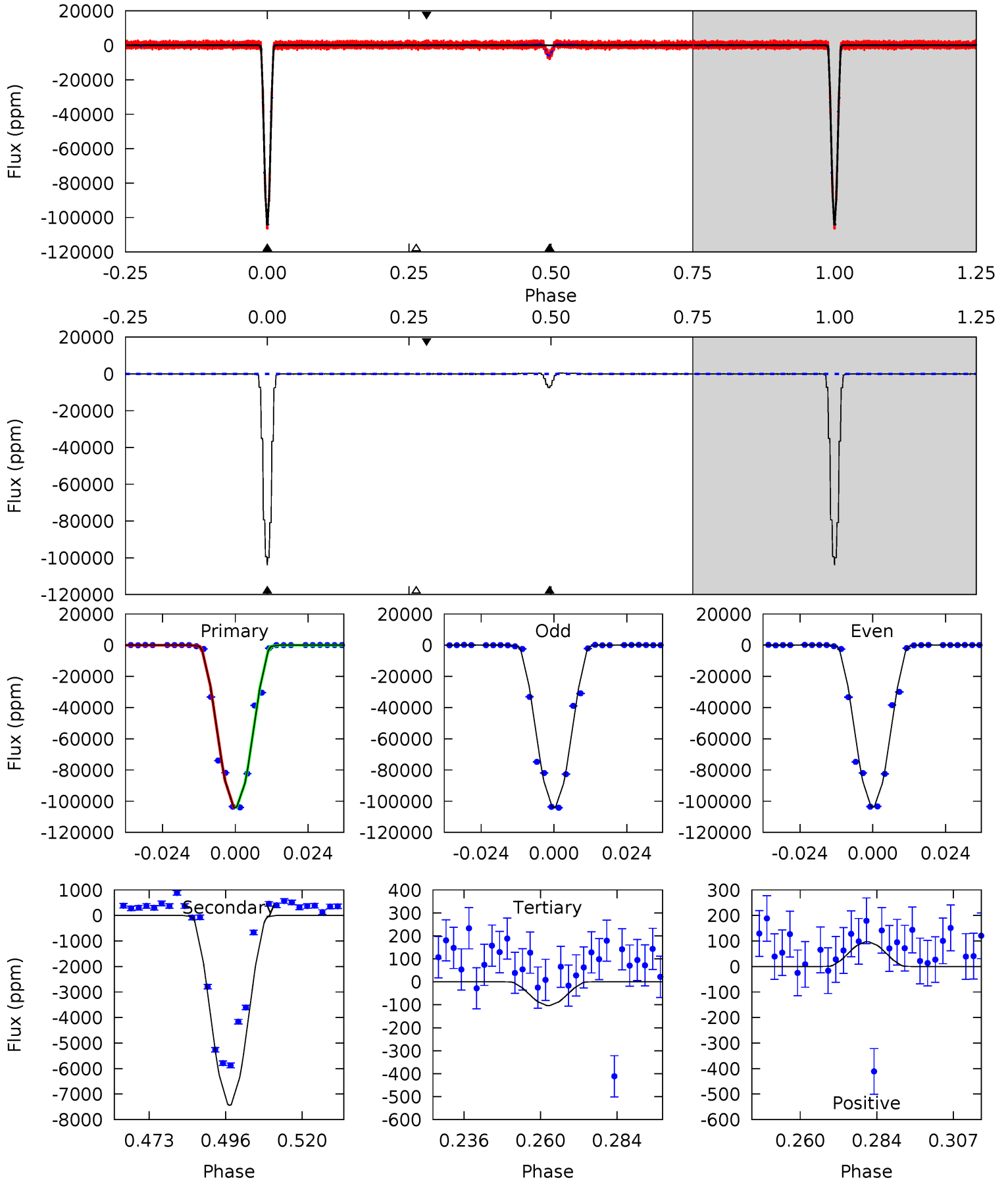
TCE 006128027-01 P= 5.455767 Days $T_0=136.907188$ (BKJD)



DV Model-Shift Uniqueness Test

006128027-01, P = 5.455766 Days, E = 131.451517 Days

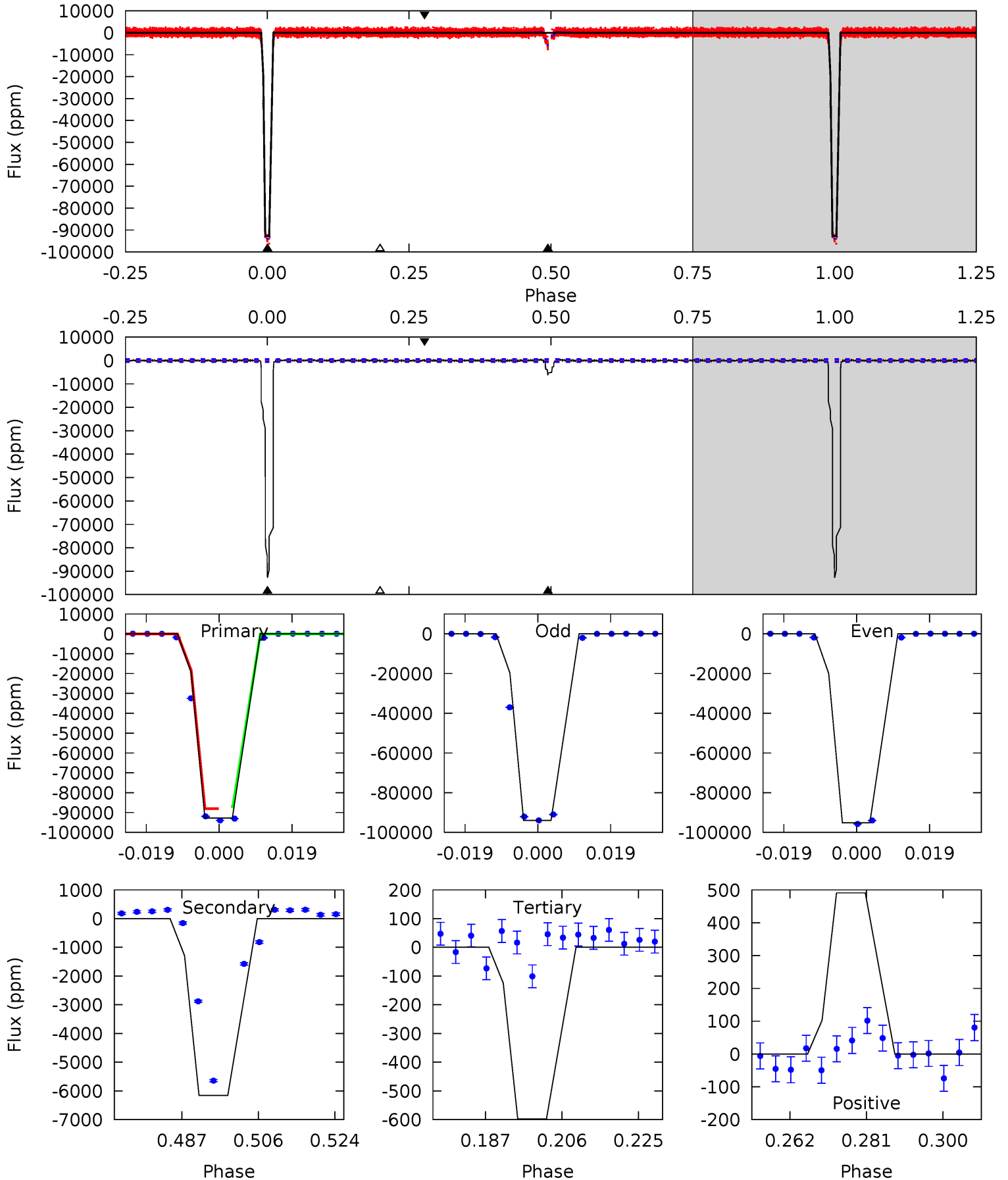
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5683	406.5	5.65	5.32	4.86	2.26	4.91	5677	5677	400.8	401.2	6.55	1.00	0.01	3.65



Alt Model-Shift Uniqueness Test

006128027-01, P = 5.455767 Days, E = 131.451421 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
769.4	51.1	4.95	4.07	4.90	2.35	1.08	764.5	765.3	46.1	47.0	3.35	1.00	0.01	0



Stellar Parameters For KIC 006128027

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5067^{+151}_{-151}	$4.625^{+0.039}_{-0.066}$	$-0.320^{+0.350}_{-0.300}$	$0.694^{+0.086}_{-0.058}$	$0.742^{+0.079}_{-0.071}$	$3.126^{+0.567}_{-0.742}$
	+3%/-3%	+1%/-1%	+109%/-94%	+12%/-8%	+11%/-10%	+18%/-24%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006128027-01 / KOI 6020.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-7437 ± 18	$33.43^{+3.02}_{-2.83}$	1117^{+43}_{-38}	2911^{+81}_{-75}	11^{+2}_{-2}
Alt.	-6156 ± 121	$24.56^{+2.72}_{-2.49}$	1117^{+44}_{-40}	3094^{+110}_{-96}	17^{+4}_{-3}

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

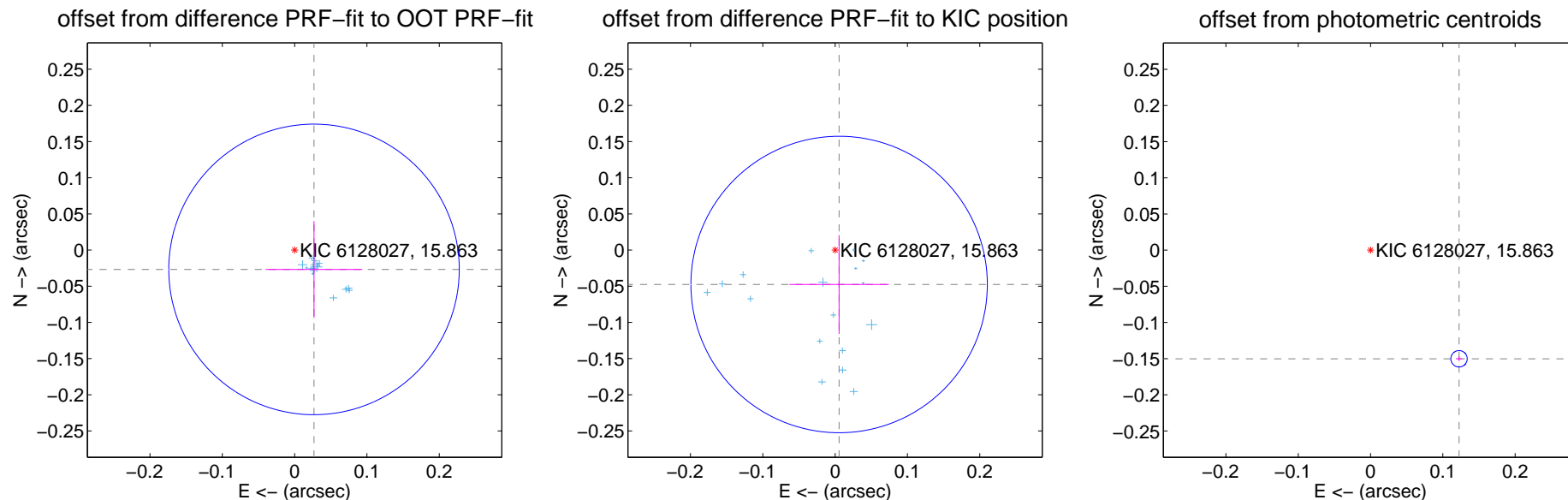
DV Centroid Data

Supplemental centroid analysis for 006128027-01. Kepler magnitude: 15.86. Transit SNR 2220.60

There are 17 quarters with good PRF difference image offsets

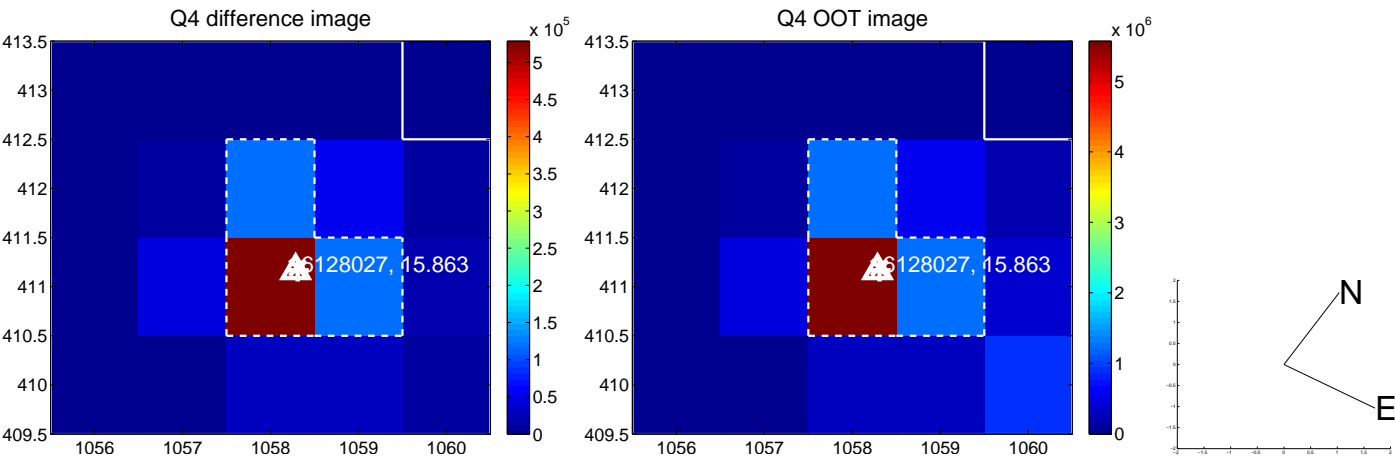
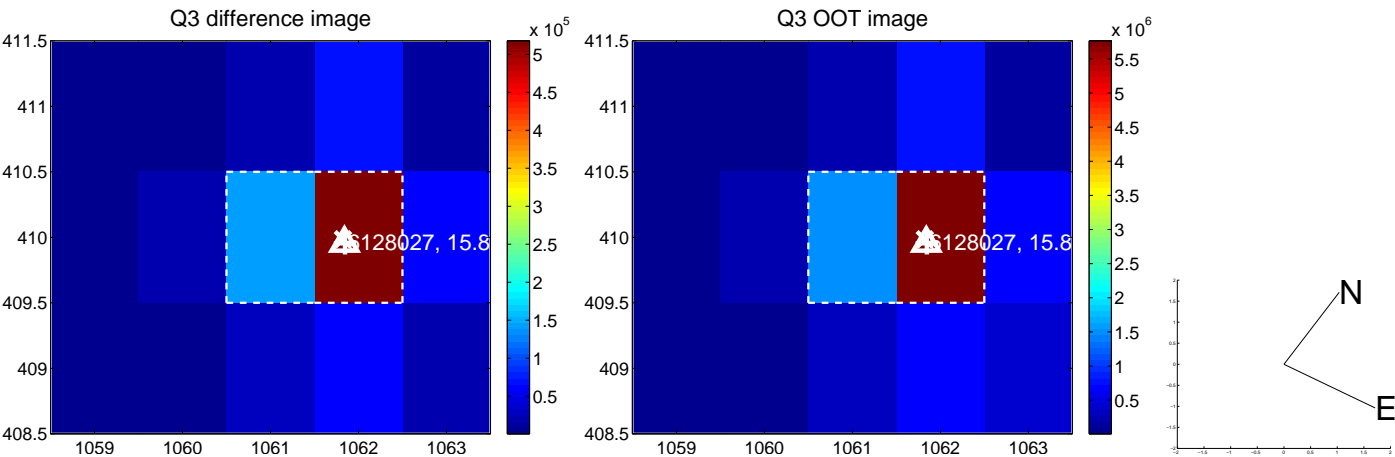
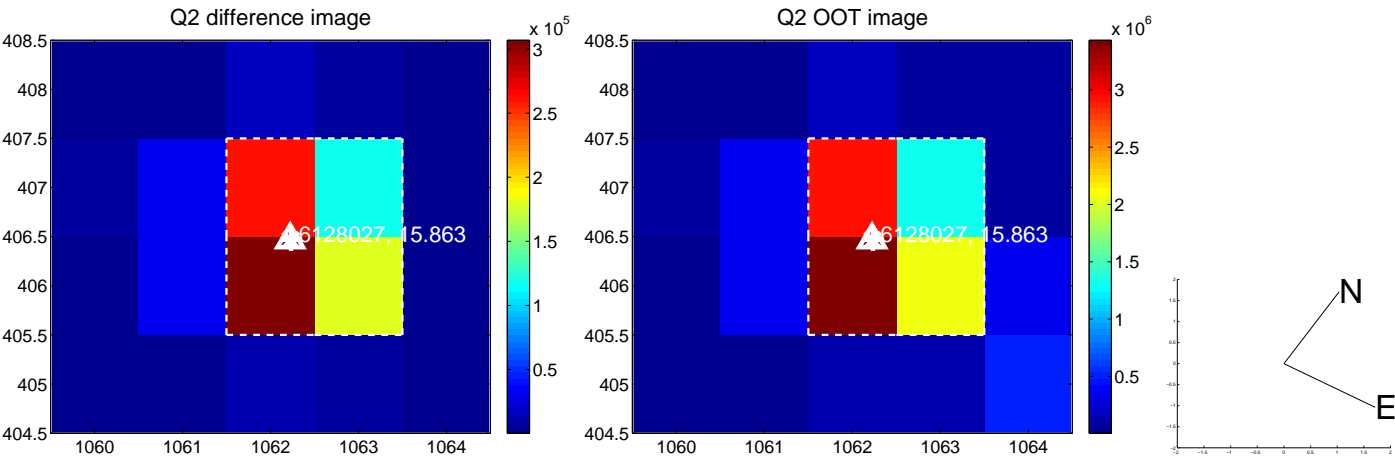
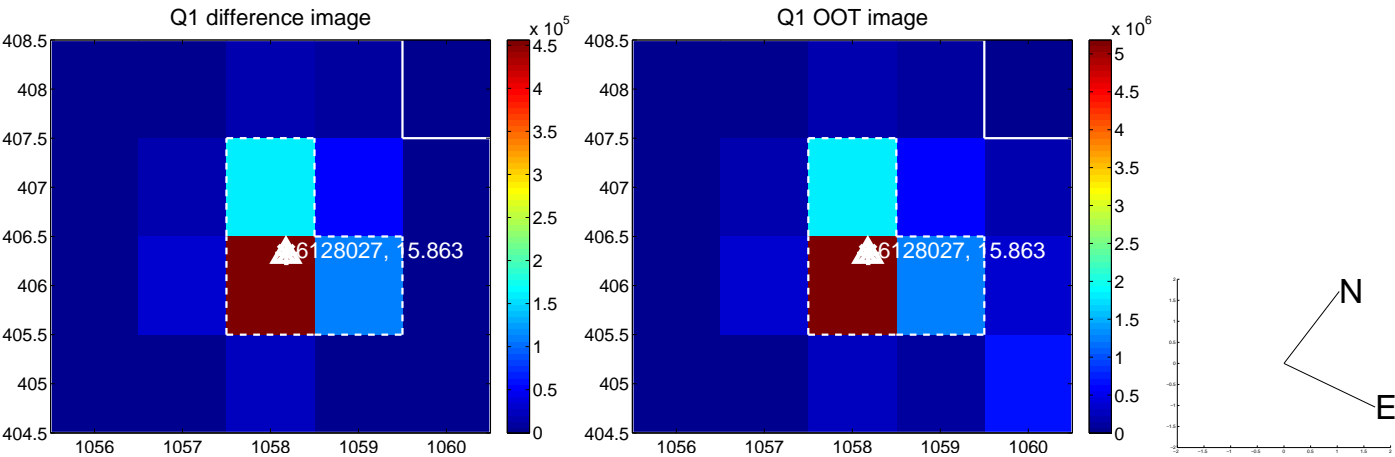
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.038 ± 0.067	0.57	-0.027 ± 0.067	-0.027 ± 0.067
PRF-fit source offset from KIC position	0.048 ± 0.068	0.70	-0.006 ± 0.069	-0.048 ± 0.068
photometric centroid source offset	0.19 ± 0.00	51.28	-0.12 ± 0.00	-0.15 ± 0.00

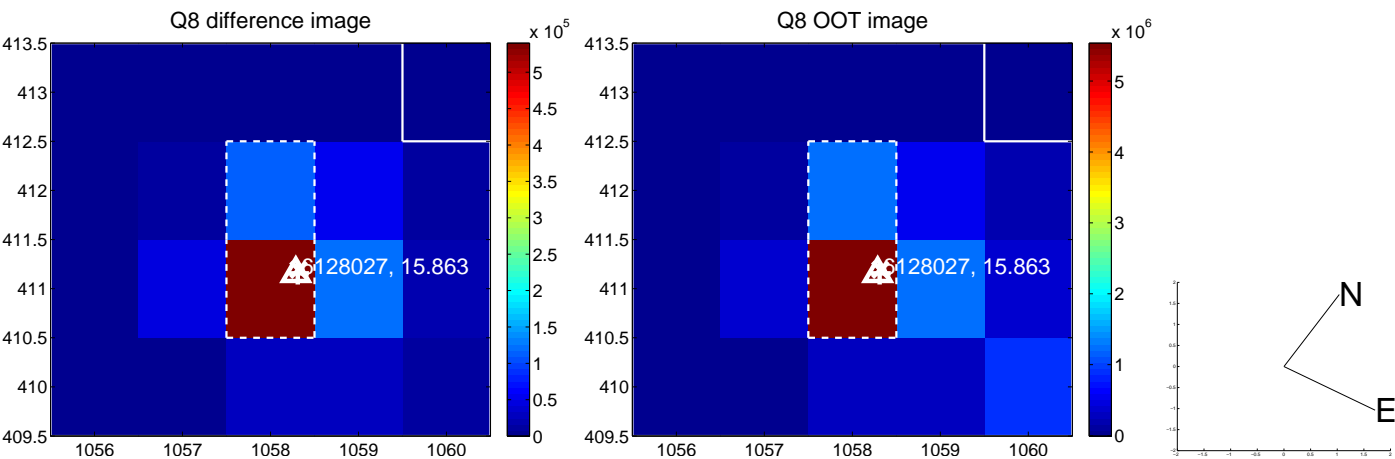
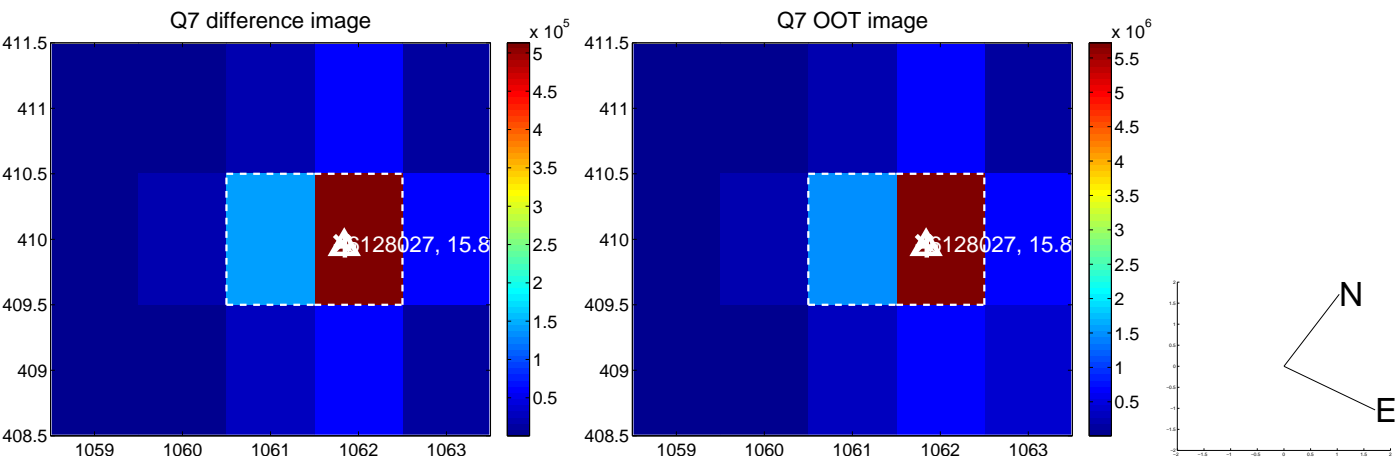
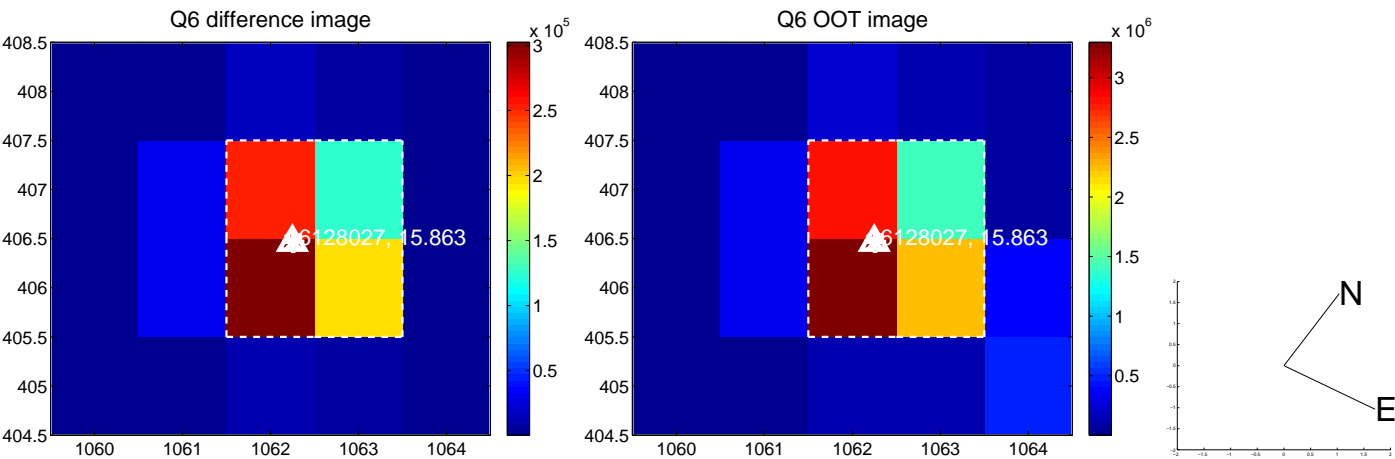
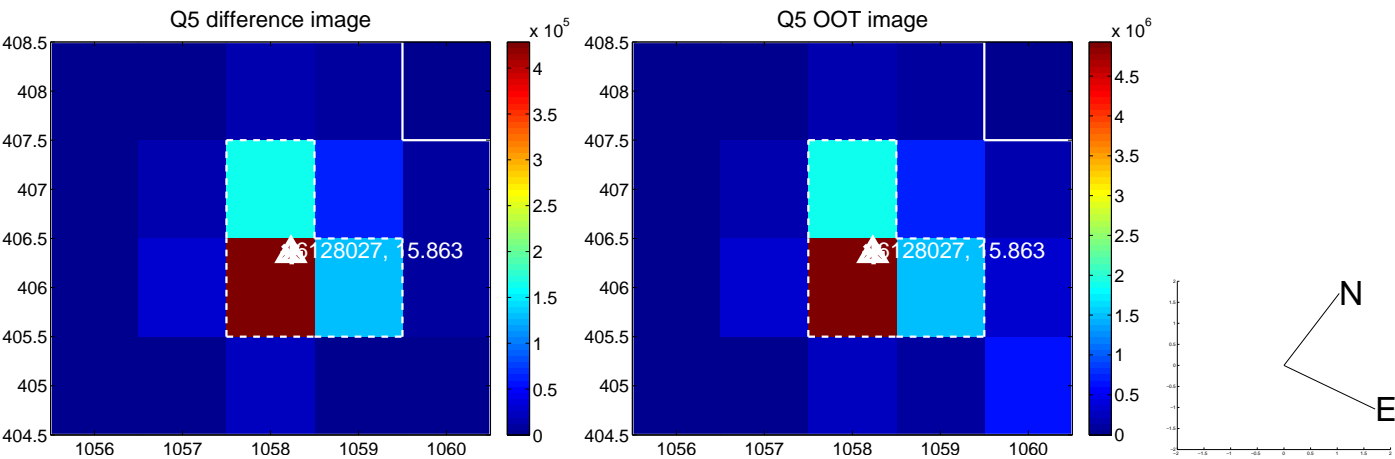


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

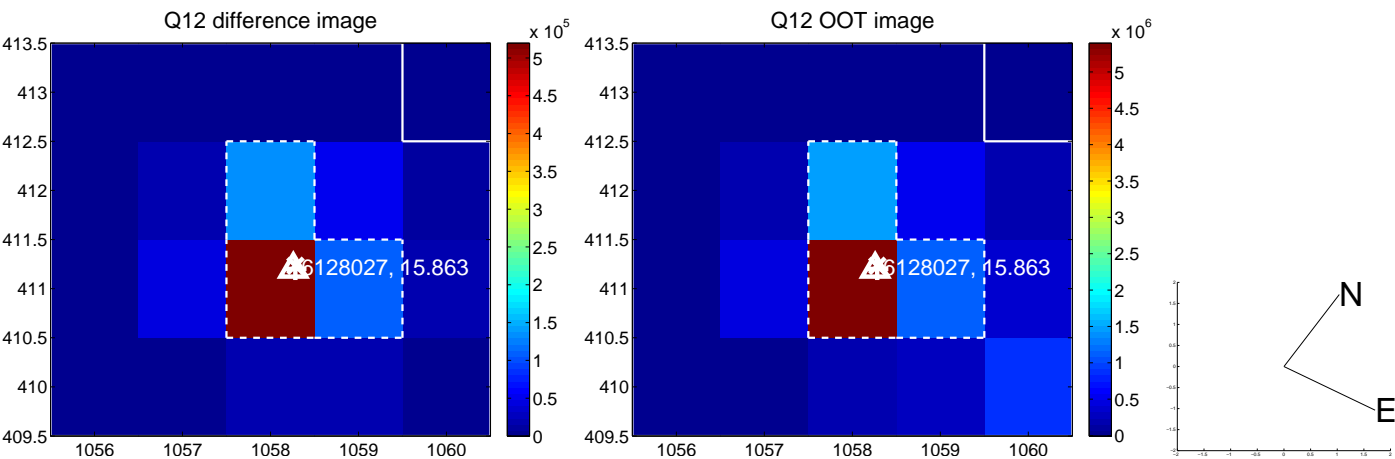
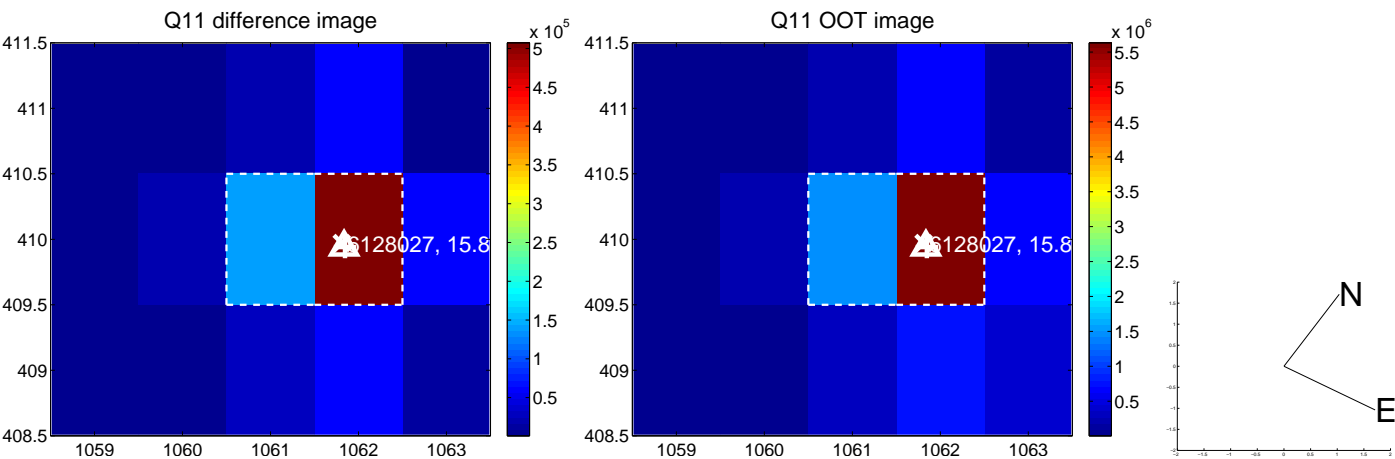
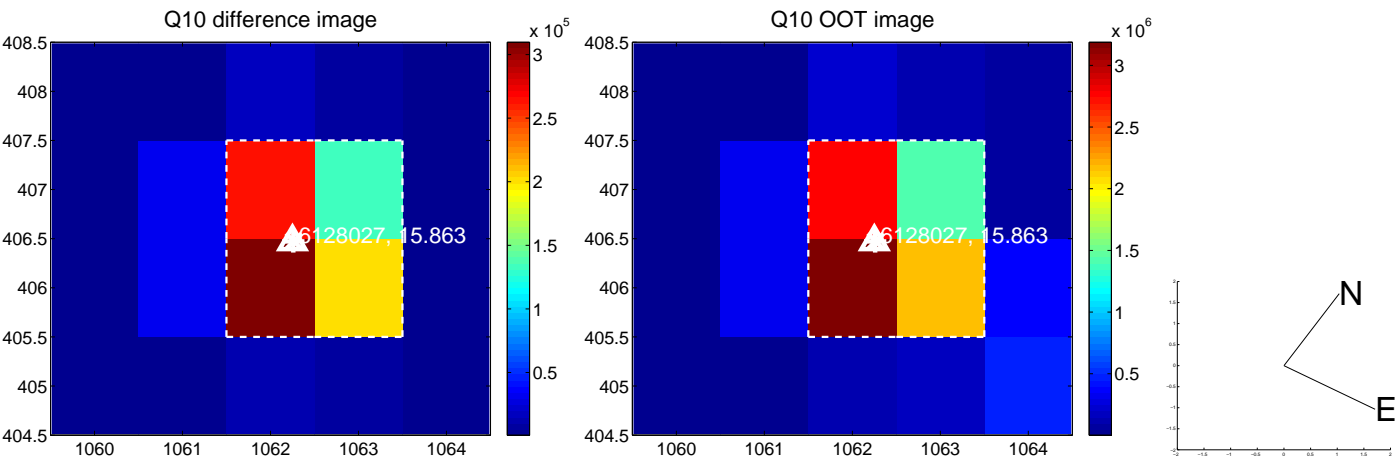
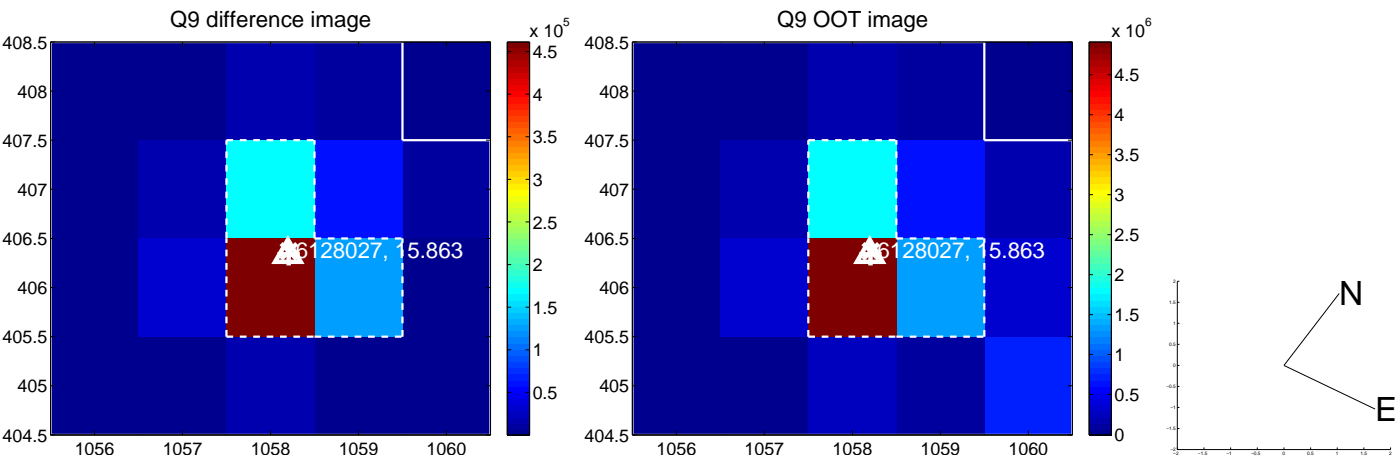
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



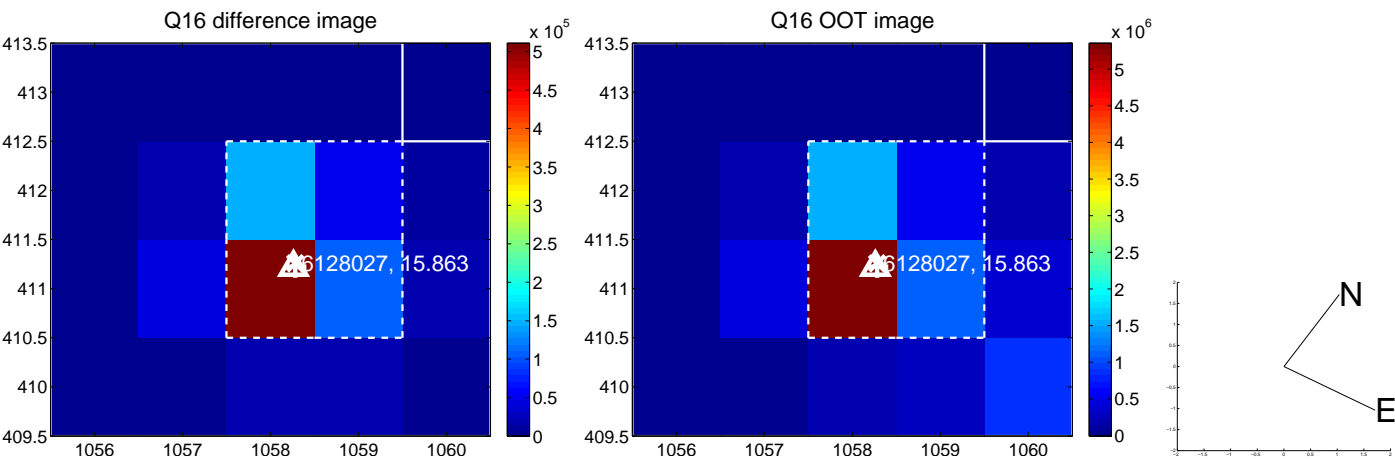
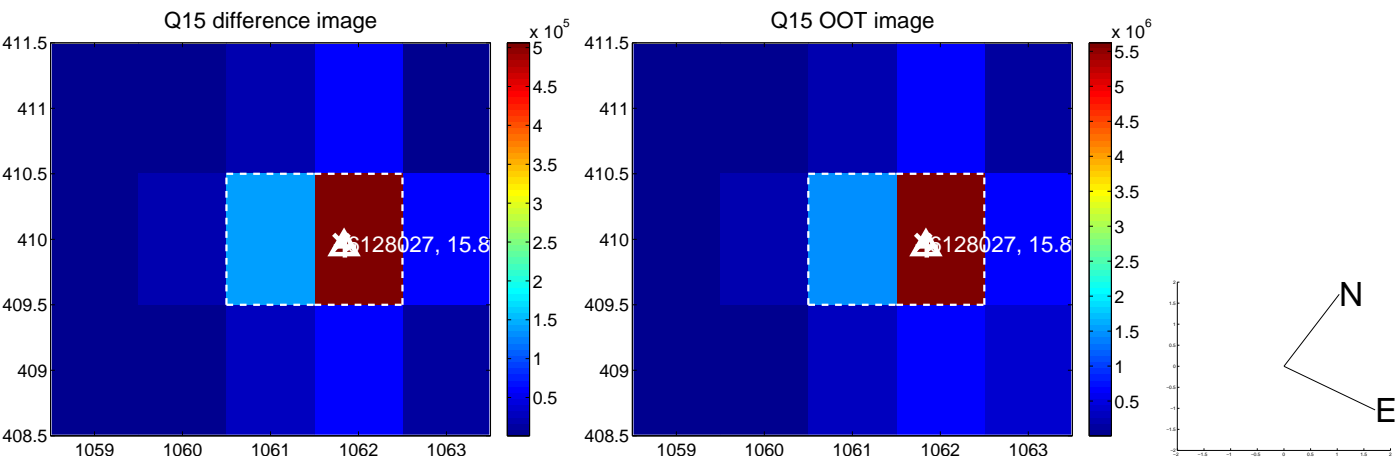
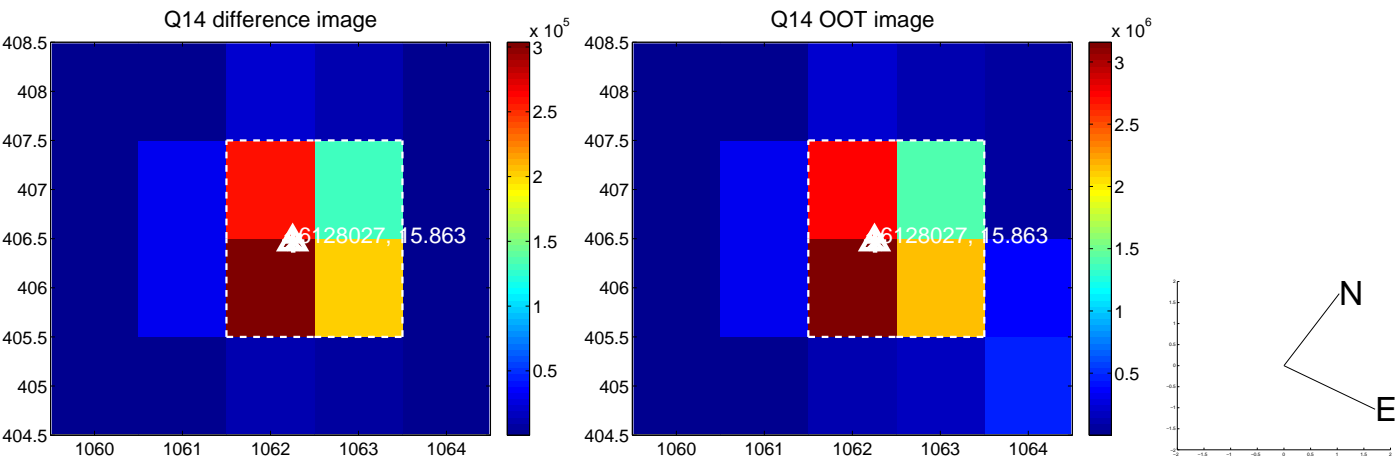
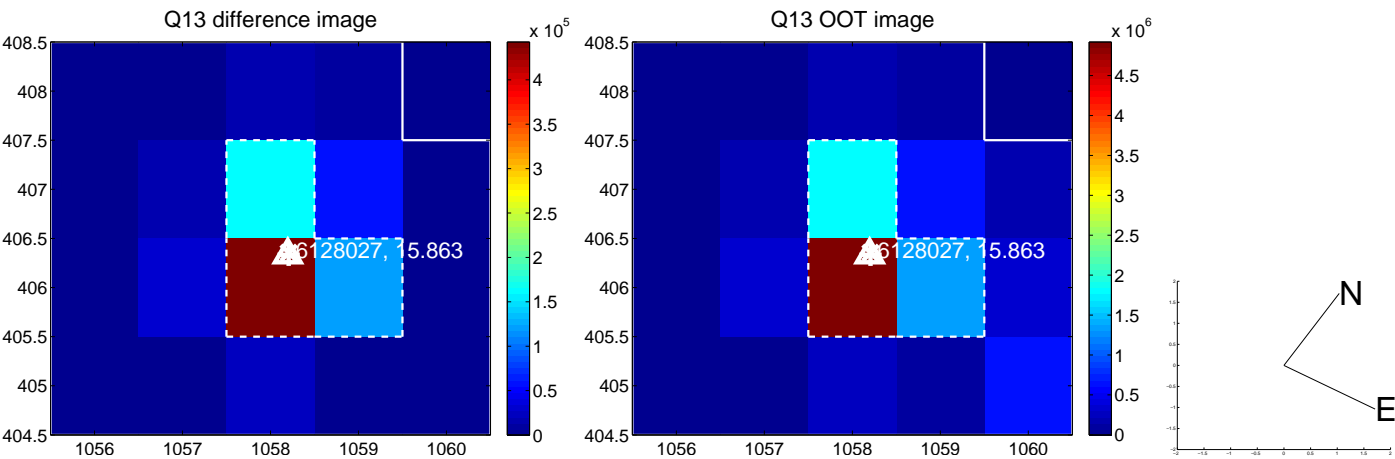
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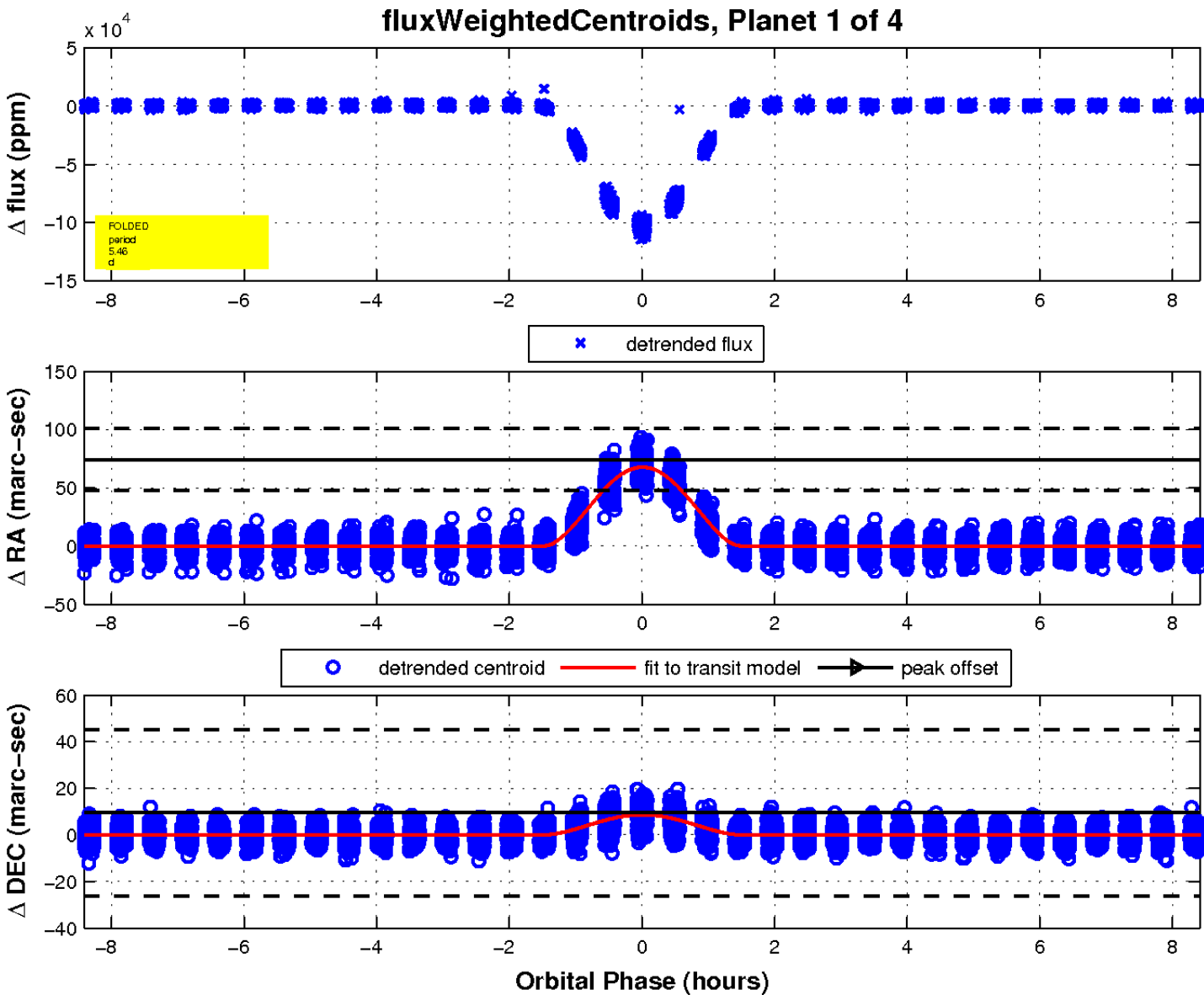
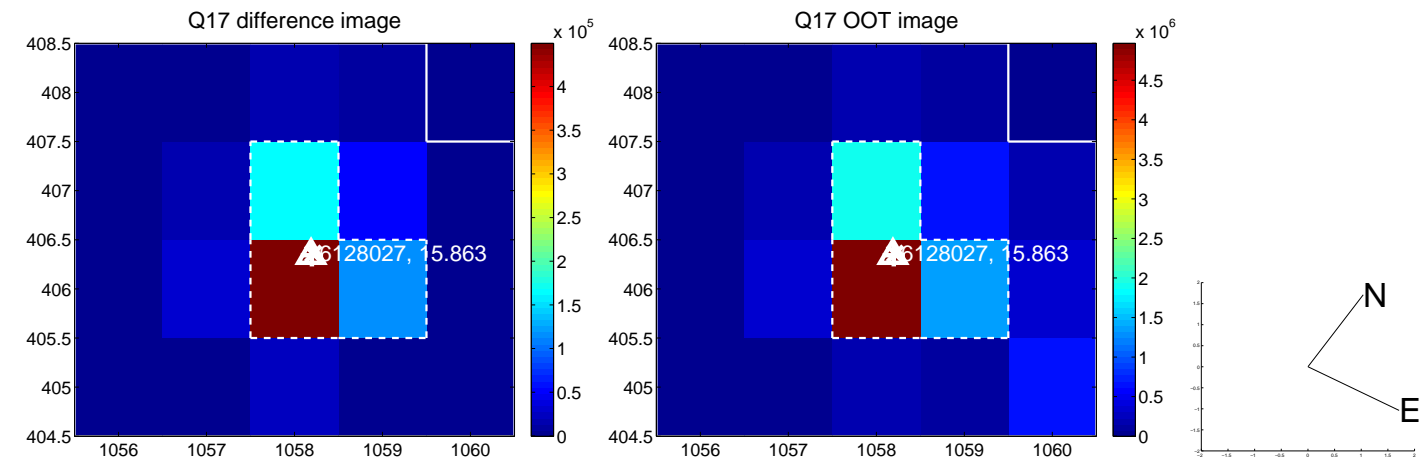
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

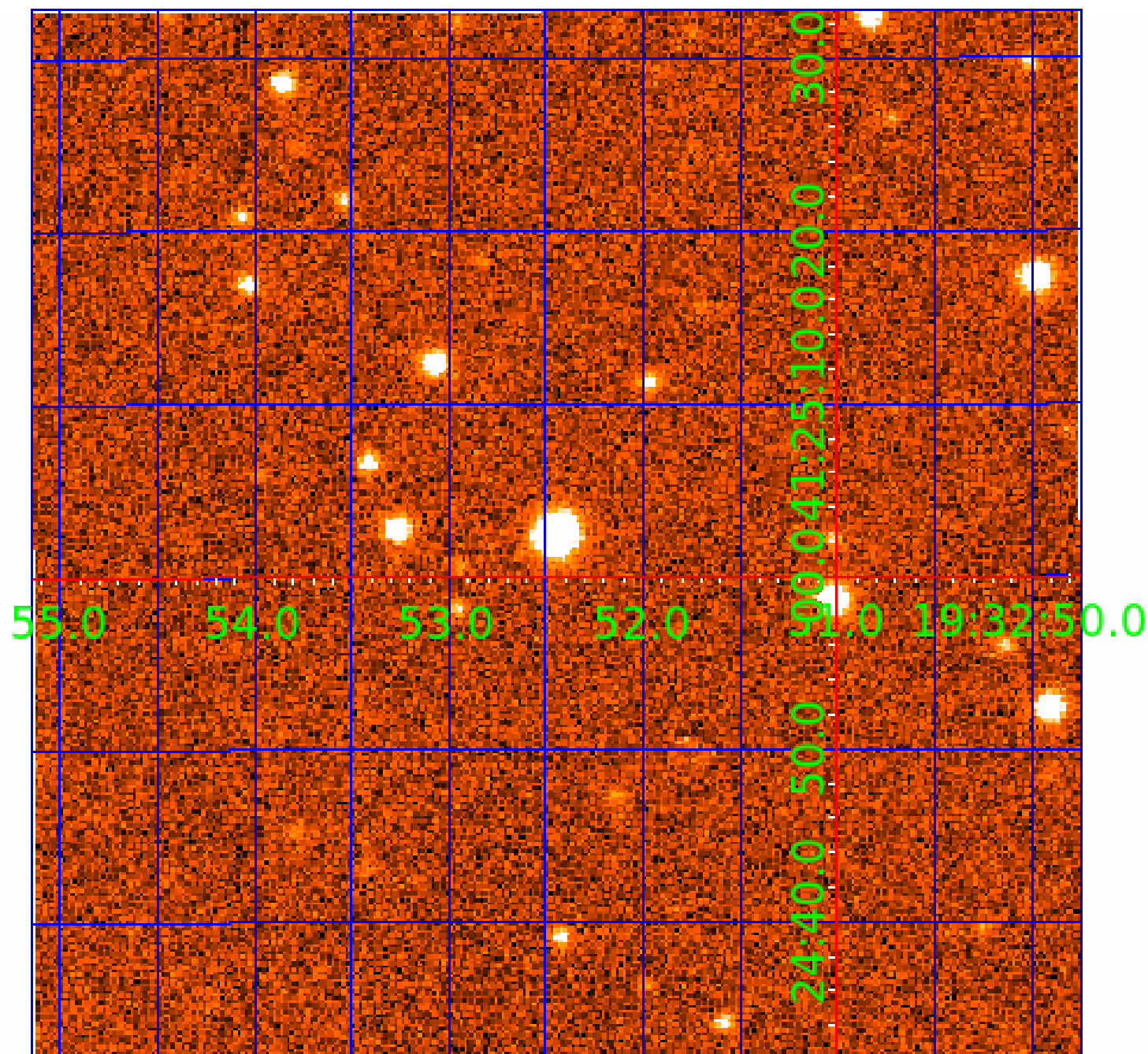


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006128027

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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006128027-03	OBS	No	392.870197	251.202118	2445.1	4.015	12.5	8.0	0.69	5067	3.49	0.32
006128027-04	OBS	No	512.808333	434.938782	1653.8	4.043	8.8	6.7	0.69	5067	2.79	0.22

Robovetter Results

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006128027-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
006128027-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006128027-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

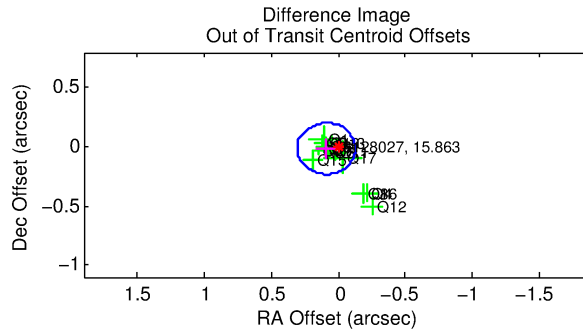
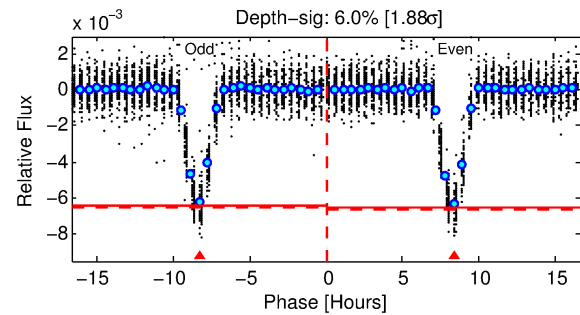
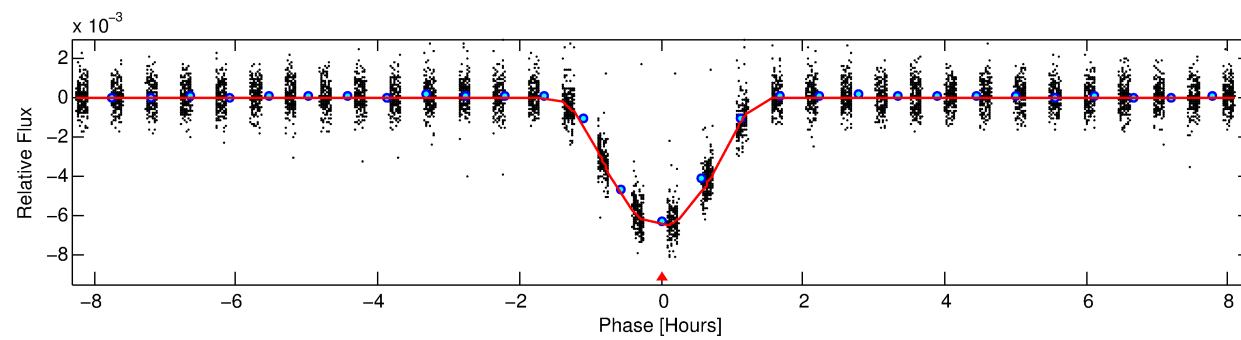
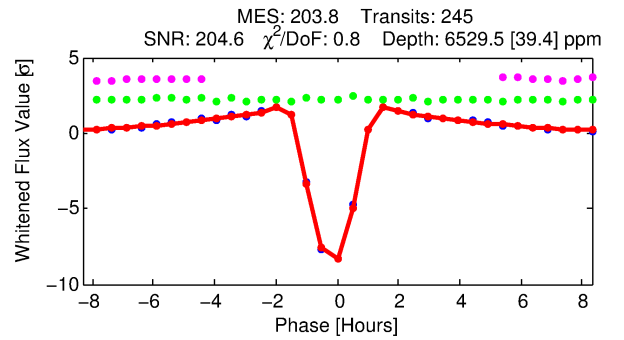
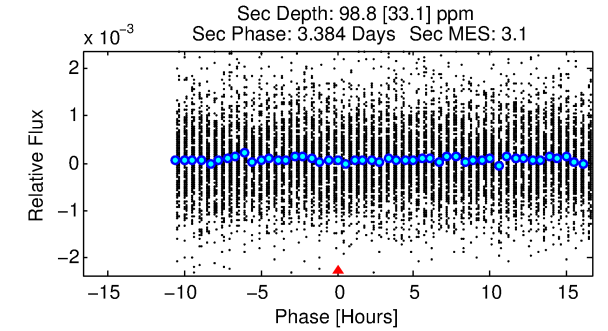
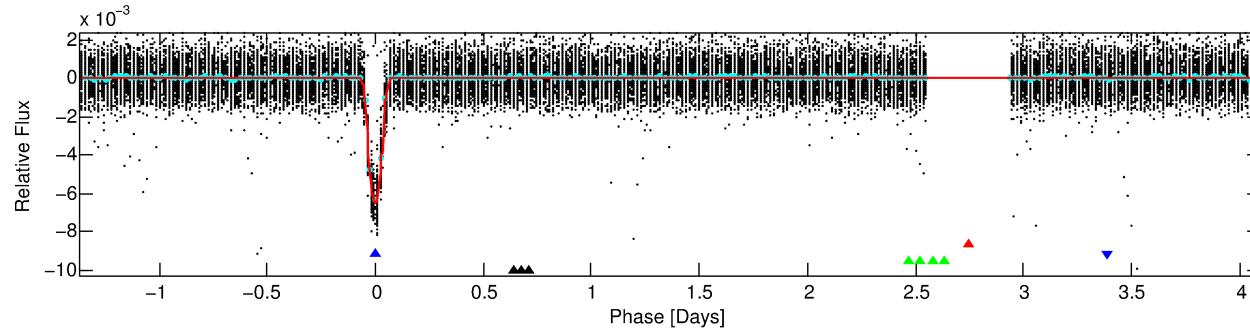
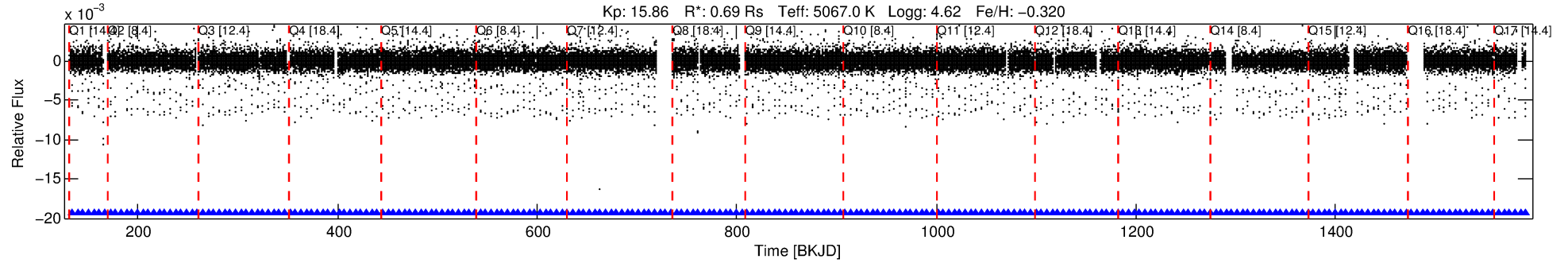
Ephemeris Match Information For 006128027-02

No Significant Match Found

DV One-Page Summary

KIC: 6128027 Candidate: 2 of 4 Period: 5.456 d

KOI: K06020 Corr: No Ephemeris Match



DV Fit Results:

Period = 5.45577 [0.00000] d
Epoch = 134.1619 [0.0002] BKJD
Rp/R* = 0.1277 [0.0217]
a/R* = 8.41 [0.28]
b = 0.98 [0.03]
Seff = 94.41 [16.70]
Teq = 795 [35] K
Rp = 9.67 [2.04] Re
a = 0.0549 [0.0053] AU
Ag = 1.75 [0.87] [0.87σ]
Teffp = 1414 [174] K [3.49σ]

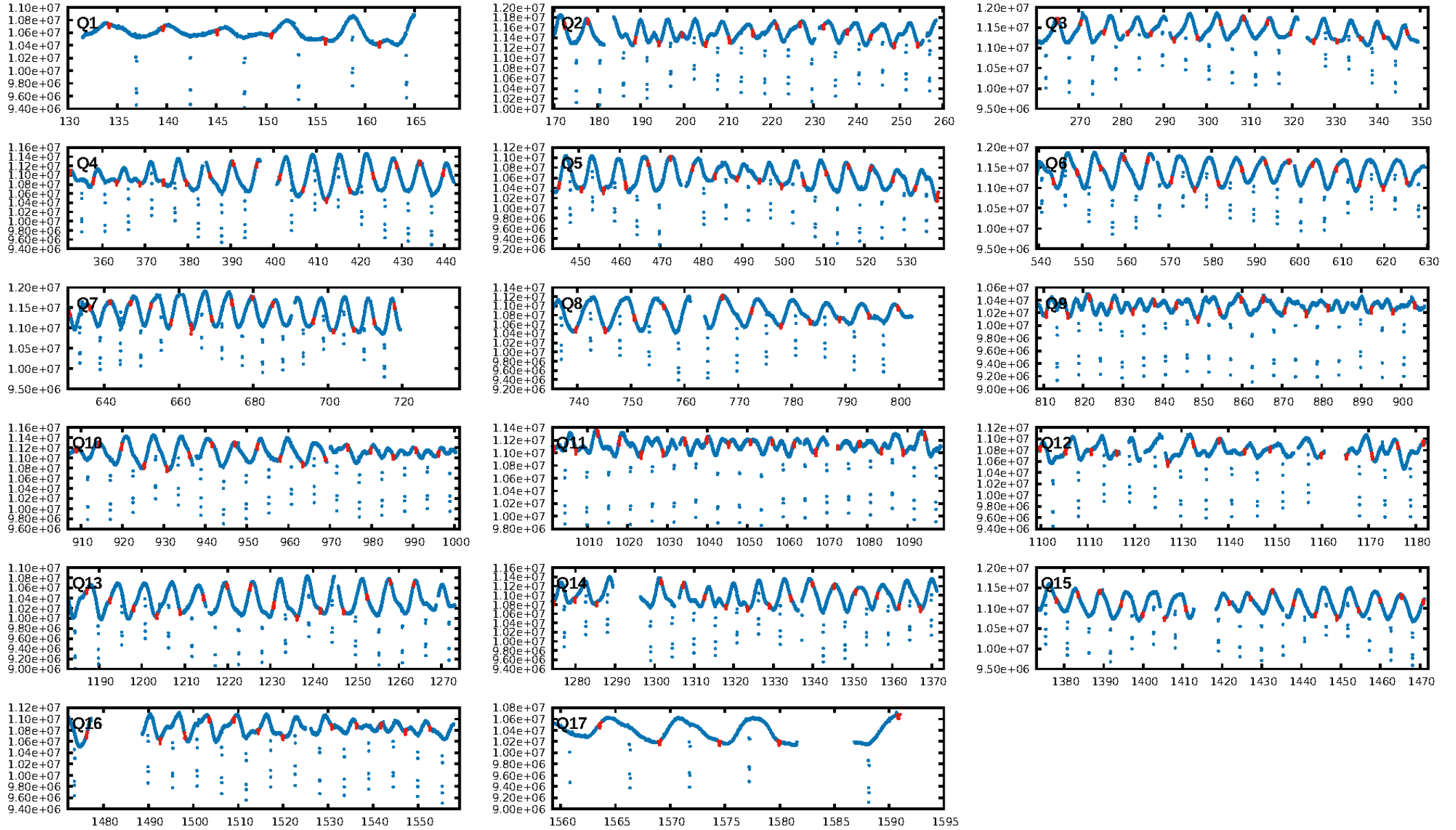
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [1905.10σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [234/234]
GhostDiagnostic-chr: 2.281
Centroid-sig: 0.0%
Centroid-so: 0.254 arcsec [4.51σ]
OotOffset-rm: 0.090 arcsec [1.24σ]
KicOffset-rm: 0.096 arcsec [1.31σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
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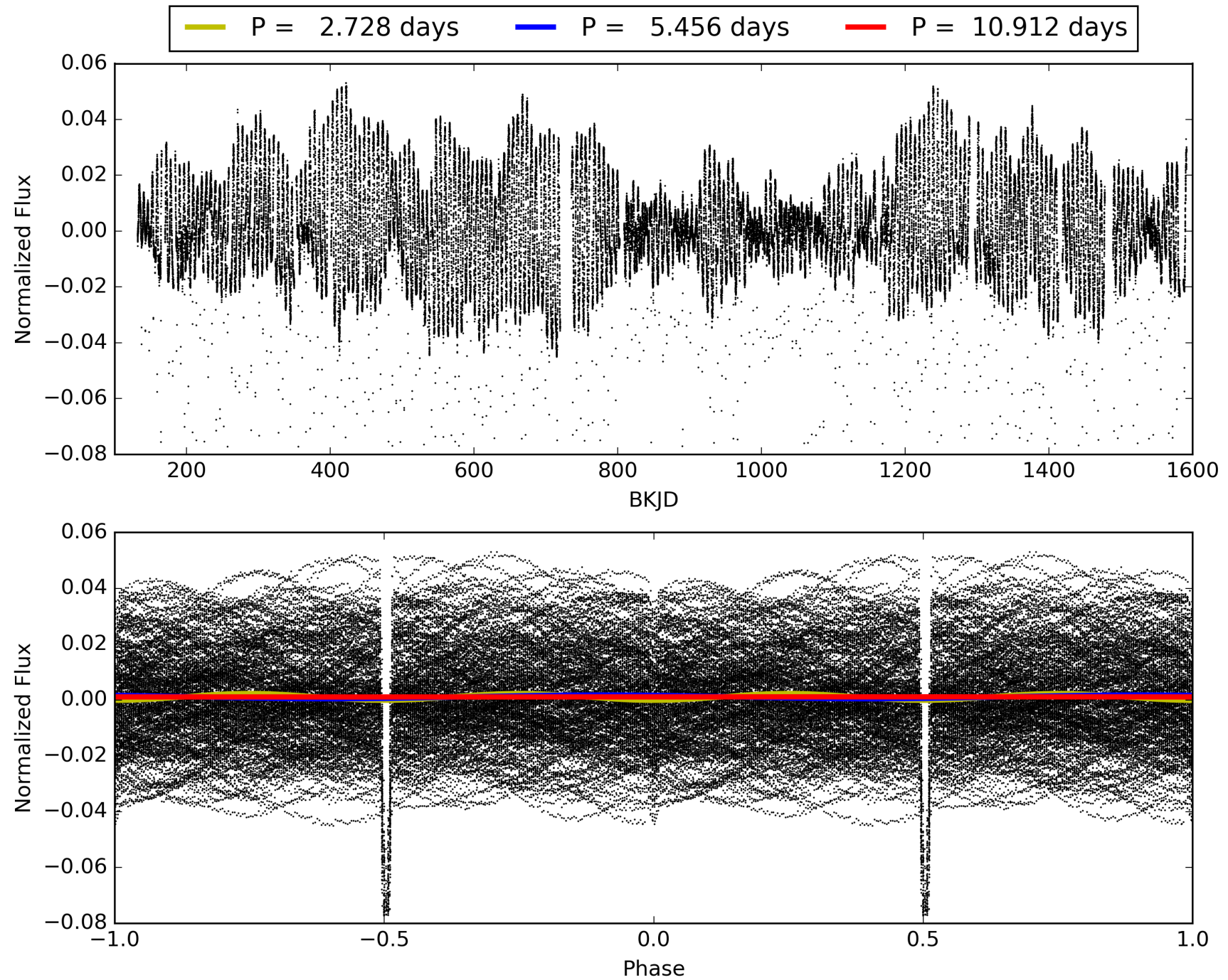
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:56:52 Z

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

TCE 006128027-02, PDC Light Curves

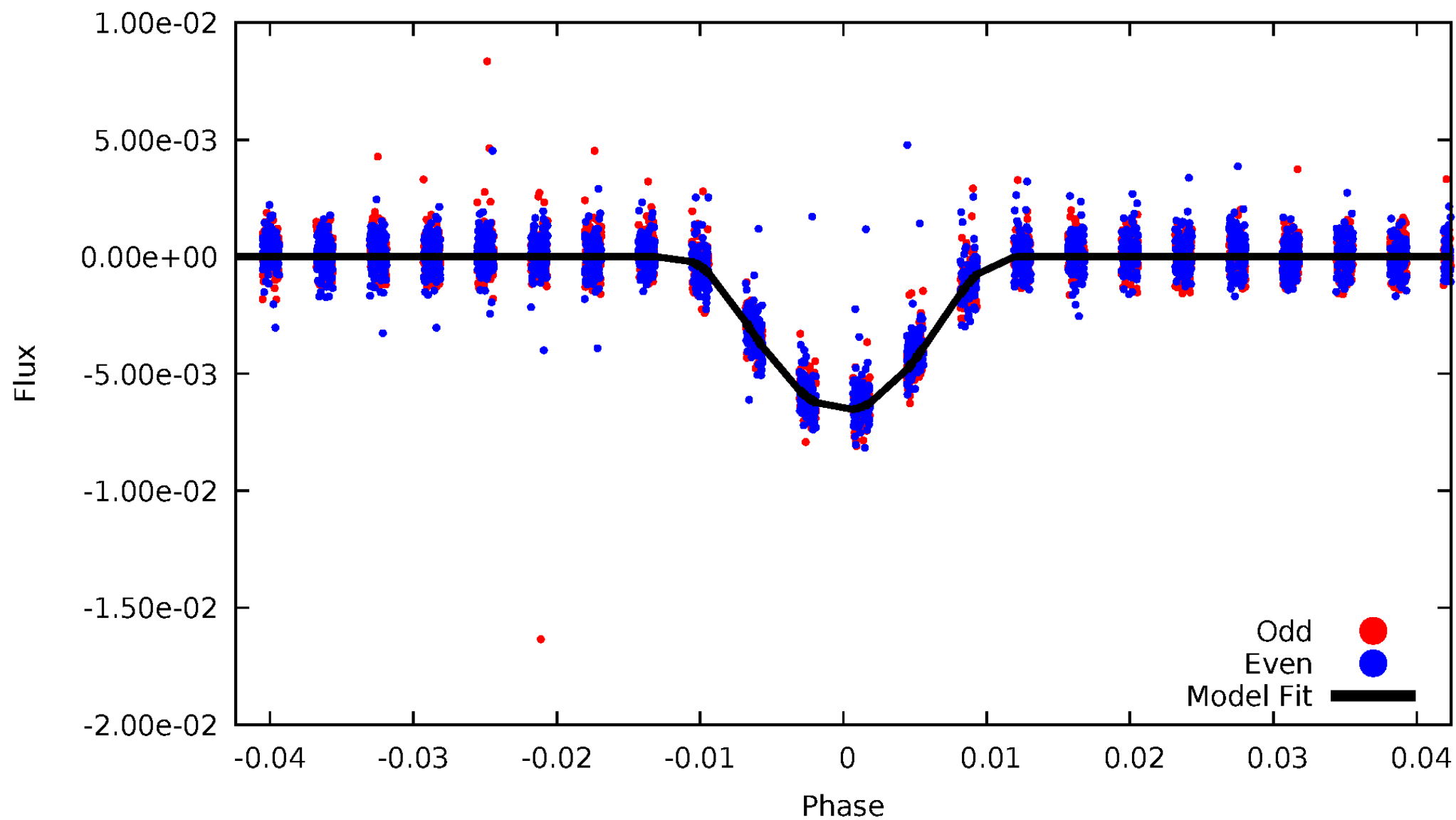


TCE 006128027-02



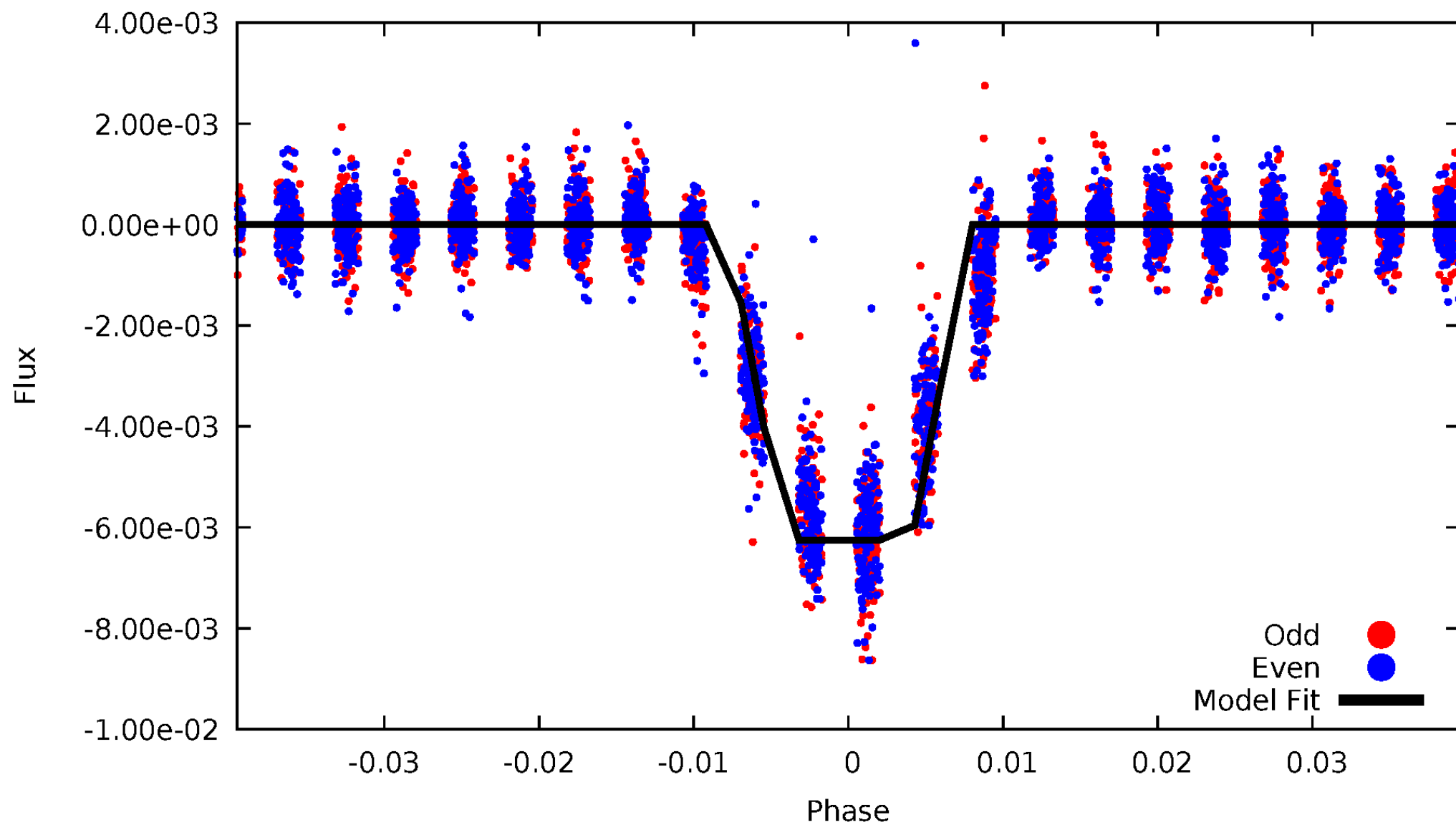
DV Odd/Even

TCE 006128027-02



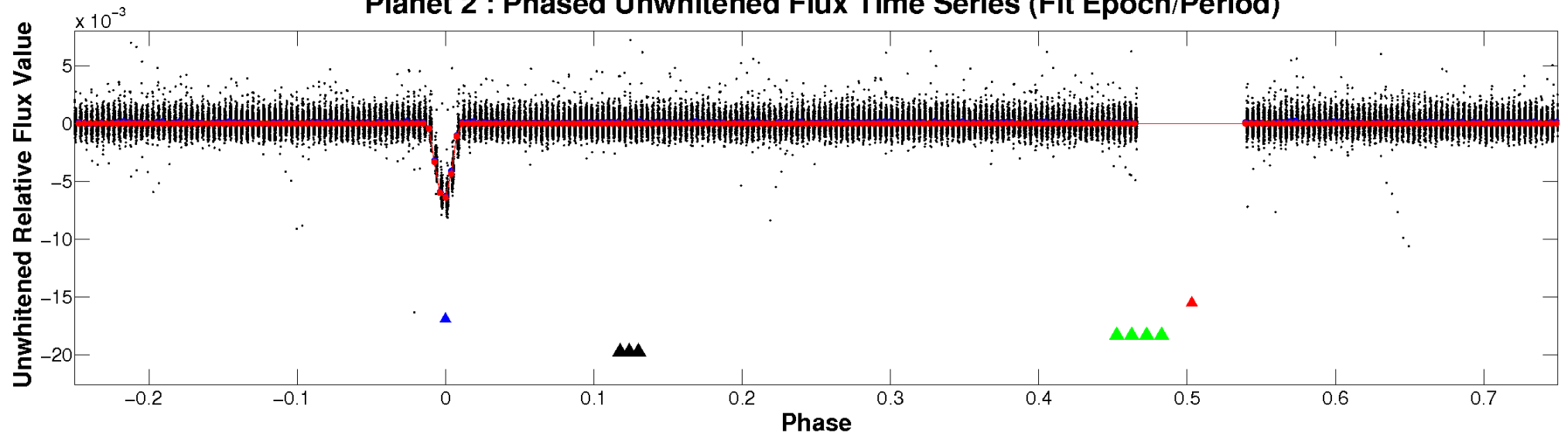
ALT Odd/Even

TCE 006128027-02

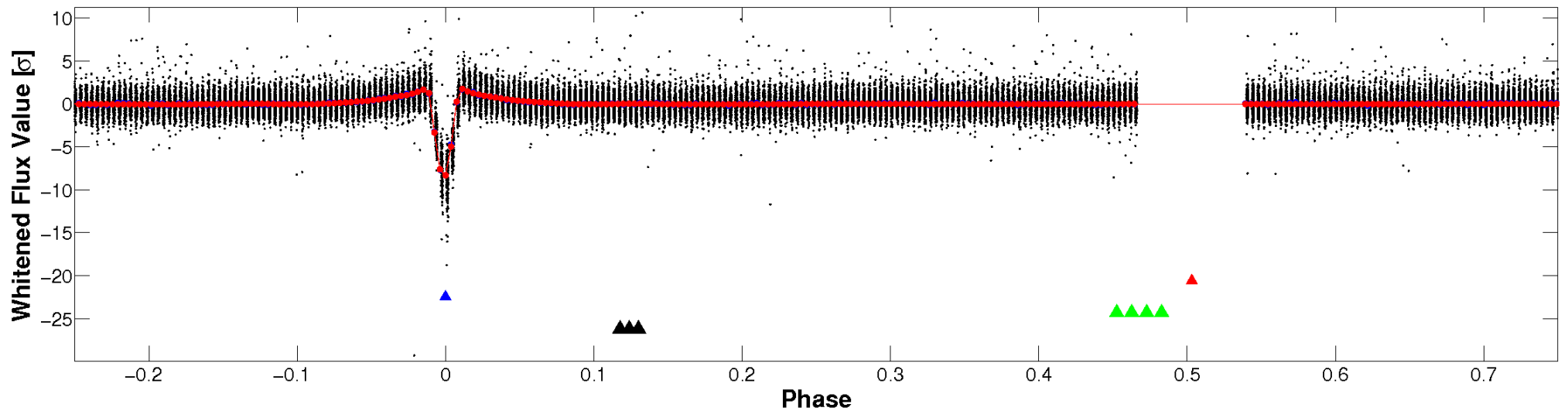


Non-Whitened Vs. Whitened Light Curve

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

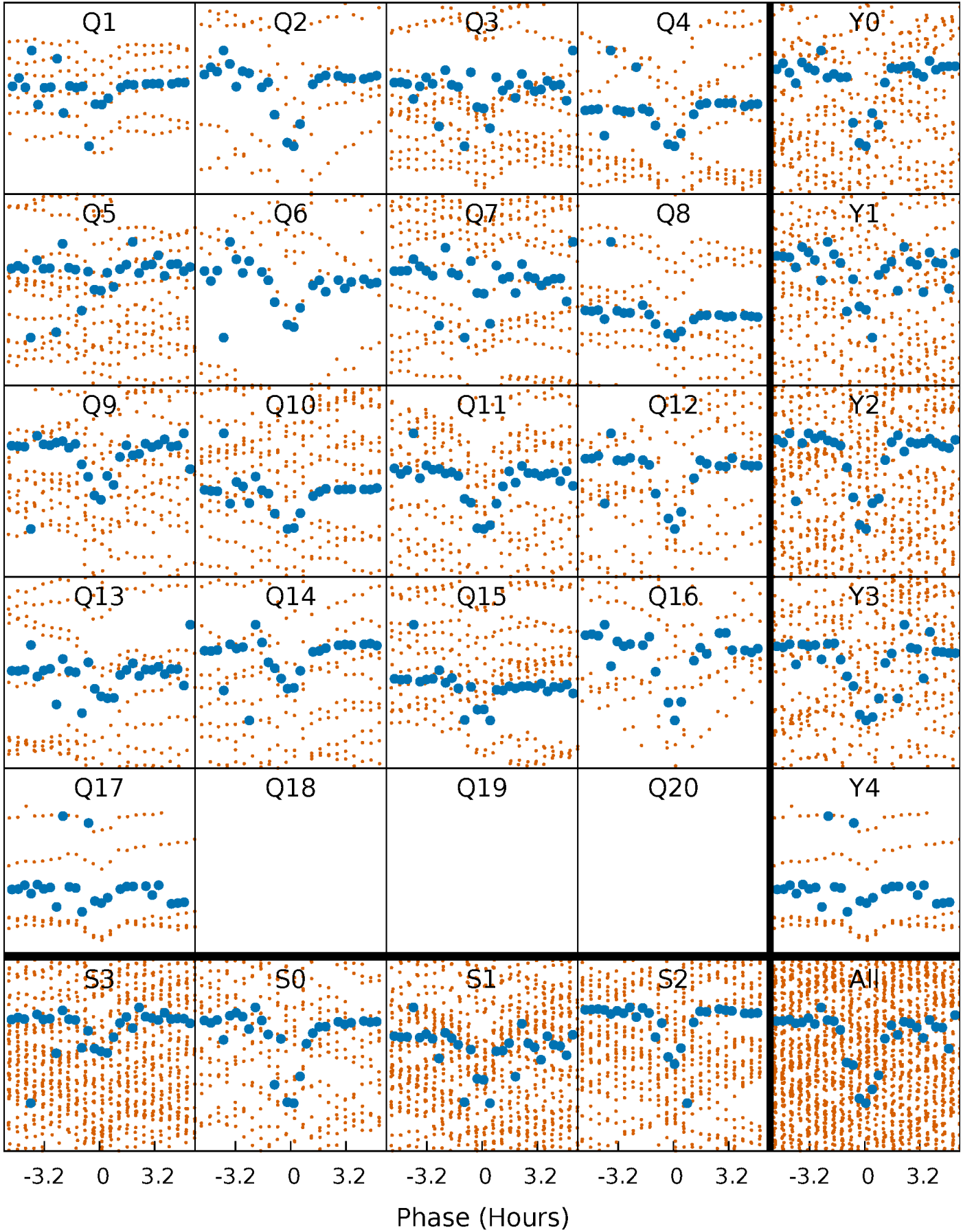


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



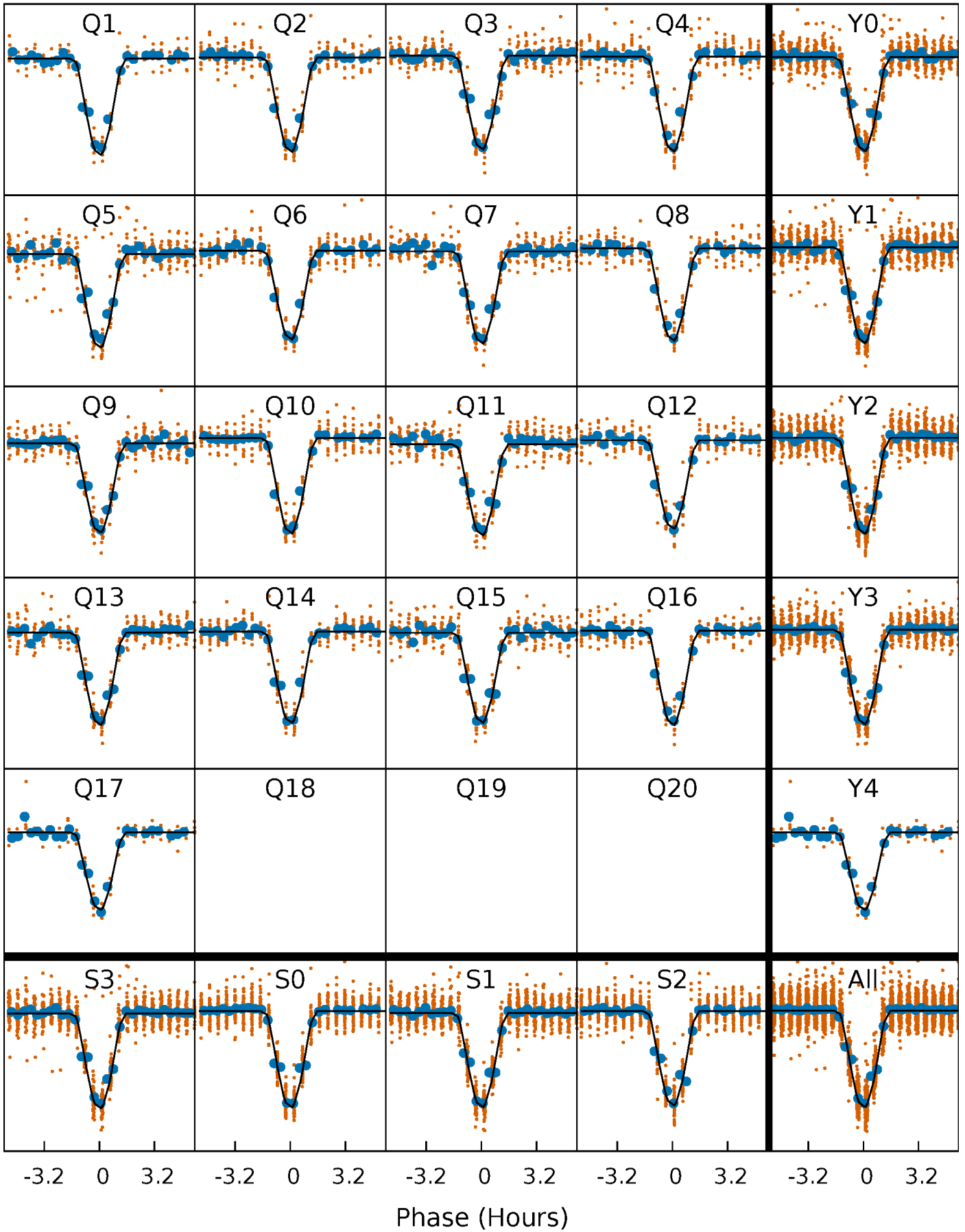
PDC Quarter-Phased Transit Curves

TCE 006128027-02 P= 5.455767 Days $T_0=134.161864$ (BKJD)



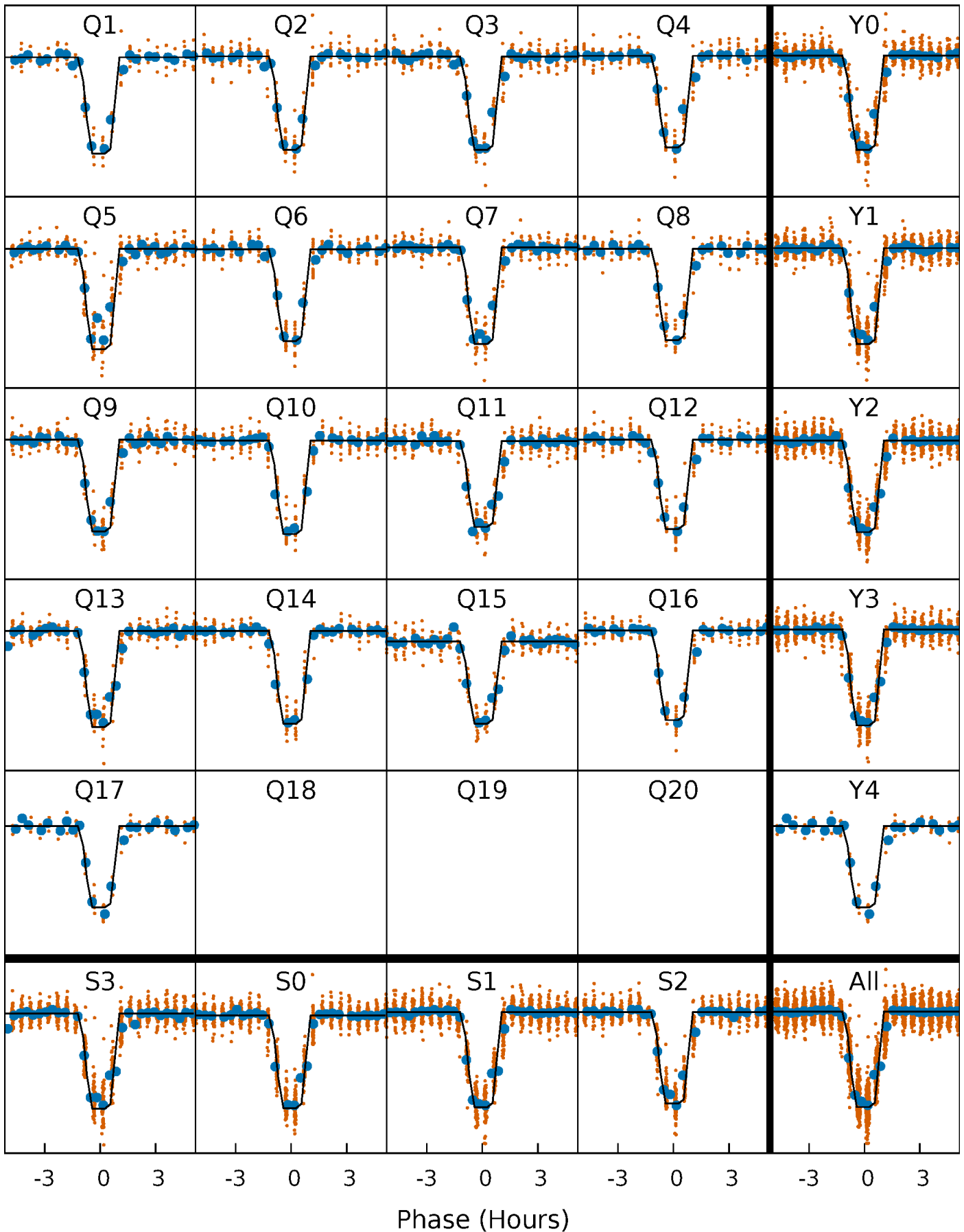
DV Quarter-Phased Transit Curves

TCE 006128027-02 P= 5.455767 Days $T_0=134.161864$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

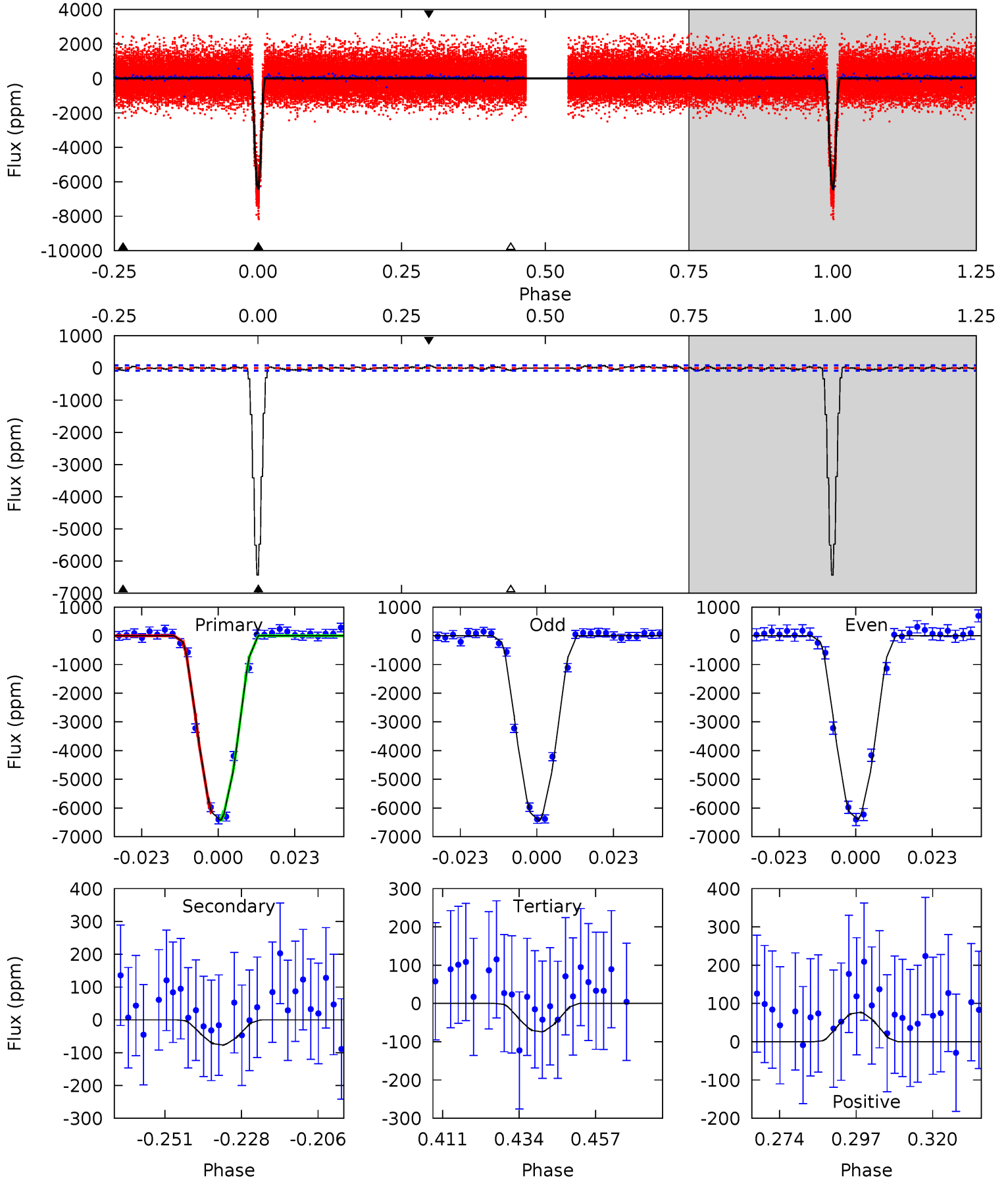
TCE 006128027-02 P= 5.455756 Days $T_0=134.163095$ (BKJD)



DV Model-Shift Uniqueness Test

006128027-02, P = 5.455767 Days, E = 128.706097 Days

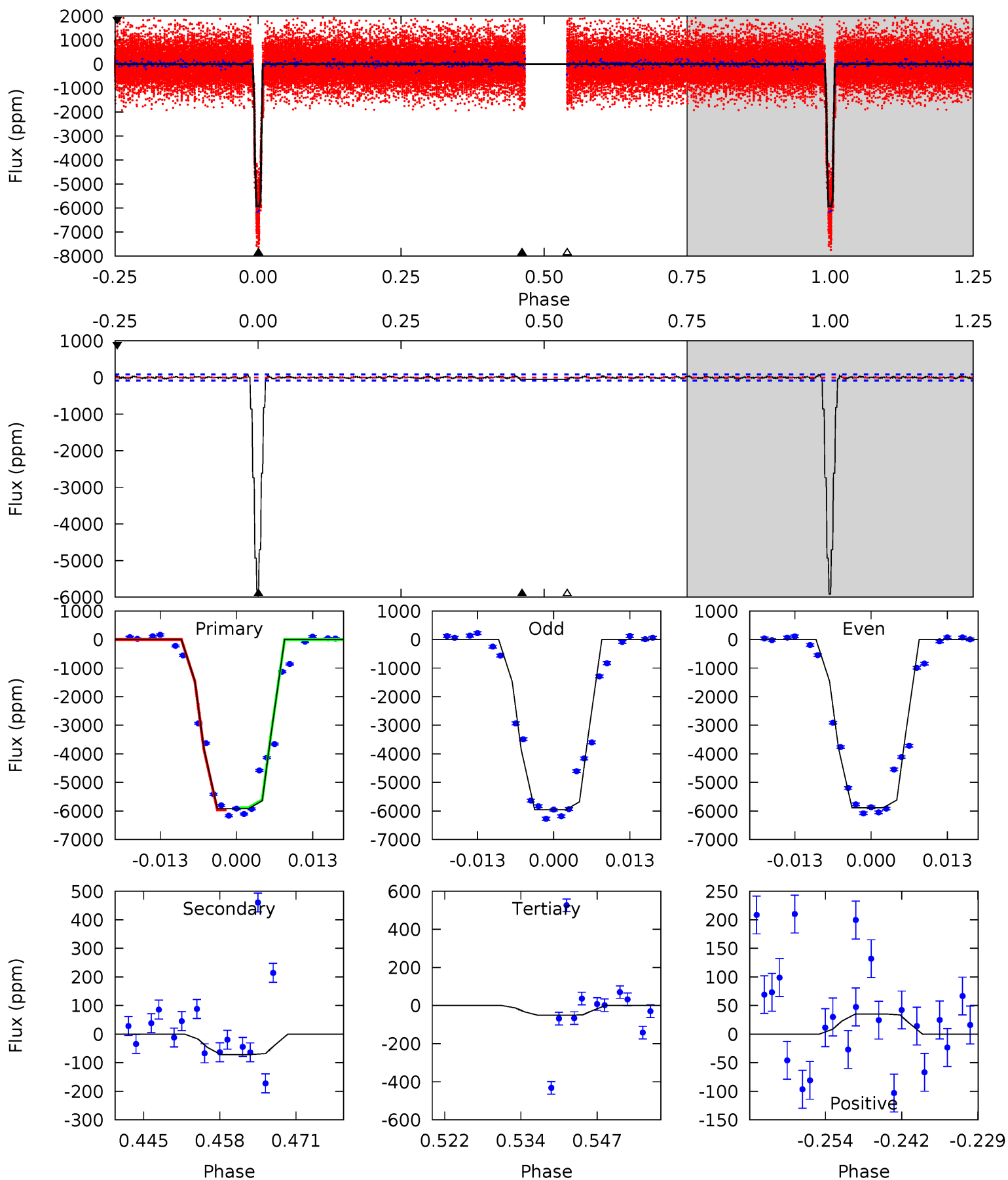
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
382.3	4.55	4.40	4.56	4.87	2.28	1.58	377.9	377.8	0.15	-0.01	1.24	0.99	0.01	7.20



Alt Model-Shift Uniqueness Test

006128027-02, P = 5.455756 Days, E = 128.707339 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
355.6	4.28	3.07	2.11	4.98	2.49	1.87	352.5	353.5	1.22	2.17	1.99	0.99	0.01	2.26



Stellar Parameters For KIC 006128027

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5067^{+151}_{-151}	$4.625^{+0.039}_{-0.066}$	$-0.320^{+0.350}_{-0.300}$	$0.694^{+0.086}_{-0.058}$	$0.742^{+0.079}_{-0.071}$	$3.126^{+0.567}_{-0.742}$
	+3%/-3%	+1%/-1%	+109%/-94%	+12%/-8%	+11%/-10%	+18%/-24%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006128027-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-77 ± 17	$9.81^{+1.74}_{-1.80}$	1119^{+44}_{-41}	2181^{+129}_{-127}	$1.302^{+0.701}_{-0.429}$
Alt.	-71 ± 17	$6.18^{+1.69}_{-1.78}$	1119^{+42}_{-41}	2444^{+256}_{-177}	$3.025^{+3.181}_{-1.261}$

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

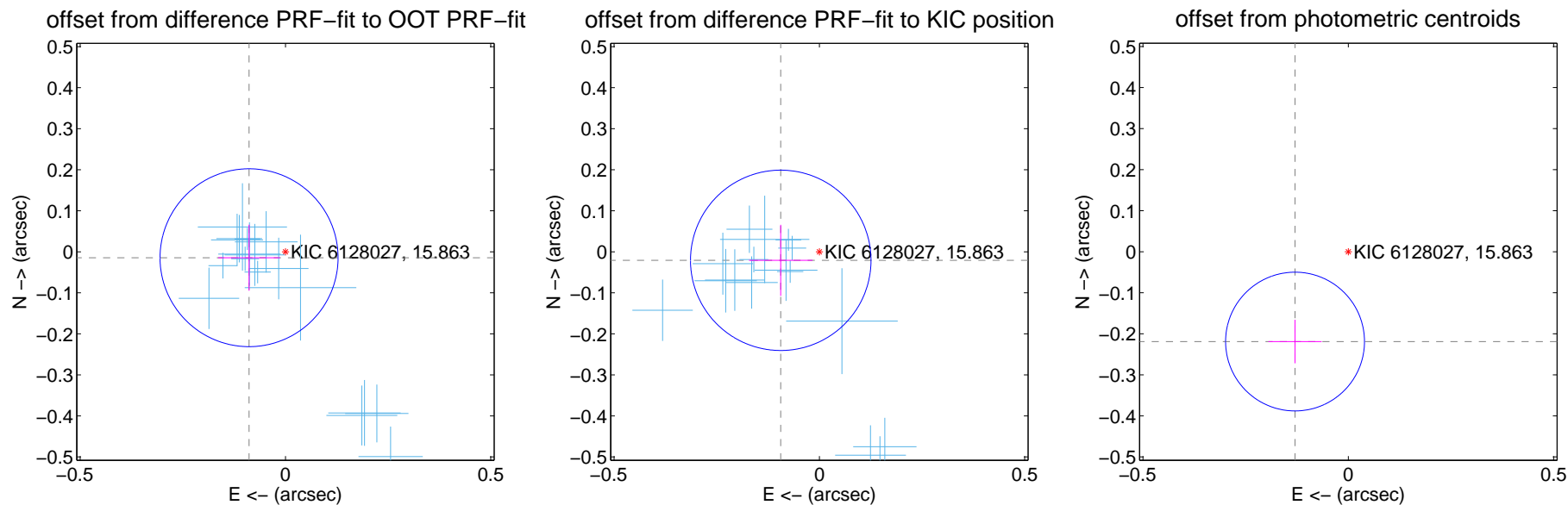
DV Centroid Data

Supplemental centroid analysis for 006128027-02. Kepler magnitude: 15.86. Transit SNR 204.57

There are 17 quarters with good PRF difference image offsets

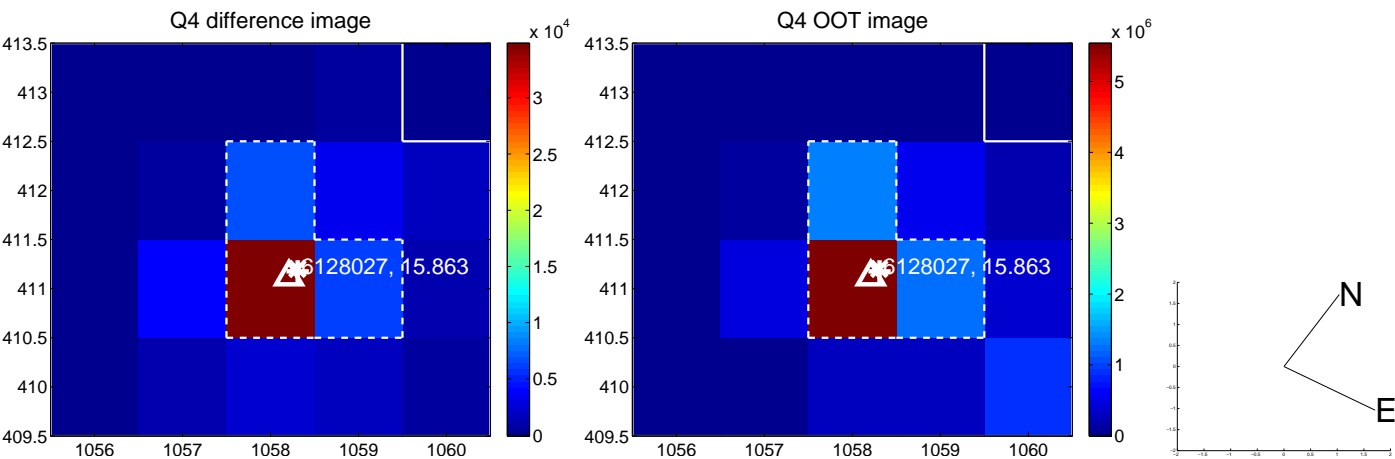
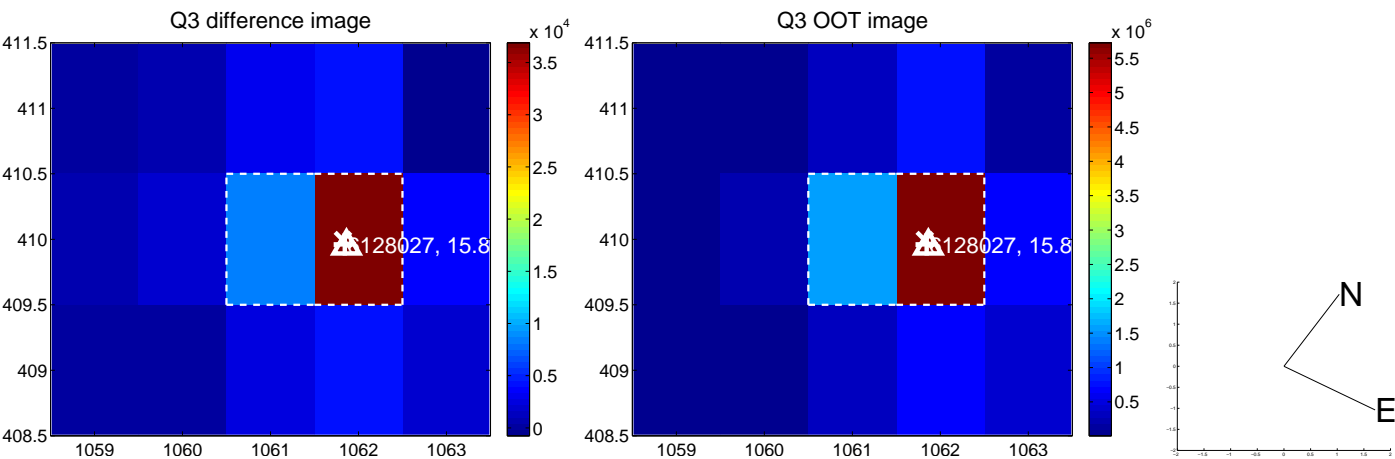
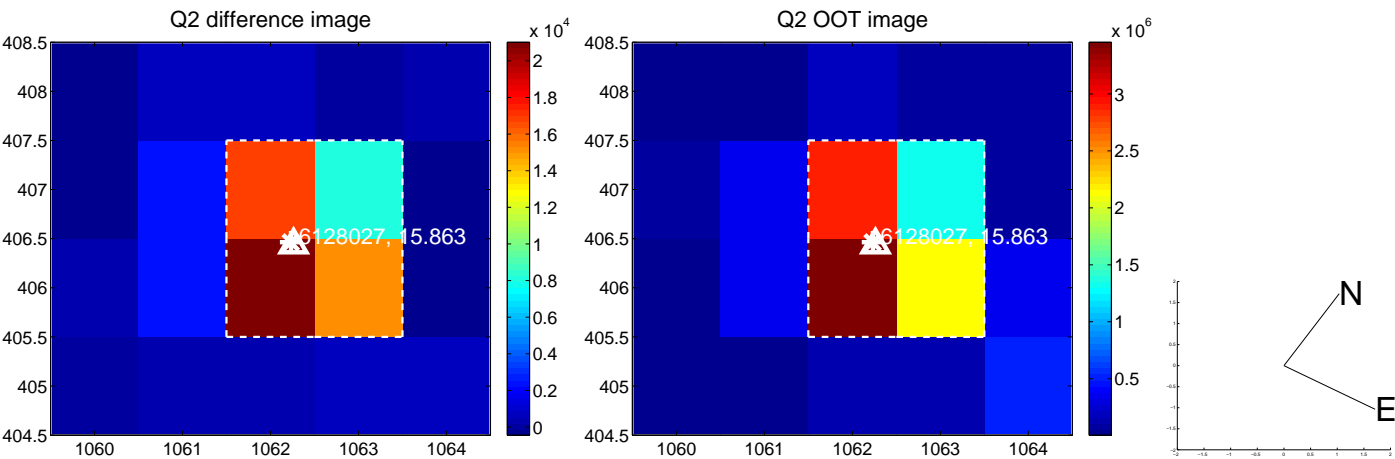
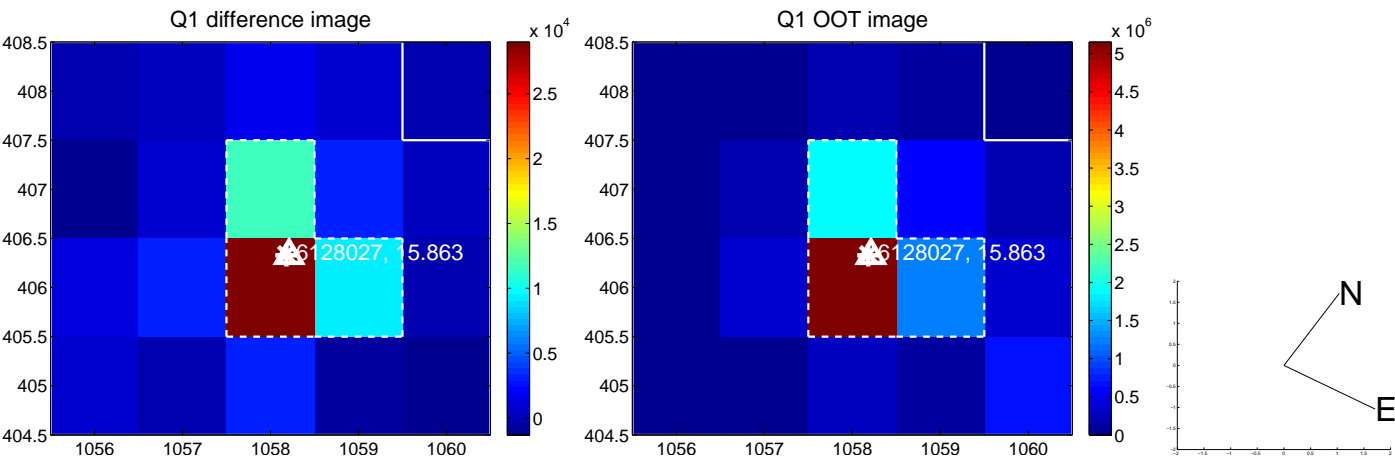
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.090 ± 0.072	1.24	0.089 ± 0.075	-0.014 ± 0.080
PRF-fit source offset from KIC position	0.096 ± 0.073	1.31	0.094 ± 0.077	-0.021 ± 0.087
photometric centroid source offset	0.25 ± 0.06	4.51	0.13 ± 0.06	-0.22 ± 0.05

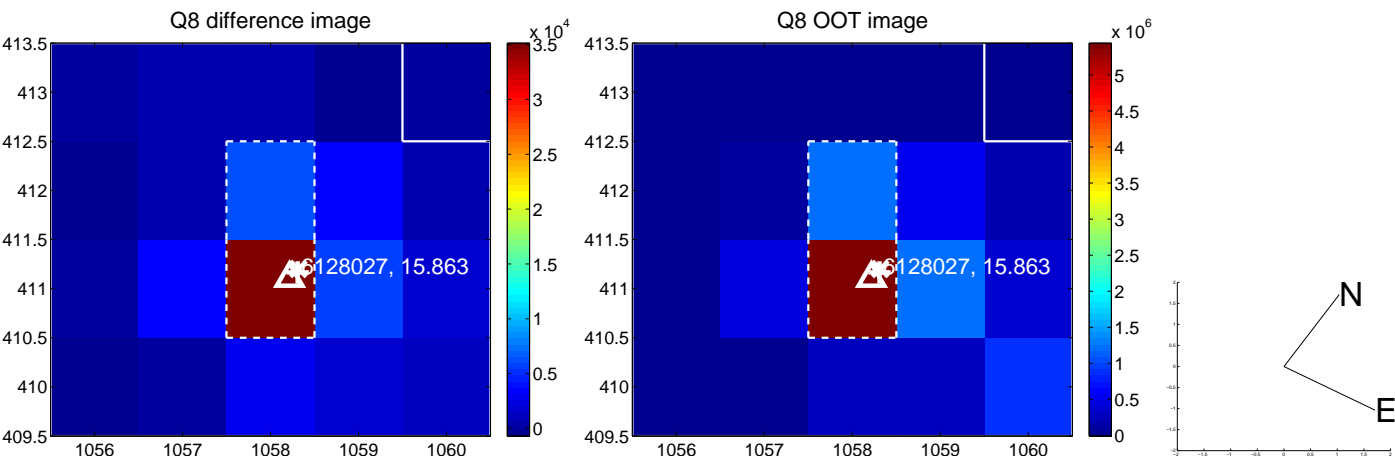
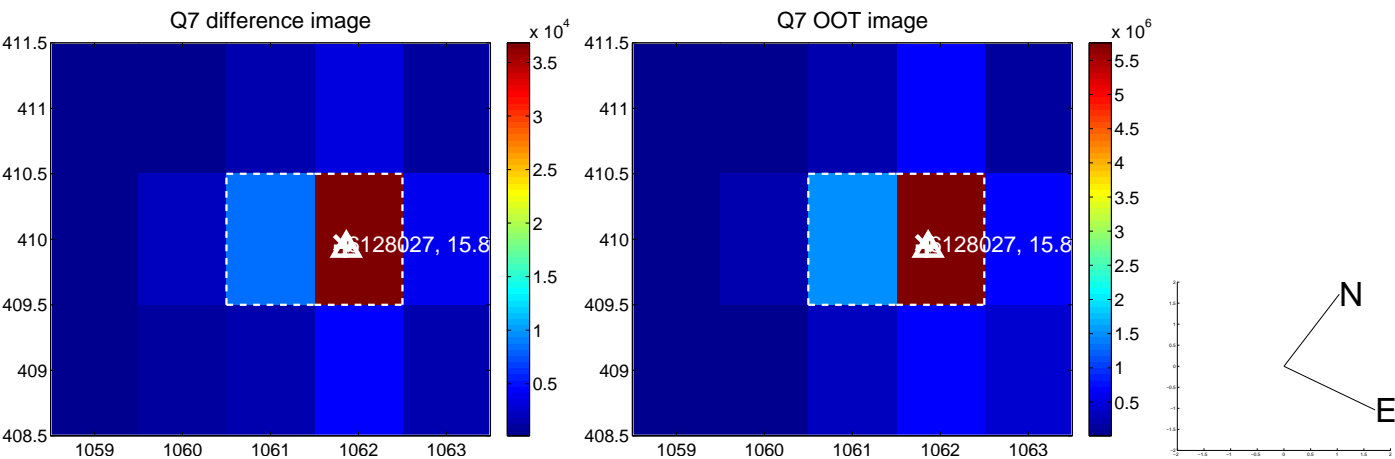
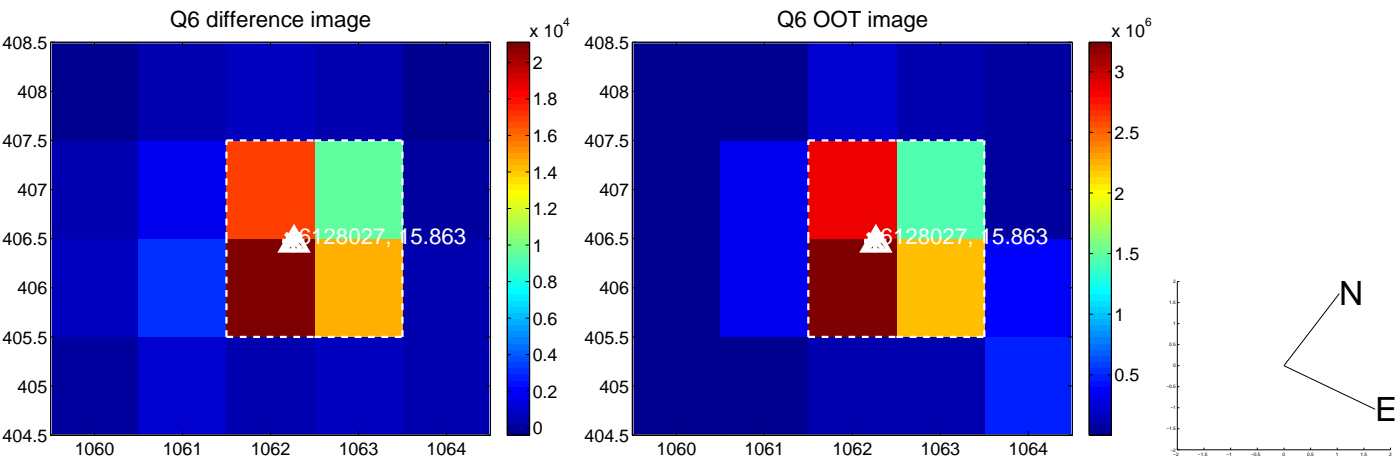
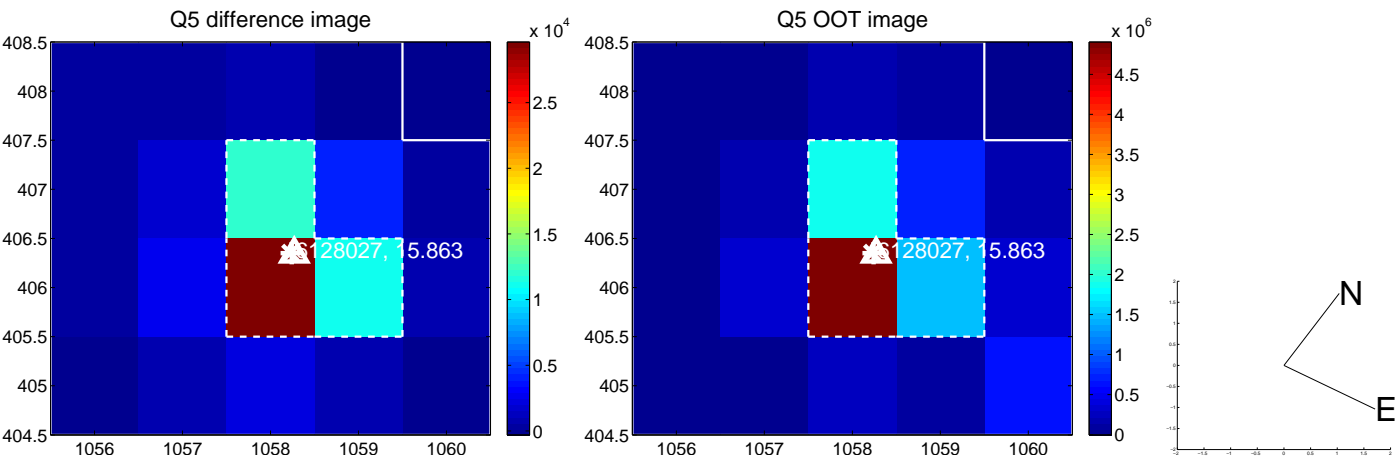


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

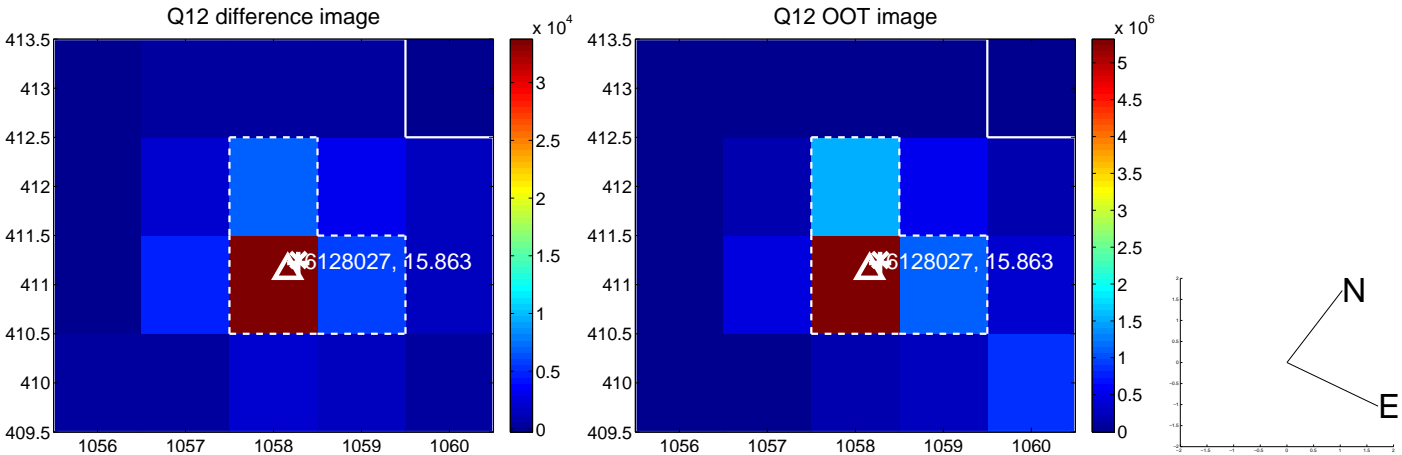
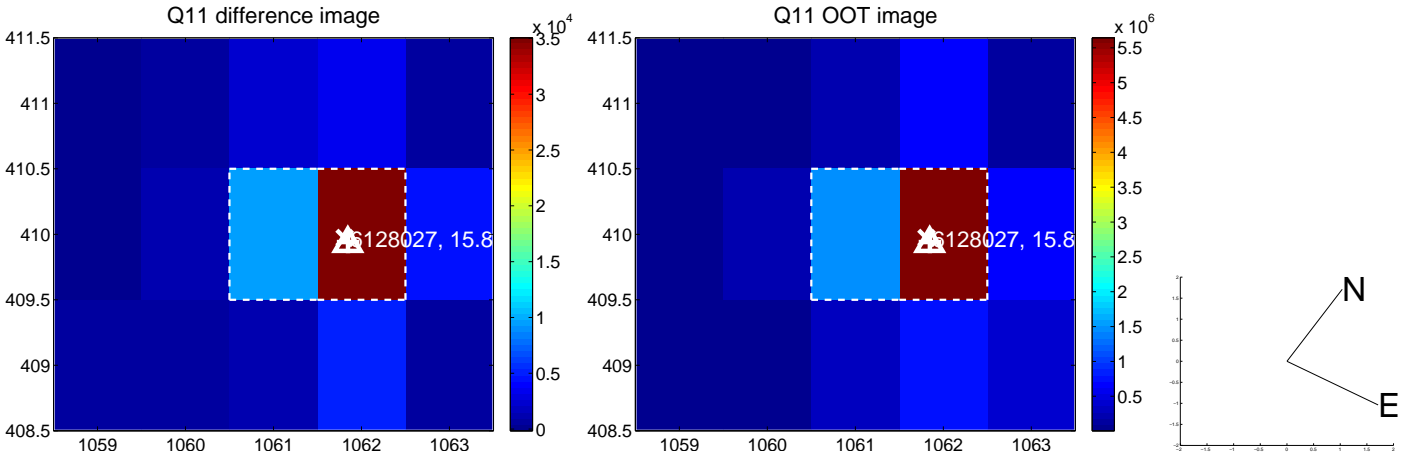
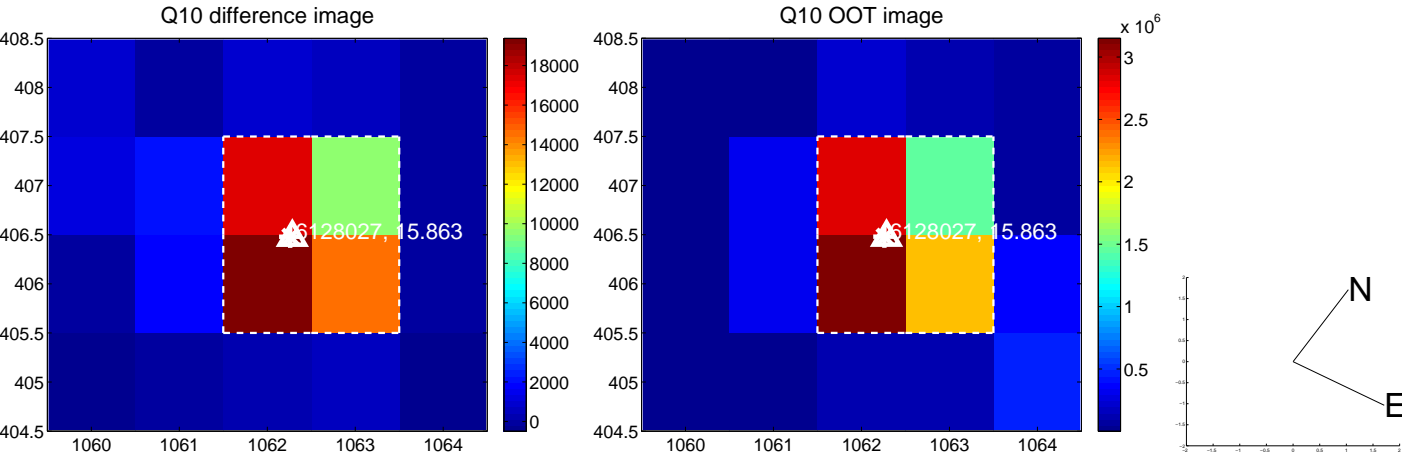
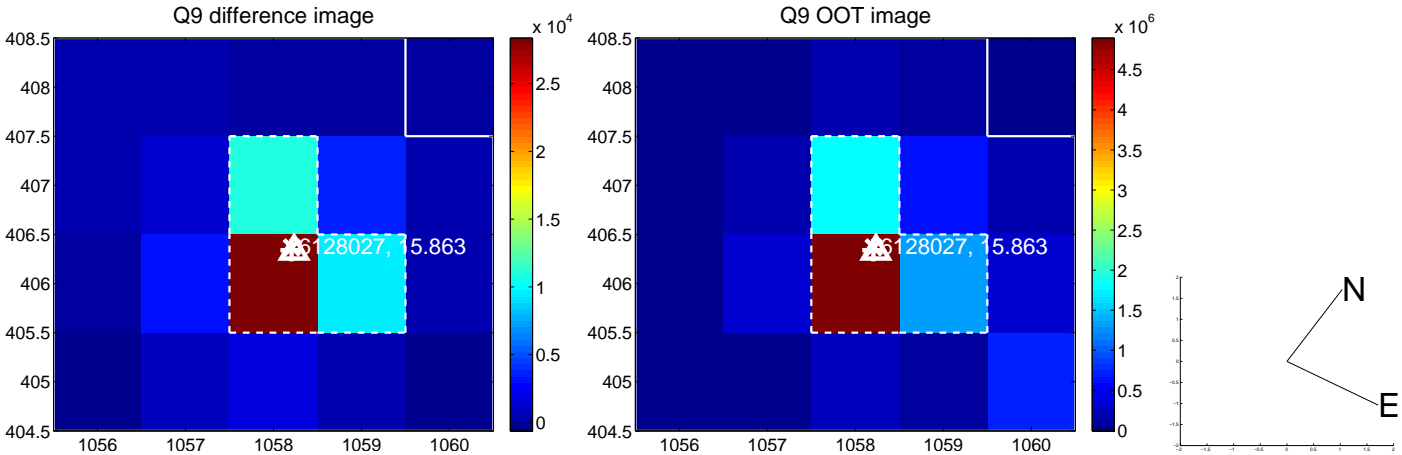
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



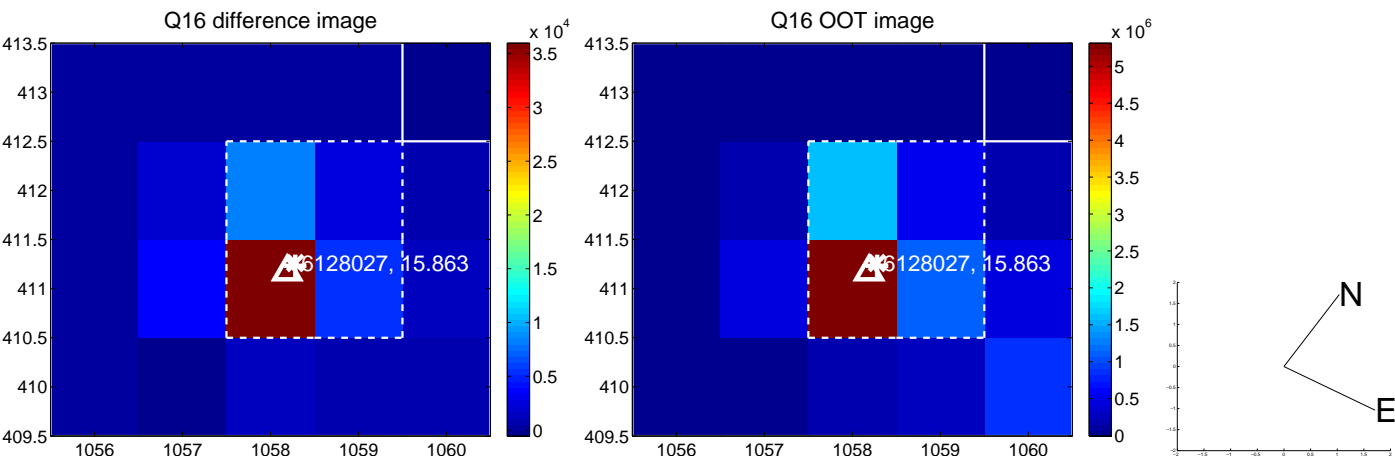
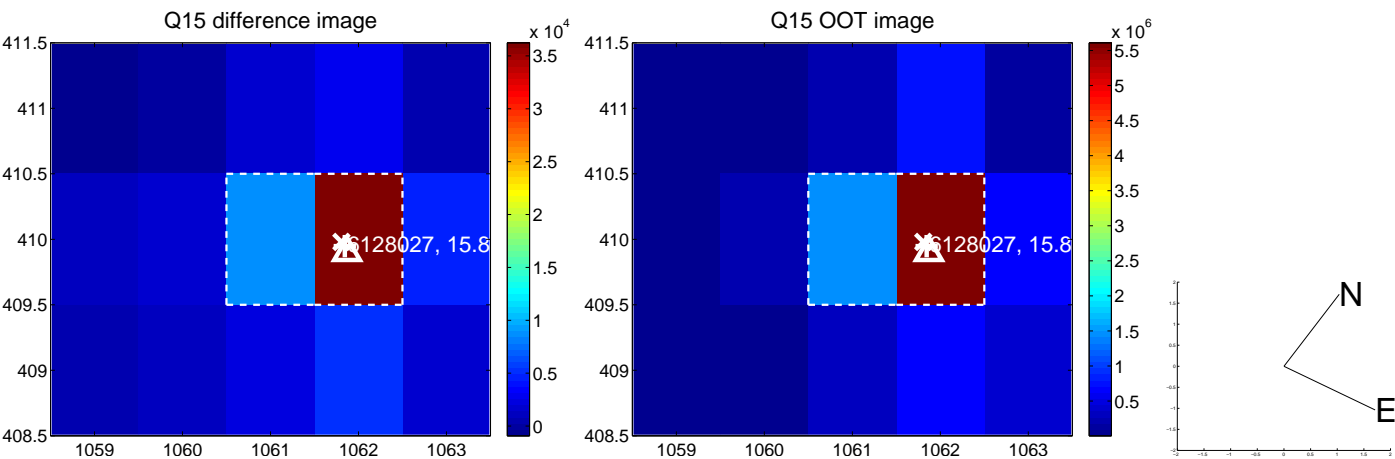
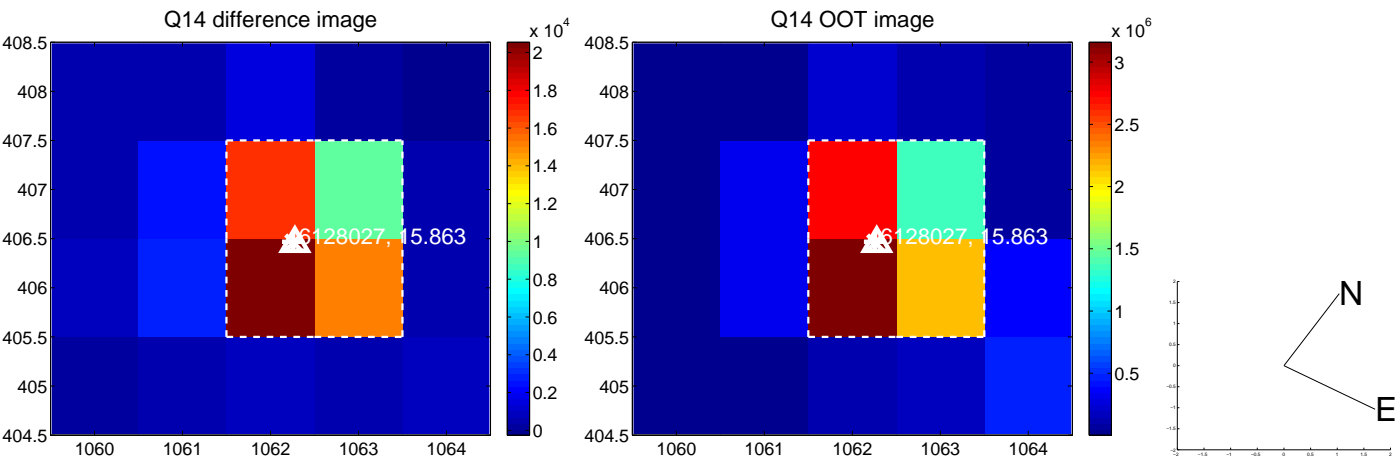
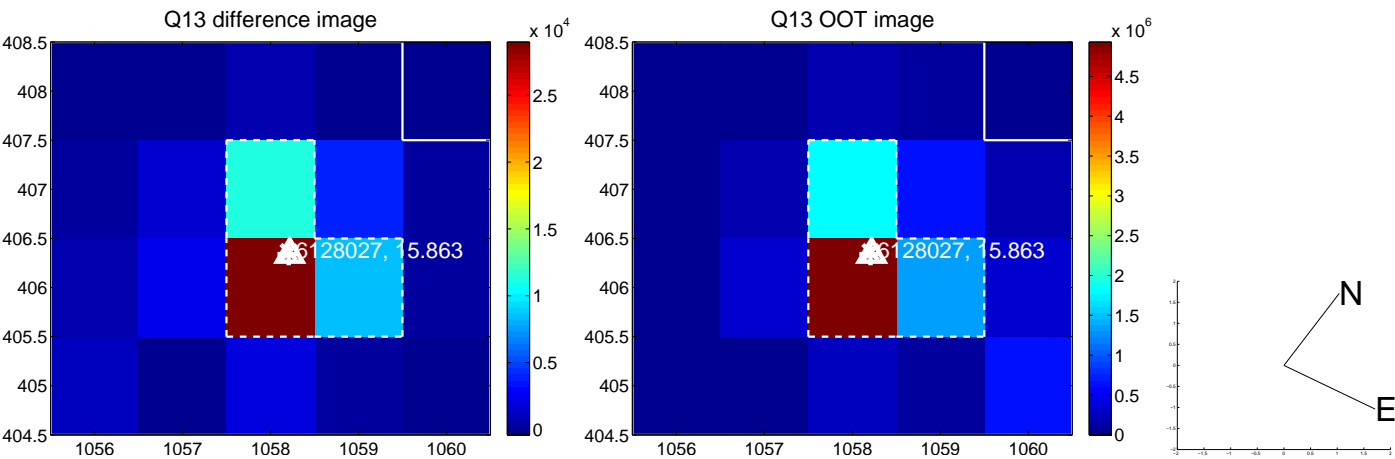
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



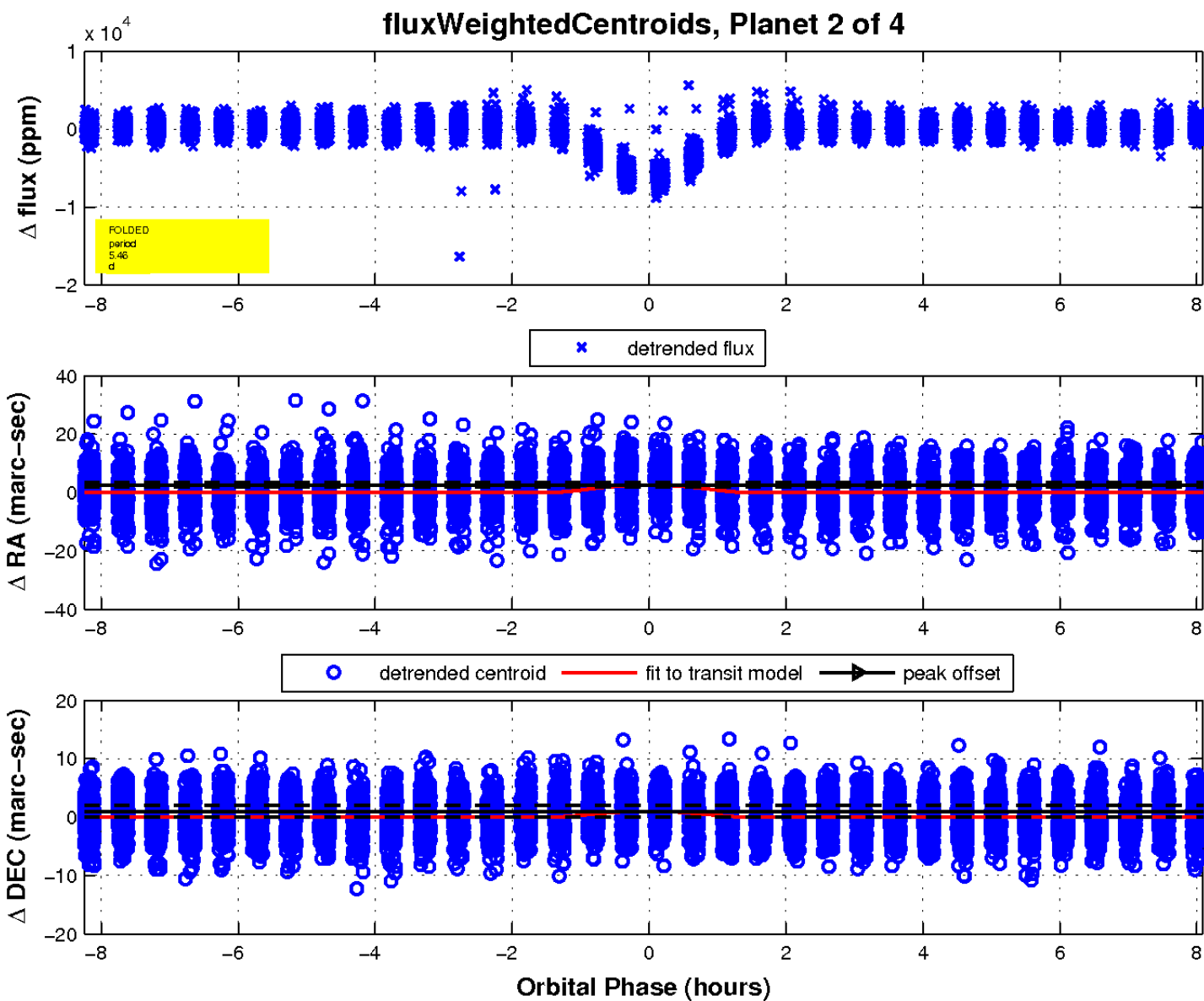
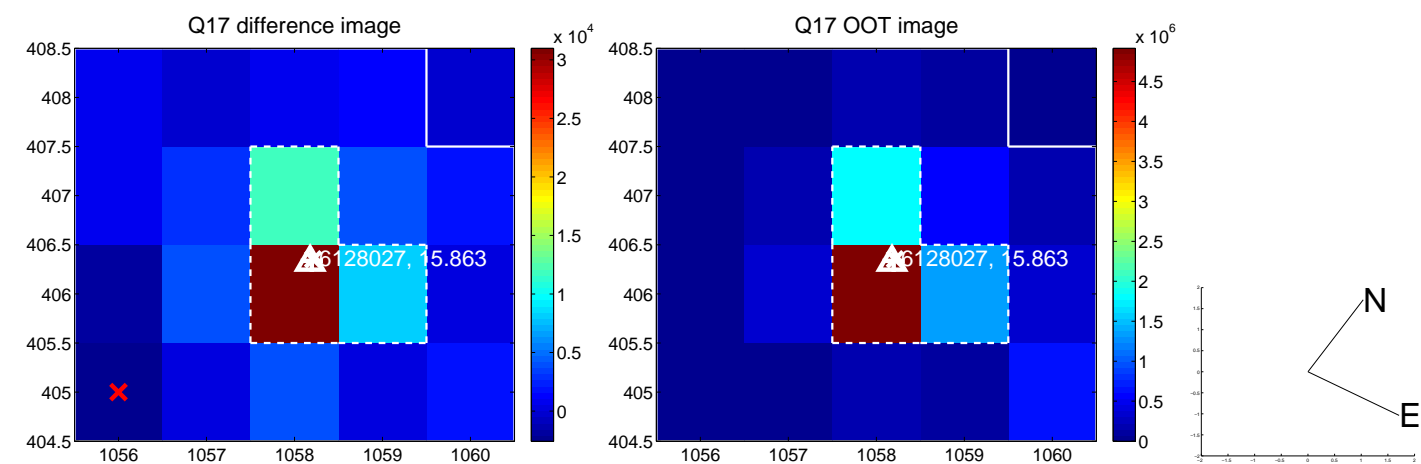
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

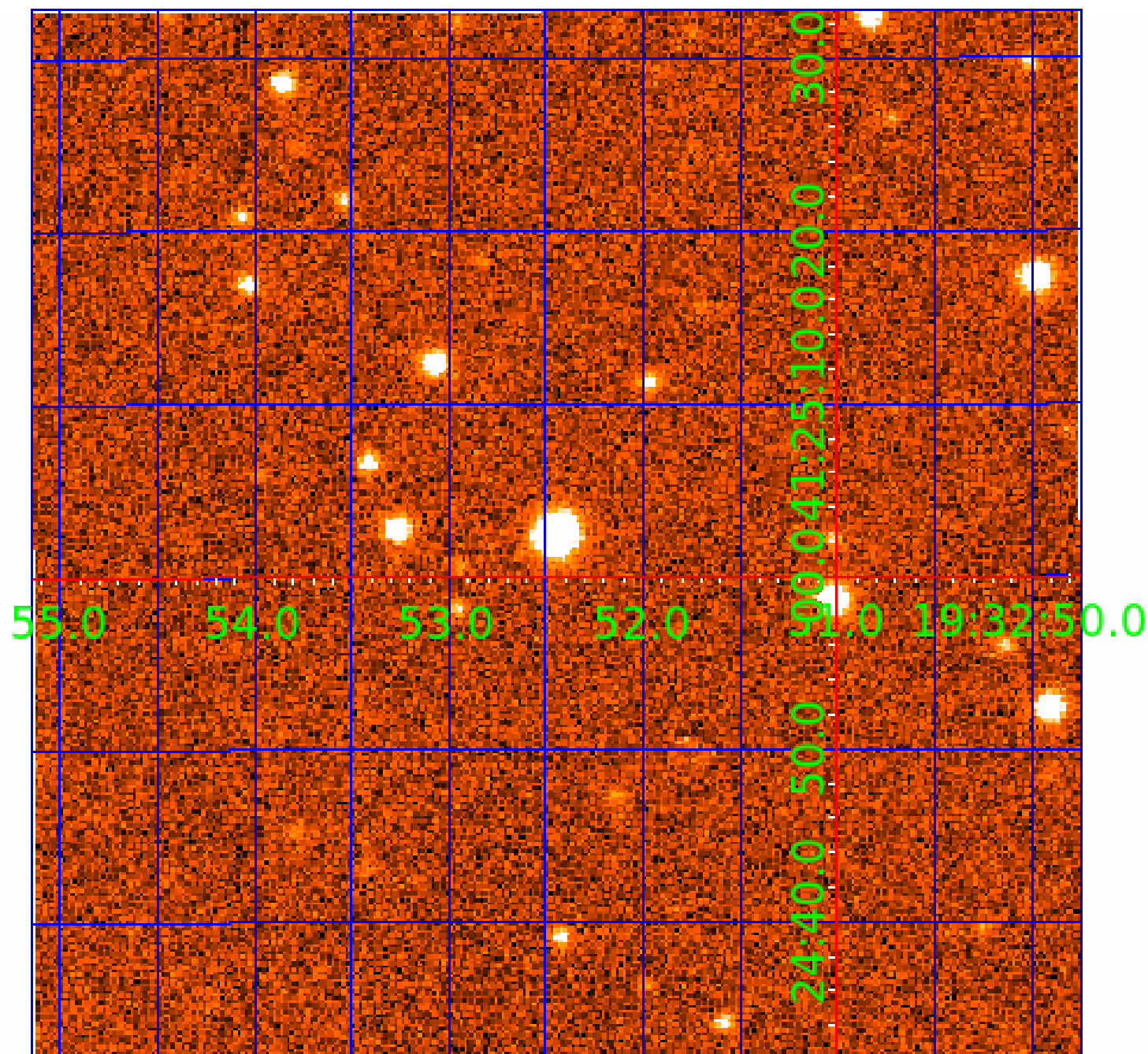


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006128027

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})
006128027-01	OBS	6020.01	5.455766	136.907283	104137.2	2.908	3156.4	2220.6	0.69	5067	33.09	94.41
006128027-02	OBS	No	5.455767	134.161864	6529.5	2.775	203.8	204.6	0.69	5067	9.67	94.41
006128027-03	OBS	No	392.870197	251.202118	2445.1	4.015	12.5	8.0	0.69	5067	3.49	0.32
006128027-04	OBS	No	512.808333	434.938782	1653.8	4.043	8.8	6.7	0.69	5067	2.79	0.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006128027-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006128027-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
006128027-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006128027-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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 006128027-03

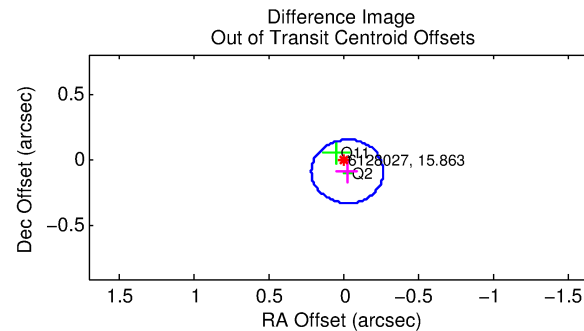
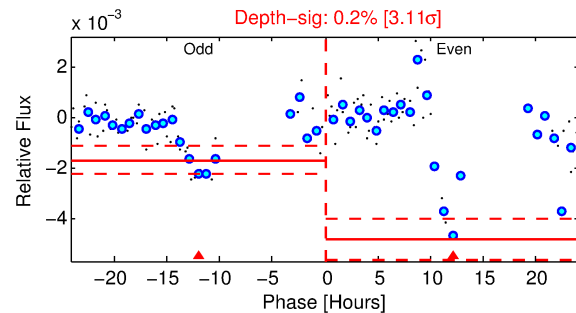
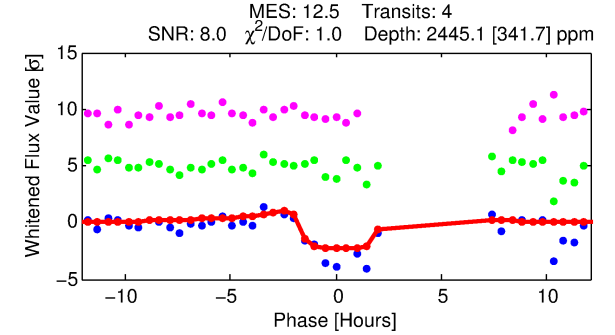
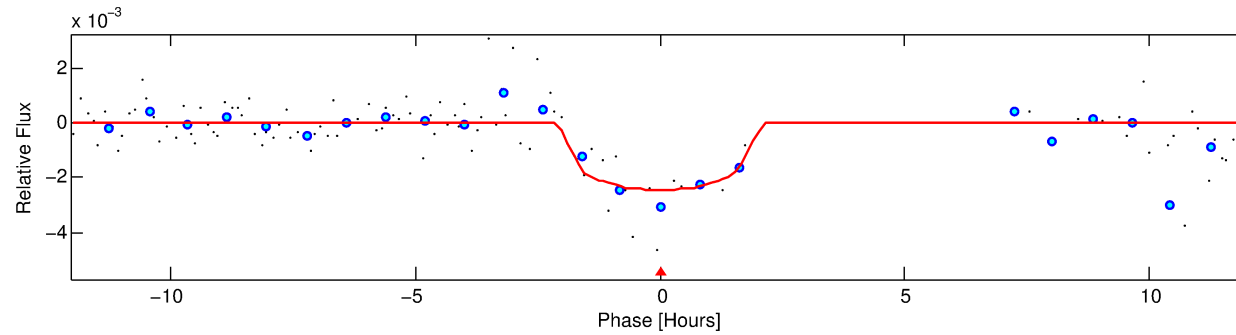
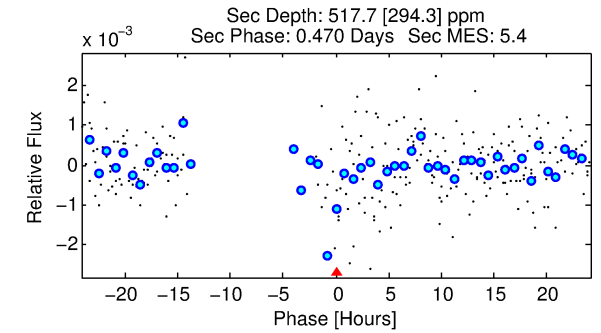
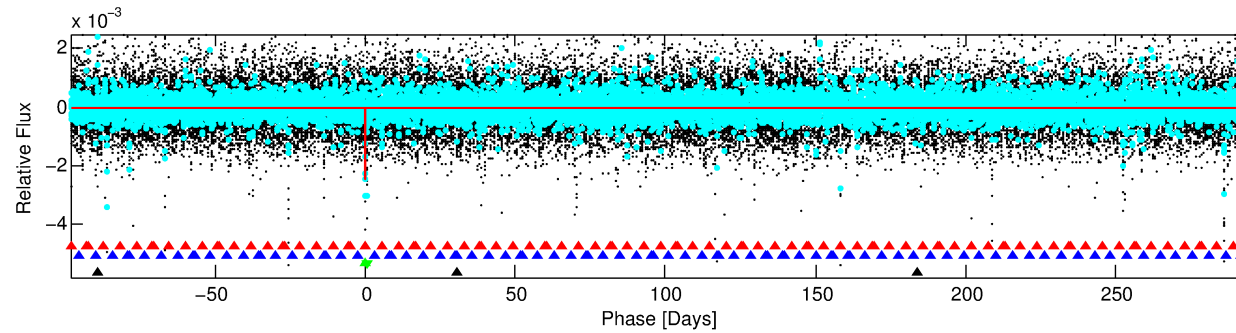
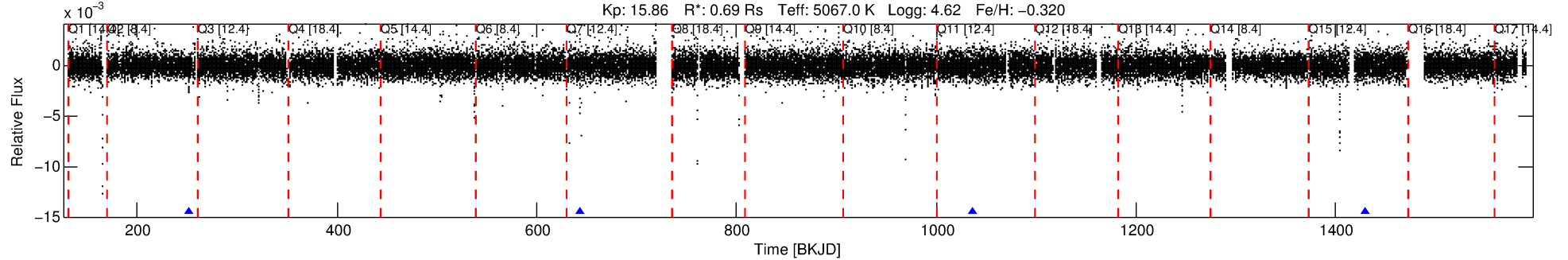
No Significant Match Found

DV One-Page Summary

KIC: 6128027 Candidate: 3 of 4 Period: 392.870 d

KOI: K06020 Corr: No Ephemeris Match

Kp: 15.86 R*: 0.69 Rs Teff: 5067.0 K Logg: 4.62 Fe/H: -0.320



DV Fit Results:

Period = 392.87020 [0.00680] d
Epoch = 251.2021 [0.0061] BKJD
Rp/R* = 0.0461 [0.0587]
a/R* = 677.12 [3076.70]
b = 0.52 [6.40]
Seff = 0.32 [0.06]
Teq = 191 [8] K
Rp = 3.49 [4.46] Re
a = 0.9501 [0.0921] AU
Ag = 21110.09 [55133.02] [0.38σ]
Teffp = 3560 [2324] K [1.45σ]

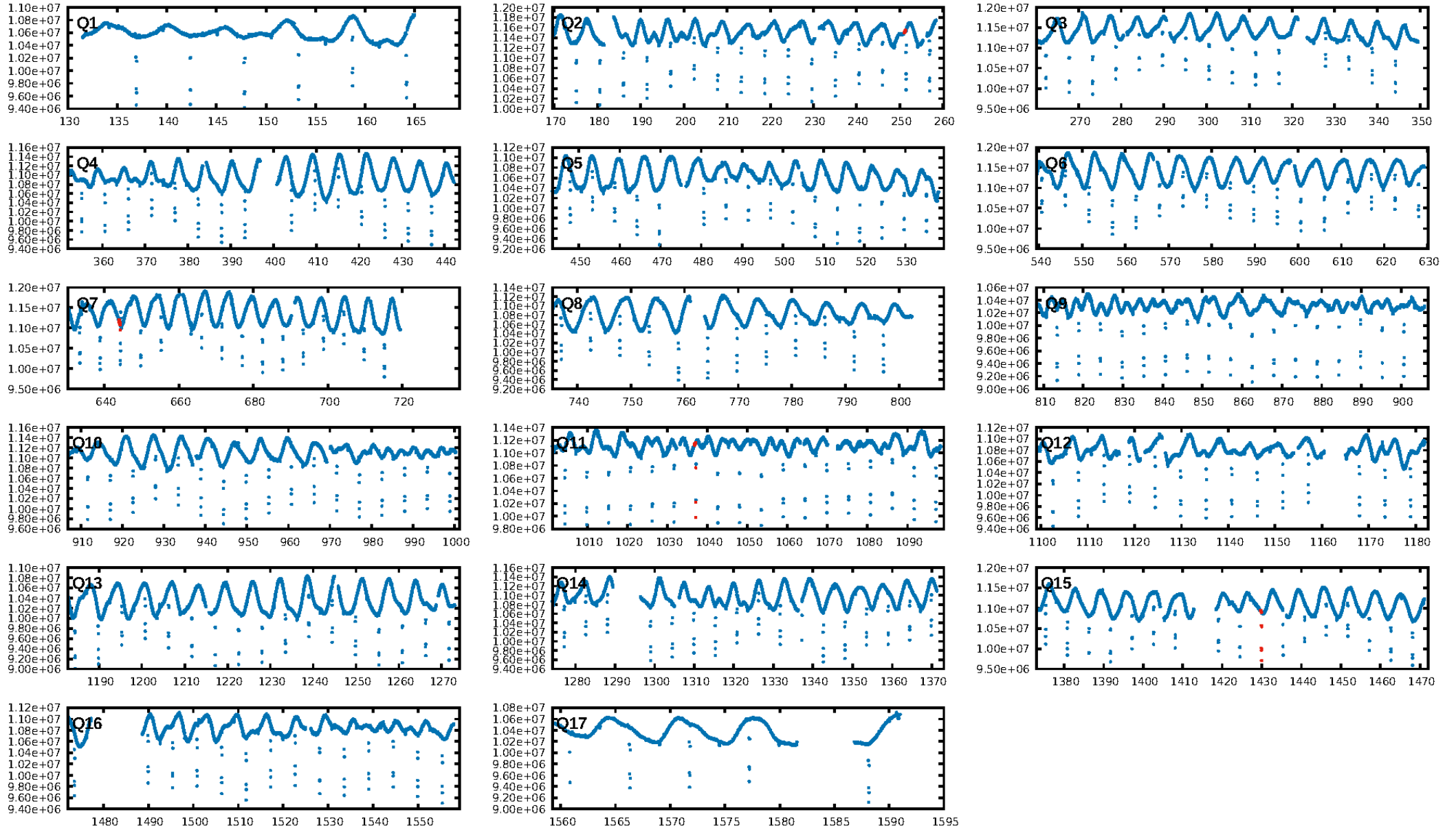
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1905.10σ]
LongPeriod-sig: 100.0% [505.15σ]
ModelChiSquare2-sig: 10.8%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 6.60e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.5844
Centroid-sig: 18.3%
Centroid-so: 0.613 arcsec [0.82σ]
OotOffset-rm: 0.091 arcsec [1.14σ]
KicOffset-rm: 0.064 arcsec [0.48σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/3]

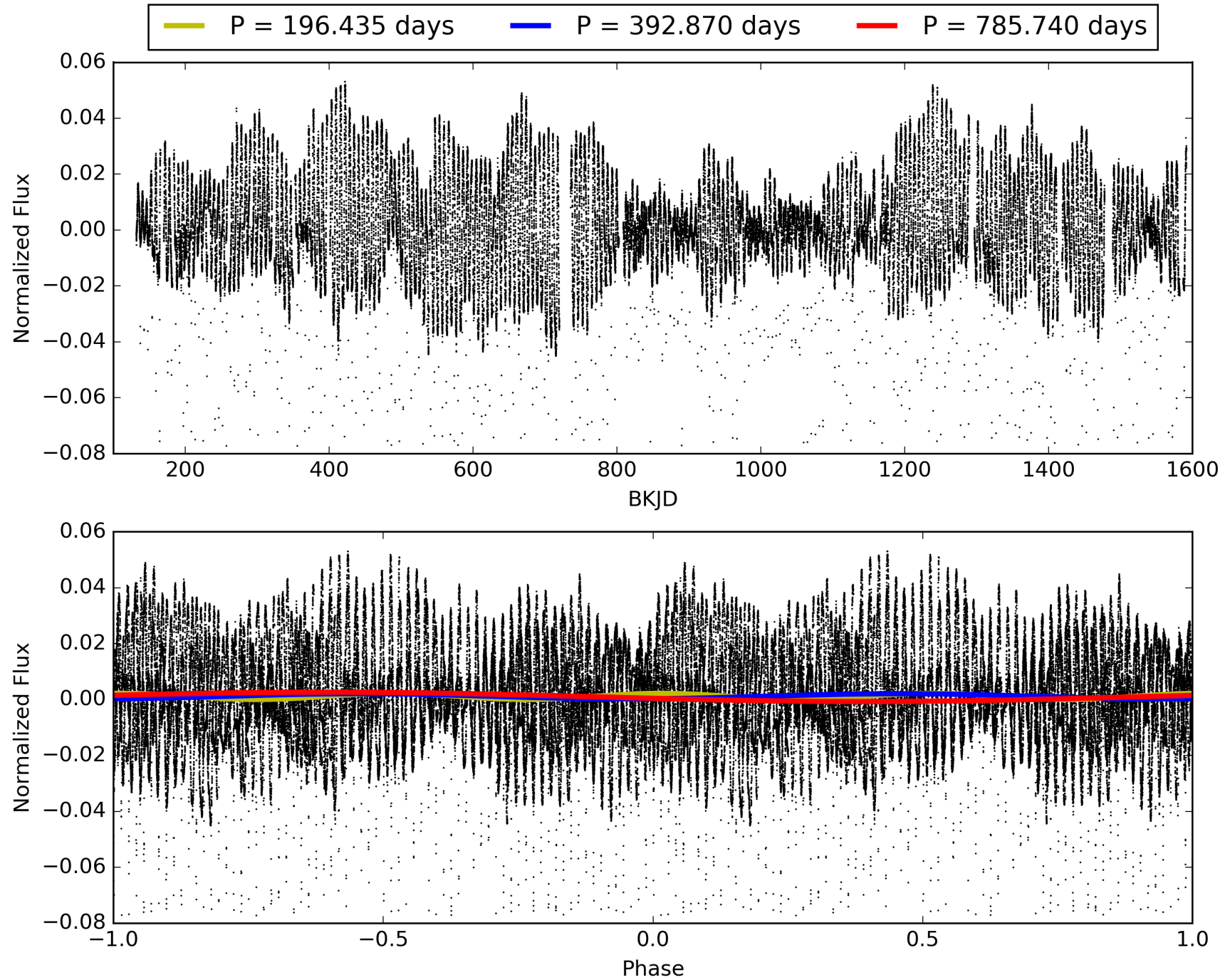
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:57:06 Z

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

TCE 006128027-03, PDC Light Curves

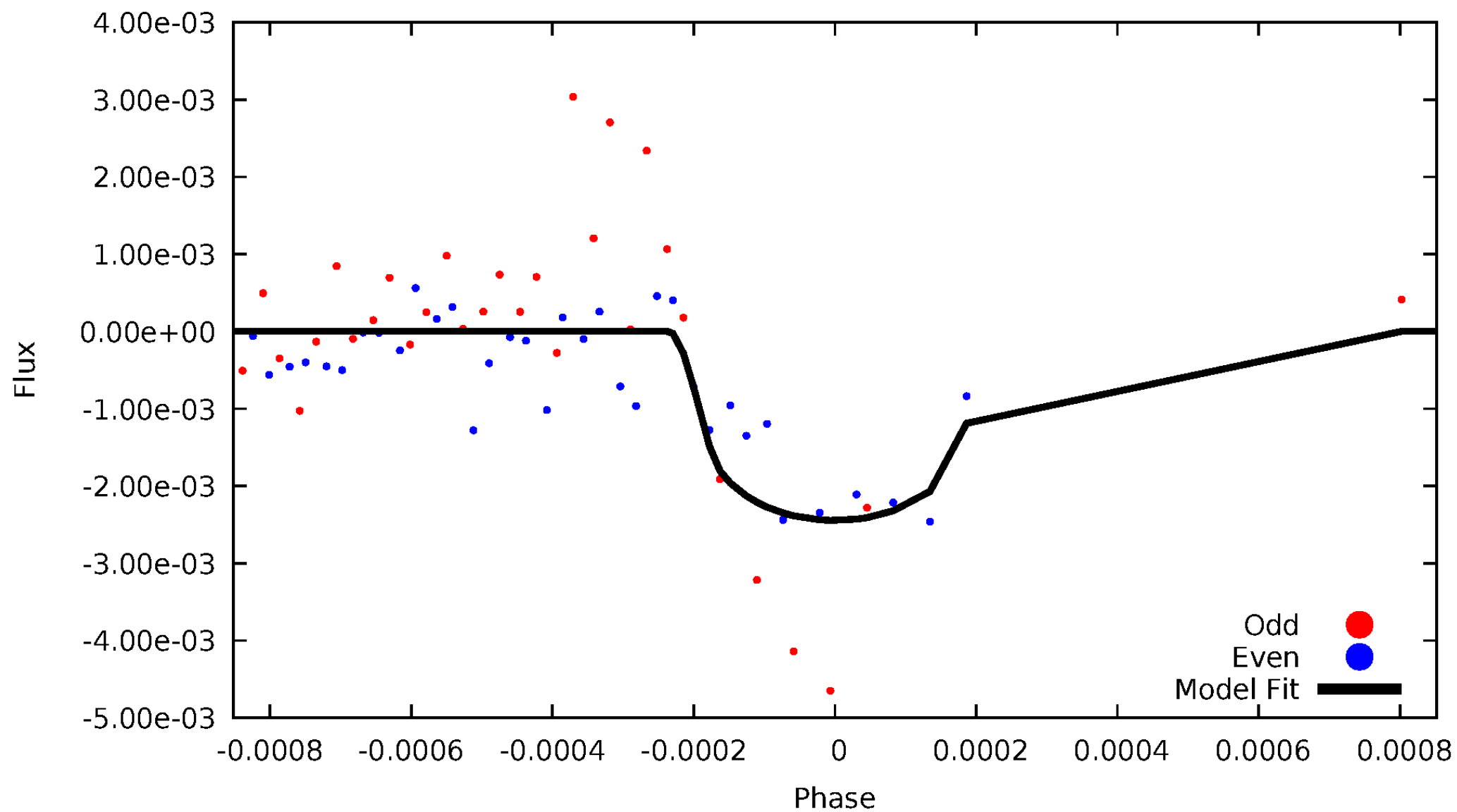


TCE 006128027-03



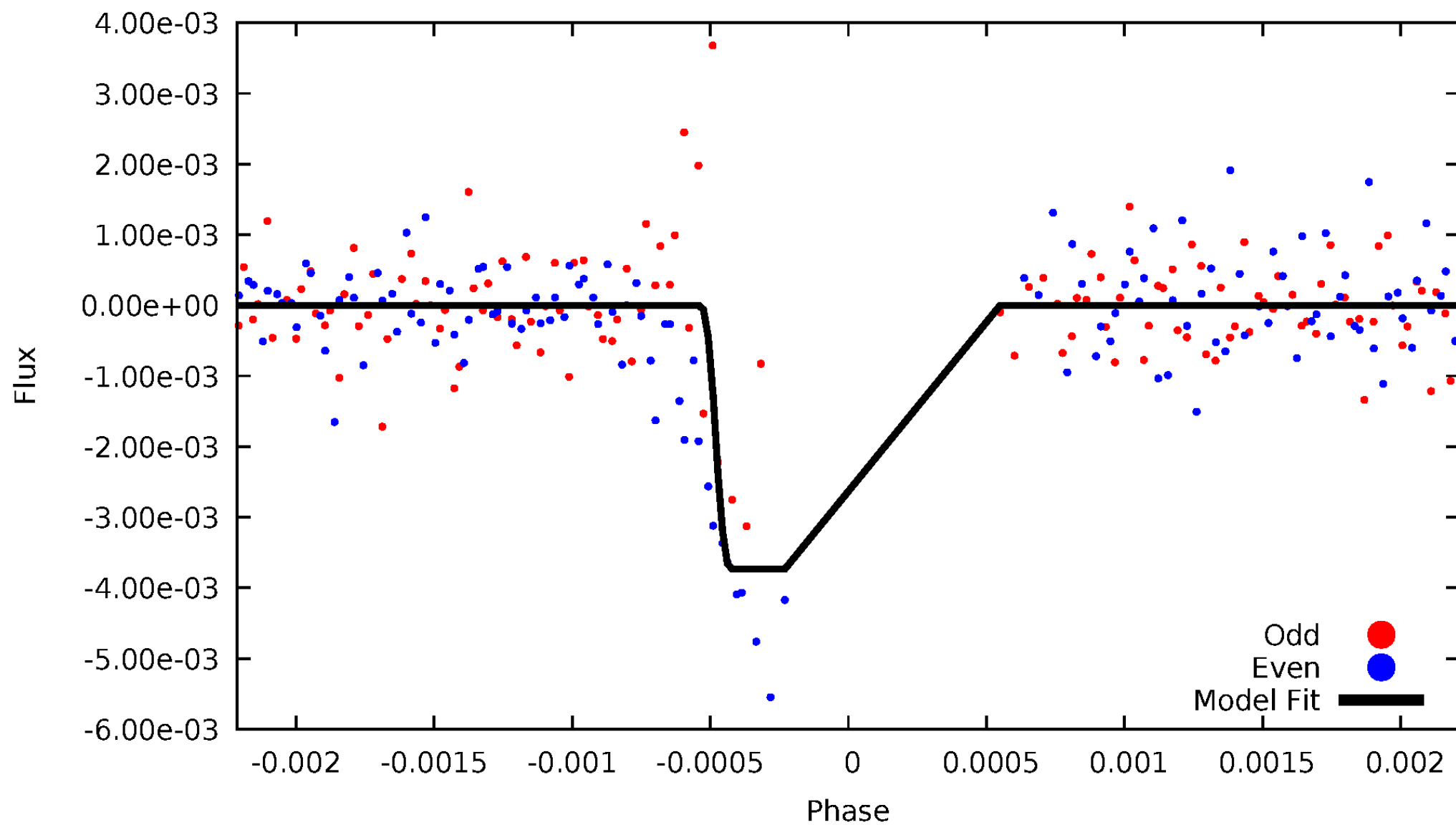
DV Odd/Even

TCE 006128027-03



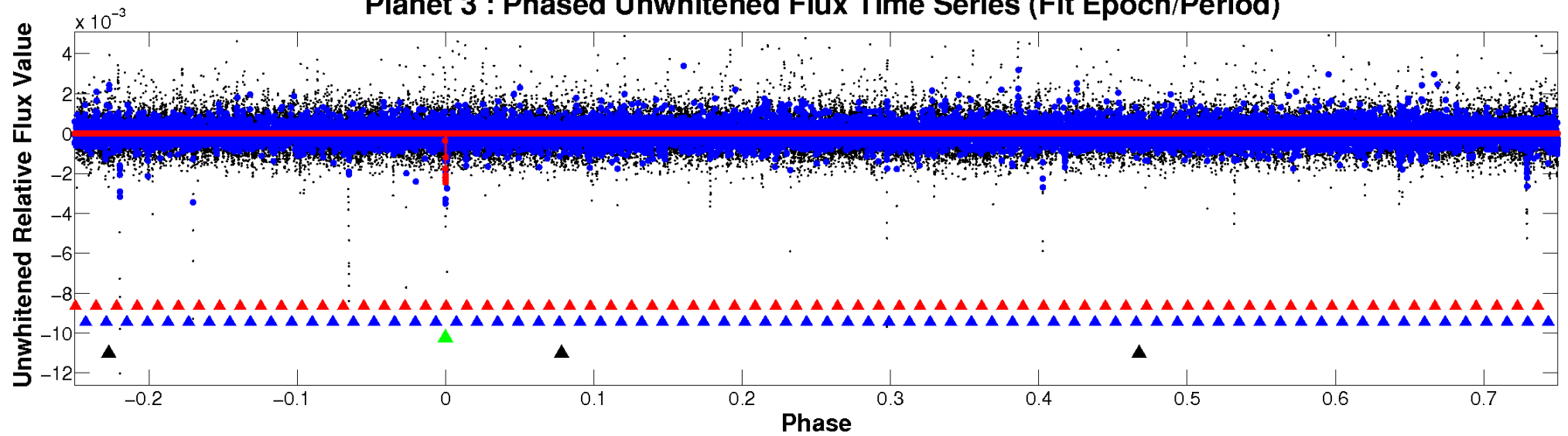
ALT Odd/Even

TCE 006128027-03

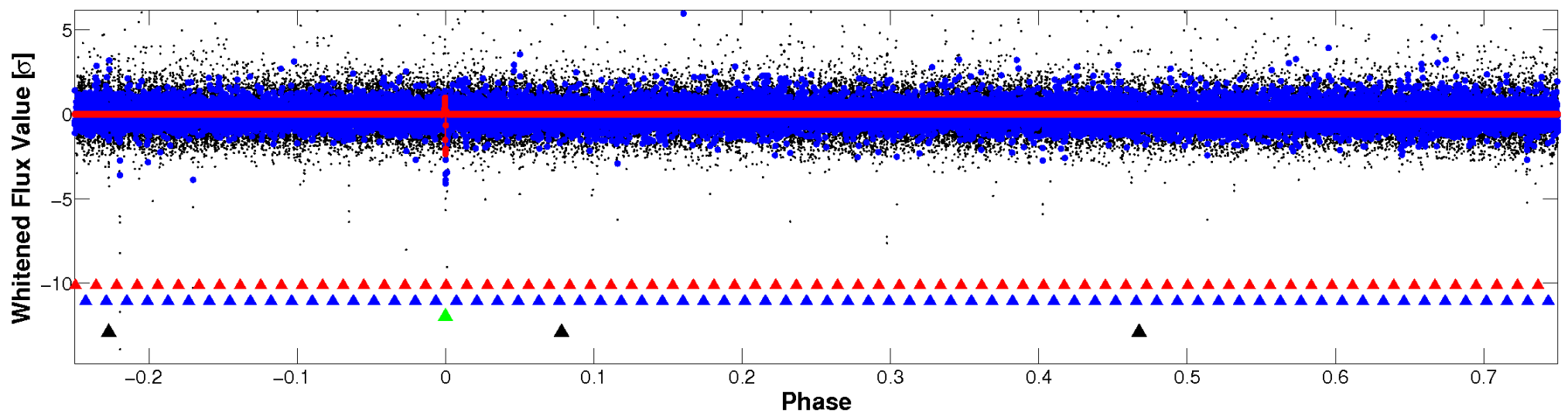


Non-Whitened Vs. Whitened Light Curve

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

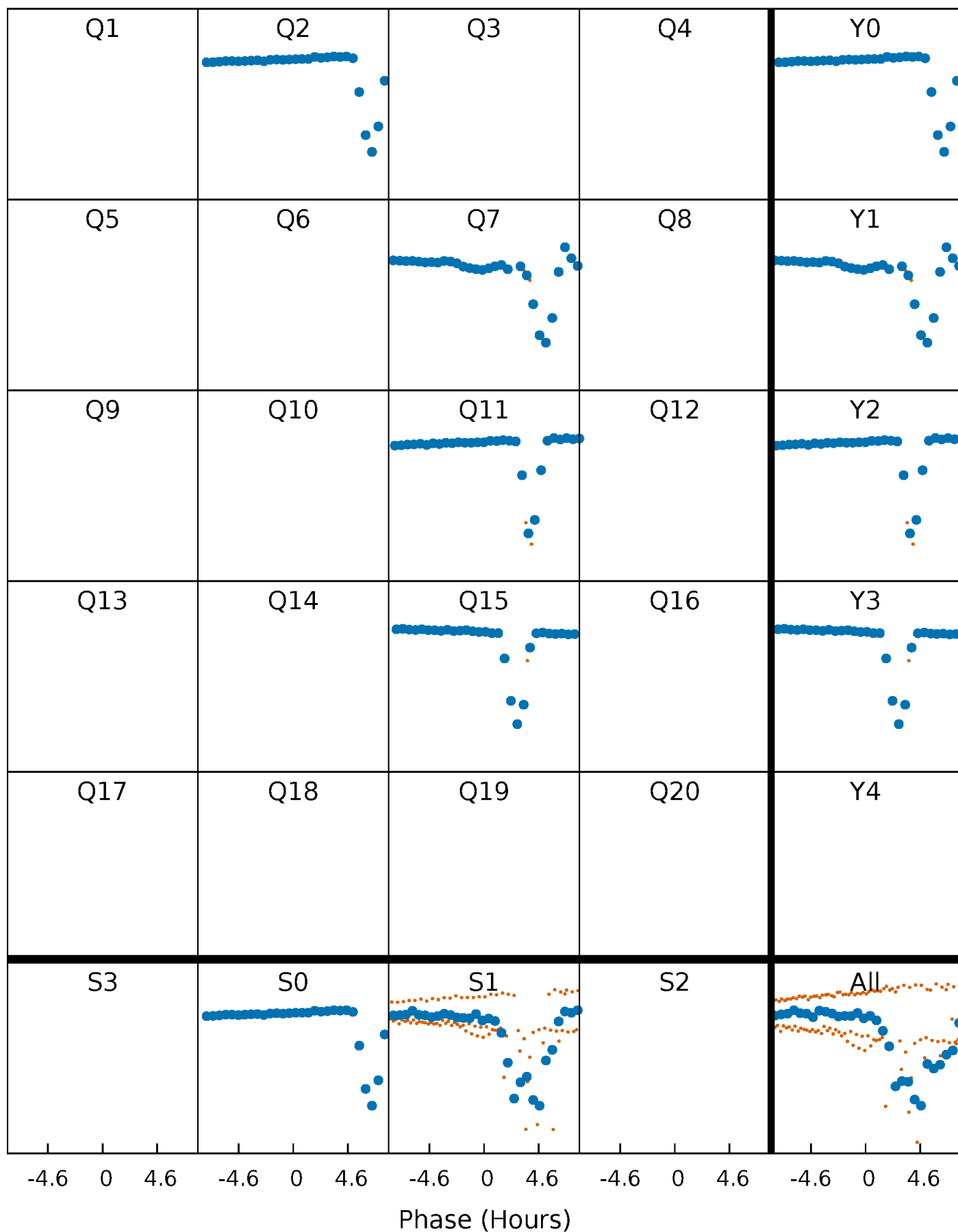


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



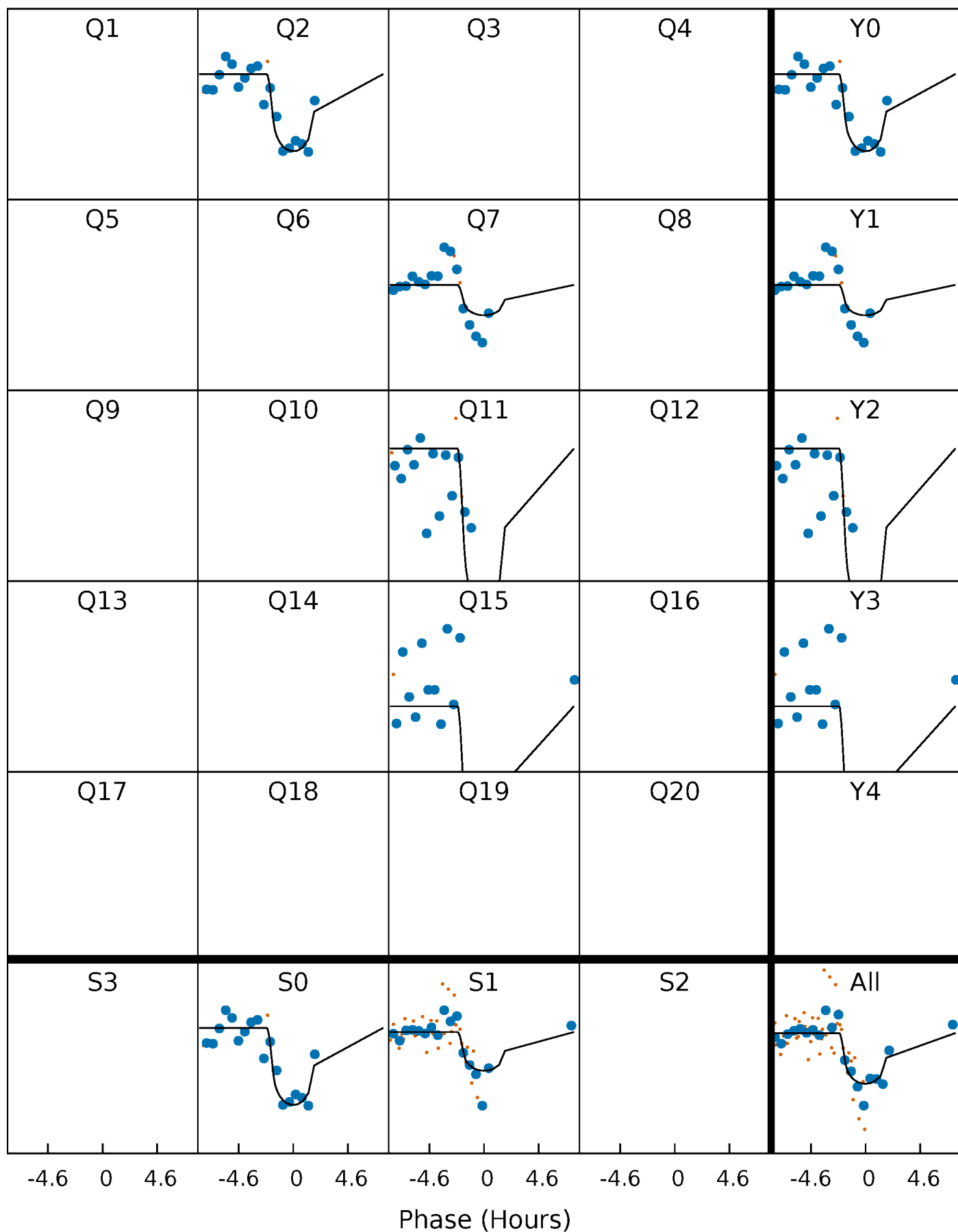
PDC Quarter-Phased Transit Curves

TCE 006128027-03 P=392.870197 Days $T_0=251.202118$ (BKJD)



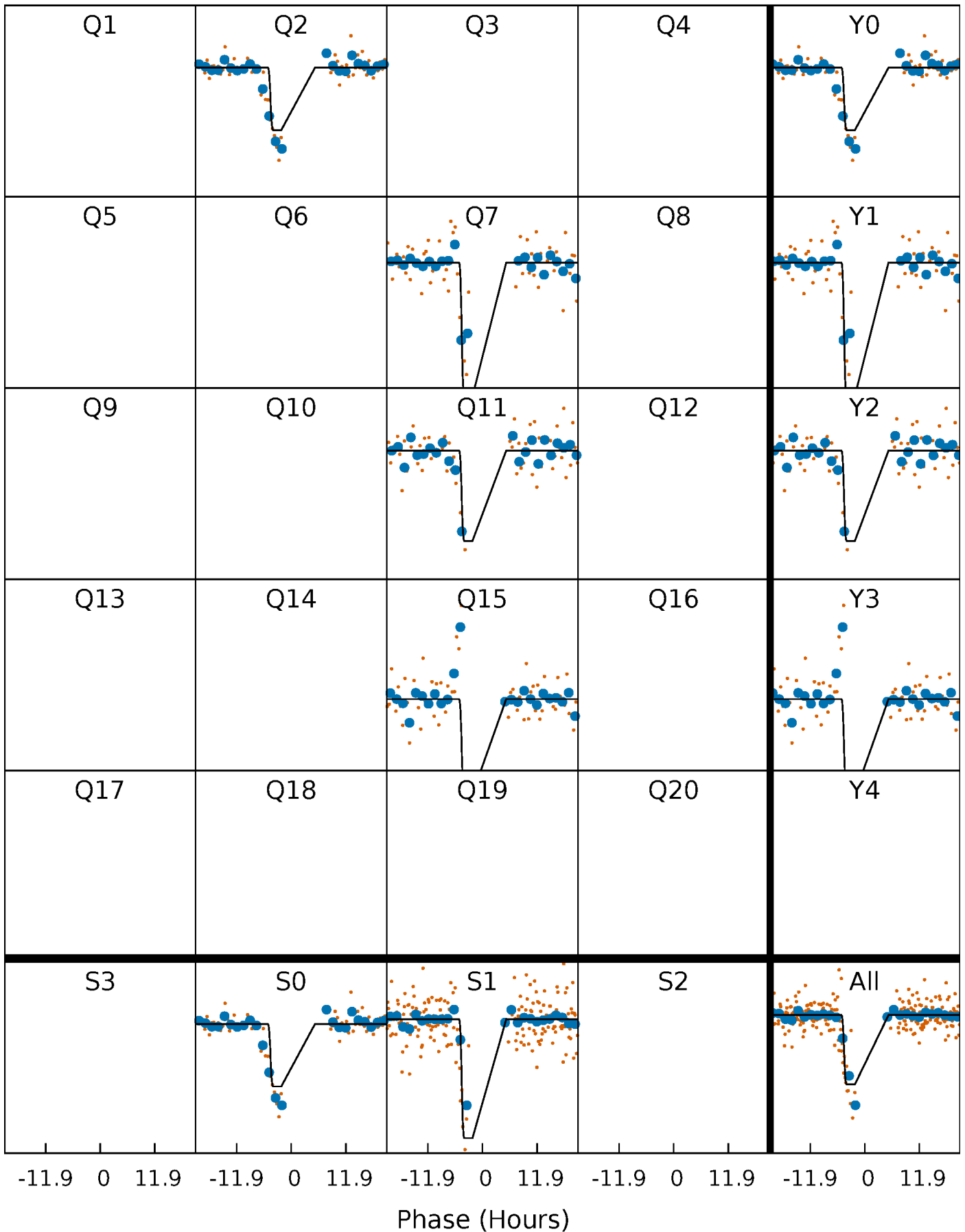
DV Quarter-Phased Transit Curves

TCE 006128027-03 P=392.870197 Days $T_0=251.202118$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

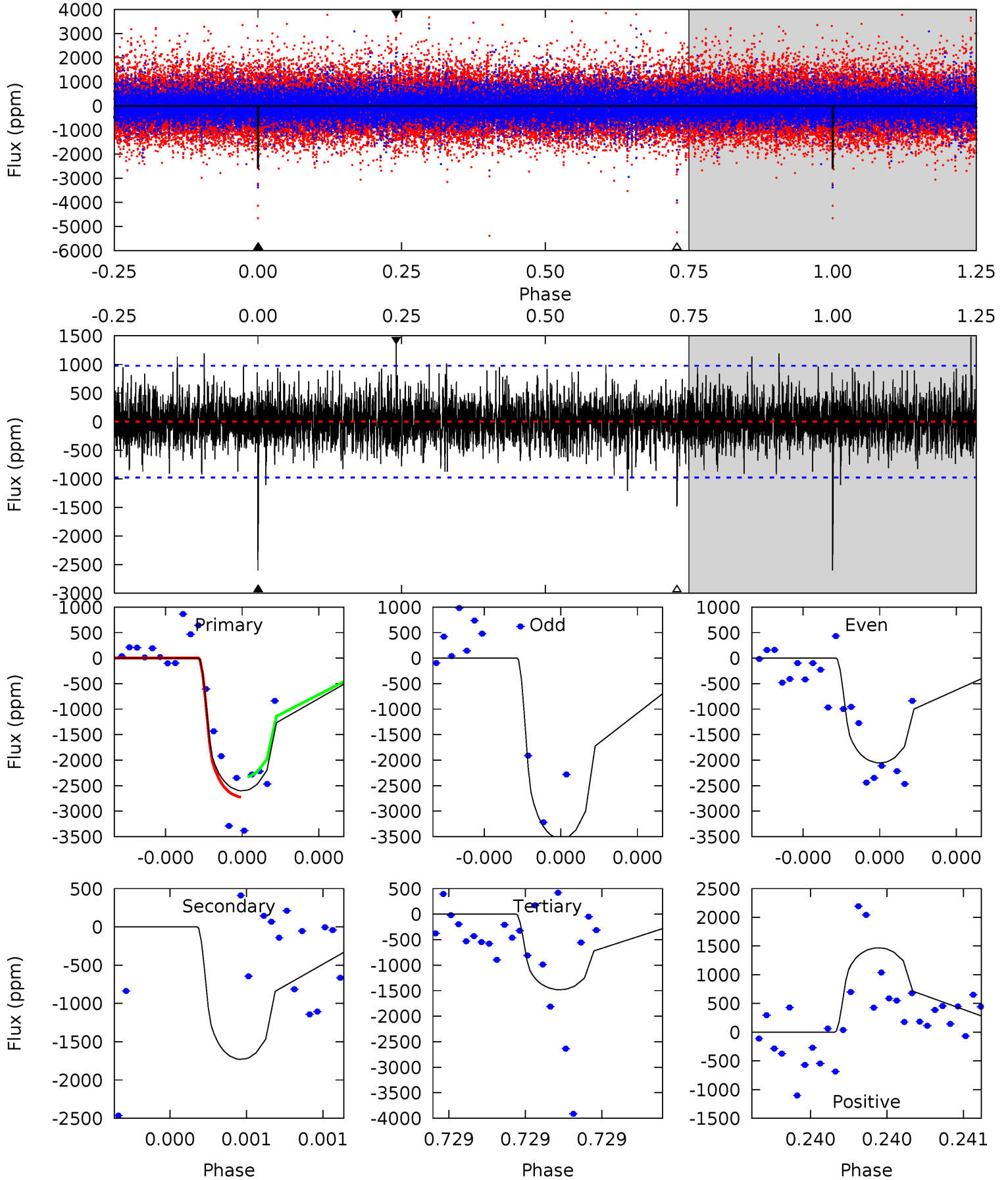
TCE 006128027-03 $P=392.848813$ Days $T_0=251.365631$ (BKJD)



DV Model-Shift Uniqueness Test

006128027-03, P = 392.870197 Days, E = 251.202118 Days

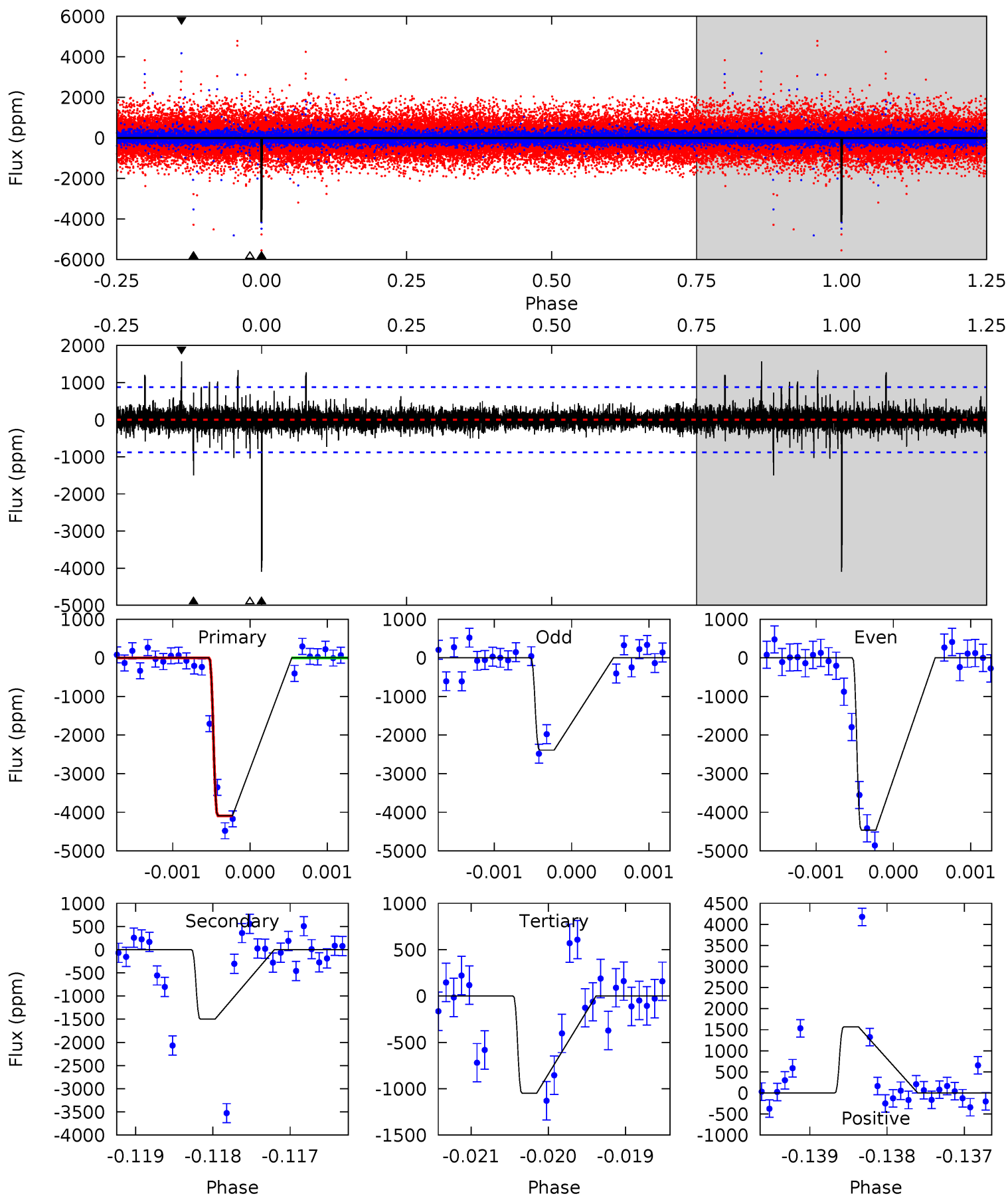
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	9.92	8.50	8.43	5.61	3.53	1.46	6.42	6.49	1.43	1.50	4.12	1.05	0.36	0.97



Alt Model-Shift Uniqueness Test

006128027-03, P = 392.848813 Days, E = 251.365631 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.4	9.32	6.51	9.76	5.45	3.29	0.86	18.9	15.7	2.80	-0.44	6.45	0	0.28	0



Stellar Parameters For KIC 006128027

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5067^{+151}_{-151}	$4.625^{+0.039}_{-0.066}$	$-0.320^{+0.350}_{-0.300}$	$0.694^{+0.086}_{-0.058}$	$0.742^{+0.079}_{-0.071}$	$3.126^{+0.567}_{-0.742}$
	+3%/-3%	+1%/-1%	+109%/-94%	+12%/-8%	+11%/-10%	+18%/-24%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006128027-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1730 ± 174	$4.95^{+4.03}_{-3.29}$	269^{+10}_{-9}	4278^{+2663}_{-841}	$35158^{+276300}_{-24882}$
Alt.	-1500 ± 161	$5.79^{+4.04}_{-3.58}$	268^{+10}_{-9}	3926^{+1855}_{-661}	$22281^{+128658}_{-14759}$

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

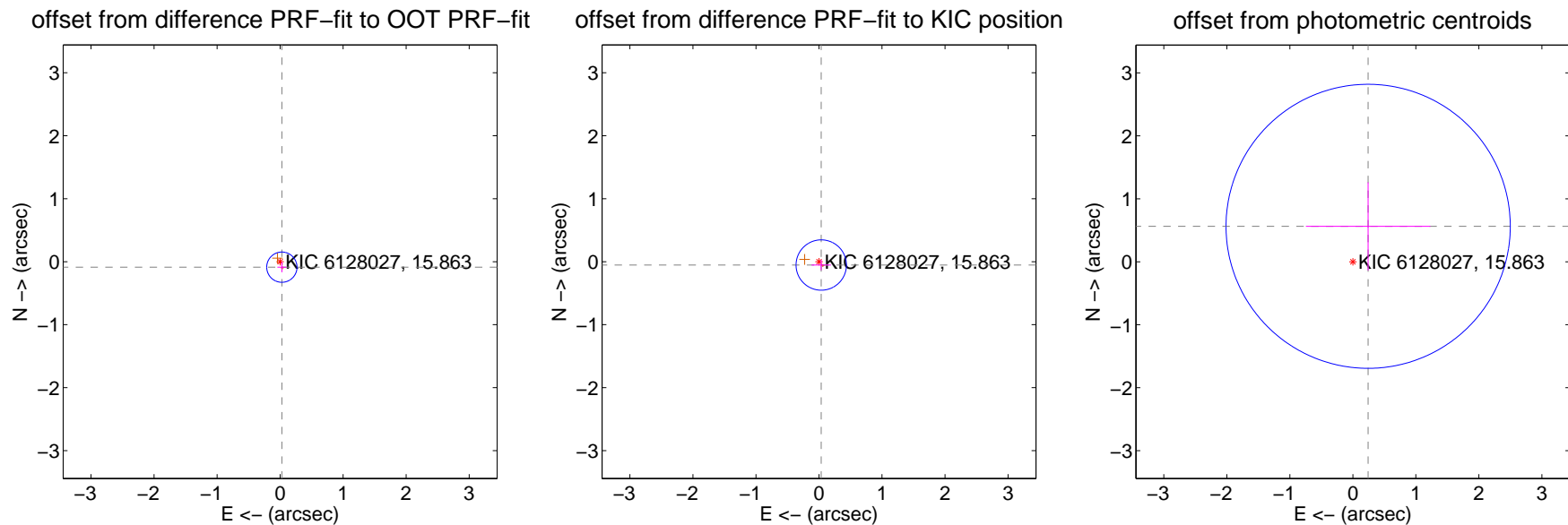
DV Centroid Data

Supplemental centroid analysis for 006128027-03. Kepler magnitude: 15.86. Transit SNR 8.04

There are 0 quarters with good PRF difference image offsets

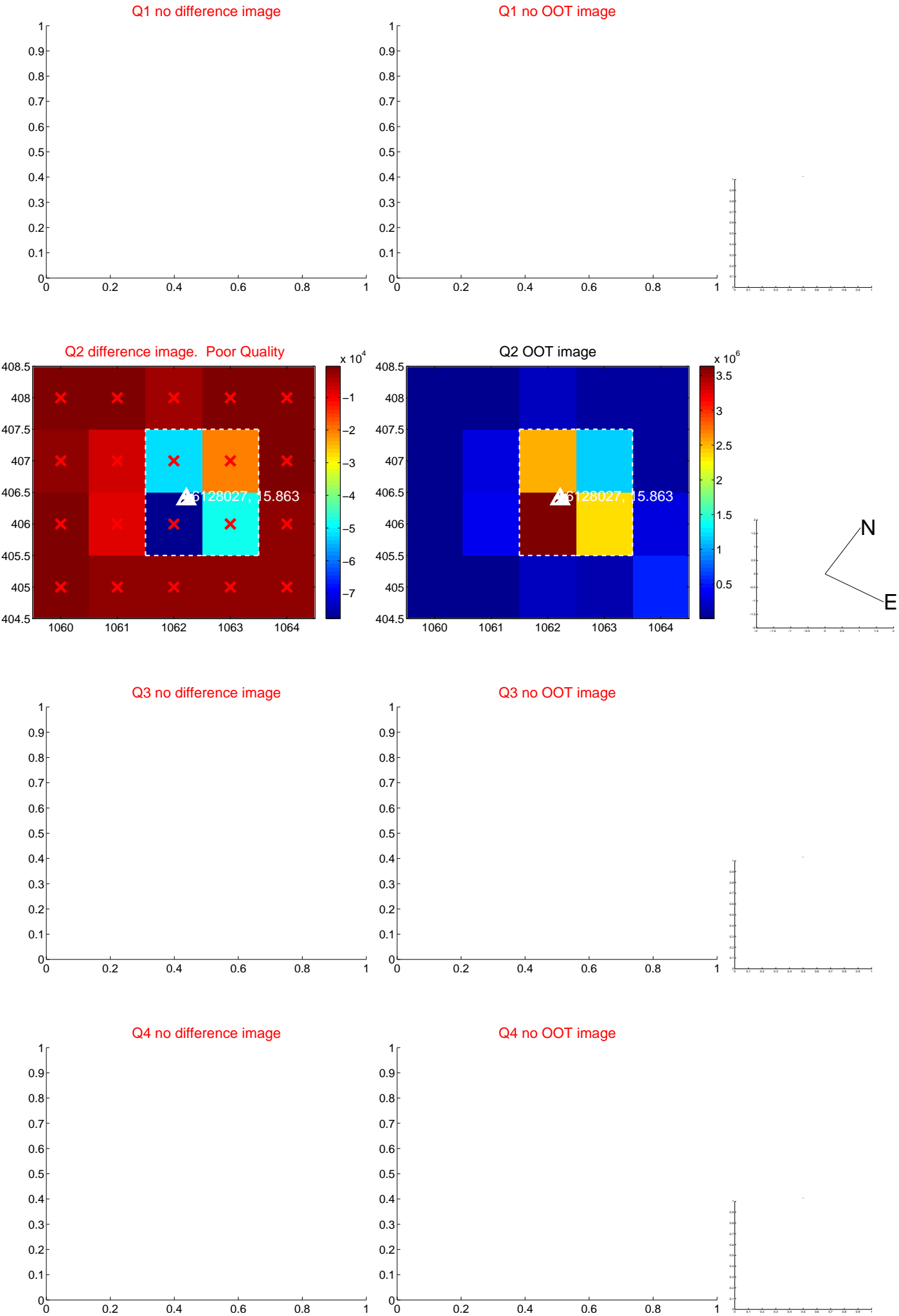
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.091 ± 0.080	1.14	-0.028 ± 0.071	-0.087 ± 0.081
PRF-fit source offset from KIC position	0.064 ± 0.133	0.48	-0.036 ± 0.153	-0.053 ± 0.081
photometric centroid source offset	0.61 ± 0.75	0.82	-0.24 ± 0.99	0.56 ± 0.70



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.

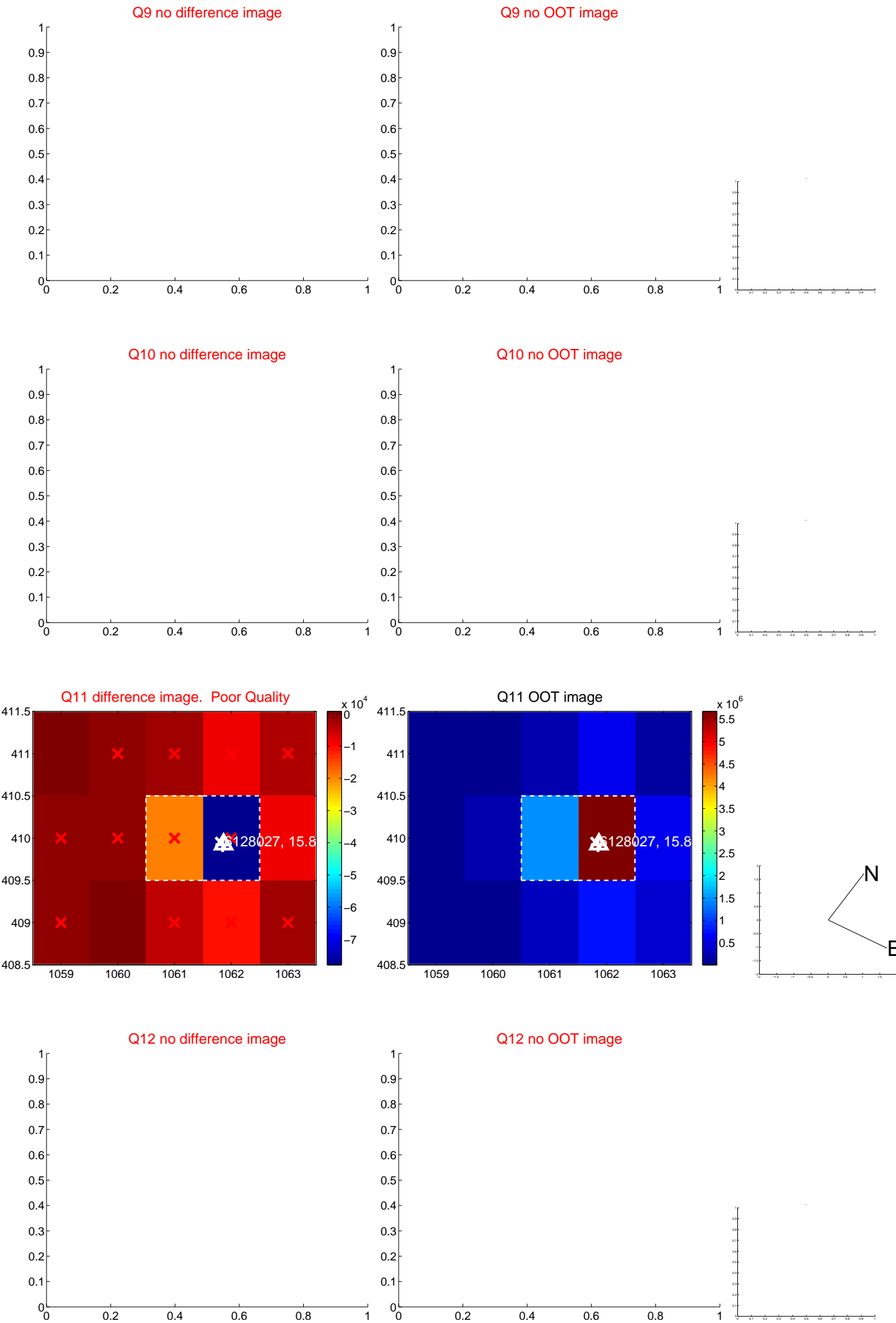
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



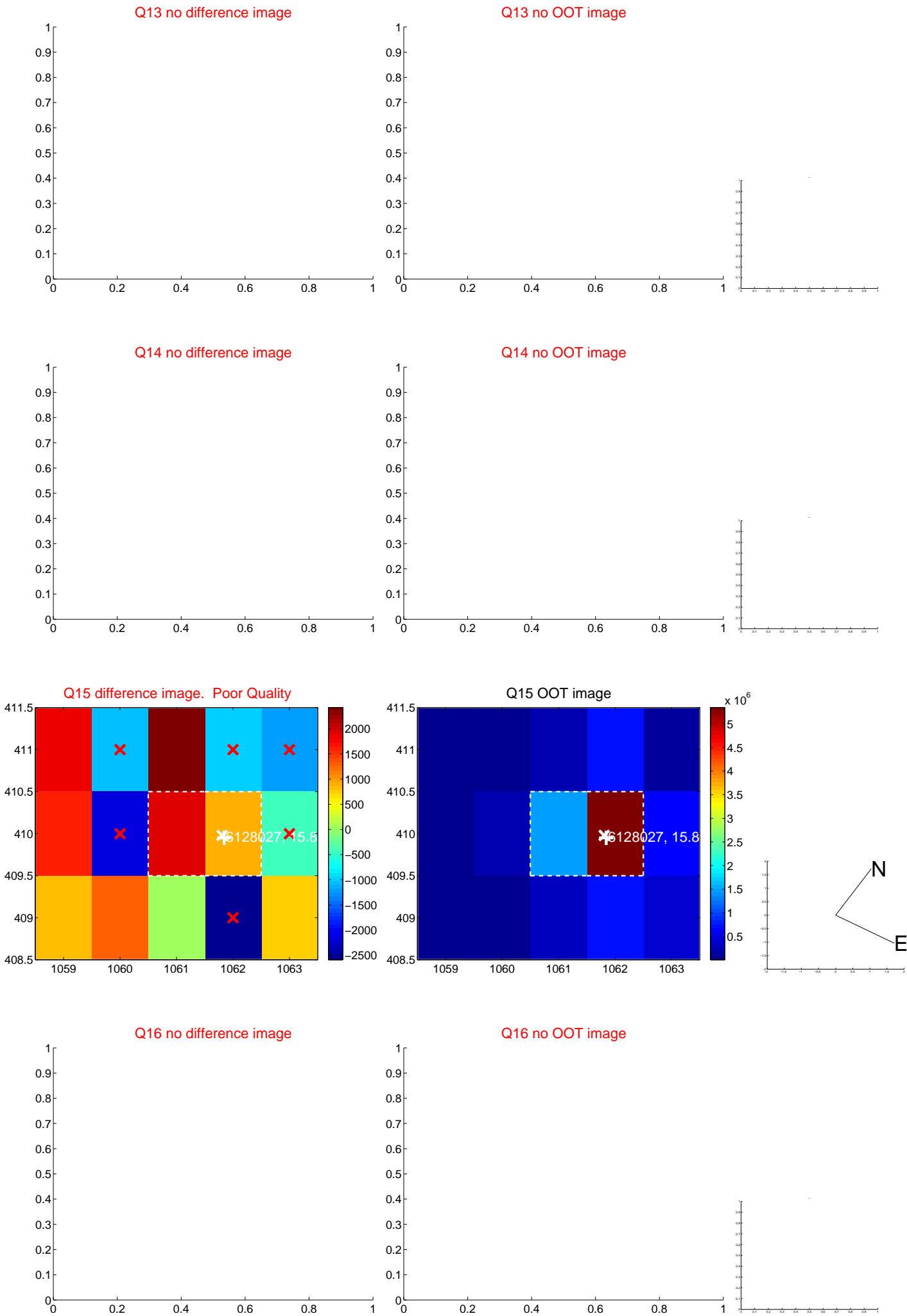
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



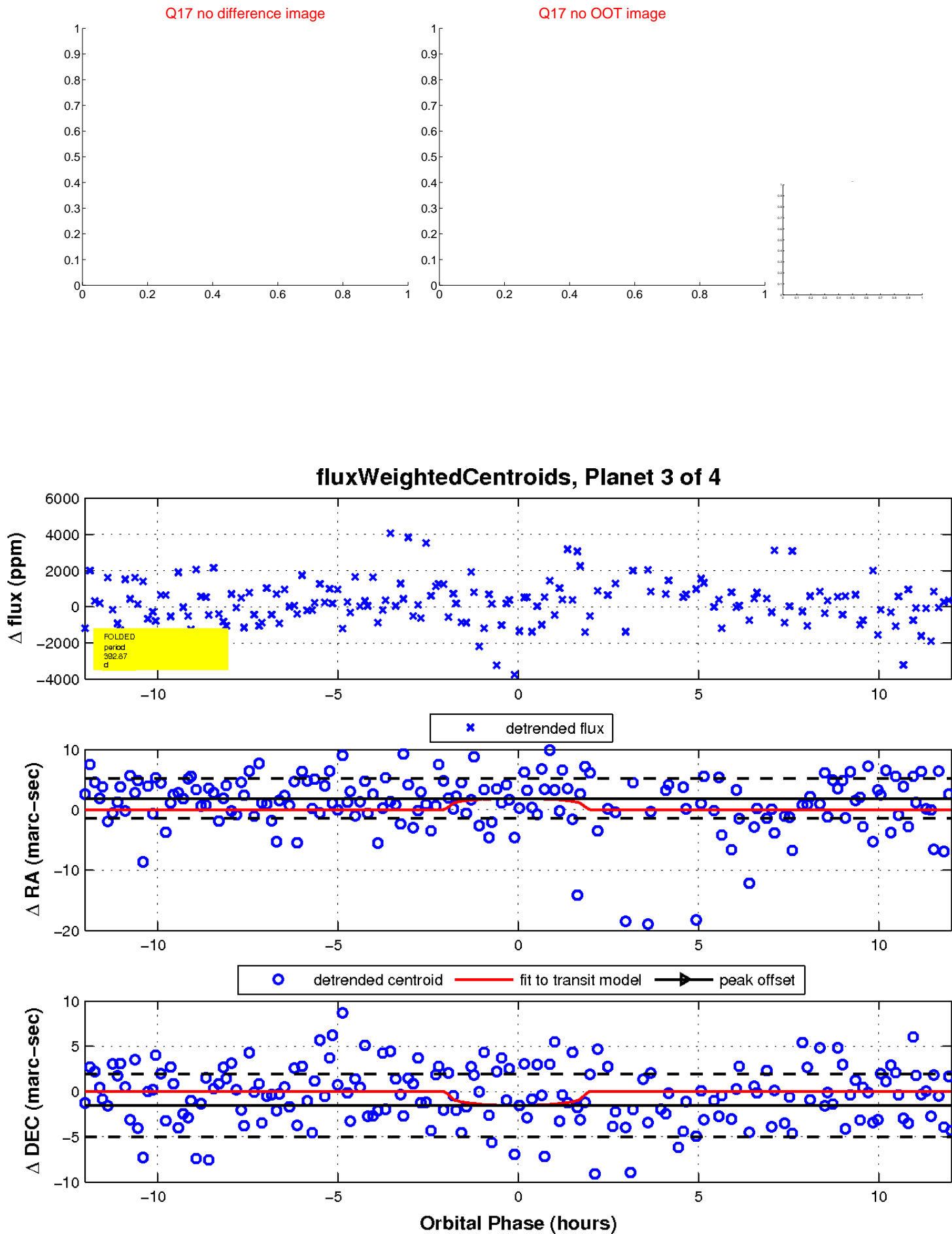
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

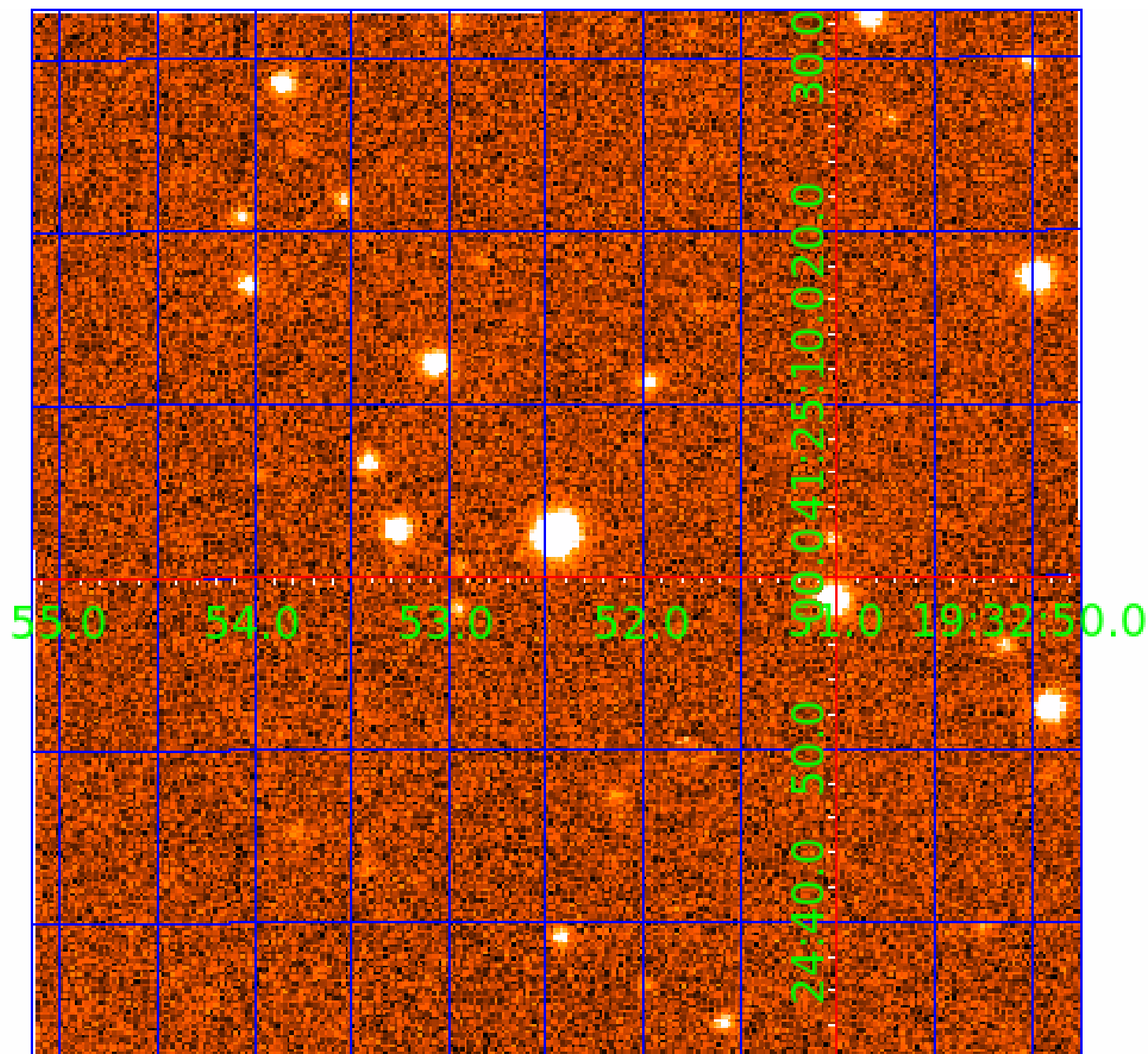


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006128027

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})
006128027-01	OBS	6020.01	5.455766	136.907283	104137.2	2.908	3156.4	2220.6	0.69	5067	33.09	94.41
006128027-02	OBS	No	5.455767	134.161864	6529.5	2.775	203.8	204.6	0.69	5067	9.67	94.41
006128027-03	OBS	No	392.870197	251.202118	2445.1	4.015	12.5	8.0	0.69	5067	3.49	0.32
006128027-04	OBS	No	512.808333	434.938782	1653.8	4.043	8.8	6.7	0.69	5067	2.79	0.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006128027-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006128027-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
006128027-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006128027-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

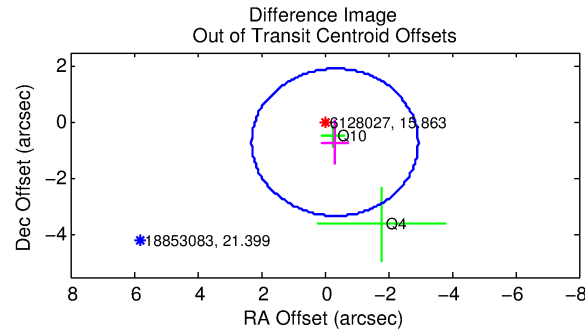
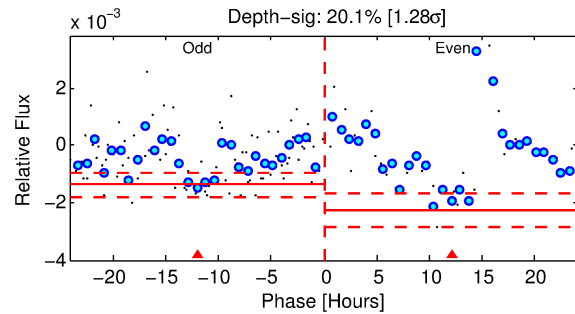
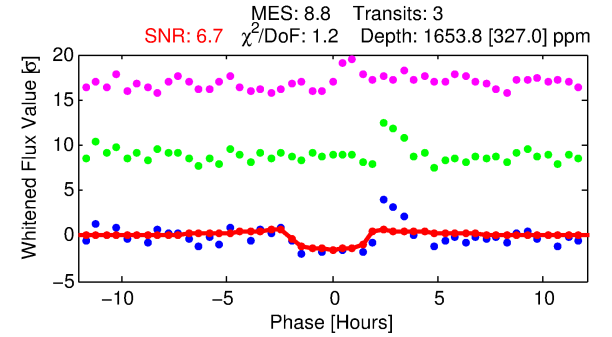
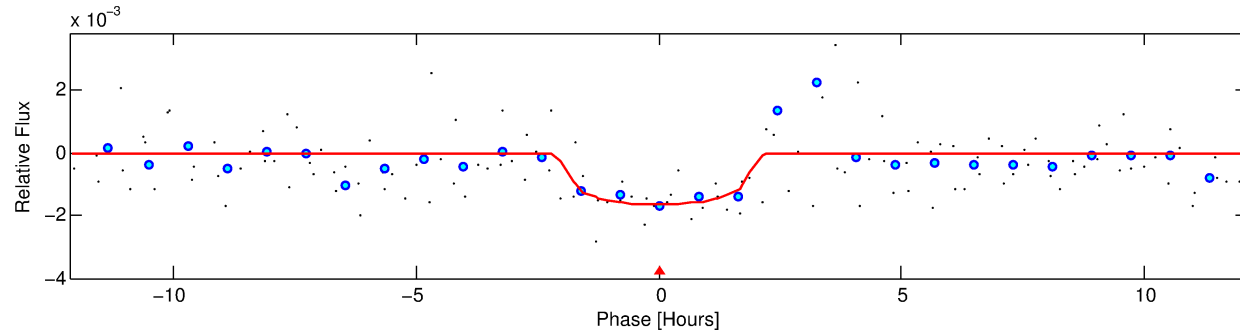
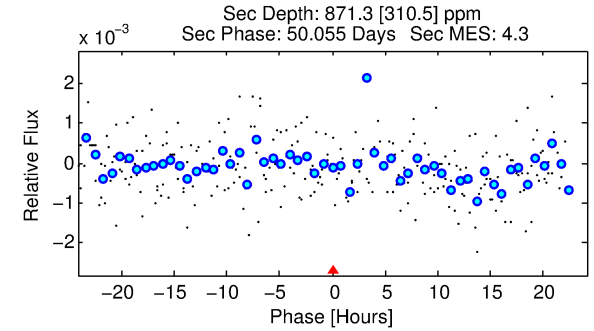
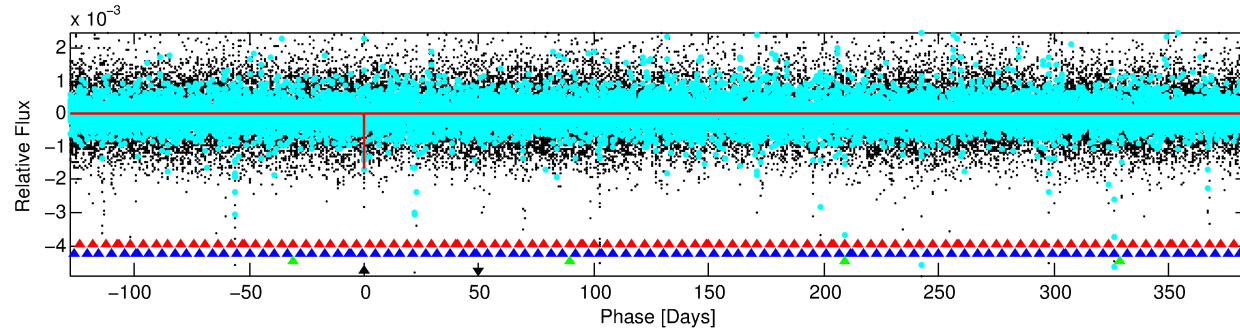
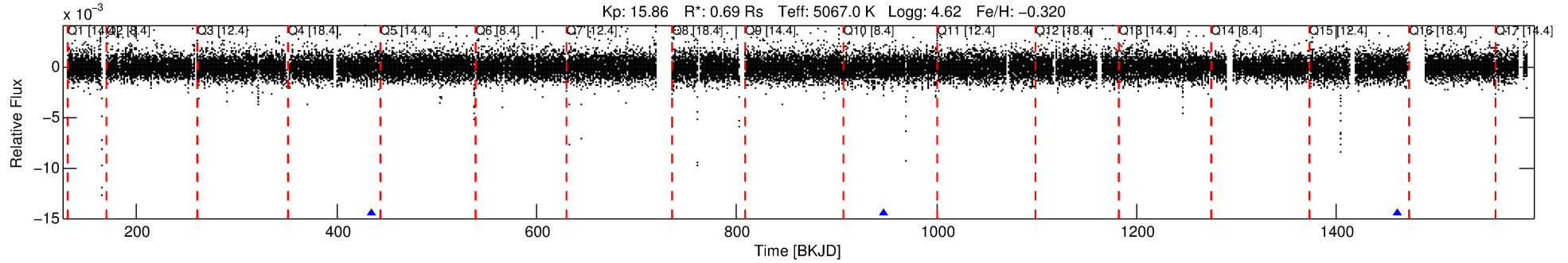
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006128027-04

No Significant Match Found

DV One-Page Summary

KIC: 6128027 Candidate: 4 of 4 Period: 512.808 d
KOI: K06020 Corr: No Ephemeris Match



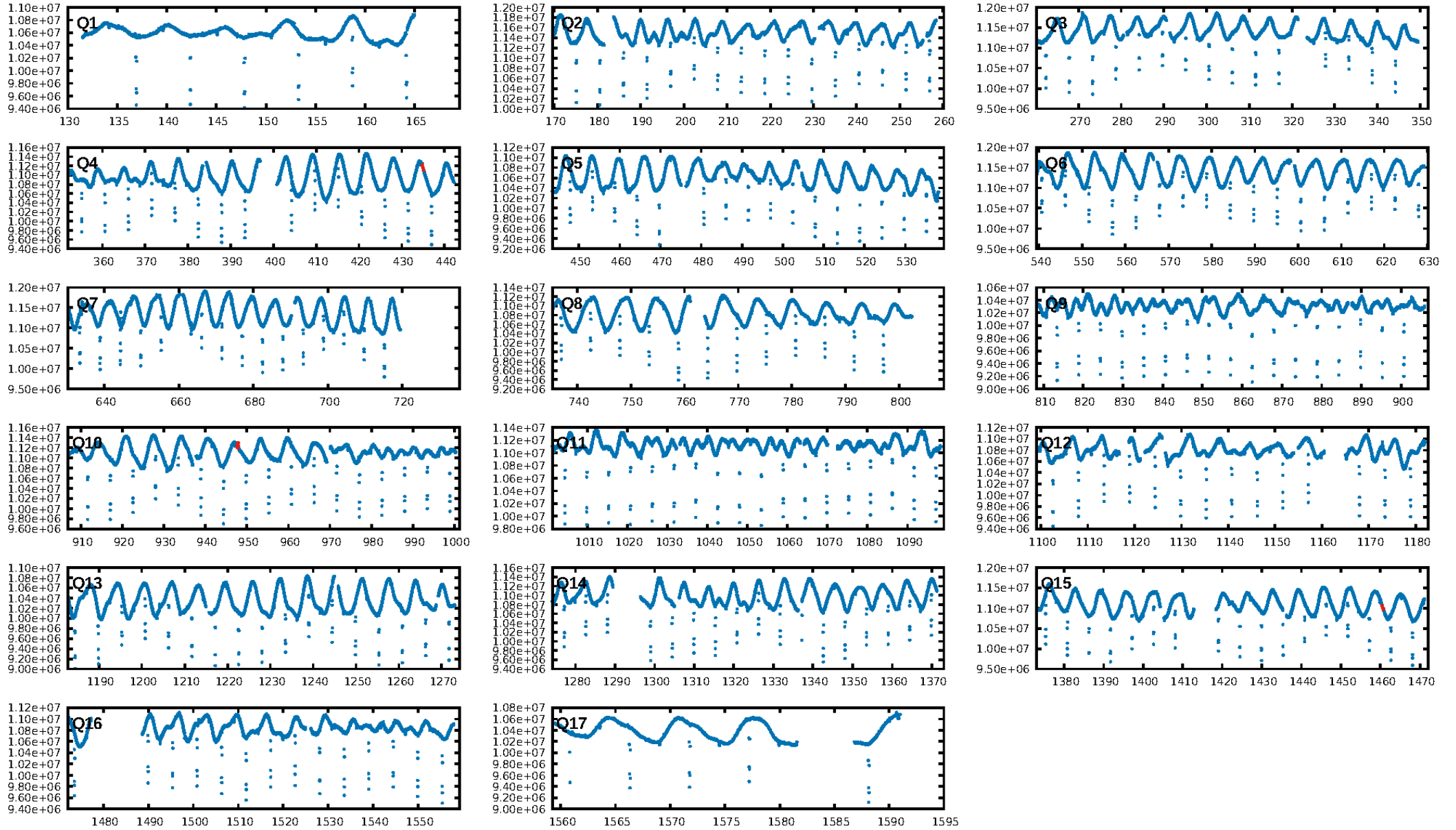
DV Fit Results:

Period = 512.80833 [0.00885] d
Epoch = 434.9388 [0.0119] BKJD
Rp/R* = 0.0369 [0.0952]
a/R* = 950.18 [8784.50]
b = 0.34 [24.70]
Seff = 0.22 [0.04]
Teq = 175 [8] K
Rp = 2.79 [7.22] Re
a = 1.1348 [0.1100] AU
Ag = 79135.15 [409701.98] [0.19σ]
Teffp = 4533 [5867] K [0.74σ]

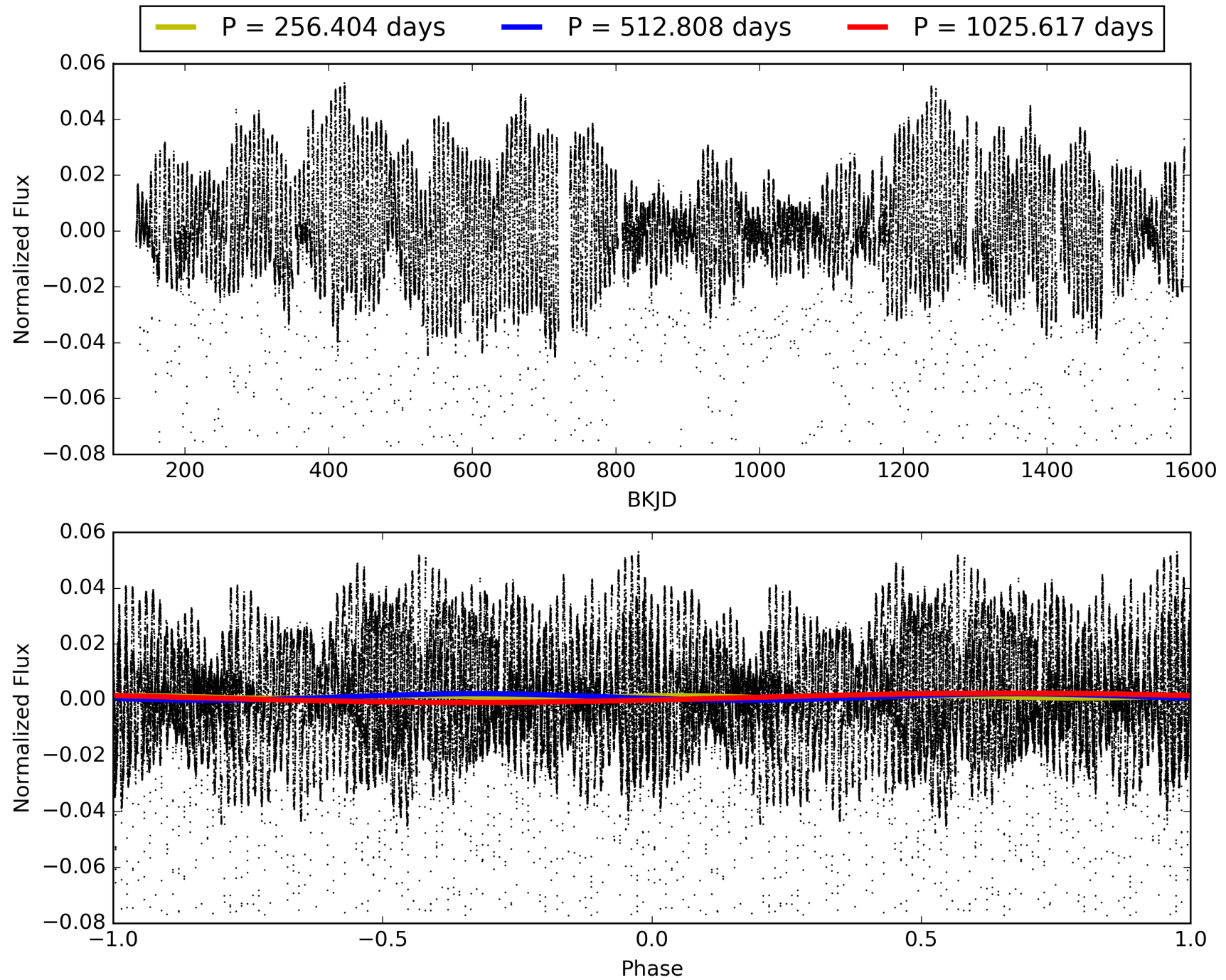
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [505.15σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 6.7%
ModelChiSquareGof-sig: 95.0%
Bootstrap-pfa: 4.48e-07
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.2543
Centroid-sig: 0.5%
Centroid-so: 2.558 arcsec [1.81σ]
OotOffset-rm: 0.775 arcsec [0.89σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-rm: 0.803 arcsec [0.91σ]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 006128027-04, PDC Light Curves

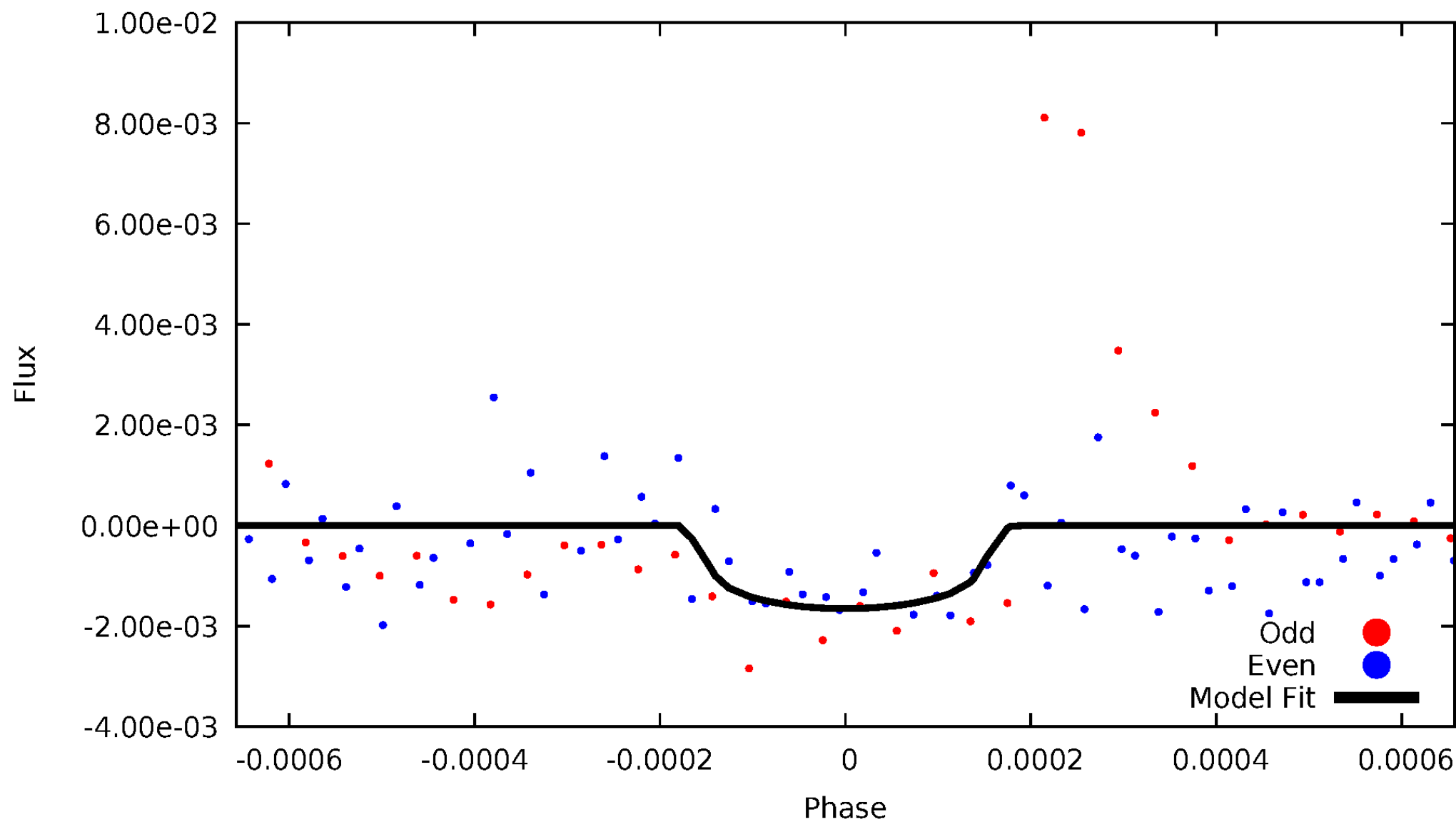


TCE 006128027-04



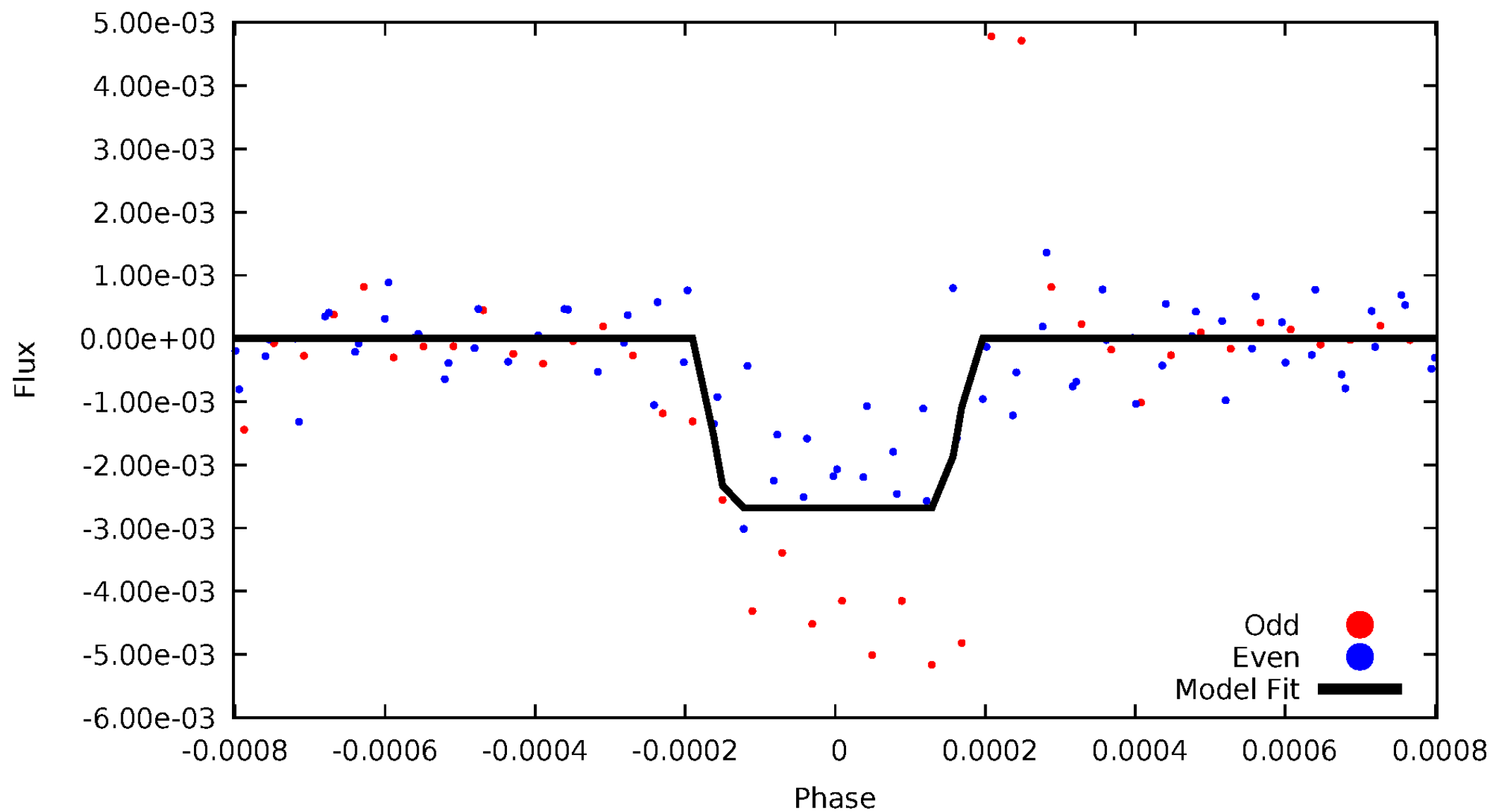
DV Odd/Even

TCE 006128027-04



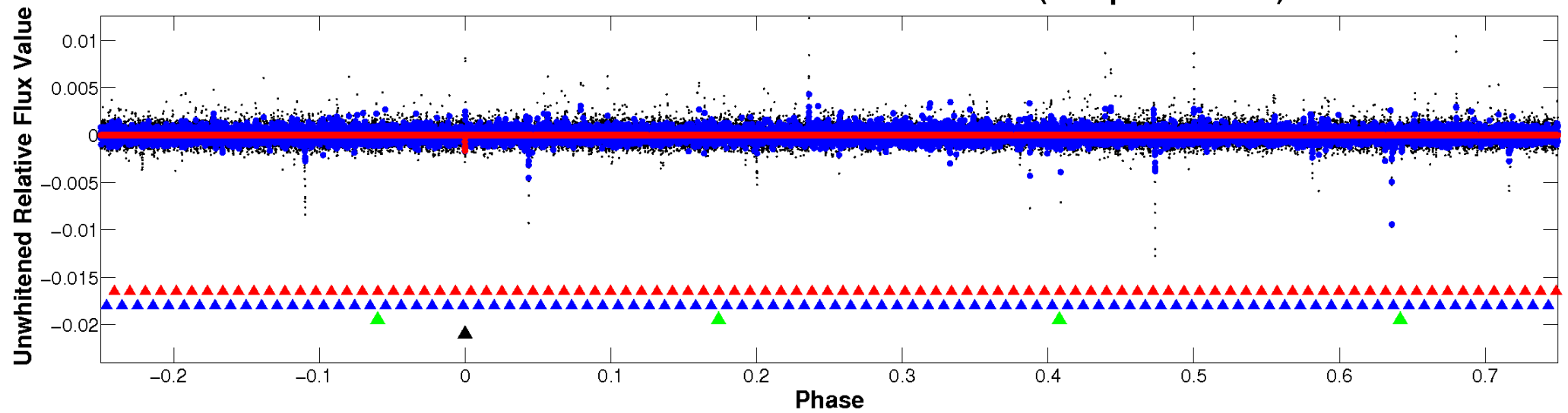
ALT Odd/Even

TCE 006128027-04

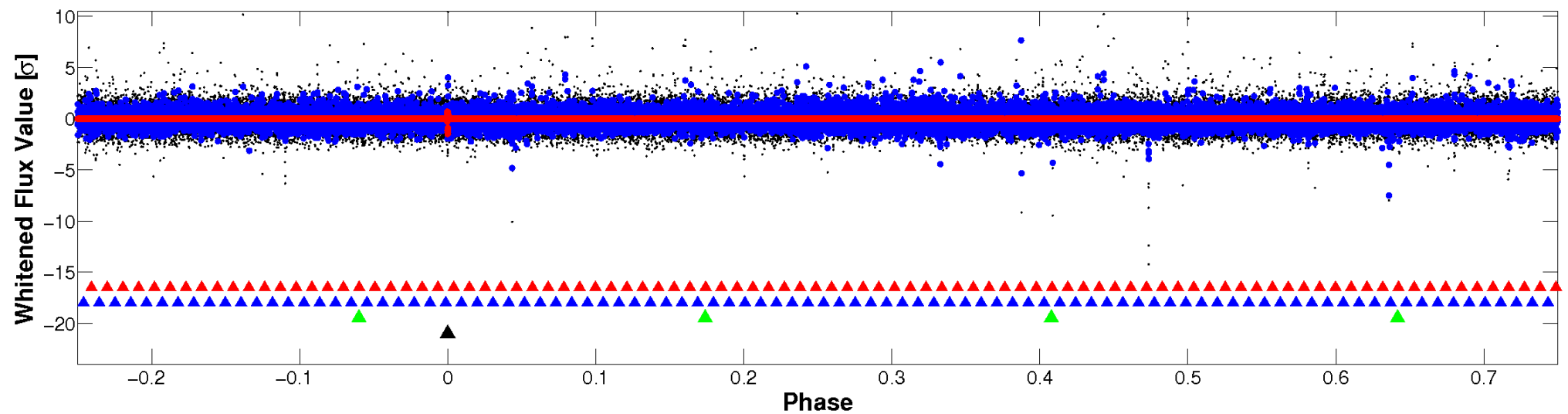


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

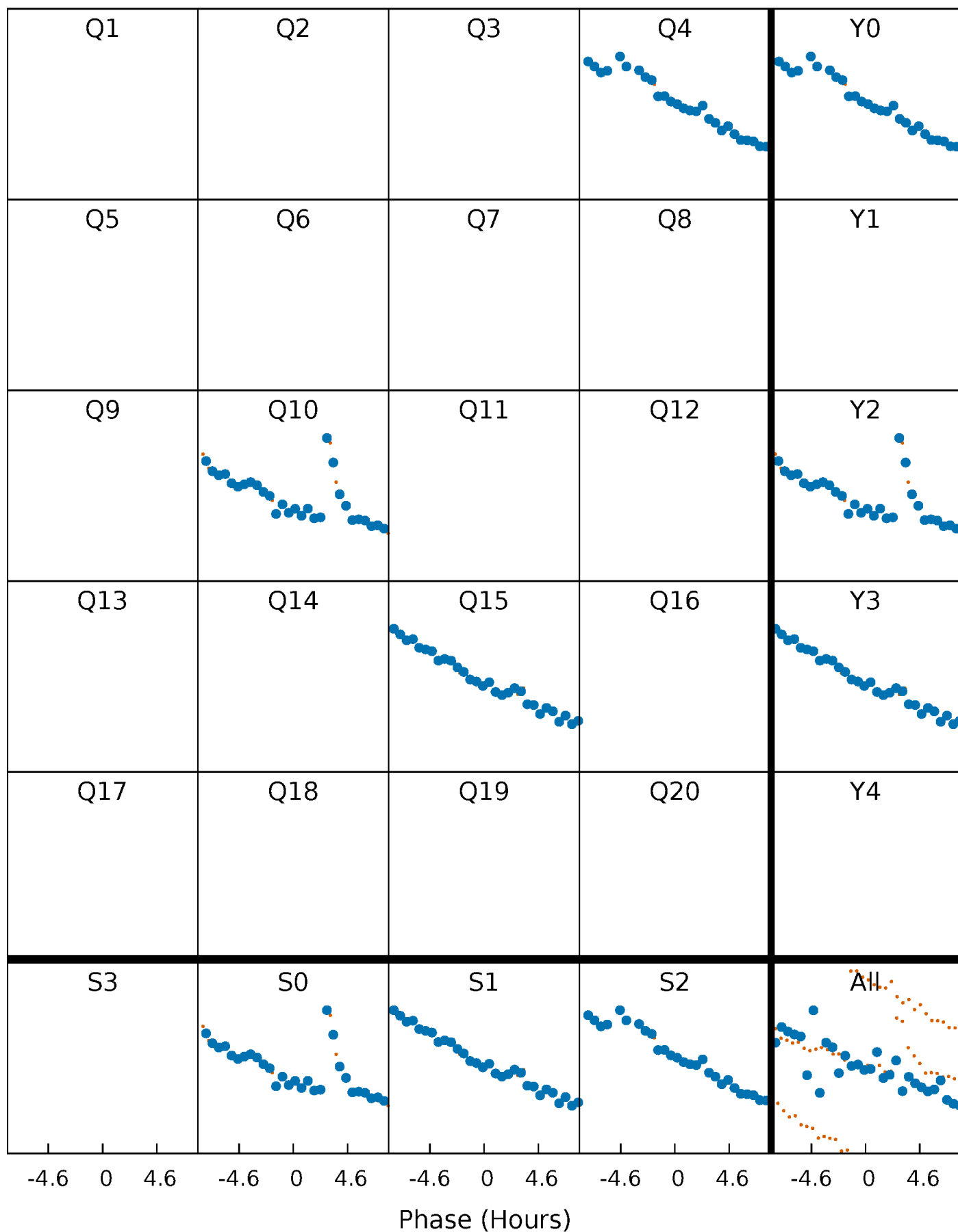


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



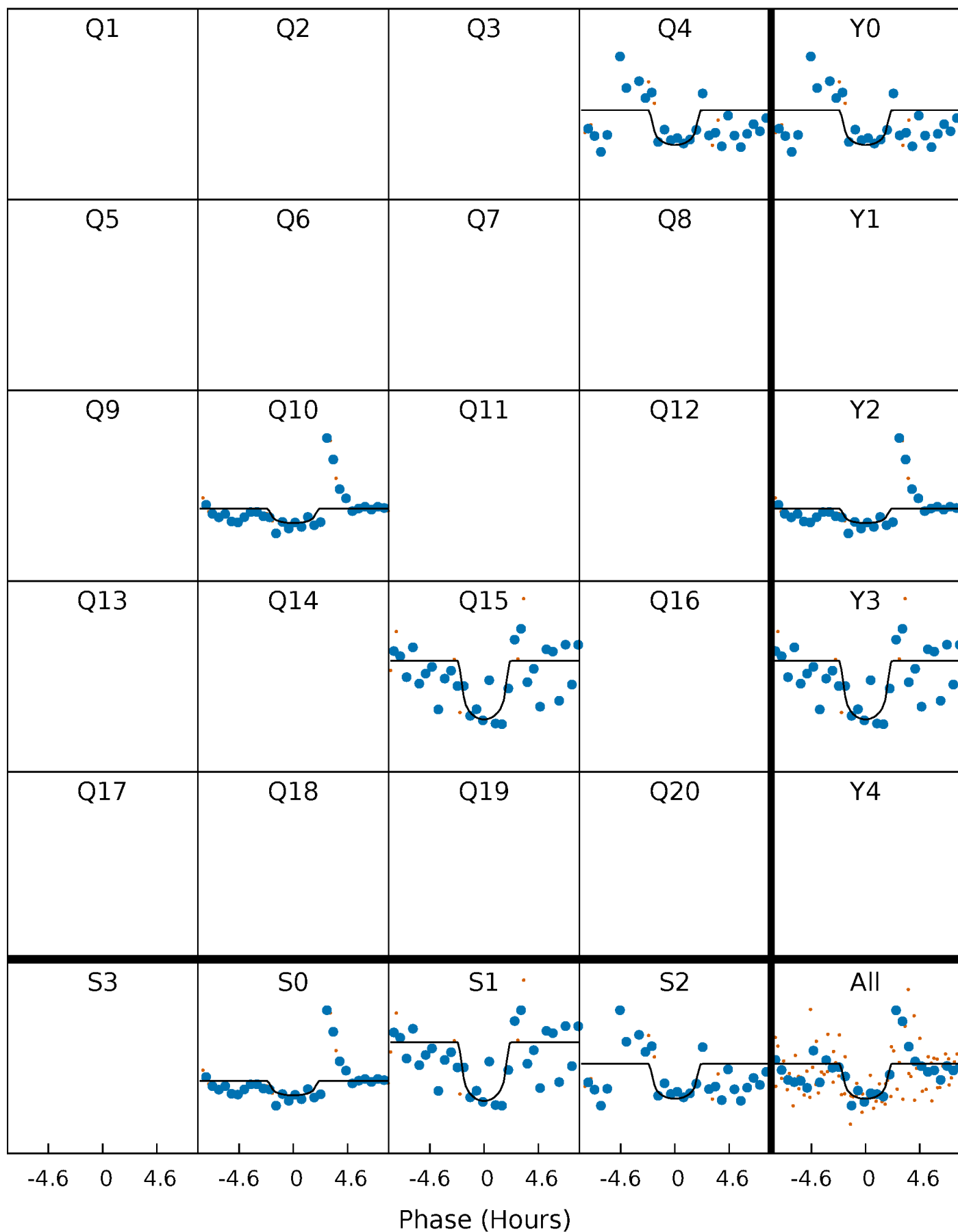
PDC Quarter-Phased Transit Curves

TCE 006128027-04 P=512.808333 Days $T_0=434.938782$ (BKJD)



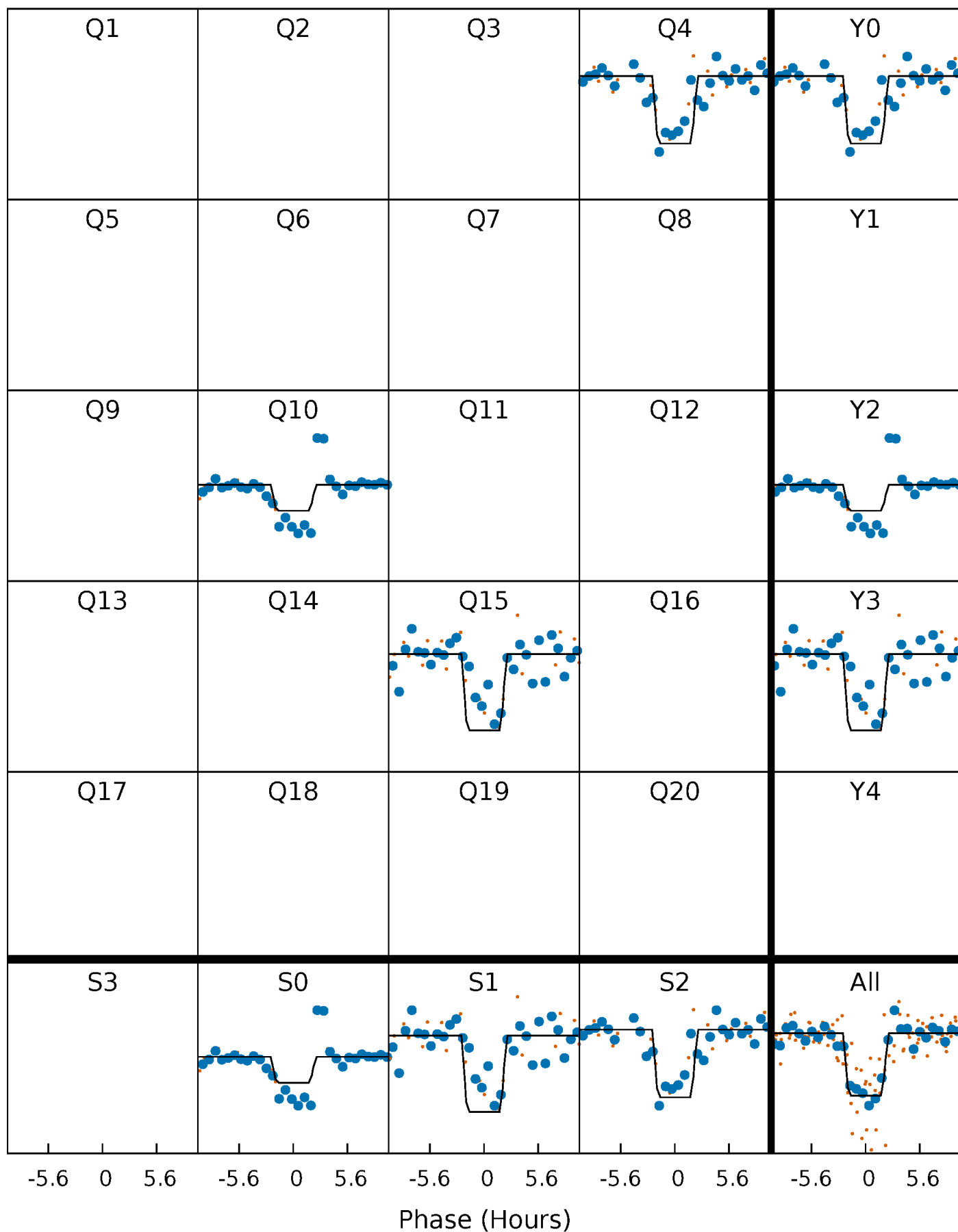
DV Quarter-Phased Transit Curves

TCE 006128027-04 P=512.808333 Days $T_0=434.938782$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

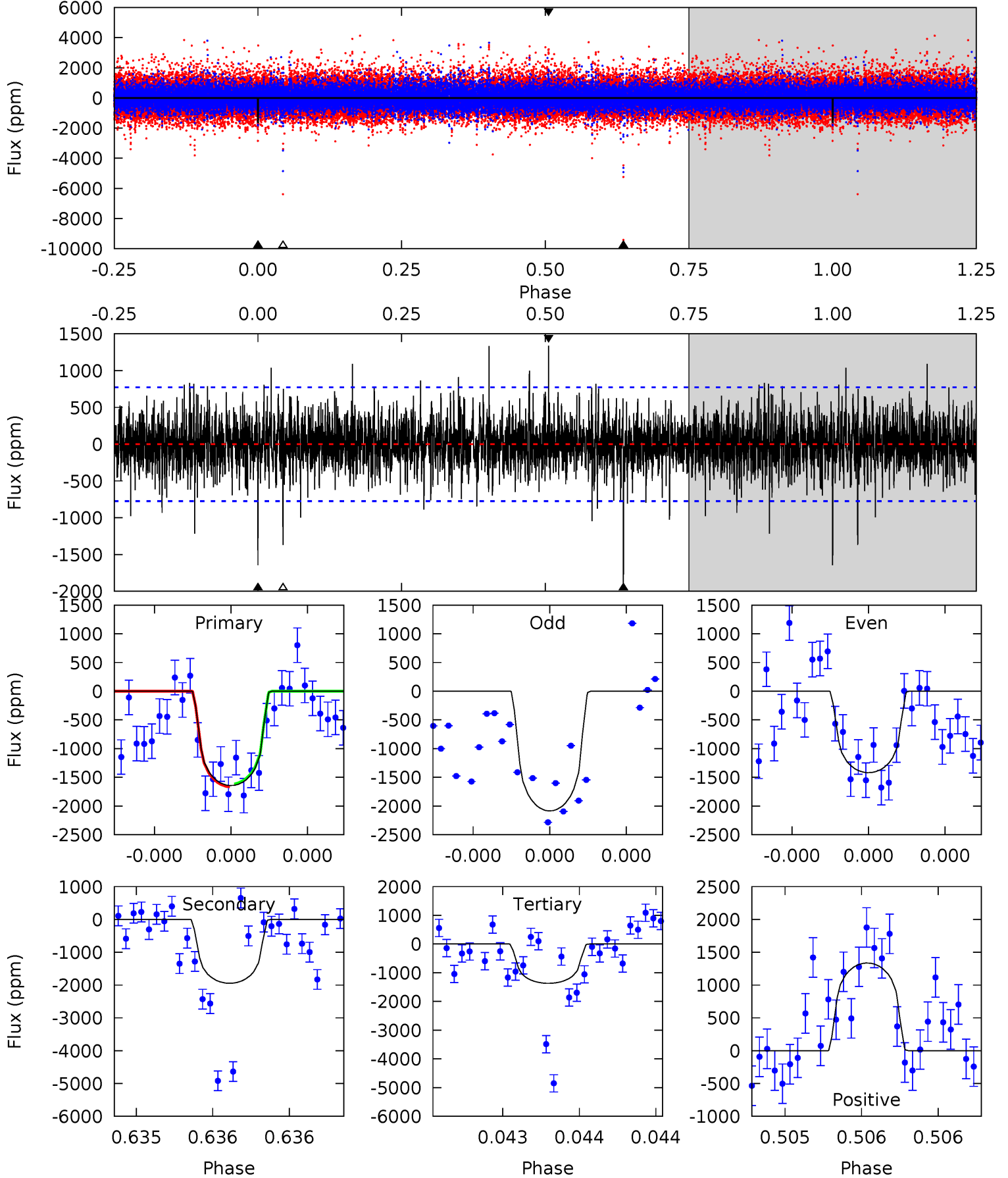
TCE 006128027-04 P=512.800622 Days $T_0=434.949729$ (BKJD)



DV Model-Shift Uniqueness Test

006128027-04, P = 512.808333 Days, E = 434.938782 Days

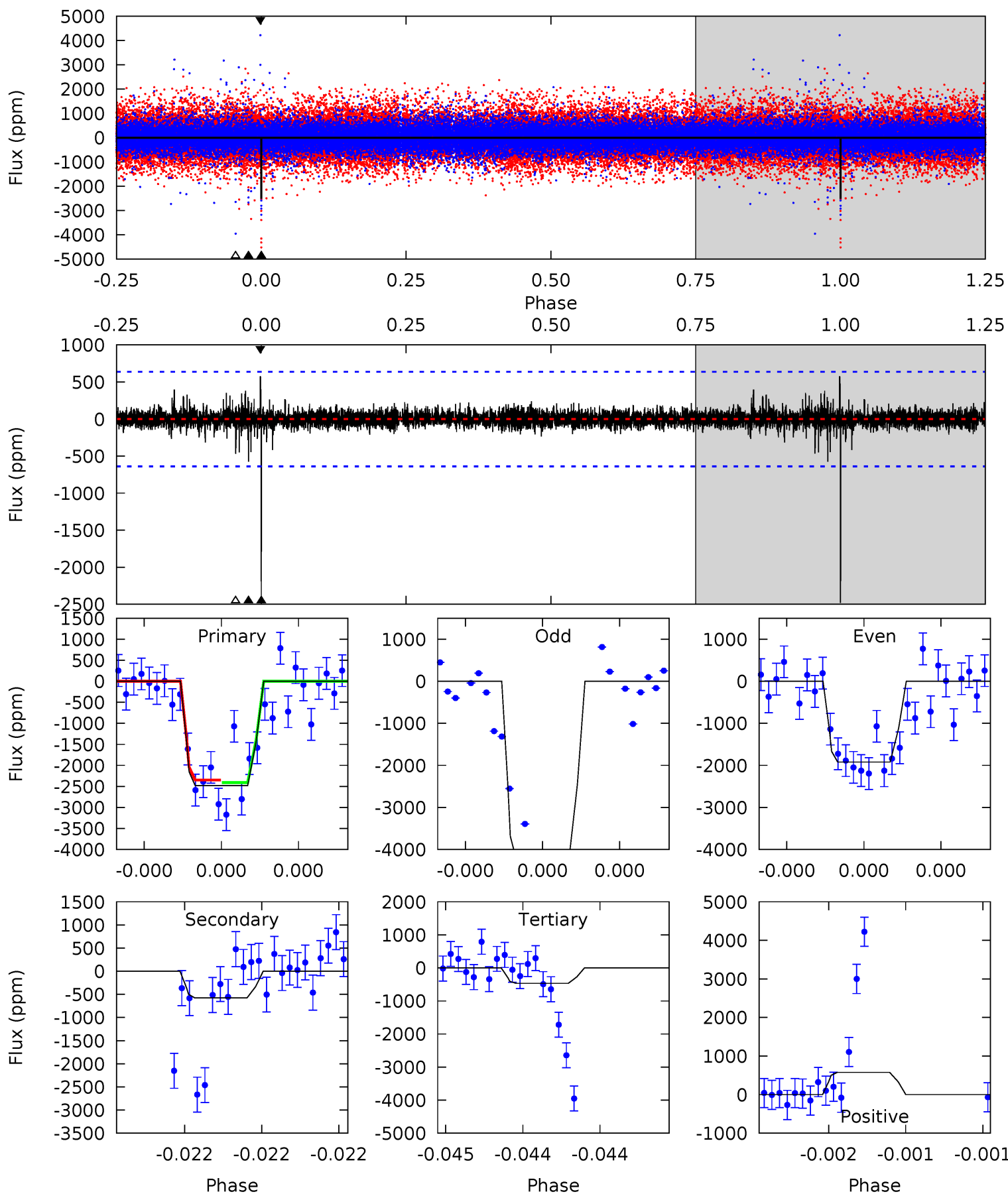
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	14.2	9.96	9.73	5.63	3.57	1.76	2.00	2.24	4.20	4.44	2.20	1.08	0.41	0.18



Alt Model-Shift Uniqueness Test

006128027-04, P = 512.800622 Days, E = 434.949729 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.9	5.08	4.12	5.08	5.63	3.57	0.54	17.7	16.8	0.96	-0.00	9.90	1.37	0.19	0.26



Stellar Parameters For KIC 006128027

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5067^{+151}_{-151}	$4.625^{+0.039}_{-0.066}$	$-0.320^{+0.350}_{-0.300}$	$0.694^{+0.086}_{-0.058}$	$0.742^{+0.079}_{-0.071}$	$3.126^{+0.567}_{-0.742}$
	+3%/-3%	+1%/-1%	+109%/-94%	+12%/-8%	+11%/-10%	+18%/-24%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006128027-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1946 ± 137	$5.82^{+5.82}_{-3.91}$	246^{+9}_{-9}	4076^{+2632}_{-830}	$40077^{+359199}_{-30147}$
Alt.	-576 ± 113	$6.56^{+6.48}_{-4.39}$	245^{+10}_{-8}	3221^{+1535}_{-566}	9283^{+72290}_{-6987}

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

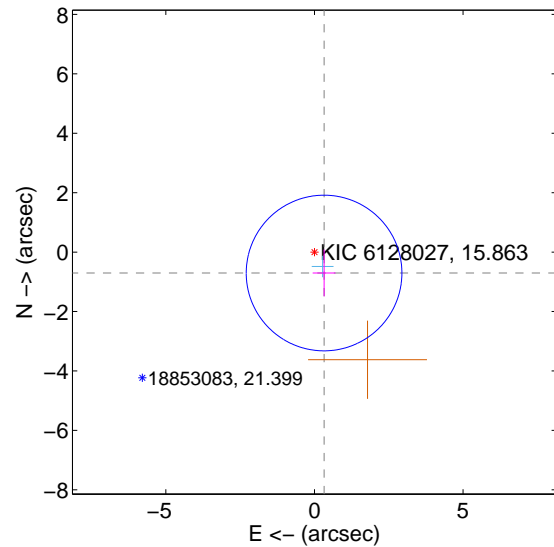
Supplemental centroid analysis for 006128027-04. Kepler magnitude: 15.86. Transit SNR 6.67

There are 1 quarters with good PRF difference image offsets

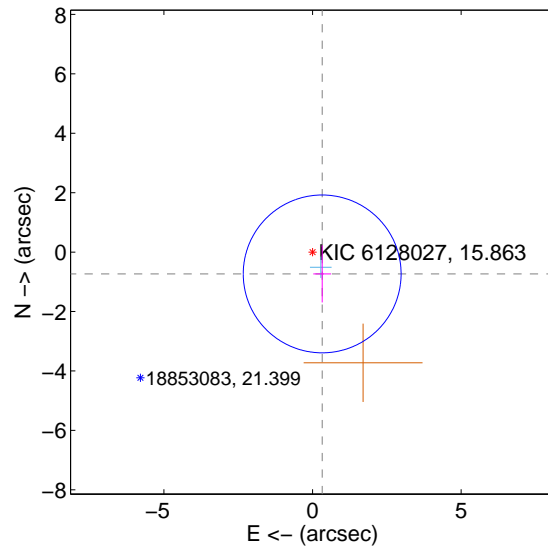
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.775 ± 0.873	0.89	-0.324 ± 0.384	-0.704 ± 0.787
PRF-fit source offset from KIC position	0.803 ± 0.885	0.91	-0.325 ± 0.301	-0.734 ± 0.959
photometric centroid source offset	2.56 ± 1.41	1.81	1.44 ± 1.67	2.11 ± 1.27

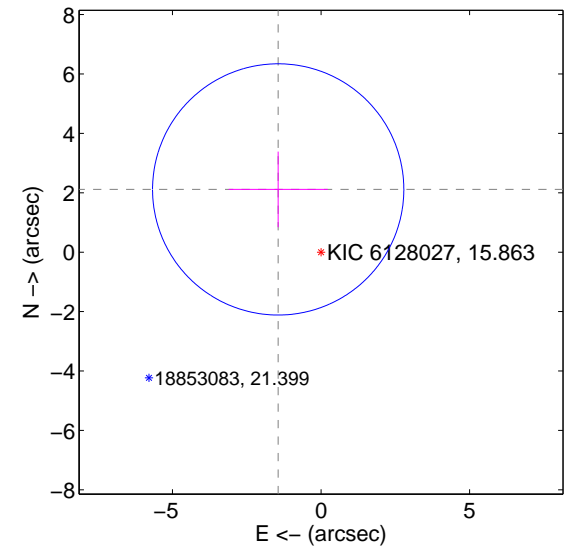
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

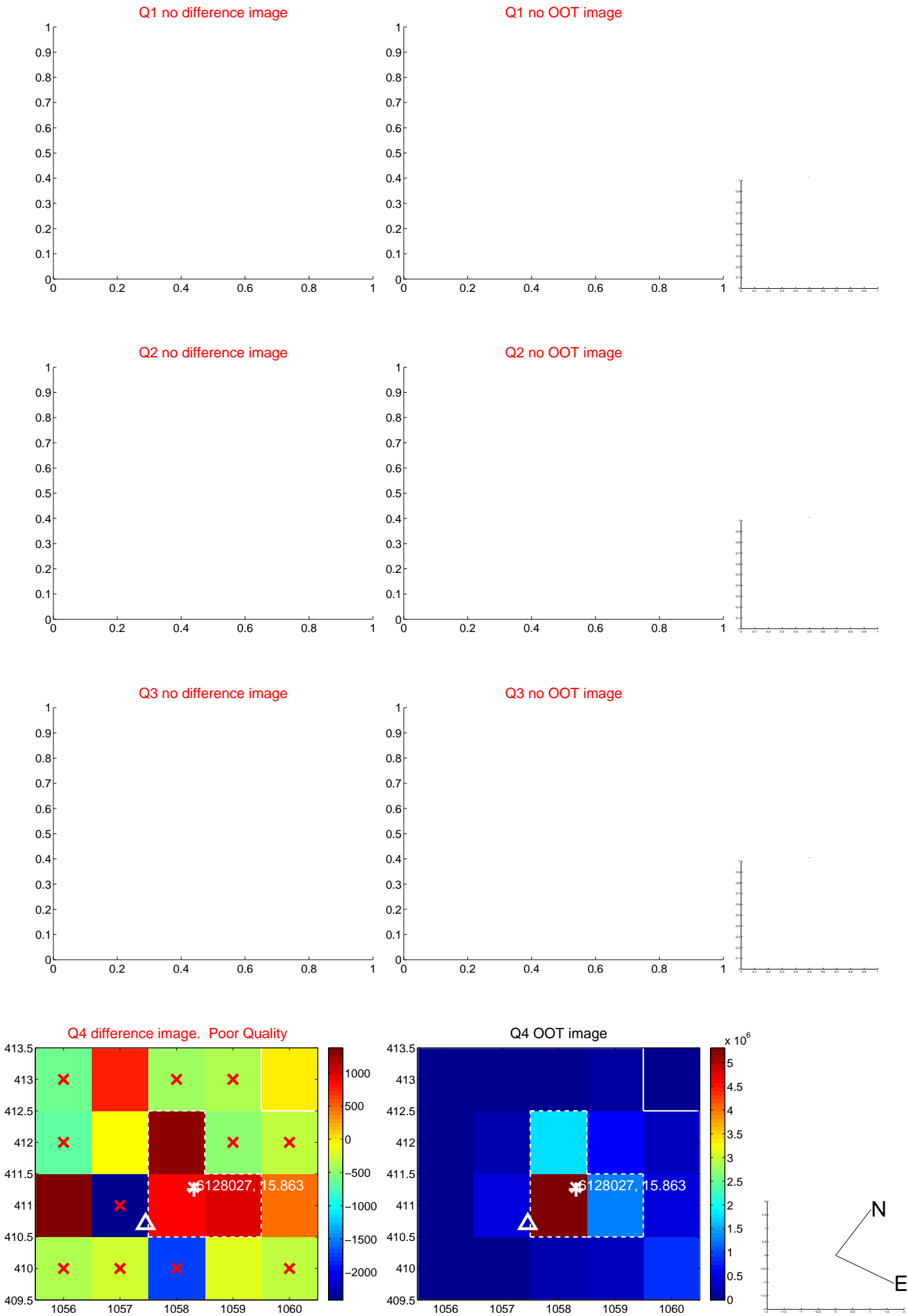


offset from photometric centroids



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.

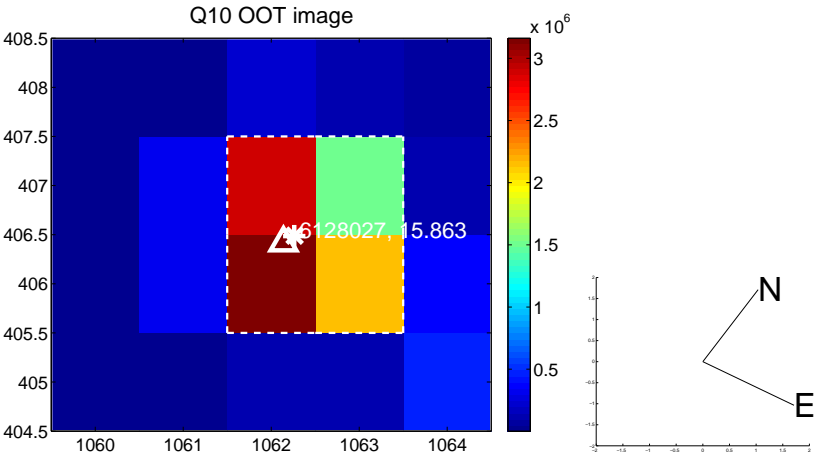
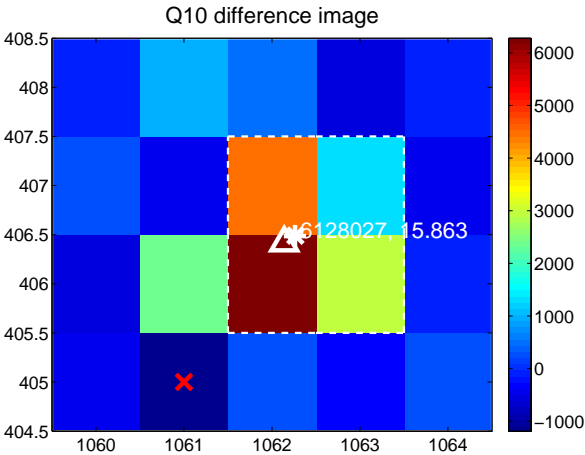


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

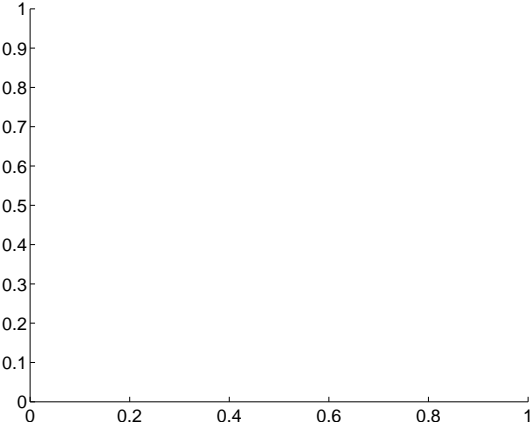
Q9 no difference image



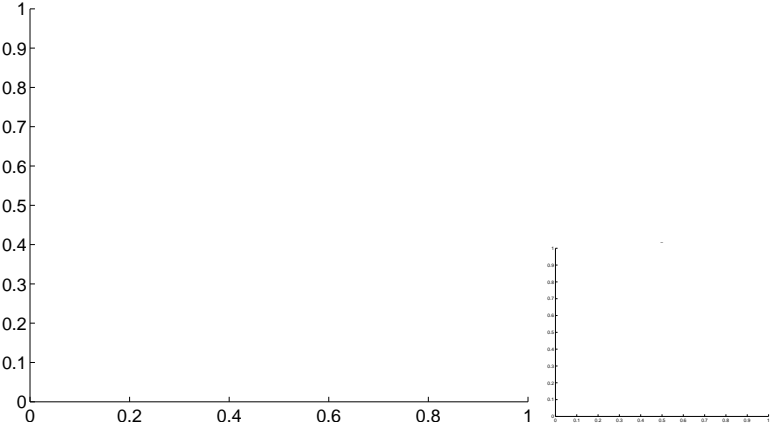
Q9 no OOT image



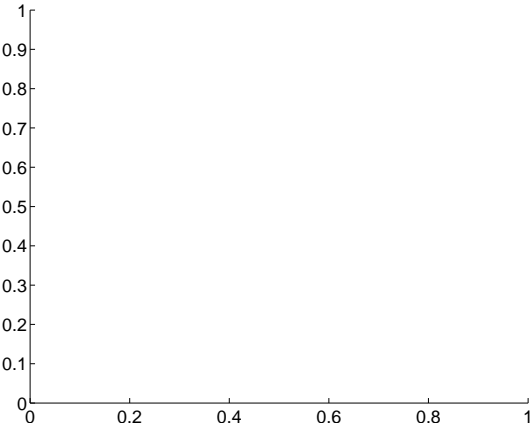
Q11 no difference image



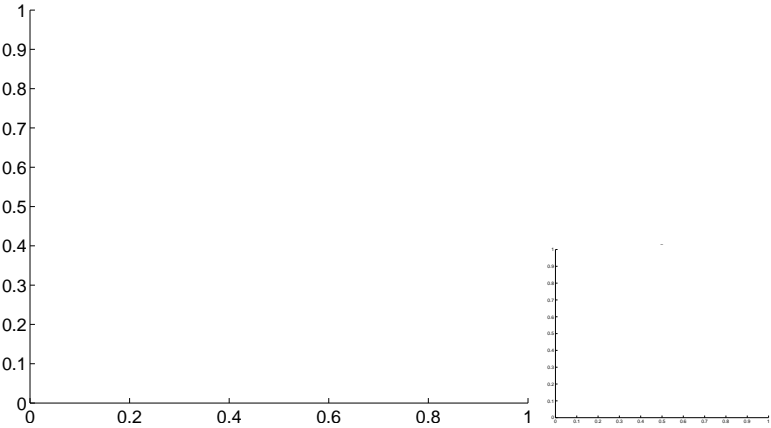
Q11 no OOT image



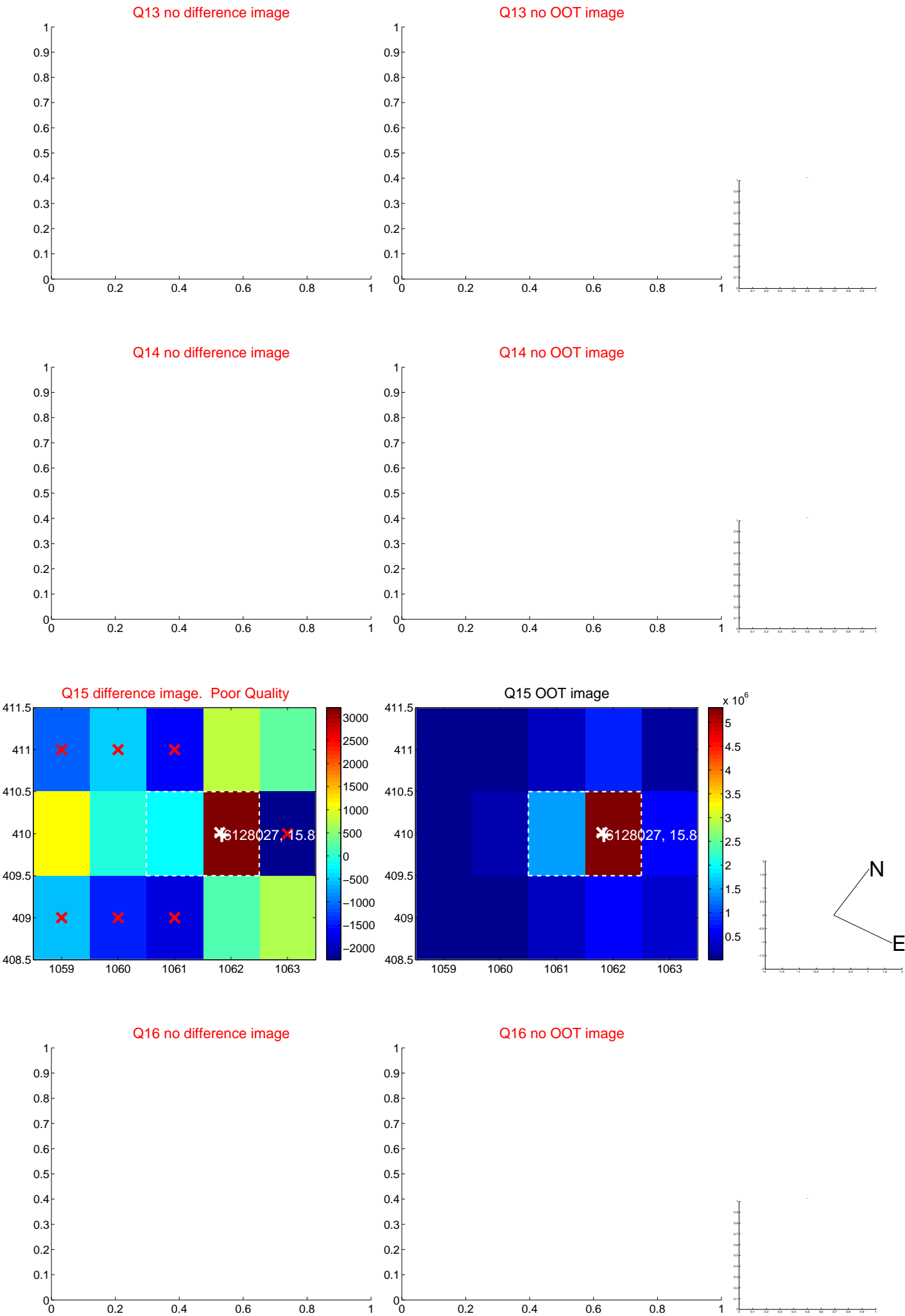
Q12 no difference image



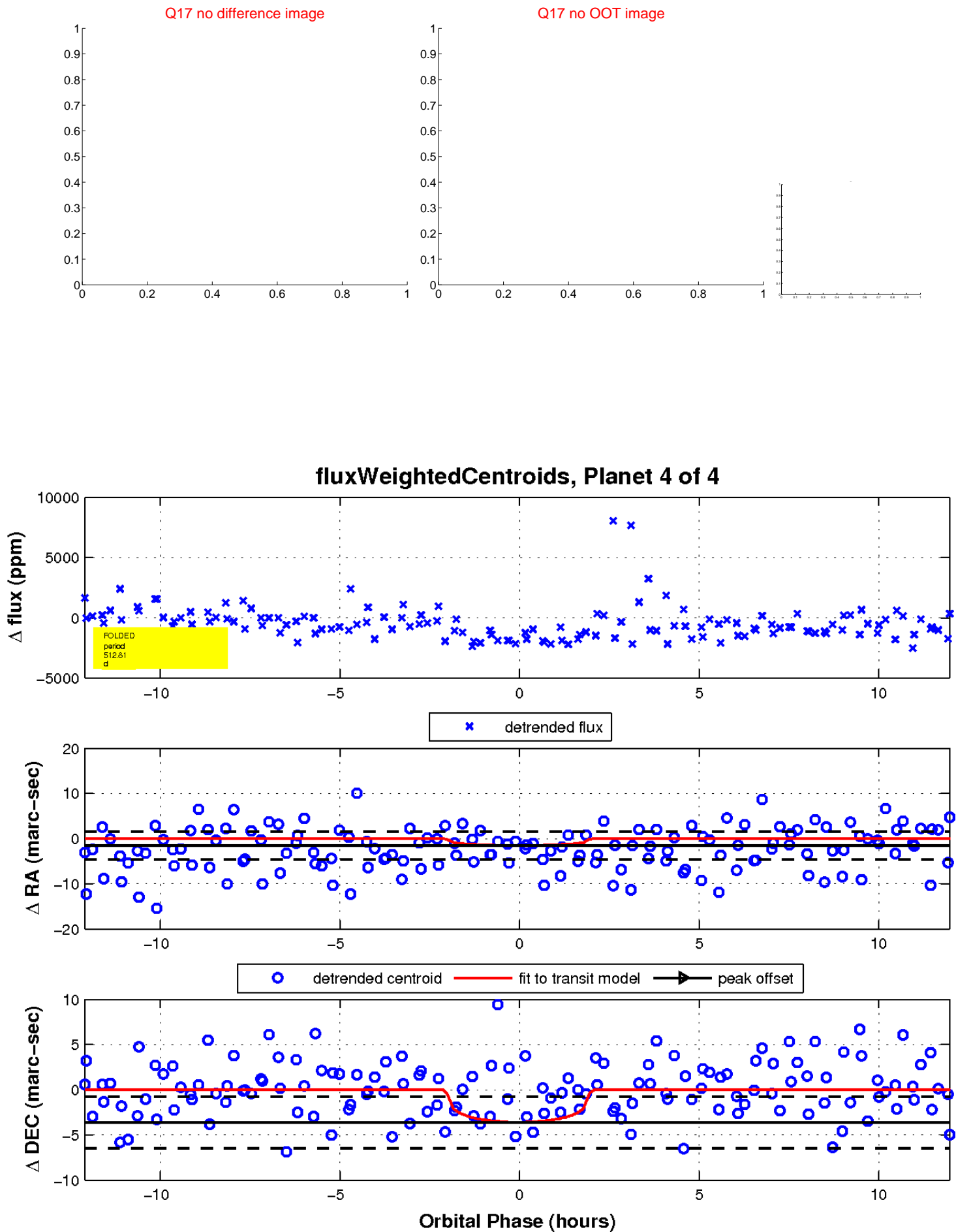
Q12 no OOT image



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.



UKIRT Image

Declination

