

KIC 011551404

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})
011551404-01	OBS	No	510.512653	548.514664	1316.8	8.113	21.4	9.0	4.48	4975	20.97	7.93
011551404-02	OBS	No	391.612704	201.075397	1231.6	13.171	77.8	7.9	4.48	4975	19.36	11.30
011551404-03	OBS	No	181.205000	176.686430	468.9	3.413	11.2	8.1	4.48	4975	9.45	31.56
011551404-04	OBS	No	337.420270	191.560536	825.2	1.902	17.8	12.9	4.48	4975	13.34	13.78
011551404-05	OBS	No	365.722710	220.298715	676.9	7.270	12.5	6.0	4.48	4975	11.78	12.37
011551404-06	OBS	No	400.164028	183.030810	223.9	4.500	17.4	-1.0	4.48	4975	6.54	10.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011551404-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011551404-05	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
011551404-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

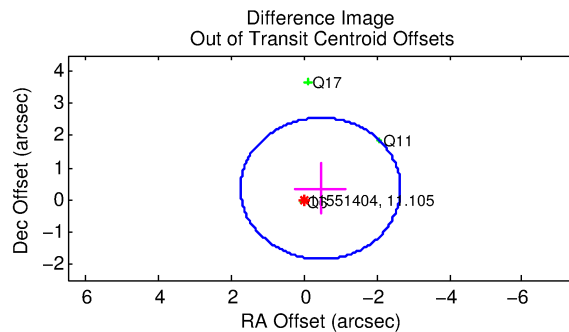
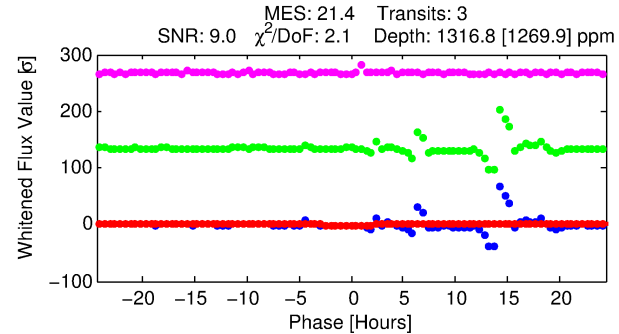
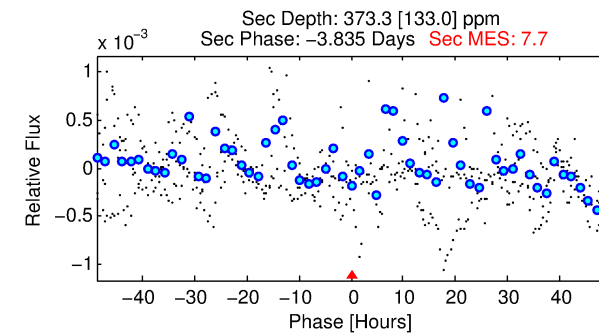
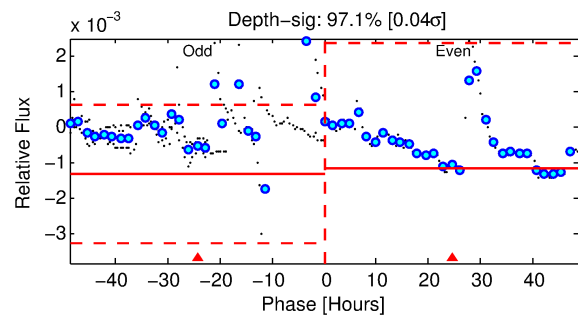
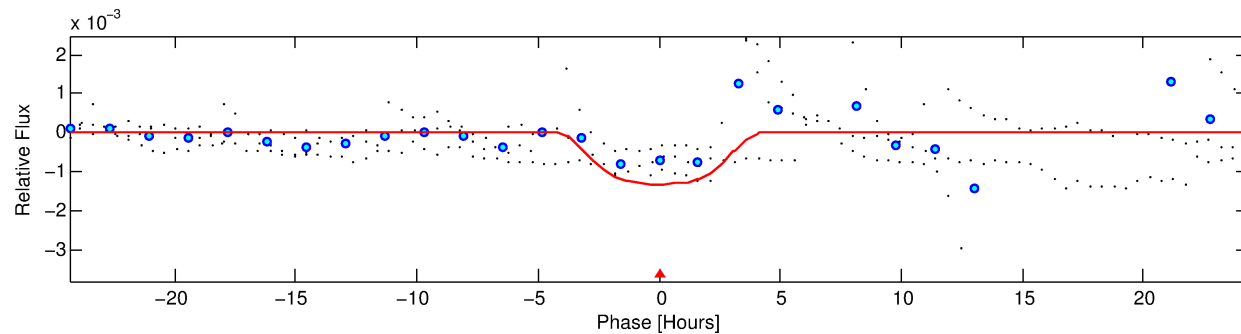
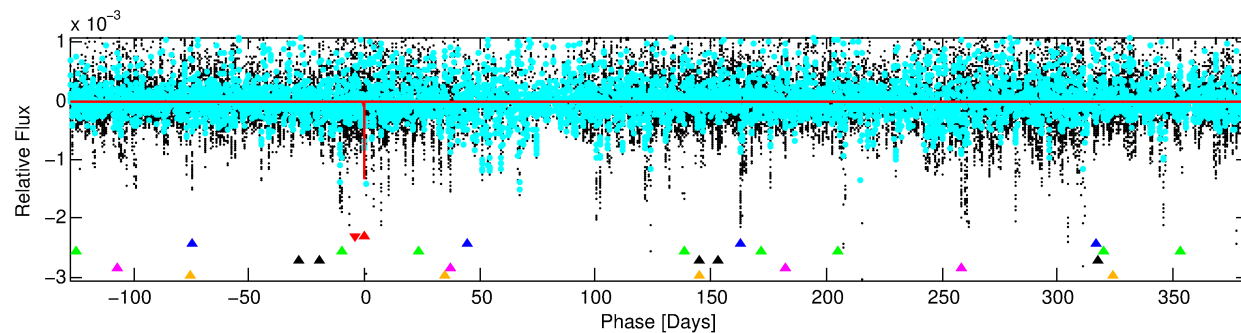
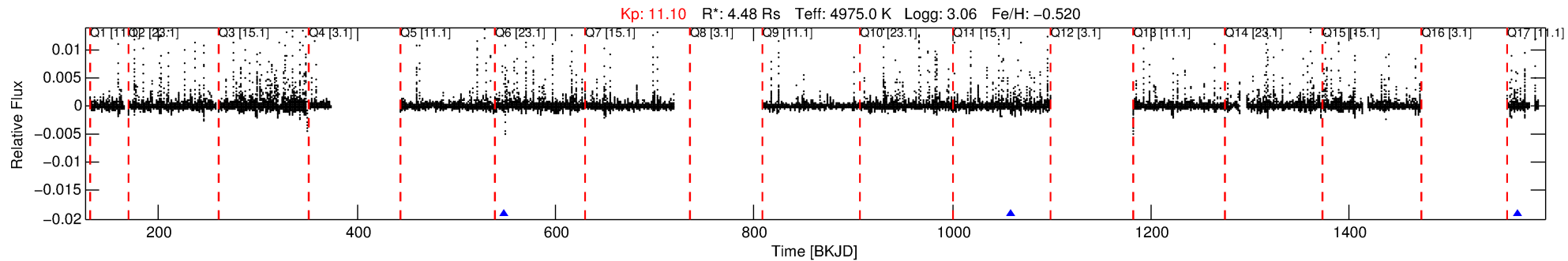
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011551404-01

No Significant Match Found

DV One-Page Summary

KIC: 11551404 Candidate: 1 of 6 Period: 510.513 d



DV Fit Results:

Period = 510.51265 [0.04756] d
Epoch = 548.5147 [0.0606] BKJD
Rp/R* = 0.0429 [0.0224]
a/R* = 214.19 [105.24]
b = 0.94 [0.07]
Seff = 7.93 [5.49]
Teq = 428 [74] K
Rp = 20.97 [16.31] Re
a = 1.1777 [0.5623] AU
Ag = 647.90 [839.78] [0.77σ]
Teff = 3338 [924] K [3.14σ]

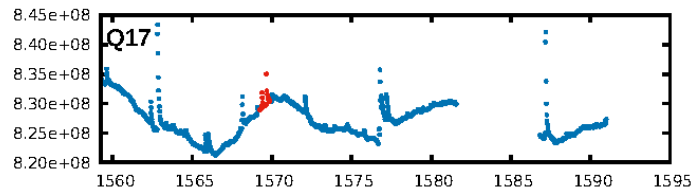
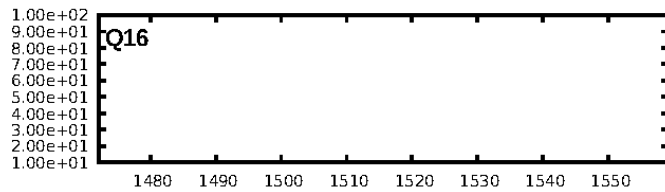
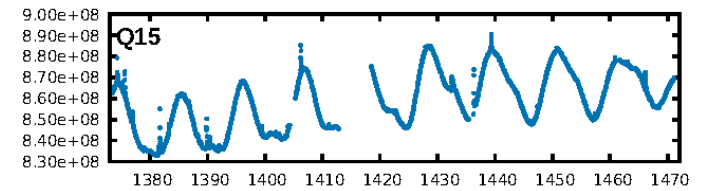
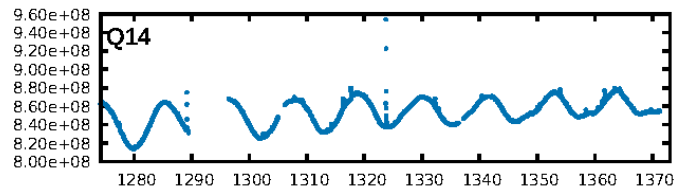
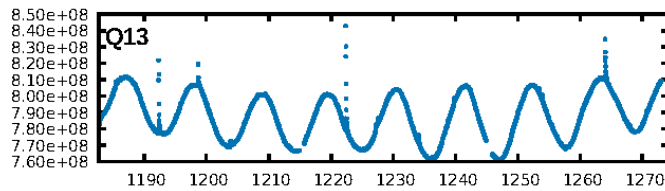
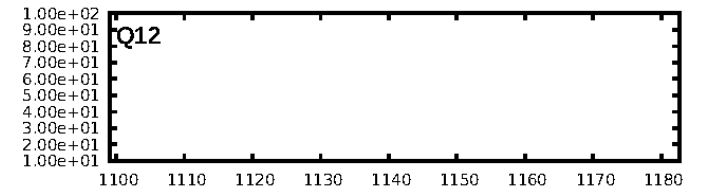
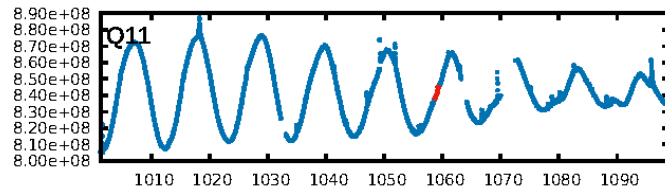
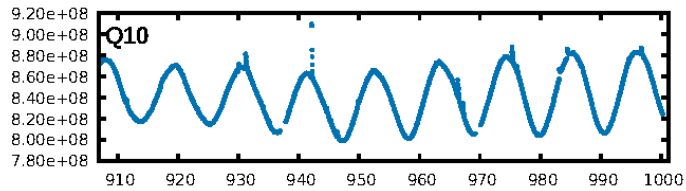
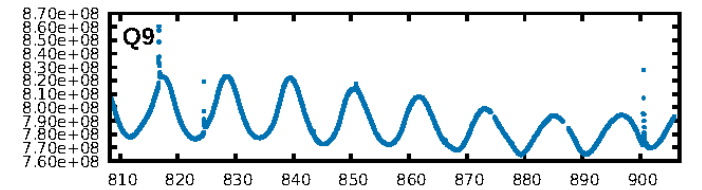
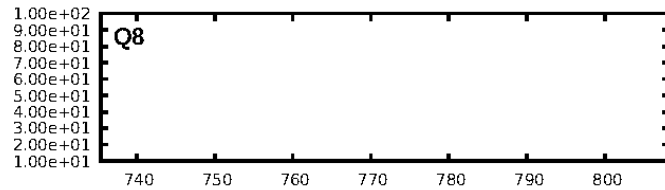
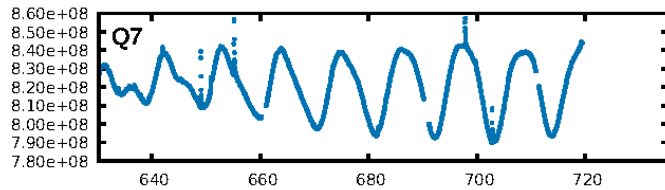
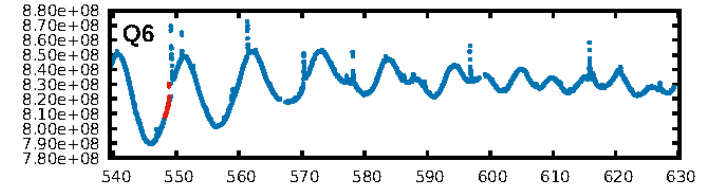
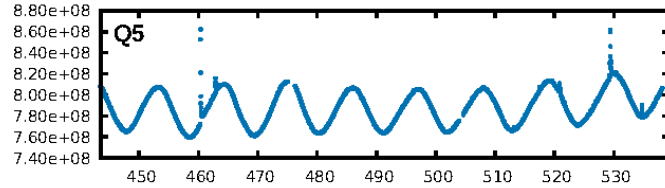
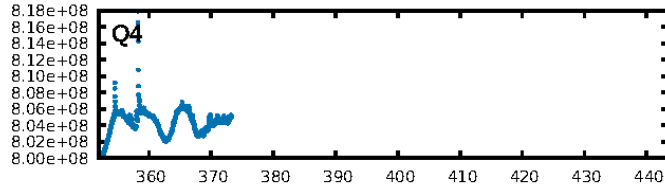
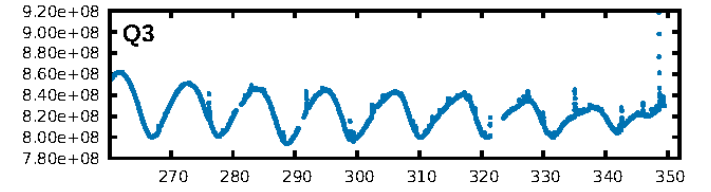
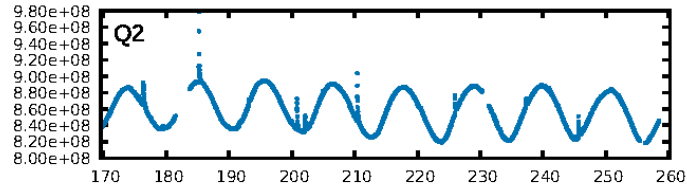
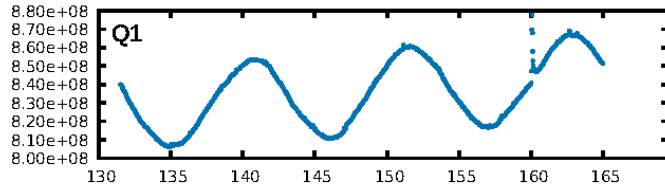
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [285.46σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 26.7%
ModelChiSquareGof-sig: 8.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 7.559
Centroid-sig: 81.3%
Centroid-so: 0.342 arcsec [1.69σ]
OotOffset-rm: 0.575 arcsec [0.78σ]
KicOffset-rm: 0.674 arcsec [0.76σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

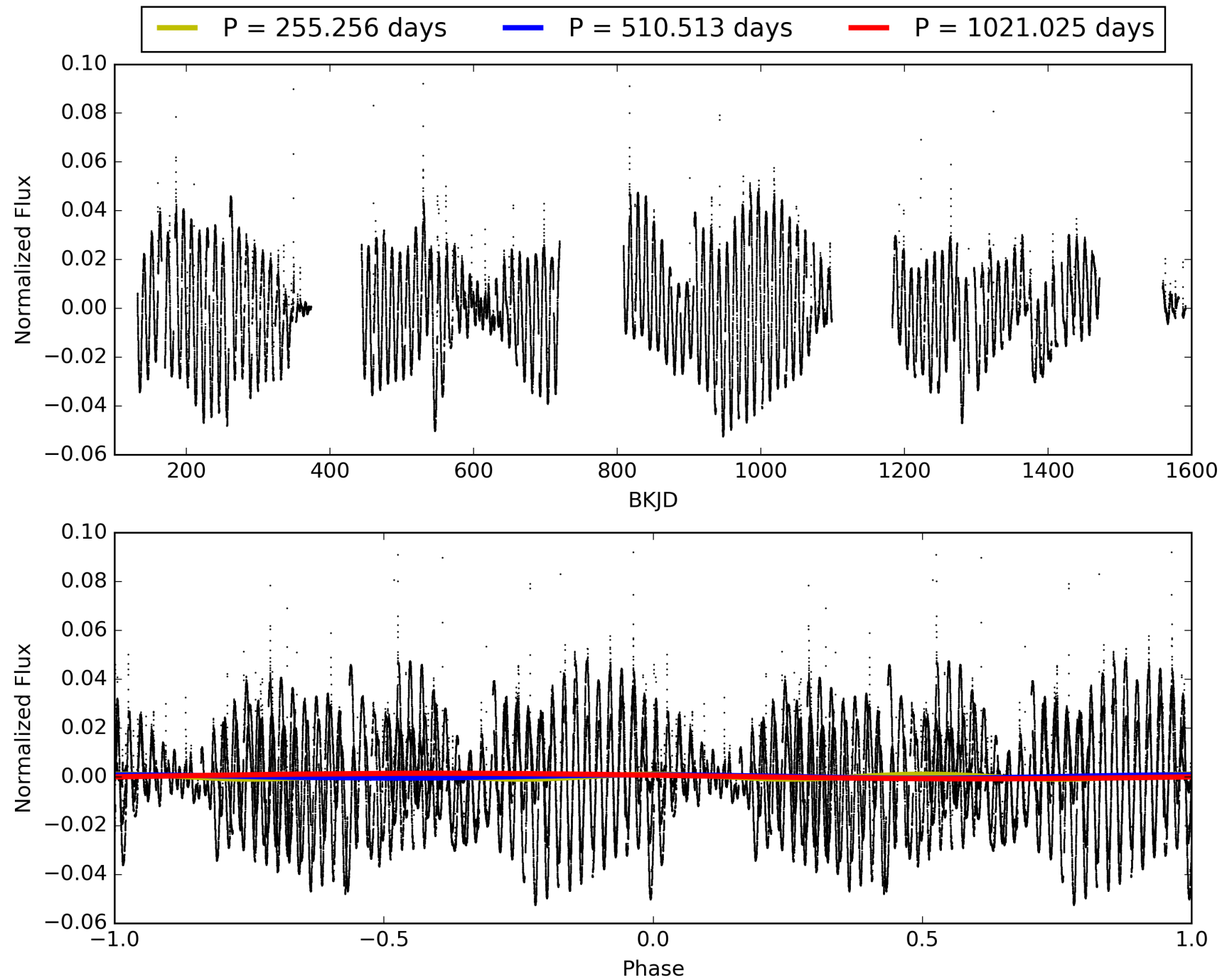
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 011551404-01, PDC Light Curves

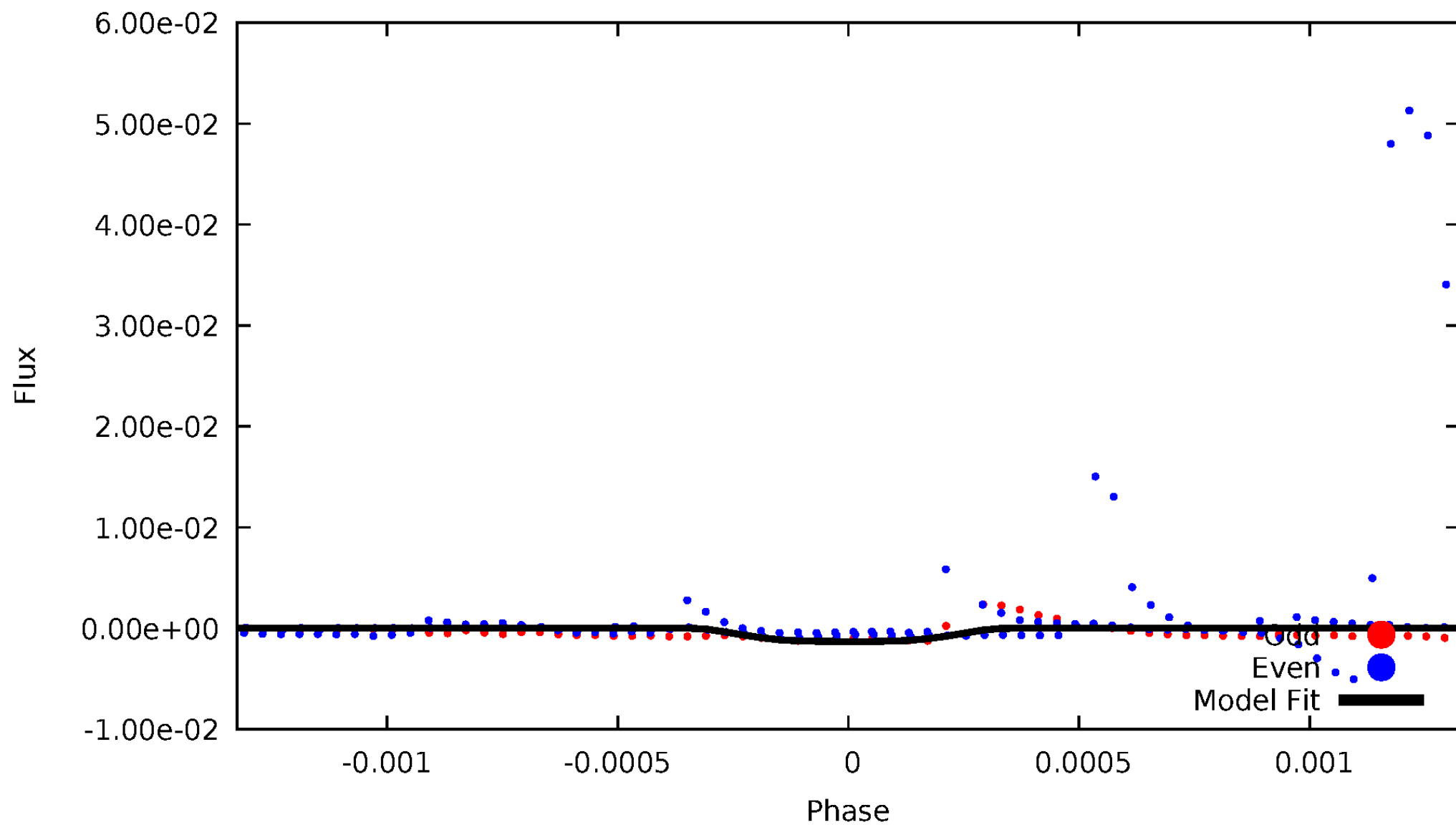


TCE 011551404-01



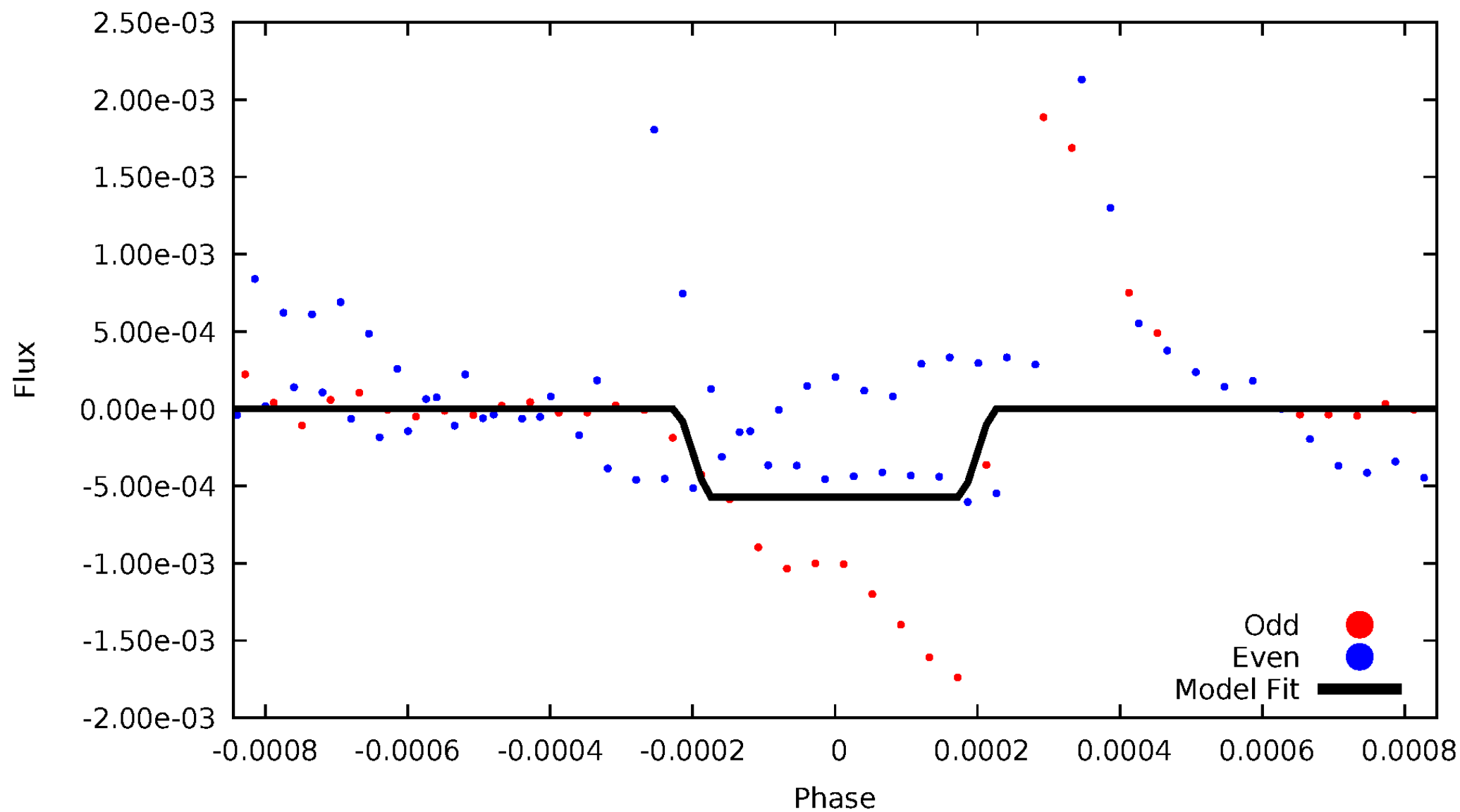
DV Odd/Even

TCE 011551404-01



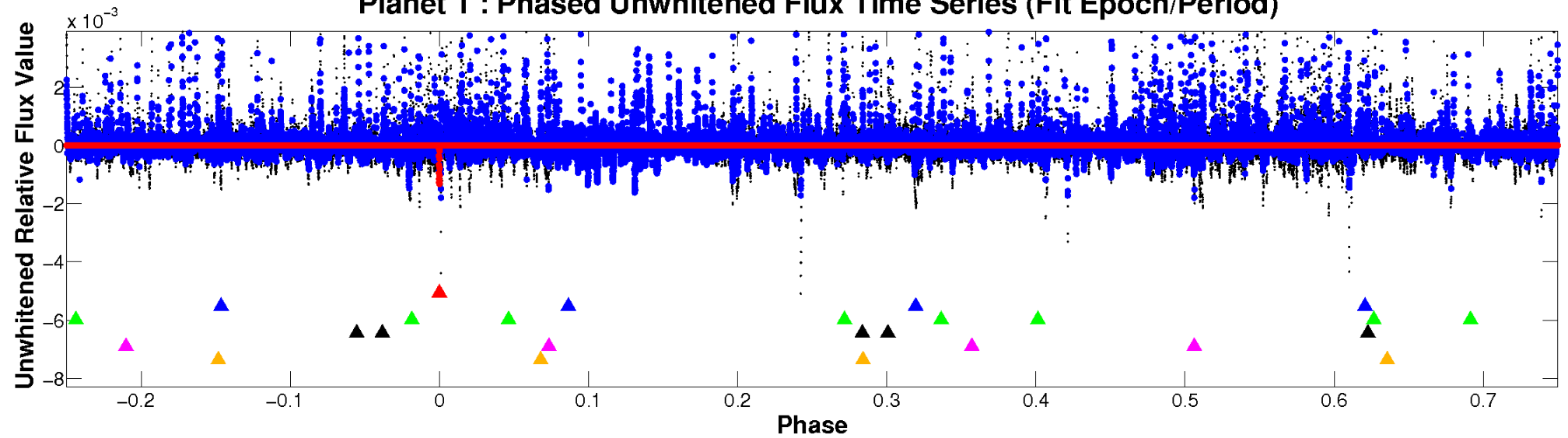
ALT Odd/Even

TCE 011551404-01

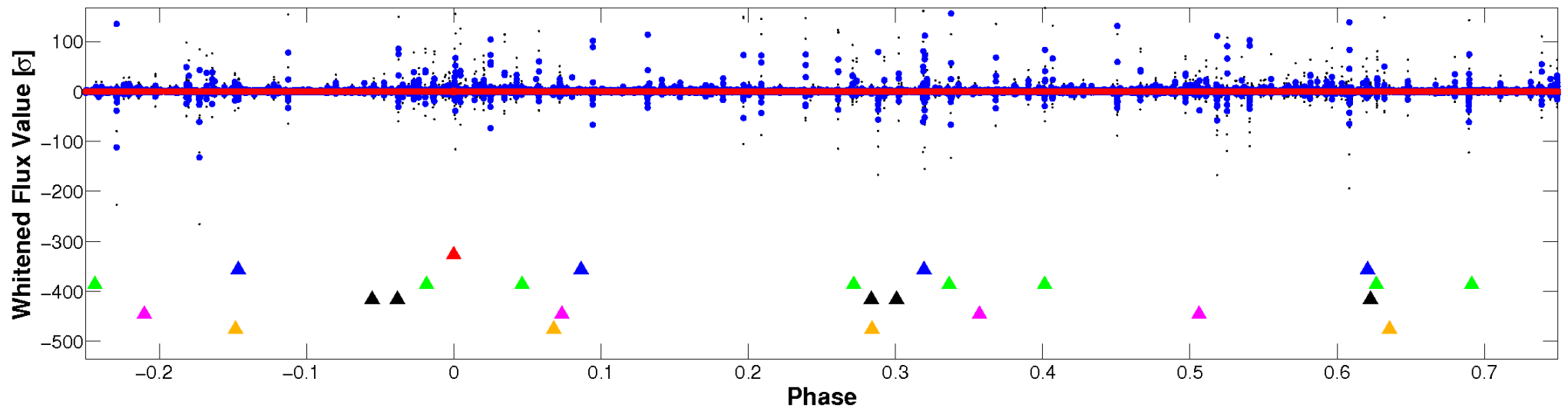


Non-Whitened Vs. Whitened Light Curve

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

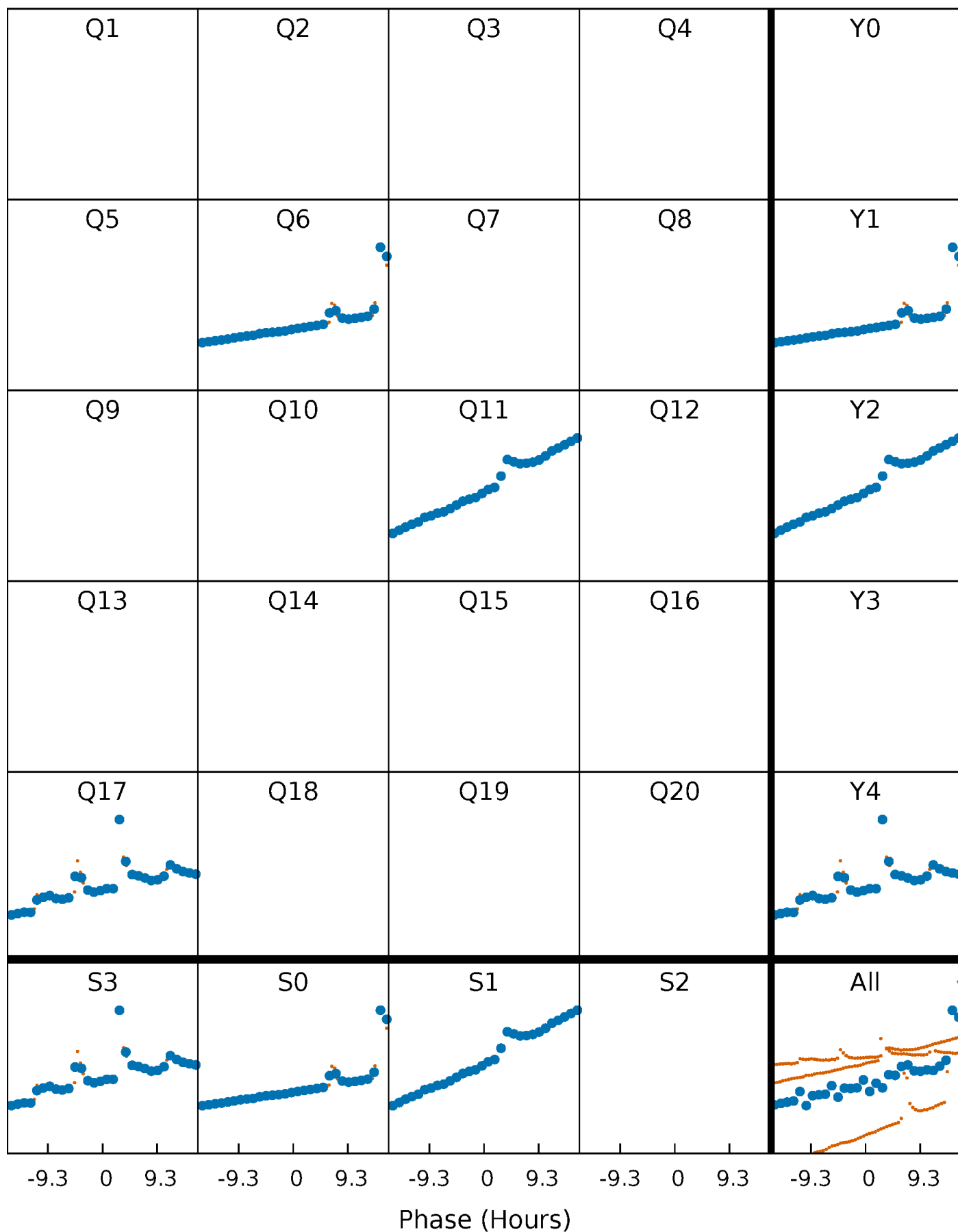


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



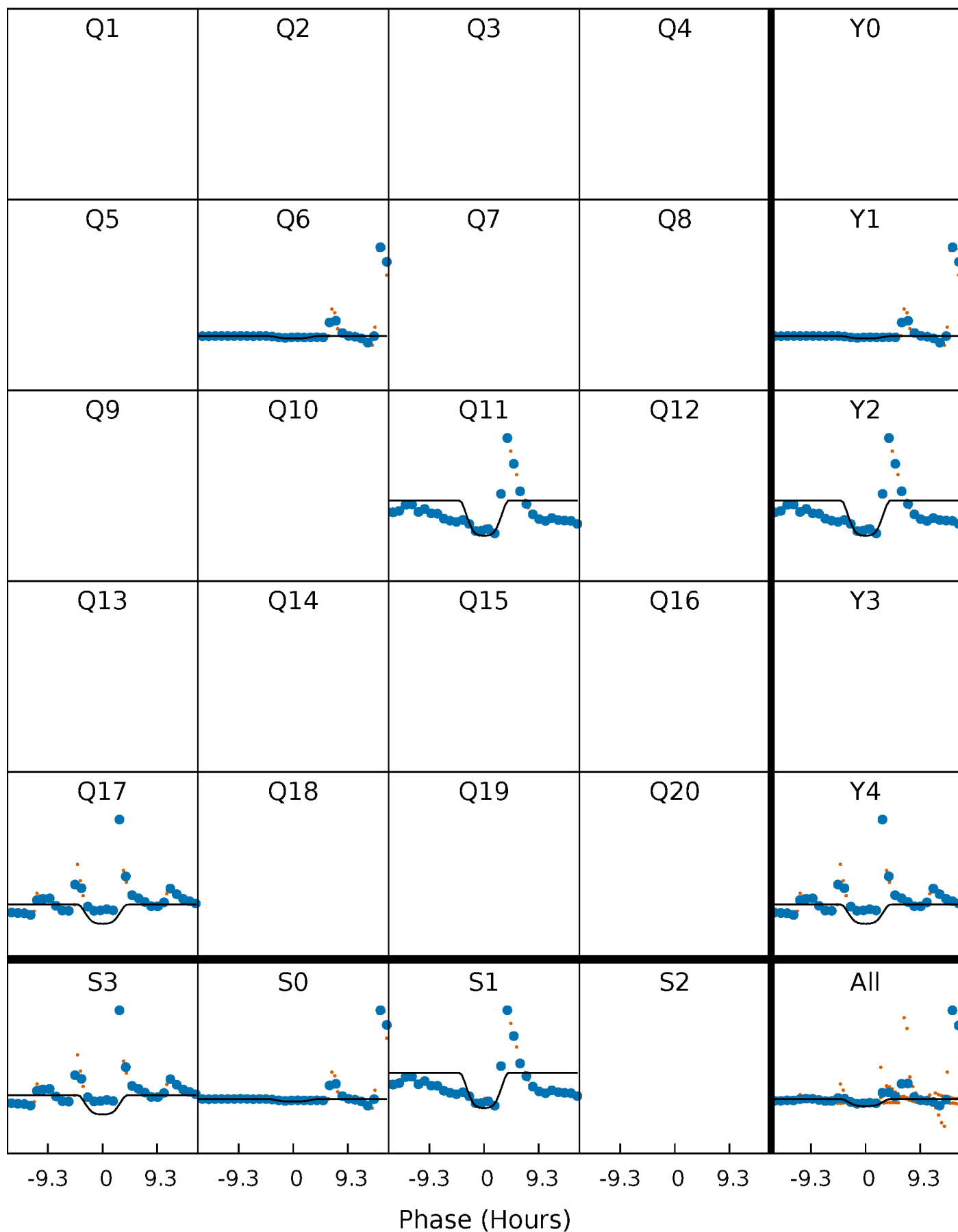
PDC Quarter-Phased Transit Curves

TCE 011551404-01 P=510.512653 Days $T_0=548.514664$ (BKJD)



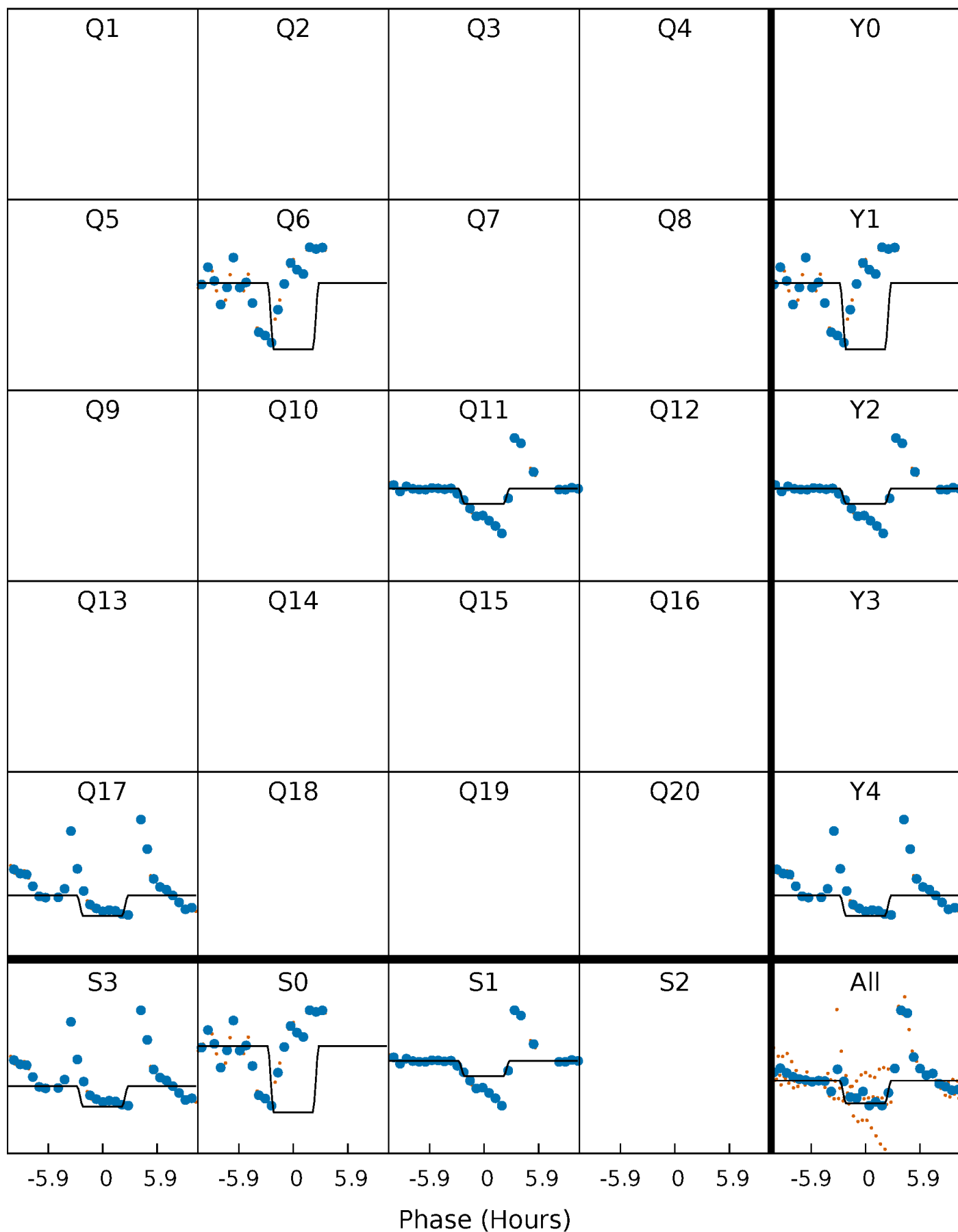
DV Quarter-Phased Transit Curves

TCE 011551404-01 P=510.512653 Days $T_0=548.514664$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

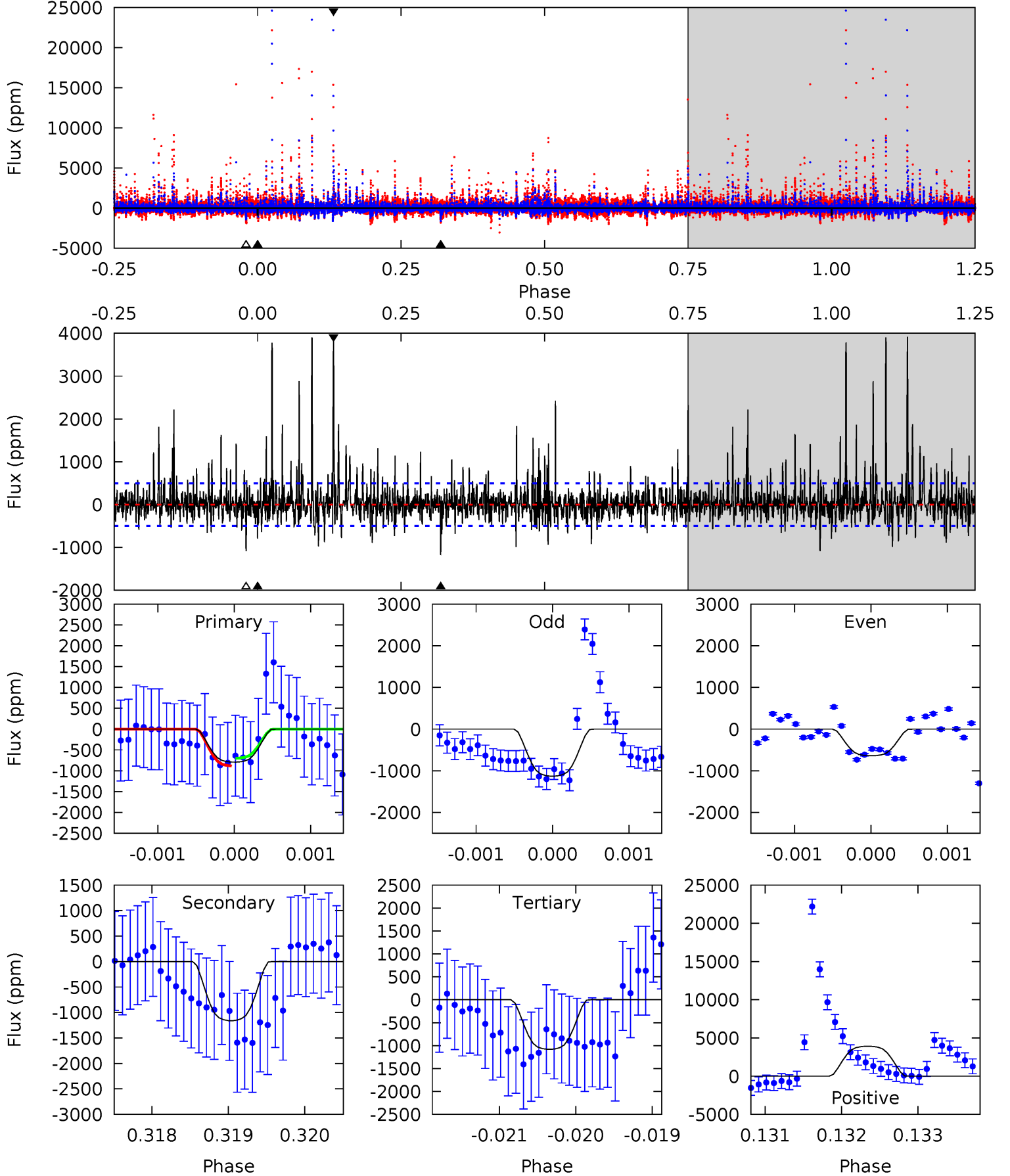
TCE 011551404-01 P=510.484818 Days $T_0=548.542221$ (BKJD)



DV Model-Shift Uniqueness Test

011551404-01, P = 510.512653 Days, E = 38.002011 Days

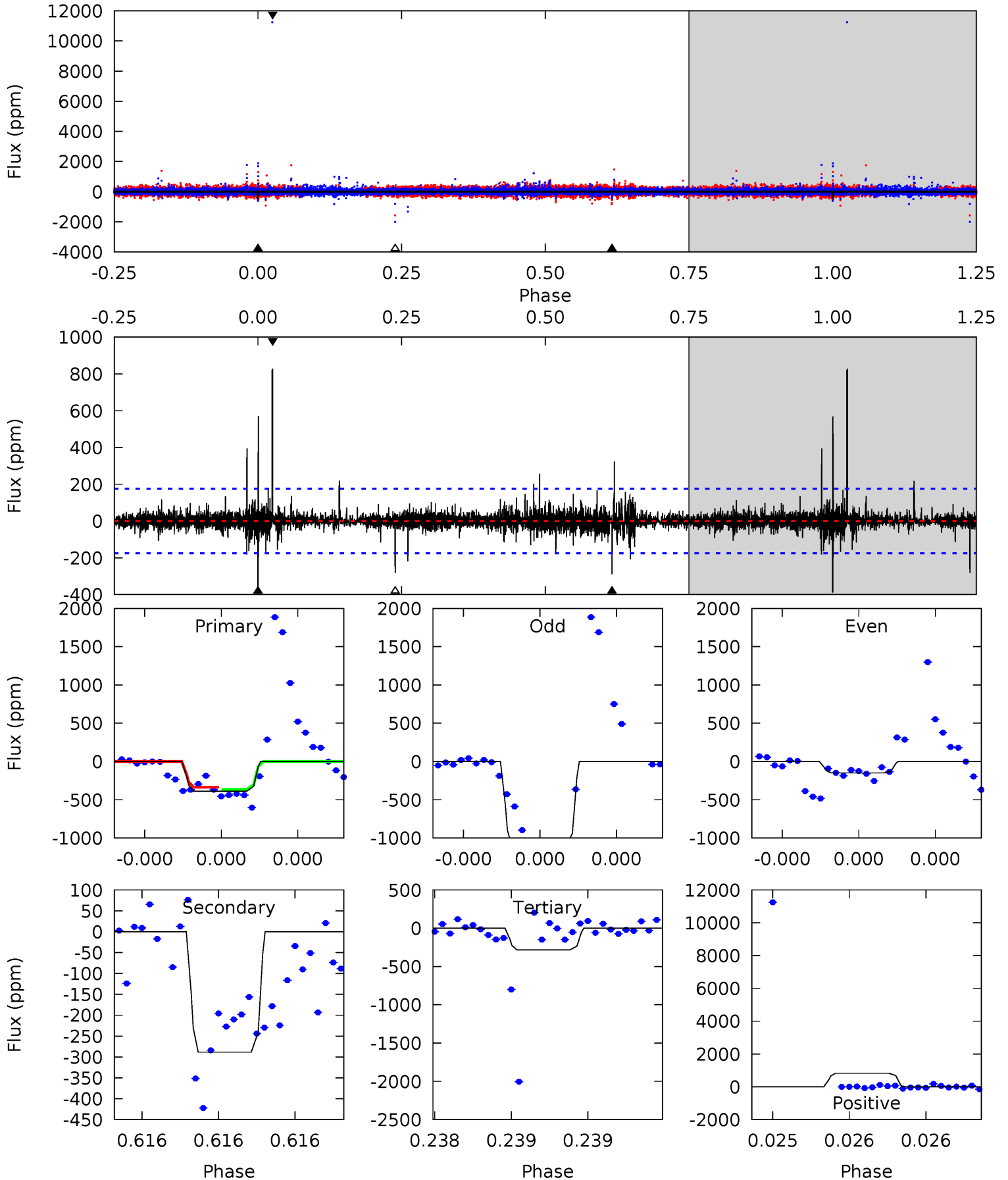
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.79	12.9	12.0	43.4	5.52	3.40	3.74	-3.20	-34.6	0.88	-30.6	1.28	0.72	0.77	1.00



Alt Model-Shift Uniqueness Test

011551404-01, P = 510.484818 Days, E = 38.057403 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	9.18	8.98	26.4	5.60	3.51	1.09	3.38	-14.0	0.20	-17.2	17.3	1.37	0.68	0.44



Stellar Parameters For KIC 011551404

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4975^{+138}_{-100}	$3.058^{+0.368}_{-0.301}$	$-0.520^{+0.300}_{-0.200}$	$4.477^{+2.585}_{-1.392}$	$0.836^{+0.366}_{-0.019}$	$0.013^{+0.030}_{-0.009}$
	+3%/-2%	+12%/-10%	+58%/-38%	+58%/-31%	+44%/-2%	+225%/-70%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011551404-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1162 ± 90	$21.10^{+13.02}_{-10.01}$	594^{+81}_{-66}	4526^{+1374}_{-625}	2123^{+5379}_{-1263}
Alt.	-288 ± 31	$13.01^{+12.28}_{-8.45}$	593^{+73}_{-61}	4172^{+2347}_{-749}	1439^{+10027}_{-1060}

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

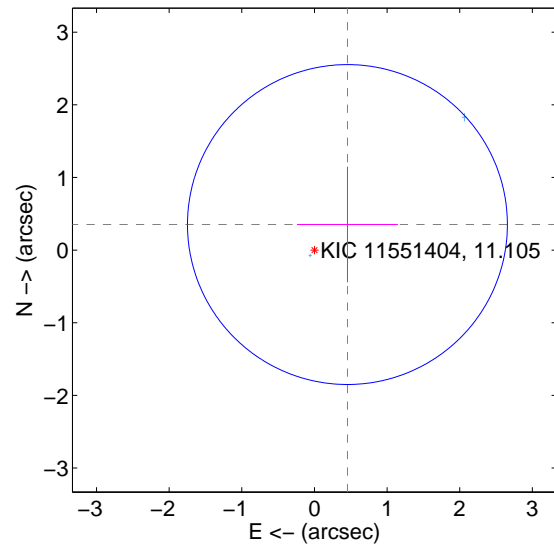
Supplemental centroid analysis for 011551404-01. **Kepler magnitude: 11.11.** Transit SNR 9.02

There are 3 quarters with good PRF difference image offsets

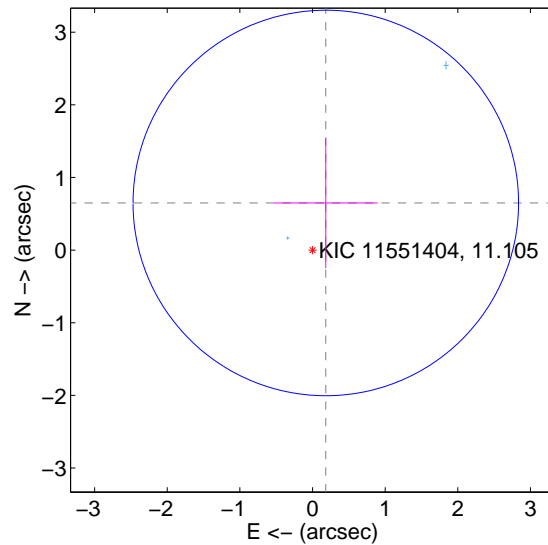
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.575 ± 0.734	0.78	-0.454 ± 0.694	0.352 ± 0.796
PRF-fit source offset from KIC position	0.674 ± 0.885	0.76	-0.183 ± 0.713	0.649 ± 0.897
photometric centroid source offset	0.34 ± 0.20	1.69	0.33 ± 0.20	0.09 ± 0.21

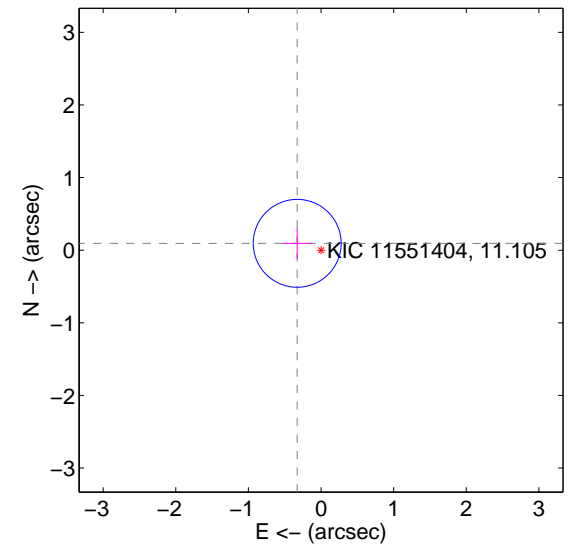
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

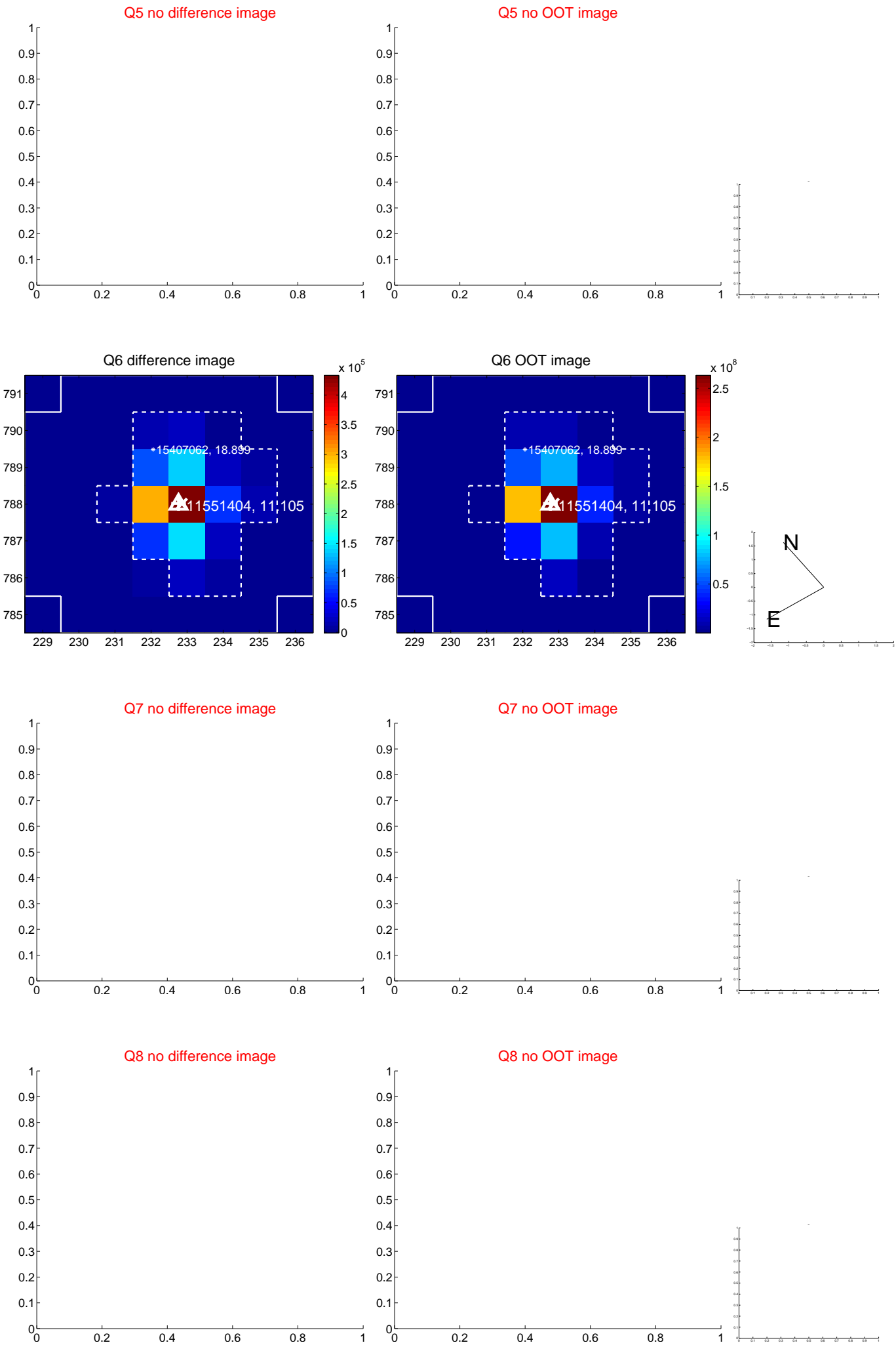


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



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

Q9 no difference image



Q9 no OOT image



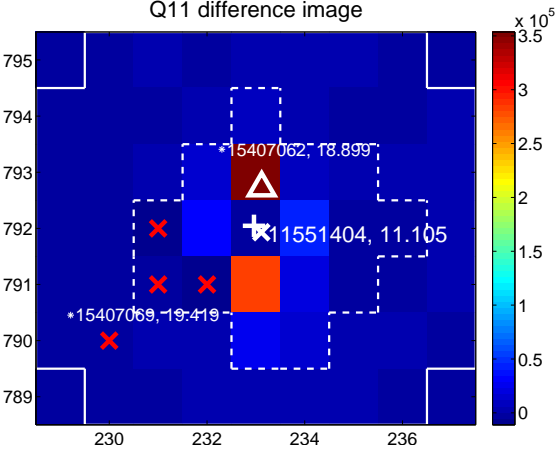
Q10 no difference image



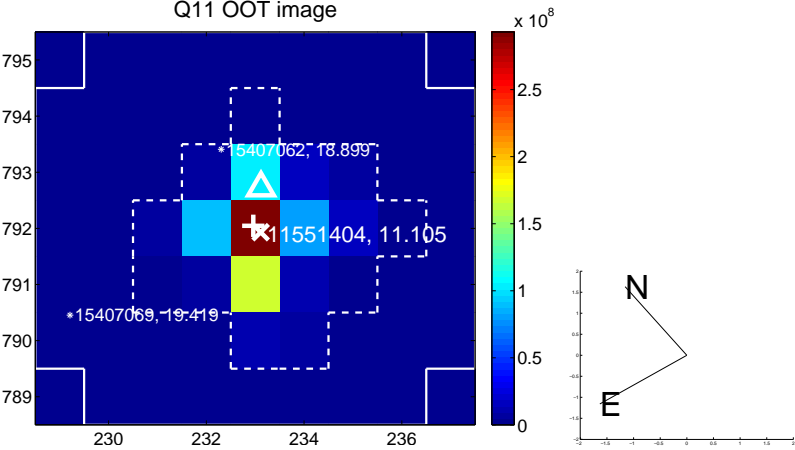
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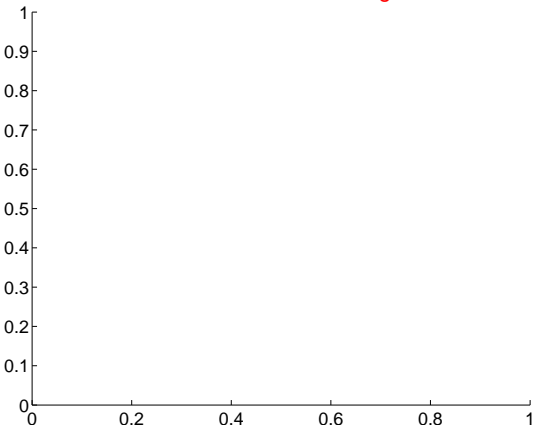
Q11 difference image



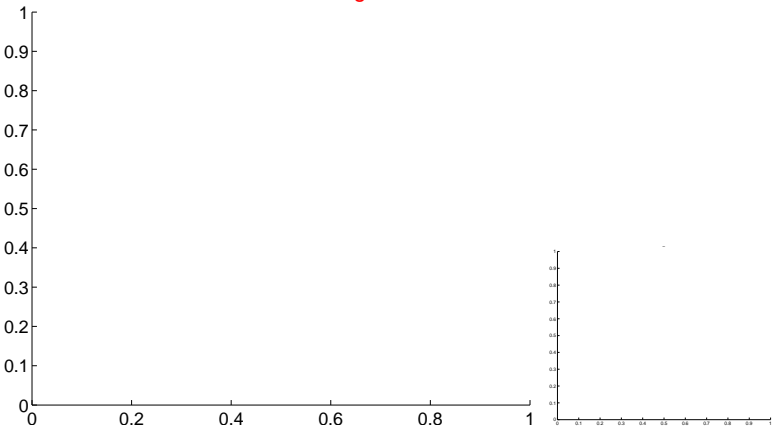
Q11 OOT image



Q12 no difference image



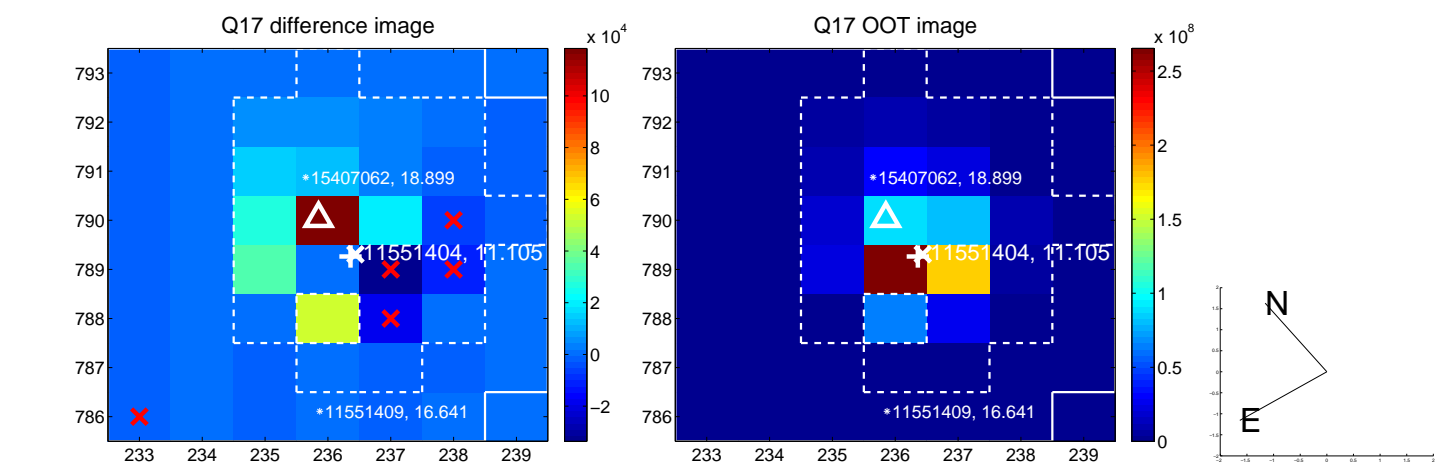
Q12 no OOT image



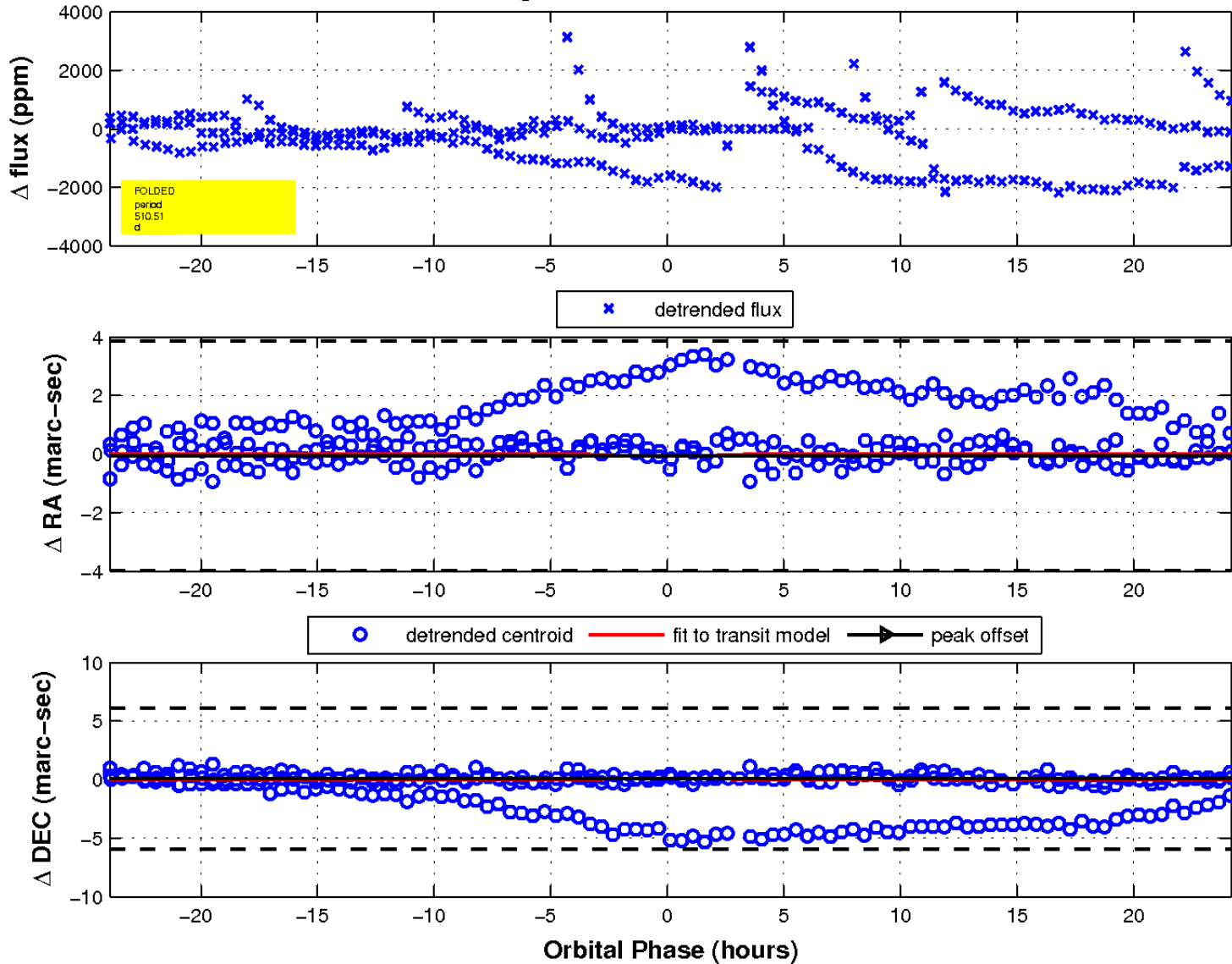
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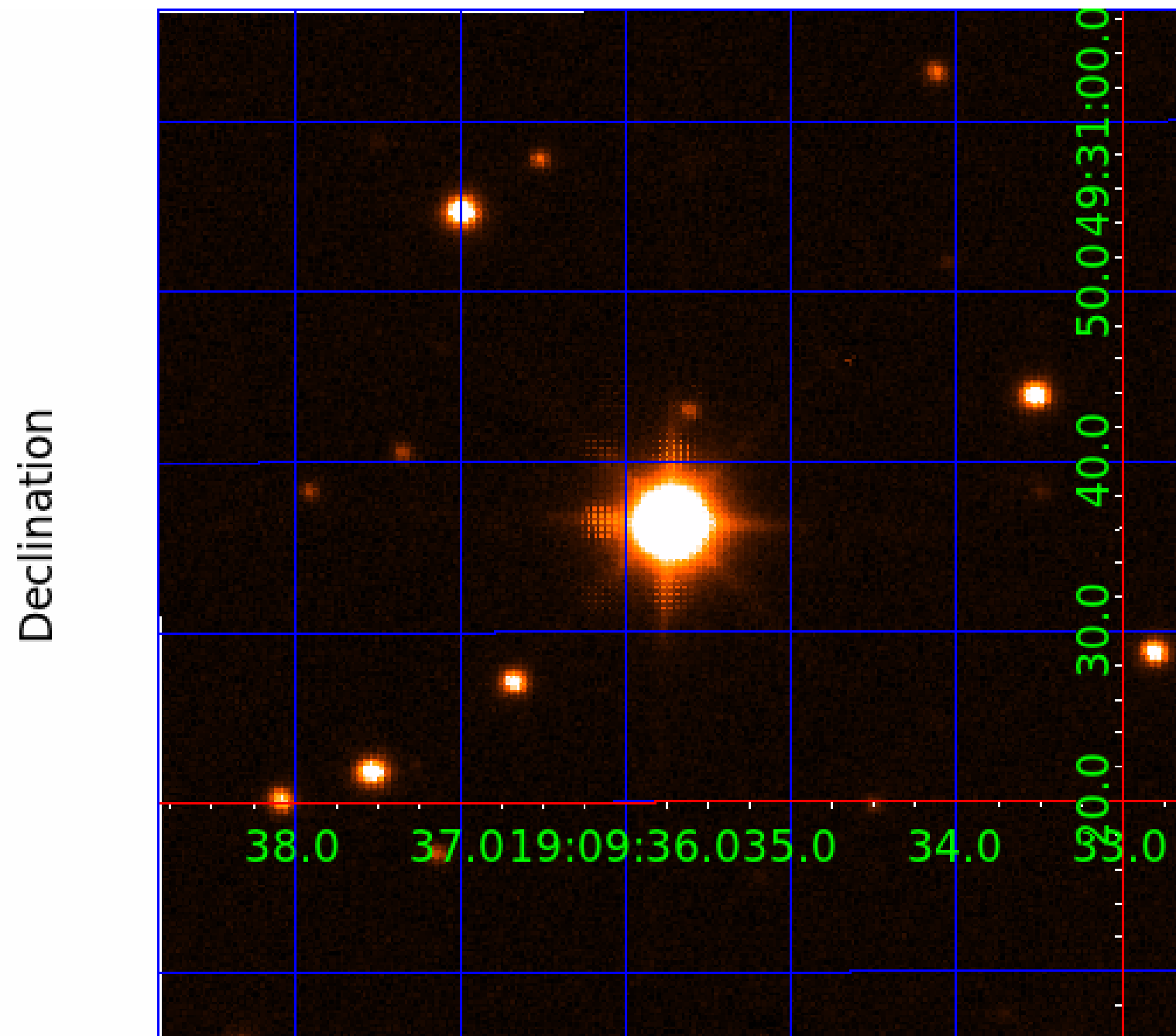
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fluxWeightedCentroids, Planet 1 of 6



UKIRT Image



KIC 011551404

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011551404-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011551404-05	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
011551404-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

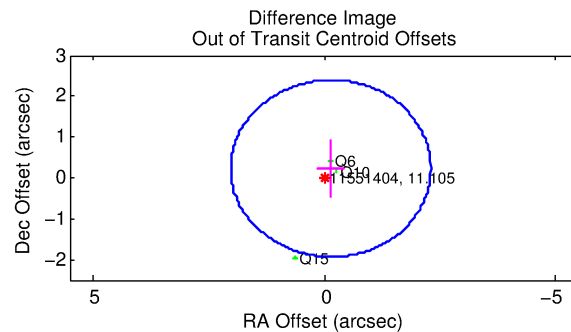
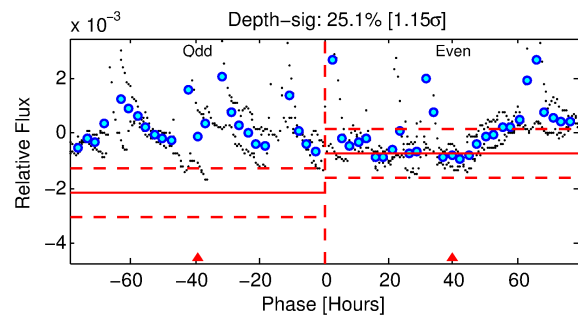
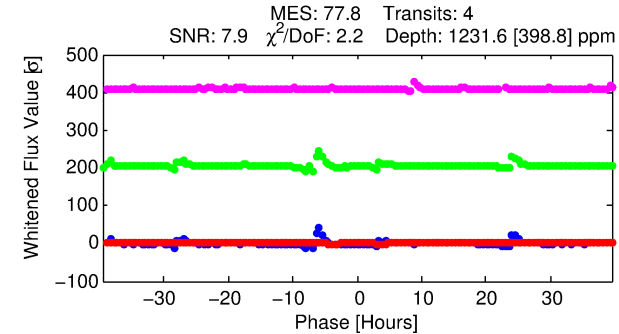
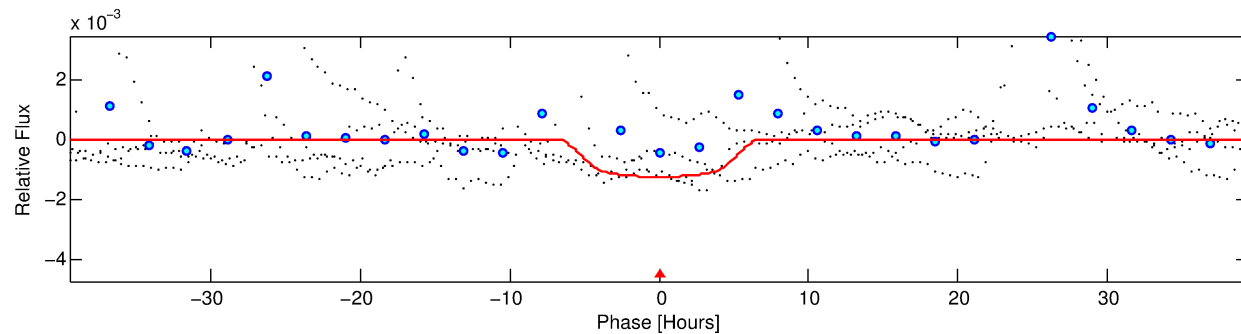
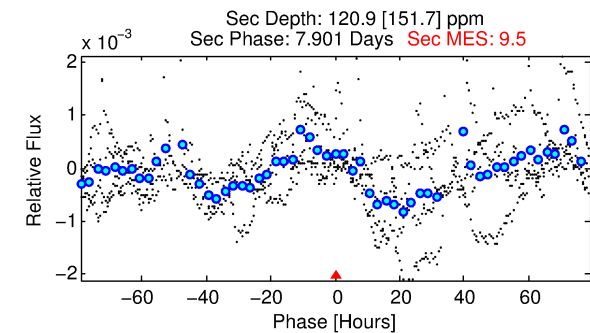
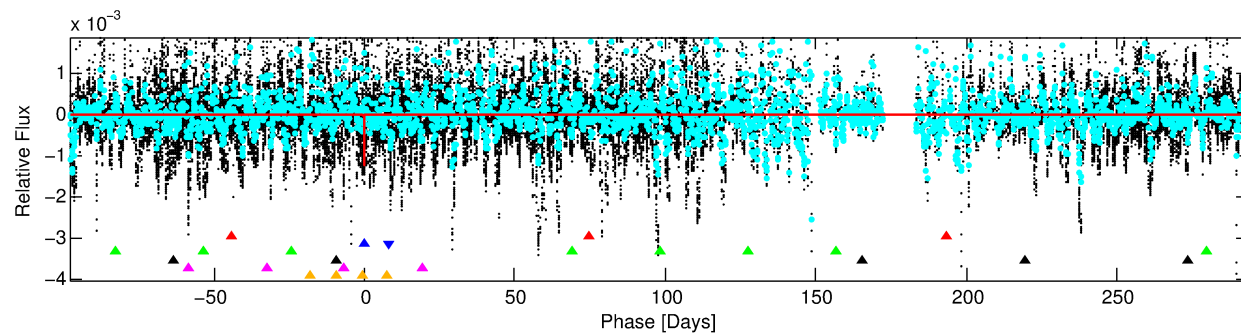
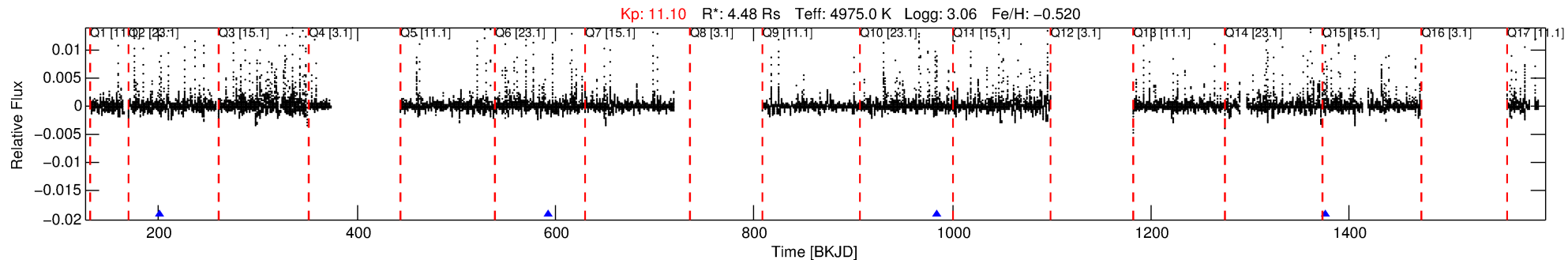
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011551404-02

No Significant Match Found

DV One-Page Summary

KIC: 11551404 Candidate: 2 of 6 Period: 391.613 d



DV Fit Results:

Period = 391.61270 [0.01414] d
Epoch = 201.0754 [0.0256] BKJD
Rp/R* = 0.0396 [0.0068]
a/R* = 112.14 [20.86]
b = 0.91 [0.04]
Seff = 11.30 [7.82]
Teq = 467 [81] K
Rp = 19.36 [11.66] Re
a = 0.9869 [0.4712] AU
Ag = 172.87 [253.97] [0.68σ]
Teff = 2621 [855] K [2.51σ]

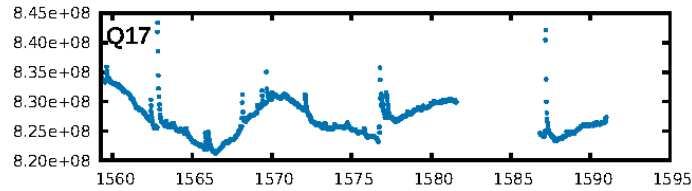
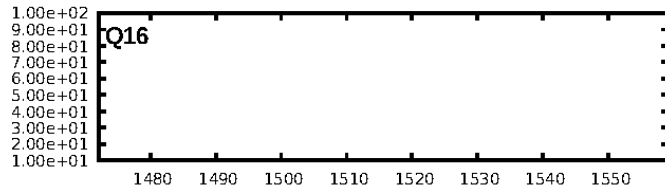
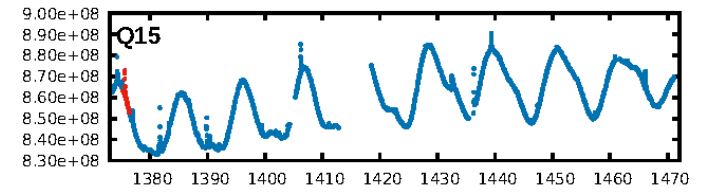
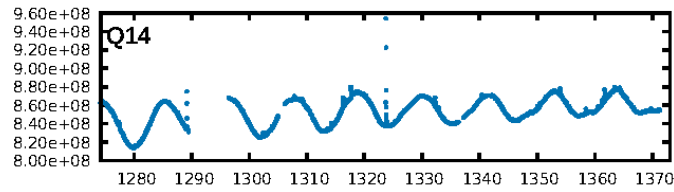
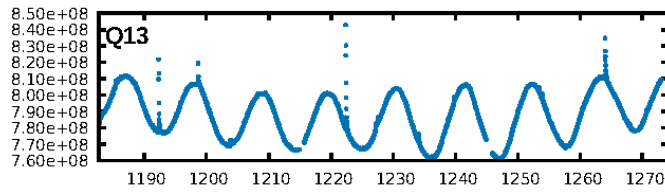
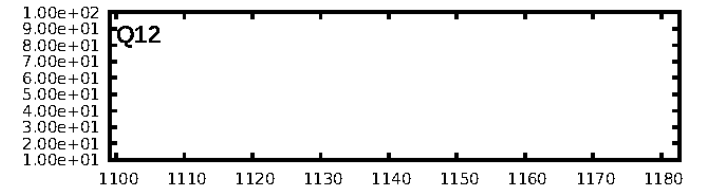
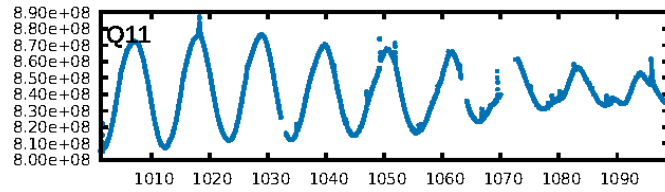
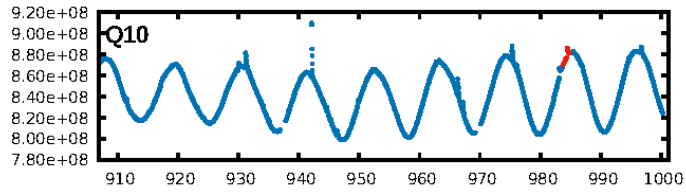
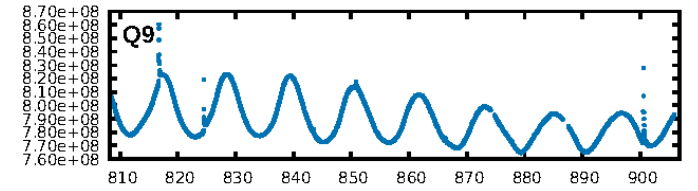
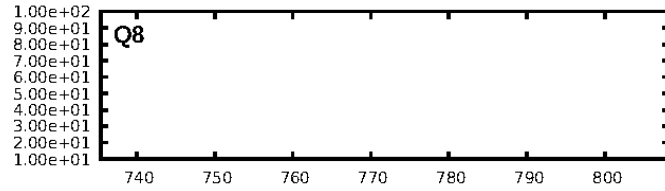
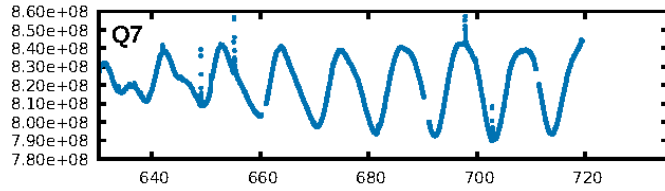
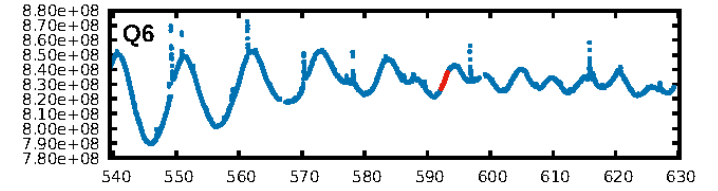
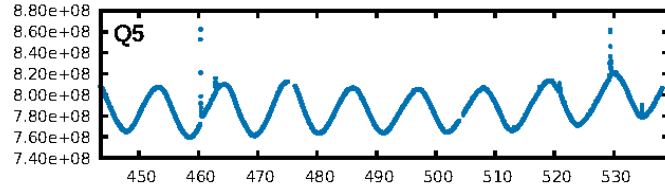
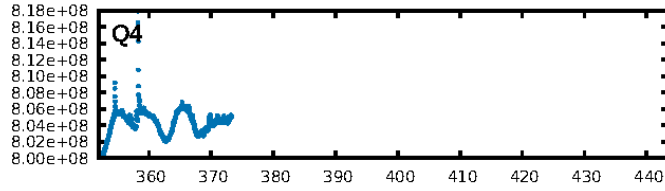
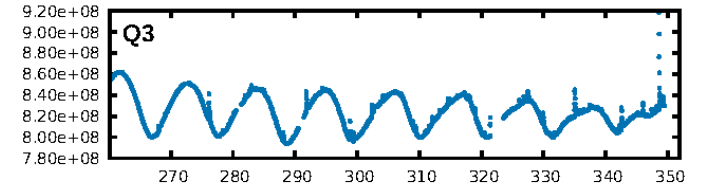
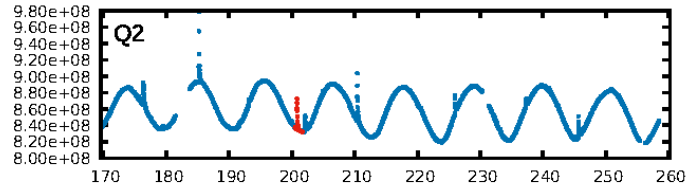
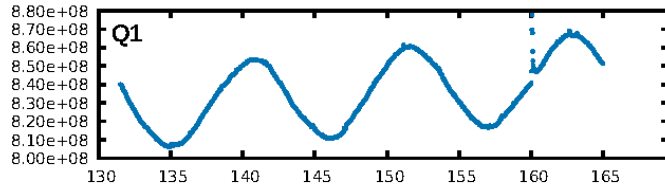
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [41.30σ]
LongPeriod-sig: 100.0% [14.75σ]
ModelChiSquare2-sig: 5.1%
ModelChiSquareGof-sig: 13.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.433
Centroid-sig: 12.4%
Centroid-so: 0.277 arcsec [1.61σ]
OotOffset-rm: 0.271 arcsec [0.38σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-rm: 0.604 arcsec [1.38σ]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.67 [2/3]

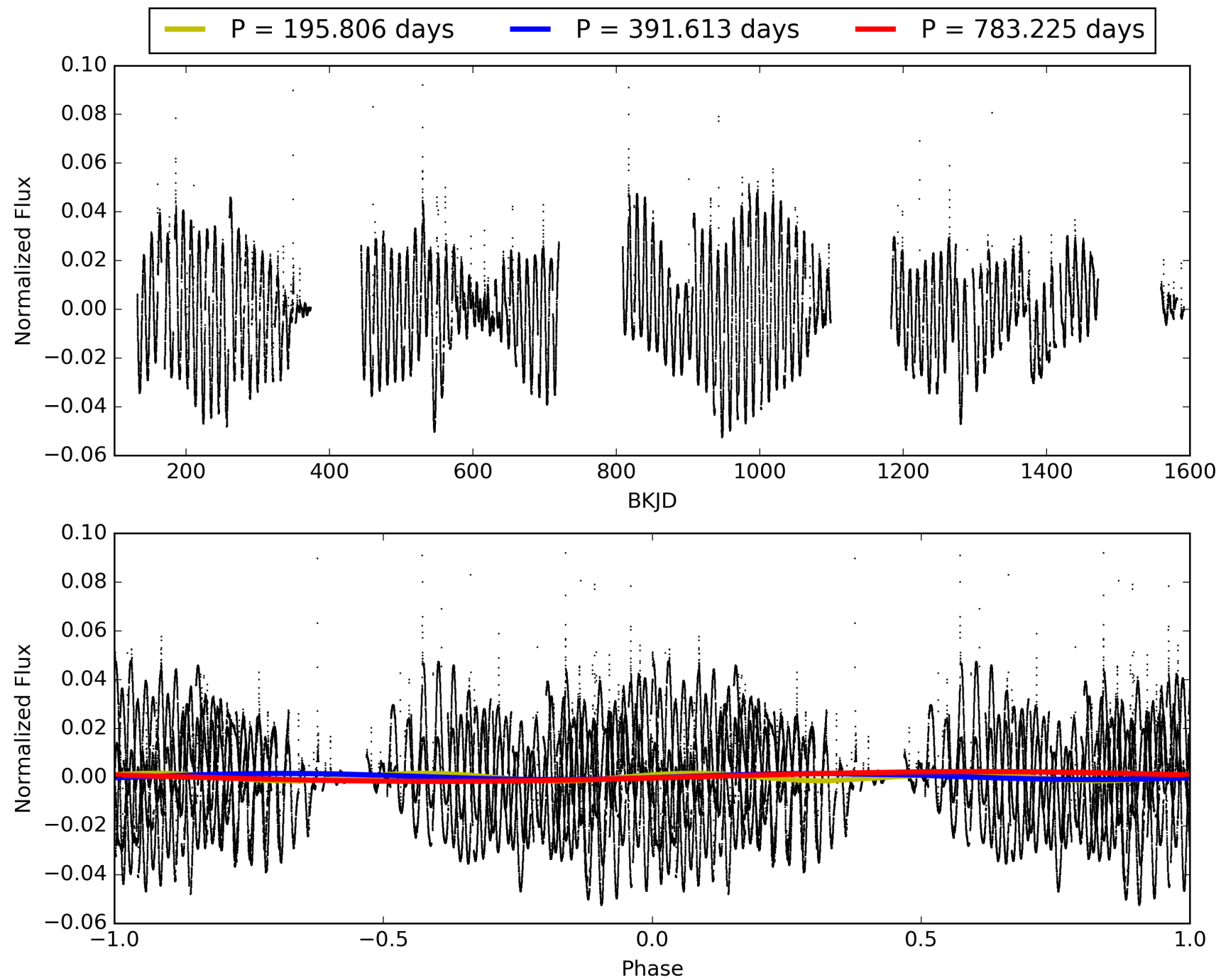
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:11:42 Z

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

TCE 011551404-02, PDC Light Curves

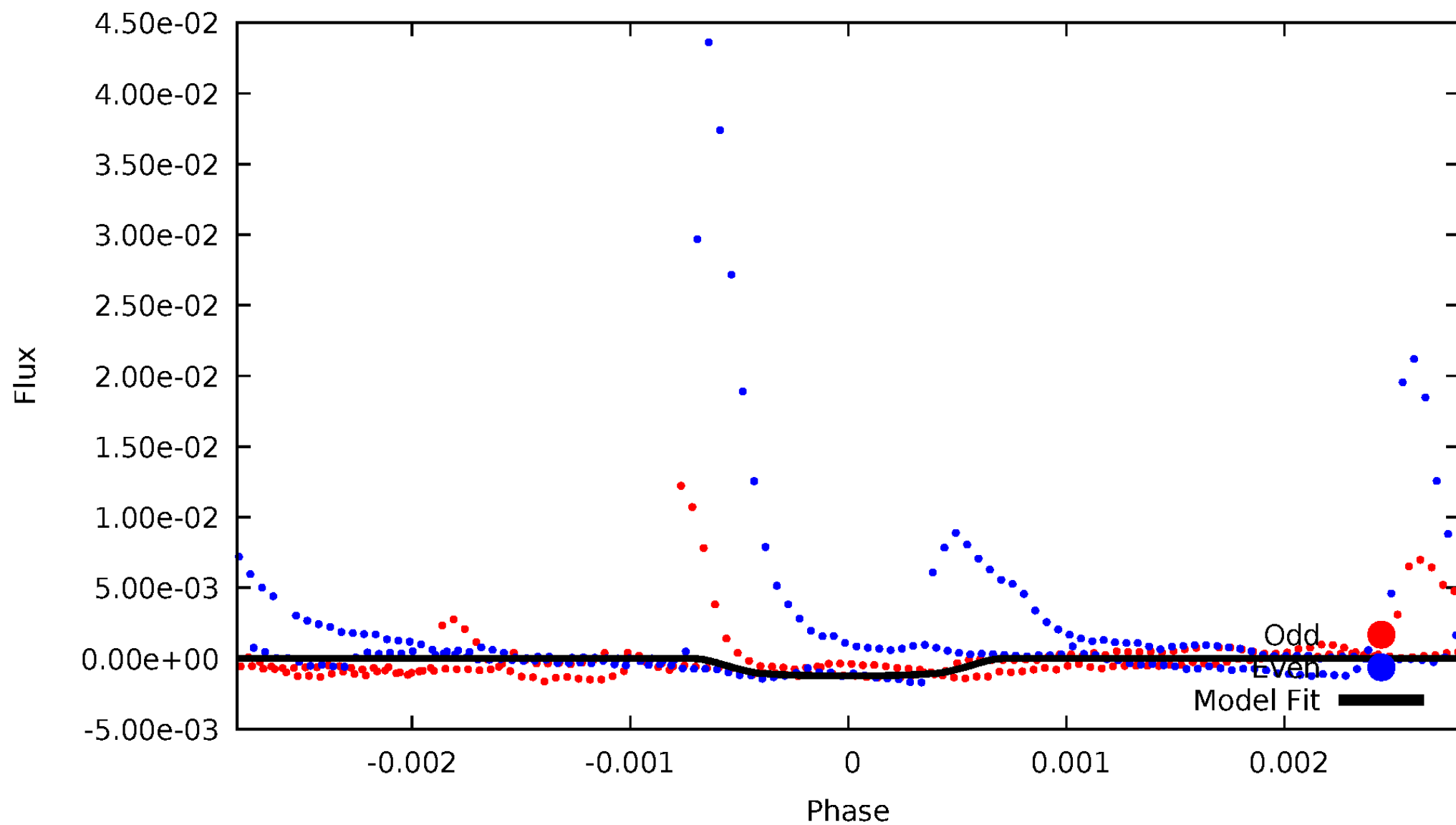


TCE 011551404-02



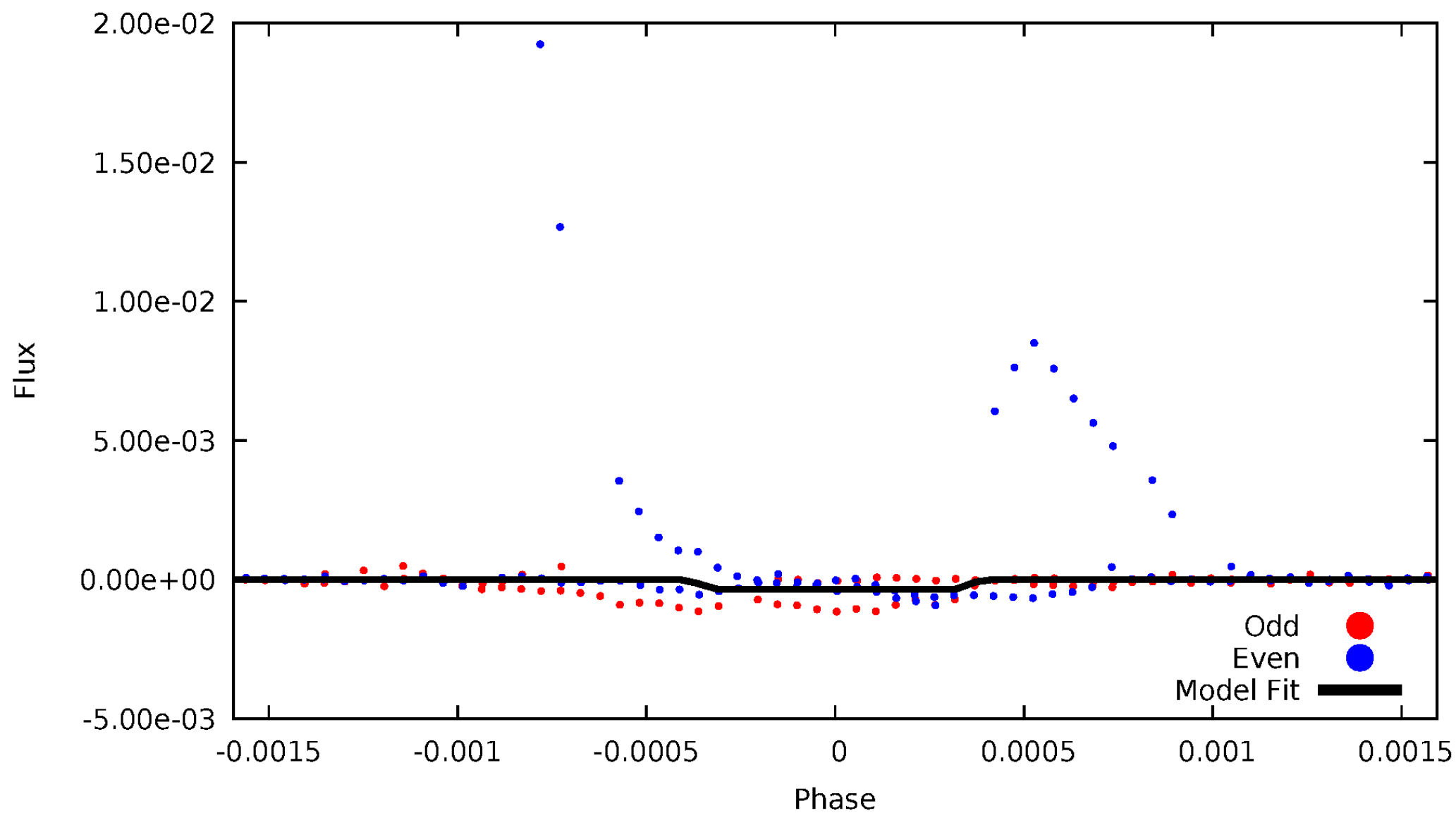
DV Odd/Even

TCE 011551404-02



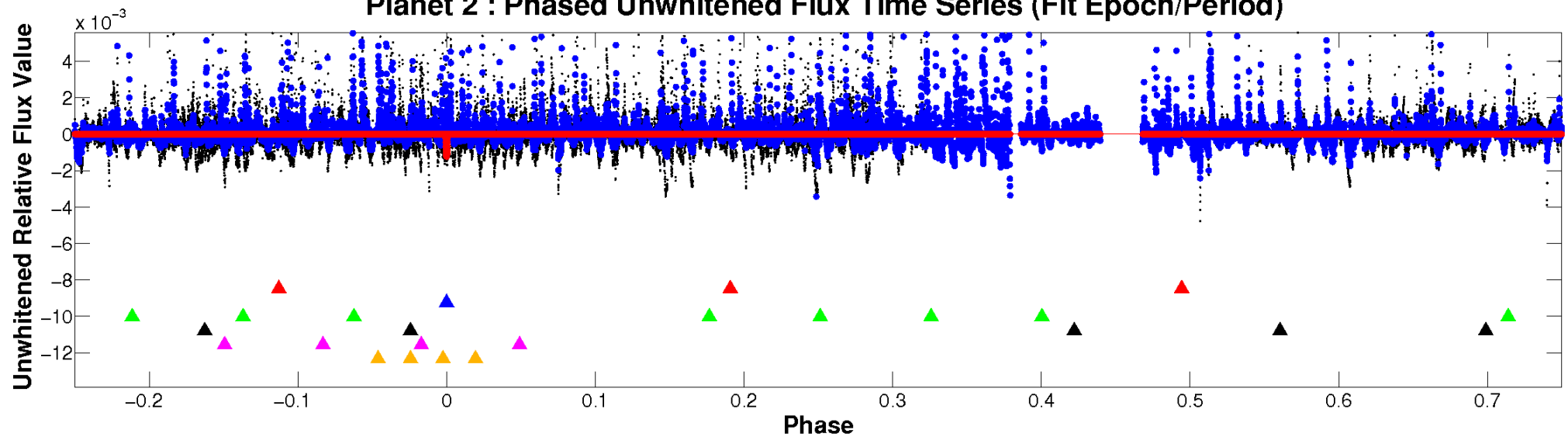
ALT Odd/Even

TCE 011551404-02

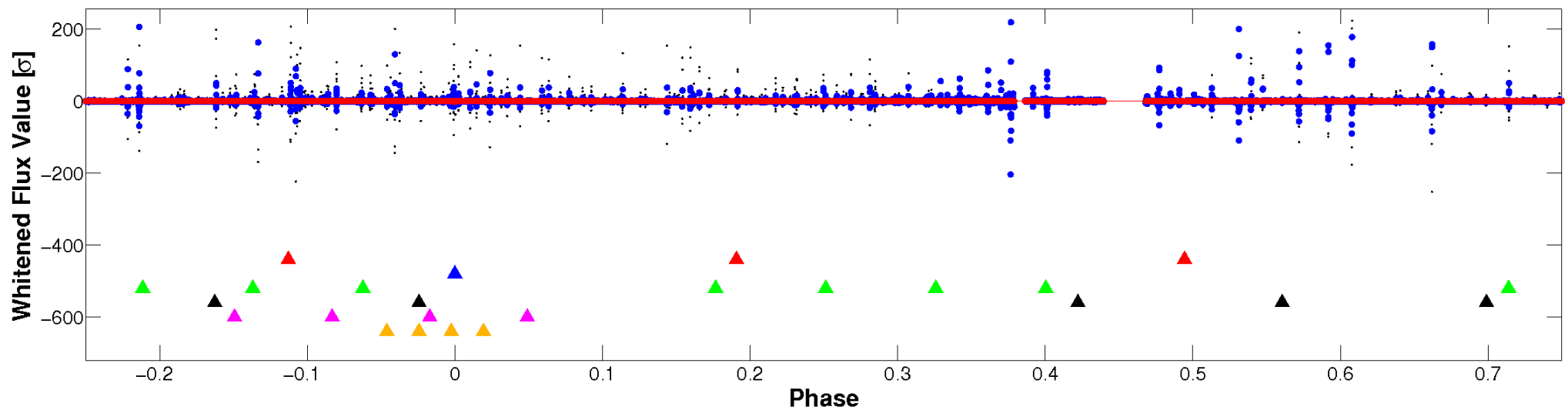


Non-Whitened Vs. Whitened Light Curve

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



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



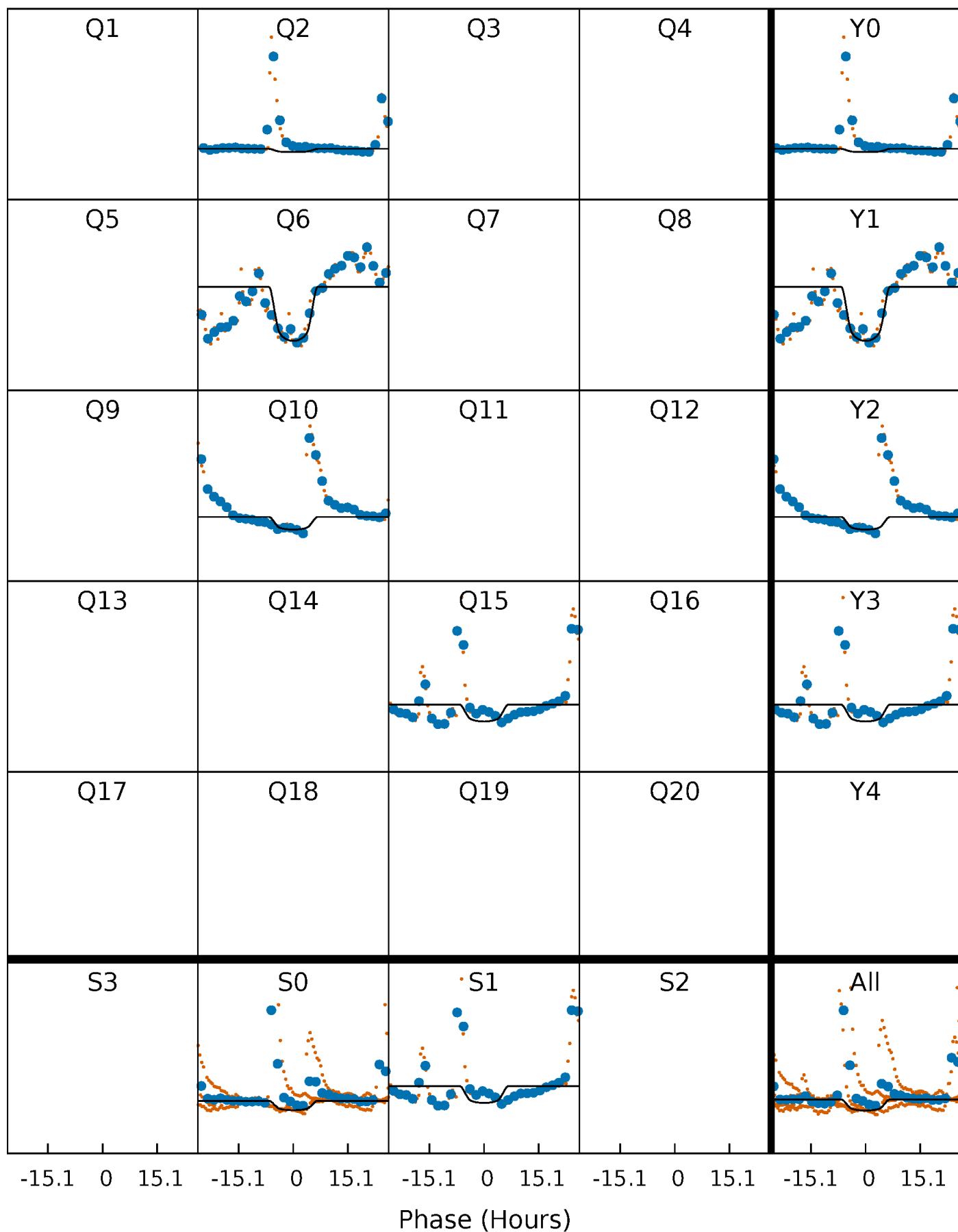
PDC Quarter-Phased Transit Curves

TCE 011551404-02 P=391.612704 Days $T_0=201.075397$ (BKJD)



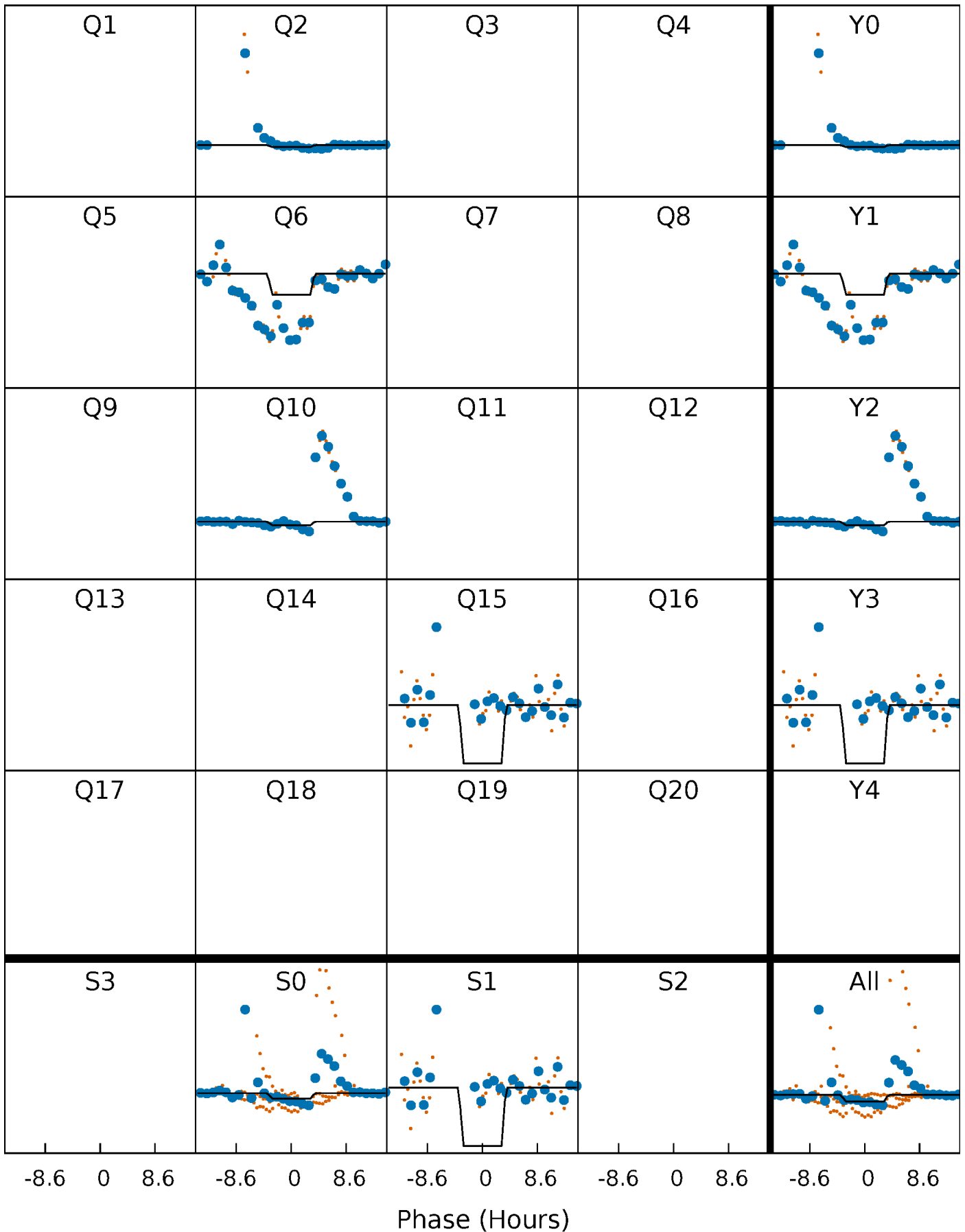
DV Quarter-Phased Transit Curves

TCE 011551404-02 $P=391.612704$ Days $T_0=201.075397$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

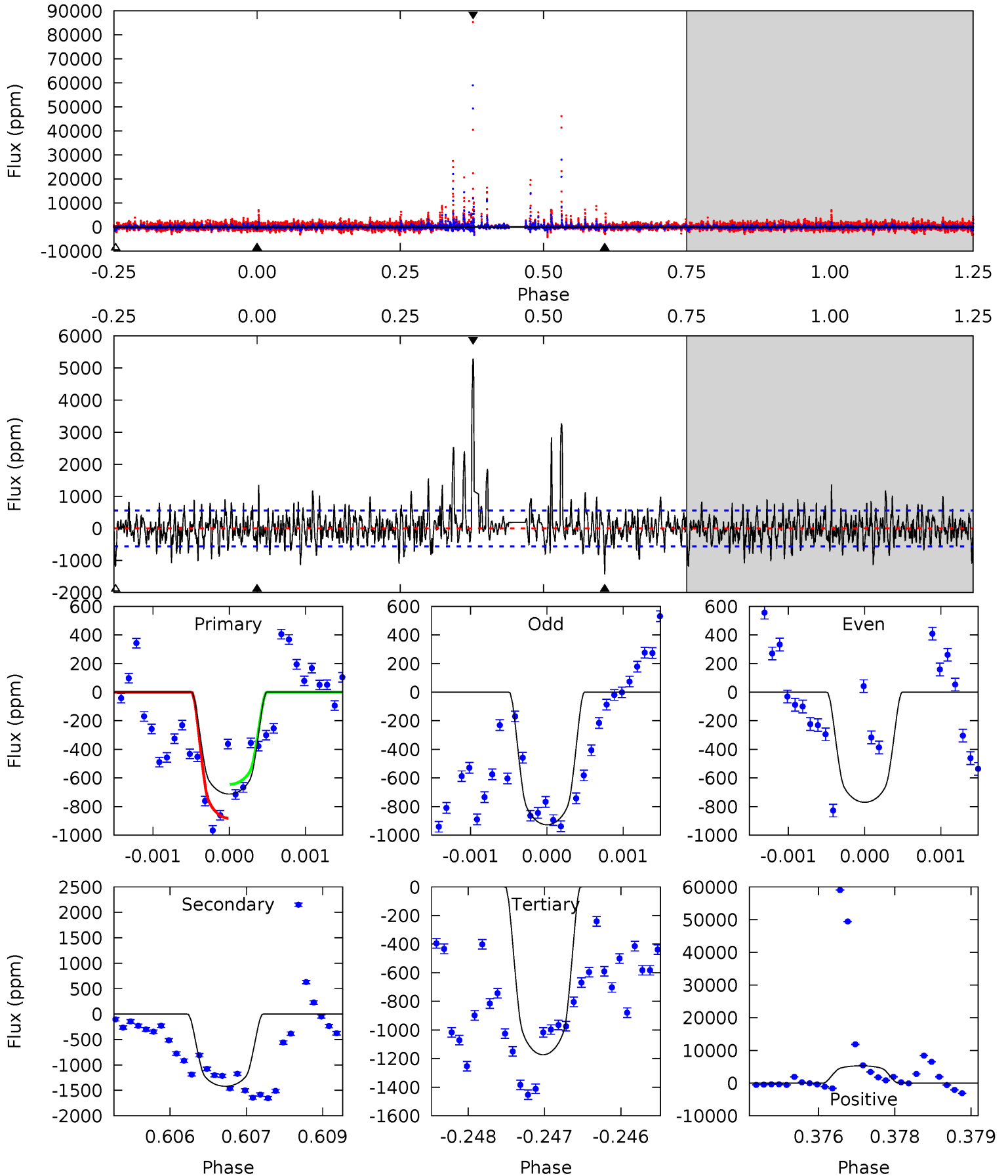
TCE 011551404-02 P=391.547877 Days $T_0=201.191555$ (BKJD)



DV Model-Shift Uniqueness Test

011551404-02, P = 391.612704 Days, E = 201.075397 Days

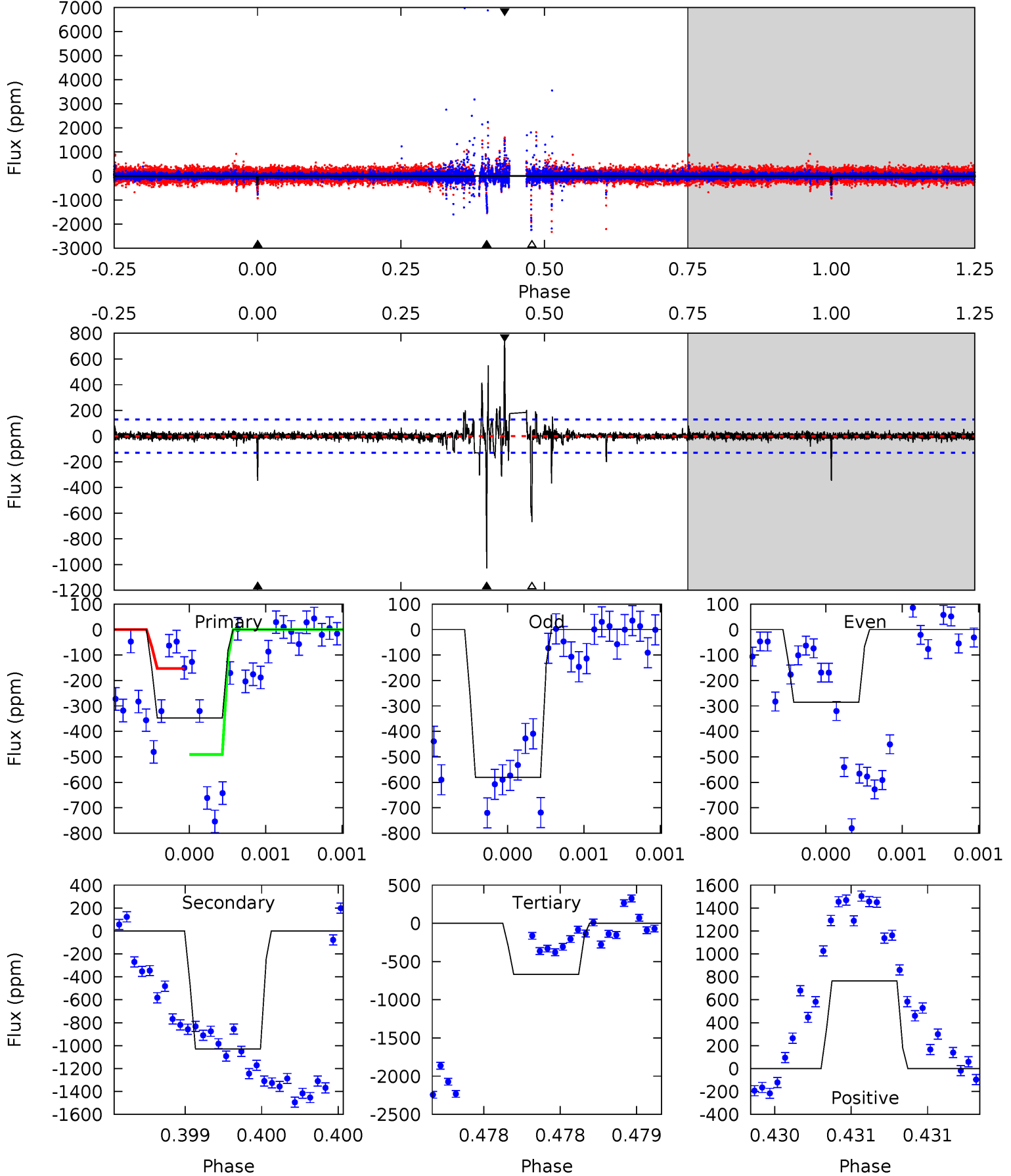
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.88	13.7	11.3	51.1	5.38	3.18	4.20	-4.45	-44.2	2.38	-37.4	0.63	-4.14	0.79	1.14



Alt Model-Shift Uniqueness Test

011551404-02, P = 391.547877 Days, E = 201.191555 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	43.9	28.5	32.6	5.51	3.38	1.52	-13.7	-17.8	15.5	11.3	5.61	1.33	0.43	7.37



Stellar Parameters For KIC 011551404

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4975^{+138}_{-100}	$3.058^{+0.368}_{-0.301}$	$-0.520^{+0.300}_{-0.200}$	$4.477^{+2.585}_{-1.392}$	$0.836^{+0.366}_{-0.019}$	$0.013^{+0.030}_{-0.009}$
	+3%/-2%	+12%/-10%	+58%/-38%	+58%/-31%	+44%/-2%	+225%/-70%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011551404-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1419 ± 104	$19.95^{+6.61}_{-5.65}$	647^{+84}_{-67}	4889^{+453}_{-332}	2052^{+1995}_{-857}
Alt.	-1030 ± 23	$9.34^{+4.61}_{-3.94}$	650^{+94}_{-70}	6445^{+1938}_{-919}	7044^{+13333}_{-3872}

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

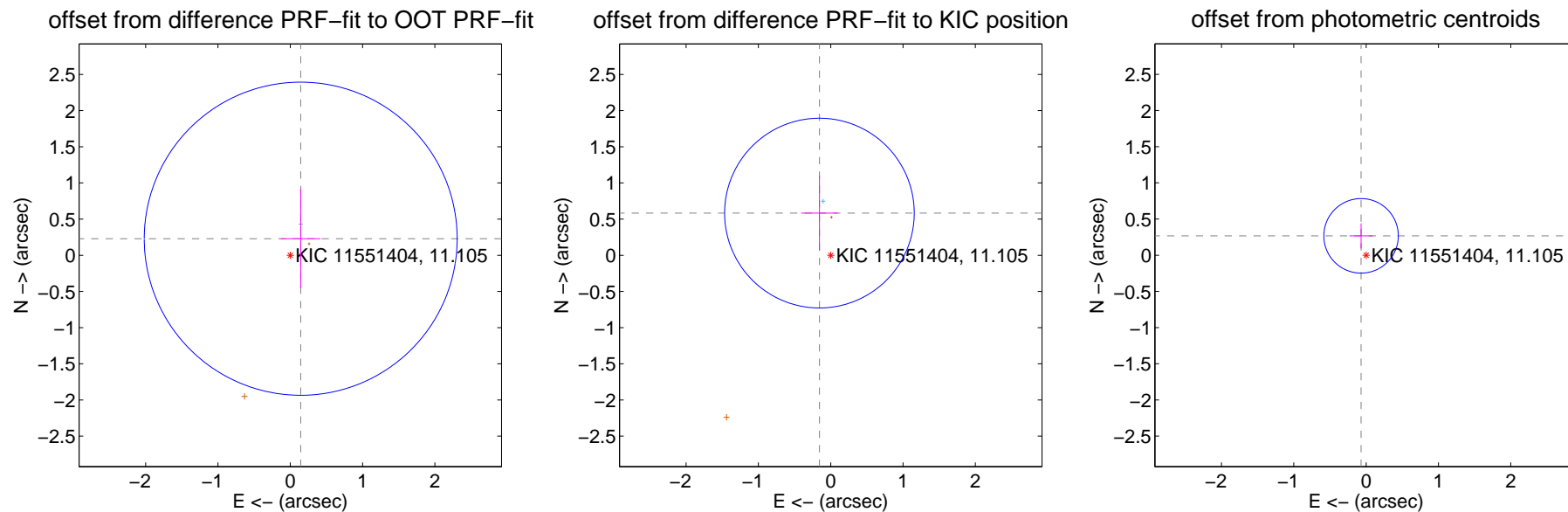
DV Centroid Data

Supplemental centroid analysis for 011551404-02. **Kepler magnitude: 11.11.** Transit SNR 7.88

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.86 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.271 ± 0.721	0.38	-0.145 ± 0.274	0.229 ± 0.688
PRF-fit source offset from KIC position	0.604 ± 0.437	1.38	0.156 ± 0.253	0.583 ± 0.516
photometric centroid source offset	0.28 ± 0.17	1.61	0.07 ± 0.16	0.27 ± 0.17

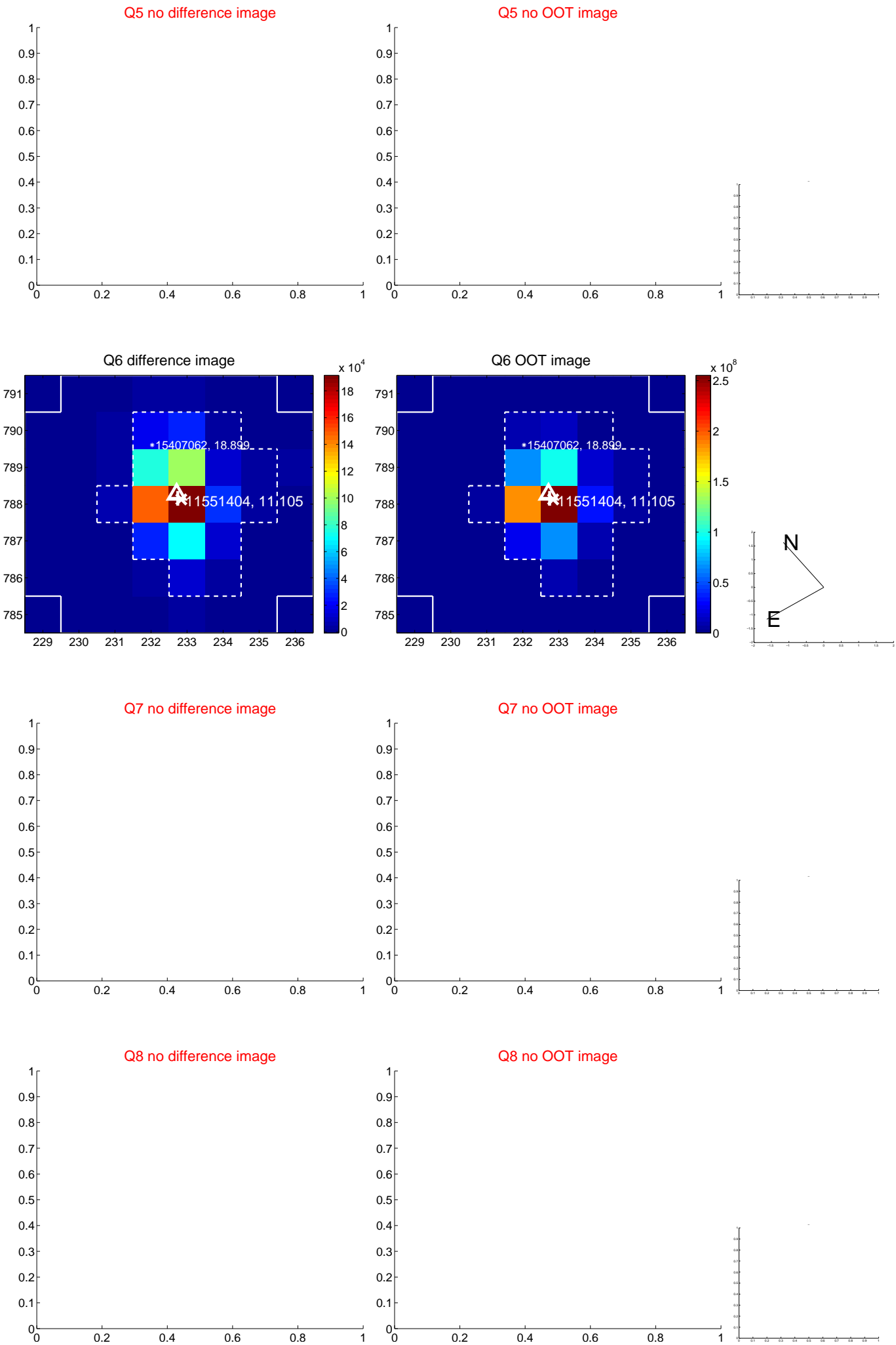


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

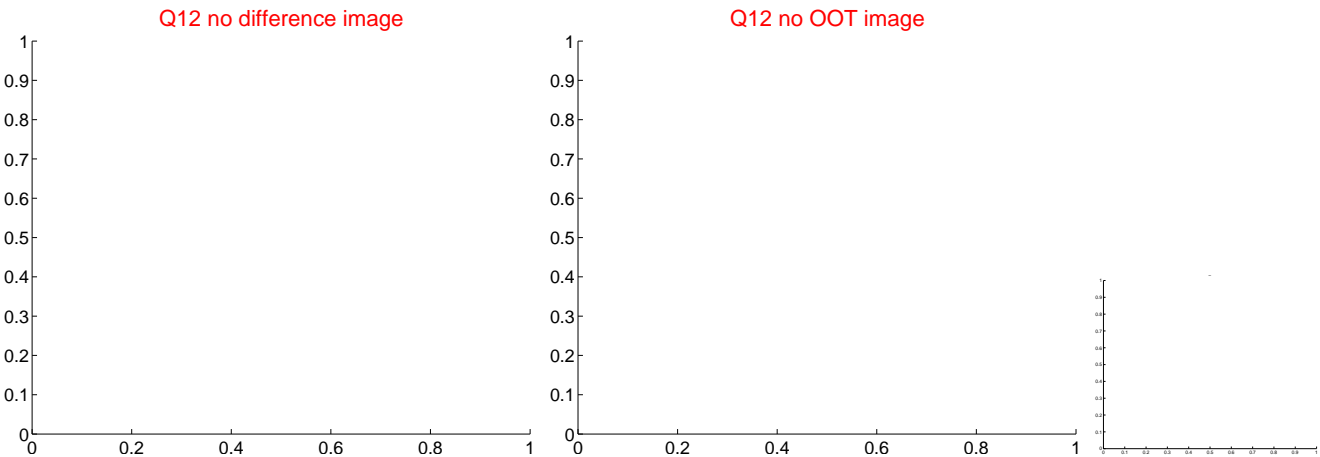
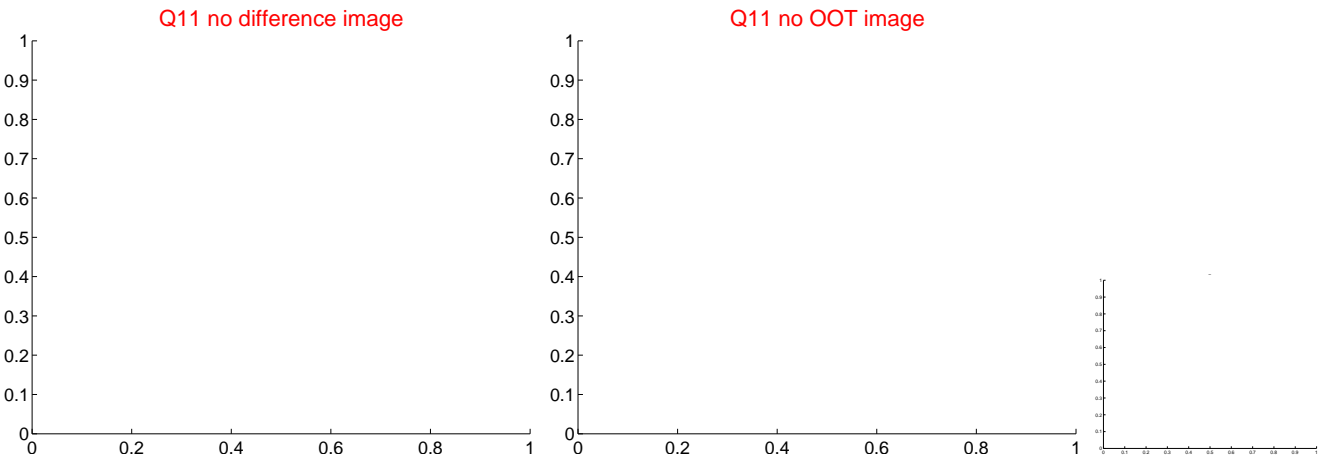
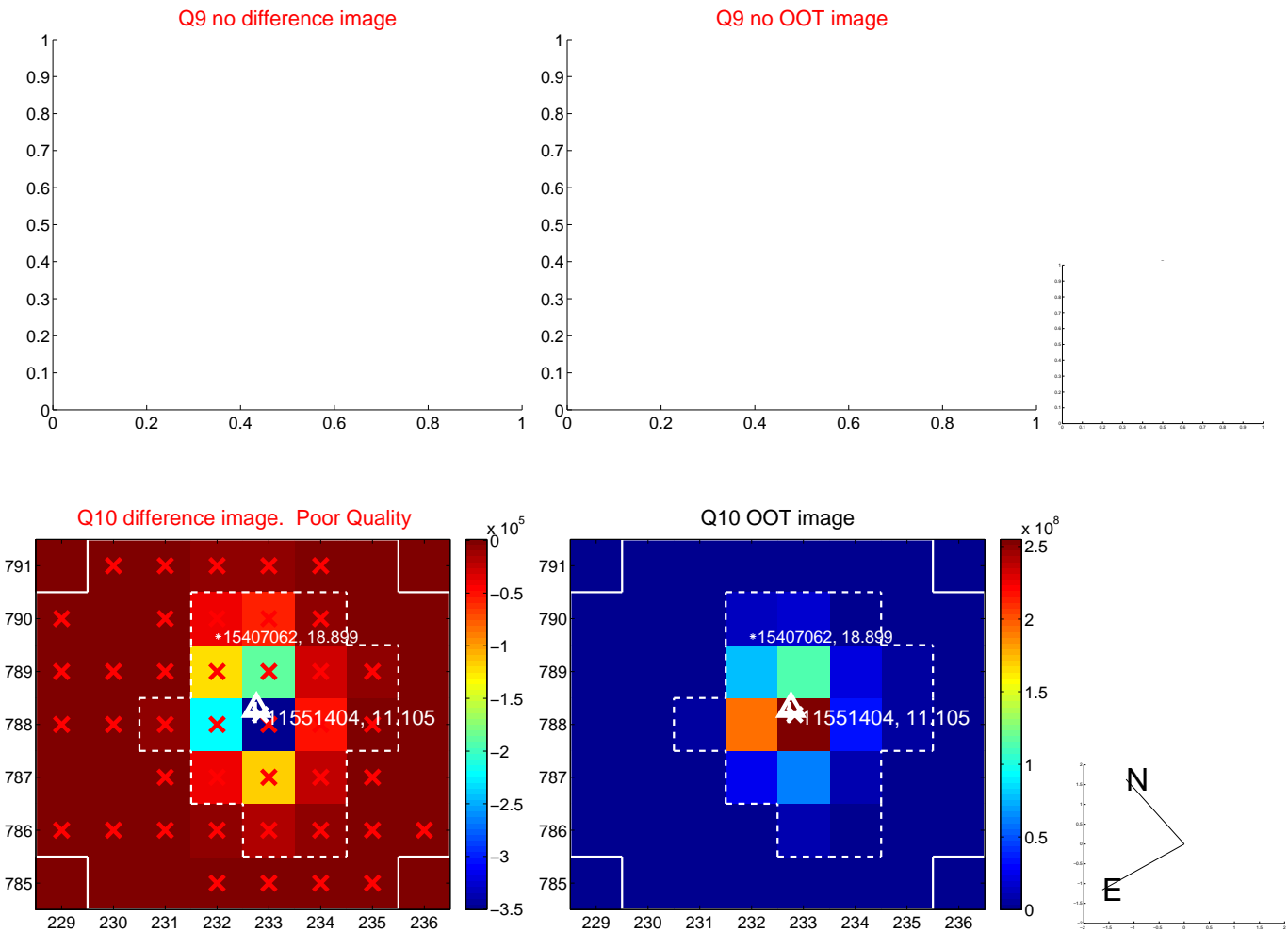
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



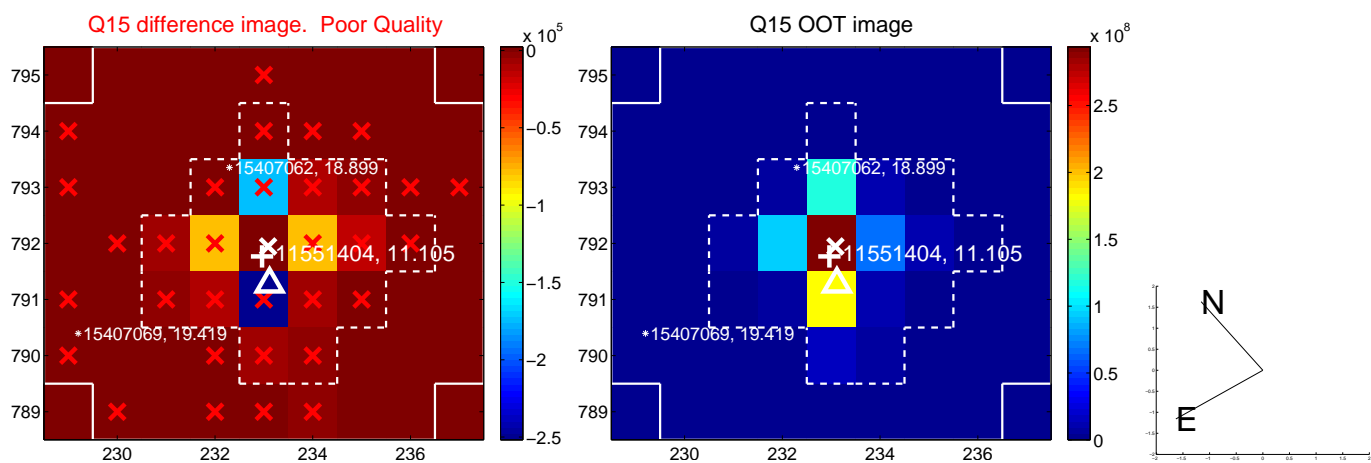
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



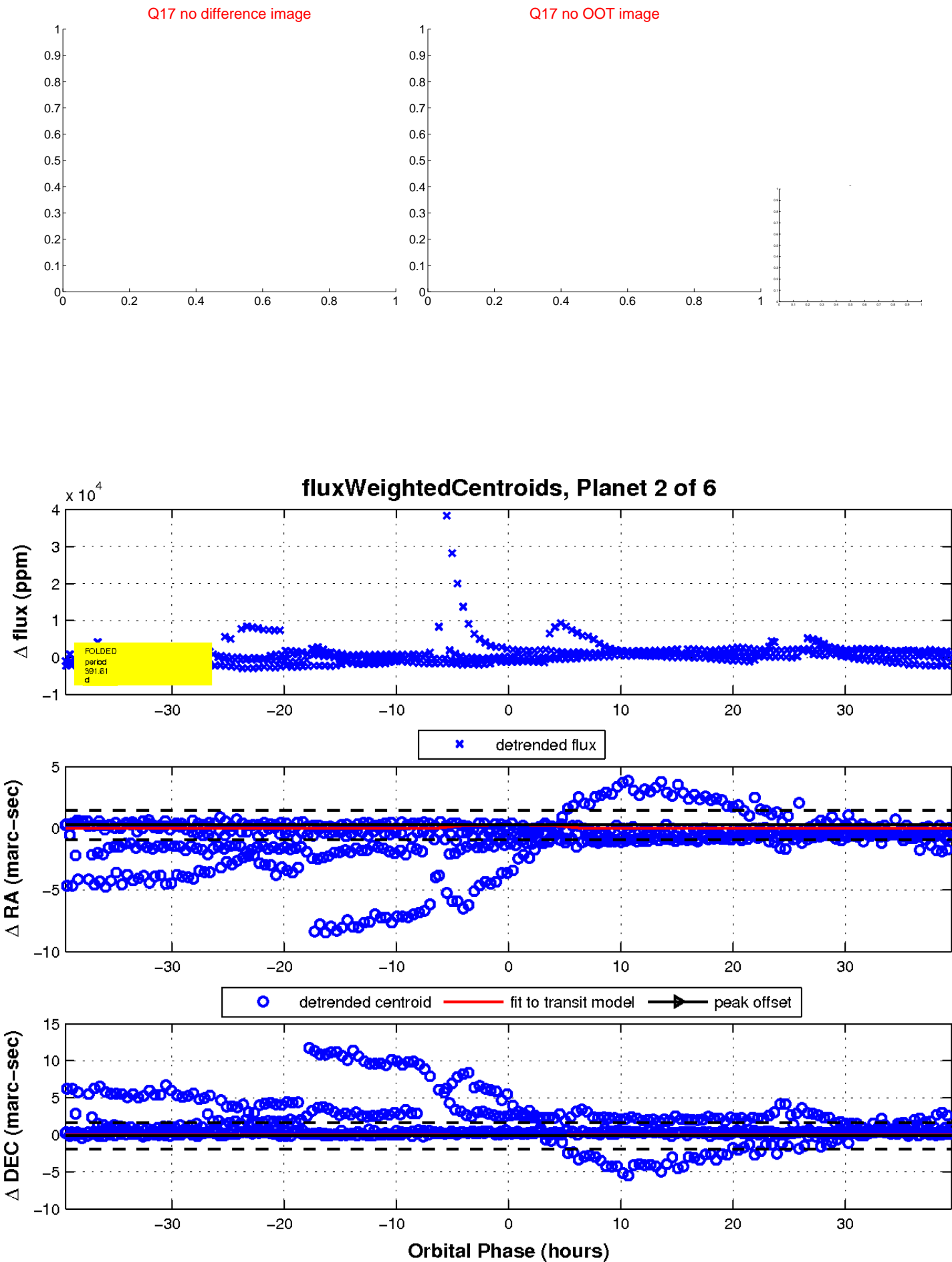
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



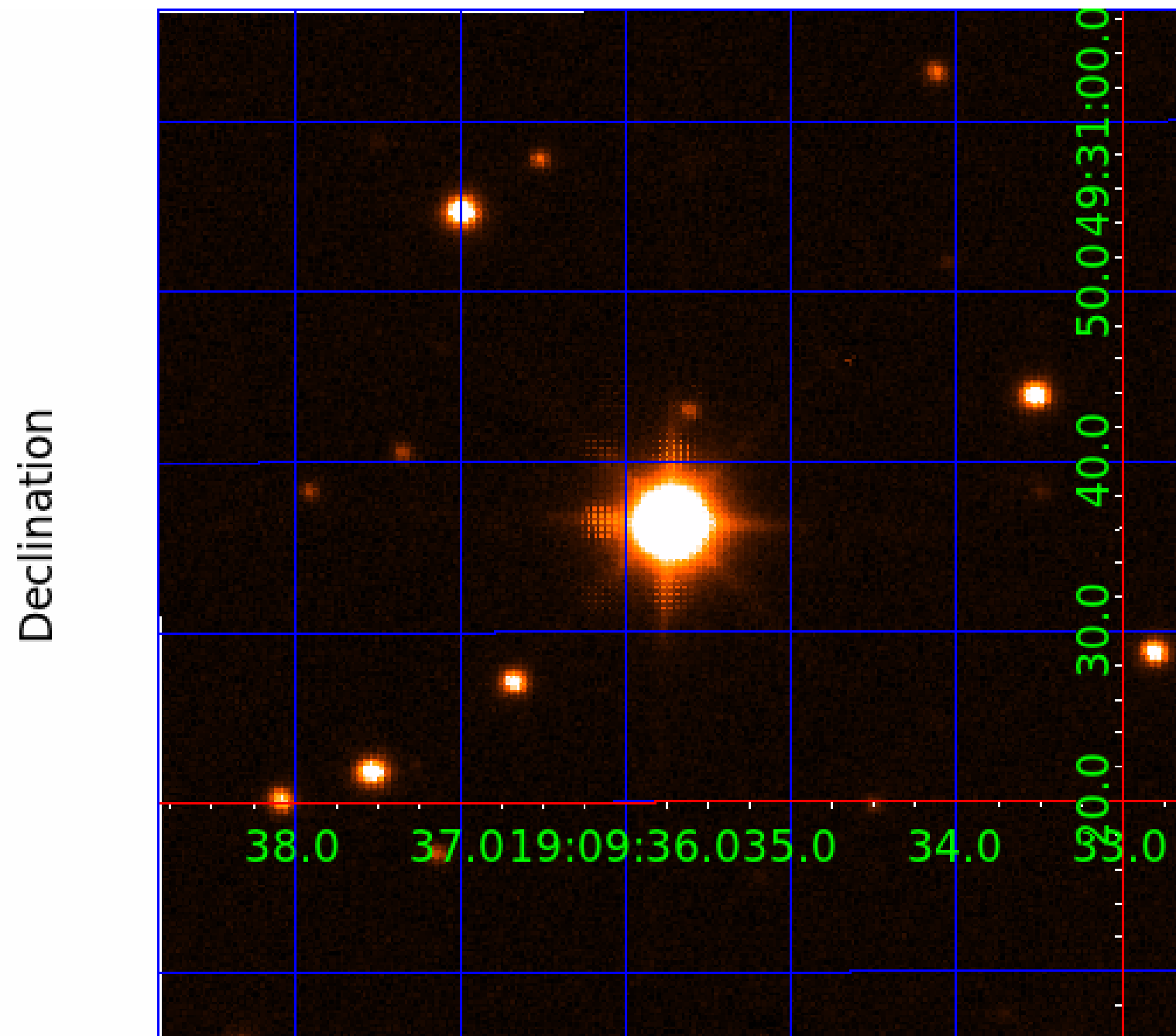
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



UKIRT Image



KIC 011551404

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})
011551404-01	OBS	No	510.512653	548.514664	1316.8	8.113	21.4	9.0	4.48	4975	20.97	7.93
011551404-02	OBS	No	391.612704	201.075397	1231.6	13.171	77.8	7.9	4.48	4975	19.36	11.30
011551404-03	OBS	No	181.205000	176.686430	468.9	3.413	11.2	8.1	4.48	4975	9.45	31.56
011551404-04	OBS	No	337.420270	191.560536	825.2	1.902	17.8	12.9	4.48	4975	13.34	13.78
011551404-05	OBS	No	365.722710	220.298715	676.9	7.270	12.5	6.0	4.48	4975	11.78	12.37
011551404-06	OBS	No	400.164028	183.030810	223.9	4.500	17.4	-1.0	4.48	4975	6.54	10.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011551404-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011551404-05	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
011551404-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

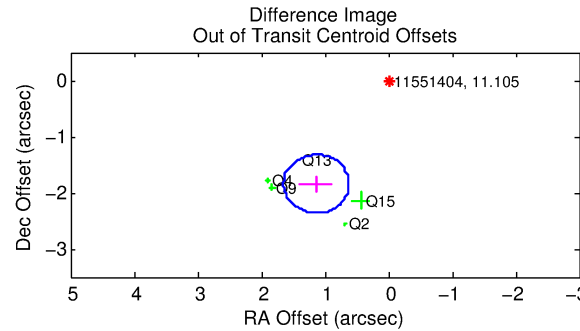
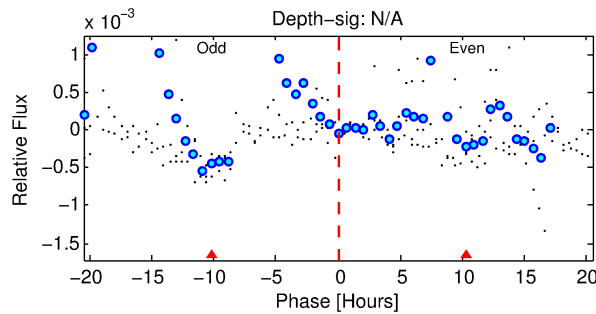
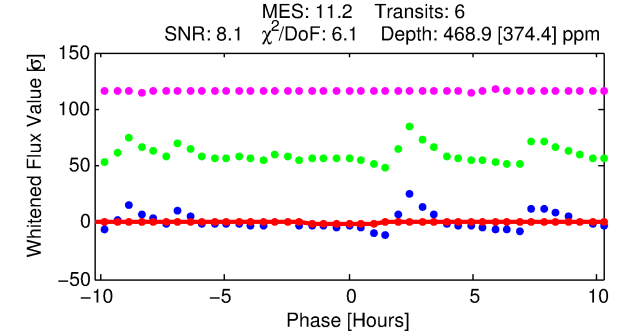
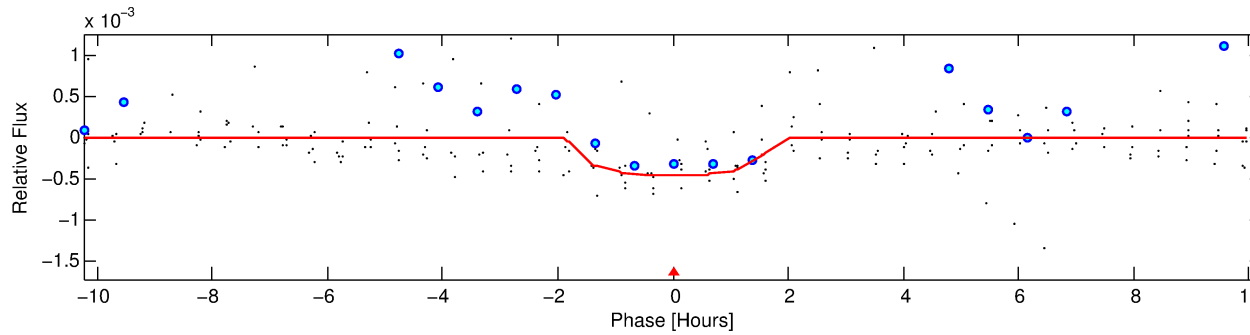
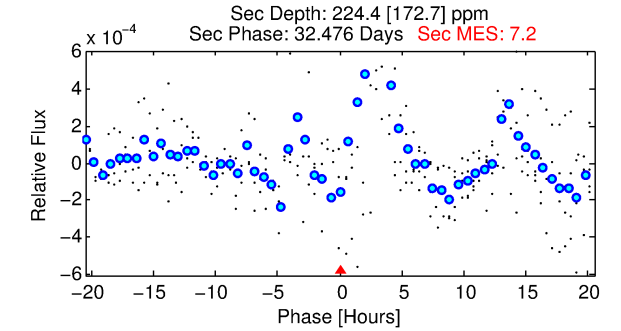
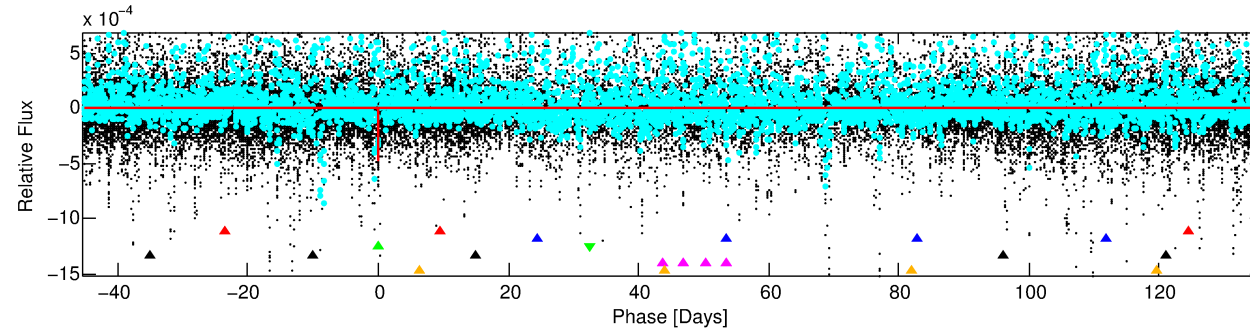
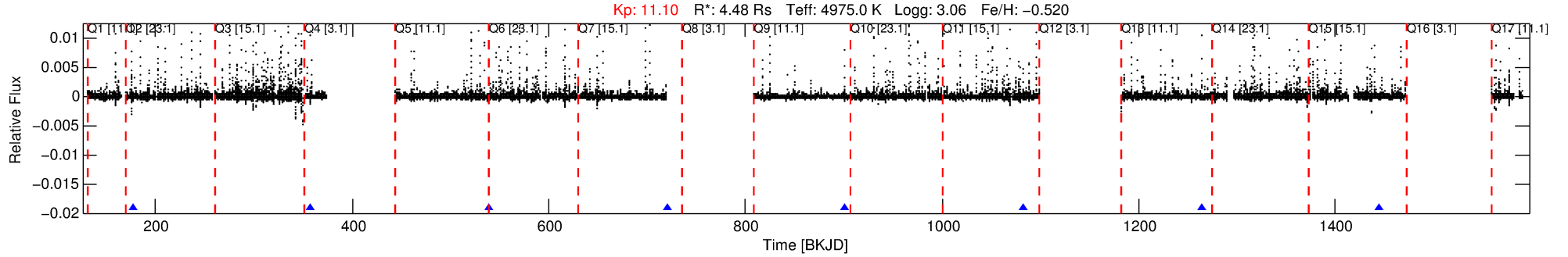
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011551404-03

No Significant Match Found

DV One-Page Summary

KIC: 11551404 Candidate: 3 of 6 Period: 181.205 d



DV Fit Results:

Period = 181.20500 [0.00538] d
Epoch = 176.6864 [0.0309] BKJD
Rp/R* = 0.0193 [0.2510]
a/R* = 413.42 [19814.13]
b = 0.01 [4763.81]
Seff = 31.56 [21.86]
Teq = 604 [105] K
Rp = 9.45 [122.75] Re
a = 0.5904 [0.2819] AU
Ag = 481.59 [12506.21] [0.04σ]
Teffp = 4378 [28410] K [0.13σ]

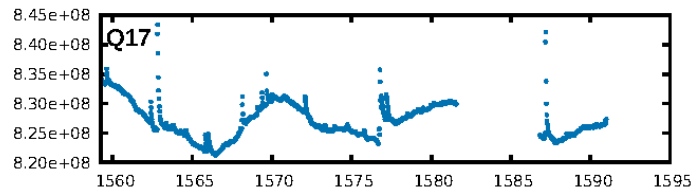
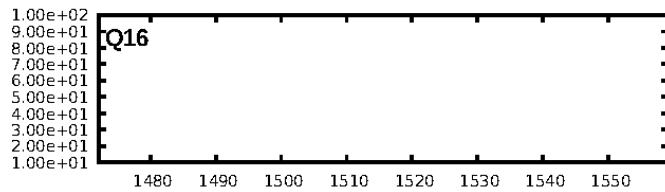
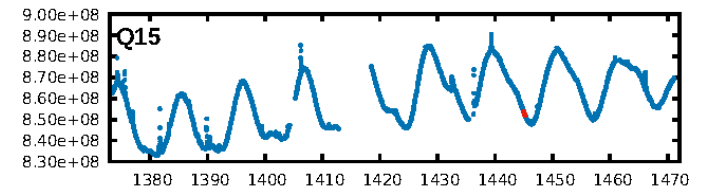
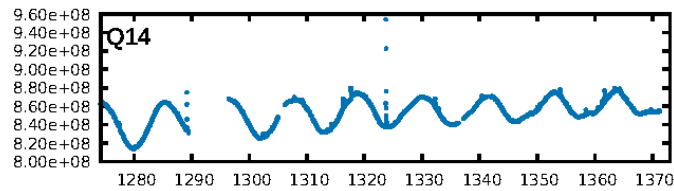
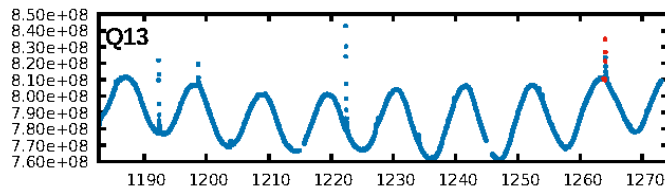
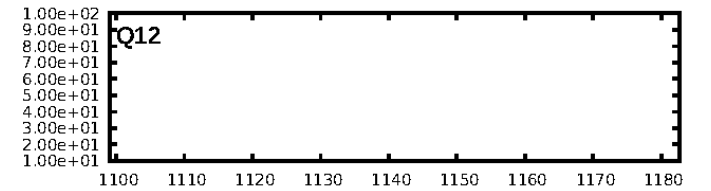
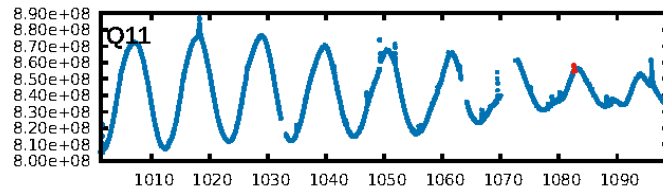
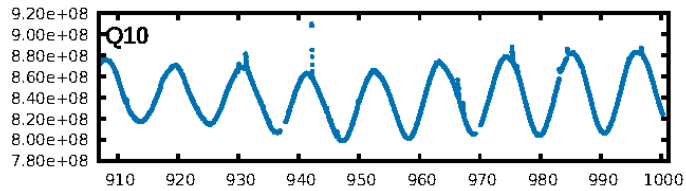
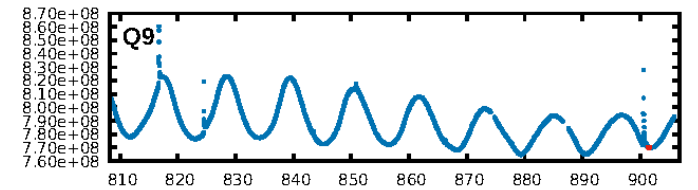
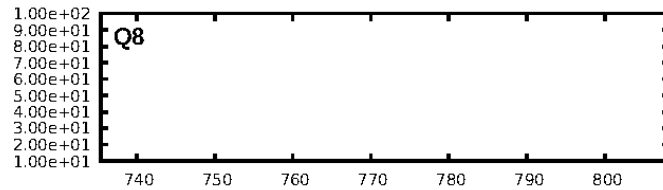
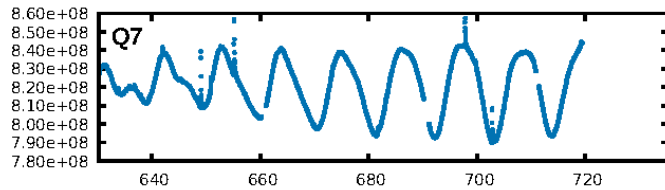
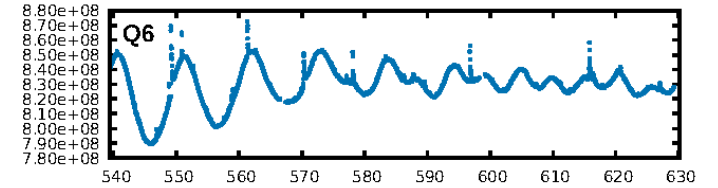
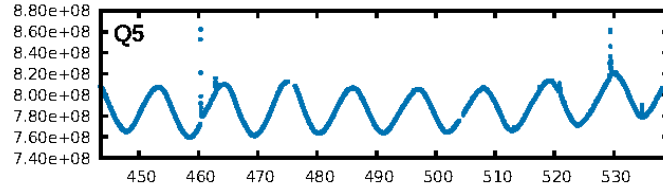
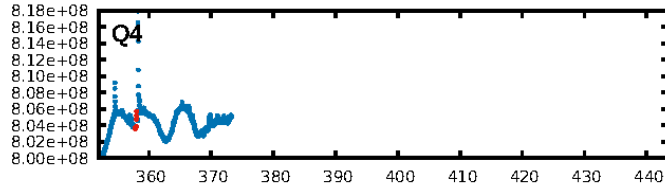
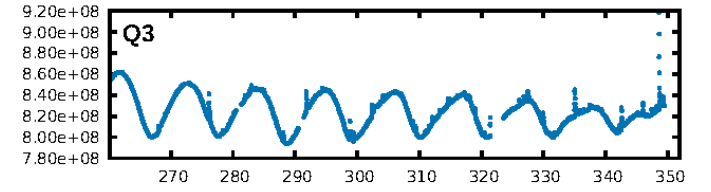
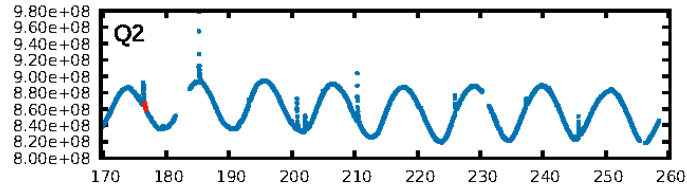
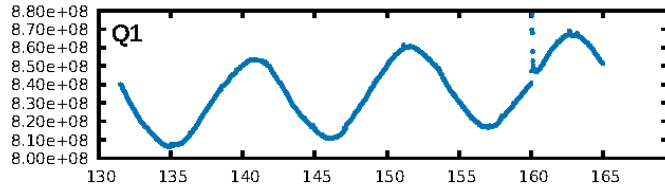
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [959.50σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 3.821
Centroid-sig: 80.3%
Centroid-so: 0.225 arcsec [0.27σ]
OotOffset-rm: 2.165 arcsec [12.58σ]
KicOffset-rm: 2.238 arcsec [11.61σ]
OotOffset-st: 1/1/1/2 [5]
KicOffset-st: 1/1/1/2 [5]
DiffImageQuality-fgm: 1.00 [5/5]
DiffImageOverlap-fno: 1.00 [5/5]

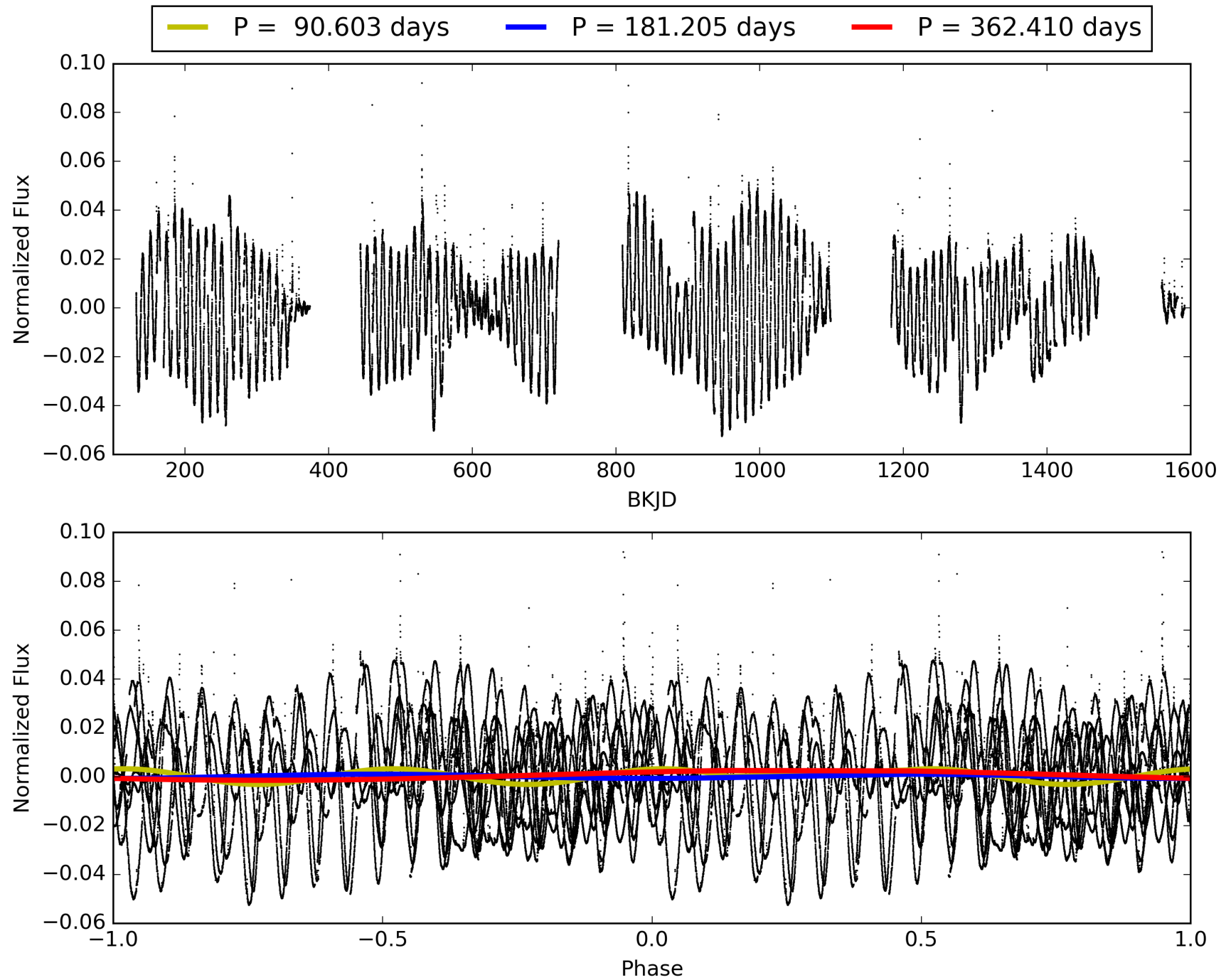
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:11:50 Z

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

TCE 011551404-03, PDC Light Curves

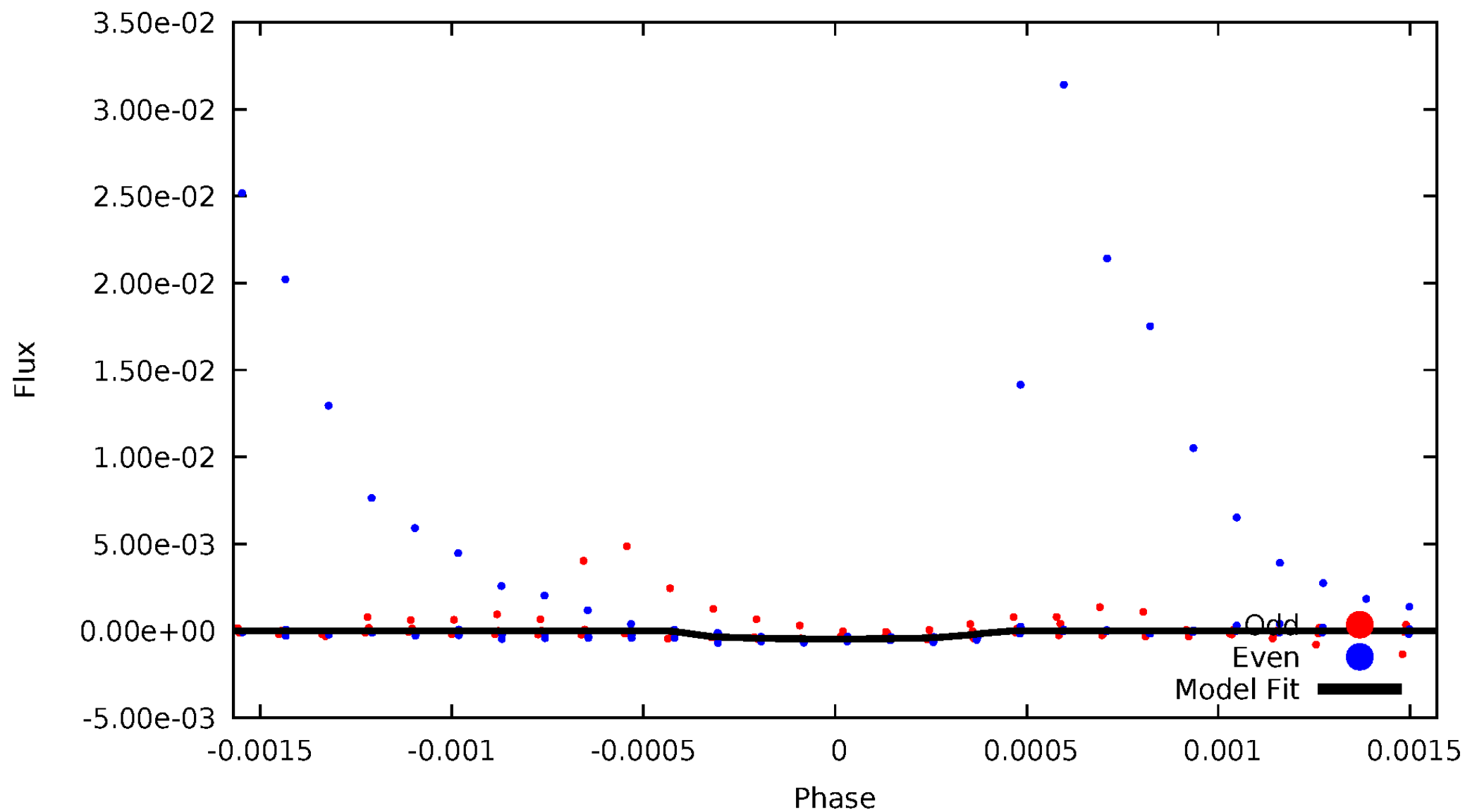


TCE 011551404-03



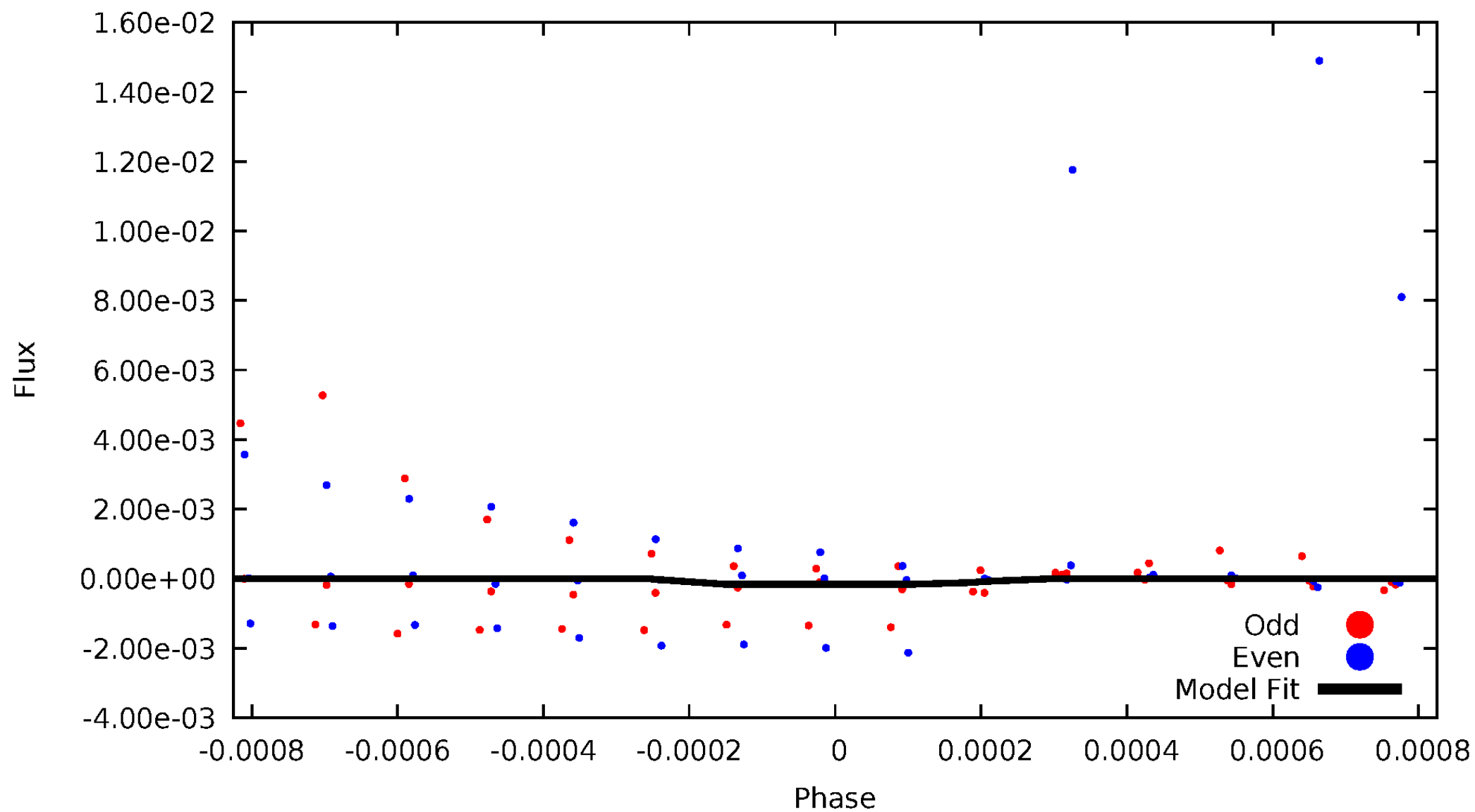
DV Odd/Even

TCE 011551404-03



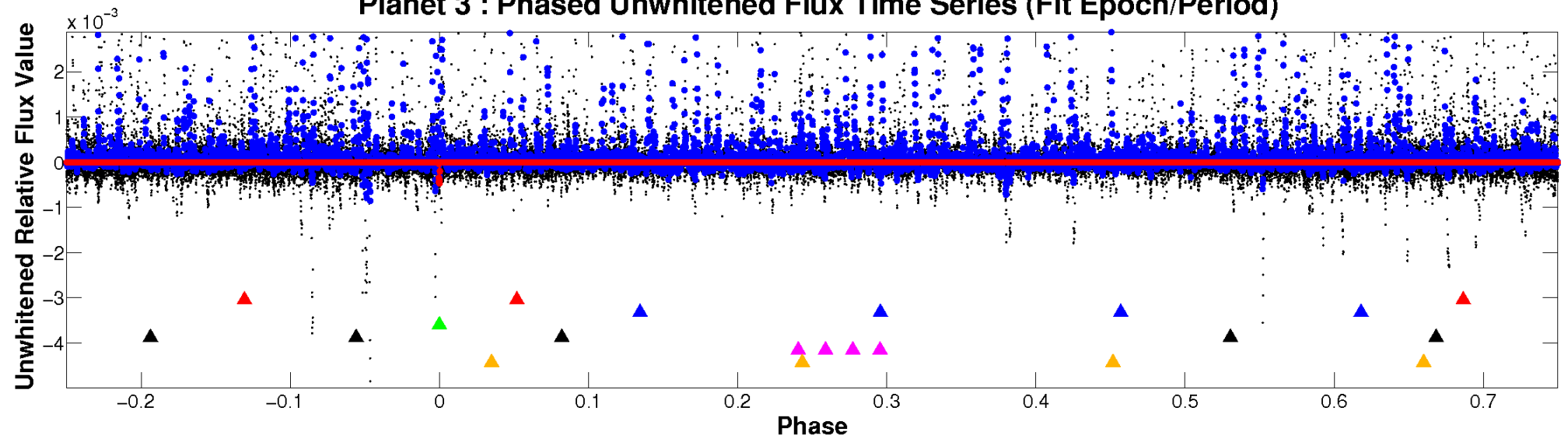
ALT Odd/Even

TCE 011551404-03

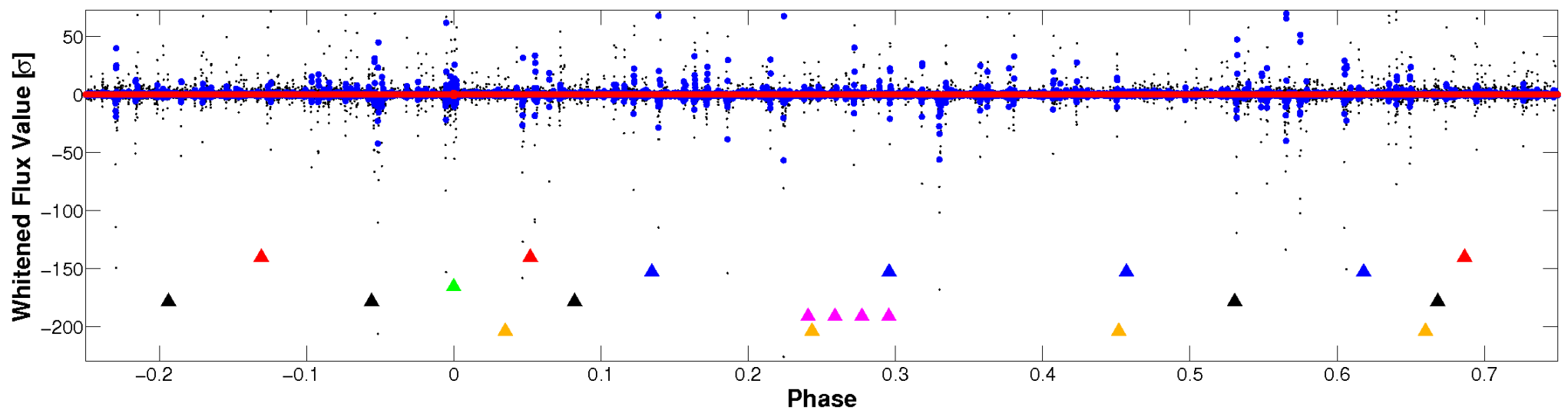


Non-Whitened Vs. Whitened Light Curve

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

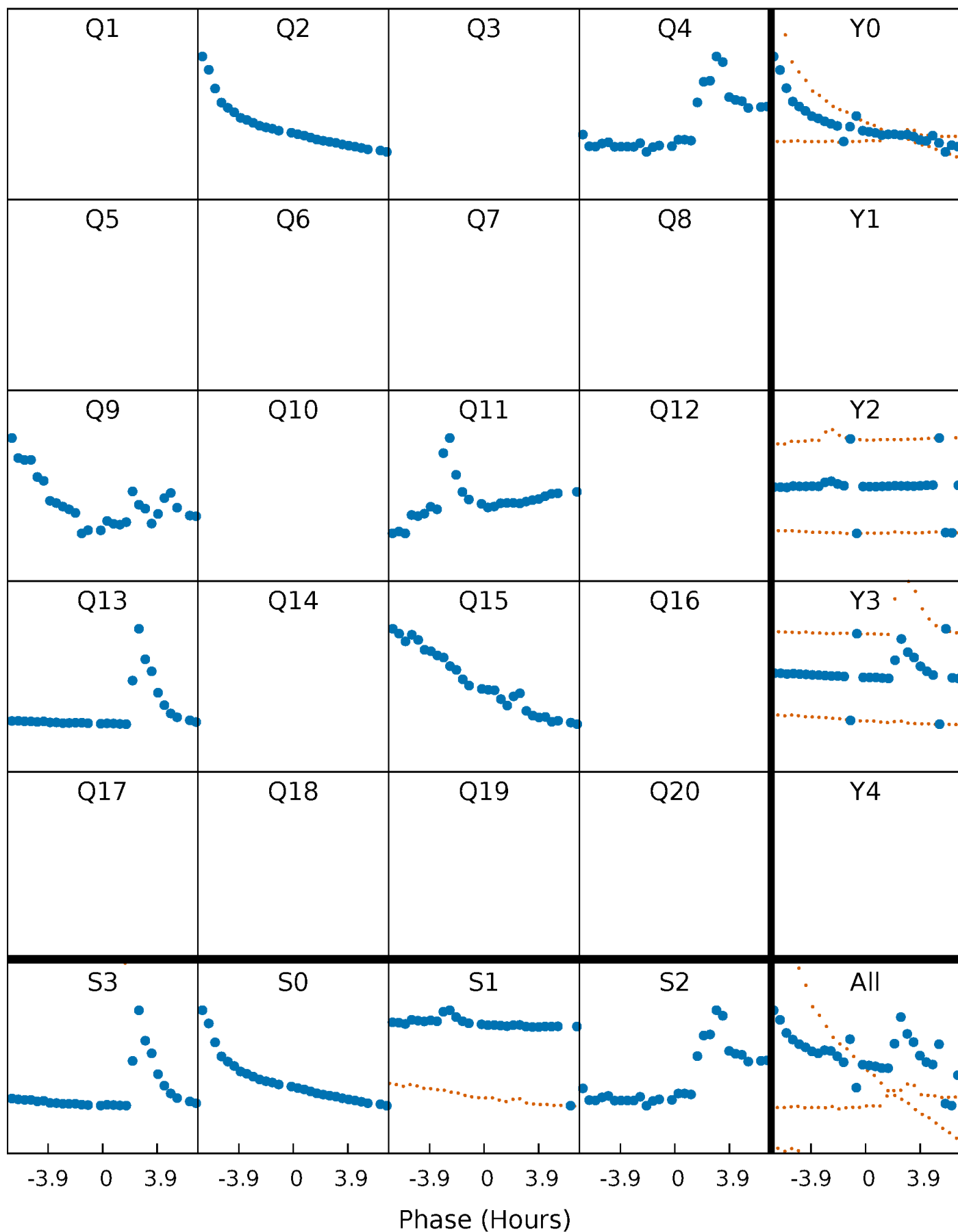


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



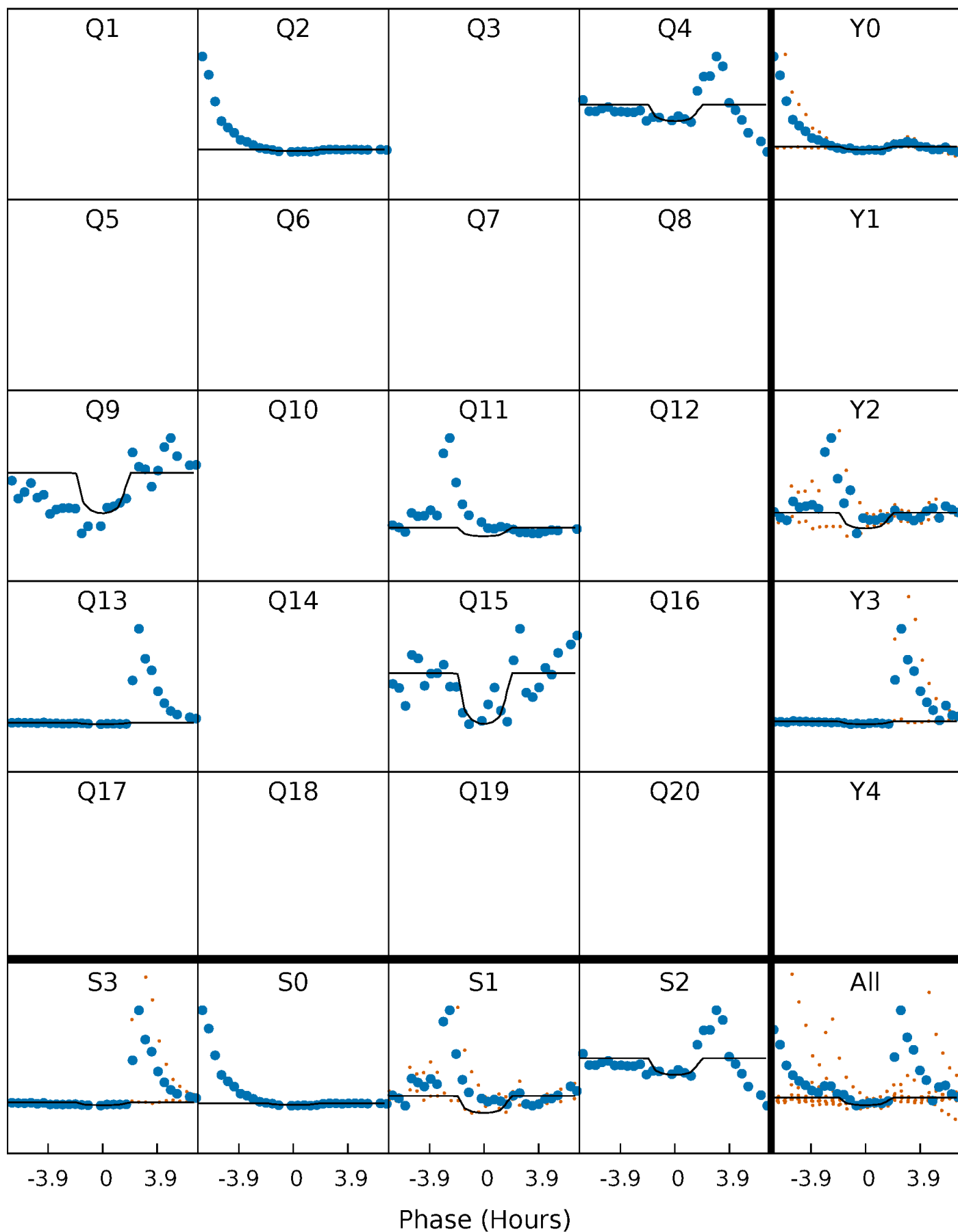
PDC Quarter-Phased Transit Curves

TCE 011551404-03 P=181.205000 Days $T_0=176.686431$ (BKJD)



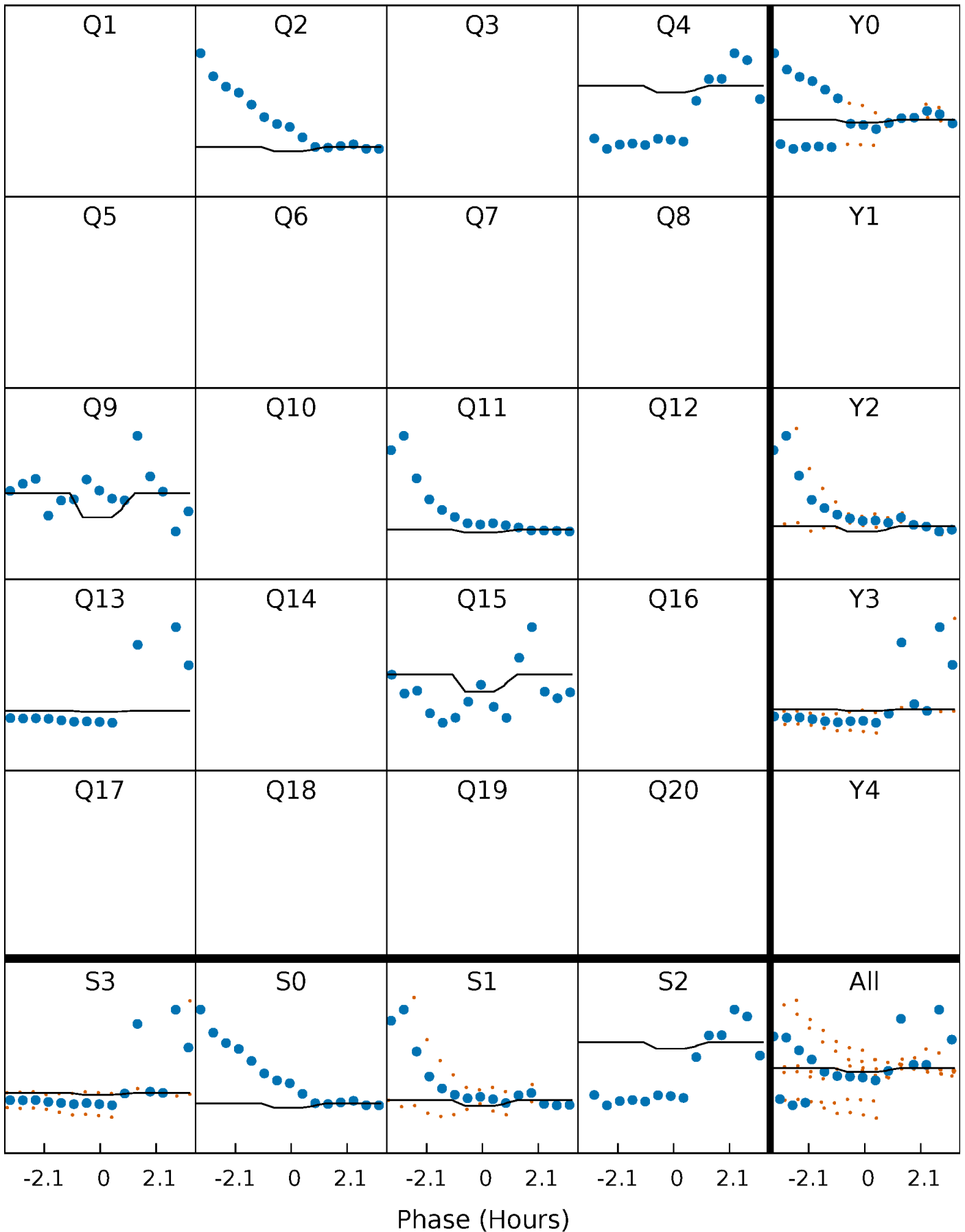
DV Quarter-Phased Transit Curves

TCE 011551404-03 $P=181.205000$ Days $T_0=176.686431$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

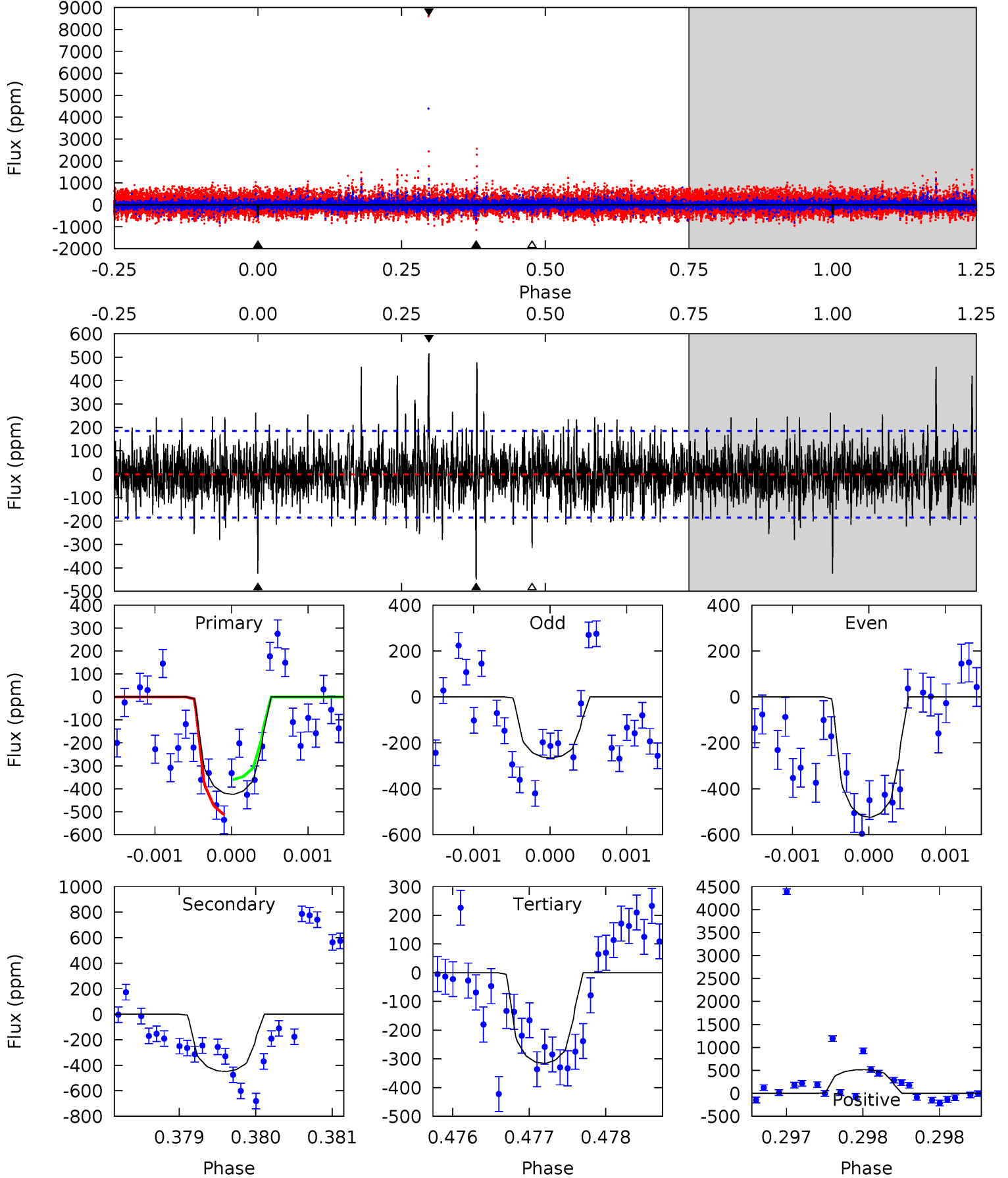
TCE 011551404-03 P=181.204810 Days $T_0=176.716247$ (BKJD)



DV Model-Shift Uniqueness Test

011551404-03, P = 181.205000 Days, E = 176.686431 Days

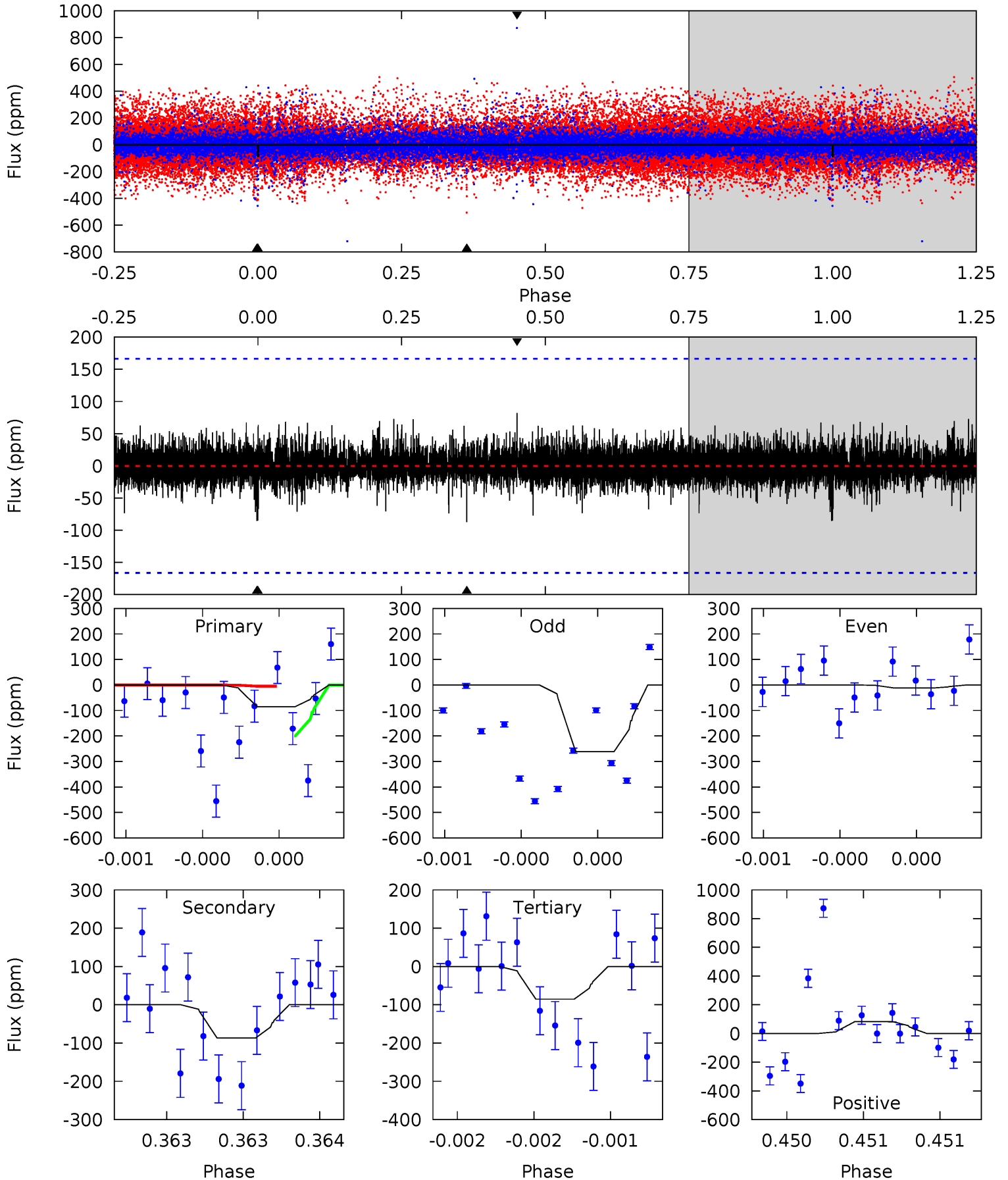
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	13.3	9.34	15.3	5.47	3.32	2.31	3.22	-2.71	3.93	-1.99	3.39	0.84	0.53	2.26



Alt Model-Shift Uniqueness Test

011551404-03, P = 181.204810 Days, E = 176.716247 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.85	2.92	2.87	2.76	5.59	3.50	0.59	-0.02	0.09	0.06	0.17	3.95	3.23	0.49	0



Stellar Parameters For KIC 011551404

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4975^{+138}_{-100}	$3.058^{+0.368}_{-0.301}$	$-0.520^{+0.300}_{-0.200}$	$4.477^{+2.585}_{-1.392}$	$0.836^{+0.366}_{-0.019}$	$0.013^{+0.030}_{-0.009}$
	+3%/-2%	+12%/-10%	+58%/-38%	+58%/-31%	+44%/-2%	+225%/-70%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011551404-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-449 ± 34	$90.78^{+107.02}_{-64.82}$	839^{+115}_{-83}	2514^{+1080}_{-401}	12^{+136}_{-9}
Alt.	-87 ± 30	$80.24^{+118.42}_{-55.73}$	835^{+101}_{-89}	2077^{+748}_{-448}	$2.702^{+24.690}_{-2.245}$

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

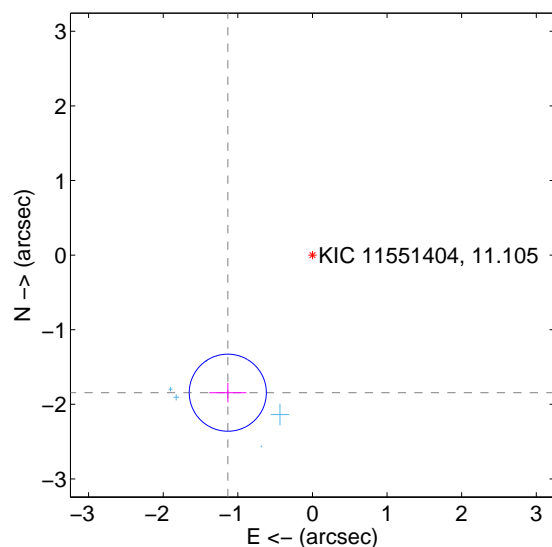
Supplemental centroid analysis for 011551404-03. **Kepler magnitude: 11.11.** Transit SNR 8.07

There are 5 quarters with good PRF difference image offsets

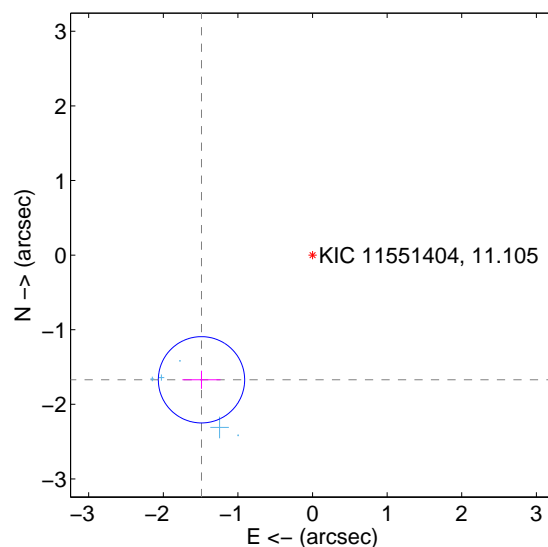
The direct PRF centroid is offset from the target star catalog position by about 0.83 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.165 \pm 0.172	12.58	1.134 \pm 0.250	-1.844 \pm 0.131
PRF-fit source offset from KIC position	2.238 \pm 0.193	11.61	1.488 \pm 0.256	-1.671 \pm 0.121
photometric centroid source offset	0.23 \pm 0.83	0.27	0.13 \pm 0.63	-0.19 \pm 0.90

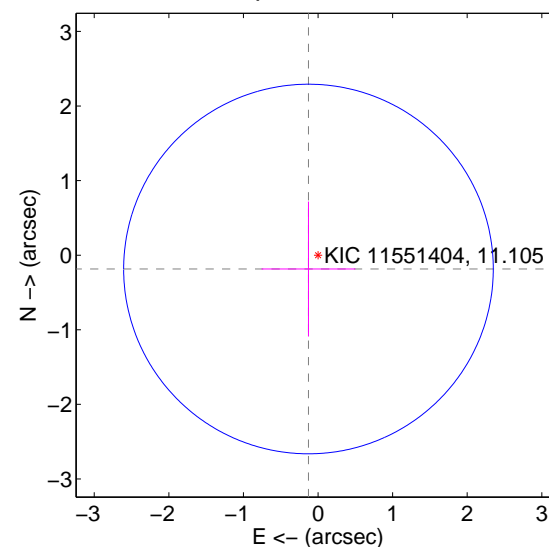
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

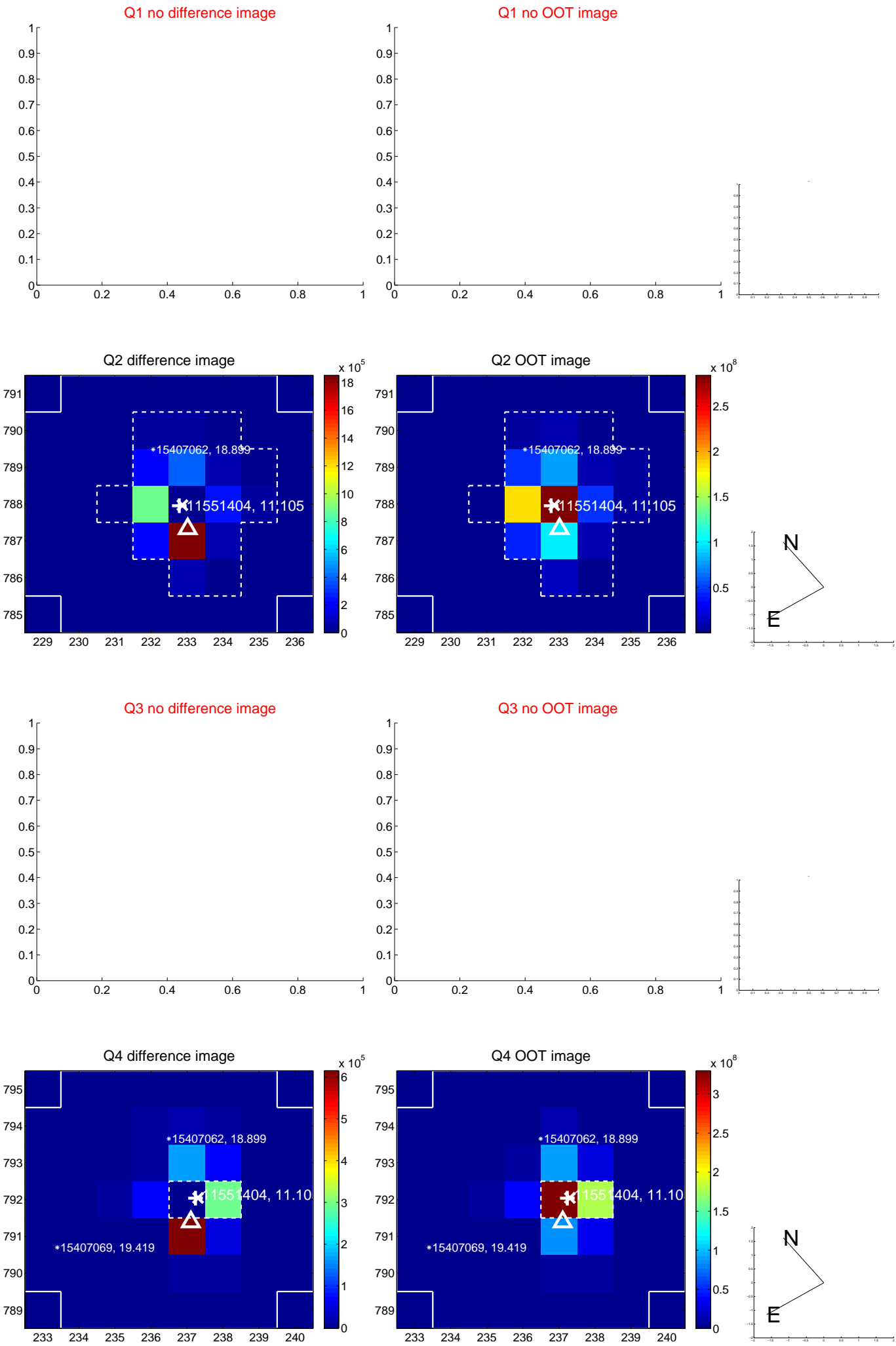


offset from photometric centroids



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.

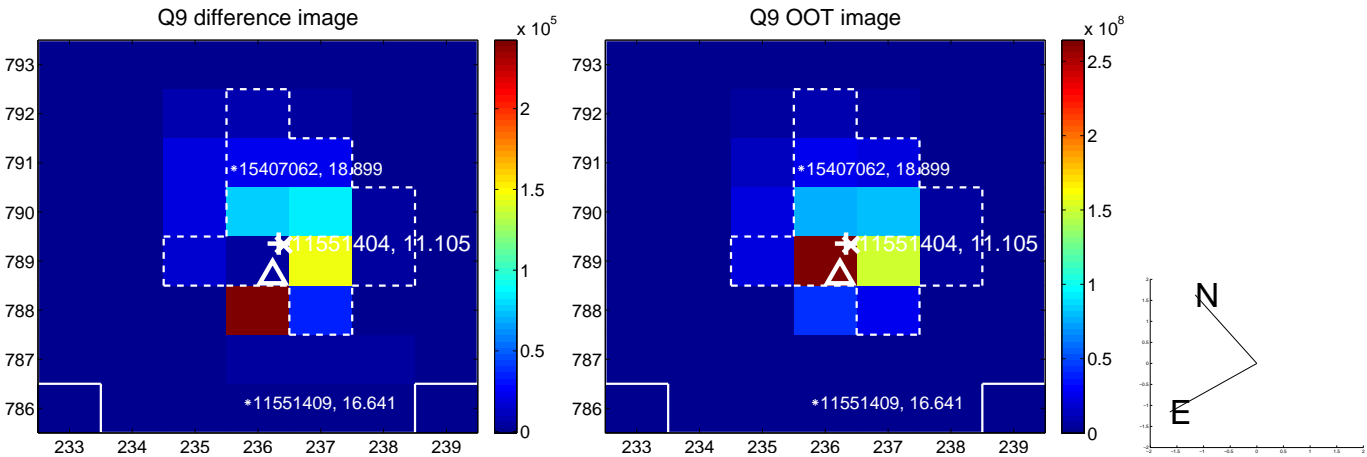
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



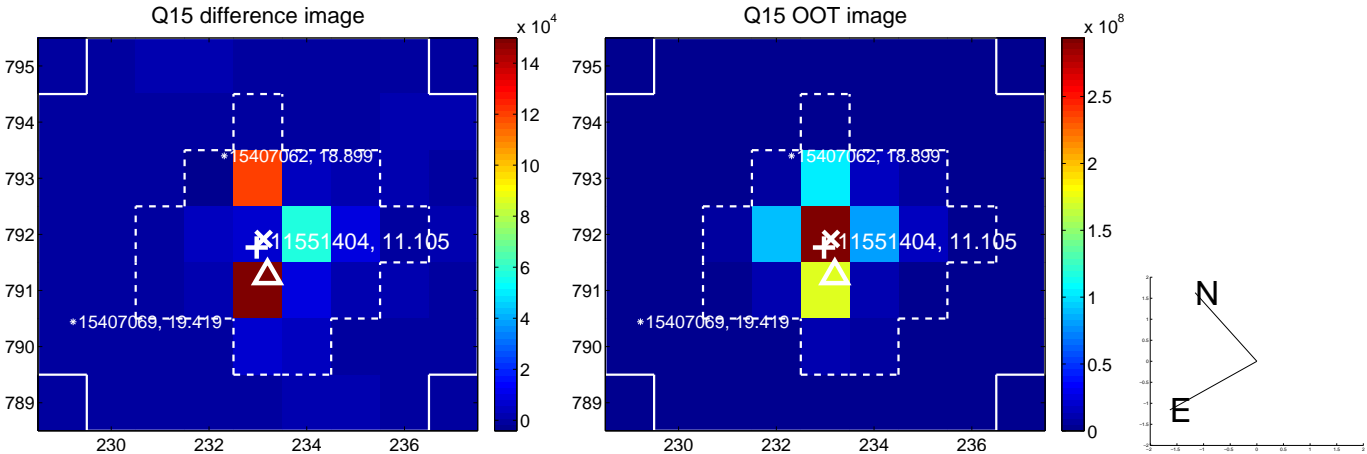
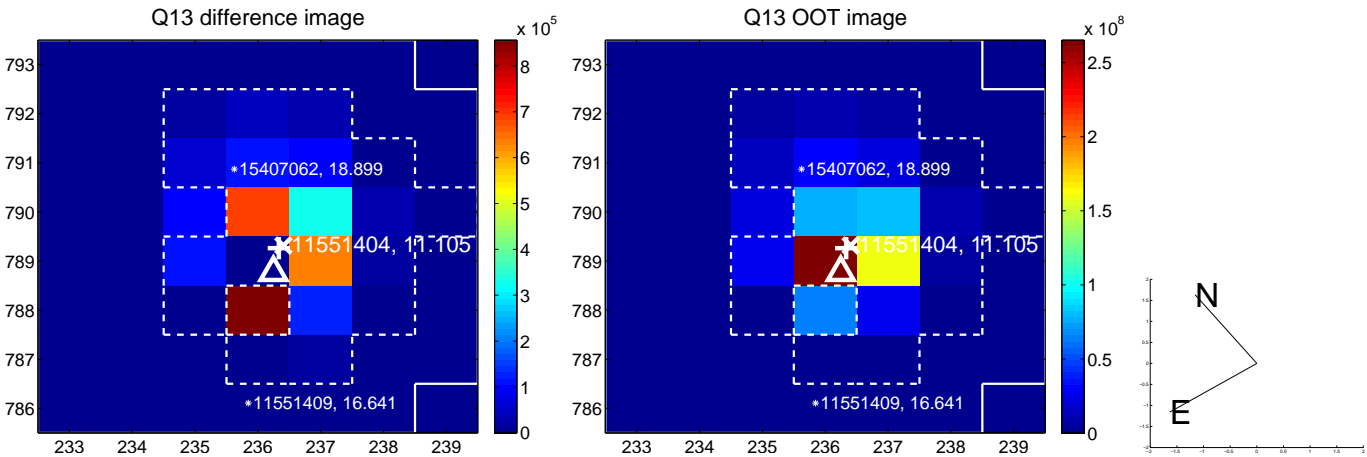
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



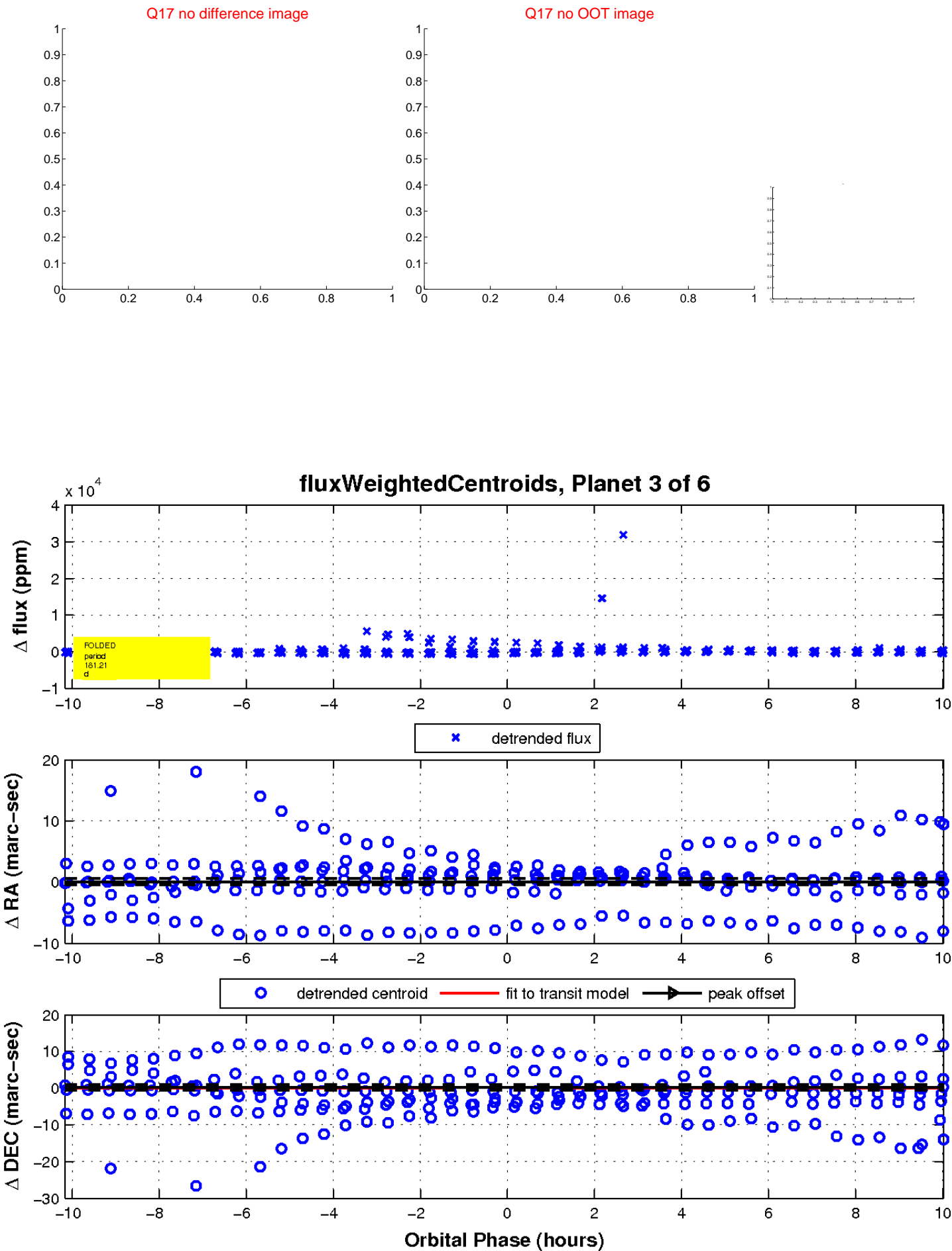
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



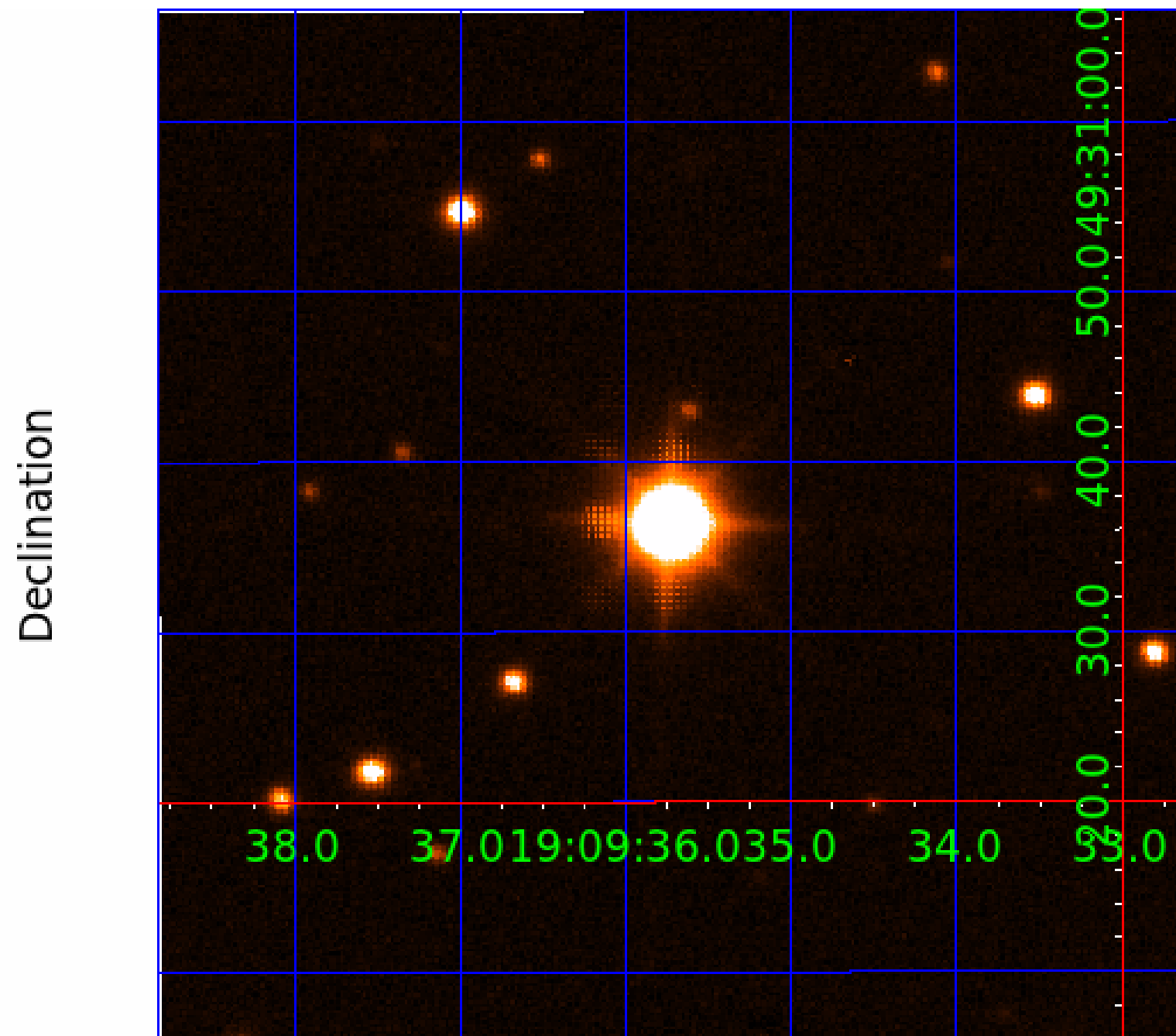
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011551404

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})
011551404-01	OBS	No	510.512653	548.514664	1316.8	8.113	21.4	9.0	4.48	4975	20.97	7.93
011551404-02	OBS	No	391.612704	201.075397	1231.6	13.171	77.8	7.9	4.48	4975	19.36	11.30
011551404-03	OBS	No	181.205000	176.686430	468.9	3.413	11.2	8.1	4.48	4975	9.45	31.56
011551404-04	OBS	No	337.420270	191.560536	825.2	1.902	17.8	12.9	4.48	4975	13.34	13.78
011551404-05	OBS	No	365.722710	220.298715	676.9	7.270	12.5	6.0	4.48	4975	11.78	12.37
011551404-06	OBS	No	400.164028	183.030810	223.9	4.500	17.4	-1.0	4.48	4975	6.54	10.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011551404-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011551404-05	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
011551404-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

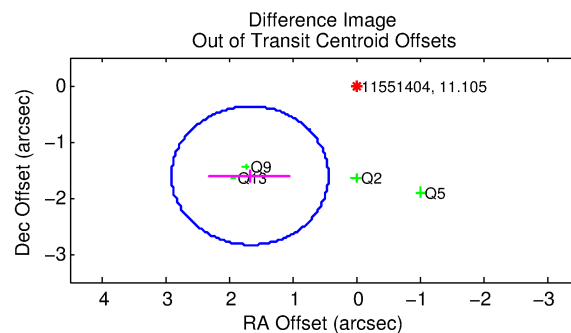
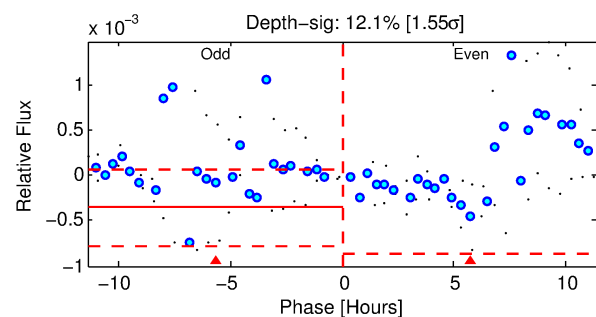
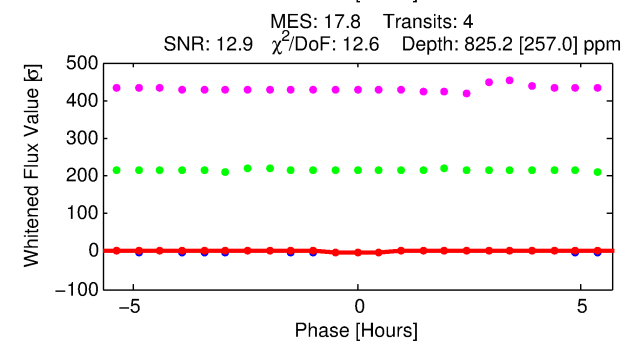
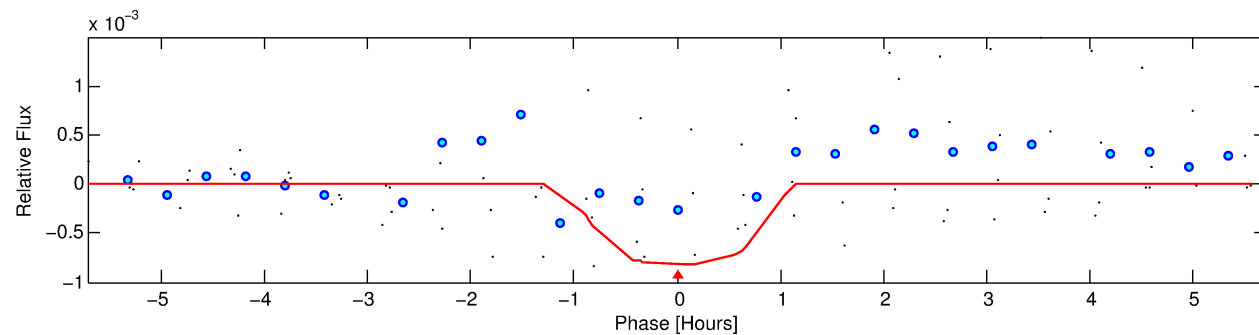
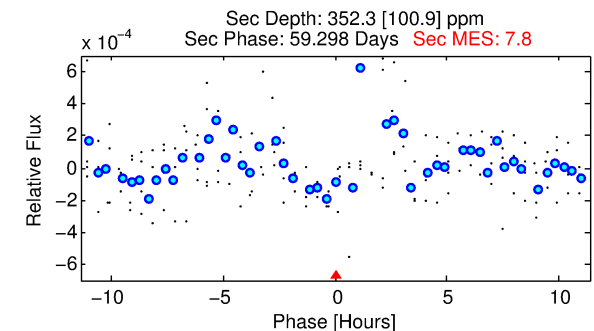
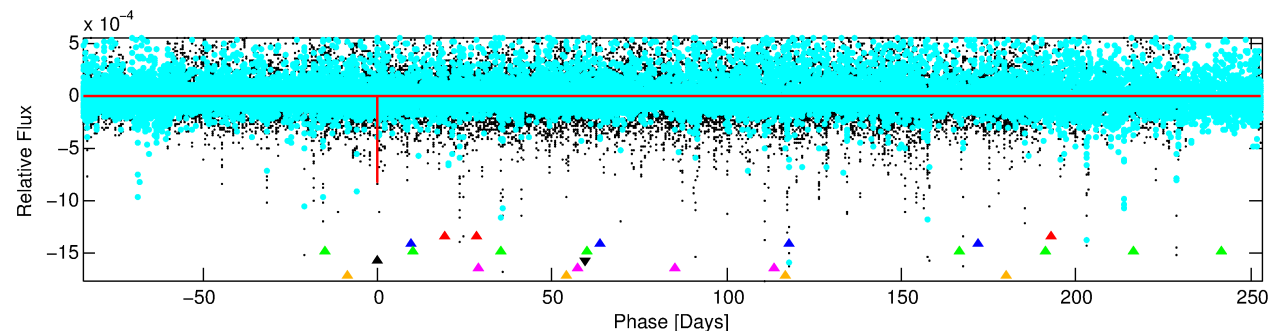
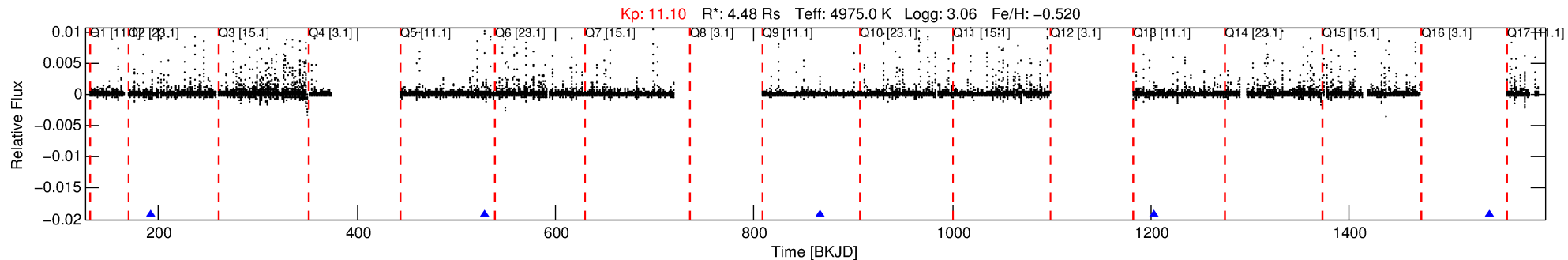
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011551404-04

No Significant Match Found

DV One-Page Summary

KIC: 11551404 Candidate: 4 of 6 Period: 337.420 d



DV Fit Results:

Period = 337.42027 [0.00489] d
Epoch = 191.5605 [0.0113] BKJD
Rp/R* = 0.0273 [0.0906]
a/R* = 1133.46 [13752.44]
b = 0.60 [13.37]
Seff = 13.78 [9.54]
Teq = 491 [85] K
Rp = 13.34 [44.94] Re
a = 0.8936 [0.4266] AU
Ag = 869.52 [5807.11] [0.15σ]
Teff = 4125 [6851] K [0.53σ]

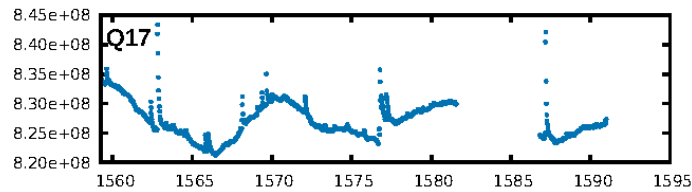
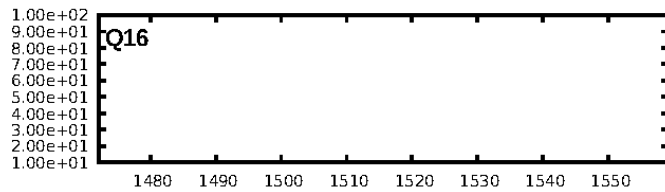
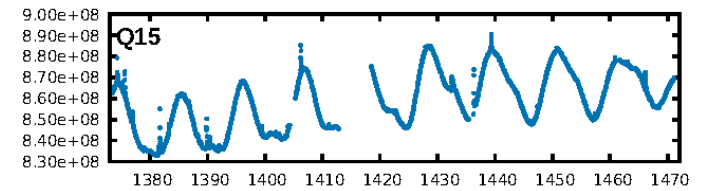
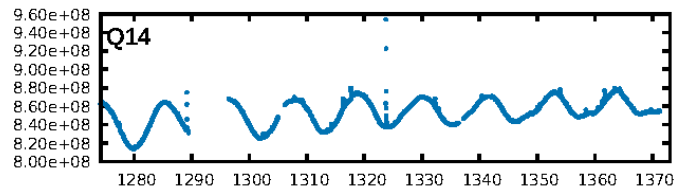
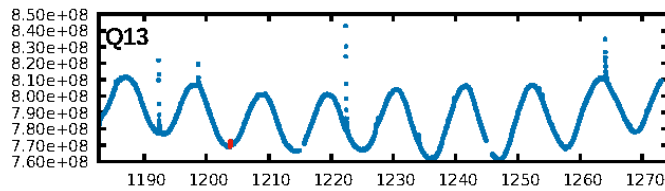
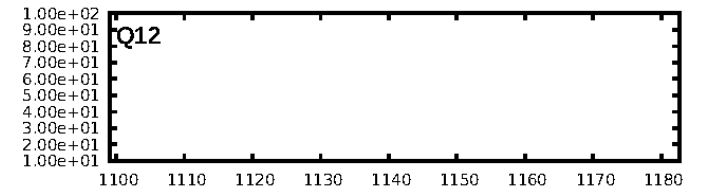
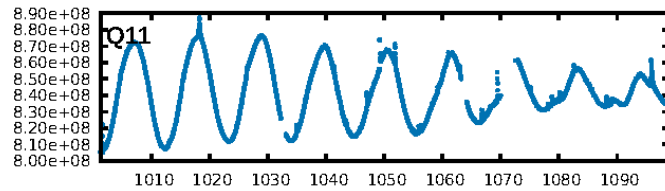
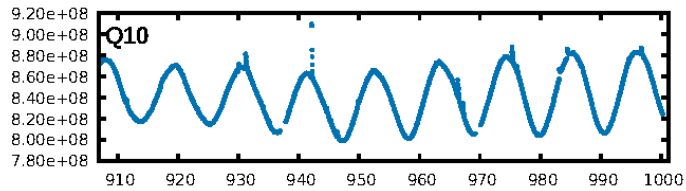
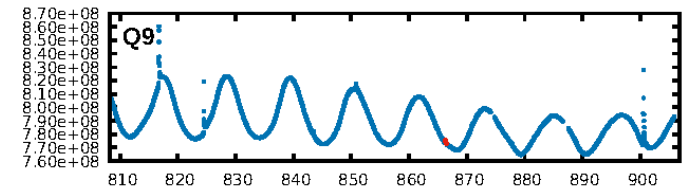
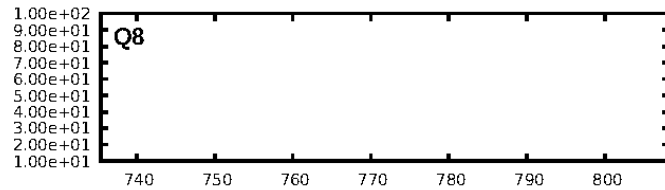
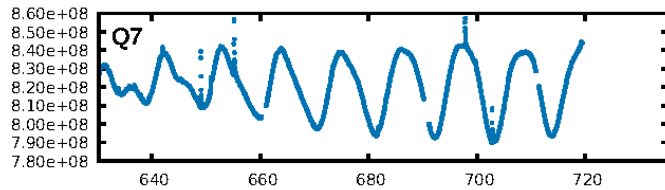
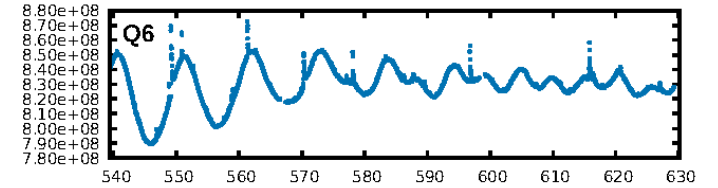
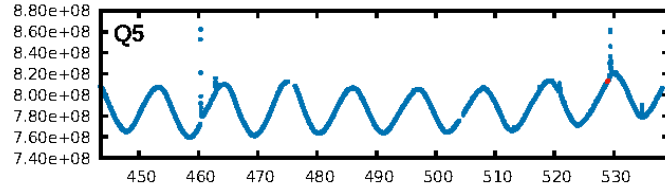
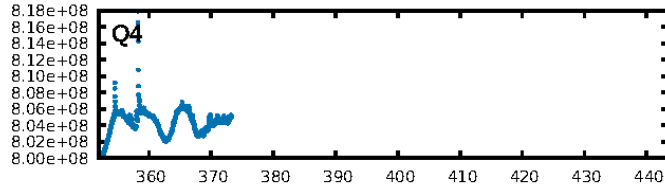
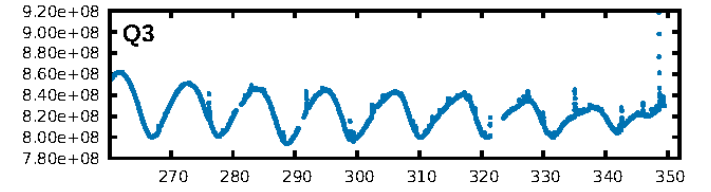
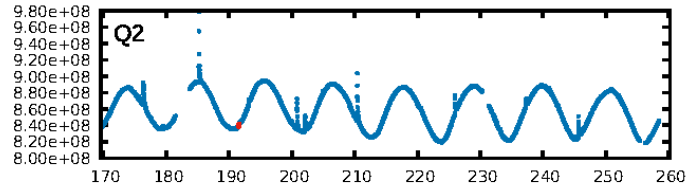
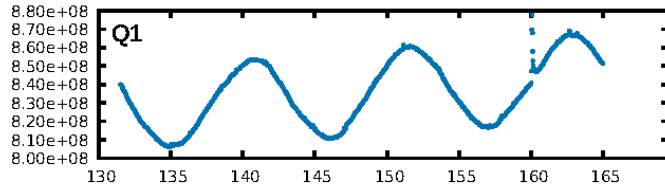
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [959.50σ]
LongPeriod-sig: 100.0% [90.39σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.732
Centroid-sig: 38.7%
Centroid-so: 1.259 arcsec [0.93σ]
OotOffset-rm: 2.314 arcsec [5.63σ]
KicOffset-rm: 2.445 arcsec [6.21σ]
OotOffset-st: 1/0/0/3 [4]
KicOffset-st: 1/0/0/3 [4]
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DiffImageOverlap-fno: 1.00 [4/4]

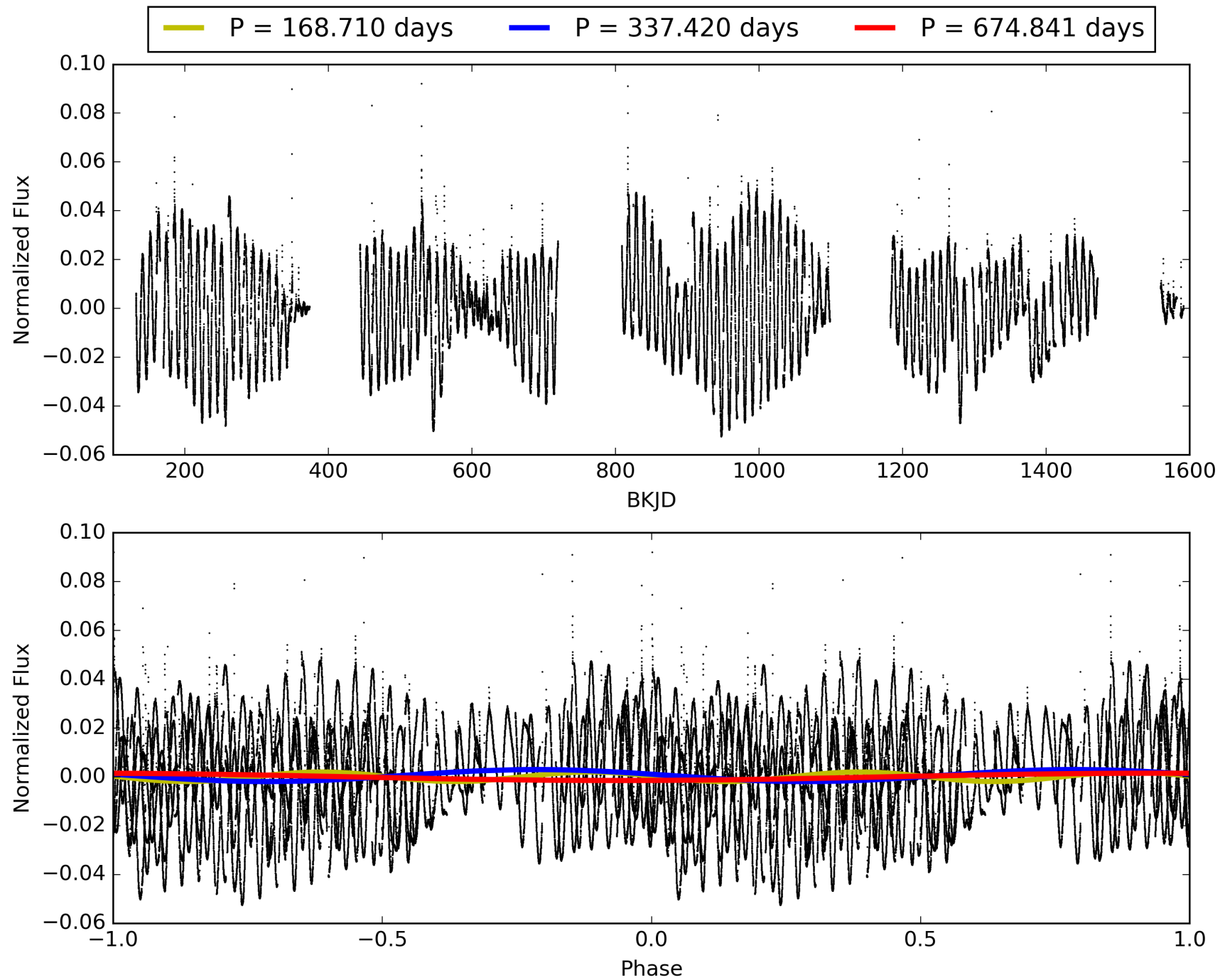
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:12:09 Z

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

TCE 011551404-04, PDC Light Curves

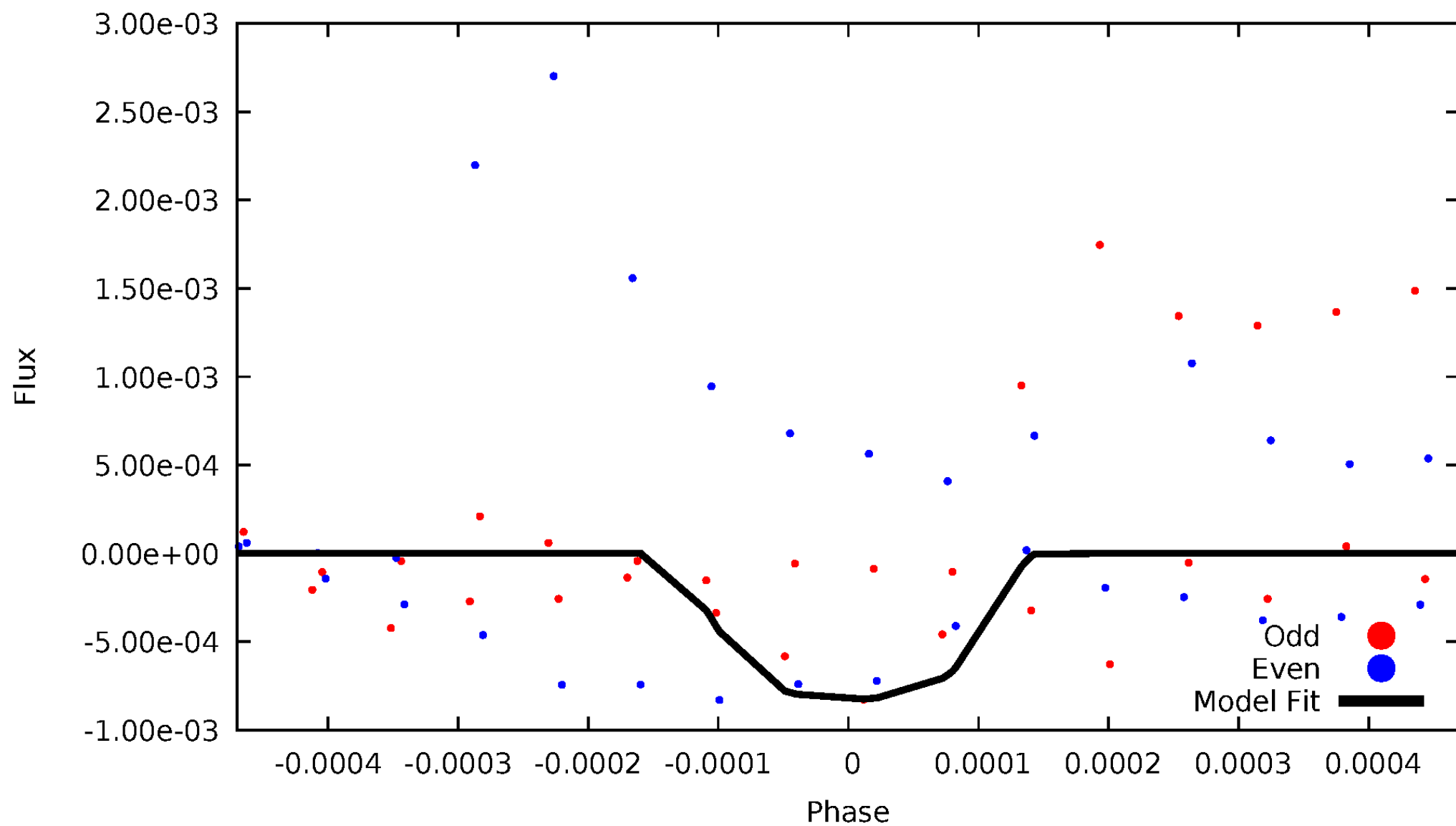


TCE 011551404-04



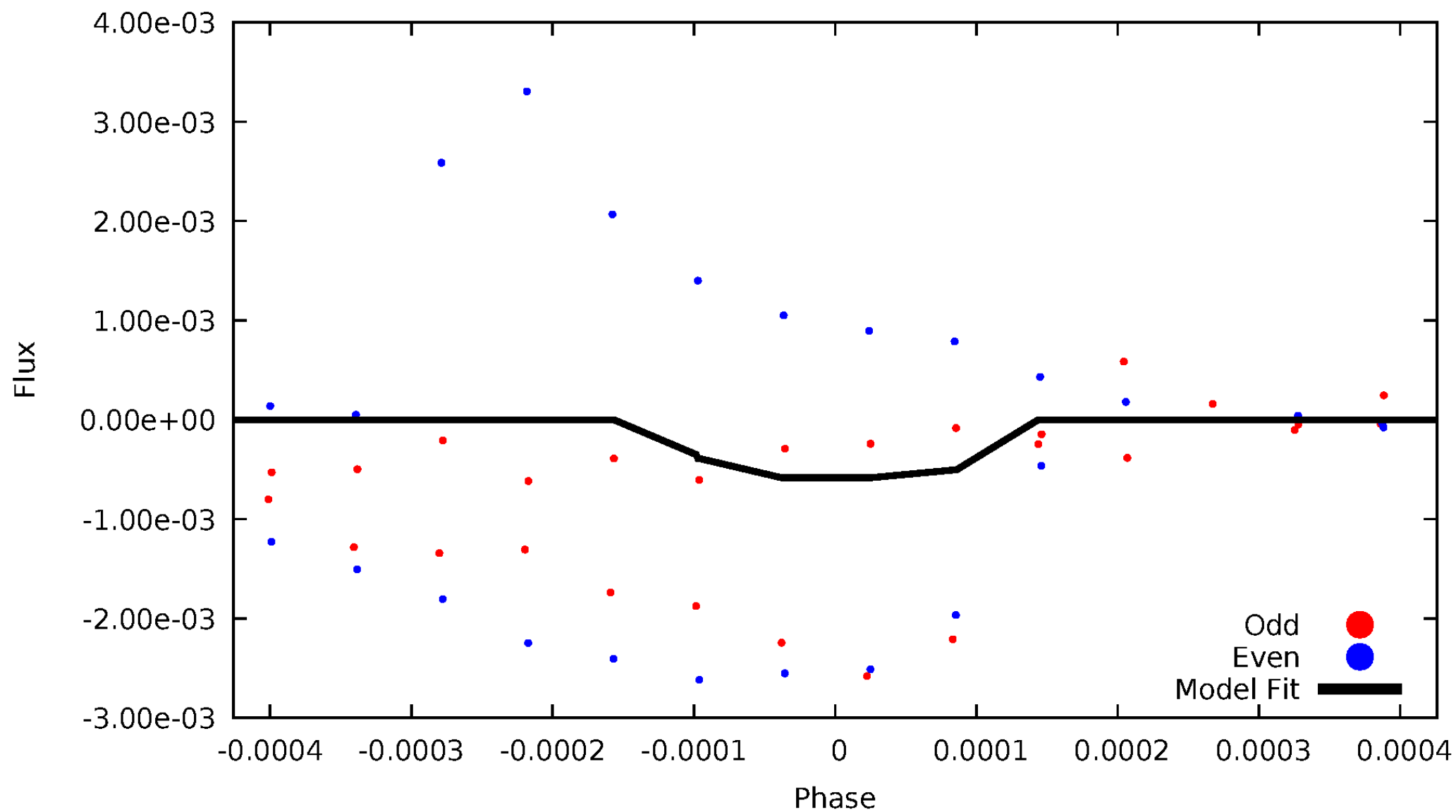
DV Odd/Even

TCE 011551404-04



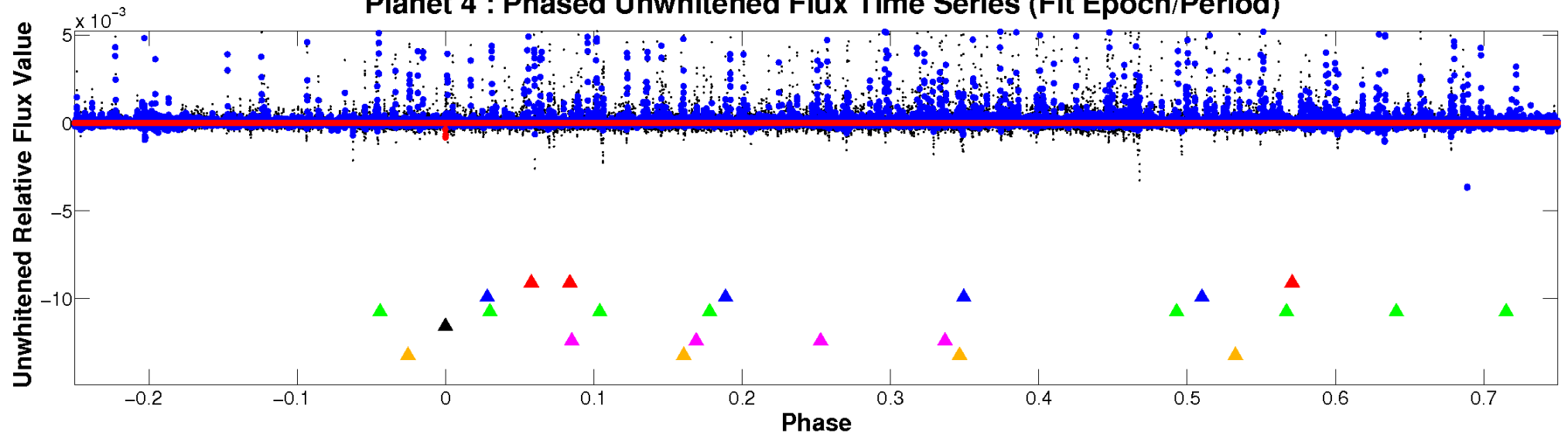
ALT Odd/Even

TCE 011551404-04

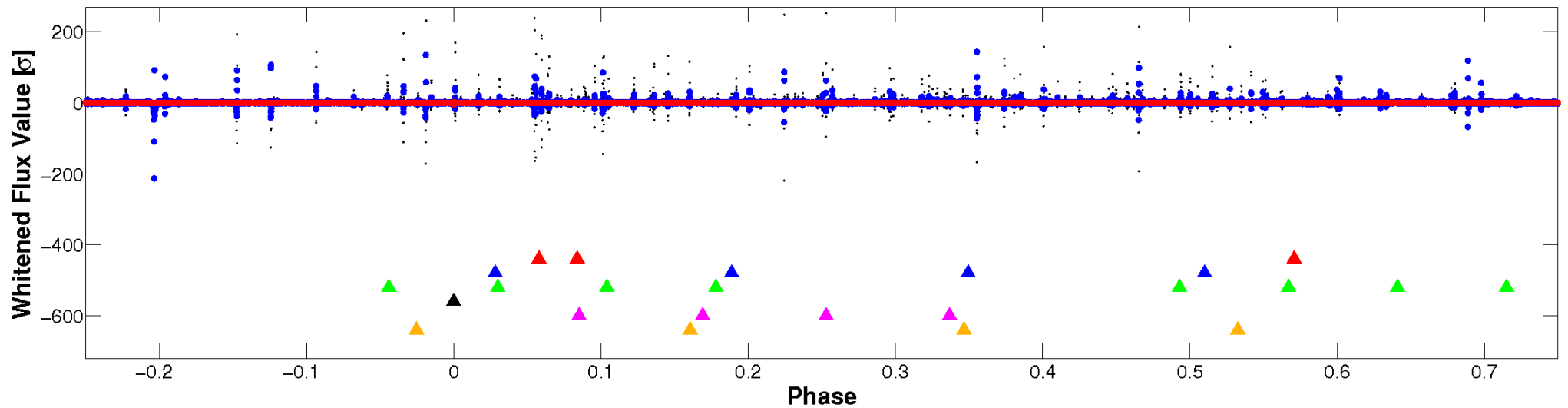


Non-Whitened Vs. Whitened Light Curve

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

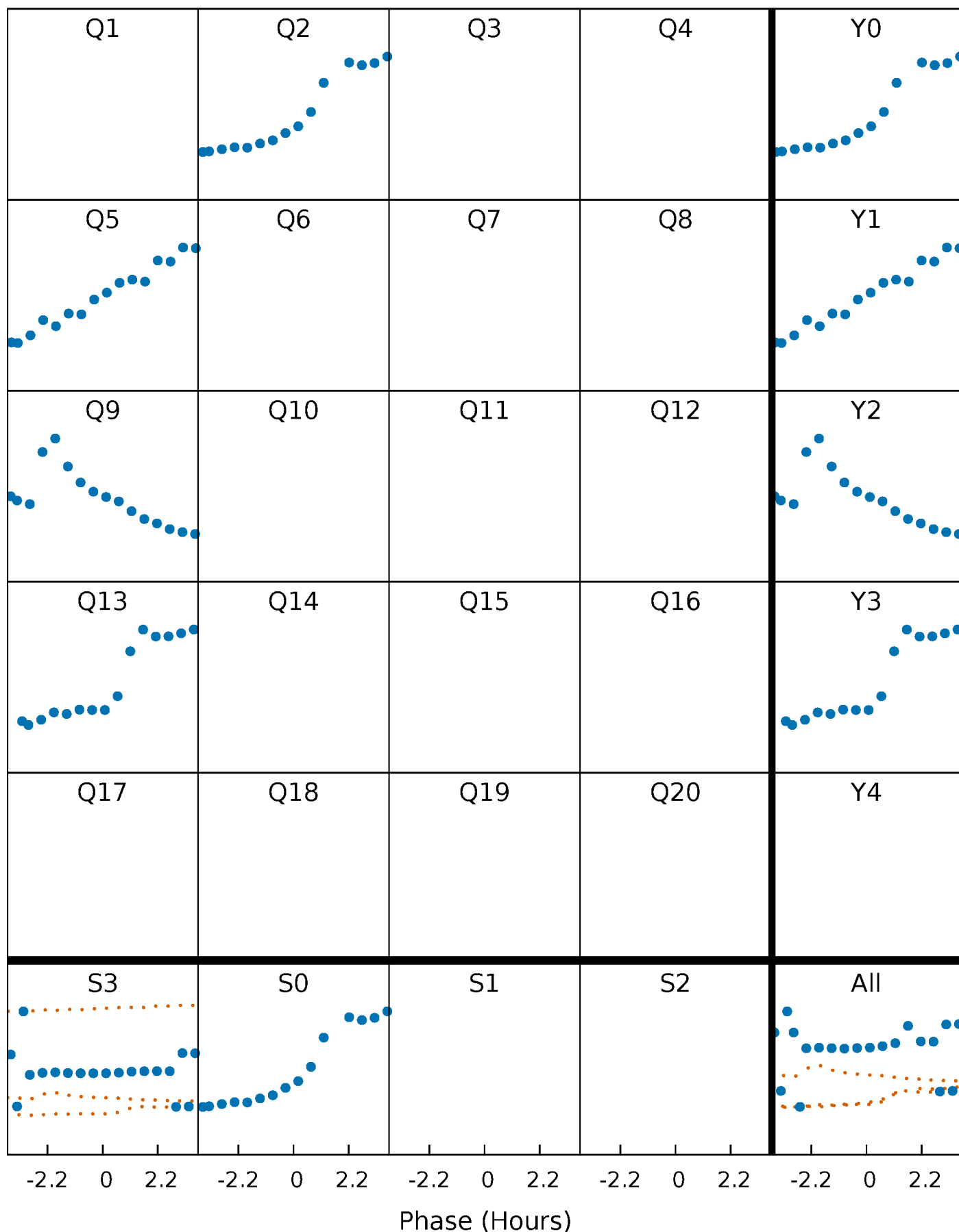


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



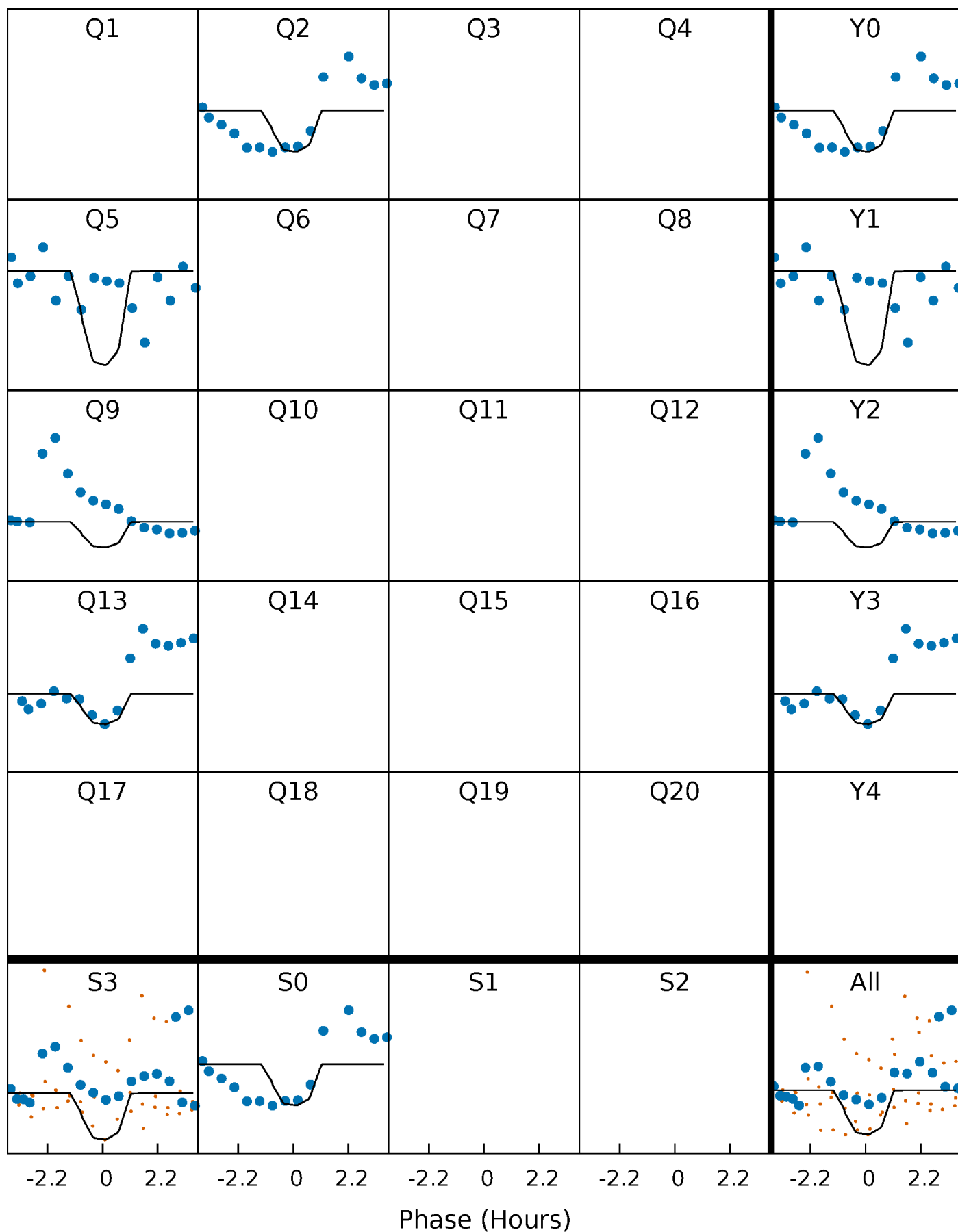
PDC Quarter-Phased Transit Curves

TCE 011551404-04 $P=337.420270$ Days $T_0=191.560536$ (BKJD)



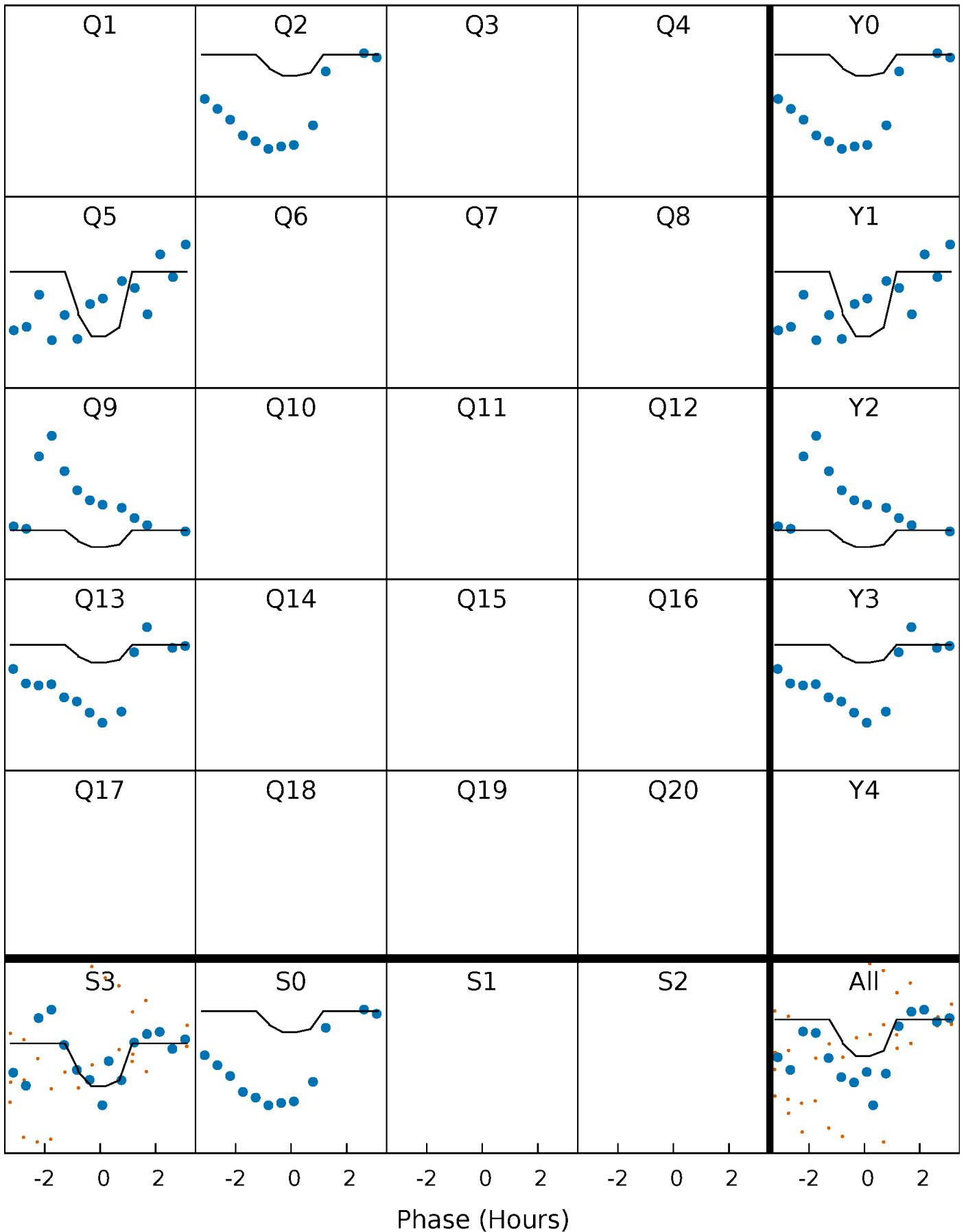
DV Quarter-Phased Transit Curves

TCE 011551404-04 P=337.420270 Days $T_0=191.560536$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

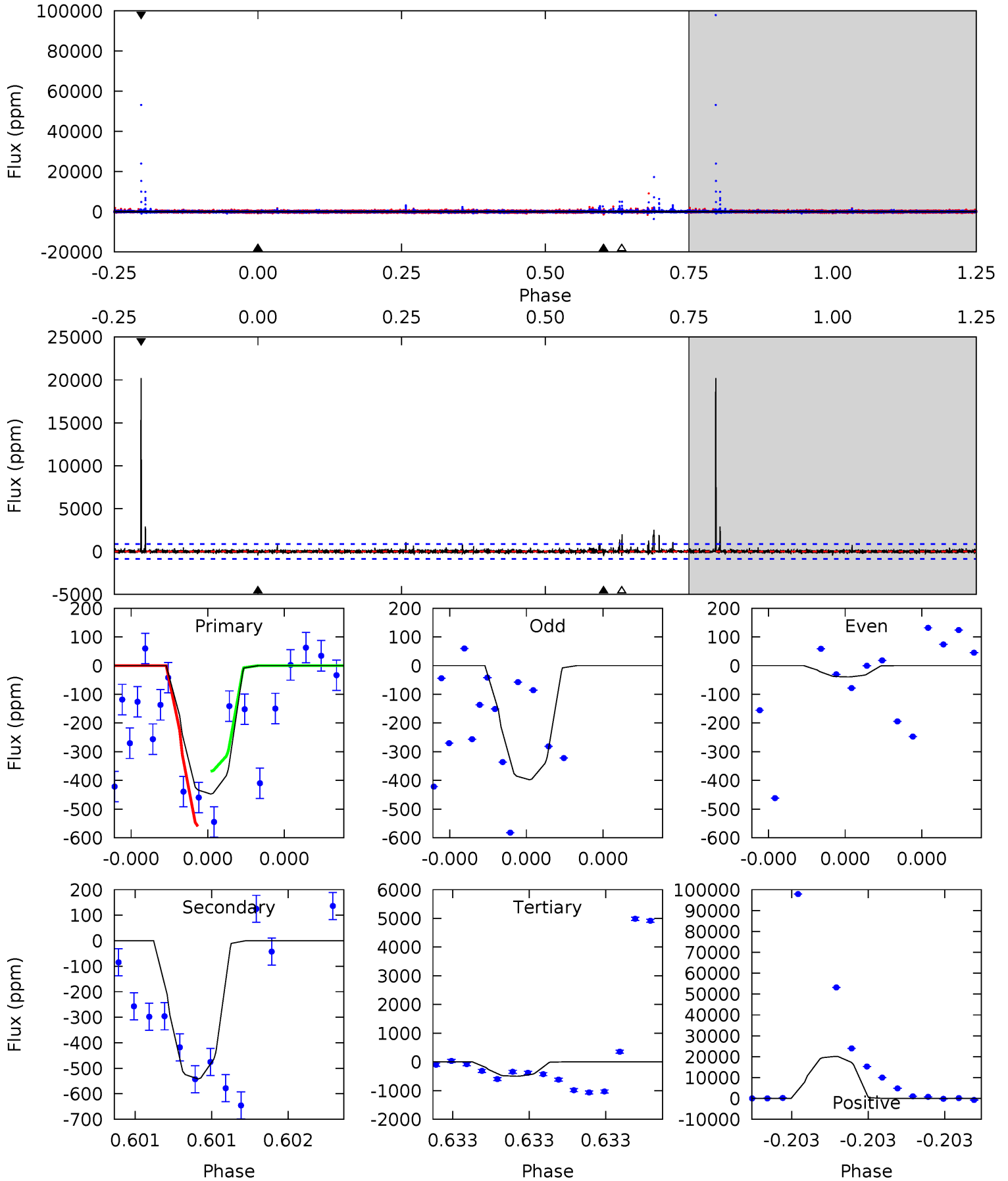
TCE 011551404-04 $P=337.419376$ Days $T_0=191.559554$ (BKJD)



DV Model-Shift Uniqueness Test

011551404-04, P = 337.420270 Days, E = 191.560536 Days

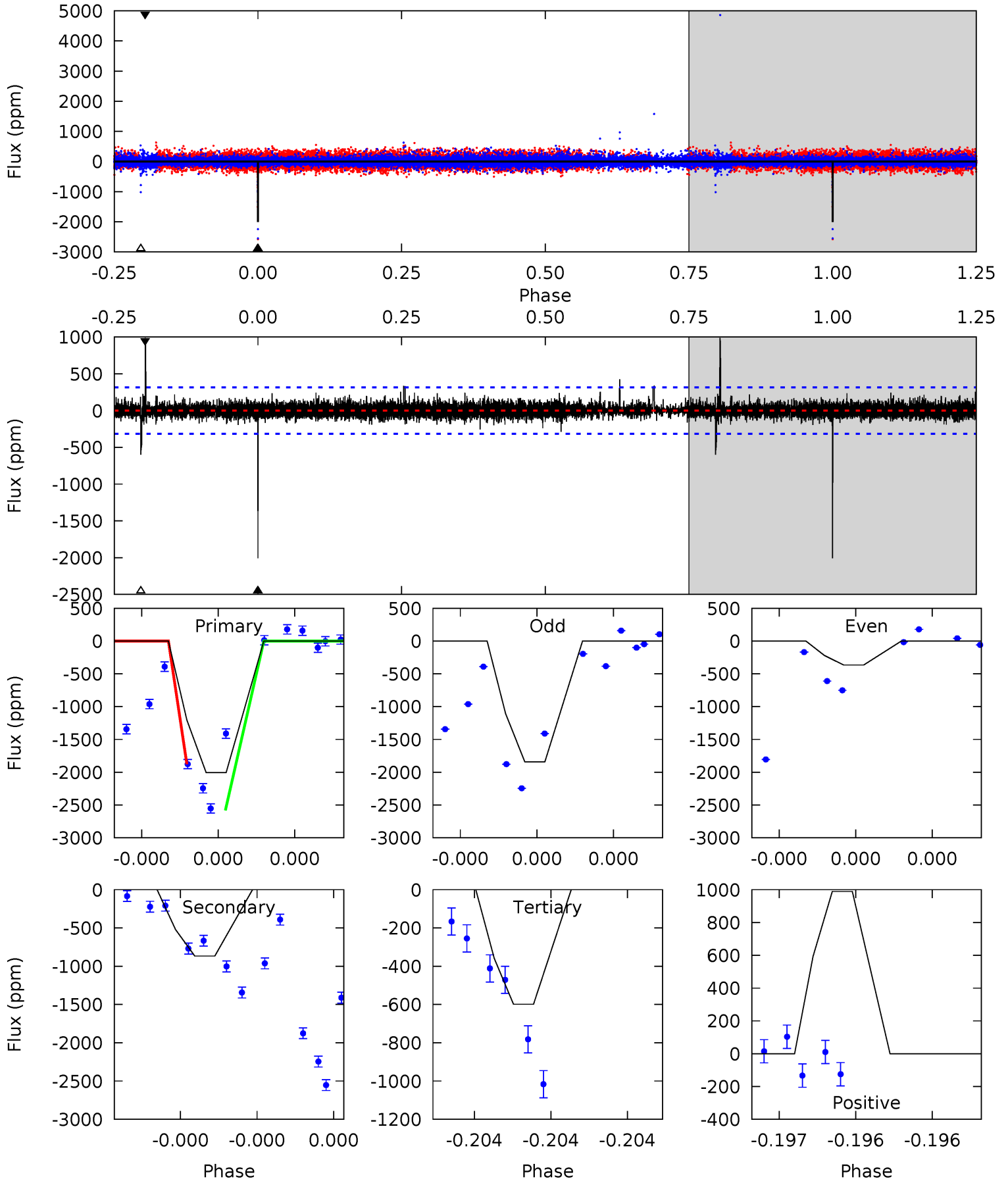
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.92	3.53	3.26	131.6	5.66	3.62	1.91	-0.34	-128.7	0.28	-128.1	1.05	0.55	0.97	0.48



Alt Model-Shift Uniqueness Test

011551404-04, P = 337.419376 Days, E = 191.559554 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.2	15.7	10.8	17.9	5.70	3.67	0.94	25.4	18.4	4.85	-2.20	9.94	0.77	0.33	0



Stellar Parameters For KIC 011551404

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4975^{+138}_{-100}	$3.058^{+0.368}_{-0.301}$	$-0.520^{+0.300}_{-0.200}$	$4.477^{+2.585}_{-1.392}$	$0.836^{+0.366}_{-0.019}$	$0.013^{+0.030}_{-0.009}$
	+3%/-2%	+12%/-10%	+58%/-38%	+58%/-31%	+44%/-2%	+225%/-70%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011551404-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-542 ± 153	$37.65^{+37.57}_{-26.44}$	678^{+94}_{-65}	3271^{+1734}_{-562}	175^{+1719}_{-132}
Alt.	-868 ± 55	$33.98^{+35.39}_{-23.49}$	683^{+85}_{-79}	3618^{+2062}_{-675}	373^{+3357}_{-289}

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

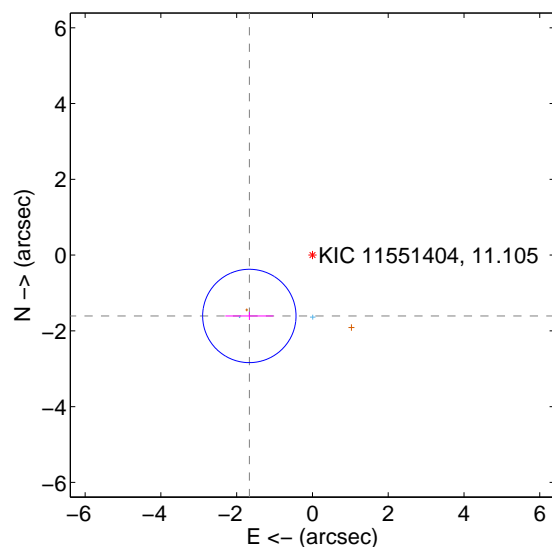
Supplemental centroid analysis for 011551404-04. **Kepler magnitude: 11.11.** Transit SNR 12.92

There are 2 quarters with good PRF difference image offsets

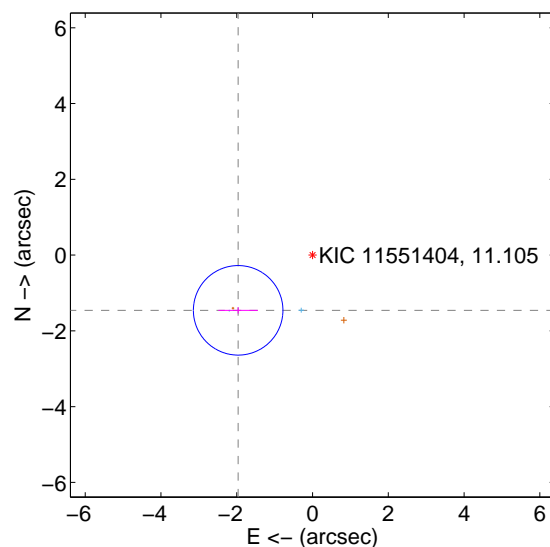
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.314 ± 0.411	5.63	1.666 ± 0.634	-1.606 ± 0.105
PRF-fit source offset from KIC position	2.445 ± 0.394	6.21	1.963 ± 0.520	-1.458 ± 0.085
photometric centroid source offset	1.26 ± 1.35	0.93	0.24 ± 0.96	1.24 ± 1.37

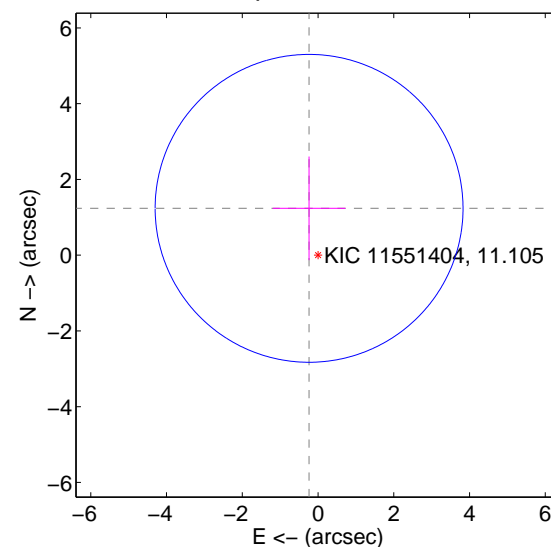
offset from difference PRF-fit to OOT PRF-fit



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.

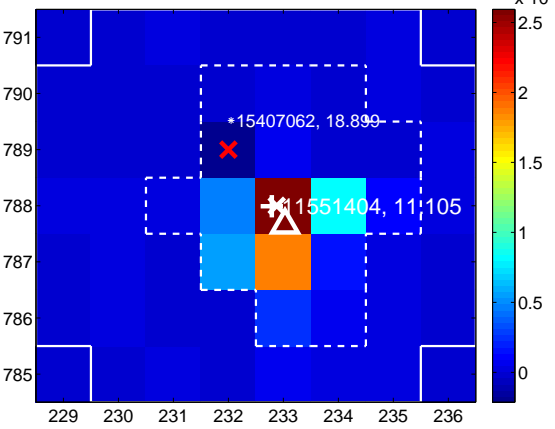
Q1 no difference image



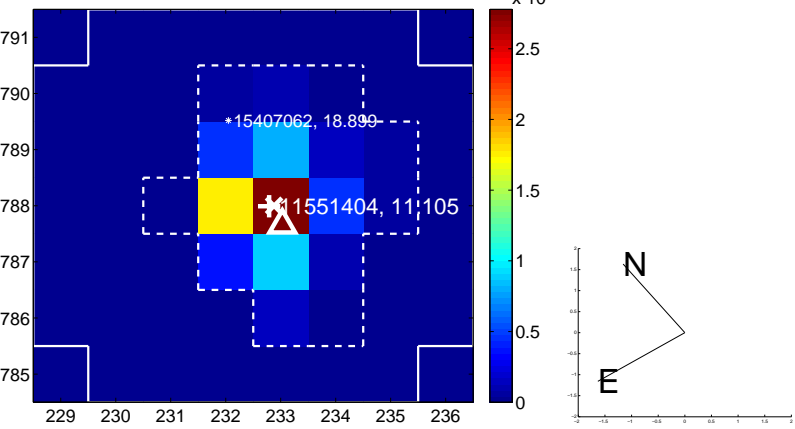
Q1 no OOT image



Q2 difference image



Q2 OOT image



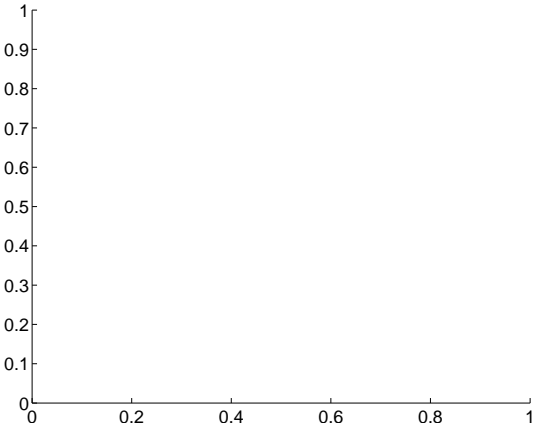
Q3 no difference image



Q3 no OOT image



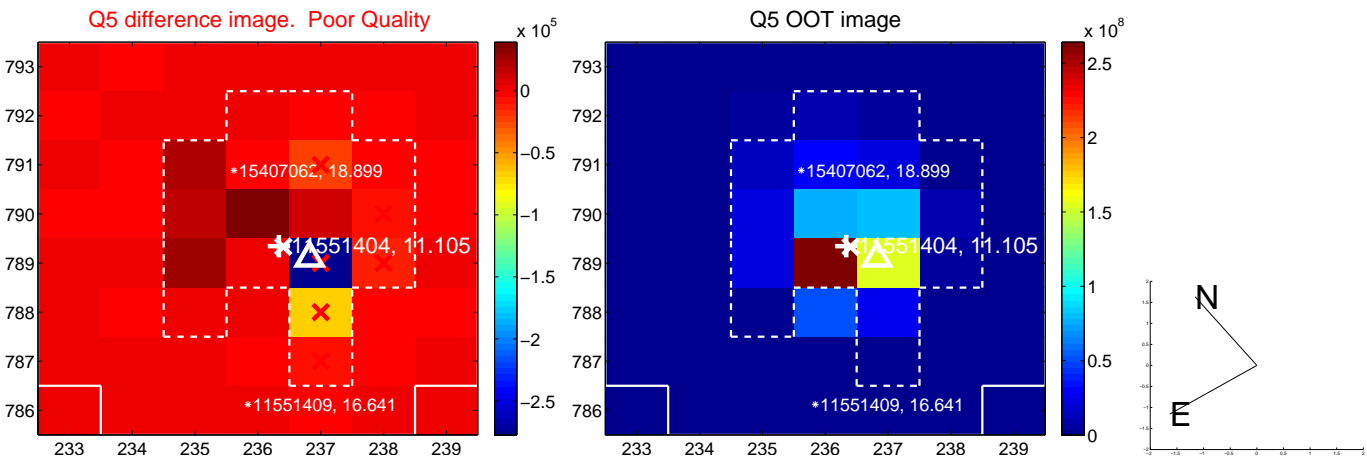
Q4 no difference image



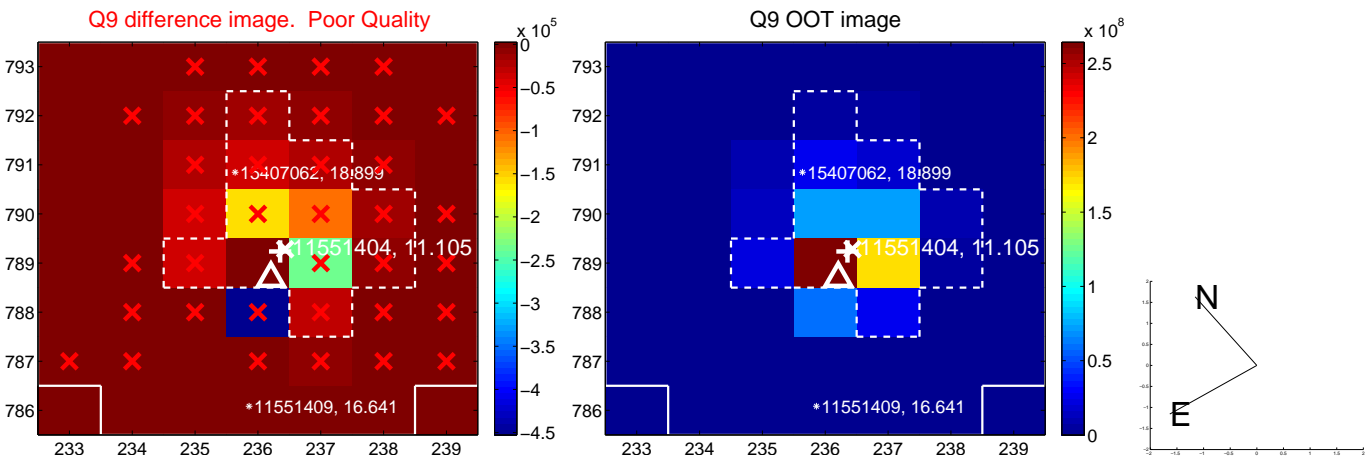
Q4 no OOT image



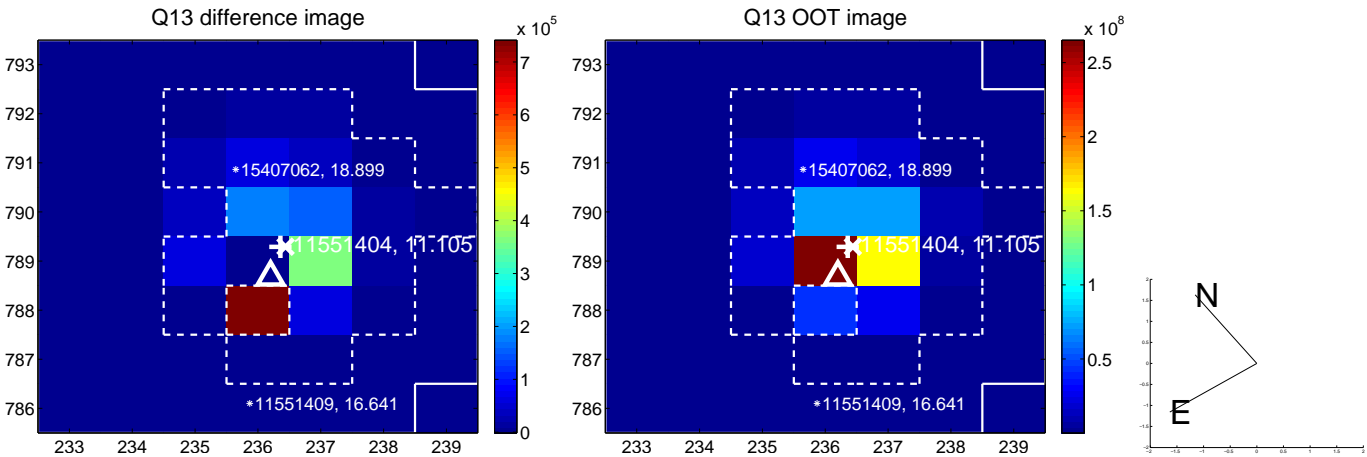
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



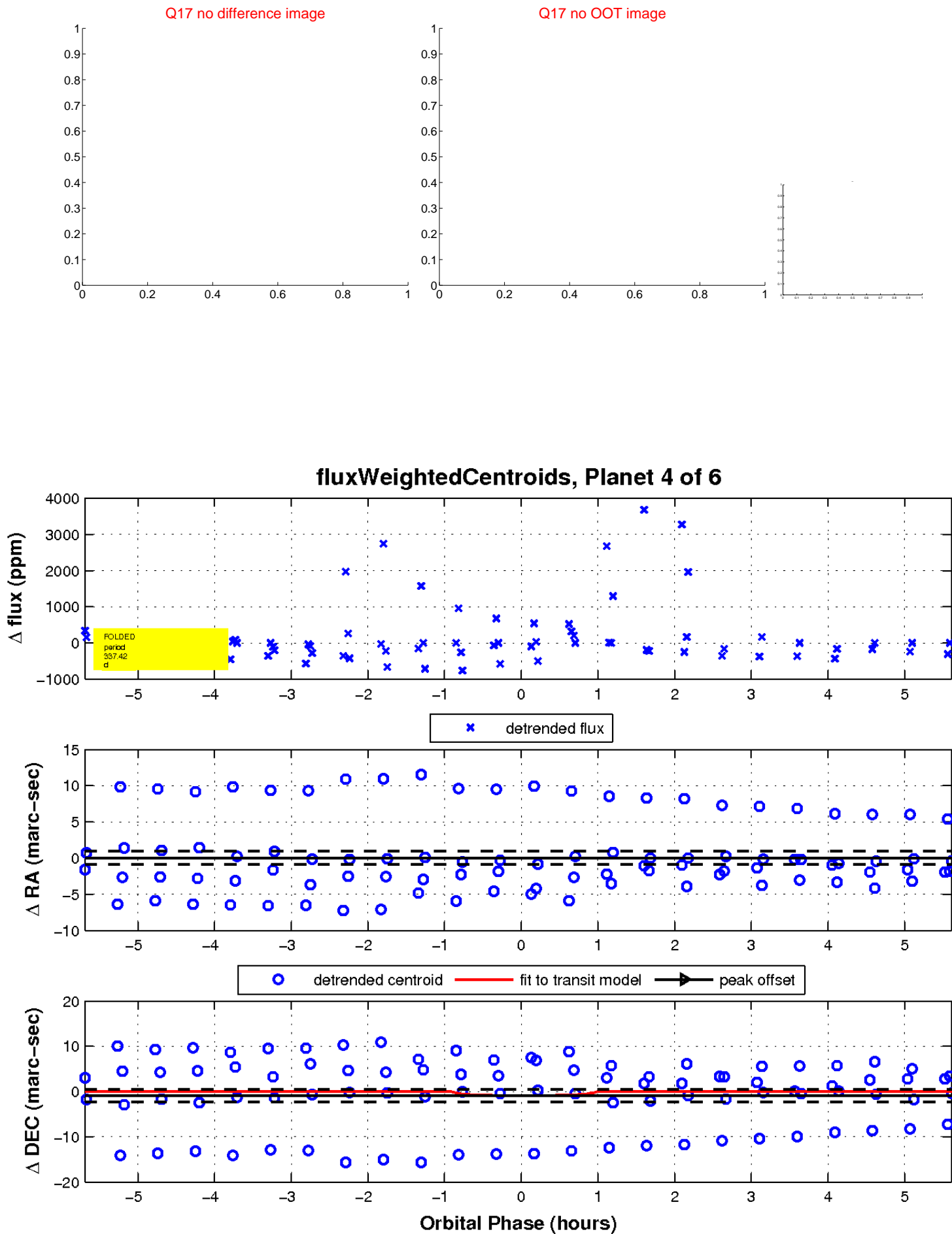
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



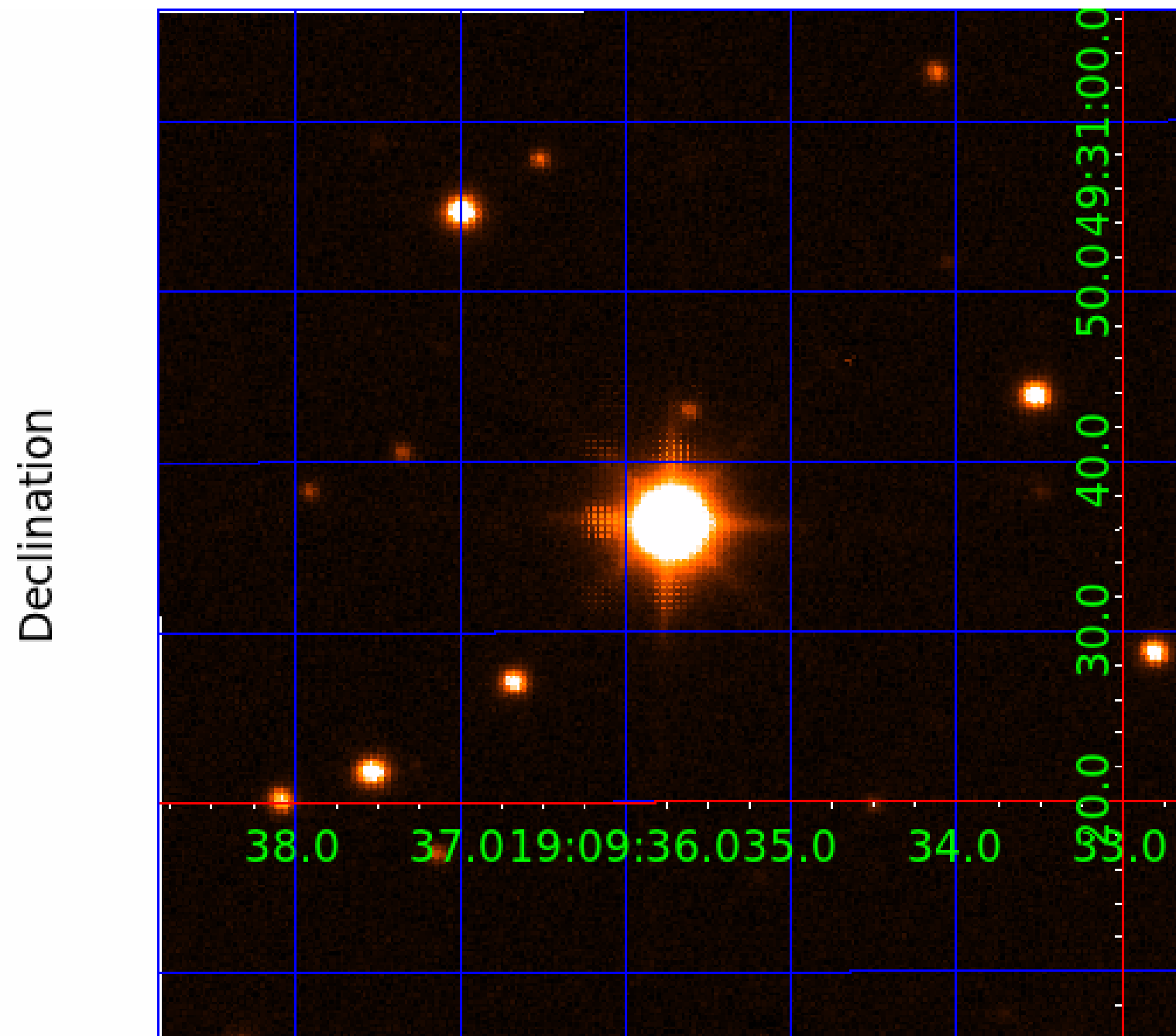
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011551404

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})
011551404-01	OBS	No	510.512653	548.514664	1316.8	8.113	21.4	9.0	4.48	4975	20.97	7.93
011551404-02	OBS	No	391.612704	201.075397	1231.6	13.171	77.8	7.9	4.48	4975	19.36	11.30
011551404-03	OBS	No	181.205000	176.686430	468.9	3.413	11.2	8.1	4.48	4975	9.45	31.56
011551404-04	OBS	No	337.420270	191.560536	825.2	1.902	17.8	12.9	4.48	4975	13.34	13.78
011551404-05	OBS	No	365.722710	220.298715	676.9	7.270	12.5	6.0	4.48	4975	11.78	12.37
011551404-06	OBS	No	400.164028	183.030810	223.9	4.500	17.4	-1.0	4.48	4975	6.54	10.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011551404-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011551404-05	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
011551404-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

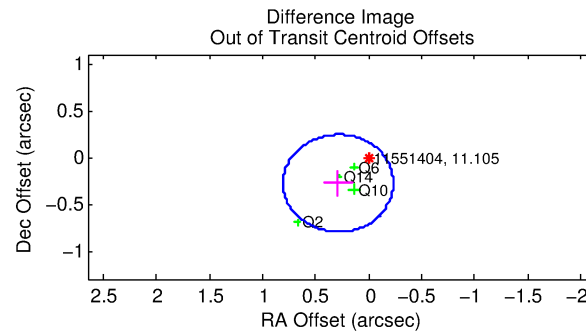
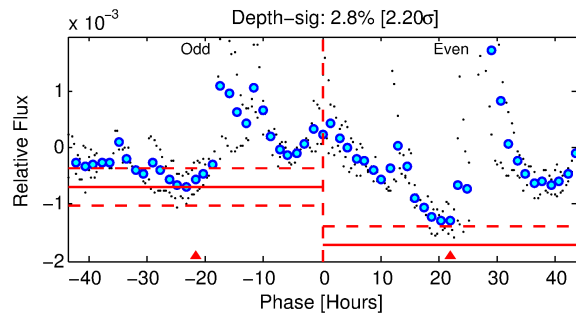
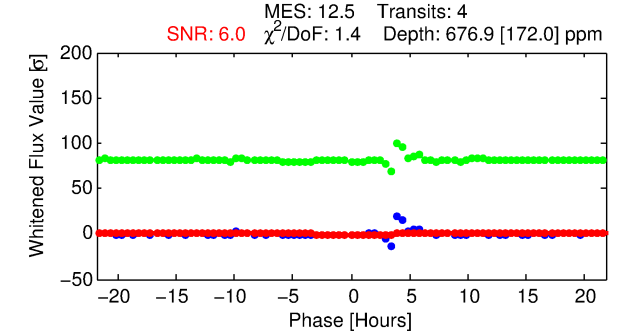
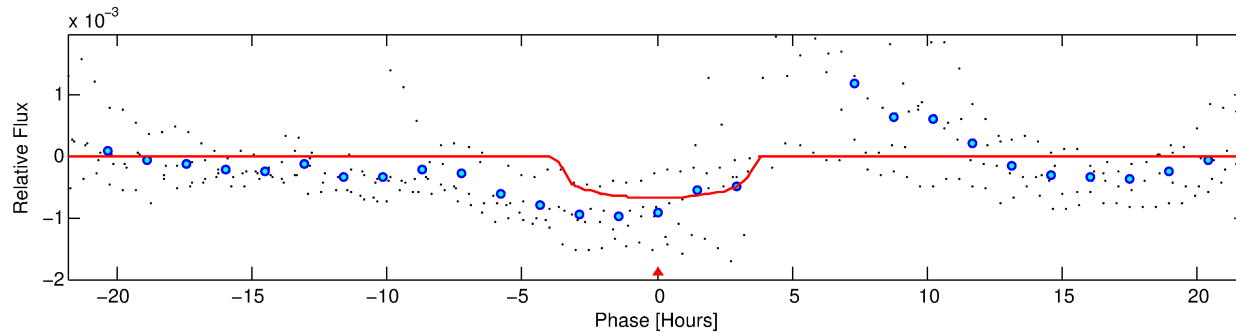
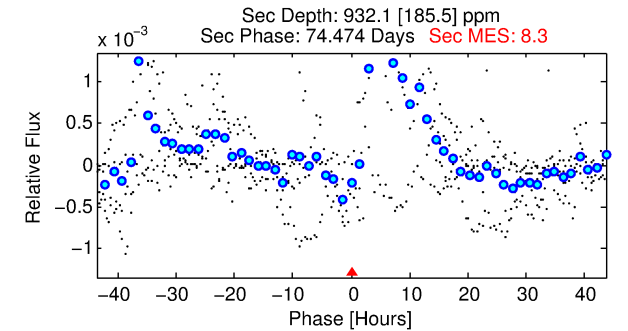
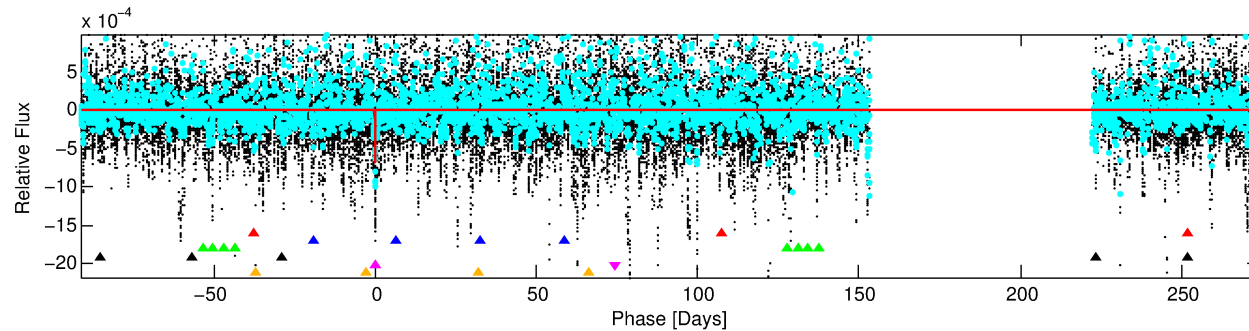
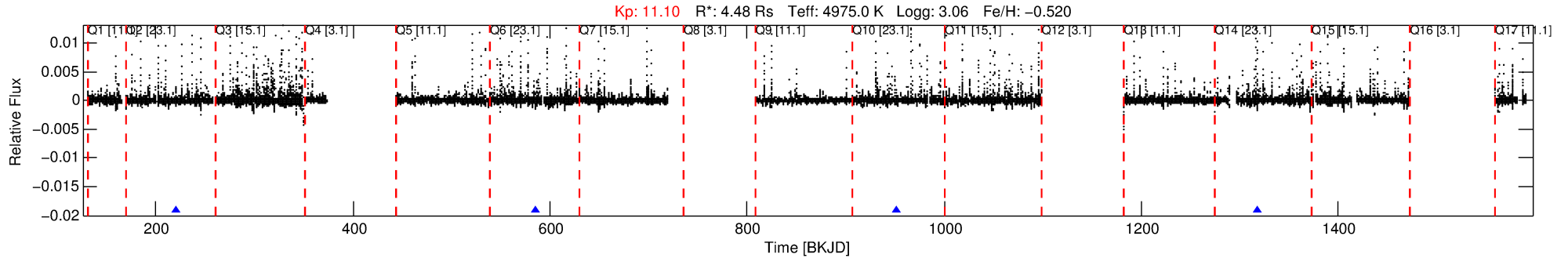
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011551404-05

No Significant Match Found

DV One-Page Summary

KIC: 11551404 Candidate: 5 of 6 Period: 365.723 d



DV Fit Results:

Period = 365.72271 [0.00449] d
Epoch = 220.2987 [0.0085] BKJD
Rp/R* = 0.0241 [0.0218]
a/R* = 345.03 [1168.17]
b = 0.49 [5.24]
Seff = 12.37 [8.57]
Teq = 478 [83] K
Rp = 11.78 [12.65] Re
a = 0.9429 [0.4502] AU
Ag = 3286.61 [6398.17] [0.51 σ]
Teff = 5599 [2556] K [2.00 σ]

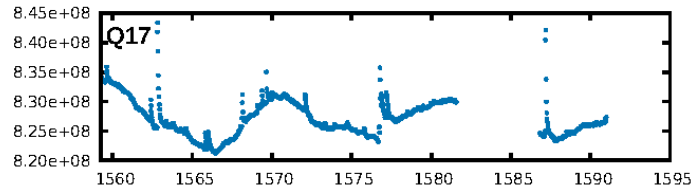
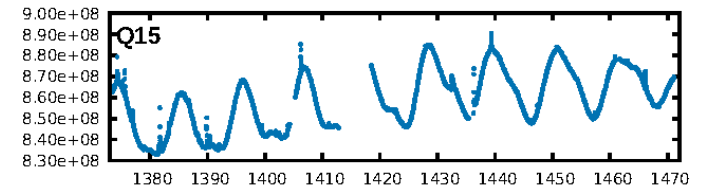
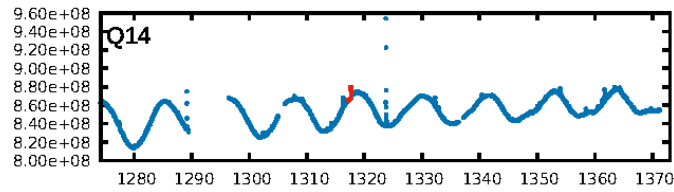
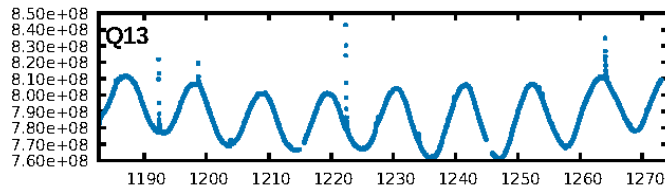
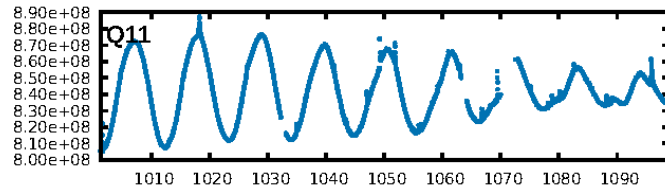
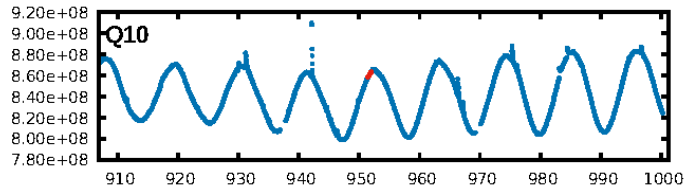
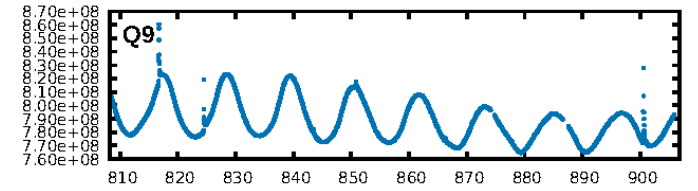
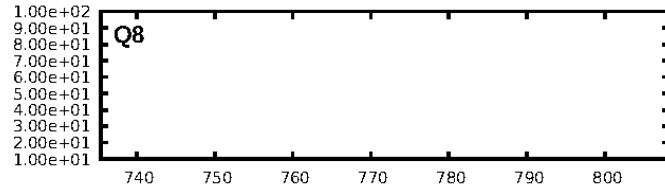
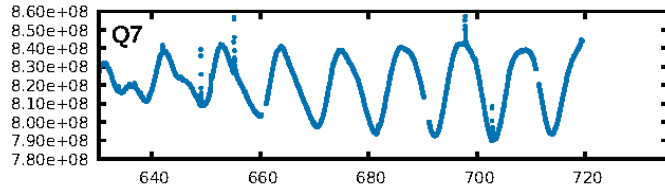
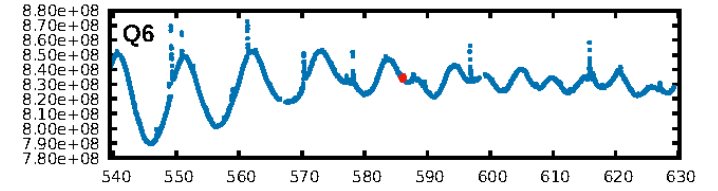
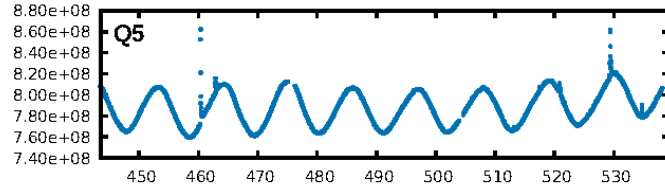
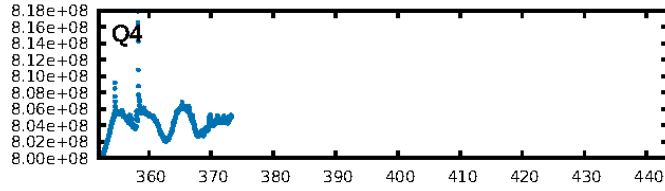
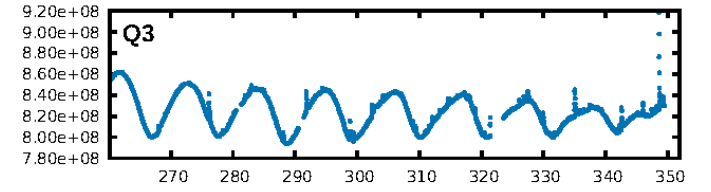
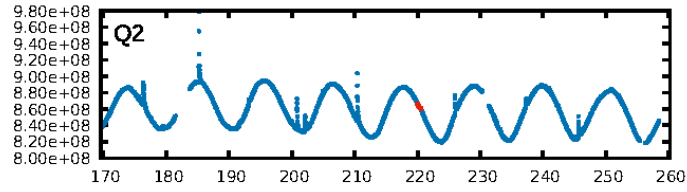
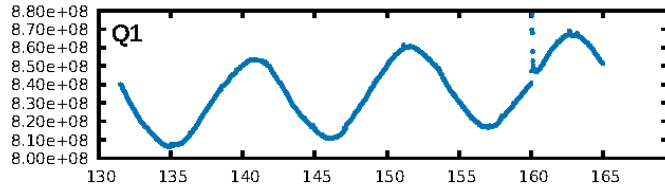
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [90.39 σ]
LongPeriod-sig: 100.0% [41.30 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 64.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.7652
Centroid-sig: 7.0%
Centroid-so: 0.648 arcsec [2.58 σ]
OotOffset-rm: 0.400 arcsec [2.31 σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

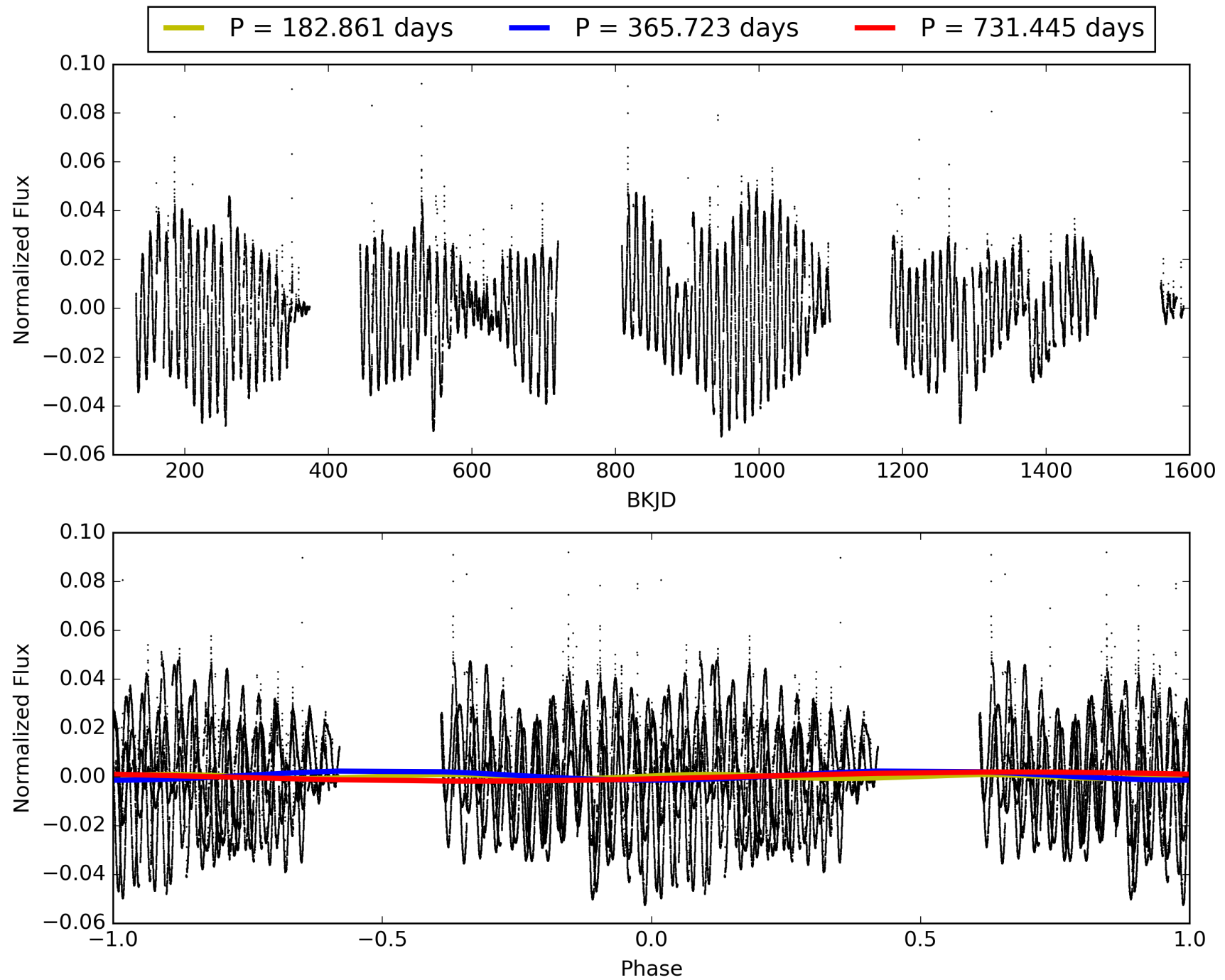
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:12:18 Z

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

TCE 011551404-05, PDC Light Curves

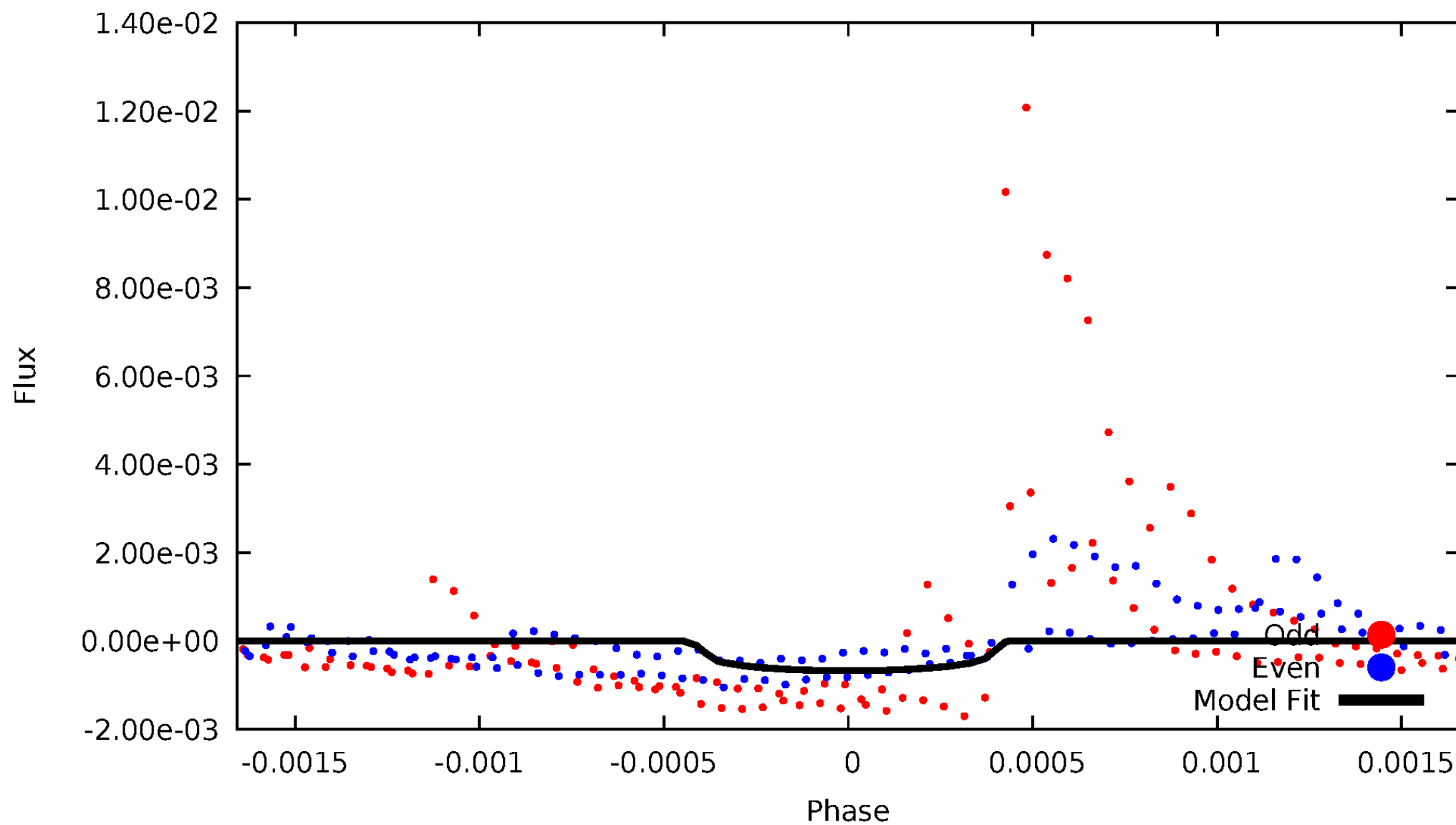


TCE 011551404-05



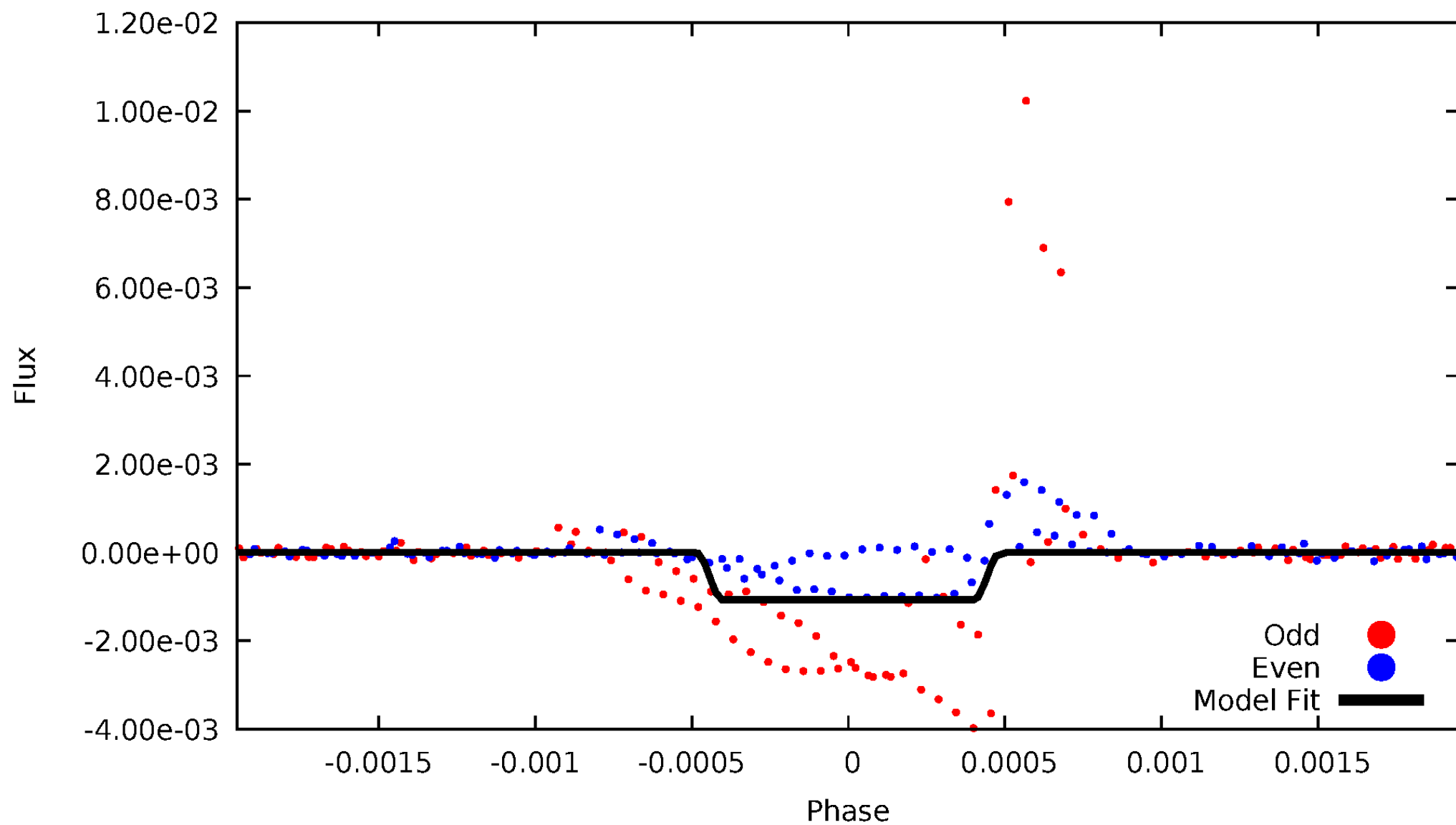
DV Odd/Even

TCE 011551404-05



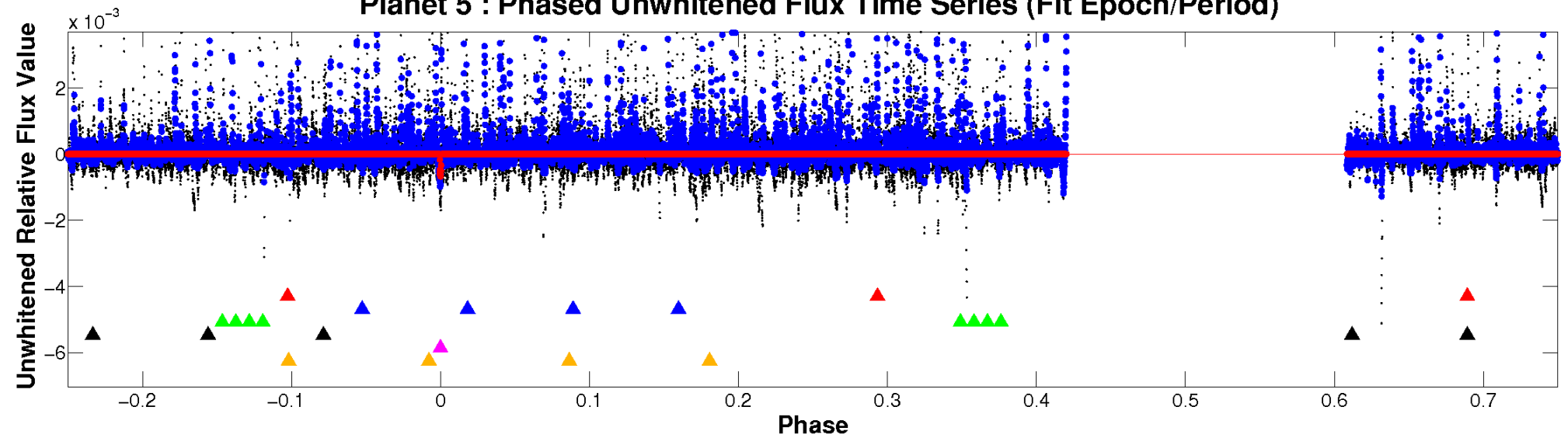
ALT Odd/Even

TCE 011551404-05

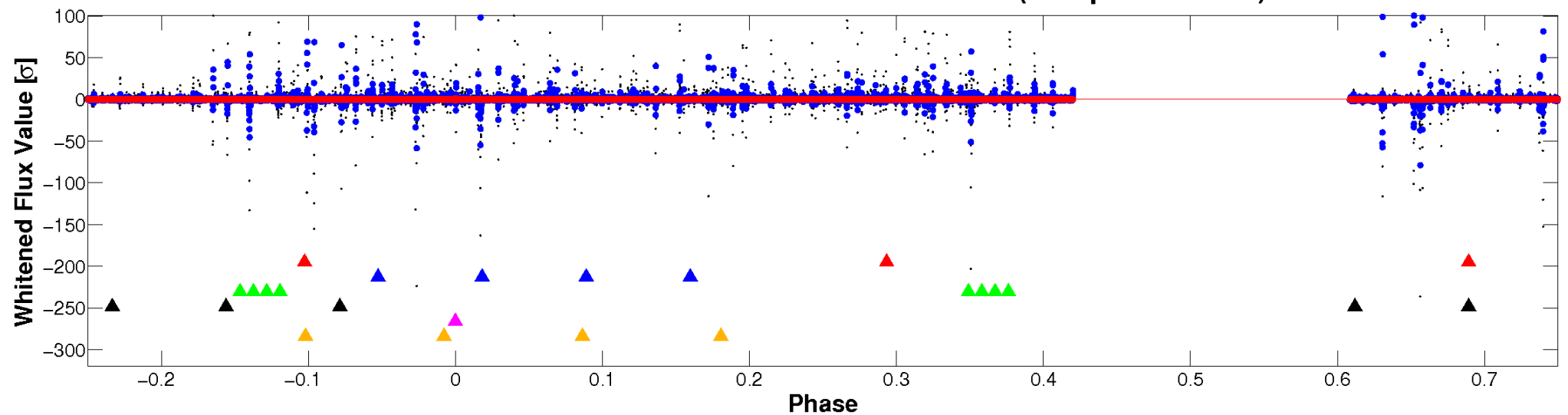


Non-Whitened Vs. Whitened Light Curve

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

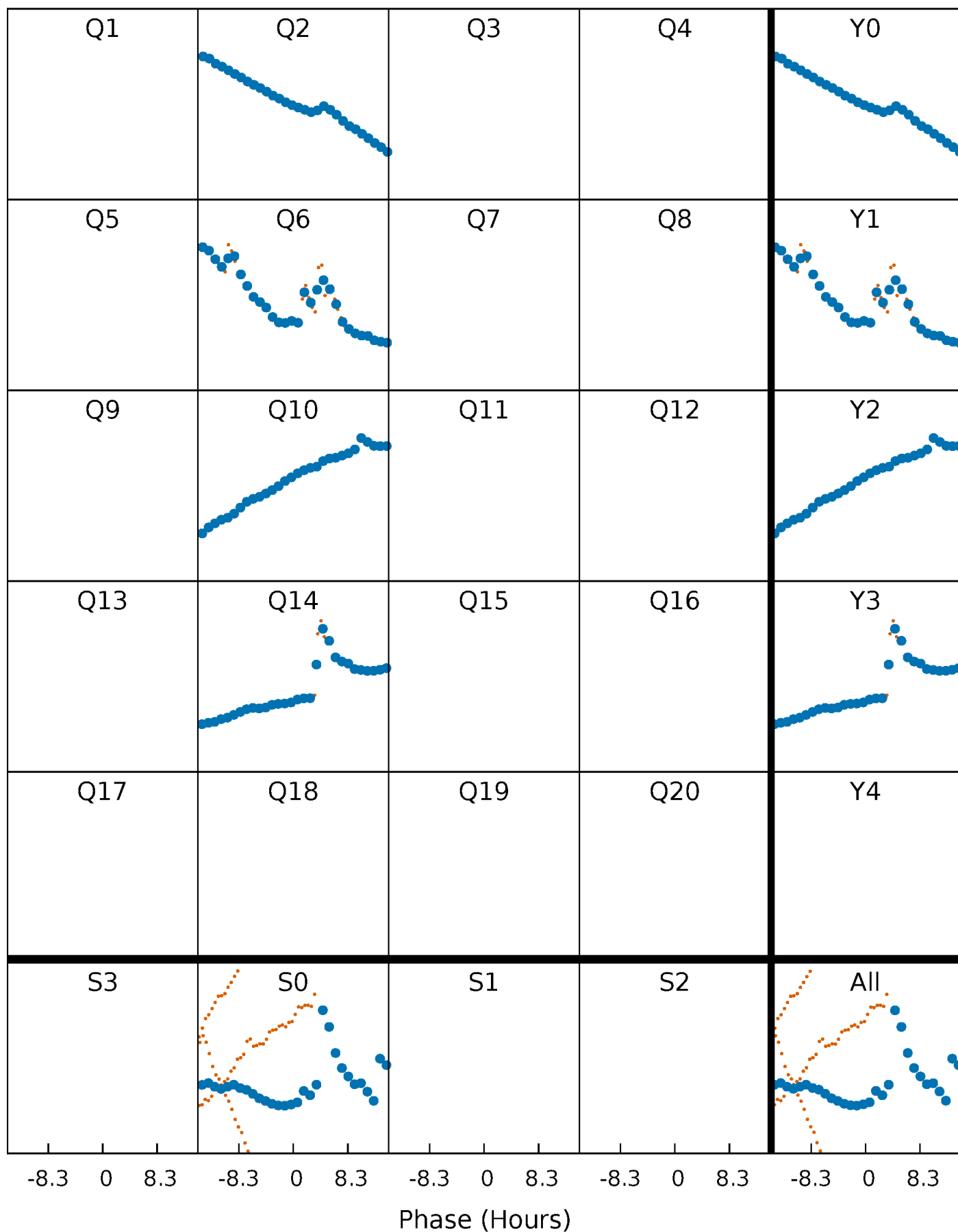


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



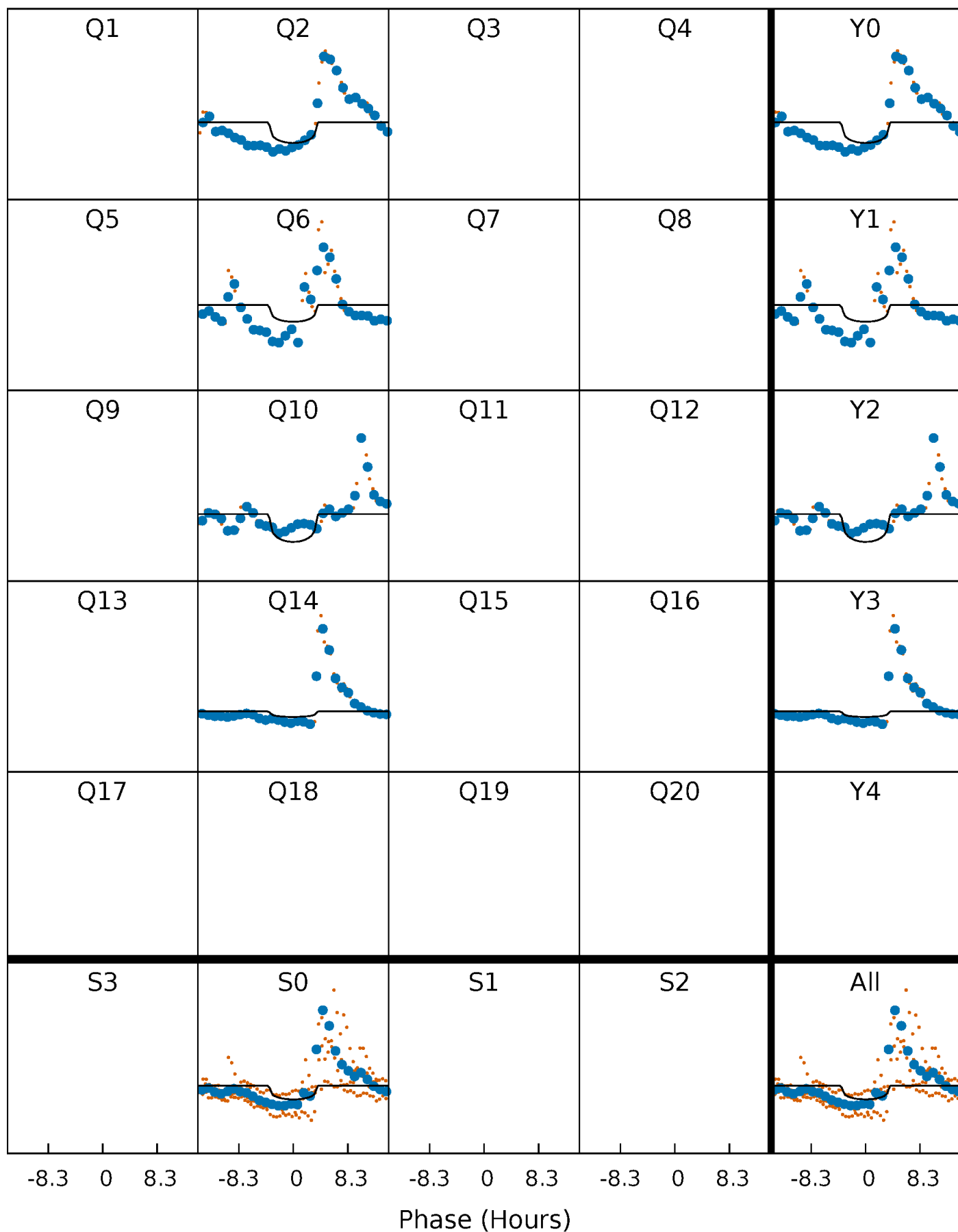
PDC Quarter-Phased Transit Curves

TCE 011551404-05 $P=365.722710$ Days $T_0=220.298715$ (BKJD)



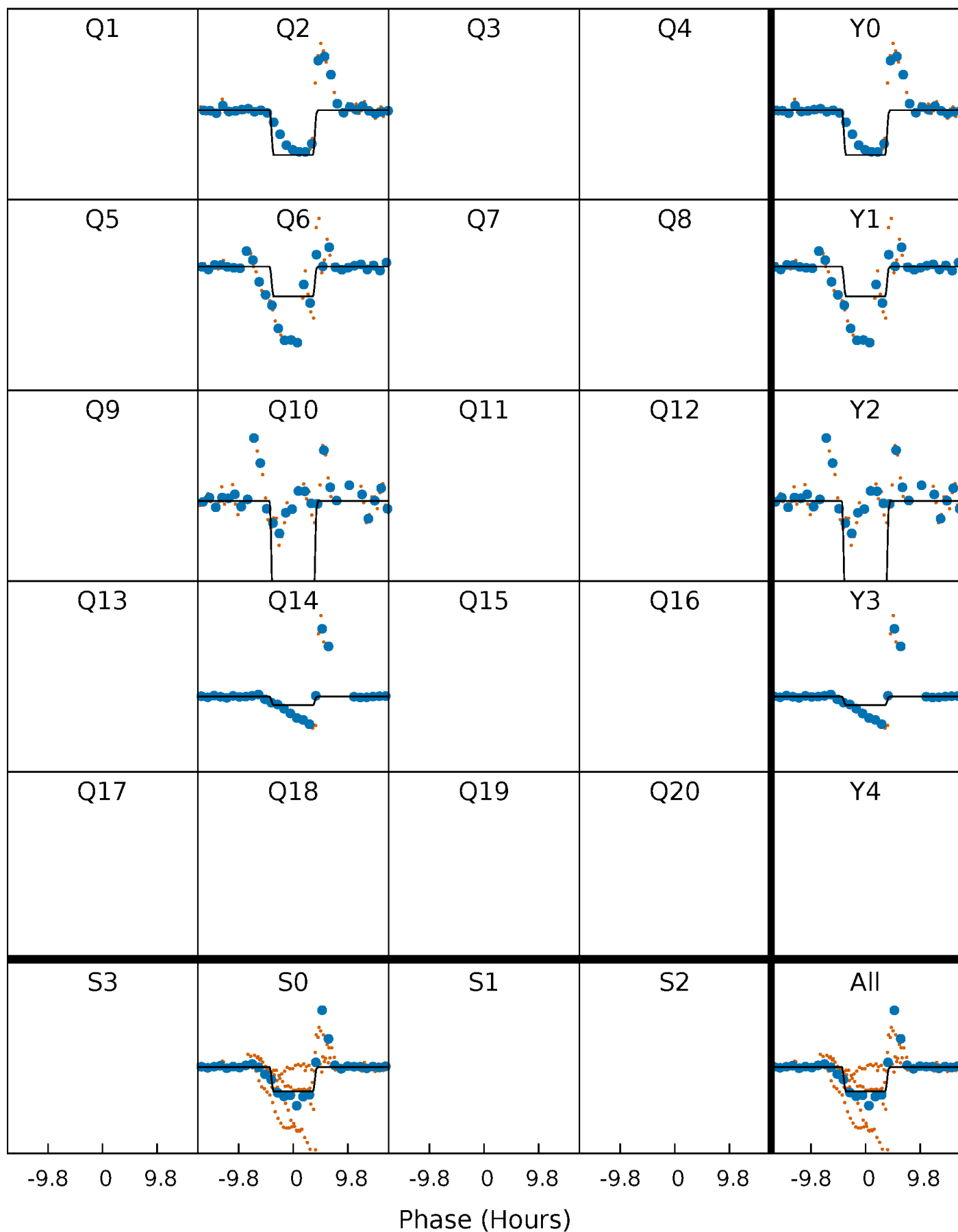
DV Quarter-Phased Transit Curves

TCE 011551404-05 $P=365.722710$ Days $T_0=220.298715$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

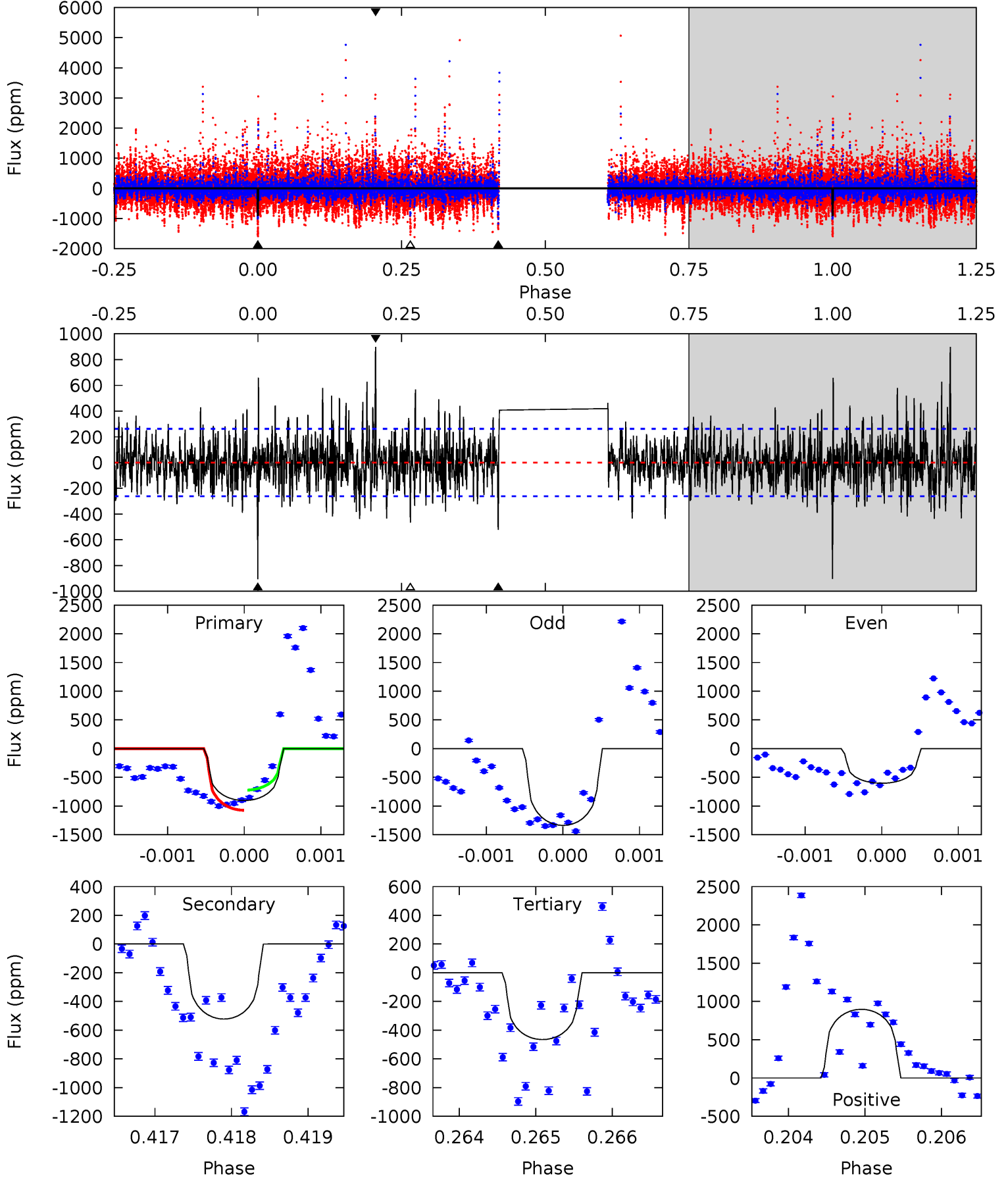
TCE 011551404-05 $P=365.713046$ Days $T_0=220.296601$ (BKJD)



DV Model-Shift Uniqueness Test

011551404-05, P = 365.722710 Days, E = 220.298715 Days

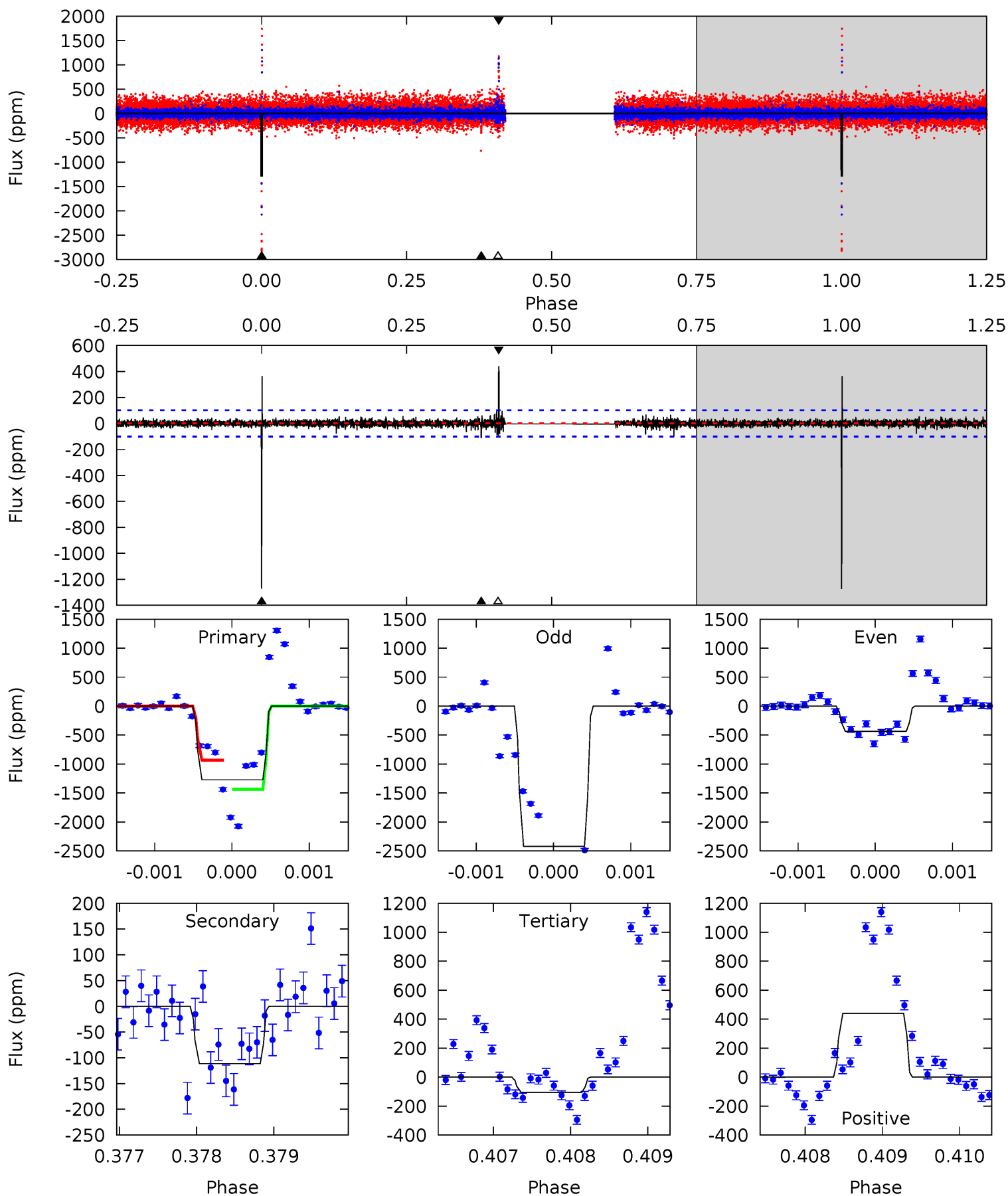
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	11.0	9.76	18.8	5.48	3.34	2.94	9.20	0.15	1.20	-7.86	2.84	1.02	0.50	3.72



Alt Model-Shift Uniqueness Test

011551404-05, P = 365.713046 Days, E = 220.296601 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
68.7	6.01	5.64	23.7	5.45	3.29	0.97	63.0	44.9	0.37	-17.7	62.8	0.93	0.26	0



Stellar Parameters For KIC 011551404

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4975^{+138}_{-100}	$3.058^{+0.368}_{-0.301}$	$-0.520^{+0.300}_{-0.200}$	$4.477^{+2.585}_{-1.392}$	$0.836^{+0.366}_{-0.019}$	$0.013^{+0.030}_{-0.009}$
	+3%/-2%	+12%/-10%	+58%/-38%	+58%/-31%	+44%/-2%	+225%/-70%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011551404-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-523 ± 48	$14.18^{+11.90}_{-8.97}$	666^{+87}_{-70}	4532^{+2648}_{-781}	1376^{+8316}_{-968}
Alt.	-111 ± 19	$16.87^{+12.18}_{-9.64}$	661^{+85}_{-72}	3271^{+1063}_{-444}	203^{+902}_{-132}

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 $A_{obs} \gg 1.0$

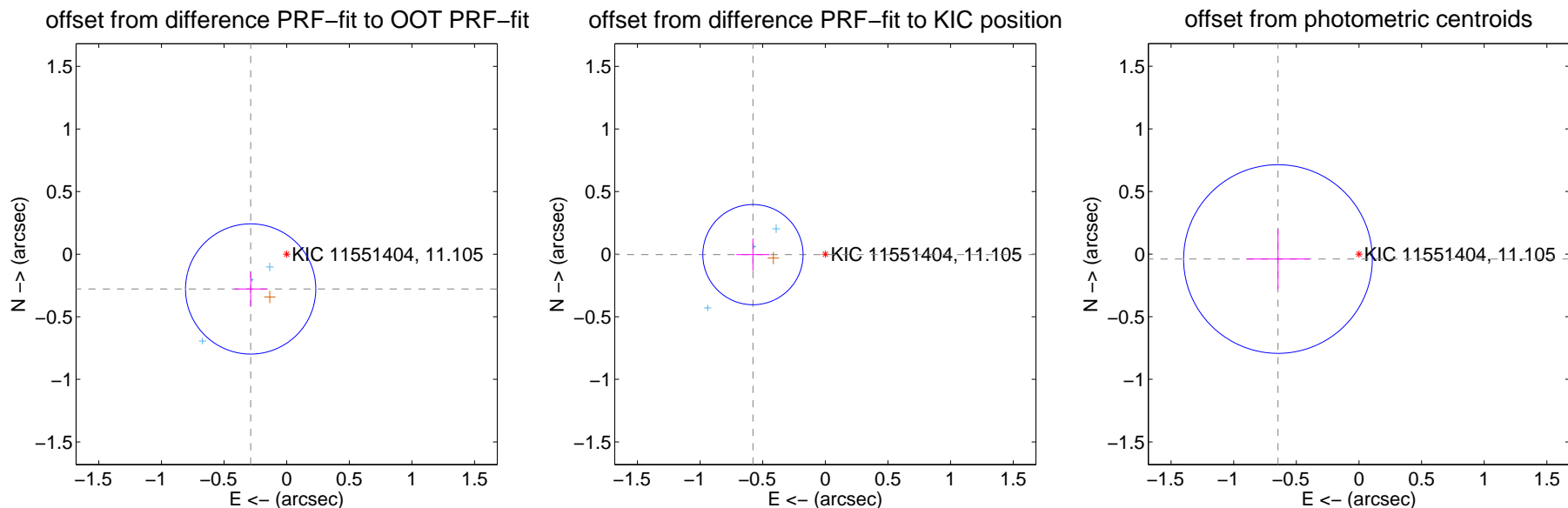
DV Centroid Data

Supplemental centroid analysis for 011551404-05. **Kepler magnitude: 11.11.** Transit SNR 6.00

There are 3 quarters with good PRF difference image offsets

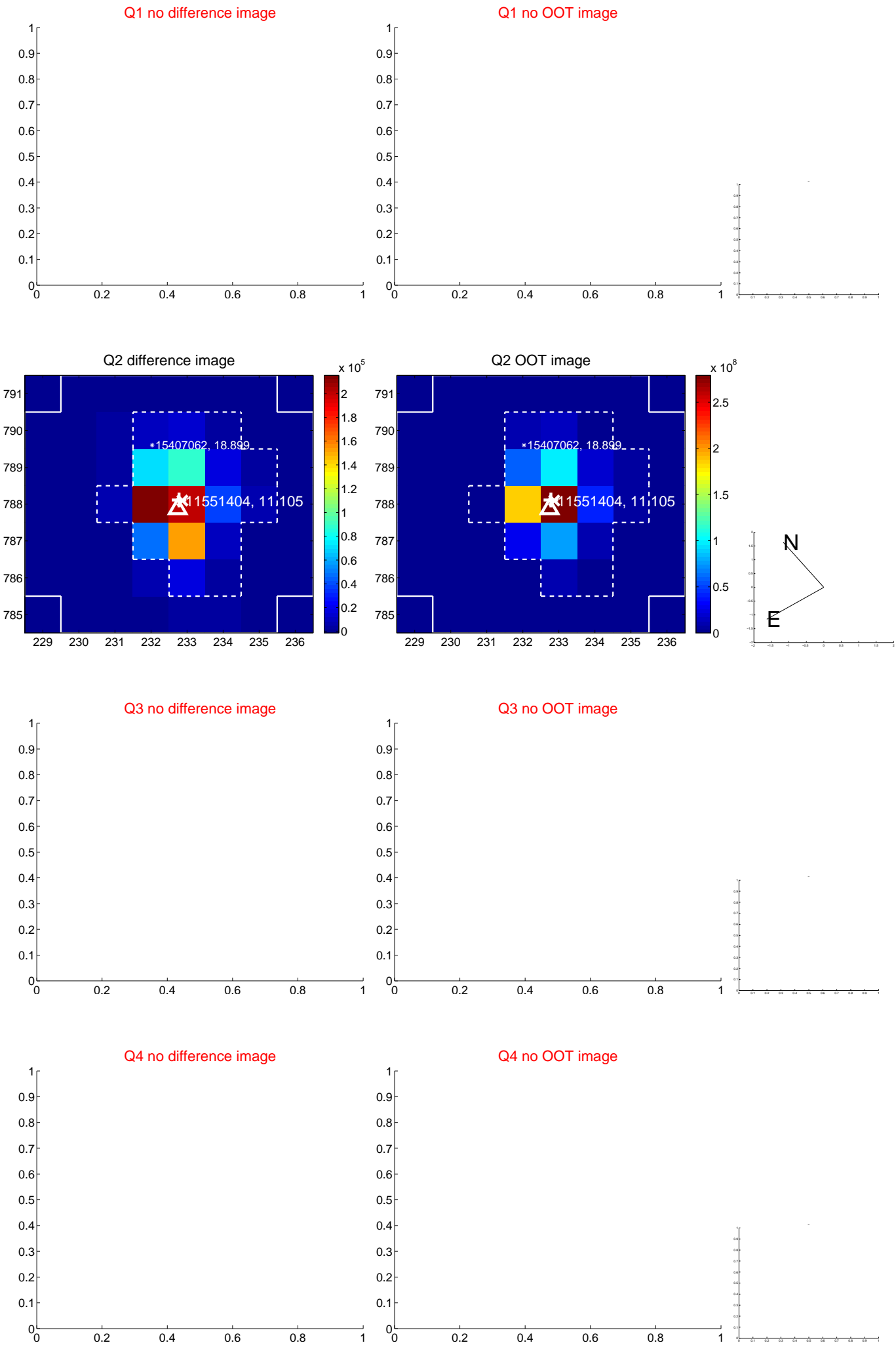
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.400 ± 0.173	2.31	0.288 ± 0.130	-0.278 ± 0.138
PRF-fit source offset from KIC position	0.578 ± 0.133	4.33	0.578 ± 0.133	-0.004 ± 0.129
photometric centroid source offset	0.65 ± 0.25	2.58	0.65 ± 0.25	-0.04 ± 0.24

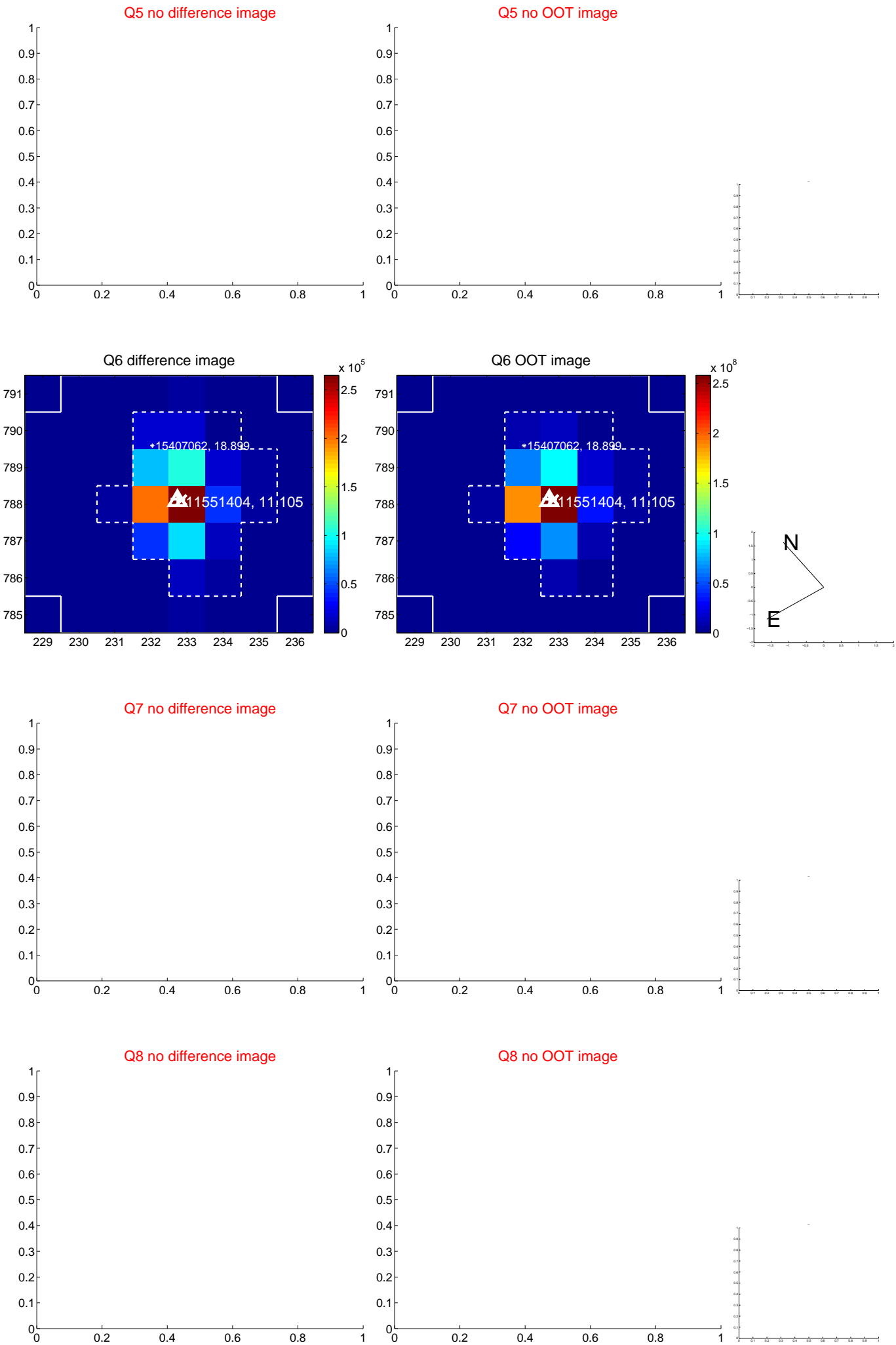


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

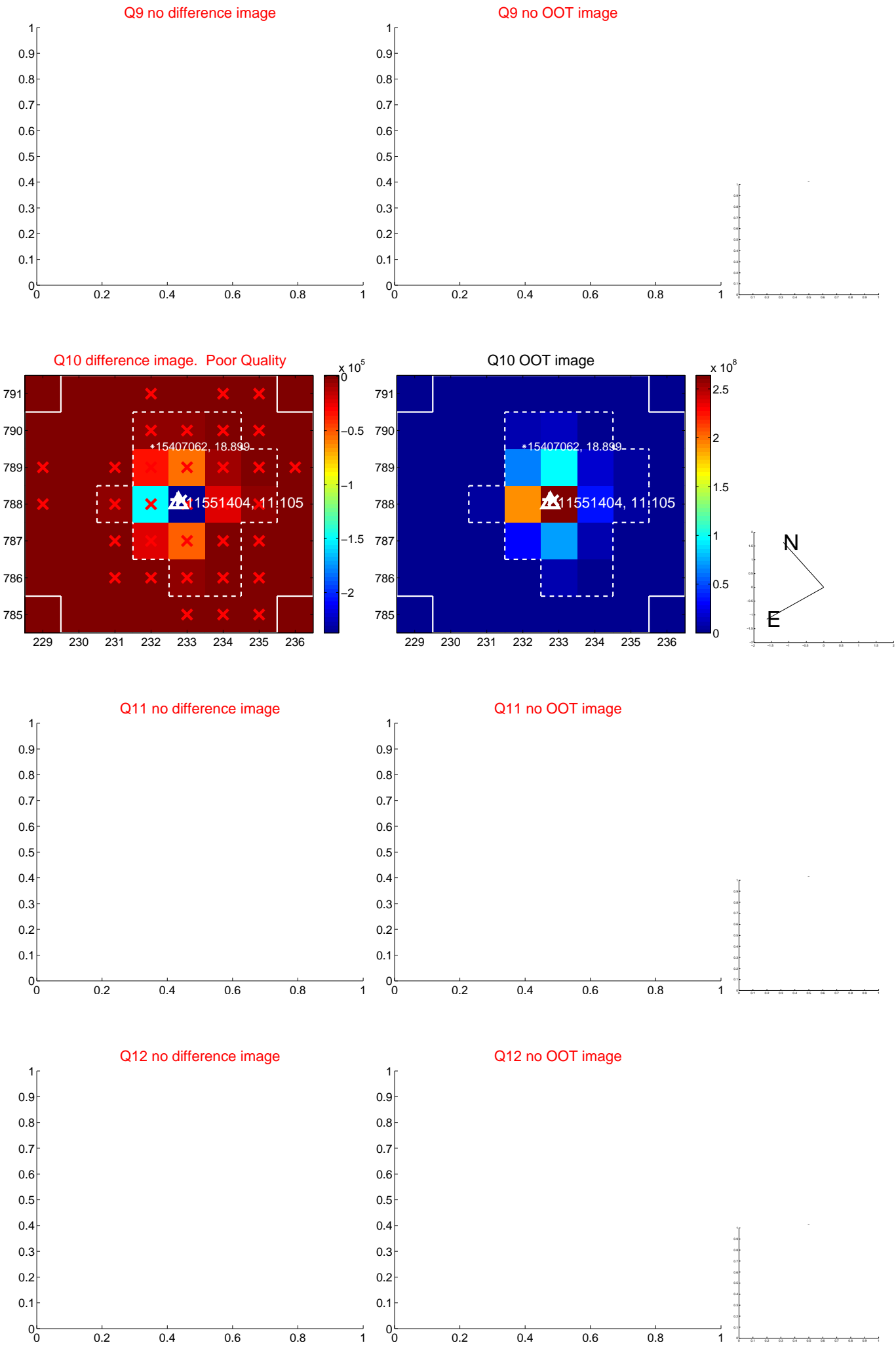
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

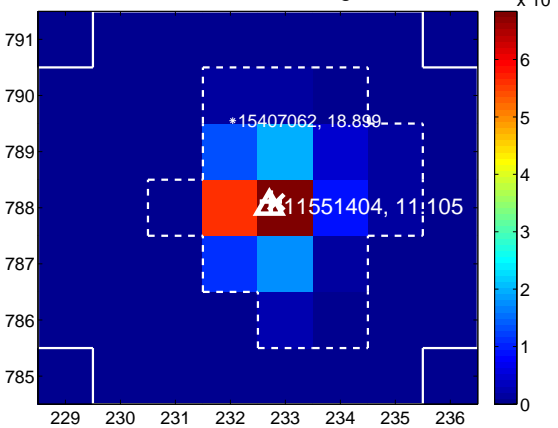
Q13 no difference image



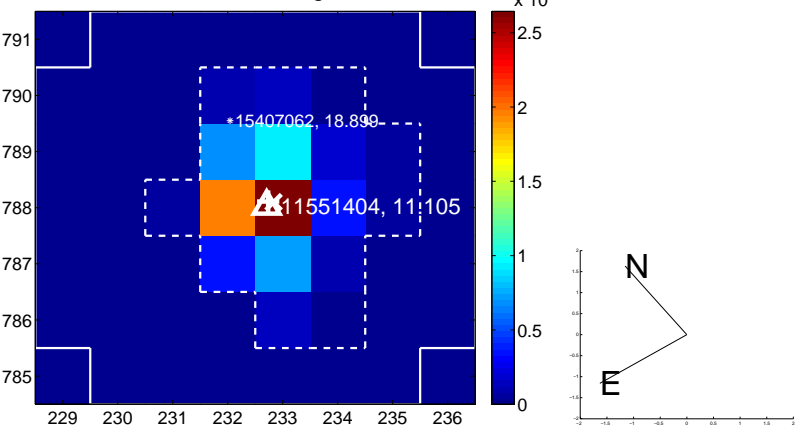
Q13 no OOT image



Q14 difference image



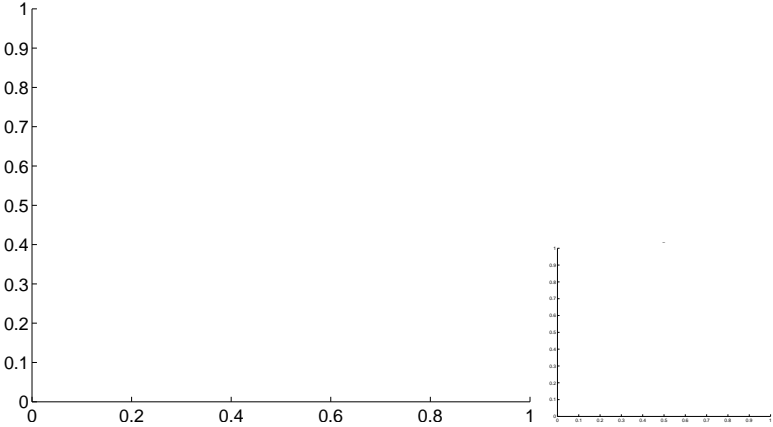
Q14 OOT image



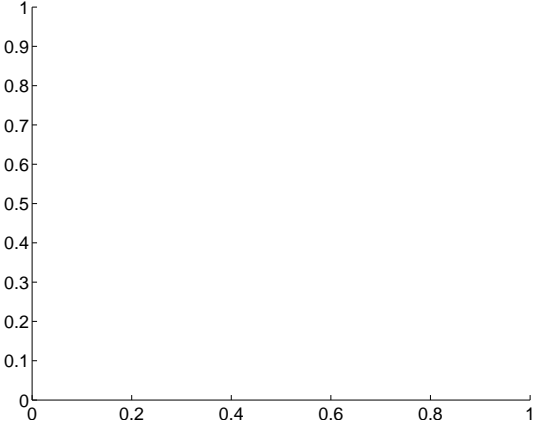
Q15 no difference image



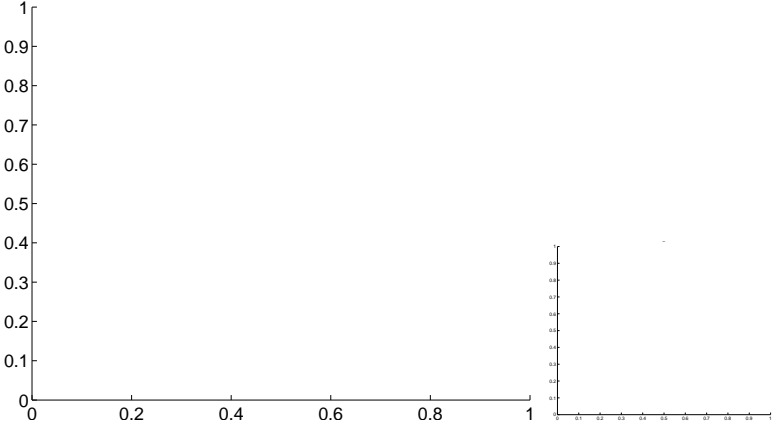
Q15 no OOT image



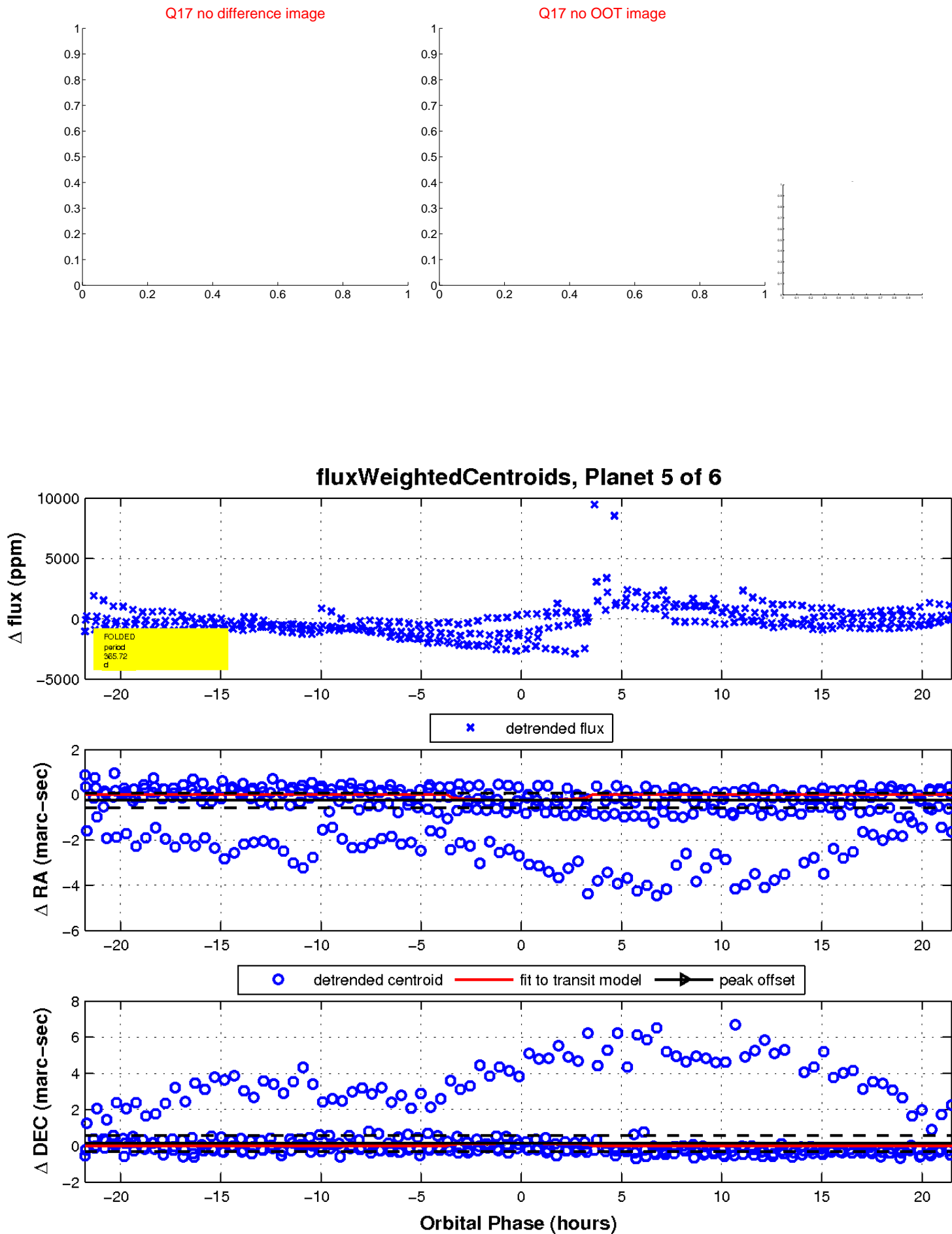
Q16 no difference image



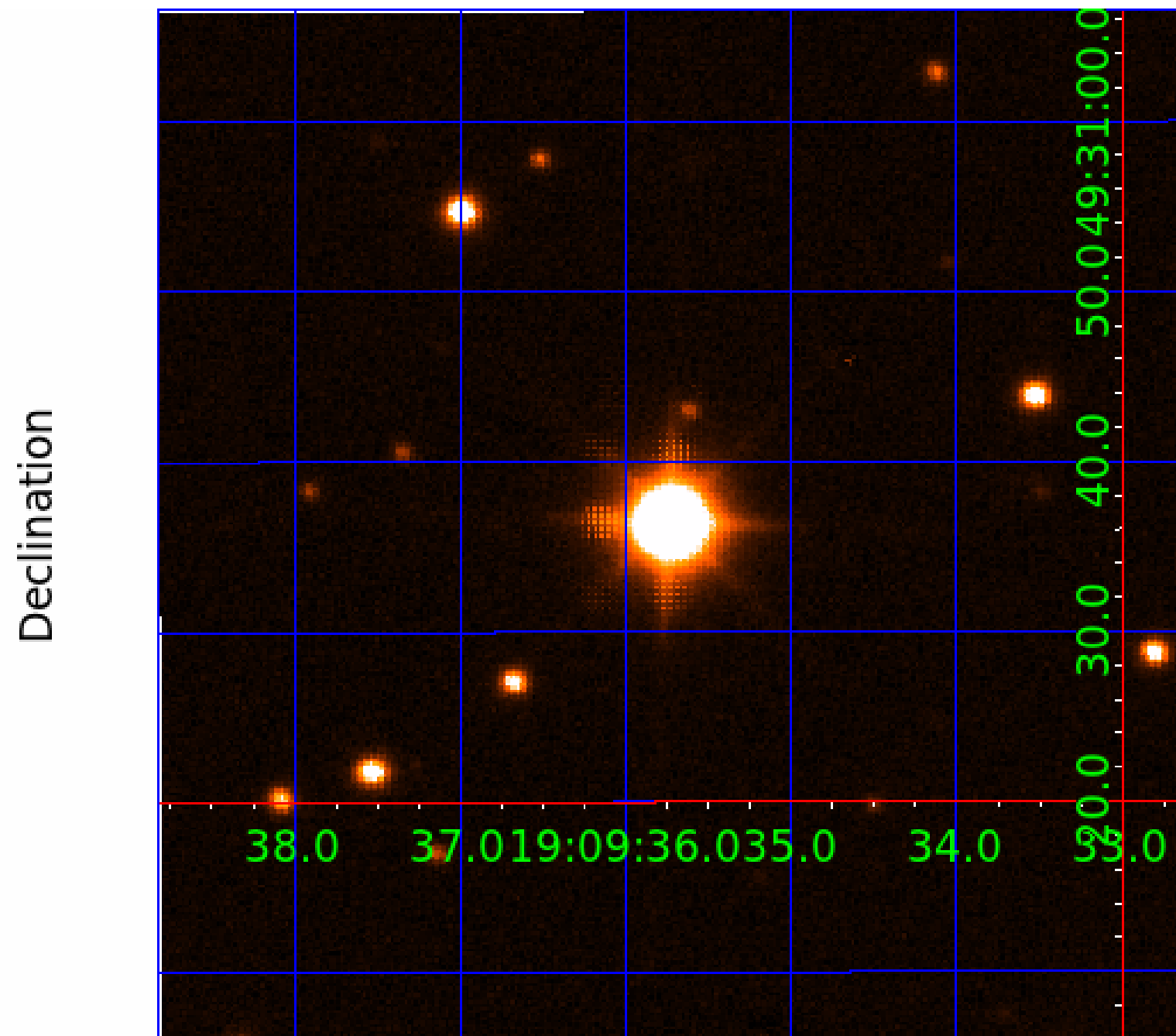
Q16 no OOT image



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



UKIRT Image



KIC 011551404

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})
011551404-01	OBS	No	510.512653	548.514664	1316.8	8.113	21.4	9.0	4.48	4975	20.97	7.93
011551404-02	OBS	No	391.612704	201.075397	1231.6	13.171	77.8	7.9	4.48	4975	19.36	11.30
011551404-03	OBS	No	181.205000	176.686430	468.9	3.413	11.2	8.1	4.48	4975	9.45	31.56
011551404-04	OBS	No	337.420270	191.560536	825.2	1.902	17.8	12.9	4.48	4975	13.34	13.78
011551404-05	OBS	No	365.722710	220.298715	676.9	7.270	12.5	6.0	4.48	4975	11.78	12.37
011551404-06	OBS	No	400.164028	183.030810	223.9	4.500	17.4	-1.0	4.48	4975	6.54	10.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011551404-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011551404-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011551404-05	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
011551404-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

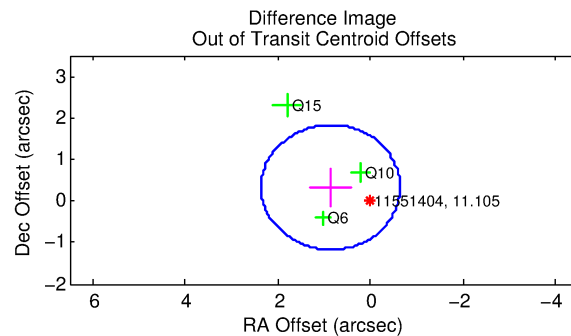
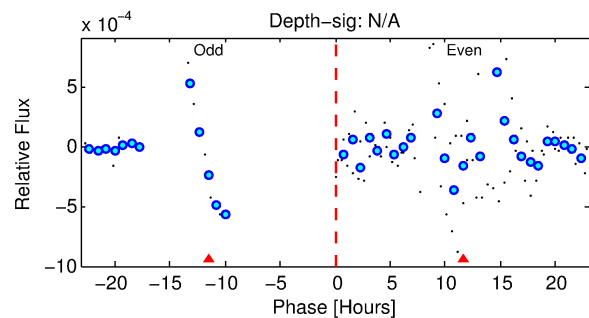
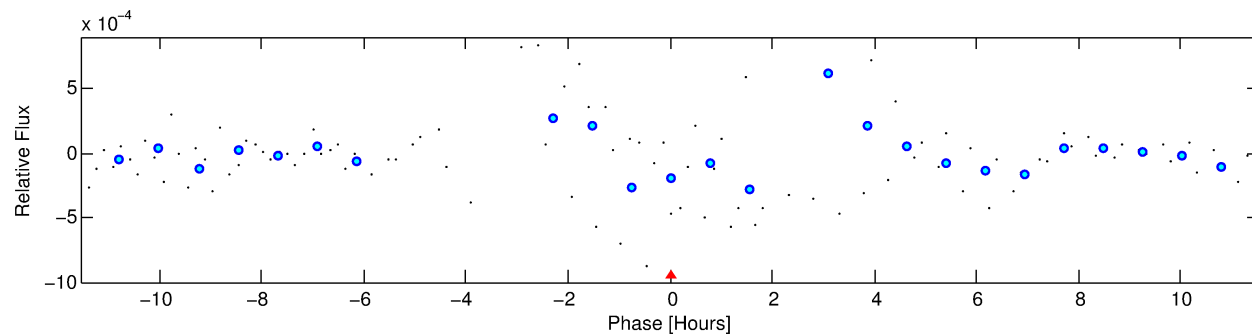
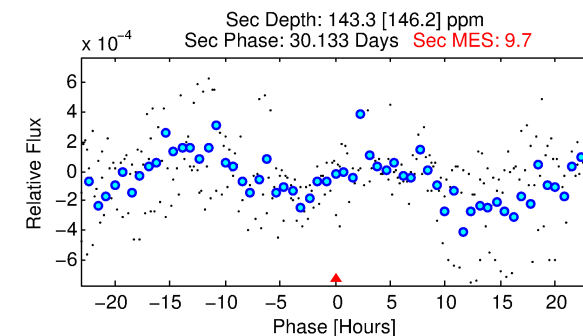
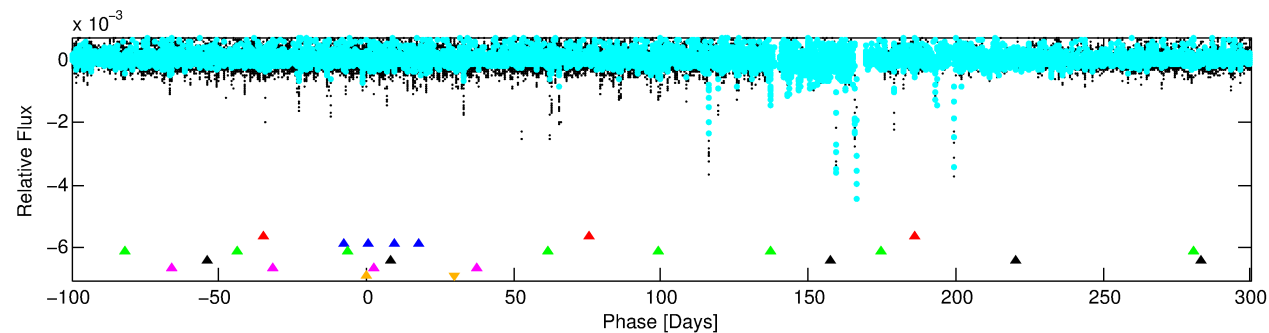
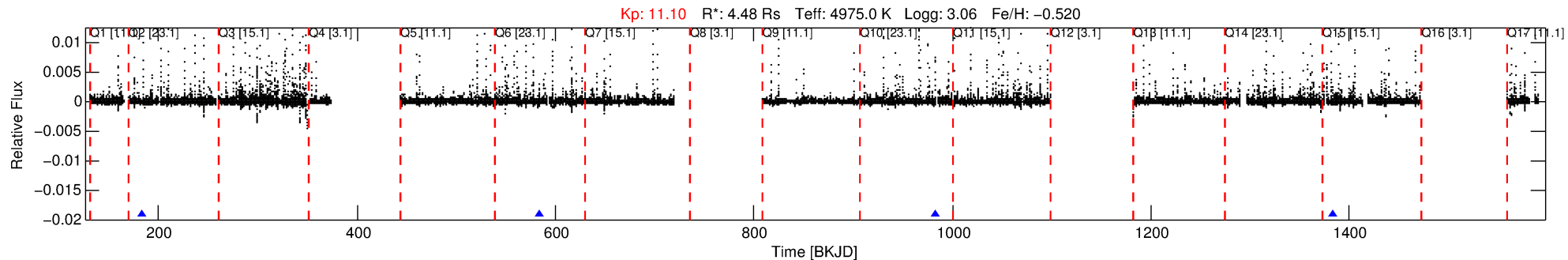
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011551404-06

No Significant Match Found

DV One-Page Summary

KIC: 11551404 Candidate: 6 of 6 Period: 400.164 d



TPS TCE Results:

Period = 400.16403 d
Epoch = 183.0308 BKJD

DV fit results are unavailable

DV Diagnostic Results:

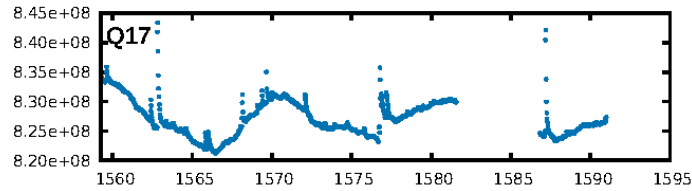
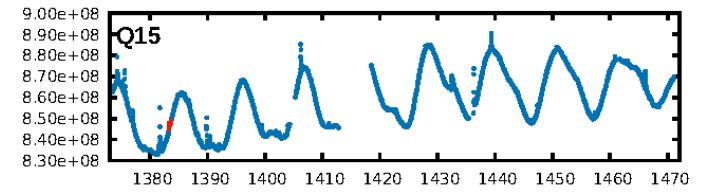
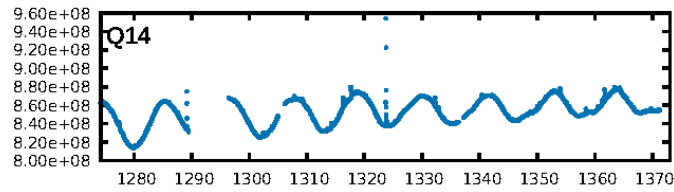
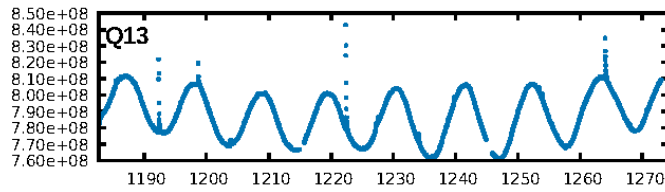
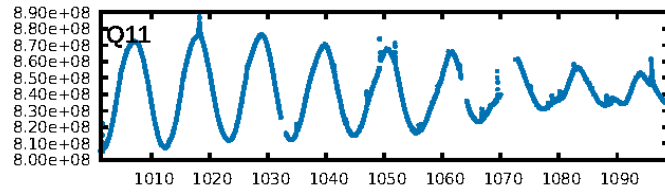
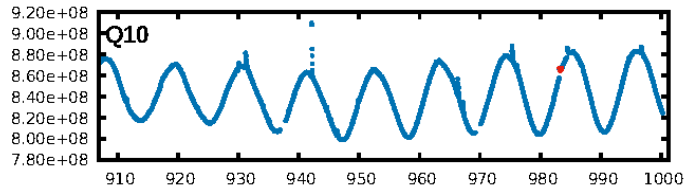
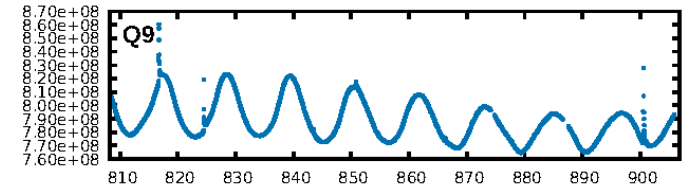
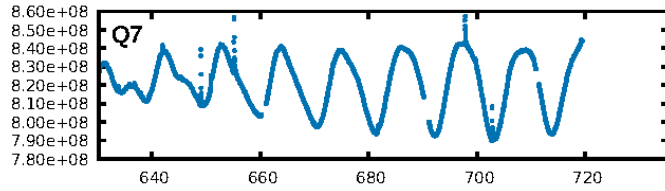
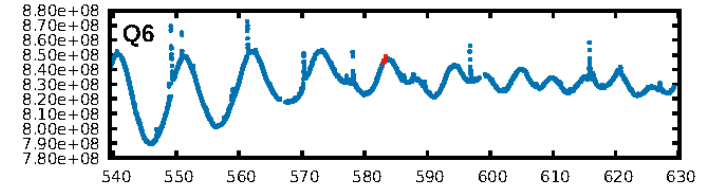
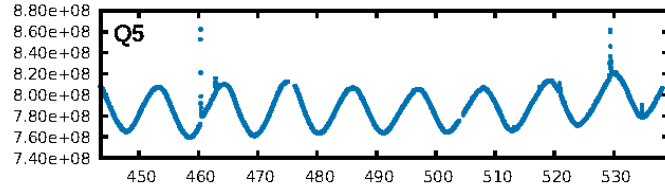
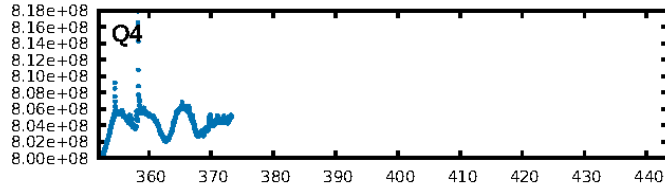
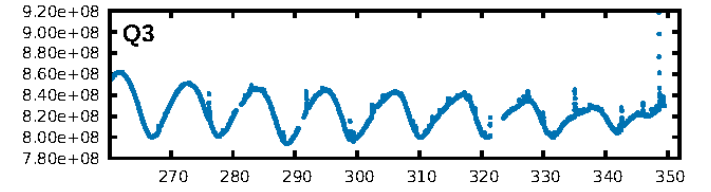
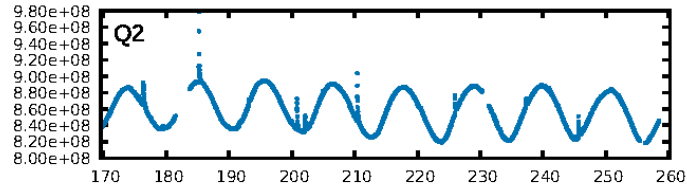
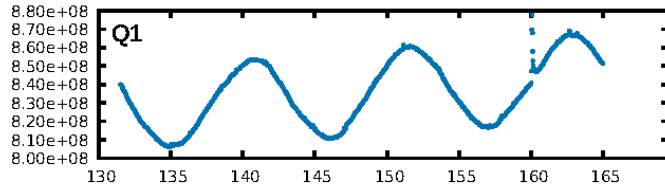
ShortPeriod-sig: 100.0% [14.75 σ]
LongPeriod-sig: 100.0% [285.46 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 3.647

Centroid-sig: 6.9%
Centroid-so: 0.374 arcsec [10.23 σ]
OotOffset-rm: 0.923 arcsec [1.84 σ]
KicOffset-rm: 1.311 arcsec [2.37 σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

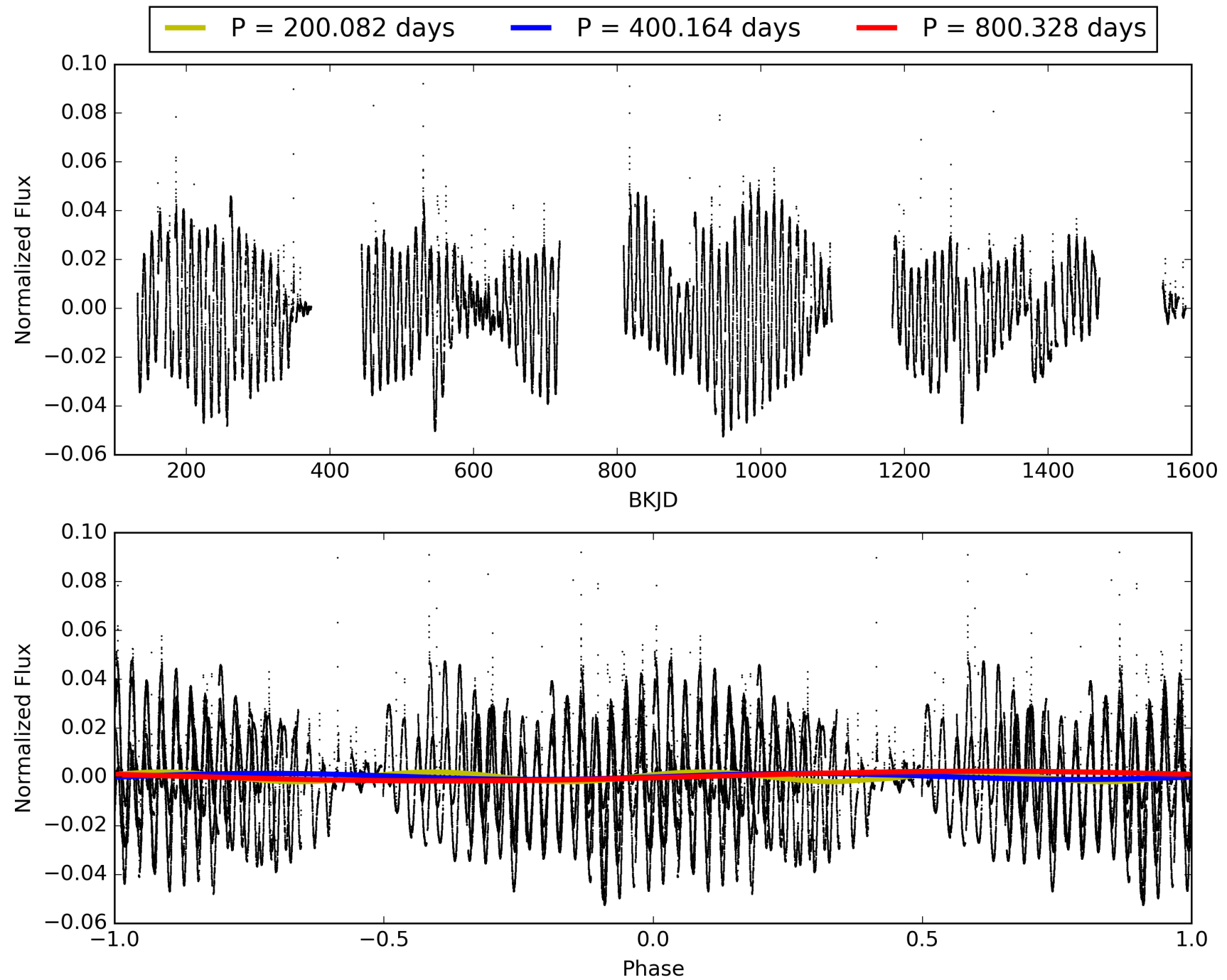
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:12:31 Z

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

TCE 011551404-06, PDC Light Curves

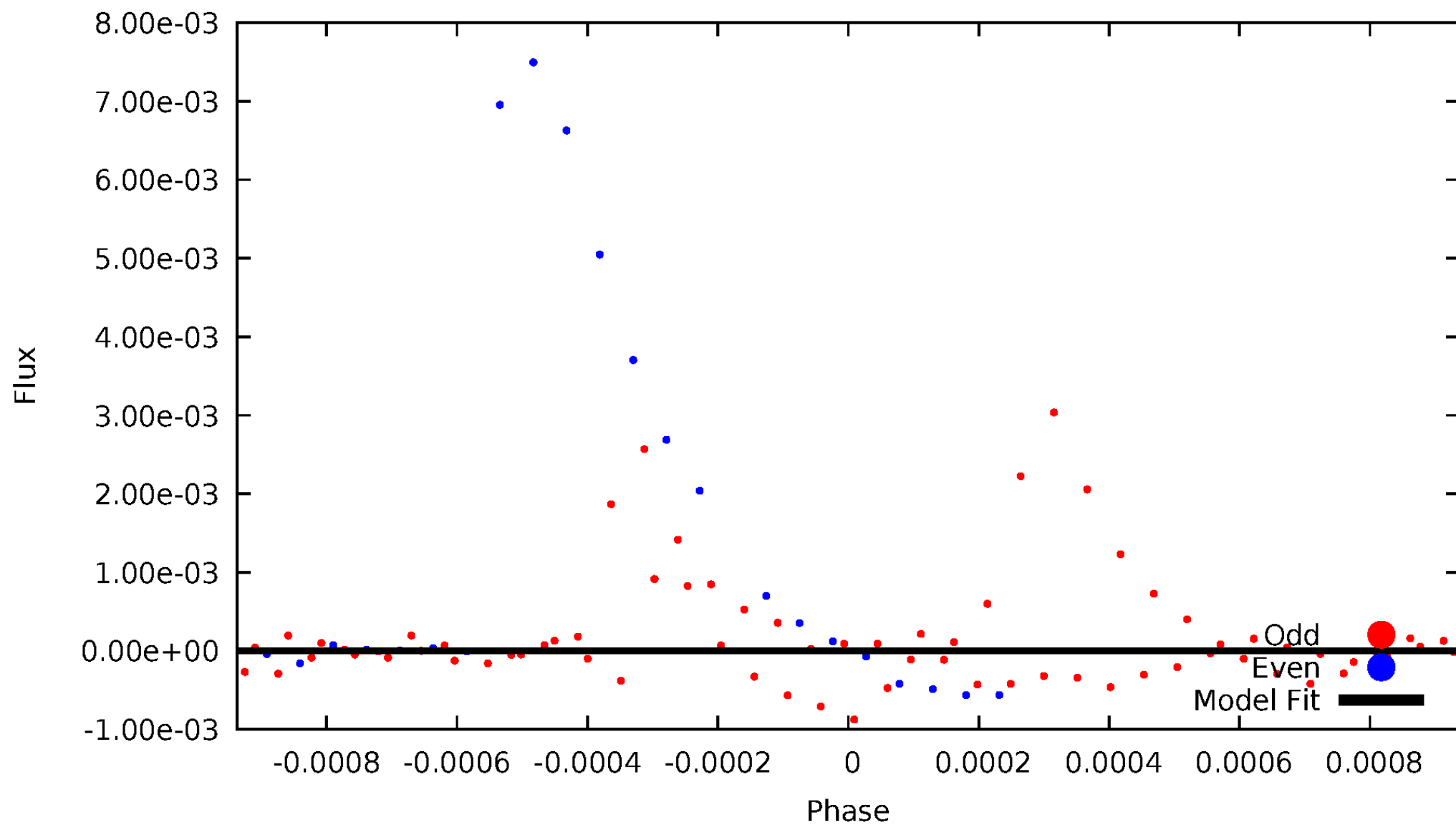


TCE 011551404-06



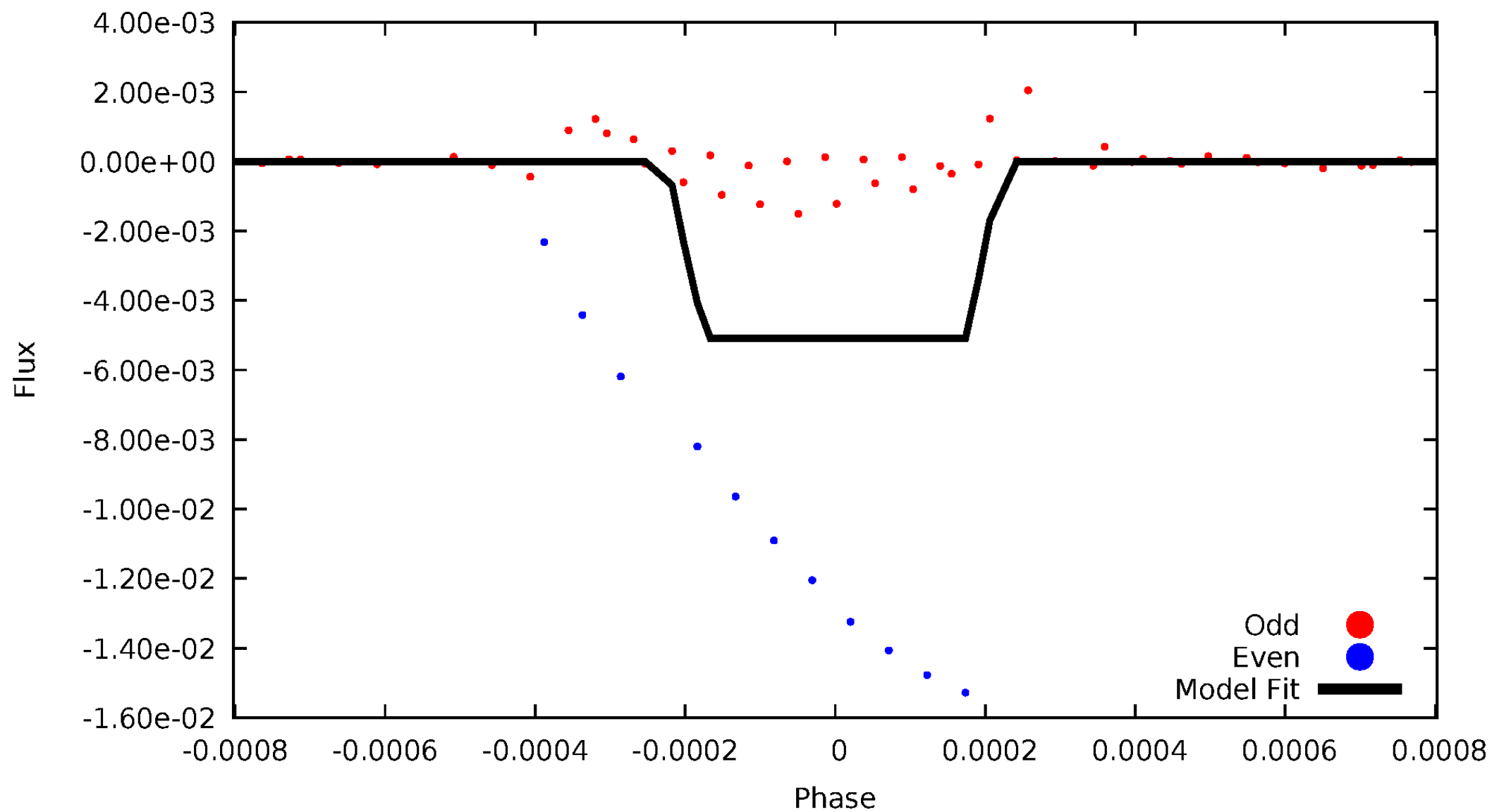
DV Odd/Even

TCE 011551404-06

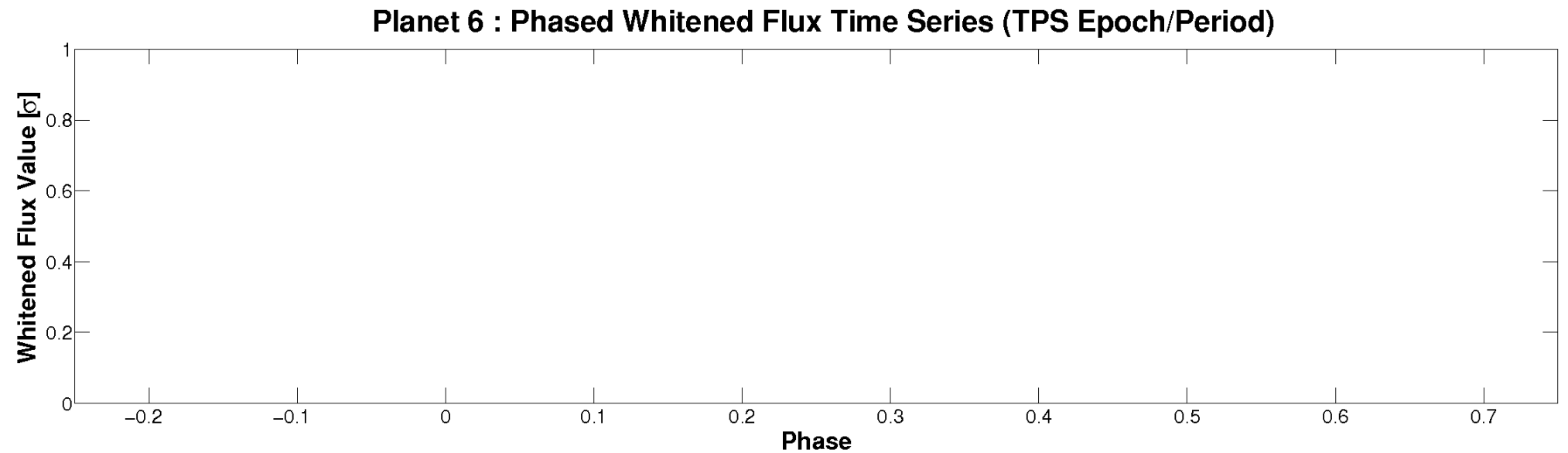
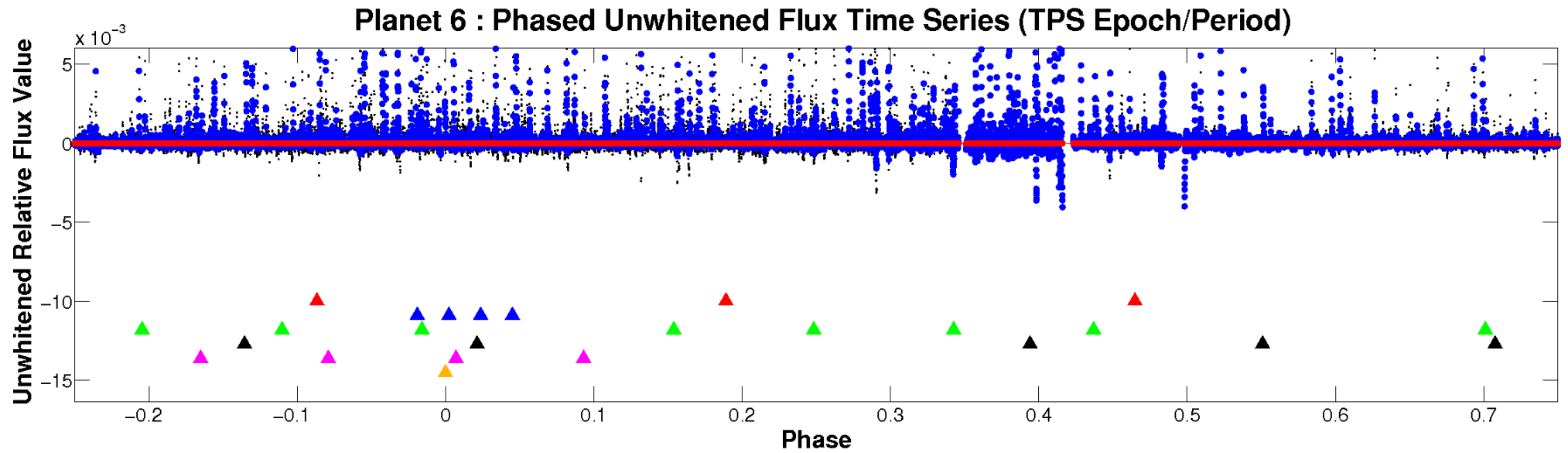


ALT Odd/Even

TCE 011551404-06

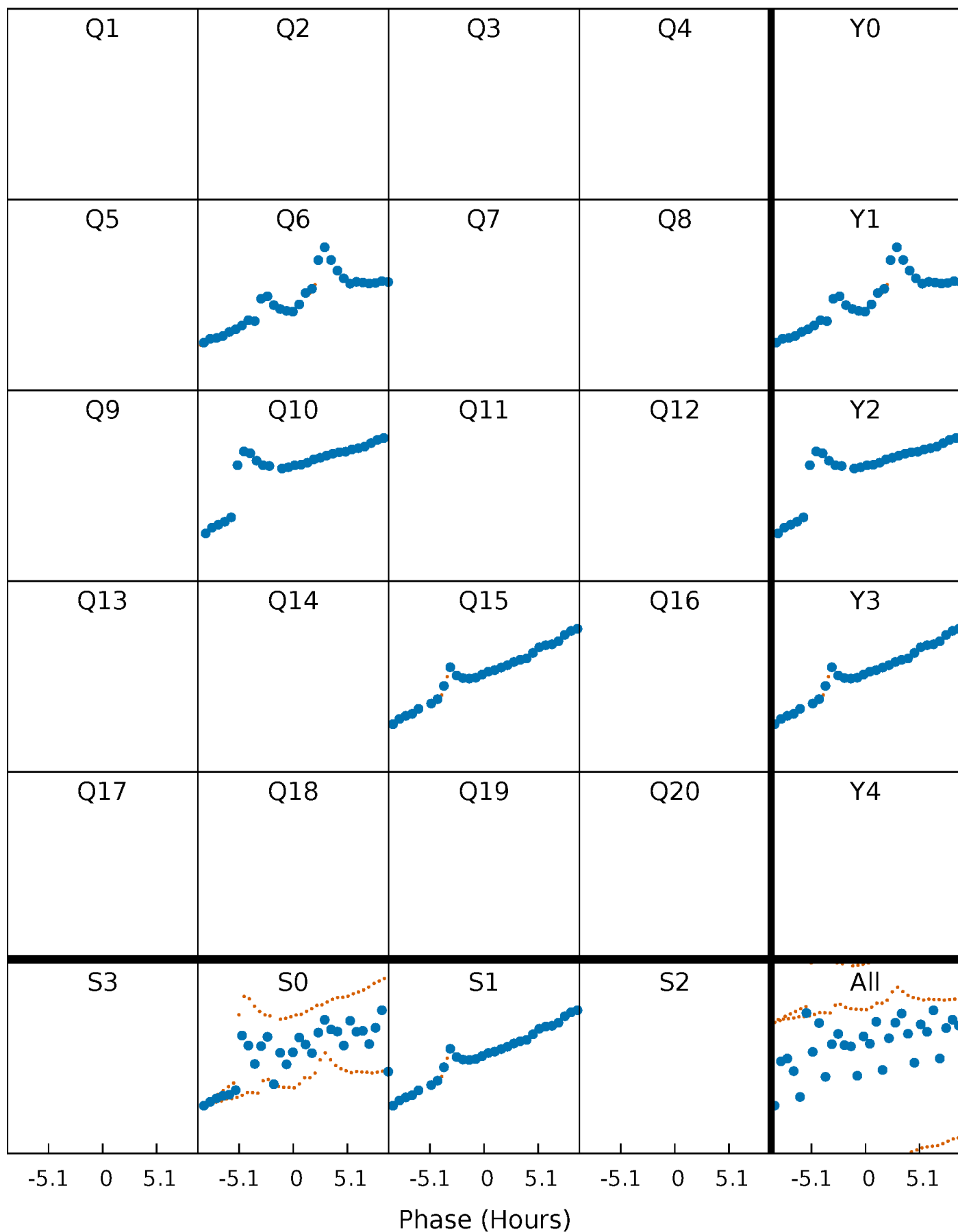


Non-Whitened Vs. Whitened Light Curve



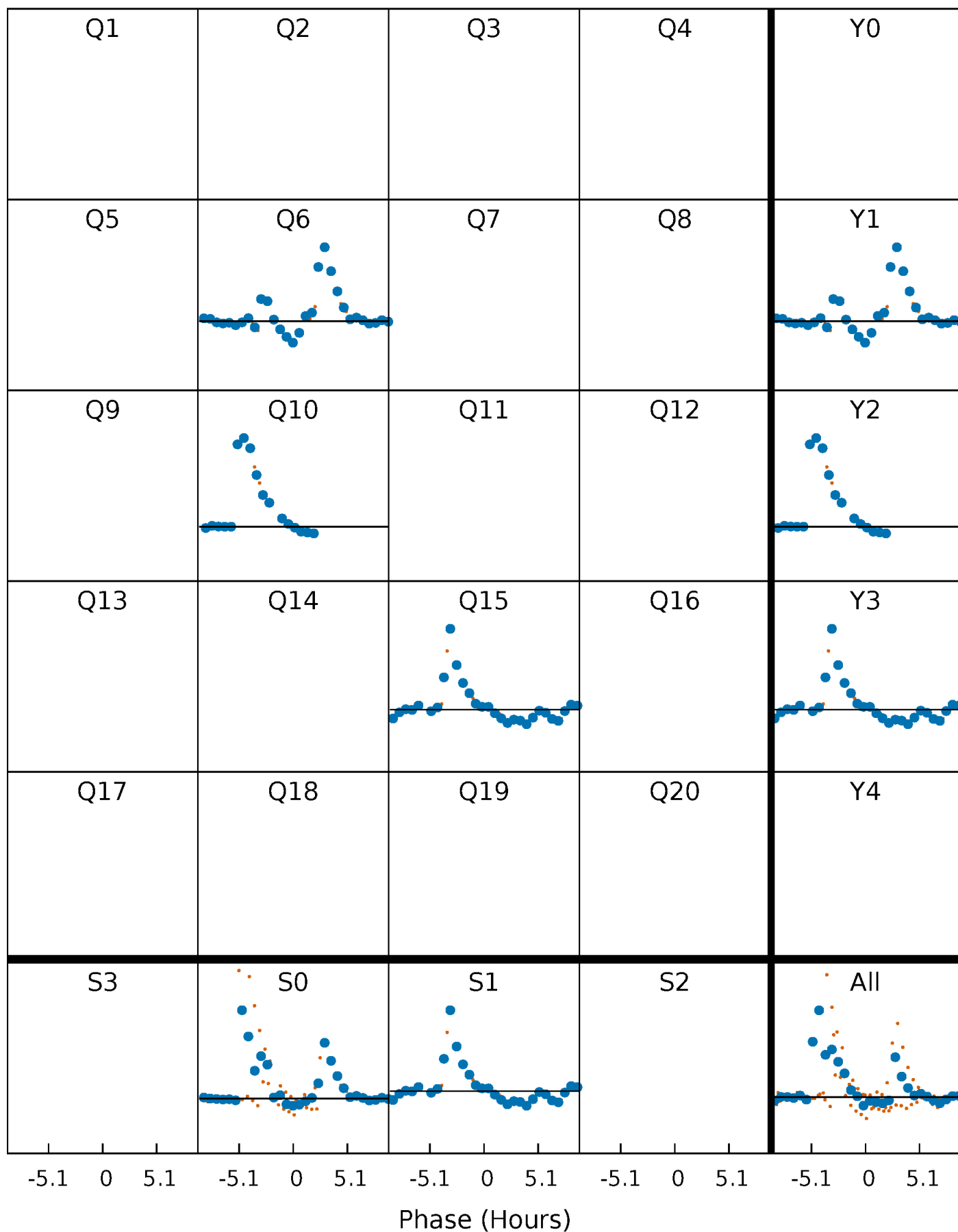
PDC Quarter-Phased Transit Curves

TCE 011551404-06 P=400.164028 Days $T_0=183.030810$ (BKJD)



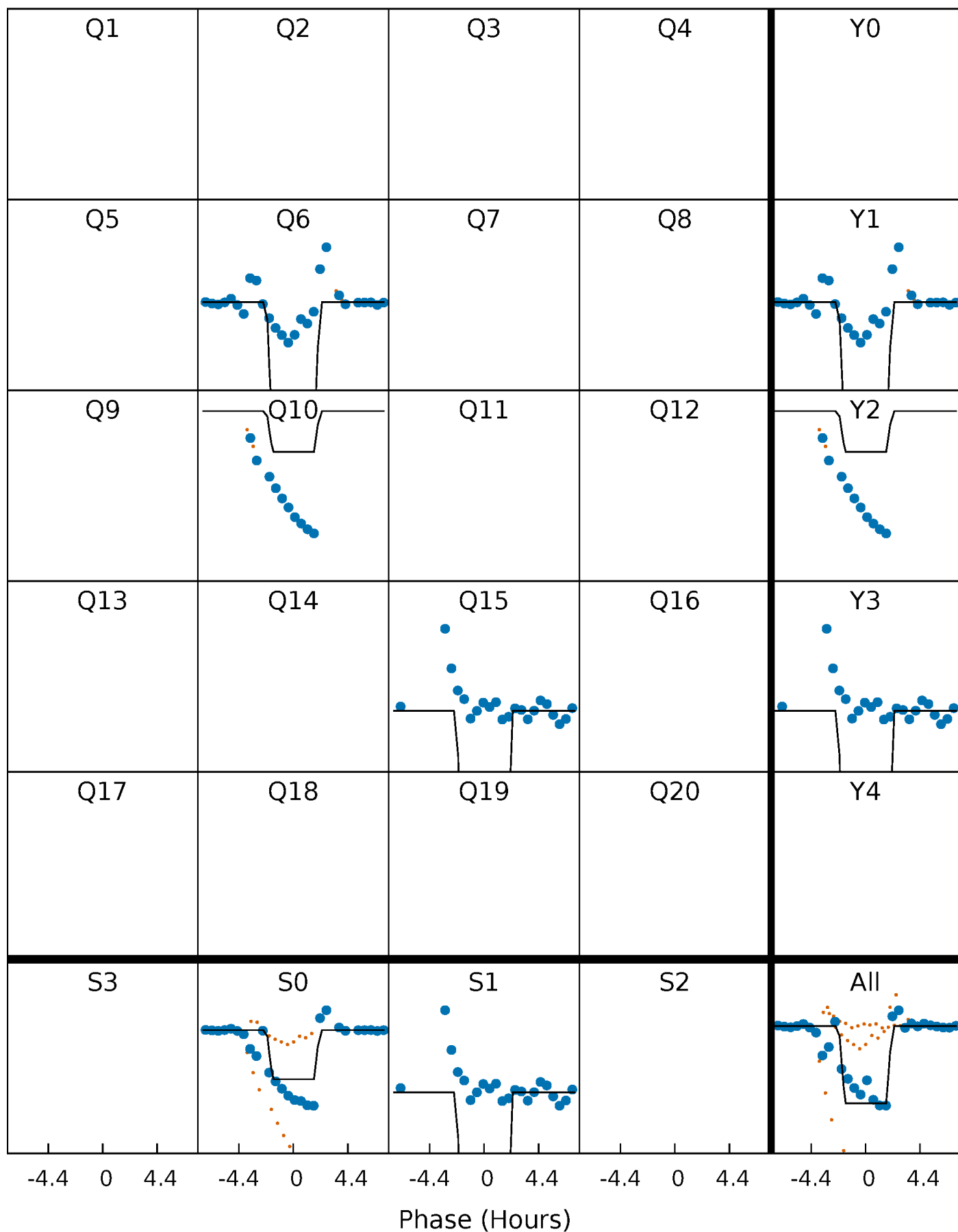
DV Quarter-Phased Transit Curves

TCE 011551404-06 $P=400.164028$ Days $T_0=183.030810$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

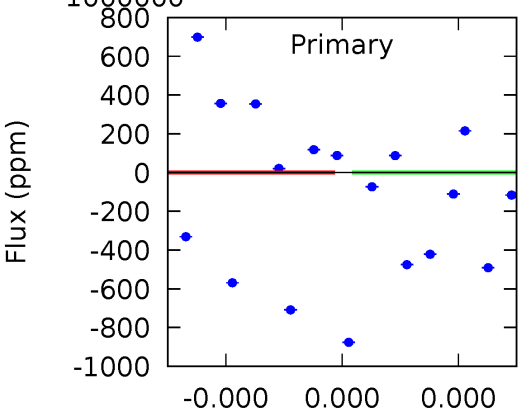
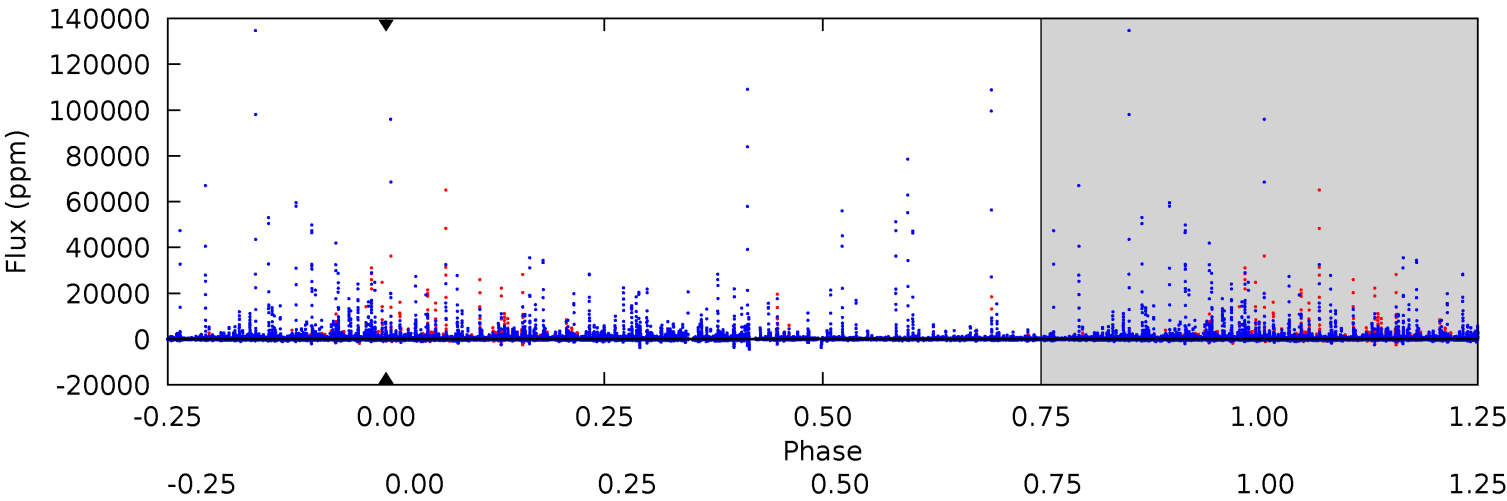
TCE 011551404-06 P=400.164028 Days $T_0=183.054034$ (BKJD)



DV Model-Shift Uniqueness Test

011551404-06, P = 400.164028 Days, E = 183.030810 Days

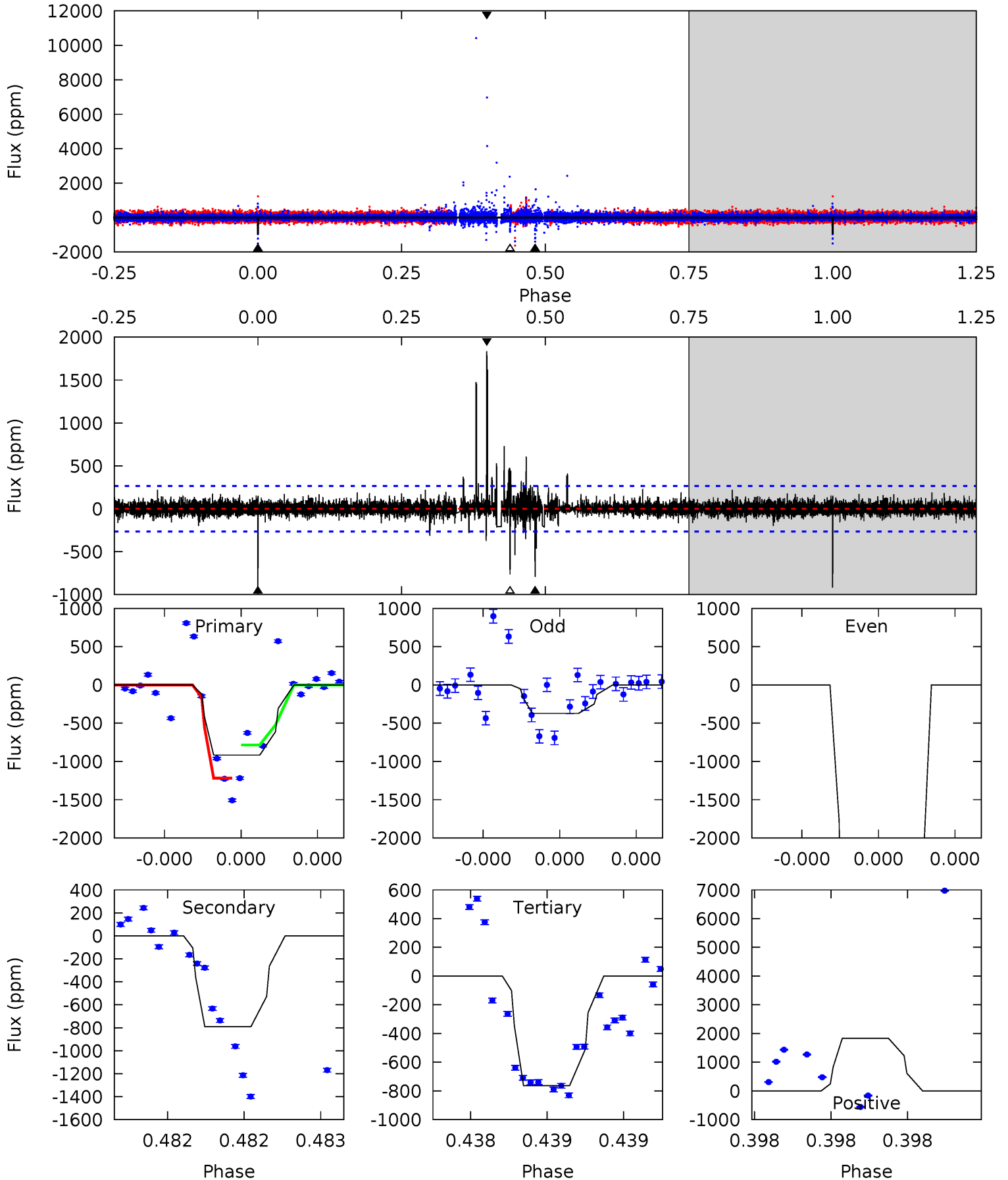
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011551404-06, P = 400.164028 Days, E = 183.054034 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.4	16.7	16.2	38.8	5.60	3.52	1.21	3.25	-19.4	0.60	-22.1	147.5	5.02	0.67	0



Stellar Parameters For KIC 011551404

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4975^{+138}_{-100}	$3.058^{+0.368}_{-0.301}$	$-0.520^{+0.300}_{-0.200}$	$4.477^{+2.585}_{-1.392}$	$0.836^{+0.366}_{-0.019}$	$0.013^{+0.030}_{-0.009}$
	+3%/-2%	+12%/-10%	+58%/-38%	+58%/-31%	+44%/-2%	+225%/-70%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011551404-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$36.58^{+39.53}_{-25.94}$	640^{+89}_{-67}	-4444^{+18674}_{-12653}	$-1163.685^{+76457.280}_{-110829.982}$
Alt.	-791 ± 47	$50.57^{+48.81}_{-32.66}$	647^{+87}_{-68}	3190^{+1322}_{-511}	189^{+1290}_{-140}

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 $A_{obs} \gg 1.0$

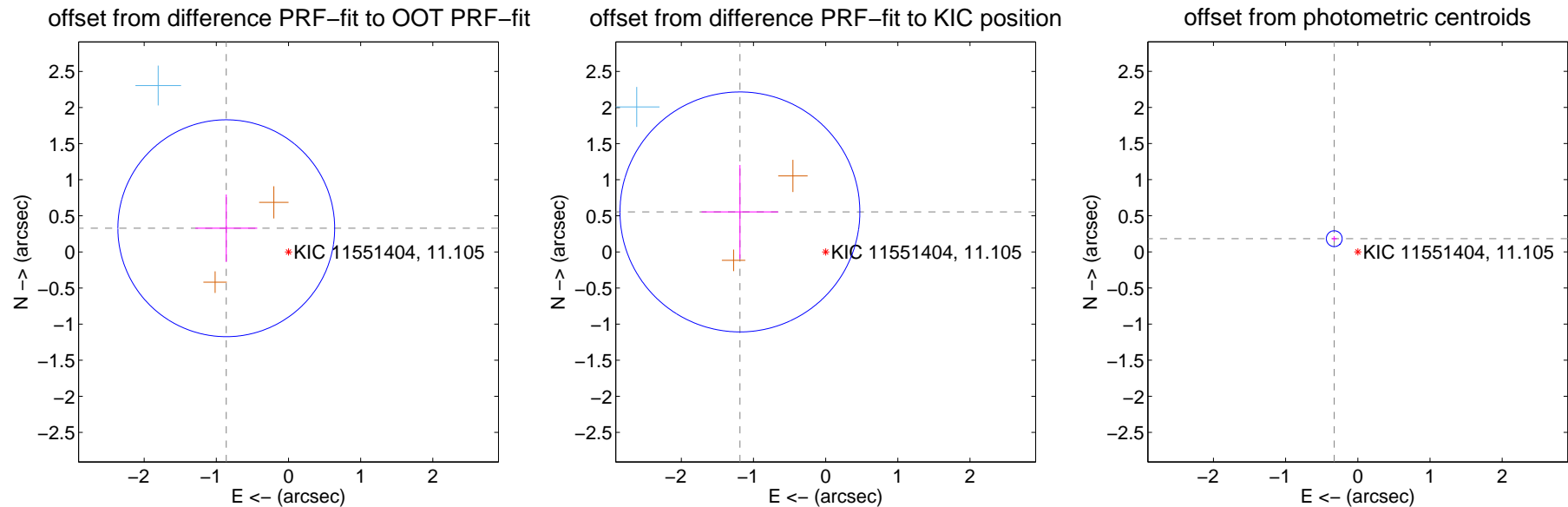
DV Centroid Data

Supplemental centroid analysis for 011551404-06. **Kepler magnitude: 11.11.** Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.87 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.923 ± 0.501	1.84	0.862 ± 0.429	0.328 ± 0.467
PRF-fit source offset from KIC position	1.311 ± 0.554	2.37	1.188 ± 0.531	0.554 ± 0.651
photometric centroid source offset	0.37 ± 0.04	10.23	0.33 ± 0.04	0.18 ± 0.04

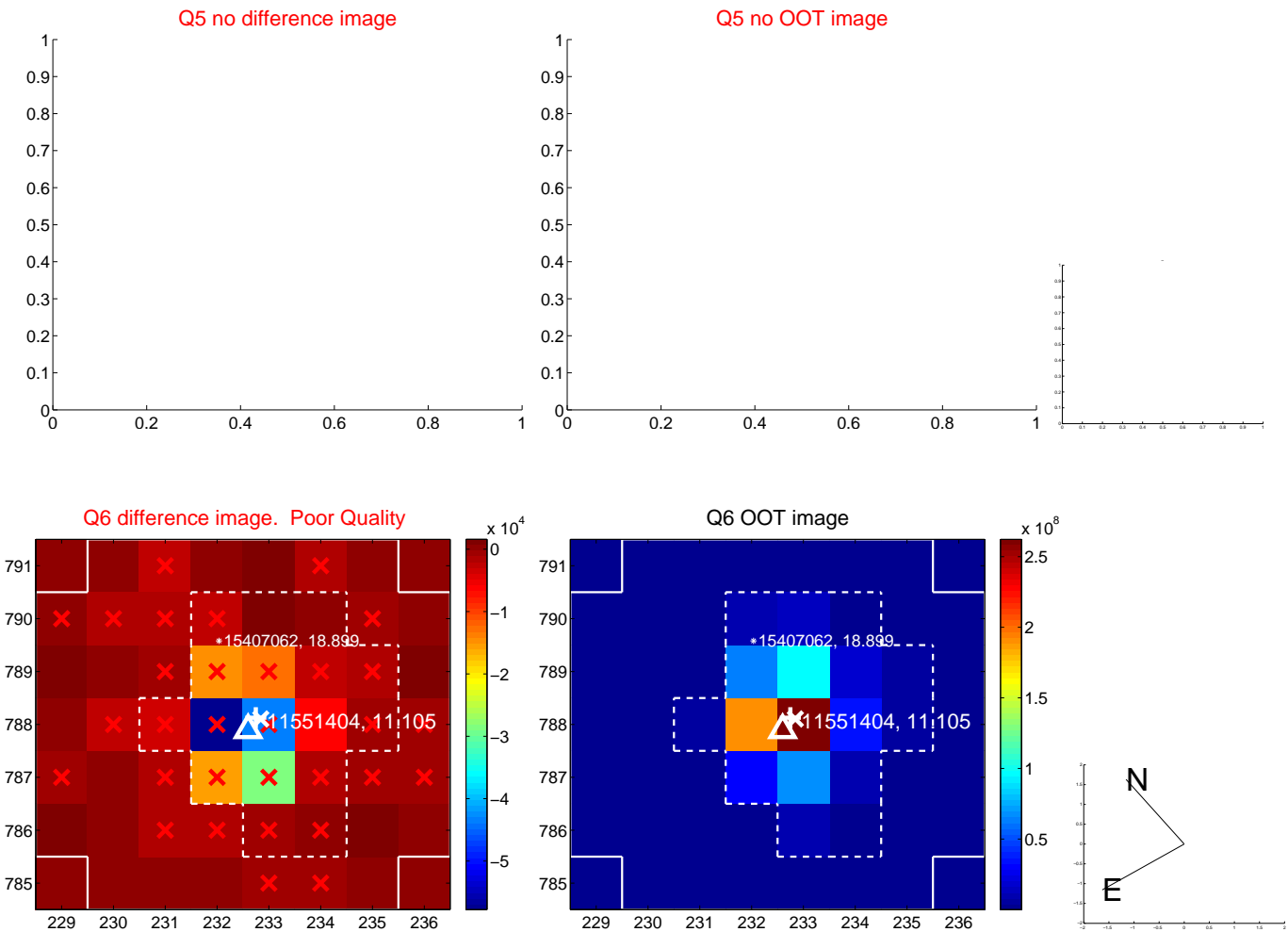


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

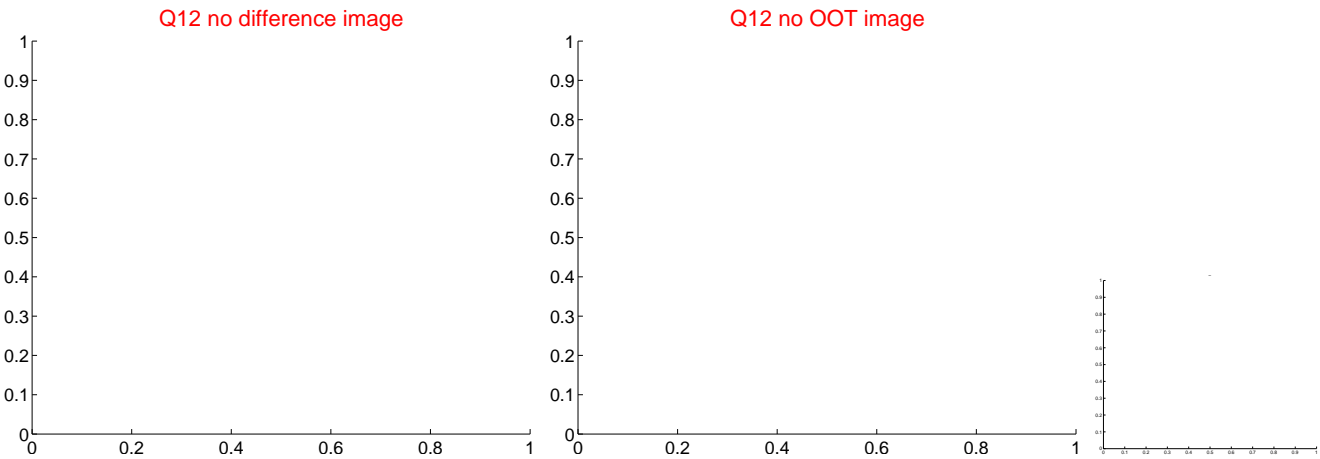
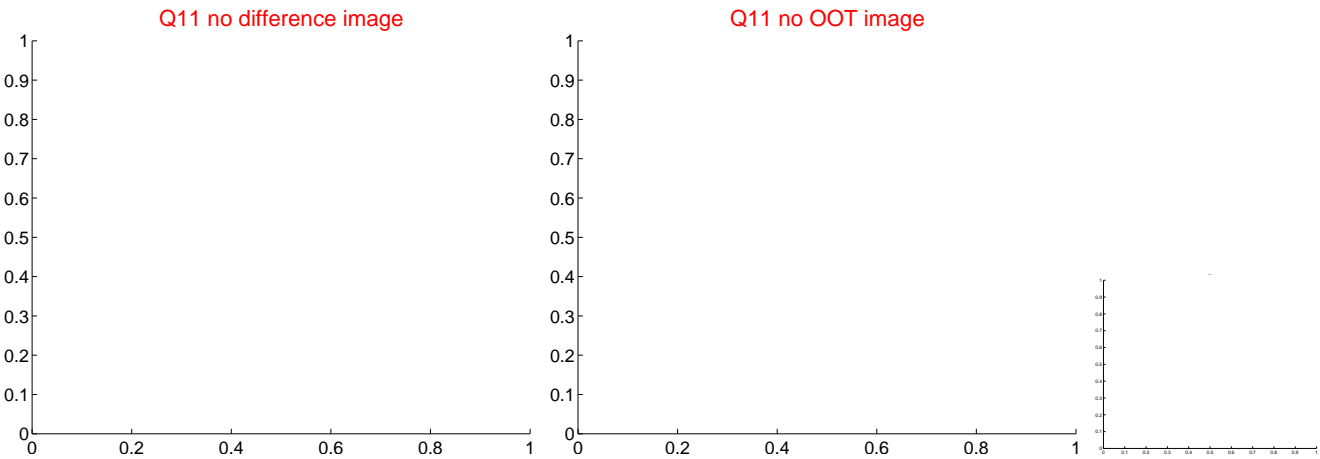
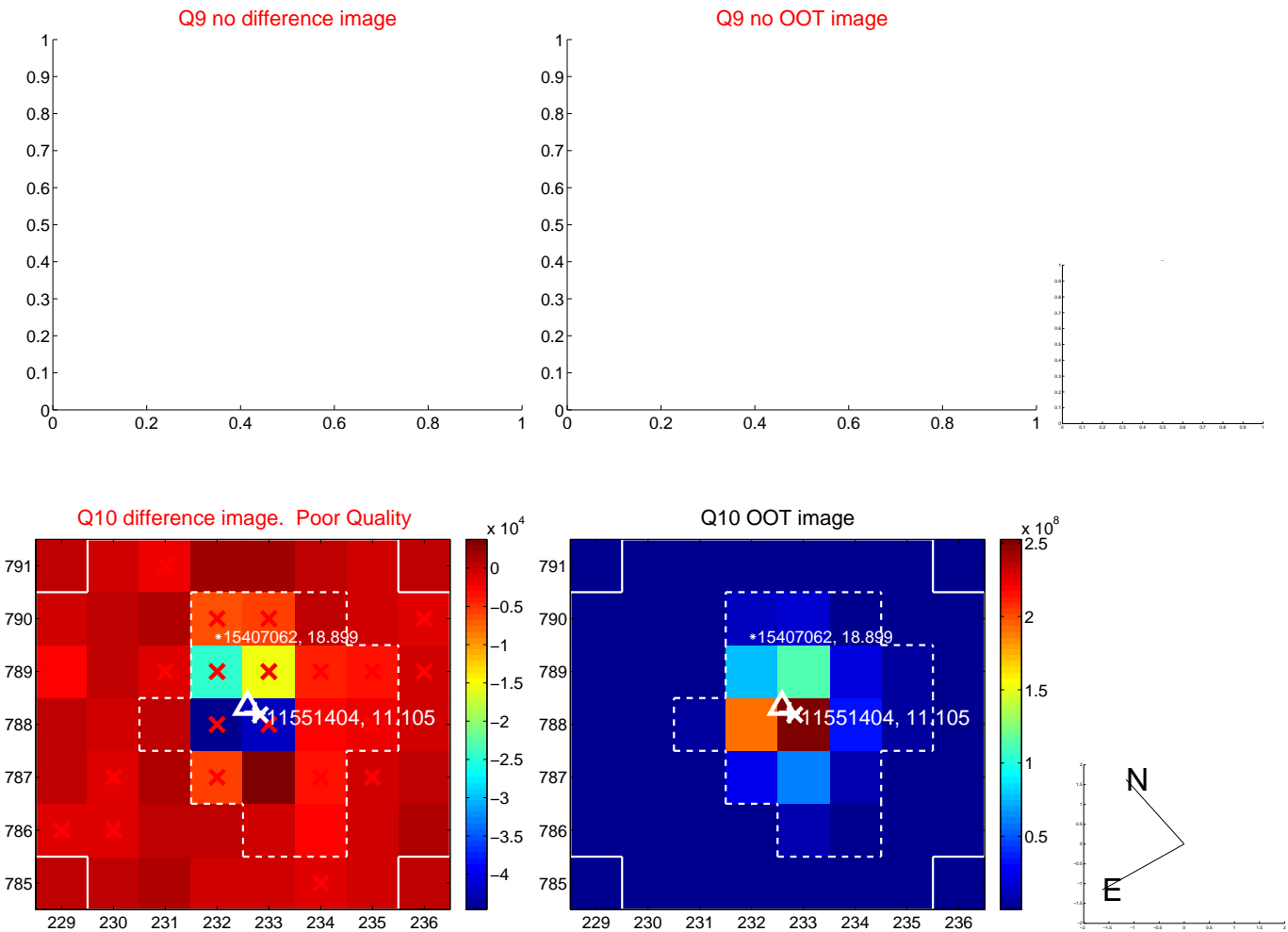
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



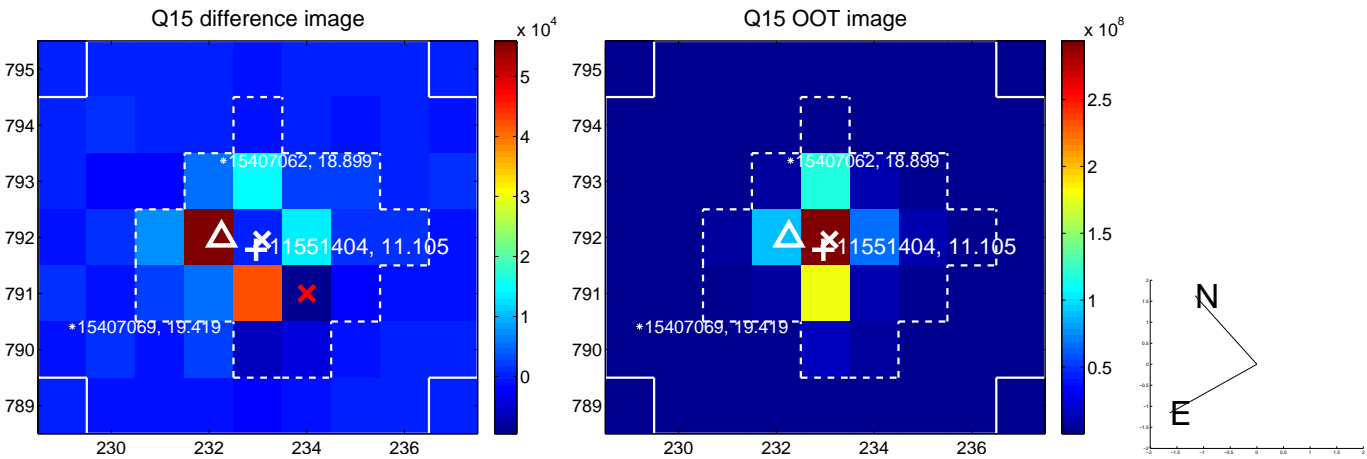
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



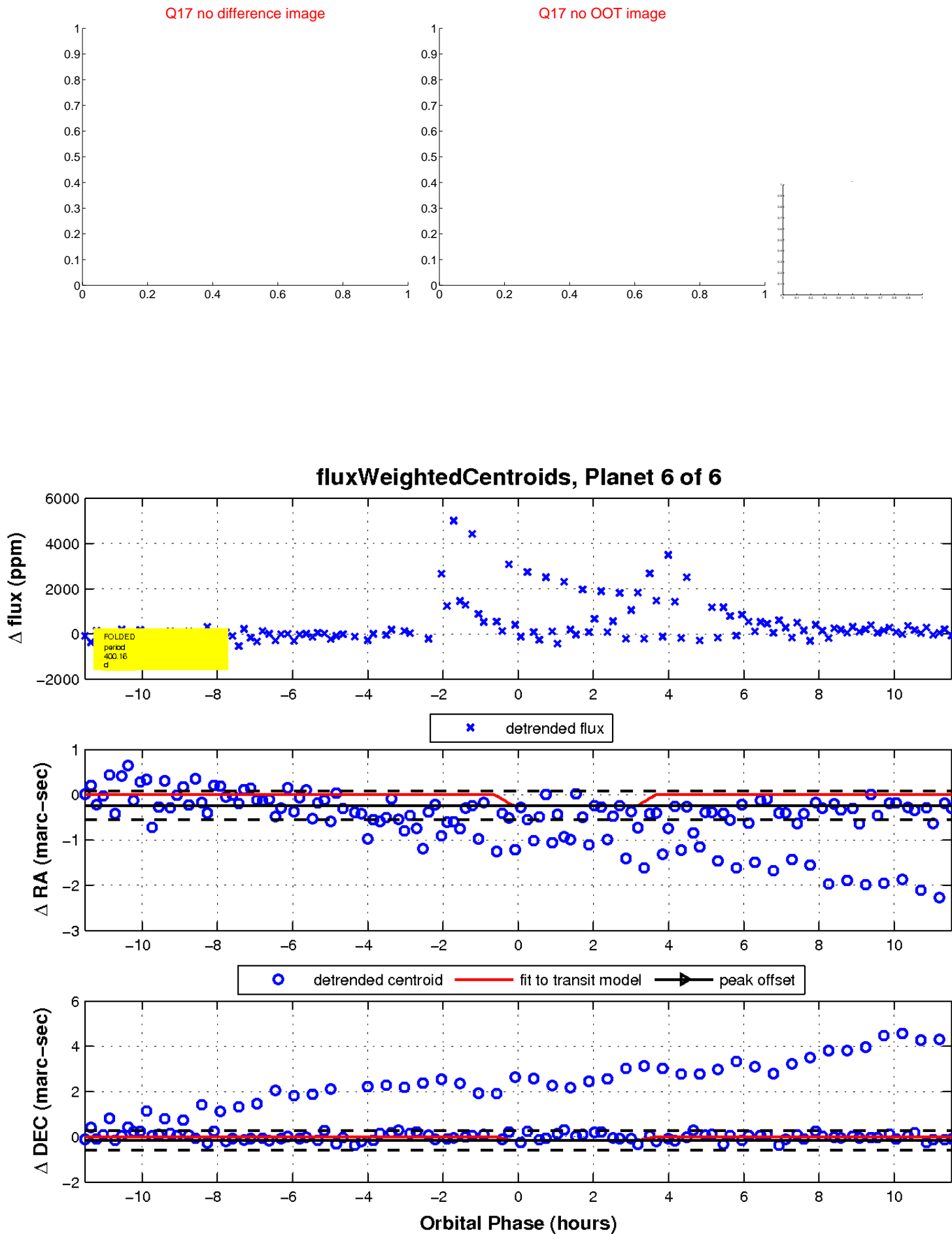
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

