

KIC 004079530

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})
004079530-01	OBS	3594.01	17.727313	144.065238	146678.5	4.143	2126.4	1277.4	0.90	6021	34.59	54.44
004079530-02	OBS	No	17.727050	132.786176	6552.0	6.829	113.8	113.9	0.90	6021	8.19	54.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004079530-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_KIC_POS
004079530-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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

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

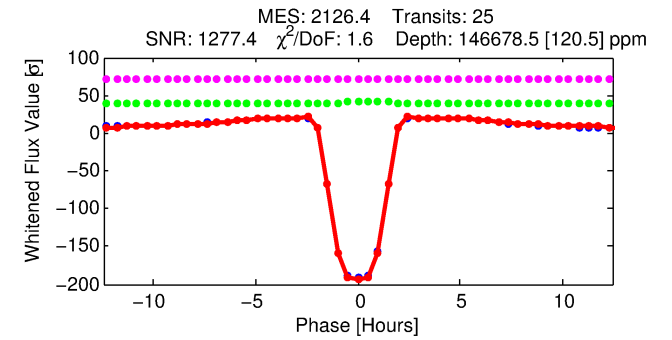
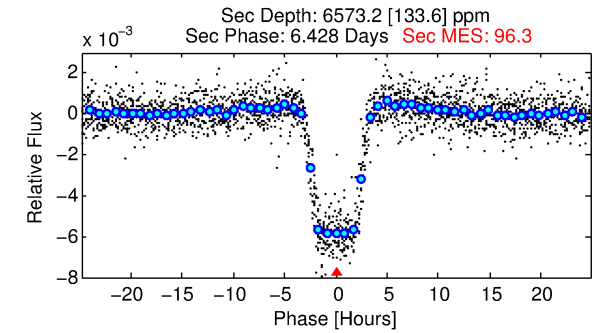
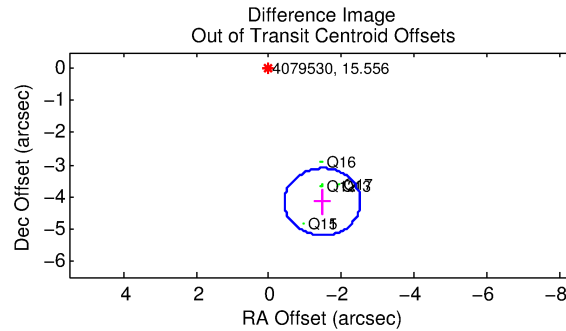
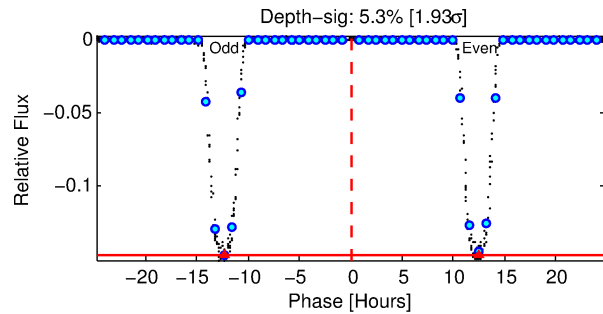
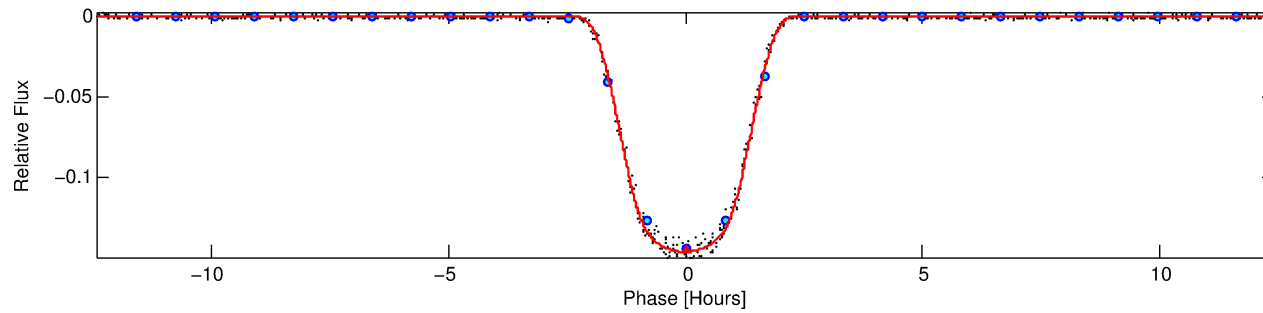
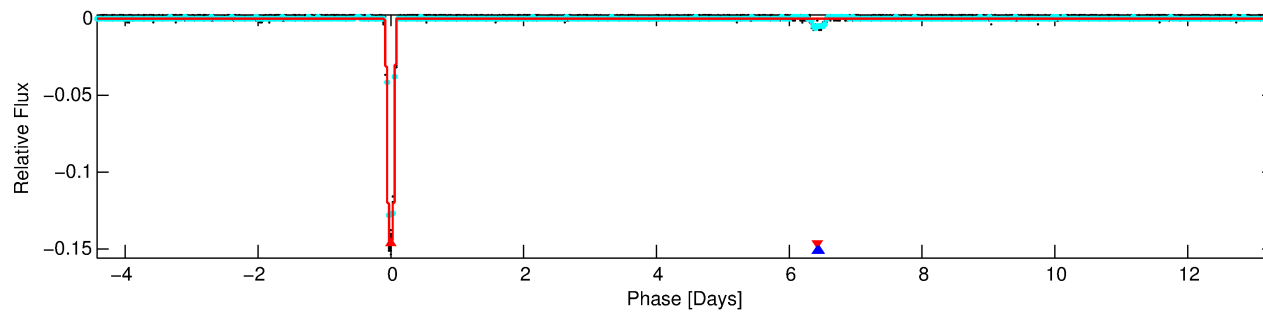
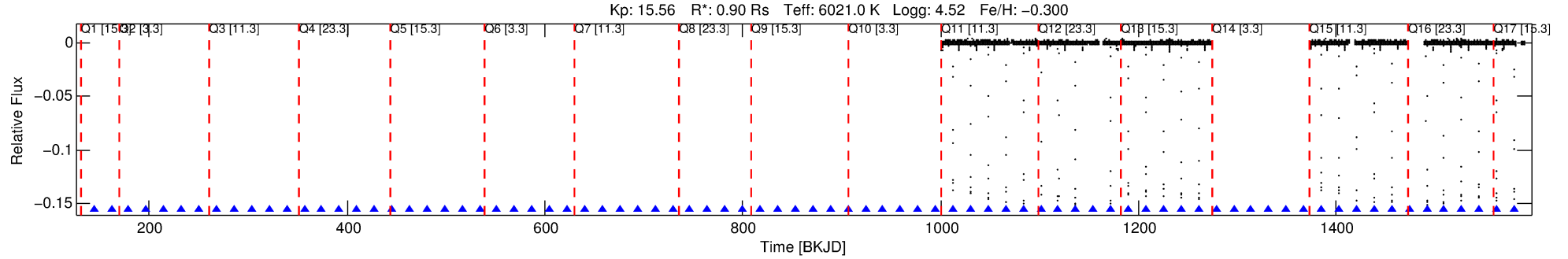
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004079530-01

No Significant Match Found

DV One-Page Summary

KIC: 4079530 Candidate: 1 of 2 Period: 17.727 d
KOI: K03594.01 Corr: 0.993



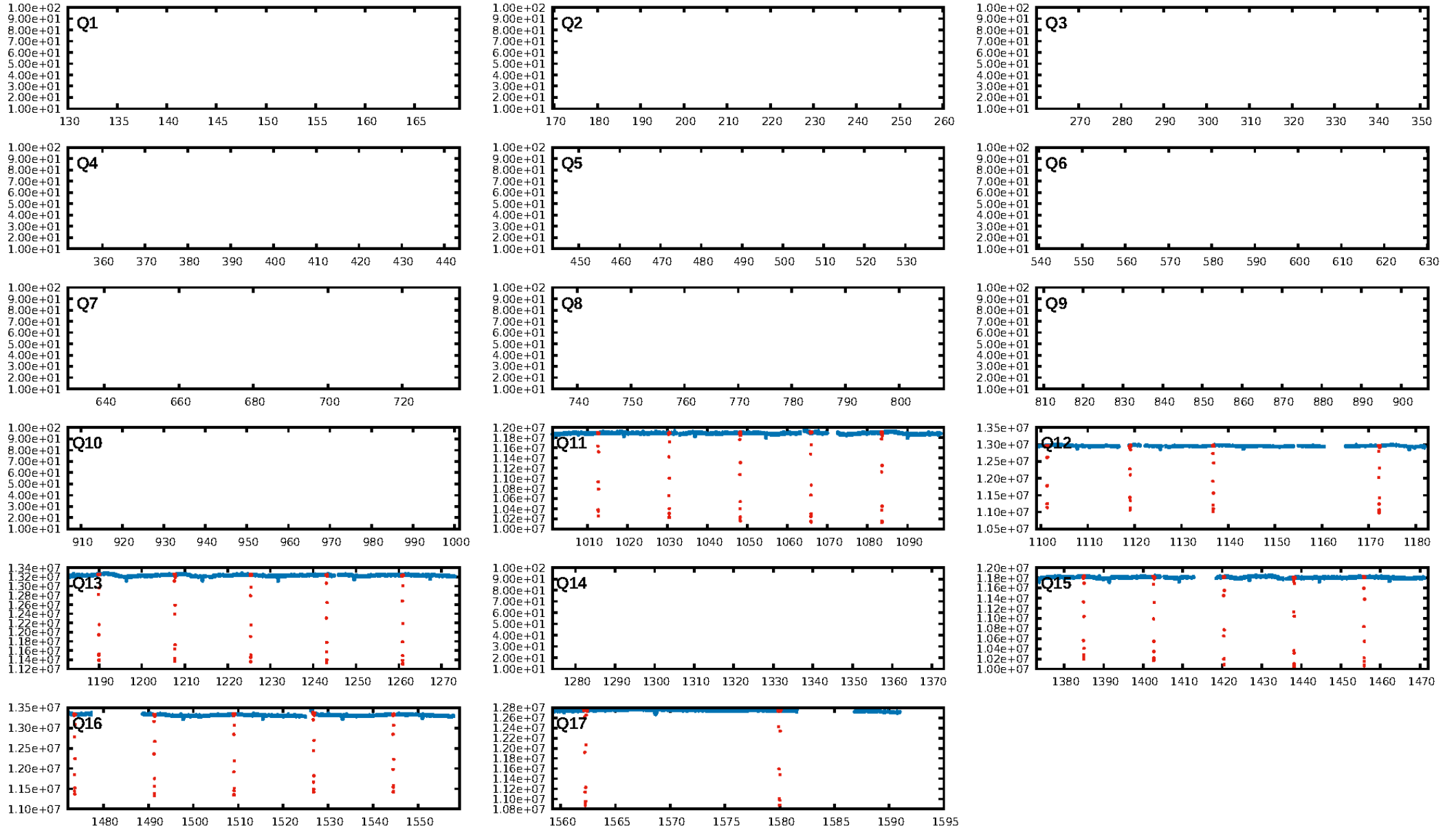
DV Fit Results:

Period = 17.72731 [0.00000] d
Epoch = 144.0652 [0.0002] BKJD
Rp/R* = 0.3542 [0.0003]
a/R* = 43.95 [0.09]
b = 0.16 [0.01]
Seff = 54.44 [22.31]
Teff = 693 [71] K
Rp = 34.59 [10.67] Re
a = 0.1316 [0.0343] AU
Ag = 52.37 [19.92] [2.58σ]
Teffp = 2881 [112] K [16.51σ]

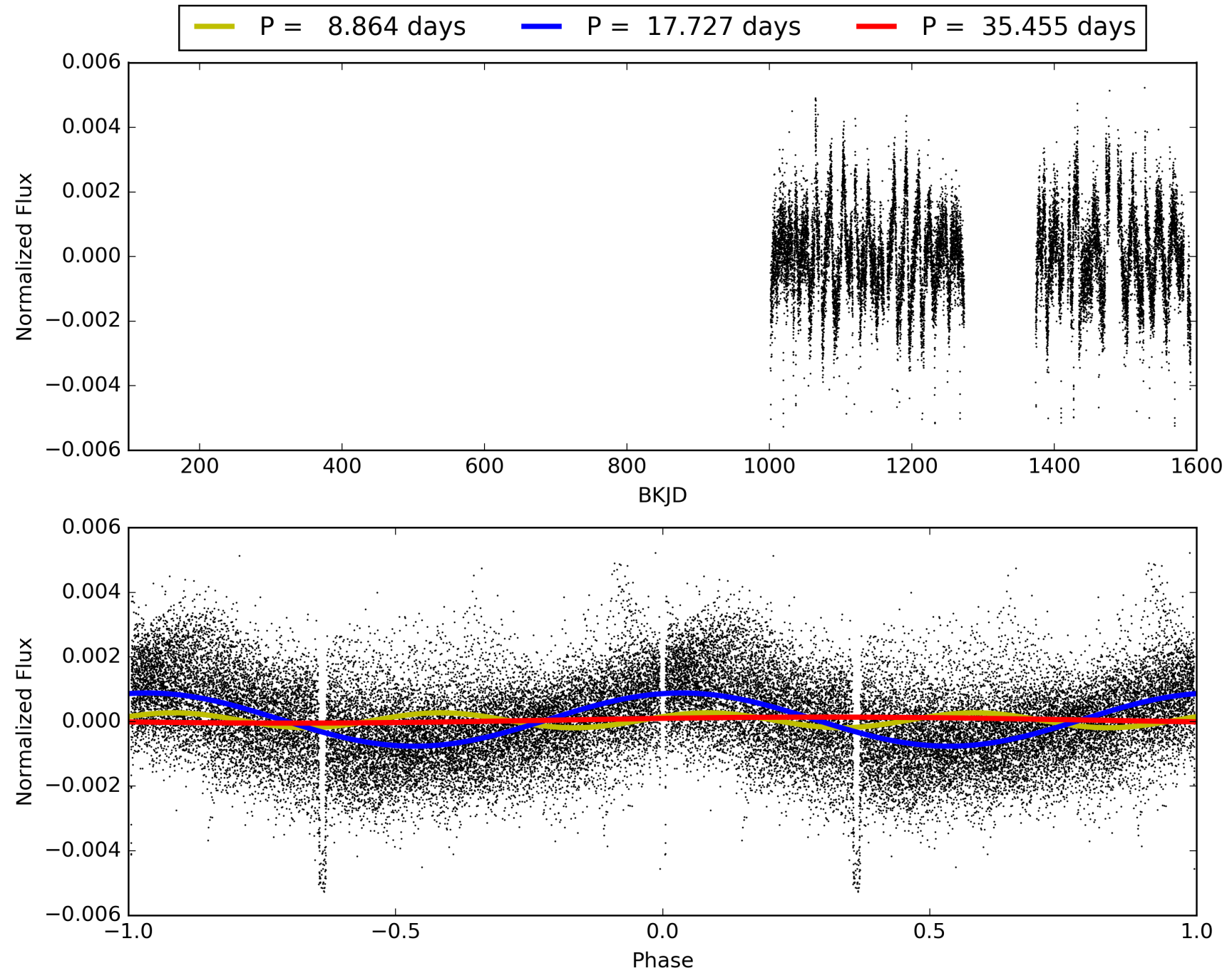
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 95.6%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [23/23]
GhostDiagnostic-chr: 4.603
Centroid-sig: 0.0%
Centroid-so: 1.161 arcsec [278.38σ]
OotOffset-rm: 4.414 arcsec [12.63σ]
KicOffset-rm: 0.252 arcsec [3.31σ]
OotOffset-st: 0/2/2/2 [6]
KicOffset-st: 0/2/2/2 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [6/6]

TCE 004079530-01, PDC Light Curves

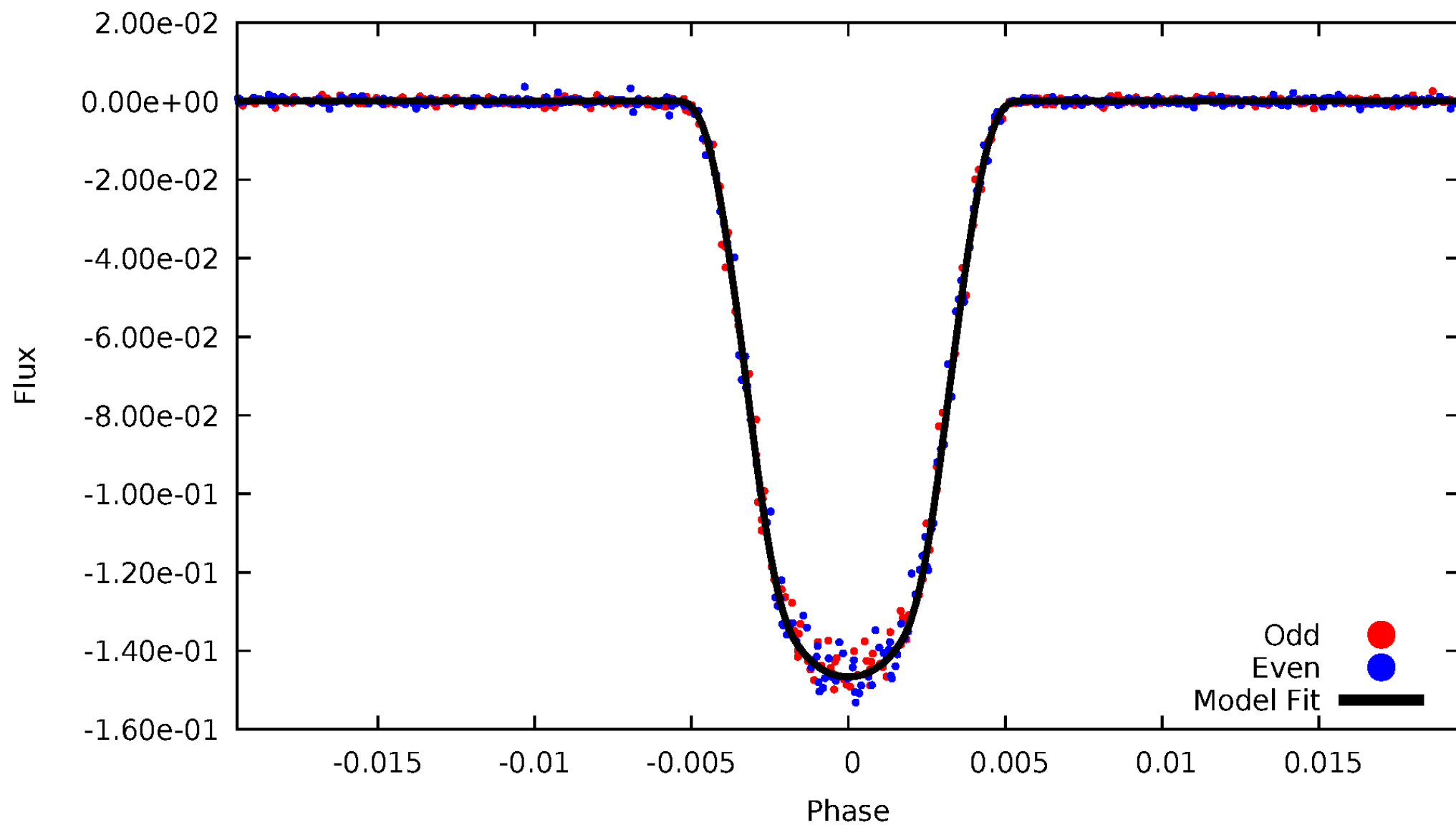


TCE 004079530-01



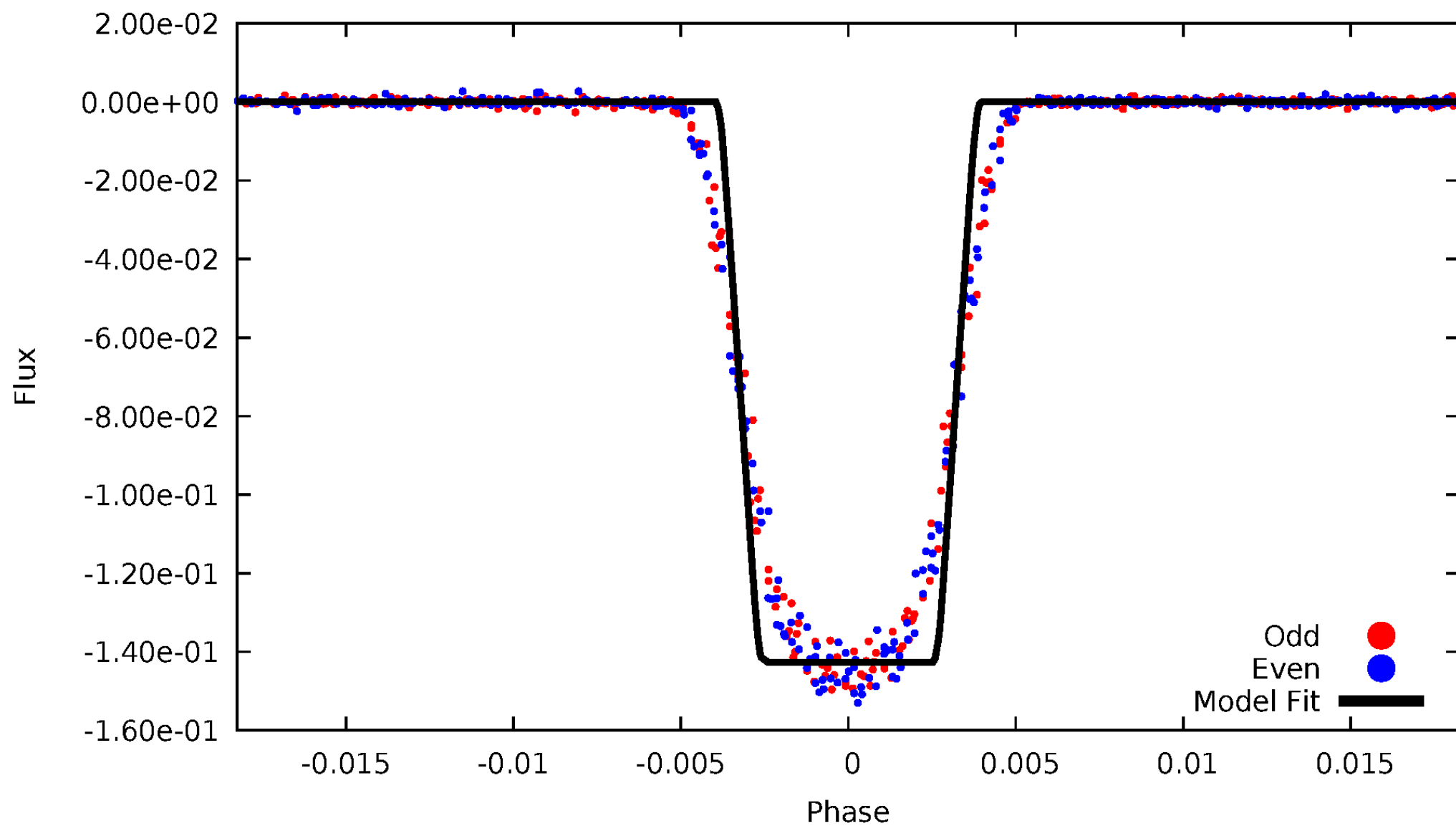
DV Odd/Even

TCE 004079530-01



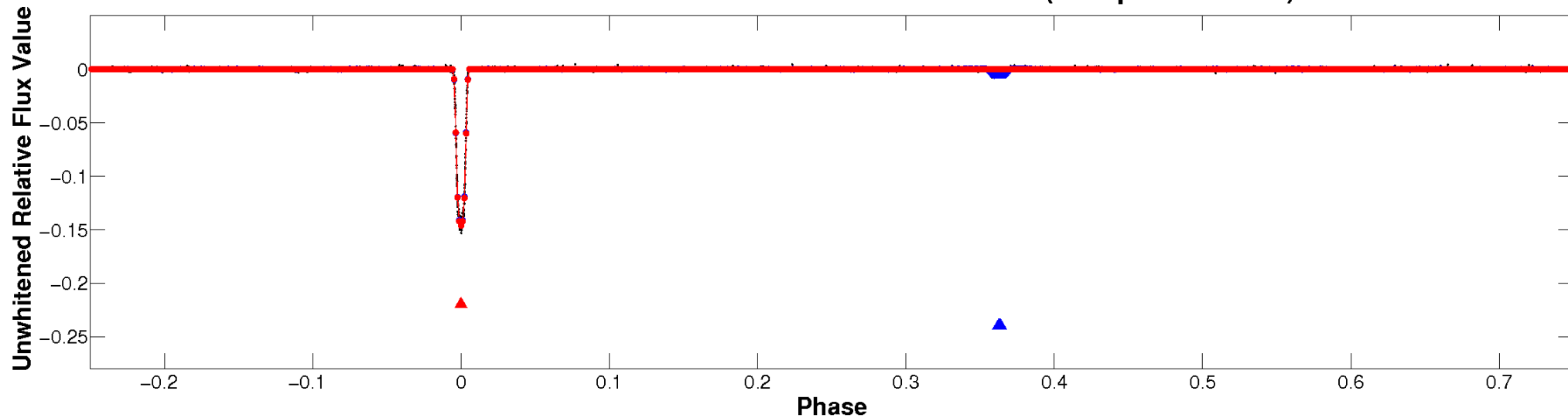
ALT Odd/Even

TCE 004079530-01

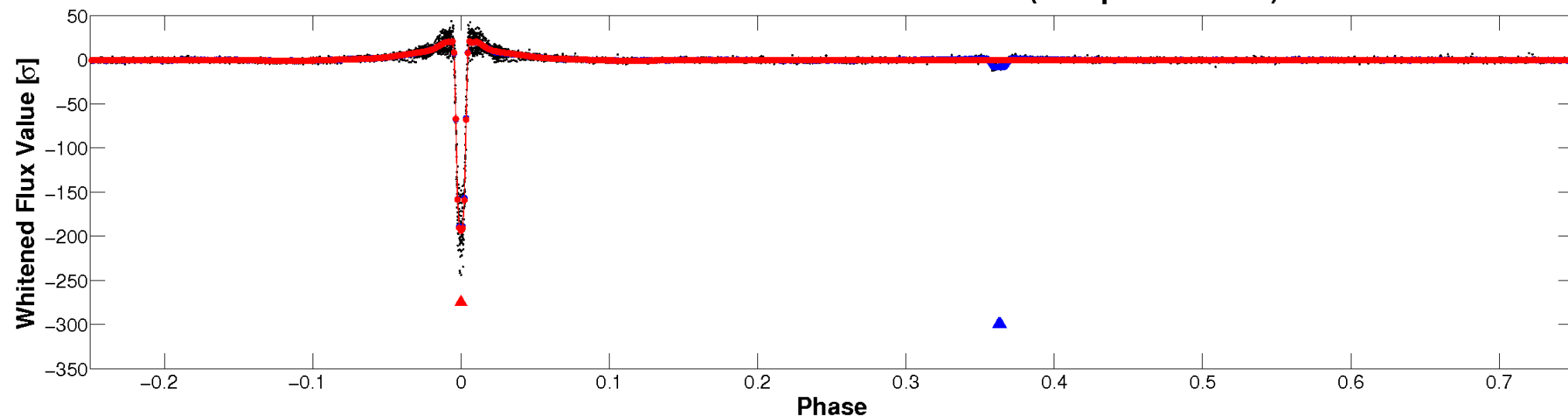


Non-Whitened Vs. Whitened Light Curve

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

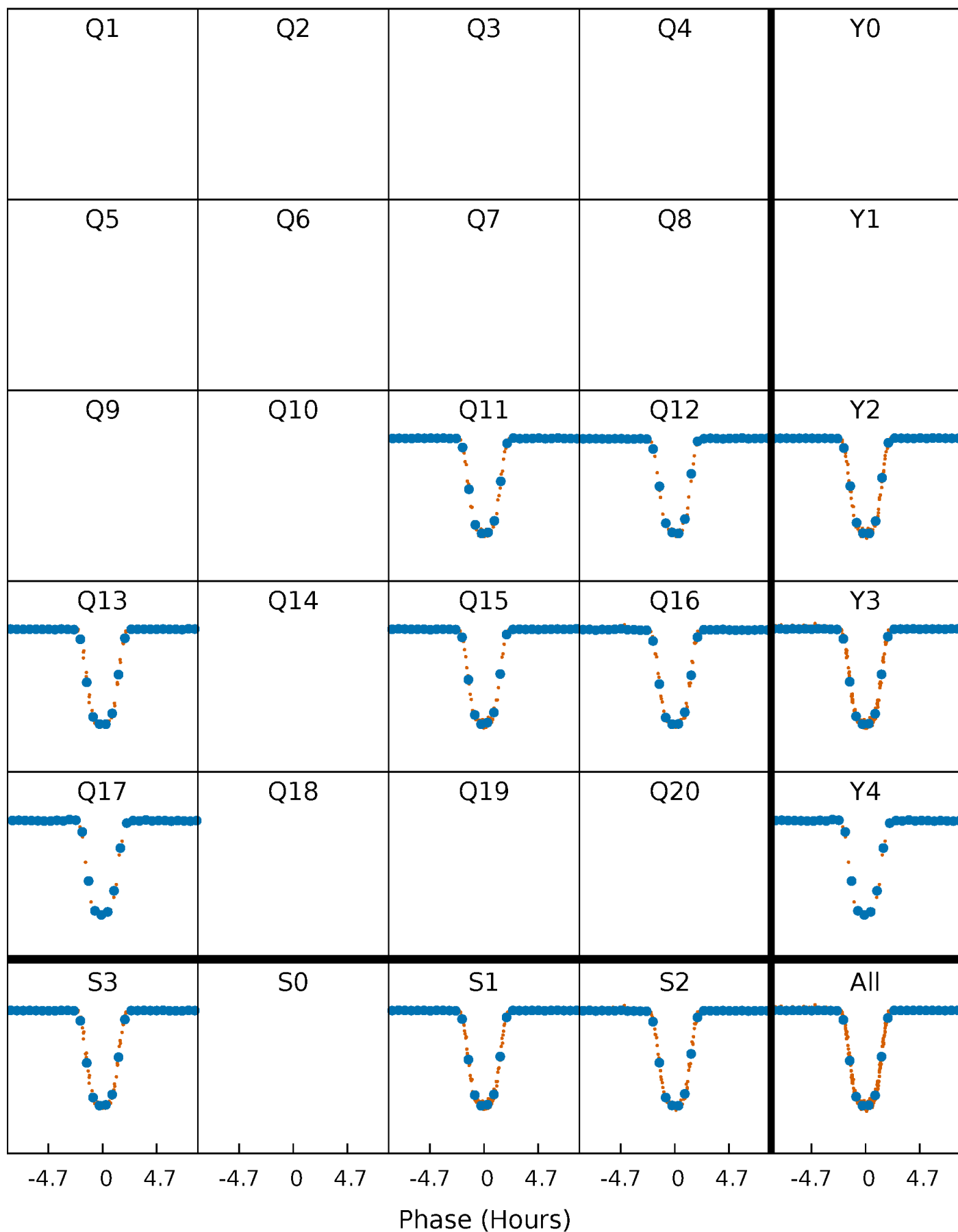


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



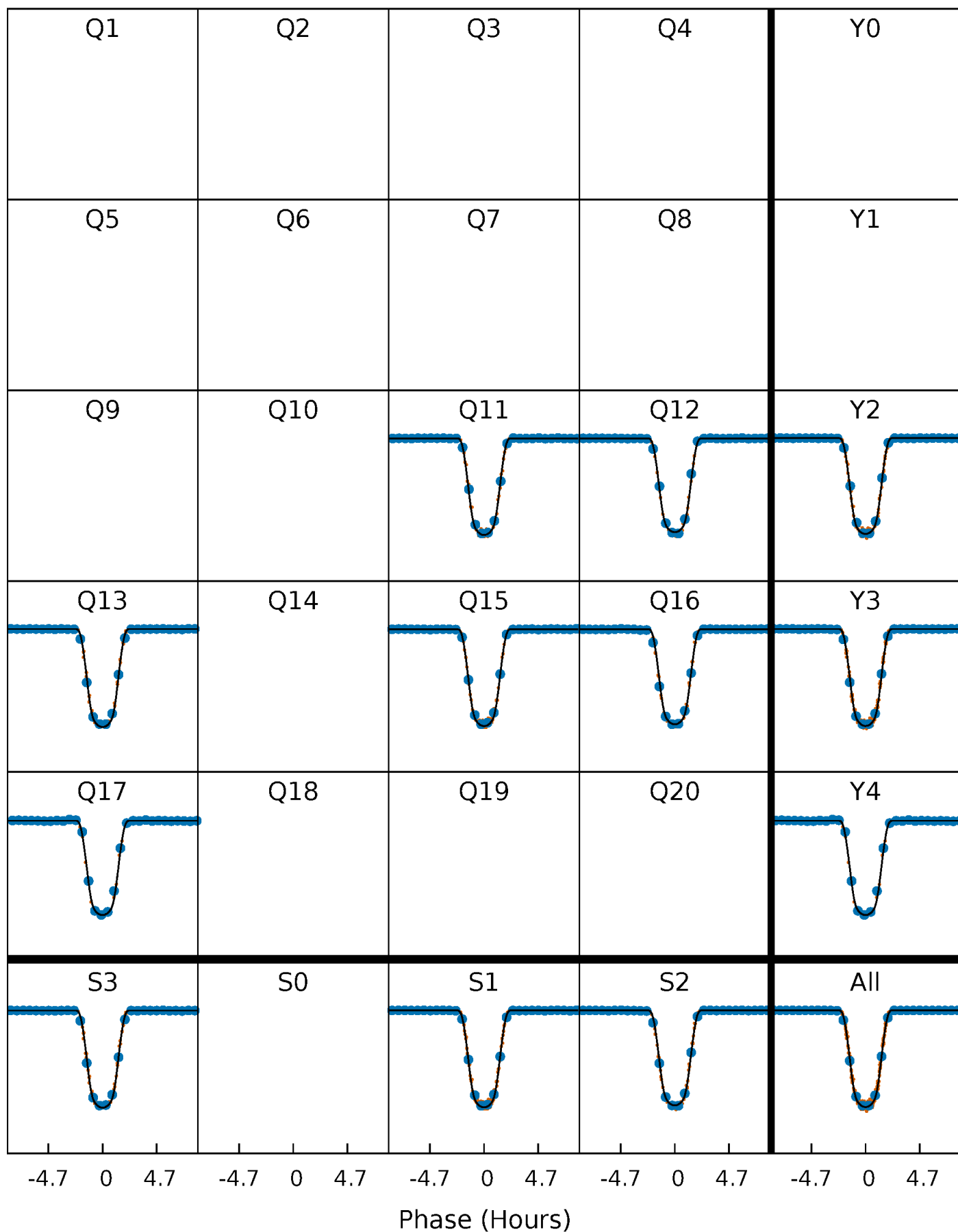
PDC Quarter-Phased Transit Curves

TCE 004079530-01 P= 17.727313 Days $T_0=144.065238$ (BKJD)



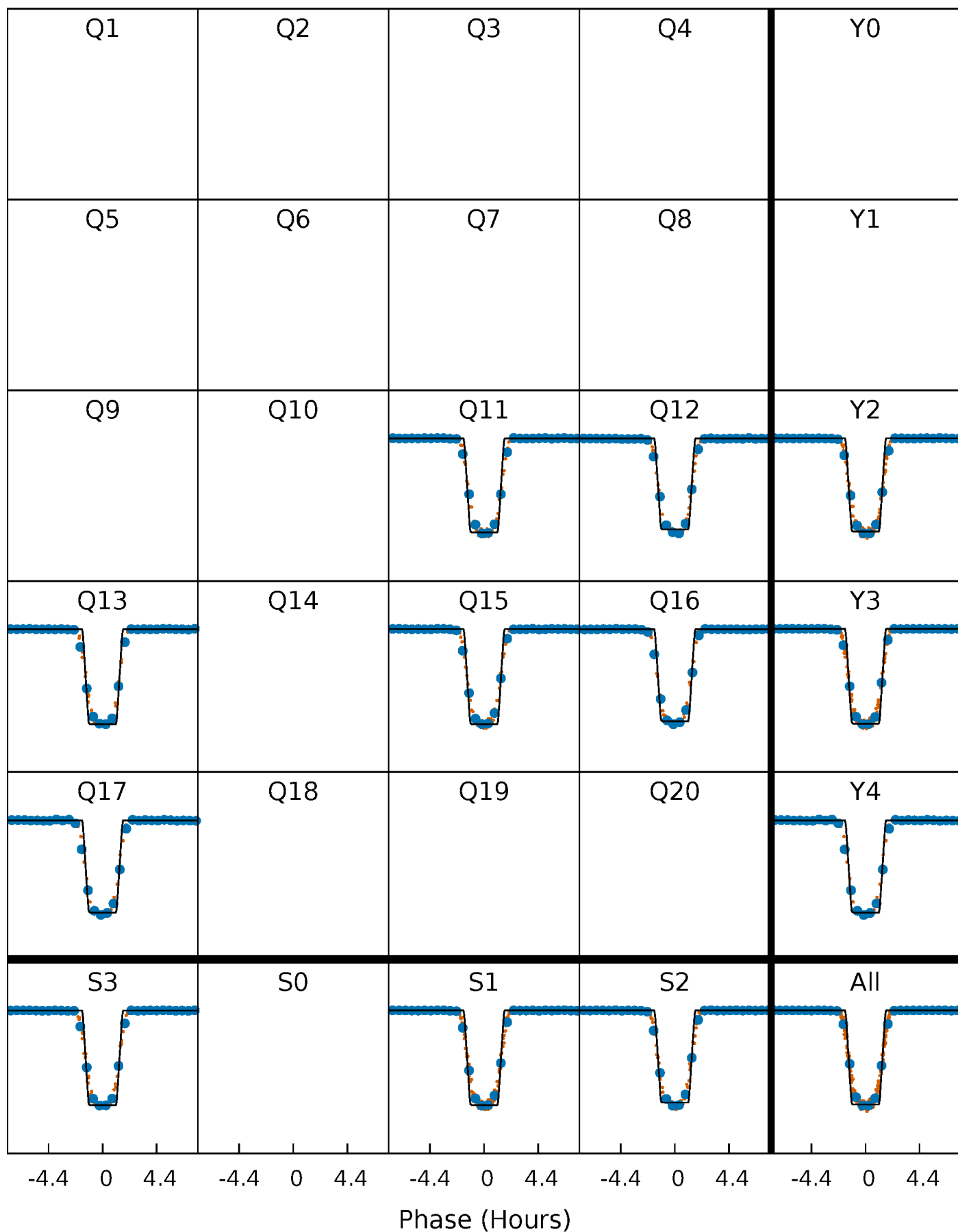
DV Quarter-Phased Transit Curves

TCE 004079530-01 P= 17.727313 Days $T_0=144.065238$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

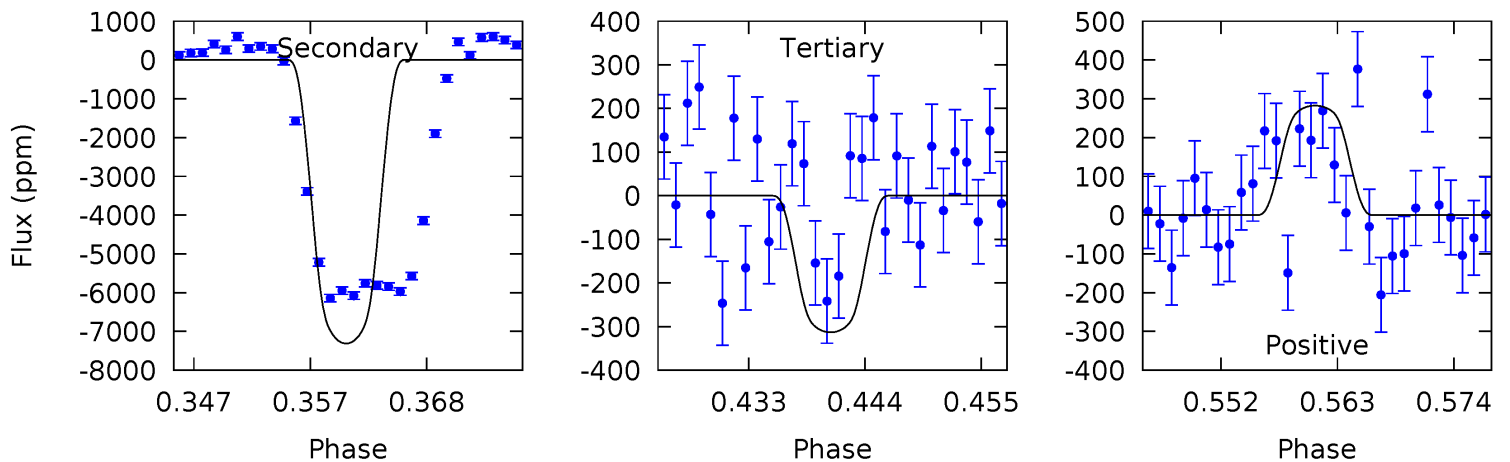
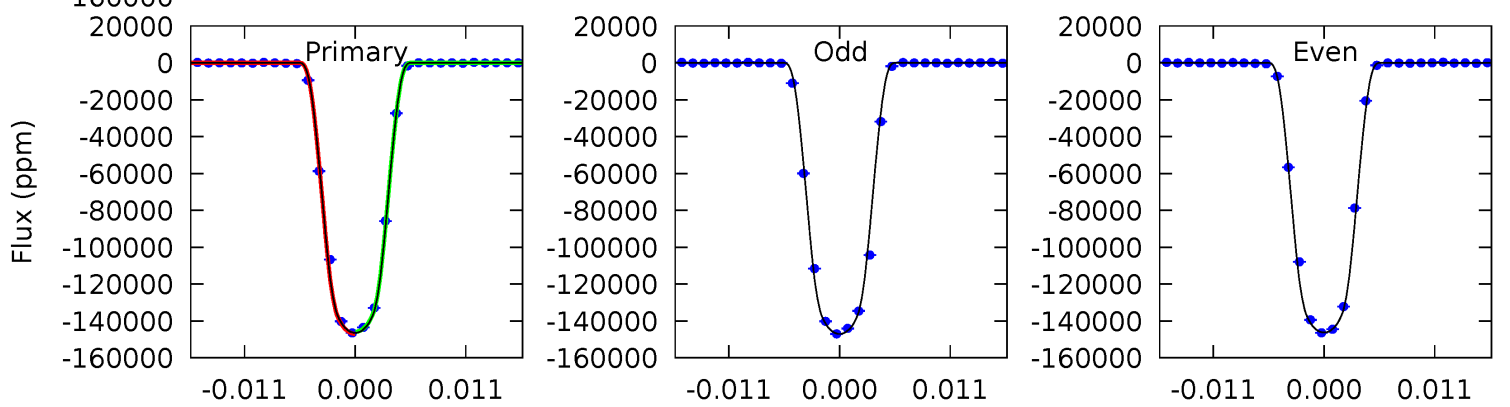
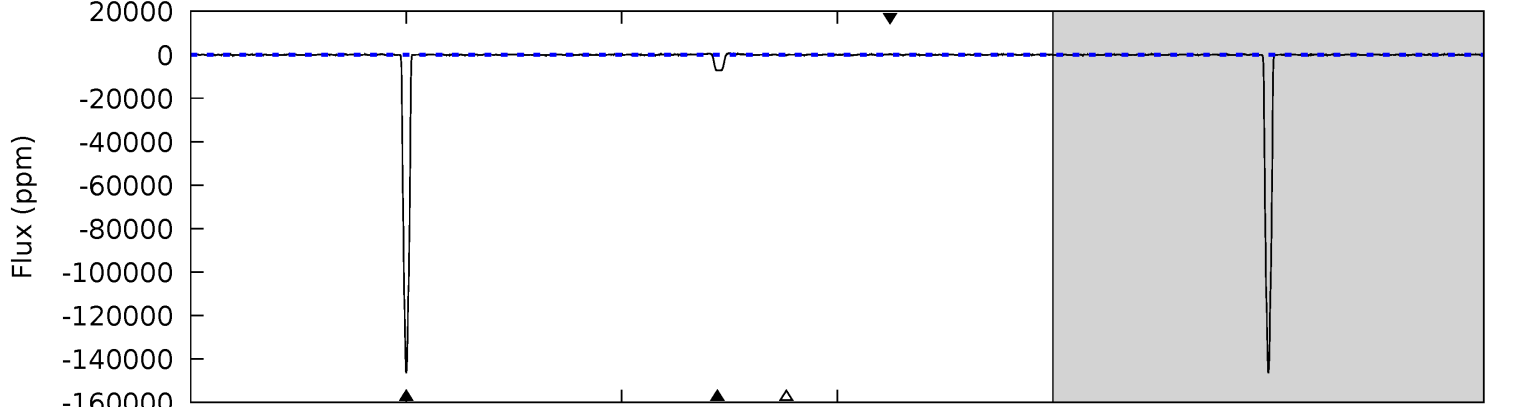
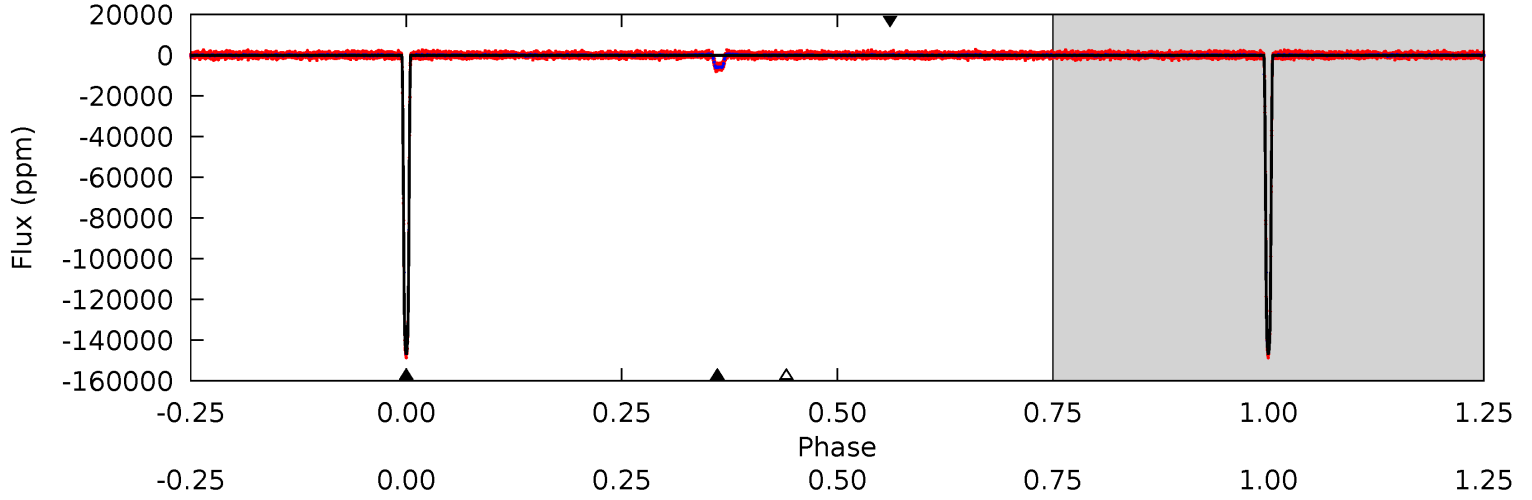
TCE 004079530-01 P= 17.727397 Days $T_0=144.059471$ (BKJD)



DV Model-Shift Uniqueness Test

004079530-01, P = 17.727313 Days, E = 144.065238 Days

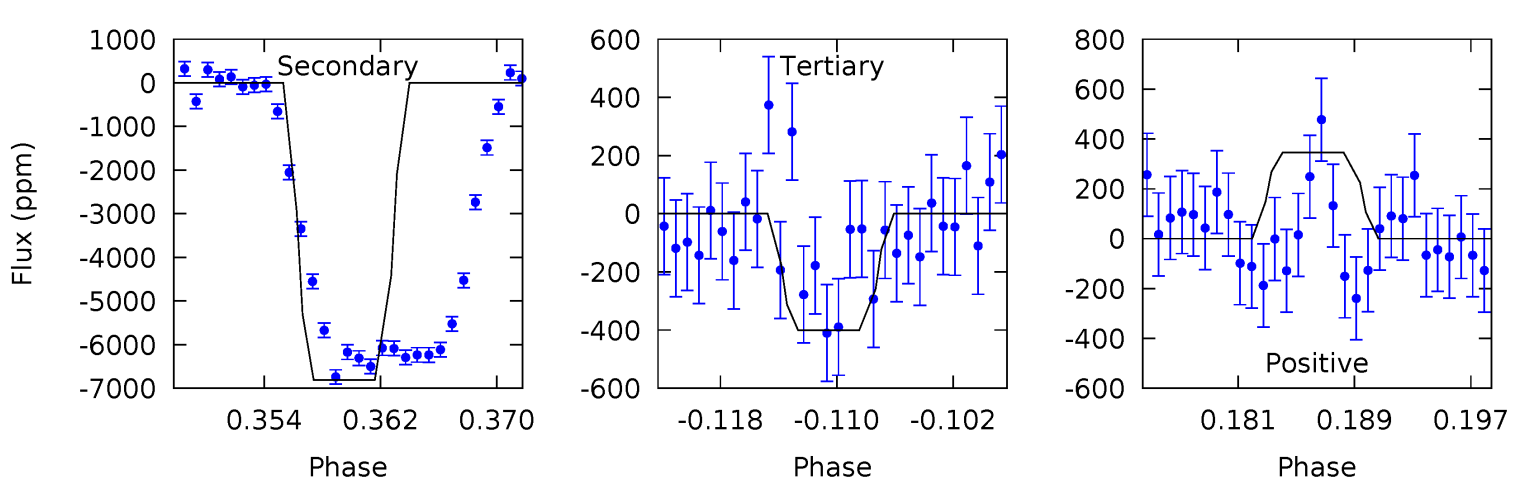
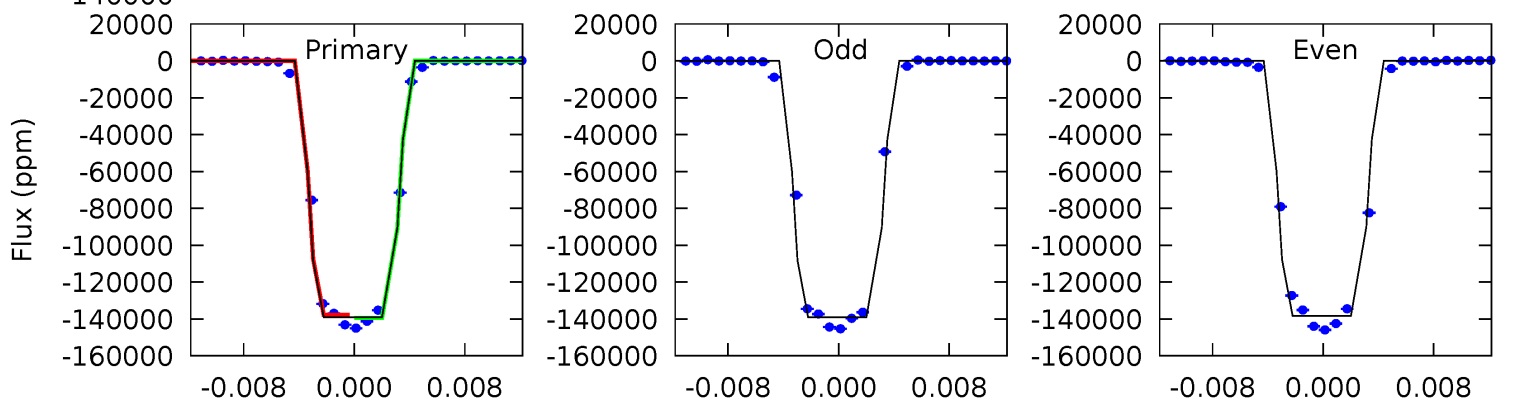
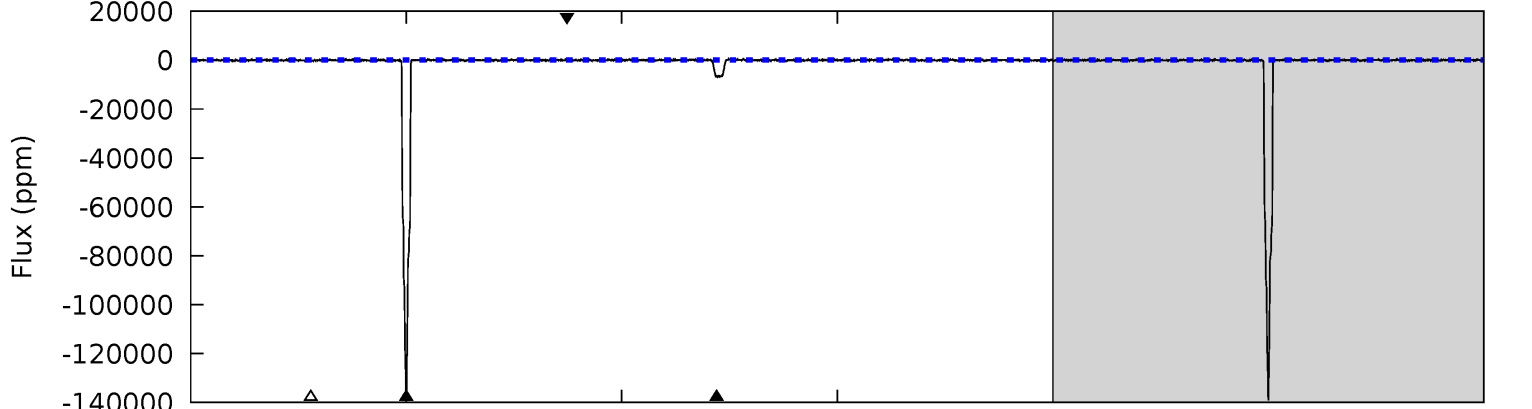
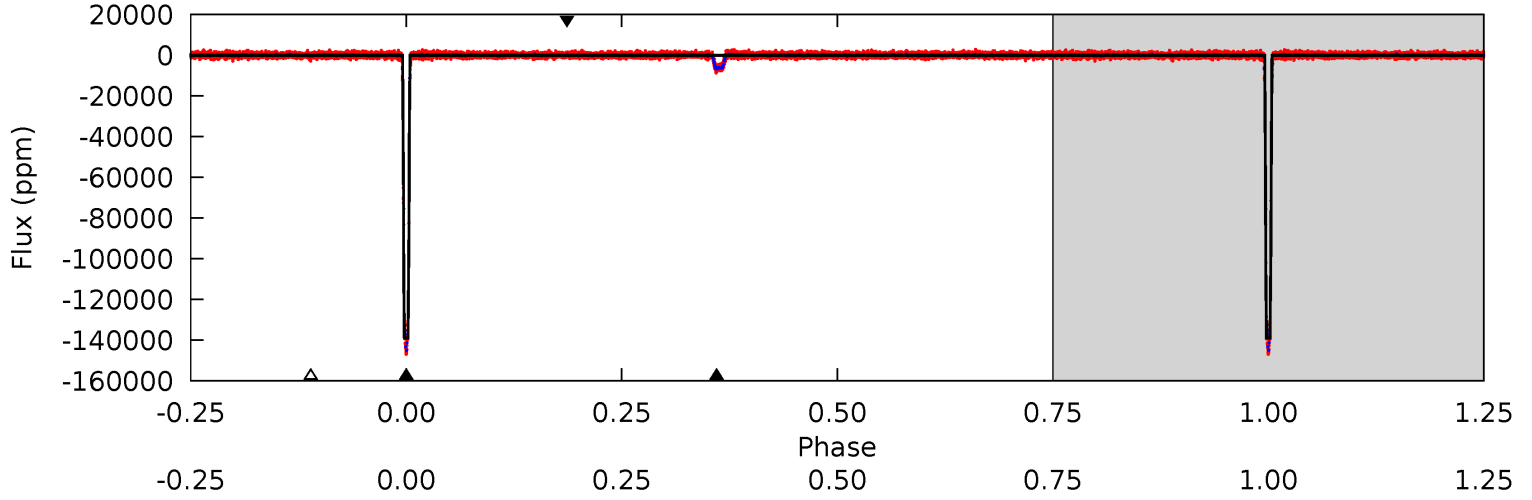
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2493	124.4	5.33	4.81	5.01	2.55	1.99	2487	2488	119.1	119.6	6.50	0.99	0.00	7.06



Alt Model-Shift Uniqueness Test

004079530-01, P = 17.727397 Days, E = 144.059471 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1386	67.8	3.99	3.44	5.07	2.66	1.72	1382	1382	63.8	64.4	3.41	1.00	0.00	0



Stellar Parameters For KIC 004079530

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6021^{+190}_{-232}	$4.520^{+0.052}_{-0.208}$	$-0.300^{+0.300}_{-0.300}$	$0.895^{+0.276}_{-0.092}$	$0.967^{+0.120}_{-0.132}$	$1.903^{+0.518}_{-0.977}$
	+3%/-4%	+1%/-5%	+100%/-100%	+31%/-10%	+12%/-14%	+27%/-51%
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 004079530-01 / KOI 3594.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-7311 ± 59	$35.53^{+5.64}_{-2.89}$	989^{+70}_{-55}	3460^{+72}_{-87}	54^{+8}_{-12}
Alt.	-6807 ± 100	$37.89^{+5.80}_{-3.10}$	989^{+69}_{-56}	3353^{+71}_{-88}	45^{+7}_{-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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

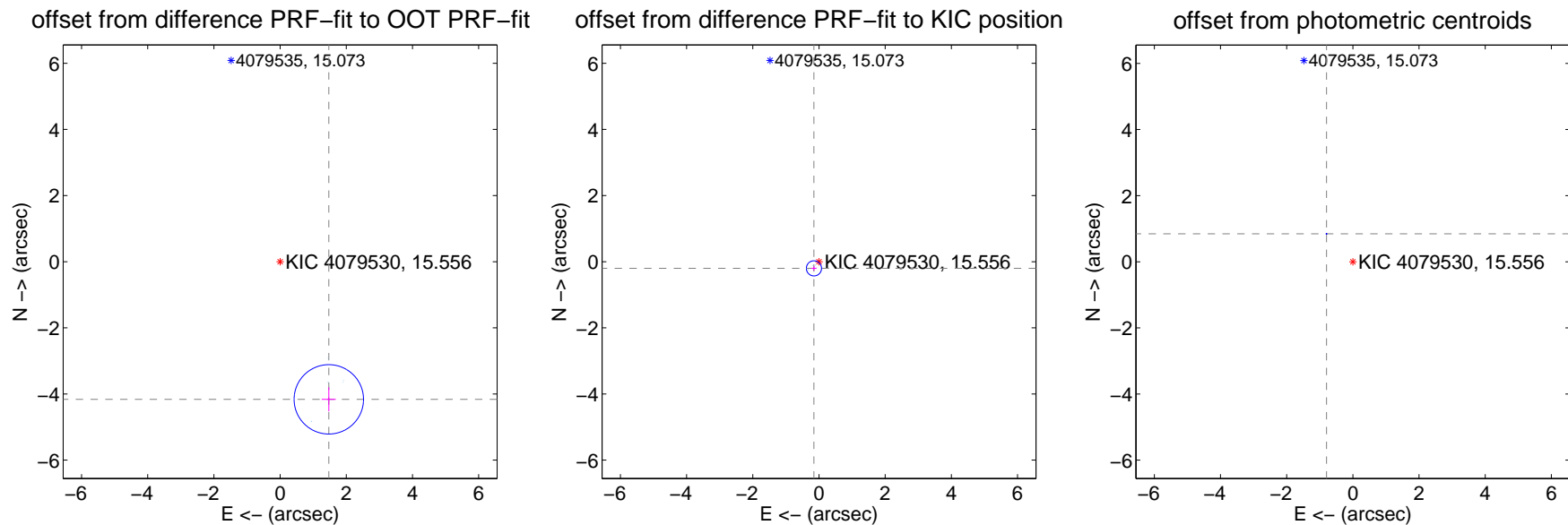
DV Centroid Data

Supplemental centroid analysis for 004079530-01. Kepler magnitude: 15.56. Transit SNR 1277.35

There are 6 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 4.03 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.414 ± 0.350	12.63	-1.471 ± 0.213	-4.162 ± 0.363
PRF-fit source offset from KIC position	0.252 ± 0.076	3.31	0.152 ± 0.078	-0.201 ± 0.070
photometric centroid source offset	1.16 ± 0.00	278.38	0.80 ± 0.00	0.84 ± 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.

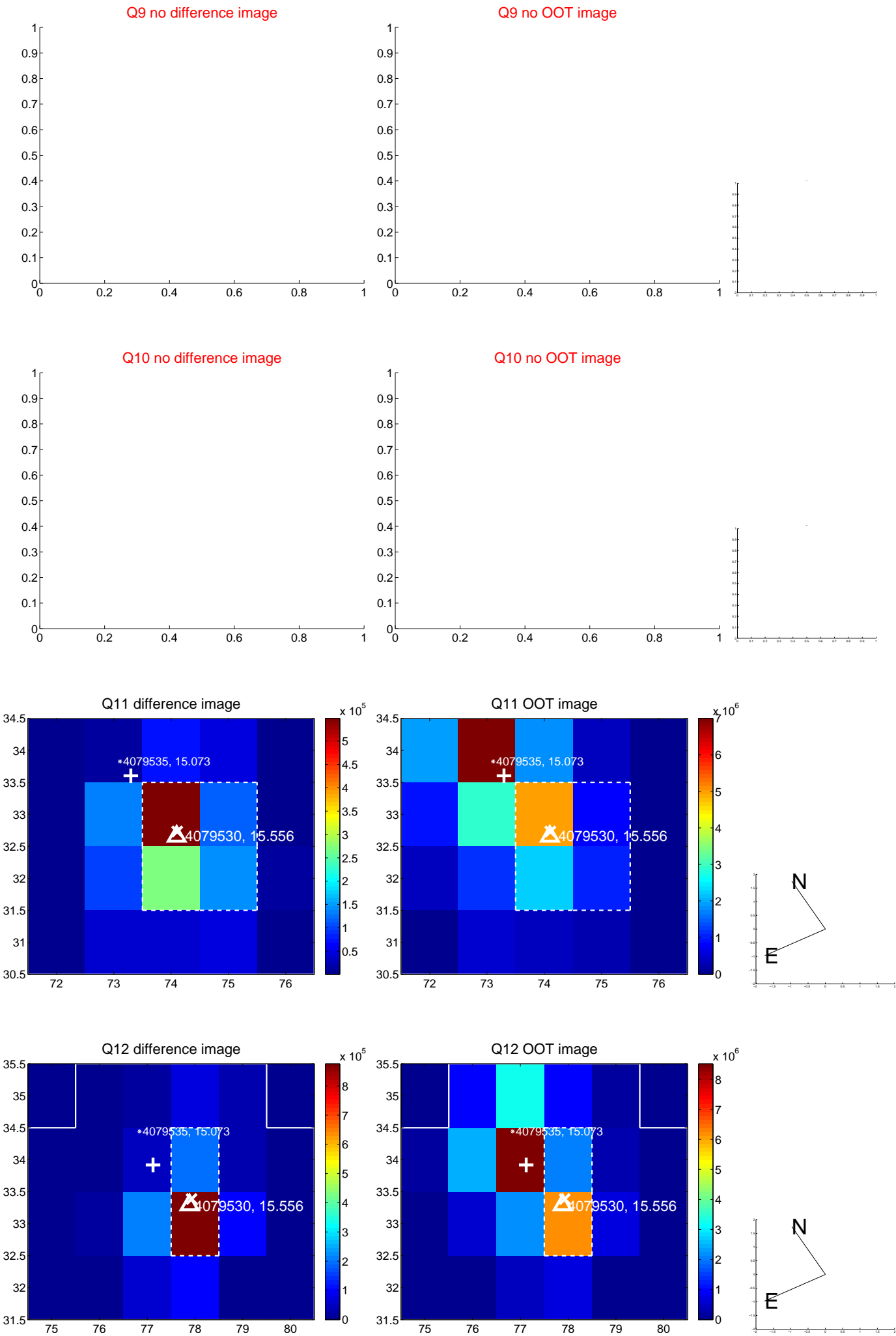
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



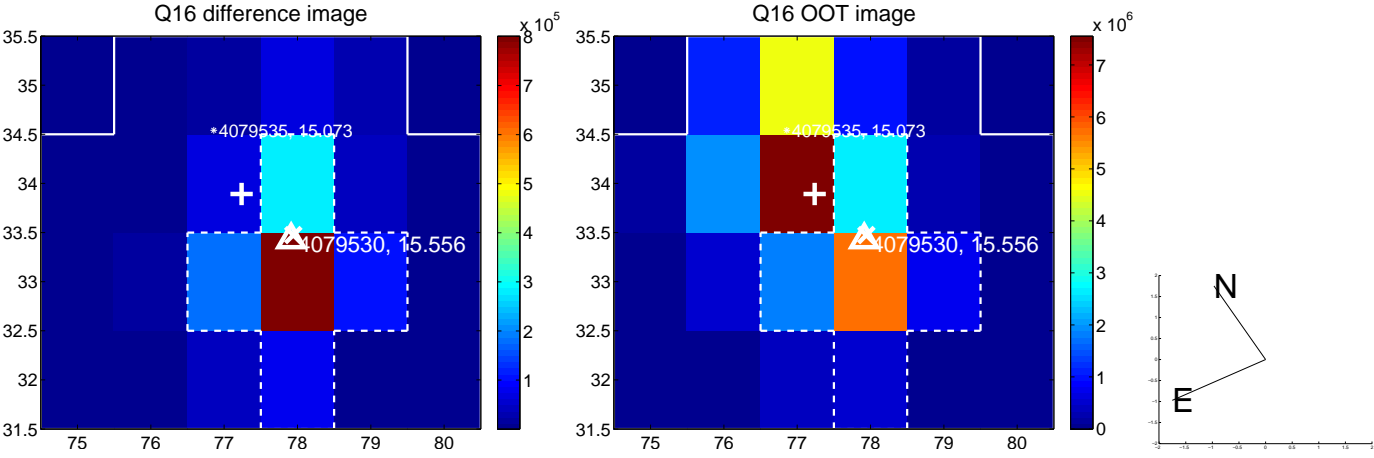
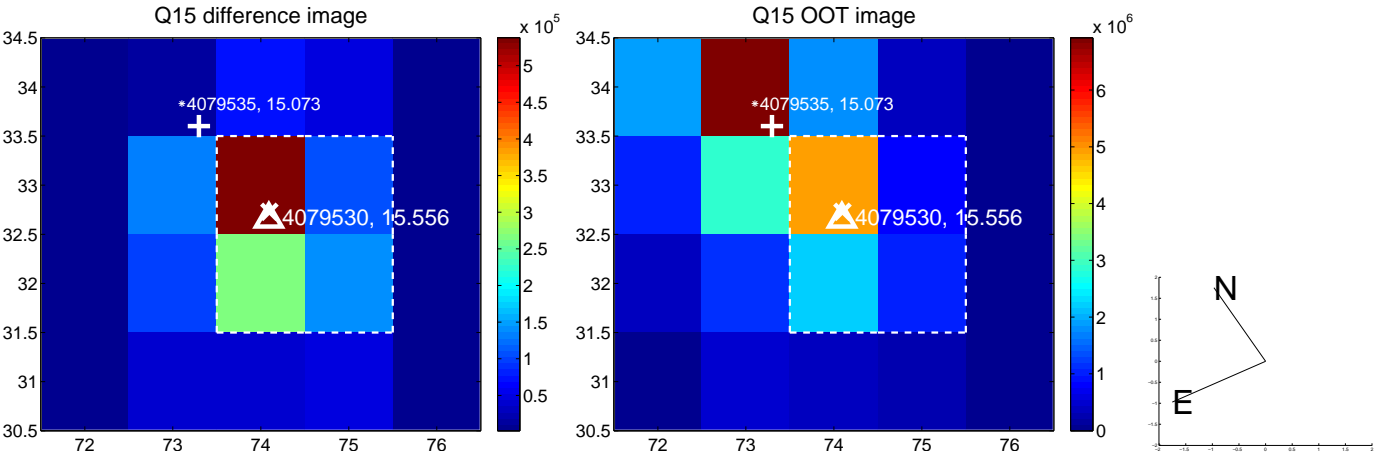
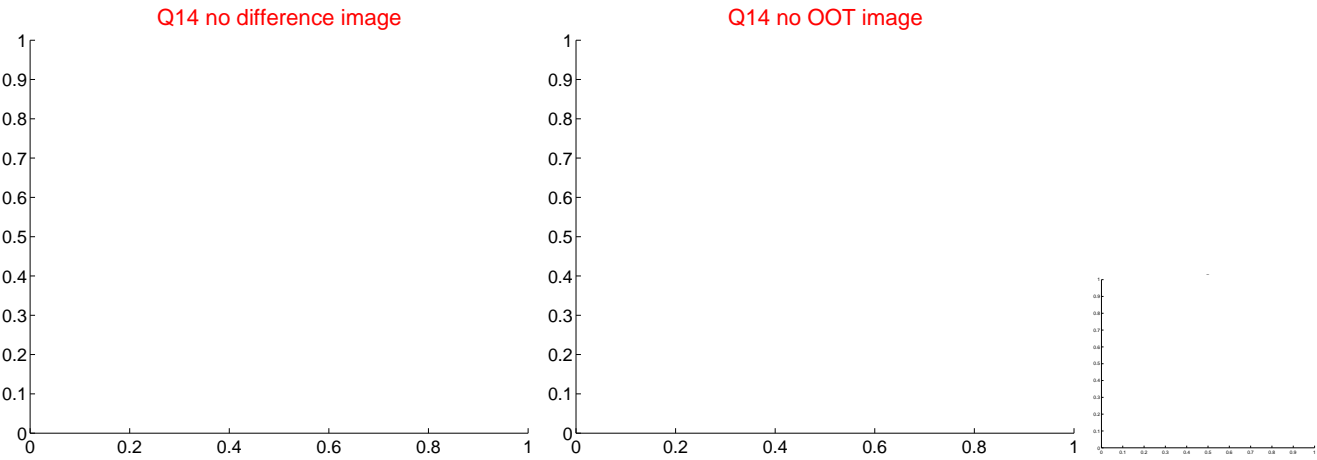
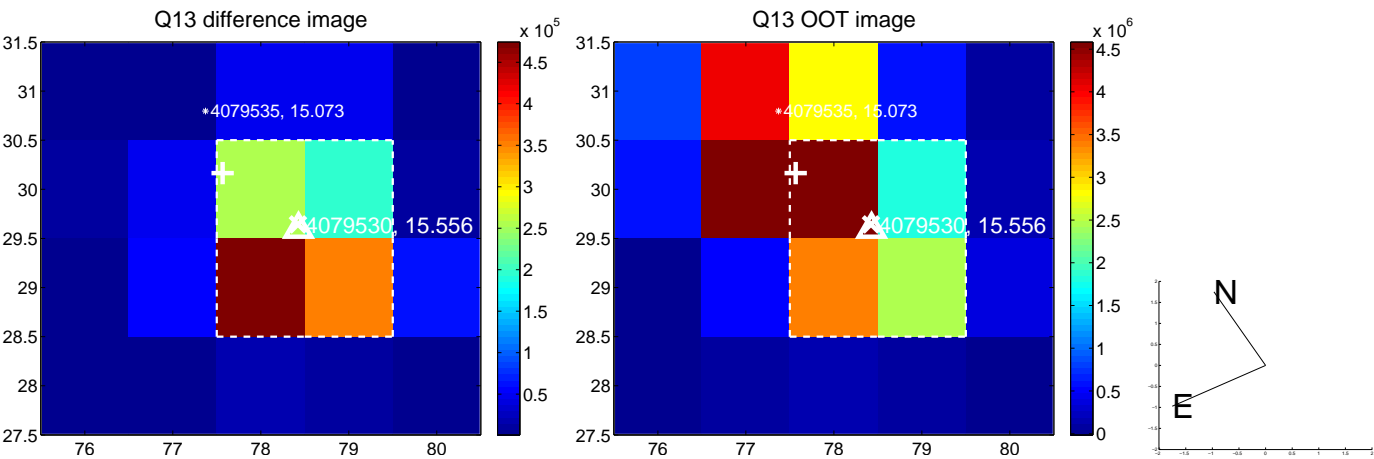
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



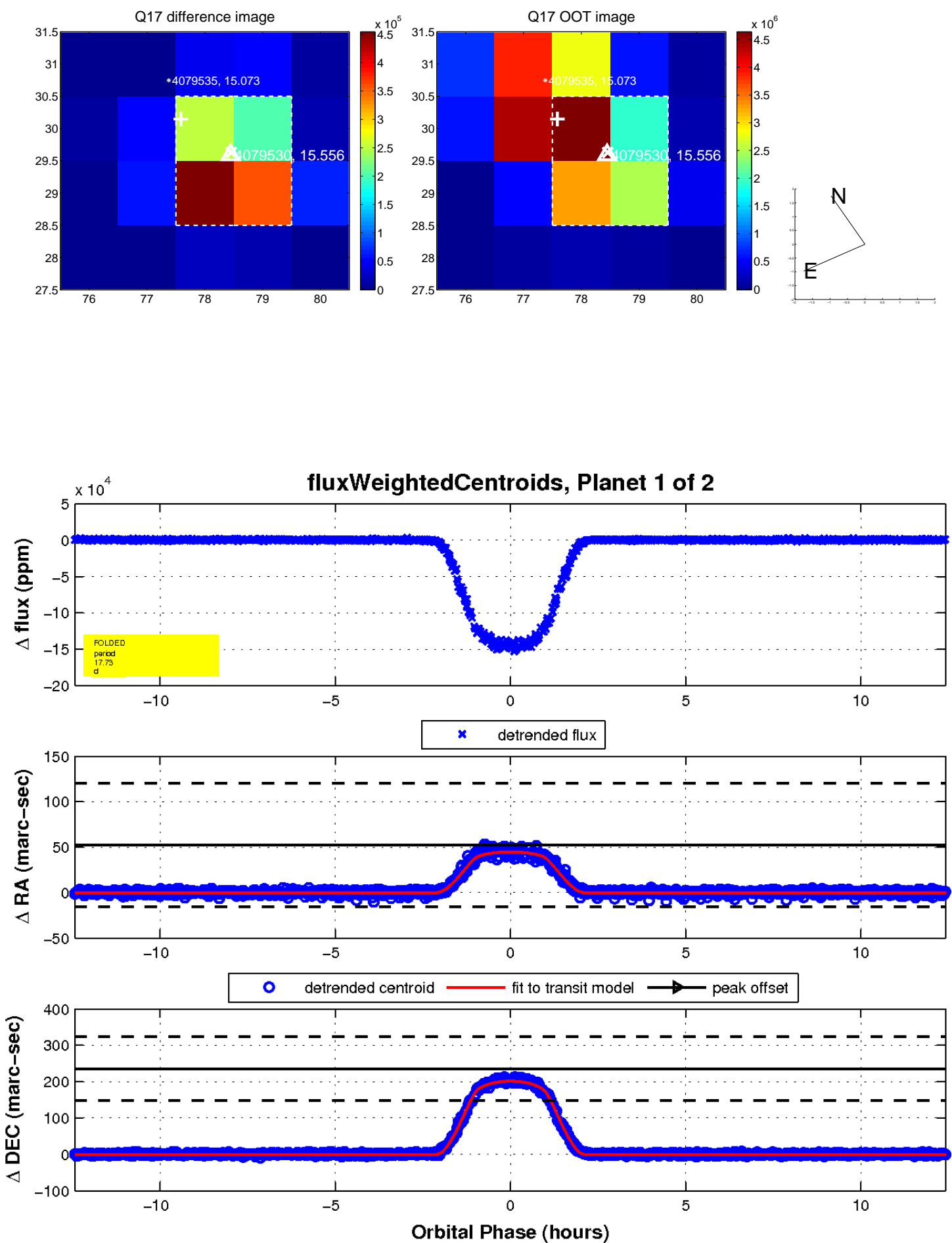
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



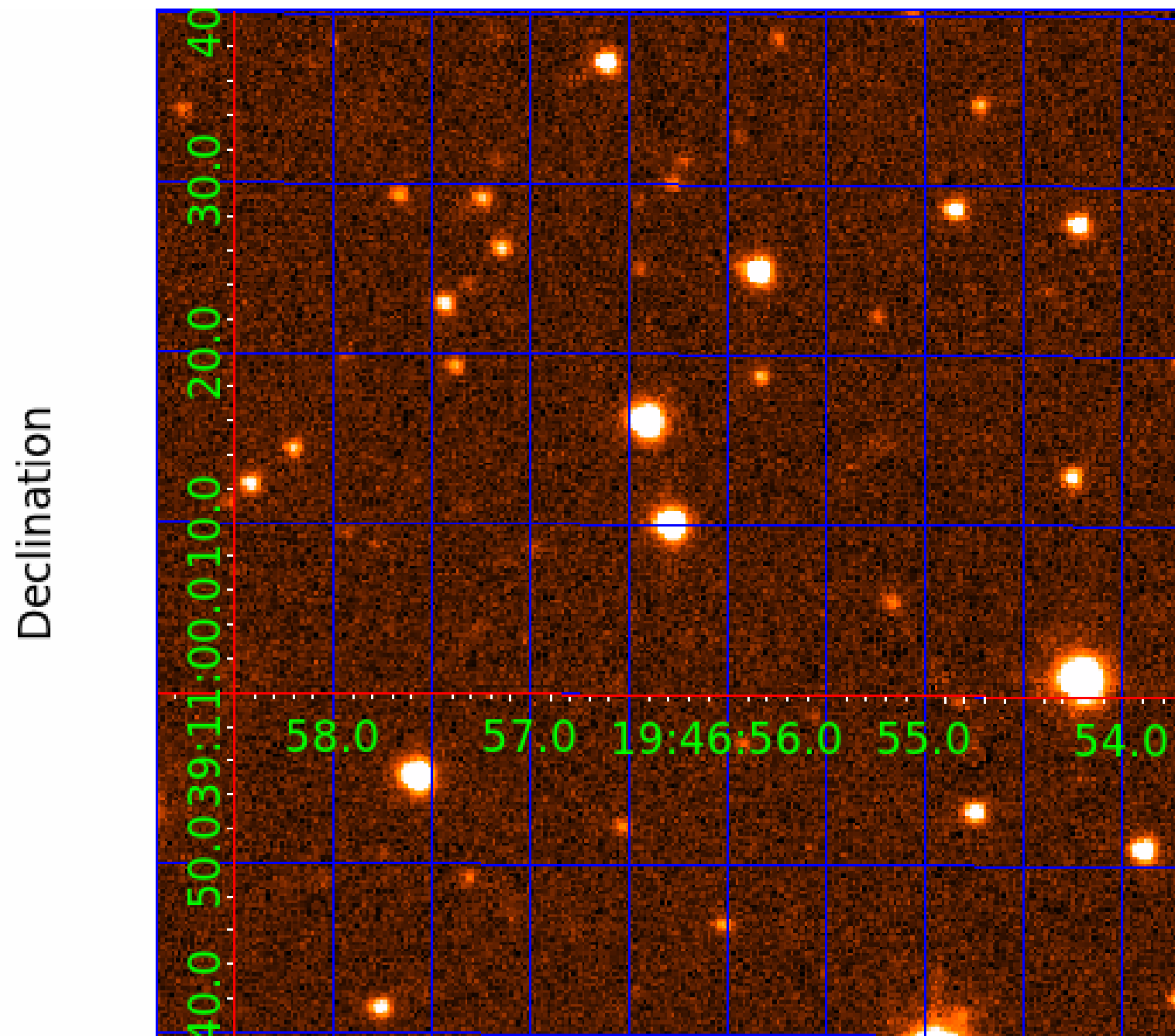
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004079530

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})
004079530-01	OBS	3594.01	17.727313	144.065238	146678.5	4.143	2126.4	1277.4	0.90	6021	34.59	54.44
004079530-02	OBS	No	17.727050	132.786176	6552.0	6.829	113.8	113.9	0.90	6021	8.19	54.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004079530-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_KIC_POS
004079530-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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.

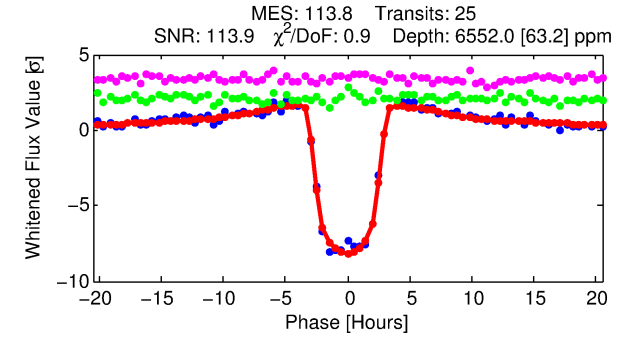
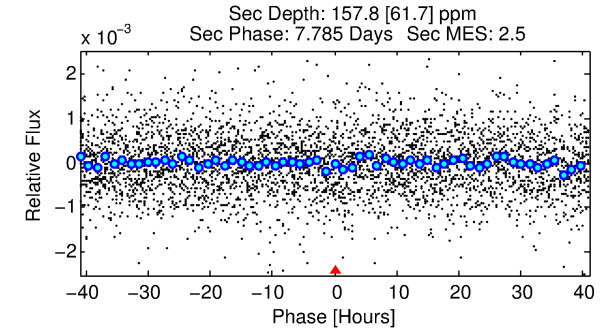
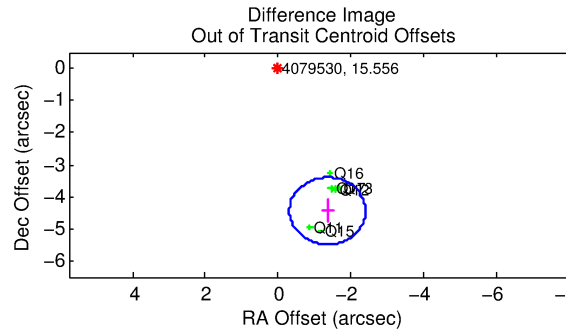
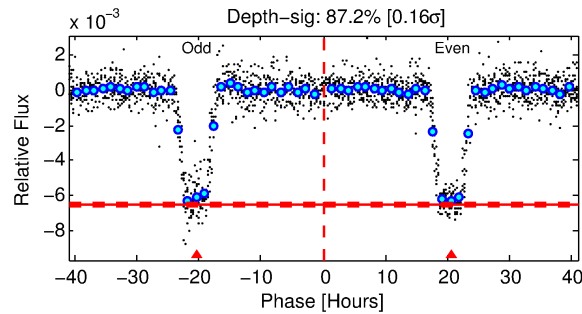
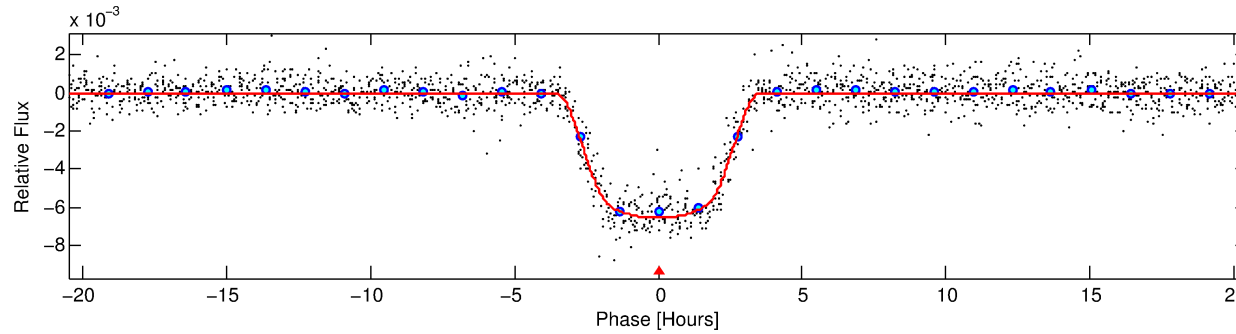
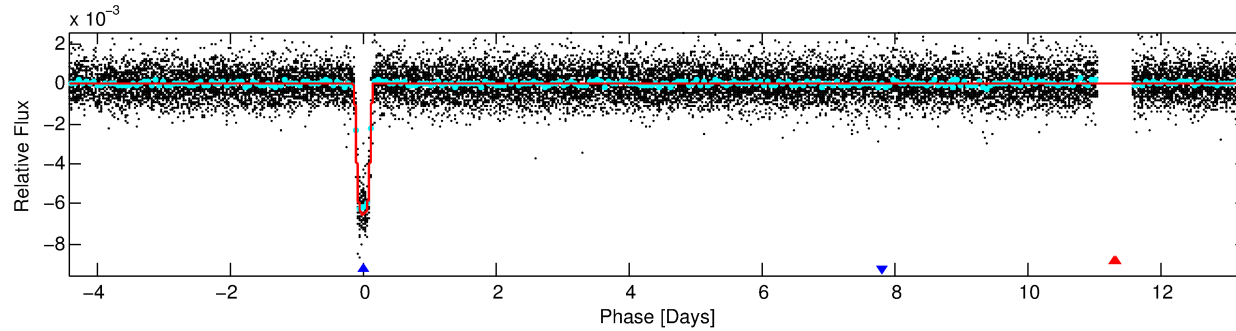
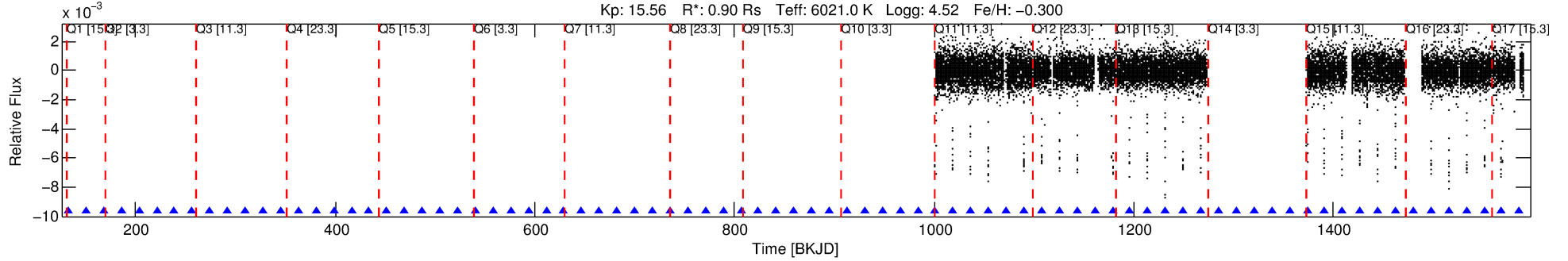
Ephemeris Match Information For 004079530-02

No Significant Match Found

DV One-Page Summary

KIC: 4079530 Candidate: 2 of 2 Period: 17.727 d
KOI: K03594 Corr: No Ephemeris Match

Kp: 15.56 R*: 0.90 Rs Teff: 6021.0 K Logg: 4.52 Fe/H: -0.300



DV Fit Results:

Period = 17.72705 [0.00006] d
Epoch = 132.7862 [0.0040] BKJD
Rp/R* = 0.0839 [0.0007]
a/R* = 13.67 [0.36]
b = 0.84 [0.01]
Seff = 54.44 [22.31]
Teq = 693 [71] K
Rp = 8.19 [2.53] Re
a = 0.1316 [0.0343] AU
Ag = 22.42 [12.22] [1.75σ]
Teffp = 2330 [245] K [6.42σ]

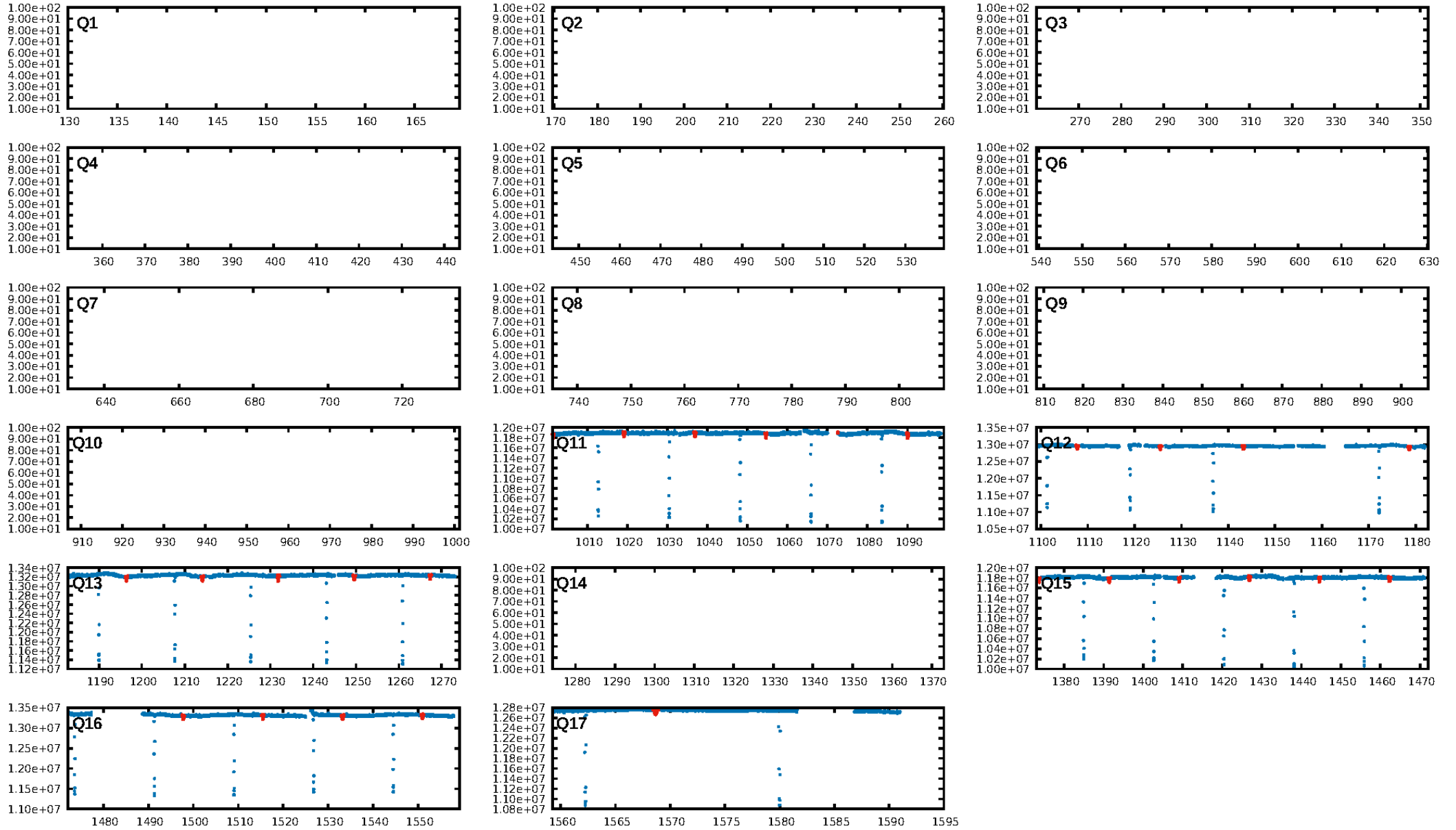
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [24/24]
GhostDiagnostic-chr: 1.994
Centroid-sig: 0.0%
Centroid-so: 1.257 arcsec [17.69σ]
OotOffset-rm: 4.648 arcsec [13.32σ]
KicOffset-rm: 0.501 arcsec [5.39σ]
OotOffset-st: 0/2/2/2 [6]
KicOffset-st: 0/2/2/2 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [6/6]

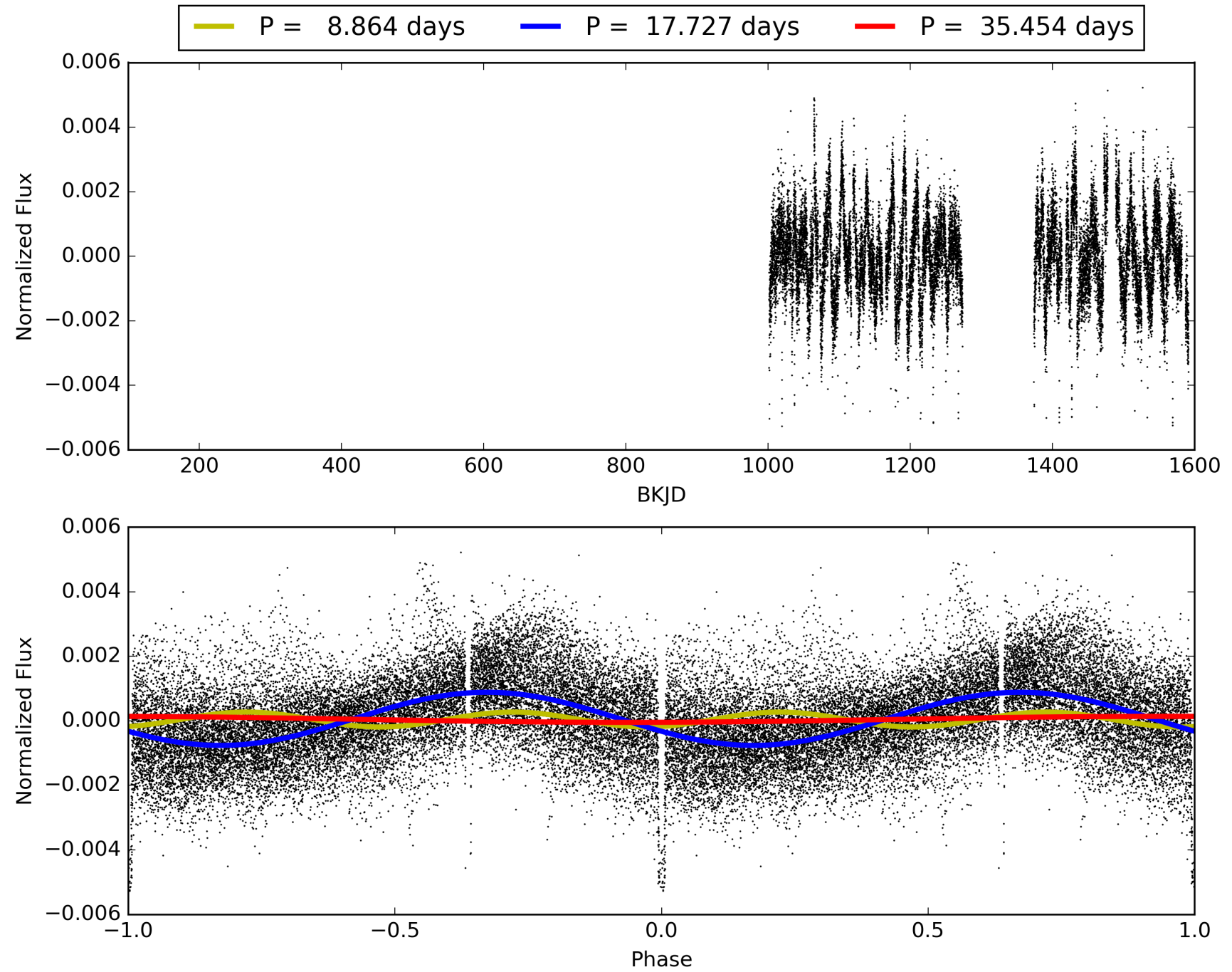
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004079530-02, PDC Light Curves

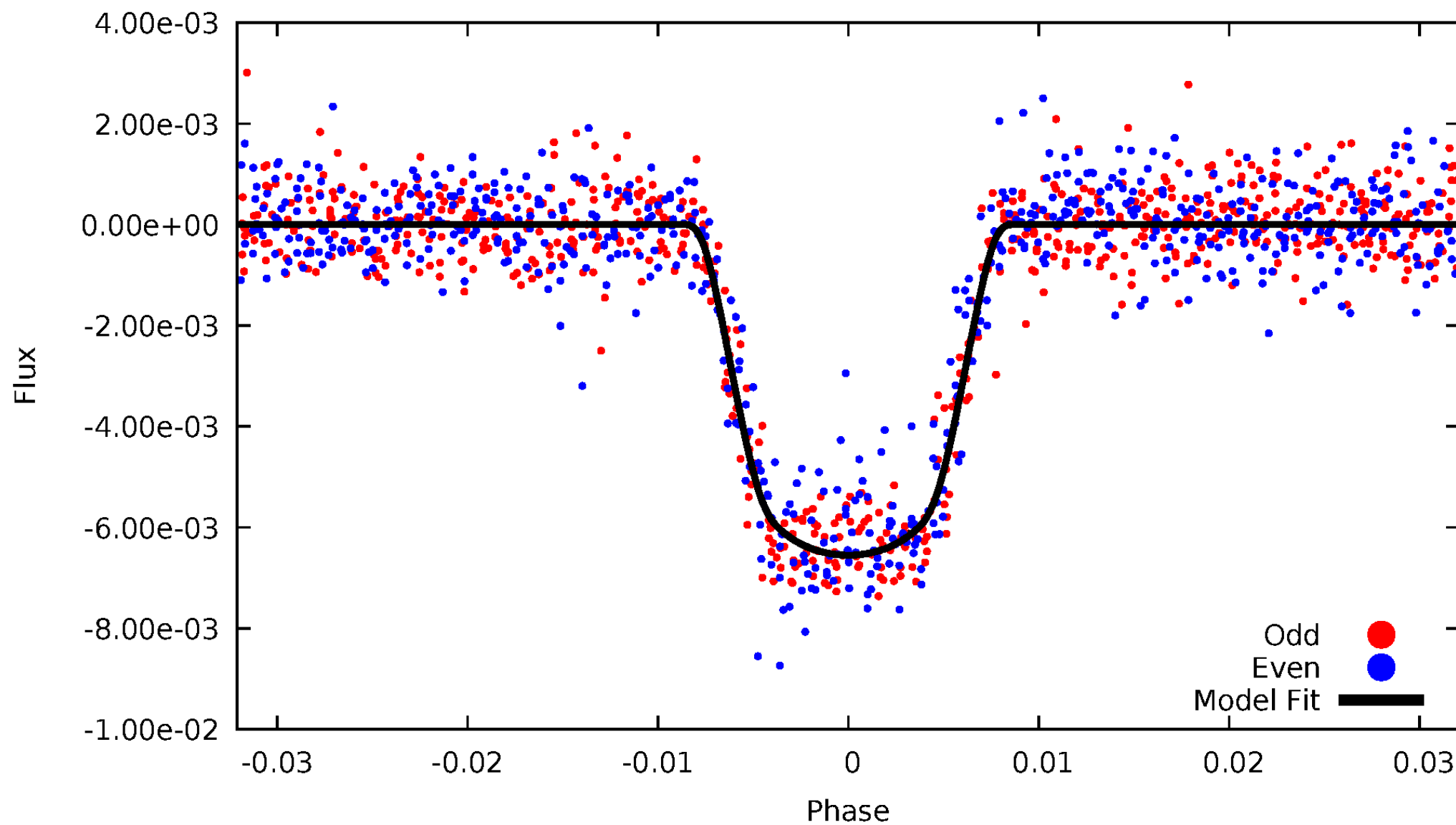


TCE 004079530-02



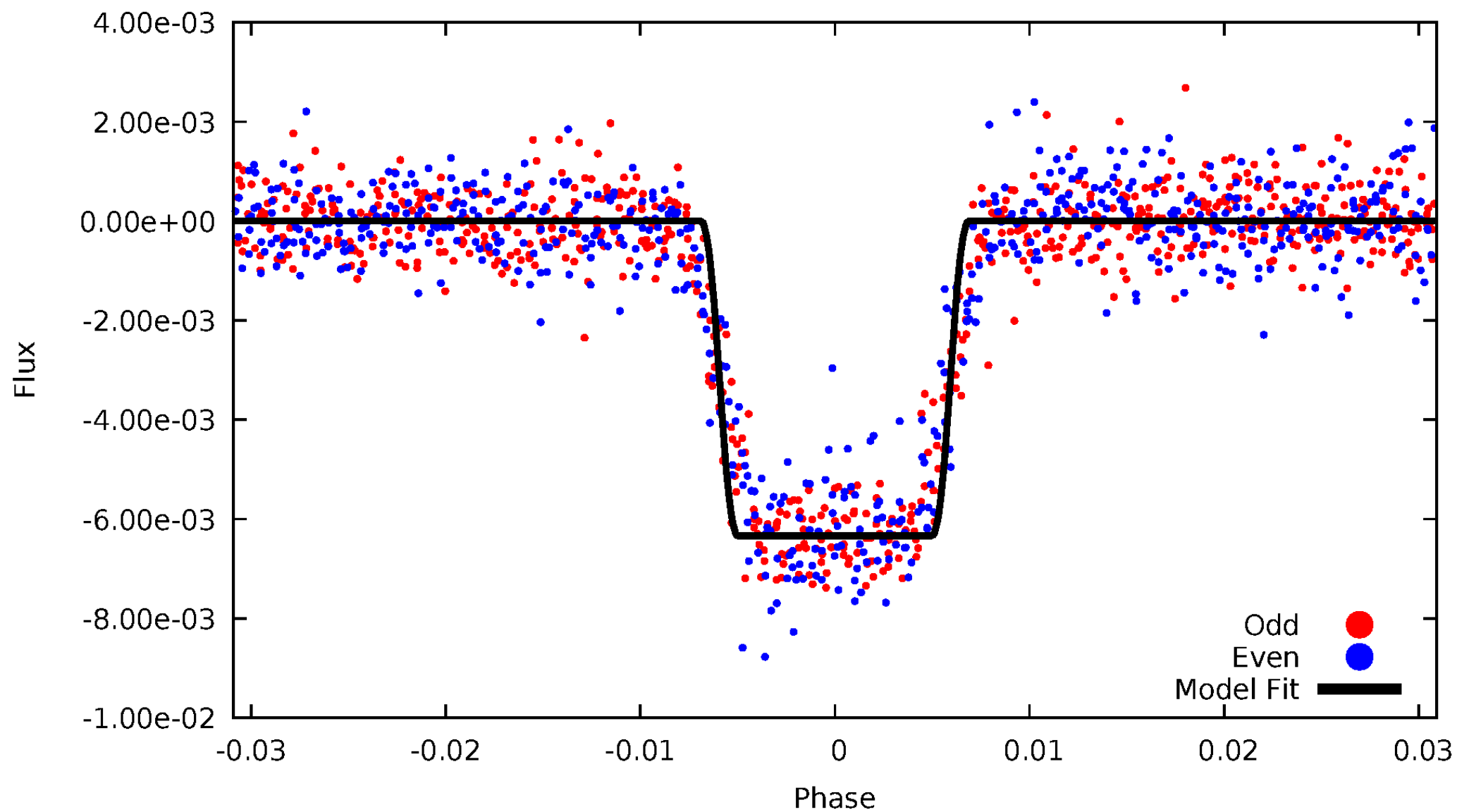
DV Odd/Even

TCE 004079530-02



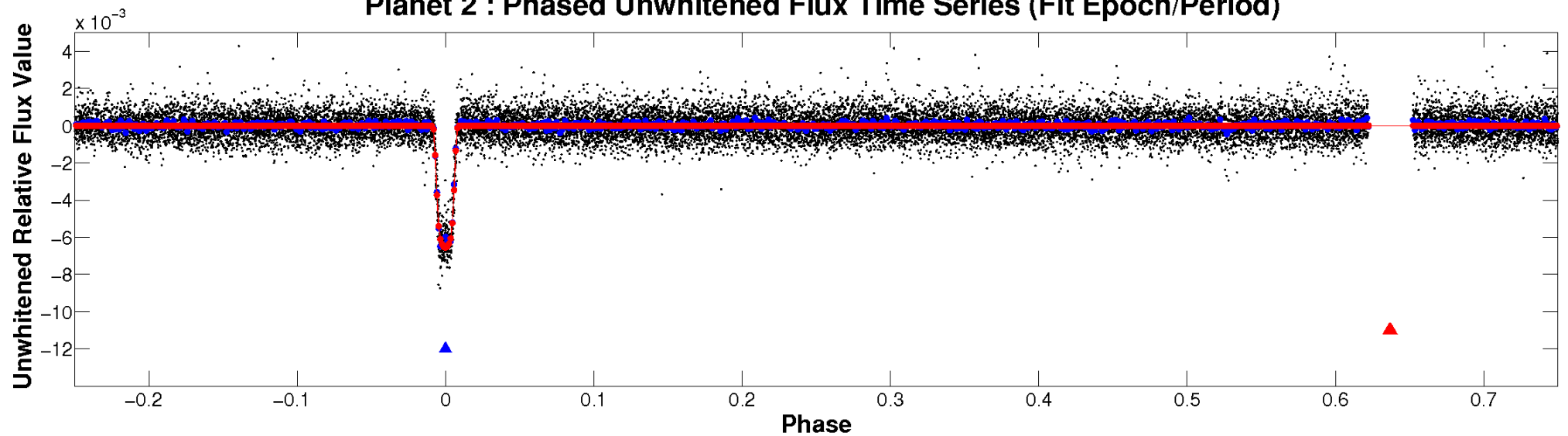
ALT Odd/Even

TCE 004079530-02

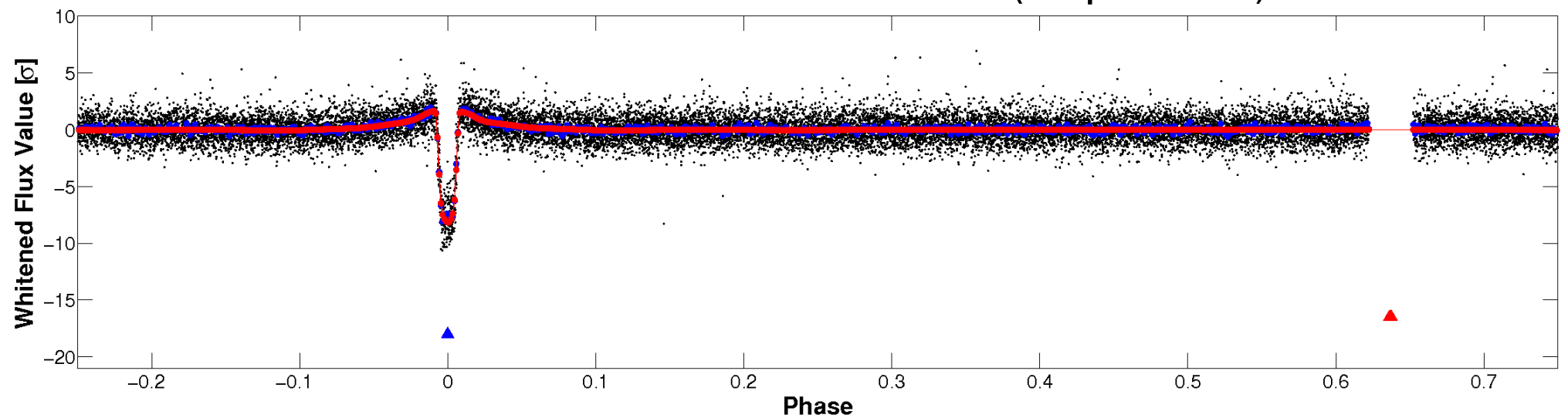


Non-Whitened Vs. Whitened Light Curve

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

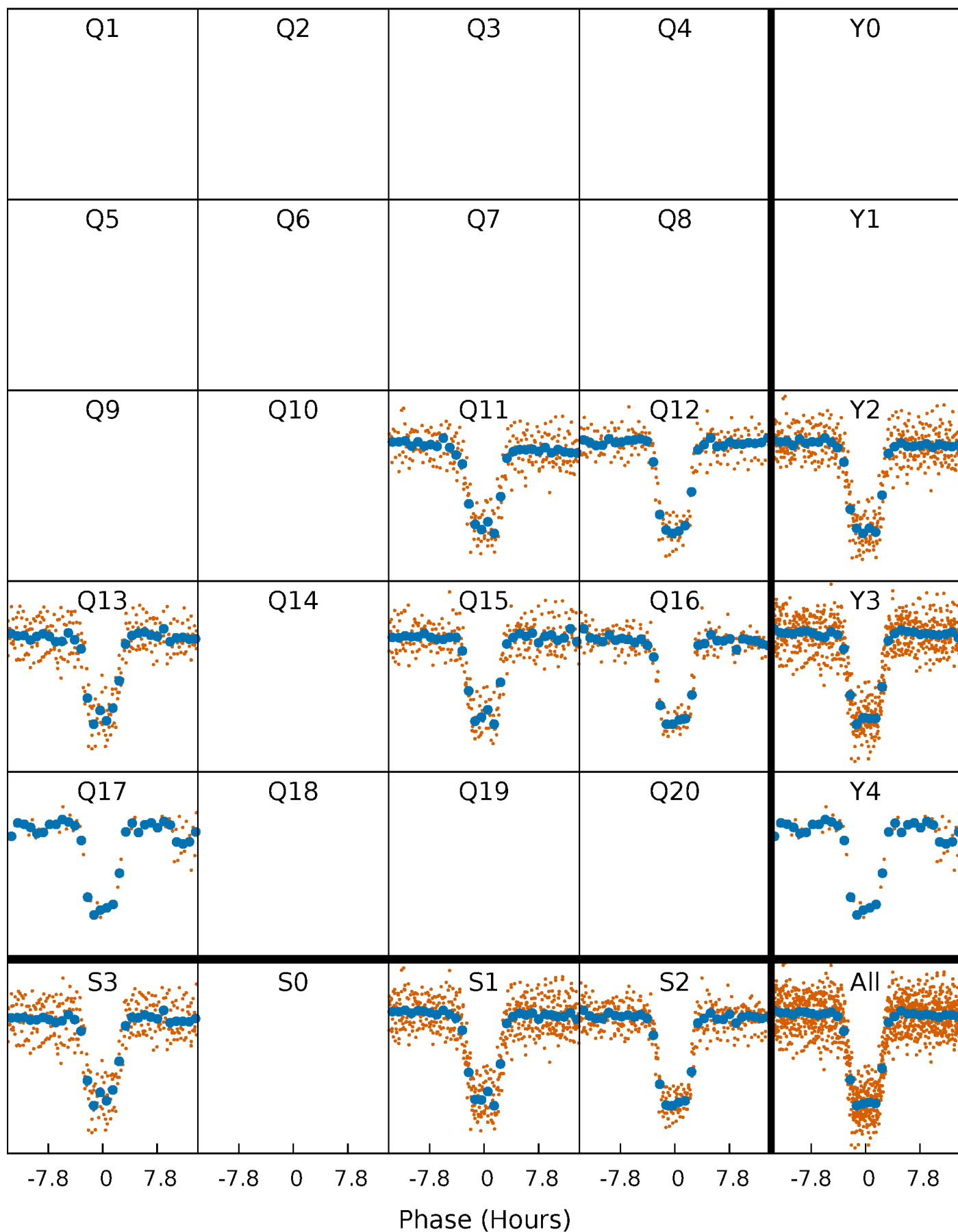


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



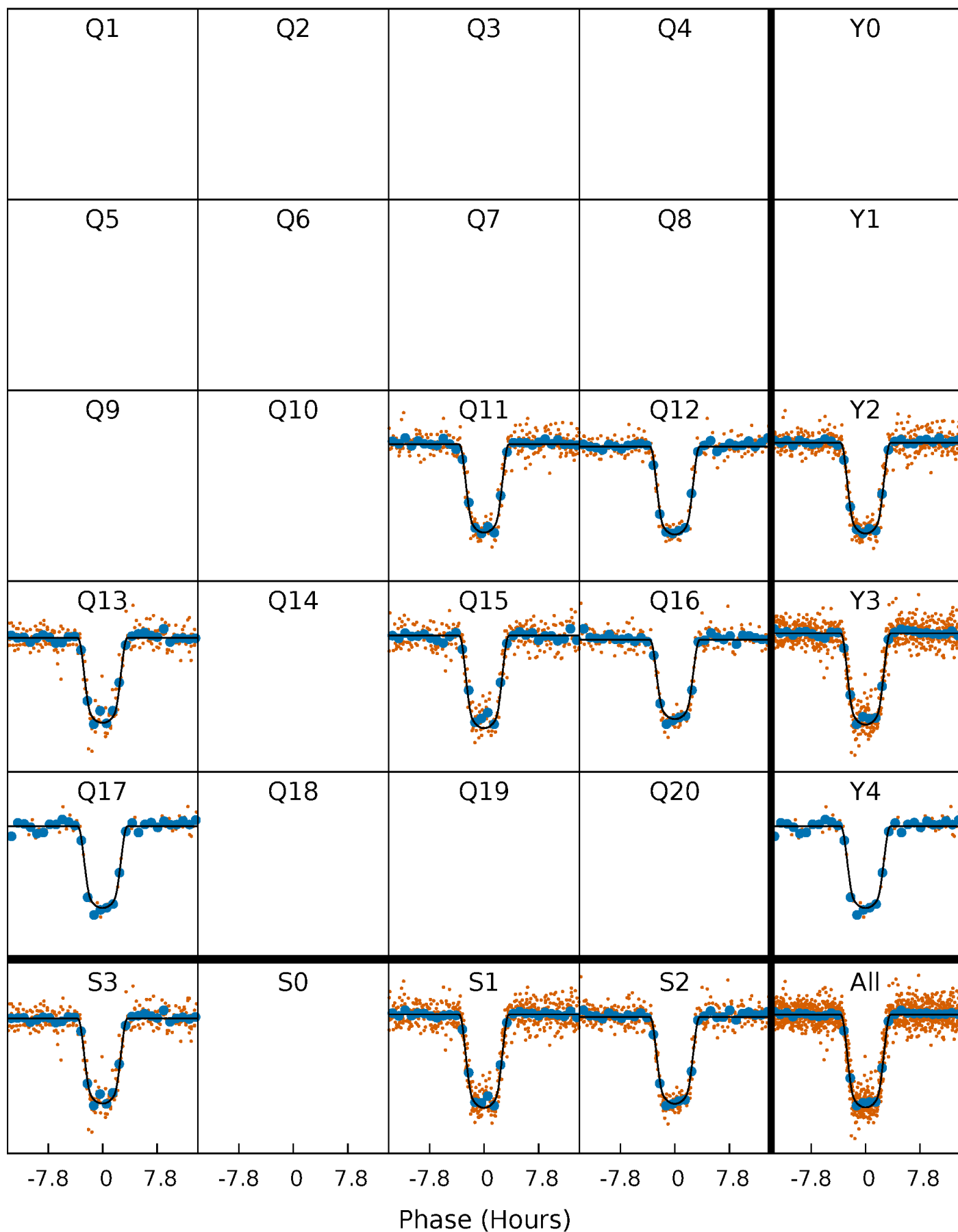
PDC Quarter-Phased Transit Curves

TCE 004079530-02 P= 17.727050 Days $T_0=132.786176$ (BKJD)



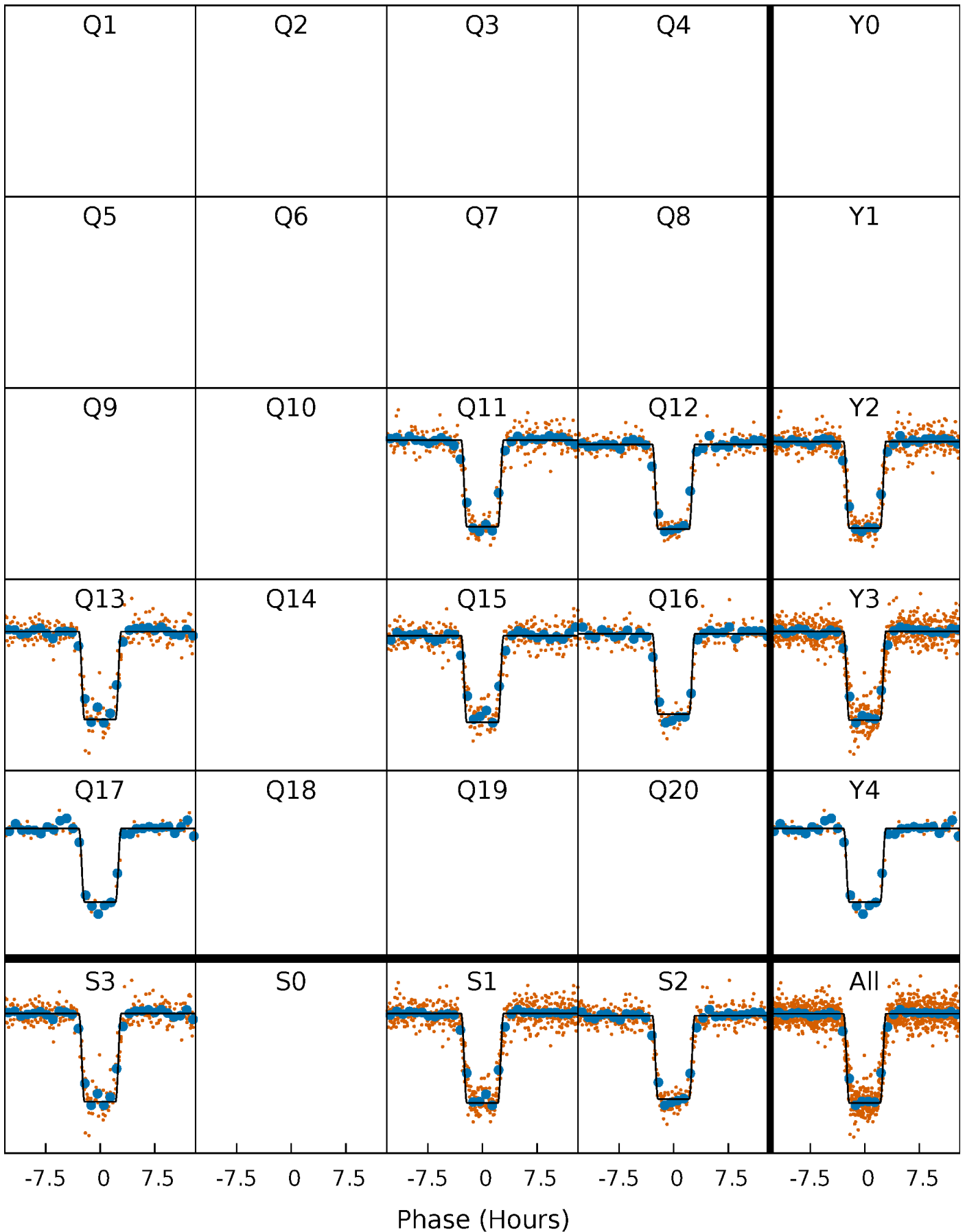
DV Quarter-Phased Transit Curves

TCE 004079530-02 P= 17.727050 Days $T_0=132.786176$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

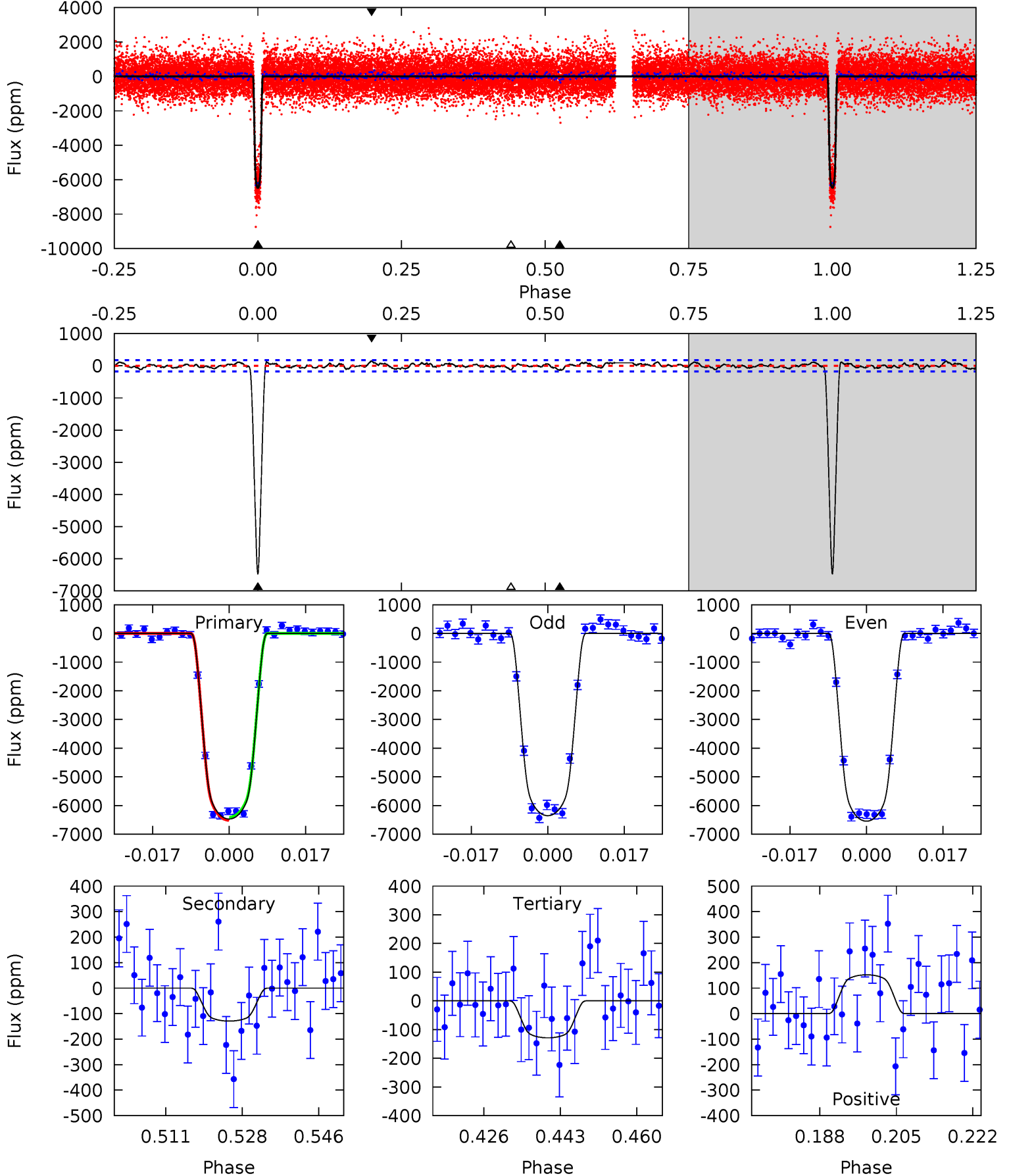
TCE 004079530-02 P= 17.726904 Days $T_0=132.795083$ (BKJD)



DV Model-Shift Uniqueness Test

004079530-02, P = 17.727050 Days, E = 132.786176 Days

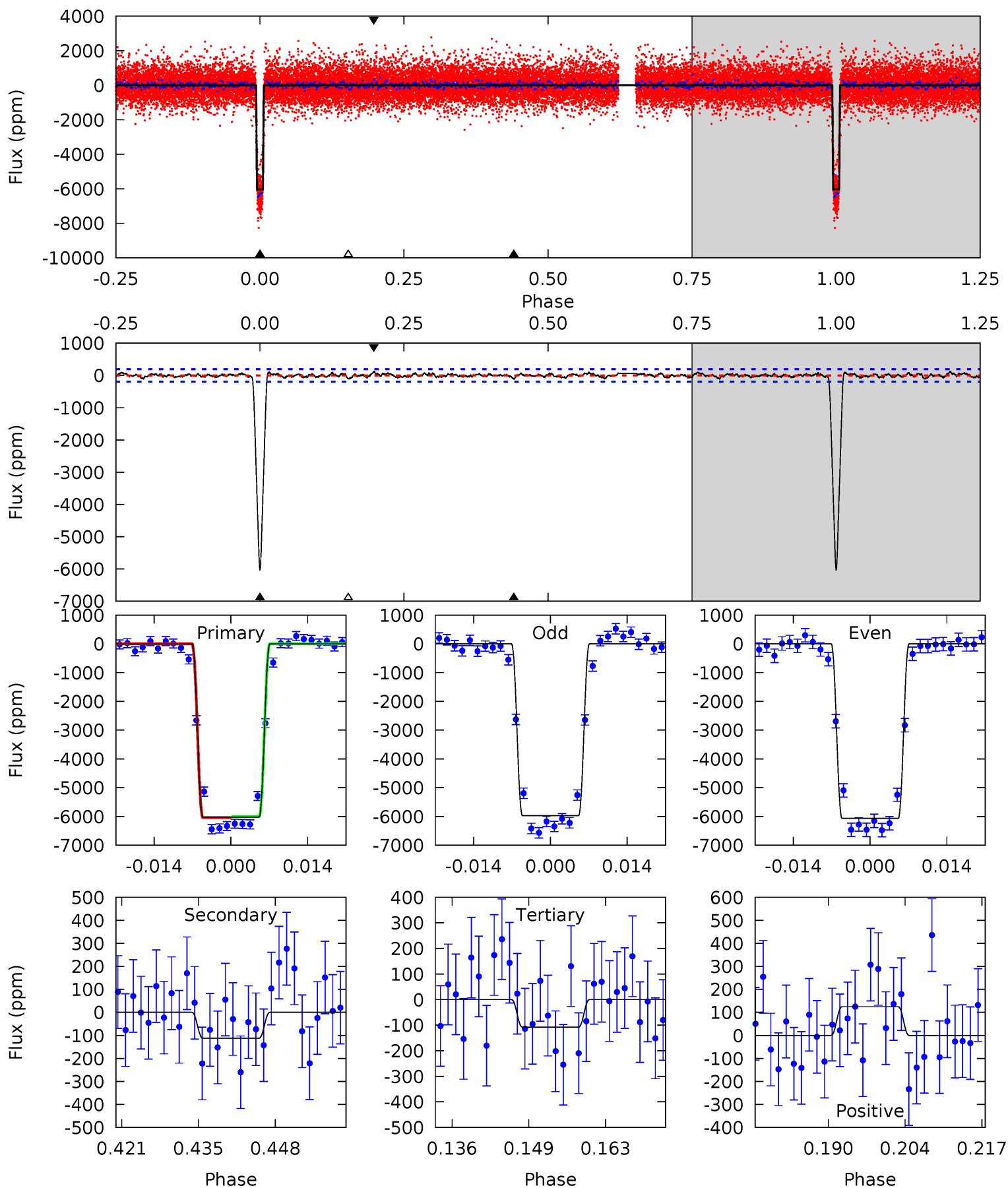
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
180.9	3.61	3.60	4.26	4.92	2.39	1.40	177.3	176.7	0.01	-0.64	2.67	0.99	0.02	1.42



Alt Model-Shift Uniqueness Test

004079530-02, $P = 17.726904$ Days, $E = 132.795083$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
154.3	2.88	2.76	3.19	4.97	2.47	0.96	151.5	151.1	0.11	-0.31	1.24	1.00	0.02	0.46



Stellar Parameters For KIC 004079530

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6021^{+190}_{-232}	$4.520^{+0.052}_{-0.208}$	$-0.300^{+0.300}_{-0.300}$	$0.895^{+0.276}_{-0.092}$	$0.967^{+0.120}_{-0.132}$	$1.903^{+0.518}_{-0.977}$
	+3%/-4%	+1%/-5%	+100%/-100%	+31%/-10%	+12%/-14%	+27%/-51%
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 004079530-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-129 ± 36	$8.44^{+1.29}_{-0.67}$	987^{+66}_{-49}	2895^{+119}_{-135}	16^{+6}_{-5}
Alt.	-112 ± 39	$7.84^{+1.35}_{-0.52}$	985^{+74}_{-50}	2899^{+132}_{-171}	16^{+7}_{-6}

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

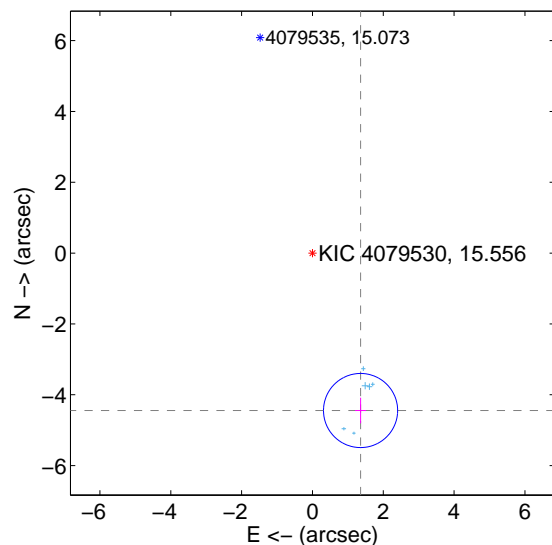
Supplemental centroid analysis for 004079530-02. Kepler magnitude: 15.56. Transit SNR 113.86

There are 6 quarters with good PRF difference image offsets

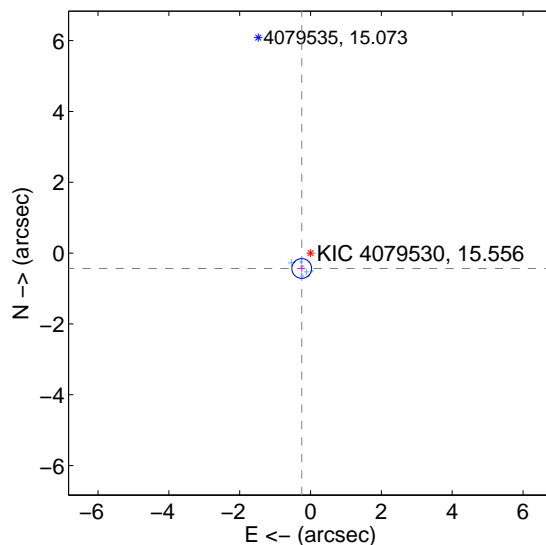
The OOT PRF centroid is offset from the target star catalog position by about 4.02 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.648 ± 0.349	13.32	-1.359 ± 0.155	-4.445 ± 0.362
PRF-fit source offset from KIC position	0.501 ± 0.093	5.39	0.249 ± 0.091	-0.435 ± 0.094
photometric centroid source offset	1.26 ± 0.07	17.69	0.91 ± 0.06	0.87 ± 0.08

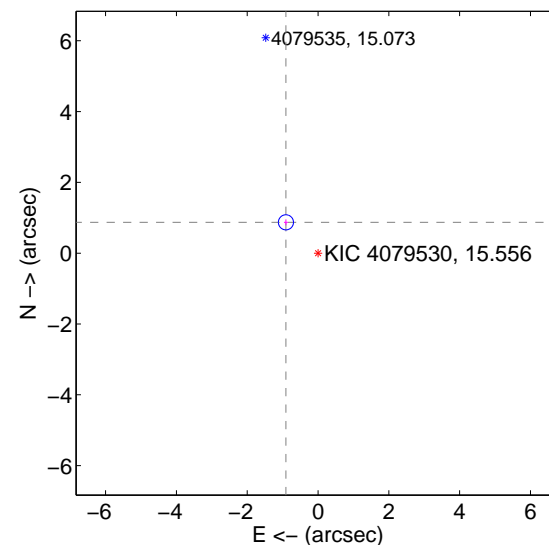
offset from difference PRF-fit to OOT PRF-fit



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.

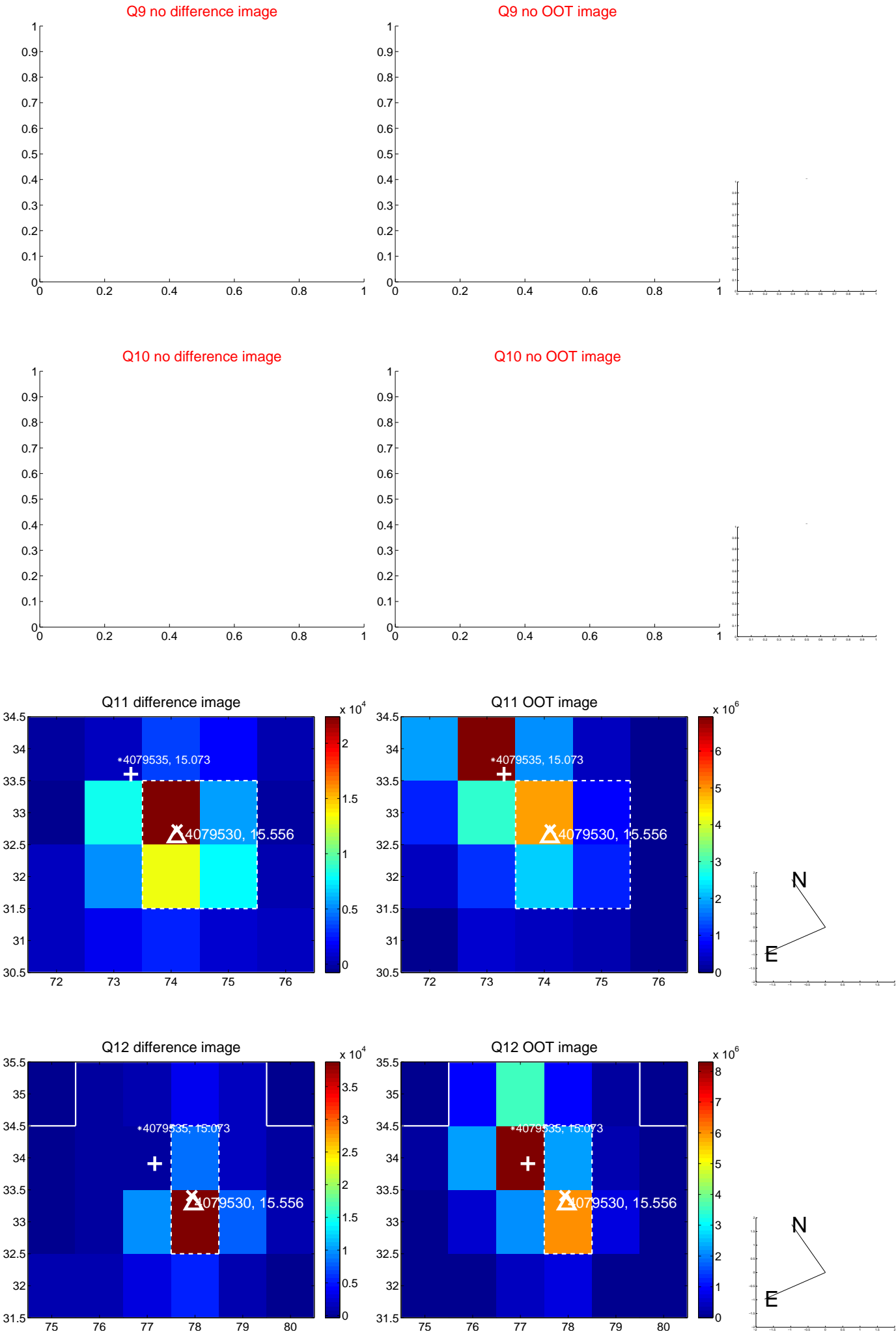
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



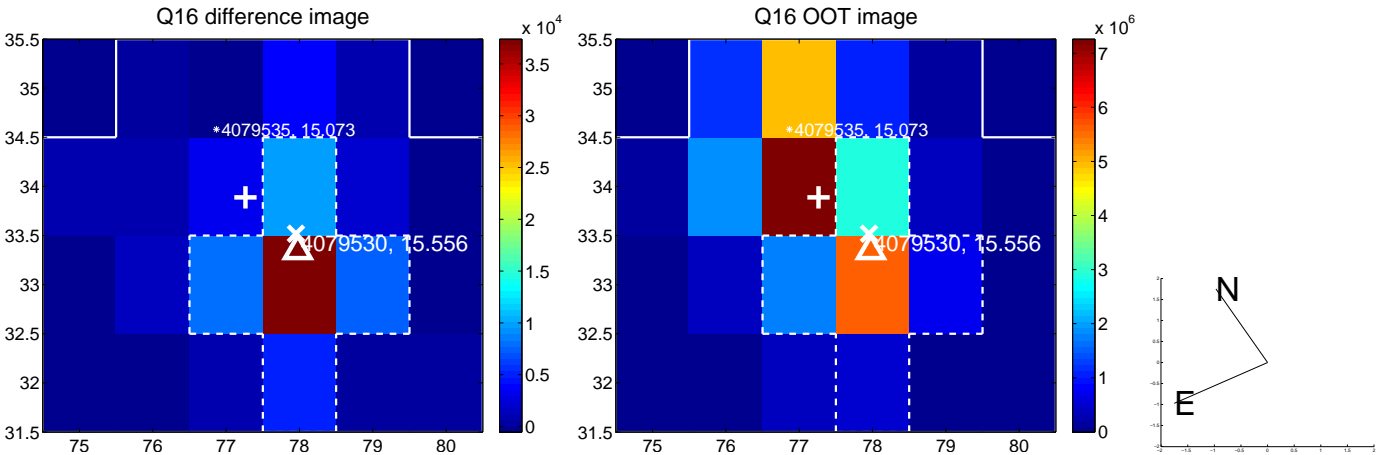
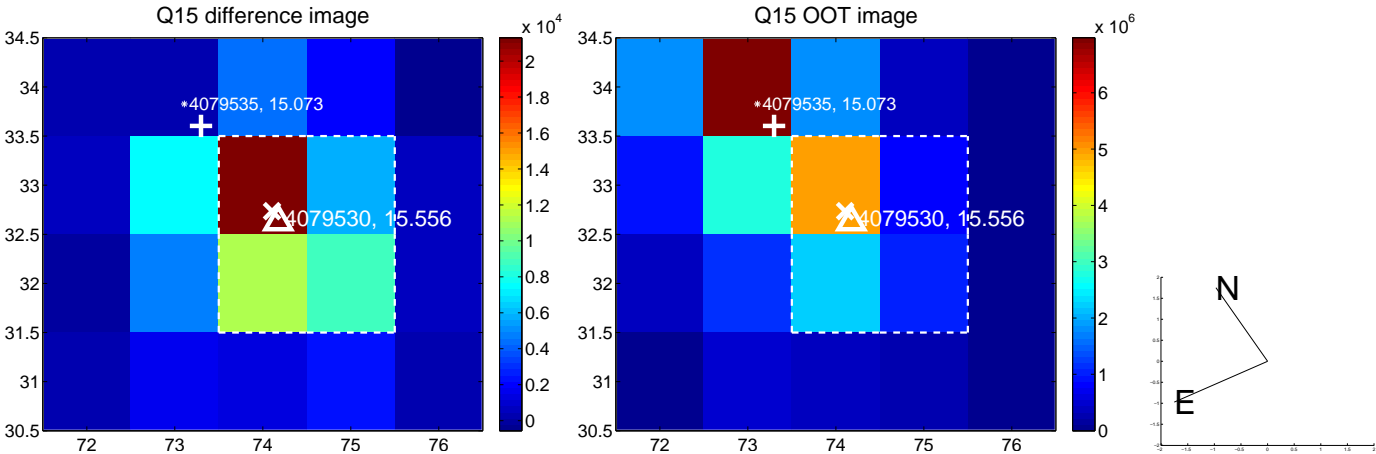
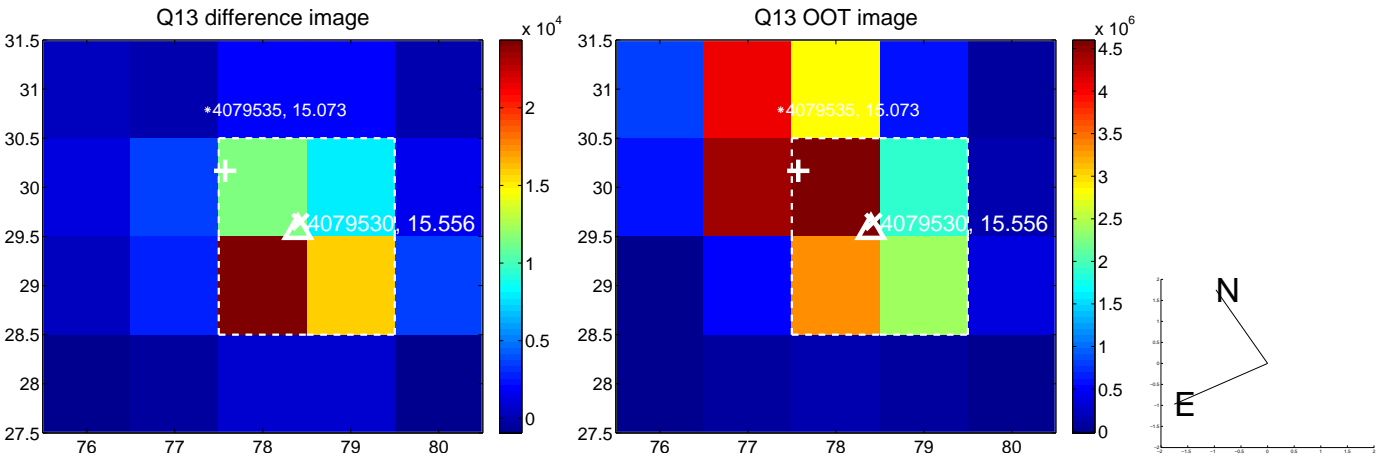
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



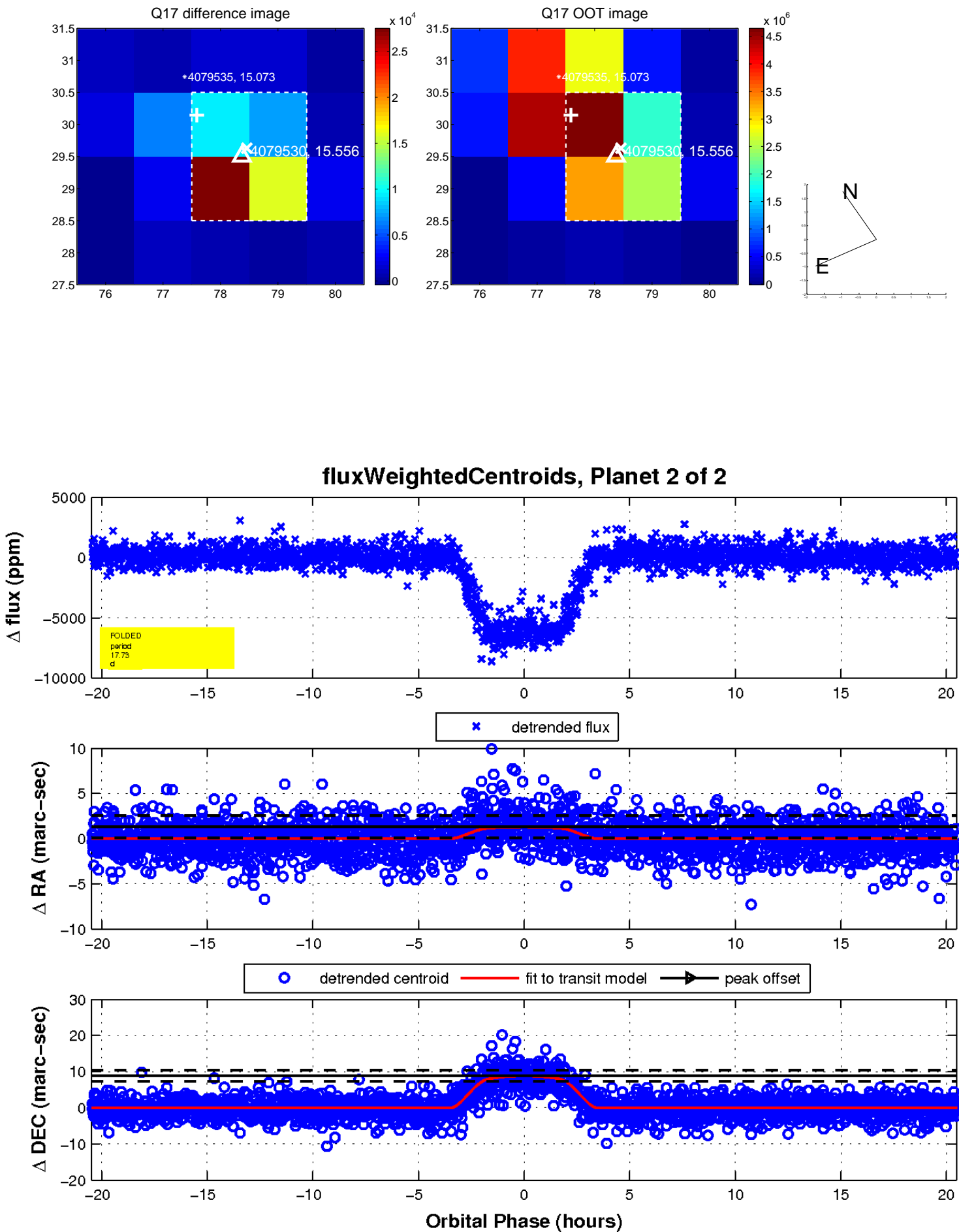
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

