

KIC 009641112

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})
009641112-01	OBS	No	1.023790	132.518173	105.8	5.117	9.1	6.3	1.06	6240	1.51	3813.40
009641112-02	OBS	No	243.536491	171.163286	1449.4	3.000	9.2	-1.0	1.06	6240	4.06	2.59
009641112-03	OBS	No	179.069237	281.690553	1297.2	7.460	7.8	5.4	1.06	6240	4.24	3.90

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009641112-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009641112-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
009641112-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV— MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

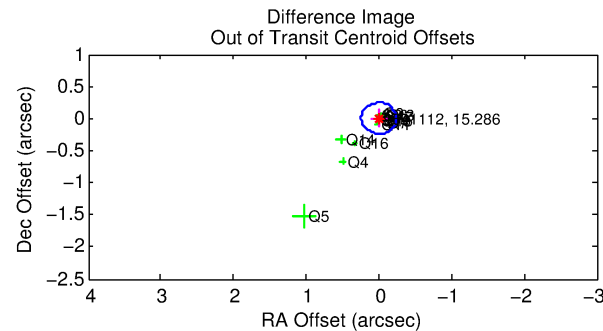
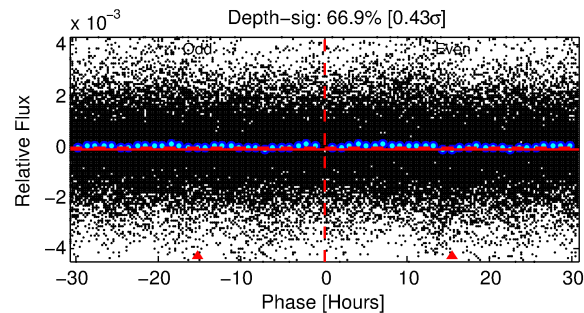
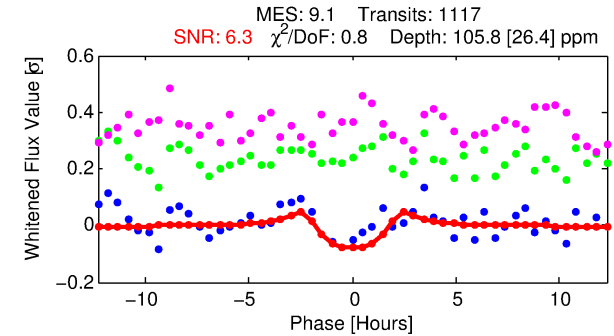
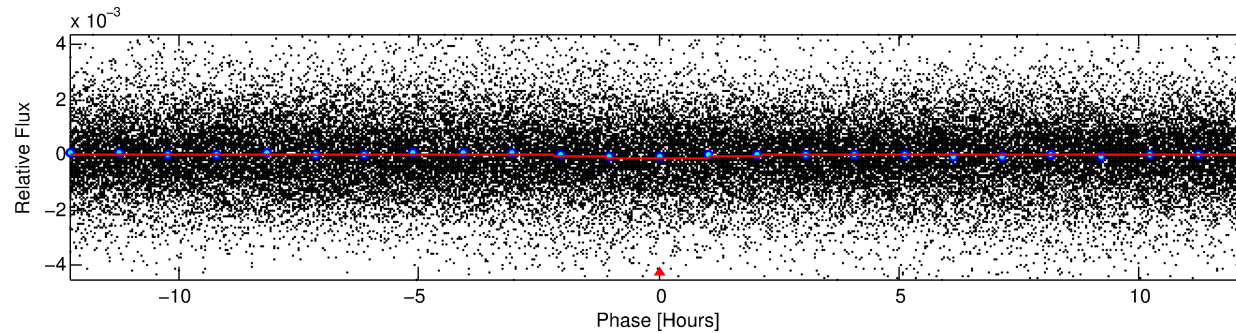
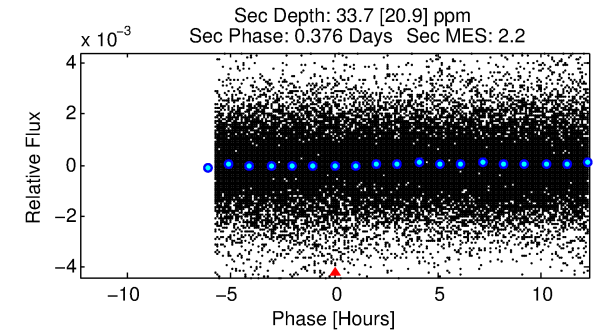
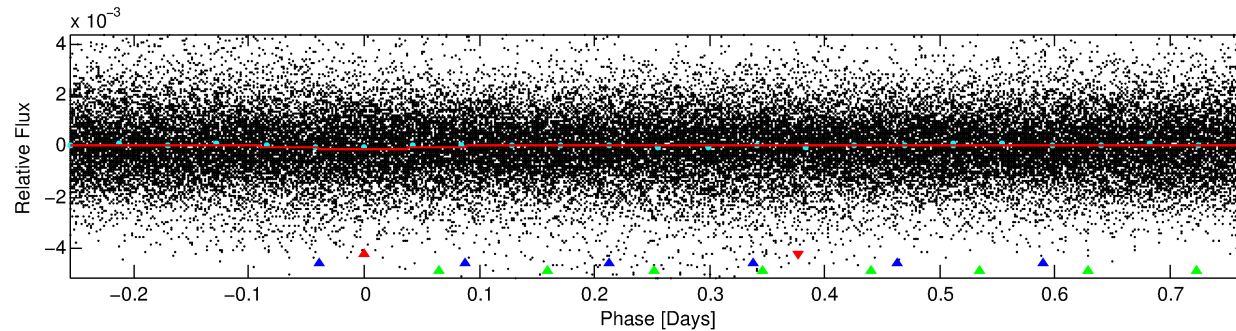
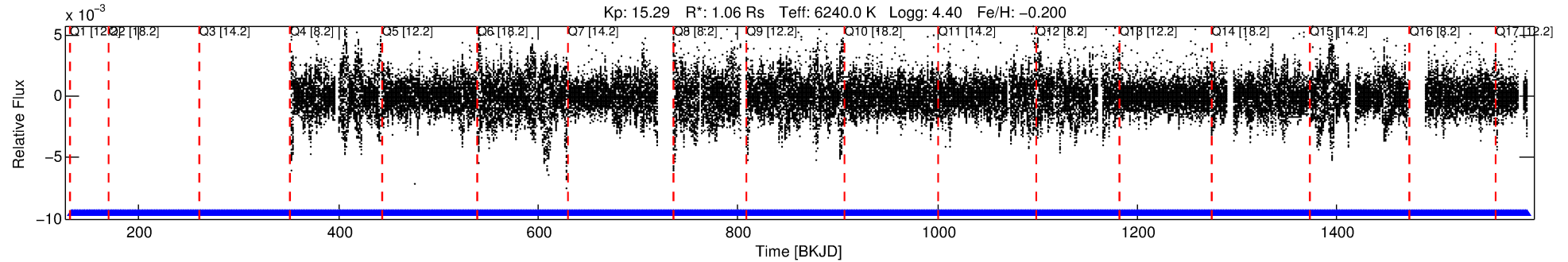
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009641112-01

No Significant Match Found

DV One-Page Summary

KIC: 9641112 Candidate: 1 of 3 Period: 1.024 d



DV Fit Results:

Period = 1.02379 [0.00002] d
Epoch = 132.5182 [0.0067] BKJD
Rp/R* = 0.0130 [0.0018]
a/R* = 1.06 [0.02]
b = 0.99 [0.01]
Seff = 3813.40 [1575.28]
Teff = 2004 [207] K
Rp = 1.51 [0.52] Re
a = 0.0201 [0.0053] AU
Ag = 3.27 [2.54] [0.89σ]
Teffp = 4165 [730] K [2.85σ]

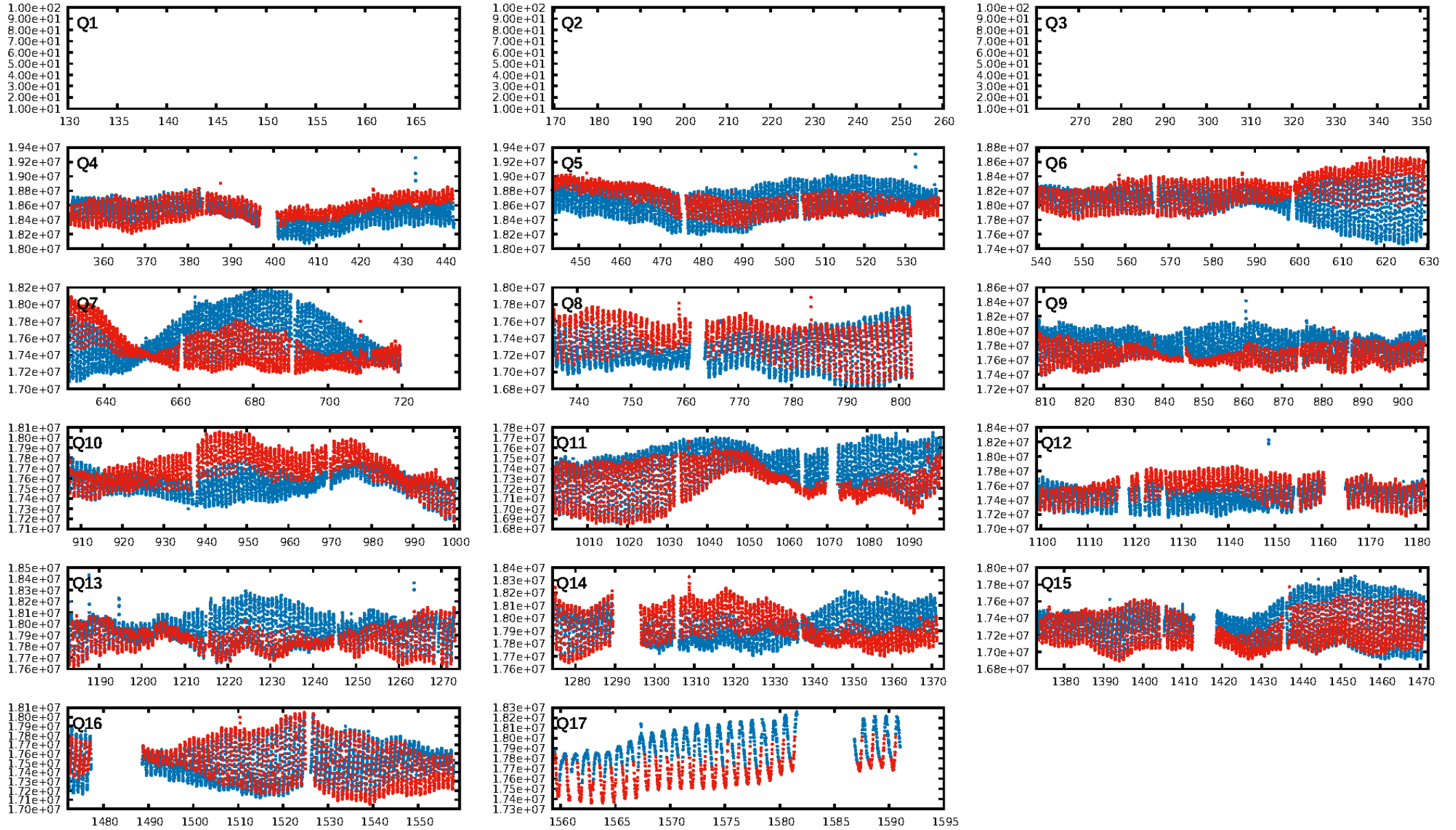
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [472.38σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.81e-14
RollingBand-fgt: 1.00 [1091/1091]
GhostDiagnostic-chr: 0.3574
Centroid-sig: 0.0%
Centroid-so: 1.942 arcsec [2.30σ]
OotOffset-rm: 0.006 arcsec [0.08σ]
KicOffset-rm: 0.122 arcsec [0.98σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 1.00 [14/14]

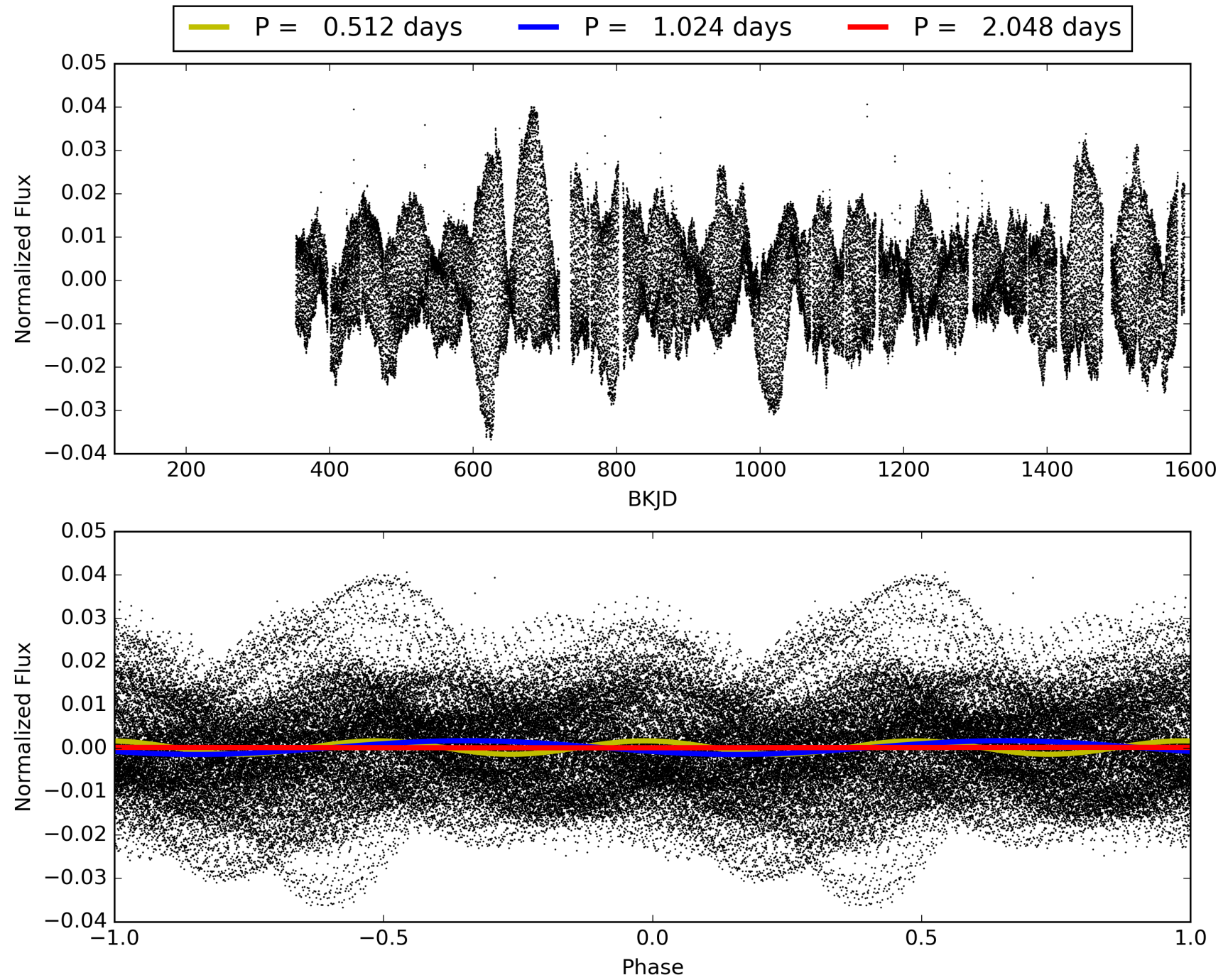
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:26:30 Z

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

TCE 009641112-01, PDC Light Curves

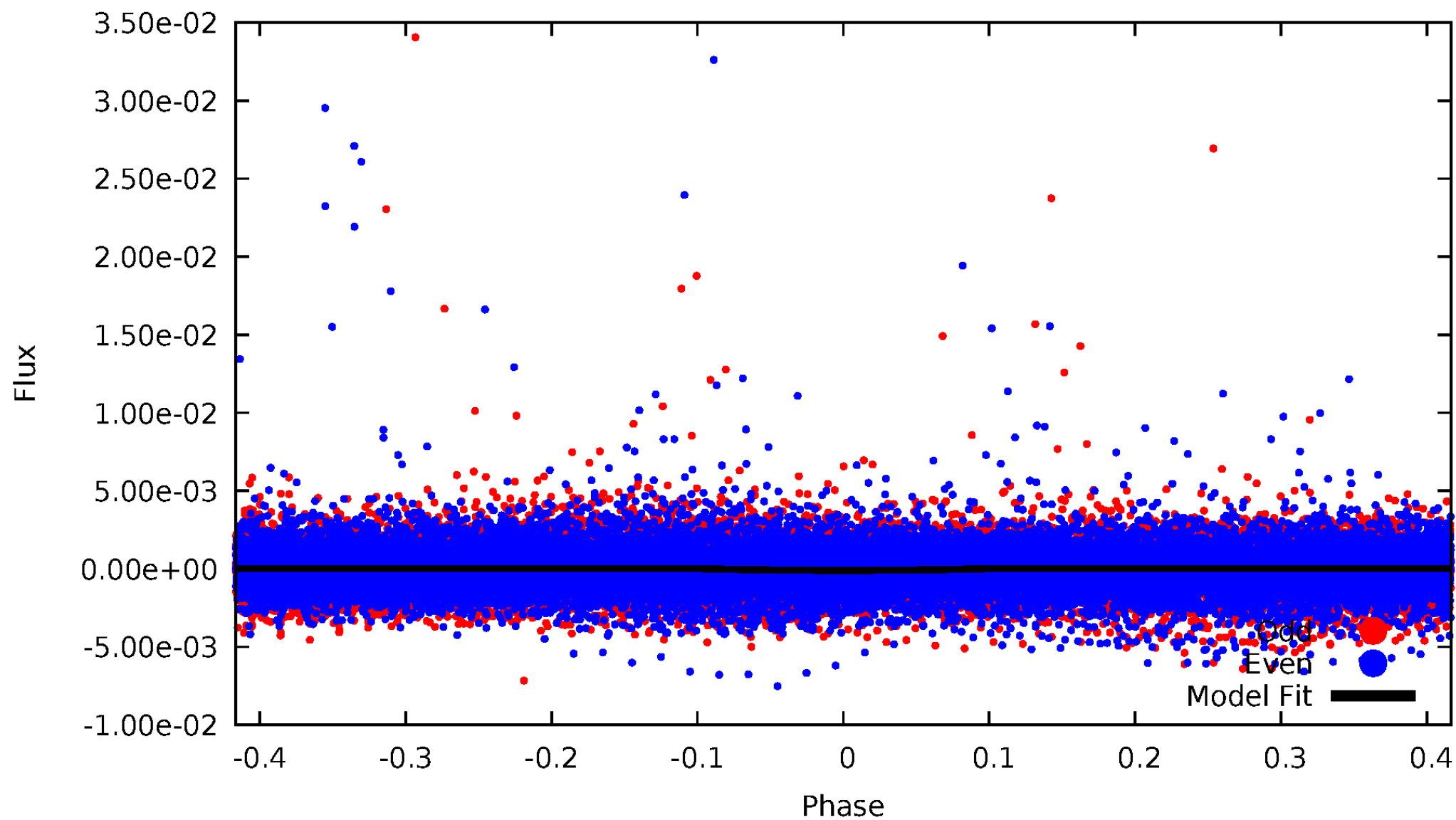


TCE 009641112-01



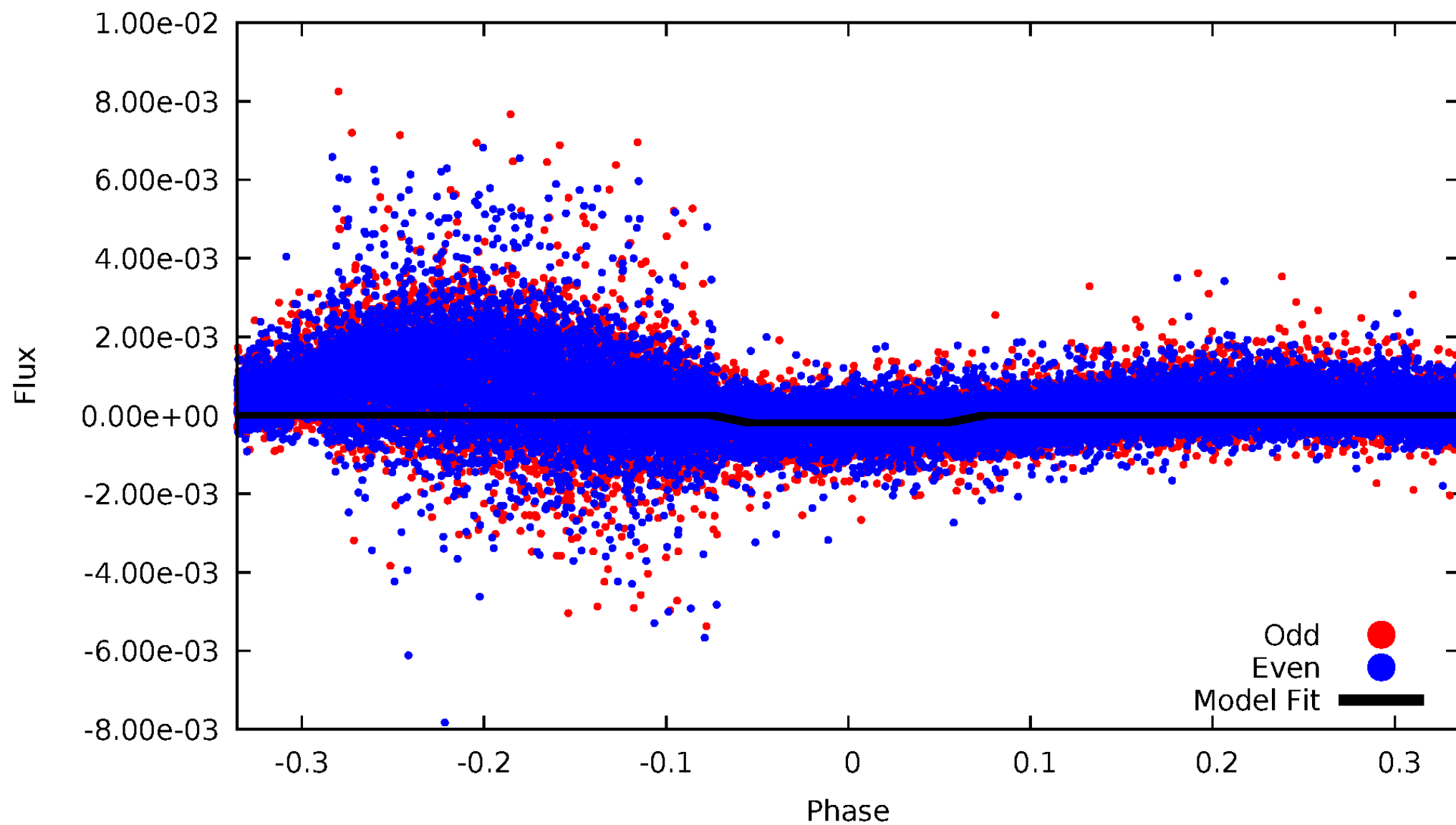
DV Odd/Even

TCE 009641112-01



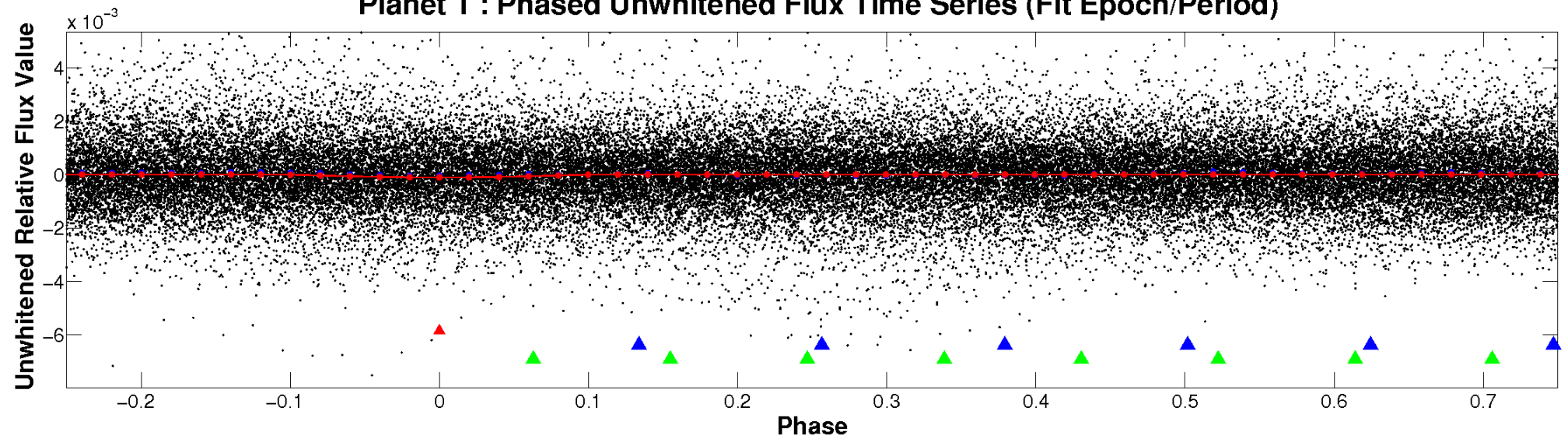
ALT Odd/Even

TCE 009641112-01

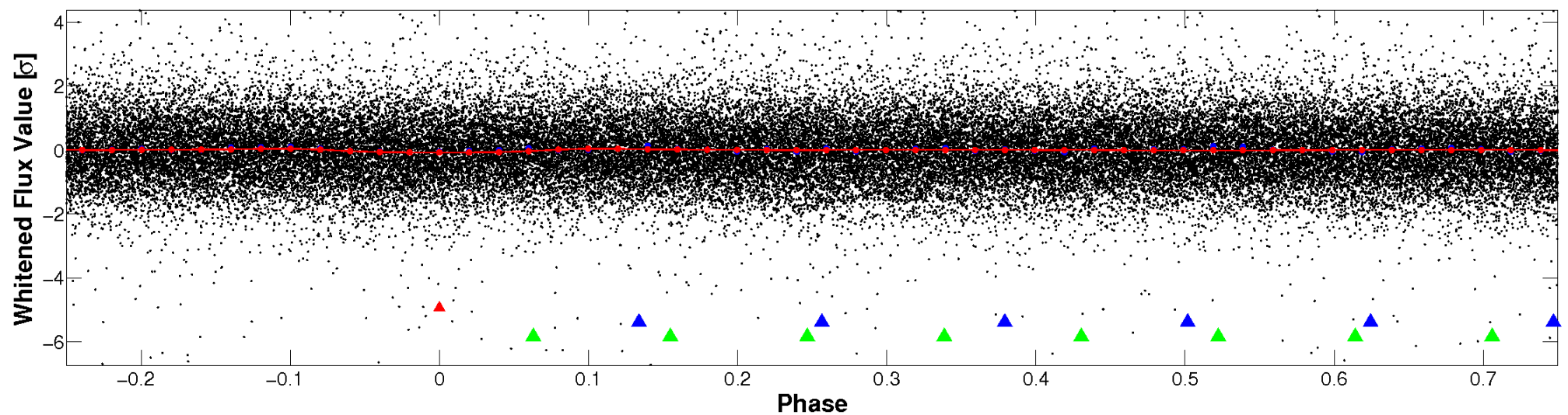


Non-Whitened Vs. Whitened Light Curve

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

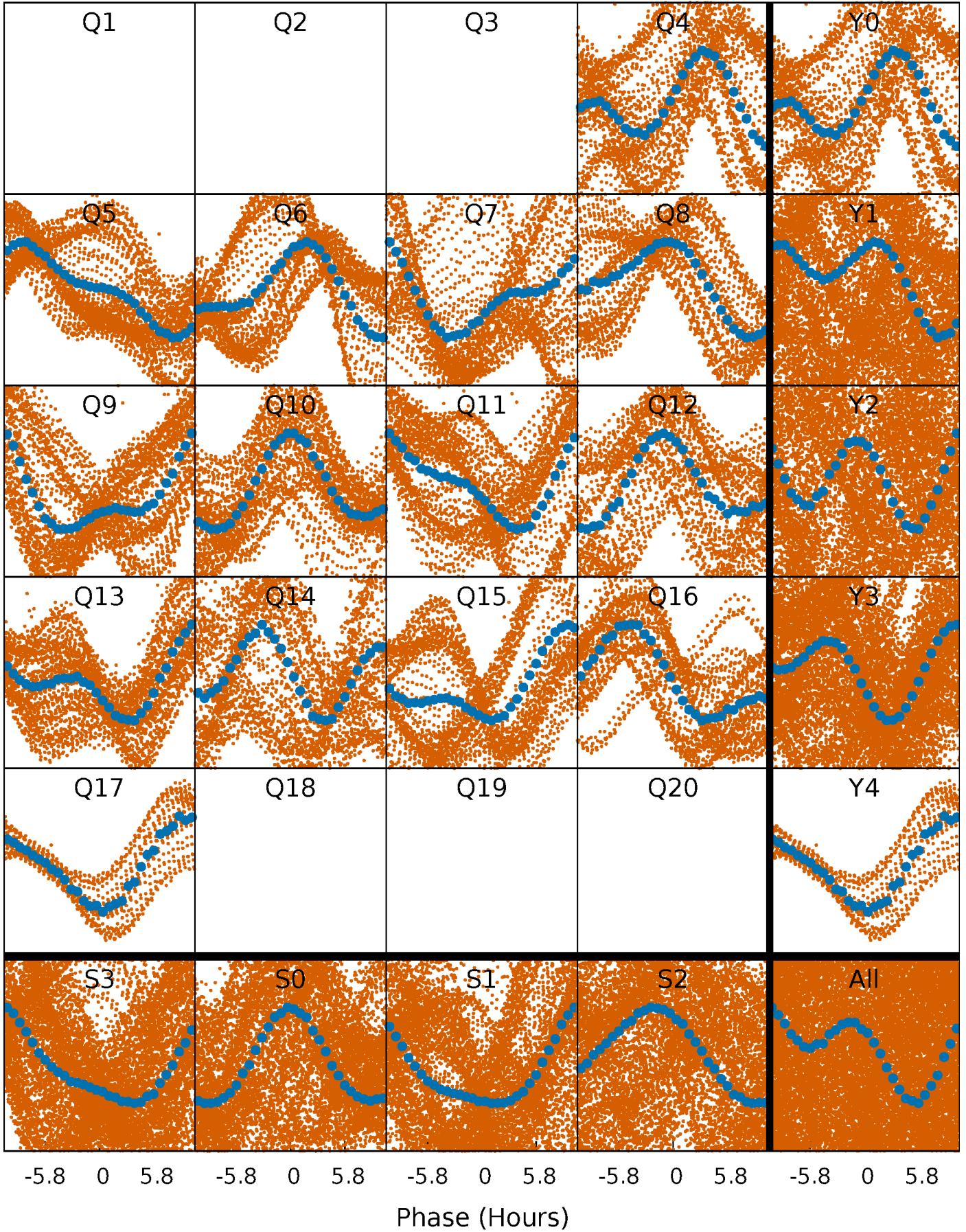


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



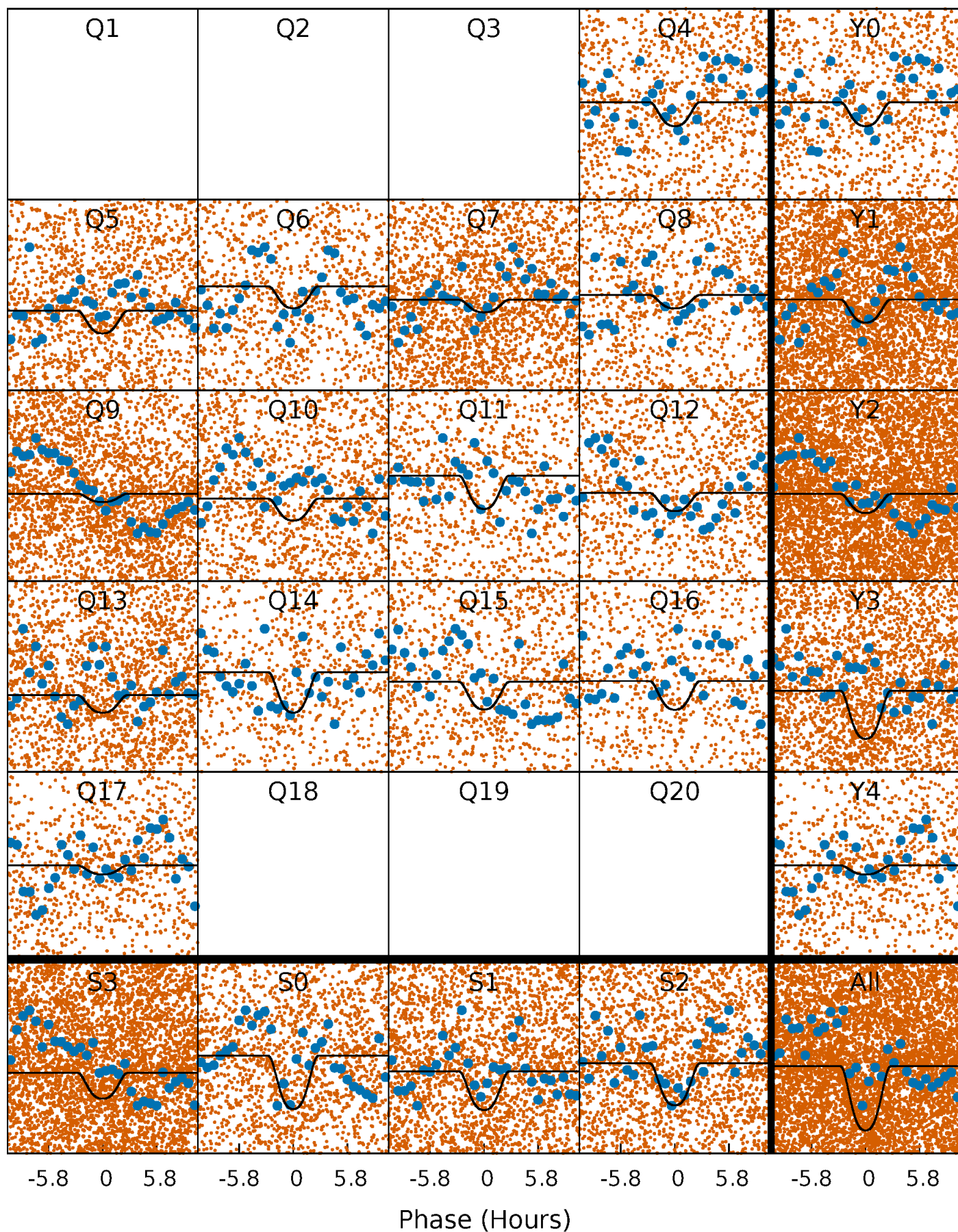
PDC Quarter-Phased Transit Curves

TCE 009641112-01 P= 1.023790 Days $T_0=132.518173$ (BKJD)



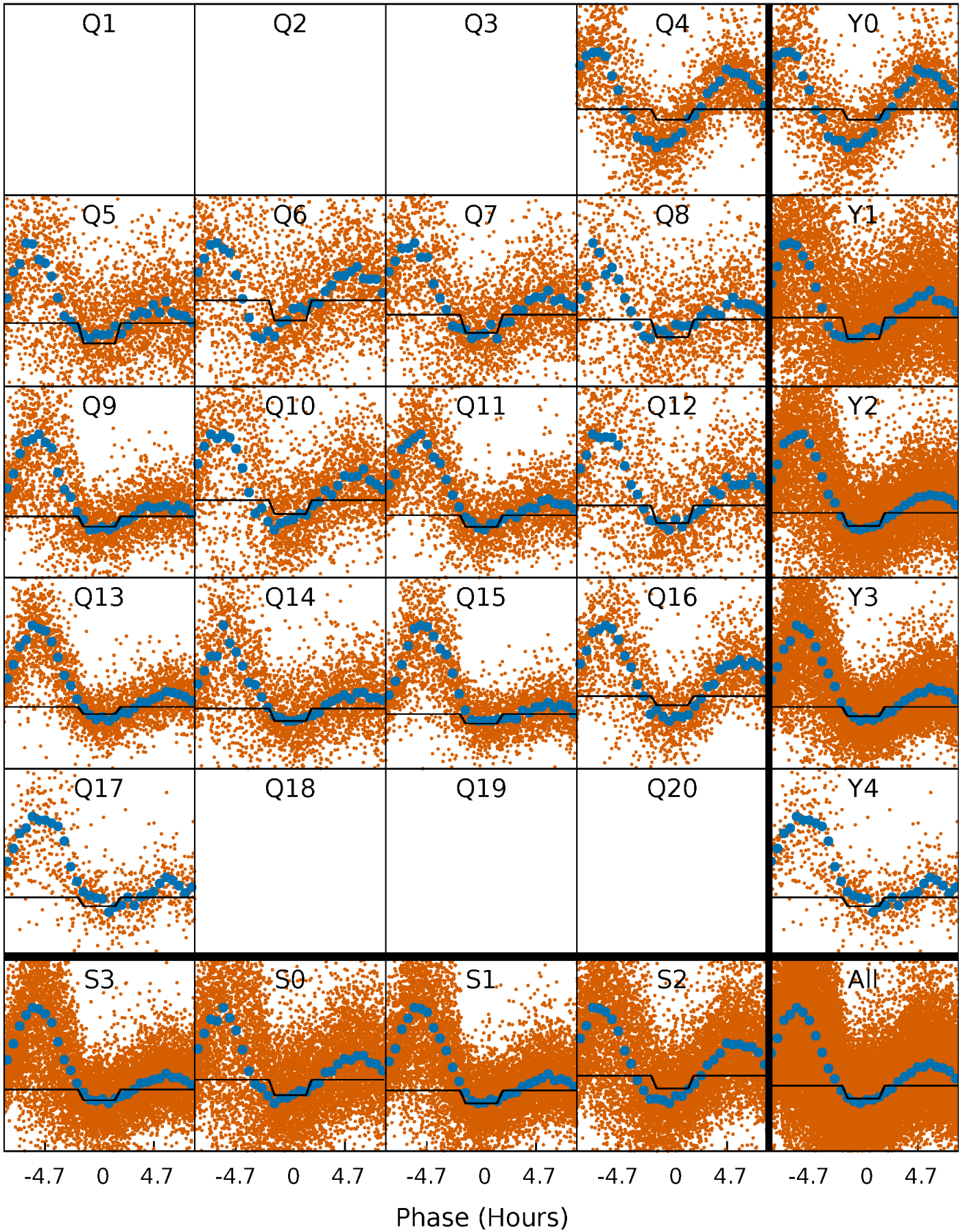
DV Quarter-Phased Transit Curves

TCE 009641112-01 P= 1.023790 Days $T_0=132.518173$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

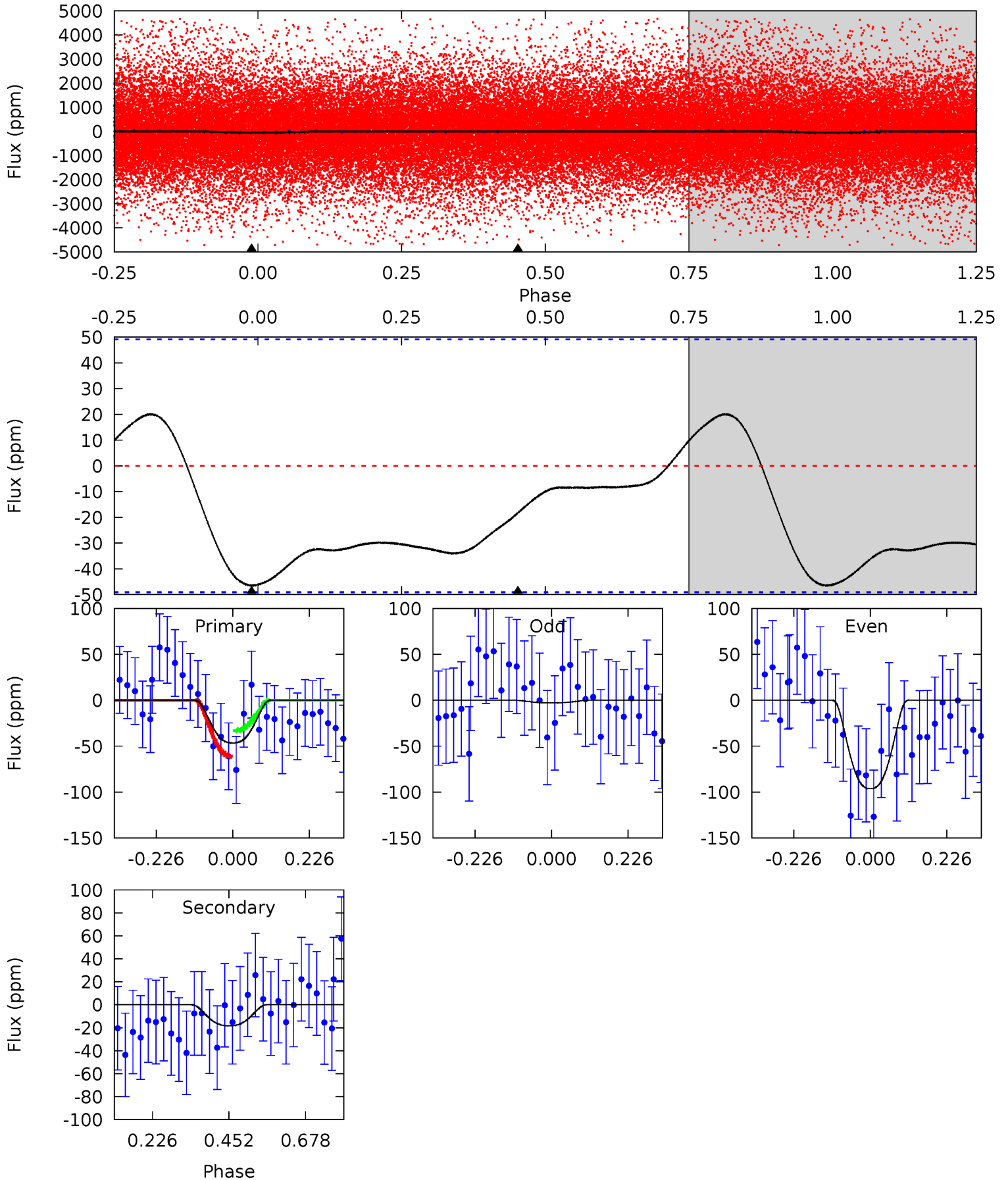
TCE 009641112-01 P= 1.023469 Days $T_0=132.533440$ (BKJD)



DV Model-Shift Uniqueness Test

009641112-01, P = 1.023790 Days, E = 132.518173 Days

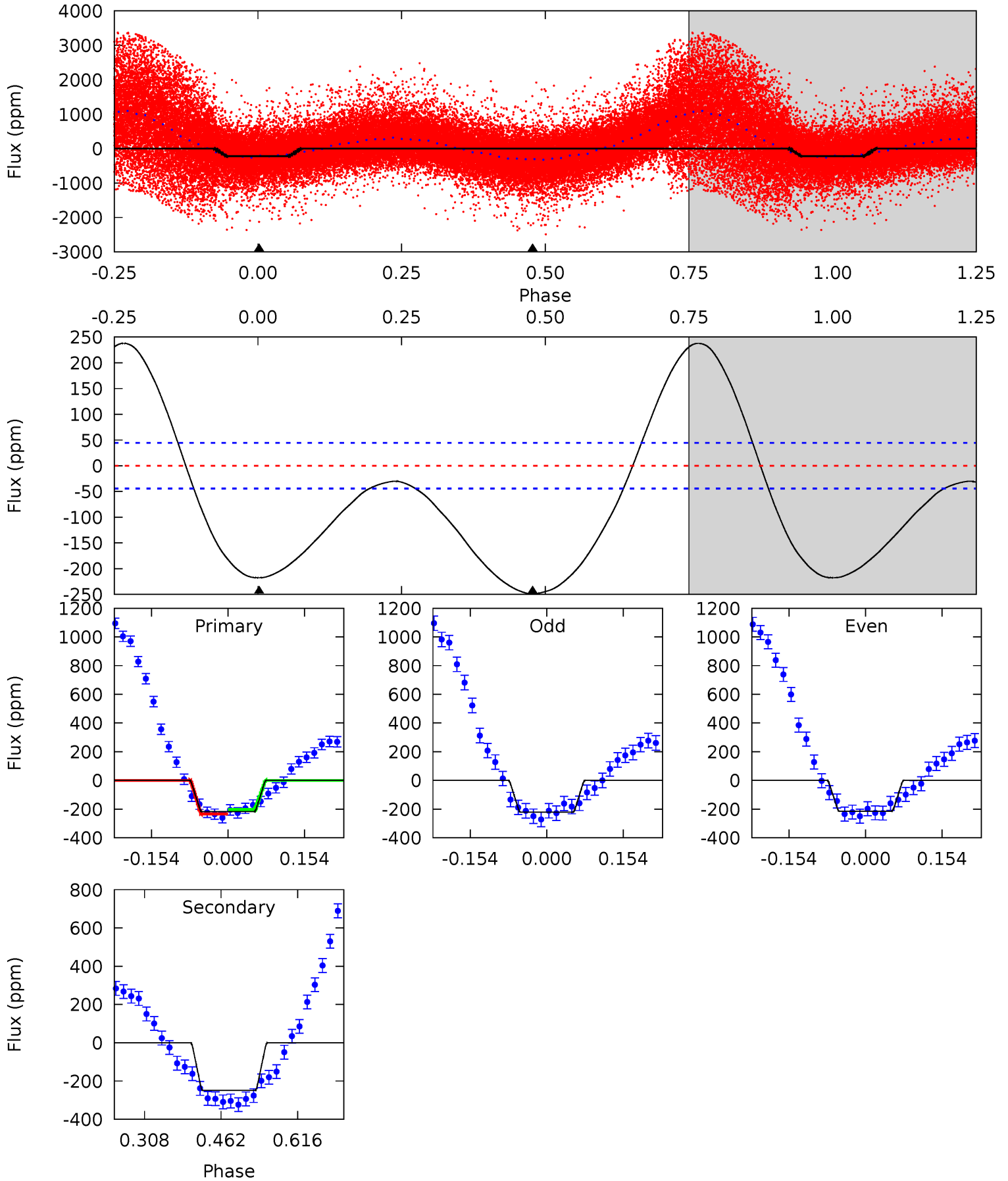
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.16	1.63	0	0	4.39	1.21	1.10	4.16	4.16	1.63	1.63	4.24	0.76	0.30	1.23



Alt Model-Shift Uniqueness Test

009641112-01, P = 1.023469 Days, E = 132.533440 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.9	25.1	0	0	4.47	1.43	11.6	21.9	21.9	25.1	25.1	0.33	1.27	0.49	1.41



Stellar Parameters For KIC 009641112

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6240^{+197}_{-263}	$4.397^{+0.087}_{-0.203}$	$-0.200^{+0.250}_{-0.300}$	$1.064^{+0.339}_{-0.145}$	$1.025^{+0.173}_{-0.129}$	$1.200^{+0.465}_{-0.644}$
	+3%/-4%	+2%/-5%	+125%/-150%	+32%/-14%	+17%/-13%	+39%/-54%
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 009641112-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-18 ± 11	$1.56^{+0.33}_{-0.26}$	2841^{+218}_{-160}	3796^{+458}_{-724}	$1.643^{+1.418}_{-1.032}$
Alt.	-249 ± 10	$1.66^{+0.31}_{-0.28}$	2833^{+237}_{-174}	6657^{+608}_{-481}	20^{+9}_{-6}

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

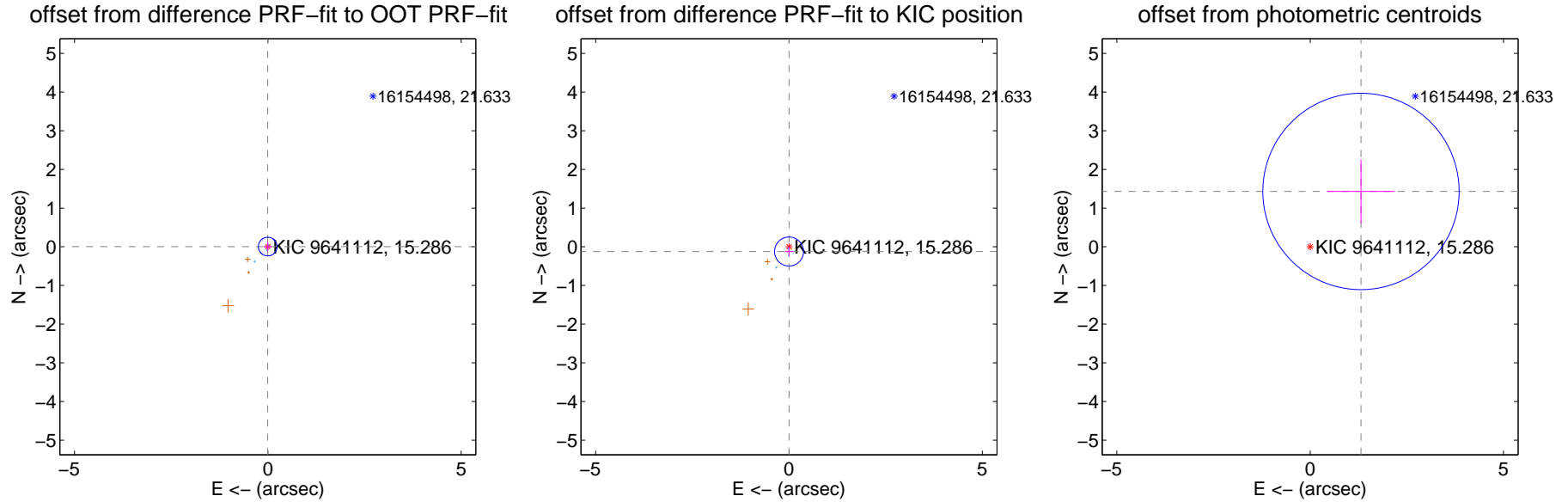
DV Centroid Data

Supplemental centroid analysis for 009641112-01. Kepler magnitude: 15.29. Transit SNR 6.34

There are 7 quarters with good PRF difference image offsets

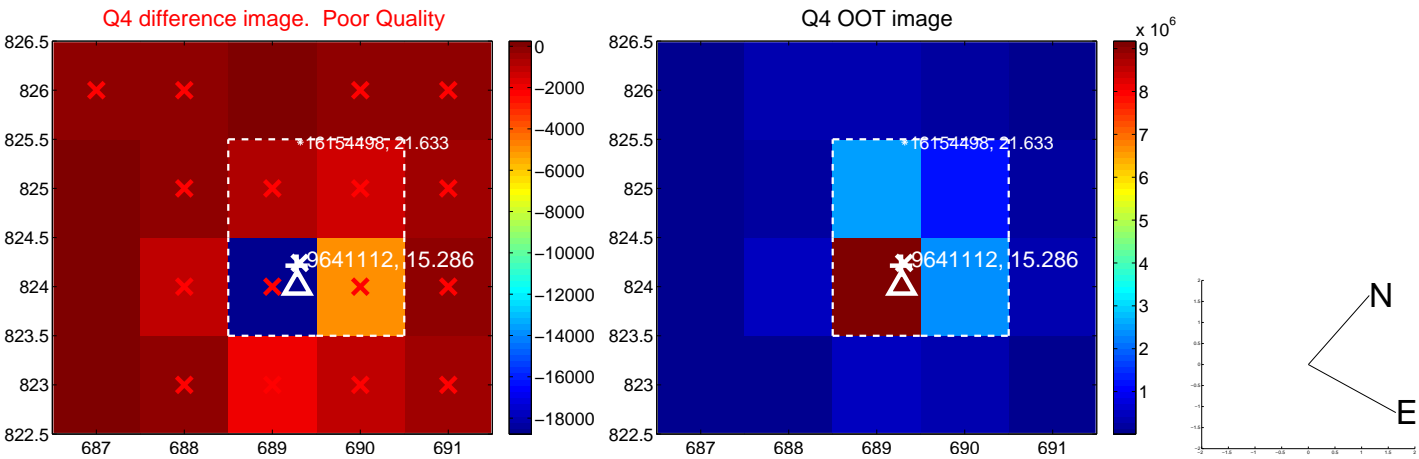
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.006 ± 0.080	0.08	0.003 ± 0.103	0.005 ± 0.124
PRF-fit source offset from KIC position	0.122 ± 0.125	0.98	-0.001 ± 0.107	-0.122 ± 0.125
photometric centroid source offset	1.94 ± 0.85	2.30	-1.31 ± 0.87	1.43 ± 0.82

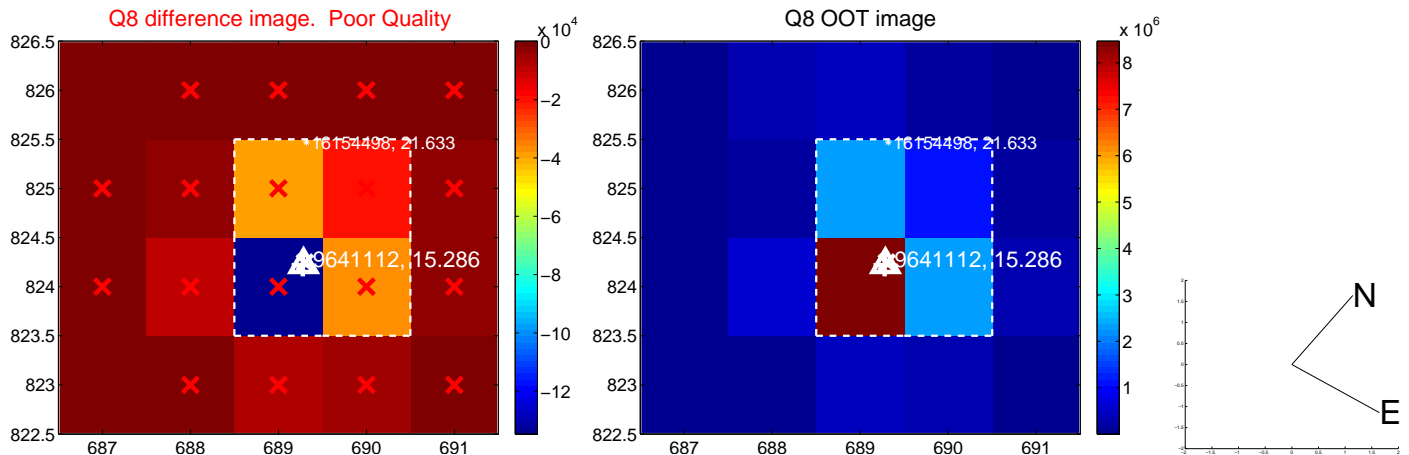
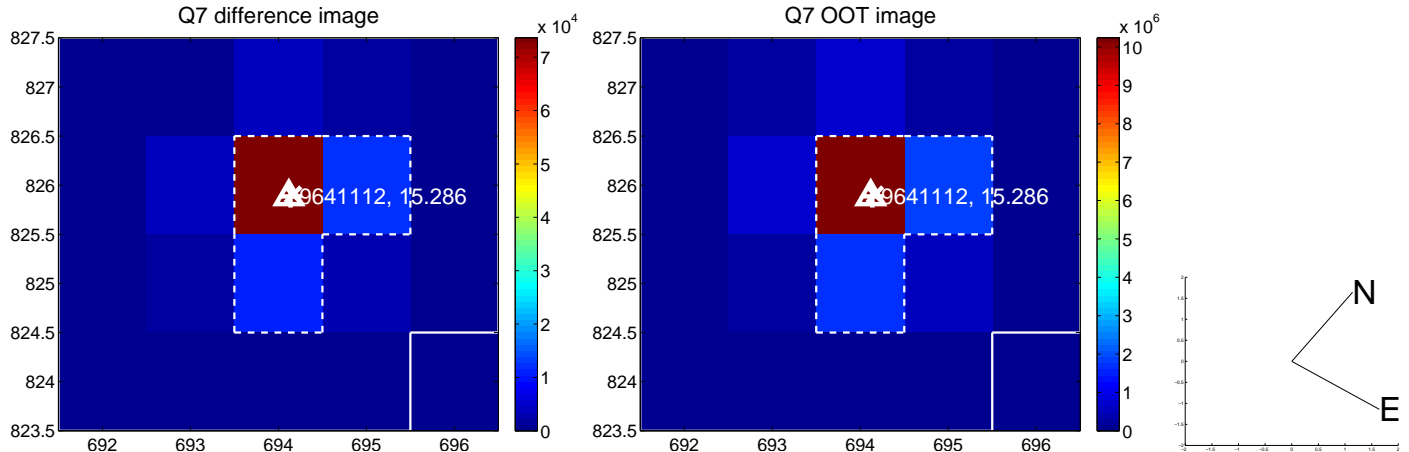
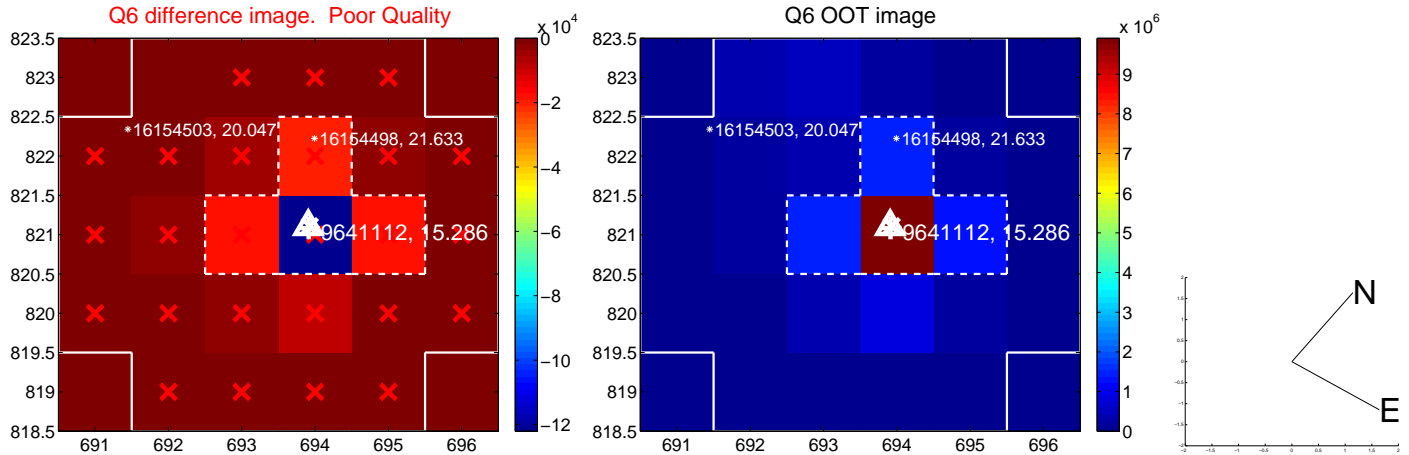
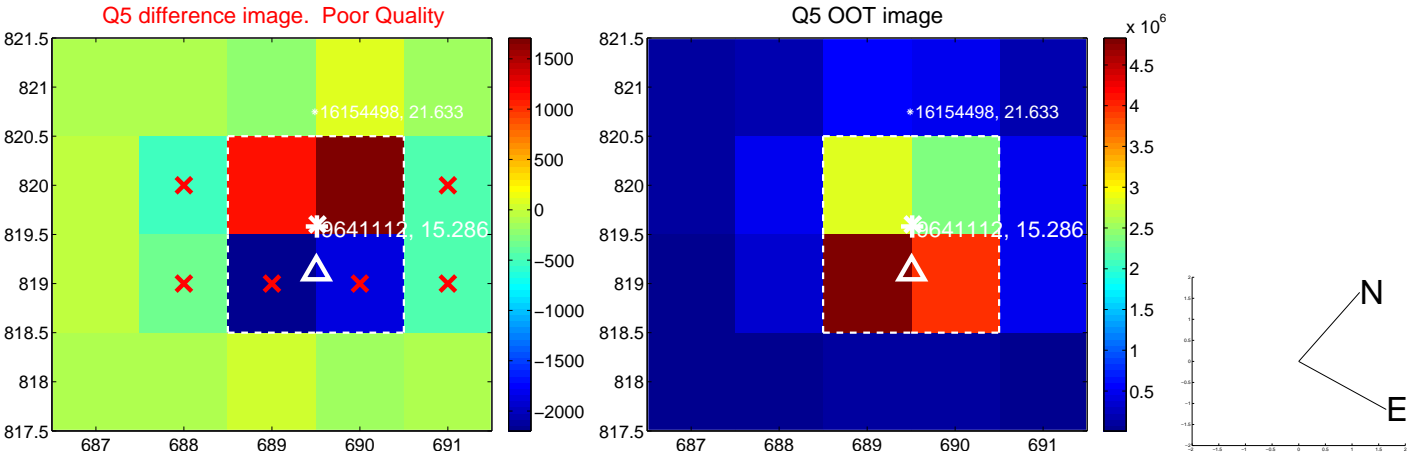


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

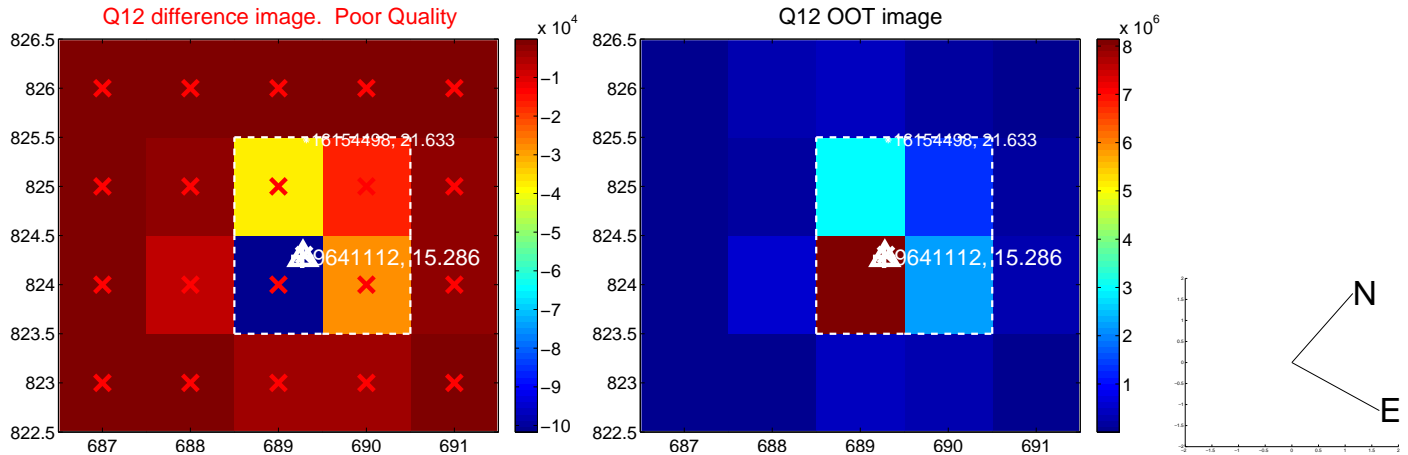
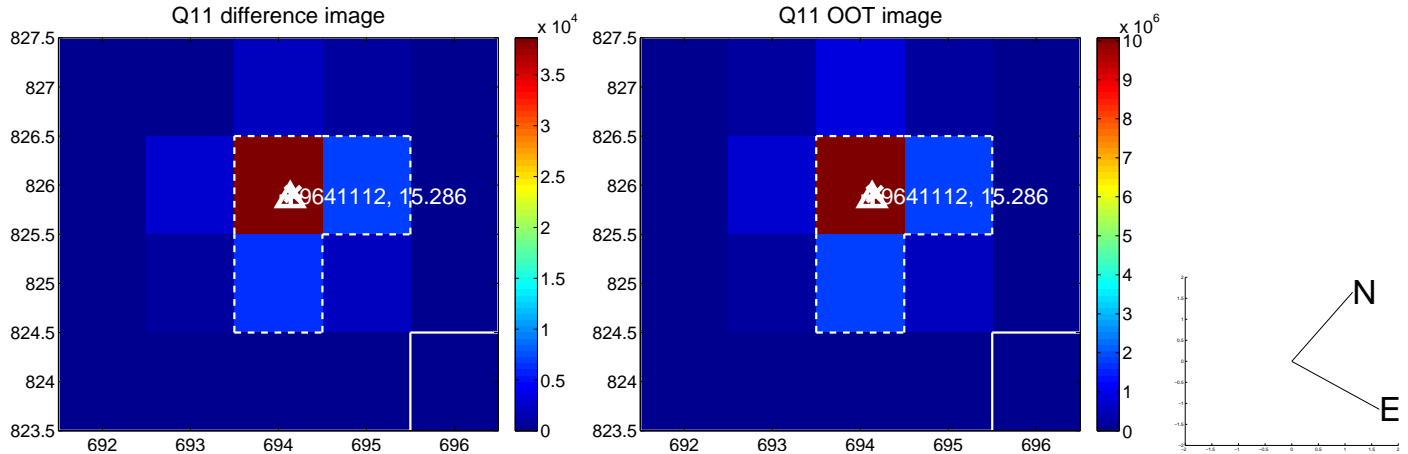
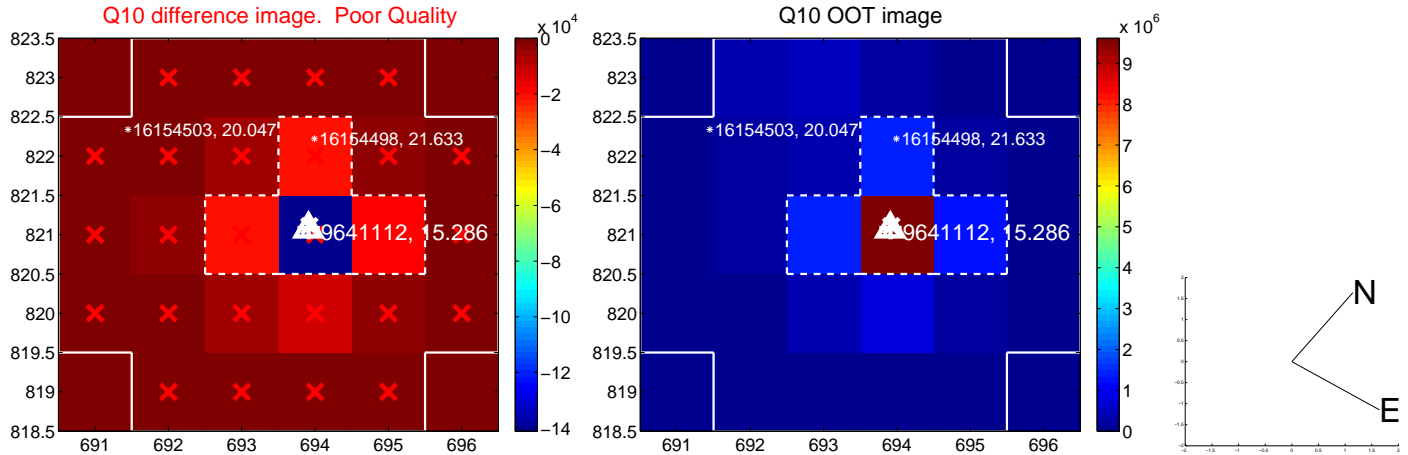
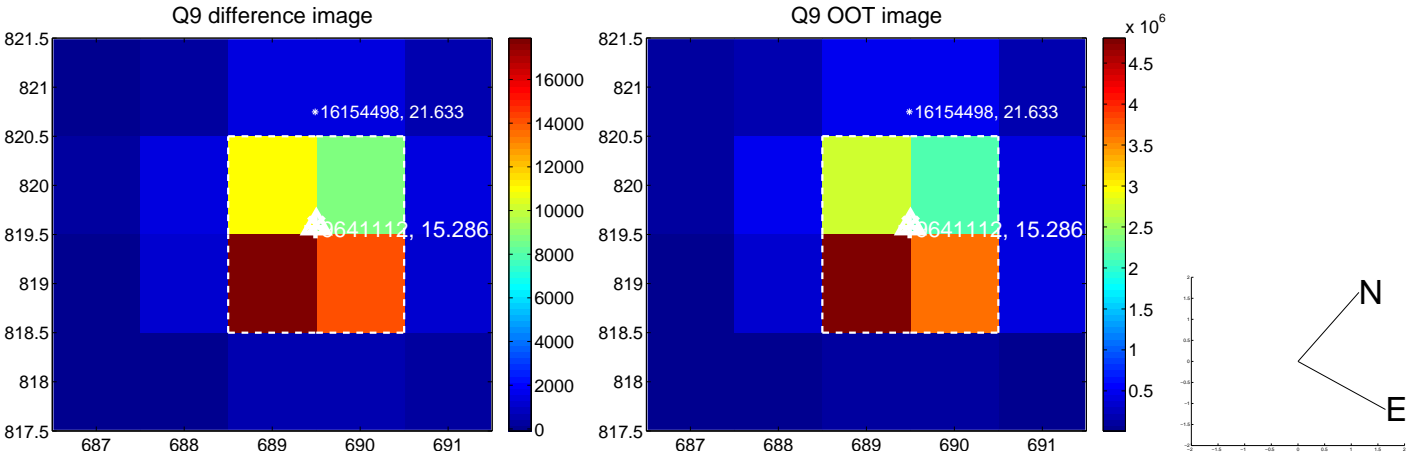
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



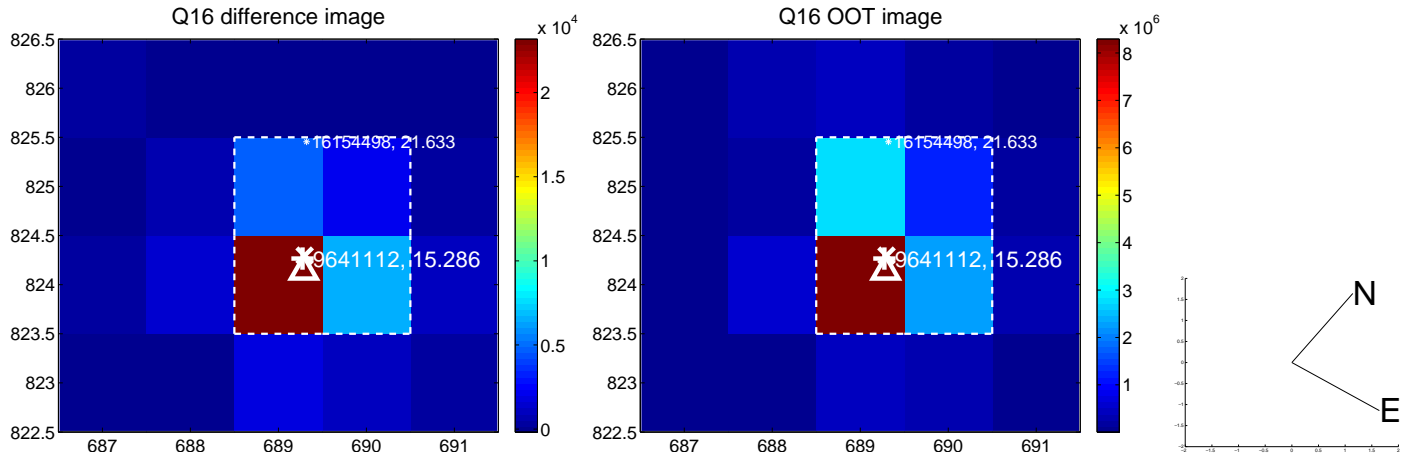
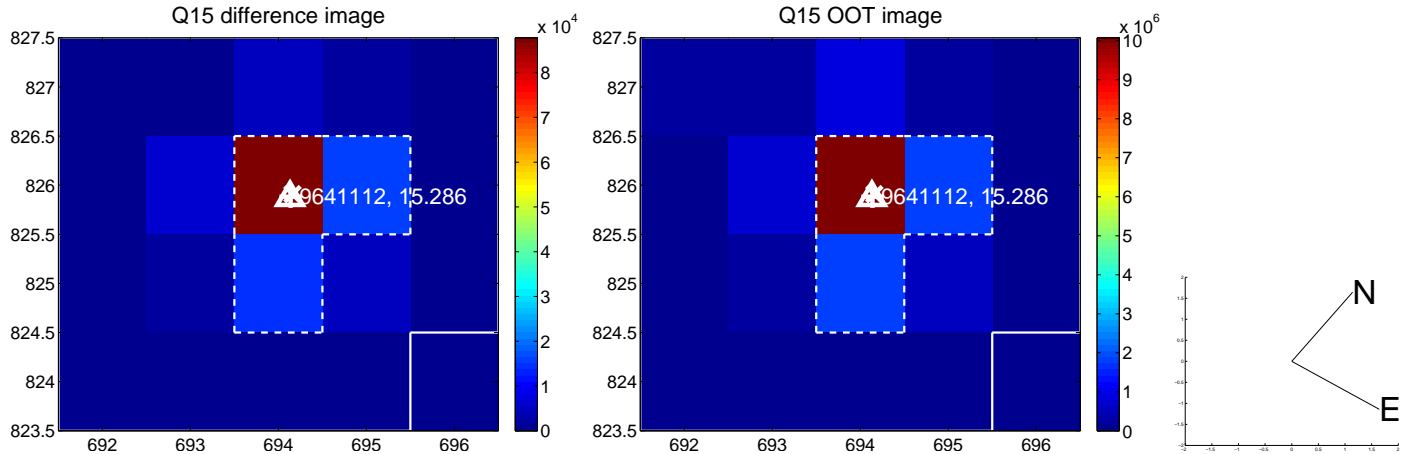
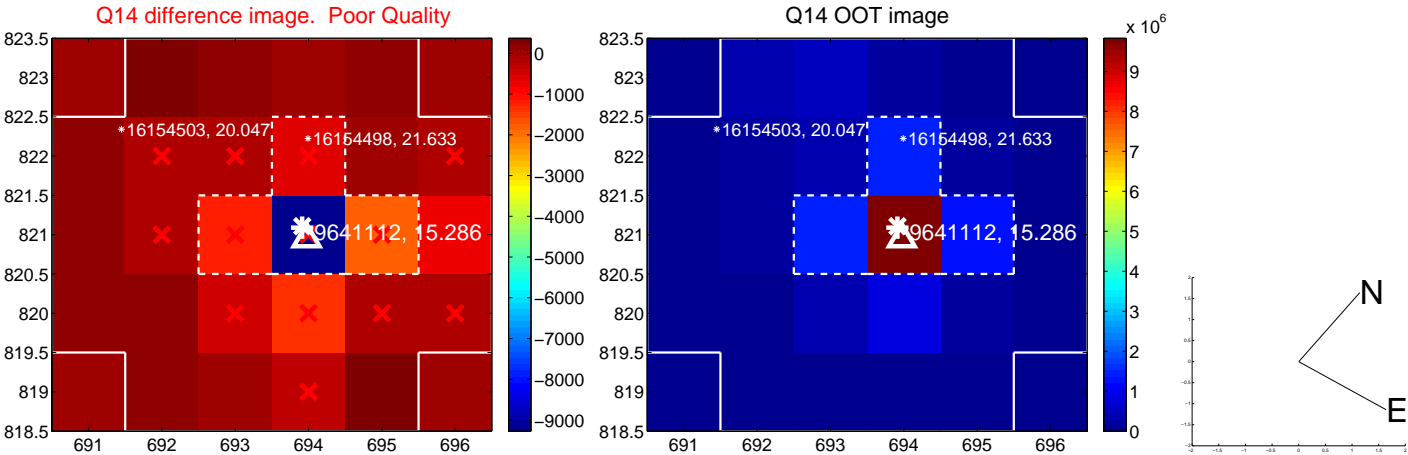
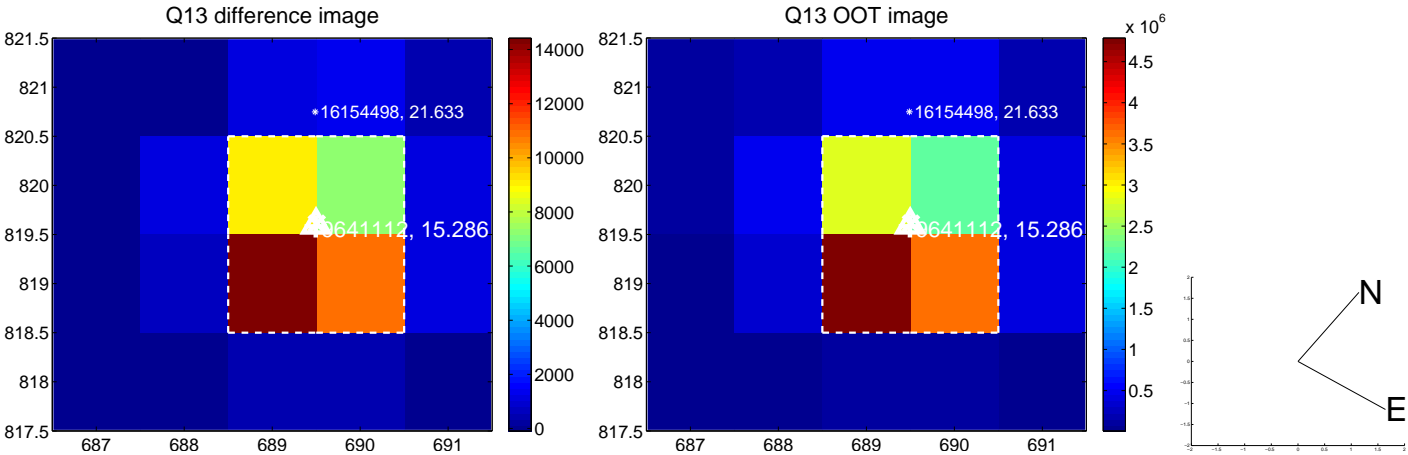
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



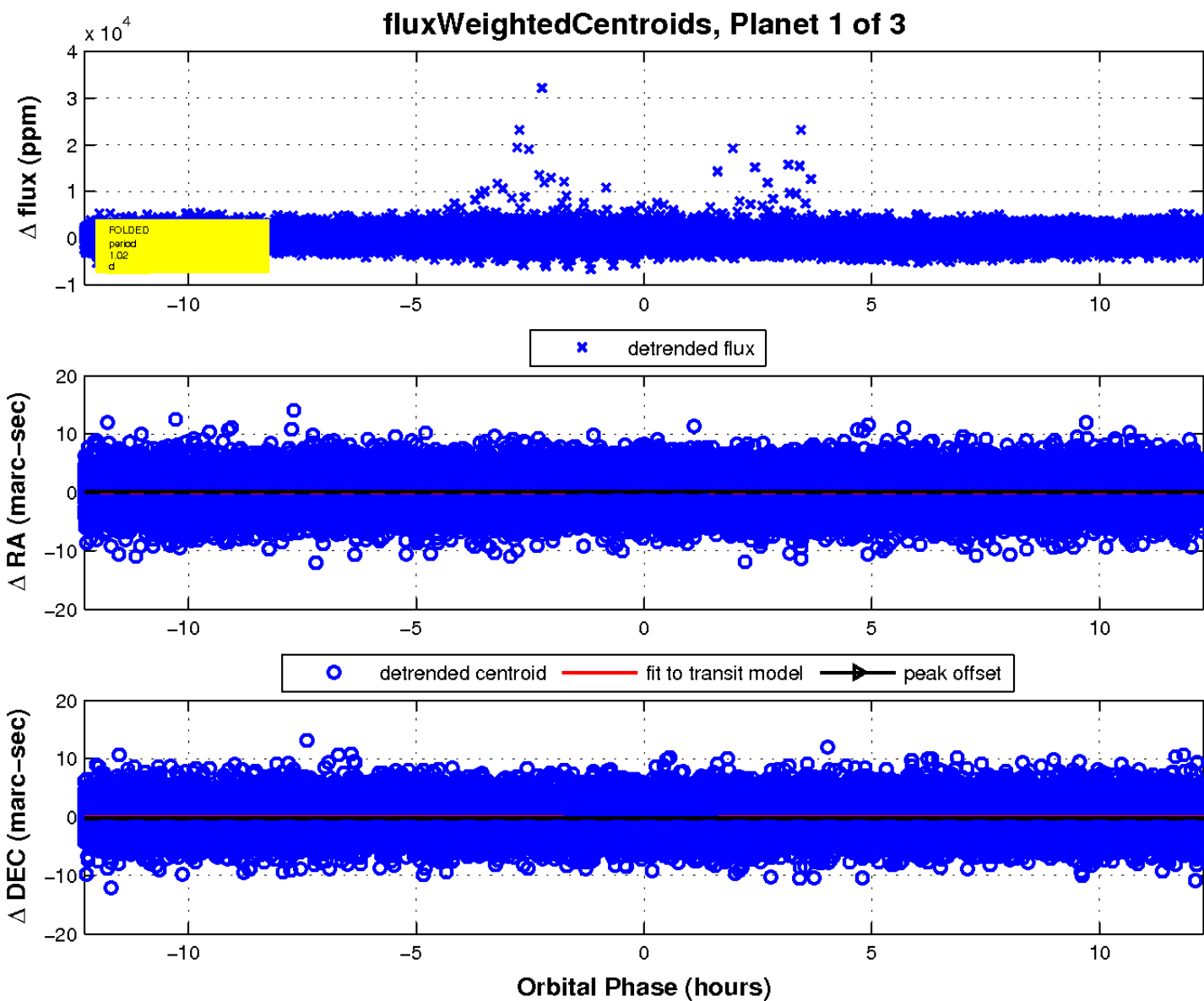
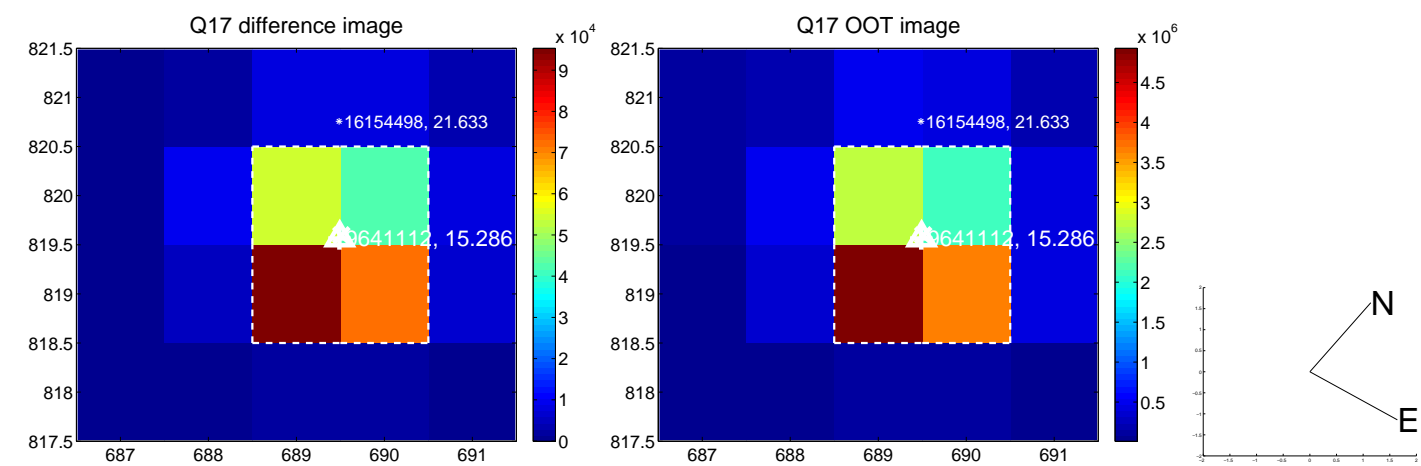
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

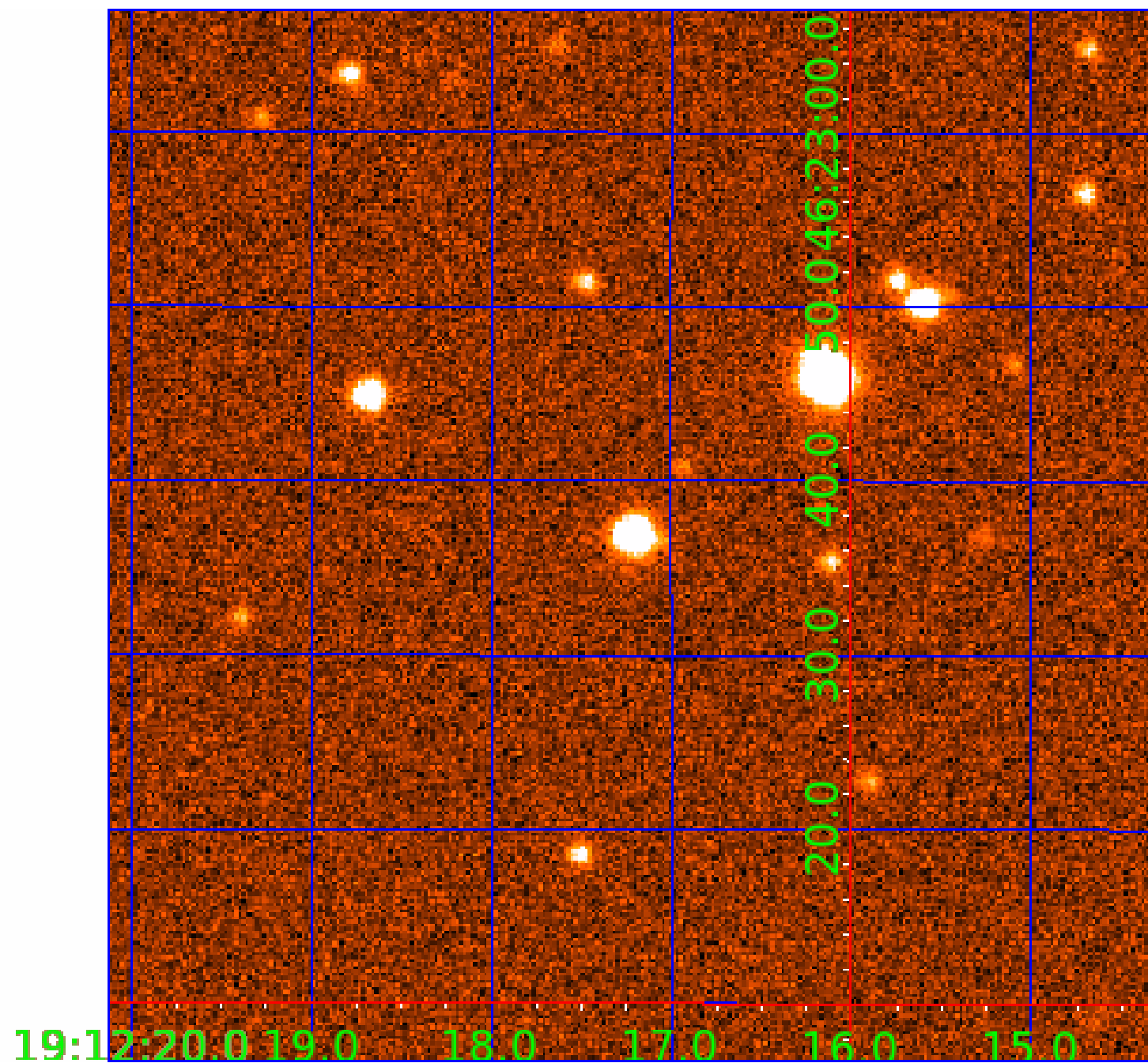


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



UKIRT Image

Declination



KIC 009641112

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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009641112-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
009641112-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV— MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

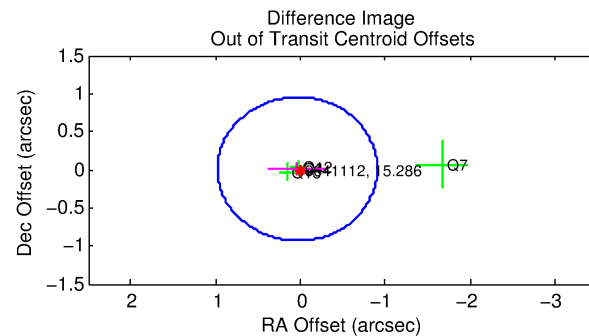
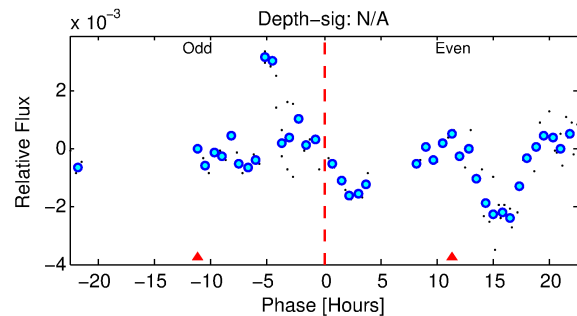
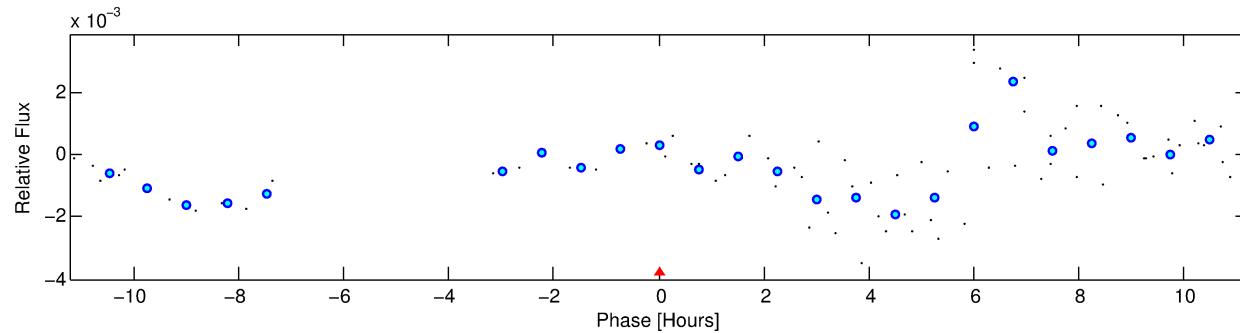
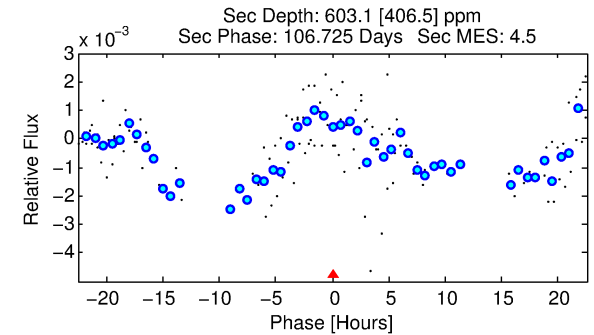
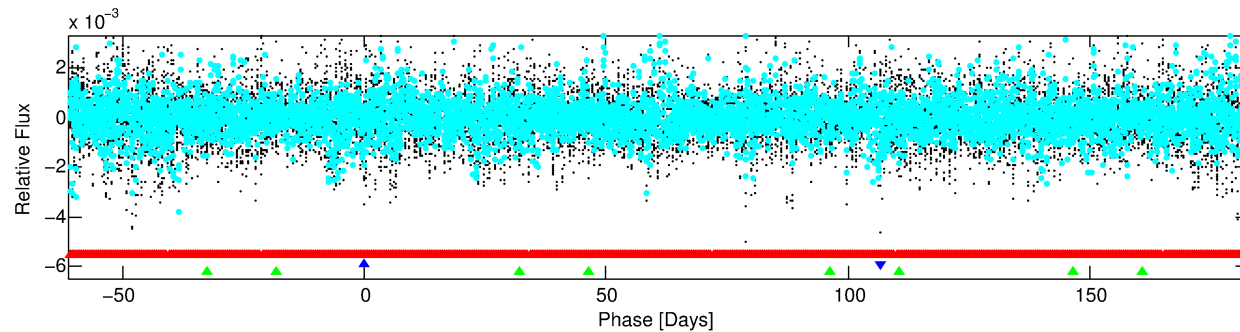
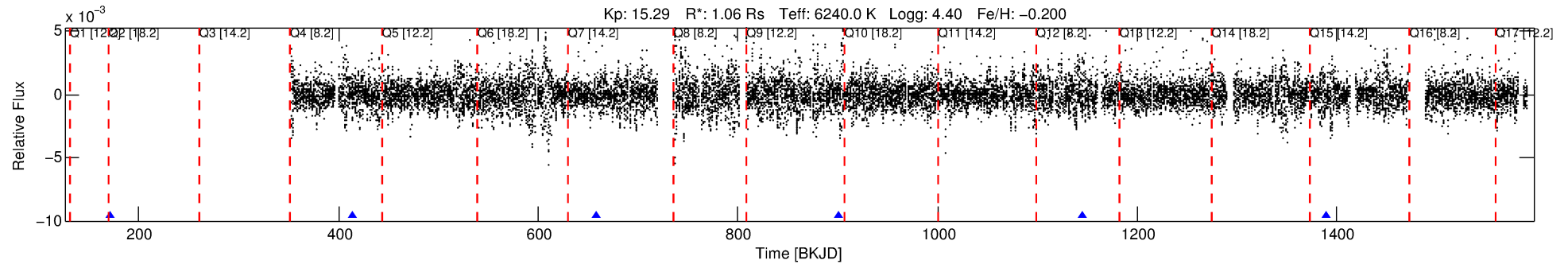
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009641112-02

No Significant Match Found

DV One-Page Summary

KIC: 9641112 Candidate: 2 of 3 Period: 243.536 d



TPS TCE Results:

Period = 243.53649 d
Epoch = 171.1633 BKJD

DV fit results are unavailable

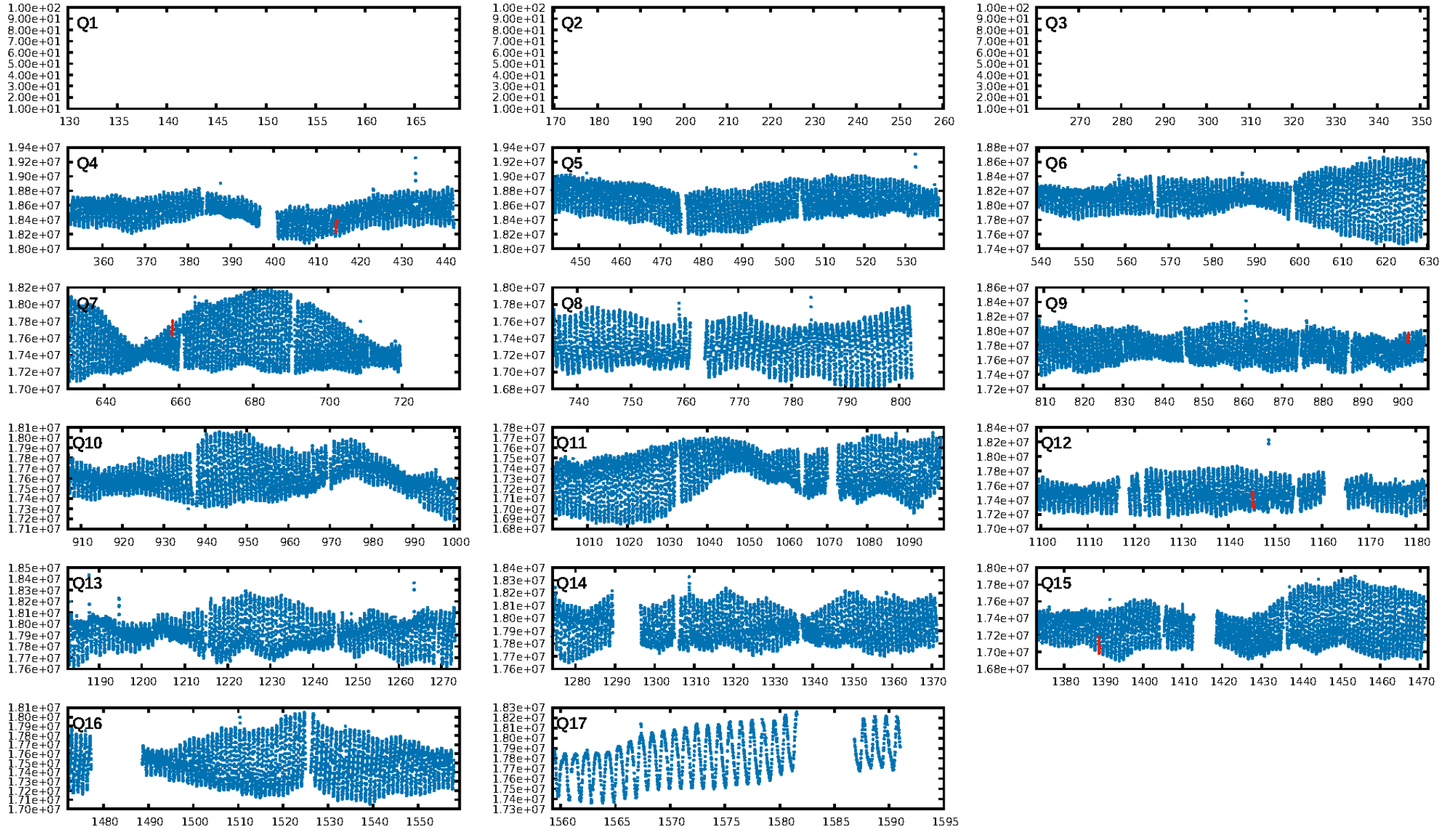
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [192.43σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.48e-09
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.9013
Centroid-sig: 89.9%
Centroid-so: 0.154 arcsec [0.33σ]
OotOffset-rm: 0.035 arcsec [0.11σ]
KicOffset-rm: 0.152 arcsec [1.43σ]
OotOffset-st: 0/2/2/0 [4]
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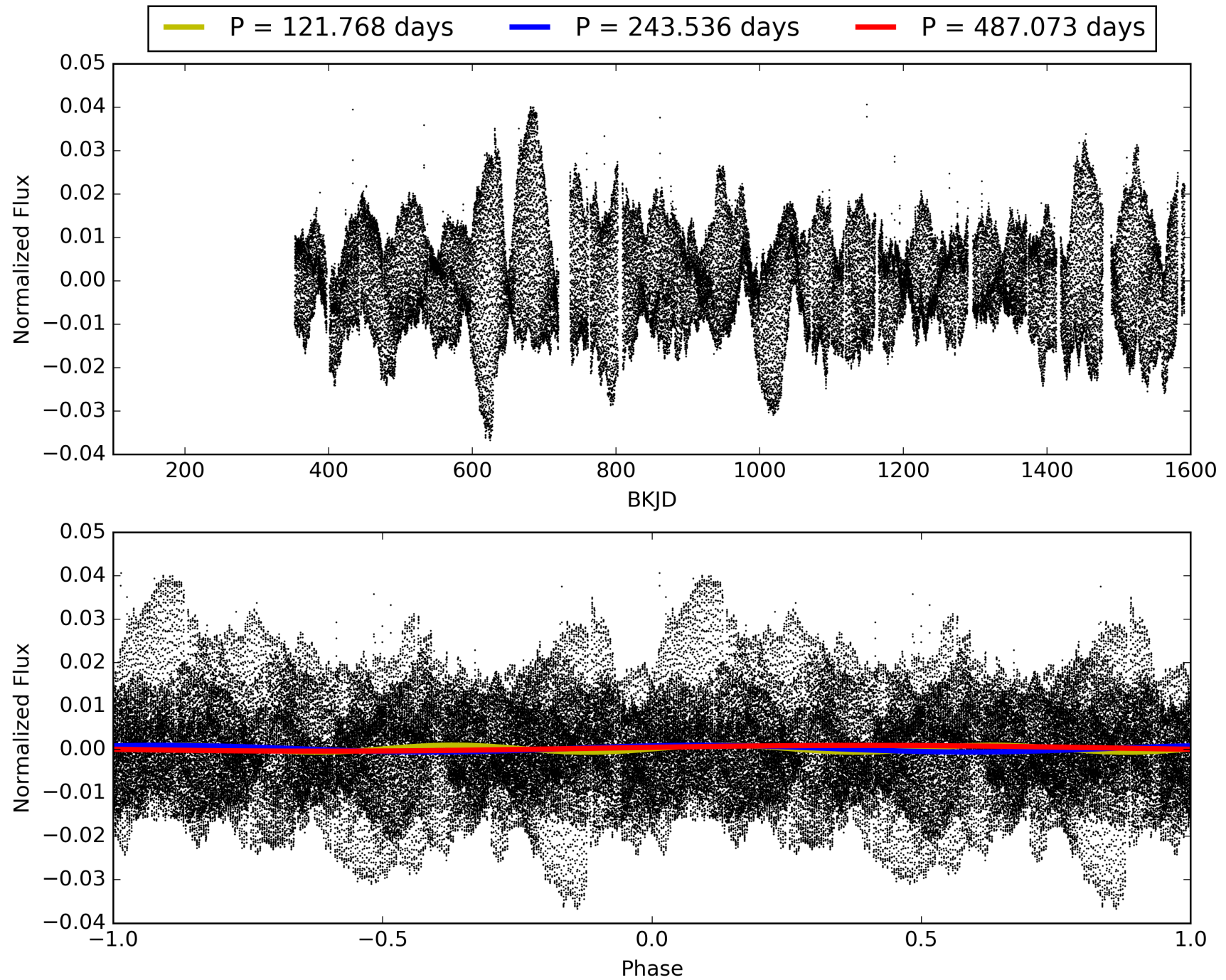
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:26:41 Z

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

TCE 009641112-02, PDC Light Curves

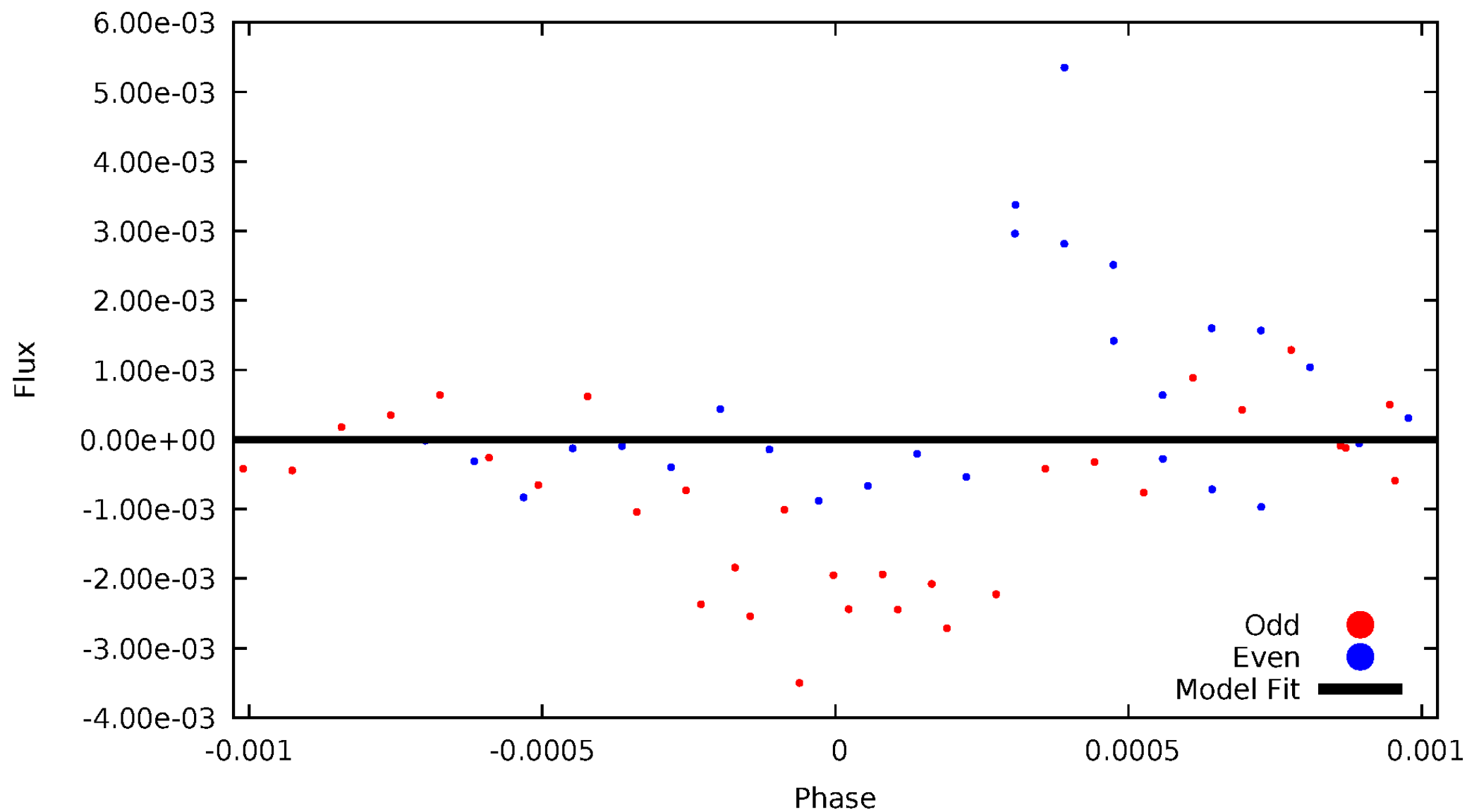


TCE 009641112-02



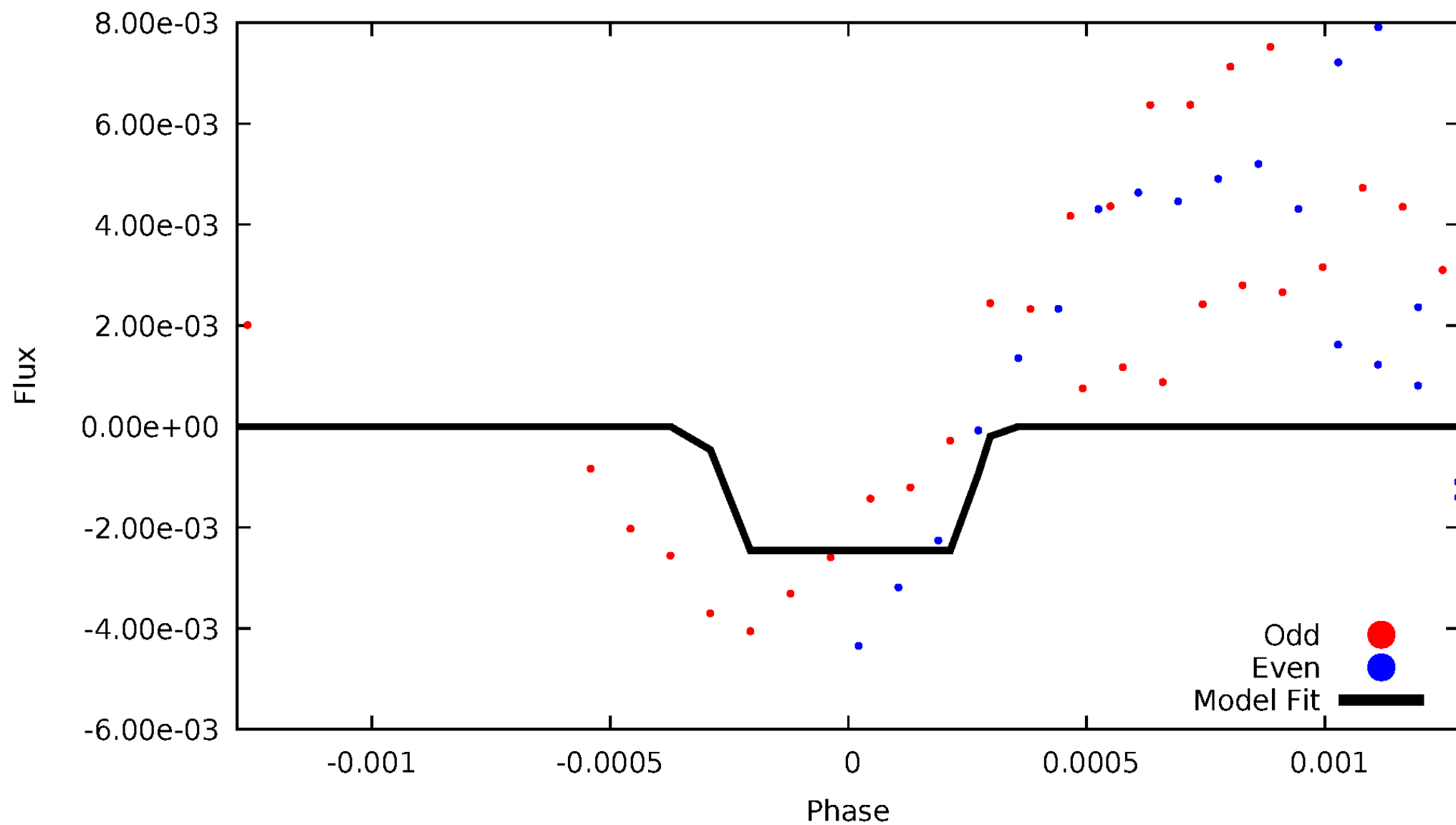
DV Odd/Even

TCE 009641112-02



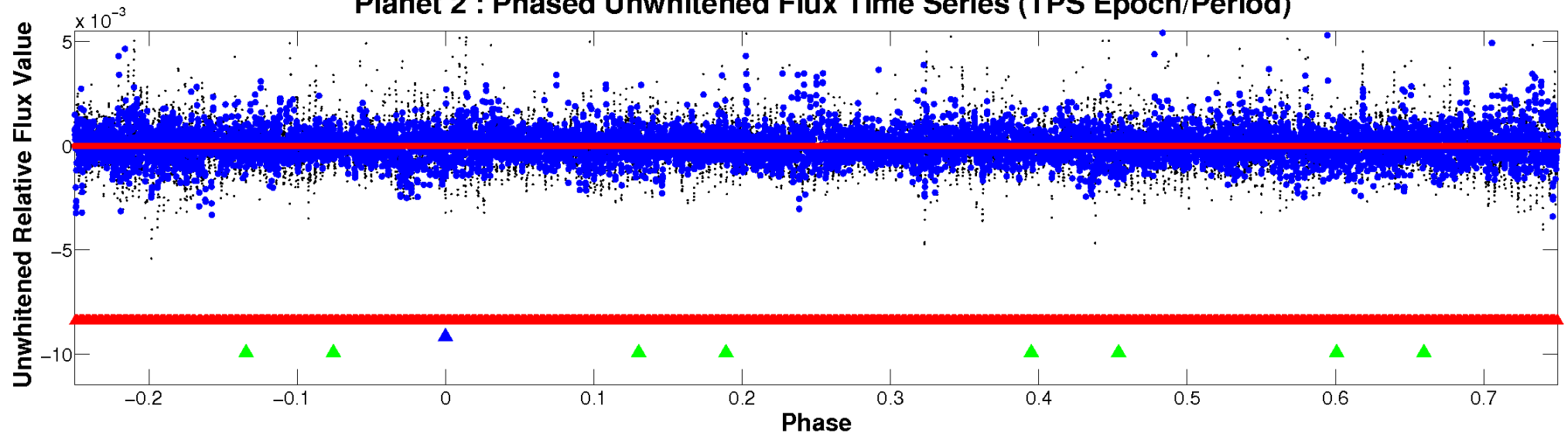
ALT Odd/Even

TCE 009641112-02

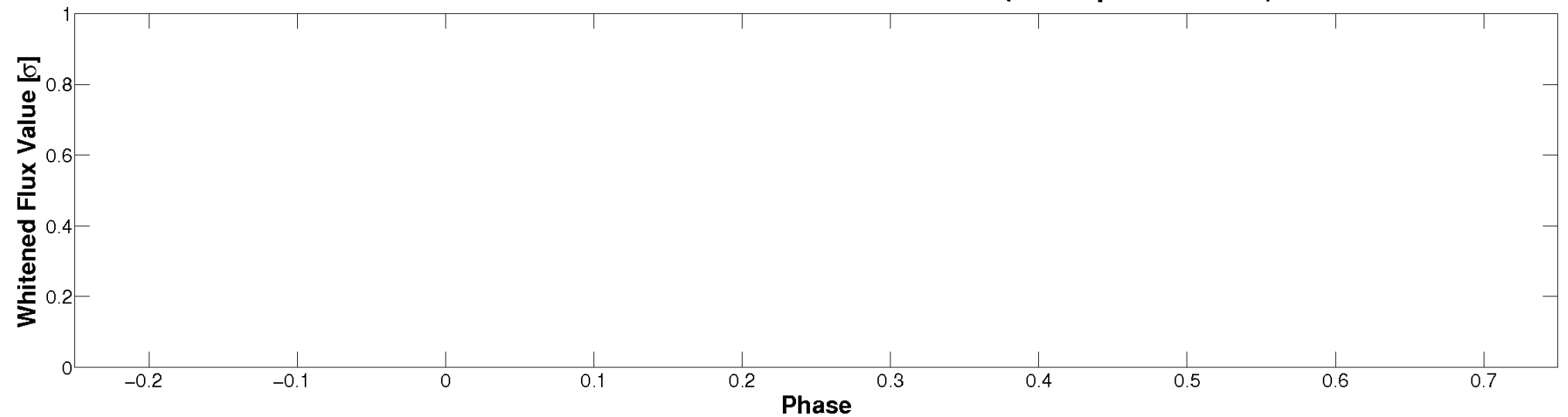


Non-Whitened Vs. Whitened Light Curve

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

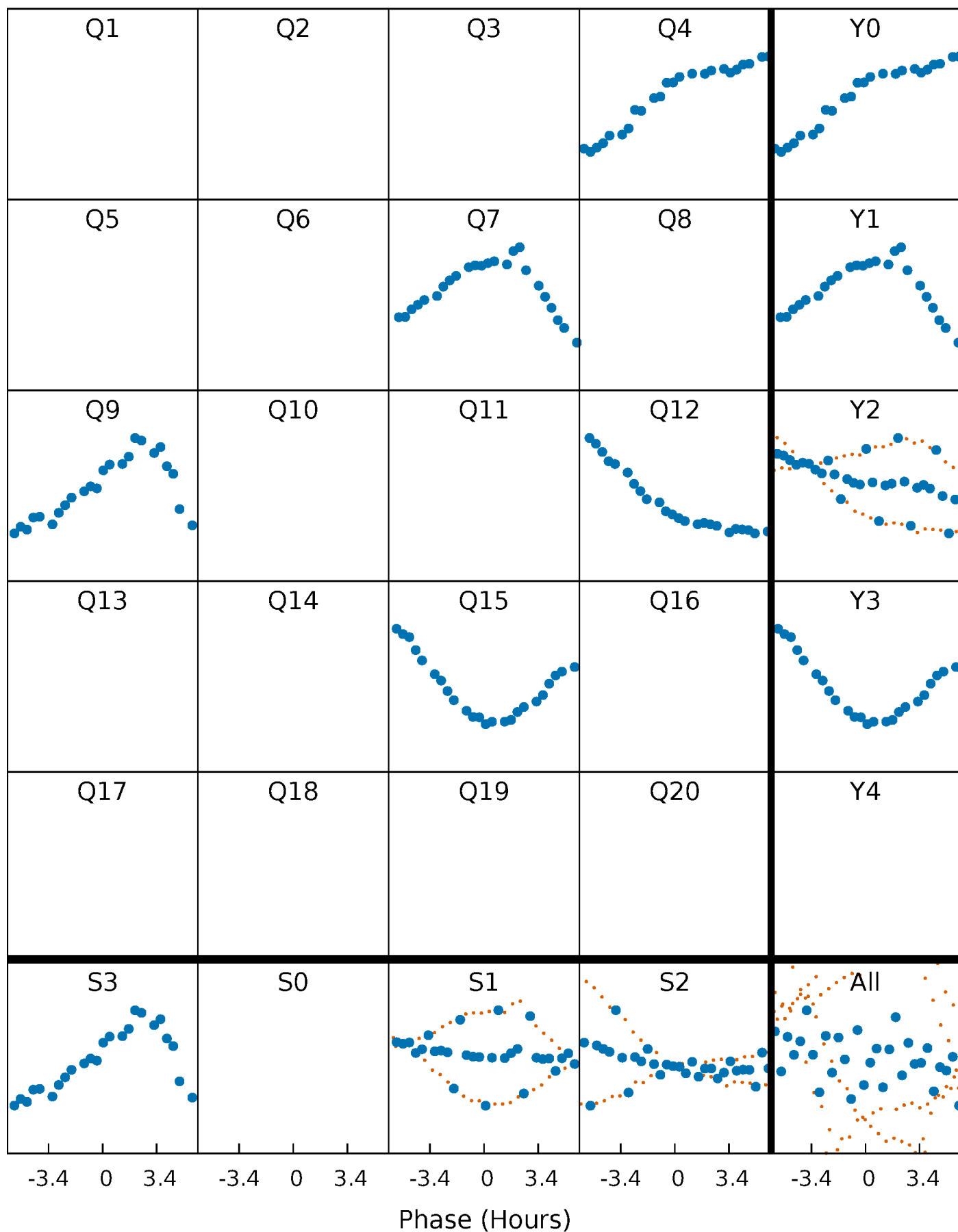


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



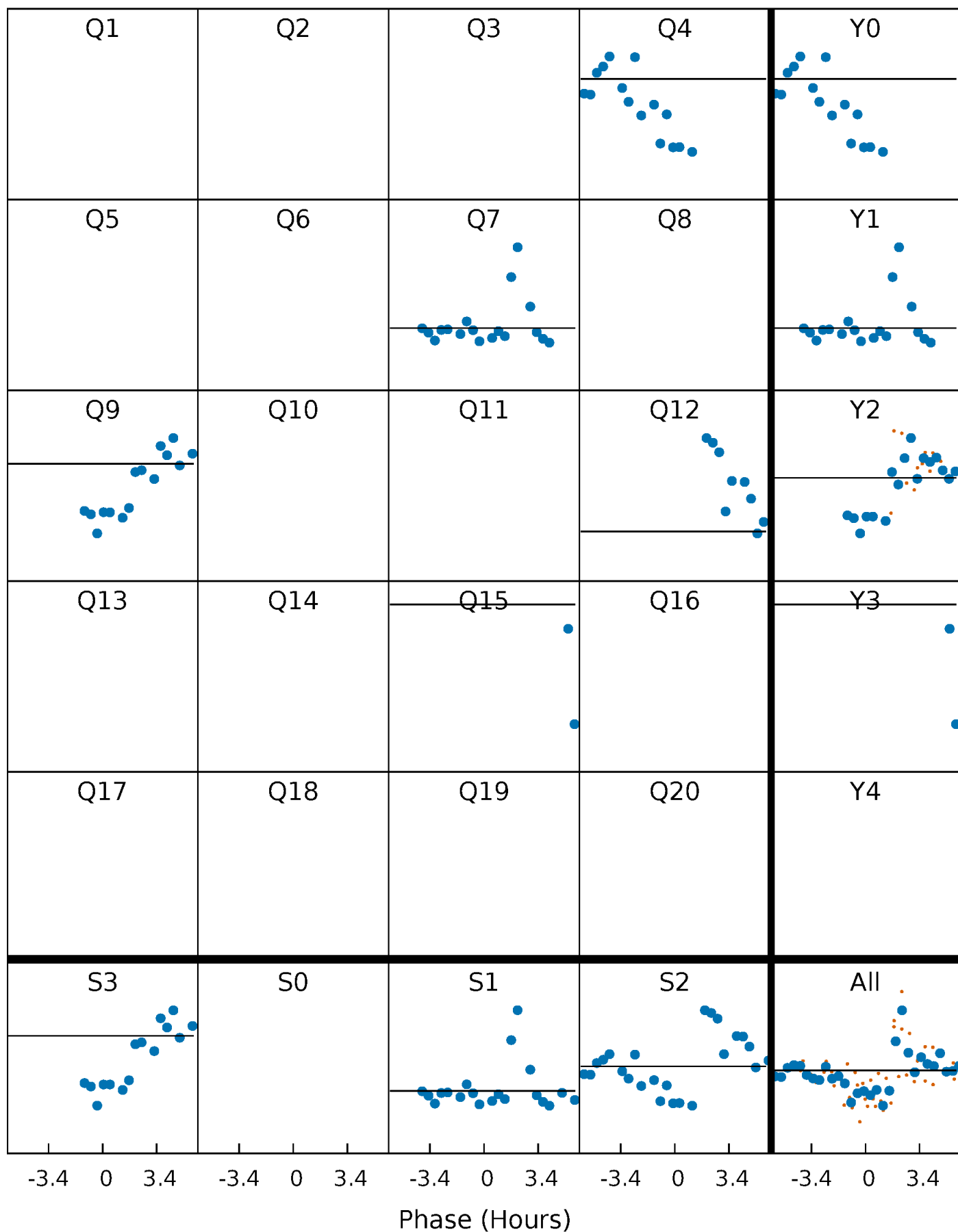
PDC Quarter-Phased Transit Curves

TCE 009641112-02 P=243.536491 Days $T_0=171.163286$ (BKJD)



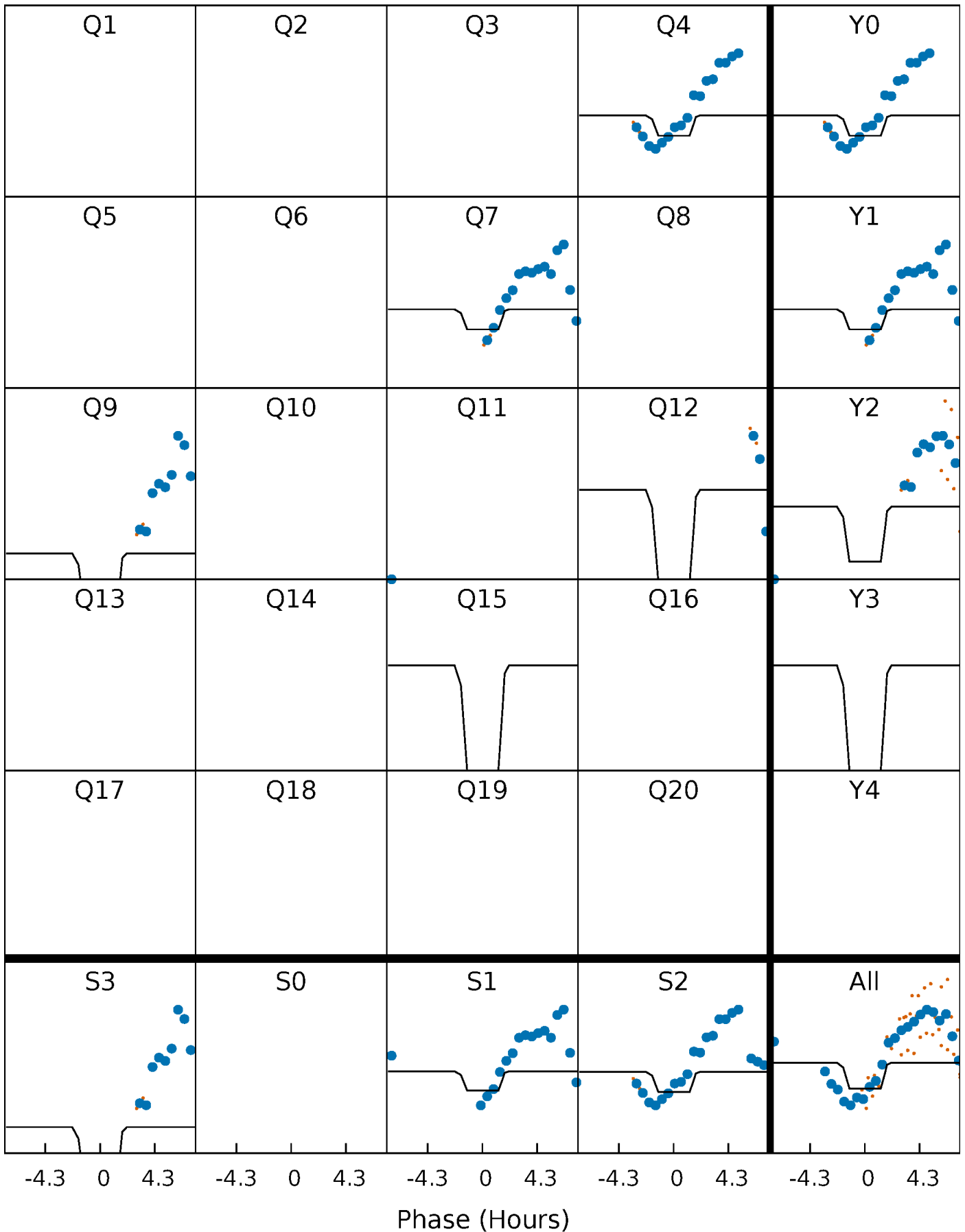
DV Quarter-Phased Transit Curves

TCE 009641112-02 P=243.536491 Days $T_0=171.163286$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

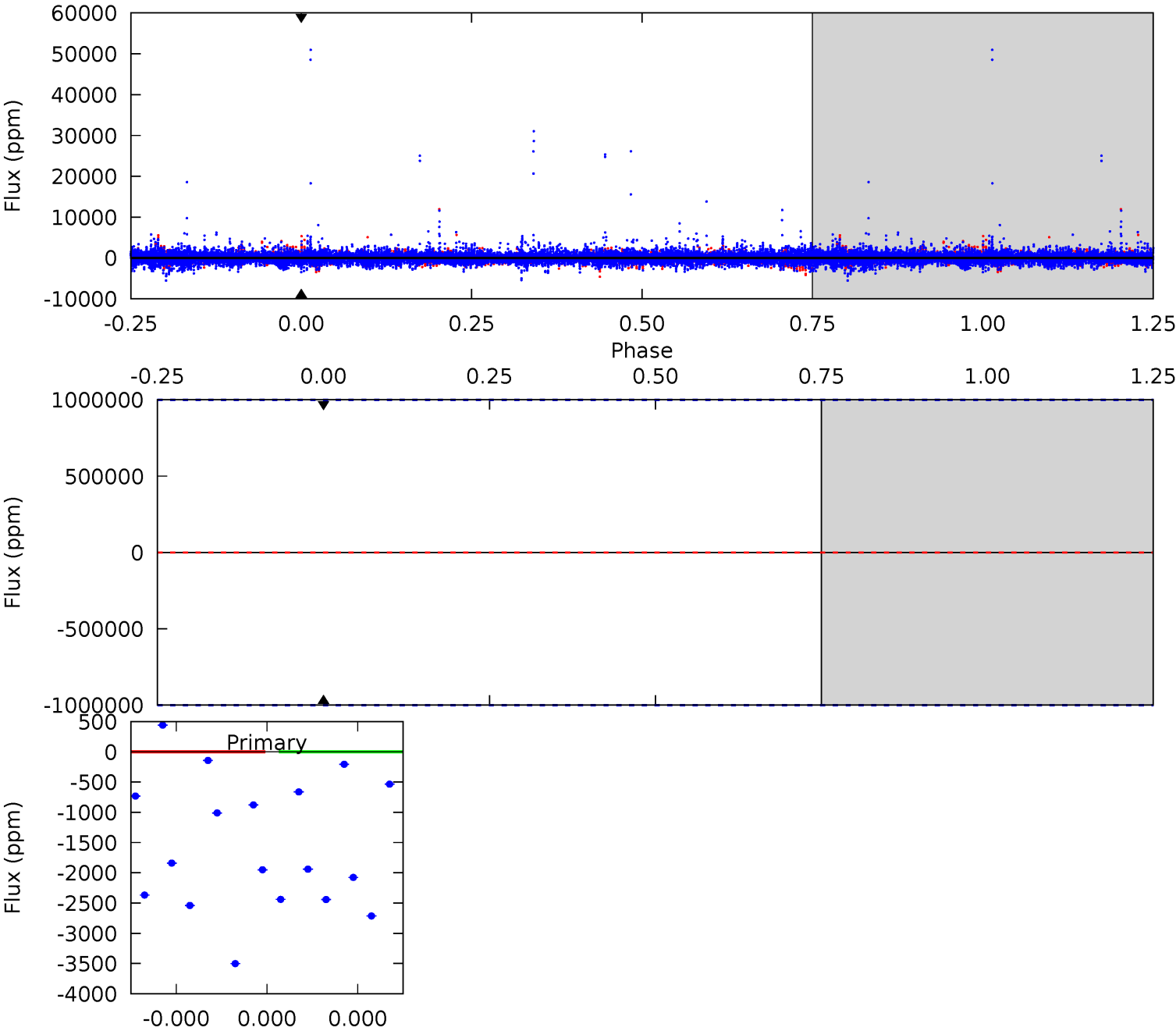
TCE 009641112-02 P=243.536491 Days $T_0=170.987690$ (BKJD)



DV Model-Shift Uniqueness Test

009641112-02, P = 243.536491 Days, E = 171.163286 Days

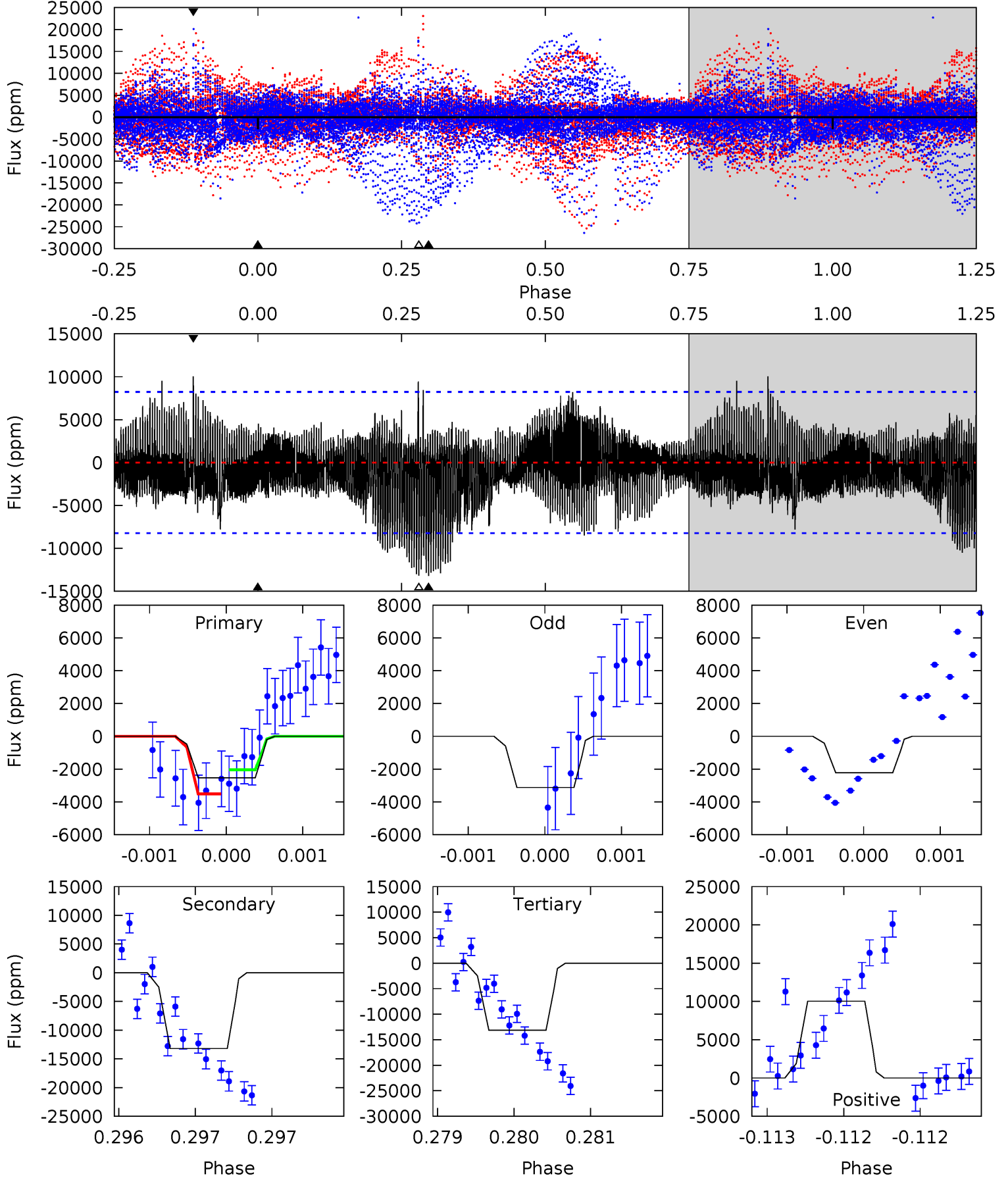
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009641112-02, P = 243.536491 Days, E = 170.987690 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.70	8.90	8.87	6.76	5.55	3.45	1.87	-7.16	-5.06	0.03	2.13	0.30	1.00	0.43	0.40



Stellar Parameters For KIC 009641112

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6240^{+197}_{-263}	$4.397^{+0.087}_{-0.203}$	$-0.200^{+0.250}_{-0.300}$	$1.064^{+0.339}_{-0.145}$	$1.025^{+0.173}_{-0.129}$	$1.200^{+0.465}_{-0.644}$
	+3%/-4%	+2%/-5%	+125%/-150%	+32%/-14%	+17%/-13%	+39%/-54%
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 009641112-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$9.92^{+9.78}_{-6.34}$	457^{+33}_{-27}	5374^{+20389}_{-22123}	$11748^{+730205}_{-404790}$
Alt.	-13191 ± 1482	$11.75^{+10.10}_{-7.90}$	457^{+36}_{-28}	6747^{+8633}_{-1722}	$31542^{+259568}_{-22303}$

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 $A_{obs} \gg 1.0$

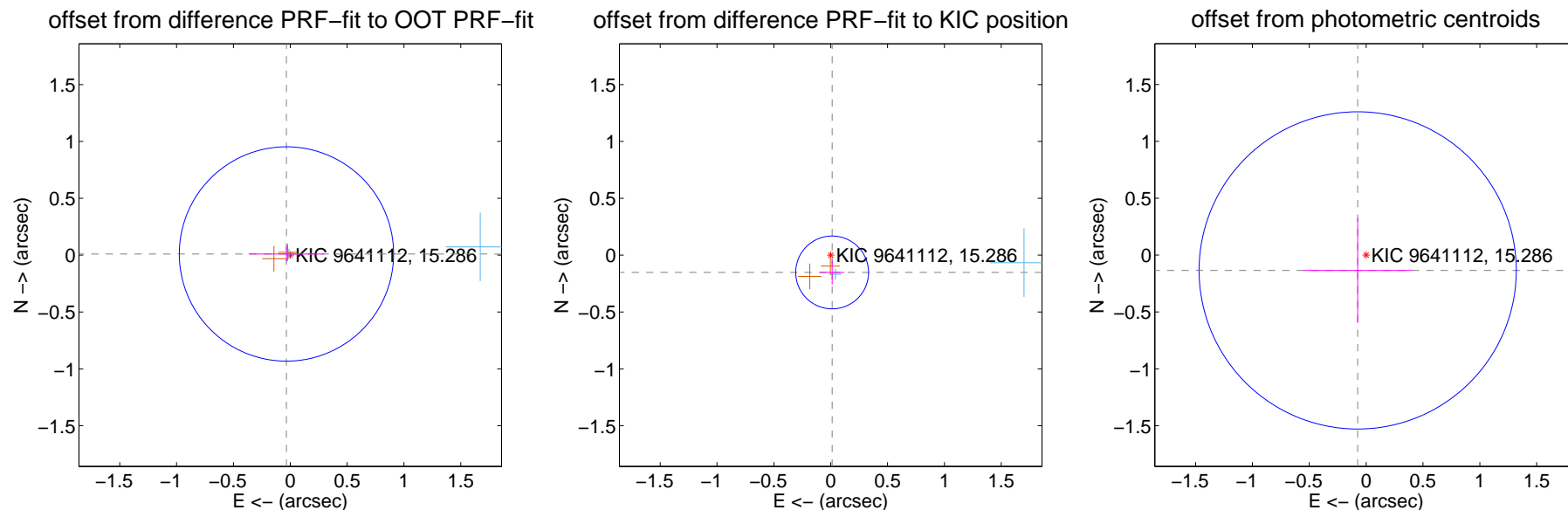
DV Centroid Data

Supplemental centroid analysis for 009641112-02. Kepler magnitude: 15.29. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

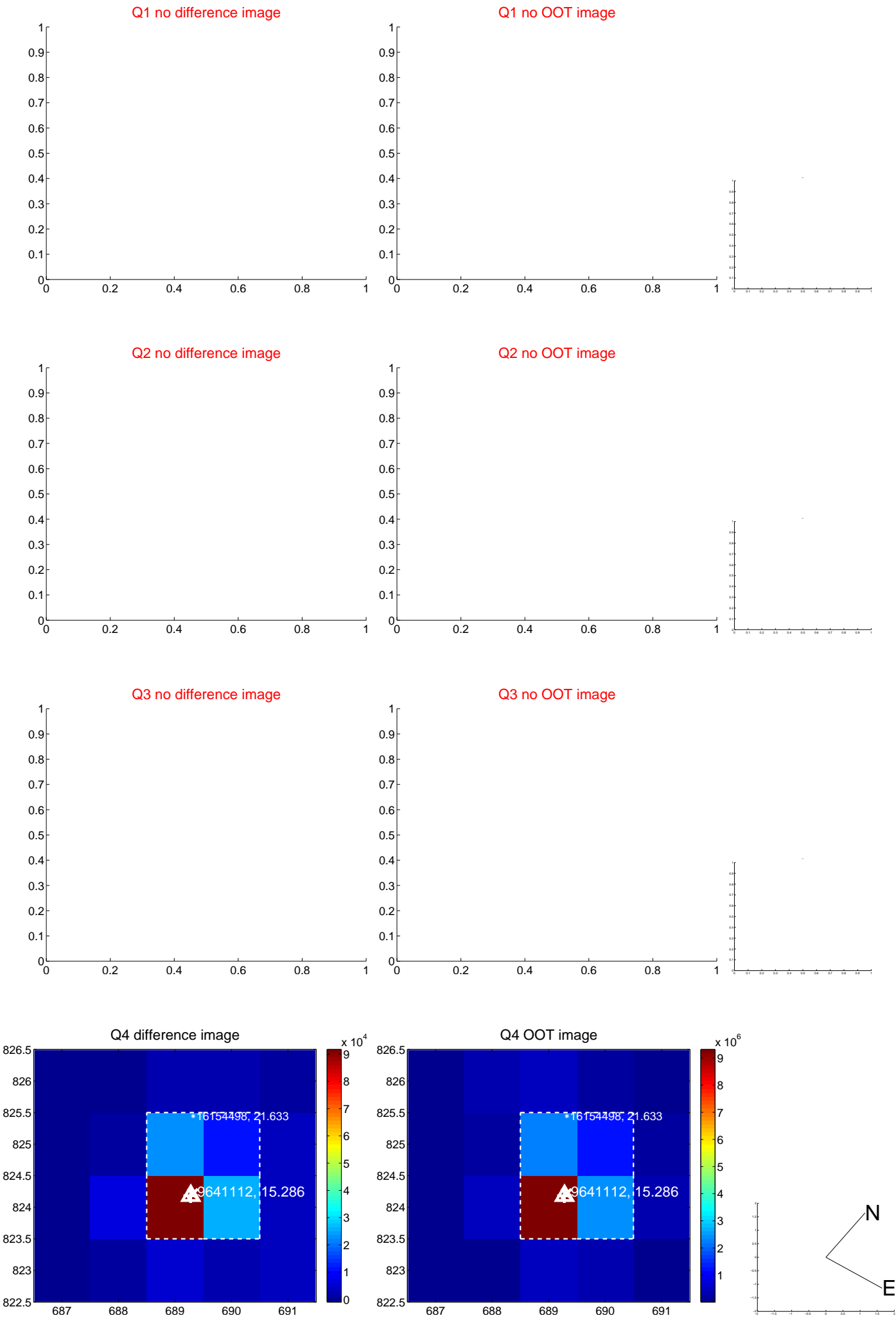
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.035 ± 0.314	0.11	0.033 ± 0.333	0.010 ± 0.069
PRF-fit source offset from KIC position	0.152 ± 0.107	1.43	-0.012 ± 0.107	-0.152 ± 0.107
photometric centroid source offset	0.15 ± 0.46	0.33	0.07 ± 0.48	-0.13 ± 0.46



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.

Q5 no difference image



Q5 no OOT image



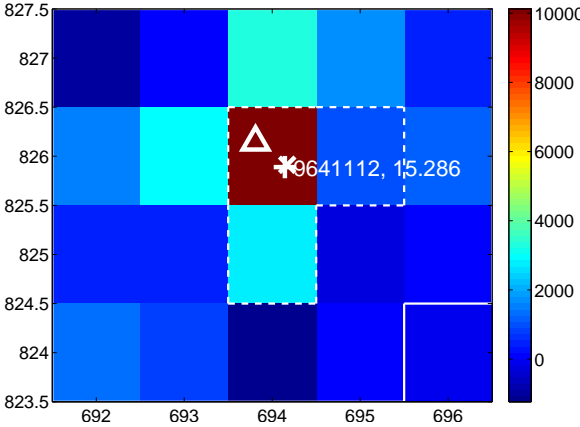
Q6 no difference image



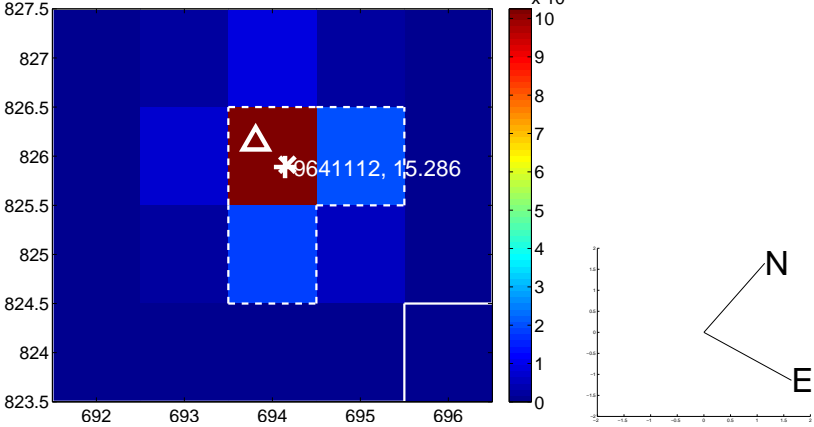
Q6 no OOT image



Q7 difference image



Q7 OOT image



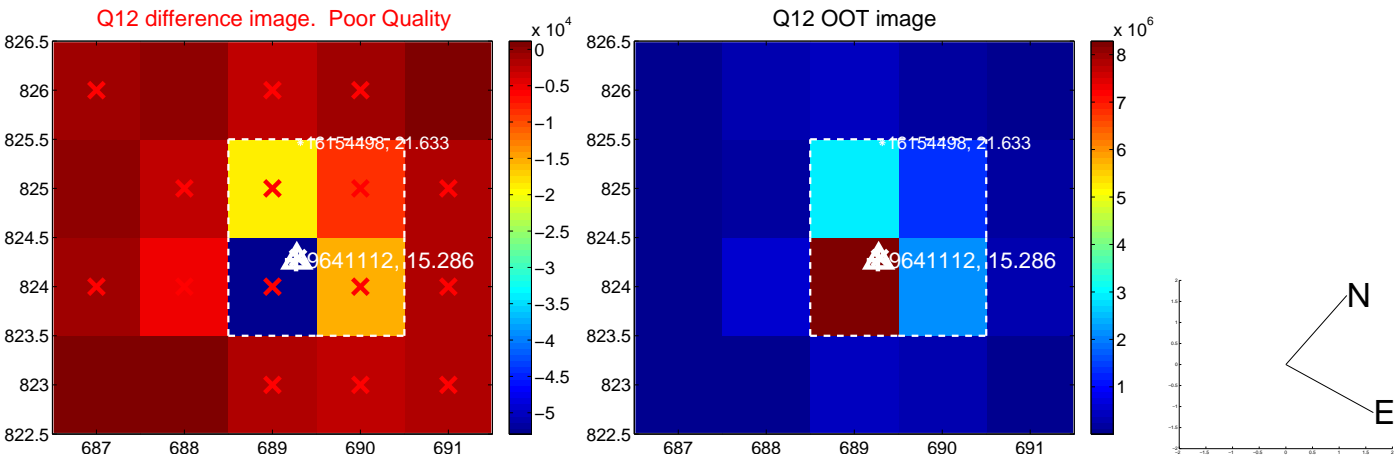
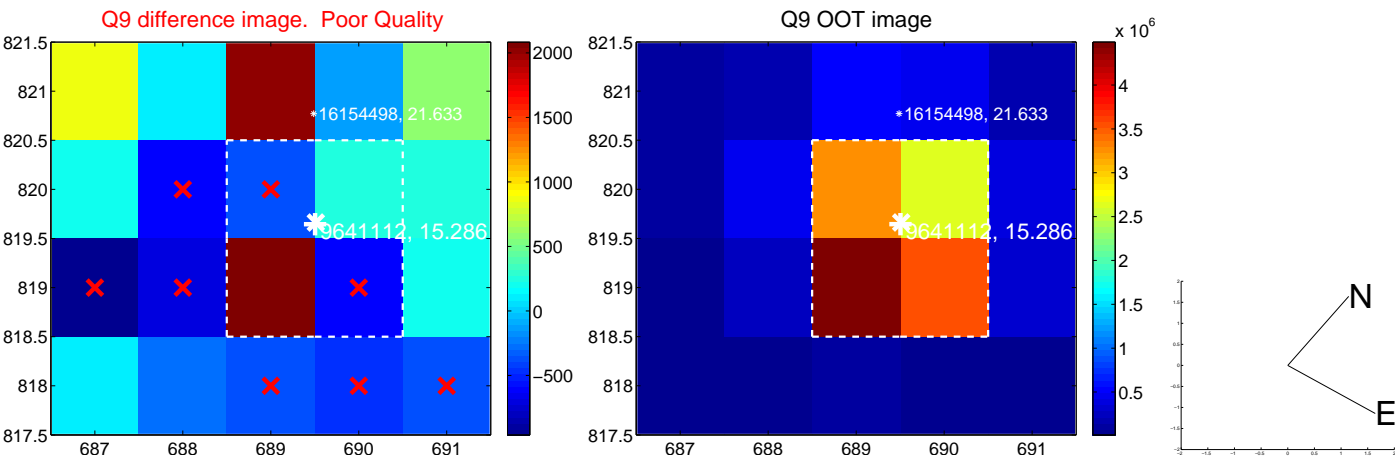
Q8 no difference image



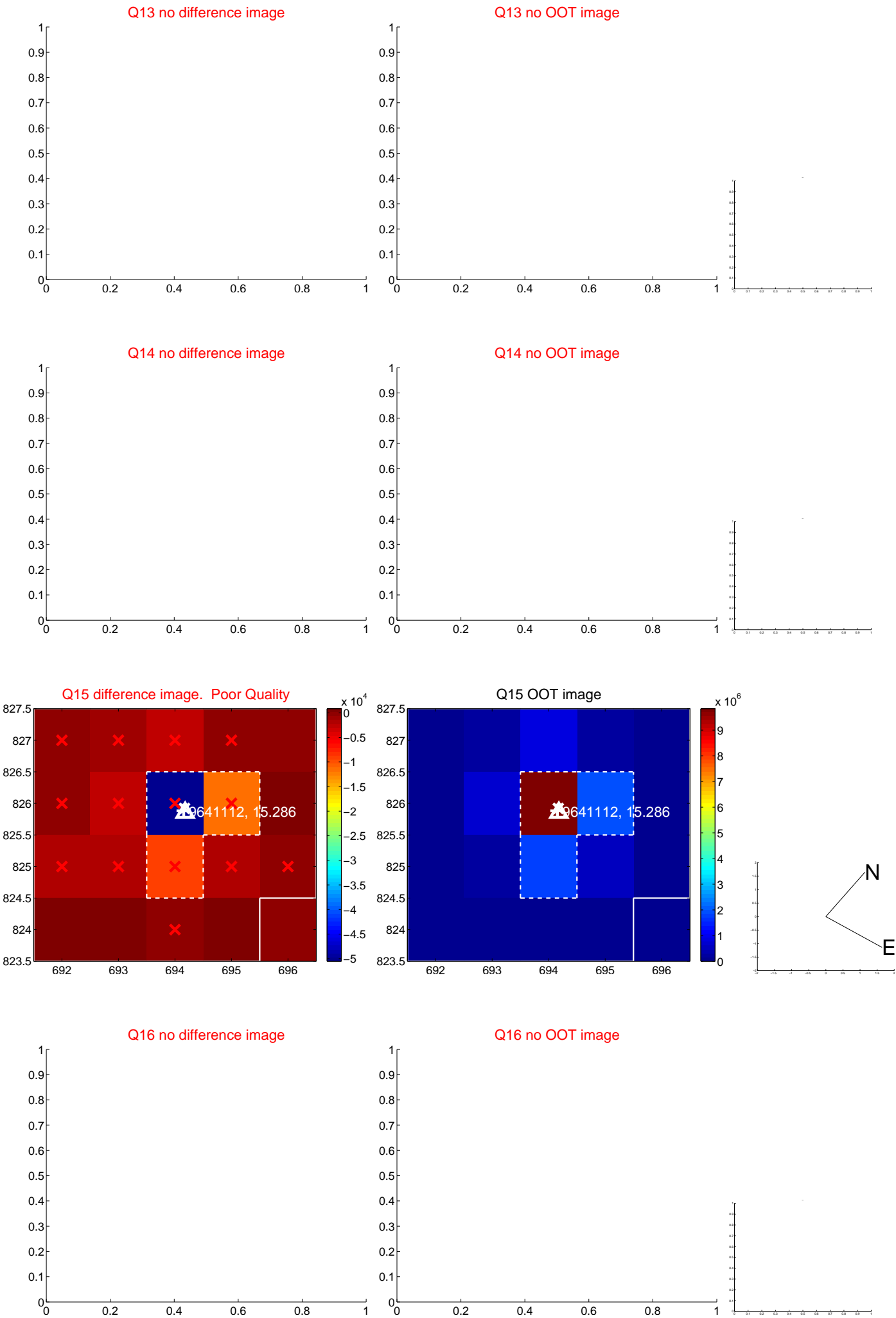
Q8 no OOT image



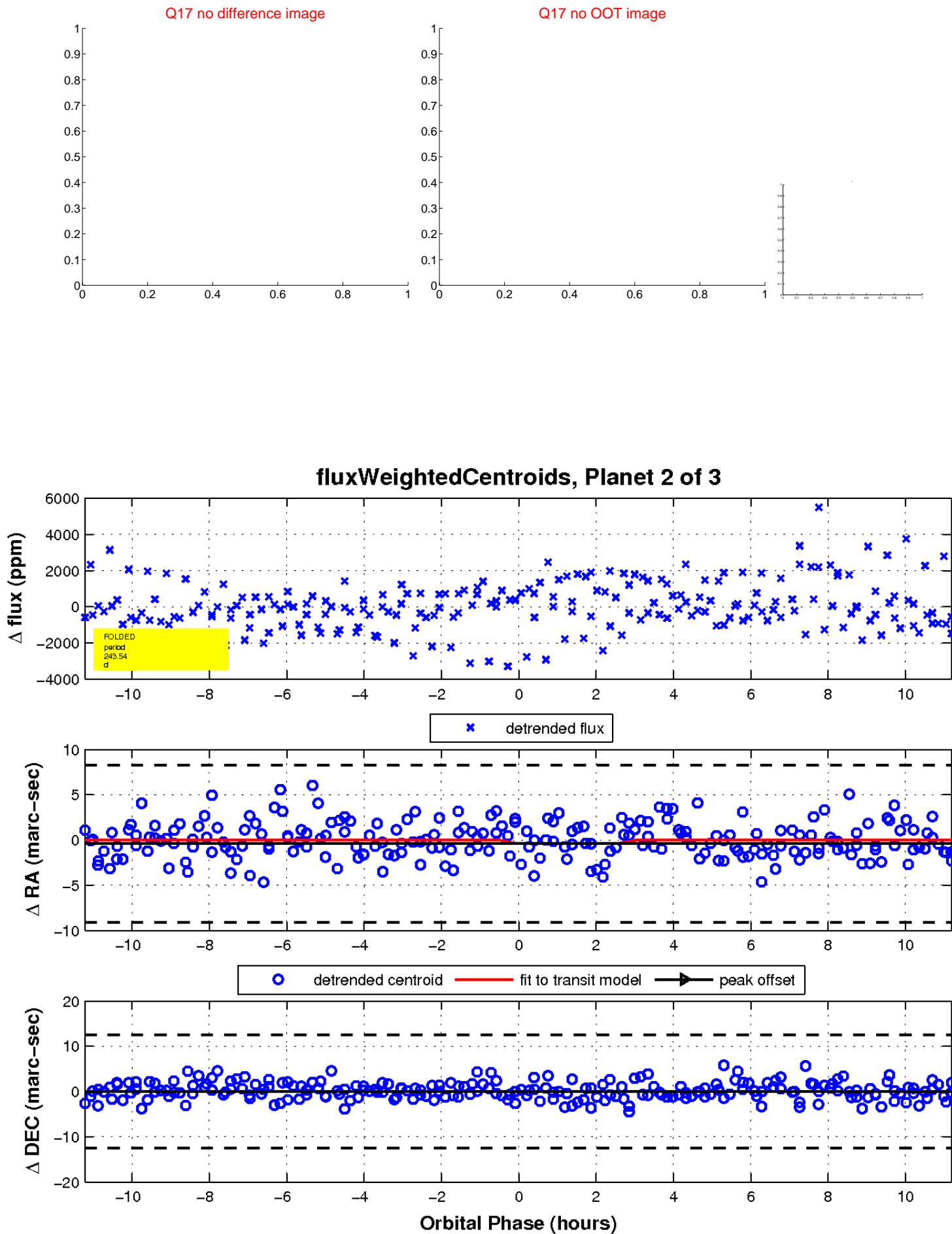
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

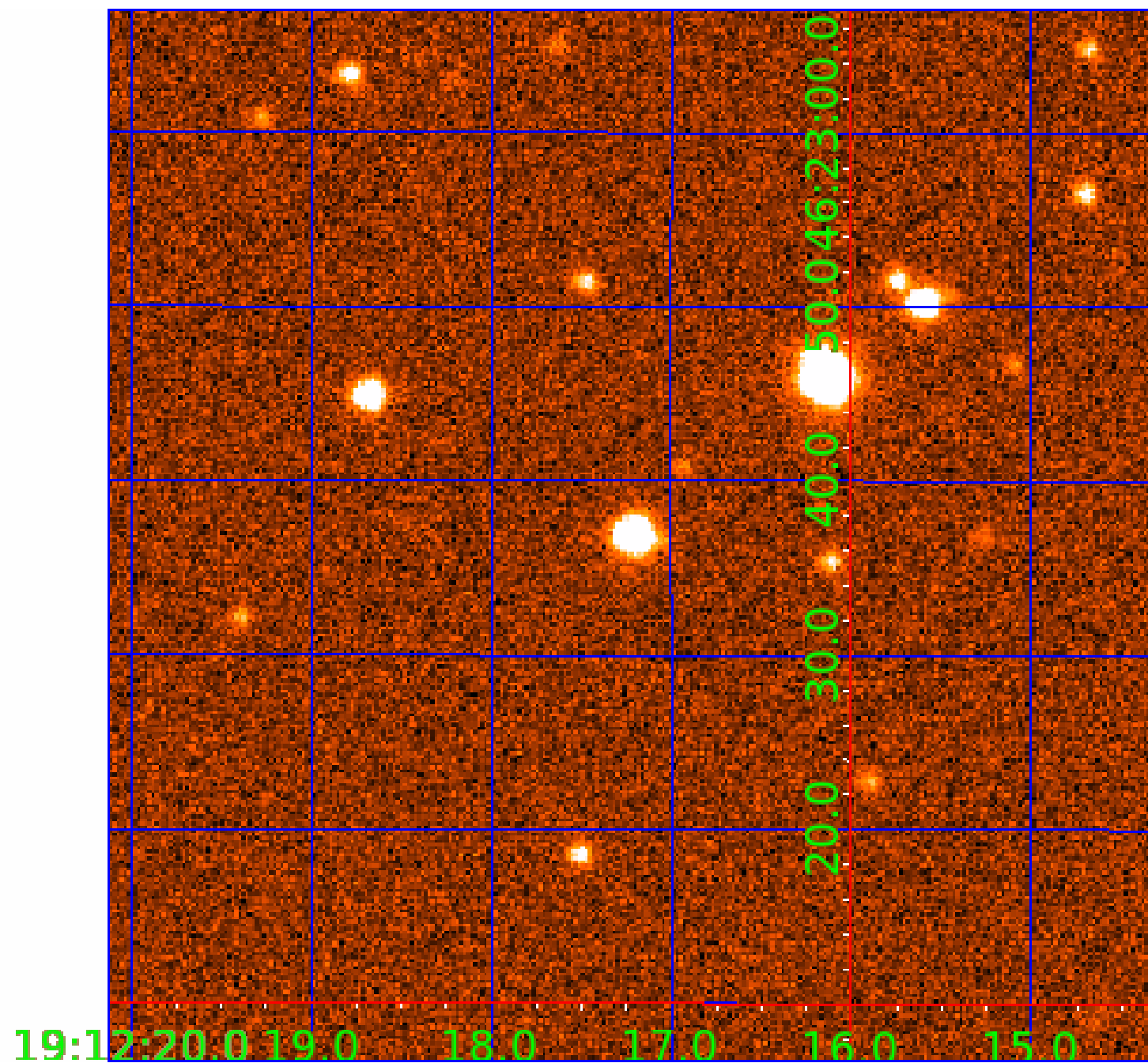


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009641112

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})
009641112-01	OBS	No	1.023790	132.518173	105.8	5.117	9.1	6.3	1.06	6240	1.51	3813.40
009641112-02	OBS	No	243.536491	171.163286	1449.4	3.000	9.2	-1.0	1.06	6240	4.06	2.59
009641112-03	OBS	No	179.069237	281.690553	1297.2	7.460	7.8	5.4	1.06	6240	4.24	3.90

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009641112-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009641112-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_NOFITS
009641112-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV— MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

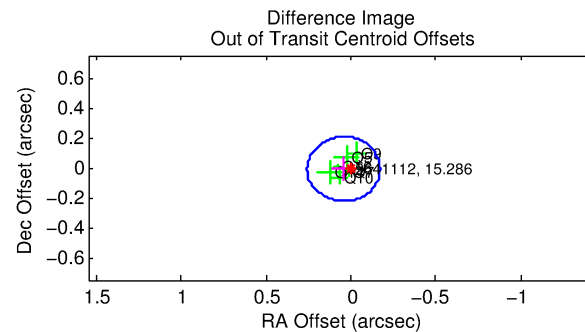
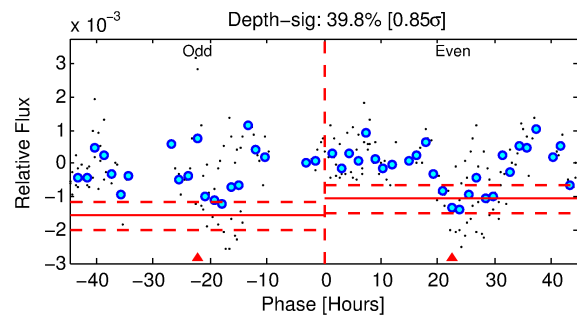
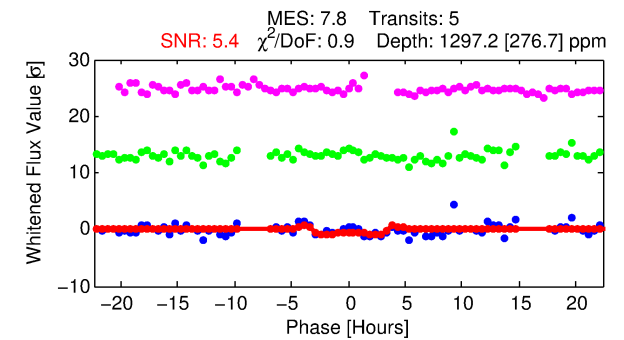
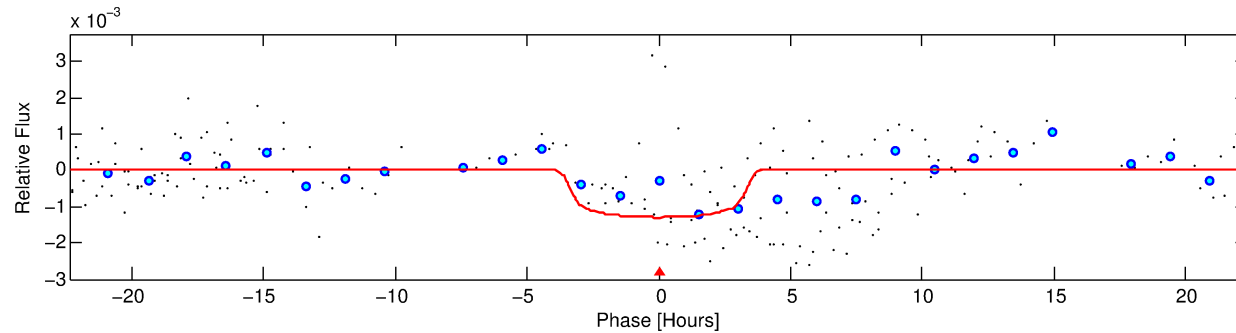
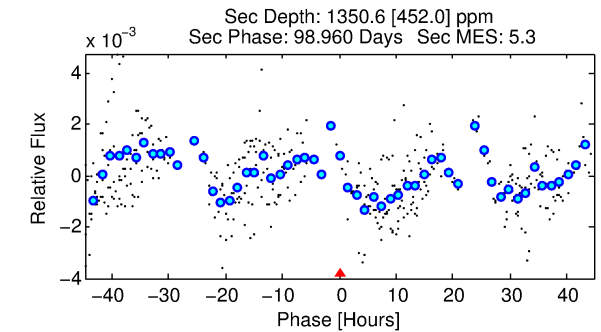
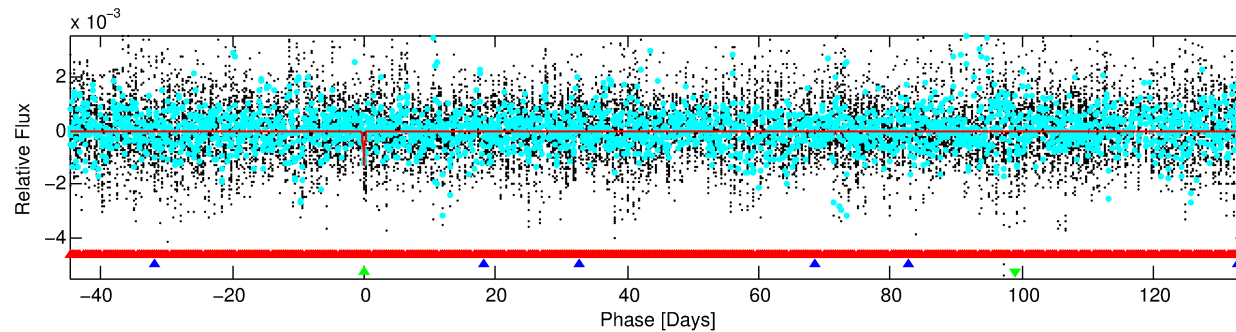
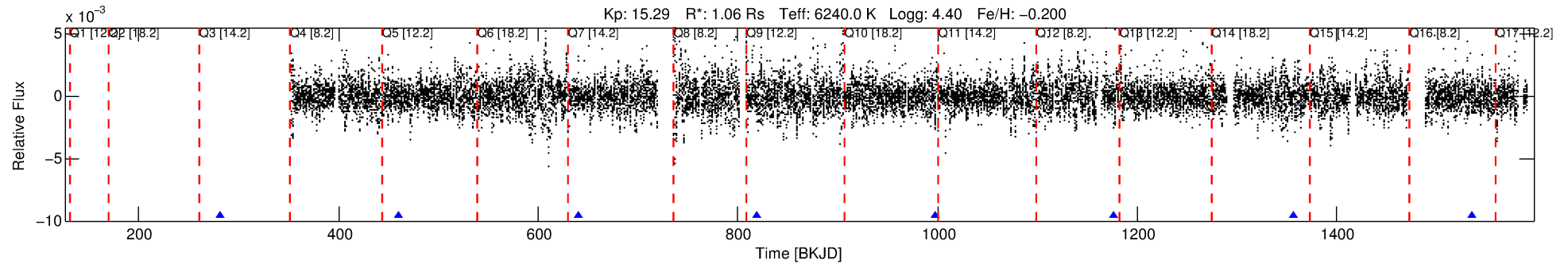
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009641112-03

No Significant Match Found

DV One-Page Summary

KIC: 9641112 Candidate: 3 of 3 Period: 179.069 d



DV Fit Results:

Period = 179.06924 [0.00705] d
Epoch = 281.6906 [0.0198] BKJD
Rp/R* = 0.0365 [0.0069]
a/R* = 120.25 [84.15]
b = 0.80 [0.31]
Seff = 3.90 [1.61]
Teq = 358 [37] K
Rp = 4.24 [1.57] Re
a = 0.6281 [0.1654] AU
Ag = 16280.04 [10243.63] [1.59 σ]
Teffp = 6258 [831] K [7.09 σ]

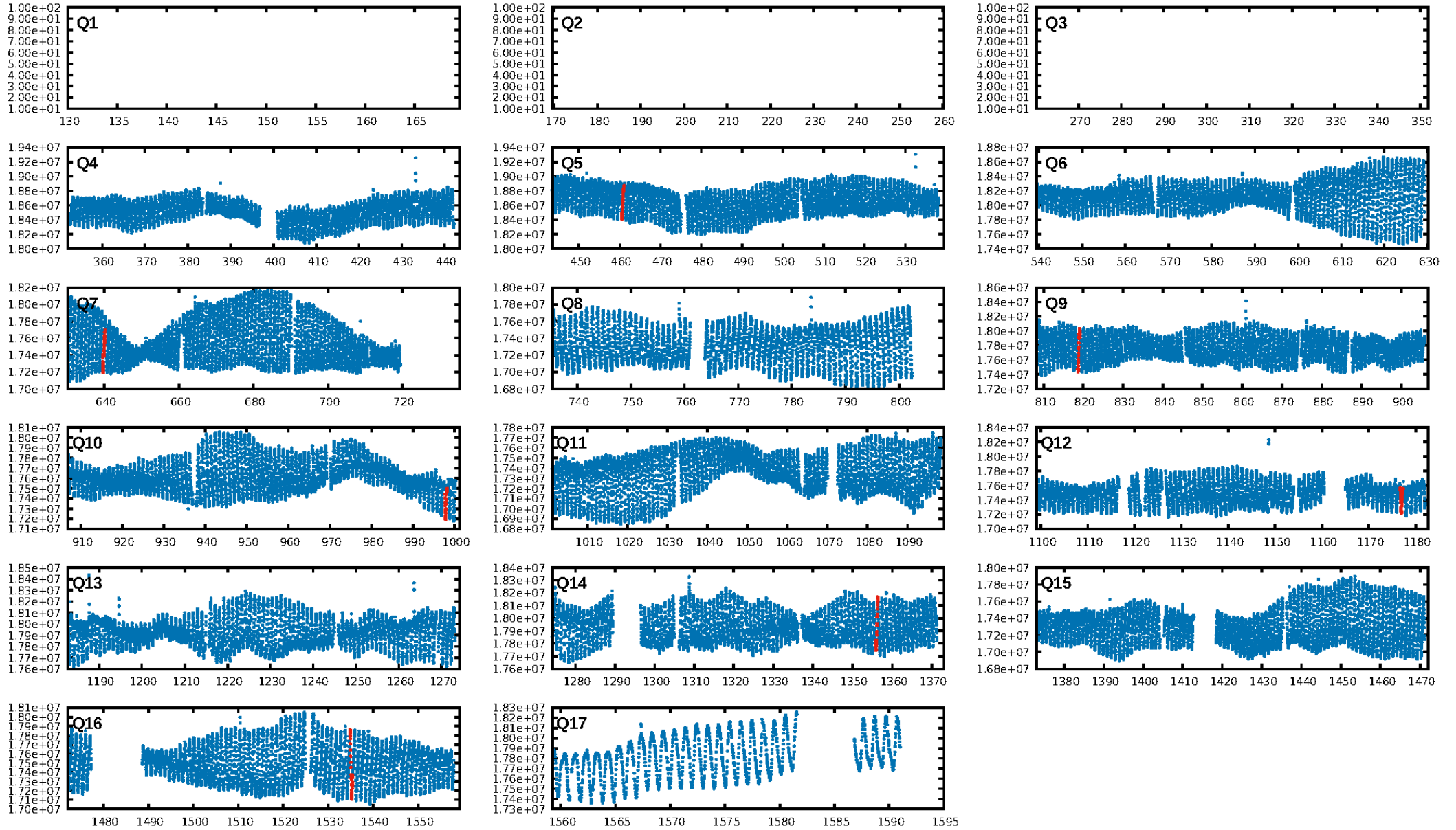
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [472.38 σ]
LongPeriod-sig: 100.0% [192.43 σ]
ModelChiSquare2-sig: 91.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.78e-09
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.3662
Centroid-sig: 53.1%
Centroid-so: 0.580 arcsec [0.98 σ]
OotOffset-rm: 0.045 arcsec [0.63 σ]
OotOffset-st: 2/1/1/2 [6]
KicOffset-rm: 0.159 arcsec [2.24 σ]
KicOffset-st: 2/1/1/2 [6]
DiffImageQuality-fgm: 0.83 [5/6]
DiffImageOverlap-fno: 0.00 [0/6]

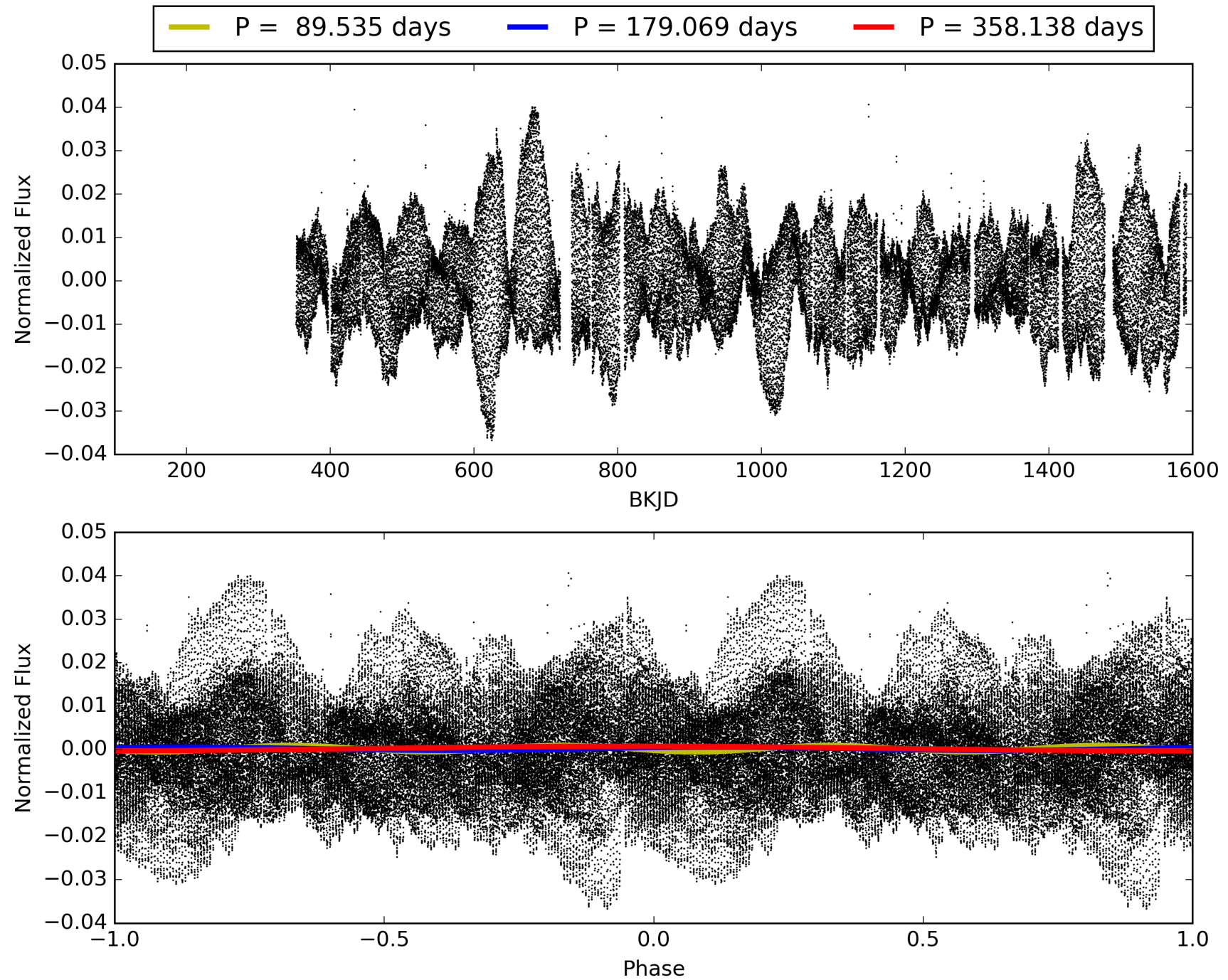
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:26:46 Z

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

TCE 009641112-03, PDC Light Curves

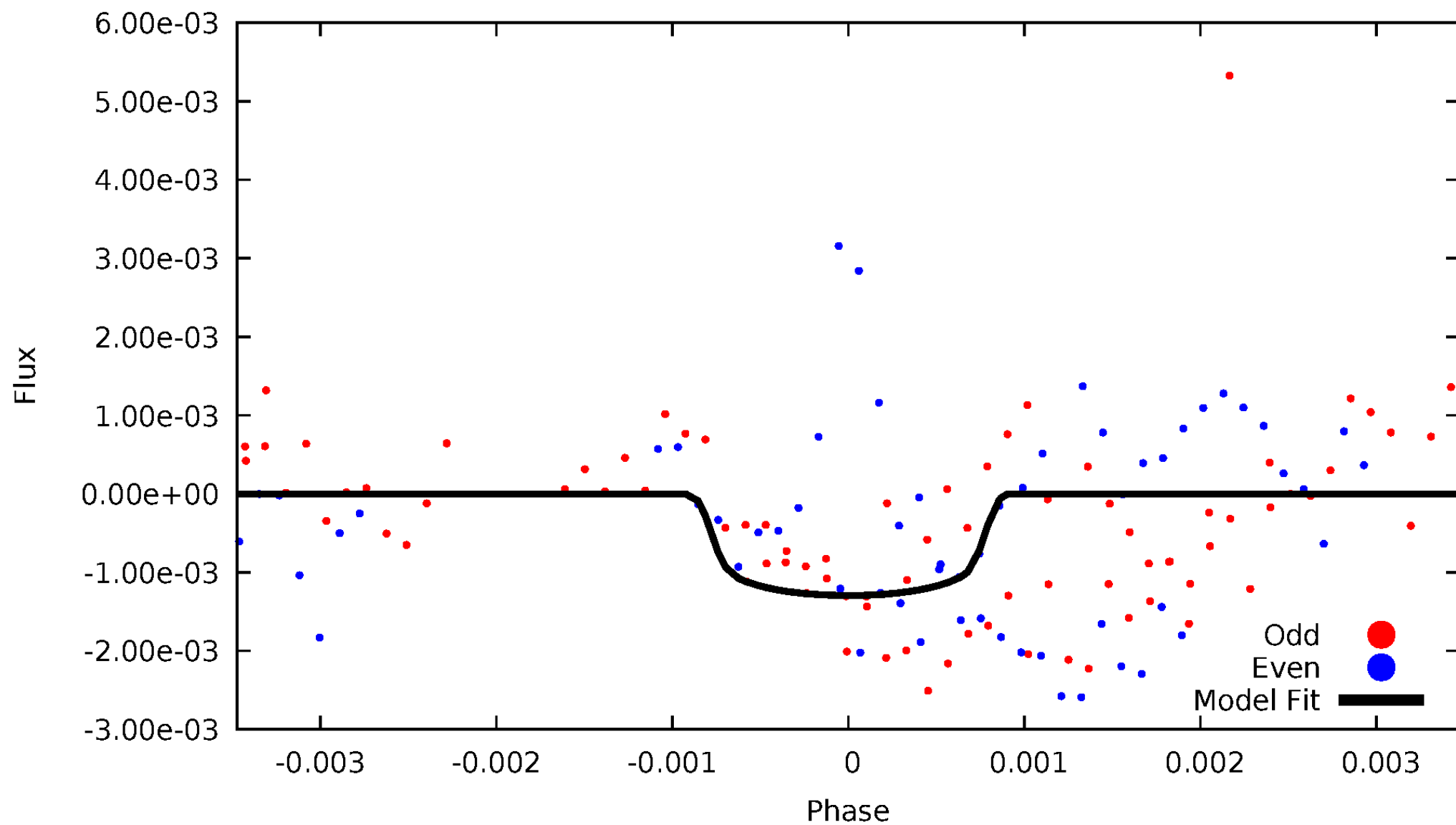


TCE 009641112-03



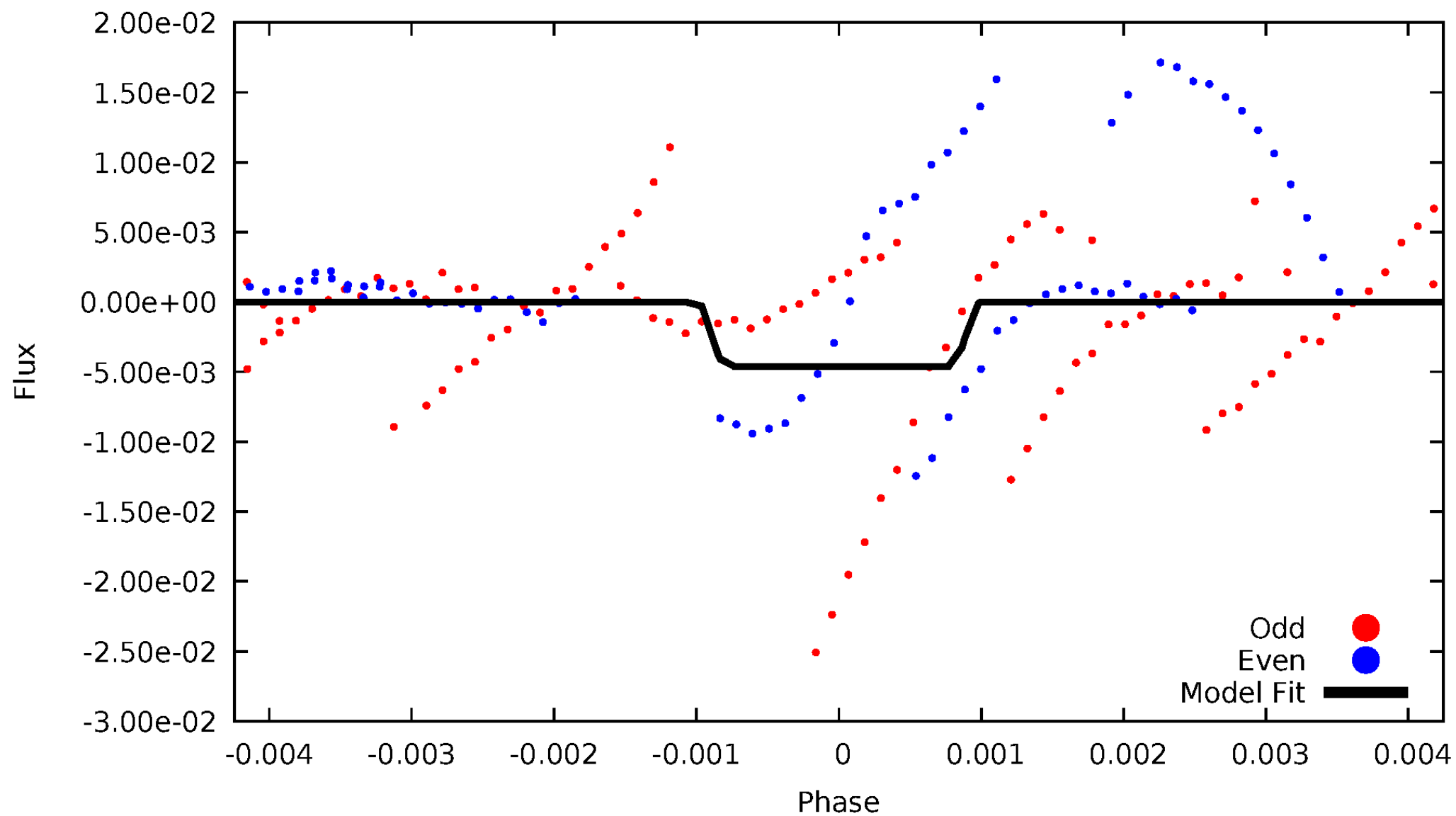
DV Odd/Even

TCE 009641112-03



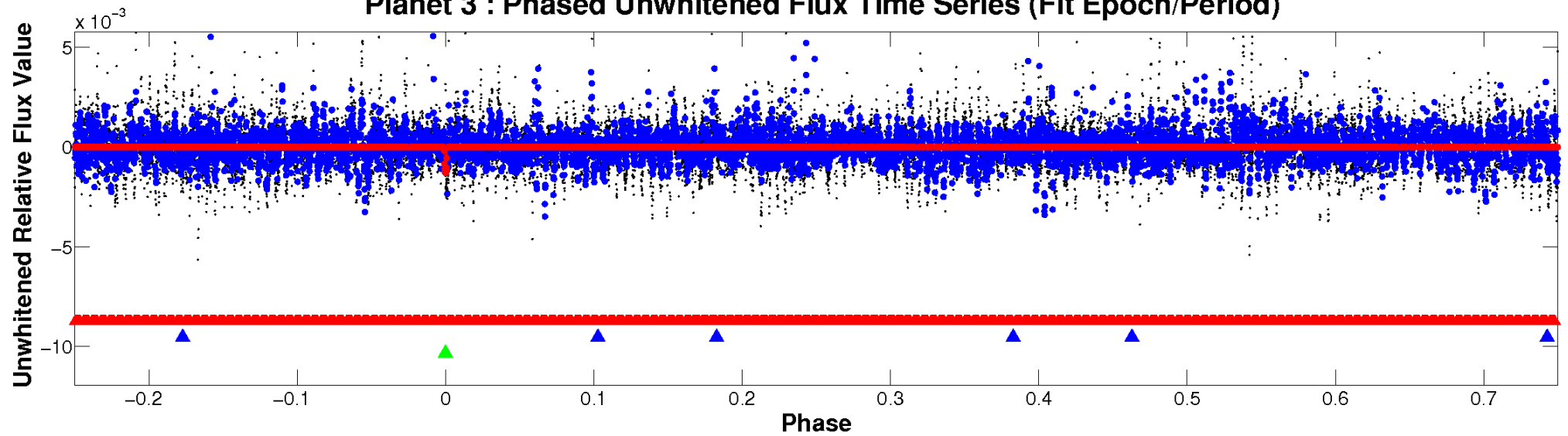
ALT Odd/Even

TCE 009641112-03

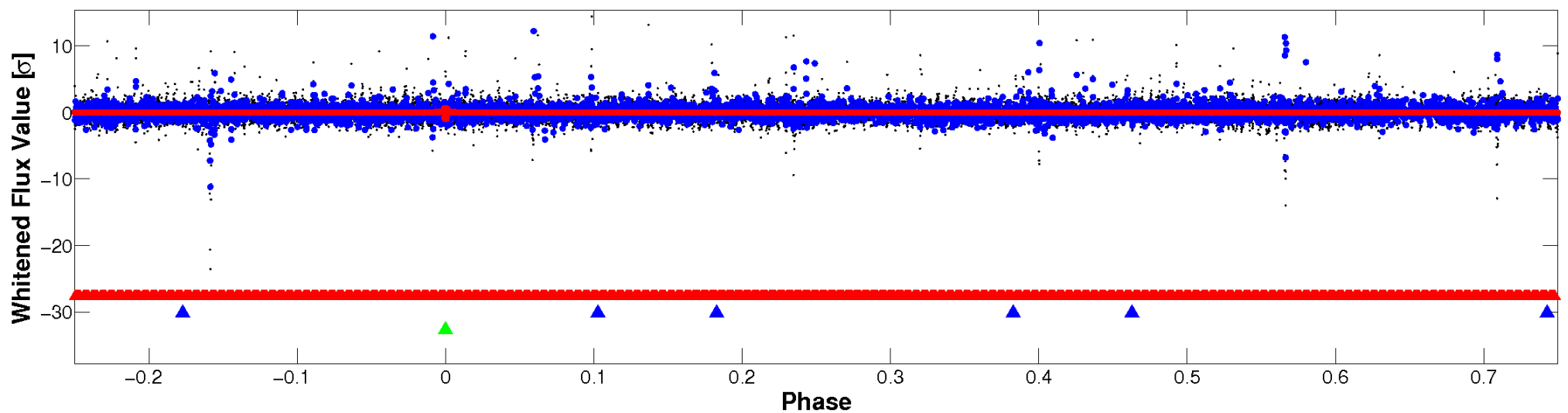


Non-Whitened Vs. Whitened Light Curve

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

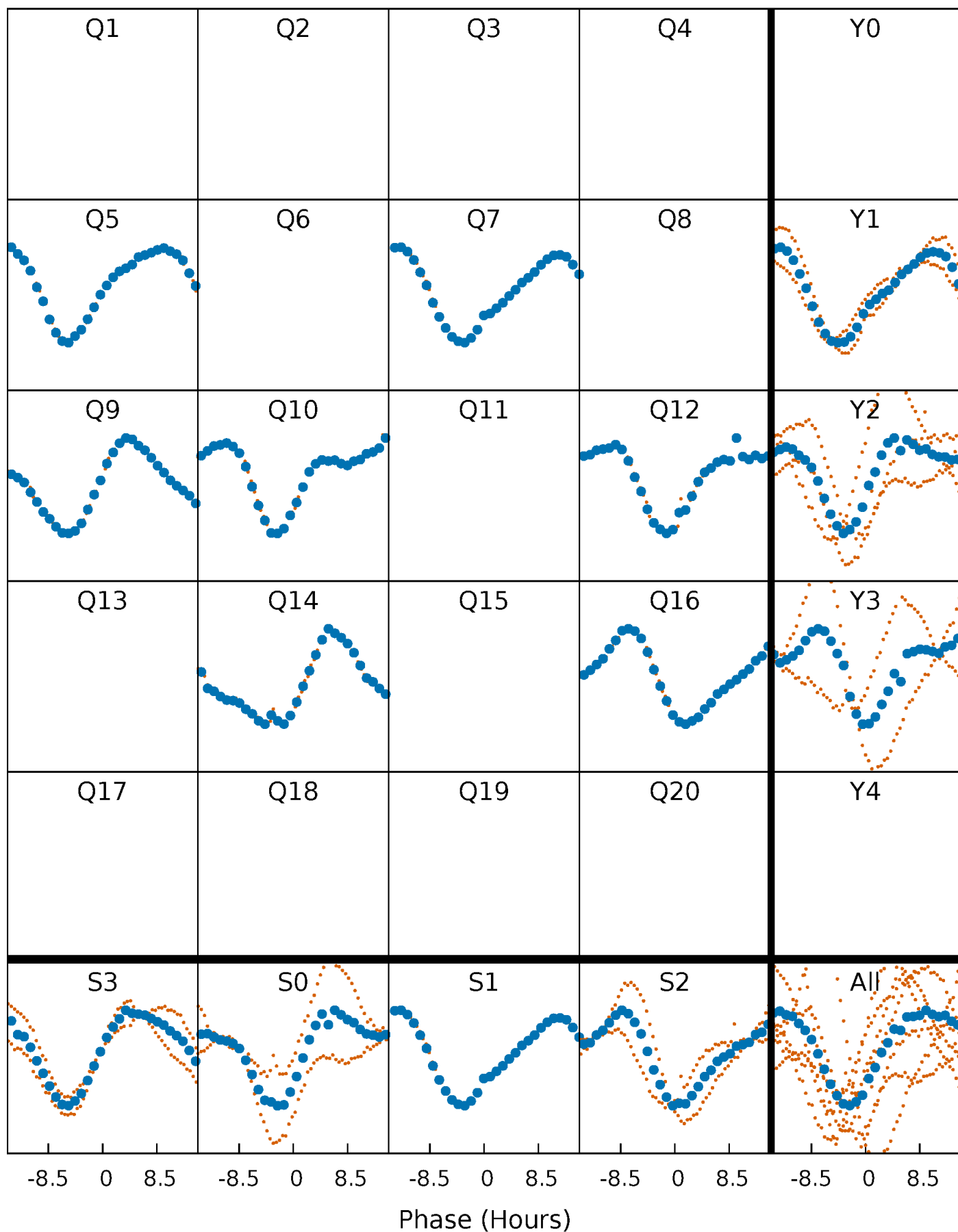


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



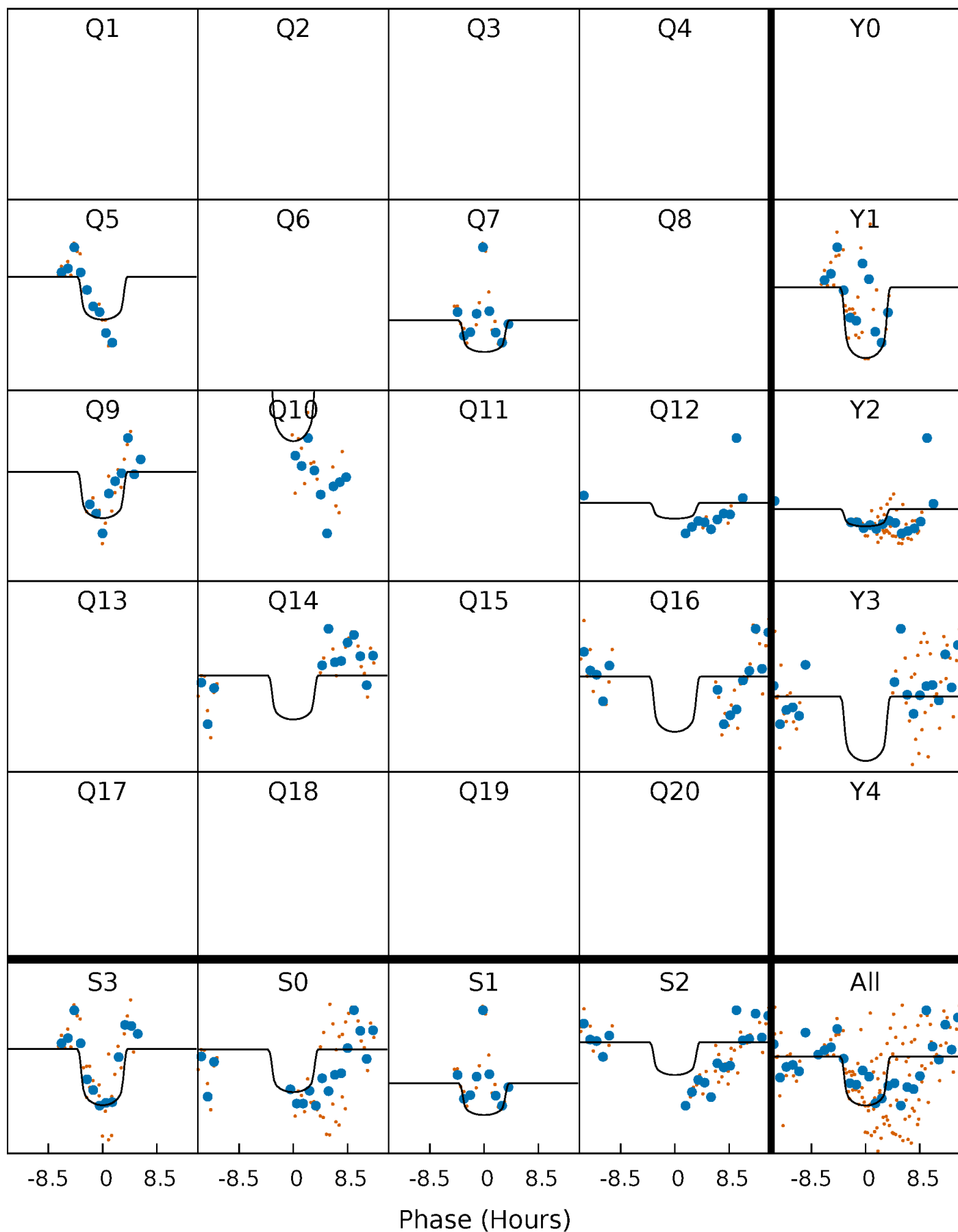
PDC Quarter-Phased Transit Curves

TCE 009641112-03 P=179.069237 Days $T_0=281.690553$ (BKJD)



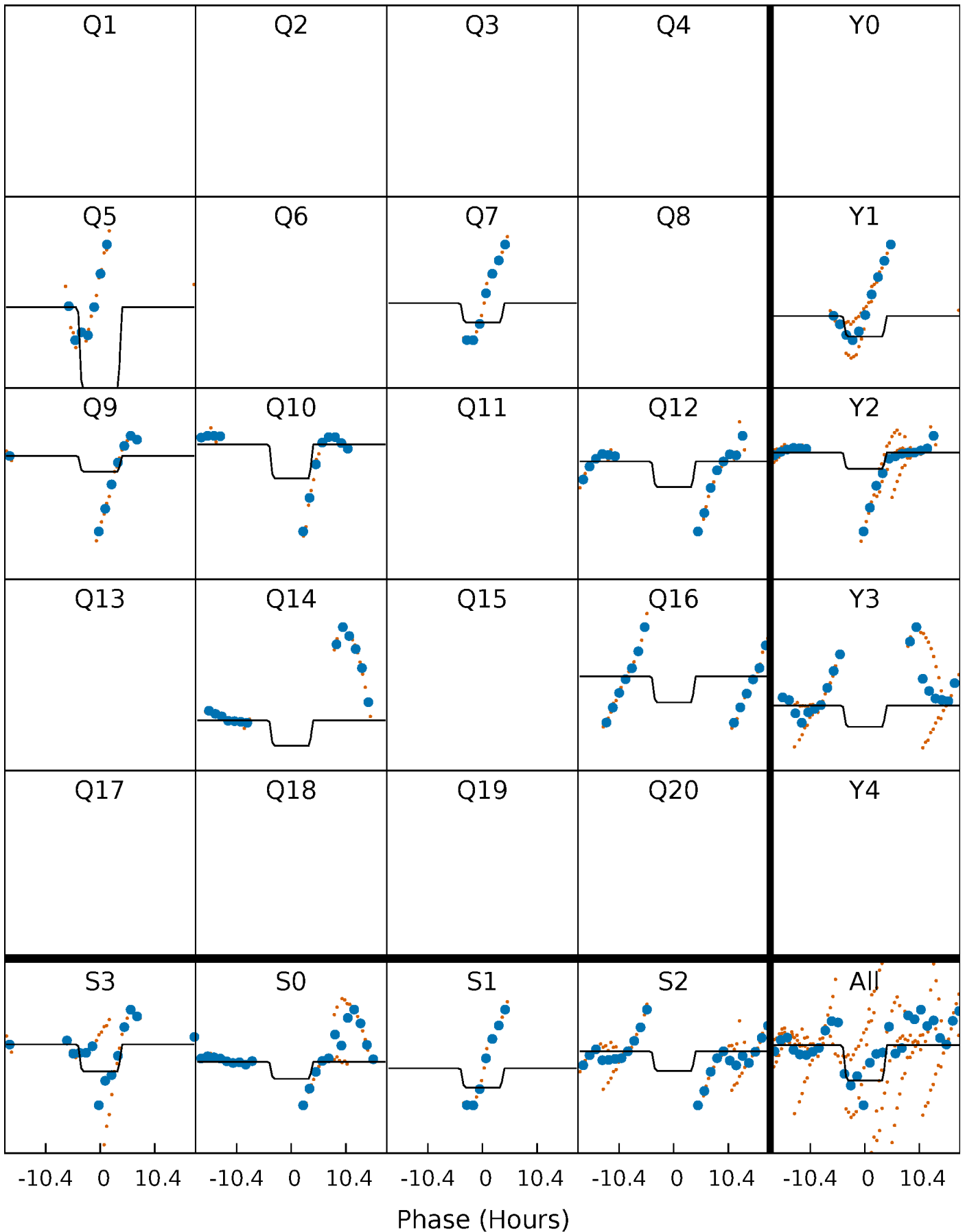
DV Quarter-Phased Transit Curves

TCE 009641112-03 P=179.069237 Days $T_0=281.690553$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

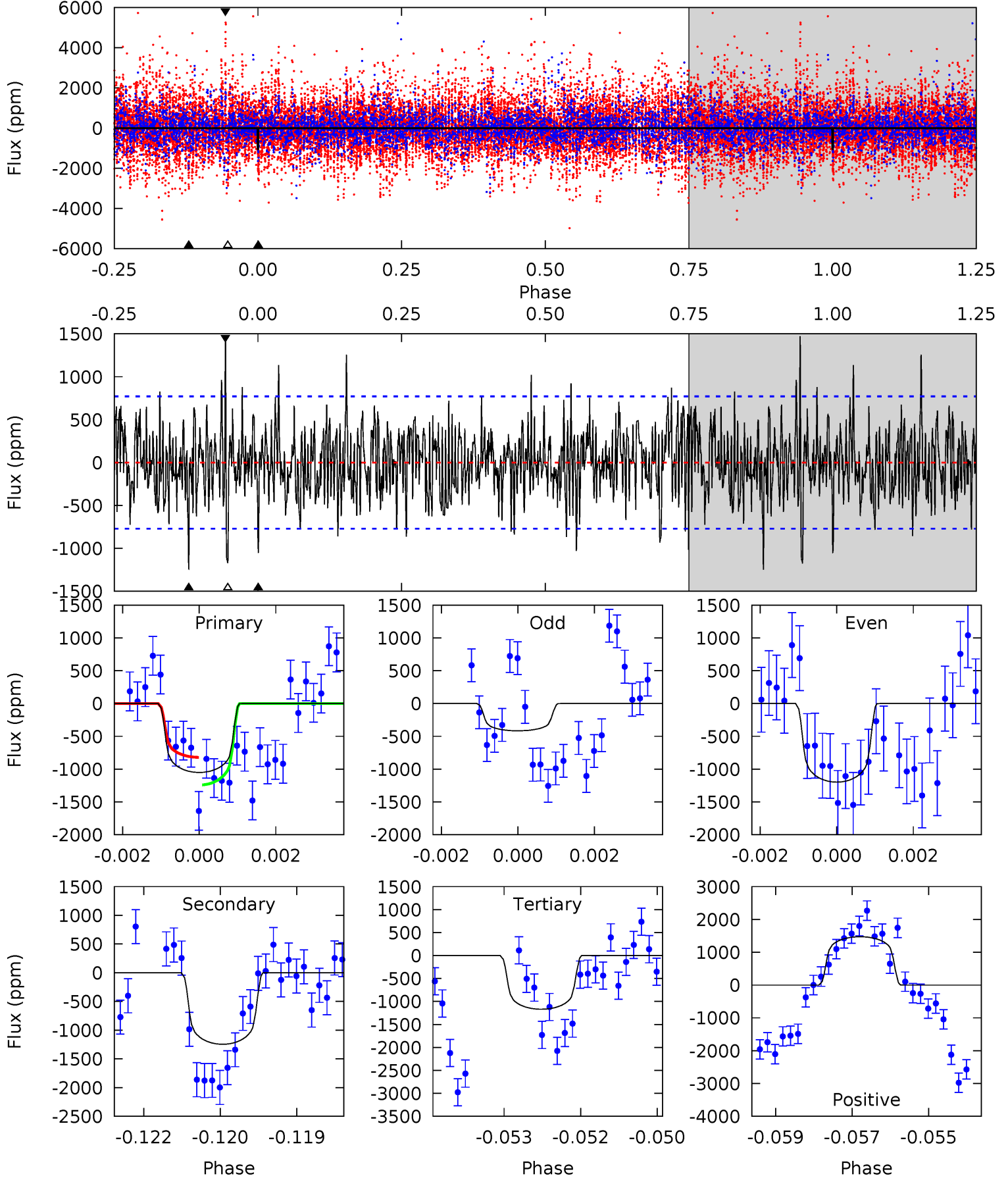
TCE 009641112-03 P=179.038853 Days $T_0=281.706906$ (BKJD)



DV Model-Shift Uniqueness Test

009641112-03, P = 179.069237 Days, E = 281.690553 Days

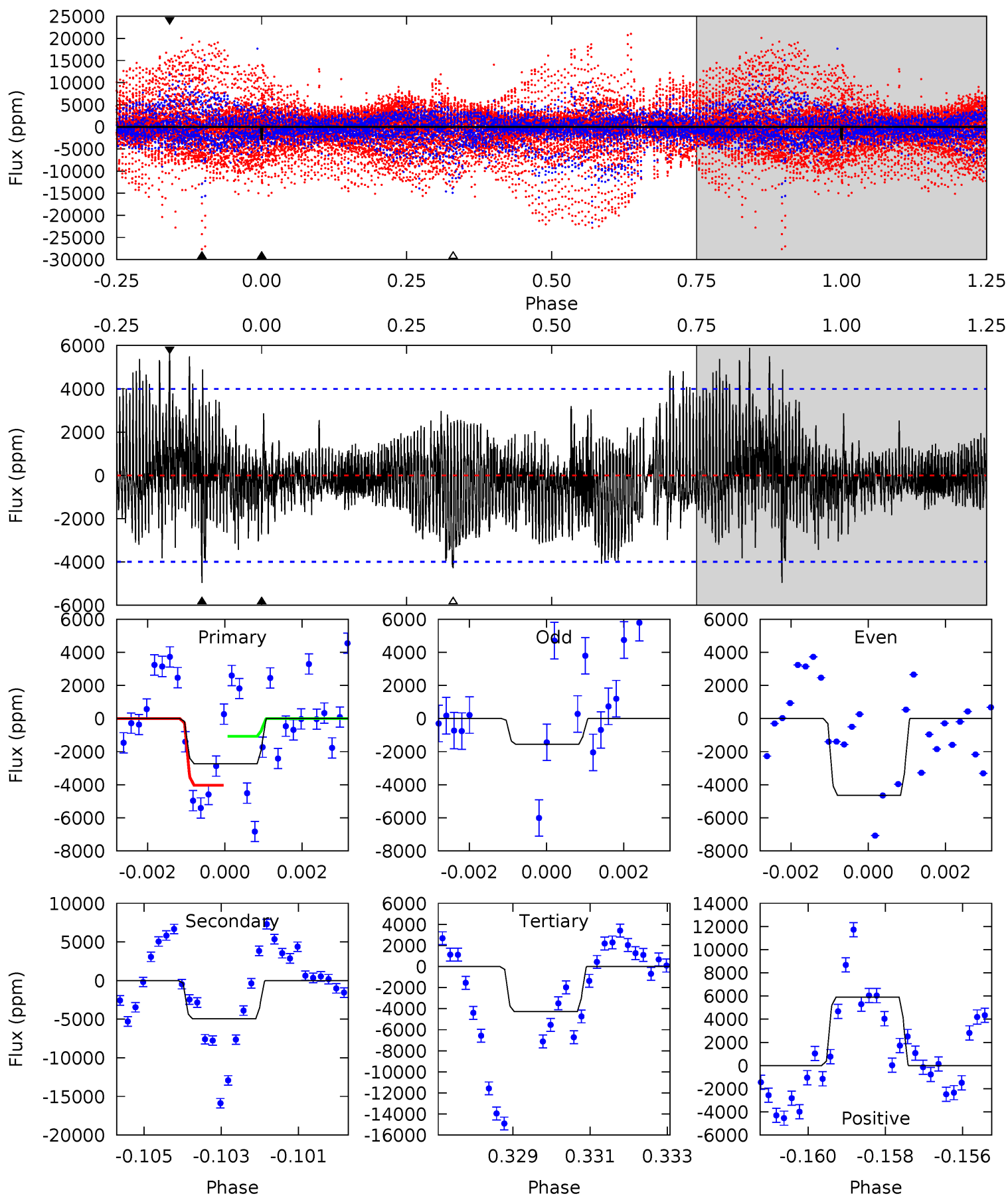
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.30	8.66	8.13	10.2	5.35	3.13	2.28	-0.82	-2.93	0.53	-1.58	2.64	1.08	0.54	1.42



Alt Model-Shift Uniqueness Test

009641112-03, P = 179.038853 Days, E = 281.706906 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.65	6.63	5.72	7.88	5.34	3.11	1.85	-2.06	-4.23	0.91	-1.25	2.09	1.08	0.54	1.99



Stellar Parameters For KIC 009641112

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6240^{+197}_{-263}	$4.397^{+0.087}_{-0.203}$	$-0.200^{+0.250}_{-0.300}$	$1.064^{+0.339}_{-0.145}$	$1.025^{+0.173}_{-0.129}$	$1.200^{+0.465}_{-0.644}$
	+3%/-4%	+2%/-5%	+125%/-150%	+32%/-14%	+17%/-13%	+39%/-54%
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 009641112-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1246 ± 144	$4.41^{+1.03}_{-0.92}$	506^{+38}_{-26}	6100^{+740}_{-575}	13782^{+8392}_{-4920}
Alt.	-4955 ± 748	$8.12^{+1.44}_{-1.12}$	507^{+38}_{-29}	6311^{+527}_{-433}	15947^{+6200}_{-4846}

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

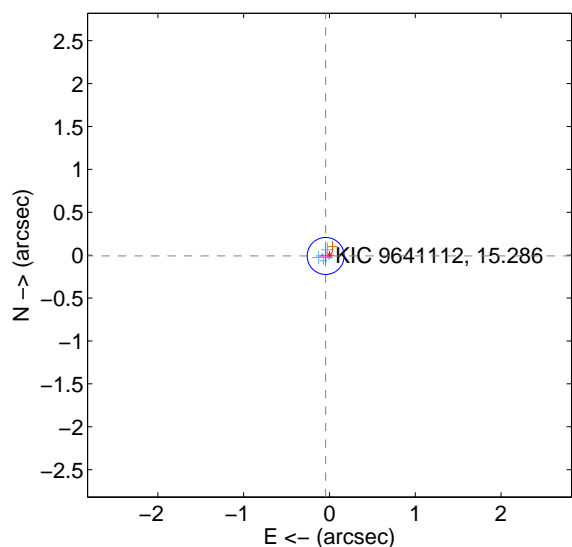
Supplemental centroid analysis for 009641112-03. Kepler magnitude: 15.29. Transit SNR 5.42

There are 5 quarters with good PRF difference image offsets

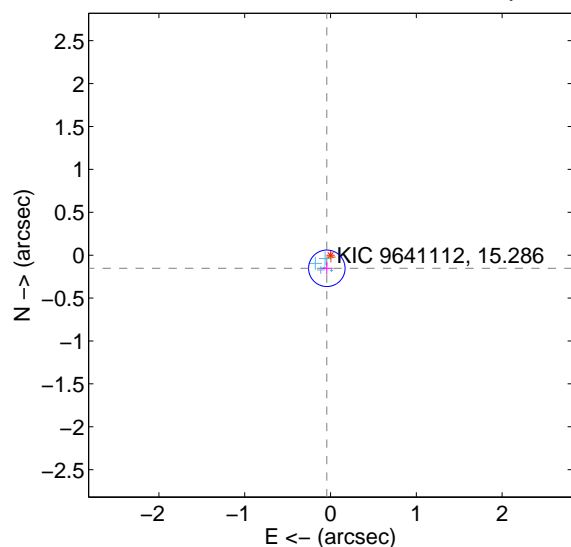
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.045 ± 0.072	0.63	0.044 ± 0.070	-0.009 ± 0.072
PRF-fit source offset from KIC position	0.159 ± 0.071	2.24	0.043 ± 0.069	-0.153 ± 0.070
photometric centroid source offset	0.58 ± 0.59	0.98	-0.22 ± 0.62	-0.54 ± 0.58

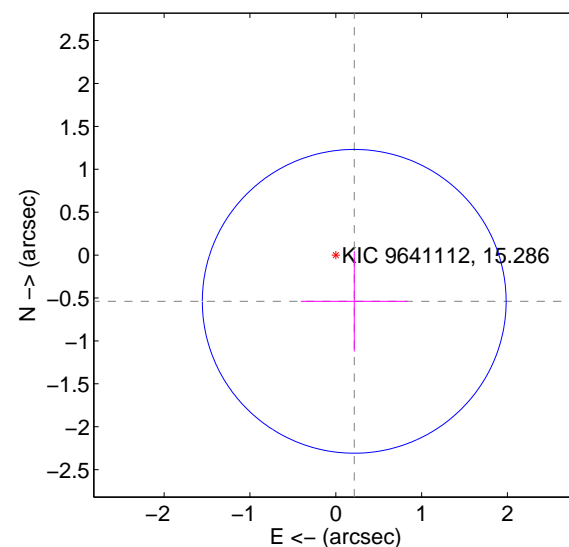
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

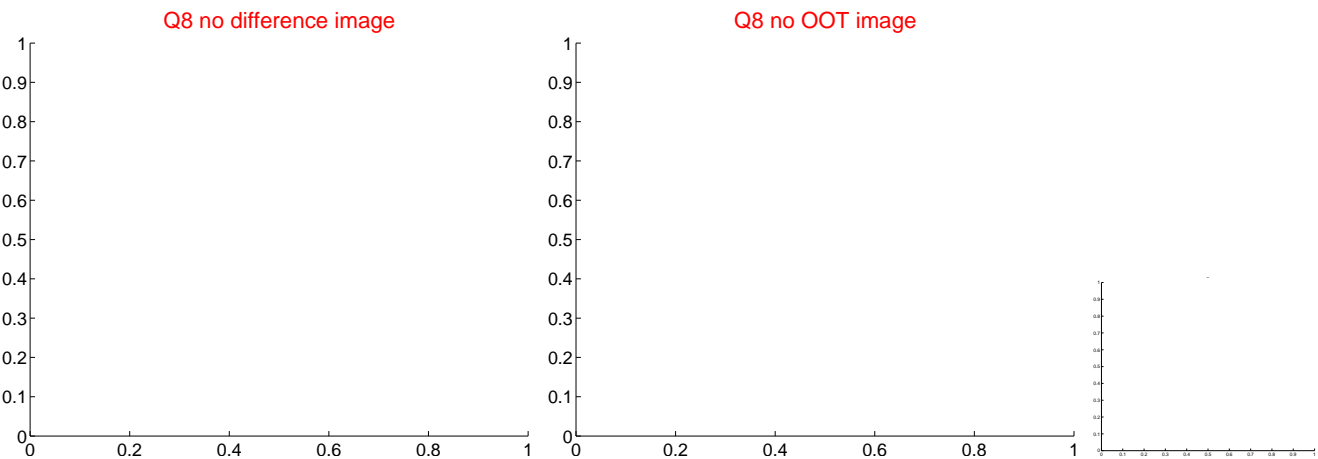
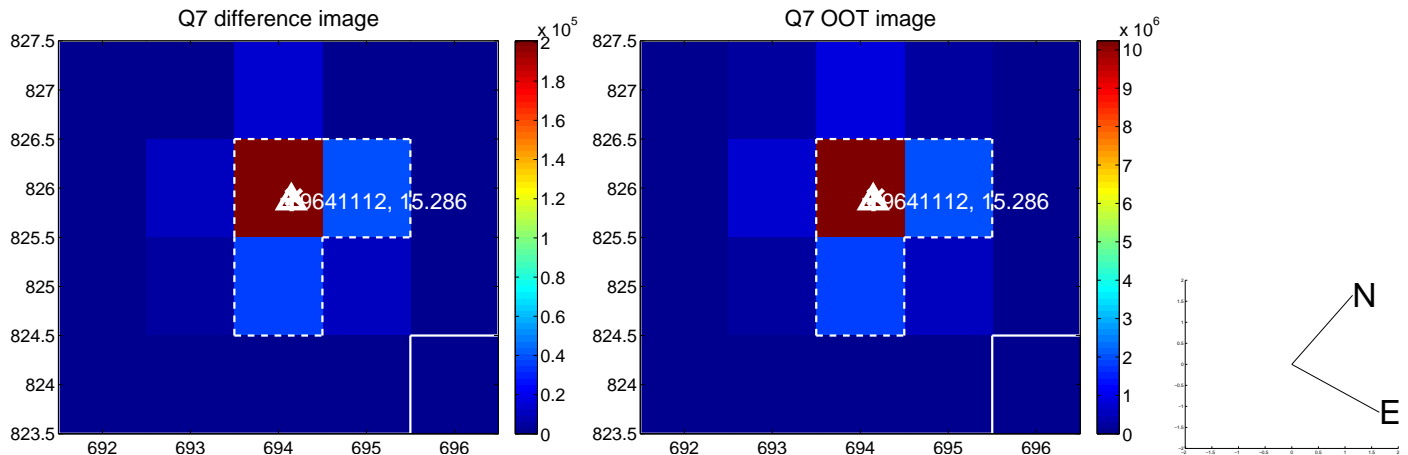
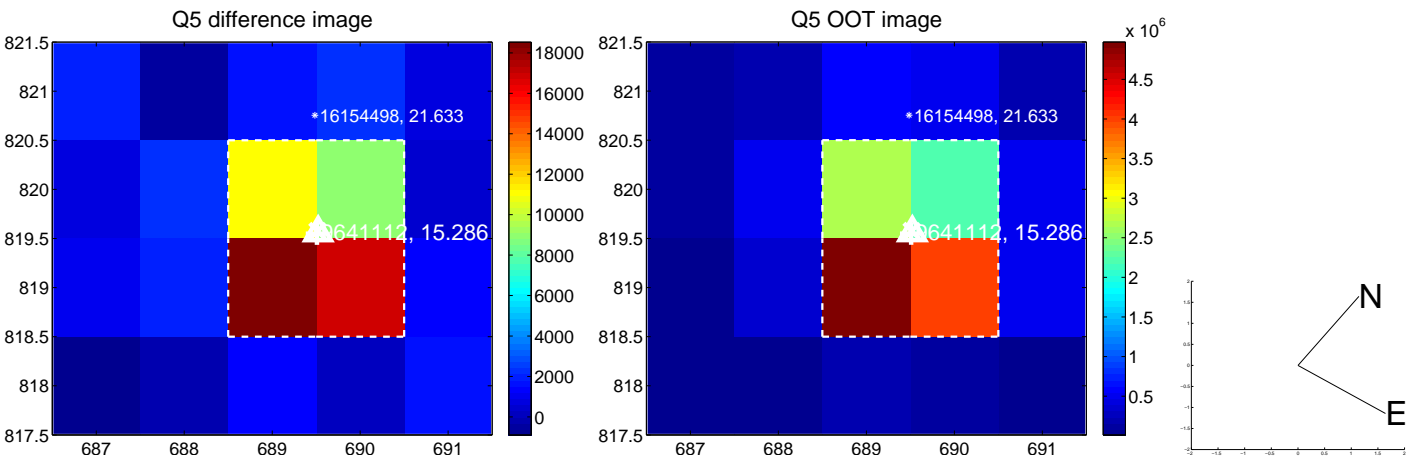


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

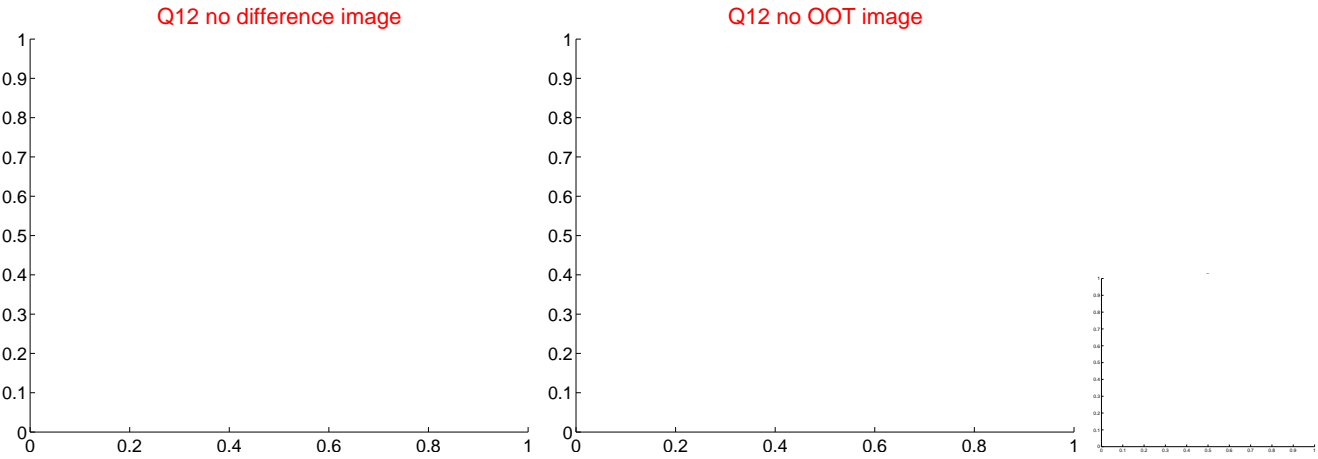
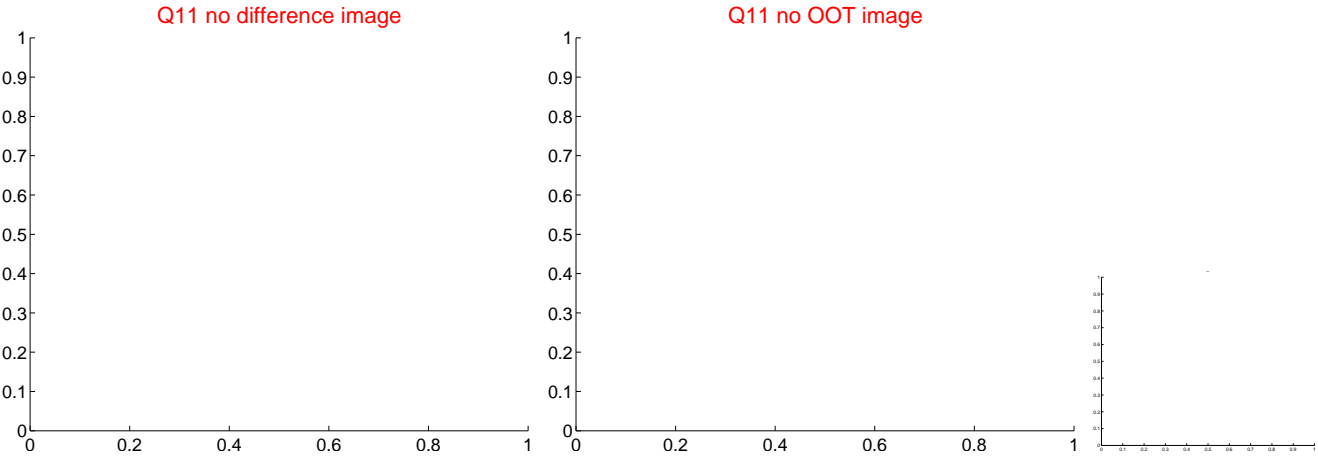
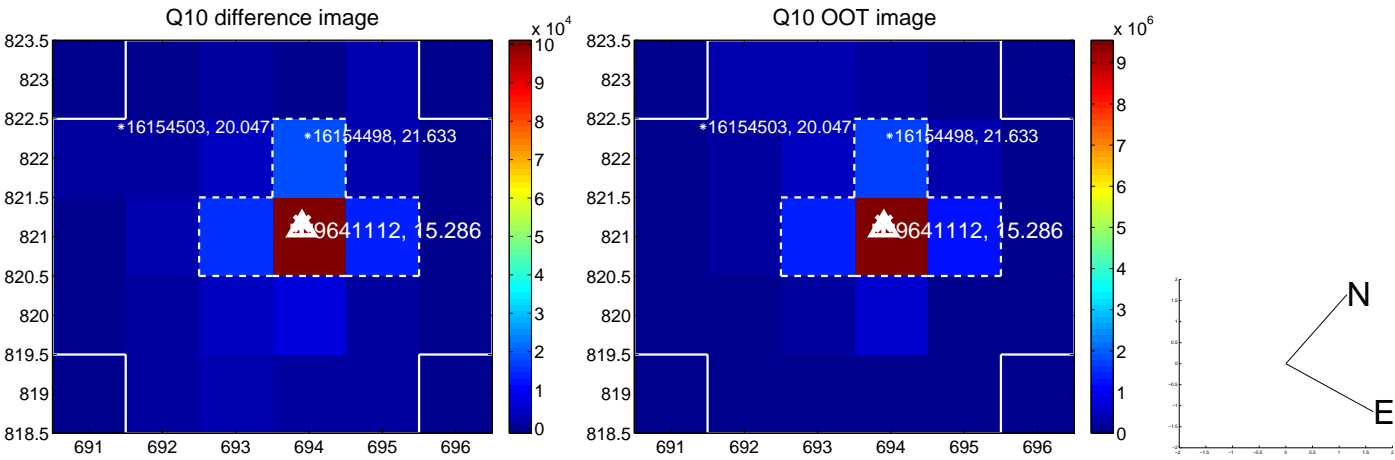
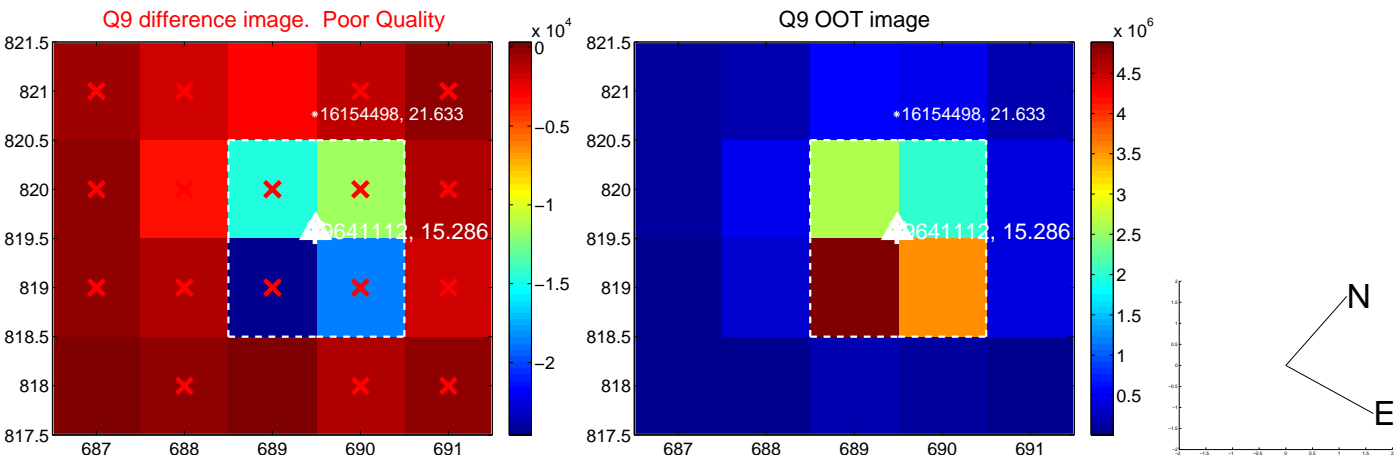
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

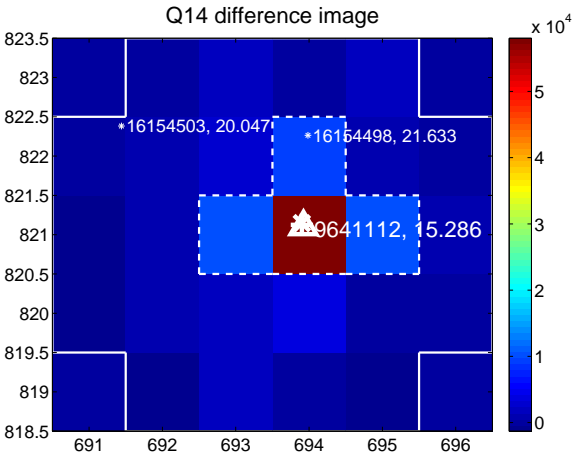
Q13 no difference image



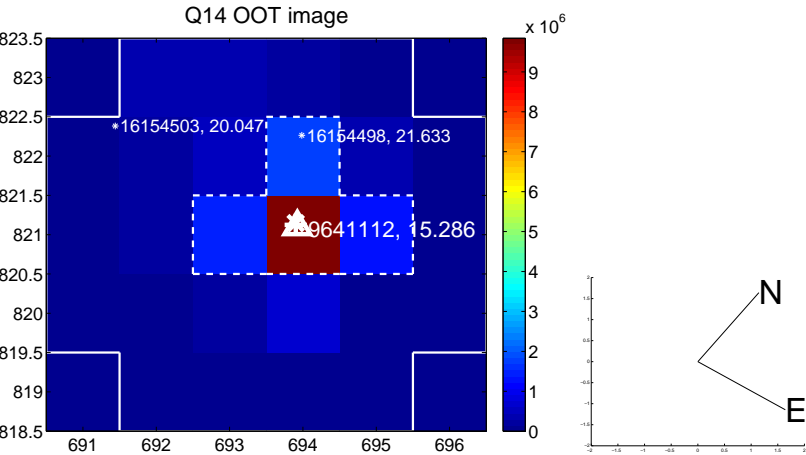
Q13 no OOT image



Q14 difference image



Q14 OOT image



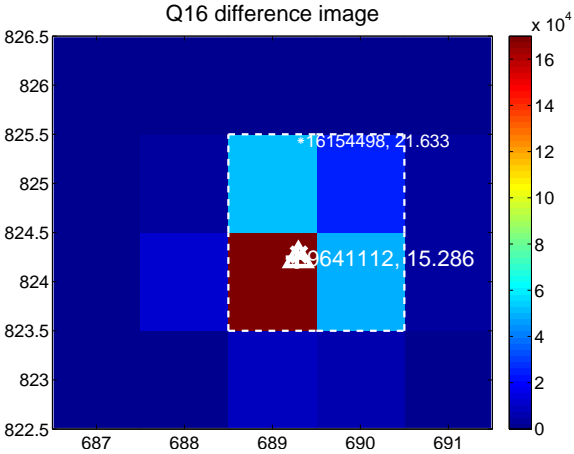
Q15 no difference image



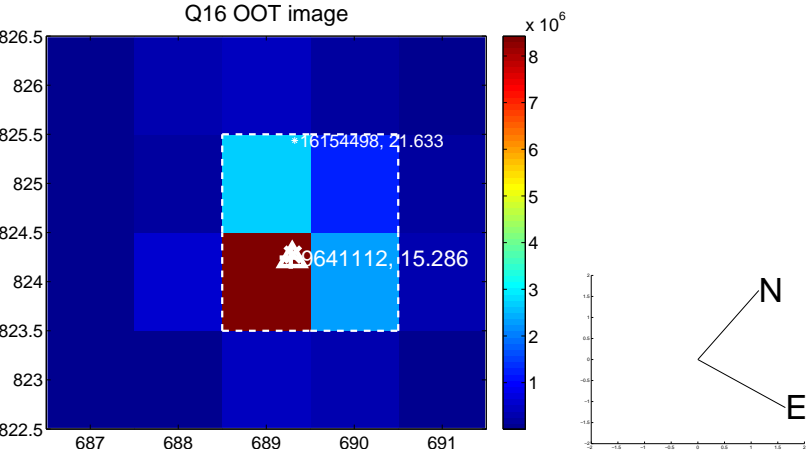
Q15 no OOT image



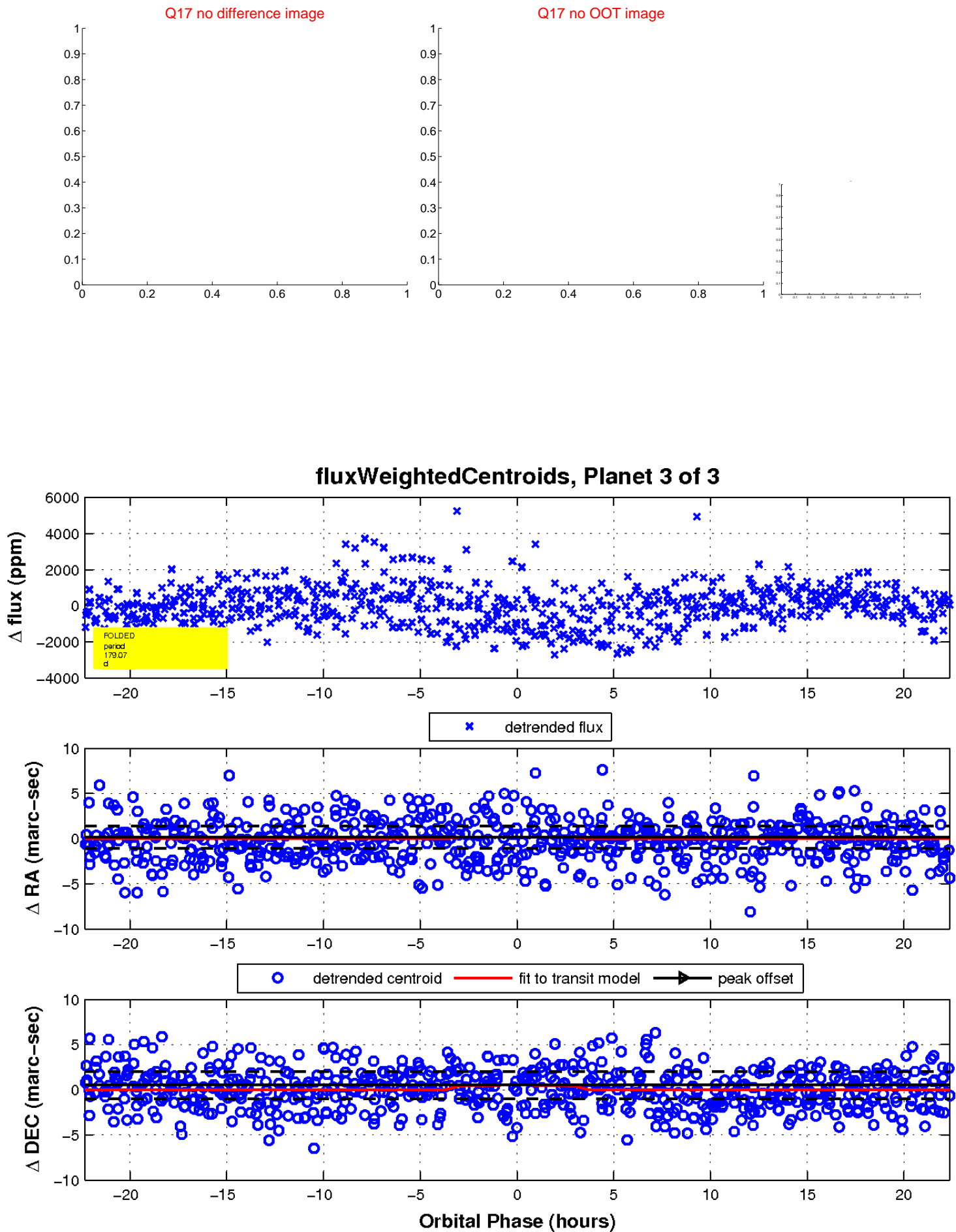
Q16 difference image



Q16 OOT image



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



UKIRT Image

Declination

