

KIC 002581964

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})
002581964-01	OBS	No	176.017450	212.412626	4020.0	6.594	34.0	4.5	1.67	7430	16.11	15.59
002581964-02	OBS	No	101.355036	191.319042	399.6	7.917	21.0	0.6	1.67	7430	3.60	32.54
002581964-03	OBS	No	233.747134	174.983763	1831.1	5.198	14.9	3.2	1.67	7430	7.50	10.68
002581964-04	OBS	No	118.570508	132.722286	8781.8	6.319	14.3	11.5	1.67	7430	27.62	26.40
002581964-05	OBS	No	115.793592	132.446158	6386.0	9.872	10.7	4.5	1.67	7430	23.71	27.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002581964-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
002581964-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—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.

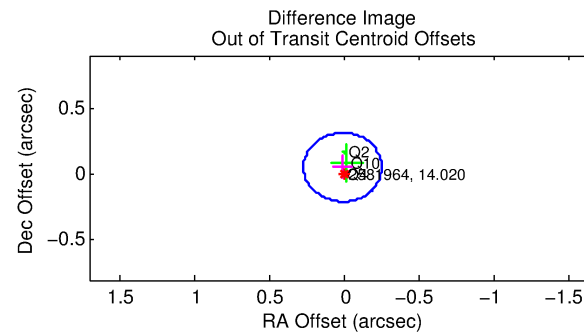
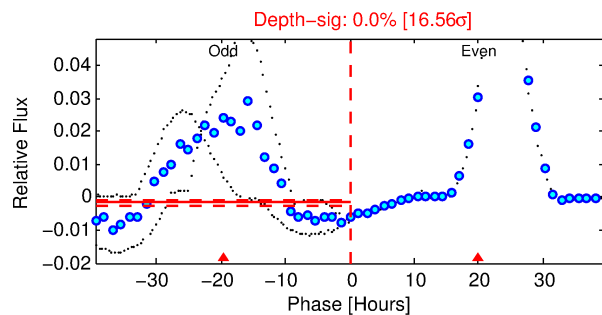
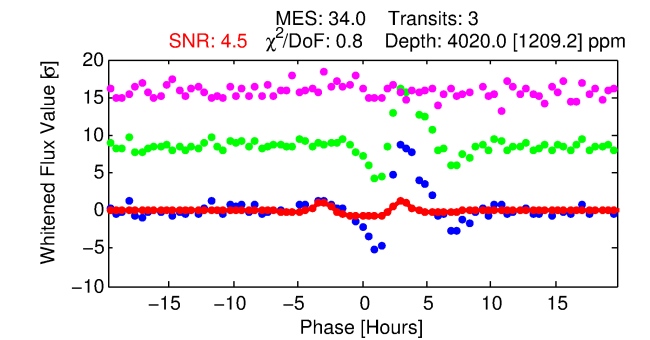
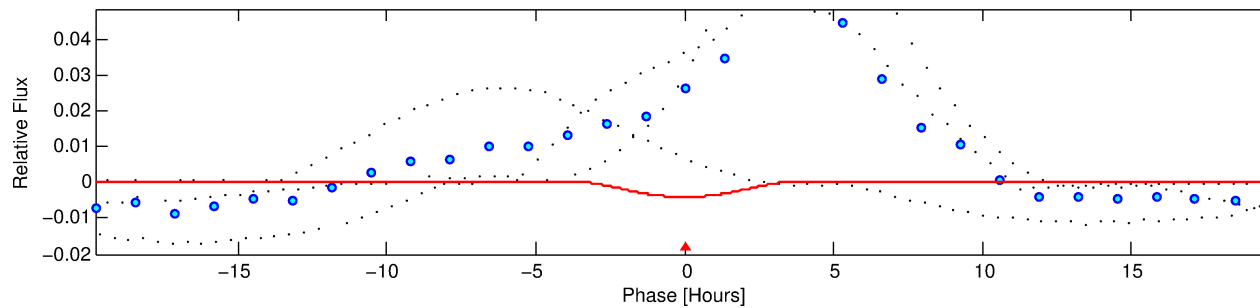
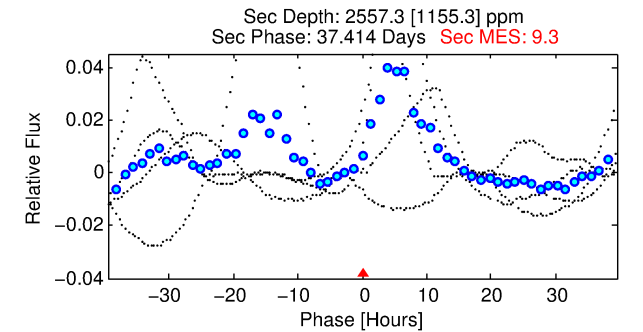
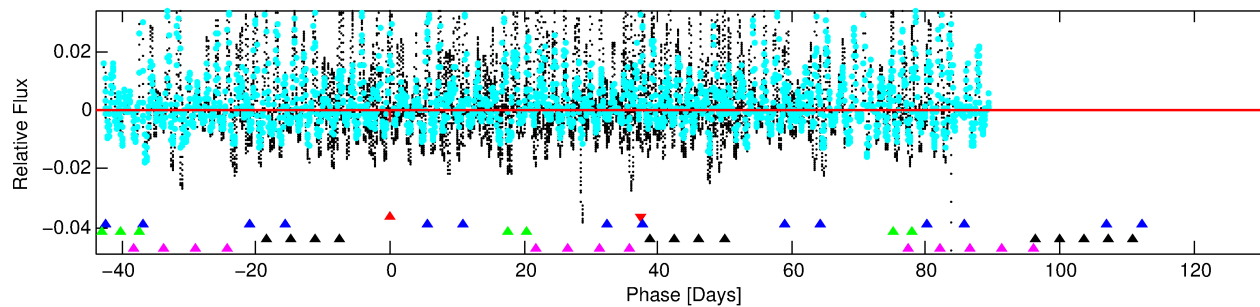
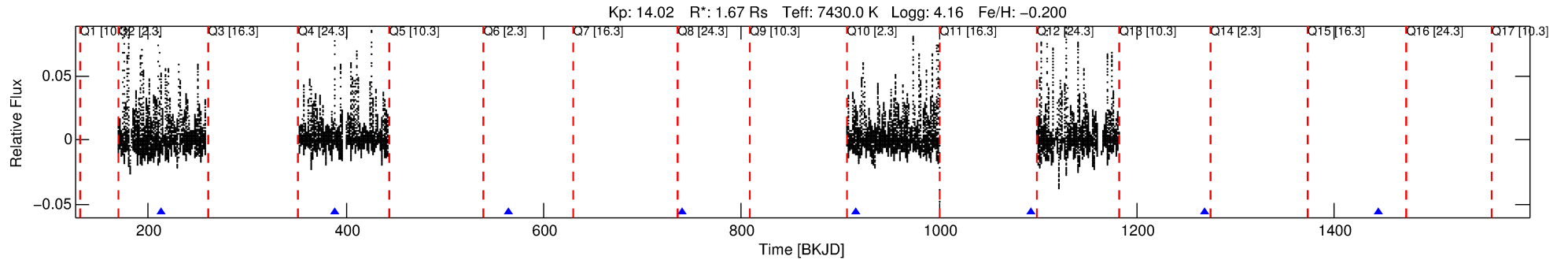
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002581964-01

No Significant Match Found

DV One-Page Summary

KIC: 2581964 Candidate: 1 of 5 Period: 176.017 d



DV Fit Results:

Period = 176.01745 [0.00445] d
Epoch = 212.4126 [0.0124] BKJD
Rp/R* = 0.0884 [0.0783]
a/R* = 98.86 [21.91]
b = 0.97 [0.12]
Seff = 15.59 [6.07]
Teq = 507 [49] K
Rp = 16.11 [15.12] Re
a = 0.6994 [0.1750] AU
Ag = 2650.12 [4935.26] [0.54σ]
Teffp = 5620 [2580] K [1.98σ]

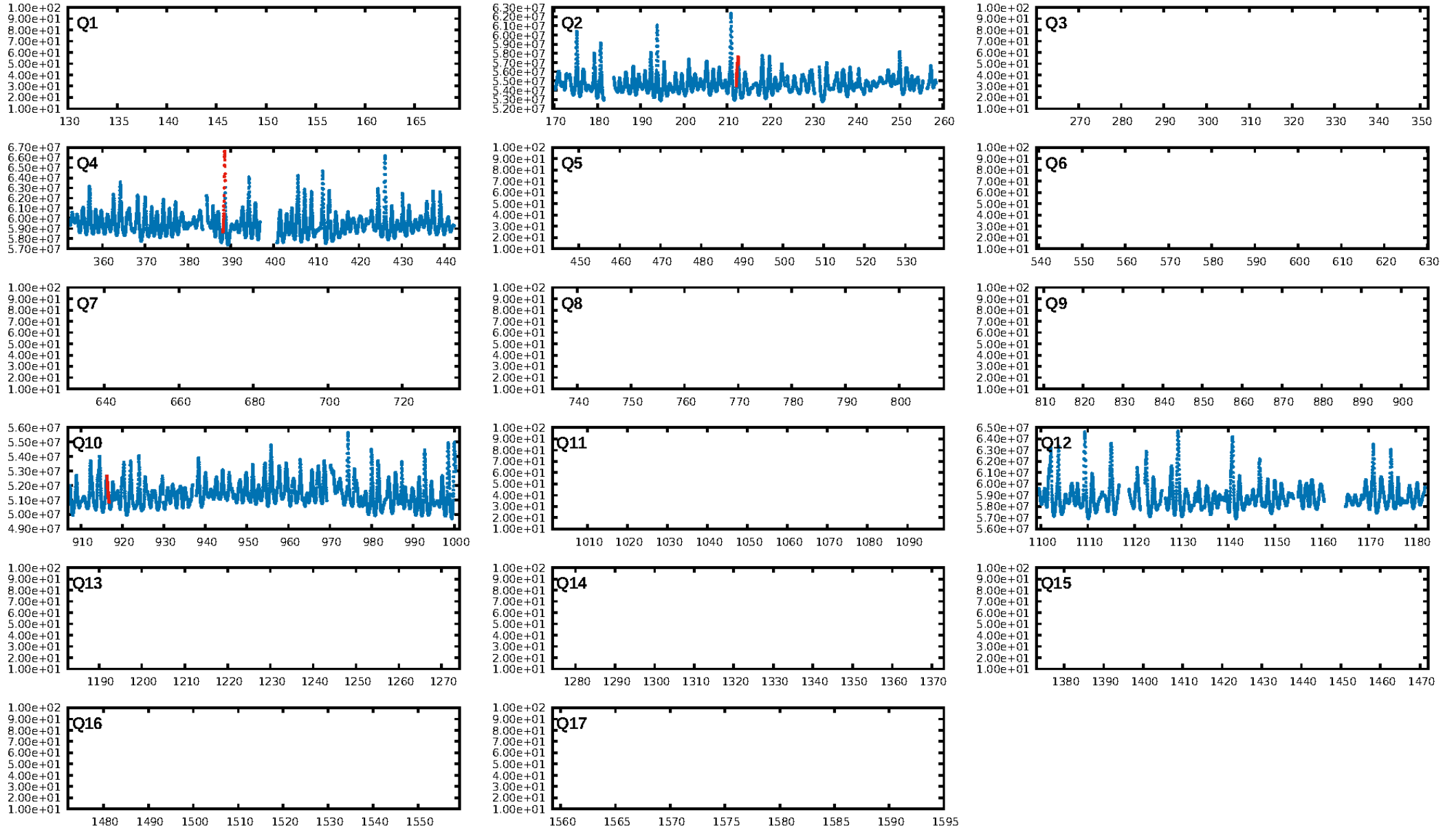
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [150.95σ]
LongPeriod-sig: 100.0% [165.01σ]
ModelChiSquare2-sig: 4.0%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.673
Centroid-sig: 42.7%
Centroid-so: 0.473 arcsec [1.80σ]
OotOffset-rm: 0.053 arcsec [0.62σ]
OotOffset-st: 2/0/1/0 [3]
KicOffset-rm: 0.094 arcsec [1.24σ]
KicOffset-st: 2/0/1/0 [3]
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DiffImageOverlap-fno: 1.00 [3/3]

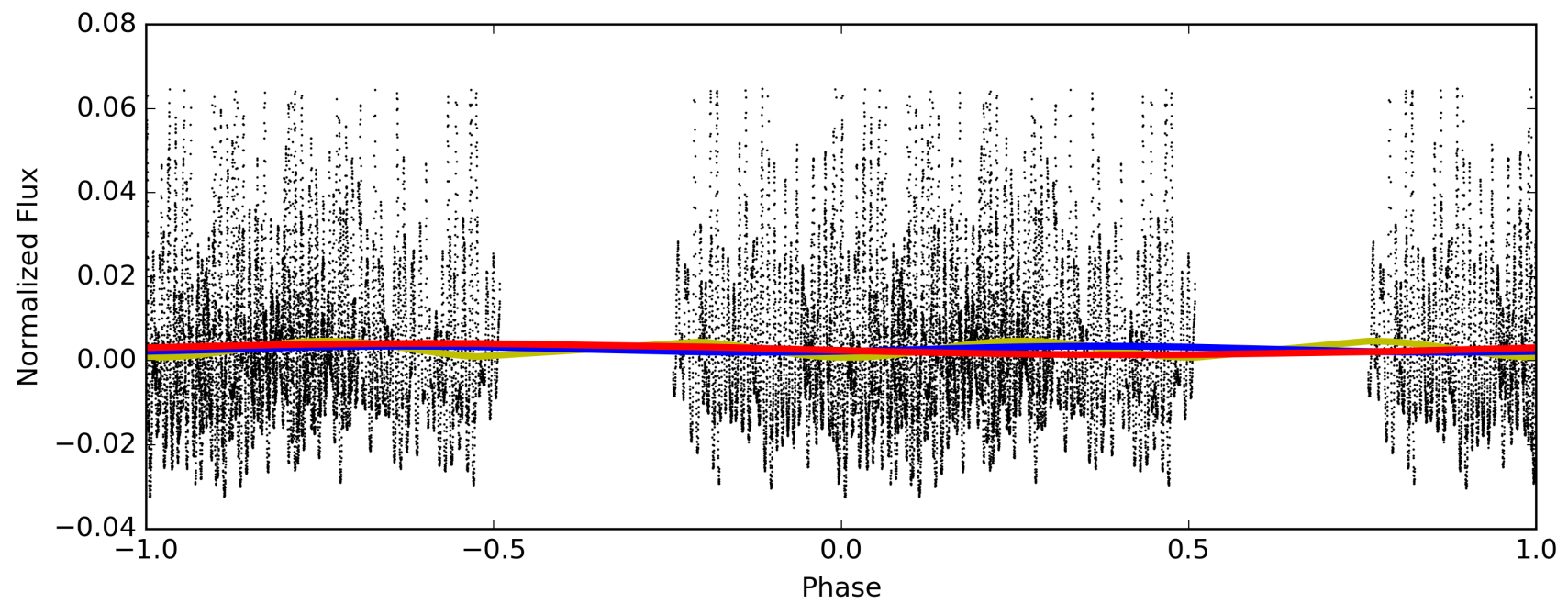
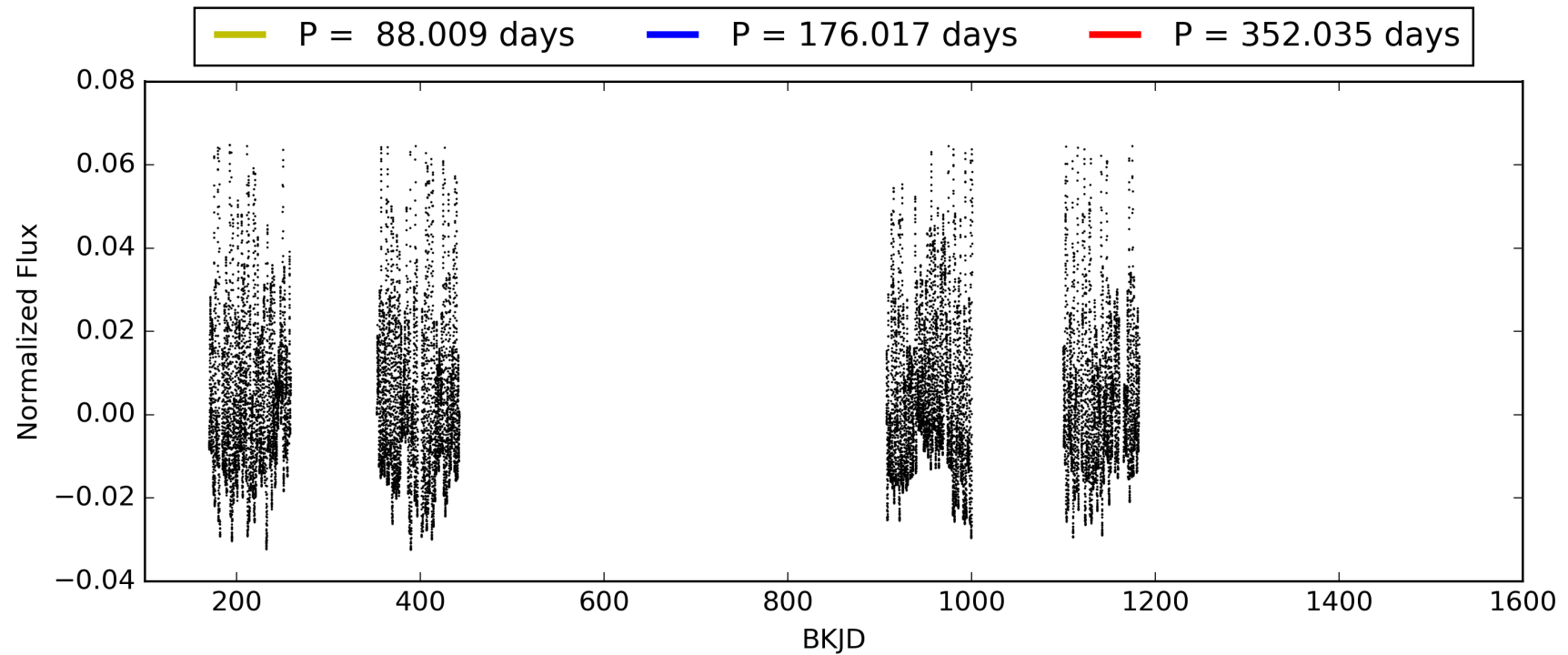
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 002581964-01, PDC Light Curves

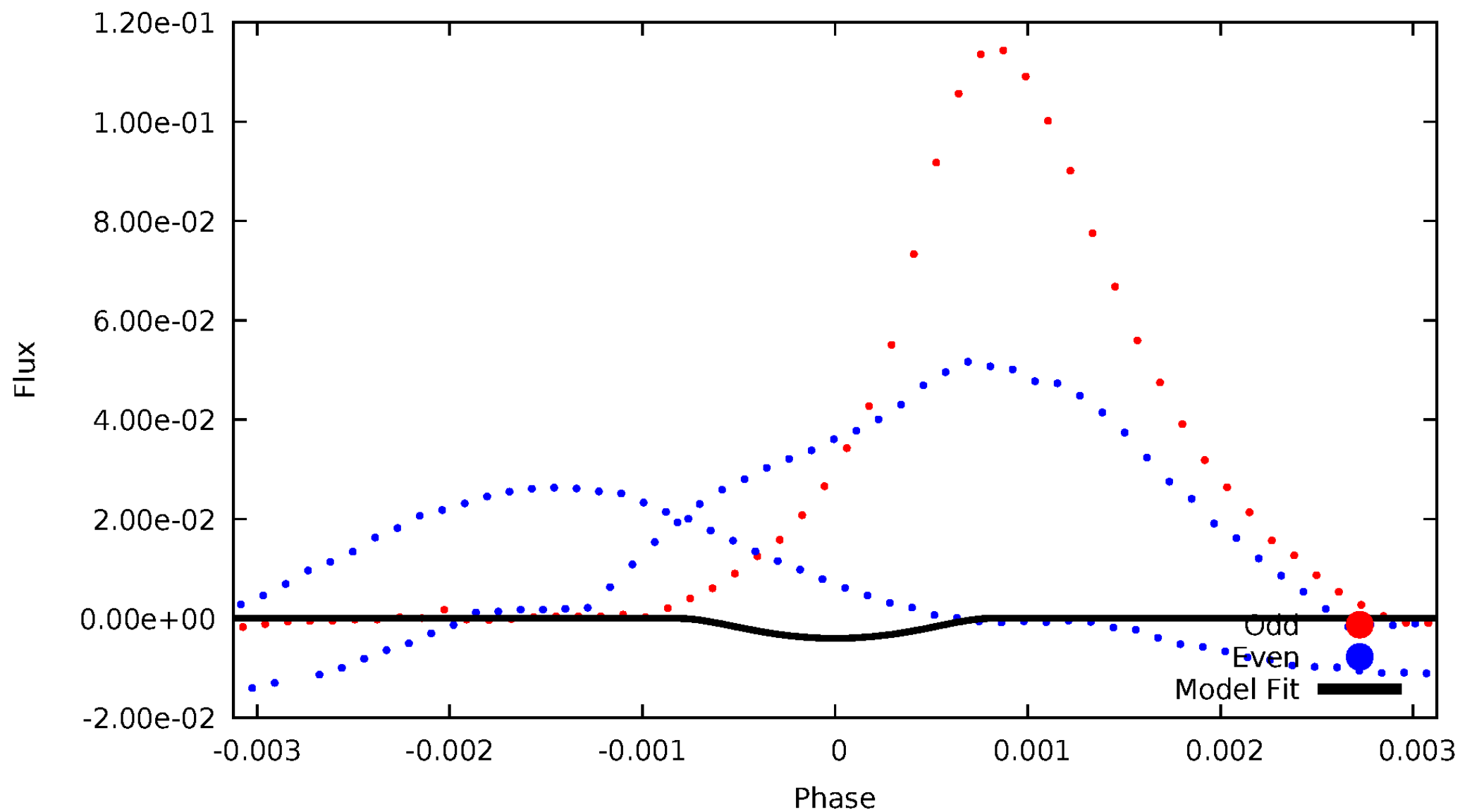


TCE 002581964-01



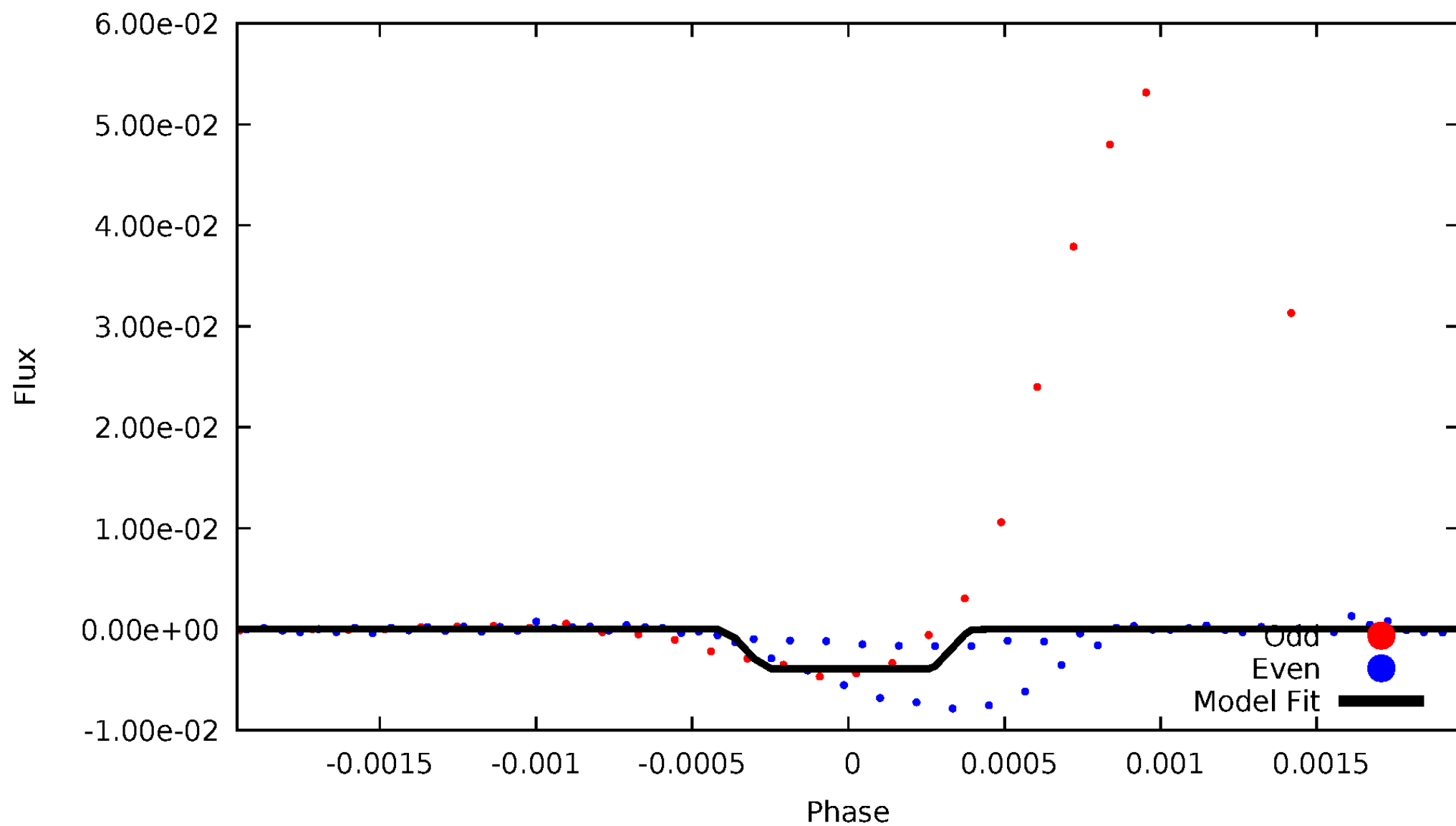
DV Odd/Even

TCE 002581964-01



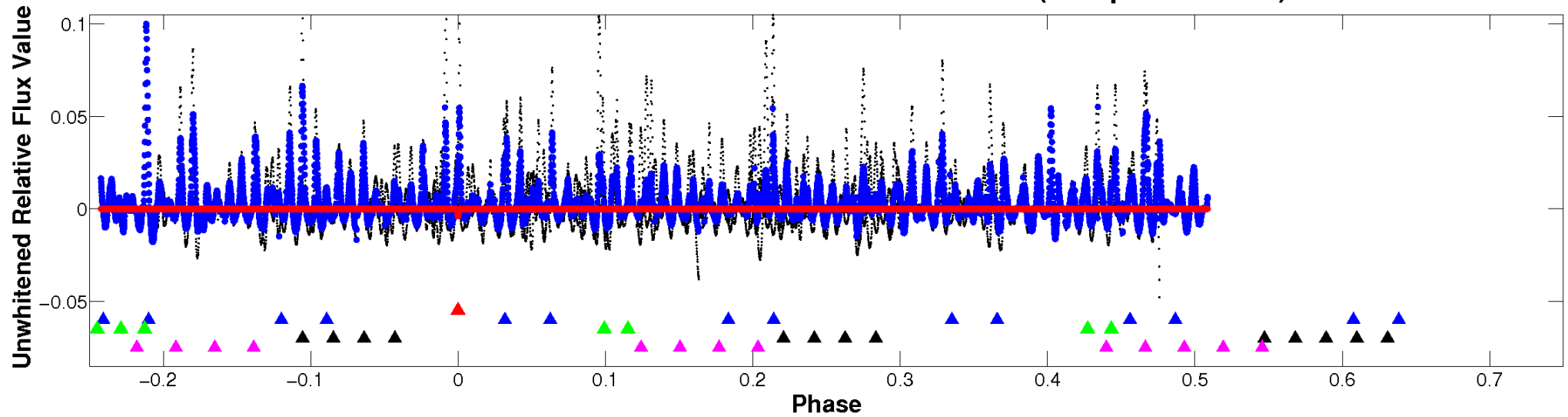
ALT Odd/Even

TCE 002581964-01

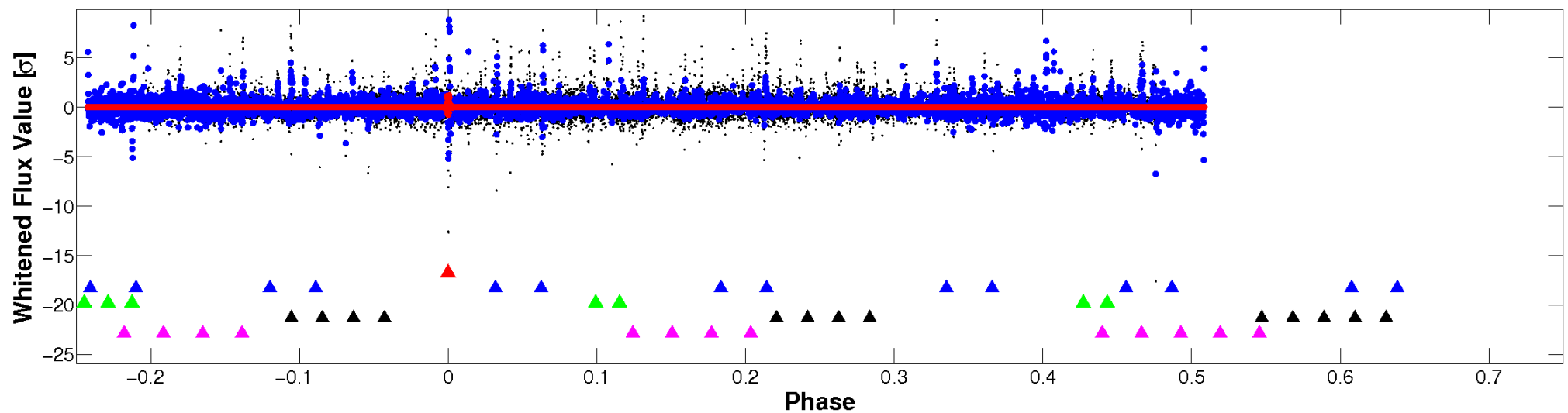


Non-Whitened Vs. Whitened Light Curve

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

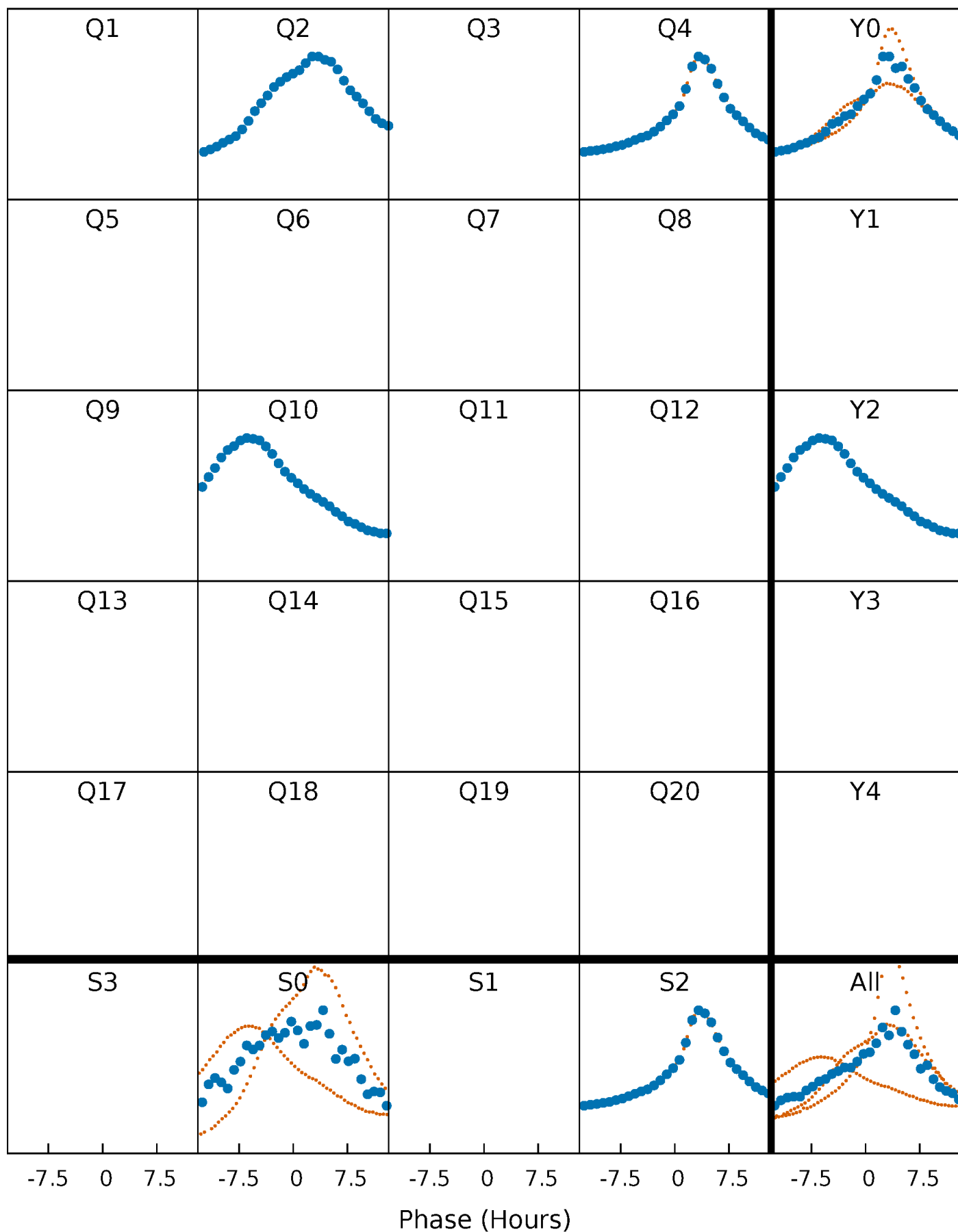


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



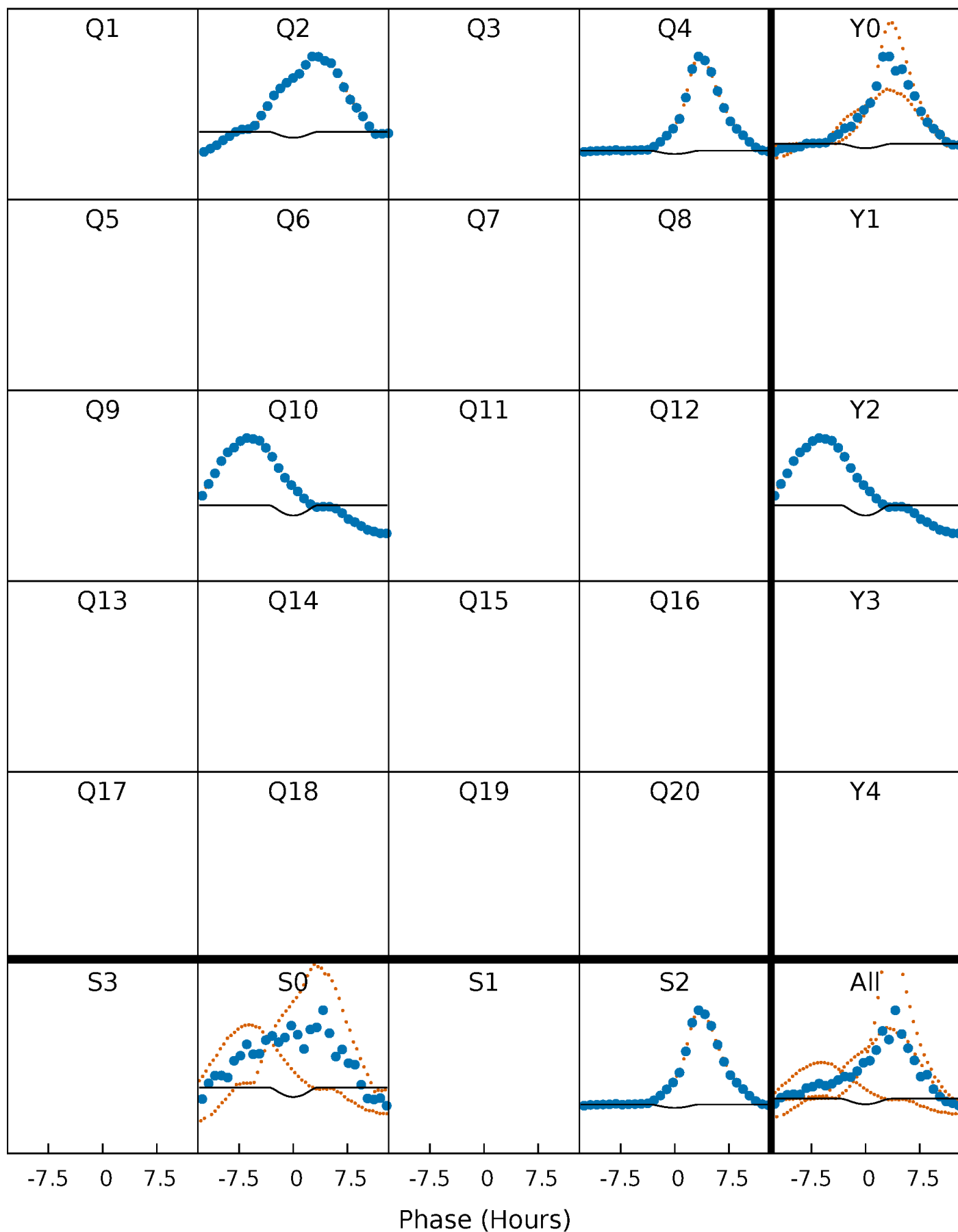
PDC Quarter-Phased Transit Curves

TCE 002581964-01 P=176.017450 Days $T_0=212.412626$ (BKJD)



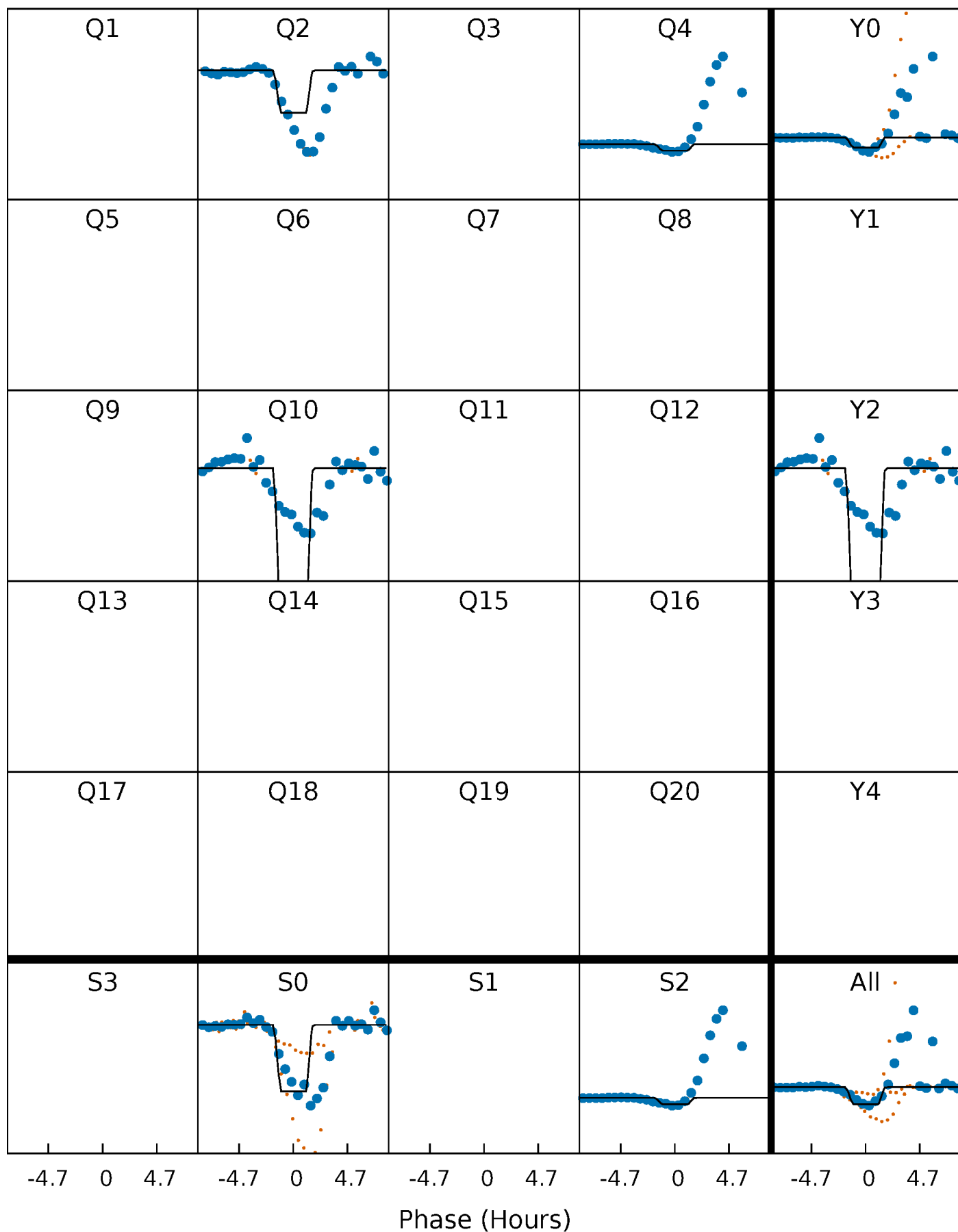
DV Quarter-Phased Transit Curves

TCE 002581964-01 P=176.017450 Days $T_0=212.412626$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

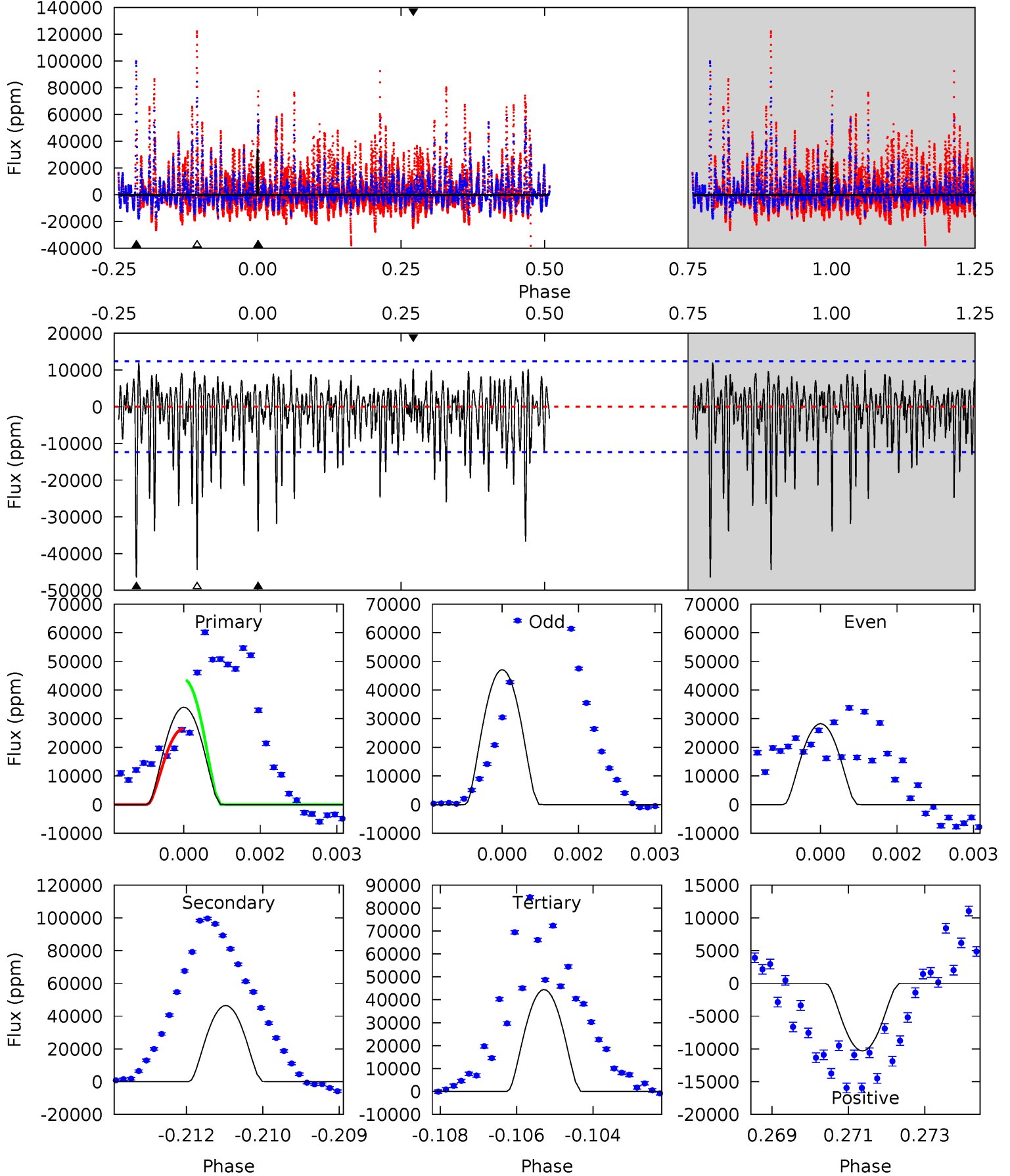
TCE 002581964-01 P=176.022473 Days $T_0=212.373094$ (BKJD)



DV Model-Shift Uniqueness Test

002581964-01, P = 176.017450 Days, E = 36.395176 Days

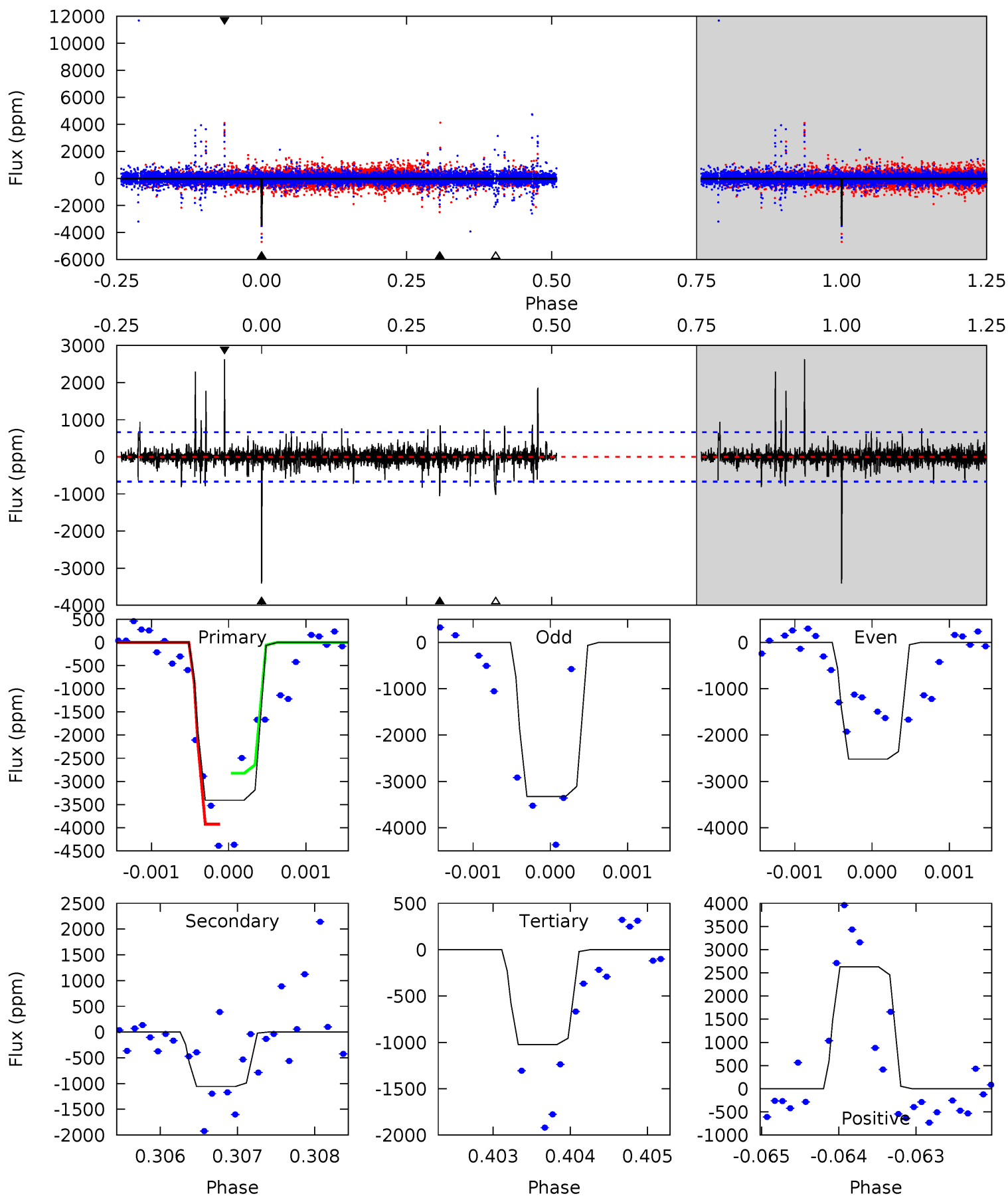
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	20.1	19.2	4.46	5.36	3.14	2.98	-4.53	10.3	0.88	15.7	3.89	0.74	0.20	3.57



Alt Model-Shift Uniqueness Test

002581964-01, P = 176.022473 Days, E = 36.350621 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.1	8.72	8.44	21.7	5.49	3.35	1.40	19.7	6.42	0.28	-12.9	2.13	1.06	0.44	0



Stellar Parameters For KIC 002581964

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7430^{+232}_{-310}	$4.160^{+0.124}_{-0.186}$	$-0.200^{+0.250}_{-0.350}$	$1.671^{+0.515}_{-0.344}$	$1.470^{+0.216}_{-0.237}$	$0.444^{+0.333}_{-0.222}$
	+3%/-4%	+3%/-4%	+125%/-175%	+31%/-21%	+15%/-16%	+75%/-50%
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 002581964-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-46481 ± 2310	$19.67^{+13.20}_{-11.49}$	710^{+53}_{-46}	12390^{+19816}_{-3968}	$33857^{+171814}_{-21834}$
Alt.	-1058 ± 121	$15.51^{+12.46}_{-9.75}$	717^{+53}_{-49}	4707^{+2862}_{-918}	1187^{+7366}_{-829}

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

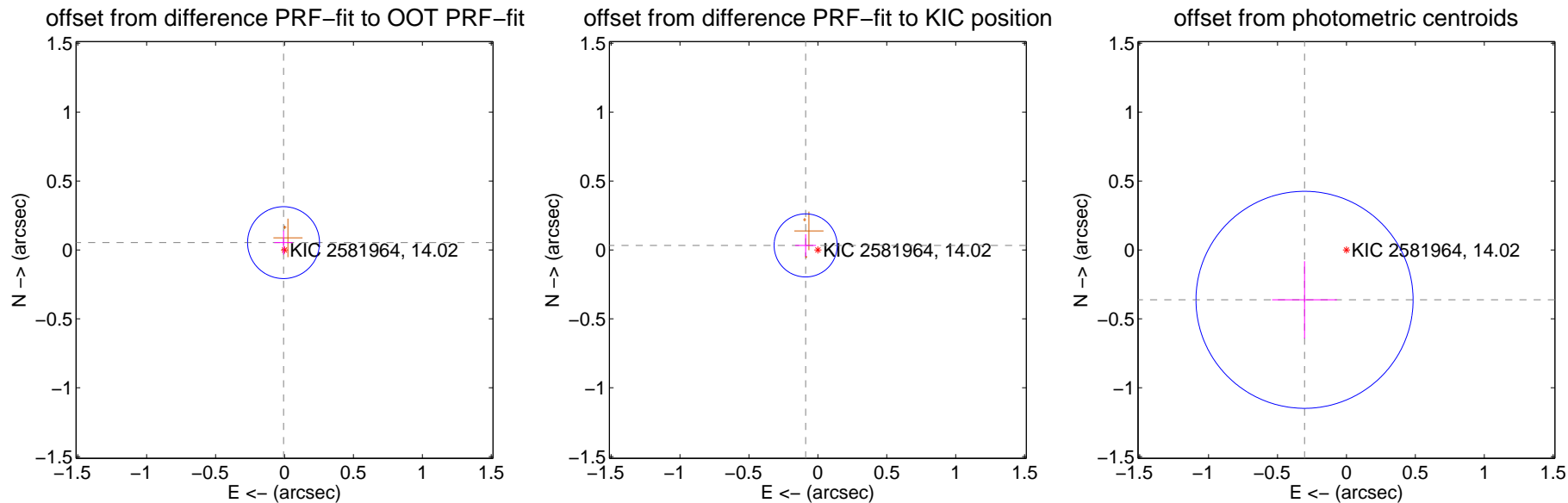
DV Centroid Data

Supplemental centroid analysis for 002581964-01. Kepler magnitude: 14.02. Transit SNR 4.54

There are 0 quarters with good PRF difference image offsets

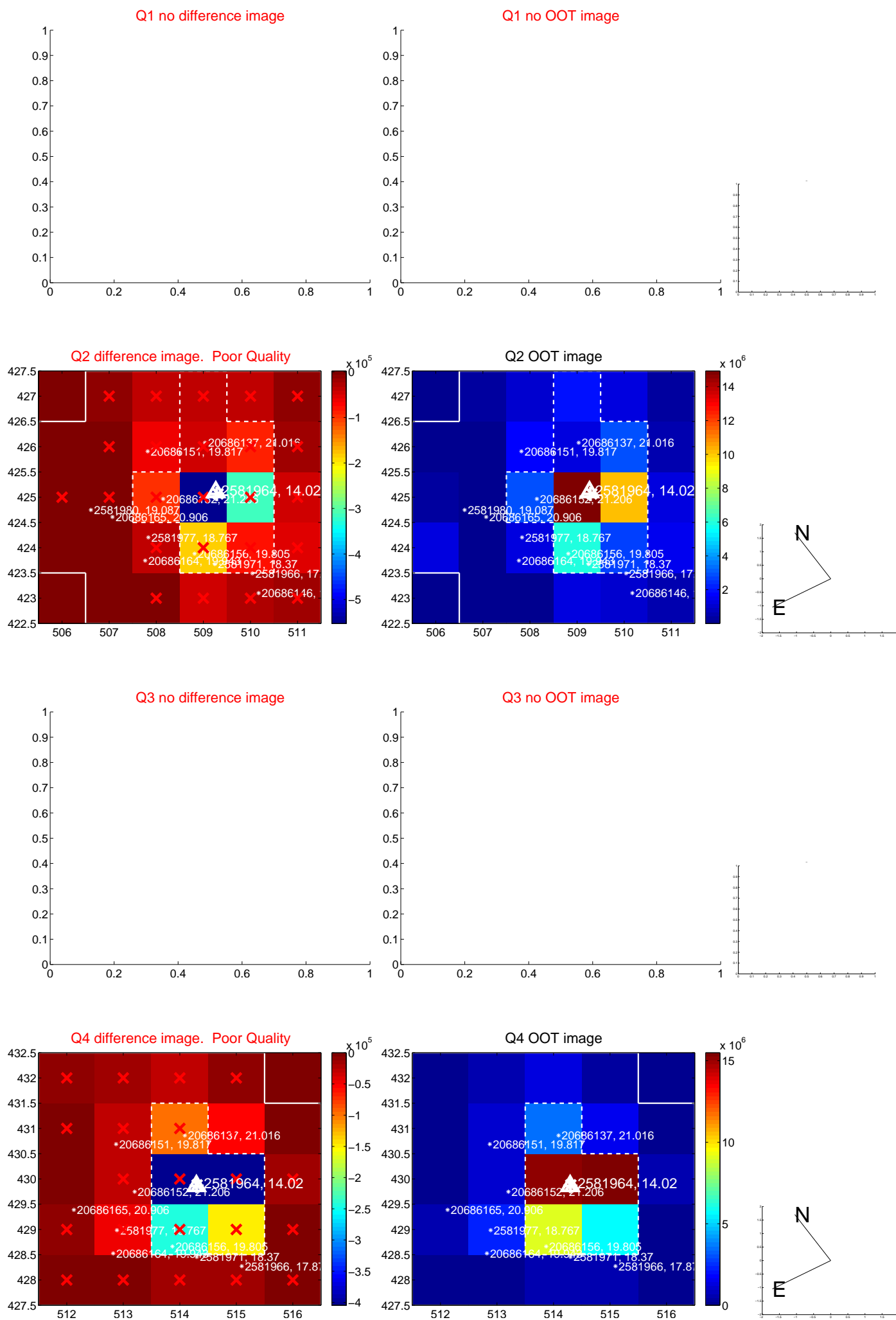
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.053 ± 0.087	0.62	0.007 ± 0.067	0.053 ± 0.087
PRF-fit source offset from KIC position	0.094 ± 0.076	1.24	0.088 ± 0.076	0.033 ± 0.082
photometric centroid source offset	0.47 ± 0.26	1.80	0.30 ± 0.24	-0.36 ± 0.28



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.

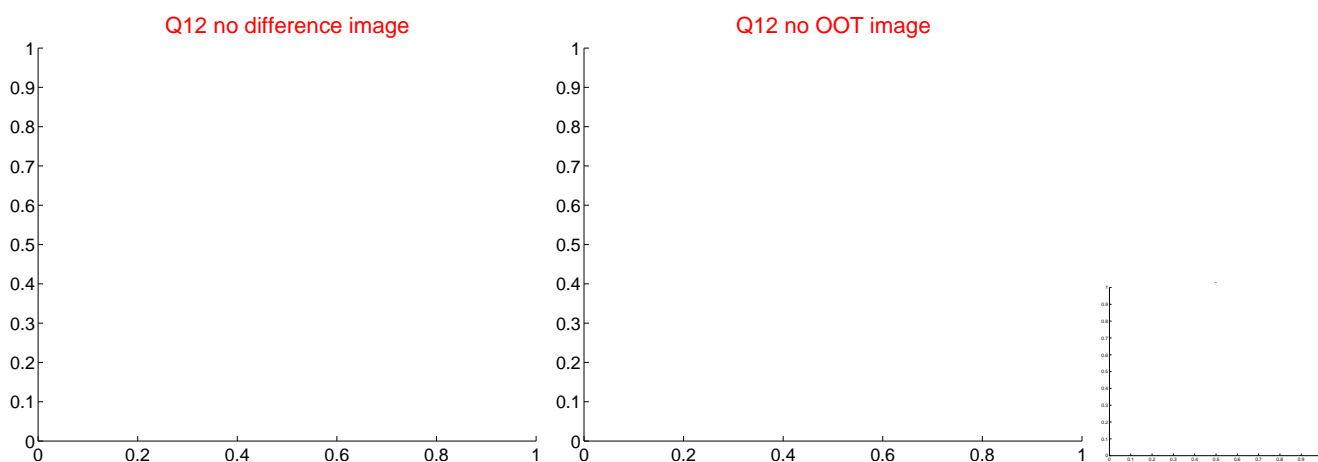
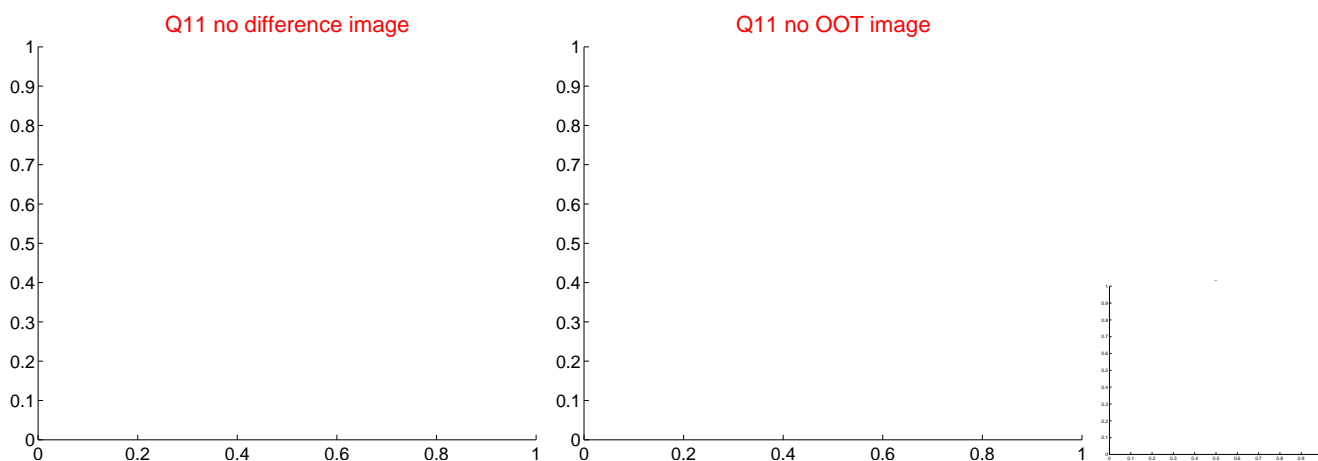
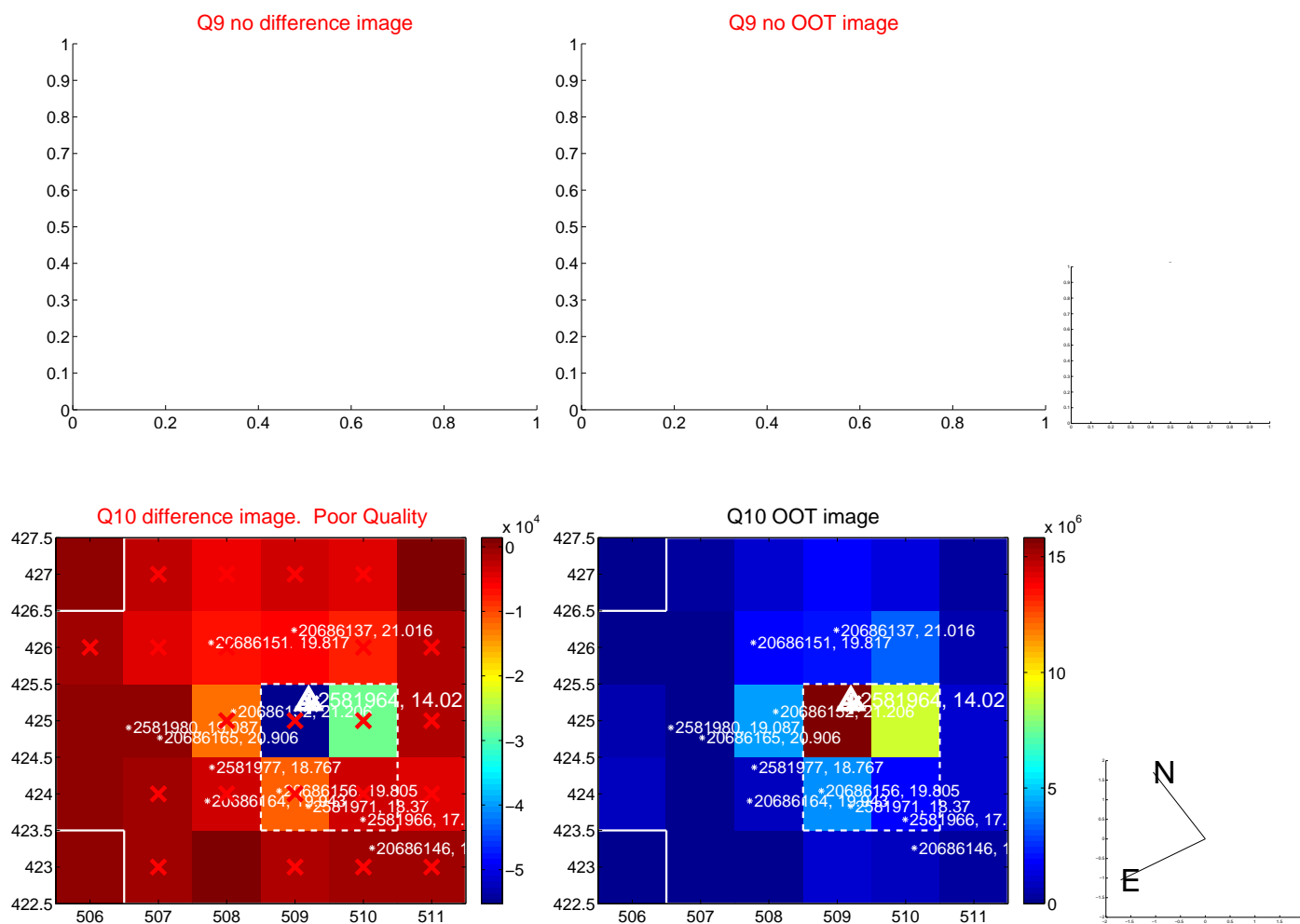
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



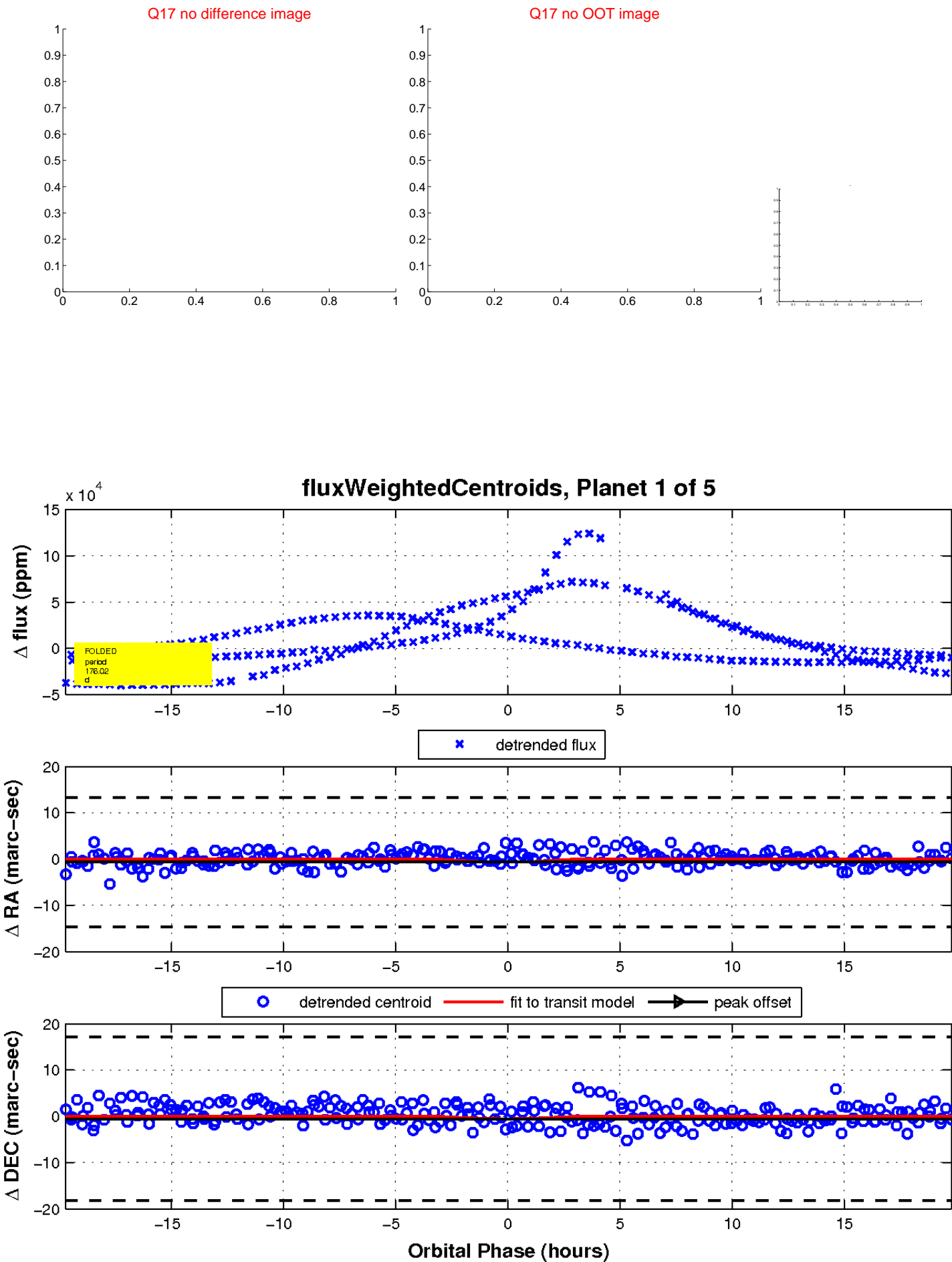
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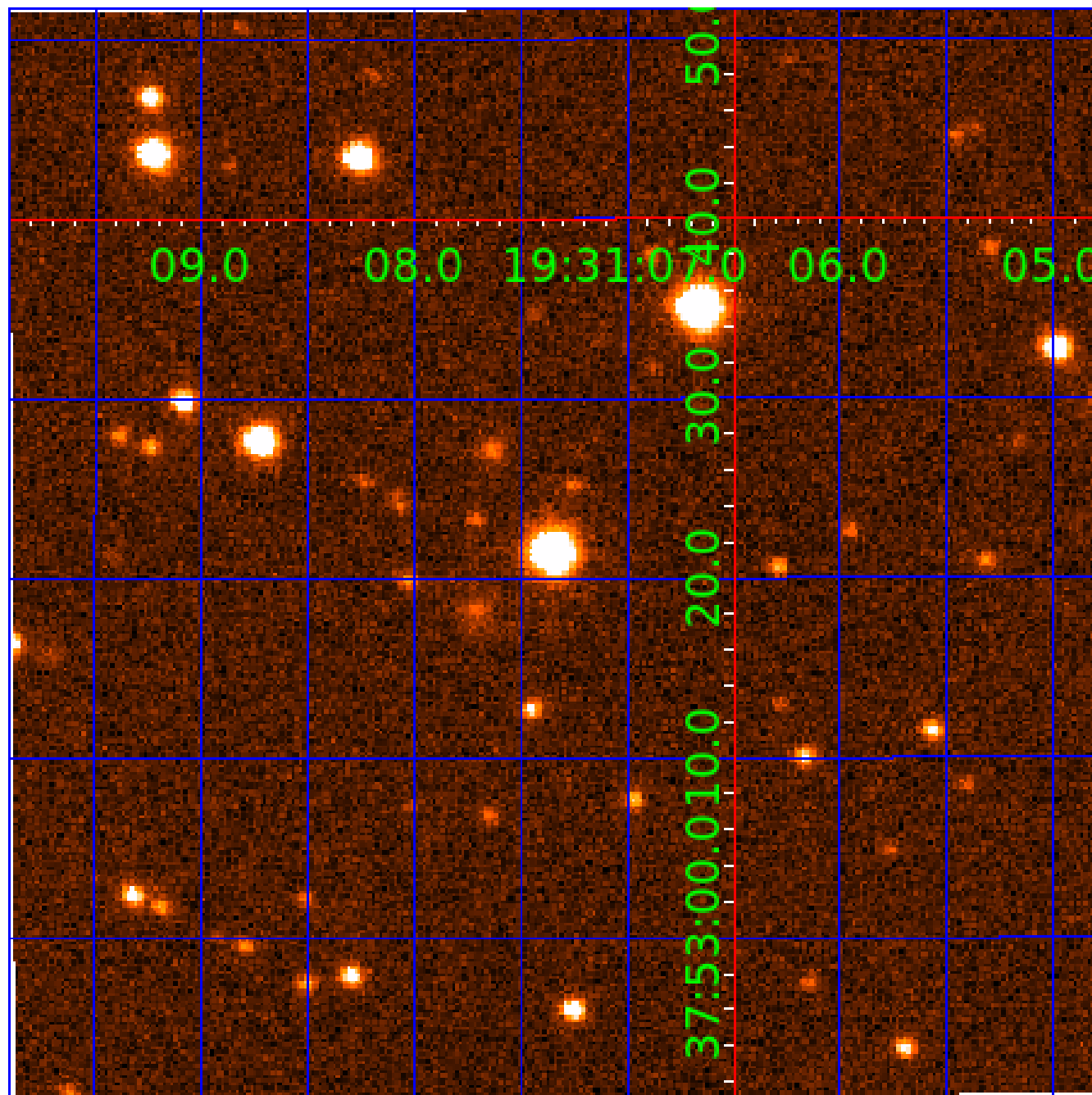


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002581964

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})
002581964-01	OBS	No	176.017450	212.412626	4020.0	6.594	34.0	4.5	1.67	7430	16.11	15.59
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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002581964-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
002581964-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—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.

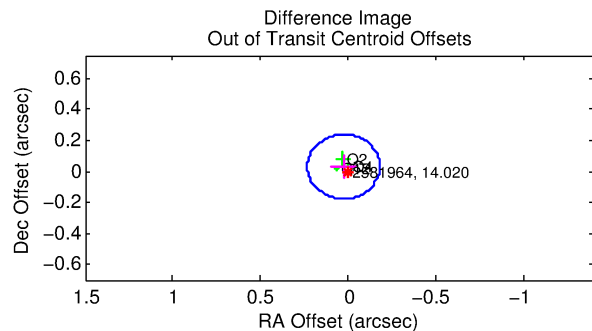
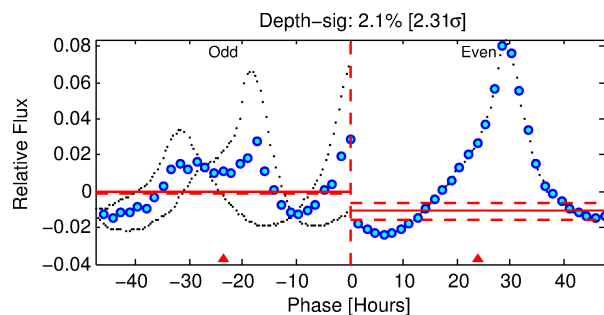
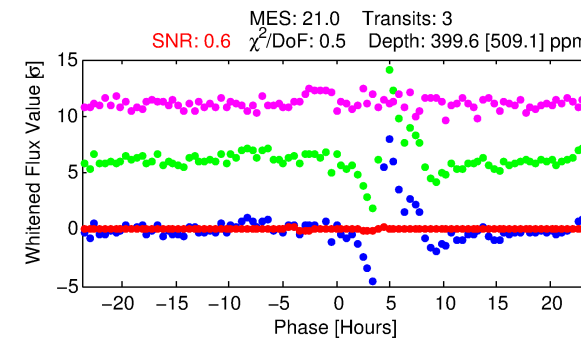
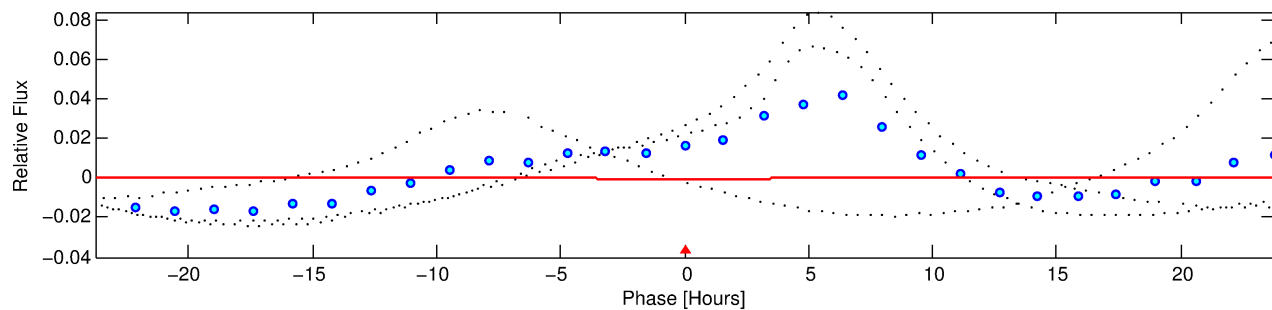
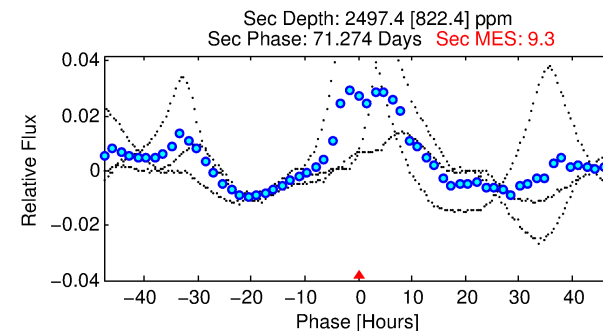
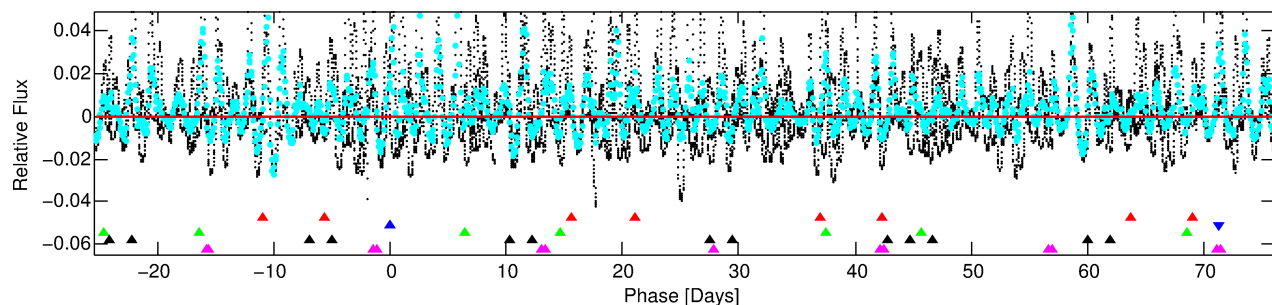
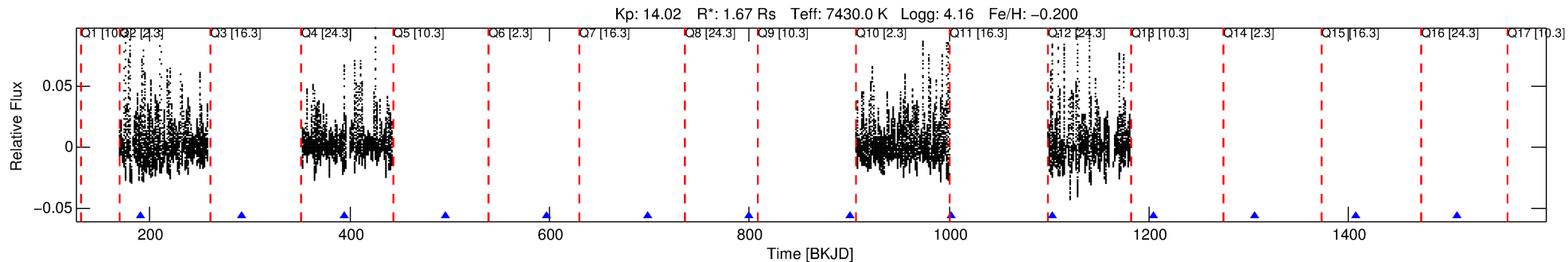
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002581964-02

No Significant Match Found

DV One-Page Summary

KIC: 2581964 Candidate: 2 of 5 Period: 101.355 d



DV Fit Results:

Period = 101.35504 [0.00512] d
Epoch = 191.3190 [0.0258] BKJD
Rp/R* = 0.0197 [0.0389]
a/R* = 70.32 [643.63]
b = 0.72 [6.08]
Seff = 32.54 [12.67]
Teq = 609 [59] K
Rp = 3.60 [7.18] Re
a = 0.4841 [0.1211] AU
Ag = 24877.55 [98802.70] [0.25σ]
Teffp = 11825 [11705] K [0.96σ]

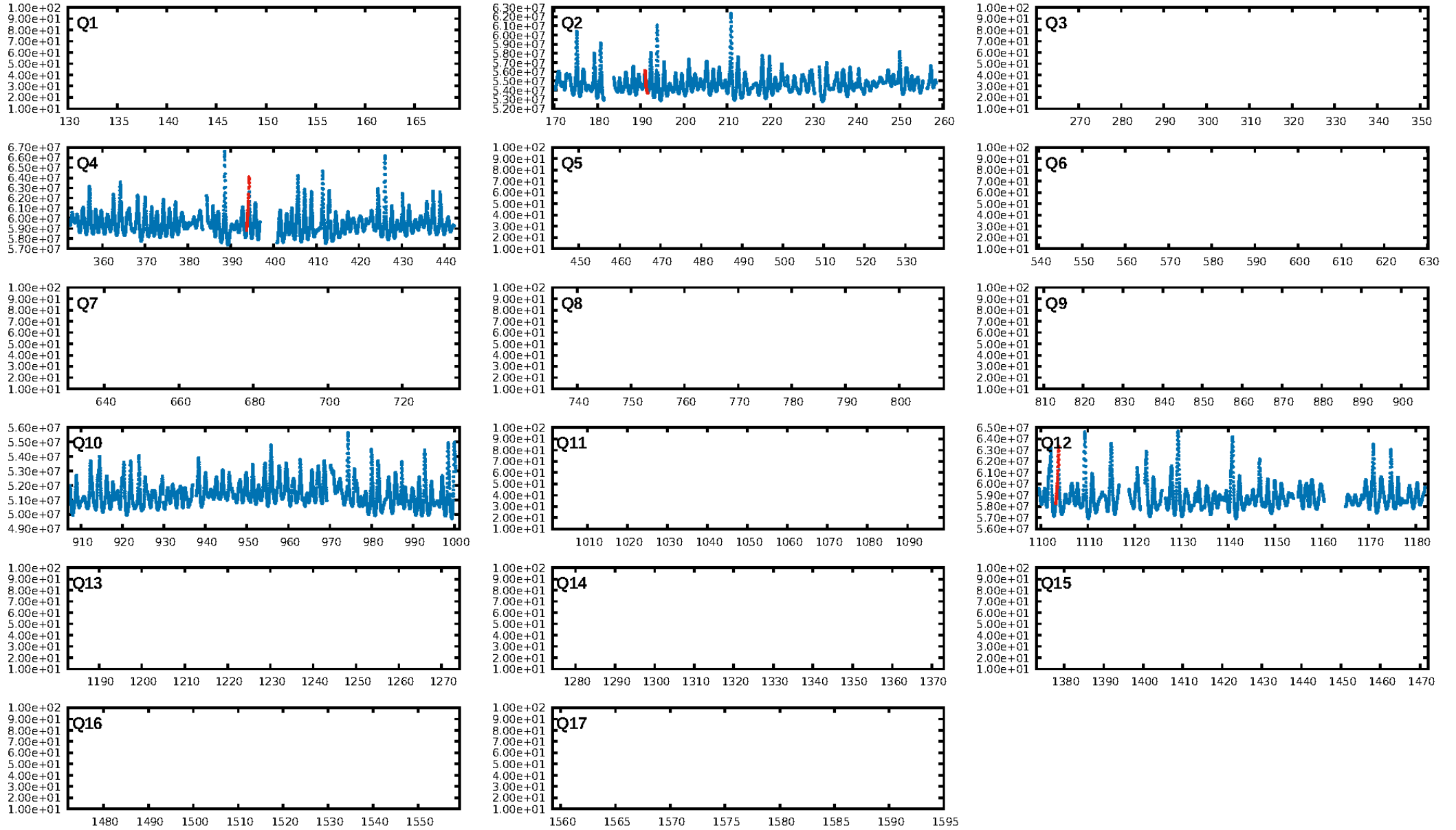
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [27.38σ]
ModelChiSquare2-sig: 71.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.832
Centroid-sig: 14.5%
Centroid-so: 3.184 arcsec [1.44σ]
OotOffset-rm: 0.042 arcsec [0.61σ]
KicOffset-rm: 0.112 arcsec [1.51σ]
OotOffset-st: 1/0/2/0 [3]
KicOffset-st: 1/0/2/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

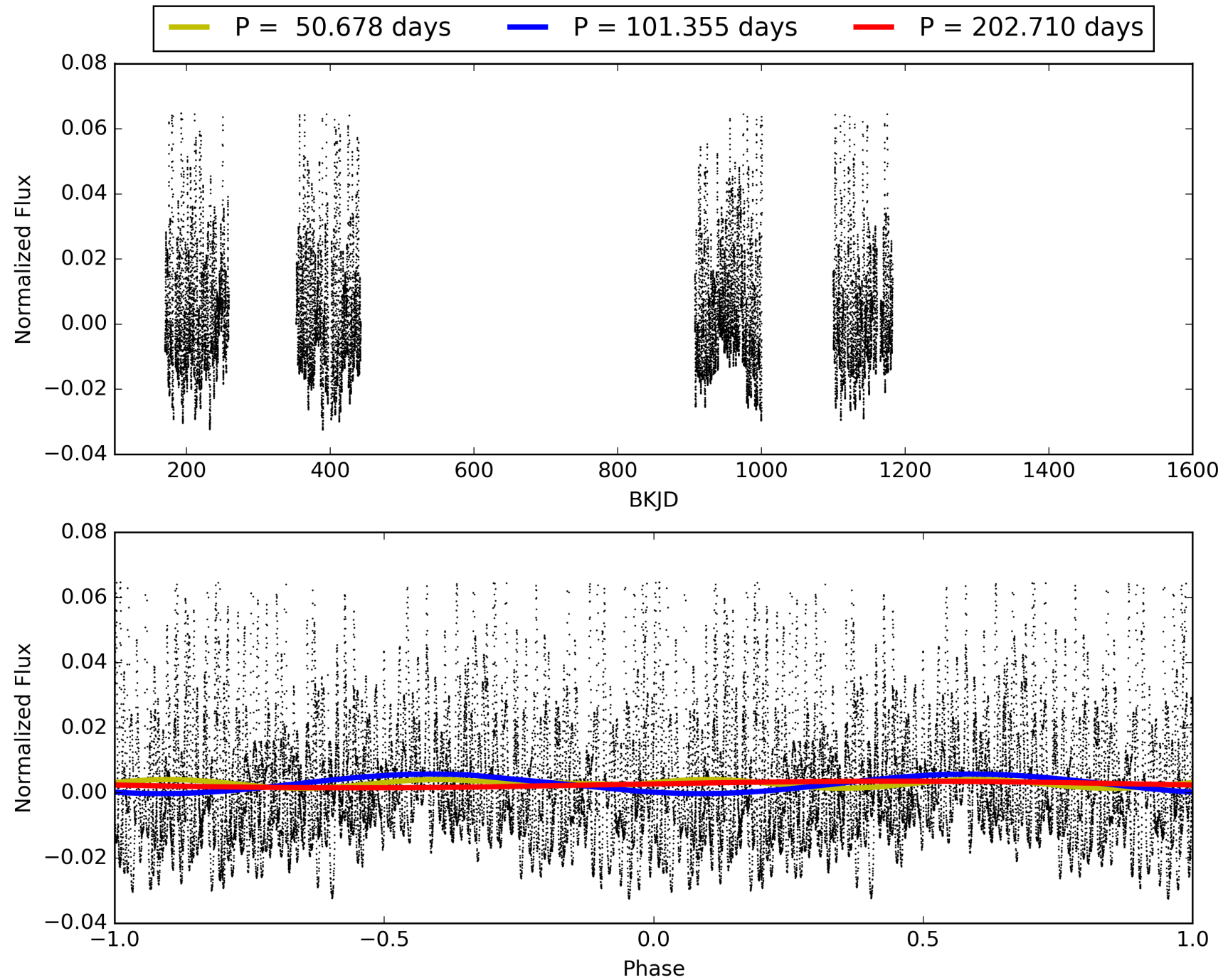
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 002581964-02, PDC Light Curves

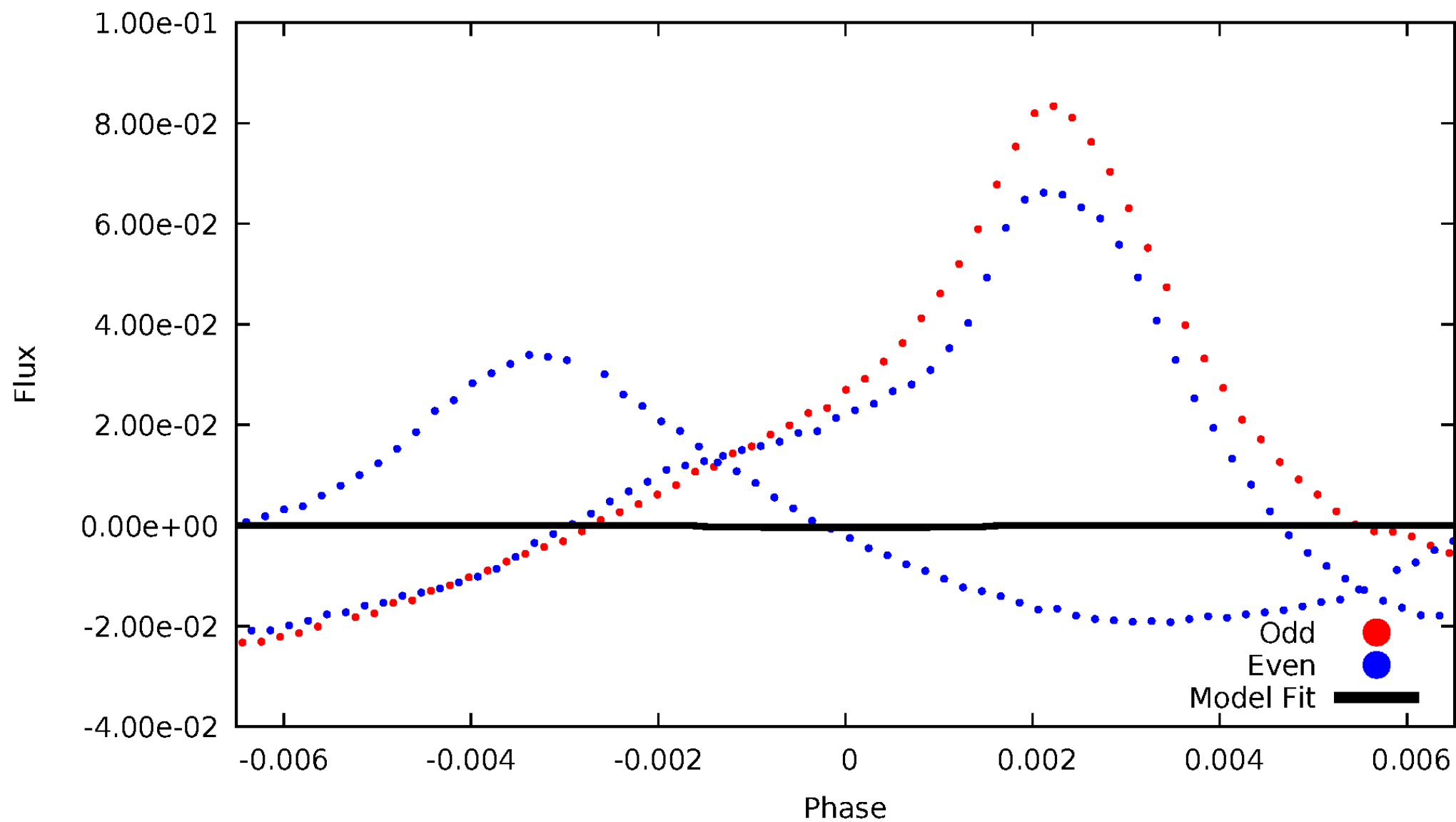


TCE 002581964-02



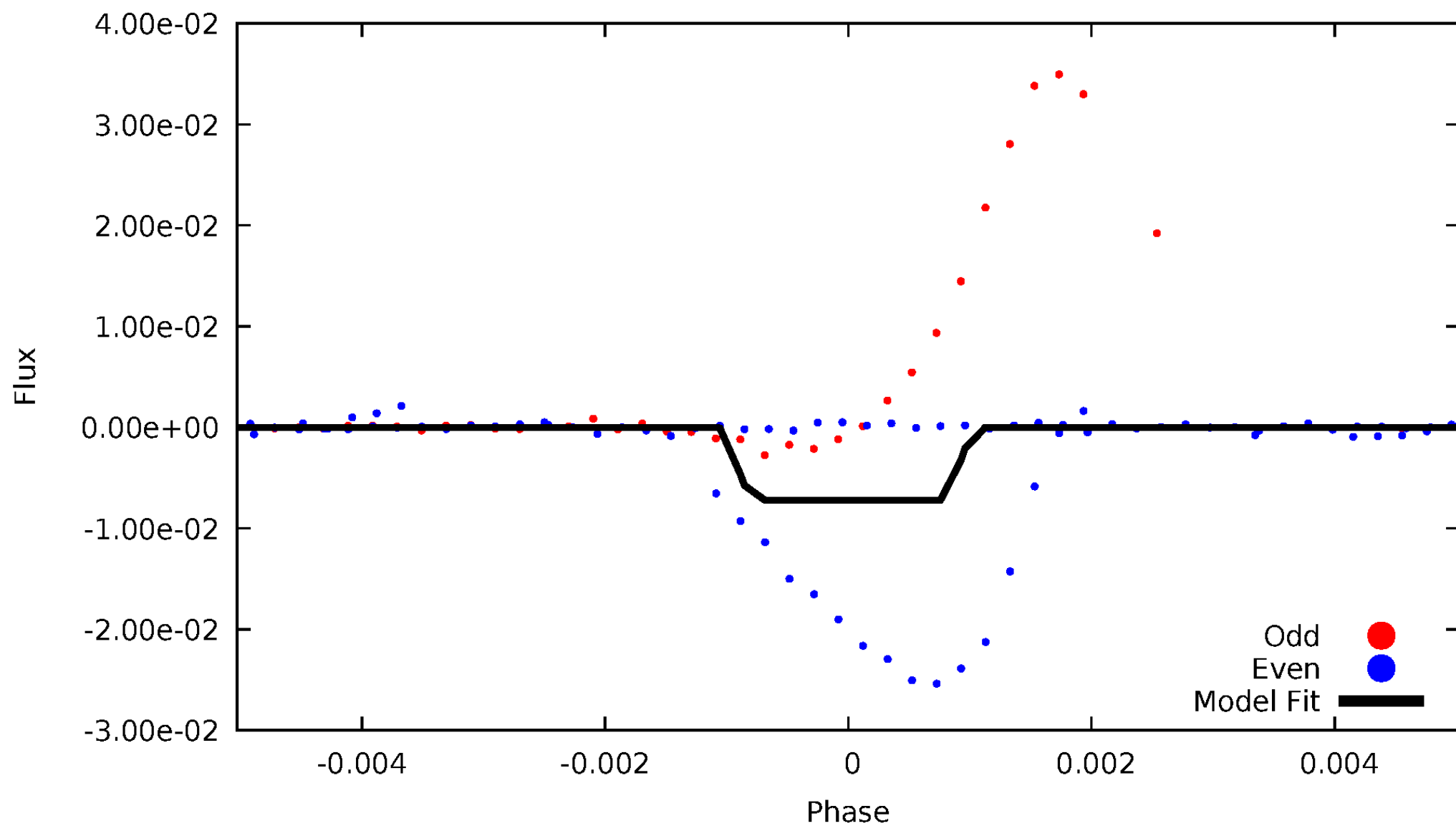
DV Odd/Even

TCE 002581964-02



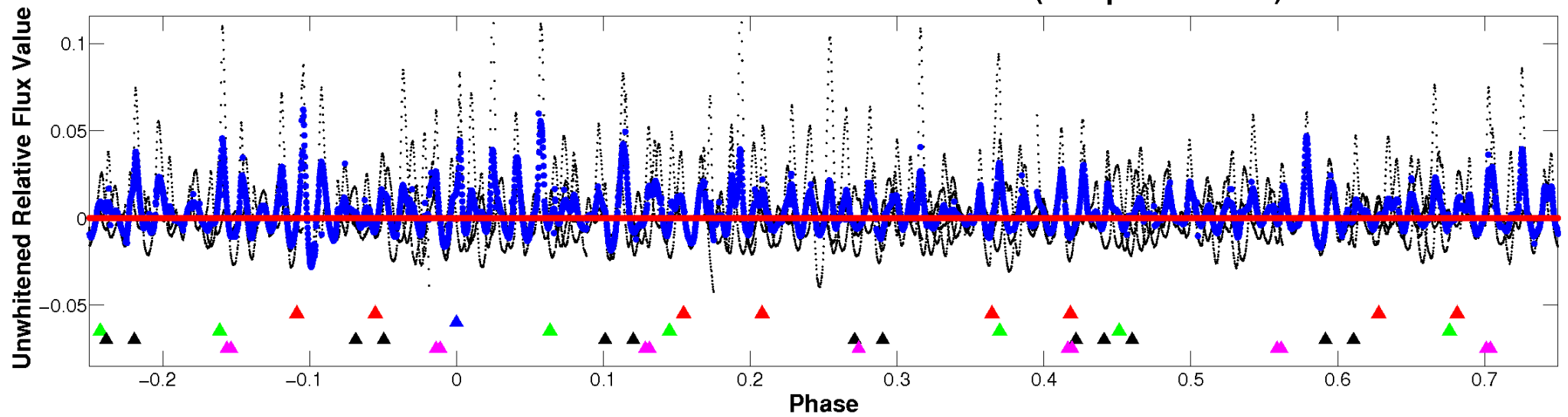
ALT Odd/Even

TCE 002581964-02

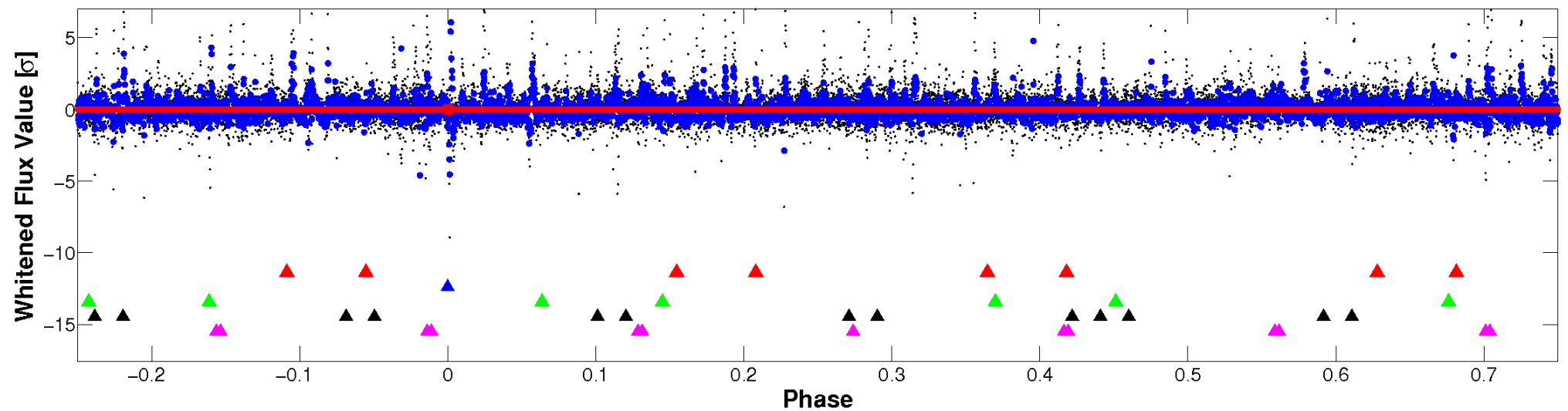


Non-Whitened Vs. Whitened Light Curve

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

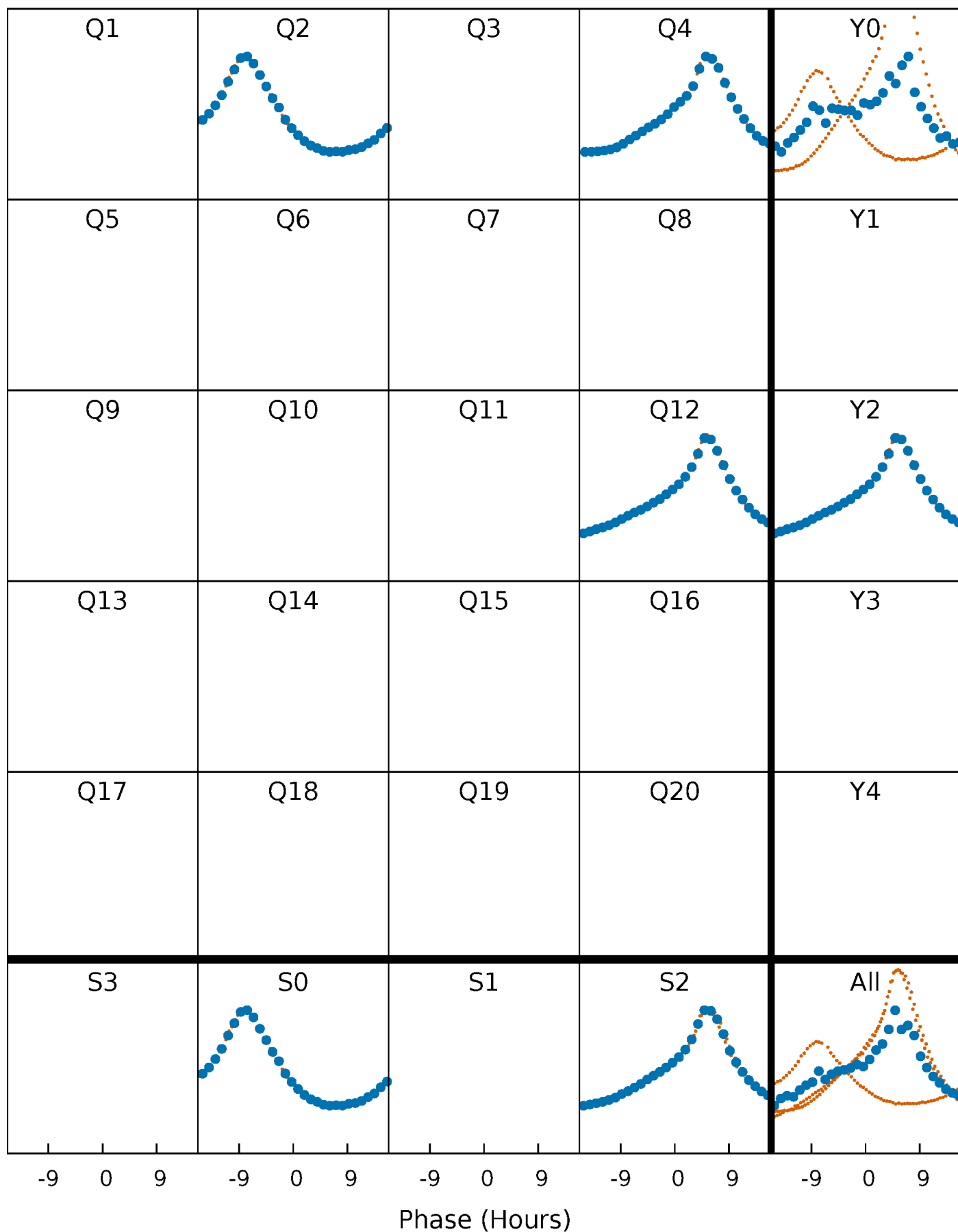


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



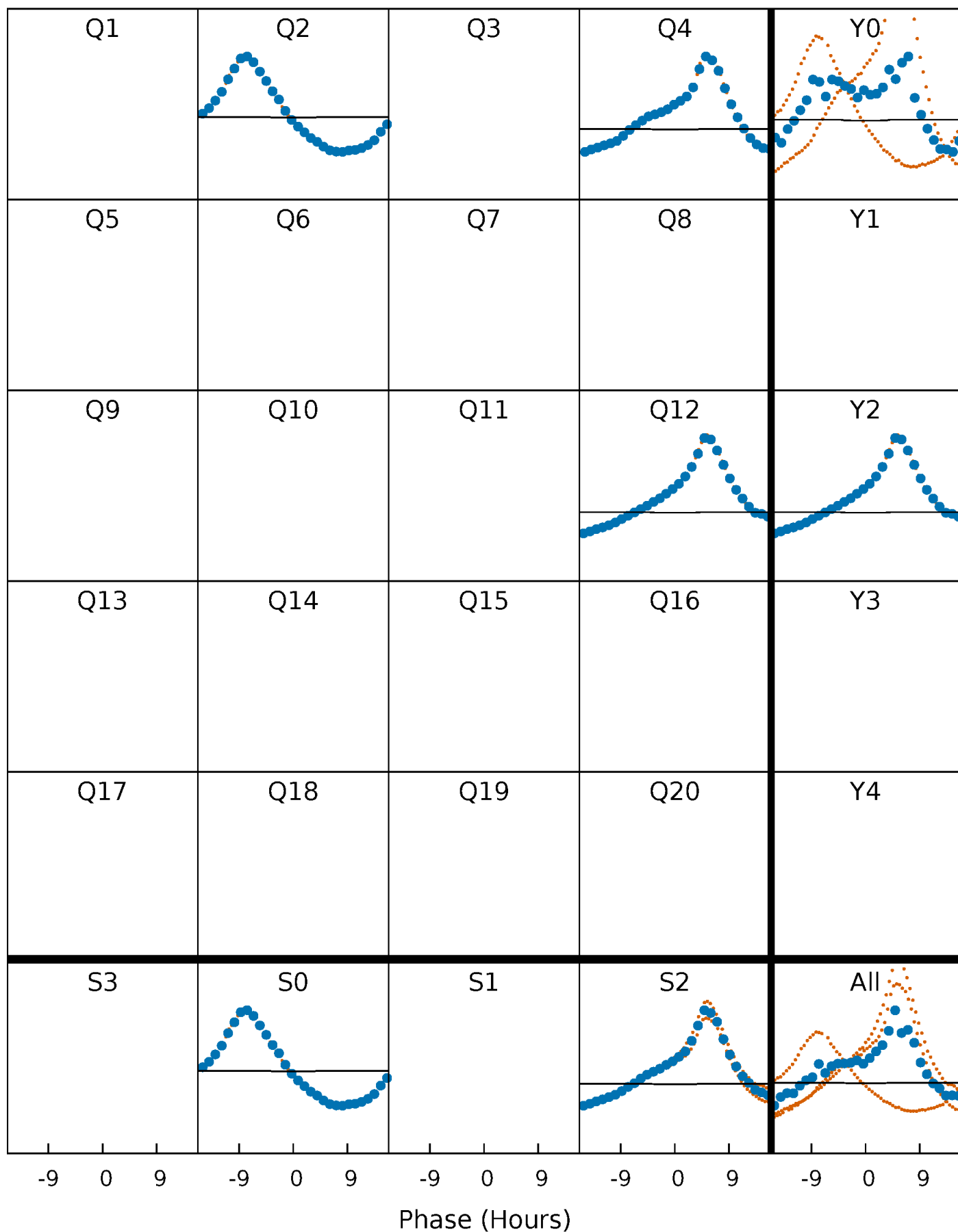
PDC Quarter-Phased Transit Curves

TCE 002581964-02 P=101.355036 Days $T_0=191.319042$ (BKJD)



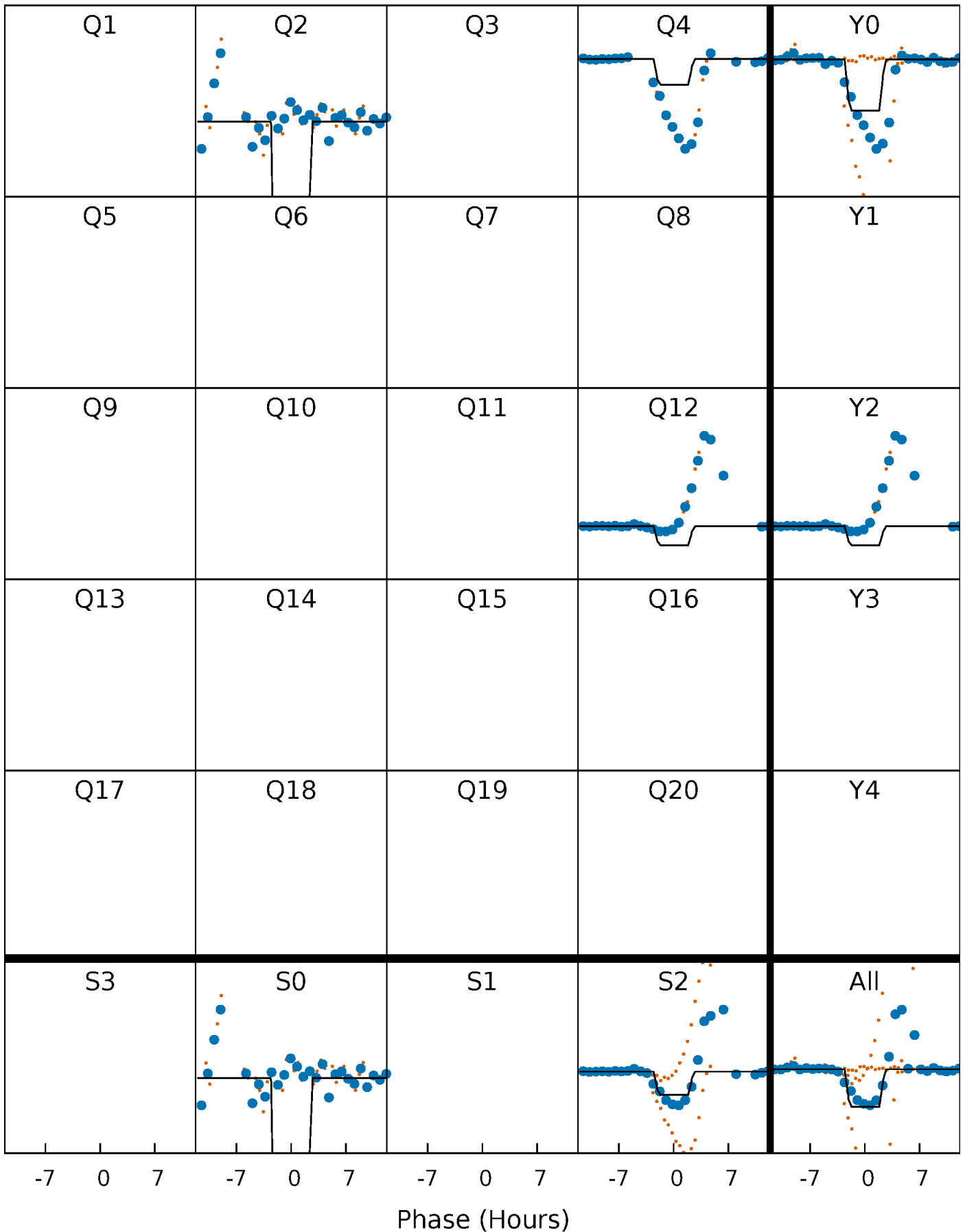
DV Quarter-Phased Transit Curves

TCE 002581964-02 P=101.355036 Days $T_0=191.319042$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

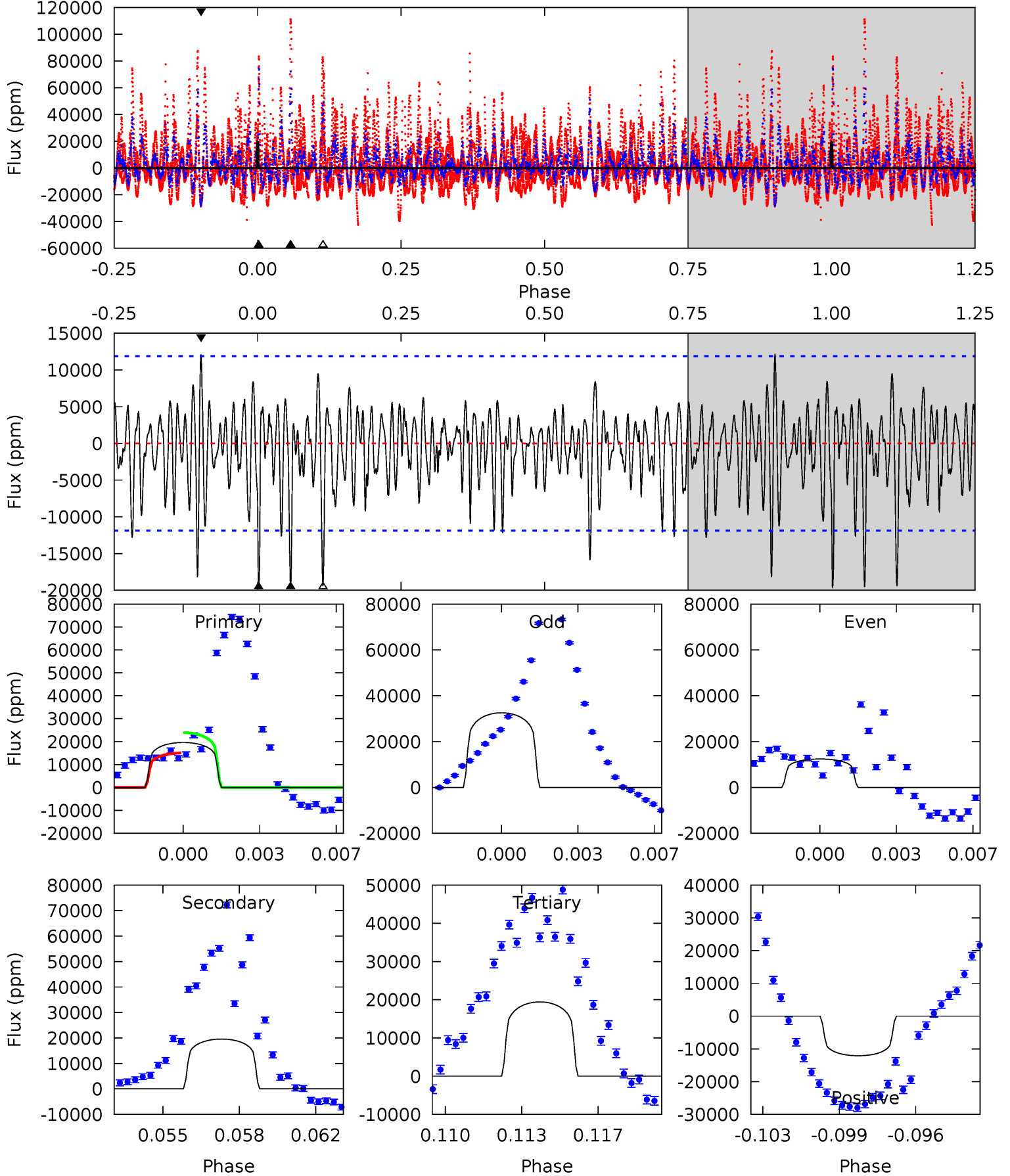
TCE 002581964-02 P=101.359509 Days $T_0=191.328749$ (BKJD)



DV Model-Shift Uniqueness Test

002581964-02, P = 101.355036 Days, E = 89.964006 Days

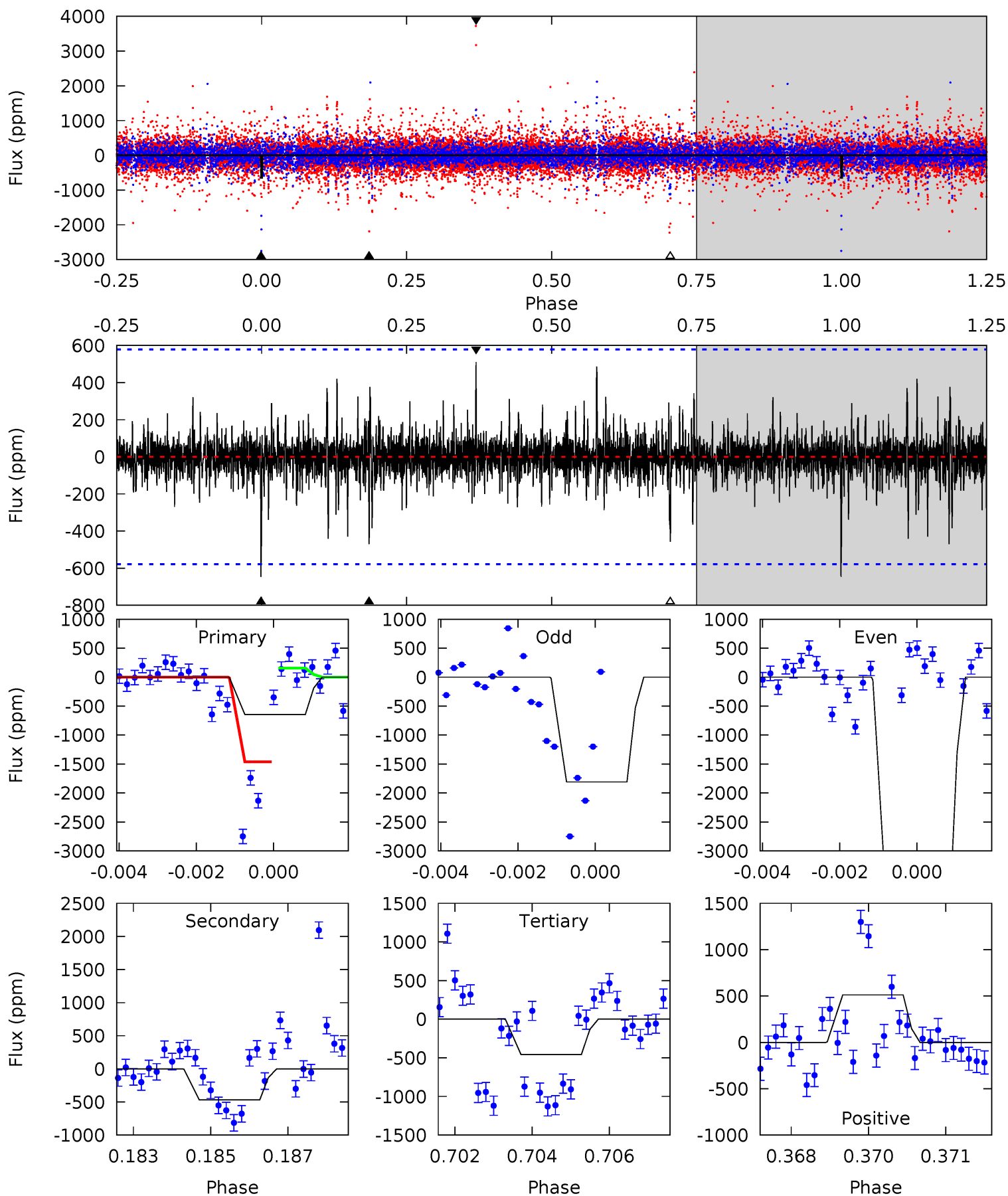
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.63	8.61	8.55	5.32	5.23	2.93	1.87	0.08	3.31	0.06	3.29	3.92	0.73	0.38	2.01



Alt Model-Shift Uniqueness Test

002581964-02, P = 101.359509 Days, E = 89.969240 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.96	4.34	4.22	4.72	5.34	3.11	0.74	1.74	1.24	0.11	-0.38	11.7	-50.1	0.44	6.14



Stellar Parameters For KIC 002581964

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7430^{+232}_{-310}	$4.160^{+0.124}_{-0.186}$	$-0.200^{+0.250}_{-0.350}$	$1.671^{+0.515}_{-0.344}$	$1.470^{+0.216}_{-0.237}$	$0.444^{+0.333}_{-0.222}$
	+3%/-4%	+3%/-4%	+125%/-175%	+31%/-21%	+15%/-16%	+75%/-50%
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 002581964-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-19573 ± 2272	$6.45^{+6.07}_{-4.50}$	855^{+64}_{-54}	$25305^{+144718}_{-13248}$	$60205^{+614763}_{-44351}$
Alt.	-470 ± 108	$15.89^{+8.08}_{-6.92}$	858^{+61}_{-57}	4000^{+954}_{-542}	236^{+455}_{-139}

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

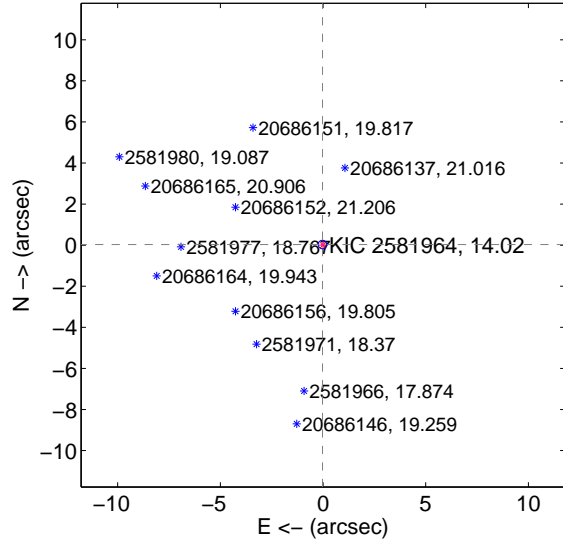
Supplemental centroid analysis for 002581964-02. Kepler magnitude: 14.02. Transit SNR 0.62

There are 1 quarters with good PRF difference image offsets

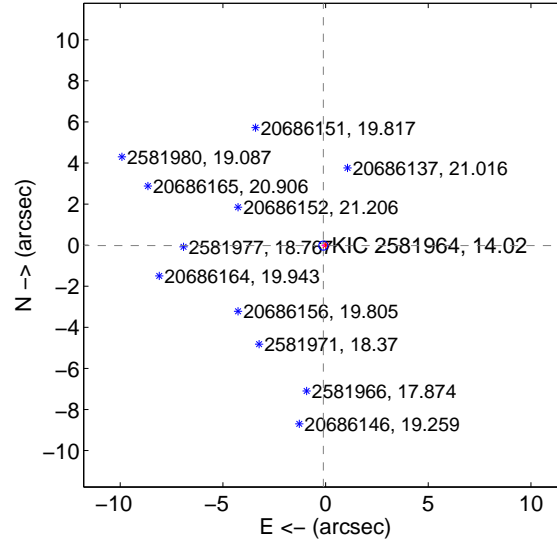
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.042 ± 0.069	0.61	0.028 ± 0.071	0.031 ± 0.067
PRF-fit source offset from KIC position	0.112 ± 0.074	1.51	0.110 ± 0.074	-0.021 ± 0.069
photometric centroid source offset	3.18 ± 2.21	1.44	2.99 ± 2.23	-1.09 ± 2.08

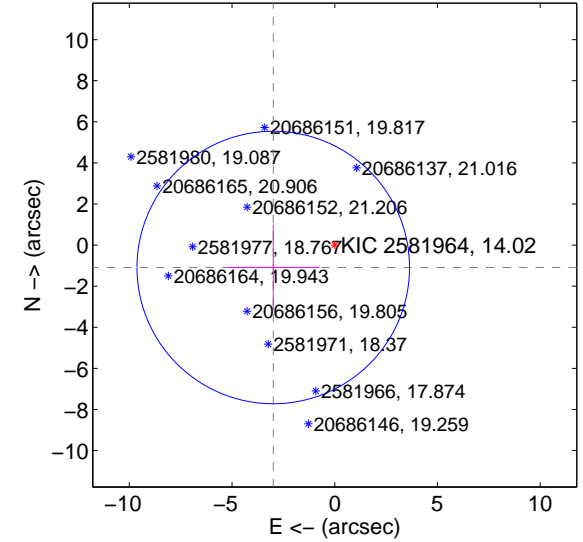
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

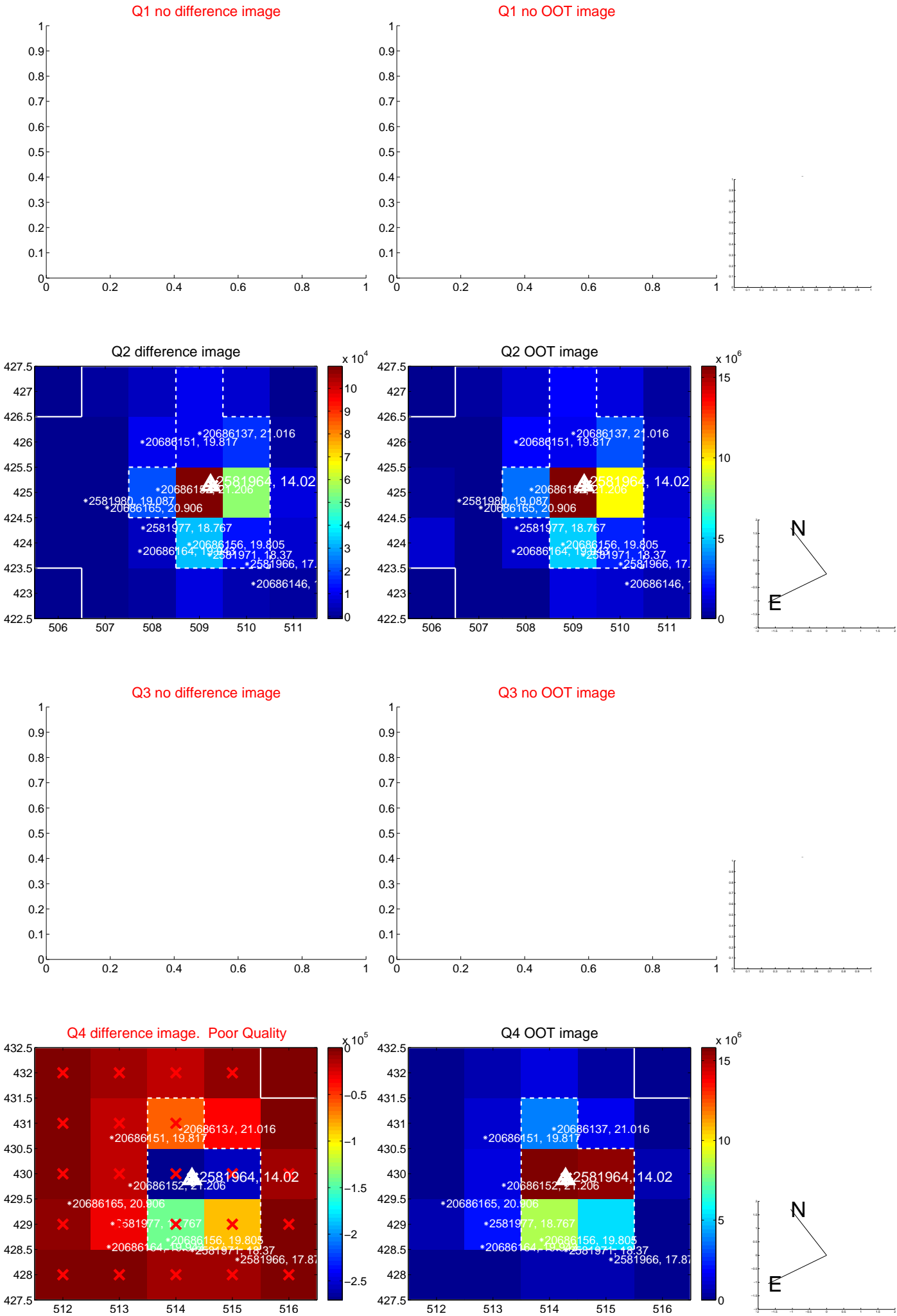


offset from photometric centroids



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

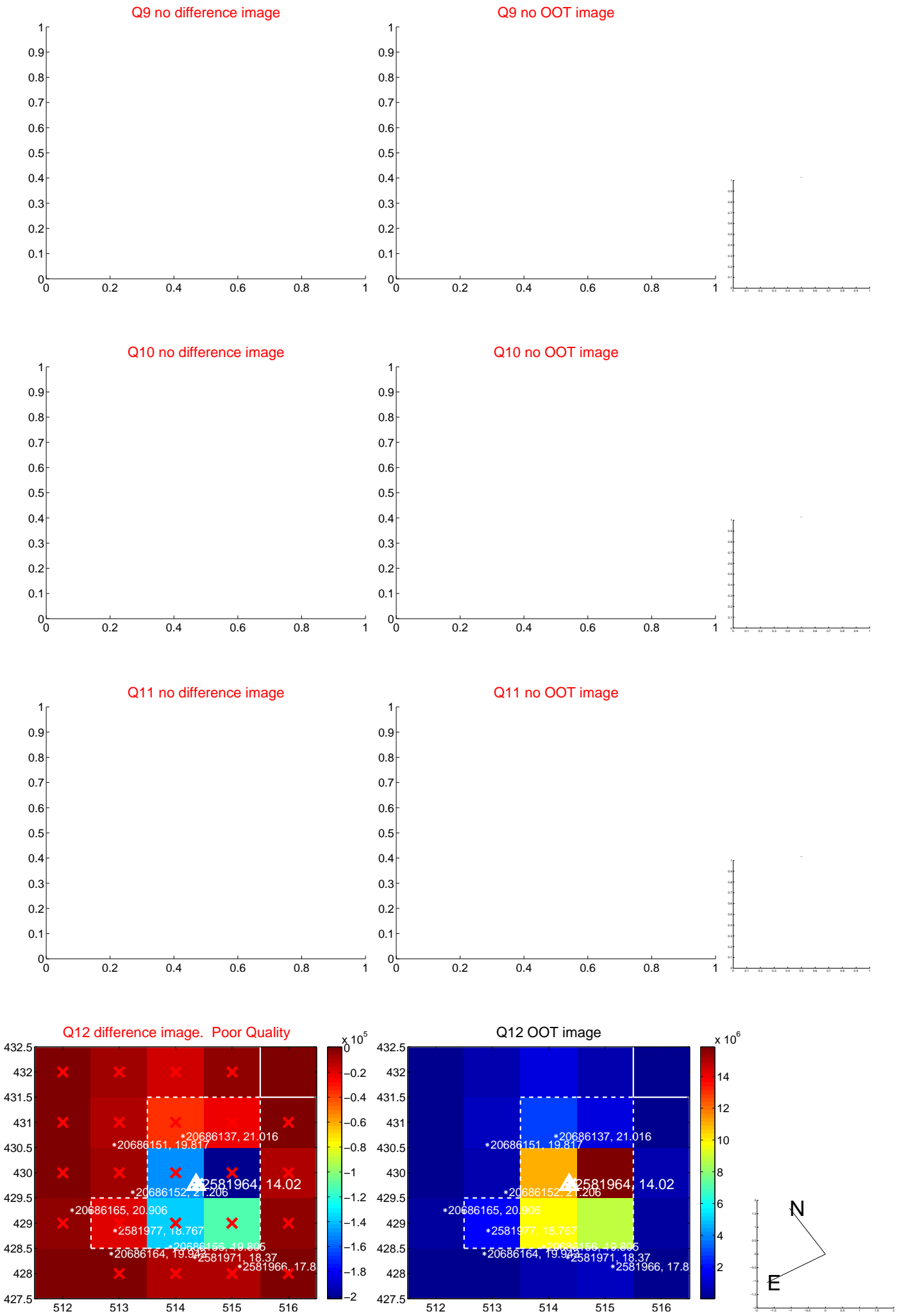
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



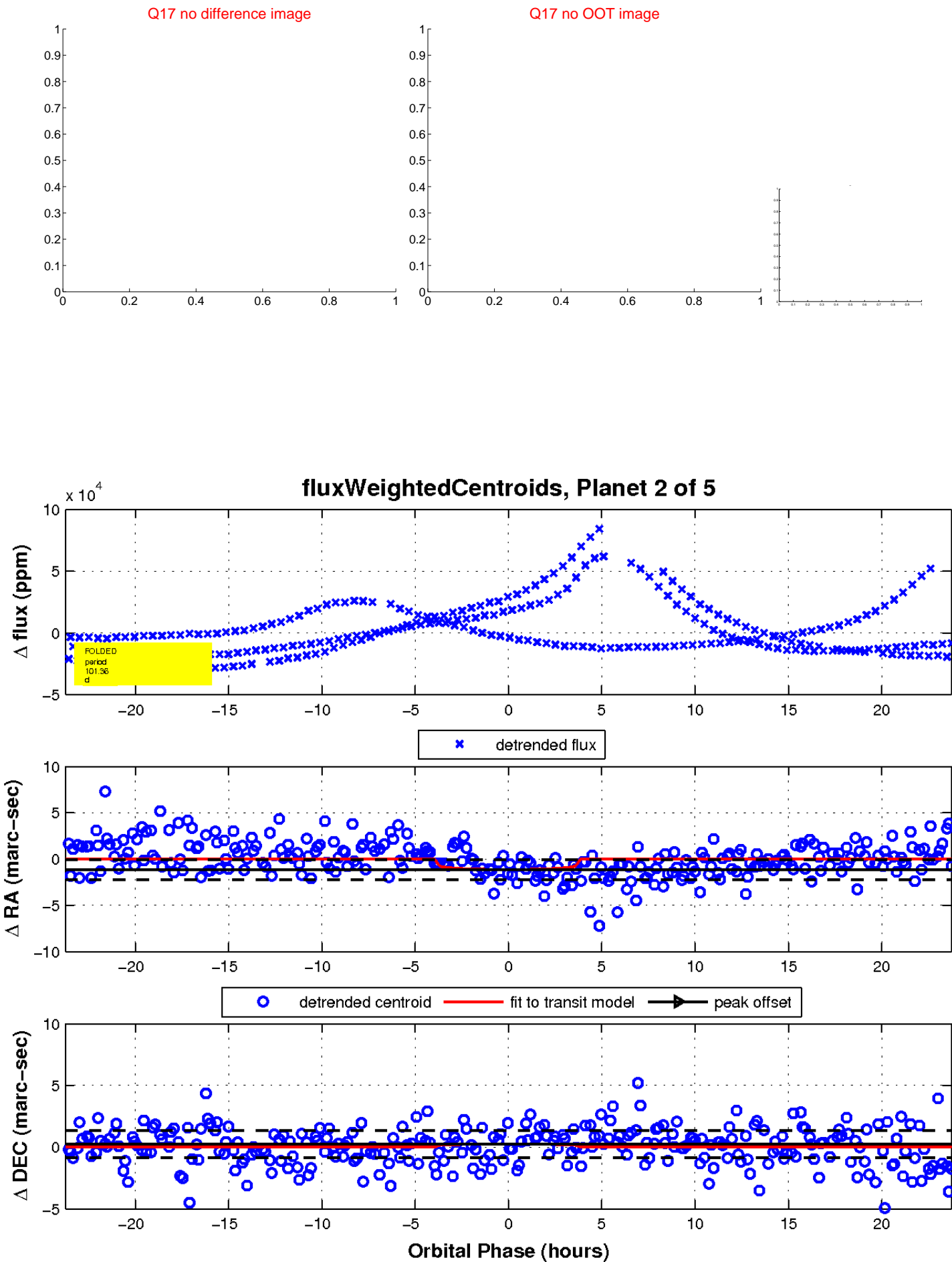
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

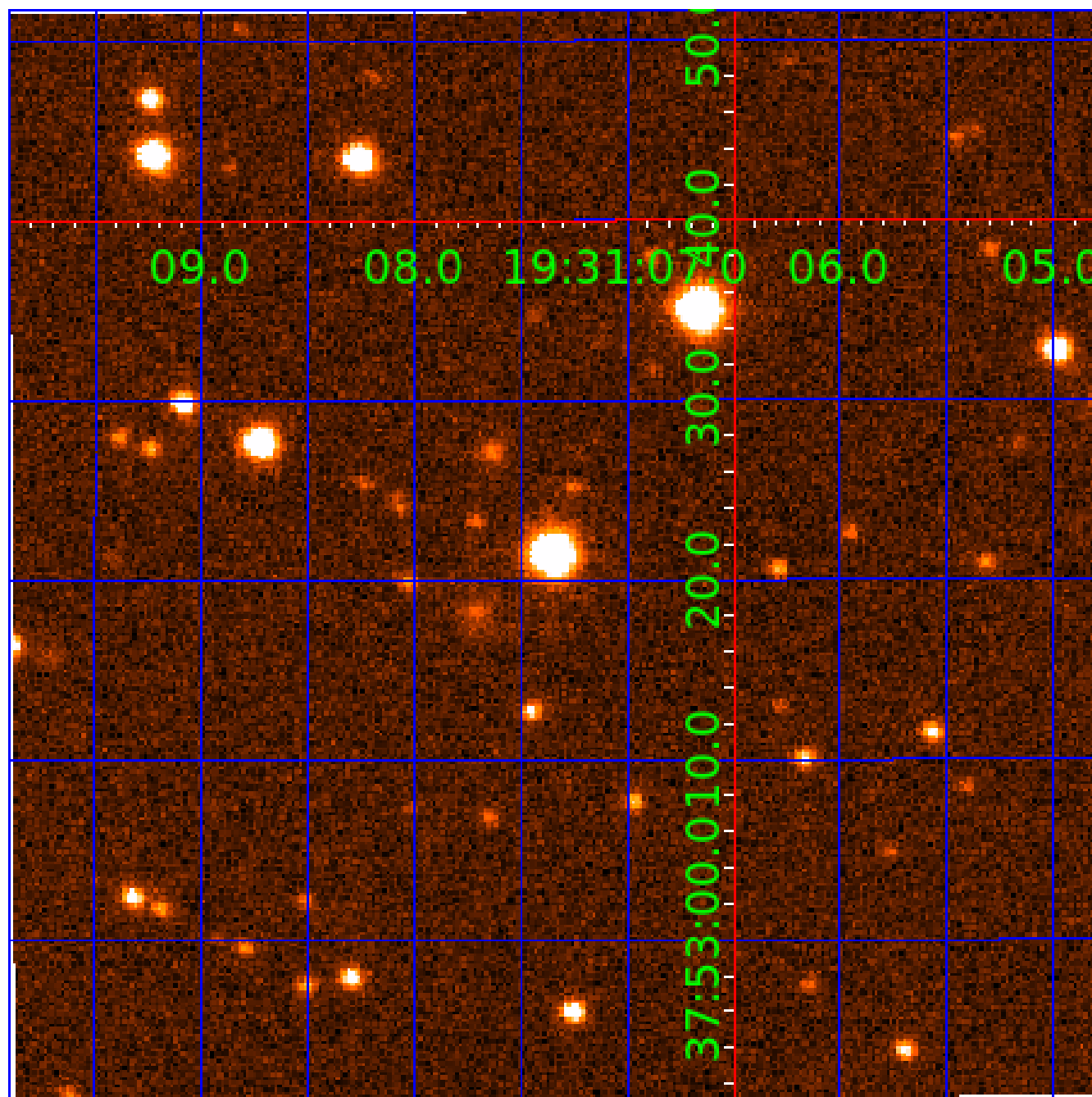


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002581964

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})
002581964-01	OBS	No	176.017450	212.412626	4020.0	6.594	34.0	4.5	1.67	7430	16.11	15.59
002581964-02	OBS	No	101.355036	191.319042	399.6	7.917	21.0	0.6	1.67	7430	3.60	32.54
002581964-03	OBS	No	233.747134	174.983763	1831.1	5.198	14.9	3.2	1.67	7430	7.50	10.68
002581964-04	OBS	No	118.570508	132.722286	8781.8	6.319	14.3	11.5	1.67	7430	27.62	26.40
002581964-05	OBS	No	115.793592	132.446158	6386.0	9.872	10.7	4.5	1.67	7430	23.71	27.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002581964-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
002581964-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—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.

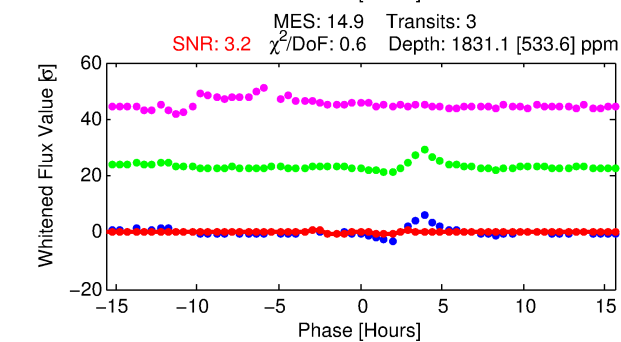
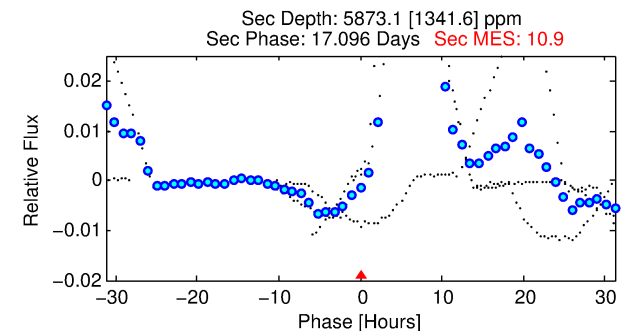
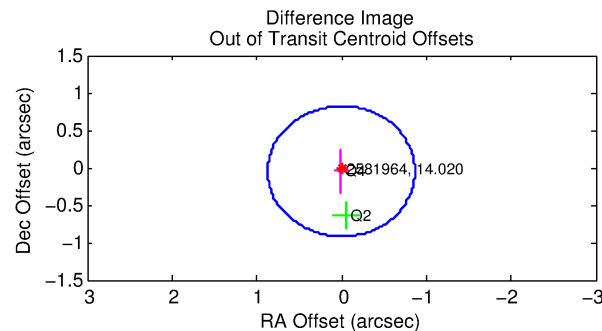
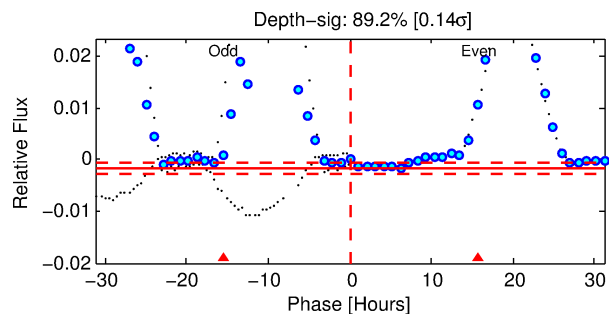
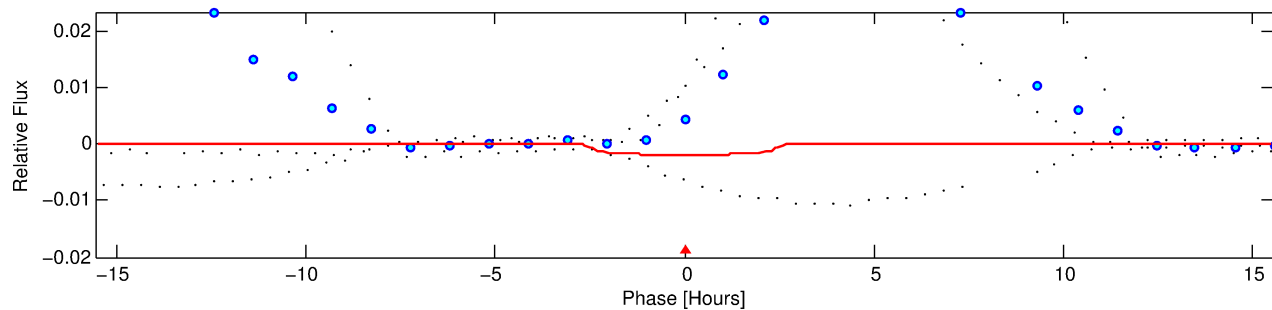
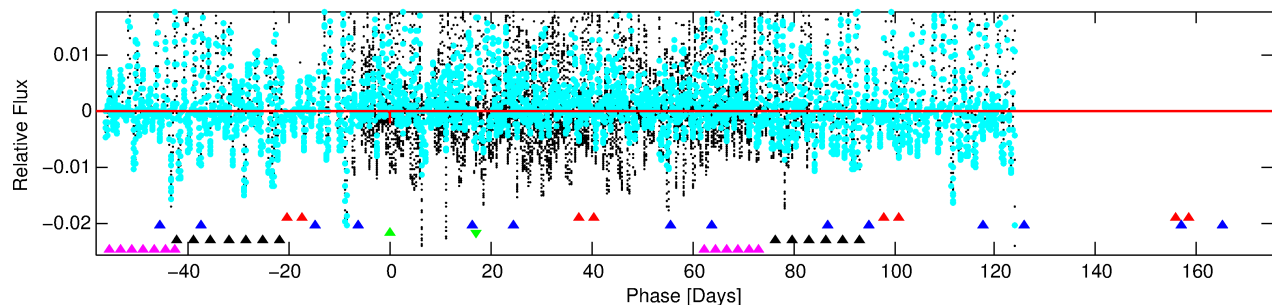
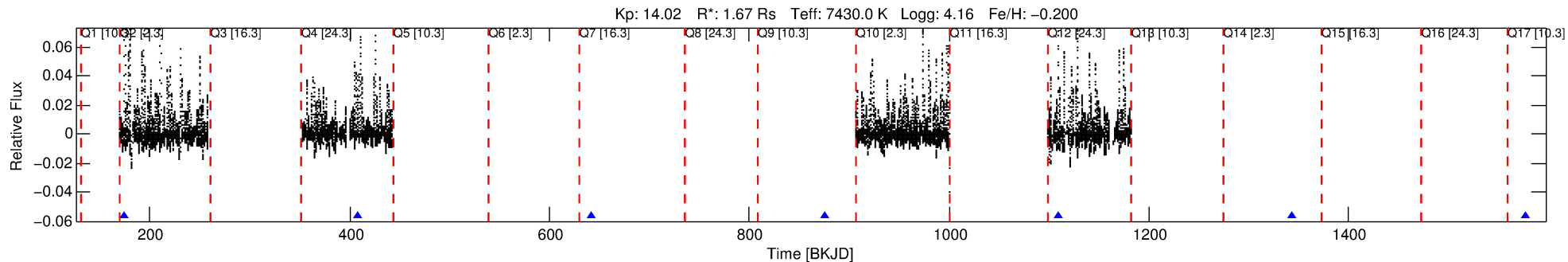
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002581964-03

No Significant Match Found

DV One-Page Summary

KIC: 2581964 Candidate: 3 of 5 Period: 233.747 d



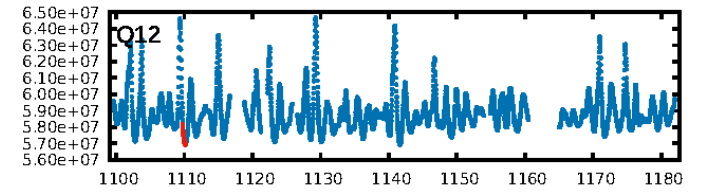
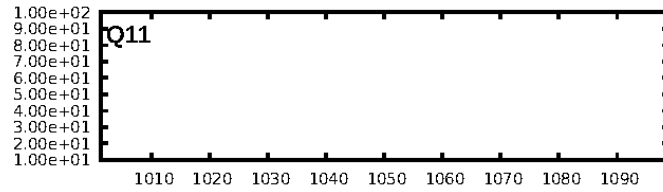
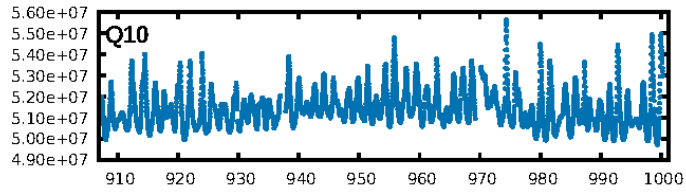
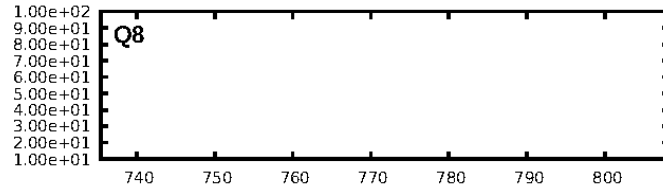
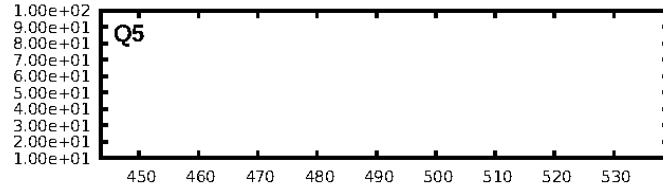
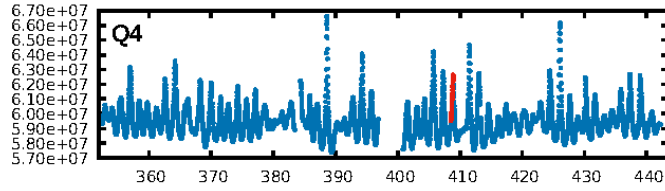
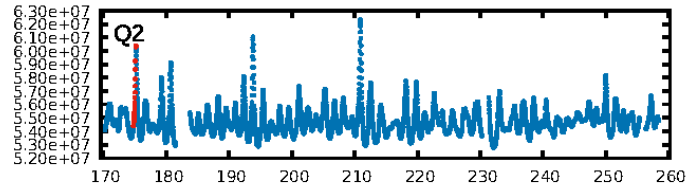
DV Fit Results:

Period = 233.74713 [0.00393] d
Epoch = 174.9838 [0.0059] BKJD
Rp/R* = 0.0412 [0.0190]
a/R* = 292.66 [632.15]
b = 0.60 [2.33]
Seff = 10.68 [4.16]
Teq = 461 [45] K
Rp = 7.50 [4.16] Re
a = 0.8450 [0.2114] AU
Ag = 40958.36 [41490.54] [0.99 σ]
Teffp = 10139 [2445] K [3.96 σ]

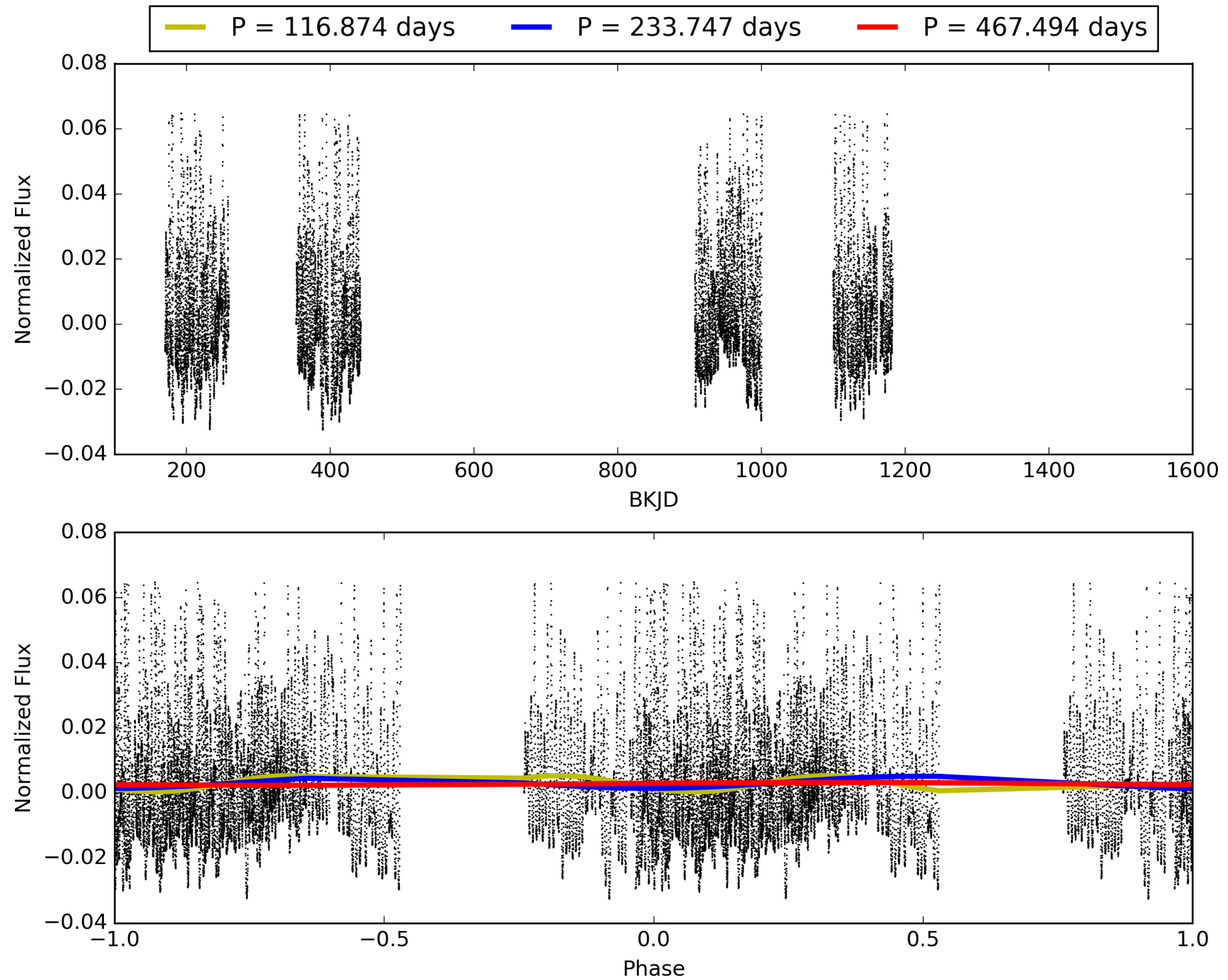
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [165.01 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 87.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.153
Centroid-sig: 4.2%
Centroid-so: 1.374 arcsec [2.70 σ]
OotOffset-rm: 0.049 arcsec [0.17 σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-rm: 0.154 arcsec [0.88 σ]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 002581964-03, PDC Light Curves

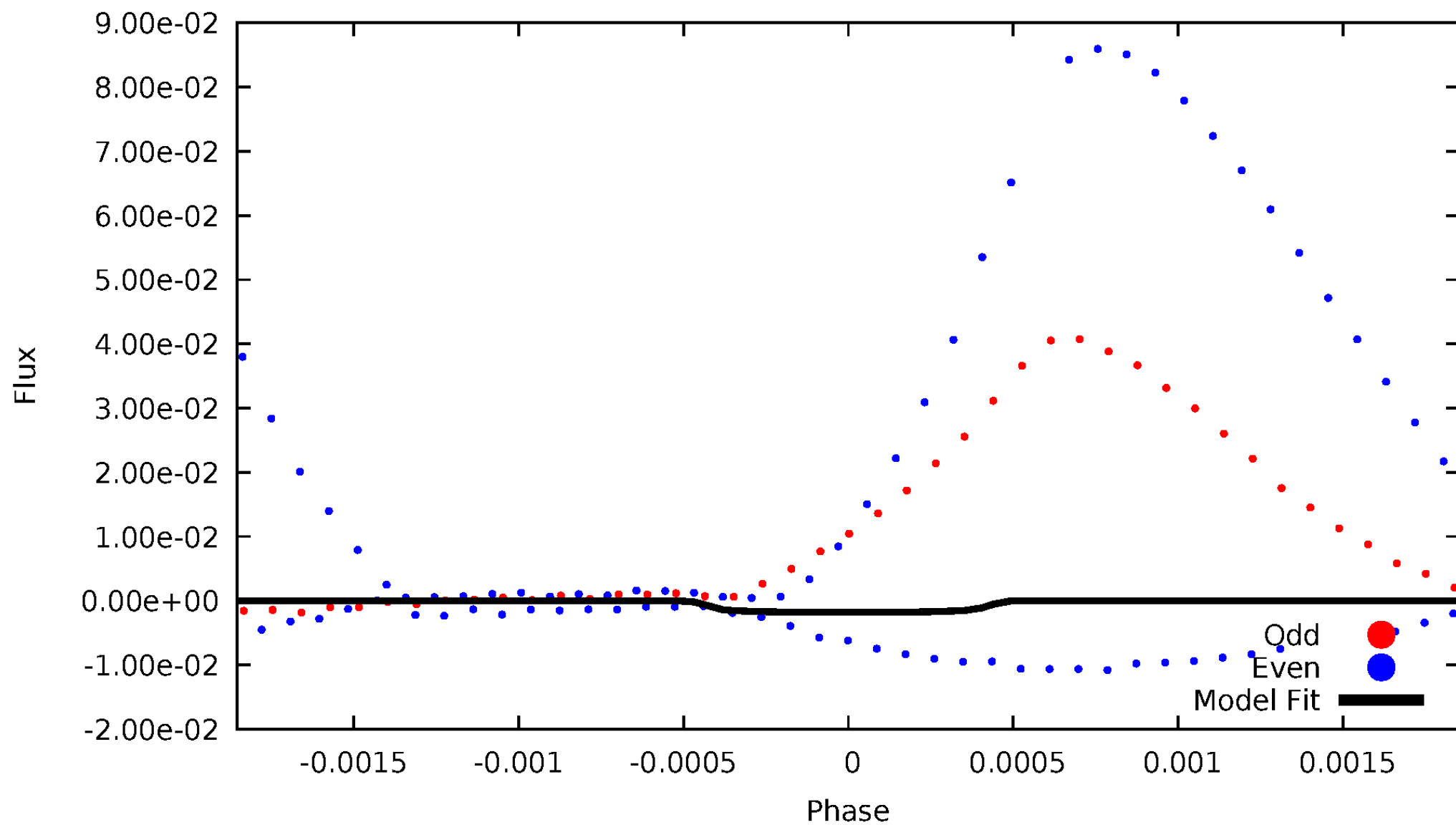


TCE 002581964-03



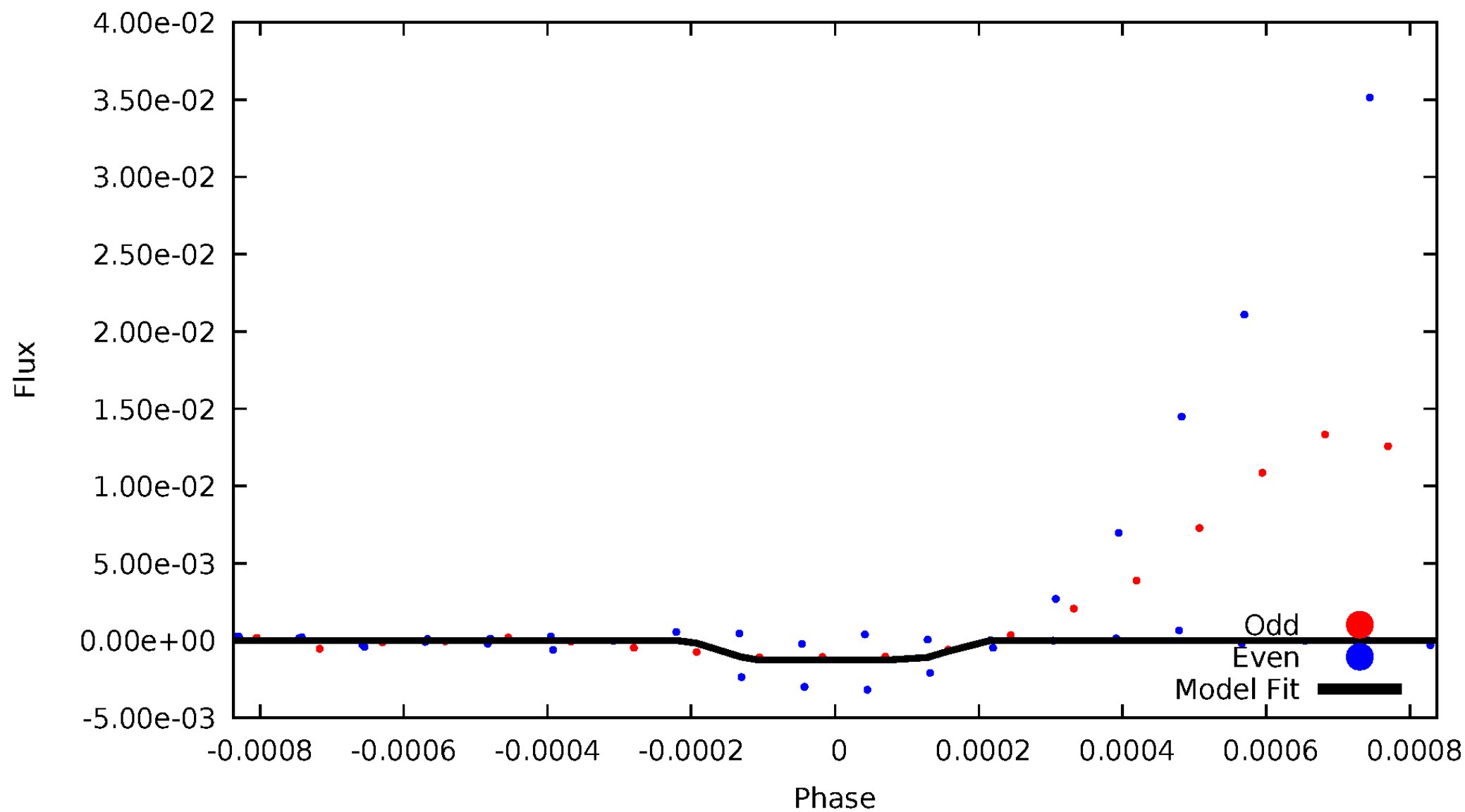
DV Odd/Even

TCE 002581964-03



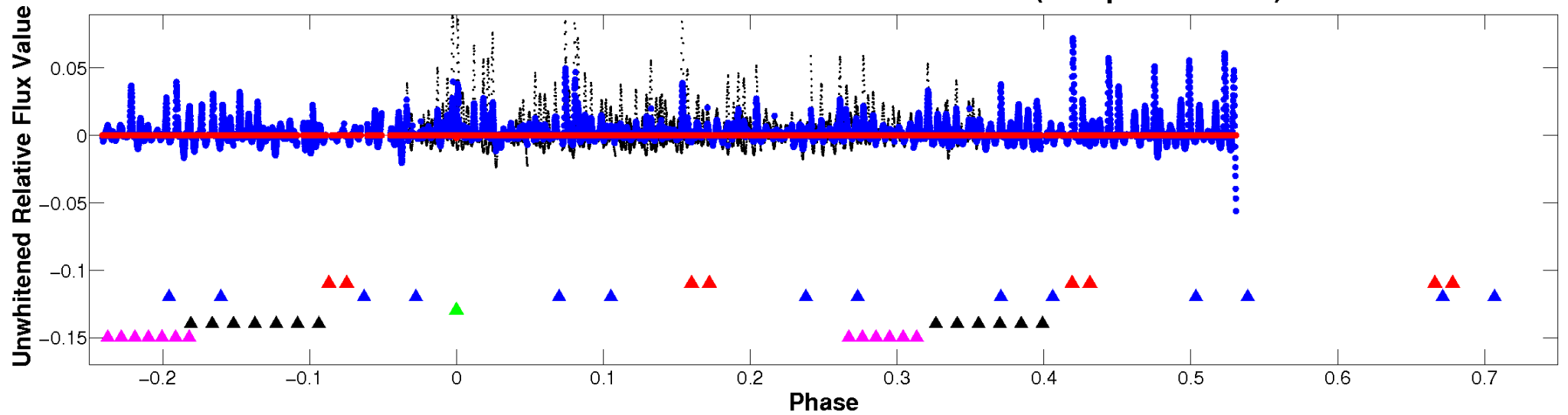
ALT Odd/Even

TCE 002581964-03

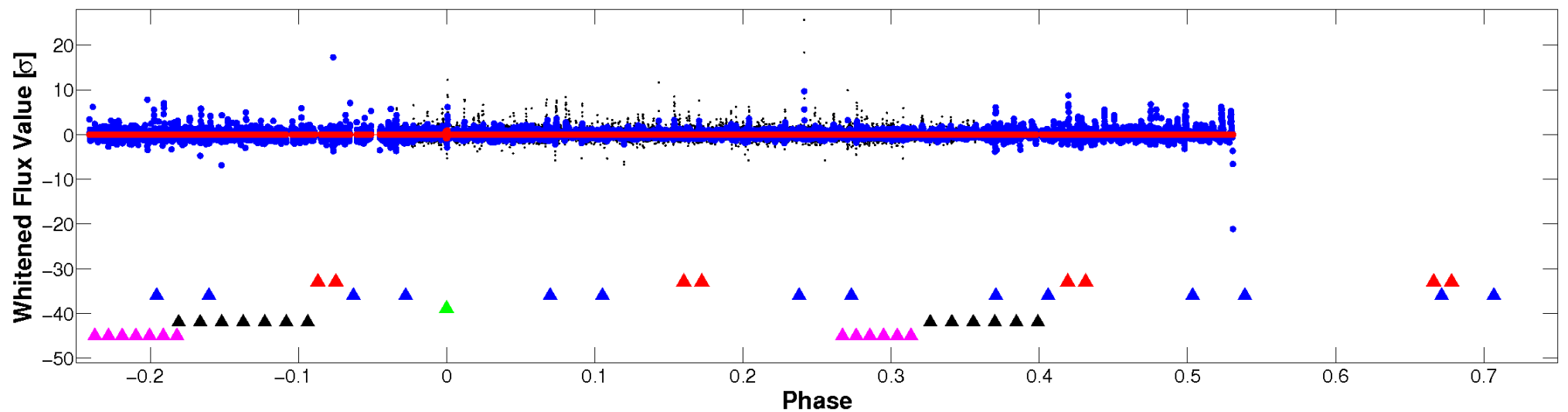


Non-Whitened Vs. Whitened Light Curve

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

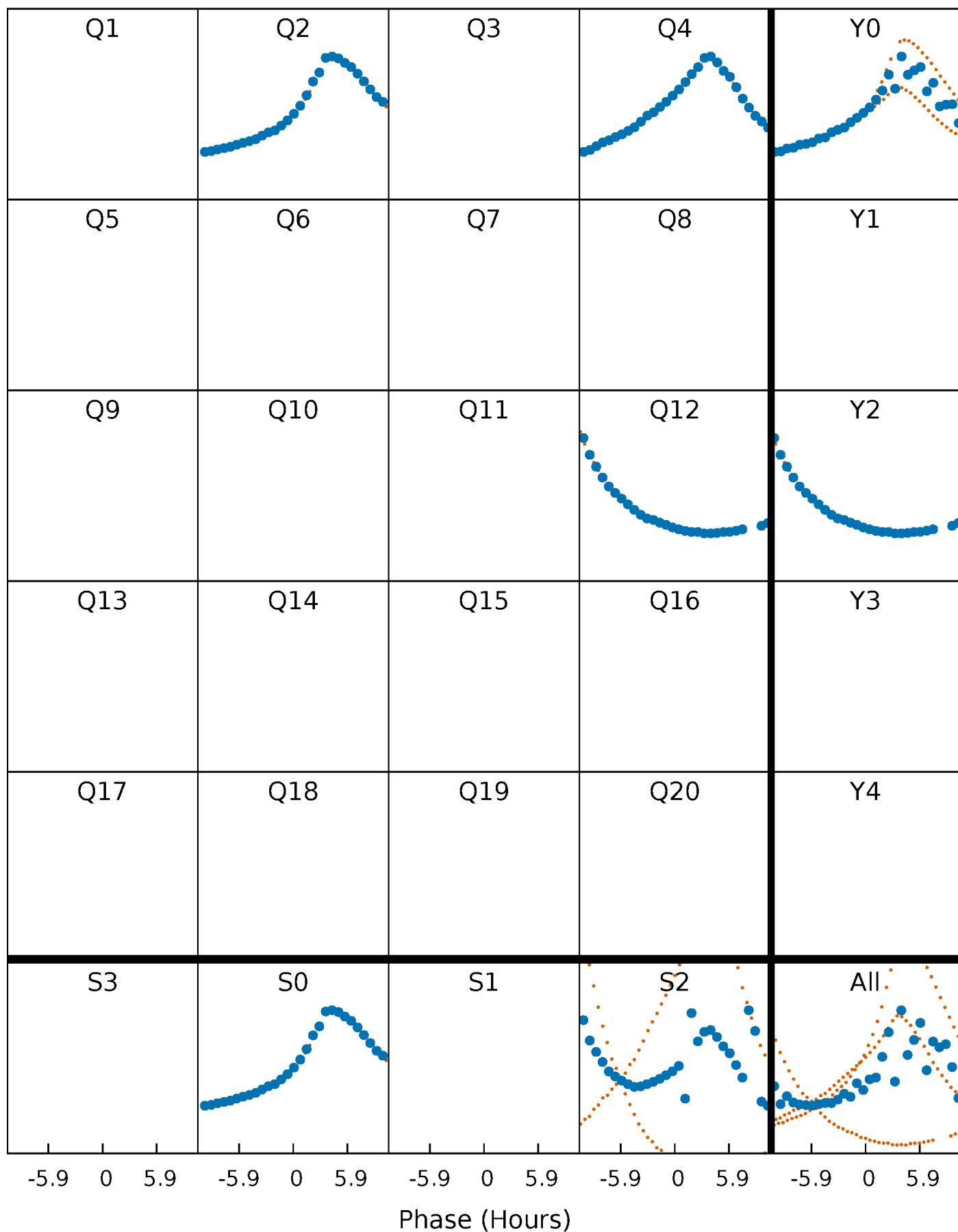


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



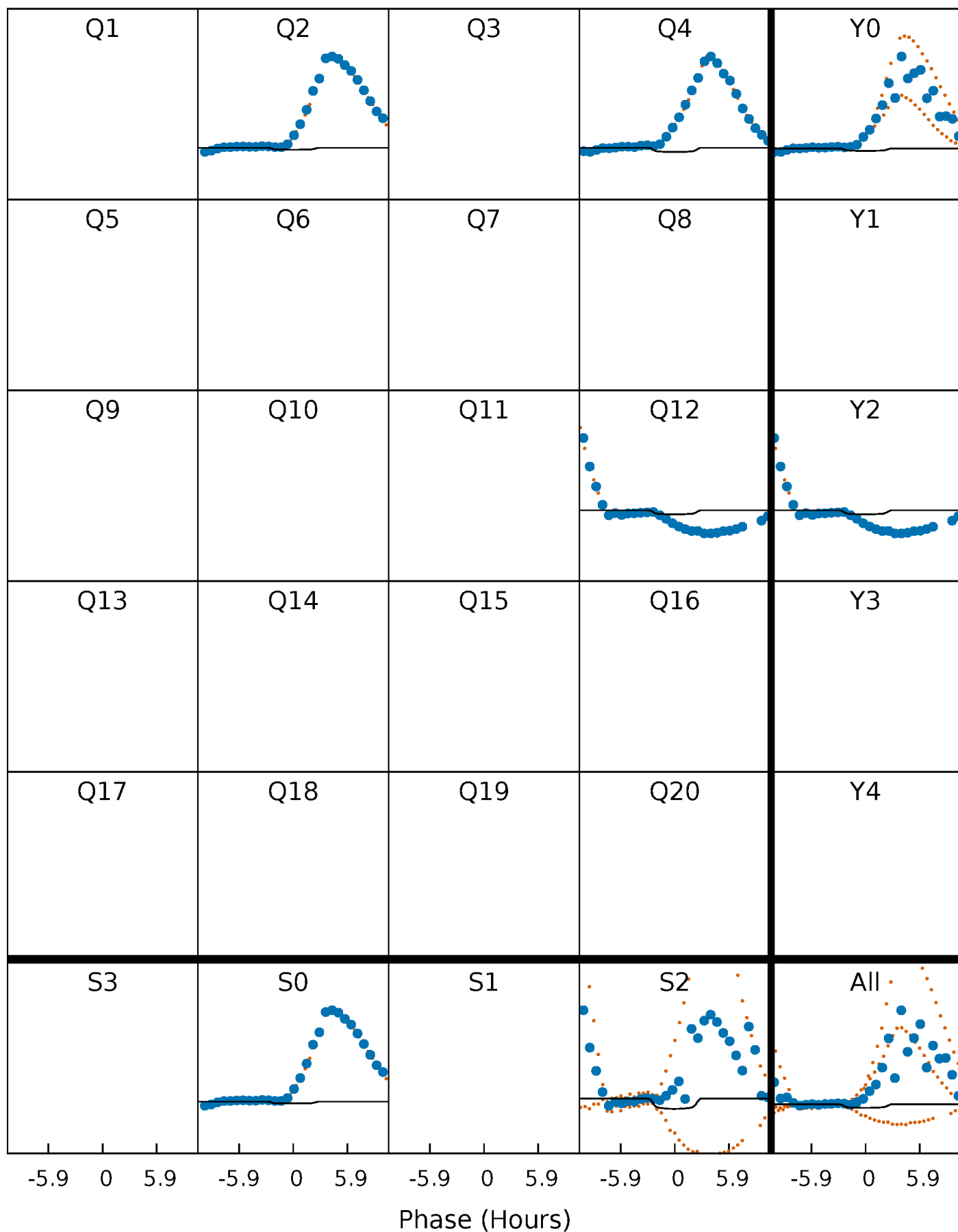
PDC Quarter-Phased Transit Curves

TCE 002581964-03 P=233.747134 Days $T_0=174.983763$ (BKJD)



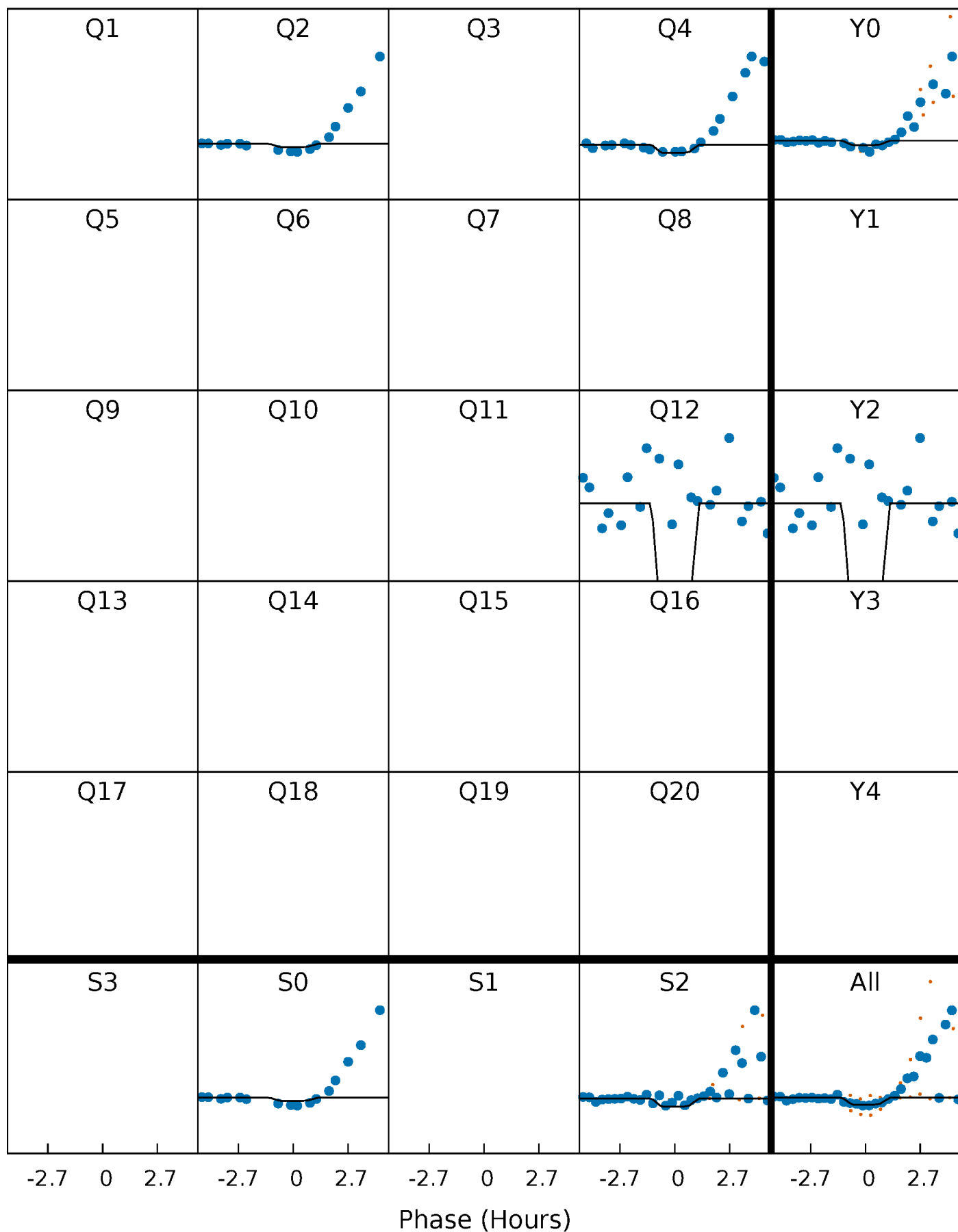
DV Quarter-Phased Transit Curves

TCE 002581964-03 $P=233.747134$ Days $T_0=174.983763$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

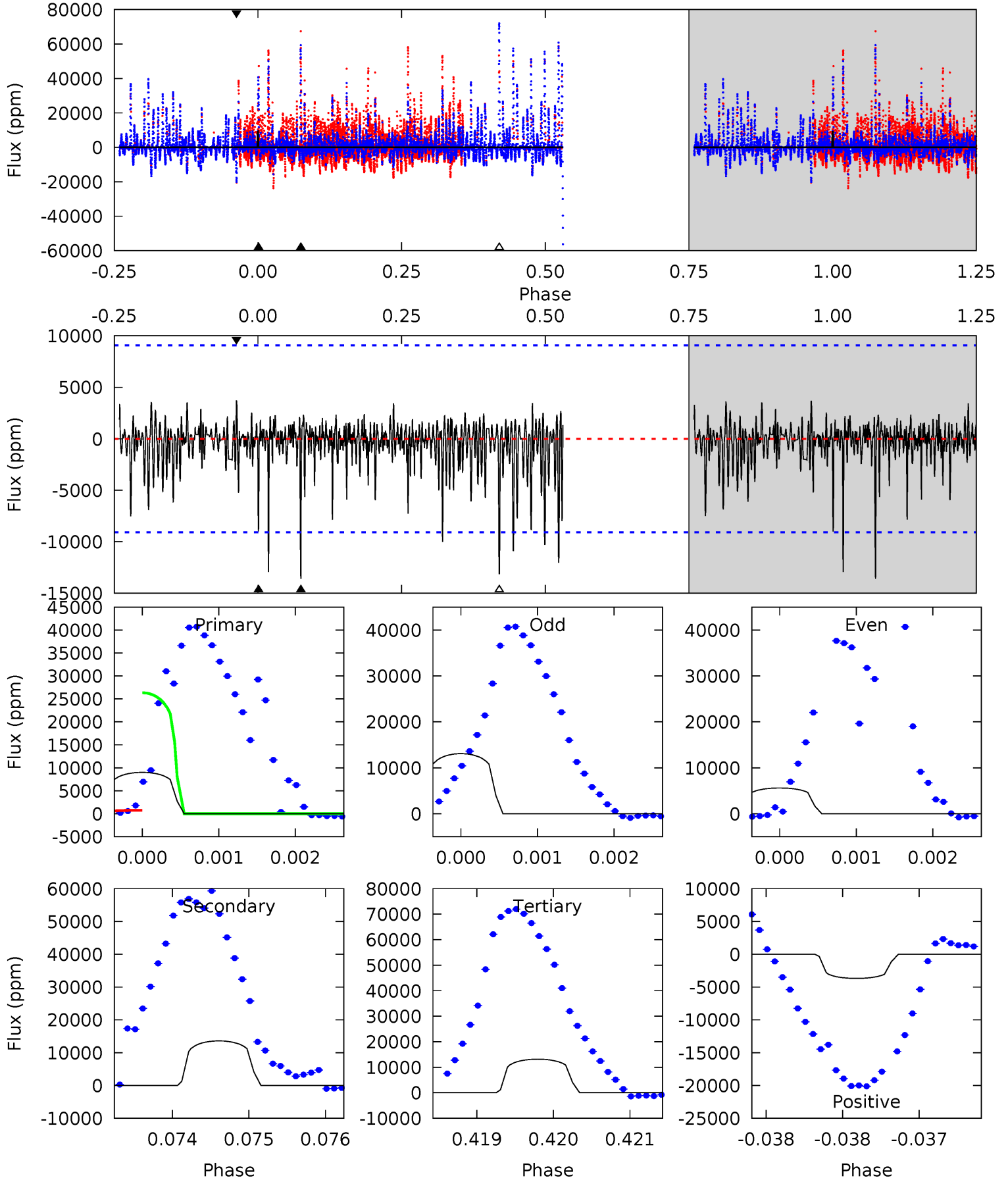
TCE 002581964-03 P=233.749049 Days $T_0=174.966095$ (BKJD)



DV Model-Shift Uniqueness Test

002581964-03, P = 233.747134 Days, E = 174.983763 Days

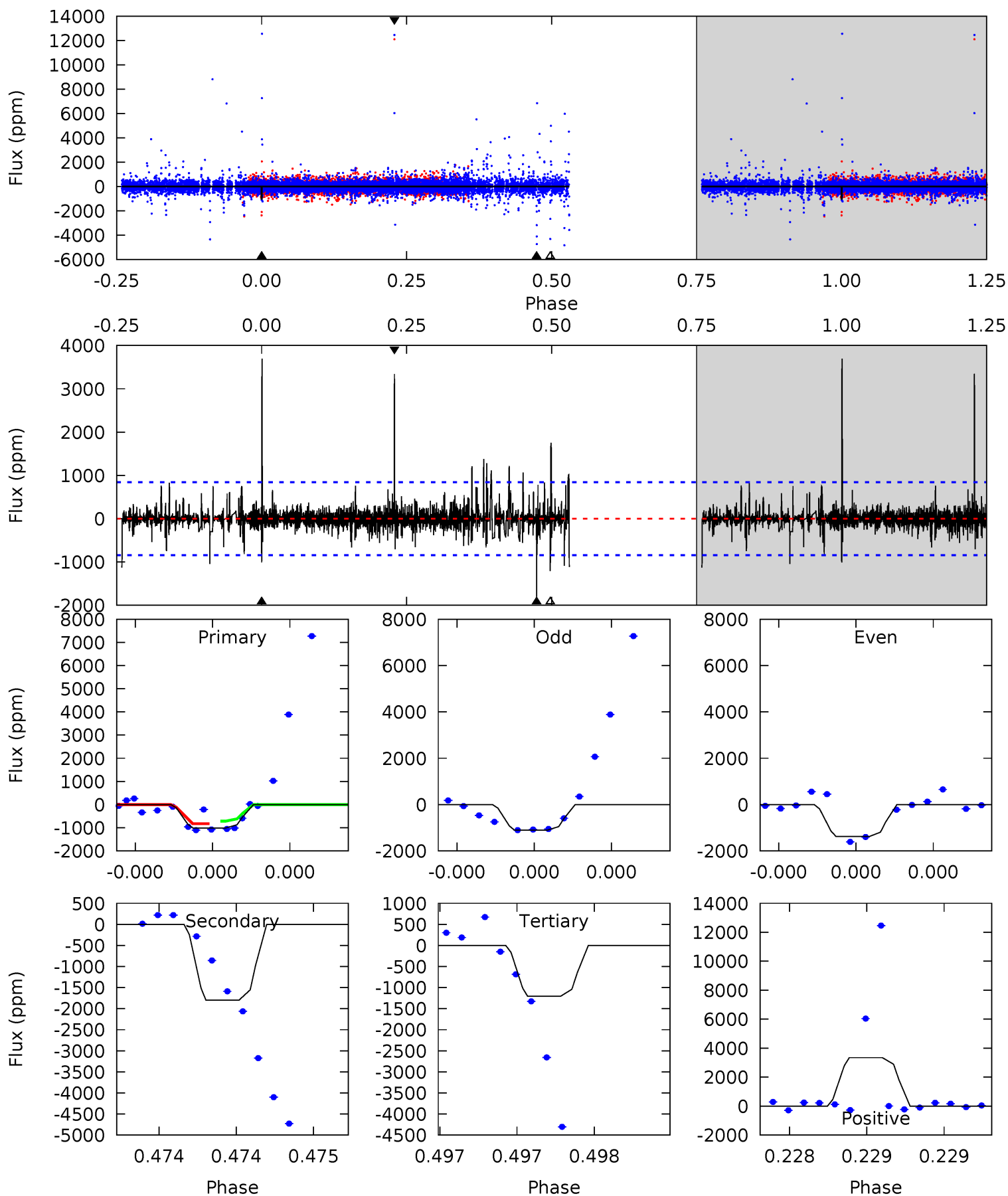
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.42	8.18	7.92	2.22	5.46	3.30	1.10	-2.50	3.20	0.26	5.96	1.86	0.62	0.21	7.77



Alt Model-Shift Uniqueness Test

002581964-03, P = 233.749049 Days, E = 174.966095 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.70	12.0	8.01	22.2	5.61	3.53	1.27	-1.31	-15.5	3.95	-10.3	0.69	1.16	0.67	0.34



Stellar Parameters For KIC 002581964

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7430^{+232}_{-310}	$4.160^{+0.124}_{-0.186}$	$-0.200^{+0.250}_{-0.350}$	$1.671^{+0.515}_{-0.344}$	$1.470^{+0.216}_{-0.237}$	$0.444^{+0.333}_{-0.222}$
	+3%/-4%	+3%/-4%	+125%/-175%	+31%/-21%	+15%/-16%	+75%/-50%
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 002581964-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-13597 ± 1662	$7.84^{+3.84}_{-3.43}$	647^{+53}_{-43}	15916^{+15677}_{-4705}	$85699^{+202641}_{-47518}$
Alt.	-1799 ± 150	$6.72^{+4.05}_{-3.27}$	649^{+50}_{-43}	8150^{+5018}_{-1817}	15301^{+44005}_{-9033}

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

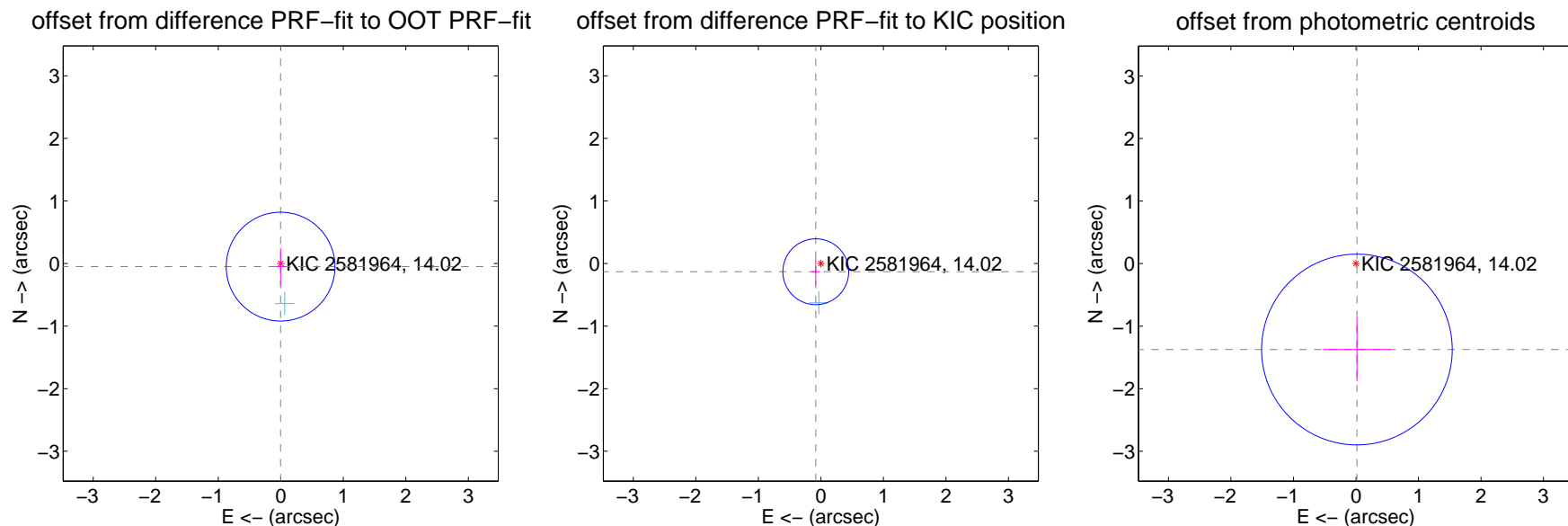
DV Centroid Data

Supplemental centroid analysis for 002581964-03. Kepler magnitude: 14.02. Transit SNR 3.17

There are 1 quarters with good PRF difference image offsets

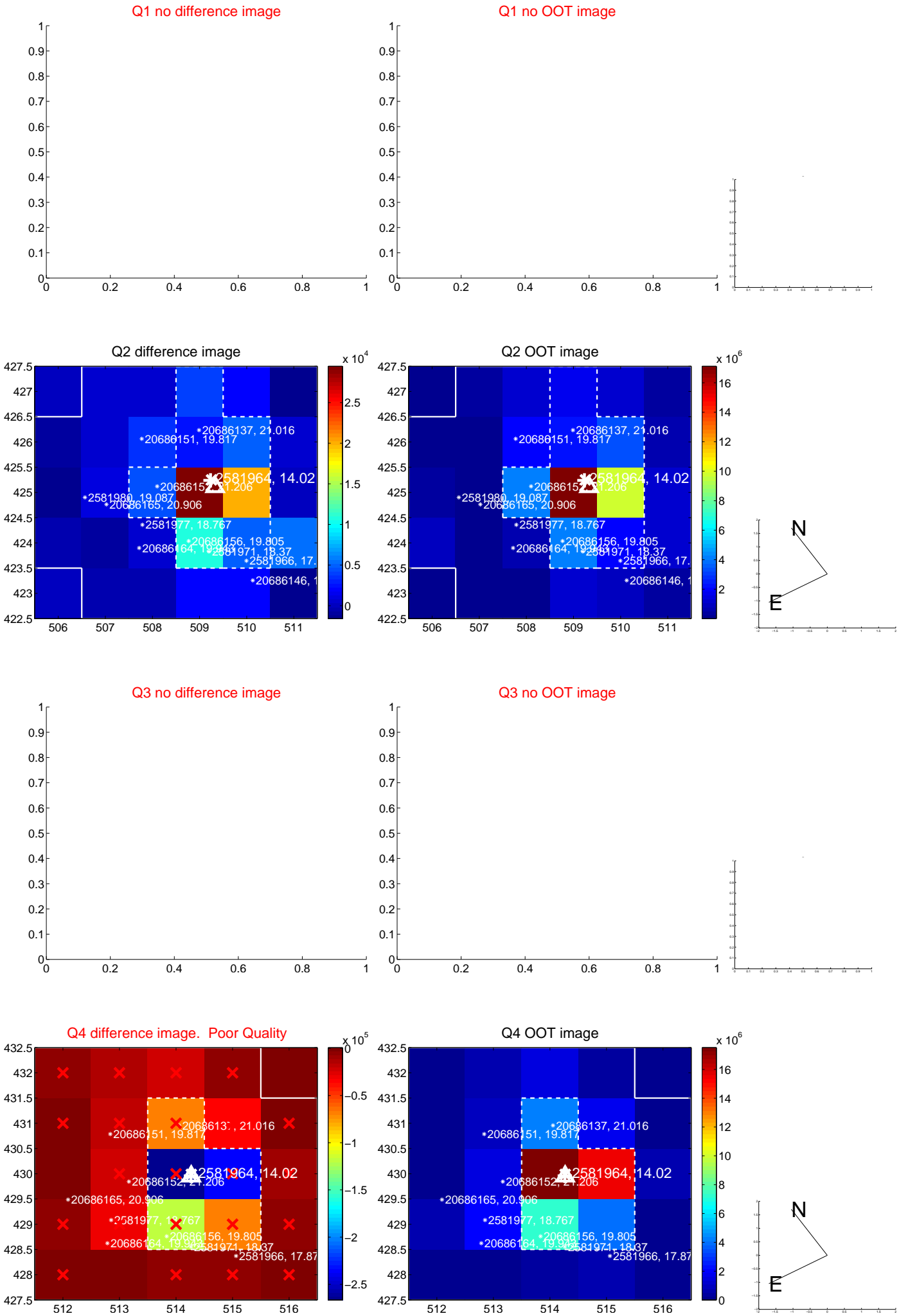
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.049 ± 0.290	0.17	0.002 ± 0.074	-0.049 ± 0.292
PRF-fit source offset from KIC position	0.154 ± 0.175	0.88	0.081 ± 0.070	-0.131 ± 0.215
photometric centroid source offset	1.37 ± 0.51	2.70	-0.02 ± 0.54	-1.37 ± 0.51



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.



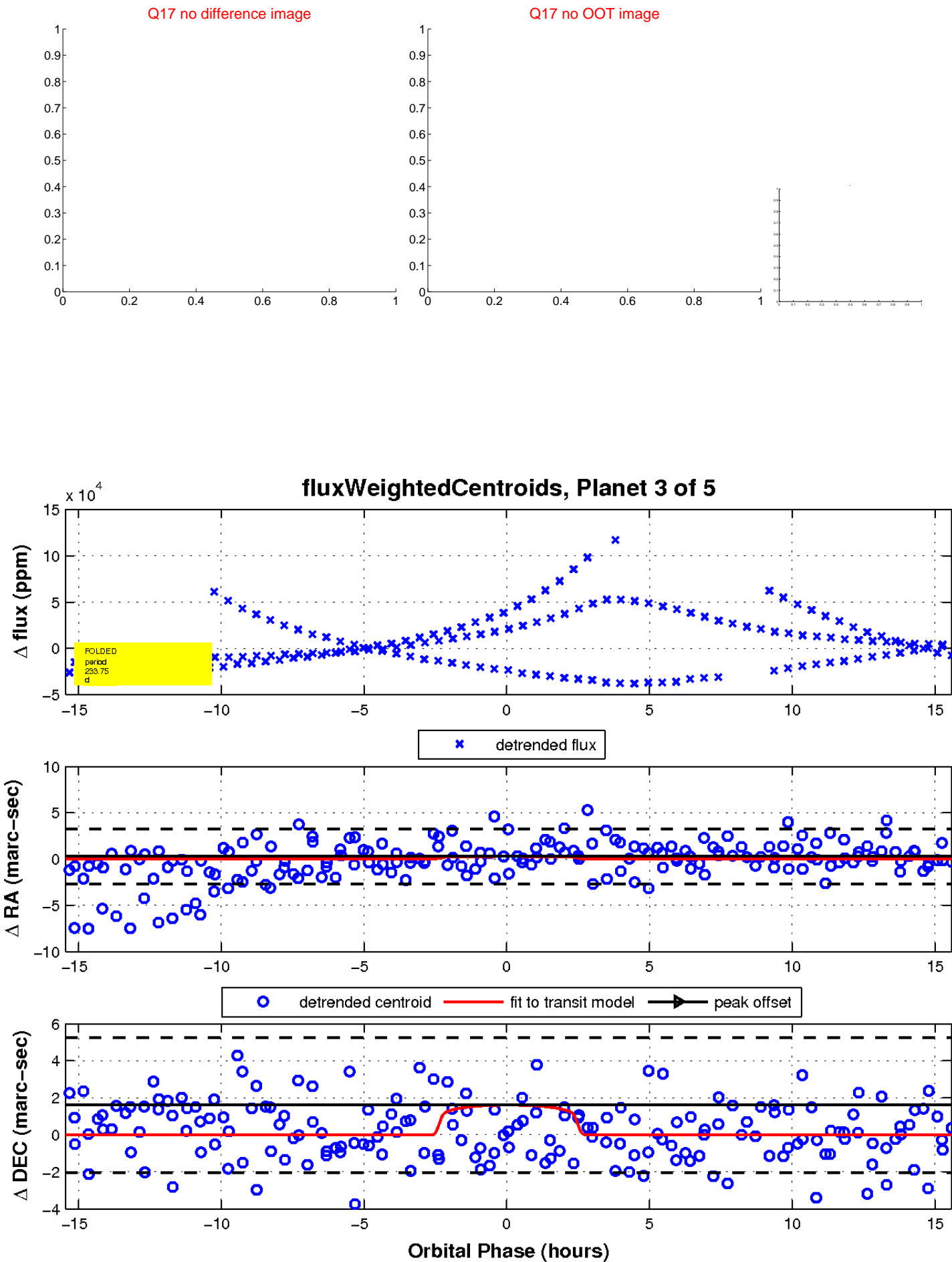
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

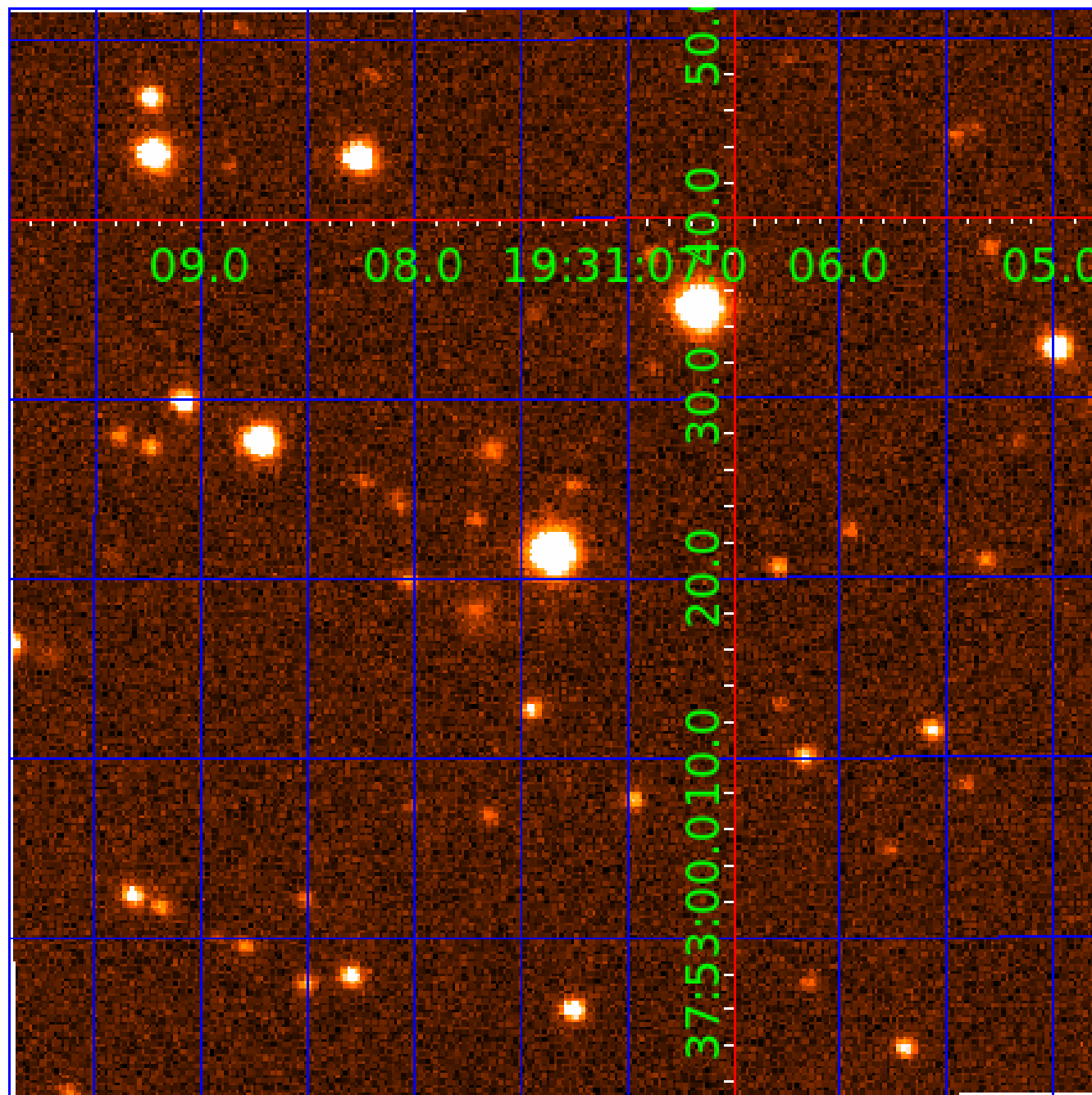


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002581964

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})
002581964-01	OBS	No	176.017450	212.412626	4020.0	6.594	34.0	4.5	1.67	7430	16.11	15.59
002581964-02	OBS	No	101.355036	191.319042	399.6	7.917	21.0	0.6	1.67	7430	3.60	32.54
002581964-03	OBS	No	233.747134	174.983763	1831.1	5.198	14.9	3.2	1.67	7430	7.50	10.68
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002581964-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
002581964-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—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.

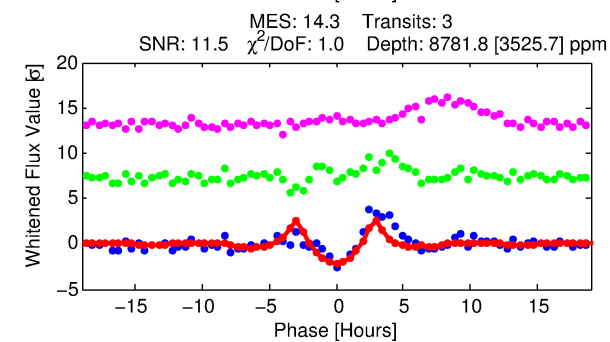
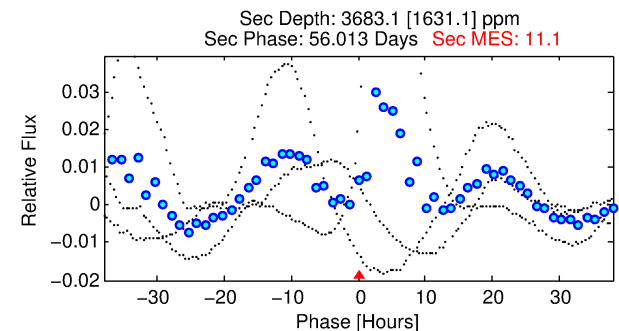
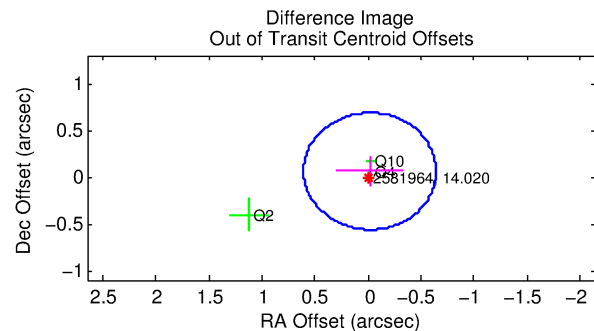
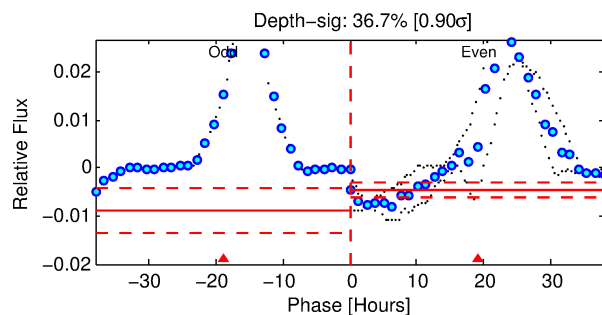
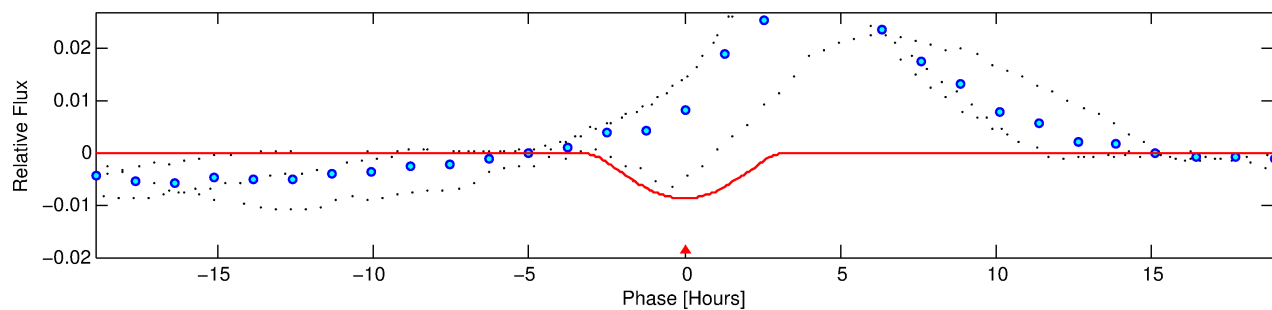
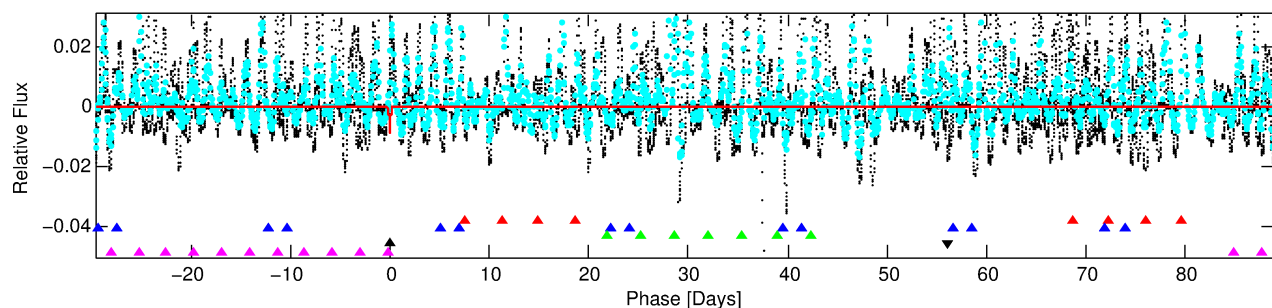
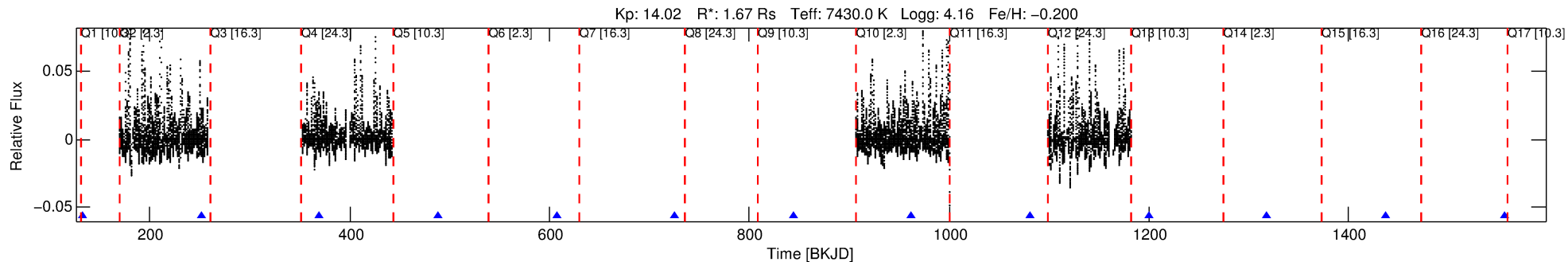
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002581964-04

No Significant Match Found

DV One-Page Summary

KIC: 2581964 Candidate: 4 of 5 Period: 118.571 d



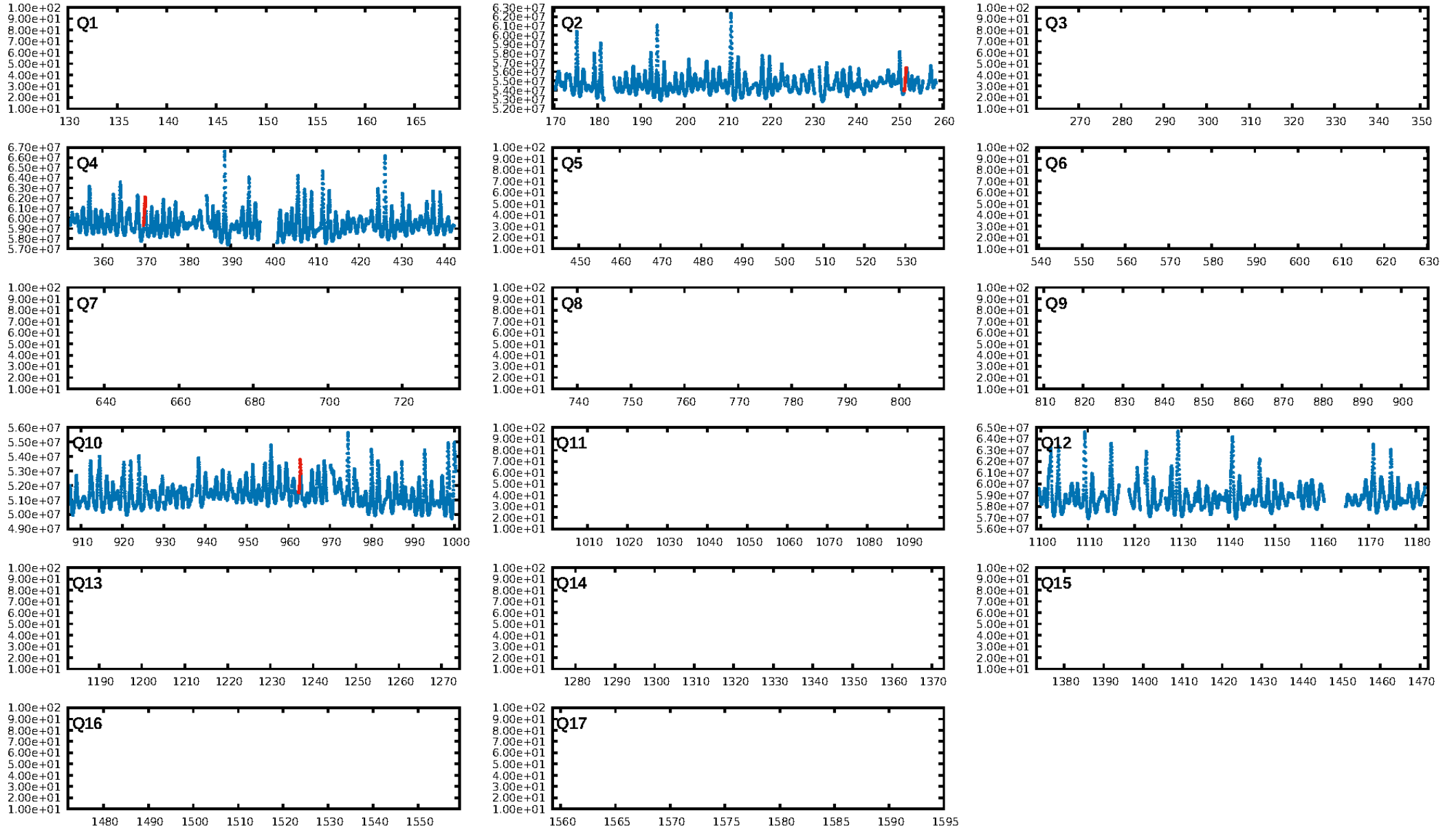
DV Fit Results:

Period = 118.57051 [0.00168] d
Epoch = 132.7223 [0.0055] BKJD
Rp/R* = 0.1515 [0.1360]
a/R* = 81.83 [11.56]
b = 1.00 [0.15]
Seff = 26.40 [10.28]
Teq = 578 [56] K
Rp = 27.62 [26.22] Re
a = 0.5374 [0.1345] AU
Ag = 767.41 [1445.23] [0.53 σ]
Teffp = 4703 [2184] K [1.89 σ]

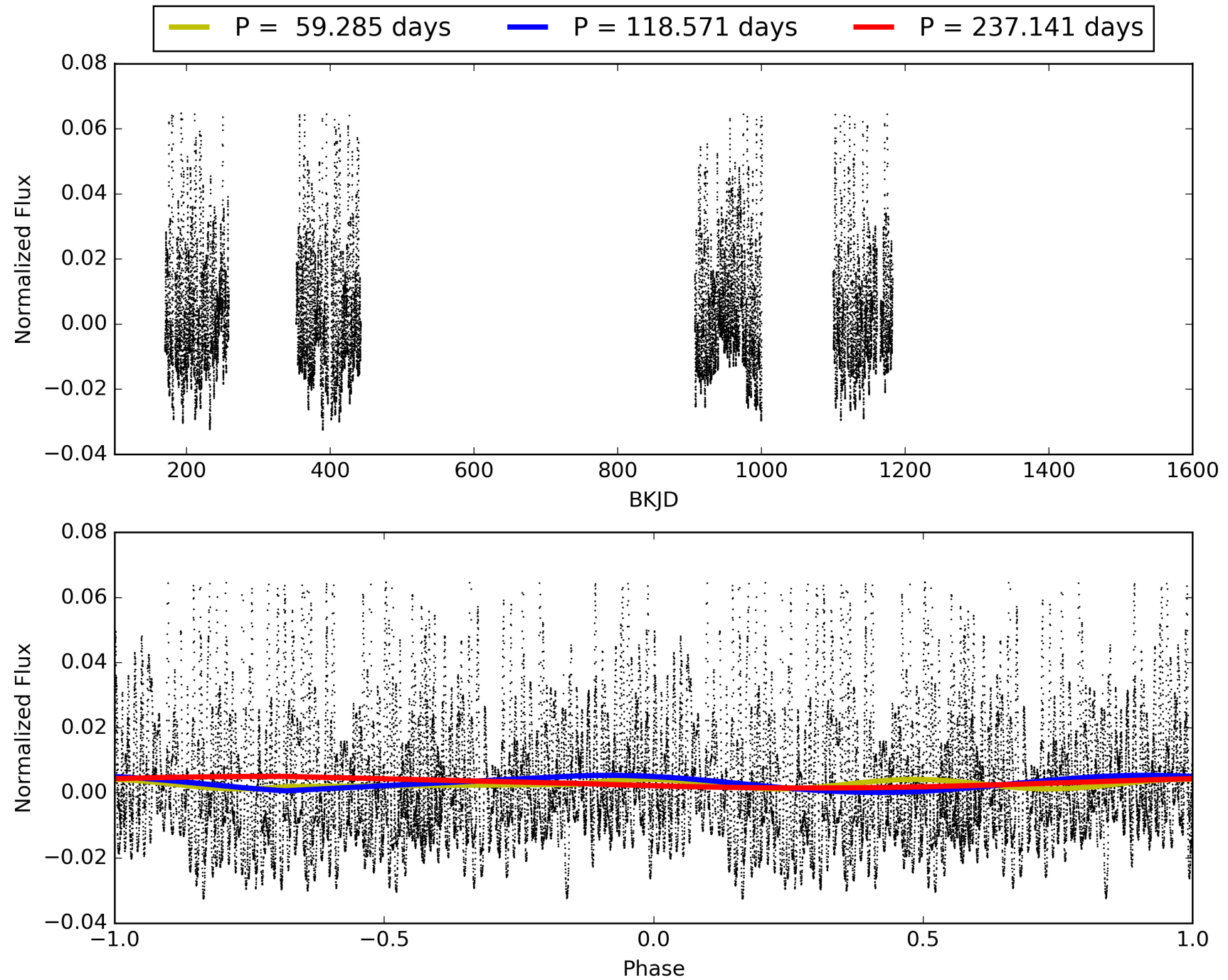
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.69 σ]
LongPeriod-sig: 100.0% [150.95 σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 54.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.9708
Centroid-sig: 58.5%
Centroid-so: 0.567 arcsec [4.36 σ]
OotOffset-rm: 0.064 arcsec [0.31 σ]
KicOffset-rm: 0.061 arcsec [0.22 σ]
OotOffset-st: 2/0/1/0 [3]
KicOffset-st: 2/0/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 002581964-04, PDC Light Curves

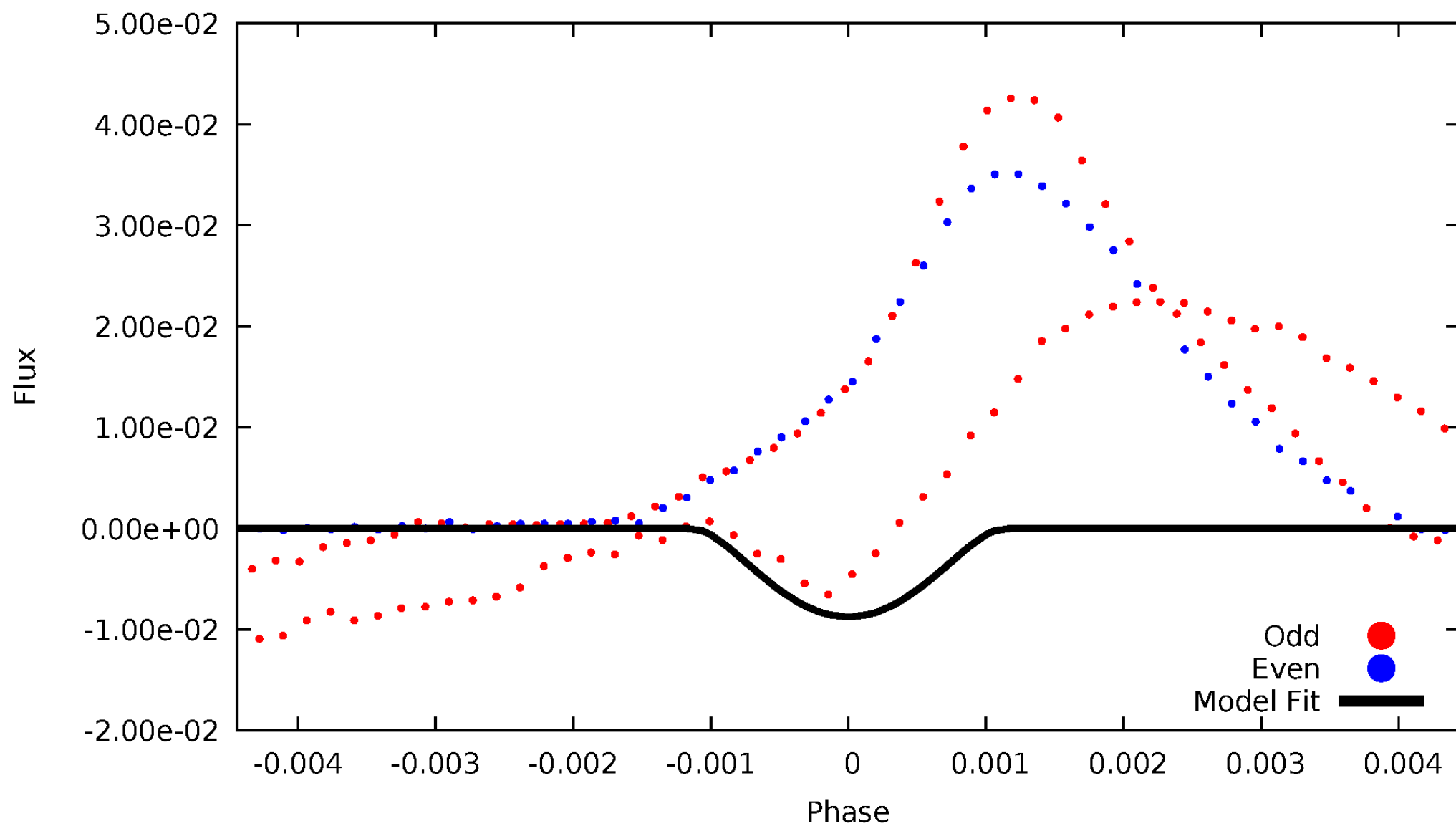


TCE 002581964-04



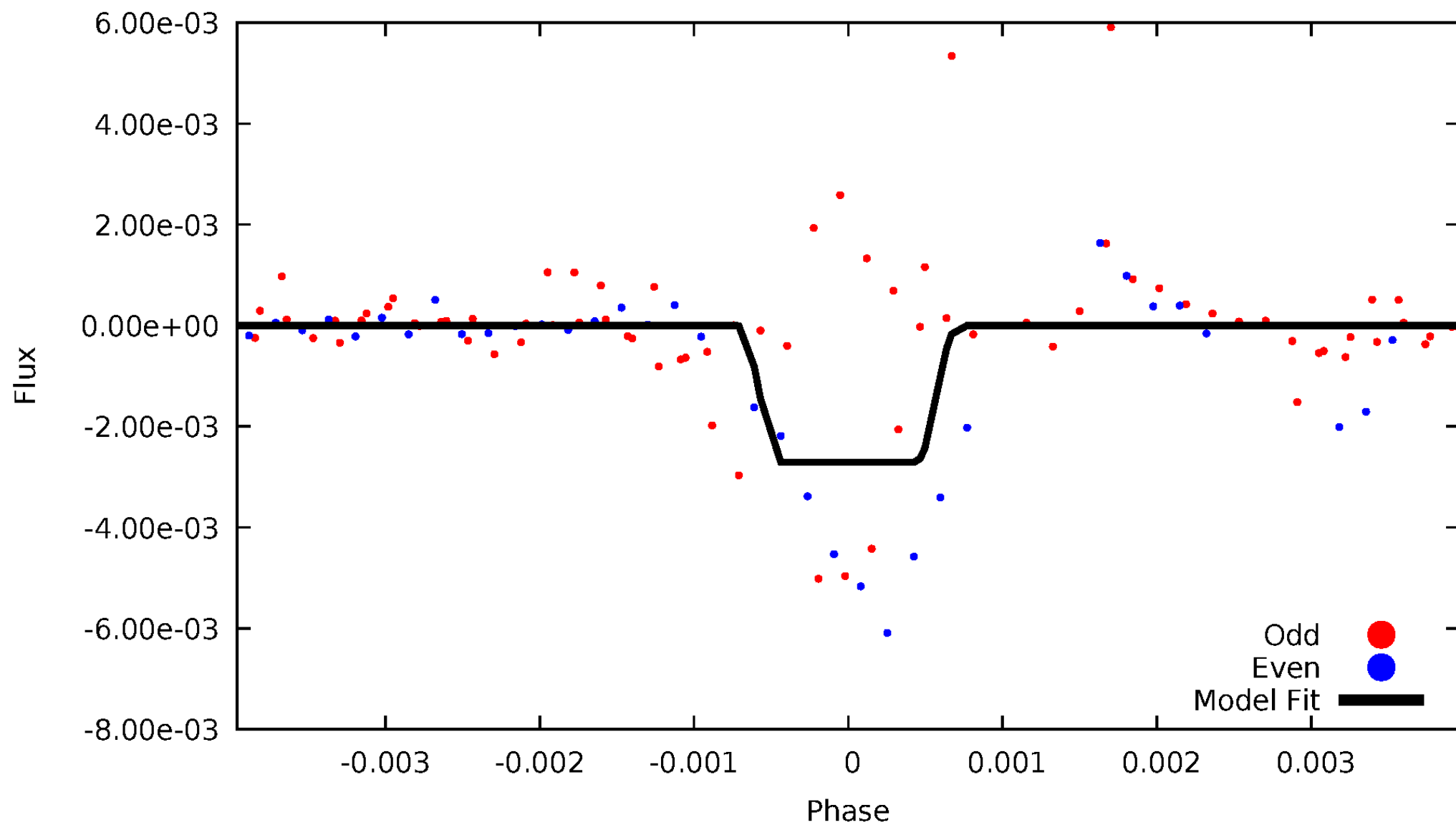
DV Odd/Even

TCE 002581964-04



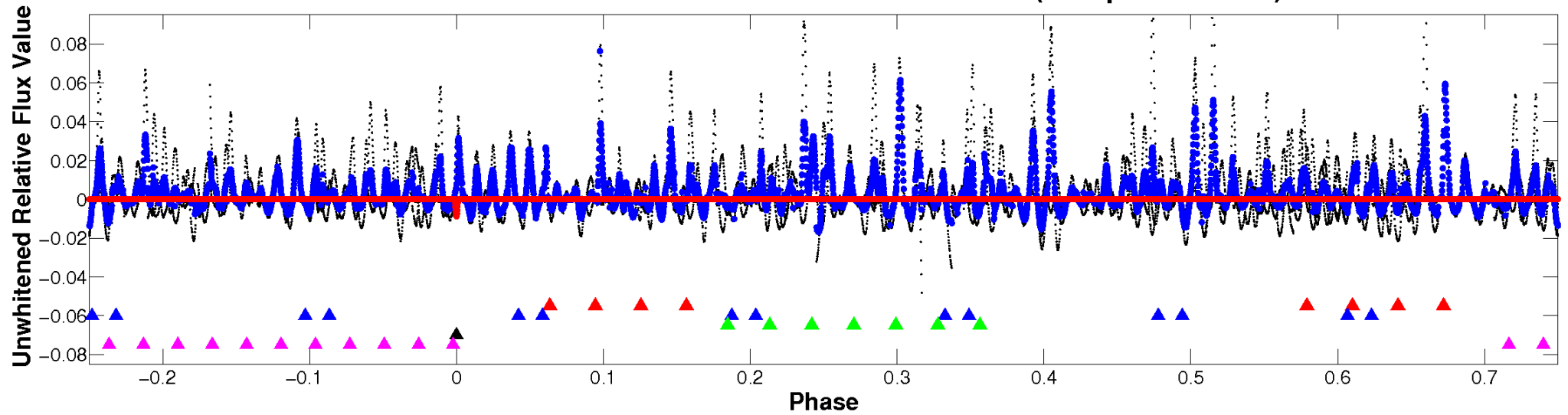
ALT Odd/Even

TCE 002581964-04

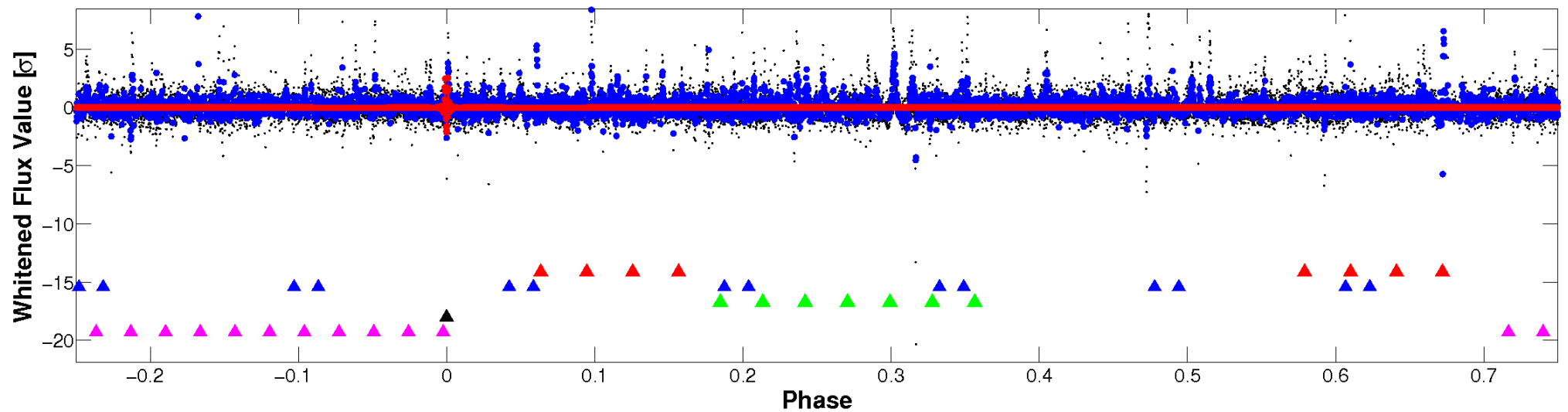


Non-Whitened Vs. Whitened Light Curve

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

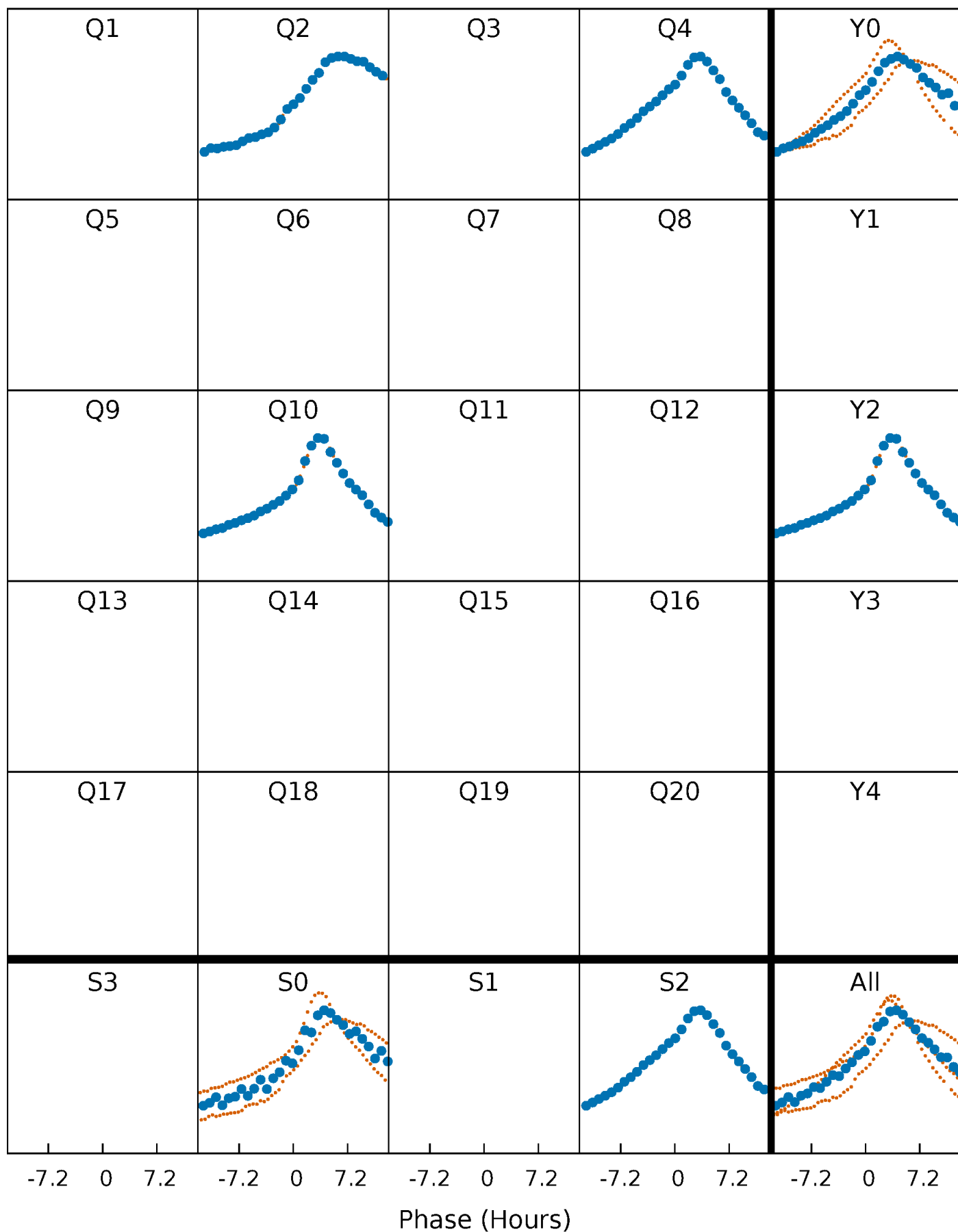


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



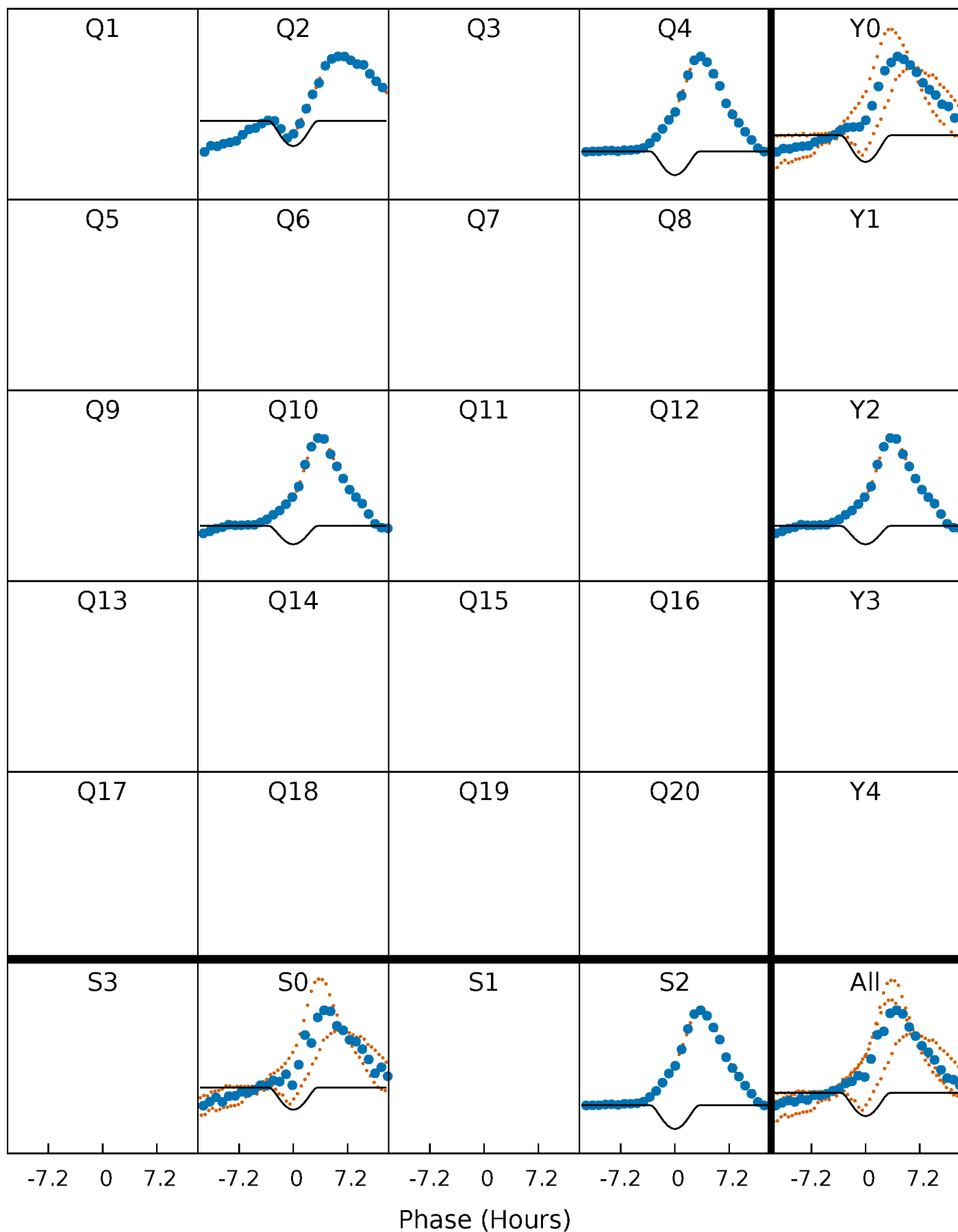
PDC Quarter-Phased Transit Curves

TCE 002581964-04 P=118.570508 Days $T_0=132.722286$ (BKJD)



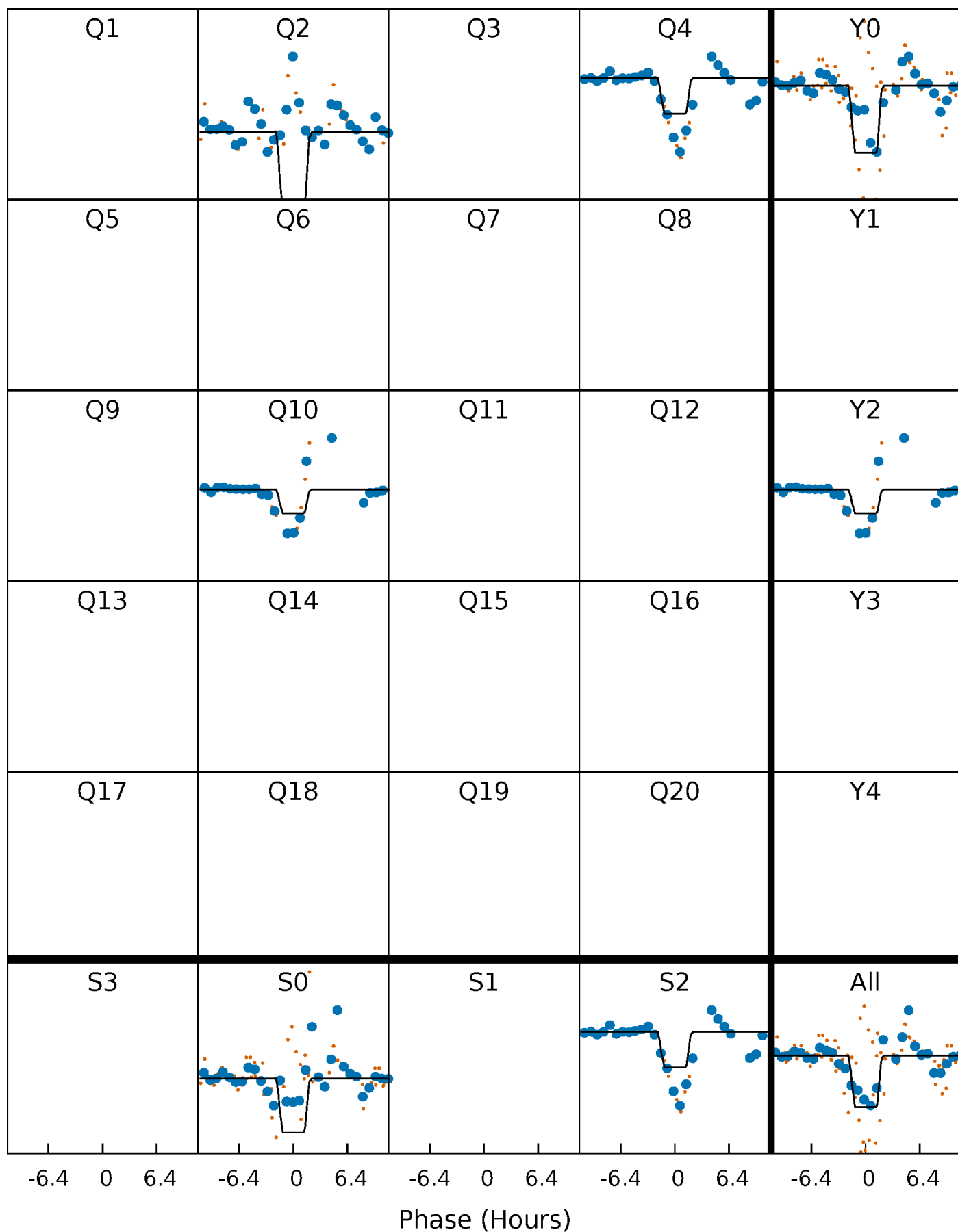
DV Quarter-Phased Transit Curves

TCE 002581964-04 P=118.570508 Days $T_0=132.722286$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

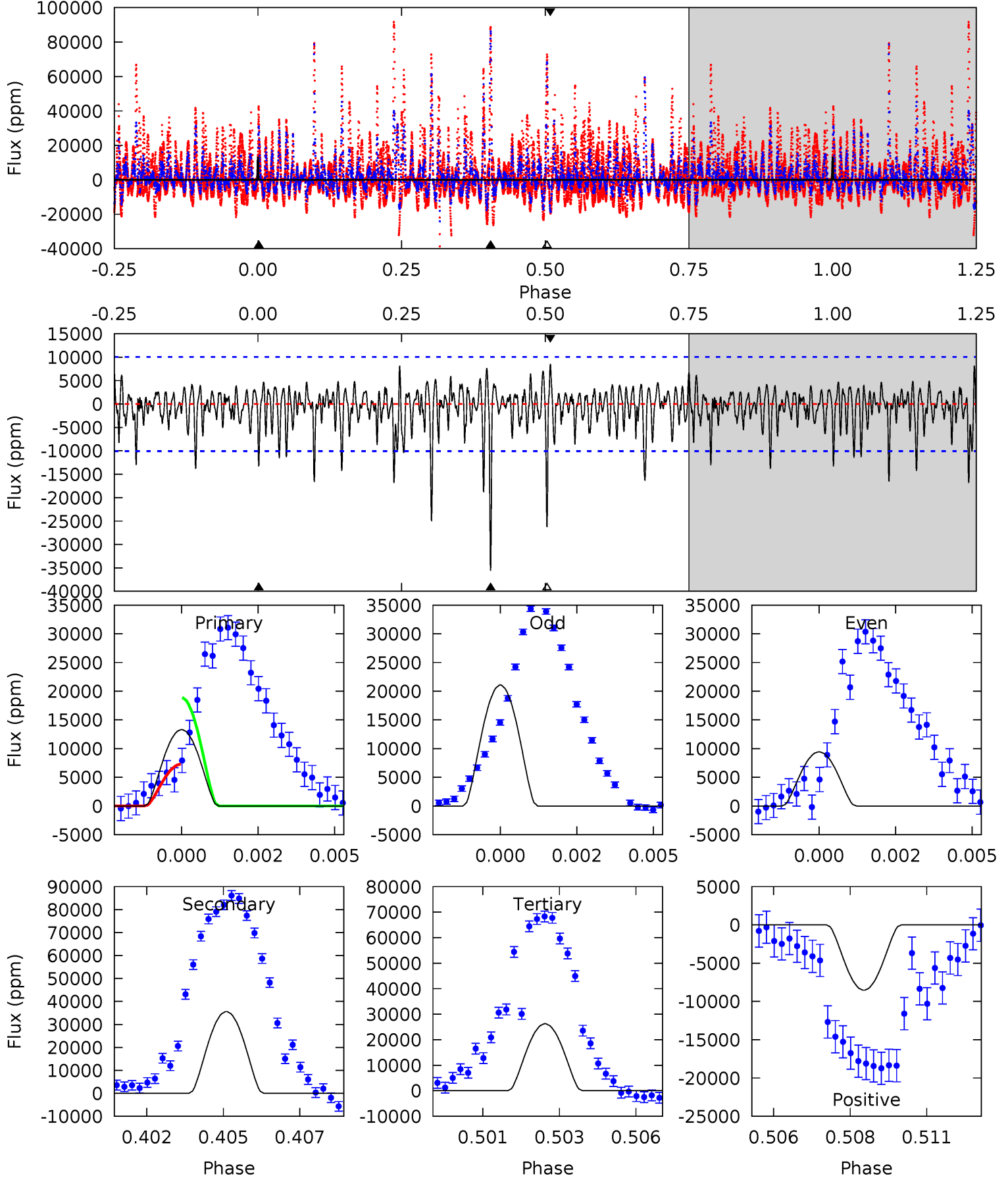
TCE 002581964-04 P=118.575651 Days $T_0=132.685698$ (BKJD)



DV Model-Shift Uniqueness Test

002581964-04, P = 118.570508 Days, E = 132.722286 Days

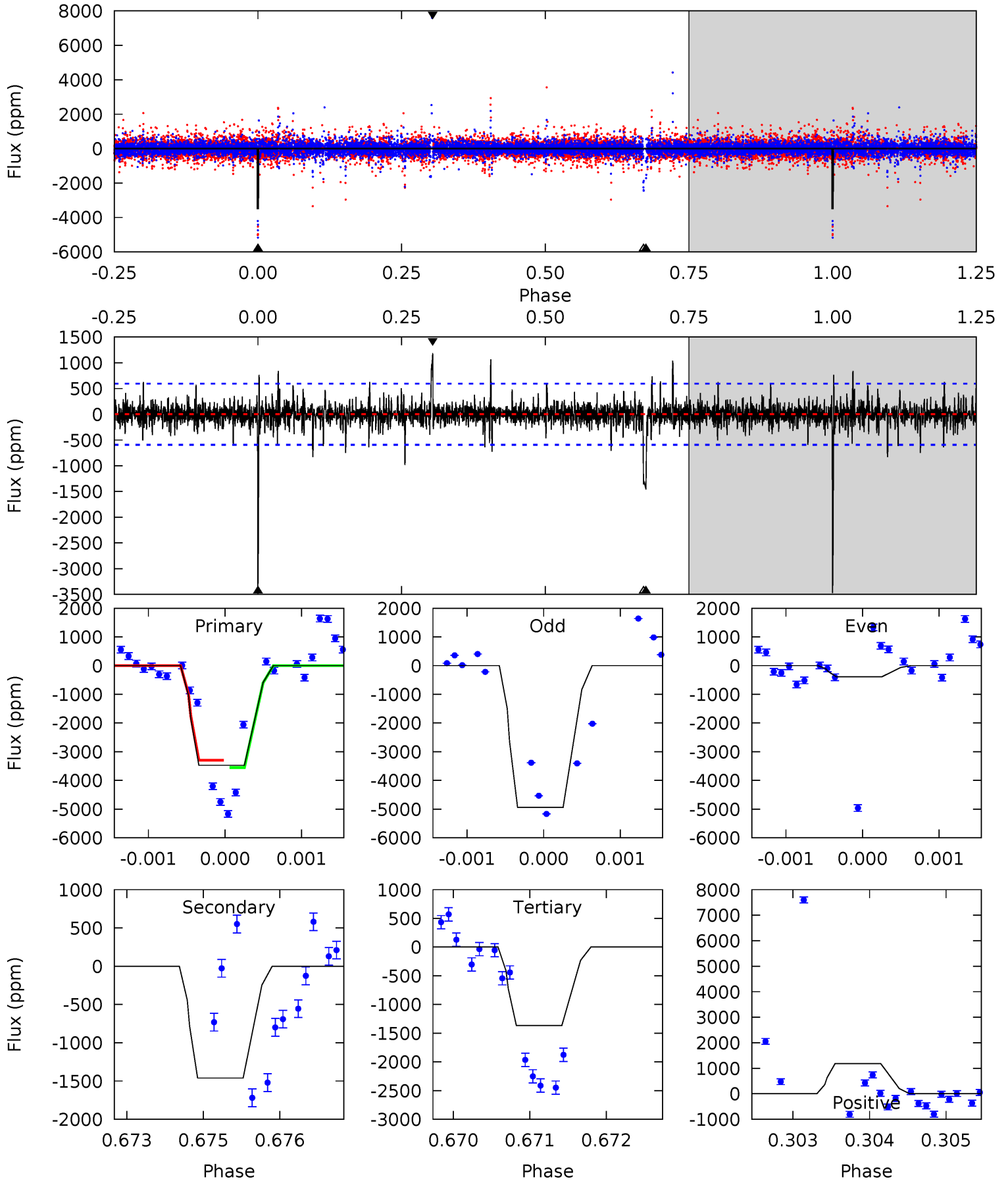
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.00	18.7	13.8	4.49	5.29	3.03	1.93	-6.80	2.52	4.91	14.2	2.79	0.63	0.19	3.13



Alt Model-Shift Uniqueness Test

002581964-04, P = 118.575651 Days, E = 132.685698 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.6	13.3	12.4	10.8	5.41	3.22	1.39	19.2	20.8	0.88	2.49	19.5	0.70	0.25	0.99



Stellar Parameters For KIC 002581964

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7430^{+232}_{-310}	$4.160^{+0.124}_{-0.186}$	$-0.200^{+0.250}_{-0.350}$	$1.671^{+0.515}_{-0.344}$	$1.470^{+0.216}_{-0.237}$	$0.444^{+0.333}_{-0.222}$
	+3%/-4%	+3%/-4%	+125%/-175%	+31%/-21%	+15%/-16%	+75%/-50%
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 002581964-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-35587 ± 1901	$31.63^{+24.61}_{-18.84}$	814^{+67}_{-55}	7972^{+7885}_{-2159}	5890^{+29115}_{-4075}
Alt.	-1461 ± 110	$21.31^{+21.64}_{-15.02}$	814^{+65}_{-49}	4466^{+3528}_{-995}	501^{+5535}_{-372}

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

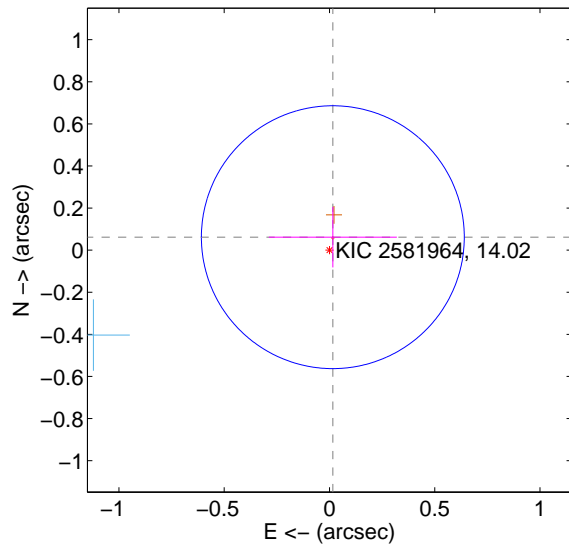
Supplemental centroid analysis for 002581964-04. Kepler magnitude: 14.02. Transit SNR 11.47

There are 1 quarters with good PRF difference image offsets

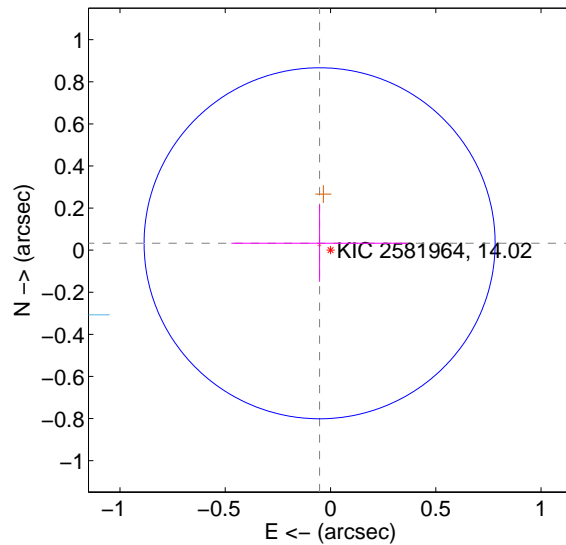
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.064 ± 0.208	0.31	-0.016 ± 0.304	0.062 ± 0.144
PRF-fit source offset from KIC position	0.061 ± 0.278	0.22	0.052 ± 0.420	0.033 ± 0.183
photometric centroid source offset	0.57 ± 0.13	4.36	0.08 ± 0.11	-0.56 ± 0.13

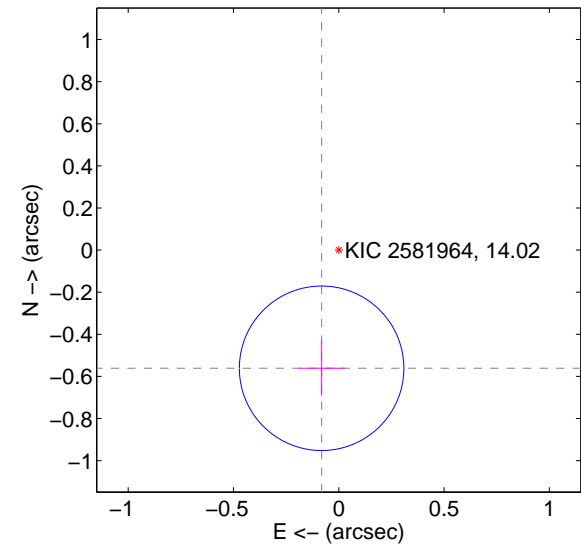
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

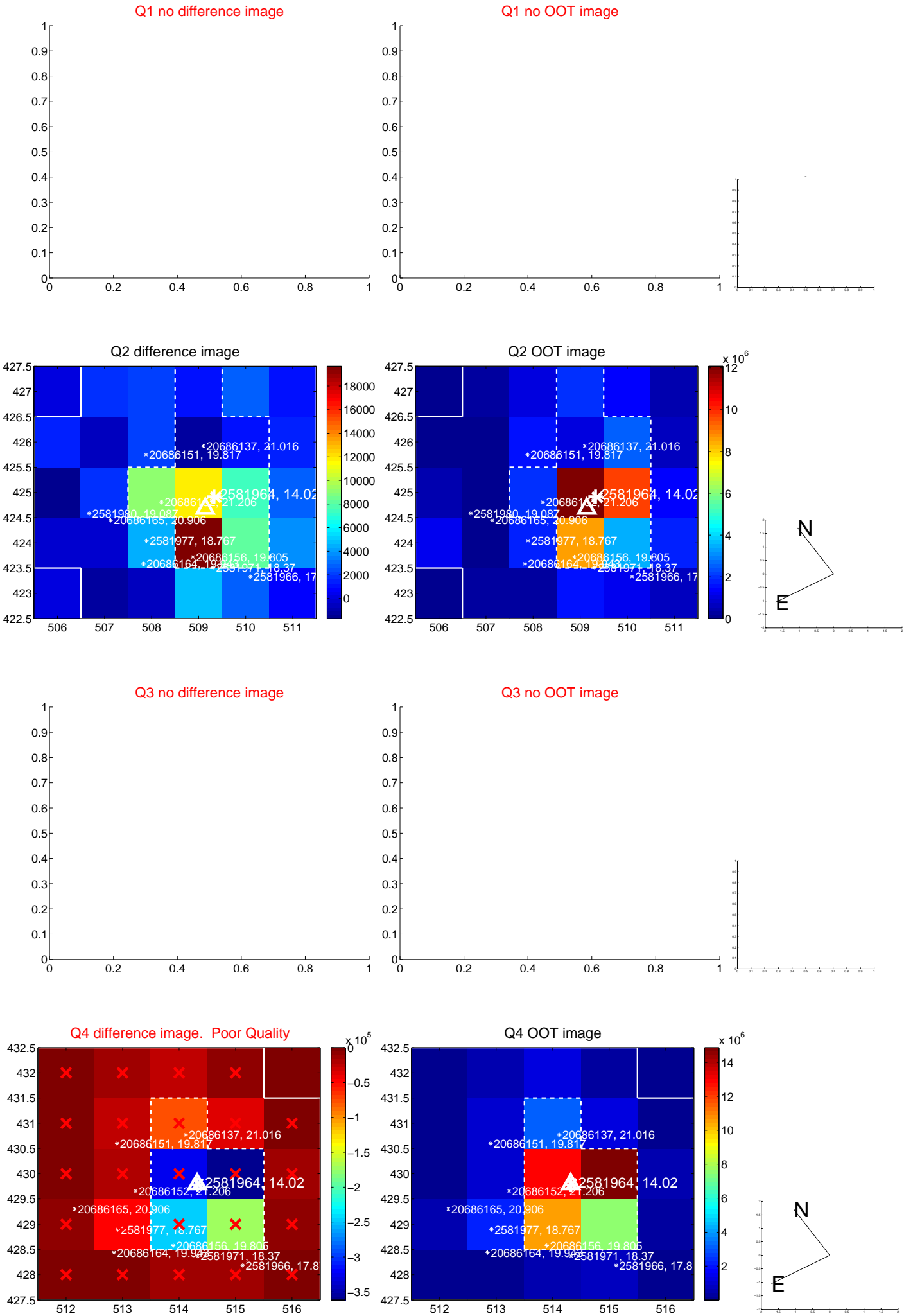


offset from photometric centroids



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.

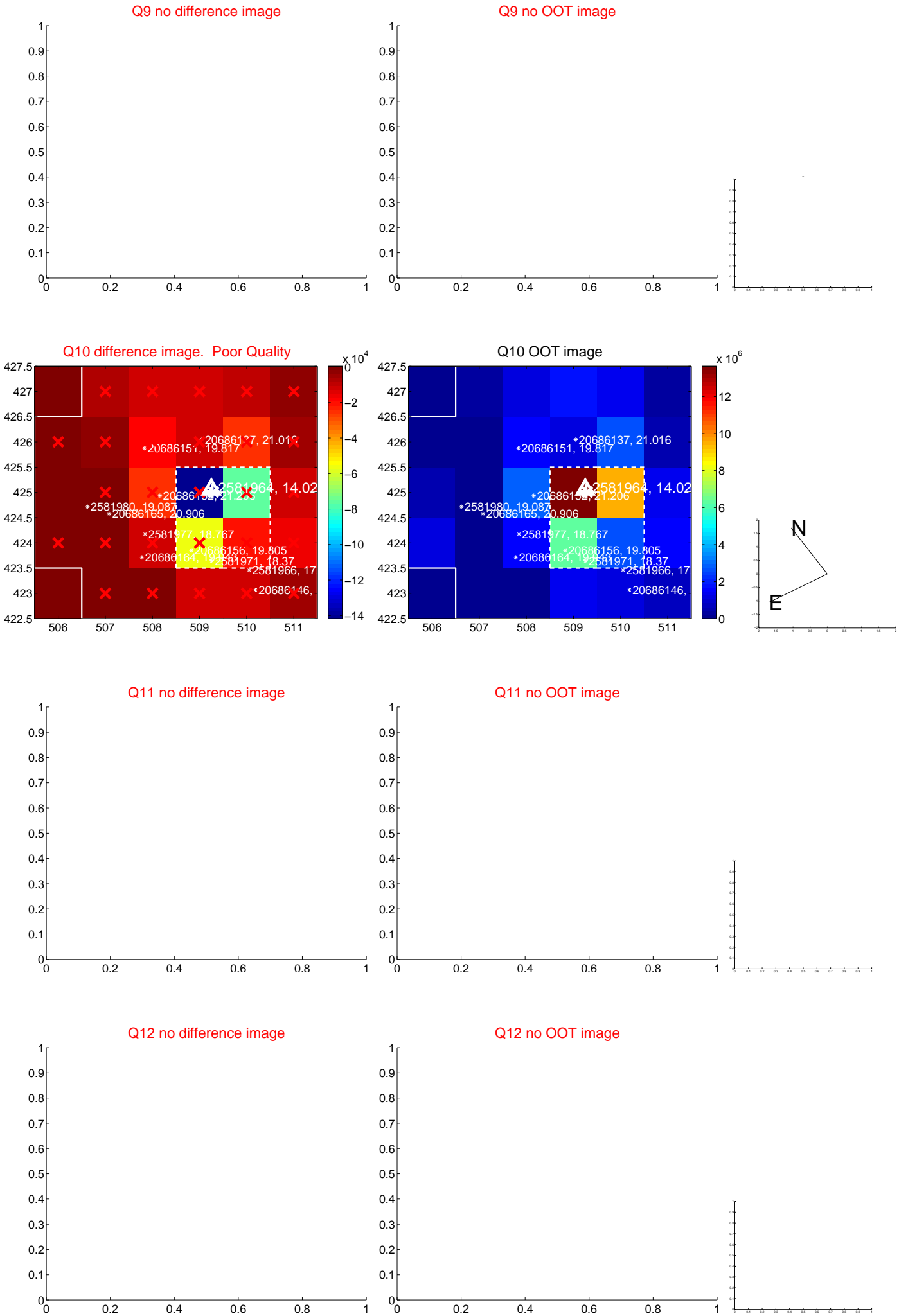
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



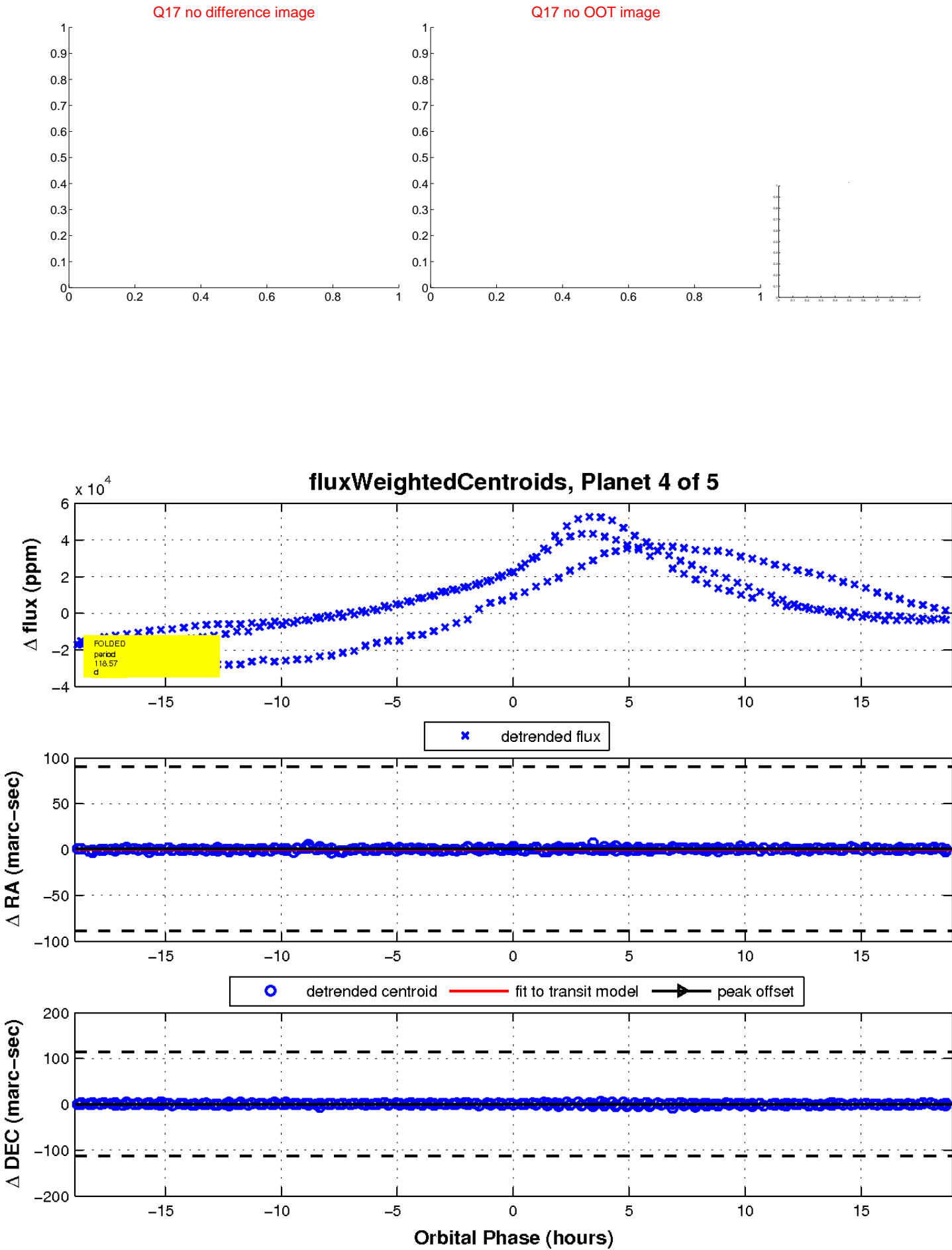
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

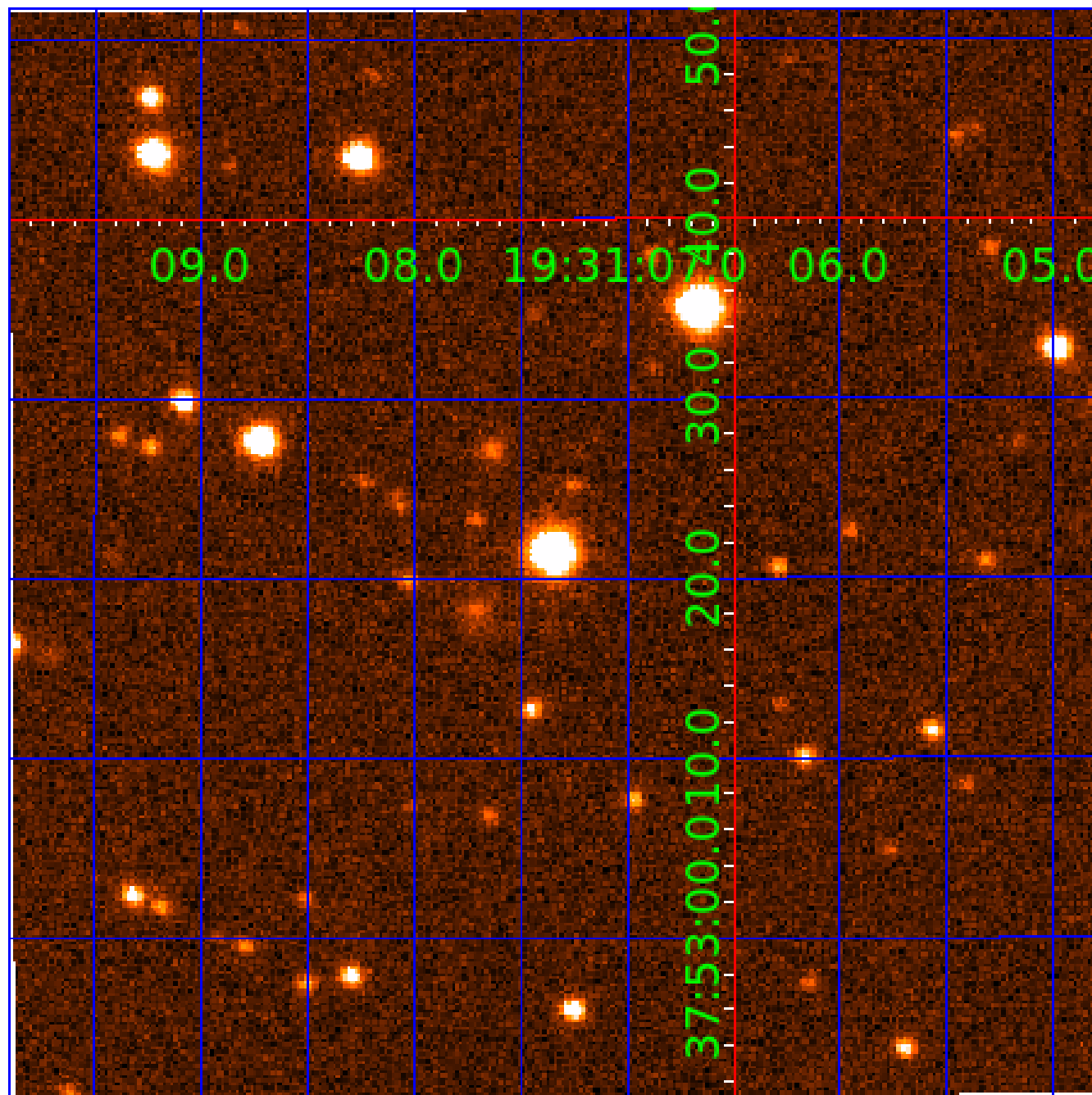


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002581964

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})
002581964-01	OBS	No	176.017450	212.412626	4020.0	6.594	34.0	4.5	1.67	7430	16.11	15.59
002581964-02	OBS	No	101.355036	191.319042	399.6	7.917	21.0	0.6	1.67	7430	3.60	32.54
002581964-03	OBS	No	233.747134	174.983763	1831.1	5.198	14.9	3.2	1.67	7430	7.50	10.68
002581964-04	OBS	No	118.570508	132.722286	8781.8	6.319	14.3	11.5	1.67	7430	27.62	26.40
002581964-05	OBS	No	115.793592	132.446158	6386.0	9.872	10.7	4.5	1.67	7430	23.71	27.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002581964-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
002581964-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002581964-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—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.

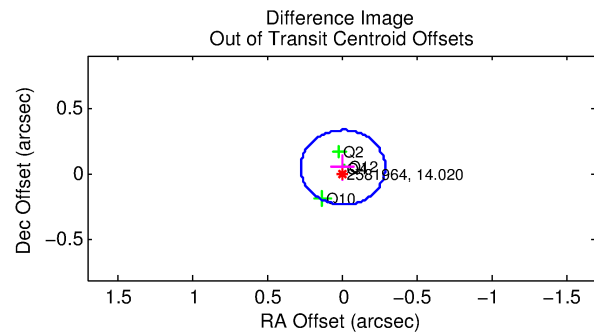
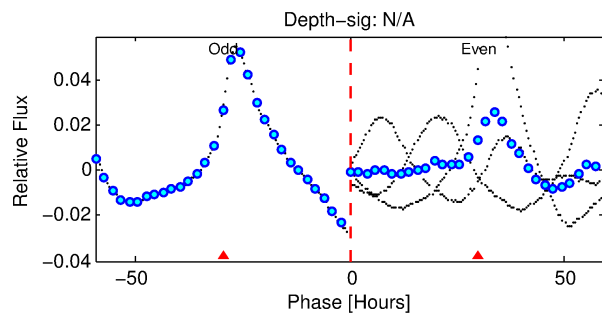
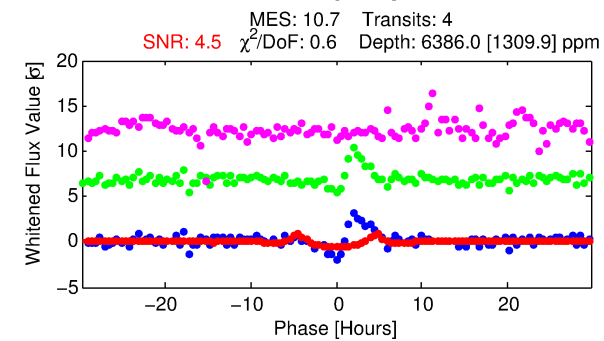
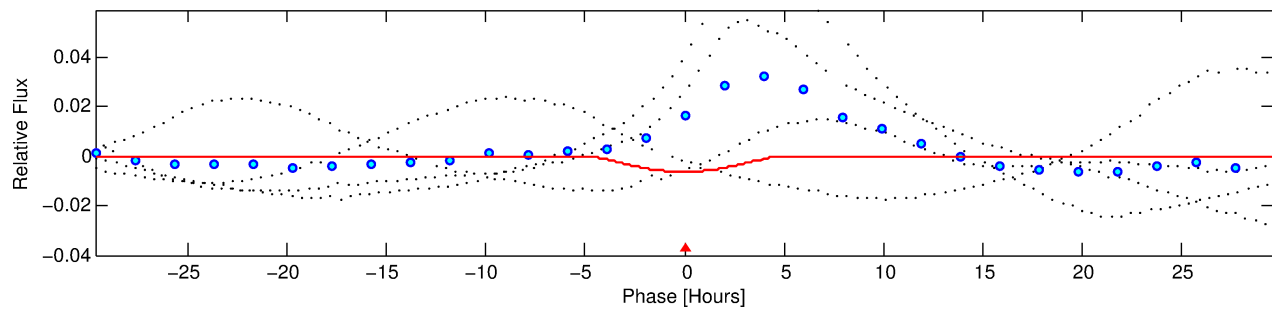
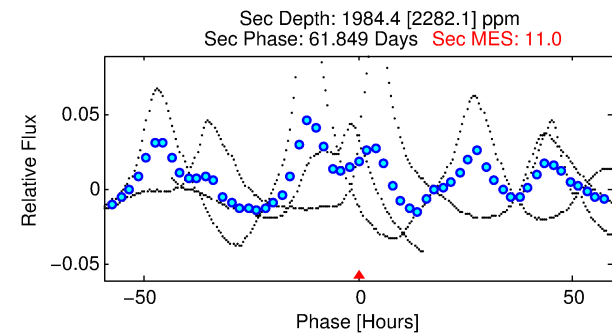
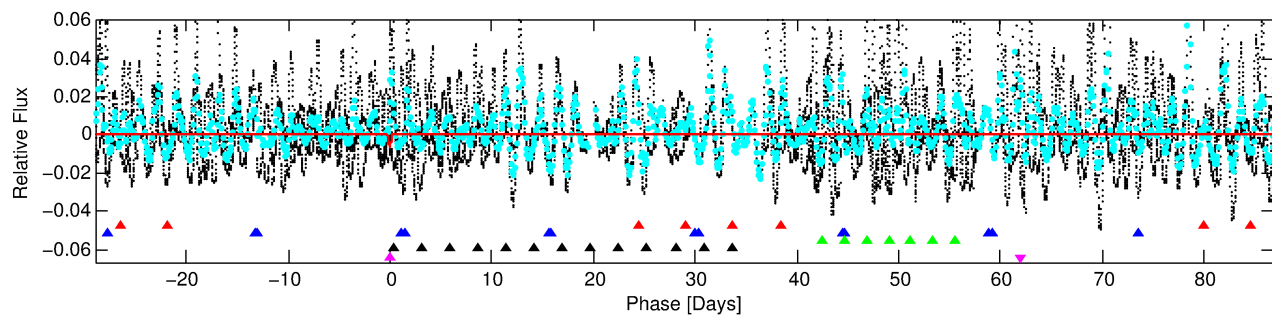
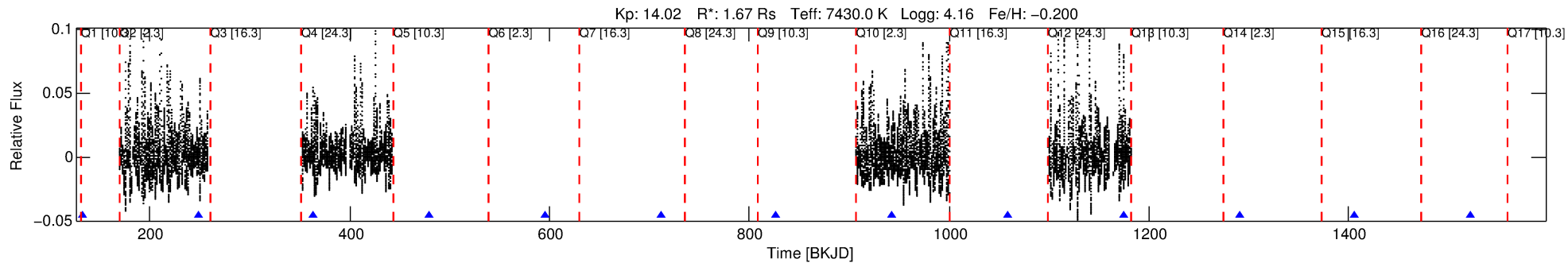
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002581964-05

No Significant Match Found

DV One-Page Summary

KIC: 2581964 Candidate: 5 of 5 Period: 115.794 d



DV Fit Results:

Period = 115.79359 [0.00221] d
Epoch = 132.4462 [0.0134] BKJD
Rp/R* = 0.1300 [0.1345]
a/R* = 47.19 [7.65]
b = 1.00 [0.20]
Seff = 27.24 [10.61]
Teff = 583 [57] K
Rp = 23.71 [25.59] Re
a = 0.5290 [0.1324] AU
Ag = 543.68 [1301.05] [0.42σ]
Teffp = 4349 [2580] K [1.46σ]

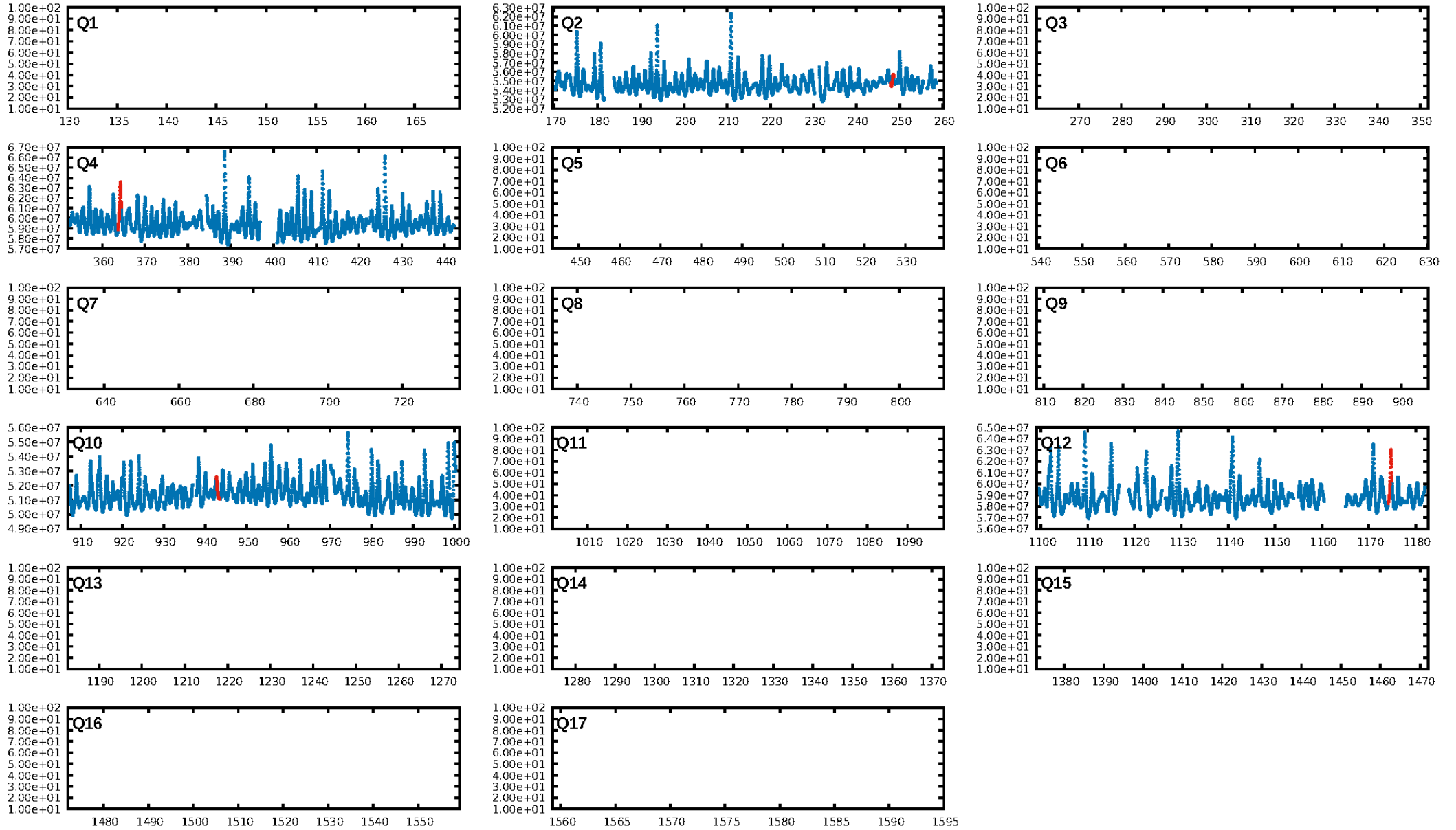
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.38σ]
LongPeriod-sig: 100.0% [5.69σ]
ModelChiSquare2-sig: 6.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.6063
Centroid-sig: 29.3%
Centroid-so: 0.671 arcsec [4.50σ]
OotOffset-rm: 0.052 arcsec [0.55σ]
KicOffset-rm: 0.064 arcsec [0.91σ]
OotOffset-st: 2/0/2/0 [4]
KicOffset-st: 2/0/2/0 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

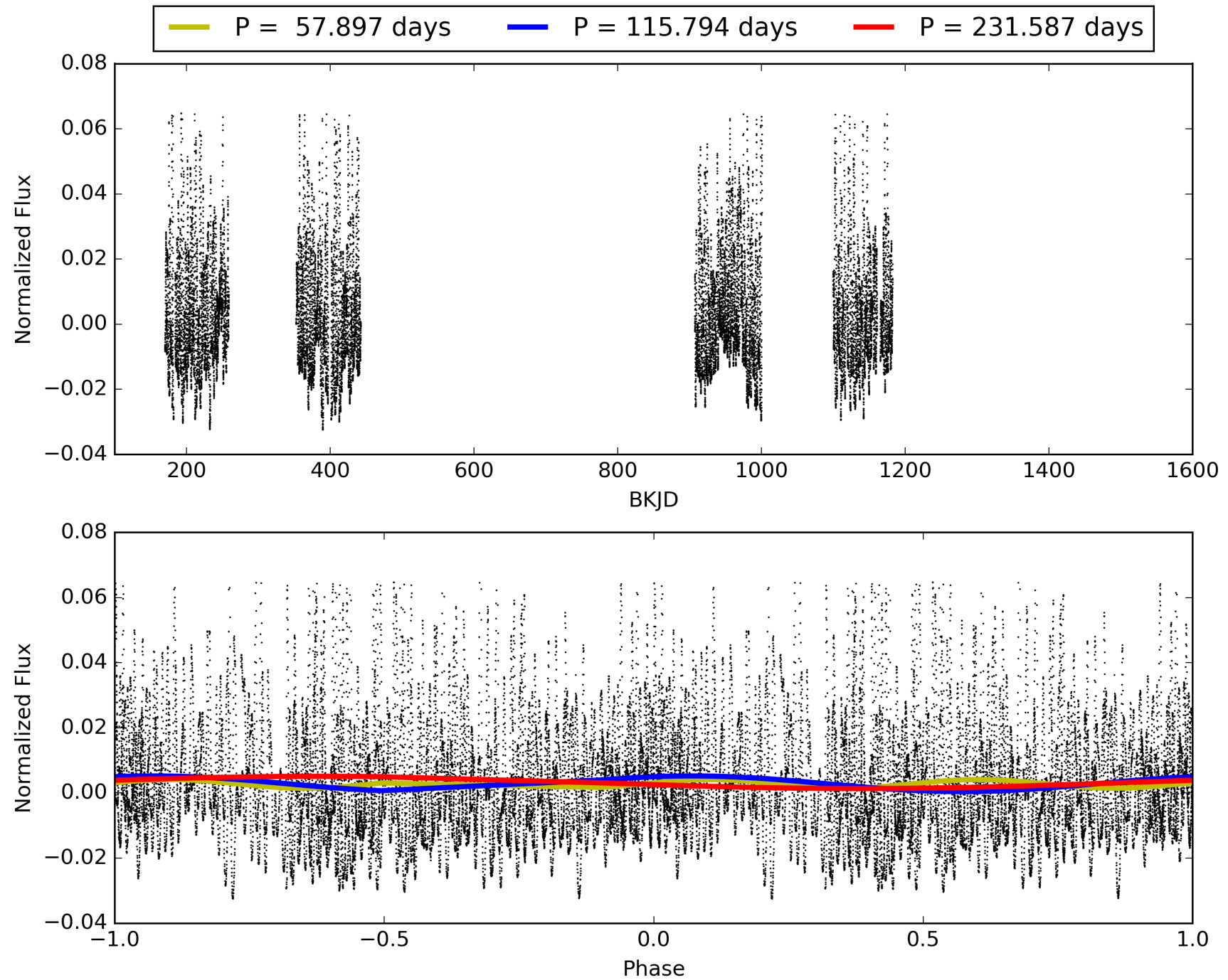
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:46:05 Z

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

TCE 002581964-05, PDC Light Curves

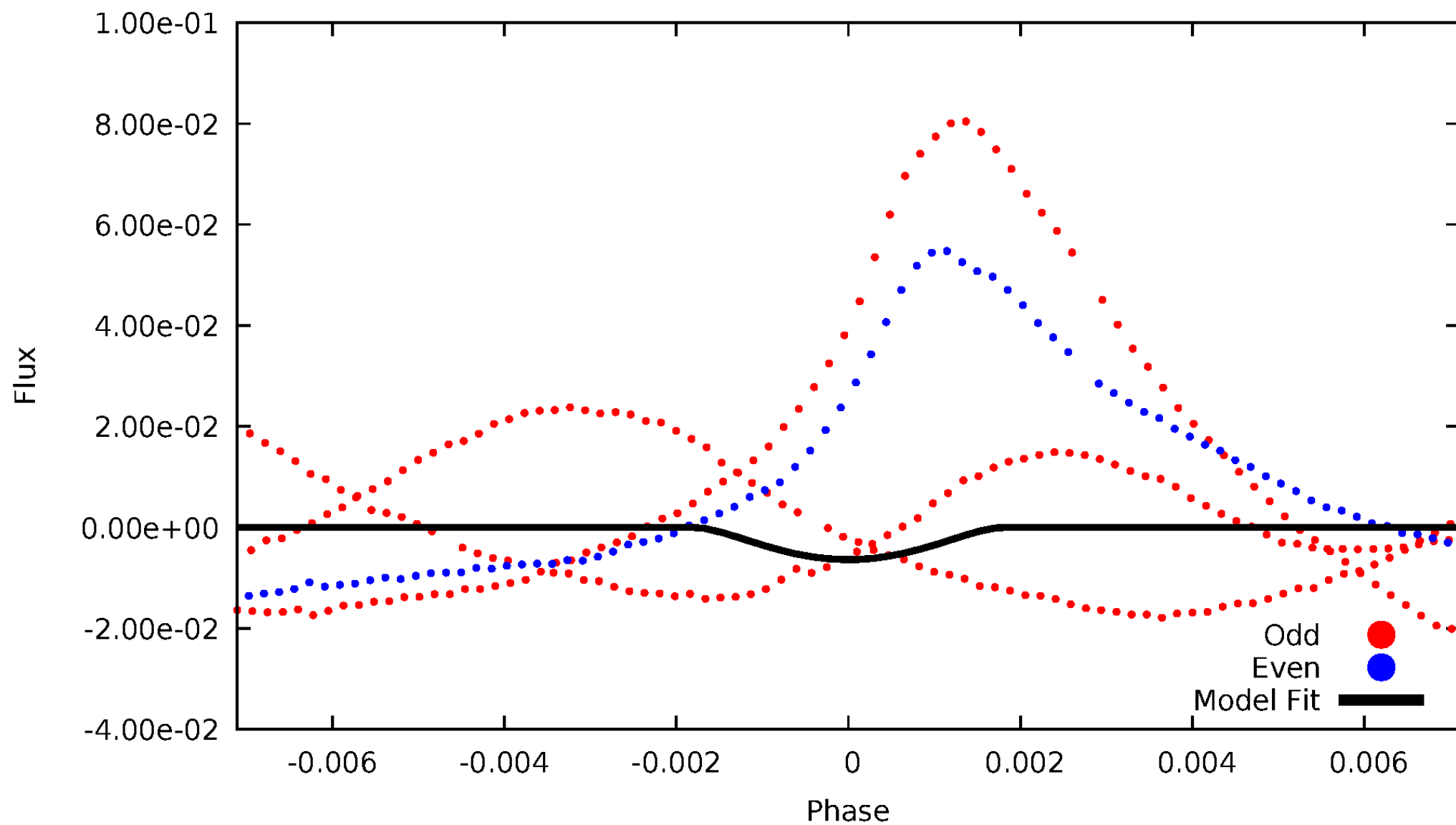


TCE 002581964-05



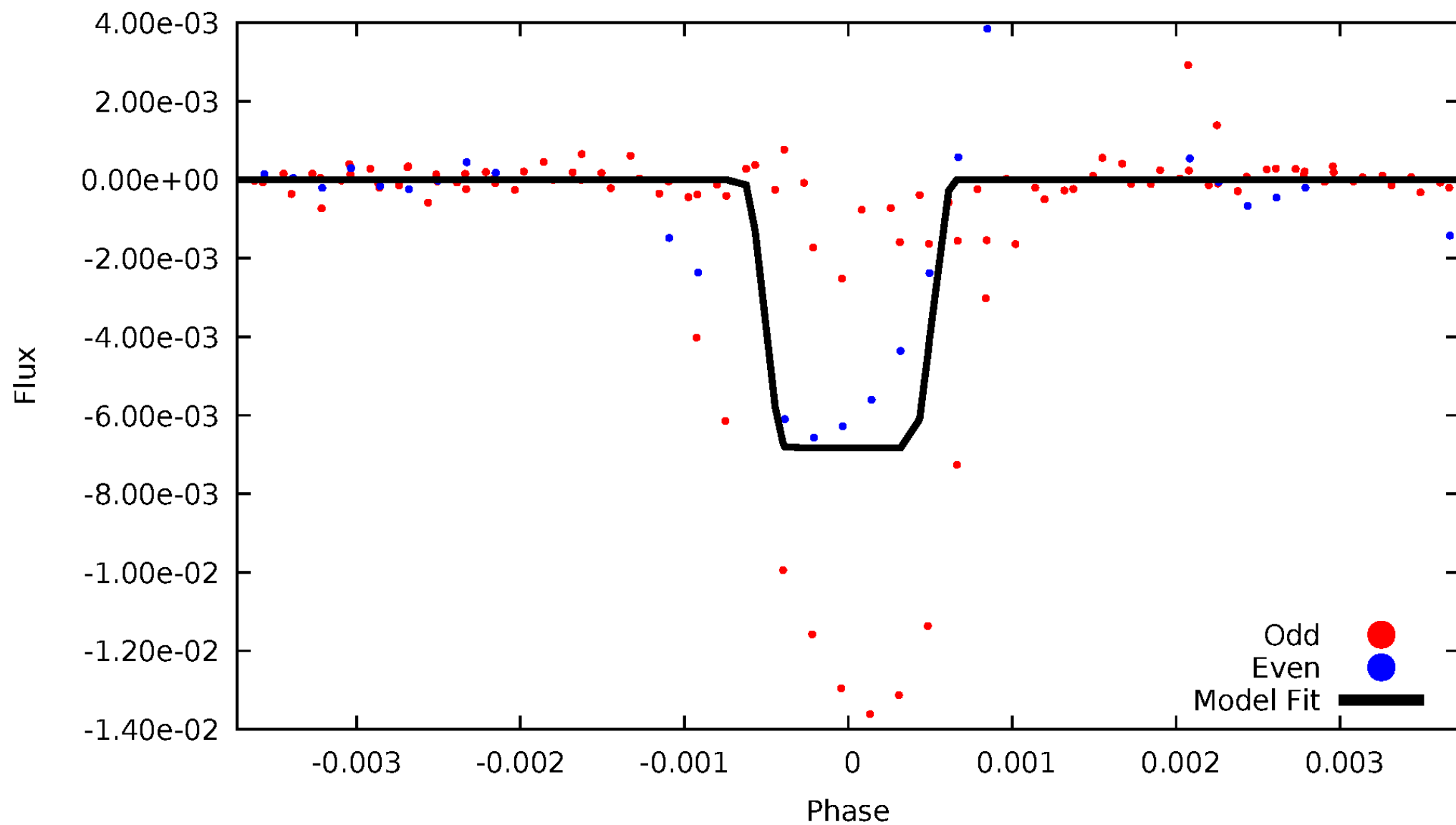
DV Odd/Even

TCE 002581964-05



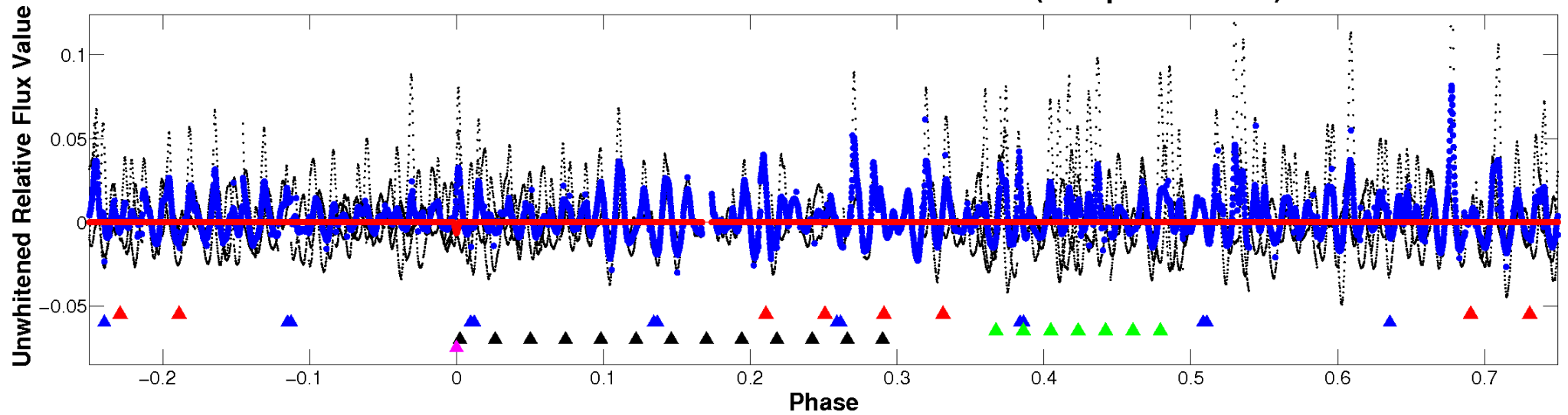
ALT Odd/Even

TCE 002581964-05

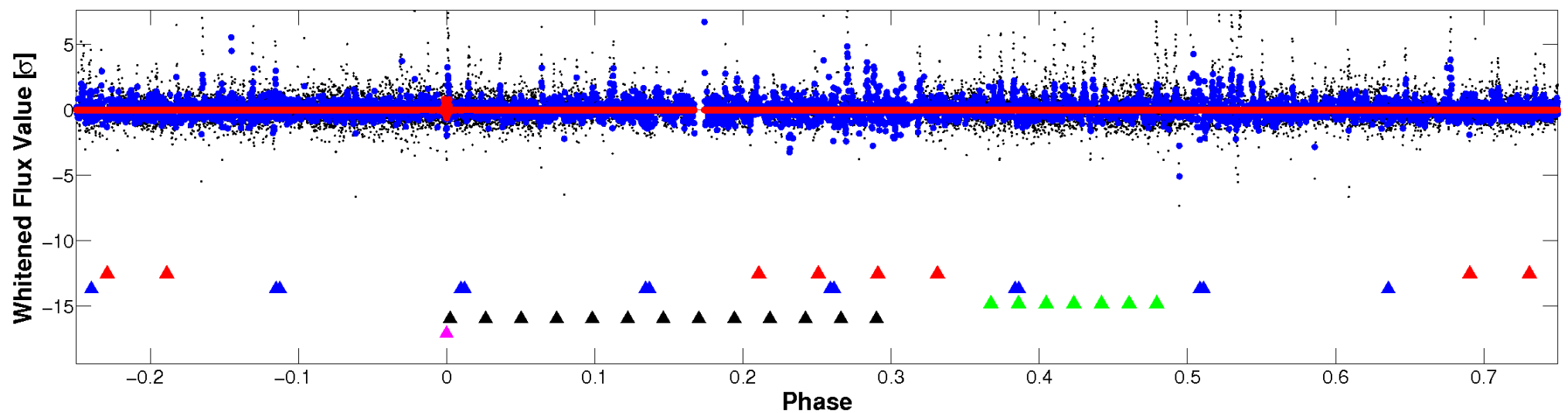


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

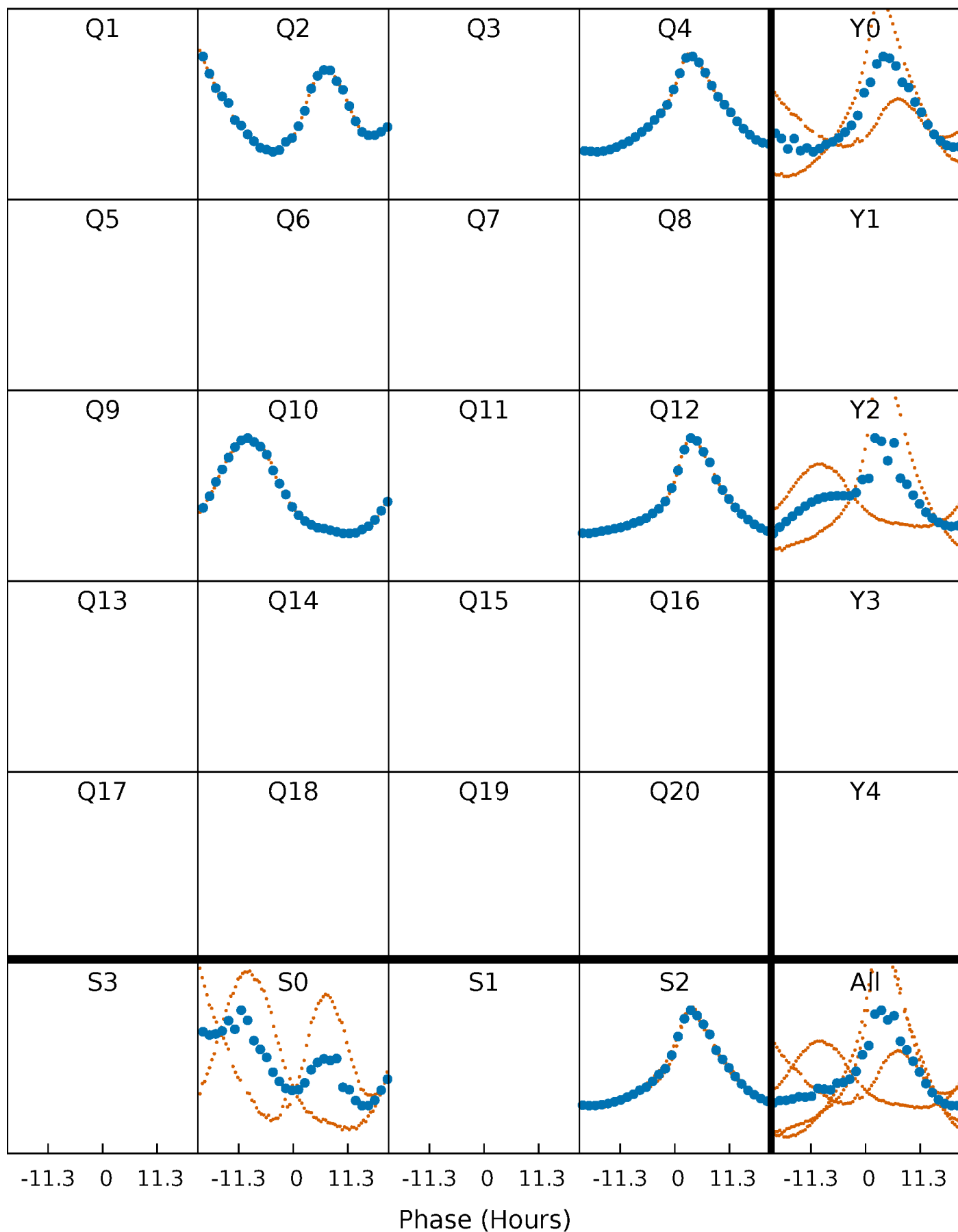


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



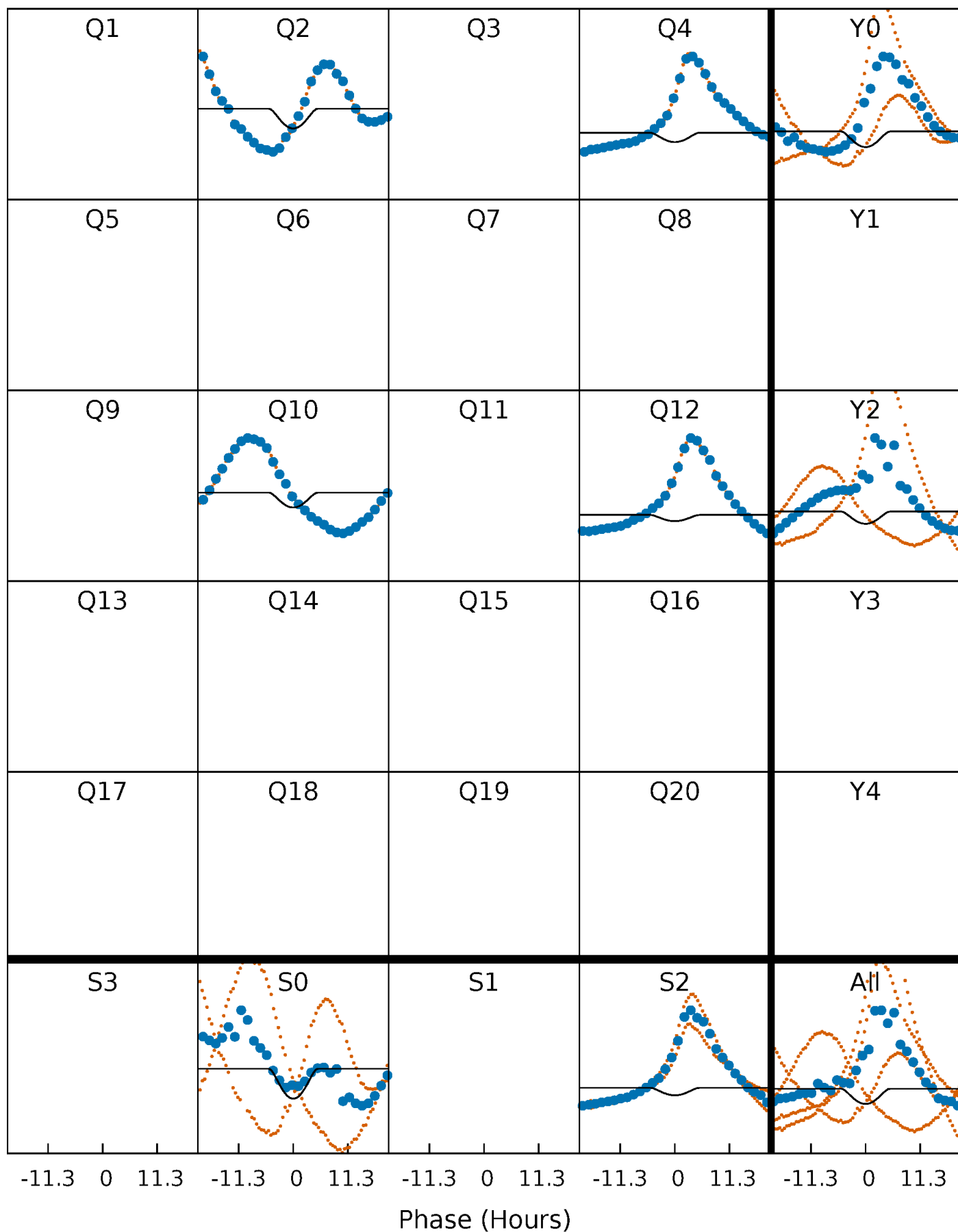
PDC Quarter-Phased Transit Curves

TCE 002581964-05 $P=115.793592$ Days $T_0=132.446158$ (BKJD)



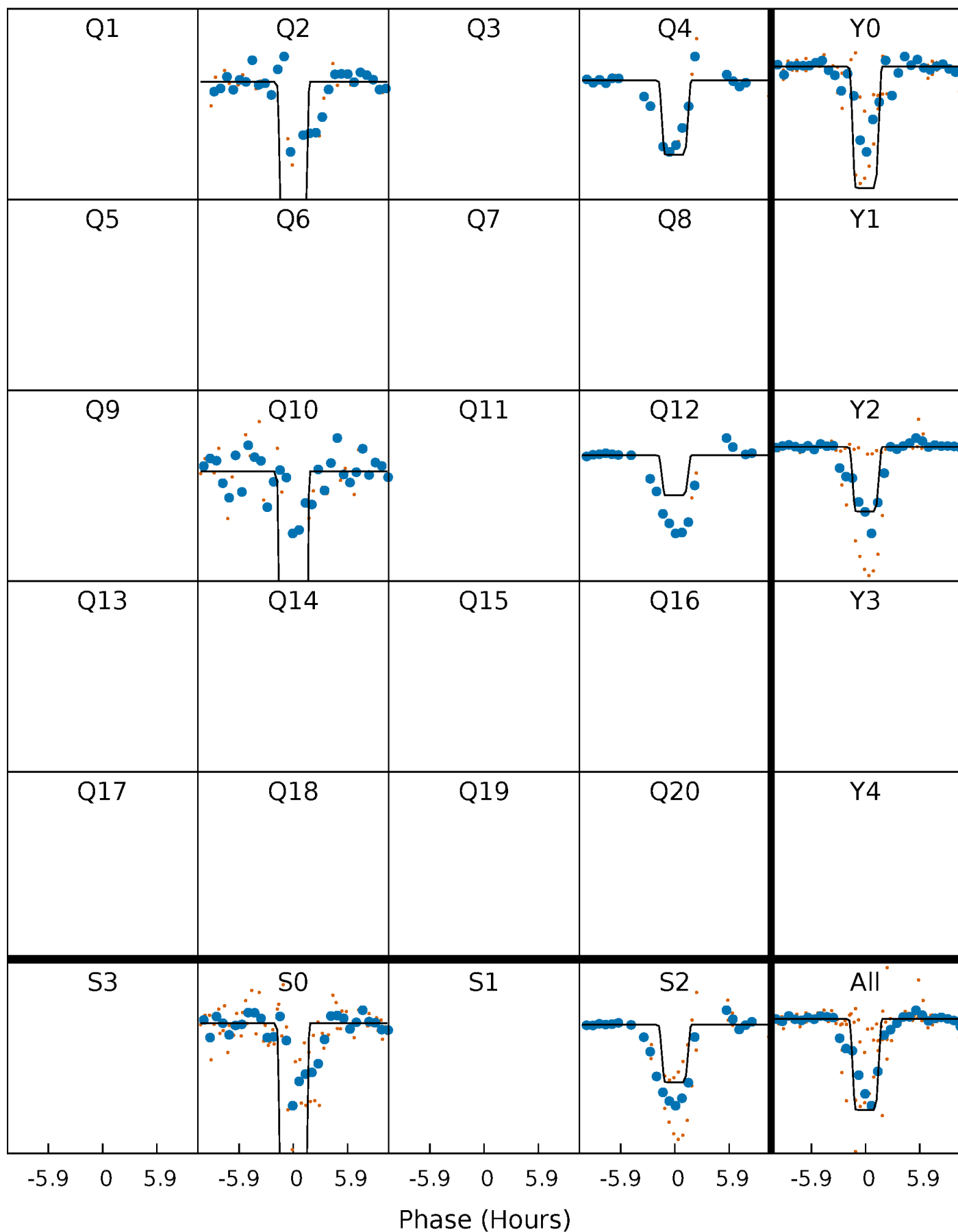
DV Quarter-Phased Transit Curves

TCE 002581964-05 $P=115.793592$ Days $T_0=132.446158$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

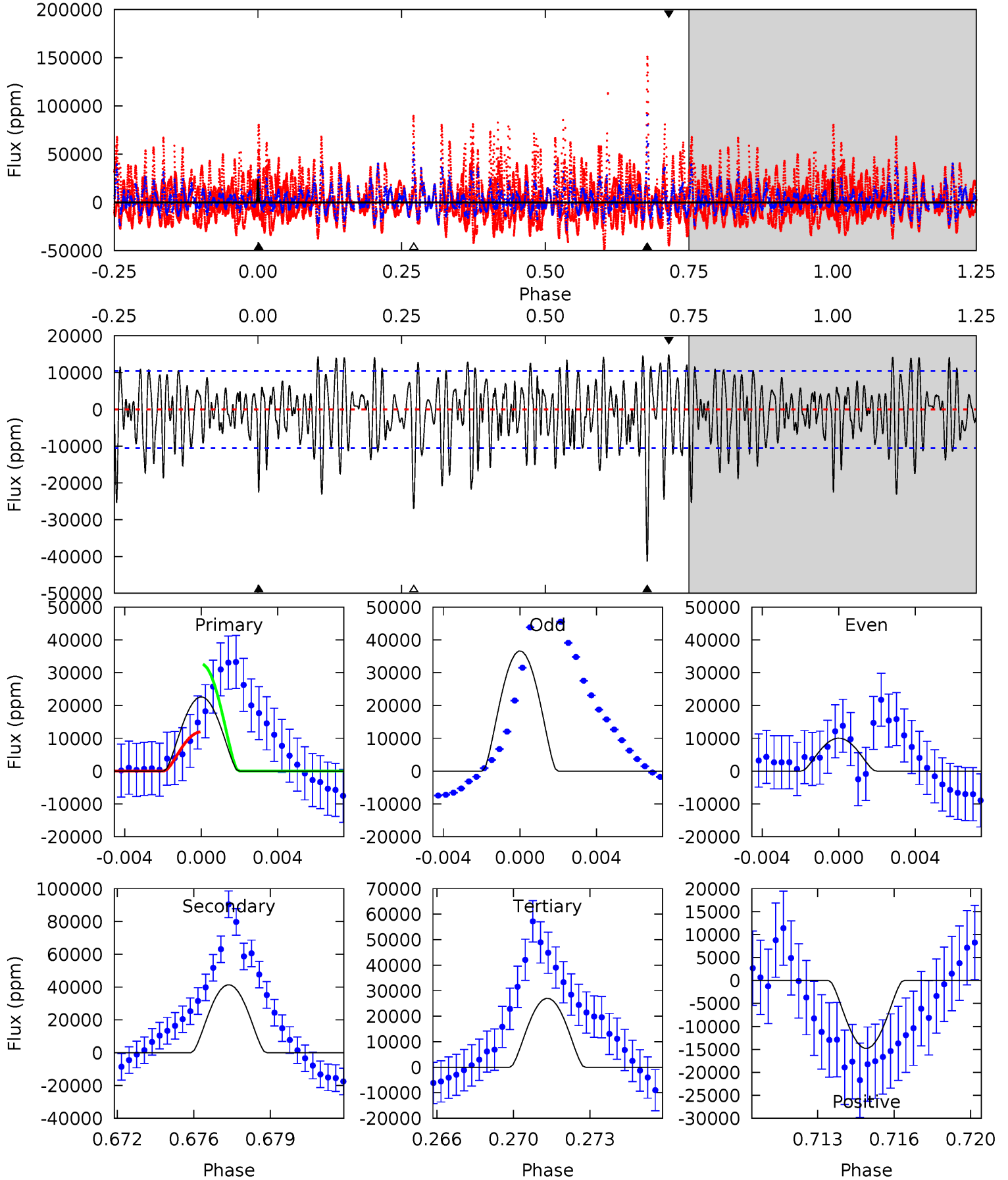
TCE 002581964-05 $P=115.791553$ Days $T_0=132.423504$ (BKJD)



DV Model-Shift Uniqueness Test

002581964-05, P = 115.793592 Days, E = 132.446158 Days

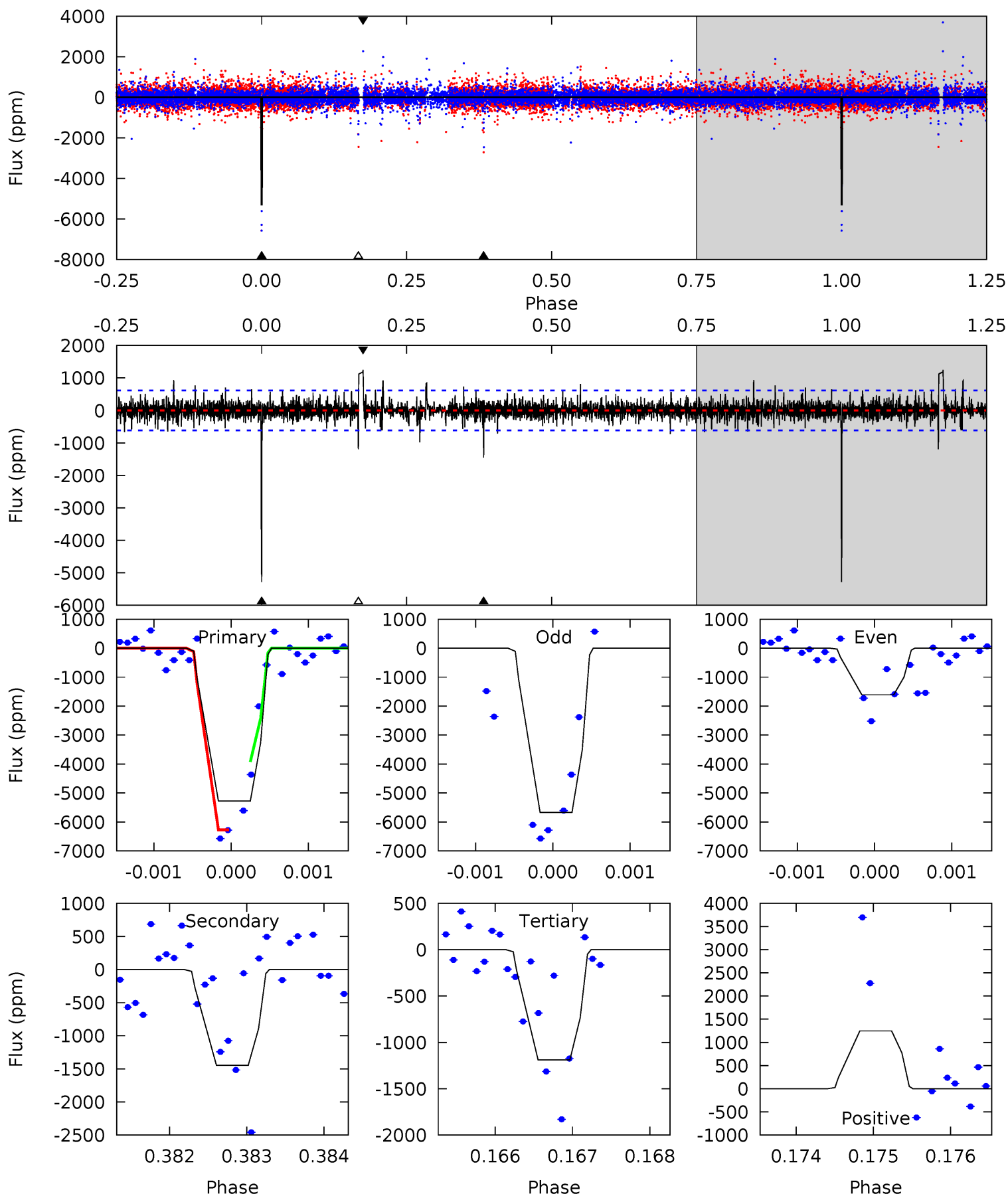
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	20.5	13.4	7.34	5.21	2.90	3.64	-2.19	3.88	7.13	13.2	6.25	1.23	0.26	5.20



Alt Model-Shift Uniqueness Test

002581964-05, P = 115.791553 Days, E = 132.423504 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.4	12.7	10.5	11.0	5.41	3.22	1.43	36.0	35.5	2.27	1.76	19.1	1.44	0.19	9.68



Stellar Parameters For KIC 002581964

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7430^{+232}_{-310}	$4.160^{+0.124}_{-0.186}$	$-0.200^{+0.250}_{-0.350}$	$1.671^{+0.515}_{-0.344}$	$1.470^{+0.216}_{-0.237}$	$0.444^{+0.333}_{-0.222}$
	+3%/-4%	+3%/-4%	+125%/-175%	+31%/-21%	+15%/-16%	+75%/-50%
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 002581964-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-41348 ± 2012	$29.43^{+21.52}_{-19.62}$	818^{+61}_{-54}	8680^{+13882}_{-2326}	7675^{+59404}_{-5163}
Alt.	-1447 ± 114	$24.09^{+20.58}_{-15.77}$	818^{+60}_{-53}	4219^{+2451}_{-806}	374^{+2761}_{-262}

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 $A_{obs} \gg 1.0$

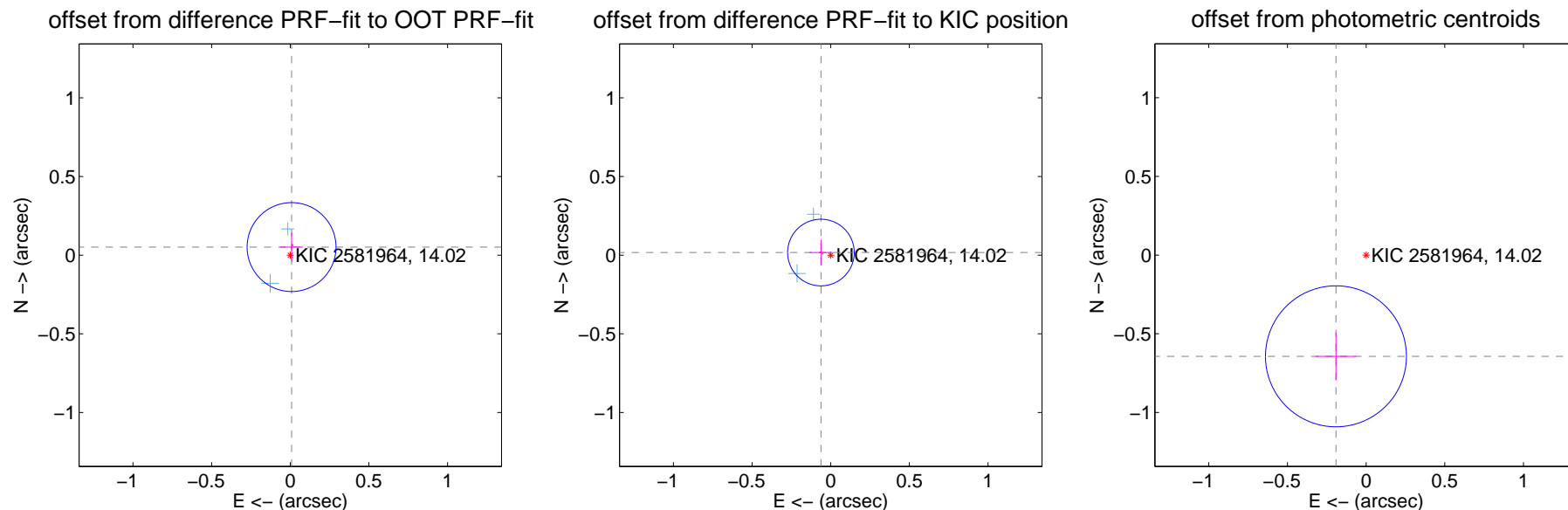
DV Centroid Data

Supplemental centroid analysis for 002581964-05. Kepler magnitude: 14.02. Transit SNR 4.52

There are 2 quarters with good PRF difference image offsets

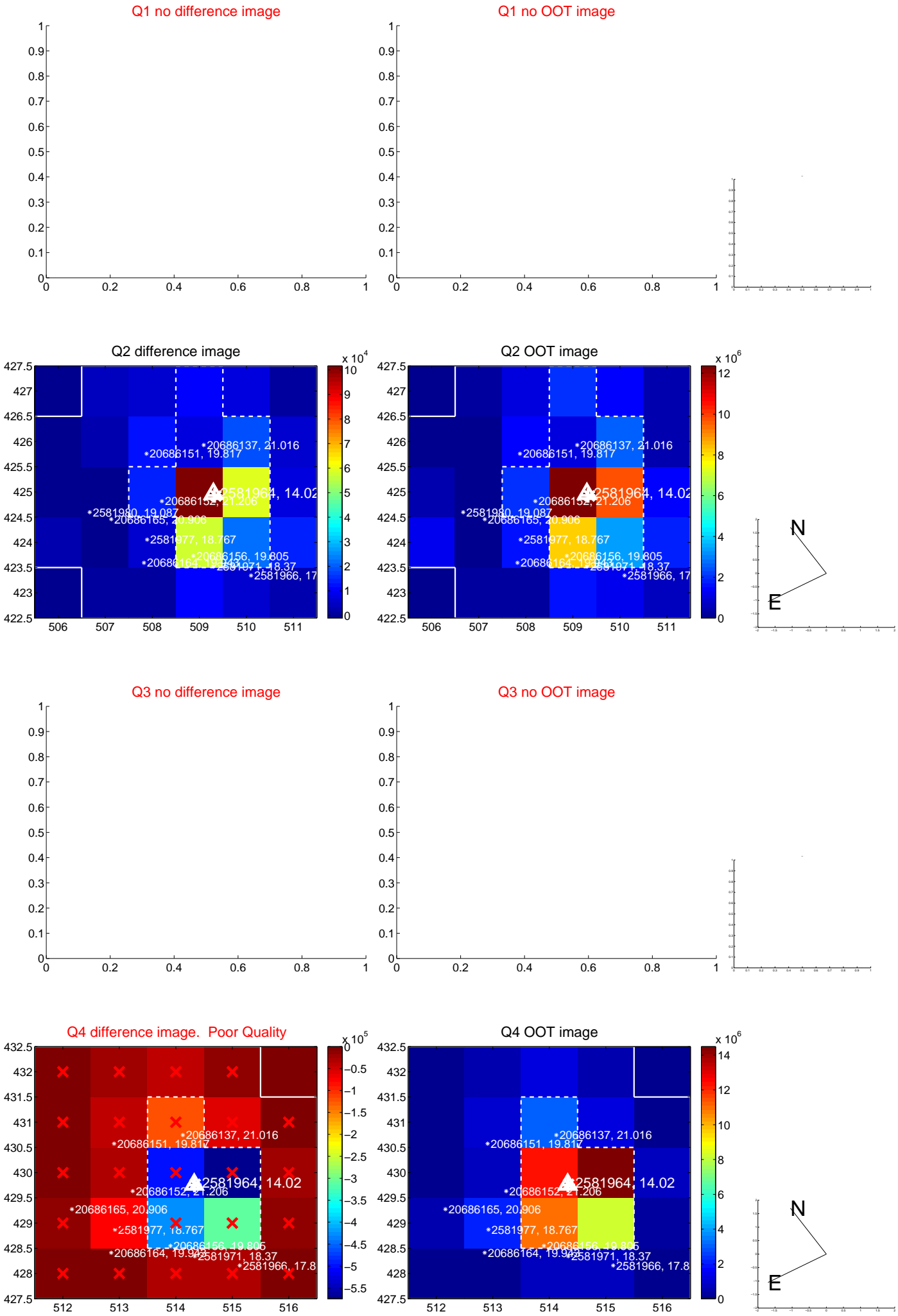
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.052 ± 0.094	0.55	-0.008 ± 0.073	0.051 ± 0.092
PRF-fit source offset from KIC position	0.064 ± 0.071	0.91	0.062 ± 0.072	0.017 ± 0.082
photometric centroid source offset	0.67 ± 0.15	4.50	0.19 ± 0.13	-0.64 ± 0.15



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.

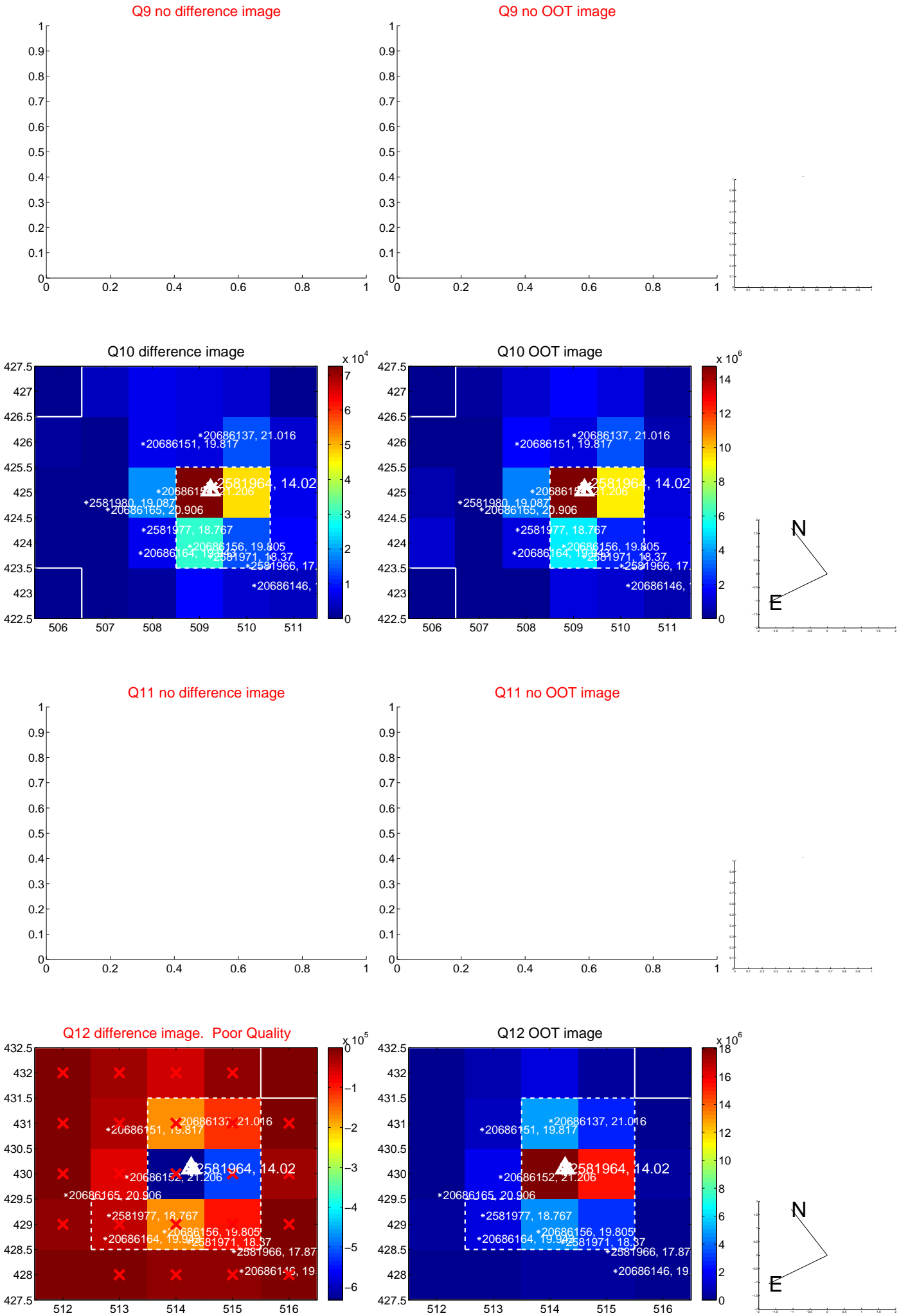
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



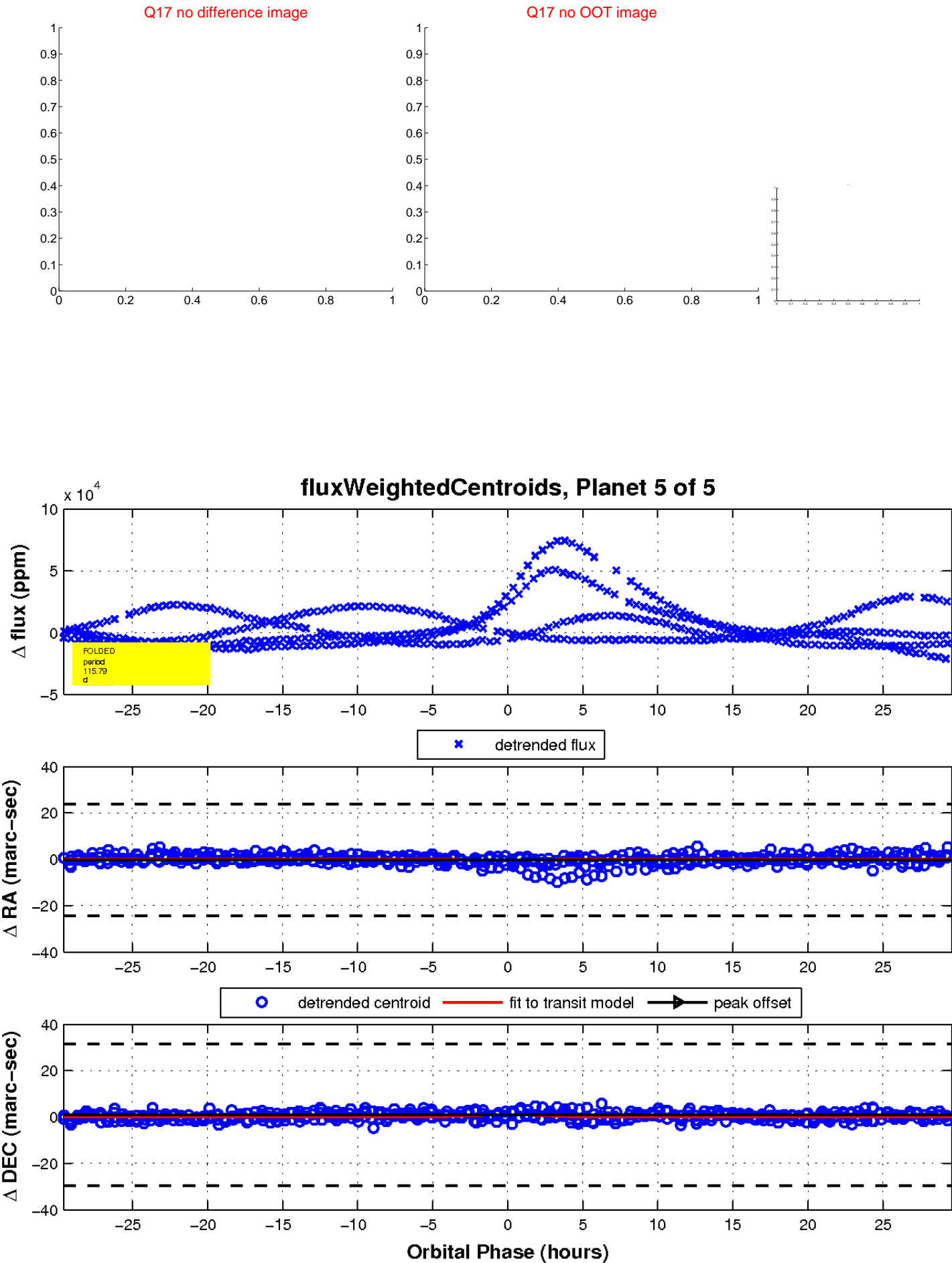
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

