

KIC 005131463

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})
005131463-01	OBS	No	314.224581	411.050688	2469.2	5.615	12.4	8.4	0.64	4289	3.05	0.20
005131463-02	OBS	No	395.852205	223.131917	1750.1	6.283	12.9	6.1	0.64	4289	2.65	0.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005131463-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS—HALO_GHOST
005131463-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—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.

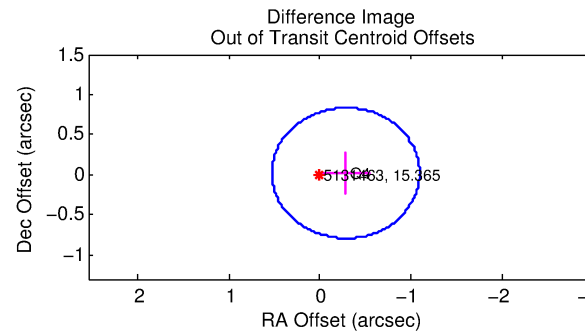
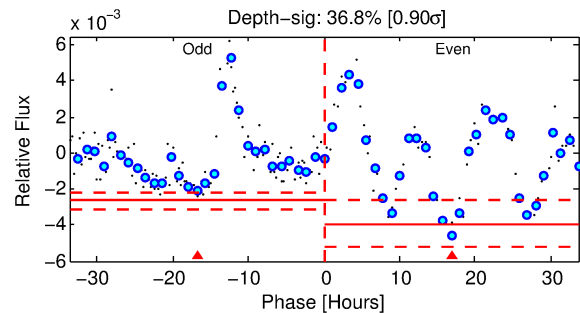
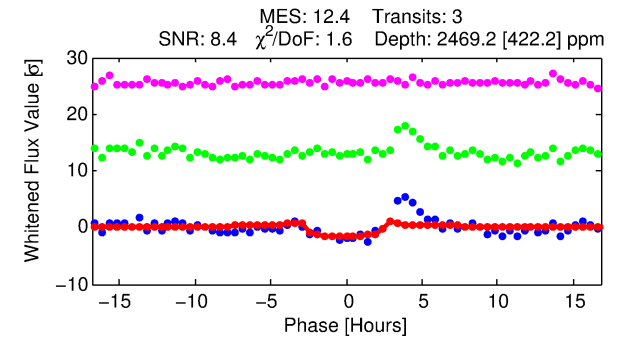
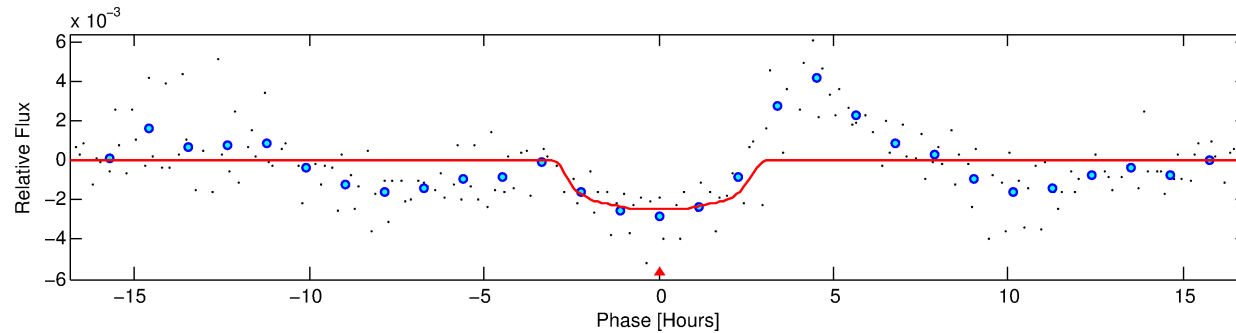
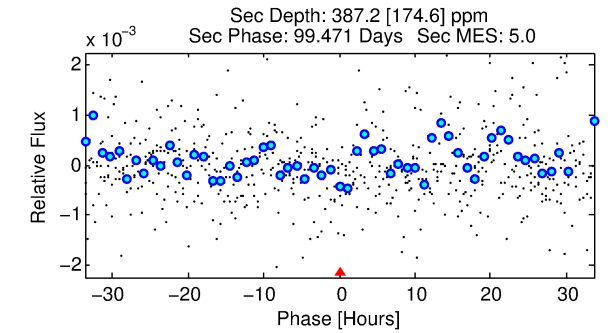
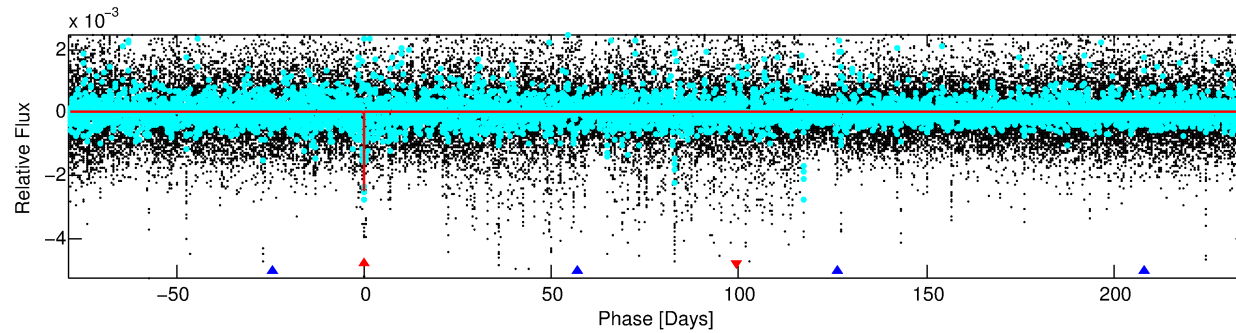
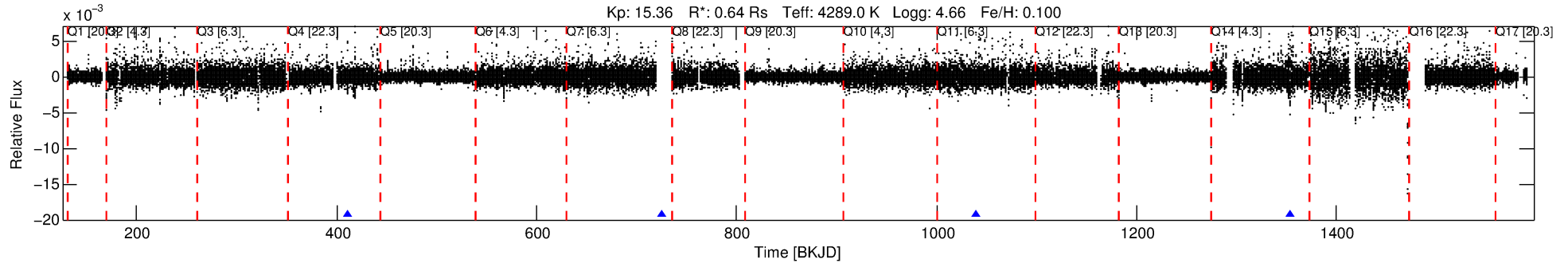
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005131463-01

No Significant Match Found

DV One-Page Summary

KIC: 5131463 Candidate: 1 of 2 Period: 314.225 d



DV Fit Results:

Period = 314.22458 [0.00457] d
Epoch = 411.0507 [0.0089] BKJD
Rp/R* = 0.0435 [0.0550]
a/R* = 445.98 [1631.74]
b = 0.02 [193.50]
Seff = 0.20 [0.03]
Teq = 170 [6] K
Rp = 3.05 [3.87] Re
a = 0.7982 [0.0456] AU
Ag = 14548.67 [37446.90] [0.39 σ]
Teffp = 2886 [1858] K [1.46 σ]

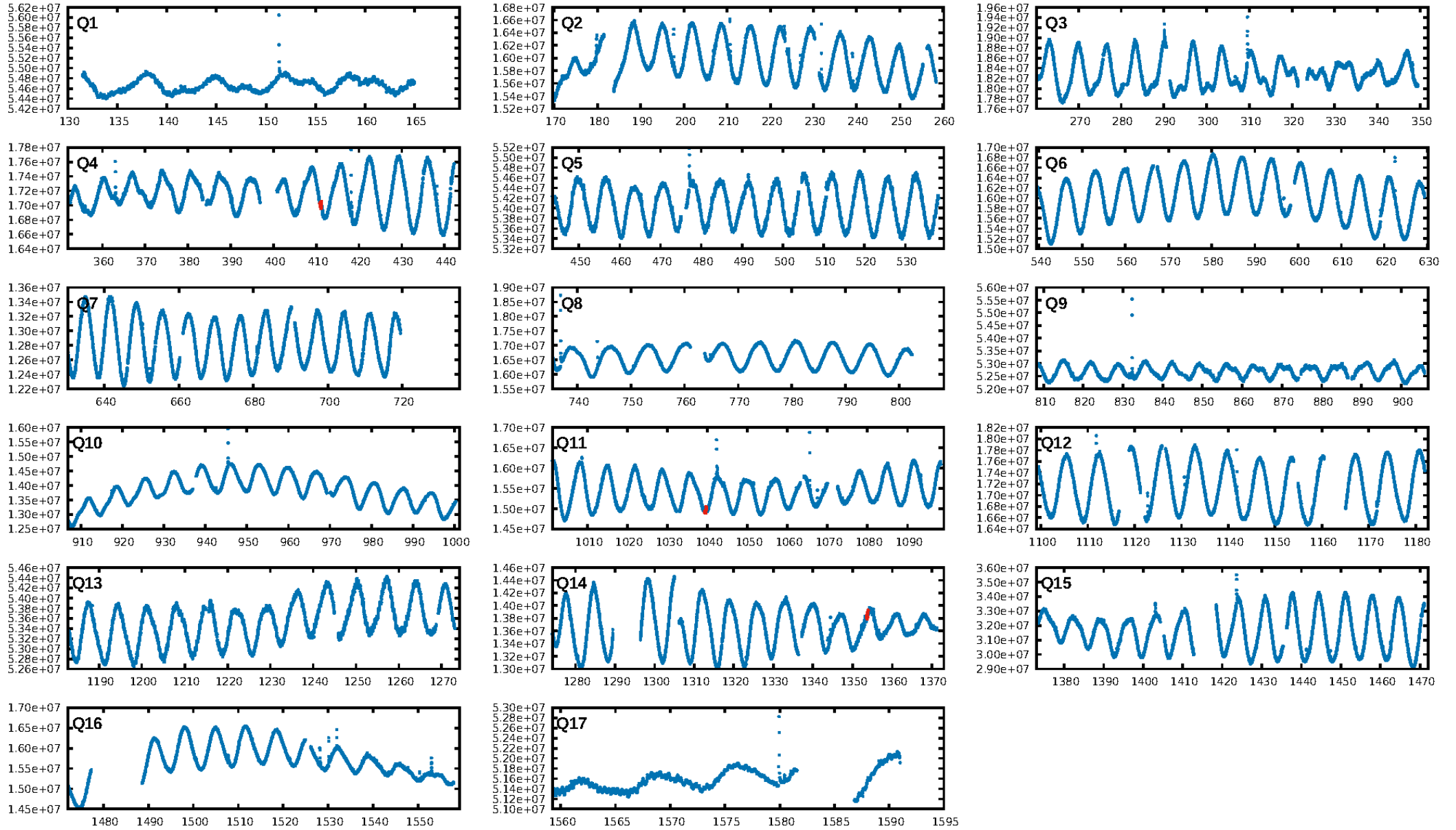
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [232.49 σ]
ModelChiSquare2-sig: 68.2%
ModelChiSquareGof-sig: 96.8%
Bootstrap-pfa: 1.06e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.04583
Centroid-sig: 48.4%
Centroid-so: 4.450 arcsec [2.68 σ]
OotOffset-rm: 0.285 arcsec [1.05 σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-rm: 0.370 arcsec [1.41 σ]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [3/3]

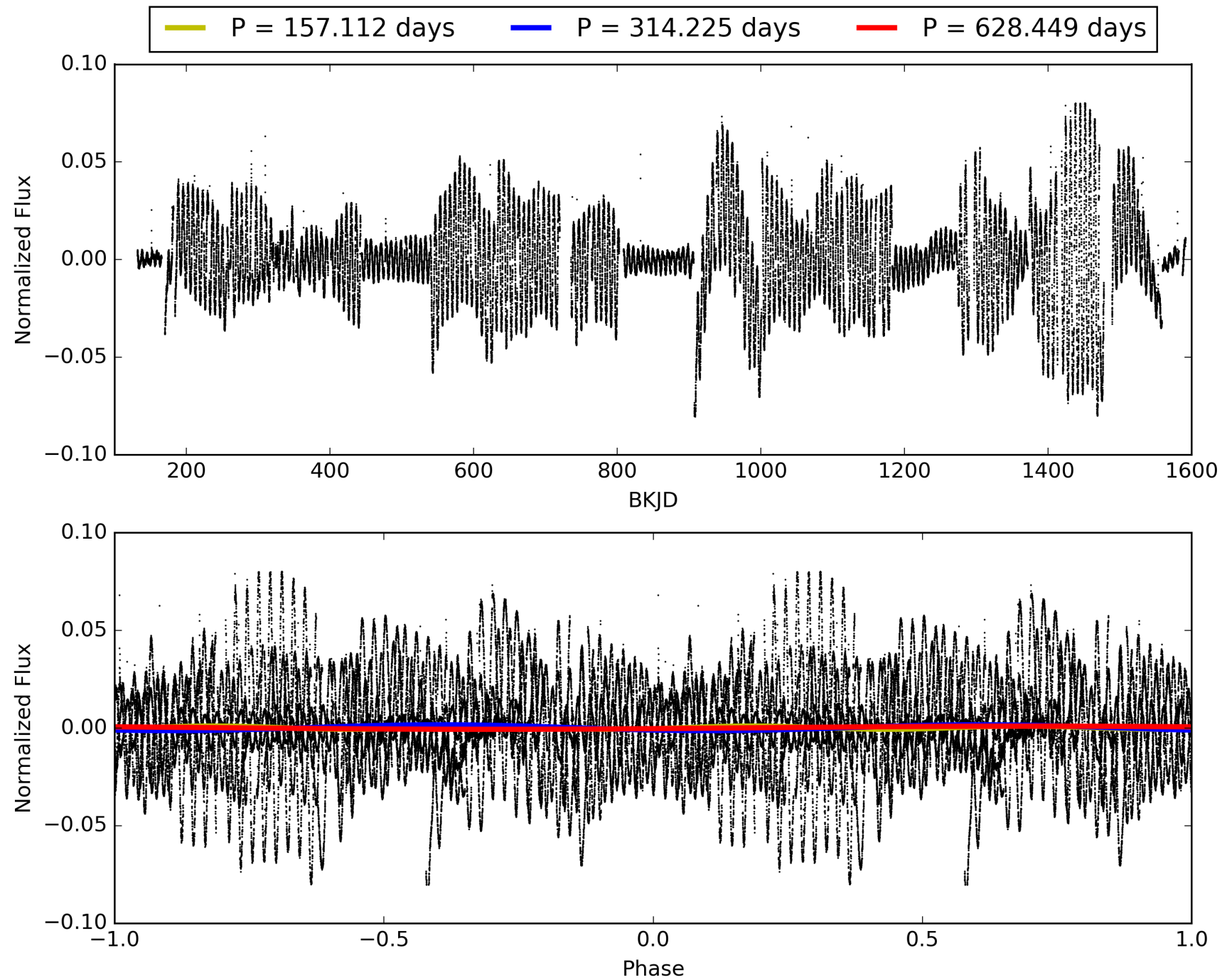
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:48:39 Z

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

TCE 005131463-01, PDC Light Curves

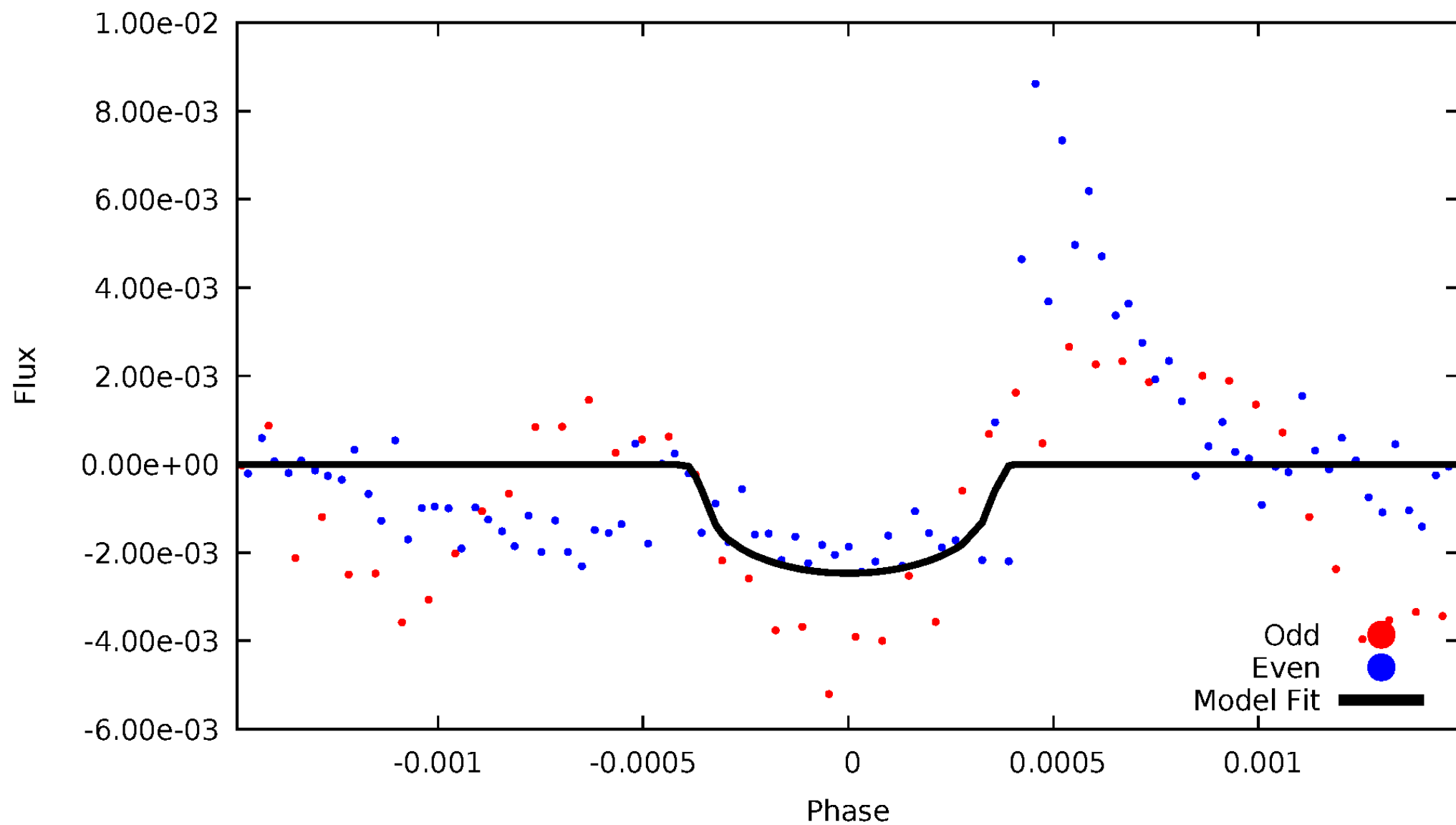


TCE 005131463-01



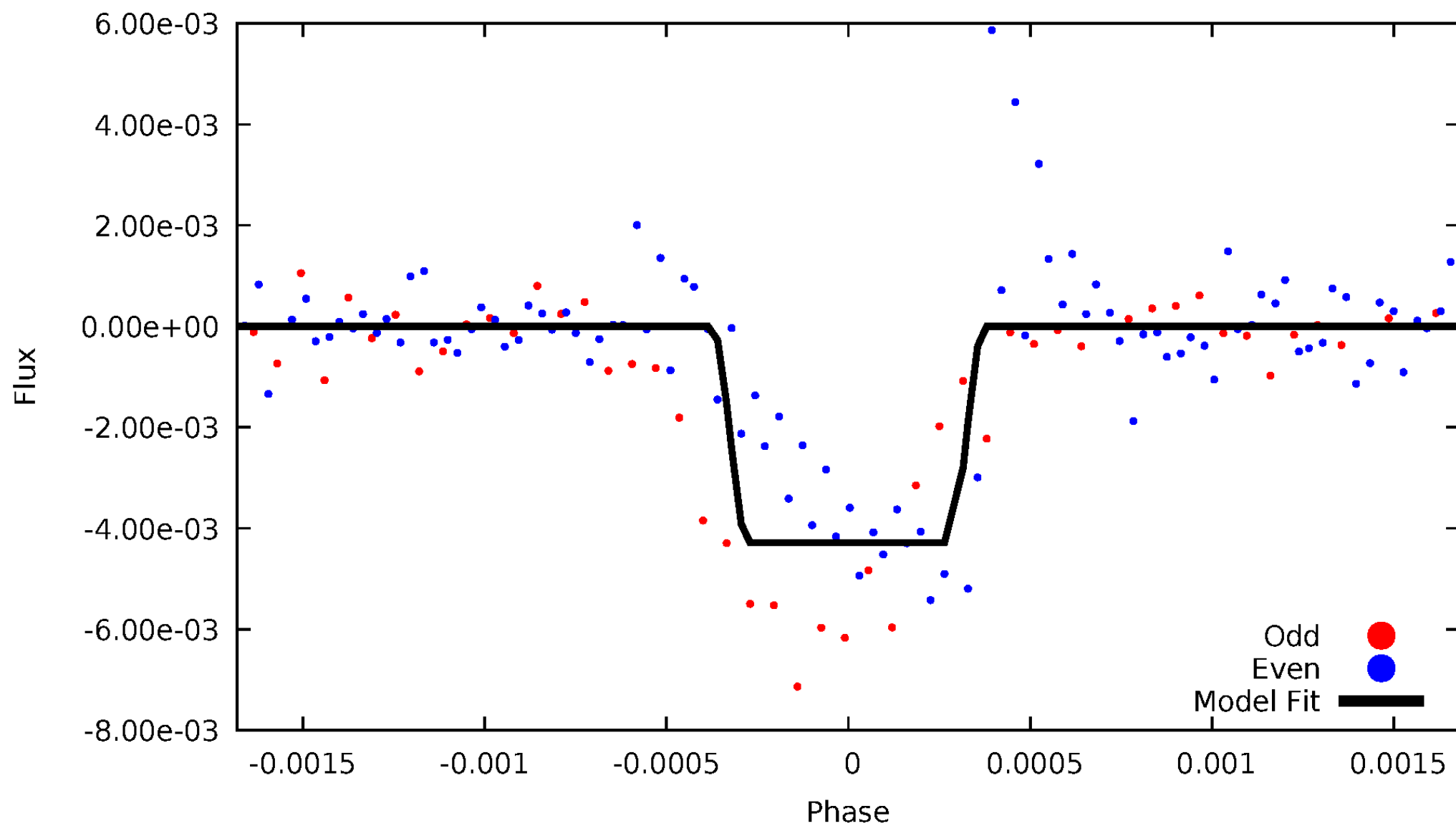
DV Odd/Even

TCE 005131463-01



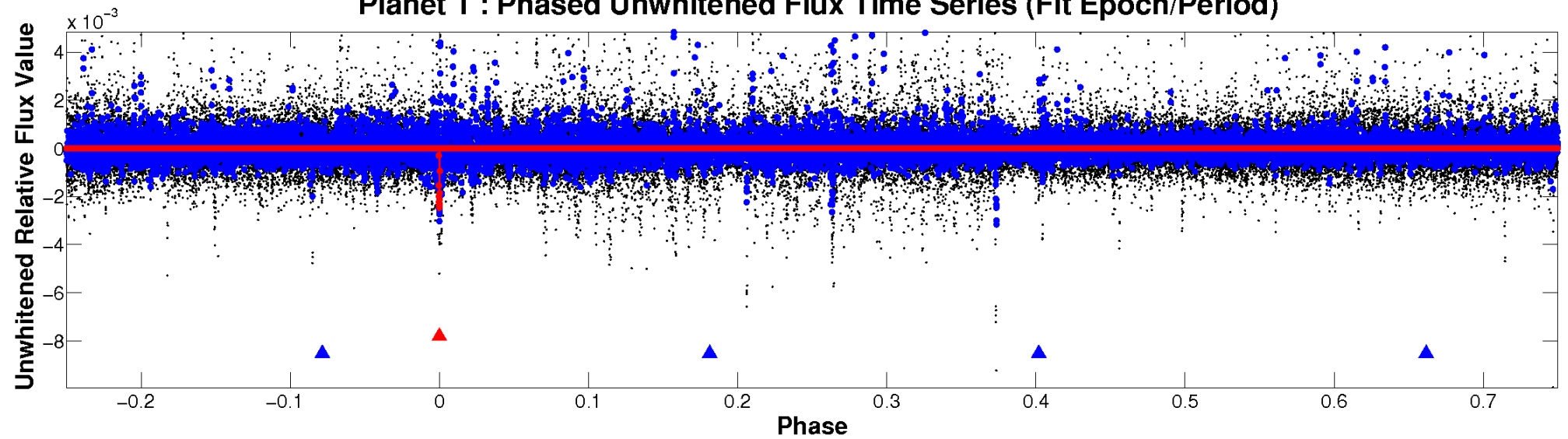
ALT Odd/Even

TCE 005131463-01

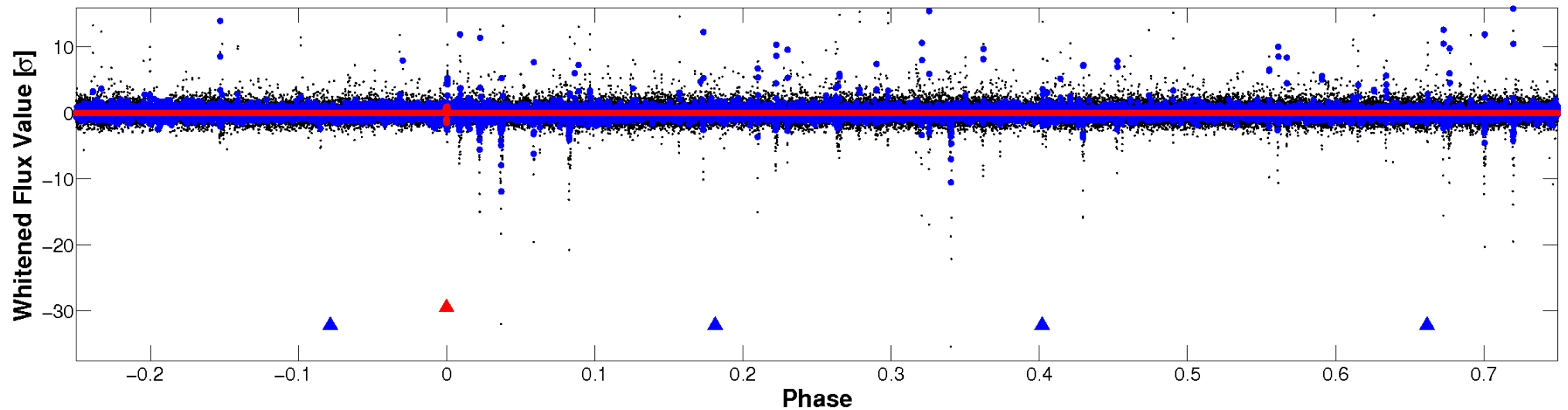


Non-Whitened Vs. Whitened Light Curve

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

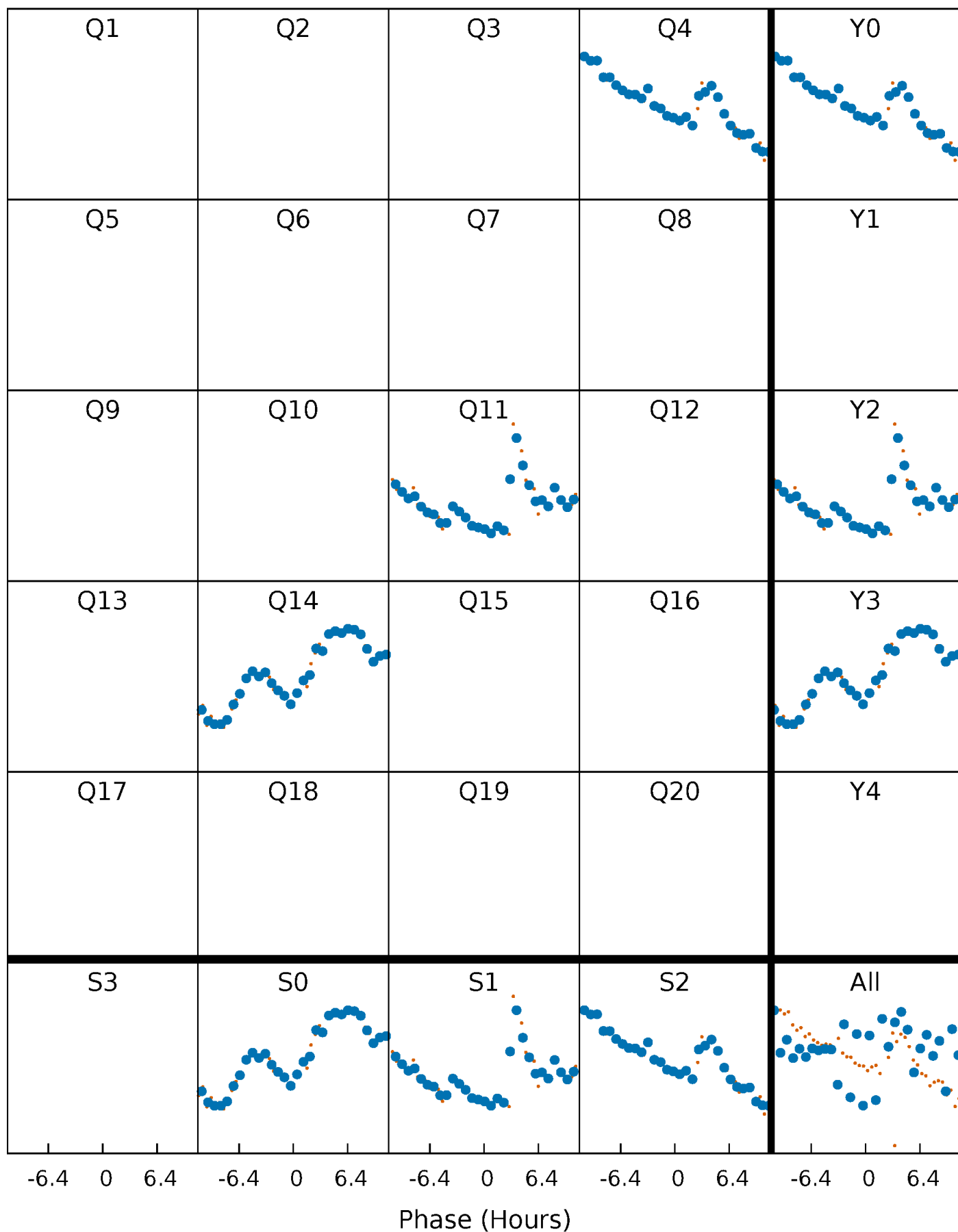


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



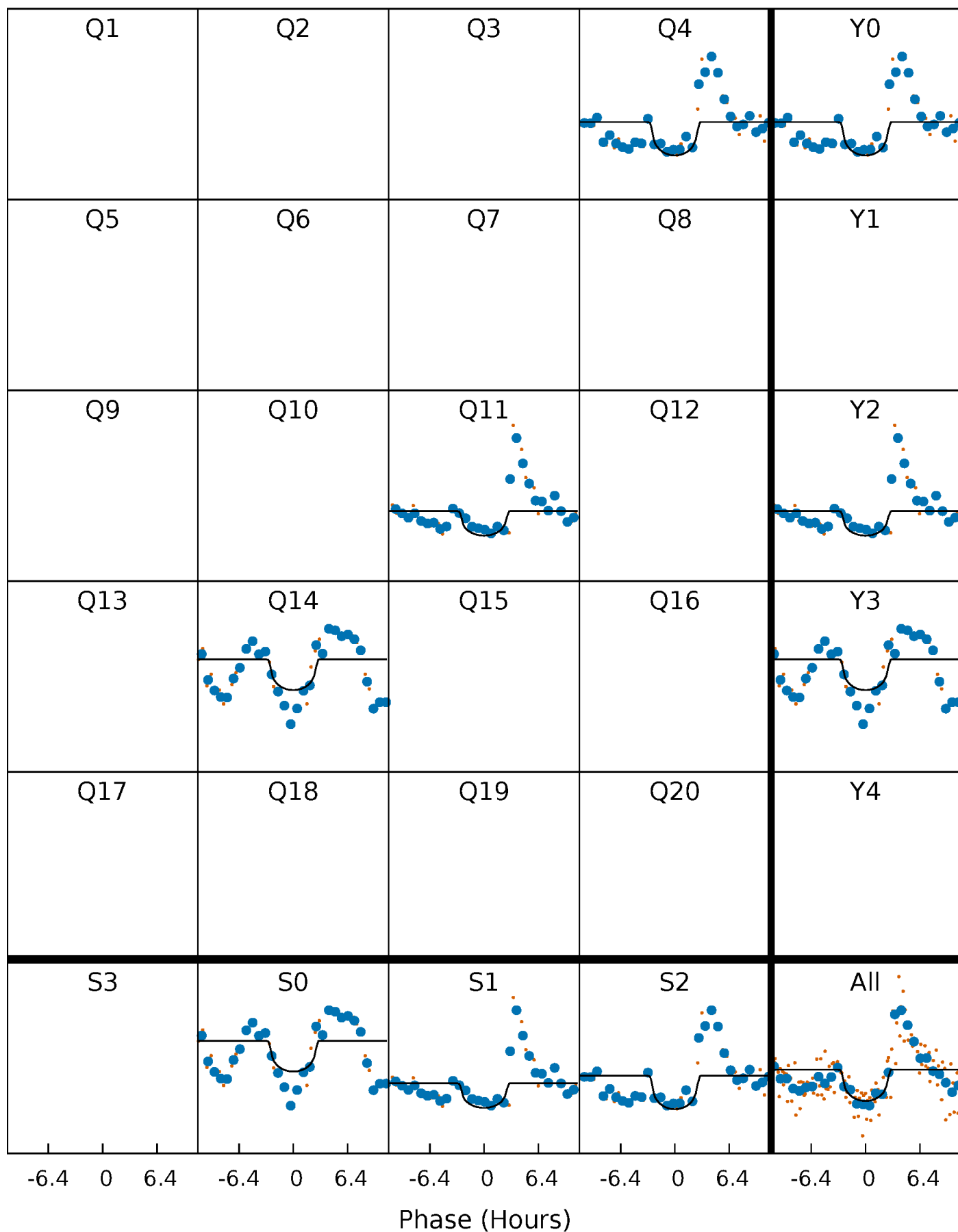
PDC Quarter-Phased Transit Curves

TCE 005131463-01 P=314.224581 Days $T_0=411.050688$ (BKJD)



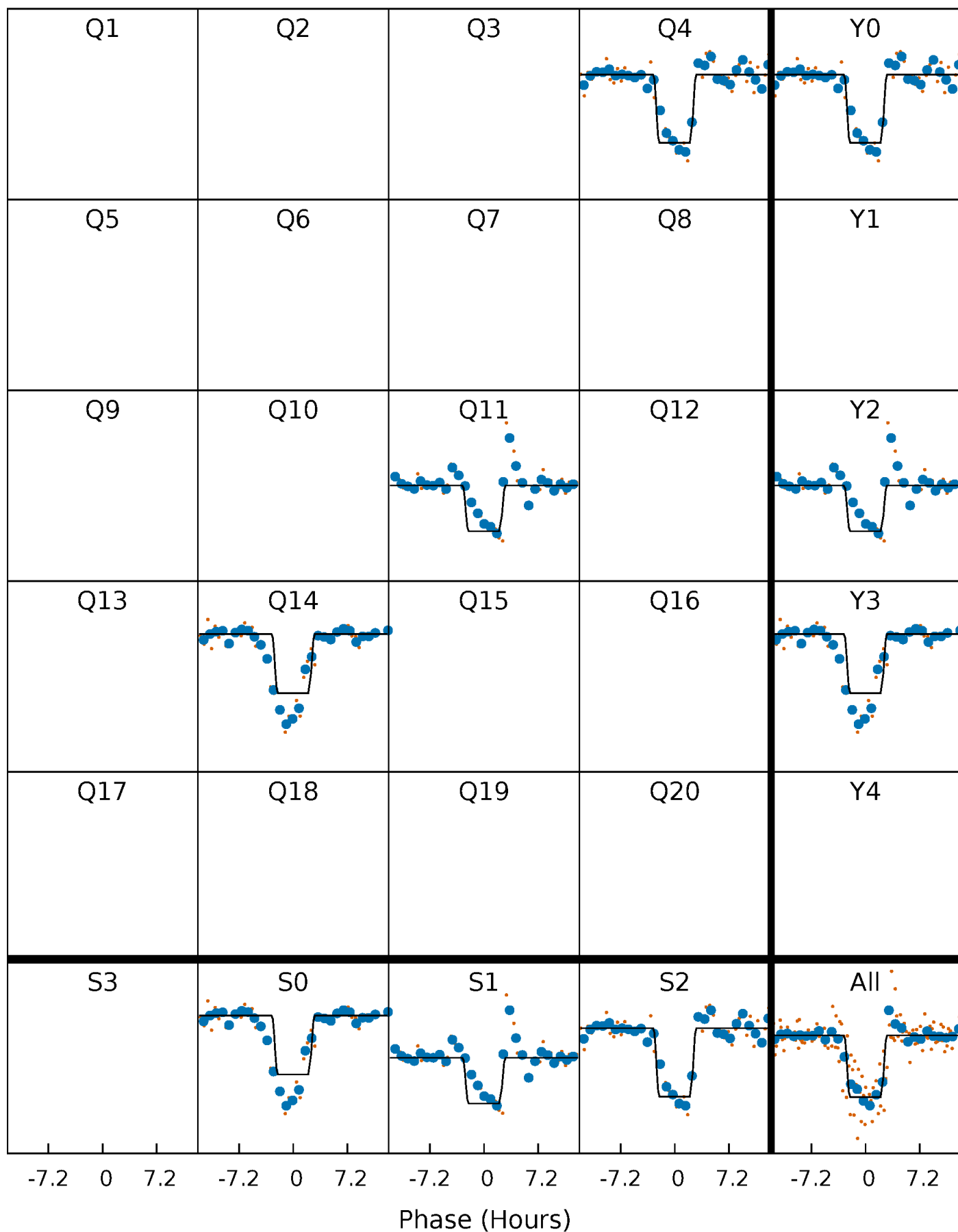
DV Quarter-Phased Transit Curves

TCE 005131463-01 P=314.224581 Days $T_0=411.050688$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

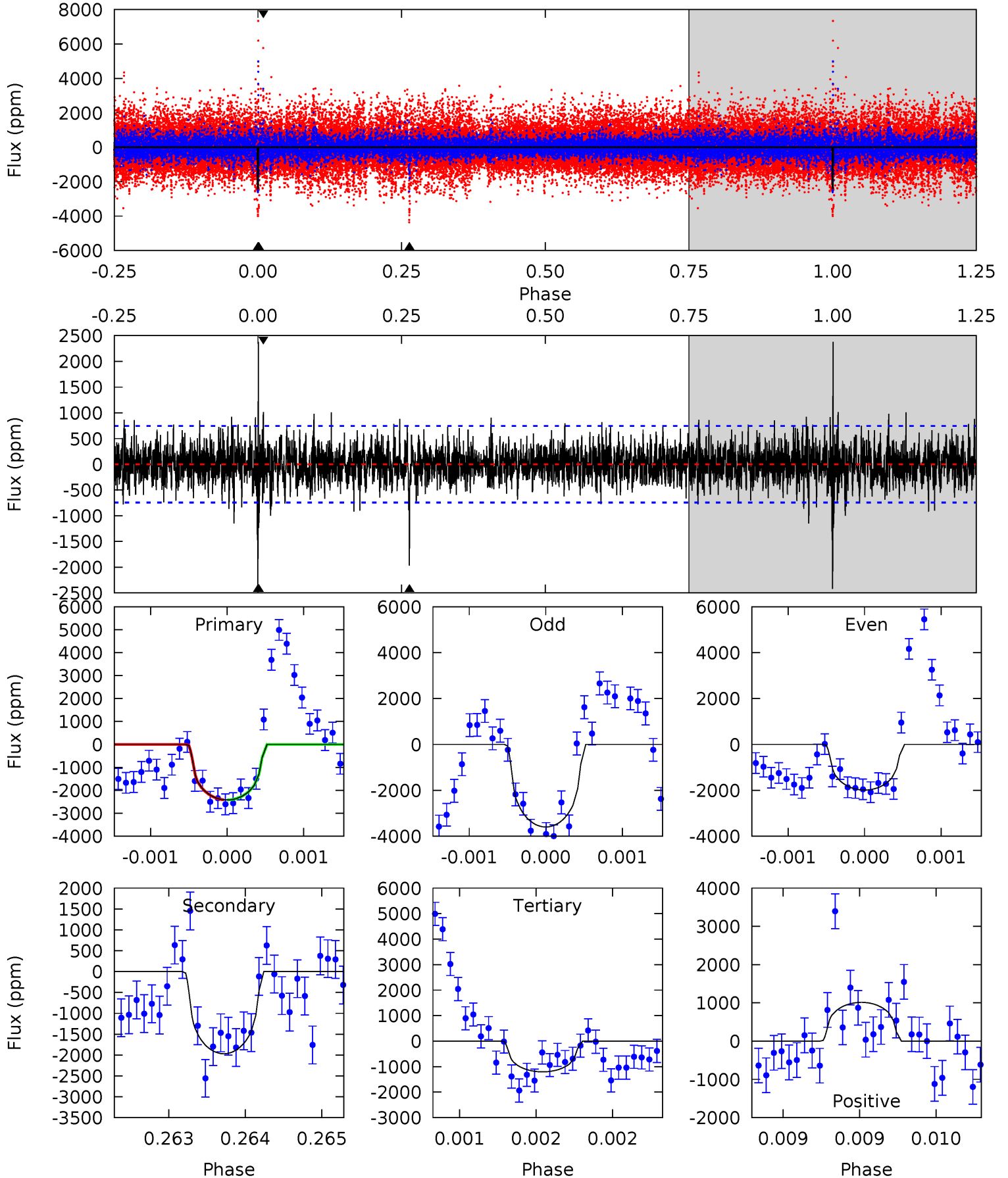
TCE 005131463-01 P=314.234097 Days $T_0=411.051177$ (BKJD)



DV Model-Shift Uniqueness Test

005131463-01, P = 314.224581 Days, E = 96.826107 Days

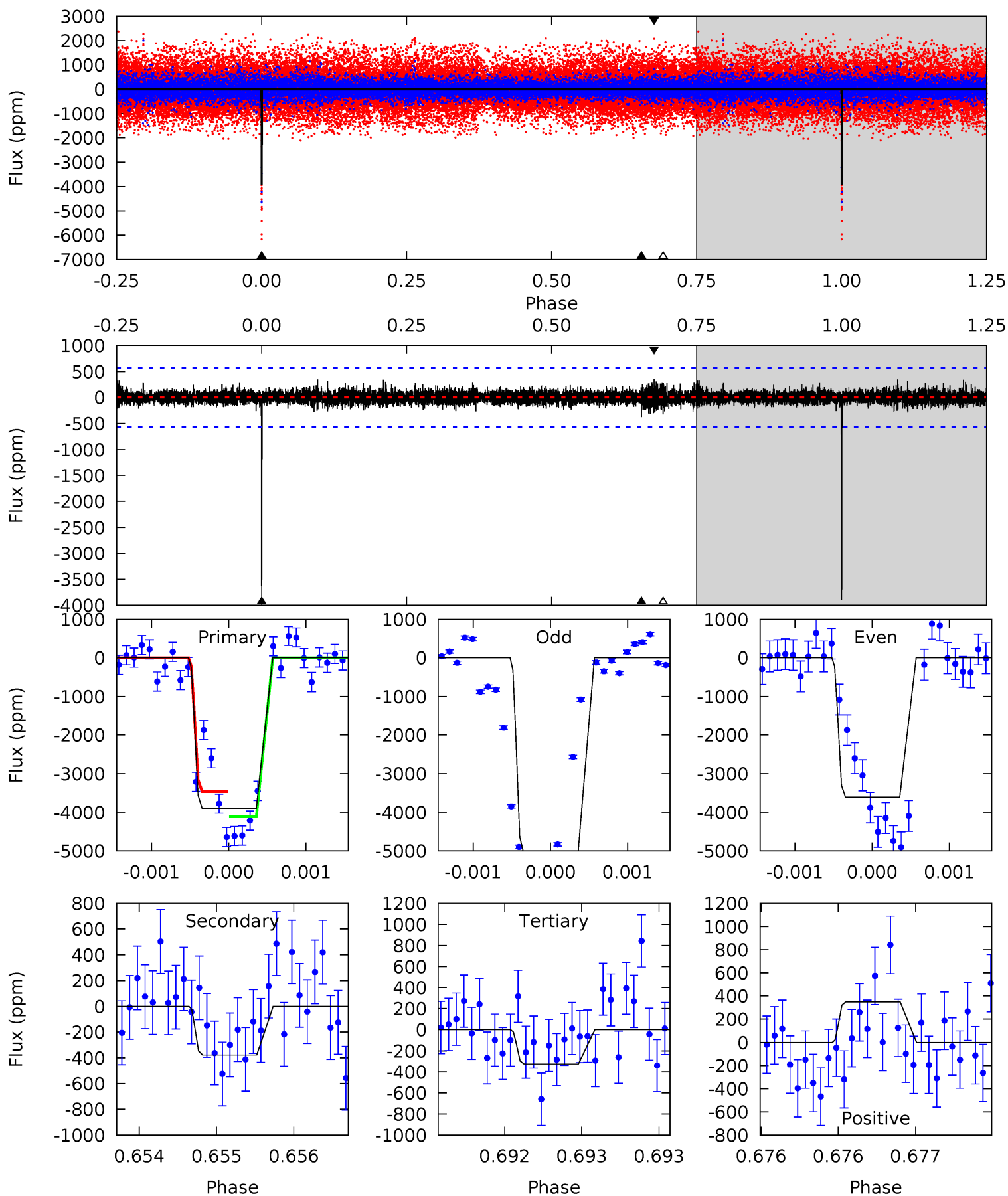
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	14.5	8.89	7.48	5.50	3.36	1.90	8.96	10.4	5.63	7.04	5.23	1.24	0.50	0.01



Alt Model-Shift Uniqueness Test

005131463-01, P = 314.234097 Days, E = 96.817080 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.7	3.67	3.16	3.39	5.50	3.37	0.72	34.6	34.4	0.51	0.27	7.60	1.03	0.08	3.17



Stellar Parameters For KIC 005131463

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4289^{+129}_{-129}	$4.657^{+0.024}_{-0.039}$	$0.100^{+0.250}_{-0.300}$	$0.644^{+0.043}_{-0.047}$	$0.689^{+0.036}_{-0.067}$	$3.627^{+0.483}_{-0.514}$
	+3%/-3%	+1%/-1%	+250%/-300%	+7%/-7%	+5%/-10%	+13%/-14%
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 005131463-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1969 ± 136	$4.02^{+3.33}_{-2.47}$	238^{+8}_{-8}	3909^{+1925}_{-658}	$42469^{+248532}_{-29627}$
Alt.	-378 ± 103	$5.12^{+3.98}_{-3.15}$	238^{+8}_{-8}	2835^{+967}_{-408}	4990^{+29387}_{-3527}

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 $A_{obs} \gg 1.0$

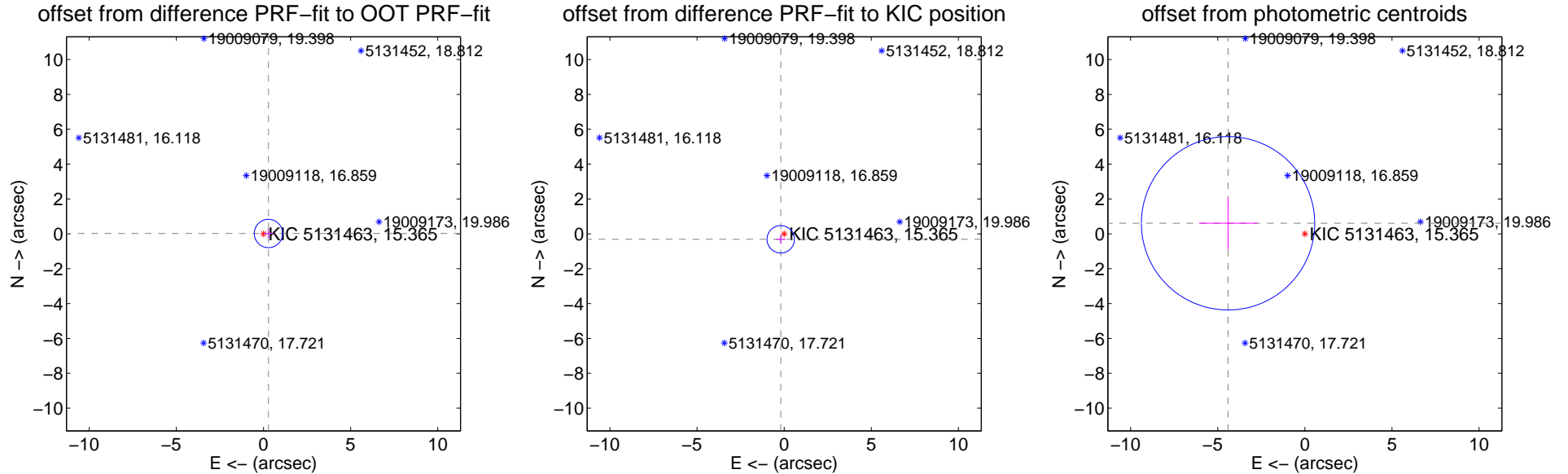
DV Centroid Data

Supplemental centroid analysis for 005131463-01. Kepler magnitude: 15.37. Transit SNR 8.42

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.58 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.285 ± 0.271	1.05	-0.284 ± 0.271	0.020 ± 0.259
PRF-fit source offset from KIC position	0.370 ± 0.262	1.41	0.196 ± 0.271	-0.314 ± 0.259
photometric centroid source offset	4.45 ± 1.66	2.68	4.41 ± 1.66	0.61 ± 1.48



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

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

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



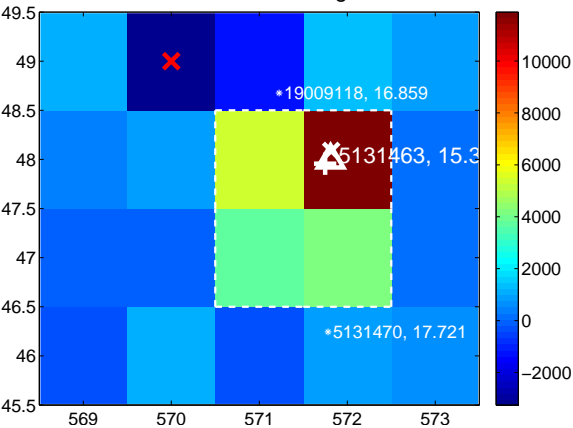
Q3 no difference image



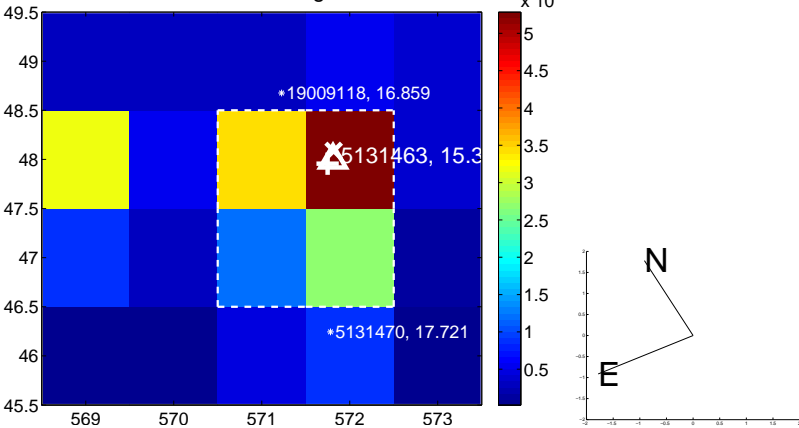
Q3 no OOT image



Q4 difference image



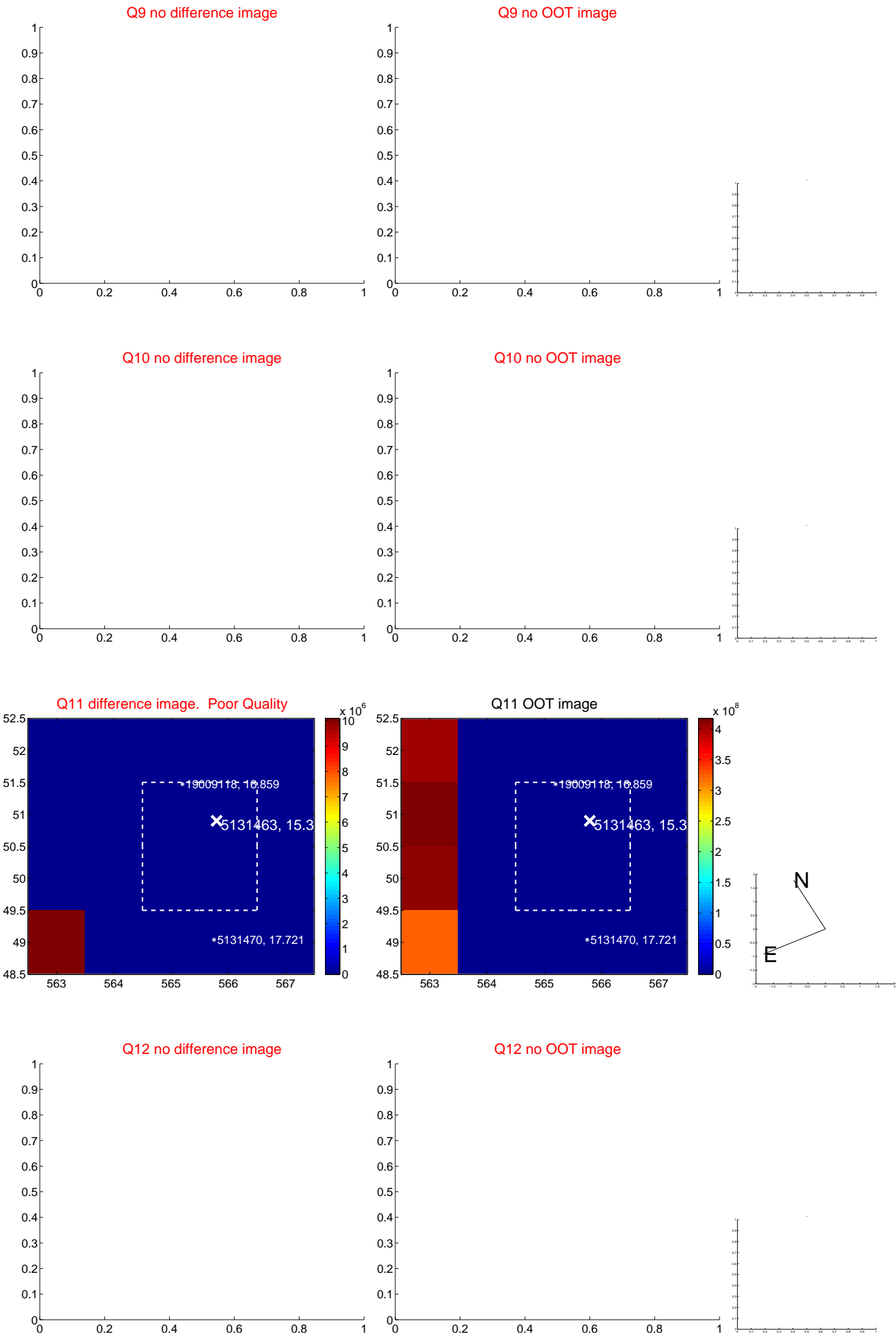
Q4 OOT image



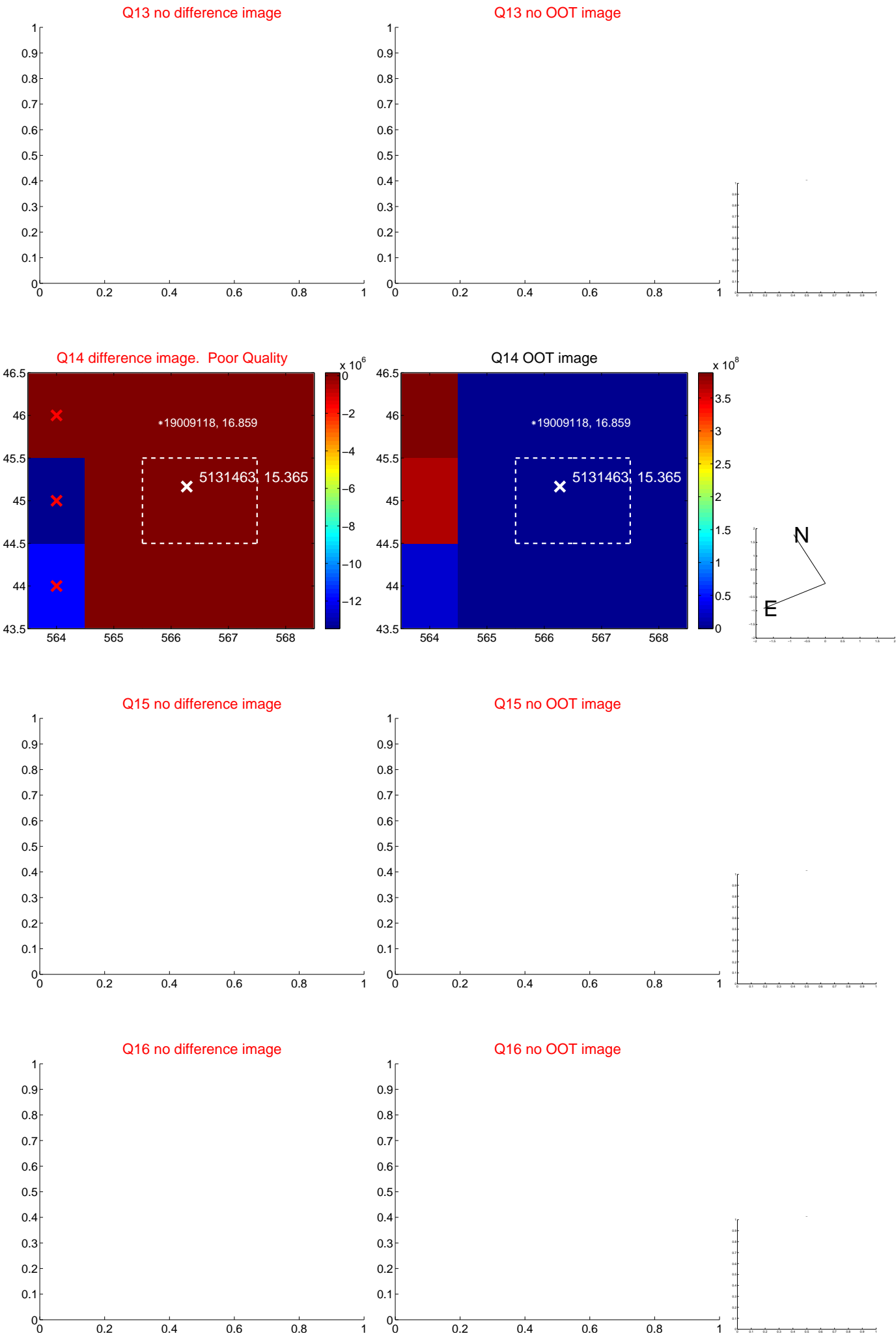
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



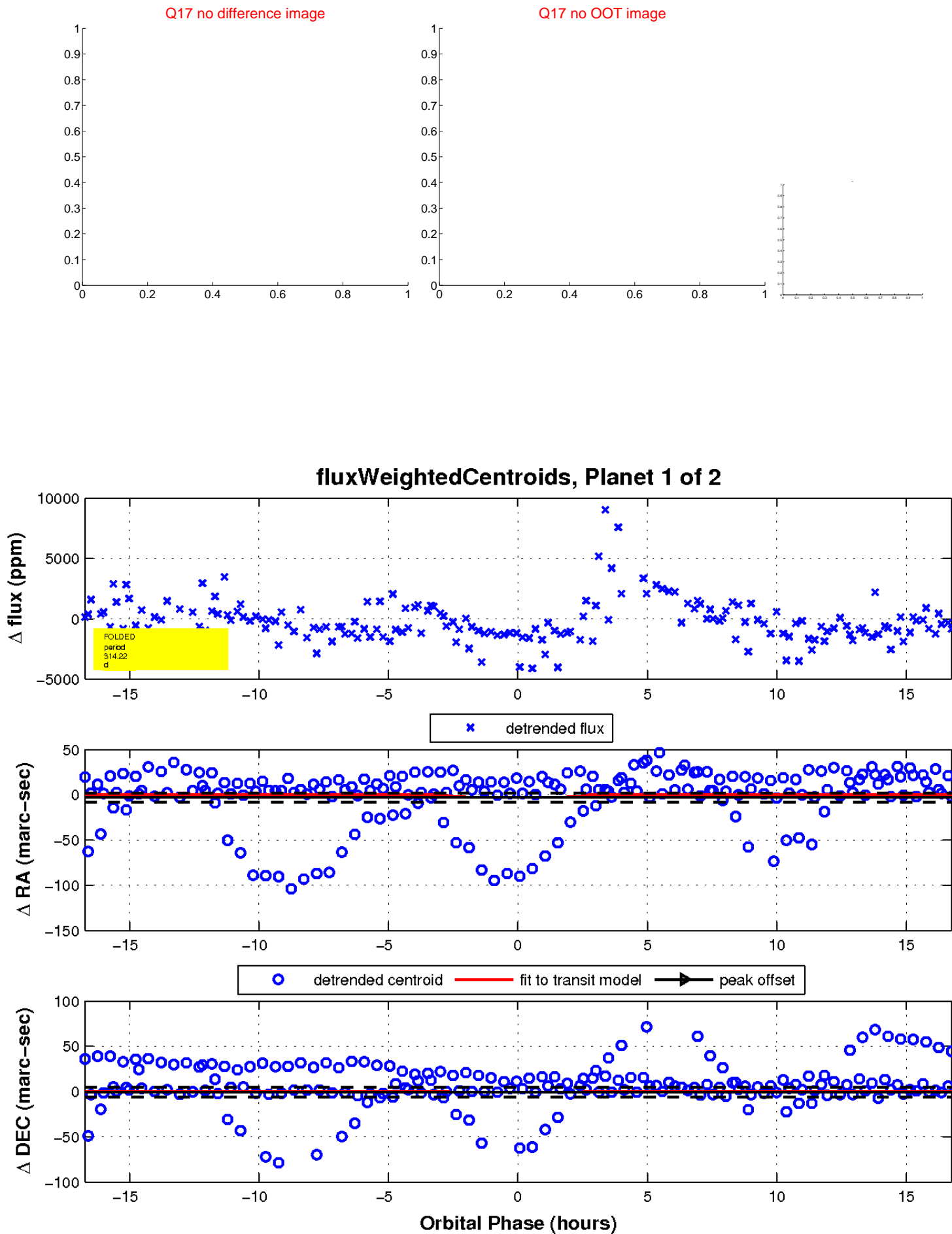
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

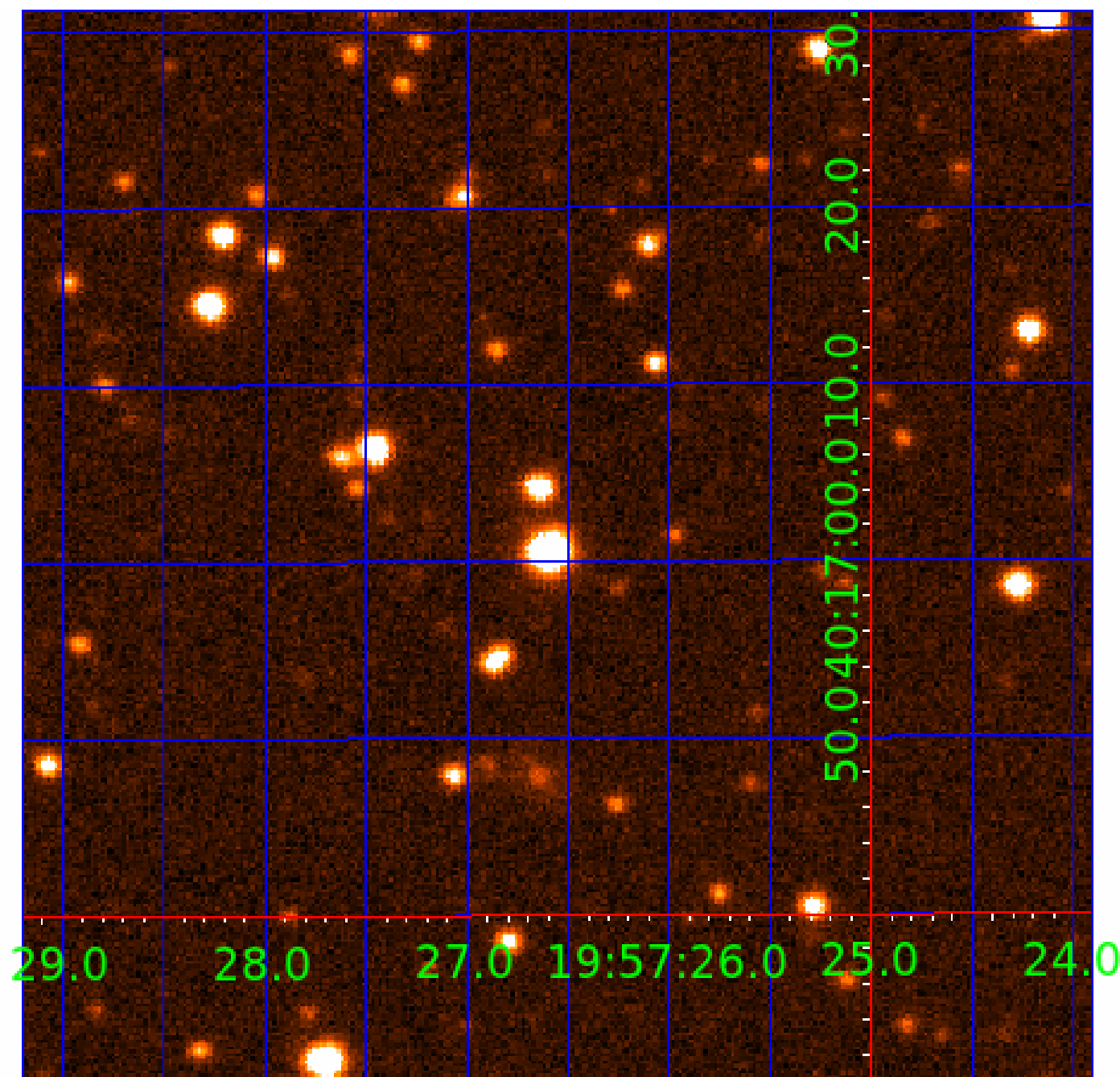


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005131463

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})
005131463-01	OBS	No	314.224581	411.050688	2469.2	5.615	12.4	8.4	0.64	4289	3.05	0.20
005131463-02	OBS	No	395.852205	223.131917	1750.1	6.283	12.9	6.1	0.64	4289	2.65	0.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005131463-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS—HALO_GHOST
005131463-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—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.

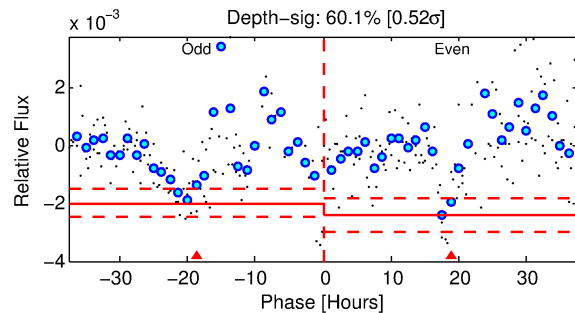
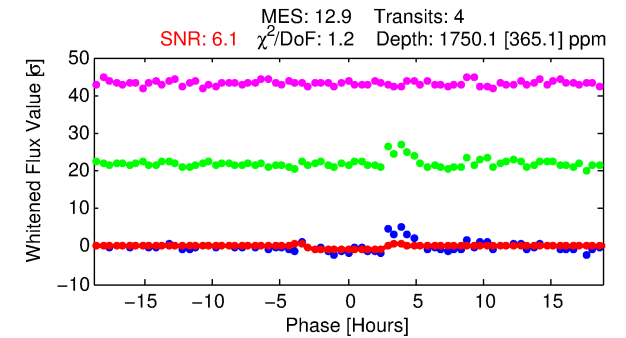
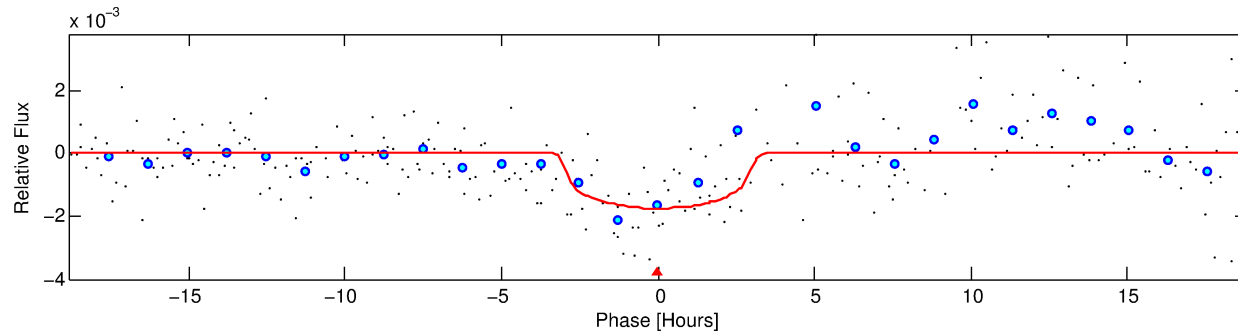
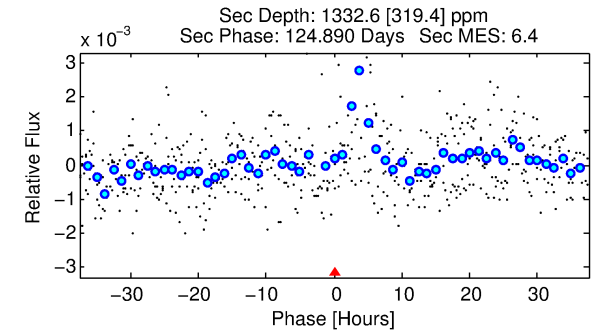
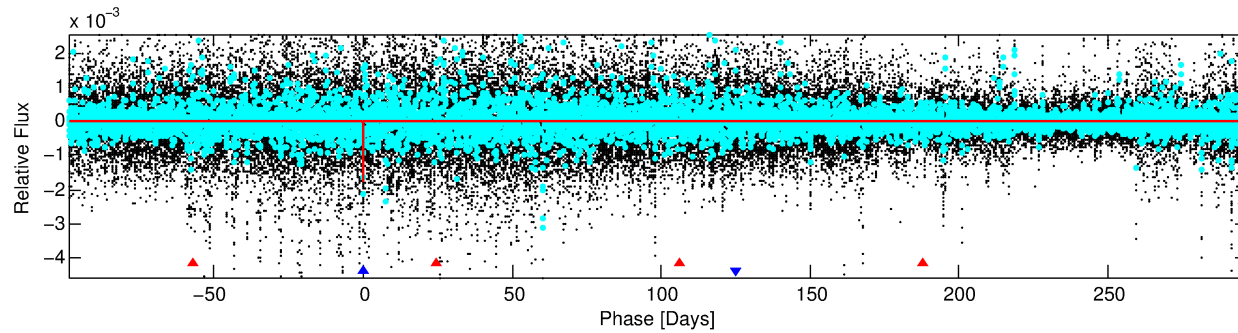
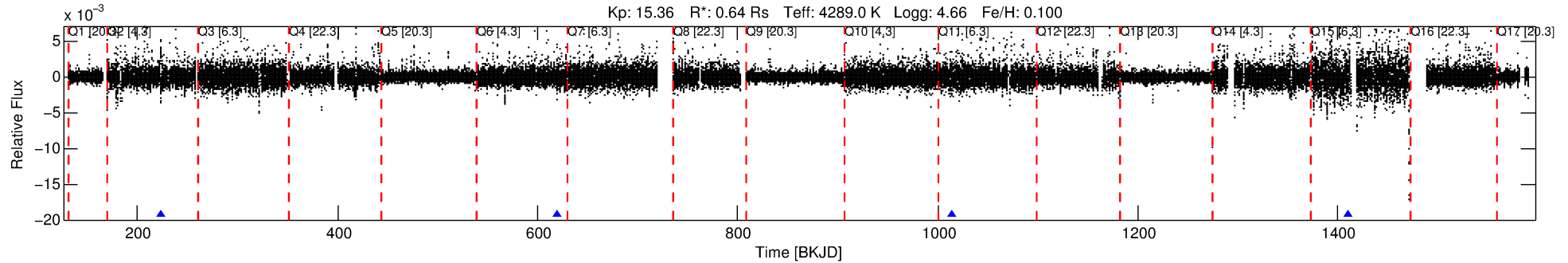
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005131463-02

No Significant Match Found

DV One-Page Summary

KIC: 5131463 Candidate: 2 of 2 Period: 395.852 d



DV Fit Results:

Period = 395.85221 [0.00831] d
Epoch = 223.1319 [0.0128] BKJD
Rp/R* = 0.0377 [0.0464]
a/R* = 460.93 [1681.21]
b = 0.40 [7.82]
Seff = 0.15 [0.02]
Teq = 157 [6] K
Rp = 2.65 [3.27] Re
a = 0.9311 [0.0532] AU
Ag = 90593.07 [224234.83] [0.40σ]
Teffp = 4221 [2614] K [1.55σ]

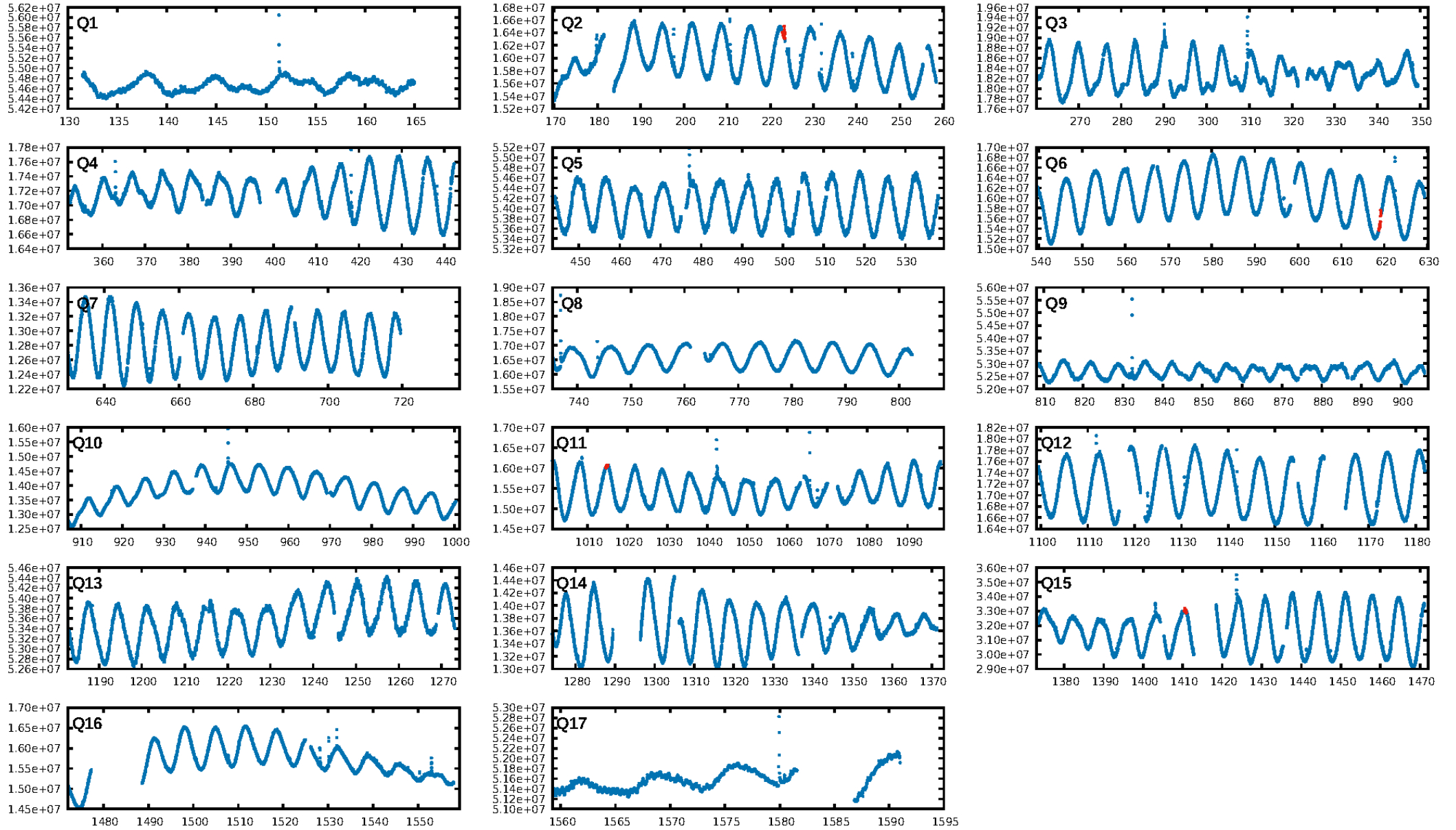
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [232.49σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 60.3%
Bootstrap-pfa: 3.29e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.8735
Centroid-sig: 77.4%
Centroid-so: 4.878 arcsec [1.40σ]
OotOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-rm: N/A
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [3/3]

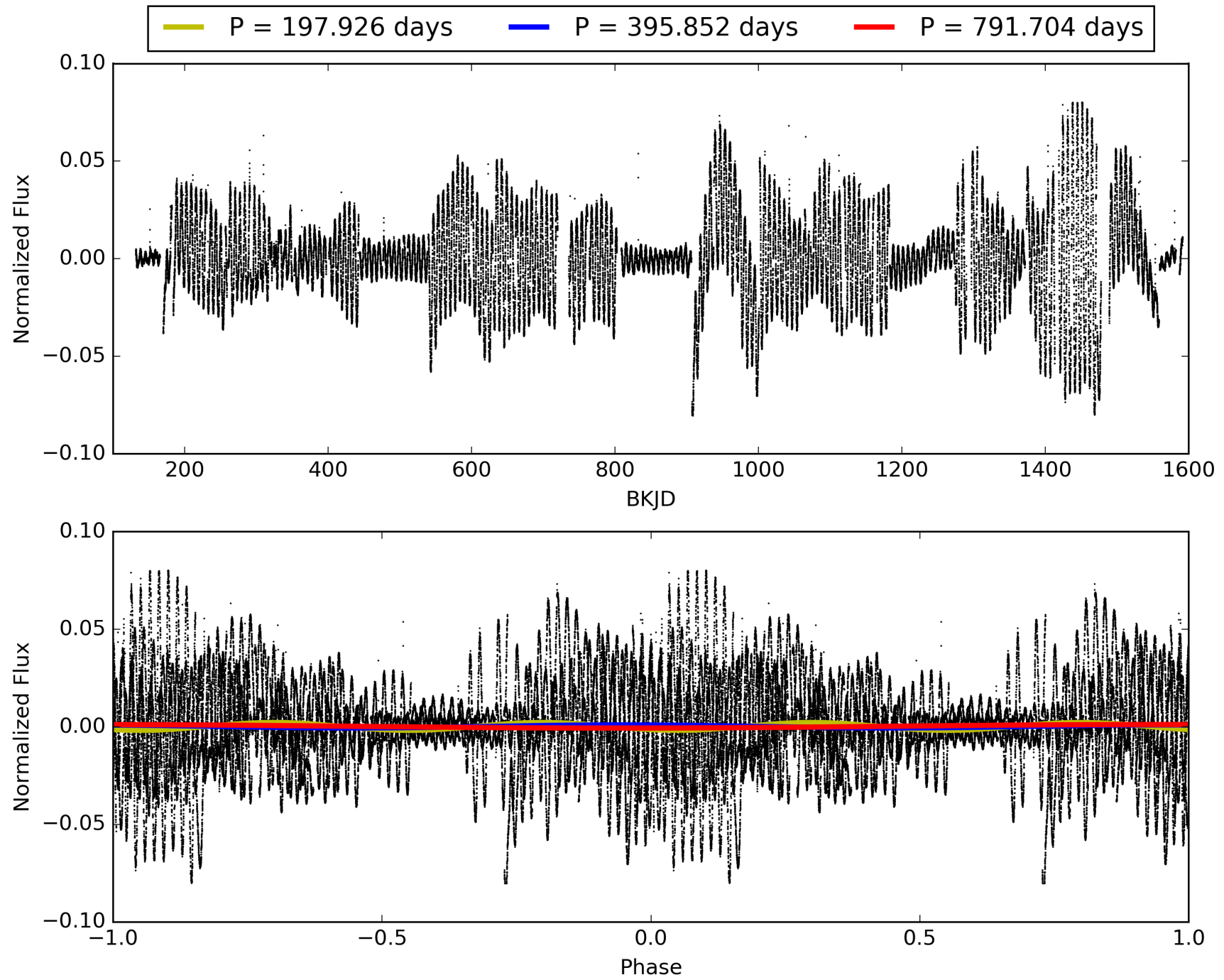
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:48:51 Z

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

TCE 005131463-02, PDC Light Curves

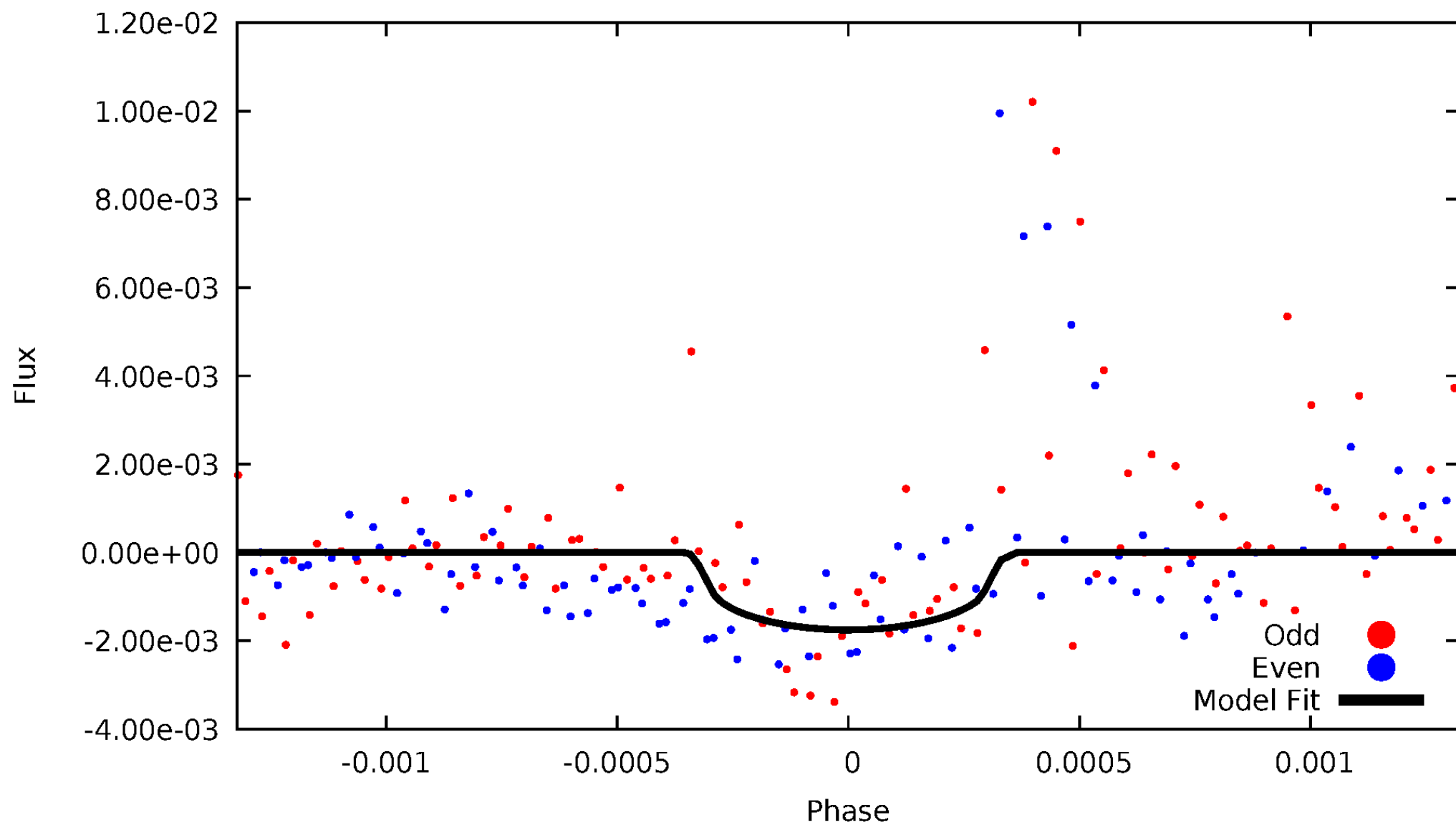


TCE 005131463-02



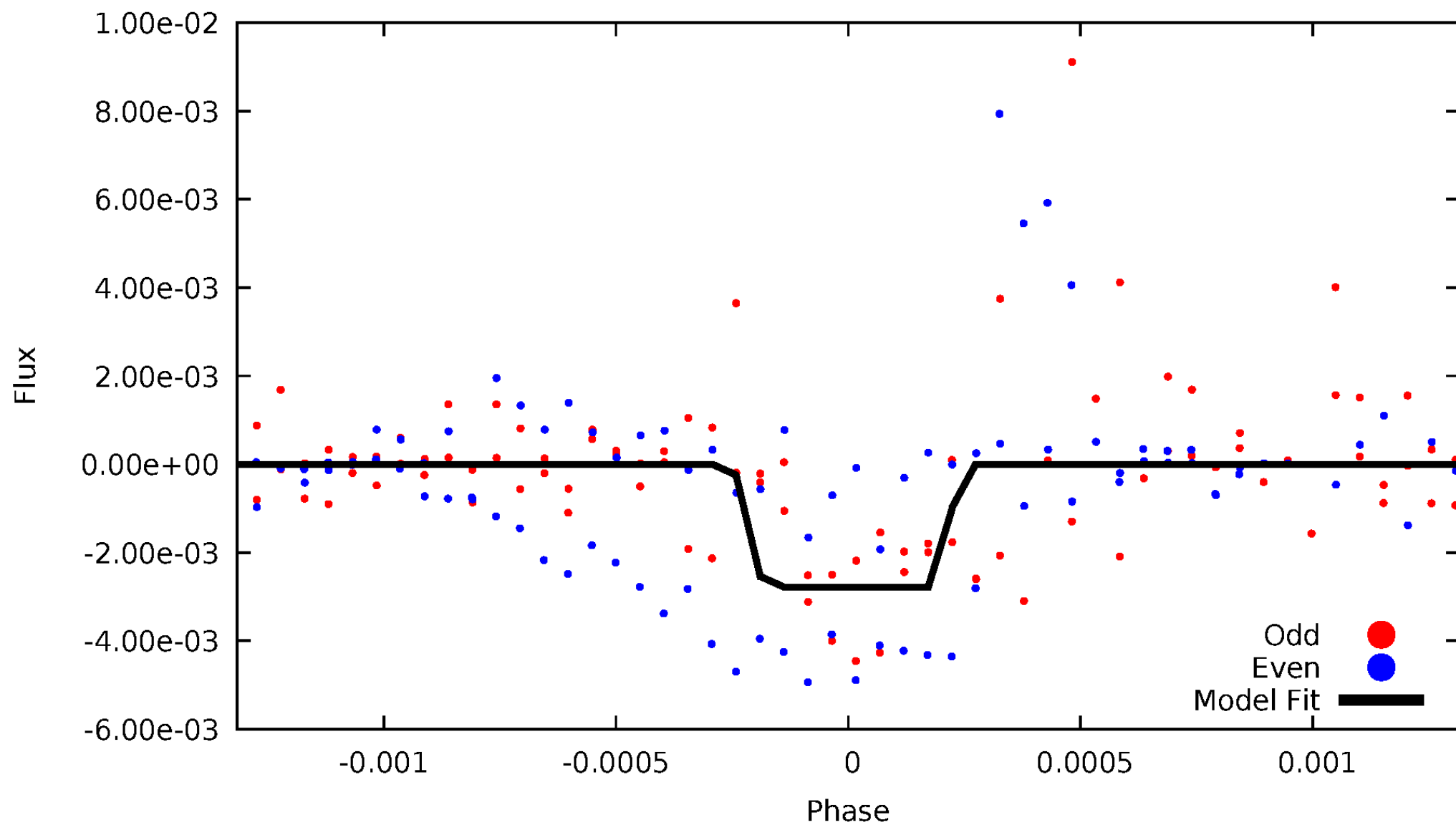
DV Odd/Even

TCE 005131463-02



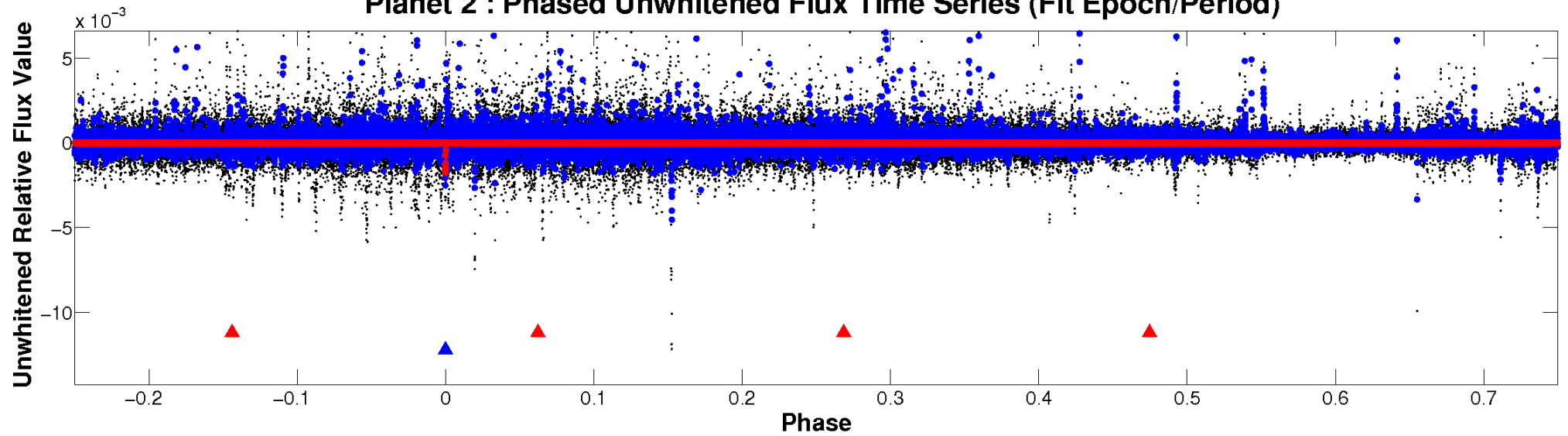
ALT Odd/Even

TCE 005131463-02

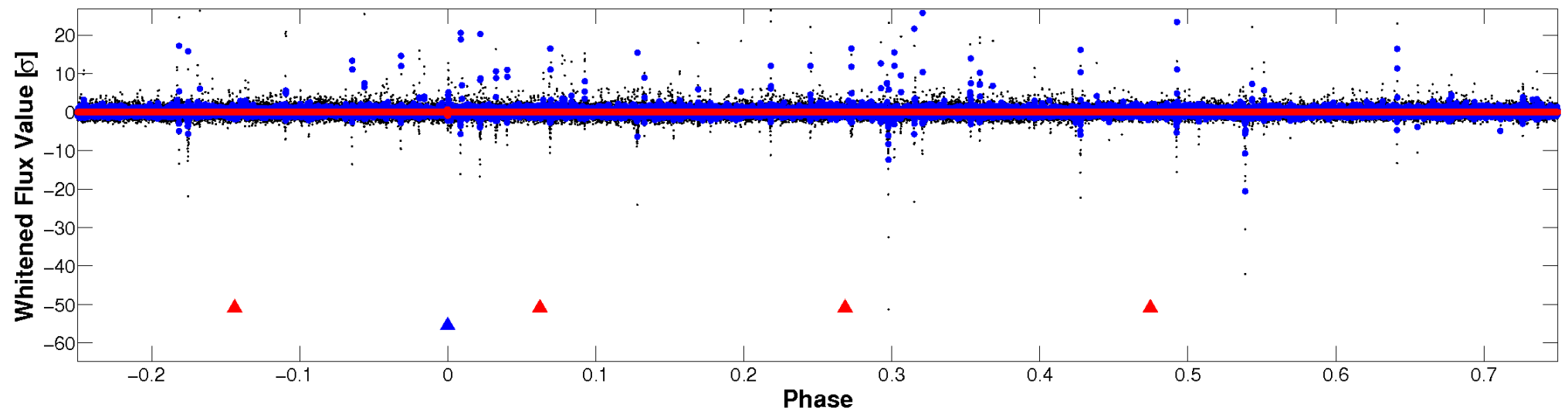


Non-Whitened Vs. Whitened Light Curve

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

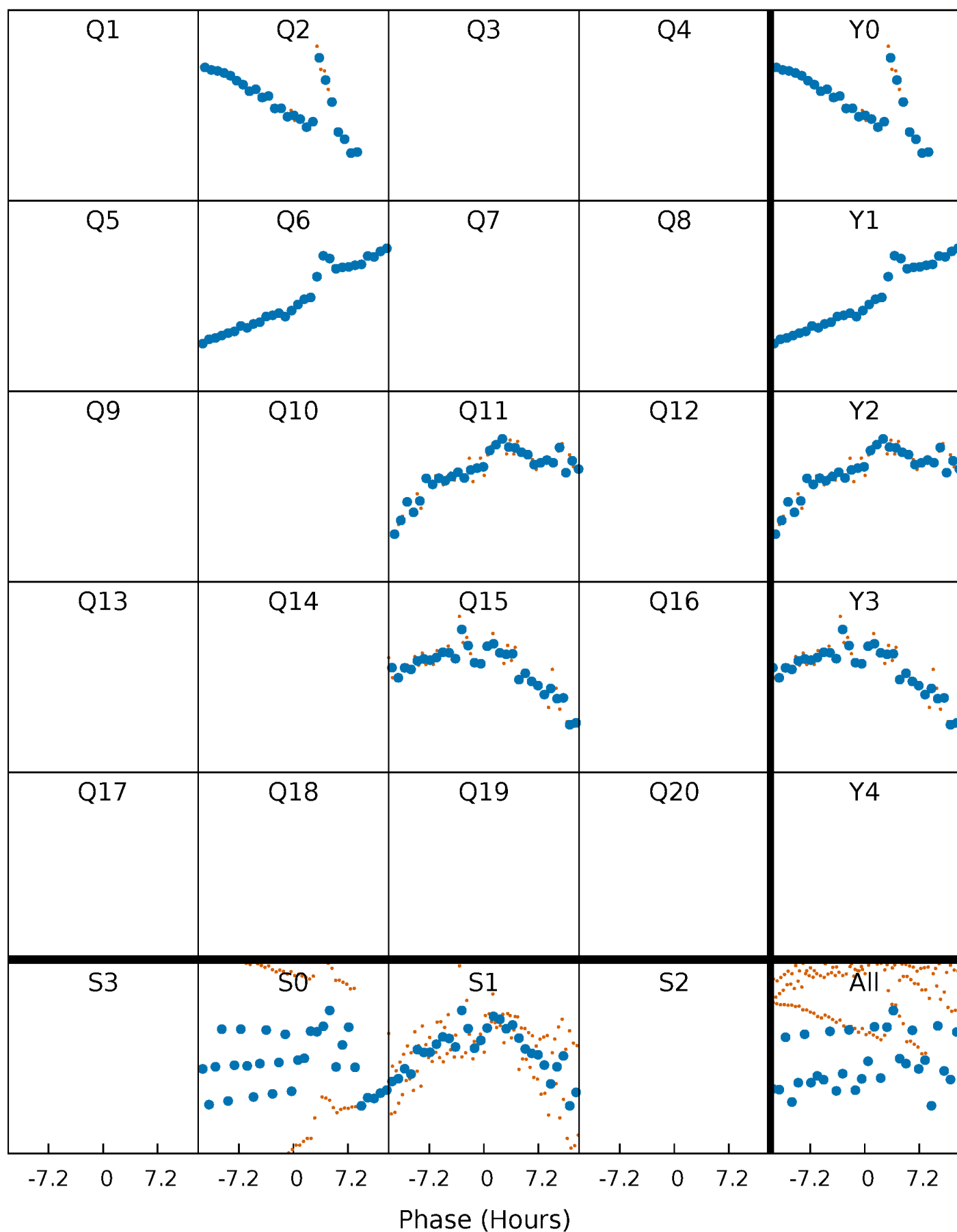


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



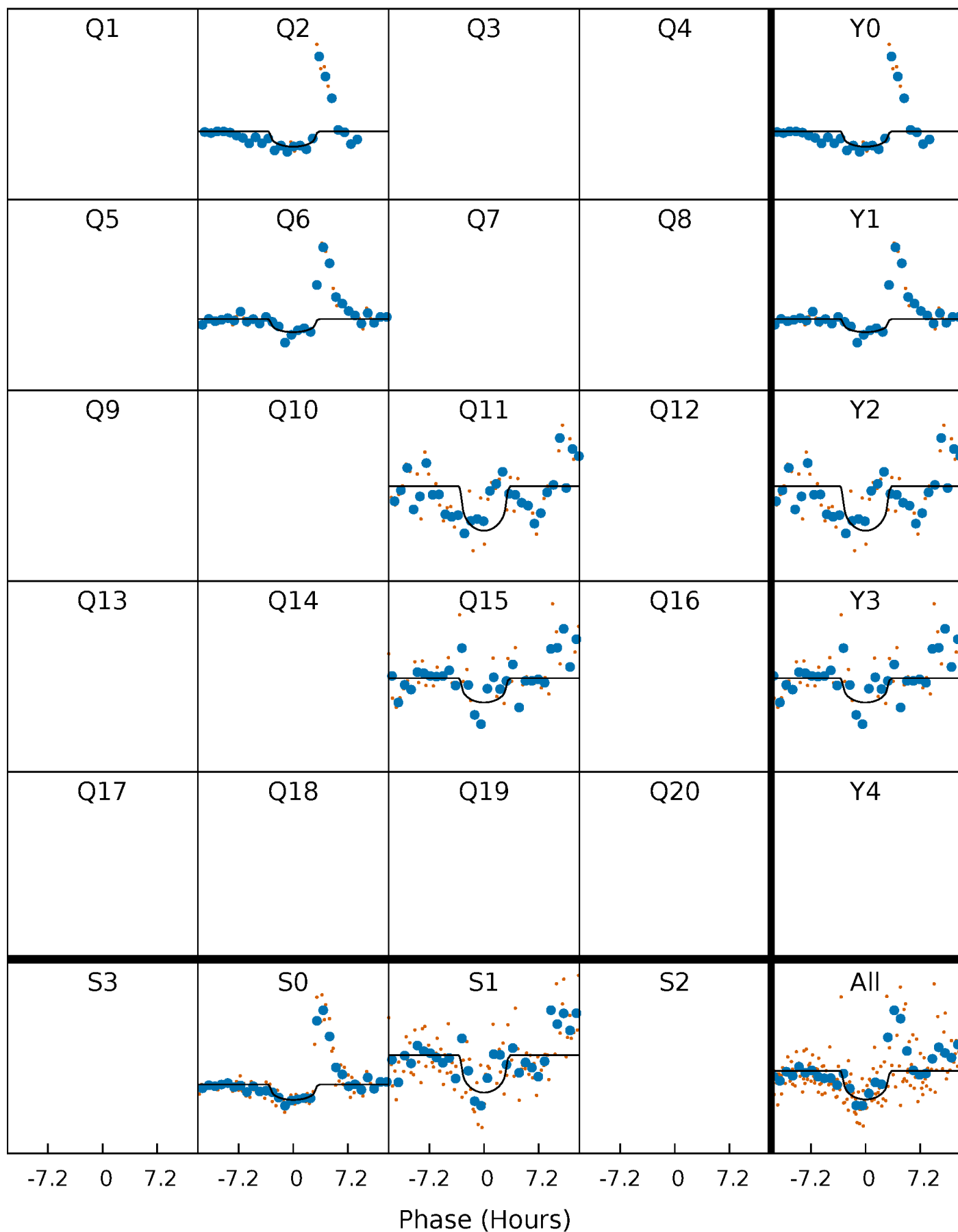
PDC Quarter-Phased Transit Curves

TCE 005131463-02 P=395.852205 Days $T_0=223.131917$ (BKJD)



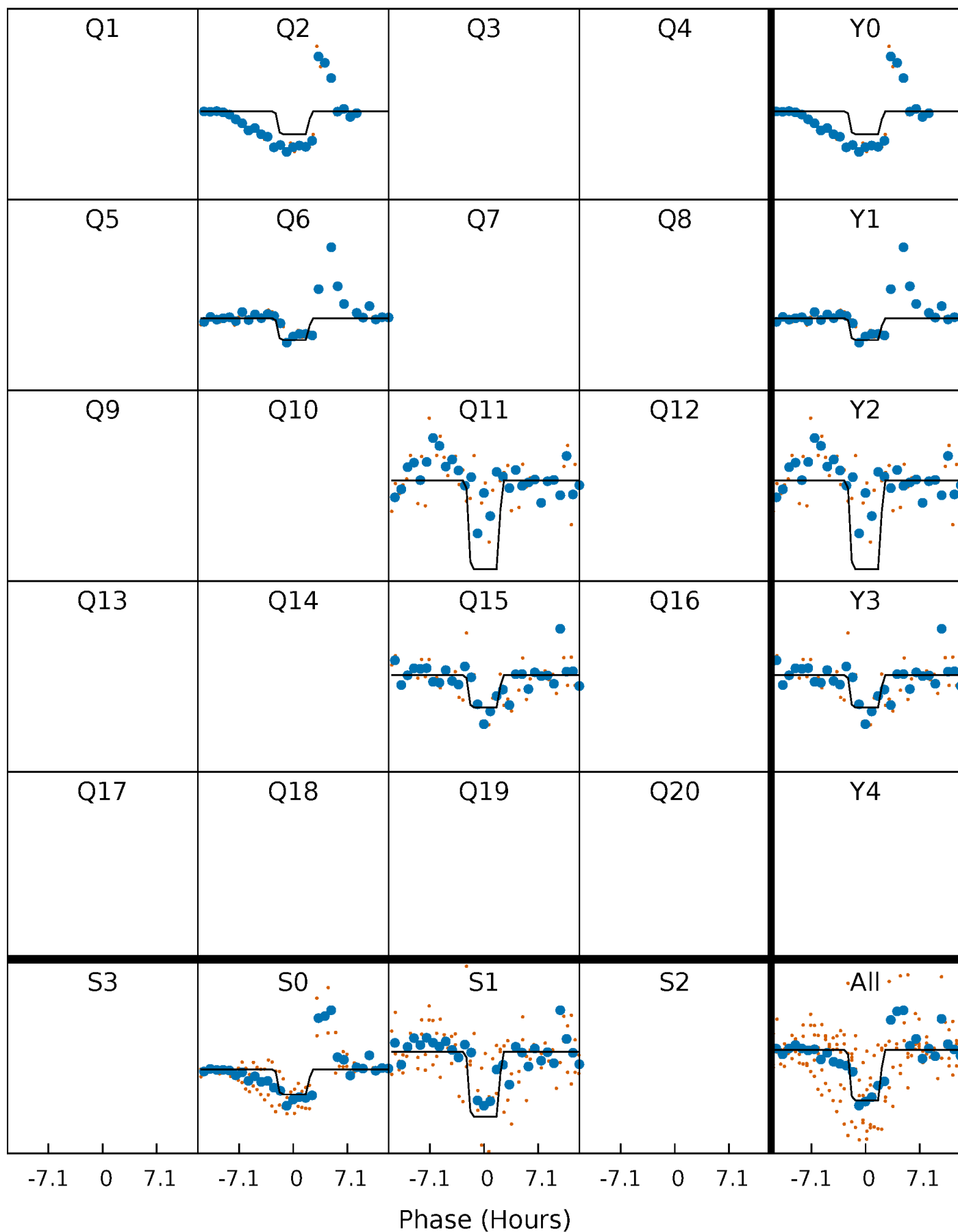
DV Quarter-Phased Transit Curves

TCE 005131463-02 P=395.852205 Days $T_0=223.131917$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

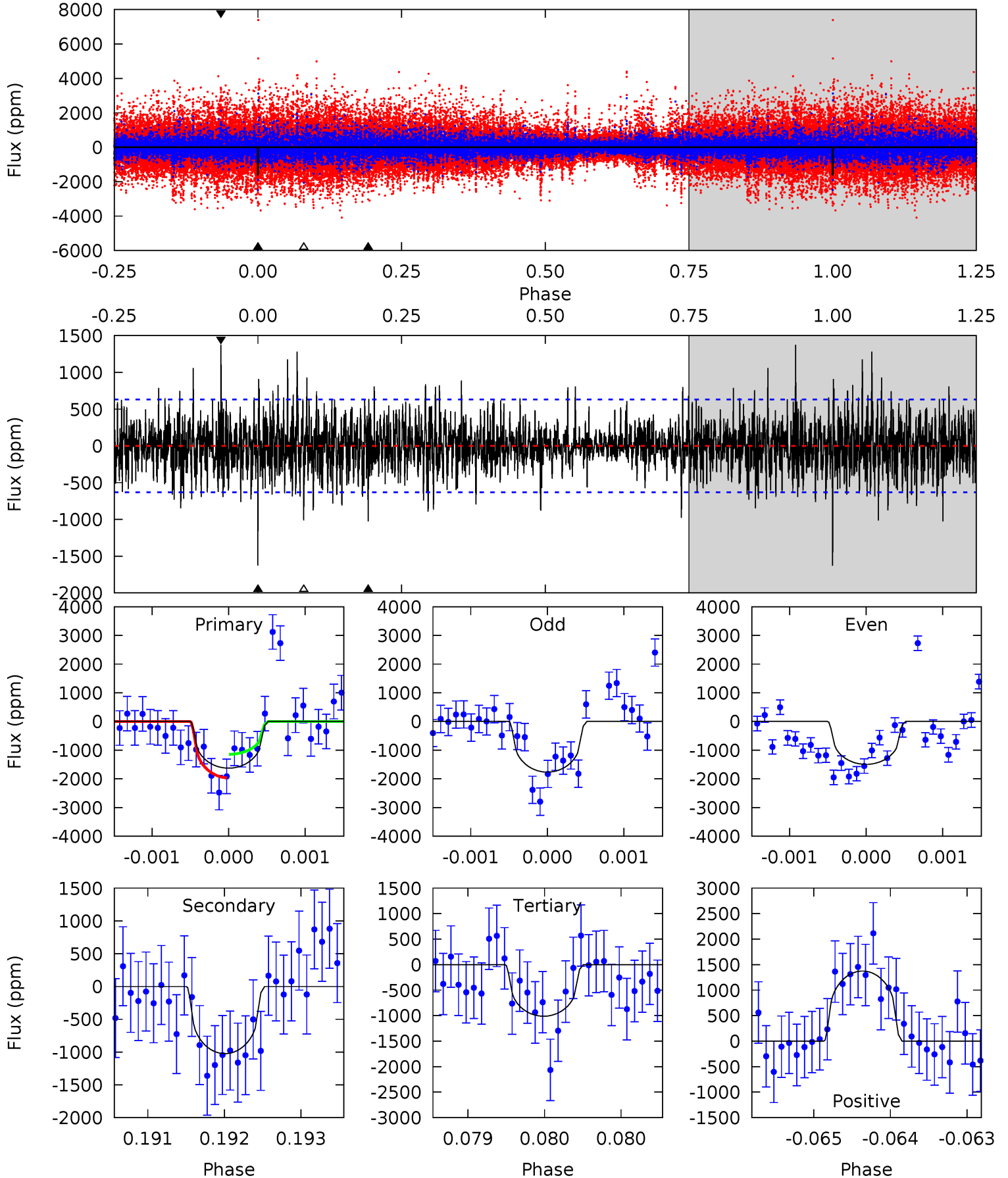
TCE 005131463-02 P=395.838924 Days $T_0=223.132824$ (BKJD)



DV Model-Shift Uniqueness Test

005131463-02, P = 395.852205 Days, E = 223.131917 Days

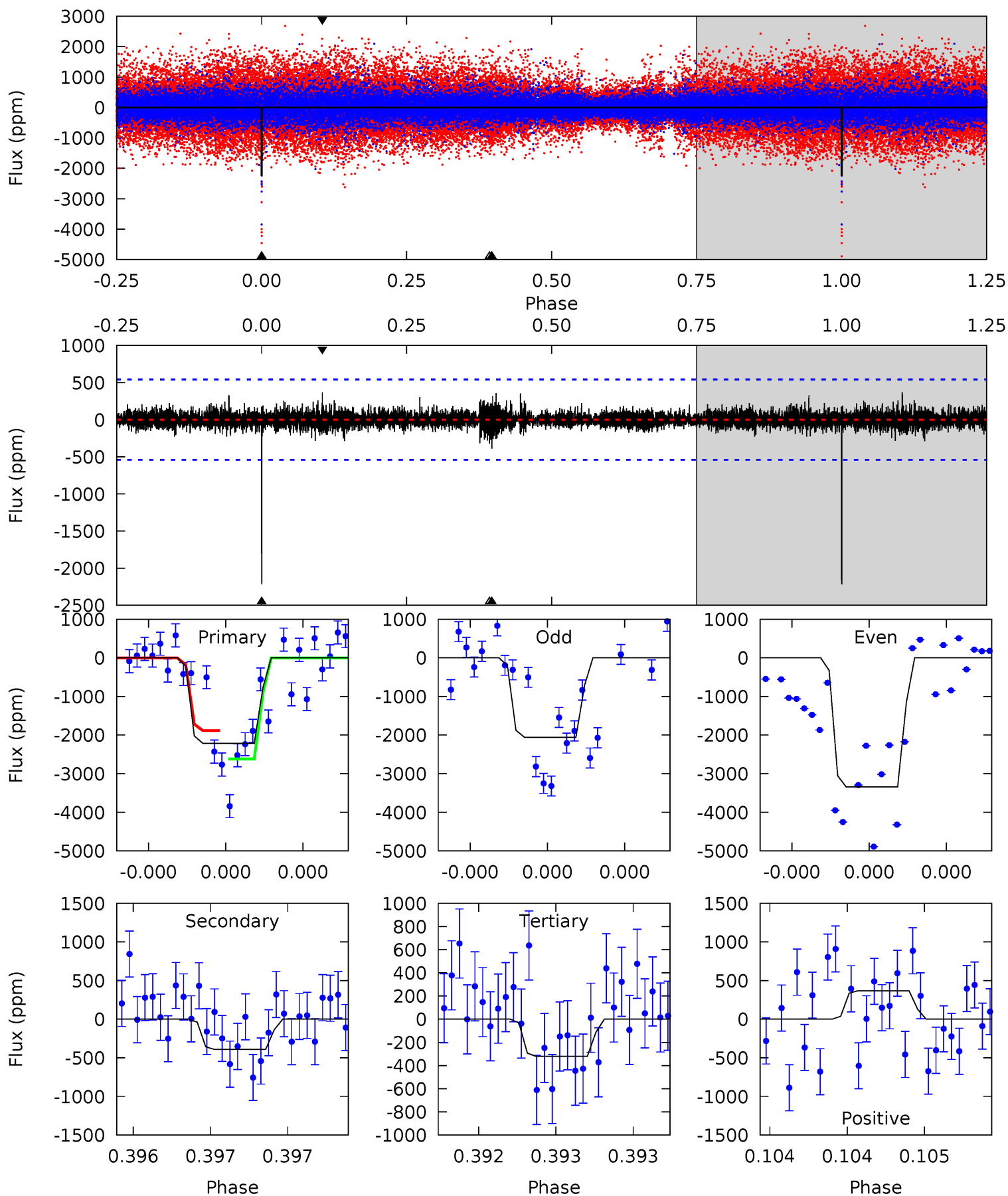
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	8.95	8.84	12.0	5.51	3.39	2.24	5.38	2.21	0.11	-3.06	1.01	0.99	0.46	3.63



Alt Model-Shift Uniqueness Test

005131463-02, P = 395.838924 Days, E = 223.132824 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	4.03	3.31	3.78	5.59	3.50	0.67	19.5	19.1	0.72	0.25	7.02	1.08	0.14	0



Stellar Parameters For KIC 005131463

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4289^{+129}_{-129}	$4.657^{+0.024}_{-0.039}$	$0.100^{+0.250}_{-0.300}$	$0.644^{+0.043}_{-0.047}$	$0.689^{+0.036}_{-0.067}$	$3.627^{+0.483}_{-0.514}$
	+3%/-3%	+1%/-1%	+250%/-300%	+7%/-7%	+5%/-10%	+13%/-14%
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 005131463-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1024 ± 114	$3.63^{+2.79}_{-2.47}$	220^{+7}_{-7}	3630^{+1907}_{-584}	$35726^{+307917}_{-24307}$
Alt.	-391 ± 97	$4.35^{+2.88}_{-2.44}$	221^{+7}_{-7}	2996^{+893}_{-438}	9958^{+43296}_{-6727}

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 $A_{obs} \gg 1.0$

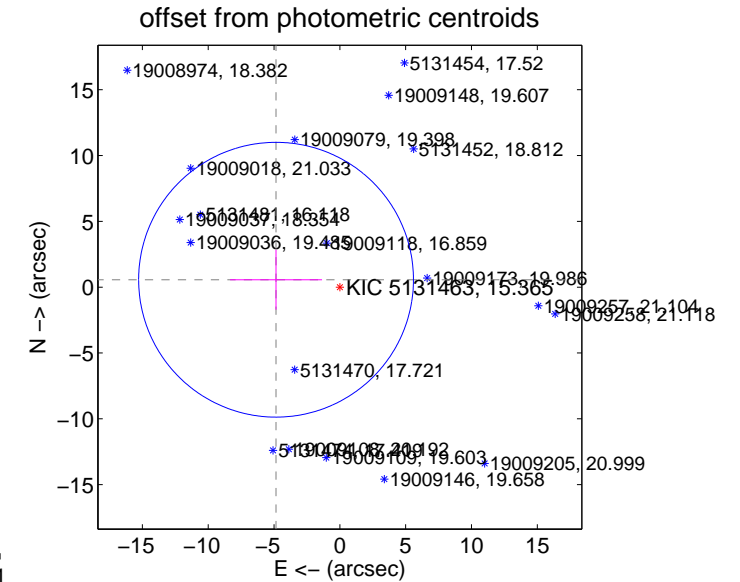
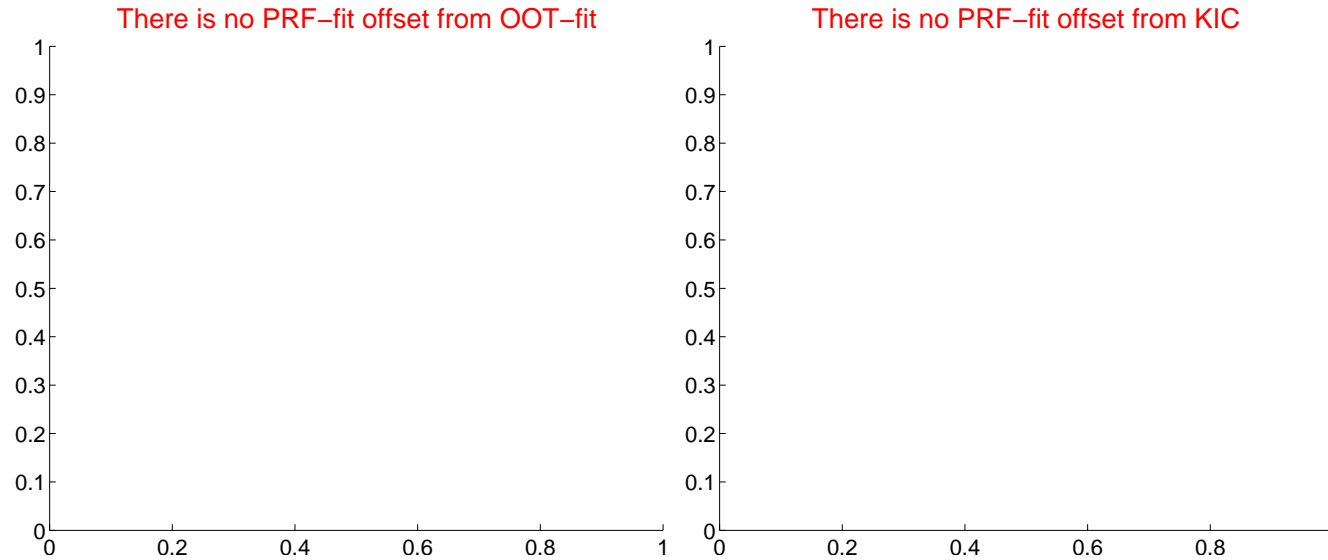
DV Centroid Data

Supplemental centroid analysis for 005131463-02. Kepler magnitude: 15.37. Transit SNR 6.06

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	4.88 ± 3.48	1.40	4.85 ± 3.49	0.56 ± 2.27

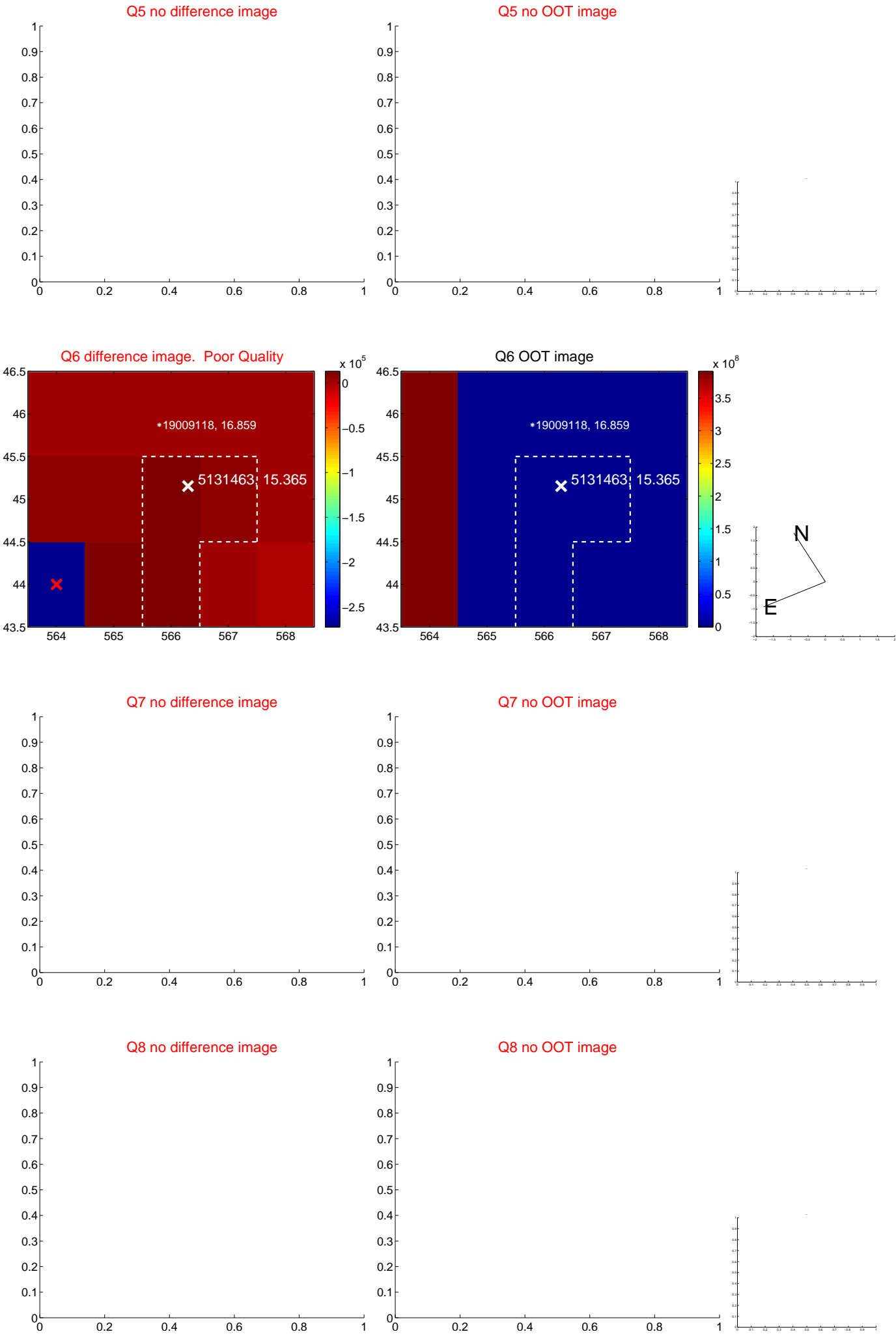


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

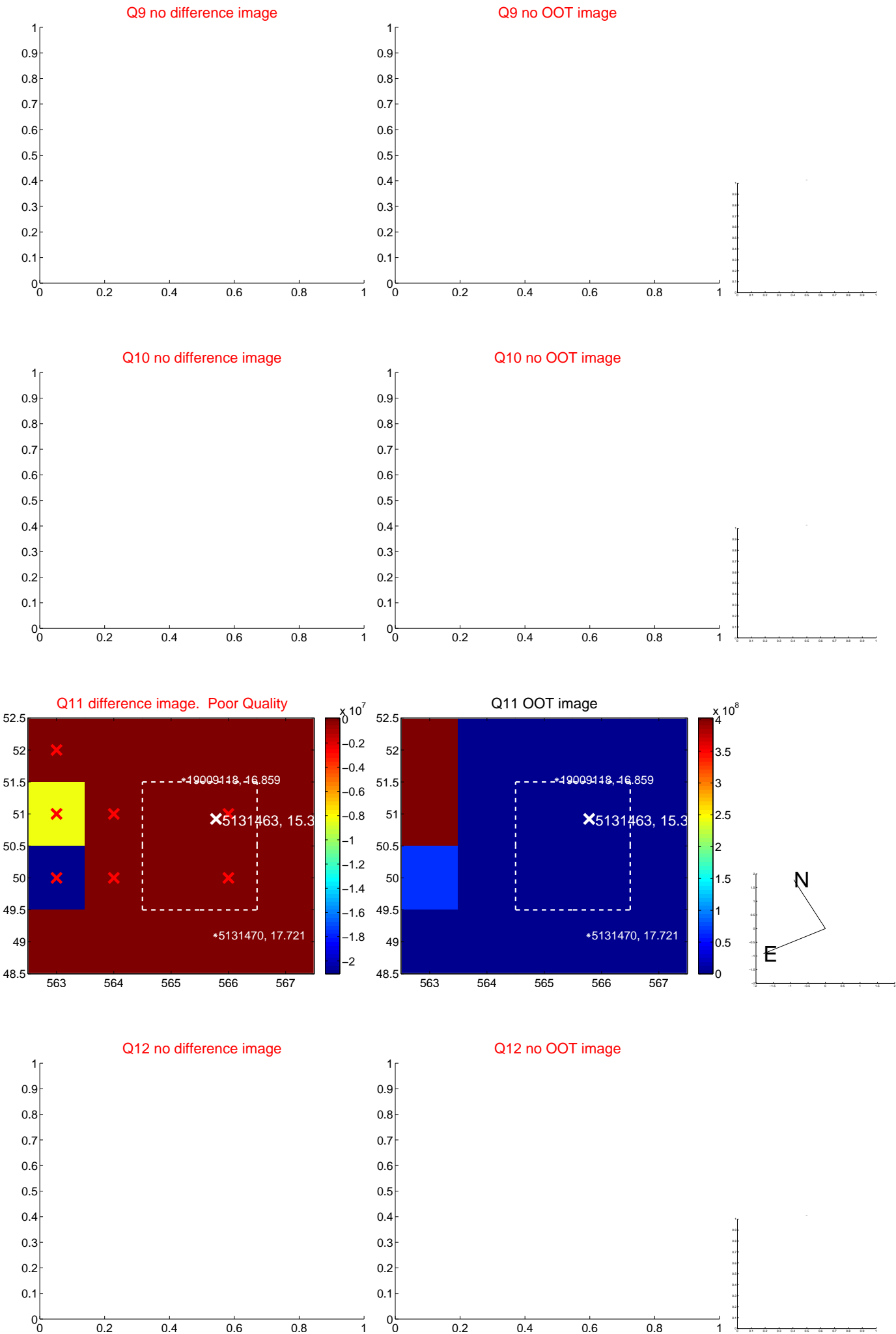
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



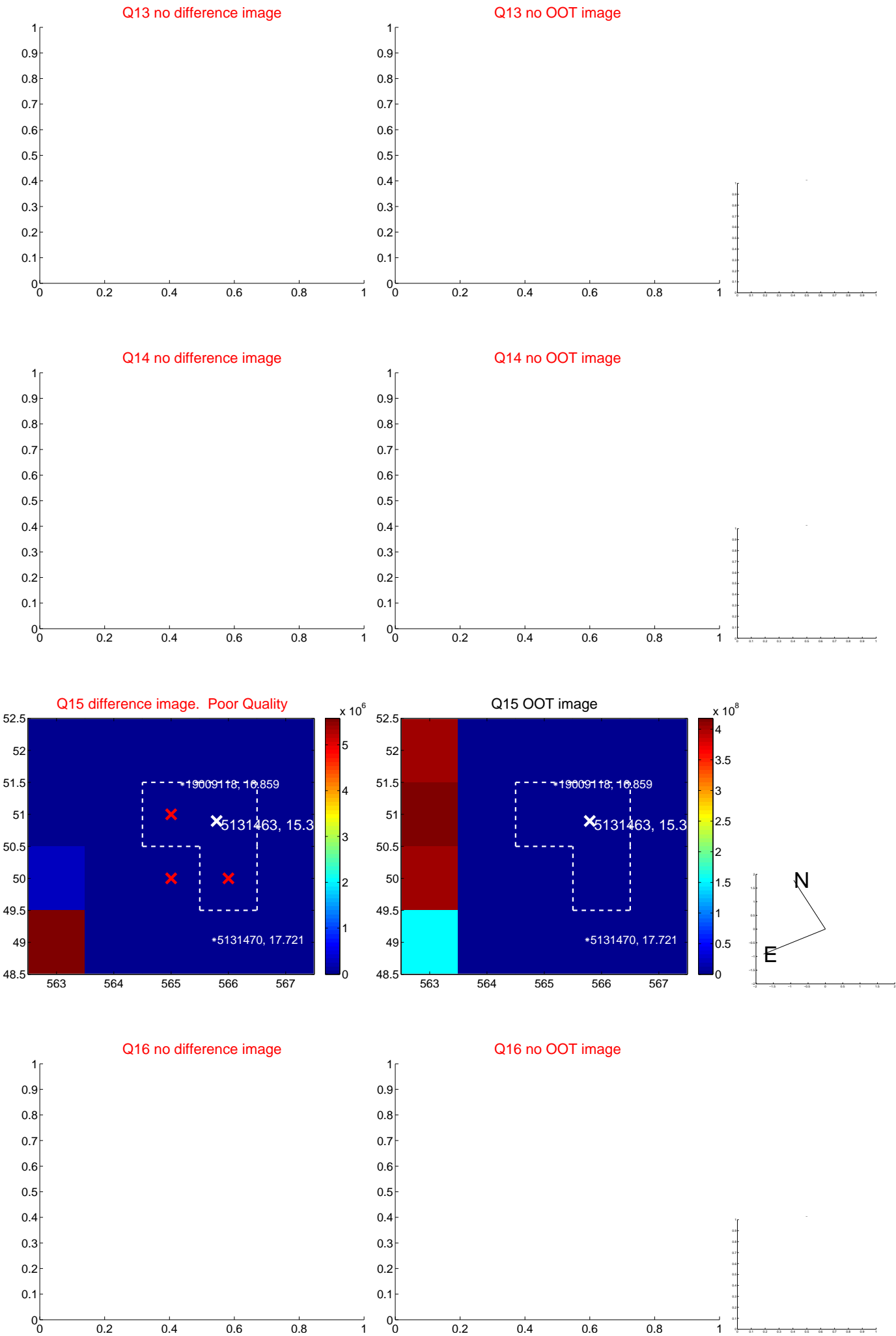
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



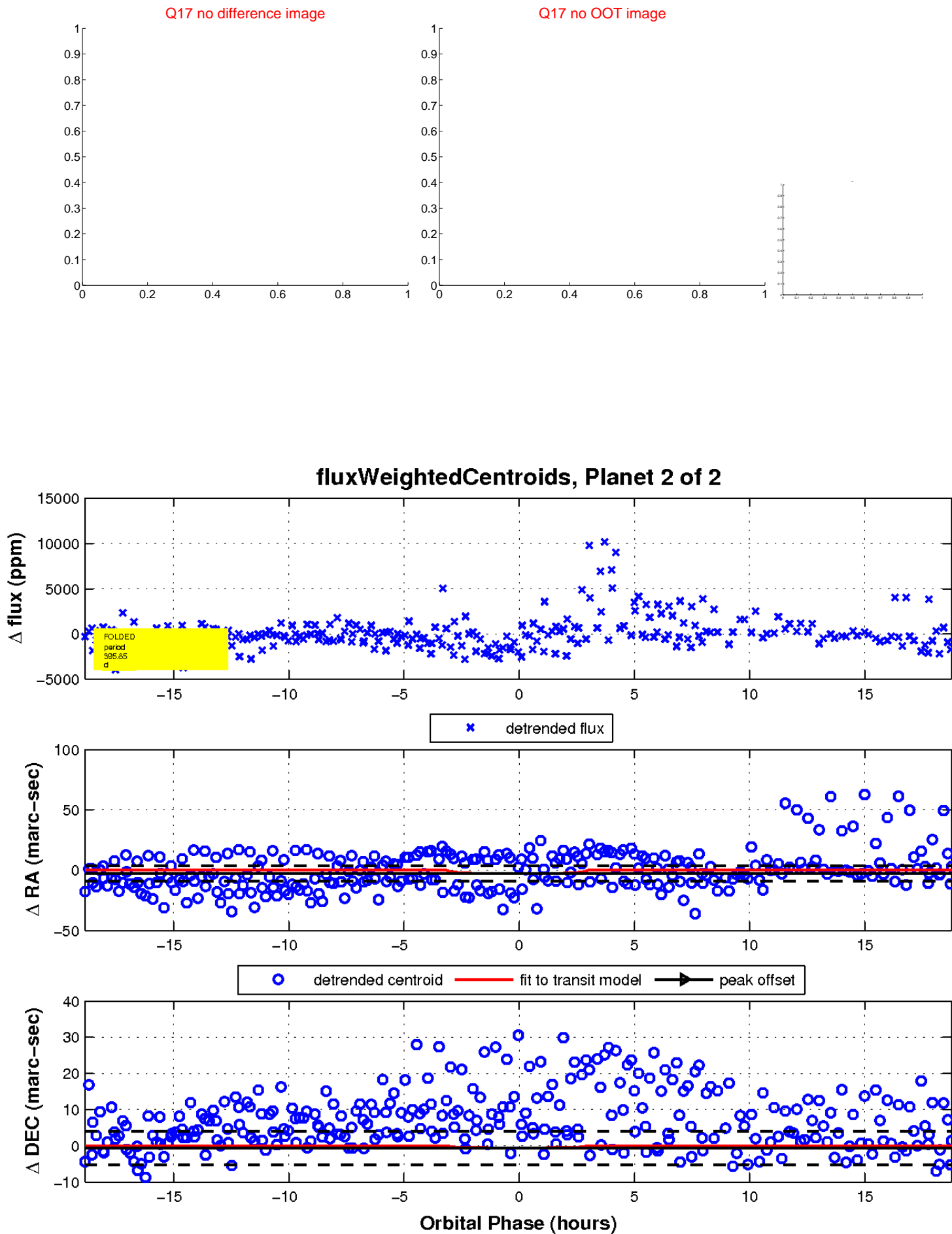
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

