

KIC 005461756

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})
005461756-01	OBS	No	369.769825	343.190816	827.4	7.218	12.6	7.9	0.62	4014	1.95	0.12
005461756-02	OBS	No	408.353088	424.160998	1197.4	15.767	13.9	8.6	0.62	4014	2.54	0.11
005461756-03	OBS	No	449.609551	297.990969	674.6	3.720	10.6	5.8	0.62	4014	1.69	0.09
005461756-04	OBS	No	330.178956	160.095290	639.3	3.949	10.6	6.7	0.62	4014	1.84	0.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005461756-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005461756-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005461756-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005461756-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—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.

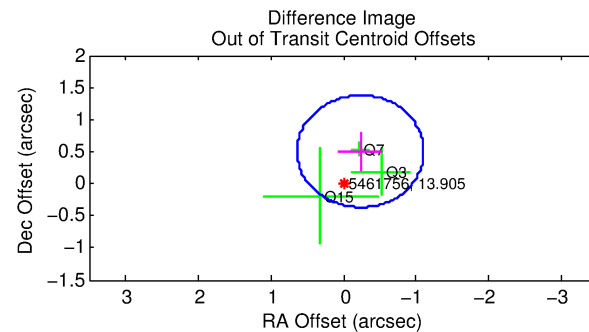
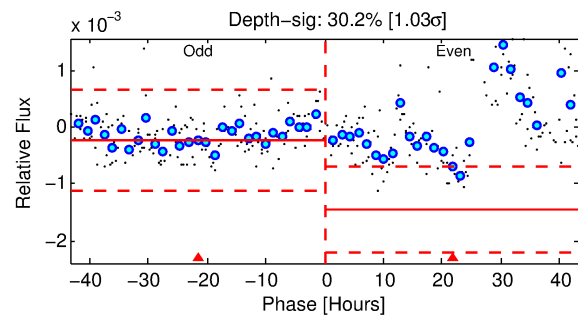
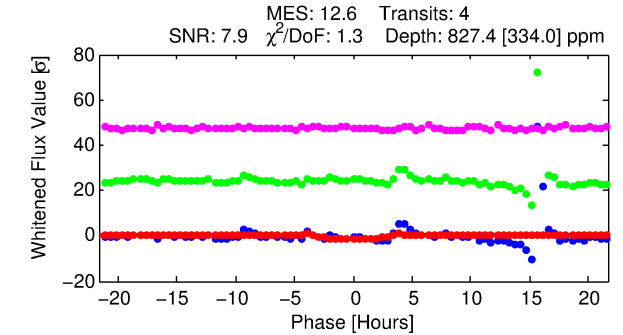
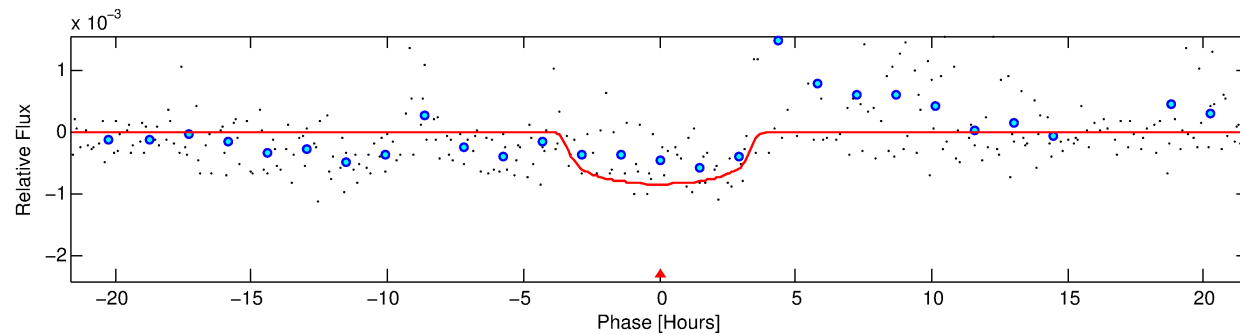
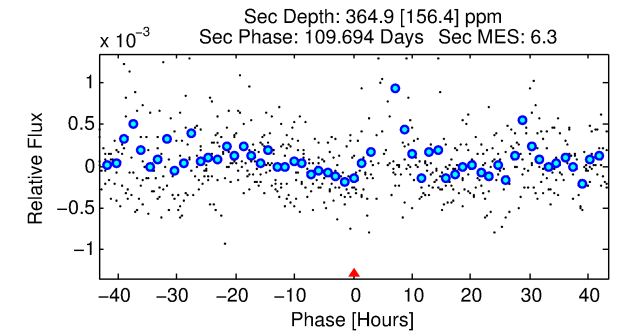
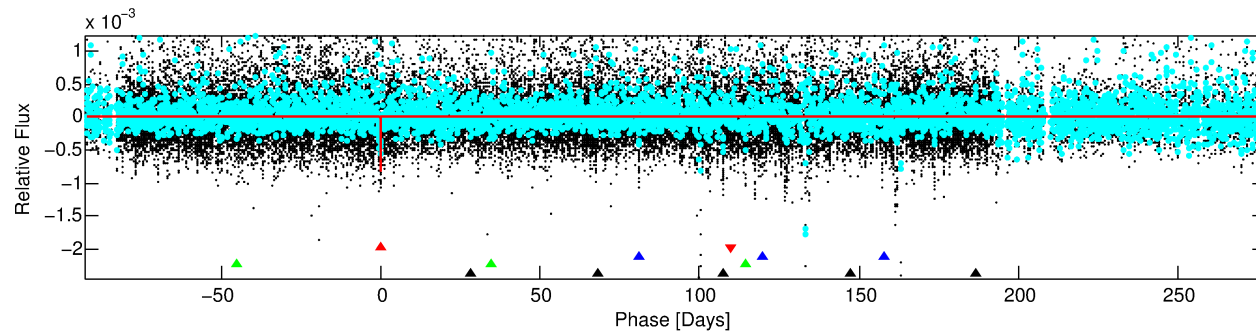
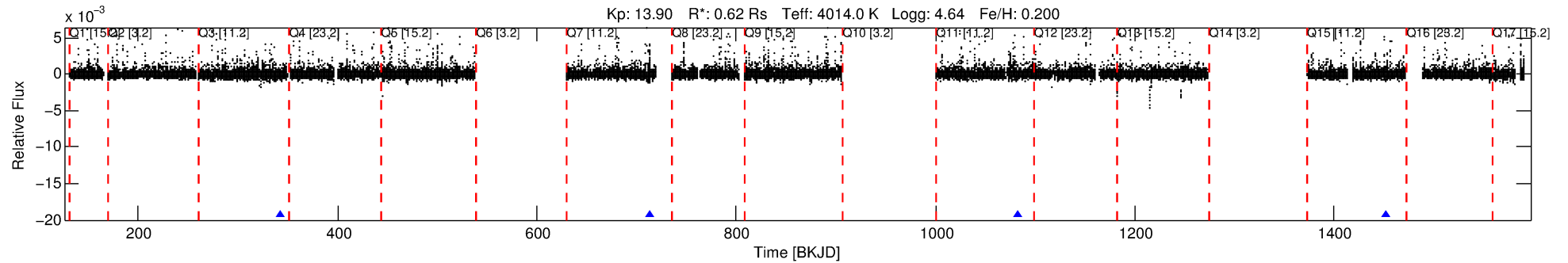
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005461756-01

No Significant Match Found

DV One-Page Summary

KIC: 5461756 Candidate: 1 of 4 Period: 369.770 d



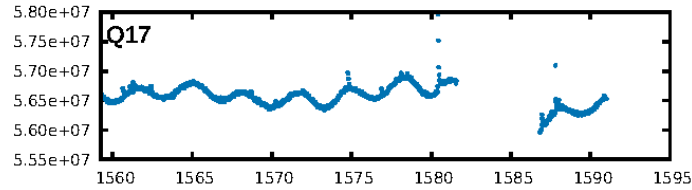
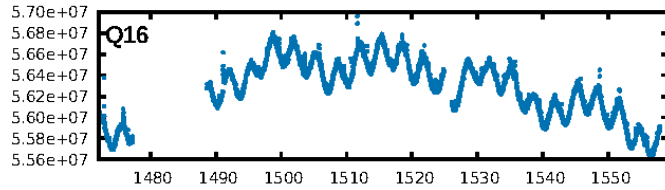
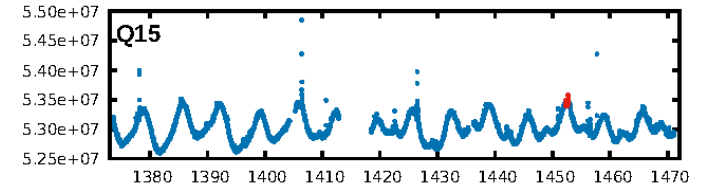
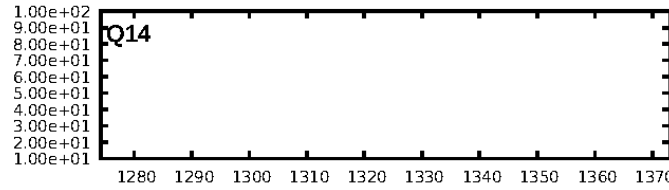
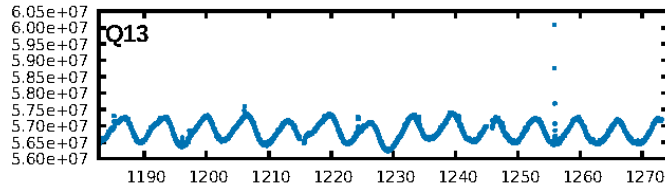
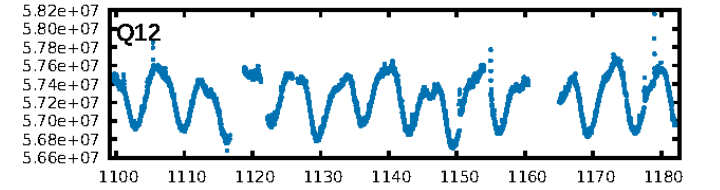
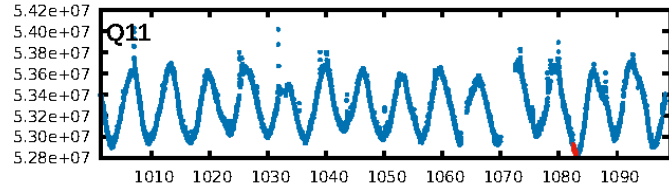
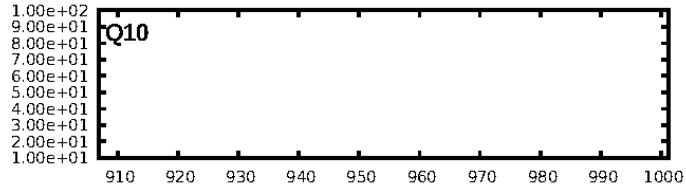
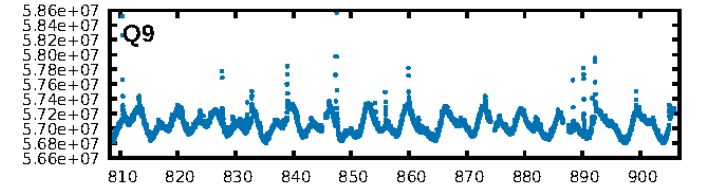
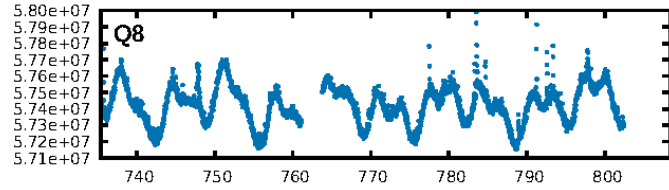
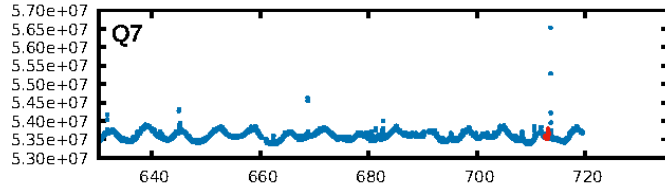
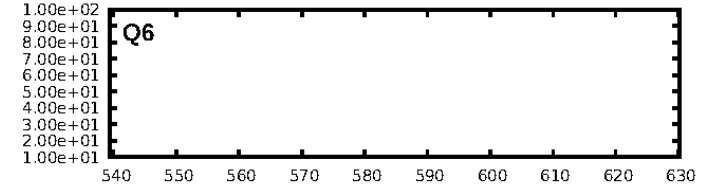
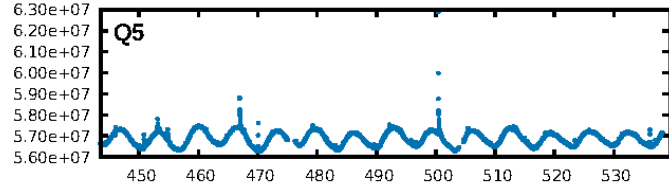
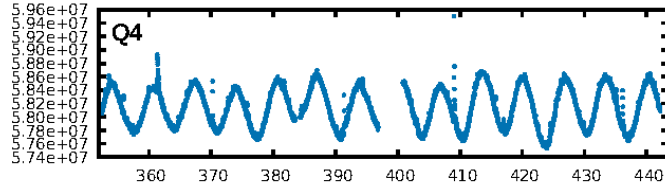
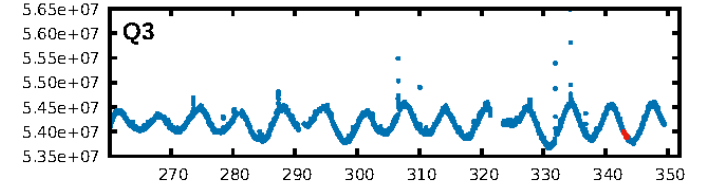
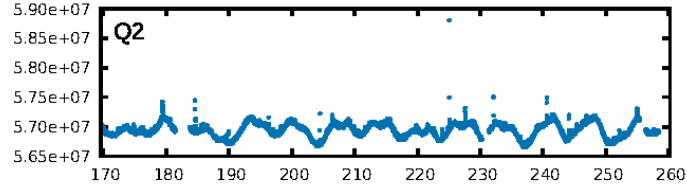
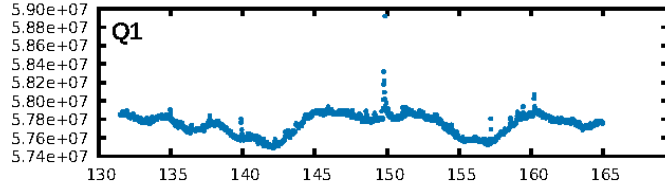
DV Fit Results:

Period = 369.76982 [0.01402] d
Epoch = 343.1908 [0.0290] BKJD
Rp/R* = 0.0287 [0.0313]
a/R* = 278.25 [1010.38]
b = 0.74 [2.21]
Seff = 0.12 [0.02]
Teq = 151 [7] K
Rp = 1.95 [2.14] Re
a = 0.8609 [0.0736] AU
Ag = 39174.66 [87338.95] [0.45σ]
Teffp = 3277 [1828] K [1.71σ]

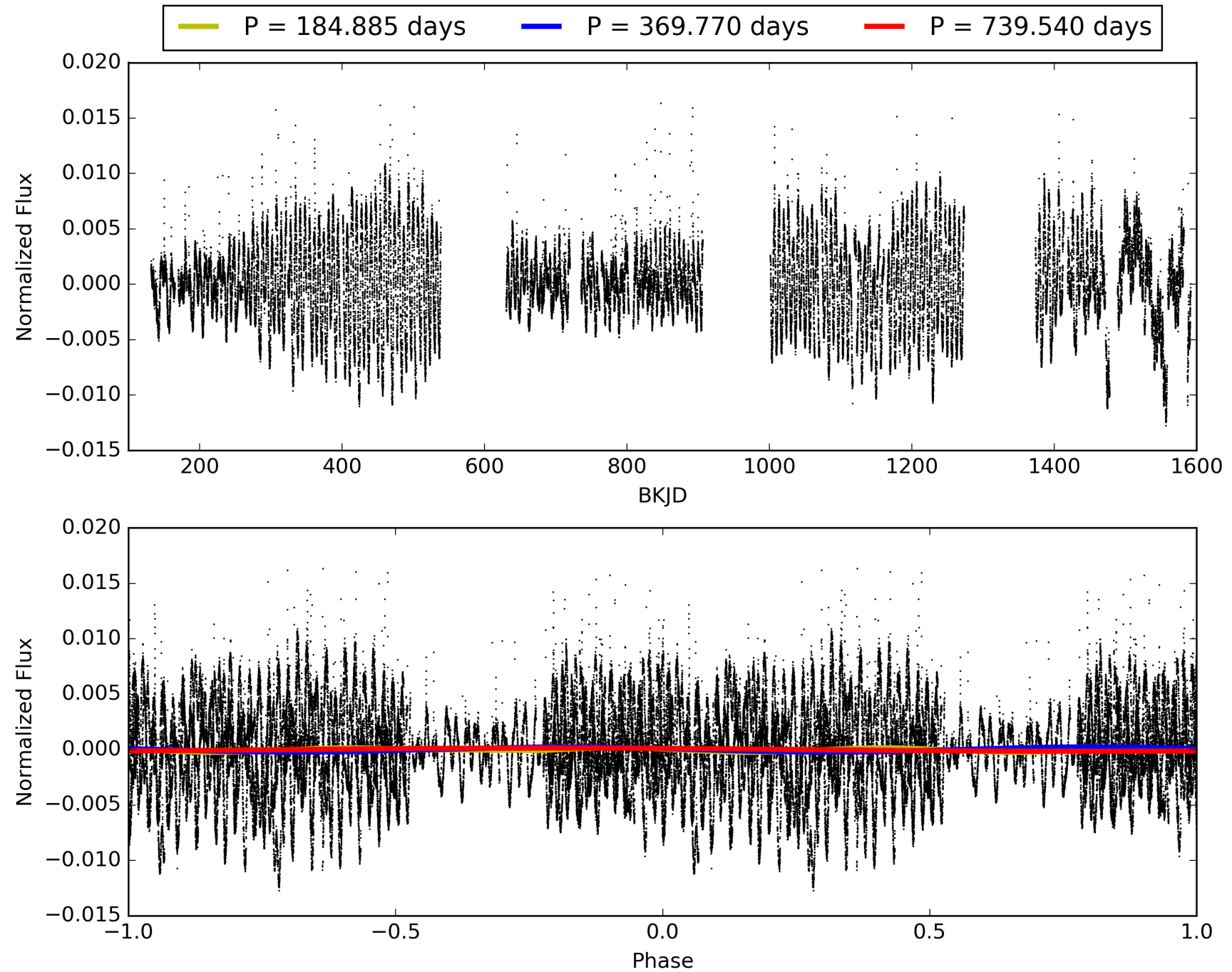
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [115.48σ]
LongPeriod-sig: 100.0% [53.40σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 45.2%
Bootstrap-pfa: 1.47e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.03594
Centroid-sig: 2.9%
Centroid-so: 0.974 arcsec [1.45σ]
OotOffset-rm: 0.556 arcsec [1.91σ]
KicOffset-rm: 0.545 arcsec [1.88σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 005461756-01, PDC Light Curves

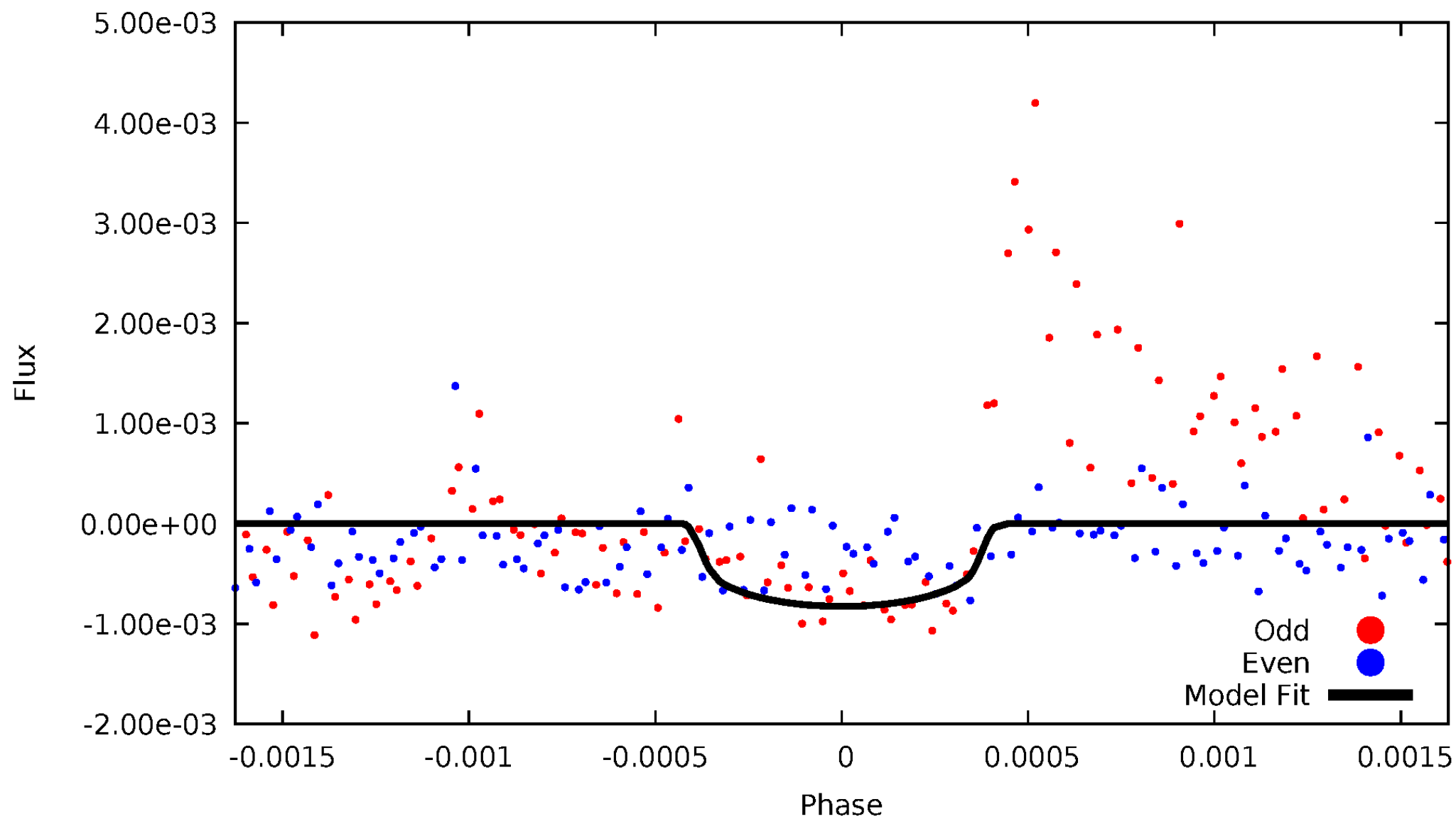


TCE 005461756-01



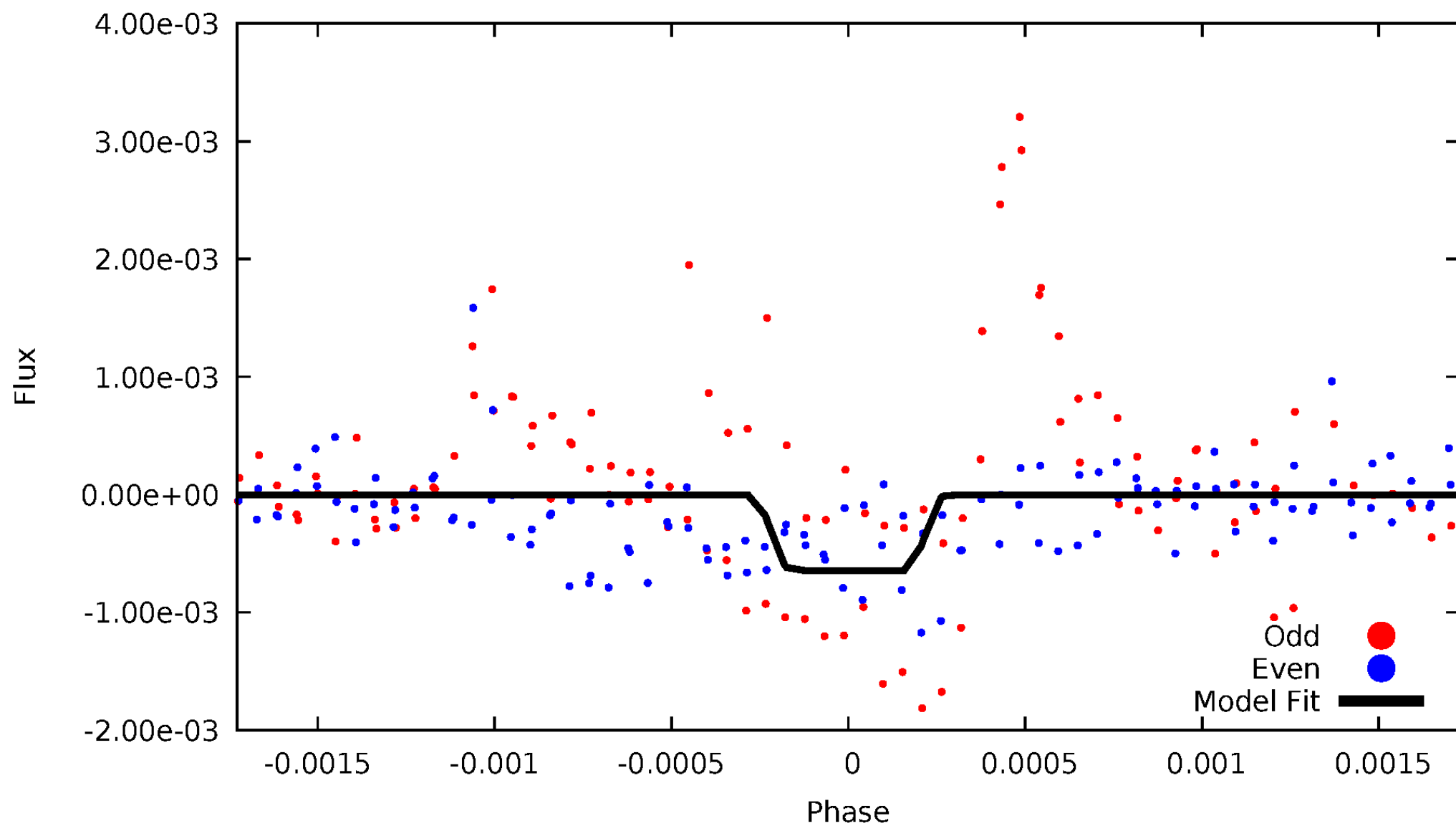
DV Odd/Even

TCE 005461756-01



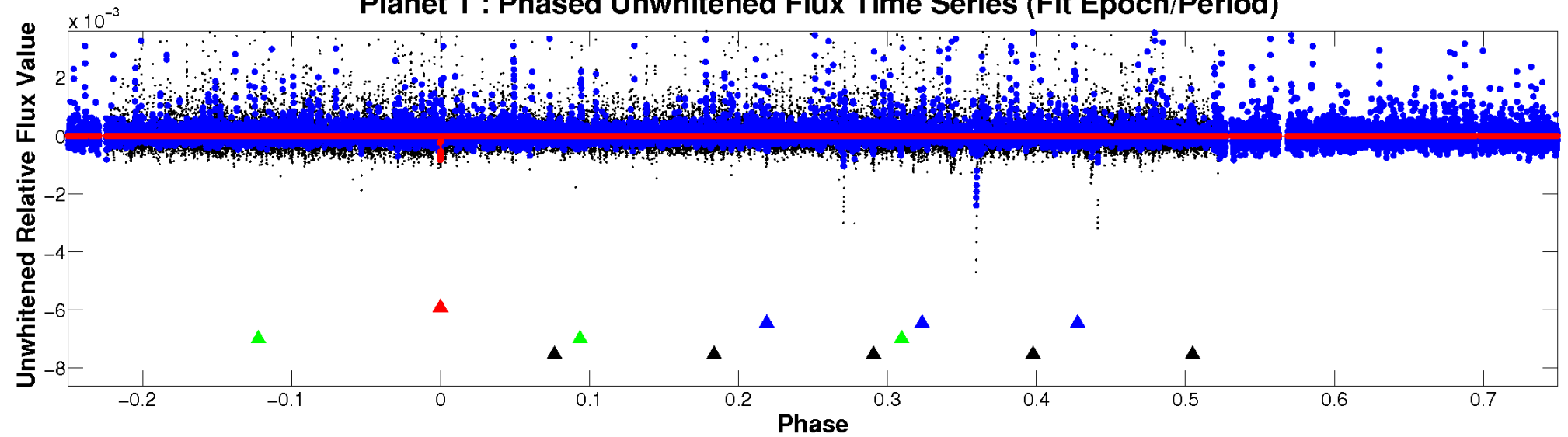
ALT Odd/Even

TCE 005461756-01

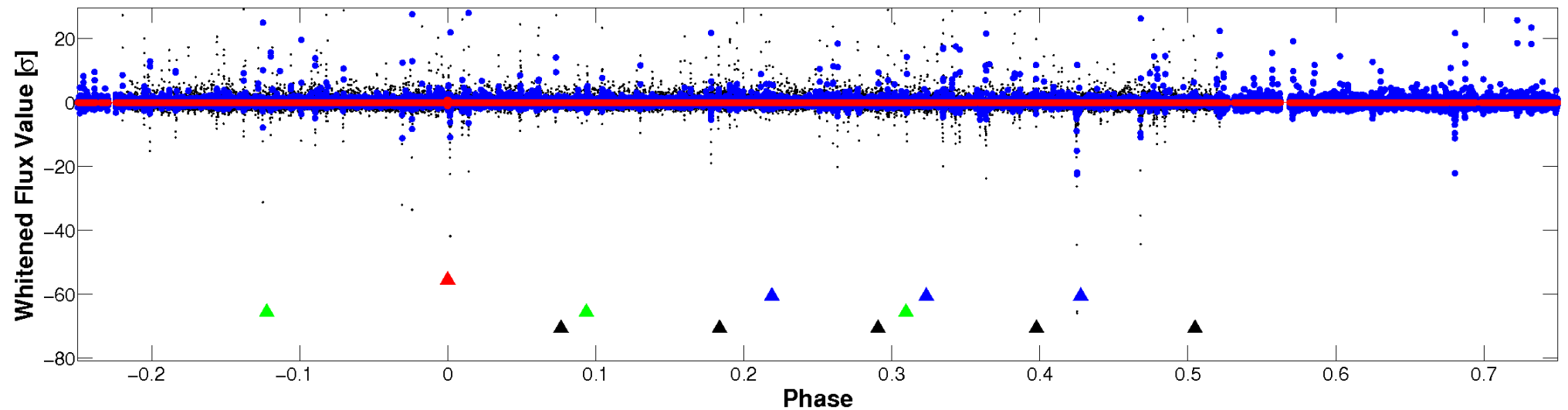


Non-Whitened Vs. Whitened Light Curve

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

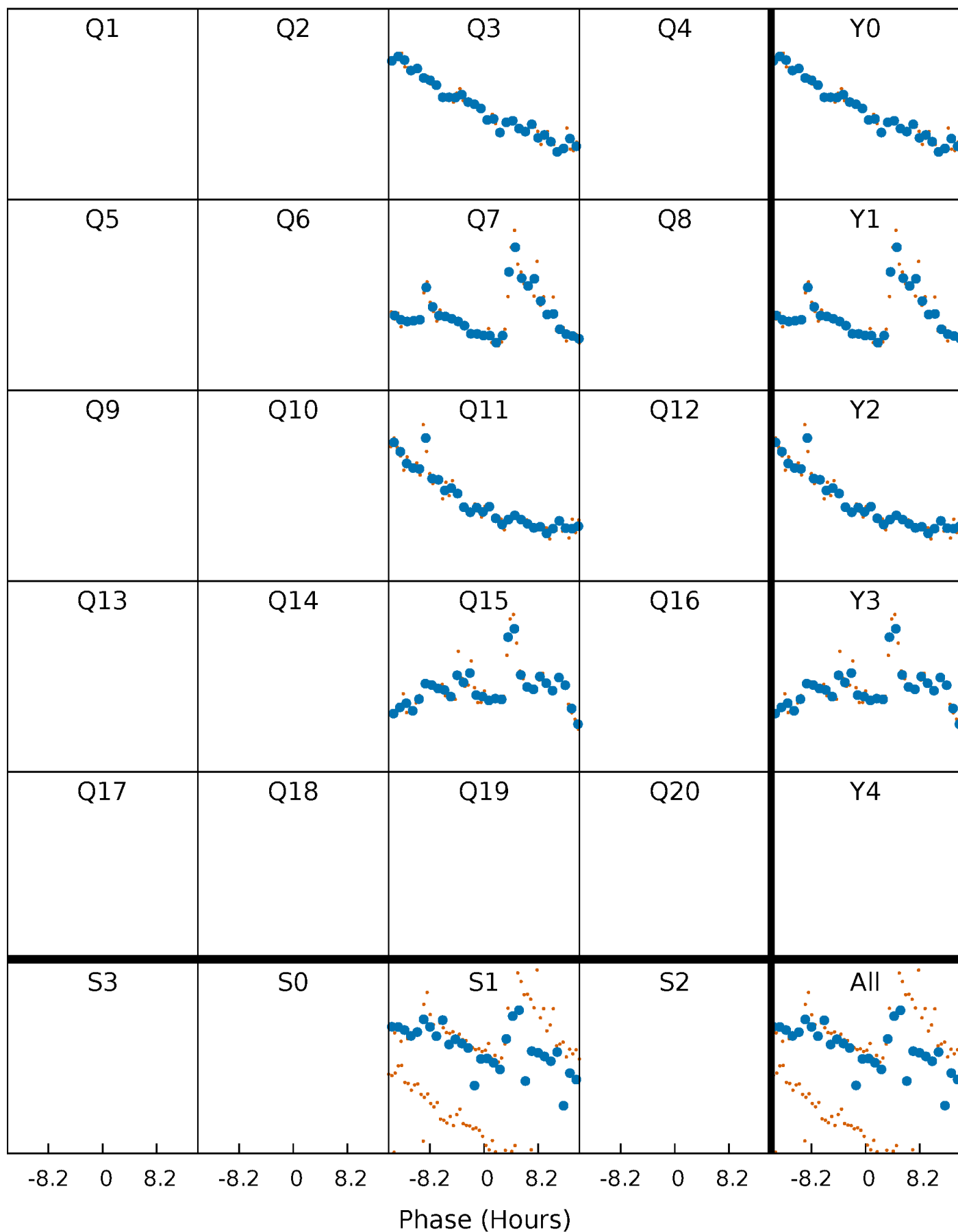


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



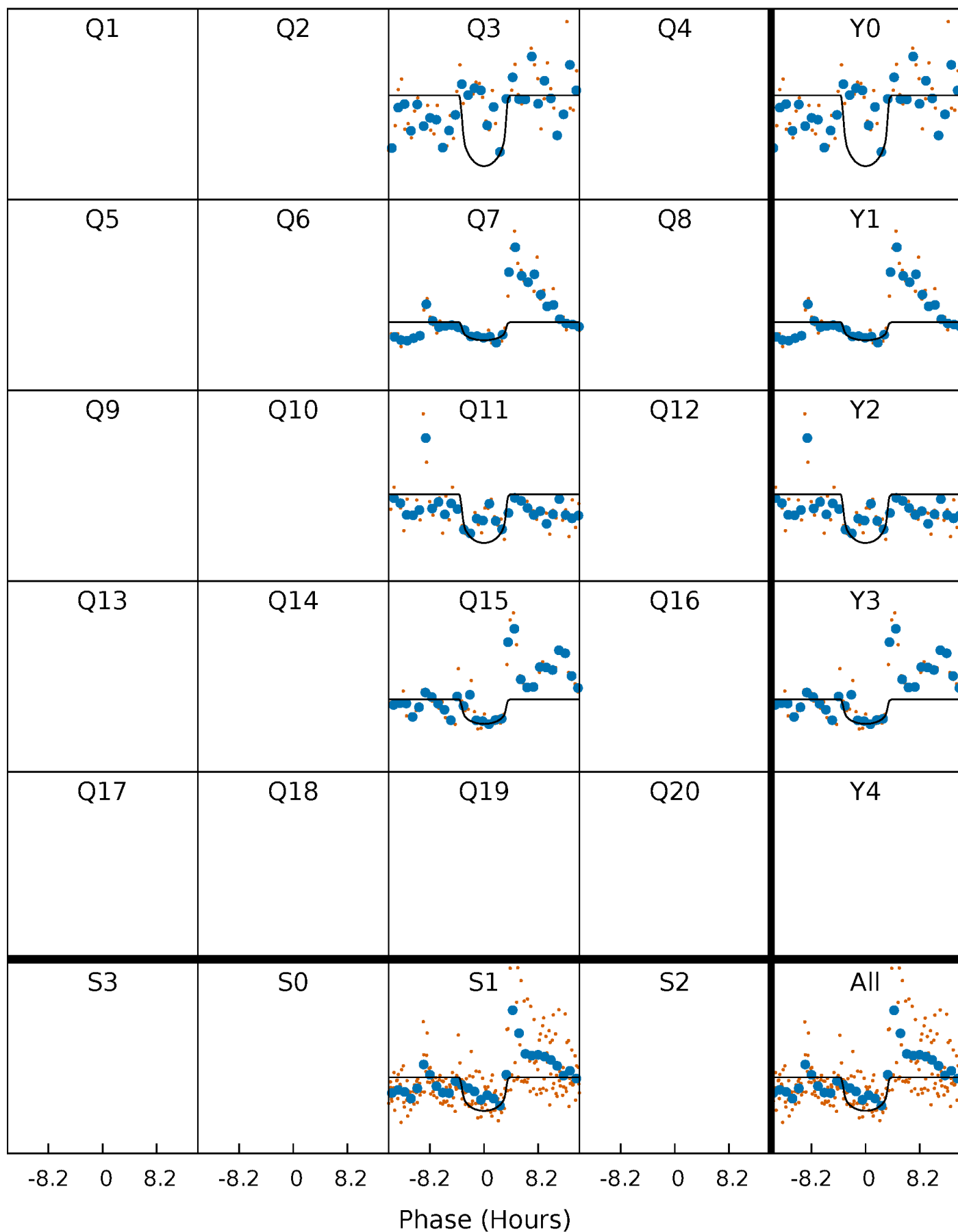
PDC Quarter-Phased Transit Curves

TCE 005461756-01 P=369.769825 Days $T_0=343.190816$ (BKJD)



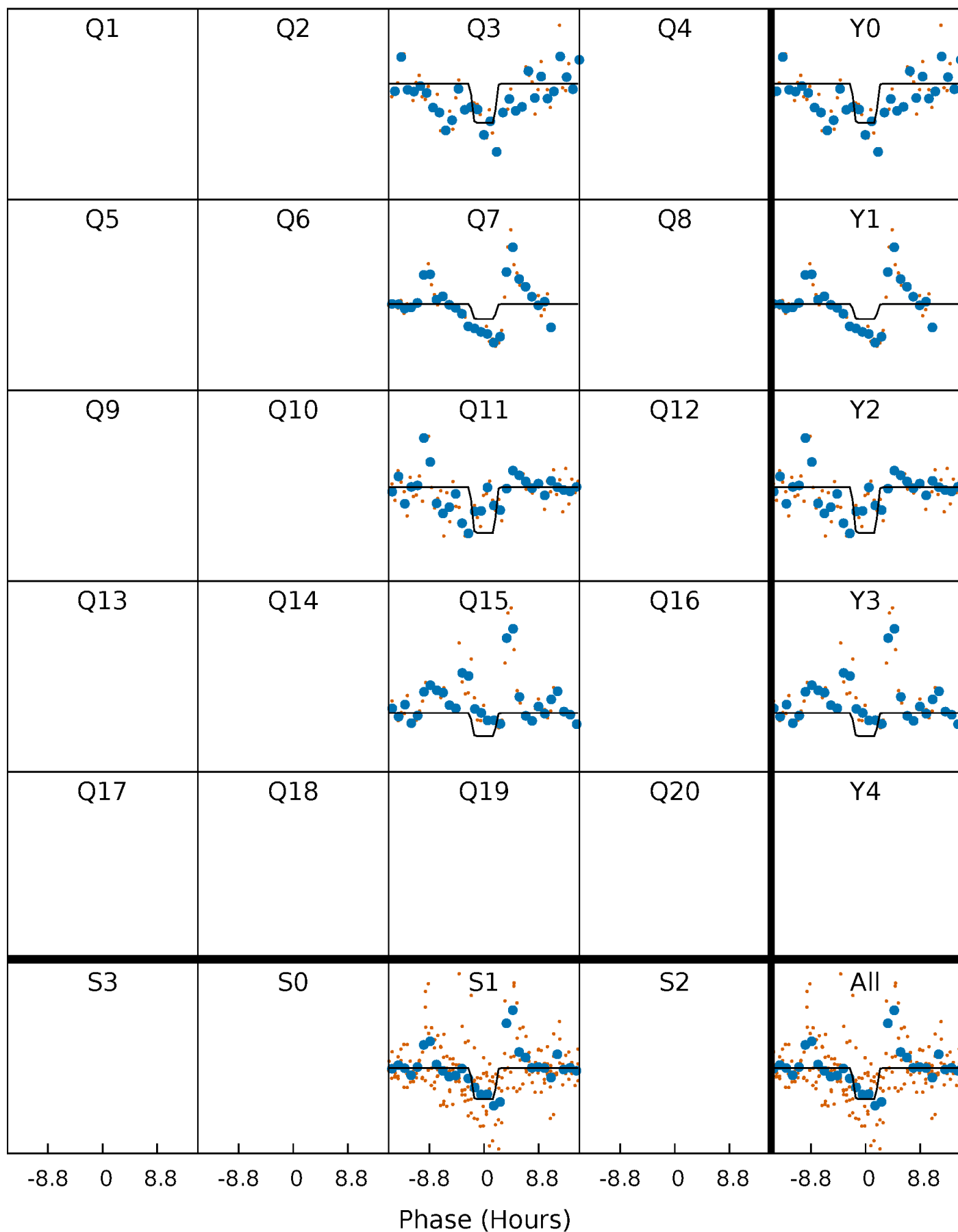
DV Quarter-Phased Transit Curves

TCE 005461756-01 P=369.769825 Days $T_0=343.190816$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

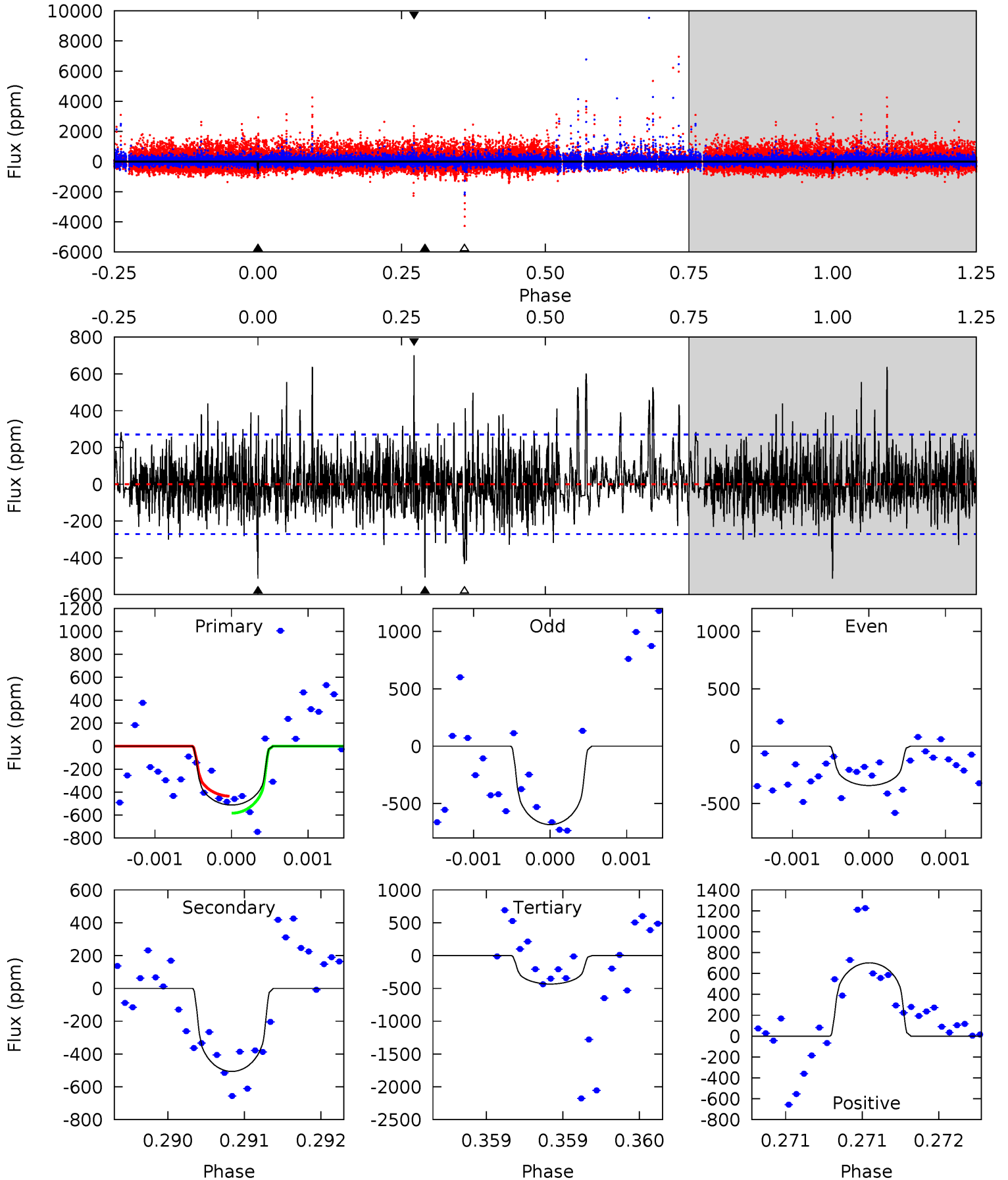
TCE 005461756-01 P=369.765702 Days $T_0=343.207769$ (BKJD)



DV Model-Shift Uniqueness Test

005461756-01, P = 369.769825 Days, E = 343.190816 Days

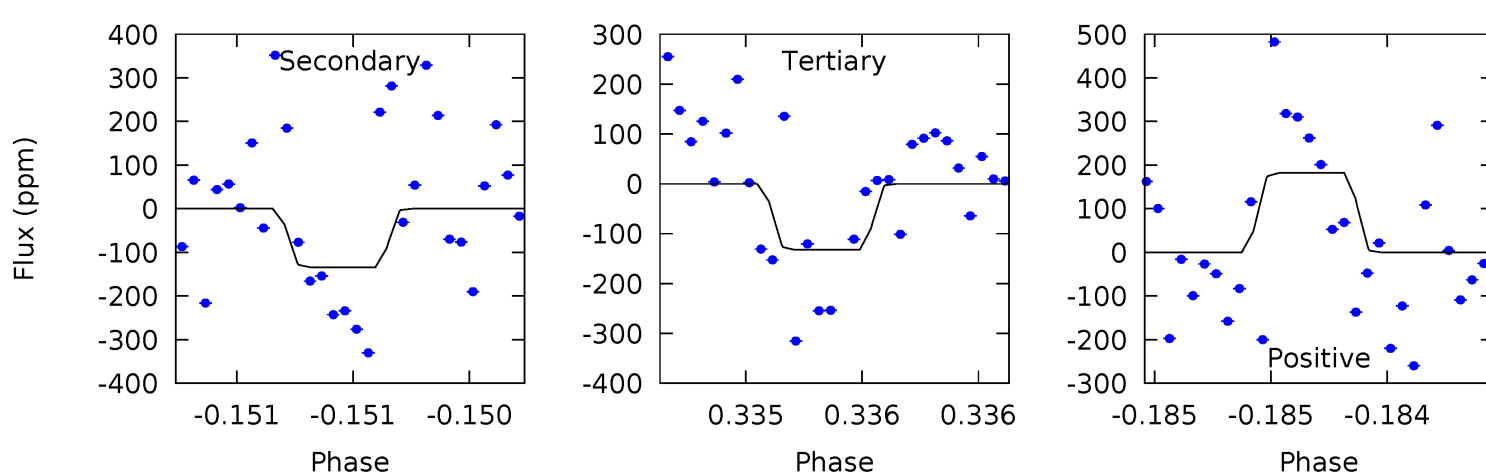
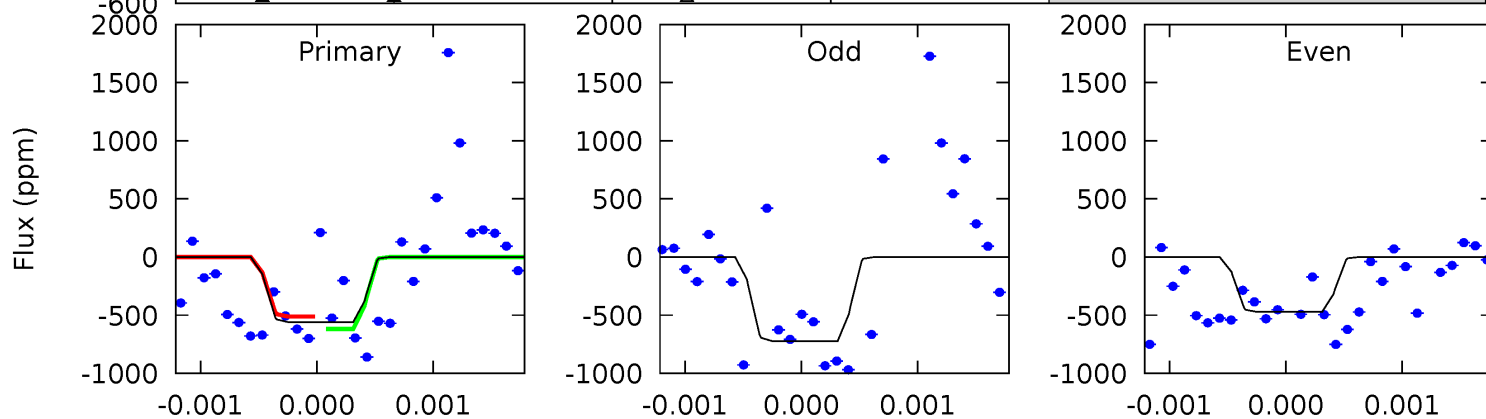
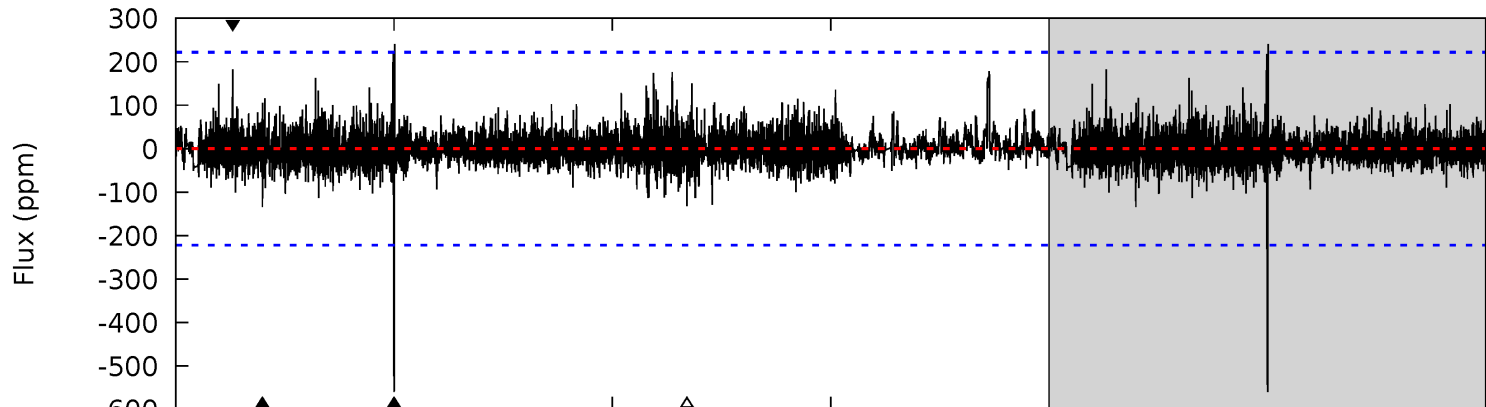
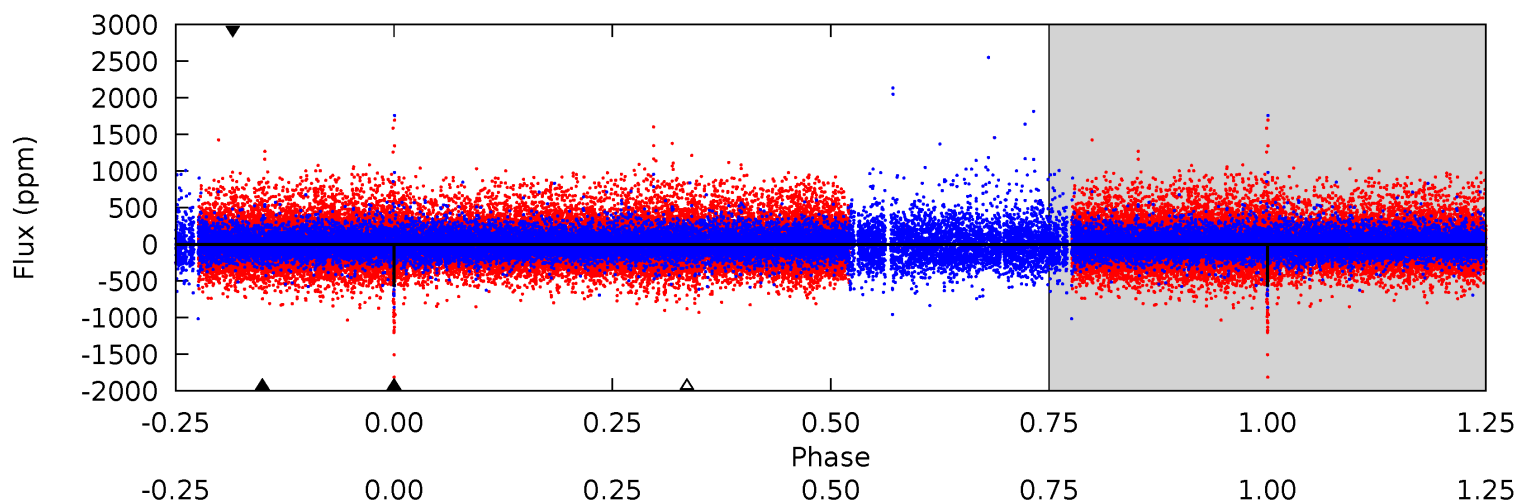
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	10.3	8.79	14.2	5.48	3.34	2.45	1.60	-3.82	1.46	-3.96	2.82	0.91	0.58	1.51



Alt Model-Shift Uniqueness Test

005461756-01, P = 369.765702 Days, E = 343.207769 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	3.37	3.32	4.57	5.57	3.48	0.81	10.7	9.47	0.05	-1.20	3.14	1.22	0.30	1.34



Stellar Parameters For KIC 005461756

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4014^{+140}_{-154}	$4.643^{+0.056}_{-0.020}$	$0.200^{+0.200}_{-0.300}$	$0.623^{+0.029}_{-0.069}$	$0.622^{+0.043}_{-0.064}$	$3.627^{+0.992}_{-0.334}$
	+3%/-4%	+1%/-0%	+100%/-150%	+5%/-11%	+7%/-10%	+27%/-9%
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 005461756-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-506 ± 49	$2.43^{+1.89}_{-1.59}$	209^{+8}_{-9}	3422^{+1584}_{-545}	$35358^{+258594}_{-24220}$
Alt.	-134 ± 40	$2.39^{+1.66}_{-1.45}$	209^{+8}_{-9}	2820^{+958}_{-366}	9253^{+51915}_{-6096}

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 $A_{obs} \gg 1.0$

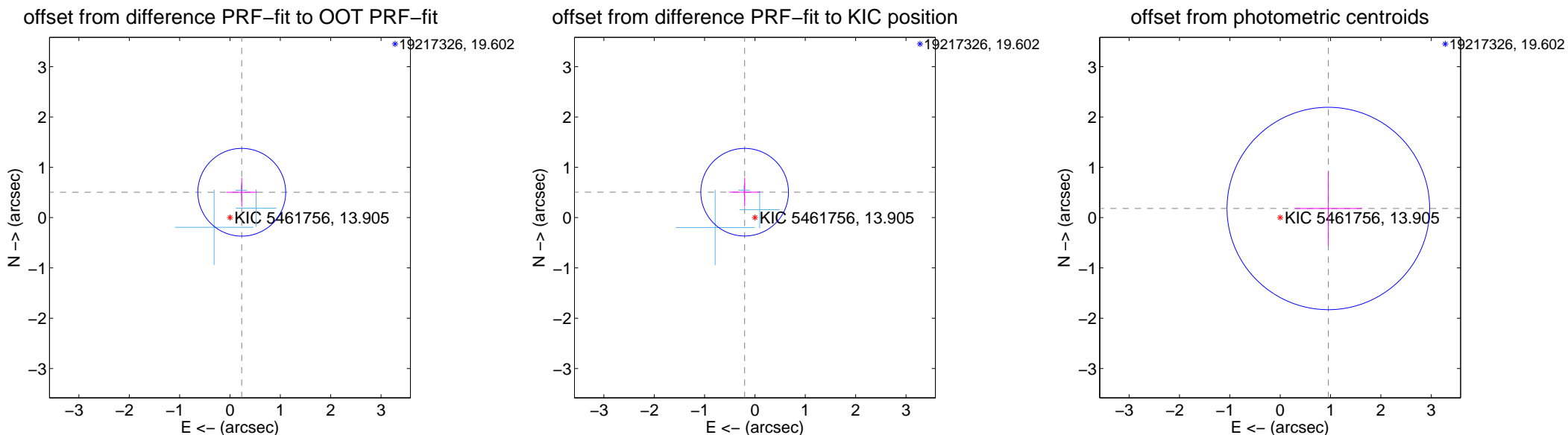
DV Centroid Data

Supplemental centroid analysis for 005461756-01. Kepler magnitude: 13.90. Transit SNR 7.90

There are 3 quarters with good PRF difference image offsets

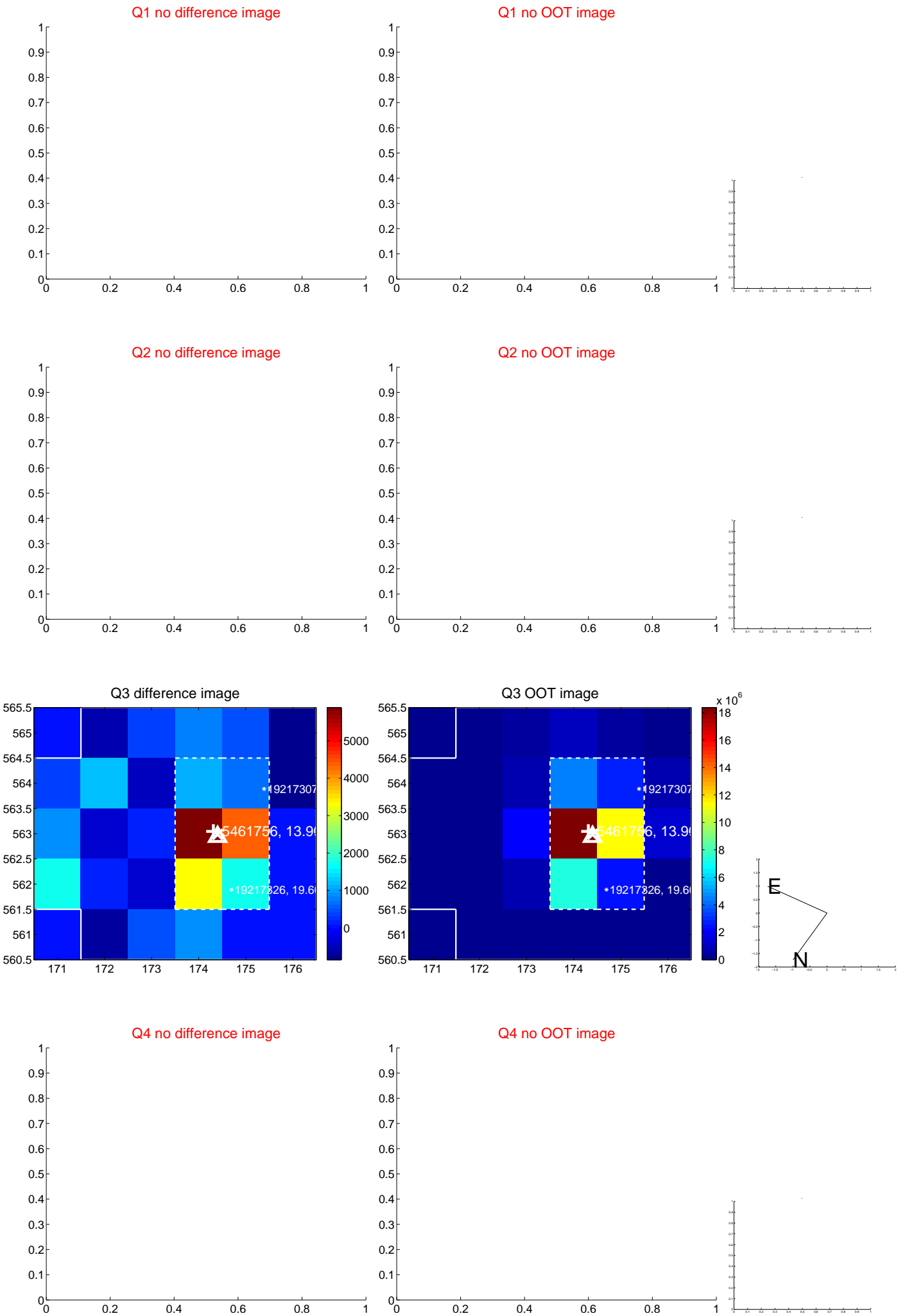
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.556 ± 0.291	1.91	-0.234 ± 0.303	0.504 ± 0.288
PRF-fit source offset from KIC position	0.545 ± 0.290	1.88	0.205 ± 0.303	0.506 ± 0.288
photometric centroid source offset	0.97 ± 0.67	1.45	-0.96 ± 0.67	0.18 ± 0.74

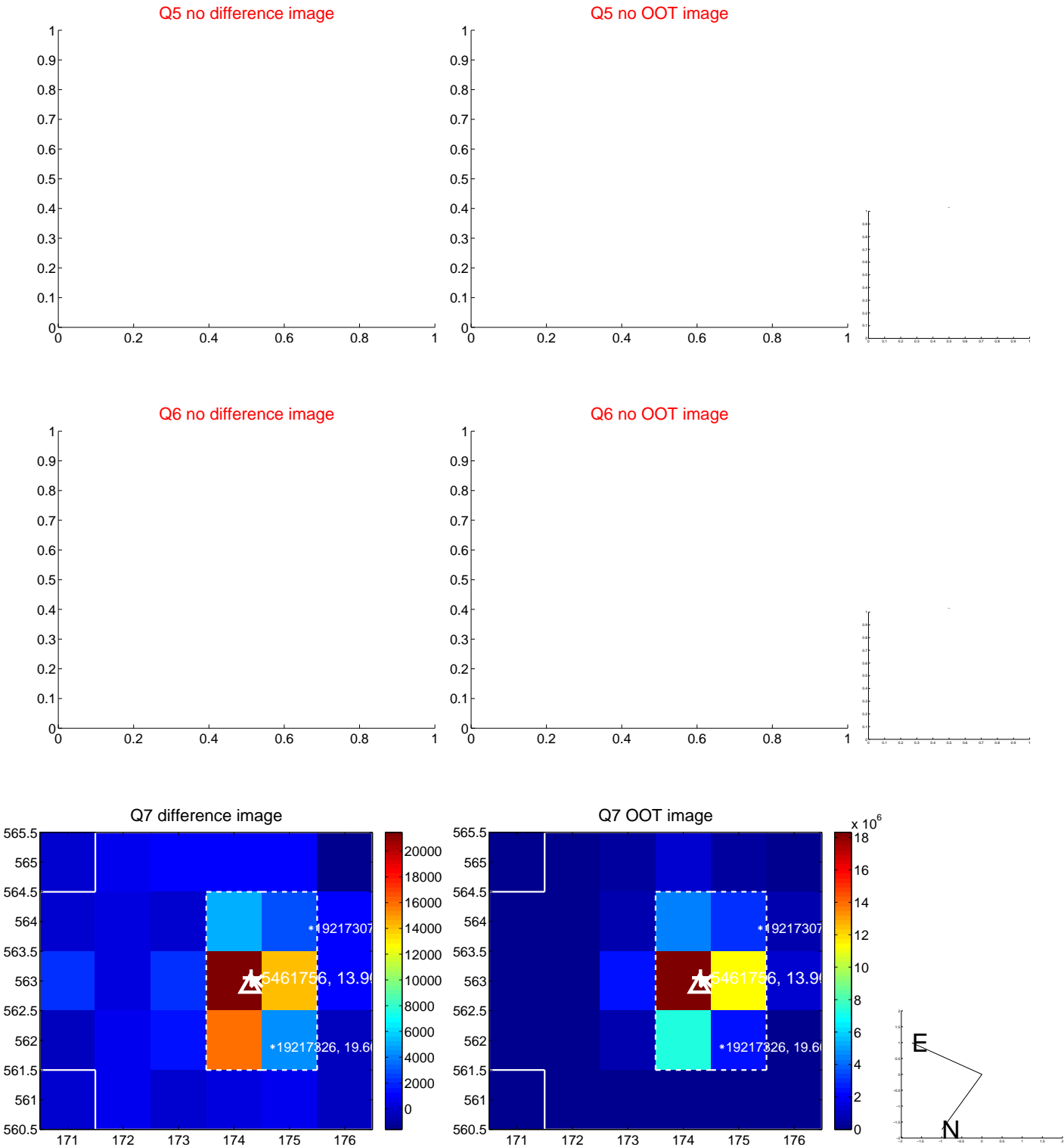


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



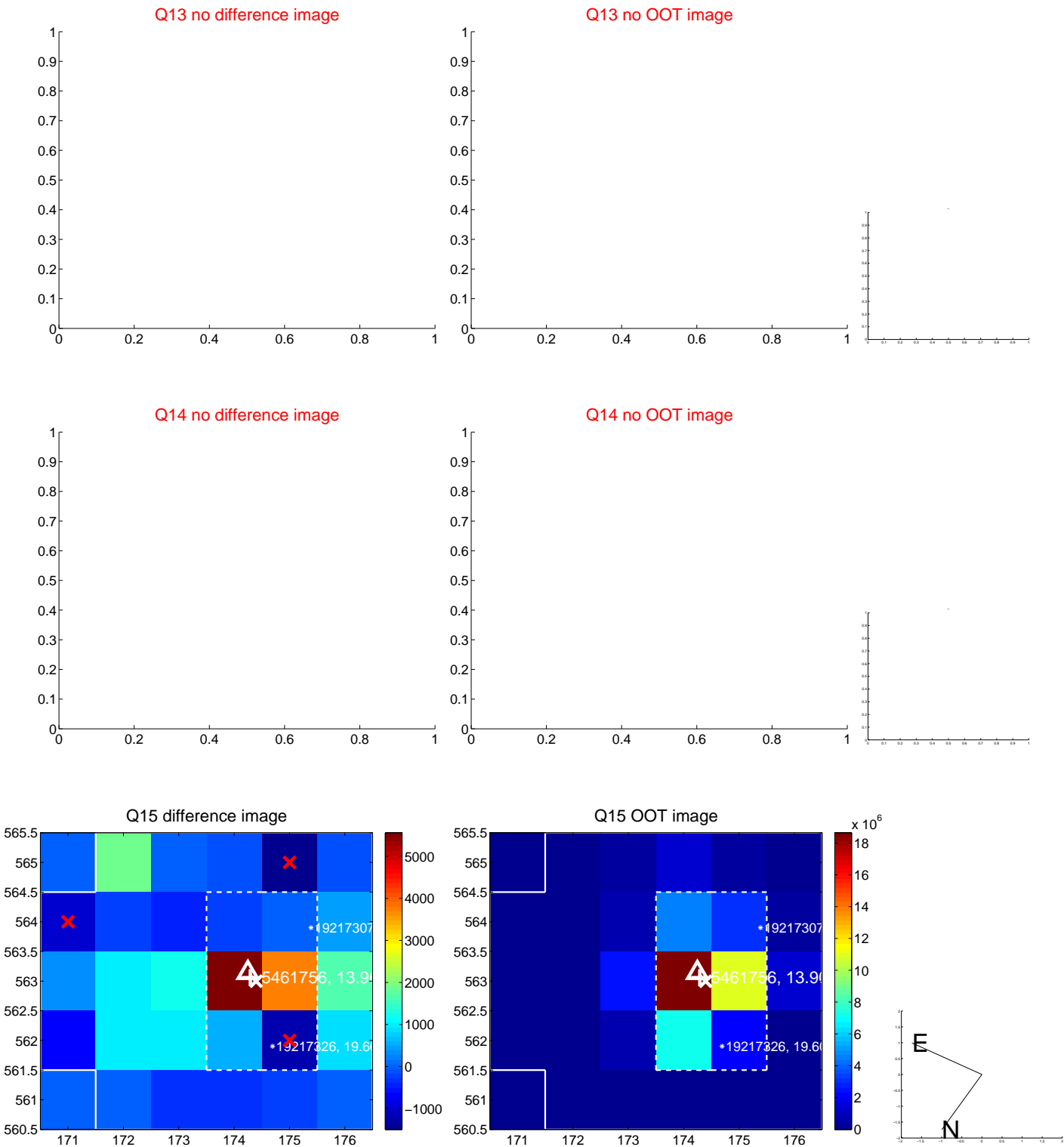
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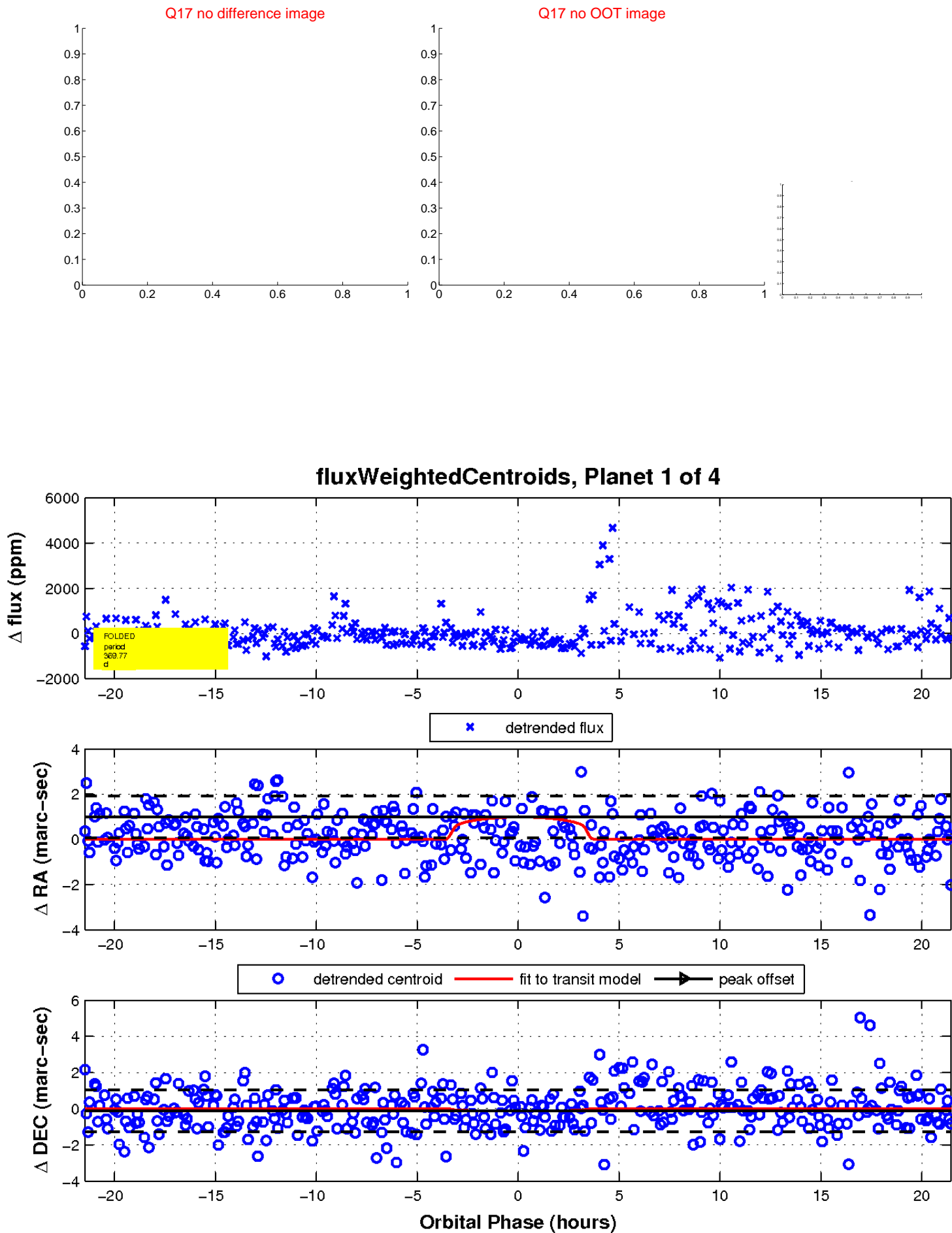
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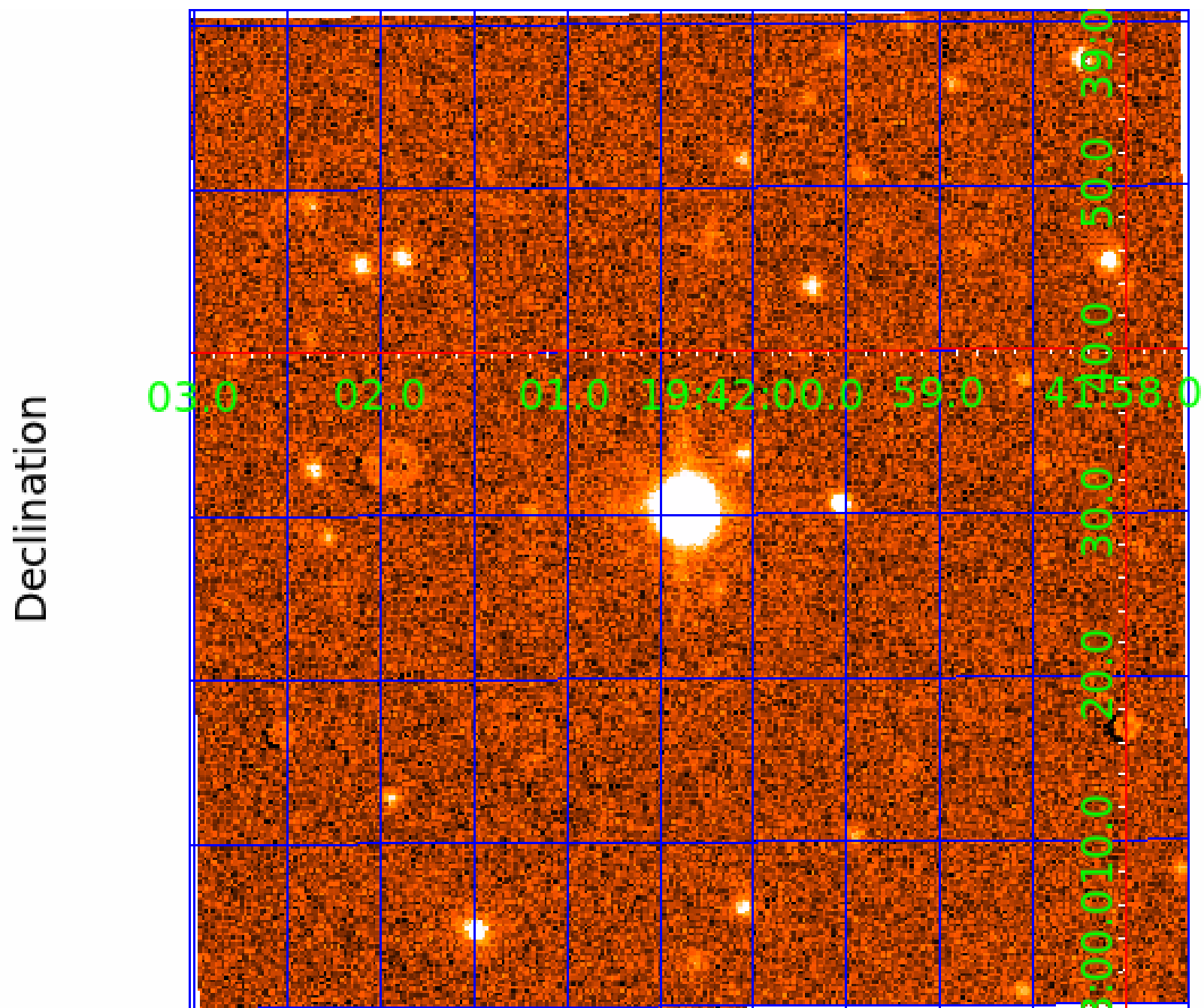
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UKIRT Image



KIC 005461756

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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005461756-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005461756-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—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.

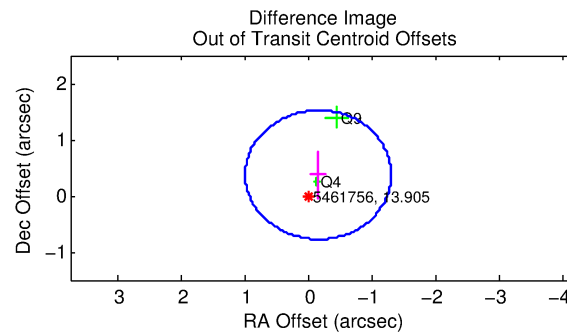
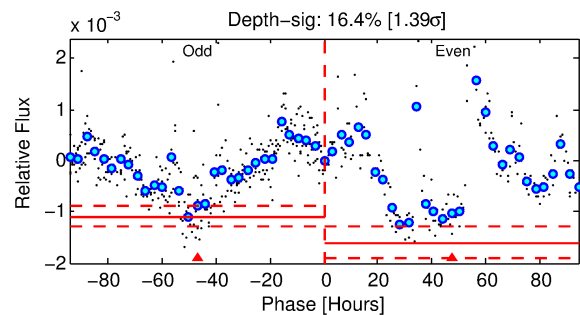
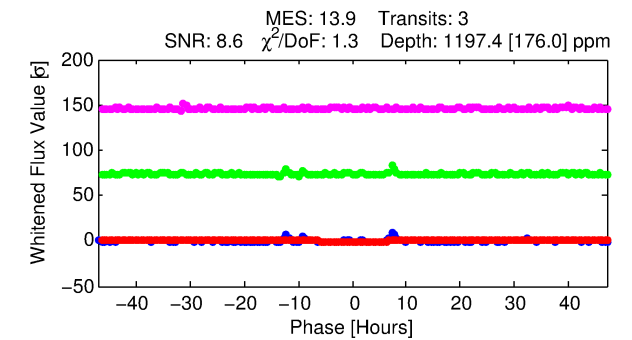
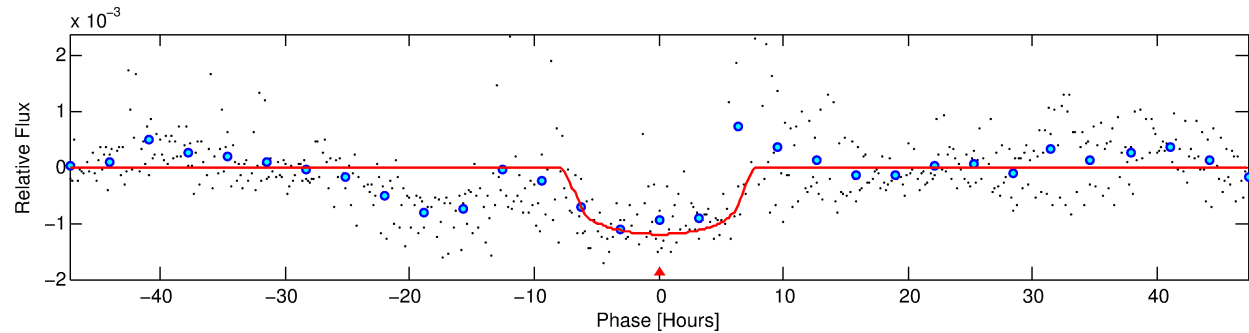
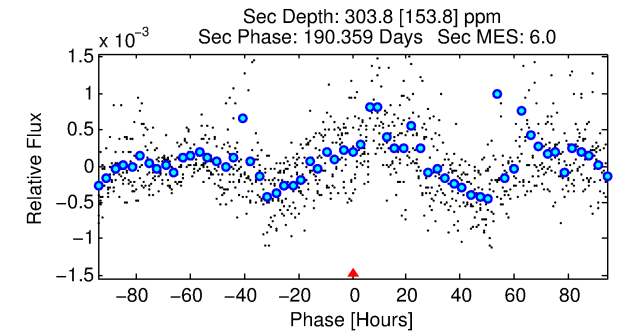
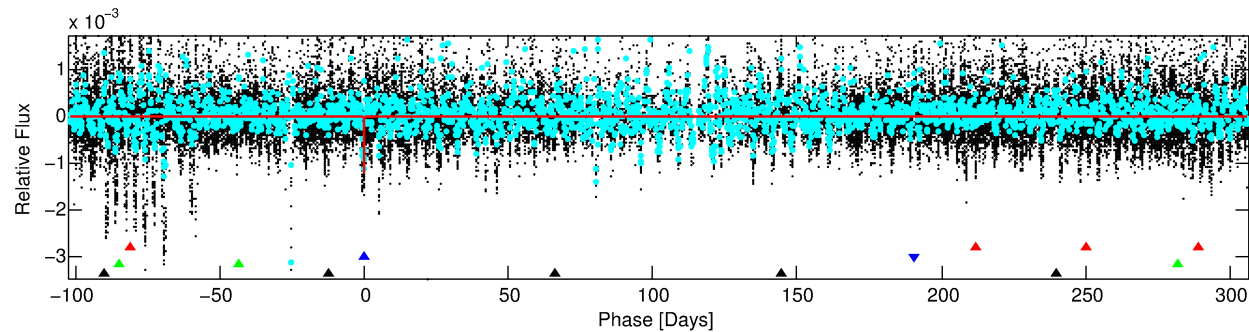
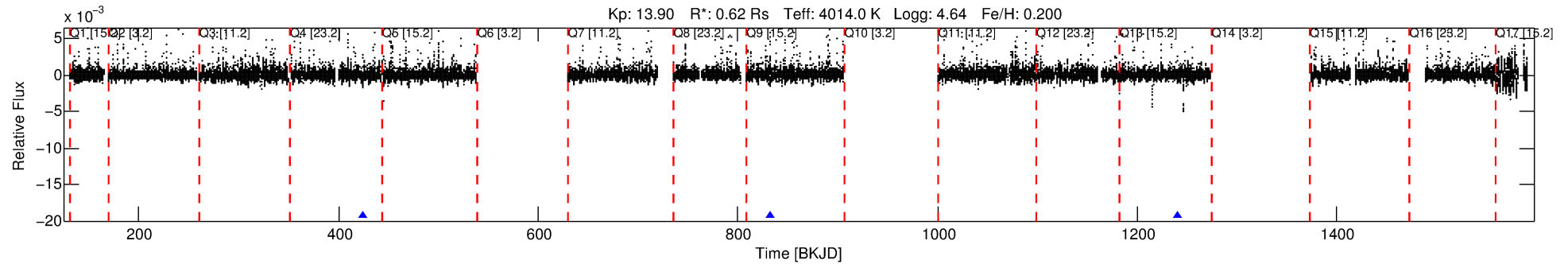
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005461756-02

No Significant Match Found

DV One-Page Summary

KIC: 5461756 Candidate: 2 of 4 Period: 408.353 d



DV Fit Results:

Period = 408.35309 [0.01148] d
Epoch = 424.1610 [0.0155] BKJD
Rp/R* = 0.0374 [0.0036]
a/R* = 113.23 [22.14]
b = 0.87 [0.06]
Seff = 0.11 [0.02]
Teq = 146 [7] K
Rp = 2.54 [0.37] Re
a = 0.9198 [0.0786] AU
Ag = 21866.23 [12105.59] [1.81 σ]
Teffp = 2740 [386] K [6.72 σ]

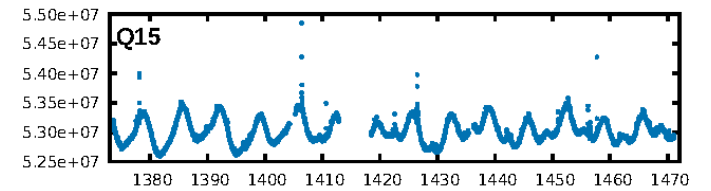
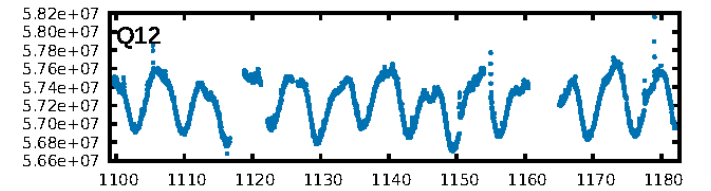
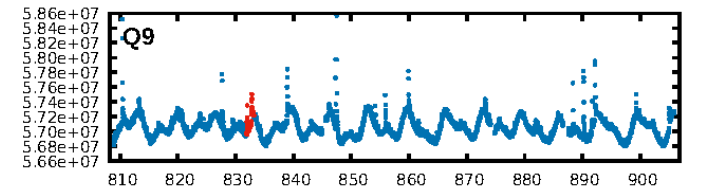
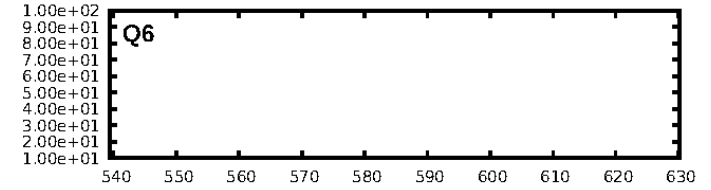
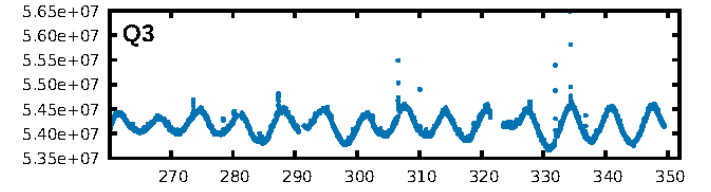
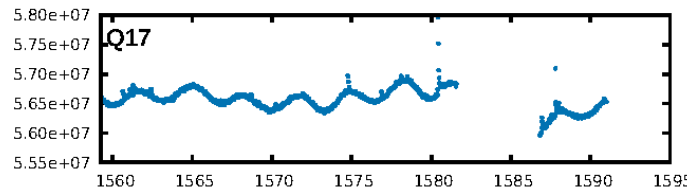
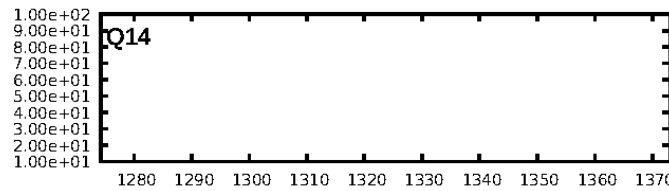
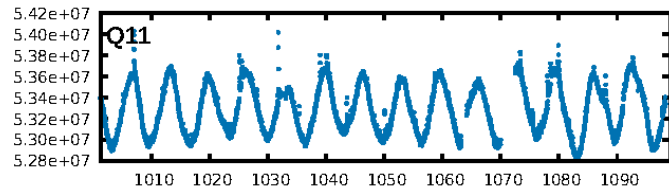
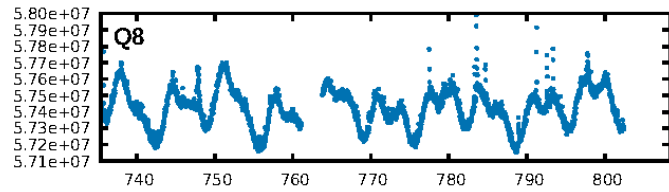
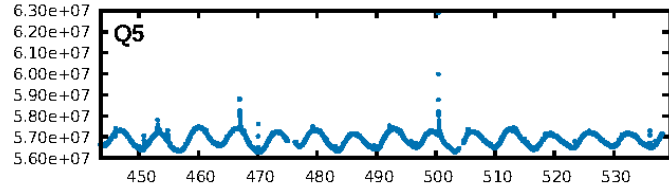
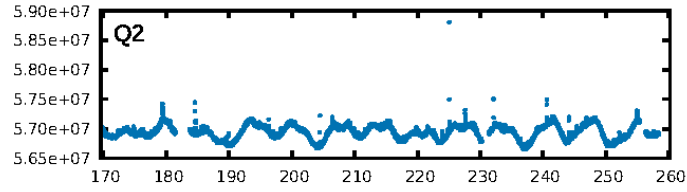
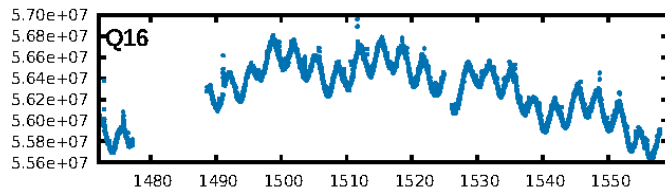
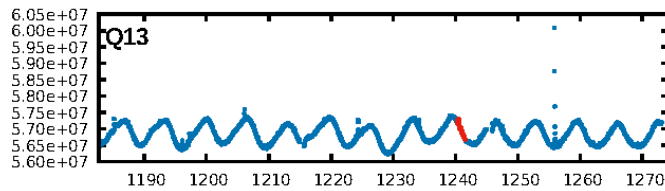
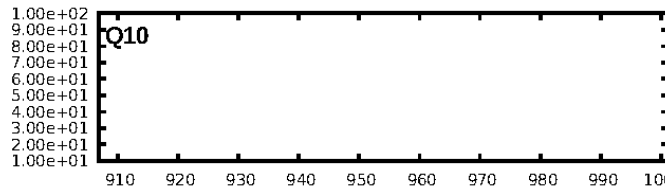
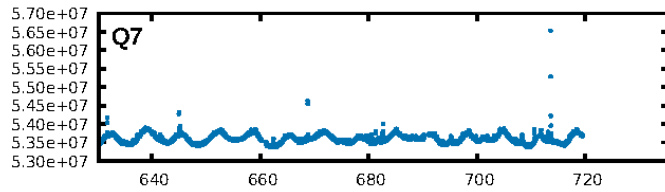
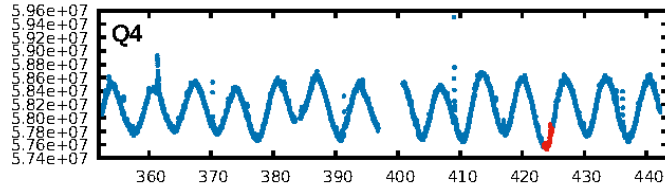
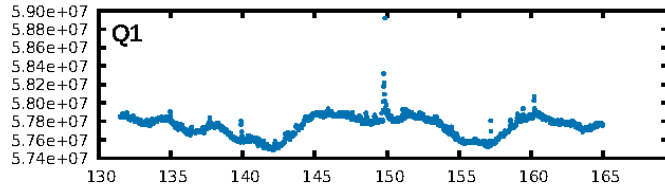
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [53.40 σ]
LongPeriod-sig: 100.0% [61.12 σ]
ModelChiSquare2-sig: 16.1%
ModelChiSquareGof-sig: 98.7%
Bootstrap-pfa: 5.01e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.371
Centroid-sig: 30.2%
Centroid-so: 0.542 arcsec [1.29 σ]
OotOffset-rm: 0.401 arcsec [1.05 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-rm: 0.402 arcsec [0.88 σ]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

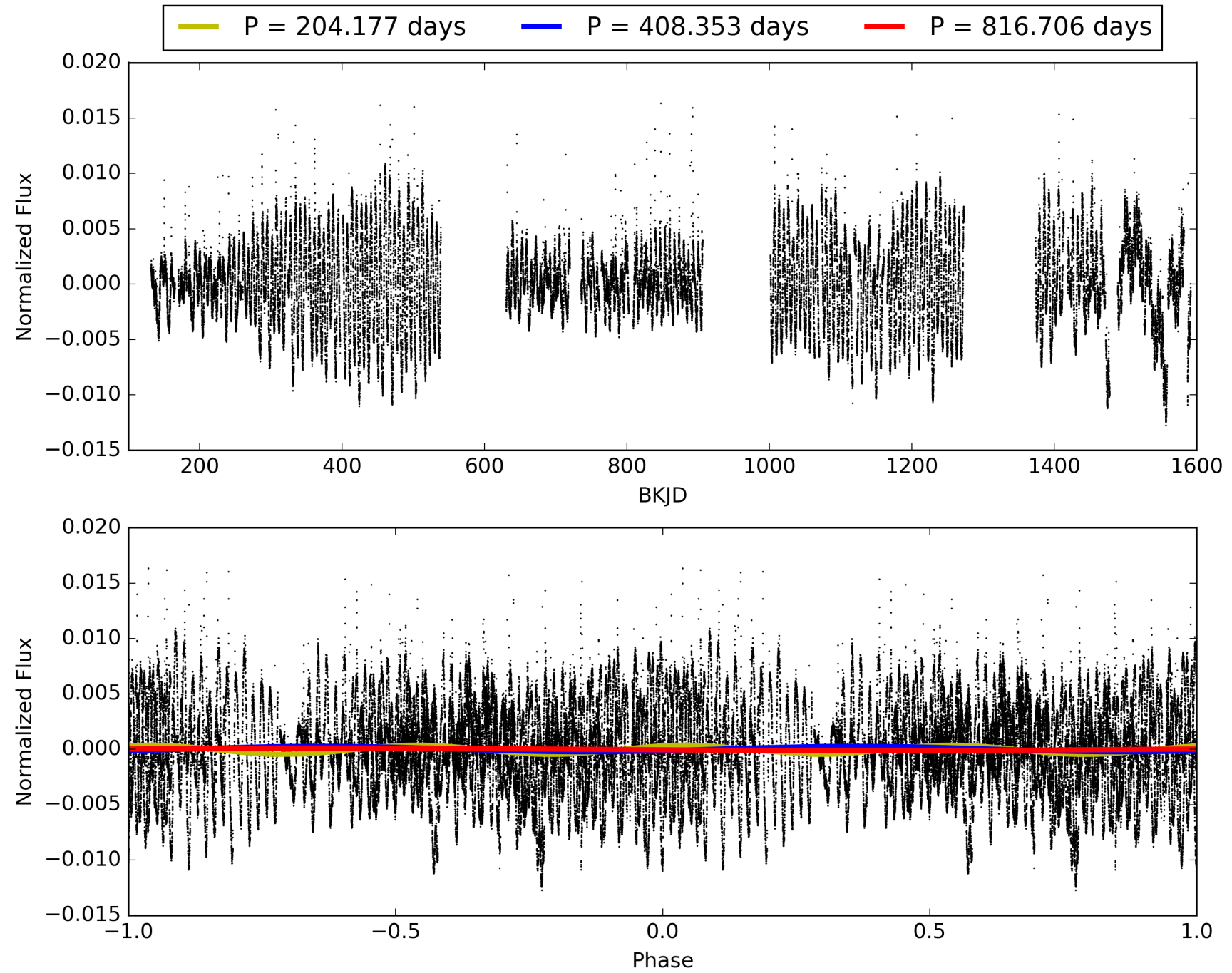
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:19:41 Z

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

TCE 005461756-02, PDC Light Curves

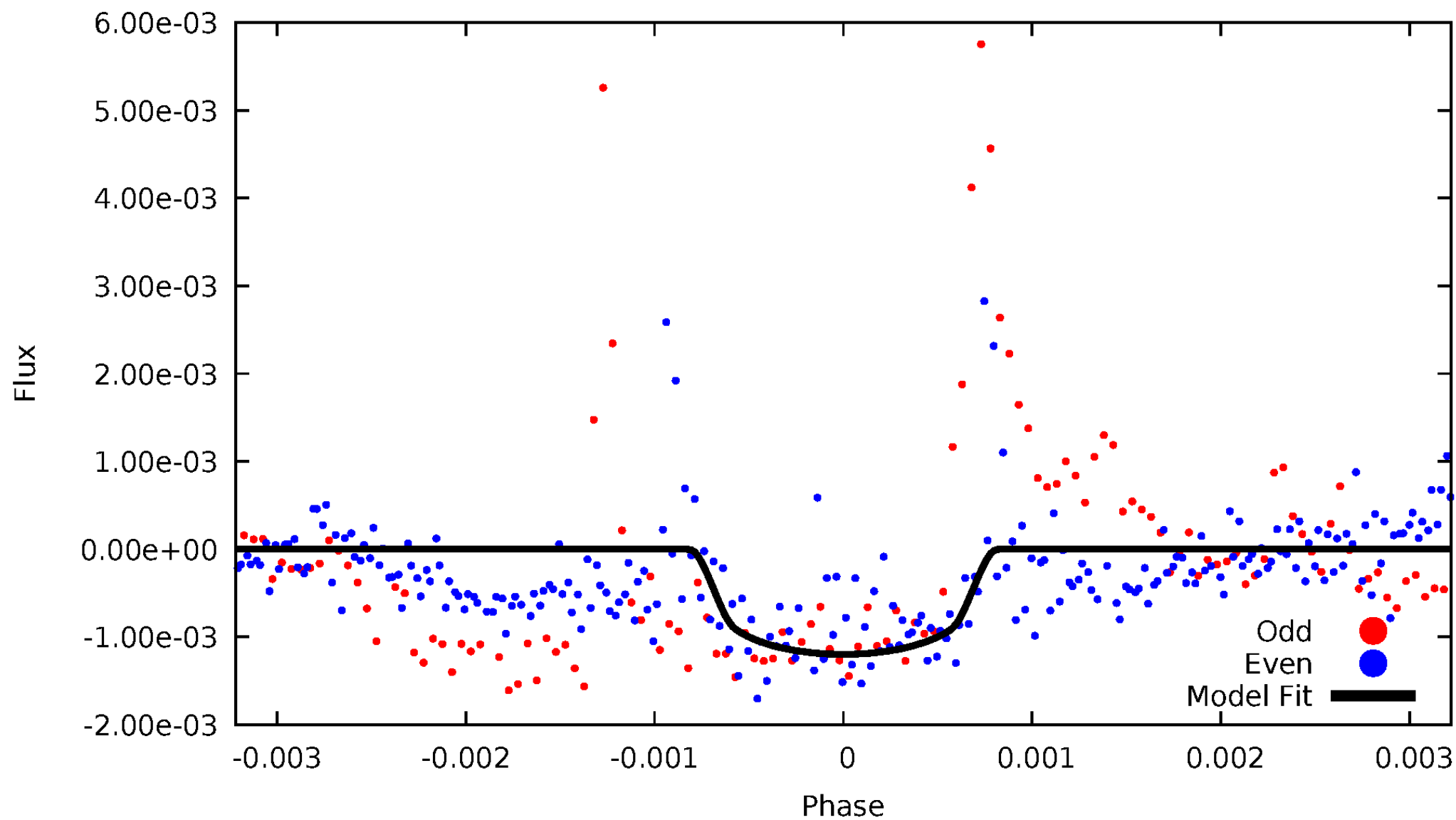


TCE 005461756-02



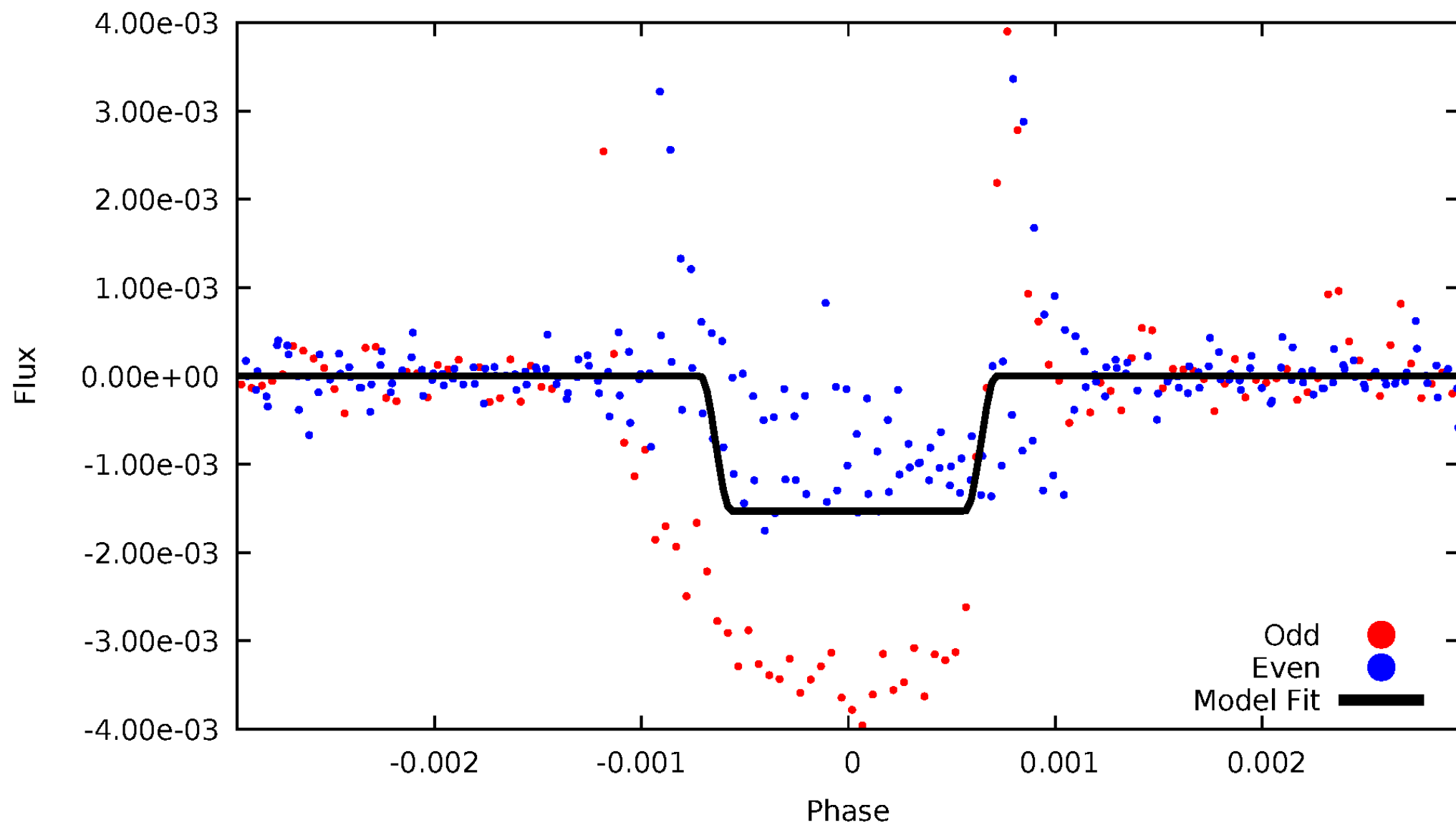
DV Odd/Even

TCE 005461756-02



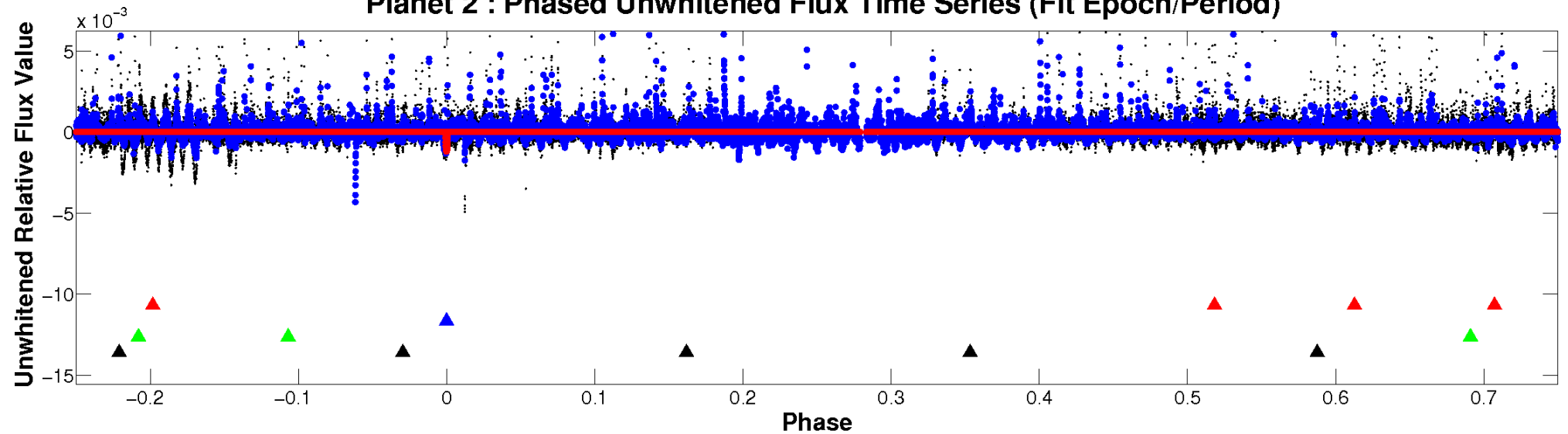
ALT Odd/Even

TCE 005461756-02

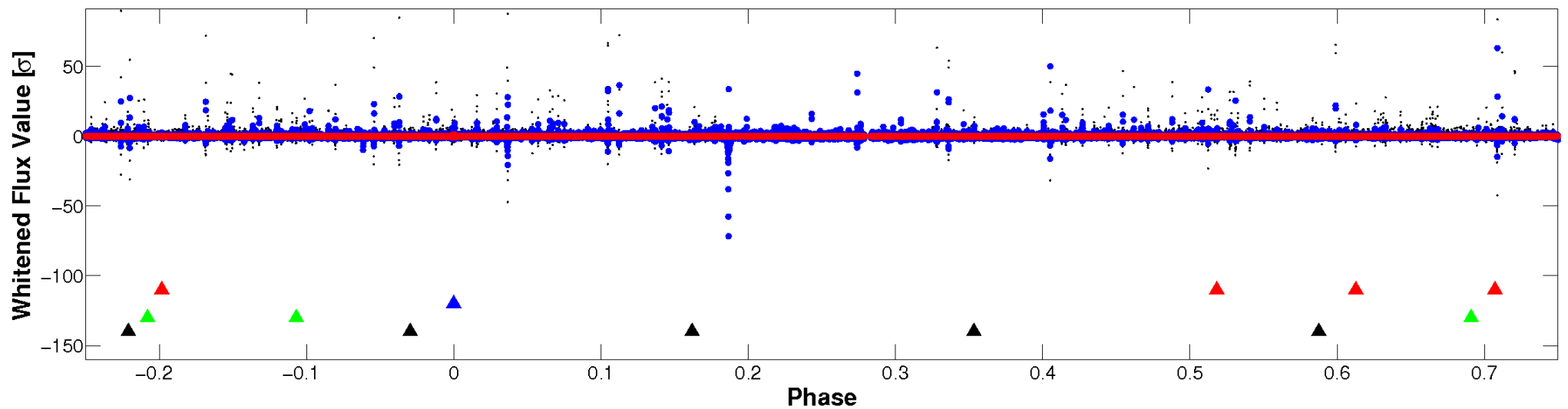


Non-Whitened Vs. Whitened Light Curve

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

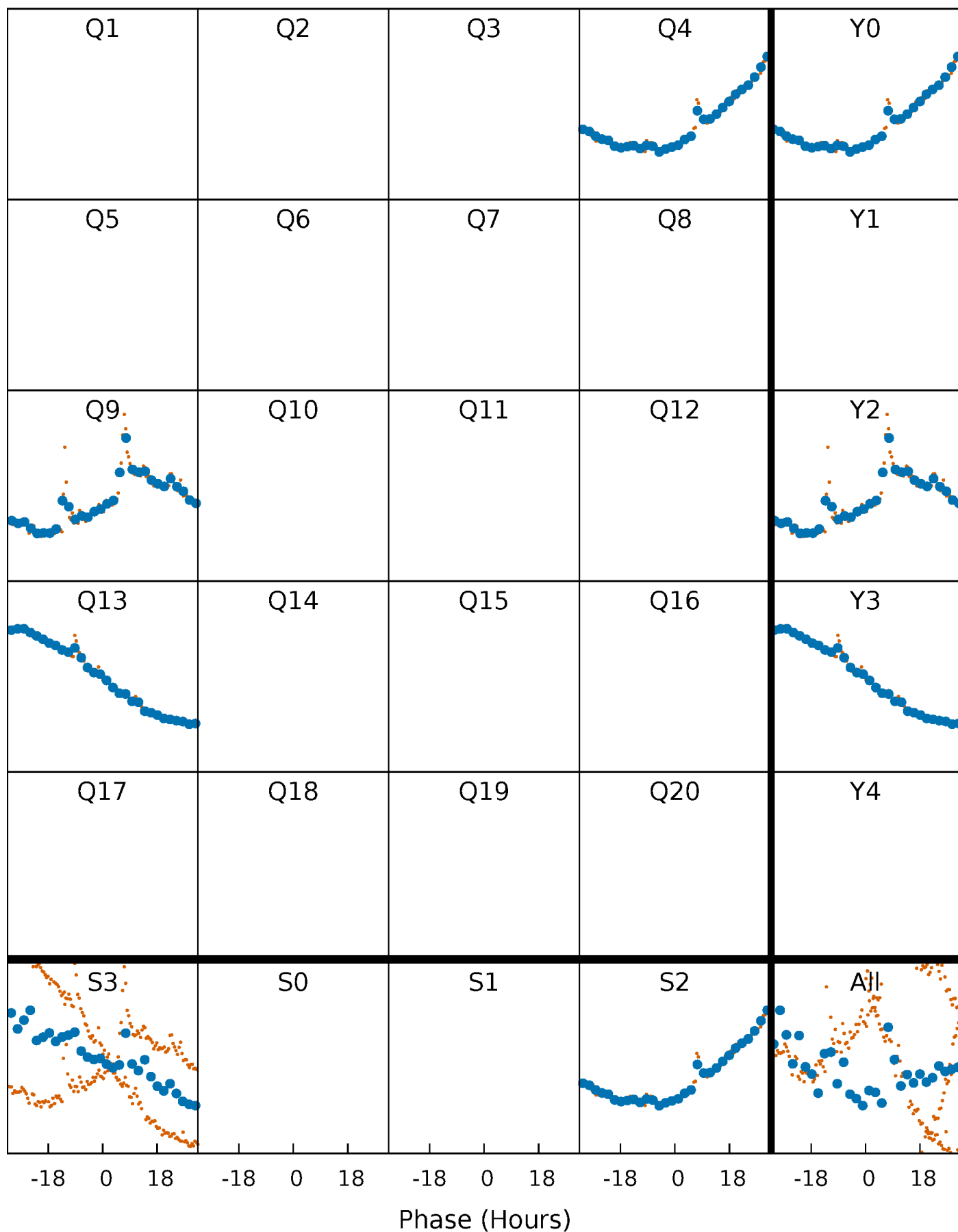


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



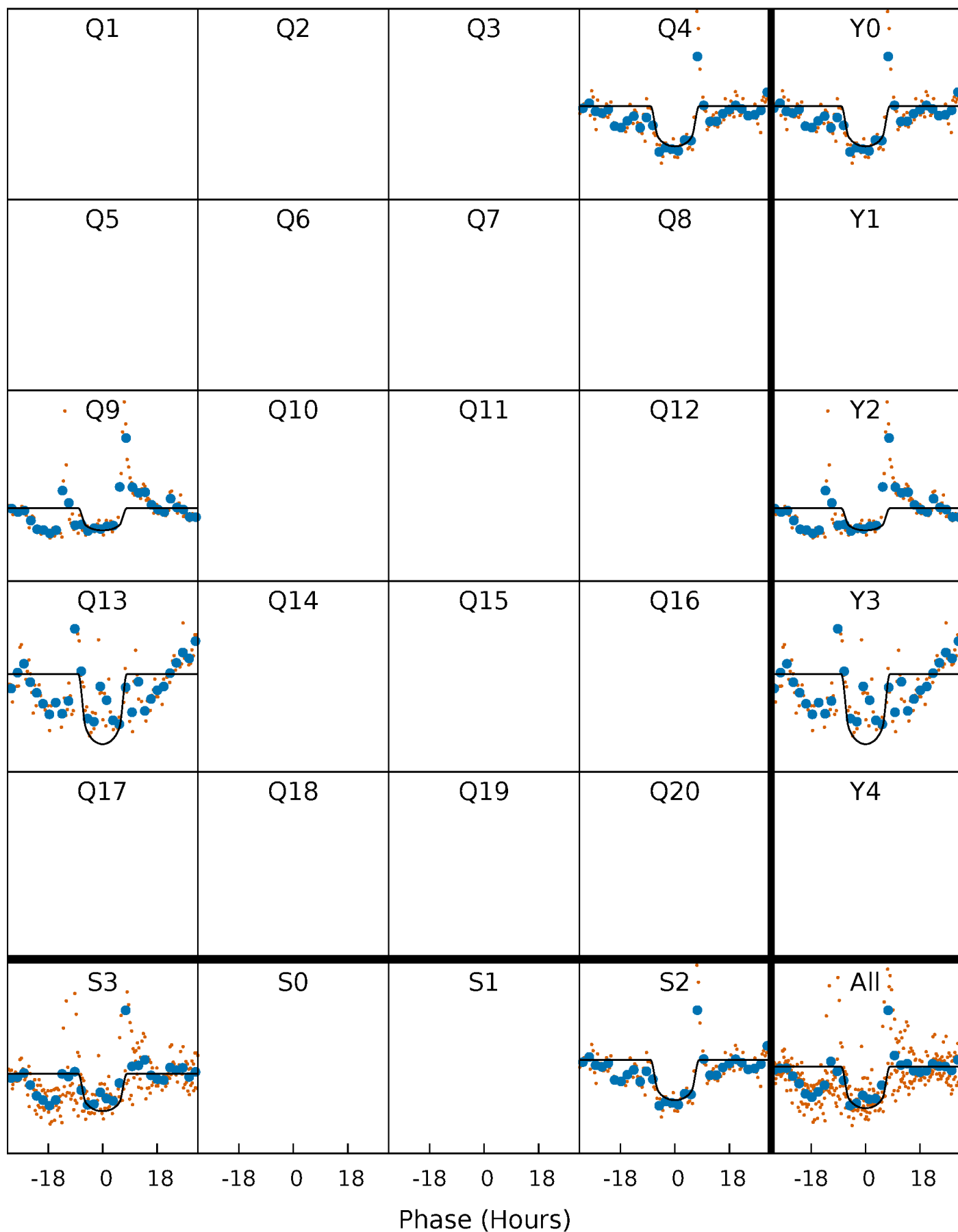
PDC Quarter-Phased Transit Curves

TCE 005461756-02 $P=408.353088$ Days $T_0=424.160998$ (BKJD)



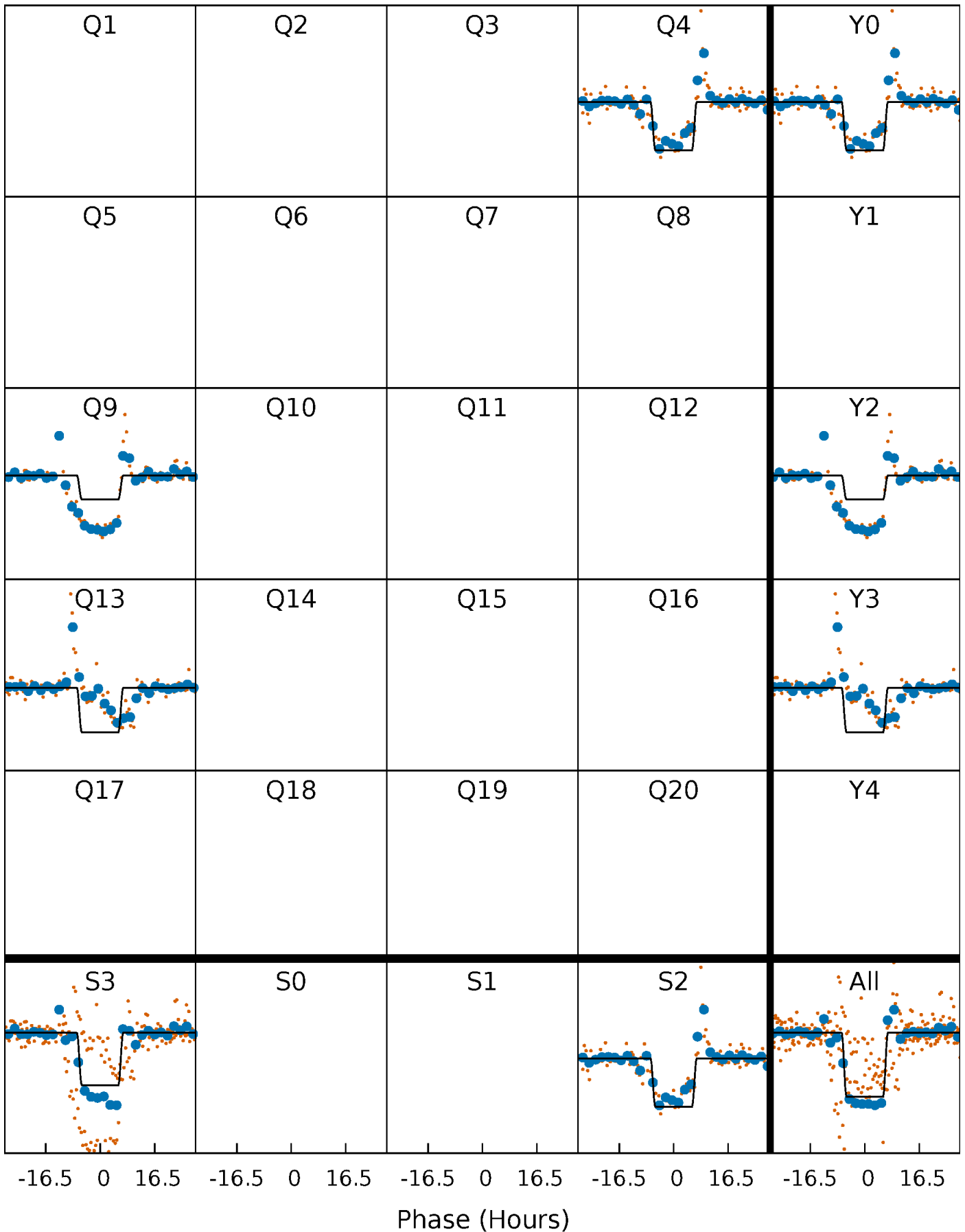
DV Quarter-Phased Transit Curves

TCE 005461756-02 $P=408.353088$ Days $T_0=424.160998$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

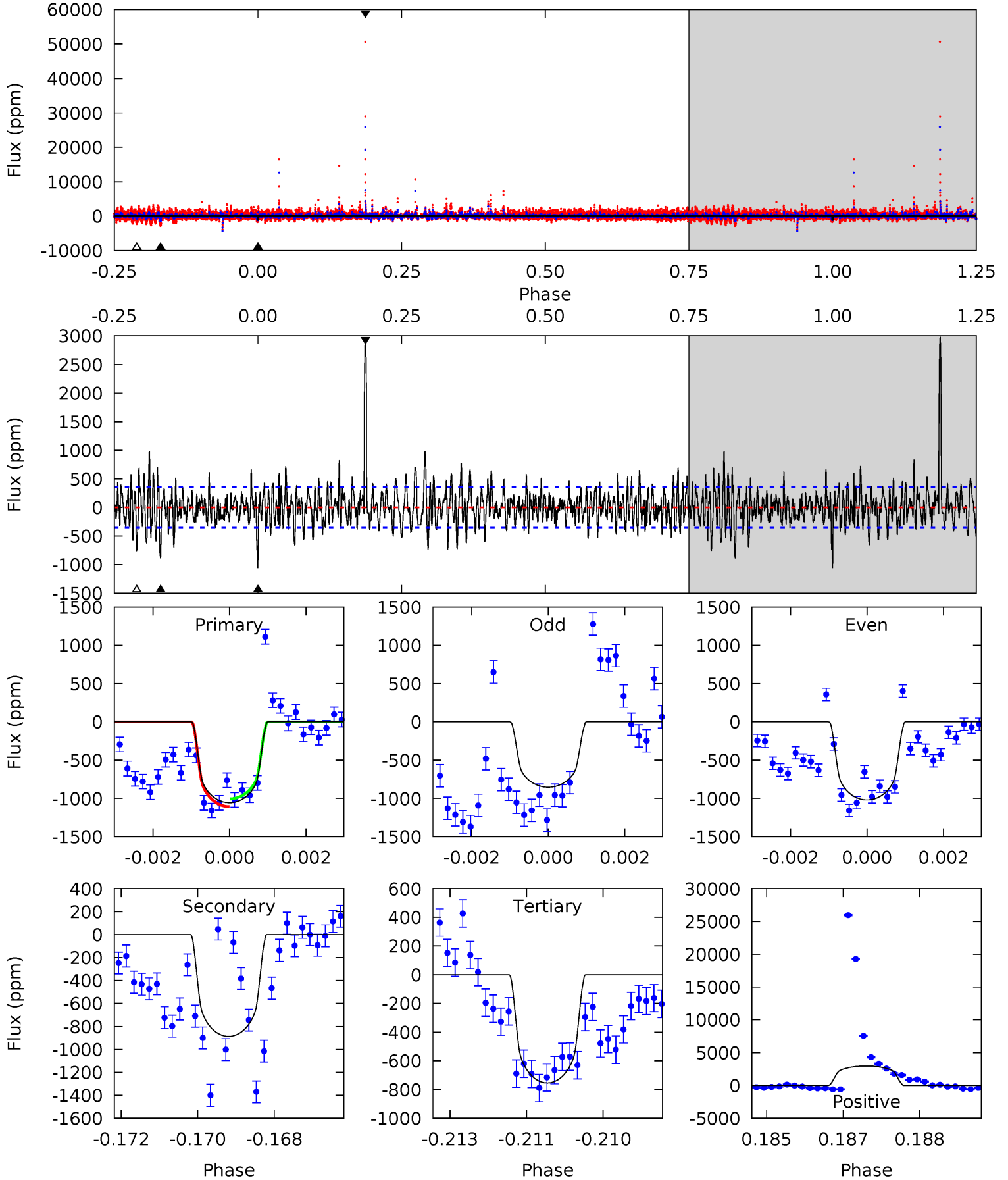
TCE 005461756-02 P=408.357885 Days $T_0=424.140175$ (BKJD)



DV Model-Shift Uniqueness Test

005461756-02, P = 408.353088 Days, E = 15.807910 Days

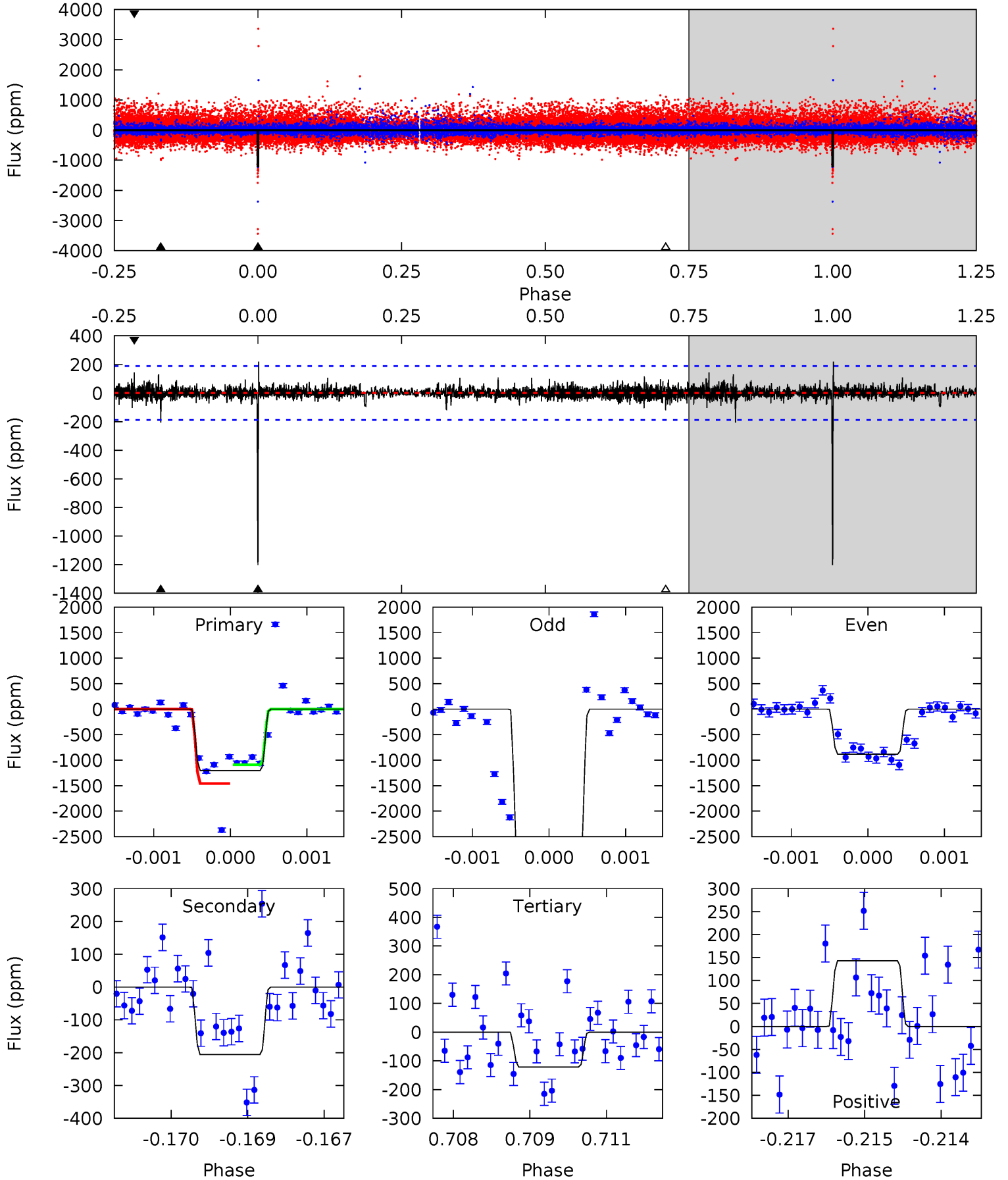
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	13.3	11.3	44.5	5.36	3.15	3.99	4.53	-28.7	2.00	-31.2	1.00	1.12	0.74	0.73



Alt Model-Shift Uniqueness Test

005461756-02, P = 408.357885 Days, E = 15.782290 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.4	5.88	3.46	4.09	5.39	3.19	0.70	30.9	30.3	2.42	1.79	41.7	1.39	0.15	5.08



Stellar Parameters For KIC 005461756

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4014^{+140}_{-154}	$4.643^{+0.056}_{-0.020}$	$0.200^{+0.200}_{-0.300}$	$0.623^{+0.029}_{-0.069}$	$0.622^{+0.043}_{-0.064}$	$3.627^{+0.992}_{-0.334}$
	+3%/-4%	+1%/-0%	+100%/-150%	+5%/-11%	+7%/-10%	+27%/-9%
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 005461756-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-887 ± 67	$2.50^{+0.26}_{-0.27}$	202^{+8}_{-8}	3714^{+189}_{-180}	66251^{+17434}_{-12240}
Alt.	-206 ± 35	$2.63^{+0.27}_{-0.27}$	201^{+8}_{-8}	2923^{+135}_{-120}	13833^{+4430}_{-3304}

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 $A_{obs} \gg 1.0$

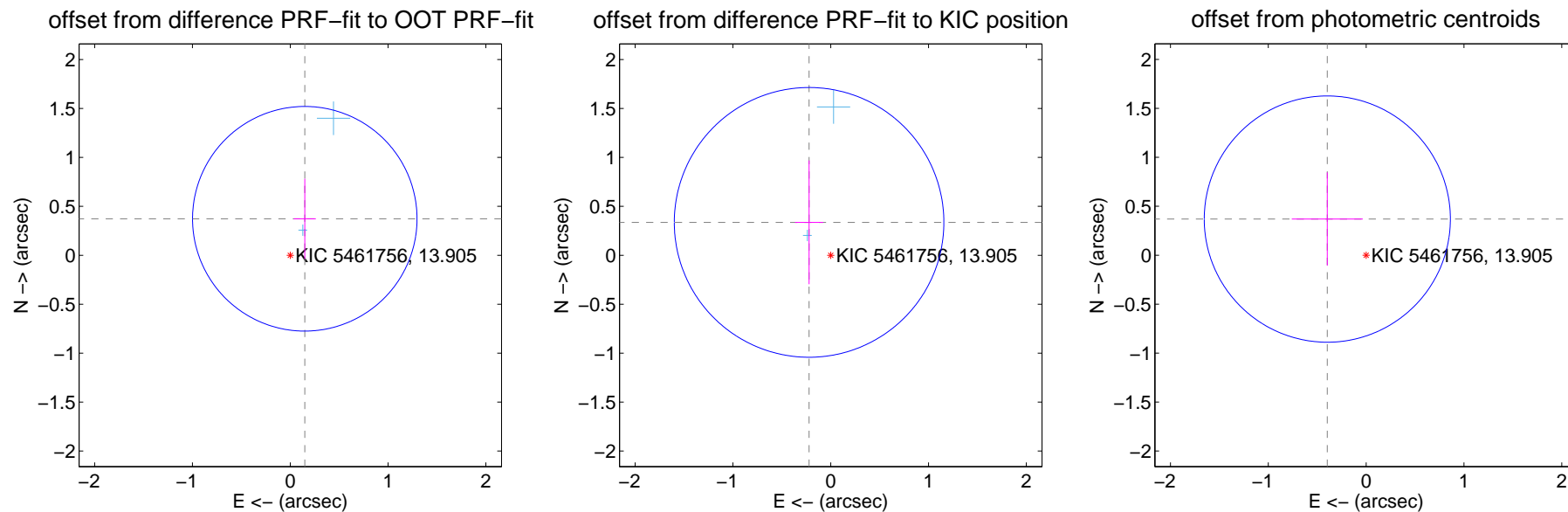
DV Centroid Data

Supplemental centroid analysis for 005461756-02. Kepler magnitude: 13.90. Transit SNR 8.64

There are 2 quarters with good PRF difference image offsets

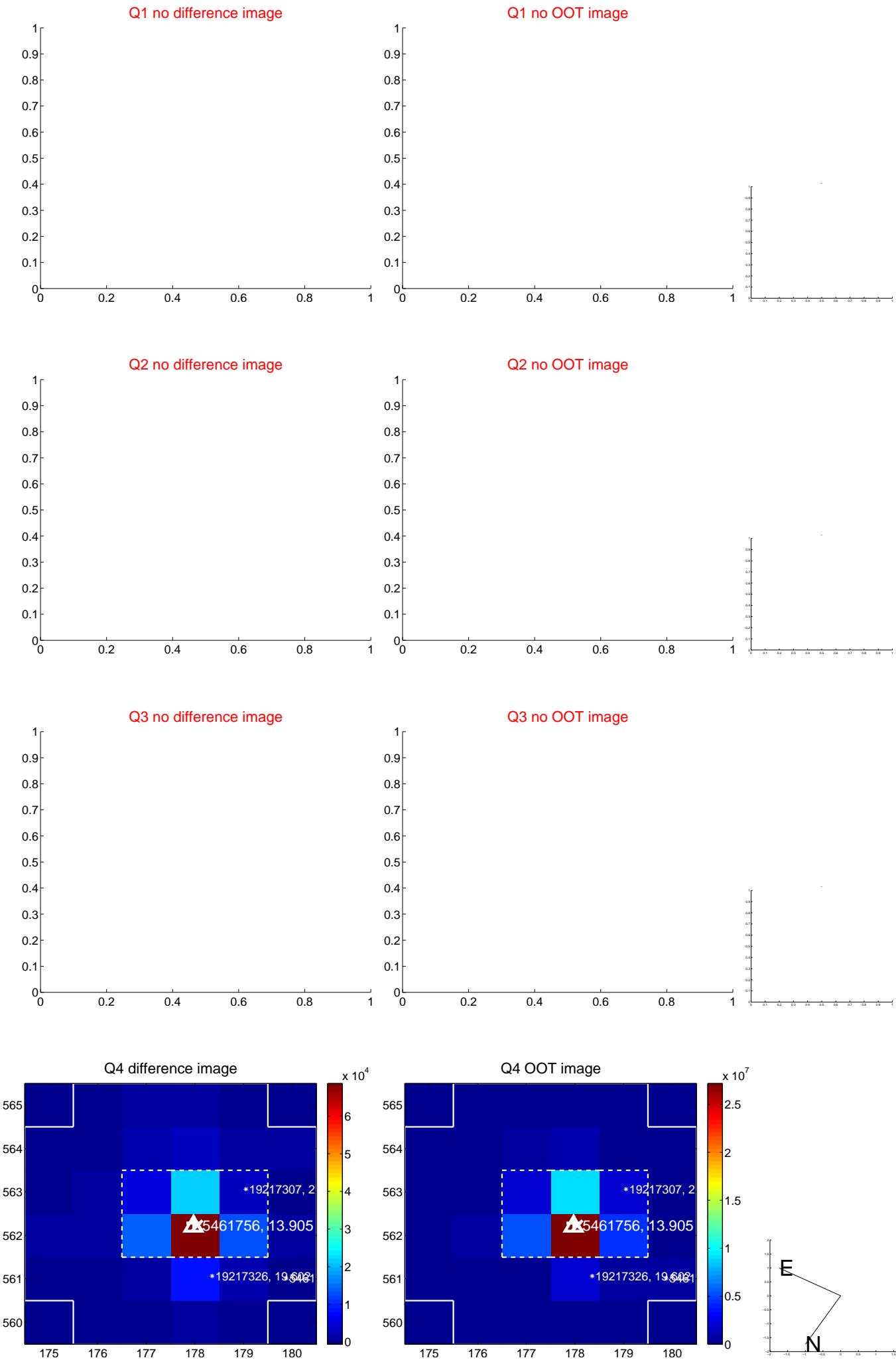
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.401 ± 0.383	1.05	-0.148 ± 0.113	0.373 ± 0.409
PRF-fit source offset from KIC position	0.402 ± 0.459	0.88	0.221 ± 0.145	0.336 ± 0.632
photometric centroid source offset	0.54 ± 0.42	1.29	0.40 ± 0.36	0.37 ± 0.48



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.

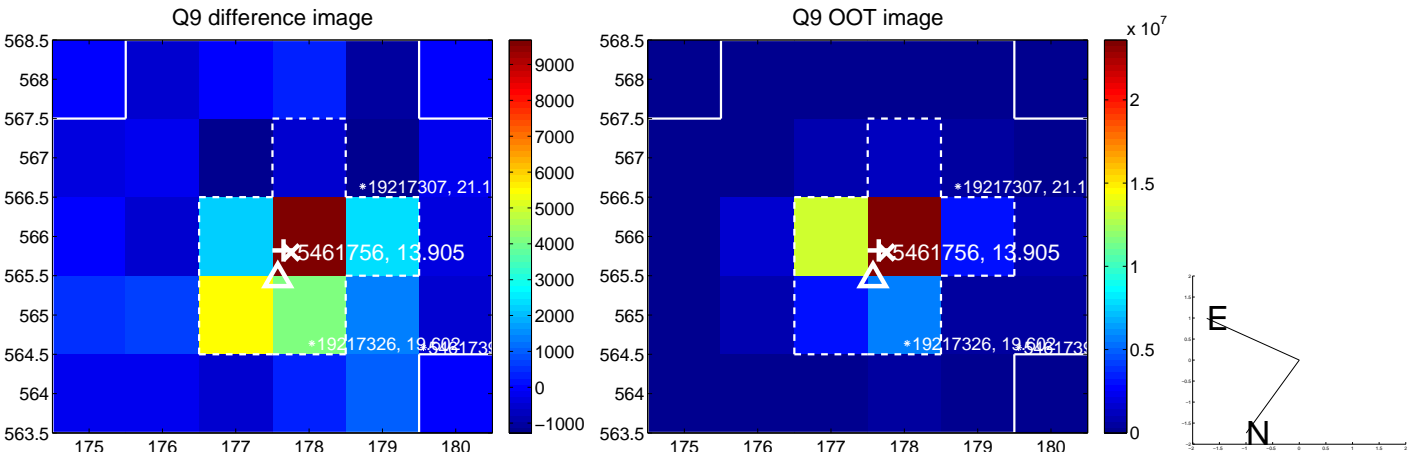
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



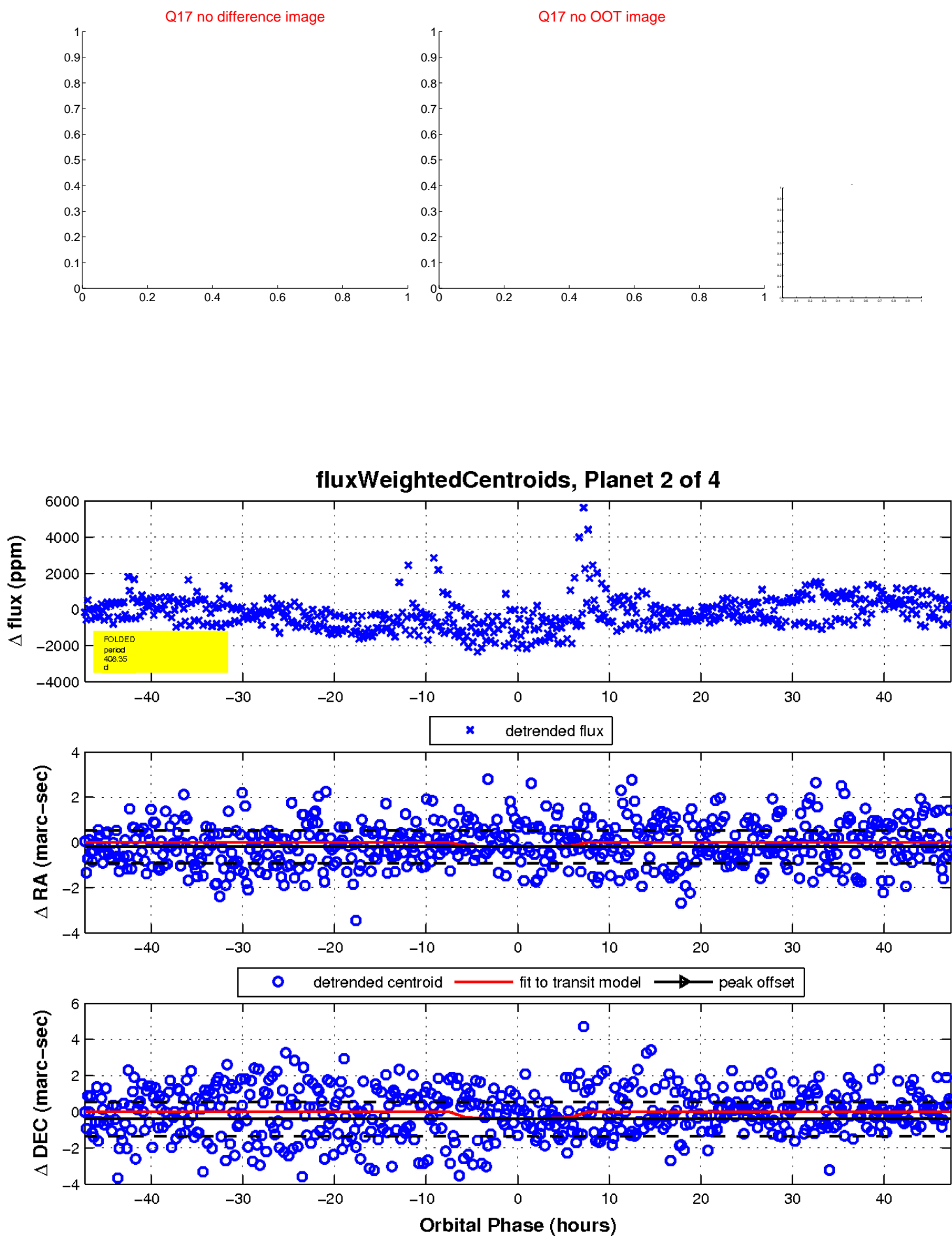
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



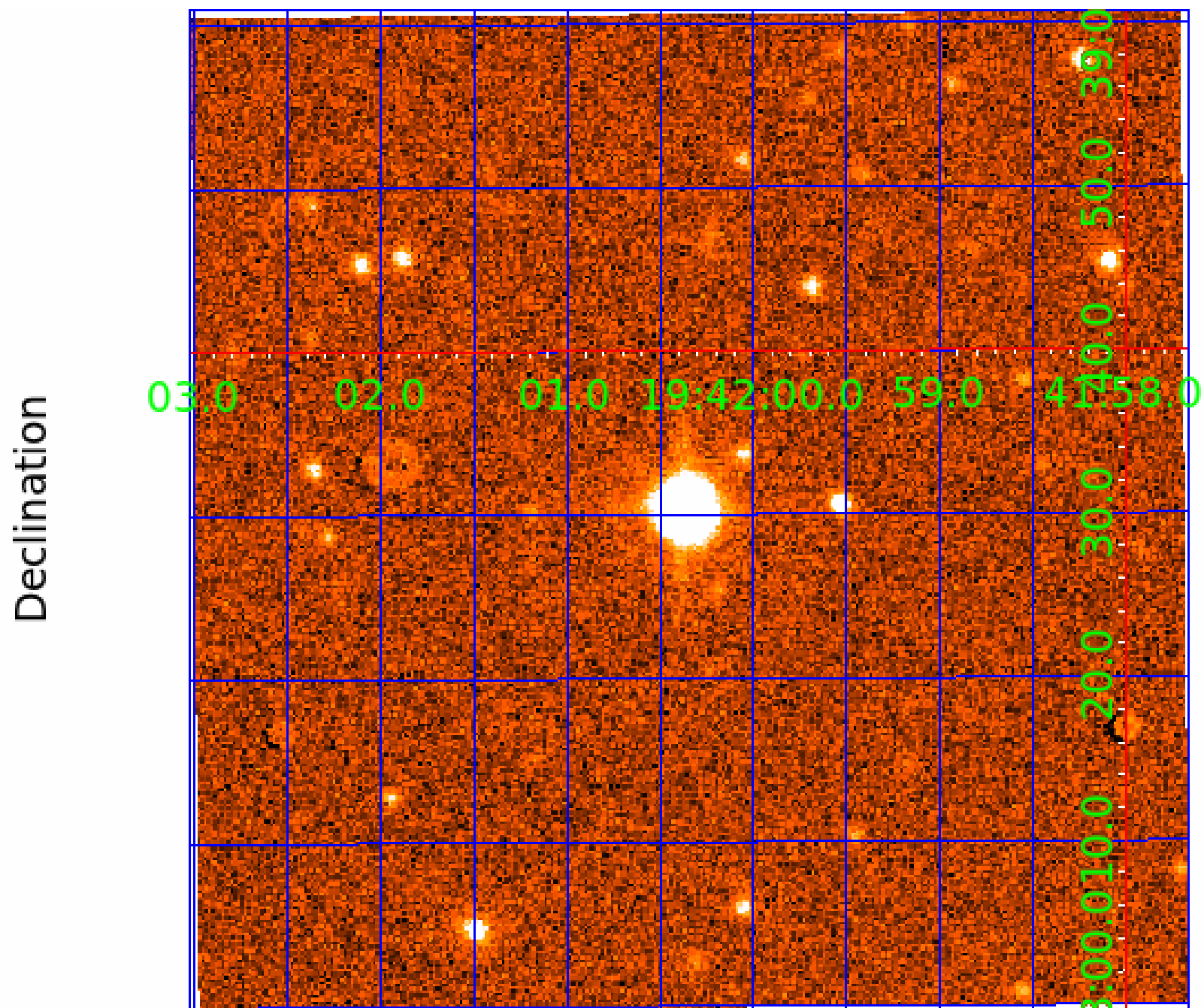
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005461756

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})
005461756-01	OBS	No	369.769825	343.190816	827.4	7.218	12.6	7.9	0.62	4014	1.95	0.12
005461756-02	OBS	No	408.353088	424.160998	1197.4	15.767	13.9	8.6	0.62	4014	2.54	0.11
005461756-03	OBS	No	449.609551	297.990969	674.6	3.720	10.6	5.8	0.62	4014	1.69	0.09
005461756-04	OBS	No	330.178956	160.095290	639.3	3.949	10.6	6.7	0.62	4014	1.84	0.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005461756-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005461756-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005461756-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005461756-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—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.

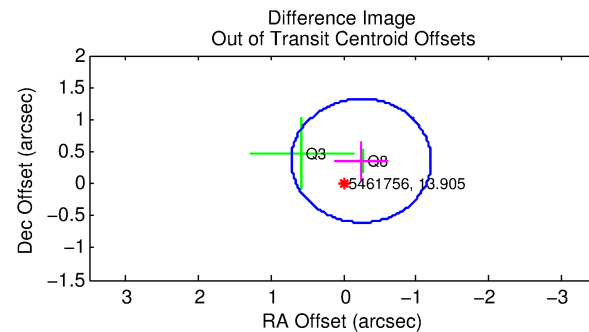
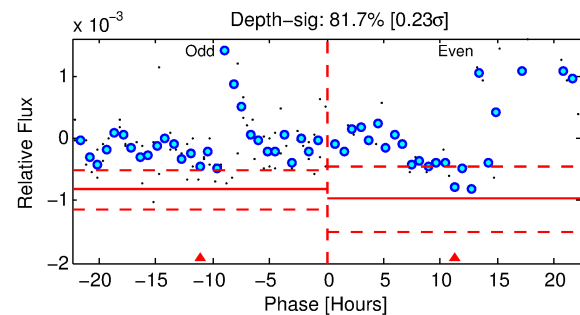
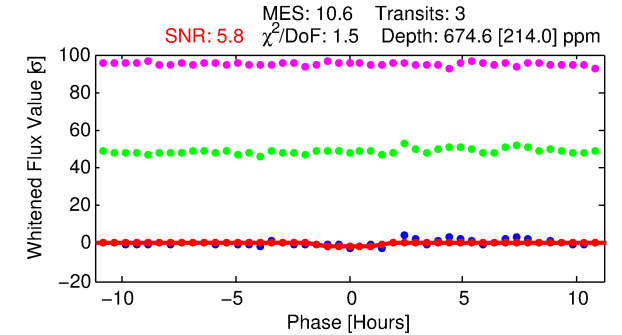
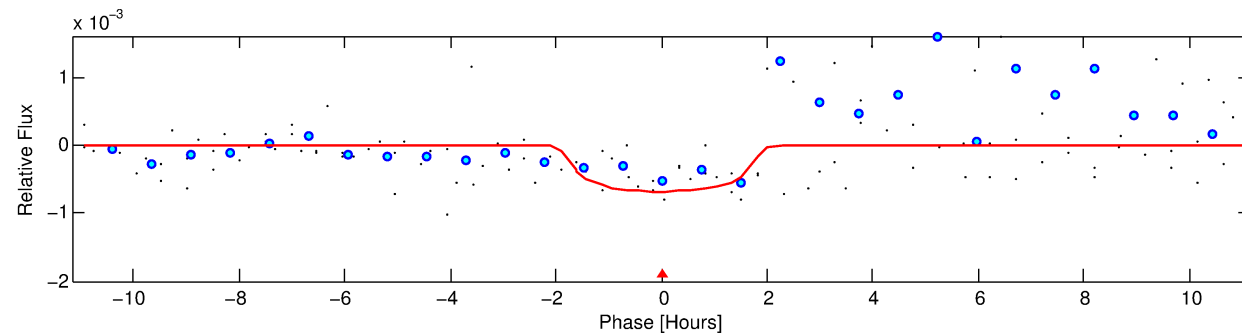
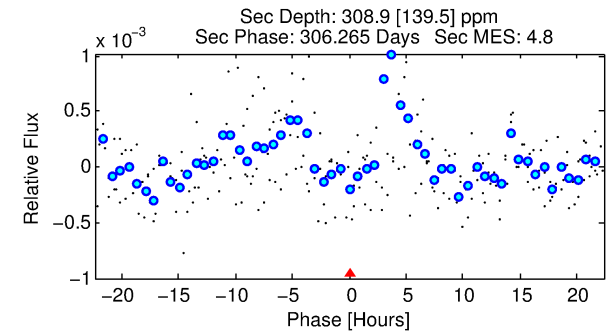
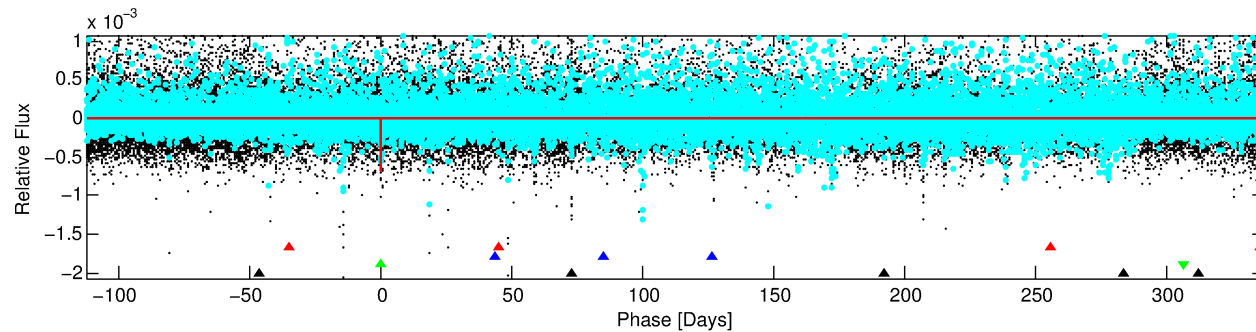
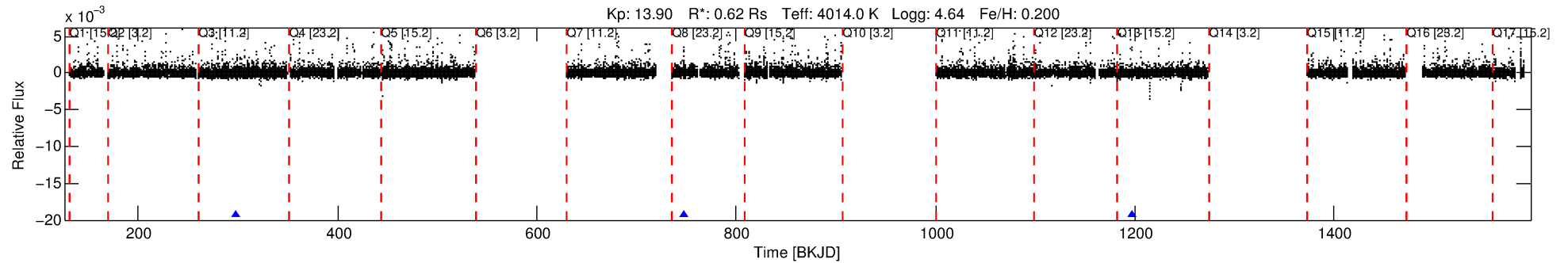
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005461756-03

No Significant Match Found

DV One-Page Summary

KIC: 5461756 Candidate: 3 of 4 Period: 449.610 d



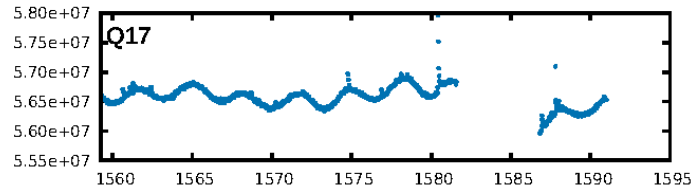
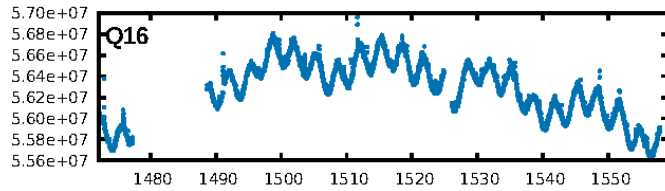
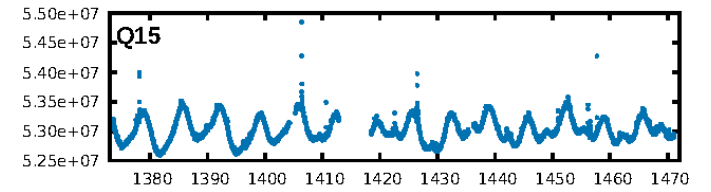
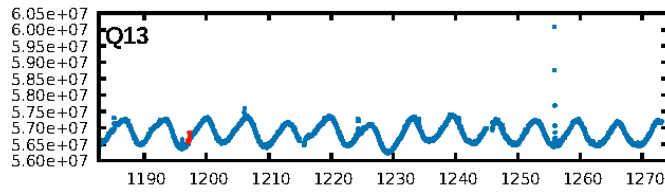
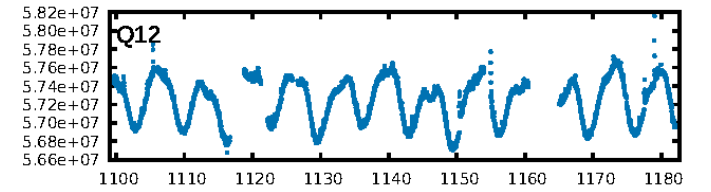
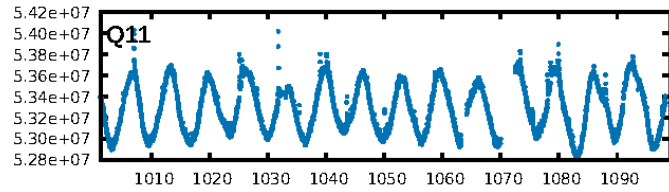
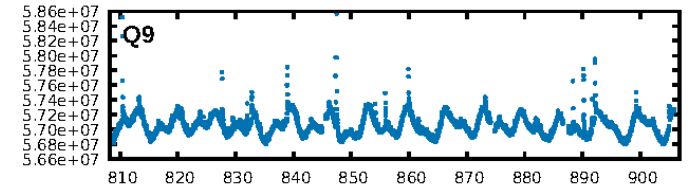
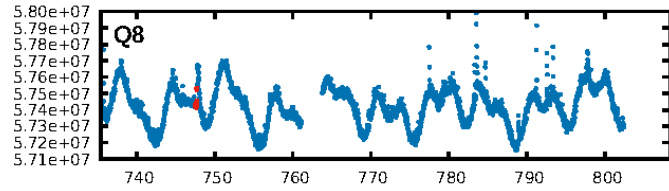
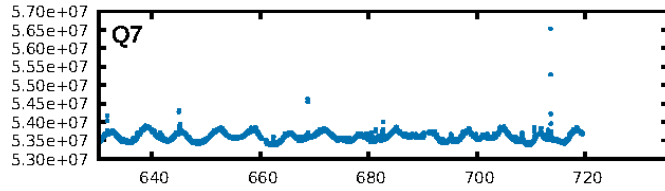
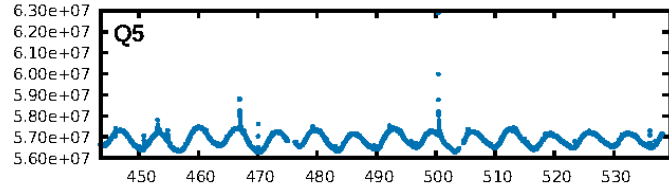
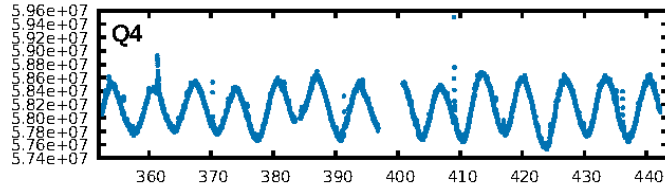
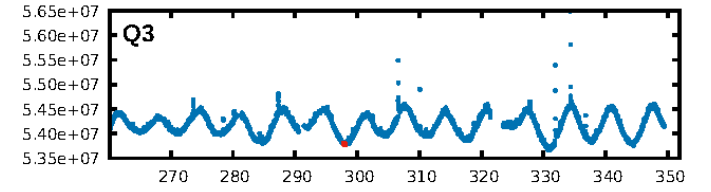
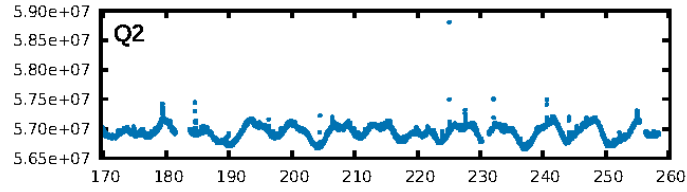
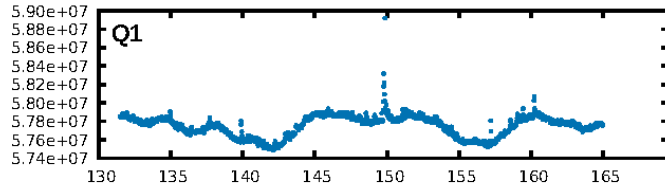
DV Fit Results:

Period = 449.60955 [0.00999] d
Epoch = 297.9910 [0.0145] BKJD
Rp/R* = 0.0248 [0.0595]
a/R* = 745.32 [5877.02]
b = 0.63 [7.69]
Seff = 0.09 [0.02]
Teq = 141 [7] K
Rp = 1.68 [4.05] Re
a = 0.9808 [0.0838] AU
Ag = 57585.57 [277694.19] [0.21σ]
Teffp = 3380 [4076] K [0.79σ]

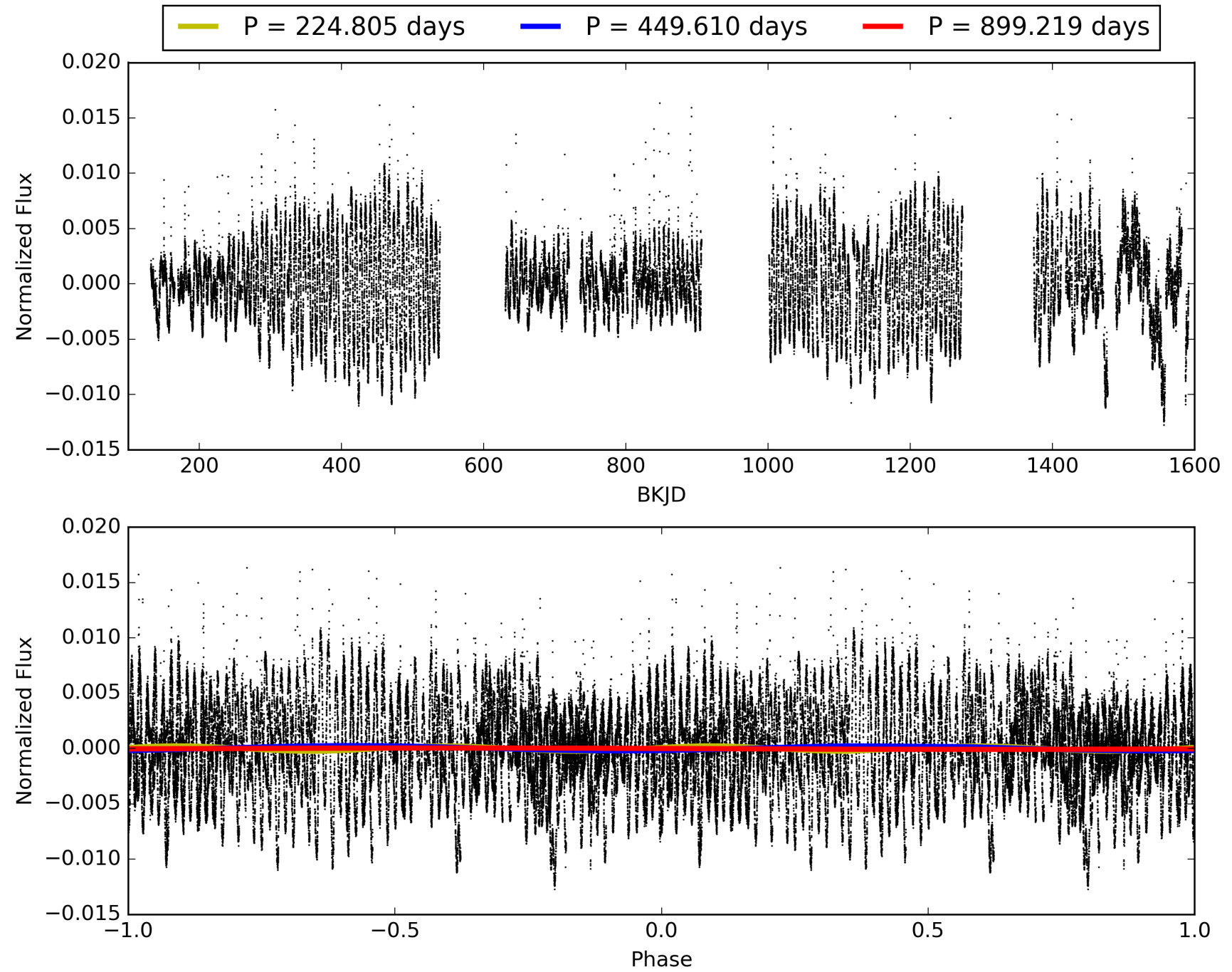
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [61.12σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 17.1%
ModelChiSquareGof-sig: 70.6%
Bootstrap-pfa: 1.08e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.959
Centroid-sig: 72.0%
Centroid-so: 0.541 arcsec [0.47σ]
OotOffset-rm: 0.433 arcsec [1.35σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: 0.414 arcsec [1.35σ]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 005461756-03, PDC Light Curves

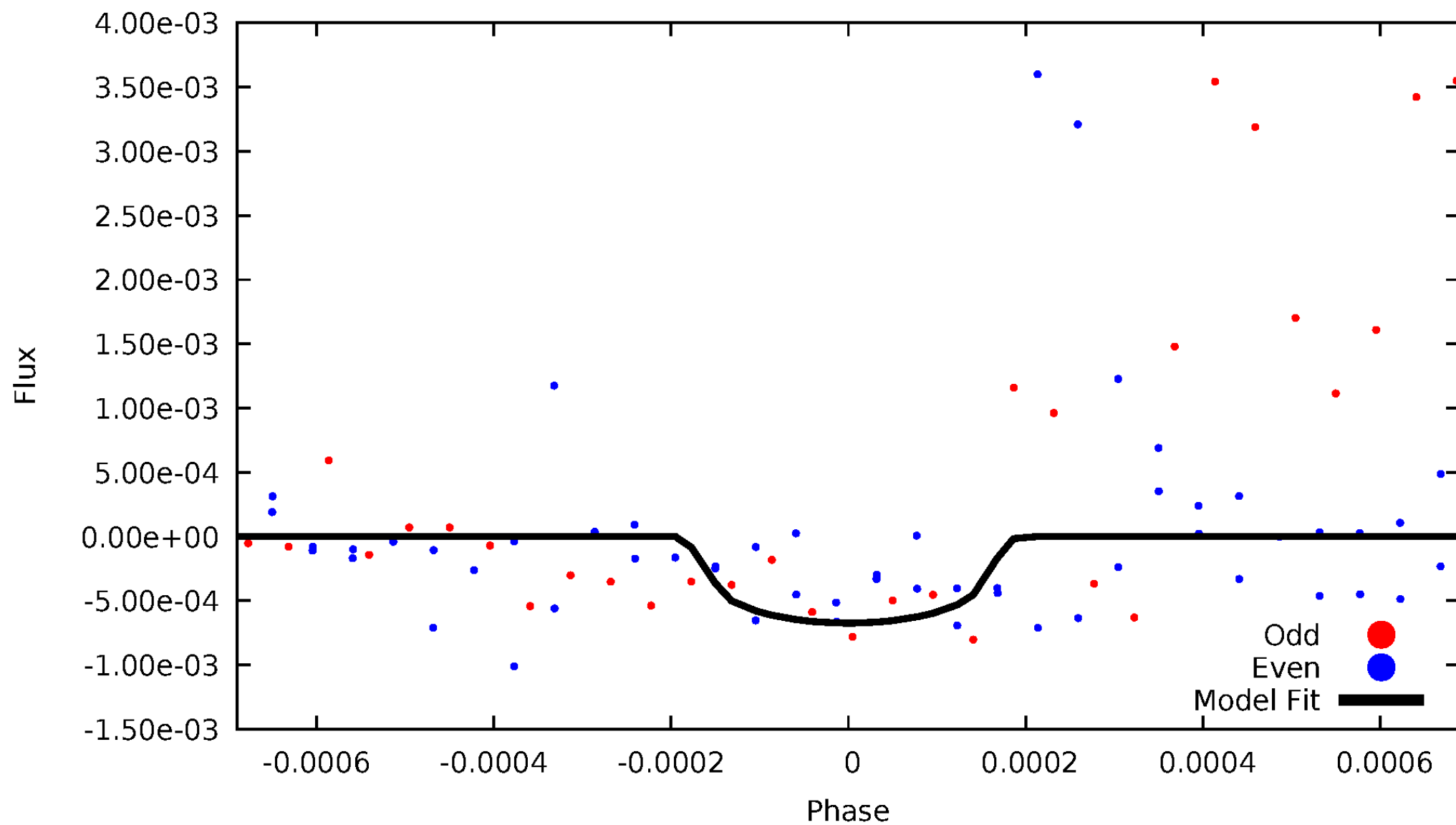


TCE 005461756-03



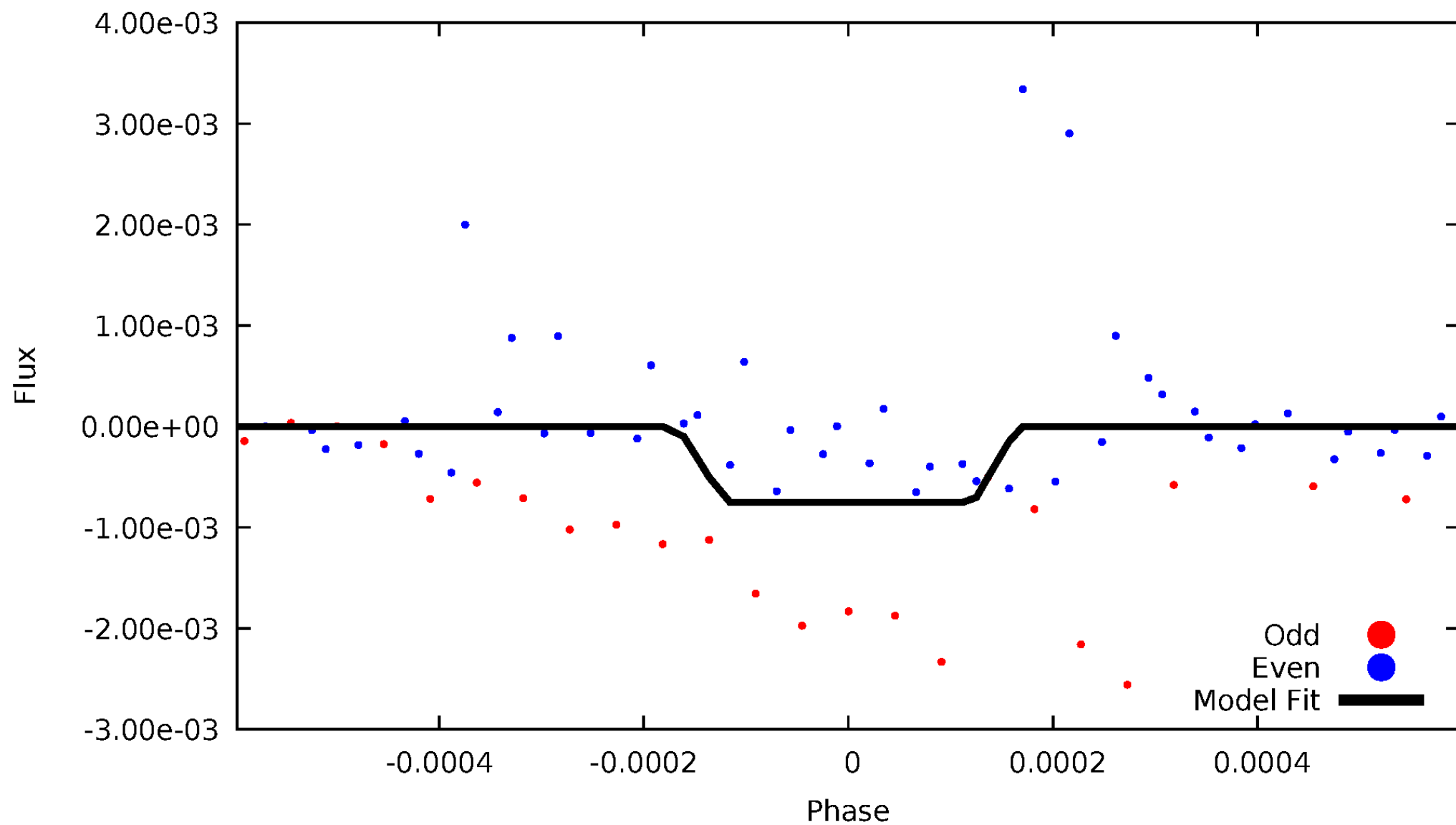
DV Odd/Even

TCE 005461756-03



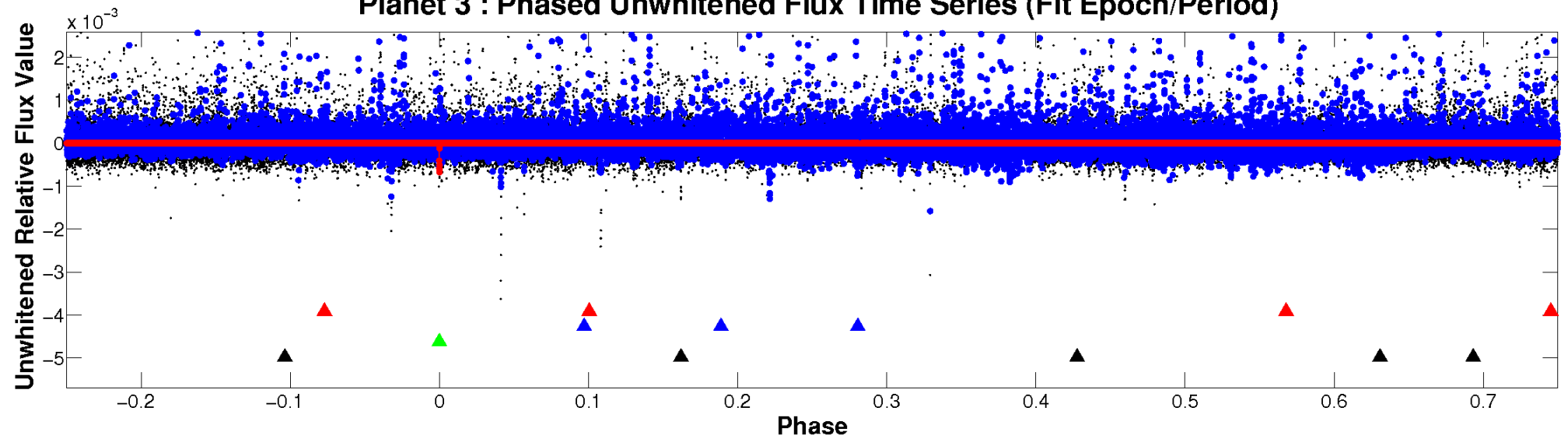
ALT Odd/Even

TCE 005461756-03

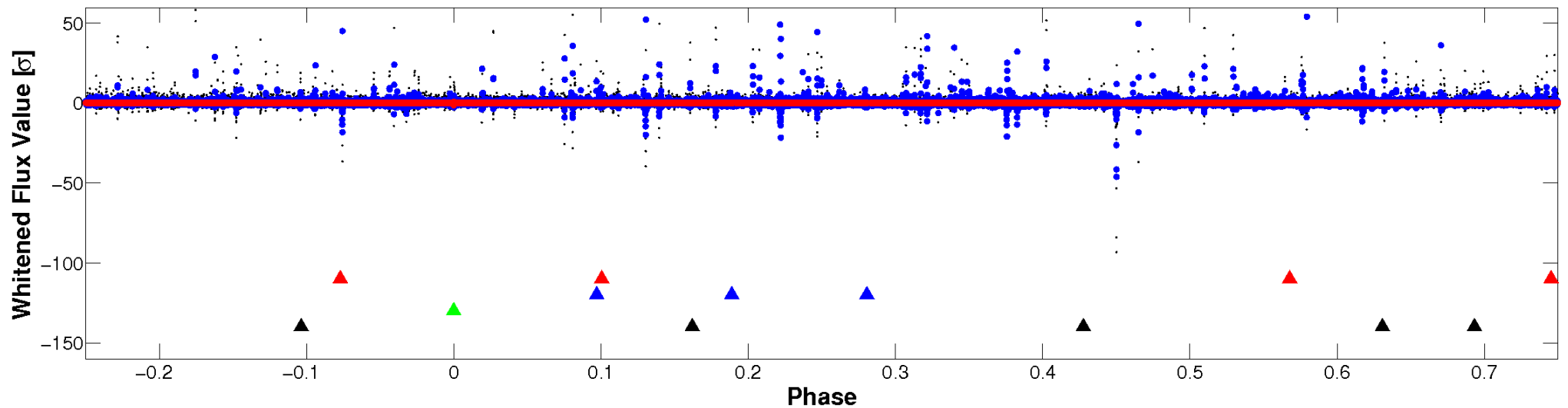


Non-Whitened Vs. Whitened Light Curve

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

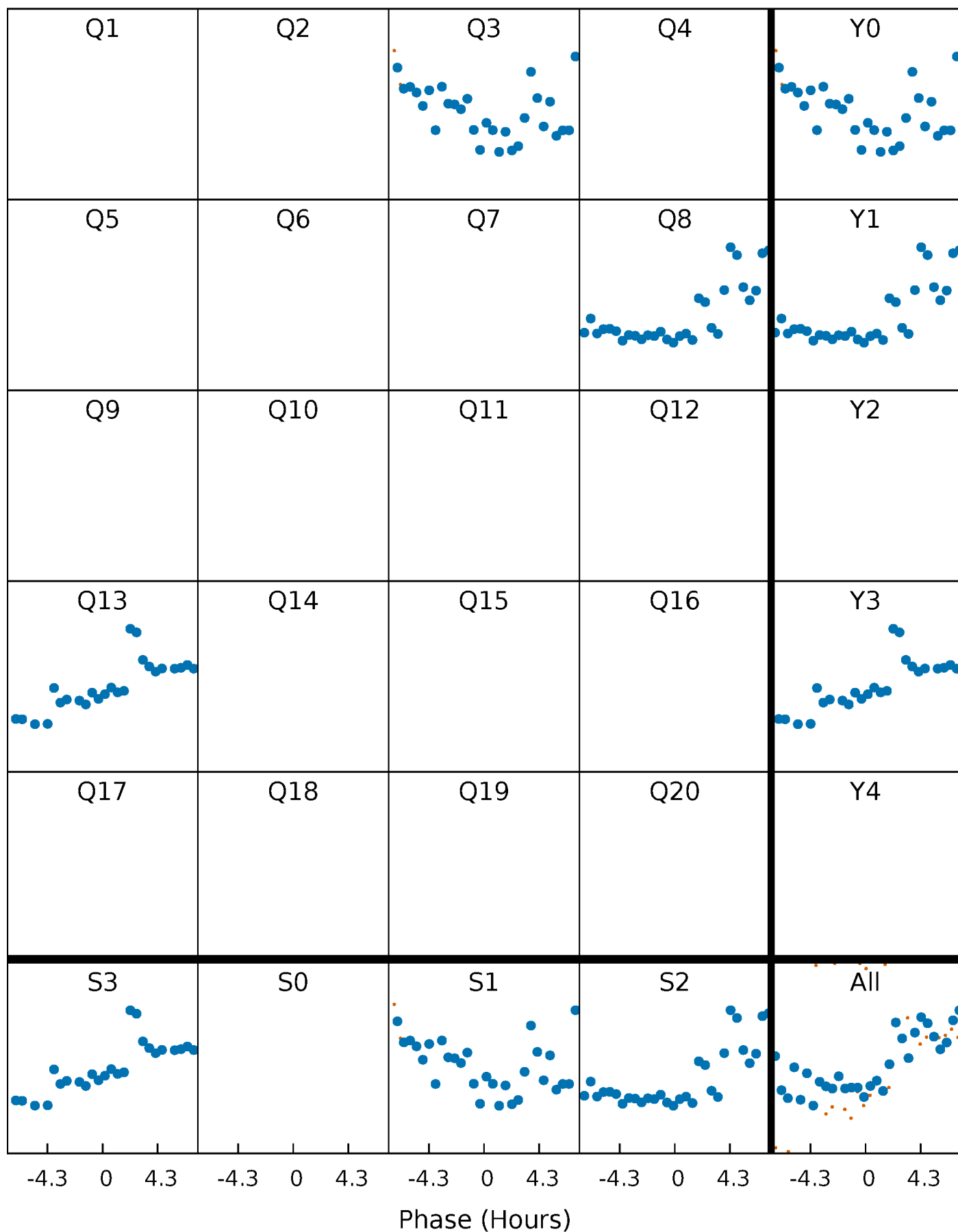


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



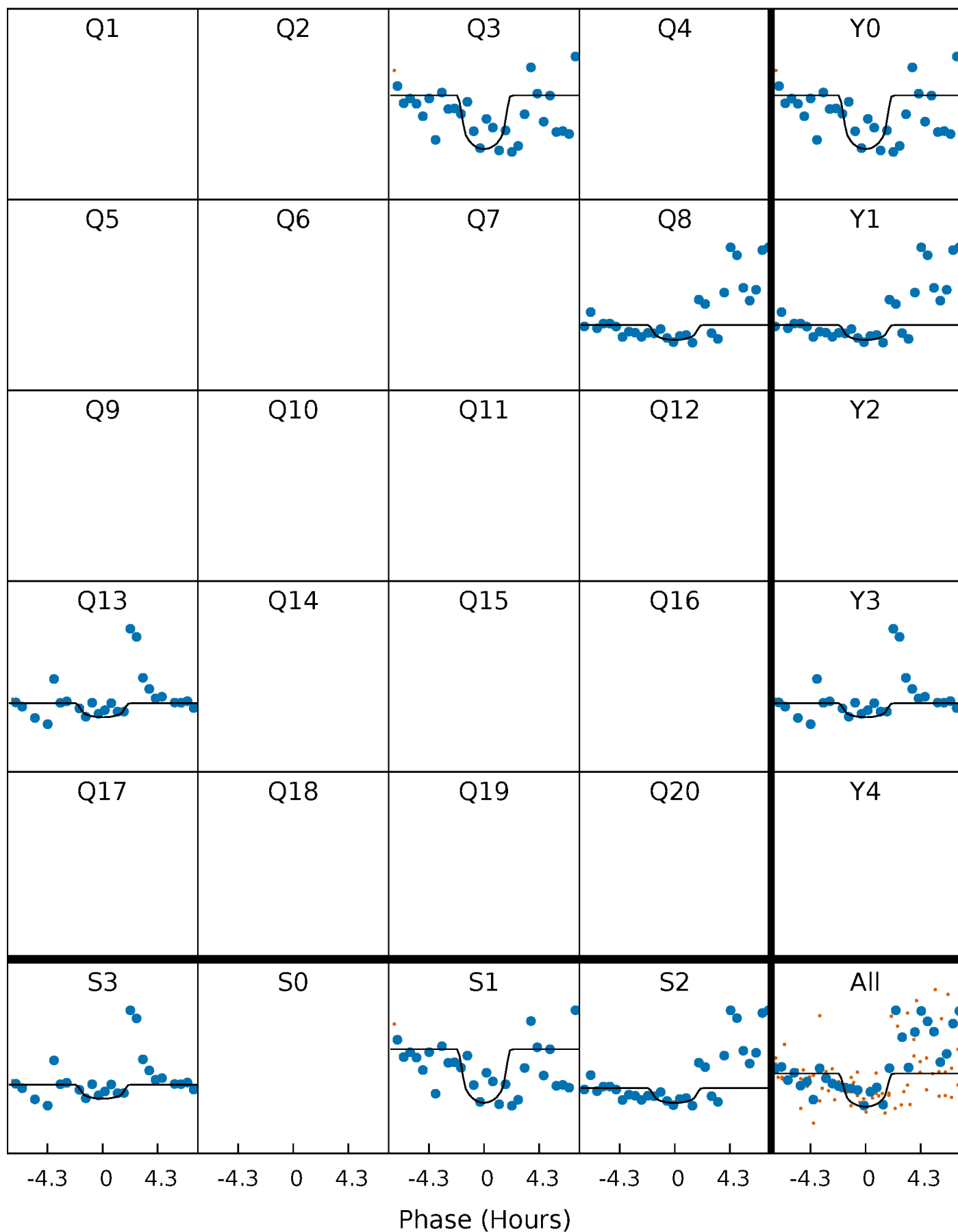
PDC Quarter-Phased Transit Curves

TCE 005461756-03 P=449.609551 Days $T_0=297.990969$ (BKJD)



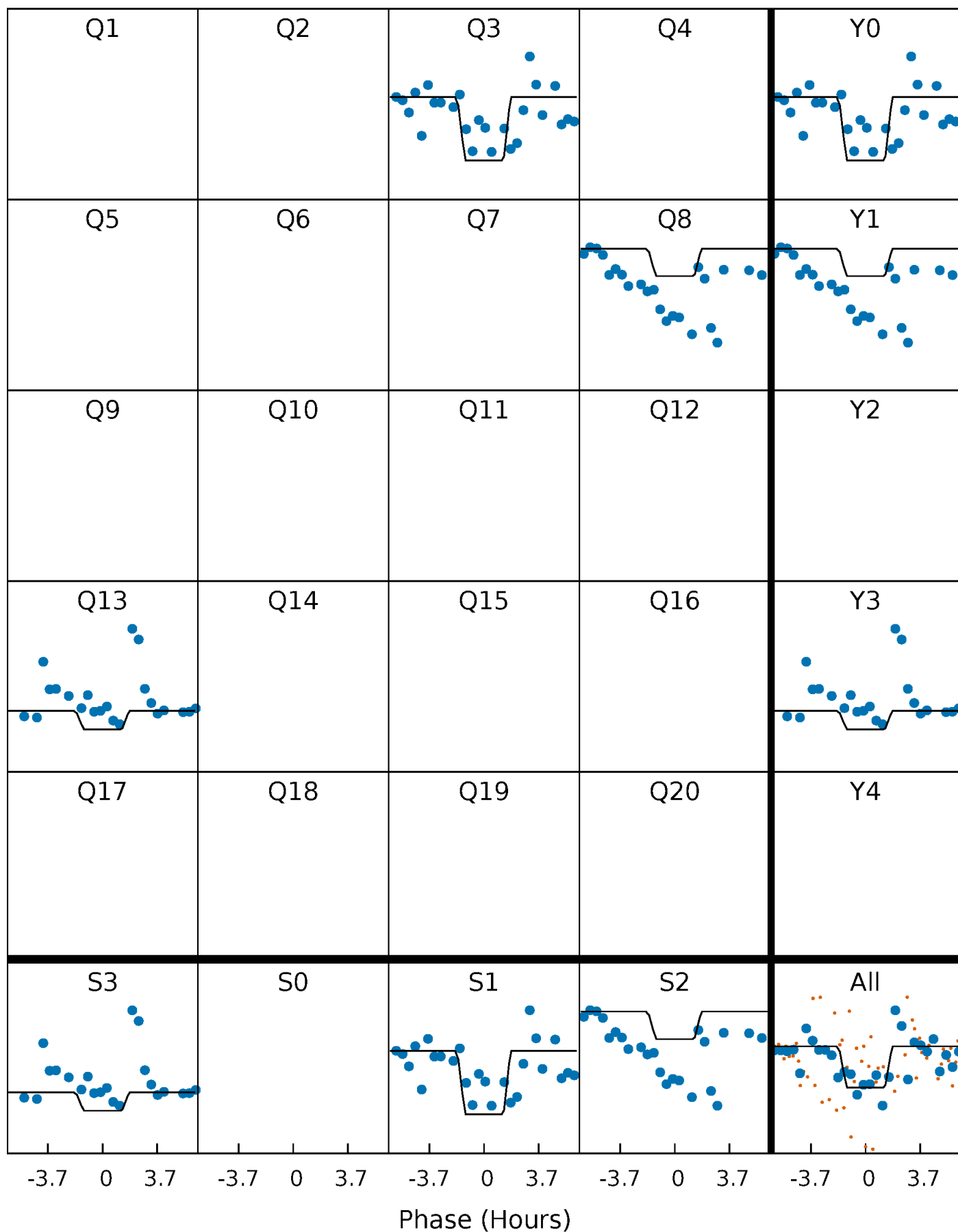
DV Quarter-Phased Transit Curves

TCE 005461756-03 $P=449.609551$ Days $T_0=297.990969$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

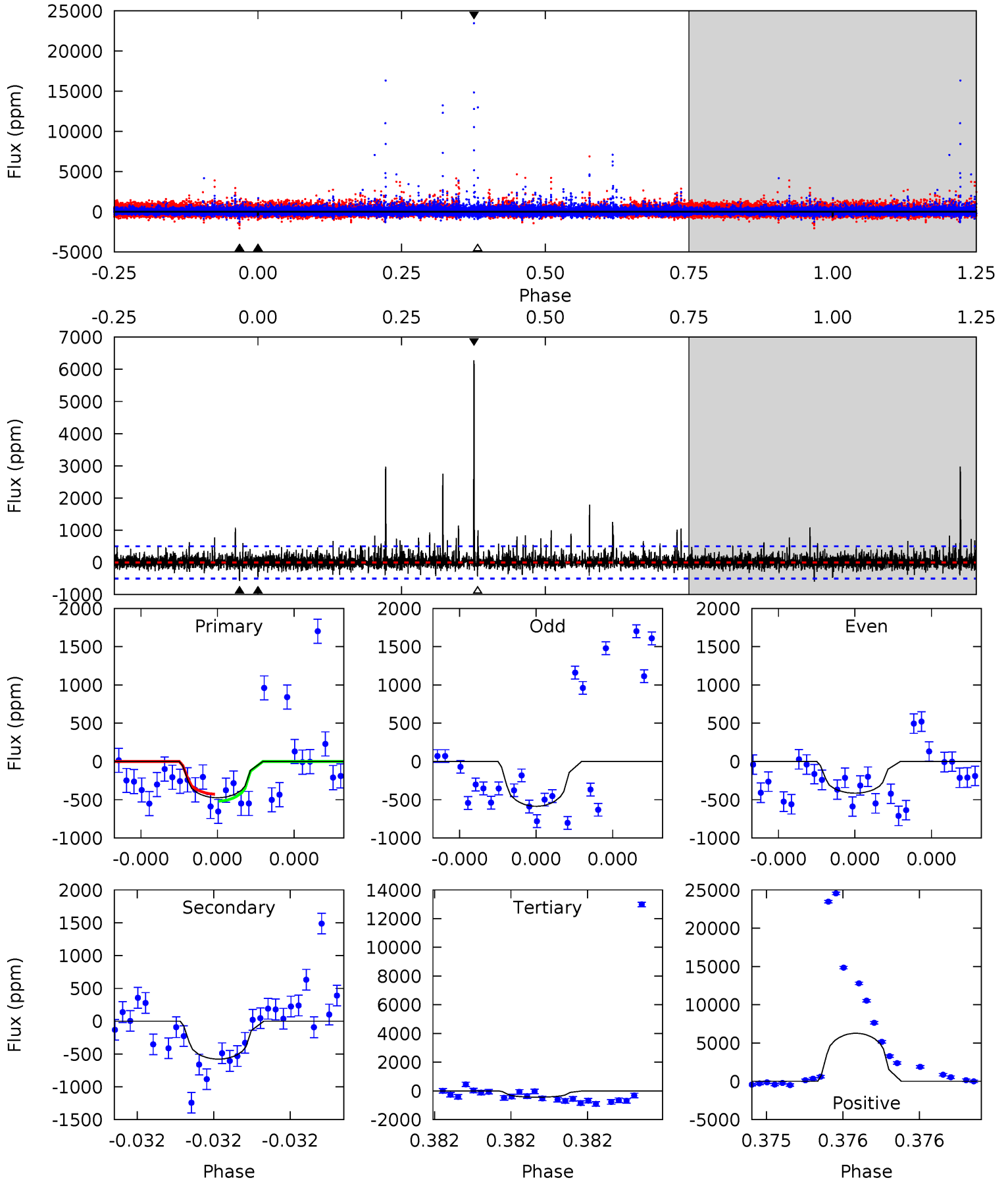
TCE 005461756-03 P=449.606432 Days $T_0=298.016491$ (BKJD)



DV Model-Shift Uniqueness Test

005461756-03, P = 449.609551 Days, E = 297.990969 Days

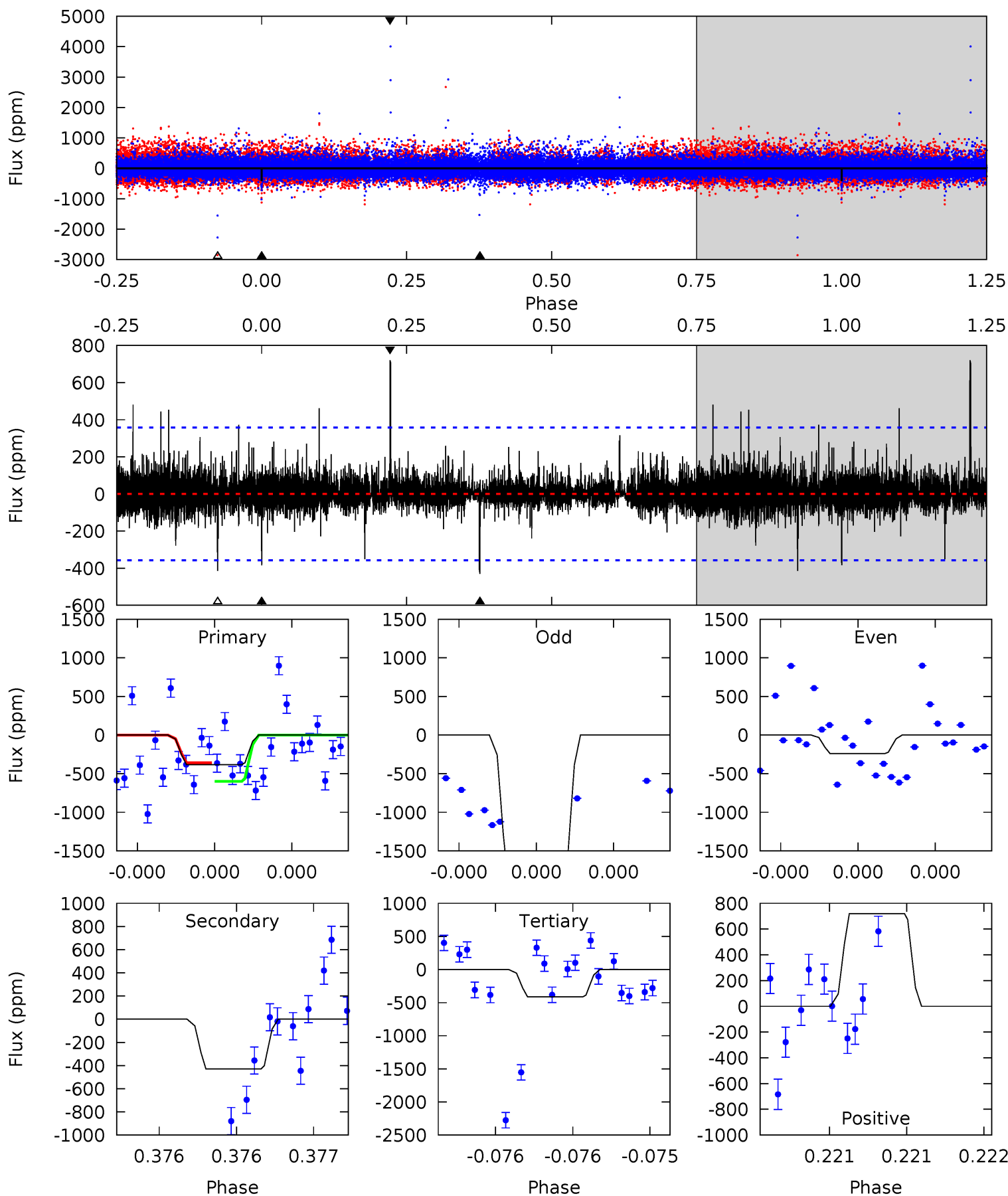
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.32	6.49	4.92	70.4	5.62	3.55	2.16	0.40	-65.1	1.57	-63.9	0.69	0.99	0.92	0.50



Alt Model-Shift Uniqueness Test

005461756-03, P = 449.606432 Days, E = 298.016491 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.07	6.78	6.53	11.4	5.65	3.60	0.95	-0.47	-5.31	0.25	-4.59	13.4	1.66	0.63	1.97



Stellar Parameters For KIC 005461756

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4014^{+140}_{-154}	$4.643^{+0.056}_{-0.020}$	$0.200^{+0.200}_{-0.300}$	$0.623^{+0.029}_{-0.069}$	$0.622^{+0.043}_{-0.064}$	$3.627^{+0.992}_{-0.334}$
	+3%/-4%	+1%/-0%	+100%/-150%	+5%/-11%	+7%/-10%	+27%/-9%
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 005461756-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-579 ± 89	$3.23^{+3.42}_{-2.15}$	196^{+7}_{-8}	3179^{+1544}_{-544}	$29469^{+246647}_{-22507}$
Alt.	-430 ± 63	$3.33^{+3.21}_{-2.29}$	196^{+7}_{-9}	3048^{+1418}_{-520}	$20023^{+195846}_{-14743}$

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 $A_{obs} \gg 1.0$

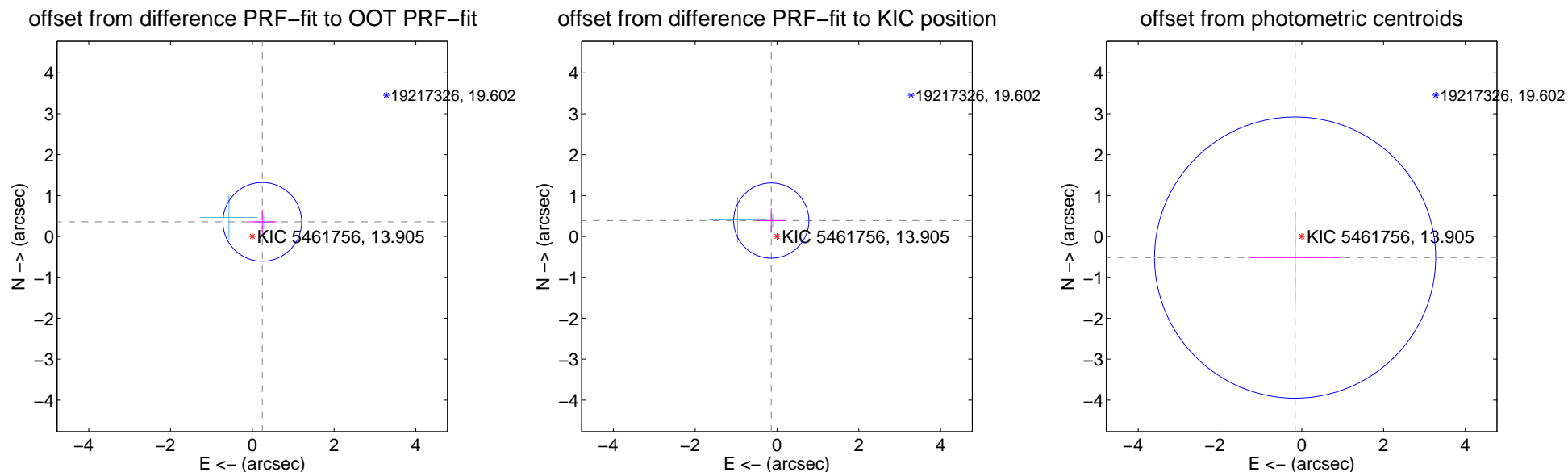
DV Centroid Data

Supplemental centroid analysis for 005461756-03. Kepler magnitude: 13.90. Transit SNR 5.75

There are 2 quarters with good PRF difference image offsets

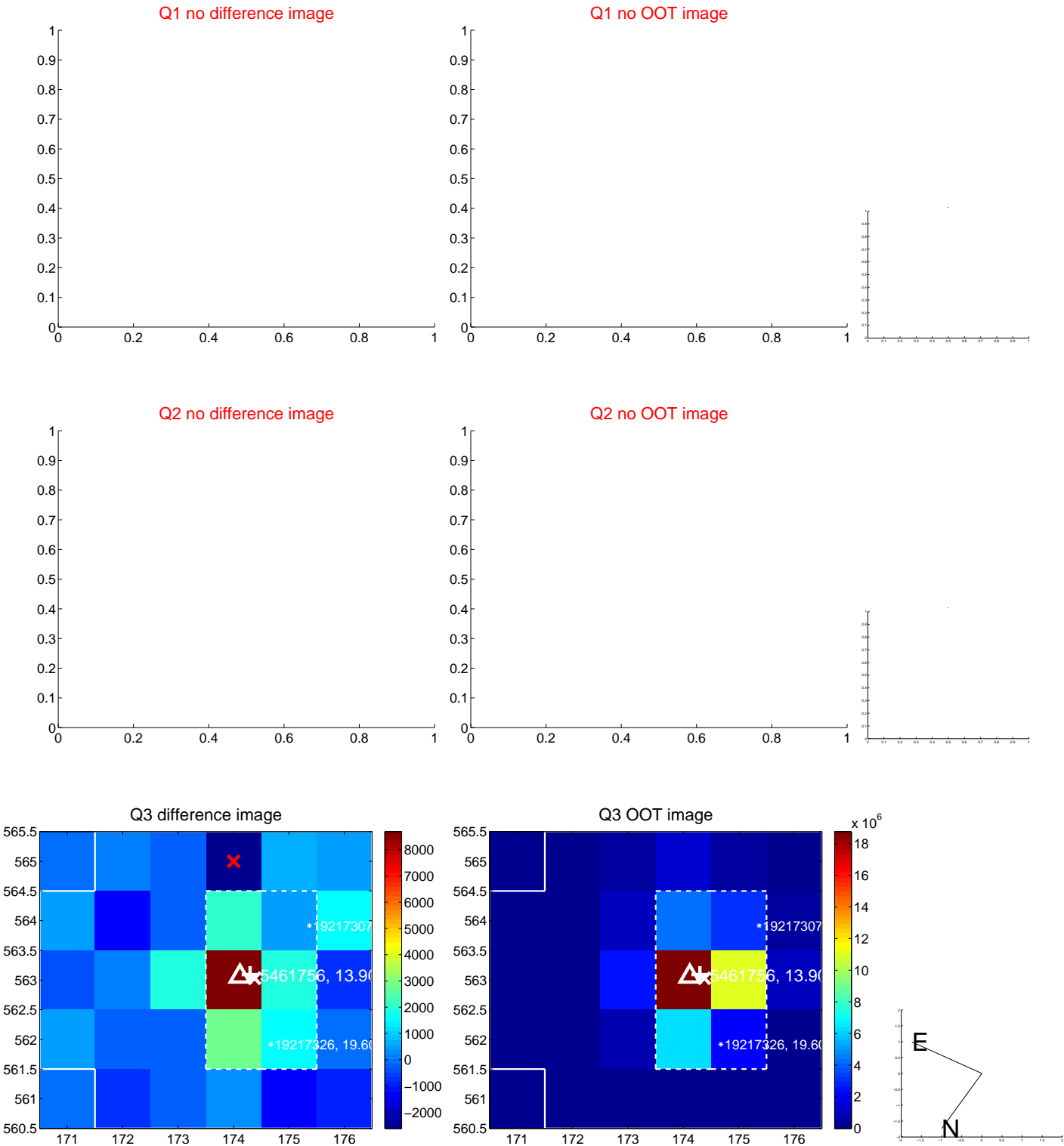
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.433 ± 0.321	1.35	-0.245 ± 0.365	0.357 ± 0.298
PRF-fit source offset from KIC position	0.414 ± 0.307	1.35	0.140 ± 0.365	0.389 ± 0.298
photometric centroid source offset	0.54 ± 1.15	0.47	0.16 ± 1.12	-0.52 ± 1.15

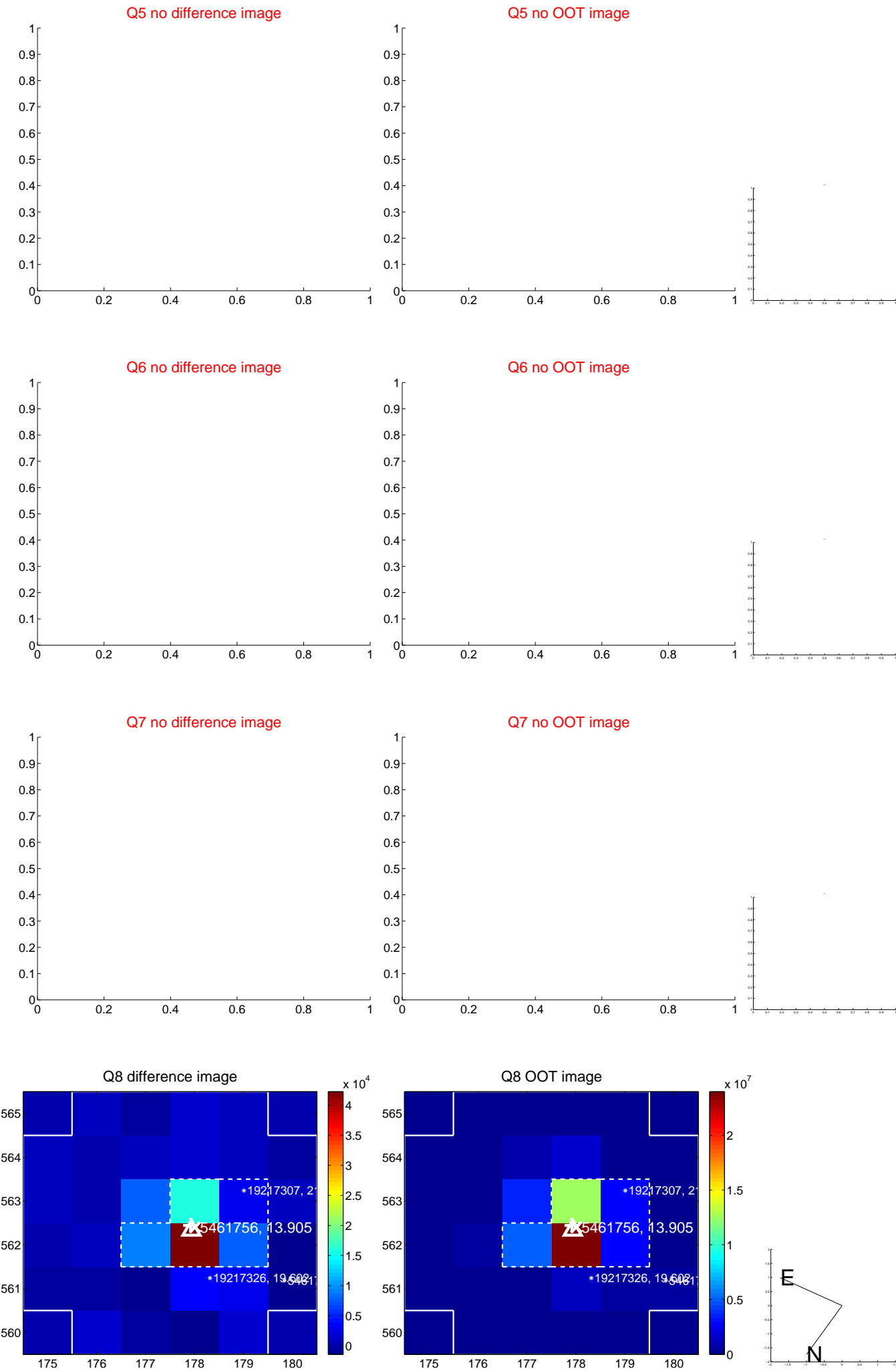


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



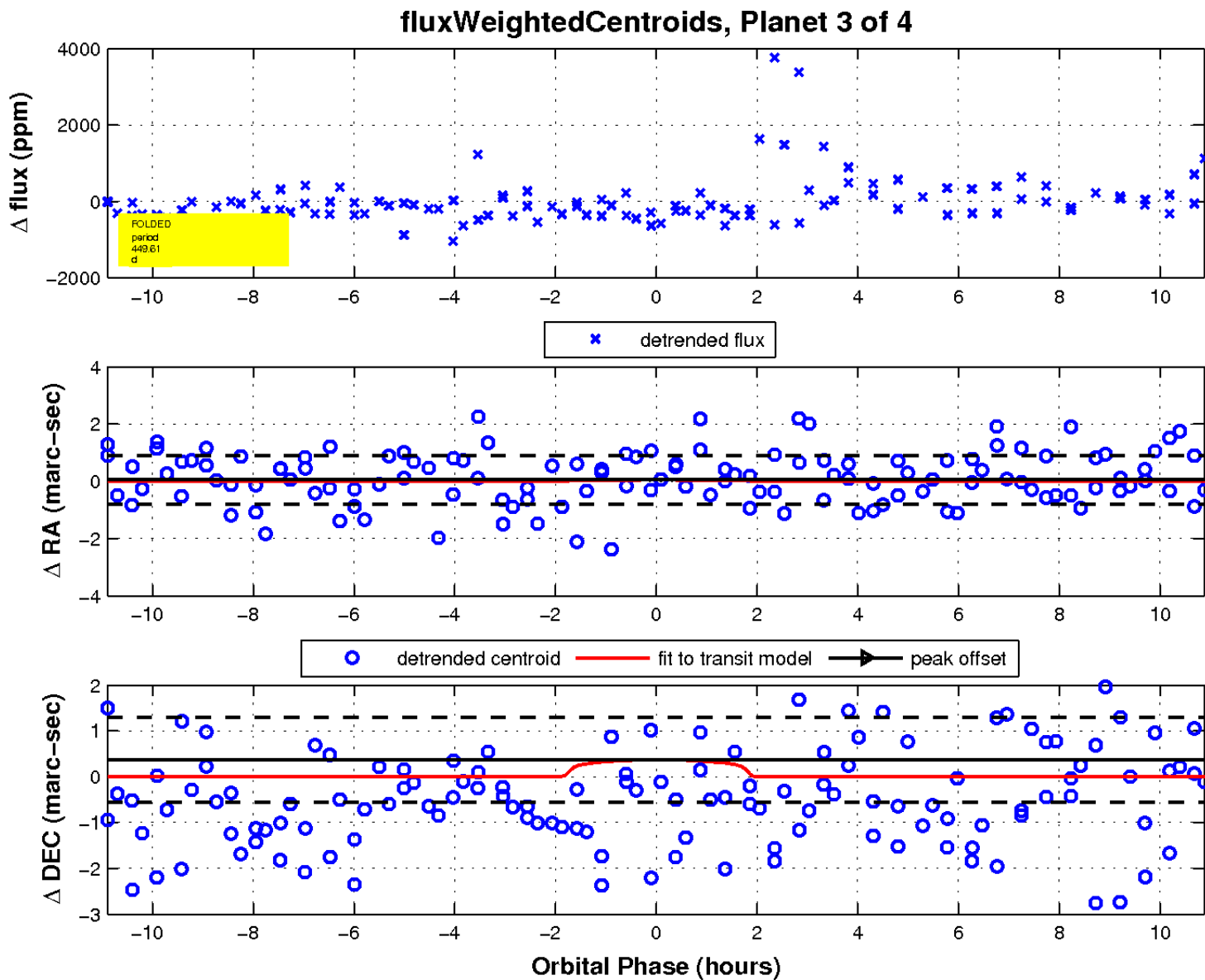
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



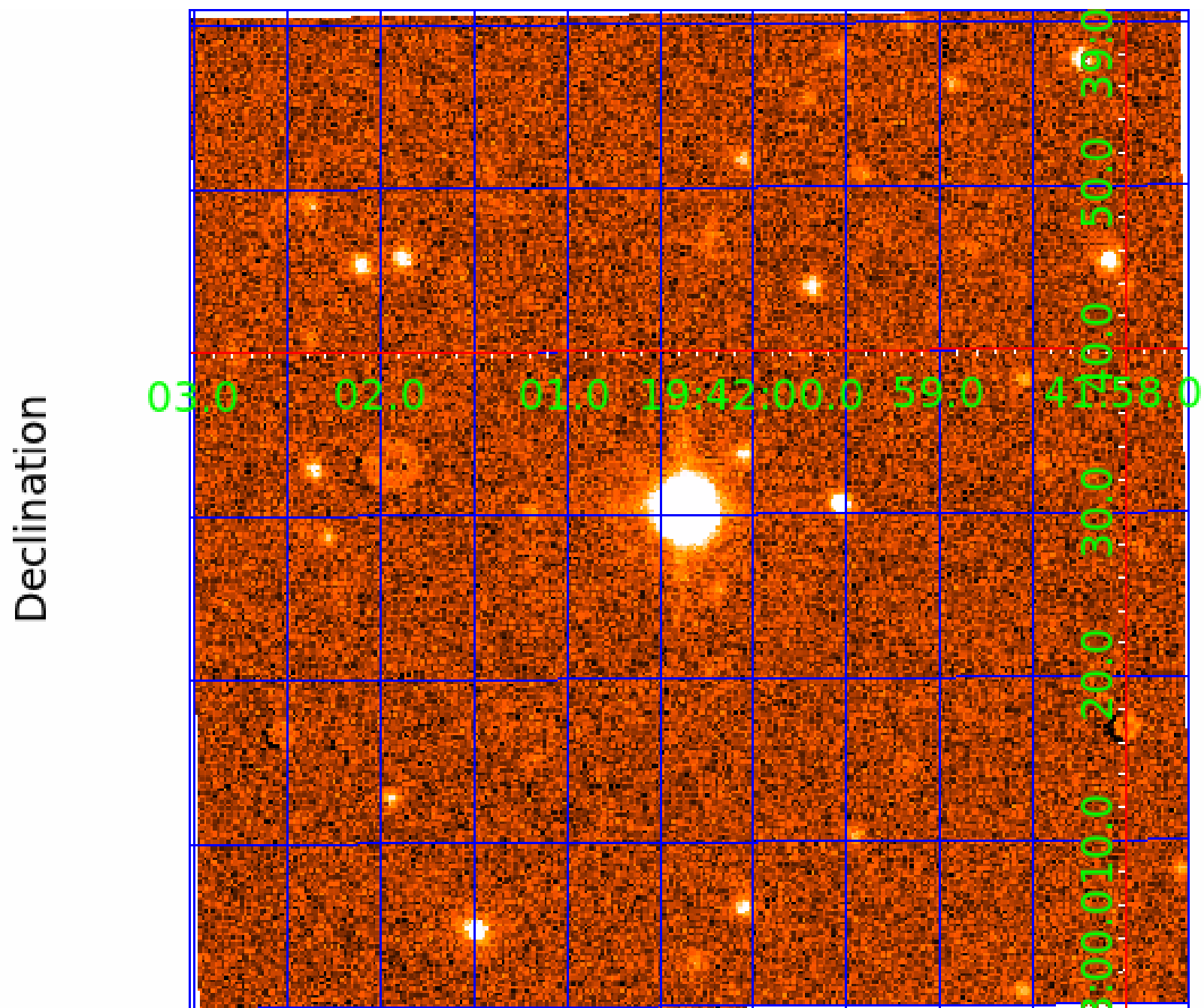
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005461756

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})
005461756-01	OBS	No	369.769825	343.190816	827.4	7.218	12.6	7.9	0.62	4014	1.95	0.12
005461756-02	OBS	No	408.353088	424.160998	1197.4	15.767	13.9	8.6	0.62	4014	2.54	0.11
005461756-03	OBS	No	449.609551	297.990969	674.6	3.720	10.6	5.8	0.62	4014	1.69	0.09
005461756-04	OBS	No	330.178956	160.095290	639.3	3.949	10.6	6.7	0.62	4014	1.84	0.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005461756-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005461756-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005461756-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005461756-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—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.

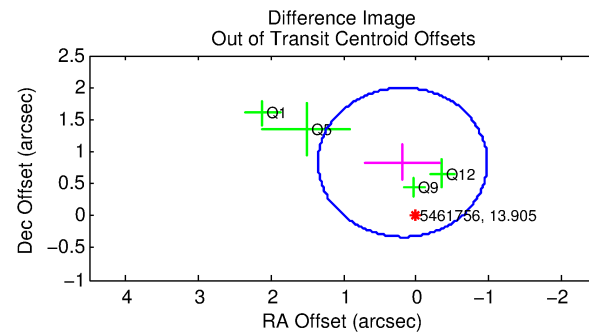
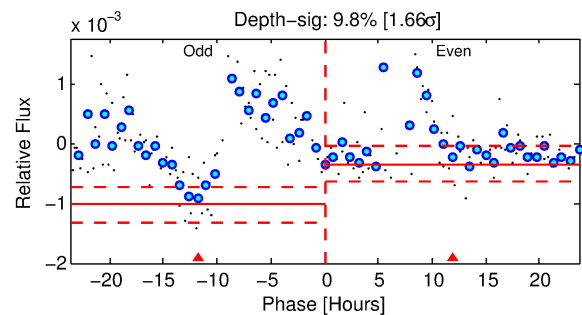
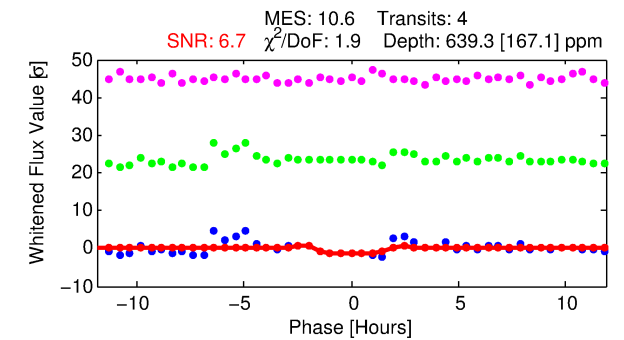
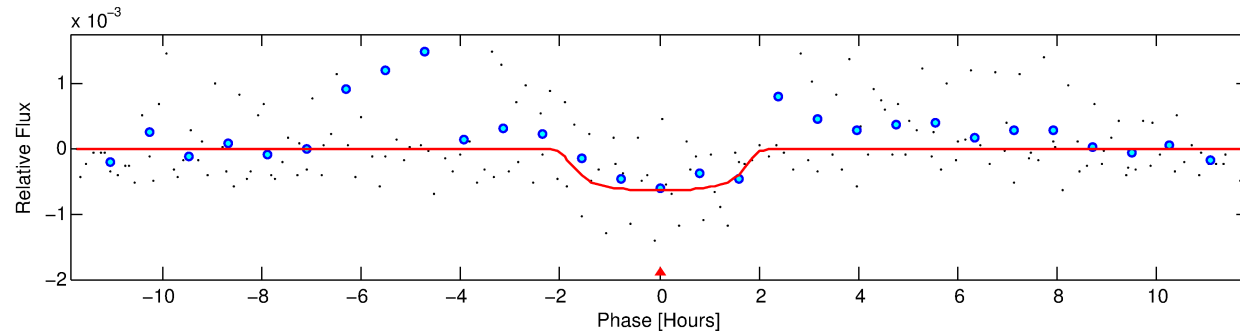
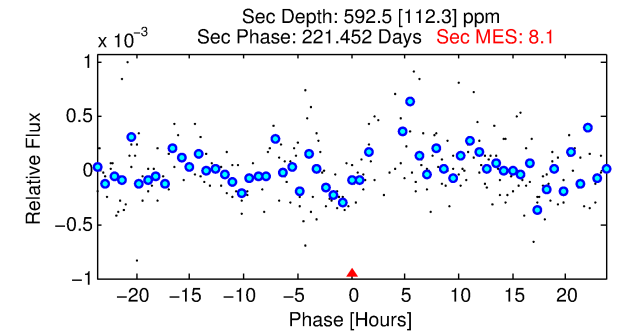
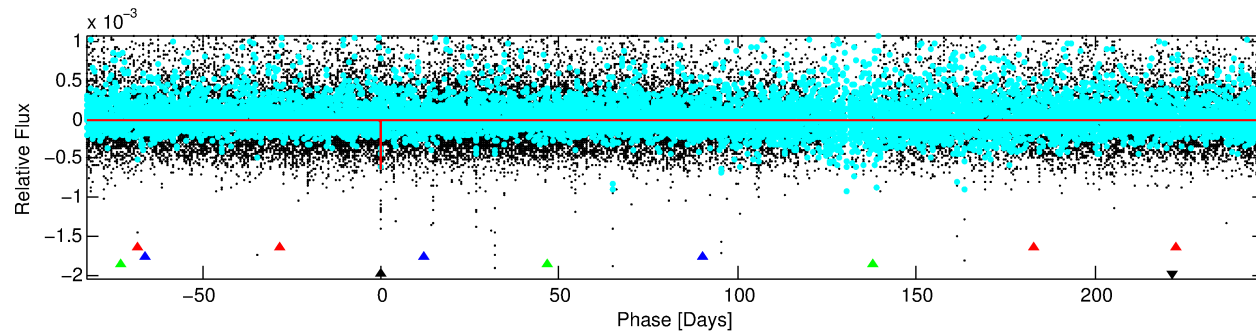
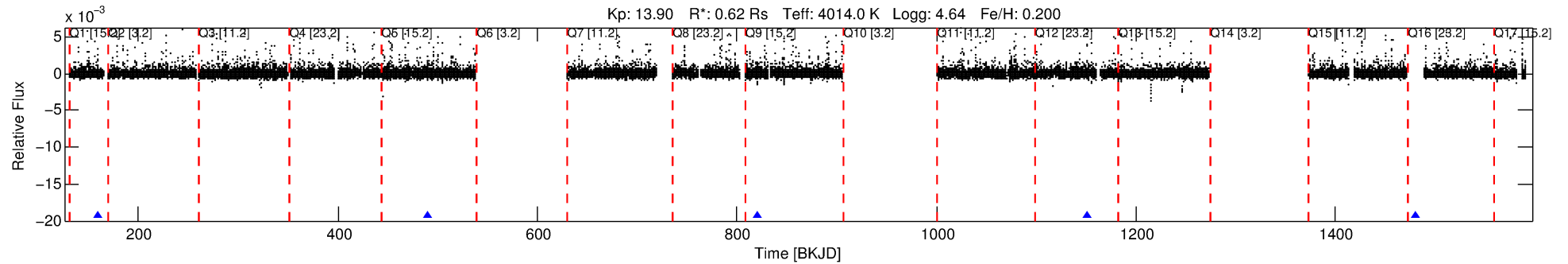
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005461756-04

No Significant Match Found

DV One-Page Summary

KIC: 5461756 Candidate: 4 of 4 Period: 330.179 d



DV Fit Results:

Period = 330.17896 [0.00724] d
Epoch = 160.0953 [0.0135] BKJD
Rp/R* = 0.0270 [0.0197]
a/R* = 366.75 [937.06]
b = 0.85 [0.84]
Seff = 0.14 [0.03]
Teq = 156 [7] K
Rp = 1.84 [1.36] Re
a = 0.7983 [0.0682] AU
Ag = 61597.25 [90891.76] [0.68σ]
Teffp = 3810 [1409] K [2.59σ]

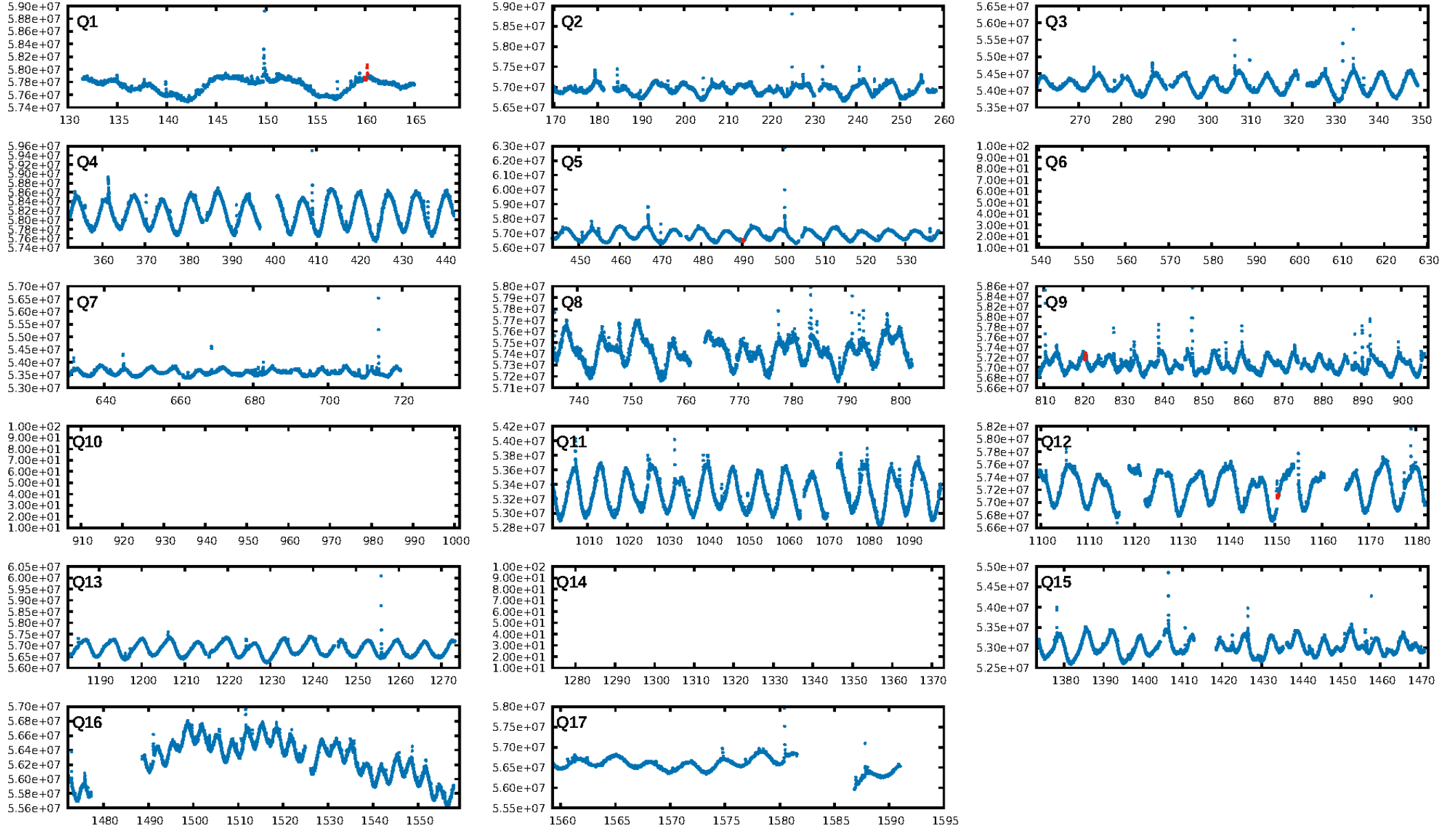
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [115.48σ]
ModelChiSquare2-sig: 3.4%
ModelChiSquareGof-sig: 76.0%
Bootstrap-pfa: 1.37e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -13.02
Centroid-sig: 98.3%
Centroid-so: 0.140 arcsec [0.13σ]
OotOffset-rm: 0.852 arcsec [2.20σ]
KicOffset-rm: 1.088 arcsec [2.19σ]
OotOffset-st: 0/0/1/3 [4]
KicOffset-st: 0/0/1/3 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

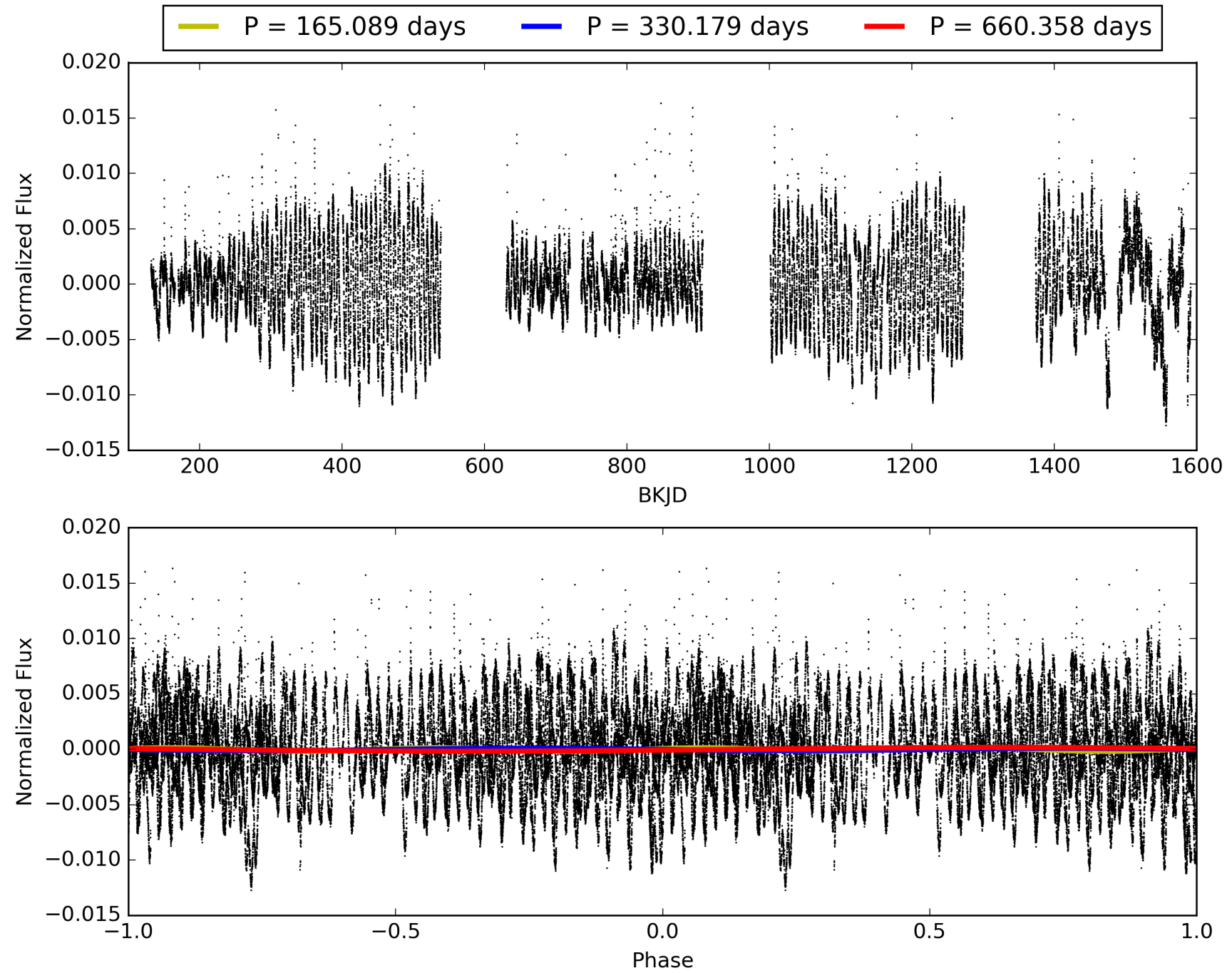
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:20:07 Z

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

TCE 005461756-04, PDC Light Curves

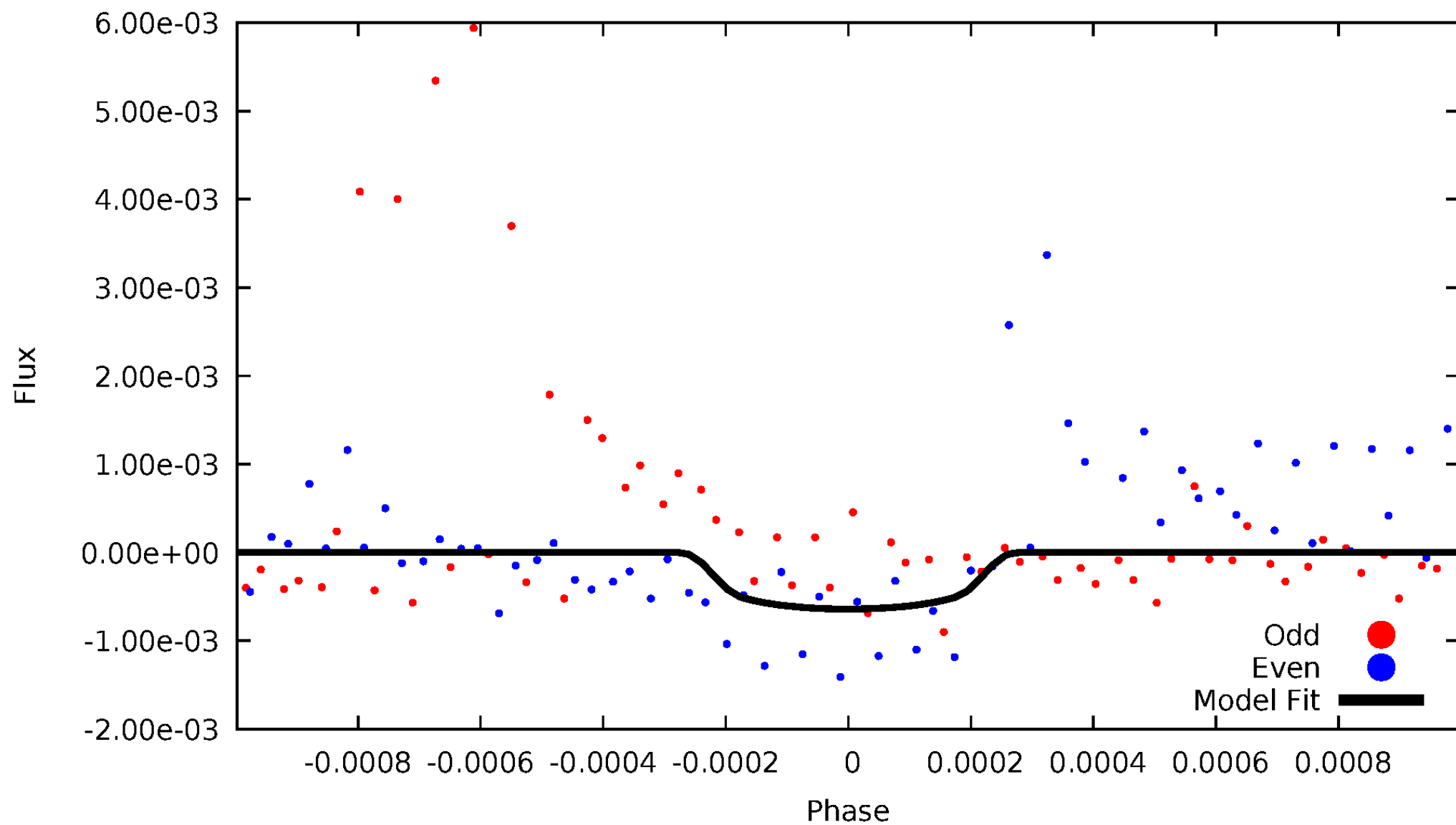


TCE 005461756-04



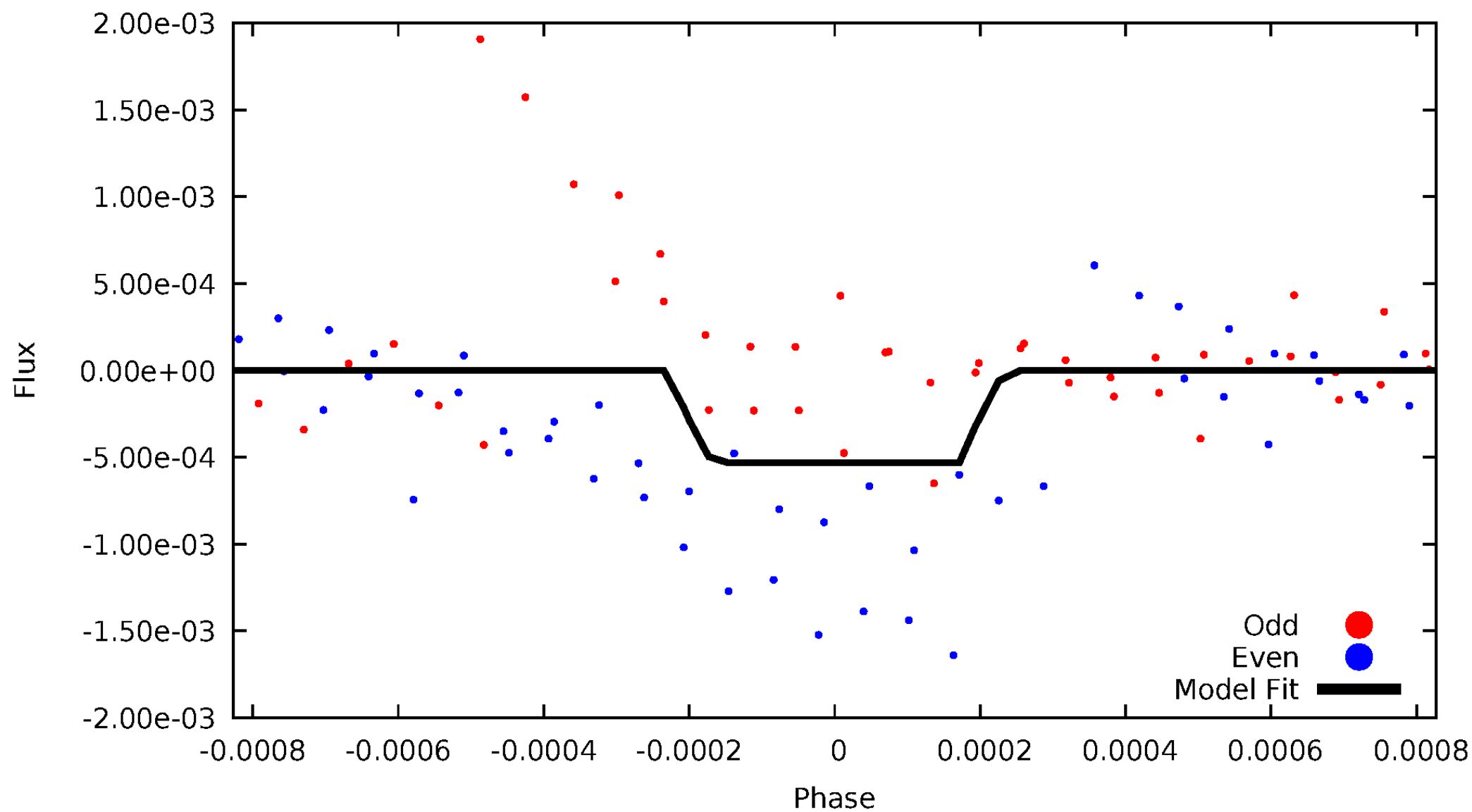
DV Odd/Even

TCE 005461756-04



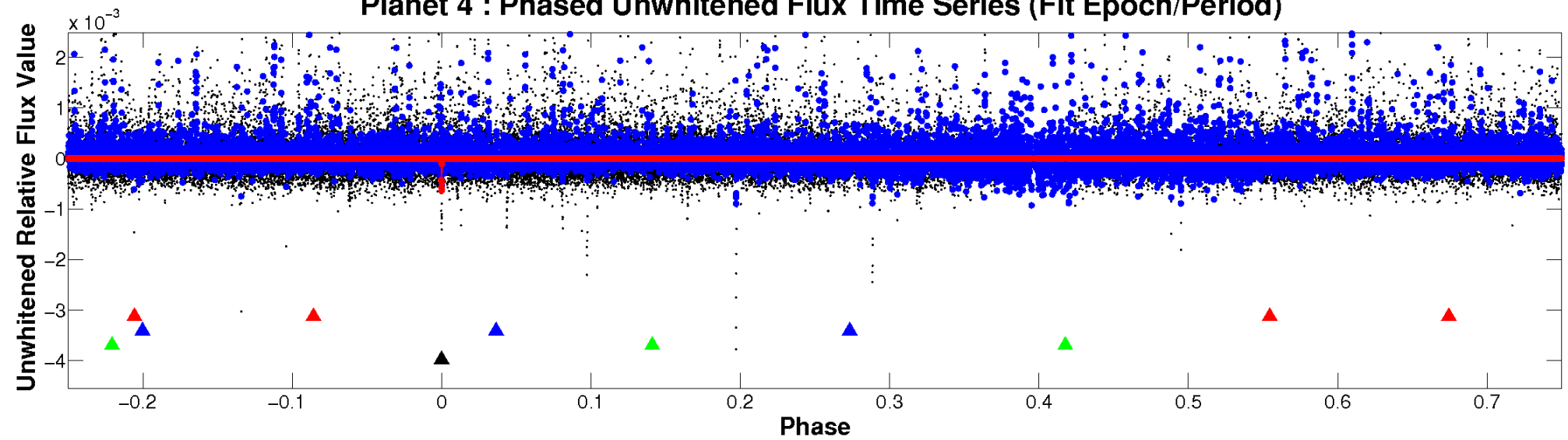
ALT Odd/Even

TCE 005461756-04

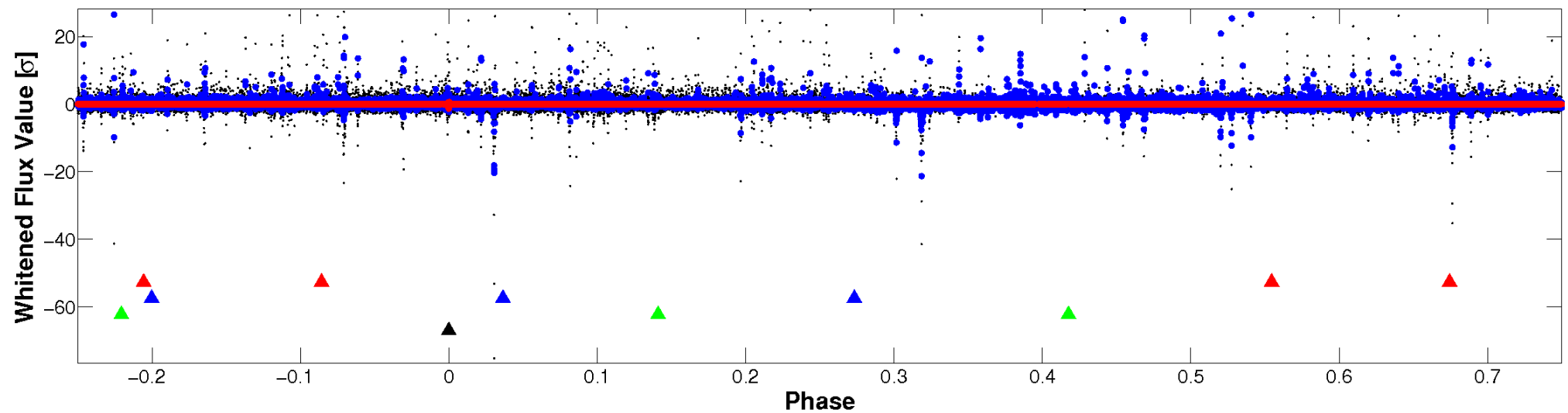


Non-Whitened Vs. Whitened Light Curve

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

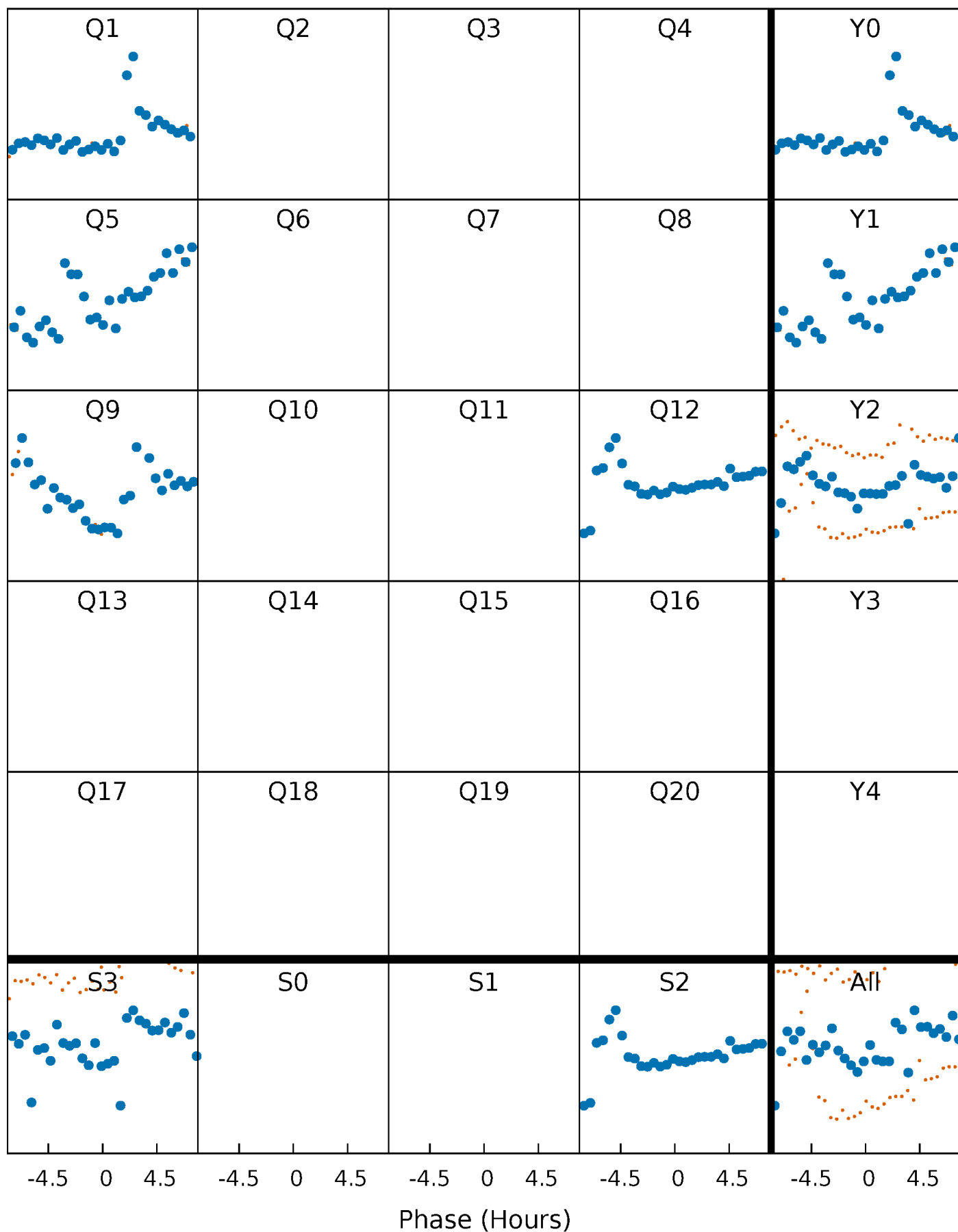


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



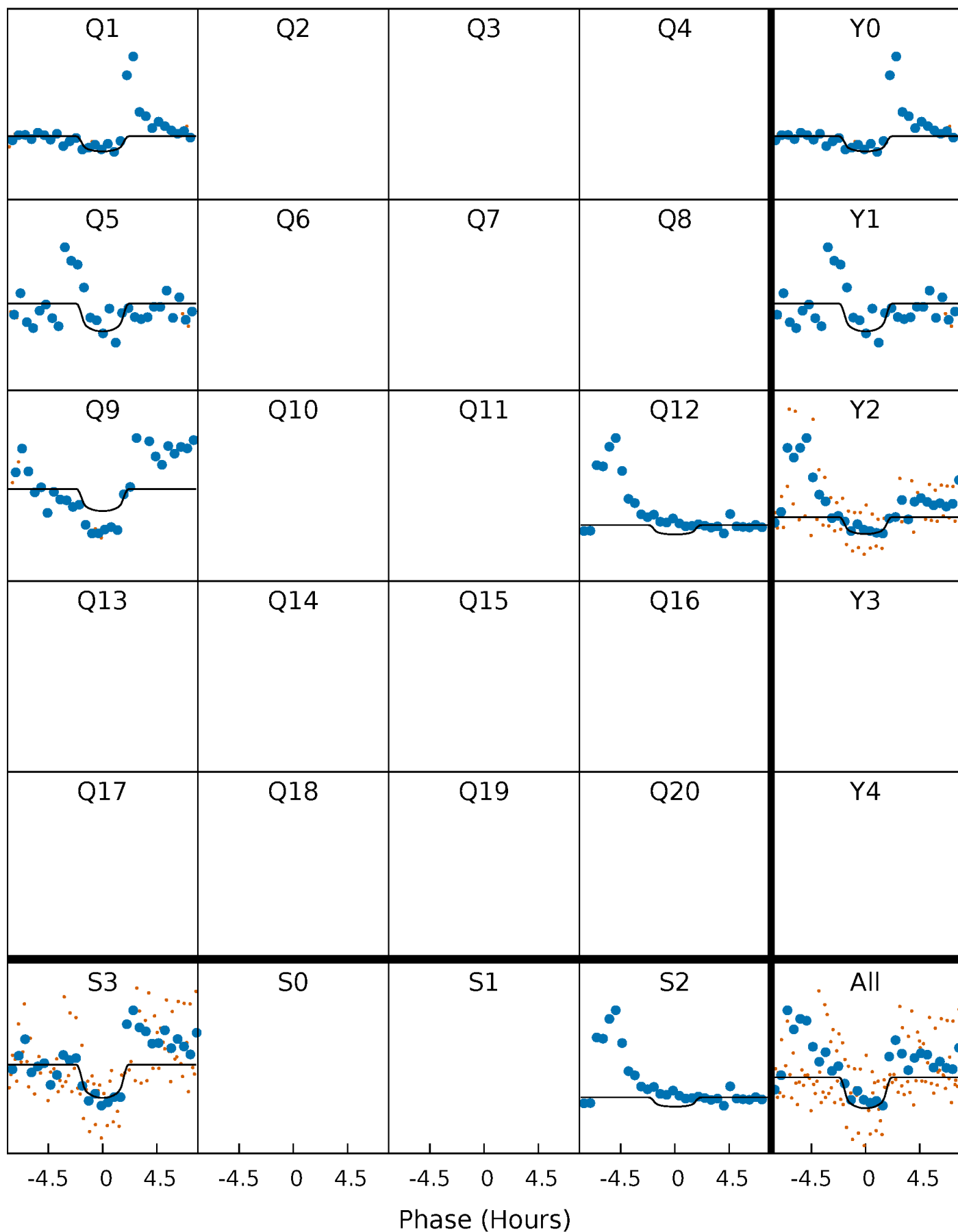
PDC Quarter-Phased Transit Curves

TCE 005461756-04 $P=330.178956$ Days $T_0=160.095290$ (BKJD)



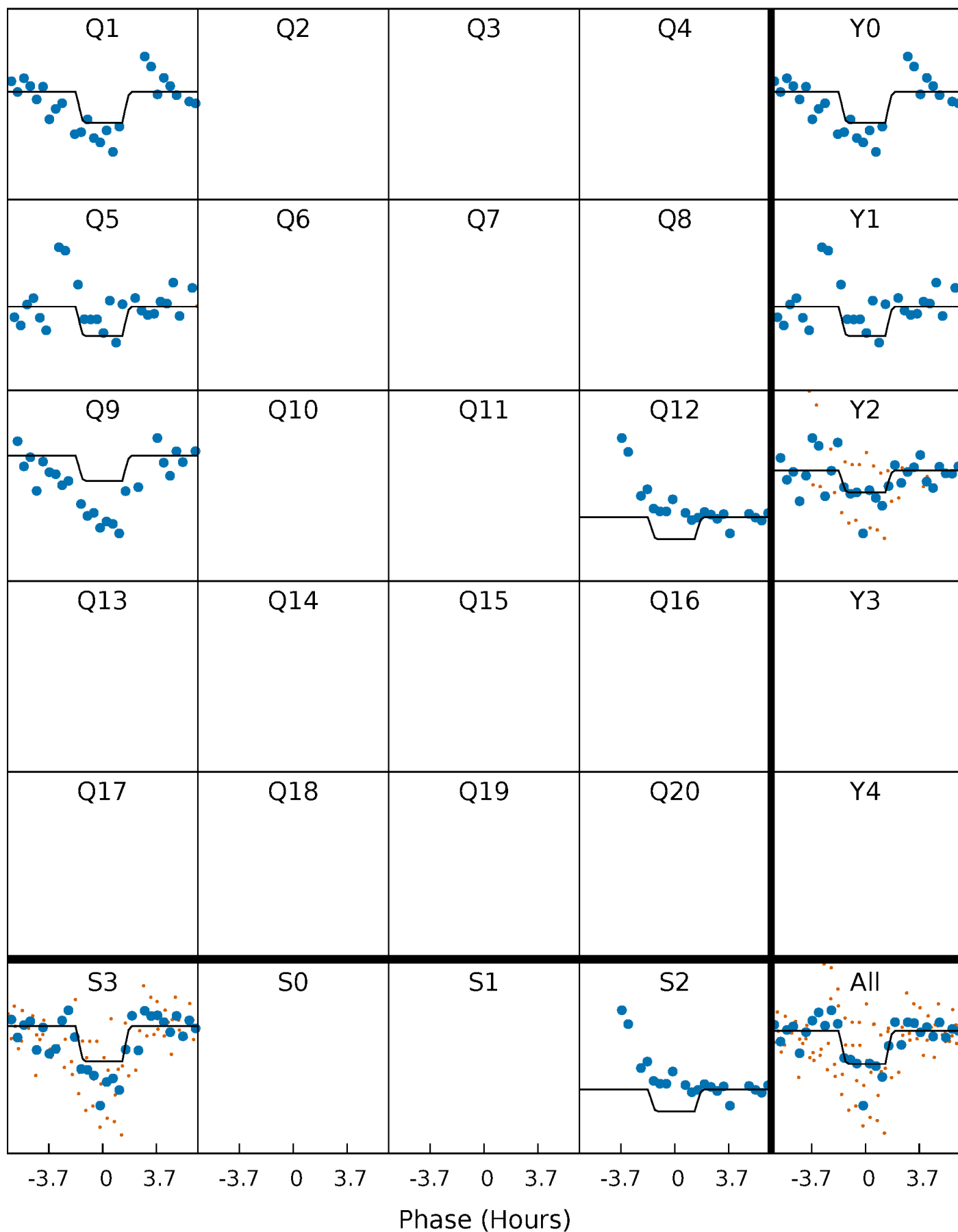
DV Quarter-Phased Transit Curves

TCE 005461756-04 $P=330.178956$ Days $T_0=160.095290$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

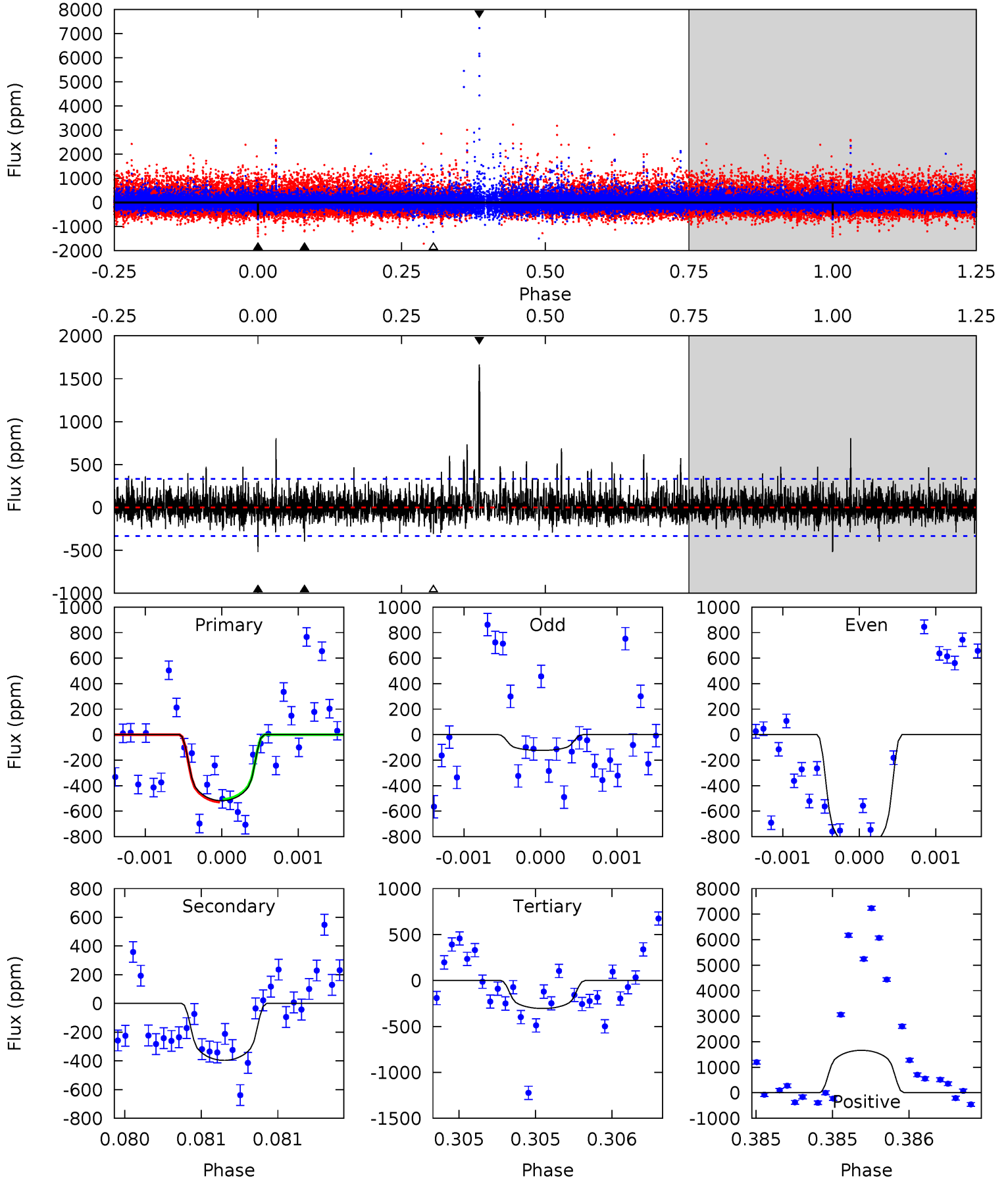
TCE 005461756-04 P=330.175739 Days $T_0=160.104841$ (BKJD)



DV Model-Shift Uniqueness Test

005461756-04, P = 330.178956 Days, E = 160.095290 Days

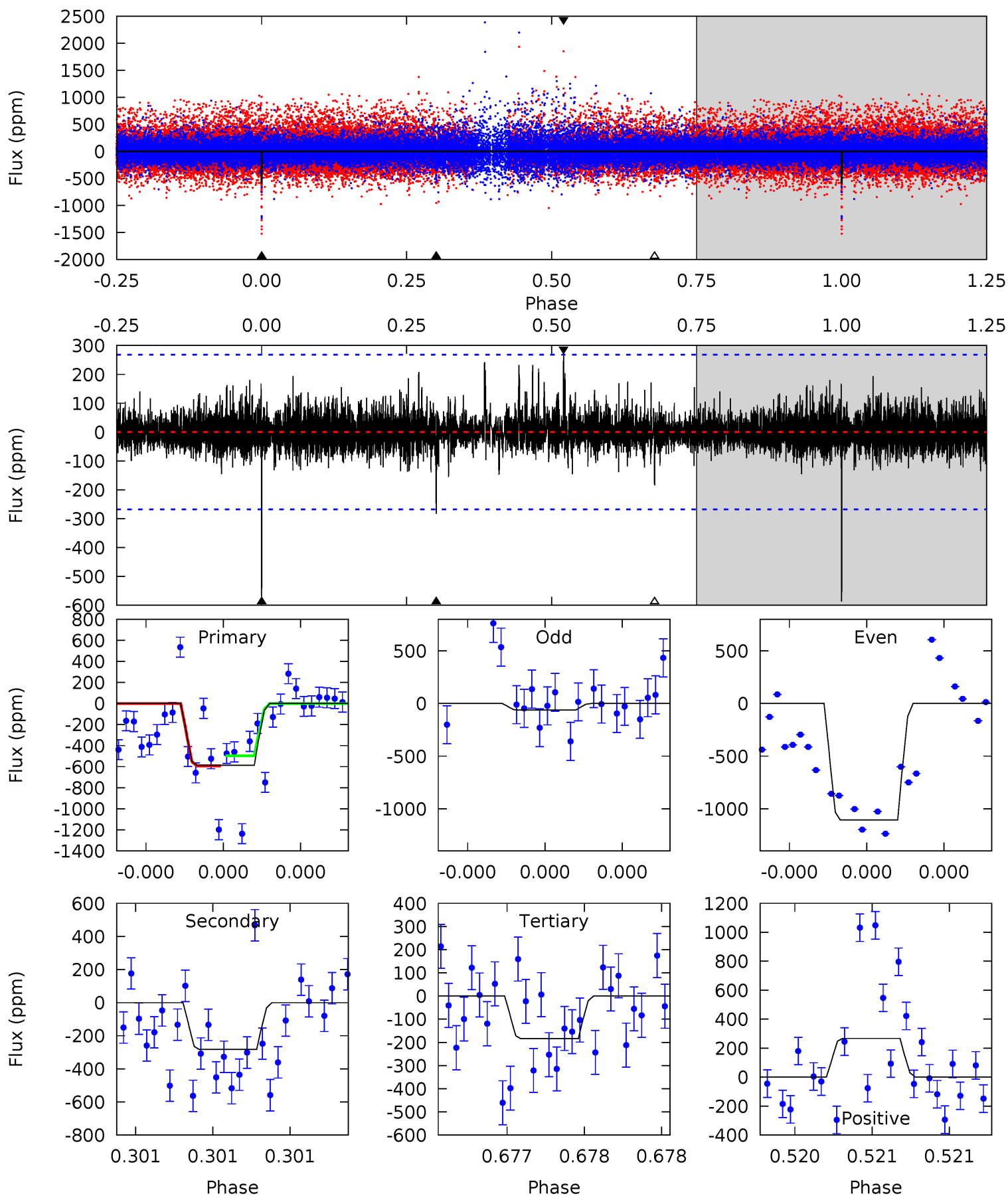
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.68	6.65	5.12	27.9	5.57	3.48	1.95	3.56	-19.2	1.52	-21.3	3.81	1.11	0.76	0.18



Alt Model-Shift Uniqueness Test

005461756-04, P = 330.175739 Days, E = 160.104841 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	5.91	3.85	5.58	5.60	3.52	0.89	8.41	6.68	2.06	0.33	11.2	1.13	0.31	0.99



Stellar Parameters For KIC 005461756

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4014^{+140}_{-154}	$4.643^{+0.056}_{-0.020}$	$0.200^{+0.200}_{-0.300}$	$0.623^{+0.029}_{-0.069}$	$0.622^{+0.043}_{-0.064}$	$3.627^{+0.992}_{-0.334}$
	+3%/-4%	+1%/-0%	+100%/-150%	+5%/-11%	+7%/-10%	+27%/-9%
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 005461756-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-396 ± 60	$1.95^{+1.22}_{-1.10}$	217^{+9}_{-9}	3522^{+1319}_{-487}	$37230^{+162022}_{-23695}$
Alt.	-283 ± 48	$1.70^{+1.37}_{-0.99}$	217^{+9}_{-9}	3497^{+1304}_{-566}	$34729^{+173700}_{-24587}$

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

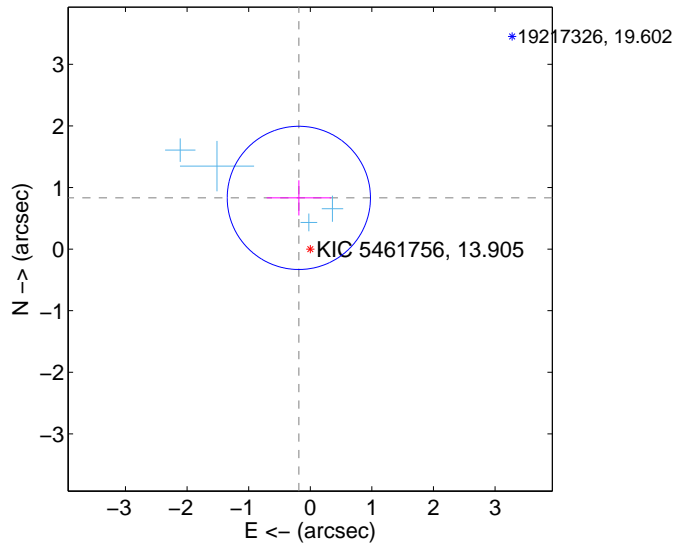
Supplemental centroid analysis for 005461756-04. Kepler magnitude: 13.90. Transit SNR 6.74

There are 4 quarters with good PRF difference image offsets

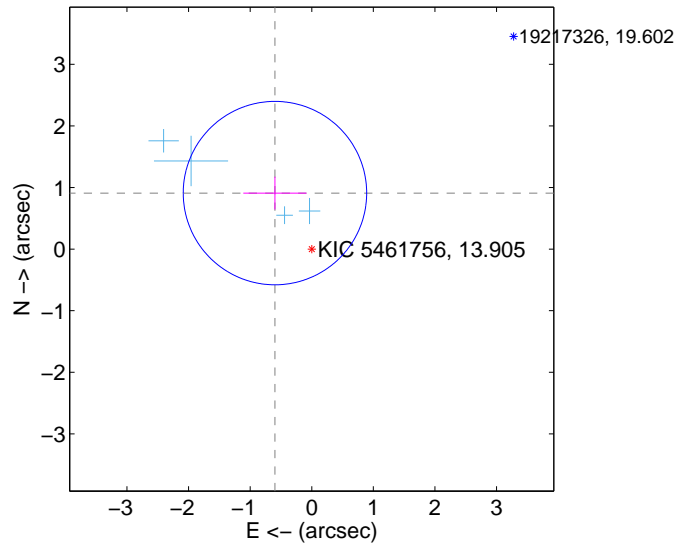
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.852 ± 0.388	2.20	0.186 ± 0.521	0.831 ± 0.285
PRF-fit source offset from KIC position	1.088 ± 0.496	2.19	0.597 ± 0.513	0.909 ± 0.266
photometric centroid source offset	0.14 ± 1.04	0.13	0.14 ± 1.04	-0.03 ± 1.07

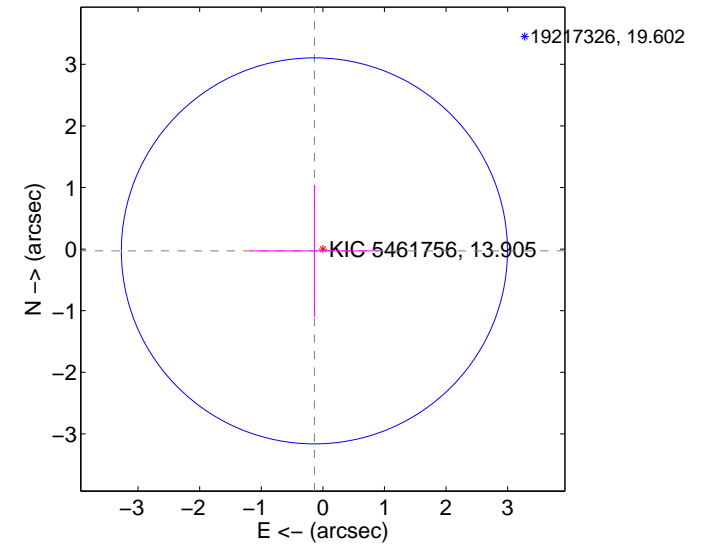
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

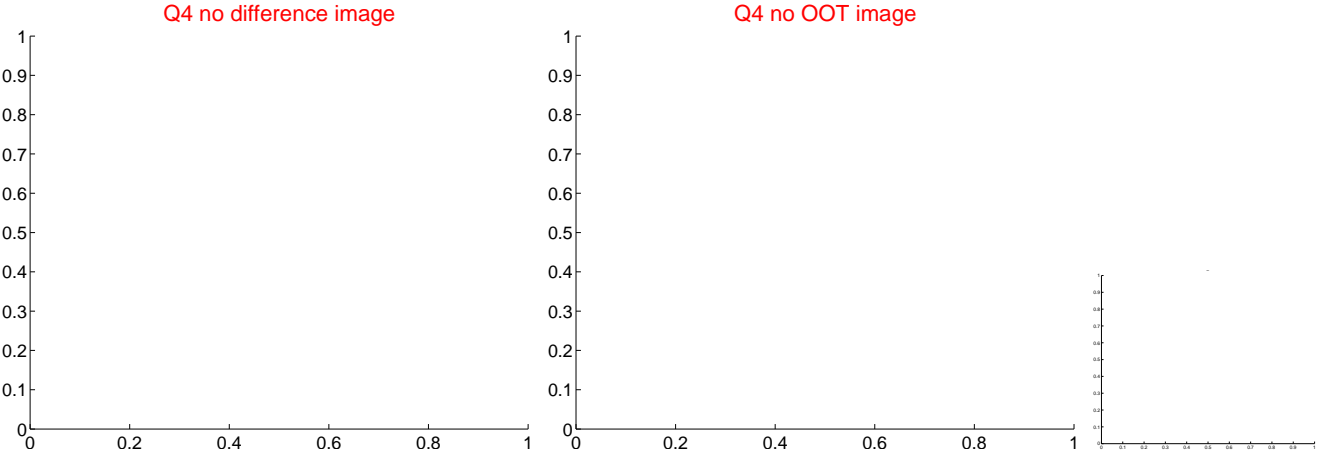
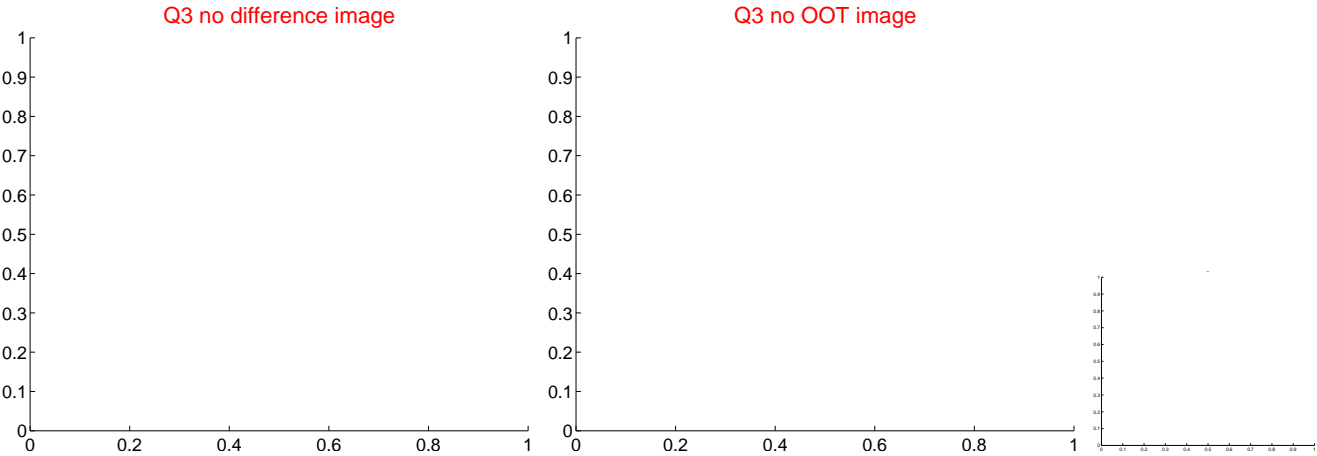
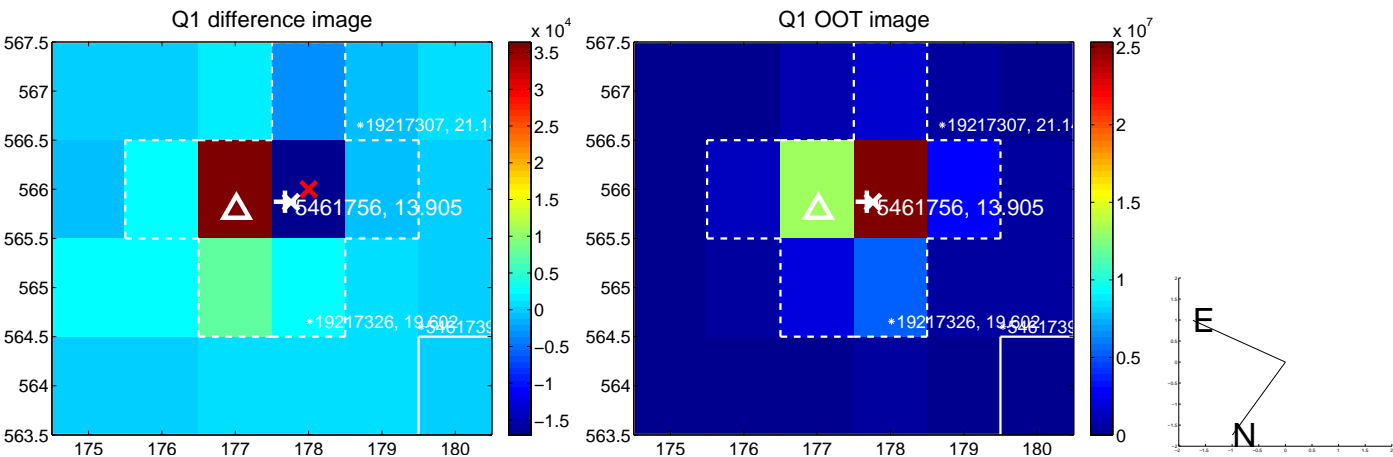


offset from photometric centroids

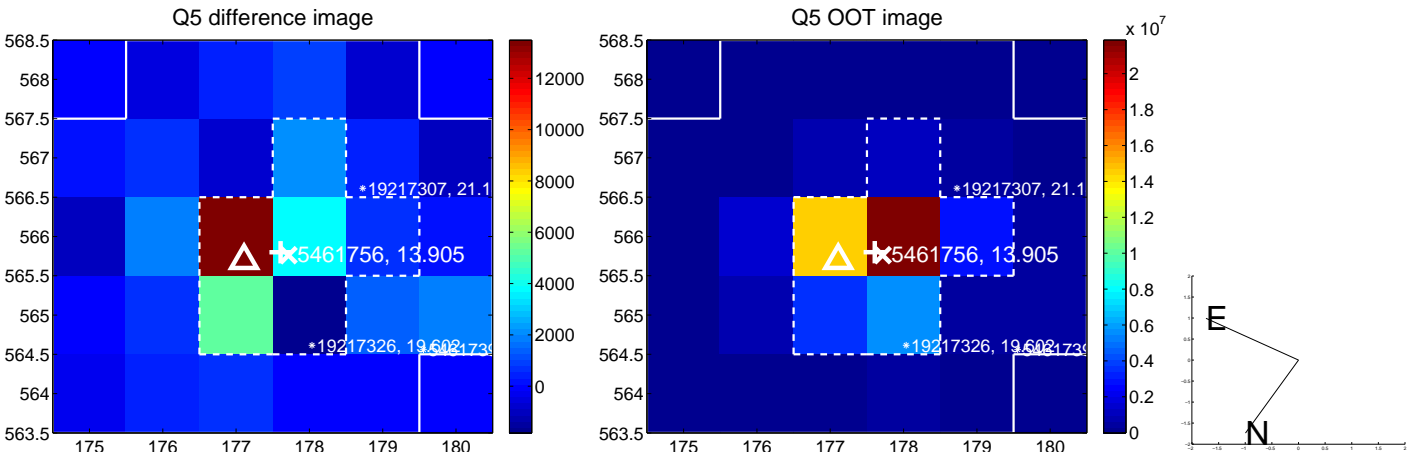


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

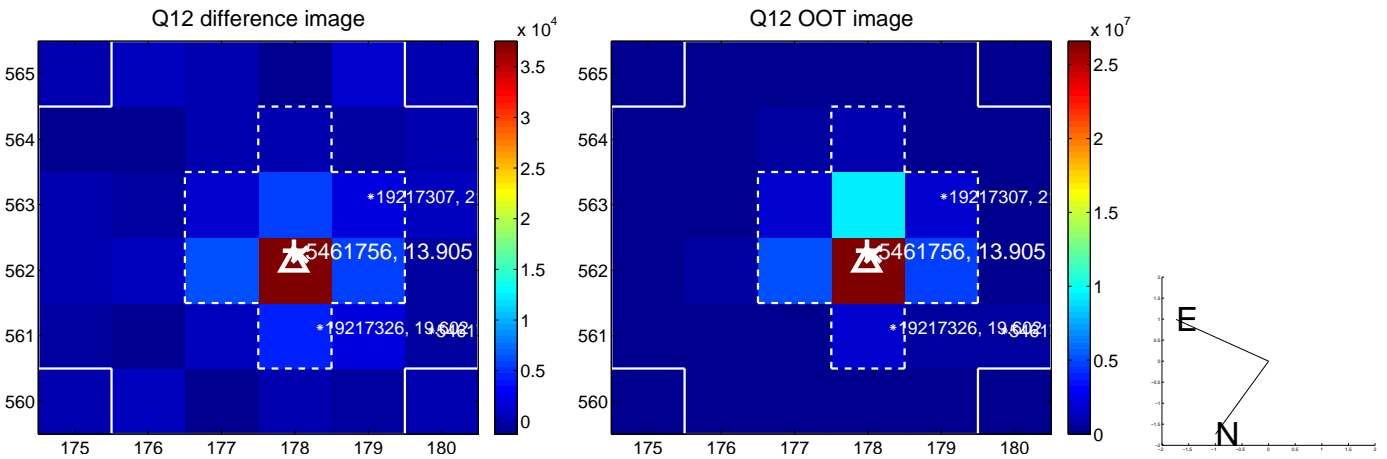
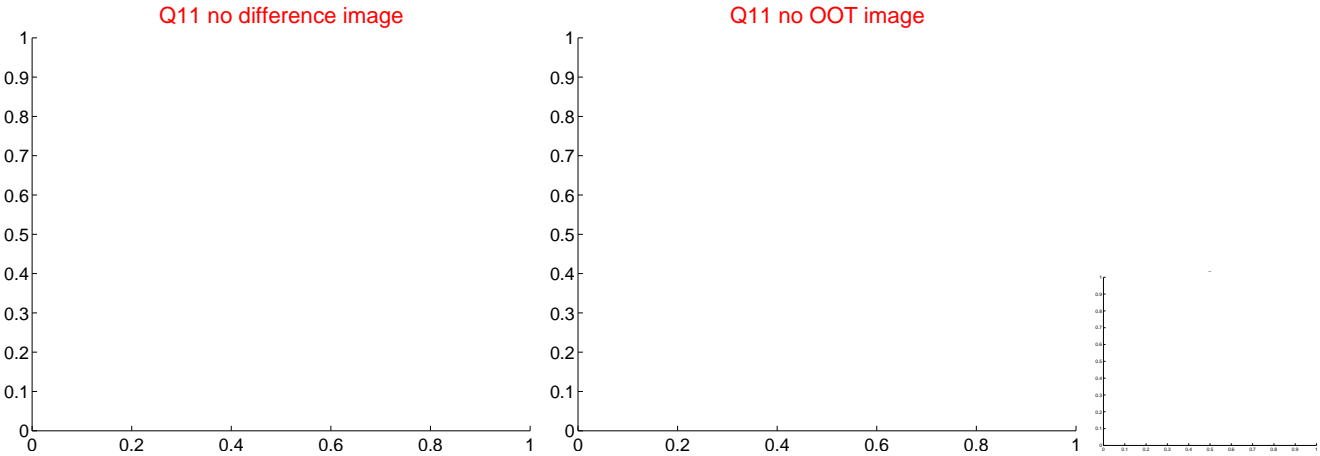
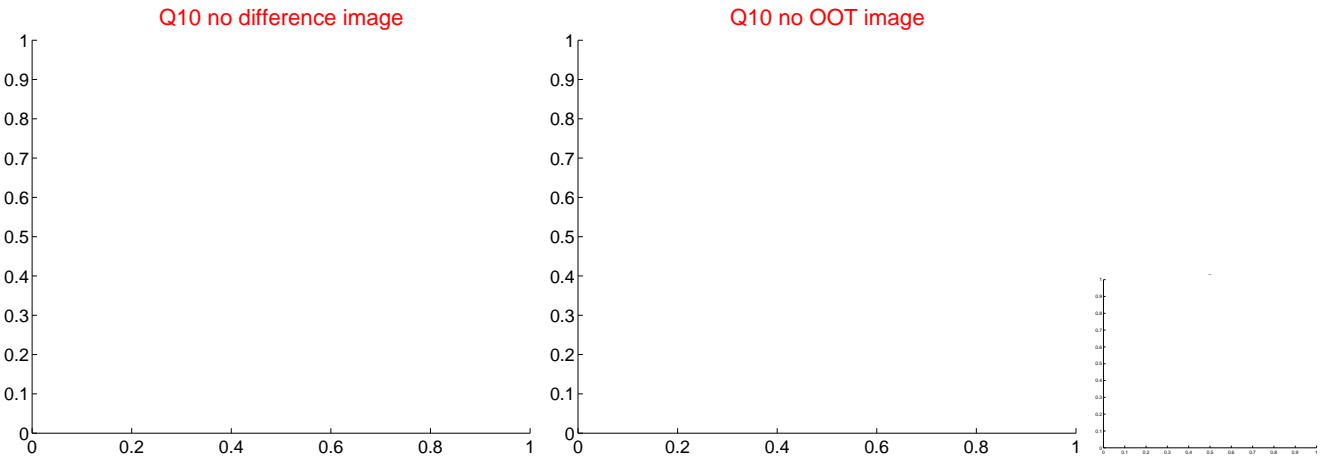
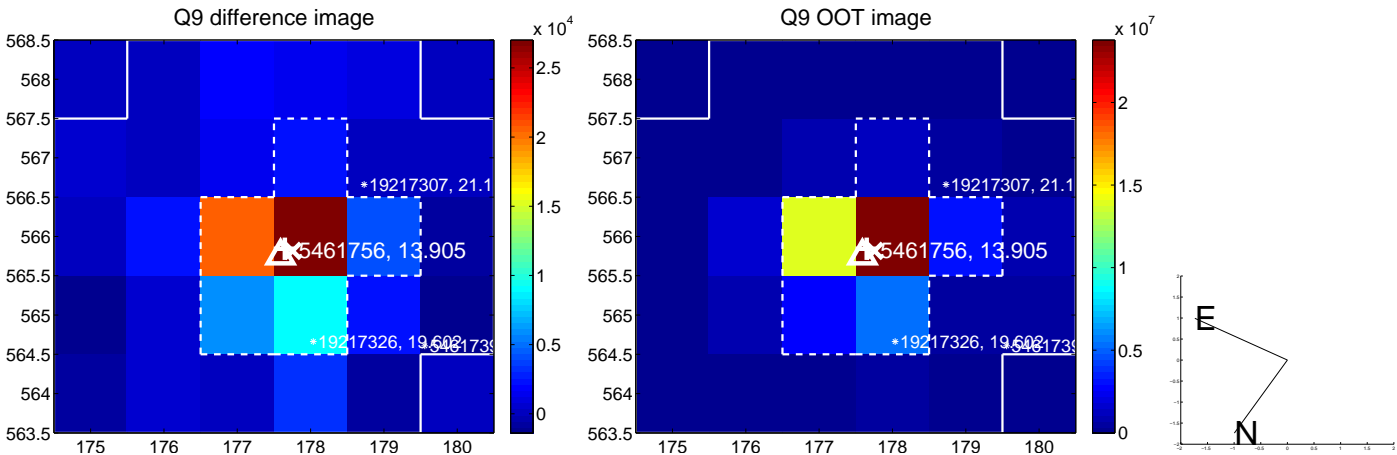
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



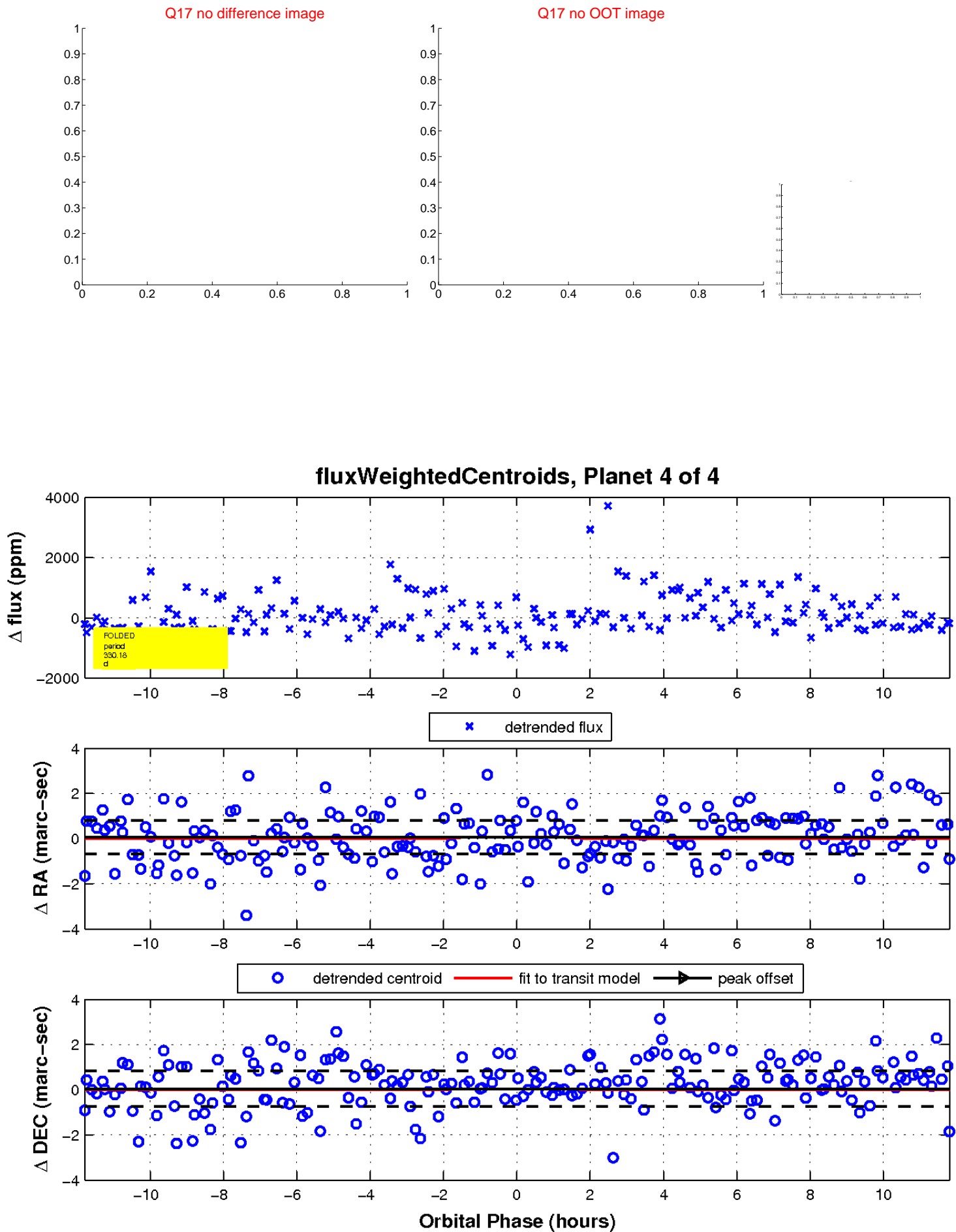
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

