

KIC 005456365

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})
005456365-01	OBS	No	275.006974	373.863021	29671.1	8.068	226.6	115.4	0.78	4931	23.89	0.55
005456365-02	OBS	No	282.413464	212.590025	220.2	38.494	7.2	4.9	0.78	4931	1.36	0.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005456365-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005456365-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

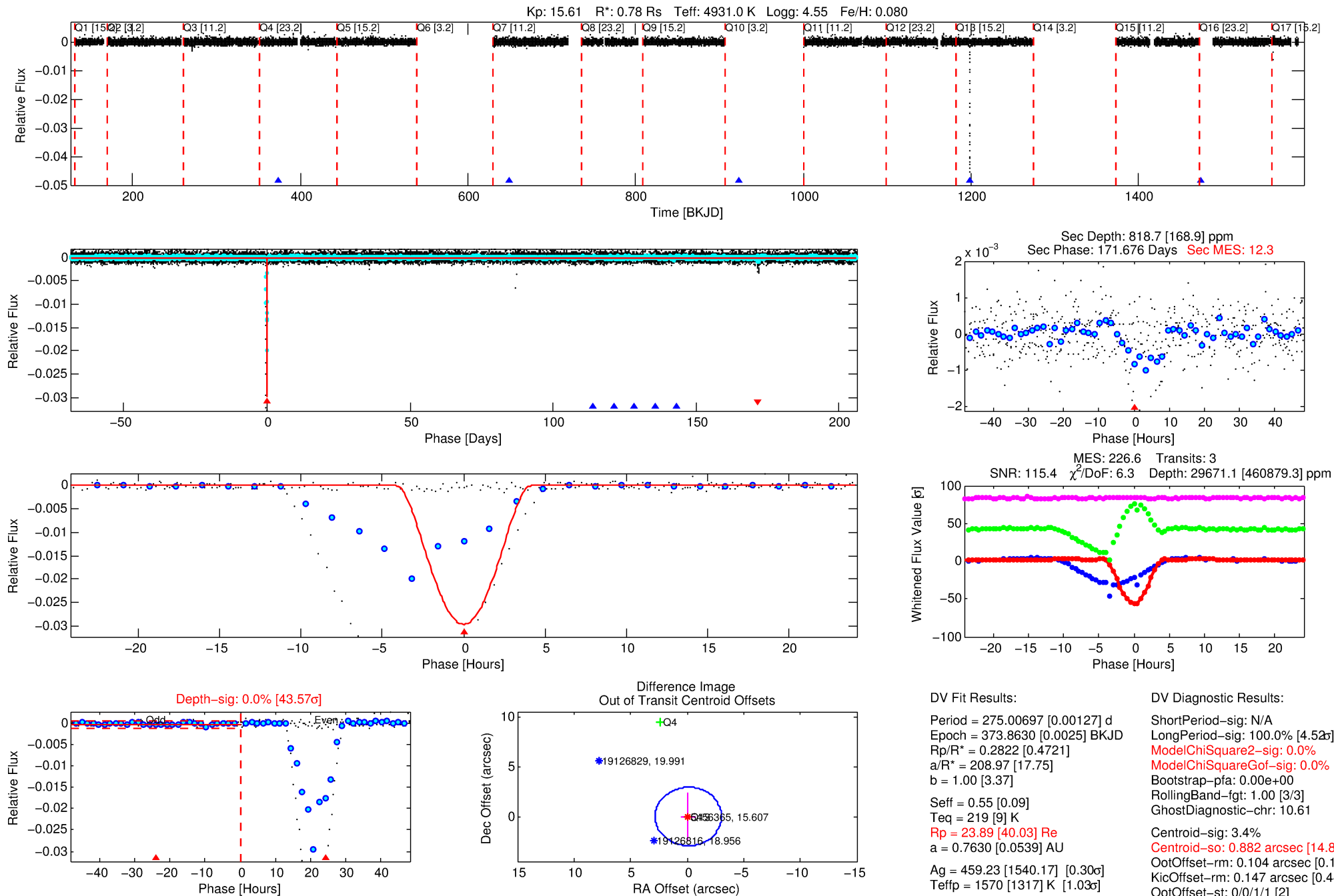
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005456365-01

No Significant Match Found

DV One-Page Summary

KIC: 5456365 Candidate: 1 of 2 Period: 275.007 d



DV Fit Results:

Period = 275.00697 [0.00127] d
Epoch = 373.8630 [0.0025] BKJD
Rp/R* = 0.2822 [0.4721]
a/R* = 208.97 [17.75]
b = 1.00 [3.37]
Seff = 0.55 [0.09]
Teq = 219 [9] K
Rp = 23.89 [40.03] Re
a = 0.7630 [0.0539] AU
Ag = 459.23 [1540.17] [0.30σ]
Teff = 1570 [1317] K [1.03σ]

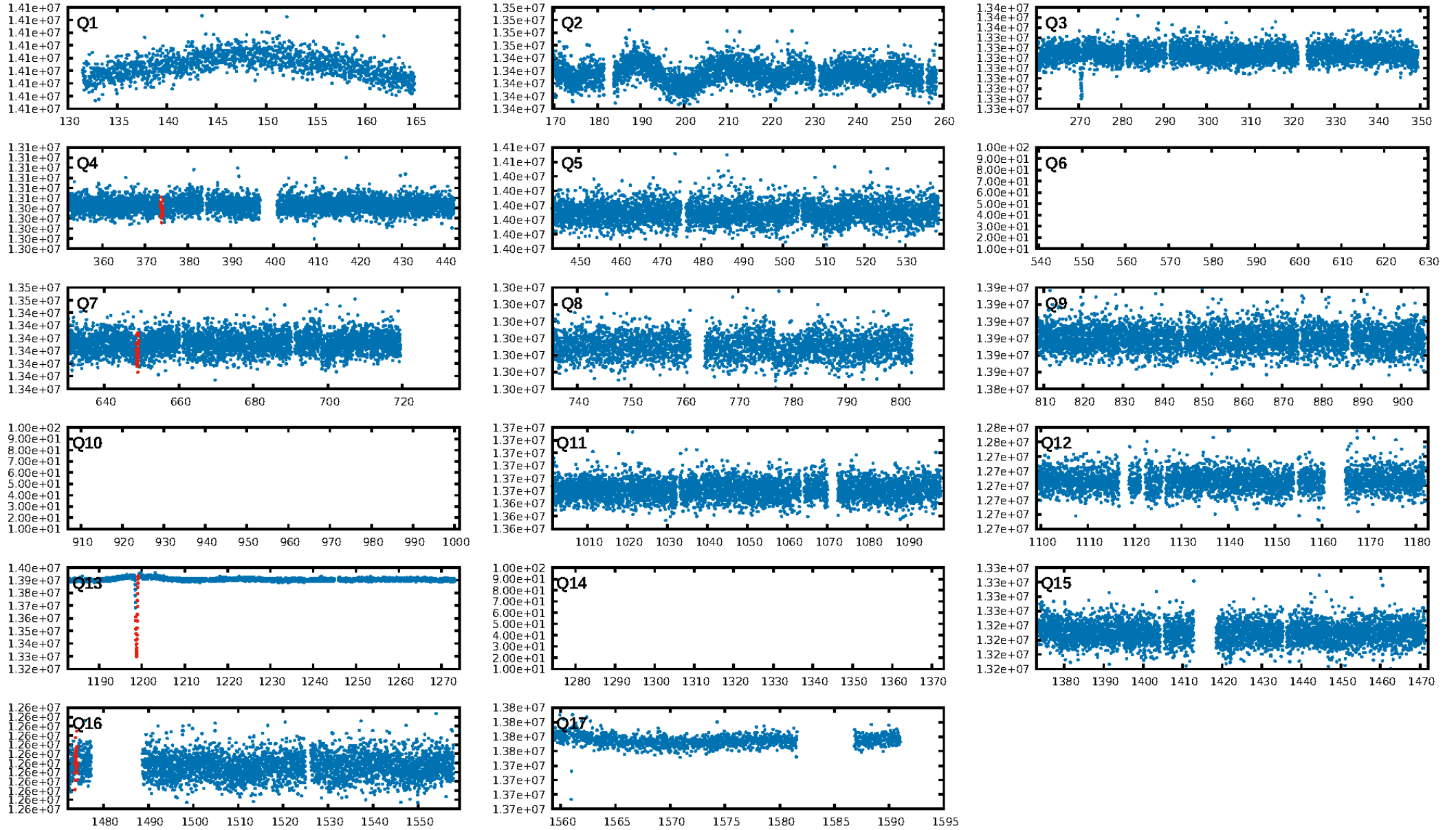
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.52σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 10.61
Centroid-sig: 3.4%
Centroid-so: 0.882 arcsec [14.85σ]
OotOffset-rm: 0.104 arcsec [0.11σ]
KicOffset-rm: 0.147 arcsec [0.44σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

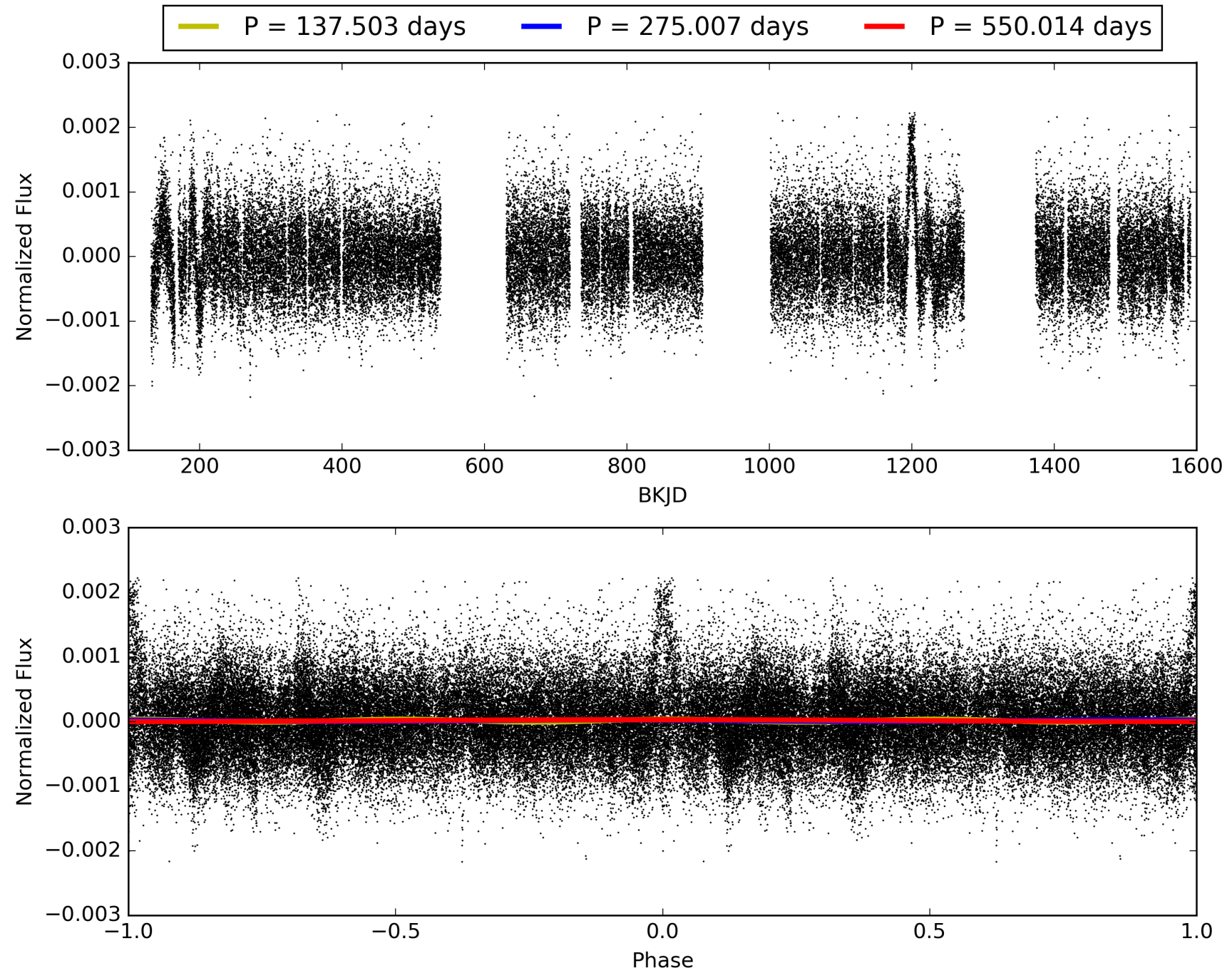
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:42:48 Z

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

TCE 005456365-01, PDC Light Curves

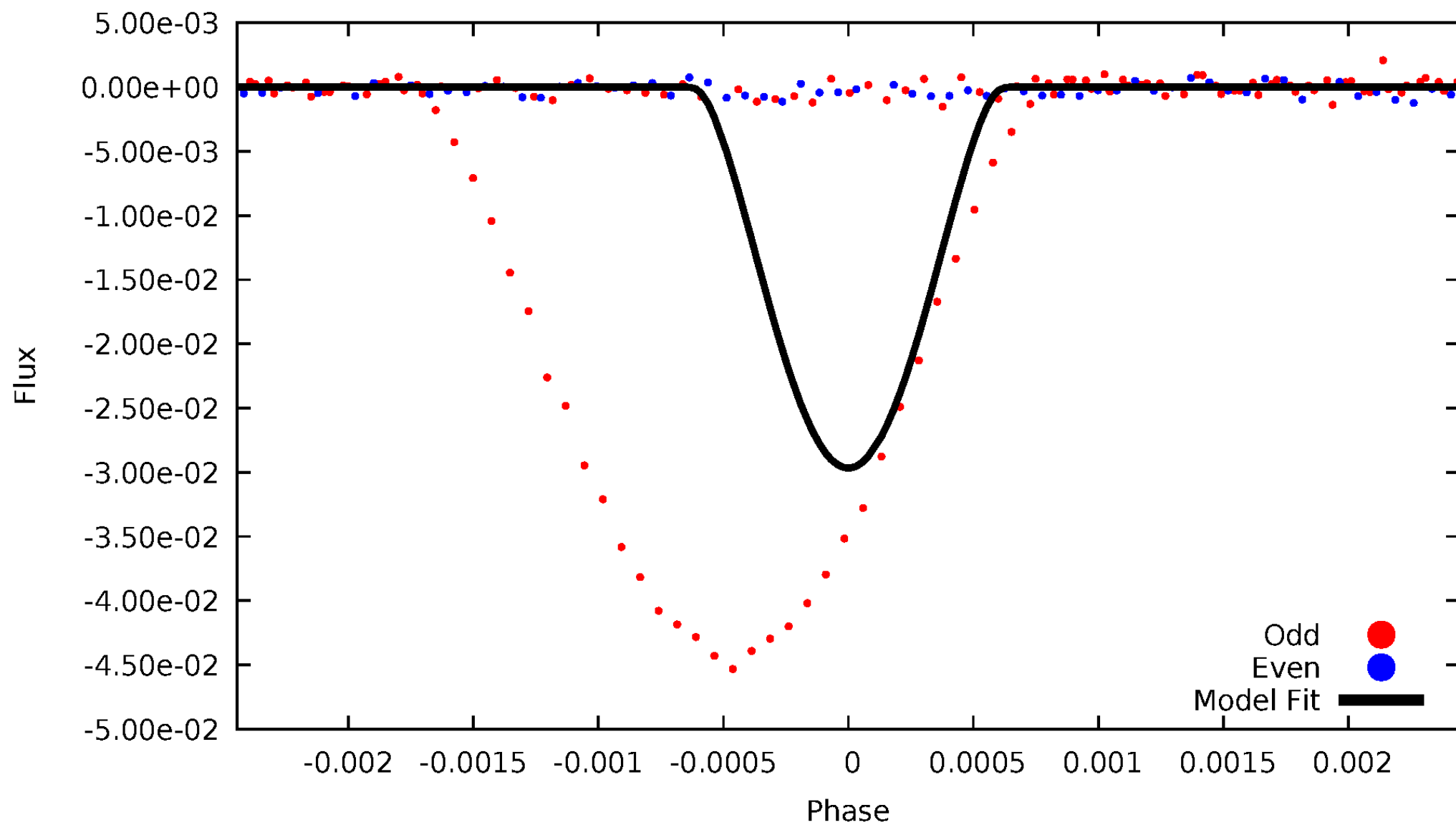


TCE 005456365-01



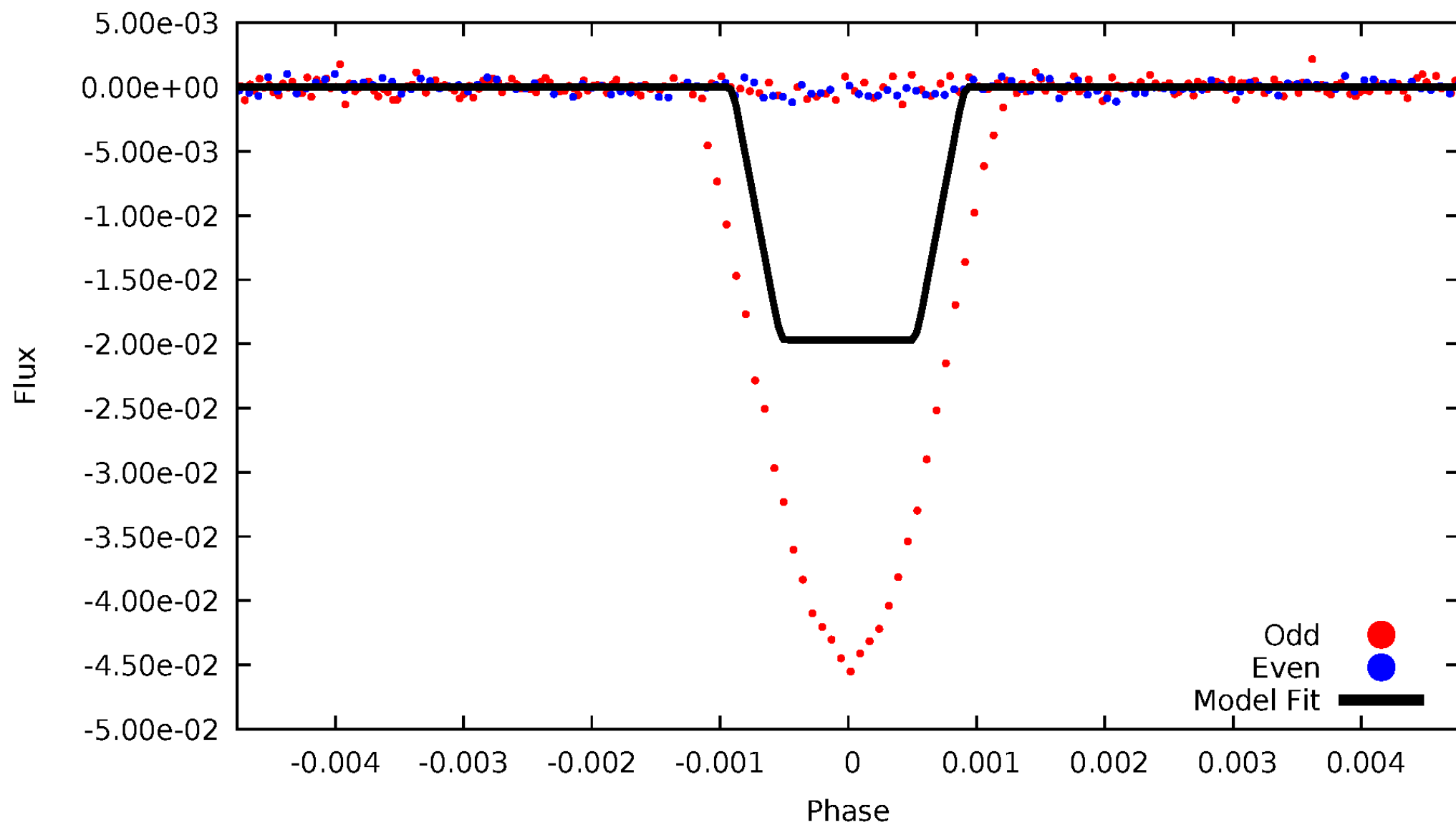
DV Odd/Even

TCE 005456365-01



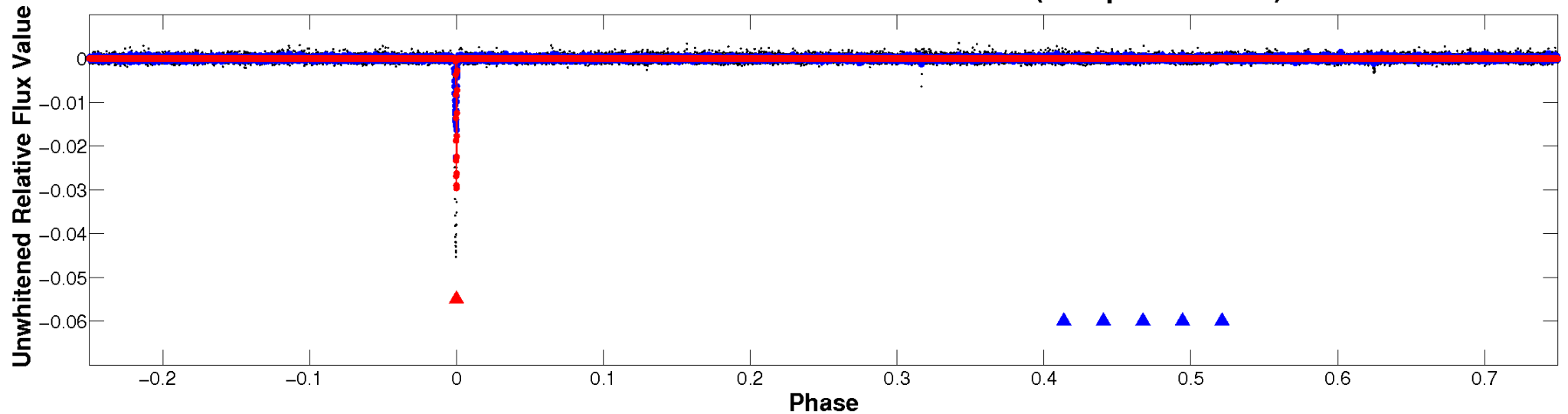
ALT Odd/Even

TCE 005456365-01

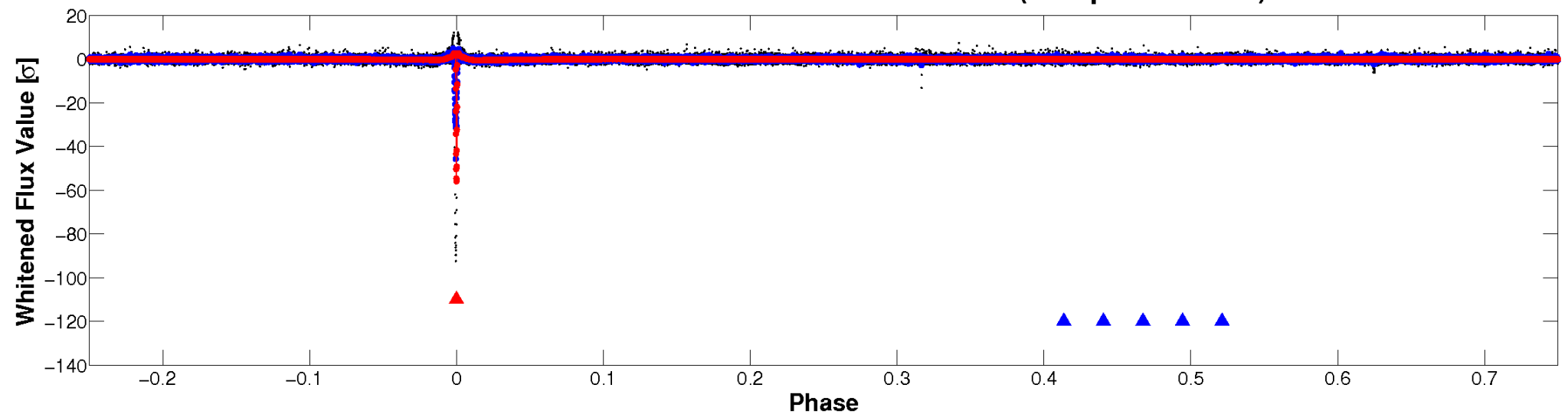


Non-Whitened Vs. Whitened Light Curve

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

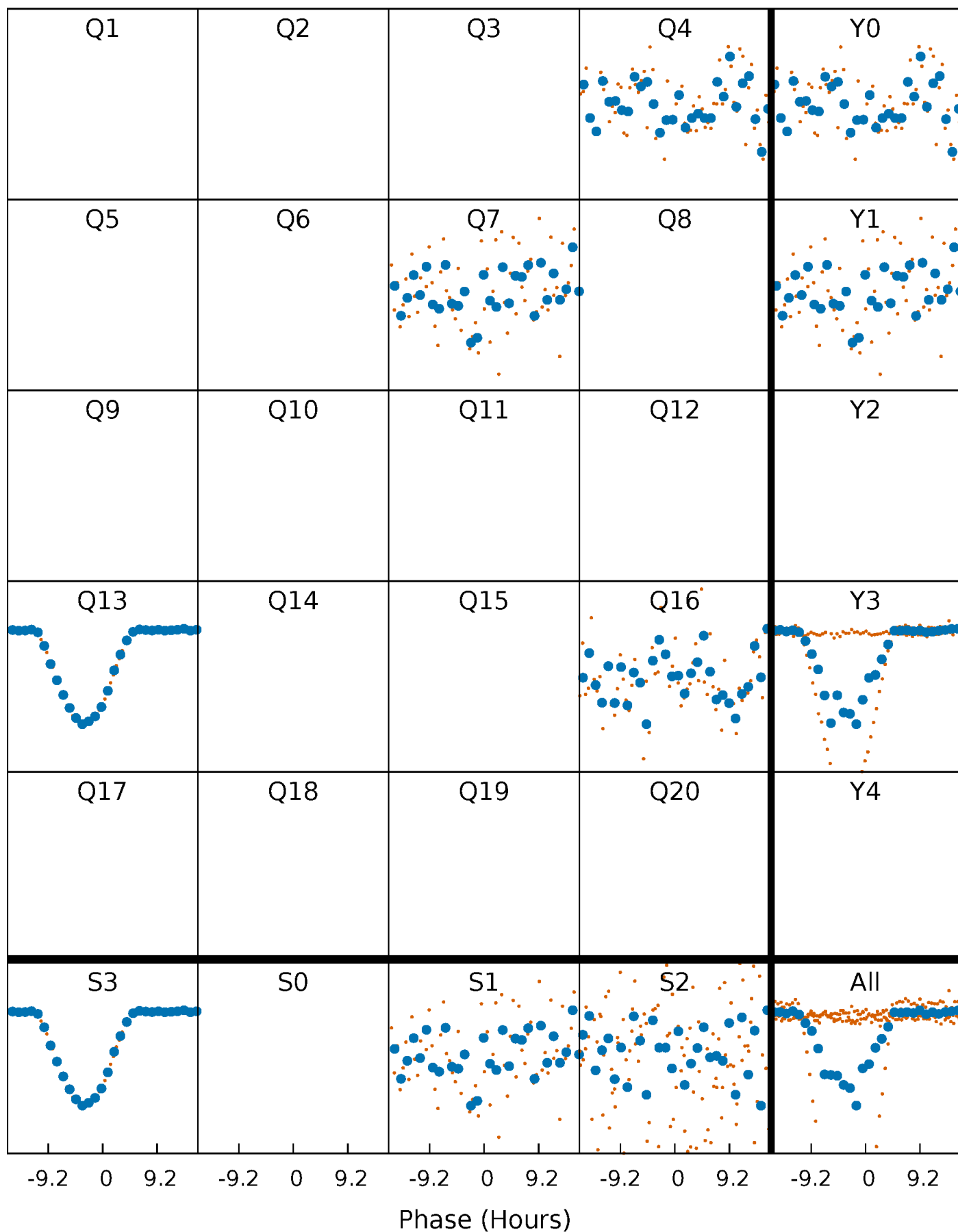


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



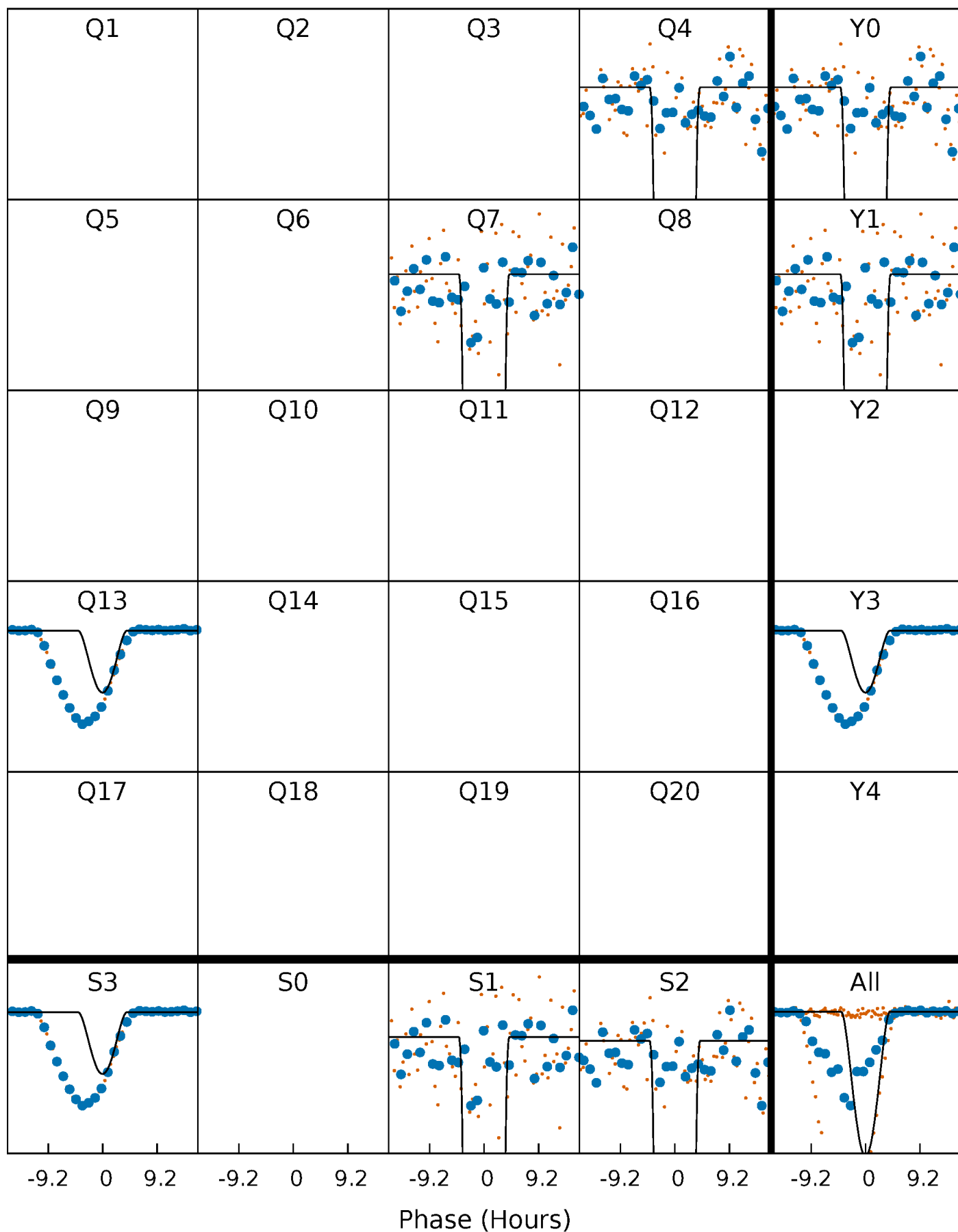
PDC Quarter-Phased Transit Curves

TCE 005456365-01 P=275.006974 Days $T_0=373.863021$ (BKJD)



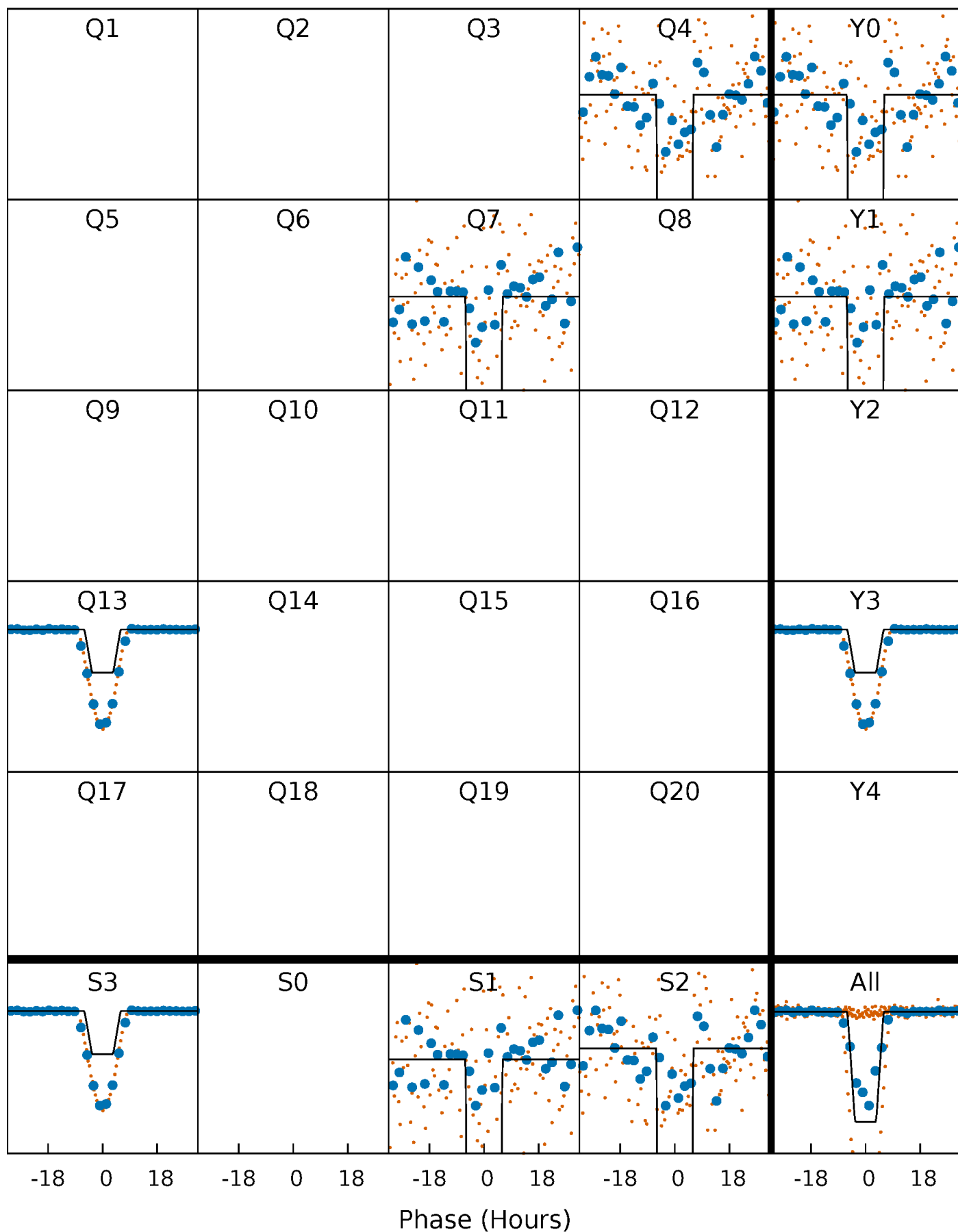
DV Quarter-Phased Transit Curves

TCE 005456365-01 P=275.006974 Days $T_0=373.863021$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

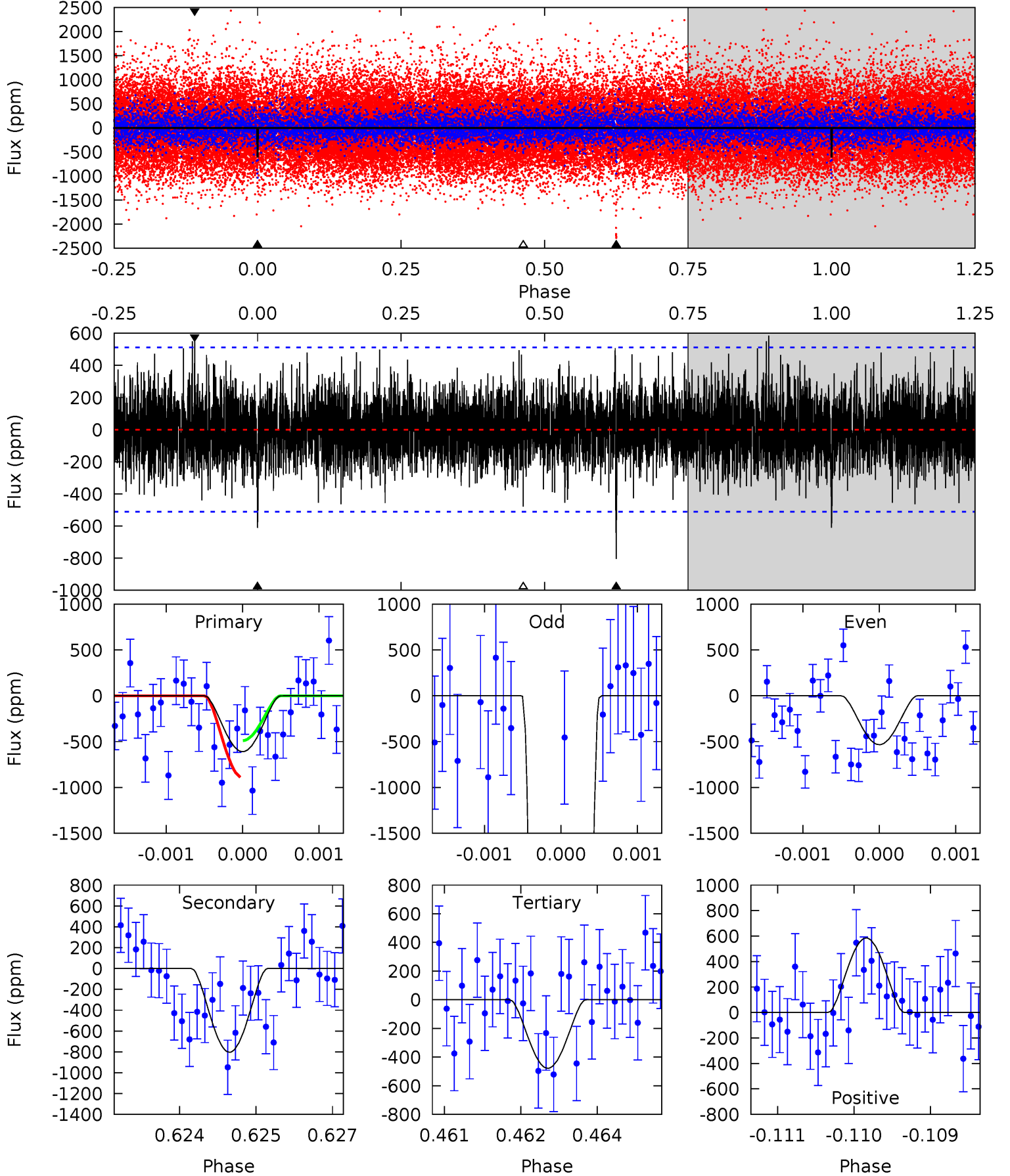
TCE 005456365-01 P=274.947172 Days $T_0=373.910695$ (BKJD)



DV Model-Shift Uniqueness Test

005456365-01, $P = 275.006974$ Days, $E = 98.856047$ Days

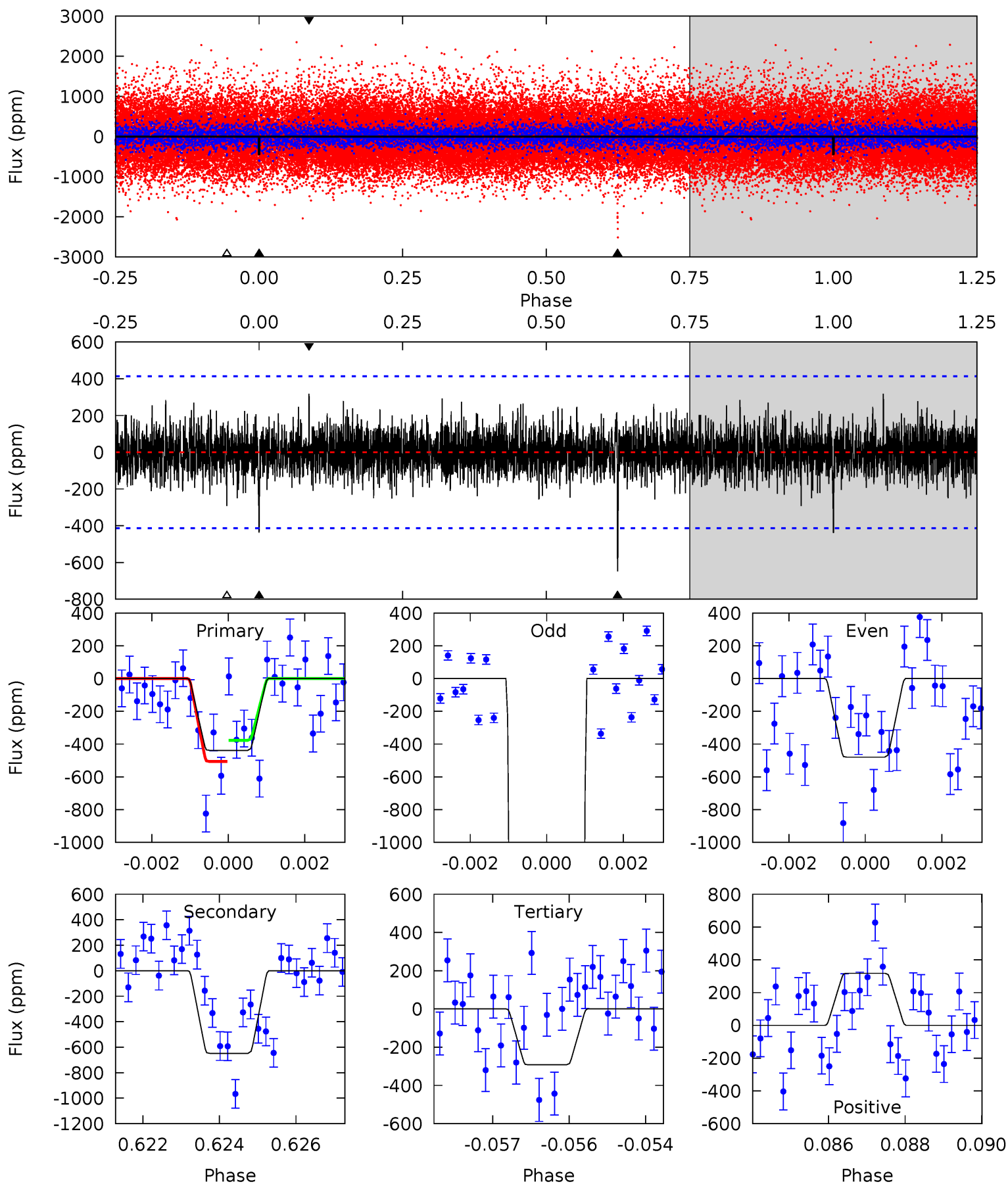
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.45	8.50	5.06	6.19	5.41	3.22	1.48	1.39	0.26	3.45	2.32	117.1	27.3	0.42	0



Alt Model-Shift Uniqueness Test

005456365-01, P = 274.947172 Days, E = 98.963523 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.66	8.38	3.77	4.10	5.35	3.12	1.05	1.89	1.56	4.60	4.28	167.0	28.4	0.33	0.82



Stellar Parameters For KIC 005456365

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4931^{+172}_{-172}	$4.552^{+0.055}_{-0.050}$	$0.080^{+0.250}_{-0.300}$	$0.776^{+0.066}_{-0.066}$	$0.782^{+0.070}_{-0.063}$	$2.355^{+0.567}_{-0.420}$
	+3%/-3%	+1%/-1%	+312%/-375%	+9%/-9%	+9%/-8%	+24%/-18%
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 005456365-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-804 ± 95	$35.96^{+33.83}_{-24.42}$	305^{+14}_{-11}	2201^{+703}_{-277}	199^{+1715}_{-147}
Alt.	-649 ± 77	$32.19^{+30.05}_{-21.39}$	307^{+13}_{-12}	2210^{+684}_{-293}	206^{+1646}_{-153}

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 $A_{obs} \gg 1.0$

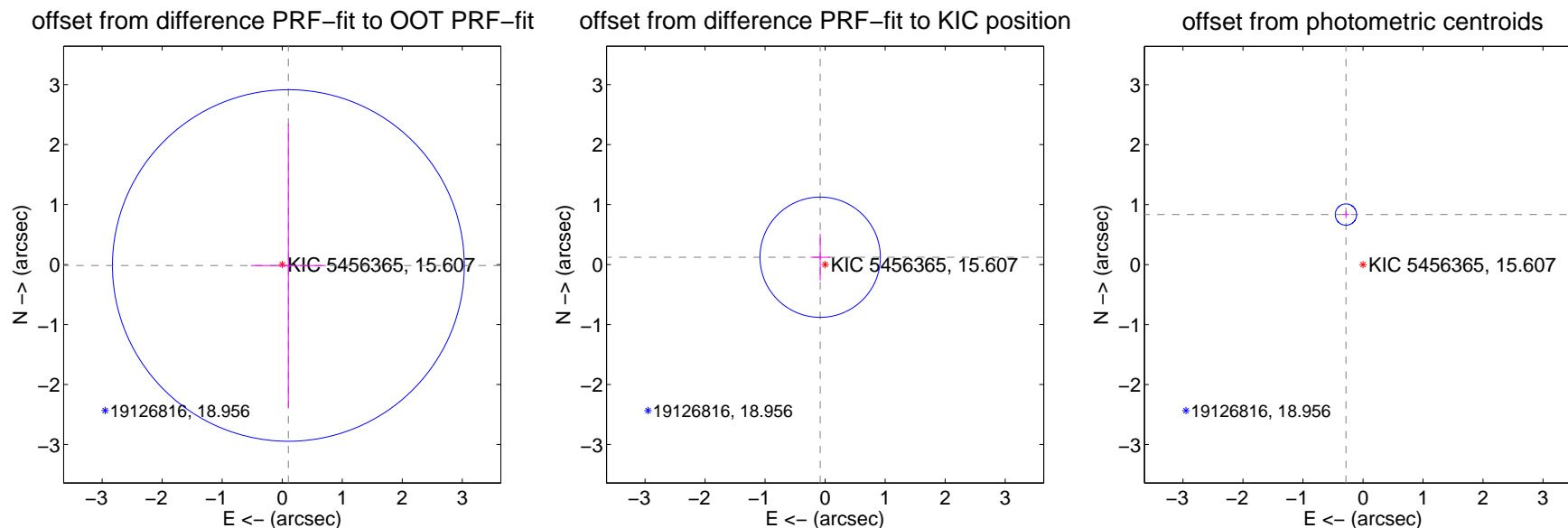
DV Centroid Data

Supplemental centroid analysis for 005456365-01. Kepler magnitude: 15.61. Transit SNR 115.37

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.104 ± 0.977	0.11	-0.103 ± 0.624	-0.016 ± 2.366
PRF-fit source offset from KIC position	0.147 ± 0.334	0.44	0.082 ± 0.160	0.122 ± 0.388
photometric centroid source offset	0.88 ± 0.06	14.85	0.28 ± 0.05	0.83 ± 0.06



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



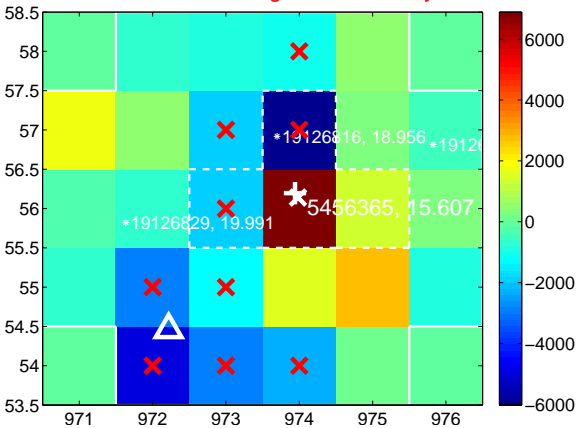
Q3 no difference image



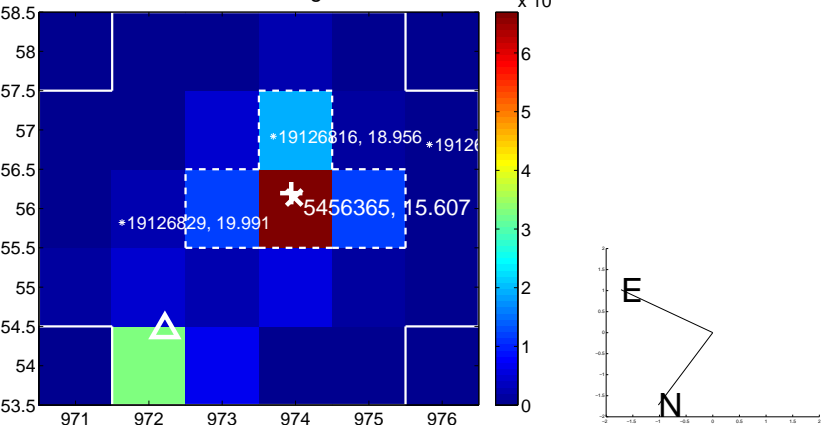
Q3 no OOT image



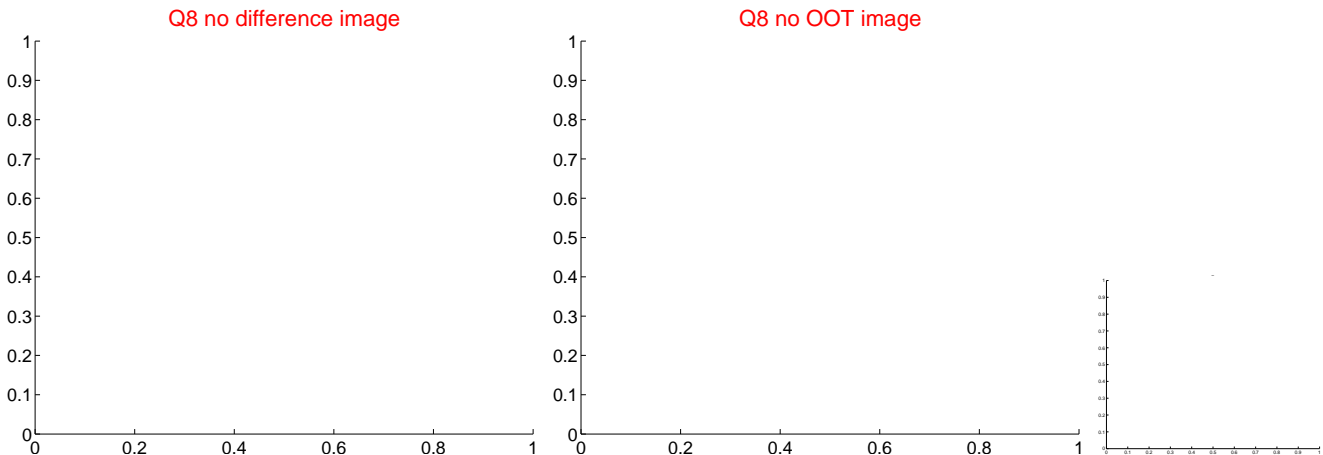
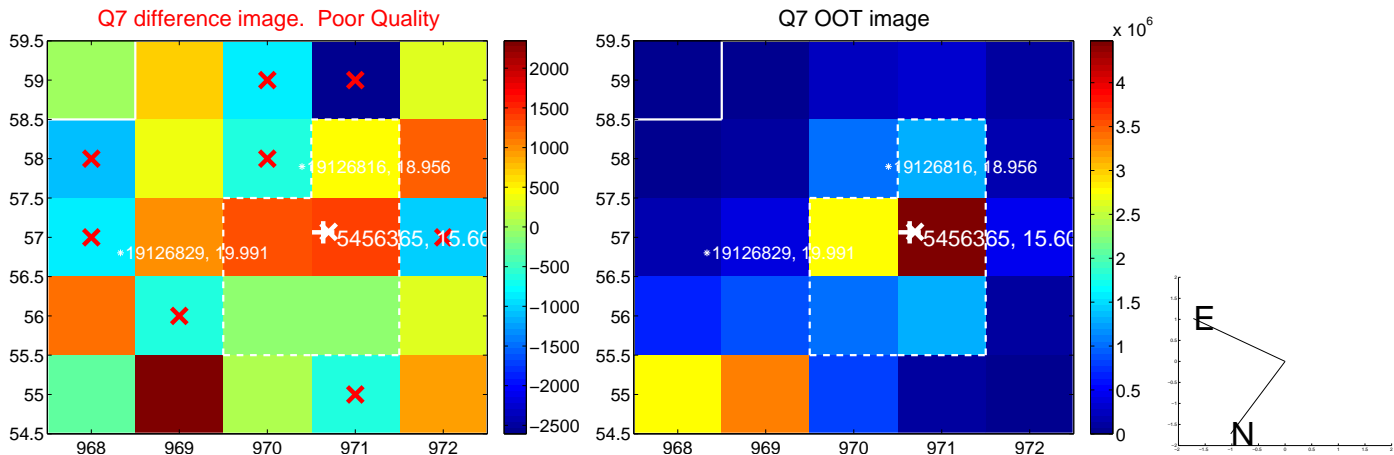
Q4 difference image. Poor Quality



Q4 OOT image



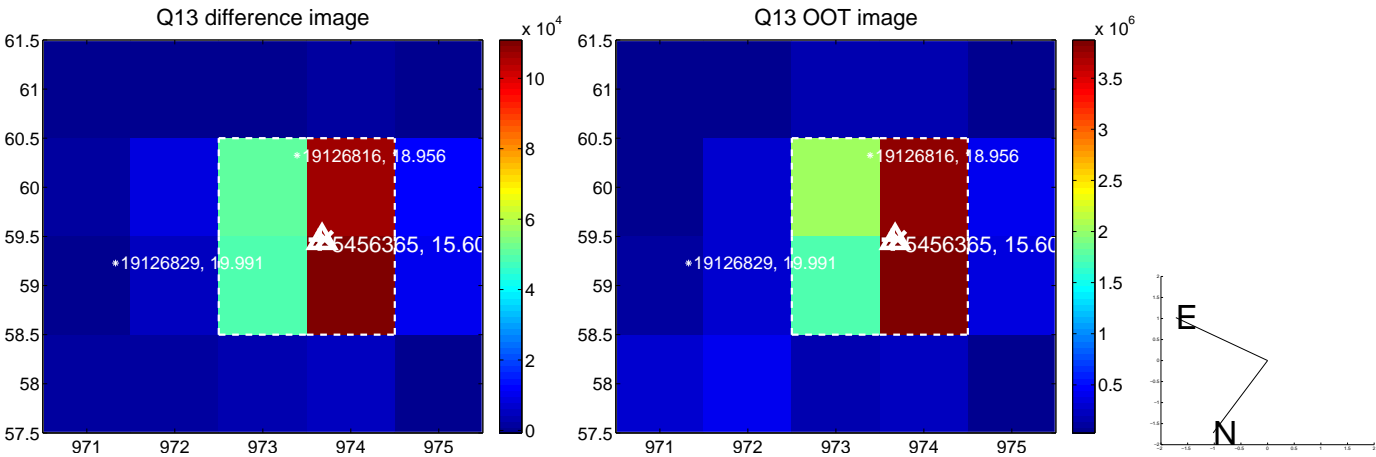
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



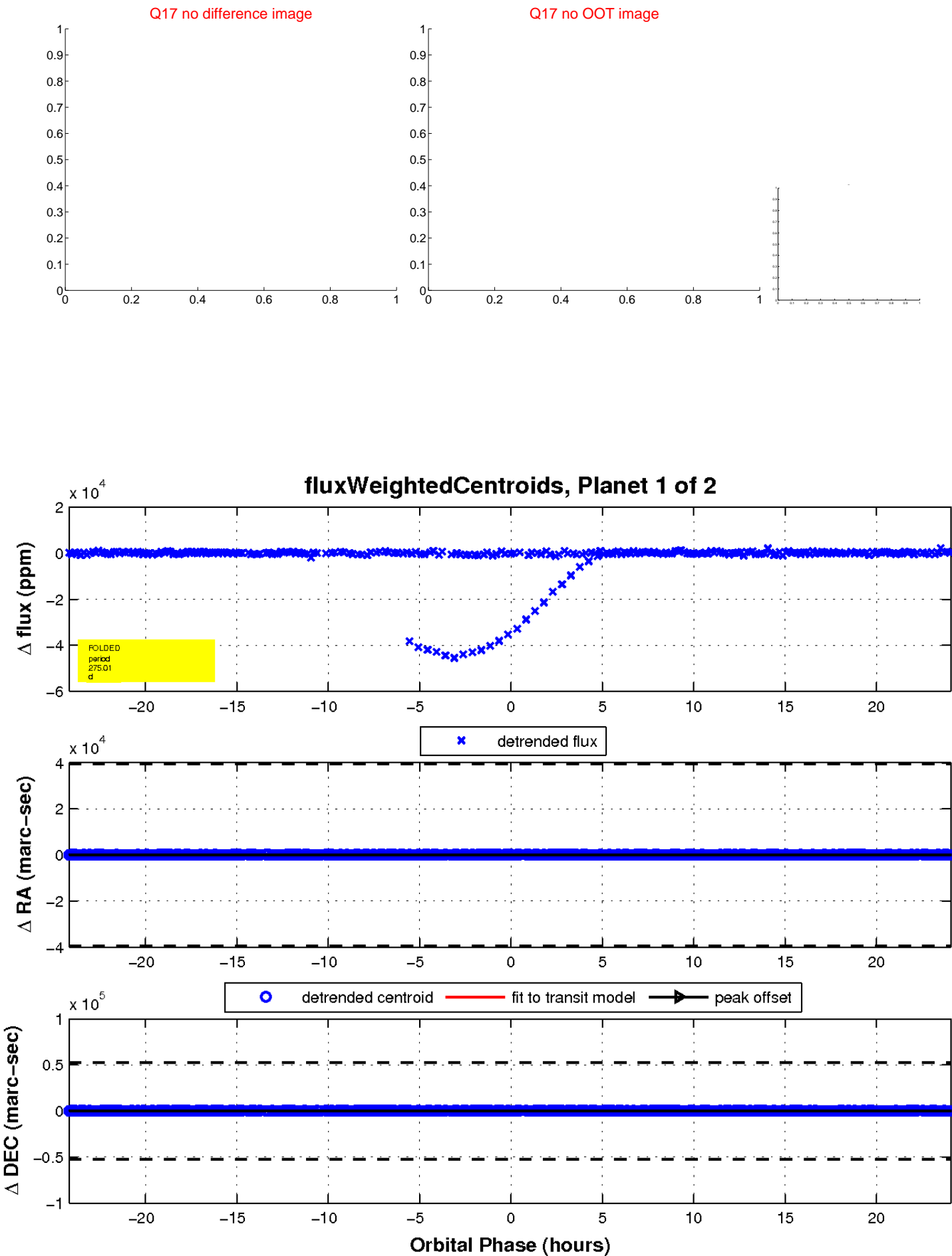
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

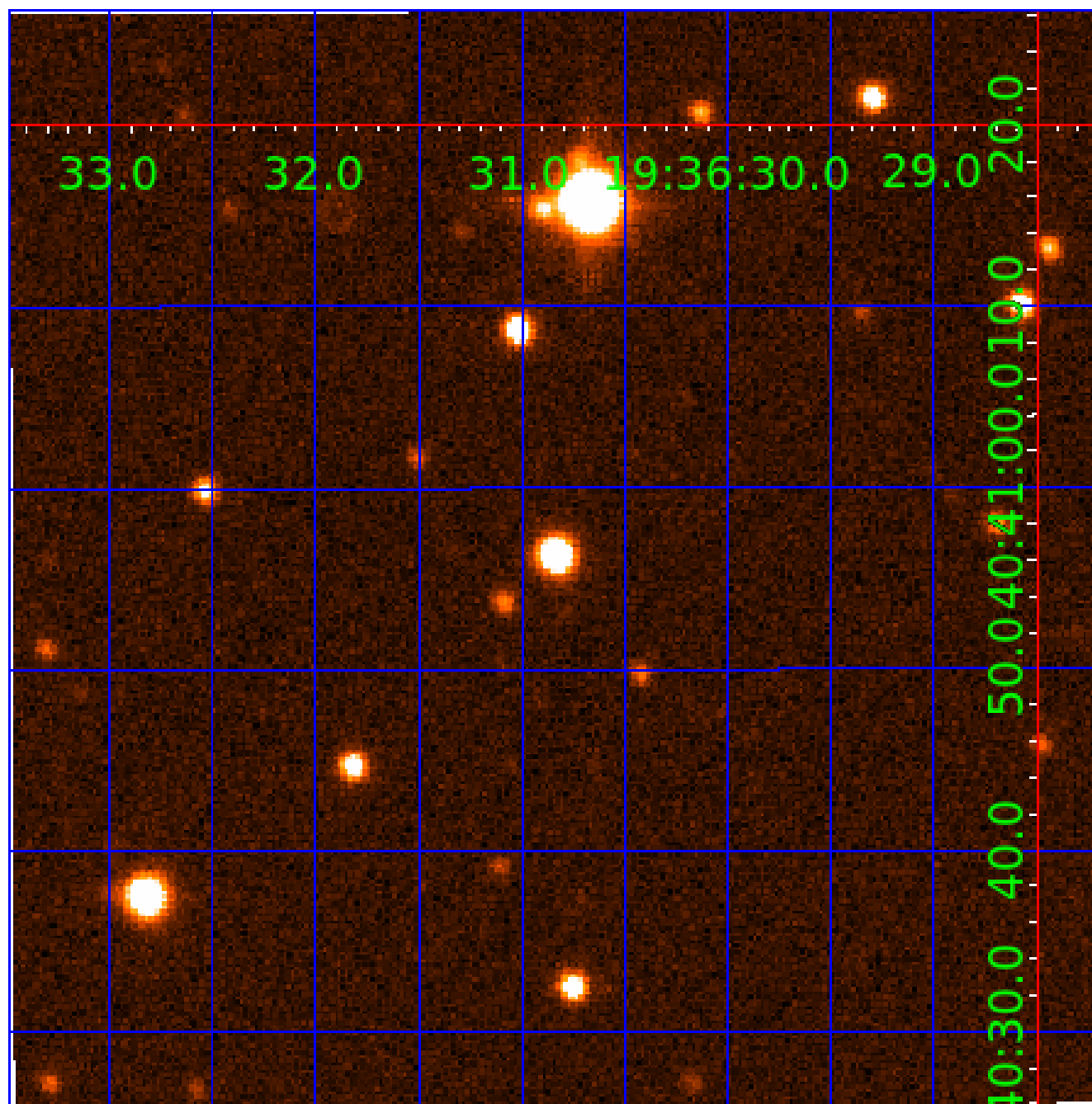


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005456365

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})
005456365-01	OBS	No	275.006974	373.863021	29671.1	8.068	226.6	115.4	0.78	4931	23.89	0.55
005456365-02	OBS	No	282.413464	212.590025	220.2	38.494	7.2	4.9	0.78	4931	1.36	0.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005456365-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005456365-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

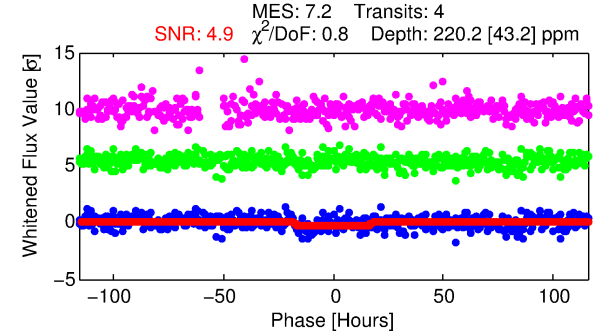
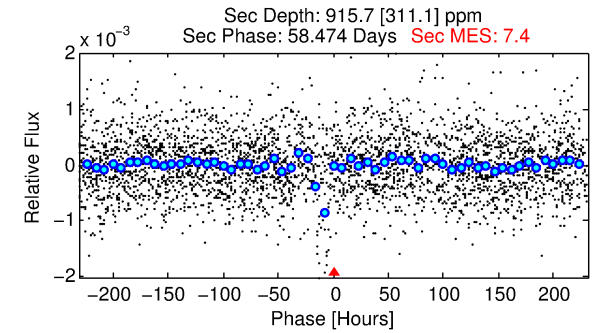
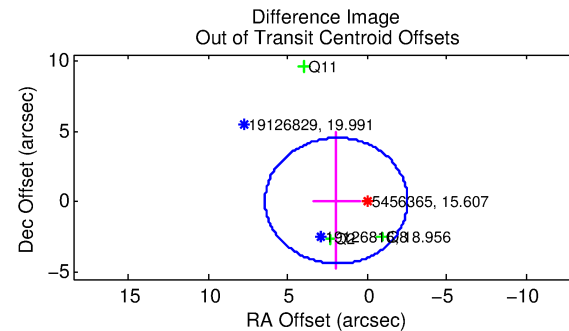
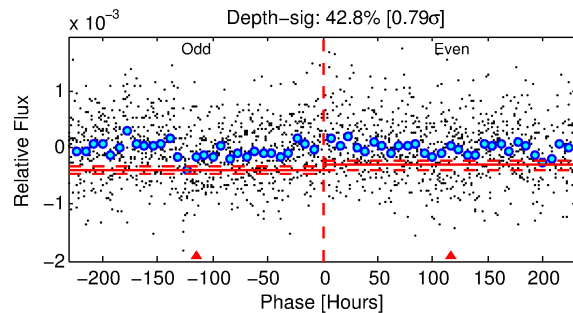
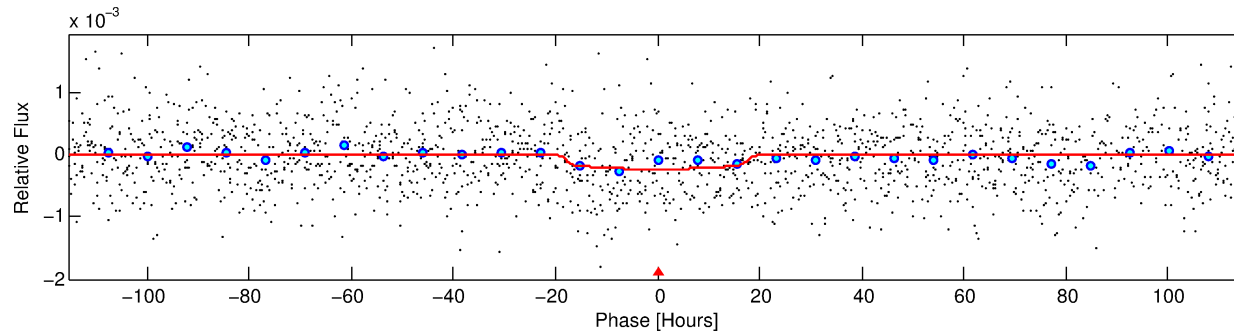
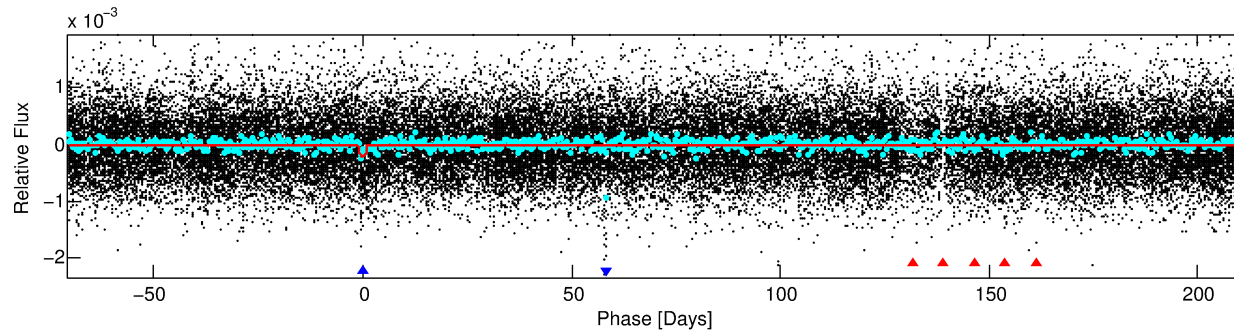
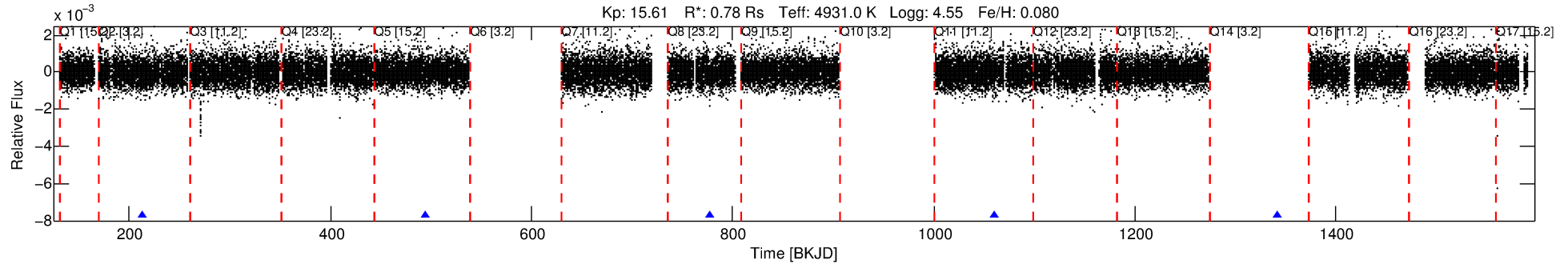
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005456365-02

No Significant Match Found

DV One-Page Summary

KIC: 5456365 Candidate: 2 of 2 Period: 282.413 d



DV Fit Results:

Period = 282.41346 [0.05369] d
Epoch = 212.5900 [0.1005] BKJD
Rp/R* = 0.0161 [0.0053]
a/R* = 29.19 [35.17]
b = 0.87 [0.34]
Seff = 0.53 [0.09]
Teq = 217 [9] K
Rp = 1.37 [0.47] Re
a = 0.7766 [0.0549] AU
Ag = 163026.83 [122435.35] [1.33 σ]
Teffp = 6756 [1279] K [5.11 σ]

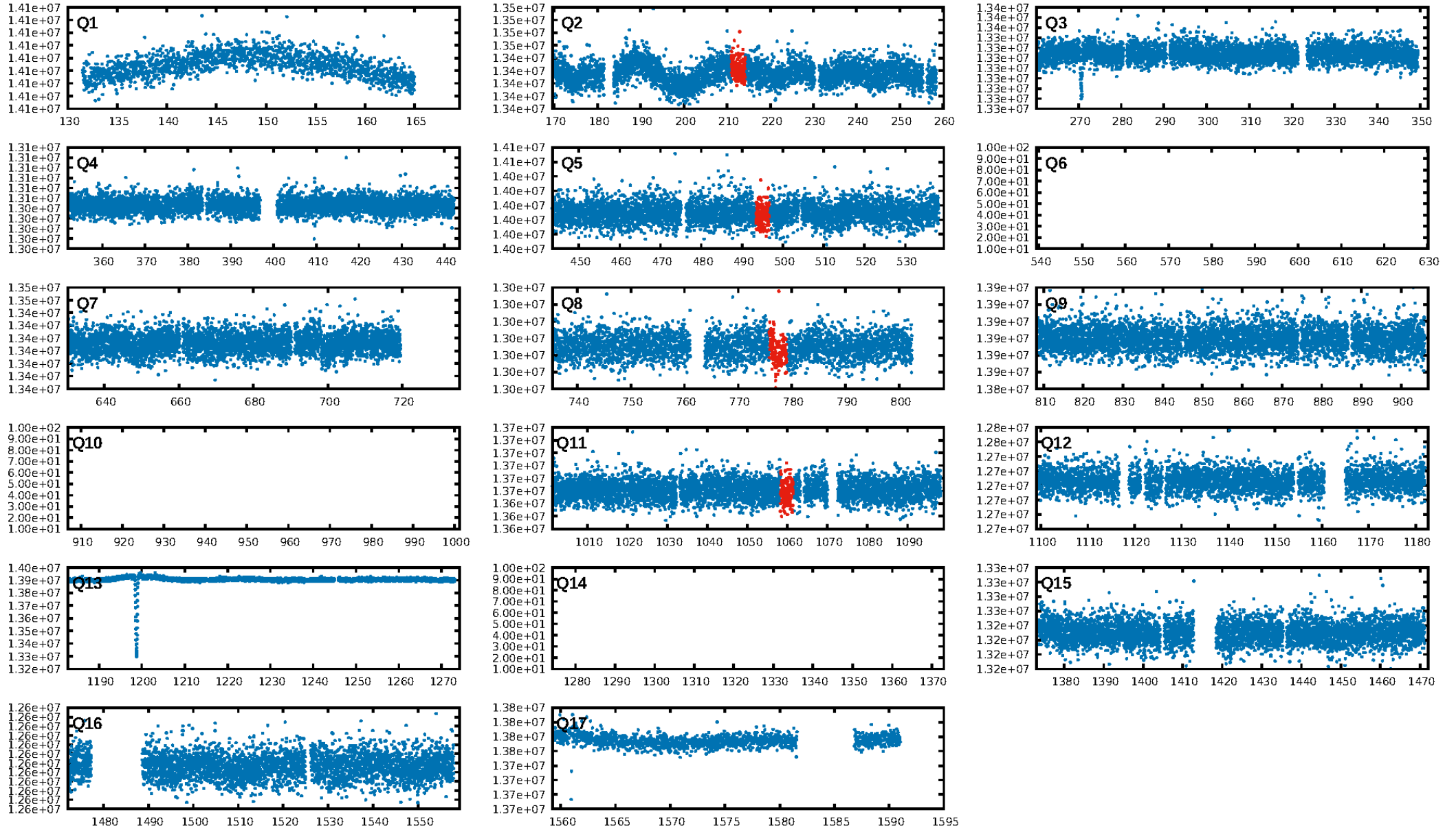
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.52 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.58e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -138.6
Centroid-sig: 2.4%
Centroid-so: 3.135 arcsec [1.17 σ]
OotOffset-rm: 1.943 arcsec [1.30 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-rm: 2.194 arcsec [1.28 σ]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [4/4]

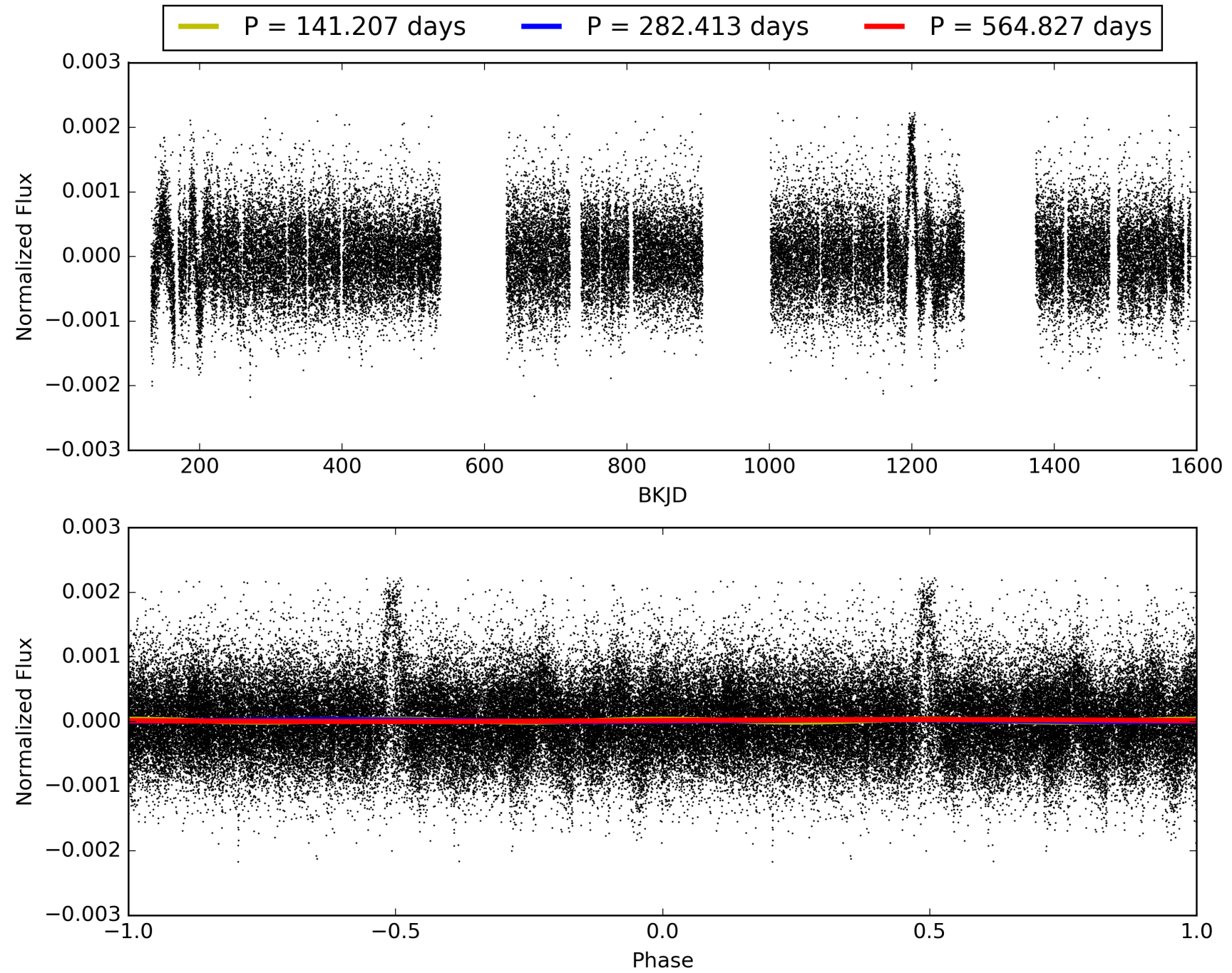
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:42:55 Z

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

TCE 005456365-02, PDC Light Curves

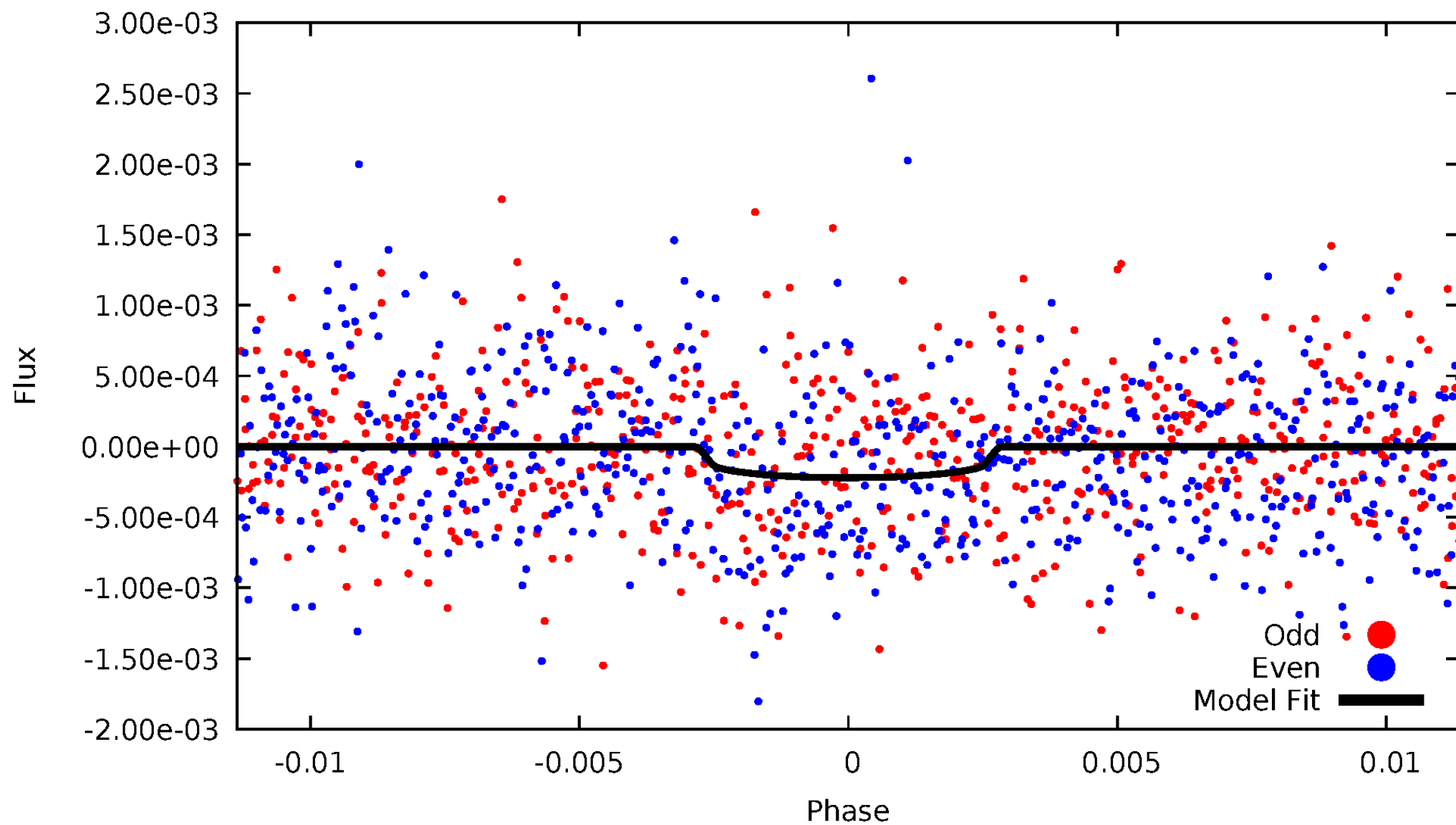


TCE 005456365-02



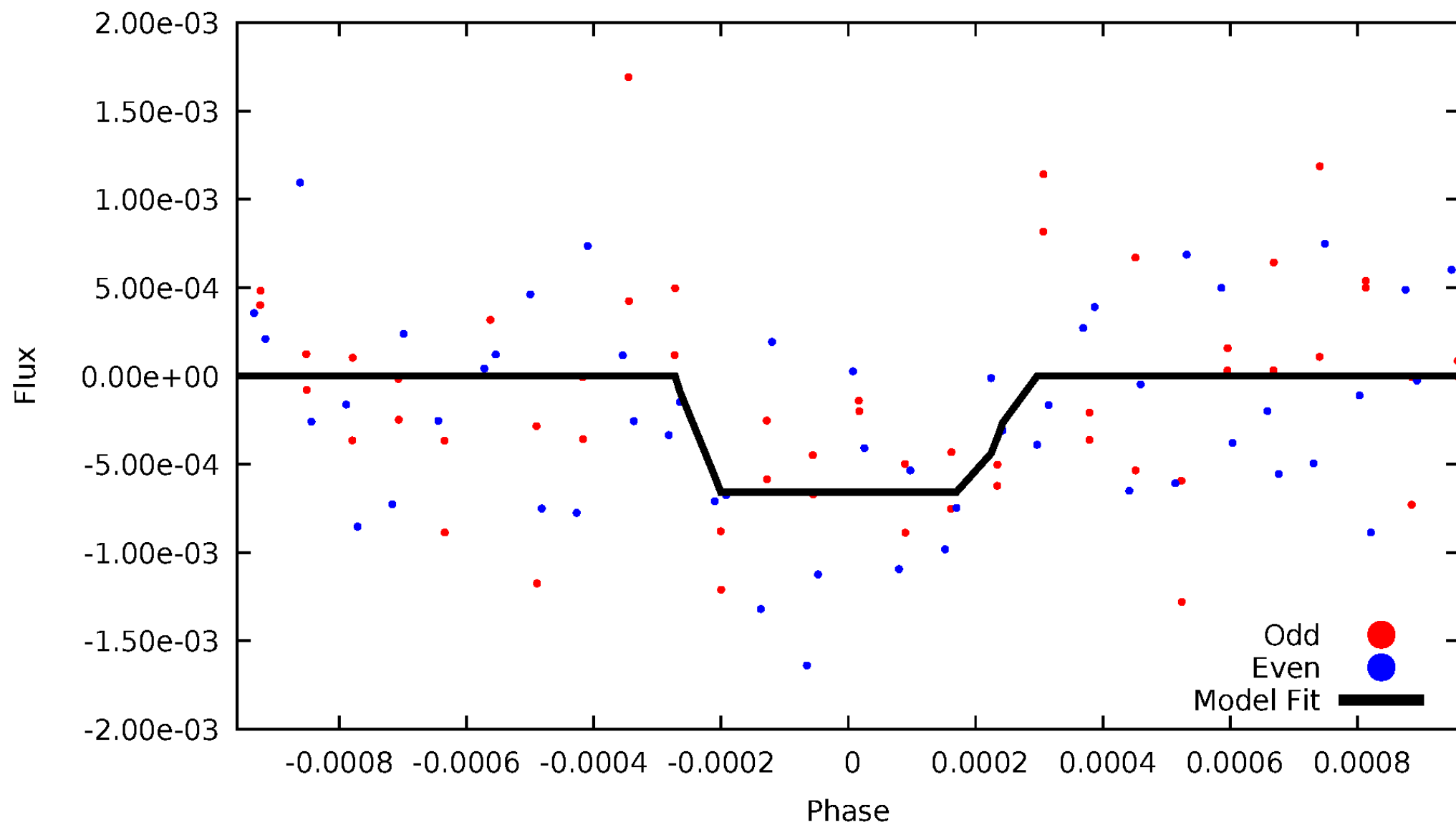
DV Odd/Even

TCE 005456365-02



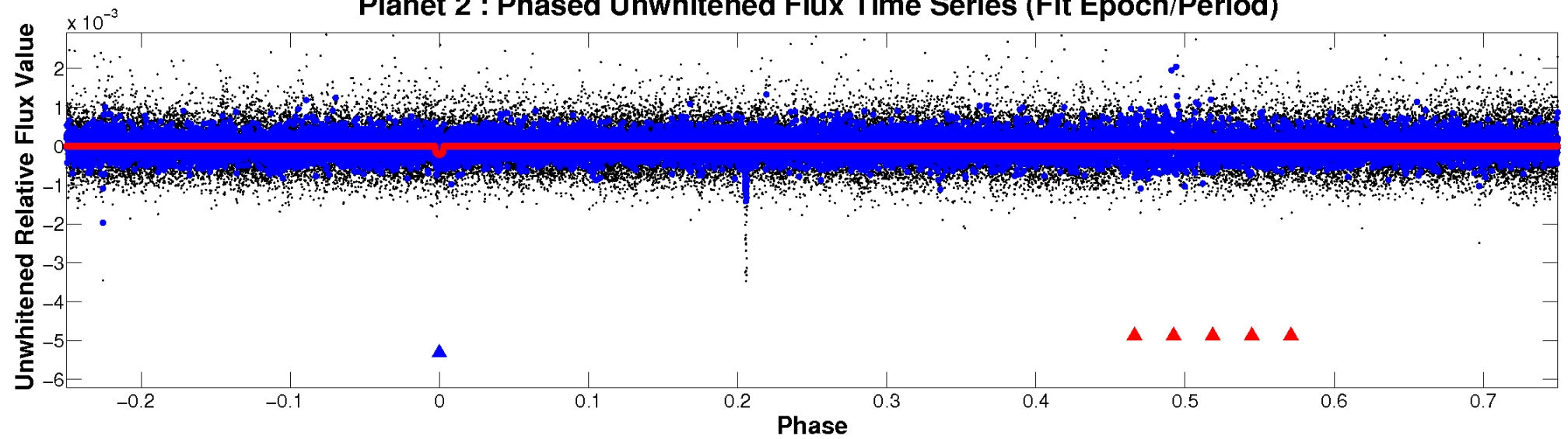
ALT Odd/Even

TCE 005456365-02

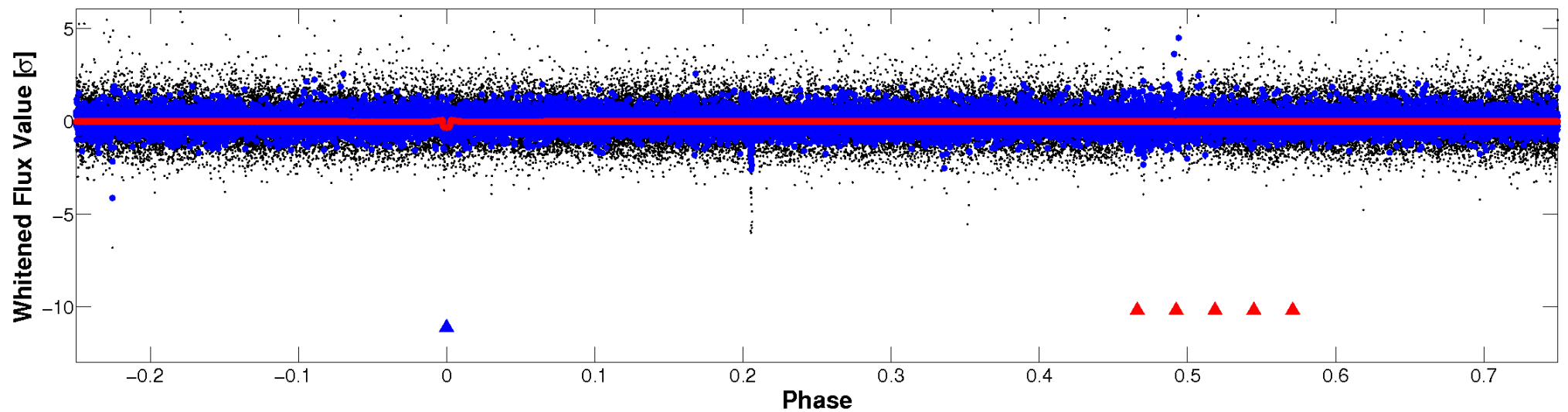


Non-Whitened Vs. Whitened Light Curve

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



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



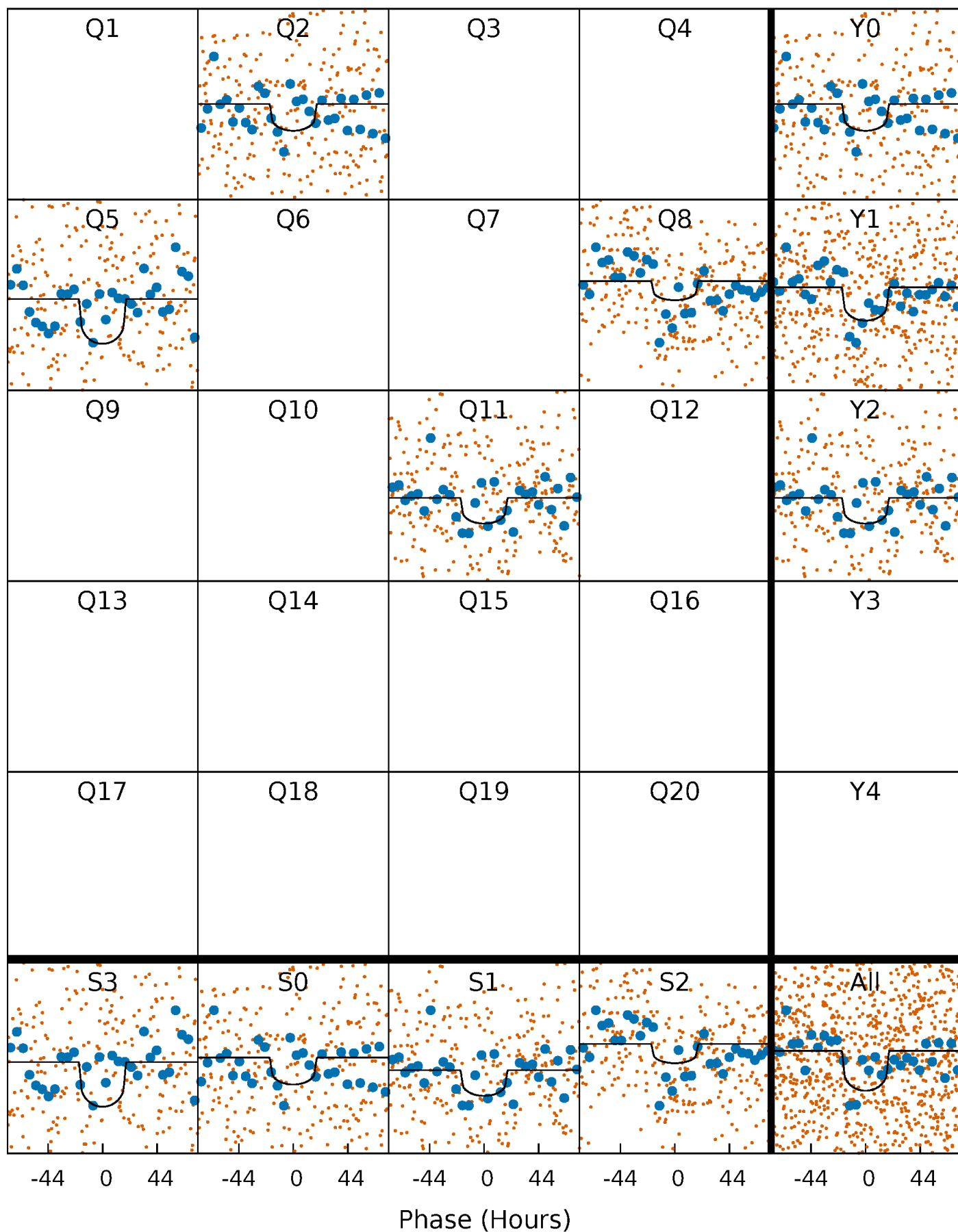
PDC Quarter-Phased Transit Curves

TCE 005456365-02 P=282.413464 Days $T_0=212.590025$ (BKJD)



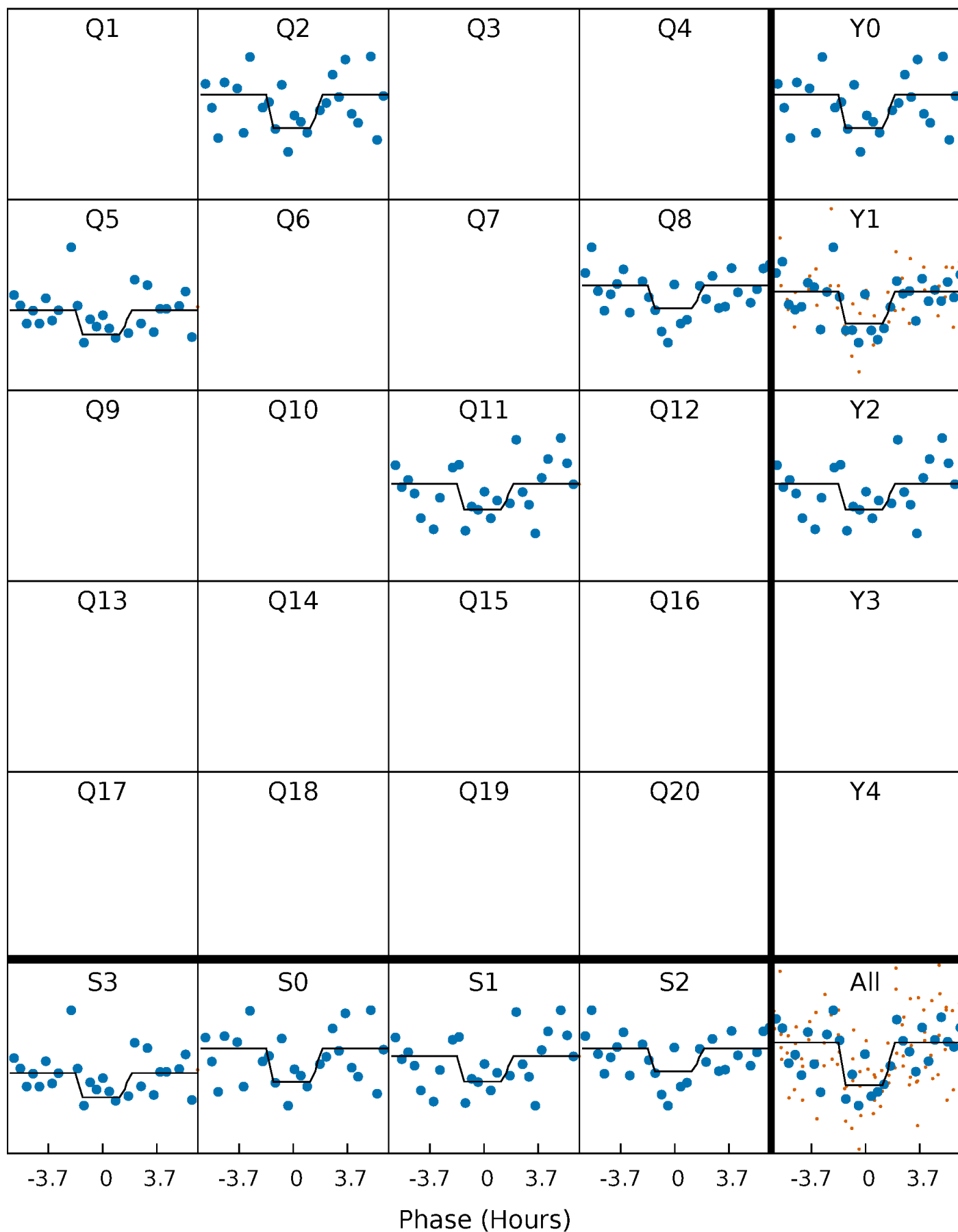
DV Quarter-Phased Transit Curves

TCE 005456365-02 P=282.413464 Days $T_0=212.590025$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

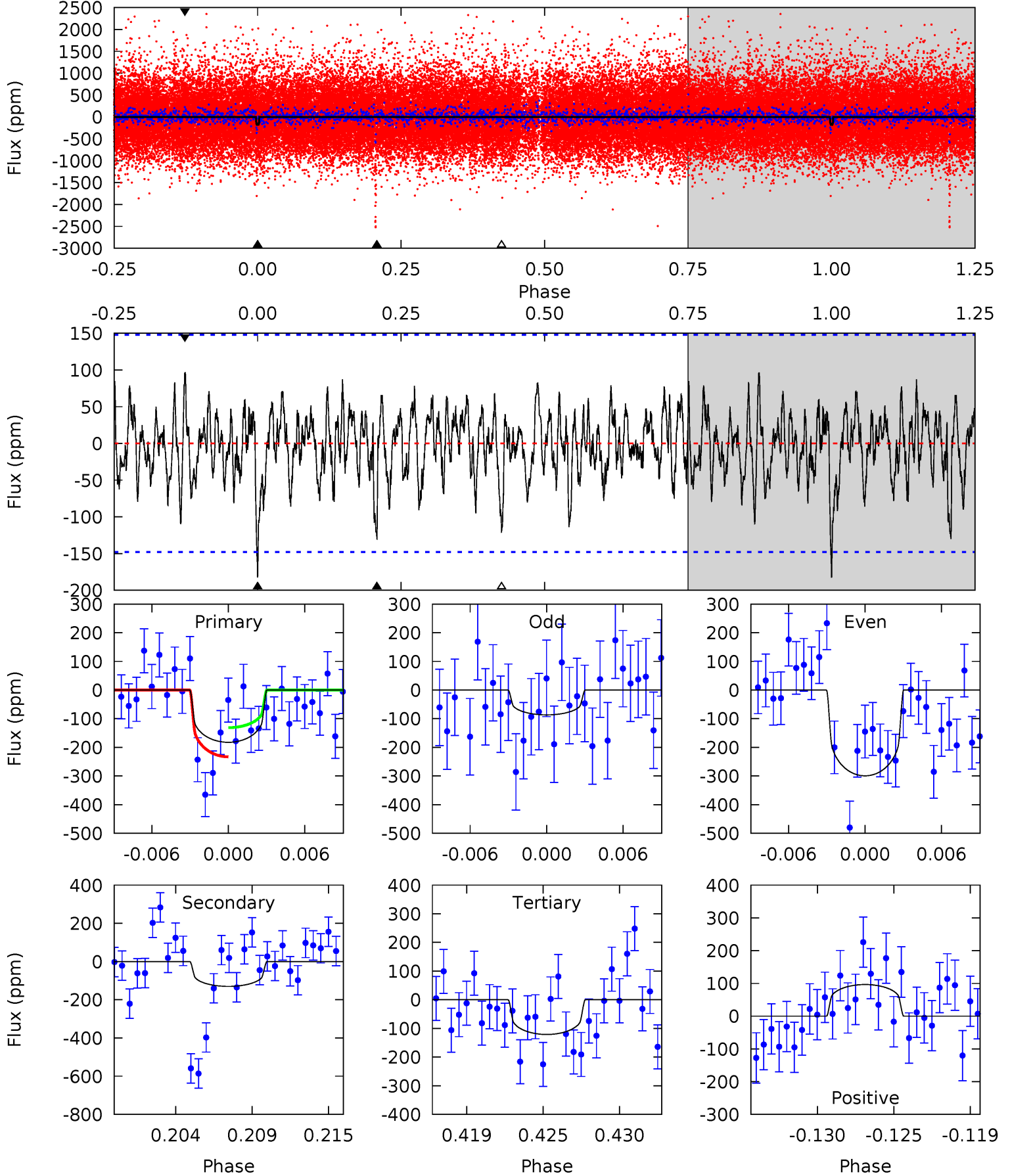
TCE 005456365-02 P=282.351144 Days $T_0=212.261157$ (BKJD)



DV Model-Shift Uniqueness Test

005456365-02, P = 282.413464 Days, E = 212.590025 Days

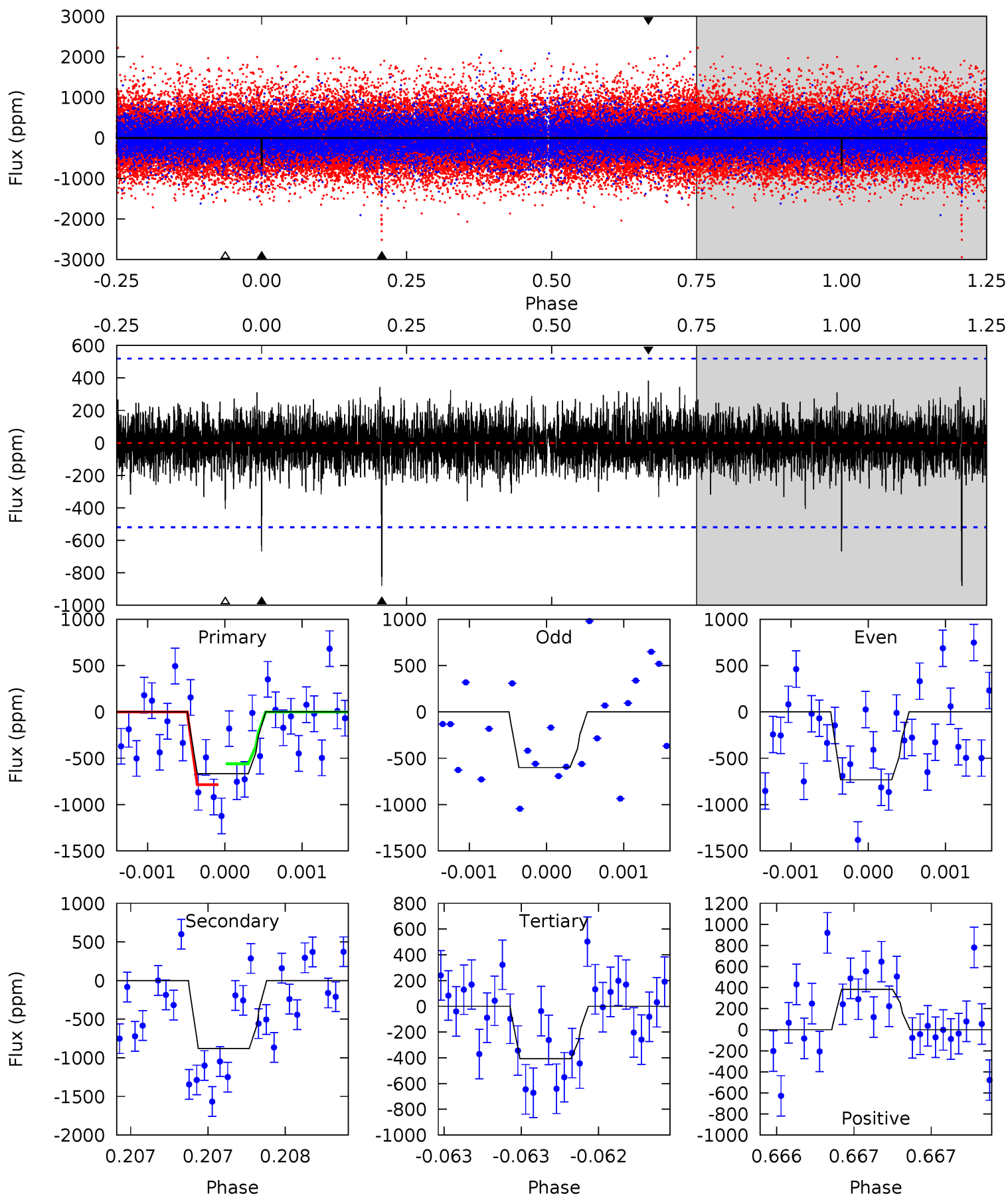
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.34	4.52	4.21	3.35	5.13	2.77	1.31	2.13	2.99	0.31	1.17	3.69	1.56	0.35	1.77



Alt Model-Shift Uniqueness Test

005456365-02, P = 282.351144 Days, E = 212.261157 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.13	9.41	4.35	4.11	5.55	3.45	1.01	2.77	3.02	5.06	5.31	0.71	1.08	0.30	1.20



Stellar Parameters For KIC 005456365

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4931^{+172}_{-172}	$4.552^{+0.055}_{-0.050}$	$0.080^{+0.250}_{-0.300}$	$0.776^{+0.066}_{-0.066}$	$0.782^{+0.070}_{-0.063}$	$2.355^{+0.567}_{-0.420}$
	+3%/-3%	+1%/-1%	+312%/-375%	+9%/-9%	+9%/-8%	+24%/-18%
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 005456365-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-130 ± 29	$1.35^{+0.48}_{-0.43}$	304^{+12}_{-13}	4296^{+780}_{-489}	23123^{+28129}_{-11269}
Alt.	-880 ± 93	$2.15^{+0.49}_{-0.43}$	304^{+13}_{-12}	5254^{+666}_{-465}	63580^{+36136}_{-21877}

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

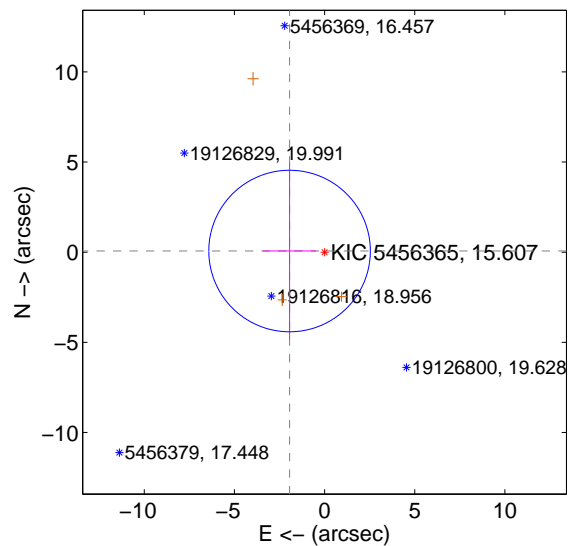
Supplemental centroid analysis for 005456365-02. Kepler magnitude: 15.61. Transit SNR 4.90

There are 0 quarters with good PRF difference image offsets

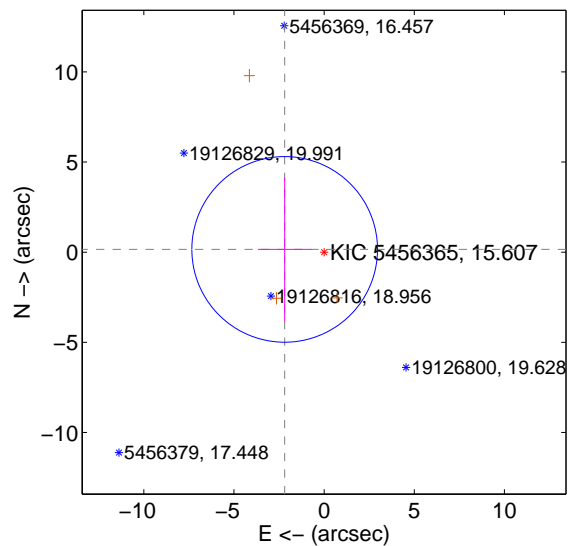
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.943 ± 1.494	1.30	1.942 ± 1.486	0.064 ± 4.870
PRF-fit source offset from KIC position	2.194 ± 1.717	1.28	2.188 ± 1.483	0.154 ± 3.997
photometric centroid source offset	3.13 ± 2.68	1.17	-1.09 ± 2.05	-2.94 ± 2.76

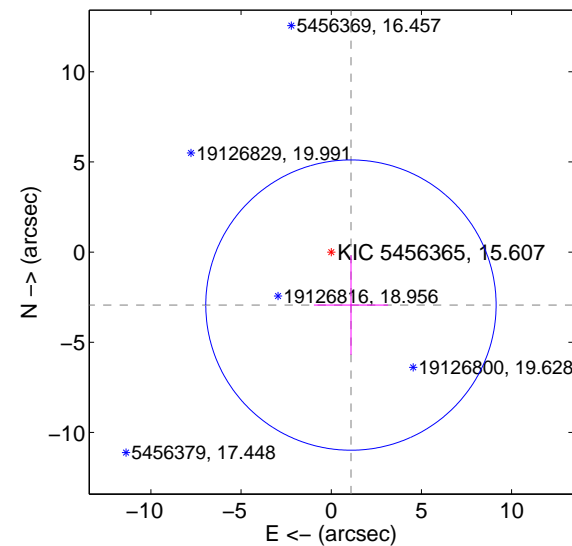
offset from difference PRF-fit to OOT PRF-fit



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.

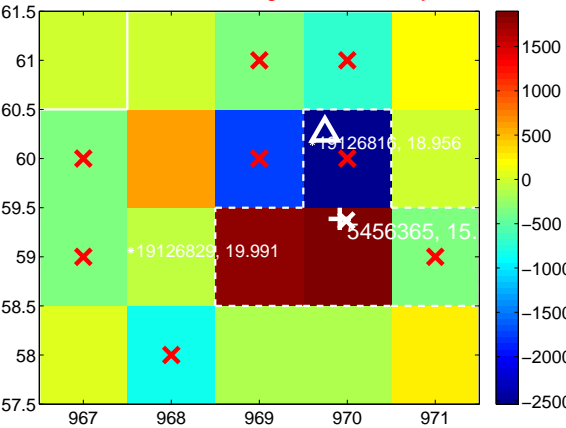
Q1 no difference image



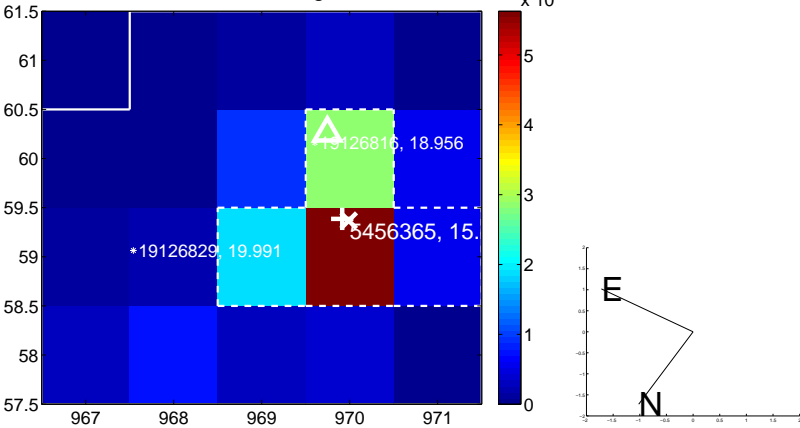
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



Q3 no difference image



Q3 no OOT image



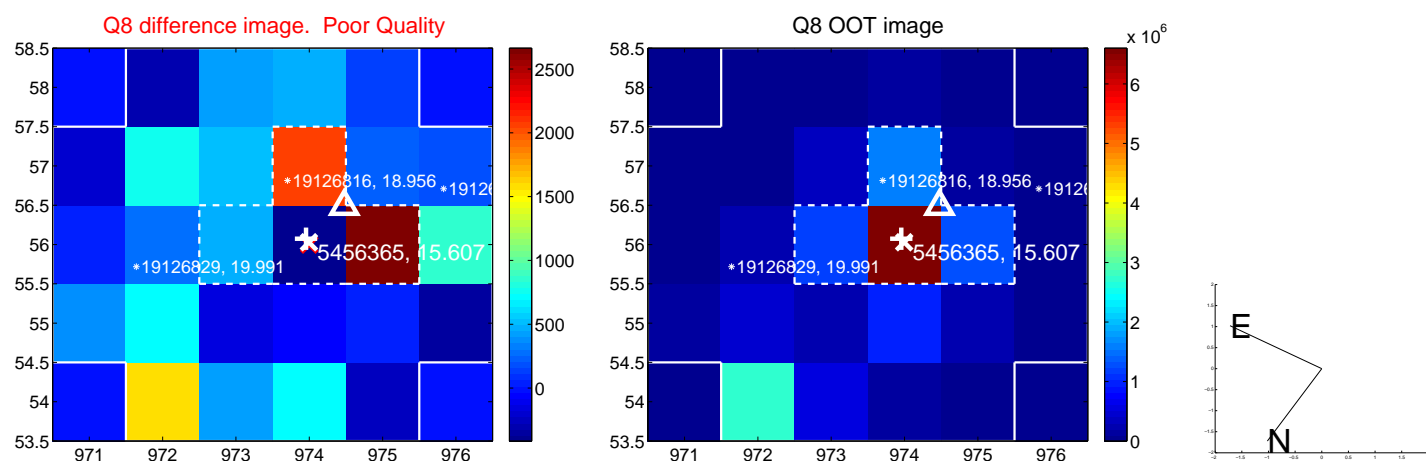
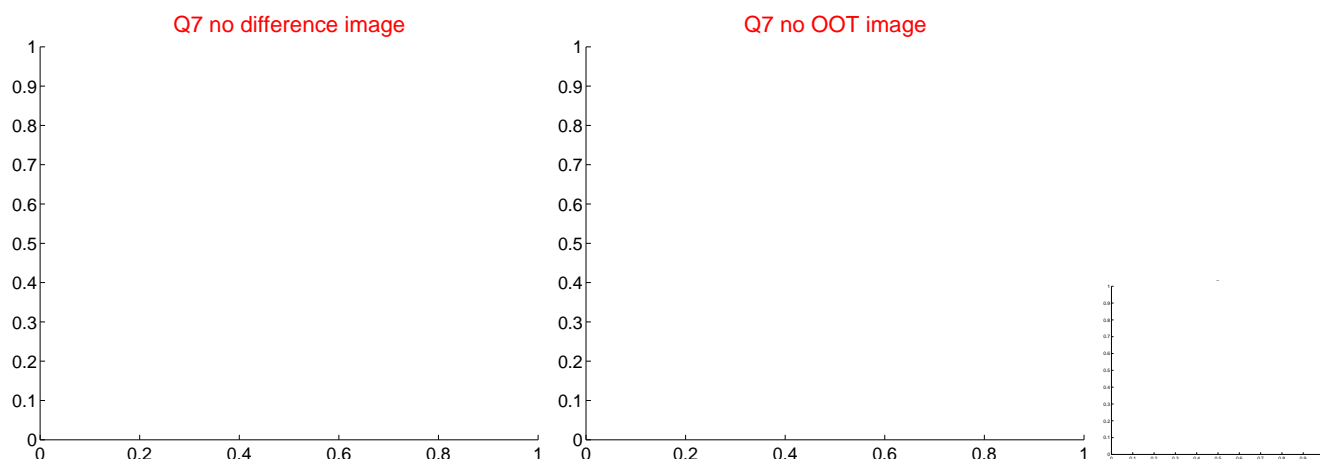
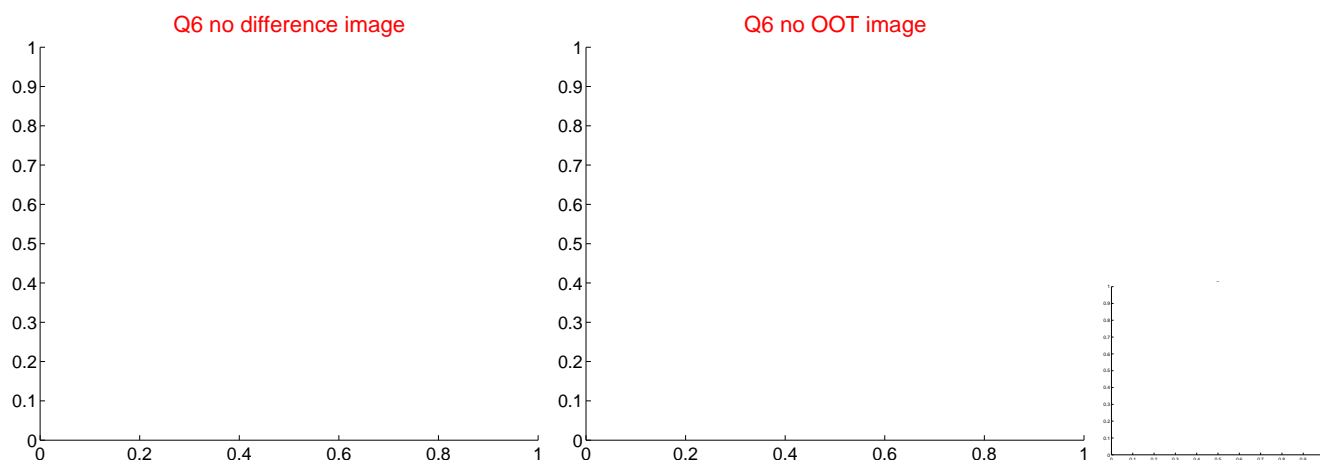
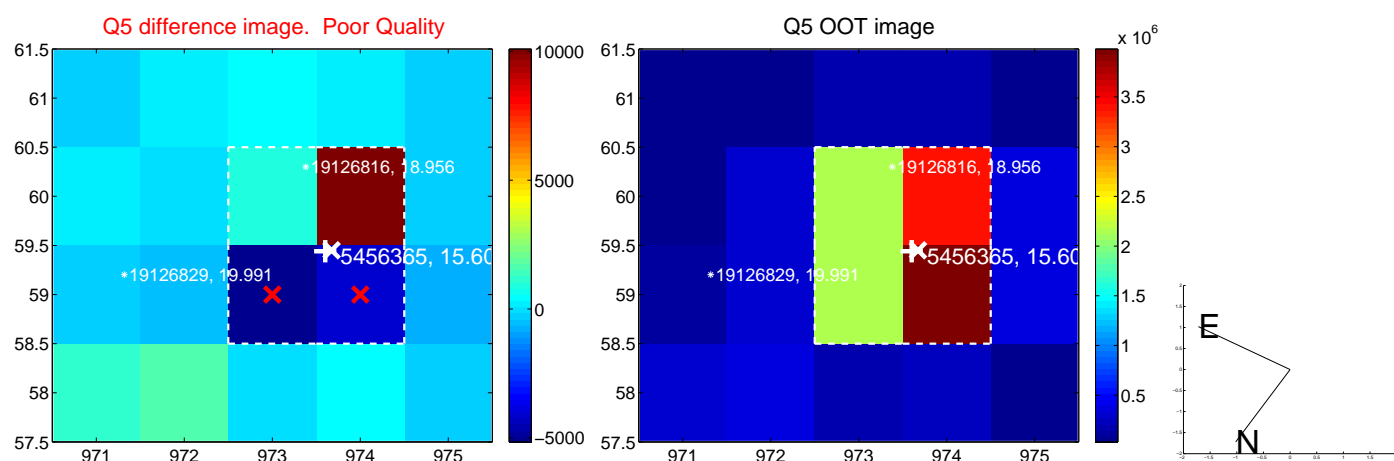
Q4 no difference image



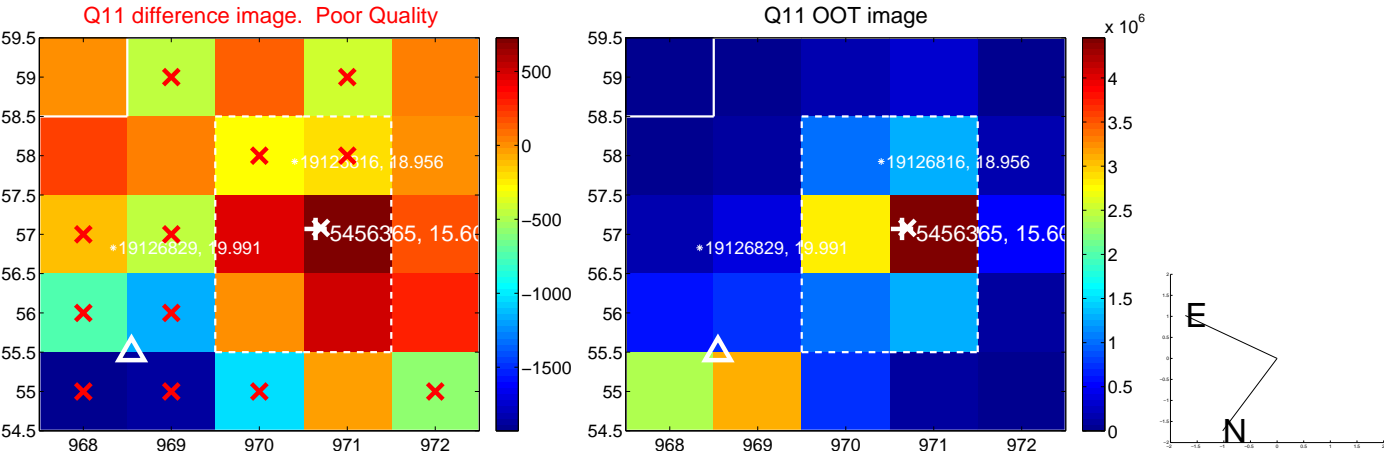
Q4 no OOT image



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



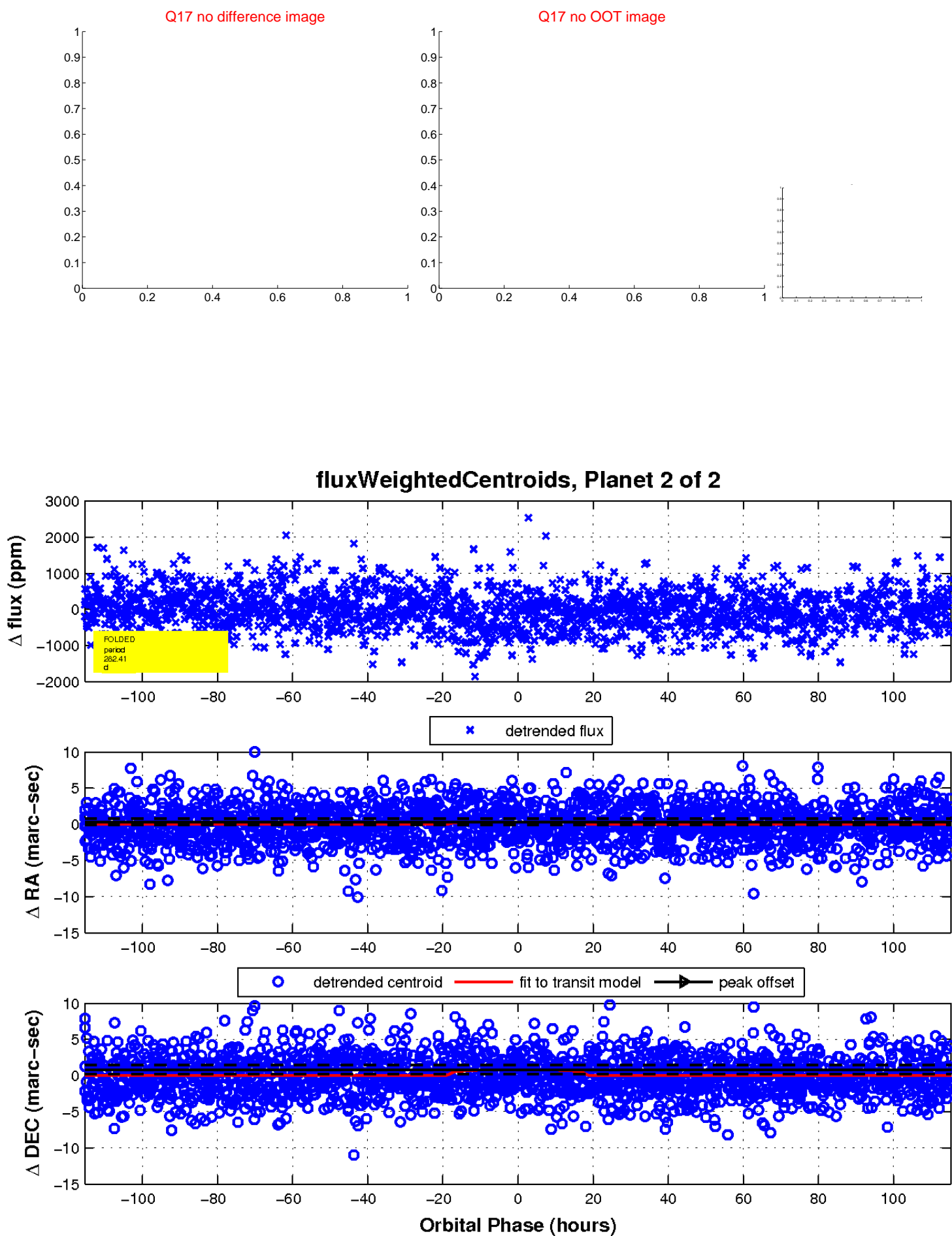
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

