

KIC 005164650

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})
005164650-01	OBS	No	124.515196	185.692046	110.3	5.251	11.9	2.4	127.82	3456	123.44	0.00
005164650-02	OBS	No	323.571555	373.741003	3150.2	18.323	15.2	8.6	127.82	3456	864.56	2353.06
005164650-03	OBS	No	163.632967	209.153261	332.3	3.762	7.6	9.2	127.82	3456	286.72	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005164650-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
005164650-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005164650-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

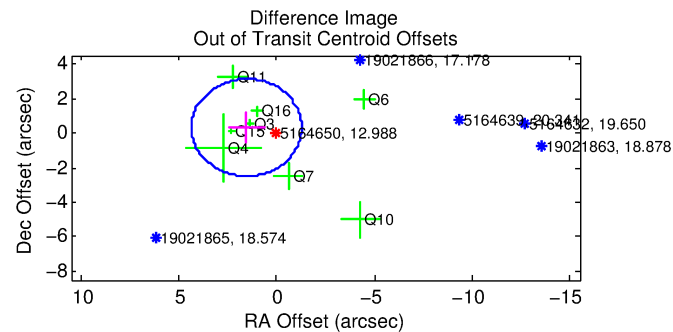
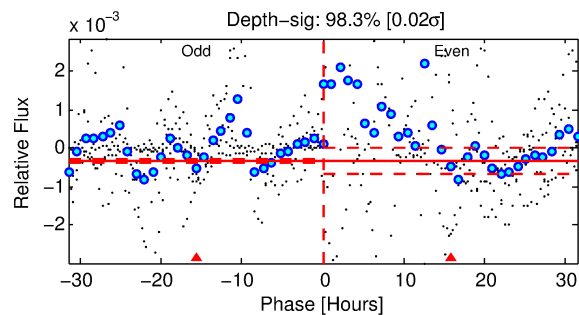
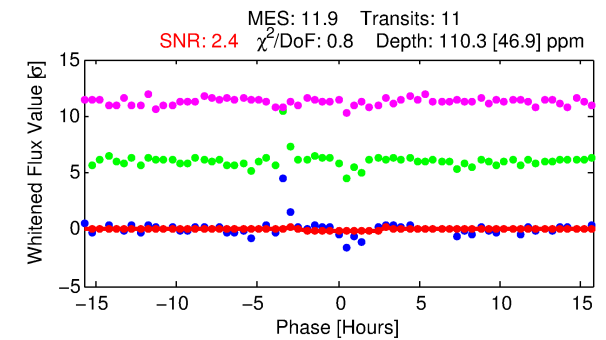
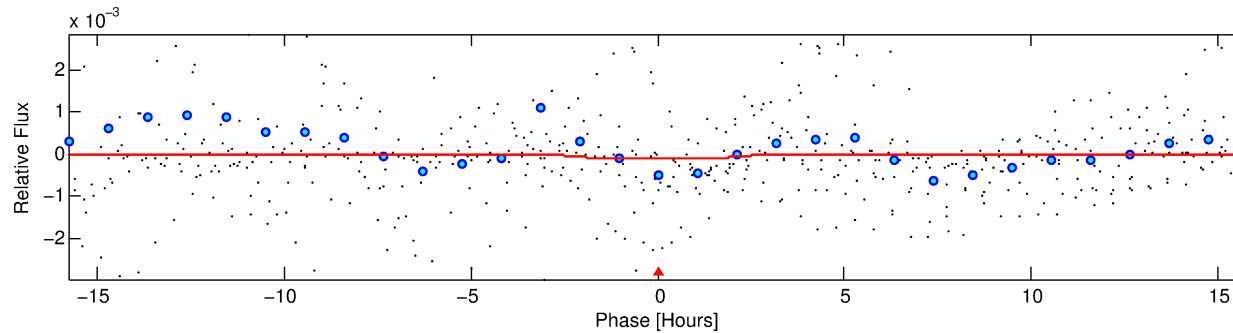
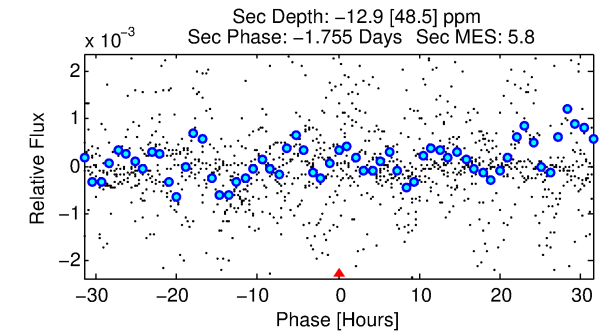
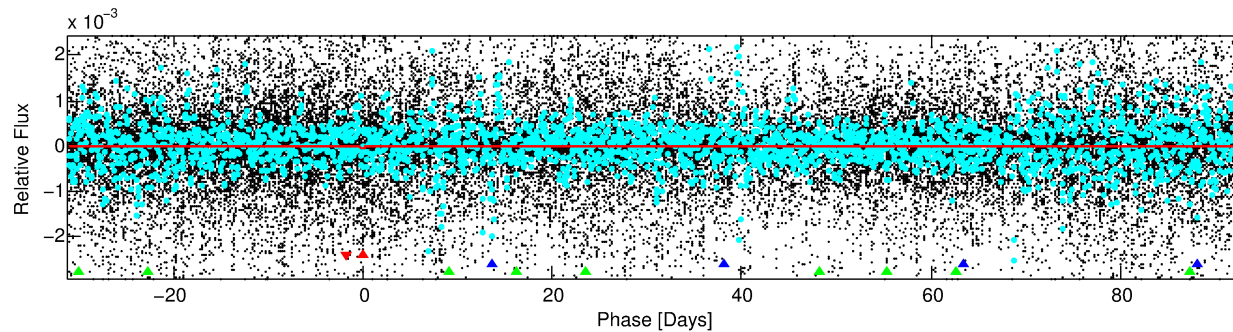
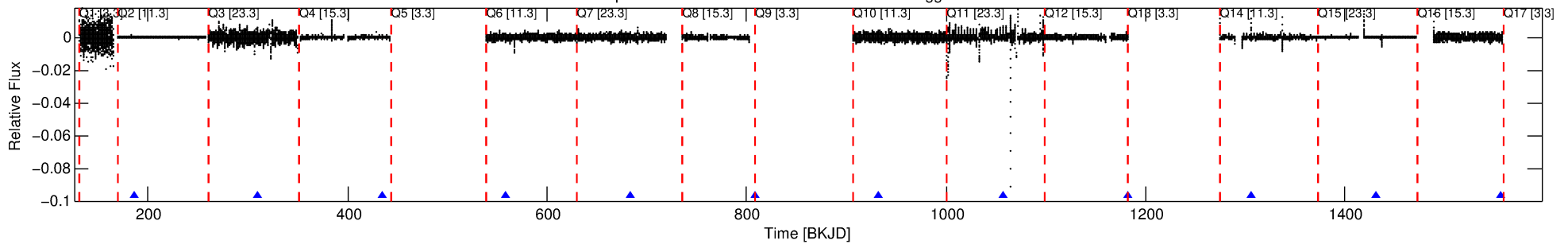
Ephemeris Match Information For 005164650-01

No Significant Match Found

DV One-Page Summary

KIC: 5164650 Candidate: 1 of 3 Period: 124.515 d

Kp: 12.99 R*: 127.82 Rs Teff: 3456.0 K Logg: 0.25 Fe/H: -0.300



DV Fit Results:

Period = 124.51520 [0.00172] d
Epoch = 185.6920 [0.0156] BKJD
Rp/R* = 0.0088 [0.0100]
a/R* = 181.81 [429.13]
b = 0.10 [23.43]
Seff = N/A
Teq = N/A
Rp = 123.43 [142.42] Re
a = N/A
Ag = N/A
Teffp = N/A

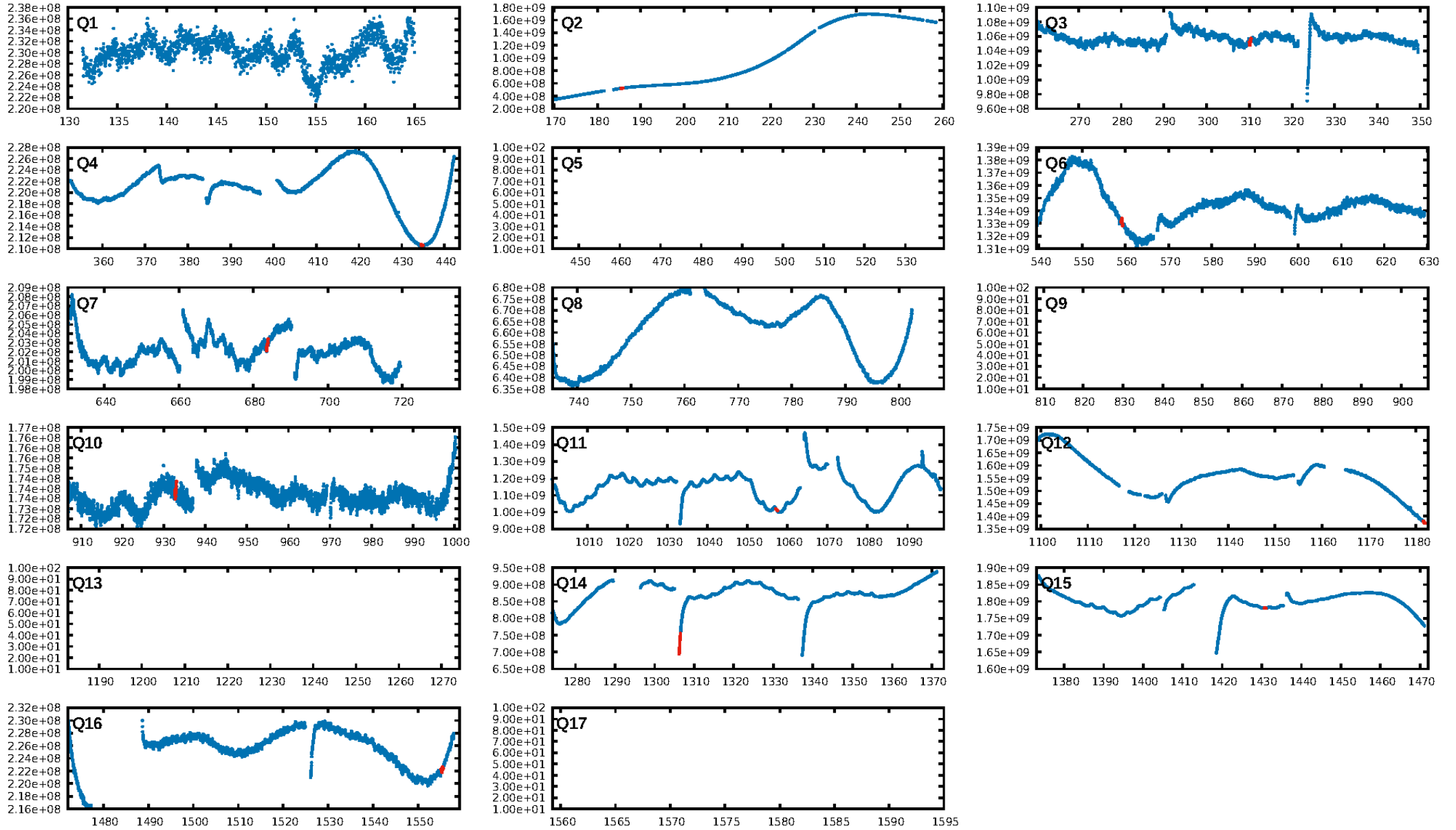
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [145.34σ]
ModelChiSquare2-sig: 13.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.73e-12
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 0.3931
Centroid-sig: 98.1%
Centroid-so: 0.568 arcsec [0.22σ]
OotOffset-rm: 1.572 arcsec [1.68σ]
OotOffset-st: 2/4/2/0 [8]
KicOffset-rm: 0.823 arcsec [0.85σ]
KicOffset-st: 2/4/2/0 [8]
DiffImageQuality-fgm: 0.25 [2/8]
DiffImageOverlap-fno: 1.00 [9/9]

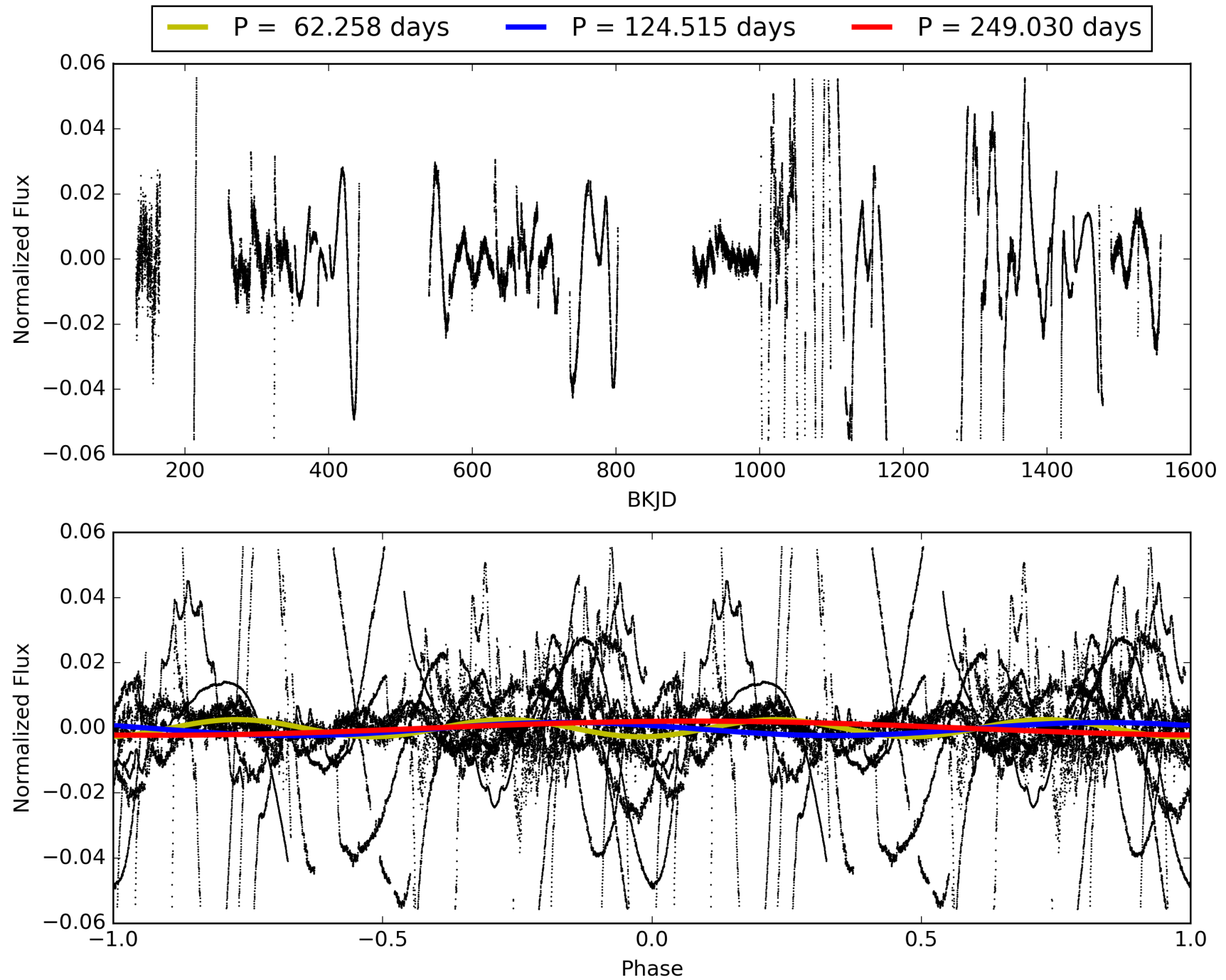
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 04:57:43 Z

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

TCE 005164650-01, PDC Light Curves

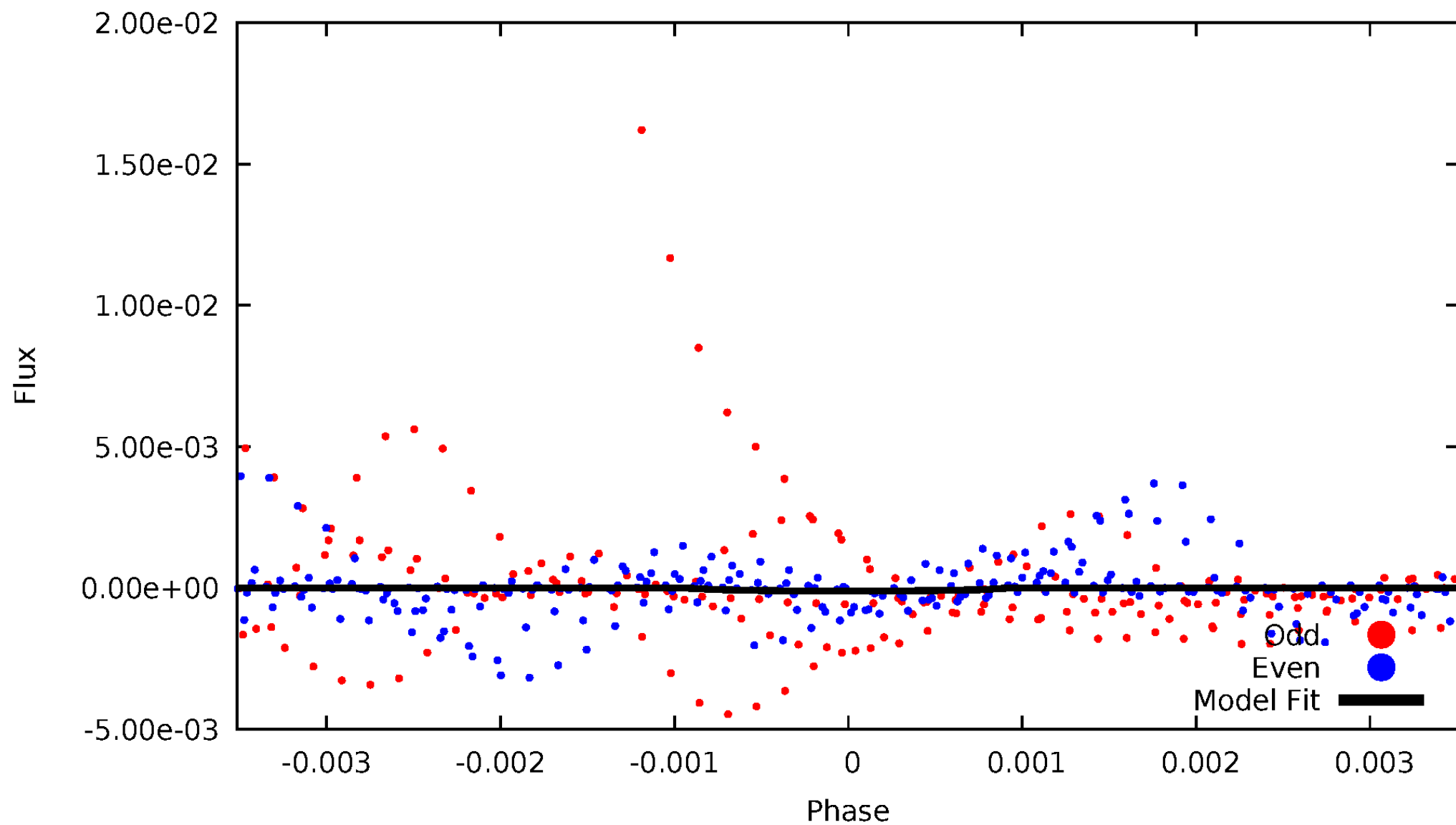


TCE 005164650-01



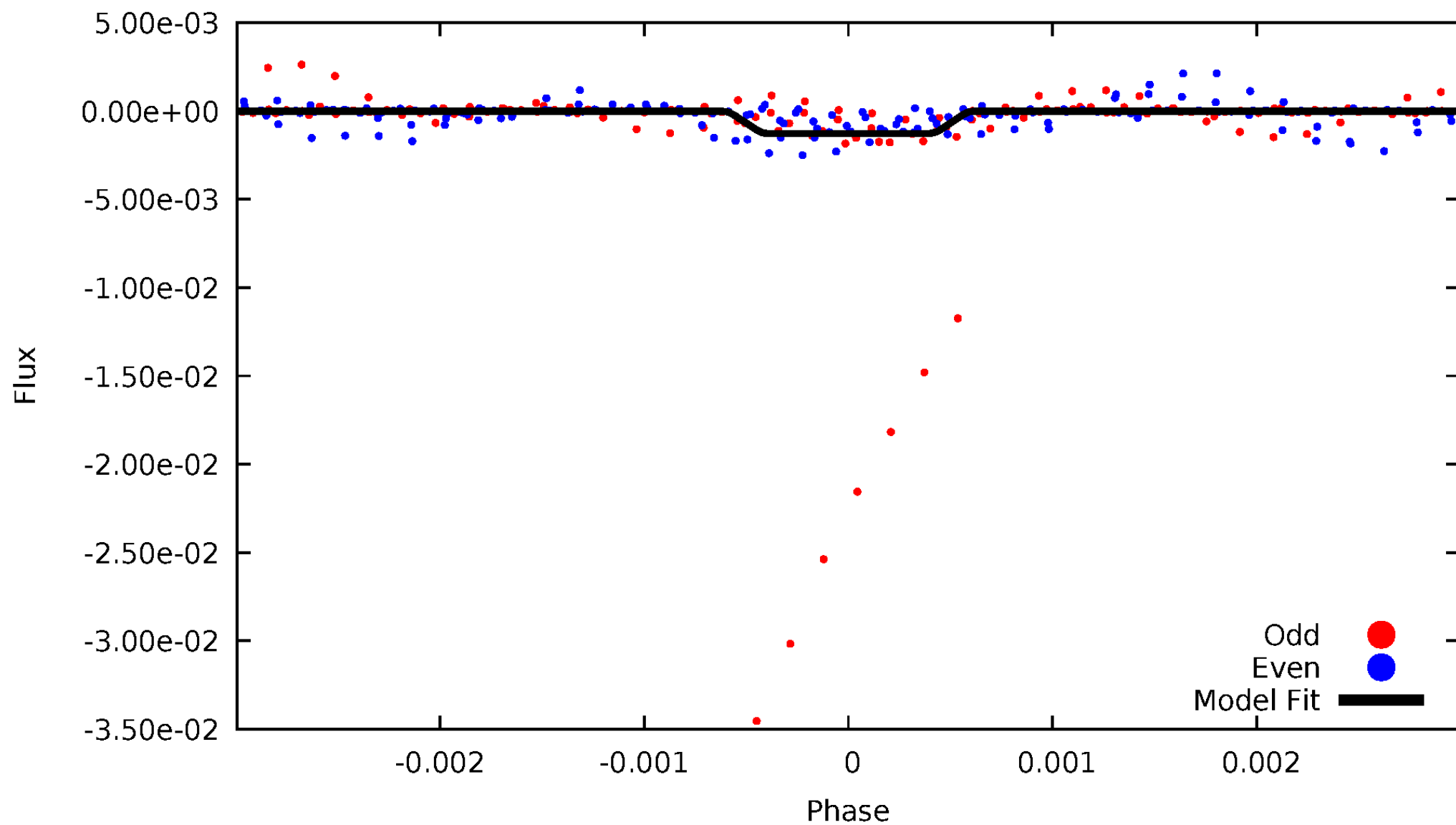
DV Odd/Even

TCE 005164650-01



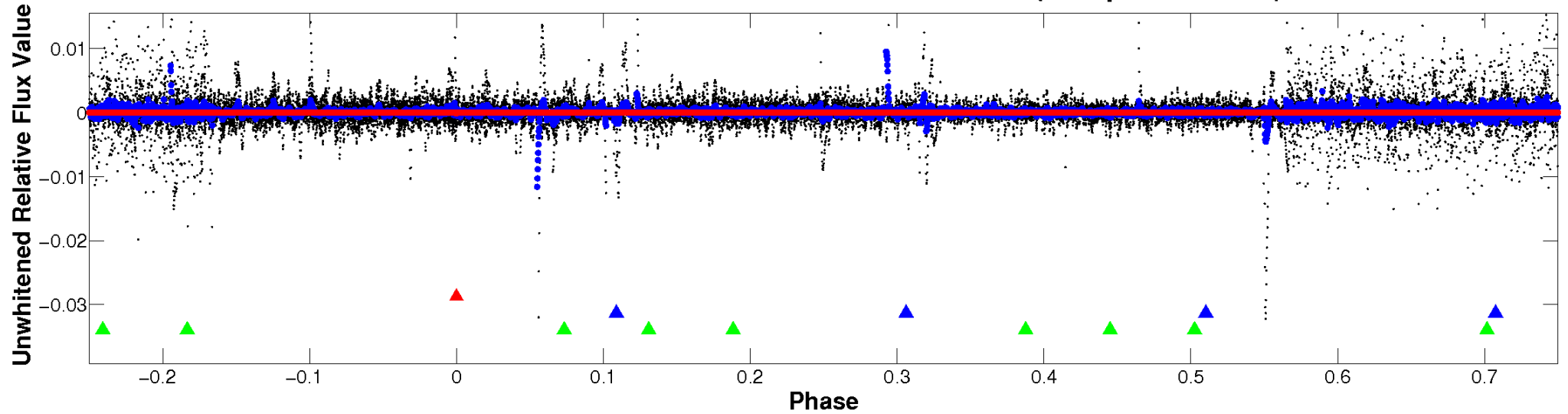
ALT Odd/Even

TCE 005164650-01

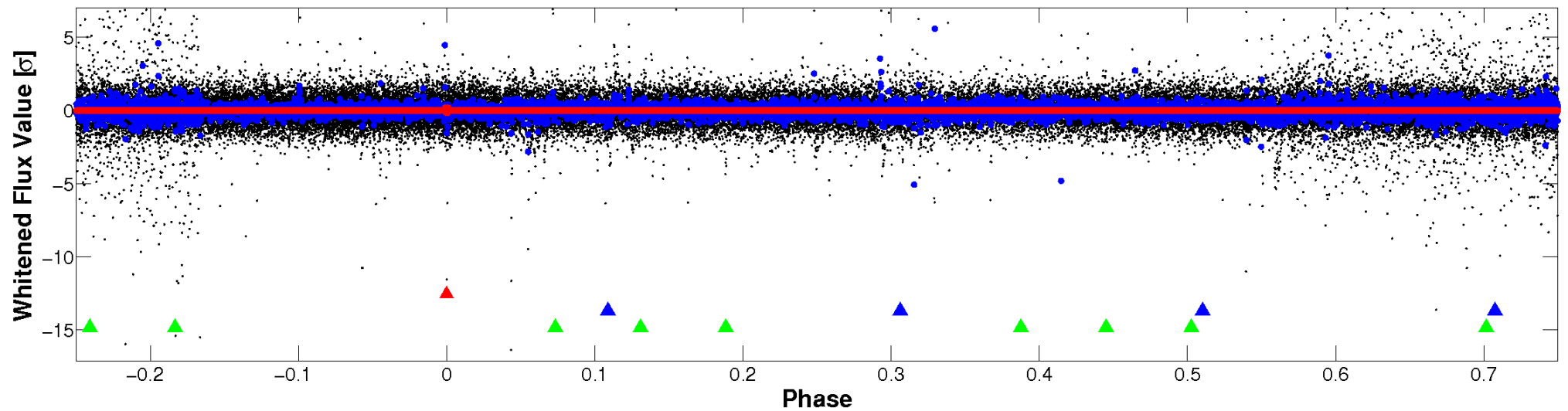


Non-Whitened Vs. Whitened Light Curve

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

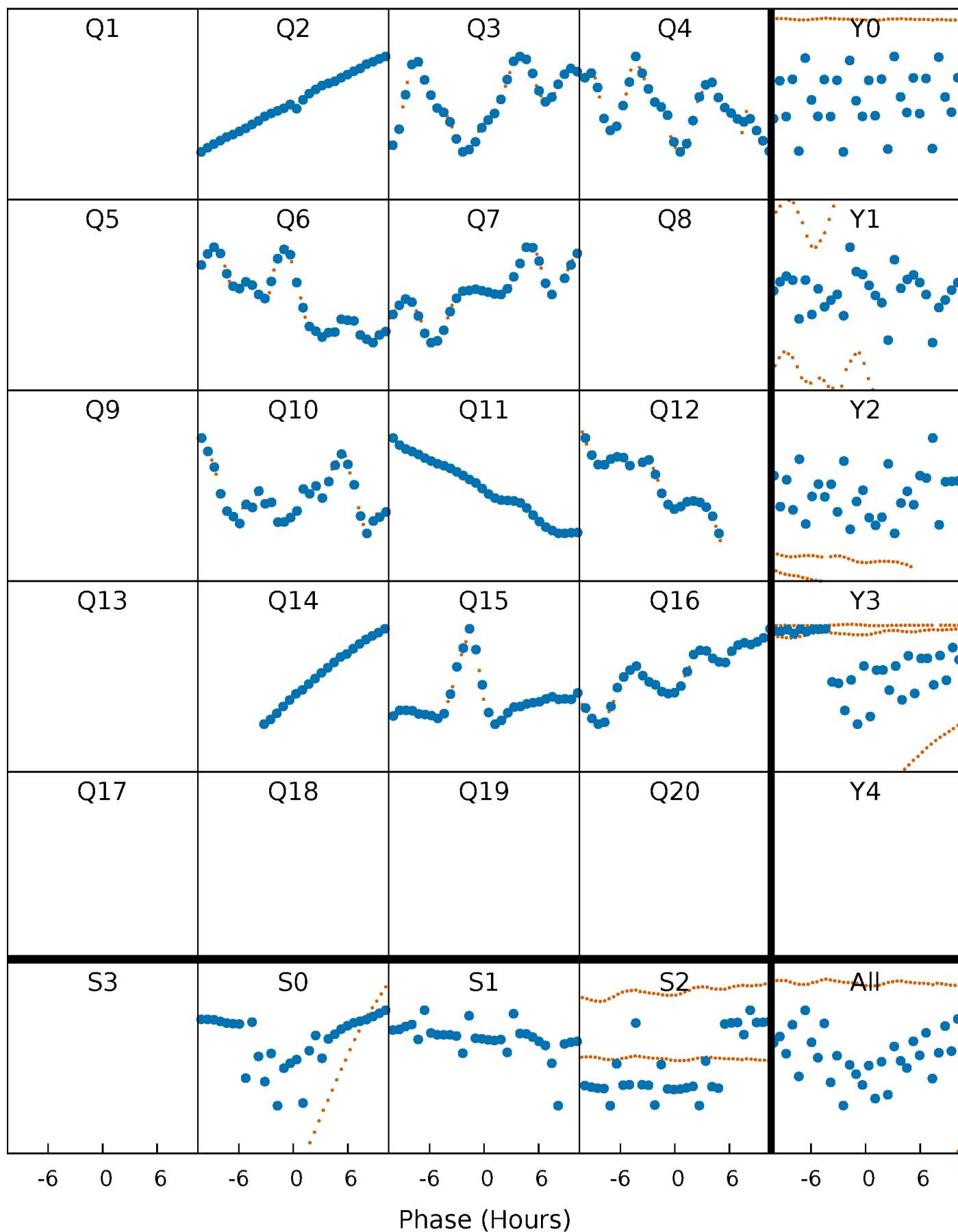


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



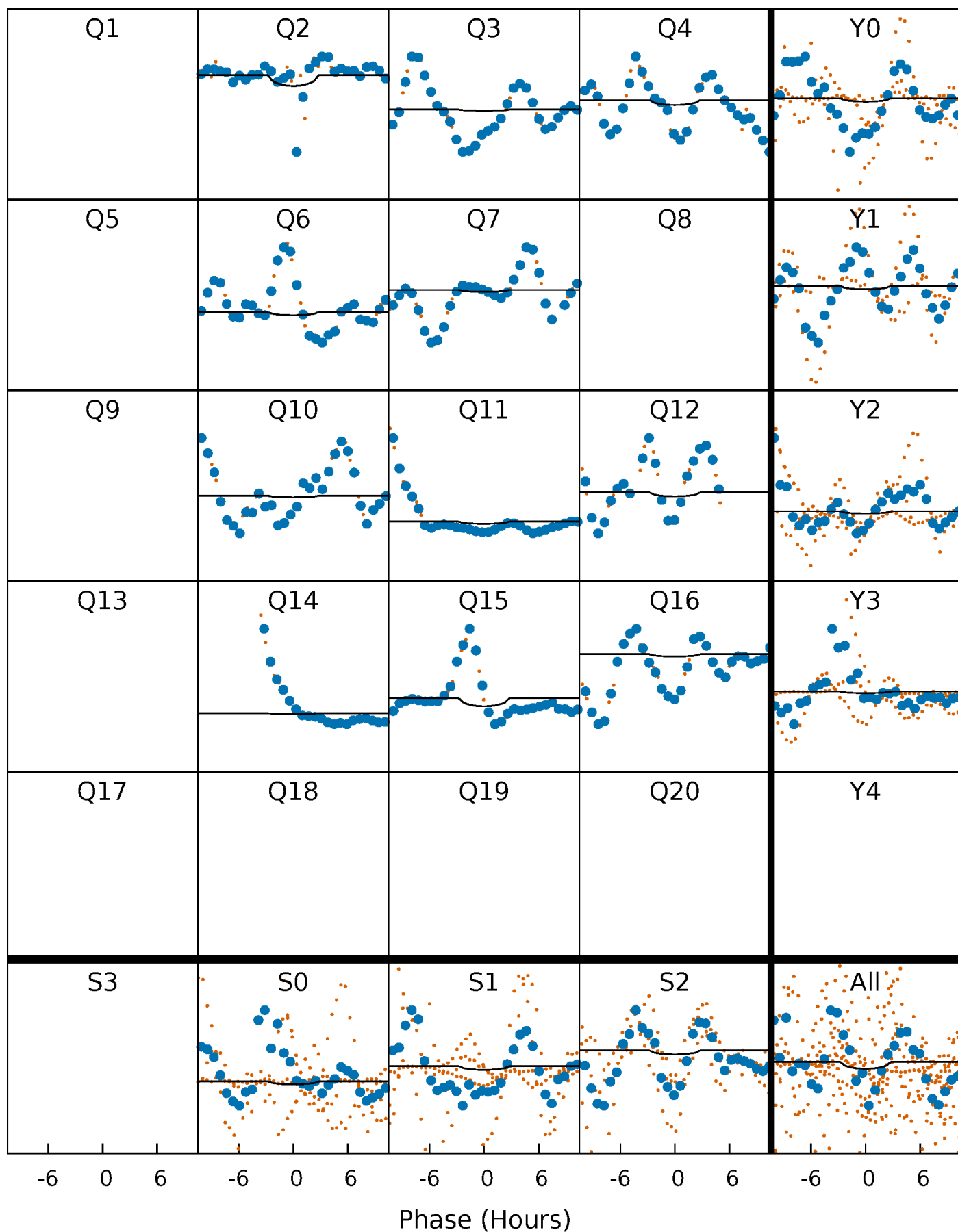
PDC Quarter-Phased Transit Curves

TCE 005164650-01 P=124.515196 Days $T_0=185.692046$ (BKJD)



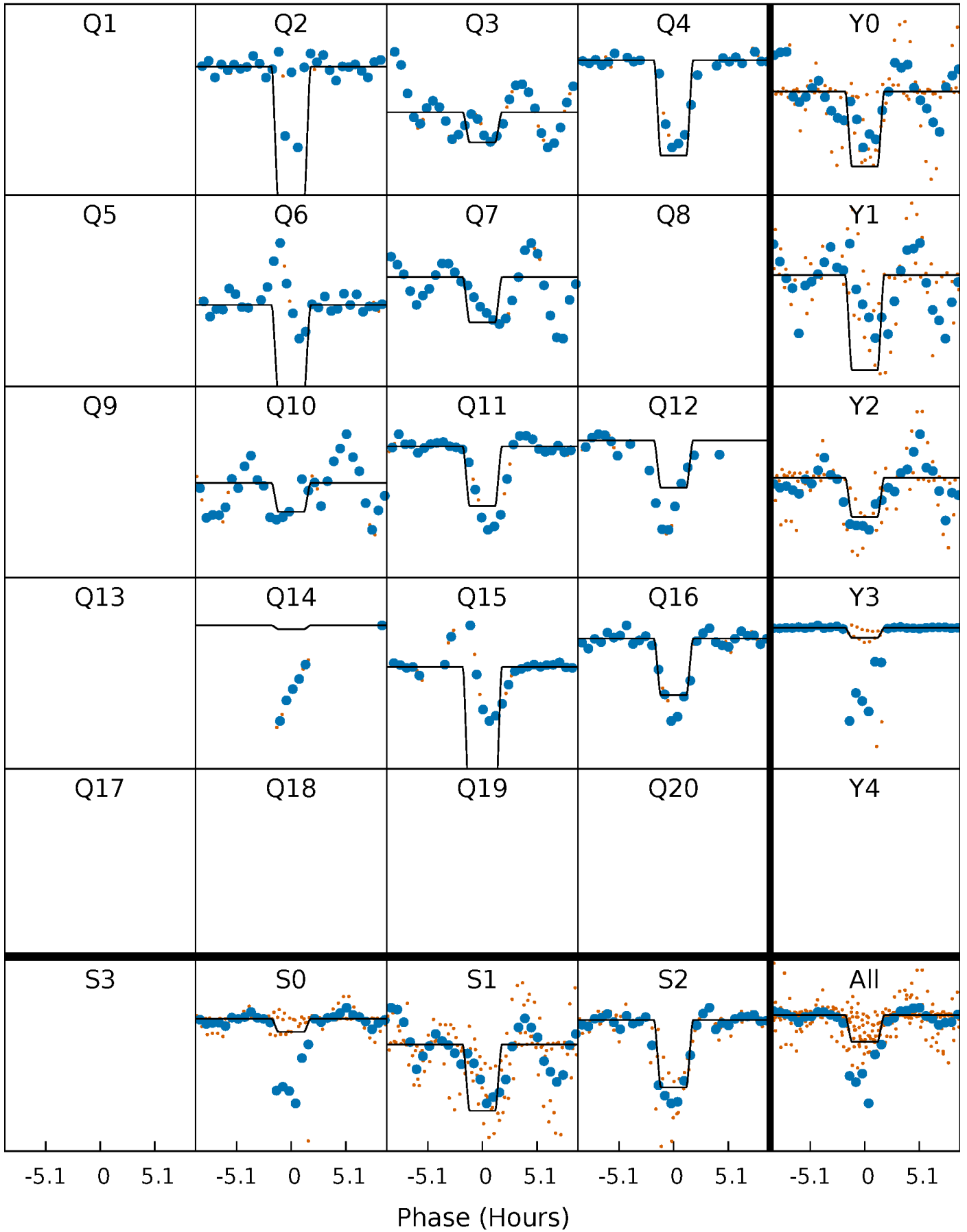
DV Quarter-Phased Transit Curves

TCE 005164650-01 P=124.515196 Days $T_0=185.692046$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

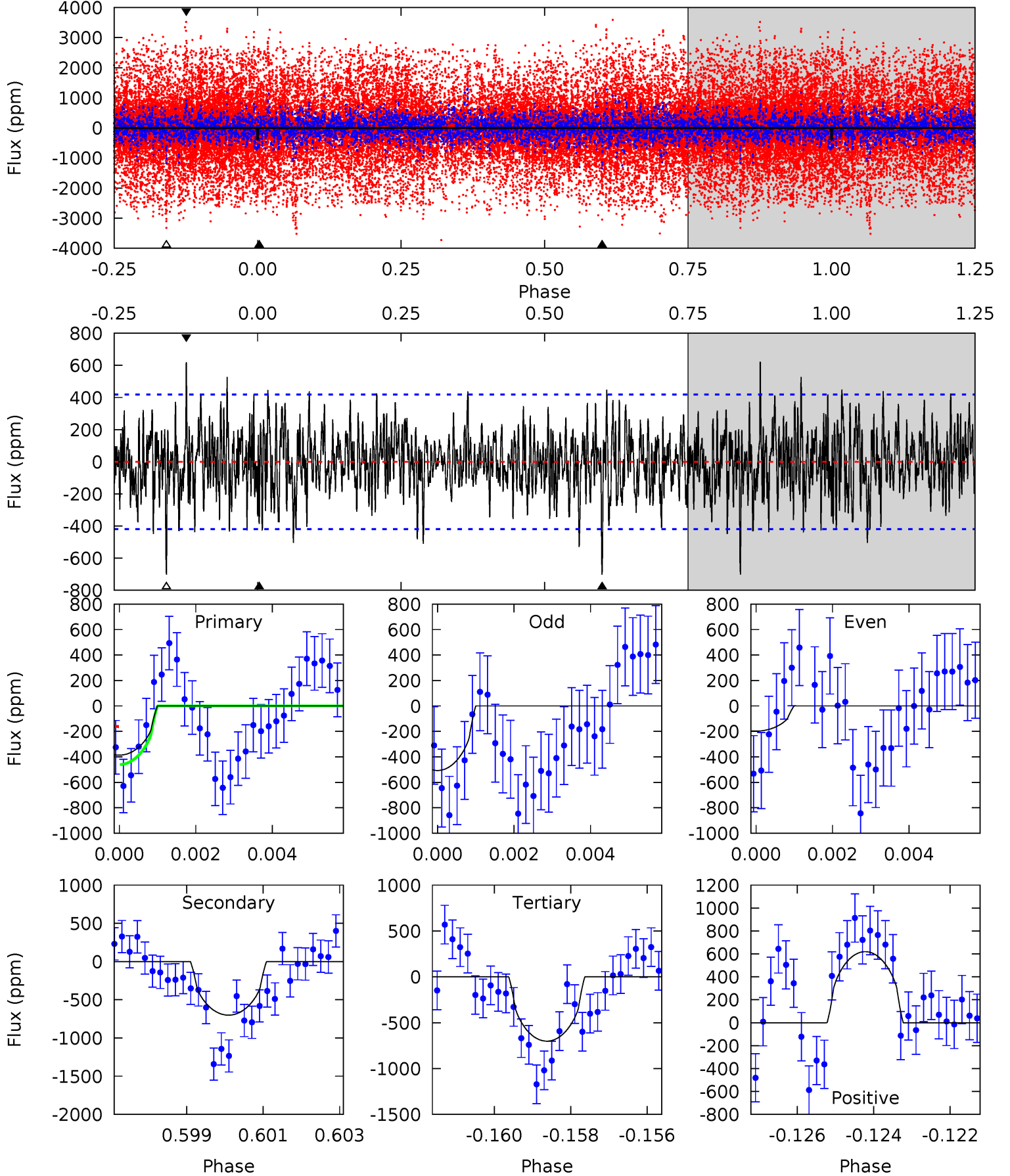
TCE 005164650-01 P=124.513643 Days $T_0=185.716018$ (BKJD)



DV Model-Shift Uniqueness Test

005164650-01, P = 124.515196 Days, E = 61.176850 Days

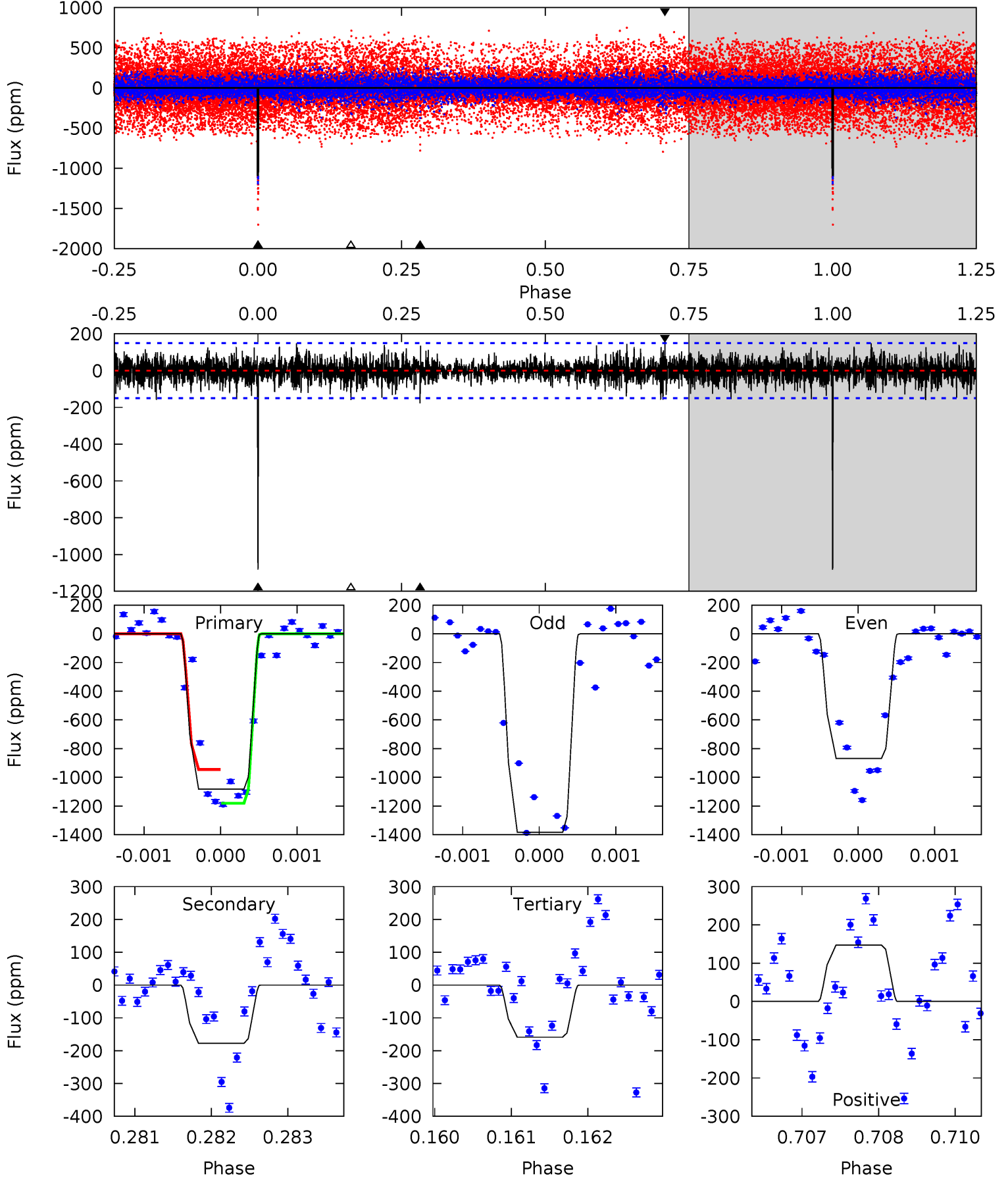
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.92	8.94	8.94	7.90	5.34	3.10	2.12	-4.02	-2.98	0.00	1.04	1.80	1.82	0.47	1.95



Alt Model-Shift Uniqueness Test

005164650-01, P = 124.513643 Days, E = 61.202375 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.2	6.44	5.75	5.34	5.42	3.24	1.51	33.5	33.9	0.68	1.10	8.87	3.19	0.12	4.38



Stellar Parameters For KIC 005164650

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3456^{+119}_{-95}	$0.252^{+0.248}_{-0.062}$	$-0.300^{+0.300}_{-0.150}$	$127.822^{+13.232}_{-30.875}$	$1.066^{+0.280}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+98%/-25%	+100%/-50%	+10%/-24%	+26%/-11%	+116%/-23%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005164650-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-702 ± 78	$150.48^{+126.50}_{-97.59}$	3334^{+163}_{-232}	4611^{+3187}_{-999}	$4.478^{+32.190}_{-3.163}$
Alt.	-178 ± 28	$474.92^{+155.66}_{-135.29}$	3362^{+160}_{-220}	-2797^{+327}_{-170}	$0.112^{+0.109}_{-0.048}$

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 $A_{obs} \gg 1.0$

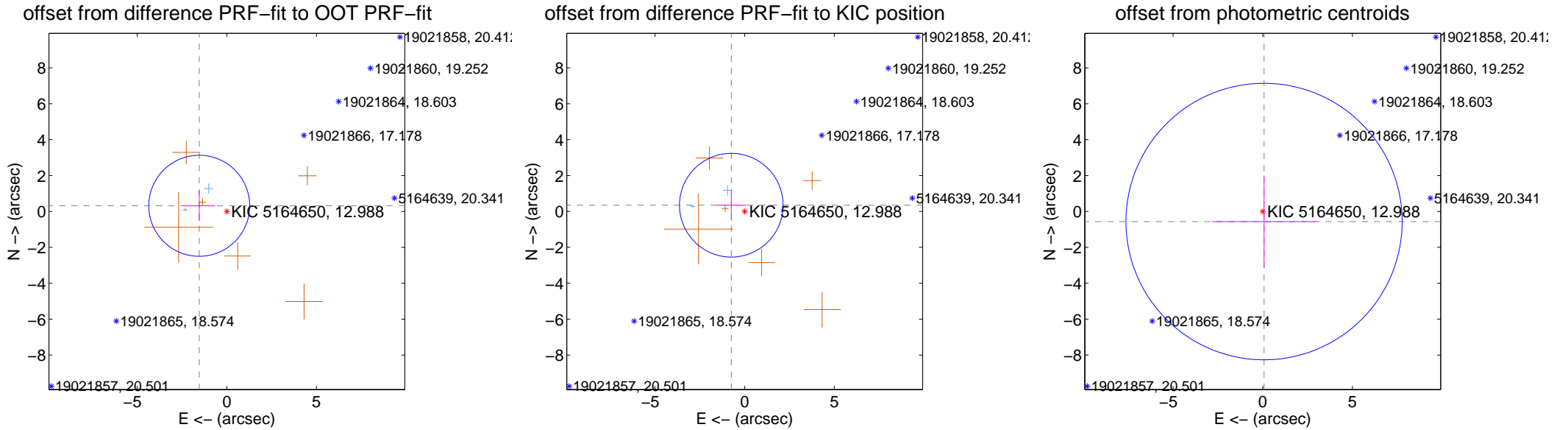
DV Centroid Data

Supplemental centroid analysis for 005164650-01. Kepler magnitude: 12.99. Transit SNR 2.39

There are 2 quarters with good PRF difference image offsets

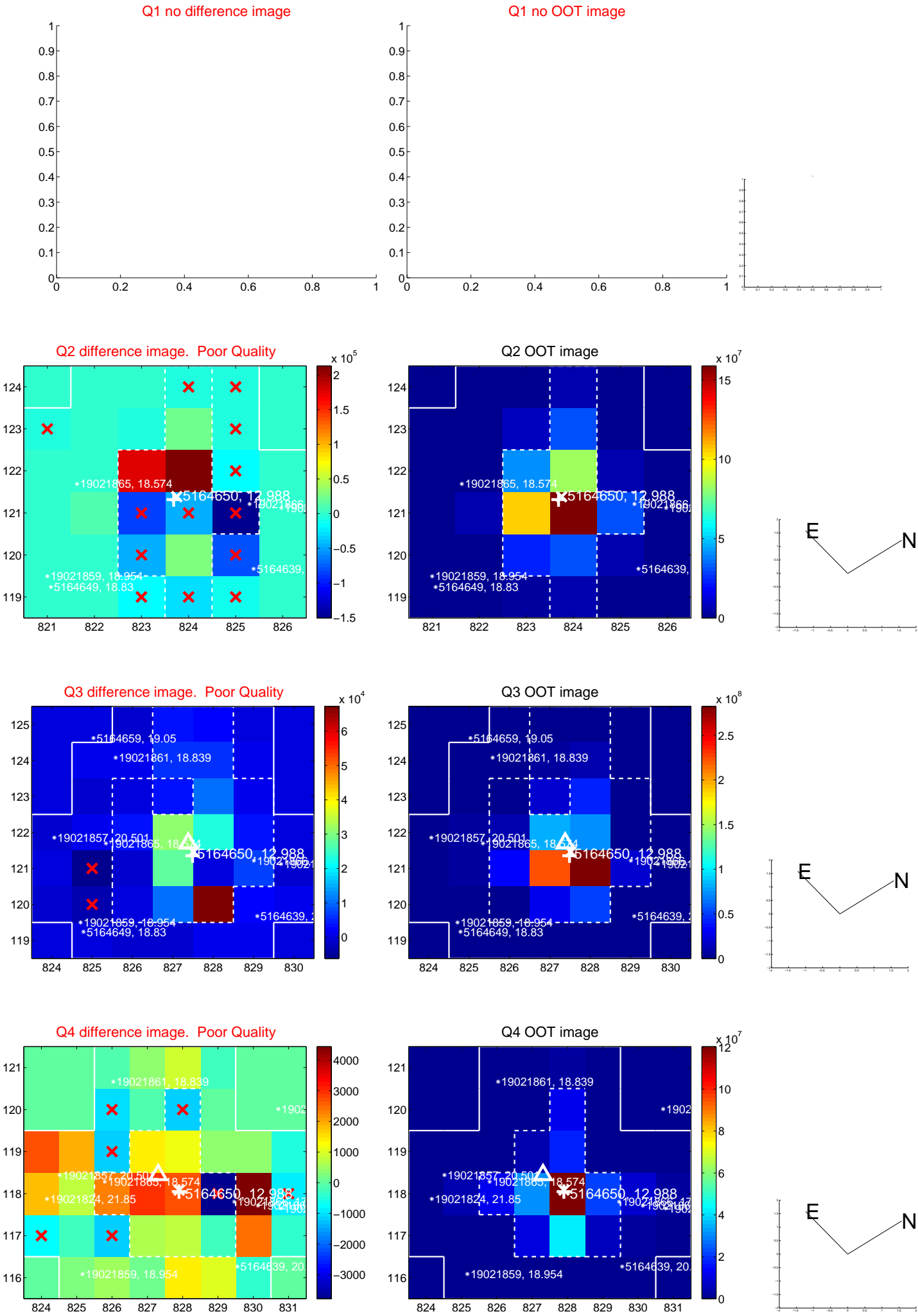
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.572 ± 0.938	1.68	1.540 ± 0.901	0.316 ± 0.859
PRF-fit source offset from KIC position	0.823 ± 0.963	0.85	0.746 ± 0.849	0.348 ± 0.848
photometric centroid source offset	0.57 ± 2.57	0.22	-0.07 ± 2.90	-0.56 ± 2.56



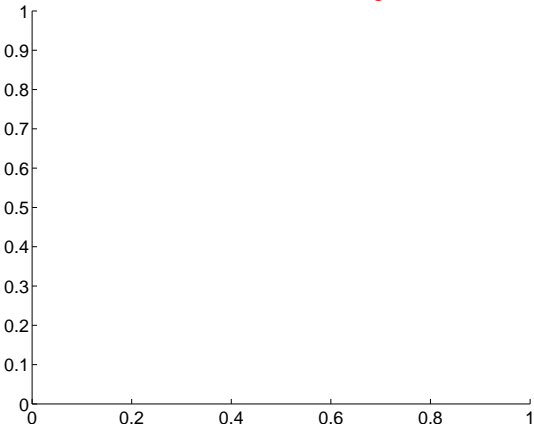
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

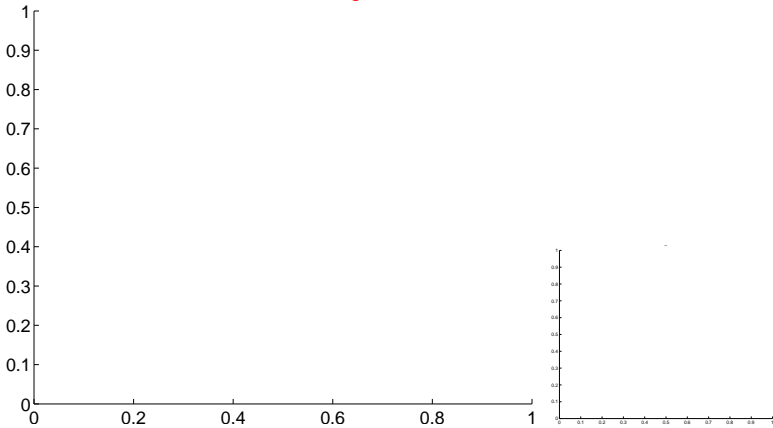


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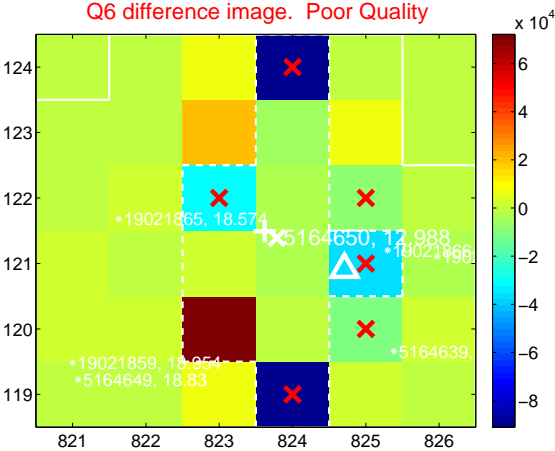
Q5 no difference image



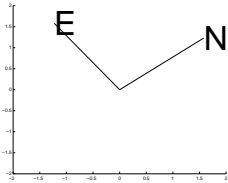
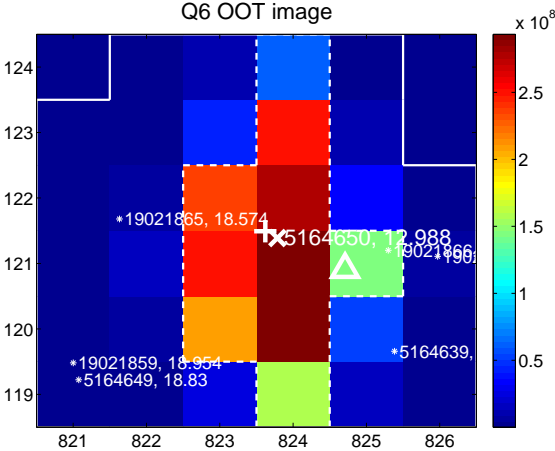
Q5 no OOT image



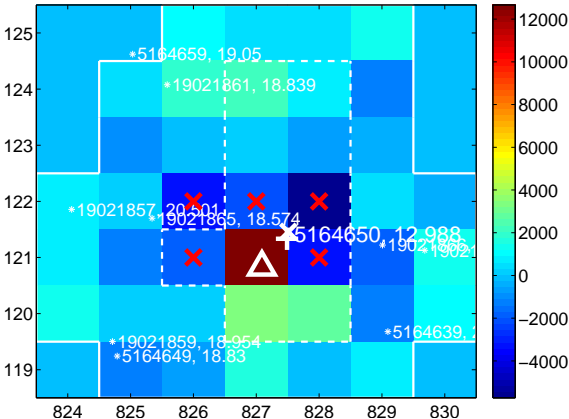
Q6 difference image. Poor Quality



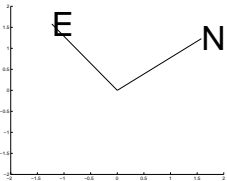
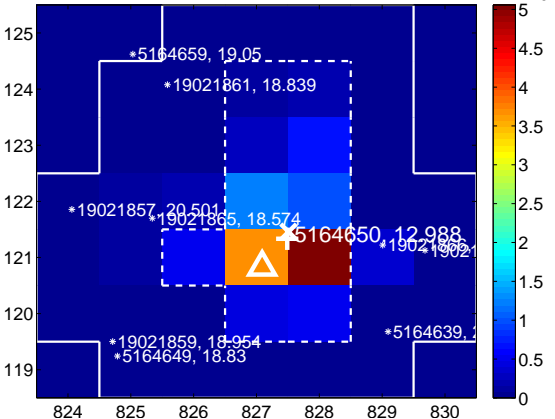
Q6 OOT image



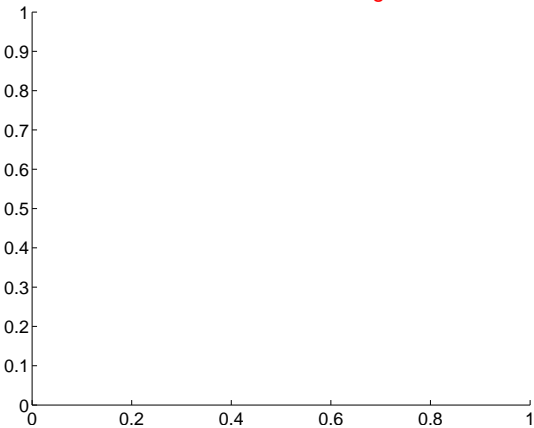
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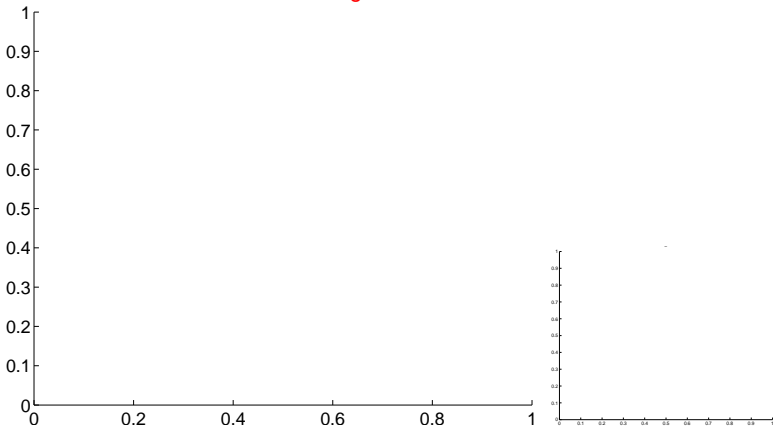
Q7 OOT image



Q8 no difference image

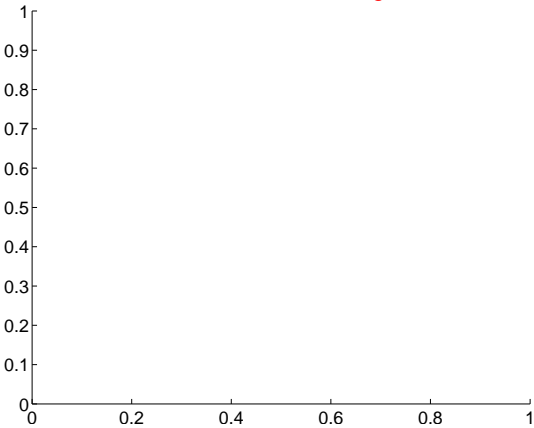


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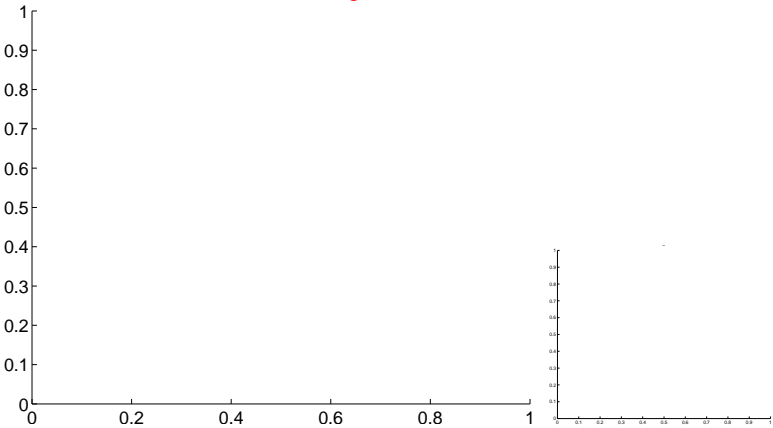


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

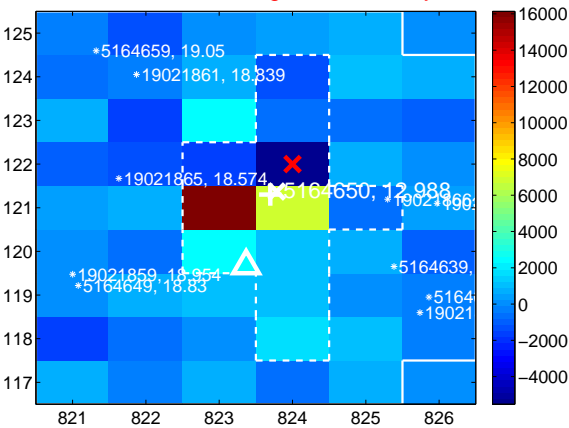
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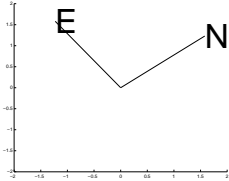
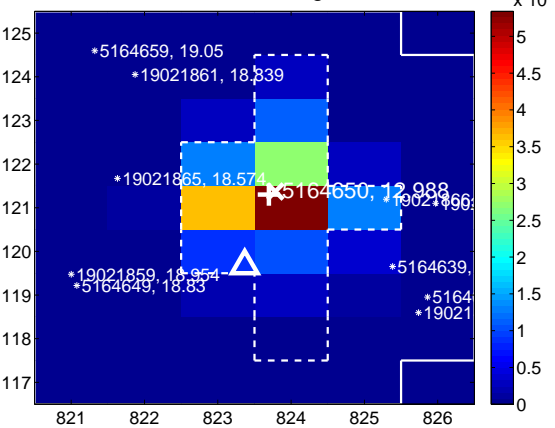
Q9 no OOT image



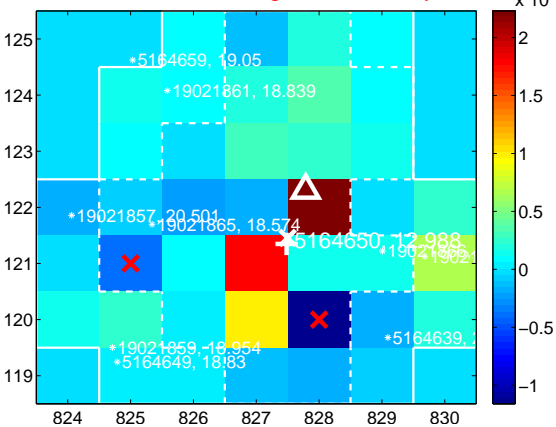
Q10 difference image. Poor Quality



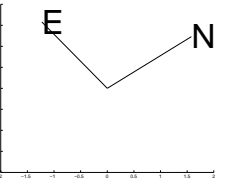
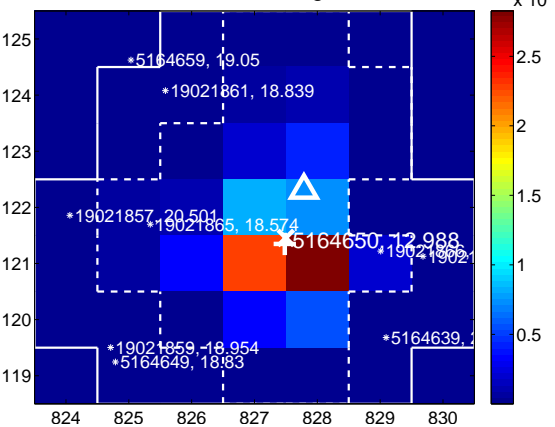
Q10 OOT image



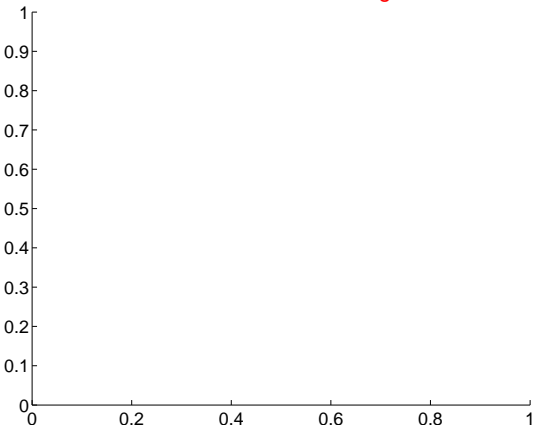
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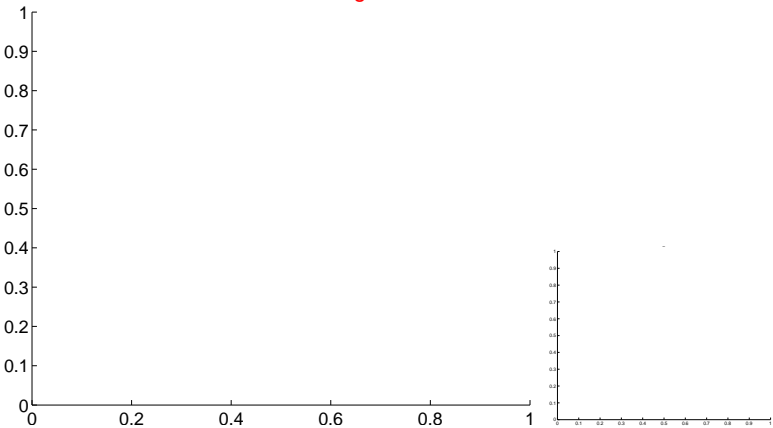
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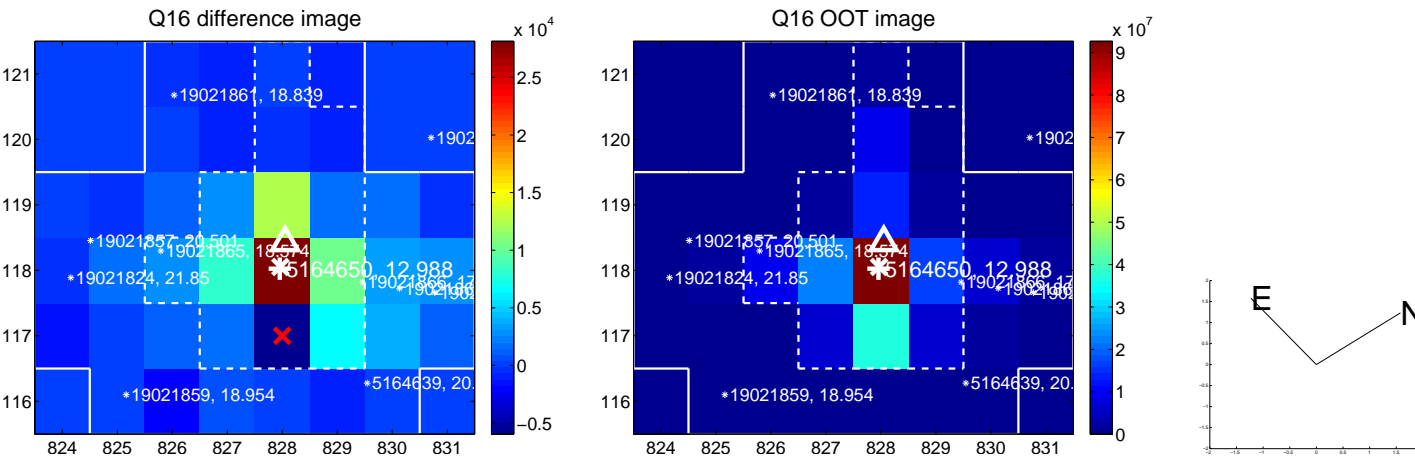
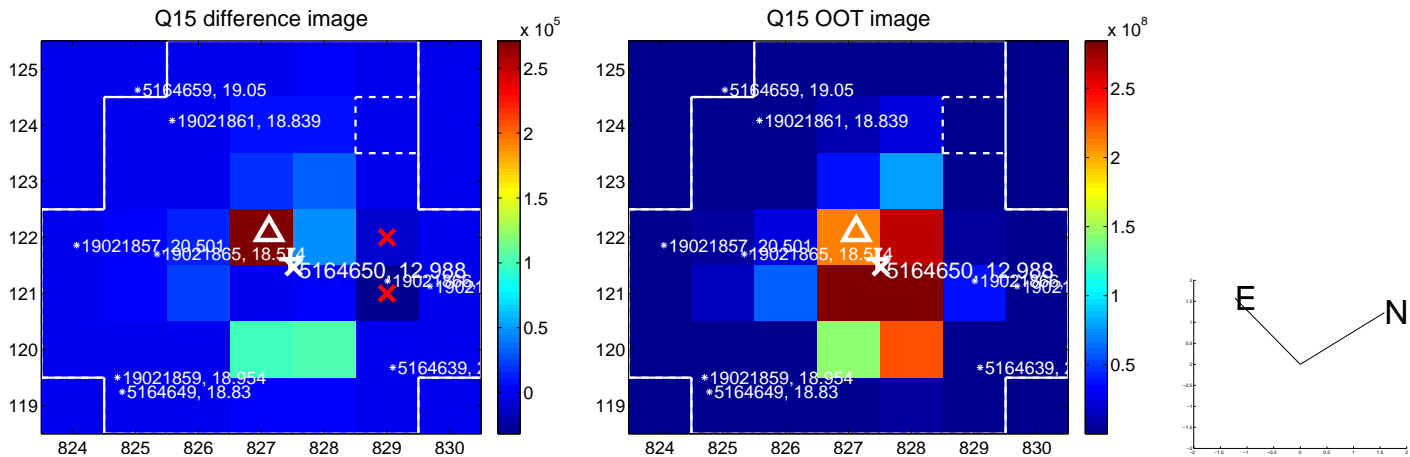
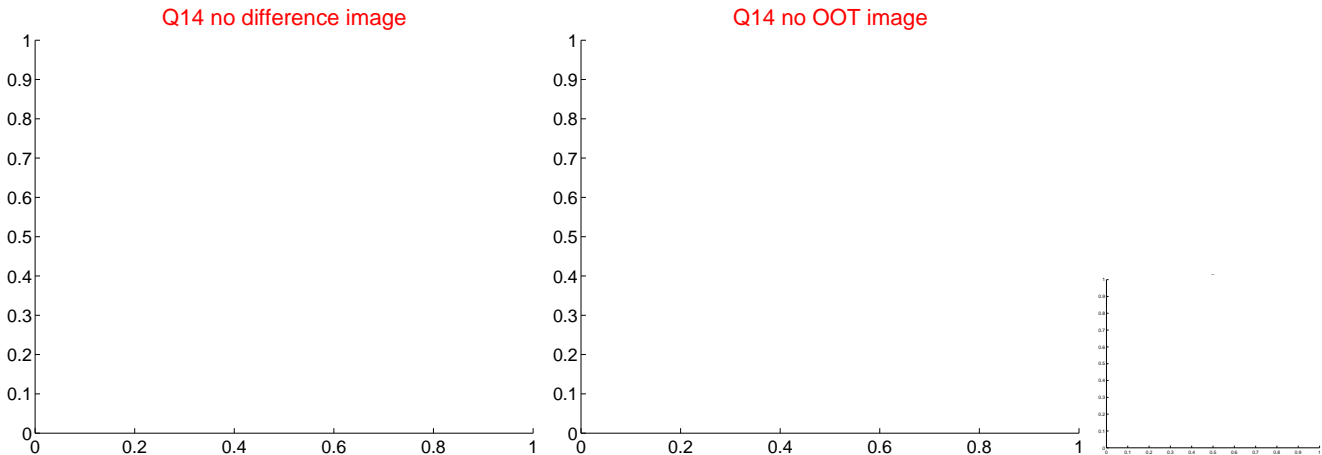
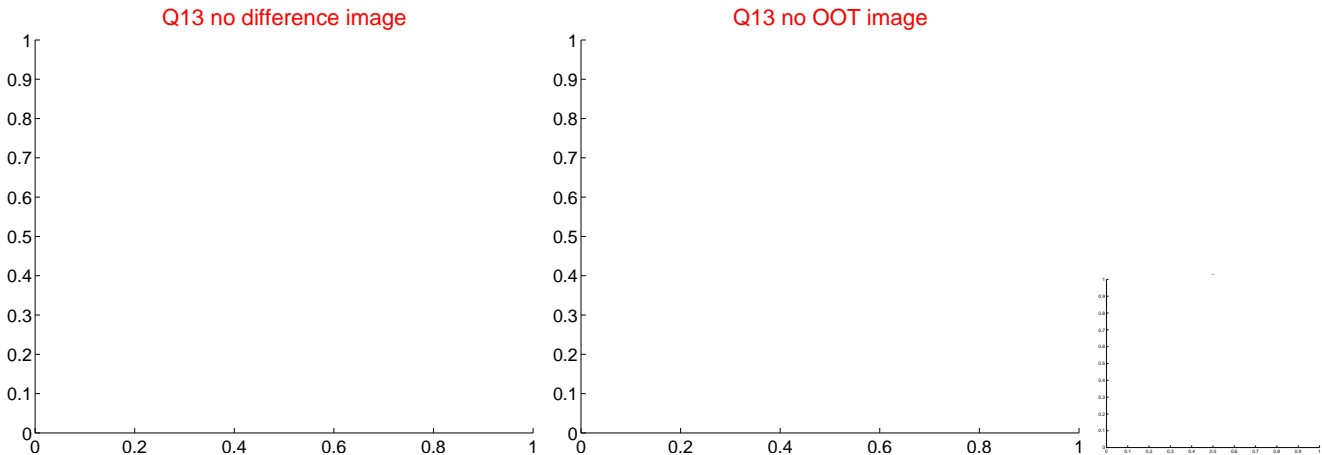
Q12 no difference image



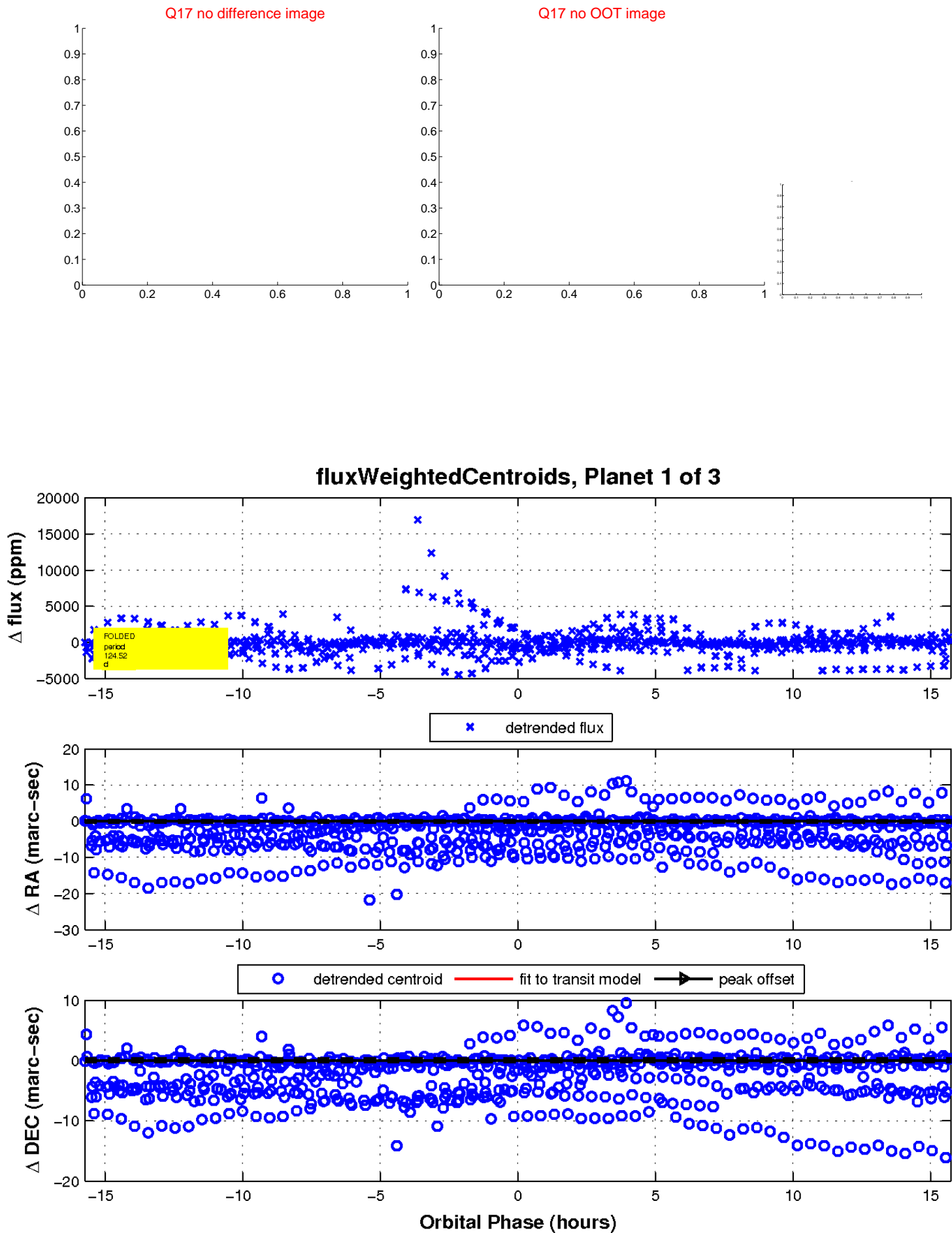
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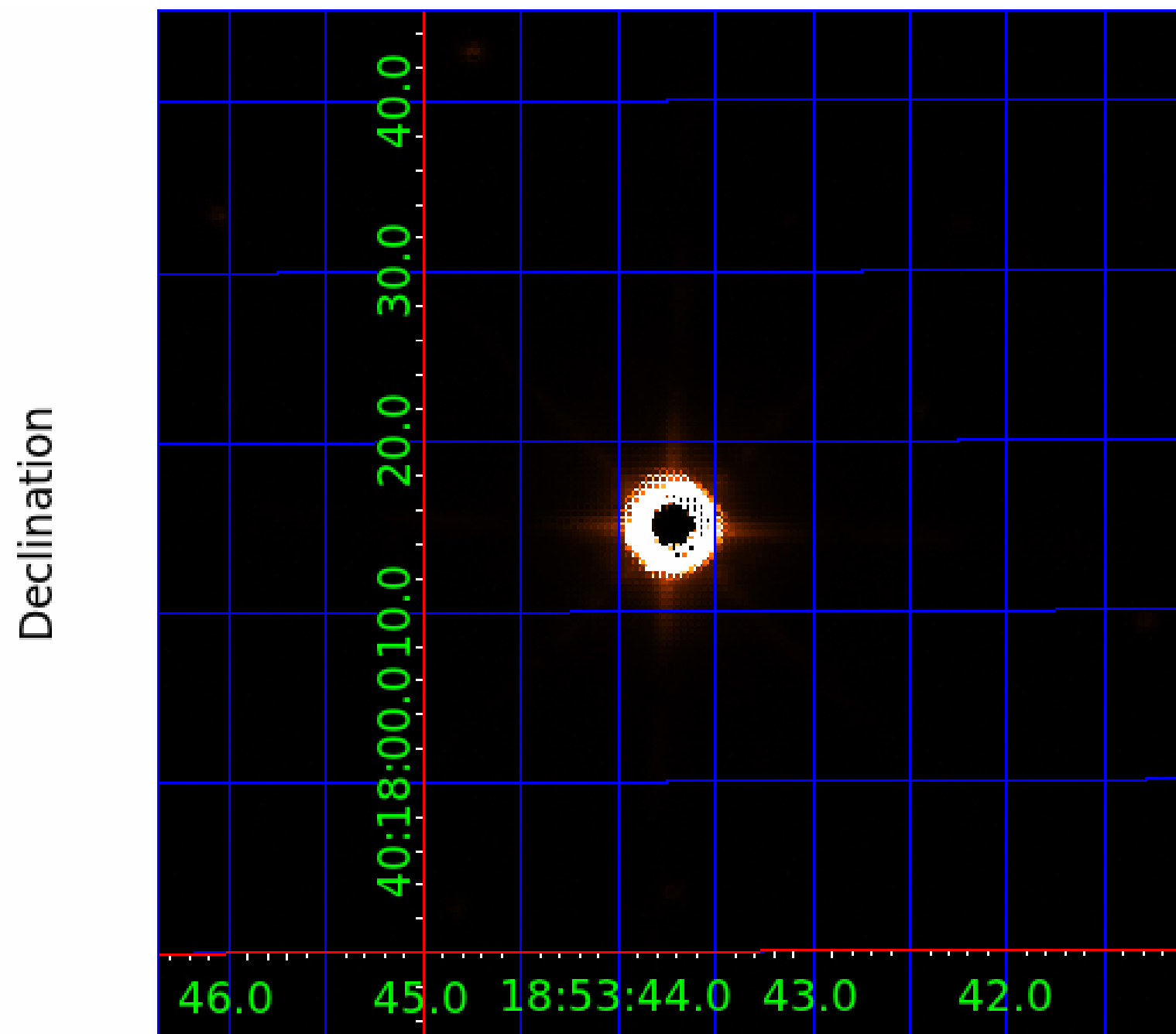
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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UKIRT Image



KIC 005164650

Q1-17 DR25 TCE Parameters

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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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005164650-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005164650-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

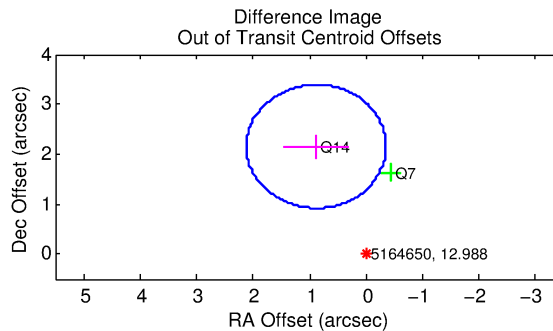
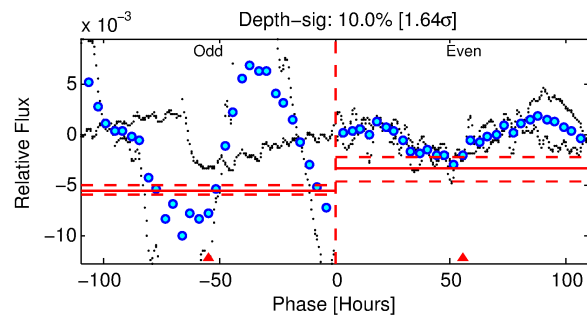
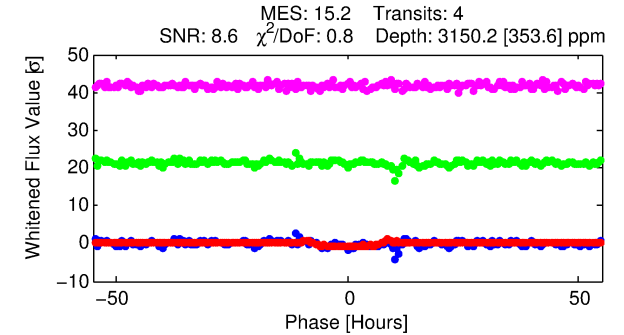
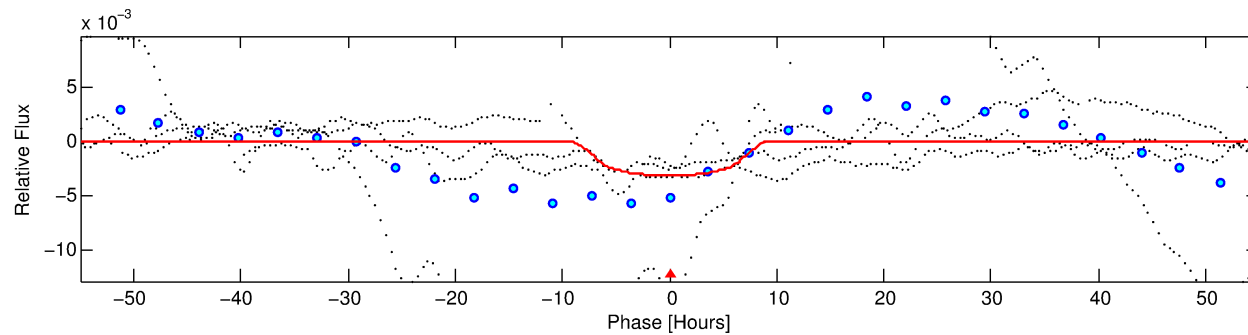
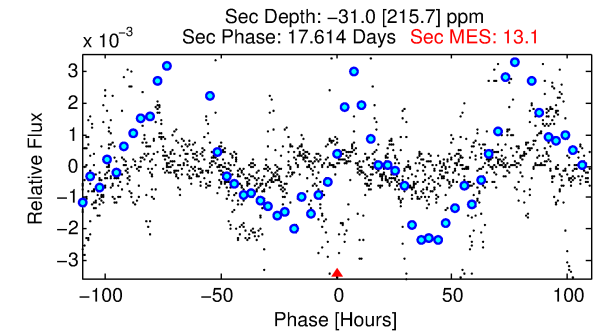
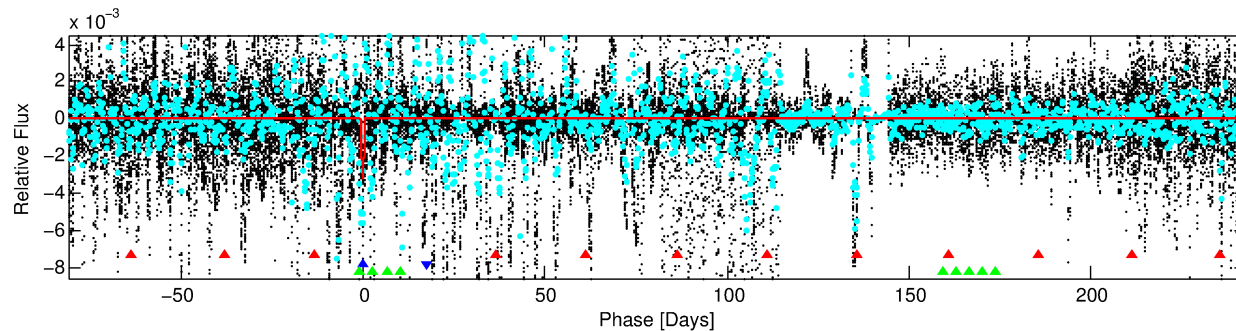
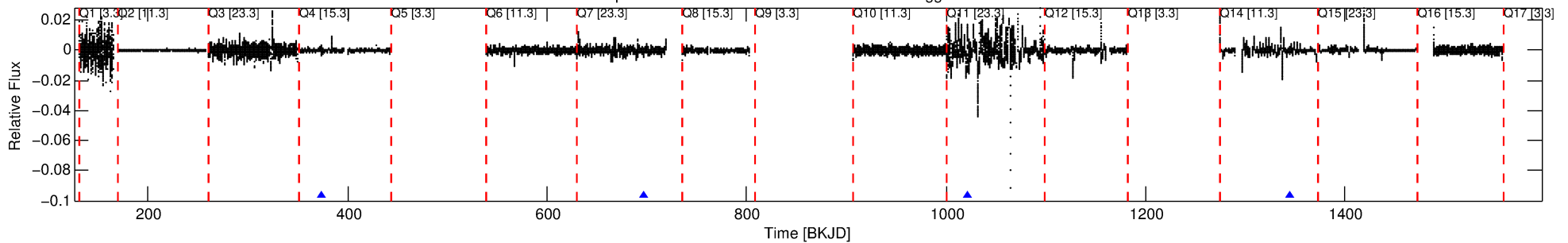
Ephemeris Match Information For 005164650-02

No Significant Match Found

DV One-Page Summary

KIC: 5164650 Candidate: 2 of 3 Period: 323.572 d

Kp: 12.99 R*: 127.82 Rs Teff: 3456.0 K Logg: 0.25 Fe/H: -0.300



DV Fit Results:

Period = 323.57156 [0.00581] d
Epoch = 373.7410 [0.0112] BKJD
Rp/R* = 0.0620 [0.0034]
a/R* = 86.03 [4.71]
b = 0.85 [0.02]
Seff = 2353.06 [1025.21]
Teff = 1776 [193] K
Rp = 864.56 [214.30] Re
a = 0.9421 [0.2349] AU
Ag = N/A
Teffp = N/A

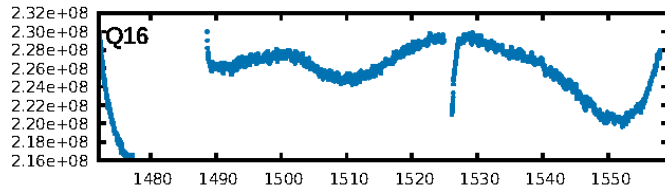
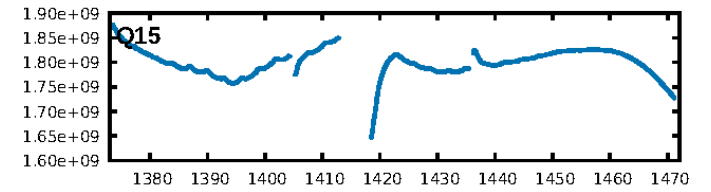
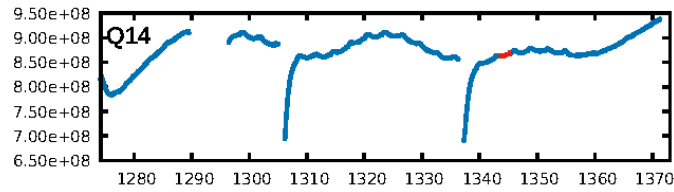
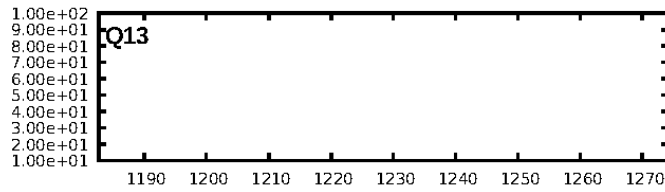
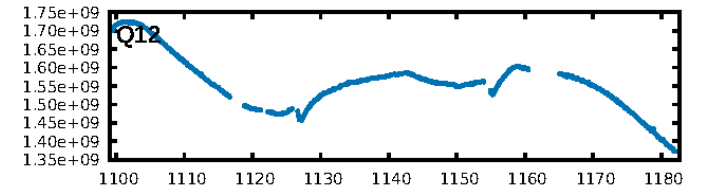
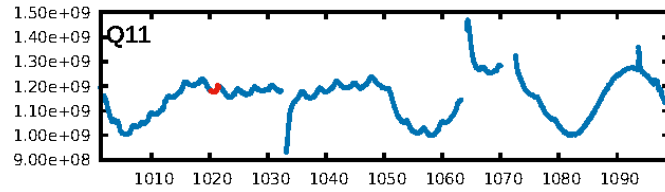
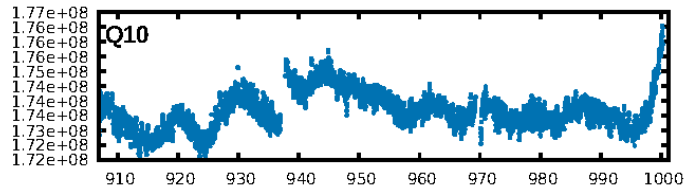
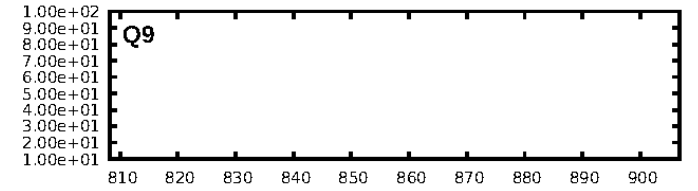
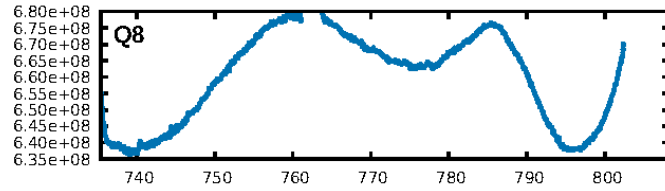
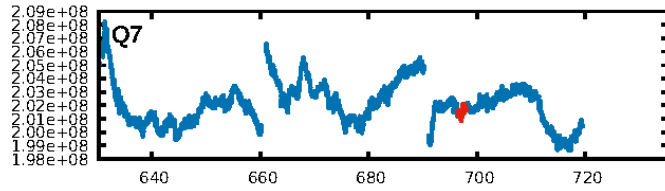
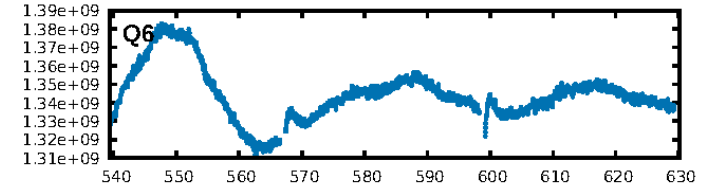
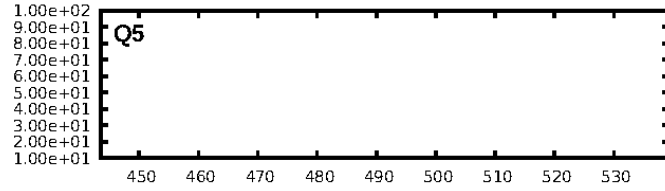
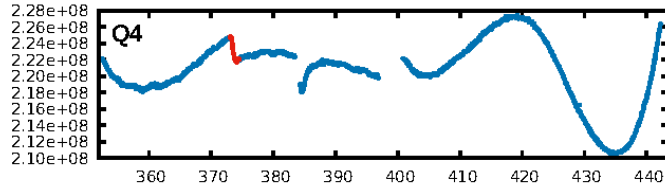
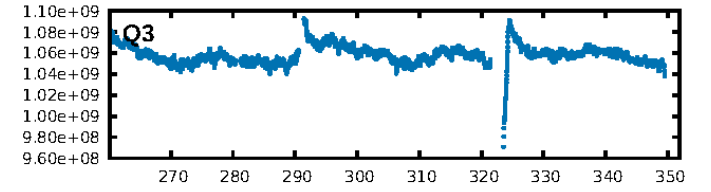
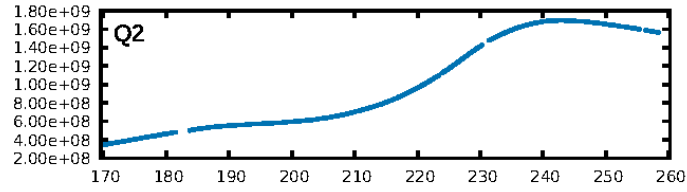
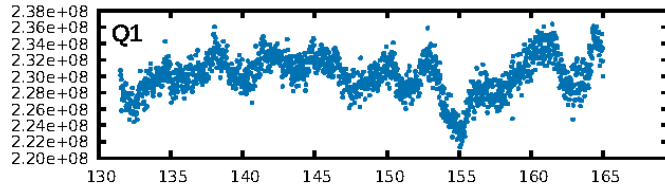
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [205.21σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 11.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.19e-06
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.88
Centroid-sig: 31.8%
Centroid-so: 0.370 arcsec [3.05σ]
OotOffset-rm: 2.327 arcsec [5.65σ]
KicOffset-rm: 2.443 arcsec [2.81σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

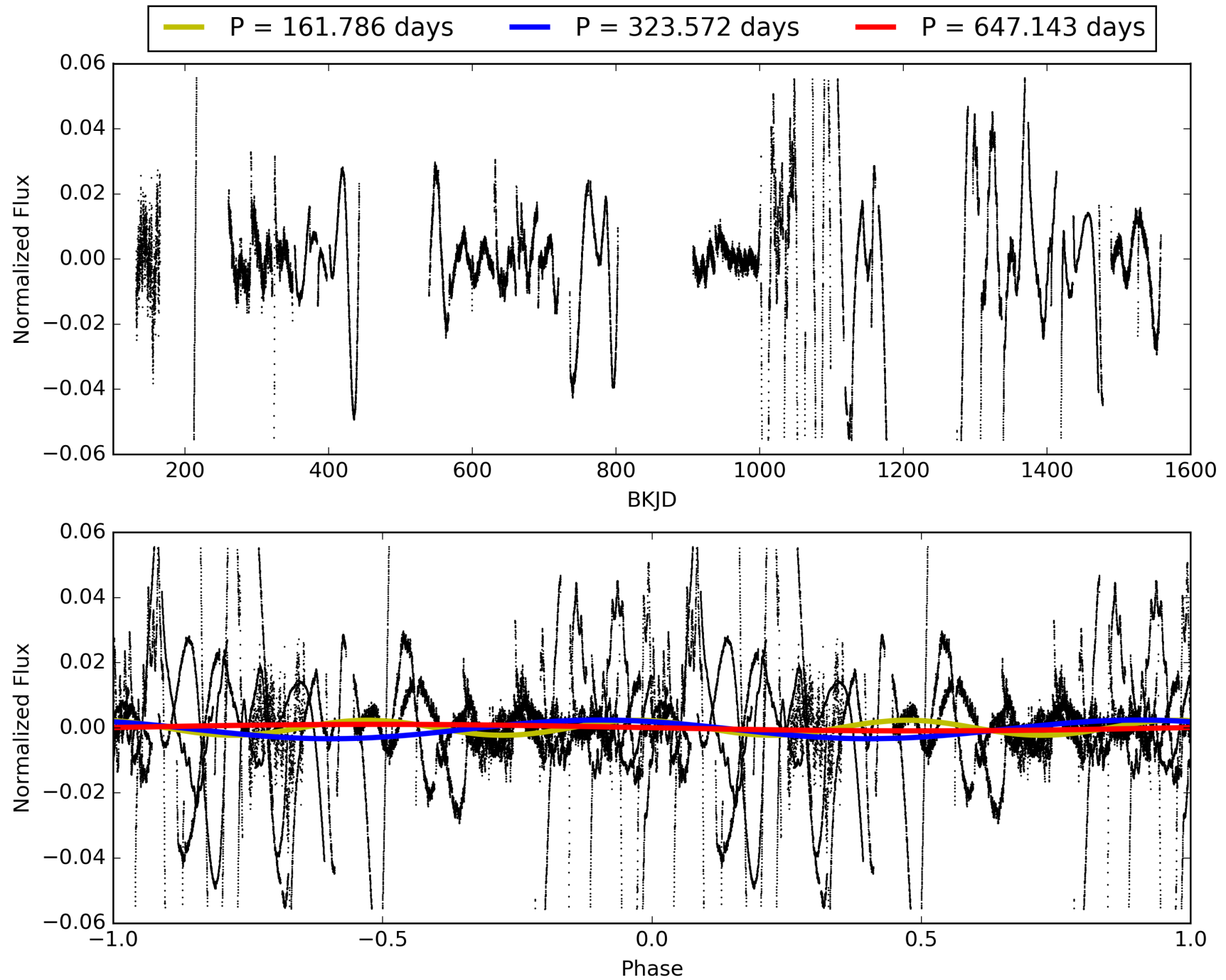
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 04:57:49 Z

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

TCE 005164650-02, PDC Light Curves

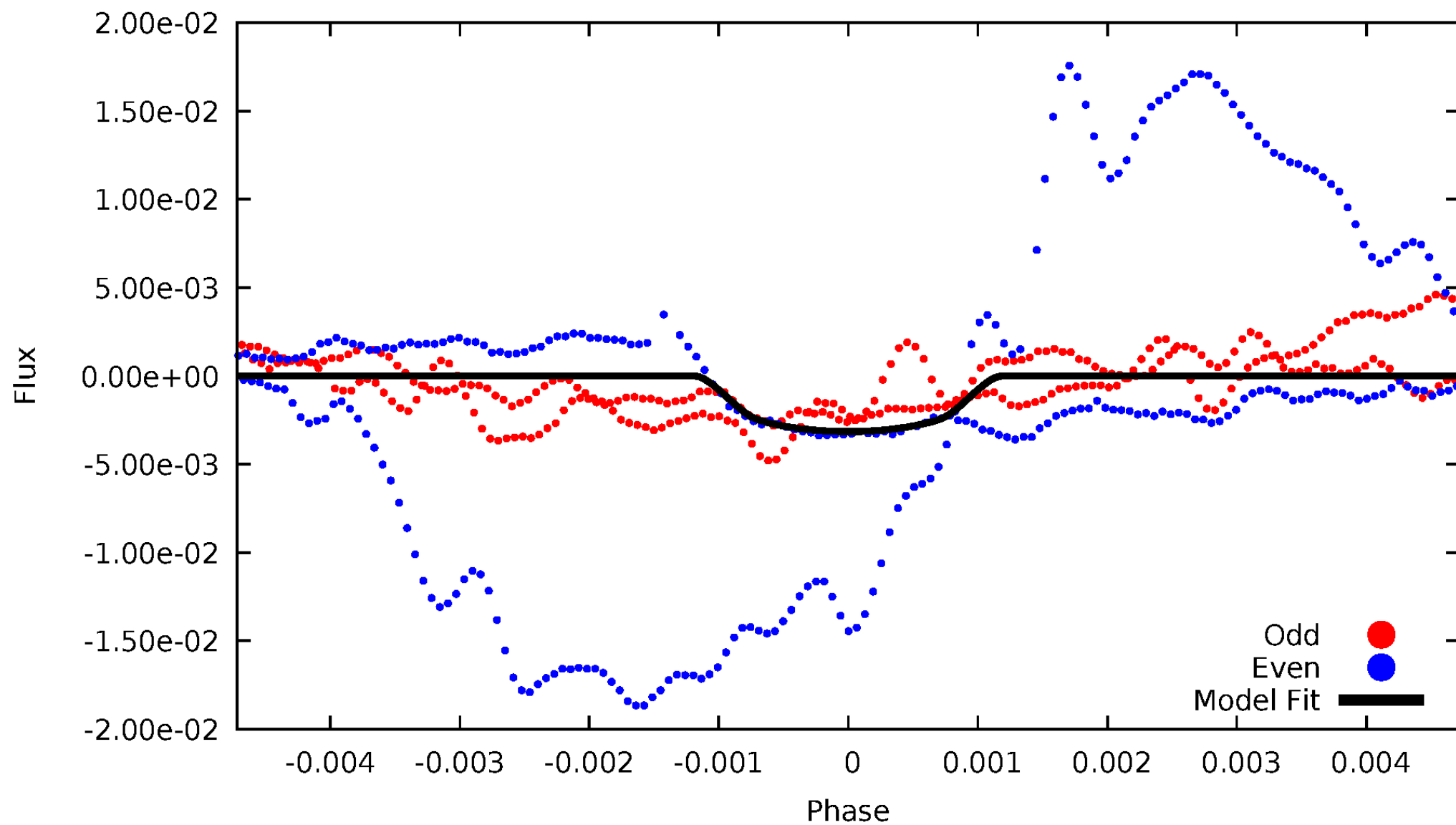


TCE 005164650-02



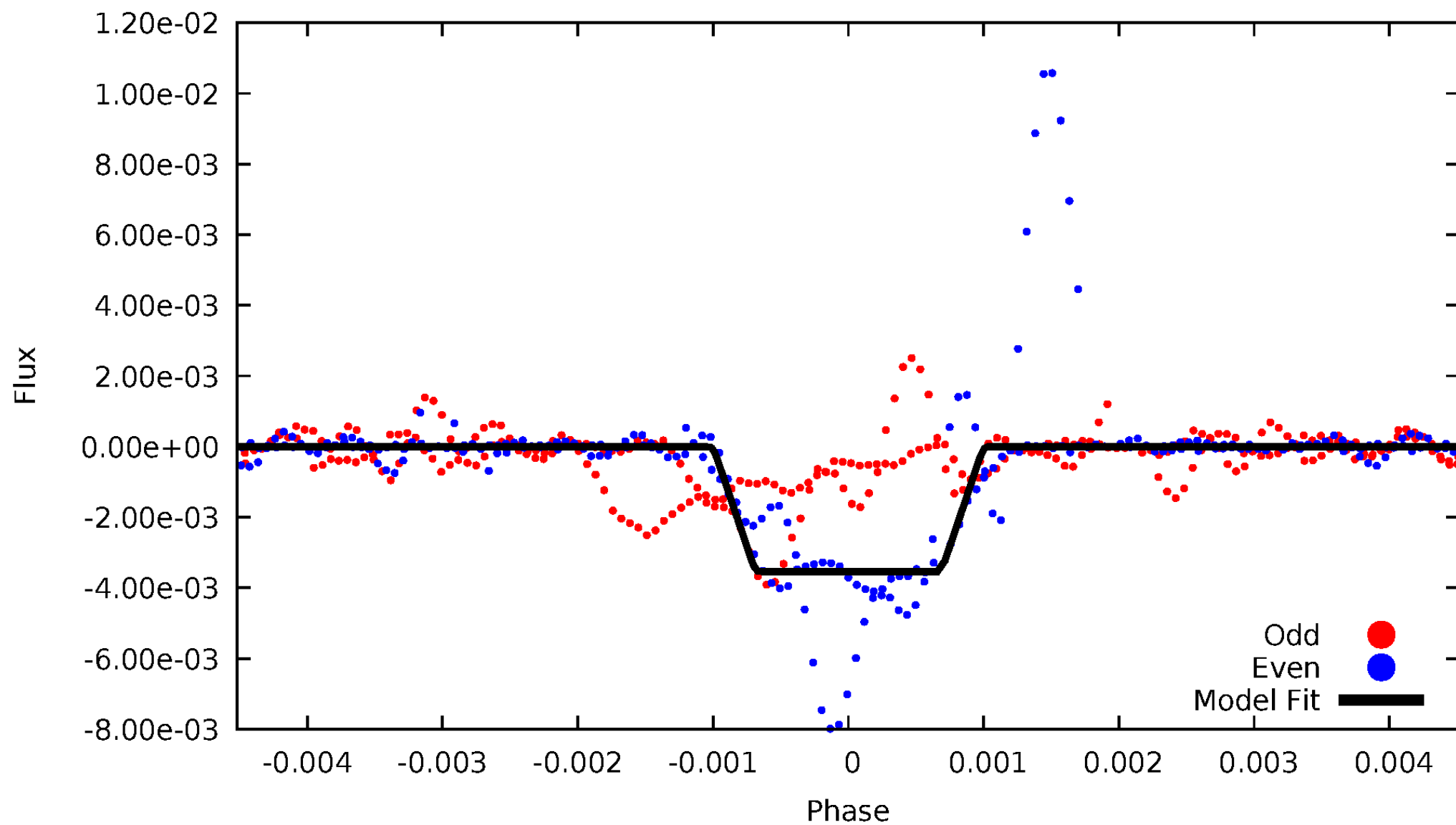
DV Odd/Even

TCE 005164650-02



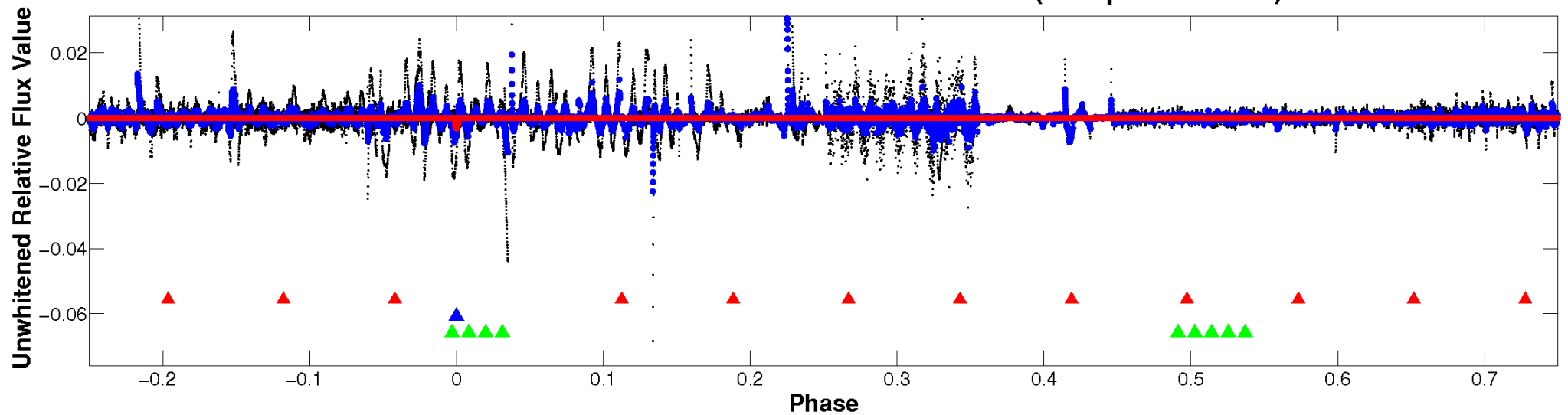
ALT Odd/Even

TCE 005164650-02

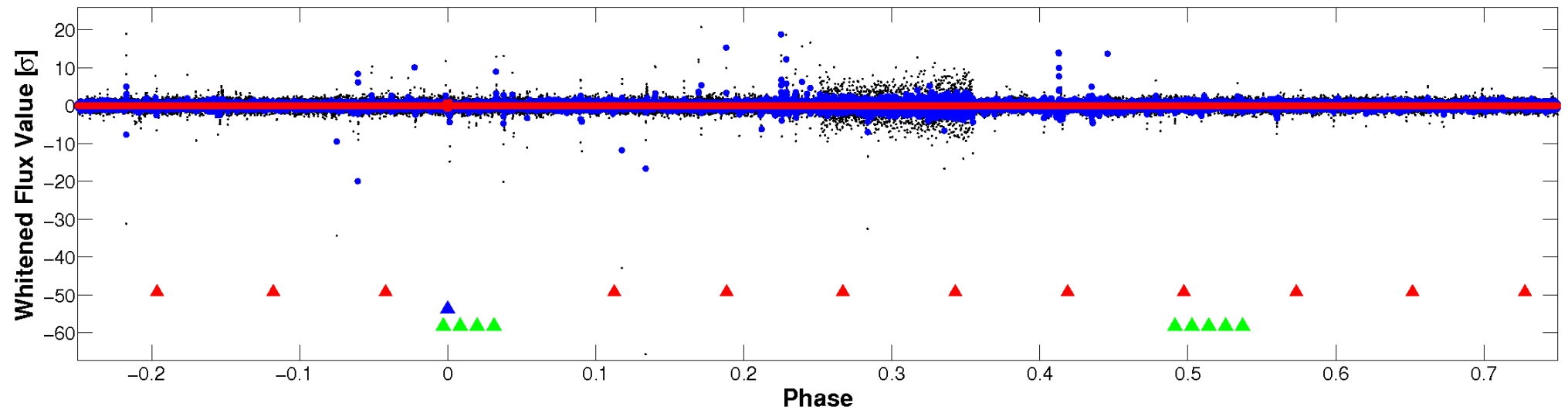


Non-Whitened Vs. Whitened Light Curve

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

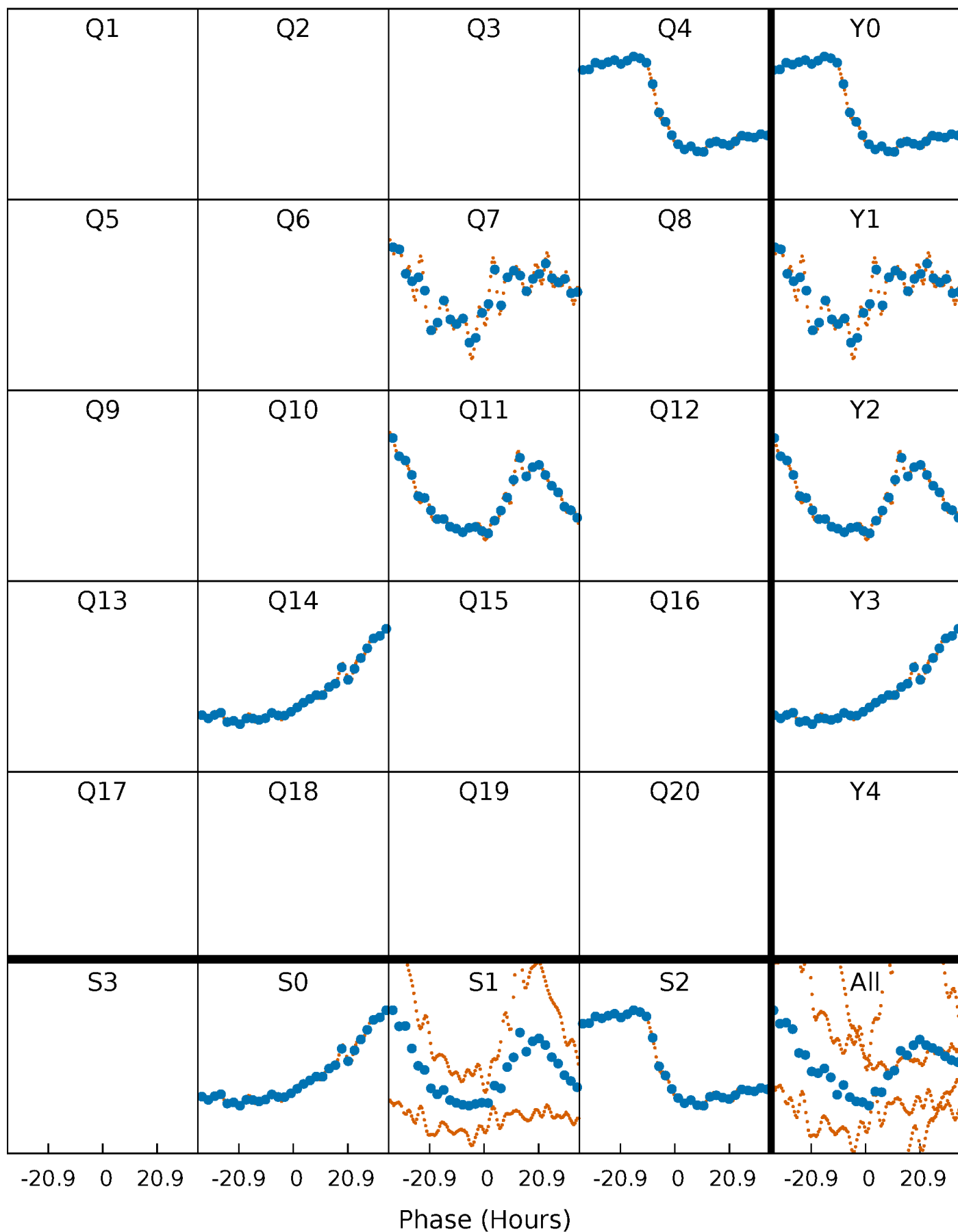


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



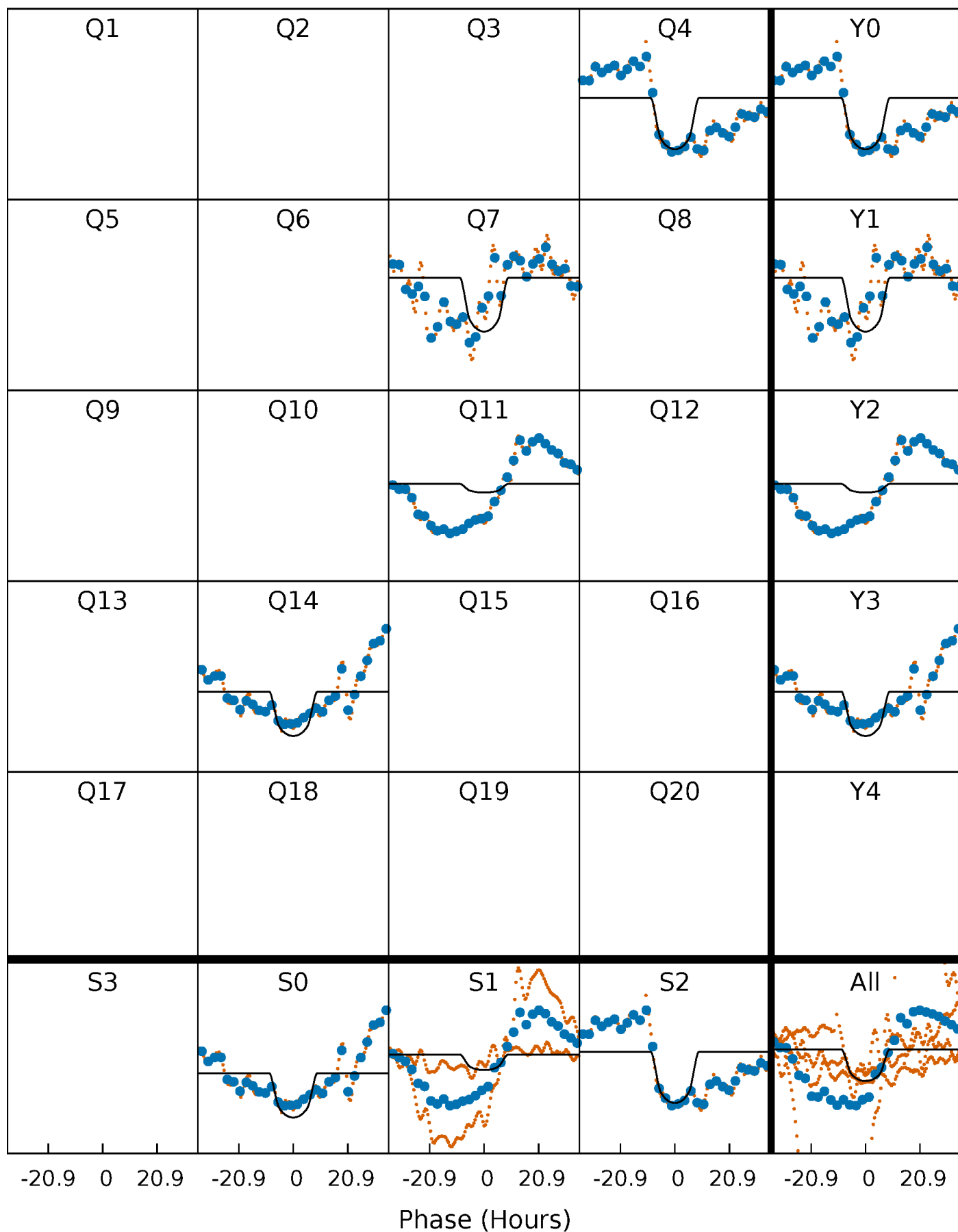
PDC Quarter-Phased Transit Curves

TCE 005164650-02 $P=323.571555$ Days $T_0=373.741003$ (BKJD)



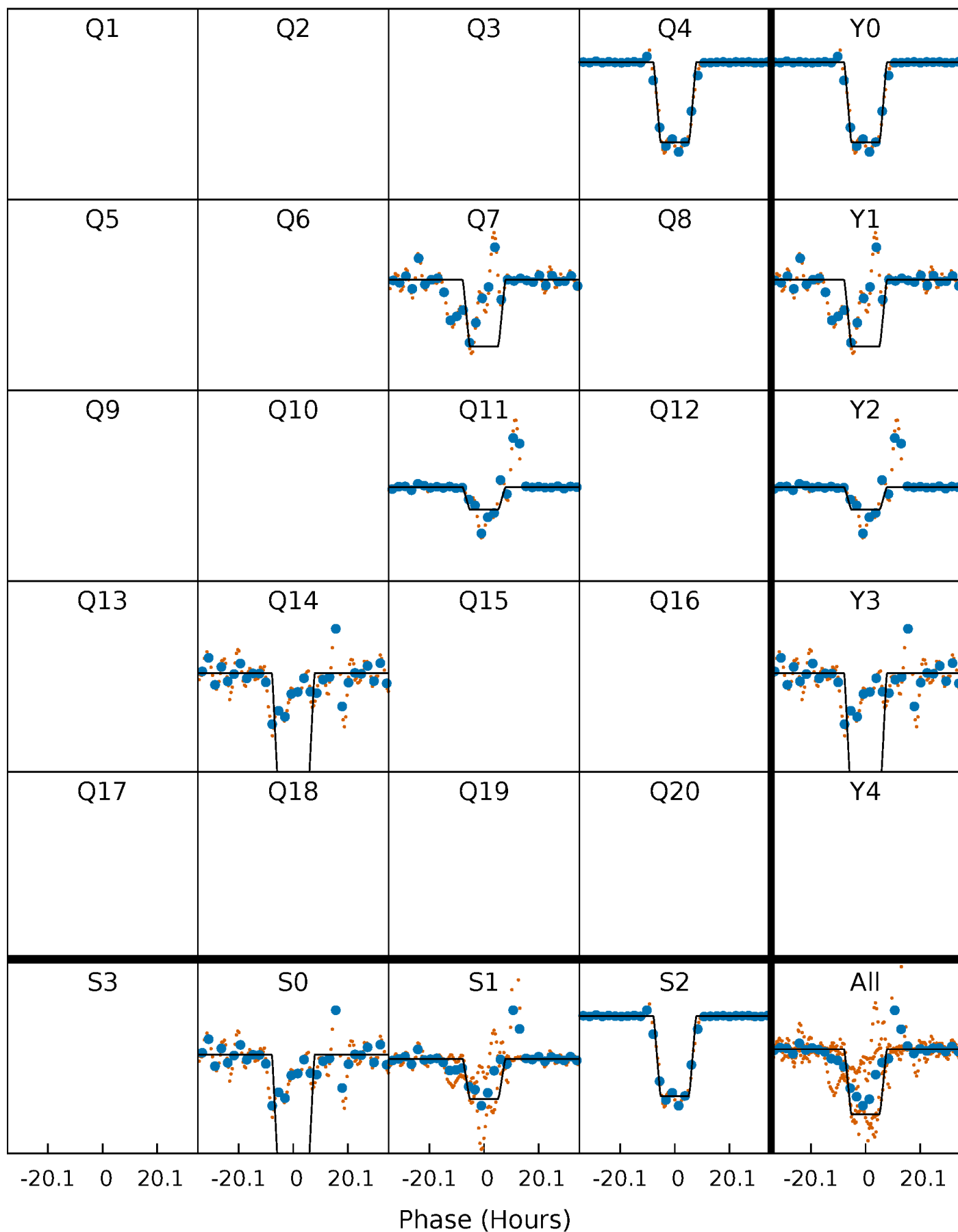
DV Quarter-Phased Transit Curves

TCE 005164650-02 $P=323.571555$ Days $T_0=373.741003$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

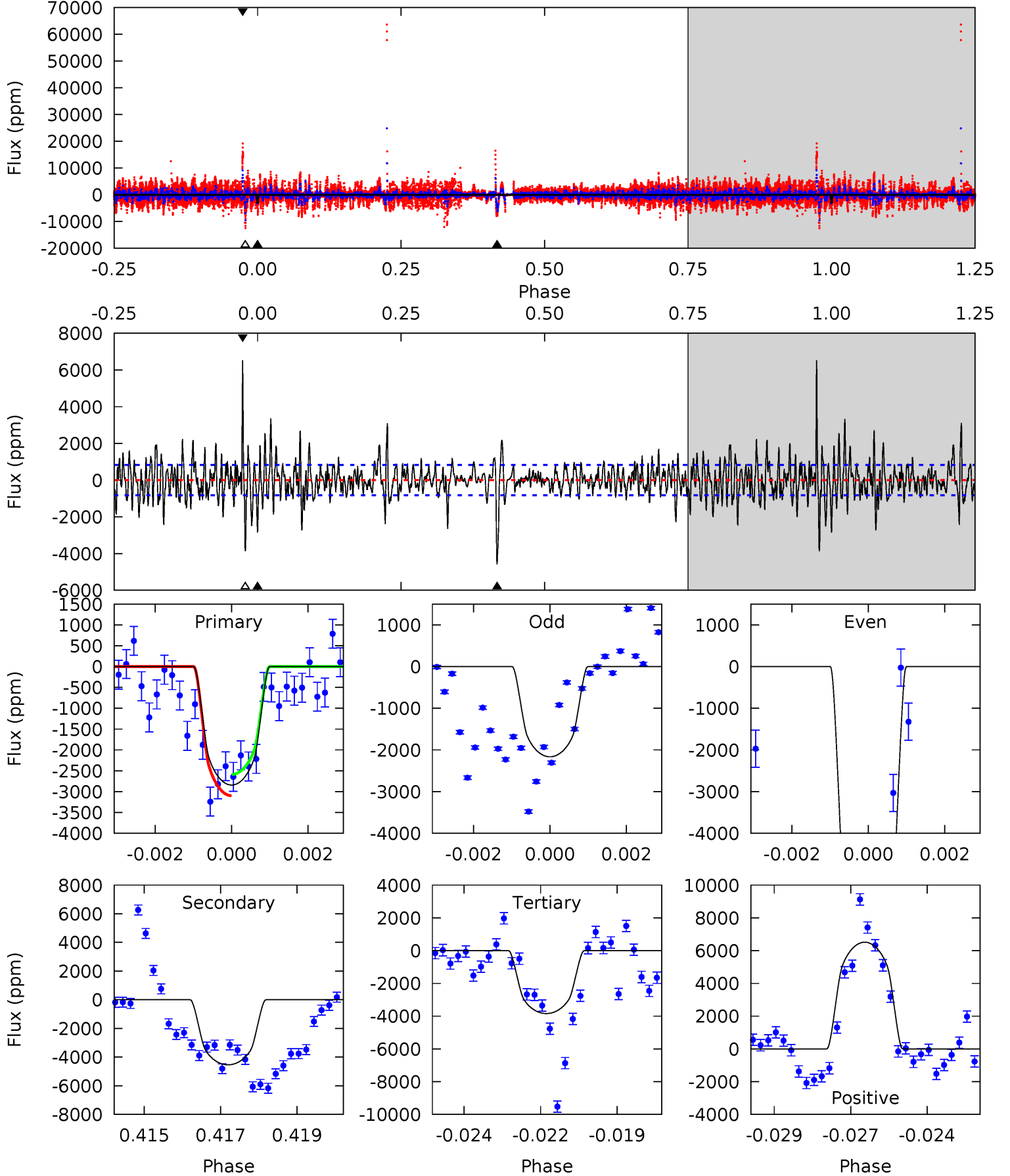
TCE 005164650-02 $P=323.640346$ Days $T_0=373.667901$ (BKJD)



DV Model-Shift Uniqueness Test

005164650-02, $P = 323.571555$ Days, $E = 50.169448$ Days

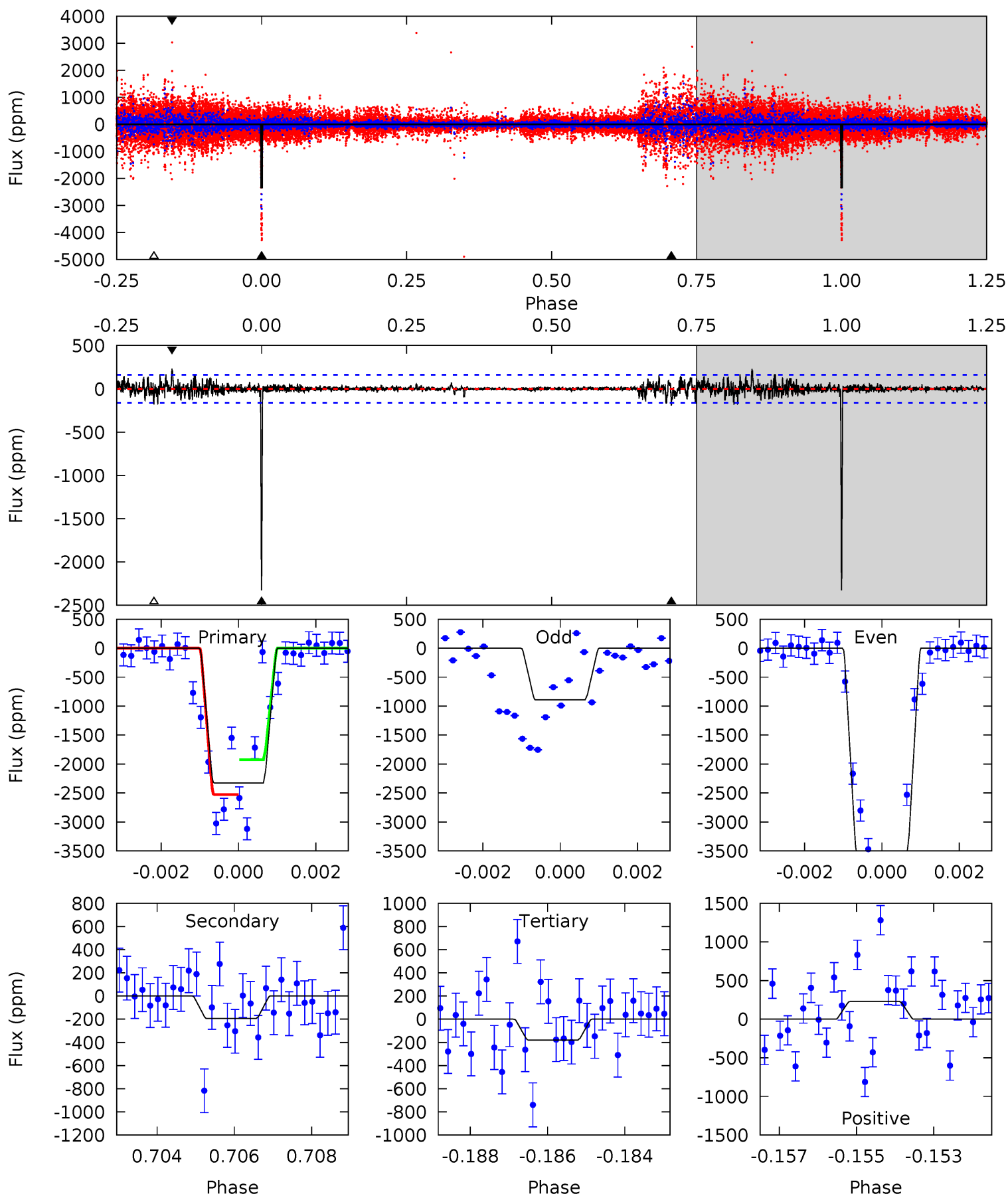
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	29.2	24.7	41.8	5.29	3.03	4.97	-6.42	-23.6	4.48	-12.7	11.5	1.75	0.59	1.65



Alt Model-Shift Uniqueness Test

005164650-02, $P = 323.640346$ Days, $E = 50.027555$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
77.0	6.42	5.96	7.60	5.32	3.08	1.04	71.0	69.4	0.46	-1.18	33.5	1.01	0.09	9.05



Stellar Parameters For KIC 005164650

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3456^{+119}_{-95}	$0.252^{+0.248}_{-0.062}$	$-0.300^{+0.300}_{-0.150}$	$127.822^{+13.232}_{-30.875}$	$1.066^{+0.280}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+98%/-25%	+100%/-50%	+10%/-24%	+26%/-11%	+116%/-23%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005164650-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-4540 ± 156	$847.48^{+92.48}_{-124.15}$	2429^{+126}_{-174}	3499^{+139}_{-133}	$3.282^{+1.017}_{-0.598}$
Alt.	-194 ± 30	$811.91^{+99.51}_{-120.97}$	2428^{+137}_{-167}	-2333^{+177}_{-113}	$0.153^{+0.054}_{-0.037}$

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 $A_{obs} \gg 1.0$

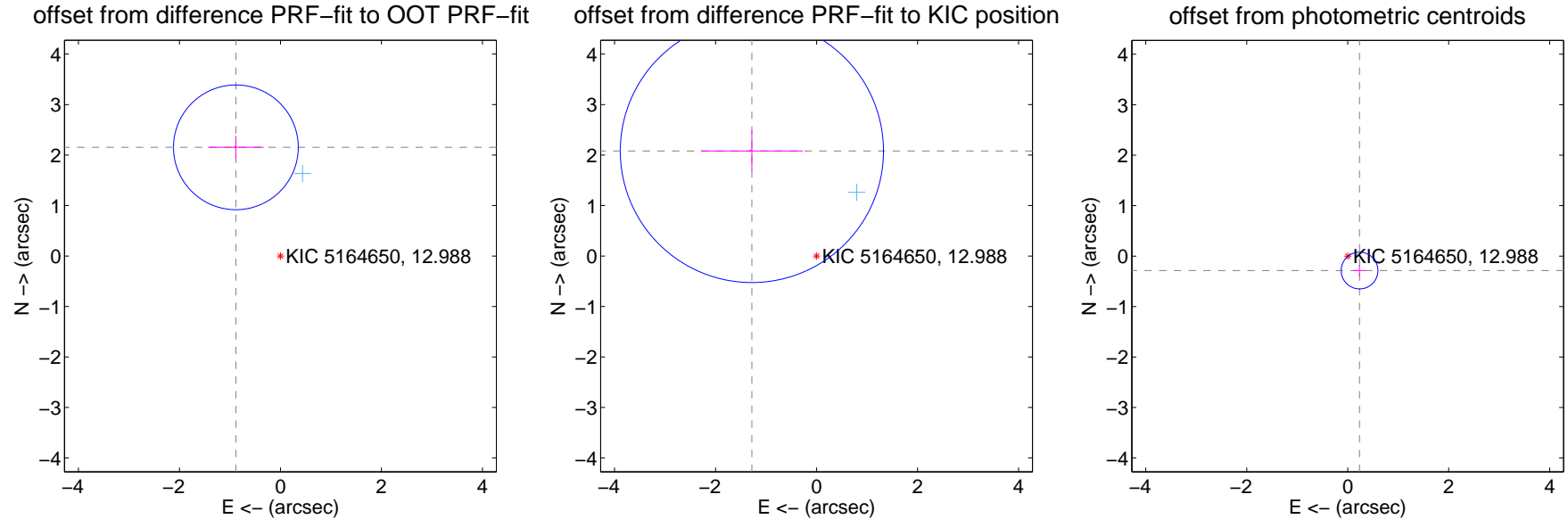
DV Centroid Data

Supplemental centroid analysis for 005164650-02. Kepler magnitude: 12.99. Transit SNR 8.65

There are 1 quarters with good PRF difference image offsets

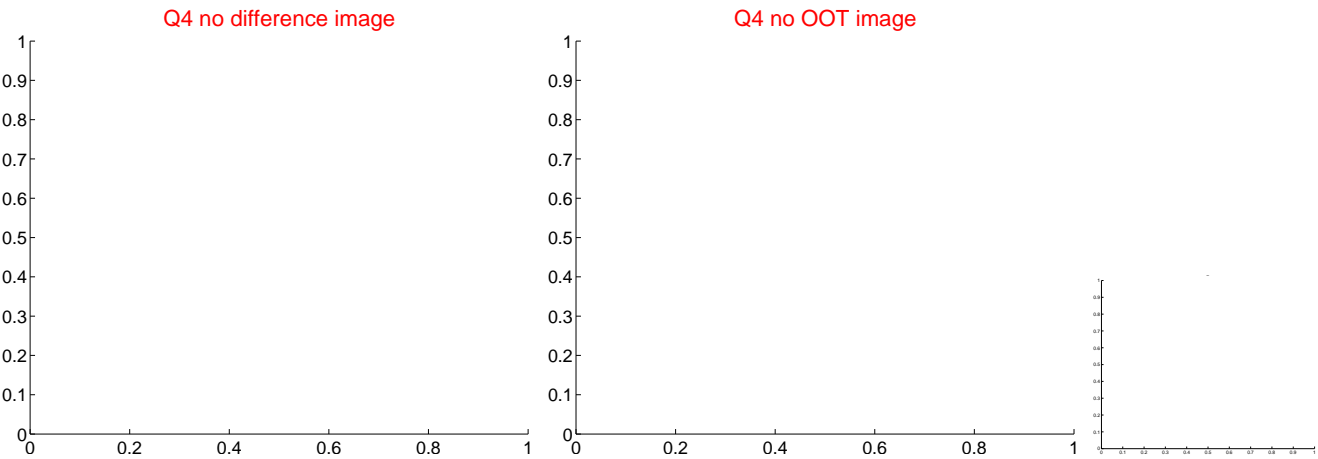
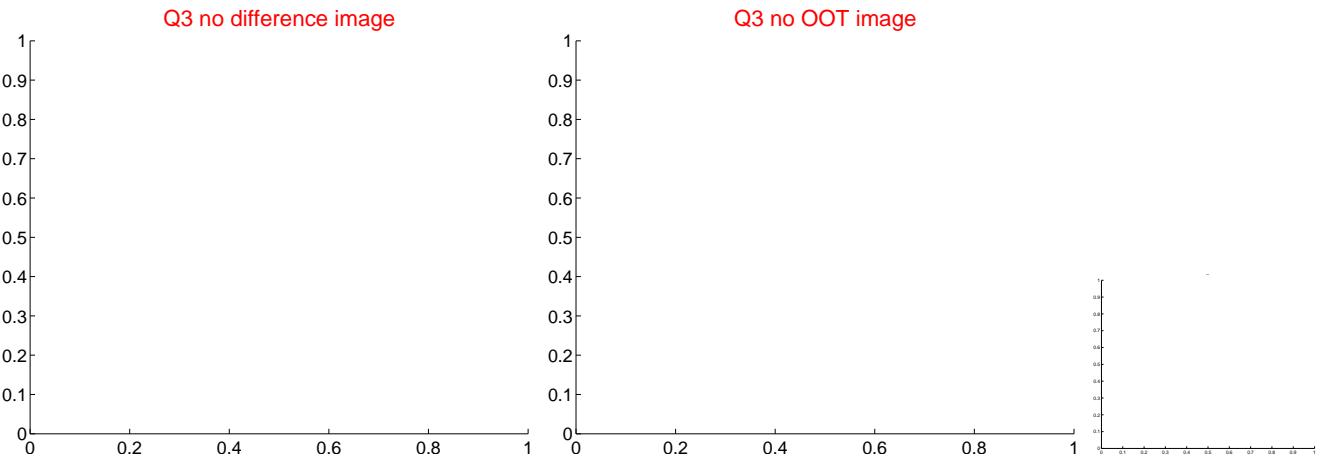
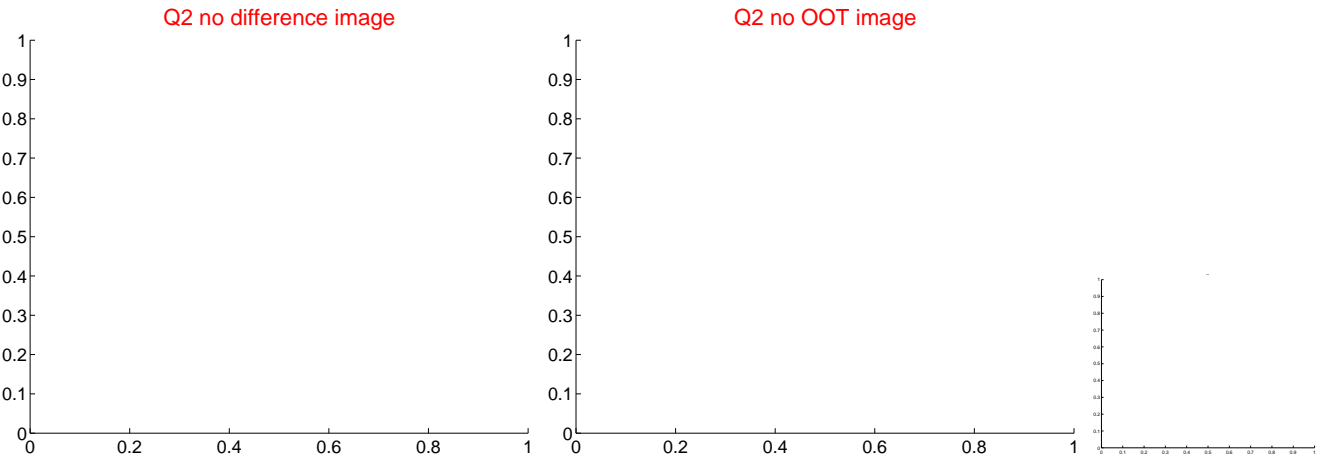
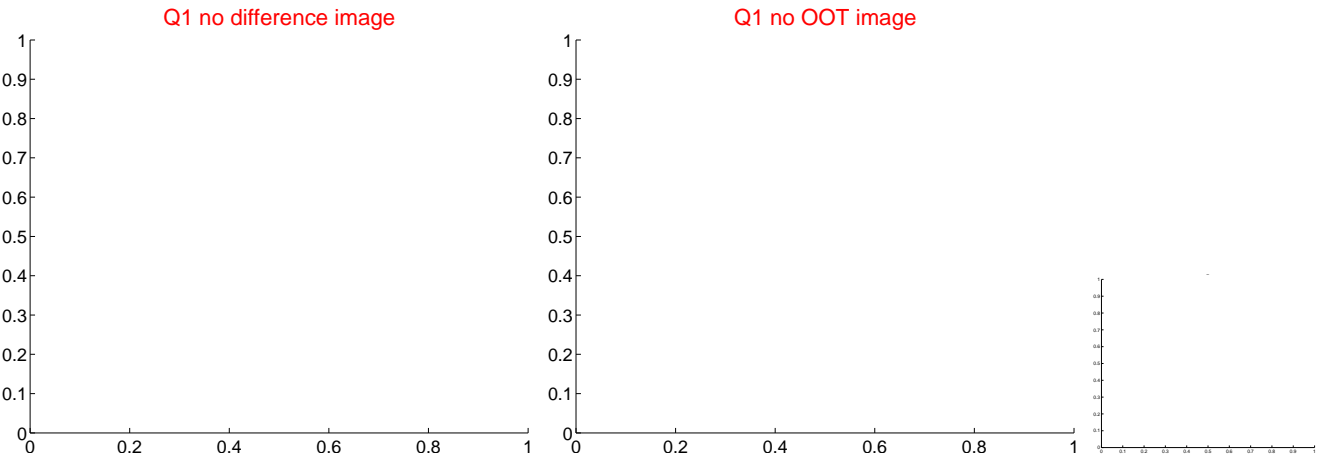
The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.327 ± 0.412	5.65	0.883 ± 0.550	2.153 ± 0.225
PRF-fit source offset from KIC position	2.443 ± 0.869	2.81	1.281 ± 1.010	2.080 ± 0.402
photometric centroid source offset	0.37 ± 0.12	3.05	-0.23 ± 0.13	-0.29 ± 0.11

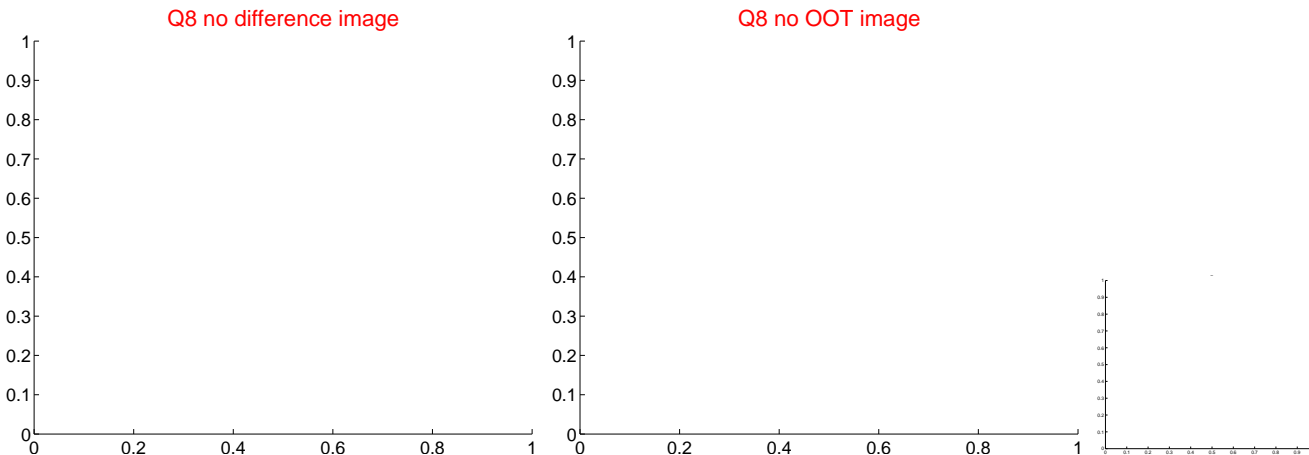
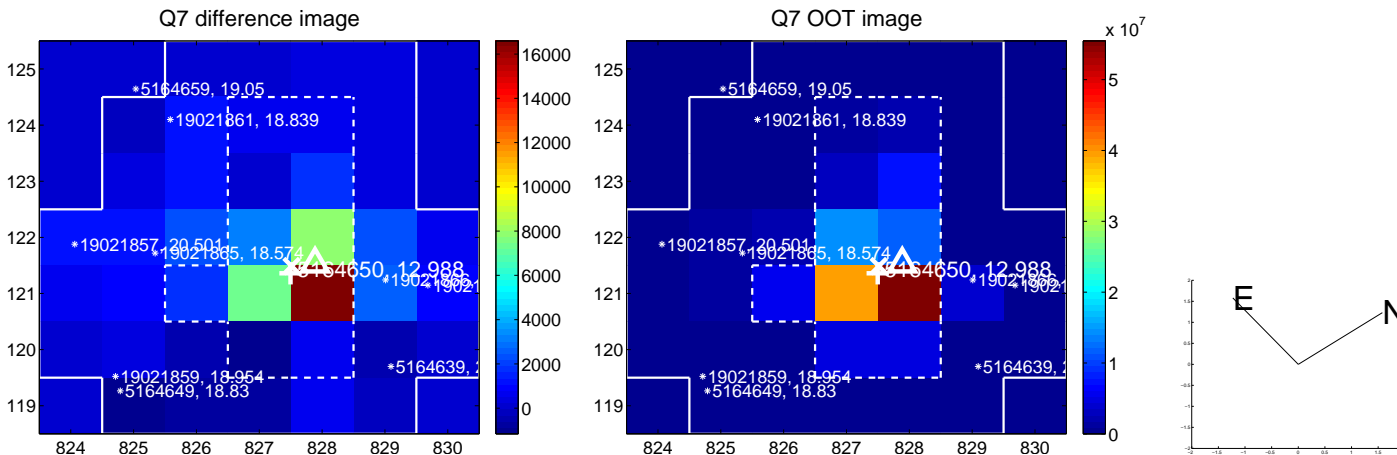
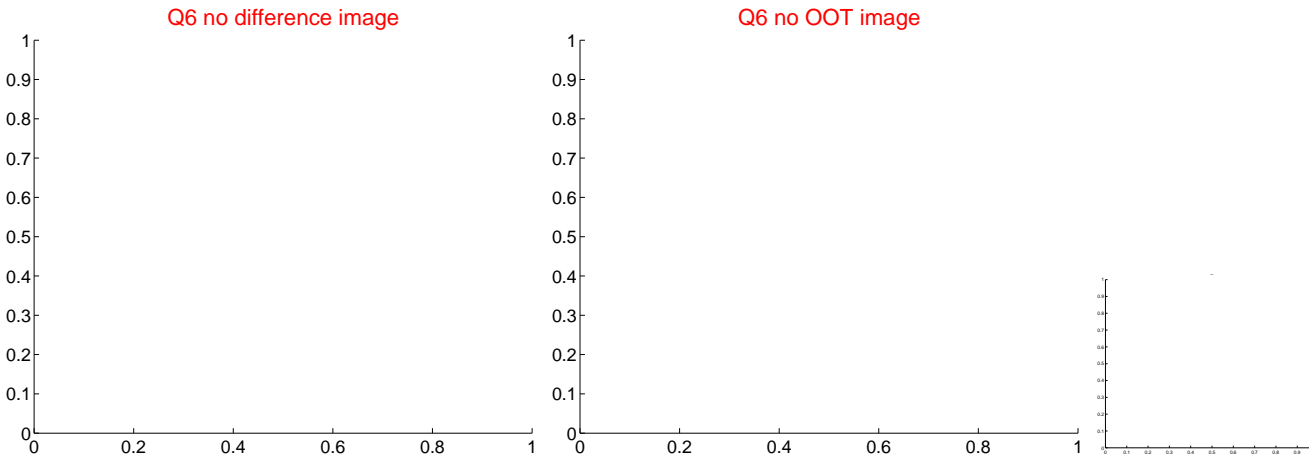
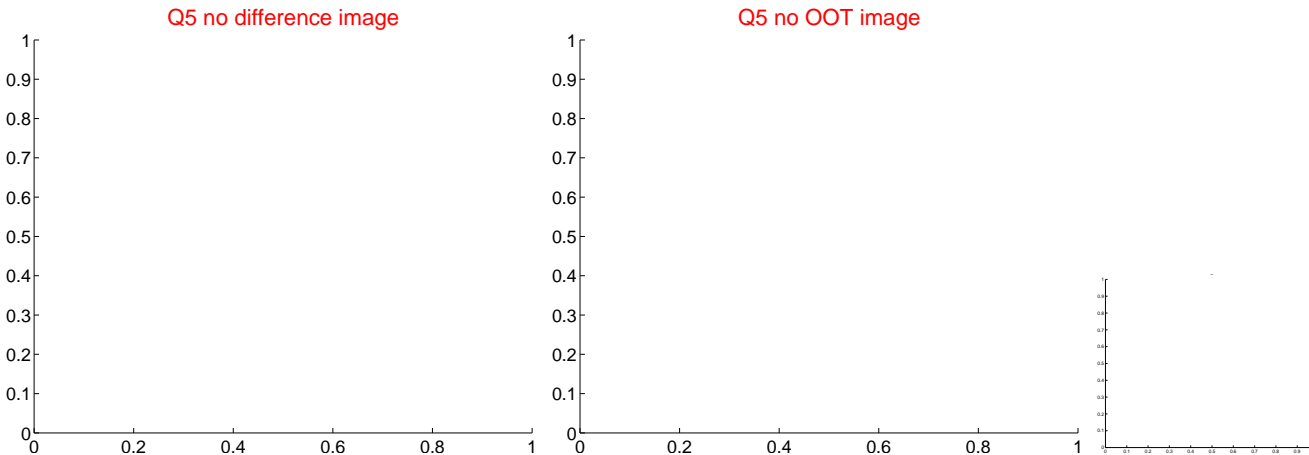


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

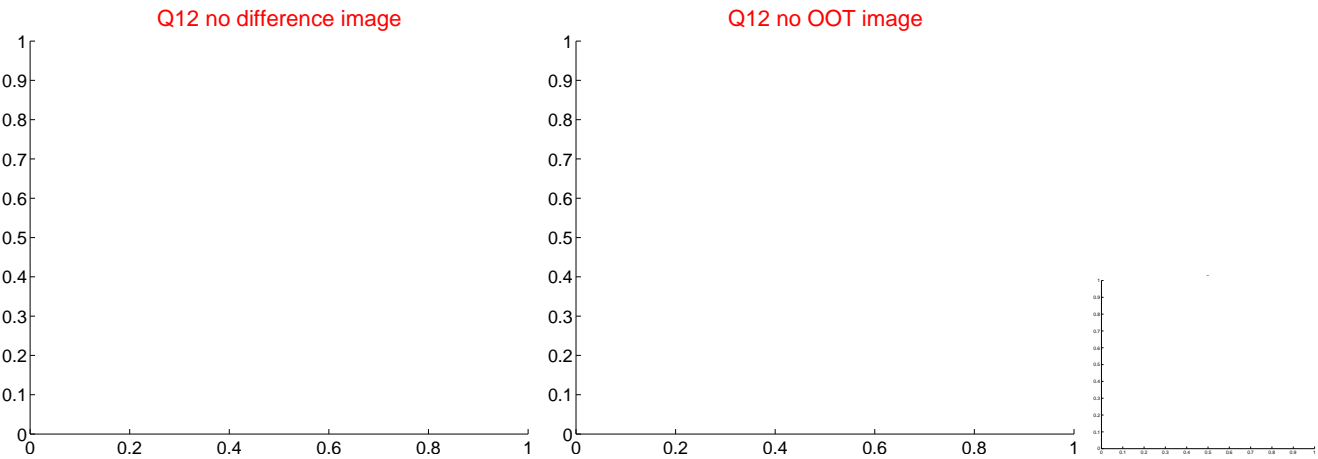
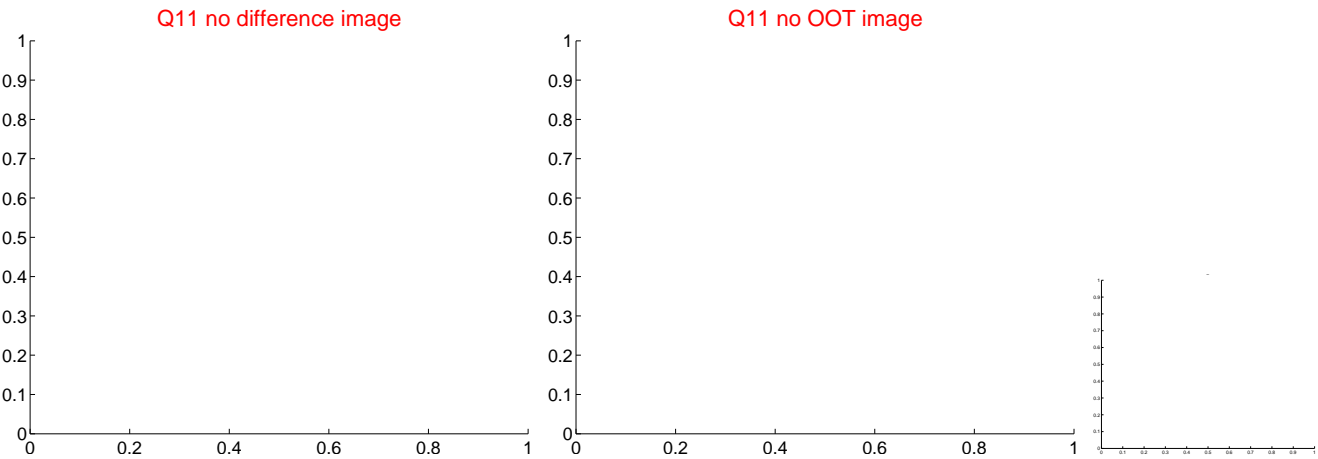
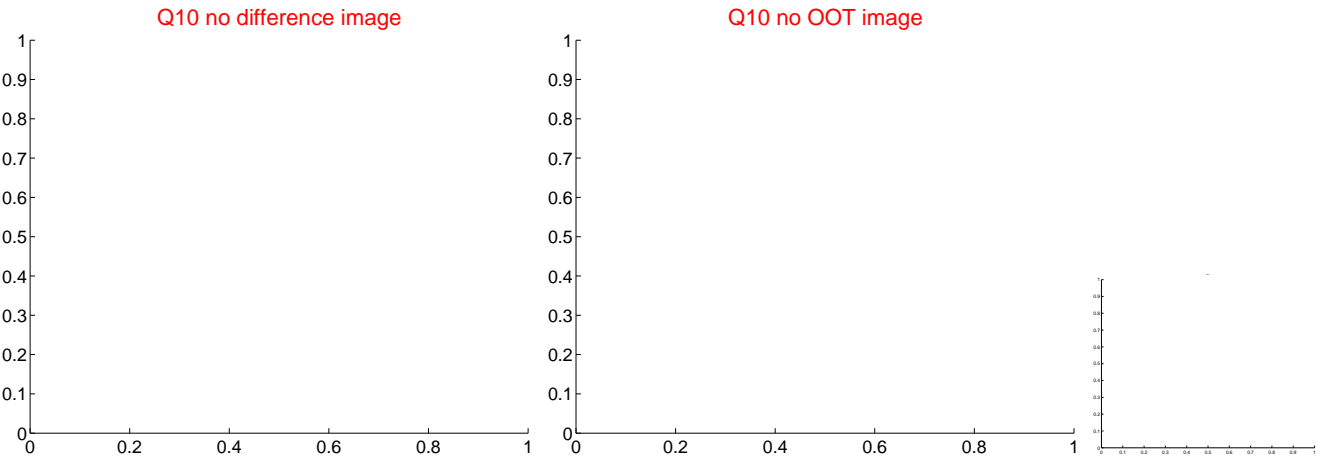
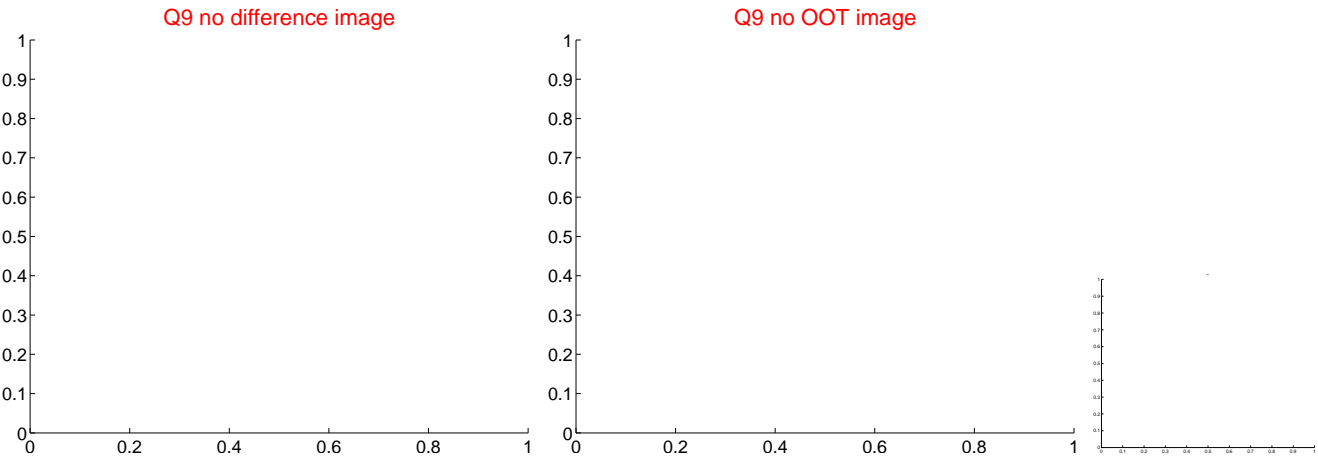
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



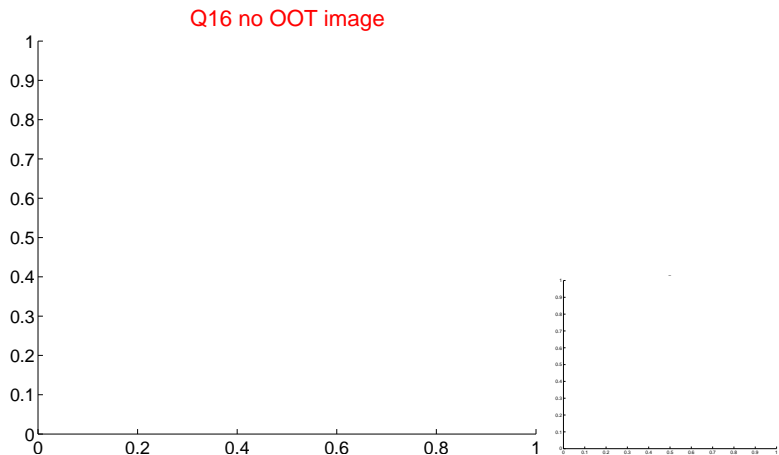
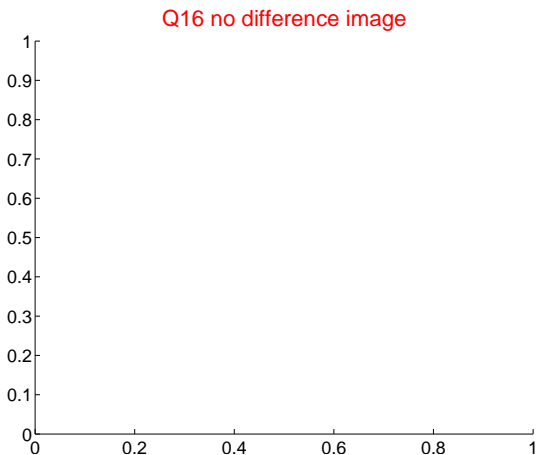
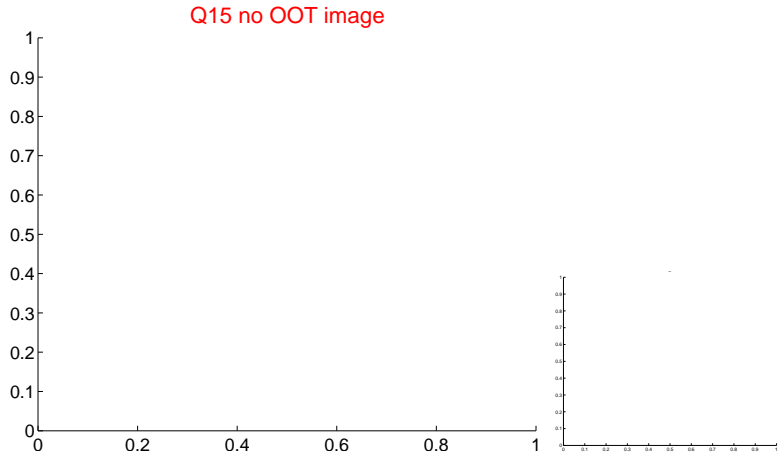
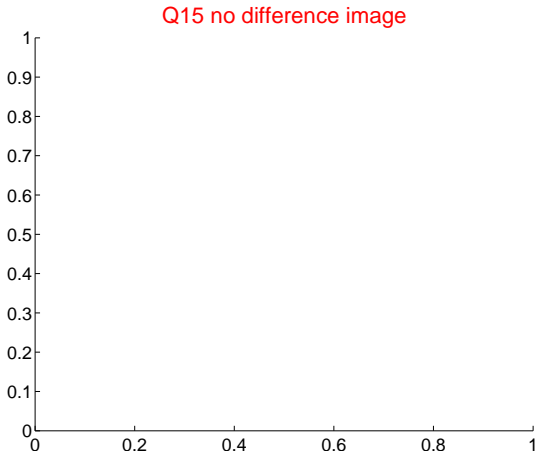
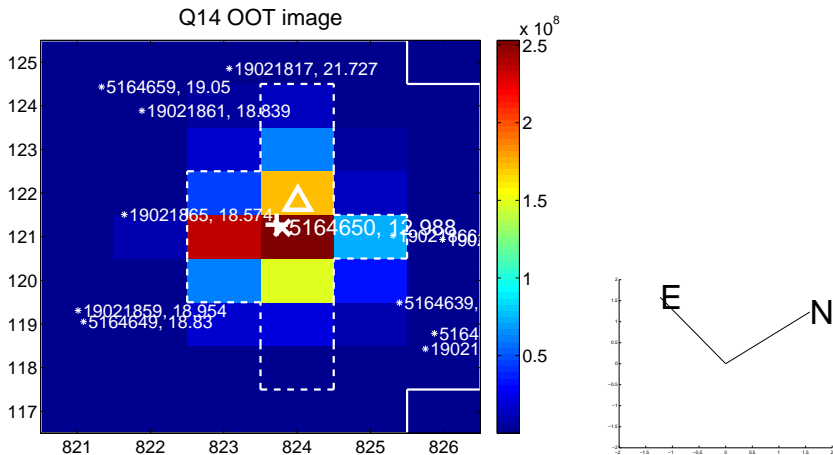
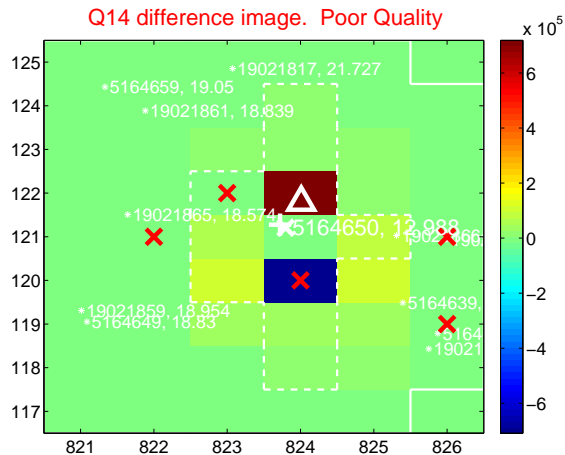
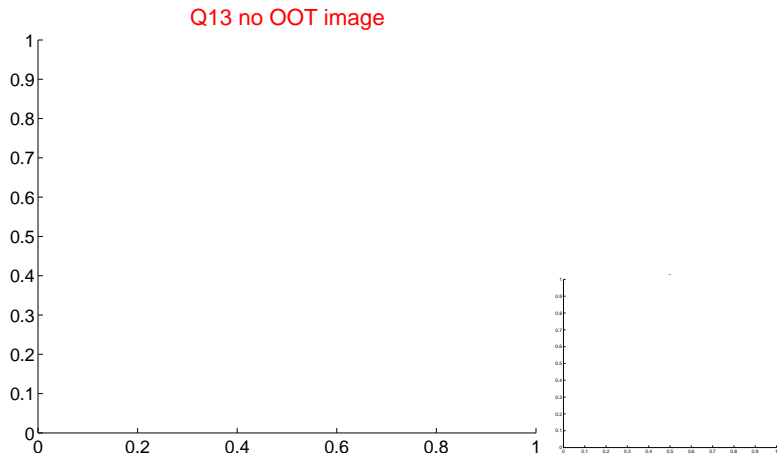
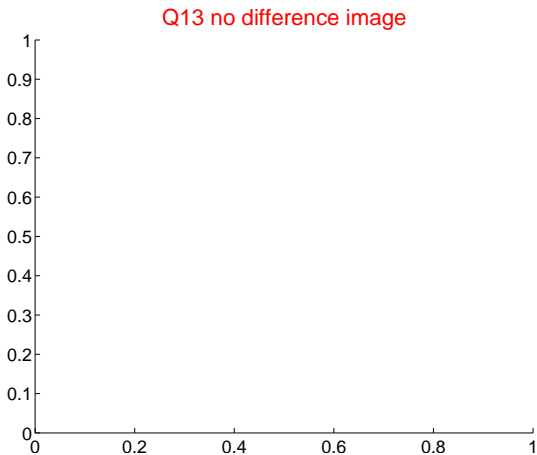
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



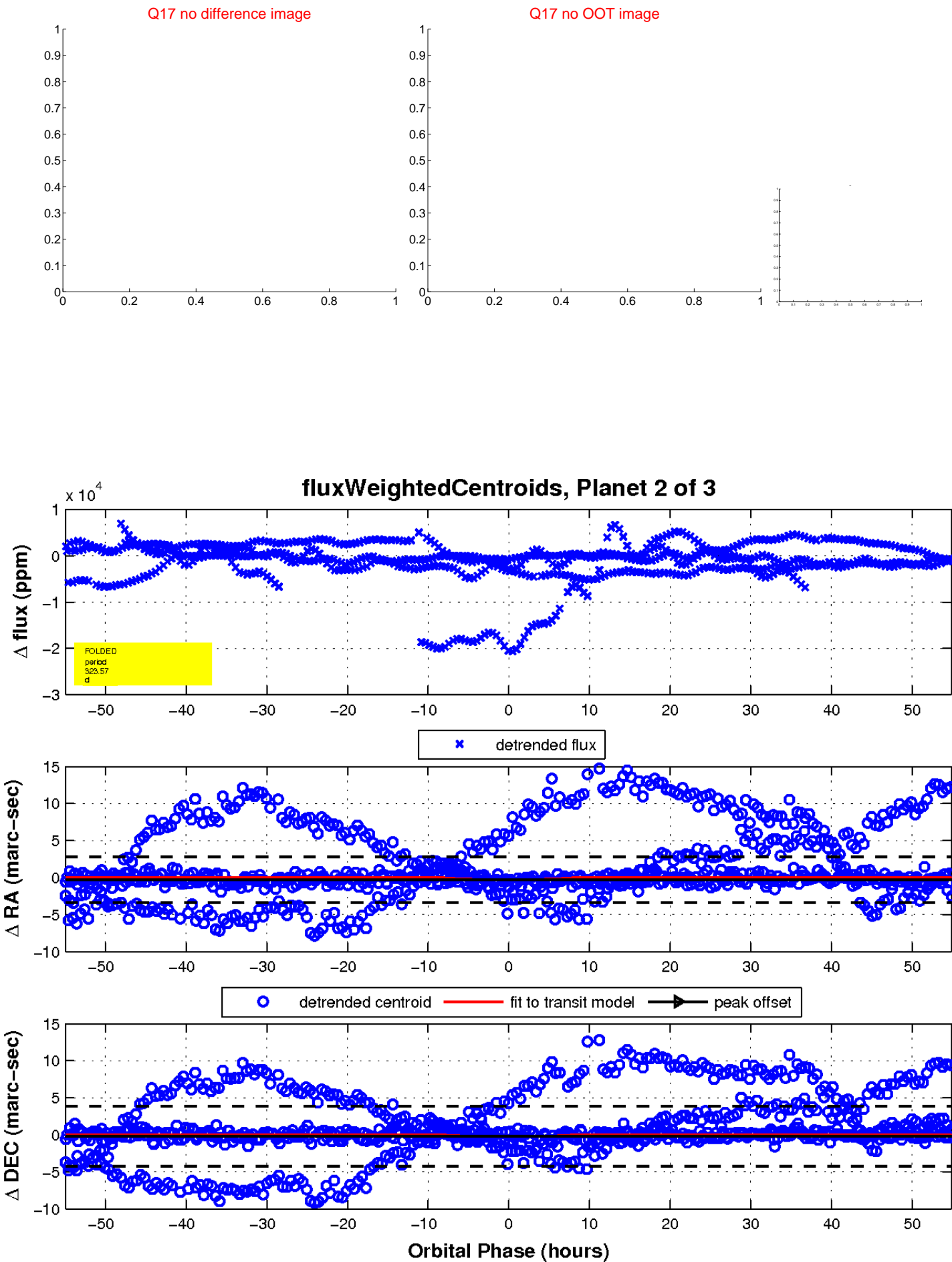
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



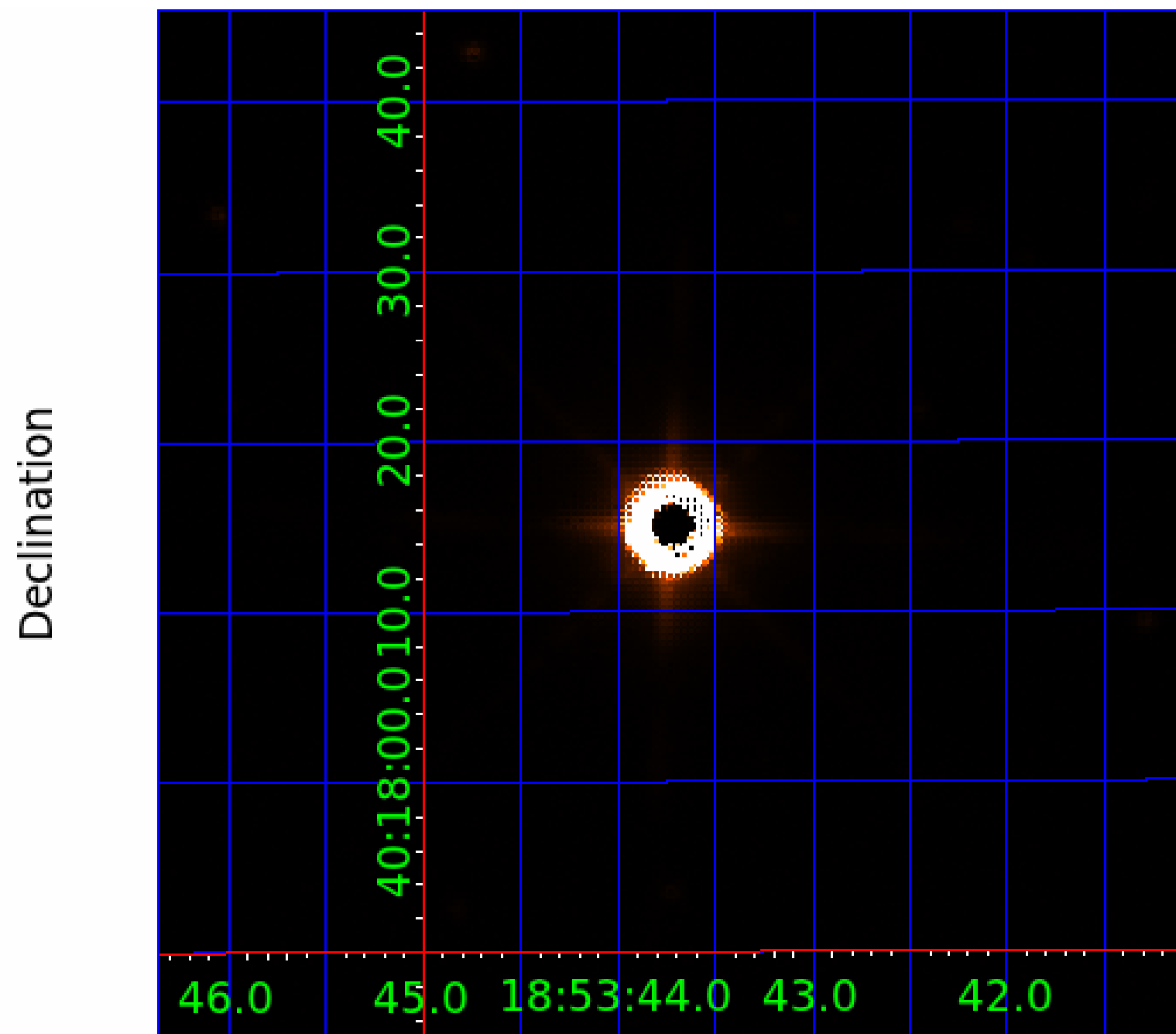
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005164650

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})
005164650-01	OBS	No	124.515196	185.692046	110.3	5.251	11.9	2.4	127.82	3456	123.44	0.00
005164650-02	OBS	No	323.571555	373.741003	3150.2	18.323	15.2	8.6	127.82	3456	864.56	2353.06
005164650-03	OBS	No	163.632967	209.153261	332.3	3.762	7.6	9.2	127.82	3456	286.72	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005164650-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
005164650-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005164650-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

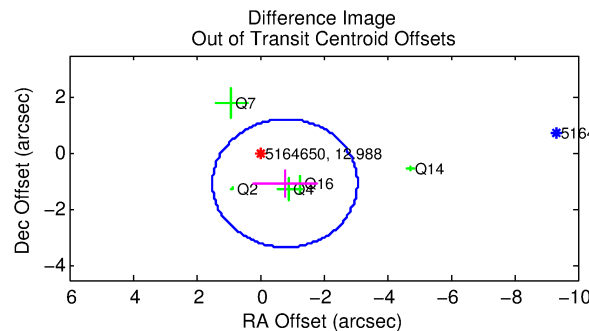
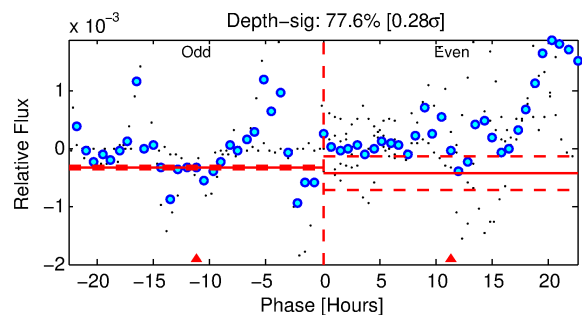
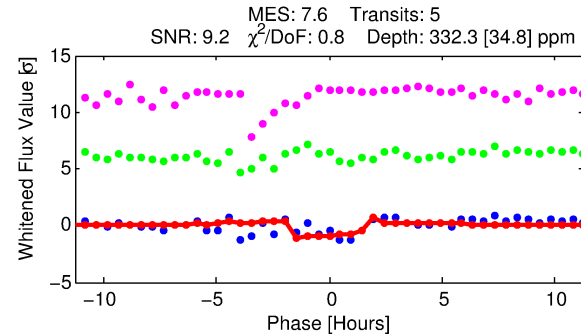
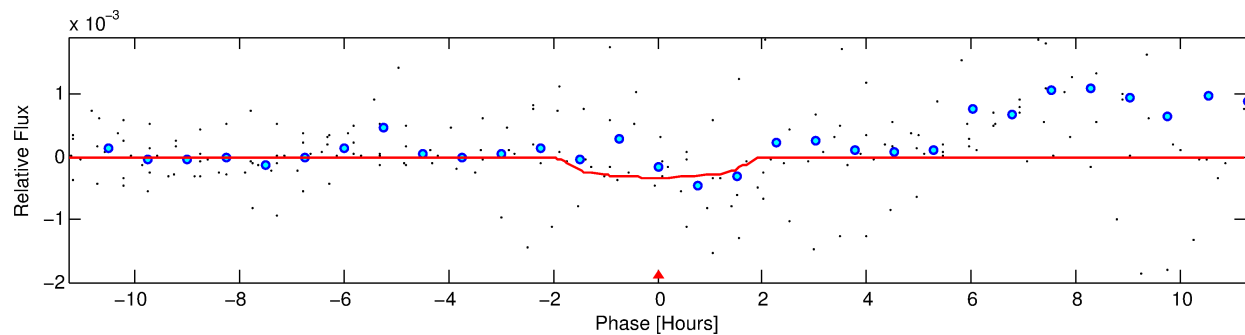
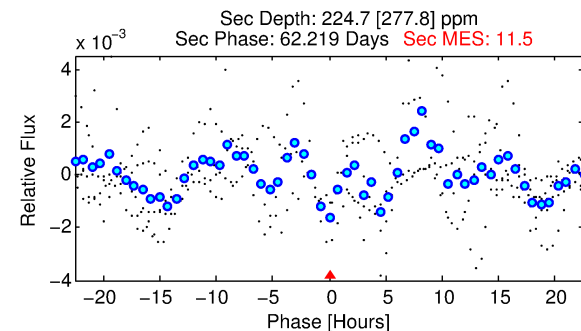
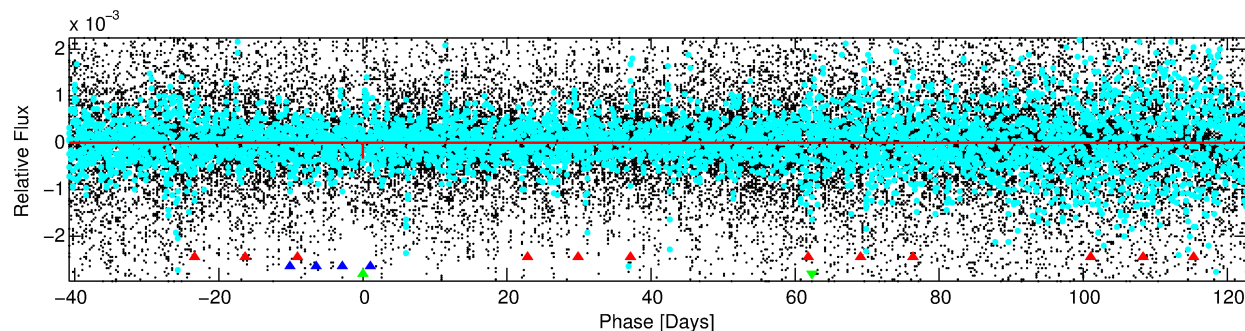
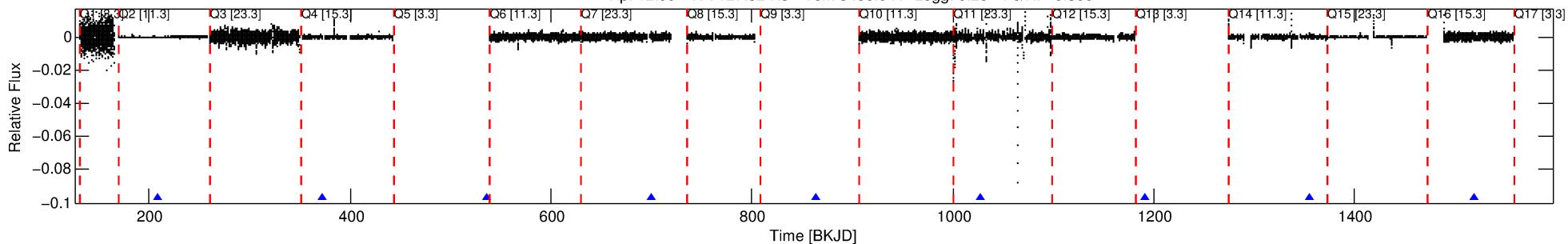
Ephemeris Match Information For 005164650-03

No Significant Match Found

DV One-Page Summary

KIC: 5164650 Candidate: 3 of 3 Period: 163.633 d

Kp: 12.99 R*: 127.82 Rs Teff: 3456.0 K Logg: 0.25 Fe/H: -0.300



DV Fit Results:

Period = 163.63297 [0.00121] d
Epoch = 209.1533 [0.0035] BKJD
Rp/R* = 0.0206 [0.0088]
a/R* = 178.11 [223.65]
b = 0.87 [0.37]
Seff = N/A
Teq = N/A
Rp = 286.72 [140.84] Re
a = N/A
Ag = N/A
Teffp = N/A

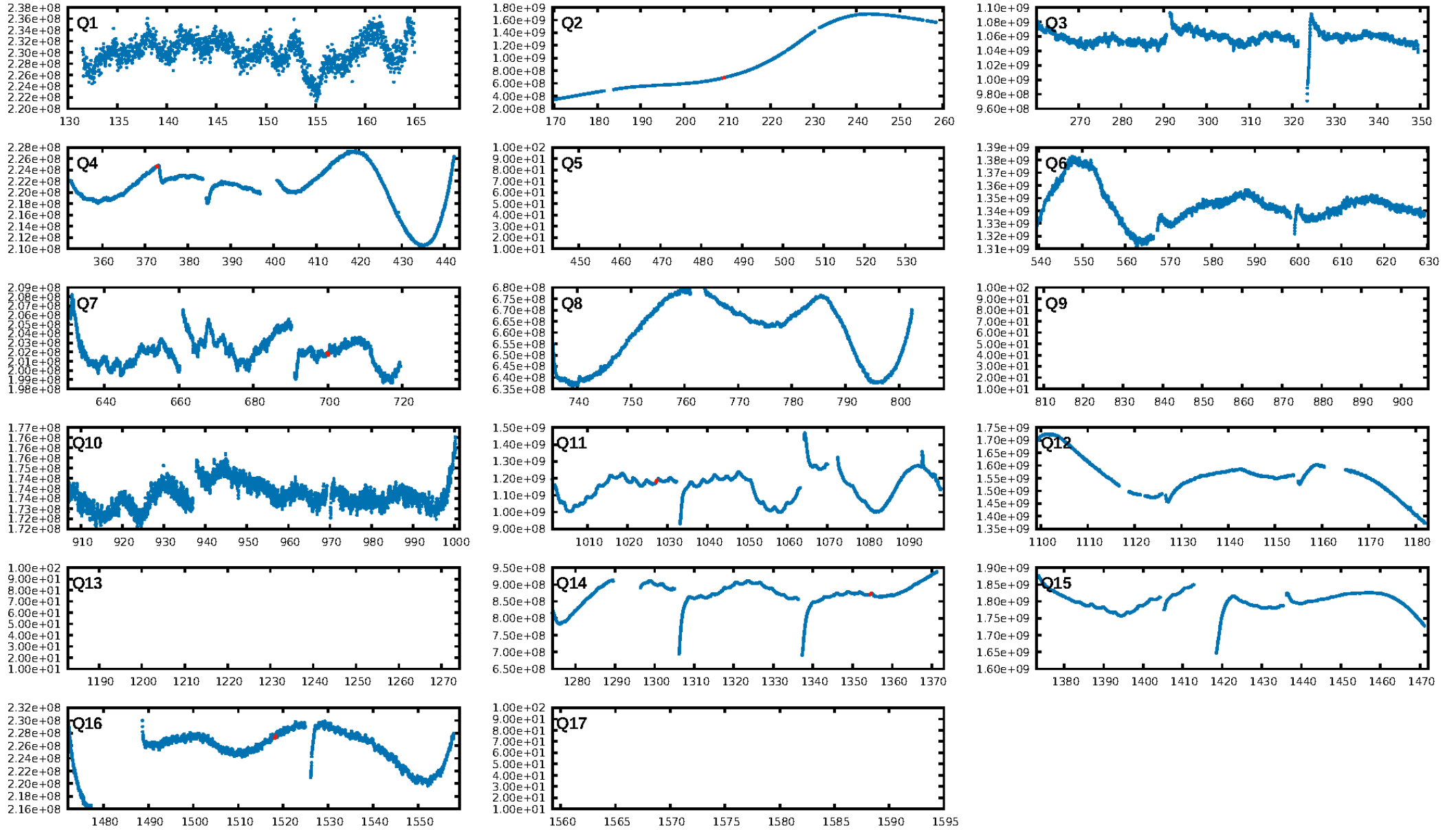
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [145.34σ]
LongPeriod-sig: 100.0% [205.21σ]
ModelChiSquare2-sig: 84.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.58e-06
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -1.988
Centroid-sig: 30.7%
Centroid-so: 0.872 arcsec [0.66σ]
OotOffset-rm: 1.316 arcsec [1.73σ]
OotOffset-st: 2/1/2/0 [5]
KicOffset-rm: 1.574 arcsec [2.20σ]
KicOffset-st: 2/1/2/0 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 1.00 [5/5]

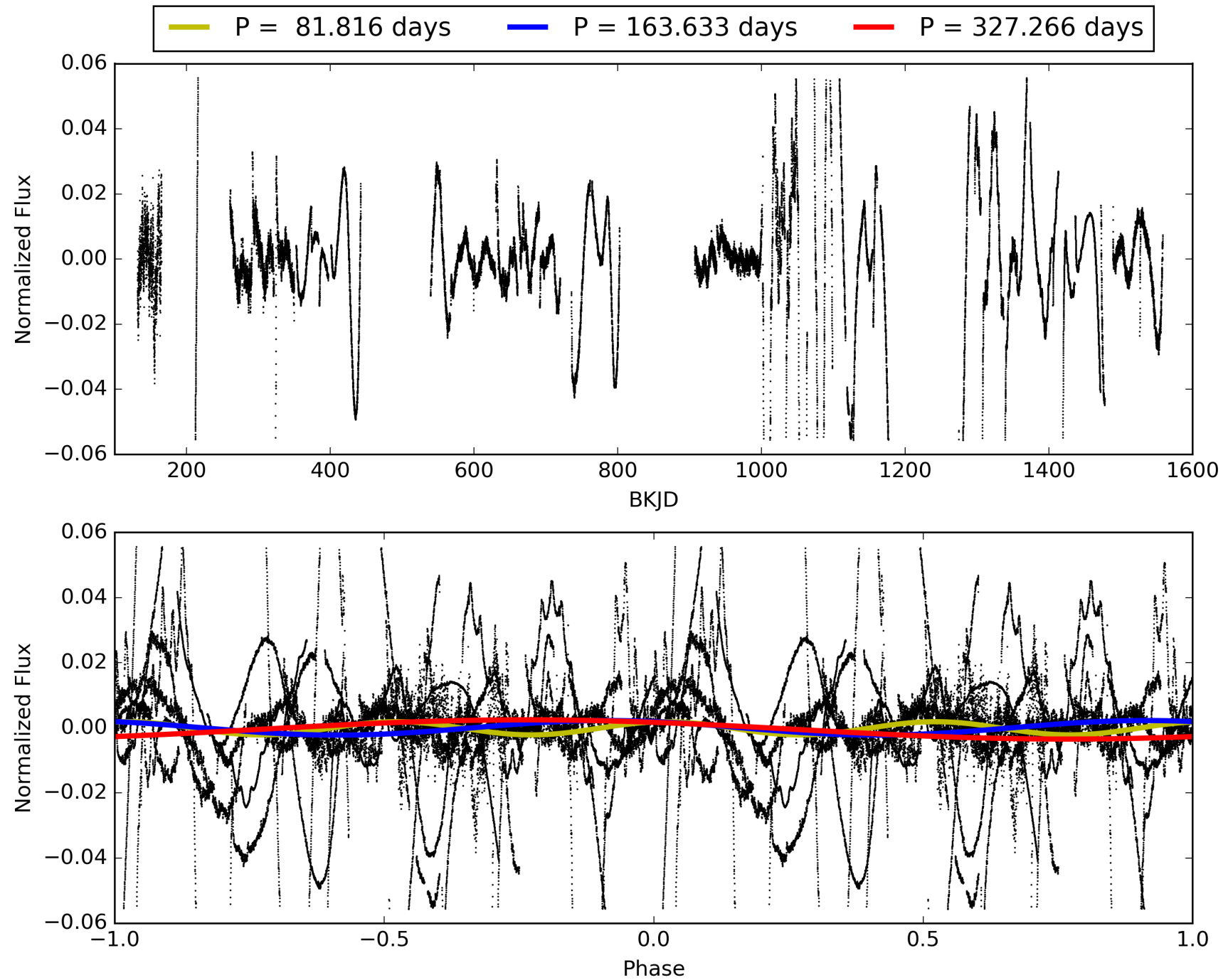
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 04:57:57 Z

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

TCE 005164650-03, PDC Light Curves

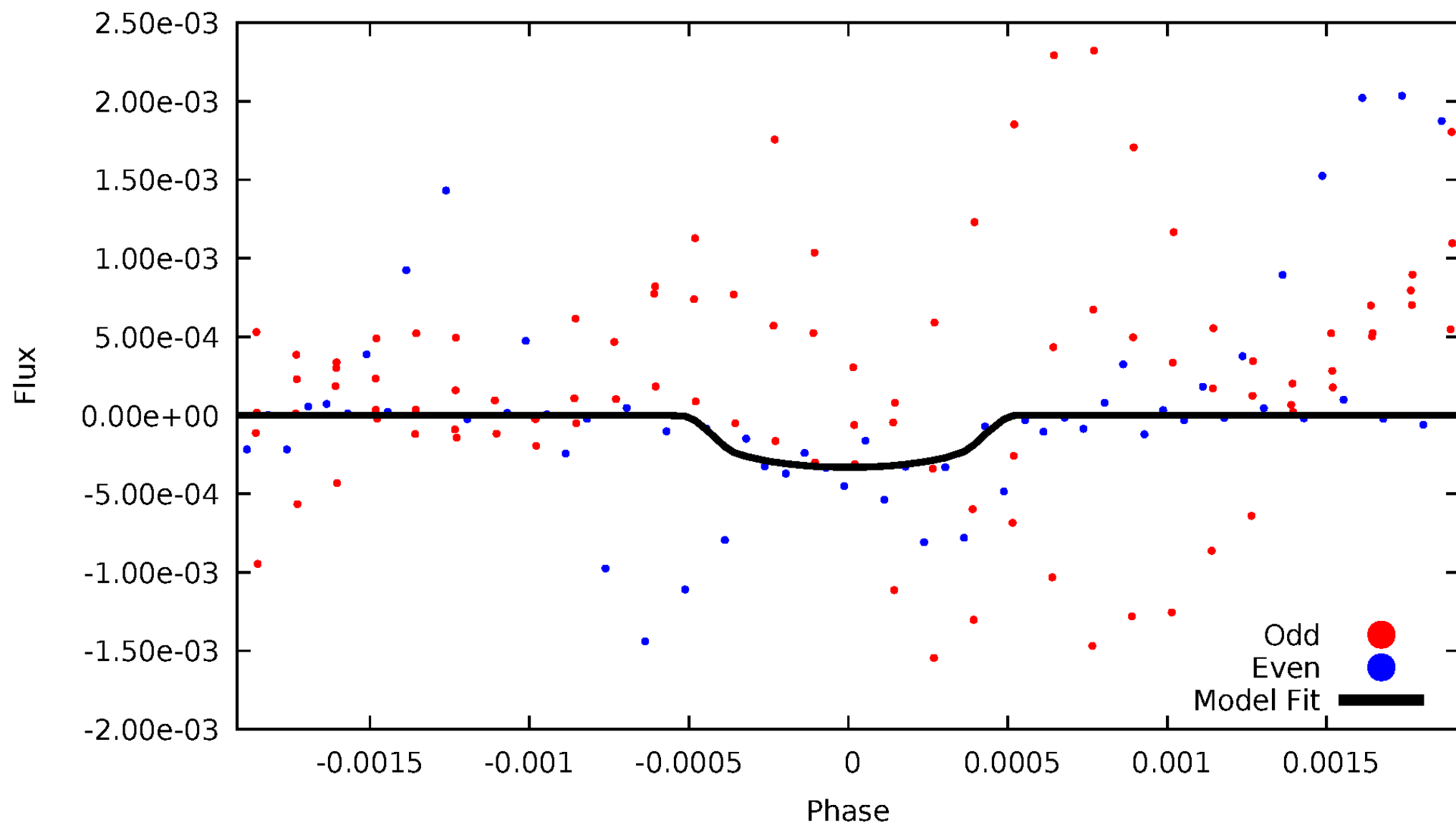


TCE 005164650-03



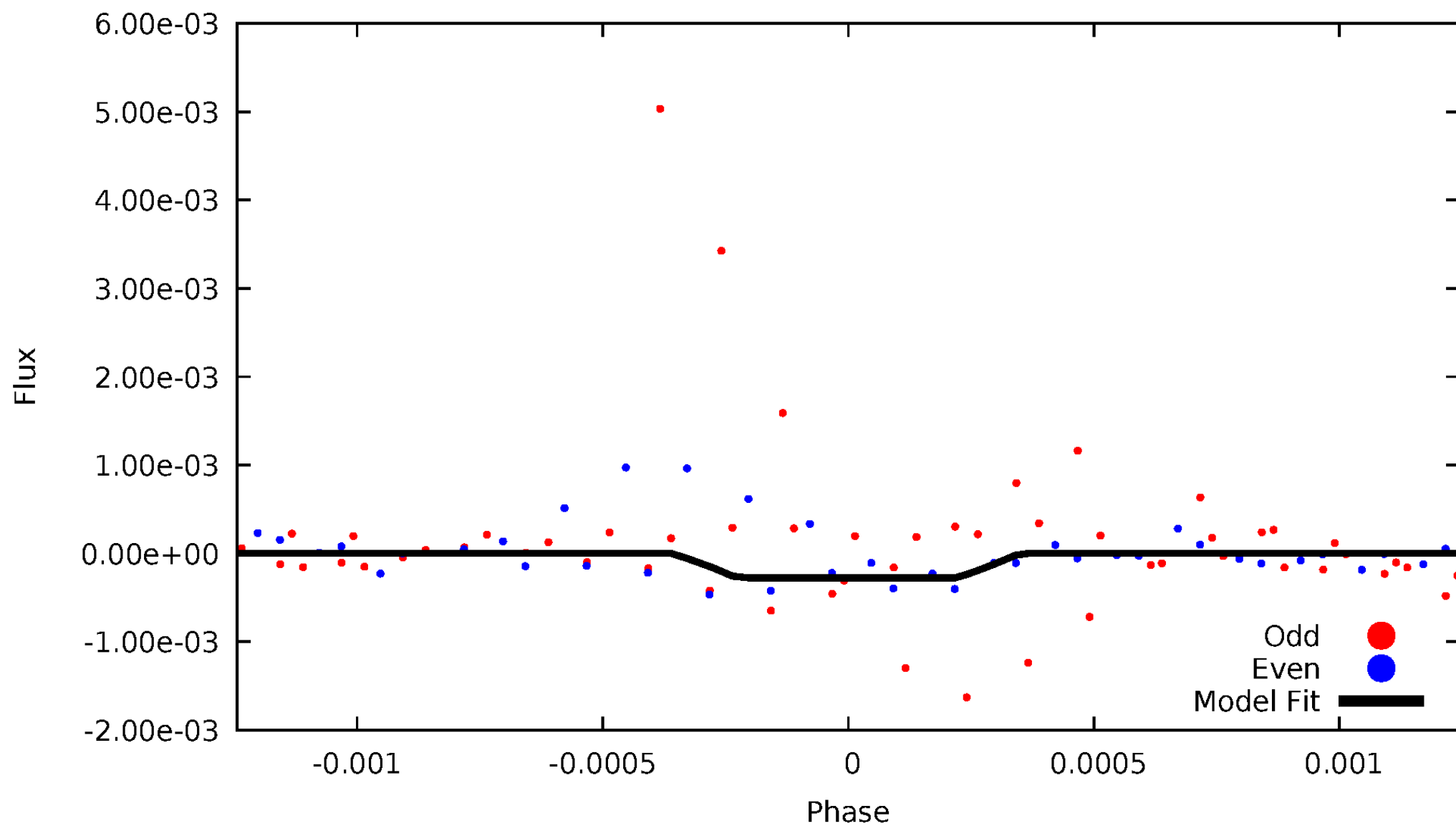
DV Odd/Even

TCE 005164650-03



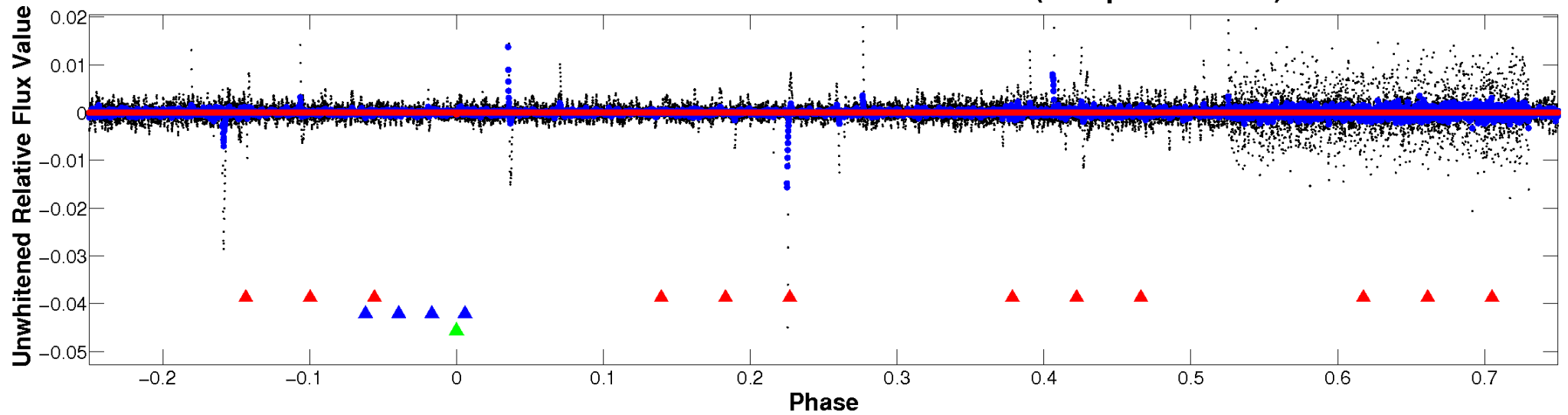
ALT Odd/Even

TCE 005164650-03

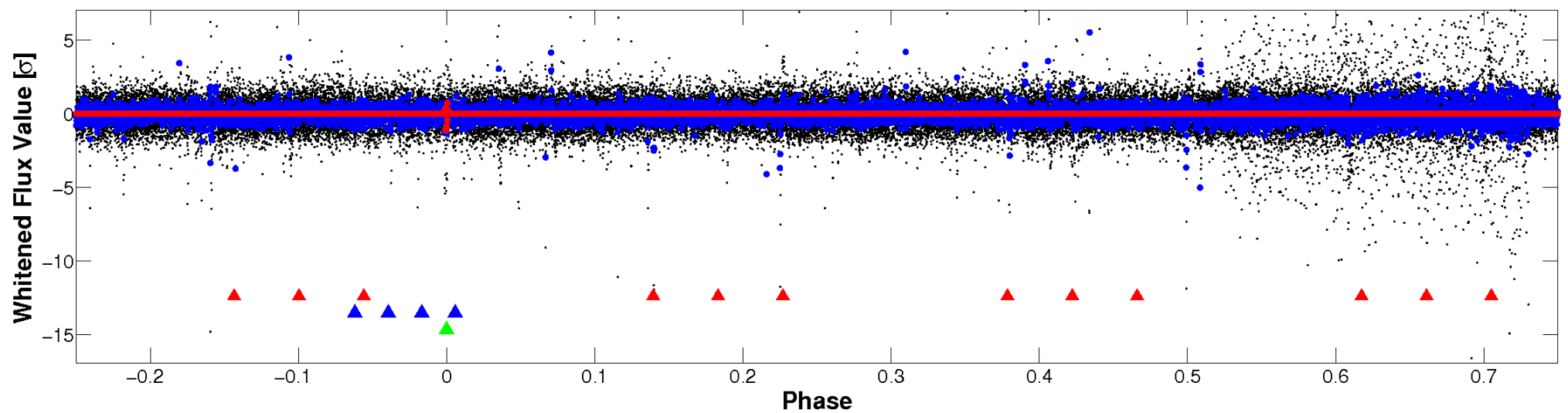


Non-Whitened Vs. Whitened Light Curve

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

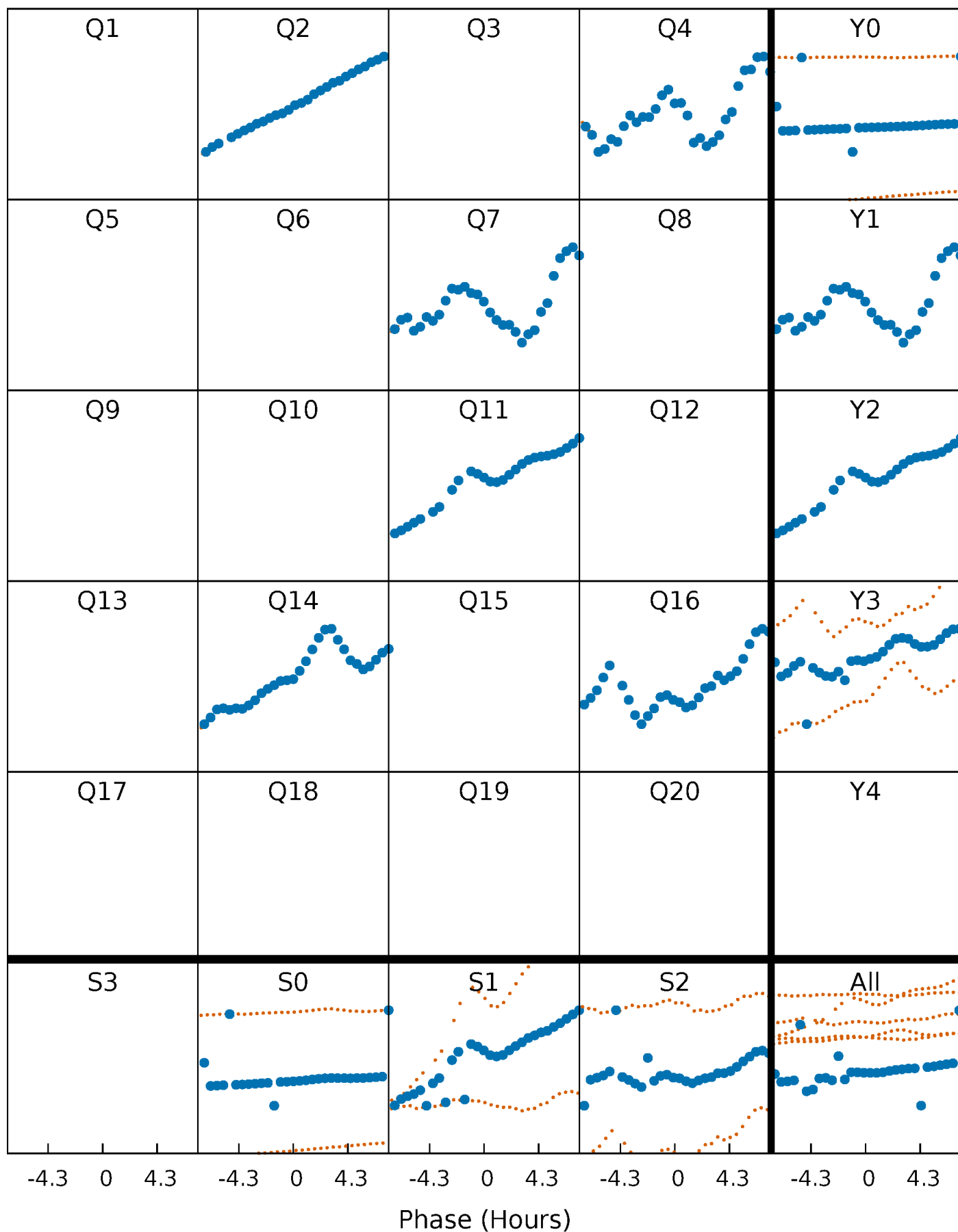


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



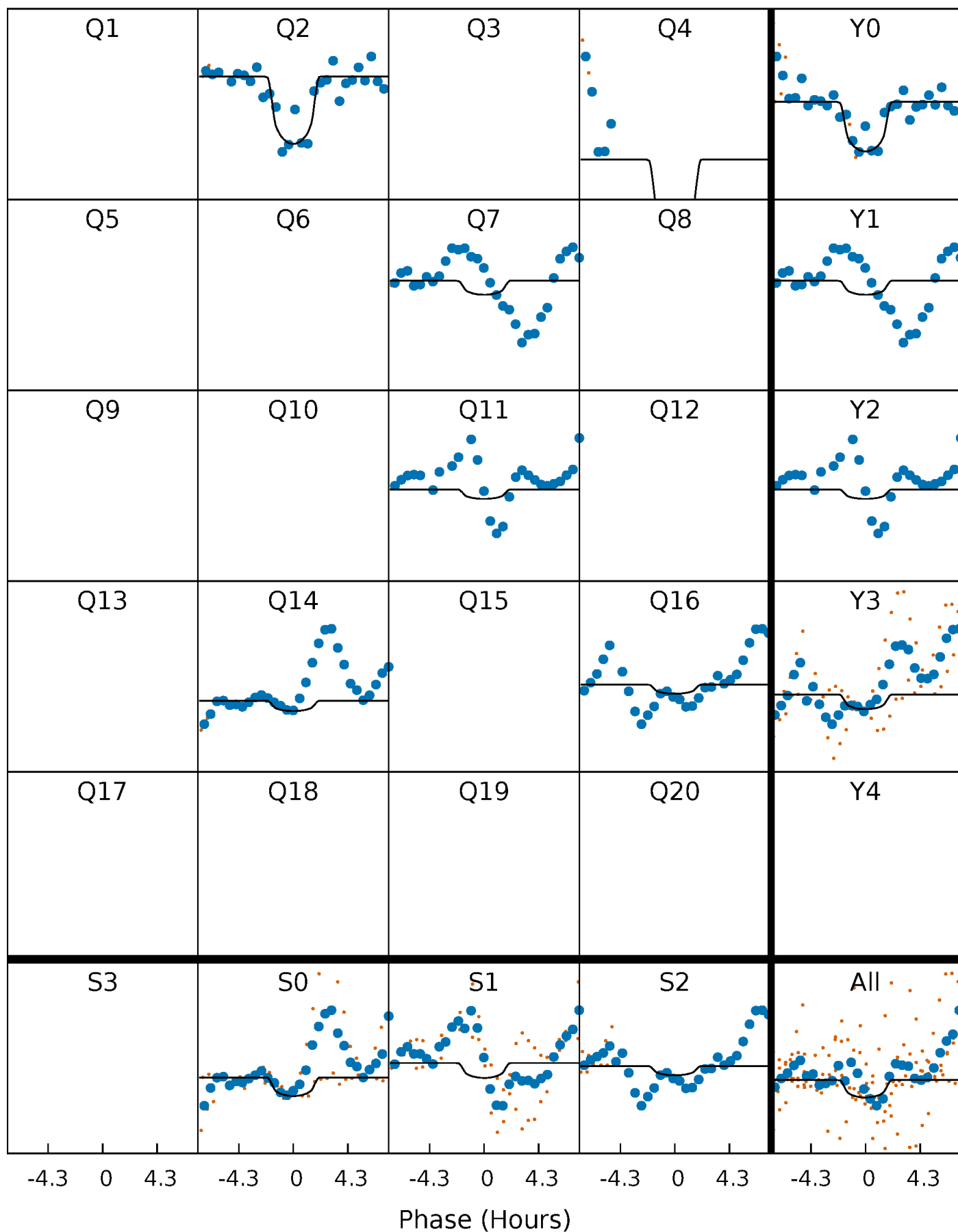
PDC Quarter-Phased Transit Curves

TCE 005164650-03 P=163.632967 Days $T_0=209.153261$ (BKJD)



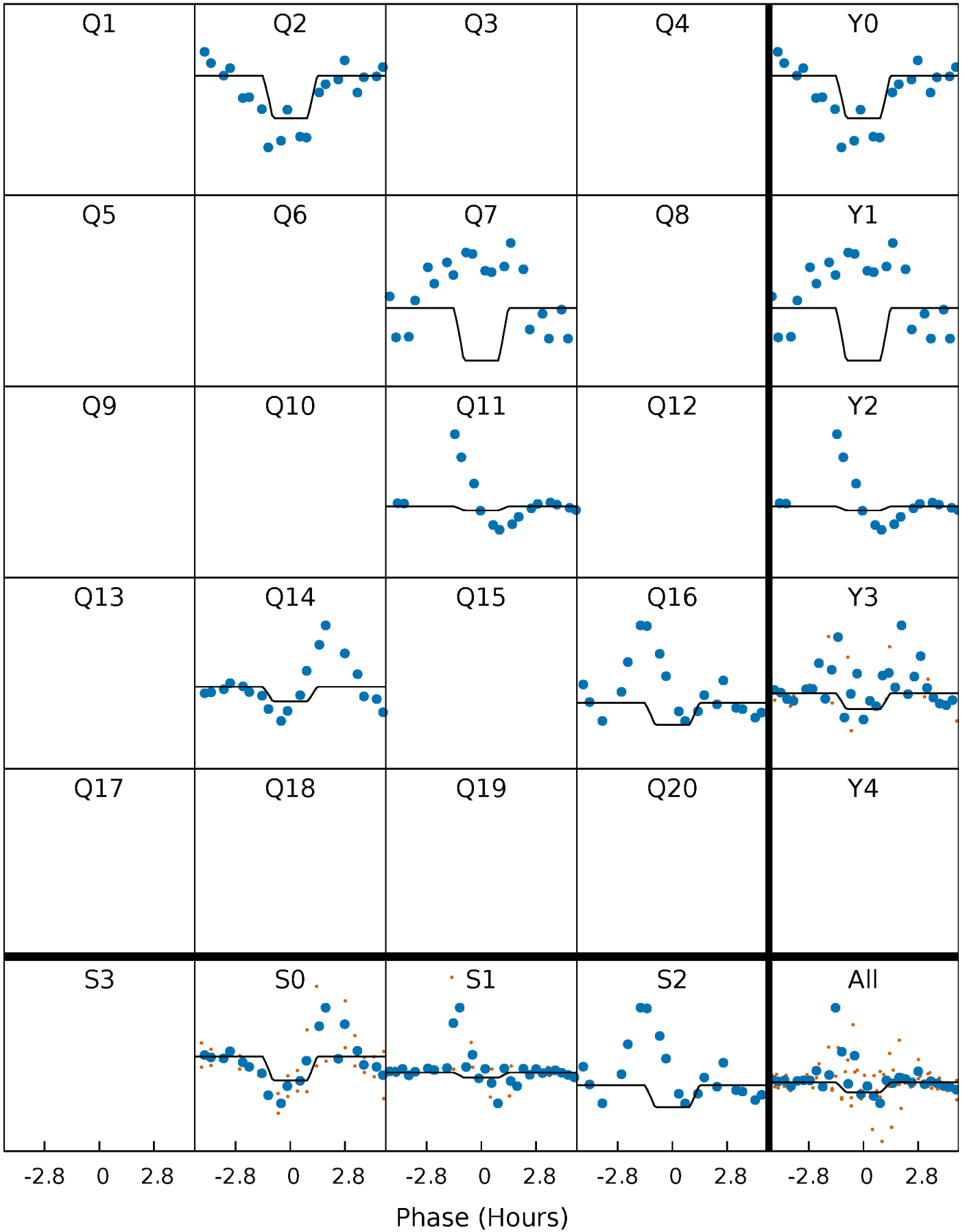
DV Quarter-Phased Transit Curves

TCE 005164650-03 P=163.632967 Days $T_0=209.153261$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

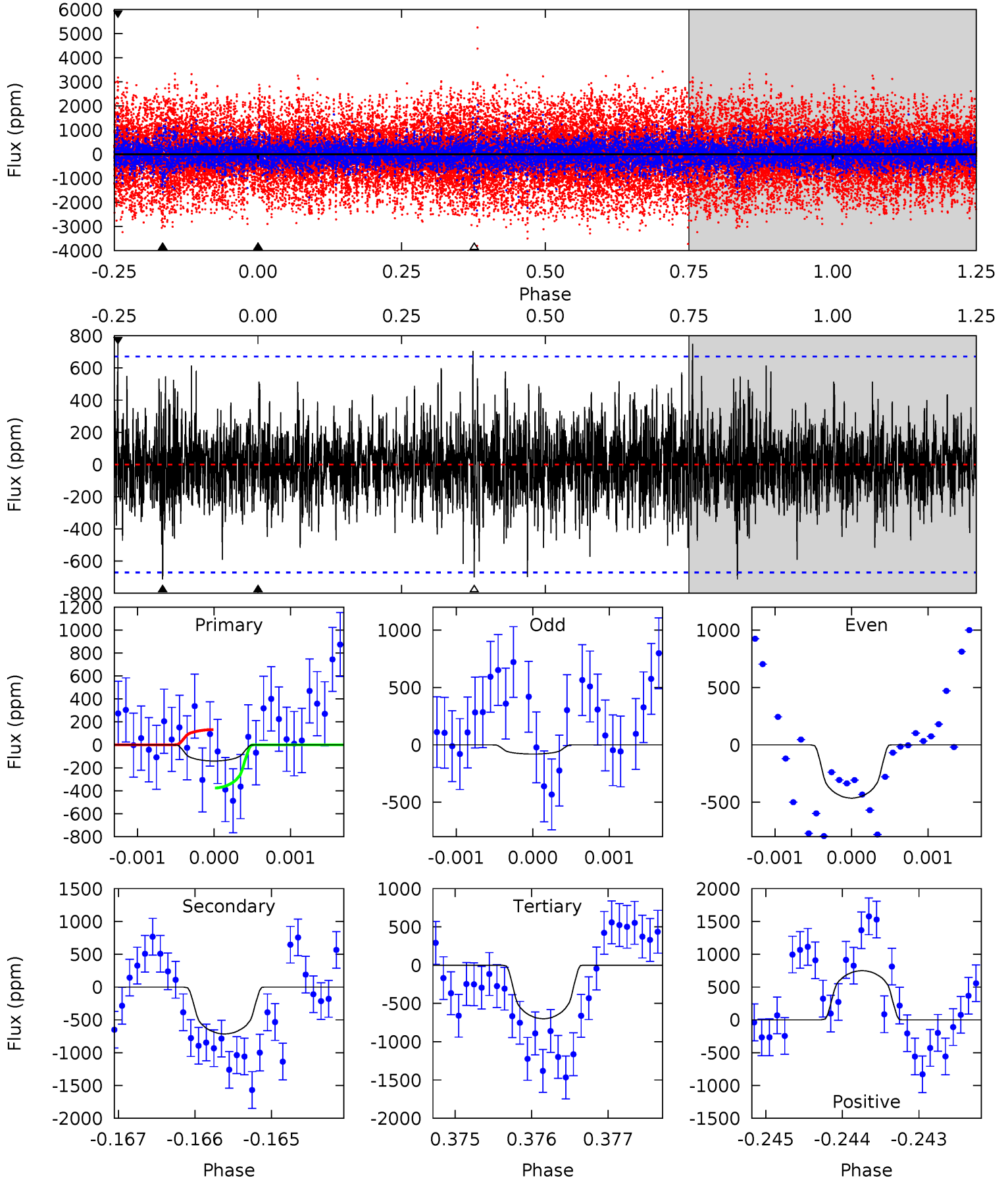
TCE 005164650-03 P=163.635083 Days $T_0=209.167581$ (BKJD)



DV Model-Shift Uniqueness Test

005164650-03, $P = 163.632967$ Days, $E = 45.520294$ Days

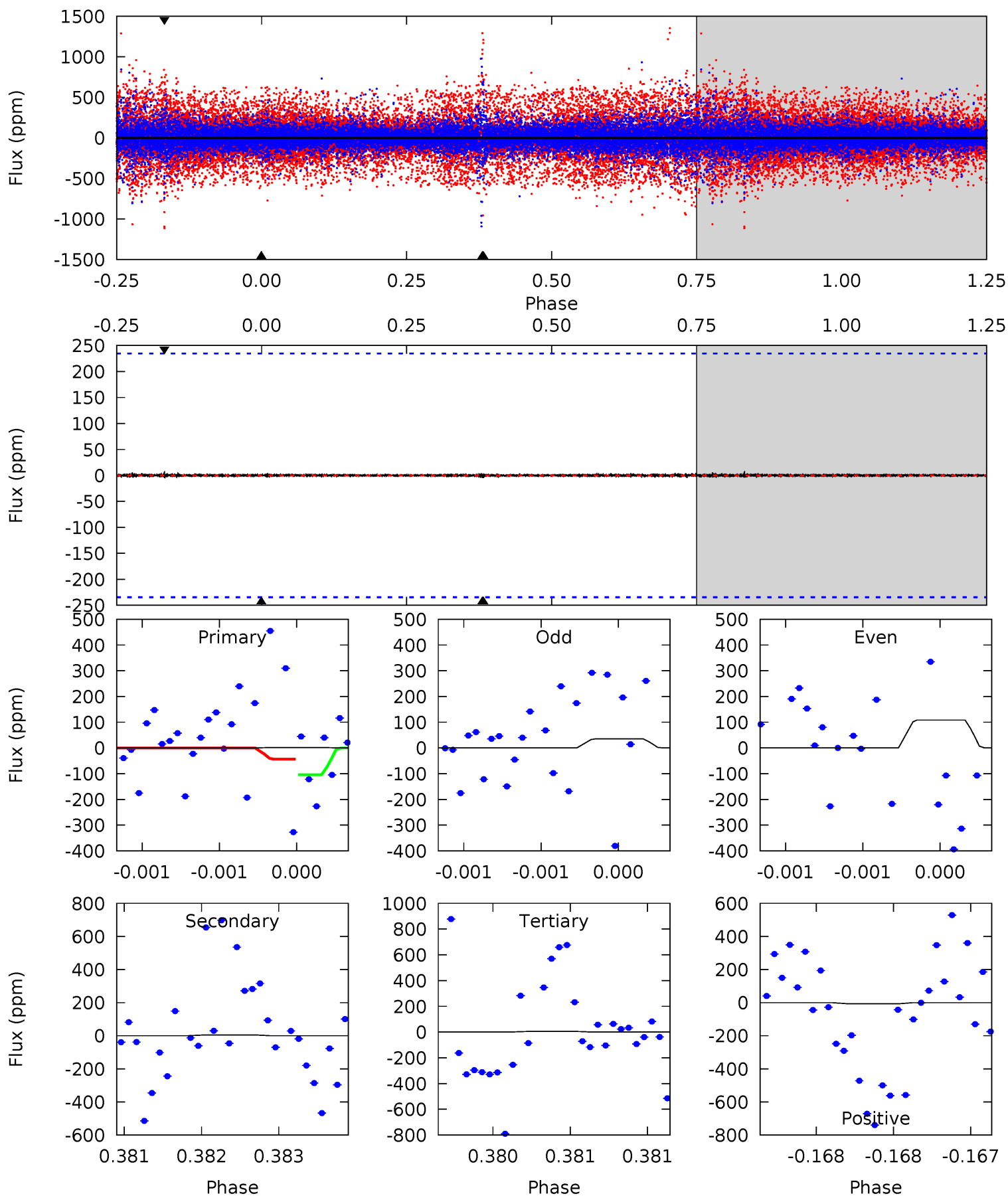
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.14	5.79	5.68	6.08	5.44	3.27	1.43	-4.53	-4.94	0.12	-0.29	1.38	1.33	0.51	0.98



Alt Model-Shift Uniqueness Test

005164650-03, P = 163.635083 Days, E = 45.532498 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.04	0.11	0.11	0.16	5.52	3.40	0.02	-0.07	-0.12	0.00	-0.04	0.70	0.03	0.58	0.72



Stellar Parameters For KIC 005164650

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3456^{+119}_{-95}	$0.252^{+0.248}_{-0.062}$	$-0.300^{+0.300}_{-0.150}$	$127.822^{+13.232}_{-30.875}$	$1.066^{+0.280}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+98%/-25%	+100%/-50%	+10%/-24%	+26%/-11%	+116%/-23%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005164650-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-714 ± 123	$278.41^{+136.58}_{-120.32}$	3061^{+155}_{-228}	3623^{+919}_{-521}	$1.875^{+4.033}_{-1.030}$
Alt.	-5 ± 42	$226.40^{+119.14}_{-111.14}$	3051^{+165}_{-212}	-2835^{+668}_{-243}	$0.007^{+0.255}_{-0.166}$

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 $A_{obs} \gg 1.0$

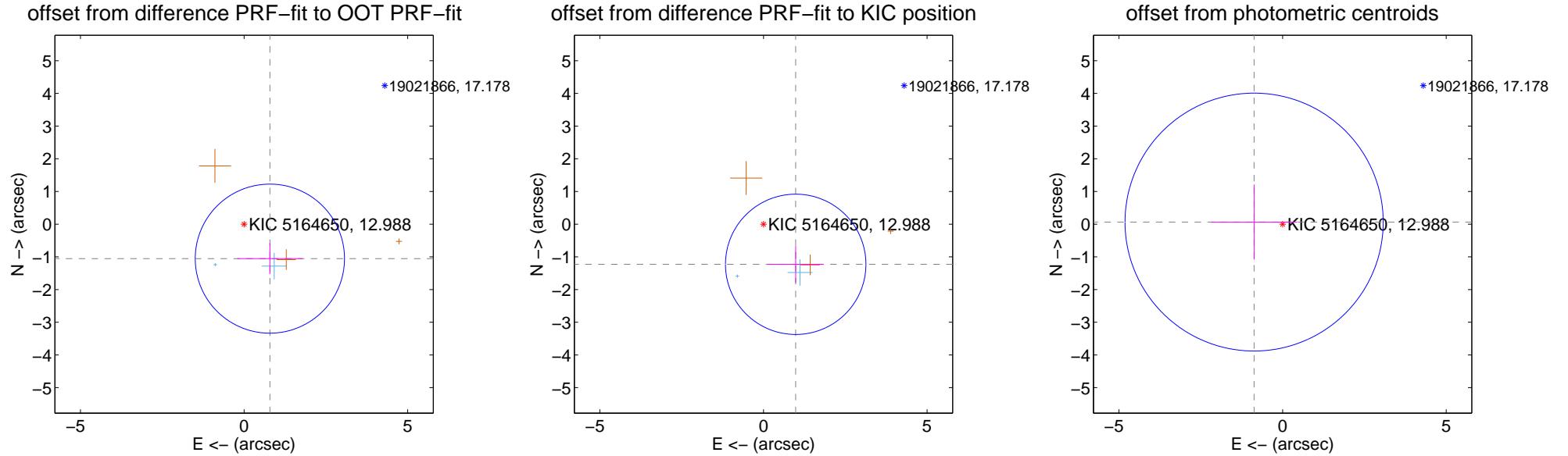
DV Centroid Data

Supplemental centroid analysis for 005164650-03. Kepler magnitude: 12.99. Transit SNR 9.20

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

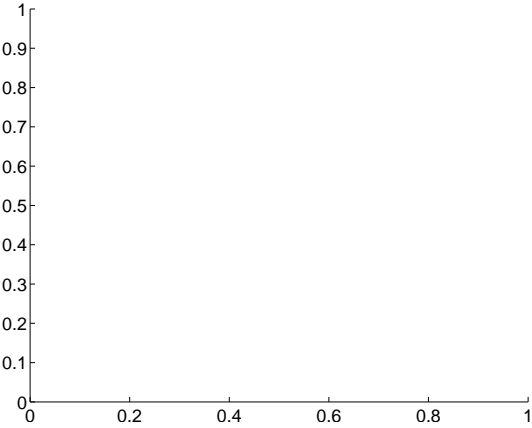
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.316 ± 0.760	1.73	-0.788 ± 0.997	-1.054 ± 0.475
PRF-fit source offset from KIC position	1.574 ± 0.715	2.20	-0.984 ± 0.856	-1.228 ± 0.559
photometric centroid source offset	0.87 ± 1.31	0.66	0.87 ± 1.32	0.06 ± 1.15



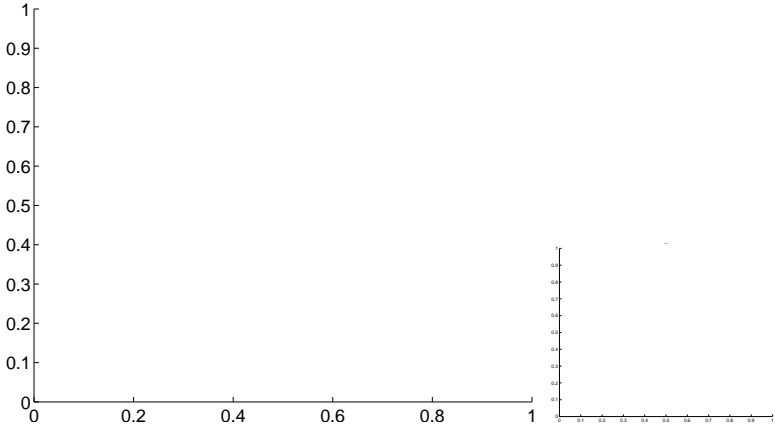
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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

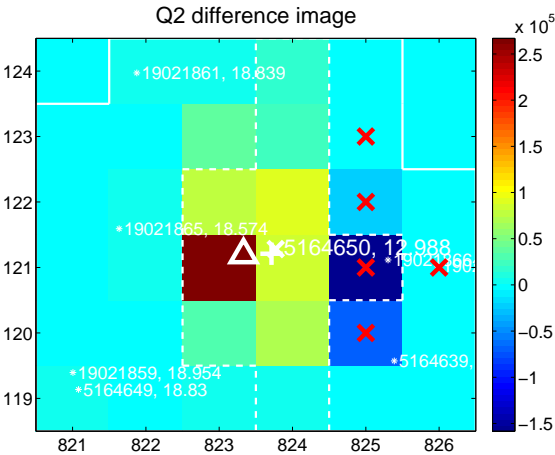
Q1 no difference image



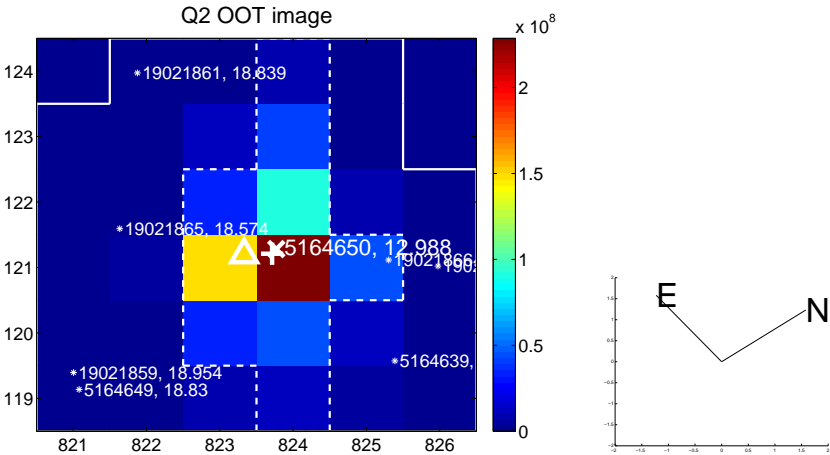
Q1 no OOT image



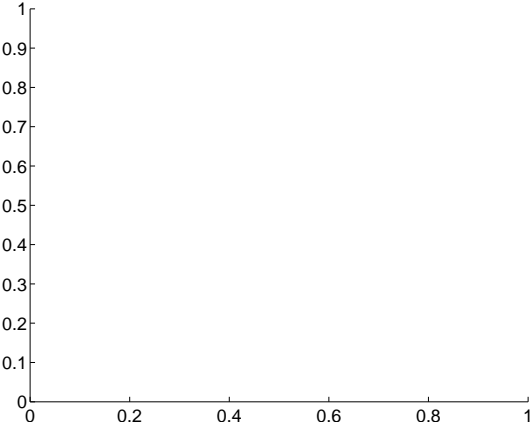
Q2 difference image



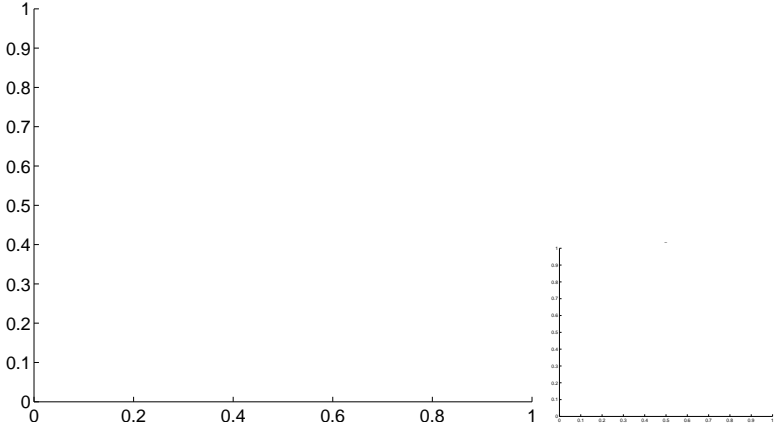
Q2 OOT image



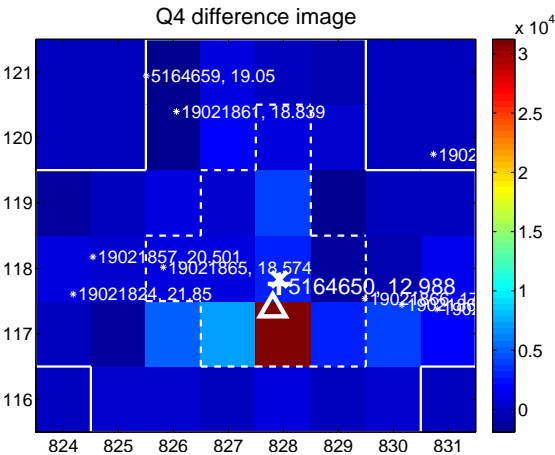
Q3 no difference image



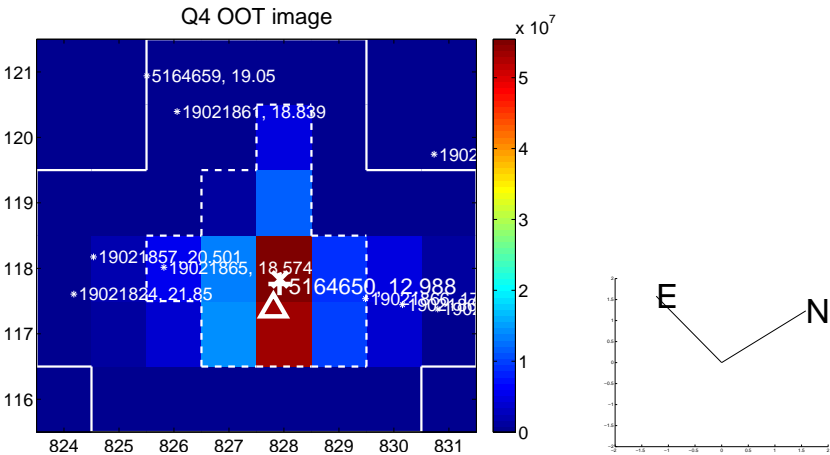
Q3 no OOT image



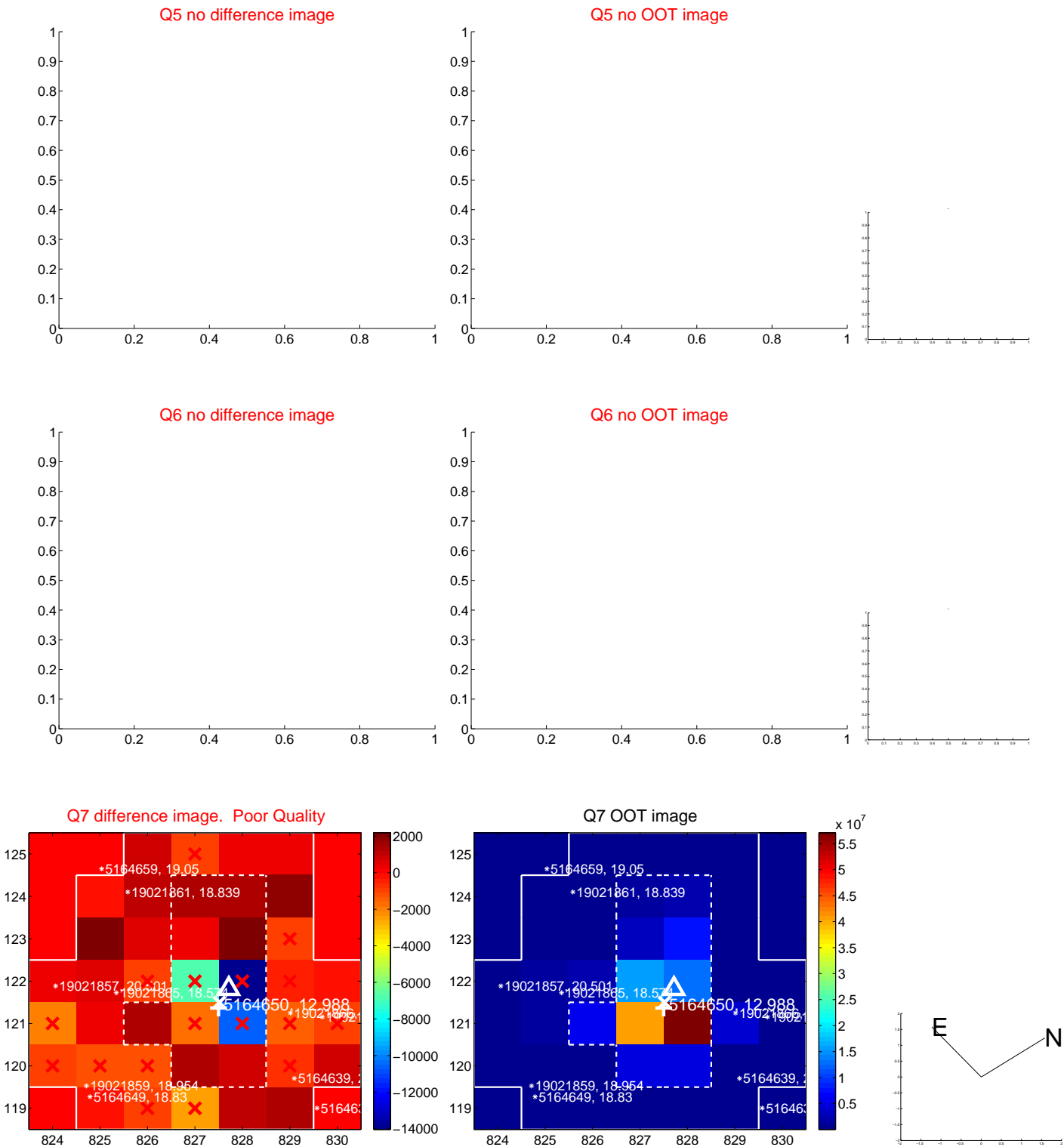
Q4 difference image



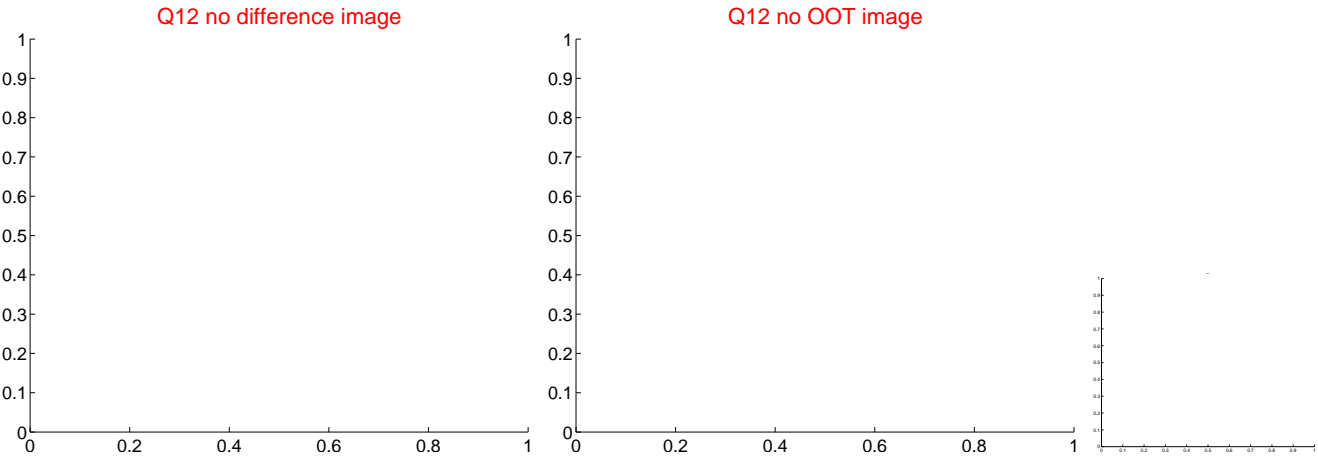
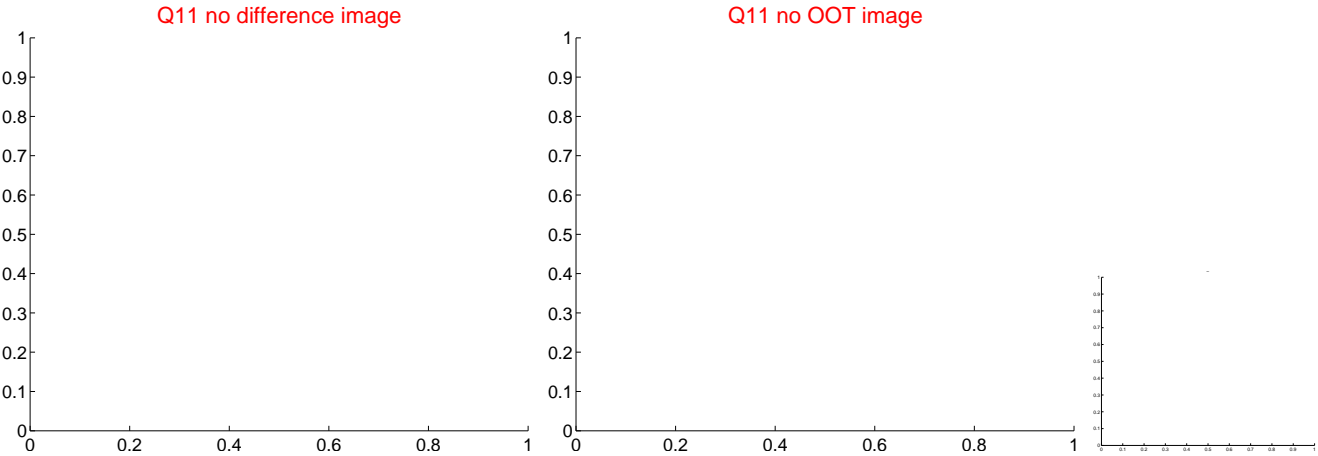
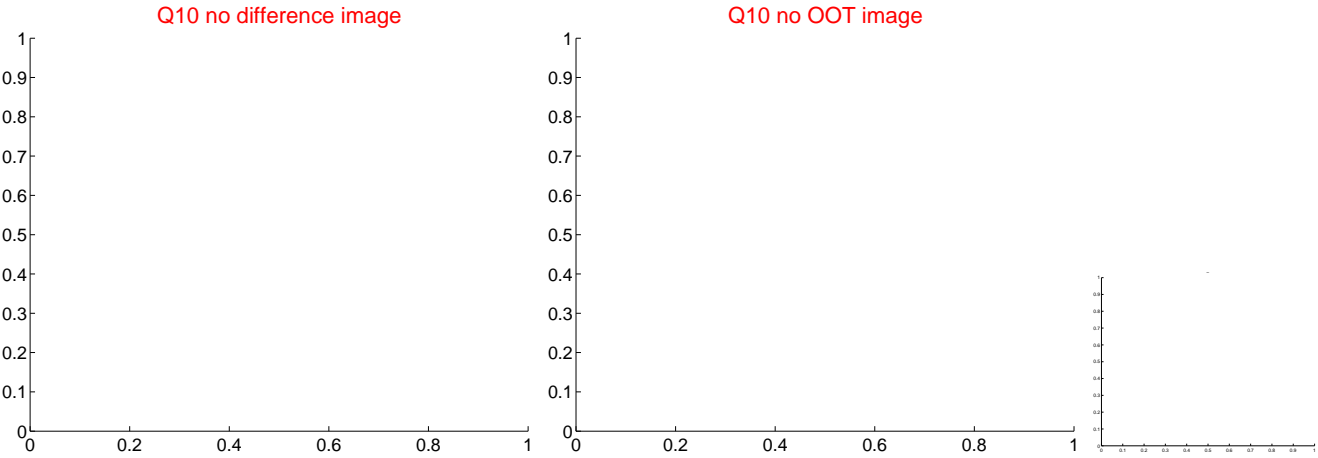
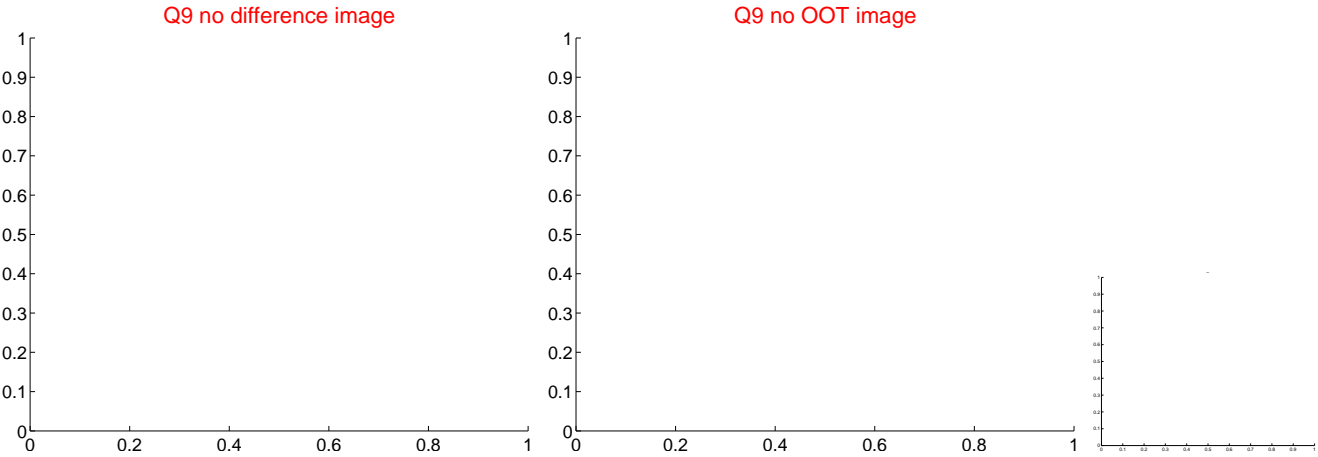
Q4 OOT image



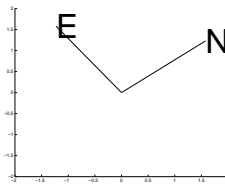
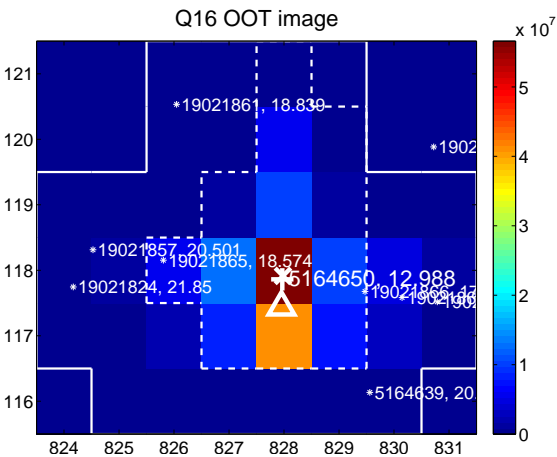
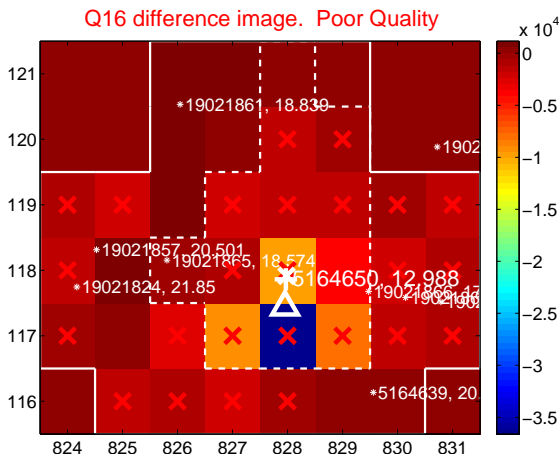
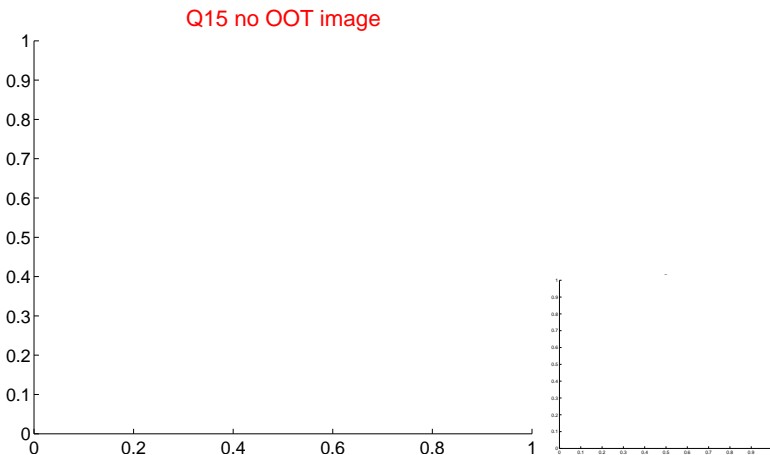
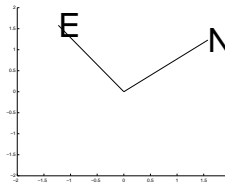
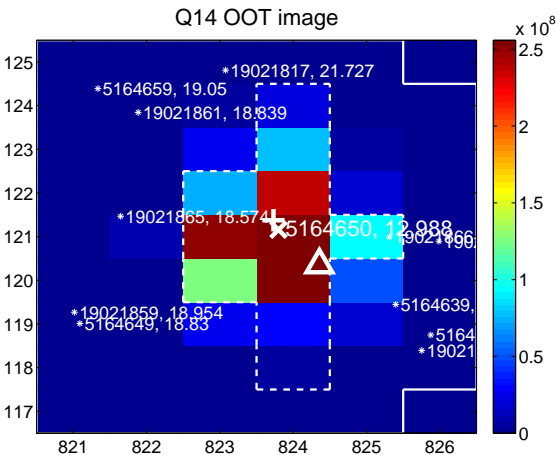
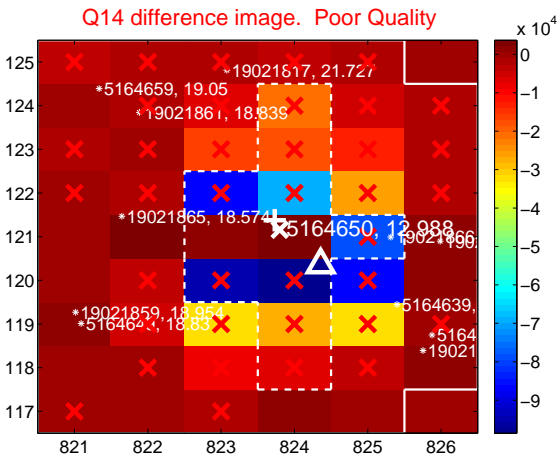
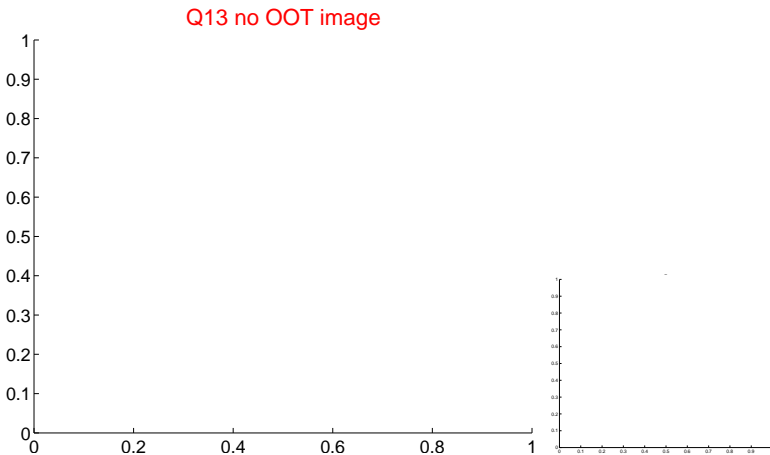
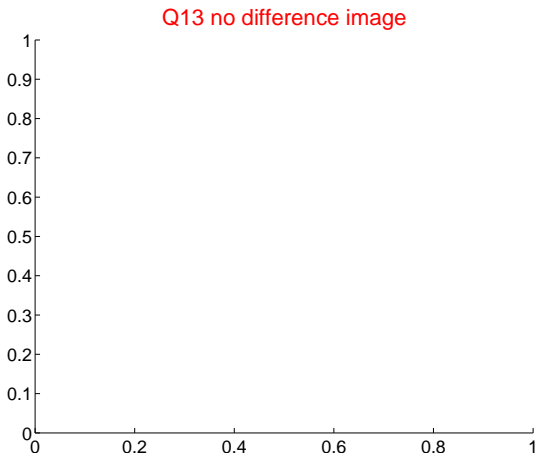
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



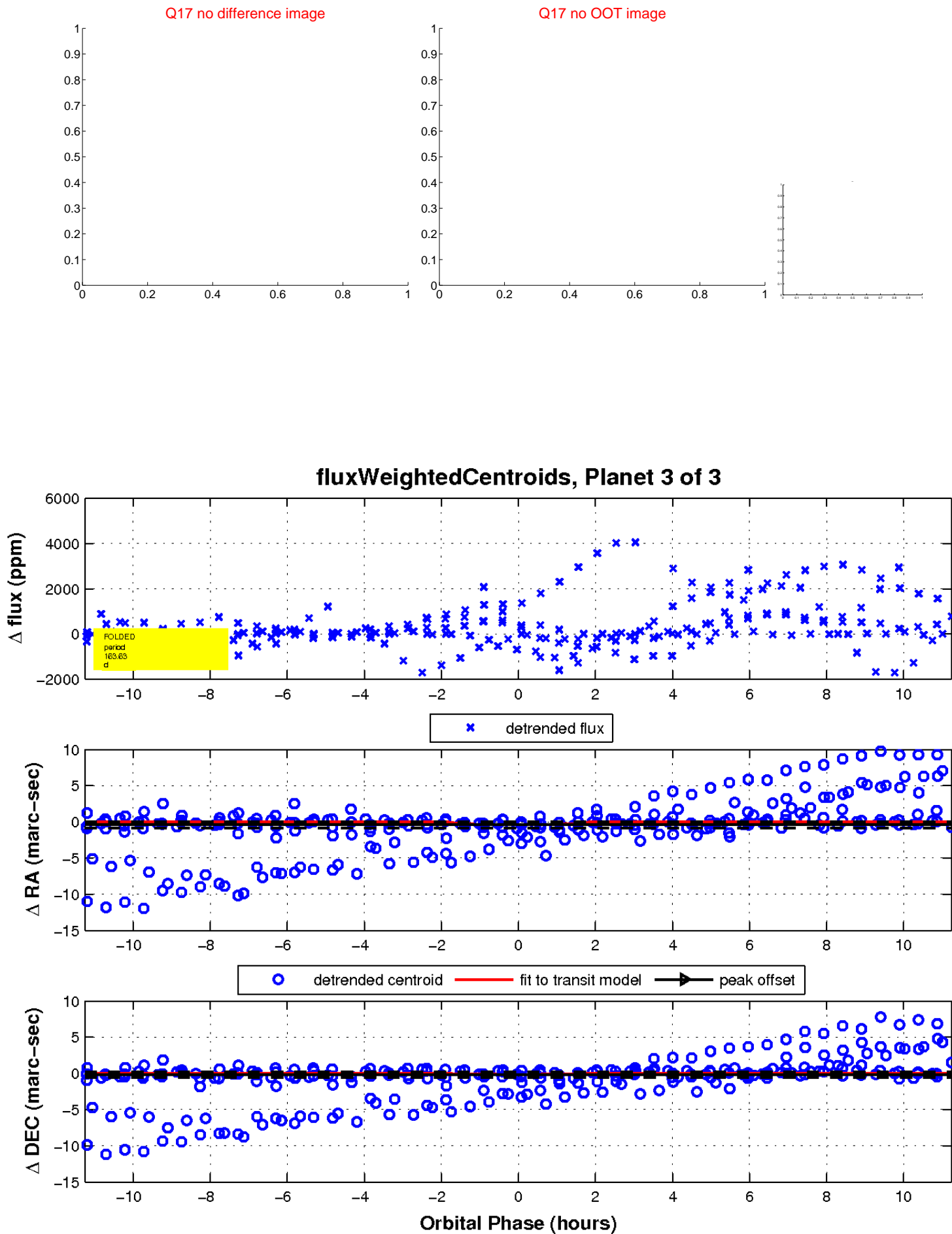
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

