

KIC 003869649

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})
003869649-01	OBS	No	551.876400	277.576892	1355.7	4.500	13.4	-1.0	0.90	5525	3.27	0.44
003869649-02	OBS	No	217.031270	322.169802	1817.7	3.439	11.7	6.2	0.90	5525	4.14	1.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003869649-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
003869649-02	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—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.

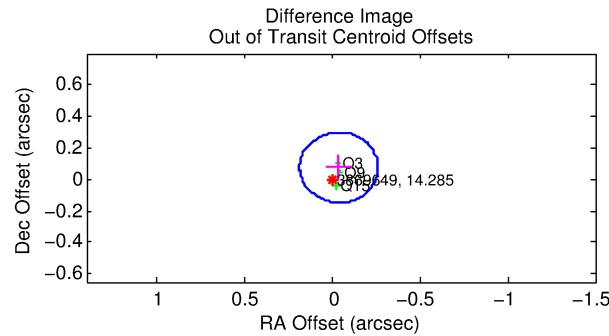
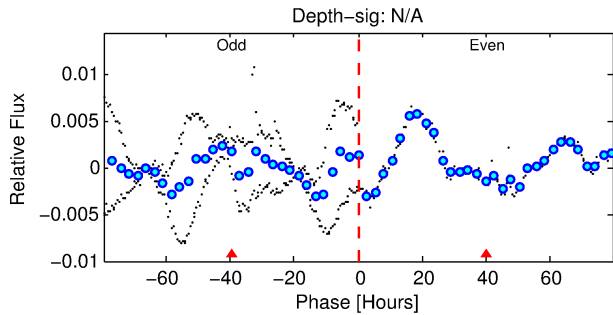
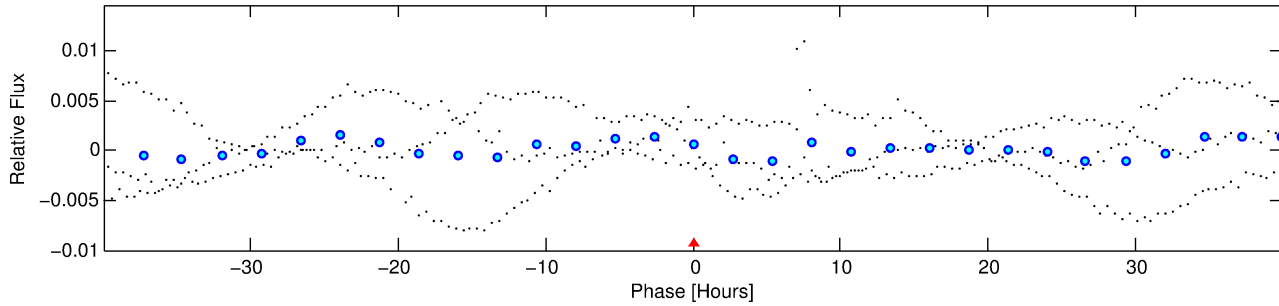
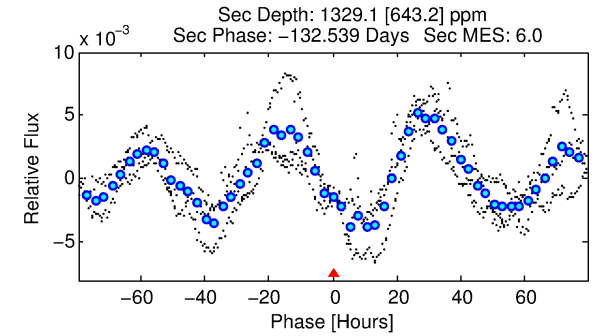
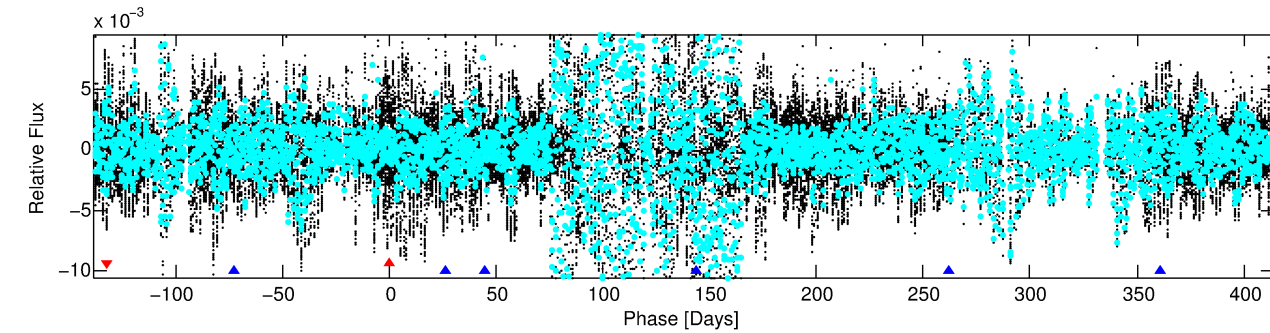
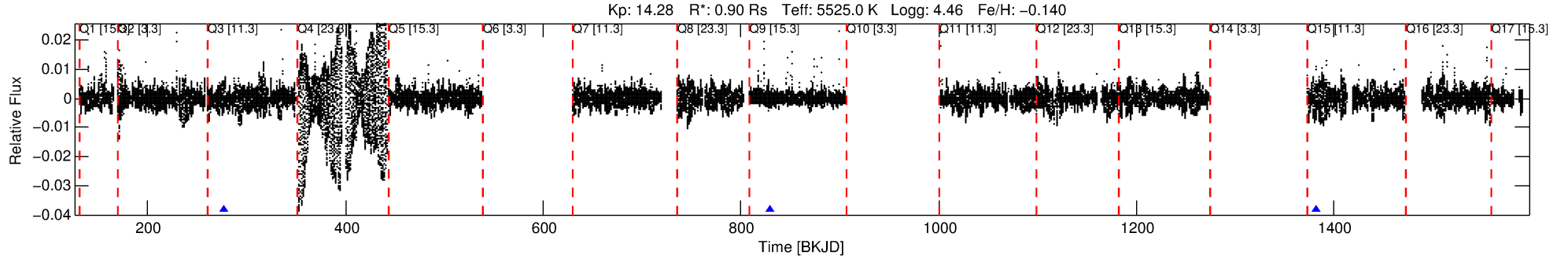
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003869649-01

No Significant Match Found

DV One-Page Summary

KIC: 3869649 Candidate: 1 of 2 Period: 551.876 d



TPS TCE Results:

Period = 551.87640 d
Epoch = 277.5769 BKJD

DV fit results are unavailable

DV Diagnostic Results:

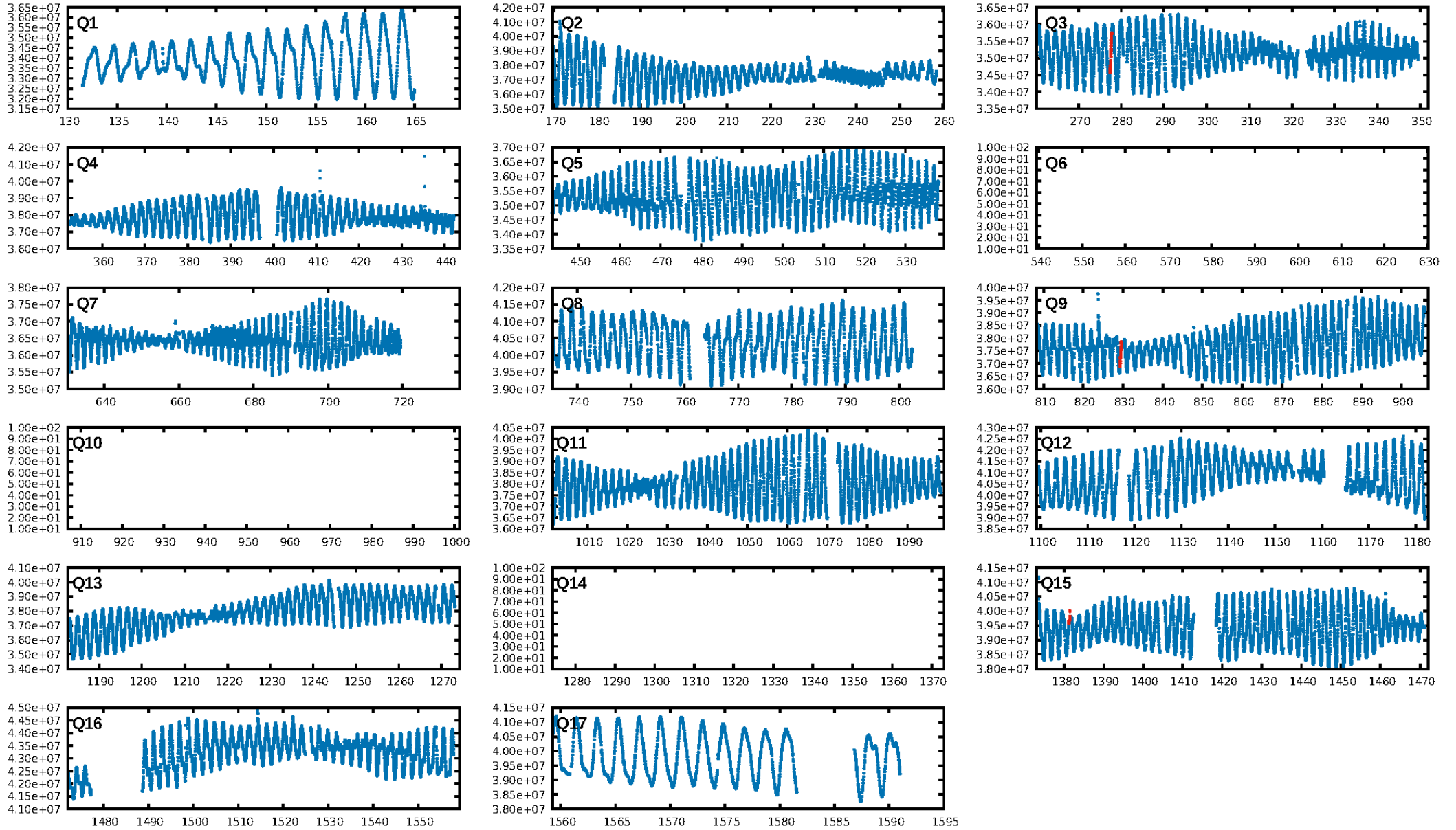
ShortPeriod-sig: 100.0% [1418.92σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.12e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.01721

Centroid-sig: 22.0%
Centroid-so: 2.878 arcsec [1.10σ]
OotOffset-rm: 0.085 arcsec [1.14σ]
KicOffset-rm: 0.175 arcsec [2.33σ]
OotOffset-st: 0/2/0/1 [3]
KicOffset-st: 0/2/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

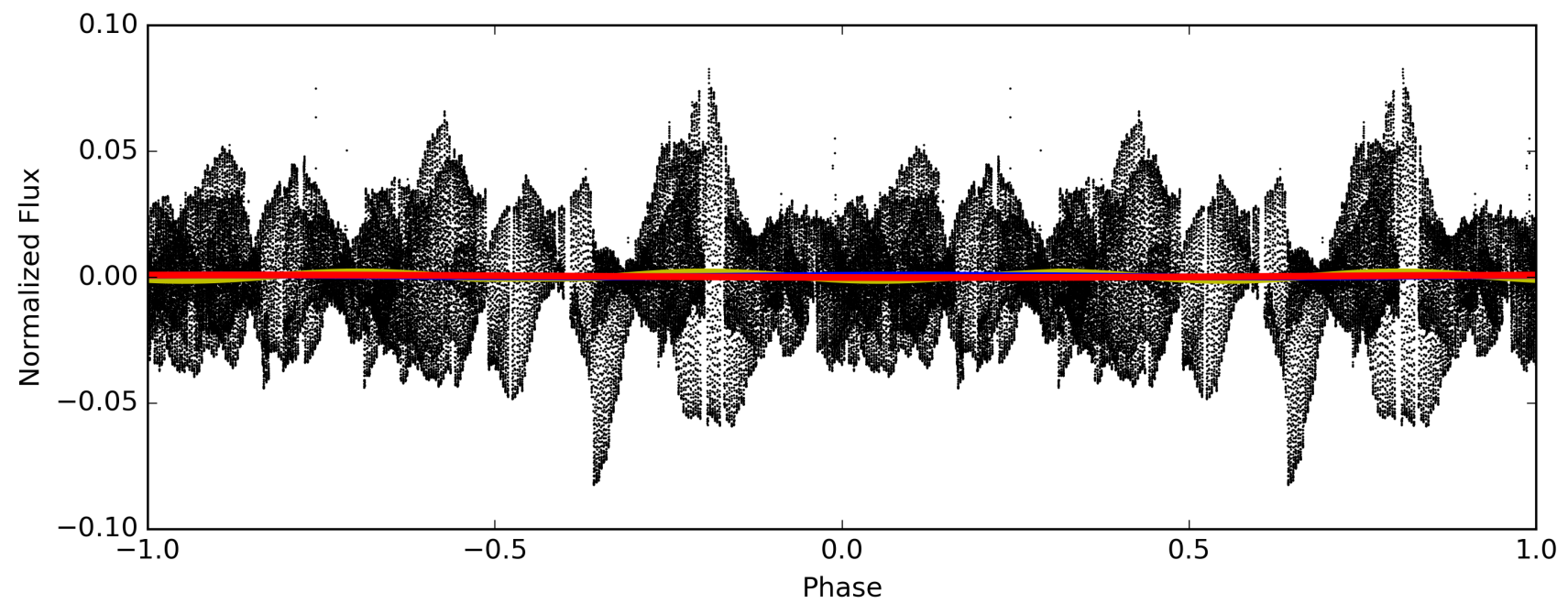
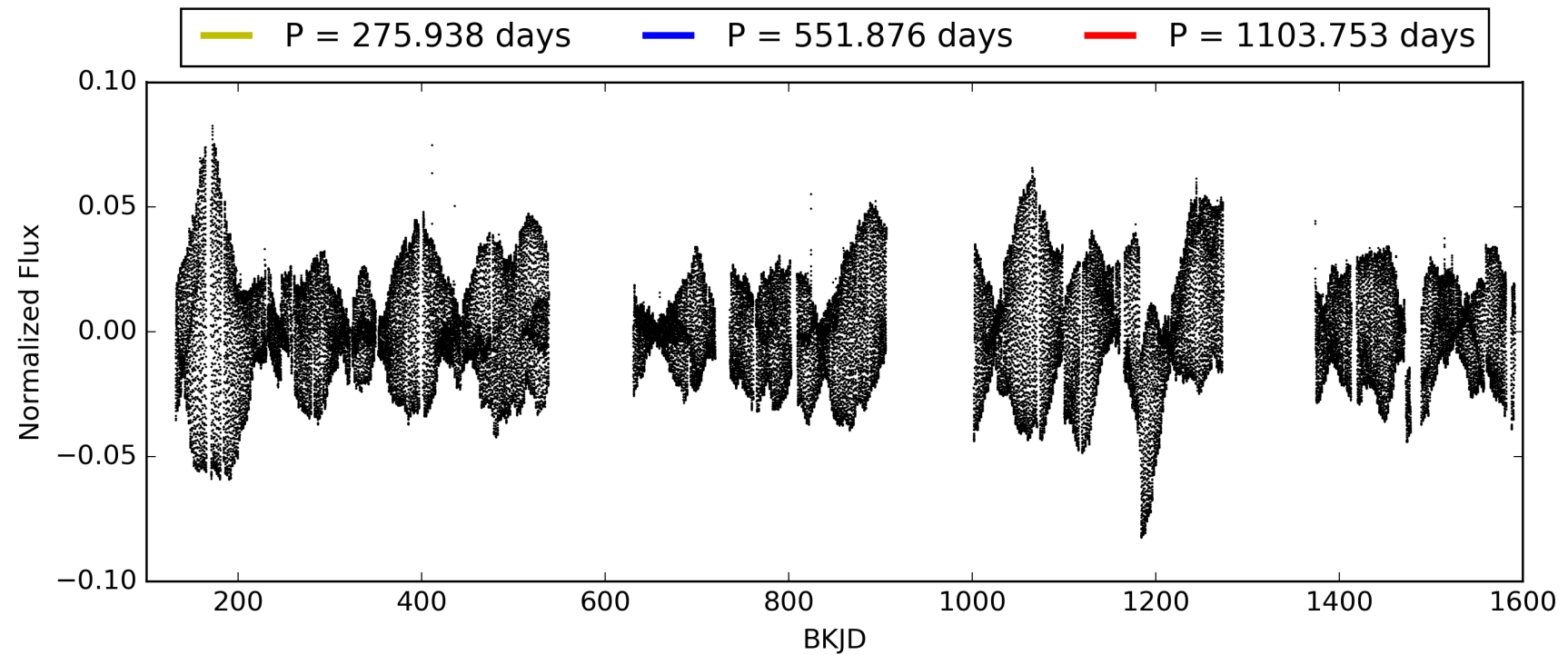
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:35:00 Z

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

TCE 003869649-01, PDC Light Curves

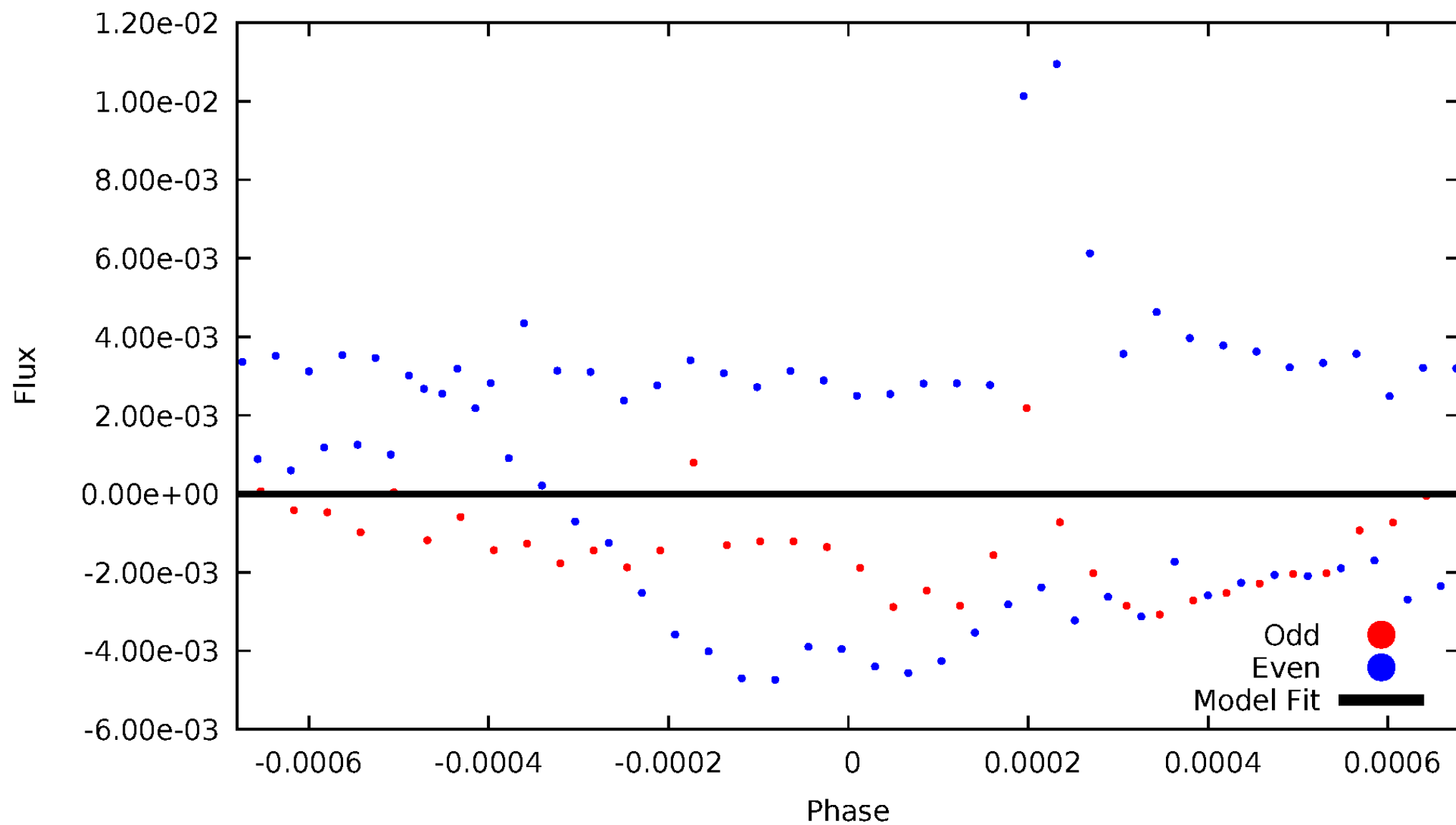


TCE 003869649-01



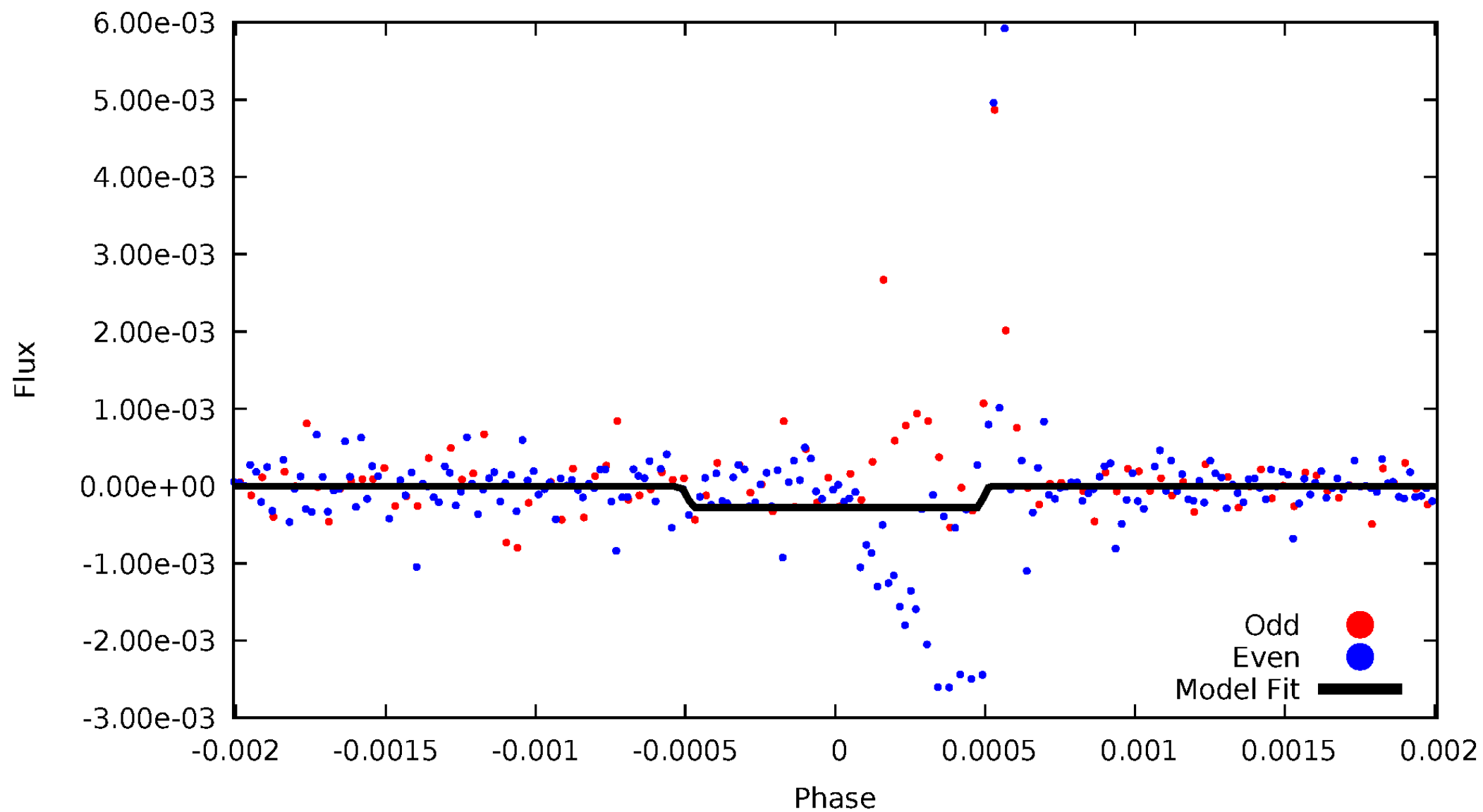
DV Odd/Even

TCE 003869649-01



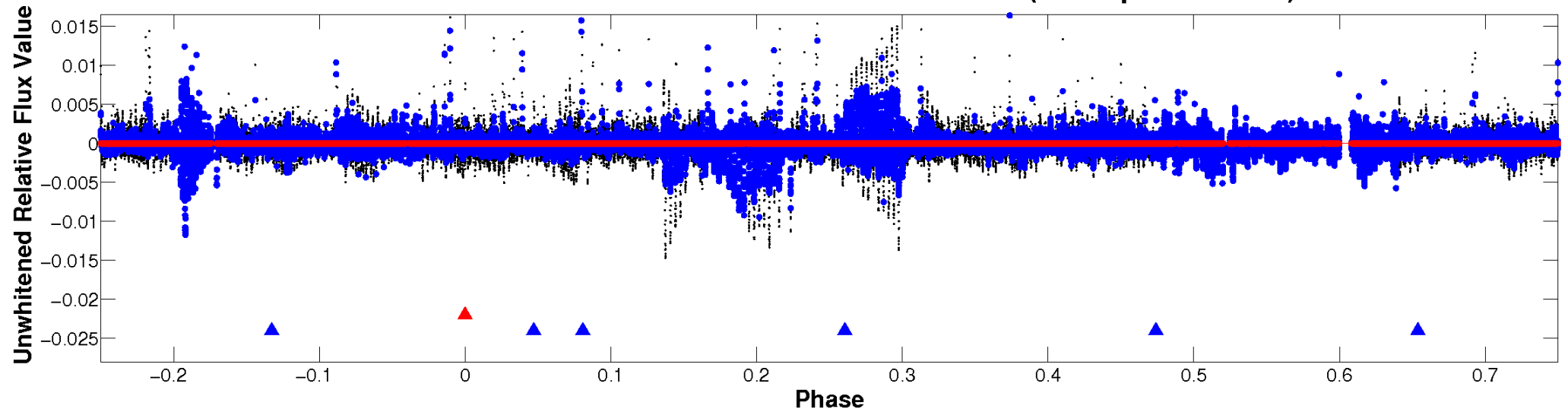
ALT Odd/Even

TCE 003869649-01



Non-Whitened Vs. Whitened Light Curve

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

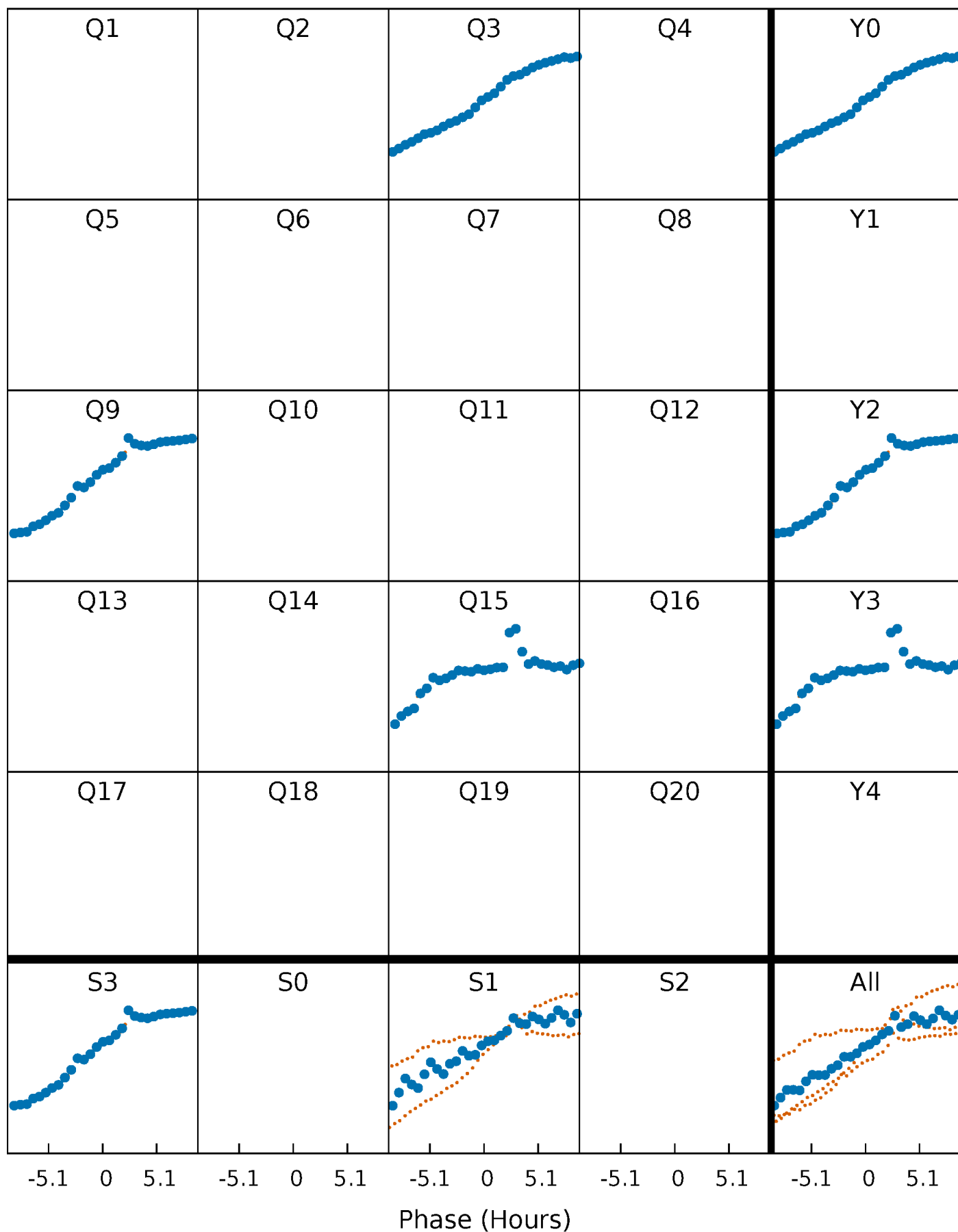


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



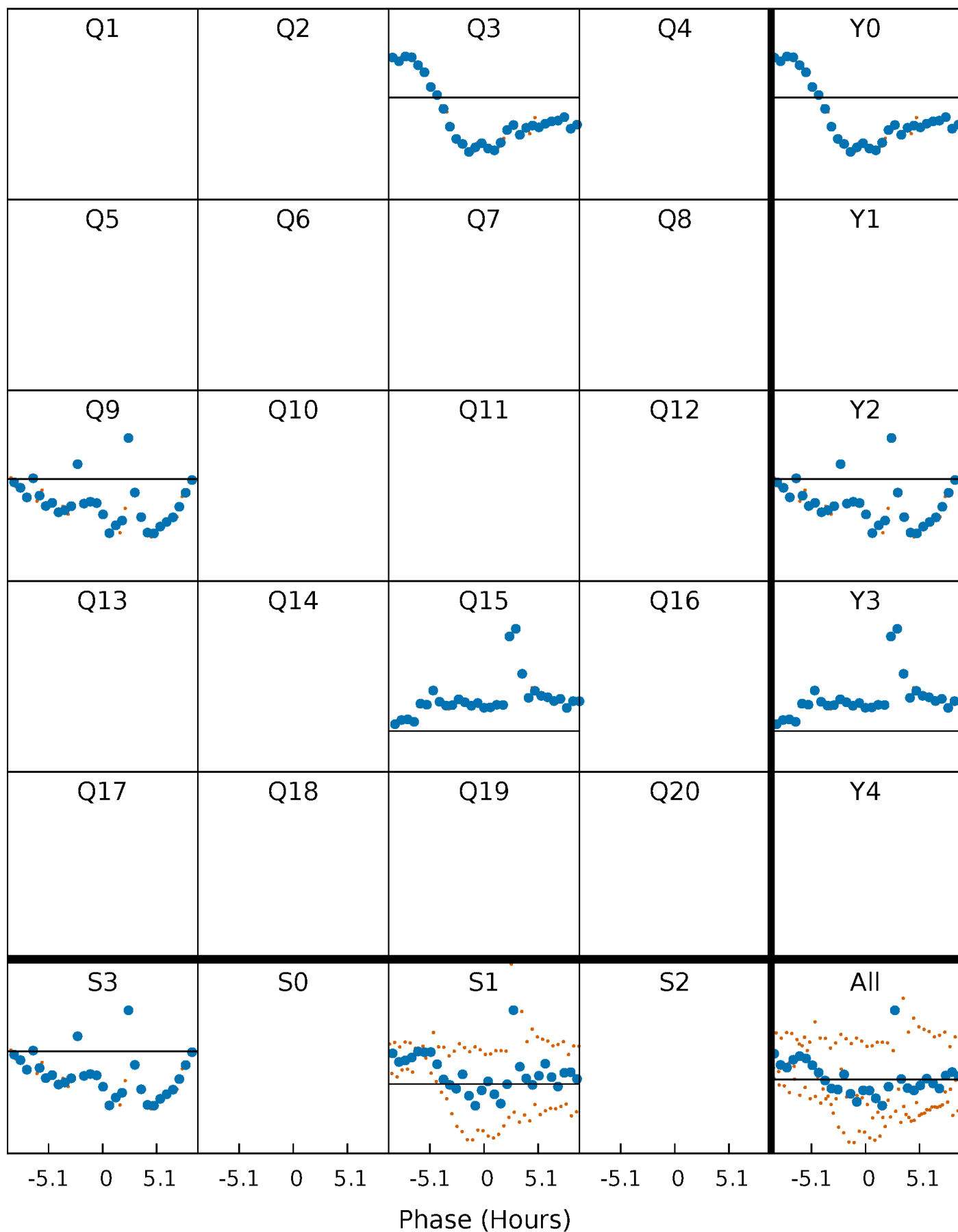
PDC Quarter-Phased Transit Curves

TCE 003869649-01 P=551.876400 Days $T_0=277.576892$ (BKJD)



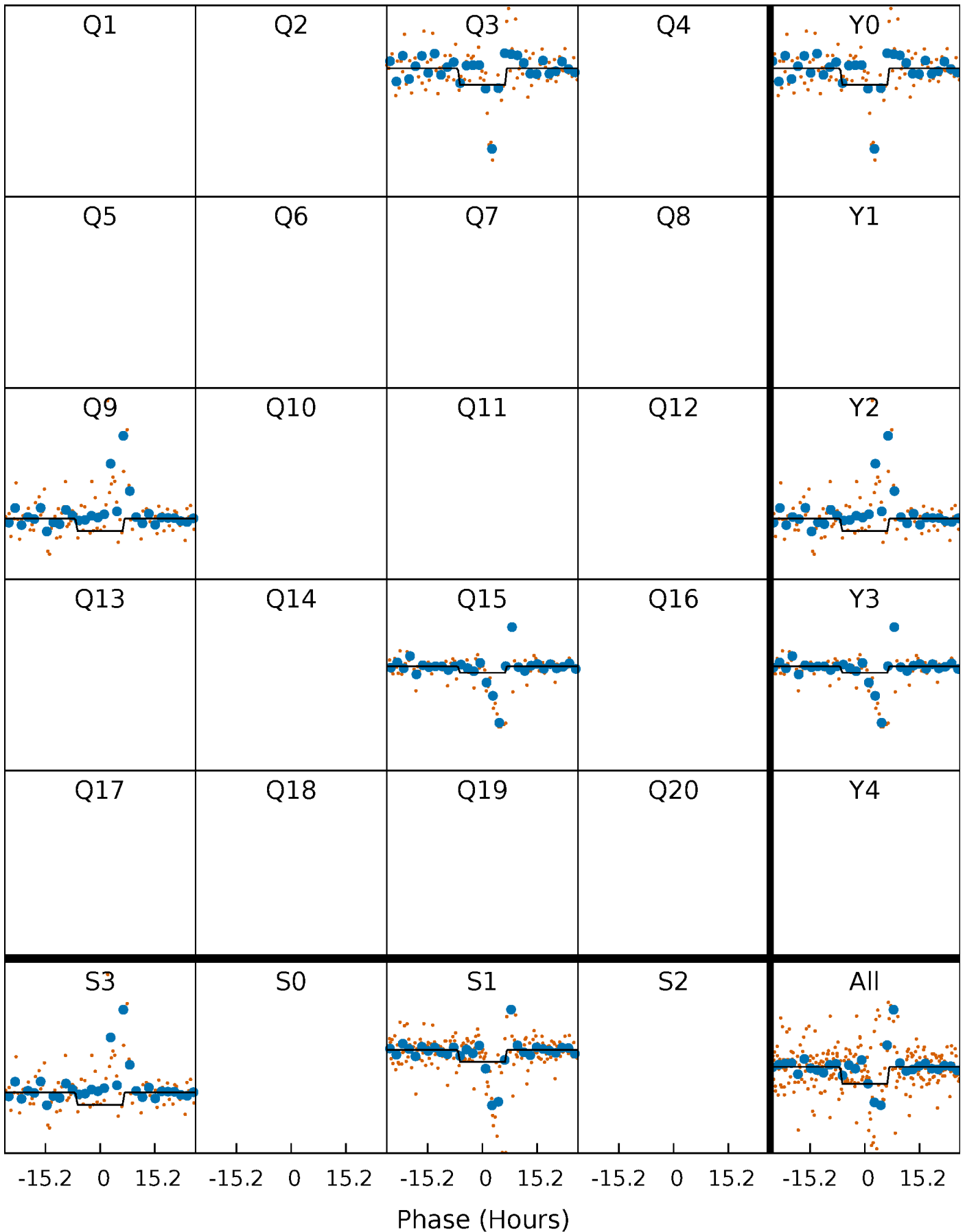
DV Quarter-Phased Transit Curves

TCE 003869649-01 P=551.876400 Days $T_0=277.576892$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

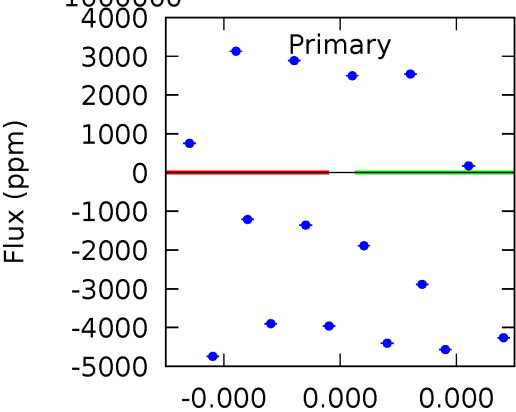
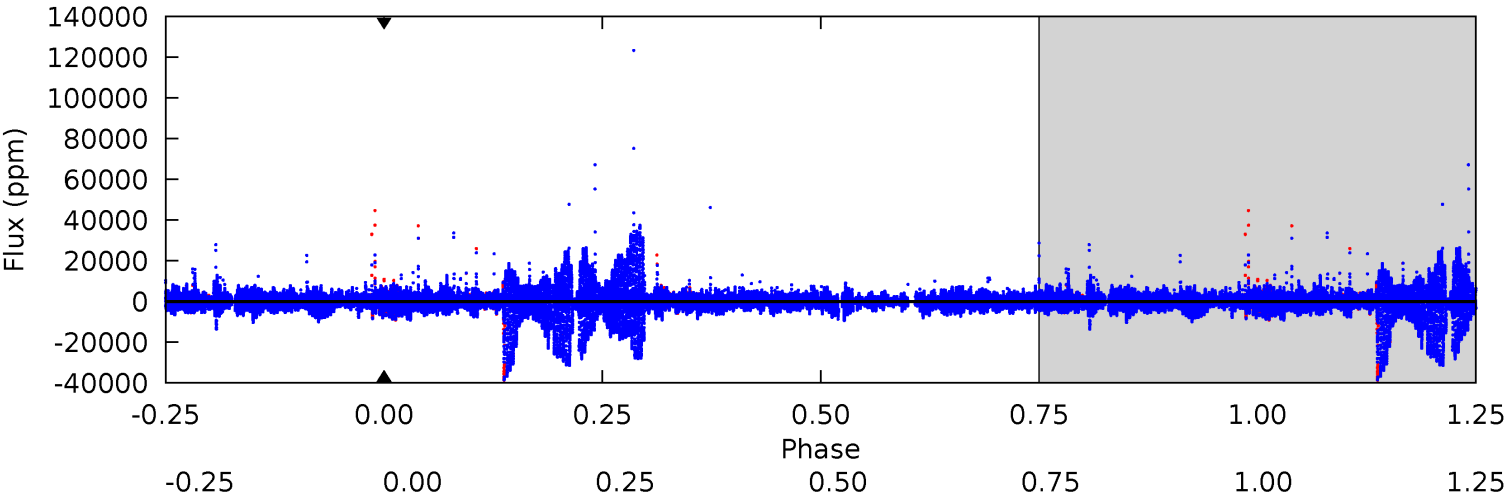
TCE 003869649-01 P=551.876400 Days $T_0=277.392934$ (BKJD)



DV Model-Shift Uniqueness Test

003869649-01, P = 551.876400 Days, E = 277.576892 Days

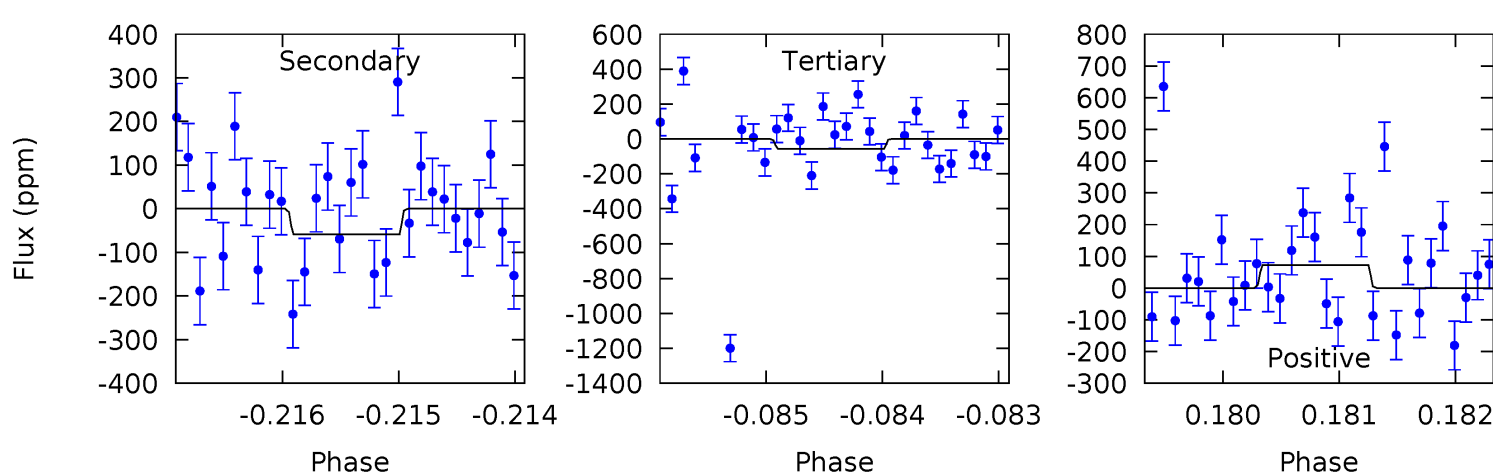
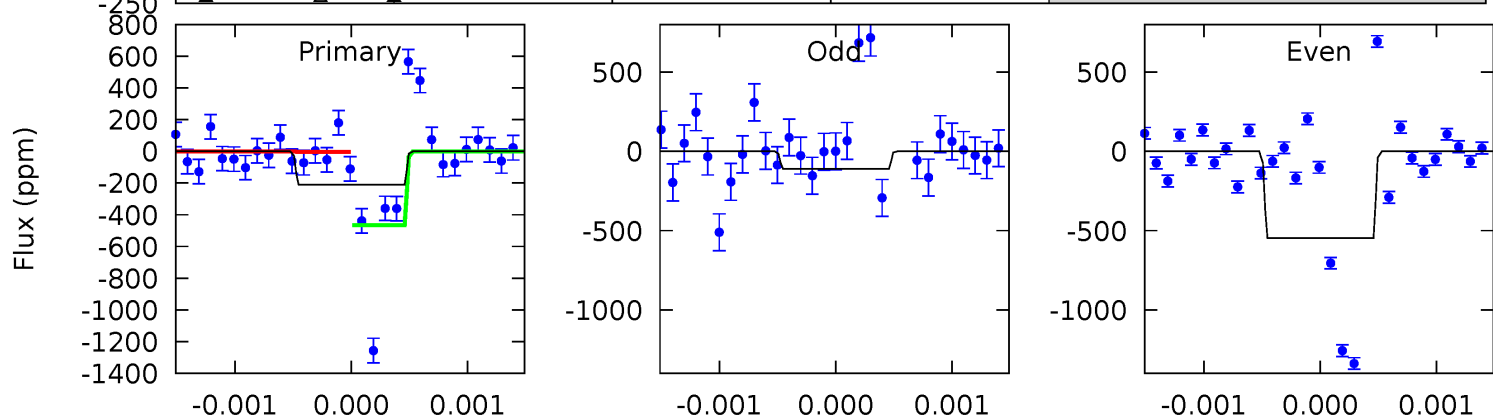
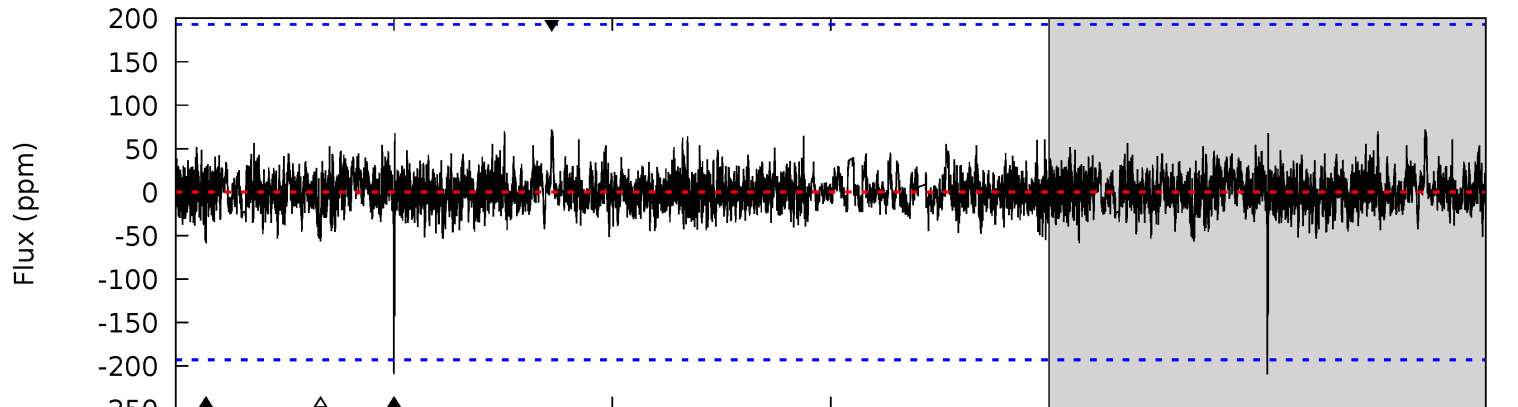
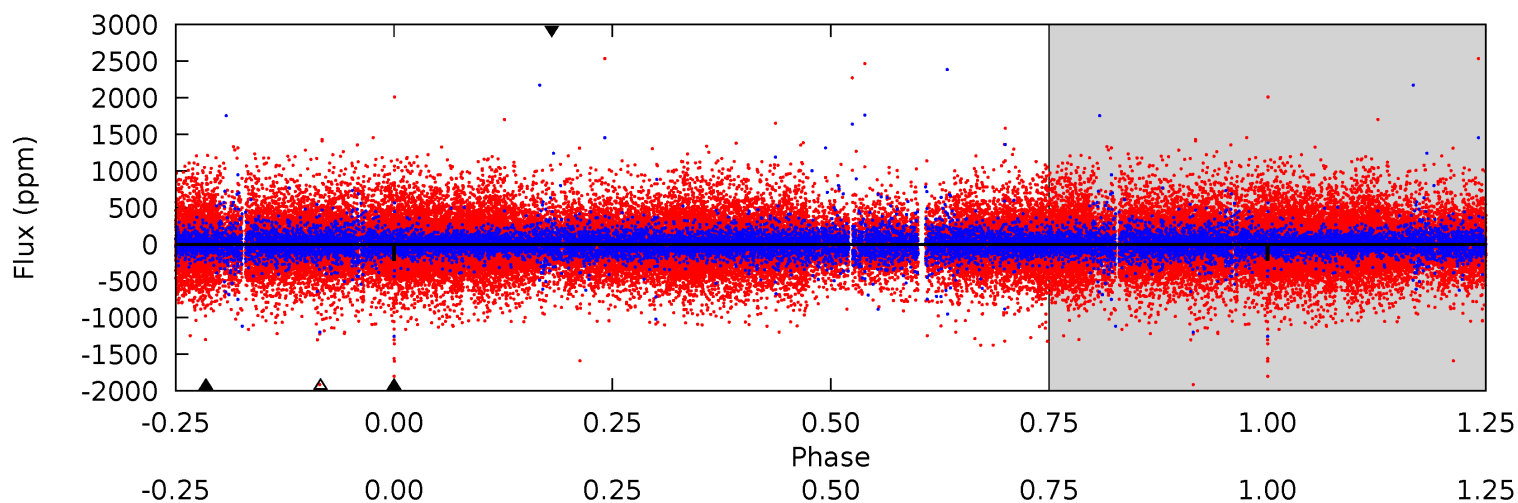
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

003869649-01, P = 551.876400 Days, E = 277.392934 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.93	1.66	1.59	2.03	5.45	3.28	0.44	4.33	3.89	0.07	-0.37	6.00	1.04	0.26	6.53



Stellar Parameters For KIC 003869649

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5525^{+166}_{-149}	$4.455^{+0.104}_{-0.156}$	$-0.140^{+0.300}_{-0.300}$	$0.901^{+0.207}_{-0.127}$	$0.845^{+0.111}_{-0.074}$	$1.628^{+0.736}_{-0.694}$
	+3%/-3%	+2%/-4%	+214%/-214%	+23%/-14%	+13%/-9%	+45%/-43%
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 003869649-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$8.17^{+8.81}_{-5.36}$	292^{+18}_{-16}	-4104^{+21545}_{-10620}	$-17455.904^{+2419264.821}_{-1617336.450}$
Alt.	-59 ± 35	$7.29^{+8.06}_{-5.16}$	291^{+17}_{-15}	2513^{+1144}_{-438}	683^{+8729}_{-561}

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 $A_{obs} \gg 1.0$

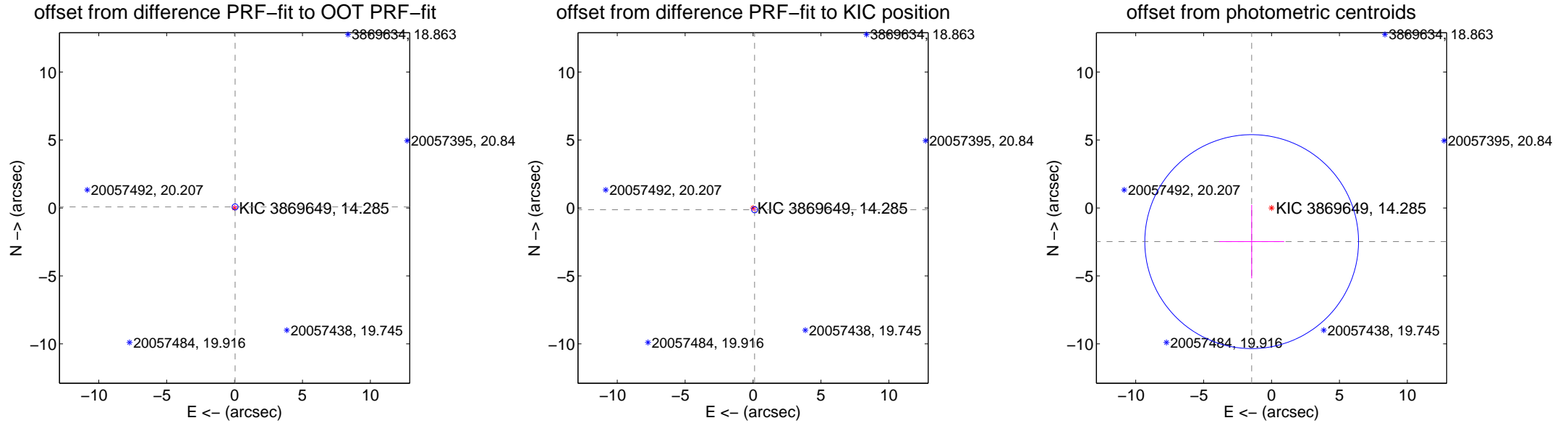
DV Centroid Data

Supplemental centroid analysis for 003869649-01. Kepler magnitude: 14.29. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

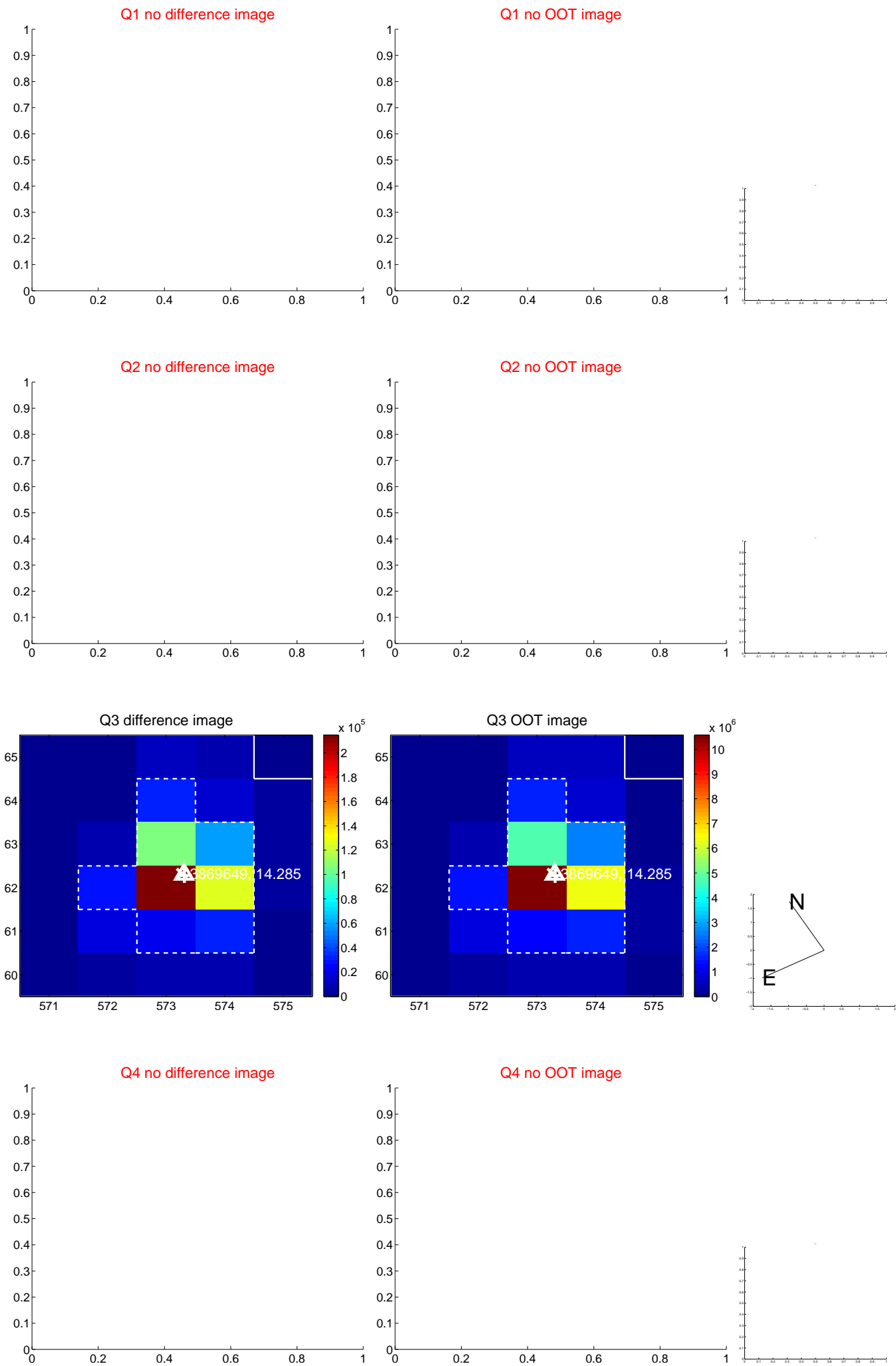
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.085 ± 0.074	1.14	-0.038 ± 0.067	0.076 ± 0.075
PRF-fit source offset from KIC position	0.175 ± 0.075	2.33	-0.115 ± 0.069	-0.131 ± 0.073
photometric centroid source offset	2.88 ± 2.62	1.10	1.46 ± 2.39	-2.48 ± 2.70



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

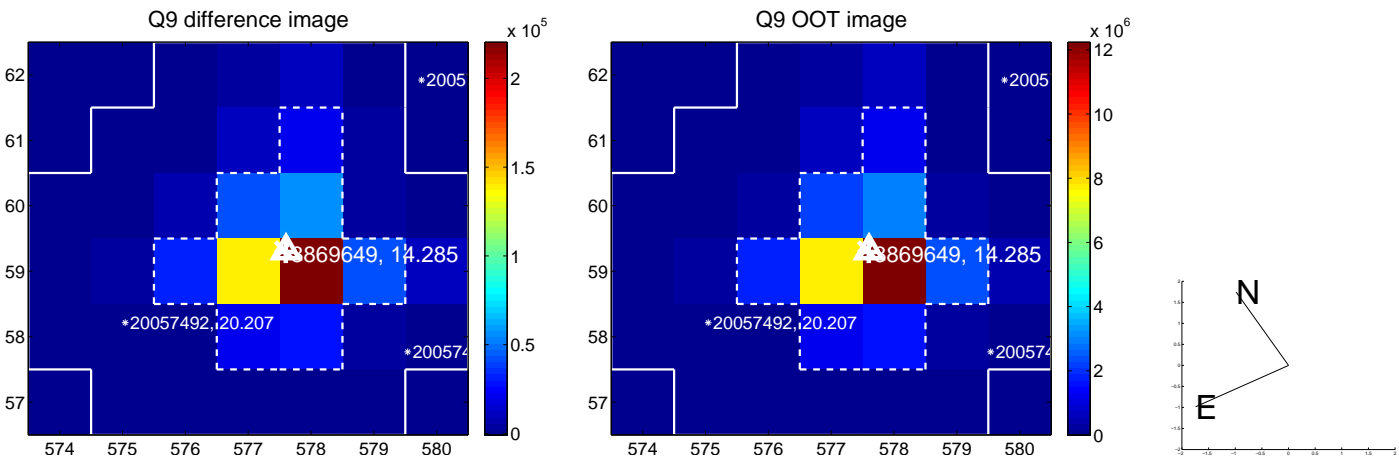
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



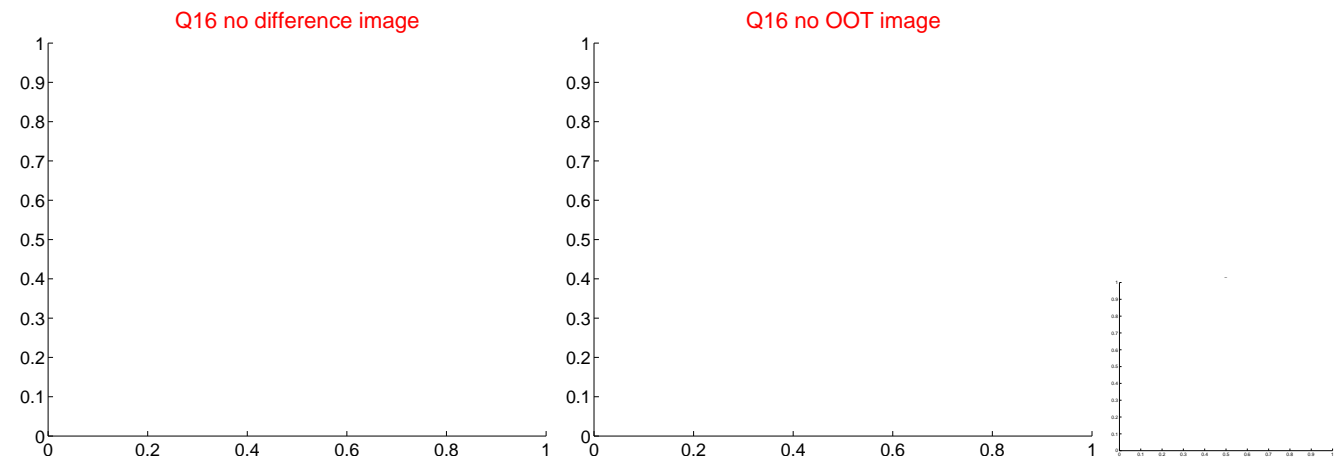
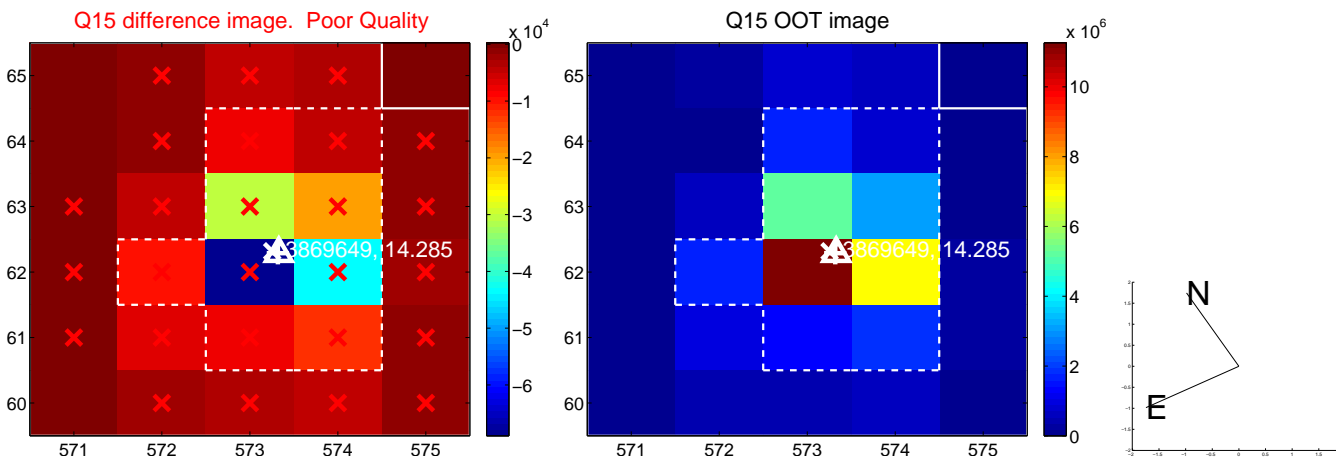
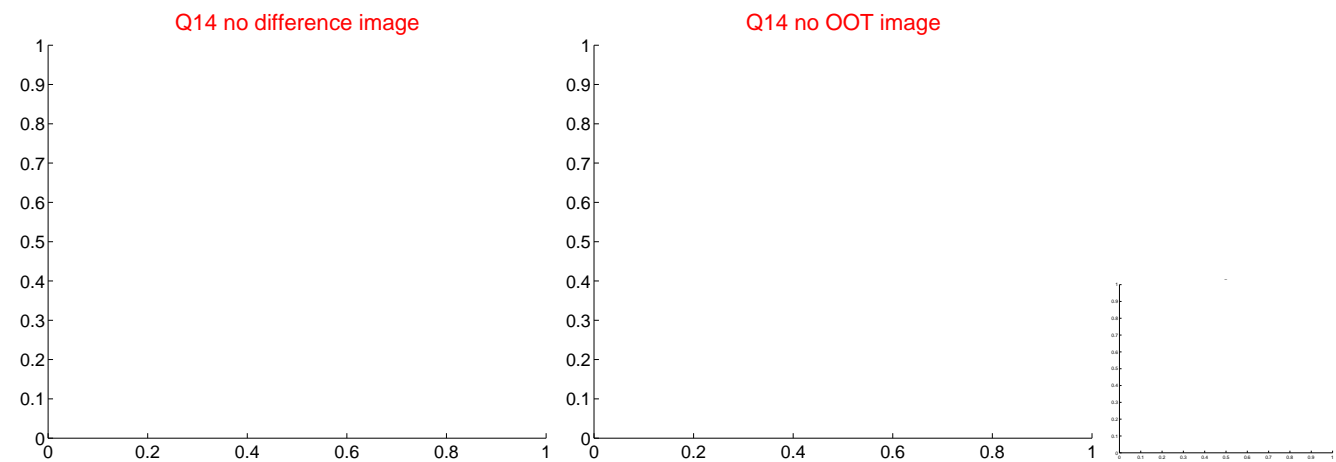
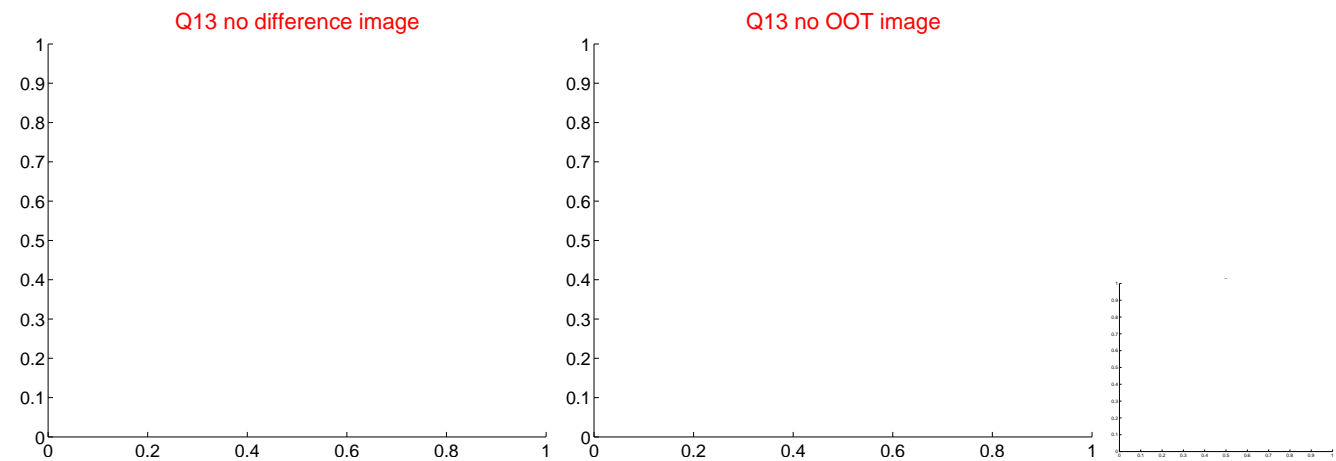
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



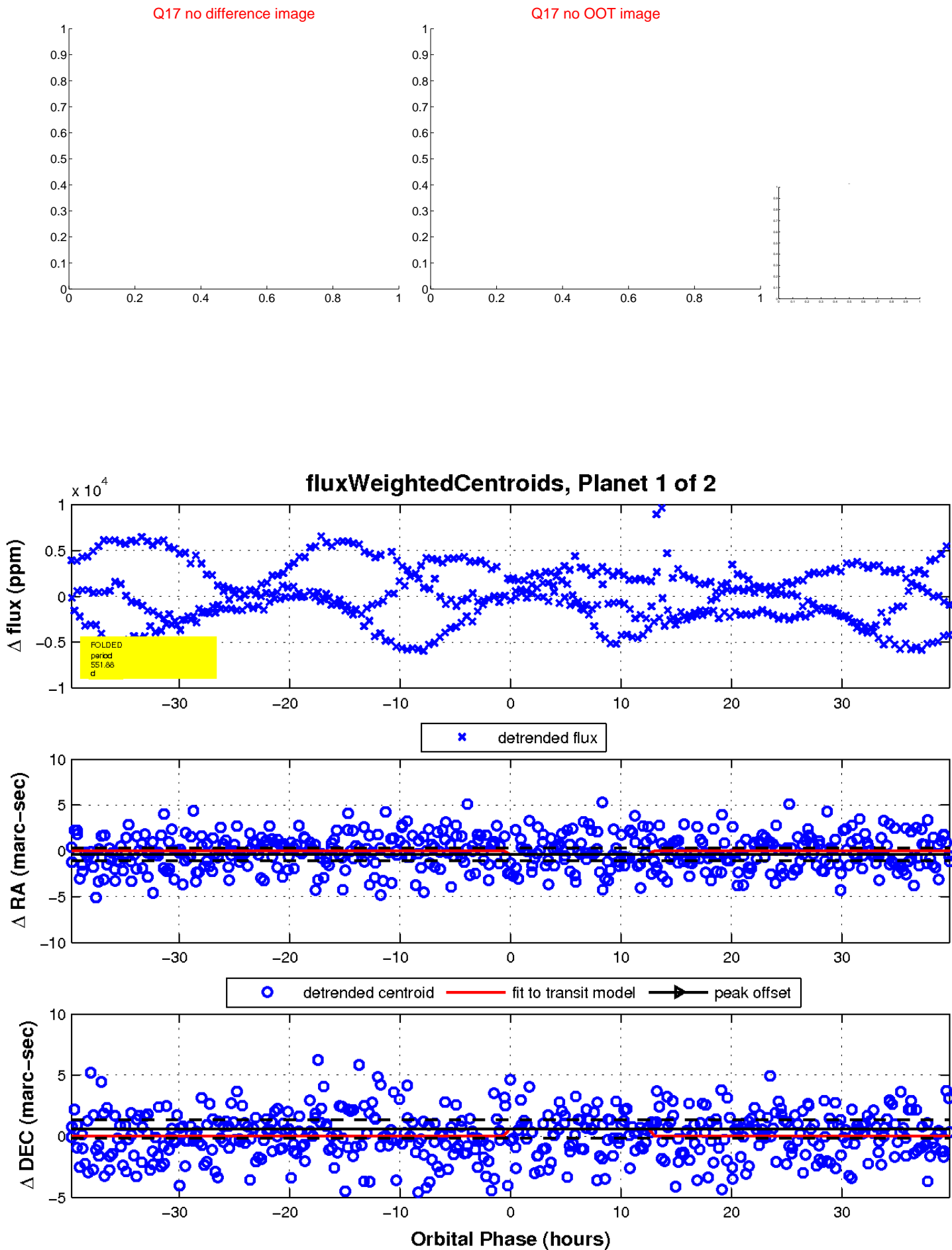
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

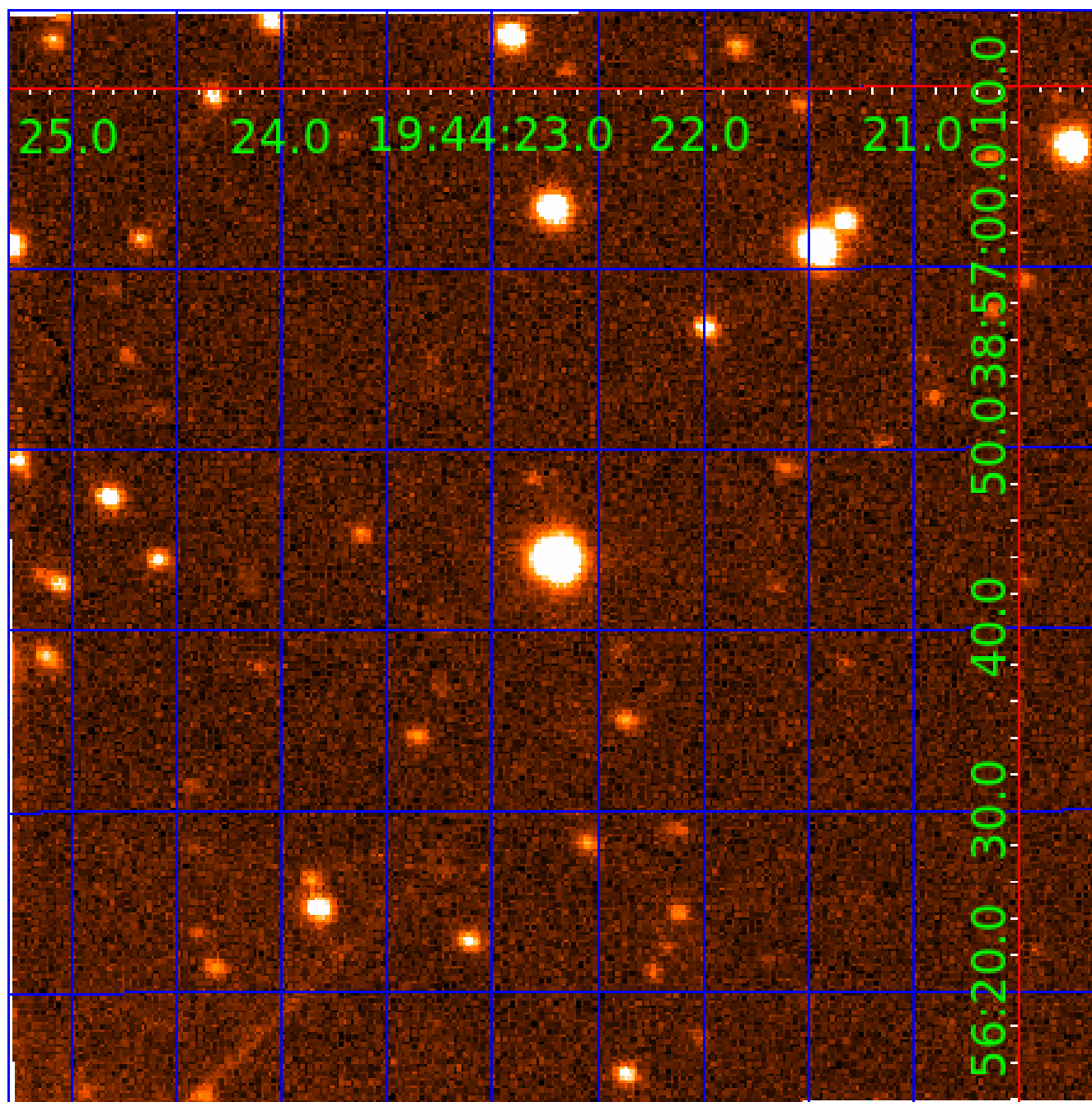


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003869649

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})
003869649-01	OBS	No	551.876400	277.576892	1355.7	4.500	13.4	-1.0	0.90	5525	3.27	0.44
003869649-02	OBS	No	217.031270	322.169802	1817.7	3.439	11.7	6.2	0.90	5525	4.14	1.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003869649-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
003869649-02	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—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.

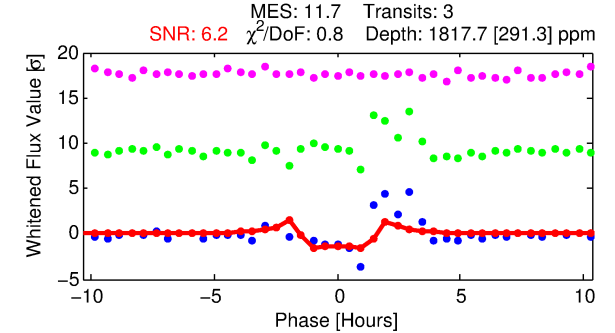
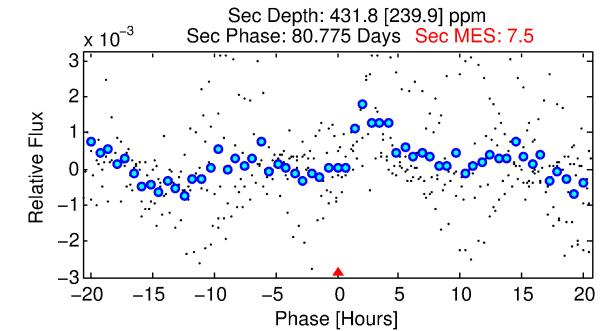
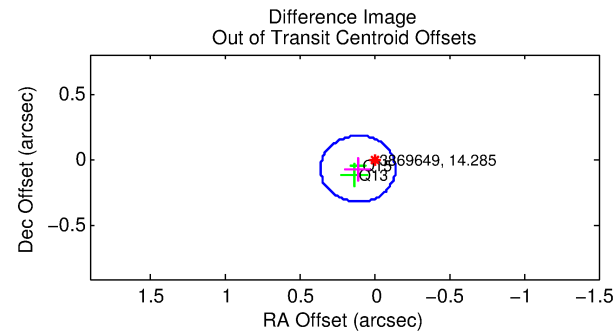
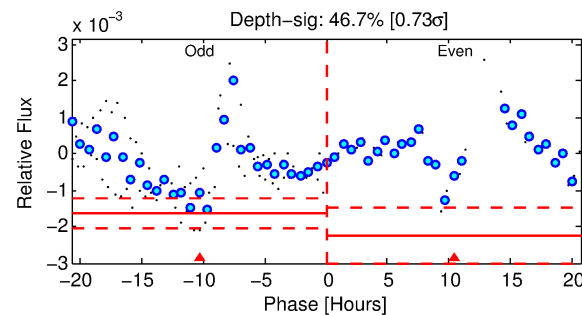
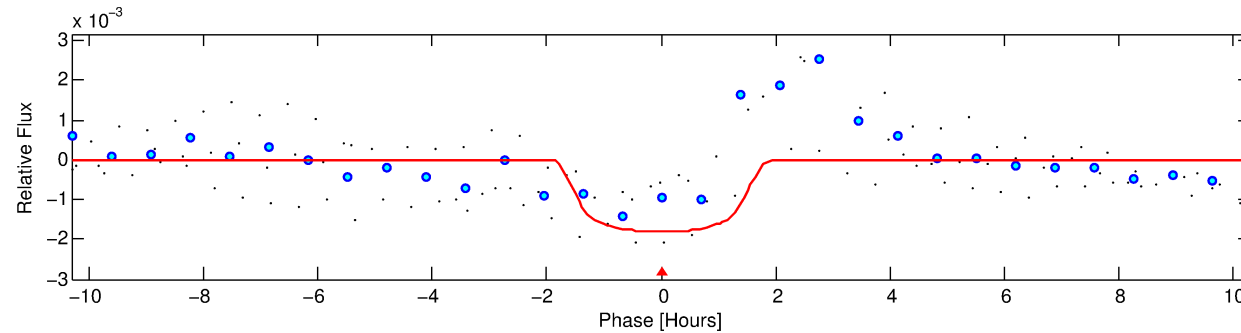
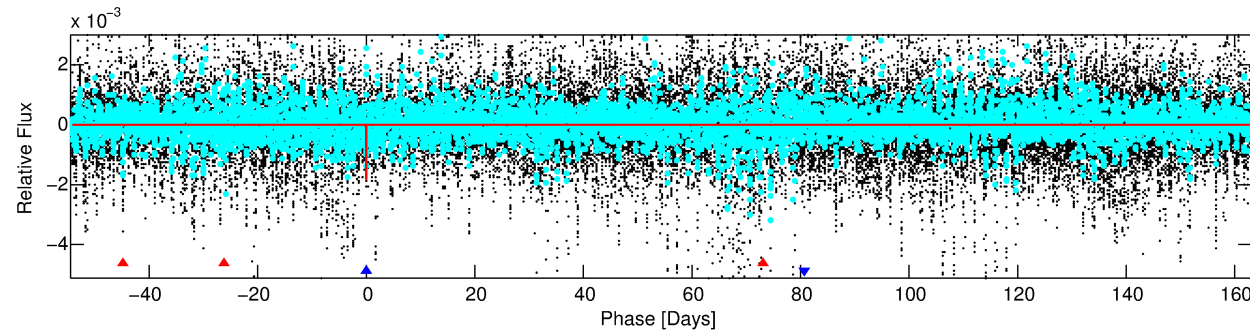
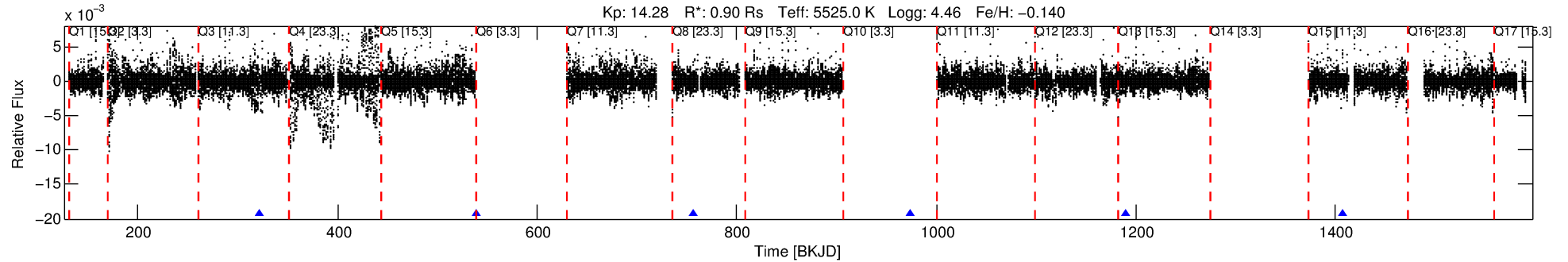
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003869649-02

No Significant Match Found

DV One-Page Summary

KIC: 3869649 Candidate: 2 of 2 Period: 217.031 d



DV Fit Results:

Period = 217.03127 [0.00287] d
Epoch = 322.1698 [0.0118] BKJD
Rp/R* = 0.0421 [0.0209]
a/R* = 360.55 [708.89]
b = 0.73 [1.30]
Seff = 1.52 [0.47]
Teq = 283 [22] K
Rp = 4.14 [2.27] Re
a = 0.6681 [0.1299] AU
Ag = 6187.45 [7268.15] [0.85σ]
Teffp = 3881 [1112] K [3.24σ]

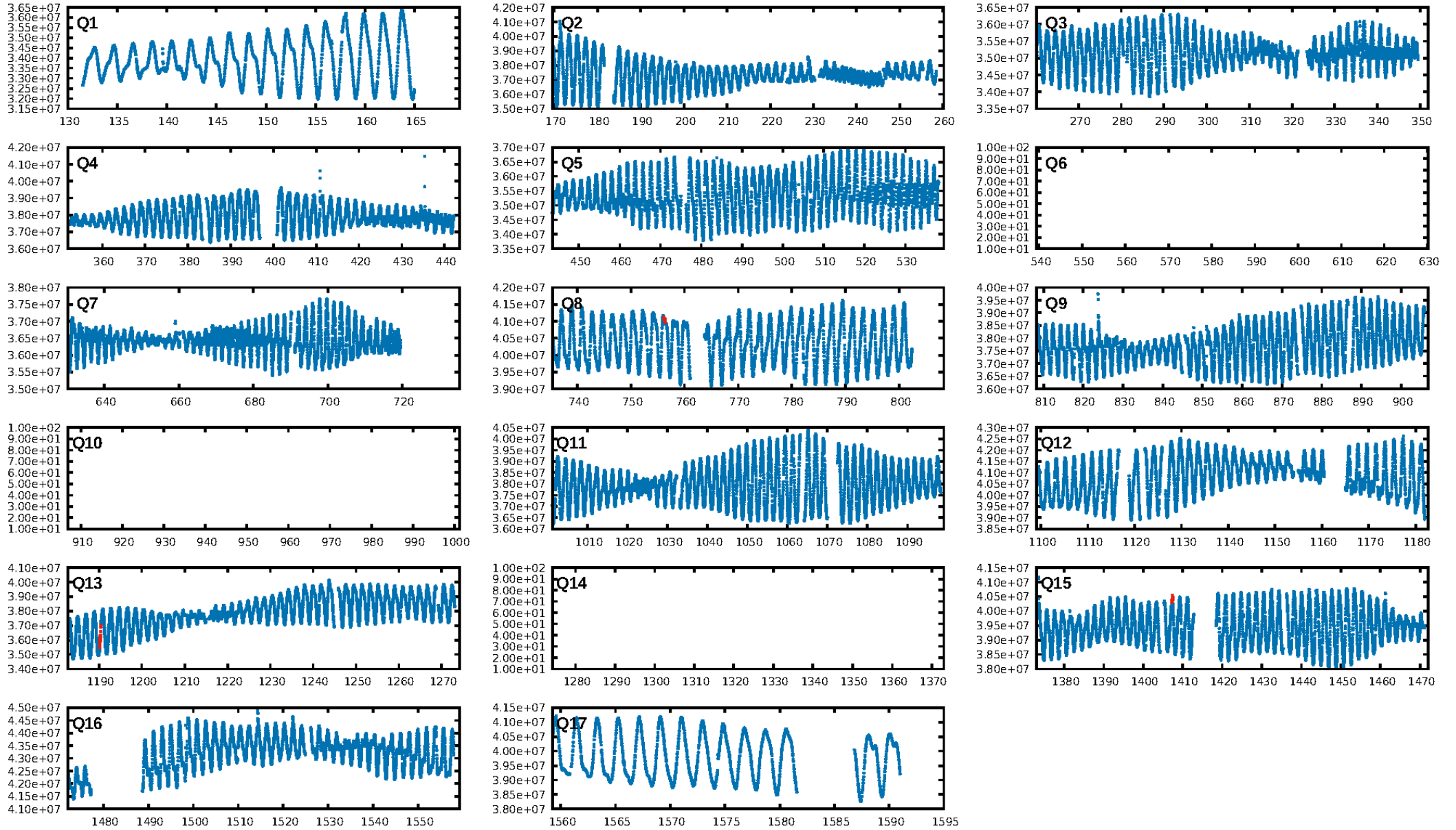
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1418.92σ]
ModelChiSquare2-sig: 84.5%
ModelChiSquareGof-sig: 84.4%
Bootstrap-pfa: 2.49e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.274
Centroid-sig: 2.6%
Centroid-so: 1.231 arcsec [2.05σ]
OotOffset-rm: 0.127 arcsec [1.52σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-rm: 0.304 arcsec [2.72σ]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

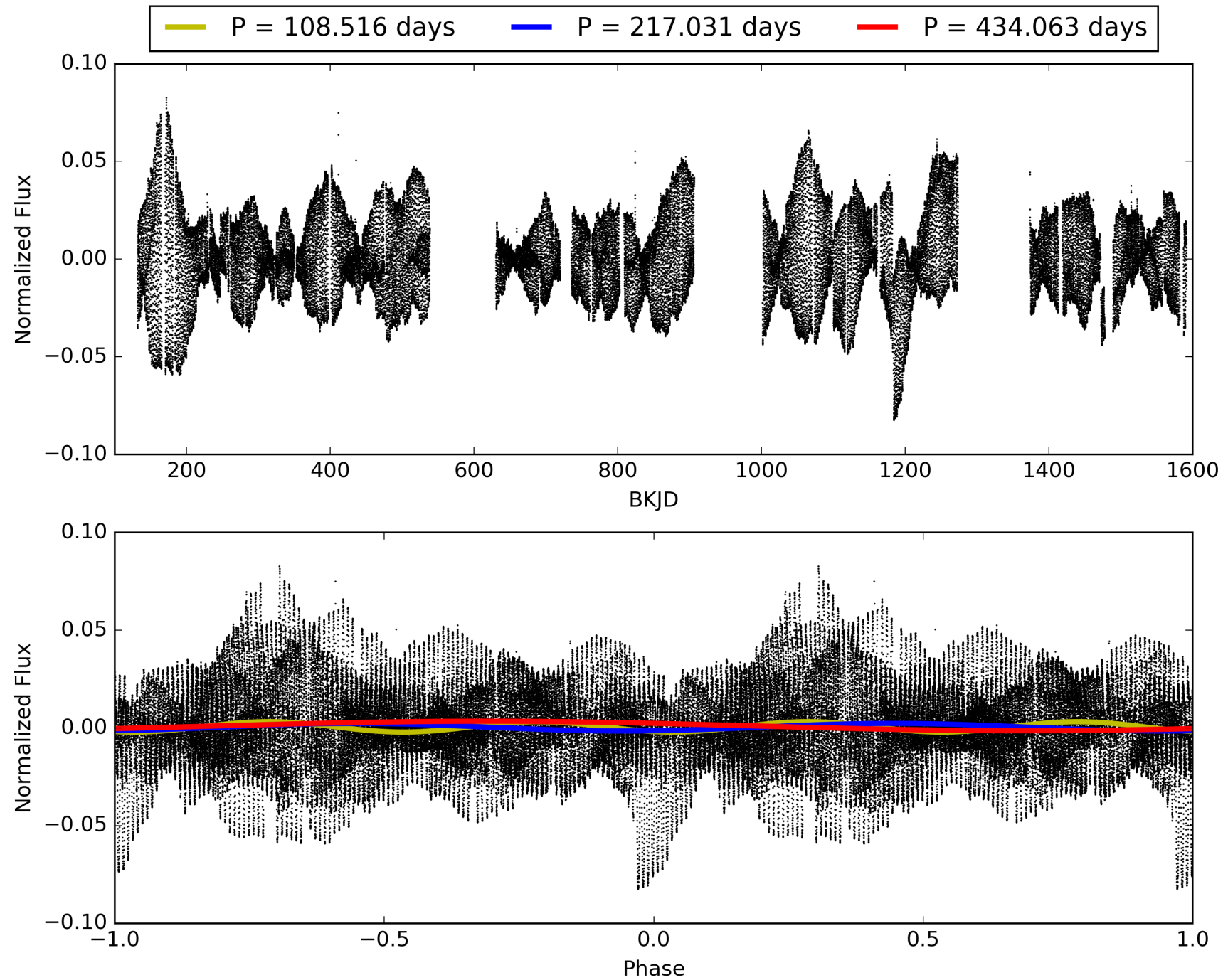
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:35:10 Z

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

TCE 003869649-02, PDC Light Curves

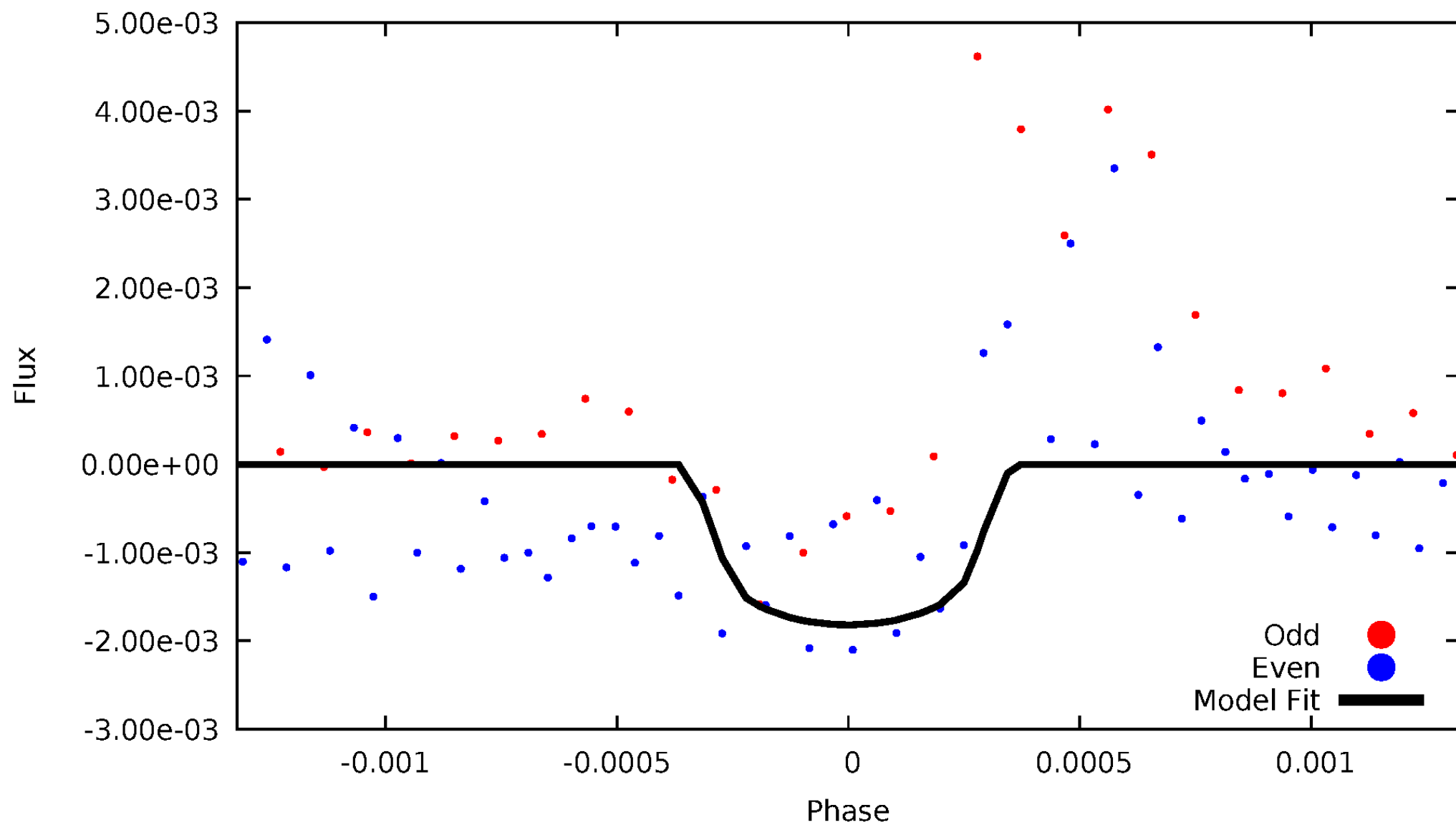


TCE 003869649-02



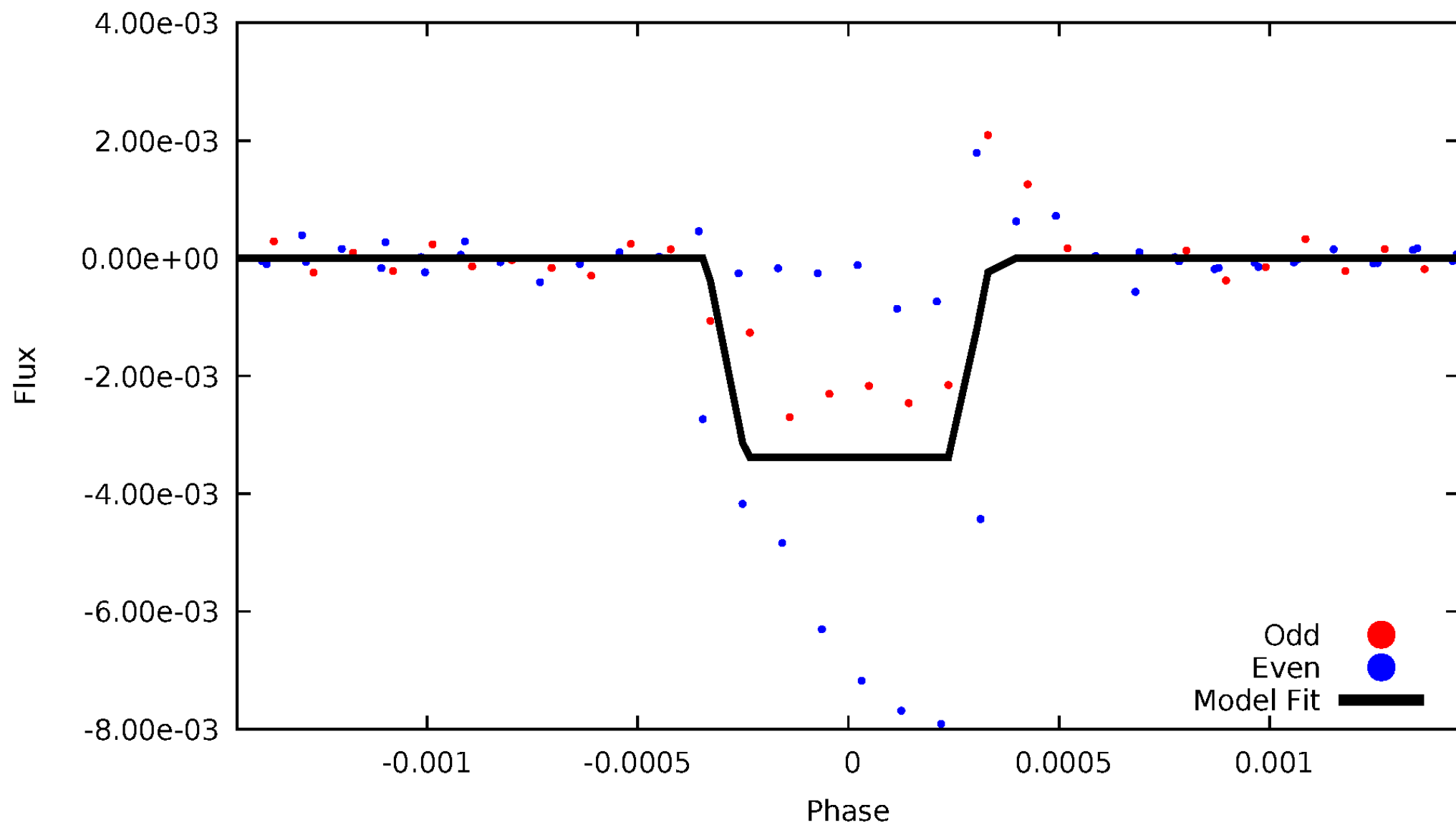
DV Odd/Even

TCE 003869649-02



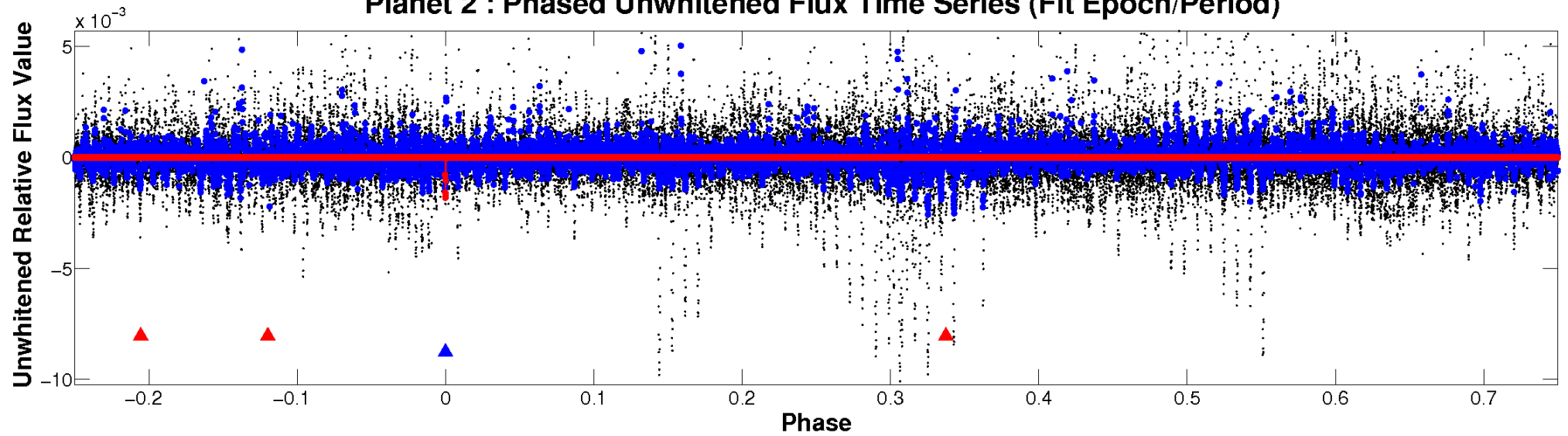
ALT Odd/Even

TCE 003869649-02

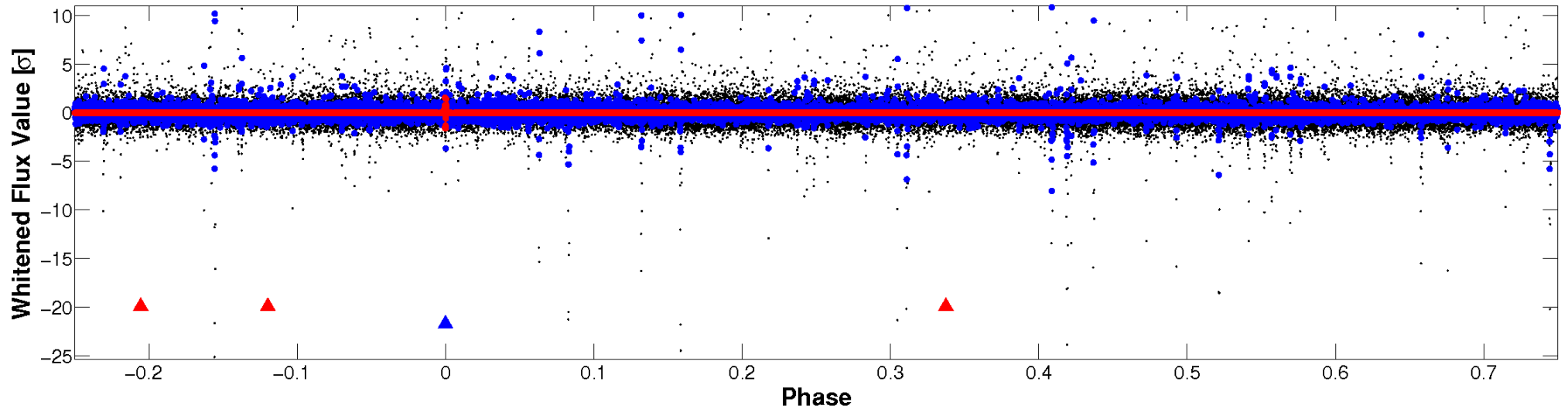


Non-Whitened Vs. Whitened Light Curve

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

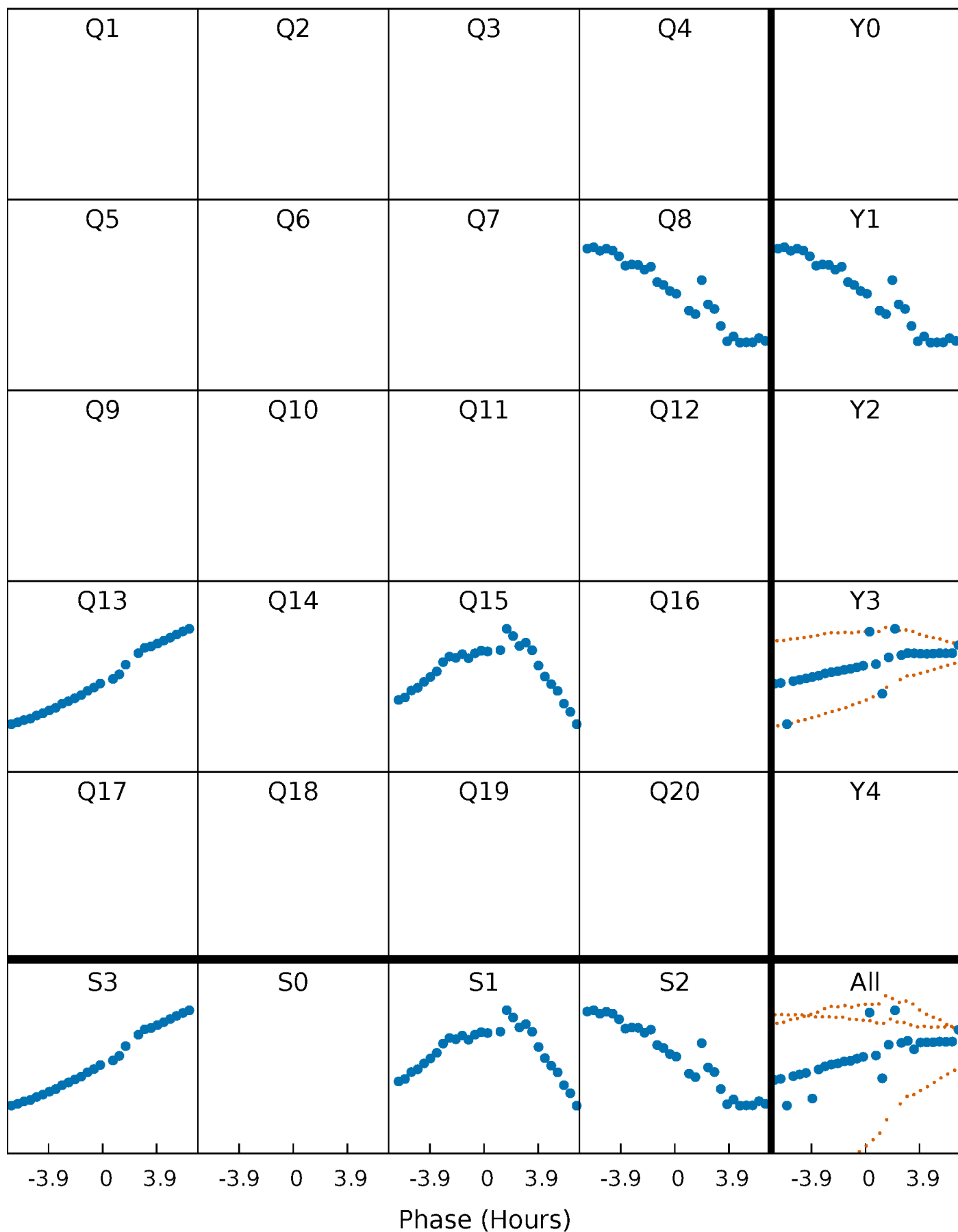


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



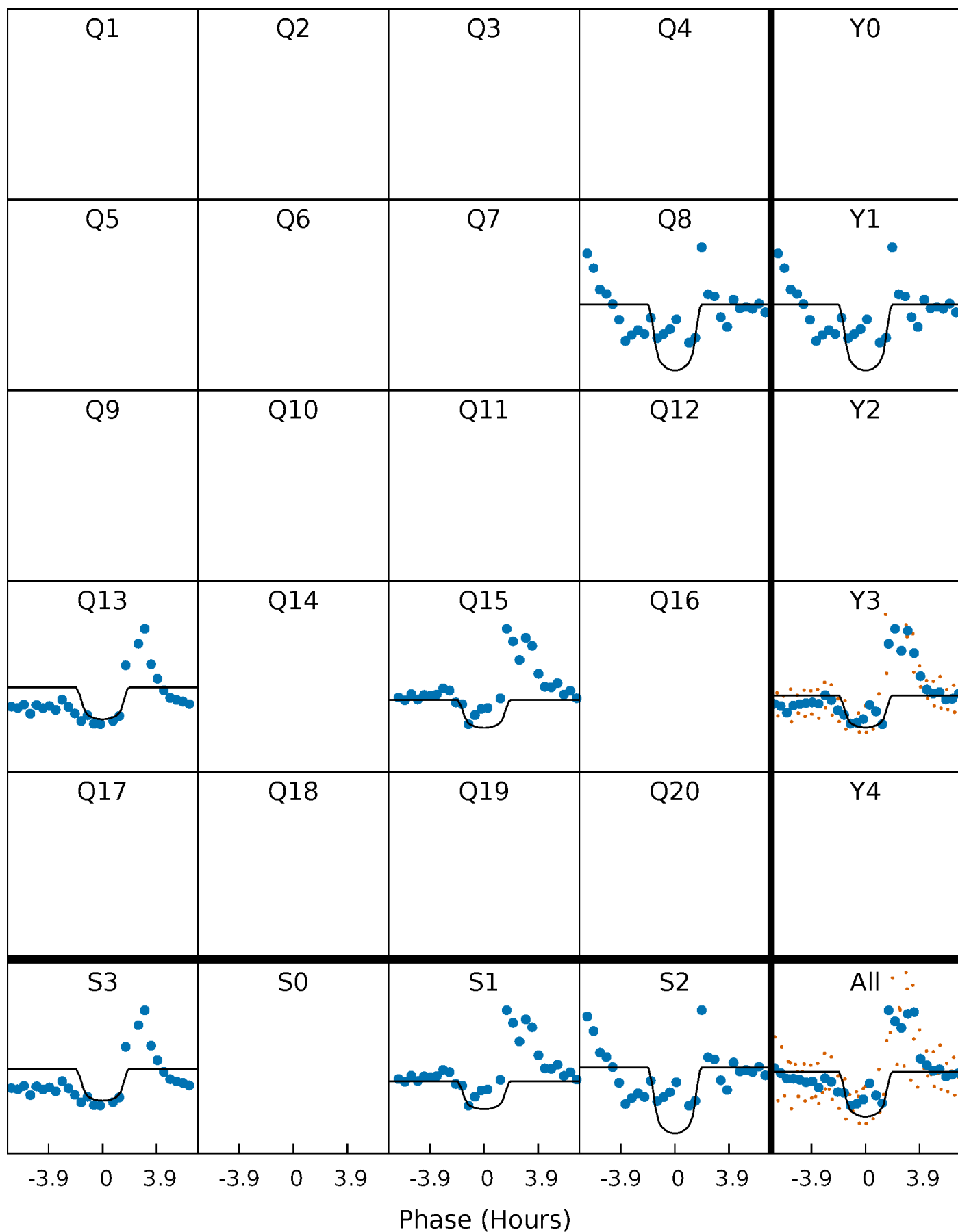
PDC Quarter-Phased Transit Curves

TCE 003869649-02 $P=217.031270$ Days $T_0=322.169802$ (BKJD)



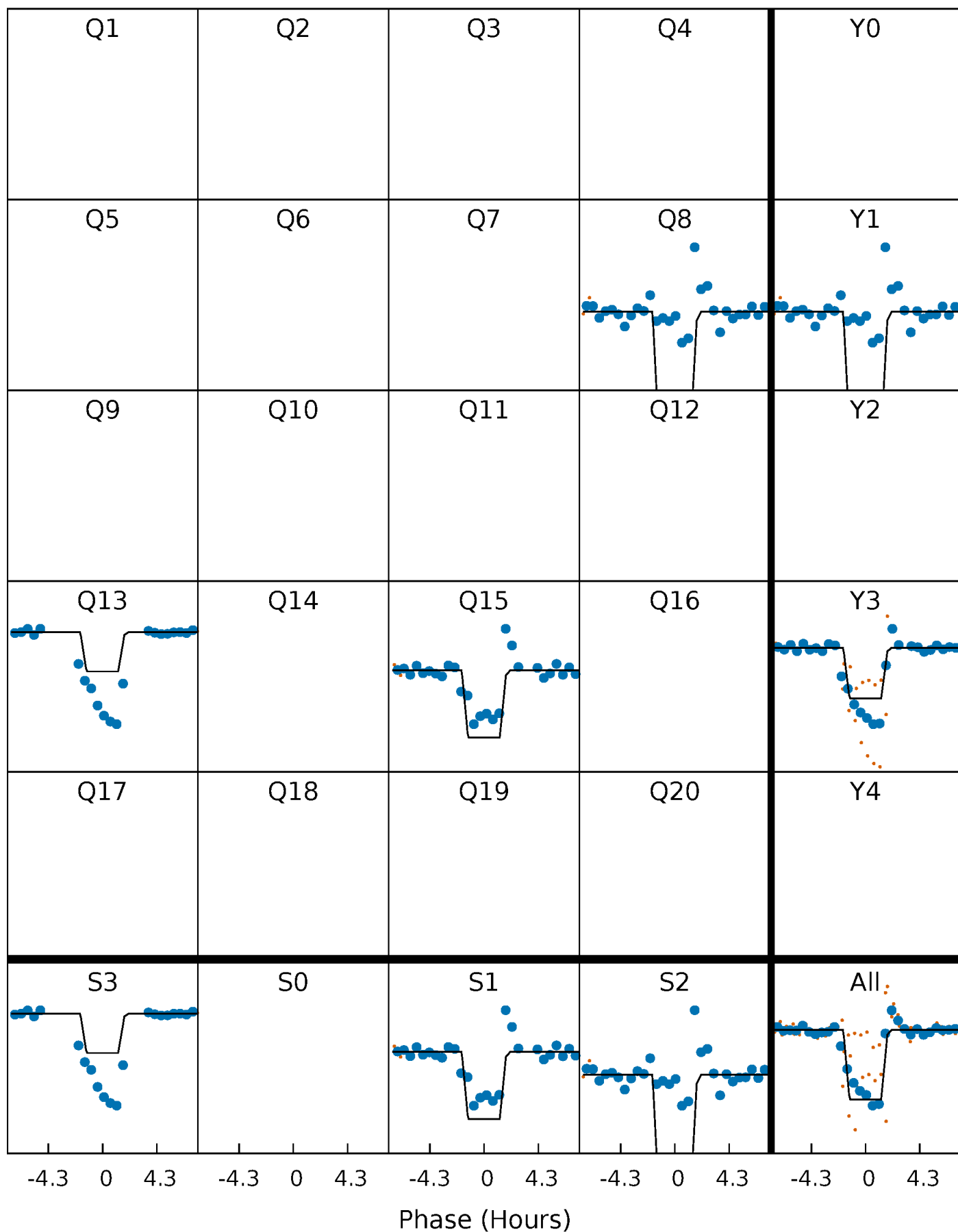
DV Quarter-Phased Transit Curves

TCE 003869649-02 $P=217.031270$ Days $T_0=322.169802$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

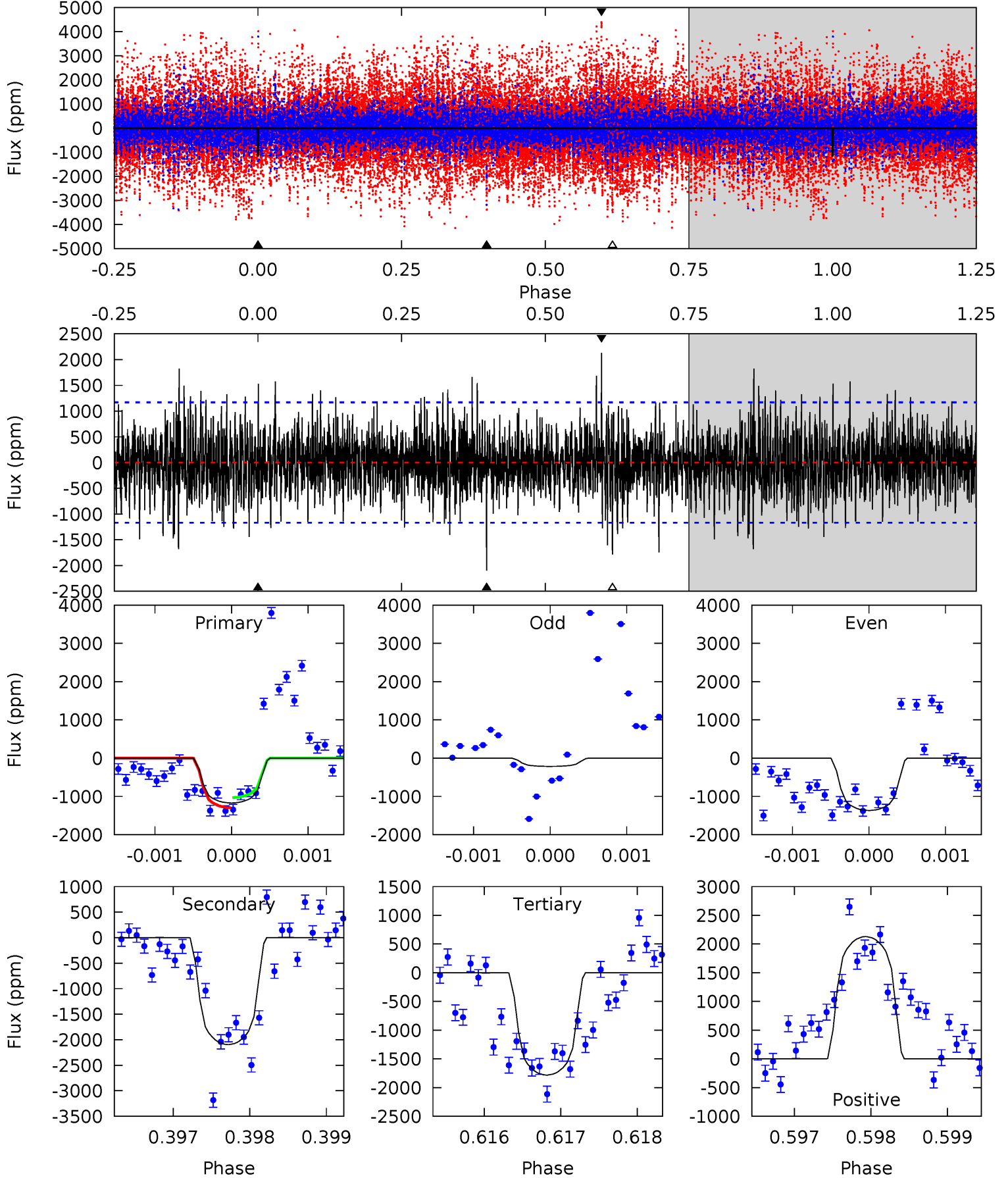
TCE 003869649-02 P=217.024580 Days $T_0=322.191829$ (BKJD)



DV Model-Shift Uniqueness Test

003869649-02, P = 217.031270 Days, E = 105.138532 Days

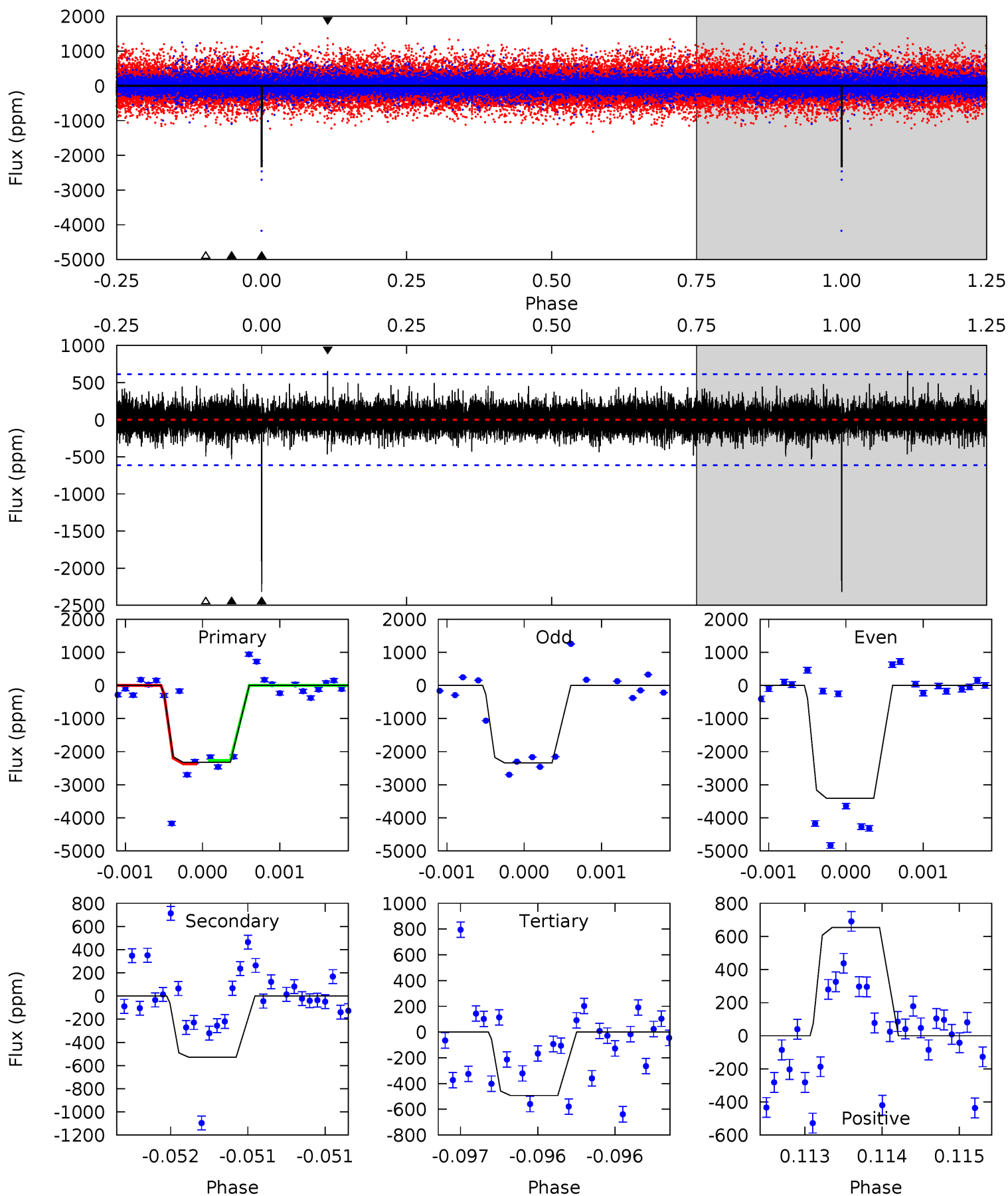
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.52	9.87	8.40	10.0	5.50	3.37	2.07	-2.88	-4.52	1.48	-0.16	2.14	1.16	0.50	0.63



Alt Model-Shift Uniqueness Test

003869649-02, P = 217.024580 Days, E = 105.167249 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.9	4.76	4.44	5.89	5.52	3.41	1.00	16.4	15.0	0.32	-1.13	6.77	1.39	0.22	0.47



Stellar Parameters For KIC 003869649

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5525^{+166}_{-149}	$4.455^{+0.104}_{-0.156}$	$-0.140^{+0.300}_{-0.300}$	$0.901^{+0.207}_{-0.127}$	$0.845^{+0.111}_{-0.074}$	$1.628^{+0.736}_{-0.694}$
	+3%/-3%	+2%/-4%	+214%/-214%	+23%/-14%	+13%/-9%	+45%/-43%
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 003869649-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2096 ± 212	$4.35^{+2.05}_{-1.94}$	397^{+26}_{-19}	5710^{+2084}_{-943}	27546^{+63619}_{-15138}
Alt.	-529 ± 111	$5.81^{+2.31}_{-2.06}$	398^{+25}_{-22}	3847^{+679}_{-413}	3869^{+5547}_{-1982}

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

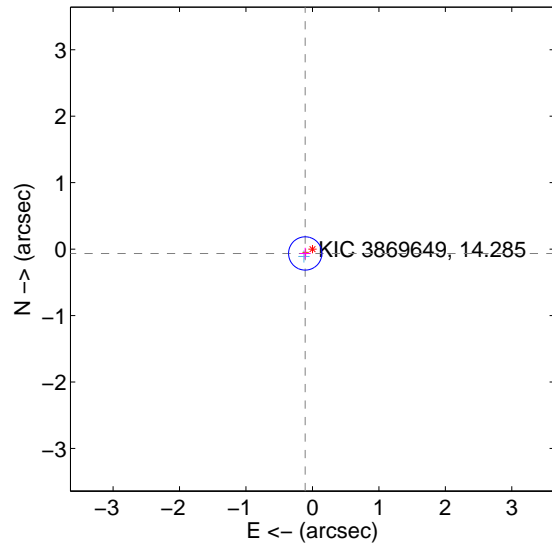
Supplemental centroid analysis for 003869649-02. Kepler magnitude: 14.29. Transit SNR 6.16

There are 1 quarters with good PRF difference image offsets

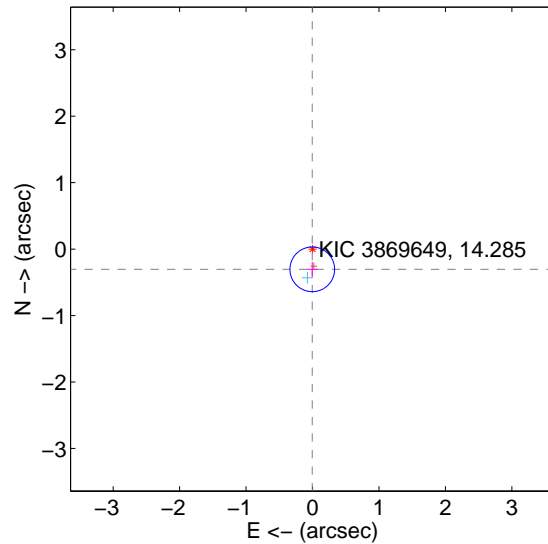
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.127 ± 0.083	1.52	0.109 ± 0.083	-0.066 ± 0.085
PRF-fit source offset from KIC position	0.304 ± 0.112	2.72	0.004 ± 0.082	-0.304 ± 0.112
photometric centroid source offset	1.23 ± 0.60	2.05	1.23 ± 0.60	0.02 ± 0.69

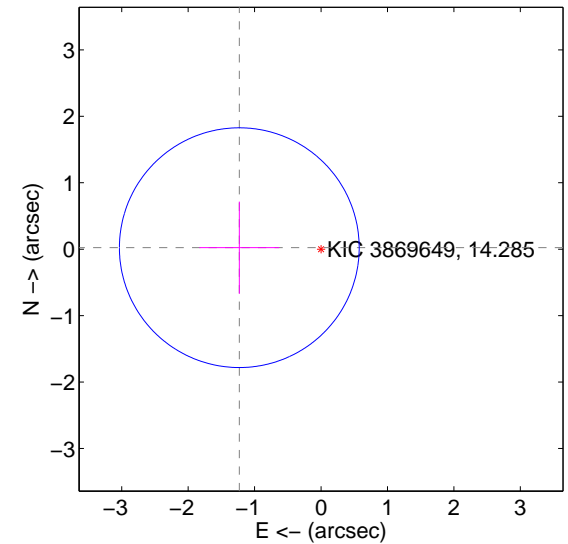
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

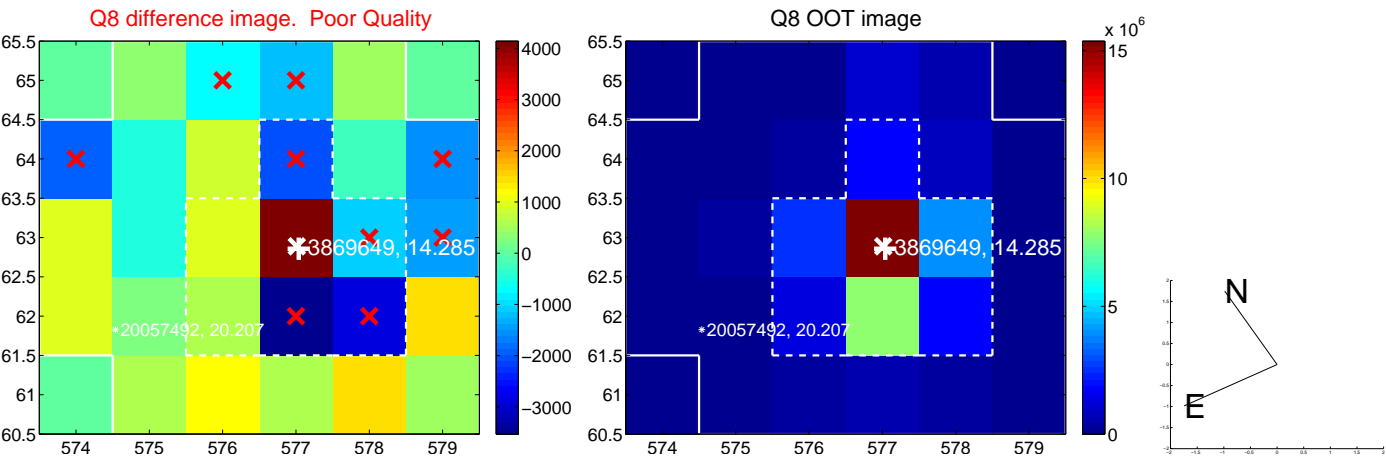


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



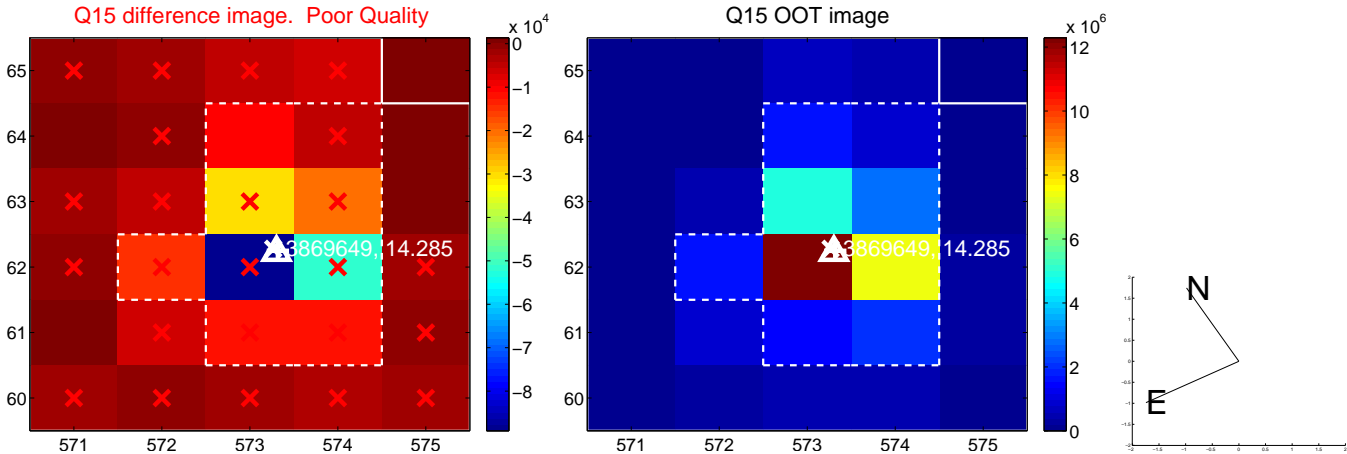
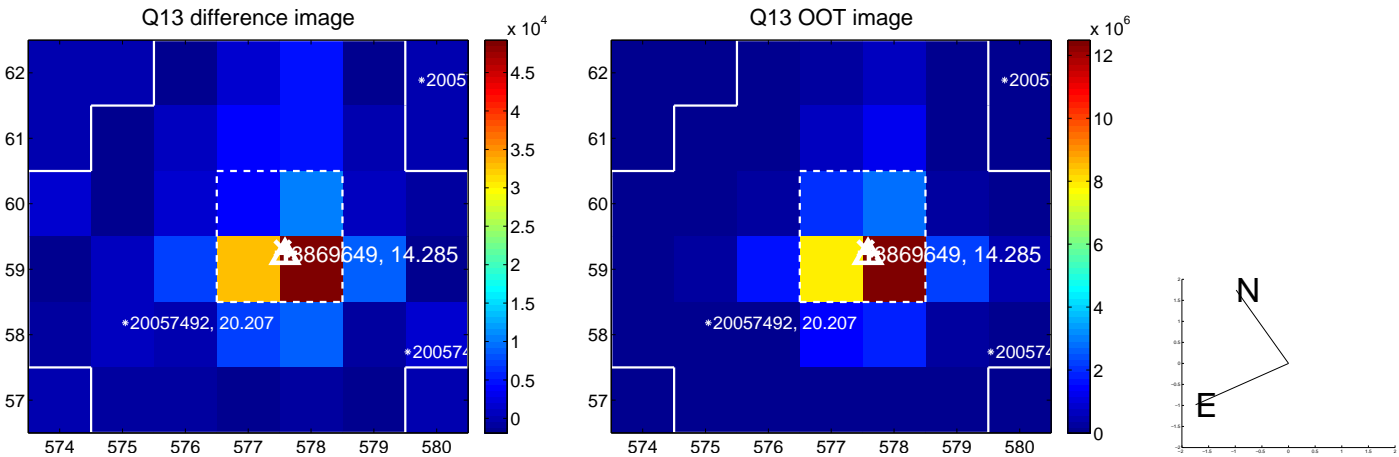
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



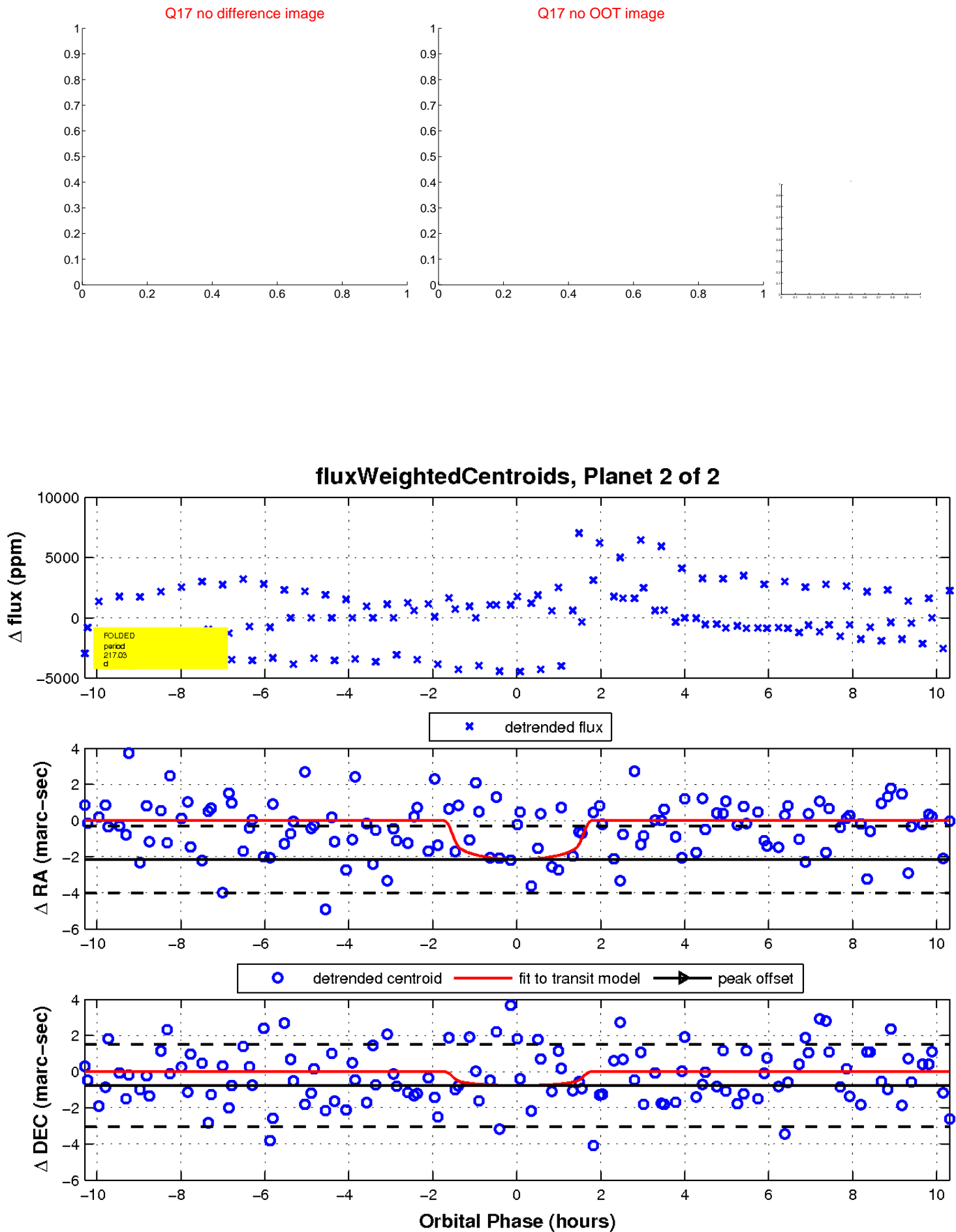
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

