

KIC 010206169

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})
010206169-01	OBS	No	373.159635	494.284170	730.5	16.463	7.4	7.5	0.99	6201	2.81	1.21
010206169-02	OBS	No	379.655852	426.744529	731.7	10.303	8.8	8.8	0.99	6201	2.79	1.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010206169-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—CENT_FEW_DIFFS
010206169-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQU_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

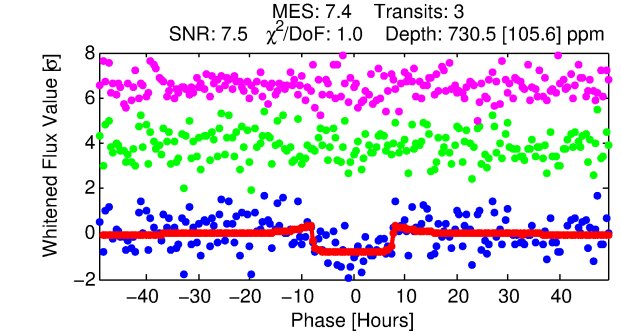
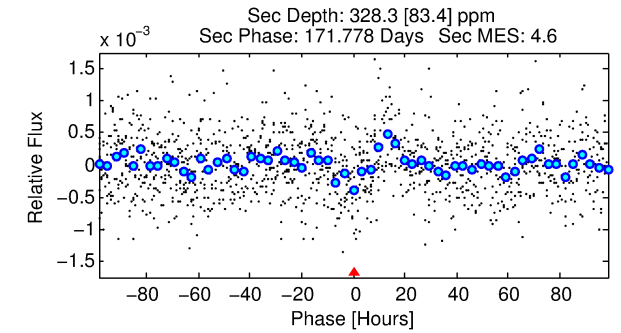
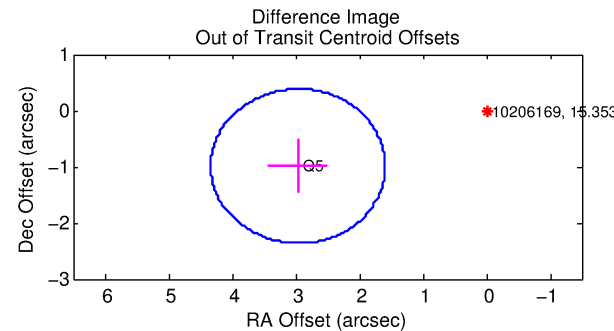
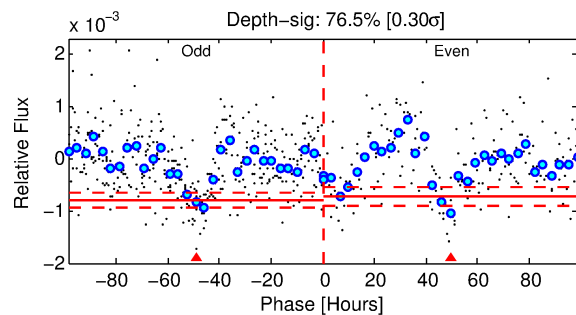
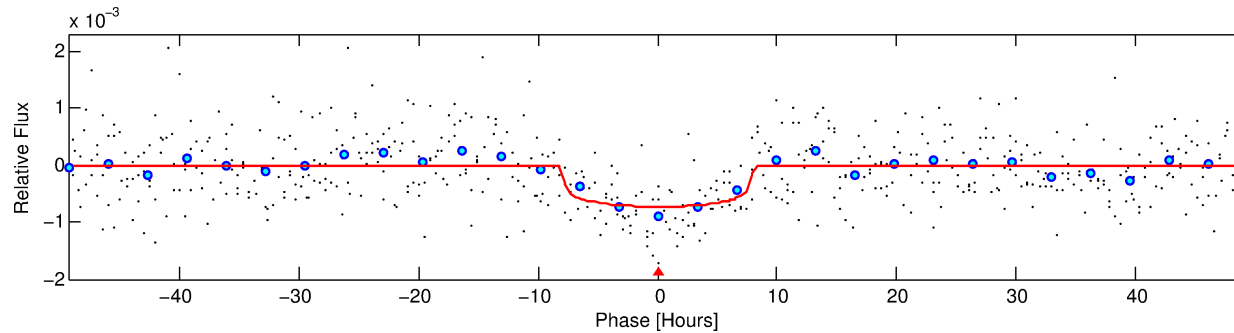
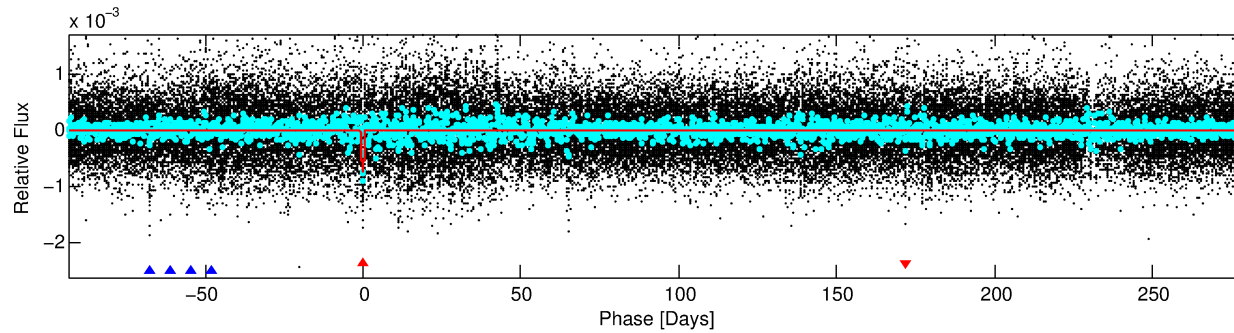
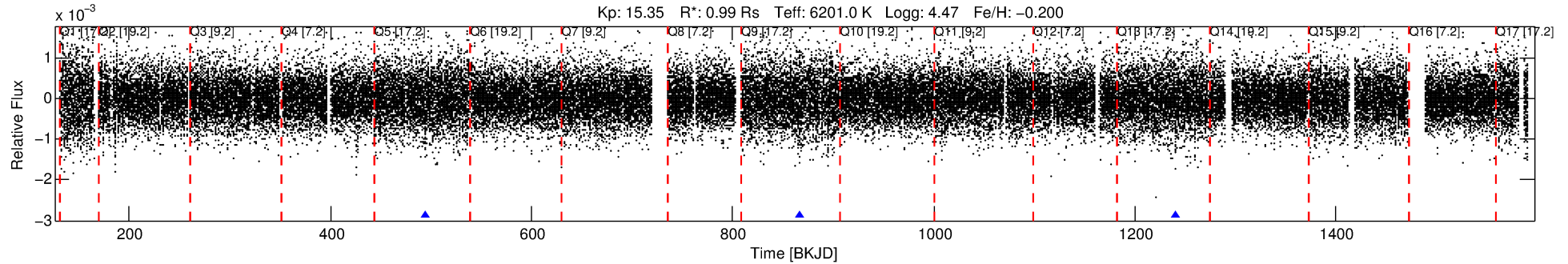
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010206169-01

No Significant Match Found

DV One-Page Summary

KIC: 10206169 Candidate: 1 of 2 Period: 373.160 d



DV Fit Results:

Period = 373.15964 [0.01405] d
Epoch = 494.2842 [0.0193] BKJD
Rp/R* = 0.0260 [0.0077]
a/R* = 140.50 [200.83]
b = 0.63 [1.39]
Seff = 1.21 [0.51]
Teq = 268 [28] K
Rp = 2.81 [1.23] Re
a = 1.0338 [0.2812] AU
Ag = 24439.11 [18466.12] [1.32 σ]
Teffp = 5173 [853] K [5.74 σ]

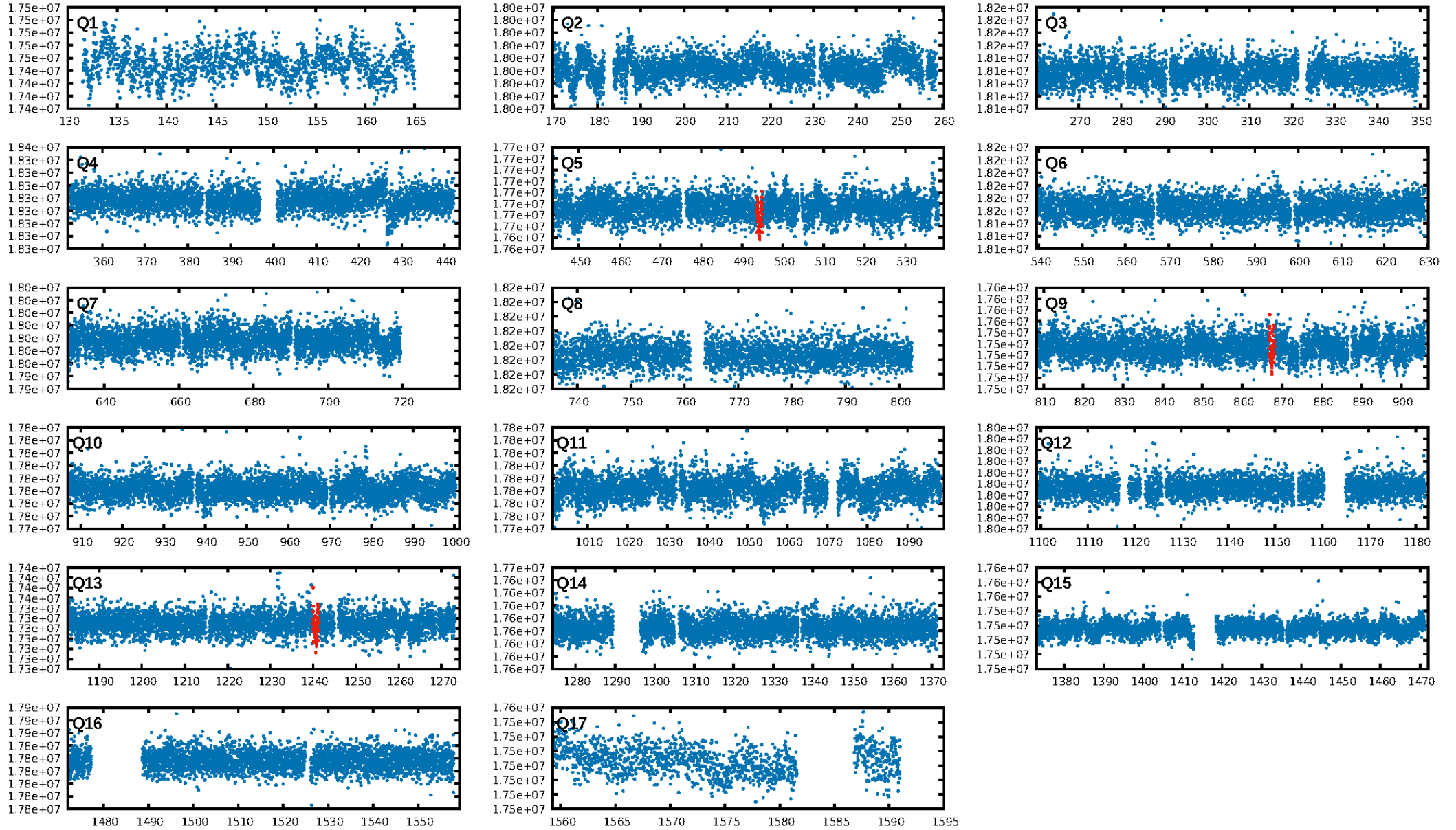
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [8.03 σ]
ModelChiSquare2-sig: 71.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.81e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -4.491
Centroid-sig: 0.0%
Centroid-so: 6.133 arcsec [2.70 σ]
OotOffset-rm: 3.126 arcsec [6.83 σ]
KicOffset-rm: 3.160 arcsec [6.91 σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

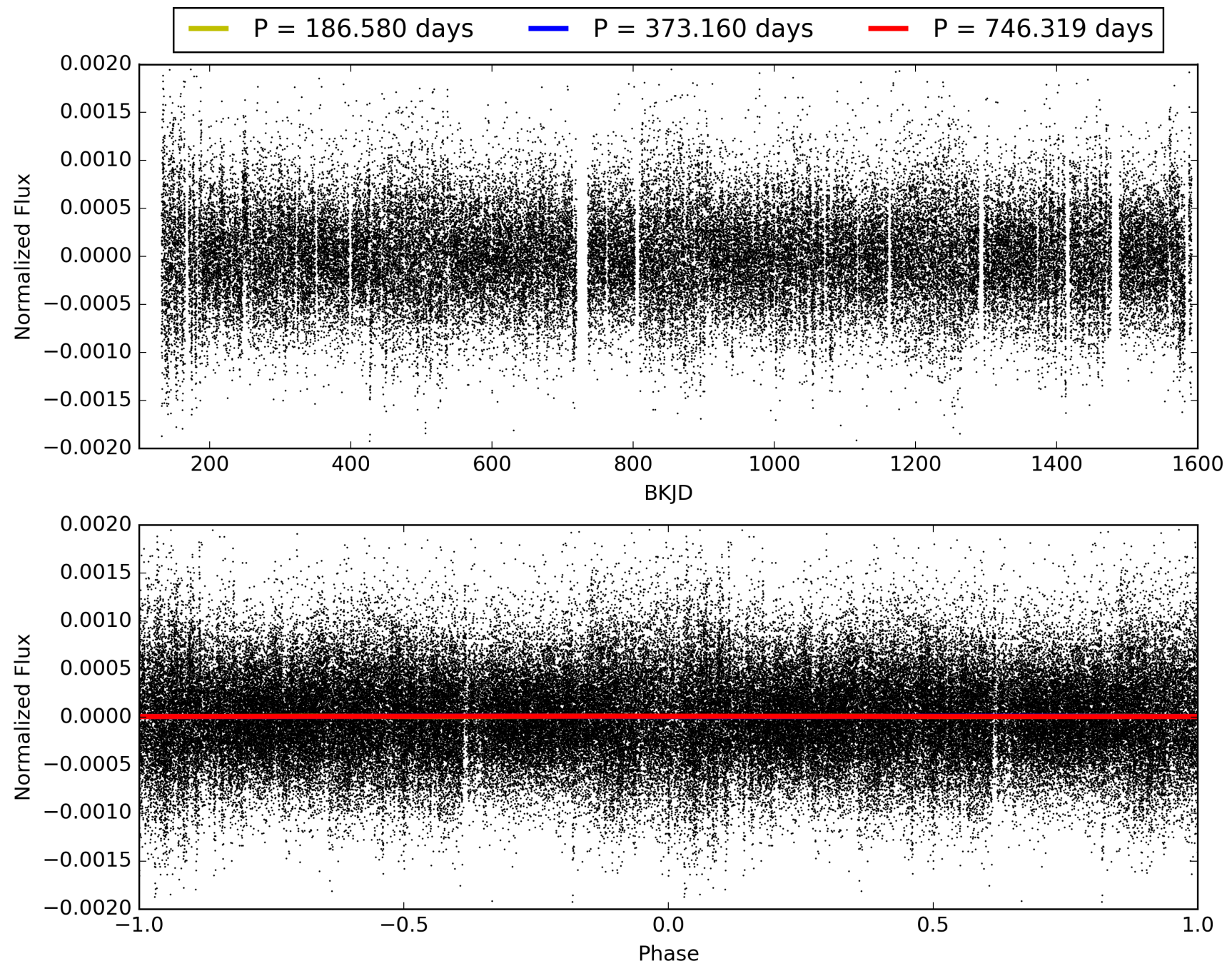
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:54:51 Z

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

TCE 010206169-01, PDC Light Curves

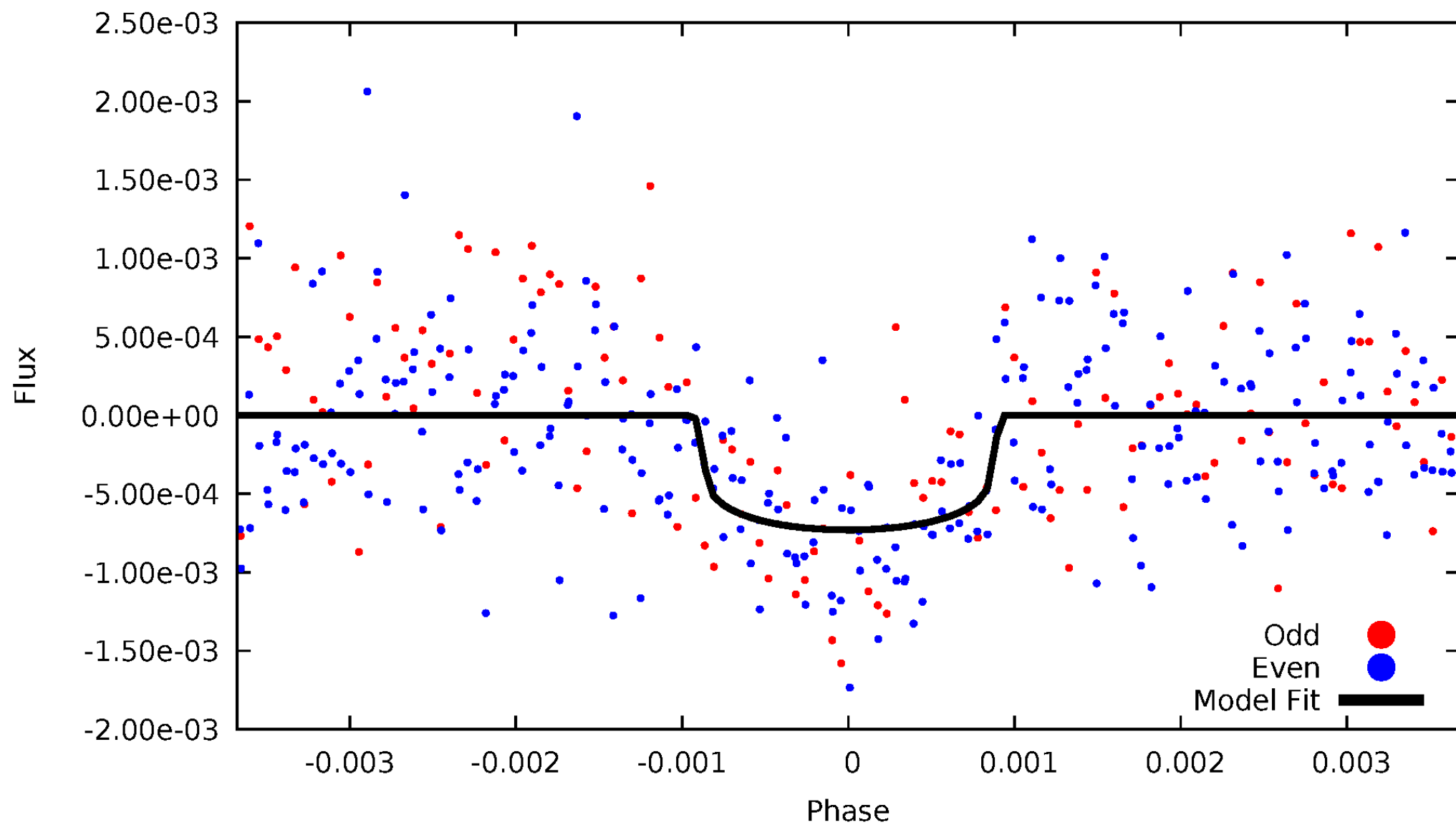


TCE 010206169-01



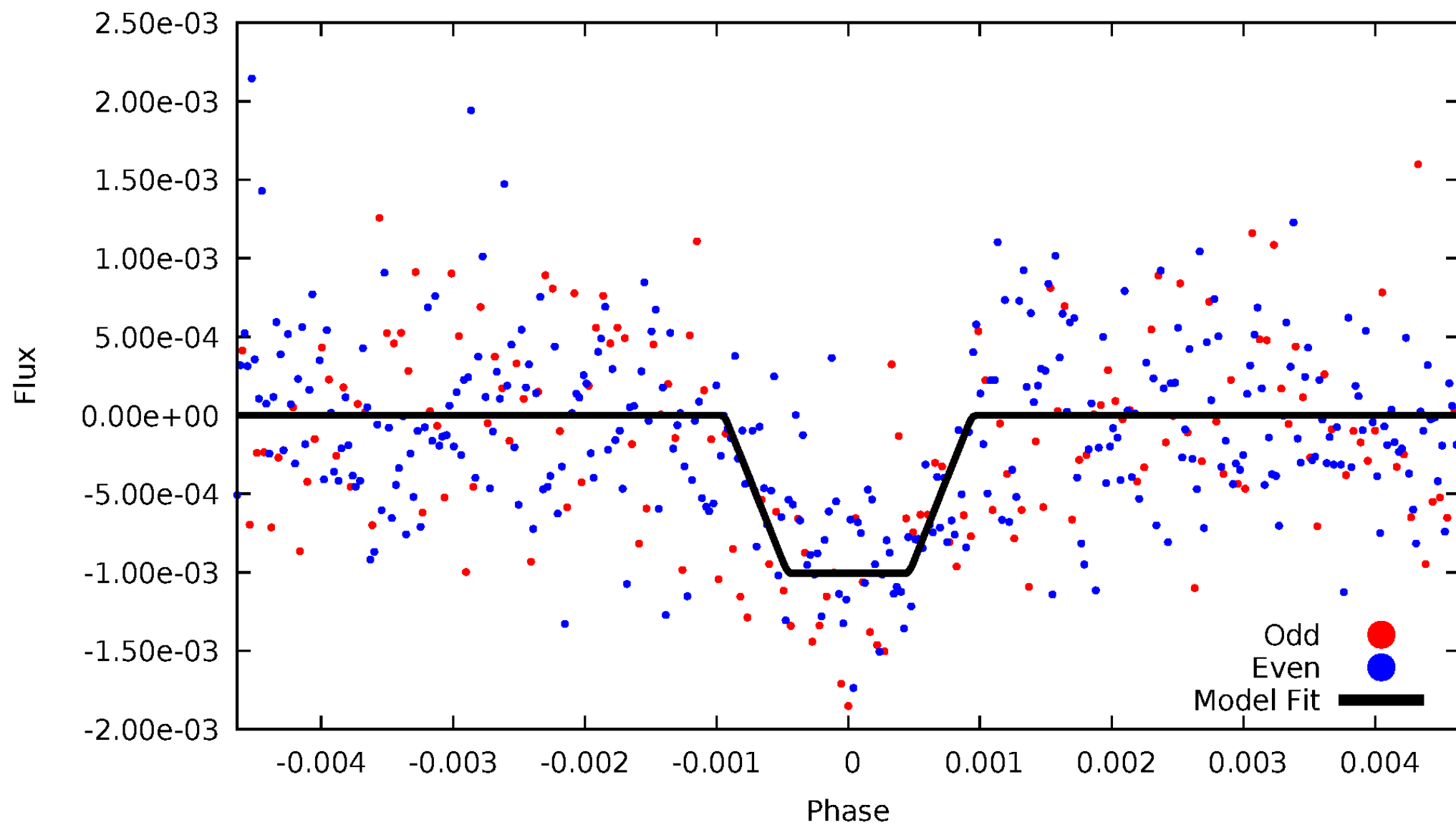
DV Odd/Even

TCE 010206169-01



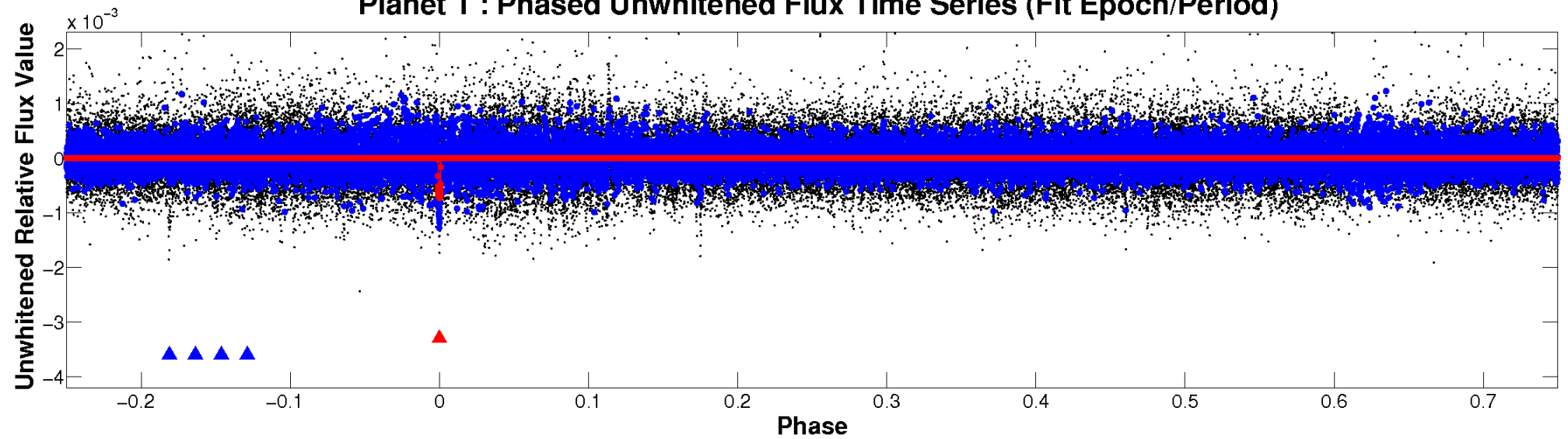
ALT Odd/Even

TCE 010206169-01

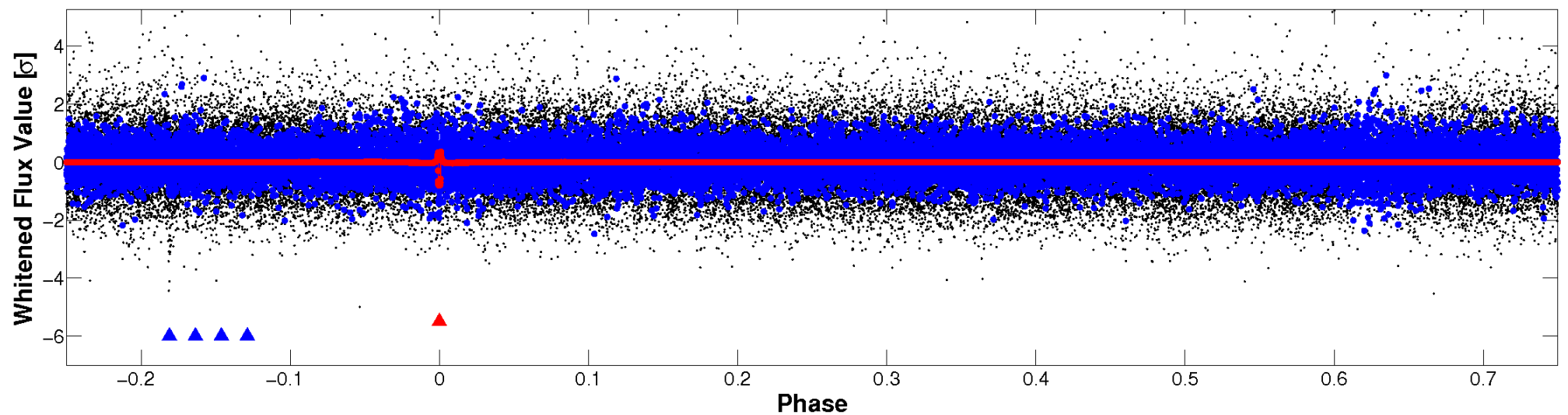


Non-Whitened Vs. Whitened Light Curve

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

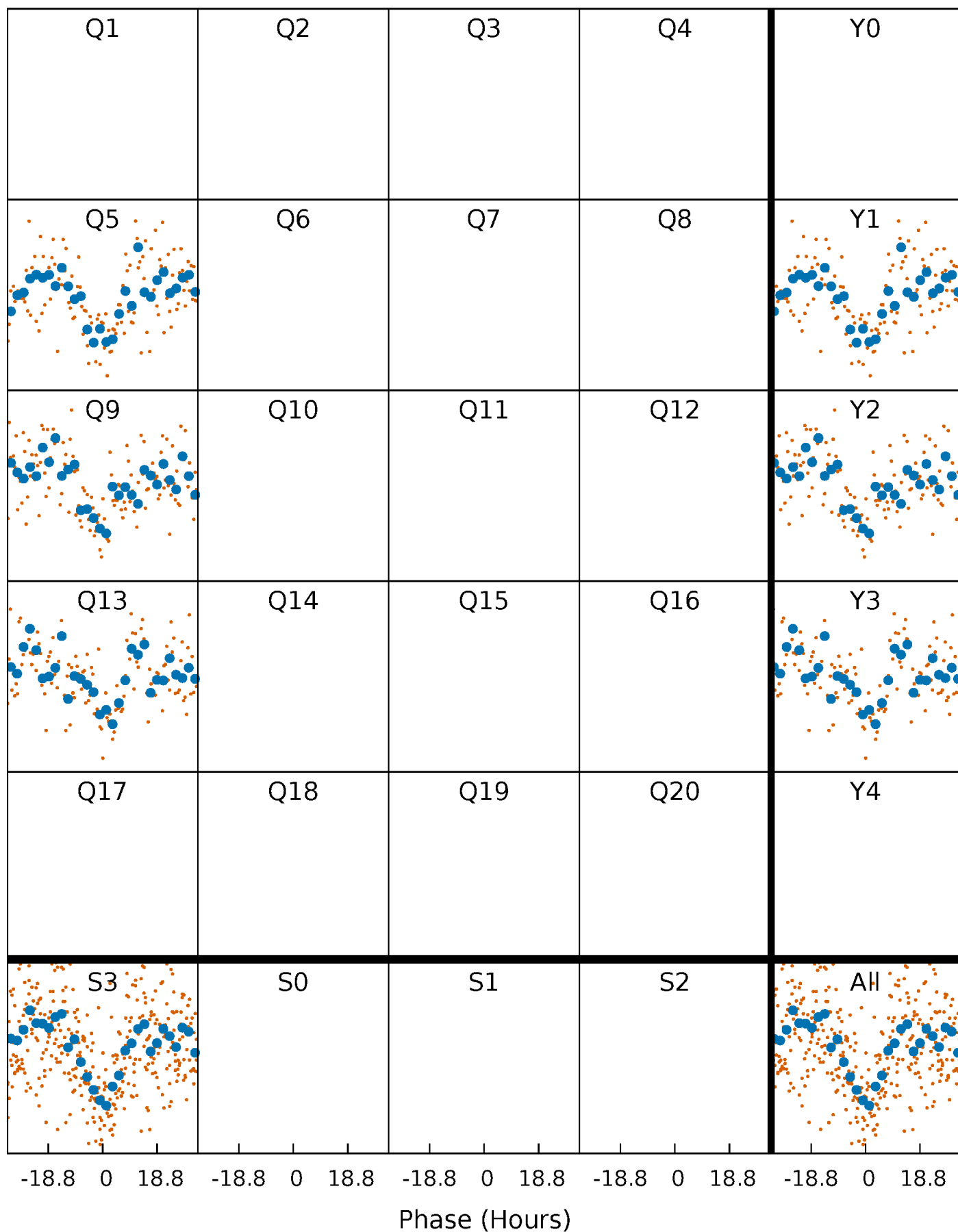


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



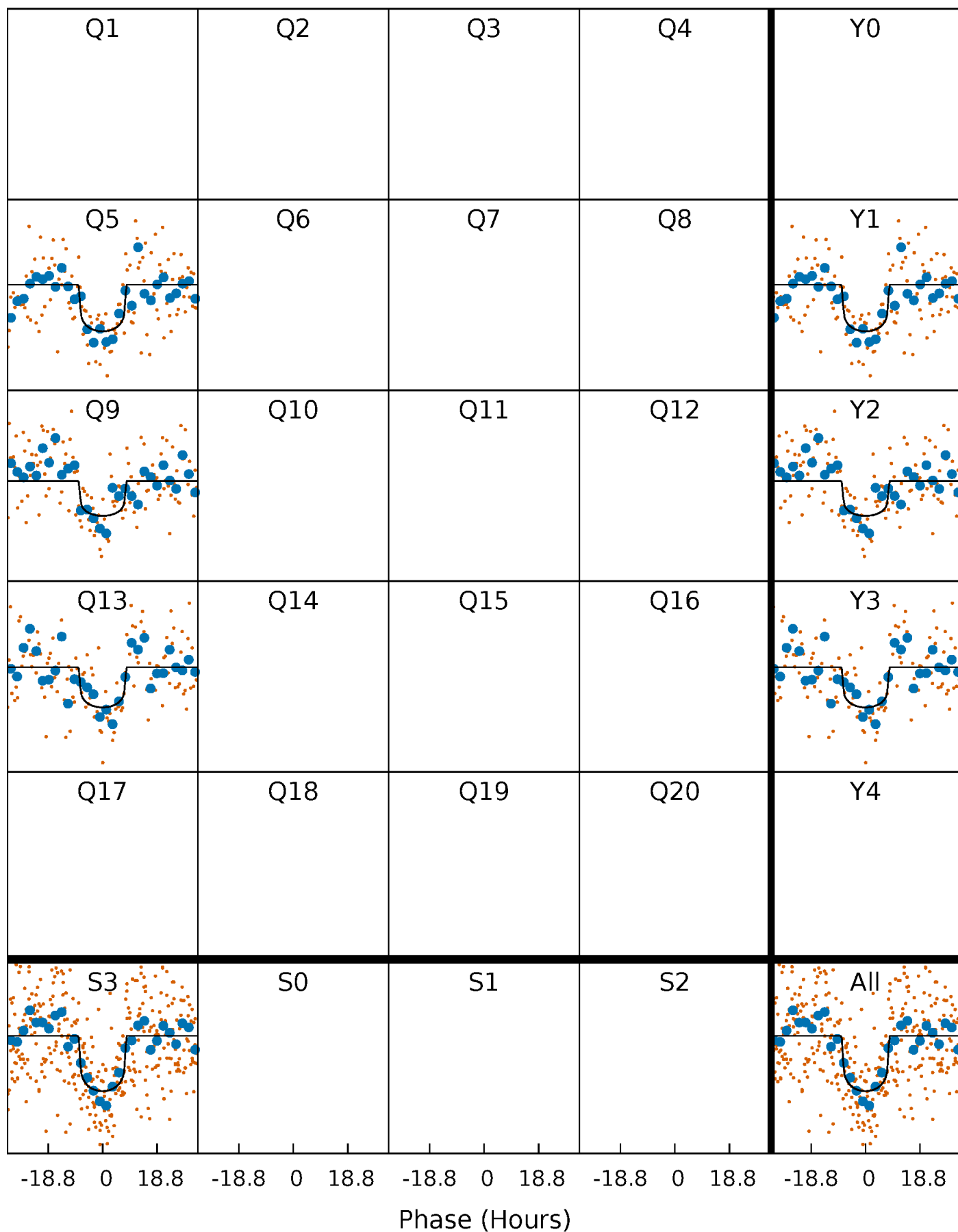
PDC Quarter-Phased Transit Curves

TCE 010206169-01 P=373.159635 Days $T_0=494.284170$ (BKJD)



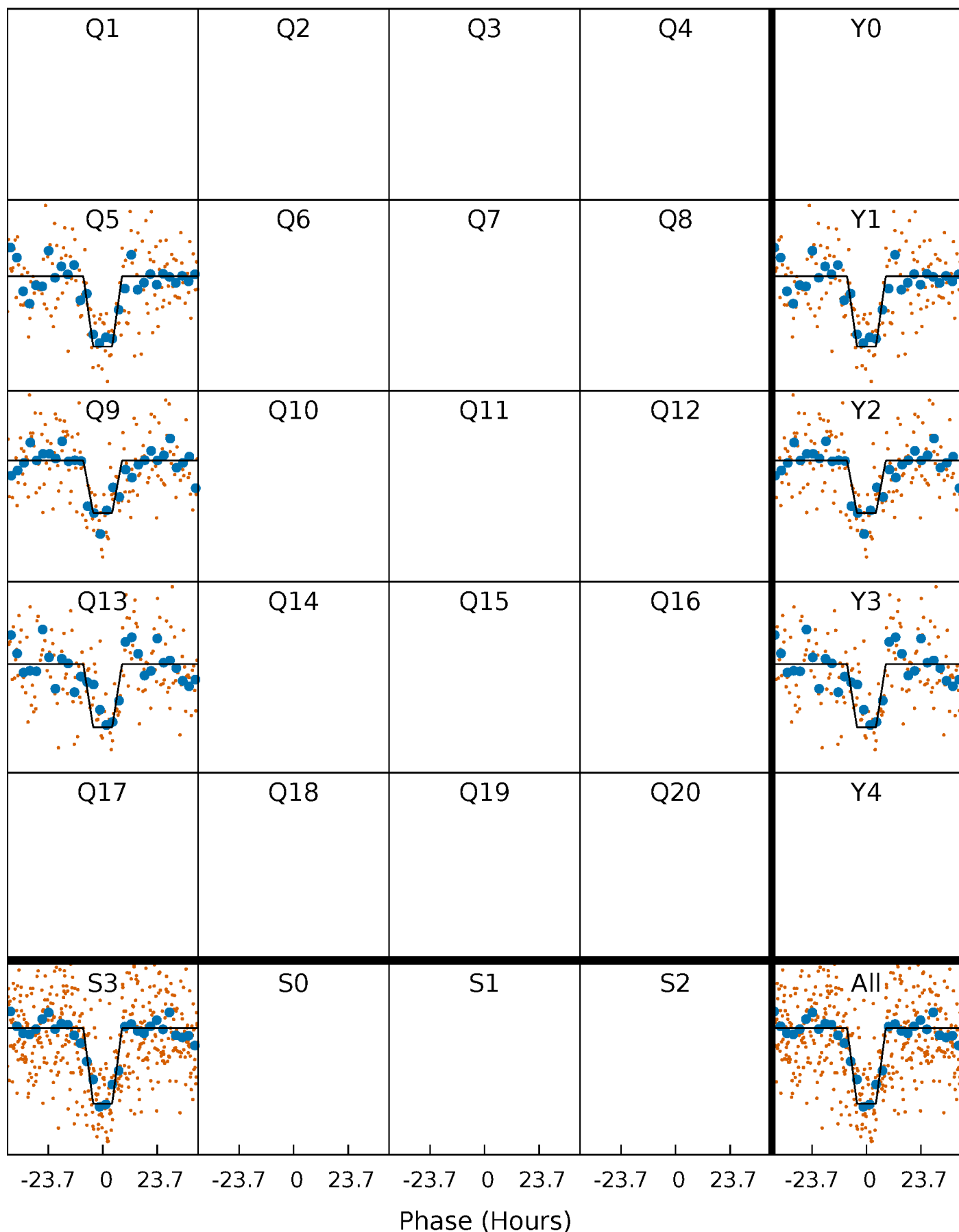
DV Quarter-Phased Transit Curves

TCE 010206169-01 P=373.159635 Days $T_0=494.284170$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

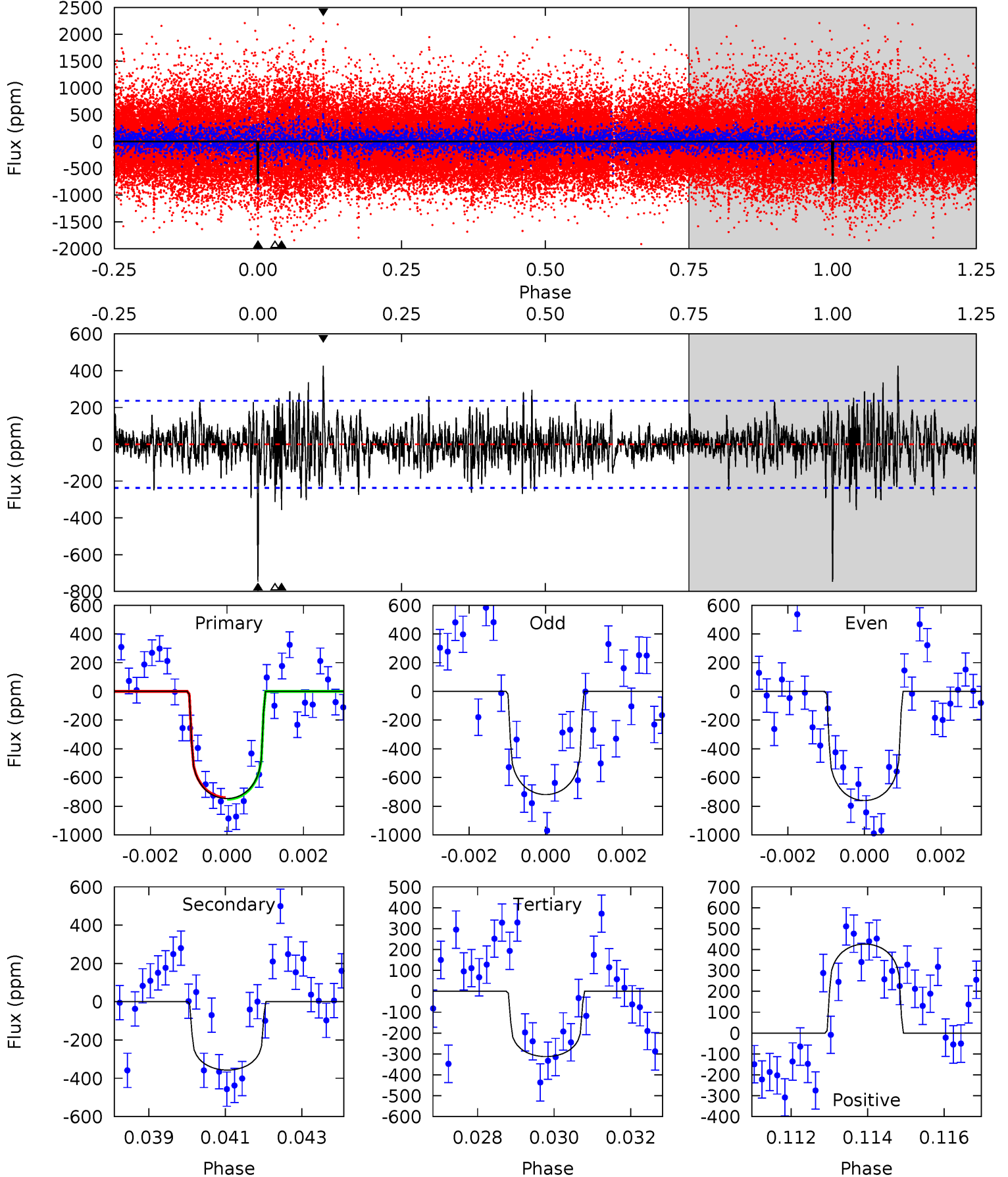
TCE 010206169-01 P=373.164484 Days $T_0=494.263349$ (BKJD)



DV Model-Shift Uniqueness Test

010206169-01, P = 373.159635 Days, E = 121.124535 Days

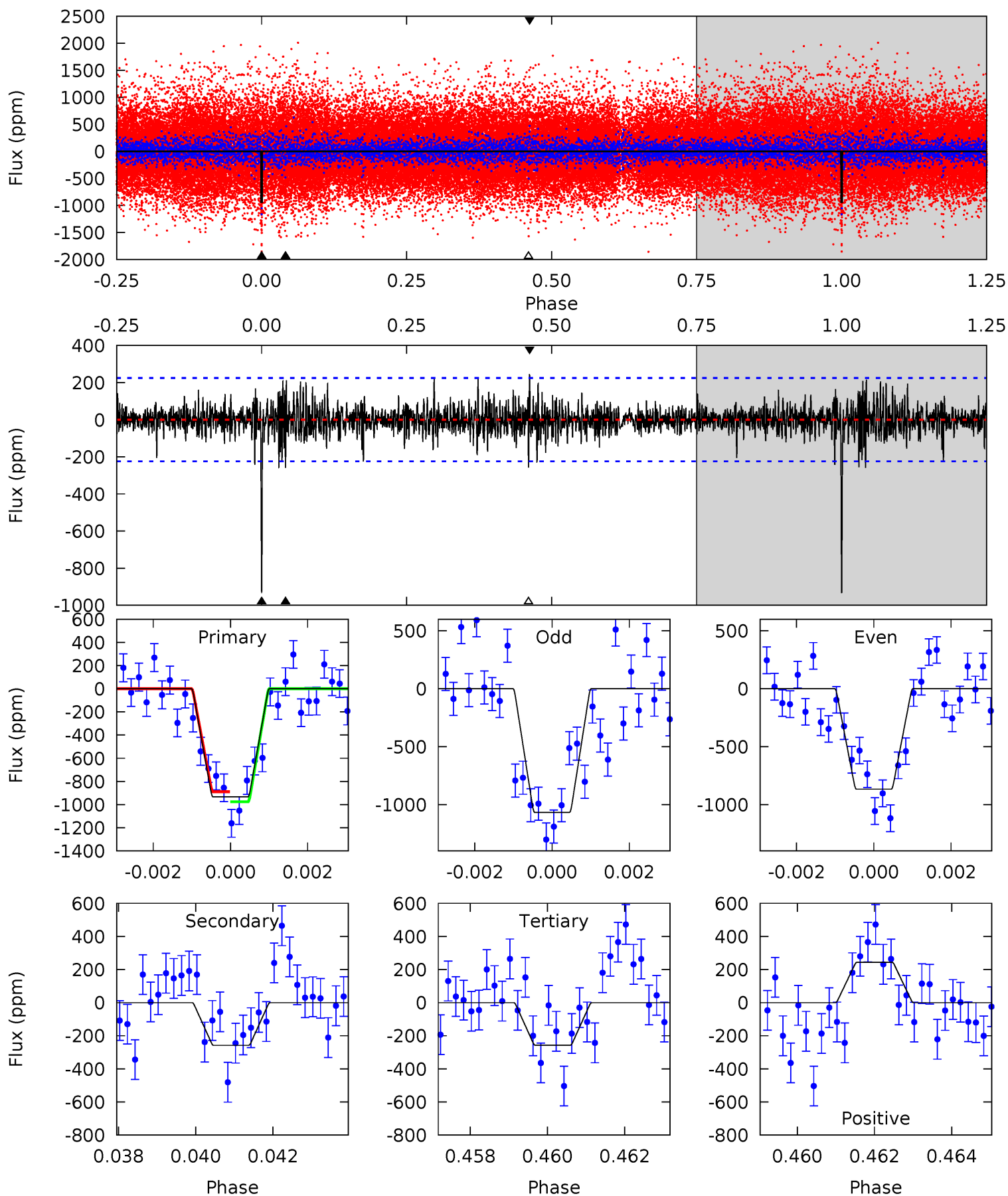
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	8.06	7.06	9.62	5.34	3.11	1.85	9.80	7.24	1.00	-1.56	0.44	1.00	0.36	0.13



Alt Model-Shift Uniqueness Test

010206169-01, P = 373.164484 Days, E = 121.098865 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.2	6.14	6.12	5.81	5.33	3.10	1.34	16.1	16.4	0.02	0.33	2.26	1.00	0.21	1.03



Stellar Parameters For KIC 010206169

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6201^{+169}_{-225}	$4.472^{+0.054}_{-0.216}$	$-0.200^{+0.250}_{-0.350}$	$0.989^{+0.320}_{-0.107}$	$1.058^{+0.144}_{-0.144}$	$1.538^{+0.425}_{-0.792}$
	+3%/-4%	+1%/-5%	+125%/-175%	+32%/-11%	+14%/-14%	+28%/-52%
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 010206169-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-357 ± 44	$2.93^{+1.03}_{-0.88}$	382^{+29}_{-18}	5305^{+1015}_{-573}	23348^{+26208}_{-10538}
Alt.	-258 ± 42	$3.64^{+1.08}_{-0.93}$	382^{+29}_{-19}	4559^{+546}_{-414}	11243^{+8190}_{-4513}

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

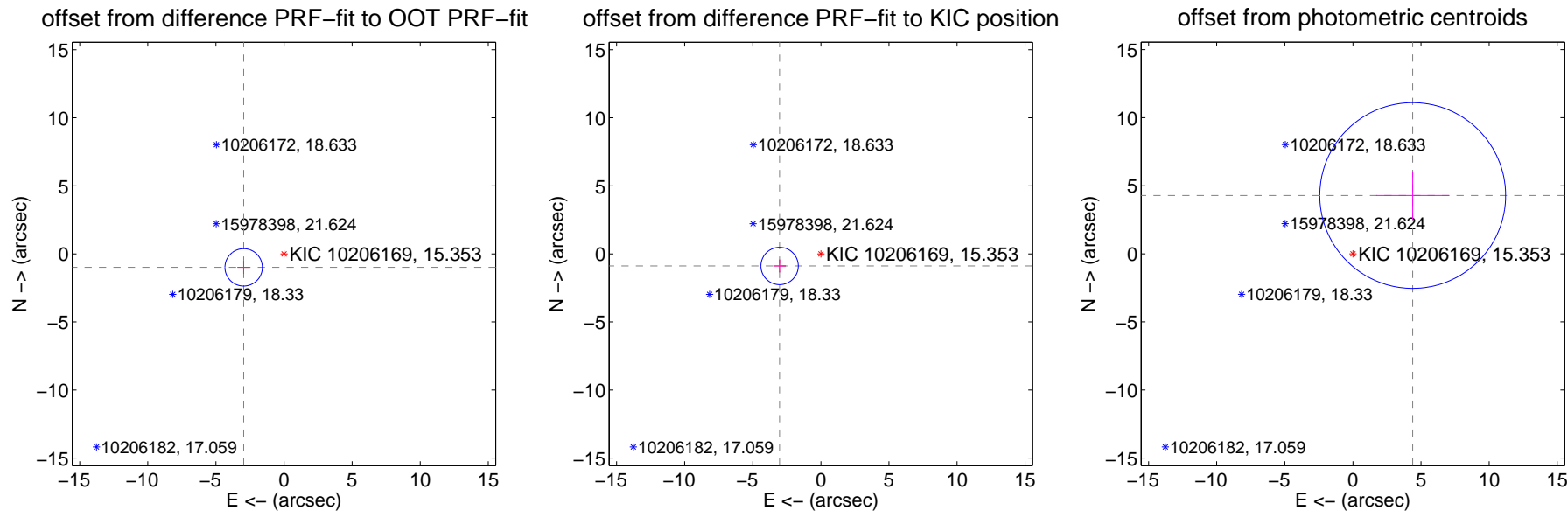
DV Centroid Data

Supplemental centroid analysis for 010206169-01. Kepler magnitude: 15.35. Transit SNR 7.50

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.126 ± 0.458	6.83	2.964 ± 0.456	-0.991 ± 0.473
PRF-fit source offset from KIC position	3.160 ± 0.457	6.91	3.032 ± 0.456	-0.889 ± 0.473
photometric centroid source offset	6.13 ± 2.27	2.70	-4.39 ± 2.68	4.28 ± 1.74

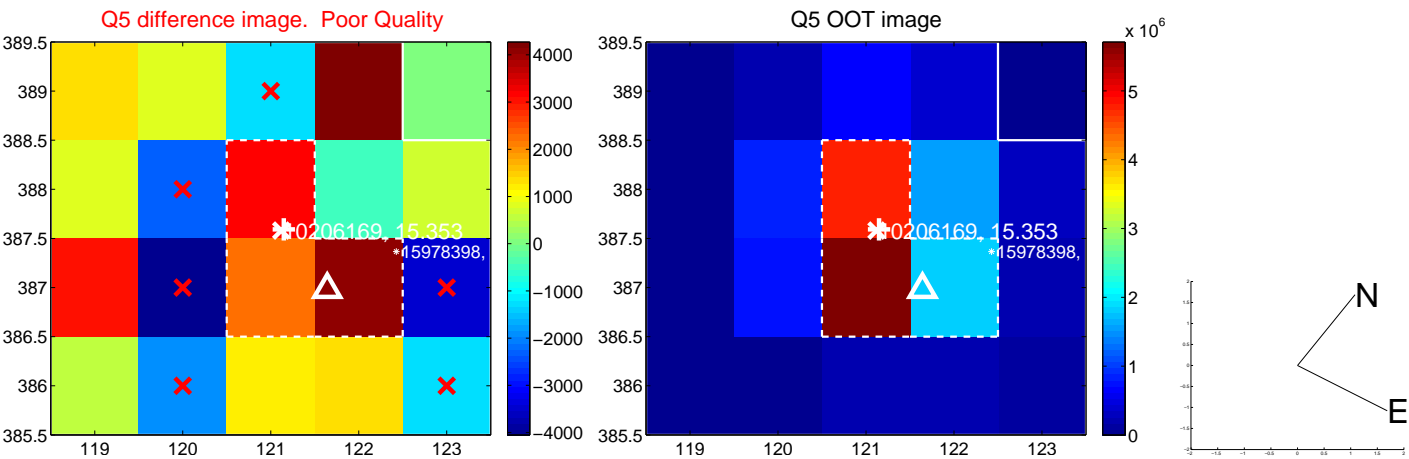


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

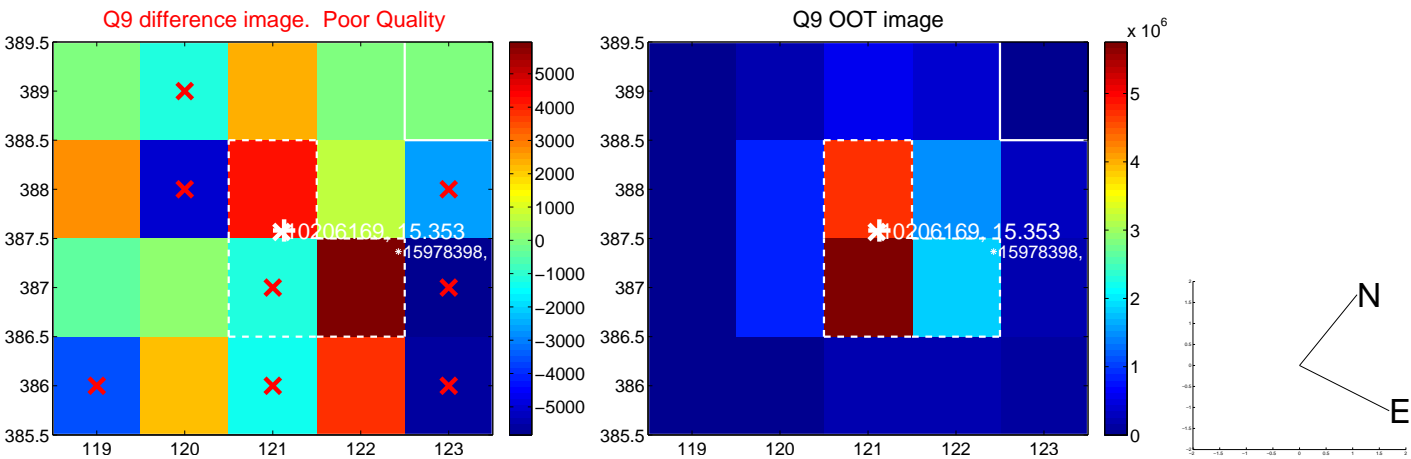
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



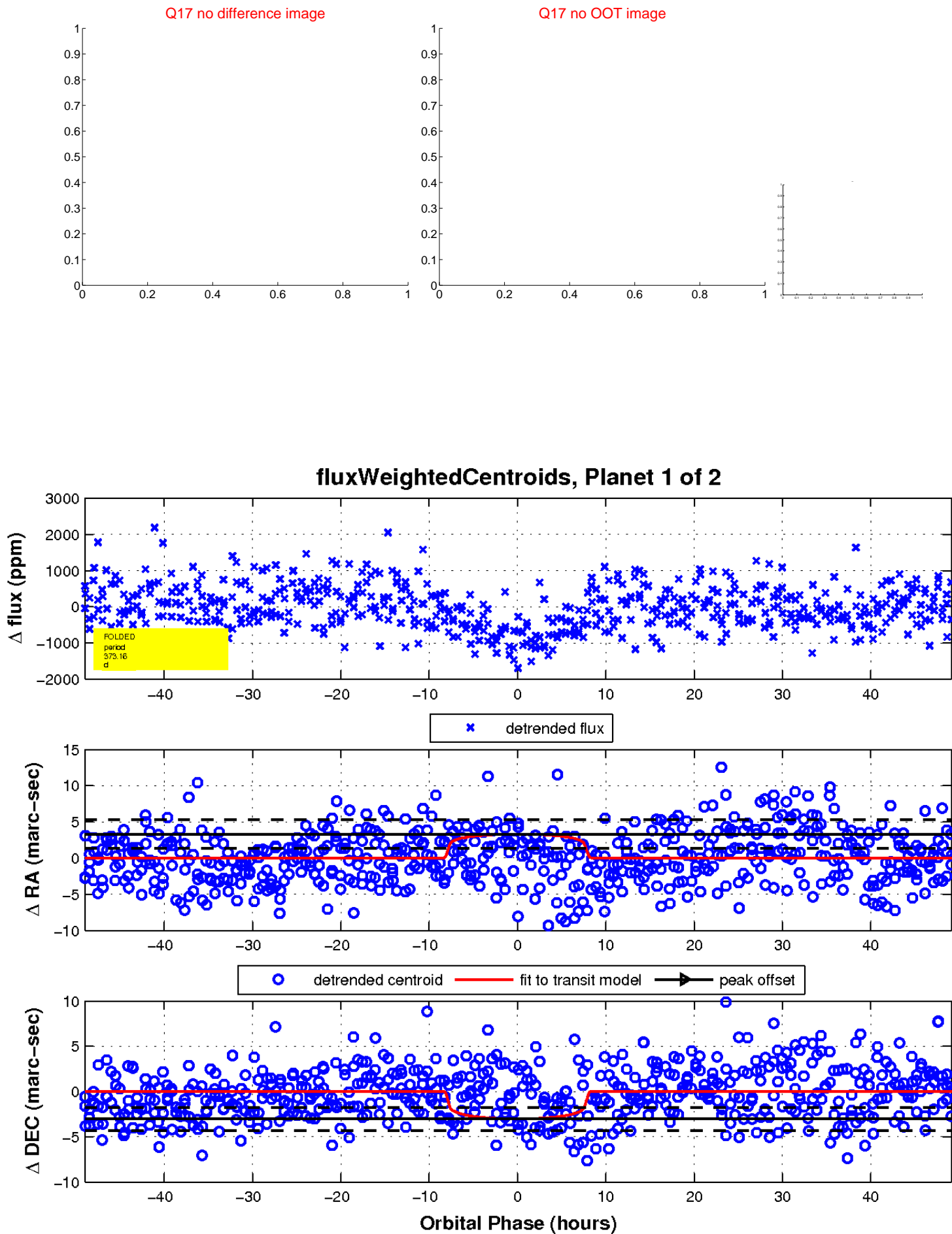
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

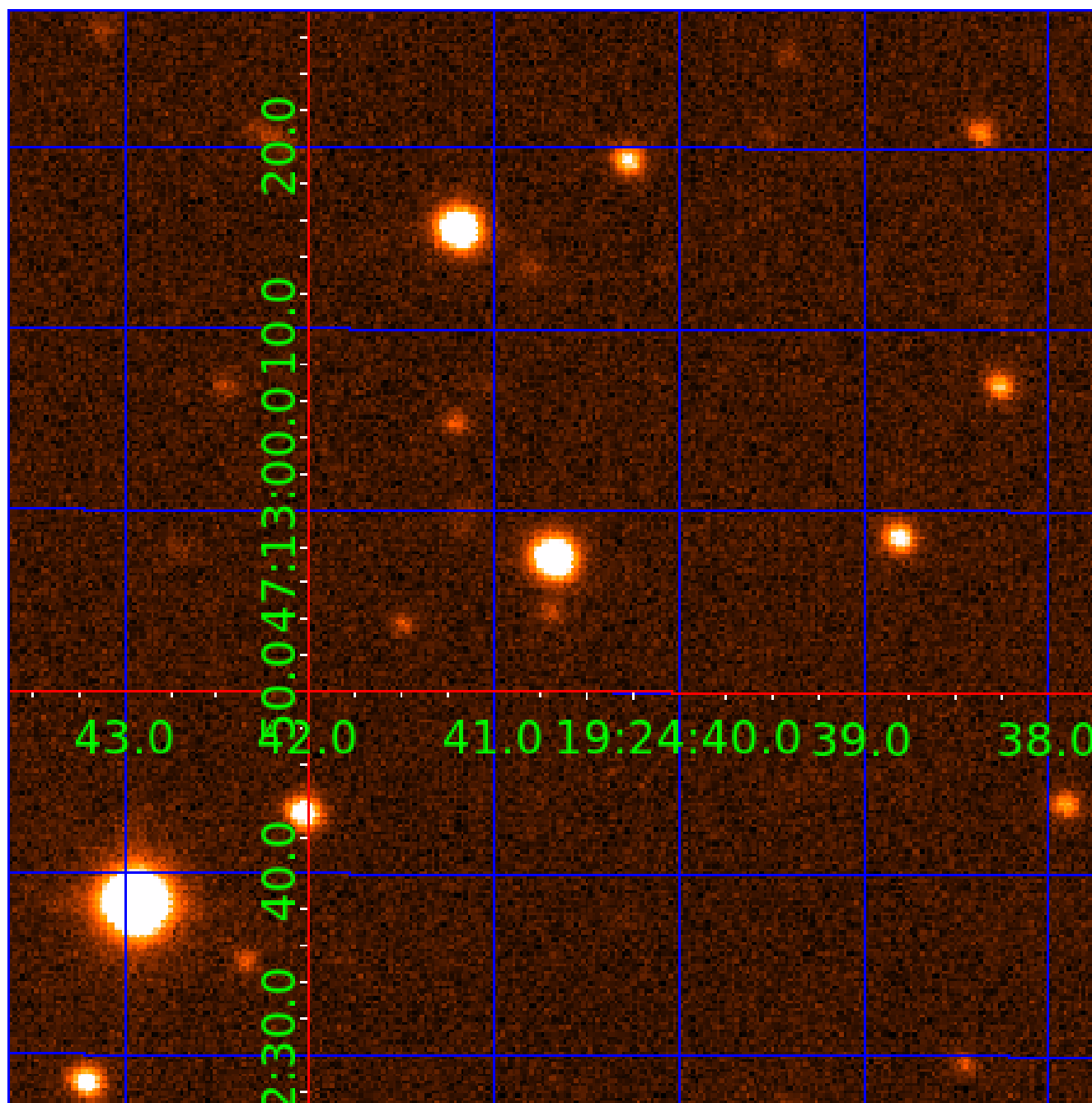


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010206169

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})
010206169-01	OBS	No	373.159635	494.284170	730.5	16.463	7.4	7.5	0.99	6201	2.81	1.21
010206169-02	OBS	No	379.655852	426.744529	731.7	10.303	8.8	8.8	0.99	6201	2.79	1.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010206169-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—CENT_FEW_DIFFS
010206169-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

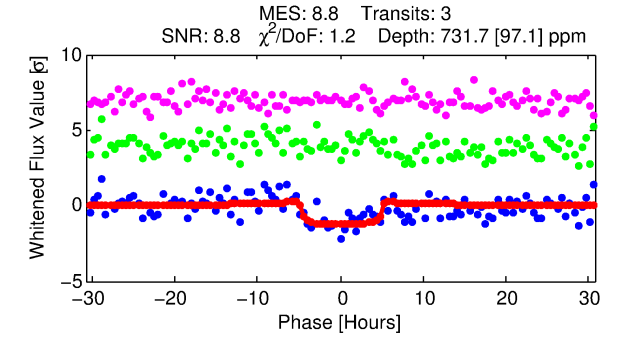
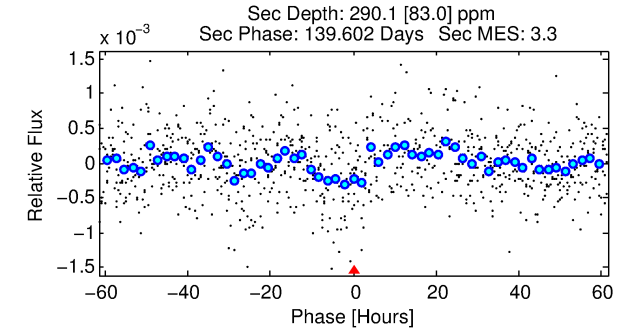
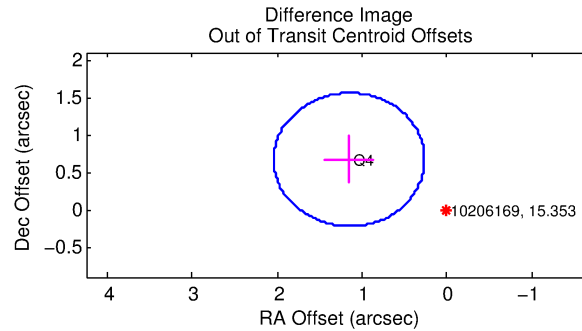
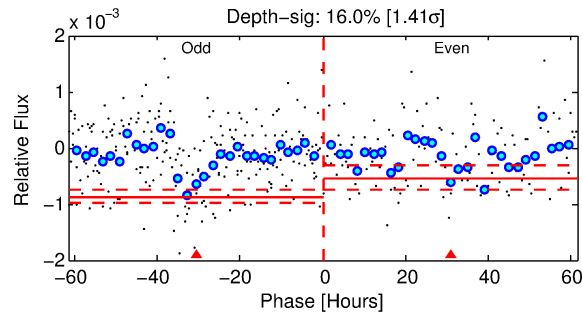
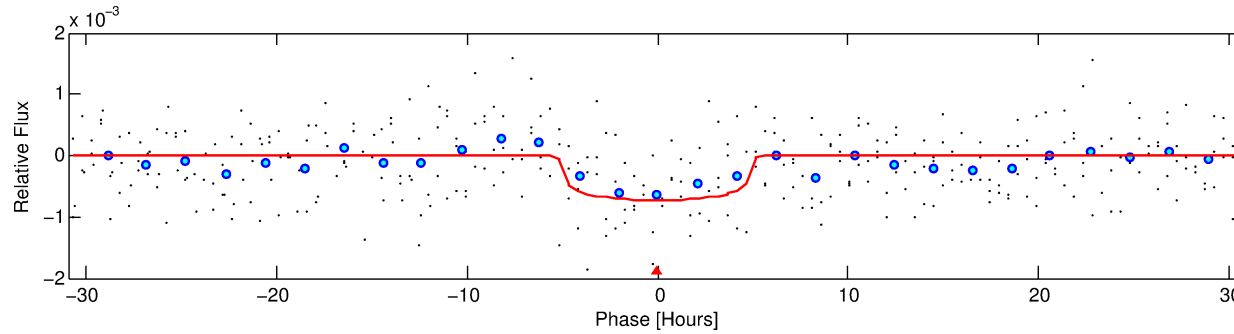
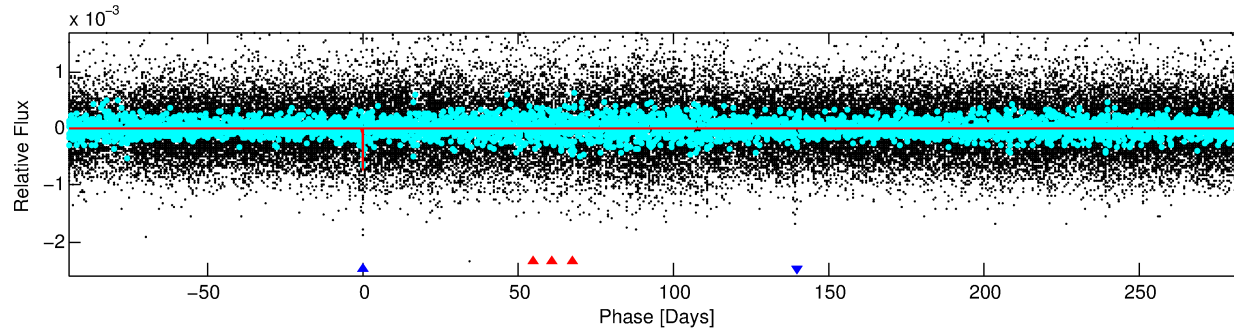
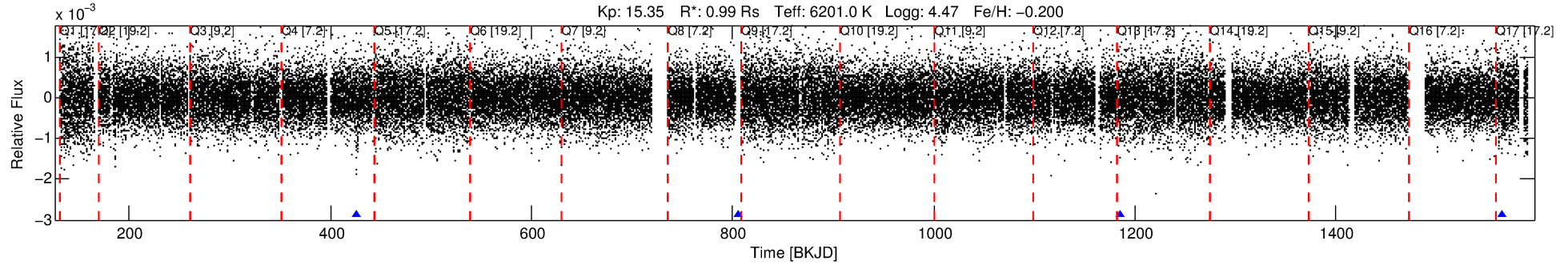
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010206169-02

No Significant Match Found

DV One-Page Summary

KIC: 10206169 Candidate: 2 of 2 Period: 379.656 d



DV Fit Results:

Period = 379.65585 [0.00955] d
Epoch = 426.7445 [0.0193] BKJD
Rp/R* = 0.0258 [0.0141]
a/R* = 238.74 [643.02]
b = 0.58 [3.15]
Seff = 1.18 [0.50]
Teq = 266 [28] K
Rp = 2.79 [1.77] Re
a = 1.0457 [0.2845] AU
Ag = 22479.82 [26915.31] [0.84 σ]
Teffp = 5037 [1435] K [3.32 σ]

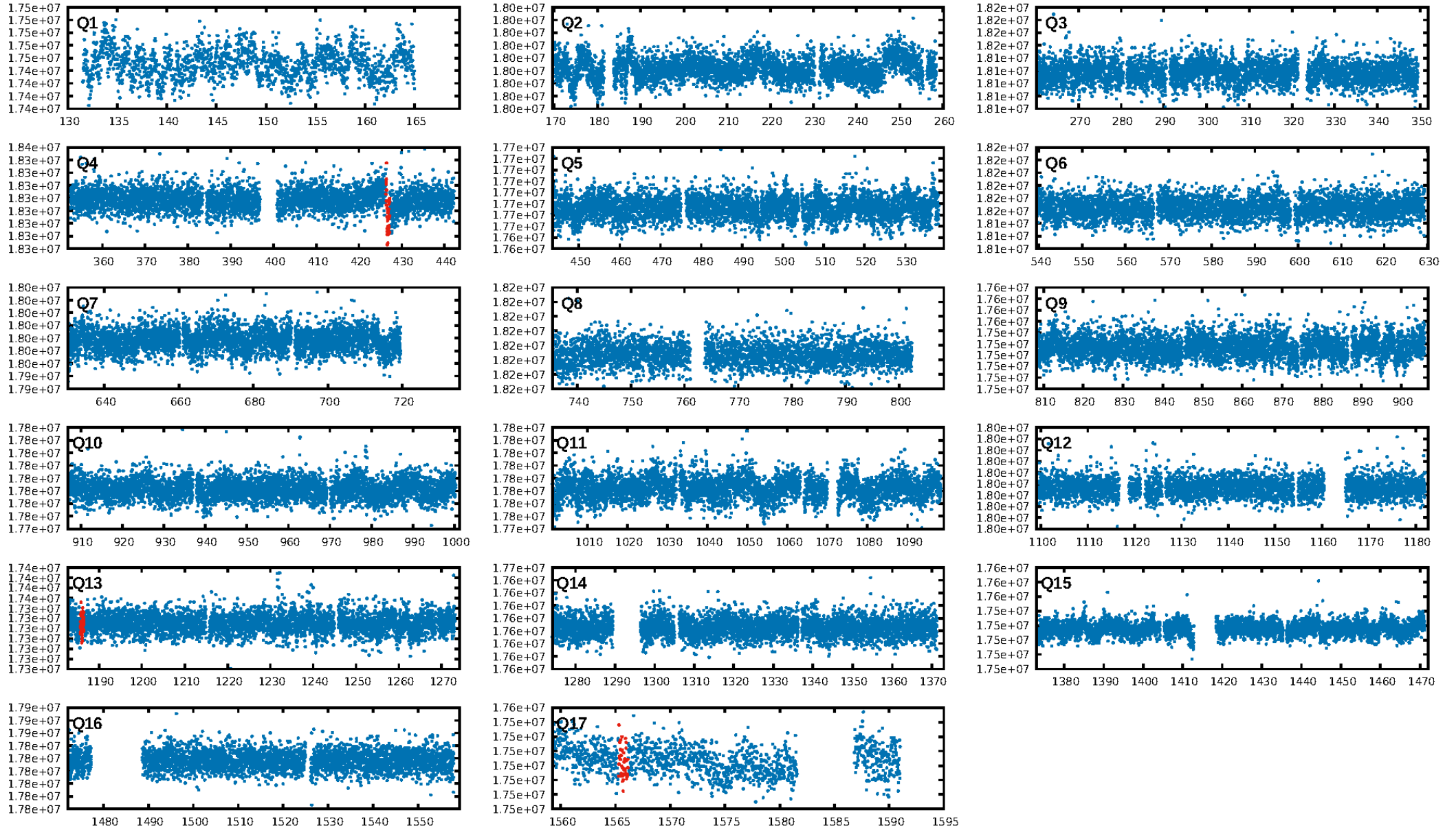
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [8.03 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 76.6%
Bootstrap-pfa: 2.38e-12
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -0.6527
Centroid-sig: 37.0%
Centroid-so: 1.305 arcsec [0.87 σ]
OotOffset-rm: 1.328 arcsec [4.48 σ]
KicOffset-rm: 1.373 arcsec [4.61 σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

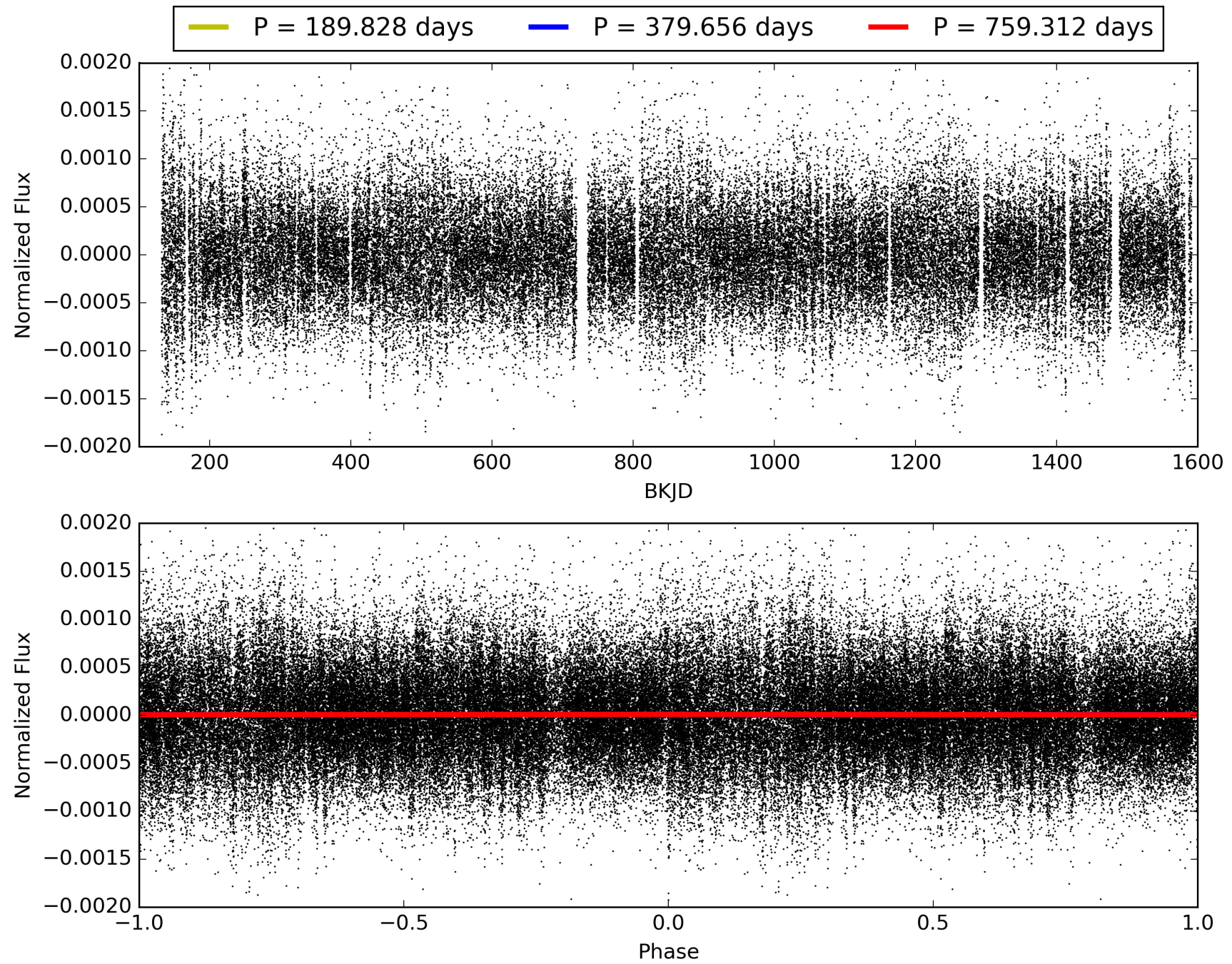
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:55:01 Z

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

TCE 010206169-02, PDC Light Curves

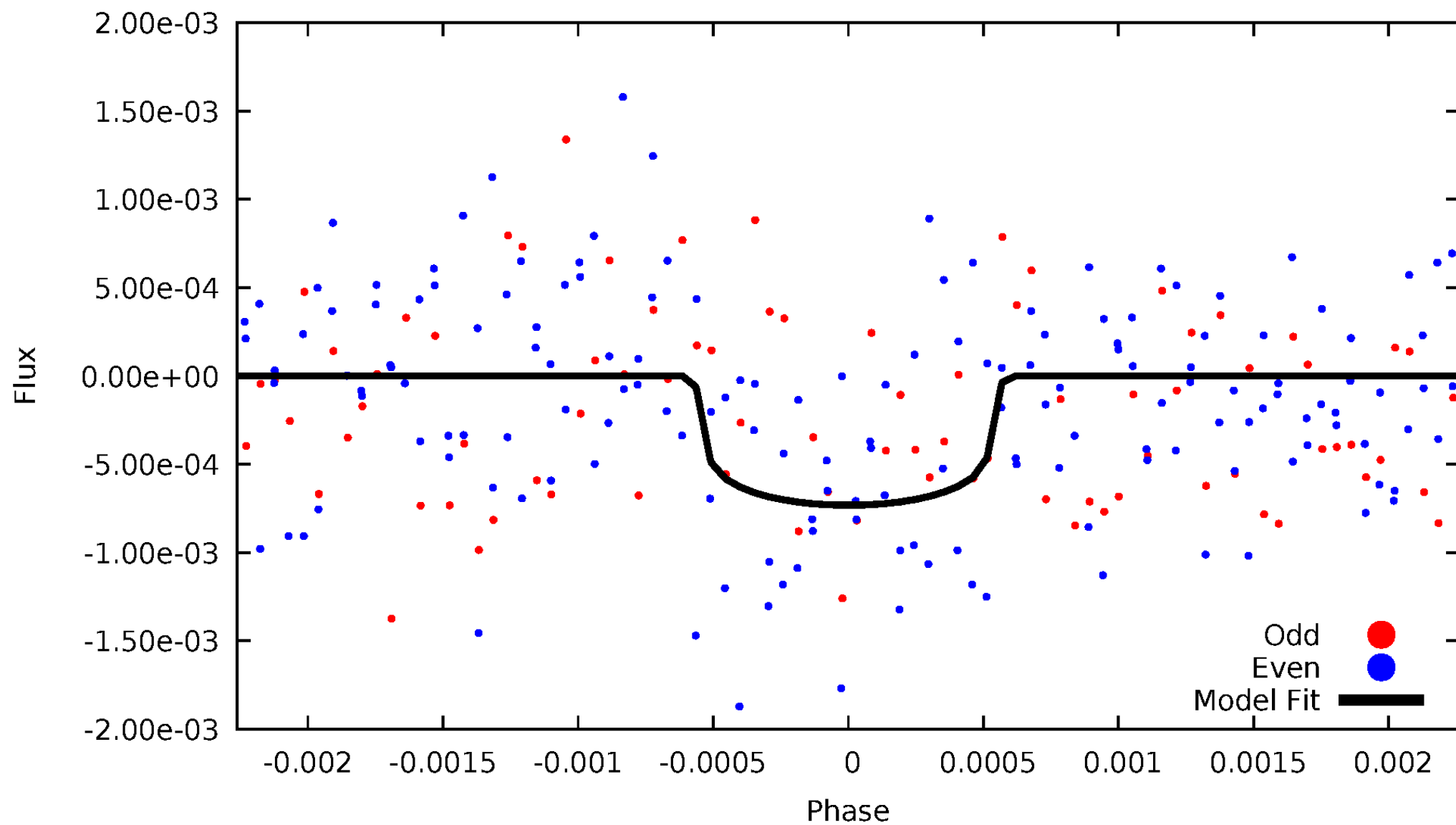


TCE 010206169-02



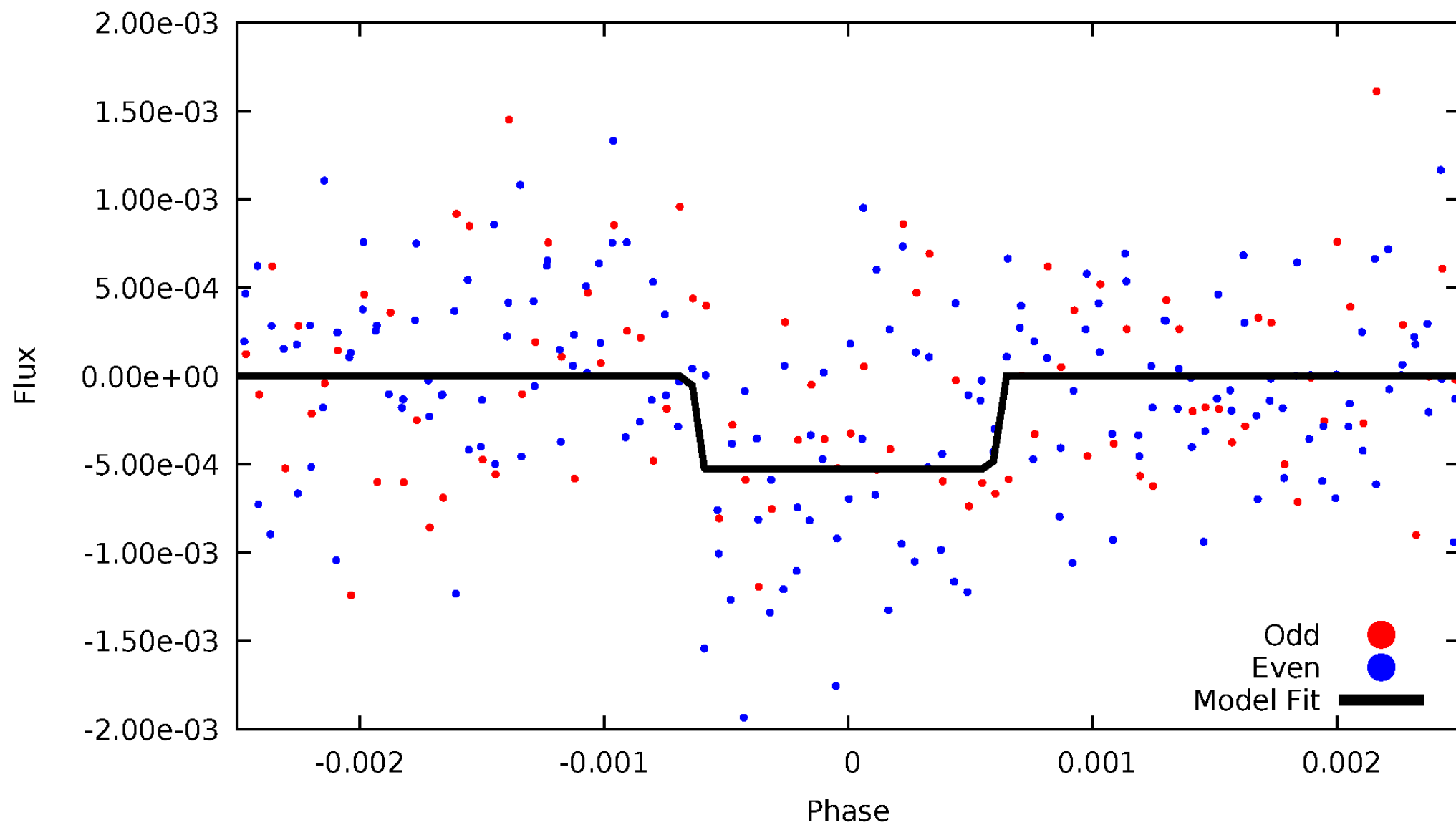
DV Odd/Even

TCE 010206169-02



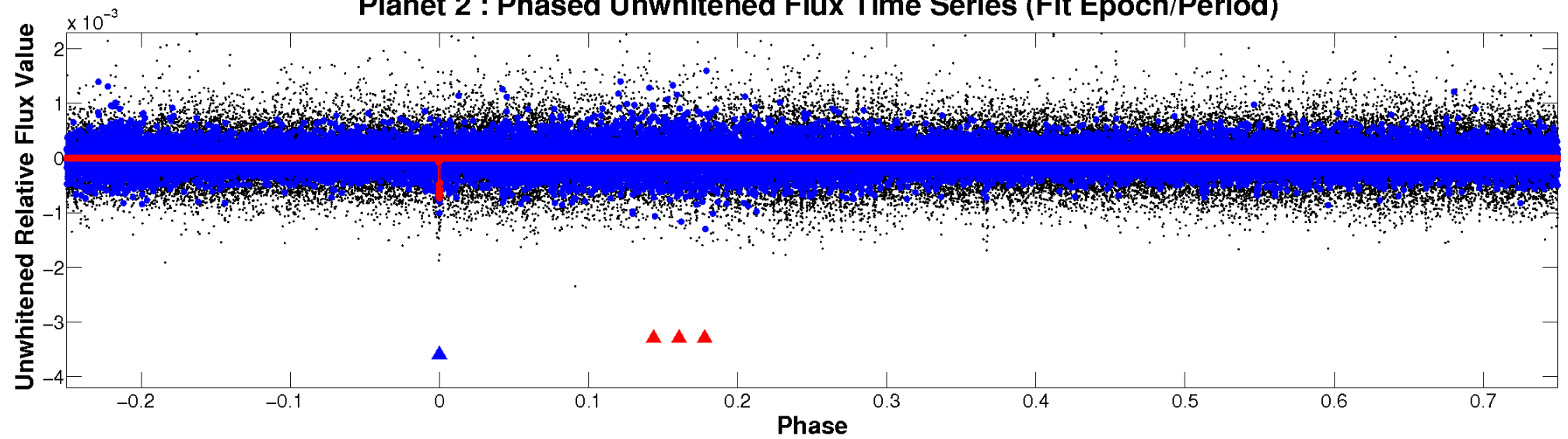
ALT Odd/Even

TCE 010206169-02

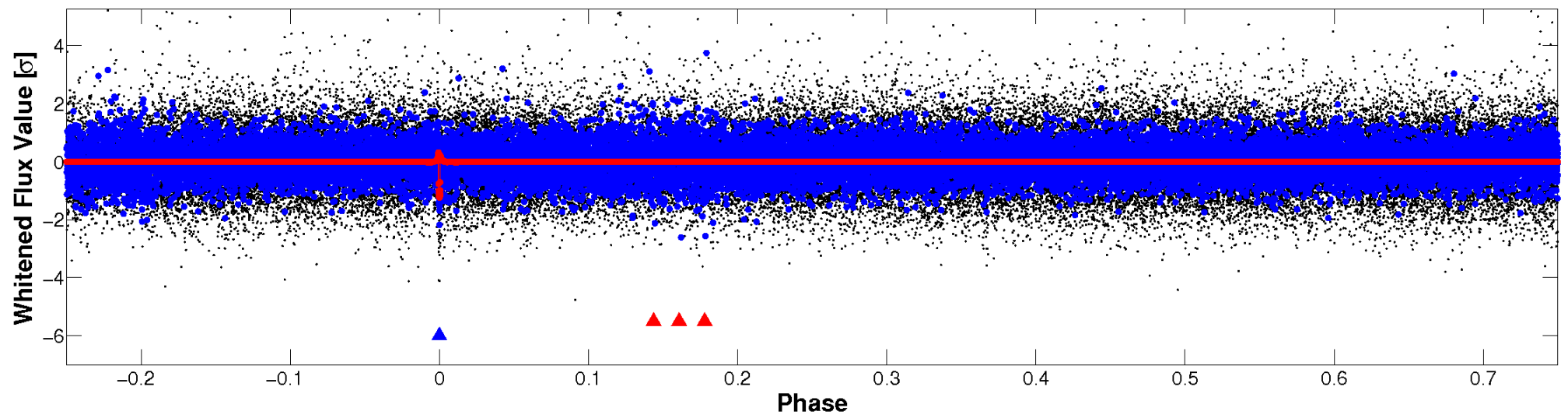


Non-Whitened Vs. Whitened Light Curve

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

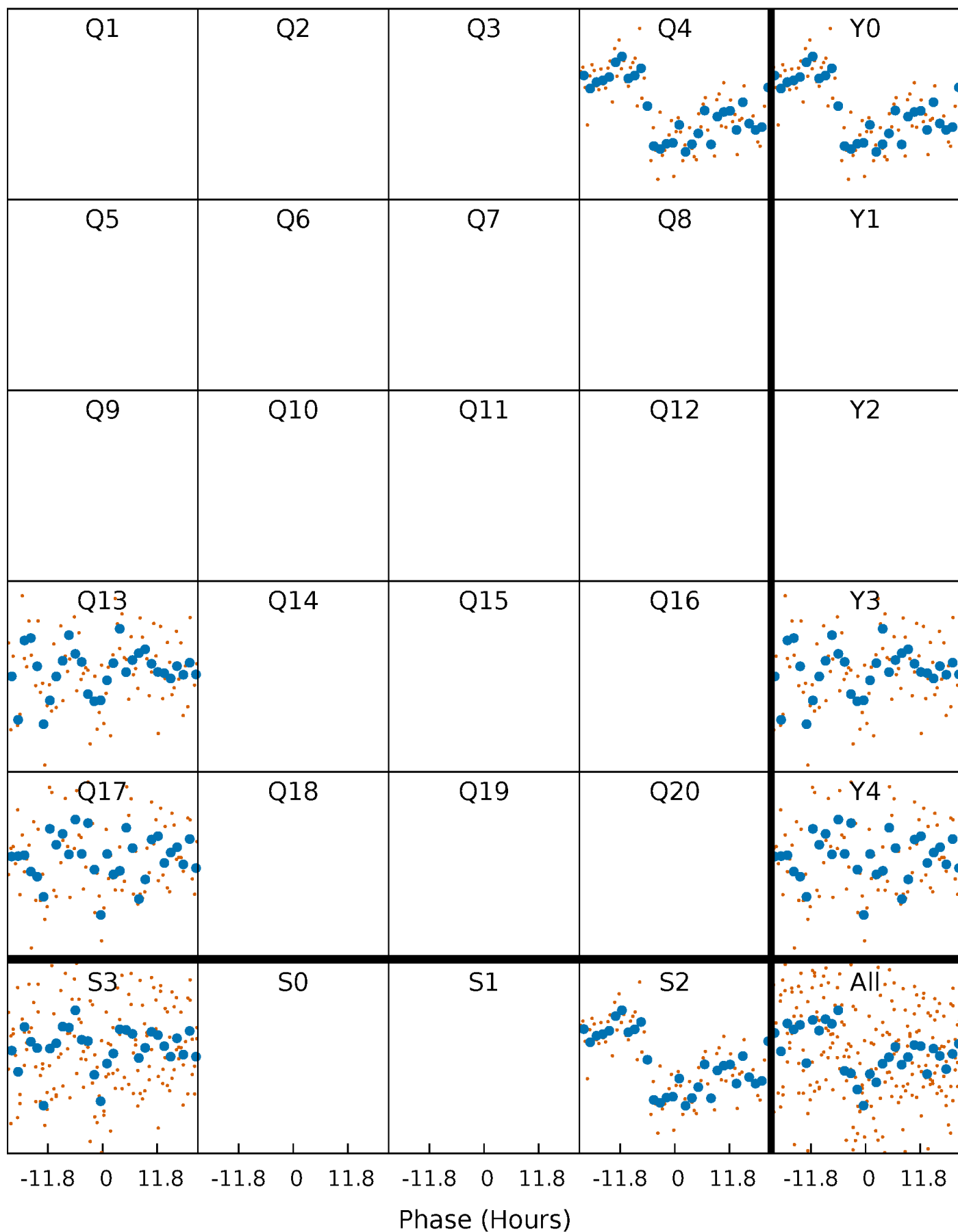


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



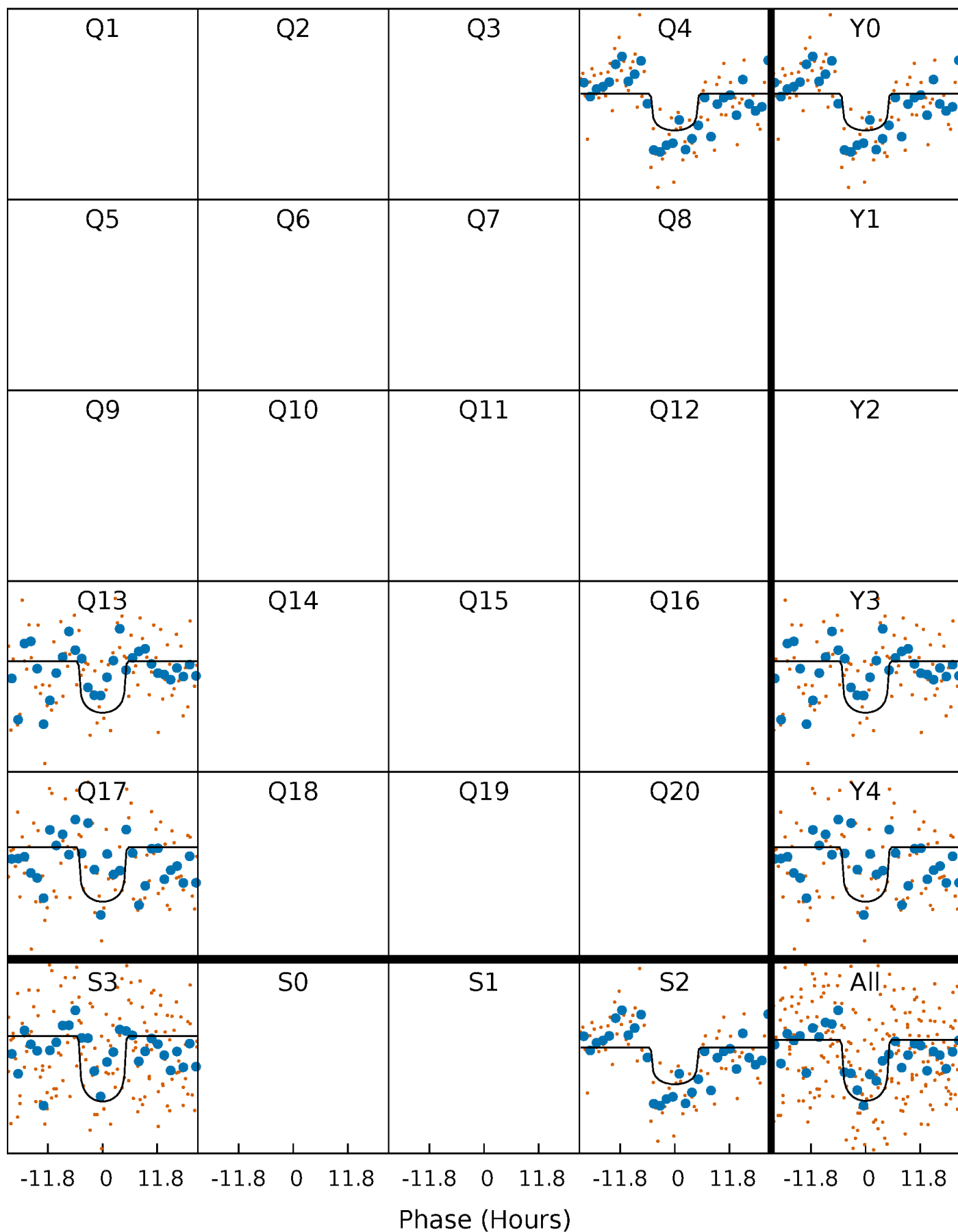
PDC Quarter-Phased Transit Curves

TCE 010206169-02 $P=379.655852$ Days $T_0=426.744529$ (BKJD)



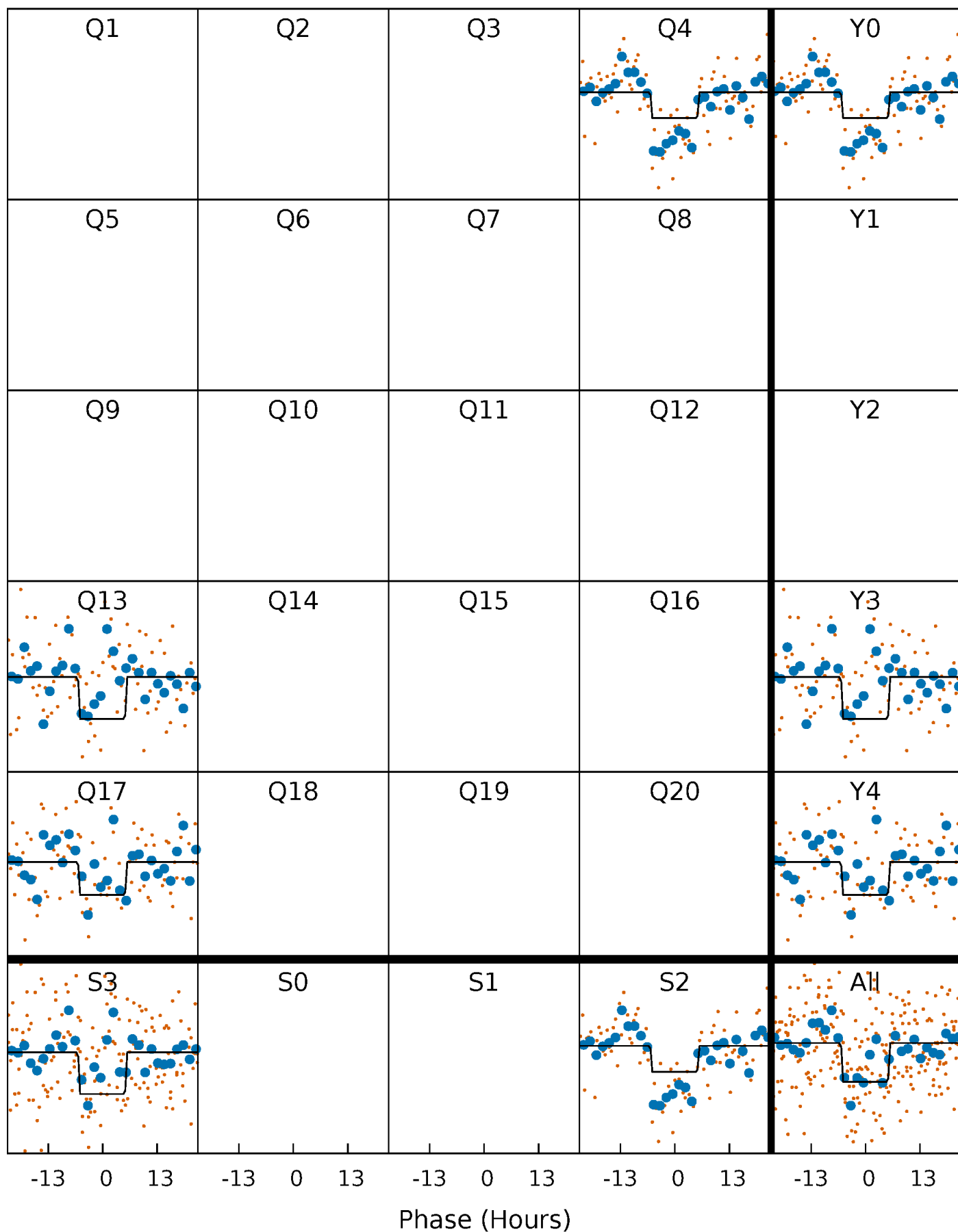
DV Quarter-Phased Transit Curves

TCE 010206169-02 $P=379.655852$ Days $T_0=426.744529$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

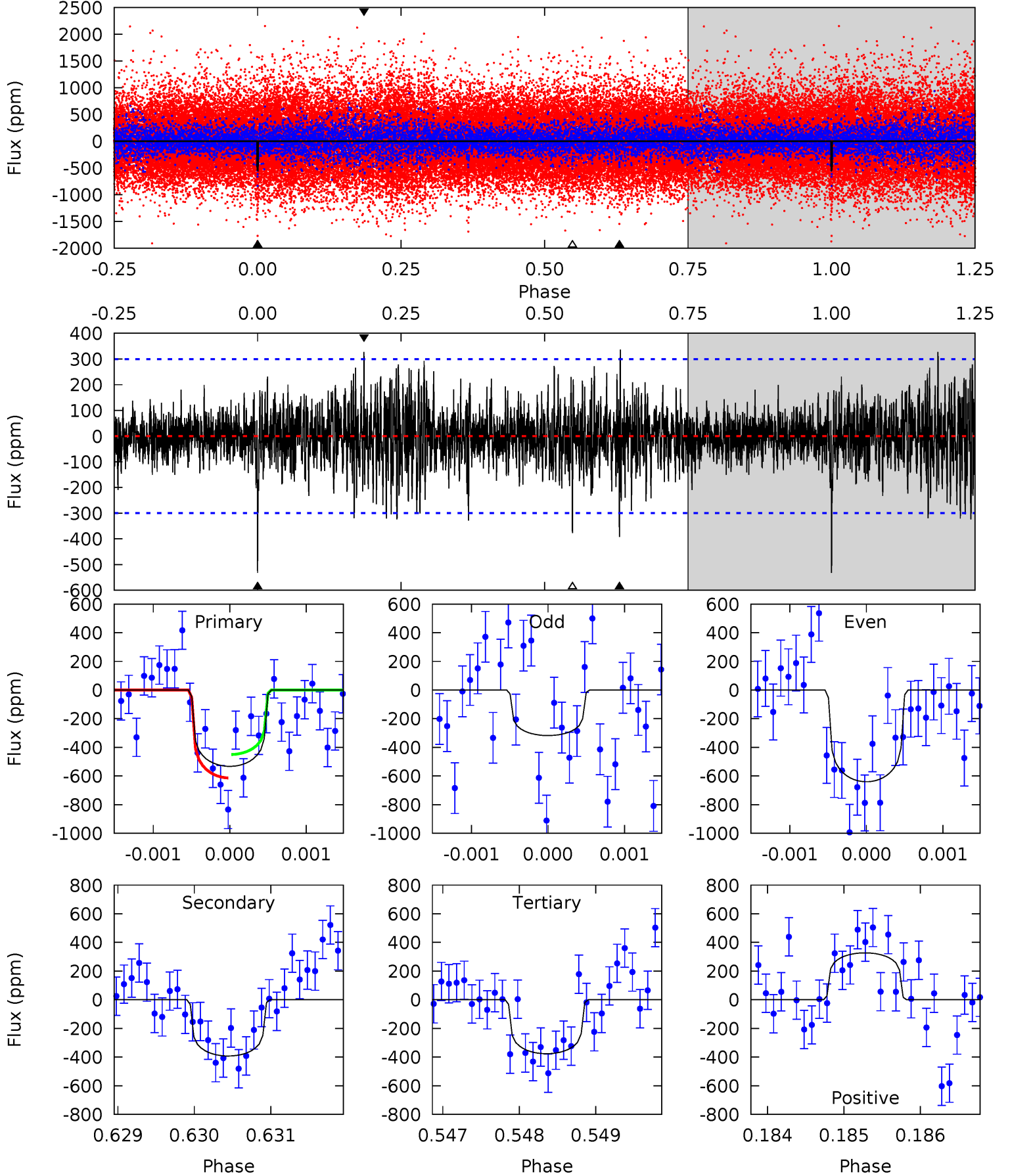
TCE 010206169-02 $P=379.696412$ Days $T_0=426.753838$ (BKJD)



DV Model-Shift Uniqueness Test

010206169-02, P = 379.655852 Days, E = 47.088677 Days

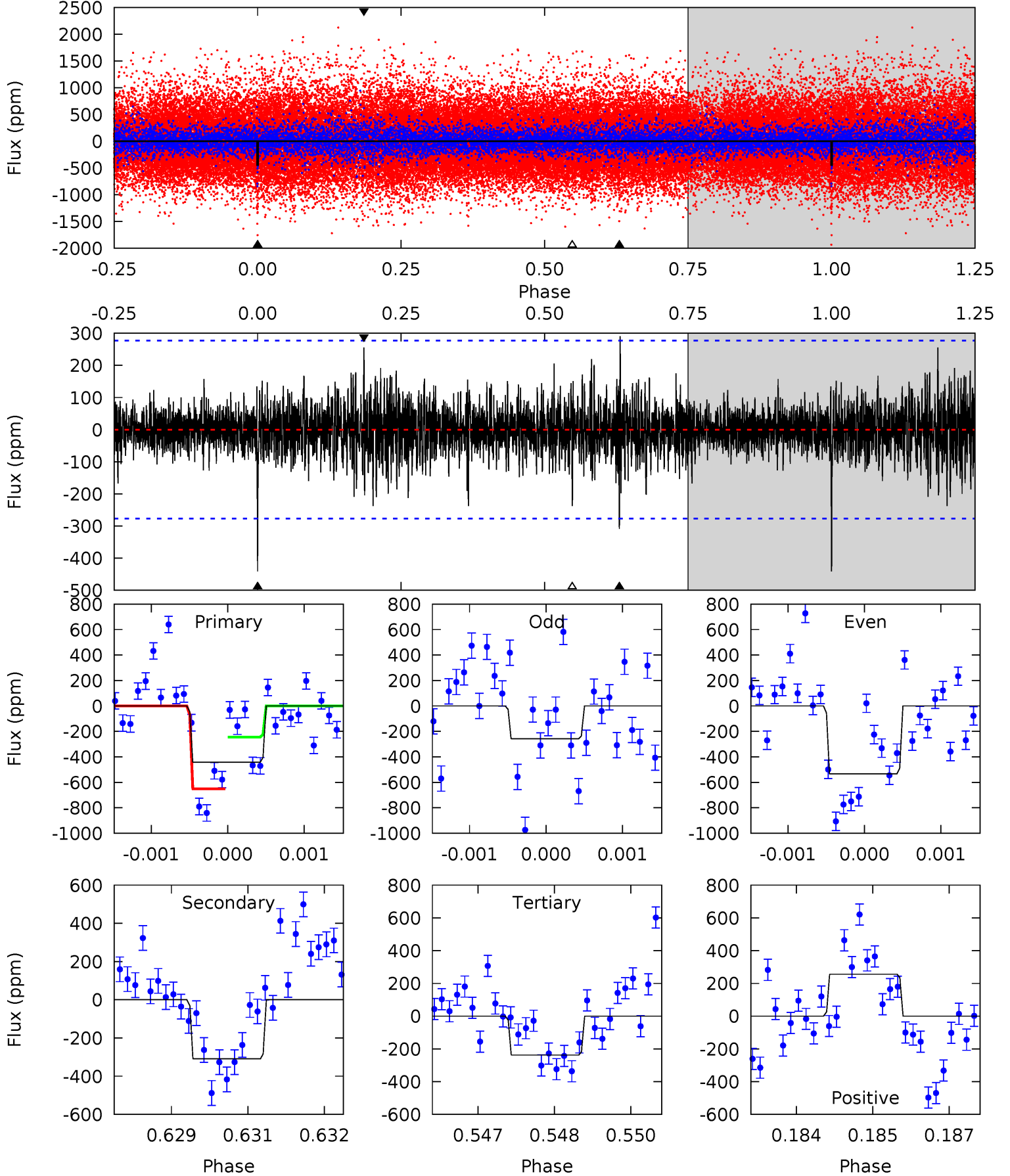
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.66	7.12	6.83	5.93	5.43	3.25	1.56	2.83	3.72	0.29	1.19	2.74	1.68	0.39	1.48



Alt Model-Shift Uniqueness Test

010206169-02, $P = 379.696412$ Days, $E = 47.057426$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.60	6.03	4.64	4.99	5.41	3.22	1.12	3.97	3.61	1.39	1.03	2.55	1.71	0.40	3.97



Stellar Parameters For KIC 010206169

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6201^{+169}_{-225}	$4.472^{+0.054}_{-0.216}$	$-0.200^{+0.250}_{-0.350}$	$0.989^{+0.320}_{-0.107}$	$1.058^{+0.144}_{-0.144}$	$1.538^{+0.425}_{-0.792}$
	+3%/-4%	+1%/-5%	+125%/-175%	+32%/-11%	+14%/-14%	+28%/-52%
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 010206169-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-393 ± 55	$3.04^{+1.66}_{-1.59}$	379^{+28}_{-18}	5401^{+2519}_{-933}	25794^{+81225}_{-15549}
Alt.	-309 ± 51	$2.61^{+1.64}_{-1.37}$	378^{+28}_{-17}	5322^{+2550}_{-893}	25221^{+85933}_{-15169}

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

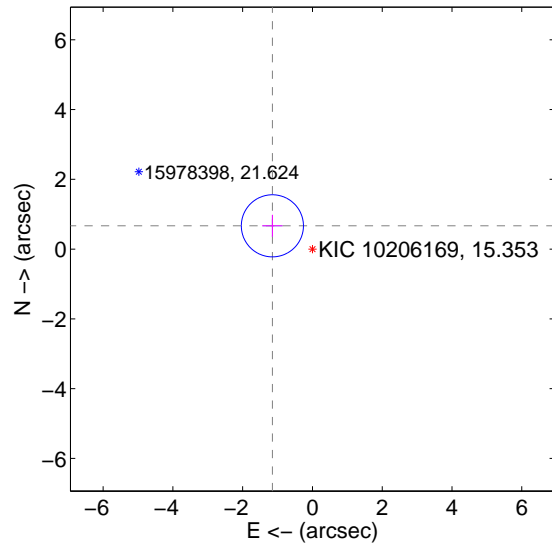
Supplemental centroid analysis for 010206169-02. Kepler magnitude: 15.35. Transit SNR 8.78

There are 1 quarters with good PRF difference image offsets

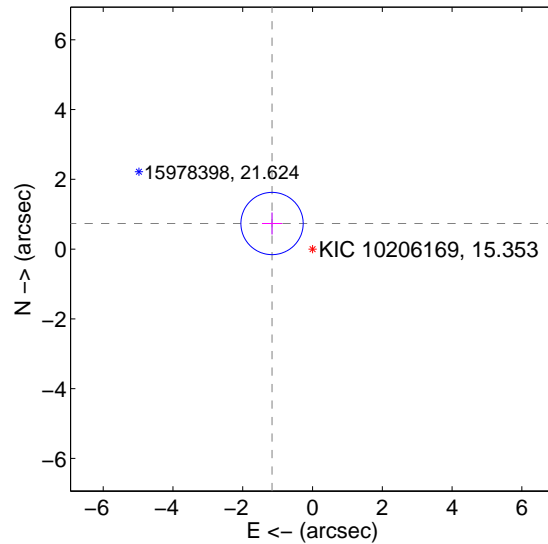
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.328 ± 0.297	4.48	1.148 ± 0.290	0.667 ± 0.315
PRF-fit source offset from KIC position	1.373 ± 0.298	4.61	1.160 ± 0.290	0.734 ± 0.315
photometric centroid source offset	1.30 ± 1.49	0.87	-0.31 ± 1.78	1.27 ± 1.47

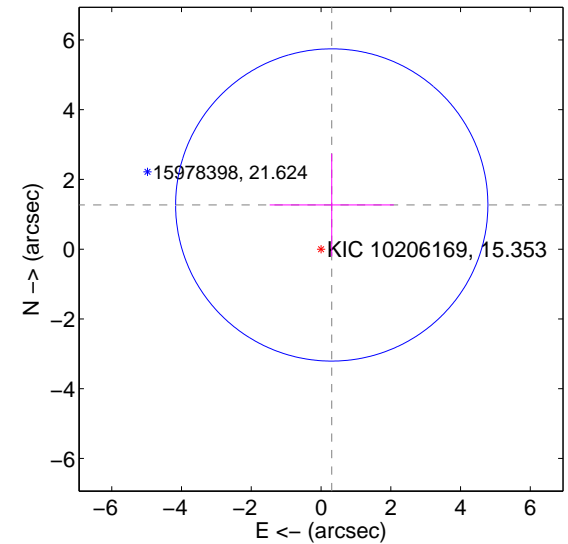
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

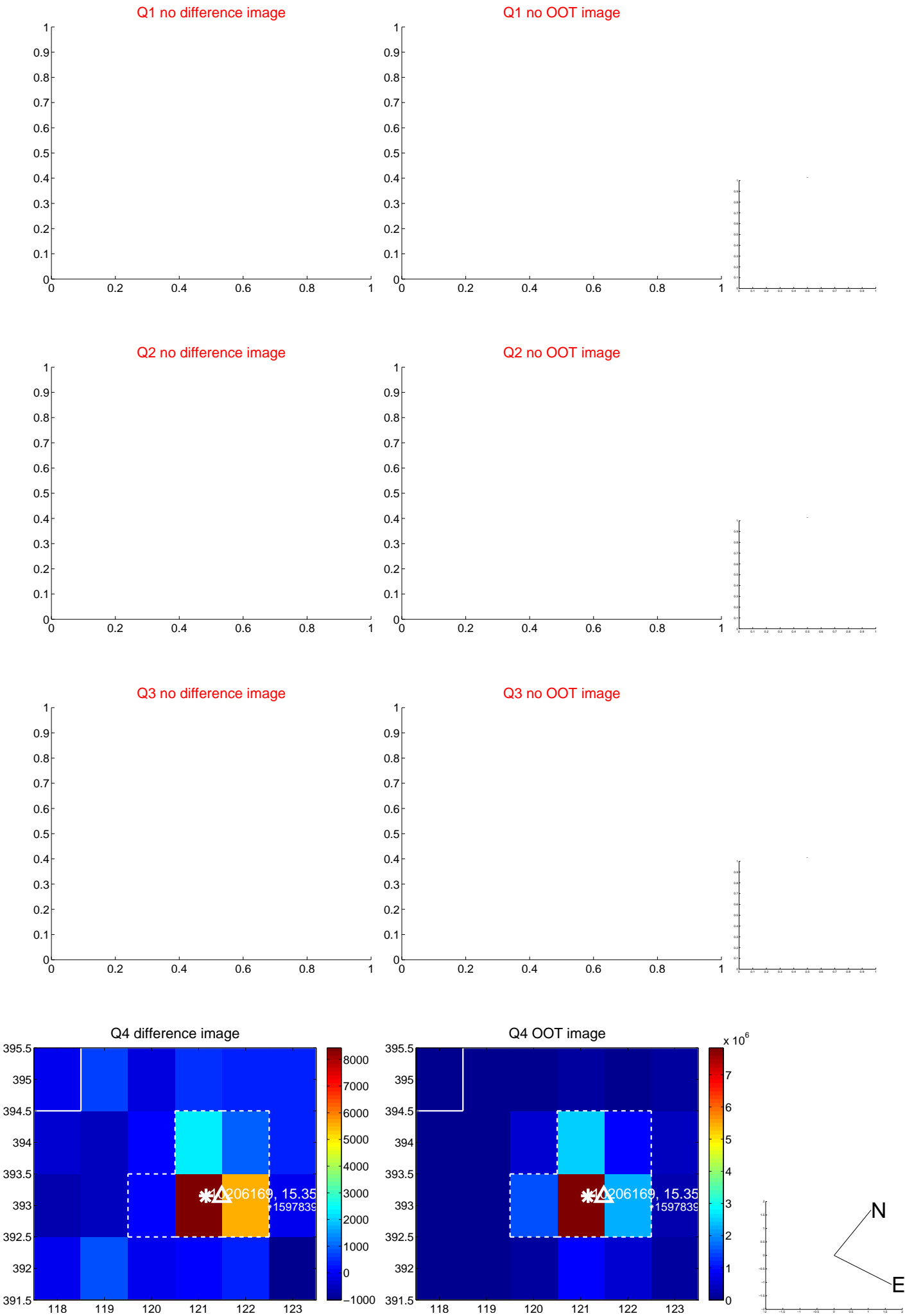


offset from photometric centroids



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.



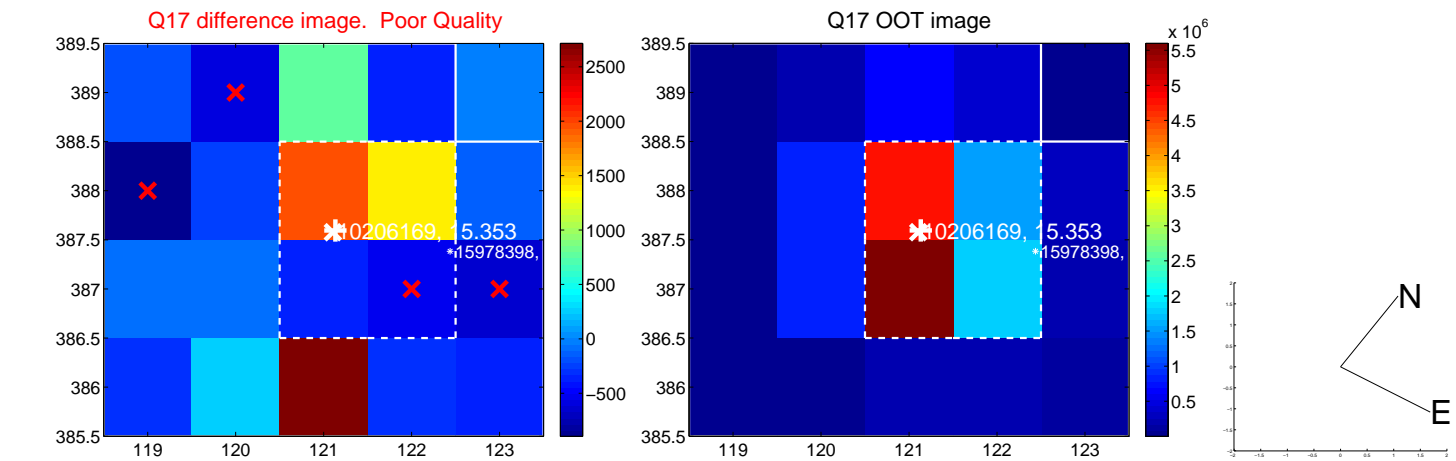
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



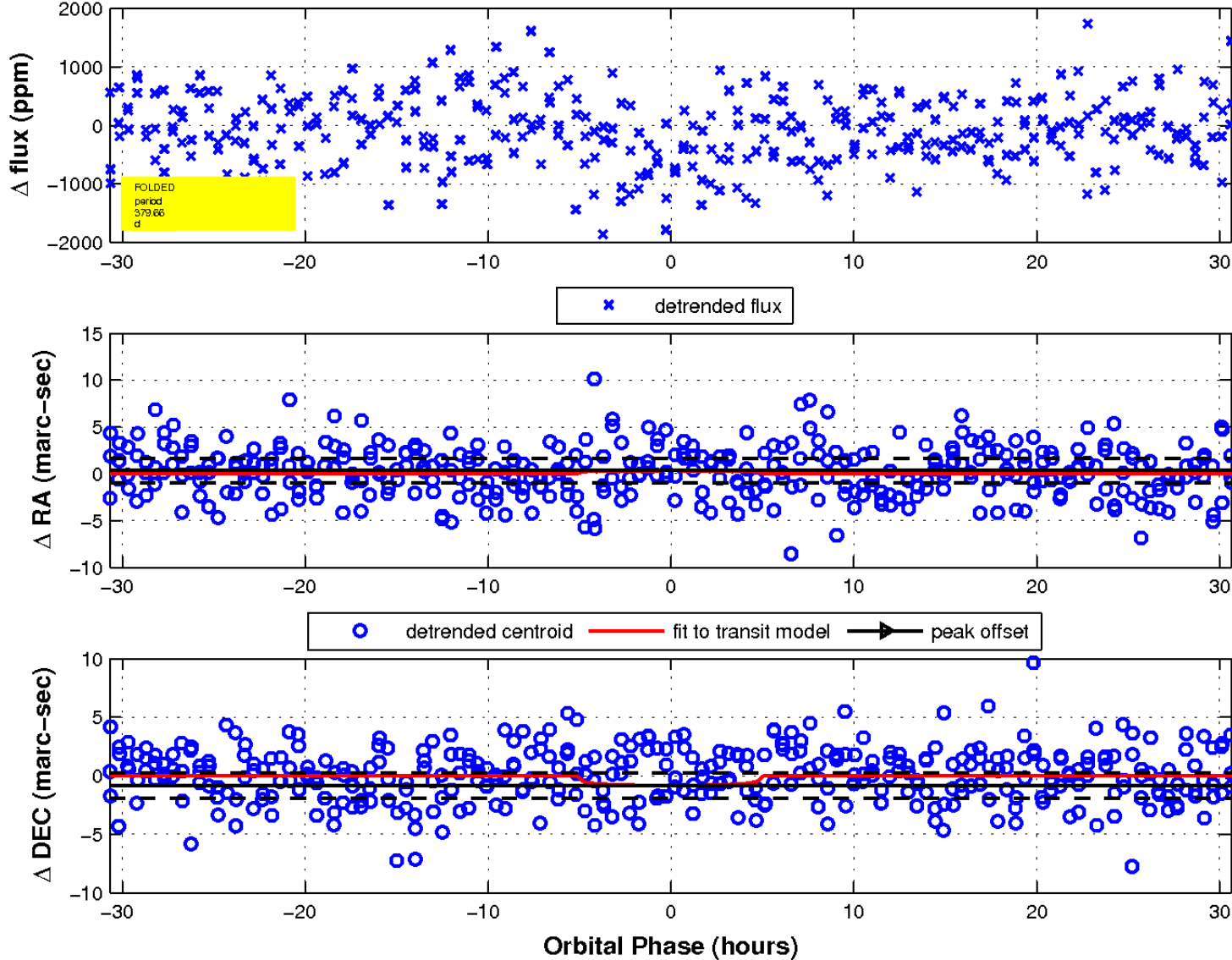
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

