

KIC 011307603

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})
011307603-01	OBS	No	517.958477	220.820464	2256.7	12.319	17.6	20.1	150.65	3291	1103.59	1309.53
011307603-02	OBS	No	292.542723	140.800003	44.1	1.912	51.0	2.0	150.65	3291	124.73	2804.94
011307603-03	OBS	No	462.025087	151.147380	1281.8	7.624	32.0	3.2	150.65	3291	995.16	1525.07
011307603-05	OBS	No	451.535905	136.862339	790.0	3.196	43.3	2.3	150.65	3291	388.36	1572.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011307603-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011307603-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011307603-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011307603-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

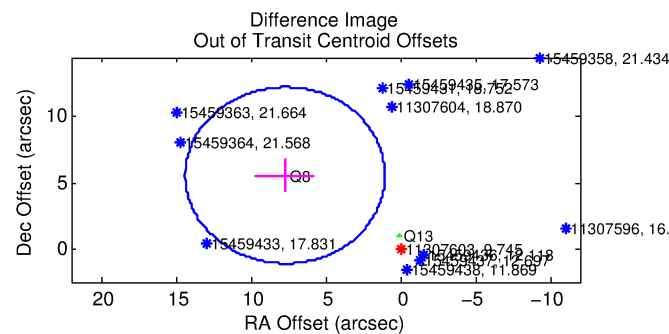
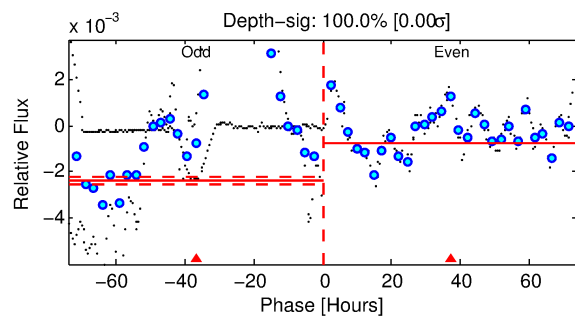
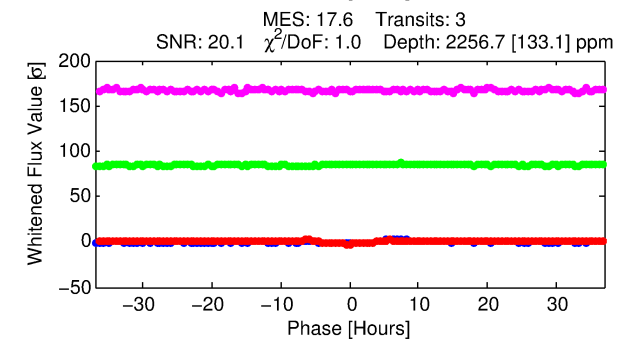
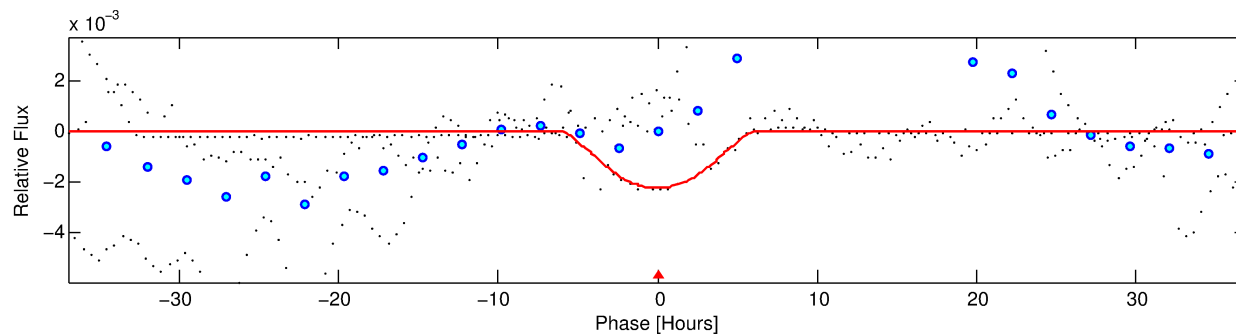
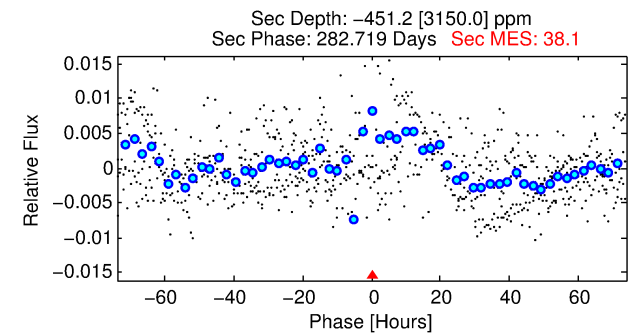
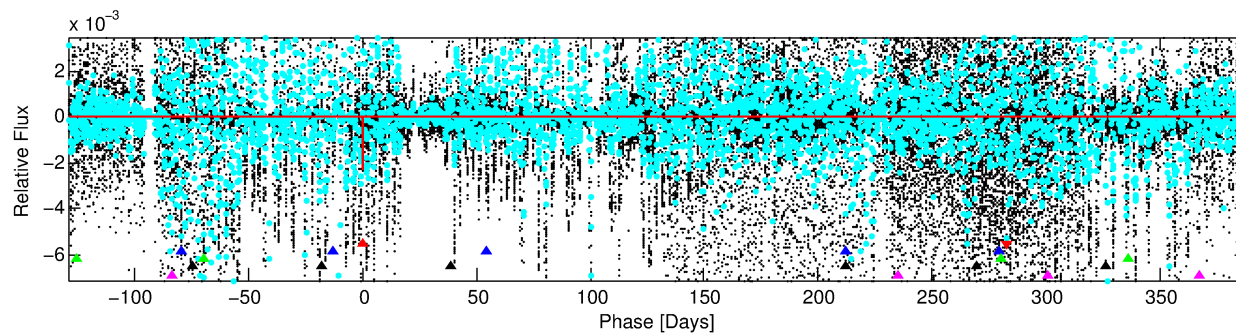
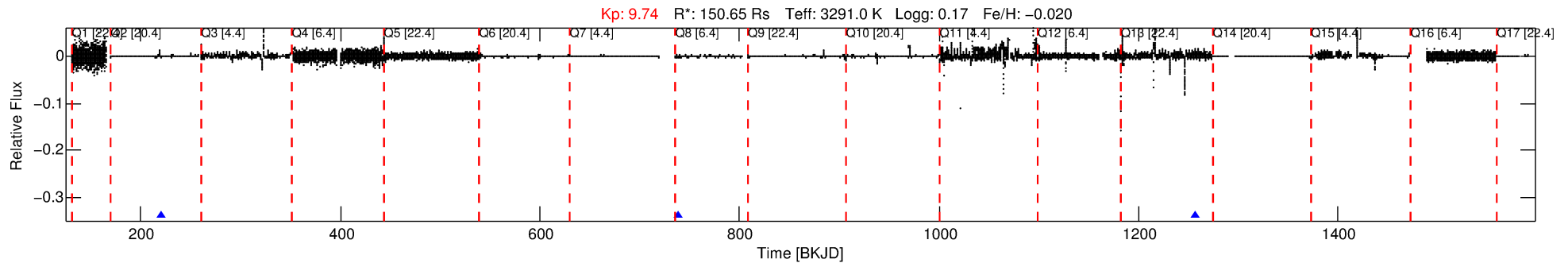
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011307603-01

No Significant Match Found

DV One-Page Summary

KIC: 11307603 Candidate: 1 of 5 Period: 517.958 d



DV Fit Results:

Period = 517.95848 [0.01828] d
Epoch = 220.8205 [0.0042] BKJD
Rp/R* = 0.0671 [0.0123]
a/R* = 151.50 [11.03]
b = 0.96 [0.03]
Seff = 1309.53 [501.64]
Teff = 1534 [147] K
Re = 1103.59 [308.78] Re
a = 1.3496 [0.2937] AU
Ag = N/A
Teffp = N/A

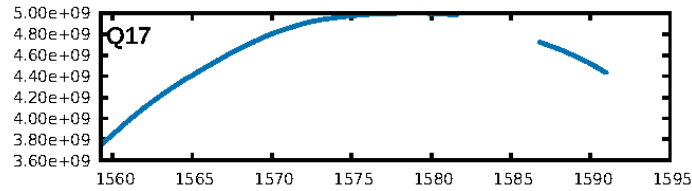
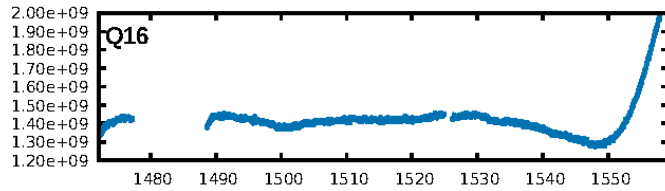
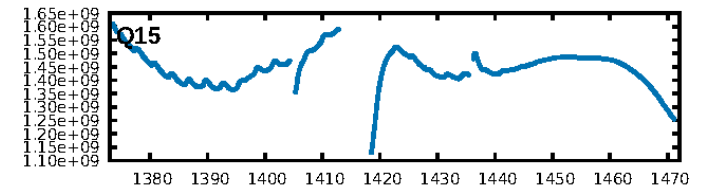
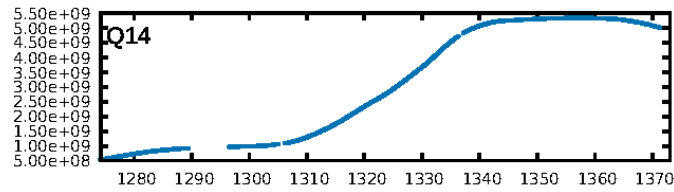
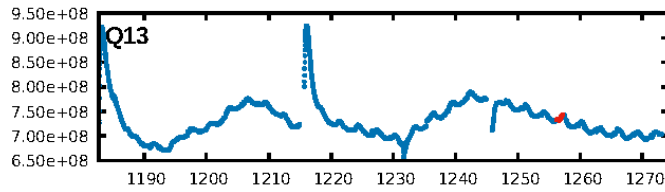
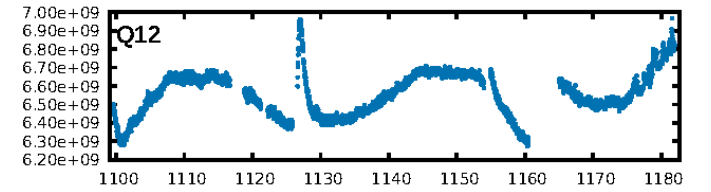
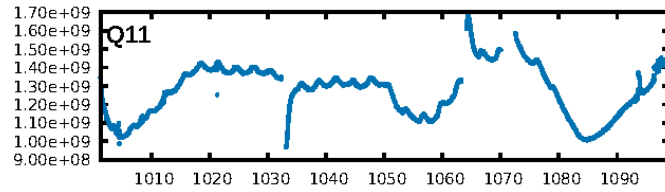
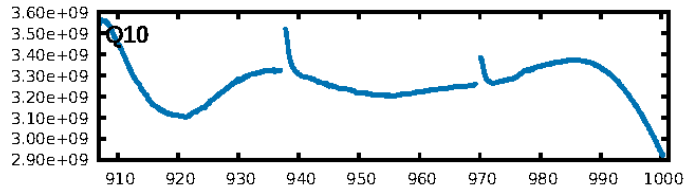
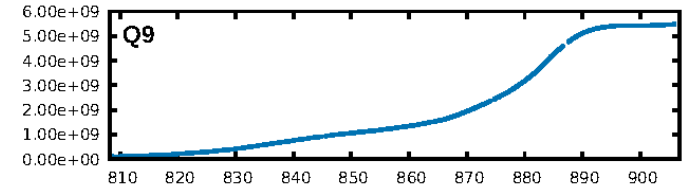
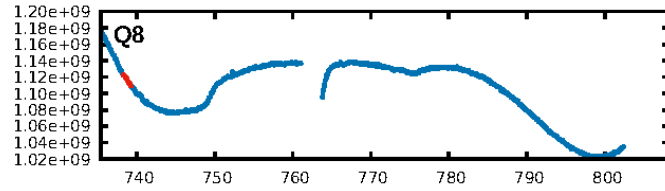
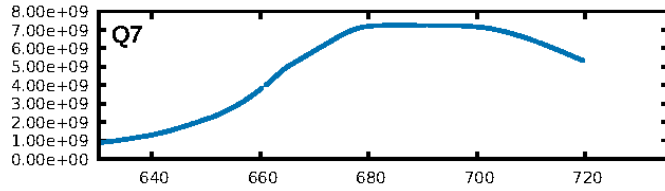
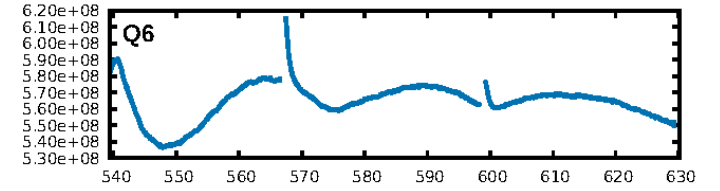
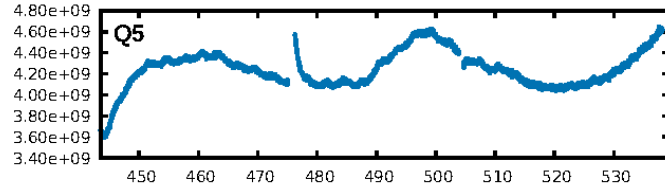
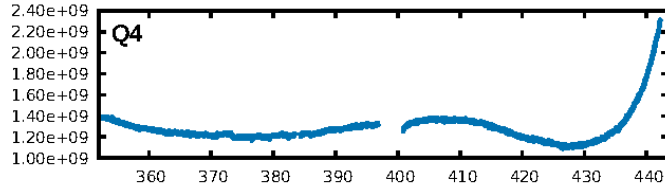
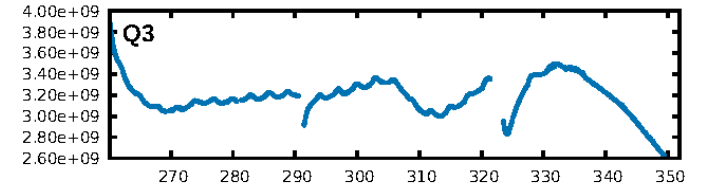
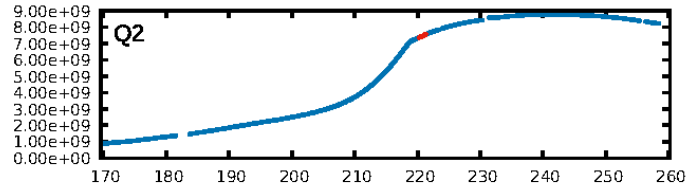
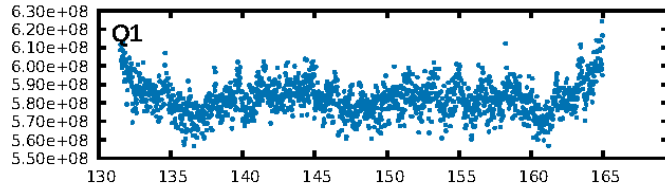
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [92.66 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 96.8%
Bootstrap-pfa: 7.19e-04
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 32.4%
Centroid-so: 1.094 arcsec [1.01 σ]
OotOffset-rm: 9.511 arcsec [4.28 σ]
KicOffset-rm: 10.696 arcsec [3.72 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

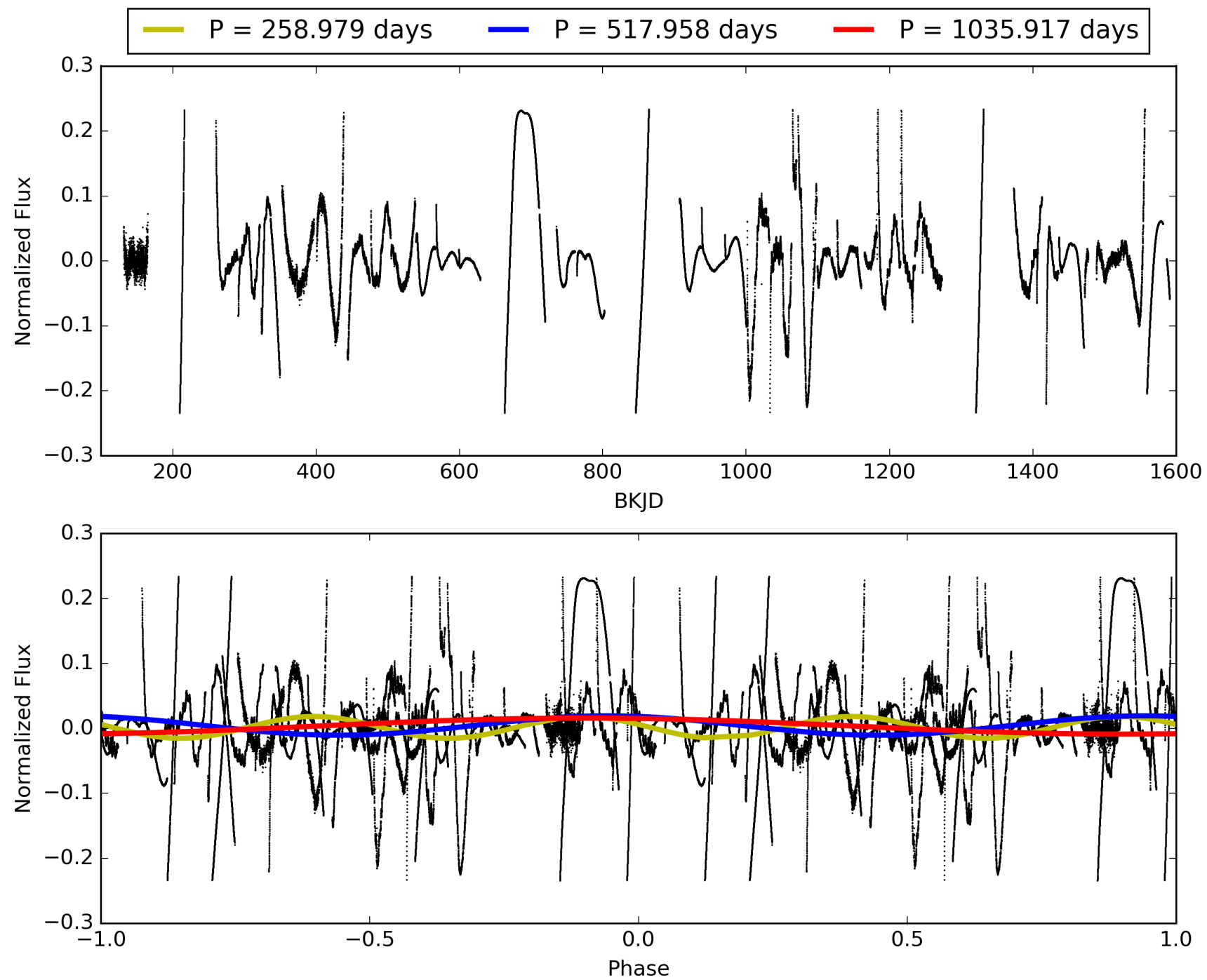
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:53:38 Z

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

TCE 011307603-01, PDC Light Curves

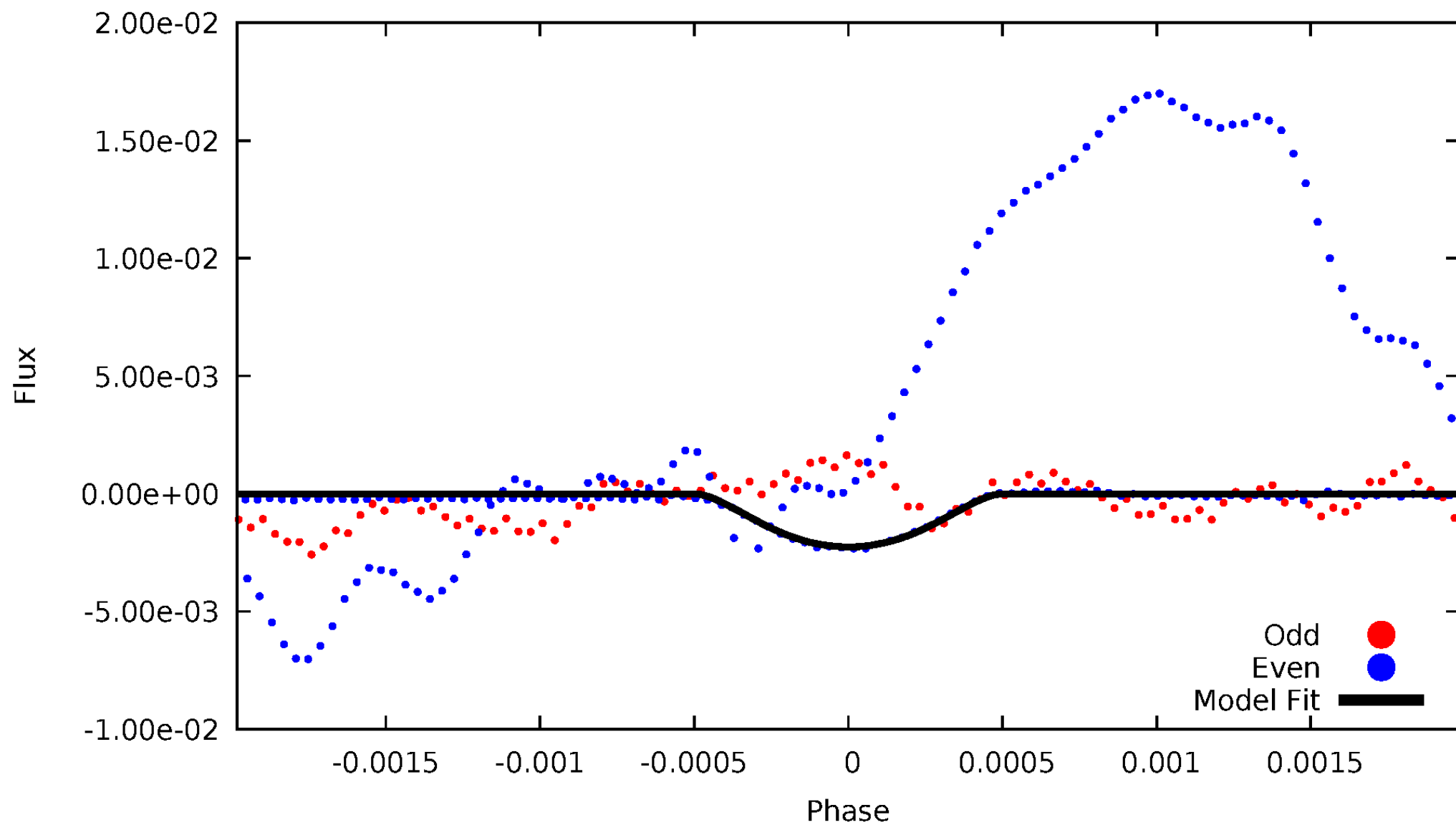


TCE 011307603-01



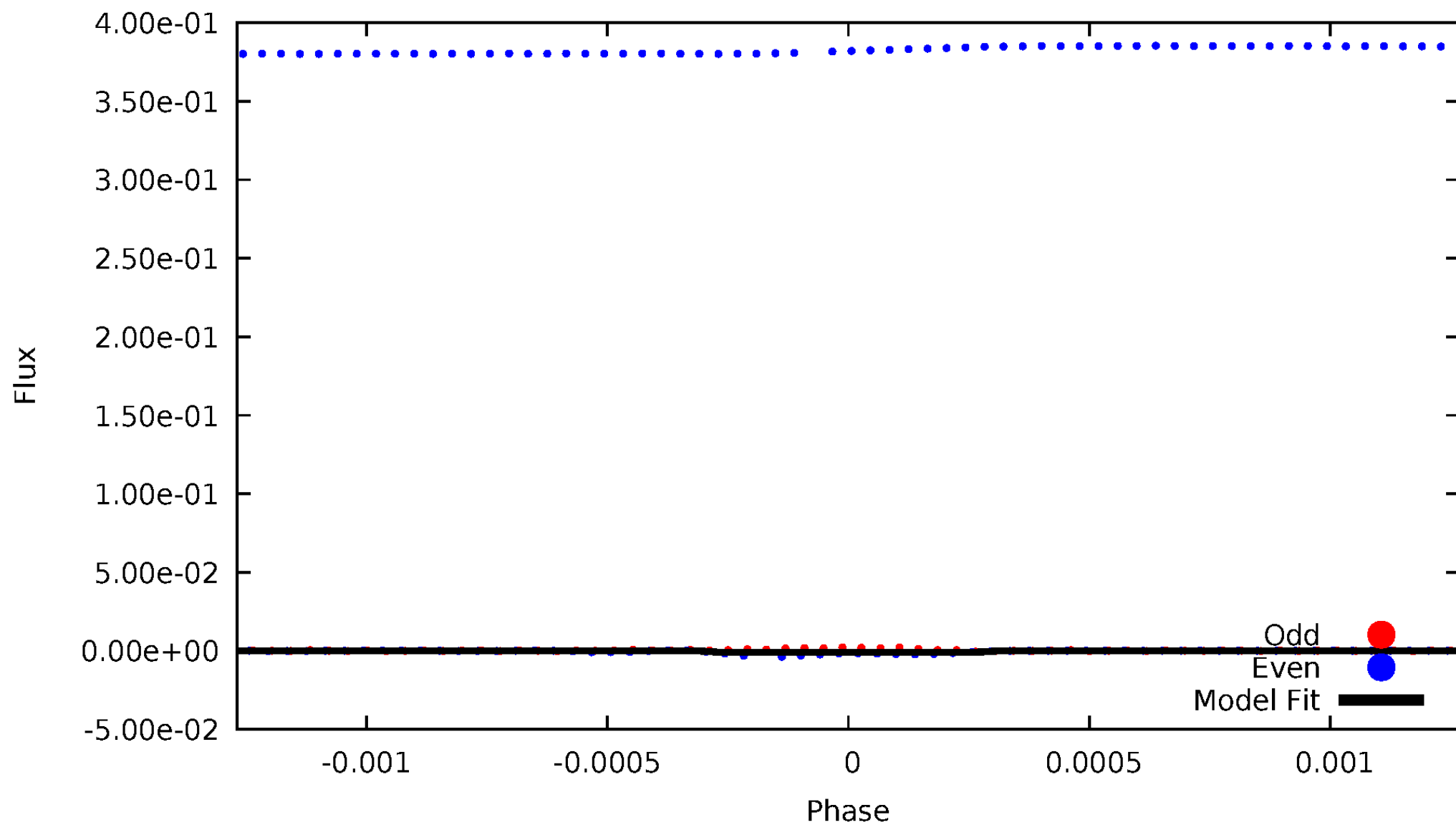
DV Odd/Even

TCE 011307603-01



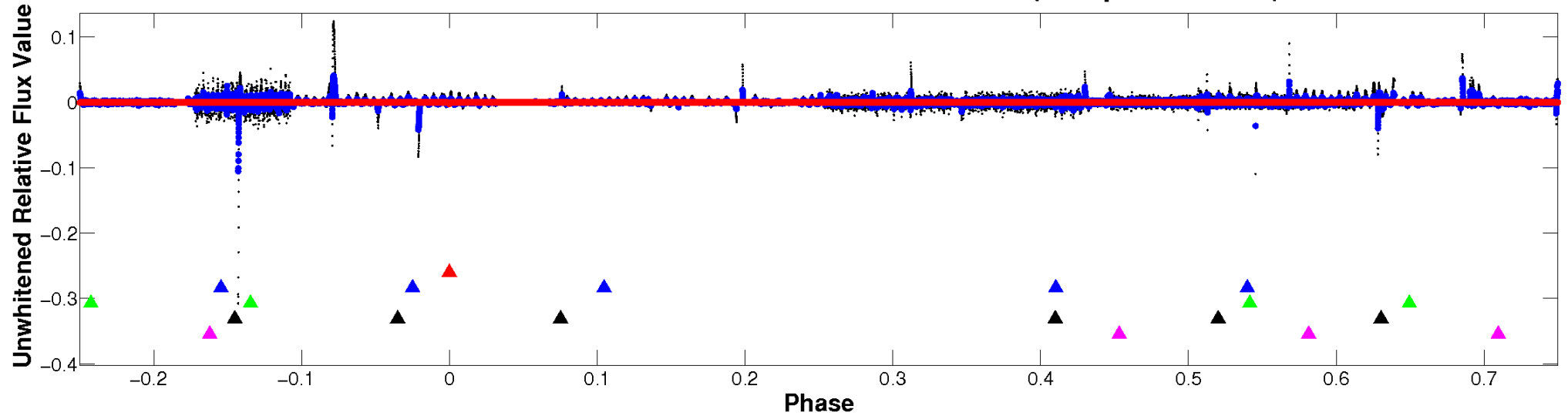
ALT Odd/Even

TCE 011307603-01

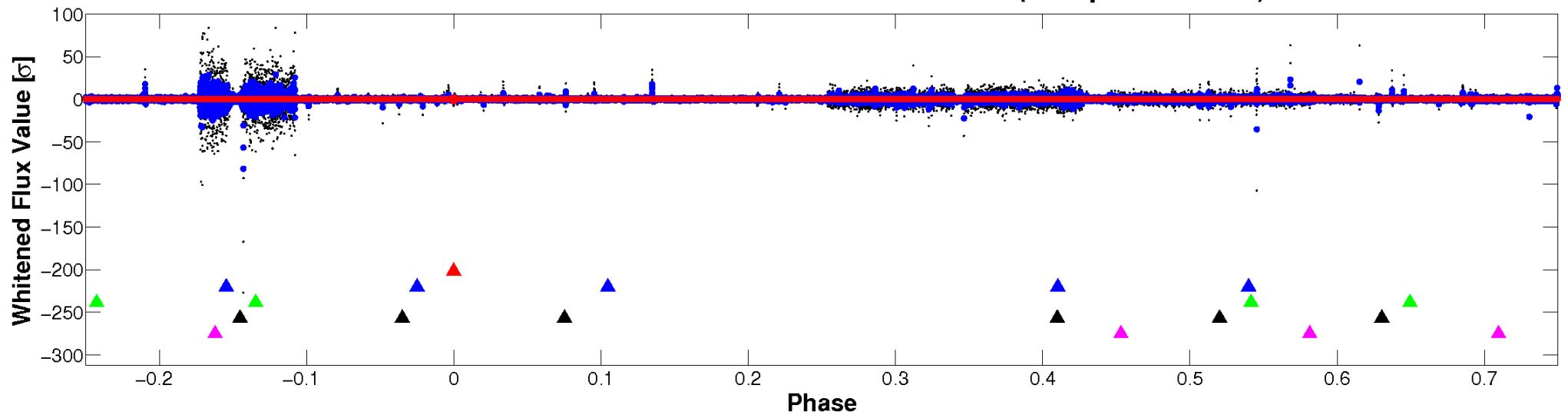


Non-Whitened Vs. Whitened Light Curve

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

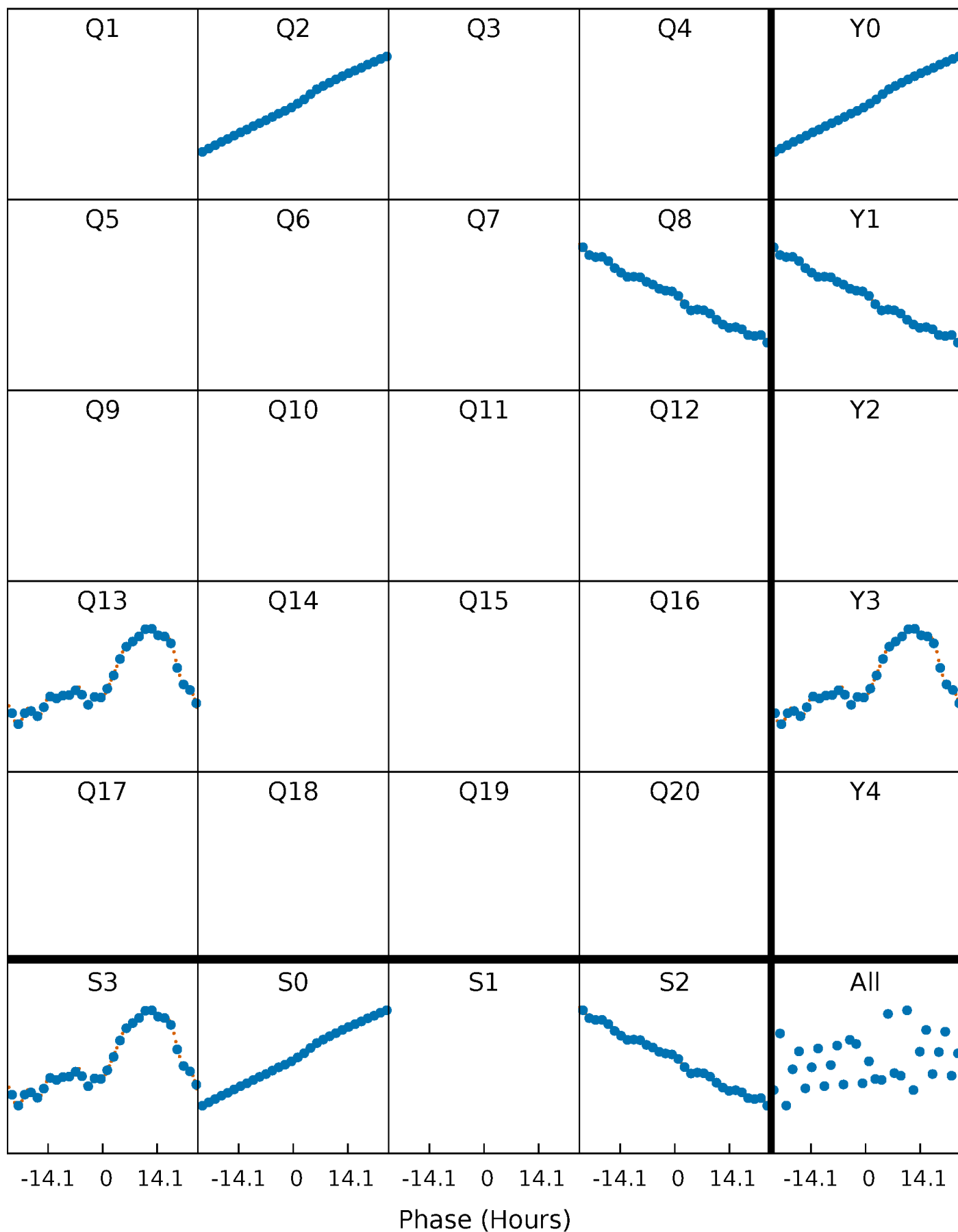


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



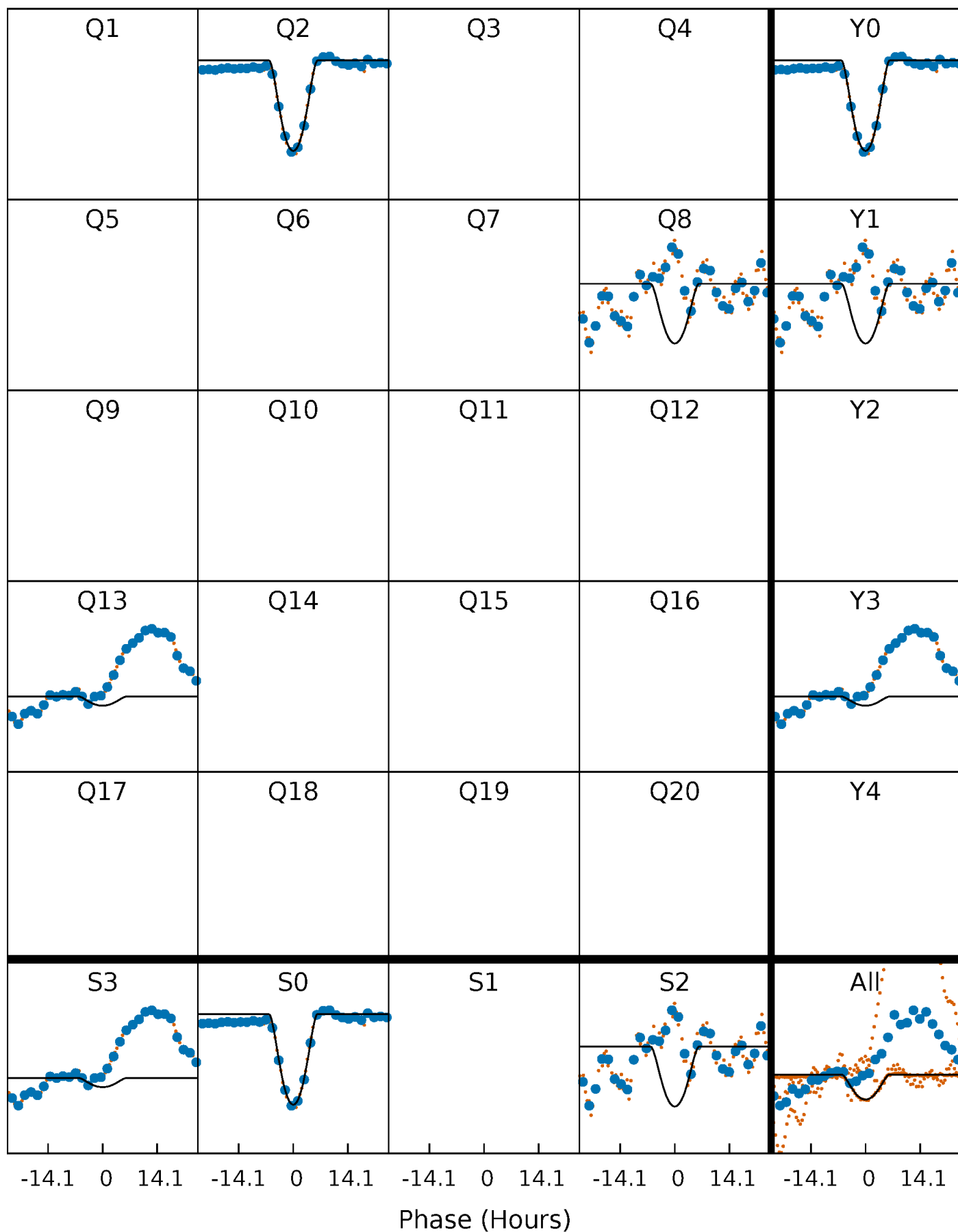
PDC Quarter-Phased Transit Curves

TCE 011307603-01 P=517.958477 Days $T_0=220.820464$ (BKJD)



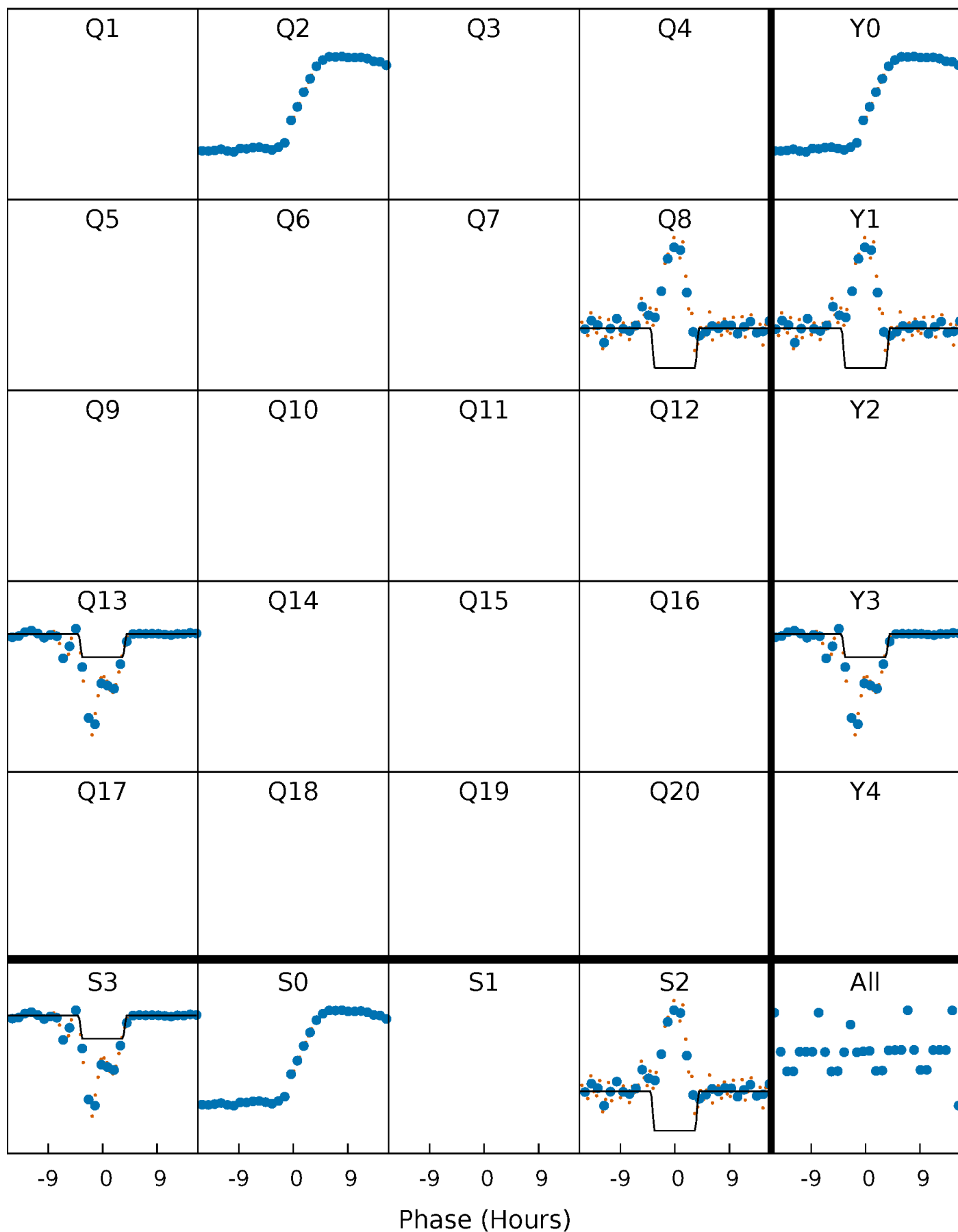
DV Quarter-Phased Transit Curves

TCE 011307603-01 P=517.958477 Days $T_0=220.820464$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

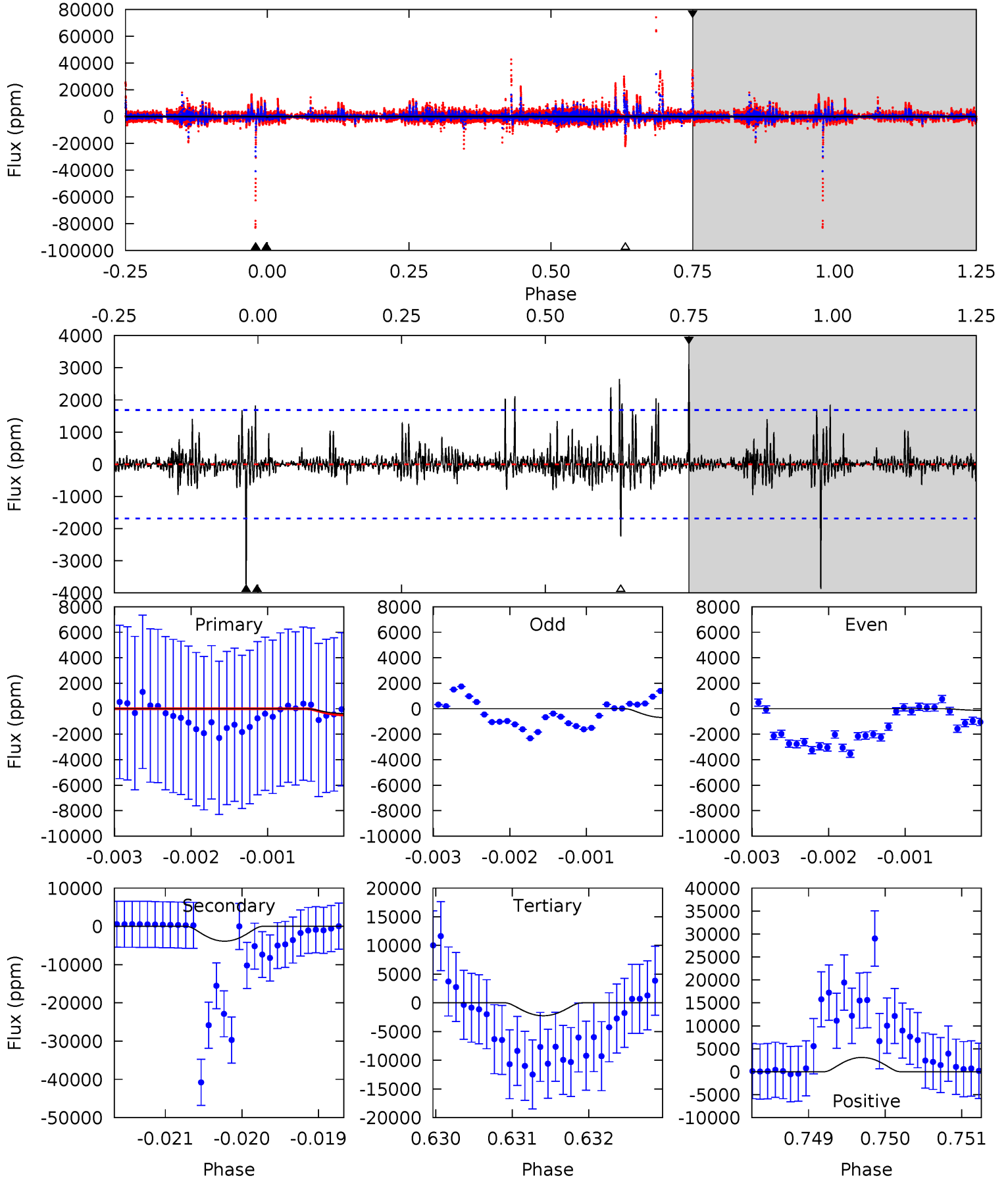
TCE 011307603-01 P=517.874956 Days $T_0=220.907609$ (BKJD)



DV Model-Shift Uniqueness Test

011307603-01, P = 517.958477 Days, E = 220.820464 Days

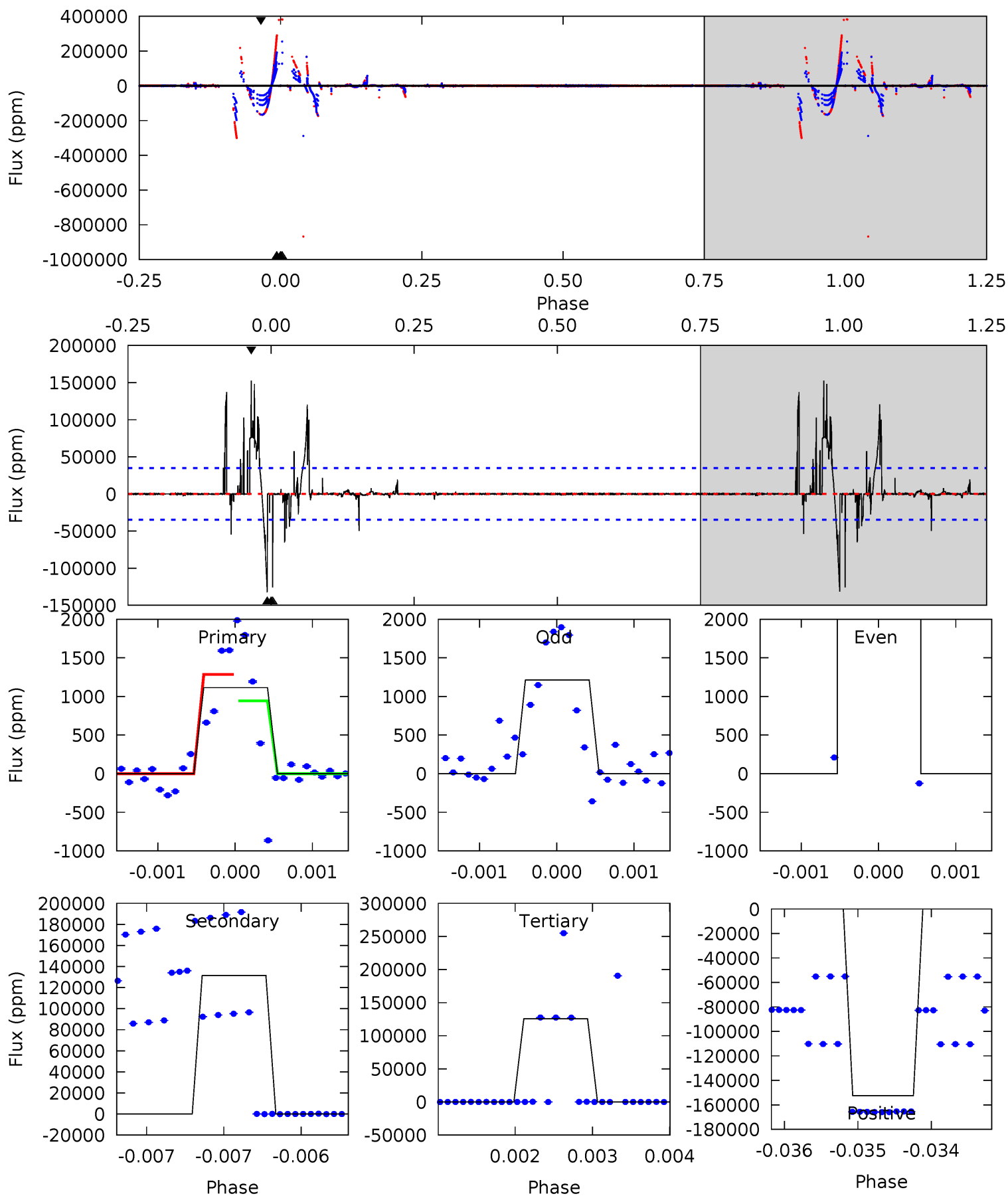
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.22	12.5	7.26	10.1	5.45	3.29	1.02	-6.03	-8.84	5.27	2.47	0.69	0.38	0.45	0.63



Alt Model-Shift Uniqueness Test

011307603-01, P = 517.874956 Days, E = 220.907609 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.18	20.9	20.0	24.3	5.54	3.43	2.42	-19.8	-24.1	0.92	-3.34	8.40	118.2	0.54	0.03



Stellar Parameters For KIC 011307603

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3291^{+107}_{-88}	$0.169^{+0.216}_{-0.054}$	$-0.020^{+0.250}_{-0.150}$	$150.645^{+9.958}_{-31.865}$	$1.221^{+0.202}_{-0.166}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+128%/-32%	+1250%/-750%	+7%/-21%	+17%/-14%	+107%/-17%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011307603-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3874 ± 309	$1055.84^{+245.89}_{-216.78}$	2104^{+105}_{-115}	3192^{+232}_{-201}	$3.599^{+2.018}_{-1.226}$
Alt.	-131404 ± 6280	$474.64^{+197.39}_{-184.02}$	2105^{+94}_{-118}	11102^{+6182}_{-2474}	700^{+1104}_{-355}

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

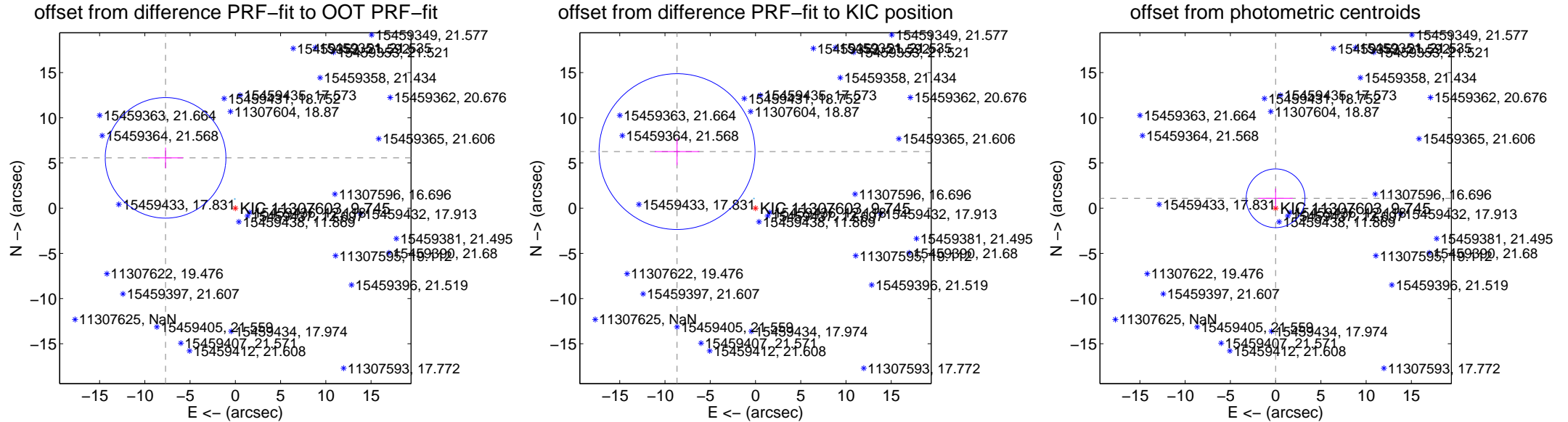
DV Centroid Data

Supplemental centroid analysis for 011307603-01. **Kepler magnitude: 9.74.** Transit SNR 20.15

There are 1 quarters with good PRF difference image offsets

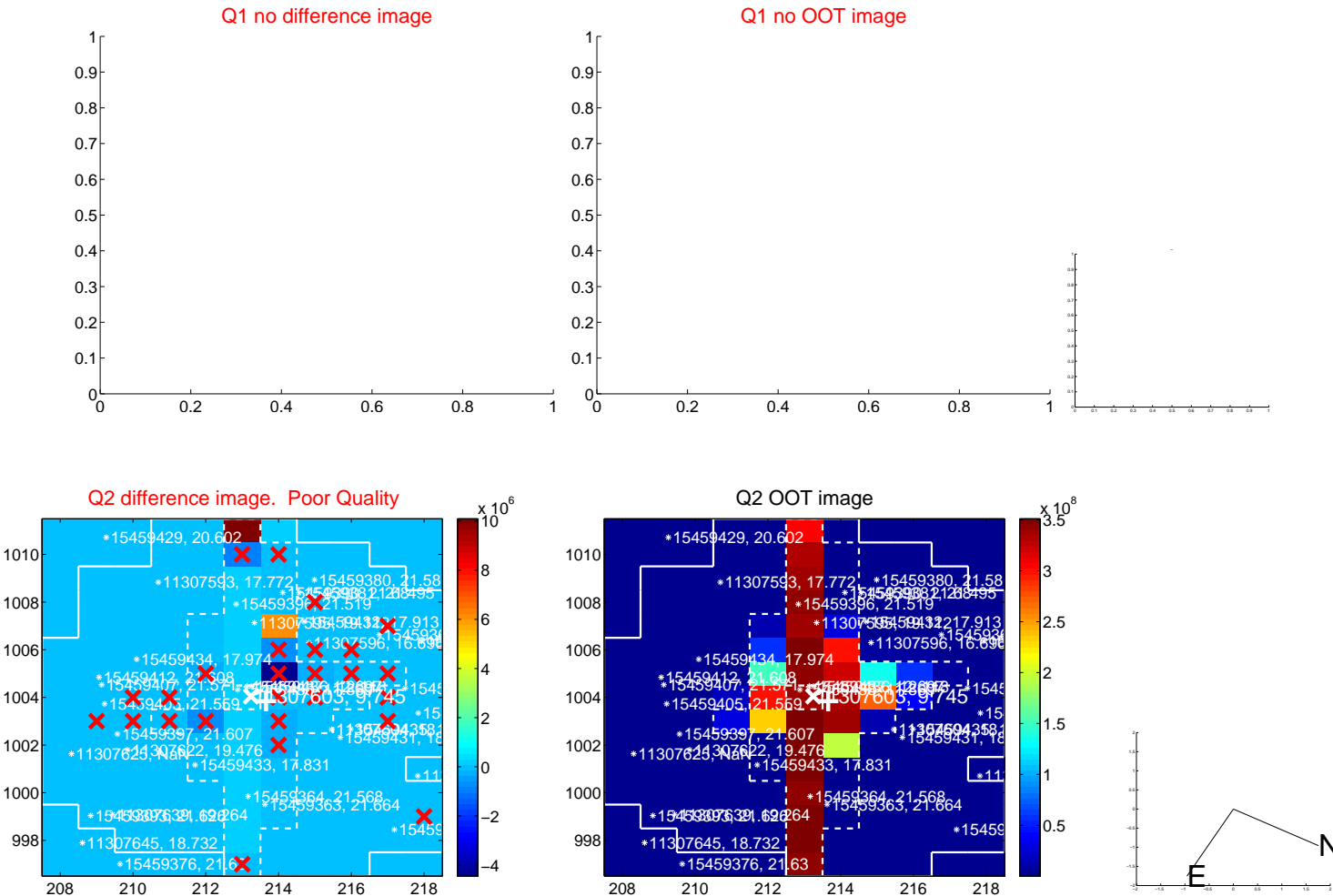
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.511 ± 2.224	4.28	7.711 ± 1.921	5.568 ± 1.140
PRF-fit source offset from KIC position	10.696 ± 2.874	3.72	8.672 ± 2.463	6.262 ± 1.500
photometric centroid source offset	1.09 ± 1.08	1.01	0.01 ± 1.91	1.09 ± 1.08



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

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



Q2 difference image. Poor Quality

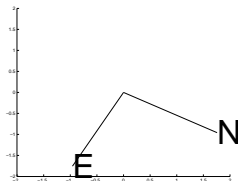
Q2 OOT image

Q3 no difference image

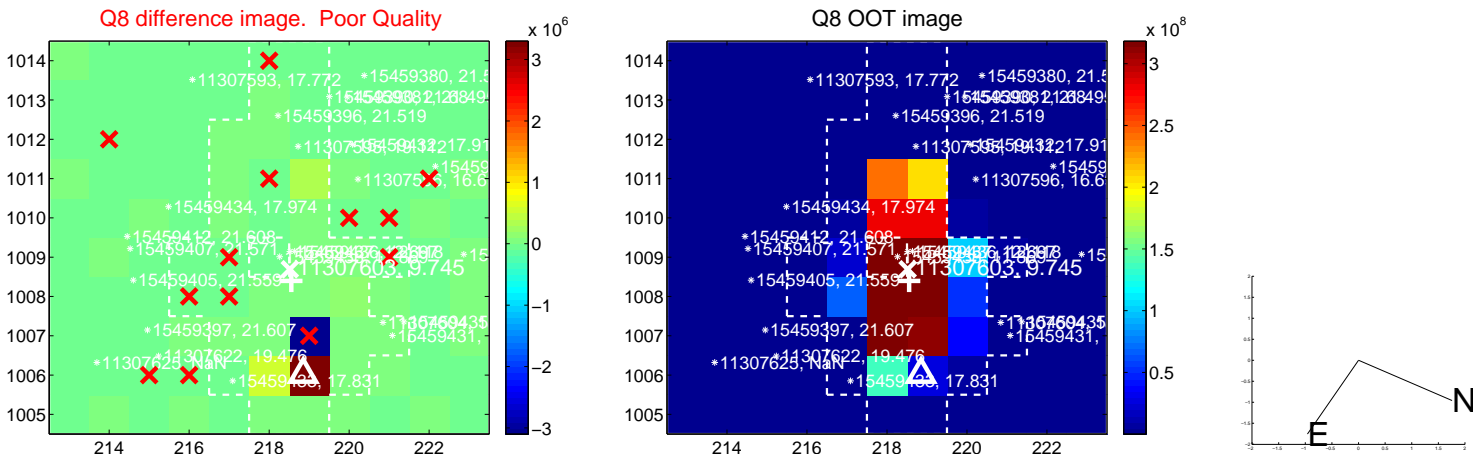
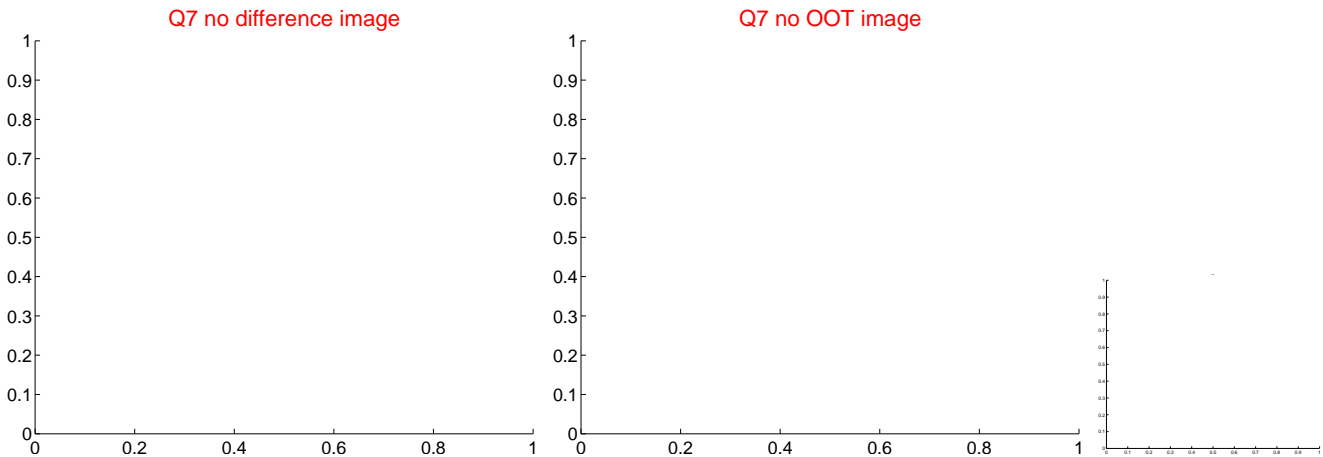
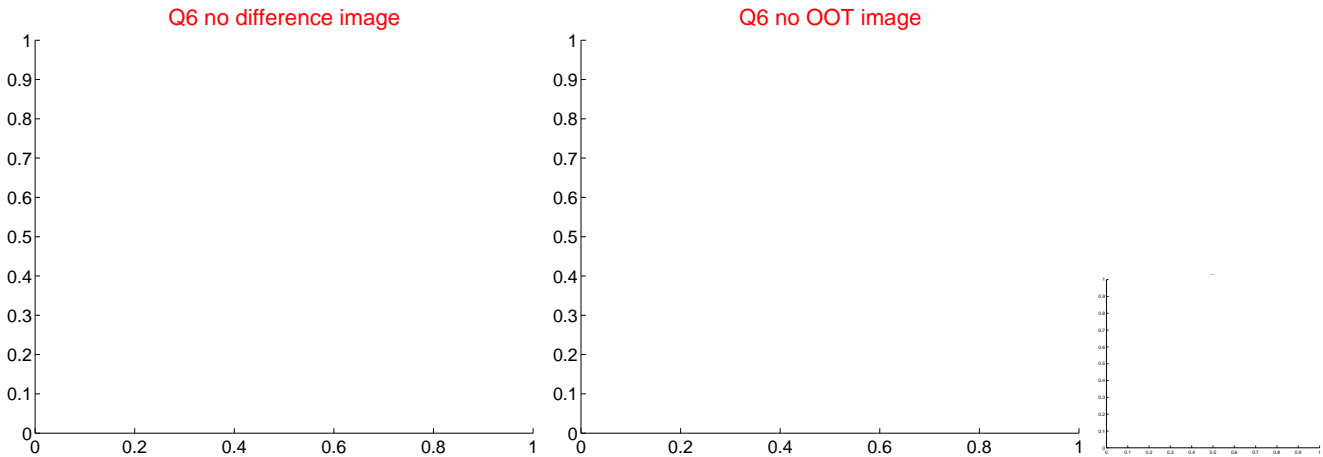
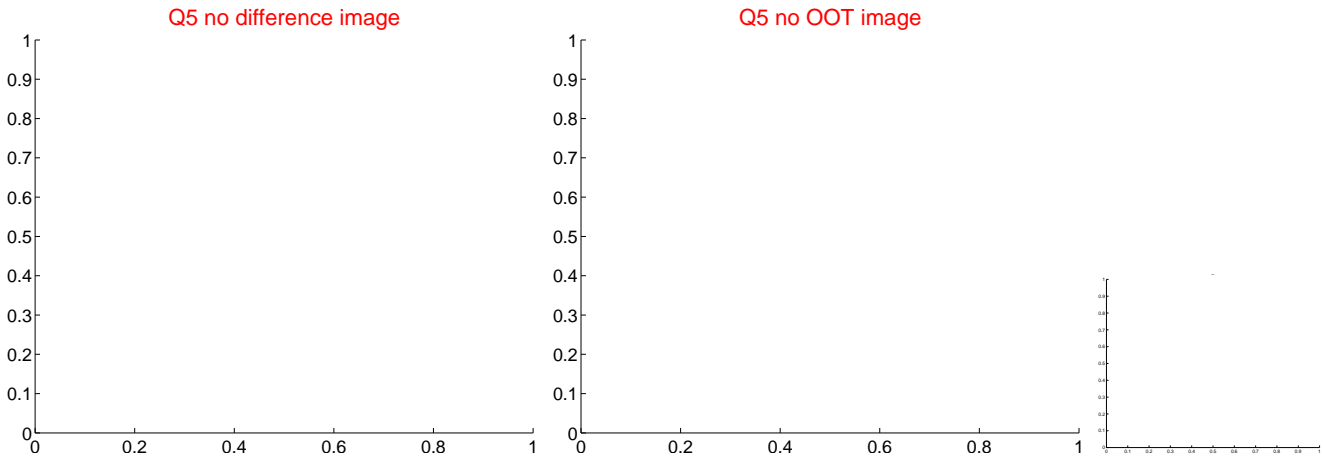
Q3 no OOT image

Q4 no difference image

Q4 no OOT image



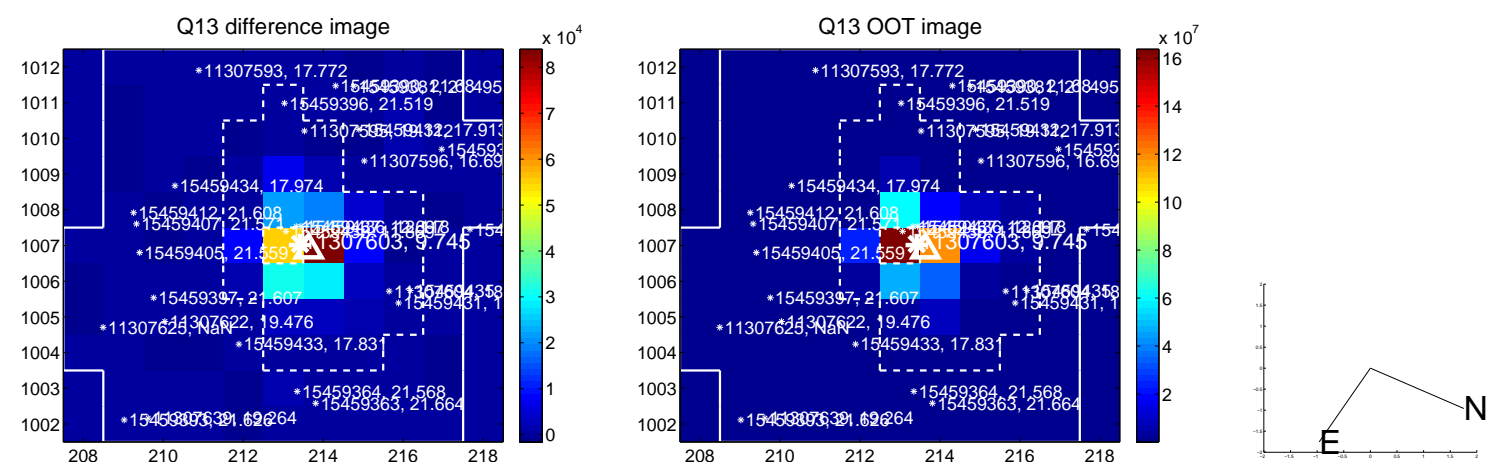
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



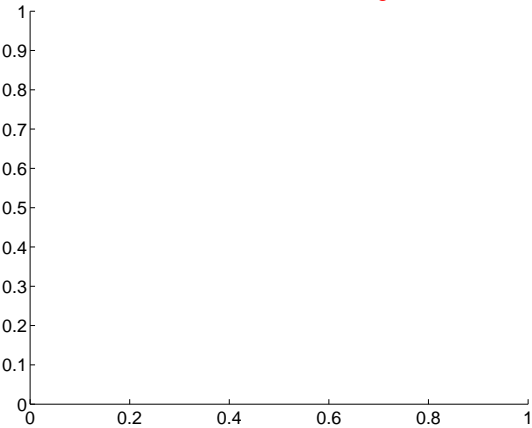
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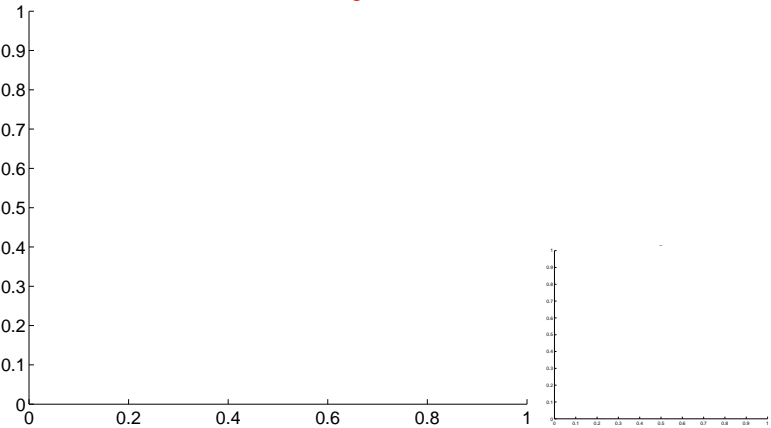
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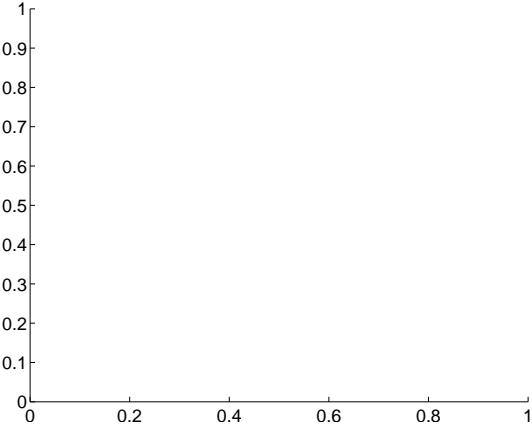
Q14 no difference image



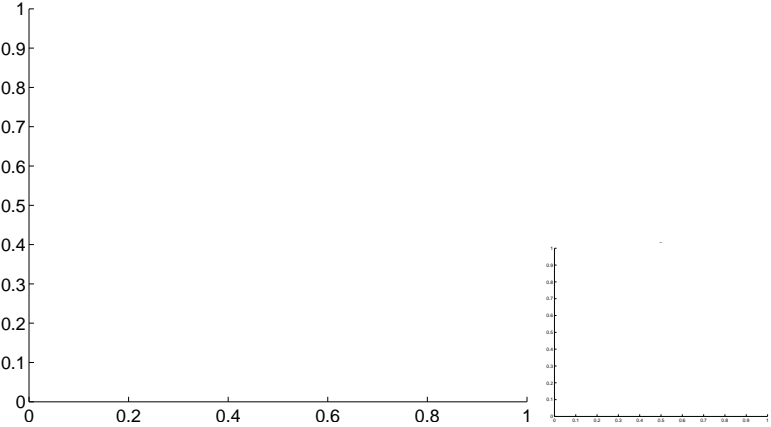
Q14 no OOT image



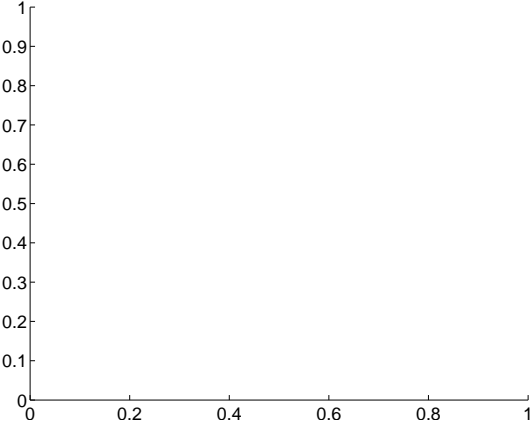
Q15 no difference image



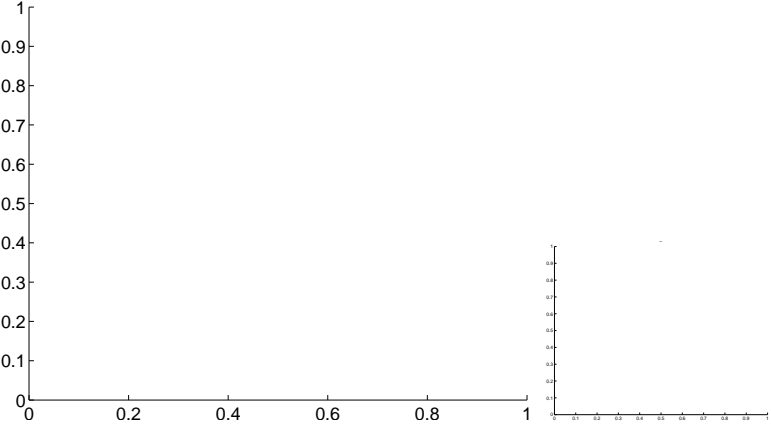
Q15 no OOT image



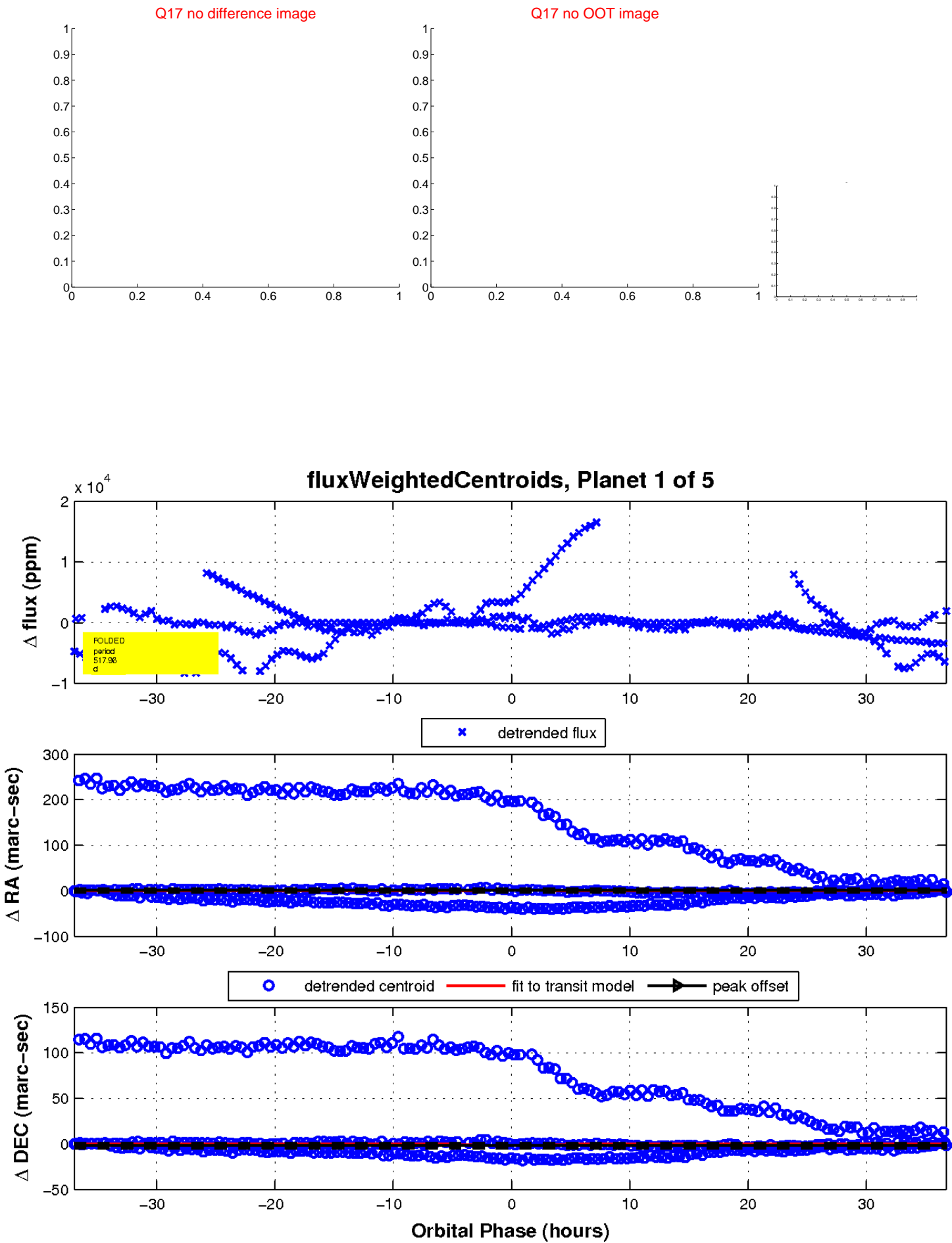
Q16 no difference image



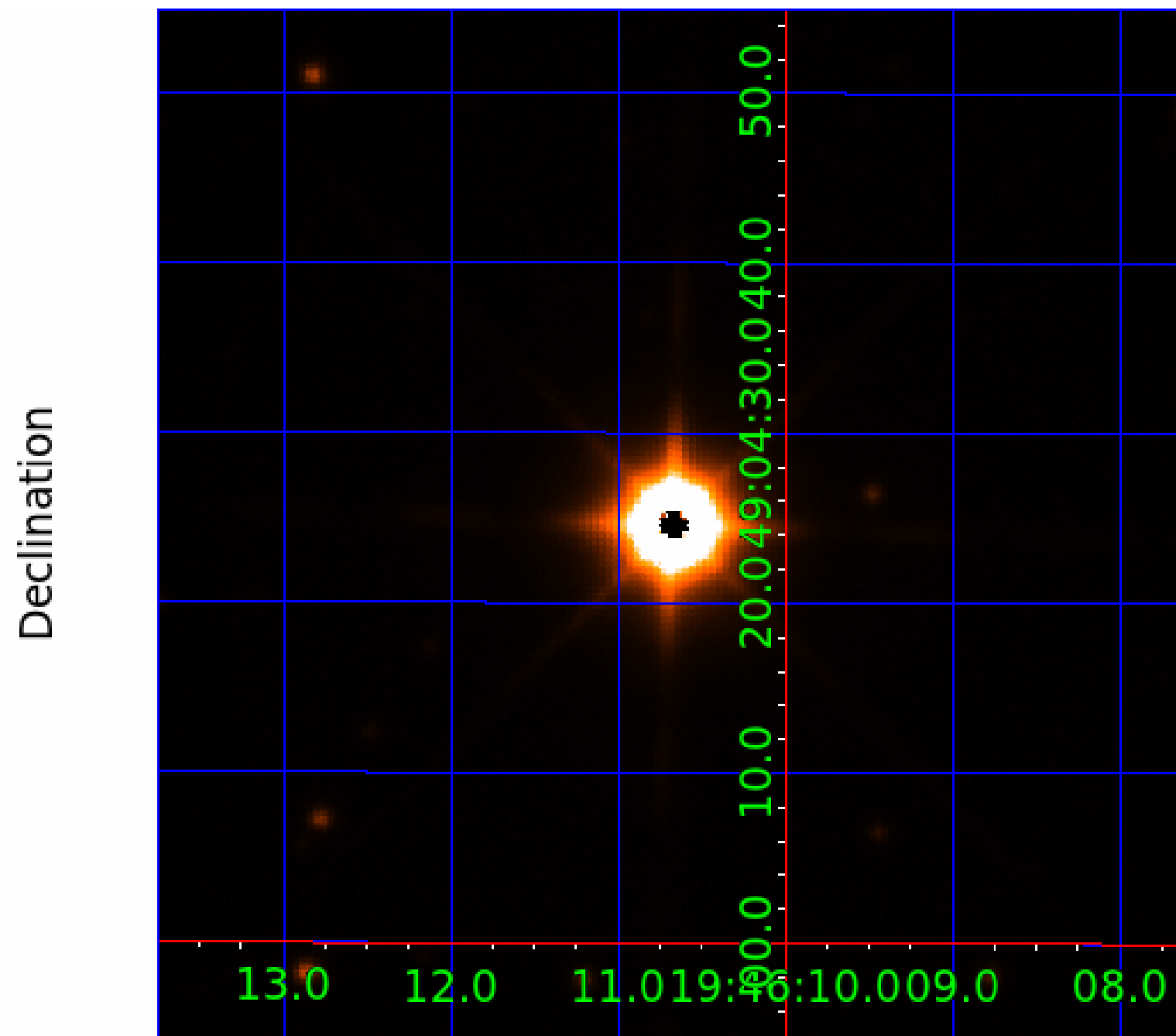
Q16 no OOT image



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



UKIRT Image



KIC 011307603

Q1-17 DR25 TCE Parameters

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Robovetter Results

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011307603-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
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Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

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

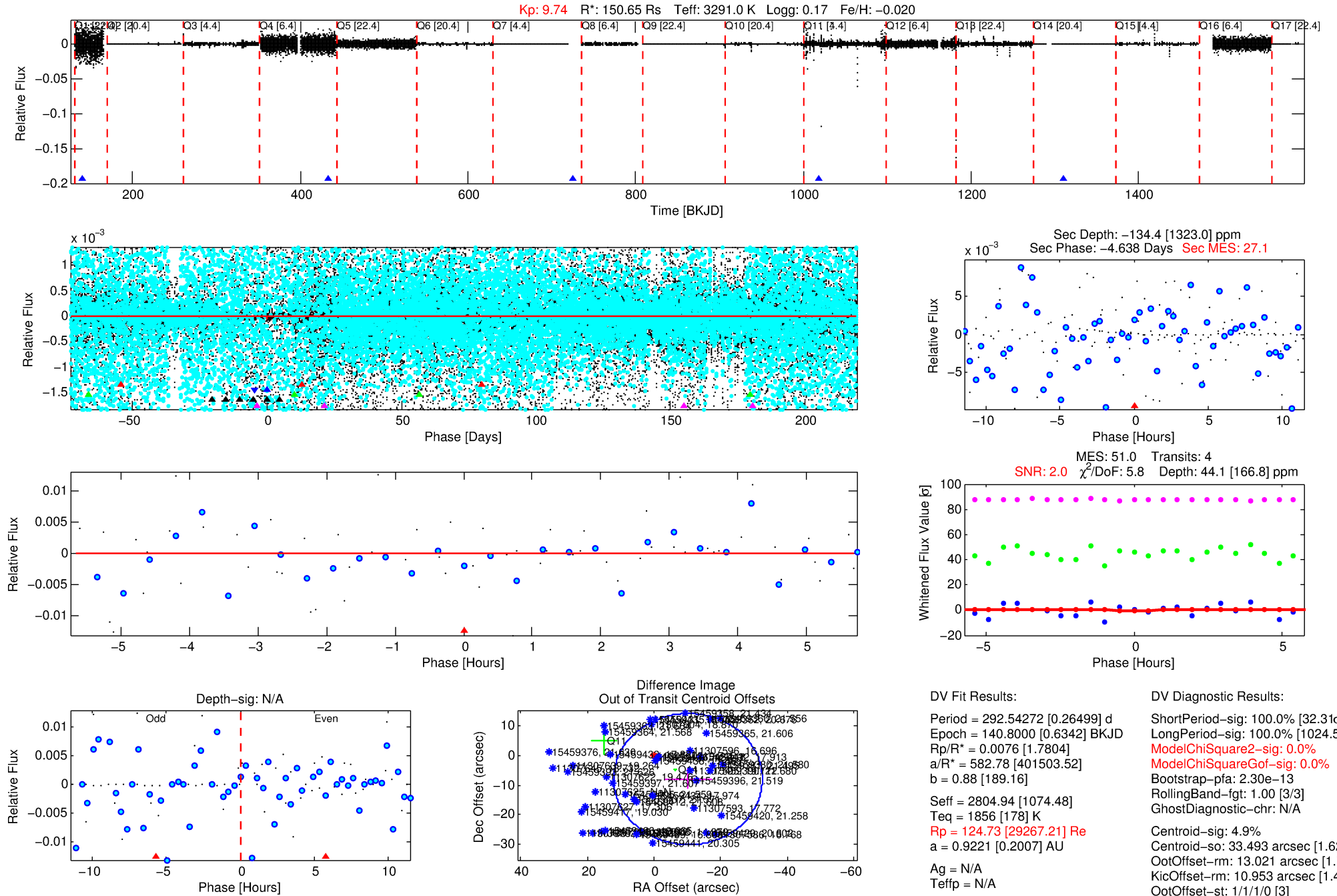
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011307603-02

No Significant Match Found

DV One-Page Summary

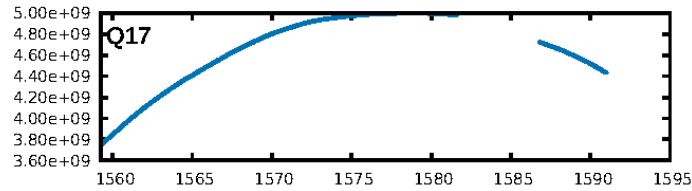
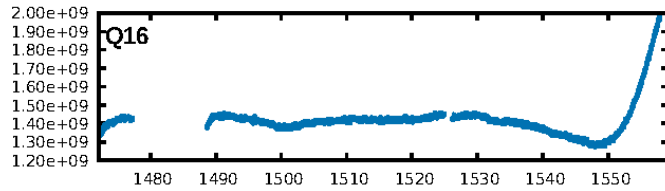
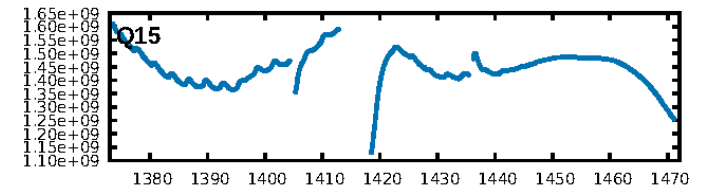
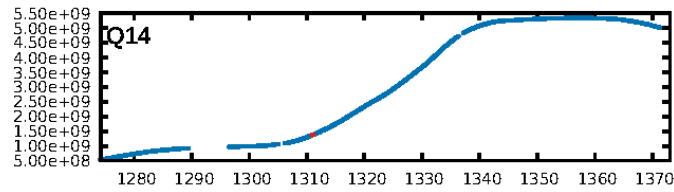
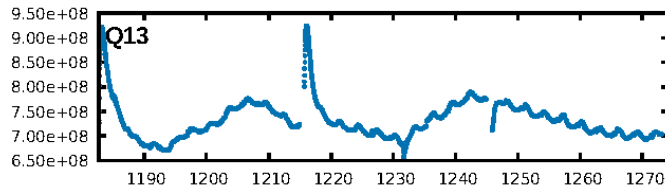
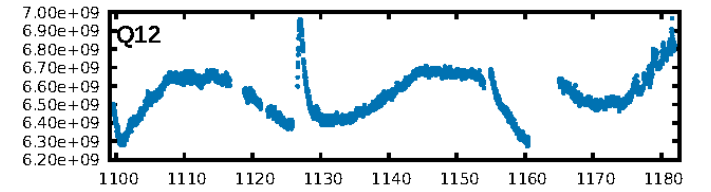
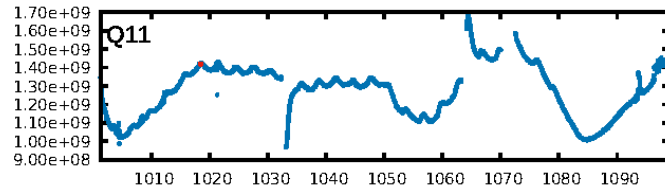
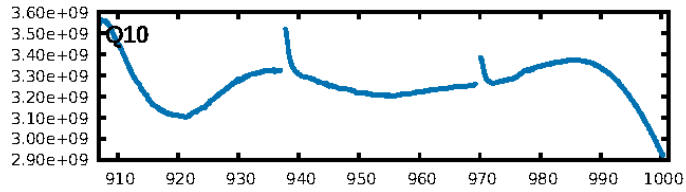
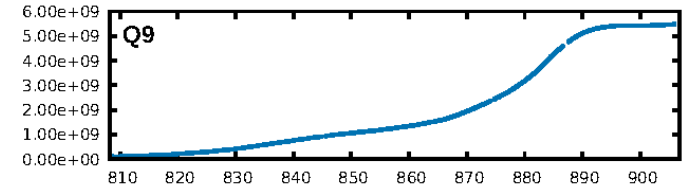
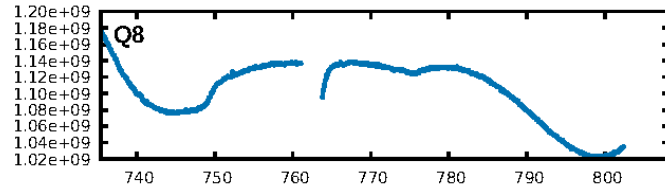
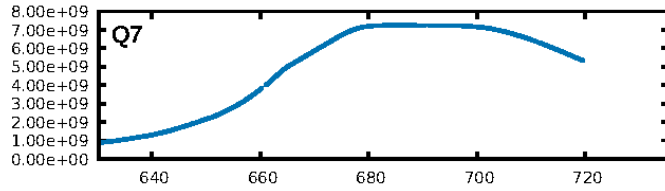
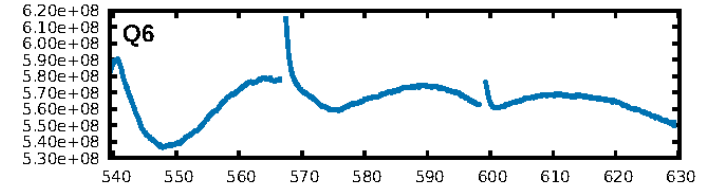
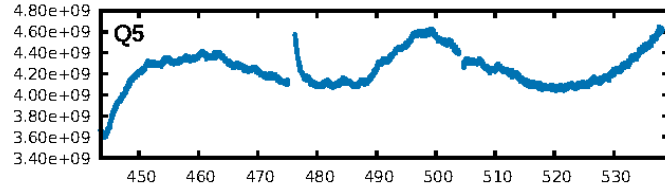
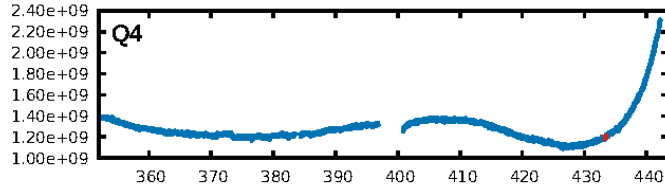
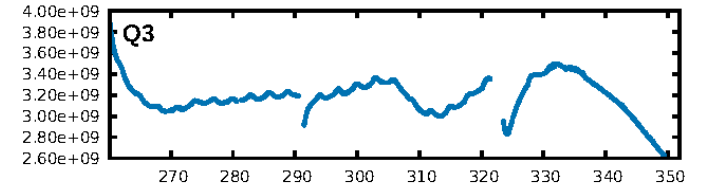
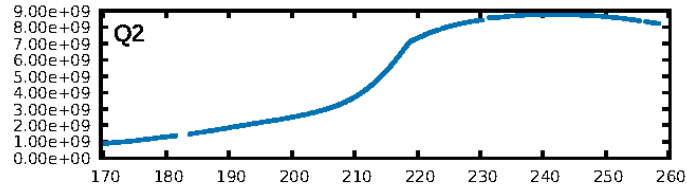
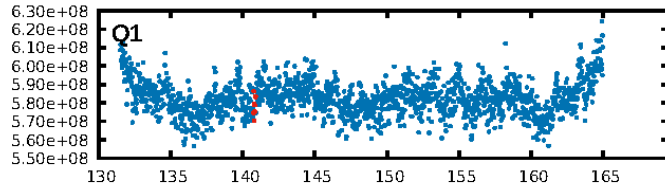
KIC: 11307603 Candidate: 2 of 5 Period: 292.543 d



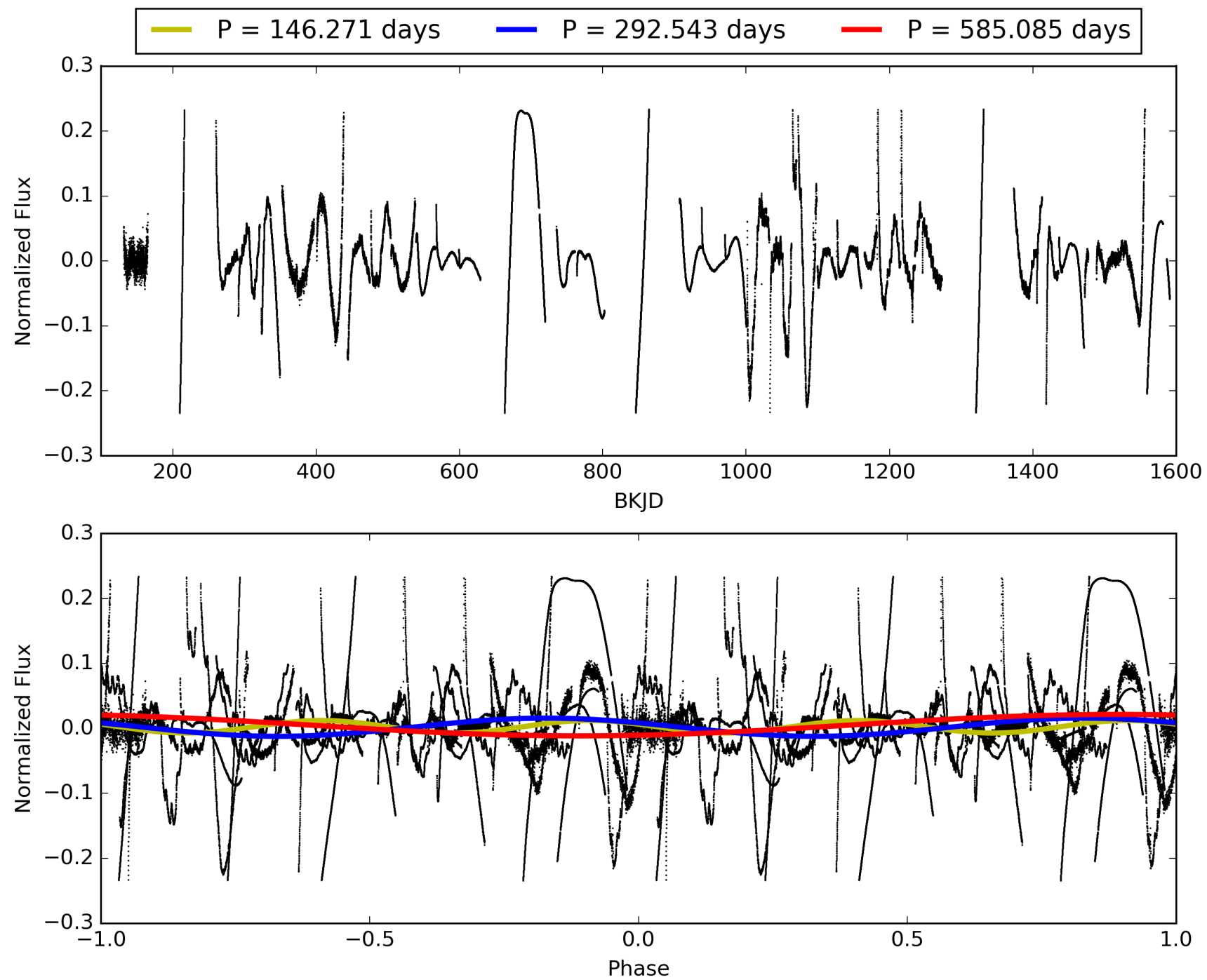
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:53:58 Z

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

TCE 011307603-02, PDC Light Curves

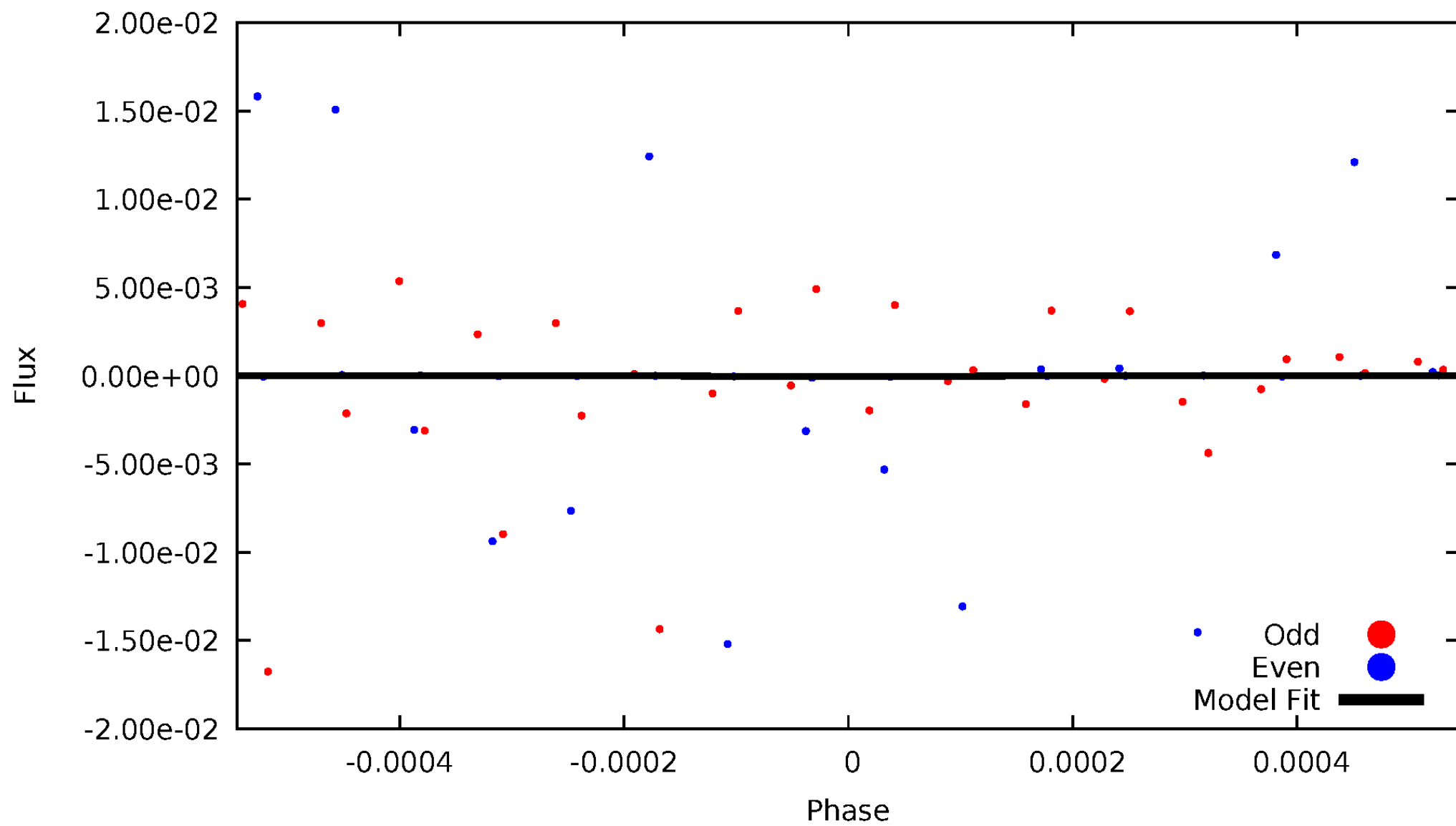


TCE 011307603-02



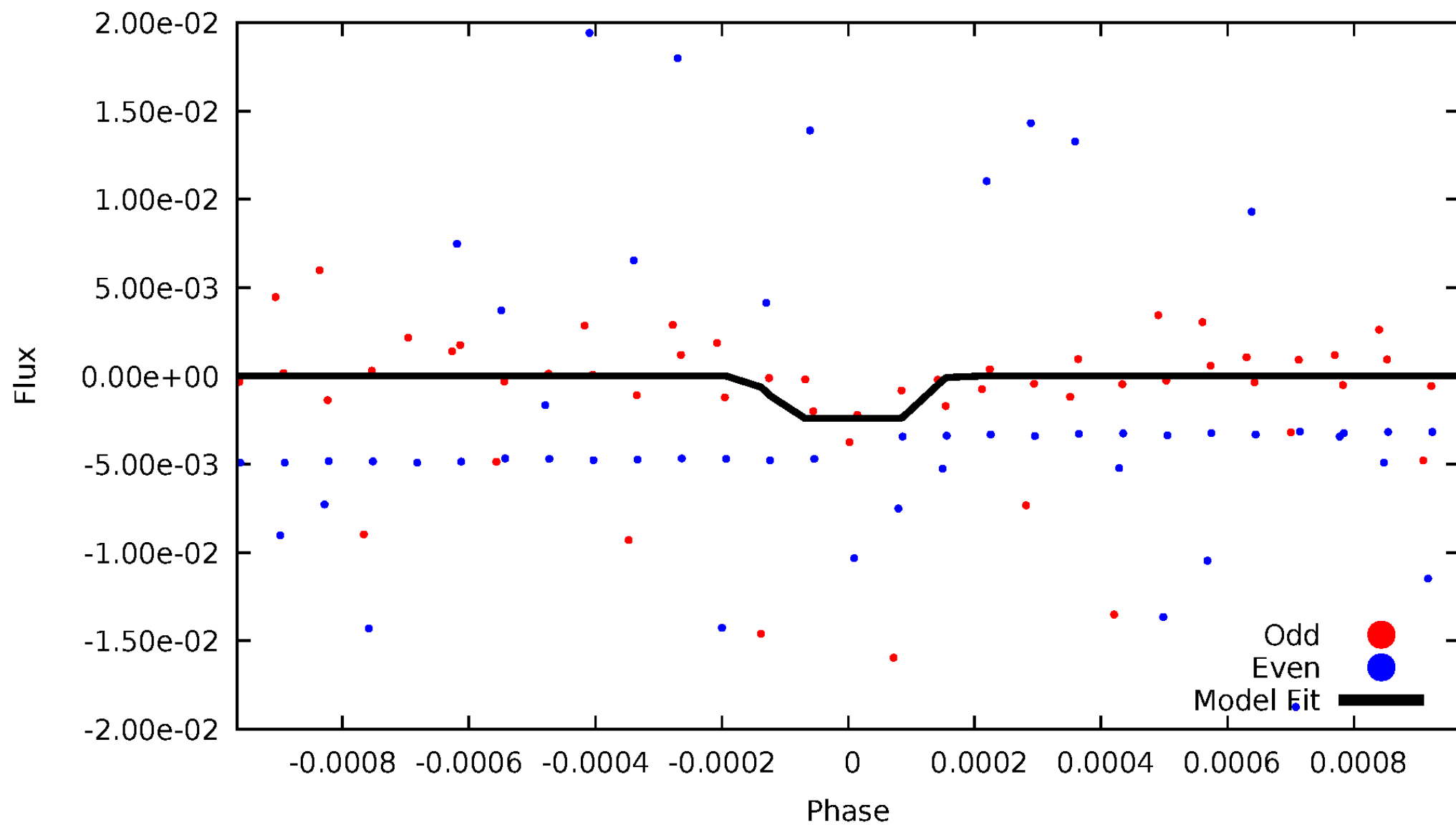
DV Odd/Even

TCE 011307603-02



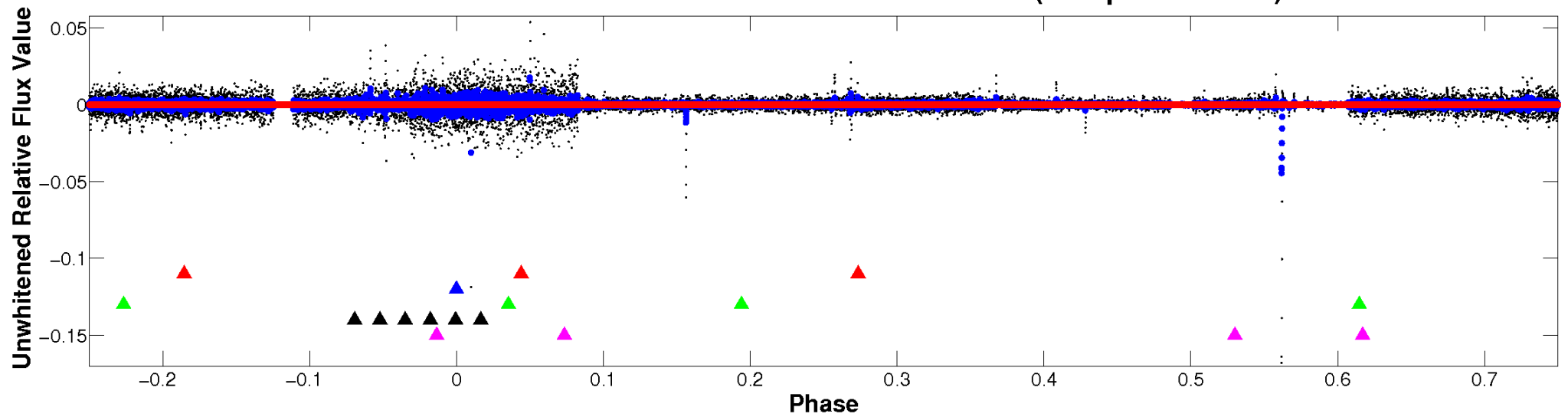
ALT Odd/Even

TCE 011307603-02

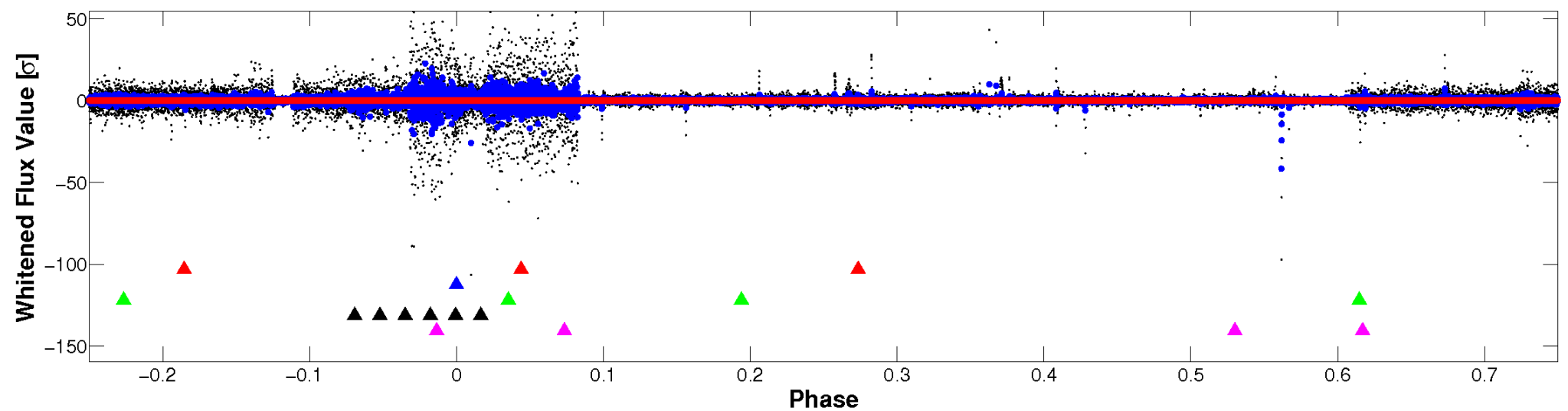


Non-Whitened Vs. Whitened Light Curve

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

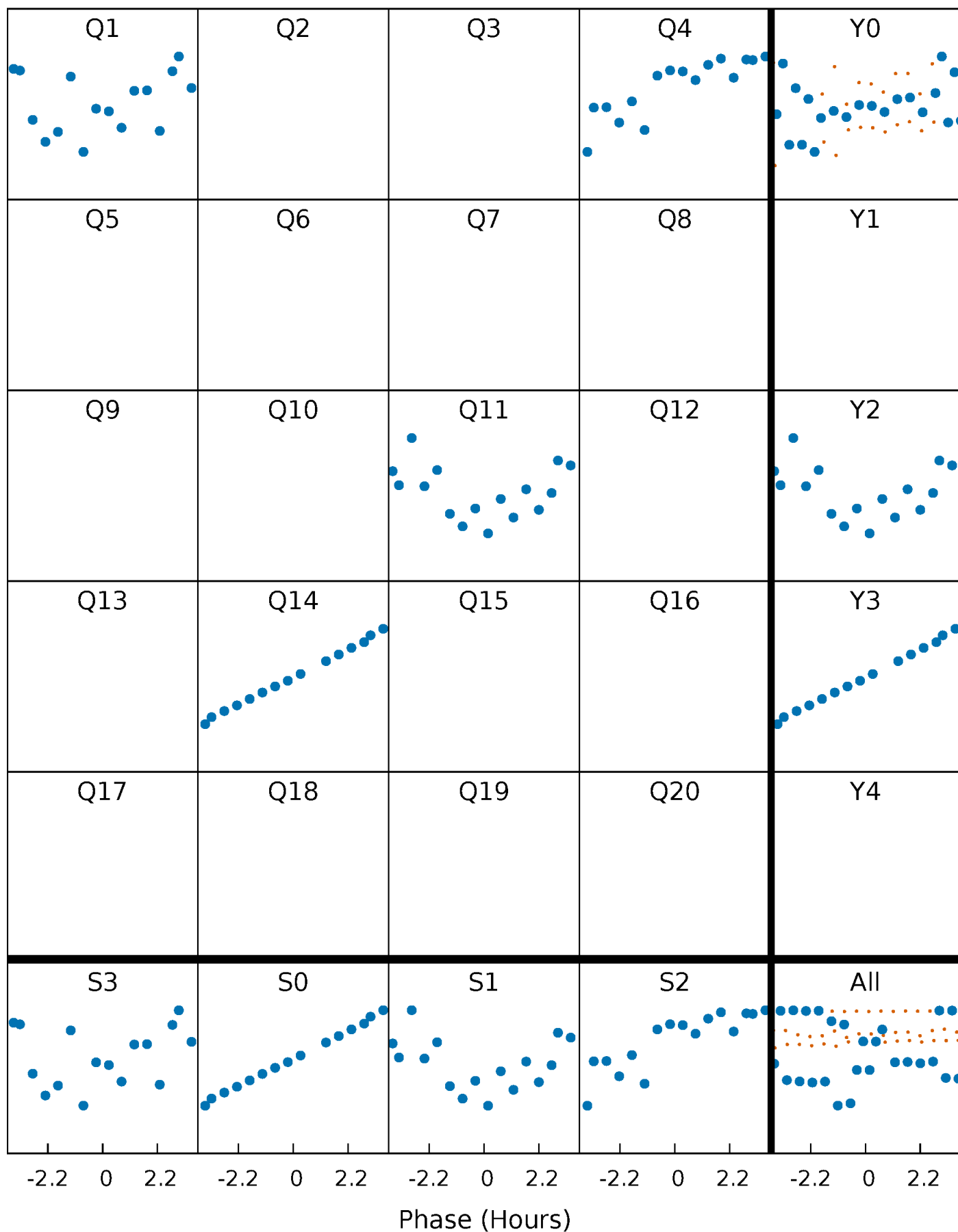


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



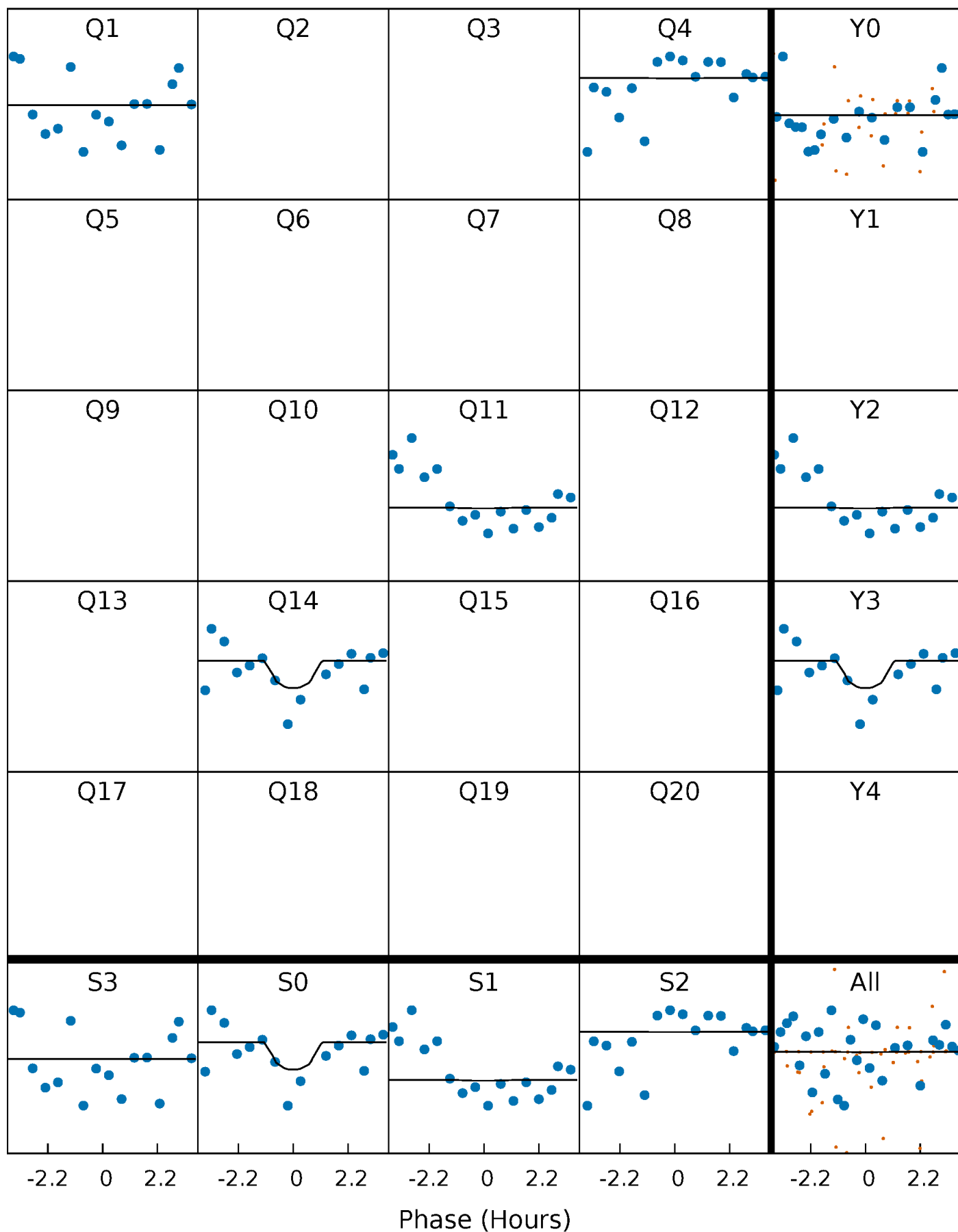
PDC Quarter-Phased Transit Curves

TCE 011307603-02 $P=292.542723$ Days $T_0=140.800004$ (BKJD)



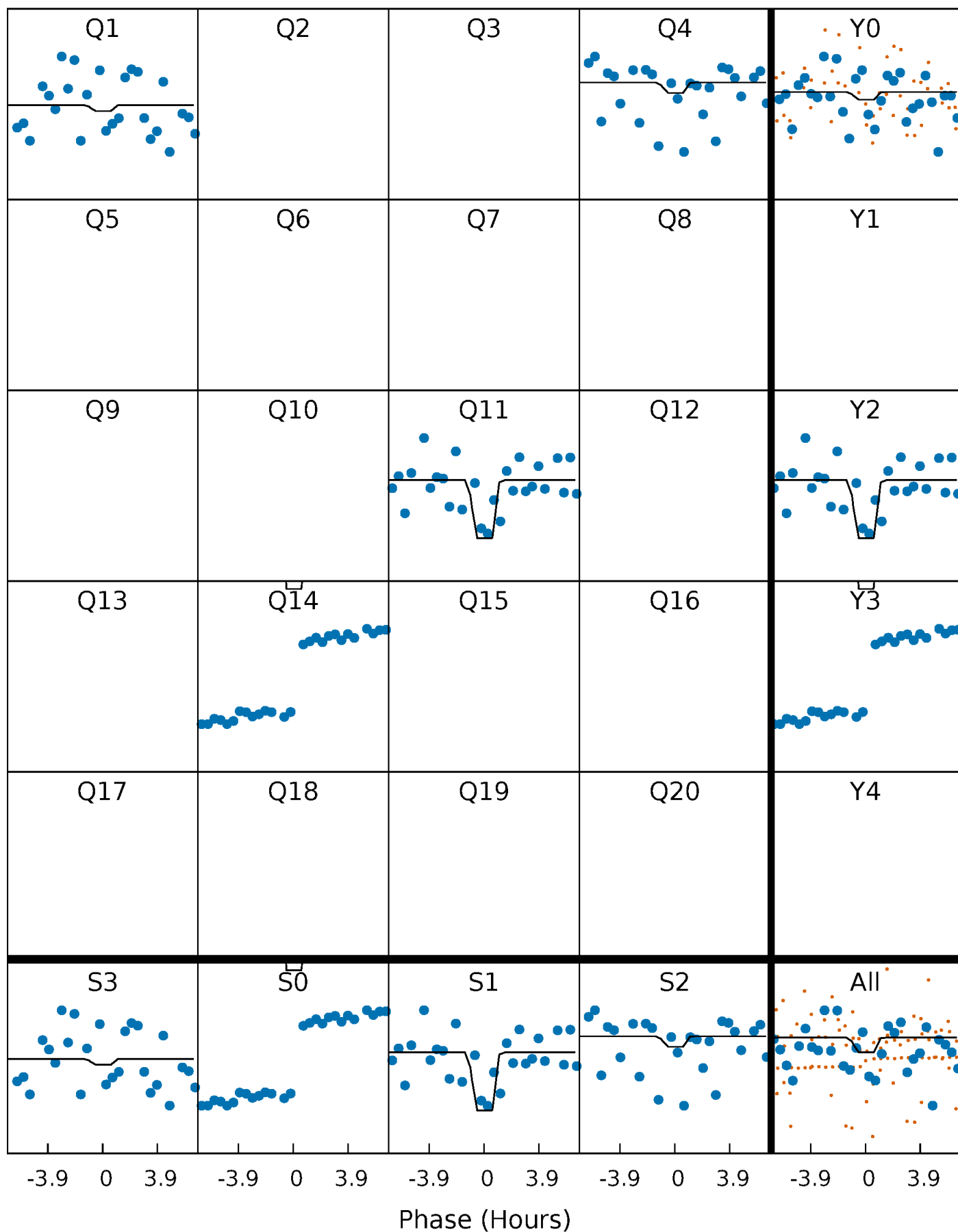
DV Quarter-Phased Transit Curves

TCE 011307603-02 $P=292.542723$ Days $T_0=140.800004$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

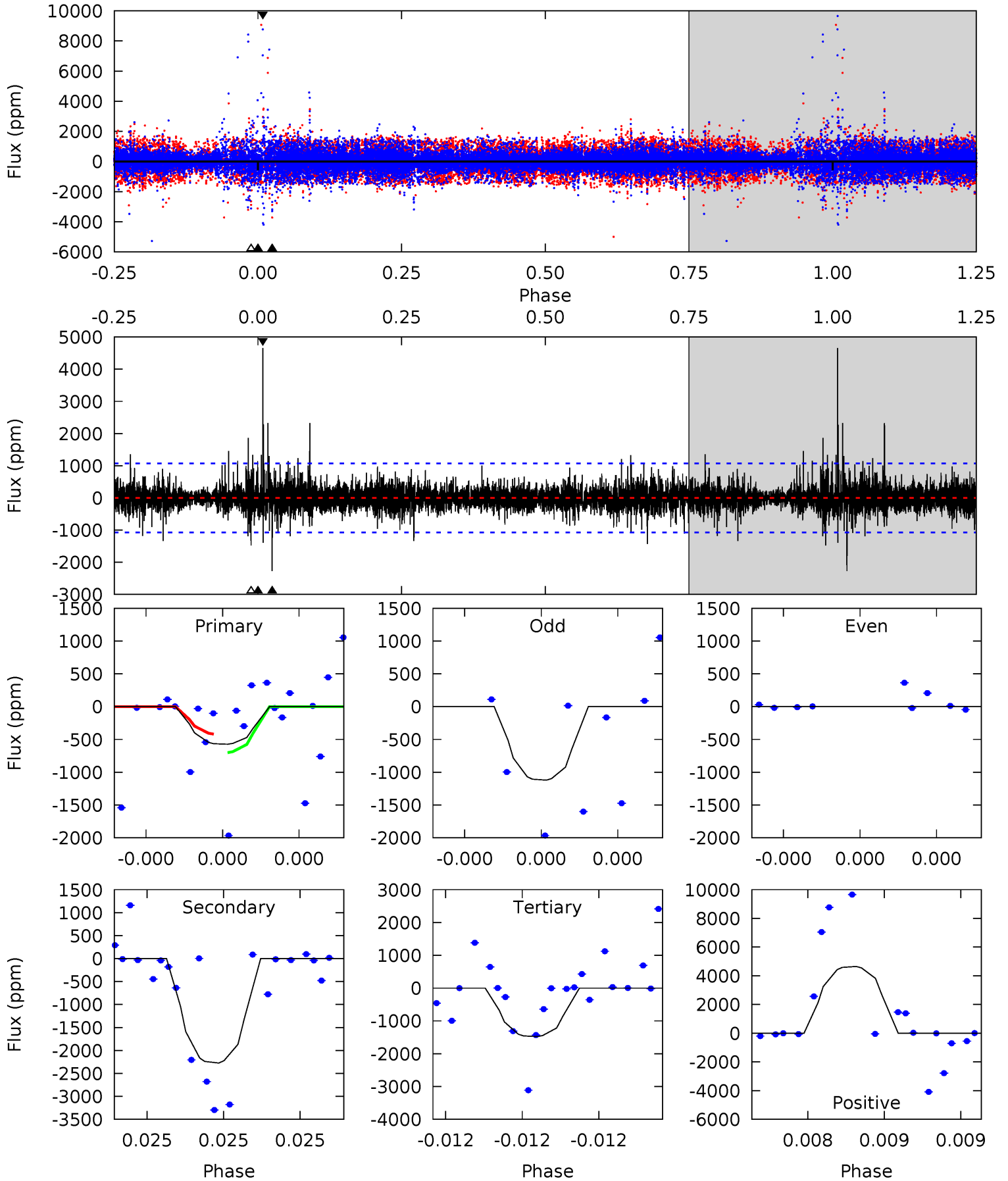
TCE 011307603-02 P=292.609063 Days $T_0=140.561396$ (BKJD)



DV Model-Shift Uniqueness Test

011307603-02, P = 292.542723 Days, E = 140.800004 Days

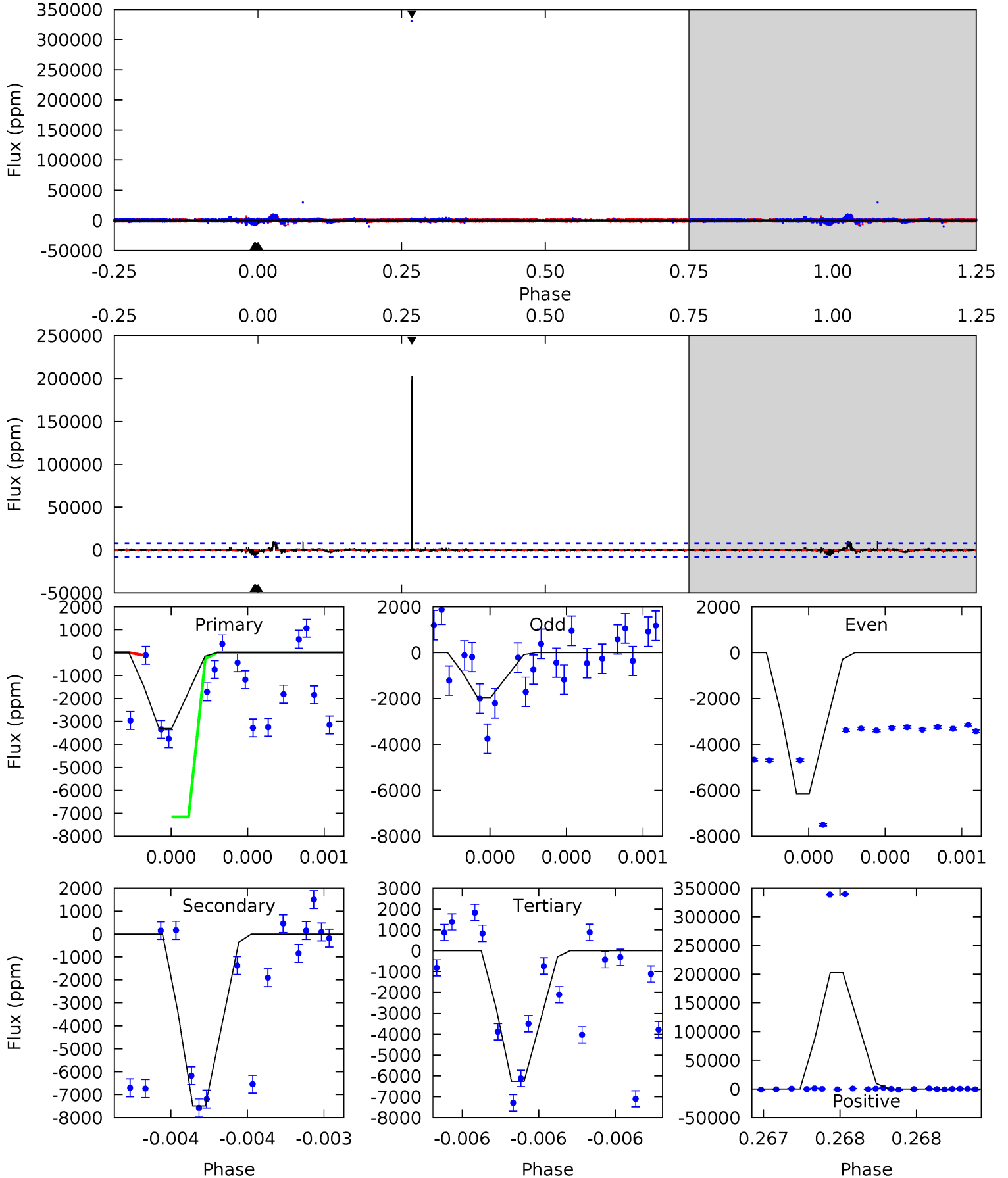
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.03	12.0	7.82	24.6	5.67	3.63	1.31	-4.79	-21.6	4.21	-12.6	0	2.68	0.67	0



Alt Model-Shift Uniqueness Test

011307603-02, P = 292.609063 Days, E = 140.561396 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.31	5.23	4.37	141.7	5.64	3.58	1.47	-2.06	-139.4	0.86	-136.5	0.13	1.17	0.96	0



Stellar Parameters For KIC 011307603

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3291^{+107}_{-88}	$0.169^{+0.216}_{-0.054}$	$-0.020^{+0.250}_{-0.150}$	$150.645^{+9.958}_{-31.865}$	$1.221^{+0.202}_{-0.166}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+128%/-32%	+1250%/-750%	+7%/-21%	+17%/-14%	+107%/-17%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011307603-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2274 ± 189	$20147.16^{+20699.25}_{-14609.35}$	2551^{+112}_{-143}	-2543^{+116}_{-88}	$0.003^{+0.033}_{-0.002}$
Alt.	-7488 ± 1431	$19657.53^{+20926.42}_{-13657.59}$	2548^{+124}_{-155}	-2526^{+159}_{-99}	$0.010^{+0.081}_{-0.007}$

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

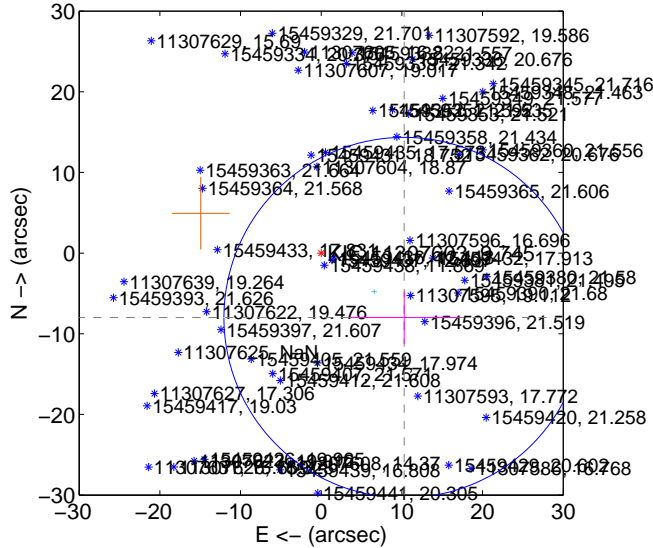
Supplemental centroid analysis for 011307603-02. **Kepler magnitude: 9.74.** Transit SNR 2.00

There are 1 quarters with good PRF difference image offsets

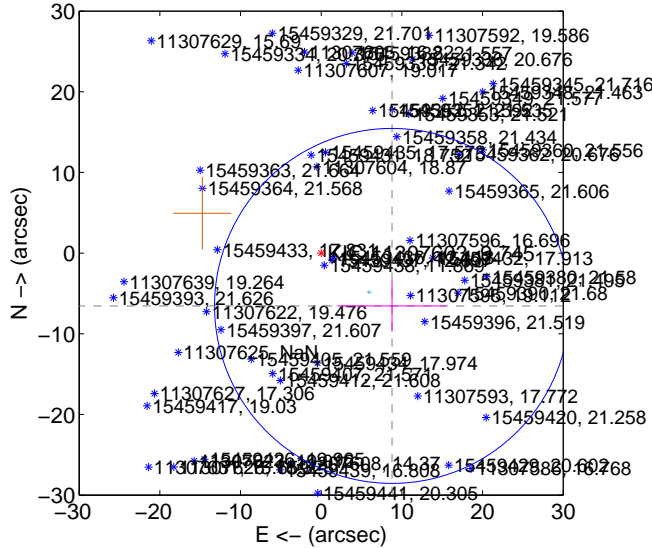
The direct PRF centroid is offset from the target star catalog position by about 0.63 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	13.021 ± 7.446	1.75	-10.281 ± 6.908	-7.991 ± 3.258
PRF-fit source offset from KIC position	10.953 ± 7.334	1.49	-8.781 ± 6.757	-6.547 ± 3.207
photometric centroid source offset	33.50 ± 20.72	1.62	-32.06 ± 21.29	-9.71 ± 13.00

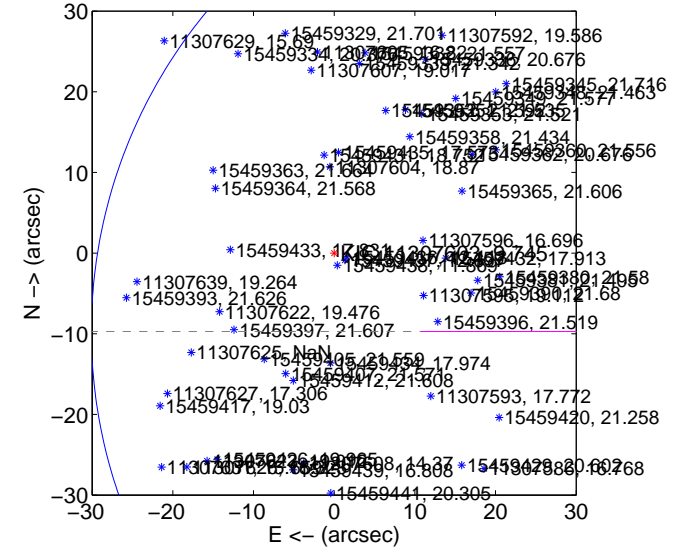
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

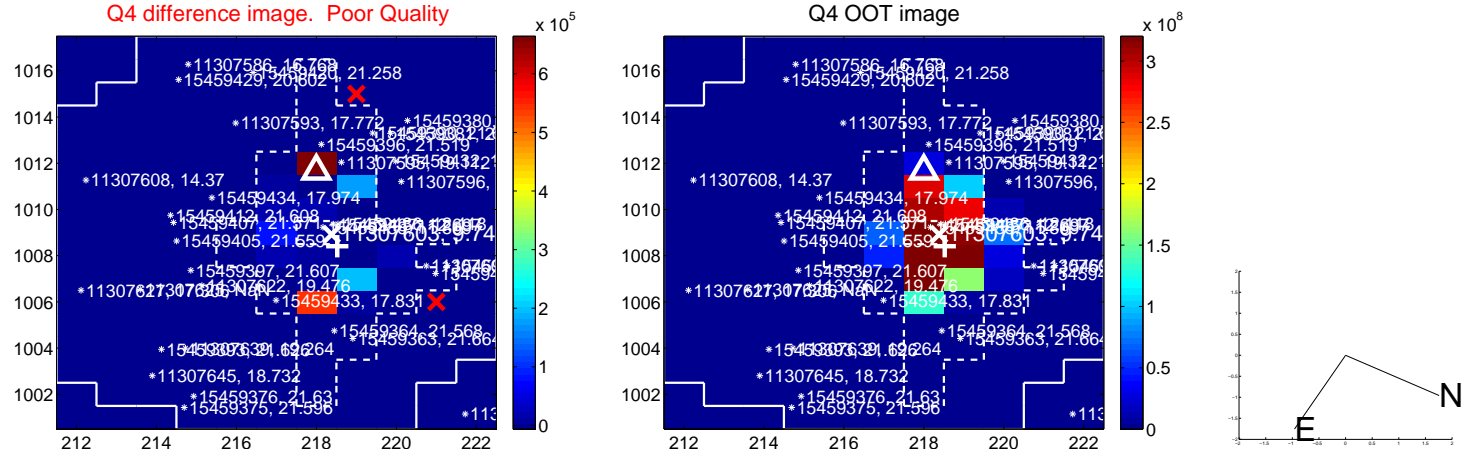
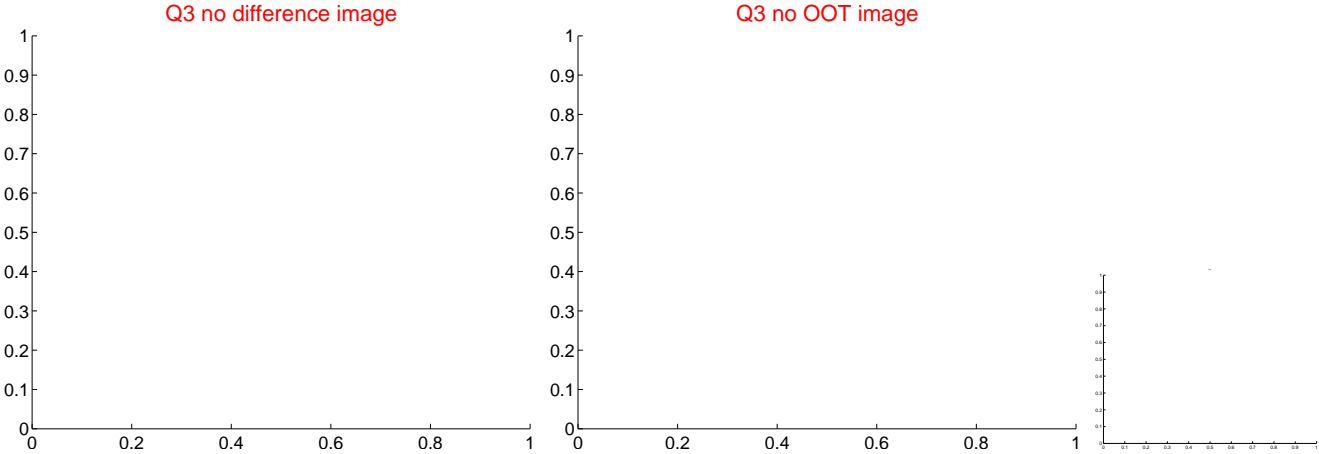
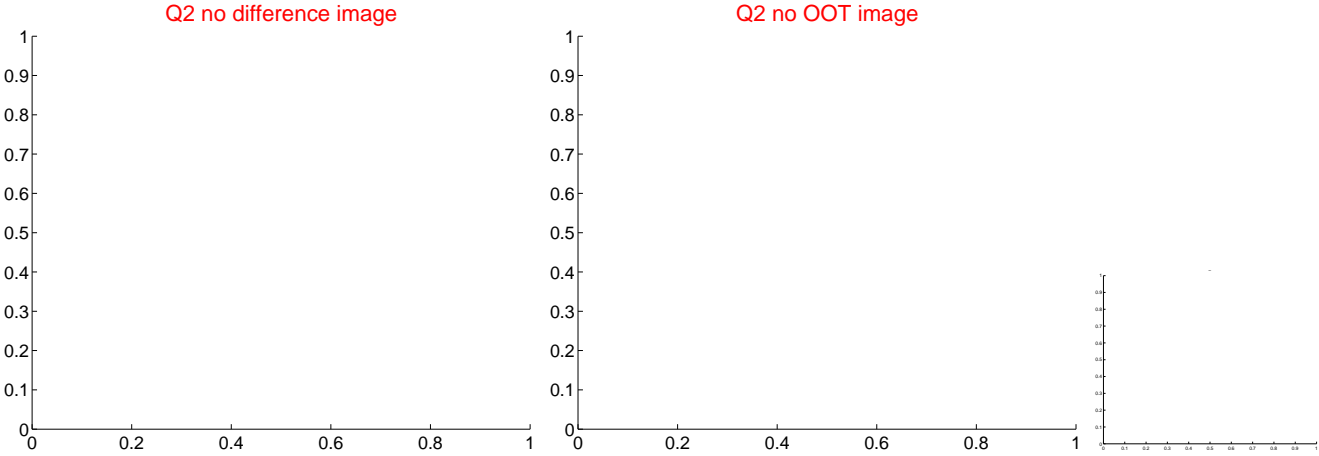
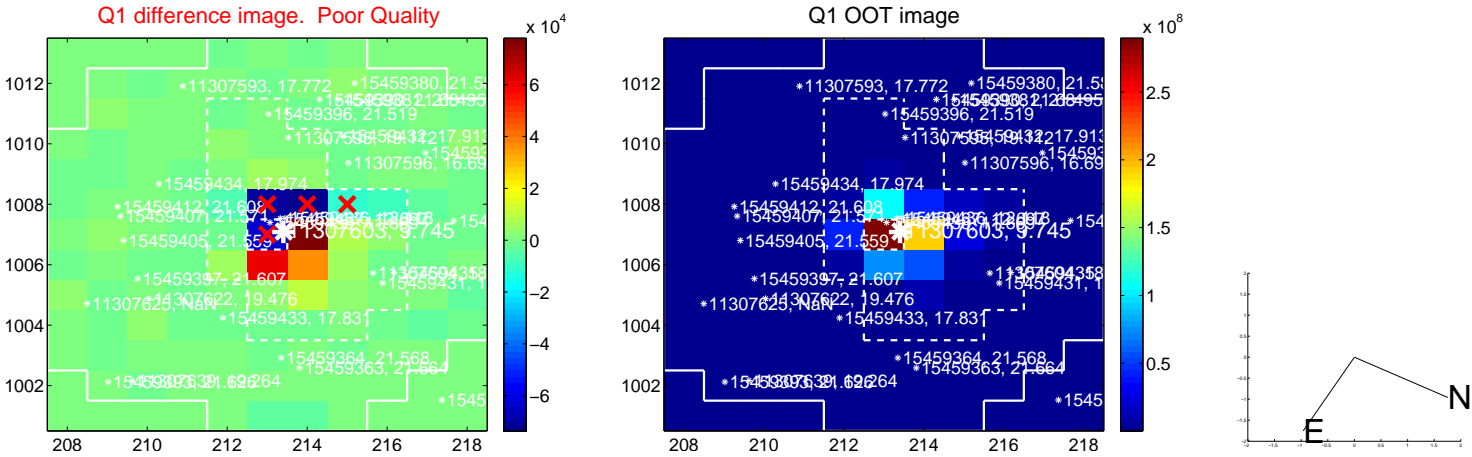


offset from photometric centroids



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.

Q9 no difference image



Q9 no OOT image



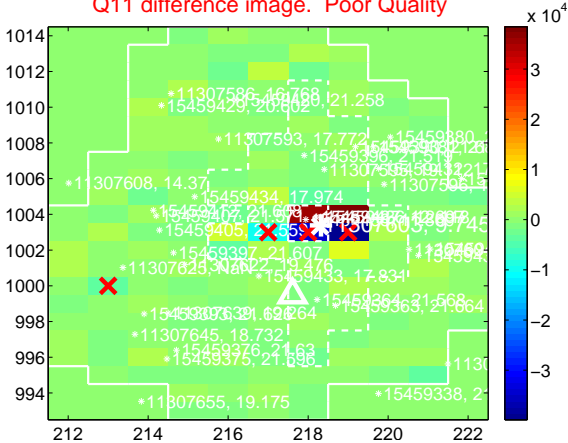
Q10 no difference image



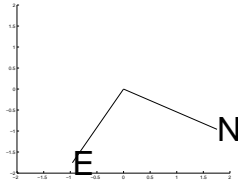
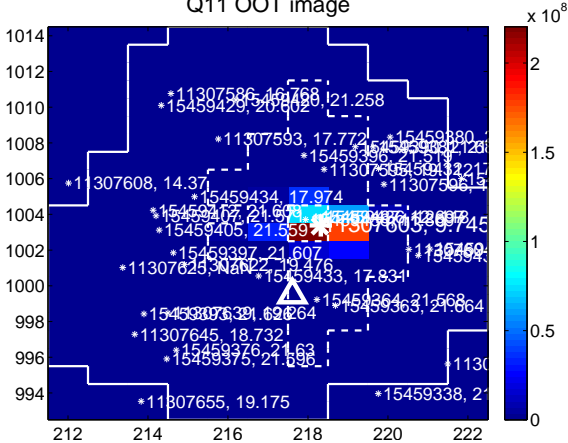
Q10 no OOT image



Q11 difference image. Poor Quality



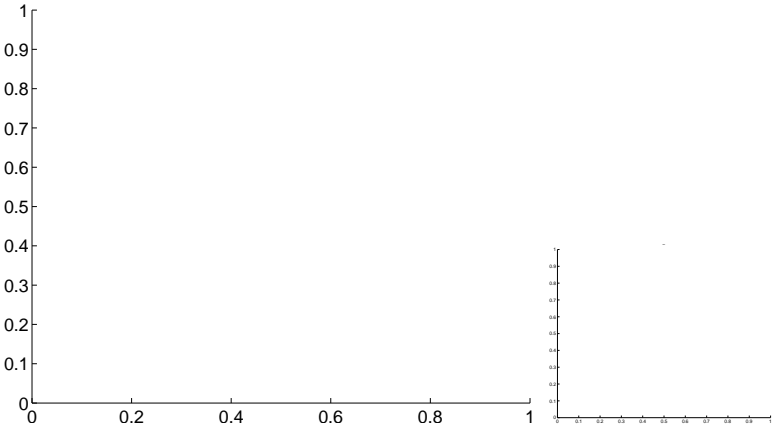
Q11 OOT image



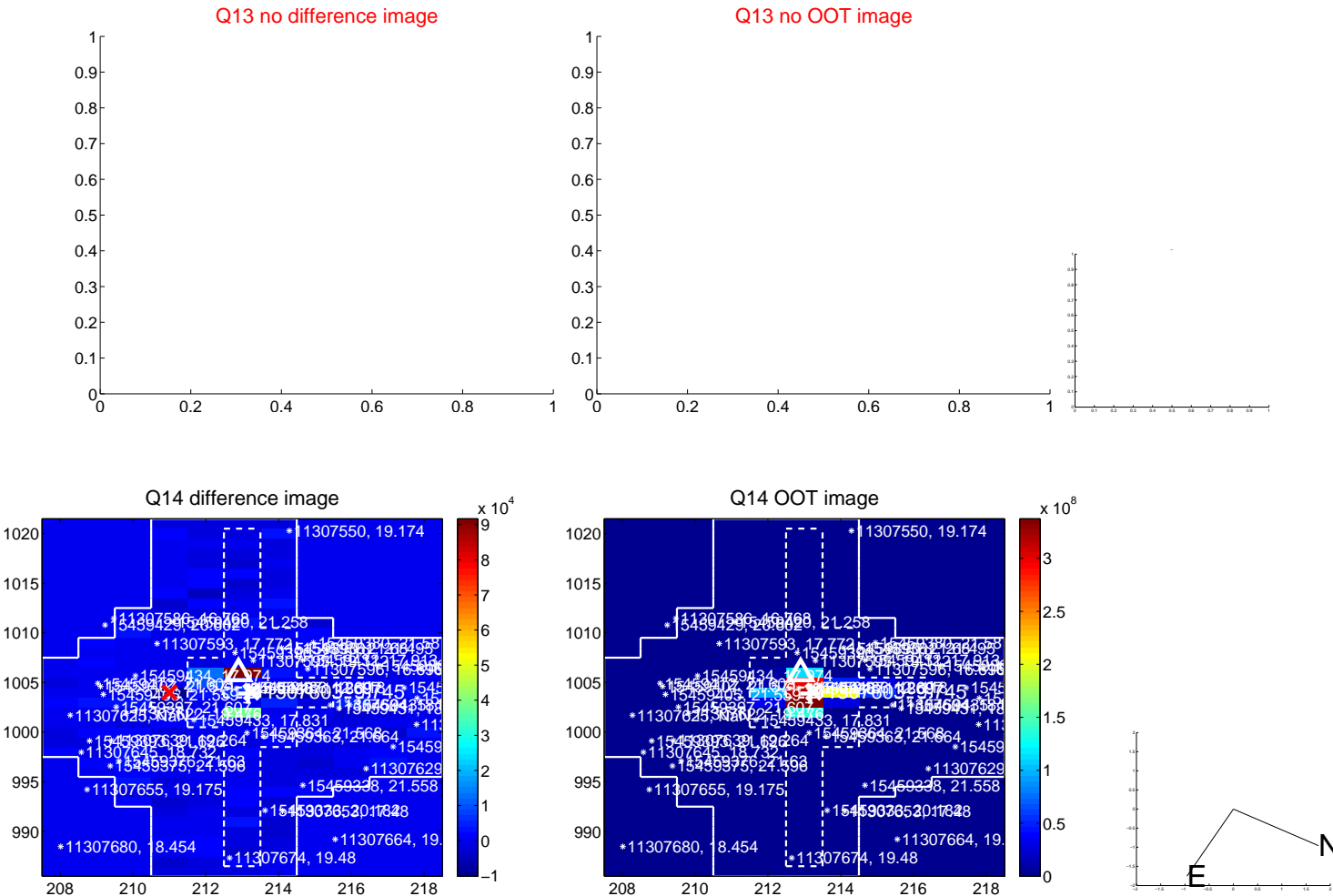
Q12 no difference image



Q12 no OOT image



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

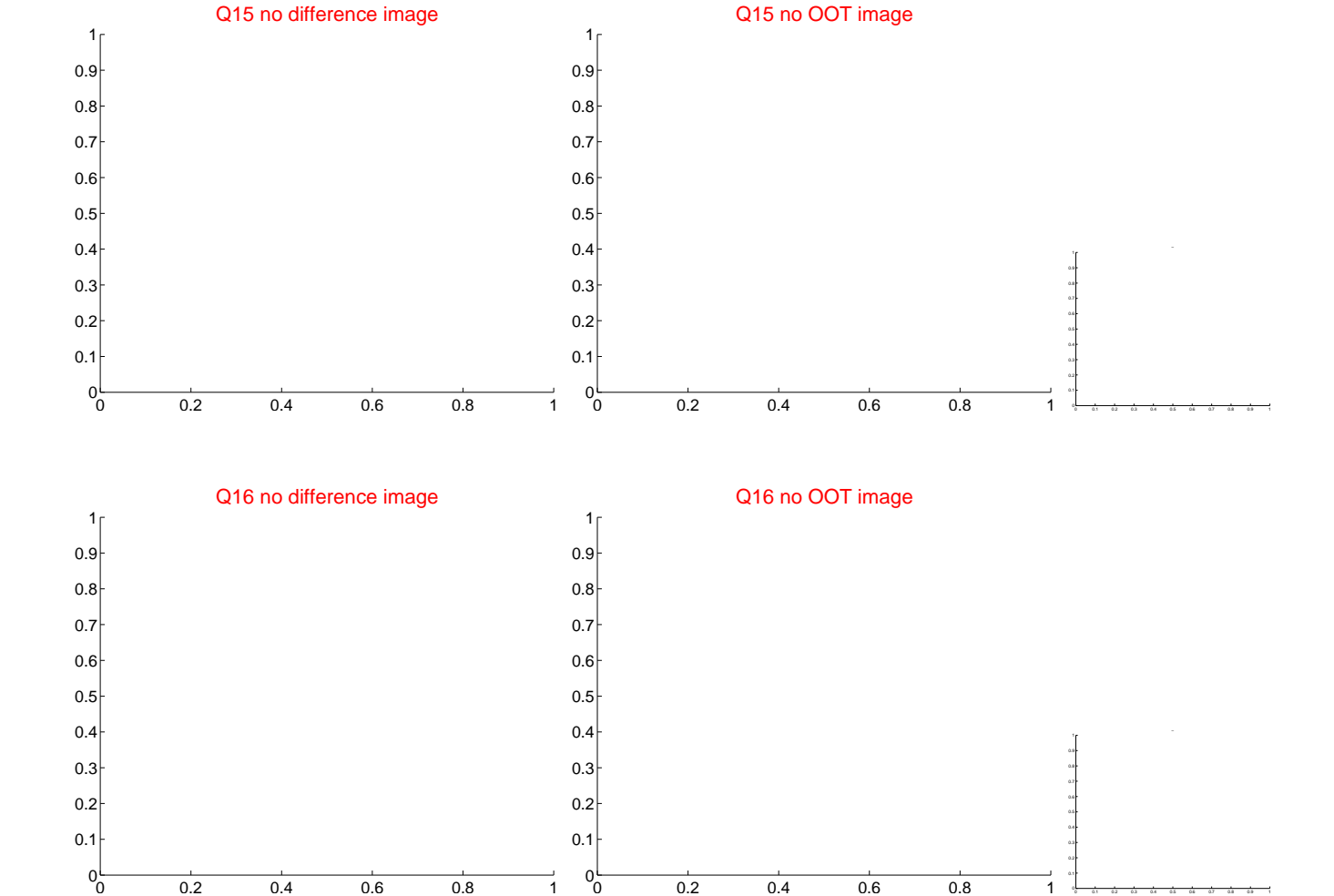


Q14 difference image

$\times 10^4$

Q14 OOT image

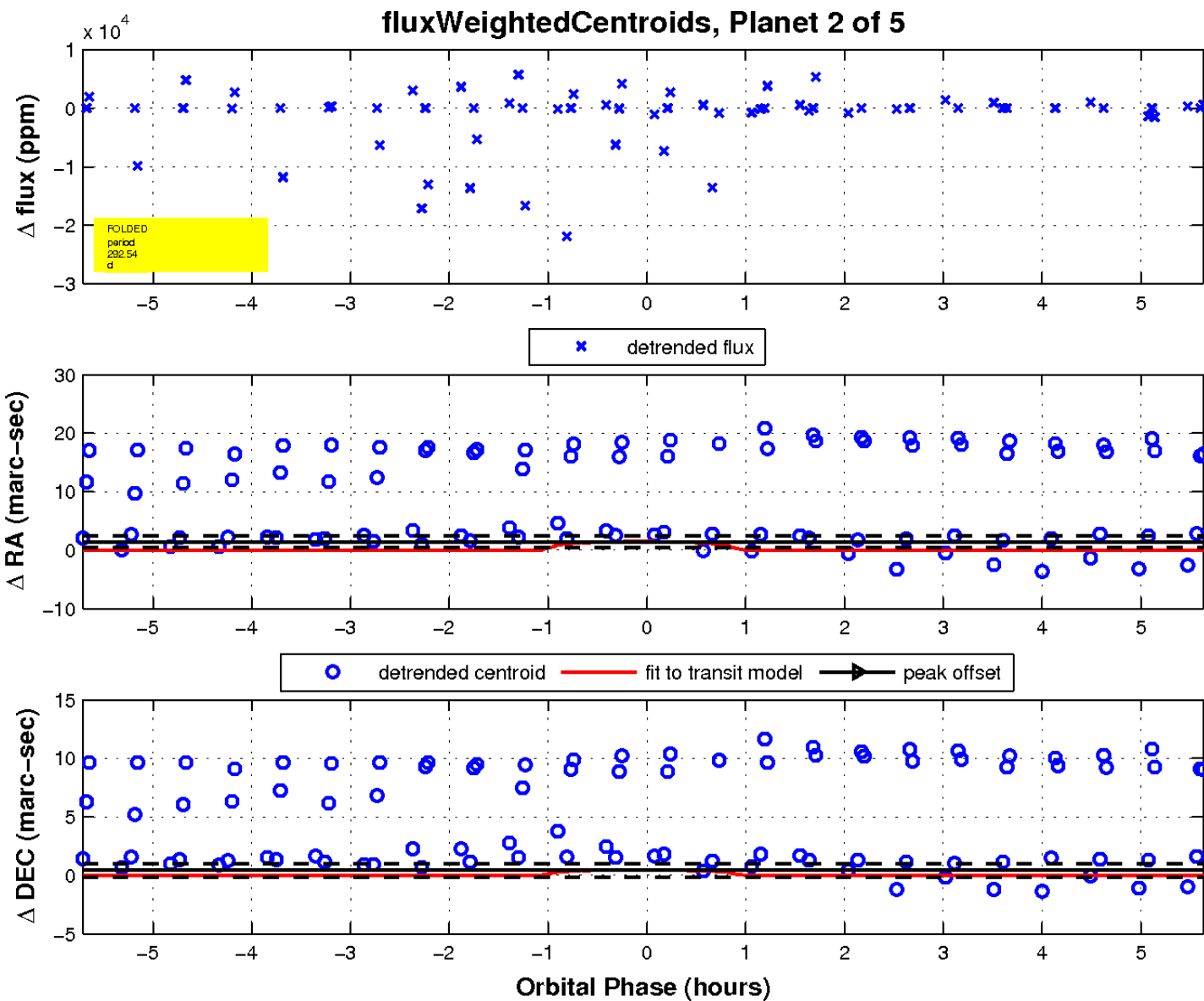
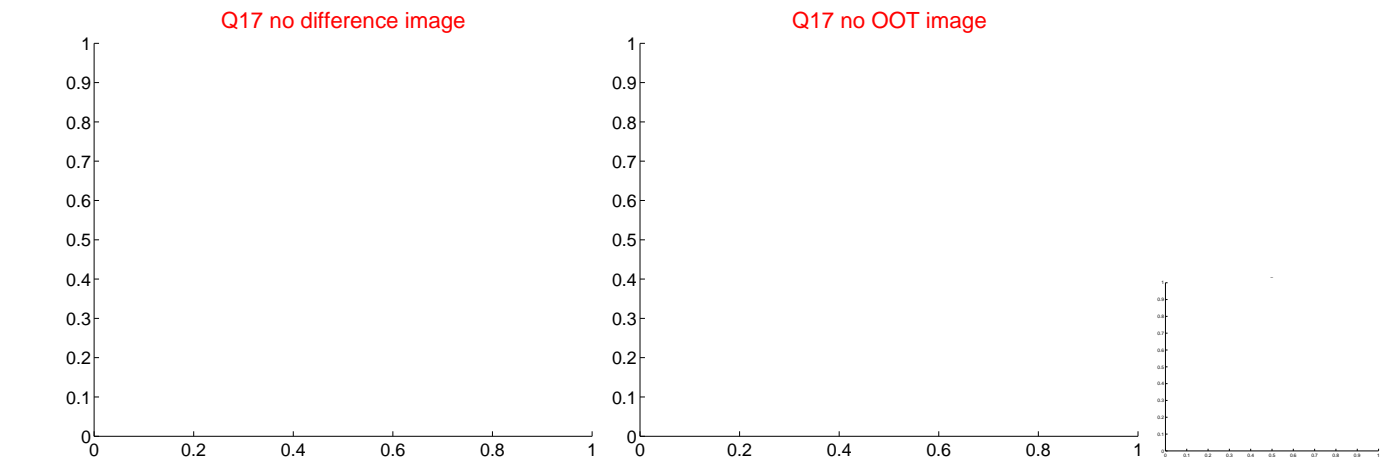
$\times 10^8$



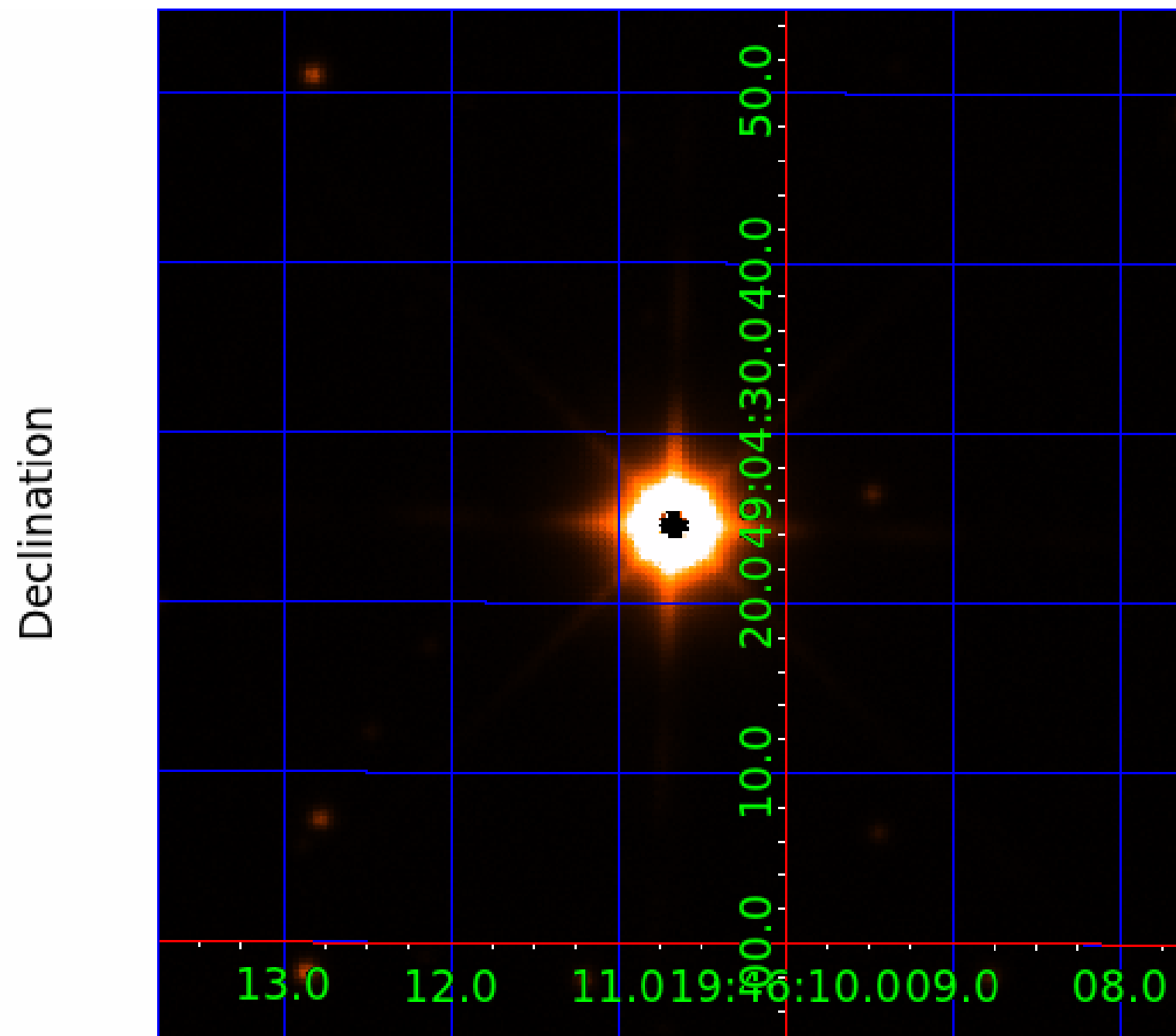
Q16 no difference image

Q16 no OOT image

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



UKIRT Image



KIC 011307603

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})
011307603-01	OBS	No	517.958477	220.820464	2256.7	12.319	17.6	20.1	150.65	3291	1103.59	1309.53
011307603-02	OBS	No	292.542723	140.800003	44.1	1.912	51.0	2.0	150.65	3291	124.73	2804.94
011307603-03	OBS	No	462.025087	151.147380	1281.8	7.624	32.0	3.2	150.65	3291	995.16	1525.07
011307603-05	OBS	No	451.535905	136.862339	790.0	3.196	43.3	2.3	150.65	3291	388.36	1572.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011307603-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011307603-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011307603-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011307603-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

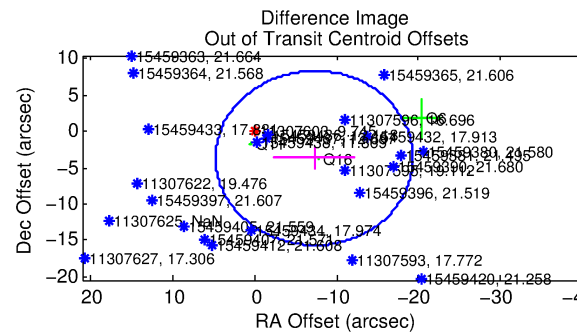
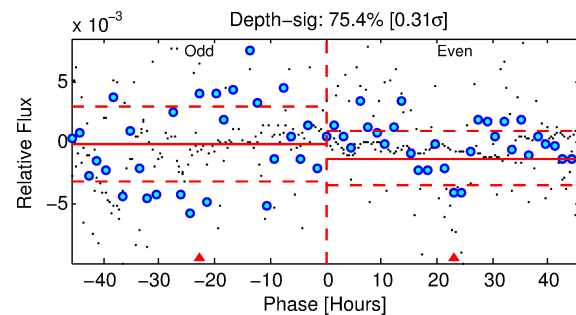
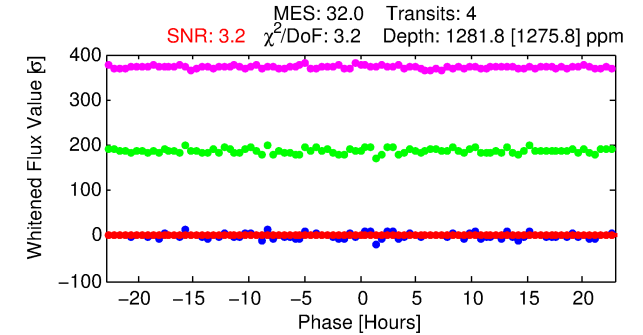
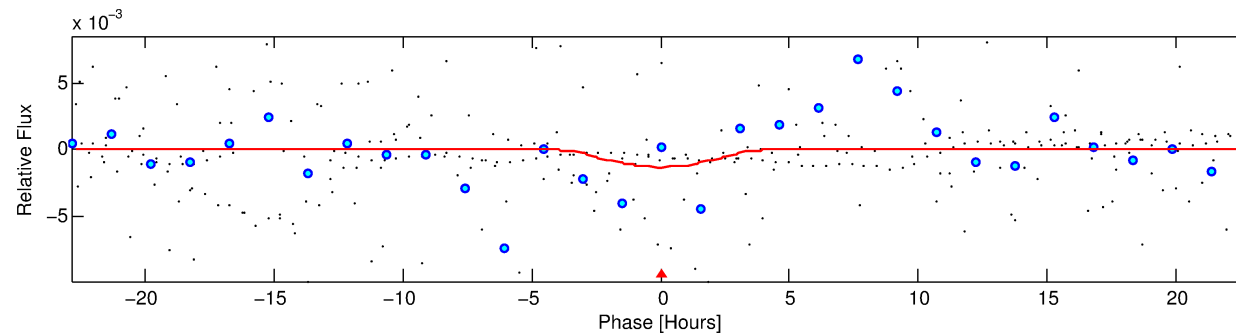
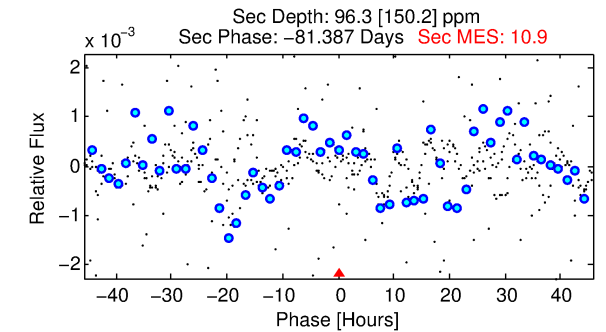
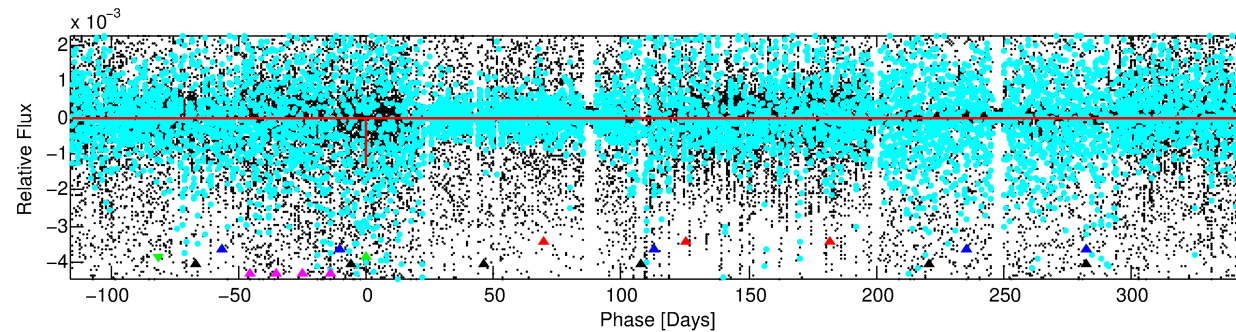
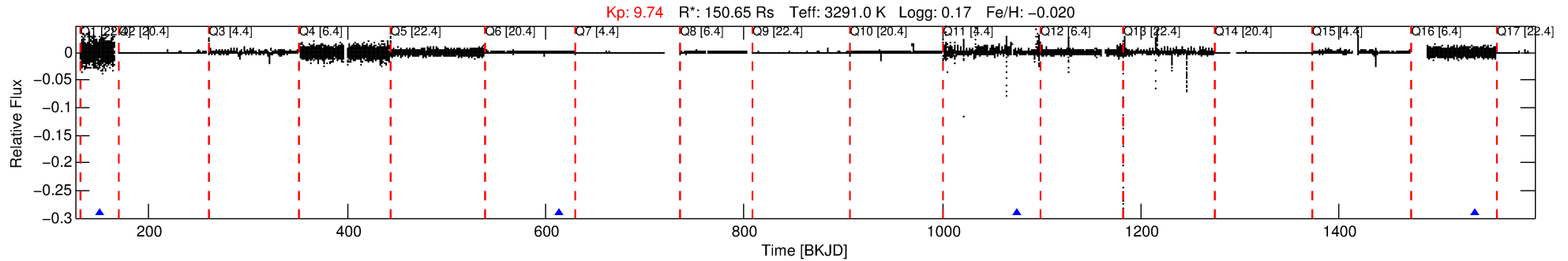
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011307603-03

No Significant Match Found

DV One-Page Summary

KIC: 11307603 Candidate: 3 of 5 Period: 462.025 d



DV Fit Results:

Period = 462.02509 [0.06411] d
Epoch = 151.1474 [0.0801] BKJD
Rp/R* = 0.0605 [0.3558]
a/R* = 184.77 [250.30]
b = 0.98 [0.58]
Seff = 1525.06 [584.20]
Teq = 1593 [153] K
Rp = 995.16 [5852.69] Re
a = 1.2506 [0.2722] AU
Ag = 0.08 [0.99] [-0.92 σ]
Teffp = 1325 [3928] K [-0.07 σ]

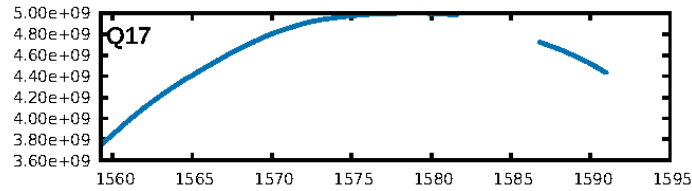
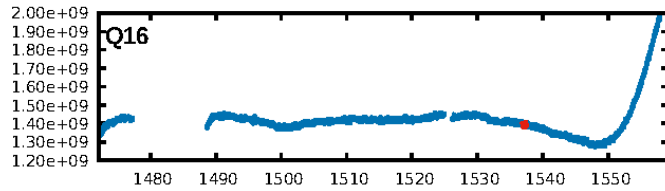
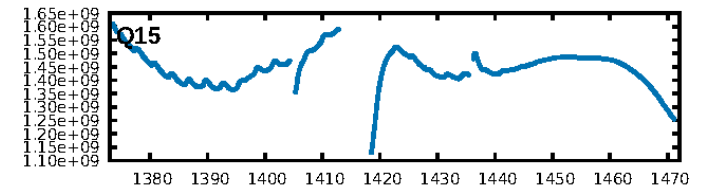
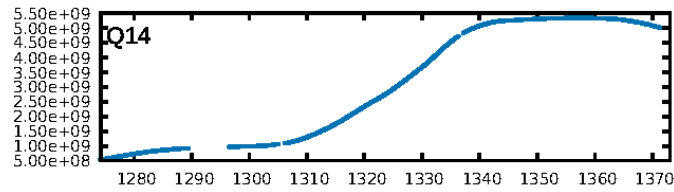
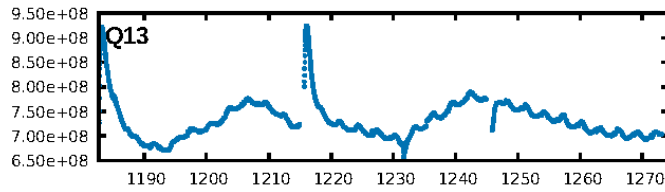
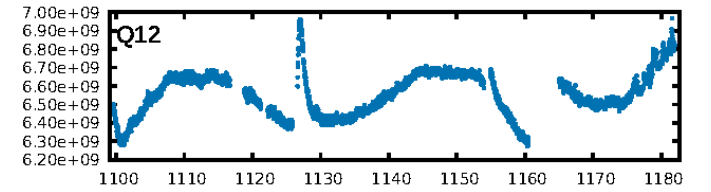
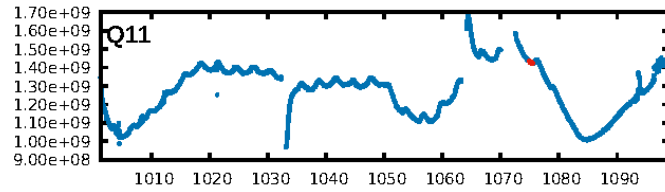
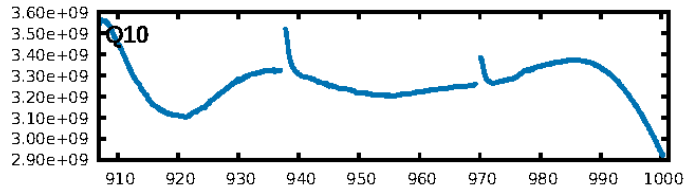
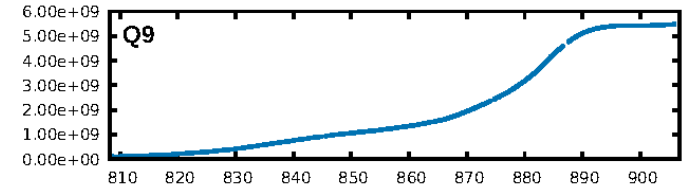
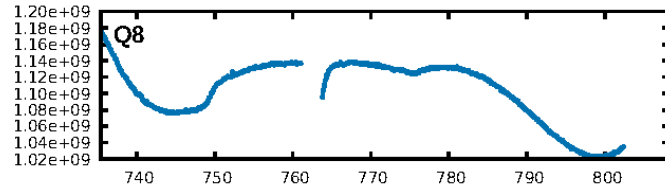
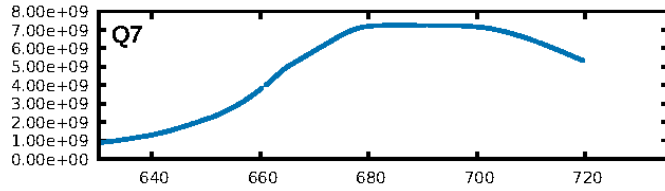
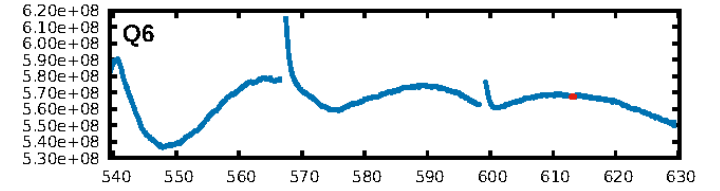
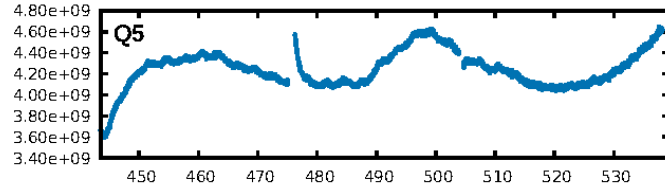
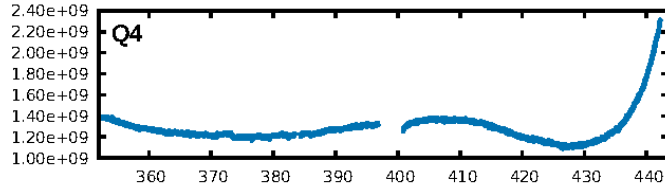
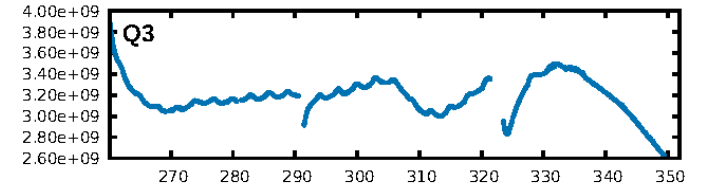
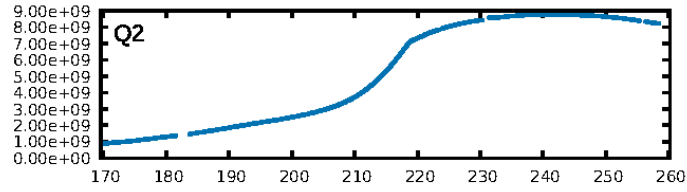
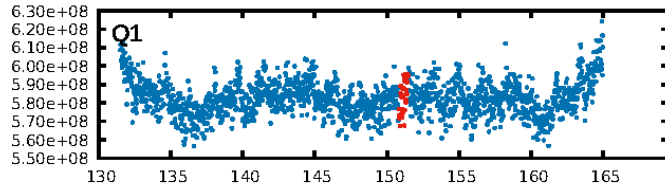
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [30.45 σ]
LongPeriod-sig: 100.0% [92.66 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.4%
Bootstrap-pfa: 1.30e-04
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 31.7%
Centroid-so: 1.907 arcsec [1.44 σ]
OotOffset-rm: 8.168 arcsec [2.04 σ]
KicOffset-rm: 6.488 arcsec [2.26 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [4/4]

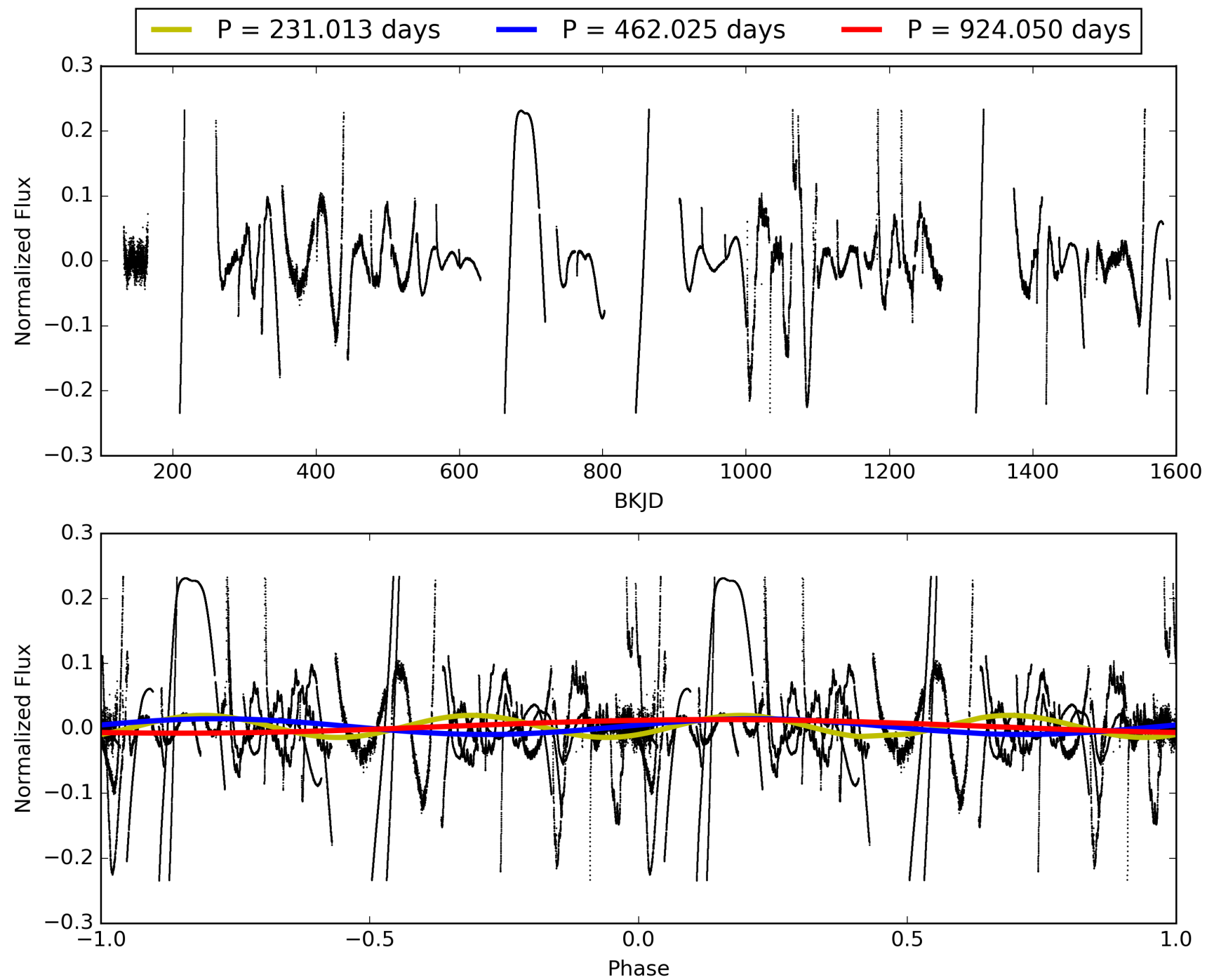
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:54:09 Z

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

TCE 011307603-03, PDC Light Curves

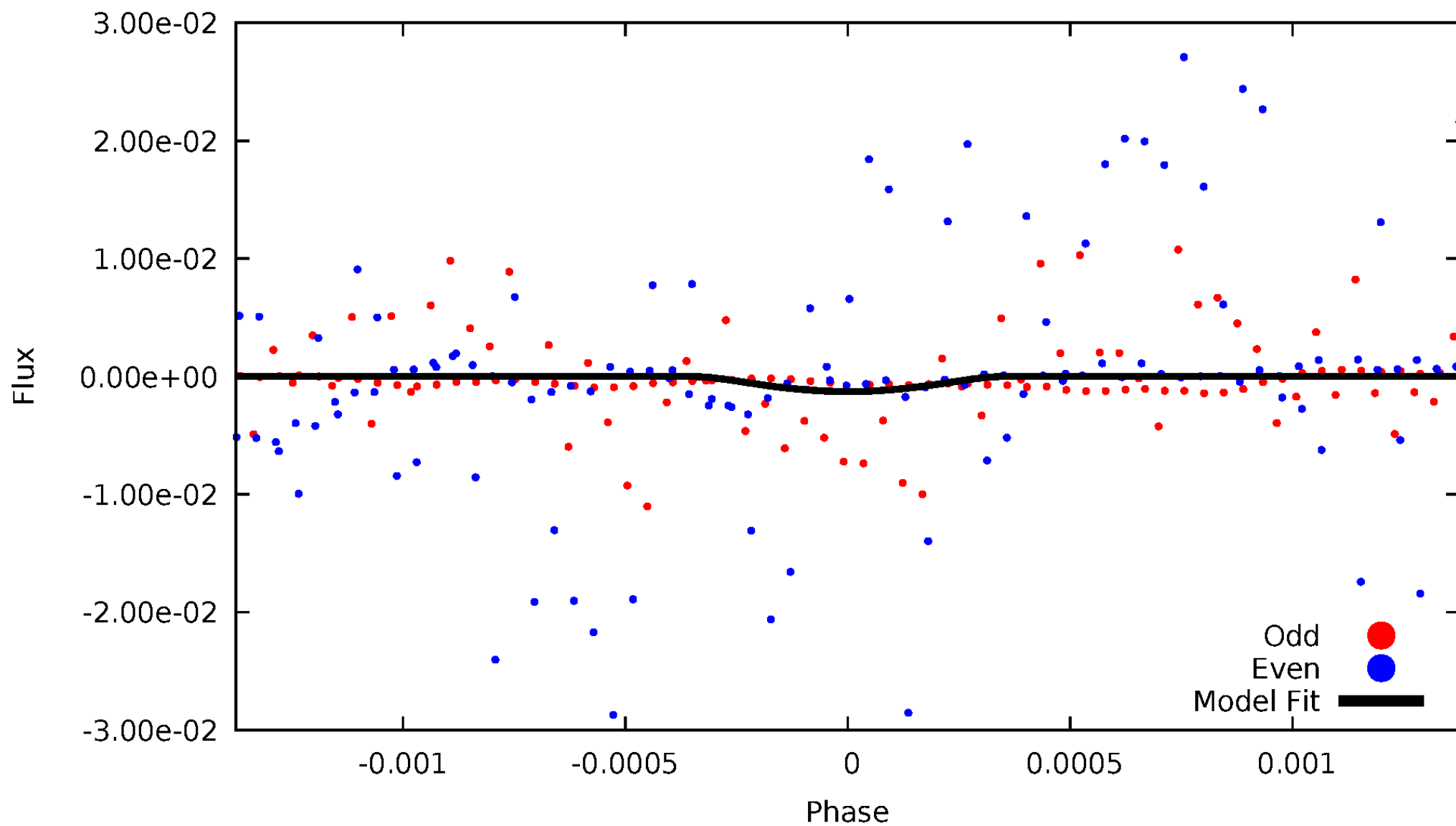


TCE 011307603-03



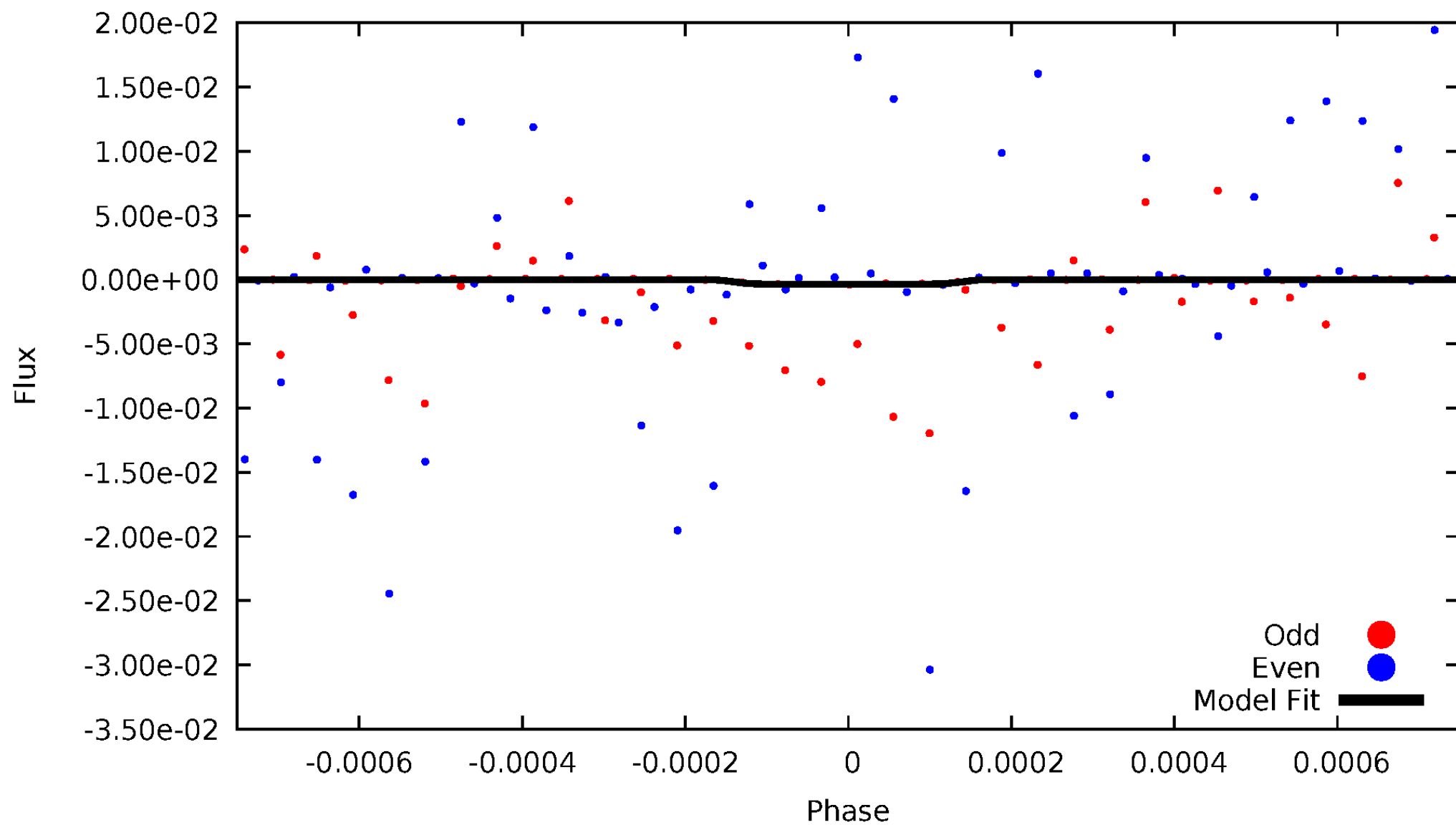
DV Odd/Even

TCE 011307603-03



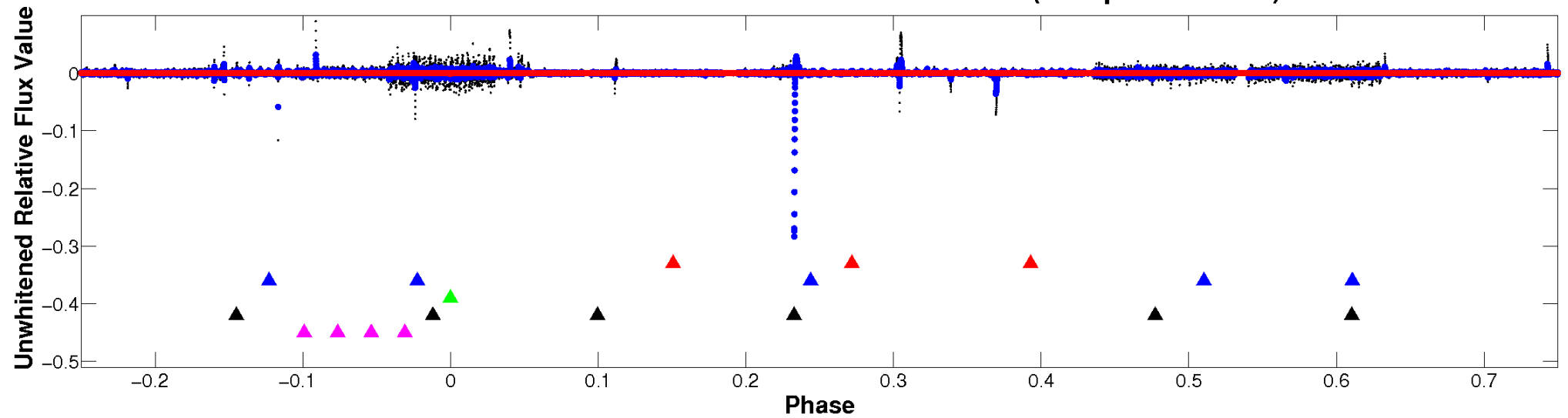
ALT Odd/Even

TCE 011307603-03

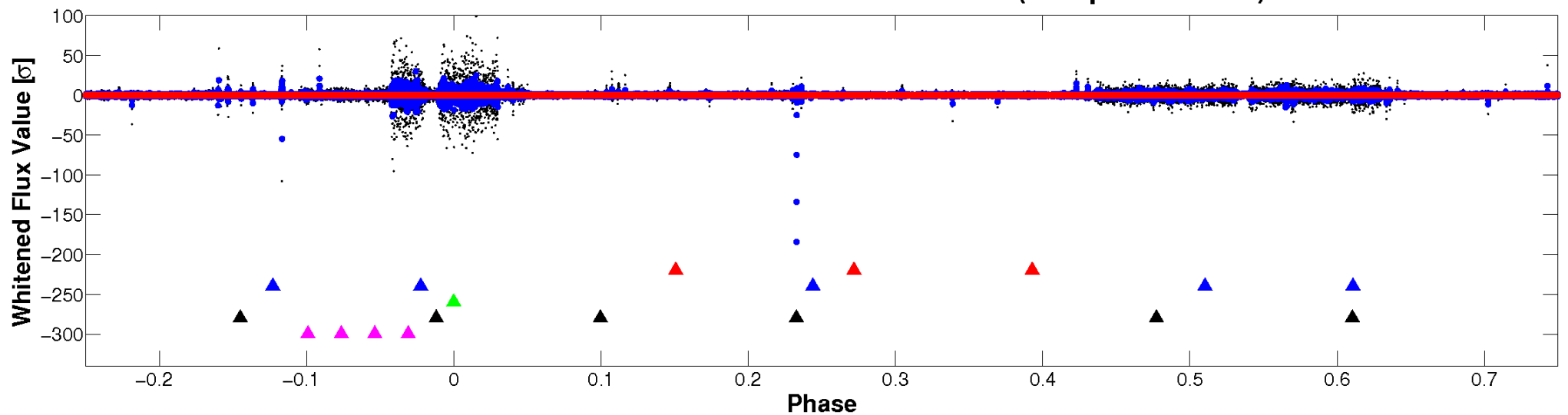


Non-Whitened Vs. Whitened Light Curve

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

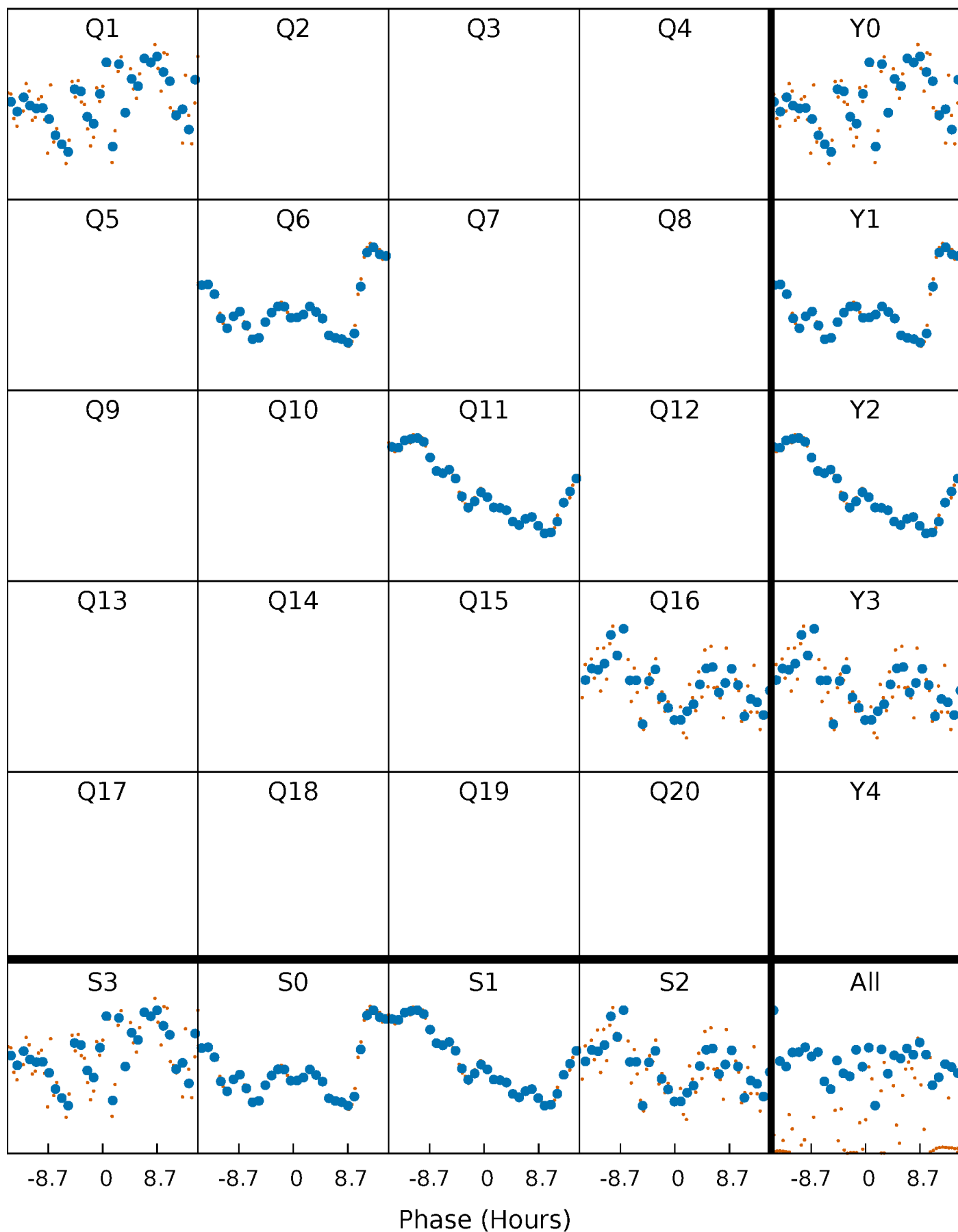


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



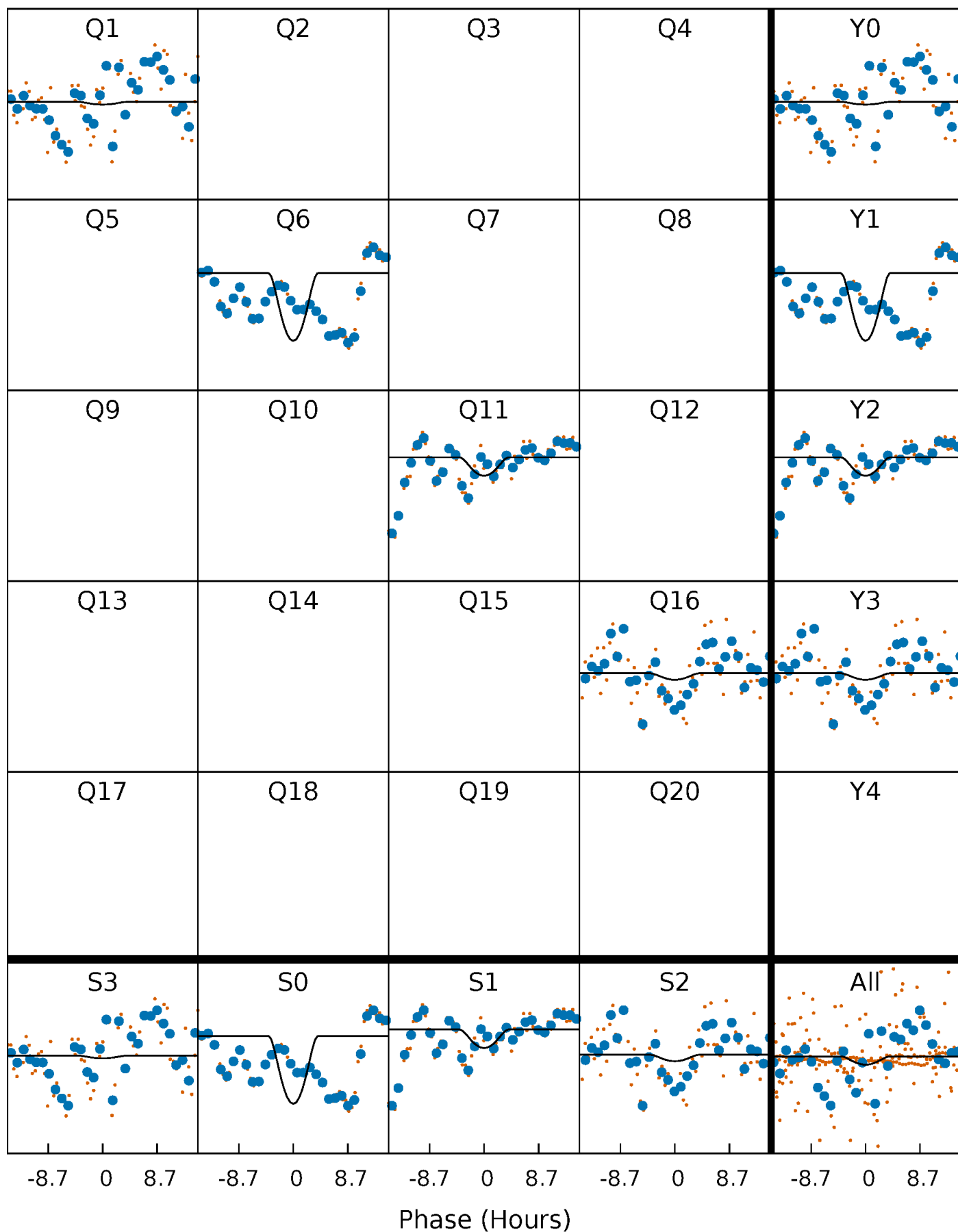
PDC Quarter-Phased Transit Curves

TCE 011307603-03 P=462.025087 Days $T_0=151.147380$ (BKJD)



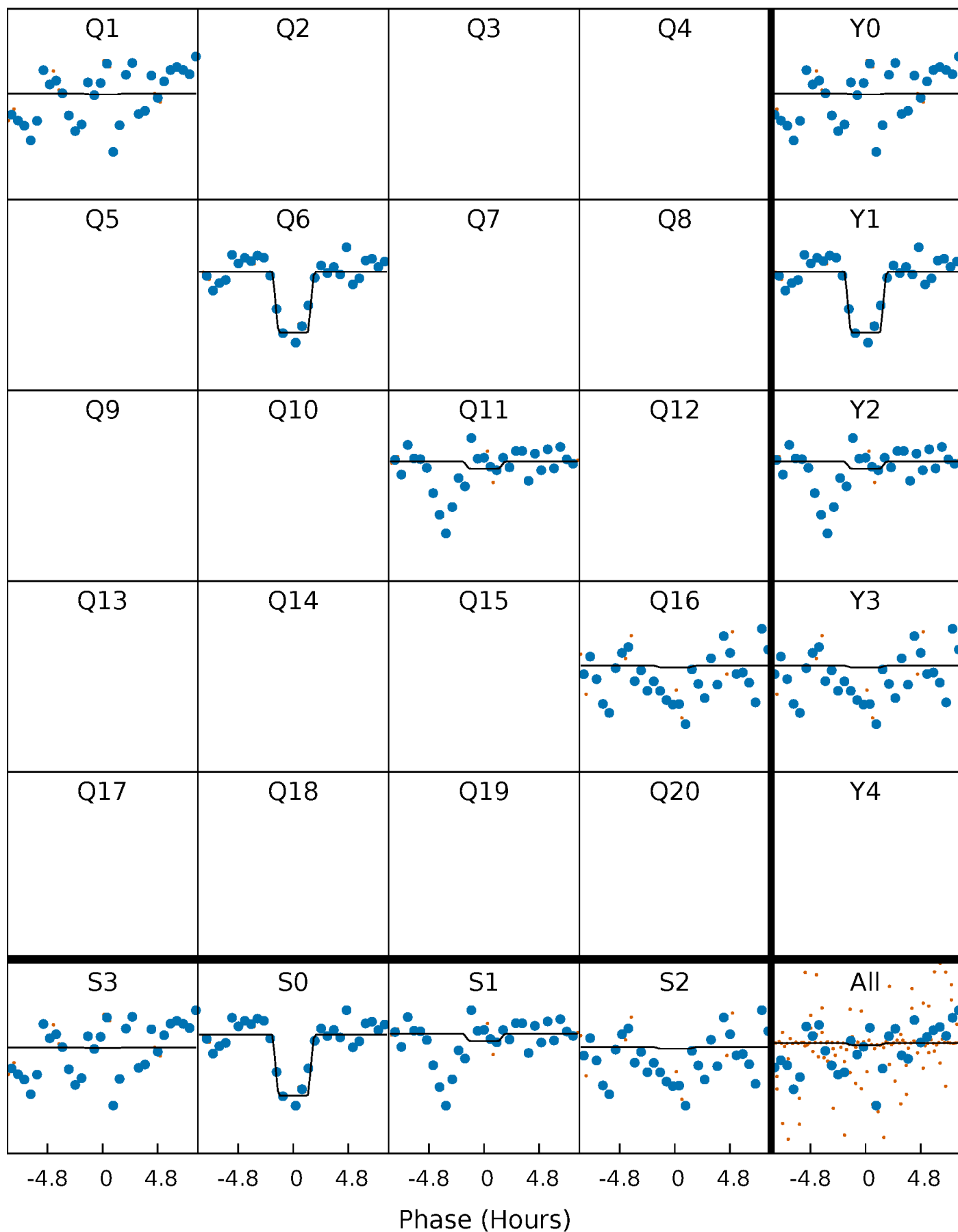
DV Quarter-Phased Transit Curves

TCE 011307603-03 $P=462.025087$ Days $T_0=151.147380$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

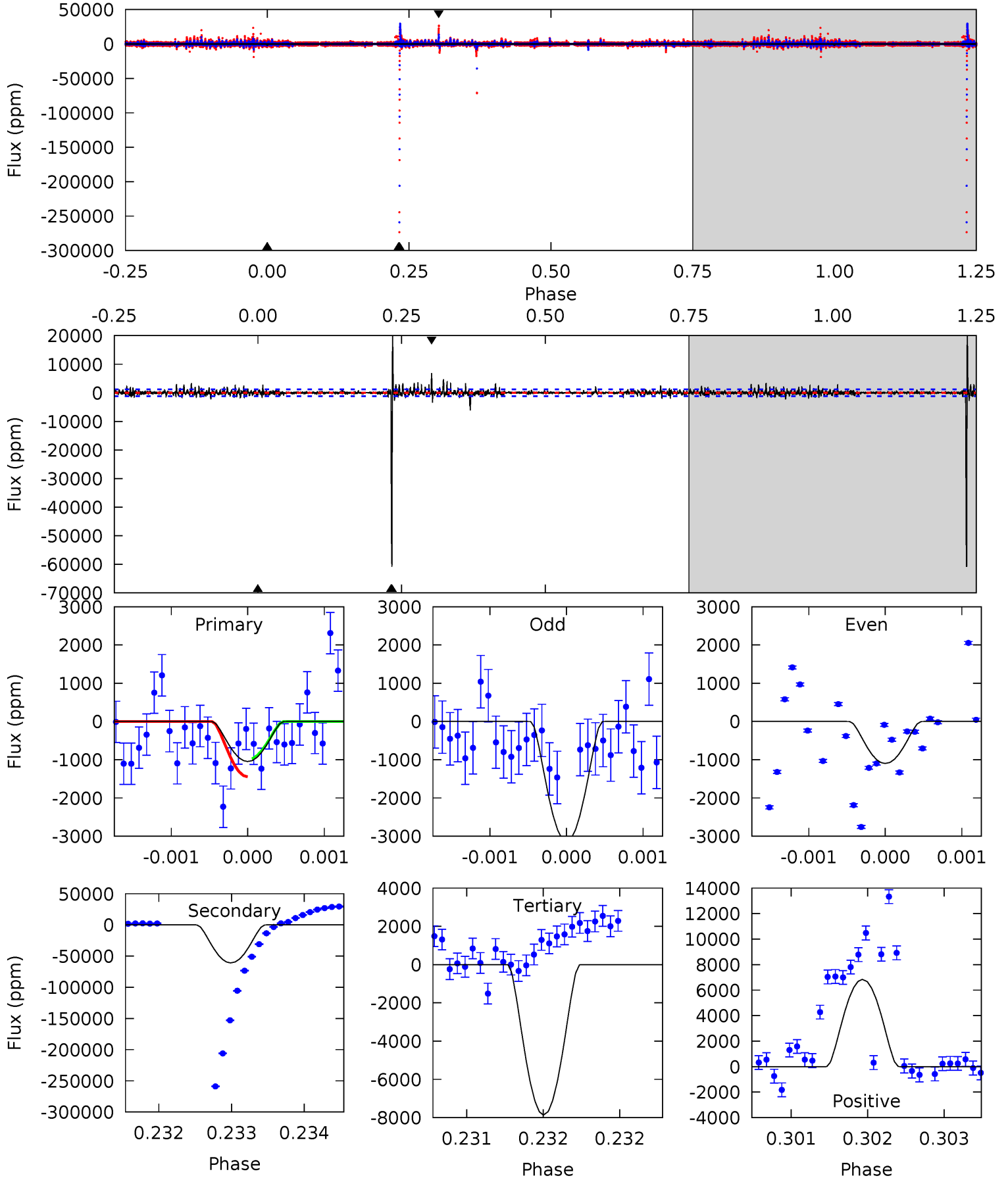
TCE 011307603-03 P=462.030036 Days $T_0=151.164244$ (BKJD)



DV Model-Shift Uniqueness Test

011307603-03, P = 462.025087 Days, E = 151.147380 Days

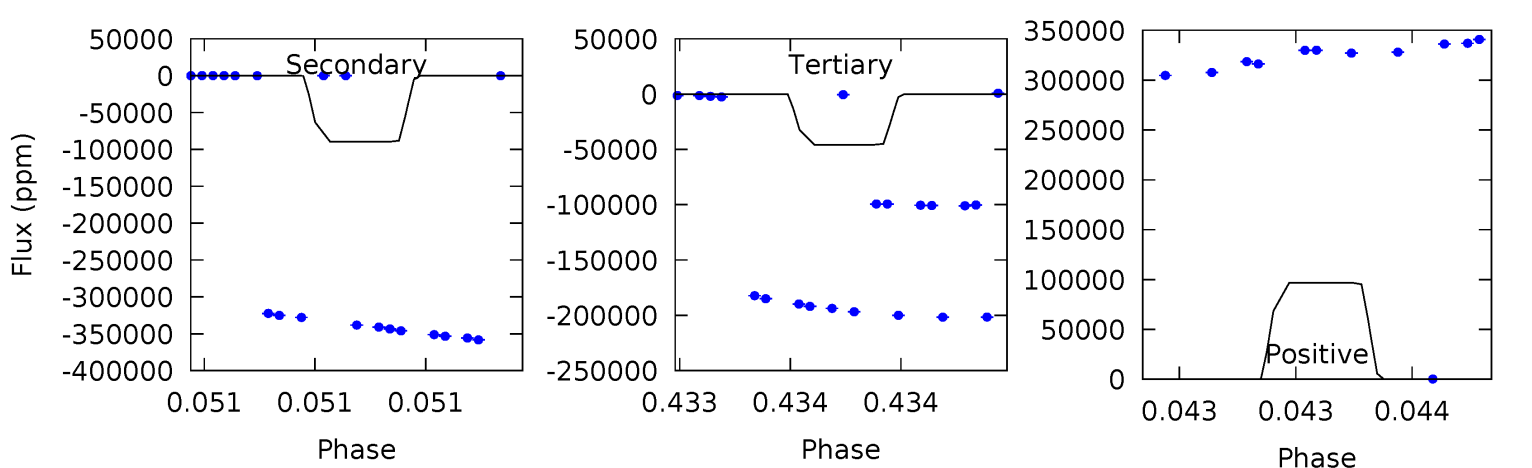
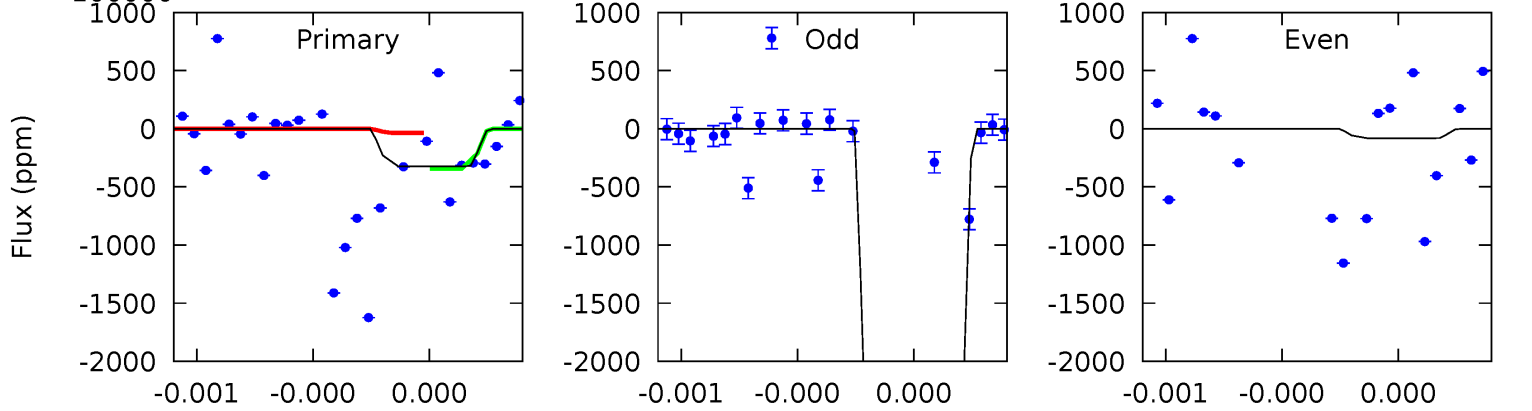
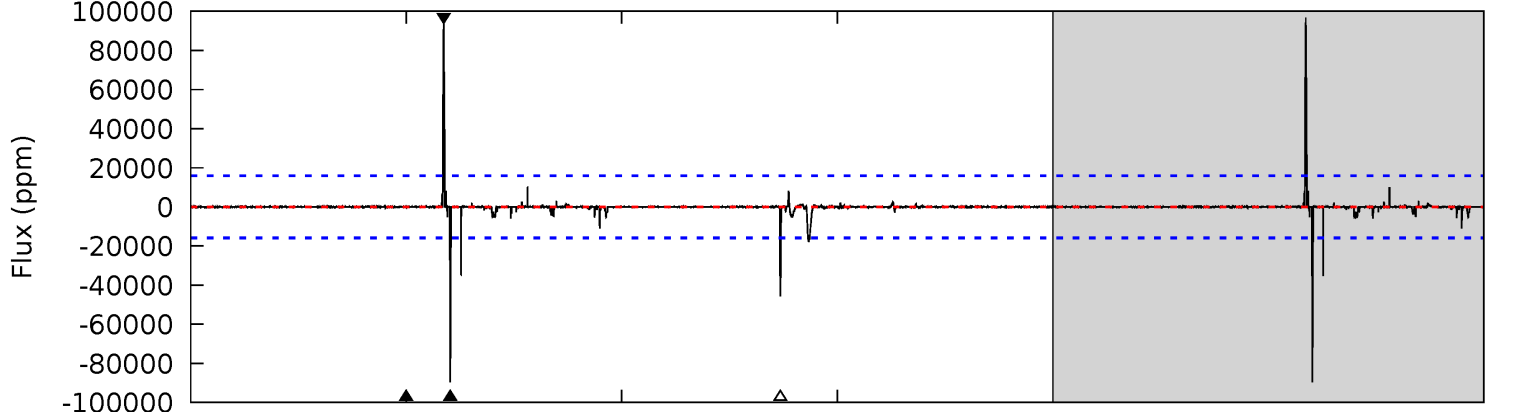
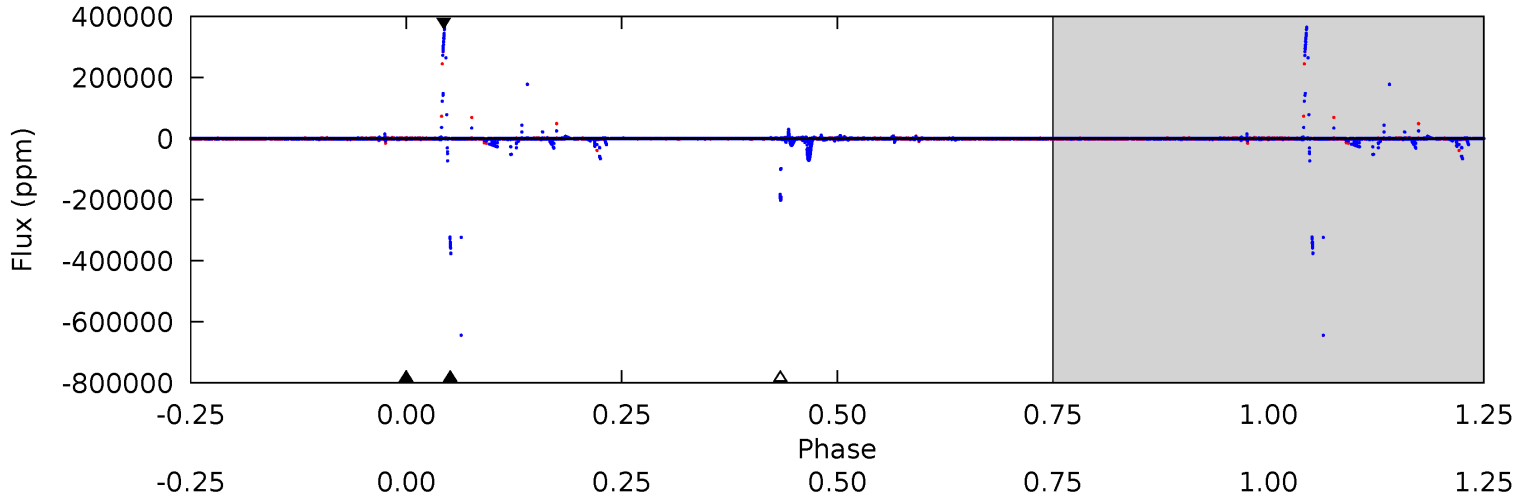
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.81	279.8	36.1	31.4	5.50	3.37	3.76	-31.3	-26.6	243.6	248.3	2.43	1.93	0.25	1.08



Alt Model-Shift Uniqueness Test

011307603-03, P = 462.030036 Days, E = 151.164244 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.12	31.9	16.3	34.5	5.65	3.59	0.87	-16.2	-34.4	15.7	-2.55	0.11	12.8	0.52	0.05



Stellar Parameters For KIC 011307603

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3291^{+107}_{-88}	$0.169^{+0.216}_{-0.054}$	$-0.020^{+0.250}_{-0.150}$	$150.645^{+9.958}_{-31.865}$	$1.221^{+0.202}_{-0.166}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+128%/-32%	+1250%/-750%	+7%/-21%	+17%/-14%	+107%/-17%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011307603-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-60886 ± 218	$3957.21^{+4771.25}_{-2667.27}$	2190^{+103}_{-138}	3278^{+1683}_{-769}	$3.721^{+30.607}_{-2.962}$
Alt.	-89563 ± 2804	$3818.36^{+4269.18}_{-2496.11}$	2191^{+99}_{-128}	3509^{+1802}_{-753}	$5.752^{+41.944}_{-4.432}$

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

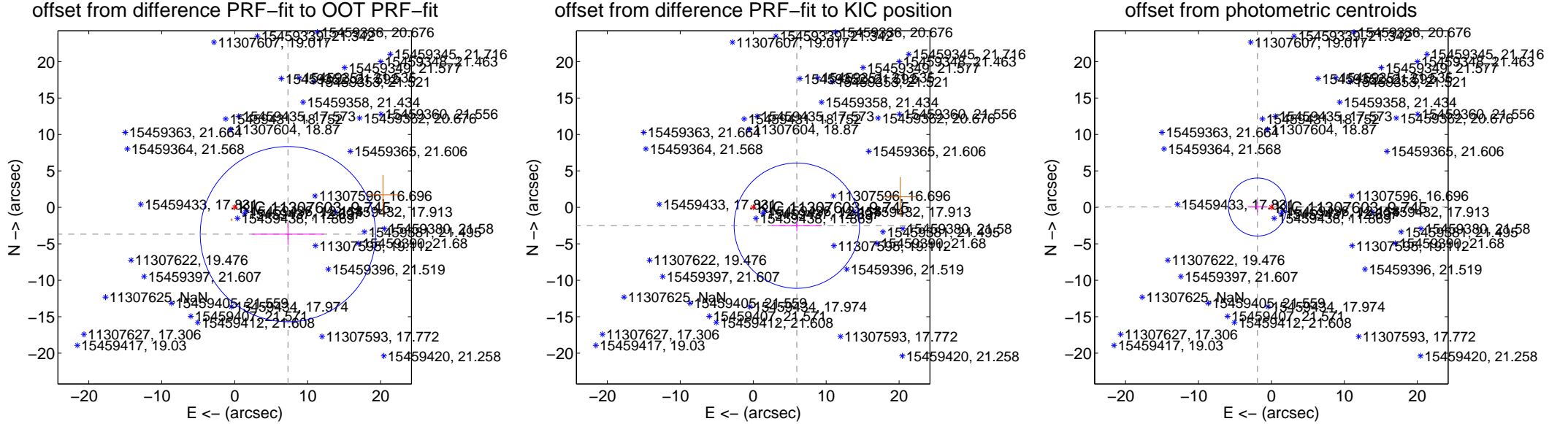
DV Centroid Data

Supplemental centroid analysis for 011307603-03. **Kepler magnitude: 9.74.** Transit SNR 3.24

There are 0 quarters with good PRF difference image offsets

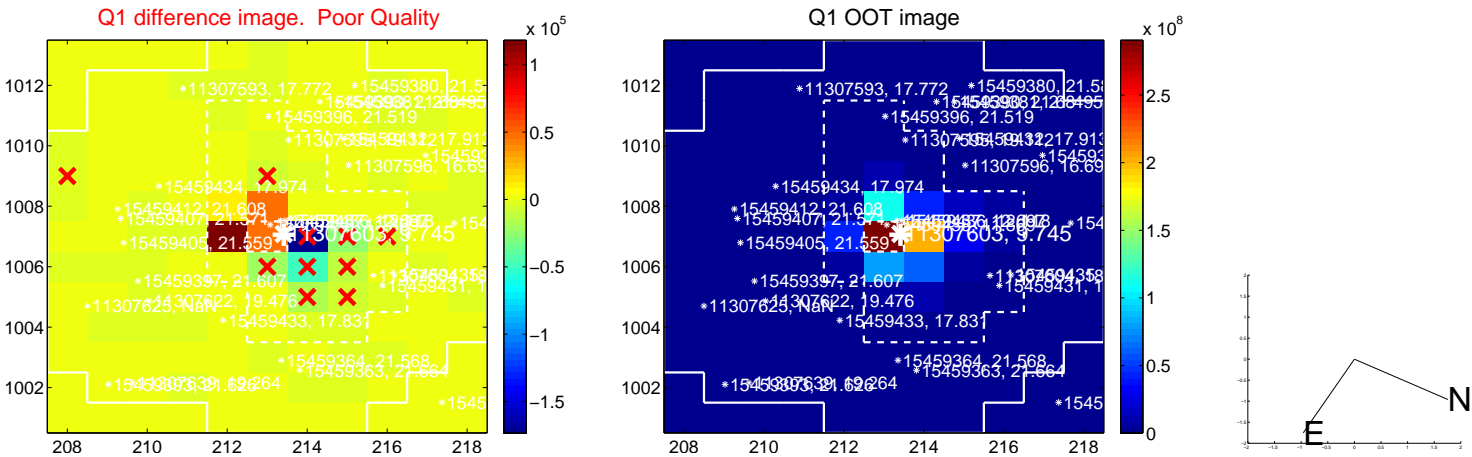
The direct PRF centroid is offset from the target star catalog position by about 1.89 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.168 ± 4.007	2.04	-7.295 ± 4.943	-3.675 ± 1.481
PRF-fit source offset from KIC position	6.488 ± 2.866	2.26	-5.983 ± 3.391	-2.509 ± 0.763
photometric centroid source offset	1.91 ± 1.33	1.44	1.91 ± 1.33	0.05 ± 0.72

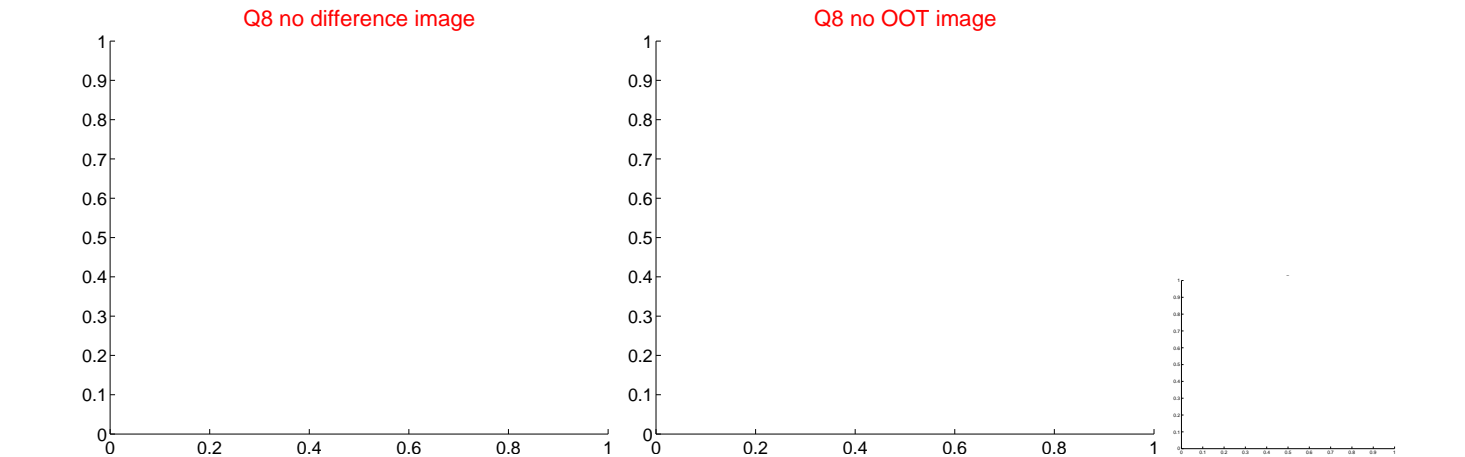
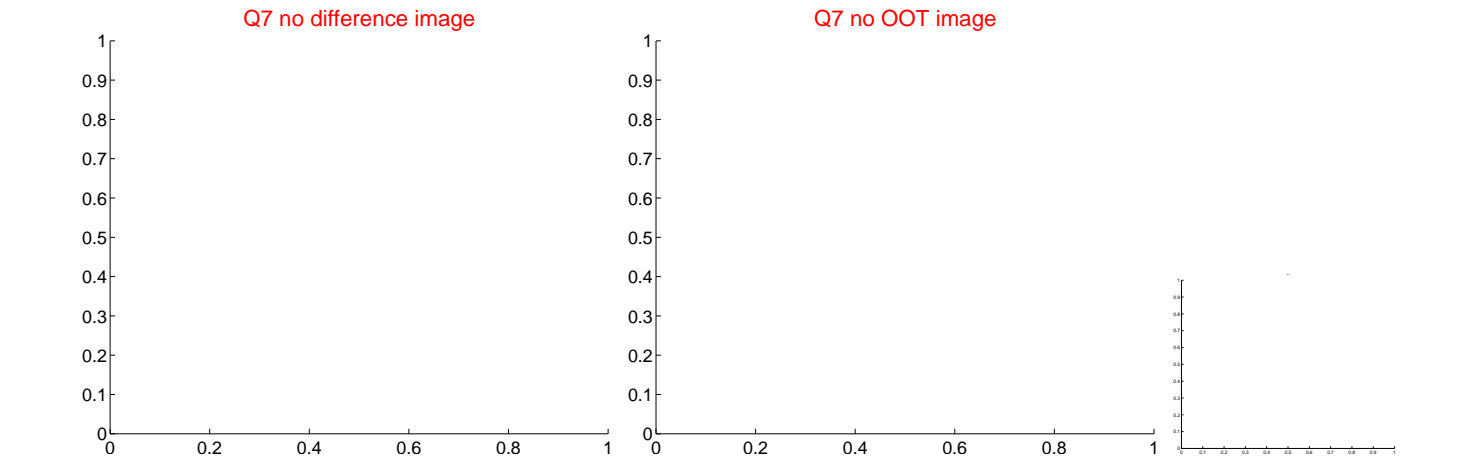
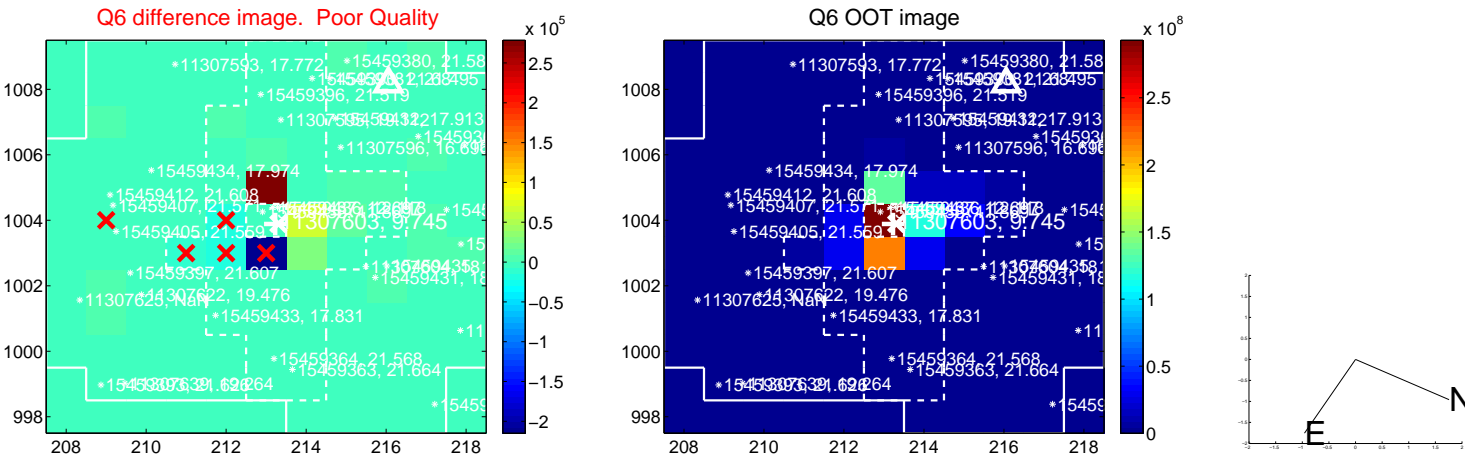
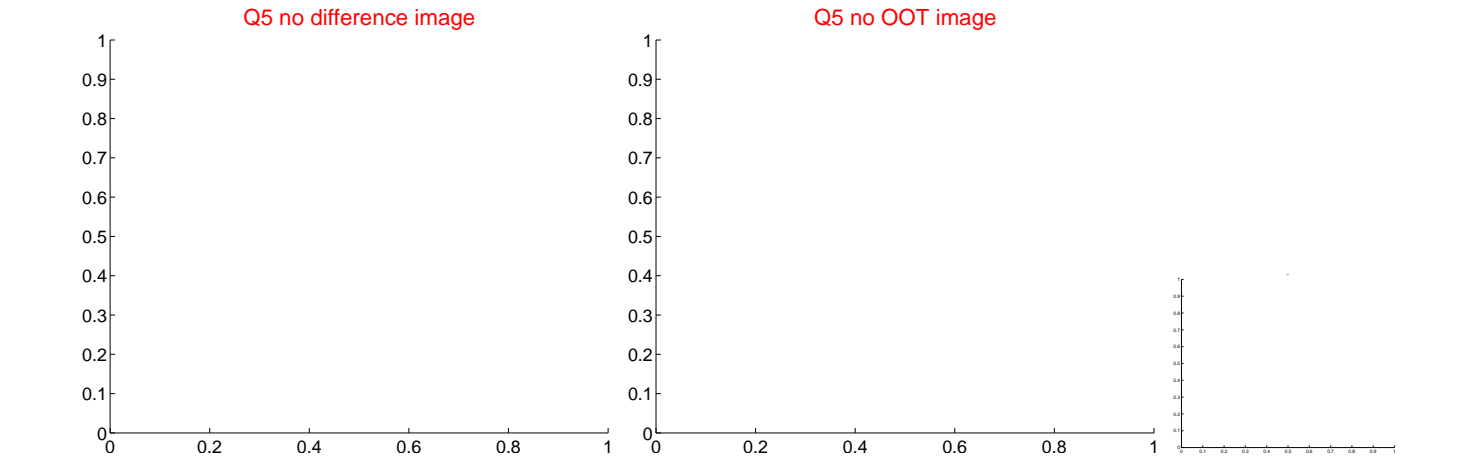


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

Q9 no difference image



Q9 no OOT image



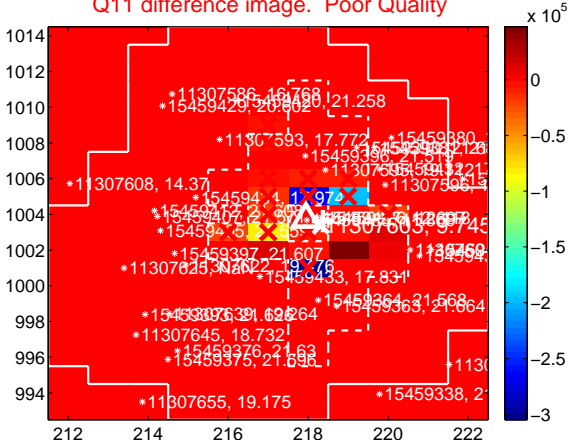
Q10 no difference image



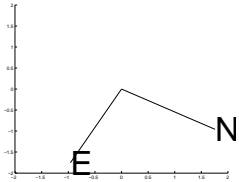
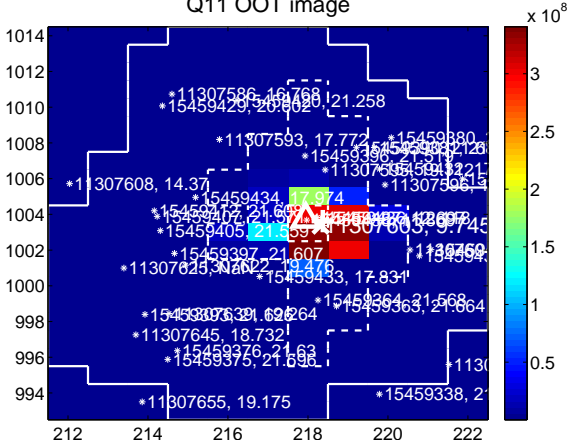
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



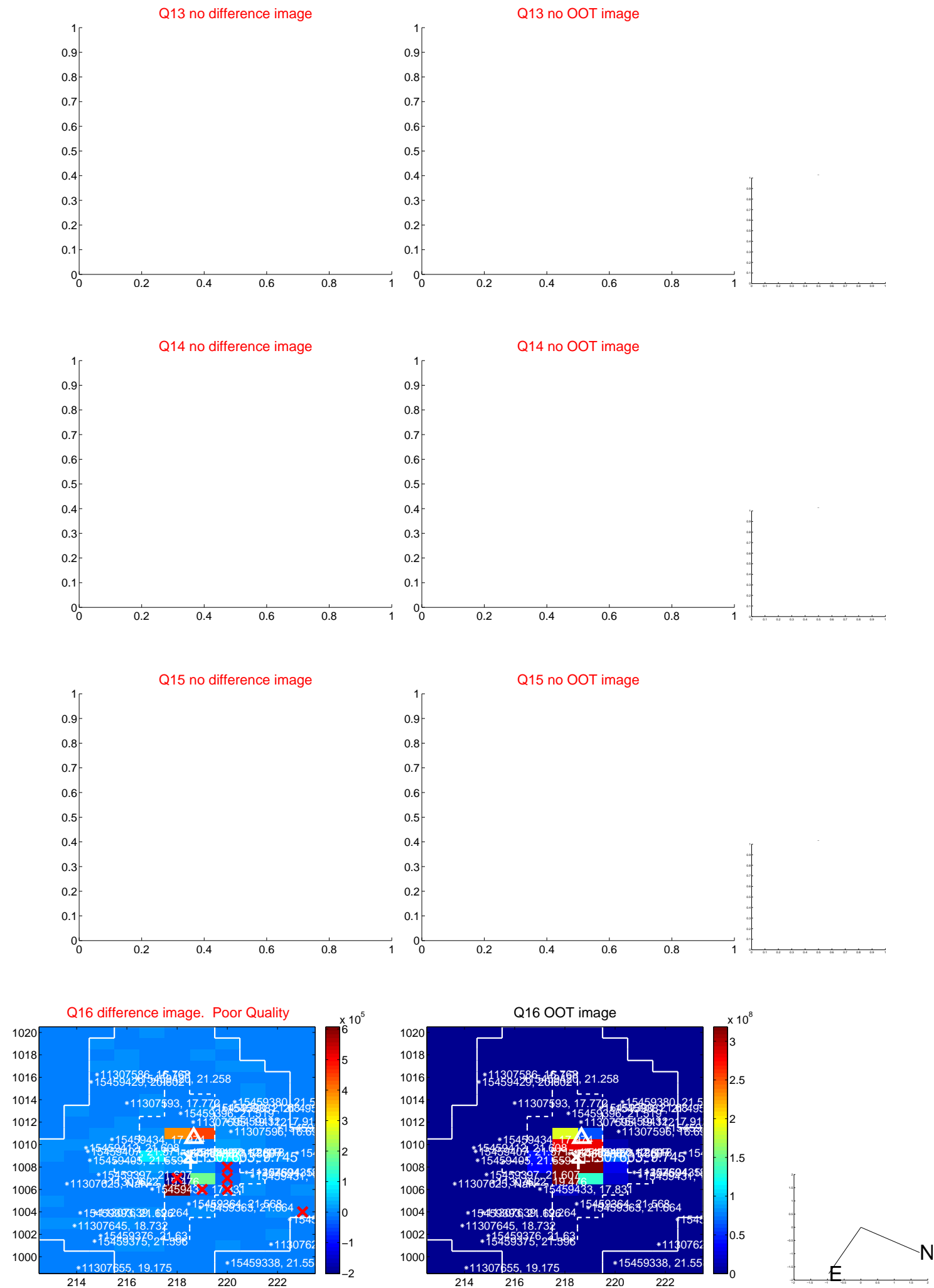
Q12 no difference image



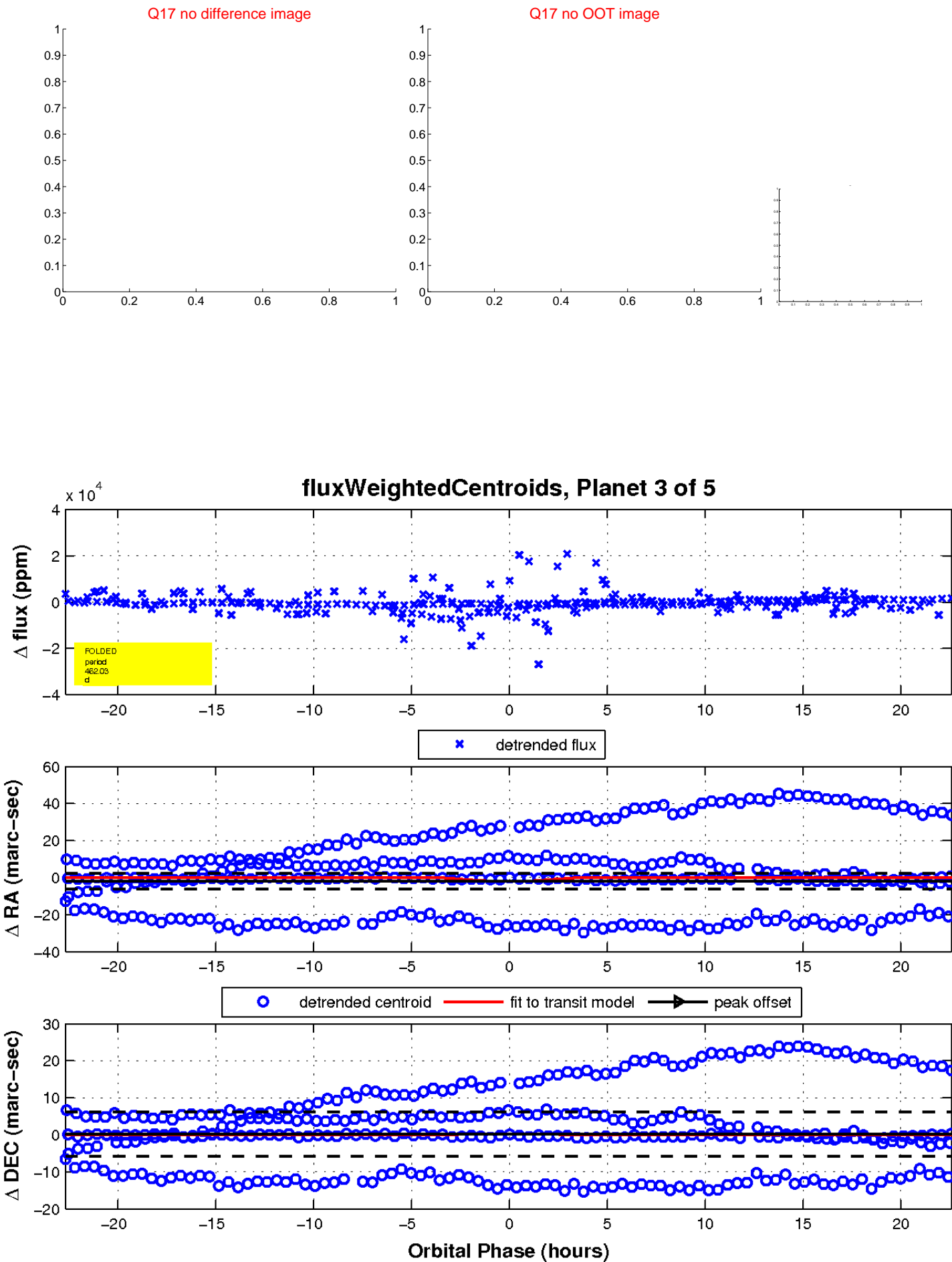
Q12 no OOT image



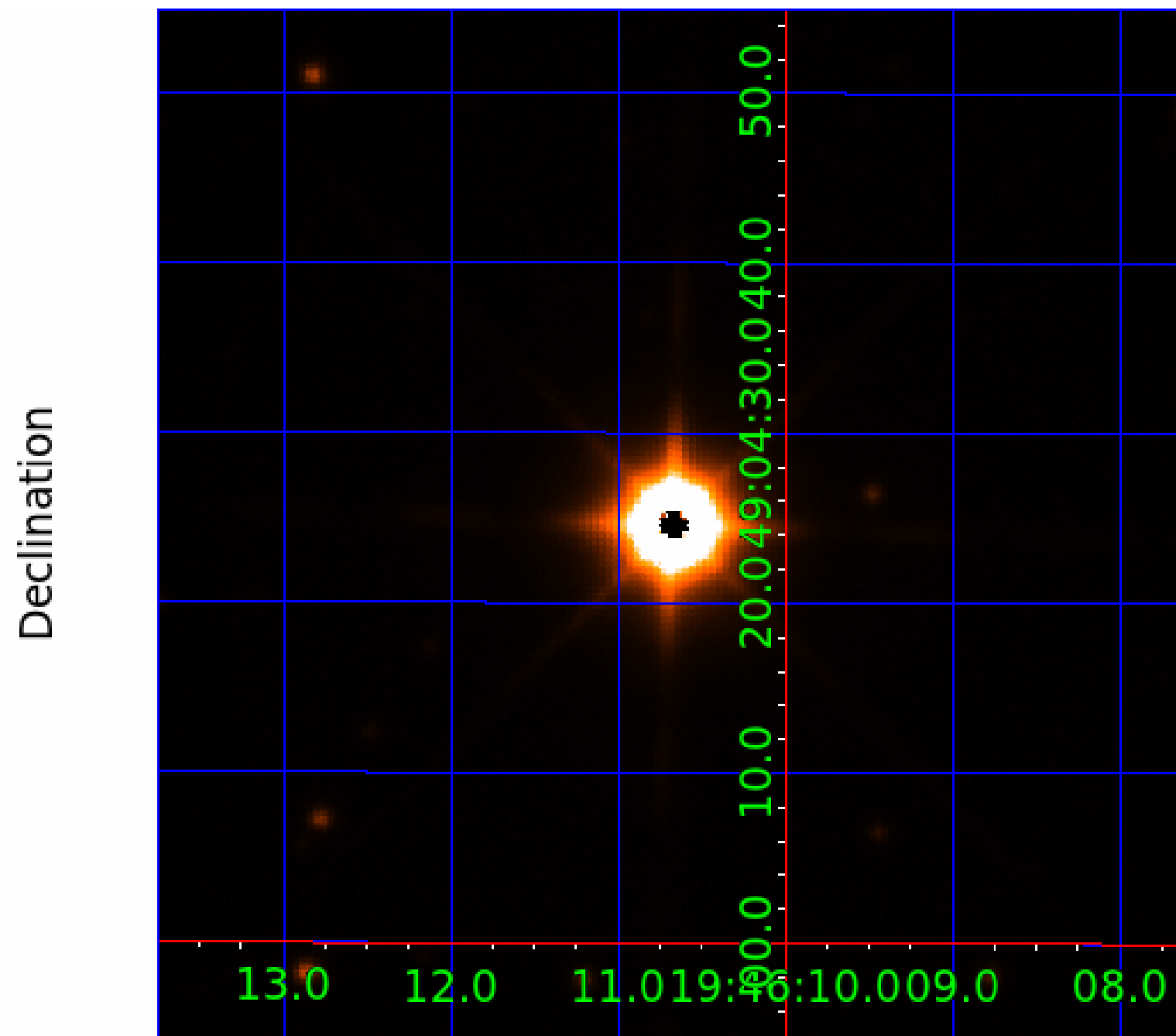
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011307603

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})
011307603-01	OBS	No	517.958477	220.820464	2256.7	12.319	17.6	20.1	150.65	3291	1103.59	1309.53
011307603-02	OBS	No	292.542723	140.800003	44.1	1.912	51.0	2.0	150.65	3291	124.73	2804.94
011307603-03	OBS	No	462.025087	151.147380	1281.8	7.624	32.0	3.2	150.65	3291	995.16	1525.07
011307603-05	OBS	No	451.535905	136.862339	790.0	3.196	43.3	2.3	150.65	3291	388.36	1572.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011307603-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011307603-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011307603-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011307603-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

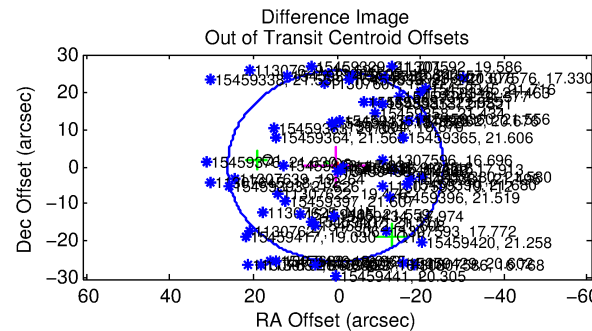
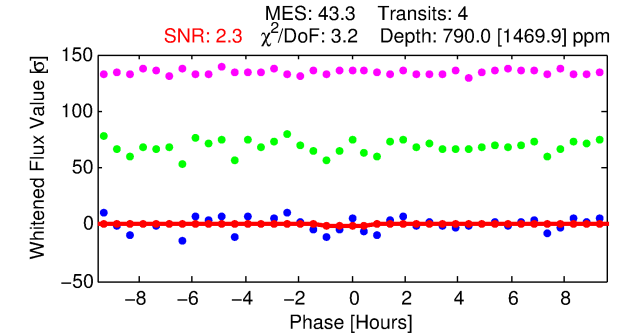
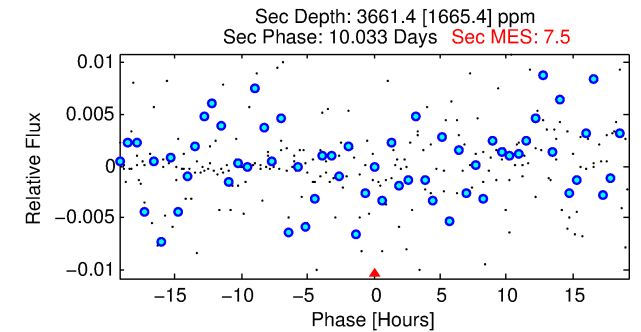
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011307603-05

No Significant Match Found

KIC: 11307603 Candidate: 5 of 5 Period: 451.536 d

KIC: 11307603 Candidate: 5 of 5 Period: 451.536 d



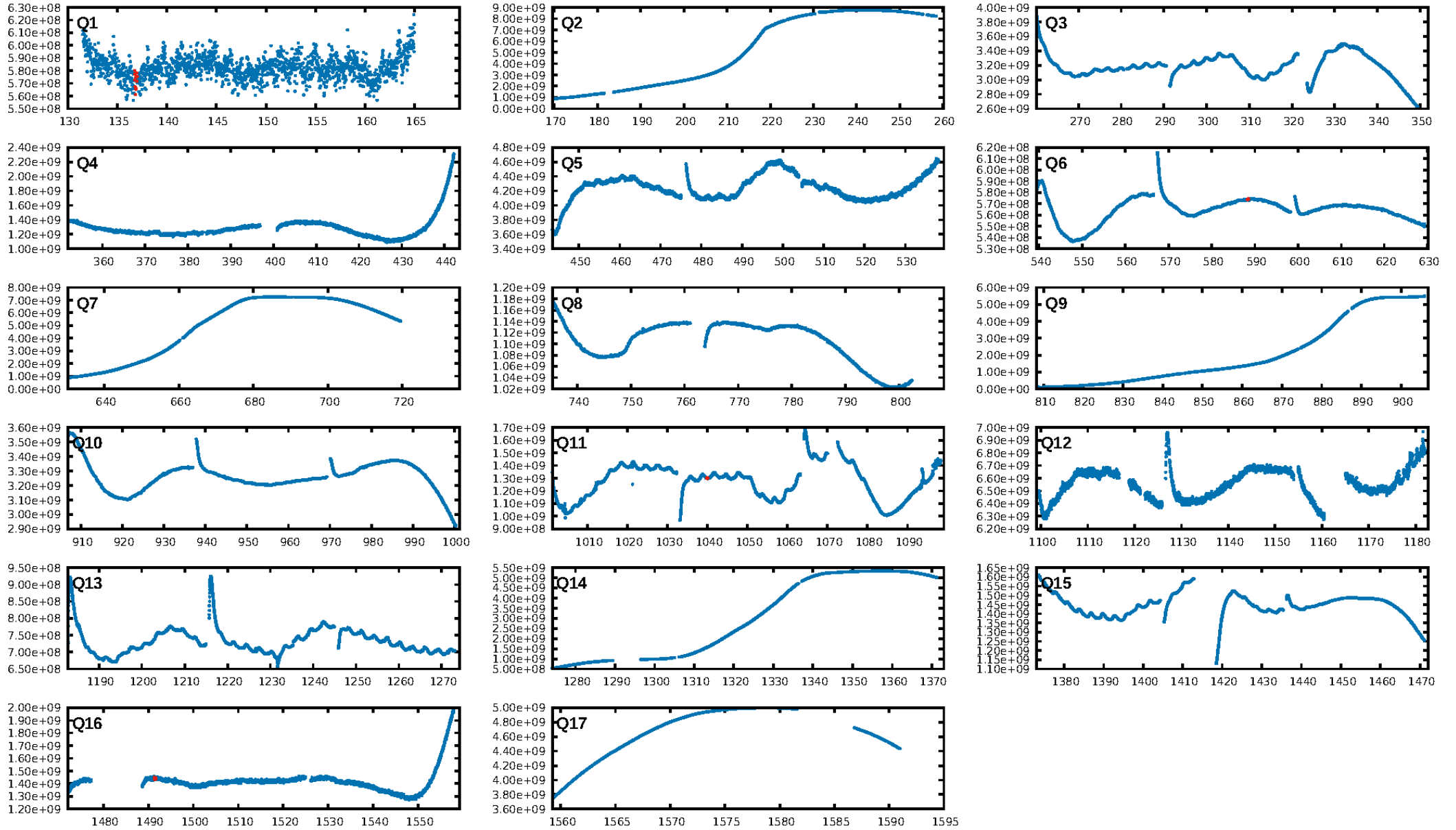
Period = 451.53590 [0.04526] d
Epoch = 136.8623 [0.0480] BKJD
Rp/R* = 0.0236 [0.1175]
a/R* = 1104.54 [11152.92]
b = 0.02 [496.46]
Seff = 1572.48 [602.36]
Teq = 1606 [154] K
Rp = 388.36 [1933.10] Re
a = 1.2316 [0.2681] AU
Ag = 20.26 [201.83] [0.10σ]
Teffp = 5267 [13111] K [0.28σ]

ShortPeriod-sig: 100.0% [1024.52σ]
 LongPeriod-sig: 100.0% [30.45σ]
 ModelChiSquareGof-sig: 0.6%
 ModelChiSquareGof-sig: 14.7%
 Bootstrap-pfa: 5.62e-10
 RollingBand-fgt: 0.67 [2/3]
 GhostDiagnostic-chr: N/A
 Centroid-sig: 43.2%
 Centroid-so: 1.913 arcsec [1.34σ]
 OotOffset-rm: 0.320 arcsec [0.04σ]
 KicOffset-rm: 0.174 arcsec [0.03σ]
 OotOffset-st: 1/1/1/1 [4]
 KicOffset-st: 1/1/1/1 [4]
 DiffImageQuality-fgm: 0.25 [1/4]
 DiffImageOverlap-fno: 1.00 [4/4]

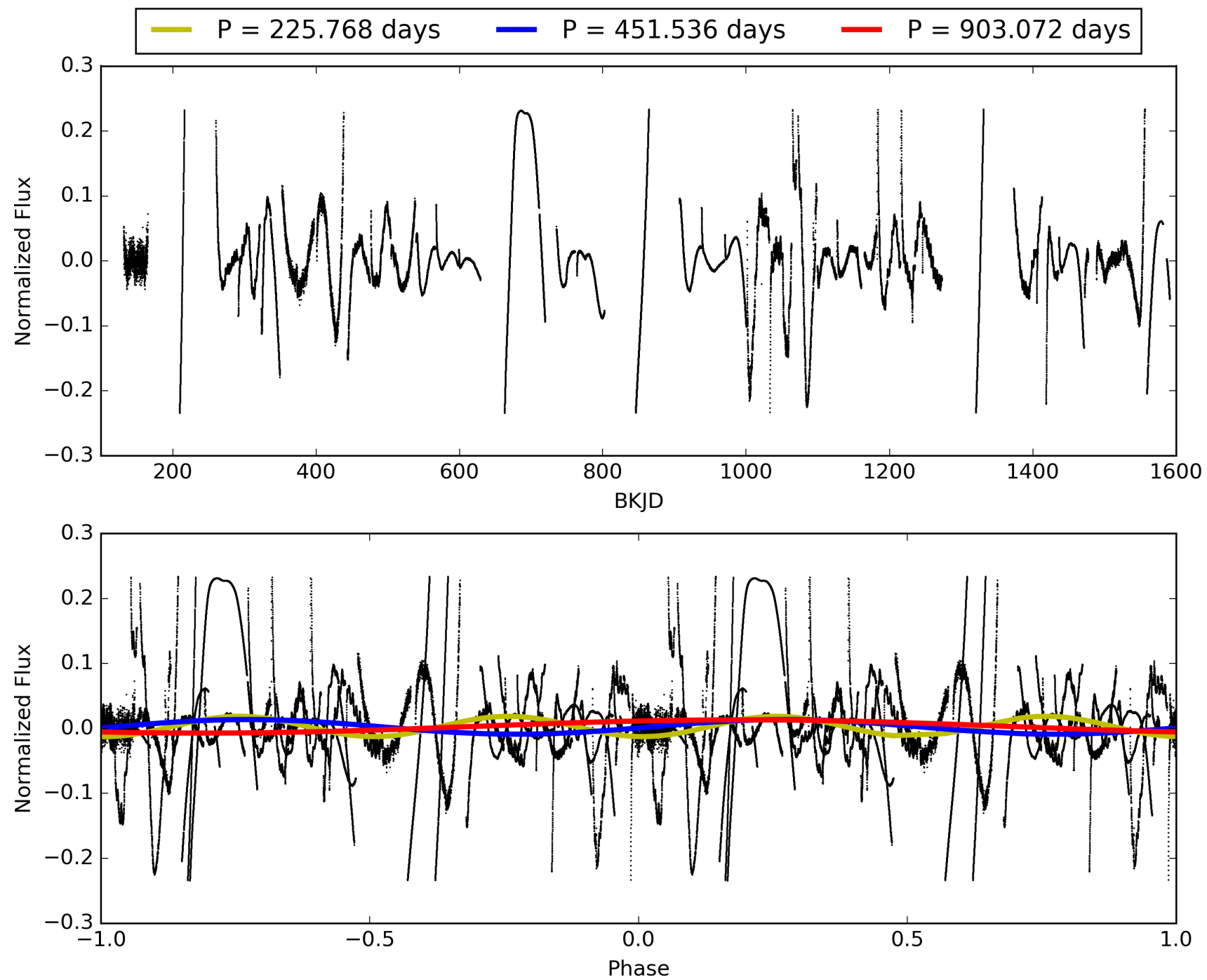
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- **Date Generated:** 30-Jan-2016 06:54:41 Z

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

TCE 011307603-05, PDC Light Curves

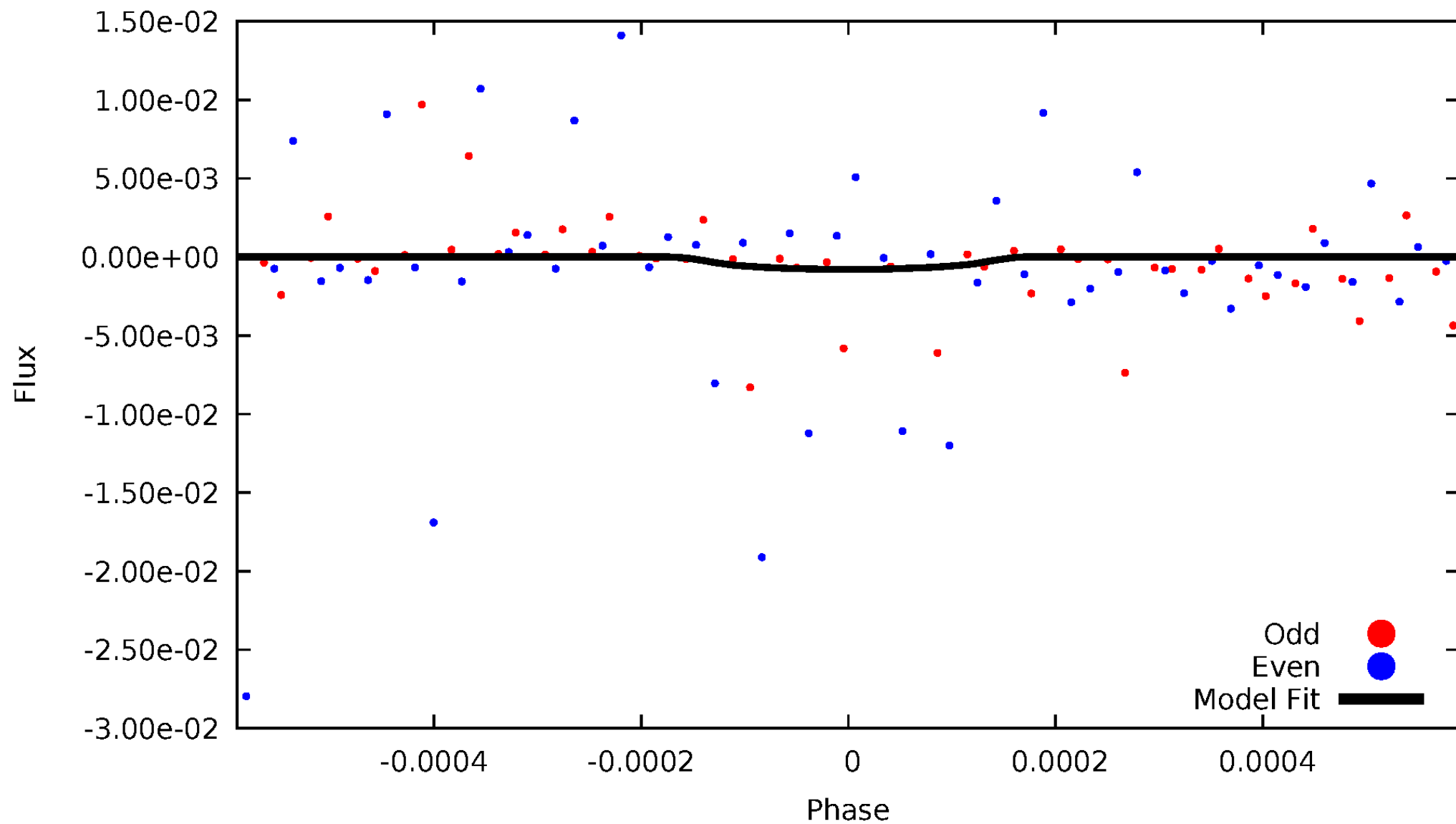


TCE 011307603-05



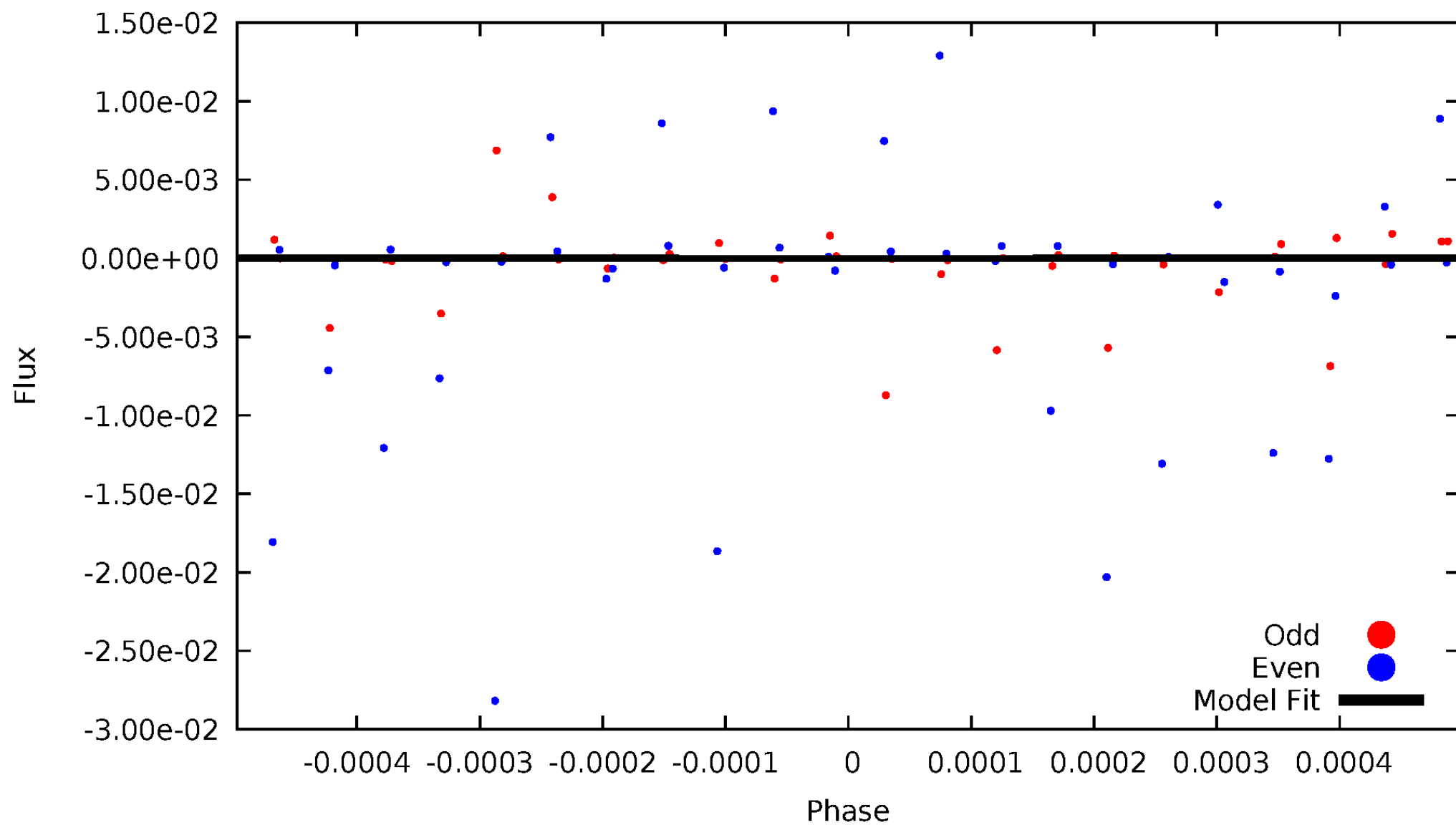
DV Odd/Even

TCE 011307603-05



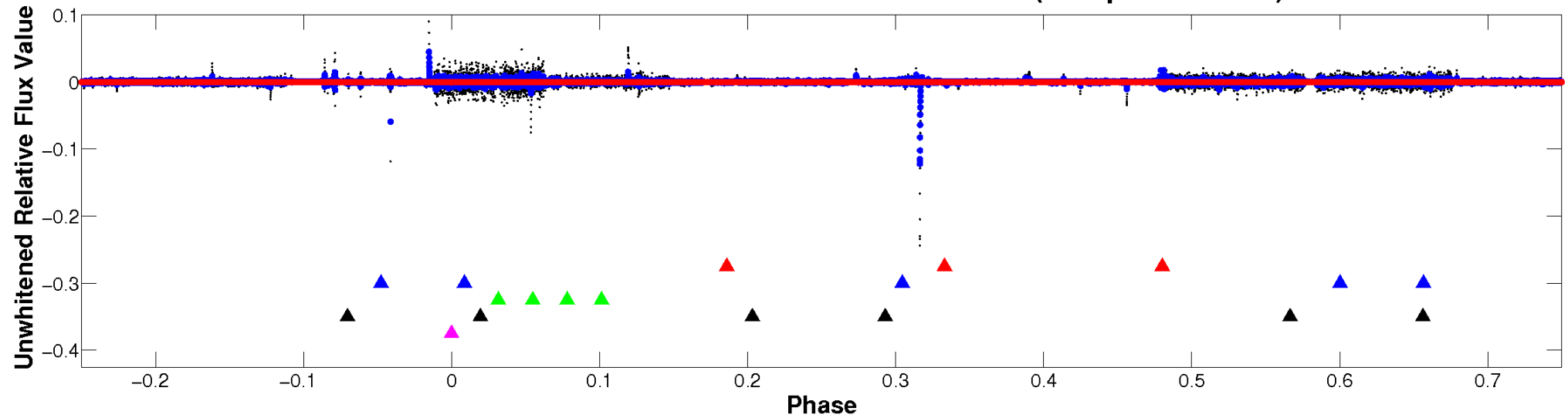
ALT Odd/Even

TCE 011307603-05

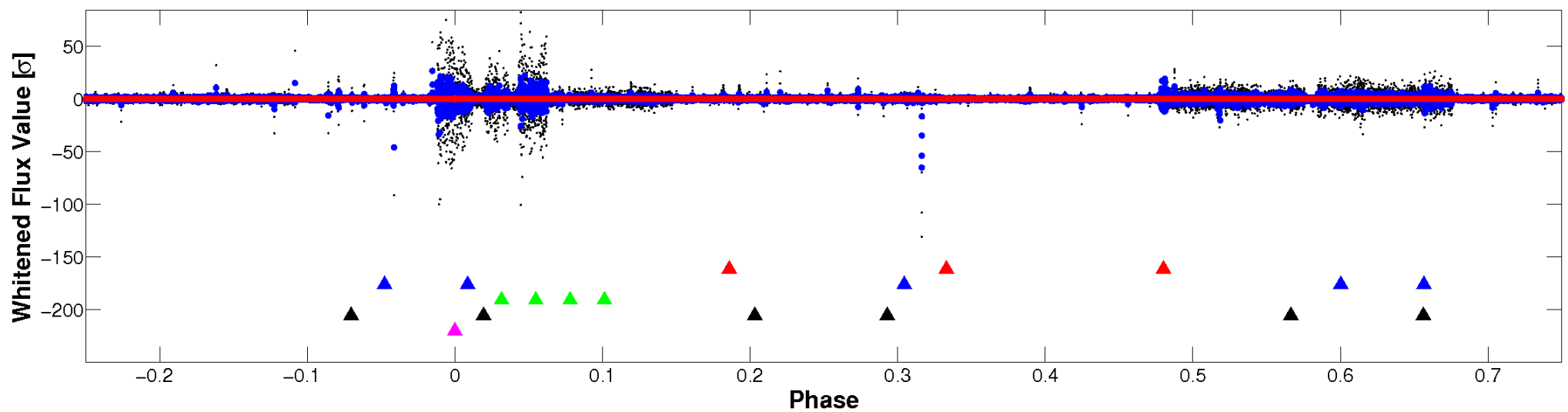


Non-Whitened Vs. Whitened Light Curve

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

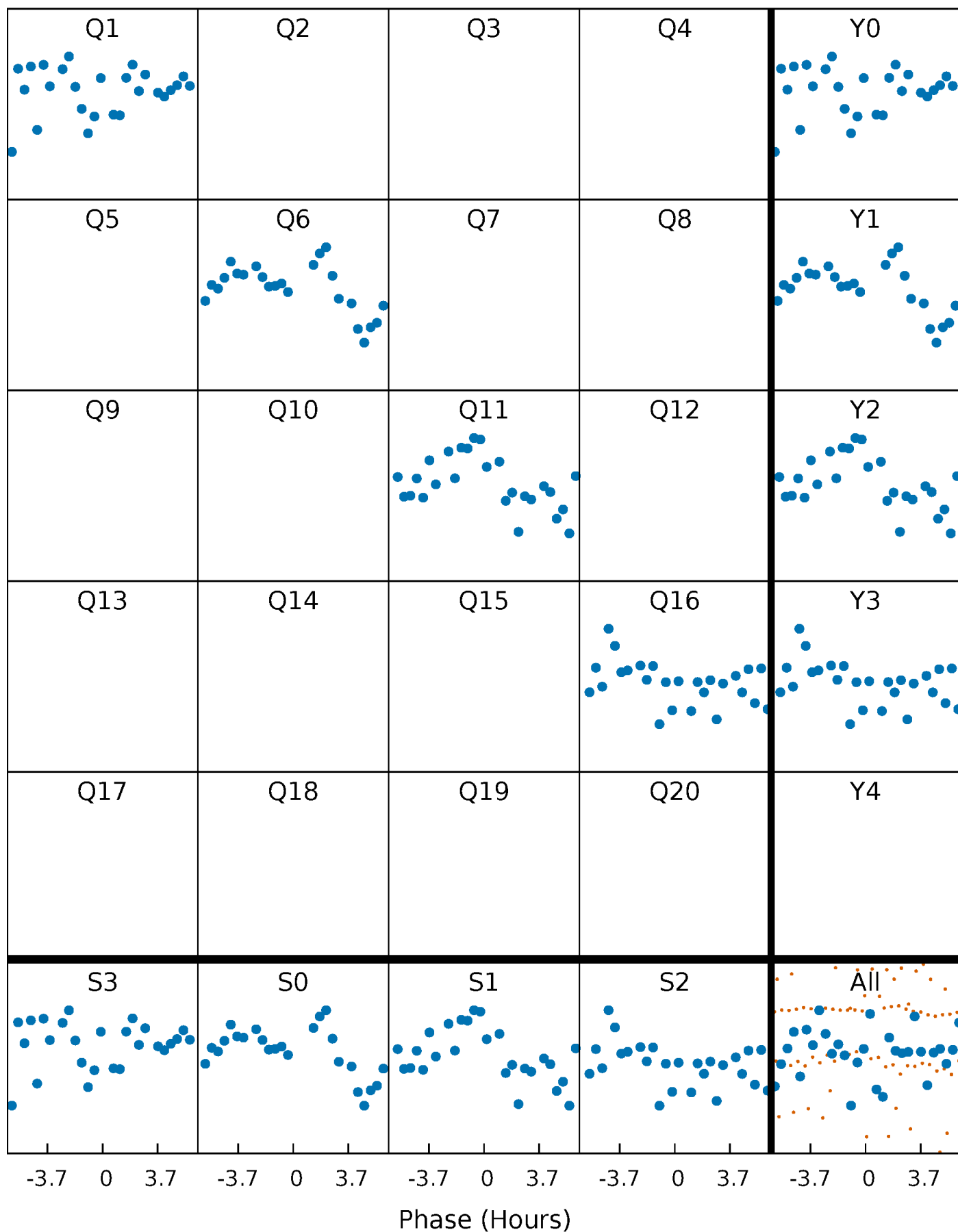


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



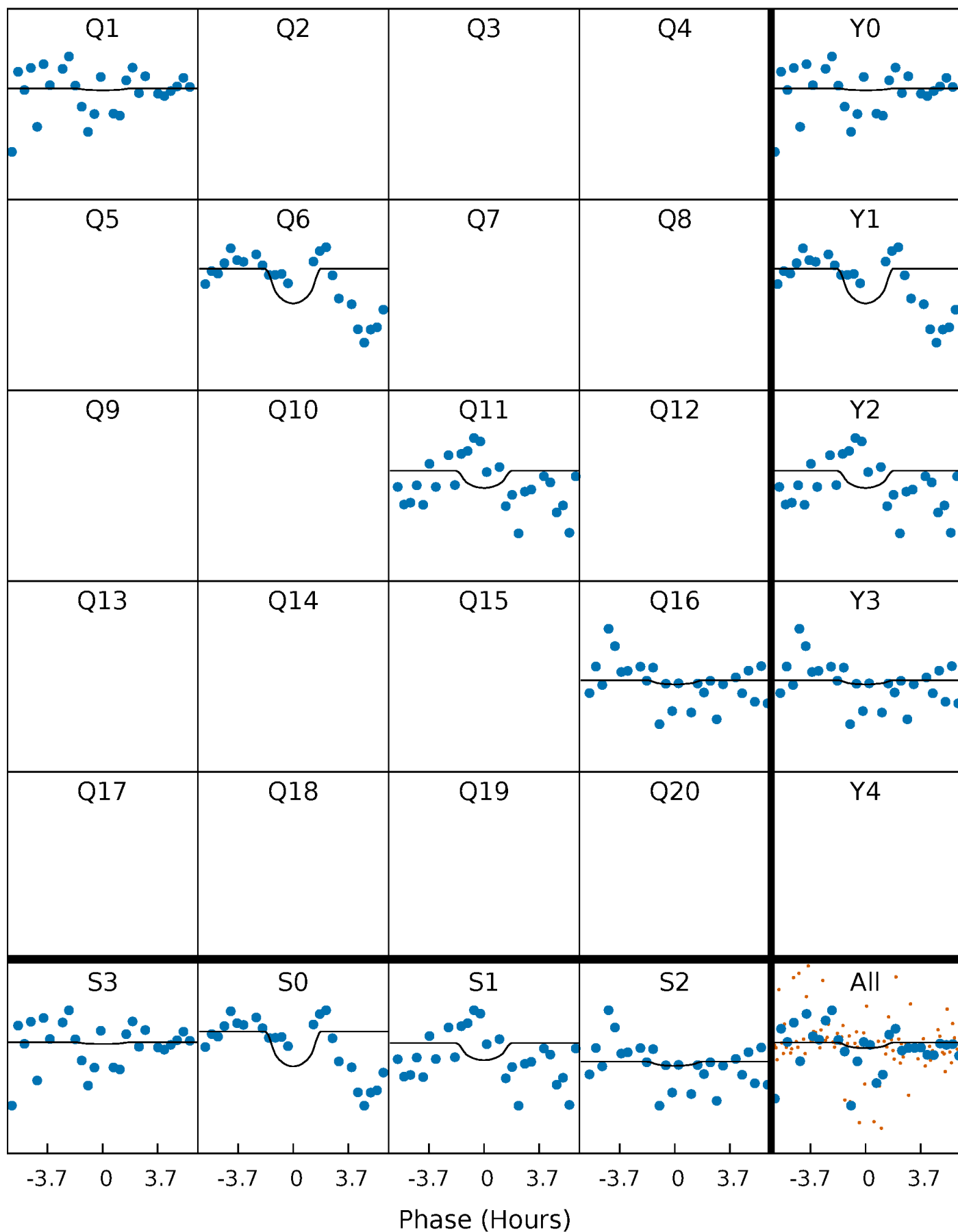
PDC Quarter-Phased Transit Curves

TCE 011307603-05 $P=451.535905$ Days $T_0=136.862339$ (BKJD)



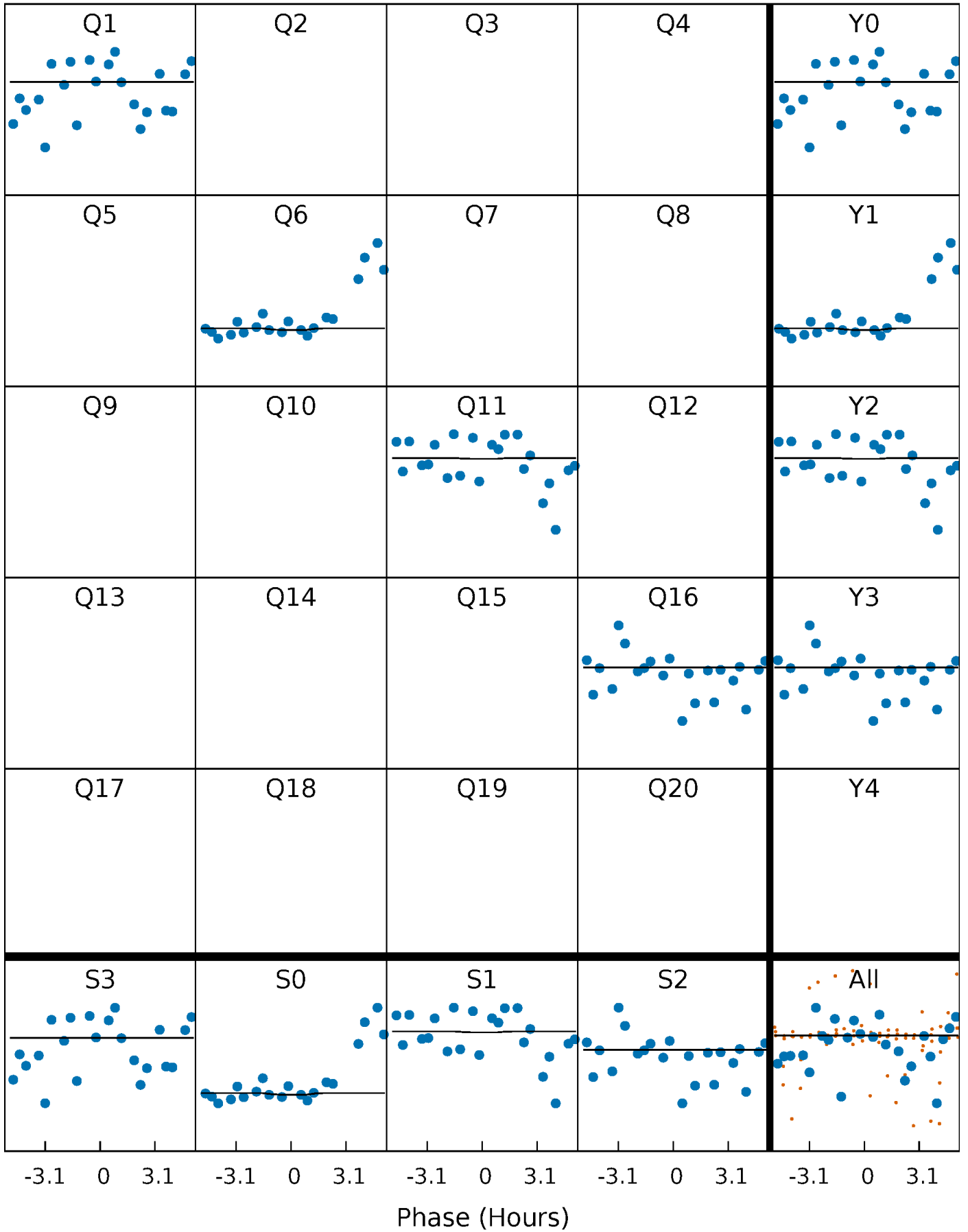
DV Quarter-Phased Transit Curves

TCE 011307603-05 $P=451.535905$ Days $T_0=136.862339$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

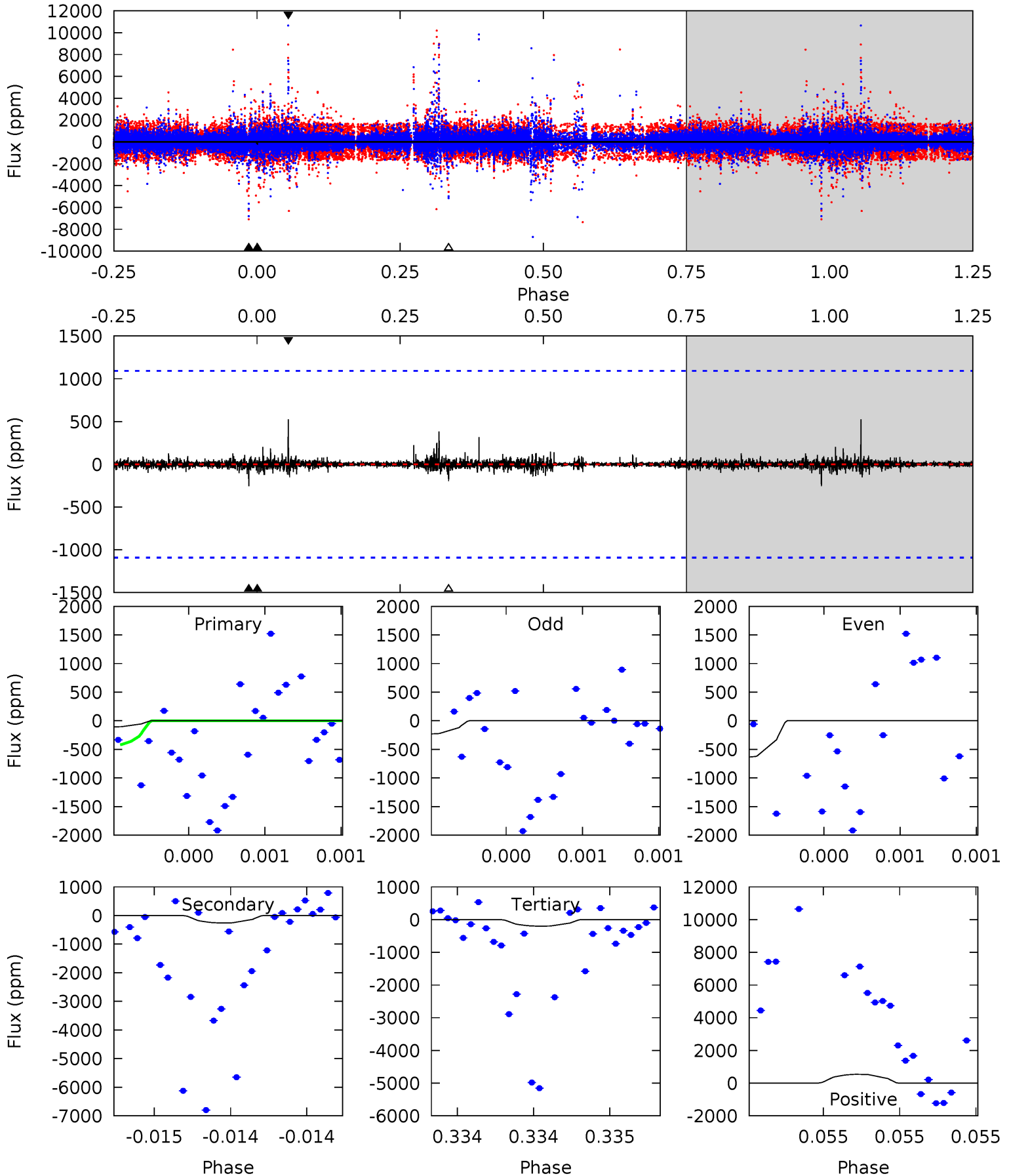
TCE 011307603-05 $P=451.561242$ Days $T_0=136.729759$ (BKJD)



DV Model-Shift Uniqueness Test

011307603-05, P = 451.535905 Days, E = 136.862339 Days

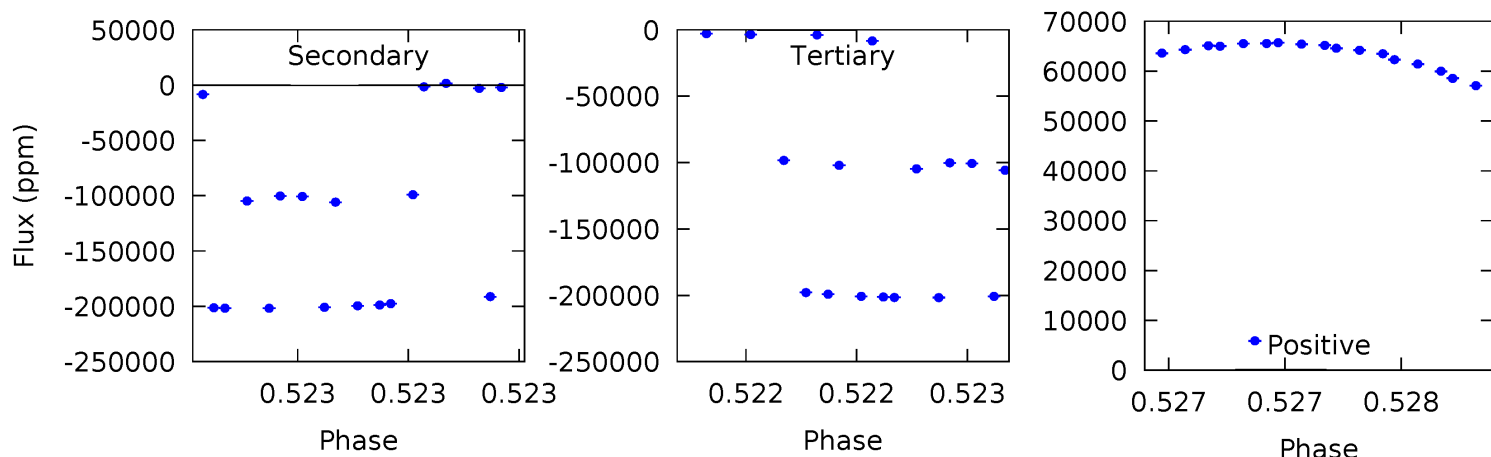
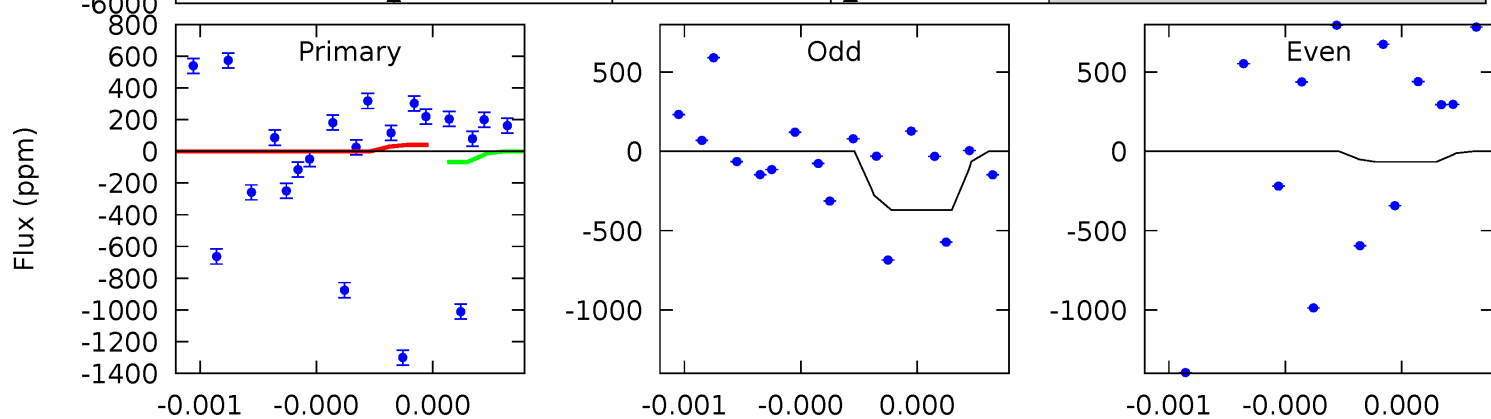
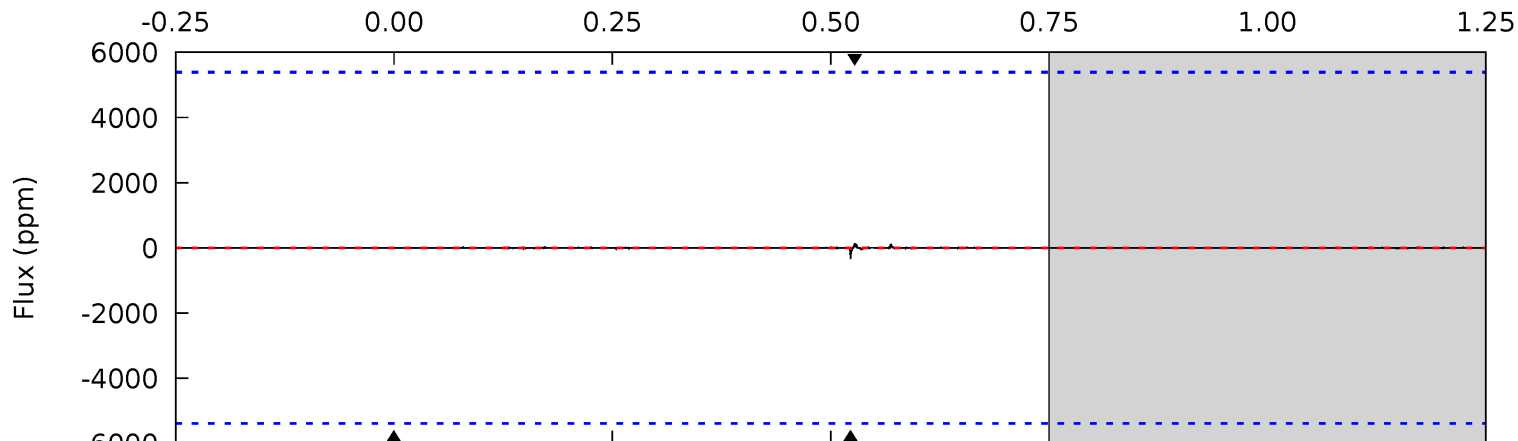
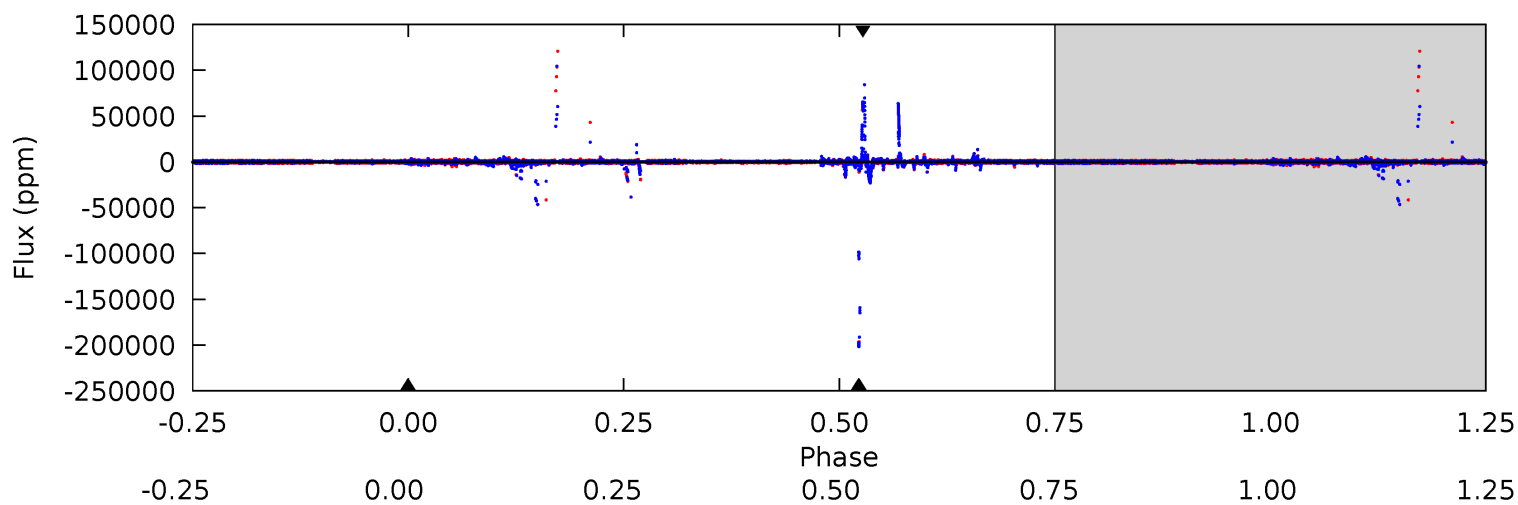
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.54	1.32	1.02	2.72	5.65	3.59	0.13	-0.48	-2.18	0.30	-1.40	0.60	1.59	0.67	0



Alt Model-Shift Uniqueness Test

011307603-05, P = 451.561242 Days, E = 136.729759 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	0.33	0.17	0.14	5.68	3.64	0.01	-0.17	-0.14	0.16	0.19	0.01	19.8	0.30	0.01



Stellar Parameters For KIC 011307603

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3291^{+107}_{-88}	$0.169^{+0.216}_{-0.054}$	$-0.020^{+0.250}_{-0.150}$	$150.645^{+9.958}_{-31.865}$	$1.221^{+0.202}_{-0.166}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+128%/-32%	+1250%/-750%	+7%/-21%	+17%/-14%	+107%/-17%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011307603-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-254 ± 193	$1473.88^{+1338.57}_{-998.65}$	2201^{+101}_{-129}	-2269^{+4850}_{-139}	$0.083^{+0.814}_{-0.072}$
Alt.	-315 ± 948	$1384.65^{+1320.29}_{-986.25}$	2197^{+103}_{-120}	-2266^{+5114}_{-361}	$0.098^{+1.458}_{-0.440}$

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

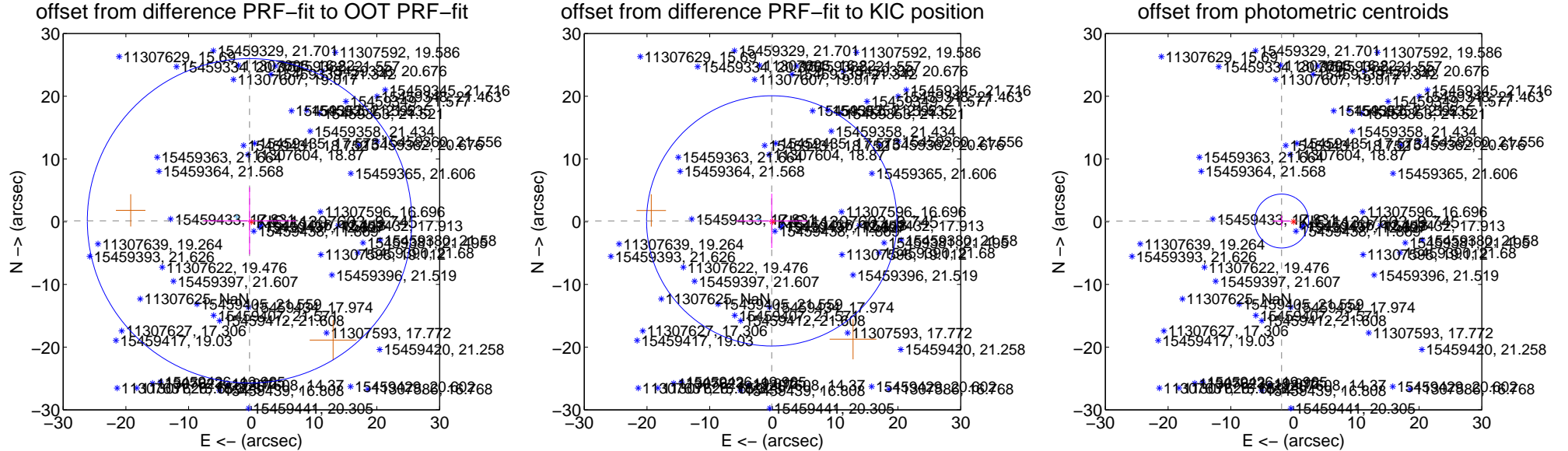
DV Centroid Data

Supplemental centroid analysis for 011307603-05. **Kepler magnitude: 9.74.** Transit SNR 2.34

There are 1 quarters with good PRF difference image offsets

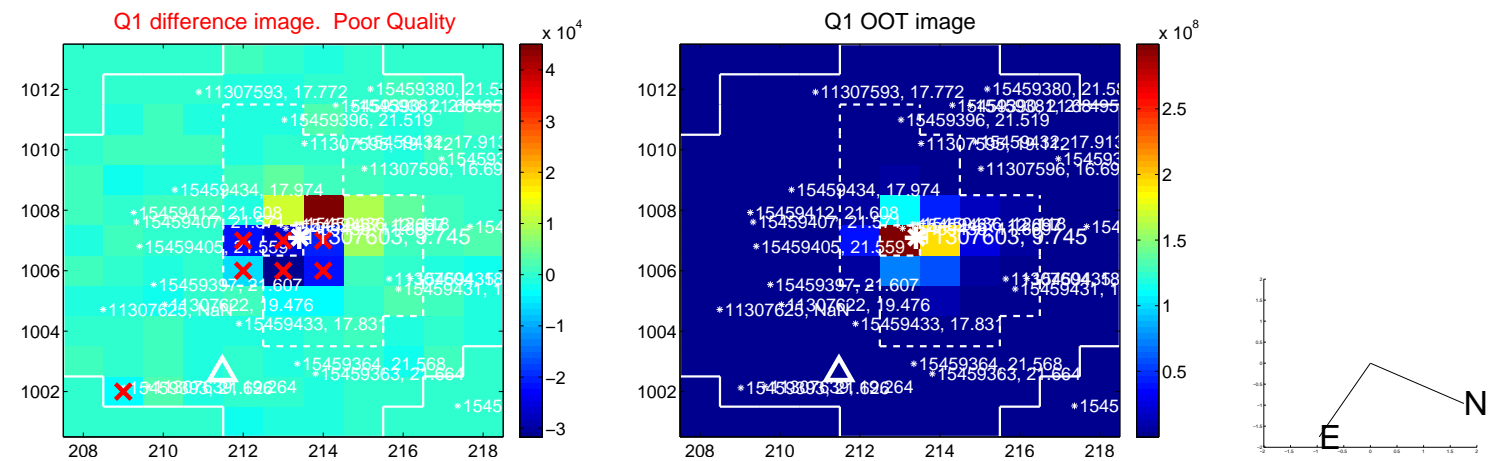
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.320 ± 8.619	0.04	0.288 ± 7.393	0.141 ± 5.332
PRF-fit source offset from KIC position	0.174 ± 6.649	0.03	0.118 ± 5.675	0.127 ± 4.341
photometric centroid source offset	1.91 ± 1.43	1.34	1.91 ± 1.43	0.11 ± 0.85

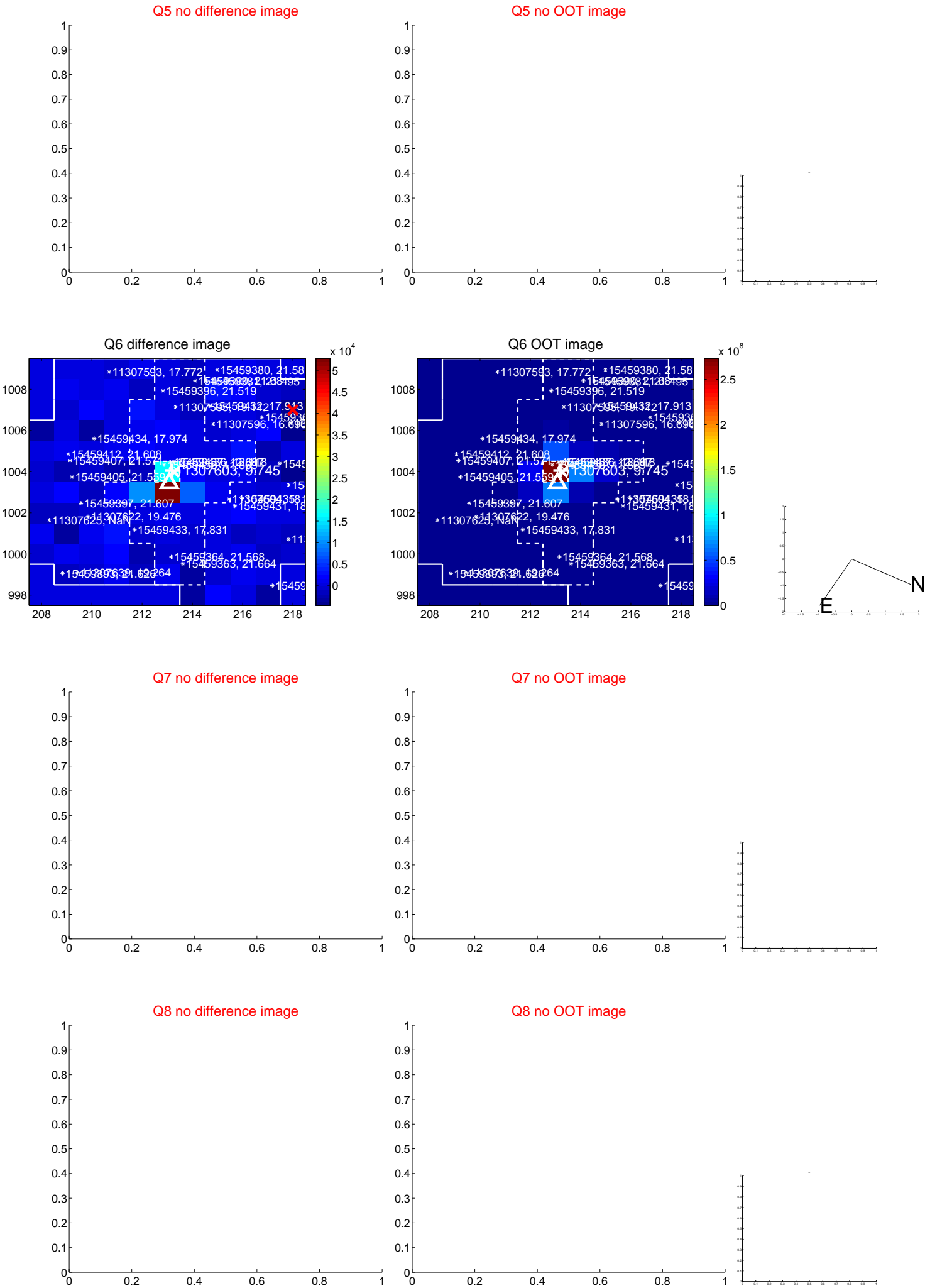


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

Q9 no difference image



Q9 no OOT image



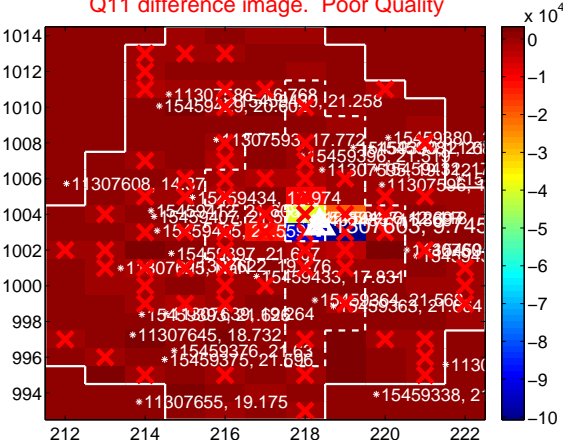
Q10 no difference image



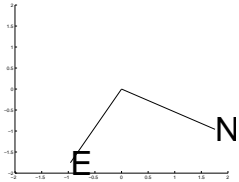
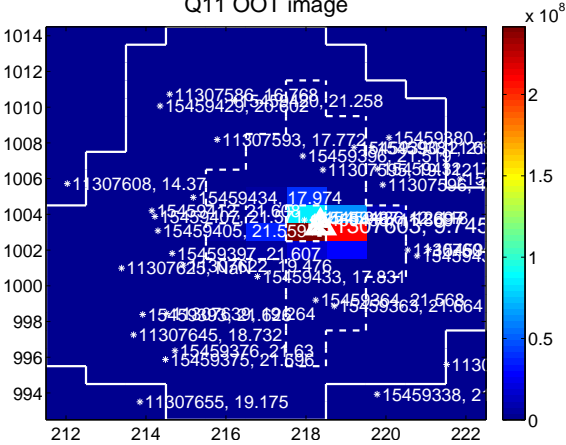
Q10 no OOT image



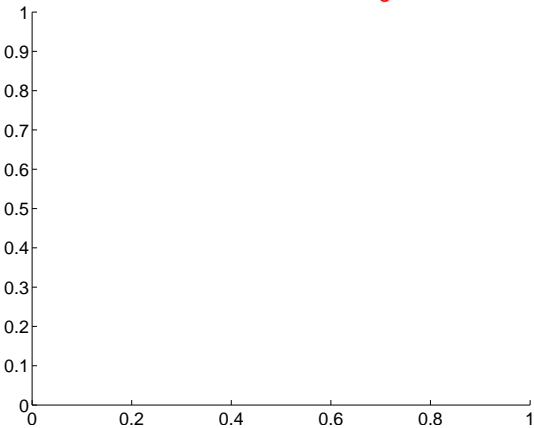
Q11 difference image. Poor Quality



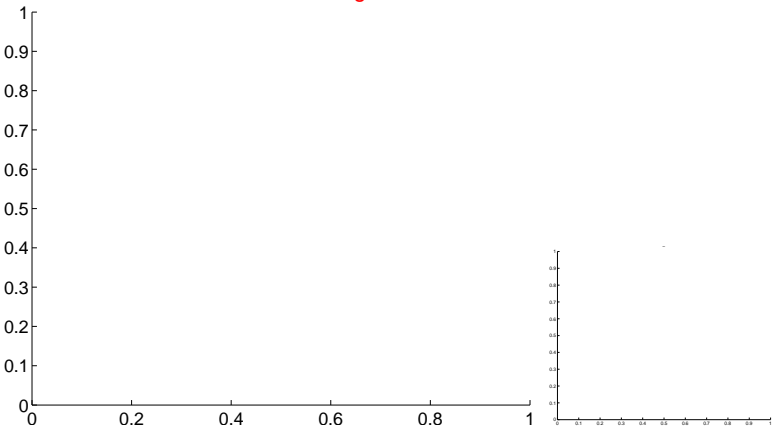
Q11 OOT image



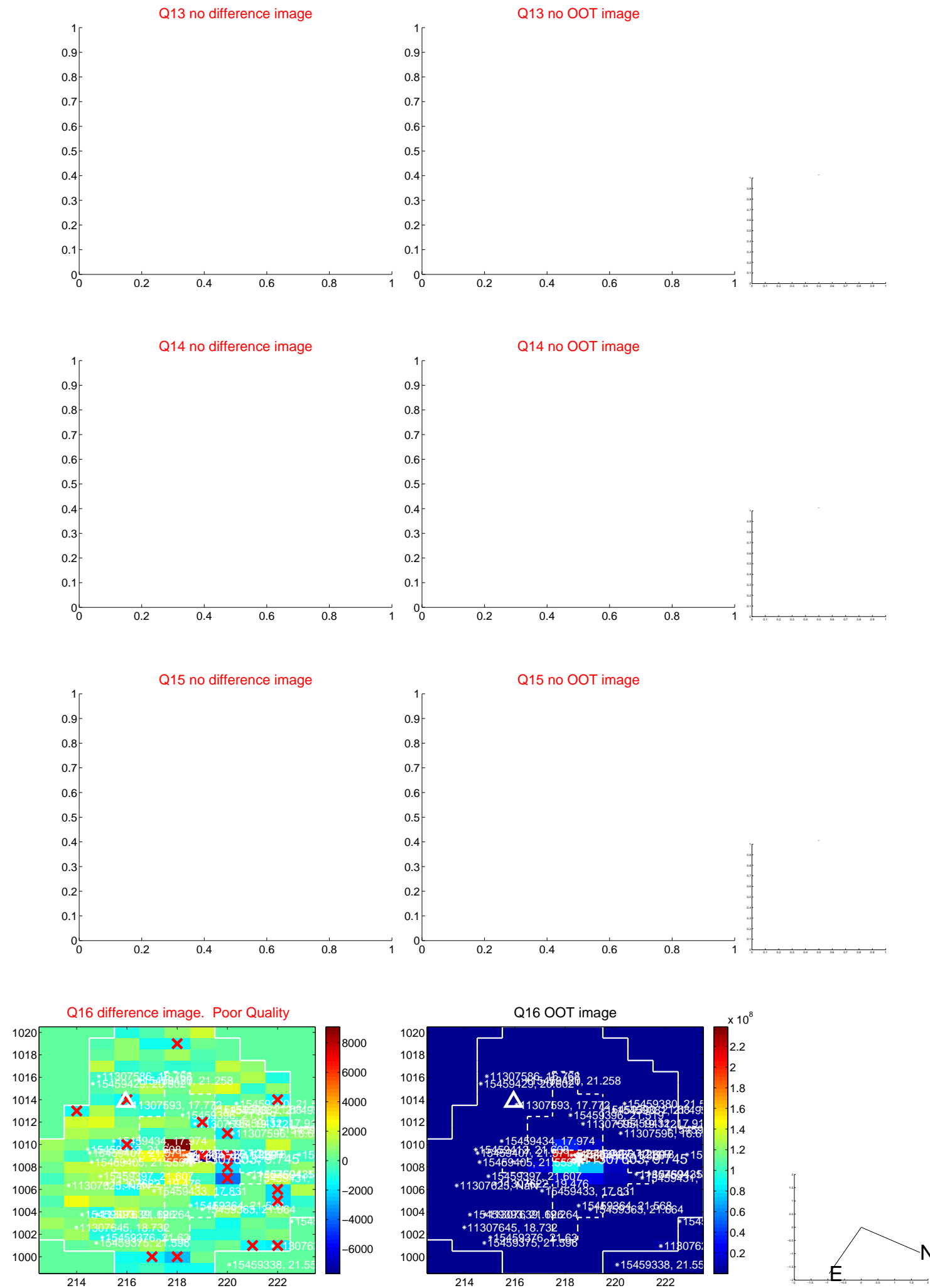
Q12 no difference image



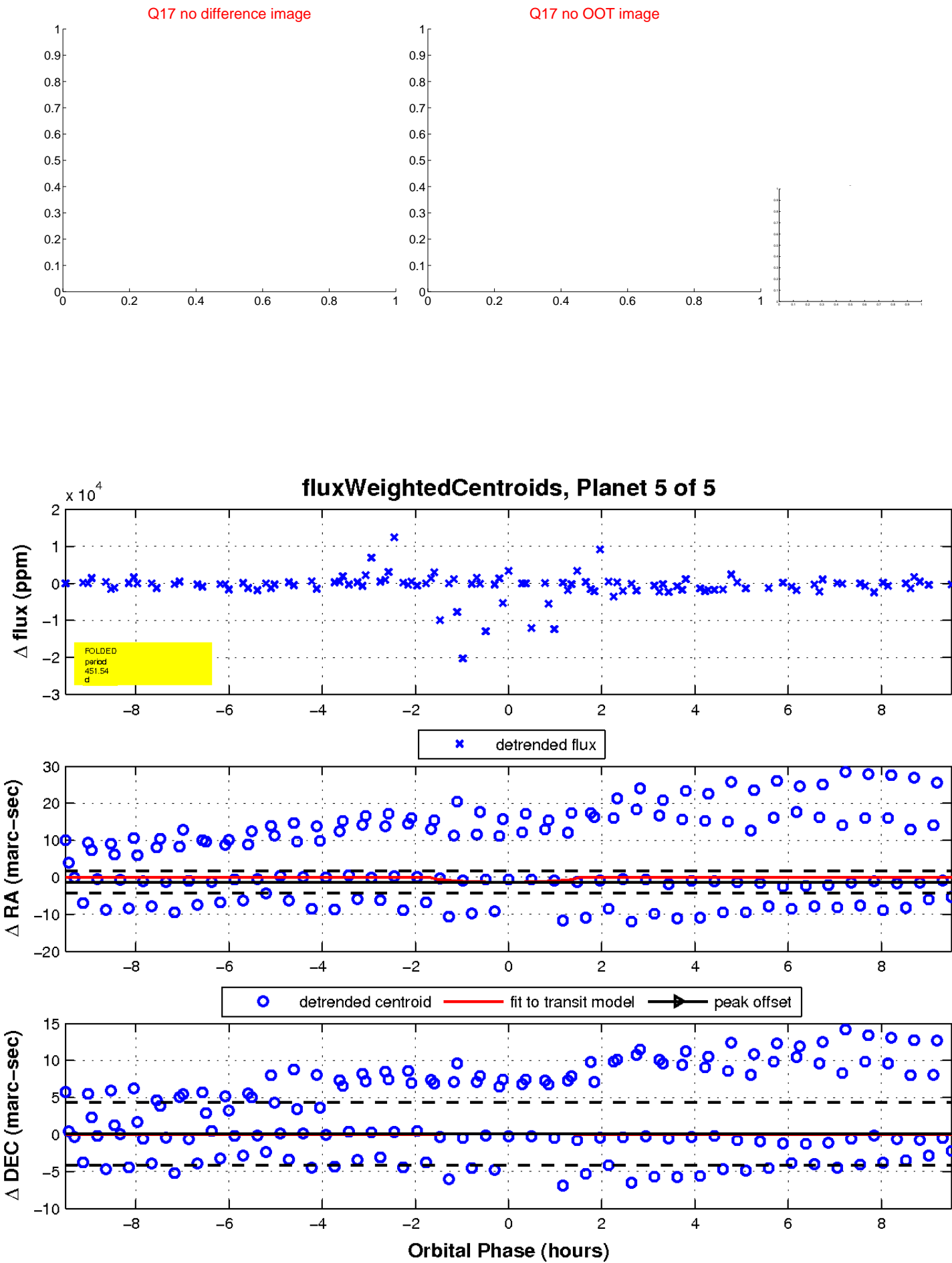
Q12 no OOT image



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



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



UKIRT Image

