

KIC 008161798

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})
008161798-01	OBS	No	2.202885	131.630403	7.6	4.190	17.5	6.6	2.68	10974	0.84	41956.32
008161798-02	OBS	No	0.733609	131.941544	4.2	2.970	11.8	5.1	2.68	10974	0.61	181760.93
008161798-03	OBS	No	2.203004	132.591757	10.2	5.347	9.3	7.4	2.68	10974	1.07	41953.28
008161798-04	OBS	No	458.559029	176.638089	217.4	22.793	11.0	7.3	2.68	10974	4.17	34.01
008161798-05	OBS	No	93.996696	205.691396	214.3	1.783	10.8	7.0	2.68	10974	4.30	281.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008161798-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008161798-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008161798-03	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_SATURATED—EPHEM_MATCH
008161798-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008161798-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

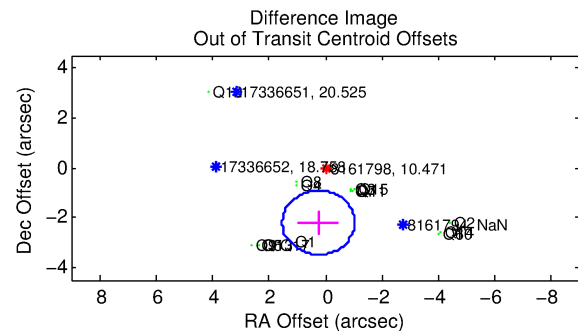
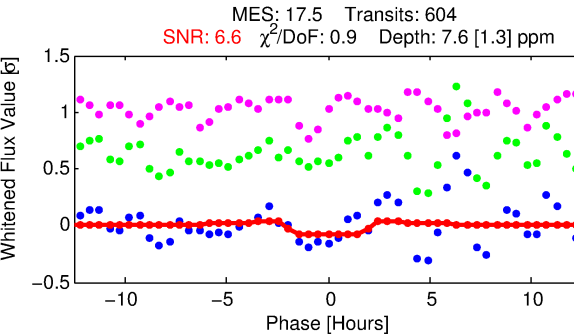
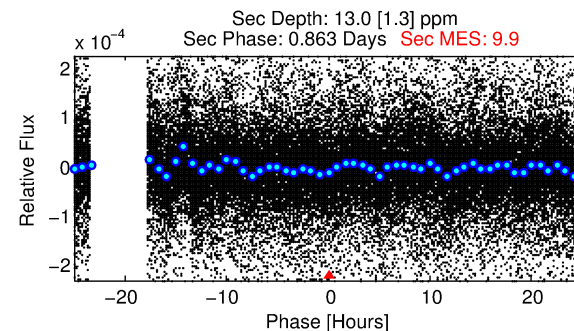
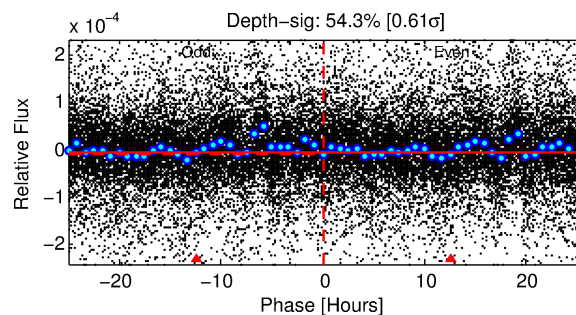
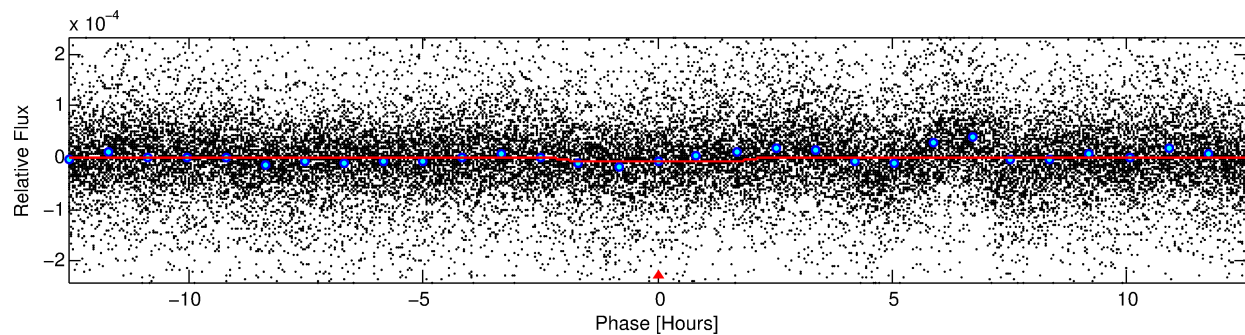
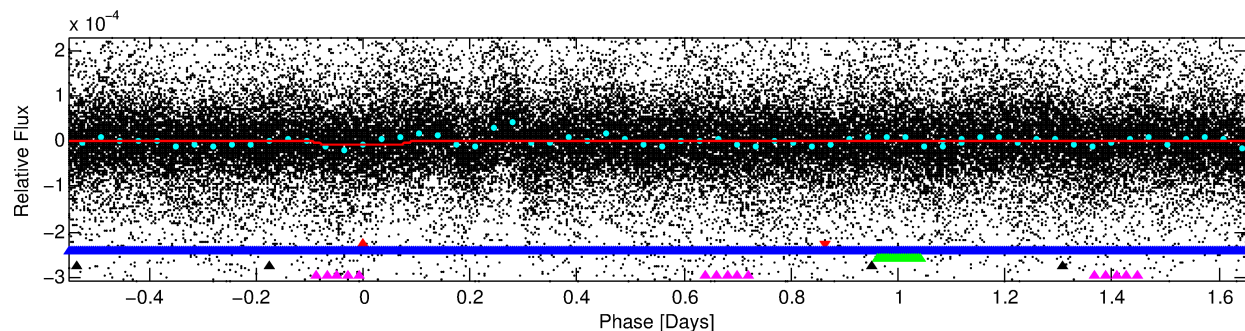
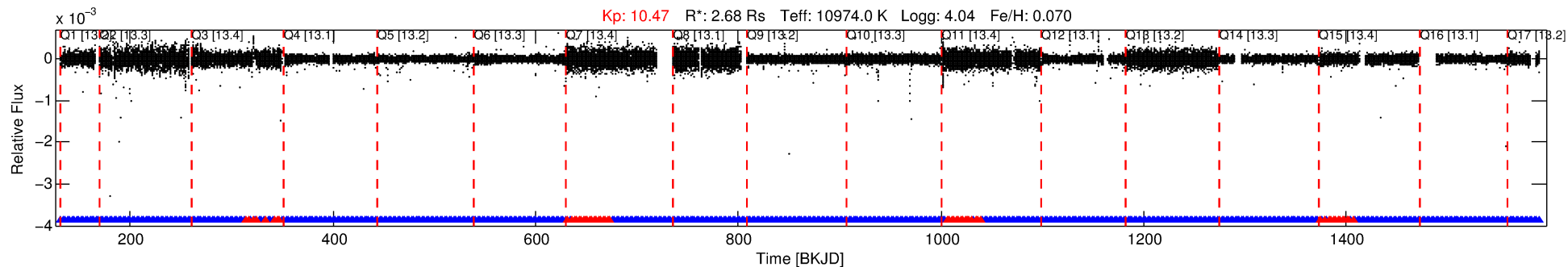
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008161798-01

No Significant Match Found

DV One-Page Summary

KIC: 8161798 Candidate: 1 of 5 Period: 2.203 d



DV Fit Results:

Period = 2.20288 [0.00002] d
Epoch = 131.6304 [0.0049] BKJD
Rp/R* = 0.0029 [0.0004]
a/R* = 2.01 [1.39]
b = 0.90 [0.20]
Seff = 41956.32 [20295.95]
Teq = 3649 [441] K
Rp = 0.84 [0.31] Re
a = 0.0471 [0.0141] AU
Ag = 22.28 [11.89] [1.79 σ]
Teffp = 12258 [1043] K [7.60 σ]

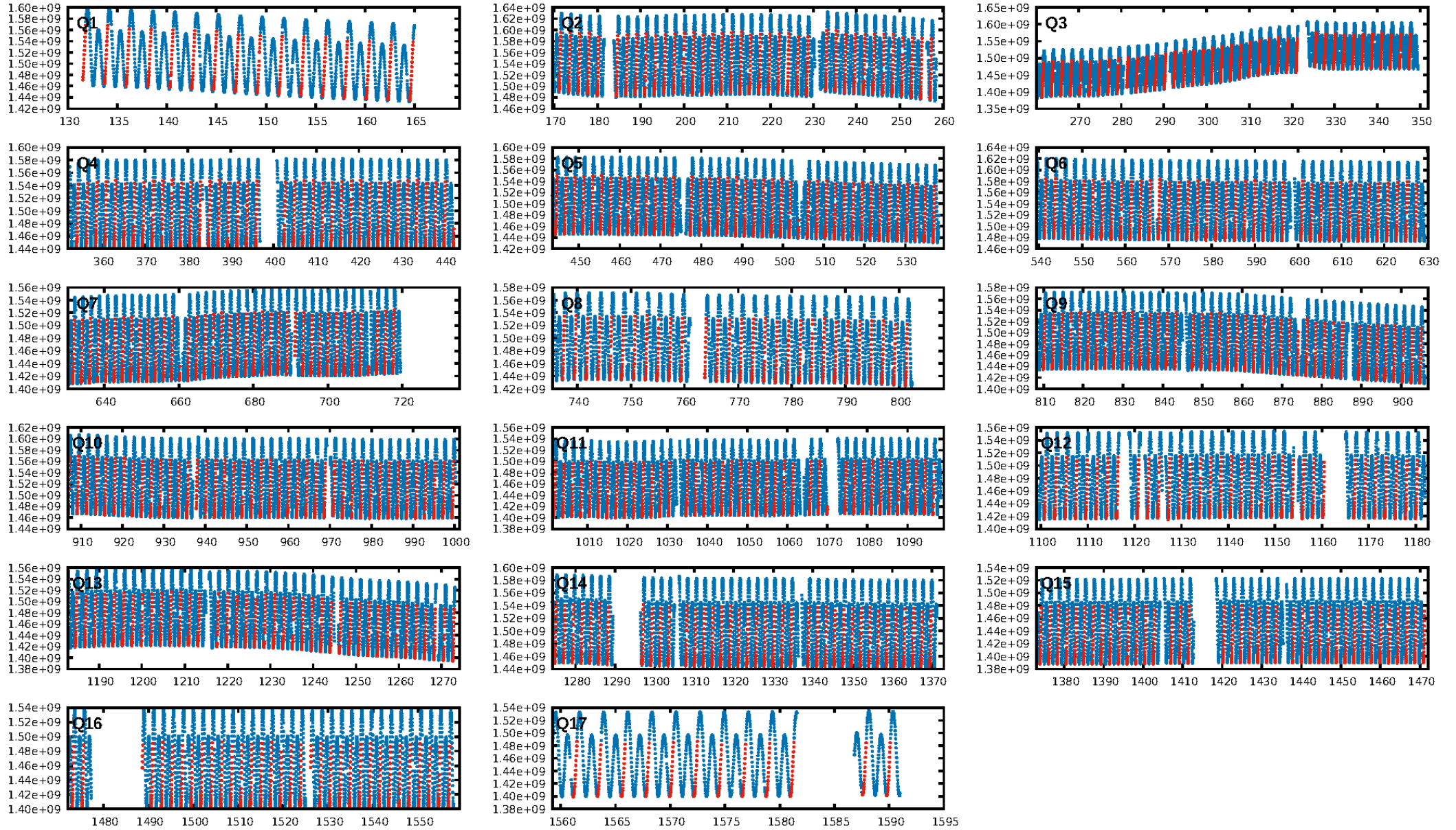
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.87 σ]
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.77e-42
RollingBand-fgt: 0.90 [521/576]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 5.364 arcsec [0.56 σ]
OotOffset-rm: 2.214 arcsec [5.19 σ]
KicOffset-rm: 2.299 arcsec [5.31 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.47 [8/17]
DiffImageOverlap-fno: 0.00 [0/17]

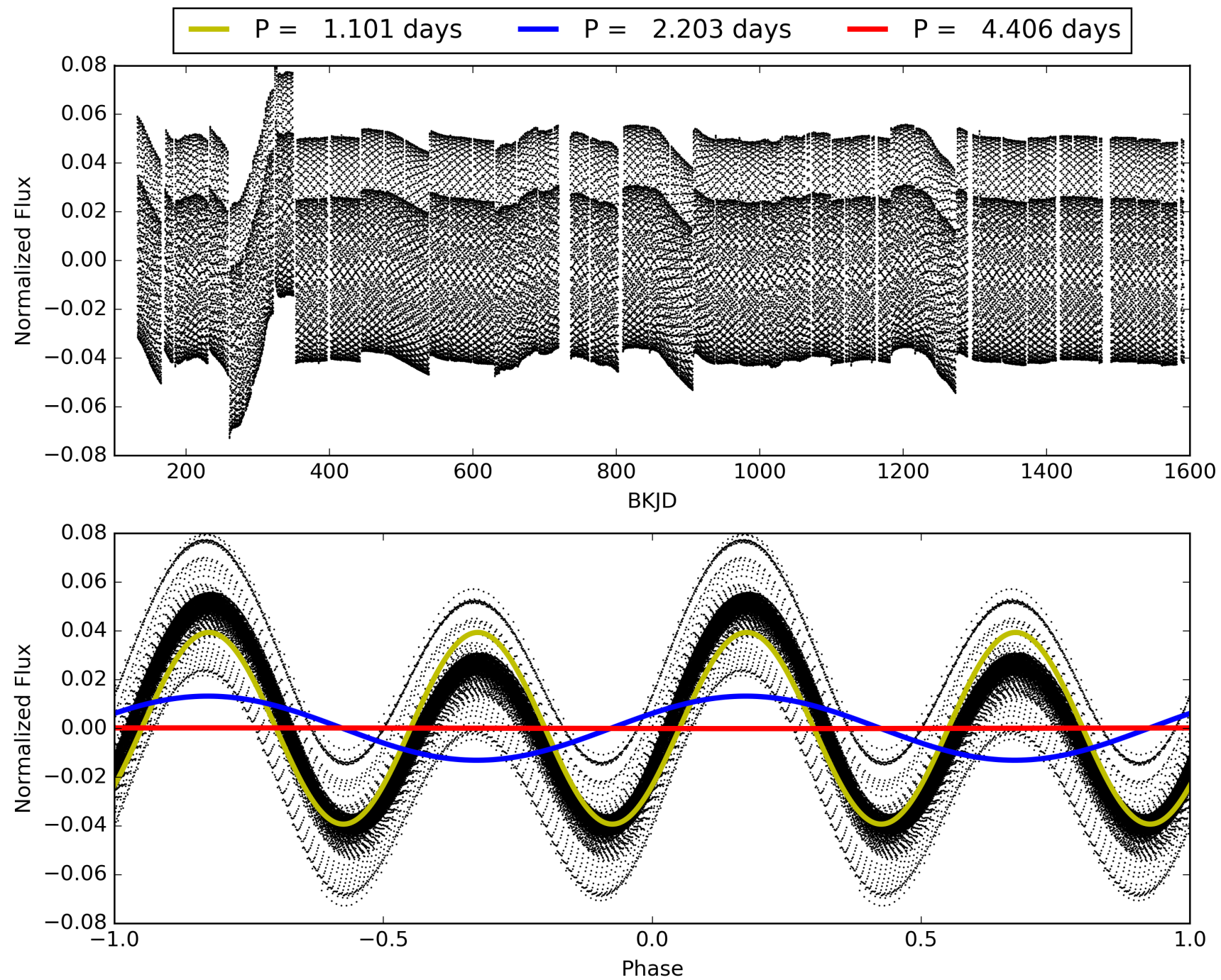
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008161798-01, PDC Light Curves

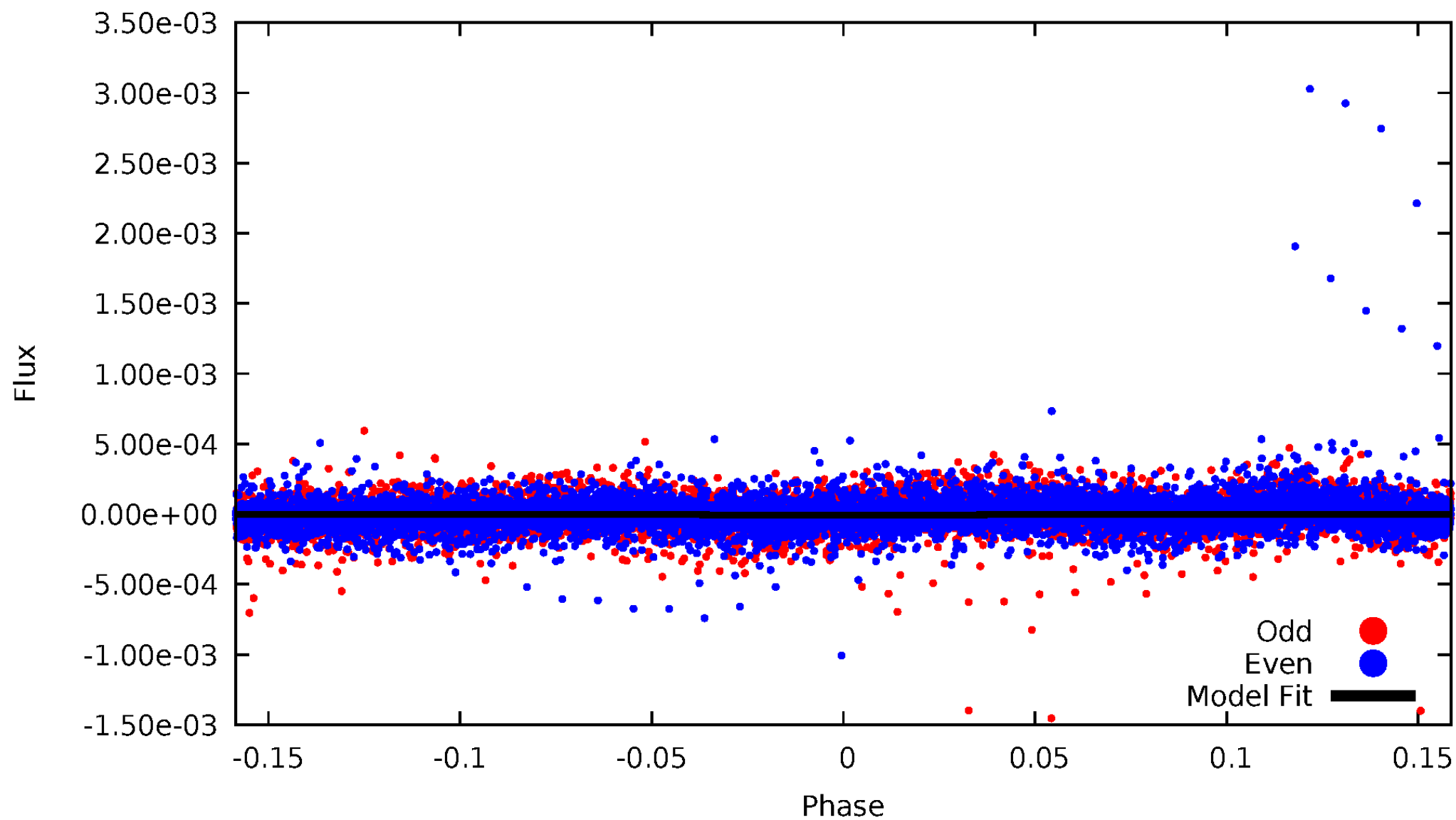


TCE 008161798-01



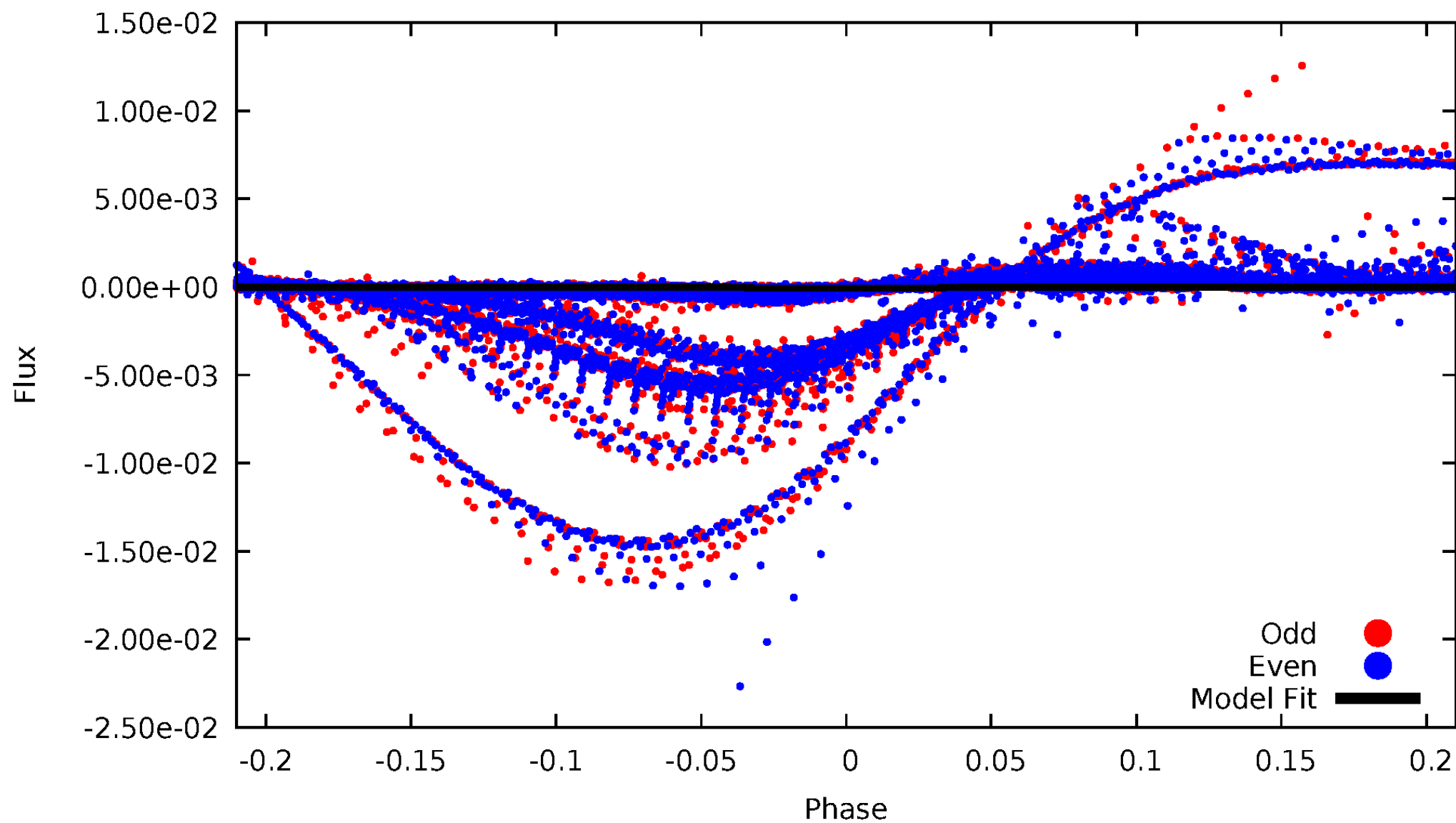
DV Odd/Even

TCE 008161798-01



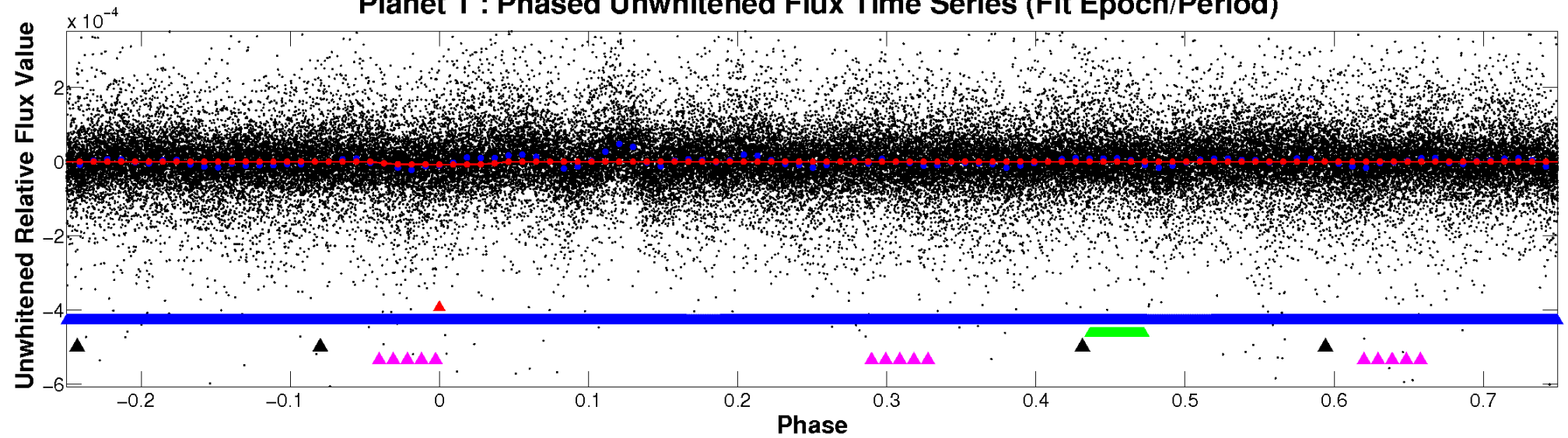
ALT Odd/Even

TCE 008161798-01

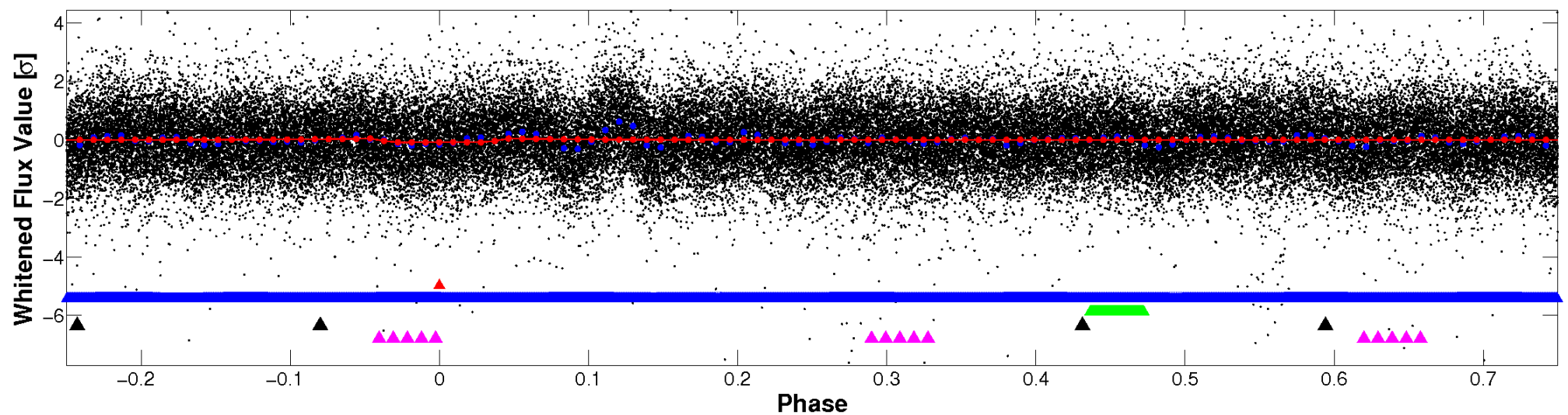


Non-Whitened Vs. Whitened Light Curve

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

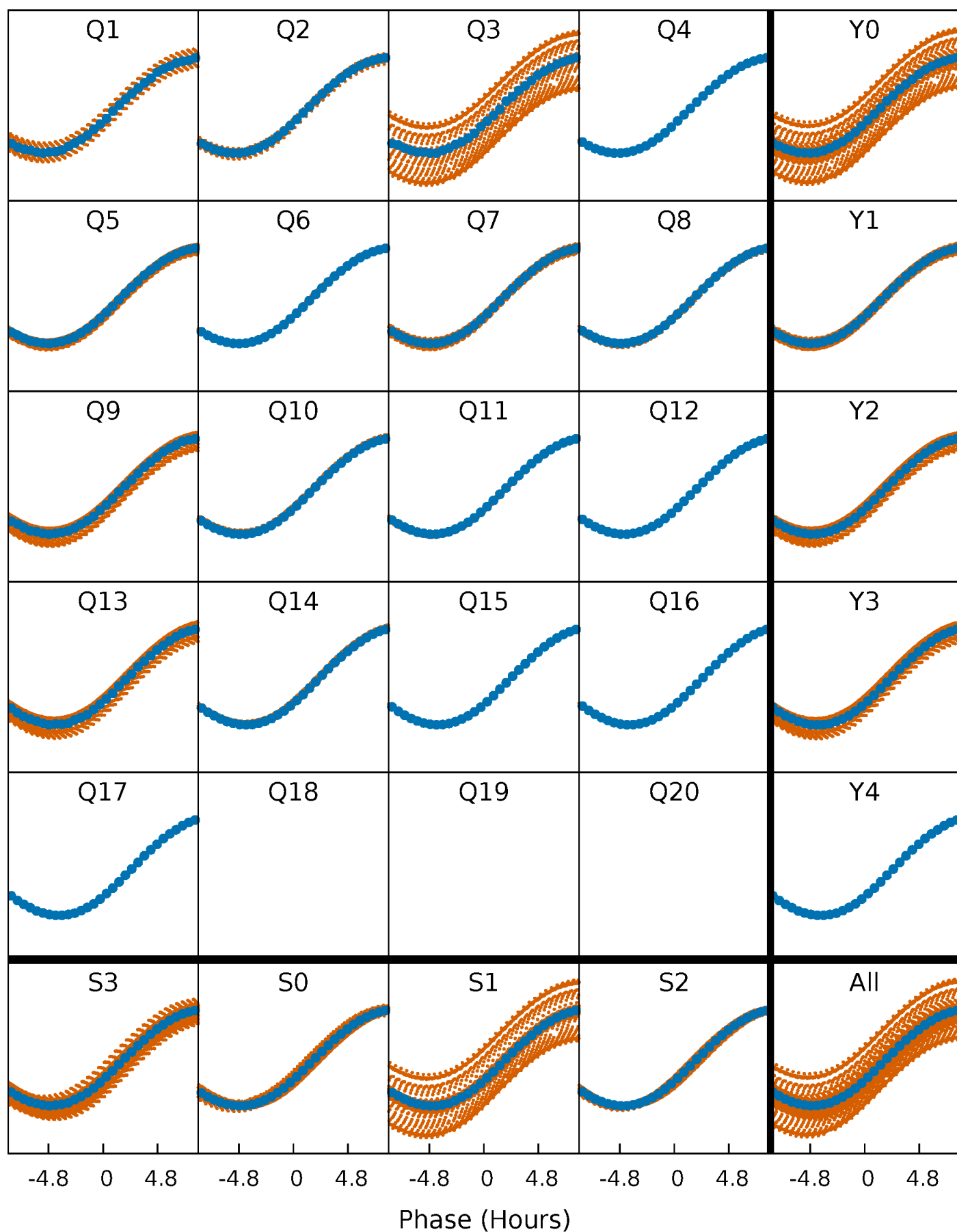


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



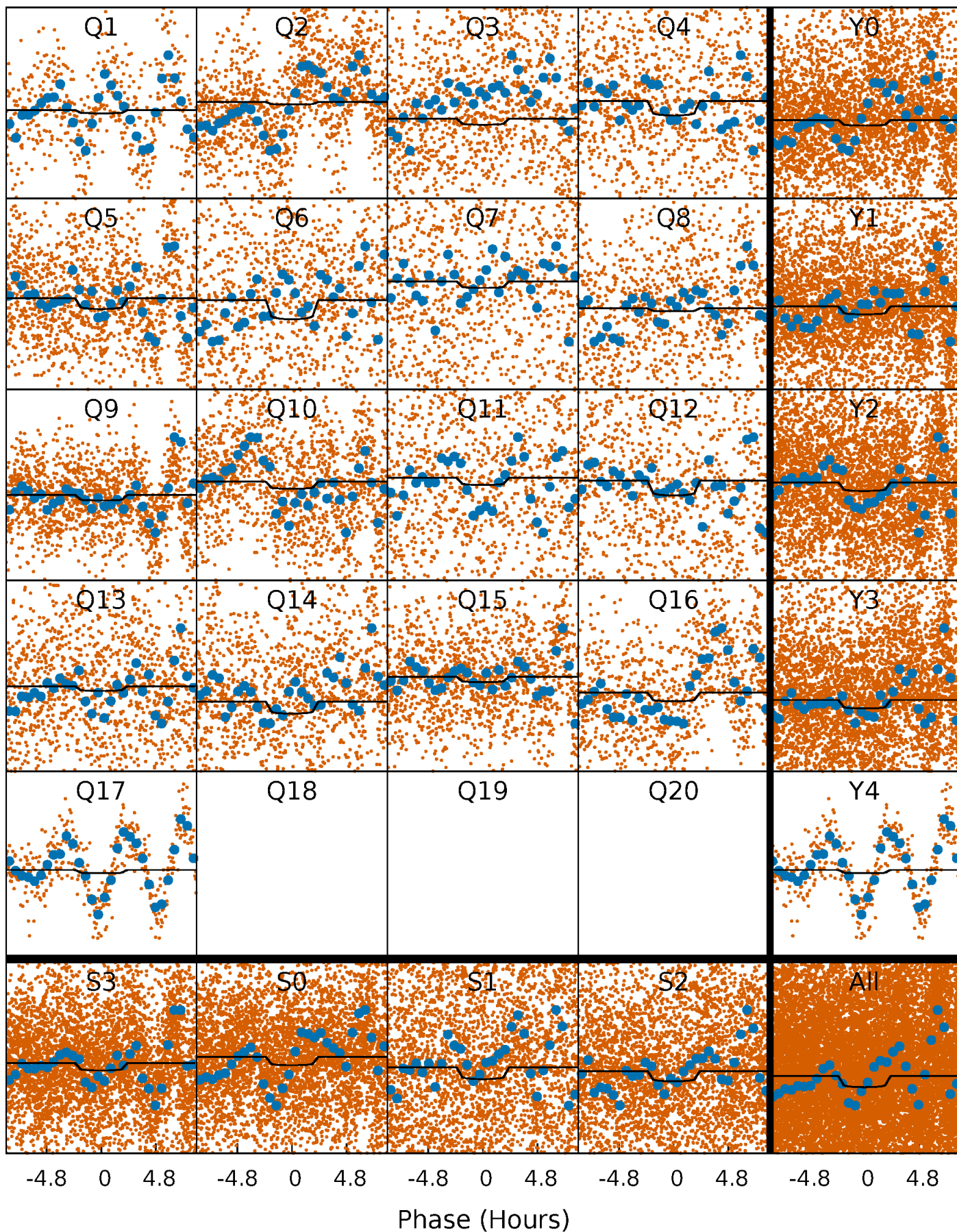
PDC Quarter-Phased Transit Curves

TCE 008161798-01 P= 2.202885 Days $T_0=131.630403$ (BKJD)



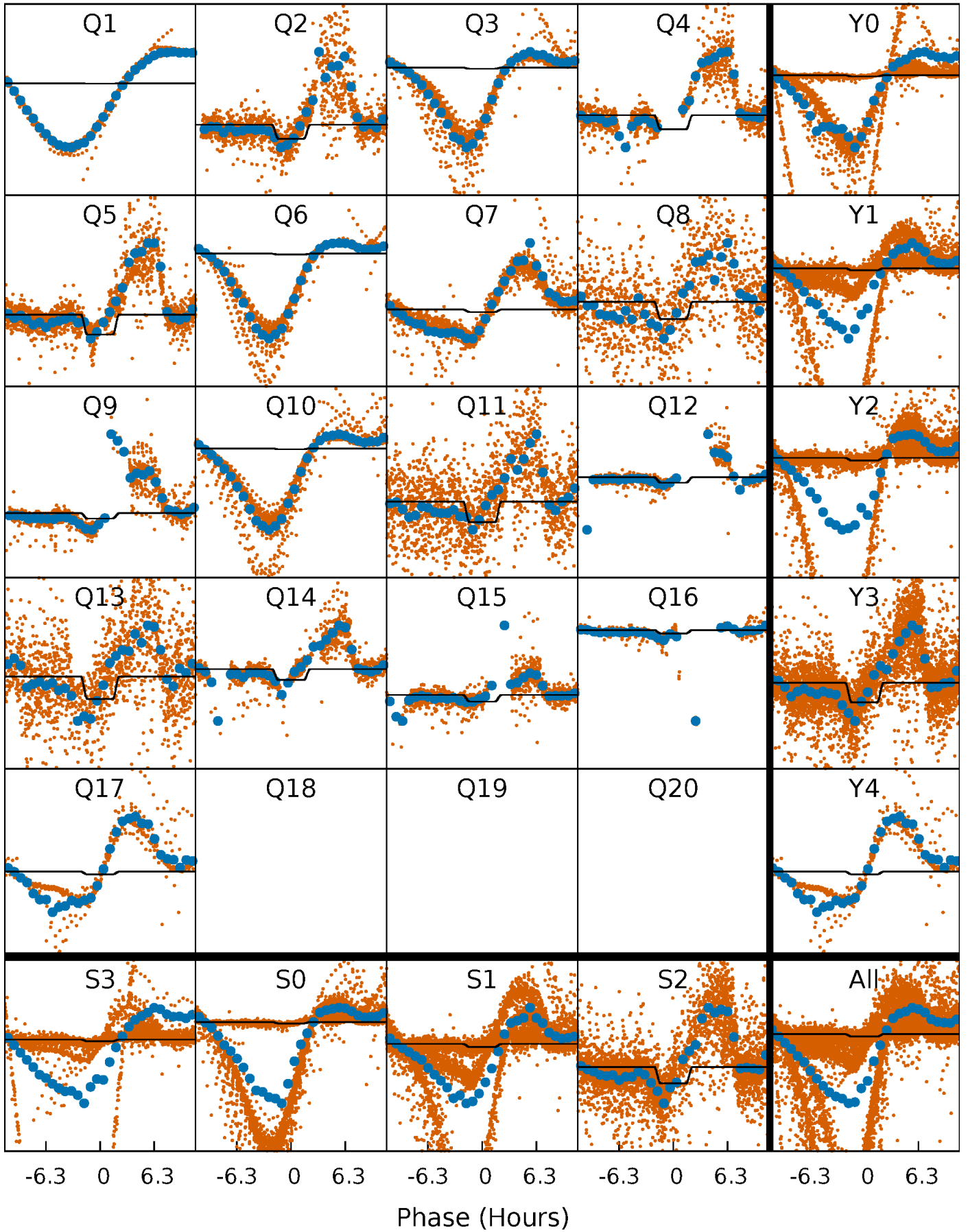
DV Quarter-Phased Transit Curves

TCE 008161798-01 P= 2.202885 Days $T_0=131.630403$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

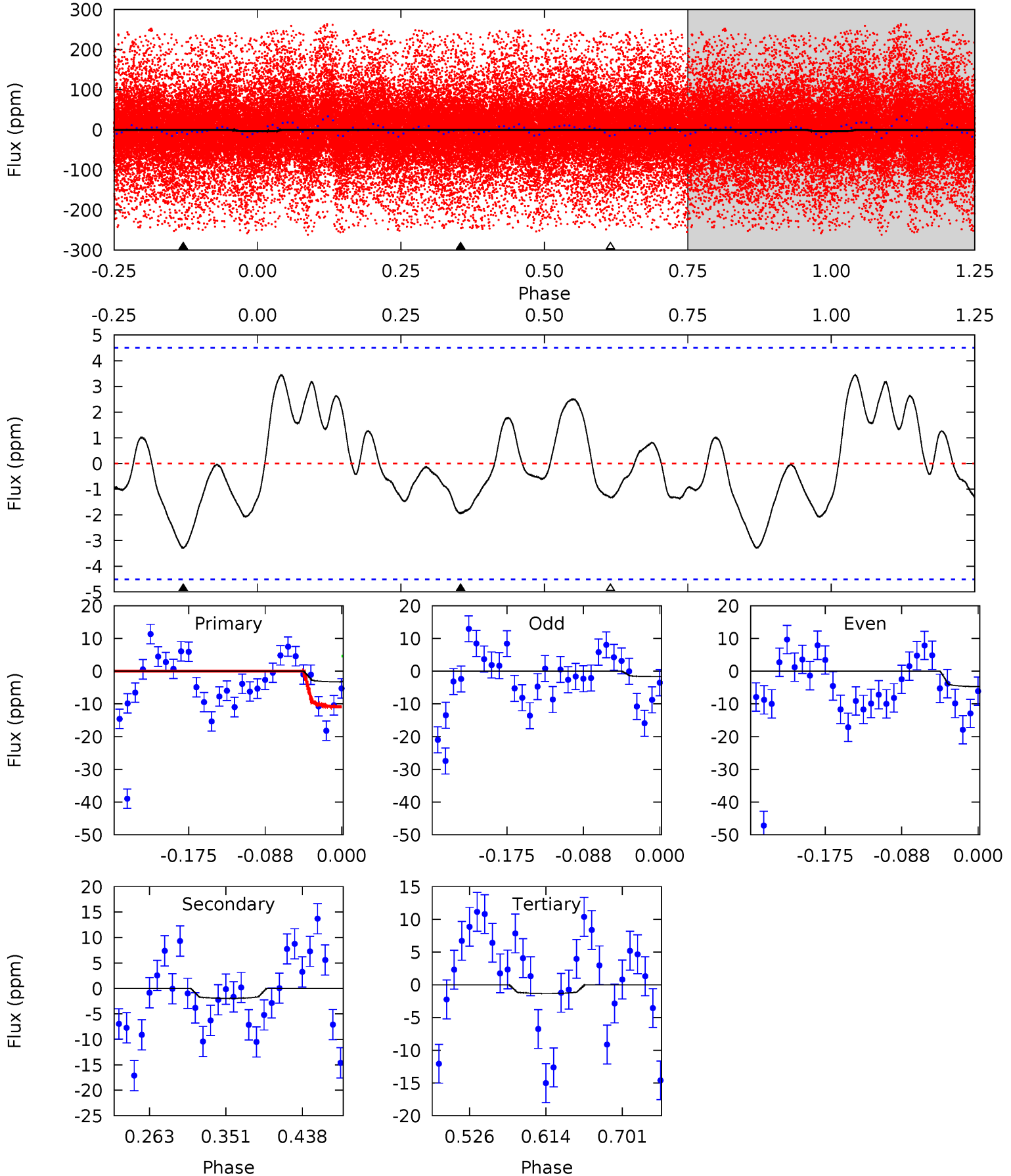
TCE 008161798-01 P= 2.202988 Days $T_0=131.593026$ (BKJD)



DV Model-Shift Uniqueness Test

008161798-01, P = 2.202885 Days, E = 129.427518 Days

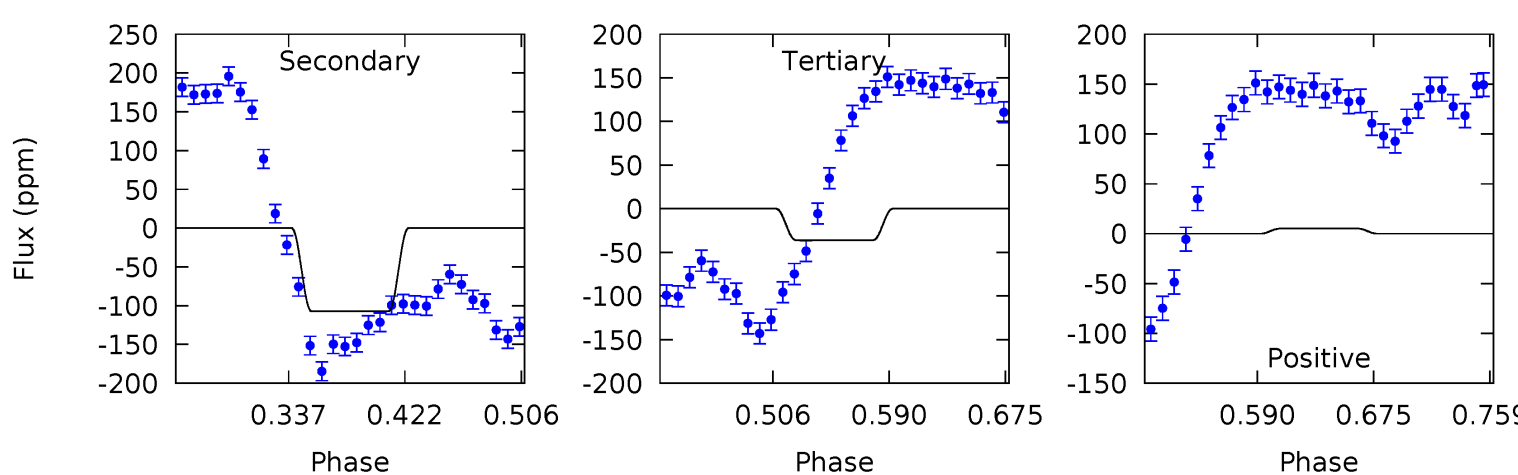
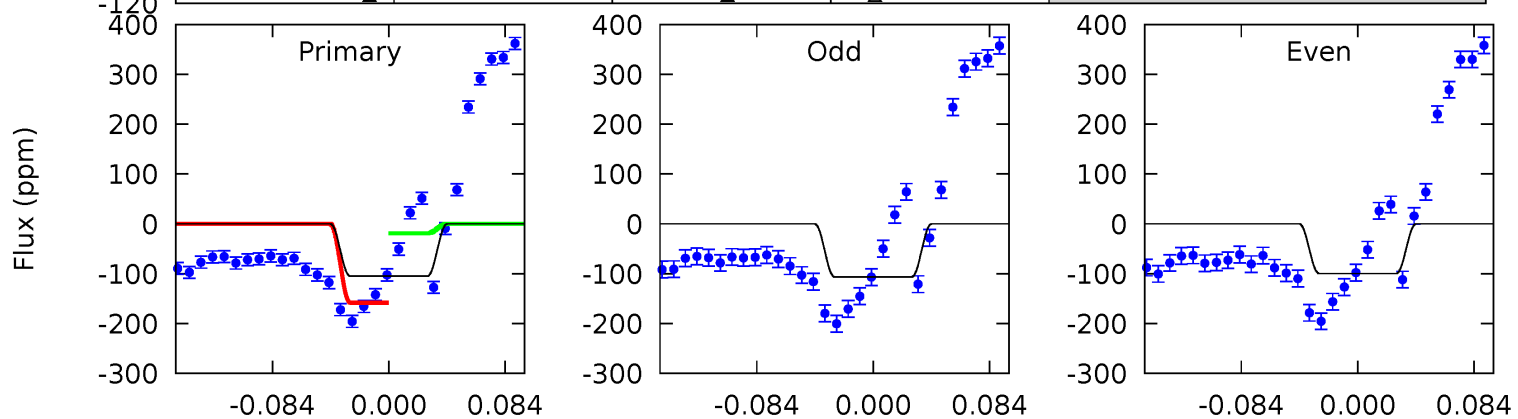
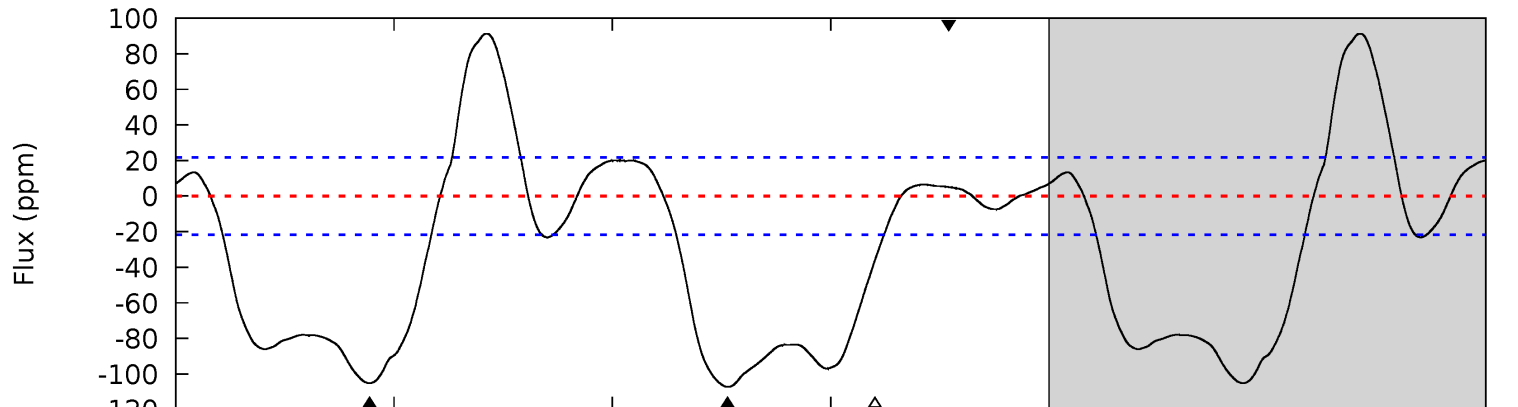
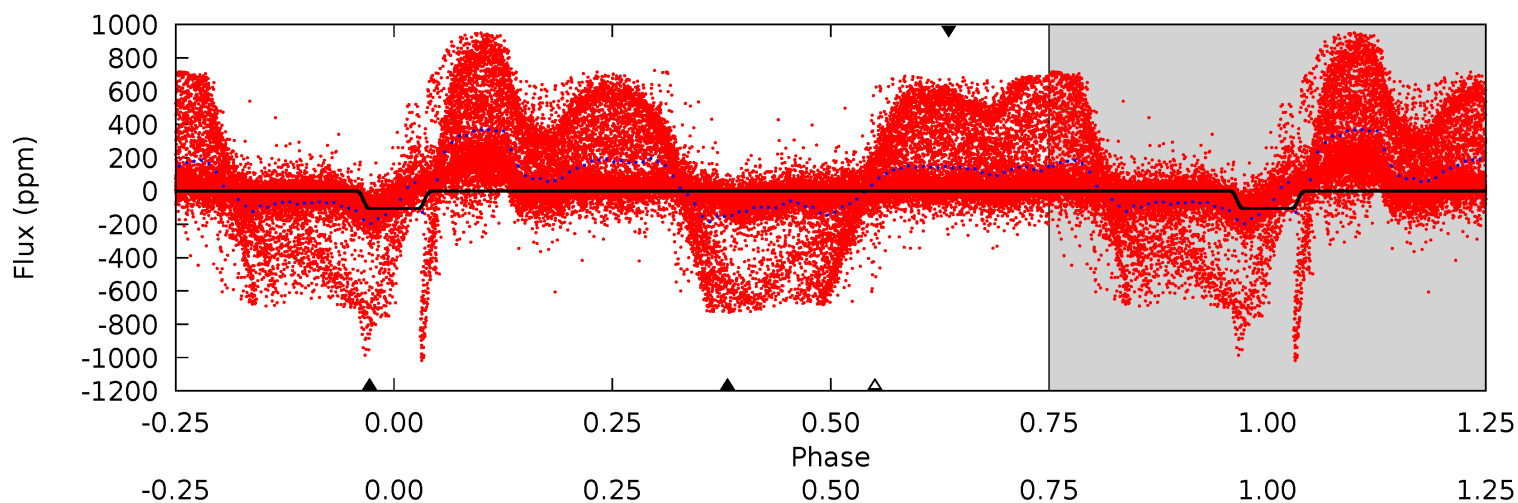
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.34	1.98	1.35	0	4.59	1.71	1.48	1.99	3.34	0.63	1.98	1.56	0.85	0.51	3.27



Alt Model-Shift Uniqueness Test

008161798-01, P = 2.202988 Days, E = 129.390038 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.3	22.7	7.62	1.08	4.60	1.73	9.71	14.6	21.2	15.1	21.6	0.73	15.2	0.46	14.5



Stellar Parameters For KIC 008161798

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	10974^{+228}_{-495}	$4.041^{+0.252}_{-0.168}$	$0.070^{+0.150}_{-0.600}$	$2.677^{+0.748}_{-0.914}$	$2.873^{+0.289}_{-0.674}$	$0.211^{+0.341}_{-0.098}$
	+2%/-5%	+6%/-4%	+214%/-857%	+28%/-34%	+10%/-23%	+162%/-47%
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 008161798-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2 ± 1	$0.82^{+0.19}_{-0.17}$	5042^{+395}_{-445}	6580^{+1088}_{-1161}	$3.372^{+2.698}_{-1.818}$
Alt.	-107 ± 5	$2.27^{+0.39}_{-0.41}$	5048^{+397}_{-492}	13610^{+934}_{-900}	25^{+11}_{-7}

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

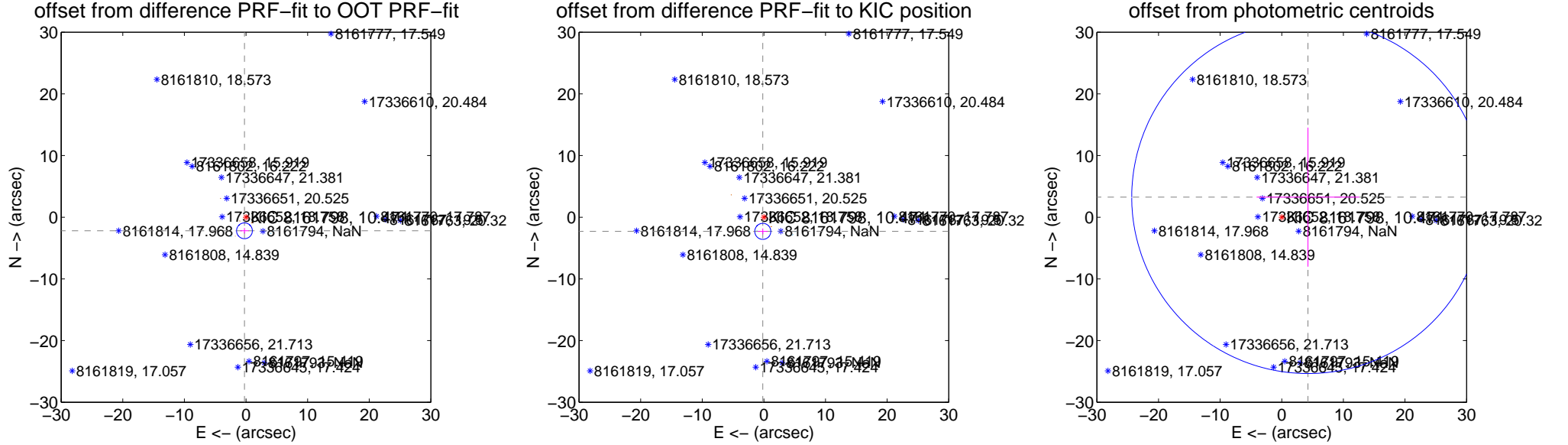
DV Centroid Data

Supplemental centroid analysis for 008161798-01. **Kepler magnitude: 10.47.** Transit SNR 6.56

There are 8 quarters with good PRF difference image offsets

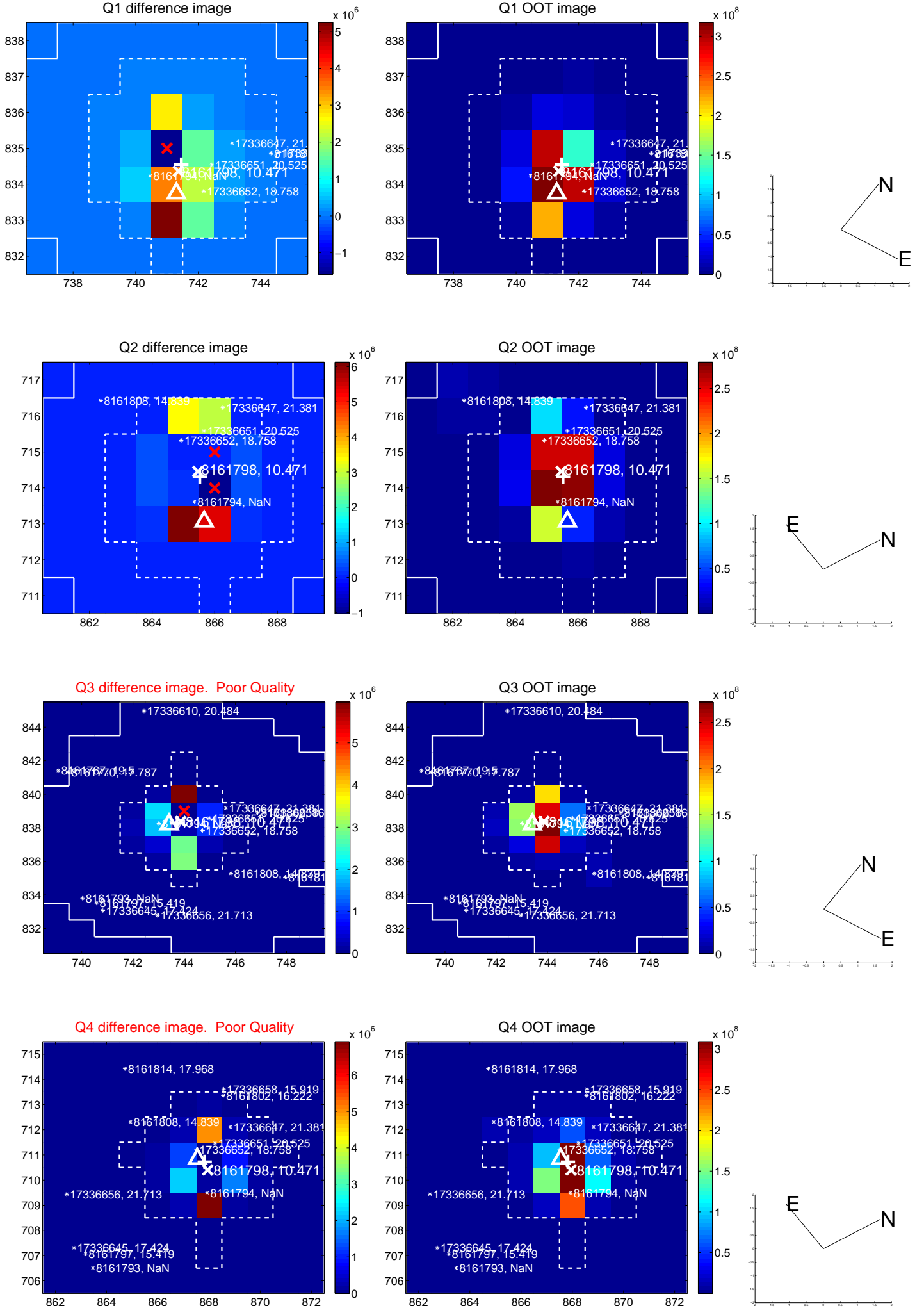
The direct PRF centroid is offset from the target star catalog position by about 0.75 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.214 \pm 0.427	5.19	0.252 \pm 0.683	-2.200 \pm 0.452
PRF-fit source offset from KIC position	2.299 \pm 0.433	5.31	0.176 \pm 0.785	-2.293 \pm 0.470
photometric centroid source offset	5.36 \pm 9.54	0.56	-4.26 \pm 8.35	3.26 \pm 11.28

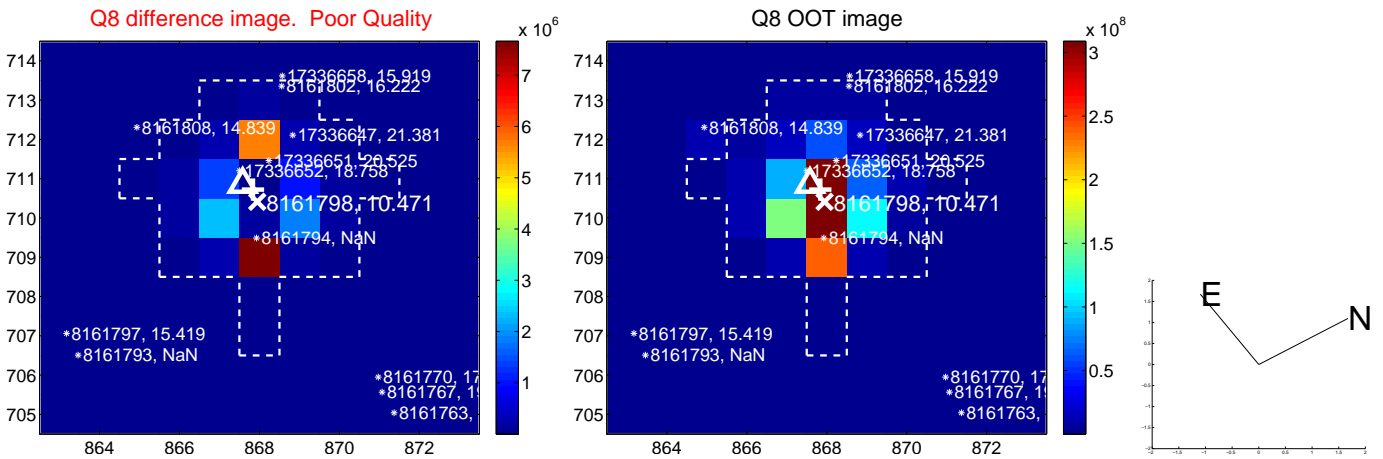
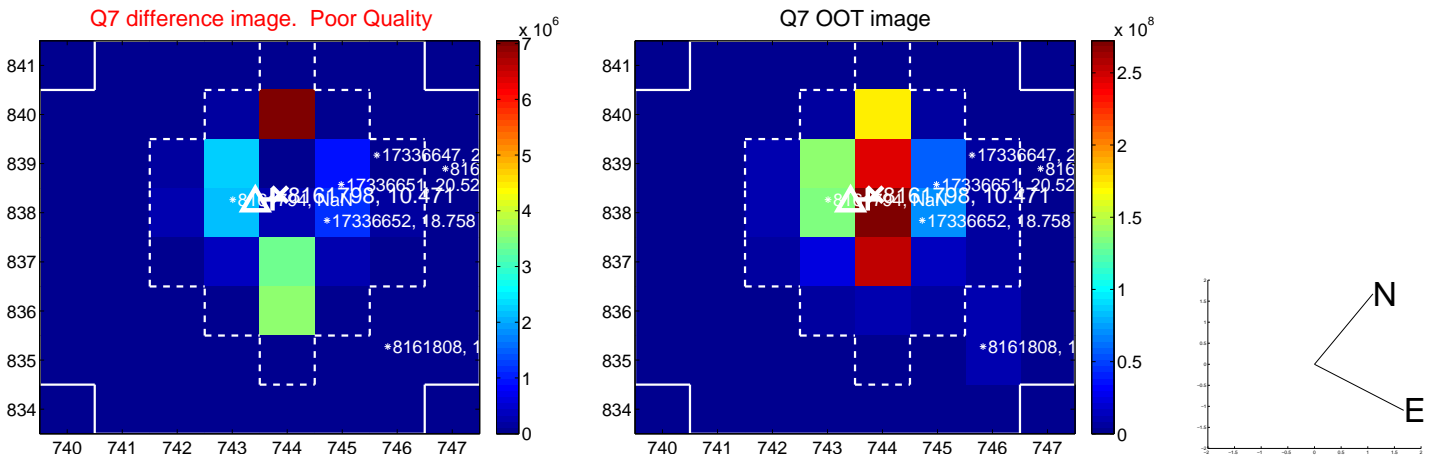
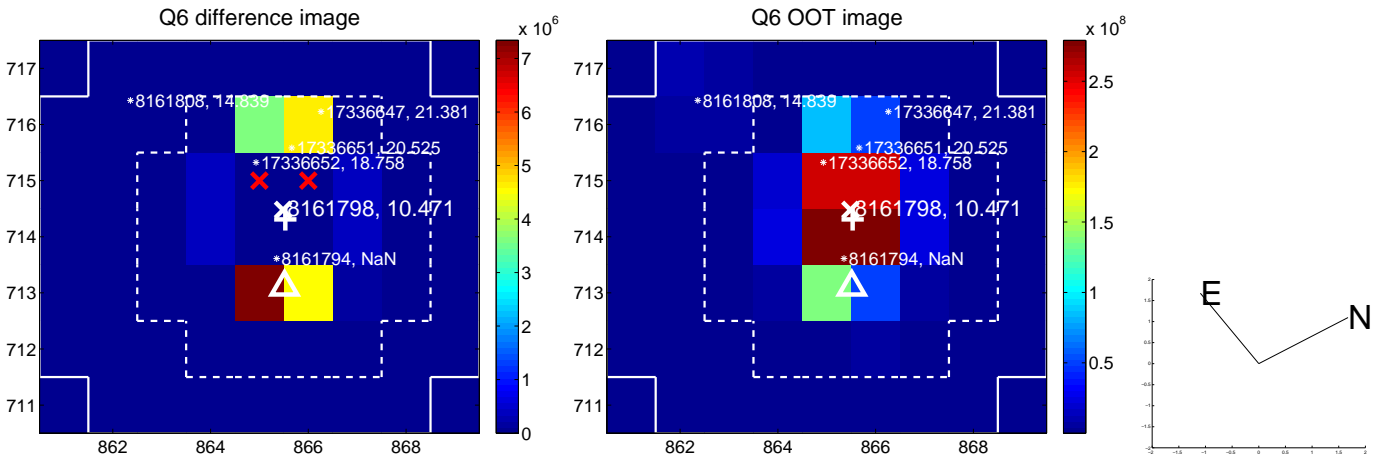
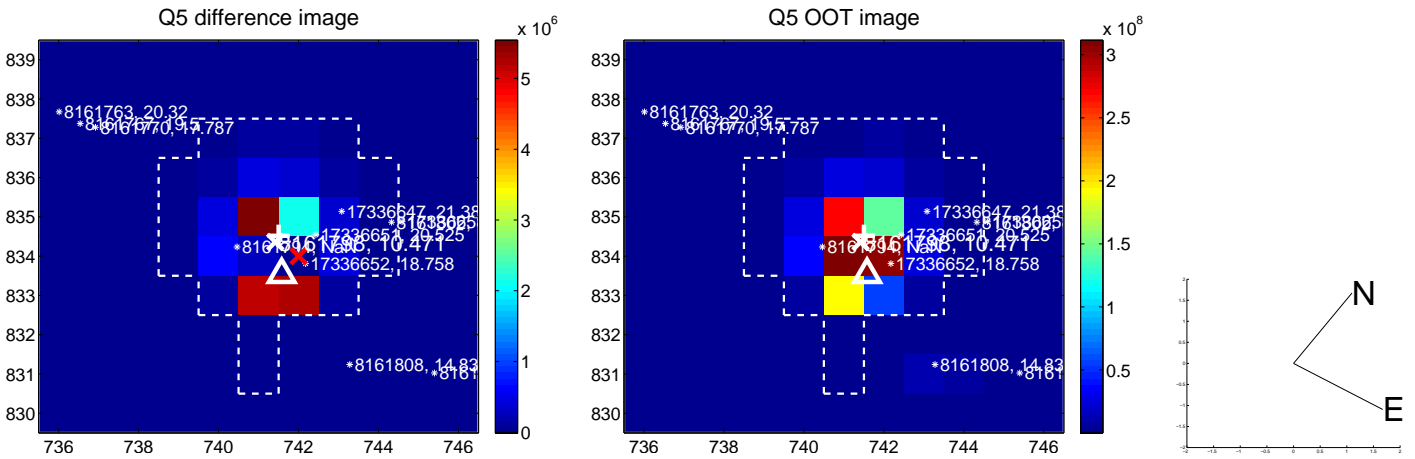


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

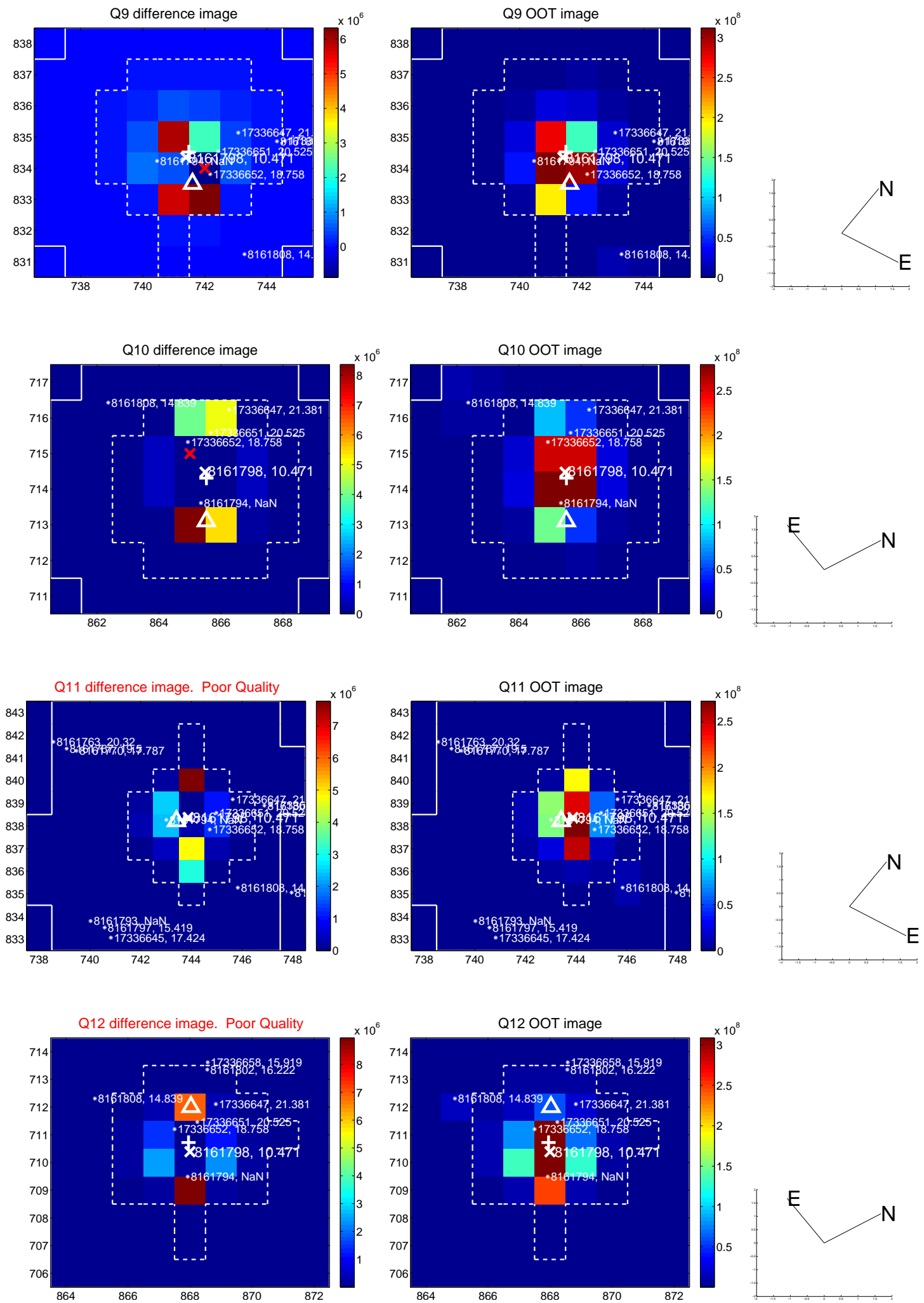
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



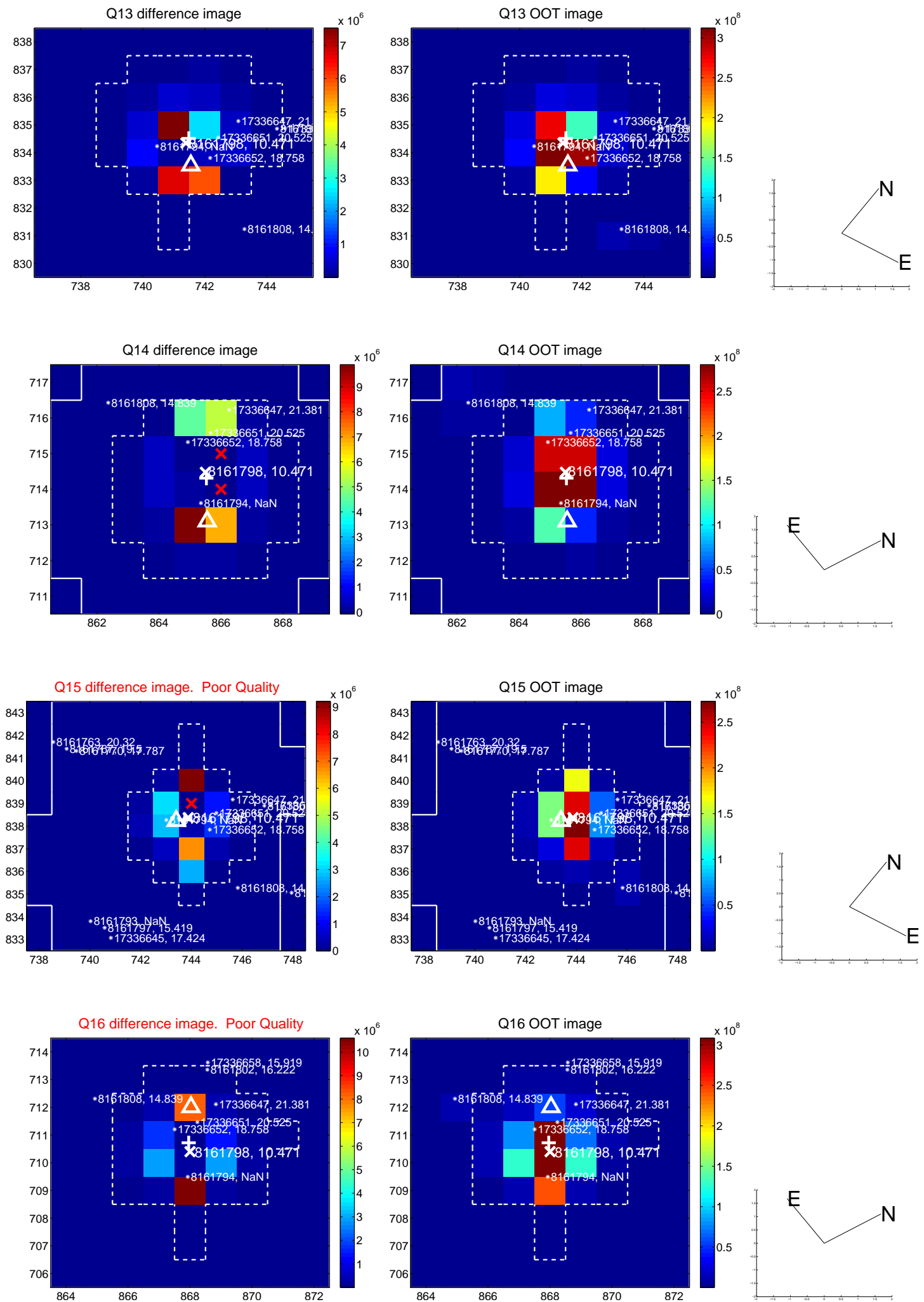
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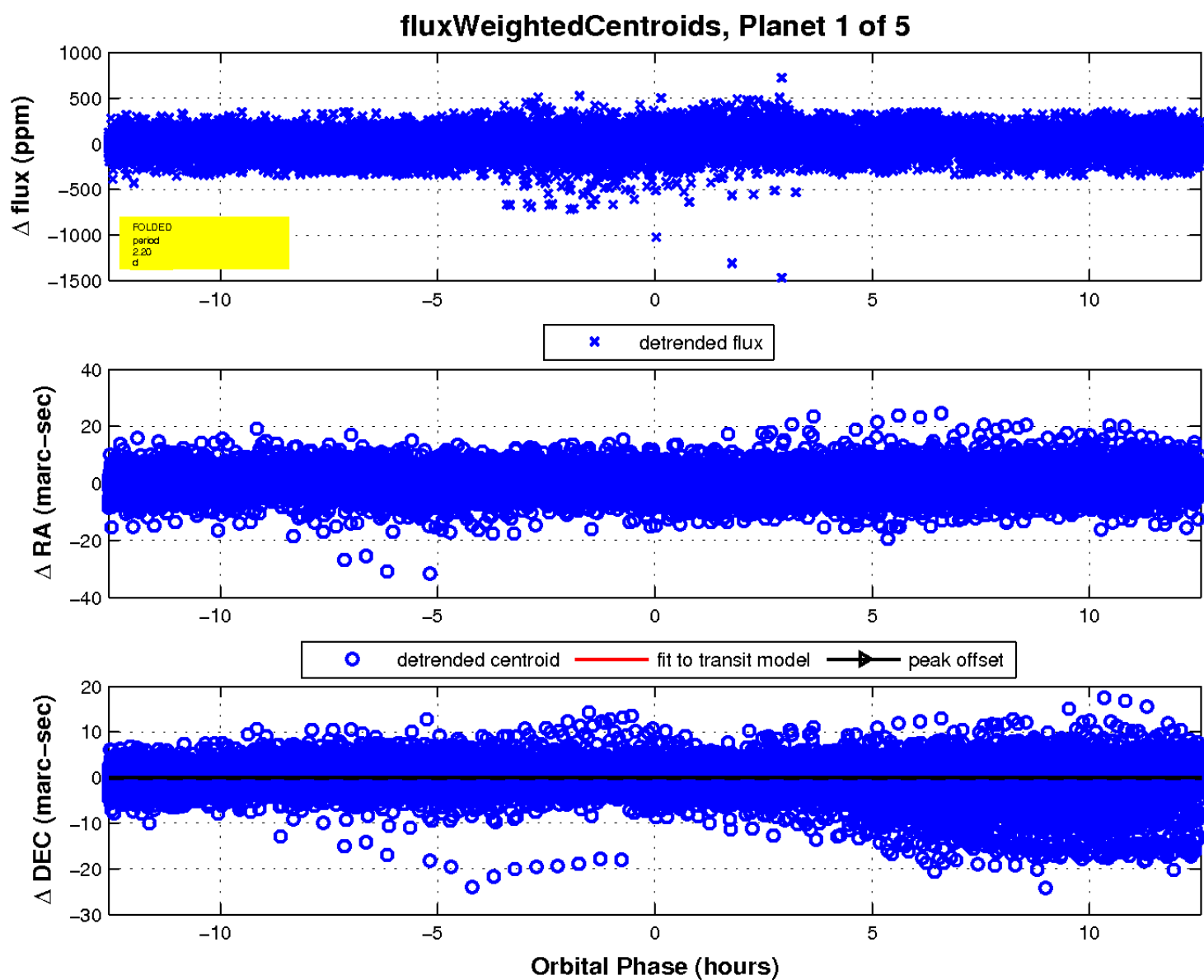
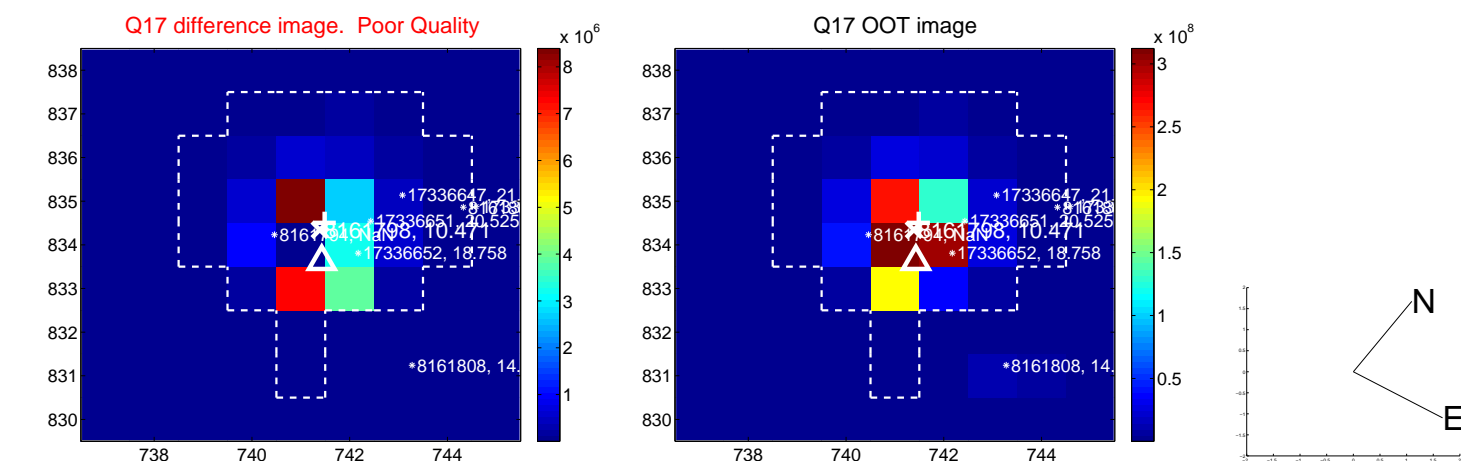
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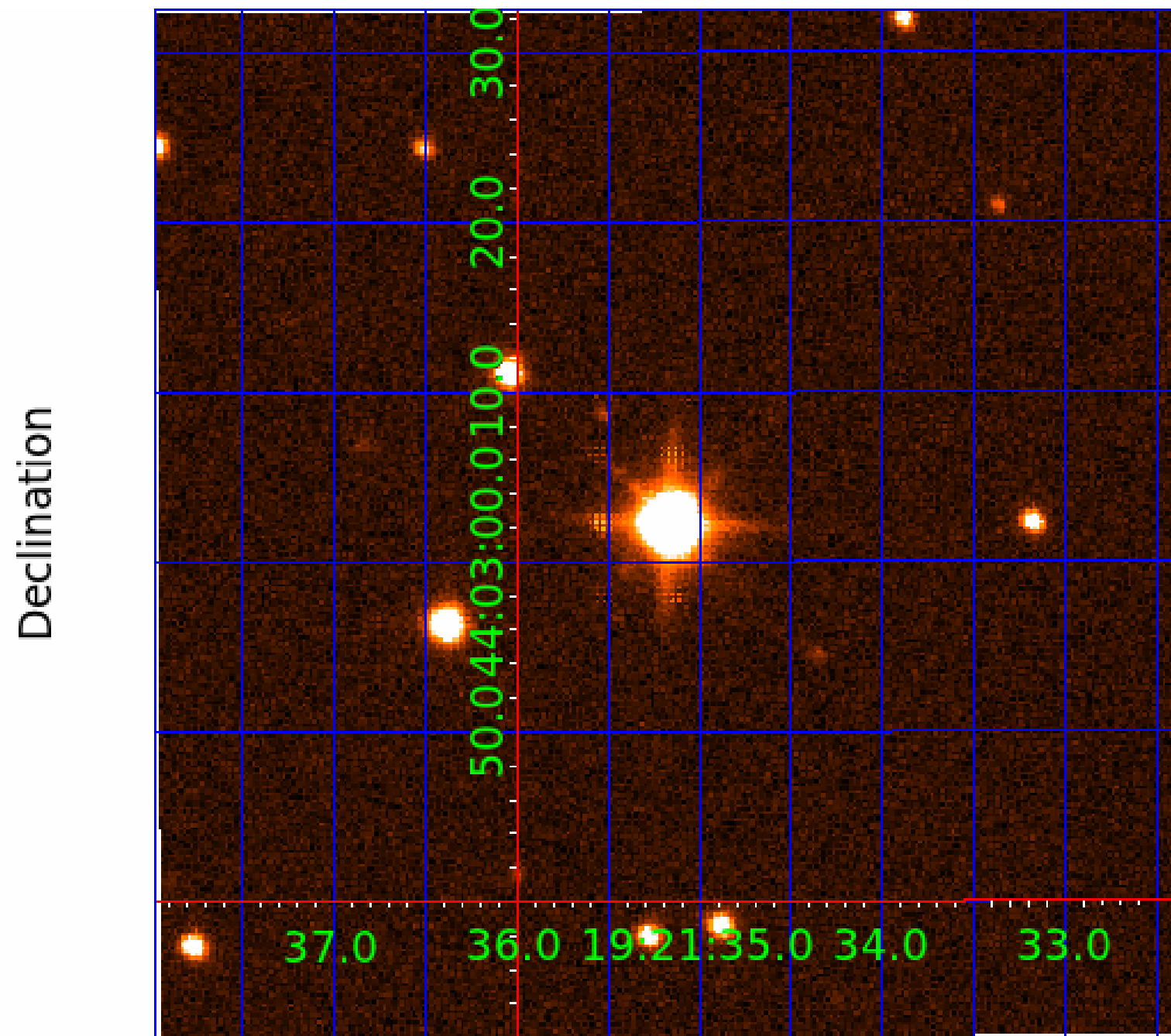
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008161798

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})
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Robovetter Results

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008161798-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008161798-03	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_SATURATED—EPHEM_MATCH
008161798-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008161798-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

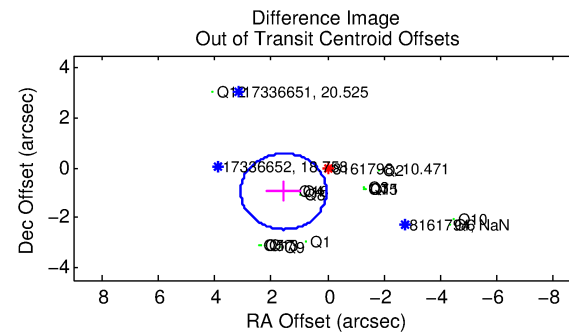
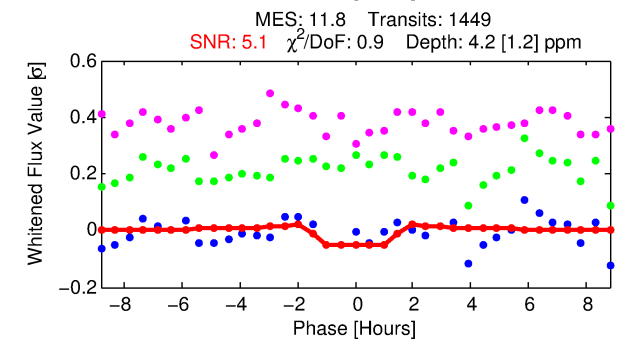
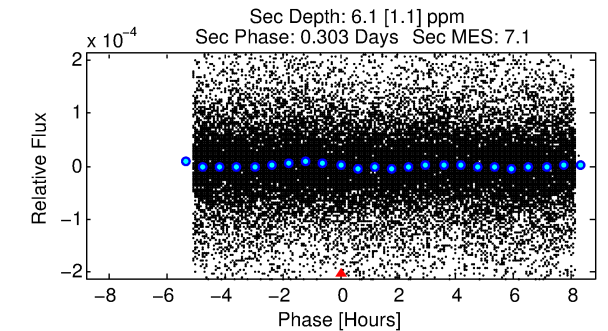
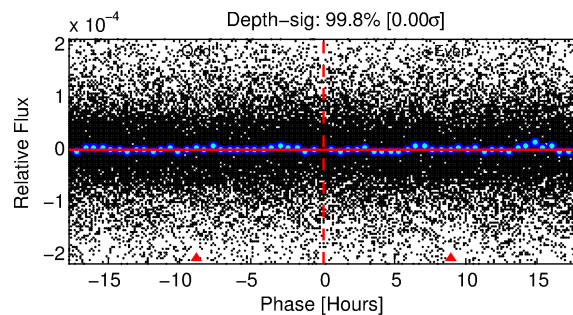
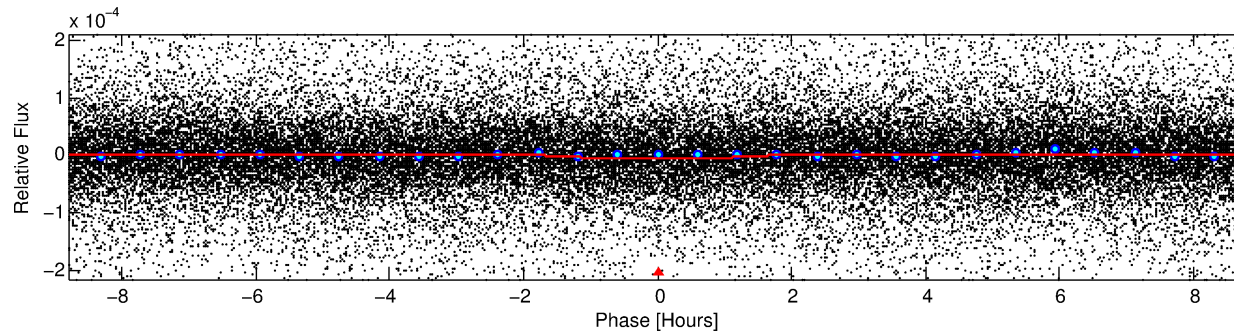
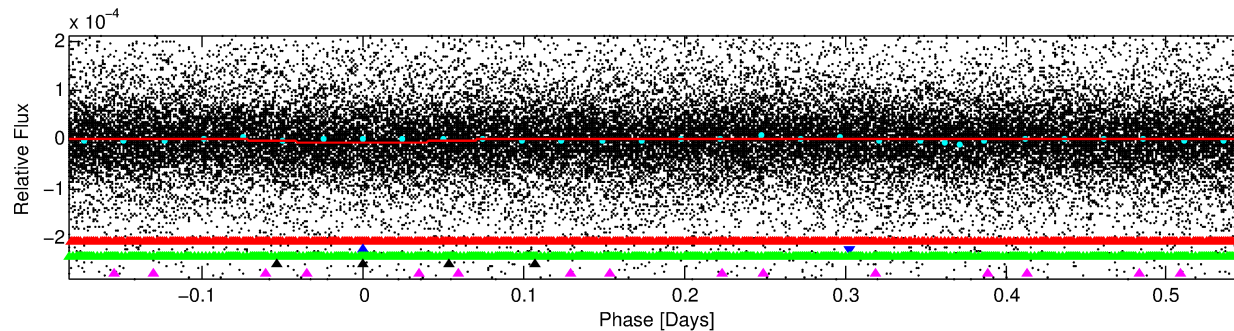
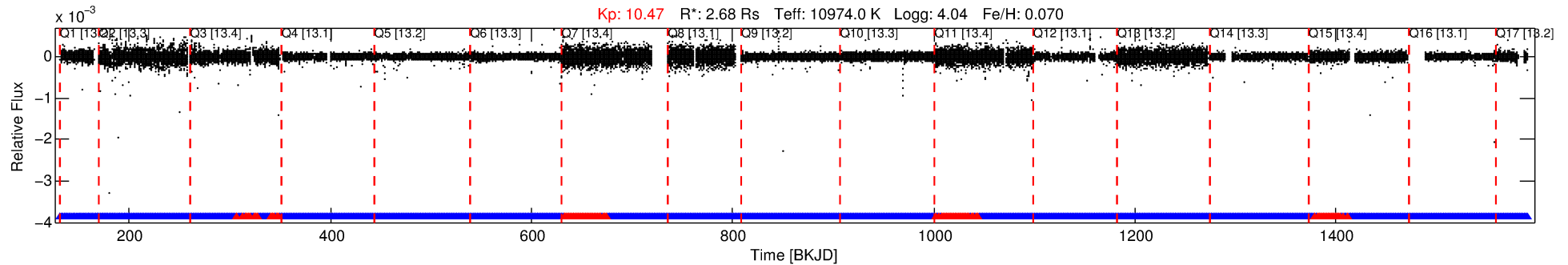
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008161798-02

No Significant Match Found

DV One-Page Summary

KIC: 8161798 Candidate: 2 of 5 Period: 0.734 d



DV Fit Results:

Period = 0.73361 [0.00002] d
Epoch = 131.9415 [0.0051] BKJD
Rp/R* = 0.0021 [0.0003]
a/R* = 1.44 [0.49]
b = 0.80 [0.30]
Seff = 181760.93 [87925.04]
Teq = 5265 [637] K
Rp = 0.61 [0.23] Re
a = 0.0226 [0.0068] AU
Ag = 4.71 [2.74] [1.36 σ]
Teff = 11995 [1232] K [4.85 σ]

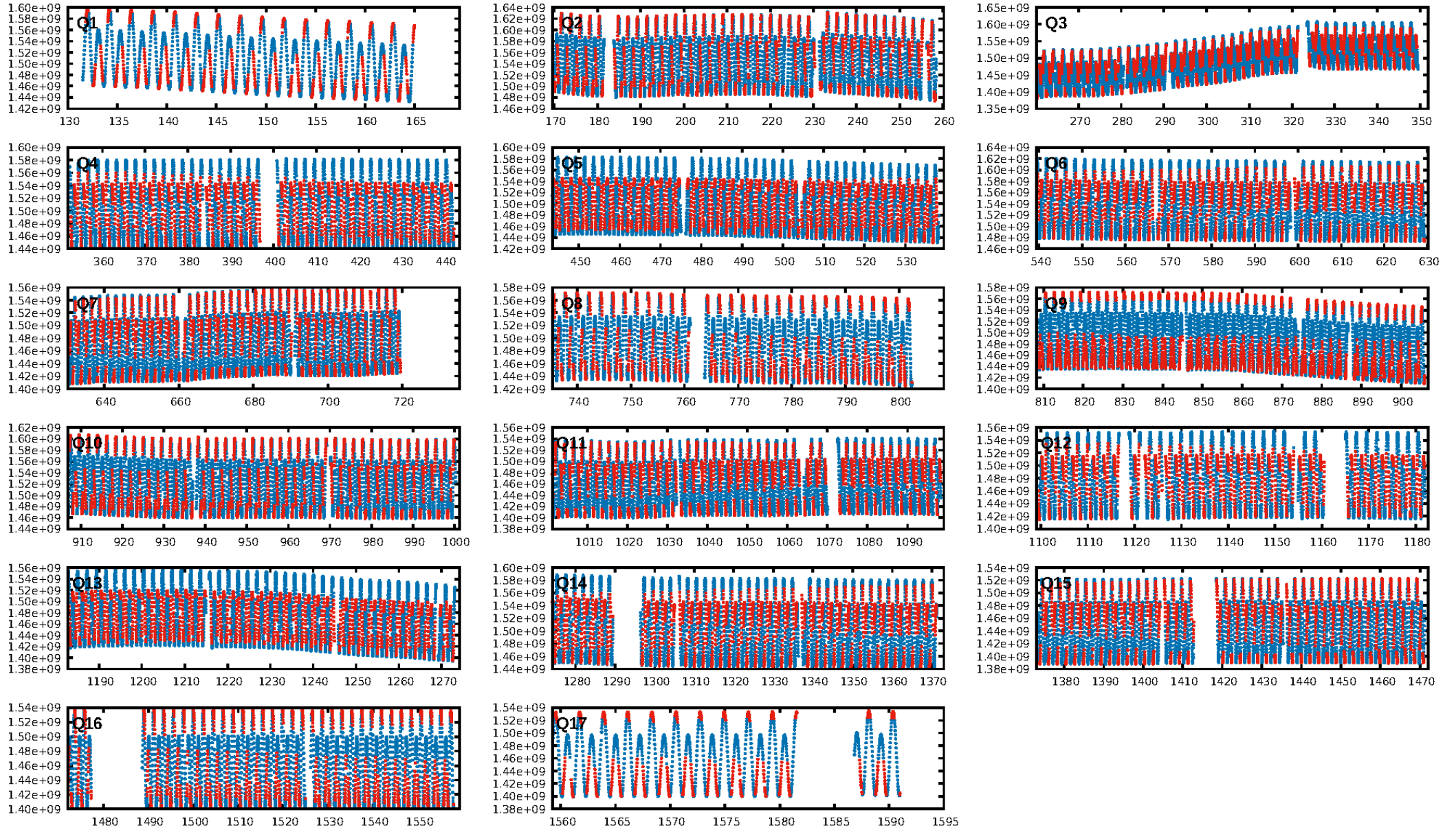
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.87 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.65e-20
RollingBand-fgt: 0.91 [1250/1367]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.827 arcsec [3.61 σ]
KicOffset-rm: 2.556 arcsec [4.54 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.06 [1/16]
DiffImageOverlap-fno: 0.88 [15/17]

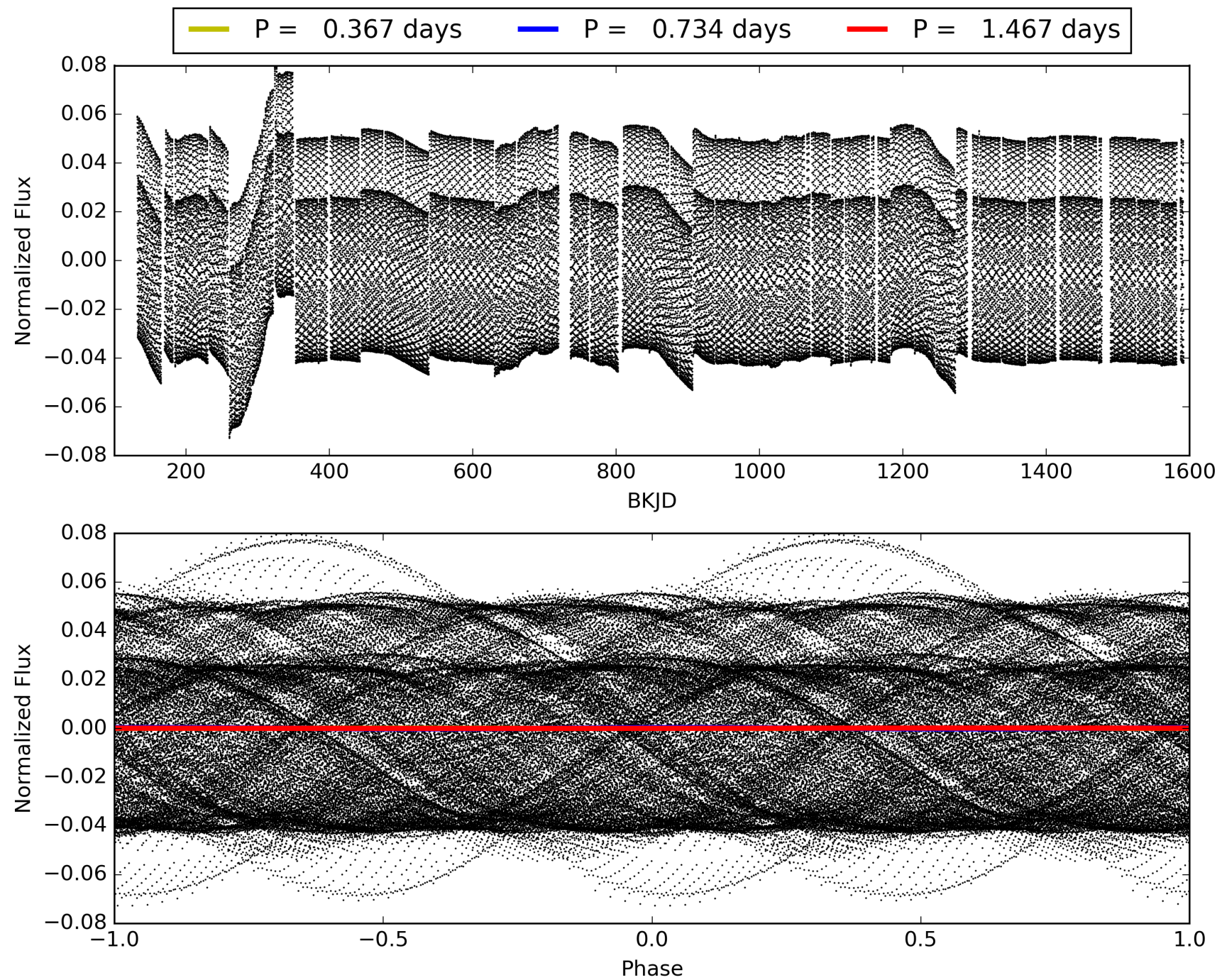
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008161798-02, PDC Light Curves

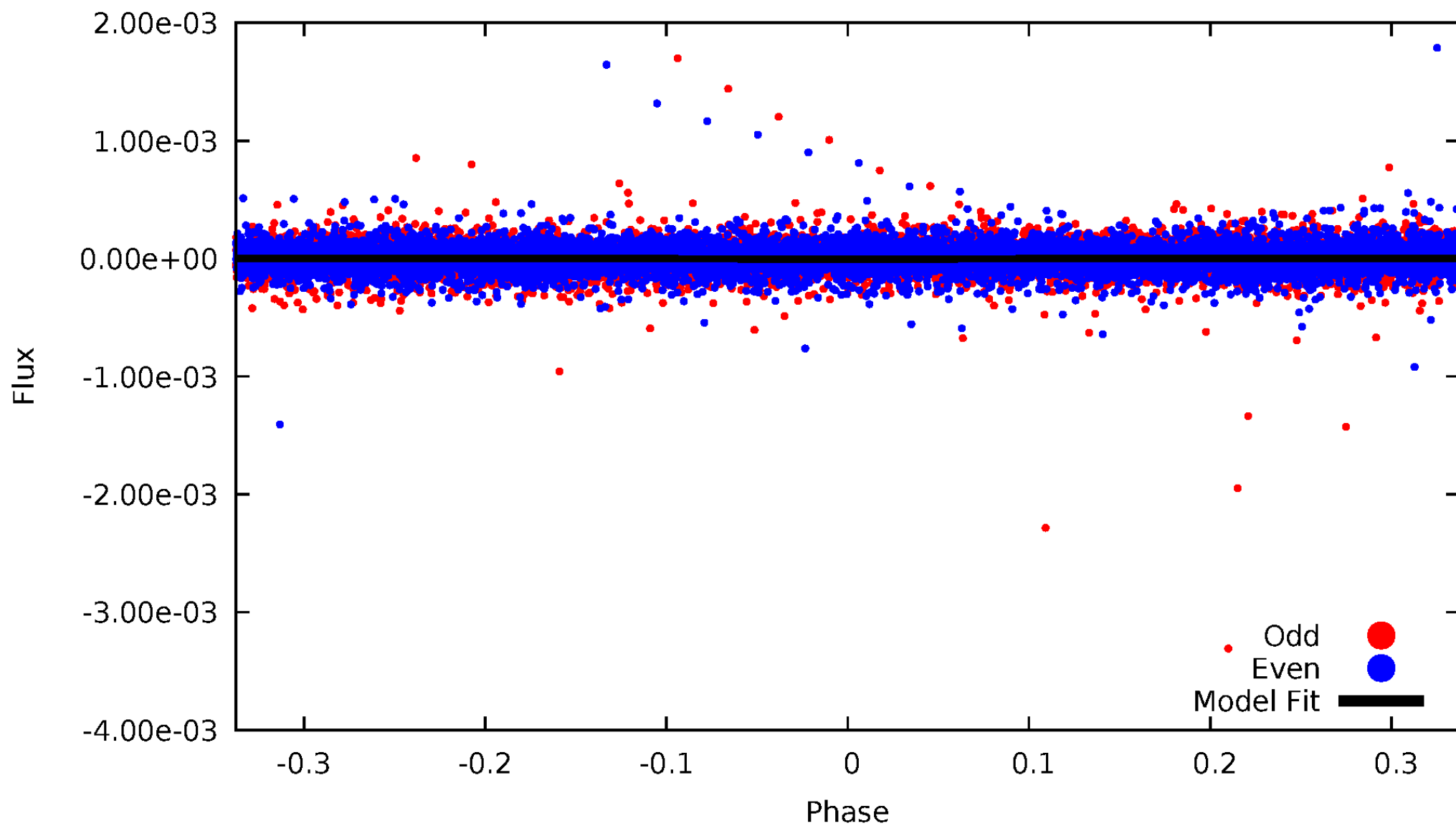


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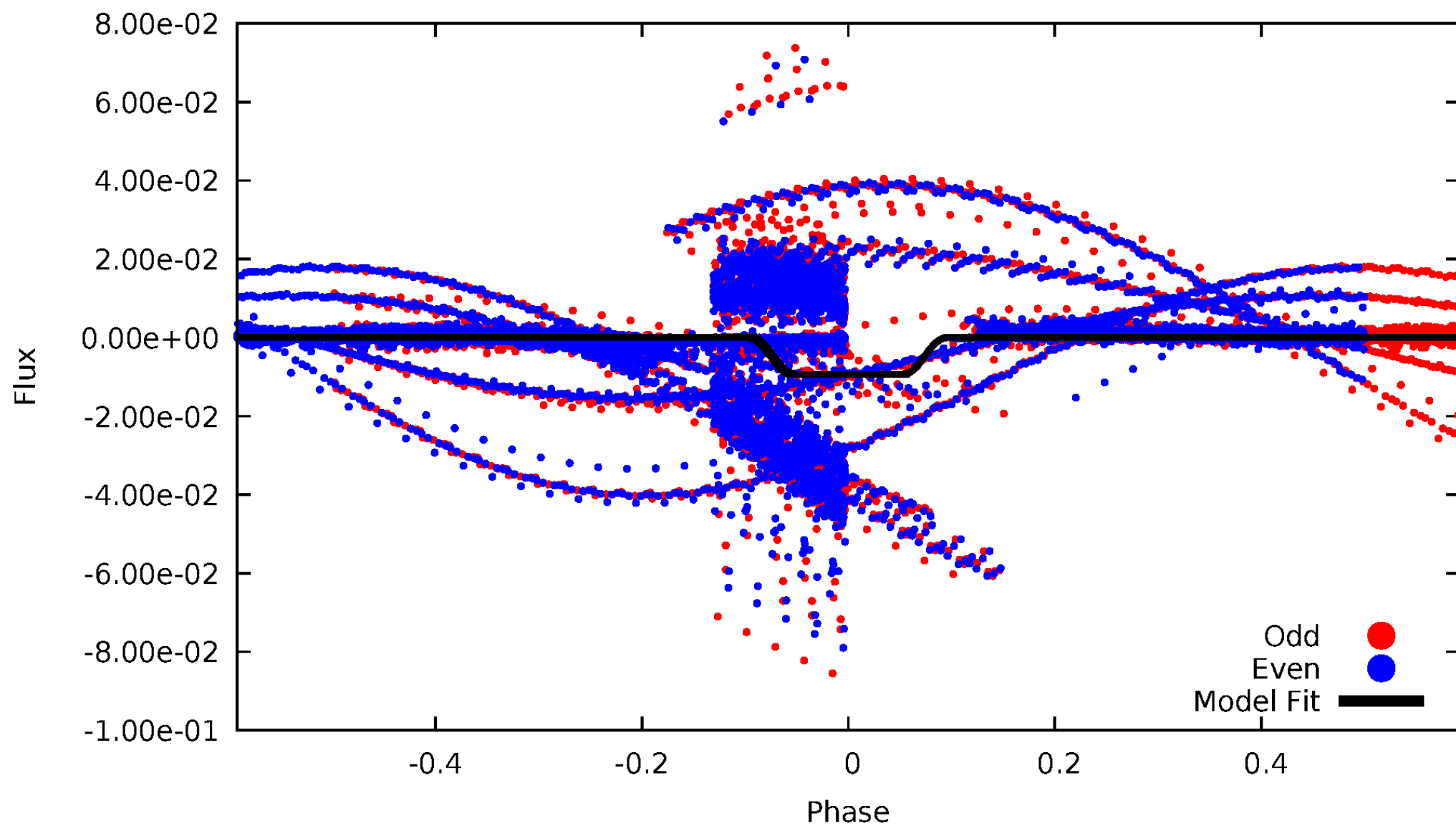
DV Odd/Even

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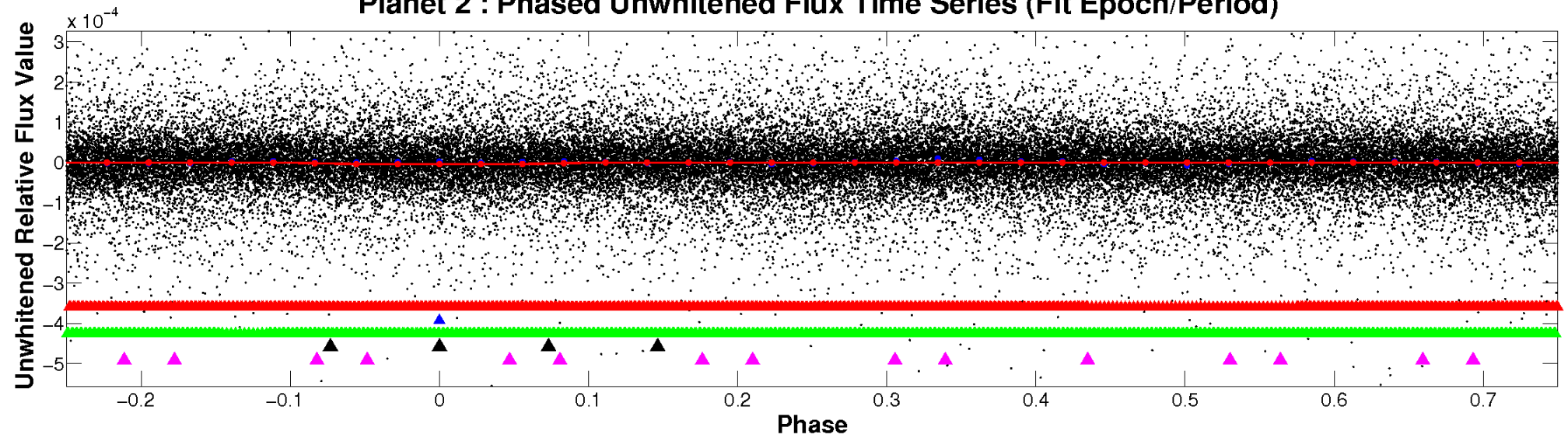
ALT Odd/Even

TCE 008161798-02

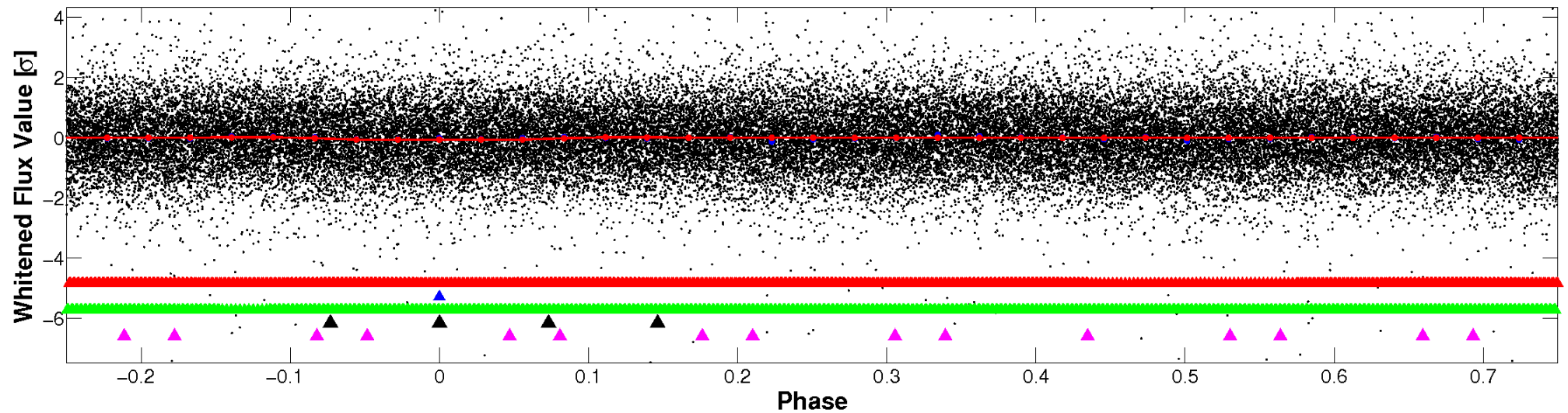


Non-Whitened Vs. Whitened Light Curve

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

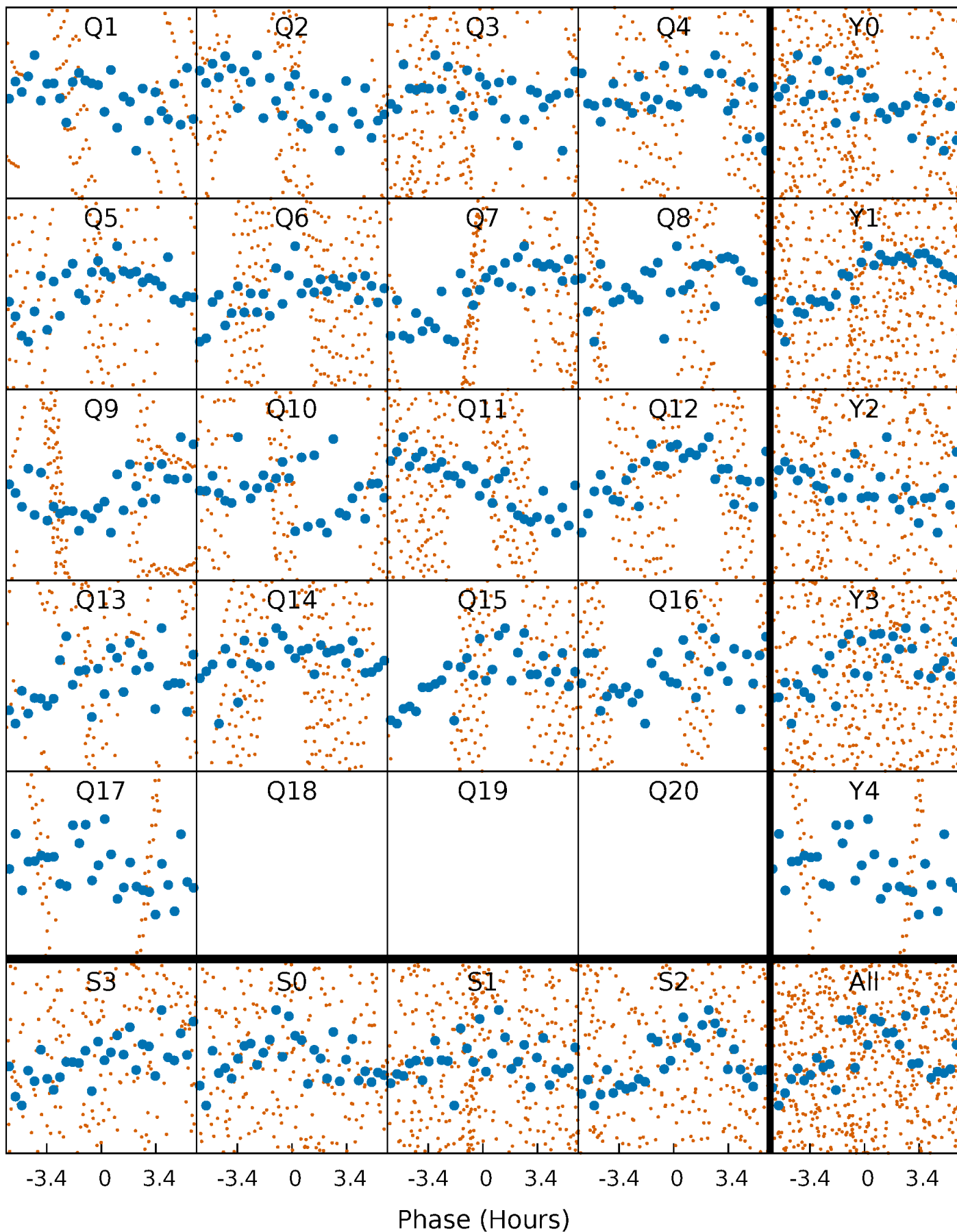


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



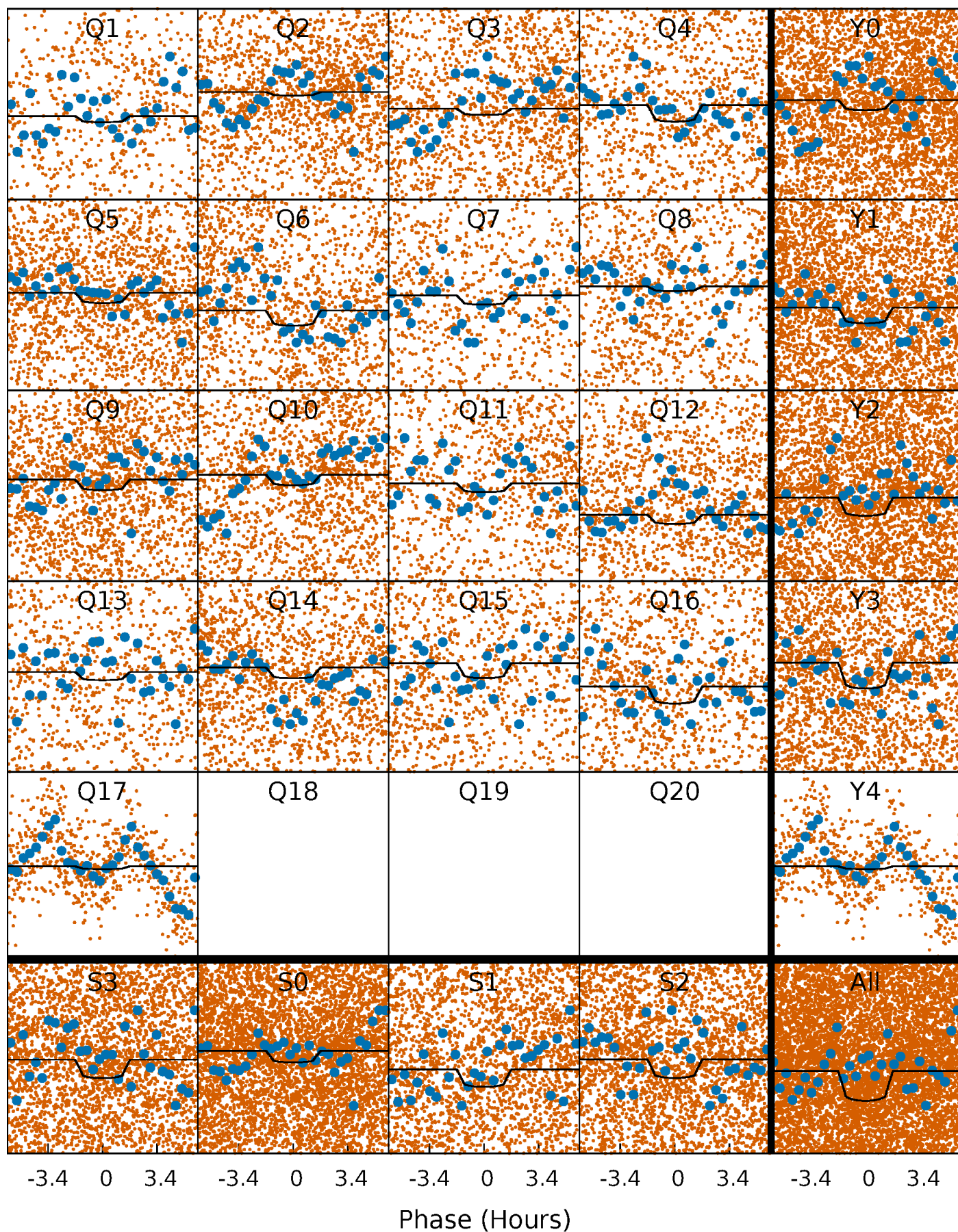
PDC Quarter-Phased Transit Curves

TCE 008161798-02 P= 0.733609 Days $T_0=131.941544$ (BKJD)



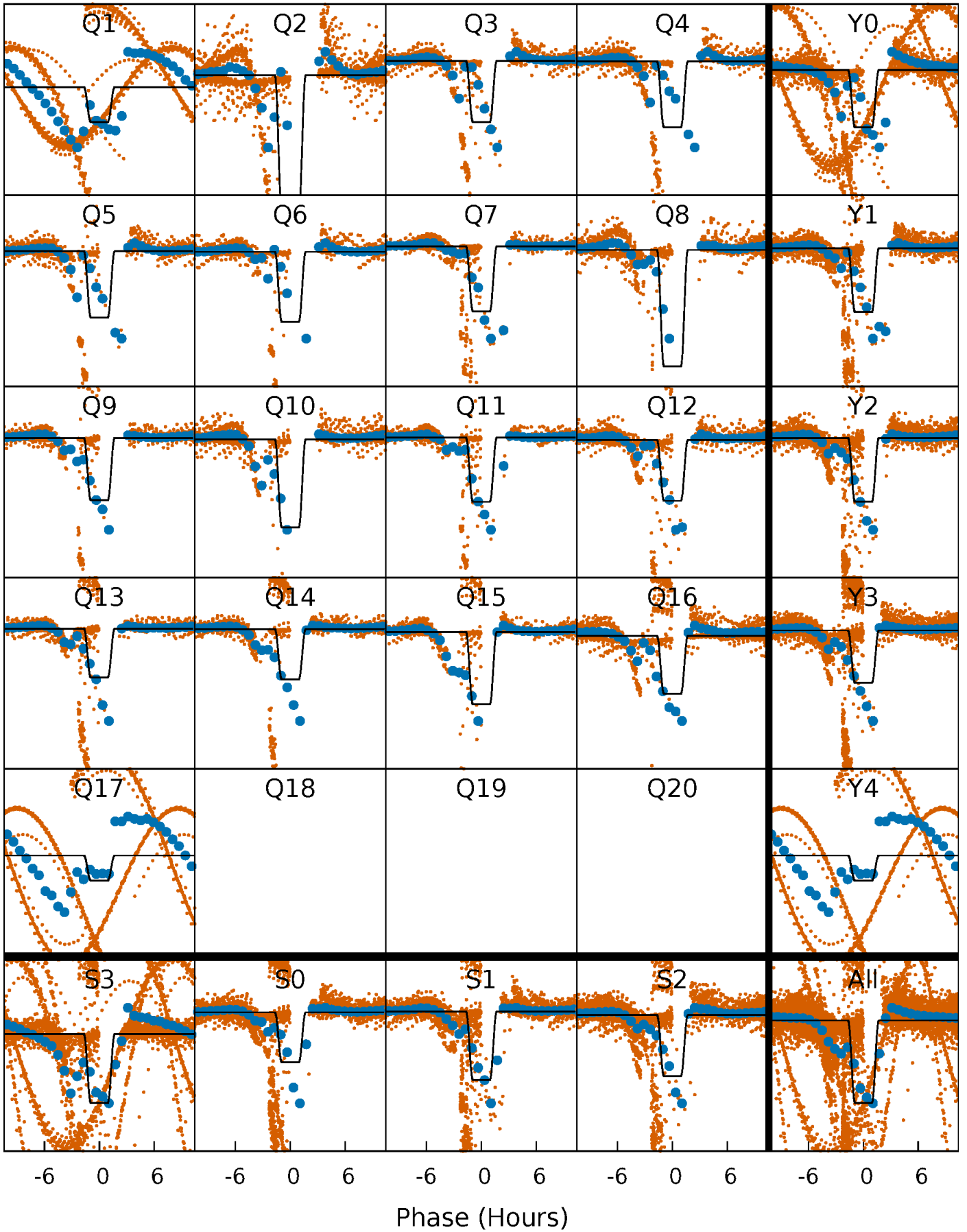
DV Quarter-Phased Transit Curves

TCE 008161798-02 P= 0.733609 Days $T_0=131.941544$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

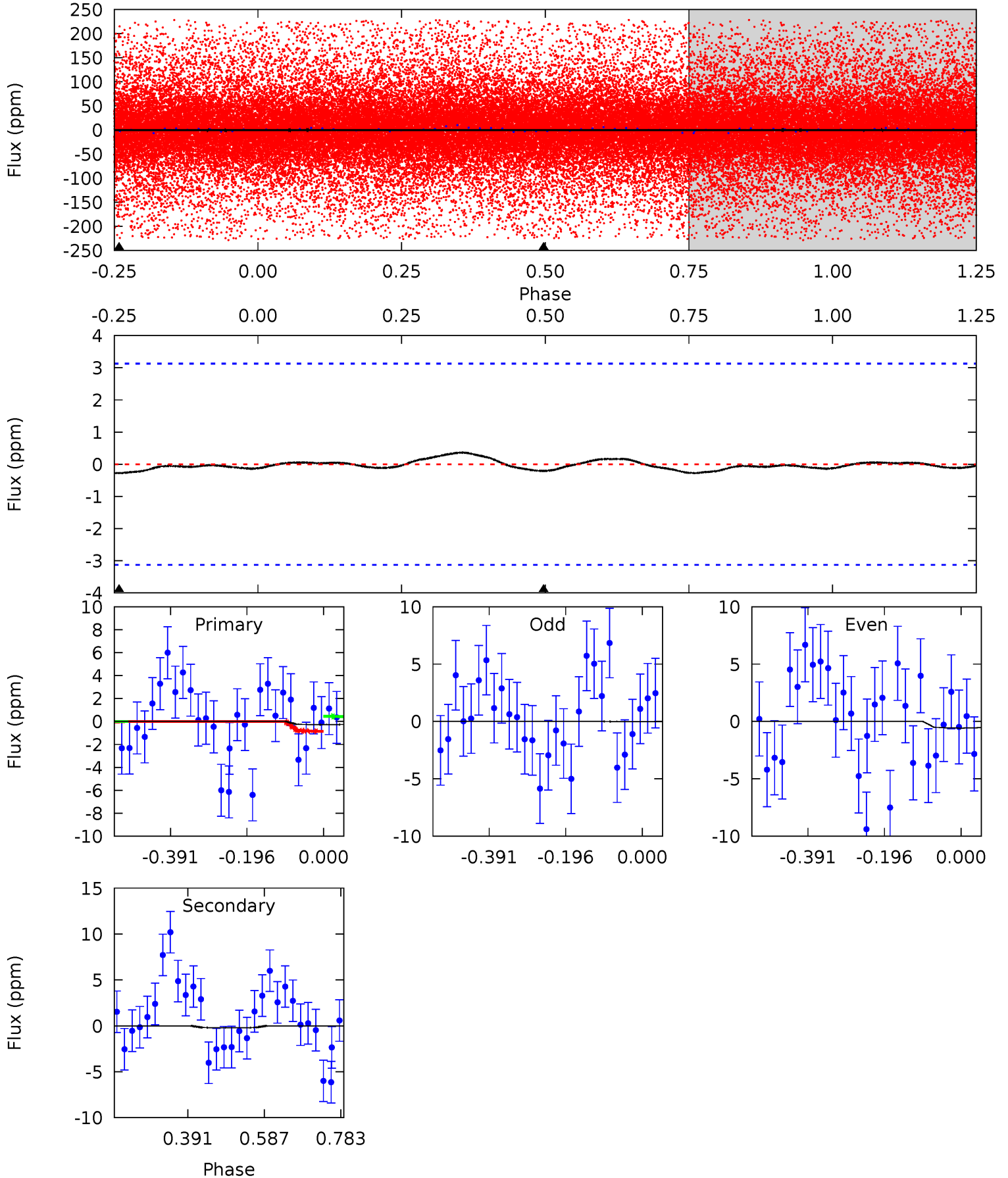
TCE 008161798-02 P= 0.734327 Days $T_0=131.970222$ (BKJD)



DV Model-Shift Uniqueness Test

008161798-02, P = 0.733609 Days, E = 131.207935 Days

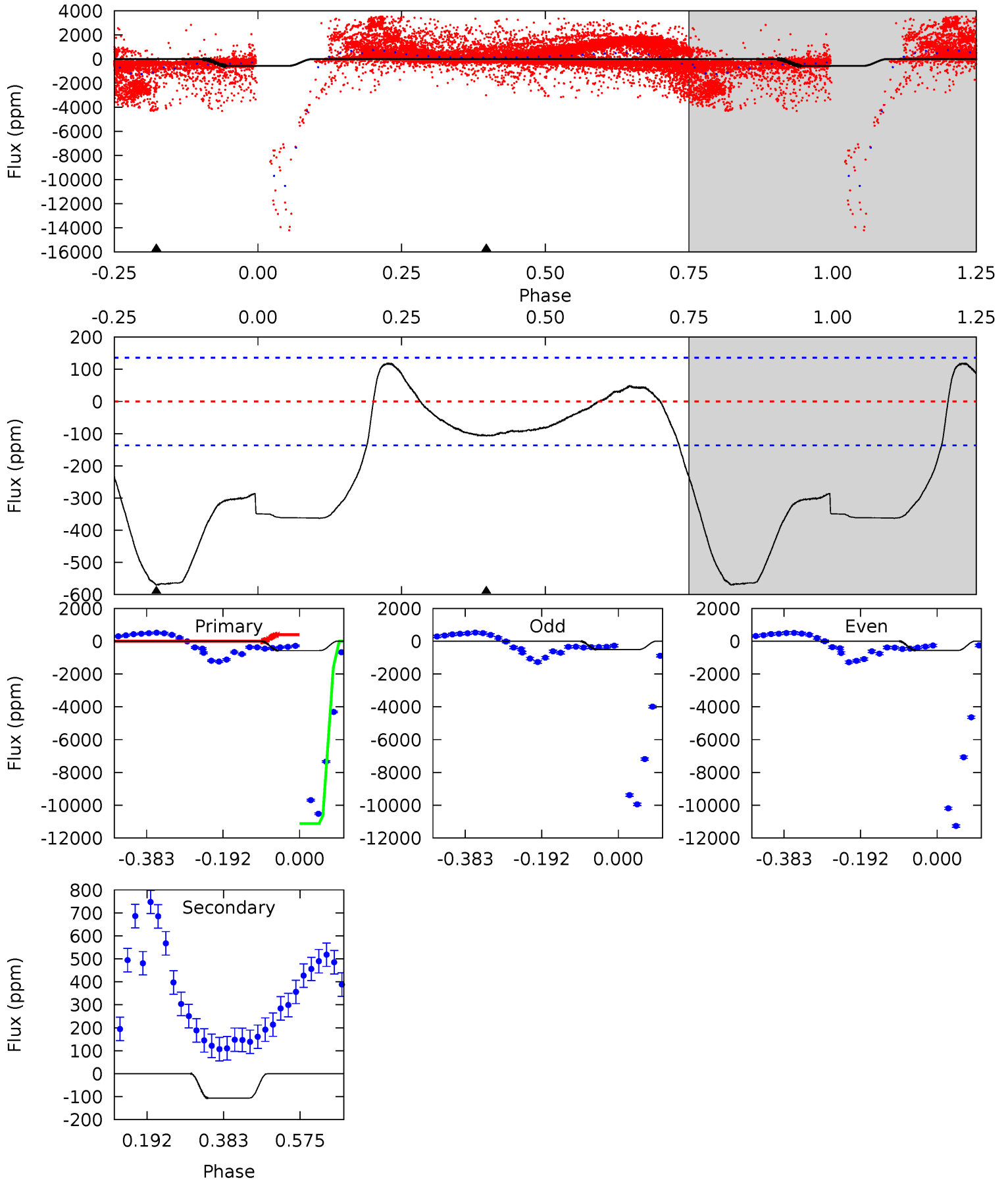
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.39	0.29	0	0	4.42	1.29	0.12	0.39	0.39	0.29	0.29	0.40	-0.52	0.57	0.30



Alt Model-Shift Uniqueness Test

008161798-02, P = 0.734327 Days, E = 131.235895 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	3.45	0	0	4.43	1.31	4.20	18.5	18.5	3.45	3.45	1.02	27.1	0.17	0



Stellar Parameters For KIC 008161798

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	10974^{+228}_{-495}	$4.041^{+0.252}_{-0.168}$	$0.070^{+0.150}_{-0.600}$	$2.677^{+0.748}_{-0.914}$	$2.873^{+0.289}_{-0.674}$	$0.211^{+0.341}_{-0.098}$
	+2%/-5%	+6%/-4%	+214%/-857%	+28%/-34%	+10%/-23%	+162%/-47%
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 008161798-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-0 \pm 1	$0.59^{+0.14}_{-0.14}$	7262^{+565}_{-683}	-4765^{+10430}_{-1829}	$0.120^{+0.602}_{-0.557}$
Alt.	-106 \pm 31	$27.91^{+4.25}_{-4.87}$	7239^{+568}_{-637}	-5188^{+435}_{-386}	$0.037^{+0.021}_{-0.013}$

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

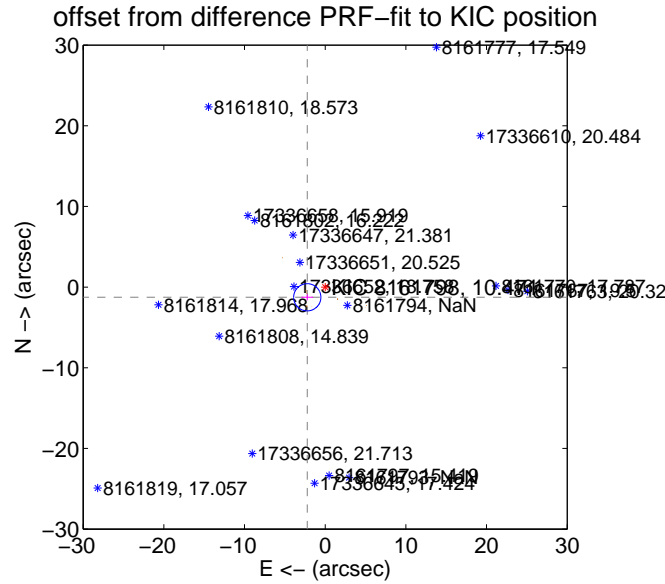
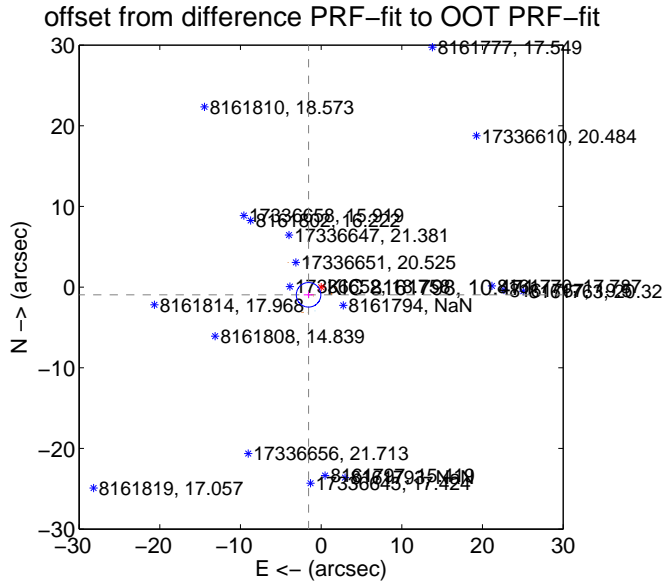
DV Centroid Data

Supplemental centroid analysis for 008161798-02. **Kepler magnitude: 10.47.** Transit SNR 5.14

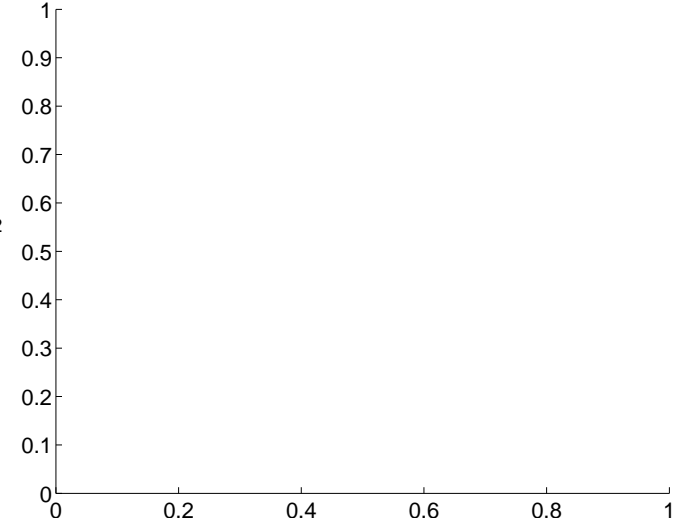
There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.80 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.827 ± 0.507	3.61	1.557 ± 0.590	-0.956 ± 0.390
PRF-fit source offset from KIC position	2.556 ± 0.563	4.54	2.222 ± 0.729	-1.263 ± 0.373
photometric centroid source offset	—	—	—	—

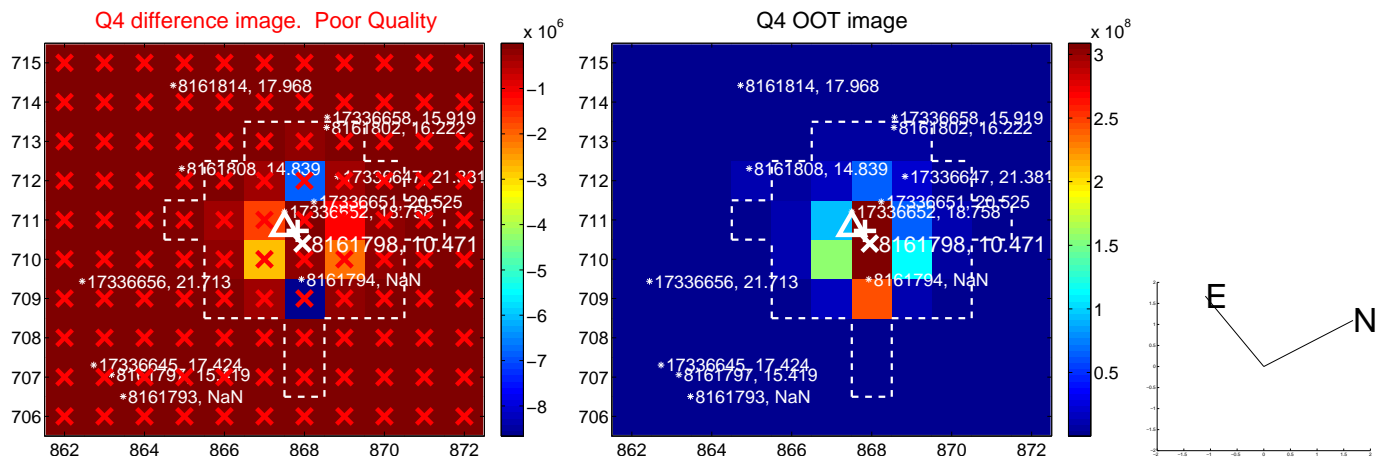
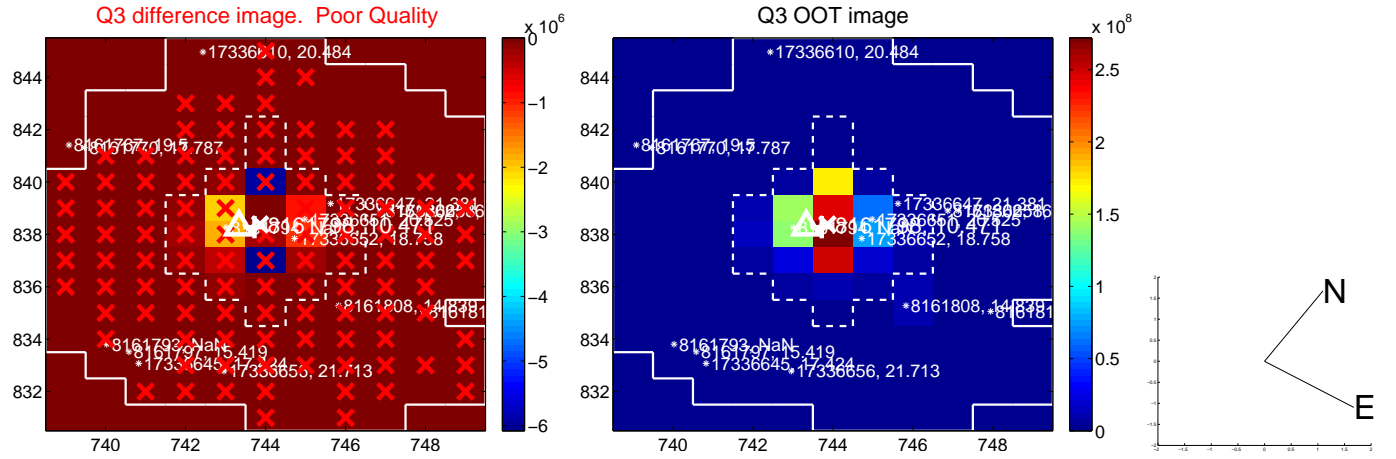
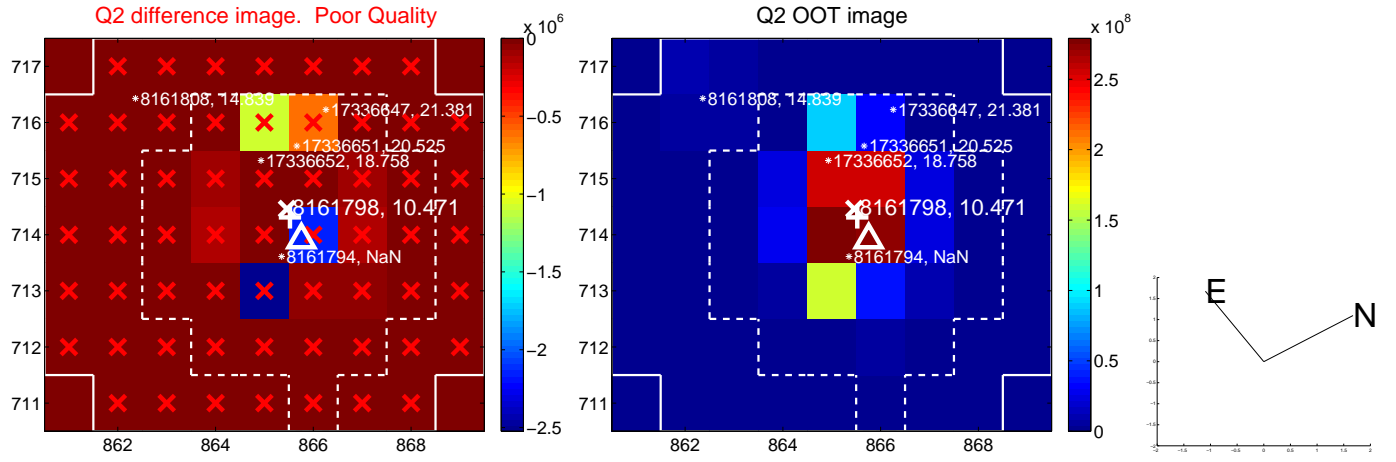
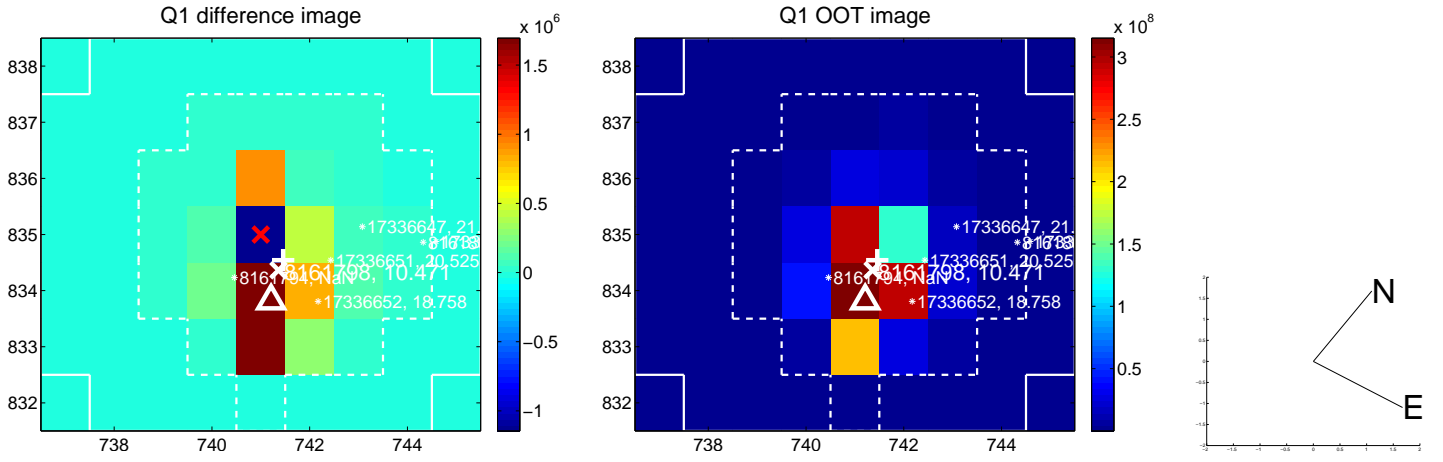


There are no photometric centroids

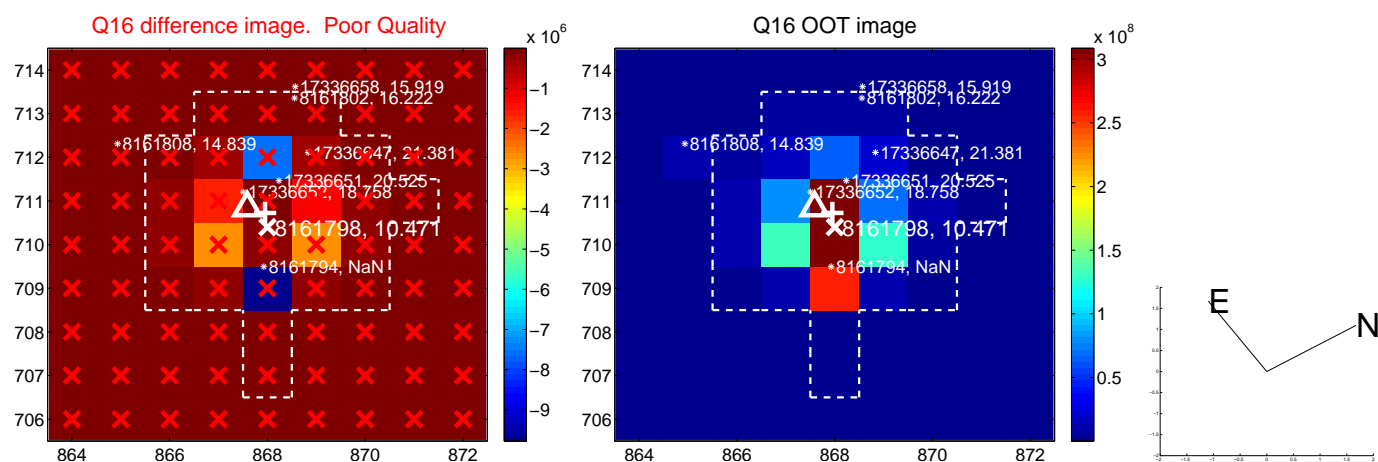
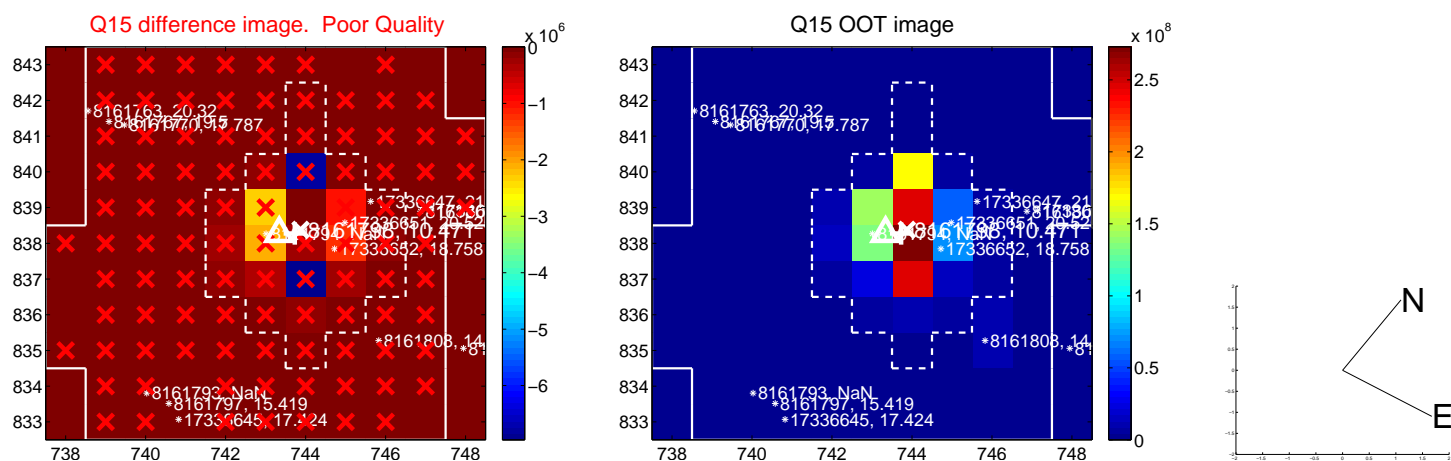
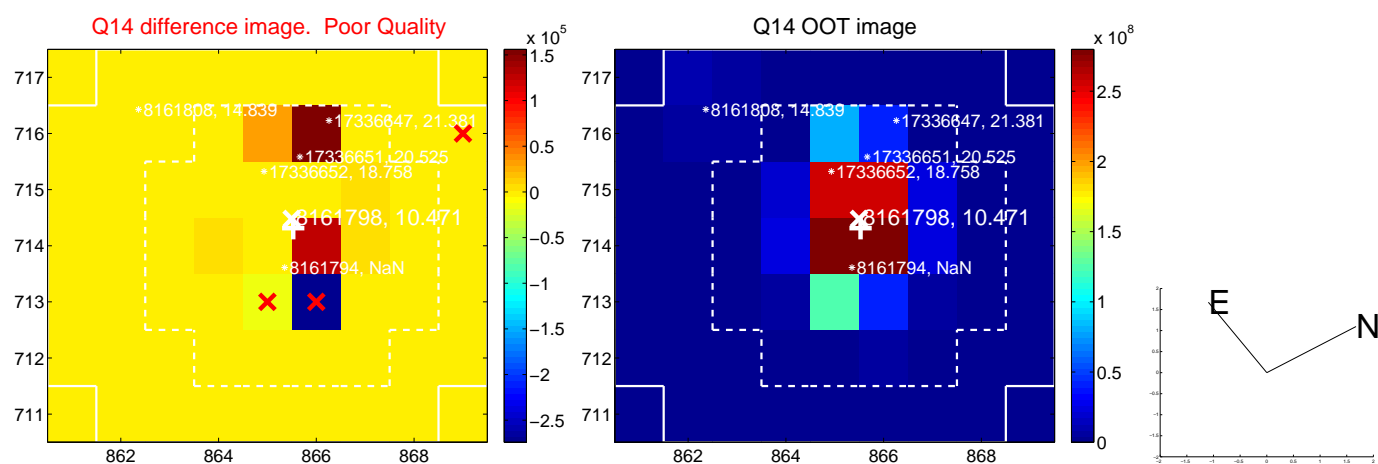
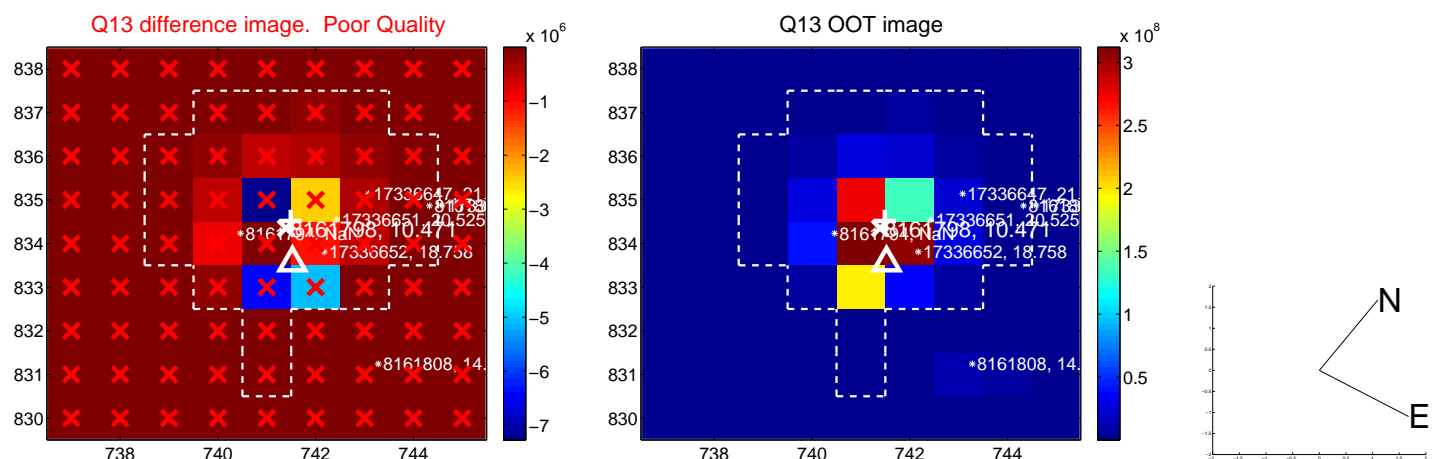


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

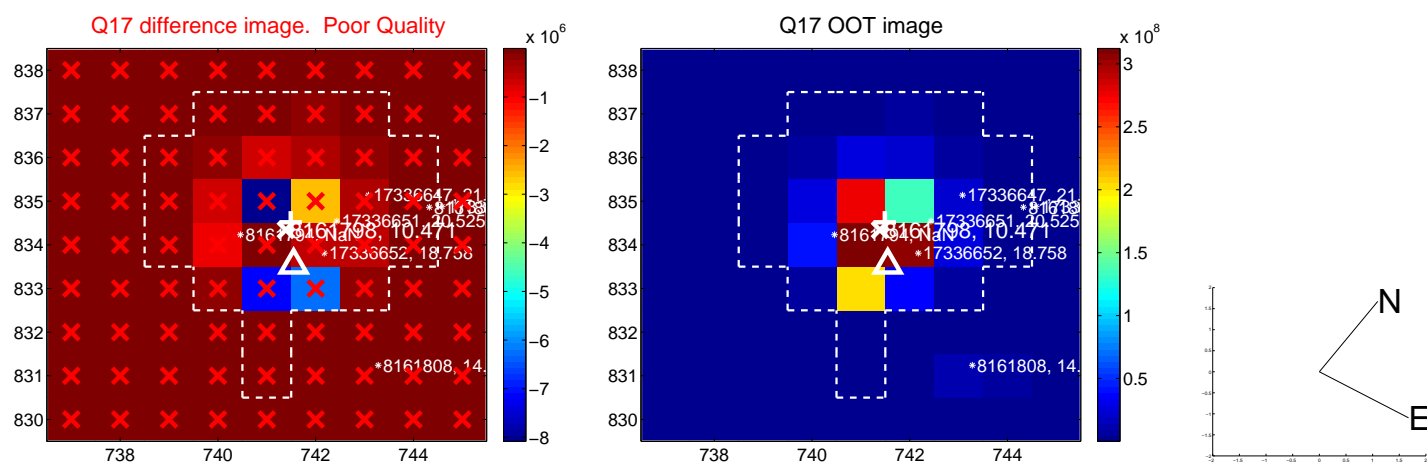
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



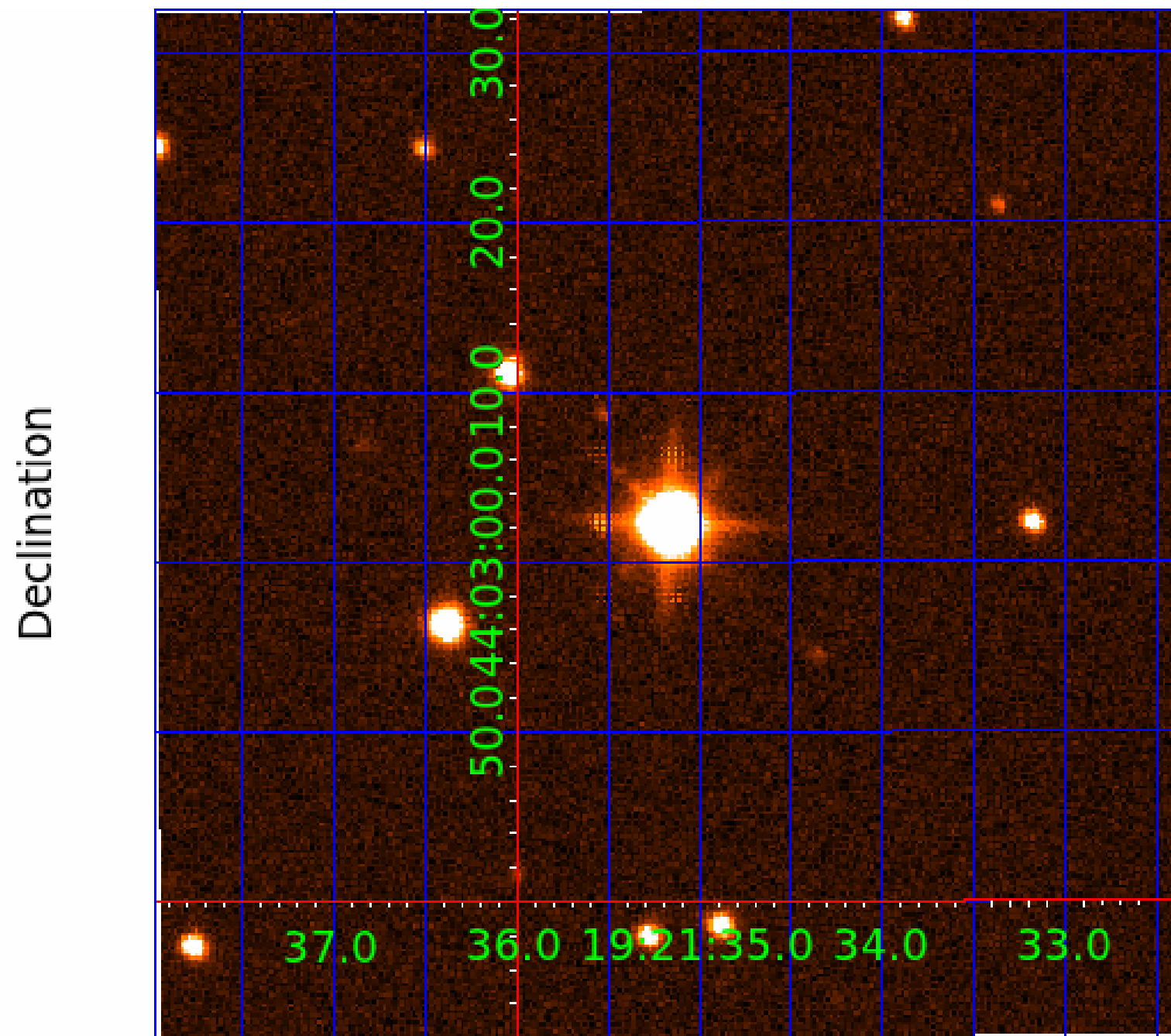
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.



UKIRT Image



KIC 008161798

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})
008161798-01	OBS	No	2.202885	131.630403	7.6	4.190	17.5	6.6	2.68	10974	0.84	41956.32
008161798-02	OBS	No	0.733609	131.941544	4.2	2.970	11.8	5.1	2.68	10974	0.61	181760.93
008161798-03	OBS	No	2.203004	132.591757	10.2	5.347	9.3	7.4	2.68	10974	1.07	41953.28
008161798-04	OBS	No	458.559029	176.638089	217.4	22.793	11.0	7.3	2.68	10974	4.17	34.01
008161798-05	OBS	No	93.996696	205.691396	214.3	1.783	10.8	7.0	2.68	10974	4.30	281.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008161798-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008161798-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008161798-03	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— SAME_NTL_PERIOD—CENT_SATURATED—EPHEM_MATCH
008161798-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008161798-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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.

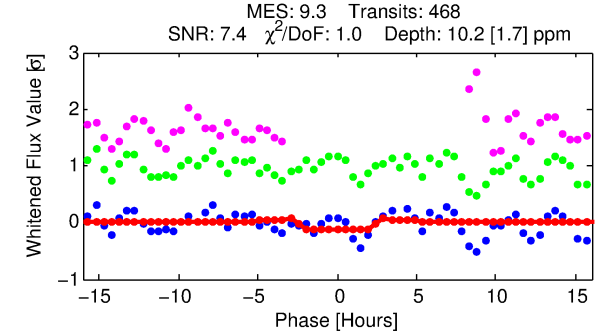
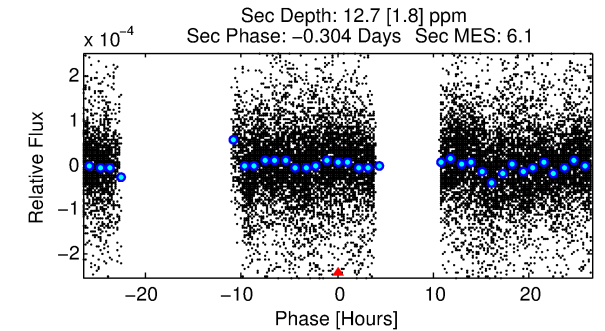
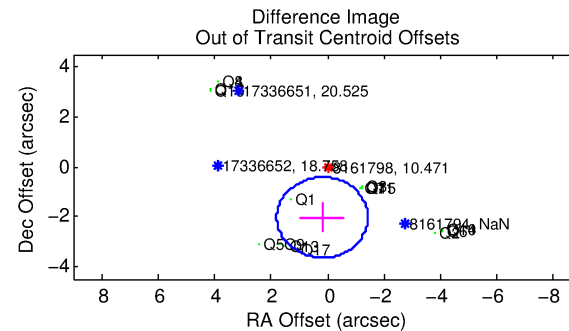
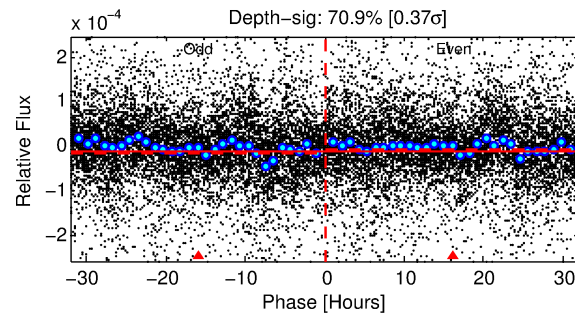
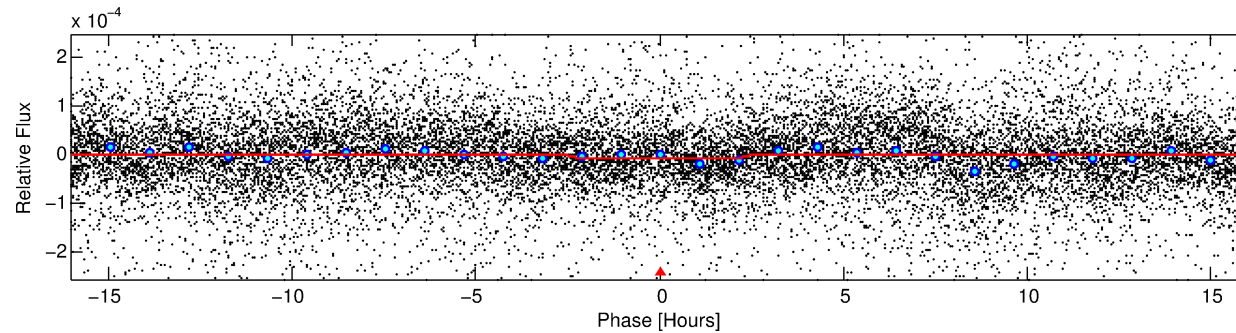
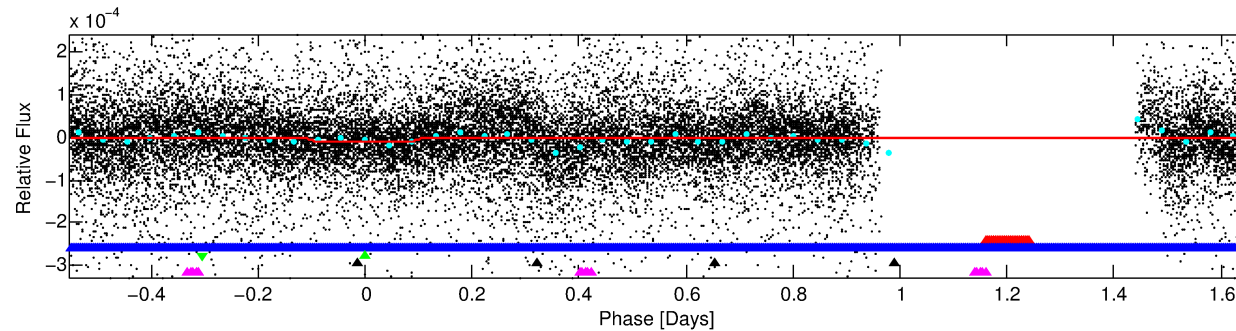
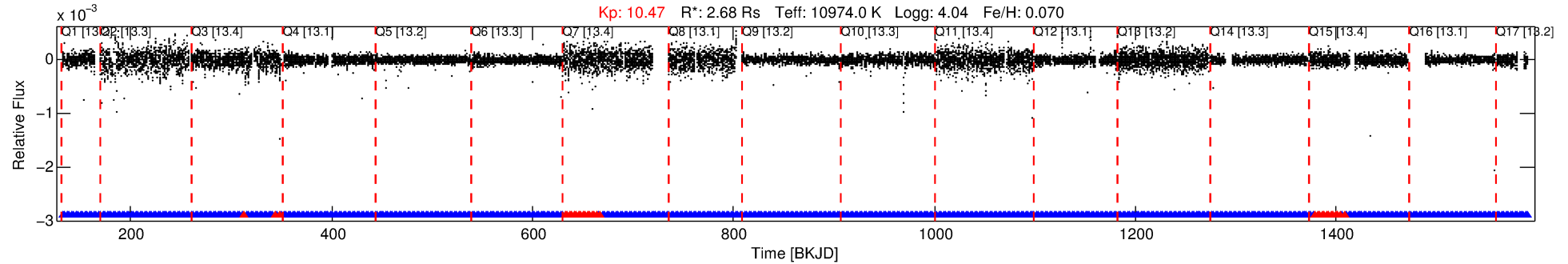
Ephemeris Match Information For 008161798-03

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
008161798-03	8161798	008161825-01	8161825	1:1	95.1	-18	-15	11.52	10.47	0.70	Direct-PRF	1	4.02	2.61

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 8161798 Candidate: 3 of 5 Period: 2.203 d



DV Fit Results:

Period = 2.20300 [0.00003] d
Epoch = 132.5918 [0.0064] BKJD
Rp/R* = 0.0037 [0.0004]
a/R* = 1.18 [0.22]
b = 0.98 [0.02]
Seff = 41953.28 [20294.48]
Teq = 3649 [441] K
Rp = 1.07 [0.38] Re
a = 0.0471 [0.0141] AU
Ag = 13.54 [7.02] [1.79 σ]
Teffp = 10823 [857] K [7.44 σ]

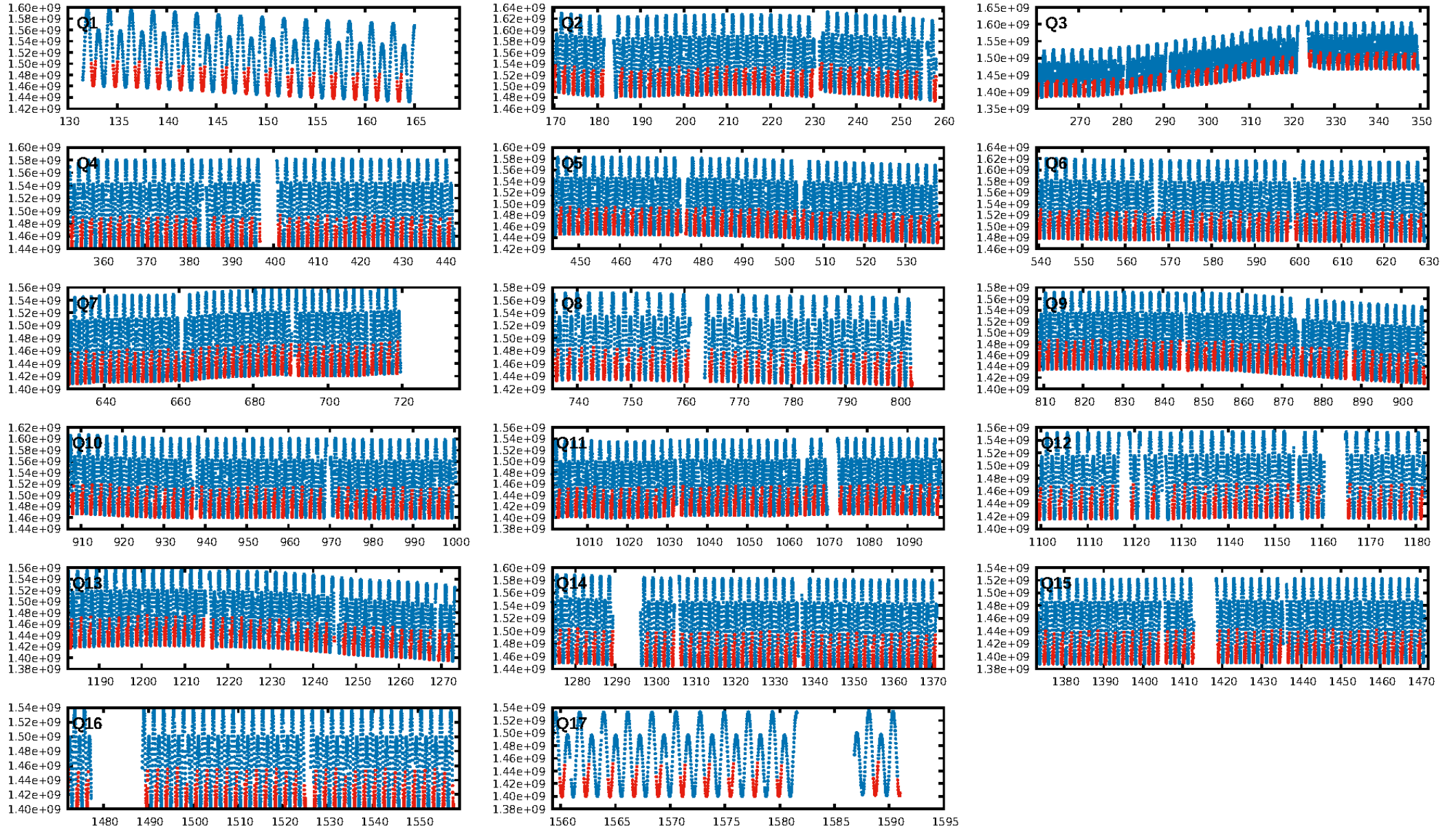
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [390.88 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.15e-13
RollingBand-fgt: 0.93 [422/454]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 19.391 arcsec [2.84 σ]
OotOffset-rm: 2.043 arcsec [3.80 σ]
KicOffset-rm: 2.004 arcsec [2.60 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.29 [5/17]
DiffImageOverlap-fno: 0.00 [0/17]

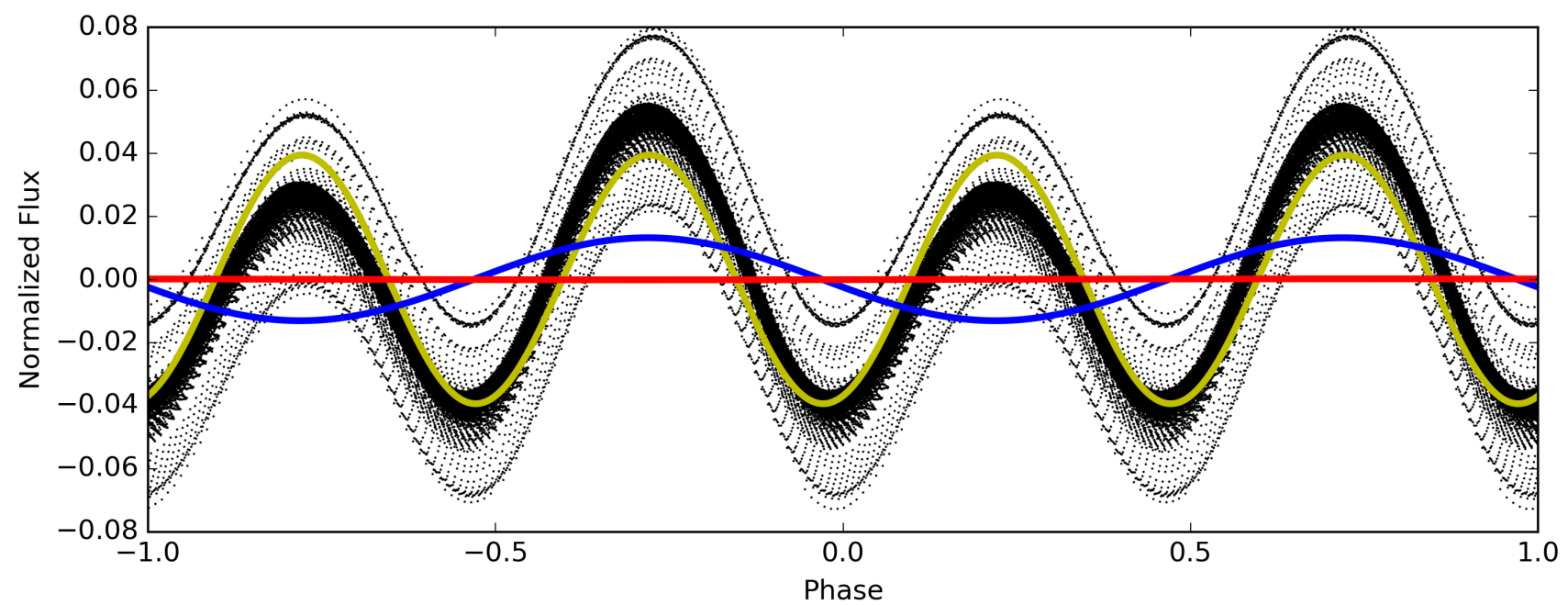
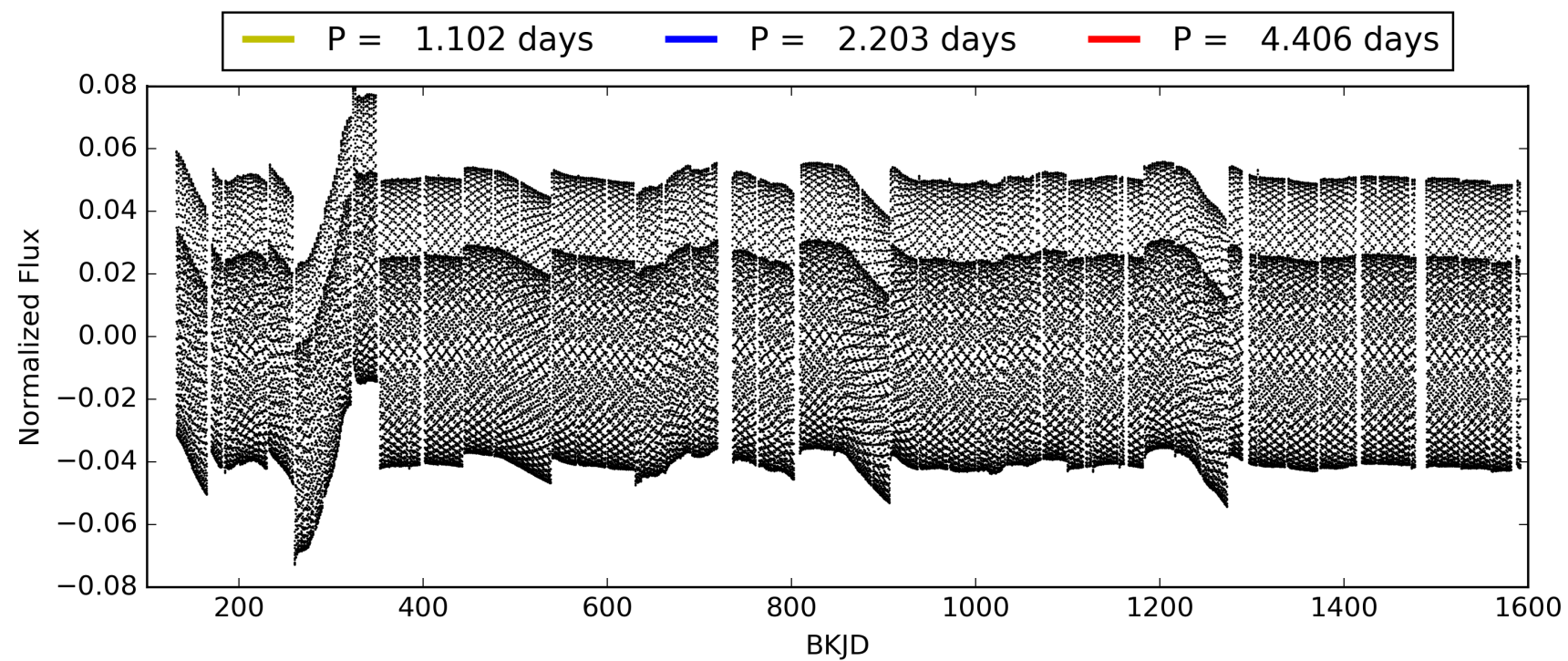
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:35:49 Z

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

TCE 008161798-03, PDC Light Curves

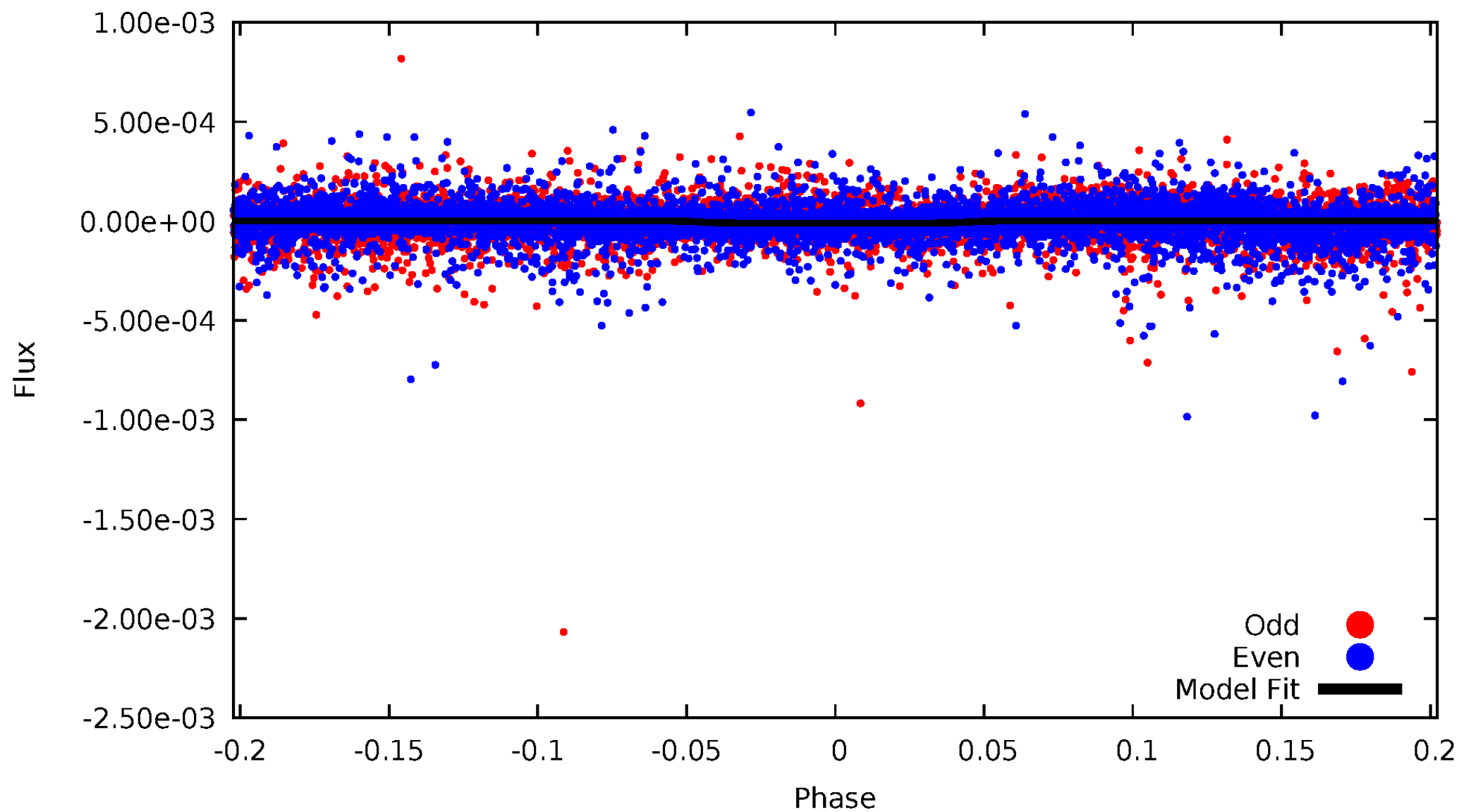


TCE 008161798-03



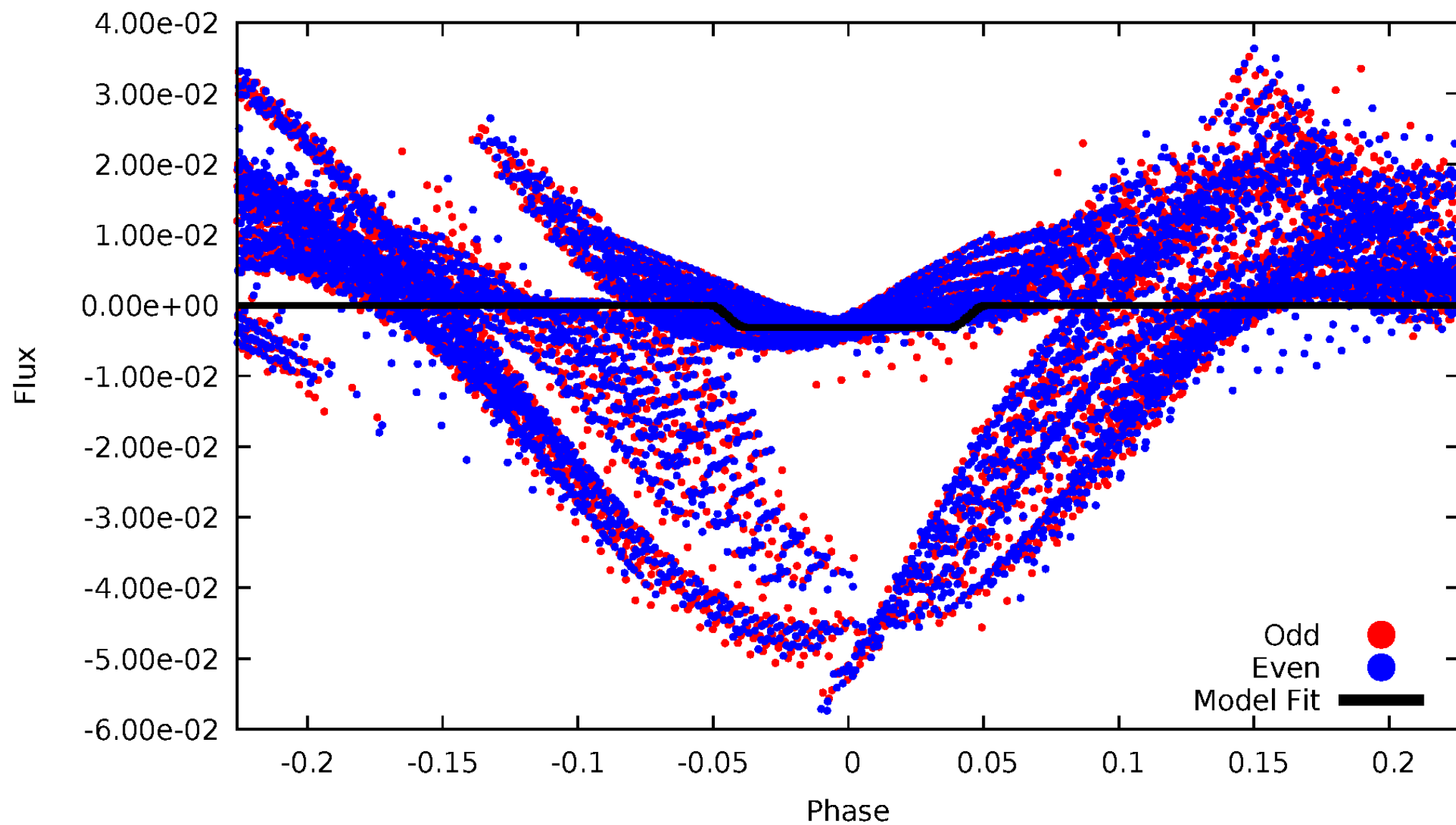
DV Odd/Even

TCE 008161798-03



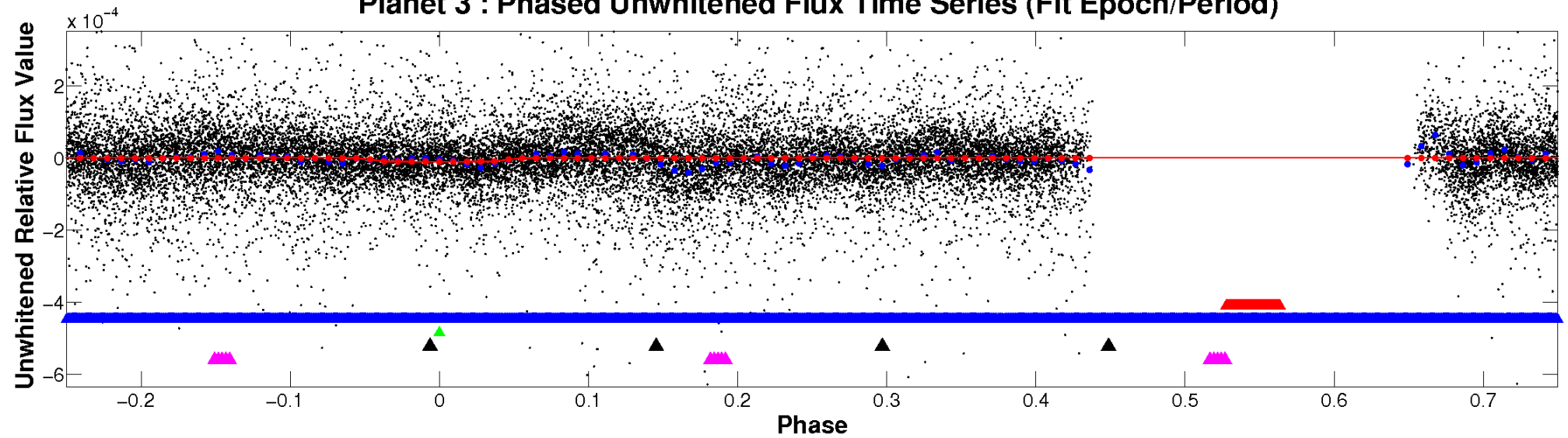
ALT Odd/Even

TCE 008161798-03

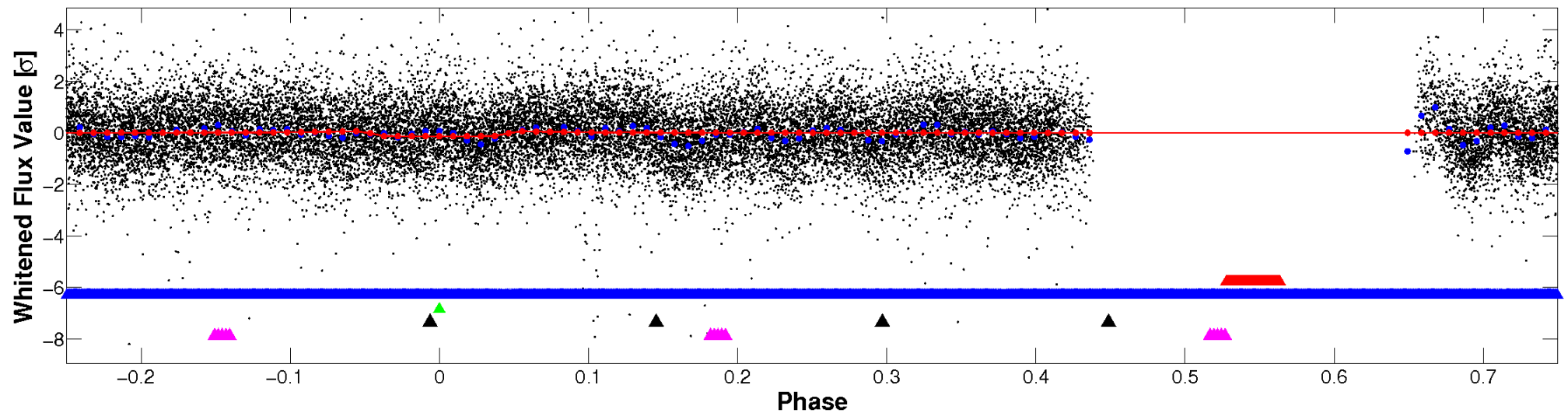


Non-Whitened Vs. Whitened Light Curve

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

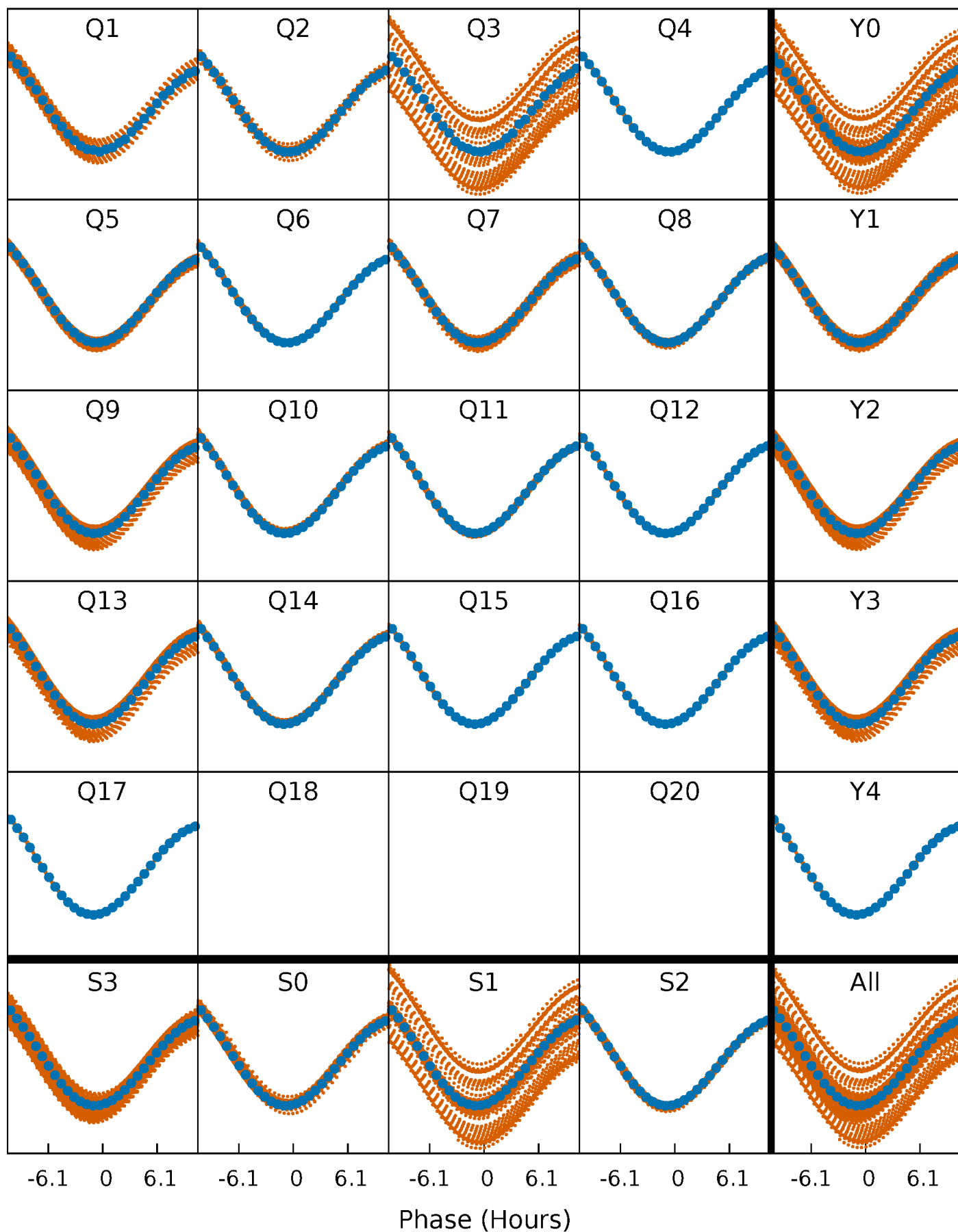


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



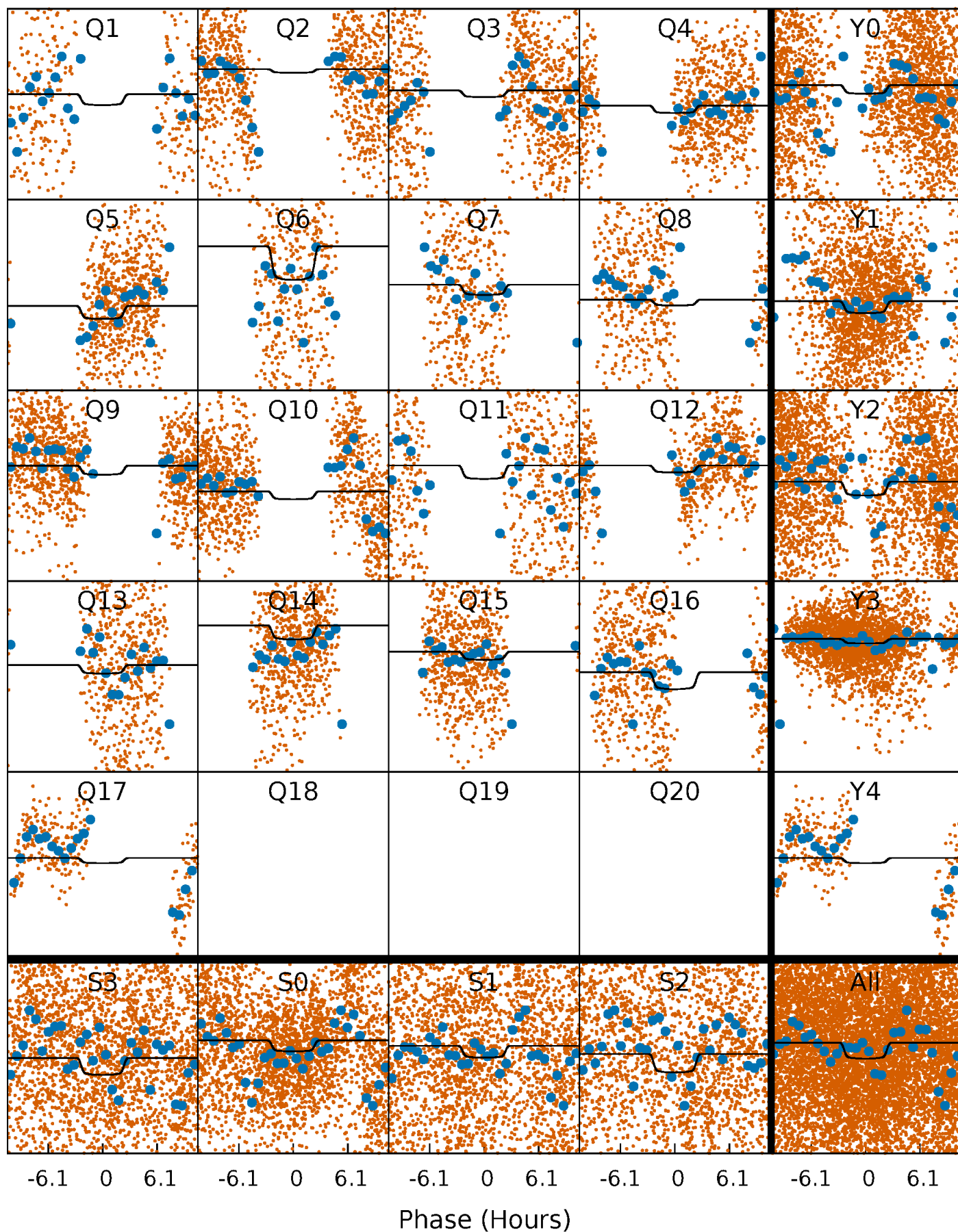
PDC Quarter-Phased Transit Curves

TCE 008161798-03 P= 2.203004 Days $T_0=132.591757$ (BKJD)



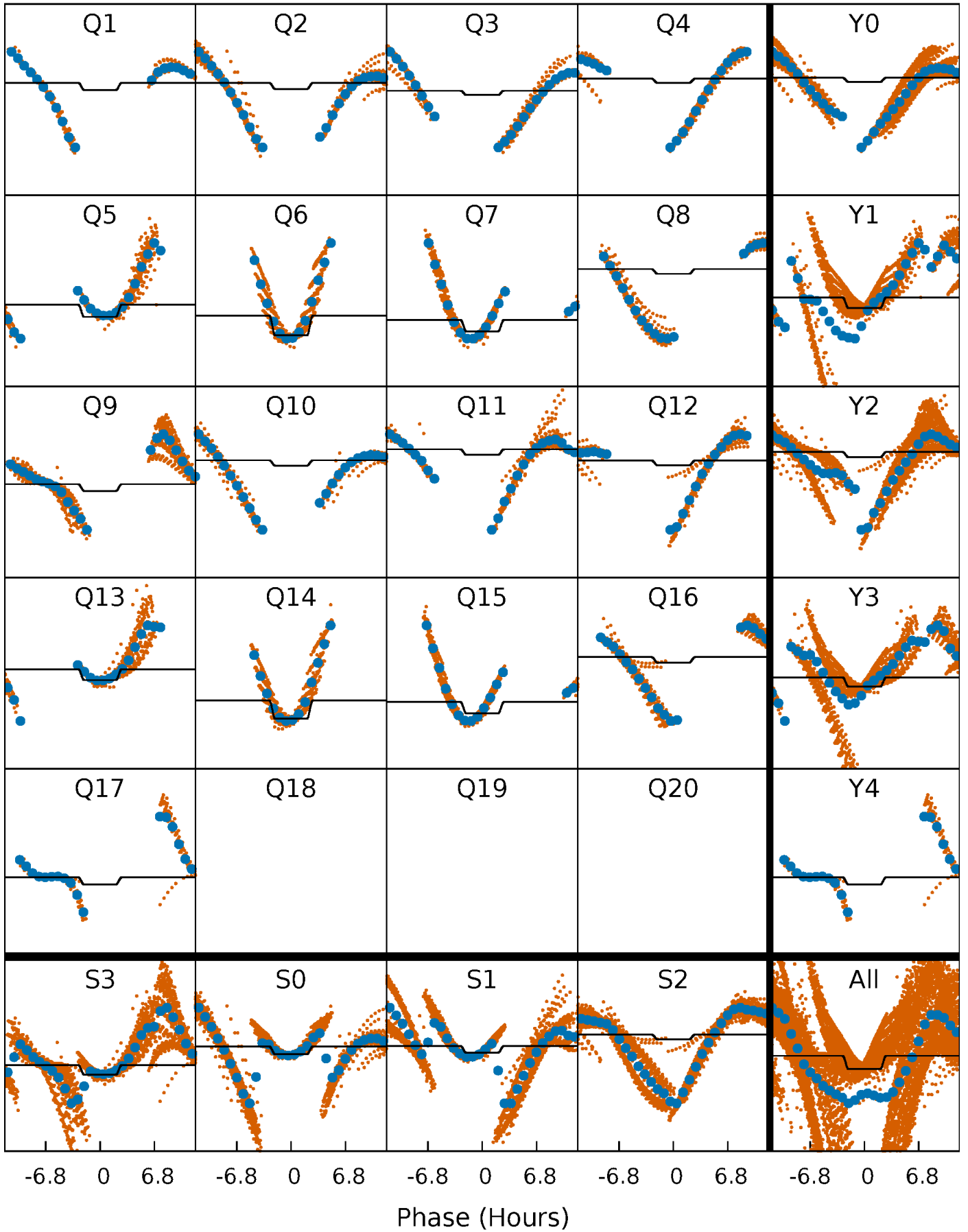
DV Quarter-Phased Transit Curves

TCE 008161798-03 P= 2.203004 Days $T_0=132.591757$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

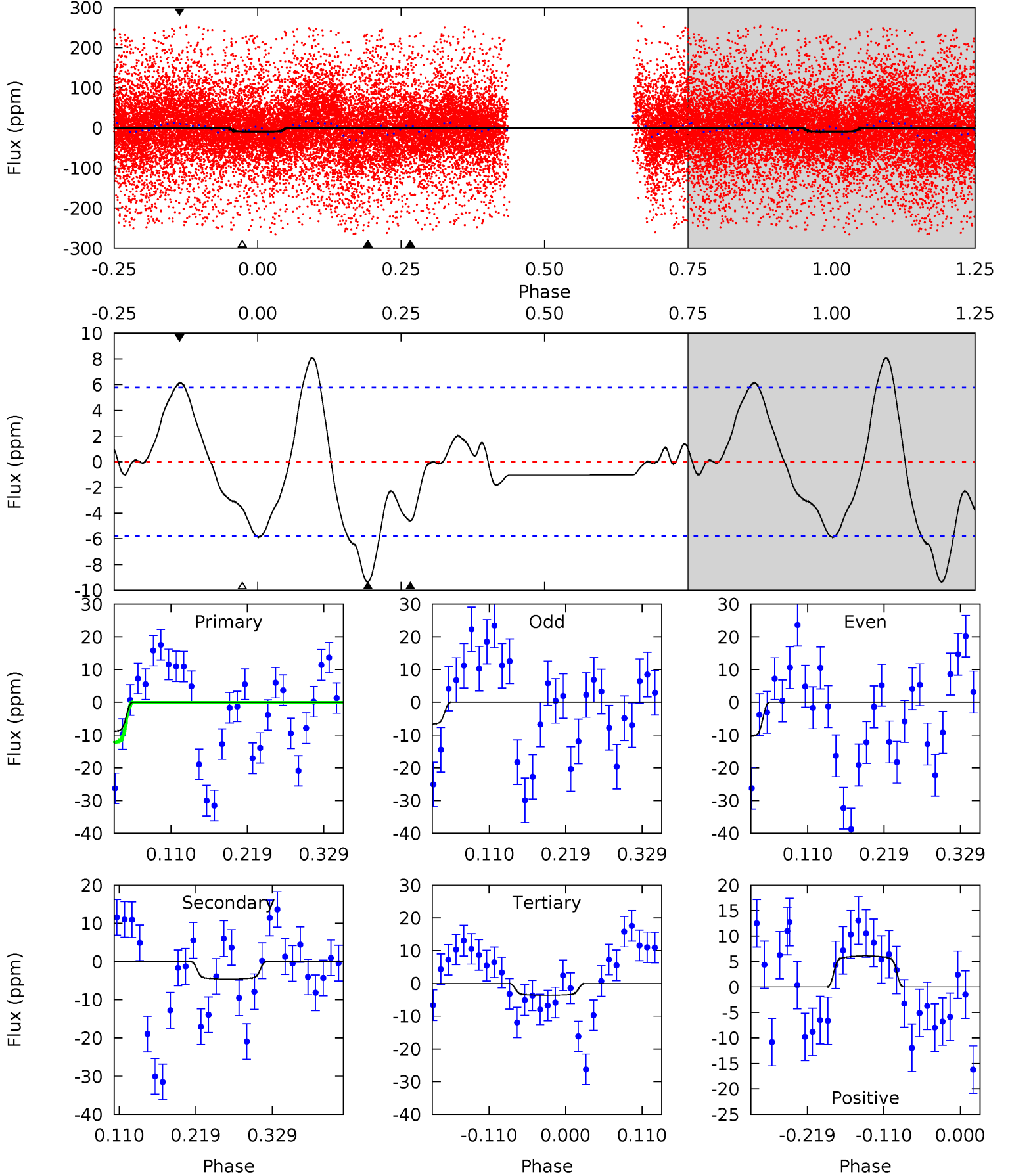
TCE 008161798-03 P= 2.203013 Days $T_0=132.592260$ (BKJD)



DV Model-Shift Uniqueness Test

008161798-03, P = 2.203004 Days, E = 130.388753 Days

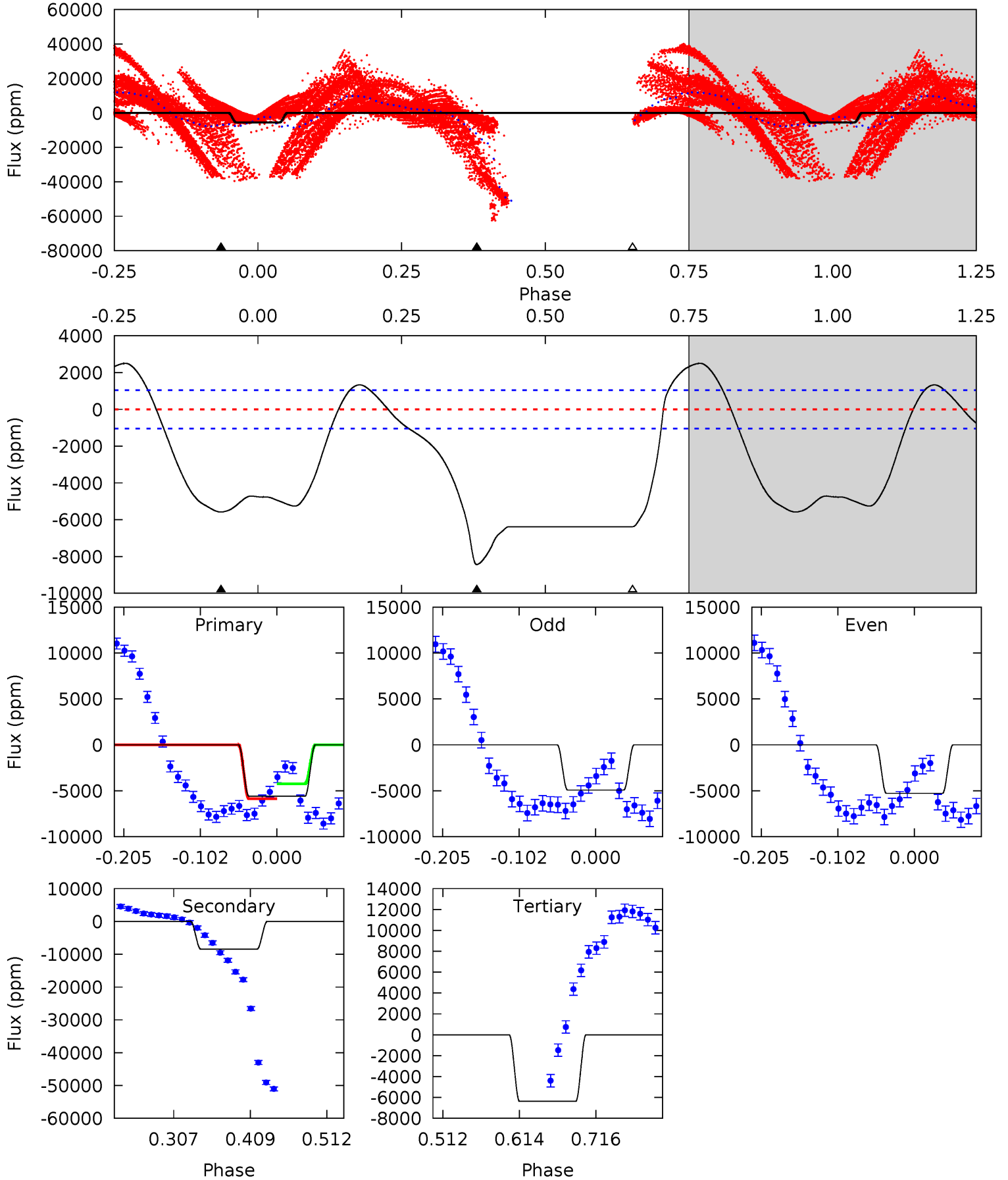
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.36	3.62	2.86	4.82	4.55	1.60	2.35	4.50	2.54	0.76	-1.20	1.56	0.88	0.46	3.43



Alt Model-Shift Uniqueness Test

008161798-03, P = 2.203013 Days, E = 130.389247 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.4	36.9	27.9	0	4.56	1.63	11.1	-3.49	24.4	8.99	36.9	0.78	6.01	0.23	3.67



Stellar Parameters For KIC 008161798

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	10974^{+228}_{-495}	$4.041^{+0.252}_{-0.168}$	$0.070^{+0.150}_{-0.600}$	$2.677^{+0.748}_{-0.914}$	$2.873^{+0.289}_{-0.674}$	$0.211^{+0.341}_{-0.098}$
	+2%/-5%	+6%/-4%	+214%/-857%	+28%/-34%	+10%/-23%	+162%/-47%
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 008161798-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5 ± 1	$1.04^{+0.24}_{-0.18}$	5045^{+396}_{-428}	7349^{+948}_{-811}	$4.906^{+2.789}_{-1.930}$
Alt.	-8437 ± 229	$16.24^{+2.45}_{-3.04}$	5034^{+380}_{-429}	17026^{+627}_{-879}	39^{+15}_{-9}

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

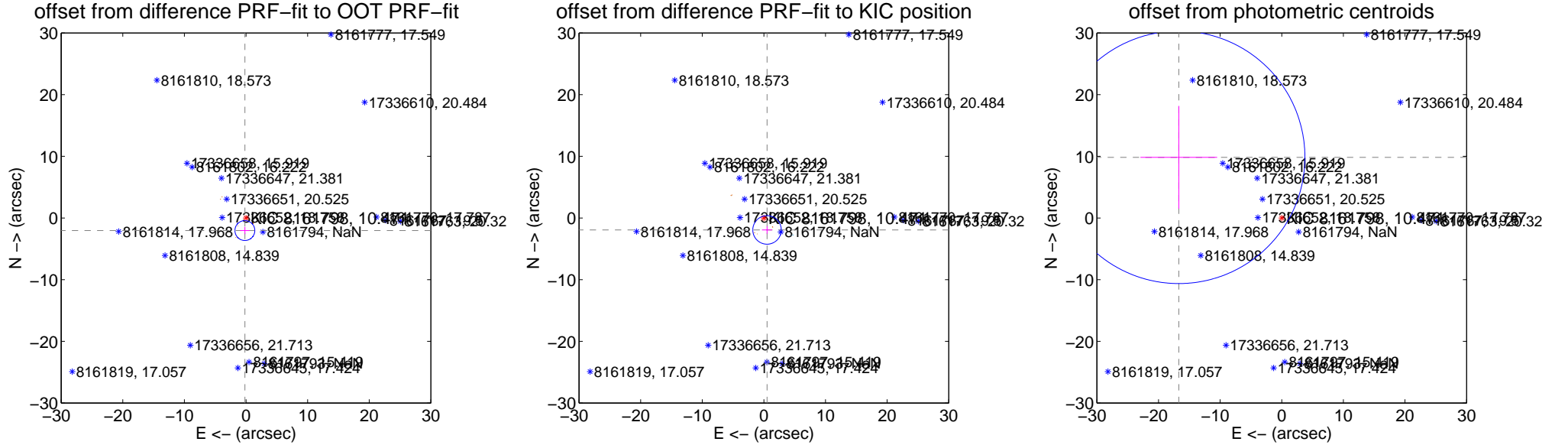
DV Centroid Data

Supplemental centroid analysis for 008161798-03. **Kepler magnitude: 10.47.** Transit SNR 7.35

There are 5 quarters with good PRF difference image offsets

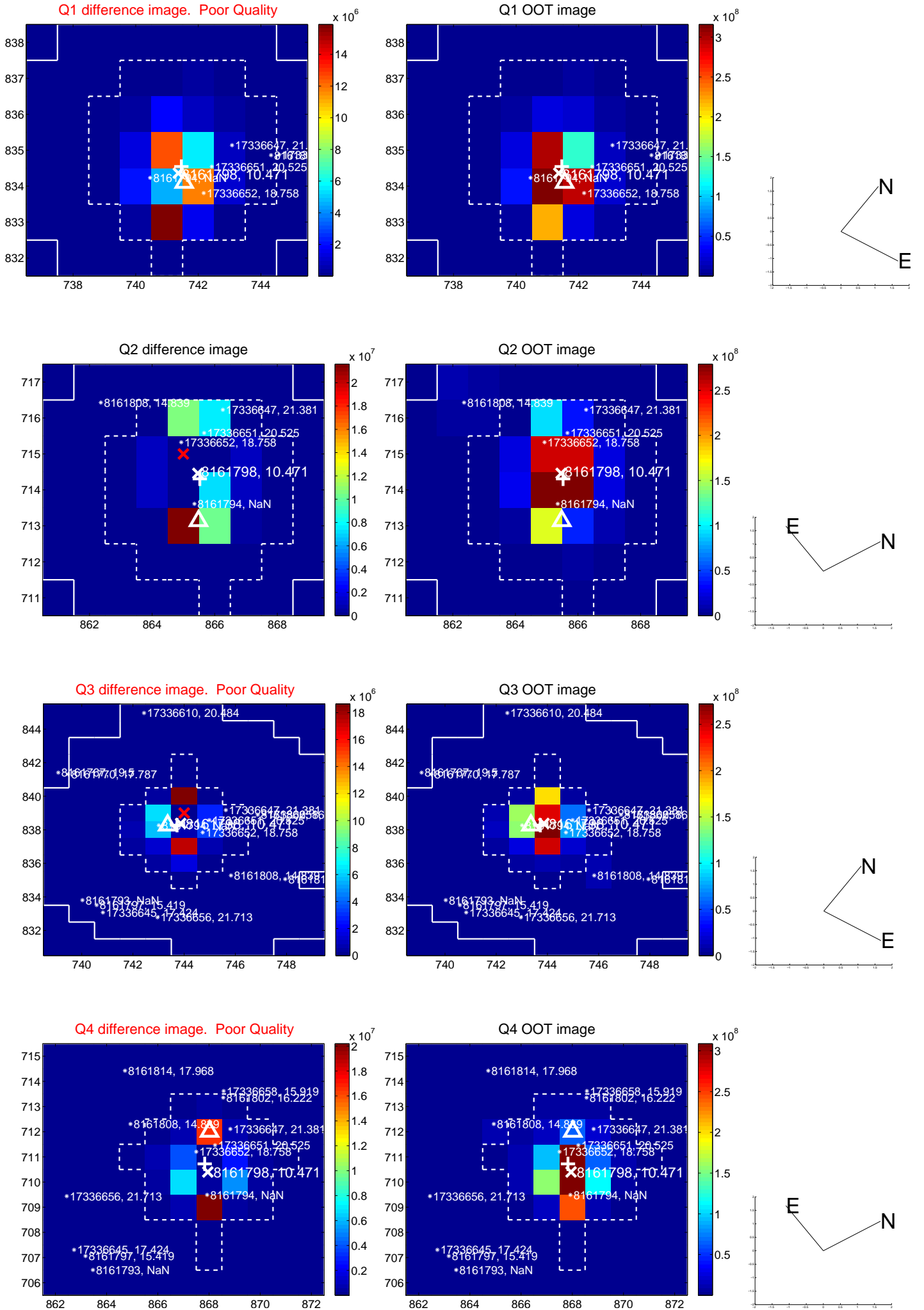
The direct PRF centroid is offset from the target star catalog position by about 0.76 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.043 \pm 0.537	3.80	0.184 \pm 0.748	-2.035 \pm 0.578
PRF-fit source offset from KIC position	2.004 \pm 0.771	2.60	-0.513 \pm 0.819	-1.937 \pm 0.612
photometric centroid source offset	19.39 \pm 6.82	2.84	16.71 \pm 6.22	9.84 \pm 8.32

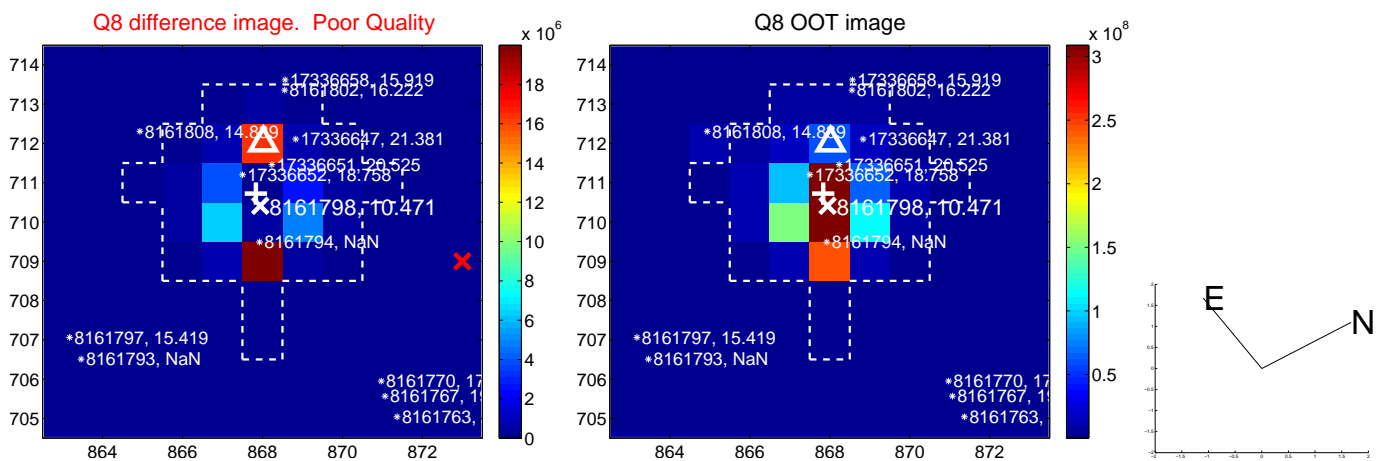
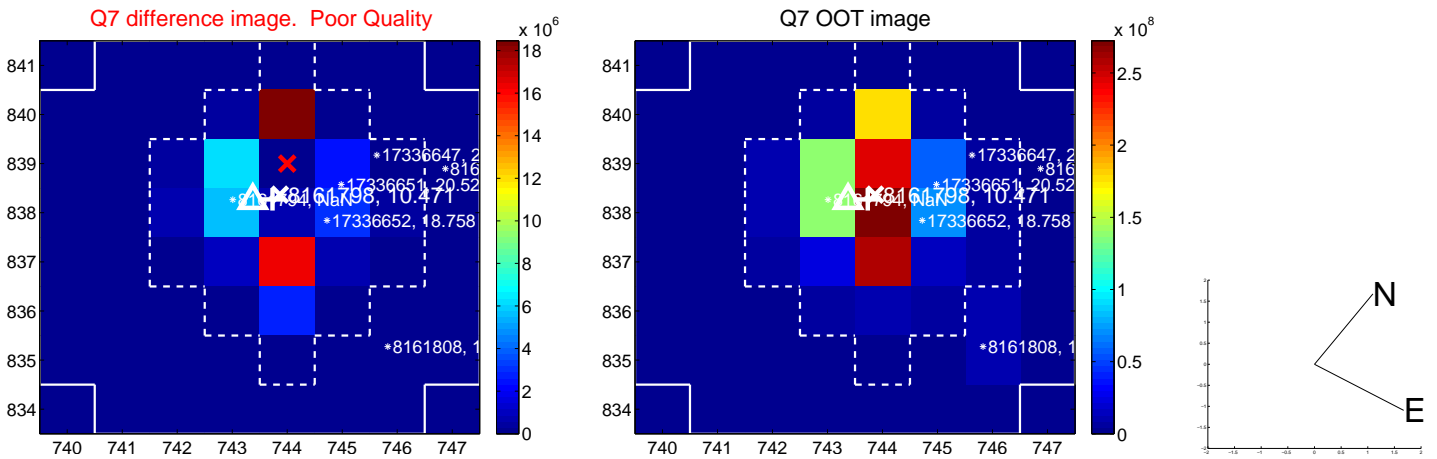
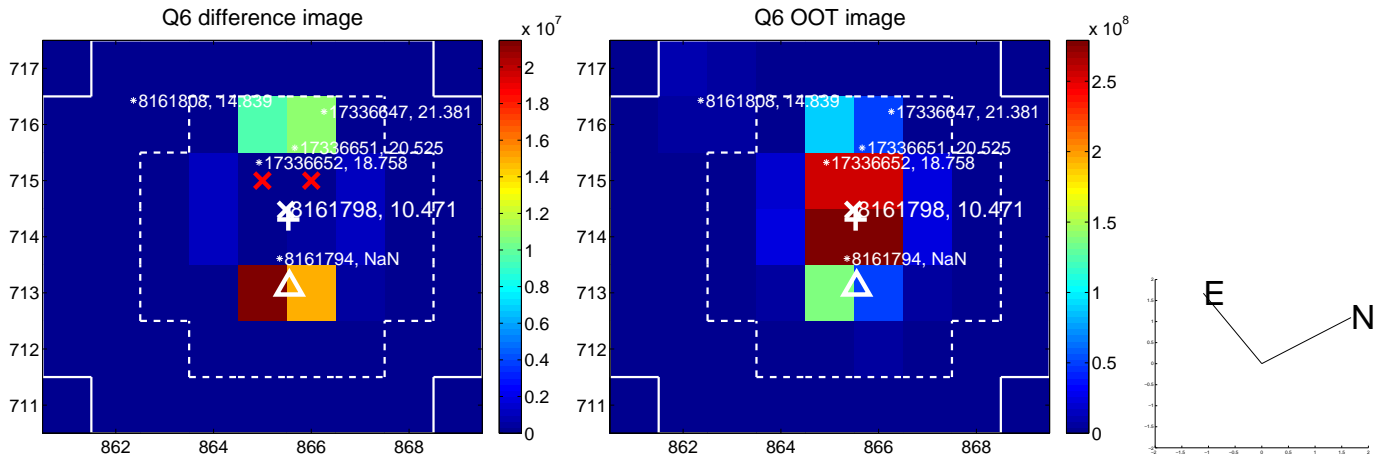
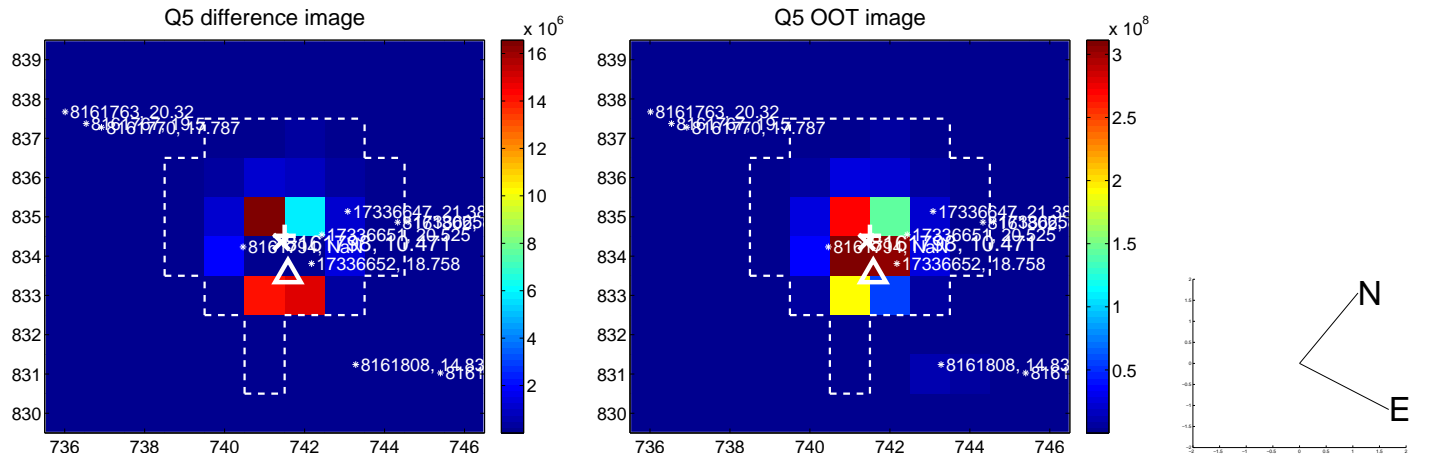


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

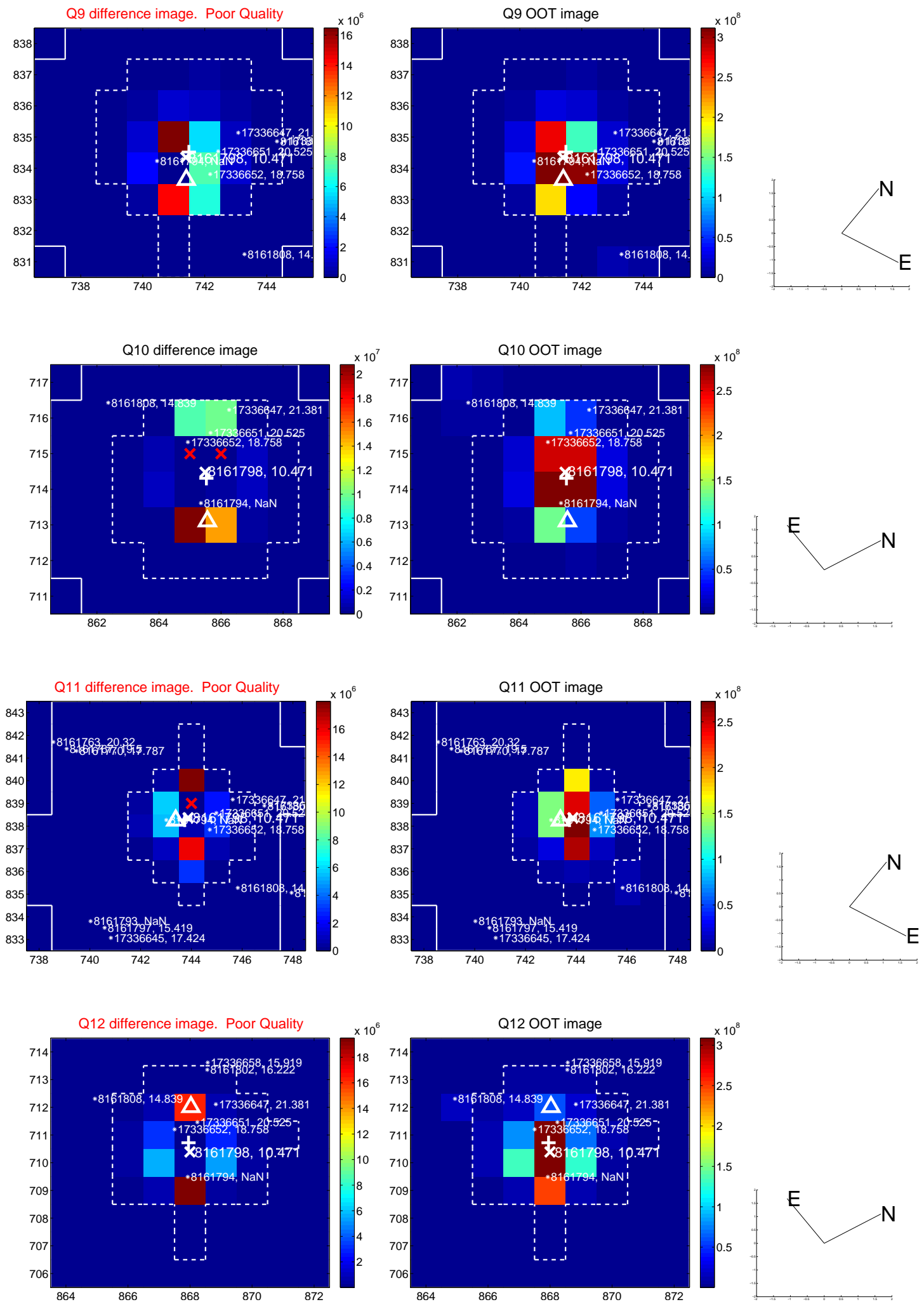
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



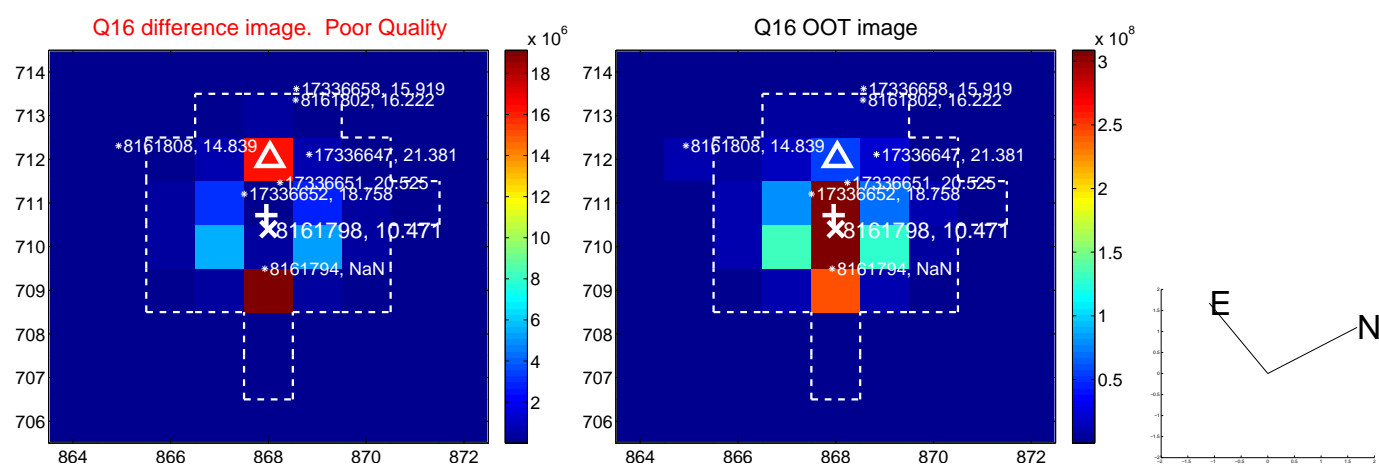
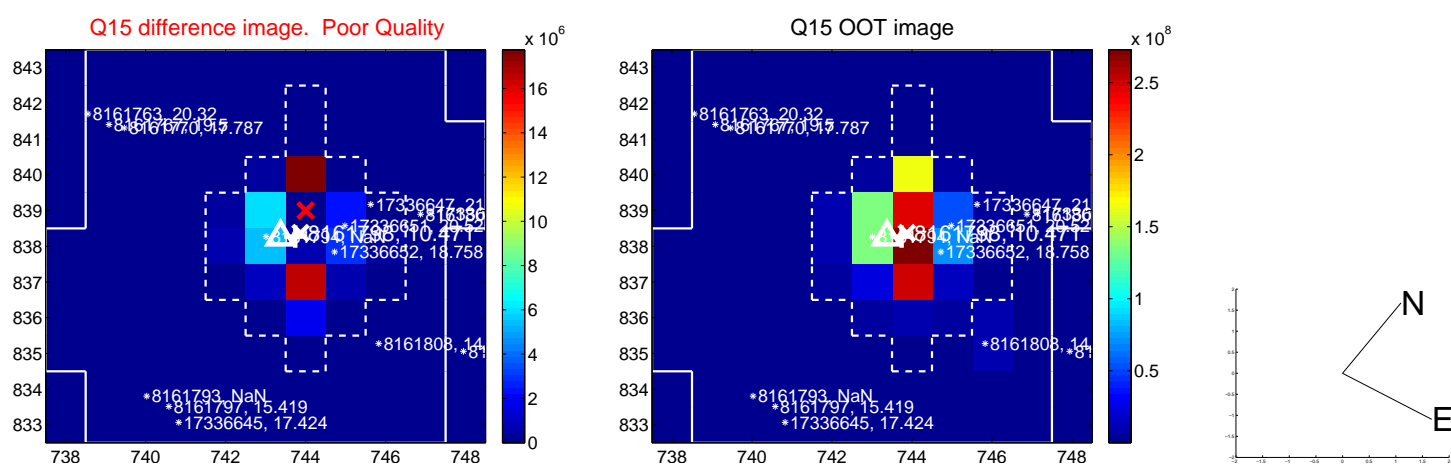
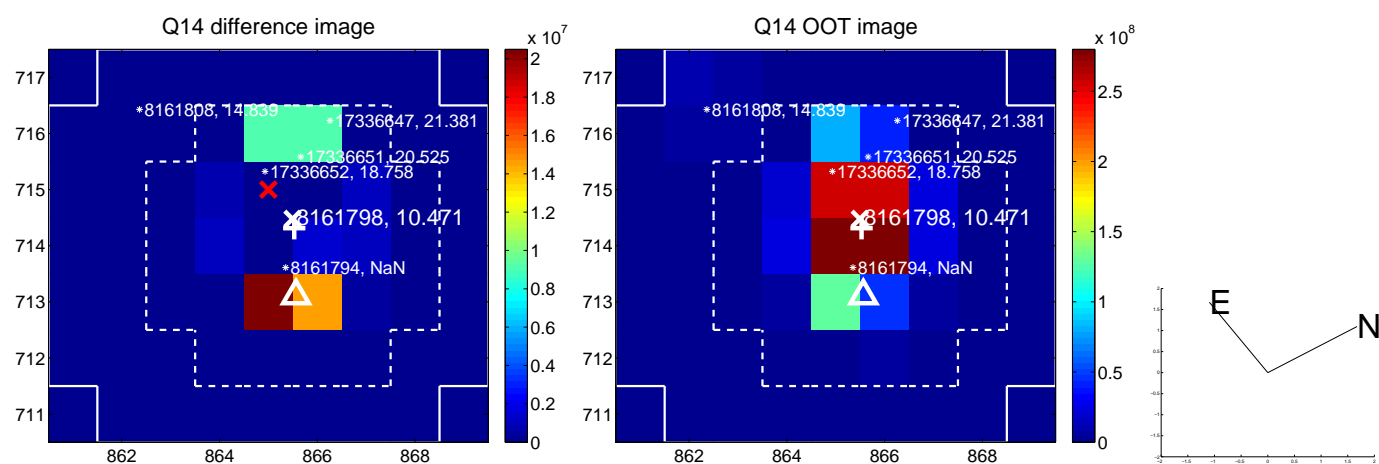
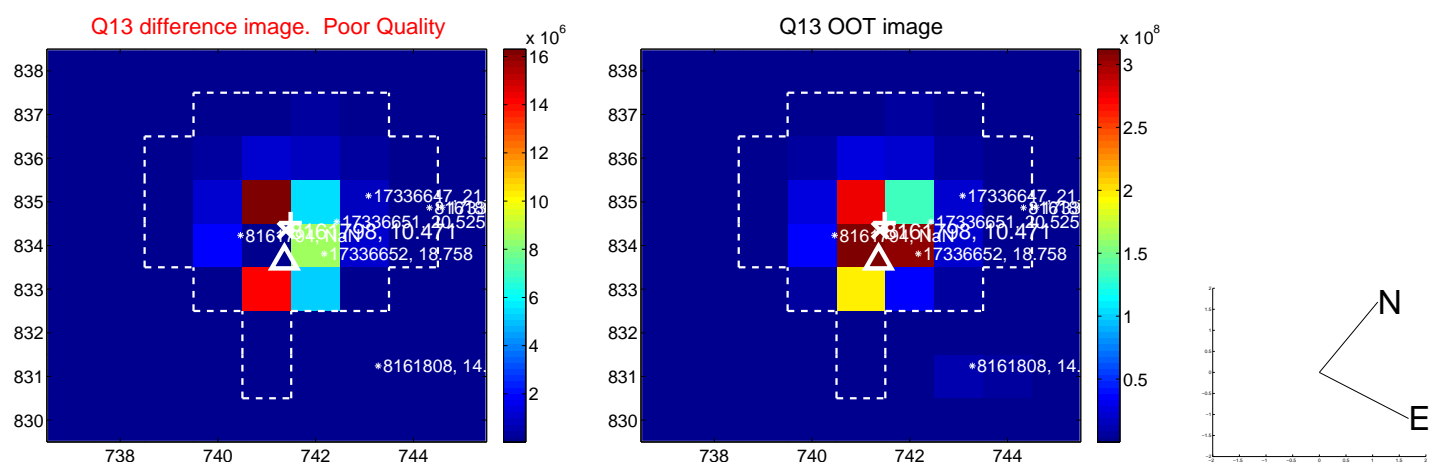
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



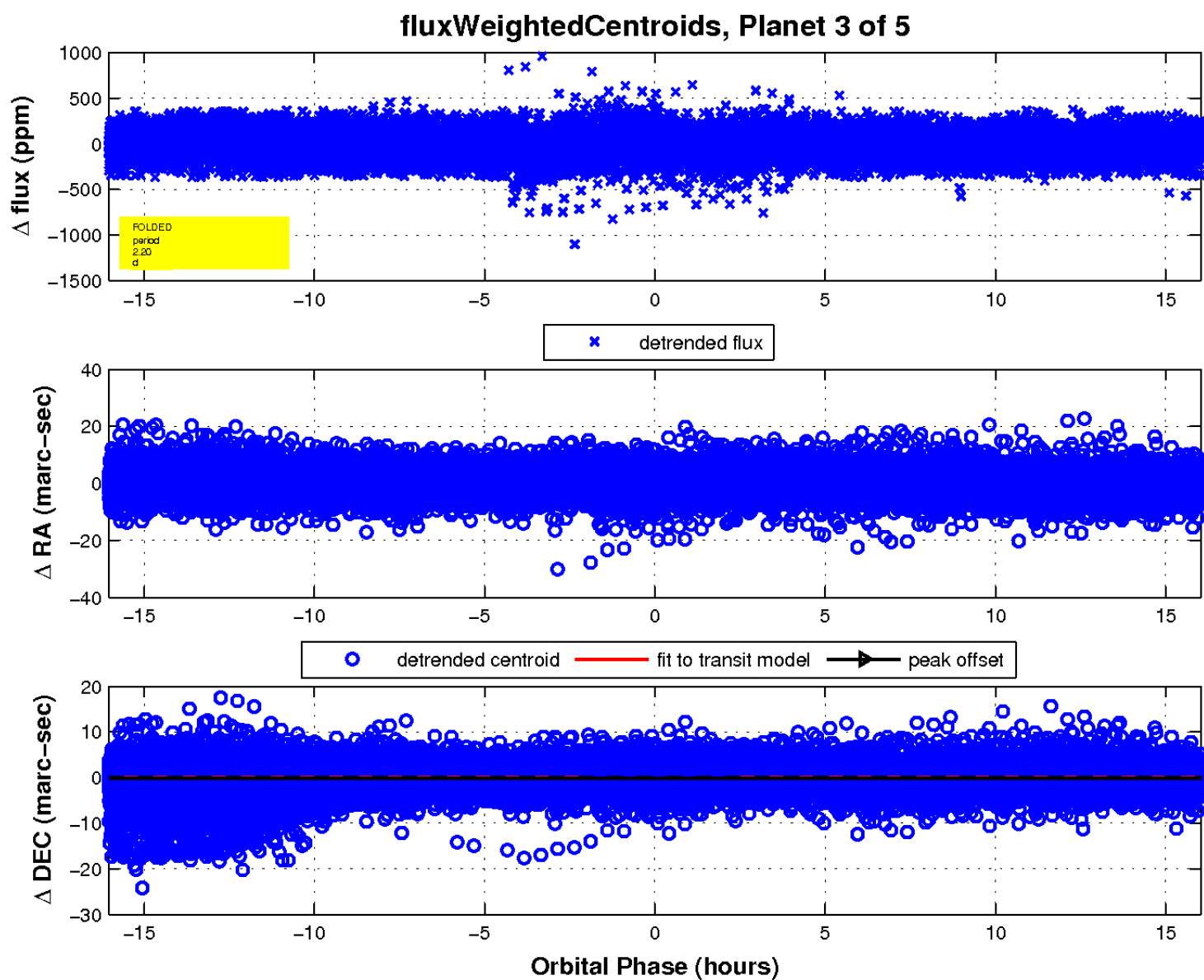
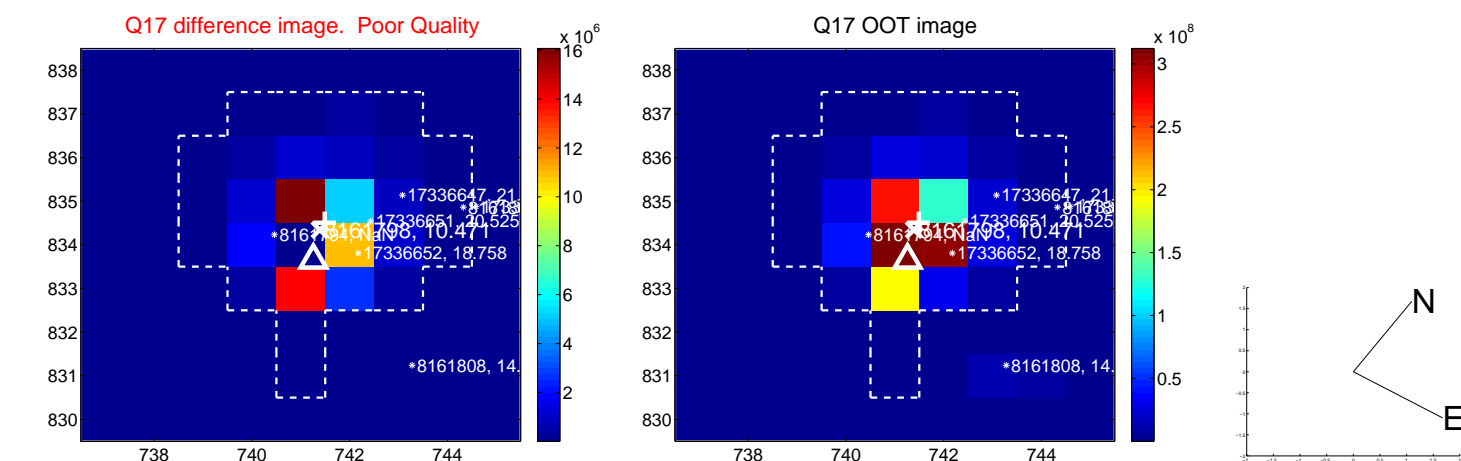
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



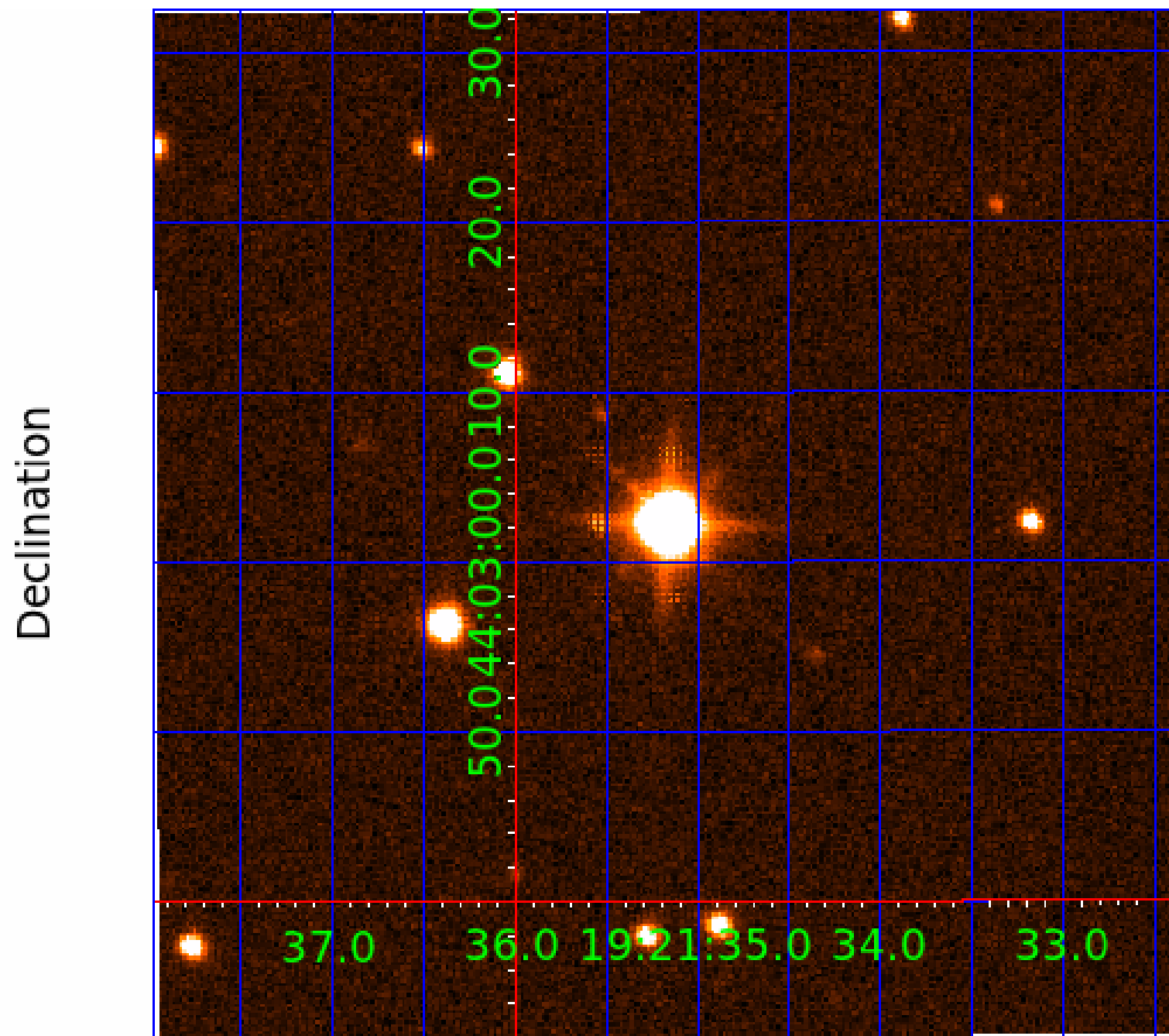
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008161798

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})
008161798-01	OBS	No	2.202885	131.630403	7.6	4.190	17.5	6.6	2.68	10974	0.84	41956.32
008161798-02	OBS	No	0.733609	131.941544	4.2	2.970	11.8	5.1	2.68	10974	0.61	181760.93
008161798-03	OBS	No	2.203004	132.591757	10.2	5.347	9.3	7.4	2.68	10974	1.07	41953.28
008161798-04	OBS	No	458.559029	176.638089	217.4	22.793	11.0	7.3	2.68	10974	4.17	34.01
008161798-05	OBS	No	93.996696	205.691396	214.3	1.783	10.8	7.0	2.68	10974	4.30	281.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008161798-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008161798-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008161798-03	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_SATURATED—EPHEM_MATCH
008161798-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008161798-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

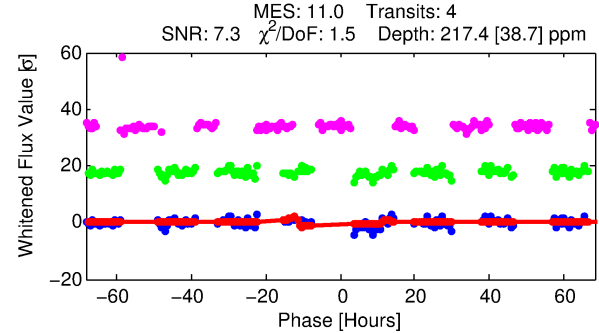
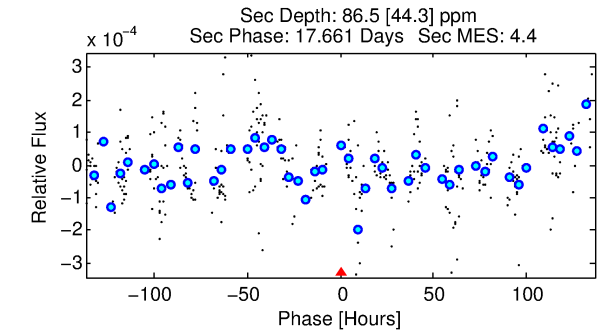
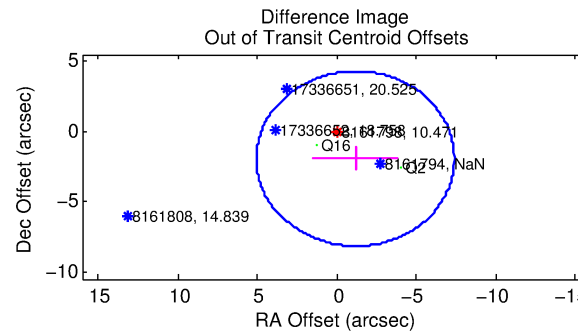
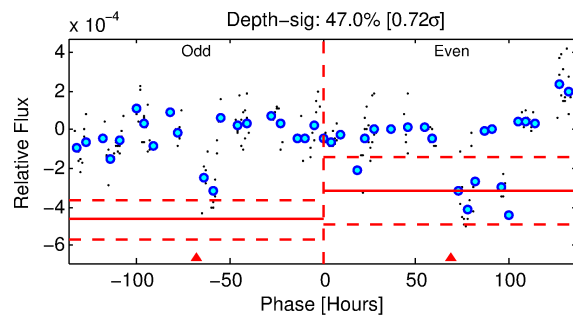
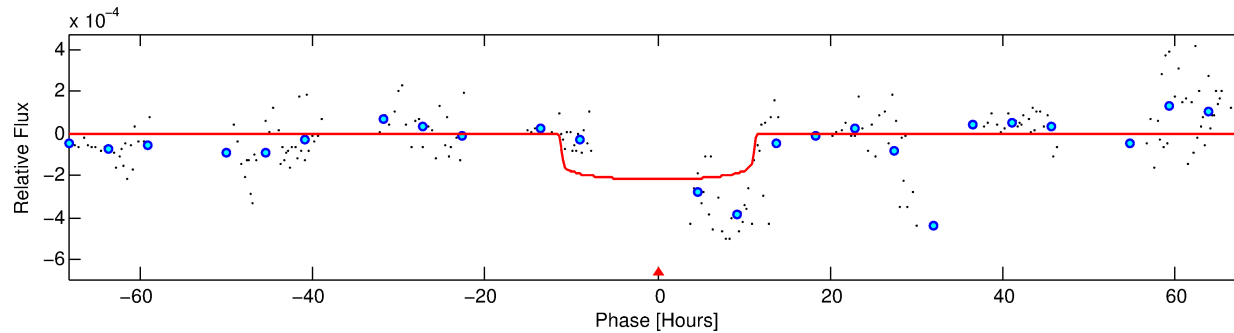
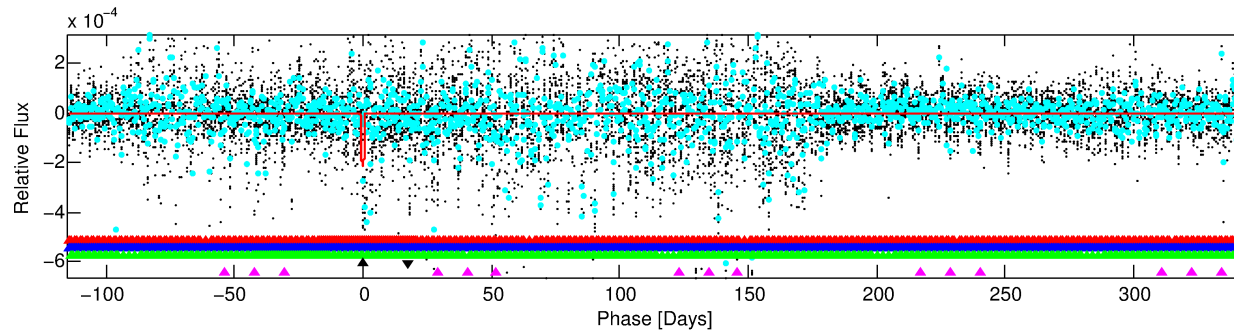
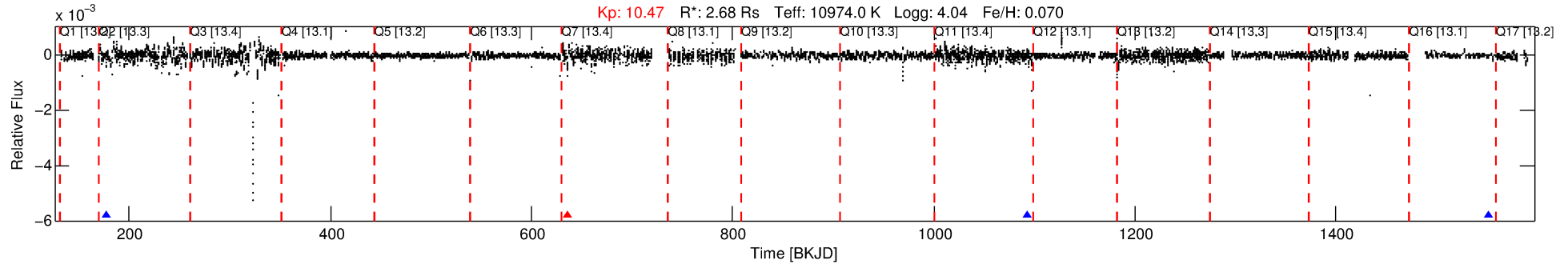
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008161798-04

No Significant Match Found

DV One-Page Summary

KIC: 8161798 Candidate: 4 of 5 Period: 458.559 d



DV Fit Results:

Period = 458.55903 [0.00622] d
Epoch = 176.6381 [0.0113] BKJD
Rp/R* = 0.0143 [0.0025]
a/R* = 129.40 [147.64]
b = 0.57 [1.37]
Seff = 34.01 [16.45]
Teq = 616 [74] K
Rp = 4.17 [1.60] Re
a = 1.6547 [0.4943] AU
Ag = 7501.09 [5727.60] [1.31 σ]
Teff = 8860 [1425] K [5.78 σ]

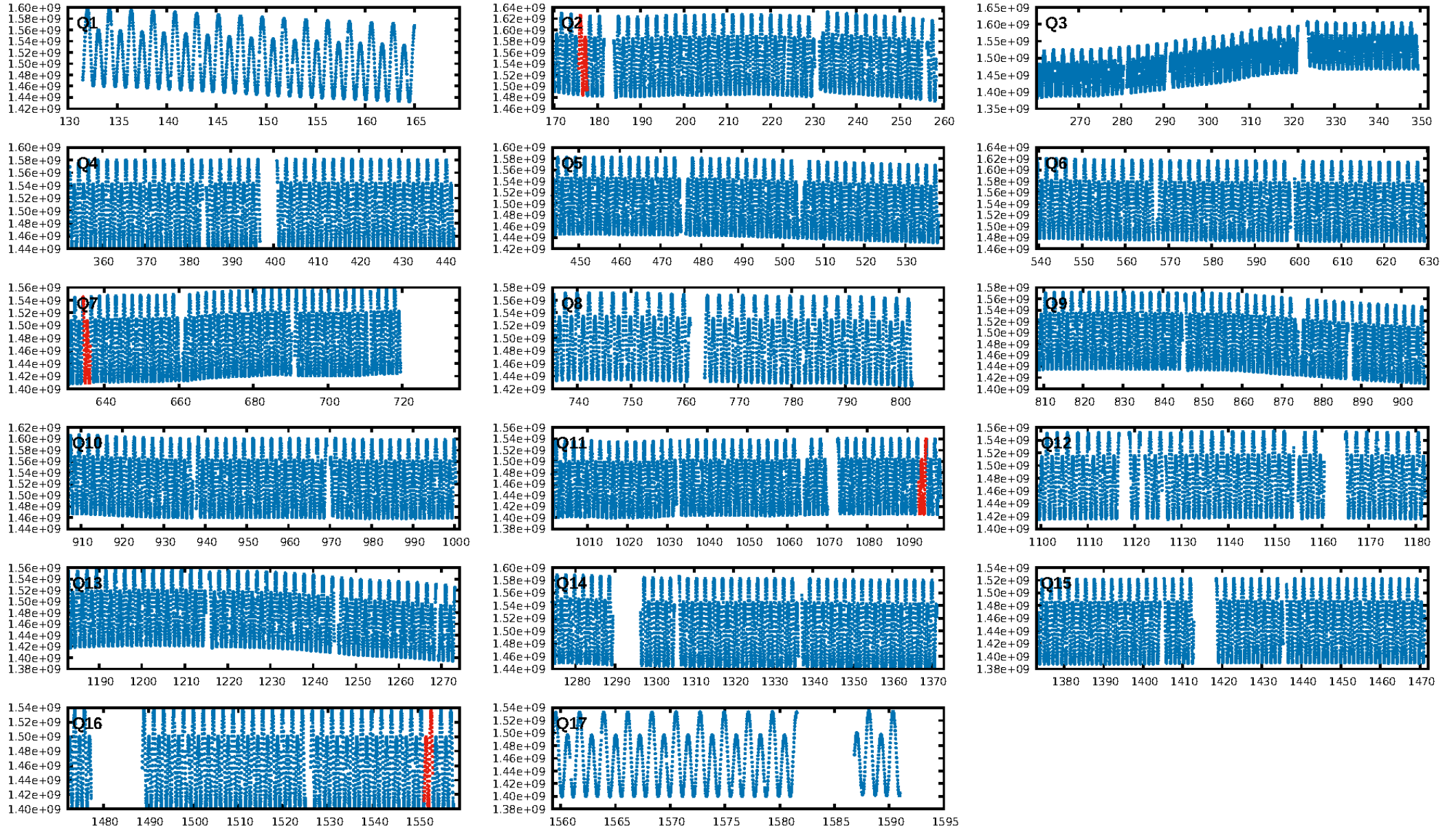
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [382.70 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.41e-10
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 1.243 arcsec [0.32 σ]
OotOffset-rm: 2.264 arcsec [1.09 σ]
KicOffset-rm: 2.034 arcsec [0.93 σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/2]

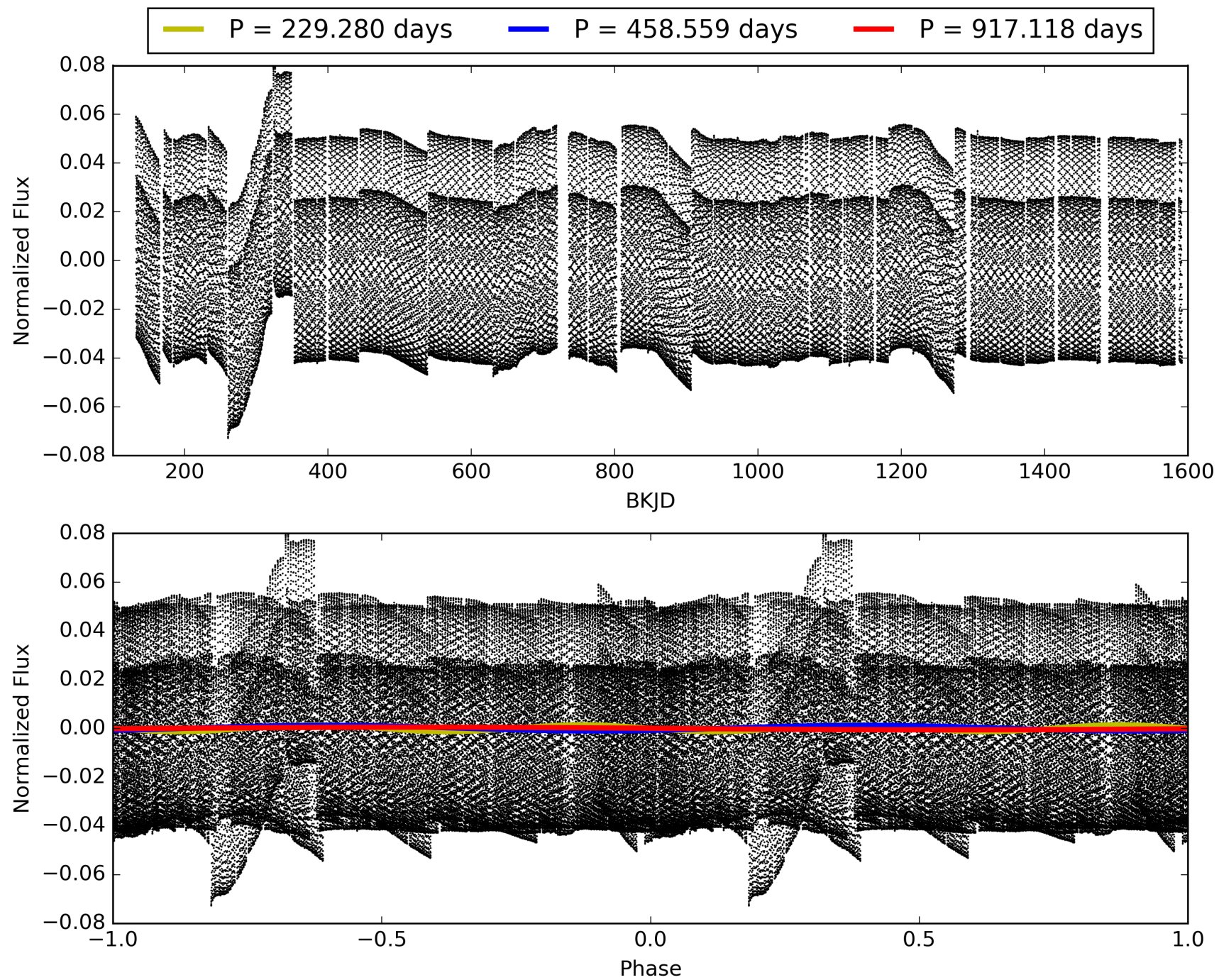
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:35:56 Z

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

TCE 008161798-04, PDC Light Curves

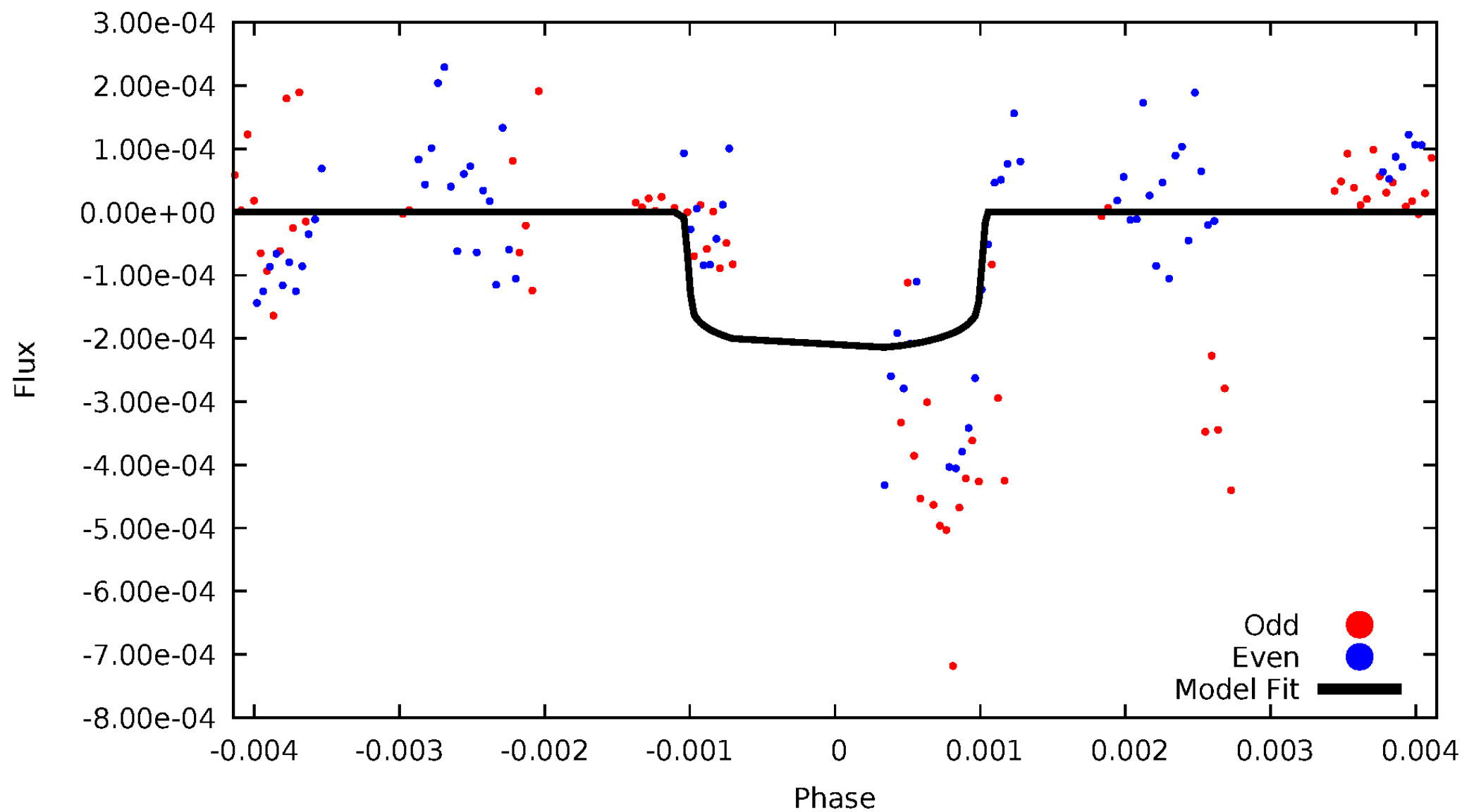


TCE 008161798-04



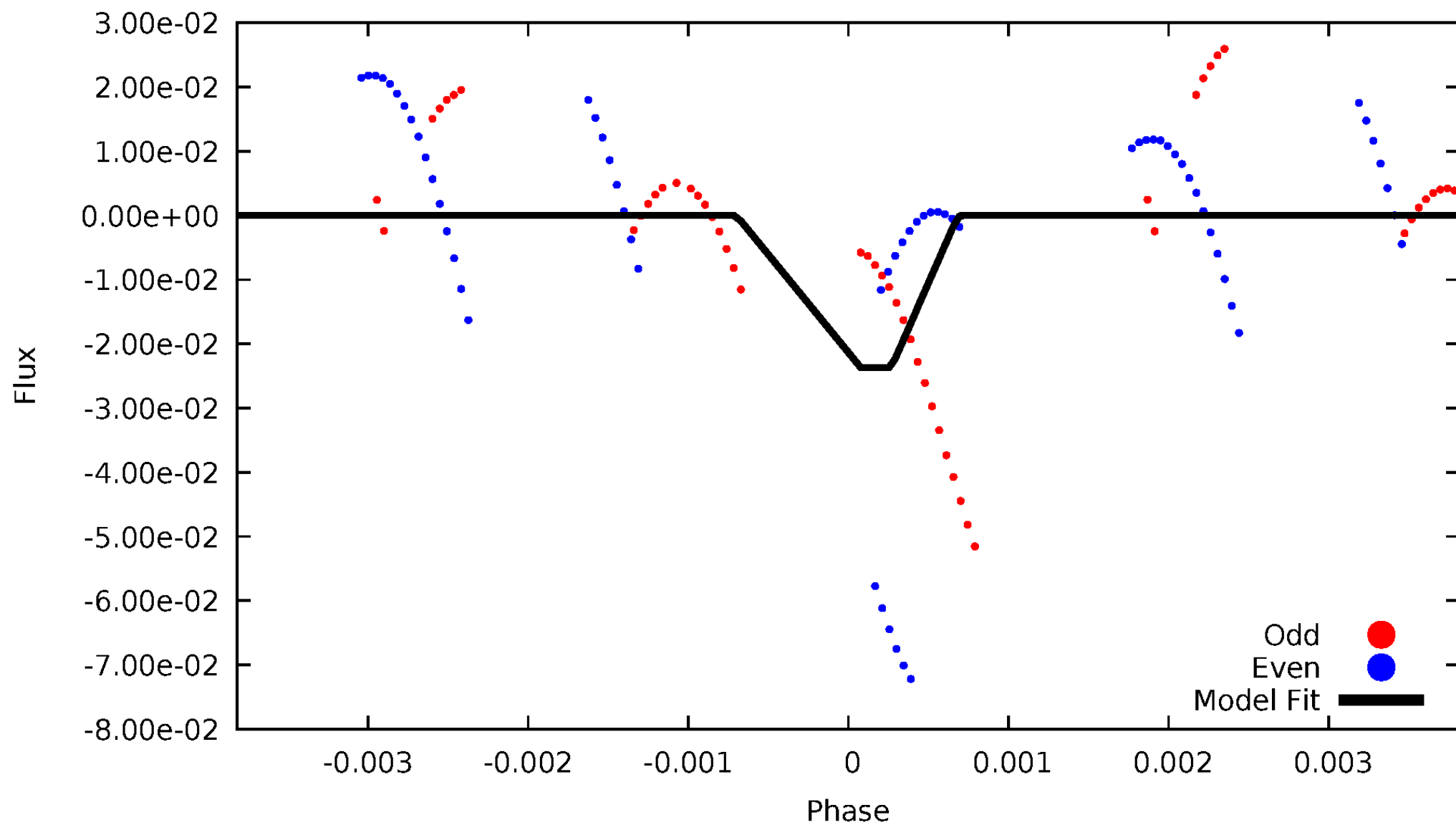
DV Odd/Even

TCE 008161798-04



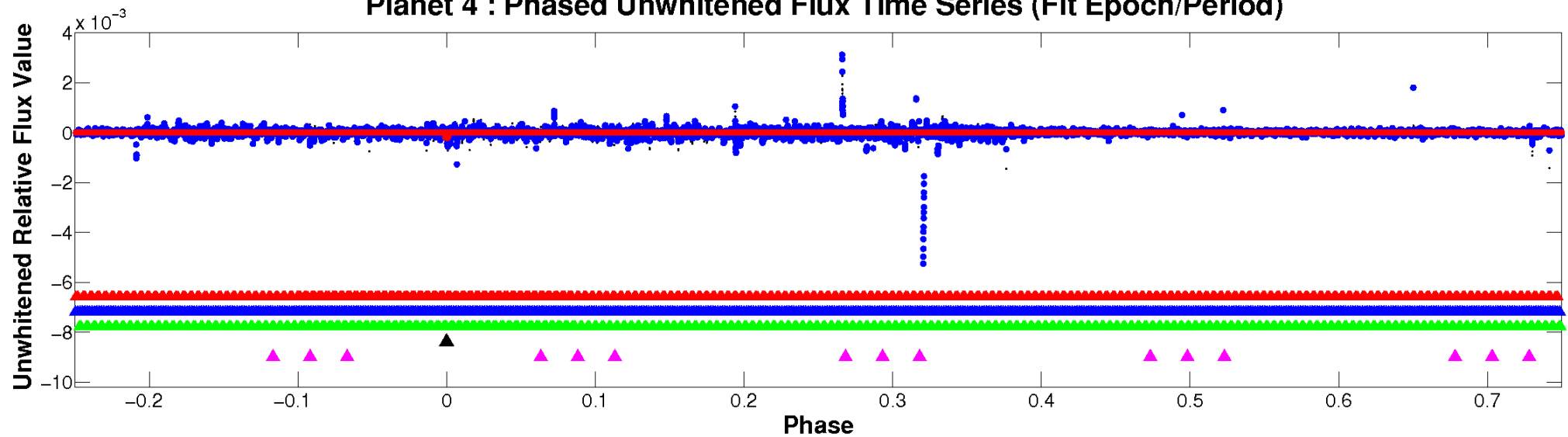
ALT Odd/Even

TCE 008161798-04

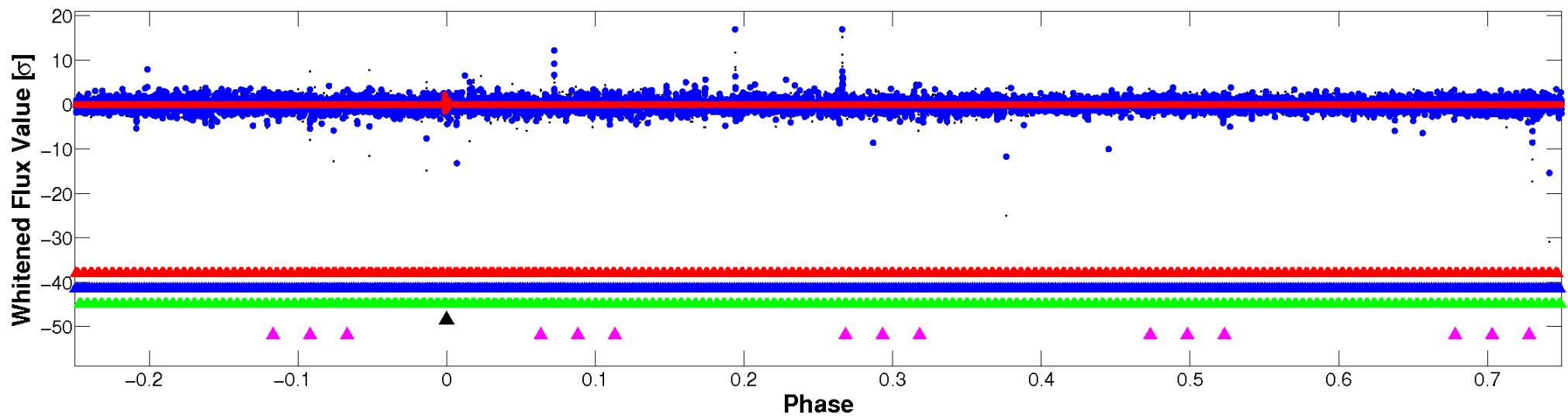


Non-Whitened Vs. Whitened Light Curve

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

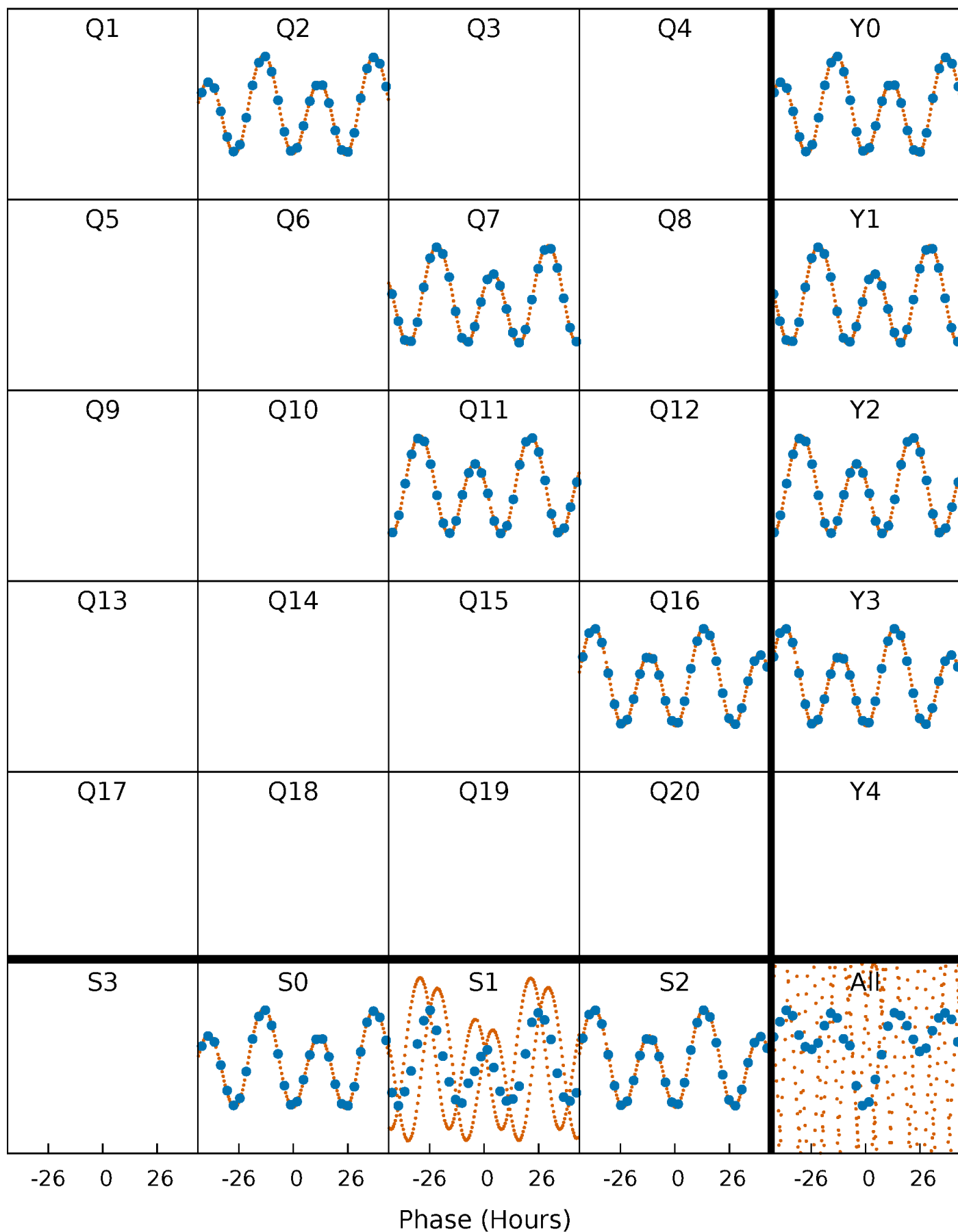


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



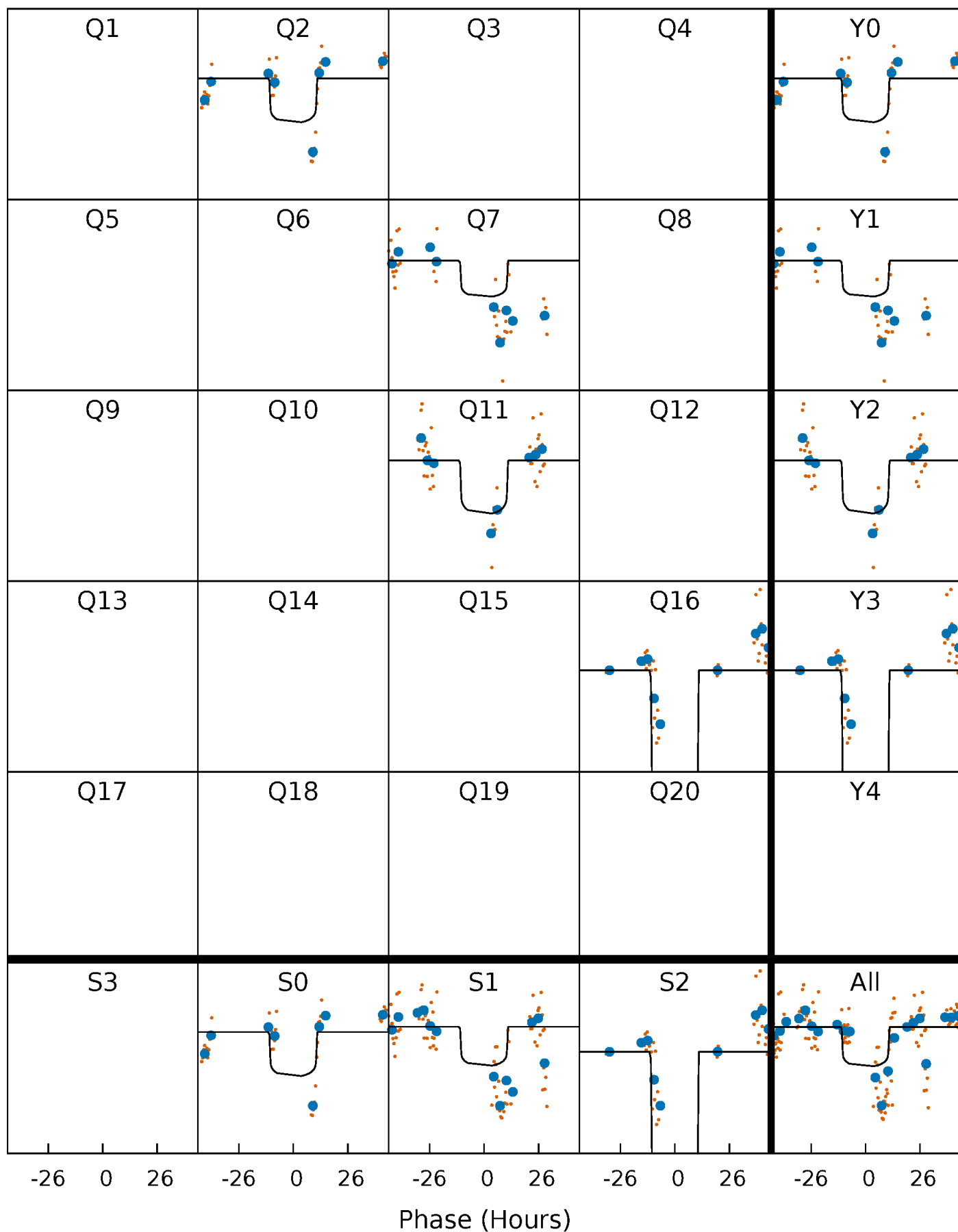
PDC Quarter-Phased Transit Curves

TCE 008161798-04 P=458.559029 Days $T_0=176.638090$ (BKJD)



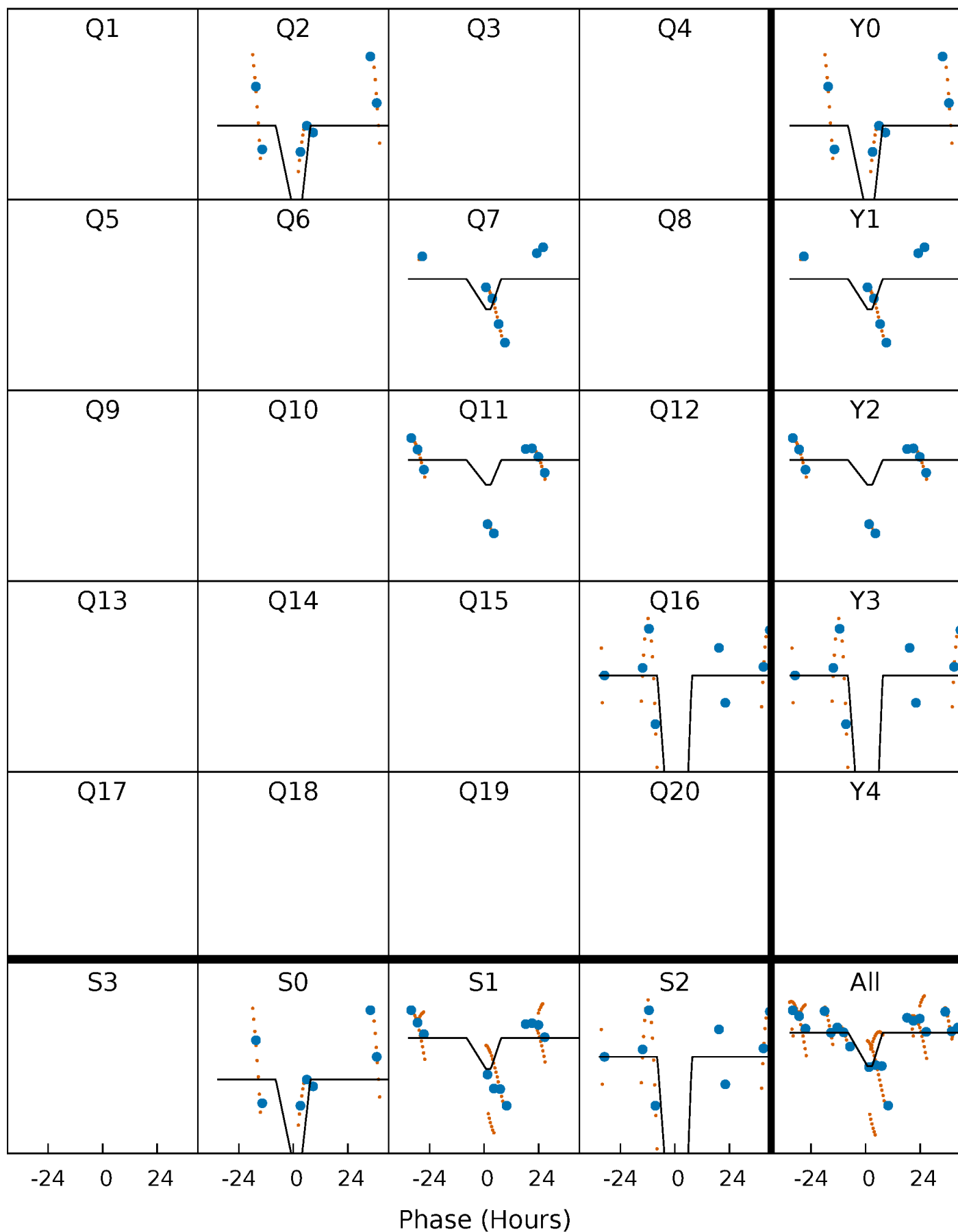
DV Quarter-Phased Transit Curves

TCE 008161798-04 P=458.559029 Days $T_0=176.638090$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

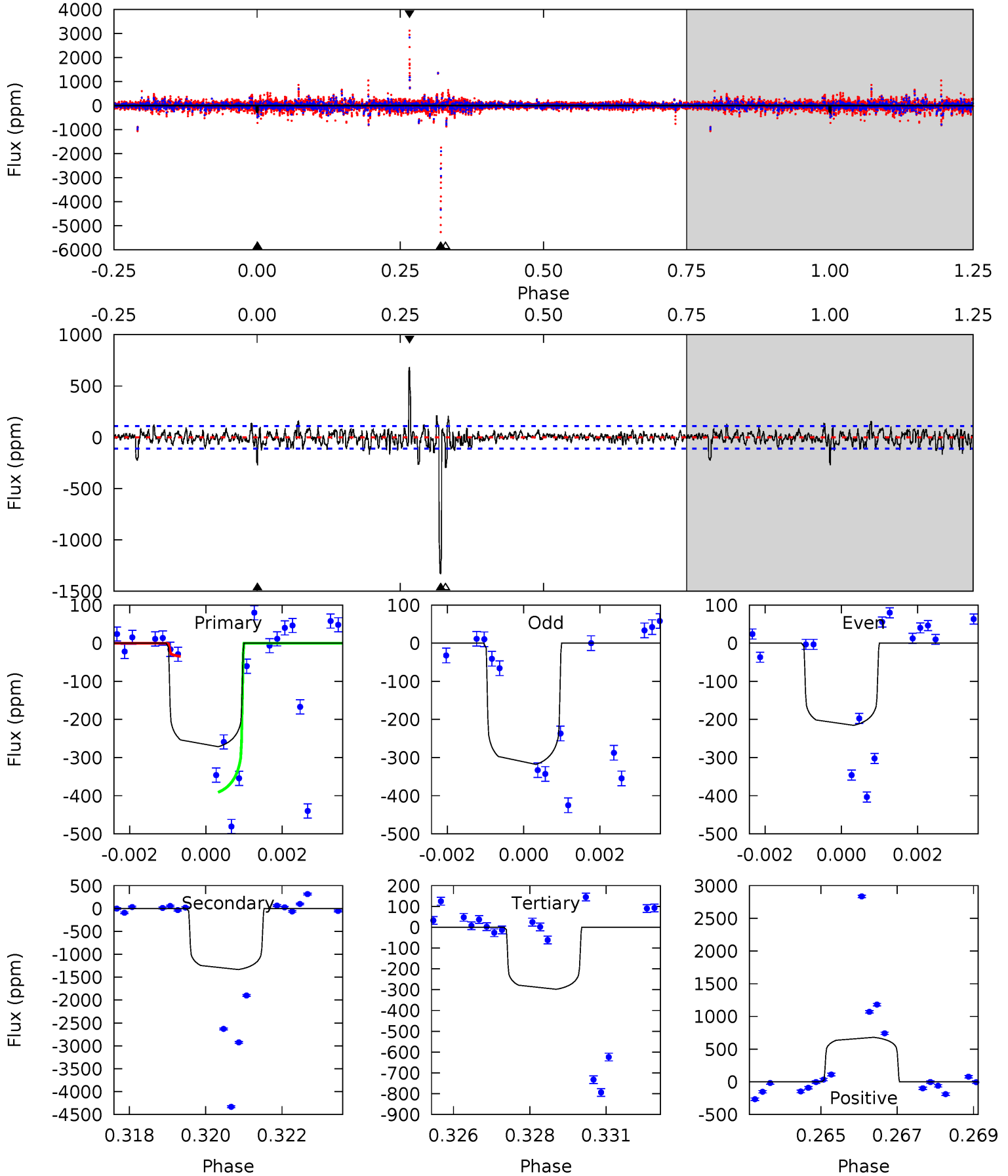
TCE 008161798-04 $P=458.464762$ Days $T_0=176.905804$ (BKJD)



DV Model-Shift Uniqueness Test

008161798-04, P = 458.559029 Days, E = 176.638090 Days

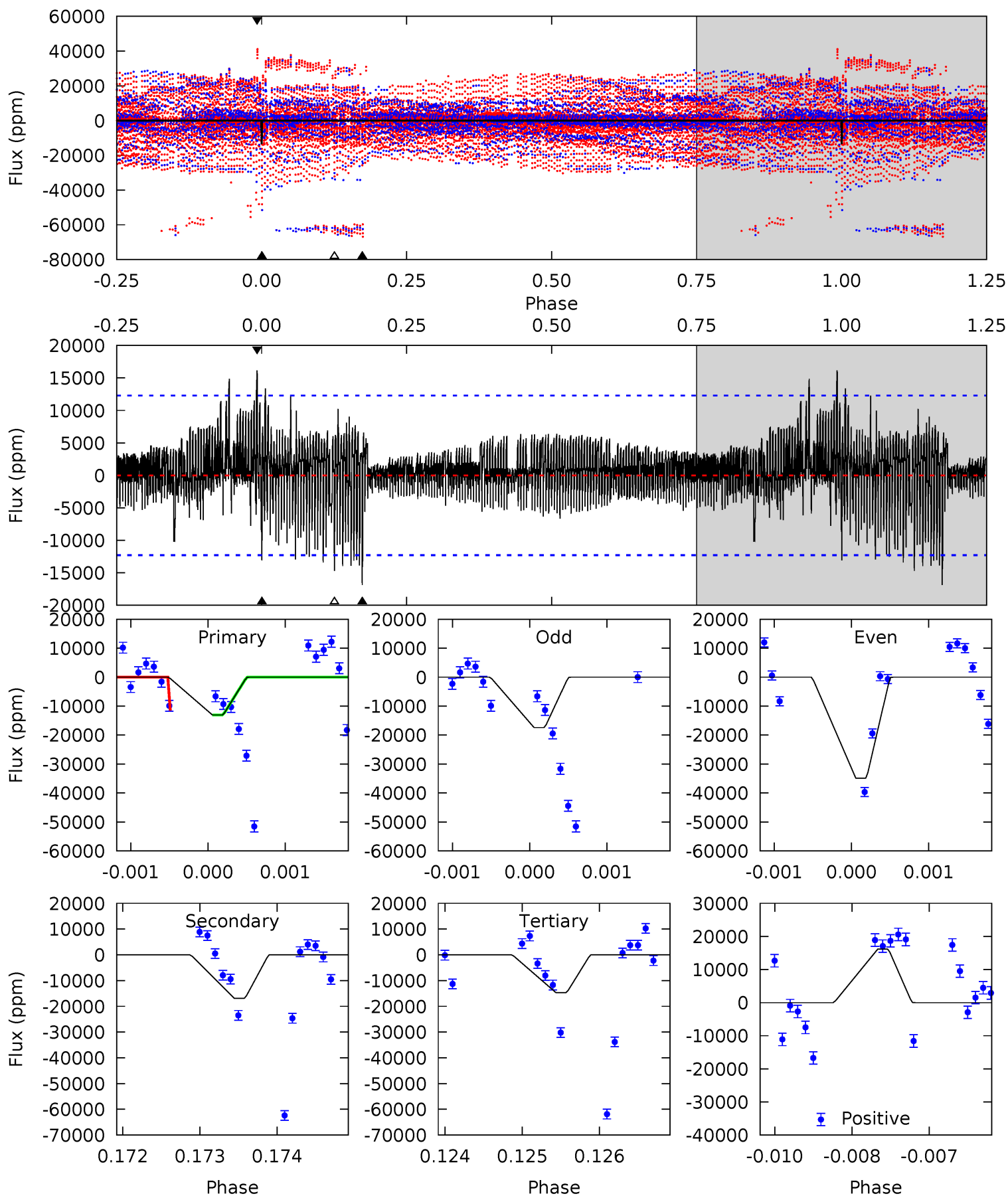
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	64.6	14.5	33.0	5.32	3.07	2.95	-1.30	-19.8	50.2	31.7	2.48	1.08	0.34	9.14



Alt Model-Shift Uniqueness Test

008161798-04, P = 458.464762 Days, E = 176.905804 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.74	7.41	6.45	7.09	5.39	3.20	1.50	-0.71	-1.35	0.96	0.32	3.87	1.81	0.49	0.00



Stellar Parameters For KIC 008161798

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	10974^{+228}_{-495}	$4.041^{+0.252}_{-0.168}$	$0.070^{+0.150}_{-0.600}$	$2.677^{+0.748}_{-0.914}$	$2.873^{+0.289}_{-0.674}$	$0.211^{+0.341}_{-0.098}$
	+2%/-5%	+6%/-4%	+214%/-857%	+28%/-34%	+10%/-23%	+162%/-47%
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 008161798-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1333 ± 21	$4.00^{+1.10}_{-0.91}$	852^{+64}_{-77}	28967^{+7738}_{-5832}	119564^{+83689}_{-42292}
Alt.	-16874 ± 2278	$44.21^{+6.91}_{-8.01}$	848^{+66}_{-76}	9651^{+548}_{-596}	13037^{+5750}_{-3643}

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

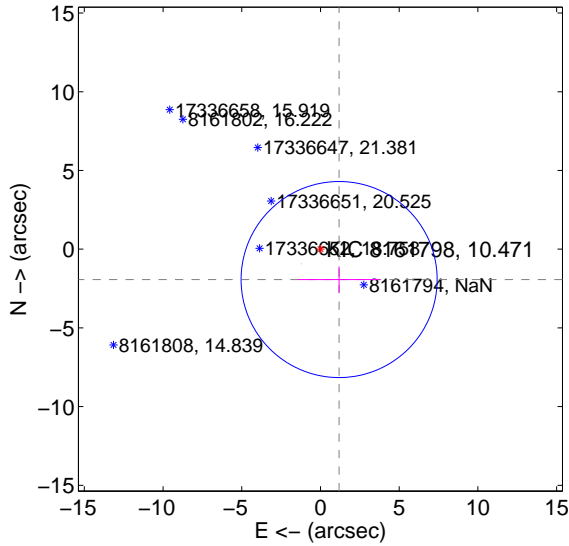
Supplemental centroid analysis for 008161798-04. **Kepler magnitude: 10.47.** Transit SNR 7.29

There are 1 quarters with good PRF difference image offsets

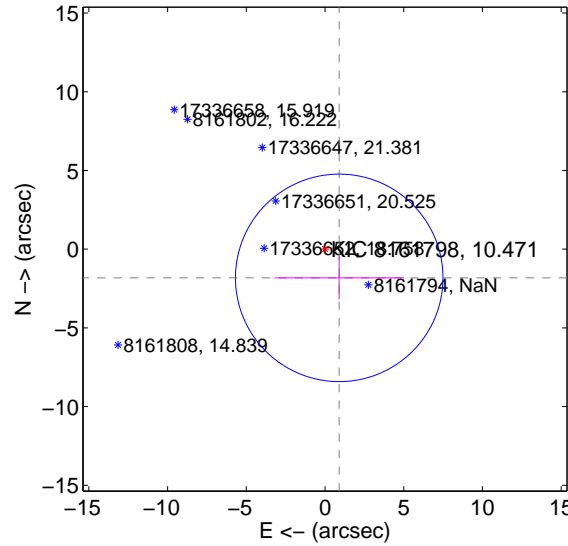
The direct PRF centroid is offset from the target star catalog position by about 1.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.264 ± 2.076	1.09	-1.185 ± 2.619	-1.929 ± 0.830
PRF-fit source offset from KIC position	2.034 ± 2.197	0.93	-0.901 ± 4.115	-1.823 ± 1.367
photometric centroid source offset	1.24 ± 3.86	0.32	0.96 ± 3.40	-0.79 ± 4.44

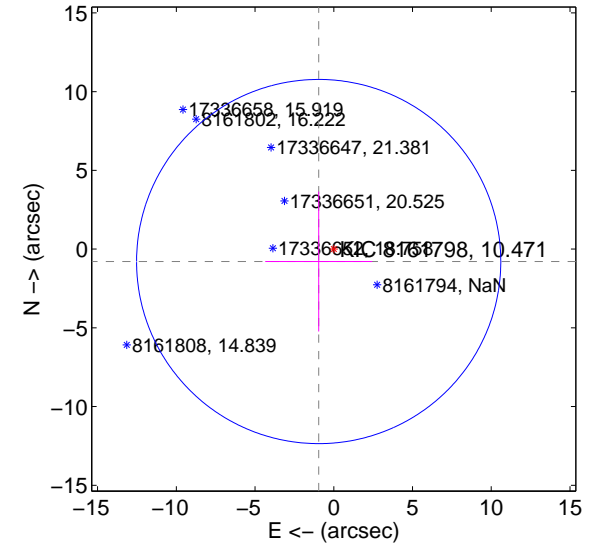
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

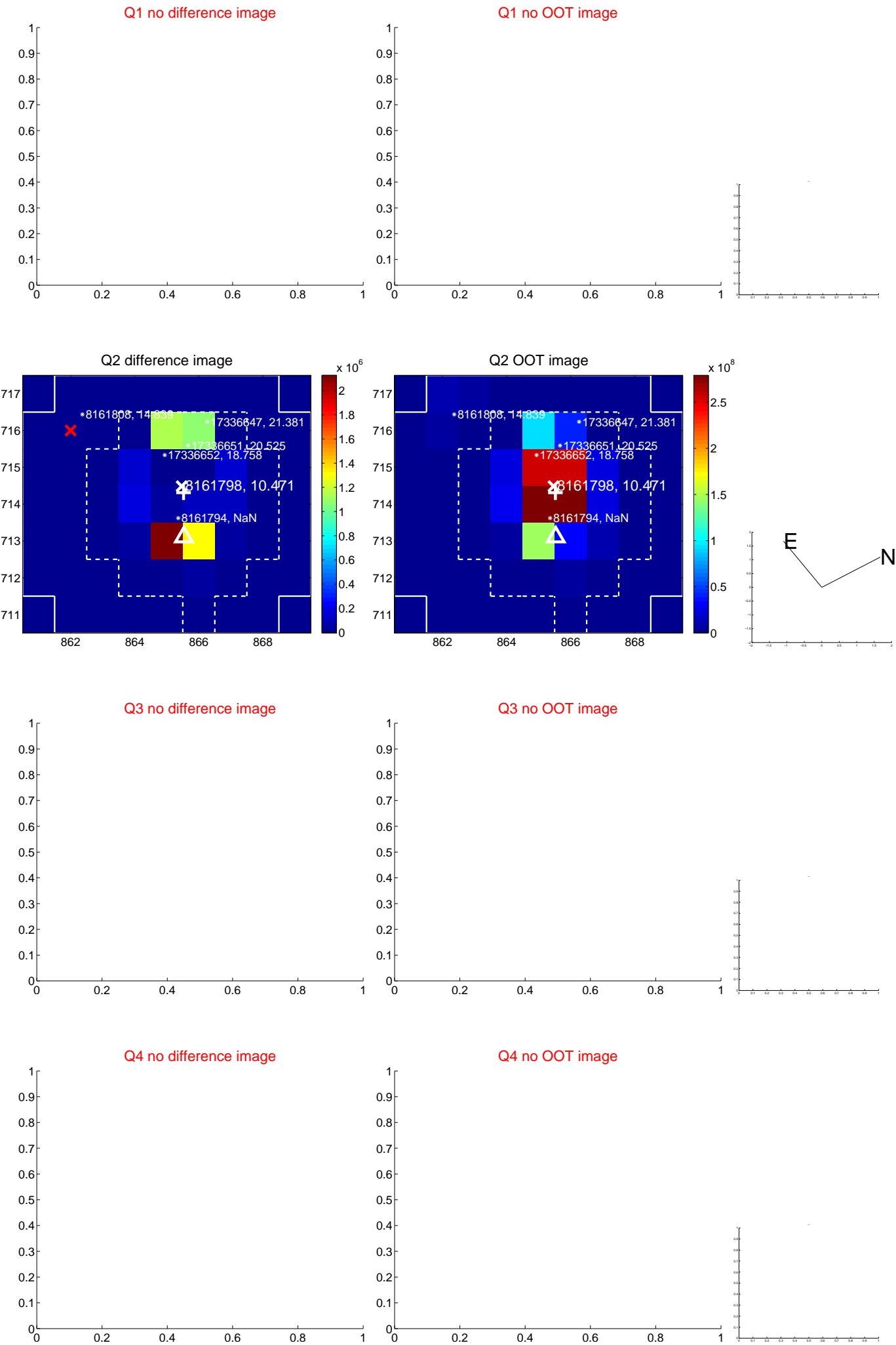


offset from photometric centroids



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.

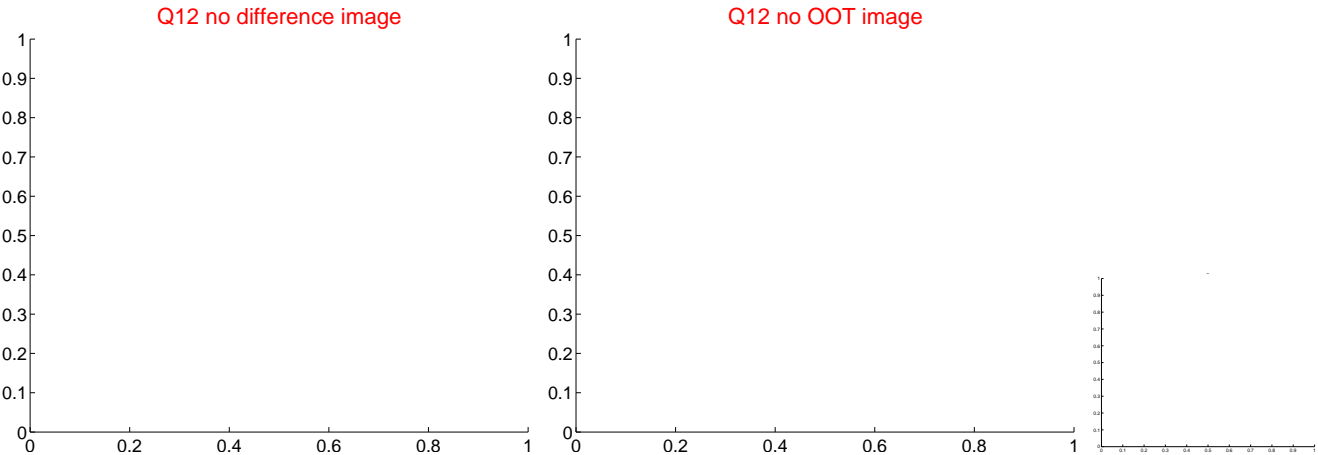
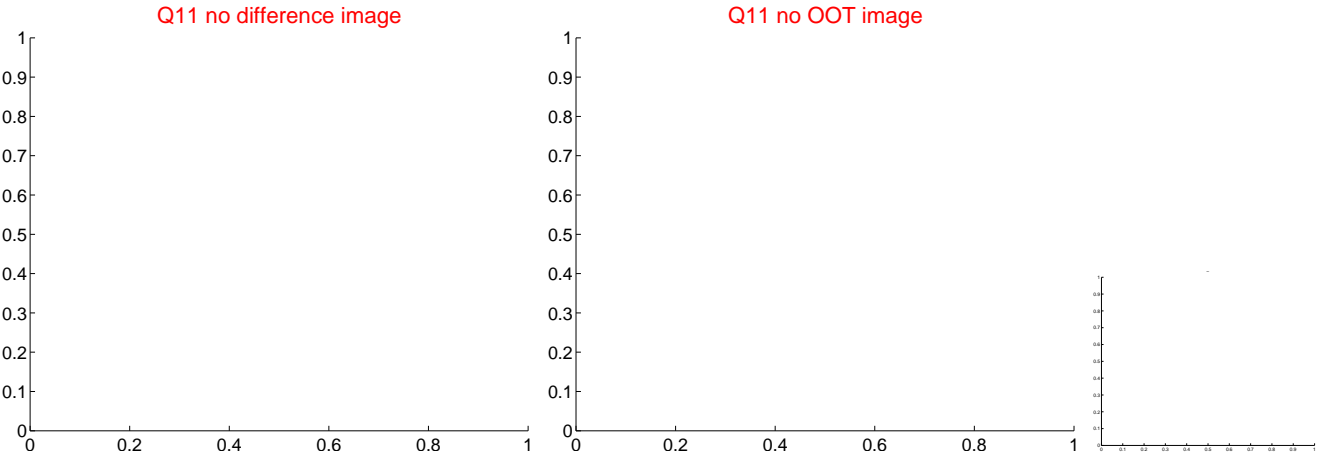
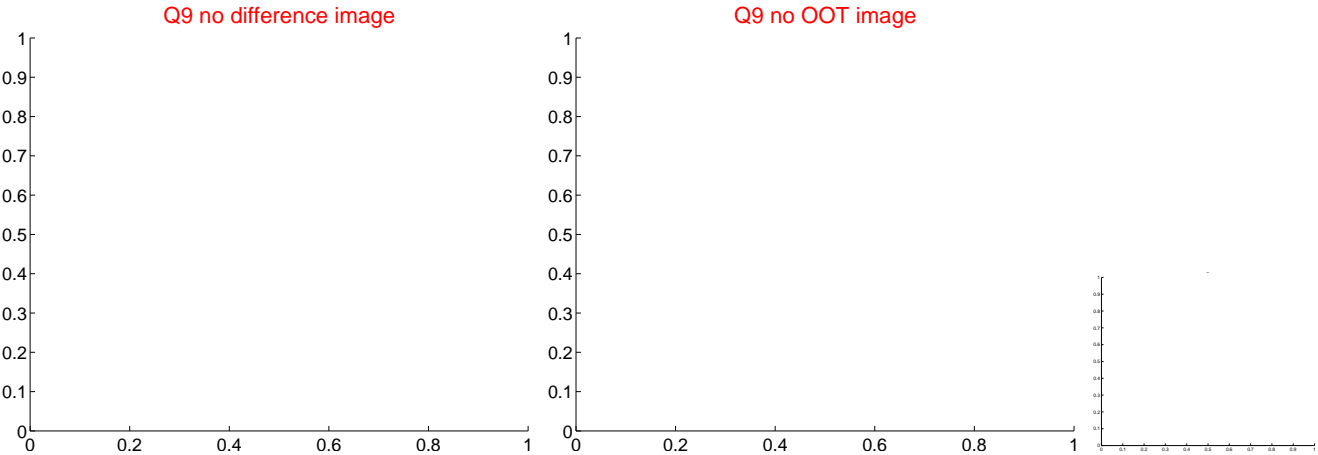
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



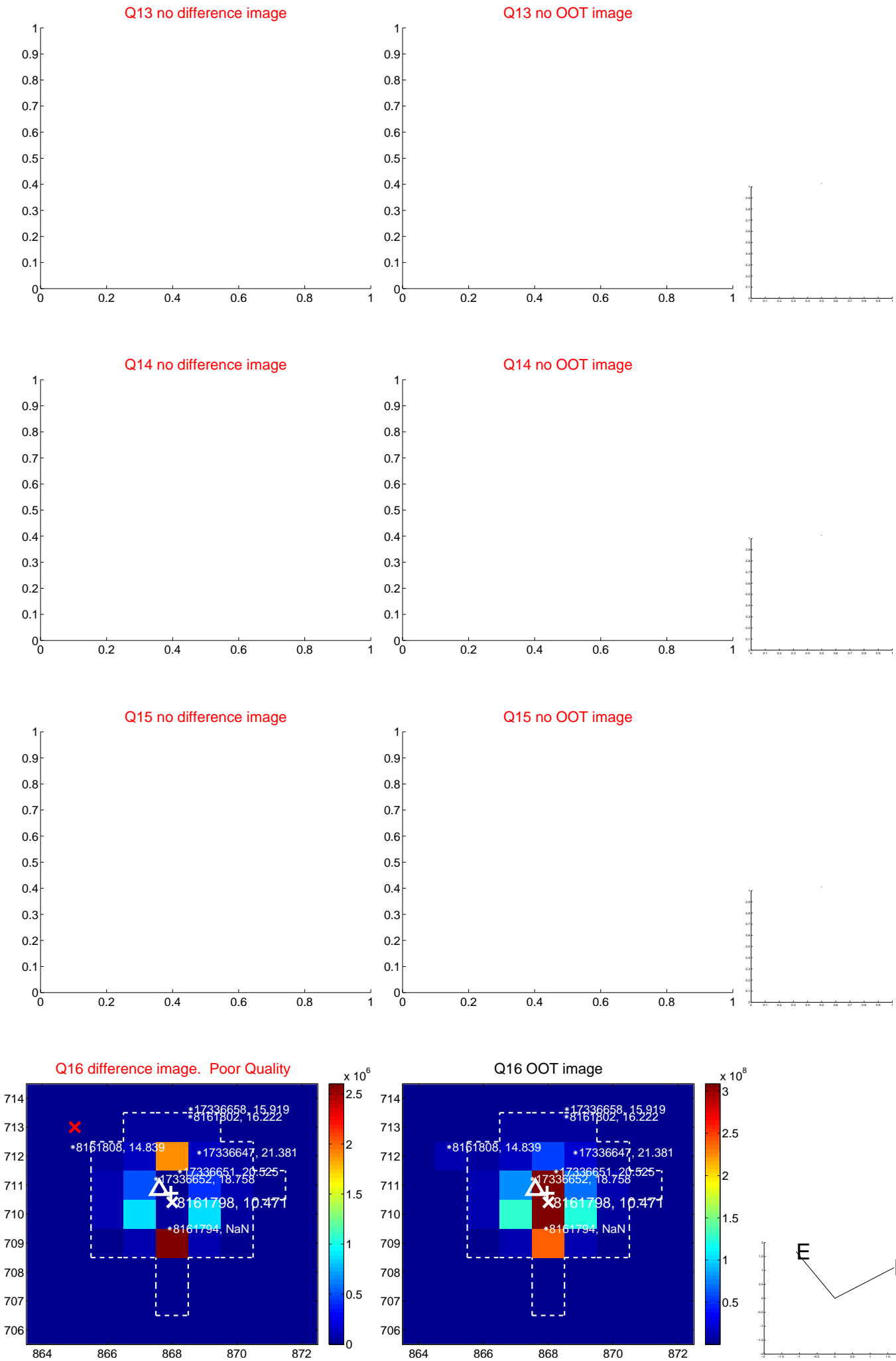
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



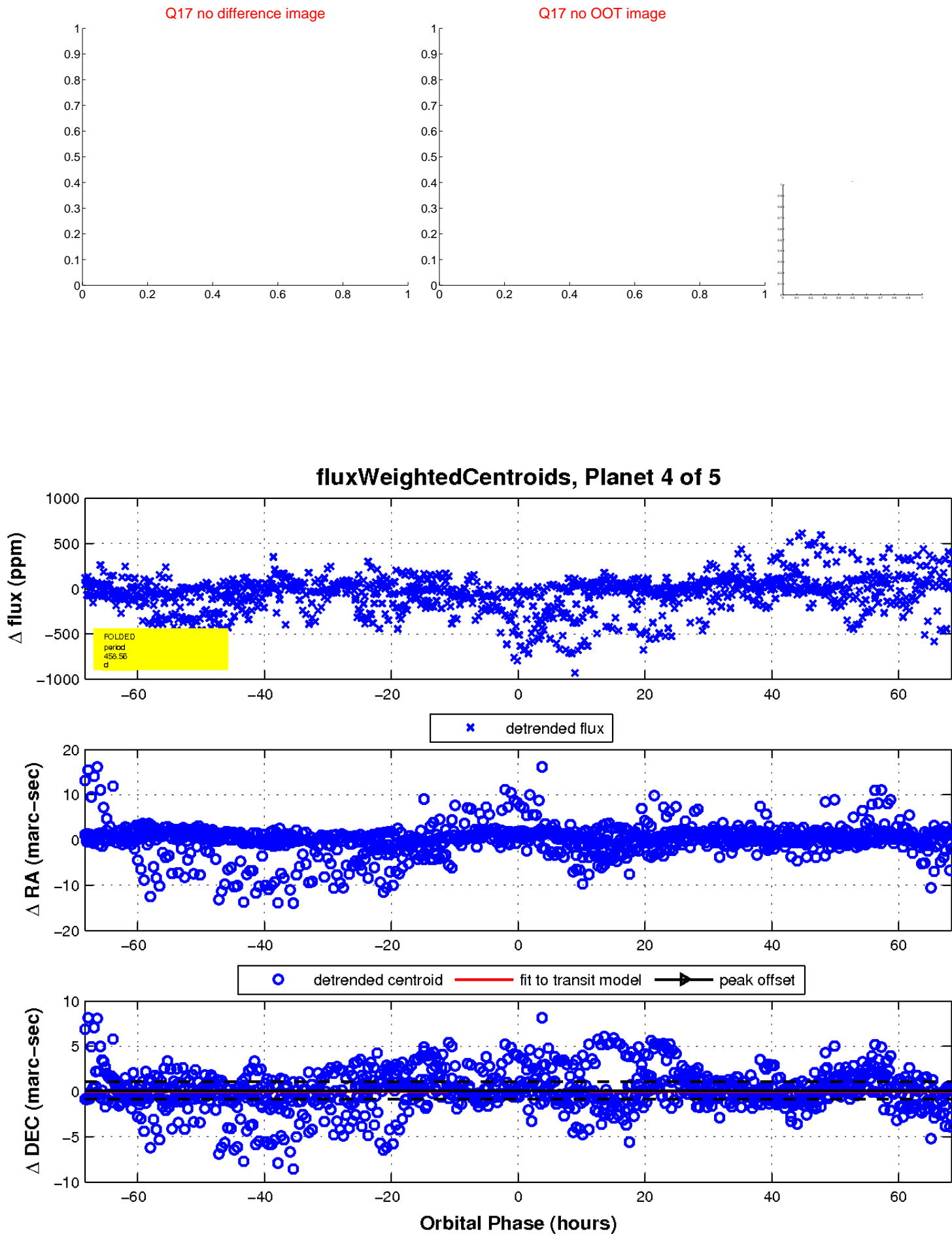
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



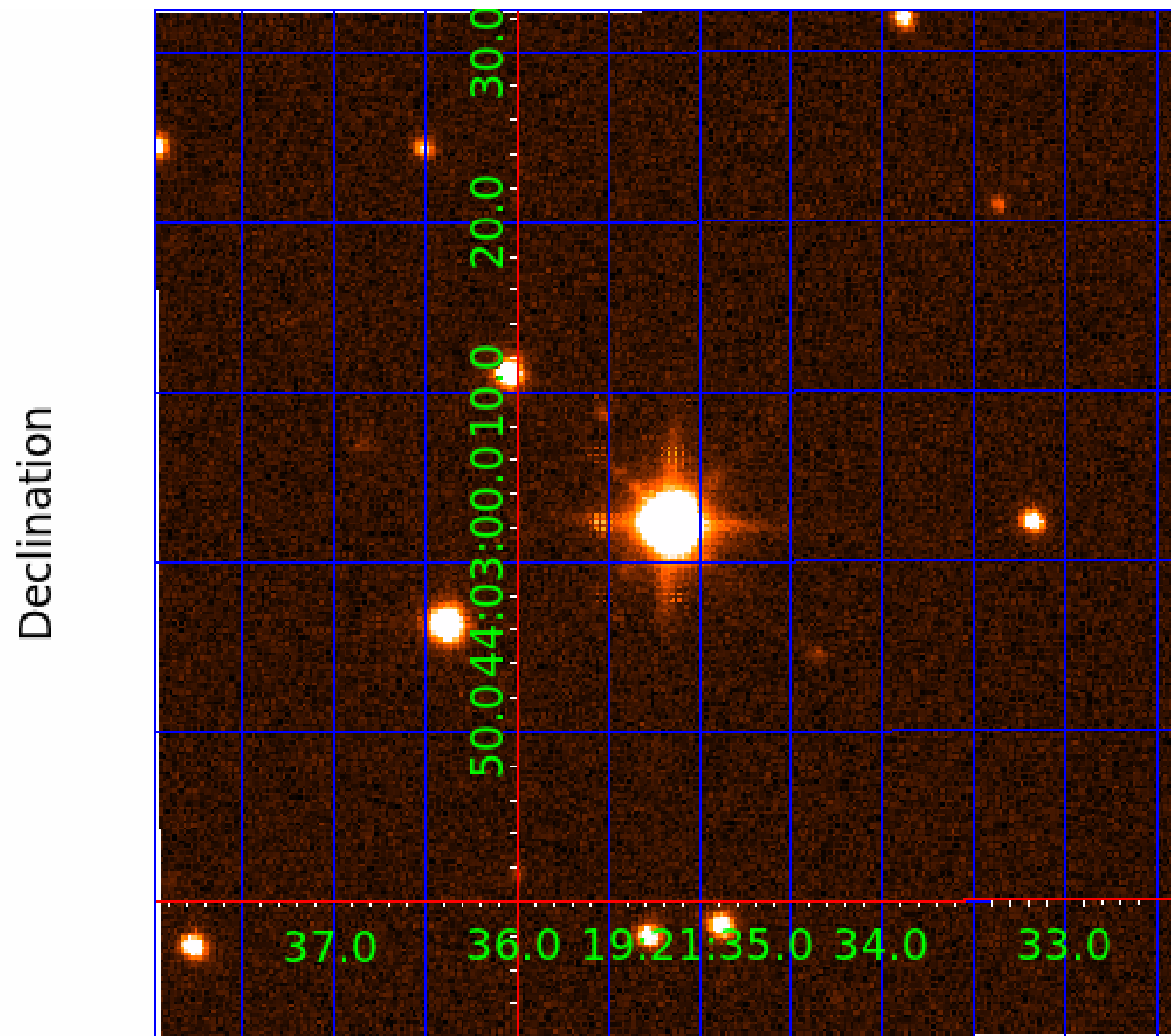
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008161798

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})
008161798-01	OBS	No	2.202885	131.630403	7.6	4.190	17.5	6.6	2.68	10974	0.84	41956.32
008161798-02	OBS	No	0.733609	131.941544	4.2	2.970	11.8	5.1	2.68	10974	0.61	181760.93
008161798-03	OBS	No	2.203004	132.591757	10.2	5.347	9.3	7.4	2.68	10974	1.07	41953.28
008161798-04	OBS	No	458.559029	176.638089	217.4	22.793	11.0	7.3	2.68	10974	4.17	34.01
008161798-05	OBS	No	93.996696	205.691396	214.3	1.783	10.8	7.0	2.68	10974	4.30	281.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008161798-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008161798-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008161798-03	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_SATURATED—EPHEM_MATCH
008161798-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008161798-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

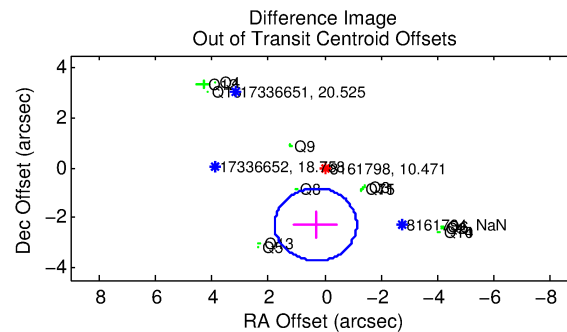
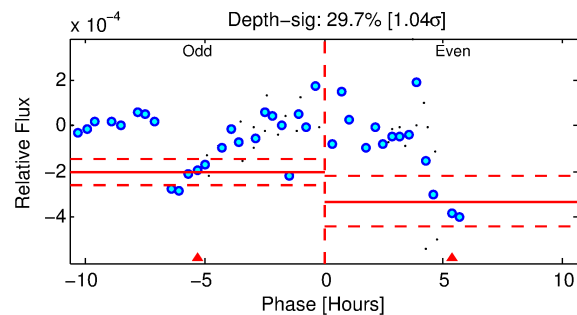
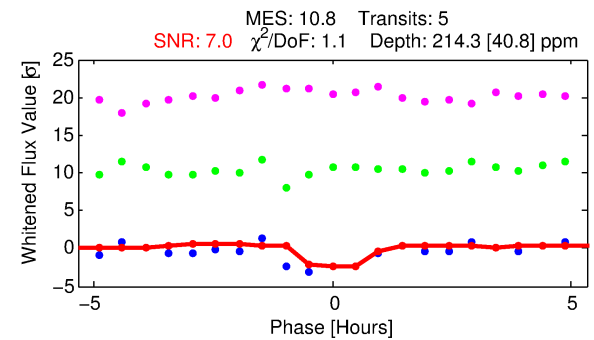
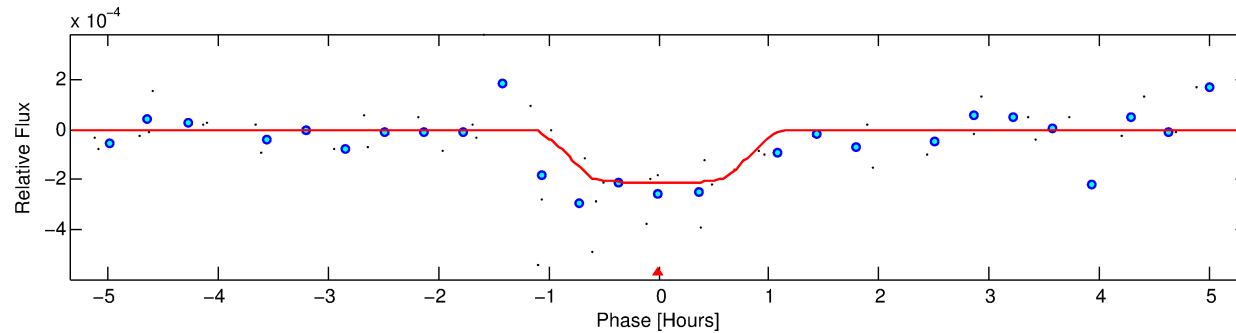
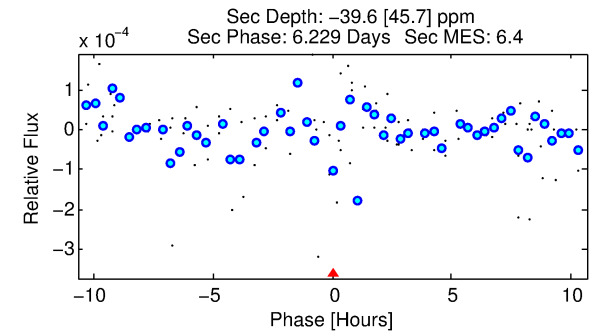
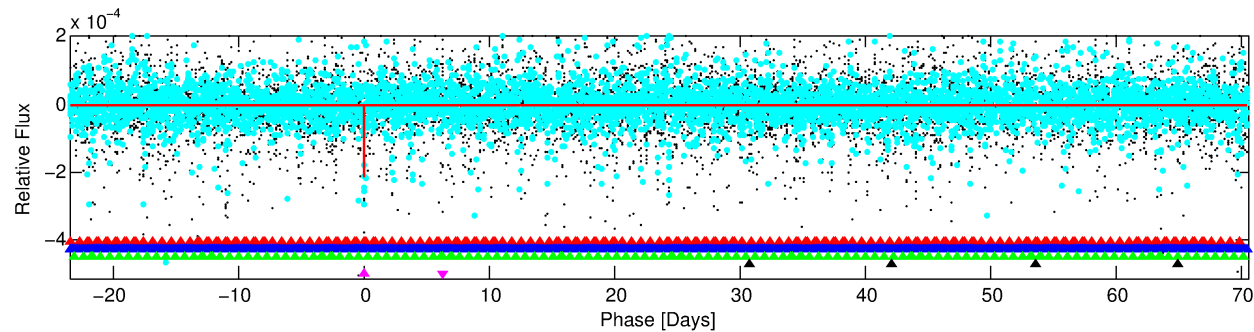
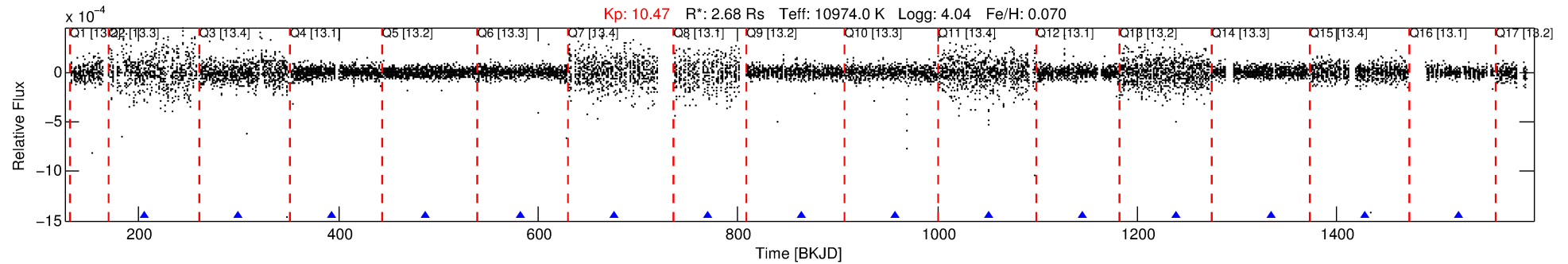
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008161798-05

No Significant Match Found

DV One-Page Summary

KIC: 8161798 Candidate: 5 of 5 Period: 93.997 d



DV Fit Results:

Period = 93.99670 [0.00124] d
Epoch = 205.6914 [0.0066] BKJD
Rp/R* = 0.0147 [0.0165]
a/R* = 258.59 [2399.86]
b = 0.79 [4.53]
Seff = 281.39 [136.12]
Teq = 1044 [126] K
Rp = 4.30 [5.03] Re
a = 0.5753 [0.1718] AU
Ag = N/A
Teffp = N/A

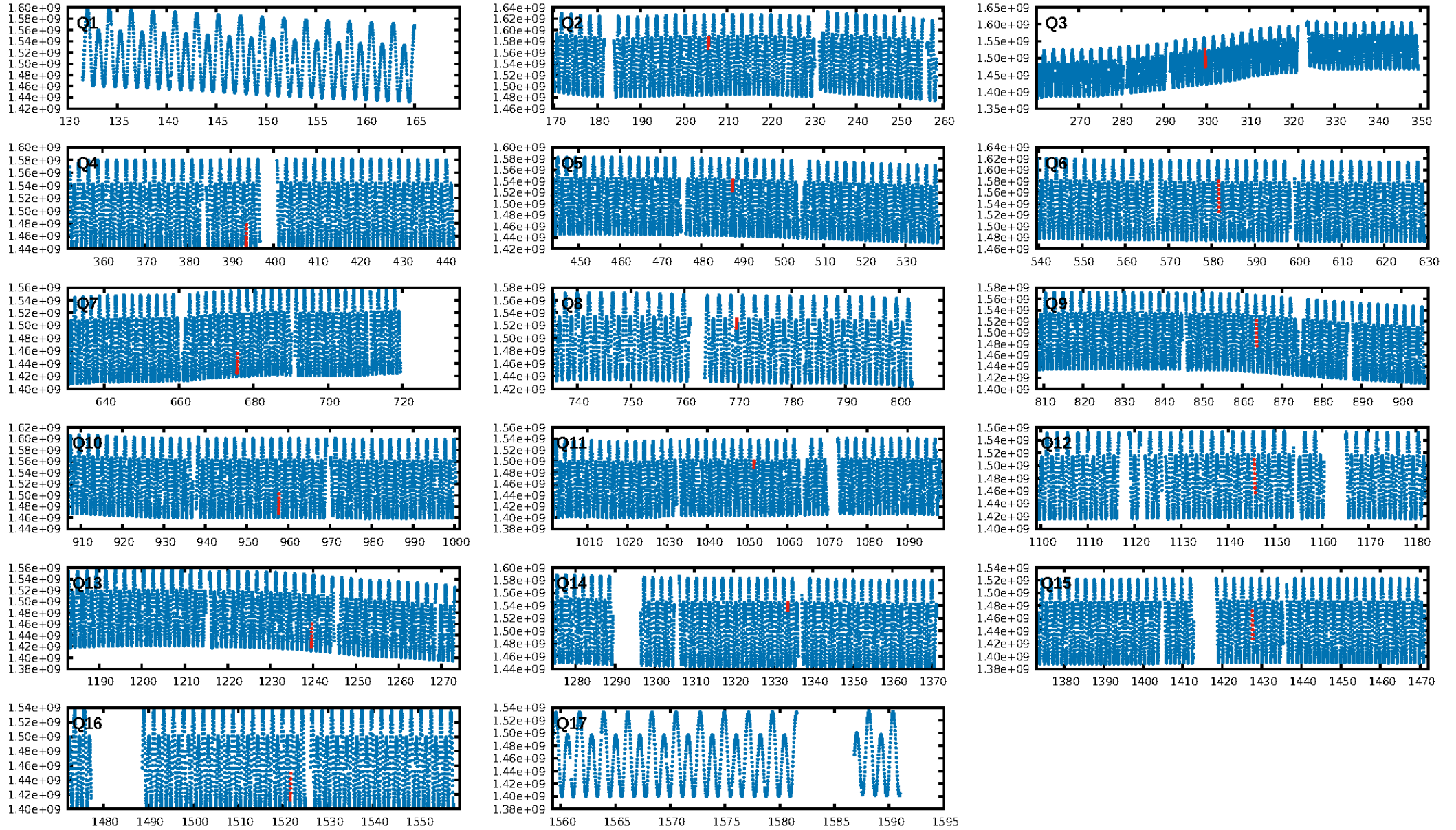
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [390.88σ]
LongPeriod-sig: 100.0% [382.70σ]
ModelChiSquare2-sig: 13.7%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 2.27e-11
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.692 arcsec [0.30σ]
OotOffset-rm: 2.300 arcsec [4.76σ]
KicOffset-rm: 2.396 arcsec [4.69σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.07 [1/15]
DiffImageOverlap-fno: 0.07 [1/15]

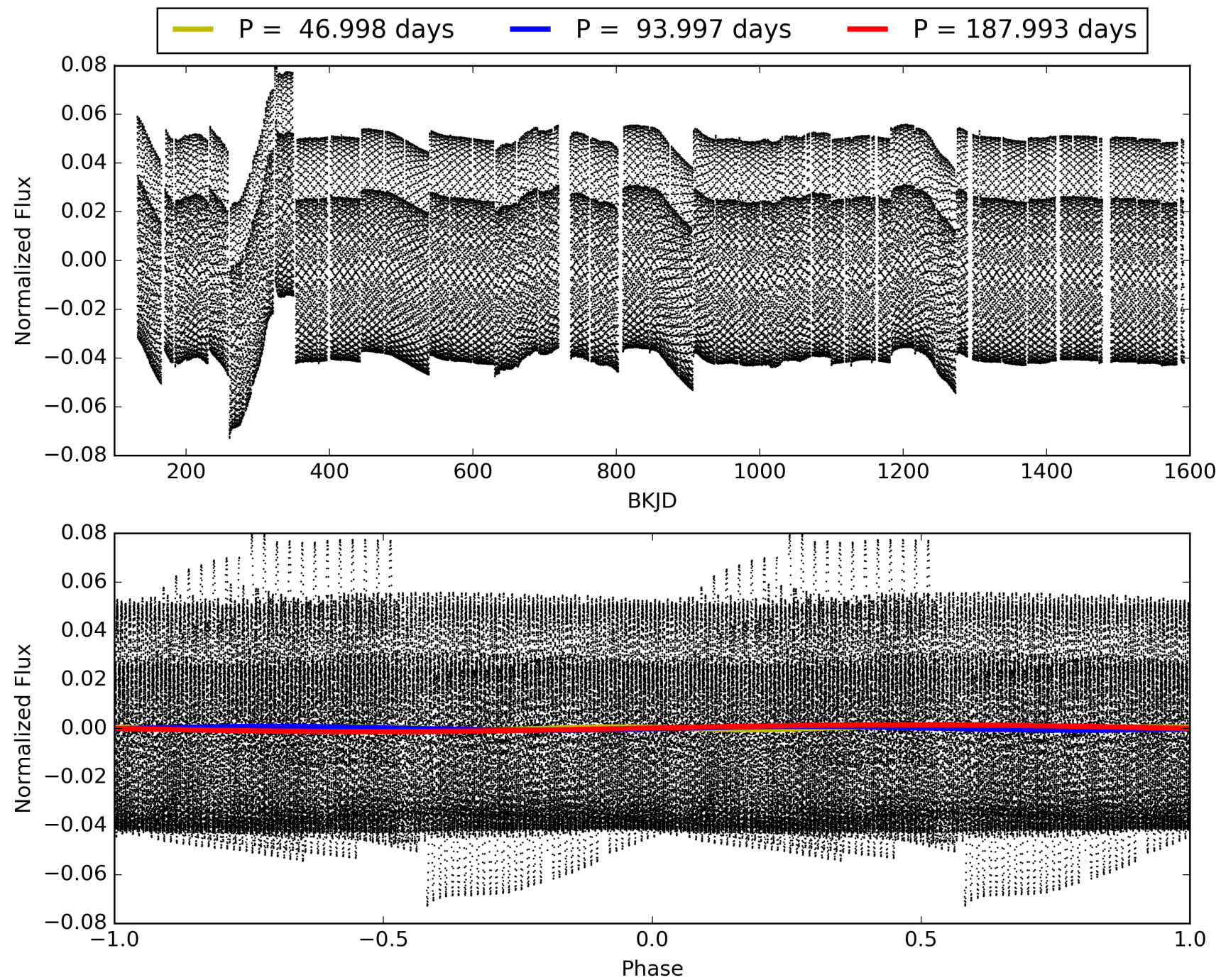
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:36:00 Z

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

TCE 008161798-05, PDC Light Curves

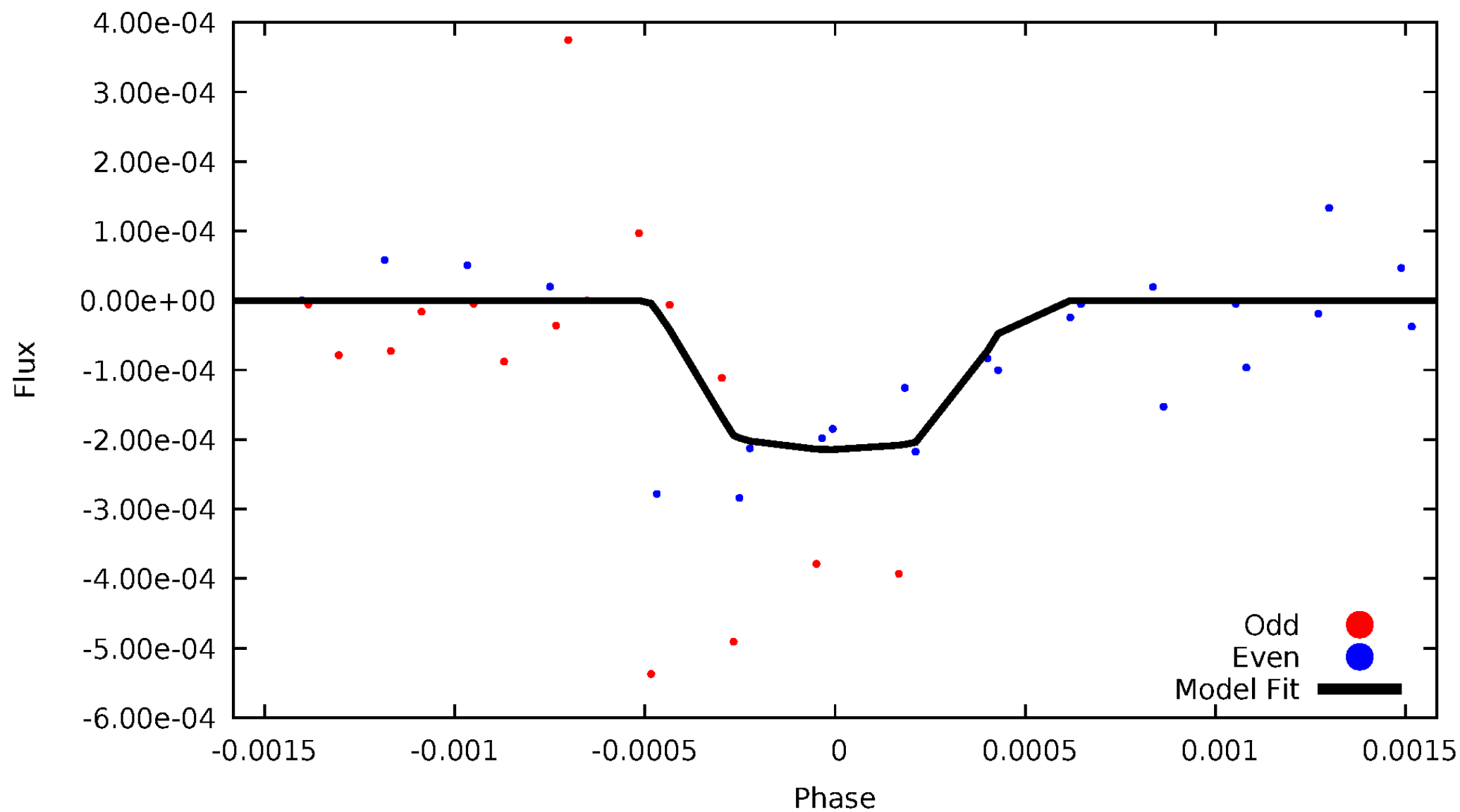


TCE 008161798-05



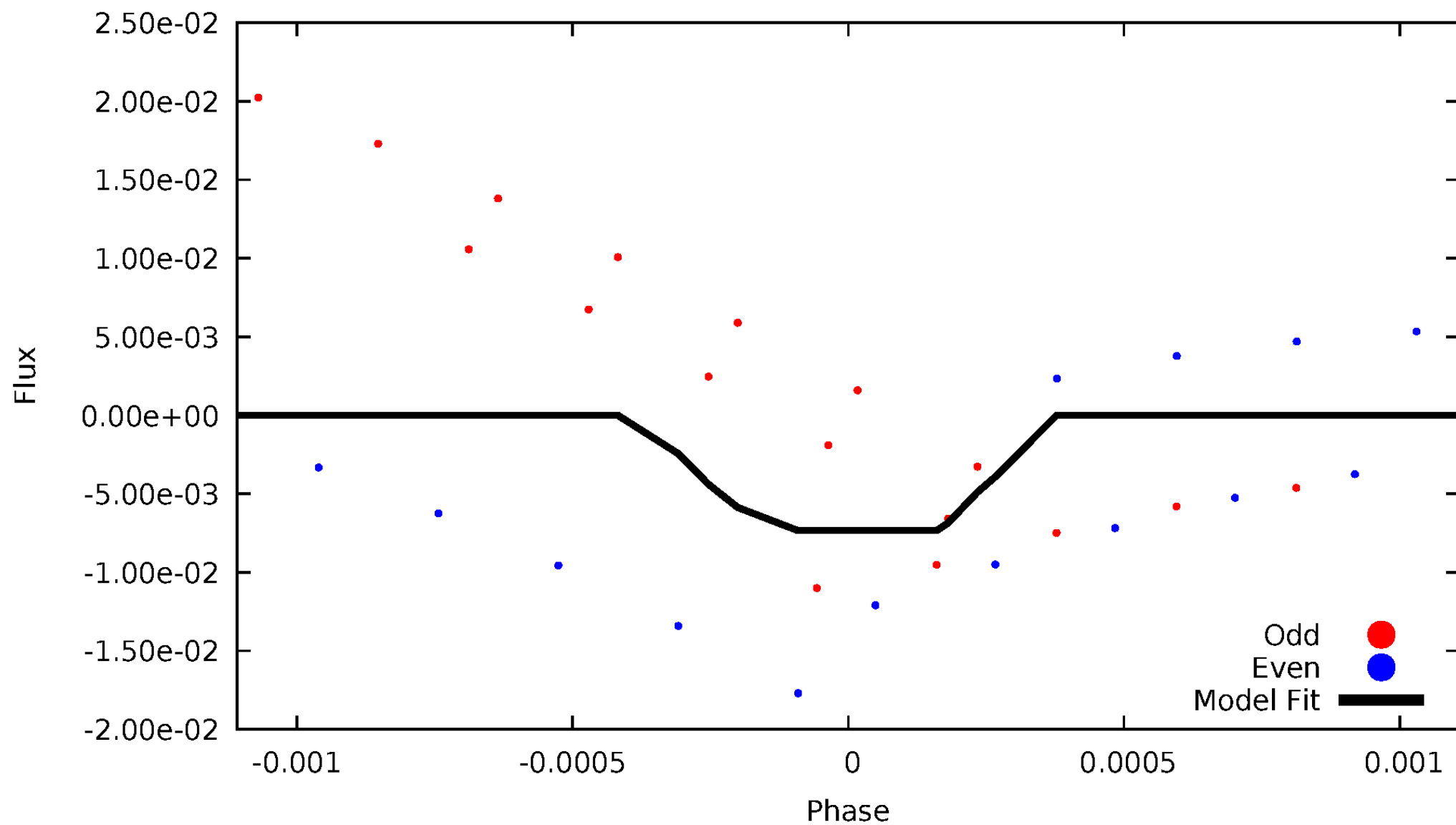
DV Odd/Even

TCE 008161798-05



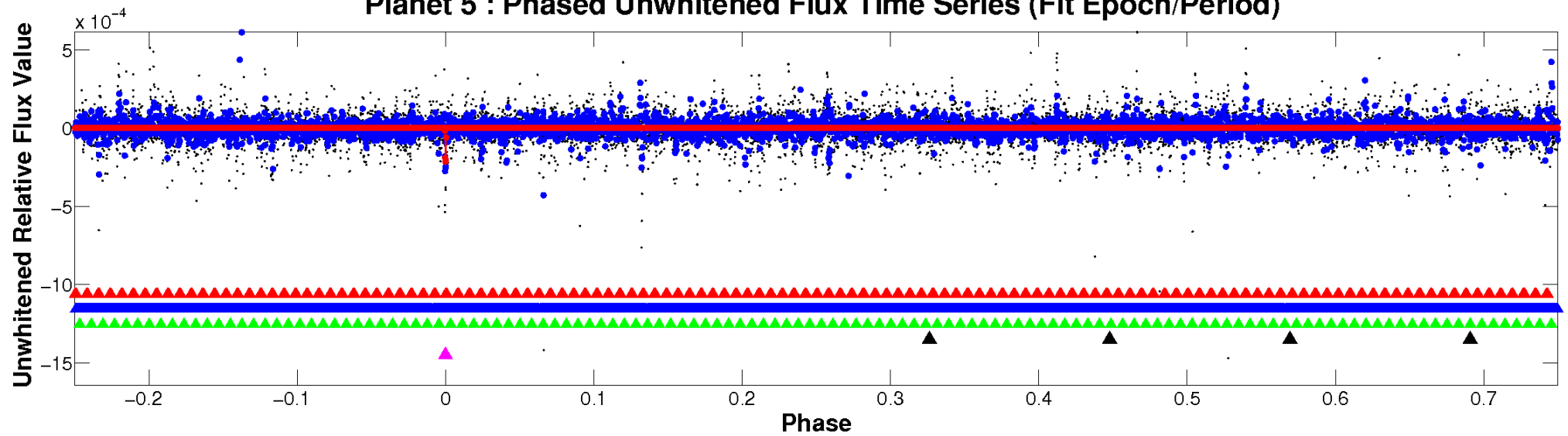
ALT Odd/Even

TCE 008161798-05

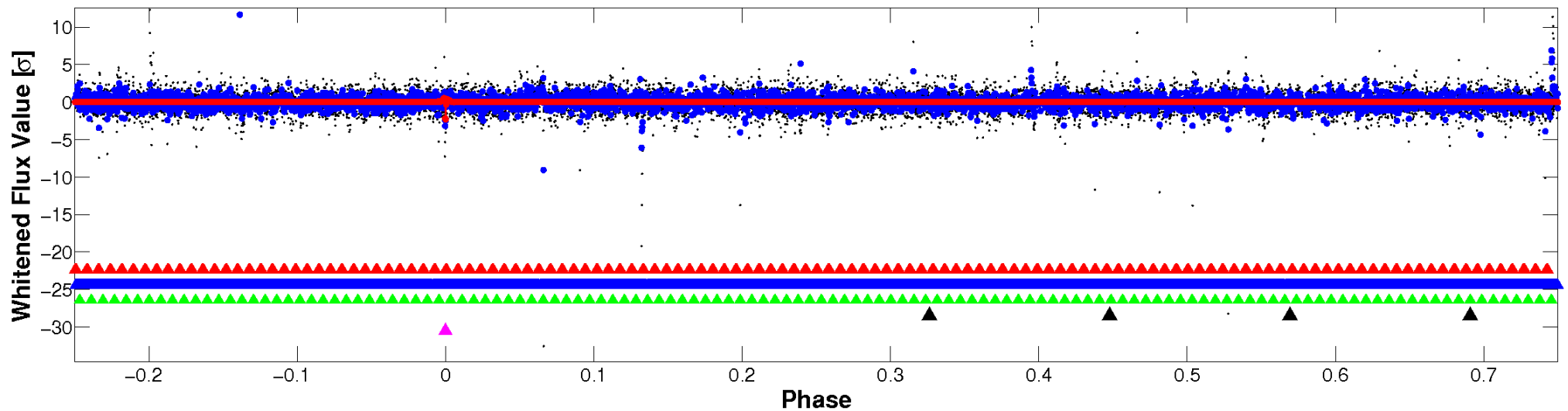


Non-Whitened Vs. Whitened Light Curve

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

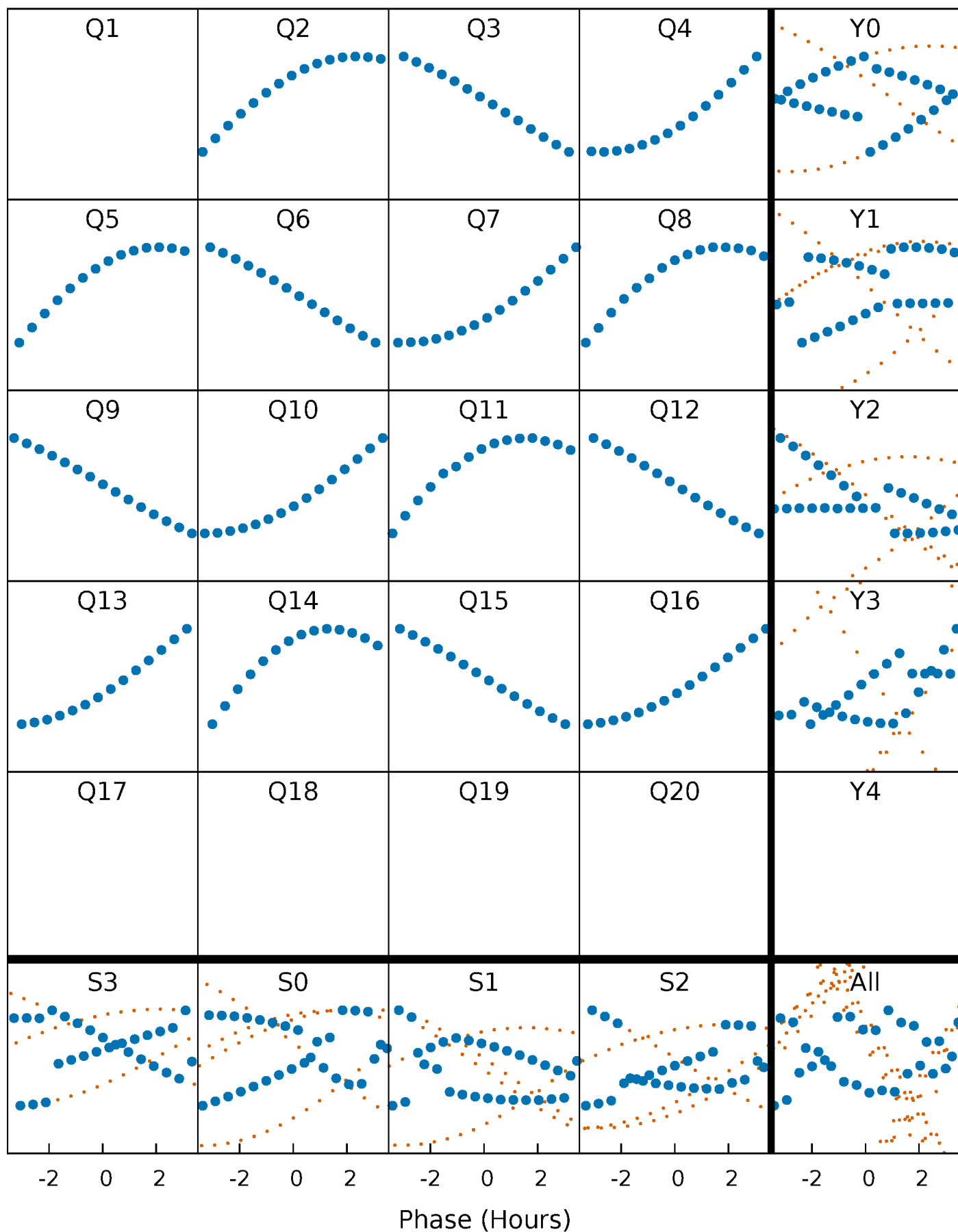


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



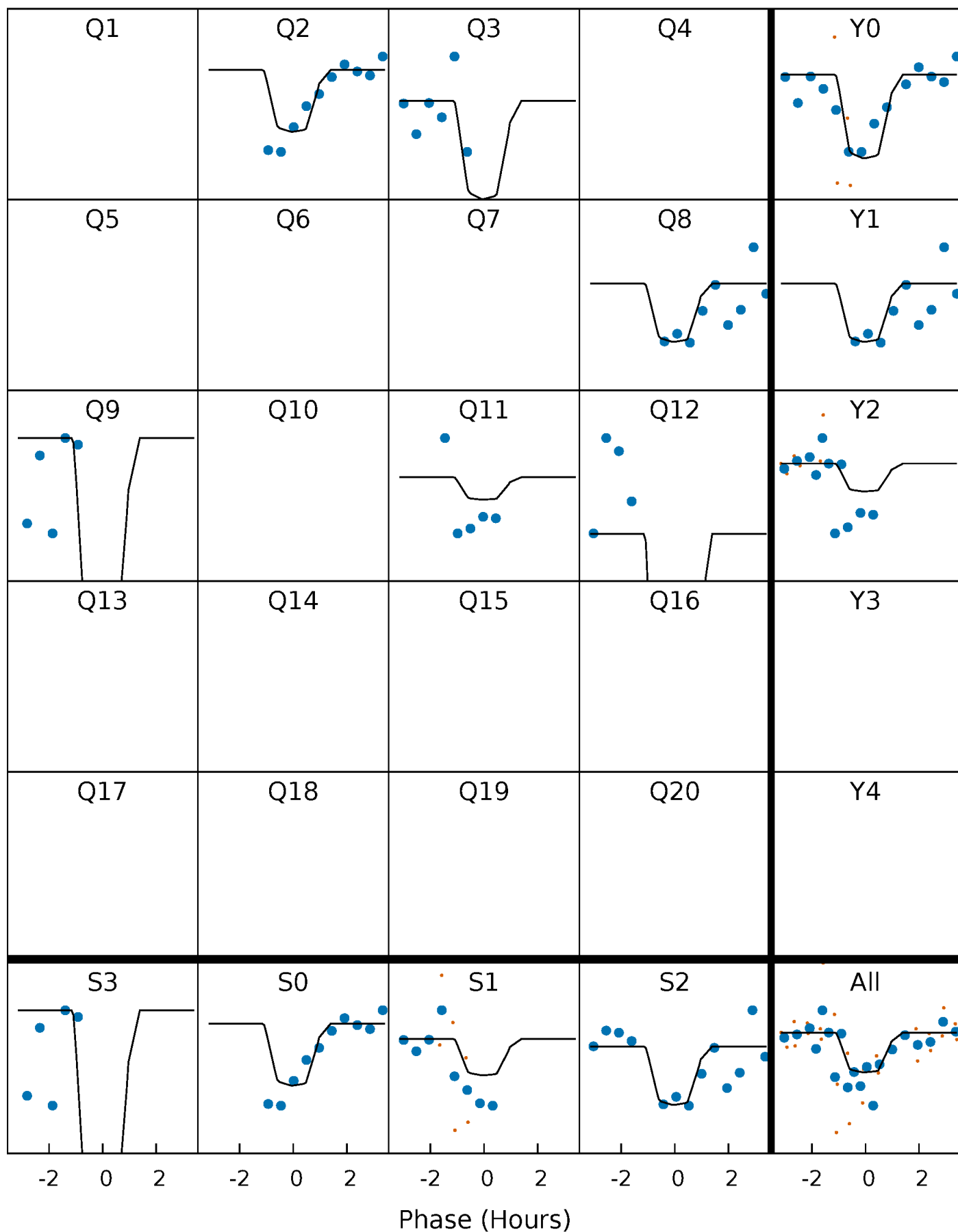
PDC Quarter-Phased Transit Curves

TCE 008161798-05 P= 93.996696 Days $T_0=205.691396$ (BKJD)



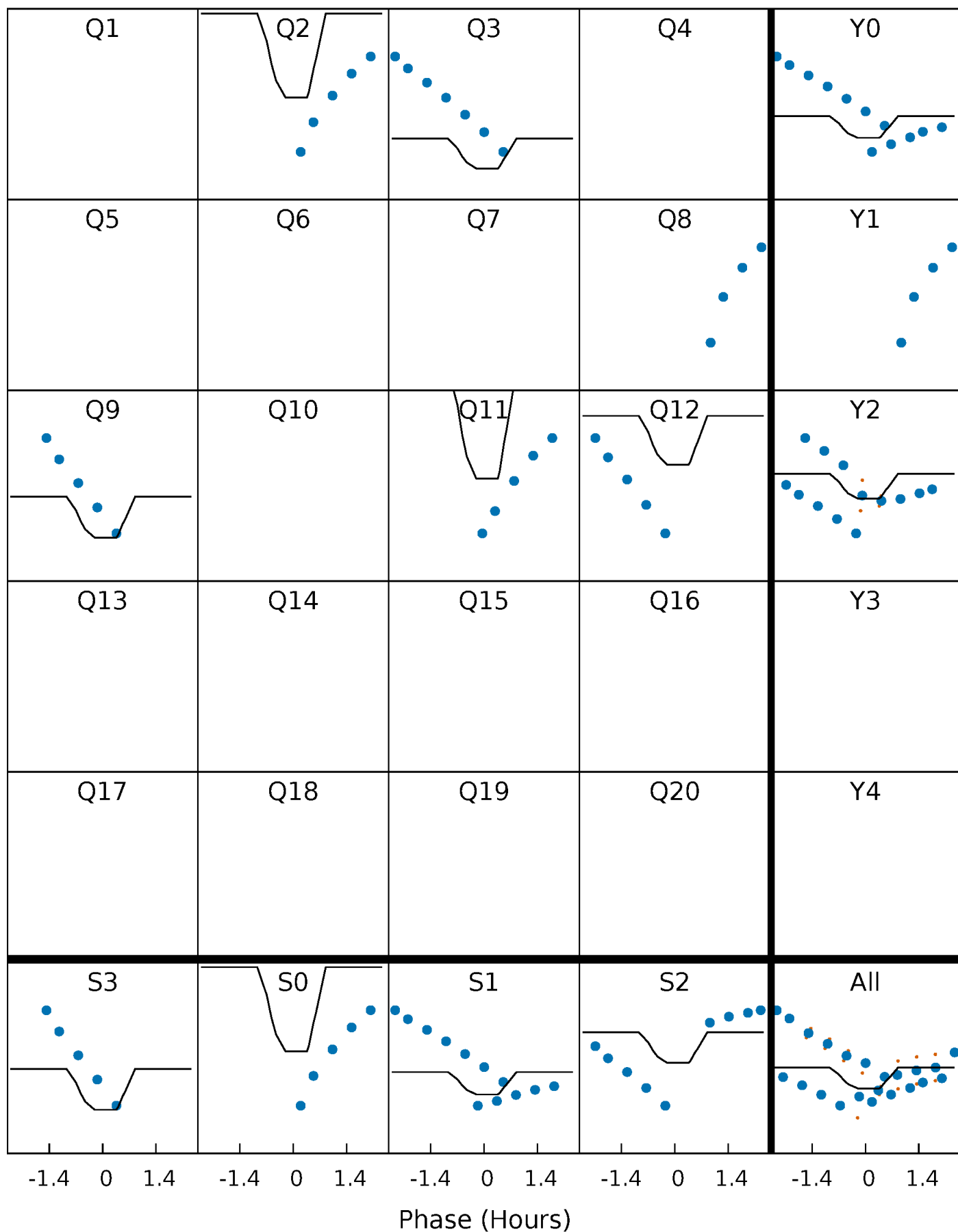
DV Quarter-Phased Transit Curves

TCE 008161798-05 $P = 93.996696$ Days $T_0 = 205.691396$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

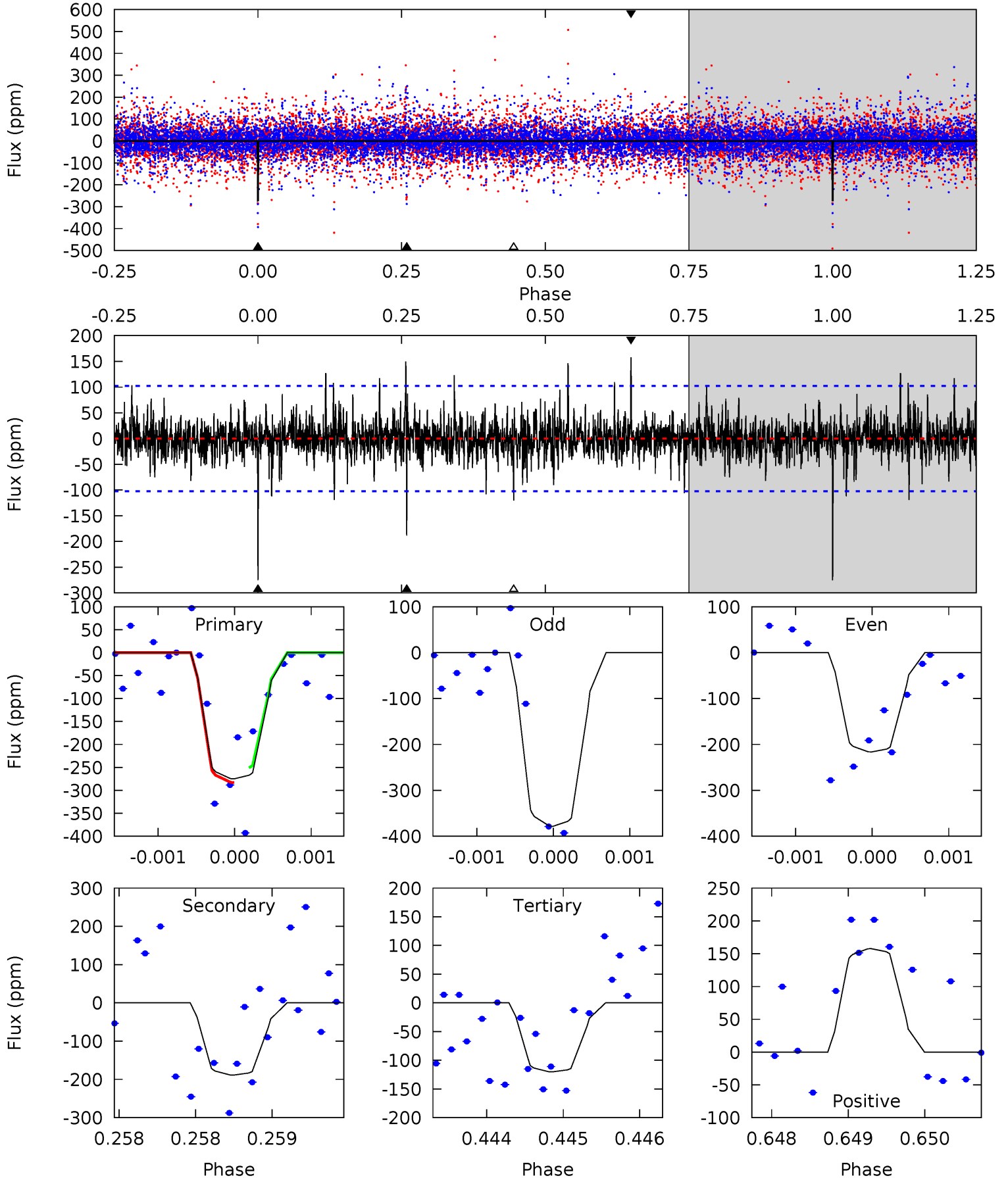
TCE 008161798-05 $P = 93.995379$ Days $T_0 = 205.642720$ (BKJD)



DV Model-Shift Uniqueness Test

008161798-05, P = 93.996696 Days, E = 111.694700 Days

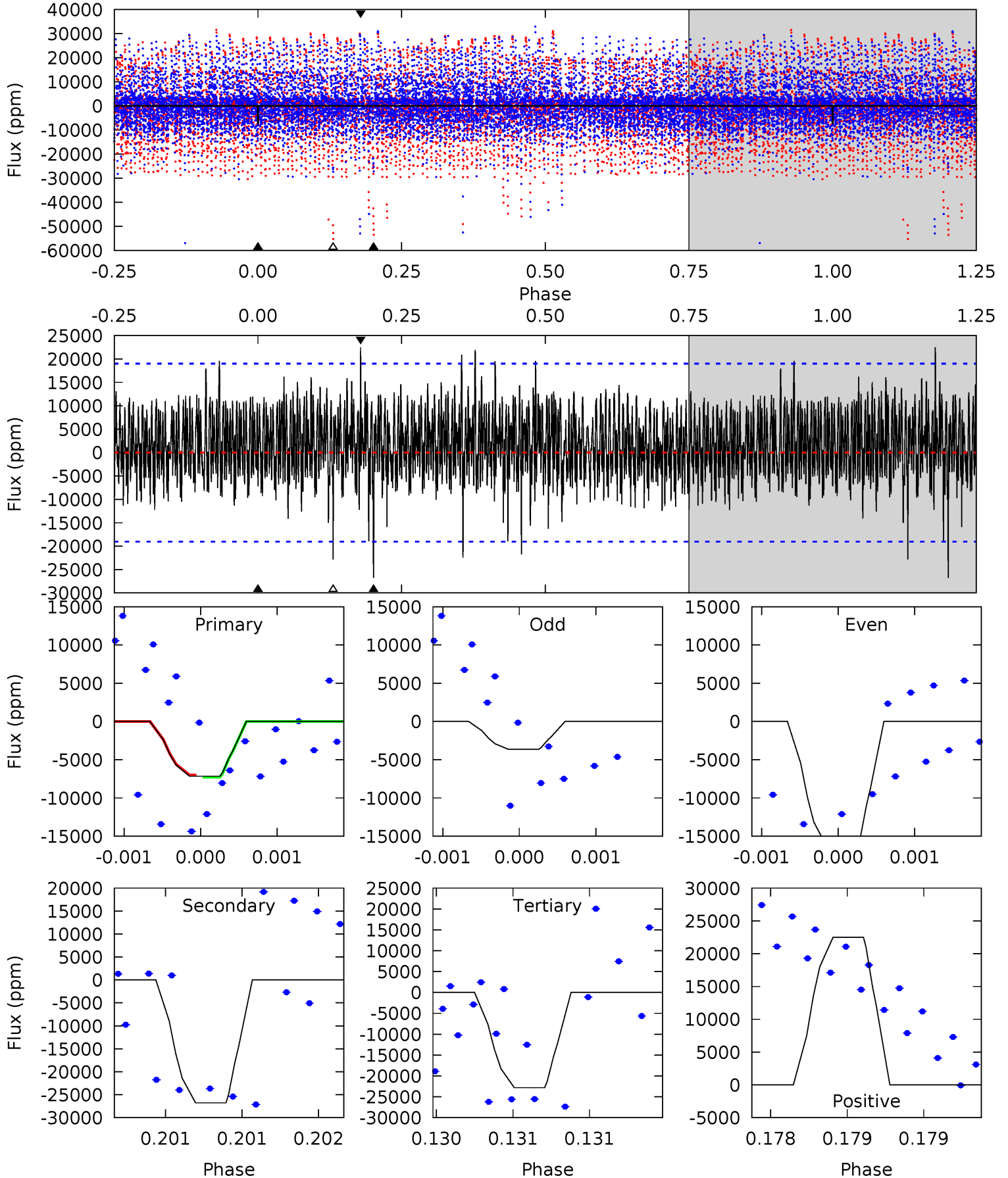
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	10.1	6.43	8.43	5.47	3.32	1.40	8.28	6.28	3.66	1.66	4.05	1.34	0.36	0.82



Alt Model-Shift Uniqueness Test

008161798-05, P = 93.995379 Days, E = 111.647341 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.08	7.78	6.63	6.54	5.53	3.42	1.72	-4.55	-4.46	1.15	1.24	1.71	0.87	0.46	0.03



Stellar Parameters For KIC 008161798

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	10974^{+228}_{-495}	$4.041^{+0.252}_{-0.168}$	$0.070^{+0.150}_{-0.600}$	$2.677^{+0.748}_{-0.914}$	$2.873^{+0.289}_{-0.674}$	$0.211^{+0.341}_{-0.098}$
	+2%/-5%	+6%/-4%	+214%/-857%	+28%/-34%	+10%/-23%	+162%/-47%
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 008161798-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-189±19	$5.08^{+4.66}_{-2.94}$	1441^{+110}_{-124}	8816^{+9744}_{-2629}	1282^{+6354}_{-939}
Alt.	-26779±3440	$23.60^{+7.45}_{-5.75}$	1438^{+113}_{-130}	20493^{+6227}_{-3987}	8923^{+6182}_{-3784}

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

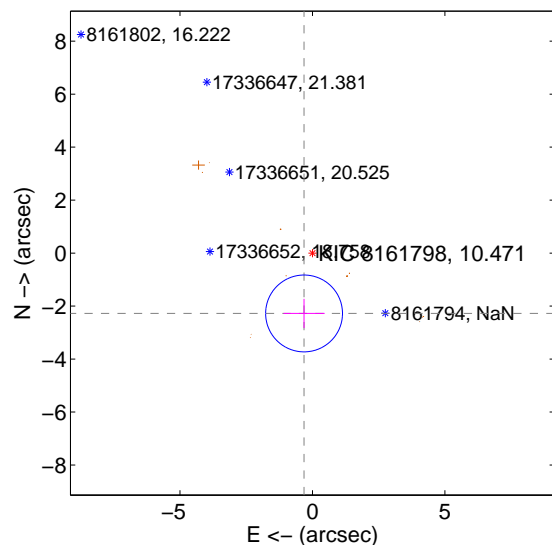
Supplemental centroid analysis for 008161798-05. **Kepler magnitude: 10.47.** Transit SNR 7.04

There are 1 quarters with good PRF difference image offsets

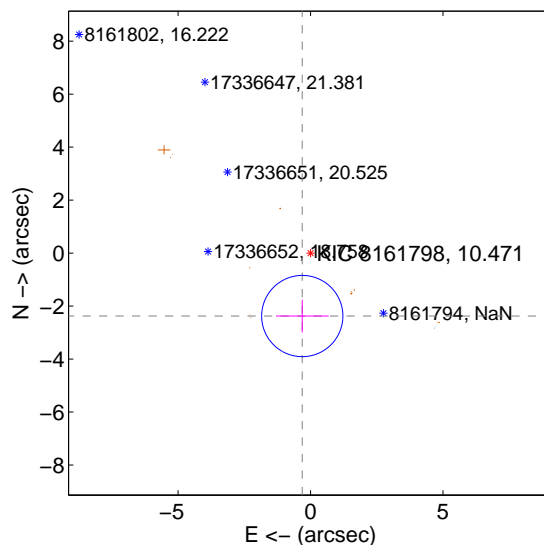
The direct PRF centroid is offset from the target star catalog position by about 1.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.300 ± 0.483	4.76	0.316 ± 0.775	-2.278 ± 0.551
PRF-fit source offset from KIC position	2.396 ± 0.511	4.69	0.312 ± 0.992	-2.376 ± 0.619
photometric centroid source offset	0.69 ± 2.31	0.30	0.50 ± 1.89	-0.48 ± 2.69

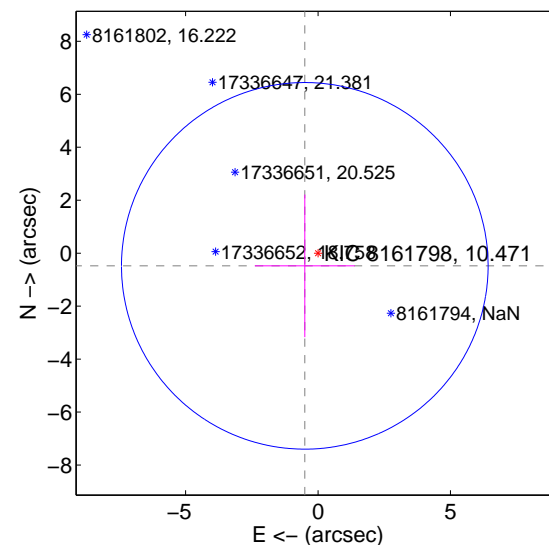
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

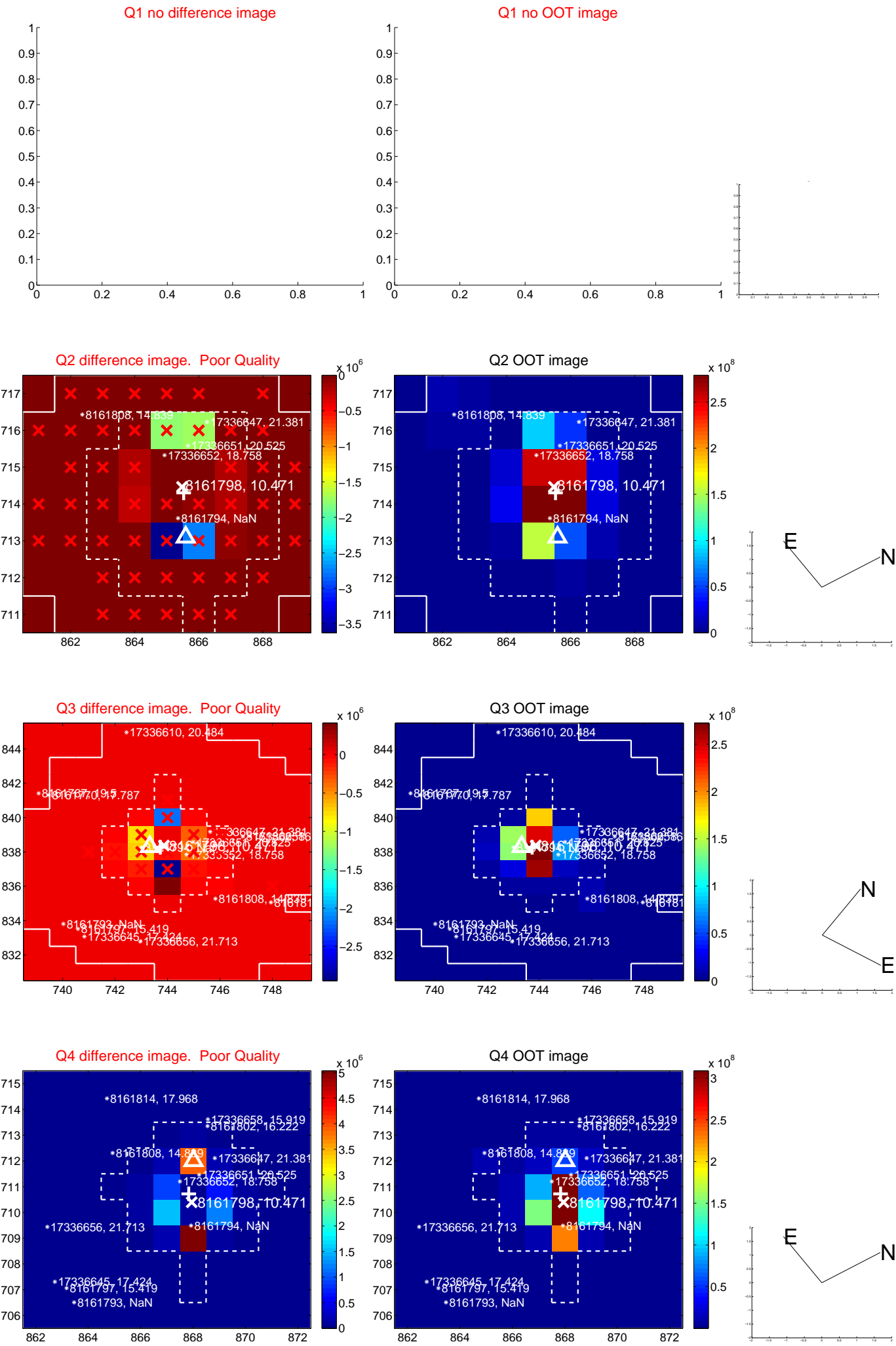


offset from photometric centroids

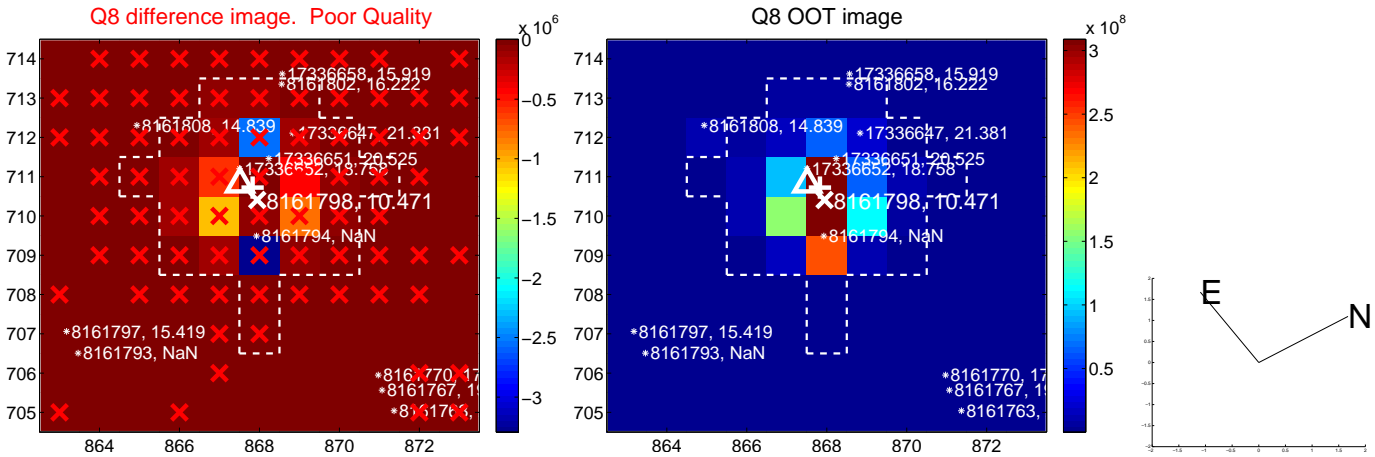
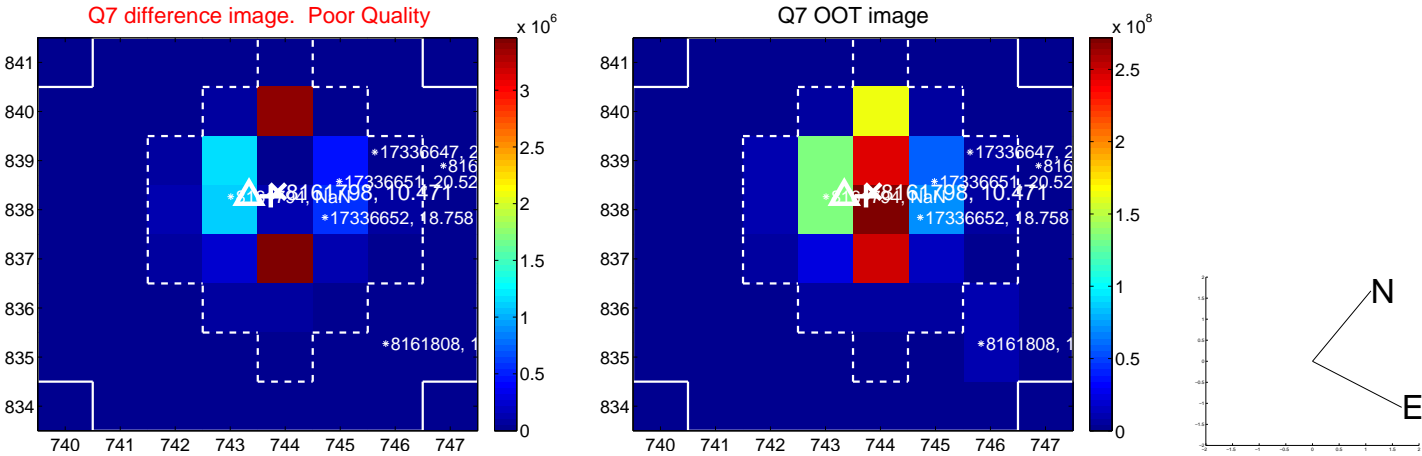
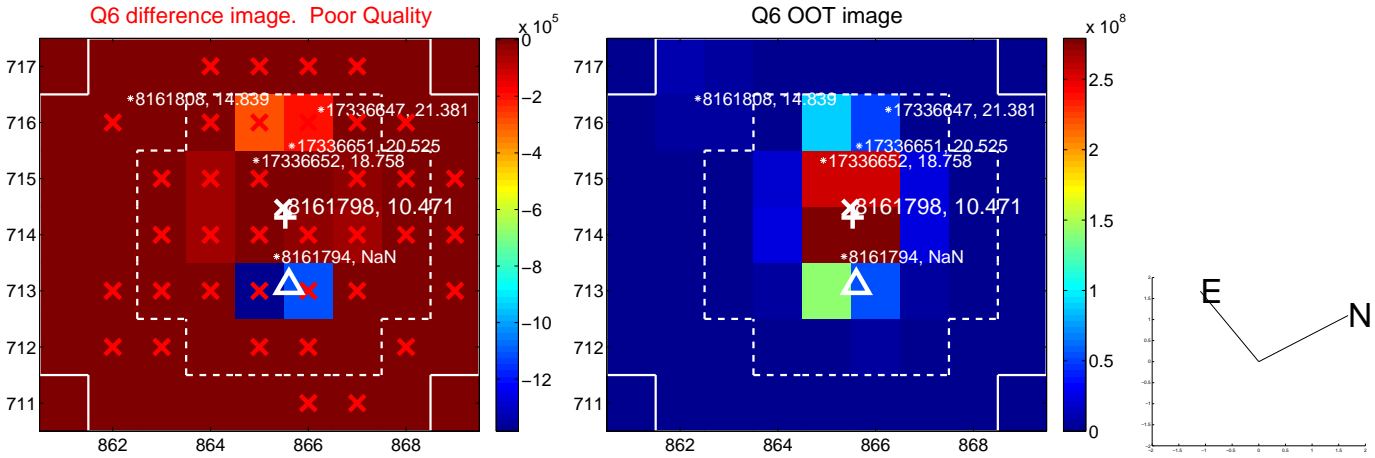
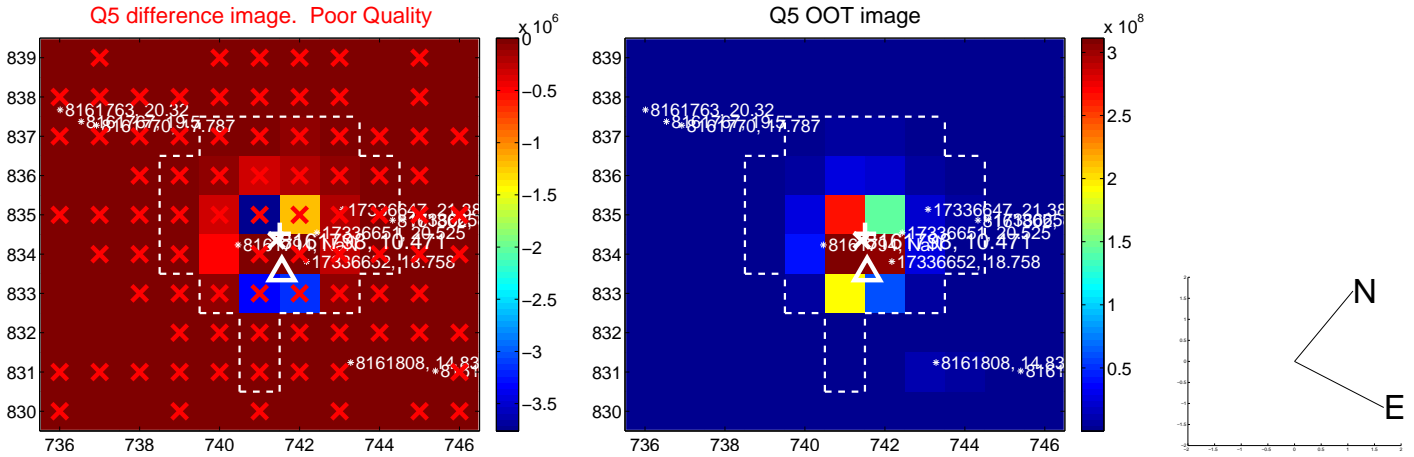


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

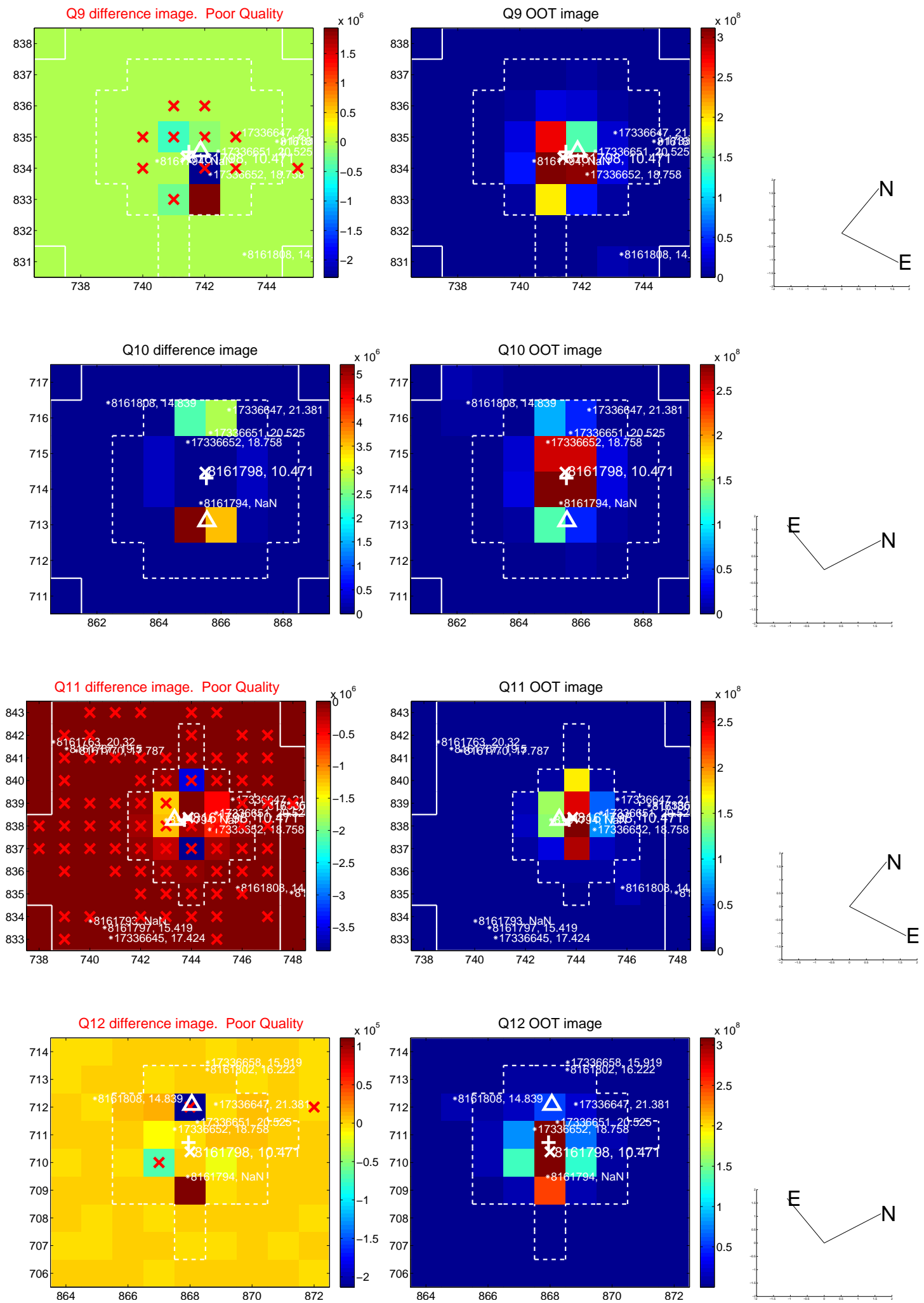
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



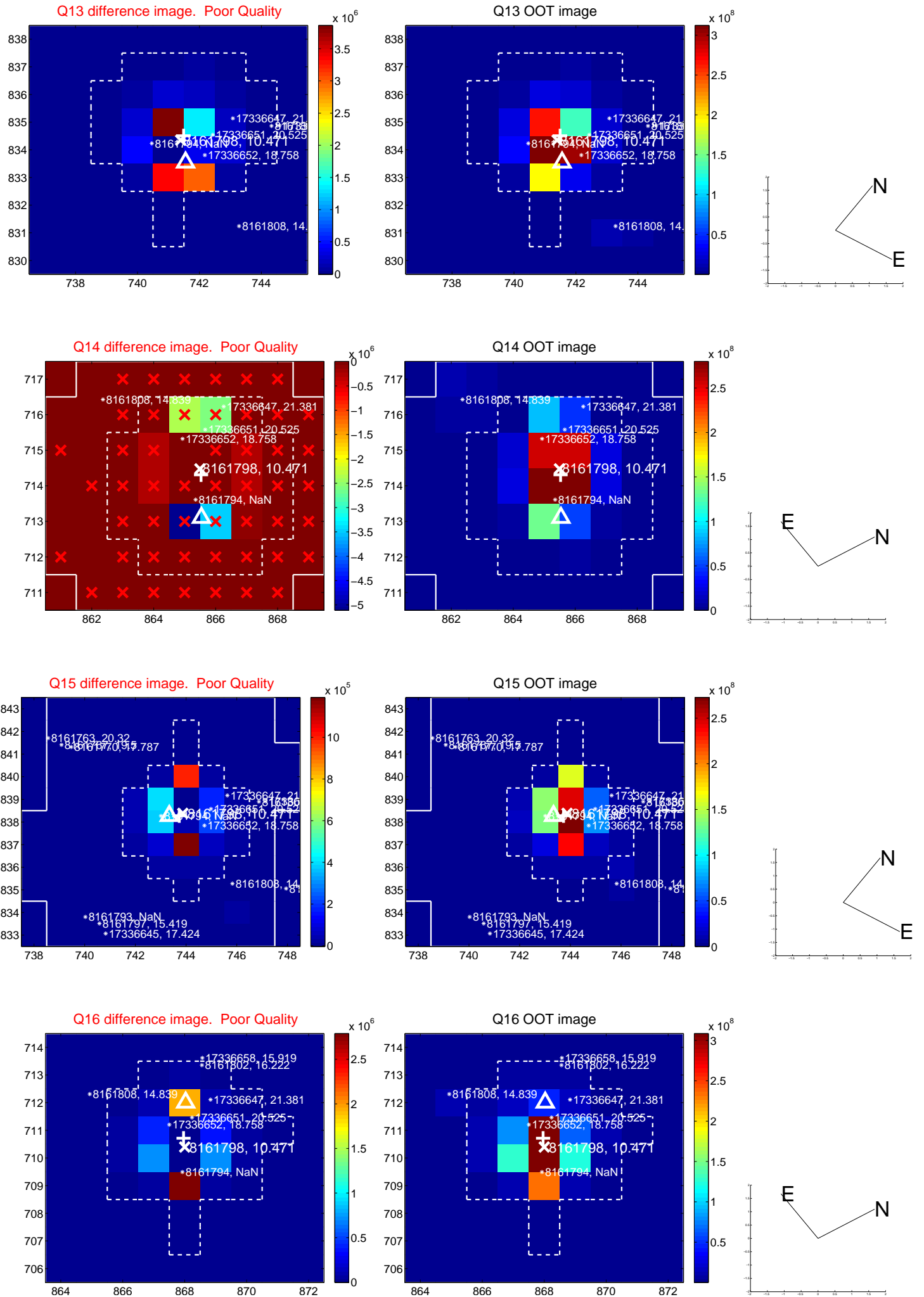
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



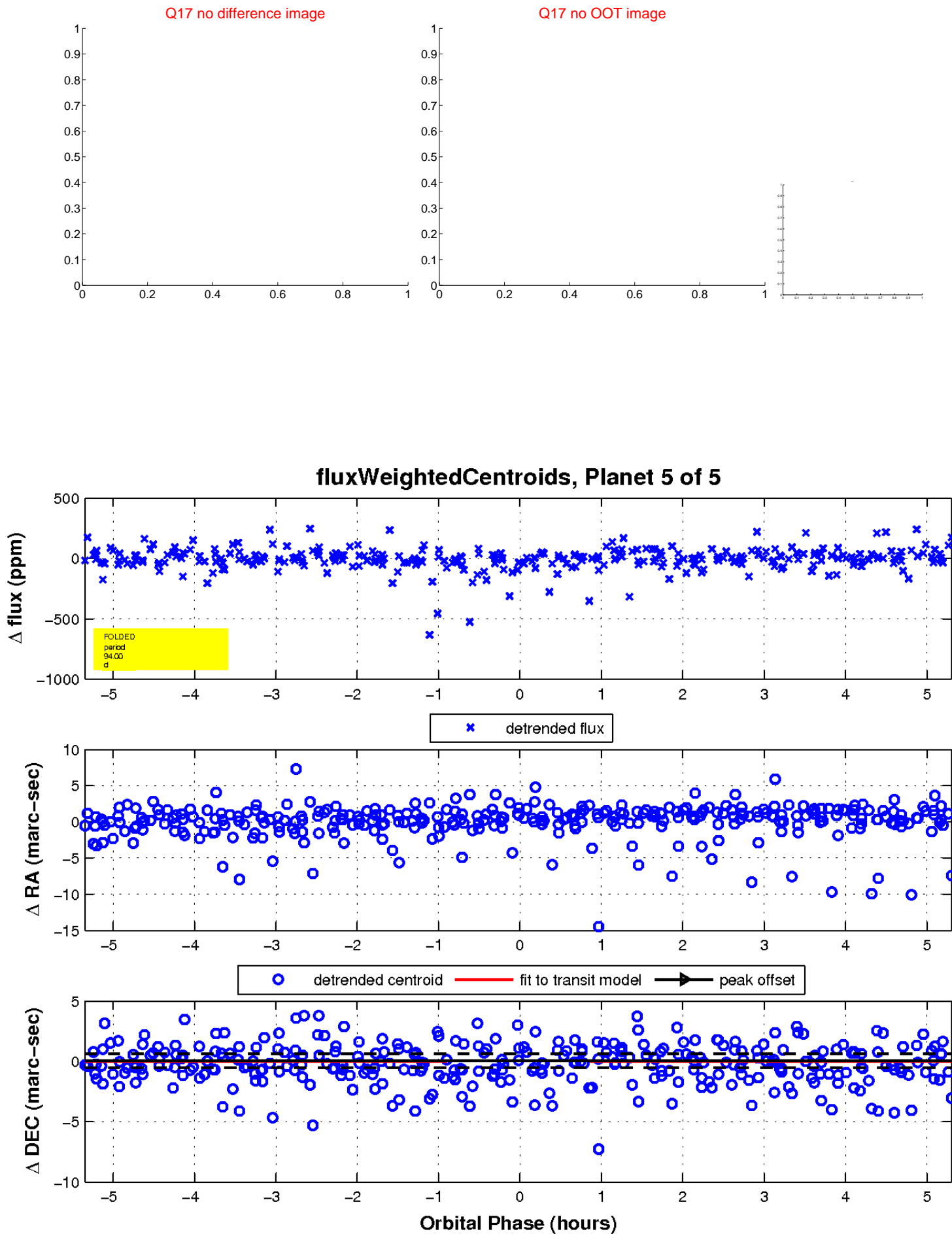
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

