

KIC 010130853

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})
010130853-01	OBS	No	72.469862	151.670021	91.5	1.835	21.5	8.1	4.06	4887	5.13	56.62
010130853-02	OBS	No	111.603500	203.669201	80.5	3.672	12.8	10.9	4.06	4887	3.50	31.84
010130853-03	OBS	No	71.267204	148.971986	32.2	1.519	7.6	9.2	4.06	4887	2.70	57.90

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010130853-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010130853-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—LPP_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010130853-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

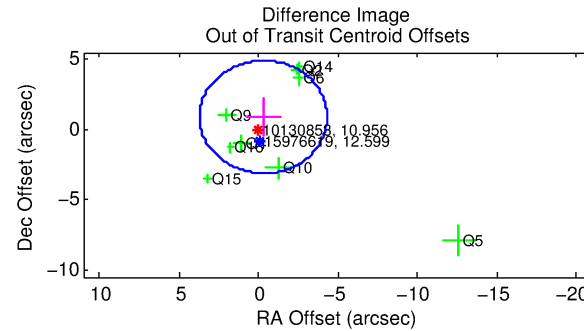
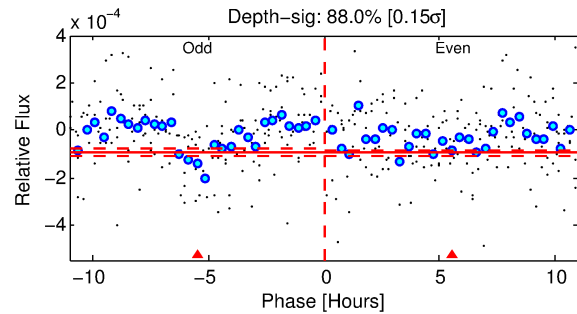
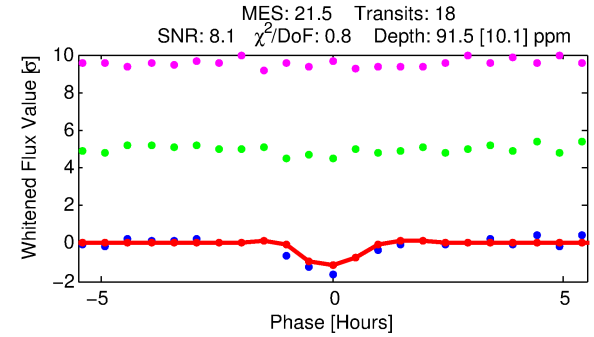
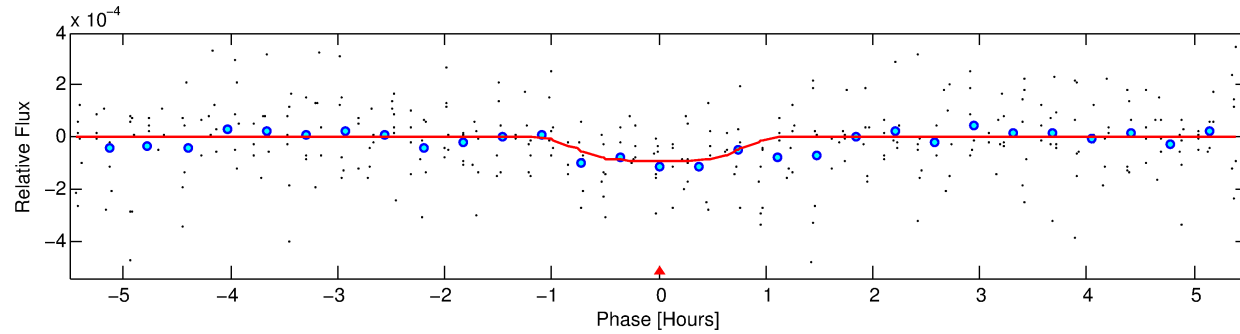
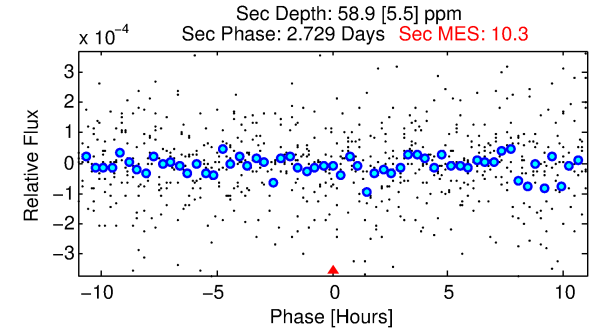
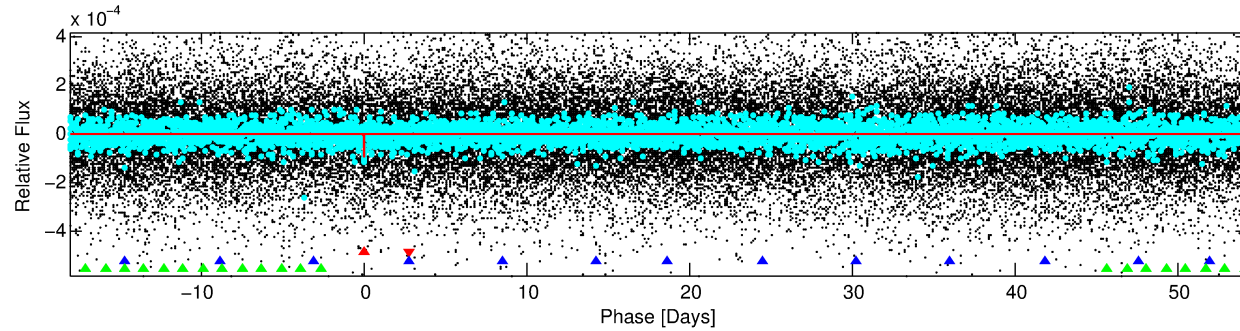
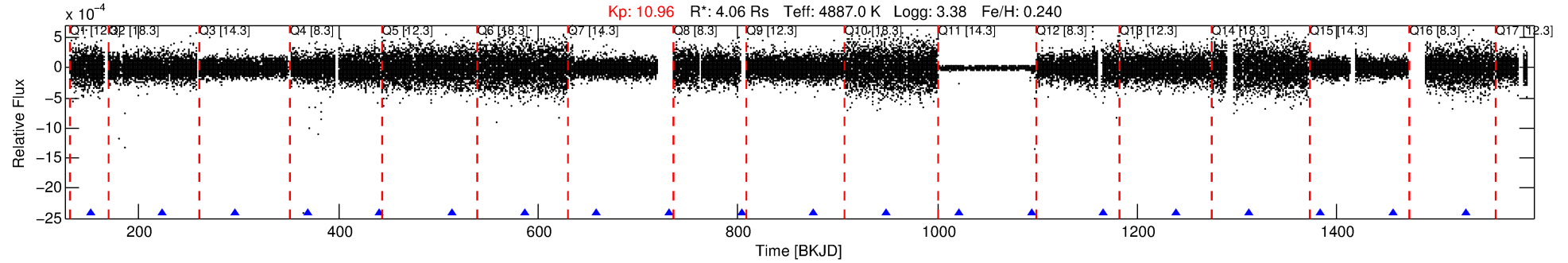
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010130853-01

No Significant Match Found

DV One-Page Summary

KIC: 10130853 Candidate: 1 of 3 Period: 72.470 d



DV Fit Results:

Period = 72.46986 [0.00074] d
Epoch = 151.6700 [0.0095] BKJD
Rp/R* = 0.0116 [0.0109]
a/R* = 106.76 [440.41]
b = 0.95 [0.46]
Seff = 56.62 [6.43]
Teq = 699 [20] K
Rp = 5.13 [4.88] Re
a = 0.3854 [0.0337] AU
Ag = 182.79 [345.40] [0.53σ]
Teffp = 3977 [1878] K [1.75σ]

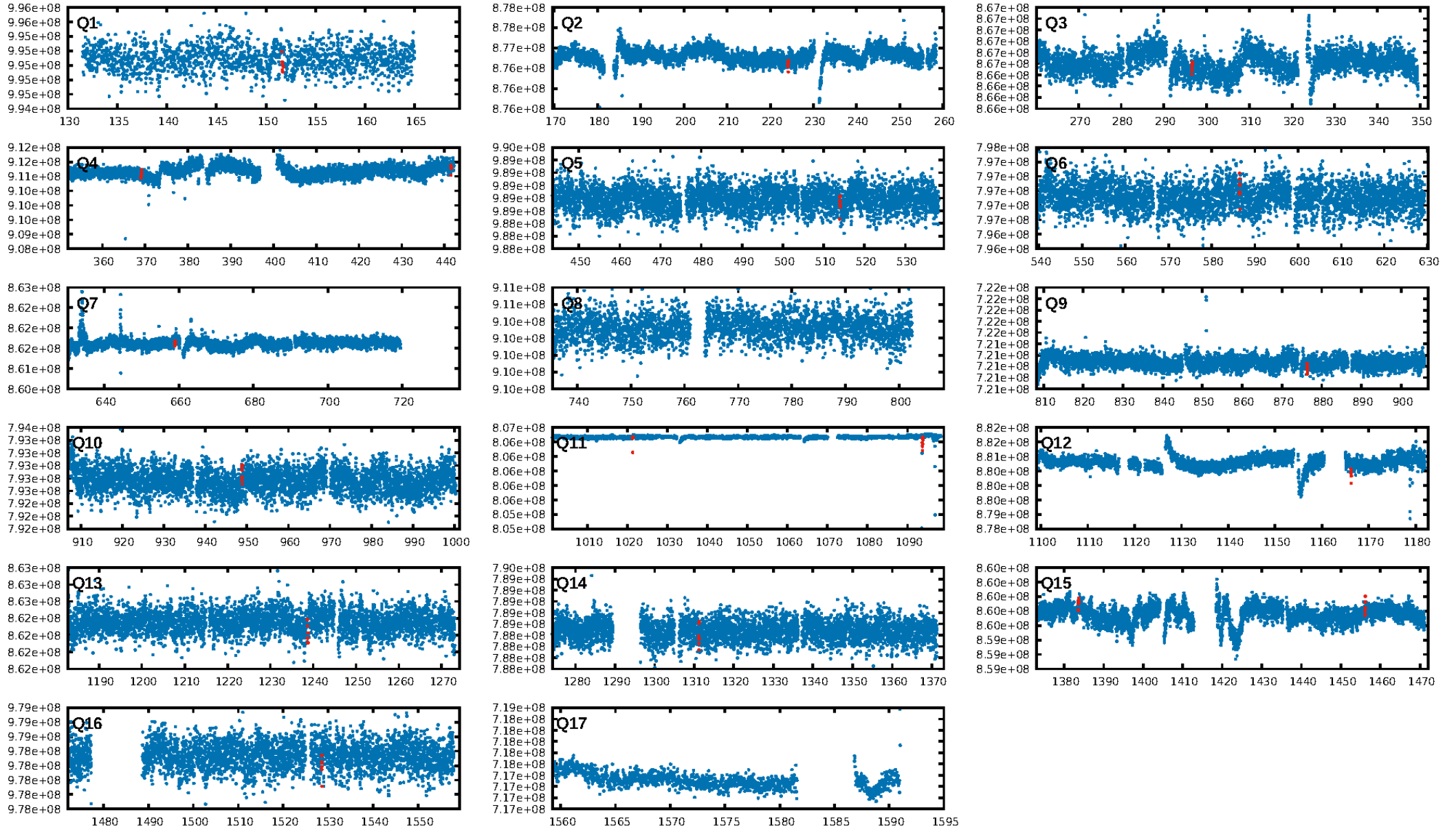
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.12σ]
LongPeriod-sig: 100.0% [228.82σ]
ModelChiSquare2-sig: 56.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.25e-38
RollingBand-fgt: 1.00 [17/17]
GhostDiagnostic-chr: -0.5258
Centroid-sig: 43.7%
Centroid-so: 0.612 arcsec [0.55σ]
OotOffset-rm: 0.950 arcsec [0.71σ]
KicOffset-rm: 1.434 arcsec [1.02σ]
OotOffset-st: 4/1/2/2 [9]
KicOffset-st: 4/1/2/2 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 1.00 [13/13]

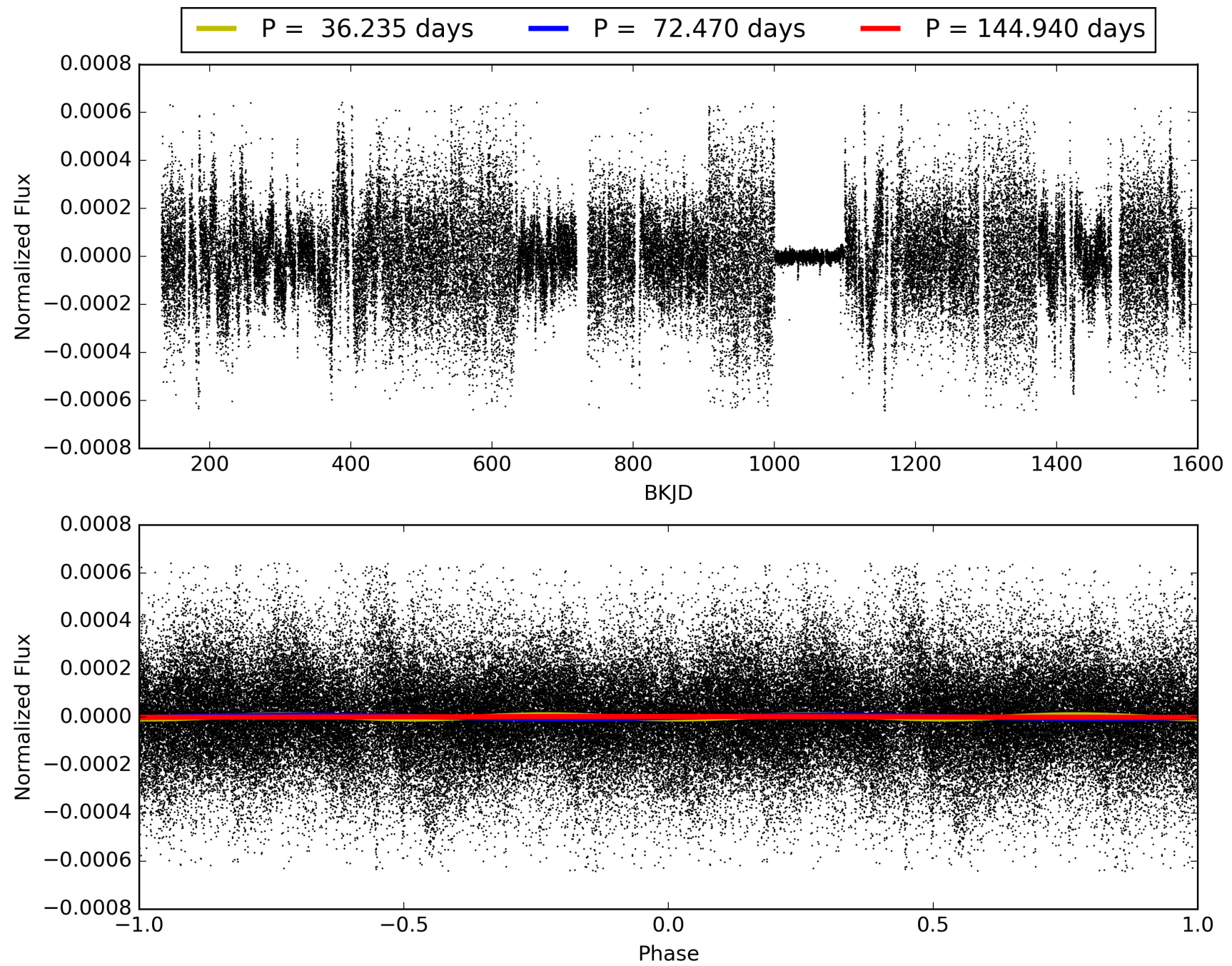
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010130853-01, PDC Light Curves

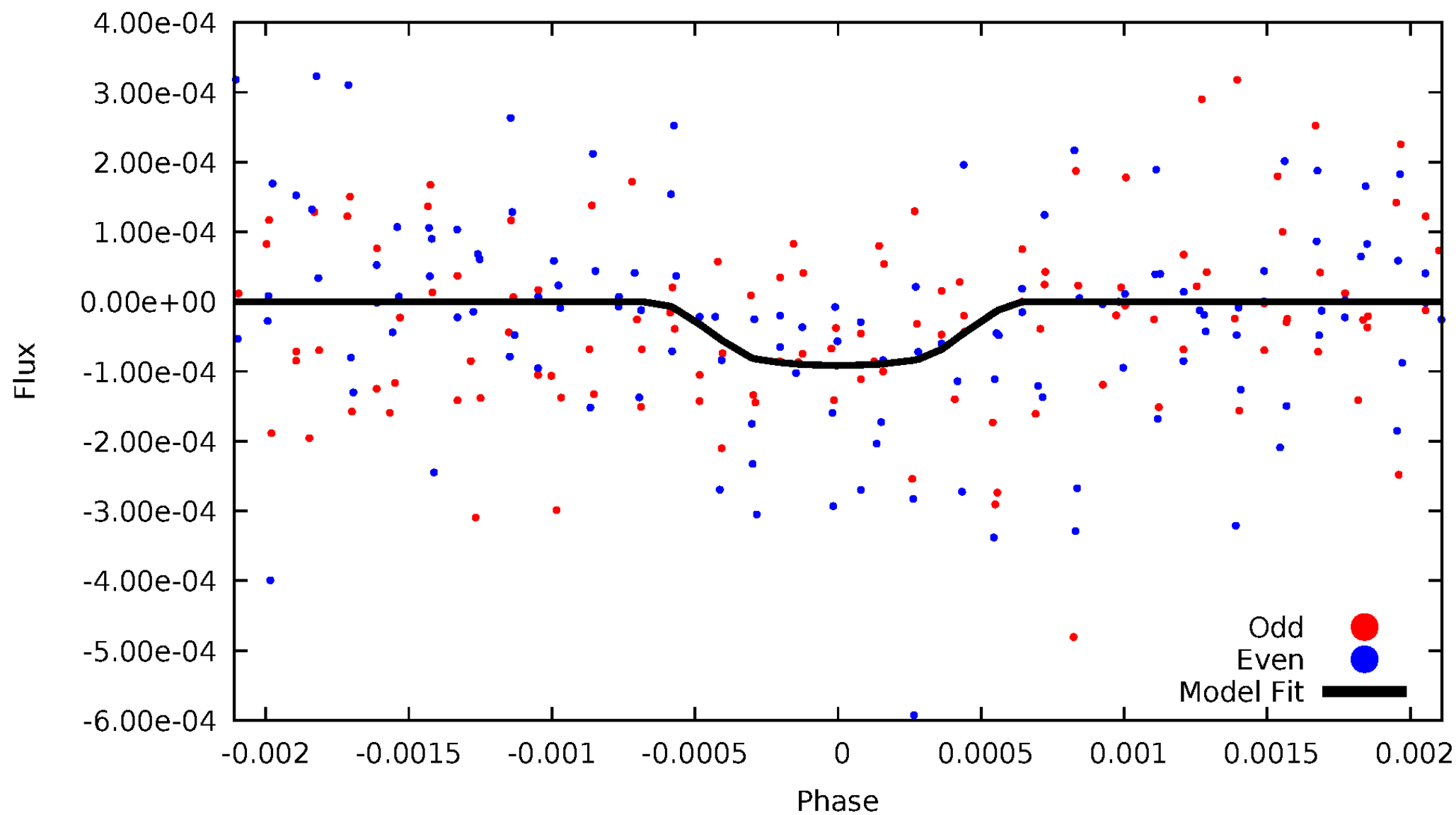


TCE 010130853-01



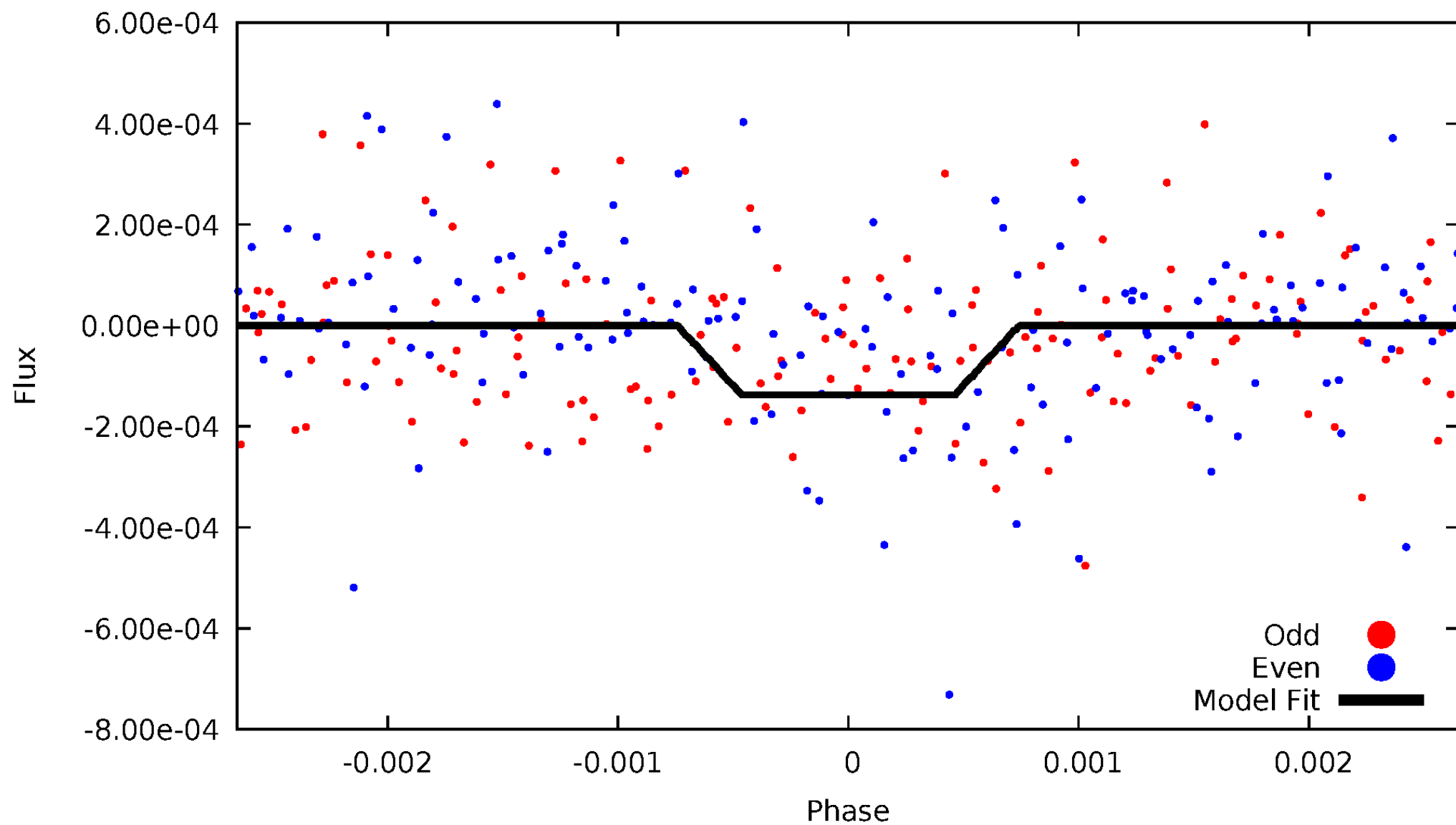
DV Odd/Even

TCE 010130853-01

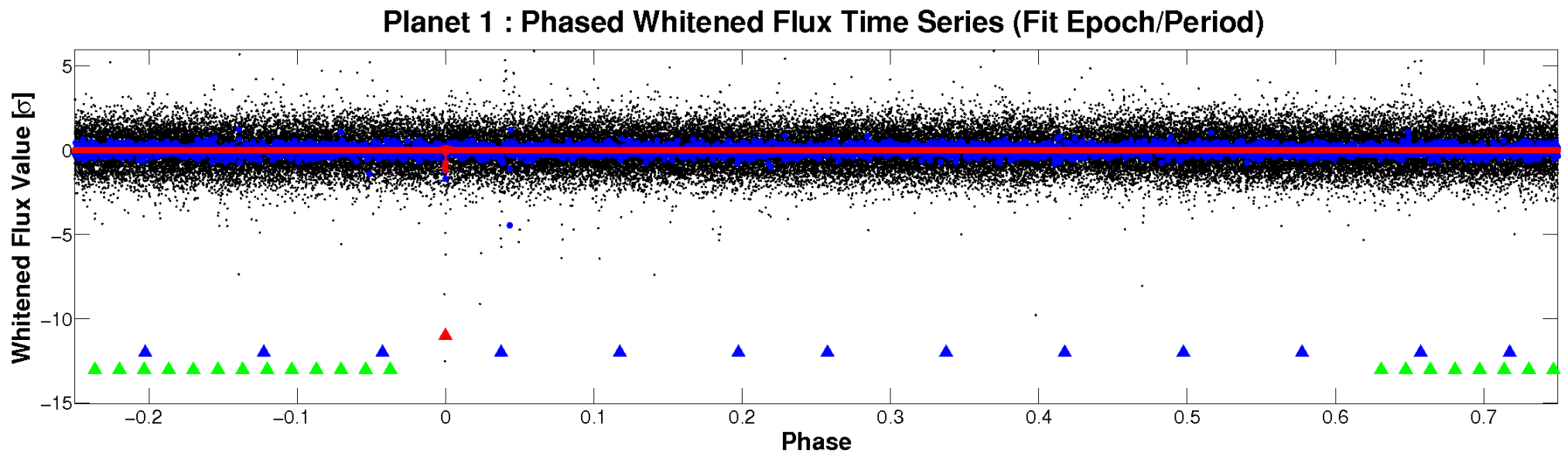
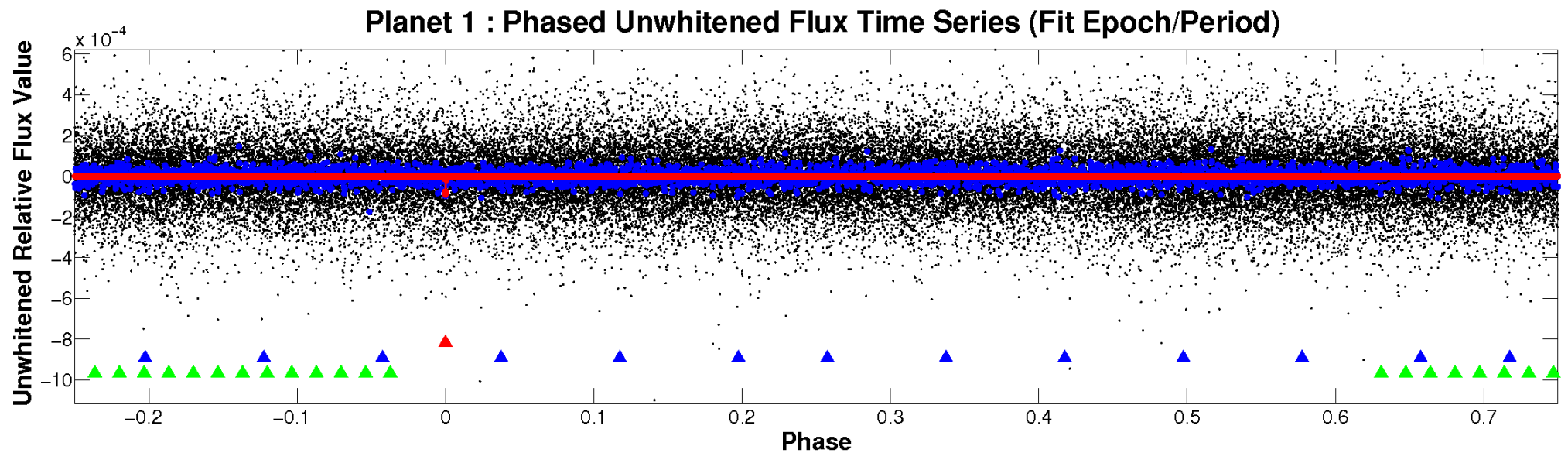


ALT Odd/Even

TCE 010130853-01

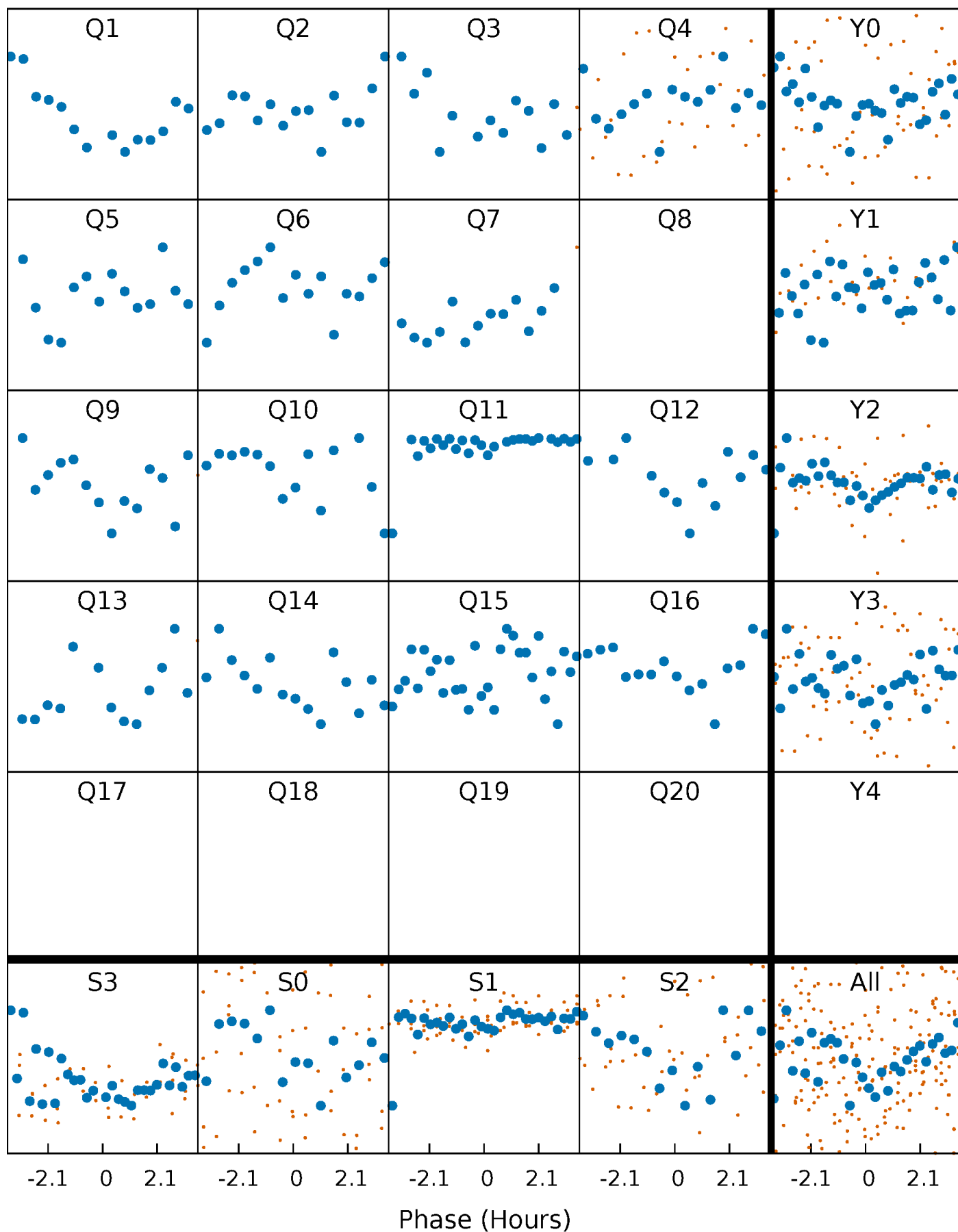


Non-Whitened Vs. Whitened Light Curve



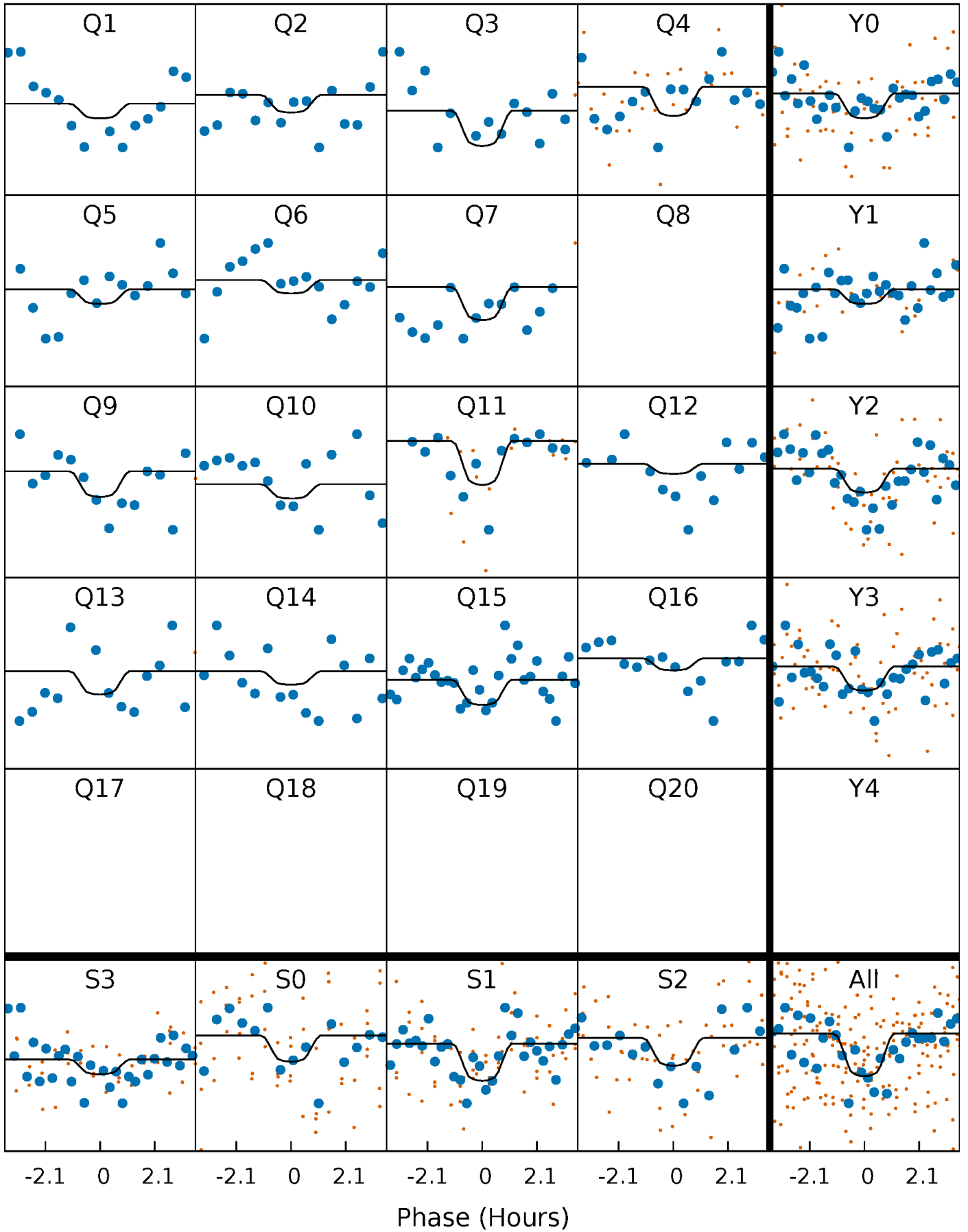
PDC Quarter-Phased Transit Curves

TCE 010130853-01 P= 72.469862 Days $T_0=151.670021$ (BKJD)



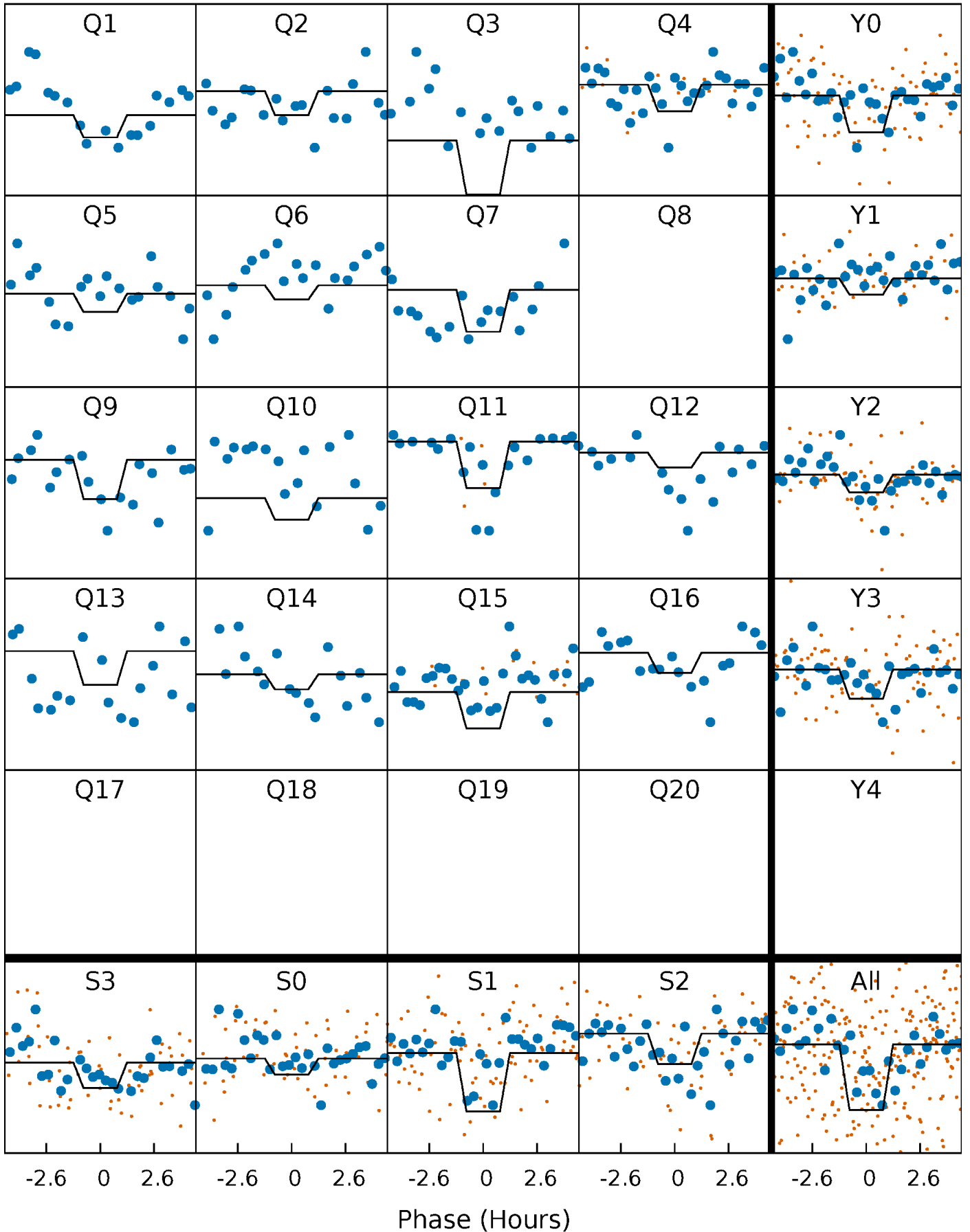
DV Quarter-Phased Transit Curves

TCE 010130853-01 P= 72.469862 Days $T_0=151.670021$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

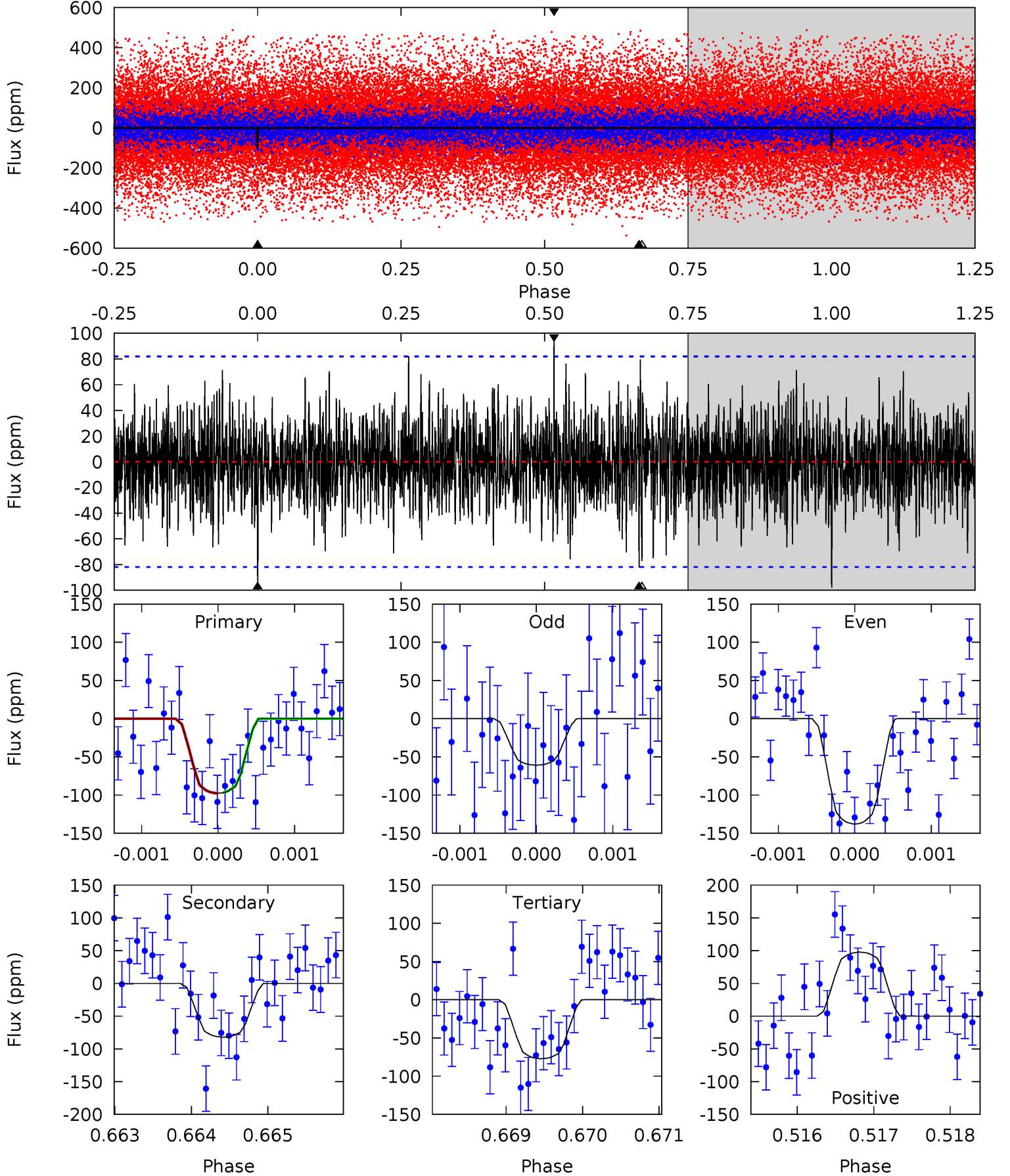
TCE 010130853-01 P= 72.469377 Days $T_0=151.664340$ (BKJD)



DV Model-Shift Uniqueness Test

010130853-01, P = 72.469862 Days, E = 79.200159 Days

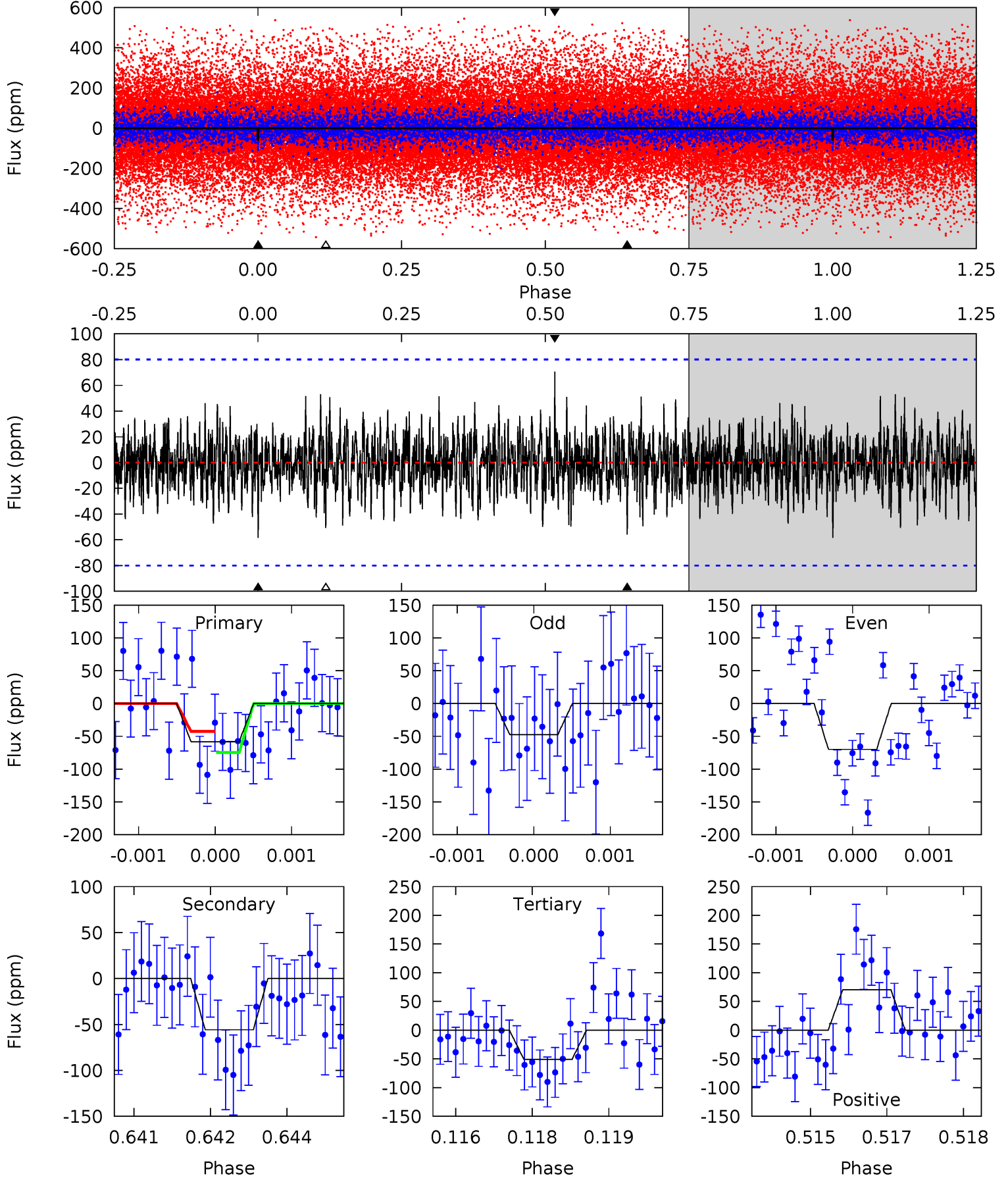
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.45	5.43	5.10	6.46	5.41	3.23	1.52	1.35	-0.01	0.33	-1.03	2.57	1.29	0.50	0.04



Alt Model-Shift Uniqueness Test

010130853-01, P = 72.469377 Days, E = 79.194963 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.92	3.75	3.42	4.74	5.38	3.18	1.13	0.50	-0.82	0.33	-0.99	0.76	0.68	0.55	1.09



Stellar Parameters For KIC 010130853

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4887^{+50}_{-87}	$3.384^{+0.010}_{-0.011}$	$0.240^{+0.100}_{-0.150}$	$4.057^{+0.189}_{-0.529}$	$1.451^{+0.150}_{-0.349}$	$0.031^{+0.005}_{-0.002}$
	+1%/-2%	+0%/-0%	+42%/-62%	+5%/-13%	+10%/-24%	+15%/-5%
Source	SPE72	AST10	SPE72	DSEP		

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

Secondary Eclipse Parameters for KIC 010130853-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-82 ± 15	$5.69^{+4.75}_{-3.27}$	979^{+13}_{-21}	4215^{+1944}_{-763}	199^{+965}_{-138}
Alt.	-56 ± 15	$6.14^{+4.39}_{-4.01}$	977^{+14}_{-19}	3844^{+1949}_{-622}	119^{+805}_{-80}

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

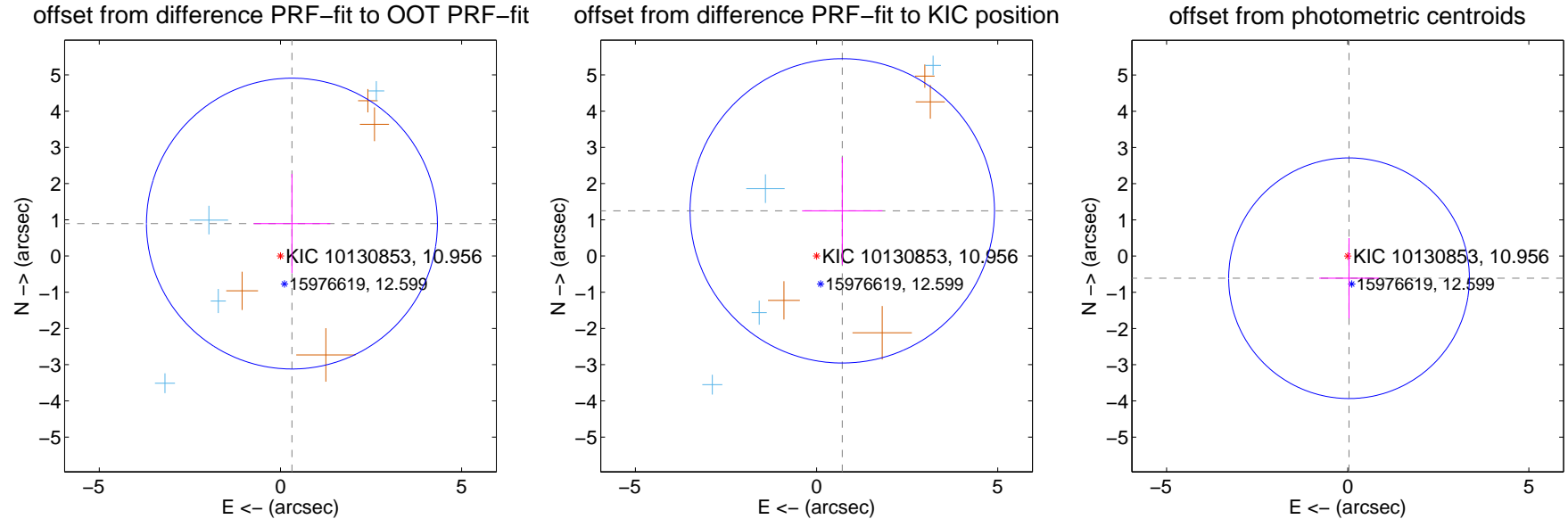
DV Centroid Data

Supplemental centroid analysis for 010130853-01. **Kepler magnitude: 10.96.** Transit SNR 8.12

There are 4 quarters with good PRF difference image offsets

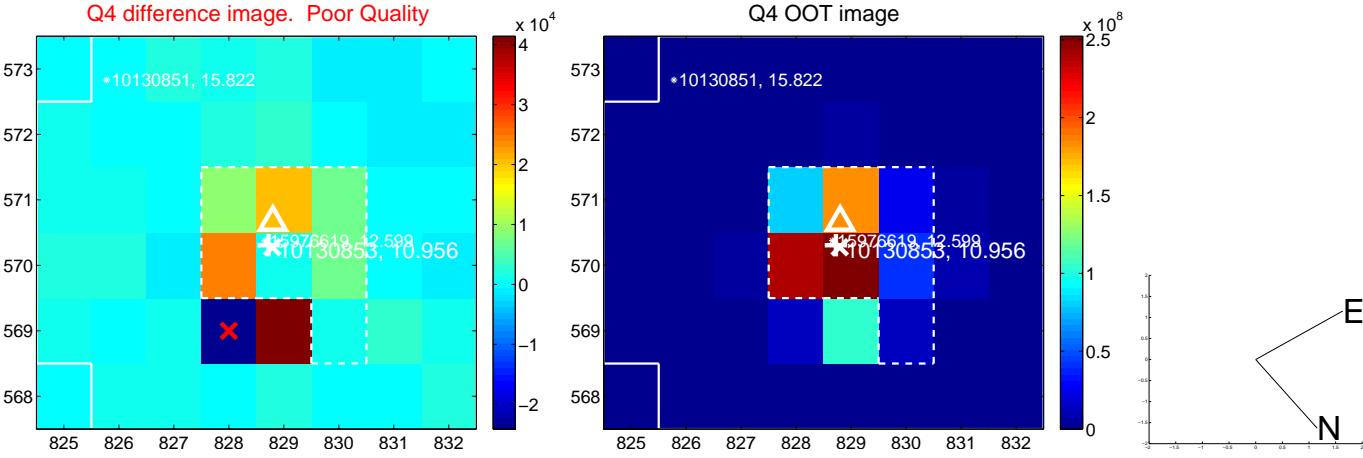
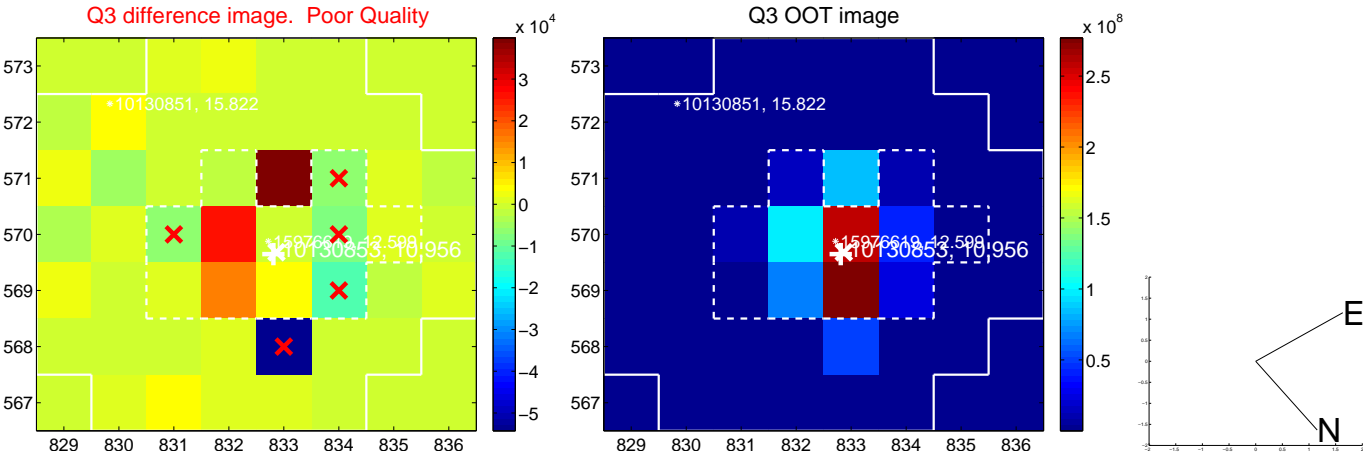
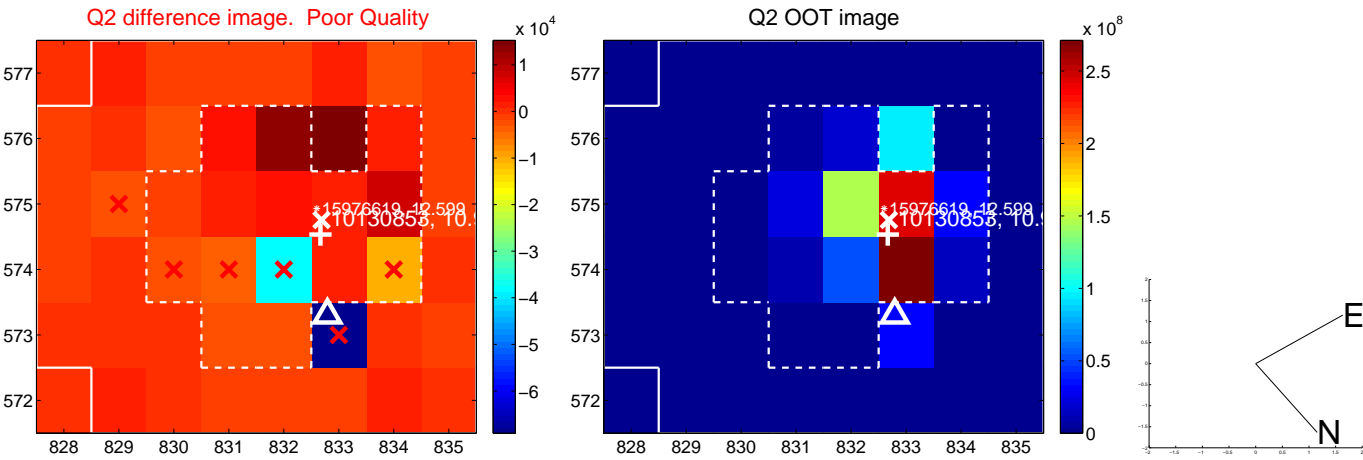
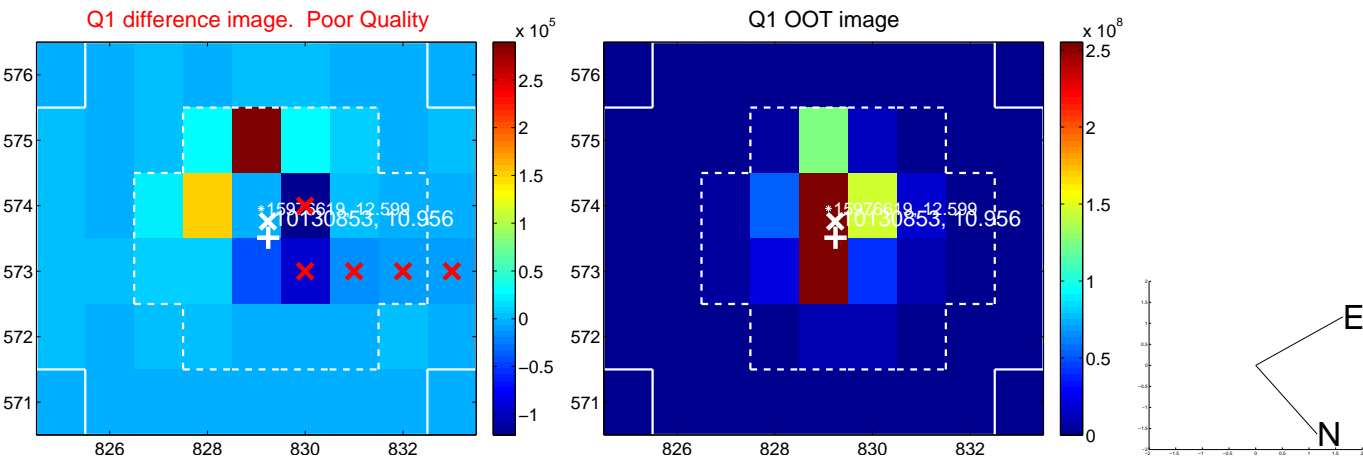
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.950 ± 1.338	0.71	-0.317 ± 1.057	0.896 ± 1.369
PRF-fit source offset from KIC position	1.434 ± 1.400	1.02	-0.709 ± 1.109	1.247 ± 1.482
photometric centroid source offset	0.61 ± 1.11	0.55	-0.04 ± 0.82	-0.61 ± 1.11

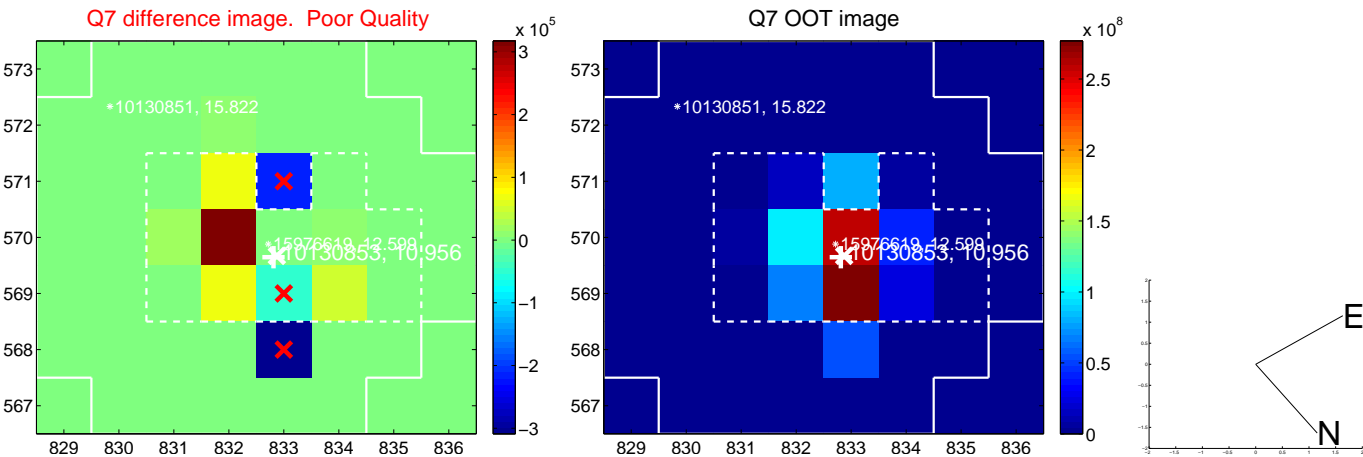
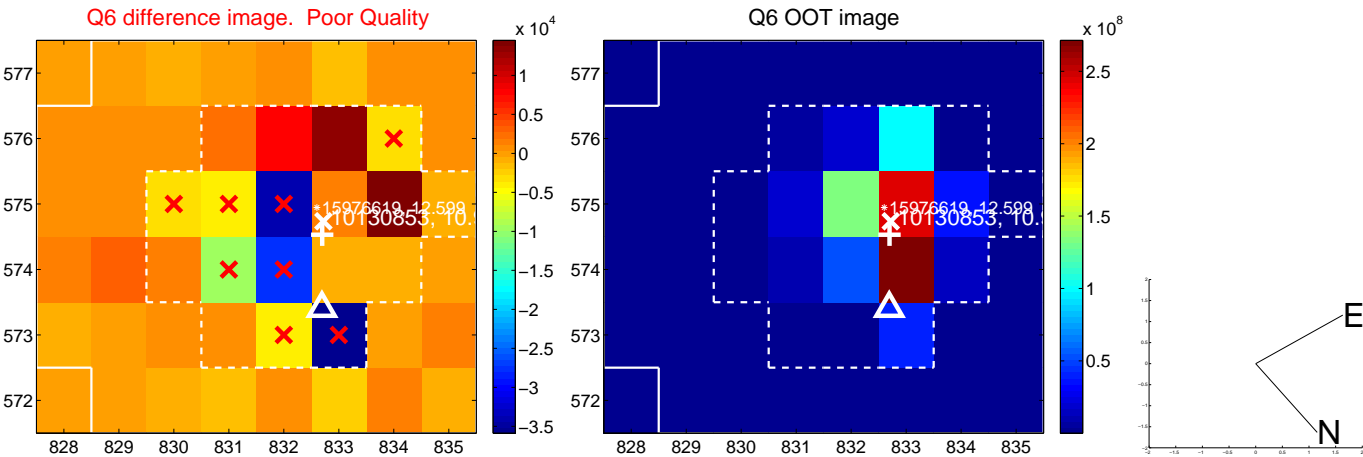
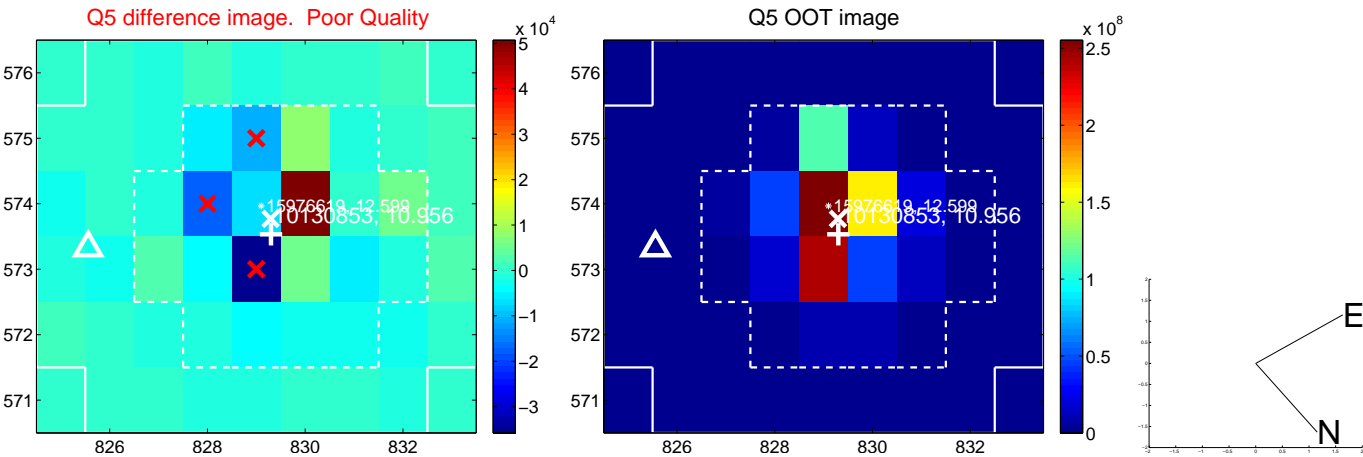


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

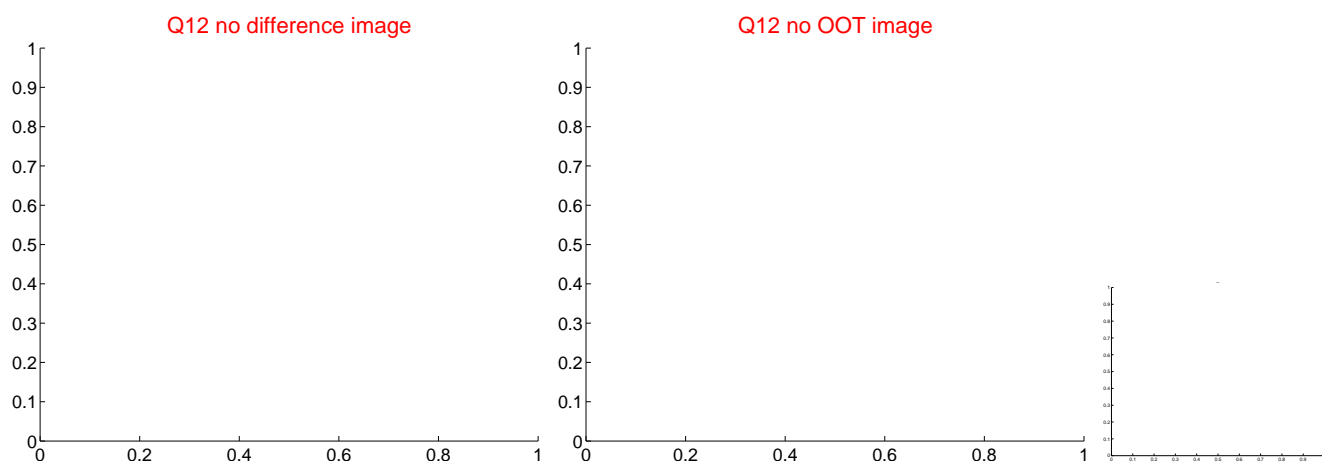
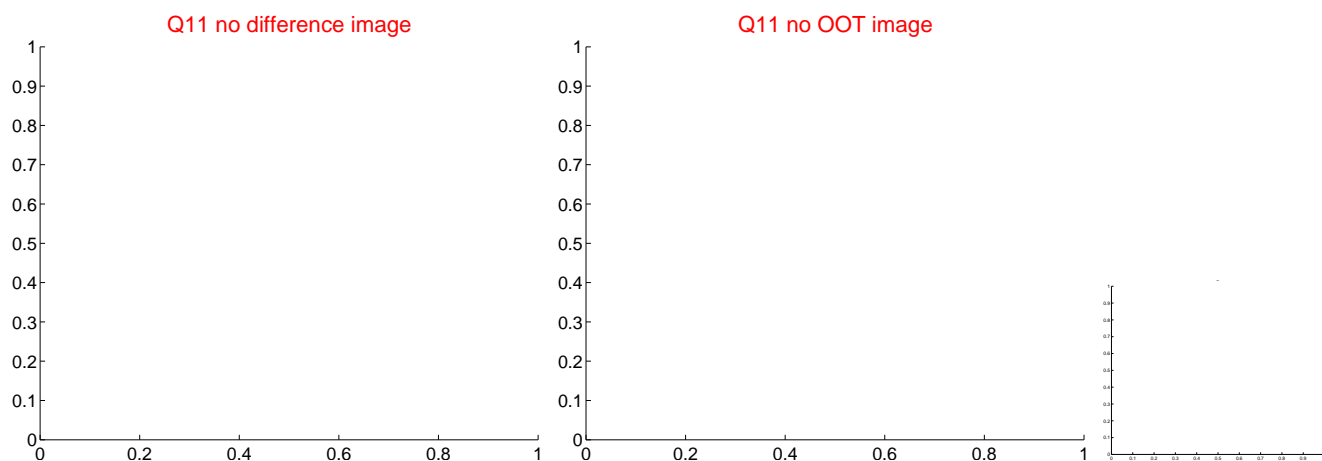
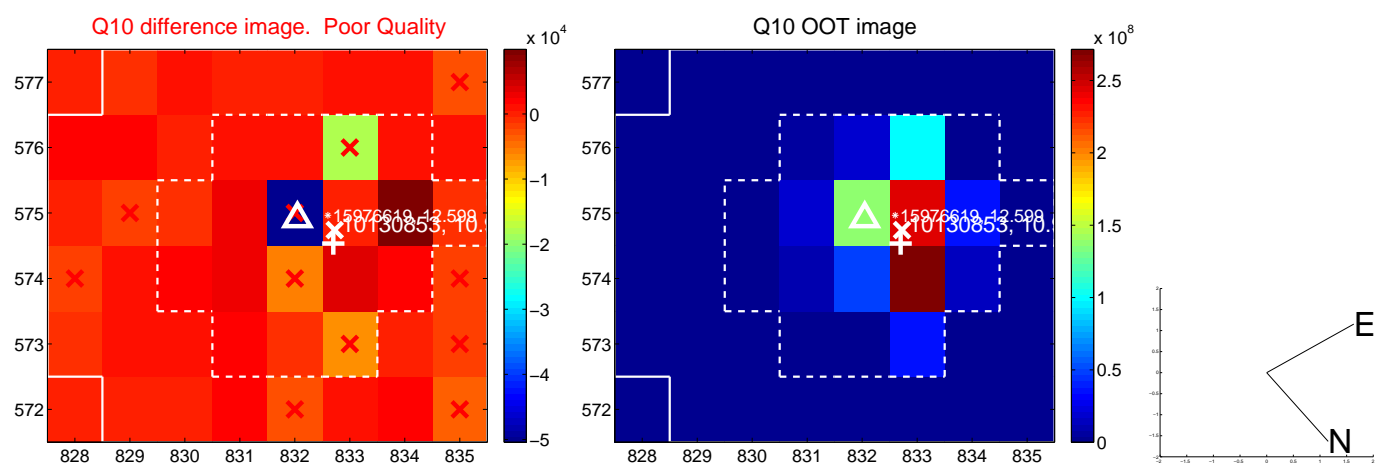
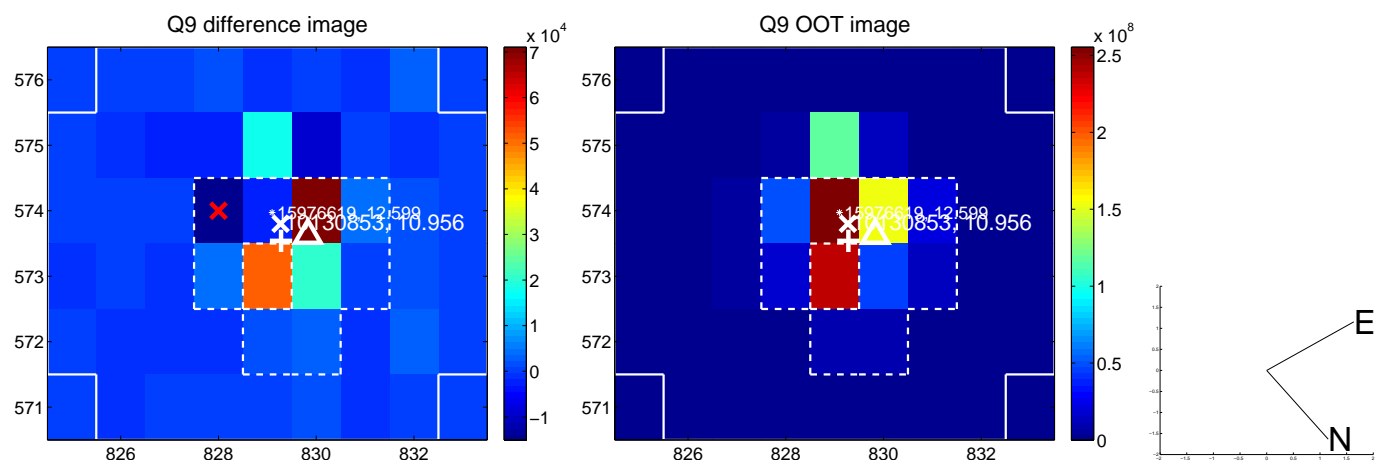
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



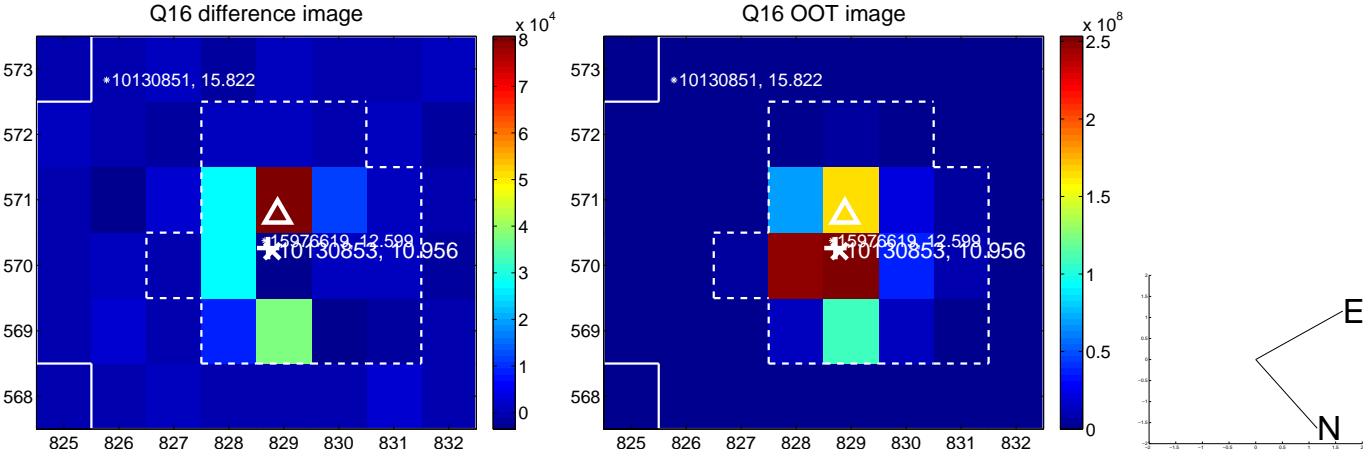
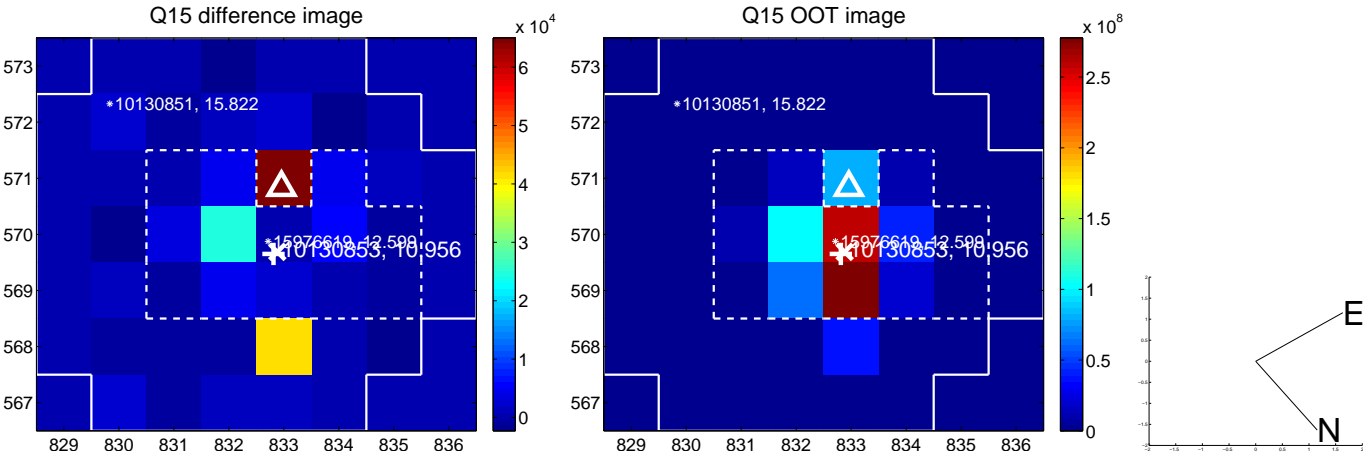
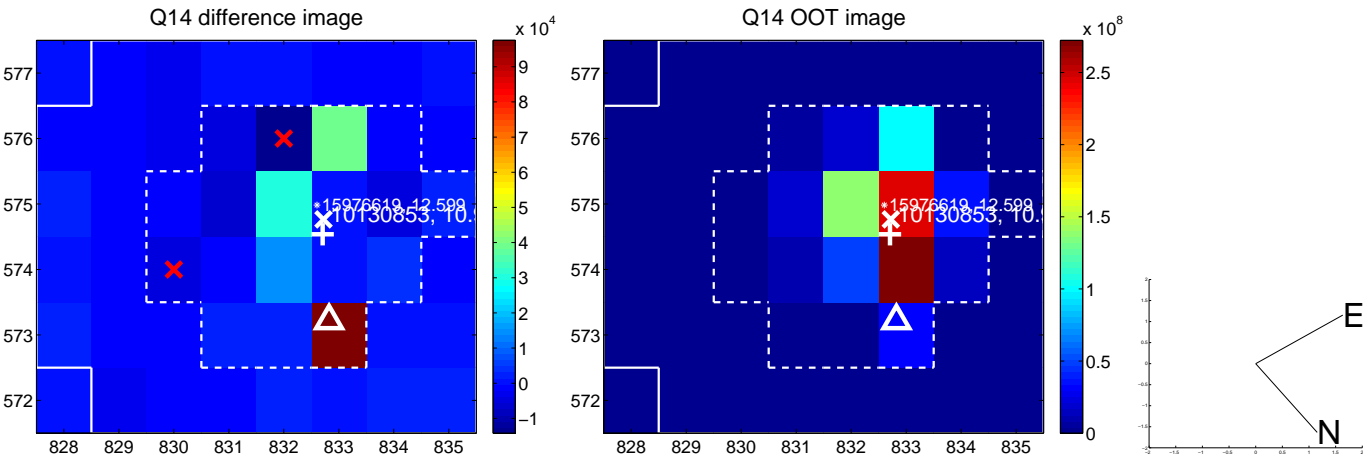
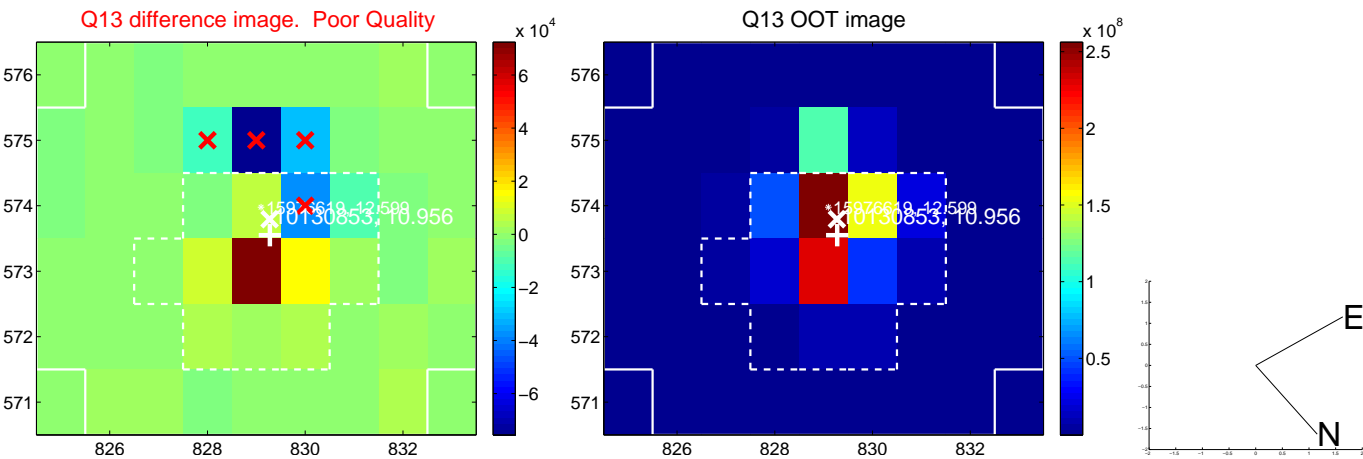
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



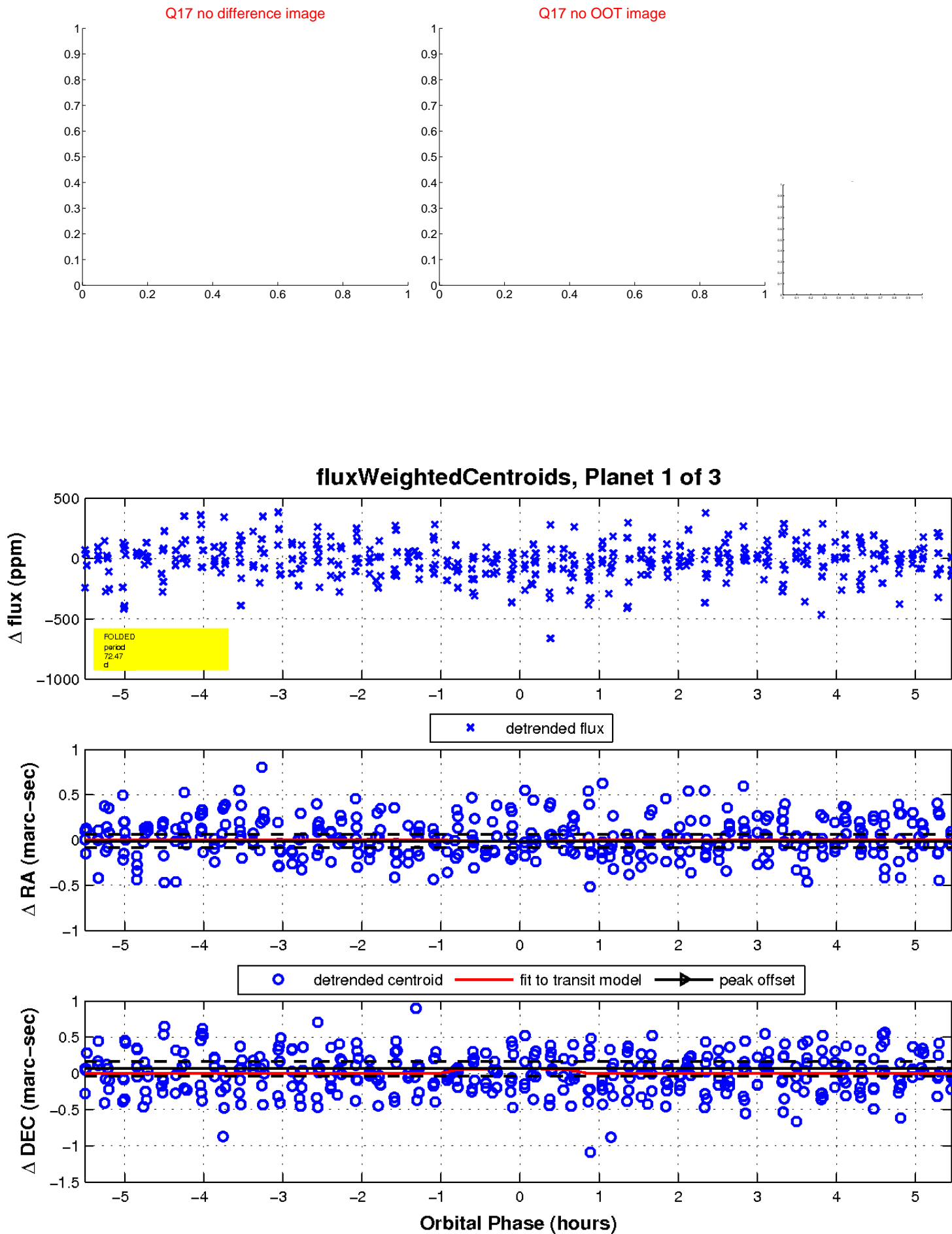
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



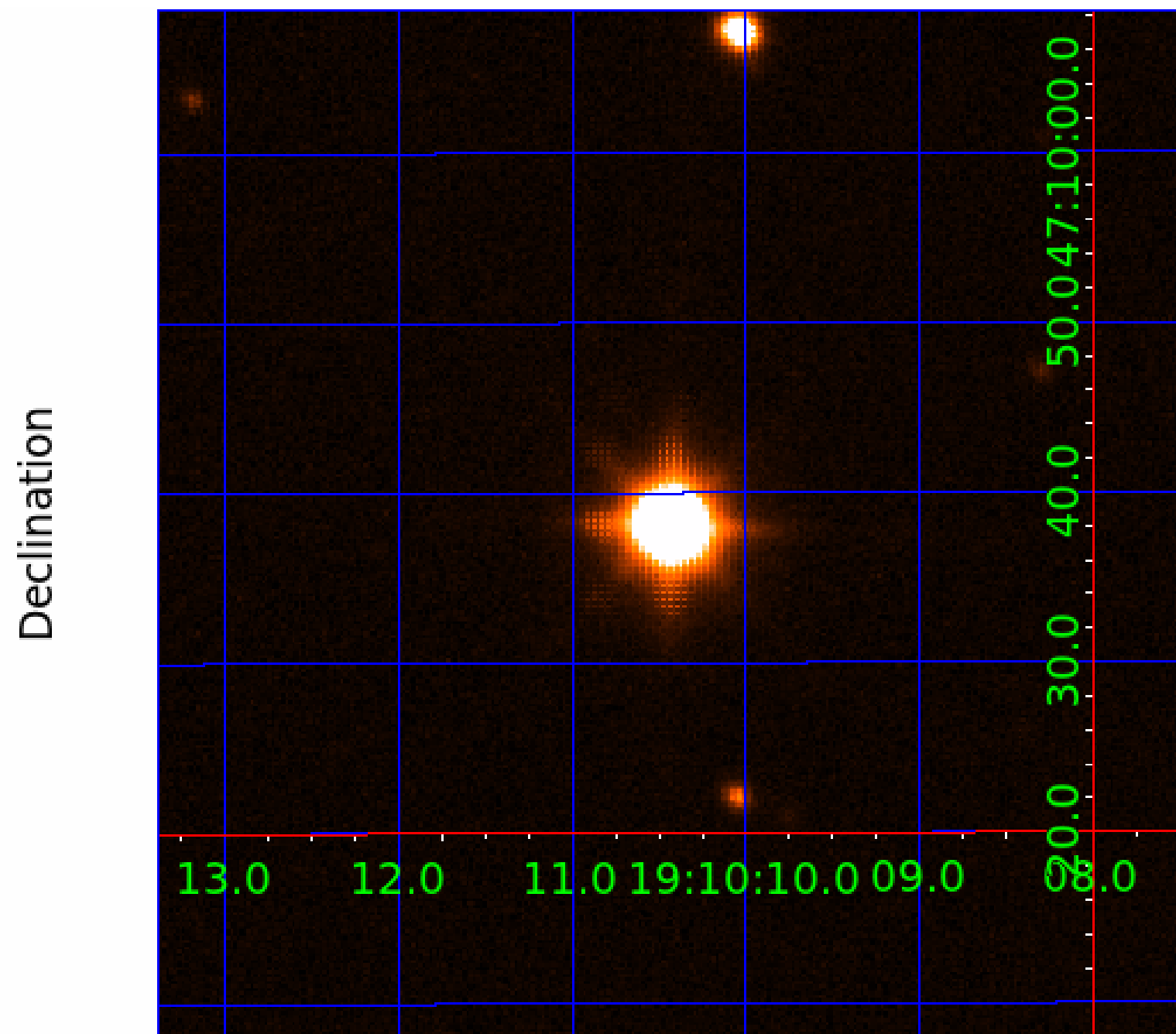
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010130853

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})
010130853-01	OBS	No	72.469862	151.670021	91.5	1.835	21.5	8.1	4.06	4887	5.13	56.62
010130853-02	OBS	No	111.603500	203.669201	80.5	3.672	12.8	10.9	4.06	4887	3.50	31.84
010130853-03	OBS	No	71.267204	148.971986	32.2	1.519	7.6	9.2	4.06	4887	2.70	57.90

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010130853-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010130853-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—LPP_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010130853-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

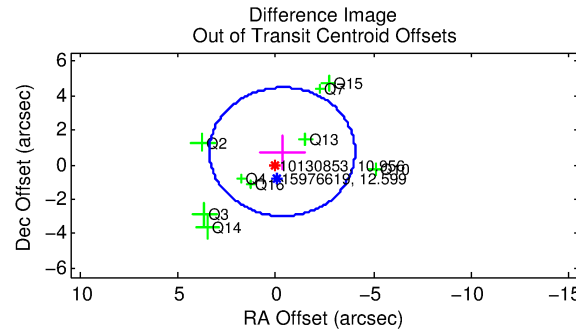
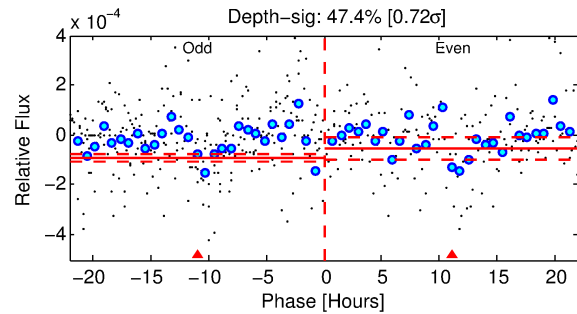
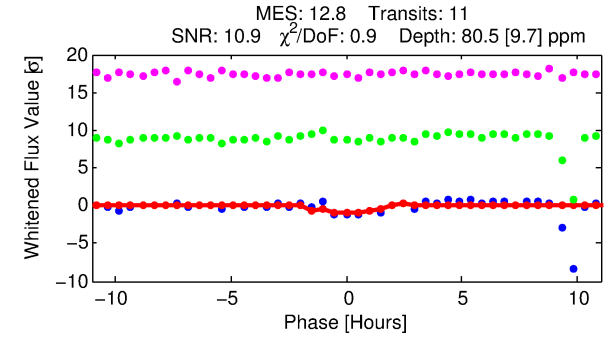
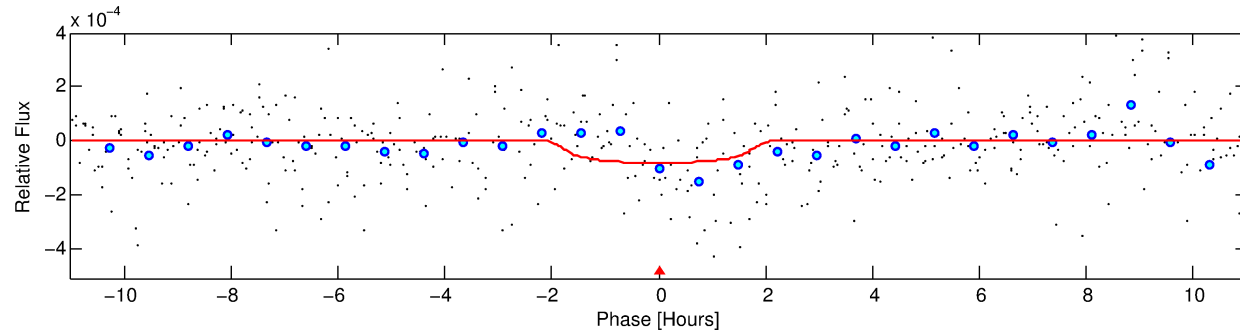
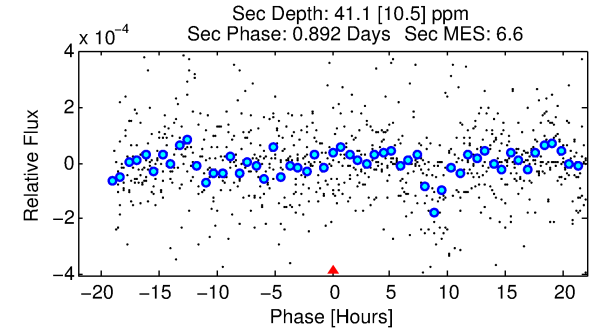
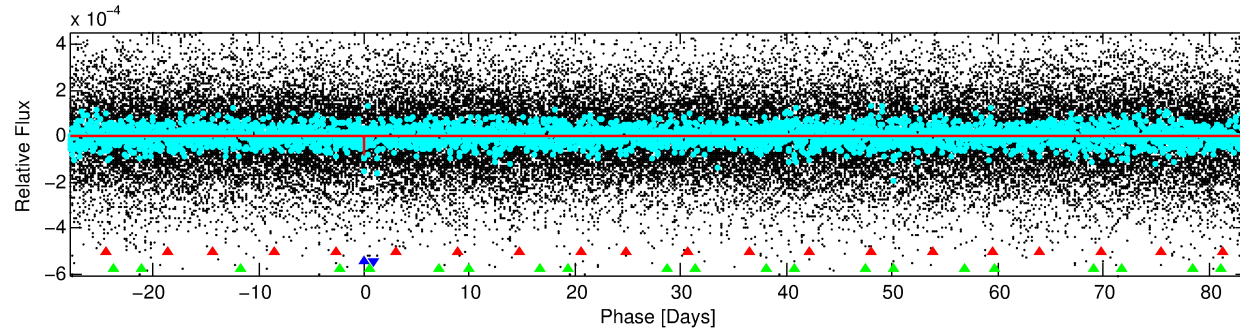
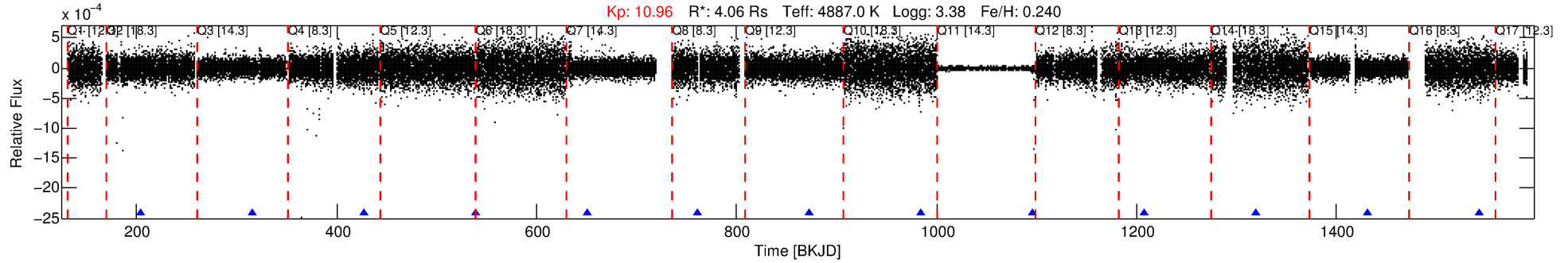
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010130853-02

No Significant Match Found

DV One-Page Summary

KIC: 10130853 Candidate: 2 of 3 Period: 111.603 d



DV Fit Results:

Period = 111.60350 [0.00194] d
Epoch = 203.6692 [0.0149] BKJD
Rp/R* = 0.0079 [0.0209]
a/R* = 233.53 [1947.72]
b = 0.07 [127.66]
Seff = 31.84 [3.62]
Teff = 606 [17] K
Rp = 3.51 [9.25] Re
a = 0.5140 [0.0449] AU
Ag = 485.72 [2563.19] [0.19 σ]
Teffp = 4396 [5800] K [0.65 σ]

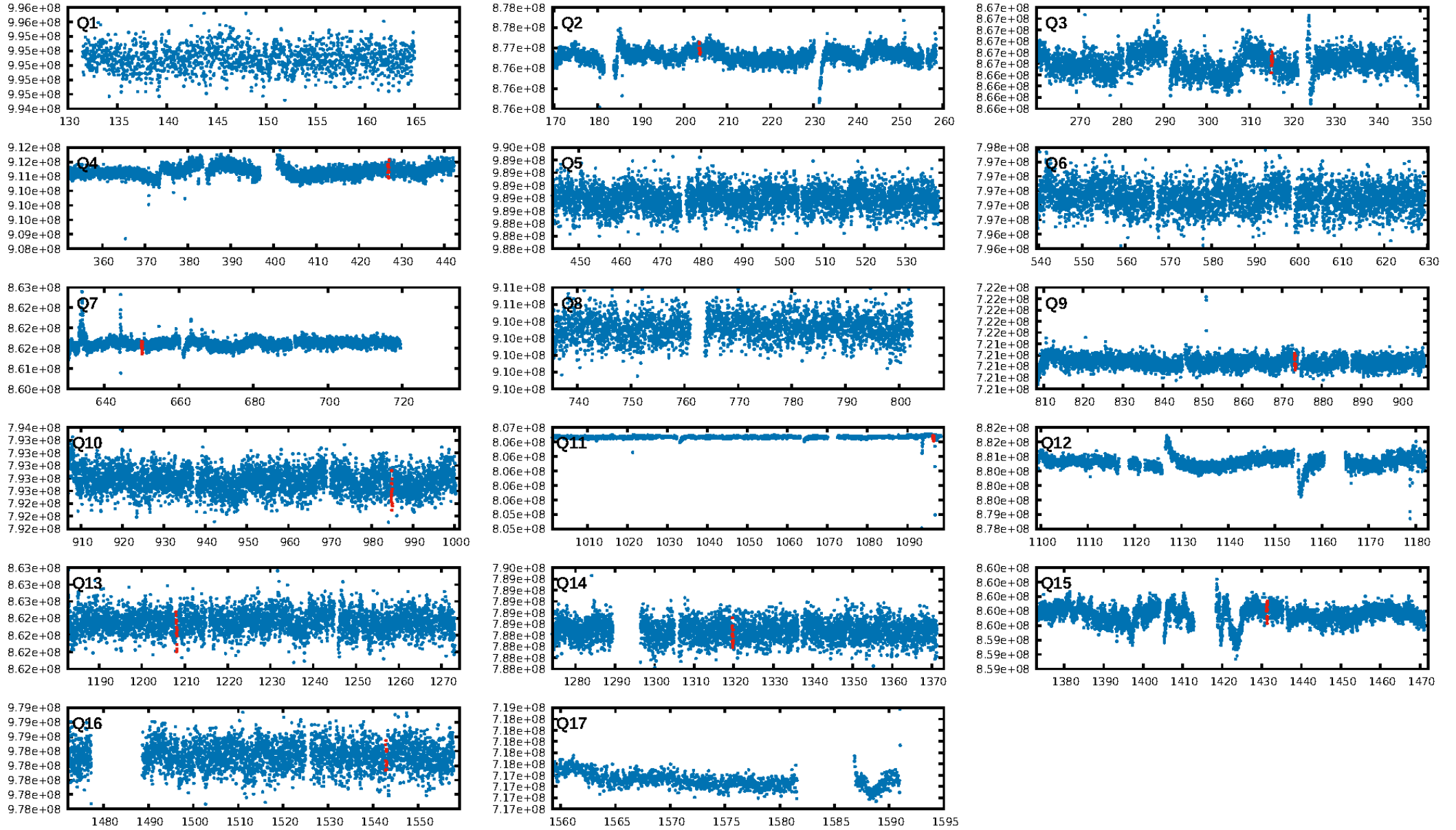
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [228.82 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 94.1%
ModelChiSquareGof-sig: 95.7%
Bootstrap-pfa: 5.65e-16
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 5.732
Centroid-sig: 1.4%
Centroid-so: 2.334 arcsec [2.13 σ]
OotOffset-rm: 0.815 arcsec [0.66 σ]
OotOffset-st: 3/3/2/1 [9]
KicOffset-rm: 1.001 arcsec [0.85 σ]
KicOffset-st: 3/3/2/1 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 1.00 [10/10]

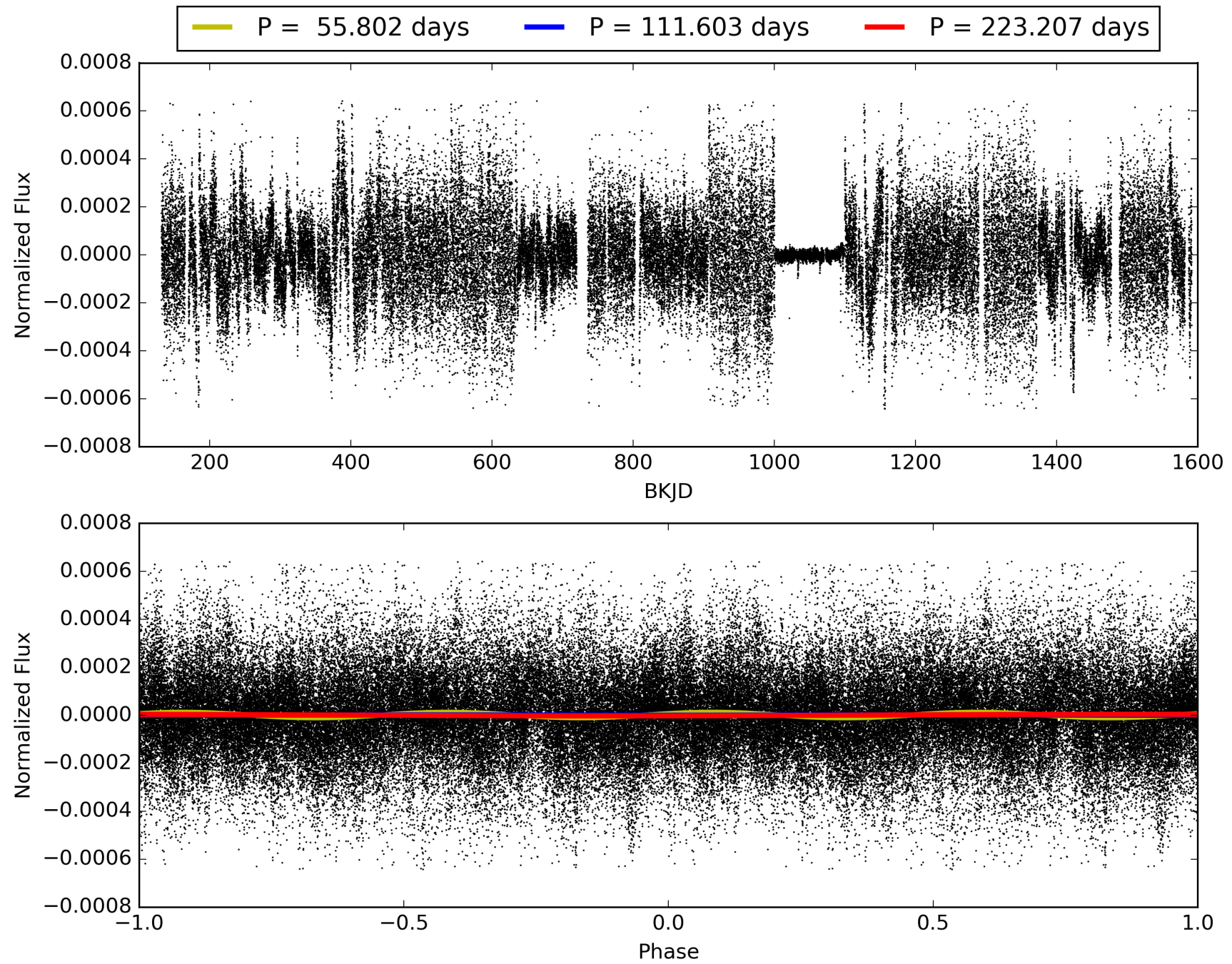
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:35:57 Z

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

TCE 010130853-02, PDC Light Curves

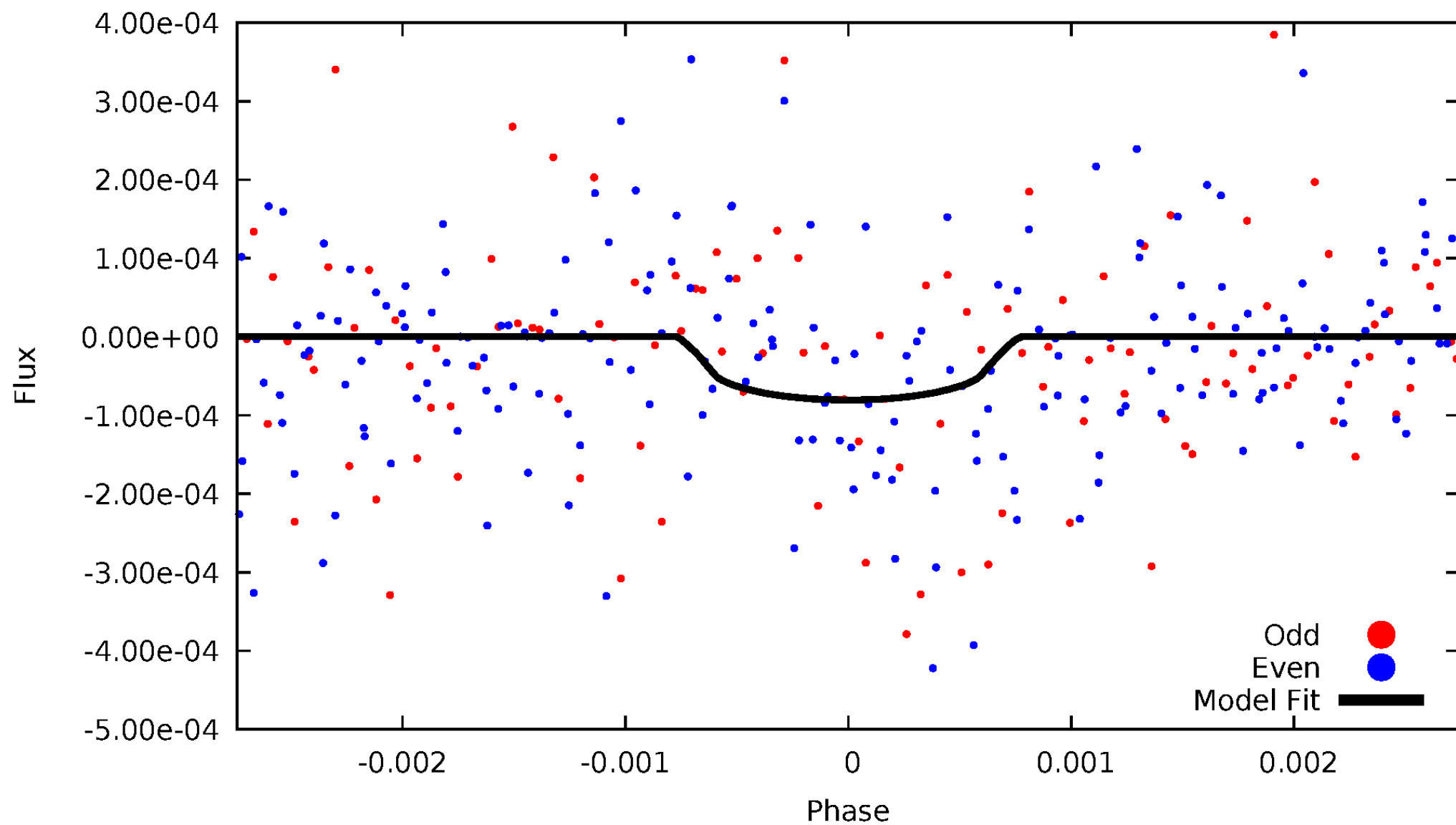


TCE 010130853-02



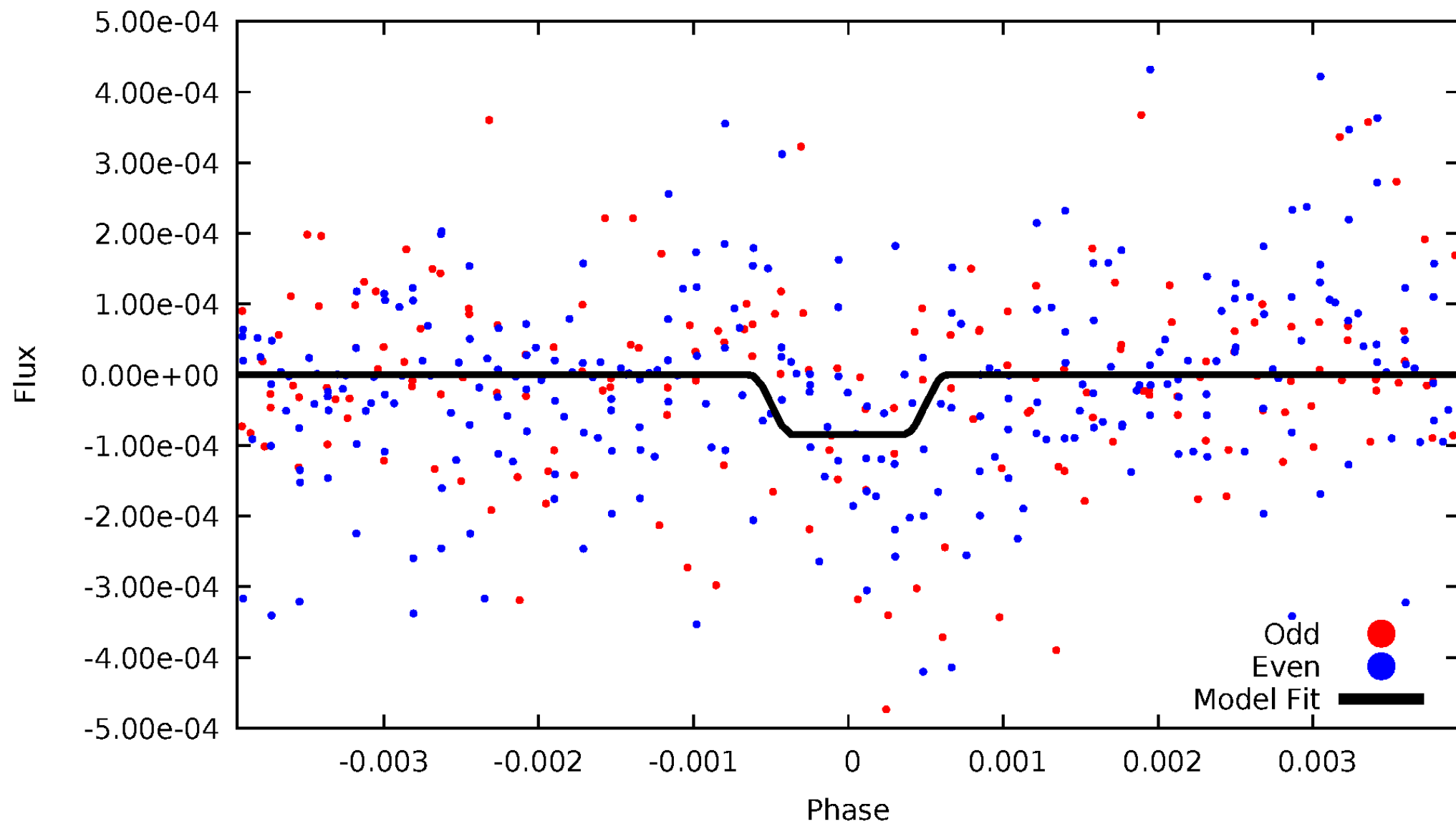
DV Odd/Even

TCE 010130853-02



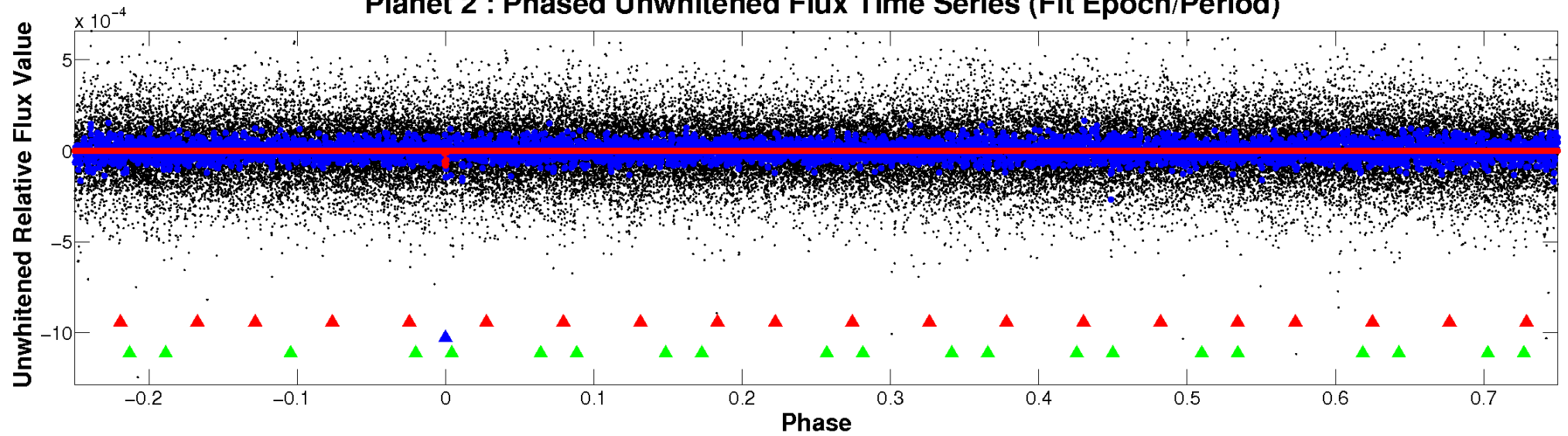
ALT Odd/Even

TCE 010130853-02

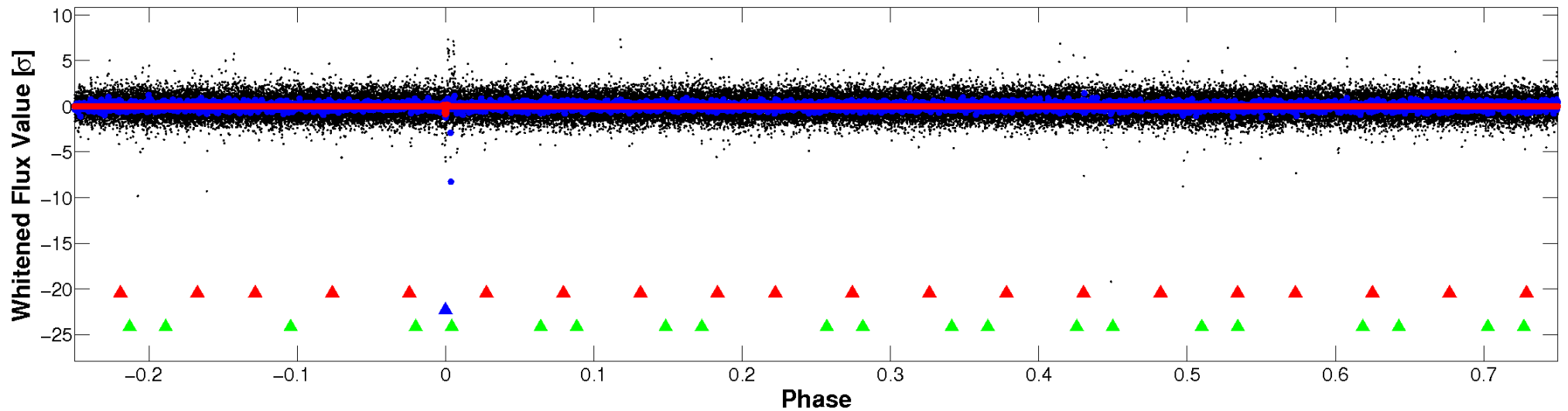


Non-Whitened Vs. Whitened Light Curve

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

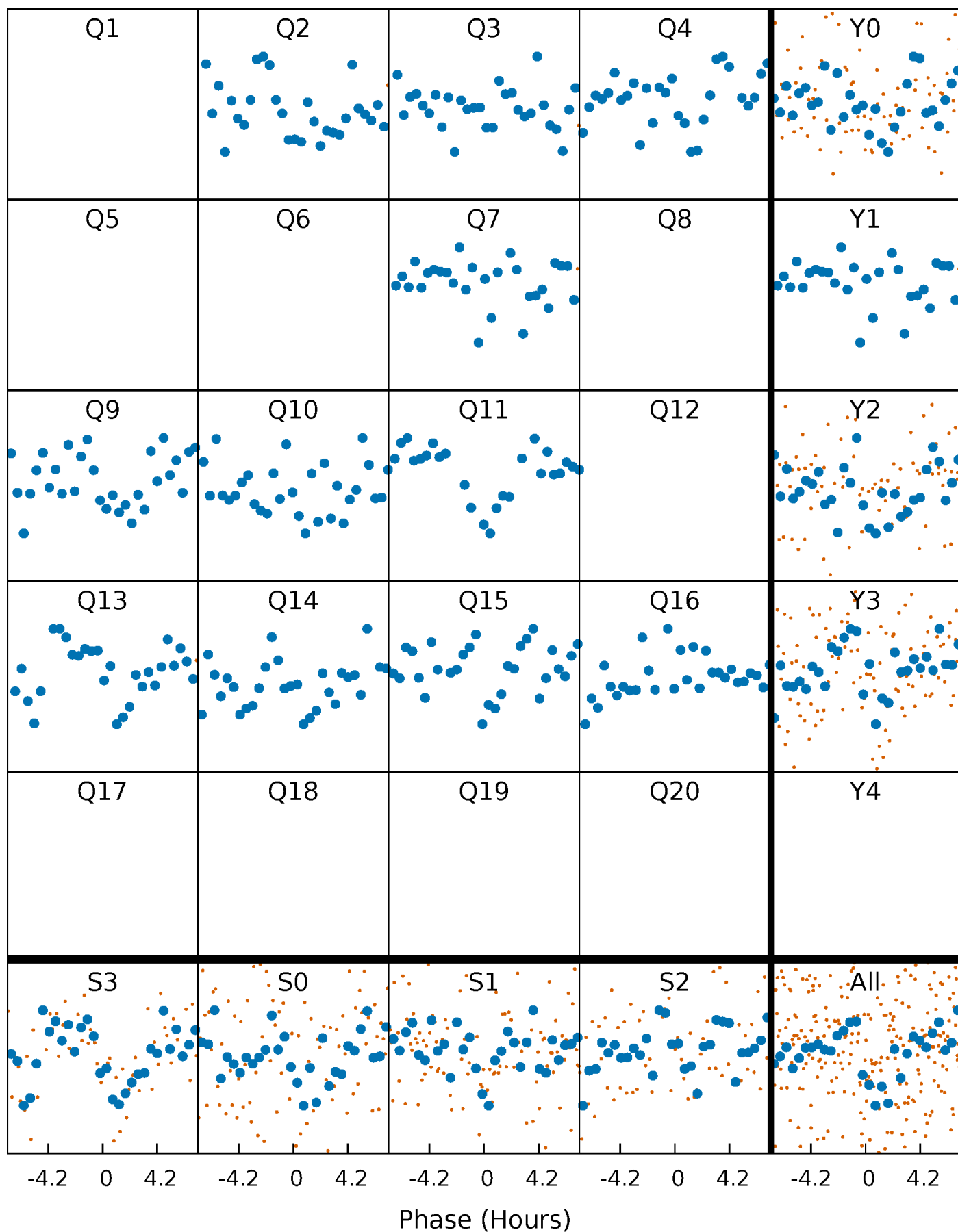


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



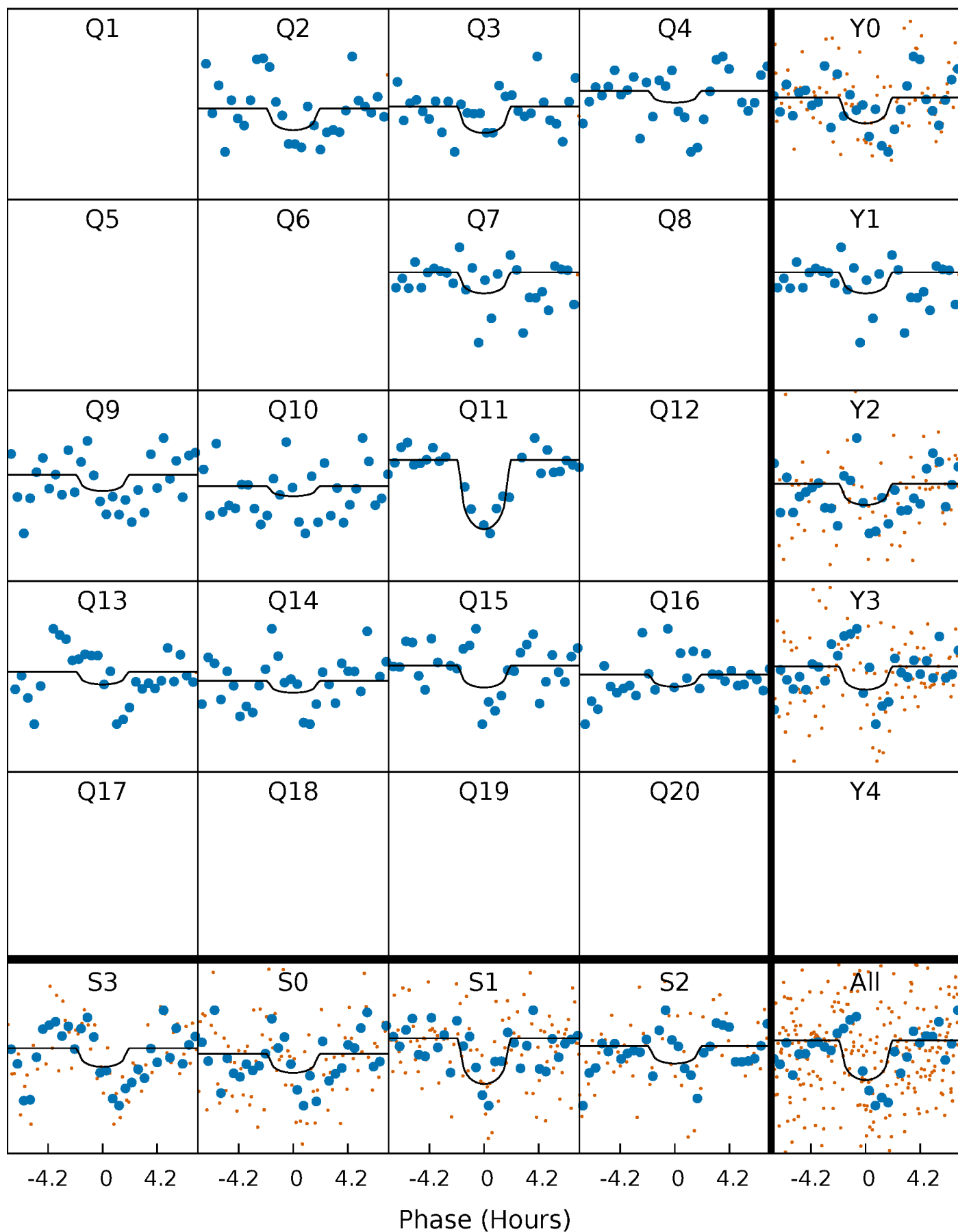
PDC Quarter-Phased Transit Curves

TCE 010130853-02 P=111.603500 Days $T_0=203.669201$ (BKJD)



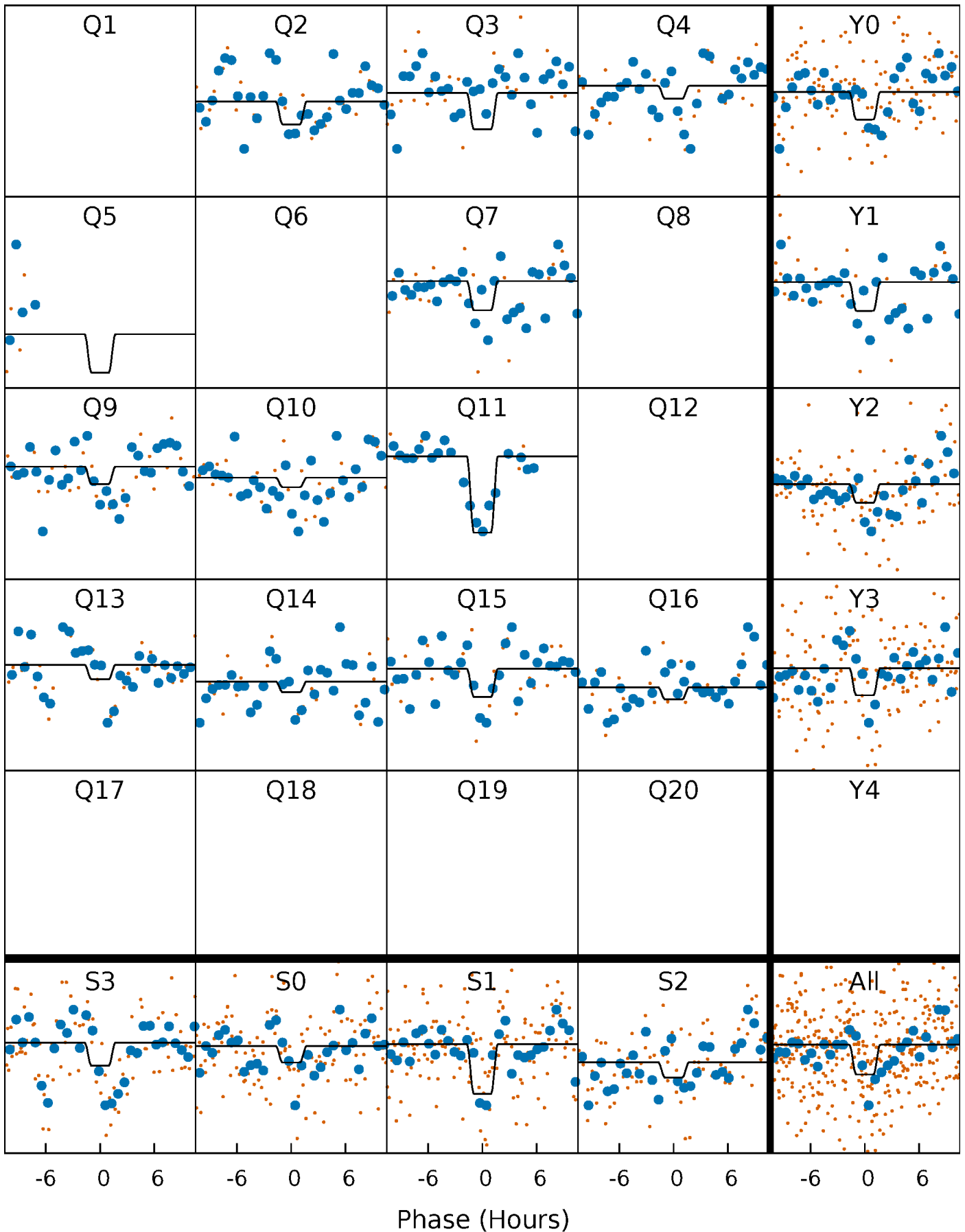
DV Quarter-Phased Transit Curves

TCE 010130853-02 $P=111.603500$ Days $T_0=203.669201$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

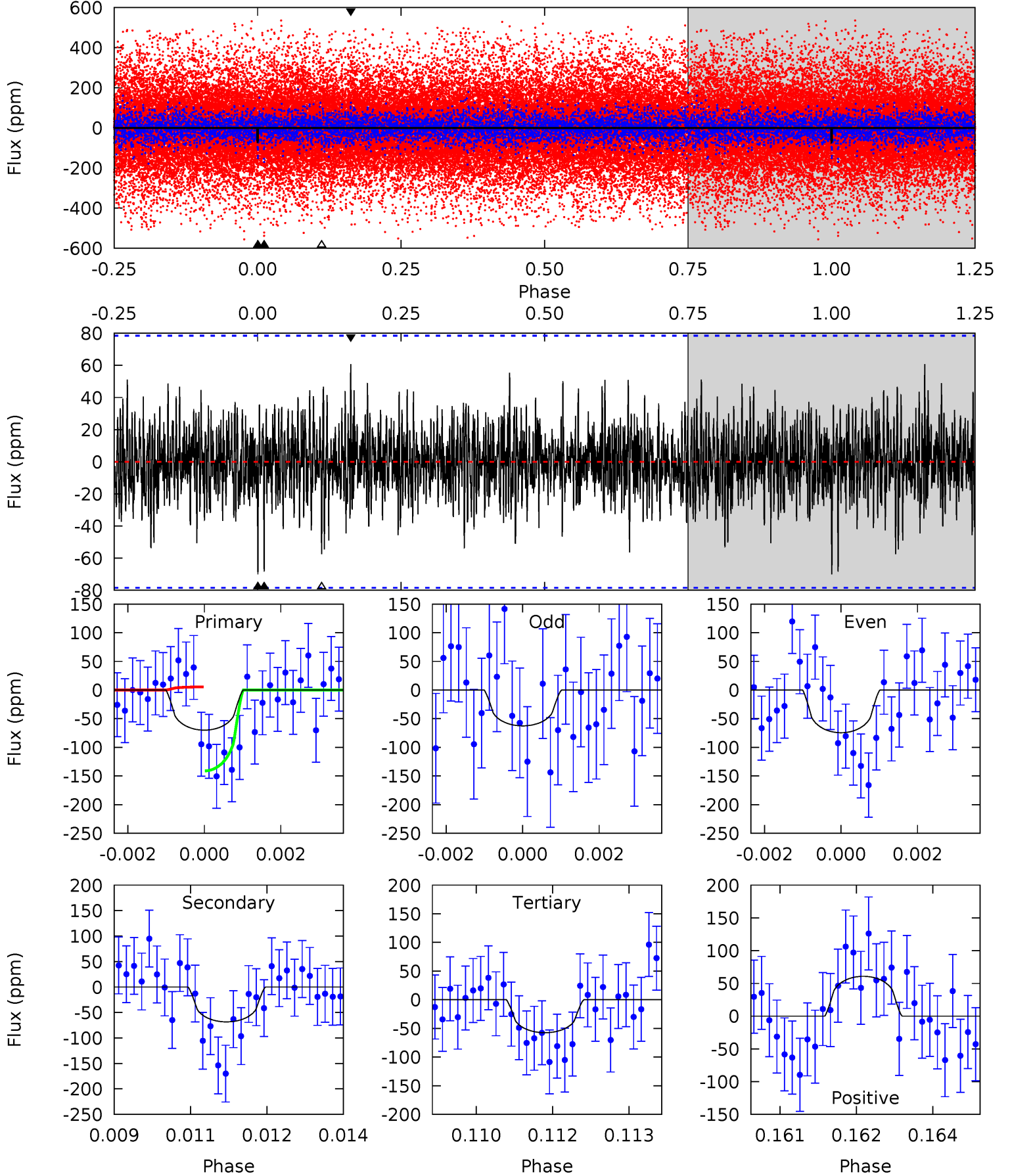
TCE 010130853-02 P=111.606235 Days $T_0=203.652018$ (BKJD)



DV Model-Shift Uniqueness Test

010130853-02, P = 111.603500 Days, E = 92.065701 Days

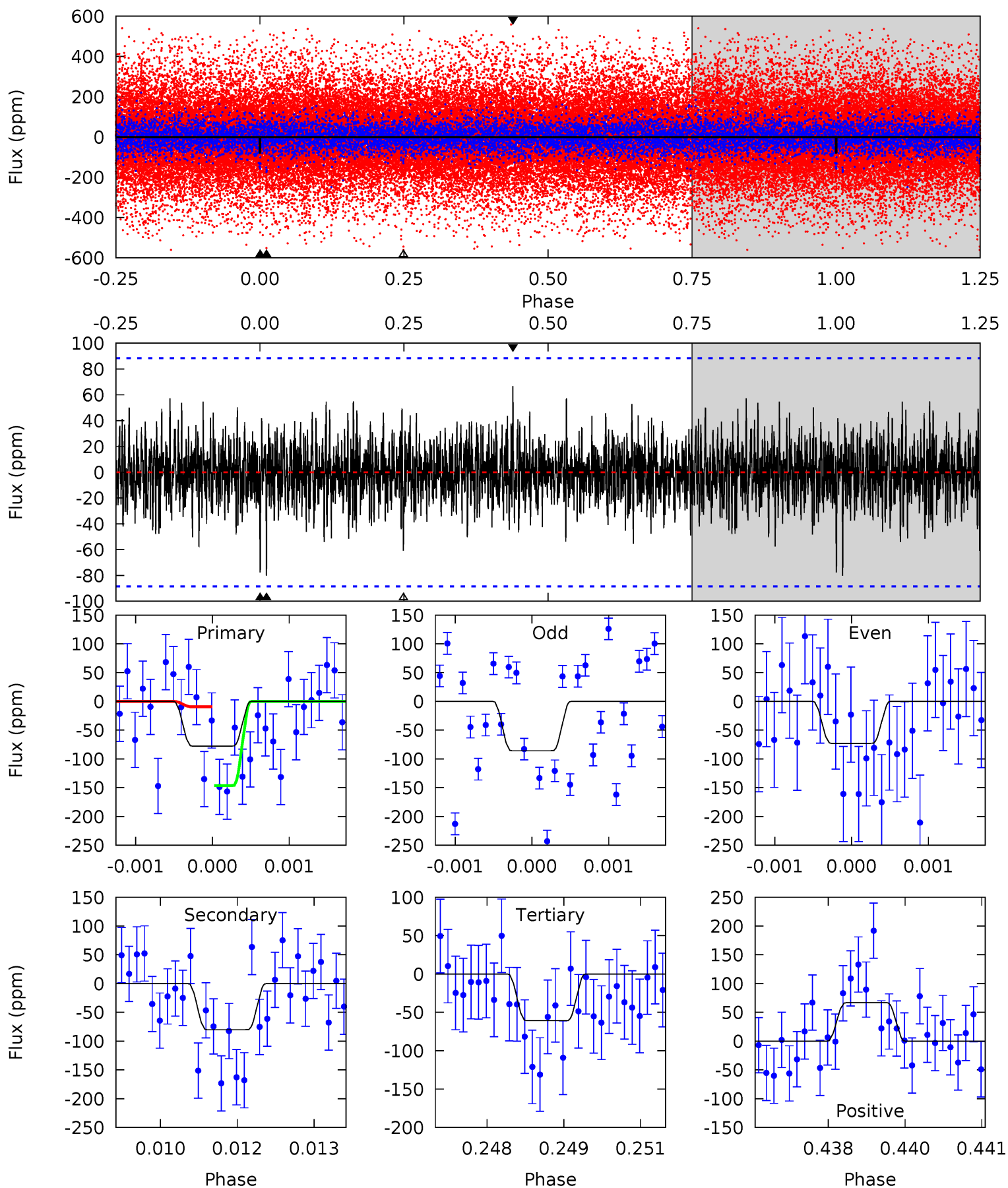
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.80	4.69	3.94	4.16	5.38	3.17	1.17	0.86	0.63	0.75	0.52	0.40	0.87	0.46	4.67



Alt Model-Shift Uniqueness Test

010130853-02, P = 111.606235 Days, E = 92.045783 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.75	4.90	3.71	4.08	5.41	3.22	1.07	1.04	0.67	1.18	0.82	0.38	0.78	0.45	4.21



Stellar Parameters For KIC 010130853

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4887^{+50}_{-87}	$3.384^{+0.010}_{-0.011}$	$0.240^{+0.100}_{-0.150}$	$4.057^{+0.189}_{-0.529}$	$1.451^{+0.150}_{-0.349}$	$0.031^{+0.005}_{-0.002}$
	+1%/-2%	+0%/-0%	+42%/-62%	+5%/-13%	+10%/-24%	+15%/-5%
Source	SPE72	AST10	SPE72	DSEP		

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

Secondary Eclipse Parameters for KIC 010130853-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-68 ± 15	$8.09^{+7.24}_{-5.64}$	847^{+12}_{-17}	3641^{+2041}_{-670}	149^{+1333}_{-109}
Alt.	-80 ± 16	$7.90^{+7.98}_{-5.59}$	846^{+12}_{-18}	3754^{+2439}_{-700}	180^{+1826}_{-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 $A_{obs} \gg 1.0$

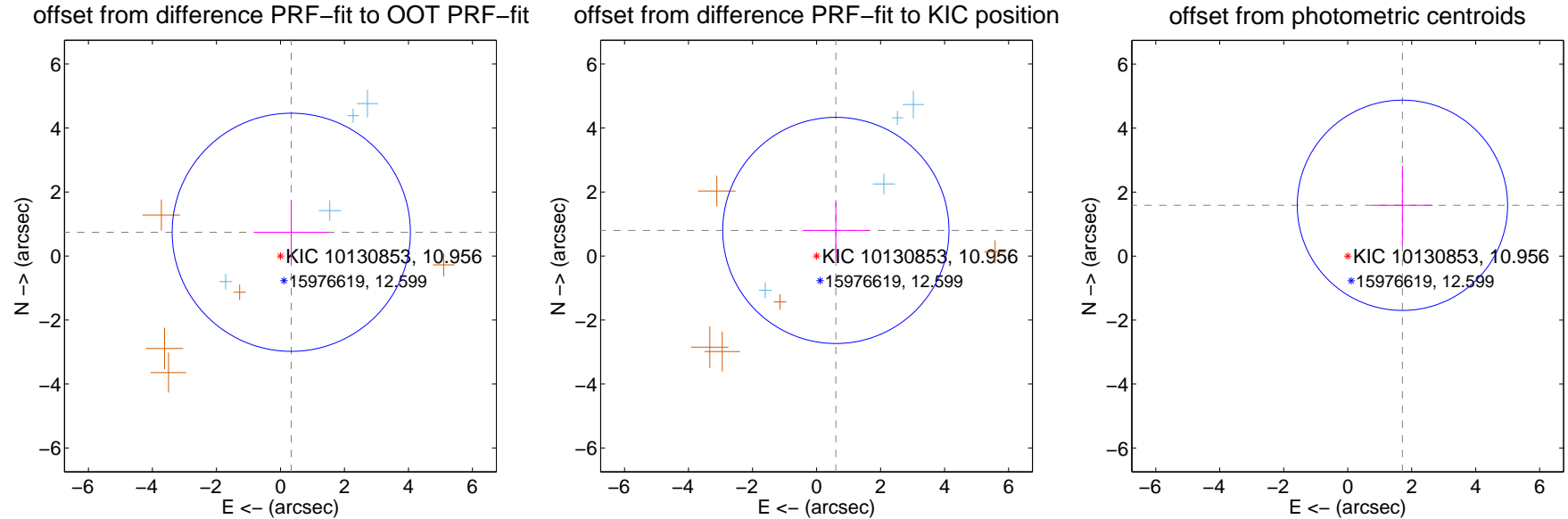
DV Centroid Data

Supplemental centroid analysis for 010130853-02. **Kepler magnitude: 10.96.** Transit SNR 10.93

There are 4 quarters with good PRF difference image offsets

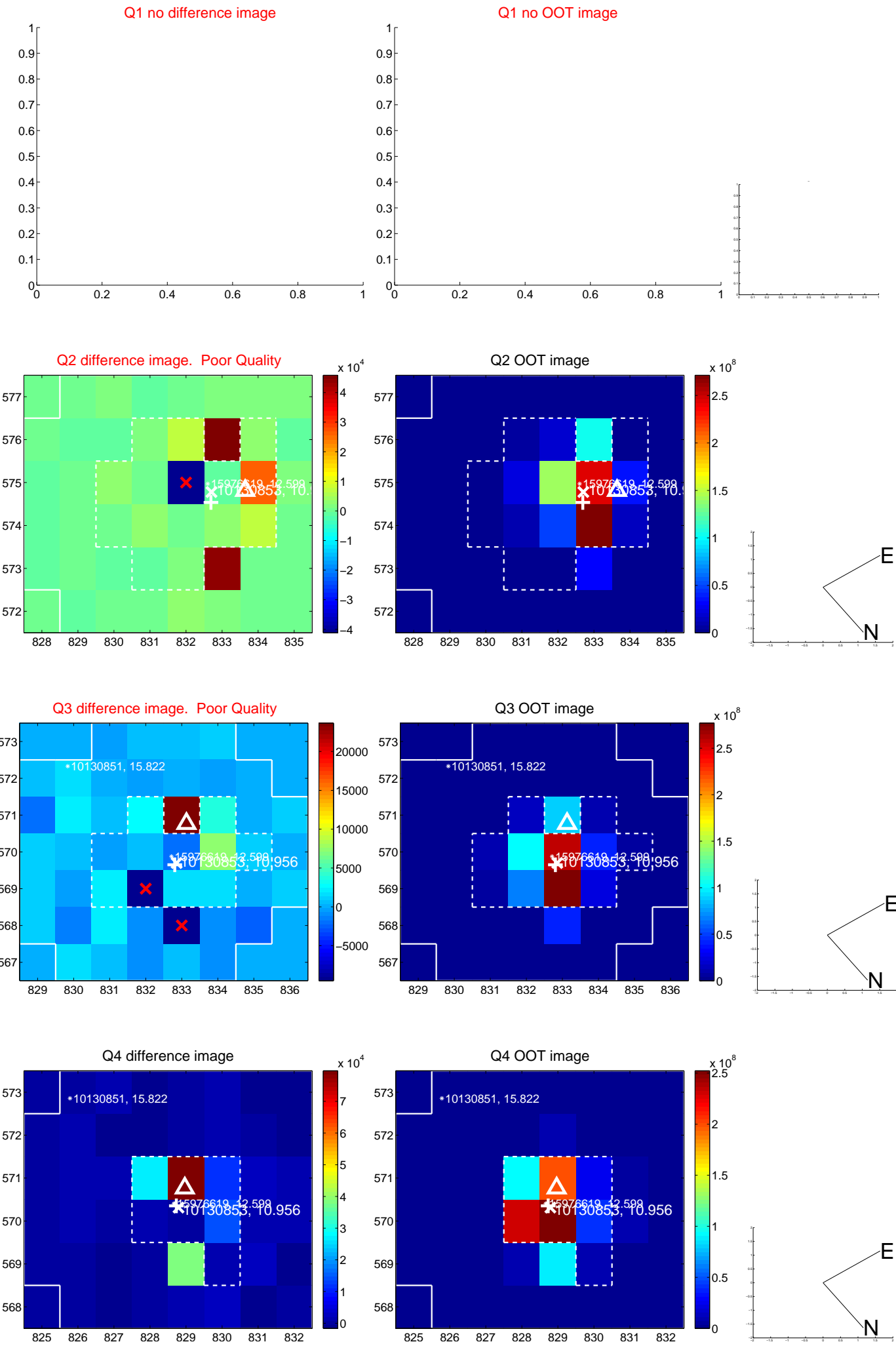
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.815 ± 1.241	0.66	-0.338 ± 1.162	0.742 ± 0.991
PRF-fit source offset from KIC position	1.001 ± 1.178	0.85	-0.602 ± 1.050	0.800 ± 0.883
photometric centroid source offset	2.33 ± 1.10	2.13	-1.71 ± 0.95	1.59 ± 1.25

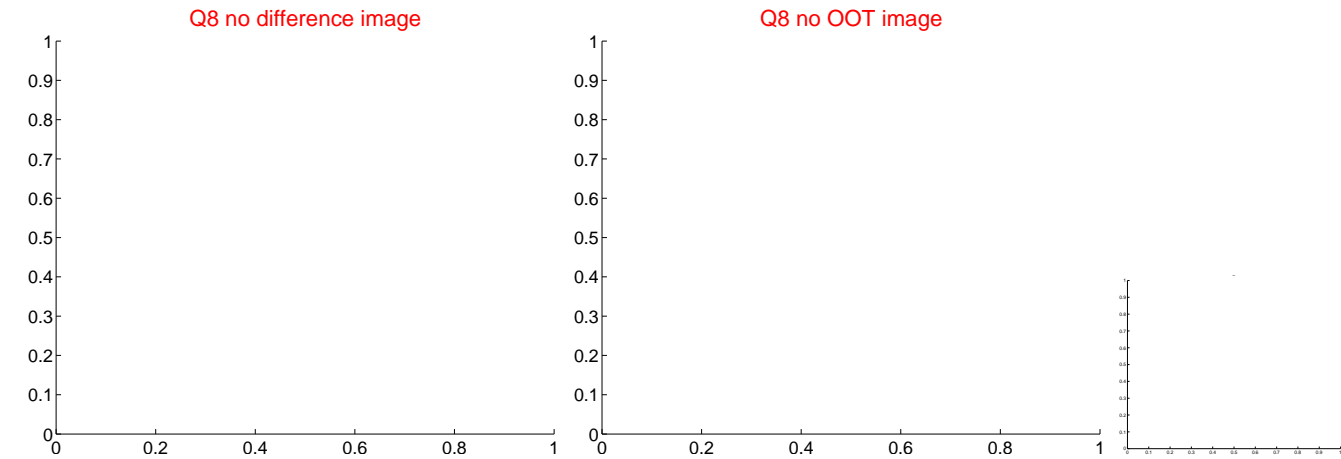
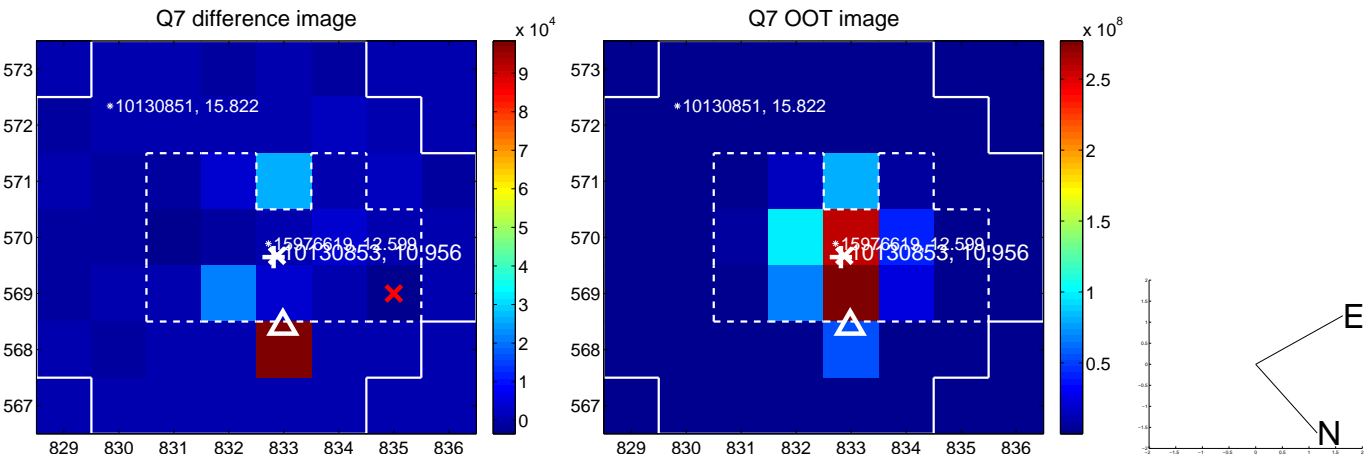
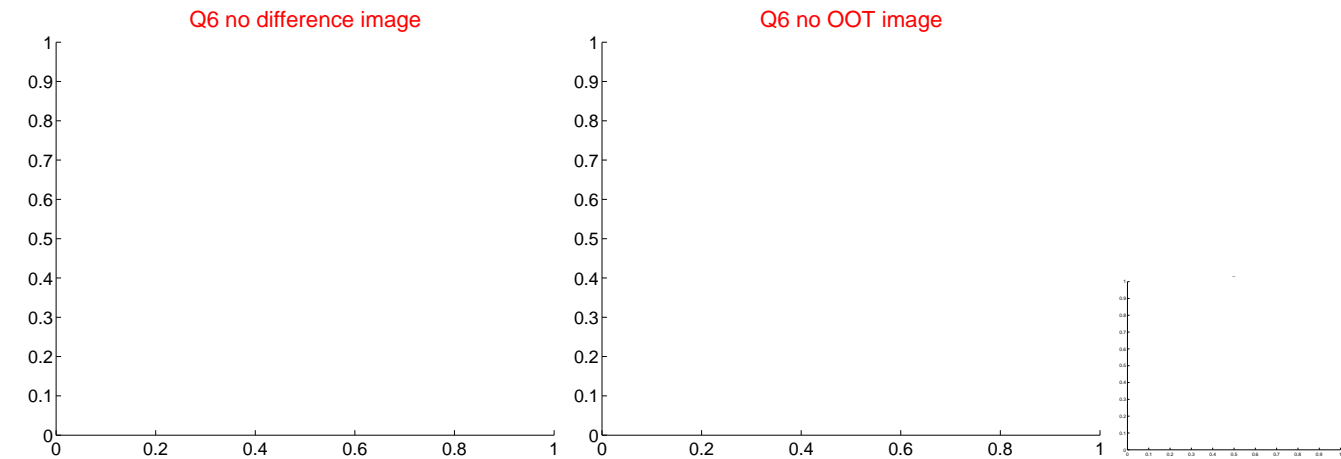


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

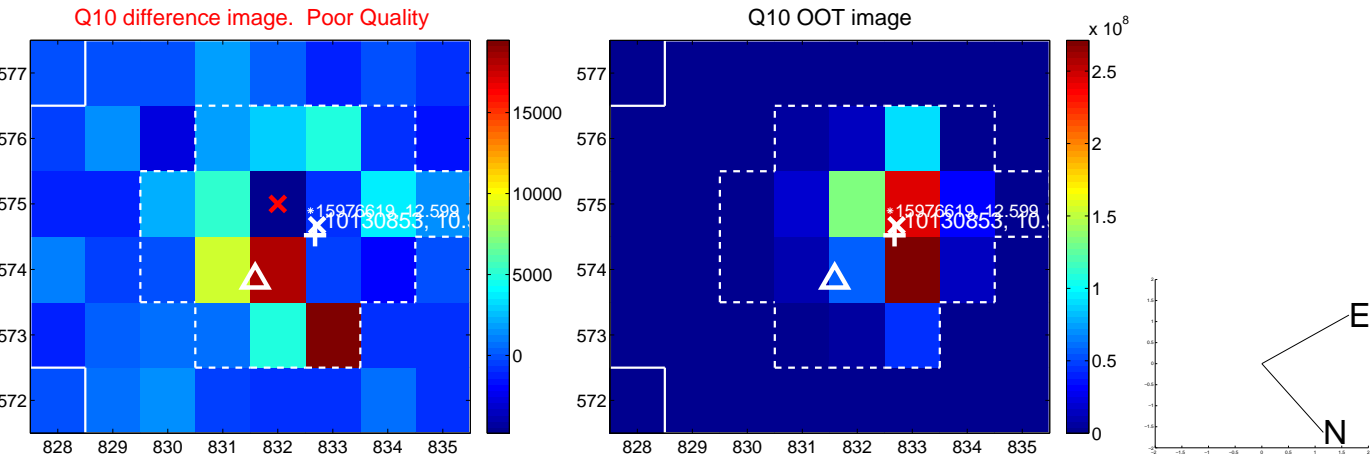
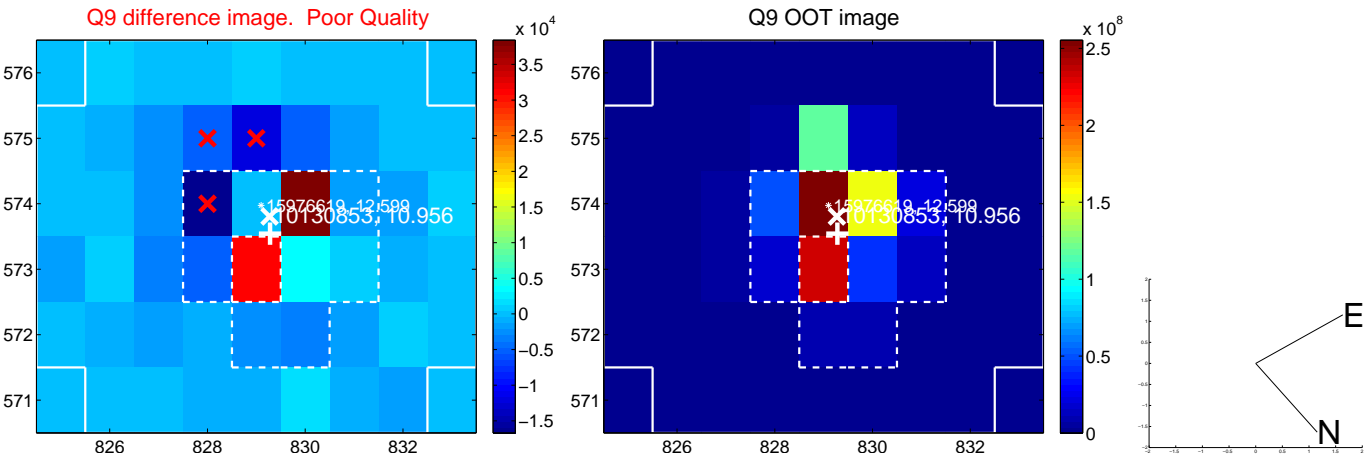
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



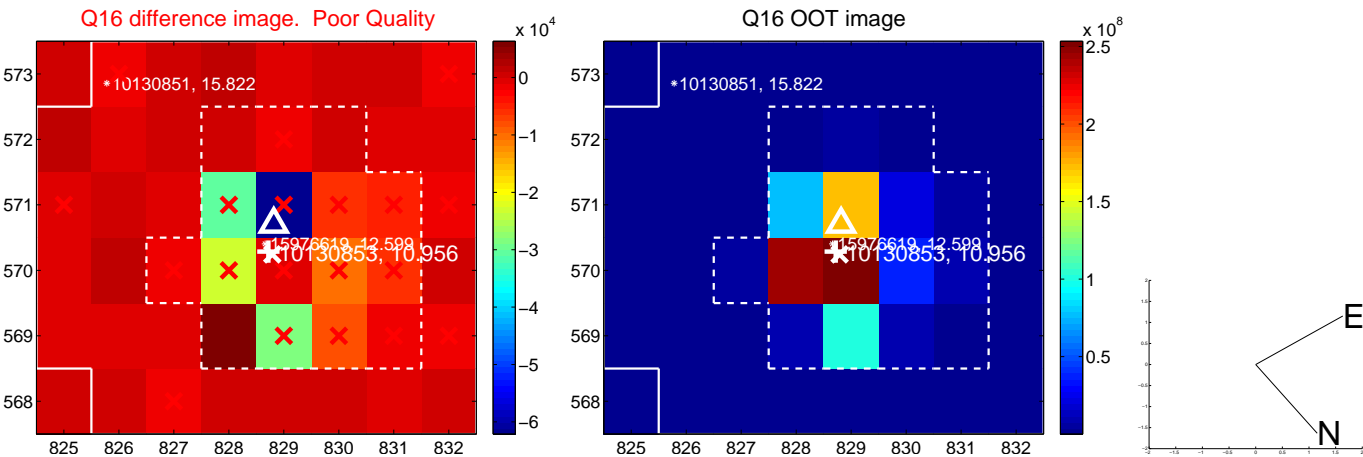
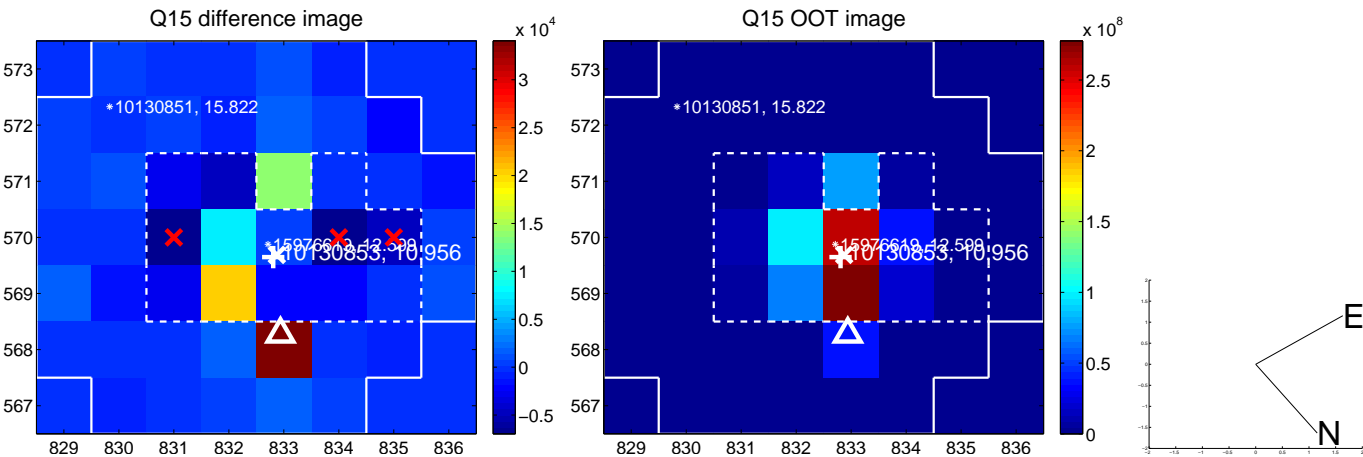
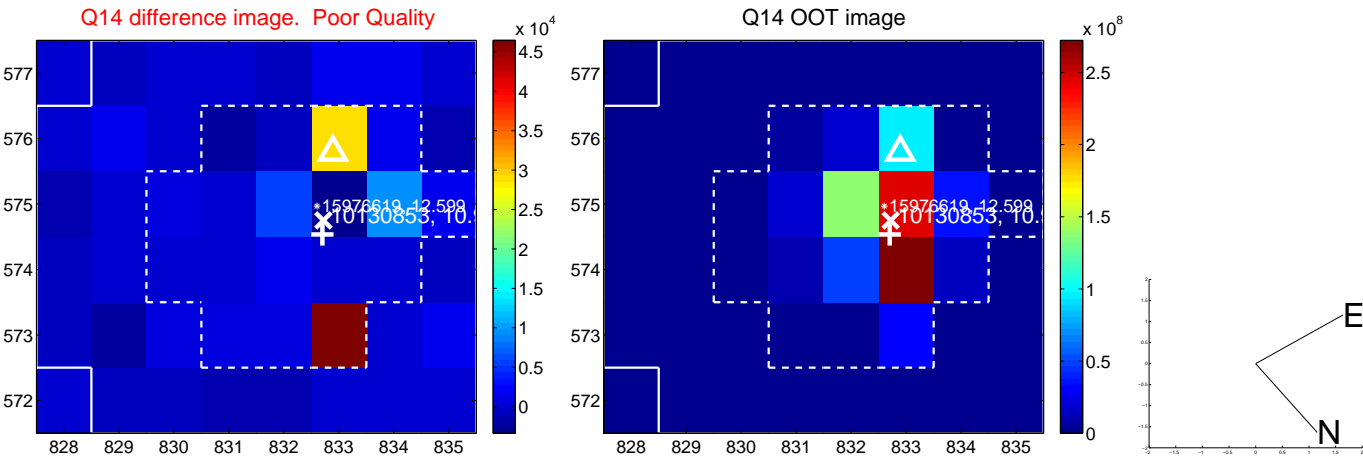
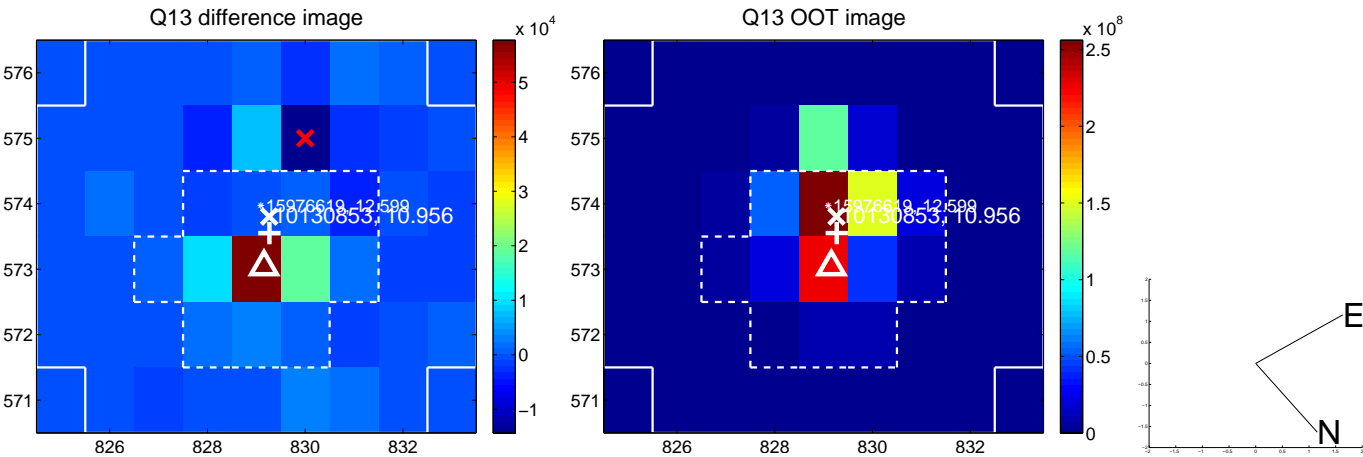
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



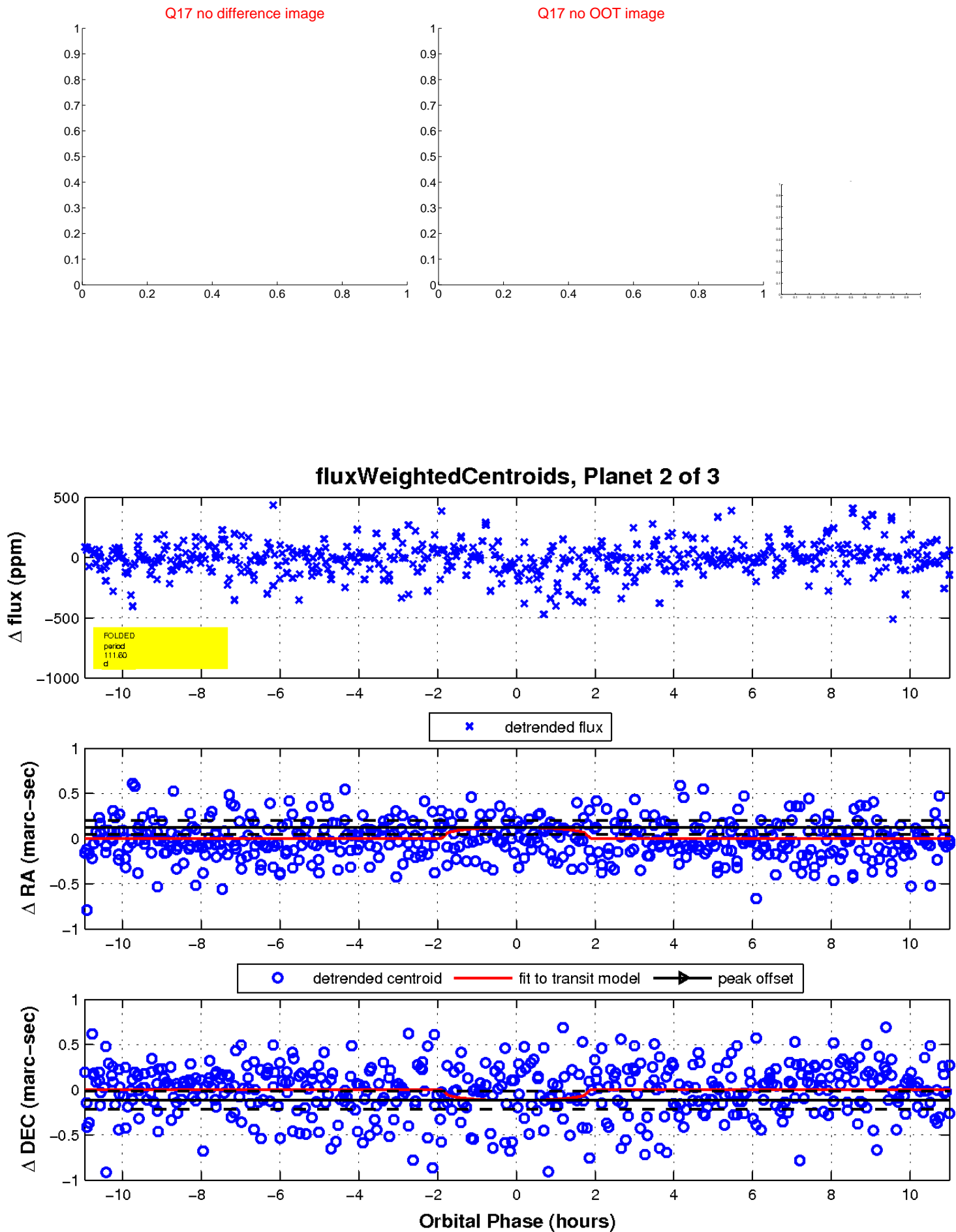
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



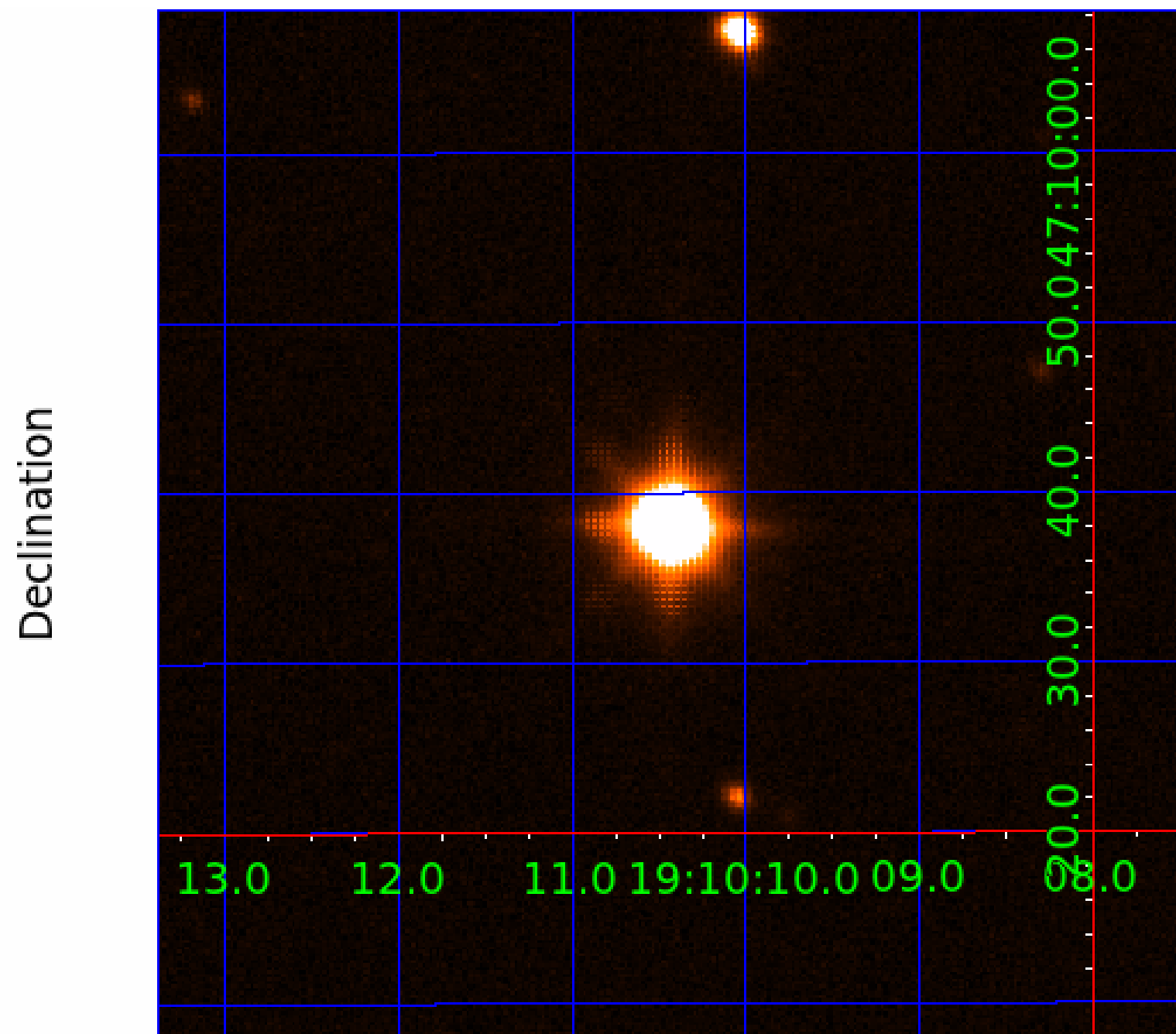
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010130853

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})
010130853-01	OBS	No	72.469862	151.670021	91.5	1.835	21.5	8.1	4.06	4887	5.13	56.62
010130853-02	OBS	No	111.603500	203.669201	80.5	3.672	12.8	10.9	4.06	4887	3.50	31.84
010130853-03	OBS	No	71.267204	148.971986	32.2	1.519	7.6	9.2	4.06	4887	2.70	57.90

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010130853-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010130853-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—LPP_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010130853-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

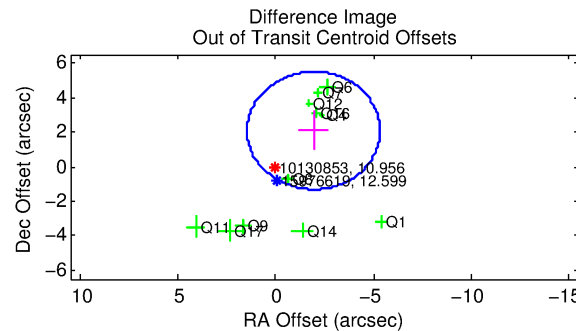
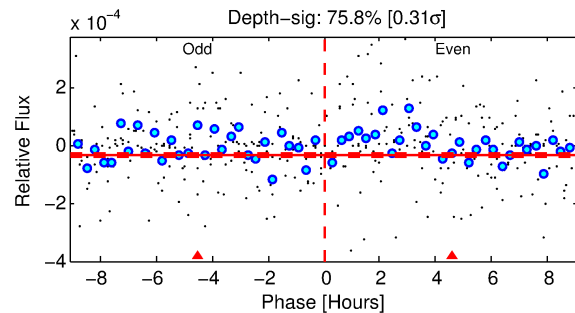
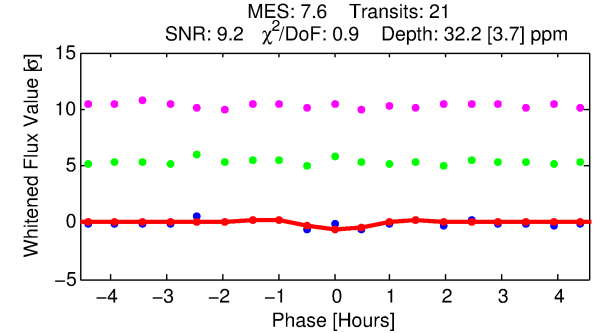
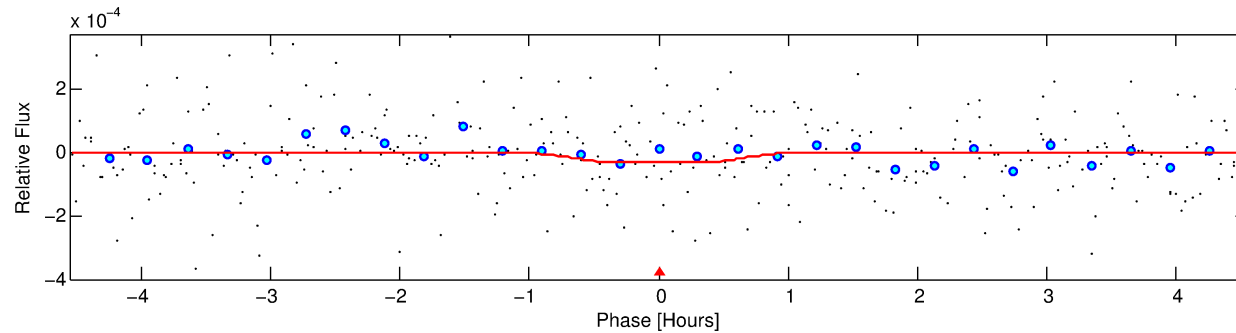
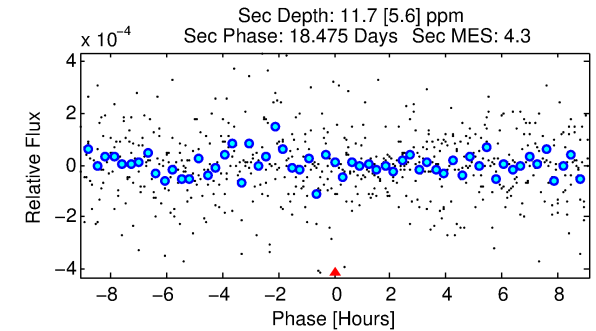
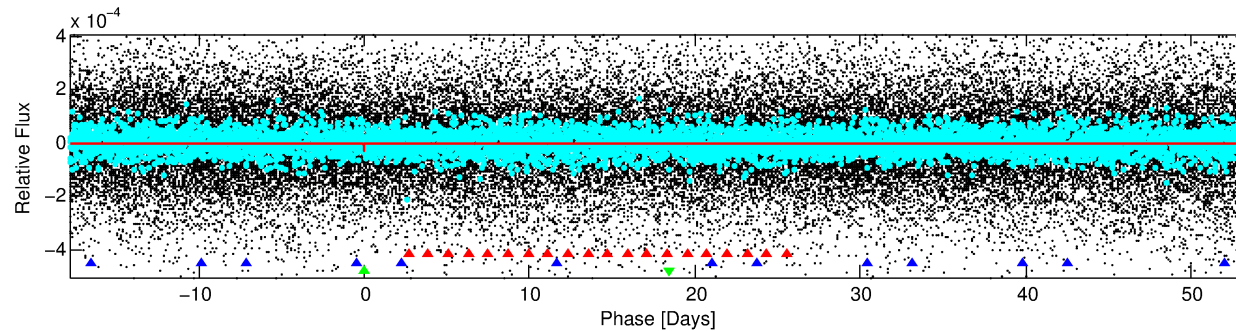
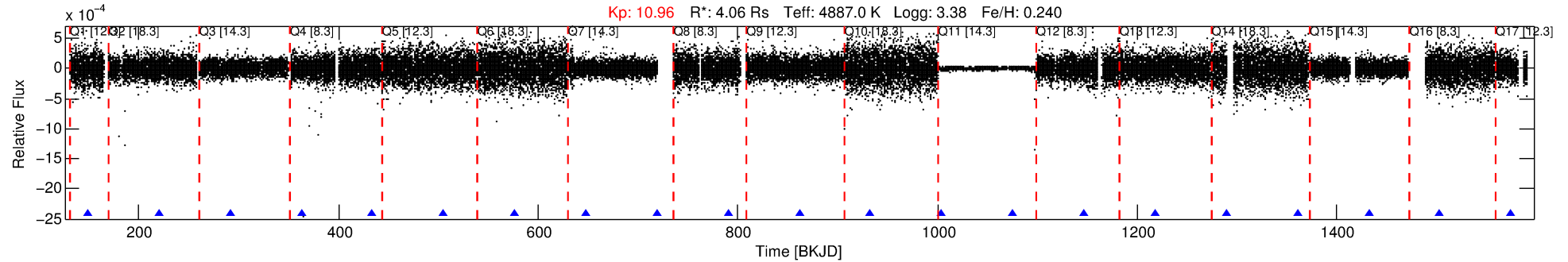
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010130853-03

No Significant Match Found

DV One-Page Summary

KIC: 10130853 Candidate: 3 of 3 Period: 71.267 d



DV Fit Results:

Period = 71.26720 [0.00167] d
Epoch = 148.9720 [0.0203] BKJD
Rp/R* = 0.0061 [0.0039]
a/R* = 190.04 [442.27]
b = 0.86 [0.75]
Seff = 57.90 [6.58]
Teq = 703 [20] K
Rp = 2.70 [1.76] Re
a = 0.3811 [0.0333] AU
Ag = 127.72 [174.35] [0.73σ]
Teffp = 3656 [1247] K [2.37σ]

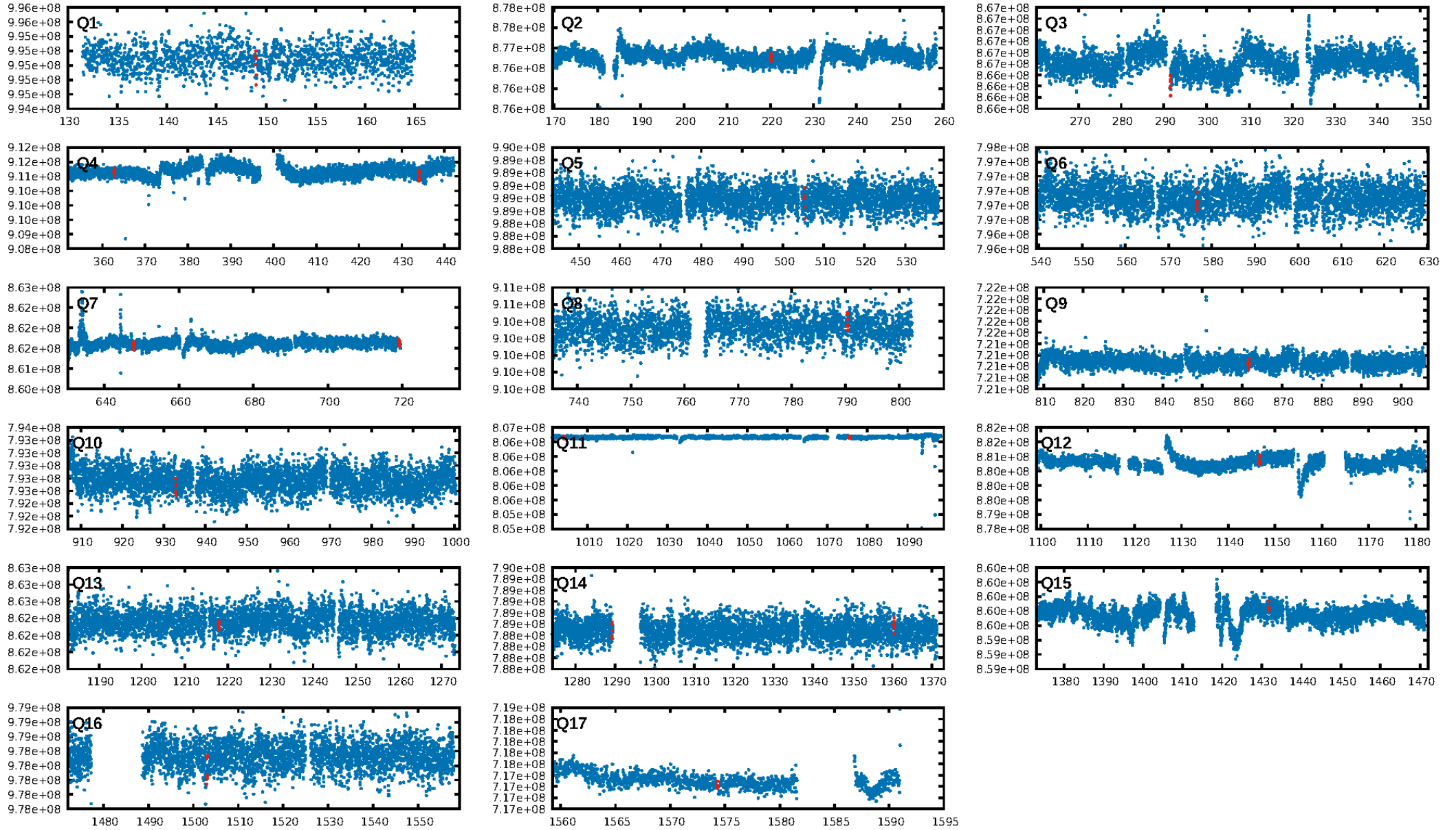
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [12.12σ]
ModelChiSquare2-sig: 68.6%
ModelChiSquareGof-sig: 99.1%
Bootstrap-pfa: 8.98e-08
RollingBand-fgt: 1.00 [19/19]
GhostDiagnostic-chr: -0.6122
Centroid-sig: 12.2%
Centroid-so: 3.364 arcsec [1.23σ]
OotOffset-rm: 2.845 arcsec [2.51σ]
OotOffset-st: 2/2/4/3 [11]
KicOffset-rm: 2.889 arcsec [2.62σ]
KicOffset-st: 2/2/4/3 [11]
DiffImageQuality-fgm: 0.27 [3/11]
DiffImageOverlap-fno: 1.00 [14/14]

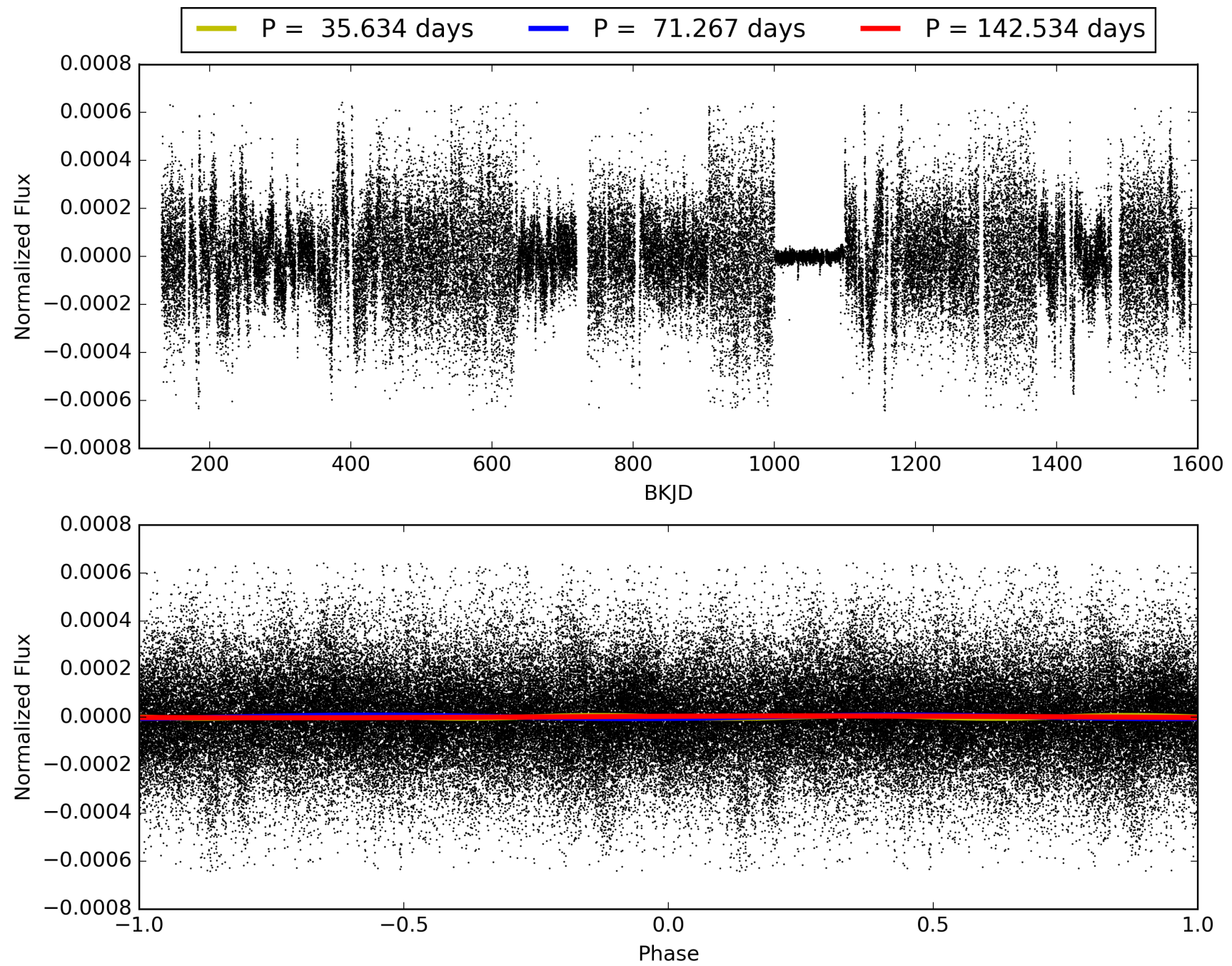
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:36:07 Z

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

TCE 010130853-03, PDC Light Curves

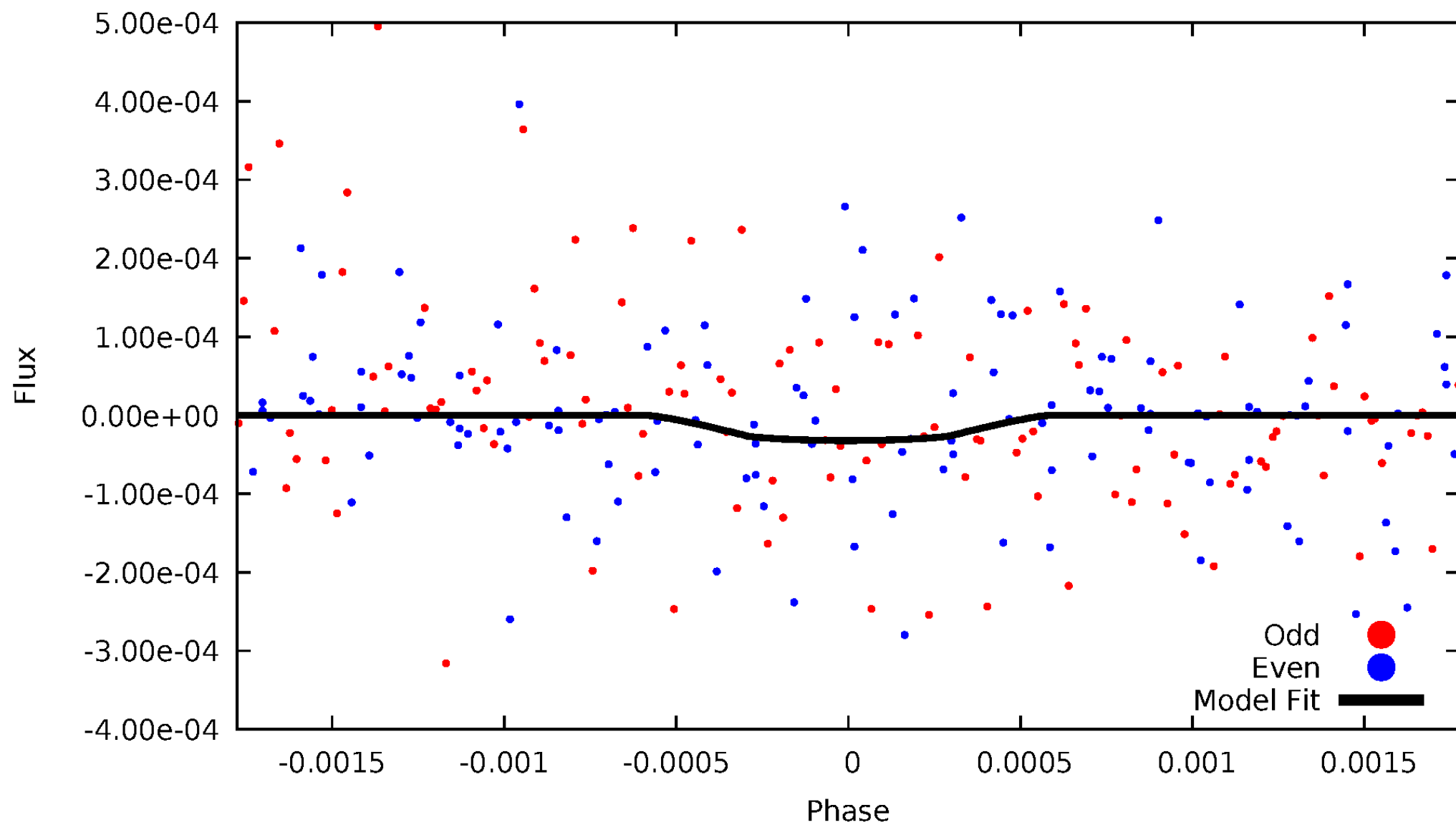


TCE 010130853-03



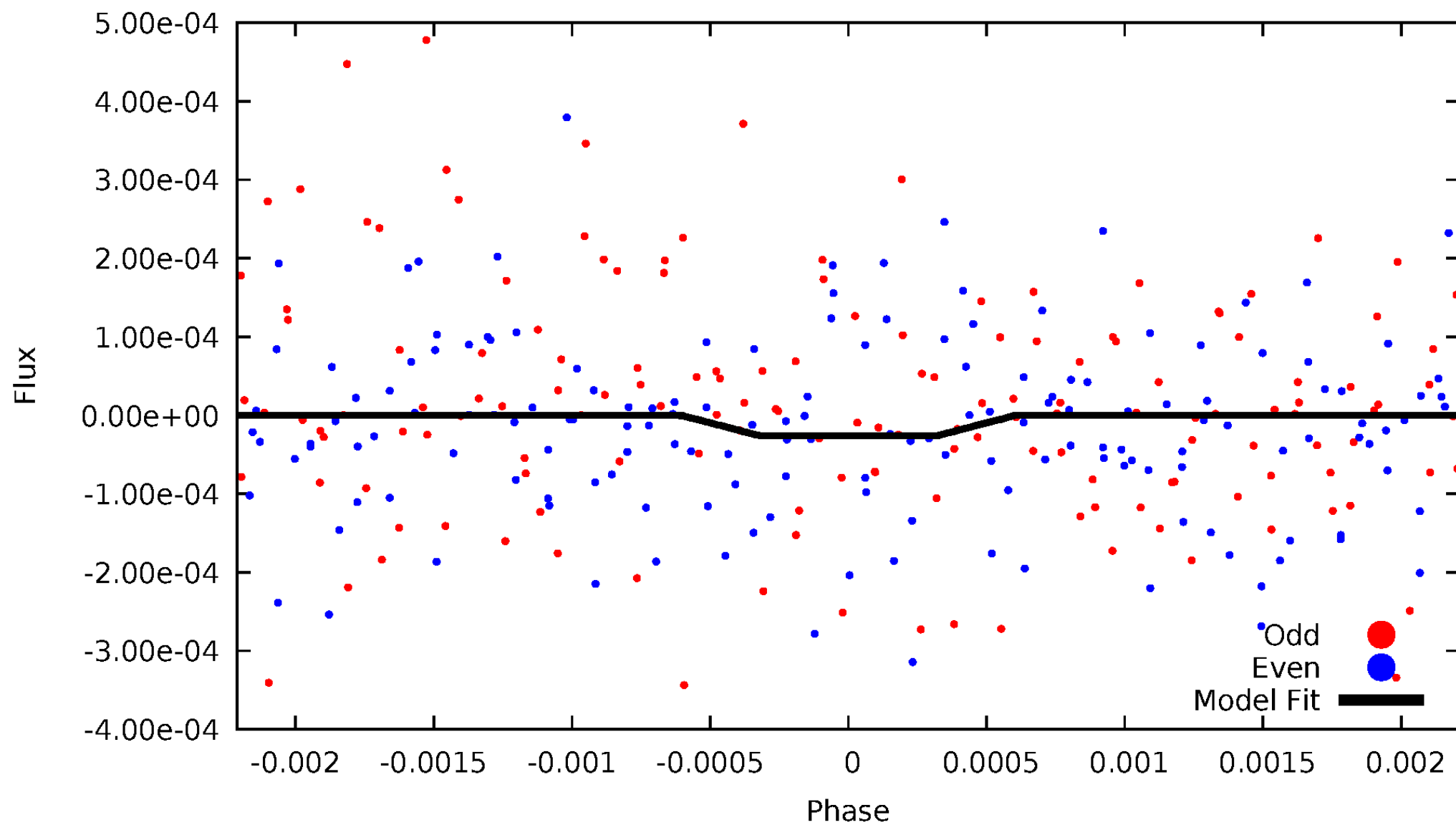
DV Odd/Even

TCE 010130853-03



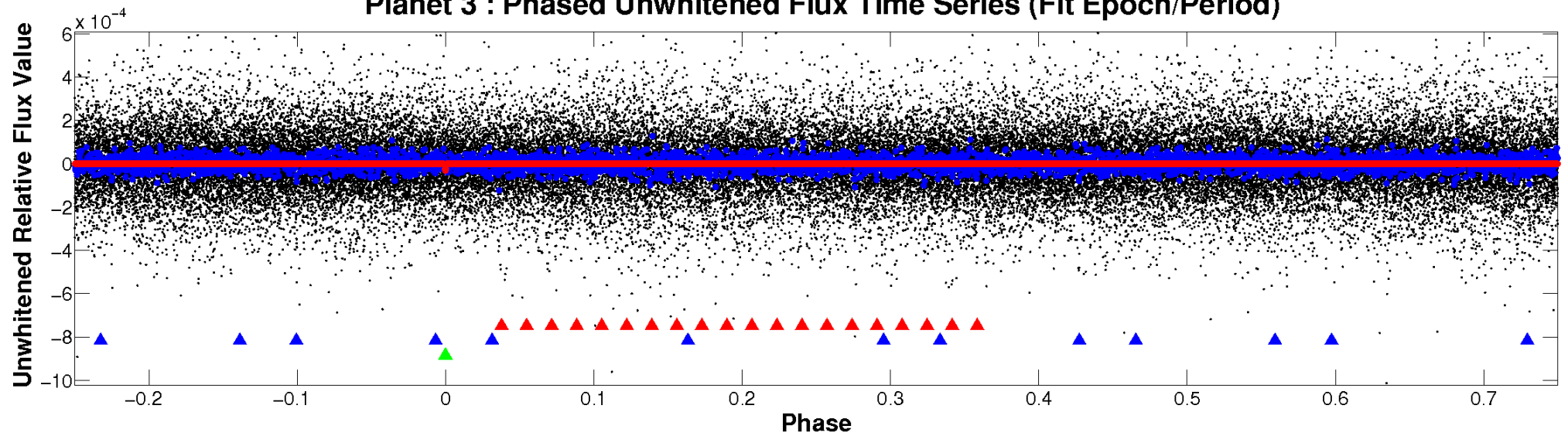
ALT Odd/Even

TCE 010130853-03

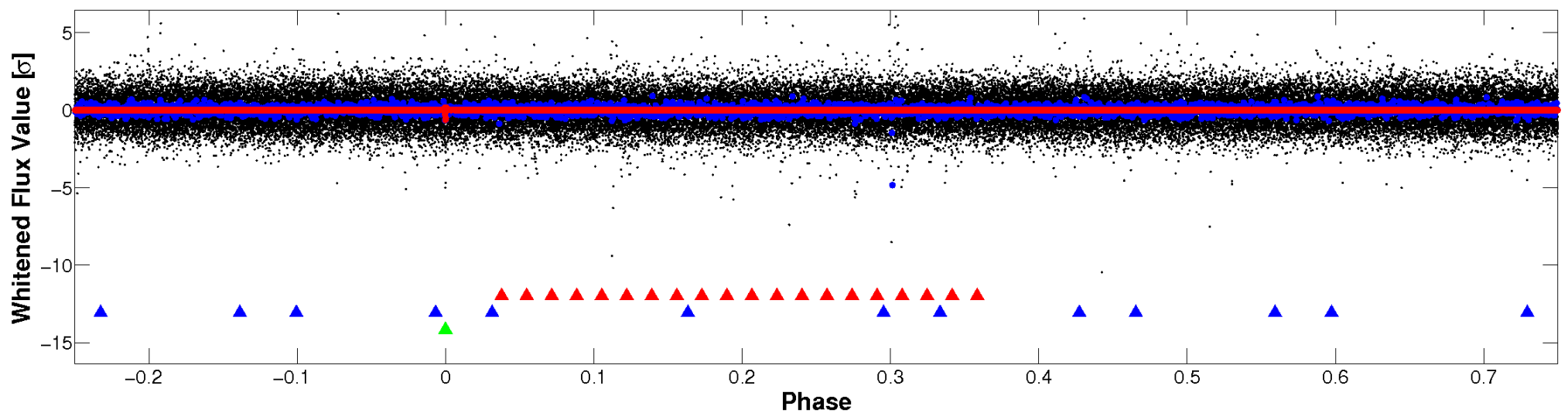


Non-Whitened Vs. Whitened Light Curve

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

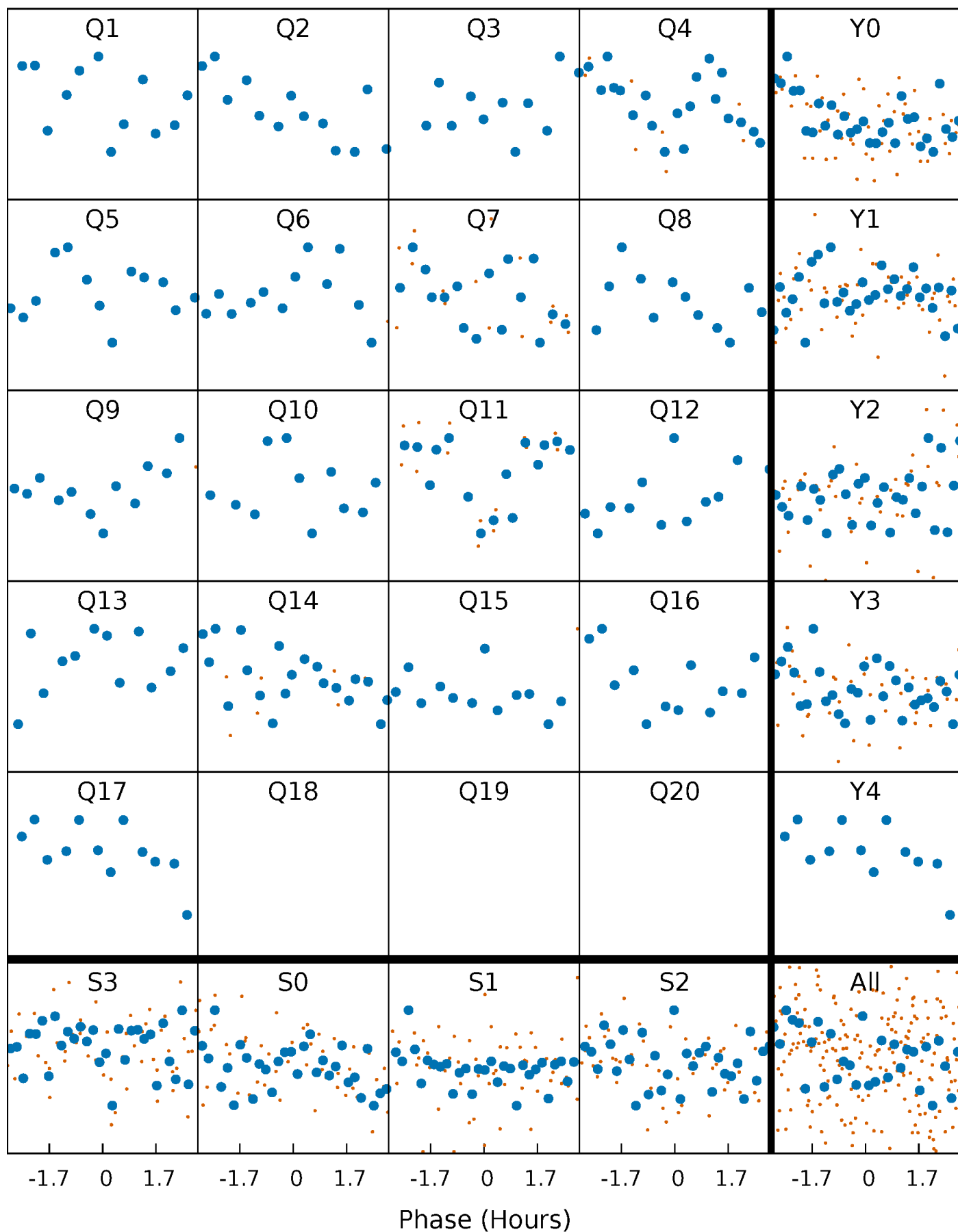


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



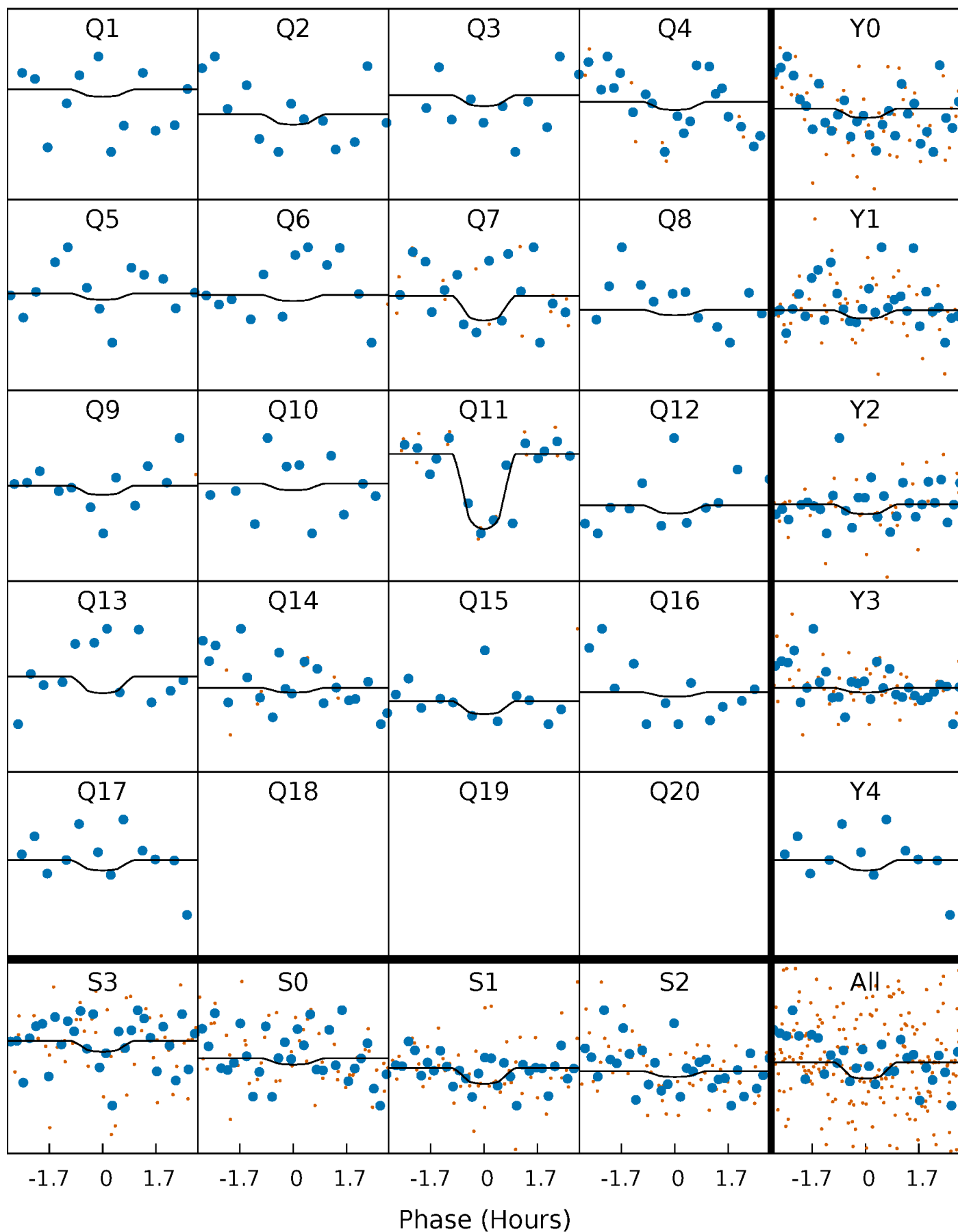
PDC Quarter-Phased Transit Curves

TCE 010130853-03 P= 71.267204 Days $T_0=148.971986$ (BKJD)



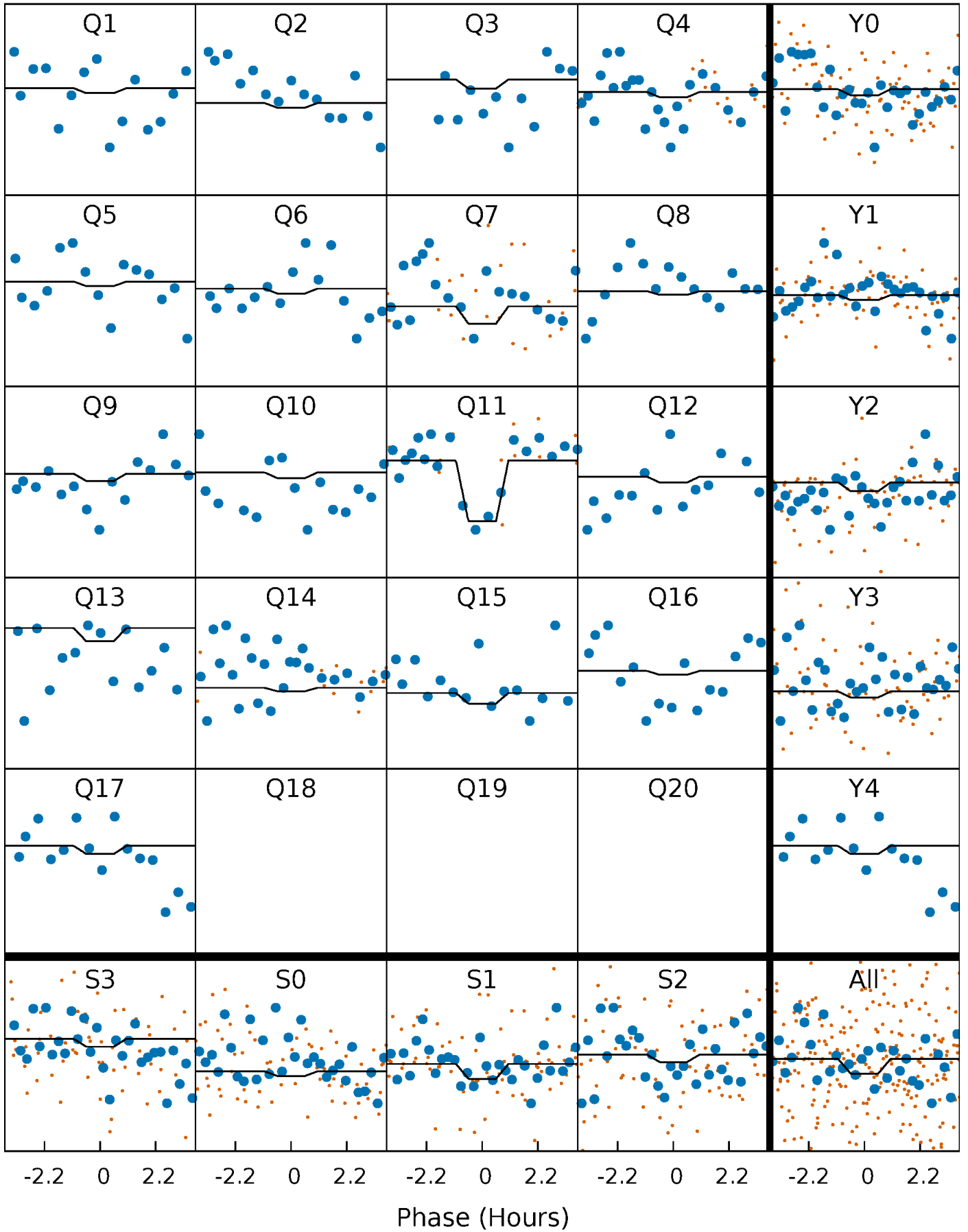
DV Quarter-Phased Transit Curves

TCE 010130853-03 P= 71.267204 Days $T_0=148.971986$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

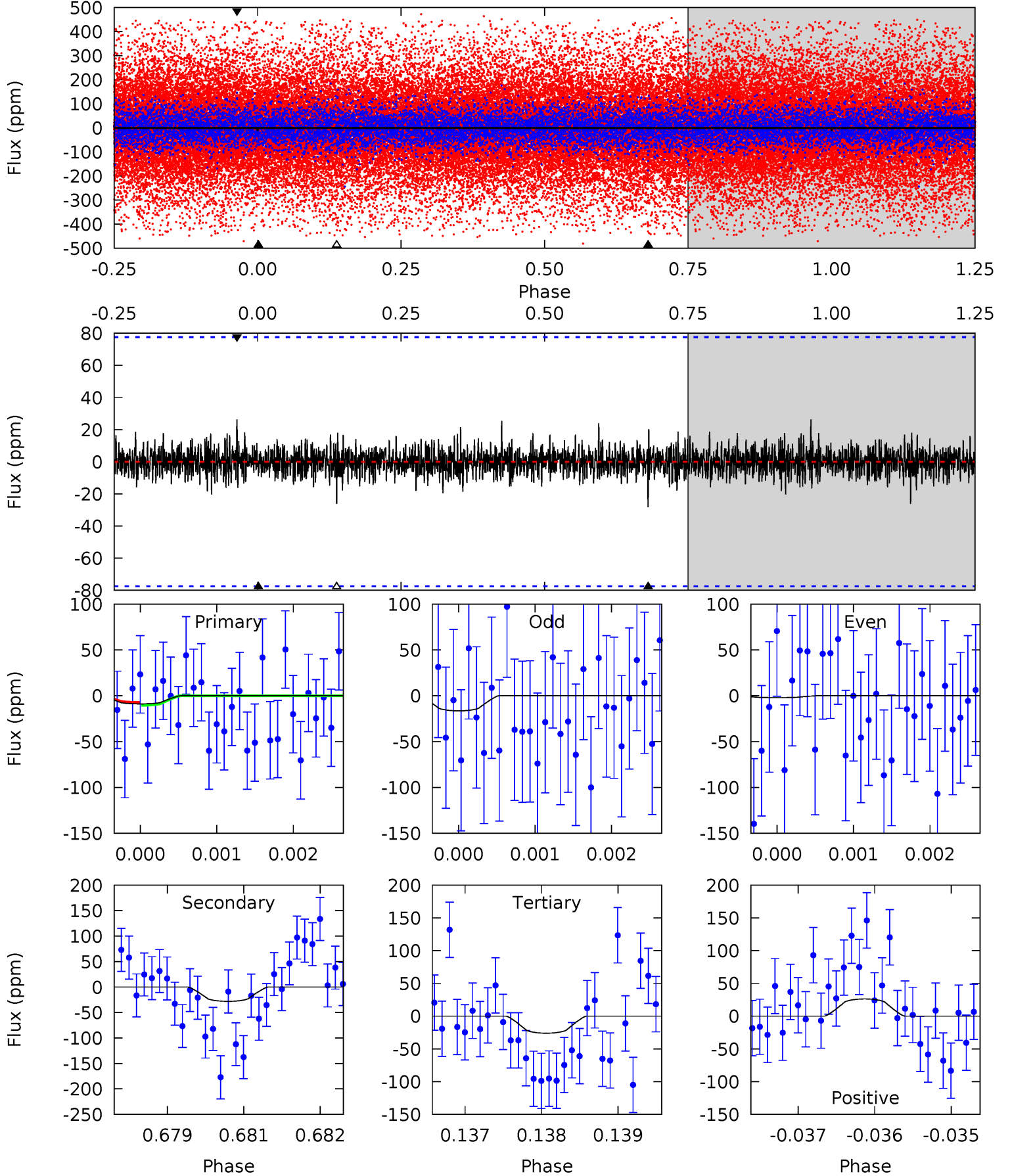
TCE 010130853-03 $P = 71.267789$ Days $T_0 = 148.967084$ (BKJD)



DV Model-Shift Uniqueness Test

010130853-03, P = 71.267204 Days, E = 77.704782 Days

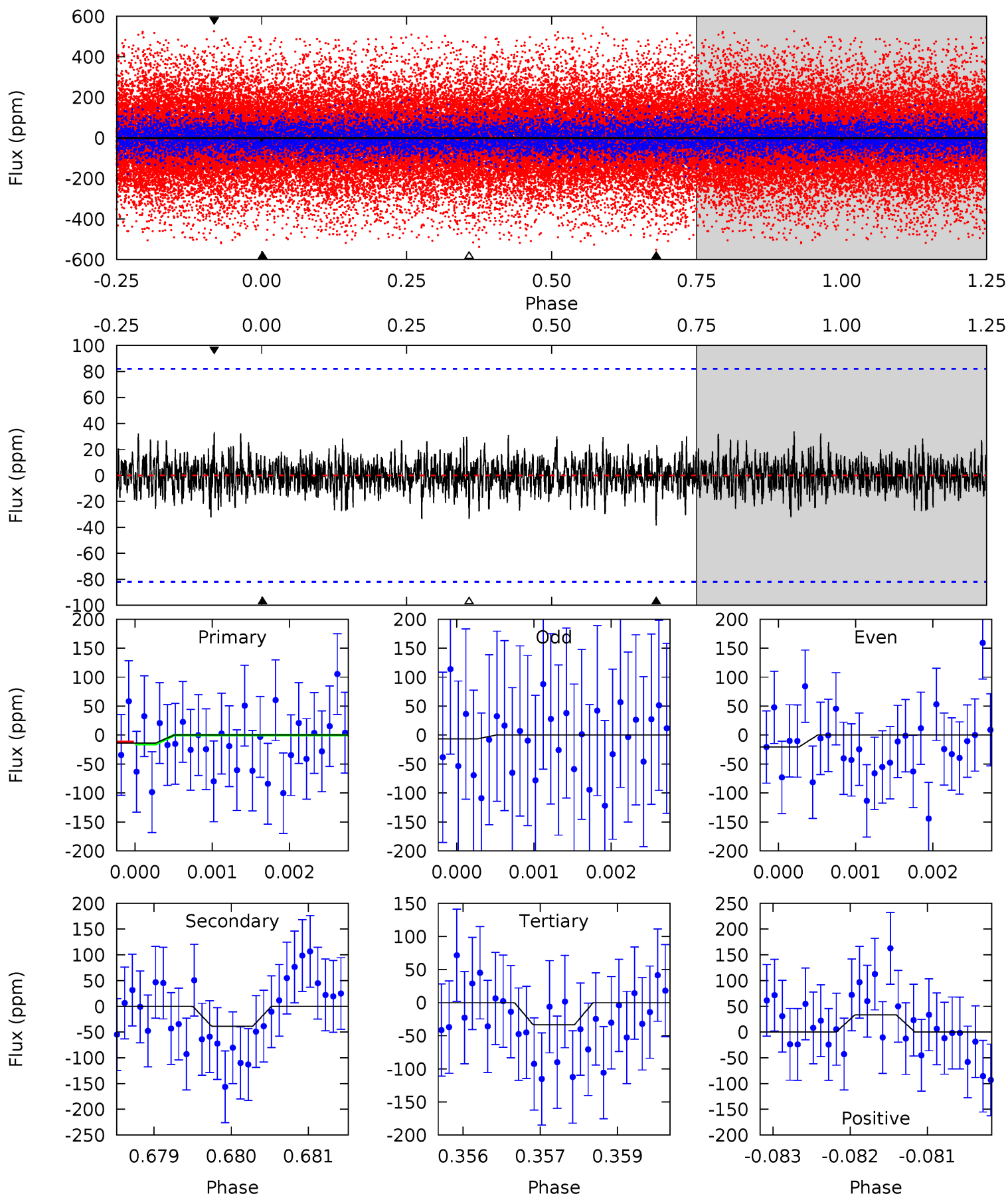
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.62	1.97	1.83	1.84	5.43	3.26	0.44	-1.20	-1.21	0.15	0.13	0.51	0.32	0.48	0.11



Alt Model-Shift Uniqueness Test

010130853-03, P = 71.267789 Days, E = 77.699295 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.91	2.55	2.21	2.21	5.42	3.24	0.65	-1.30	-1.30	0.33	0.33	0.46	0.38	0.46	0.12



Stellar Parameters For KIC 010130853

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4887^{+50}_{-87}	$3.384^{+0.010}_{-0.011}$	$0.240^{+0.100}_{-0.150}$	$4.057^{+0.189}_{-0.529}$	$1.451^{+0.150}_{-0.349}$	$0.031^{+0.005}_{-0.002}$
	+1%/-2%	+0%/-0%	+42%/-62%	+5%/-13%	+10%/-24%	+15%/-5%
Source	SPE72	AST10	SPE72	DSEP		

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

Secondary Eclipse Parameters for KIC 010130853-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-28 ± 14	$2.90^{+1.64}_{-1.52}$	984^{+13}_{-20}	4393^{+1924}_{-864}	242^{+987}_{-171}
Alt.	-39 ± 15	$2.51^{+1.68}_{-1.44}$	983^{+13}_{-18}	5007^{+2770}_{-1023}	461^{+2173}_{-322}

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

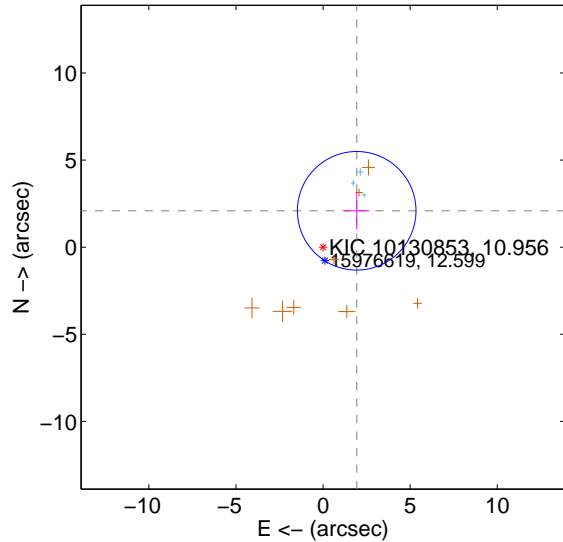
Supplemental centroid analysis for 010130853-03. **Kepler magnitude: 10.96.** Transit SNR 9.25

There are 3 quarters with good PRF difference image offsets

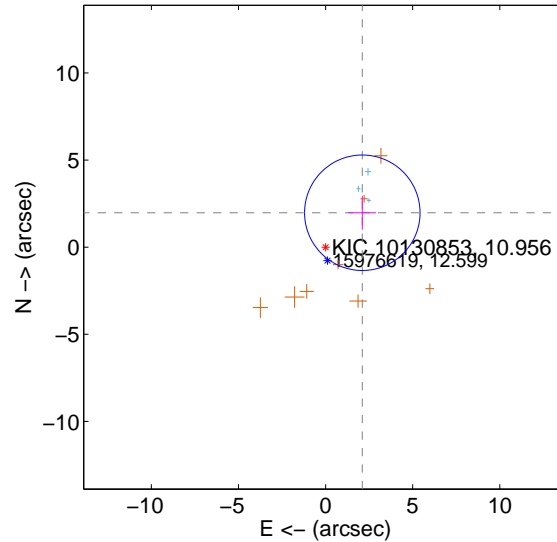
The direct PRF centroid is offset from the target star catalog position by about 0.99 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.845 ± 1.134	2.51	-1.932 ± 0.743	2.088 ± 1.083
PRF-fit source offset from KIC position	2.889 ± 1.105	2.62	-2.107 ± 0.795	1.976 ± 0.973
photometric centroid source offset	3.36 ± 2.74	1.23	-1.90 ± 2.20	-2.78 ± 2.95

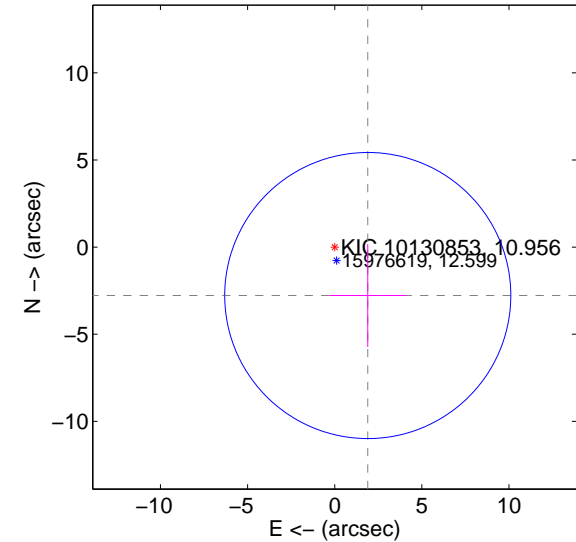
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

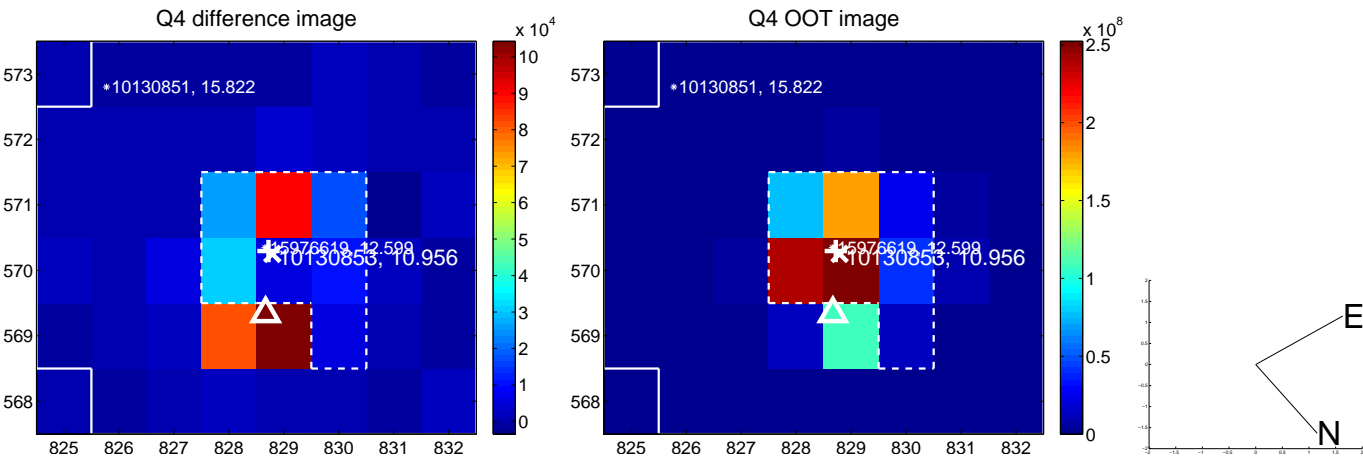
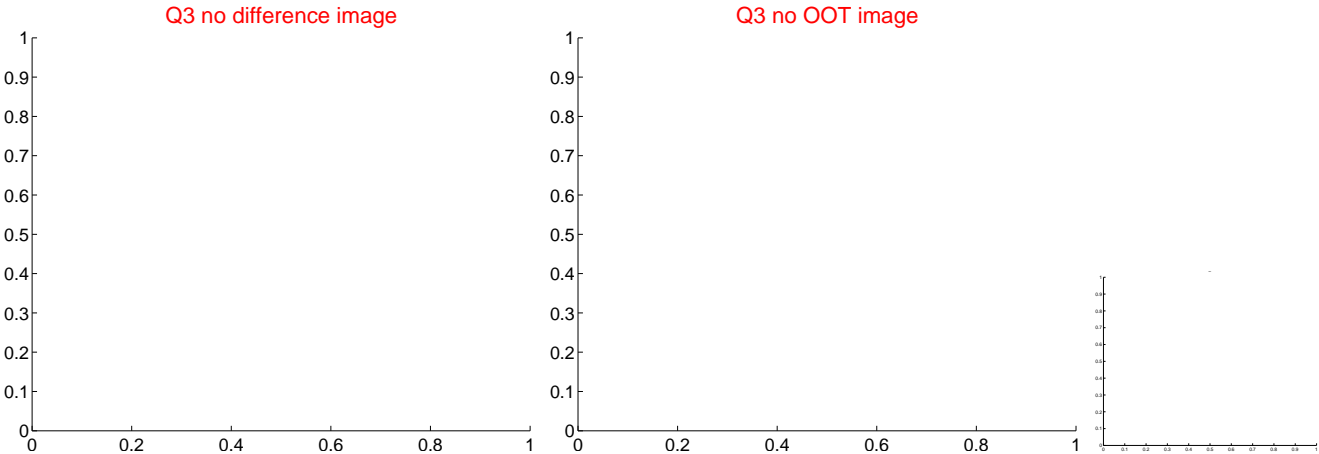
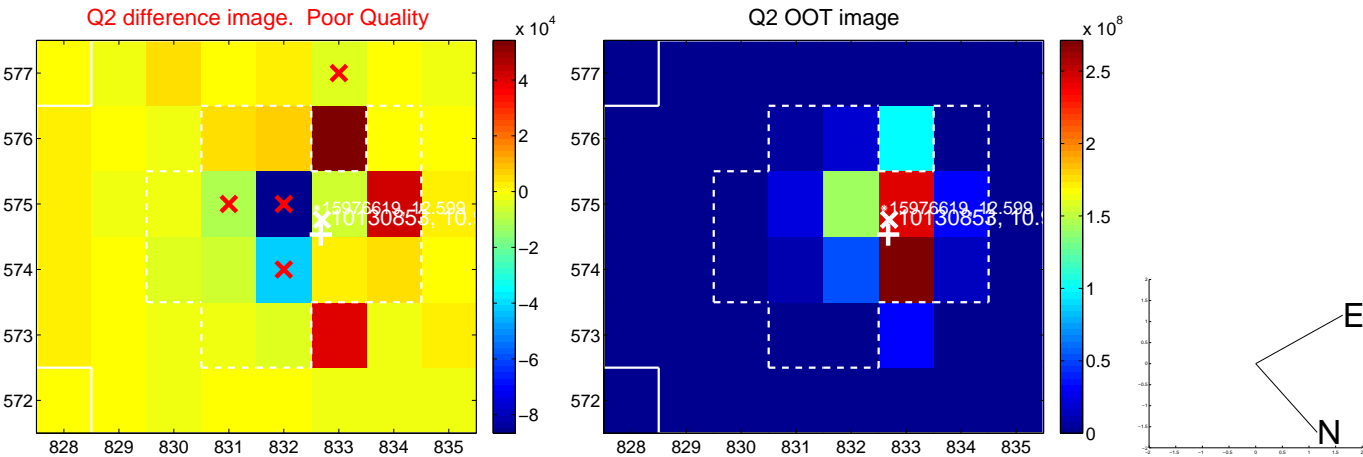
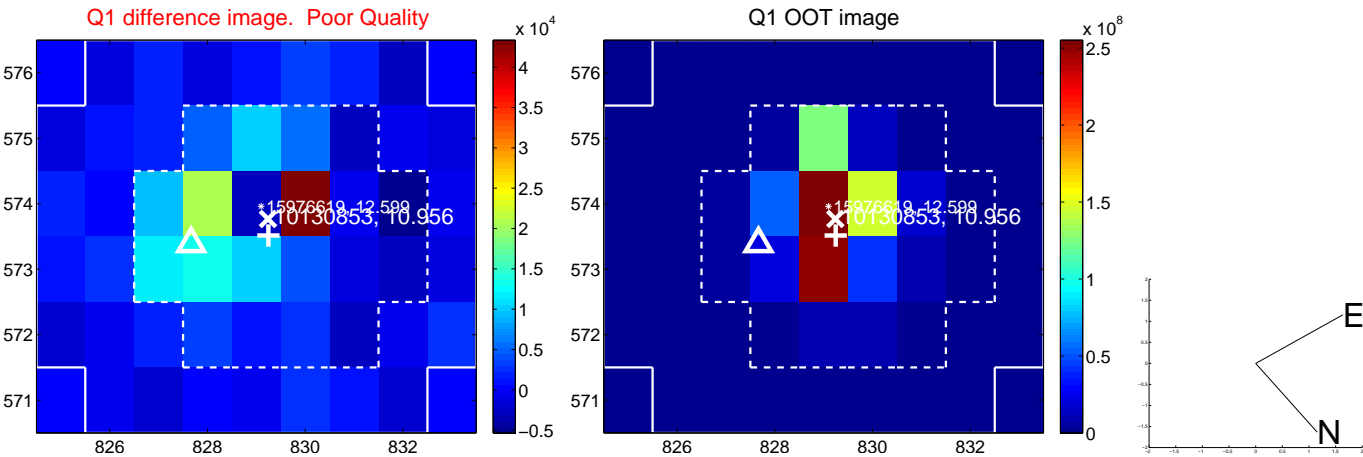


offset from photometric centroids

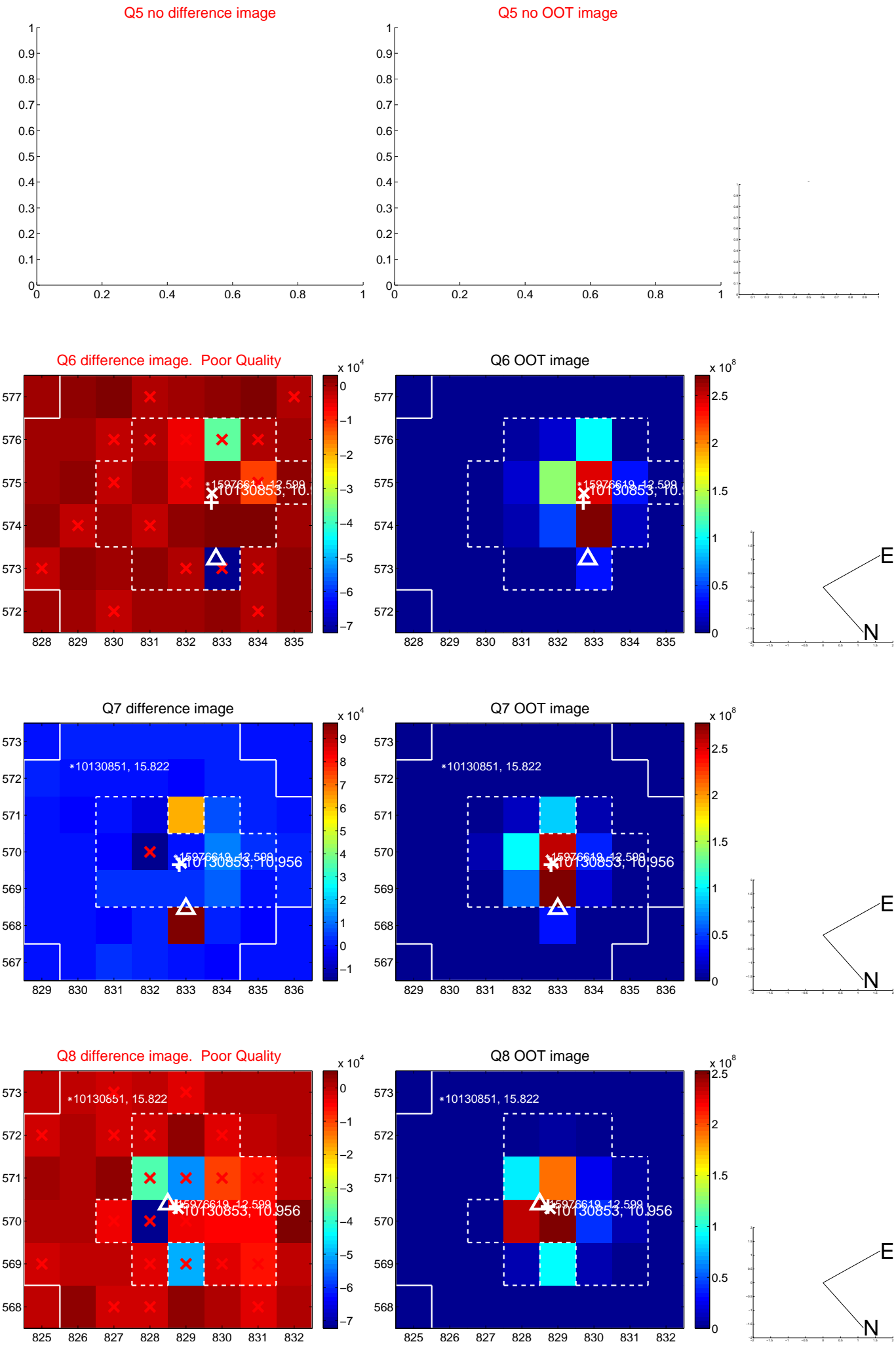


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

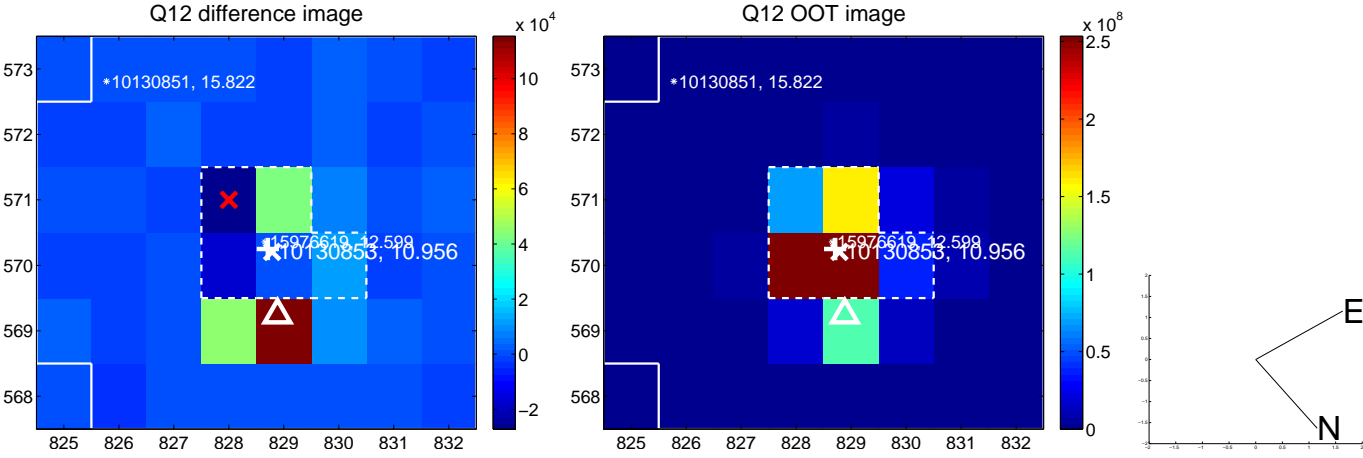
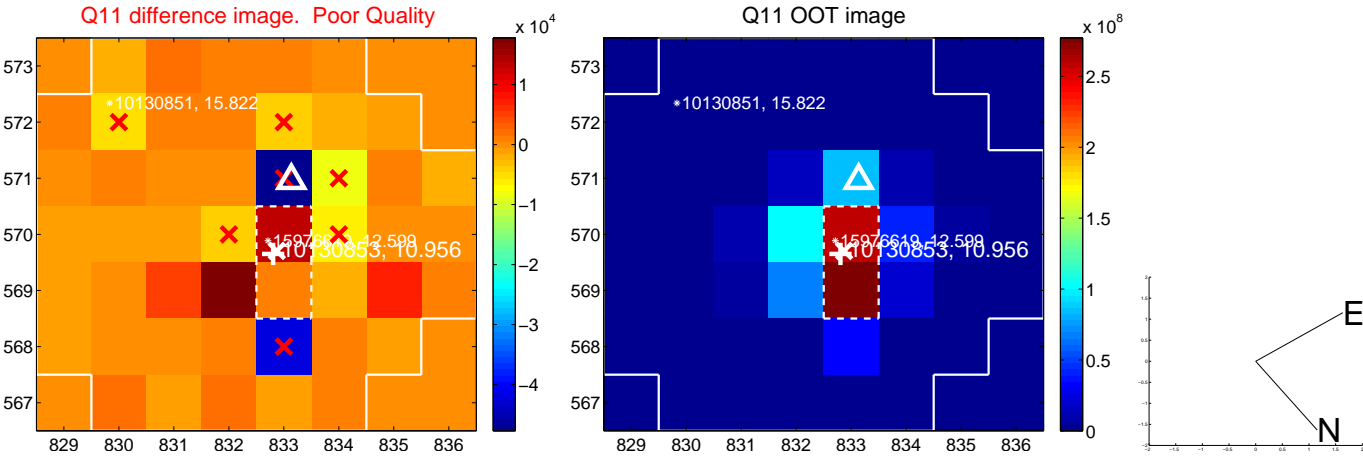
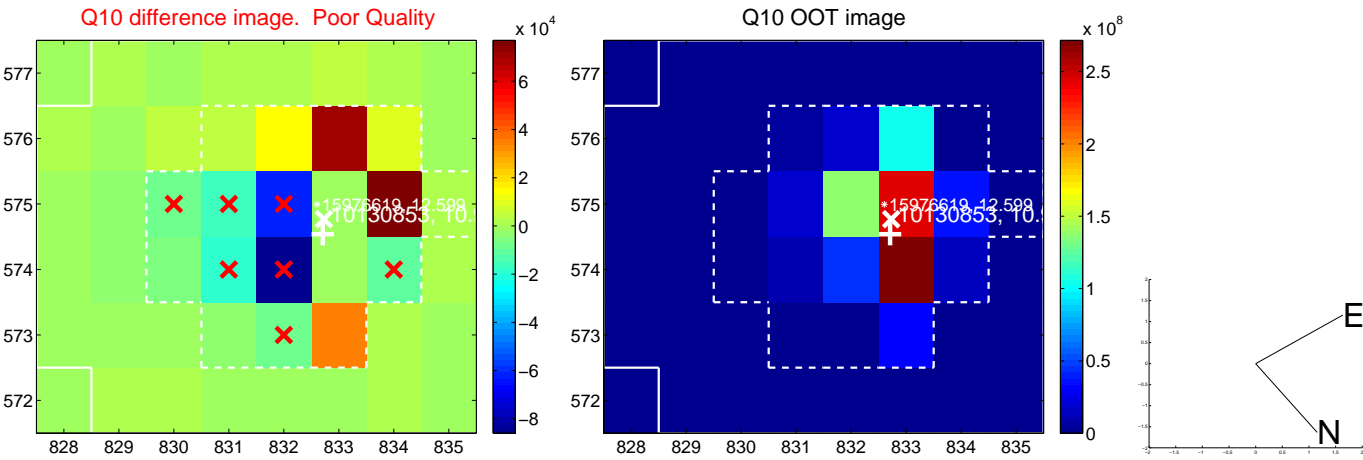
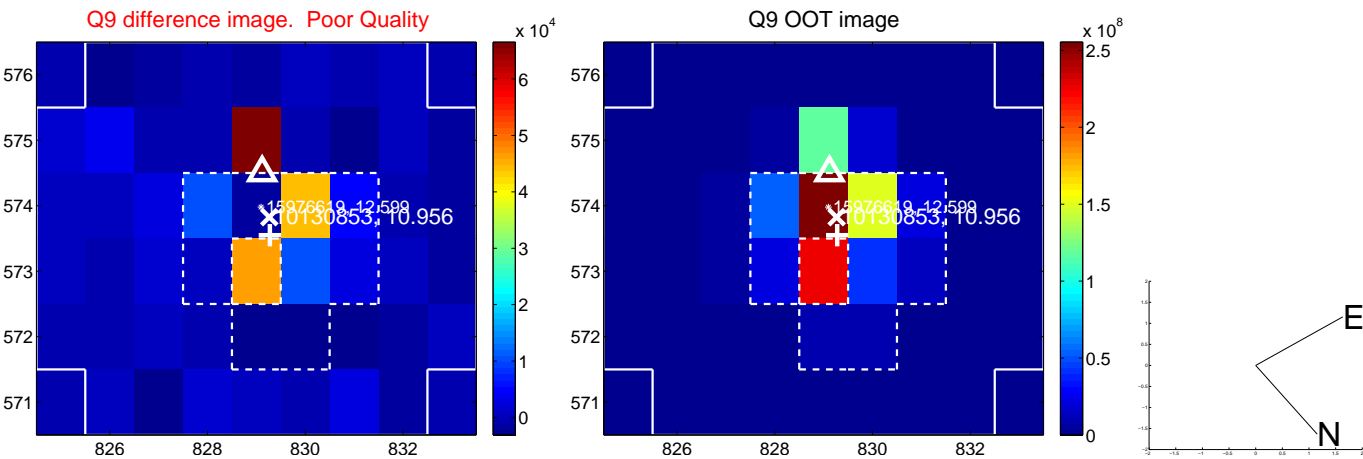
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



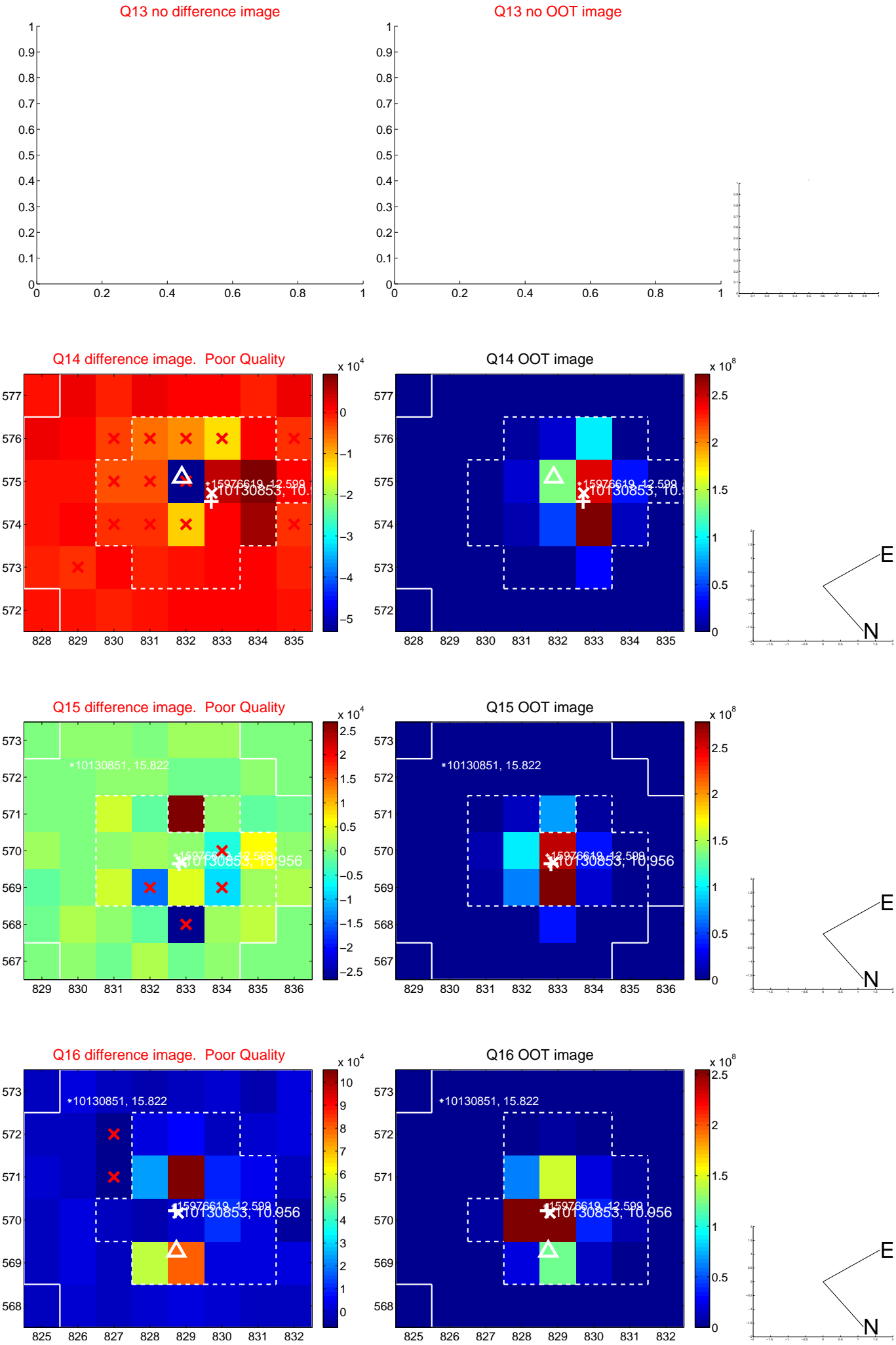
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



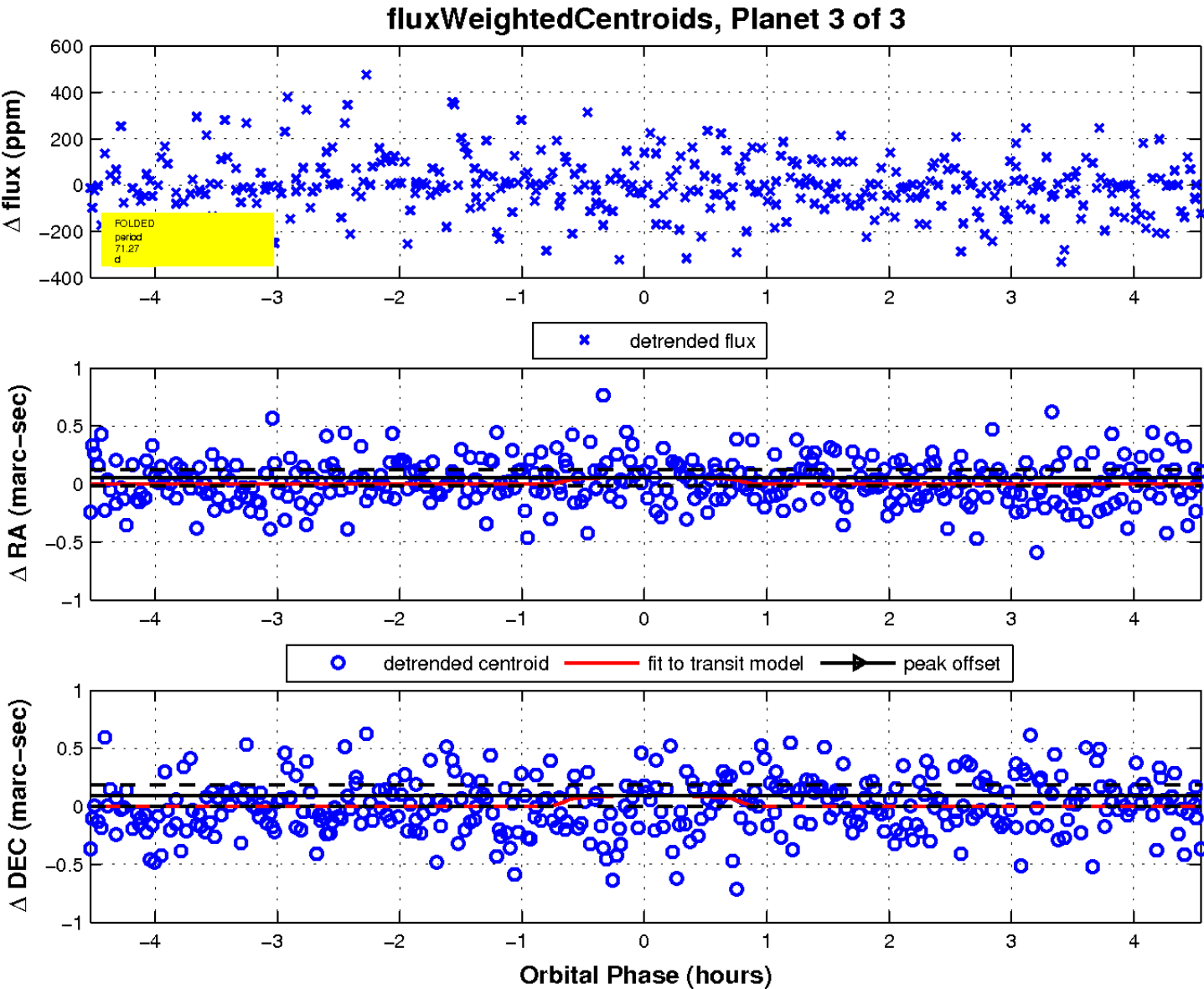
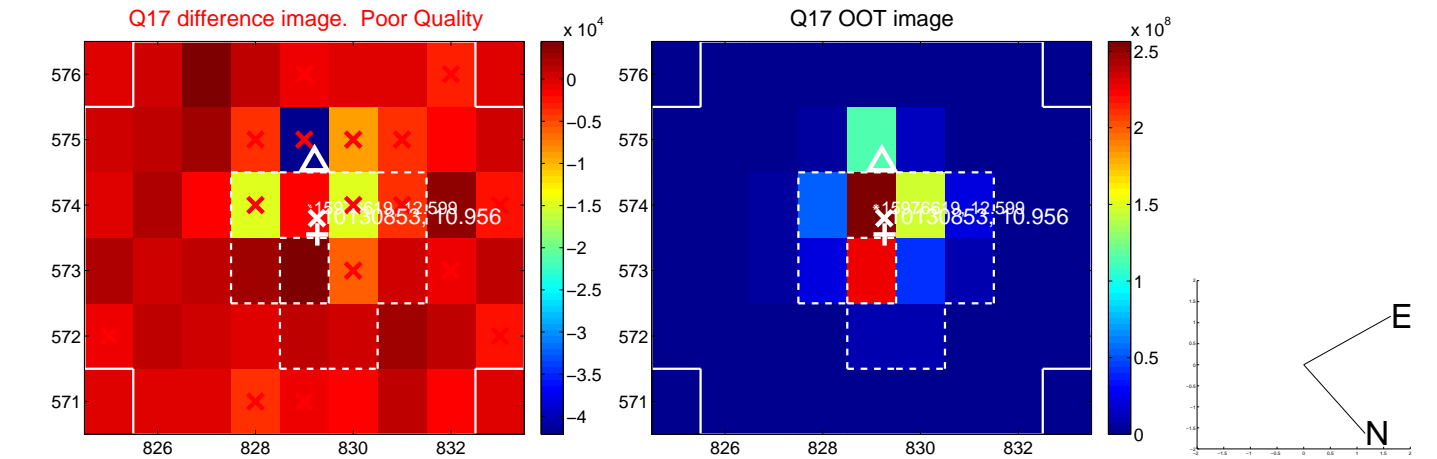
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

