

KIC 006233748

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})
006233748-01	OBS	No	2.676616	131.810337	37.5	8.133	7.3	7.7	1.35	6115	0.98	1643.35
006233748-02	OBS	No	5.410533	136.345781	38.7	20.419	7.9	6.0	1.35	6115	0.88	642.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006233748-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006233748-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV

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

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

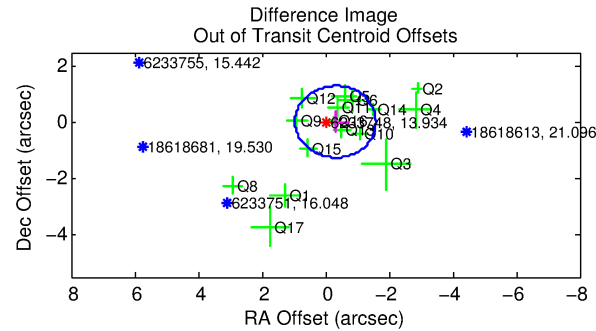
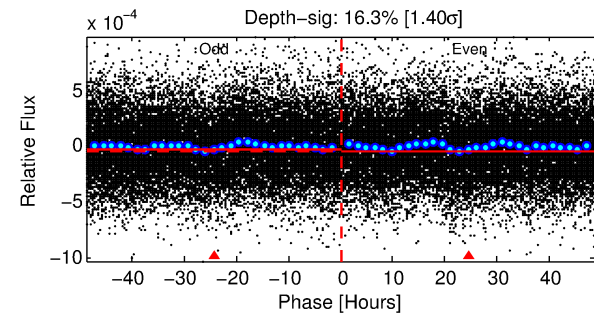
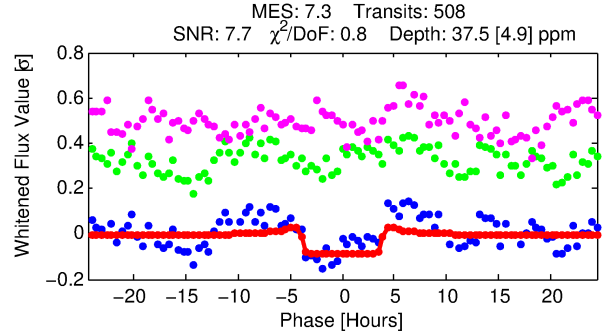
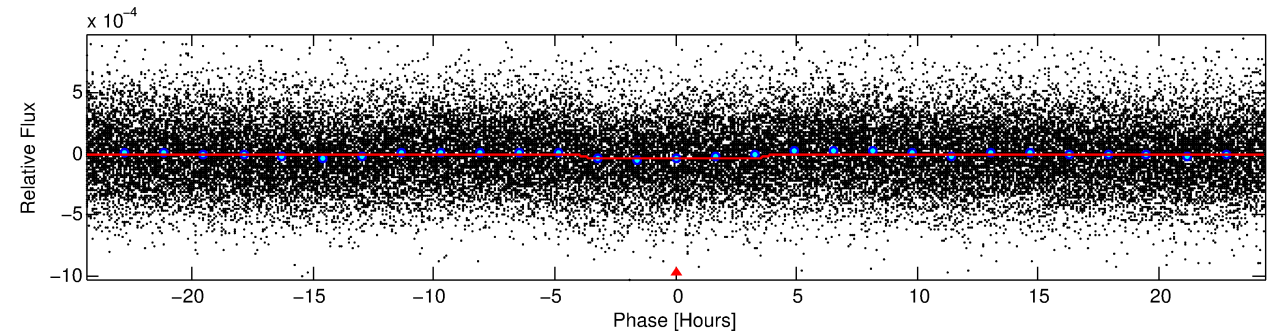
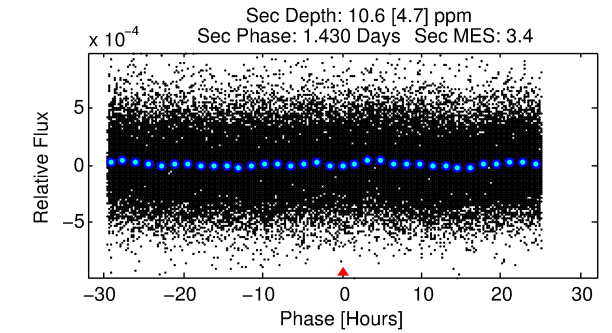
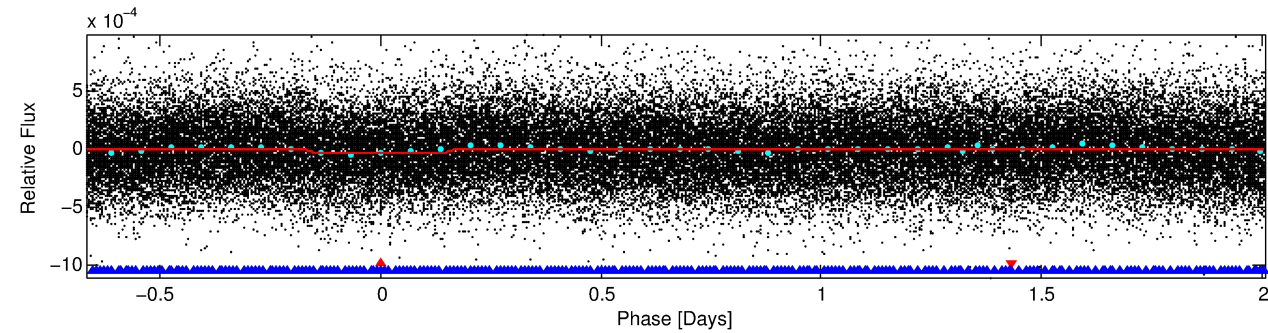
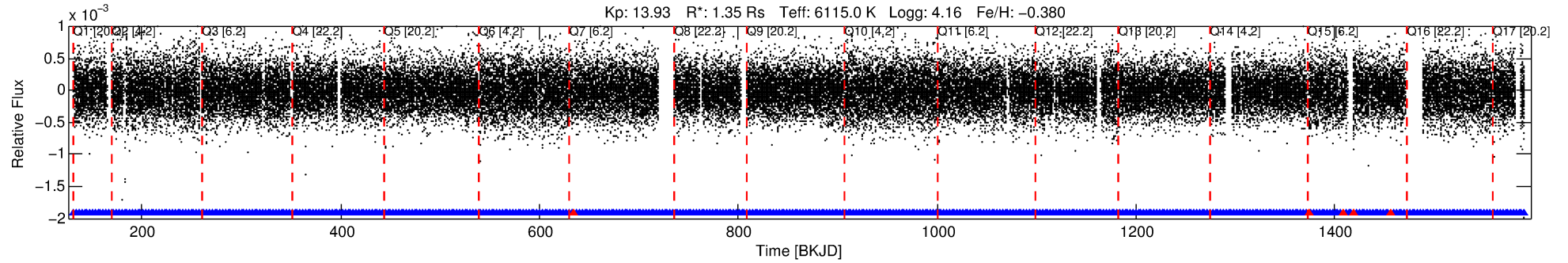
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006233748-01

No Significant Match Found

DV One-Page Summary

KIC: 6233748 Candidate: 1 of 2 Period: 2.677 d



DV Fit Results:

Period = 2.67662 [0.00004] d
Epoch = 131.8103 [0.0080] BKJD
Rp/R* = 0.0067 [0.0017]
a/R* = 1.42 [1.00]
b = 0.92 [0.25]
Seff = 1643.34 [832.89]
Teff = 1624 [206] K
Rp = 0.98 [0.38] Re
a = 0.0372 [0.0110] AU
Ag = 8.41 [7.05] [1.05σ]
Teffp = 4274 [741] K [3.45σ]

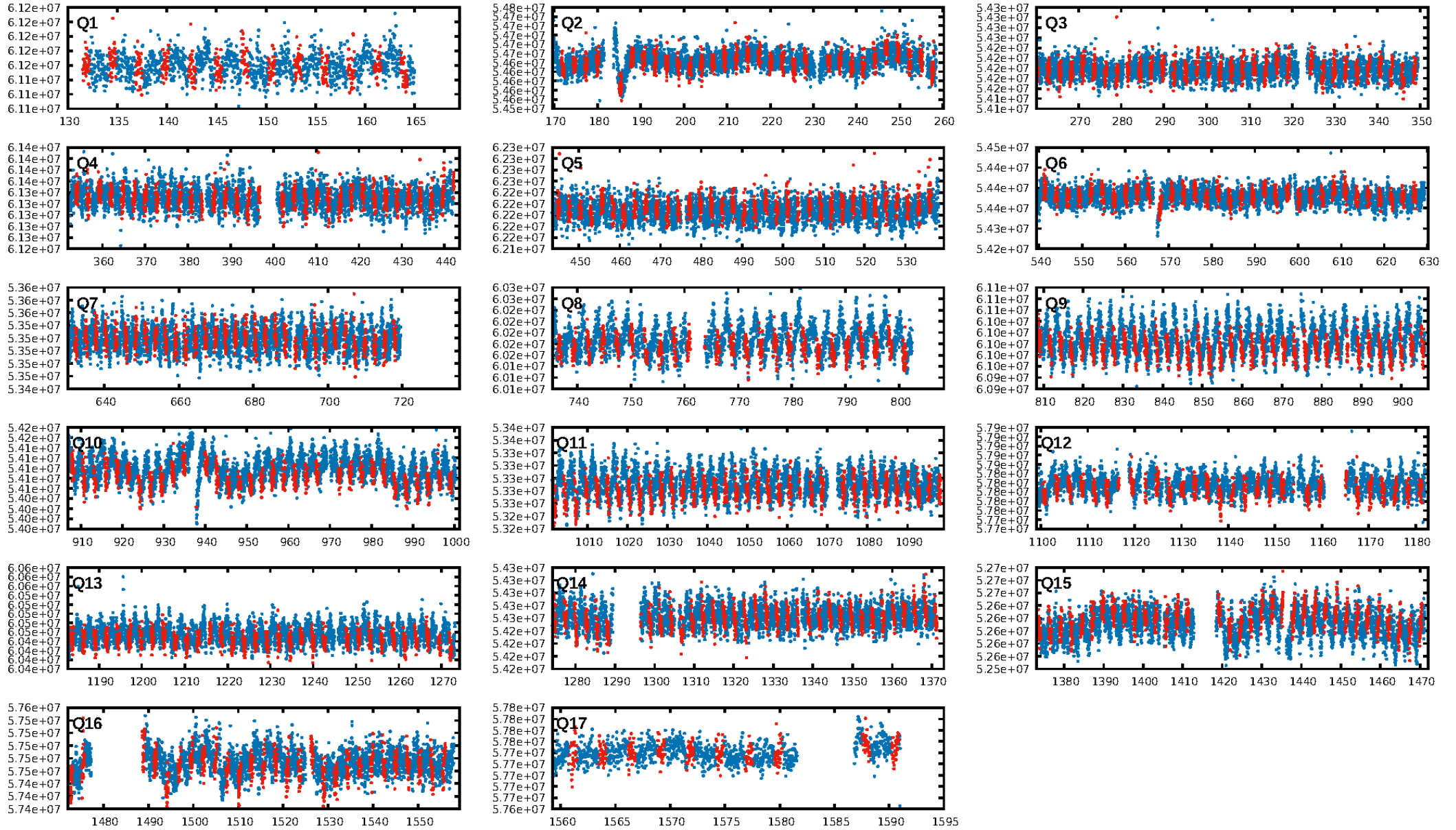
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.7% [2.99σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.60e-12
RollingBand-fgt: 0.99 [480/485]
GhostDiagnostic-chr: 1.409
Centroid-sig: 56.0%
Centroid-so: 0.267 arcsec [0.29σ]
OotOffset-rm: 0.315 arcsec [0.74σ]
KicOffset-rm: 0.289 arcsec [0.78σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.62 [10/16]
DiffImageOverlap-fno: 1.00 [17/17]

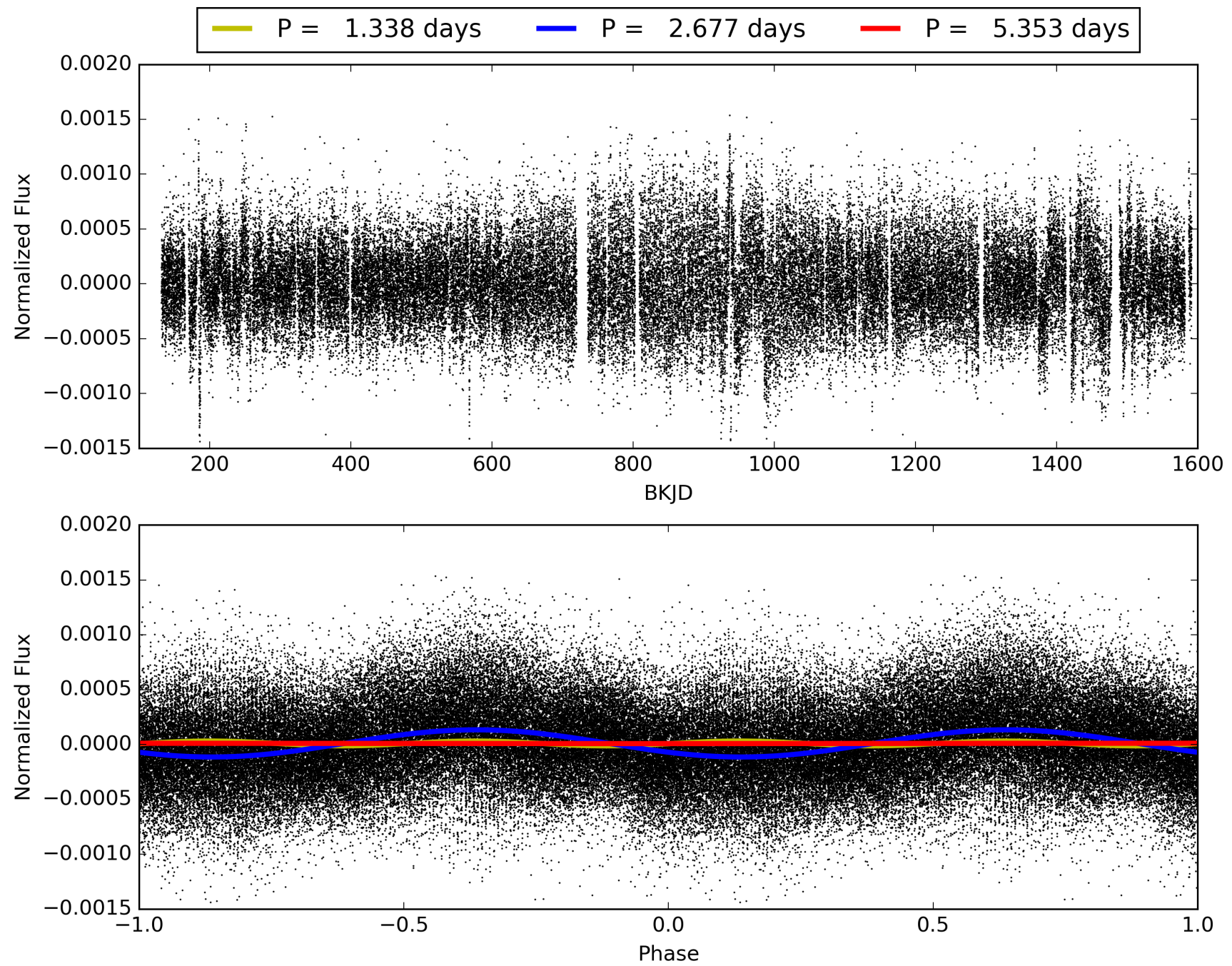
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:06:05 Z

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

TCE 006233748-01, PDC Light Curves

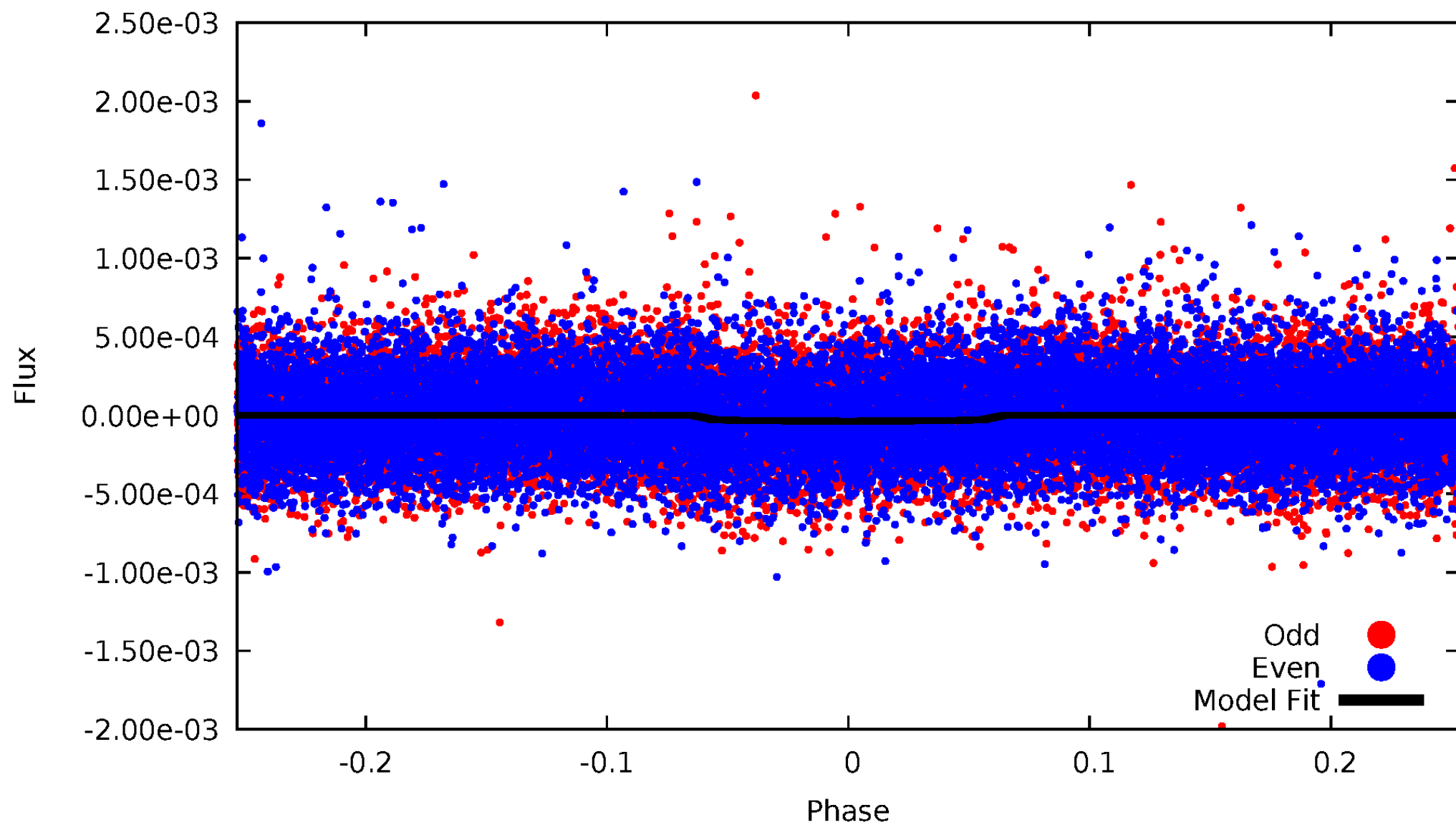


TCE 006233748-01



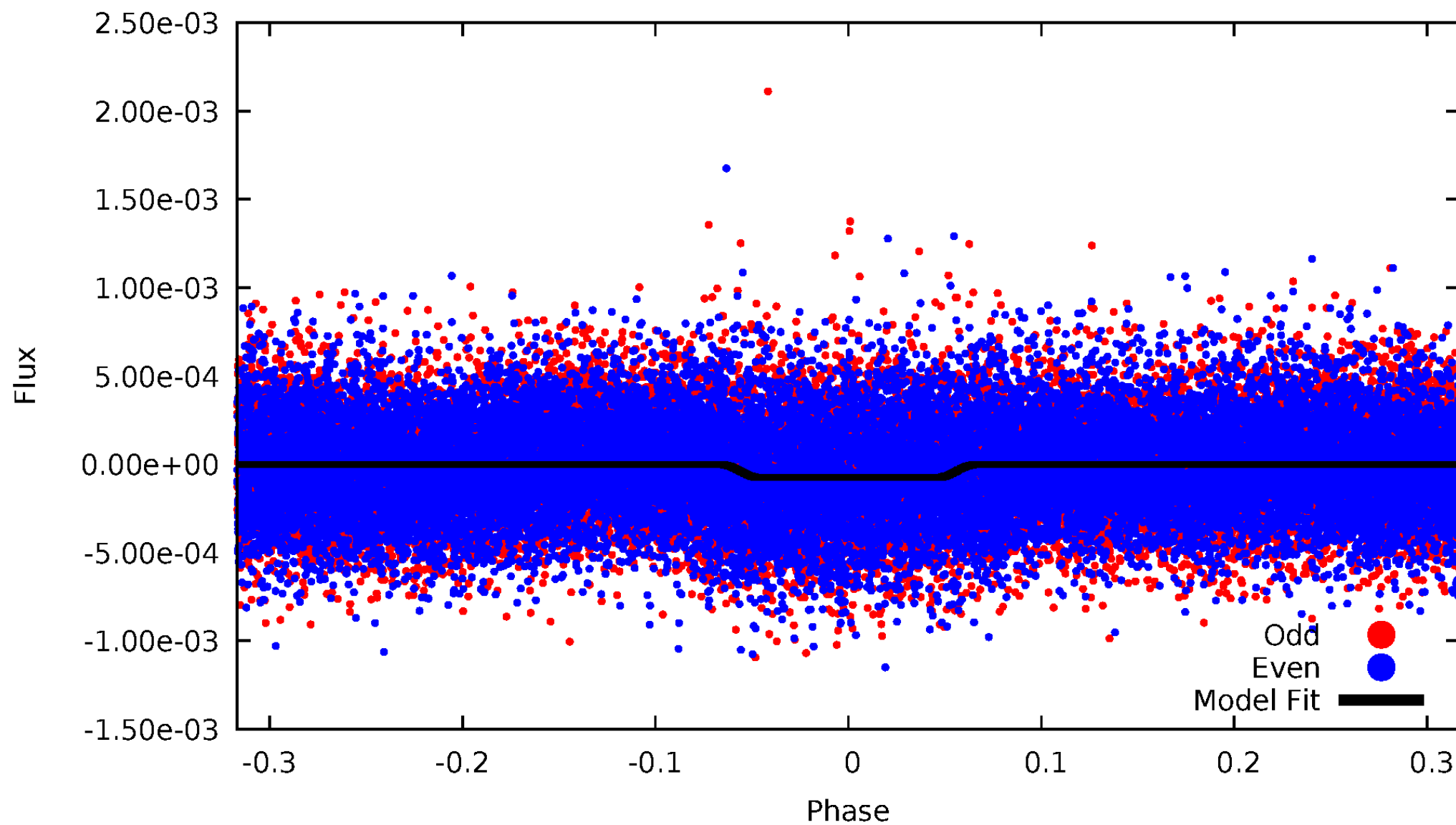
DV Odd/Even

TCE 006233748-01

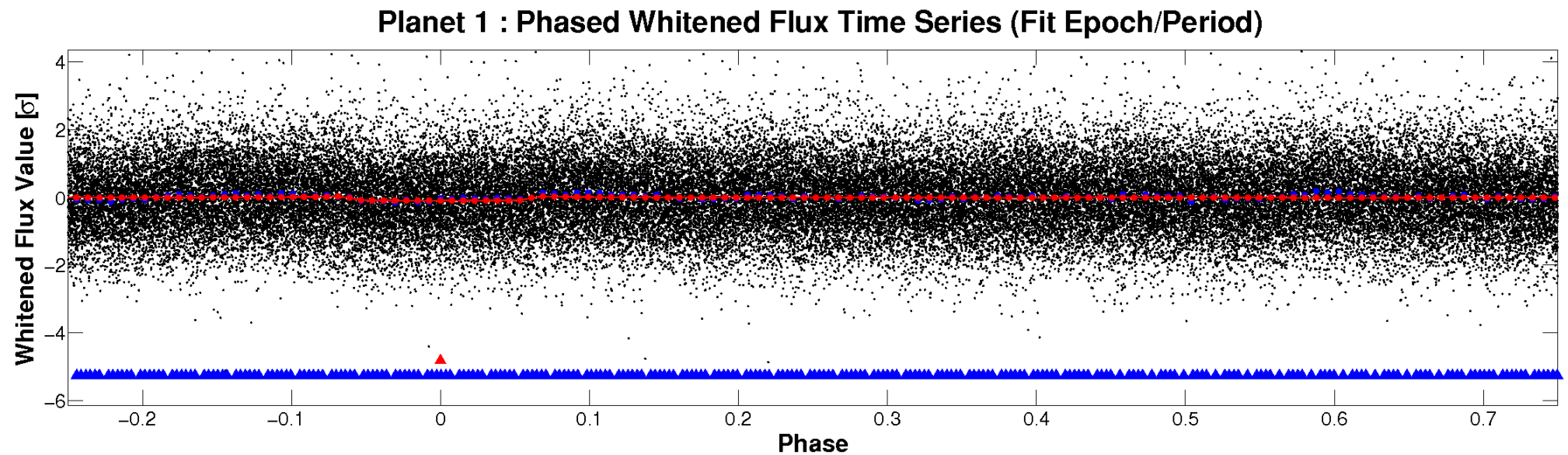
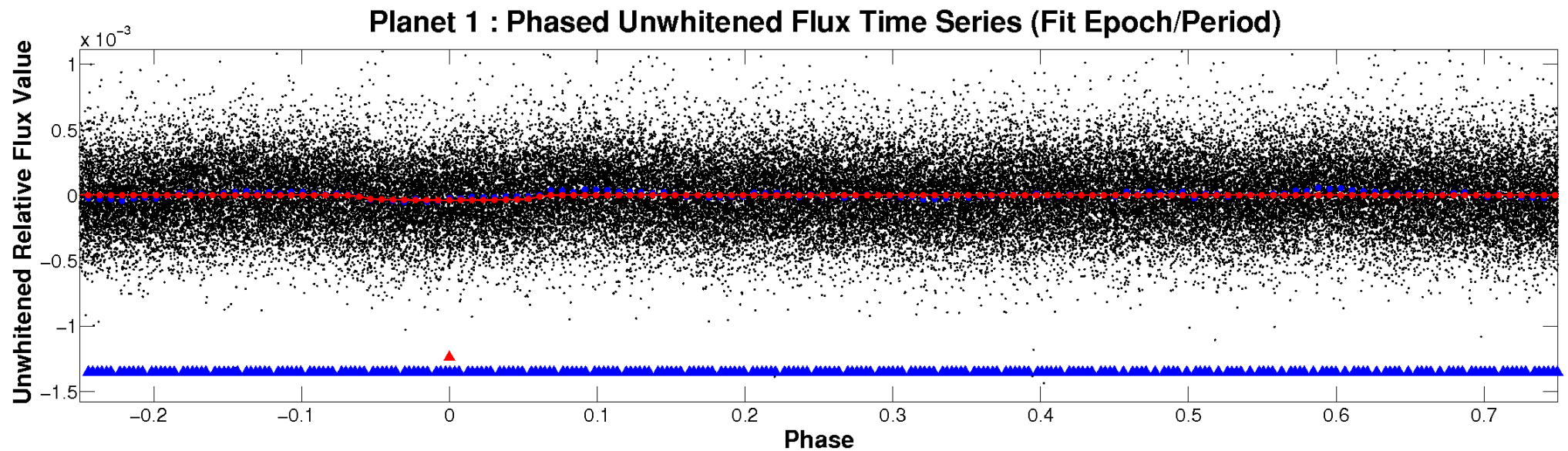


ALT Odd/Even

TCE 006233748-01

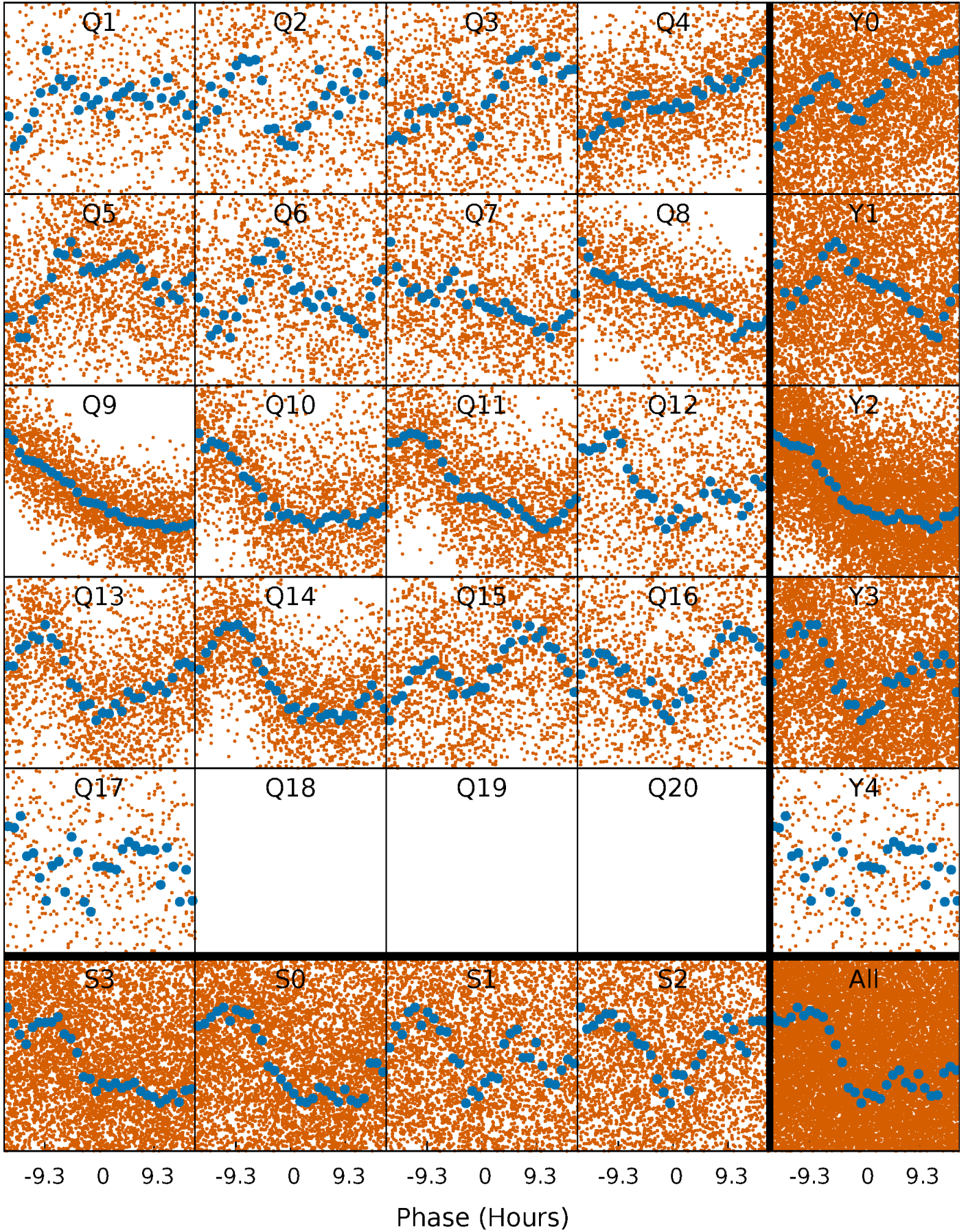


Non-Whitened Vs. Whitened Light Curve



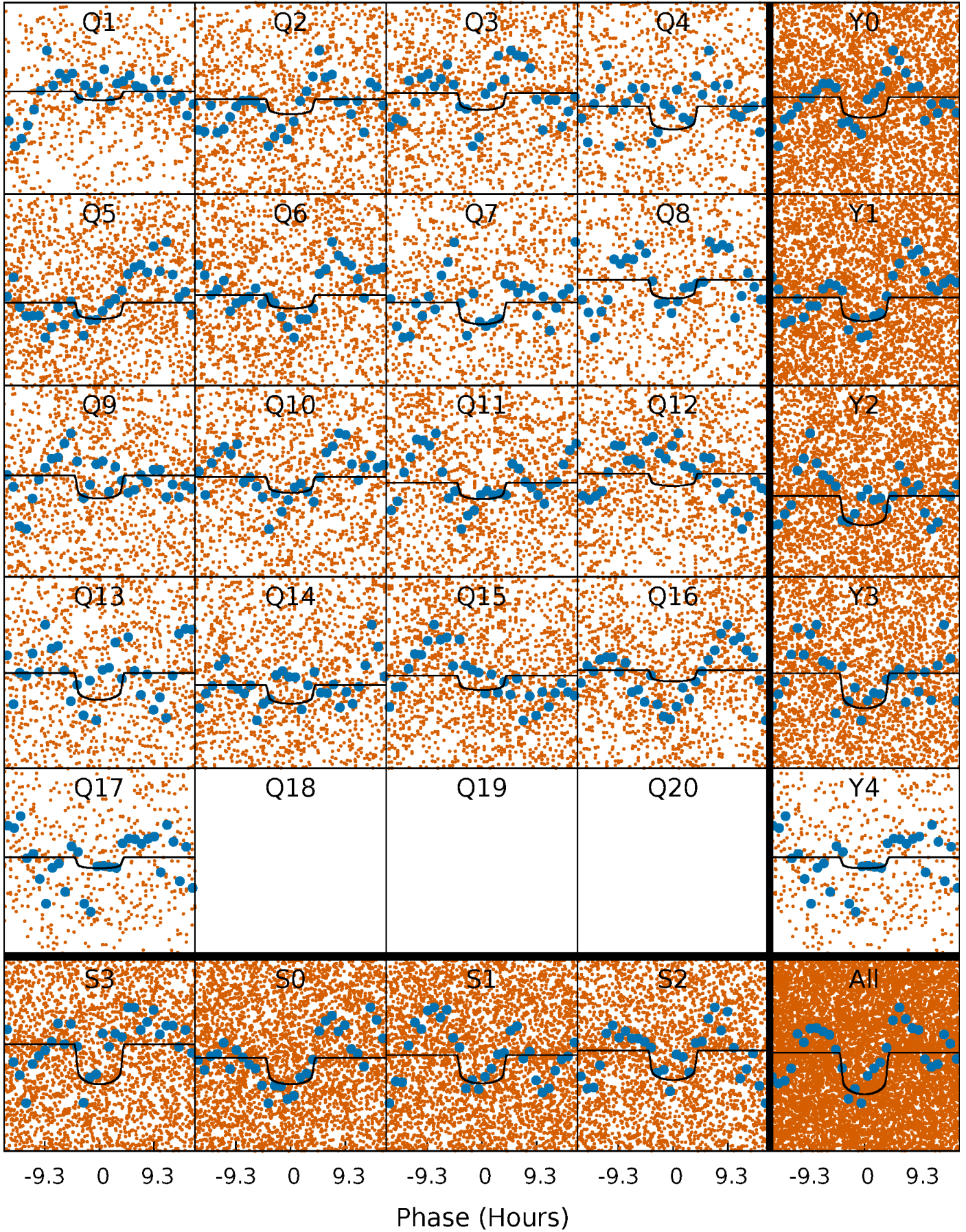
PDC Quarter-Phased Transit Curves

TCE 006233748-01 P= 2.676616 Days $T_0=131.810337$ (BKJD)



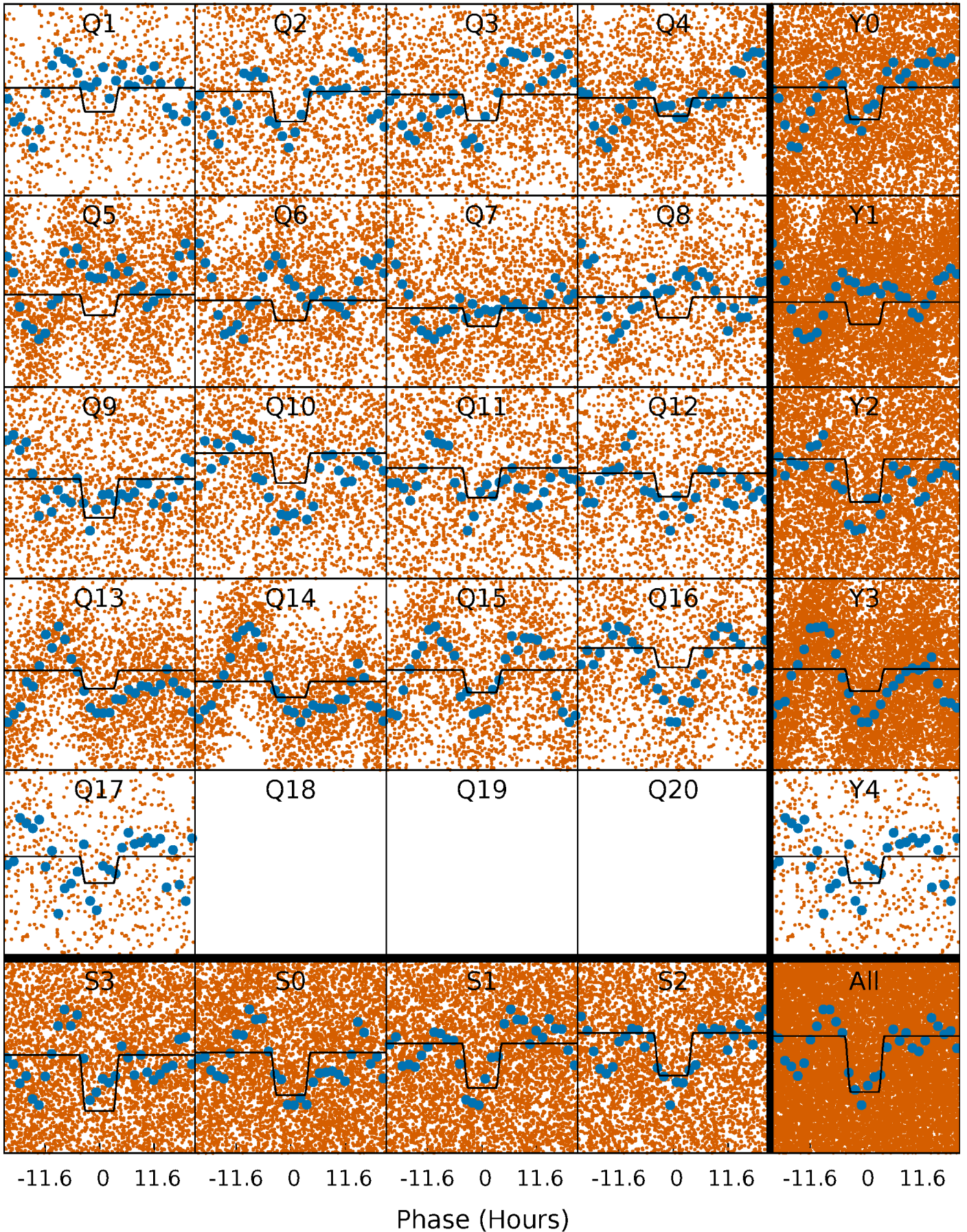
DV Quarter-Phased Transit Curves

TCE 006233748-01 P= 2.676616 Days $T_0=131.810337$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

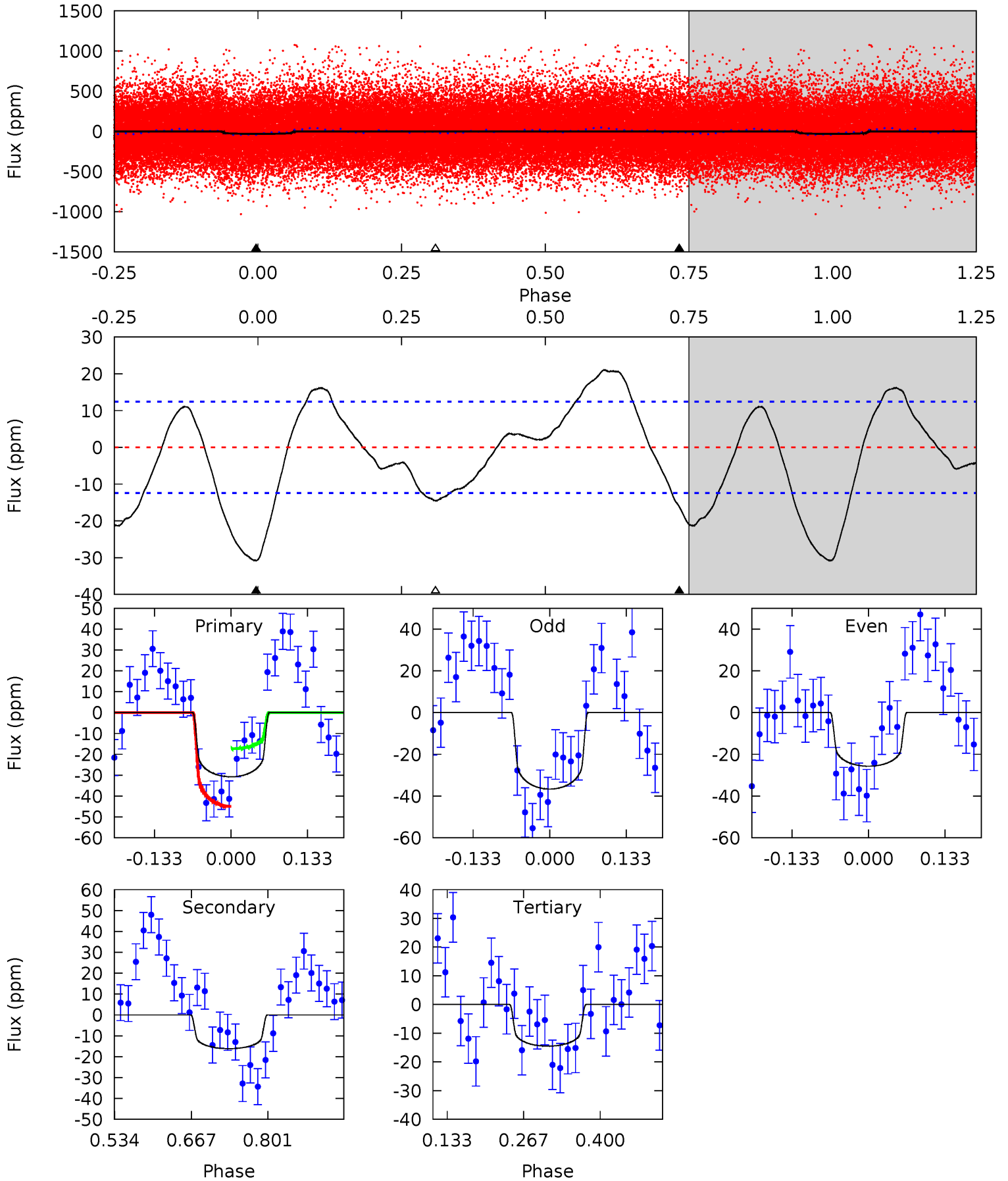
TCE 006233748-01 P= 2.676533 Days $T_0=131.823472$ (BKJD)



DV Model-Shift Uniqueness Test

006233748-01, P = 2.676616 Days, E = 129.133721 Days

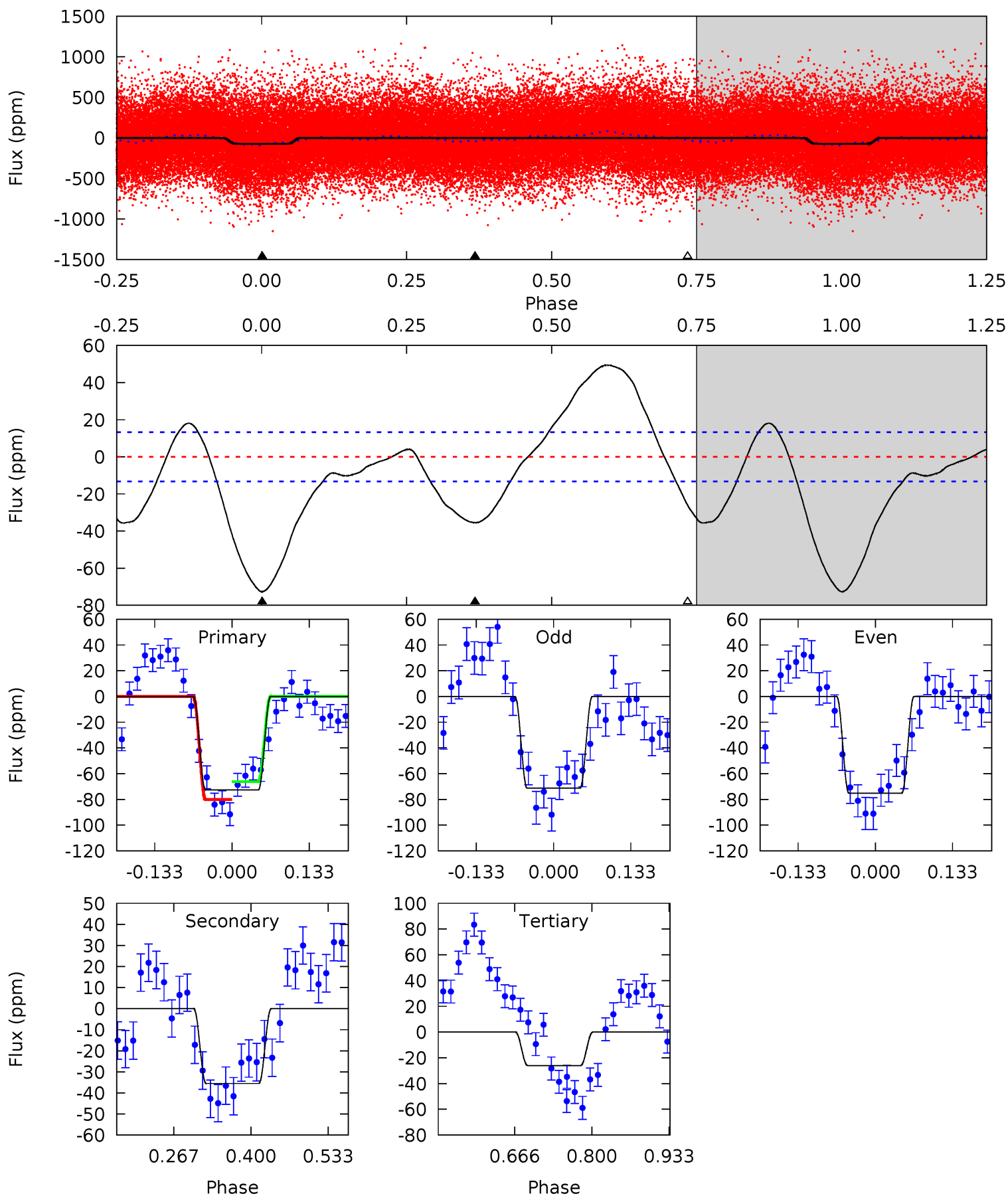
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	5.85	5.26	0	4.50	1.50	3.26	5.90	11.2	0.60	5.85	1.98	1.00	0.41	5.00



Alt Model-Shift Uniqueness Test

006233748-01, P = 2.676533 Days, E = 129.146939 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.6	12.0	8.84	0	4.50	1.50	9.00	15.8	24.6	3.21	12.0	0.66	1.04	0.40	2.38



Stellar Parameters For KIC 006233748

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6115^{+183}_{-202}	$4.160^{+0.293}_{-0.158}$	$-0.380^{+0.300}_{-0.300}$	$1.346^{+0.389}_{-0.389}$	$0.954^{+0.151}_{-0.110}$	$0.551^{+0.921}_{-0.265}$
	+3%/-3%	+7%/-4%	+79%/-79%	+29%/-29%	+16%/-12%	+167%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006233748-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-16 ± 3	$0.94^{+0.30}_{-0.27}$	2235^{+184}_{-194}	4842^{+744}_{-468}	14^{+15}_{-6}
Alt.	-36 ± 3	$1.22^{+0.36}_{-0.31}$	2236^{+178}_{-190}	5118^{+601}_{-416}	18^{+14}_{-7}

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 $A_{obs} \gg 1.0$

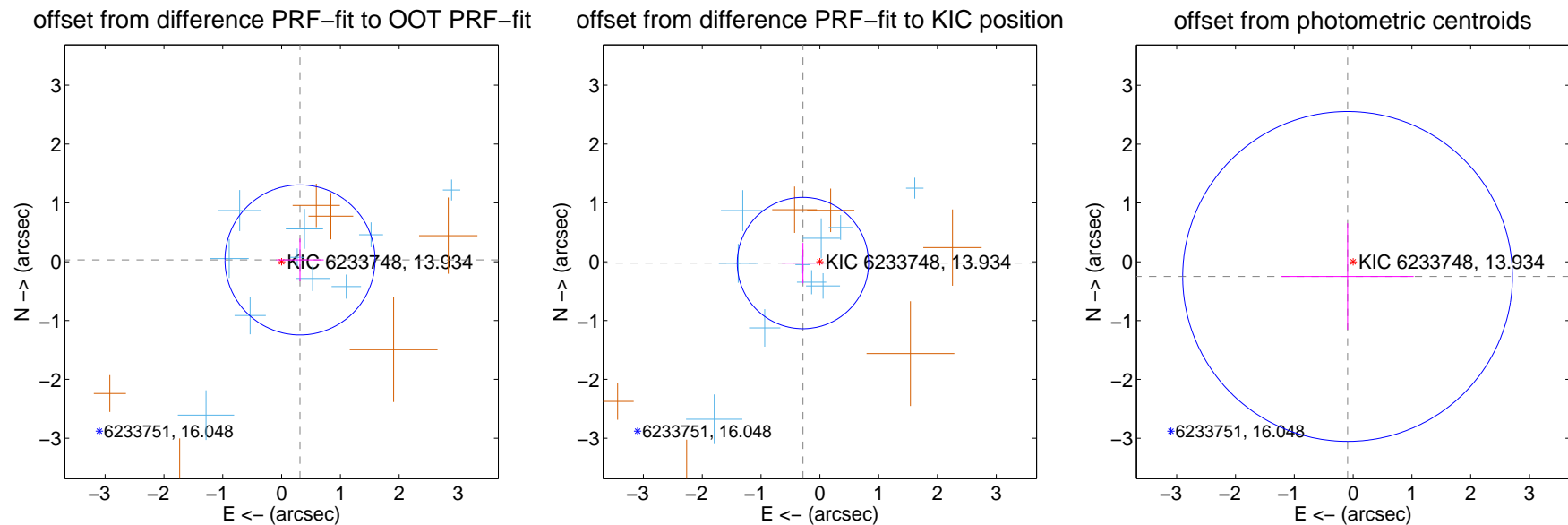
DV Centroid Data

Supplemental centroid analysis for 006233748-01. Kepler magnitude: 13.93. Transit SNR 7.72

There are 10 quarters with good PRF difference image offsets

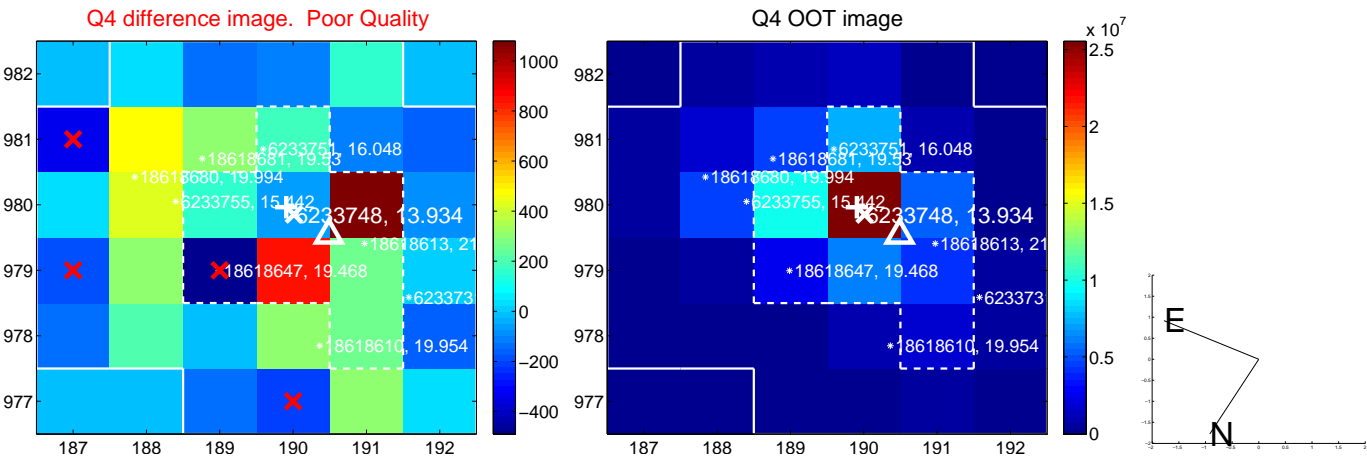
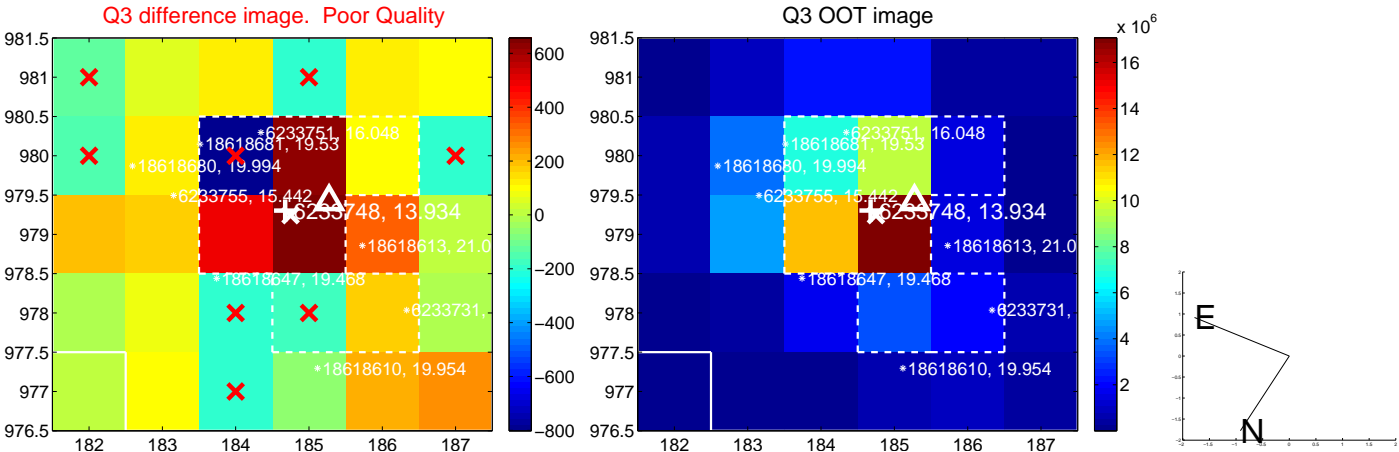
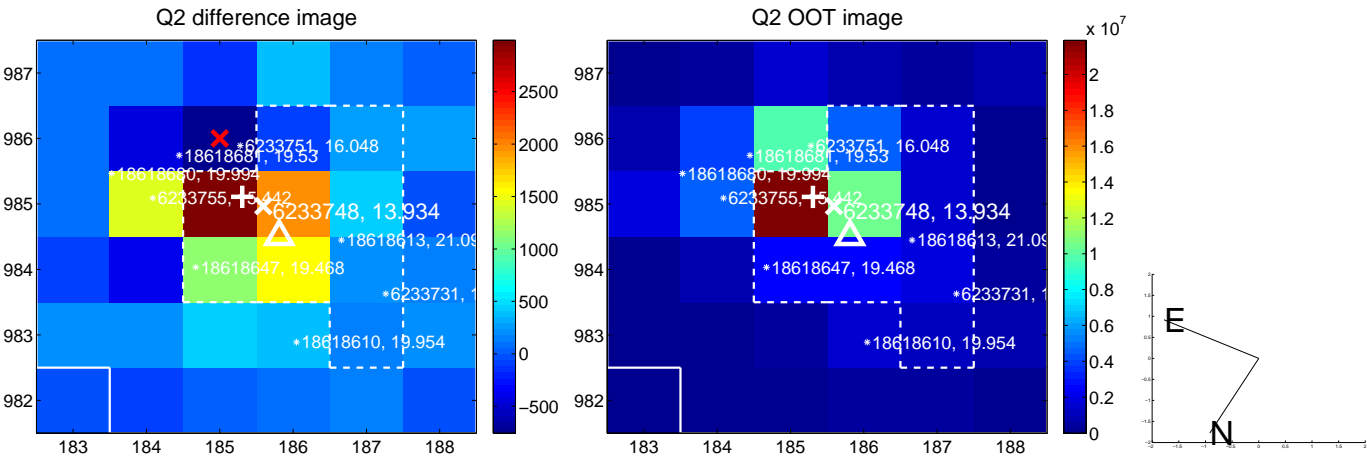
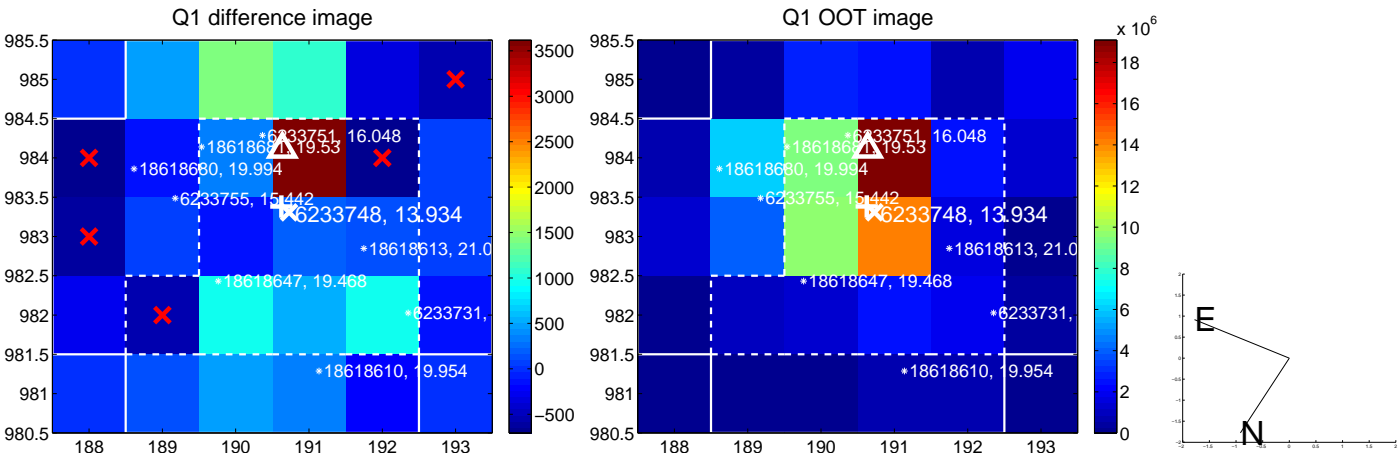
The direct PRF centroid is offset from the target star catalog position by about 0.53 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.315 ± 0.425	0.74	-0.313 ± 0.403	0.030 ± 0.363
PRF-fit source offset from KIC position	0.289 ± 0.372	0.78	0.288 ± 0.357	-0.023 ± 0.344
photometric centroid source offset	0.27 ± 0.93	0.29	0.09 ± 1.12	-0.25 ± 0.90

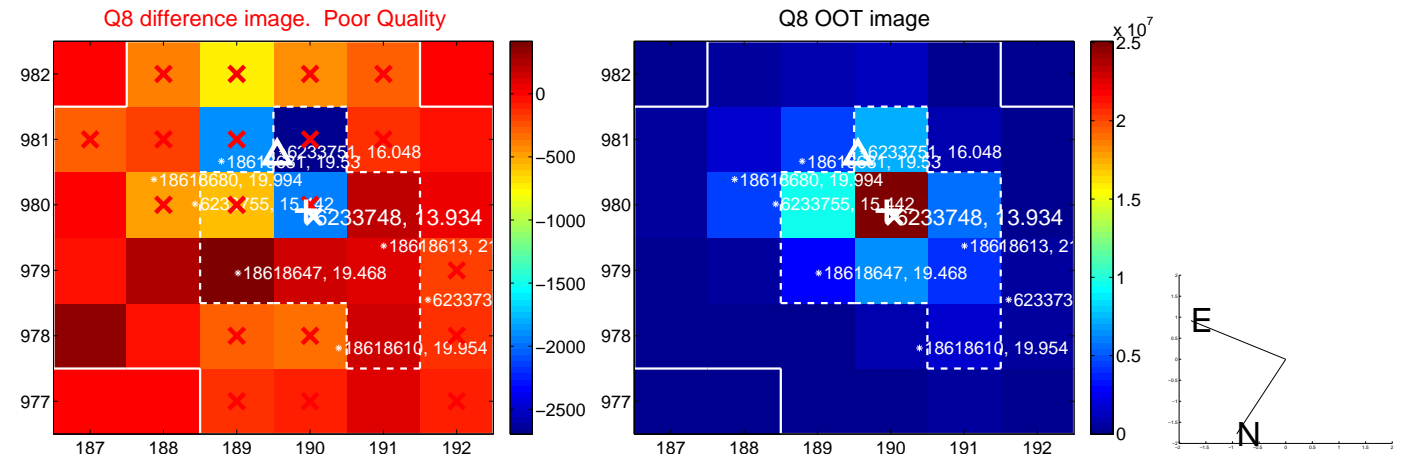
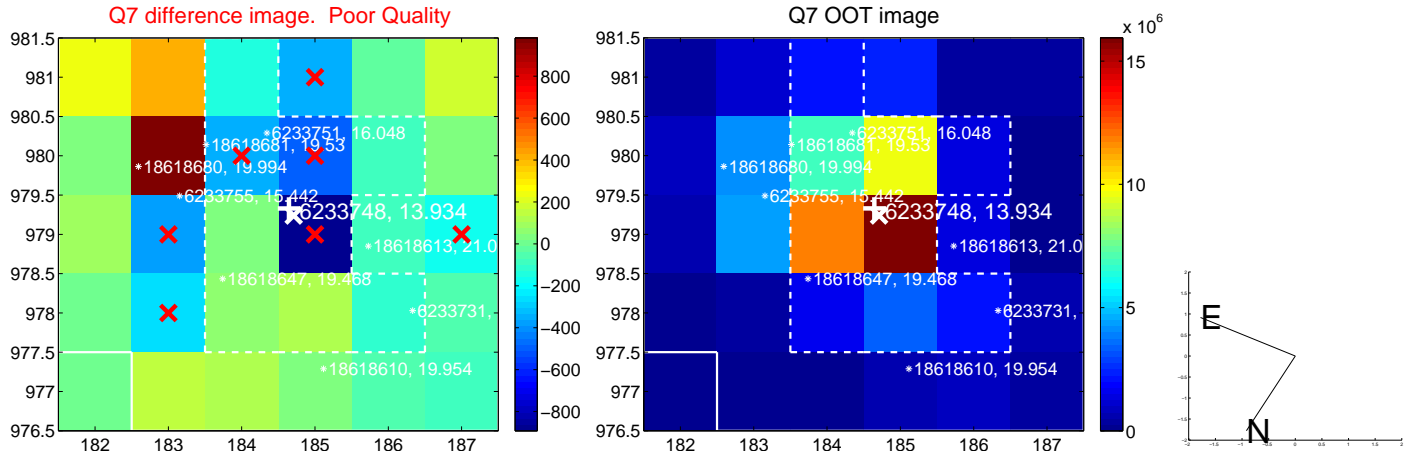
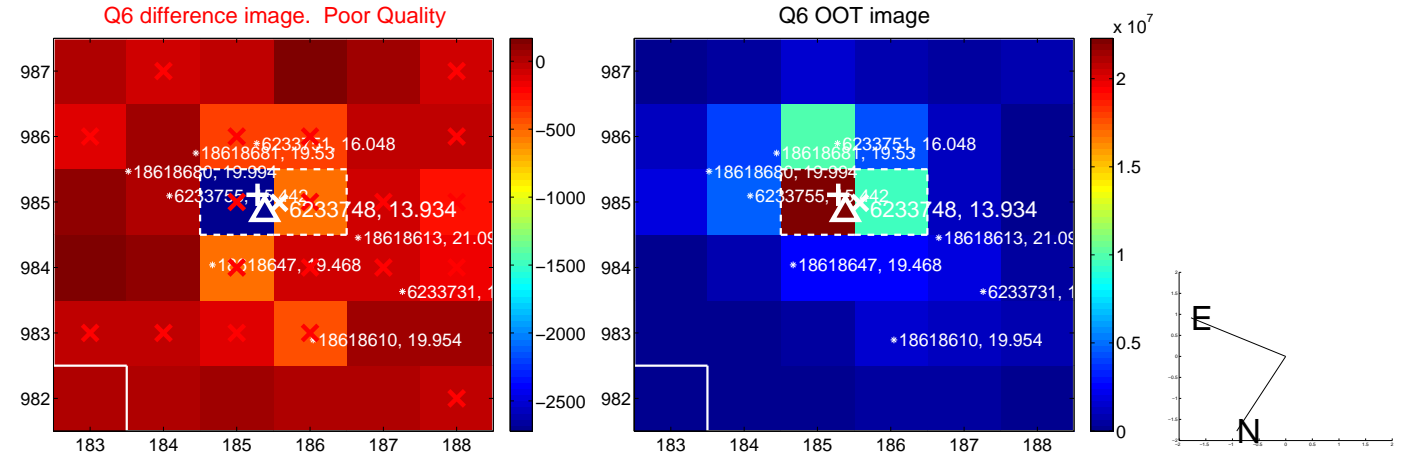
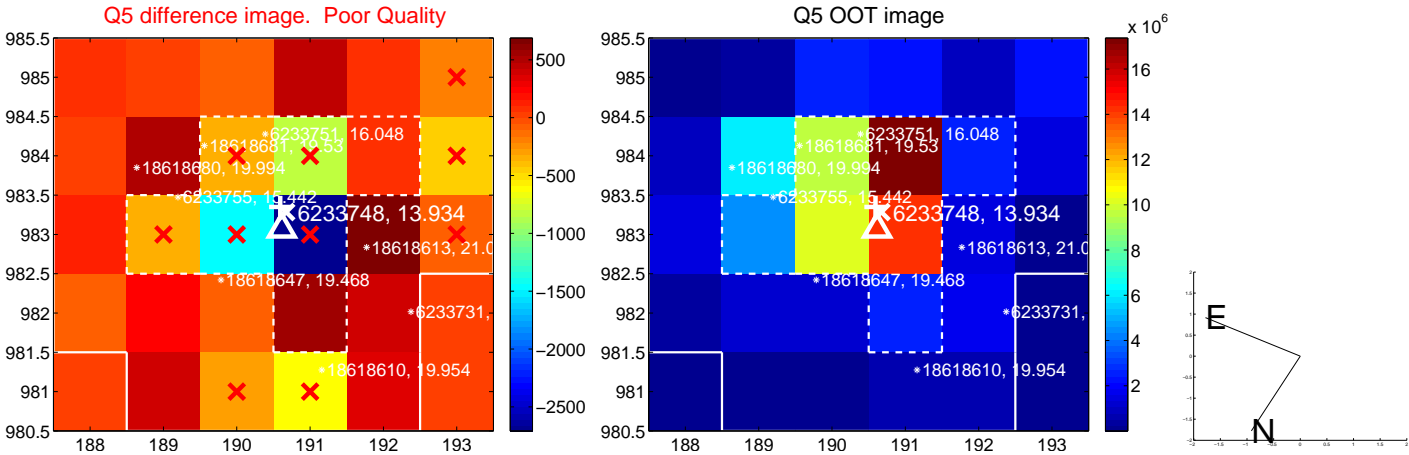


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

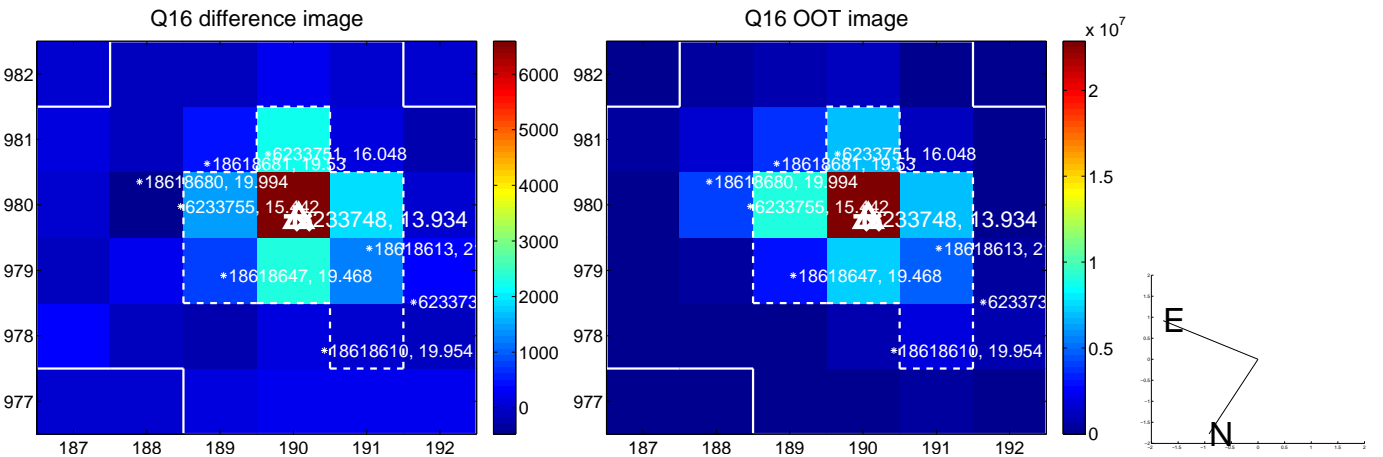
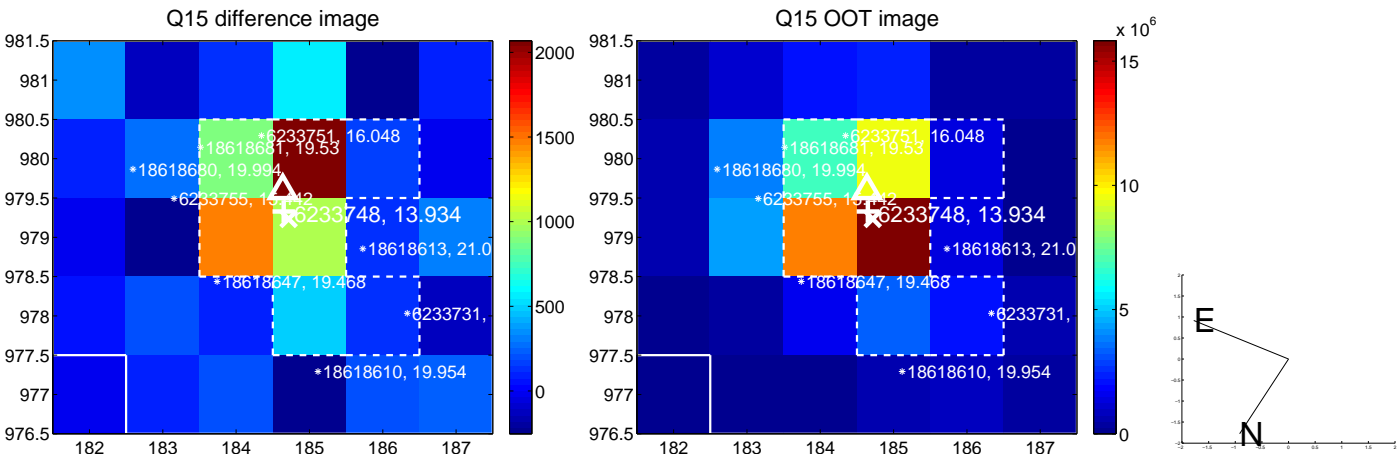
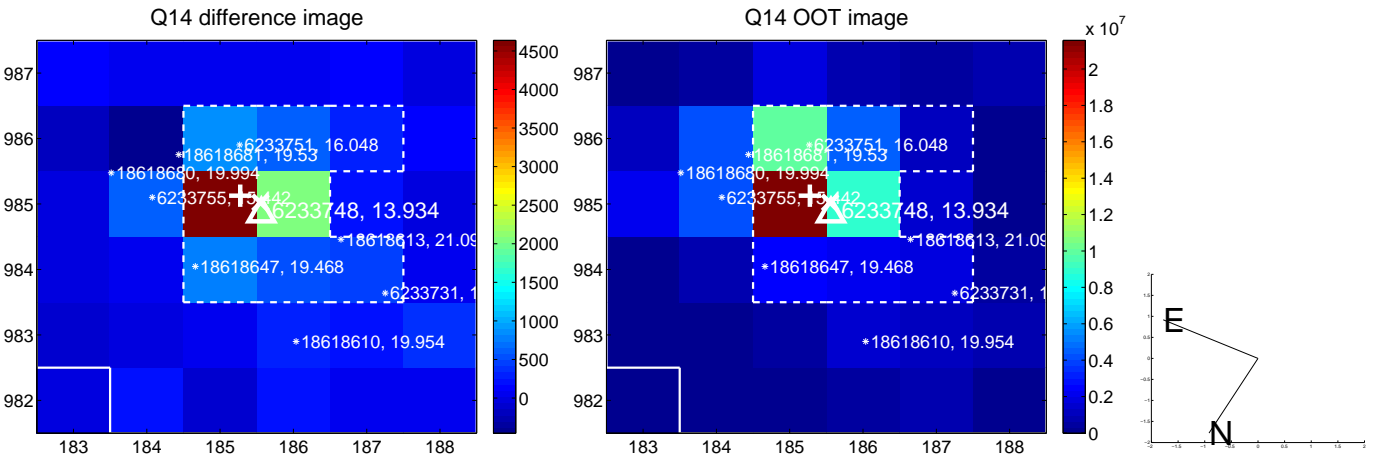
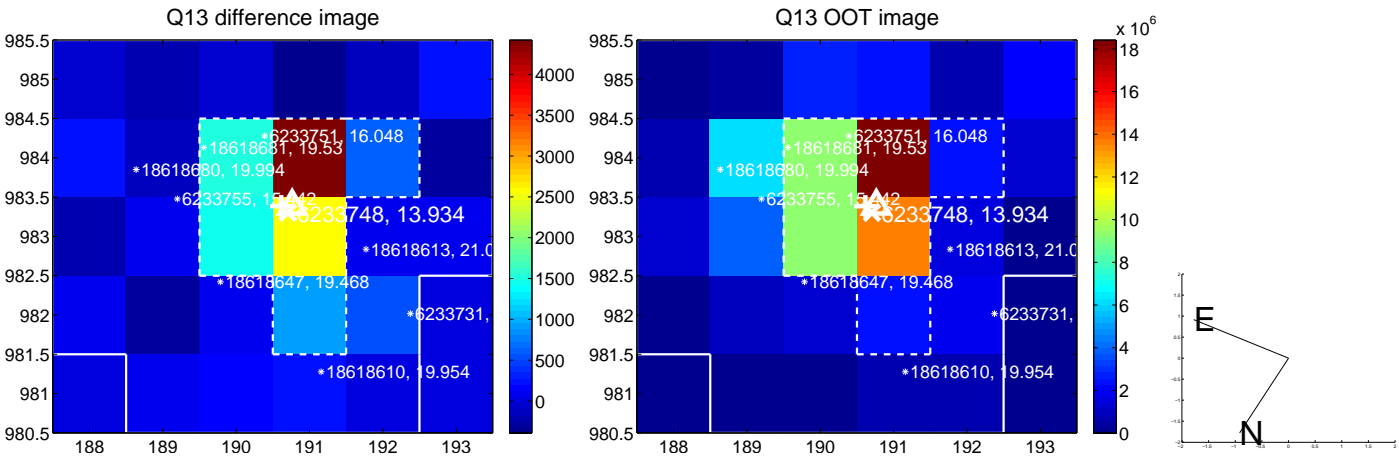
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



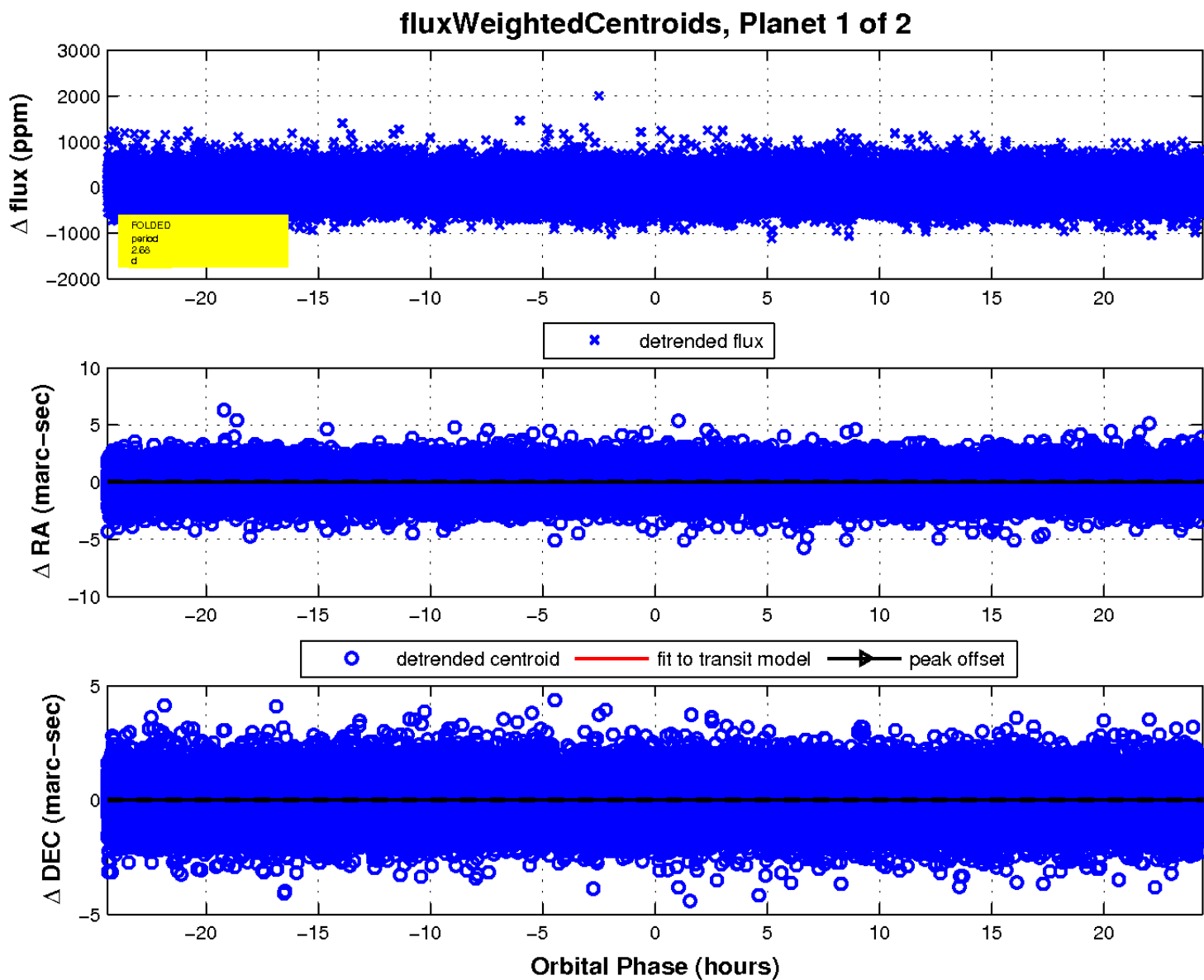
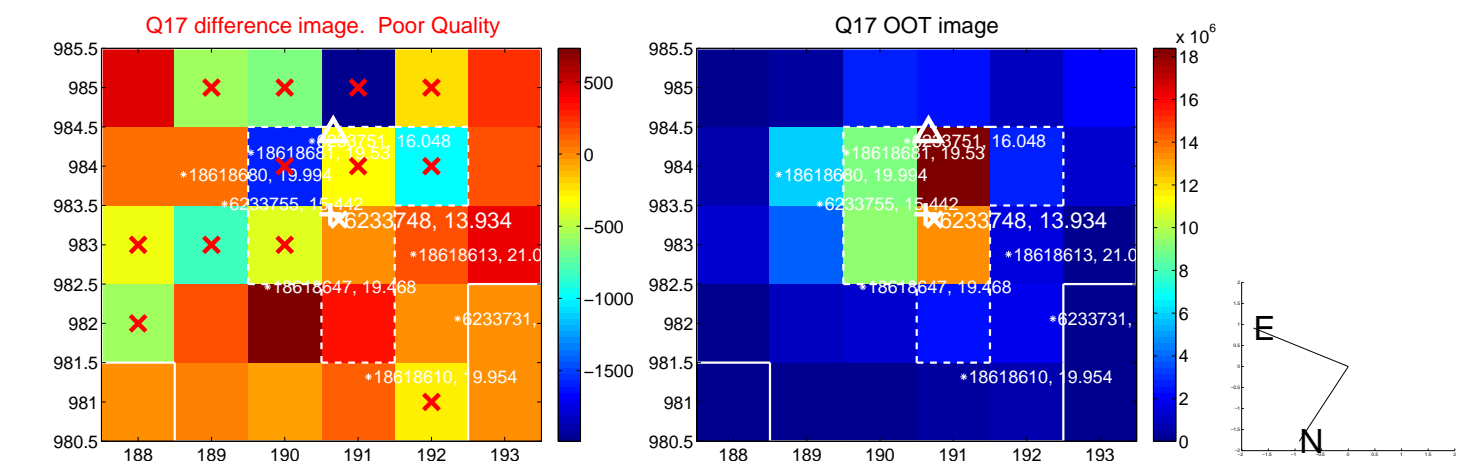
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

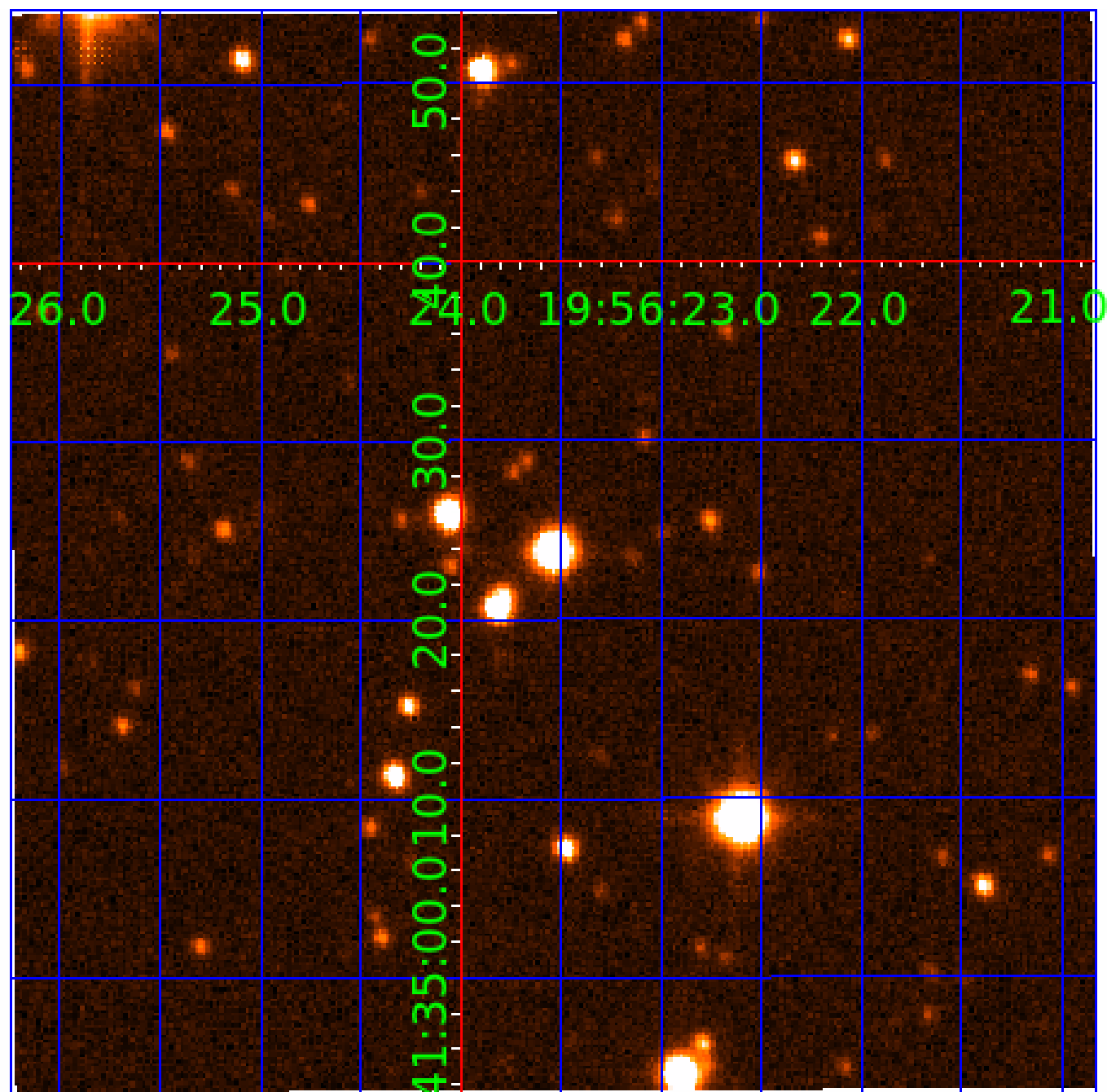


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006233748

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})
006233748-01	OBS	No	2.676616	131.810337	37.5	8.133	7.3	7.7	1.35	6115	0.98	1643.35
006233748-02	OBS	No	5.410533	136.345781	38.7	20.419	7.9	6.0	1.35	6115	0.88	642.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006233748-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006233748-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV

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

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

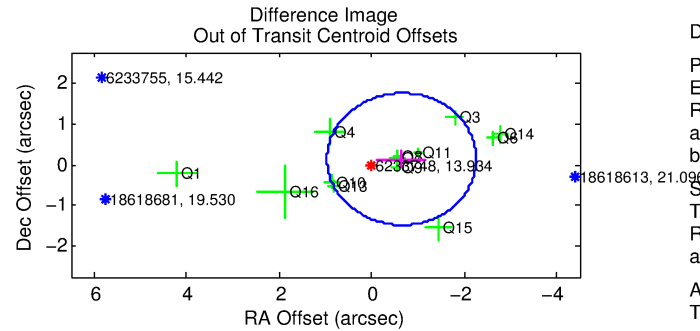
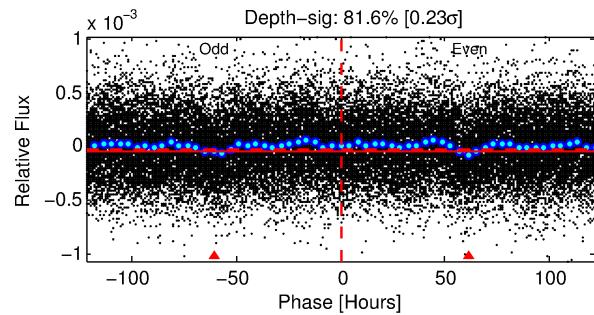
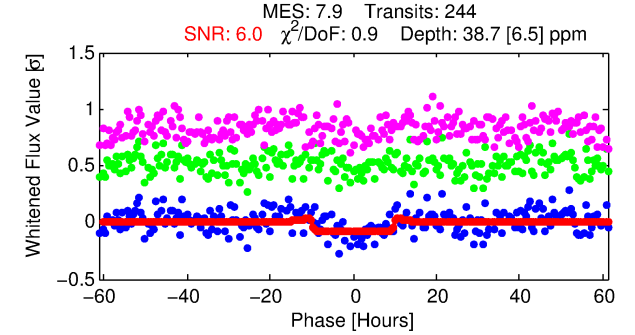
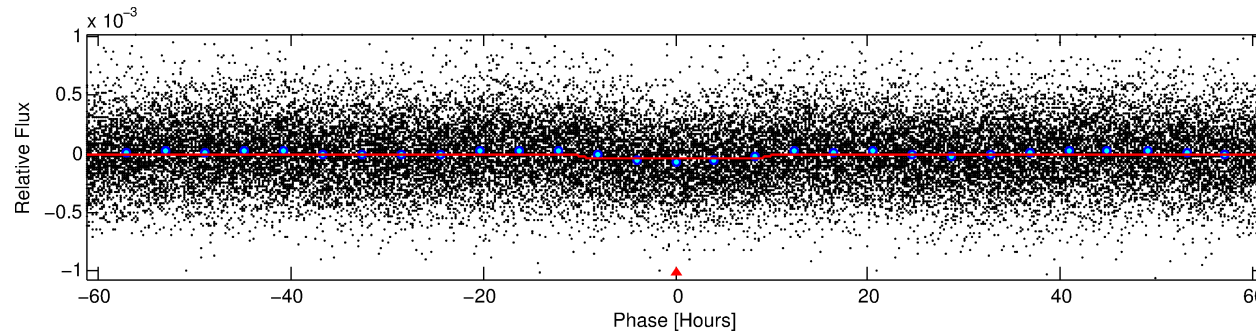
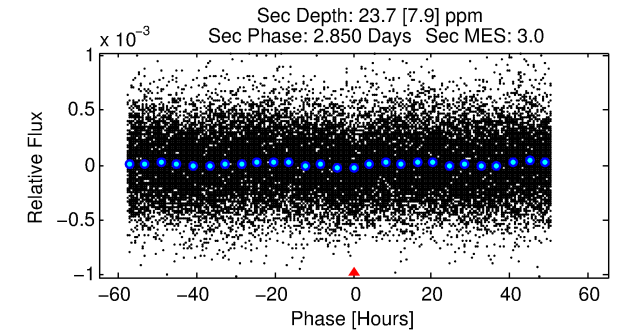
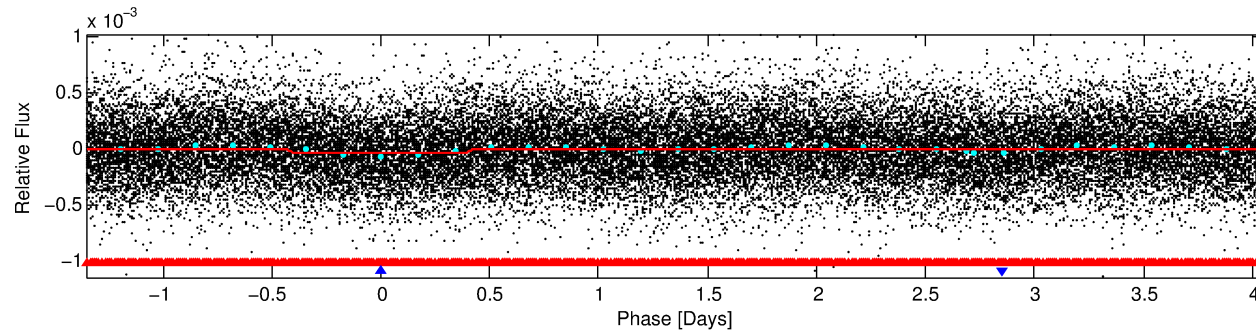
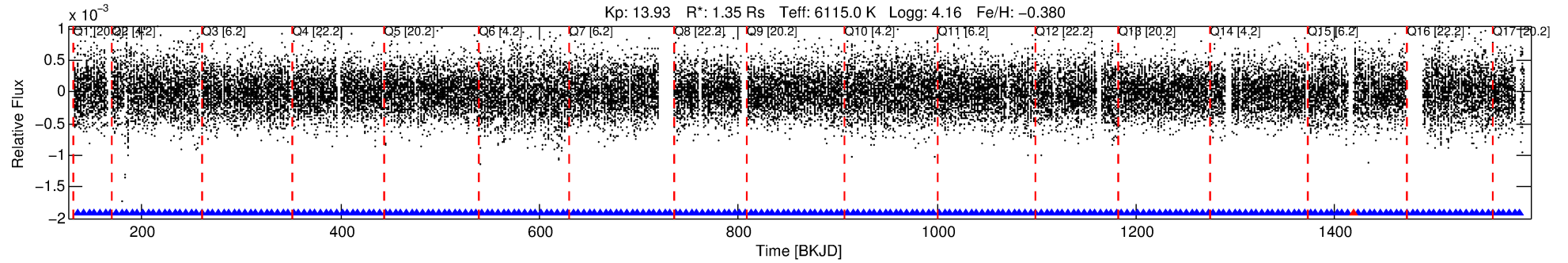
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006233748-02

No Significant Match Found

DV One-Page Summary

KIC: 6233748 Candidate: 2 of 2 Period: 5.411 d



DV Fit Results:

Period = 5.41053 [0.00015] d
Epoch = 136.3458 [0.0205] BKJD
Rp/R* = 0.0060 [0.0030]
a/R* = 1.79 [3.13]
b = 0.62 [2.58]
Seff = 642.97 [325.88]
Teq = 1284 [163] K
Rp = 0.88 [0.51] Re
a = 0.0594 [0.0176] AU
Ag = 59.58 [69.03] [0.85σ]
Teffp = 5516 [1459] K [2.88σ]

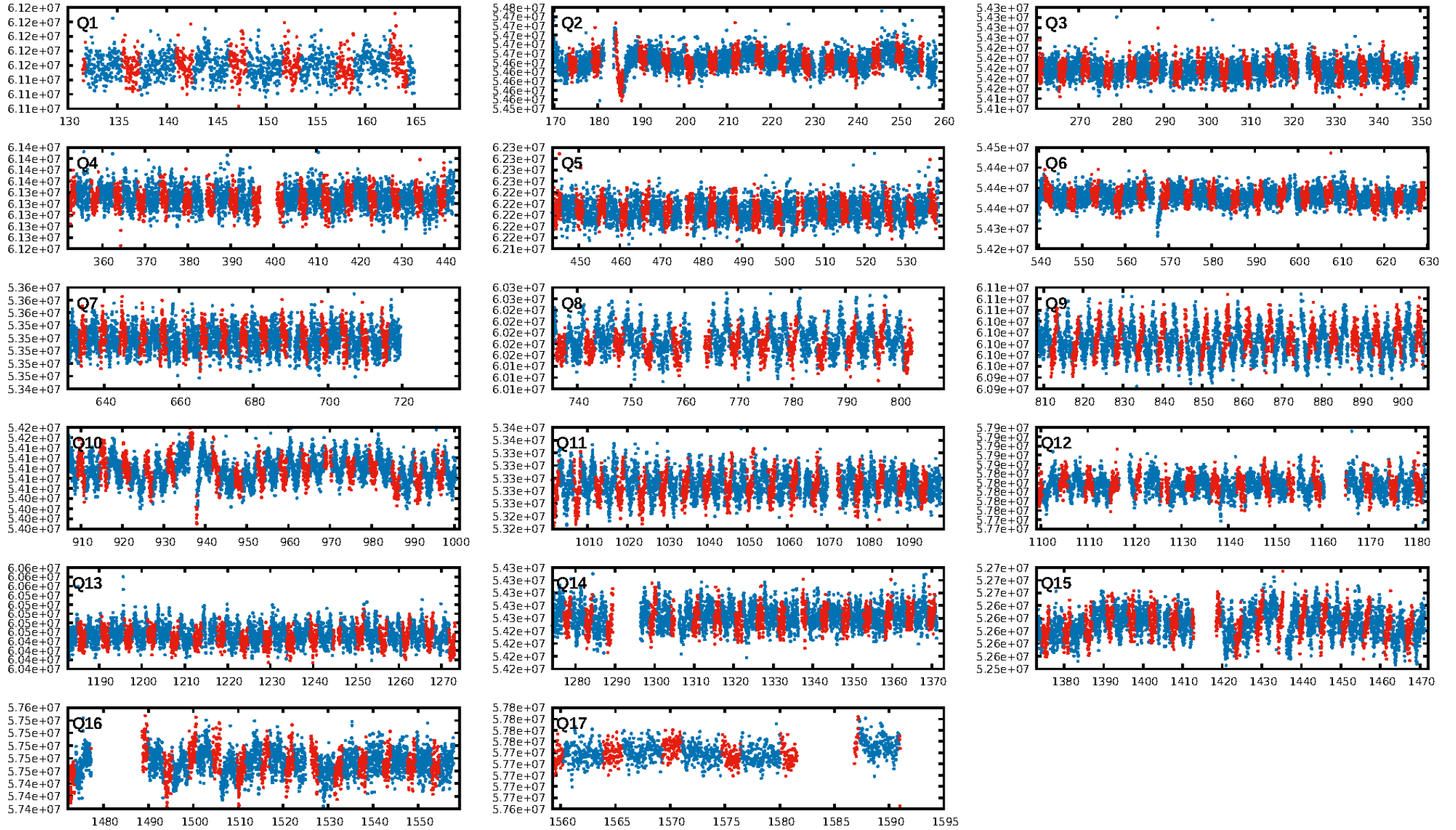
DV Diagnostic Results:

ShortPeriod-sig: 99.7% [2.99σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.55e-16
RollingBand-fgt: 1.00 [232/233]
GhostDiagnostic-chr: 0.5711
Centroid-sig: 0.3%
Centroid-so: 1.697 arcsec [1.54σ]
OotOffset-rm: 0.662 arcsec [1.23σ]
KicOffset-rm: 0.115 arcsec [0.23σ]
OotOffset-st: 3/4/3/3 [13]
KicOffset-st: 3/4/3/3 [13]
DiffImageQuality-fgm: 0.77 [10/13]
DiffImageOverlap-fno: 0.00 [0/17]

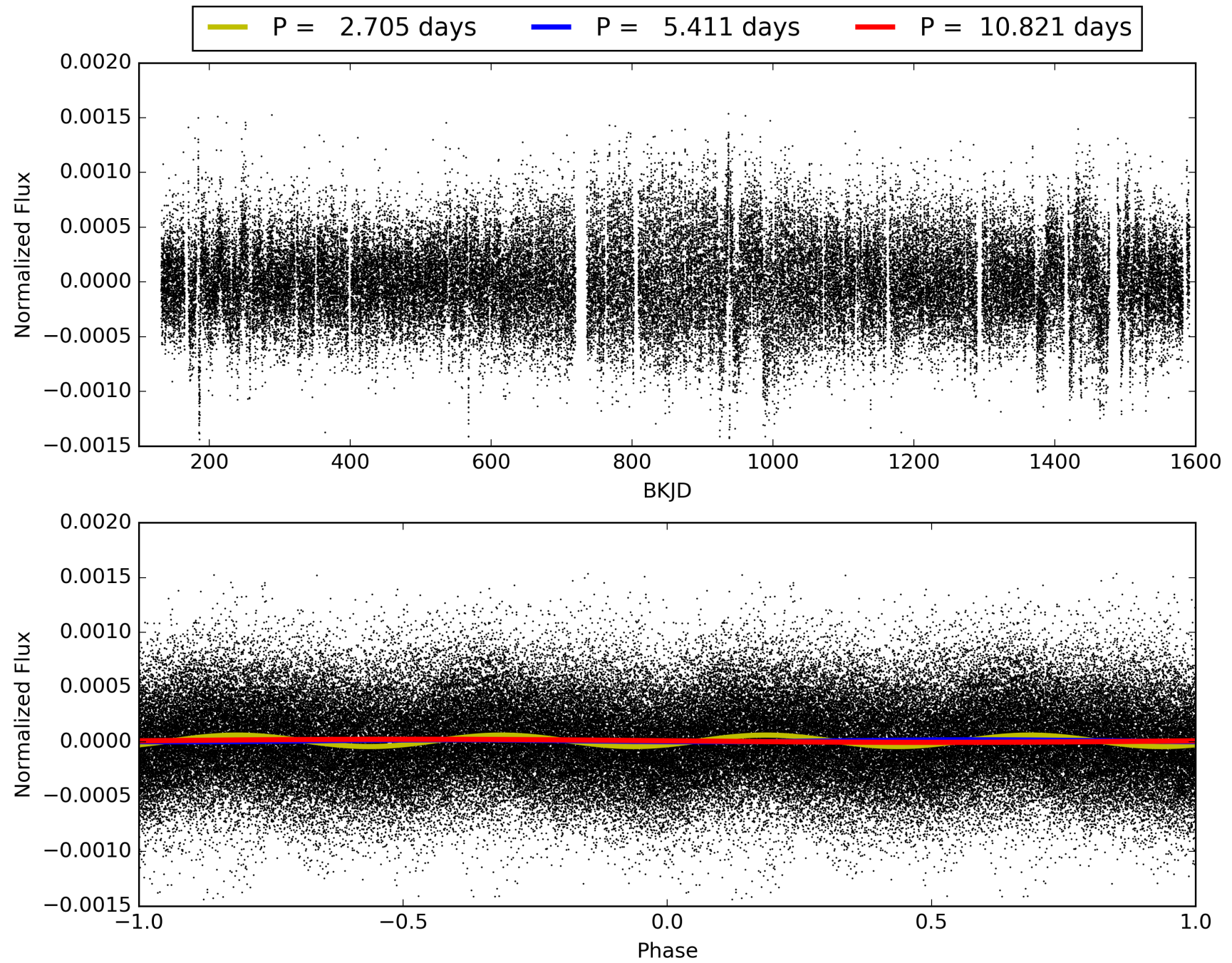
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:06:17 Z

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TCE 006233748-02, PDC Light Curves

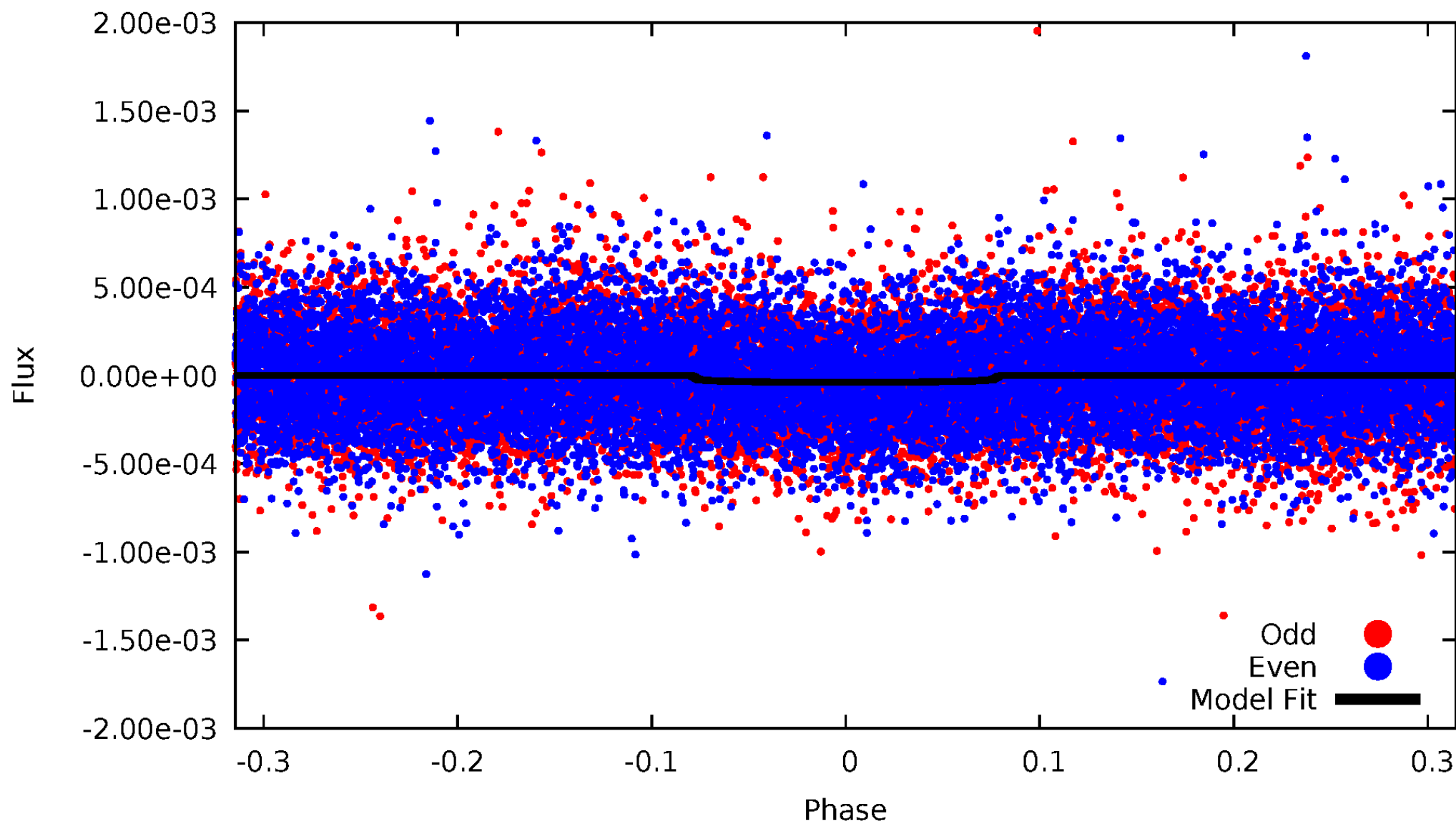


TCE 006233748-02



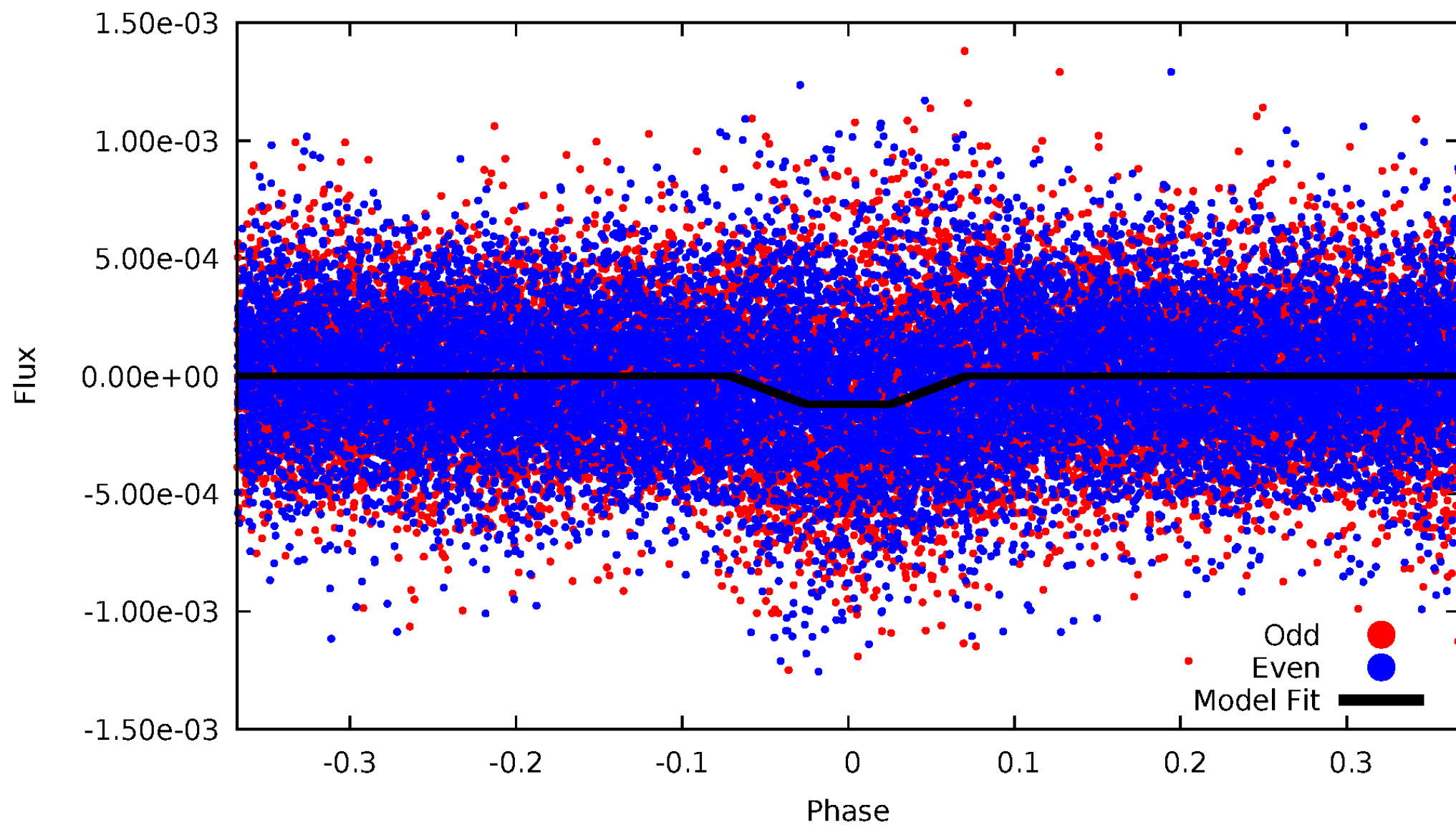
DV Odd/Even

TCE 006233748-02



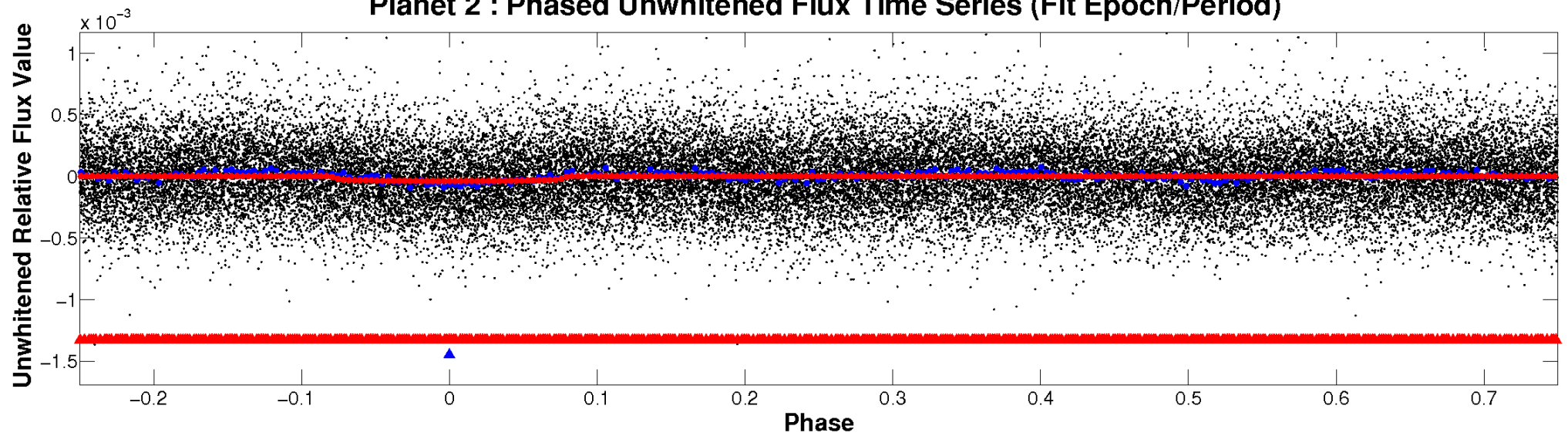
ALT Odd/Even

TCE 006233748-02

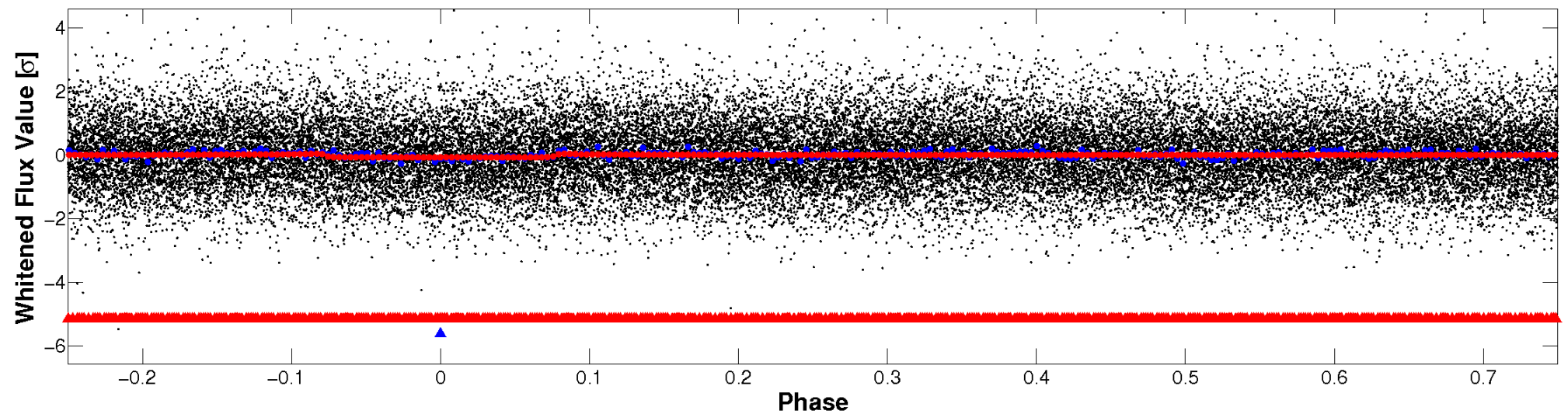


Non-Whitened Vs. Whitened Light Curve

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

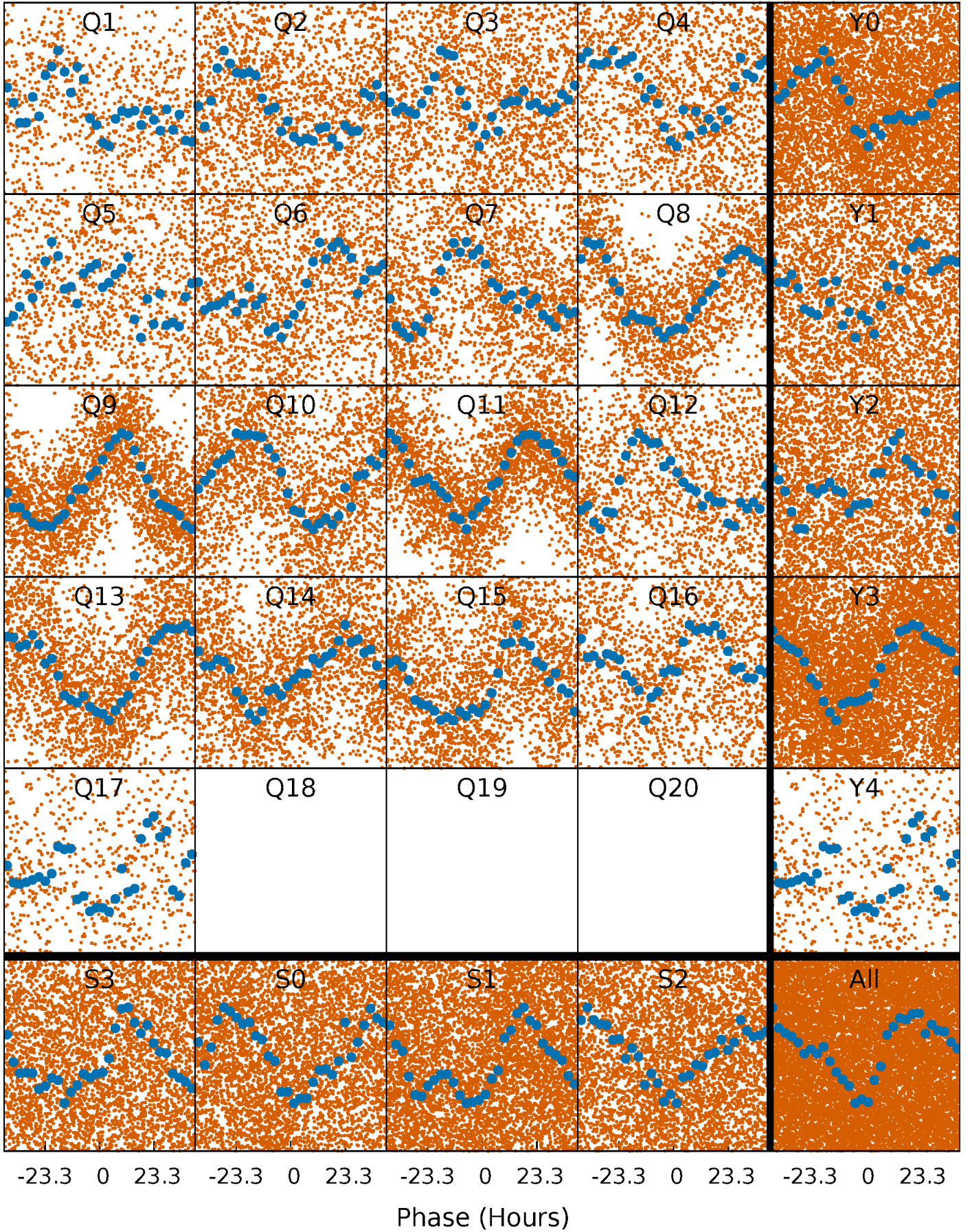


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



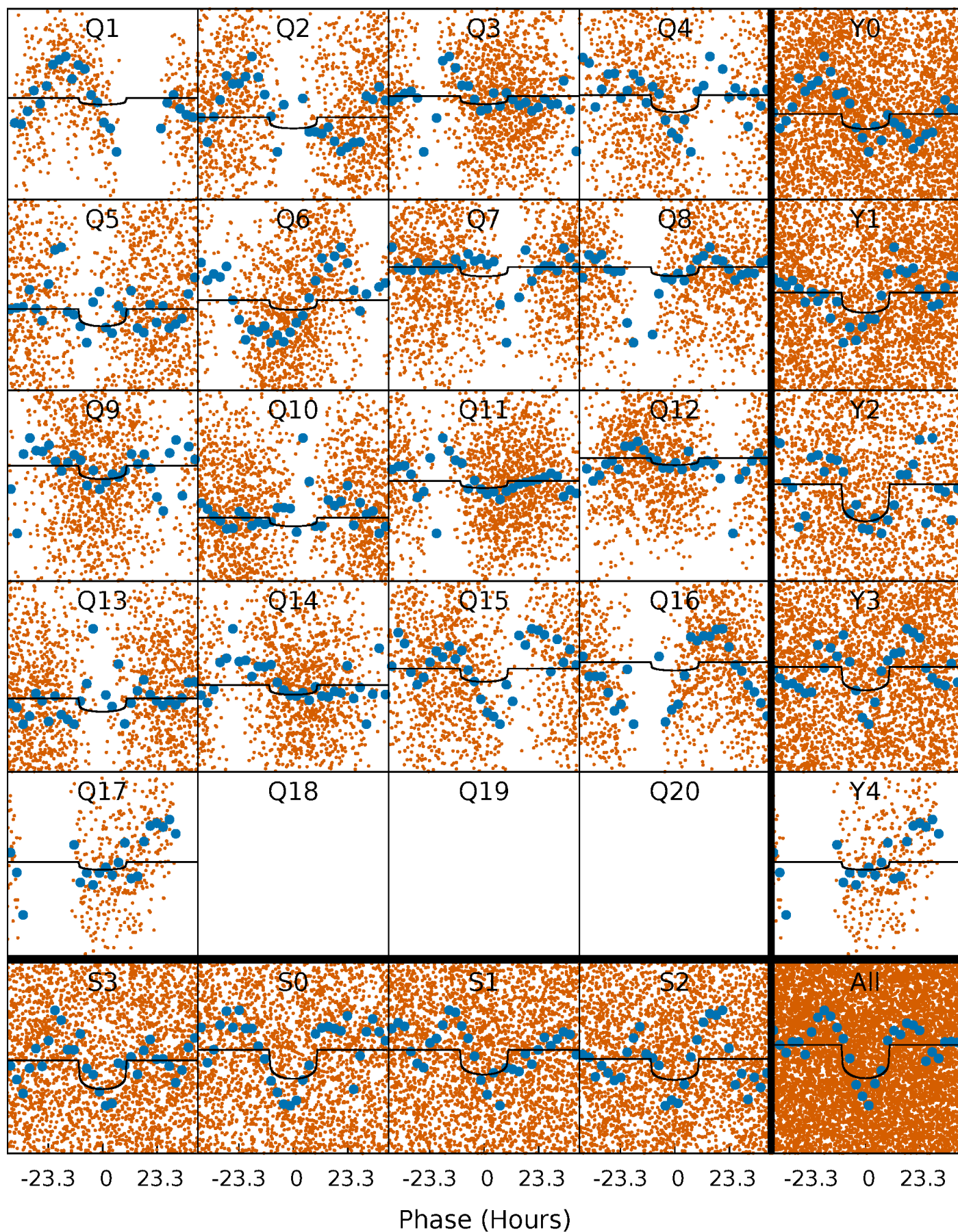
PDC Quarter-Phased Transit Curves

TCE 006233748-02 P= 5.410533 Days $T_0=136.345781$ (BKJD)



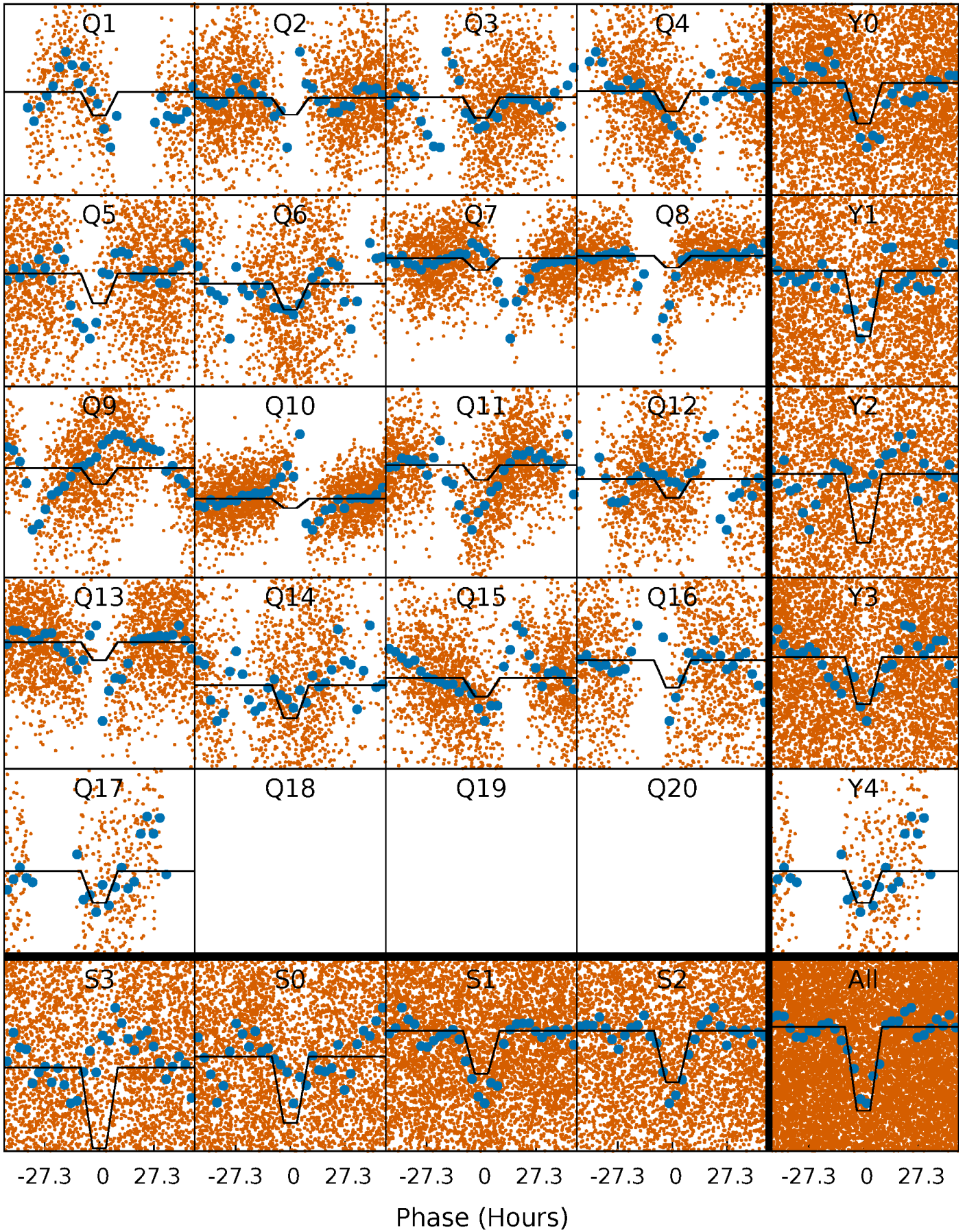
DV Quarter-Phased Transit Curves

TCE 006233748-02 P= 5.410533 Days $T_0=136.345781$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

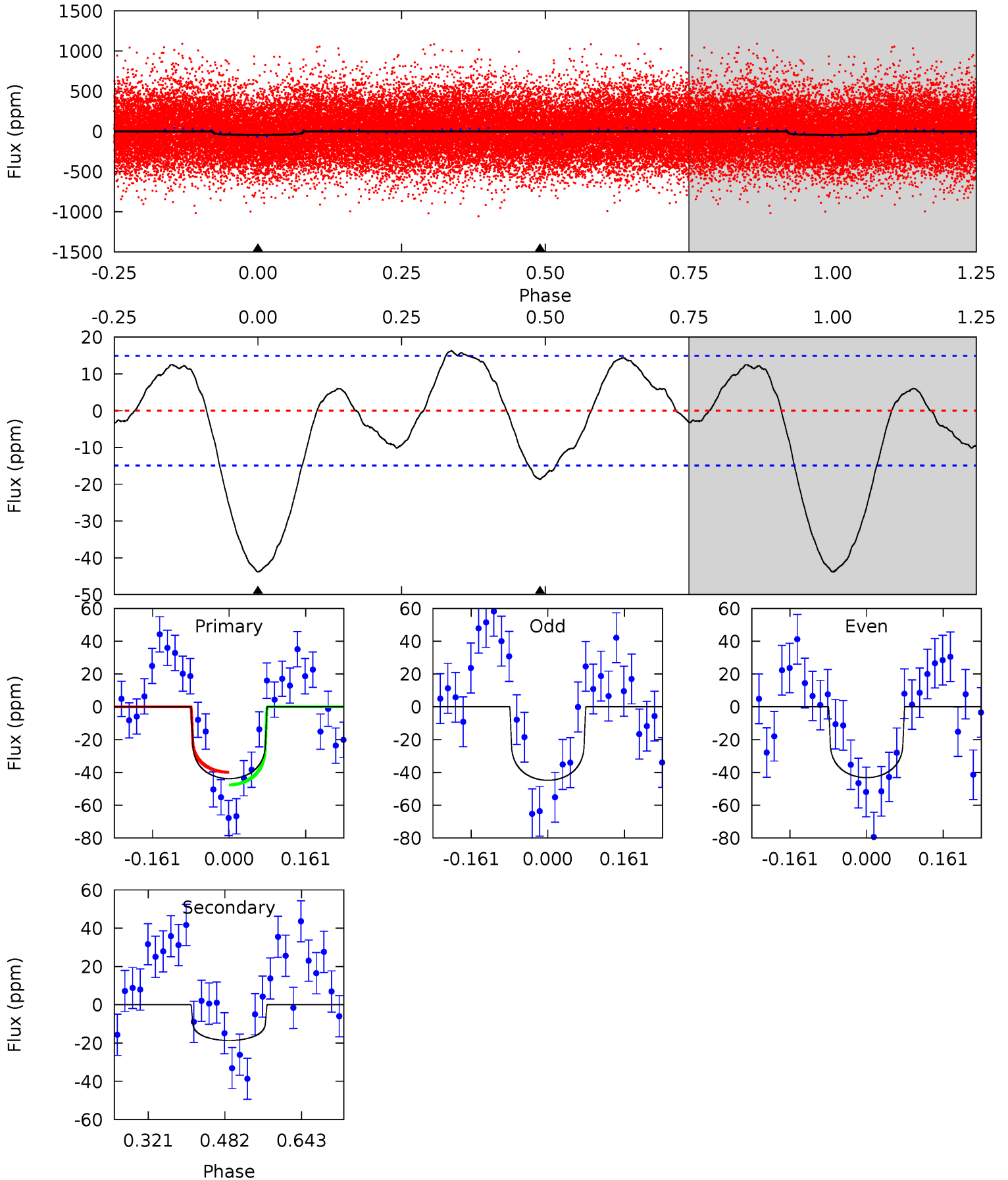
TCE 006233748-02 $P = 5.410582$ Days $T_0 = 136.282473$ (BKJD)



DV Model-Shift Uniqueness Test

006233748-02, P = 5.410533 Days, E = 130.935248 Days

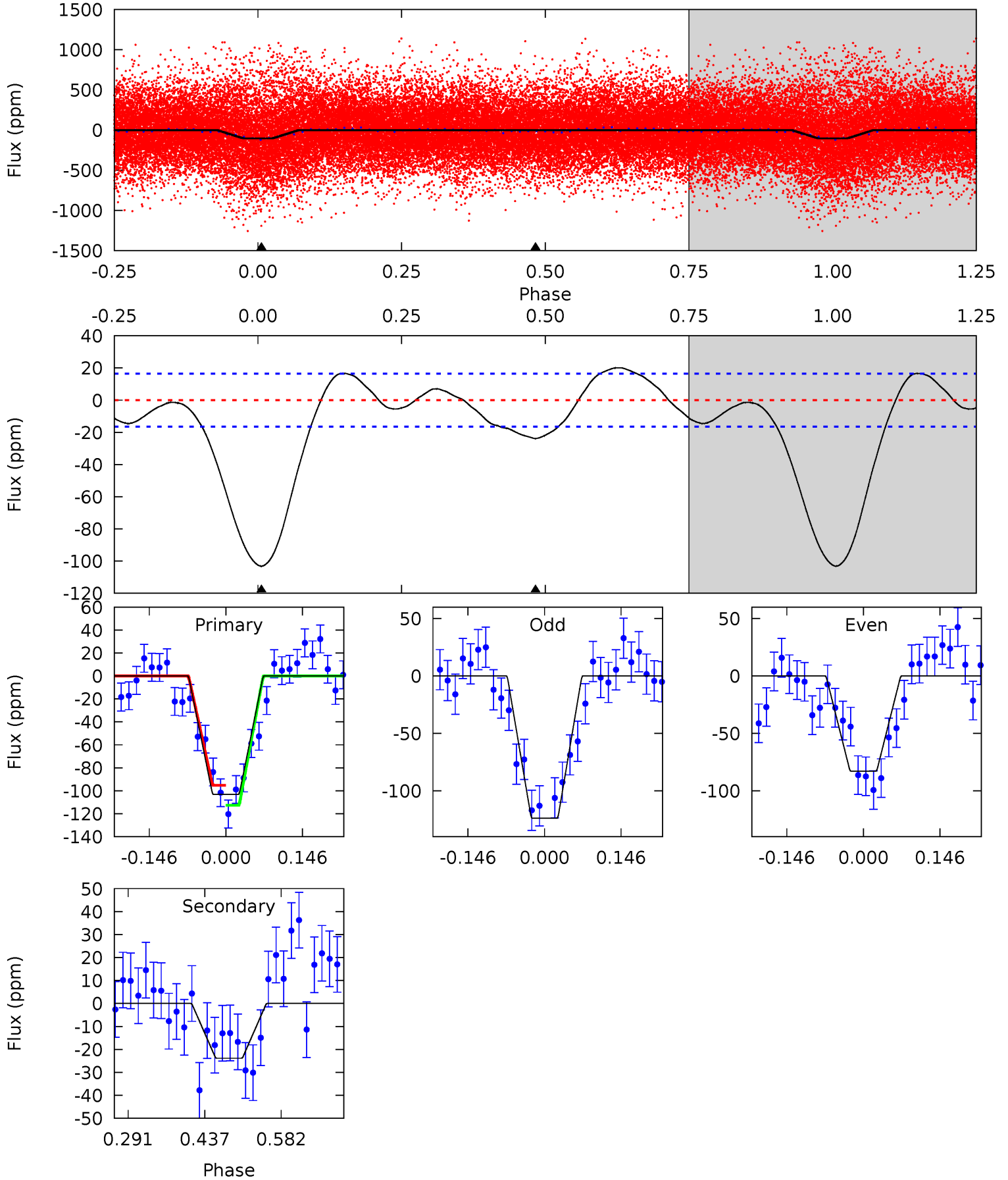
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	5.59	0	0	4.46	1.40	1.99	13.1	13.1	5.59	5.59	0.24	0.99	0.27	1.15



Alt Model-Shift Uniqueness Test

006233748-02, P = 5.410582 Days, E = 130.871891 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.1	6.50	0	0	4.49	1.46	2.60	28.1	28.1	6.50	6.50	5.56	1.93	0.16	2.35



Stellar Parameters For KIC 006233748

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6115^{+183}_{-202}	$4.160^{+0.293}_{-0.158}$	$-0.380^{+0.300}_{-0.300}$	$1.346^{+0.389}_{-0.389}$	$0.954^{+0.151}_{-0.110}$	$0.551^{+0.921}_{-0.265}$
	+3%/-3%	+7%/-4%	+79%/-79%	+29%/-29%	+16%/-12%	+167%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006233748-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-19 ± 3	$0.86^{+0.46}_{-0.39}$	1769^{+137}_{-163}	5157^{+1840}_{-809}	50^{+111}_{-30}
Alt.	-24 ± 4	$1.54^{+0.52}_{-0.44}$	1763^{+140}_{-158}	4289^{+564}_{-396}	20^{+19}_{-9}

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

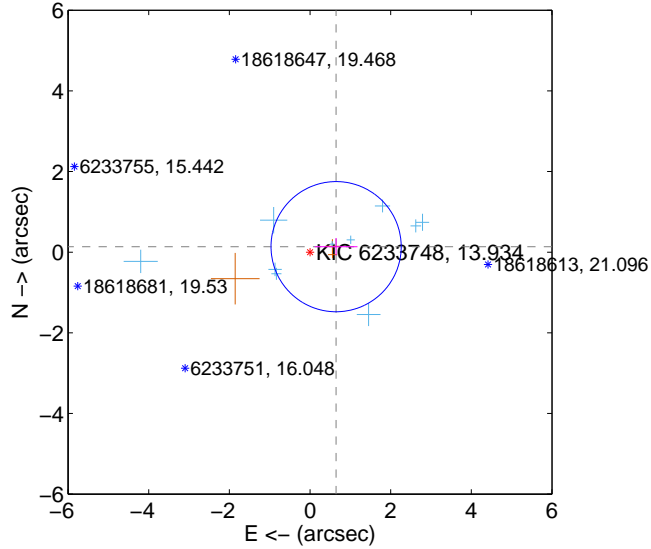
Supplemental centroid analysis for 006233748-02. Kepler magnitude: 13.93. Transit SNR 6.03

There are 10 quarters with good PRF difference image offsets

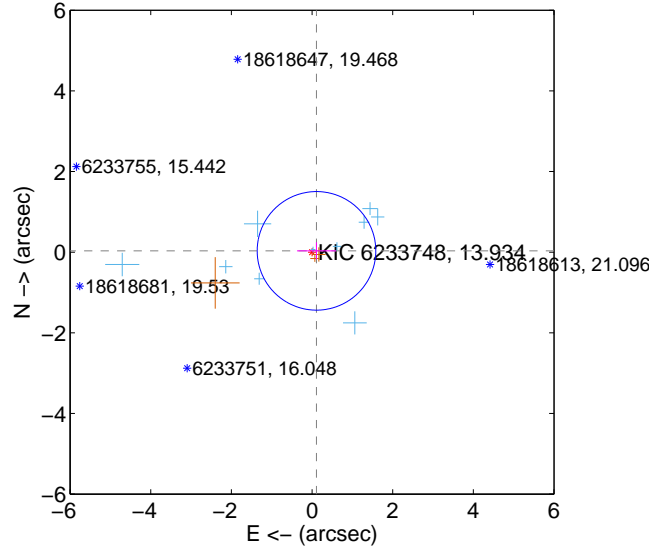
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.662 ± 0.538	1.23	-0.647 ± 0.531	0.136 ± 0.214
PRF-fit source offset from KIC position	0.115 ± 0.490	0.23	-0.110 ± 0.484	0.033 ± 0.213
photometric centroid source offset	1.70 ± 1.10	1.54	-1.63 ± 1.12	-0.49 ± 0.89

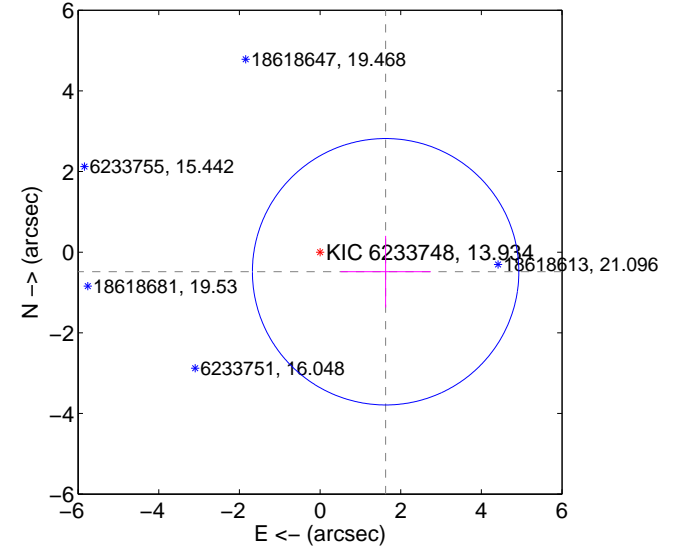
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

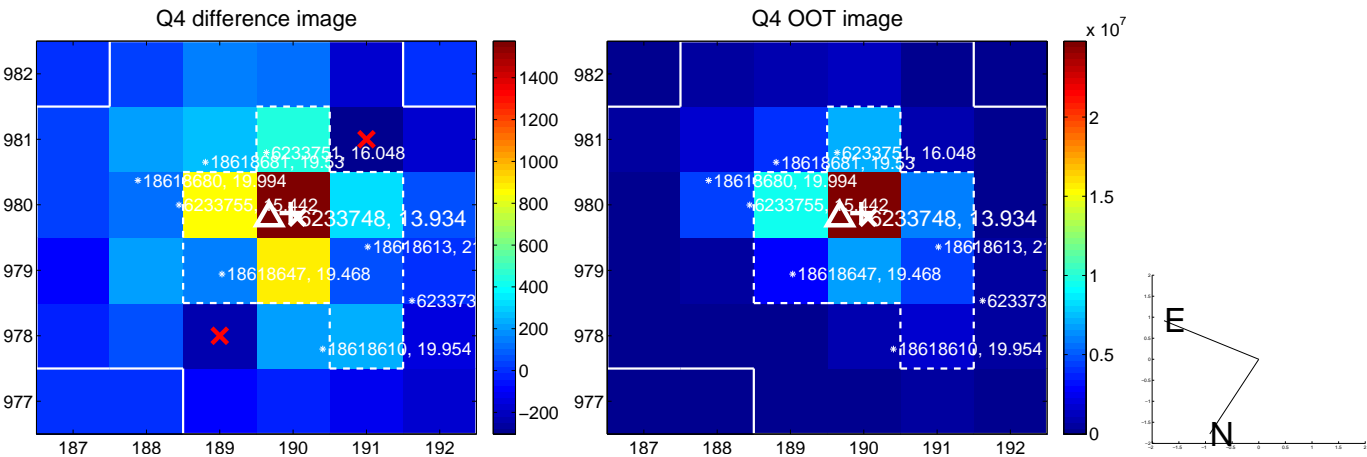
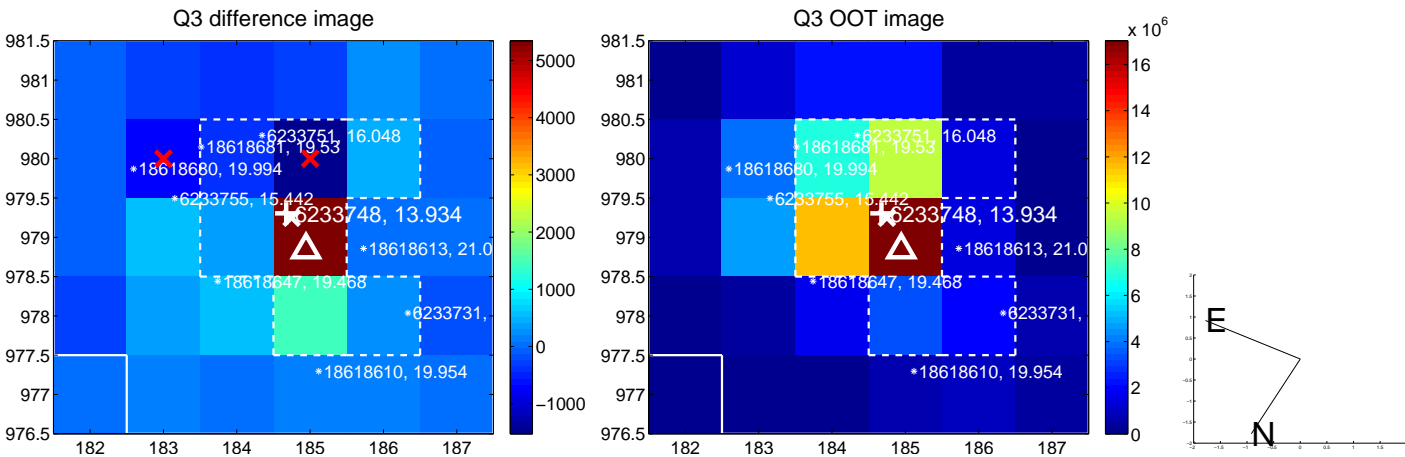
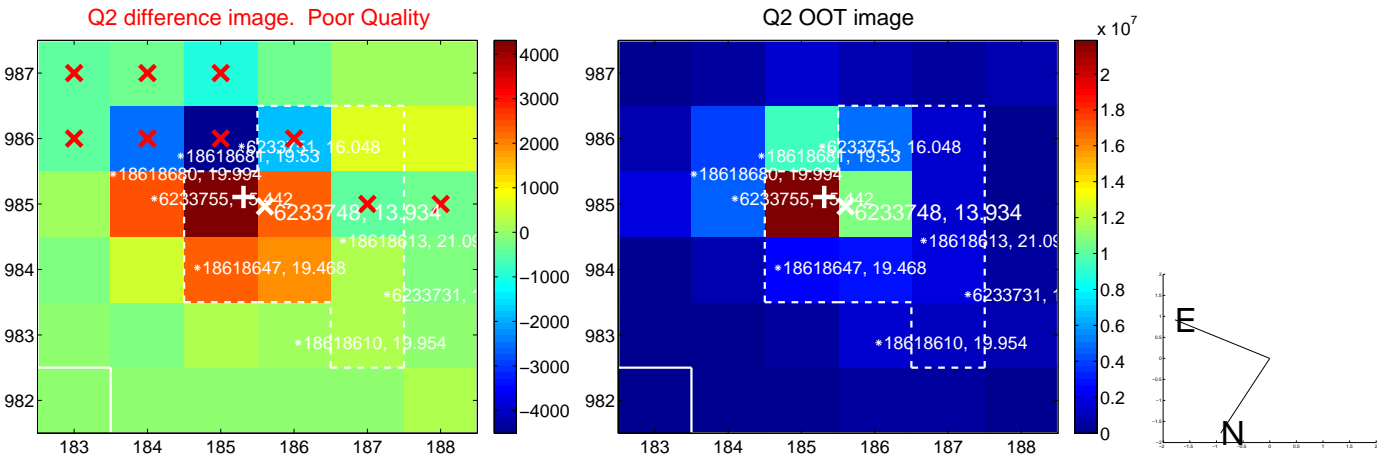
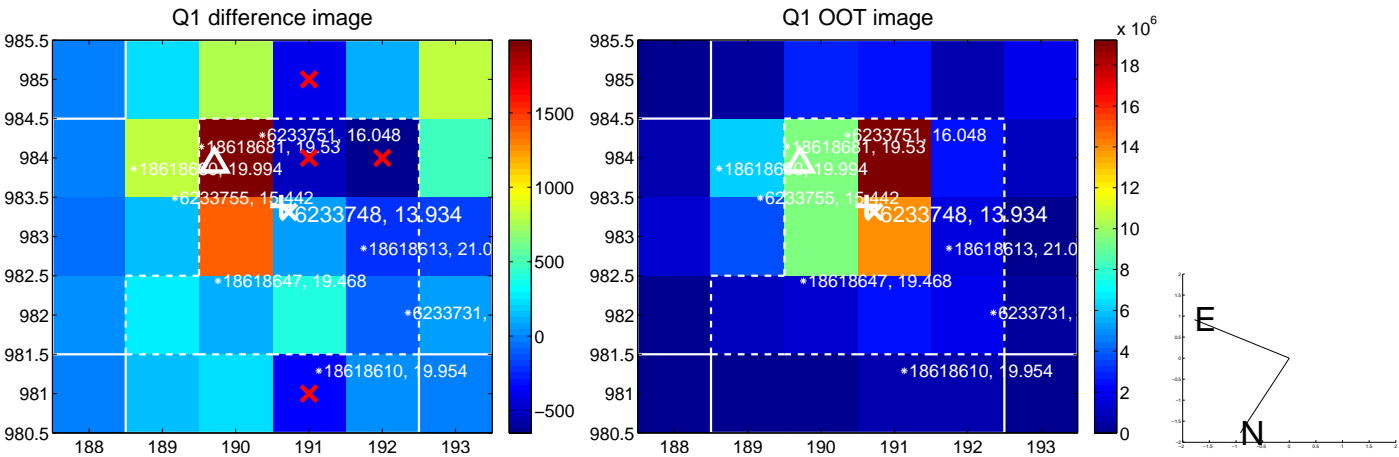


offset from photometric centroids

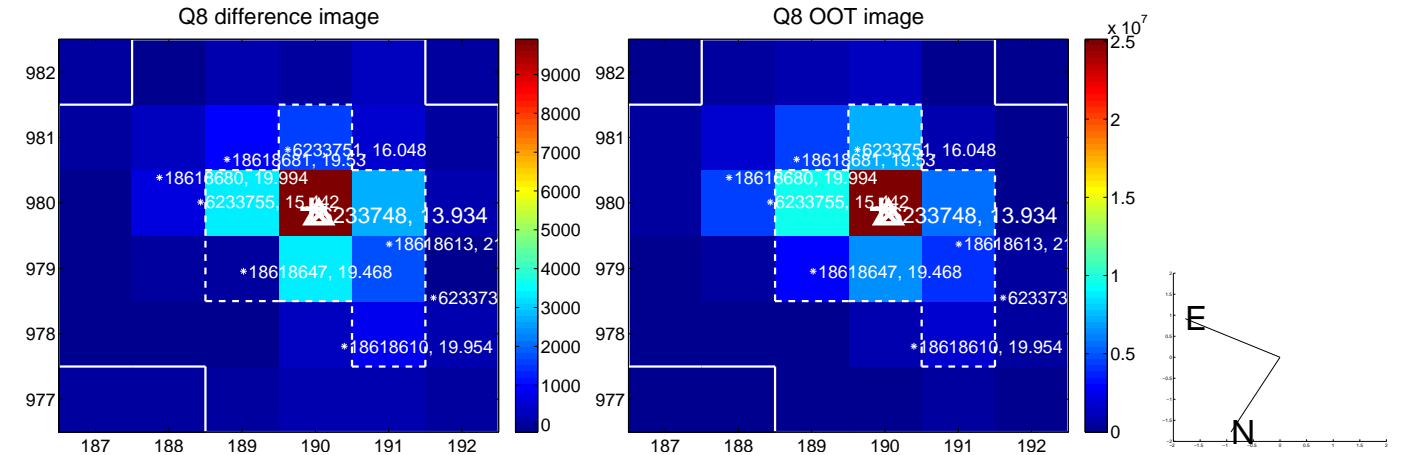
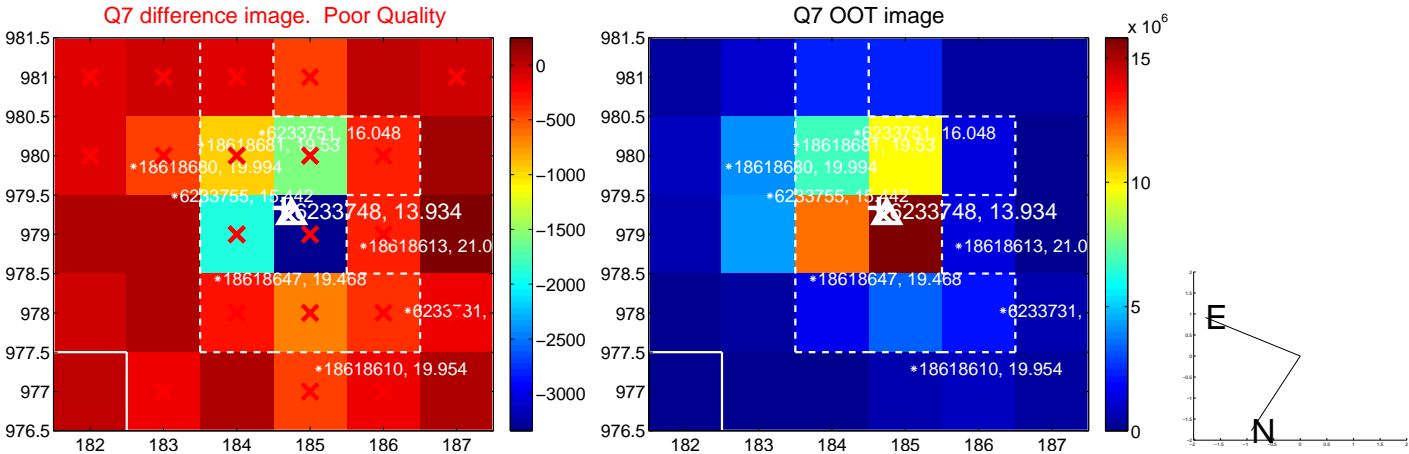
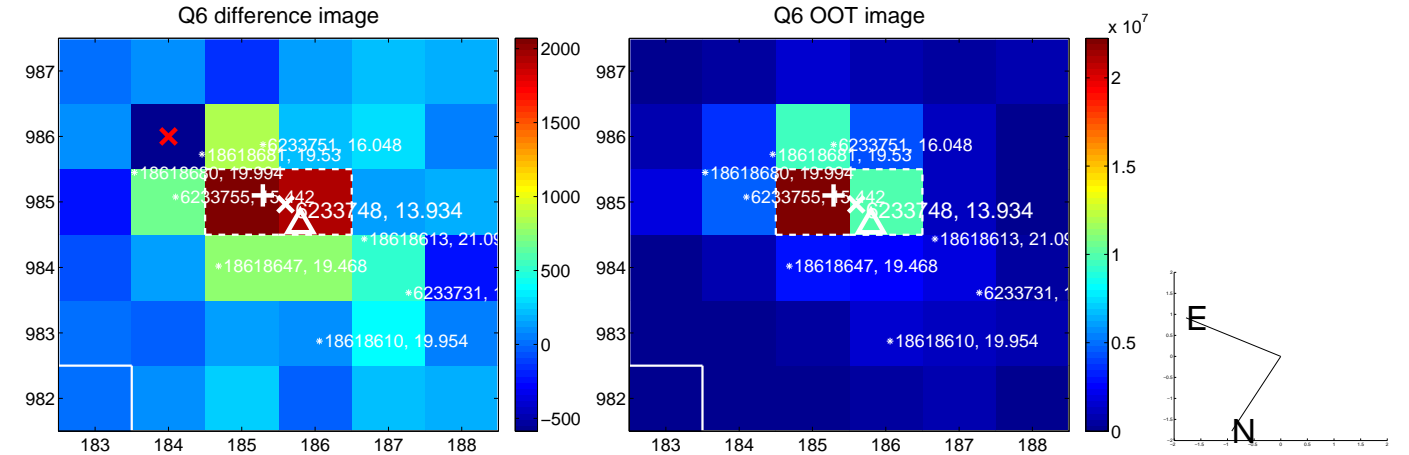
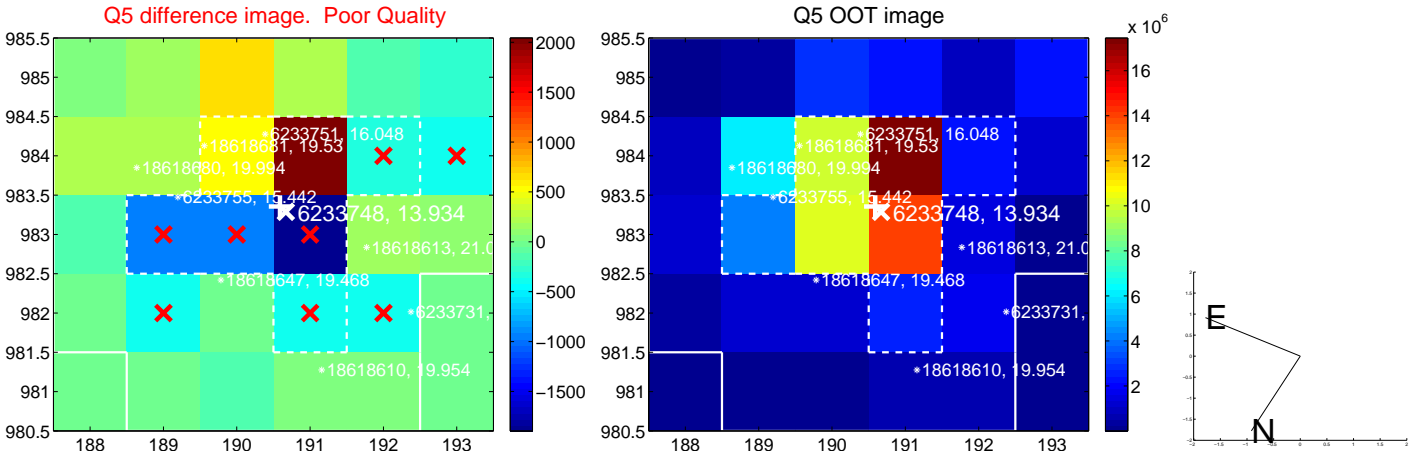


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

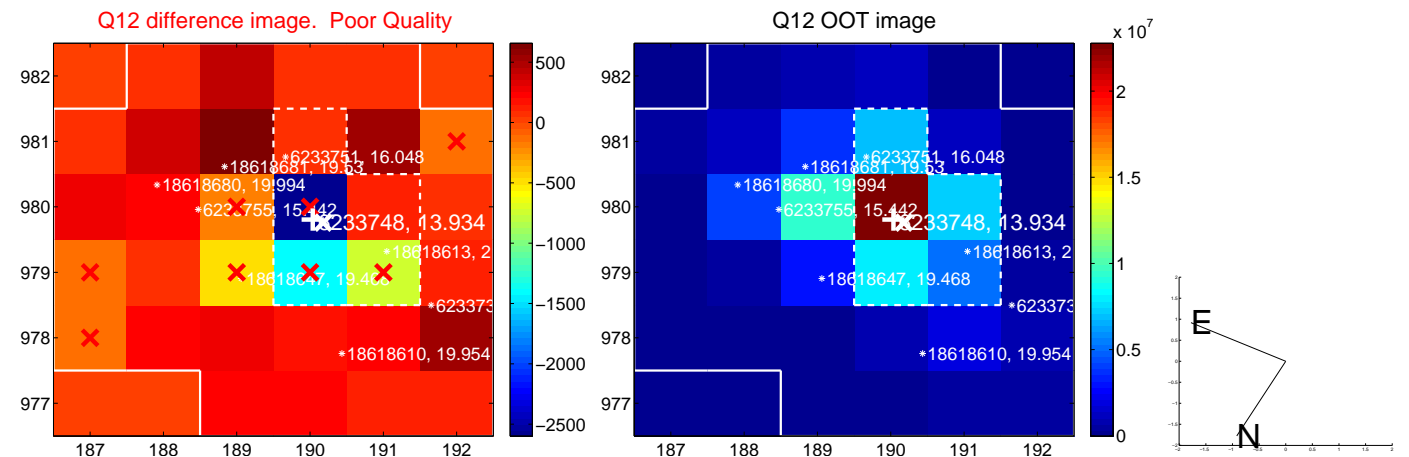
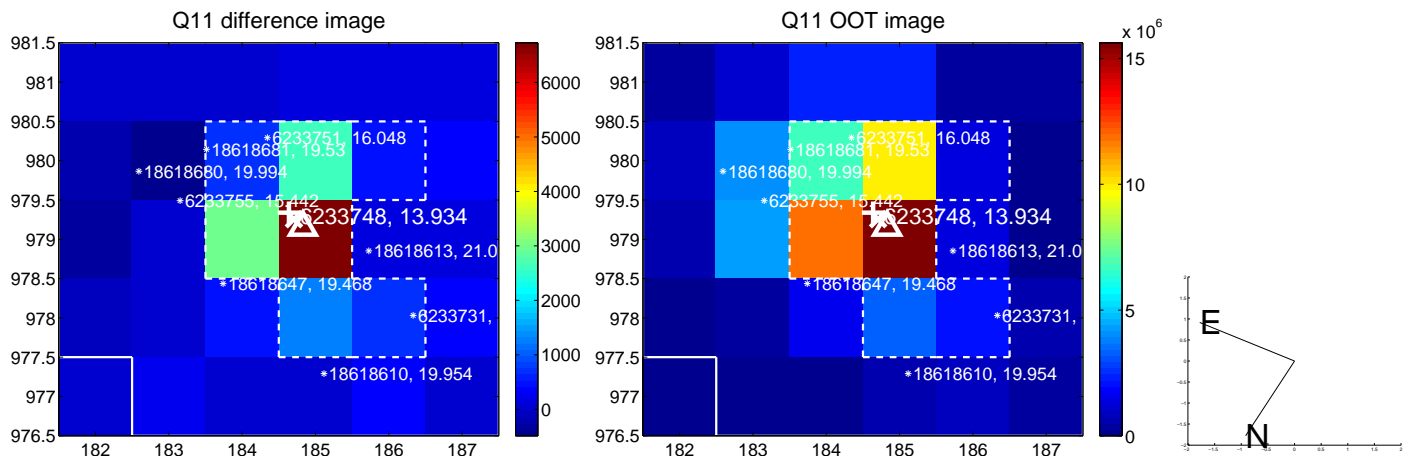
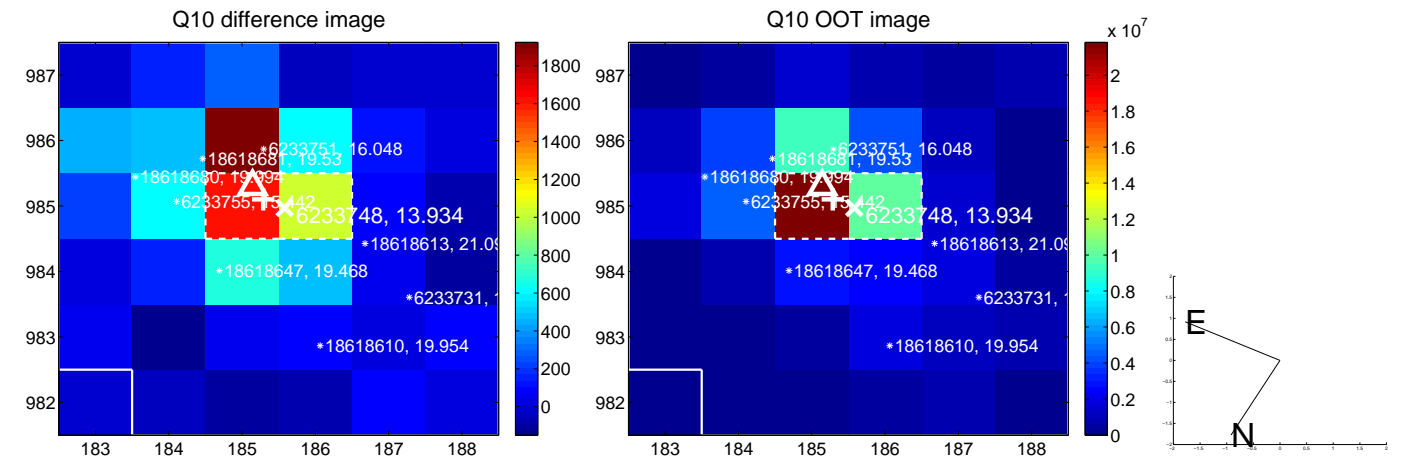
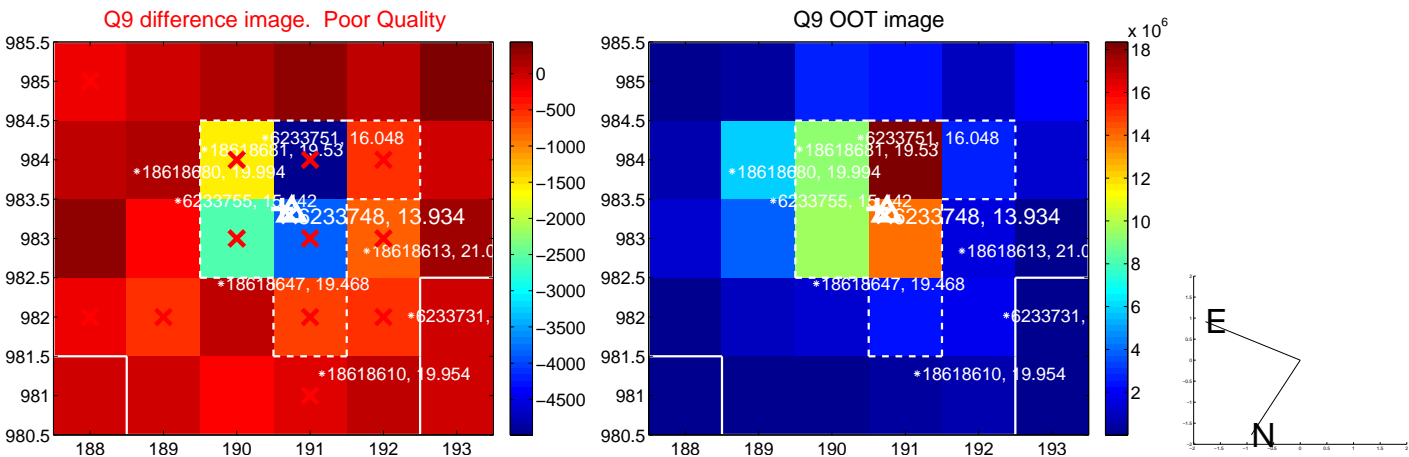
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



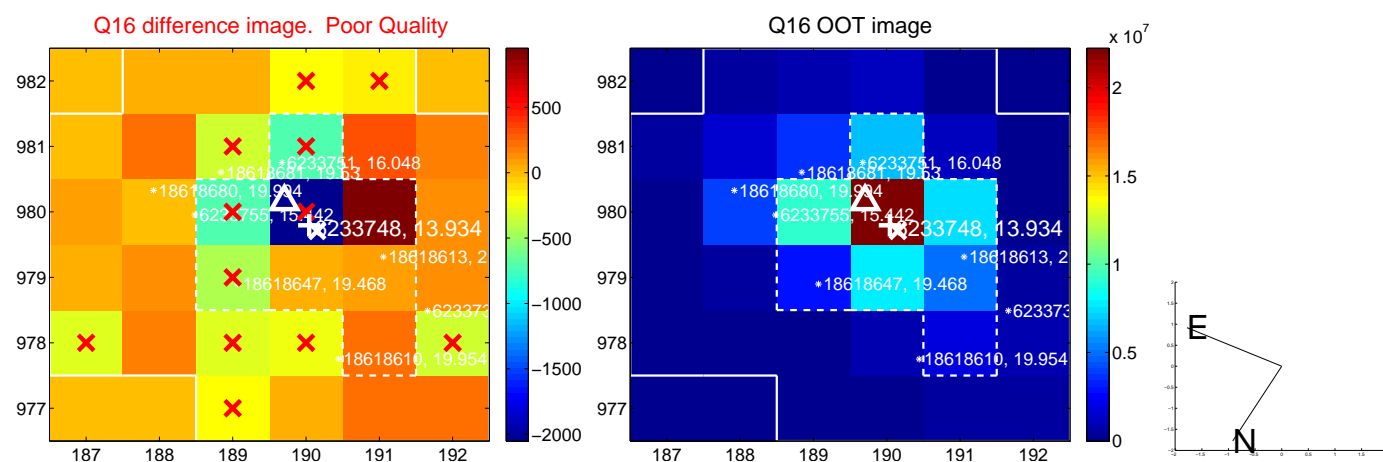
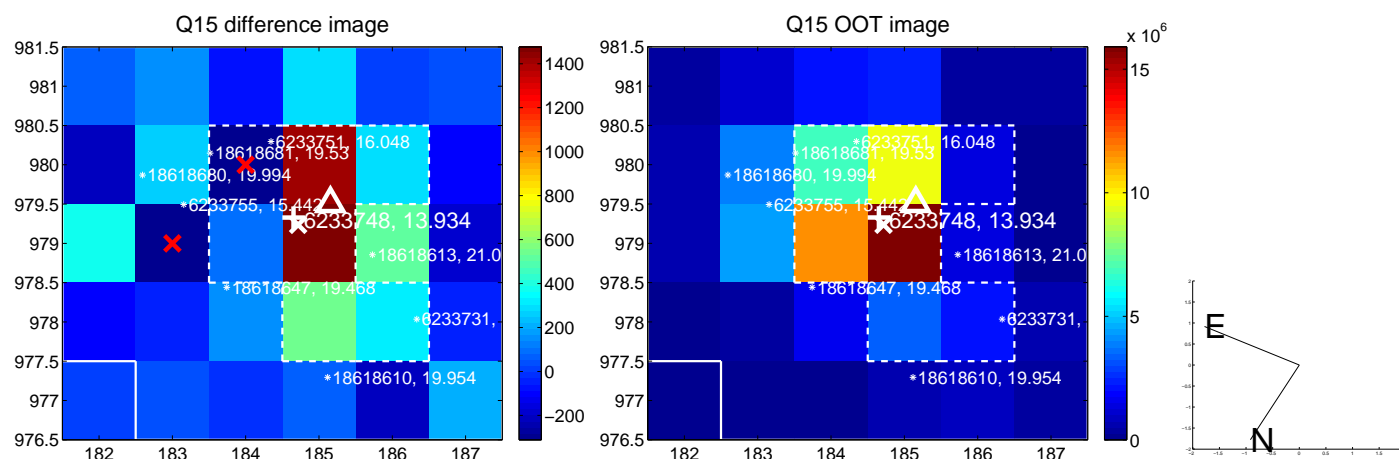
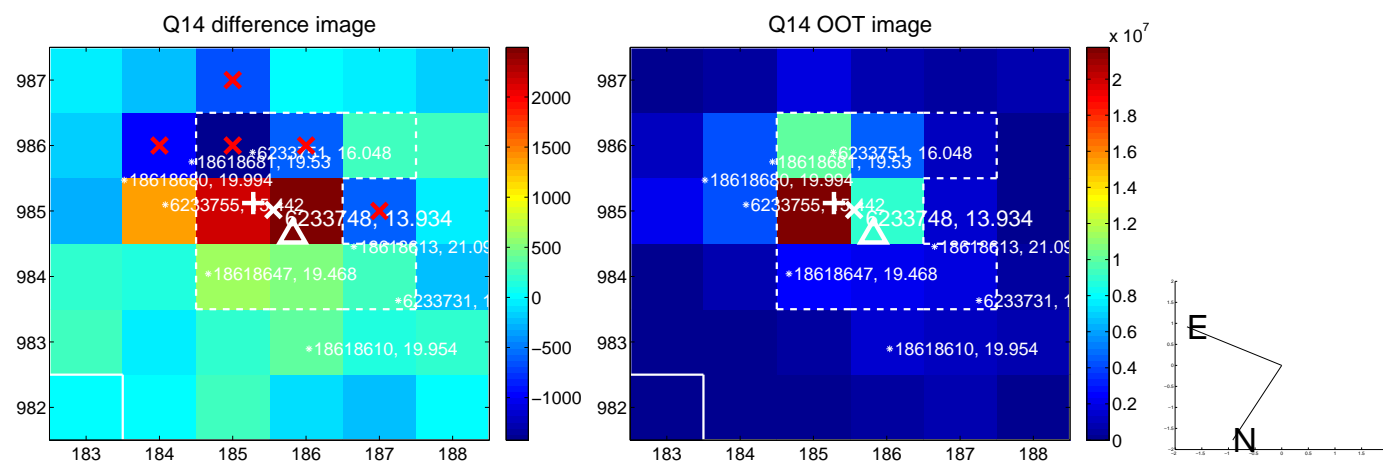
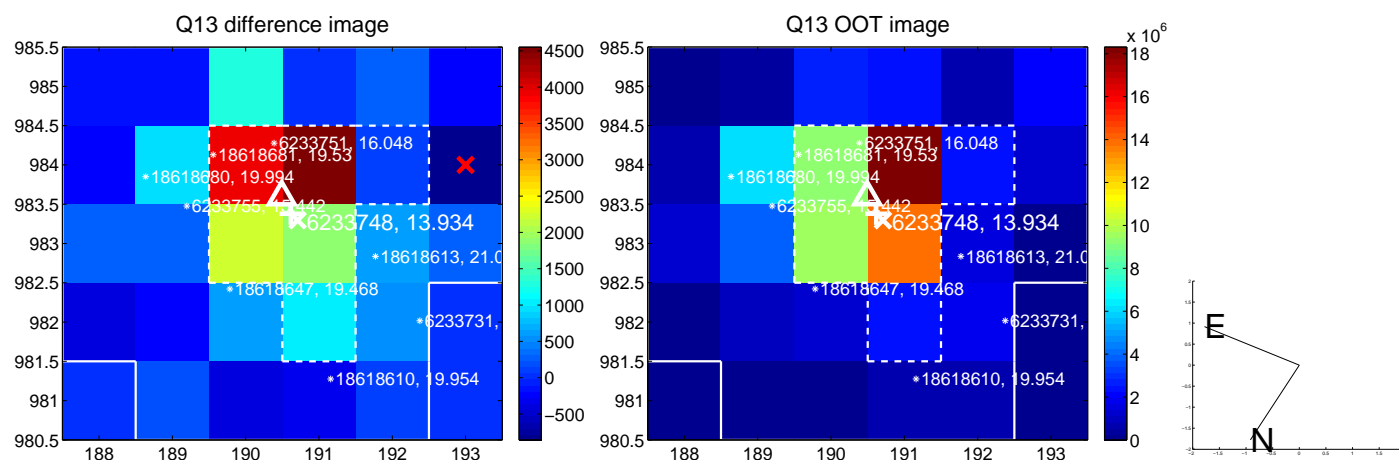
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



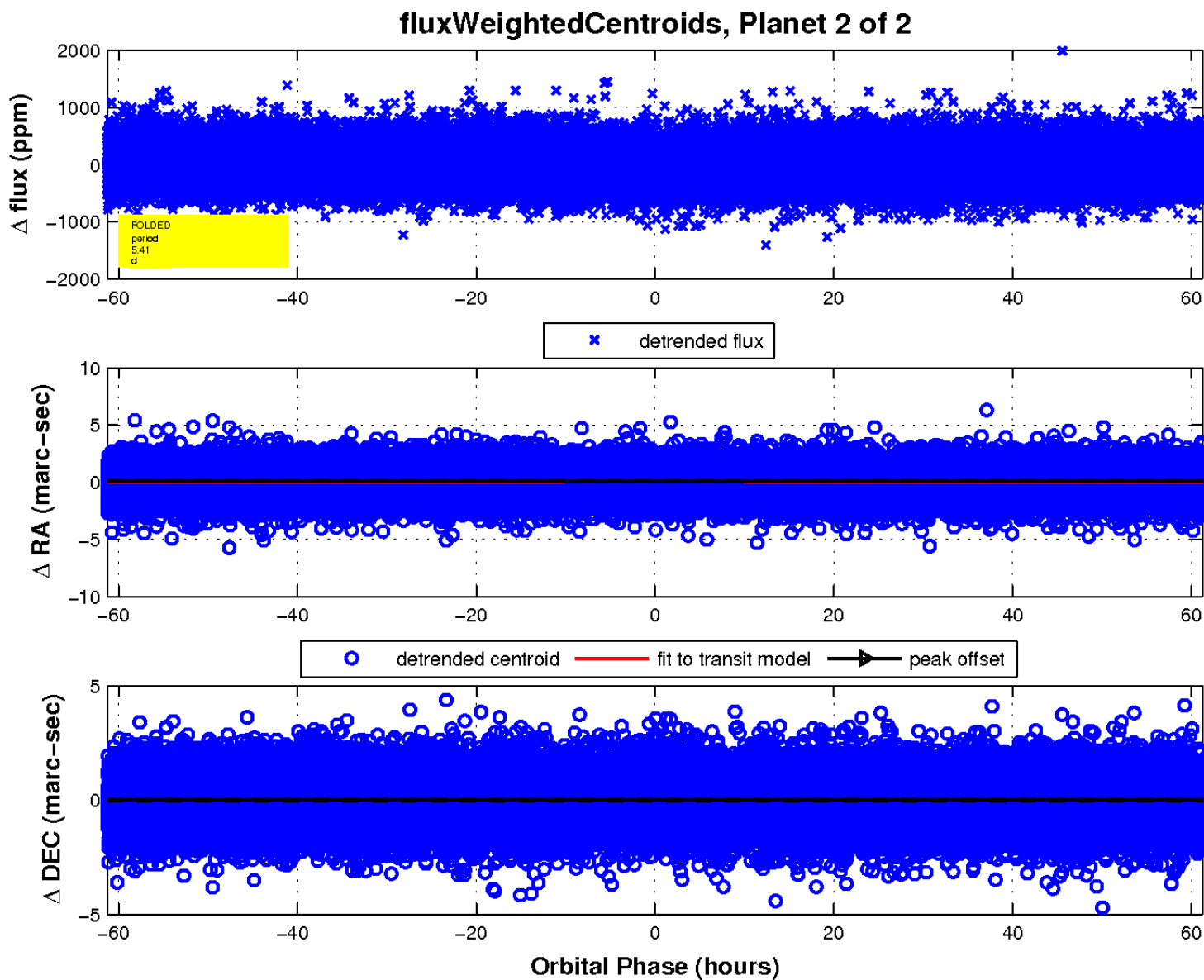
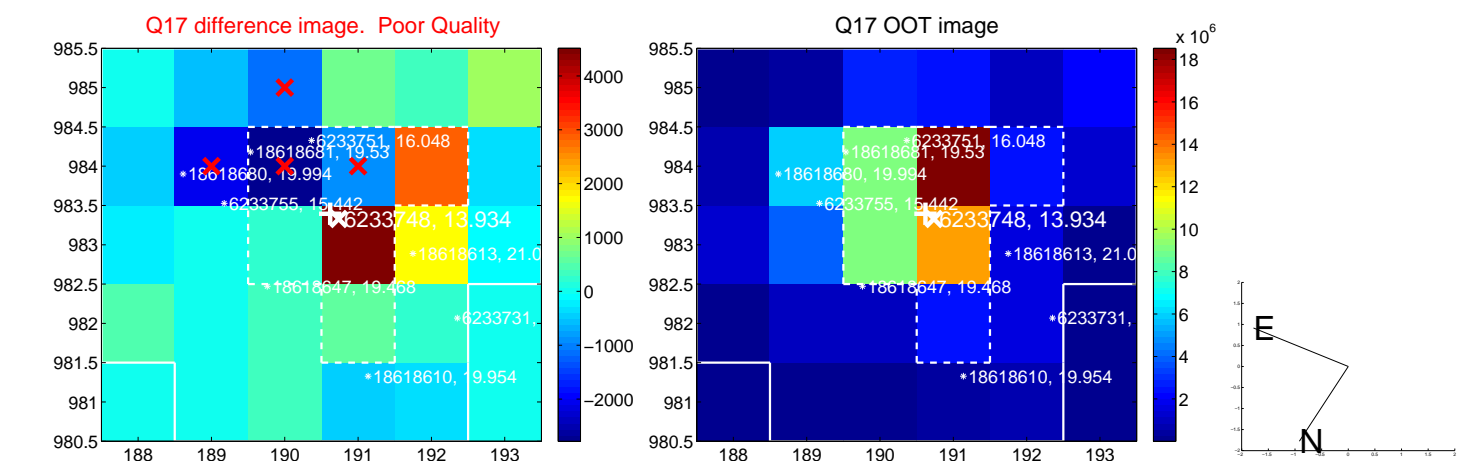
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Declination

