

KIC 004756040

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})
004756040-01	OBS	No	0.584023	131.576557	50.6	3.858	9.0	6.3	1.97	7837	1.50	48303.25
004756040-02	OBS	No	10.428625	141.257999	432.4	18.124	10.0	11.8	1.97	7837	4.77	1034.94
004756040-03	OBS	No	38.819900	145.232715	1110.8	3.648	10.7	7.5	1.97	7837	6.99	179.40
004756040-04	OBS	No	19.168818	131.690165	1216.1	1.966	9.6	10.4	1.97	7837	6.98	459.64
004756040-05	OBS	No	28.820279	148.791369	704.5	10.460	8.7	9.9	1.97	7837	5.51	266.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004756040-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004756040-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004756040-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004756040-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV
004756040-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST

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

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

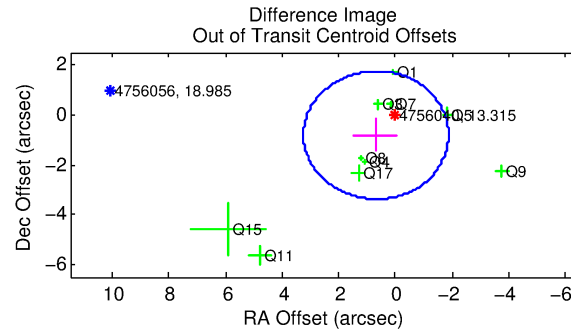
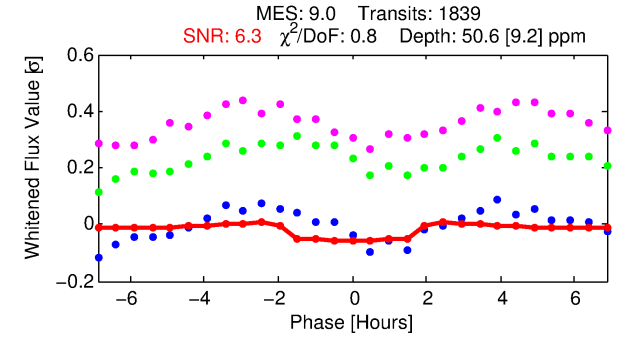
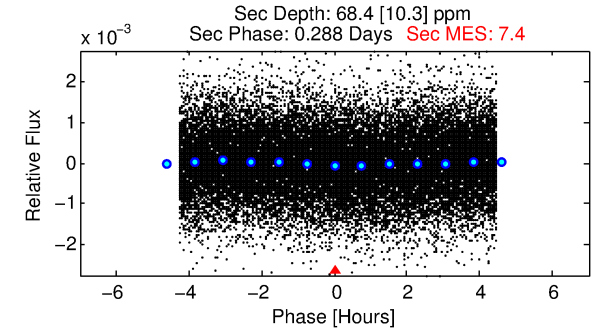
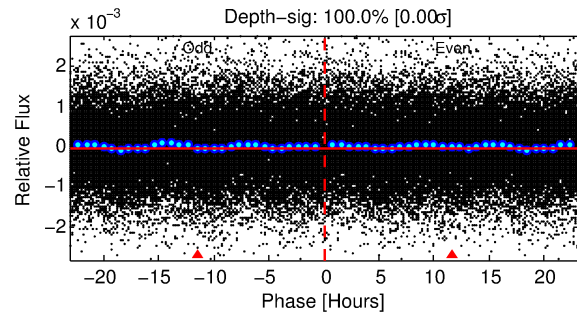
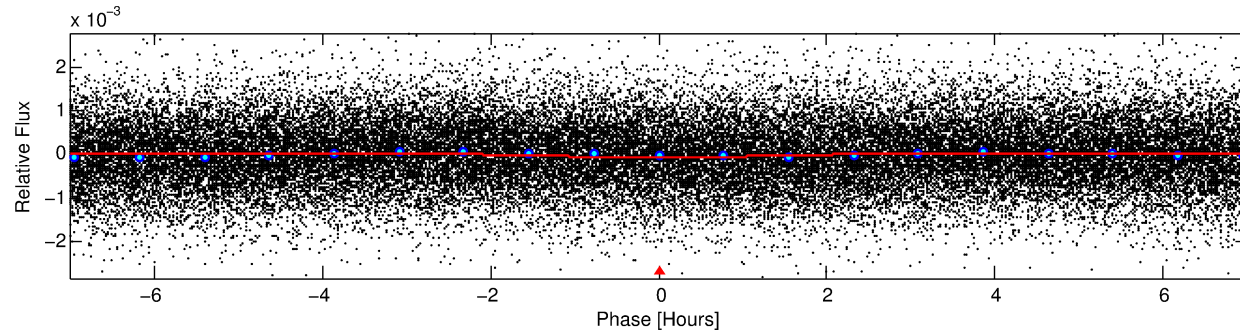
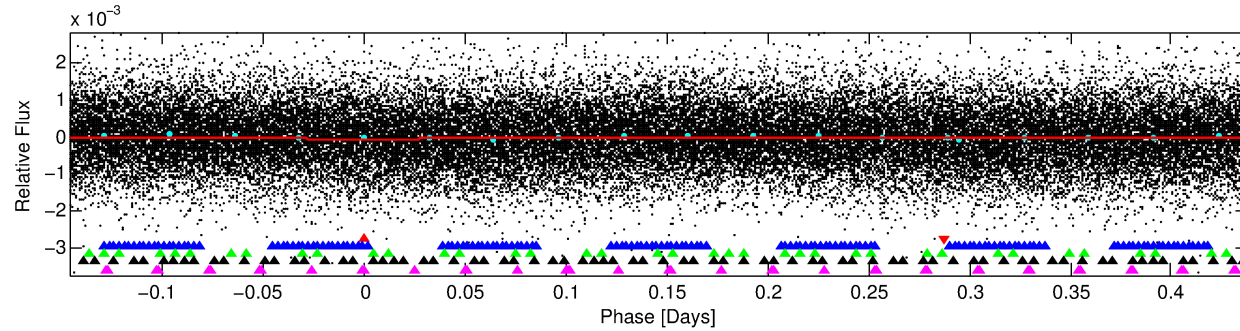
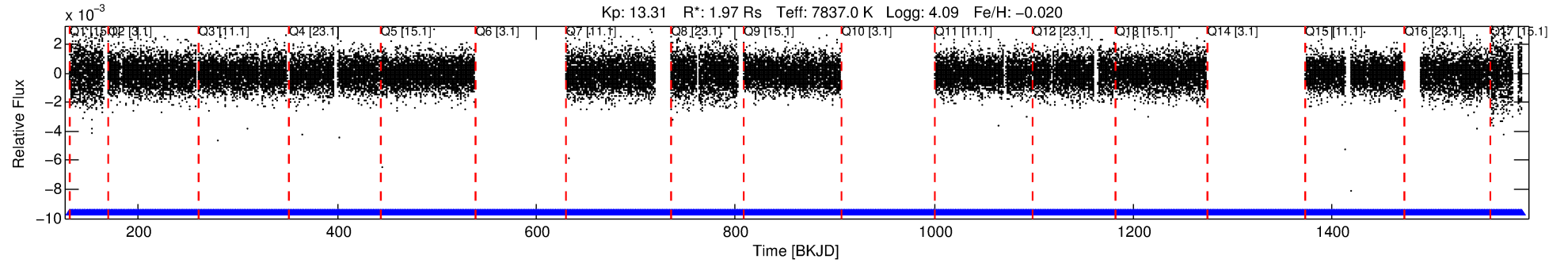
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004756040-01

No Significant Match Found

DV One-Page Summary

KIC: 4756040 Candidate: 1 of 5 Period: 0.584 d



DV Fit Results:

Period = 0.58402 [0.00002] d
Epoch = 131.5766 [0.0053] BKJD
Rp/R* = 0.0070 [0.0084]
a/R* = 1.18 [2.51]
b = 0.70 [5.53]
Seff = 48303.25 [16686.54]
Teq = 3780 [326] K
Rp = 1.50 [1.83] Re
a = 0.0164 [0.0035] AU
Ag = 4.53 [10.93] [0.32 σ]
Teffp = 8525 [5116] K [0.93 σ]

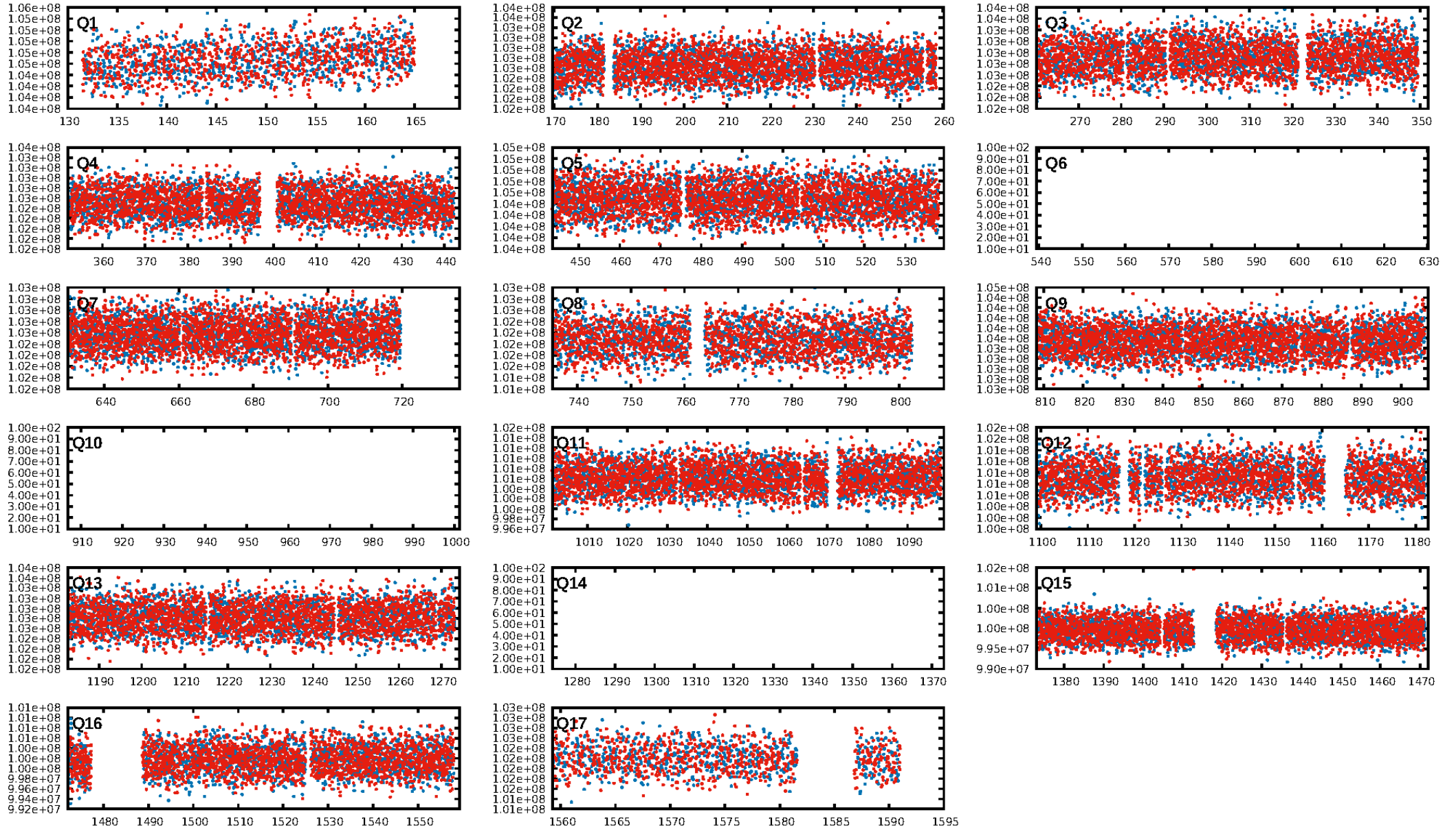
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [12.75 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.13e-14
RollingBand-fgt: 1.00 [1735/1735]
GhostDiagnostic-chr: 2.323
Centroid-sig: 5.9%
Centroid-so: 0.436 arcsec [1.05 σ]
OotOffset-rm: 1.065 arcsec [1.25 σ]
OotOffset-st: 0/4/2/4 [10]
KicOffset-rm: 1.097 arcsec [1.08 σ]
KicOffset-st: 0/4/2/4 [10]
DiffImageQuality-fgm: 0.70 [7/10]
DiffImageOverlap-fno: 1.00 [14/14]

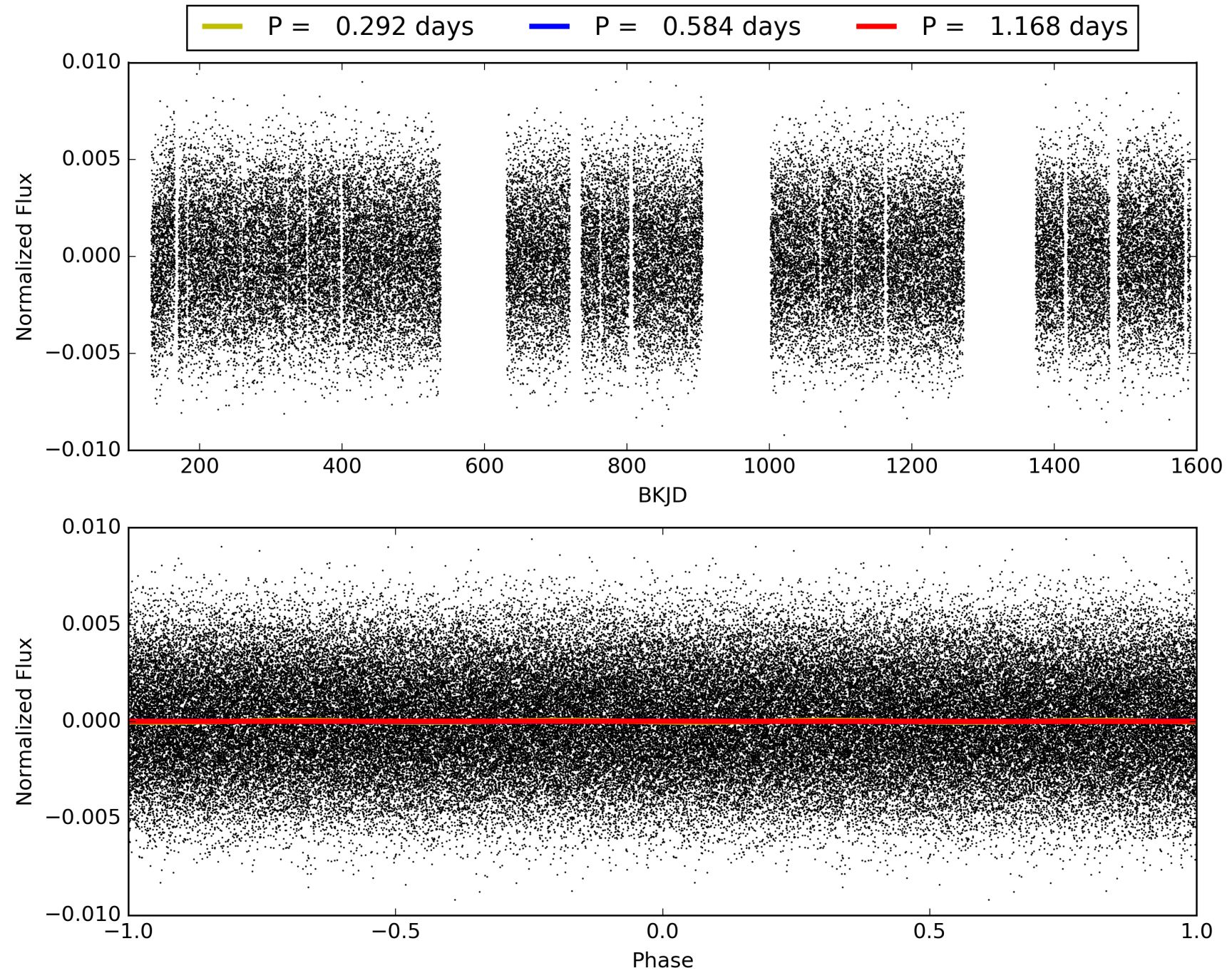
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004756040-01, PDC Light Curves

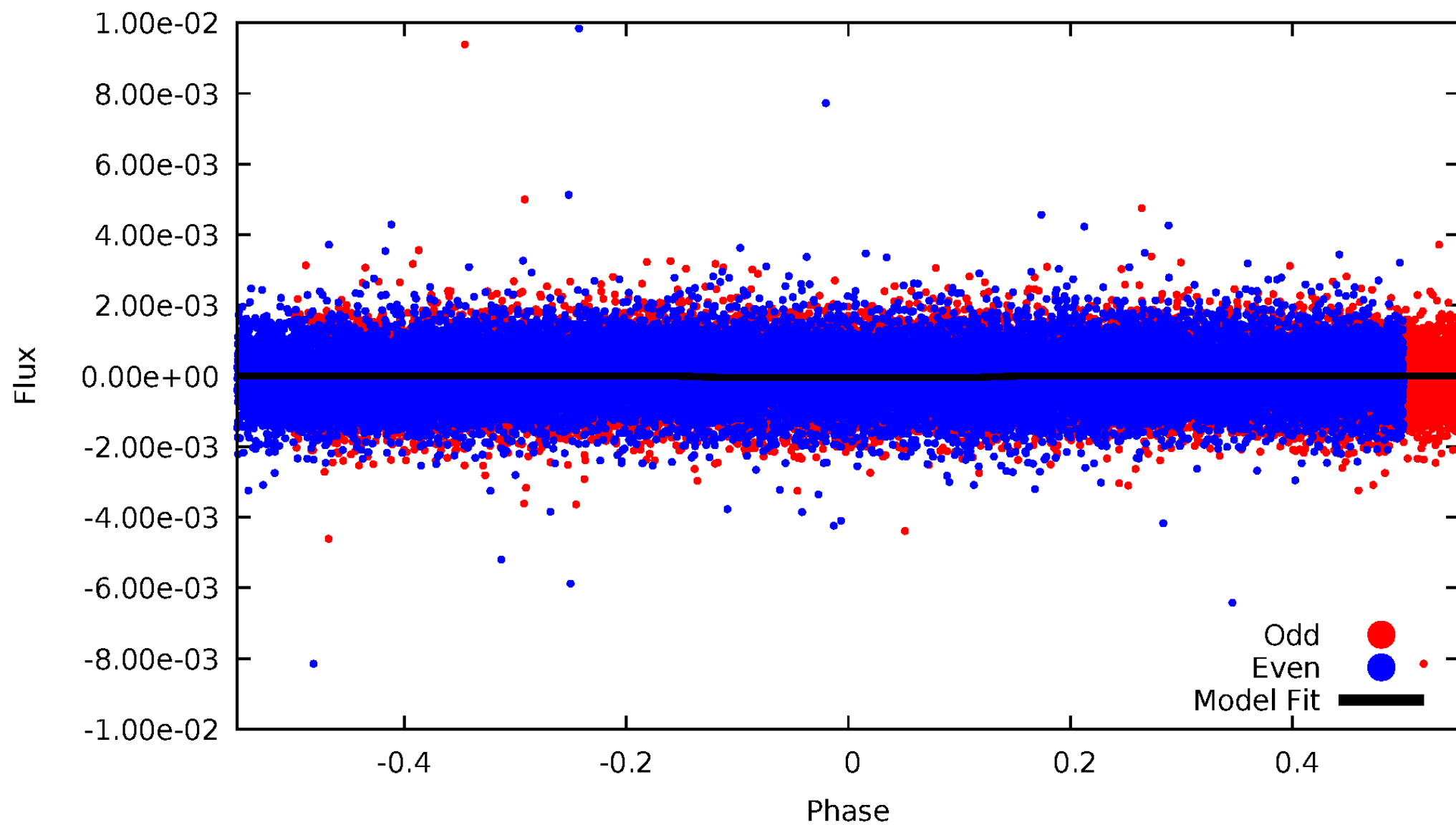


TCE 004756040-01



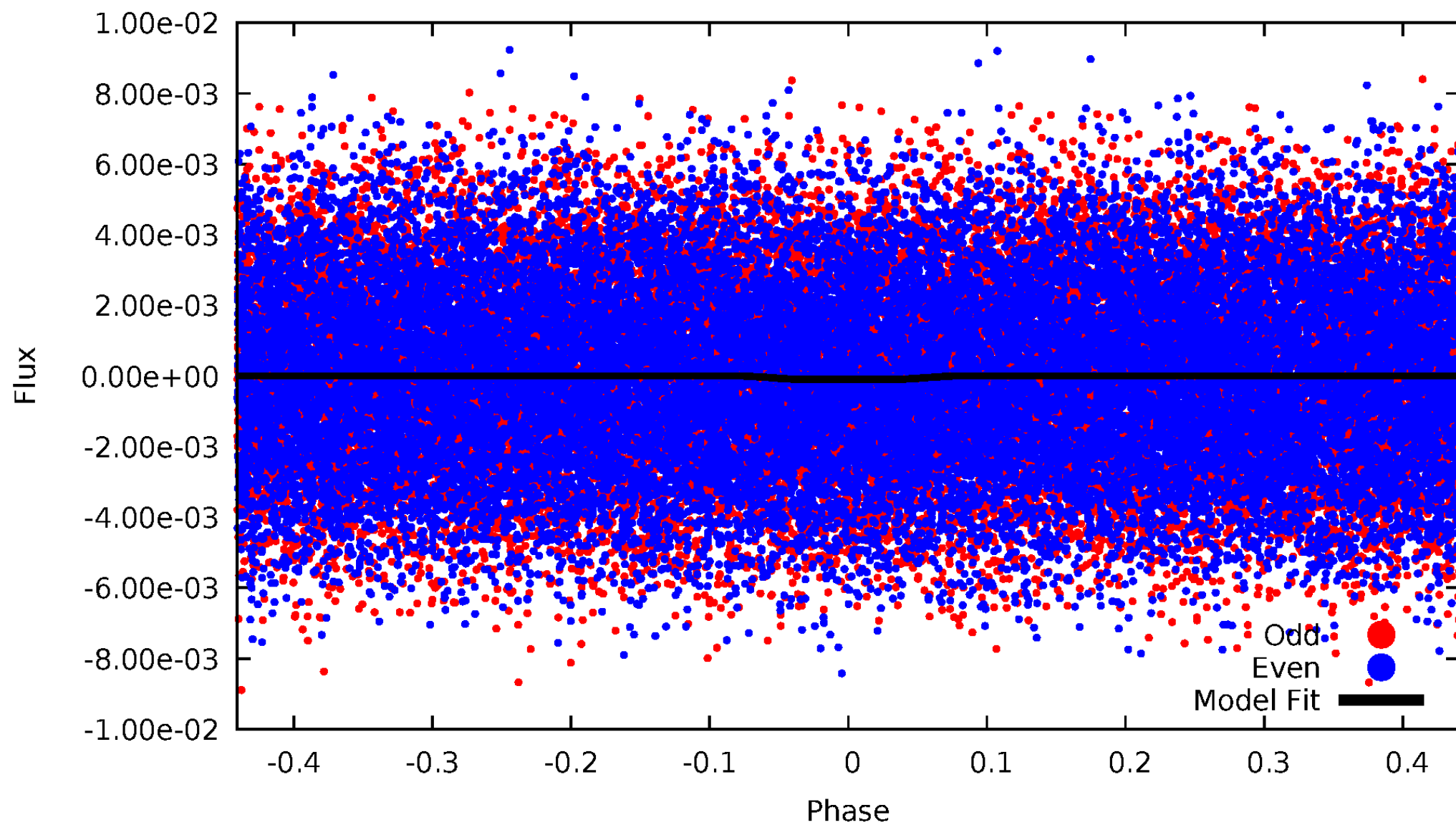
DV Odd/Even

TCE 004756040-01

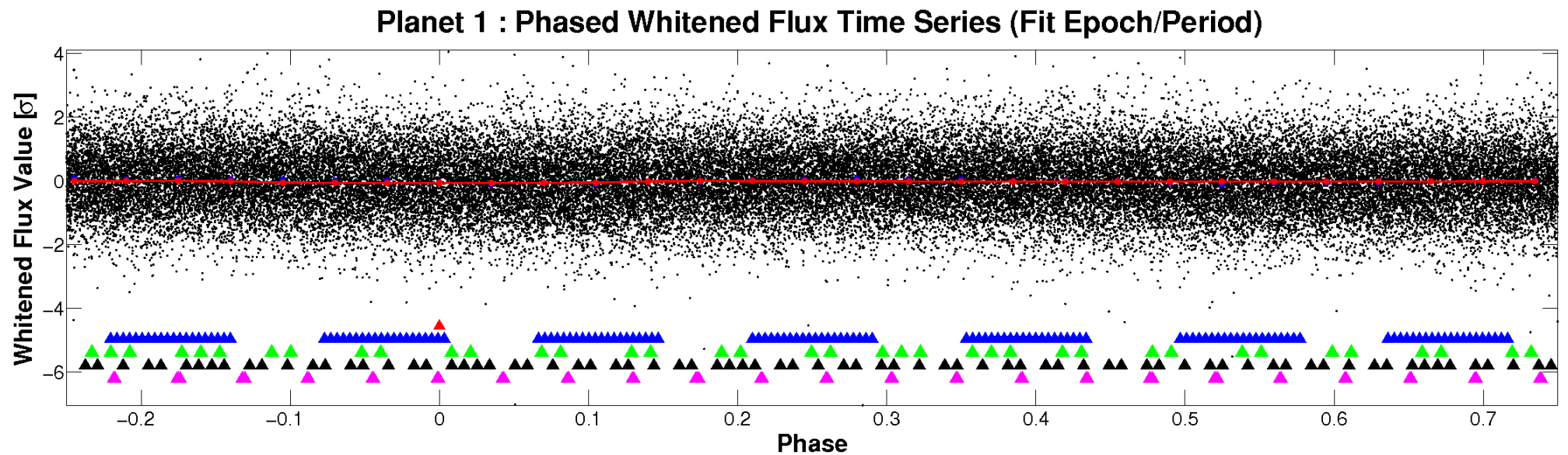
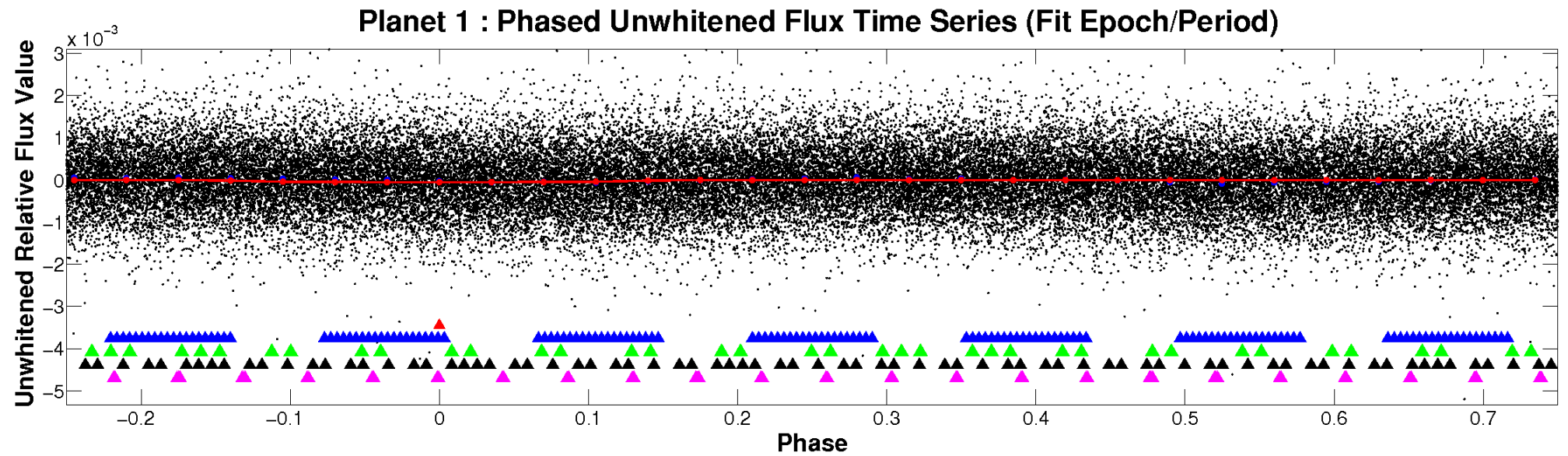


ALT Odd/Even

TCE 004756040-01

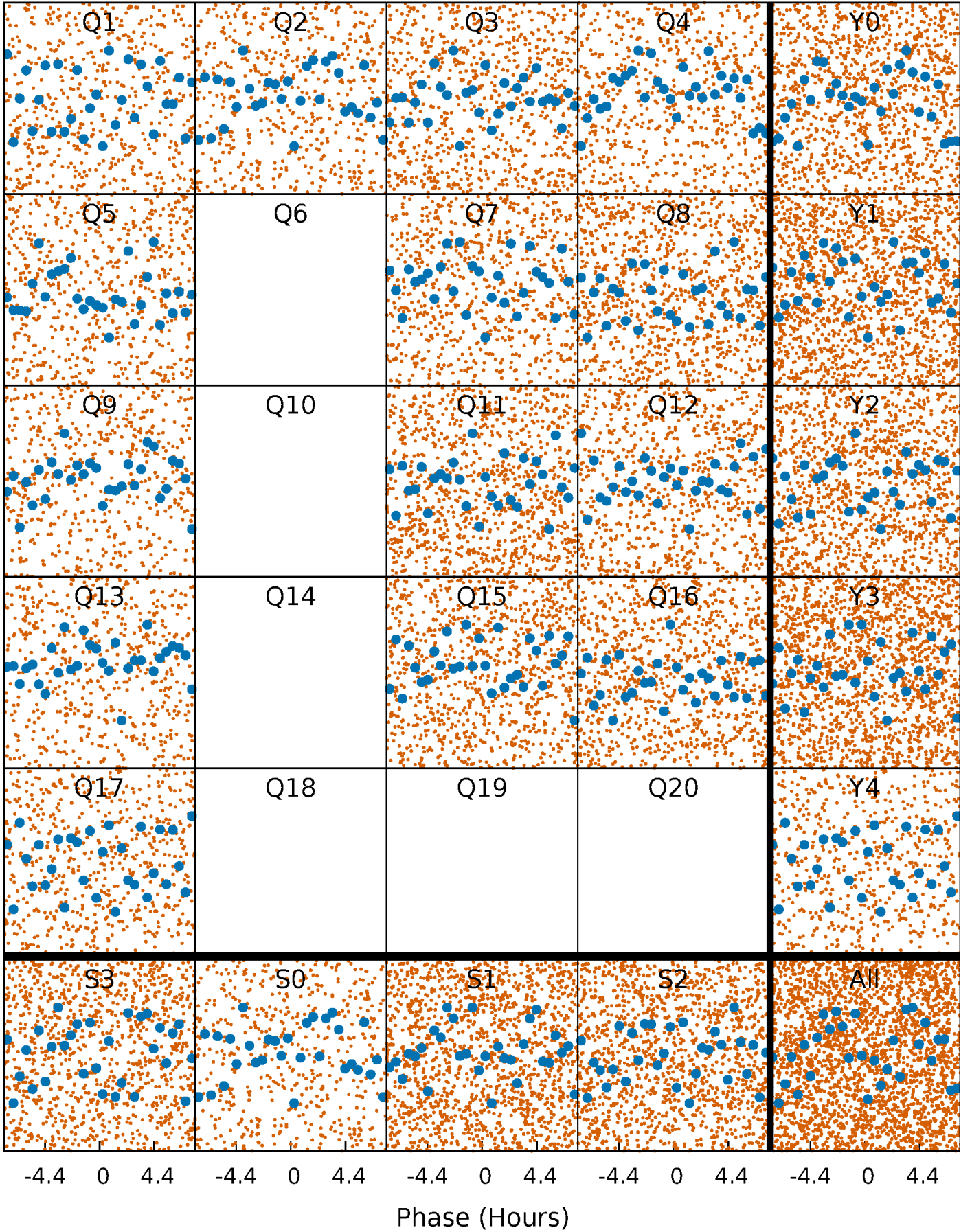


Non-Whitened Vs. Whitened Light Curve



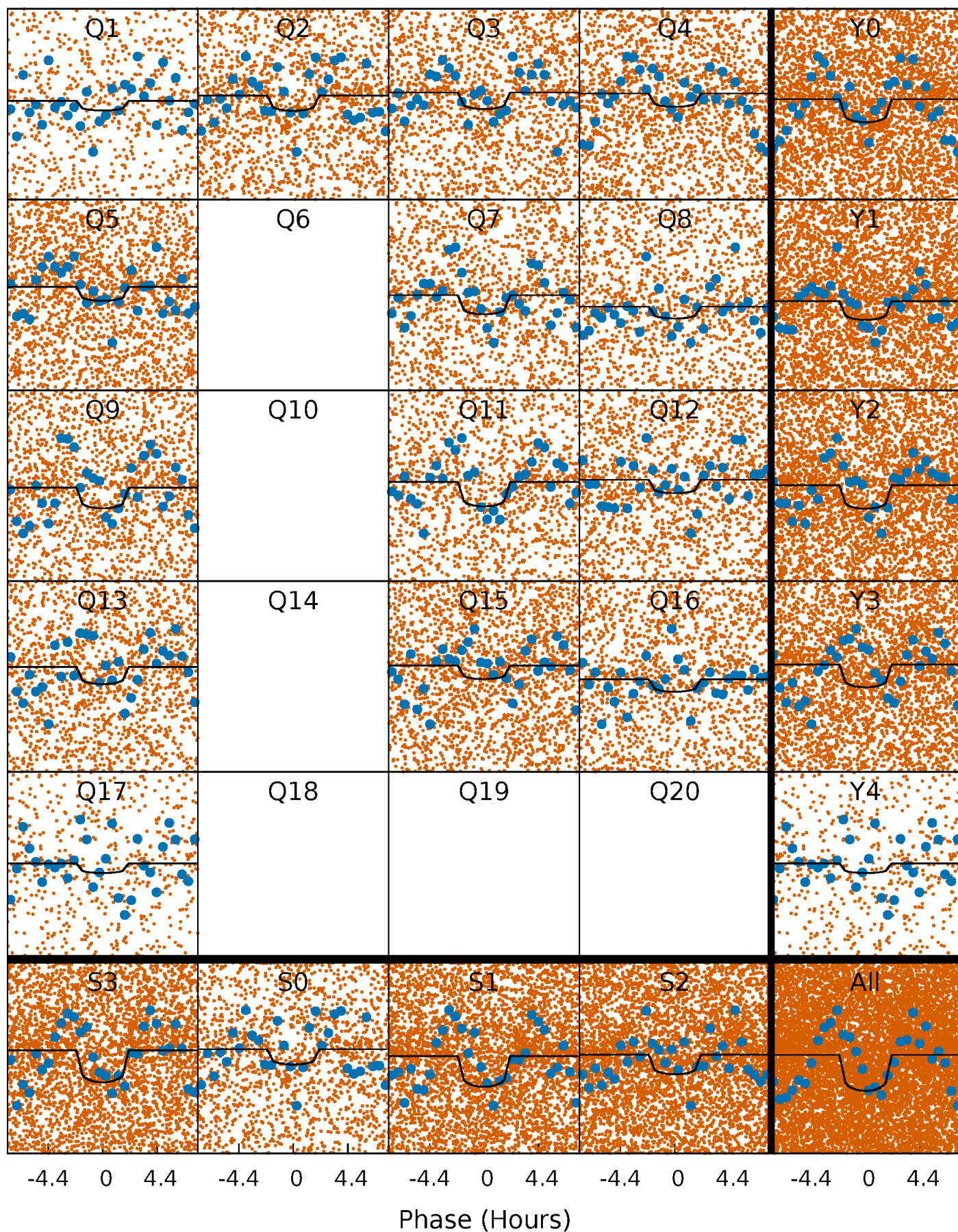
PDC Quarter-Phased Transit Curves

TCE 004756040-01 P= 0.584023 Days $T_0=131.576557$ (BKJD)



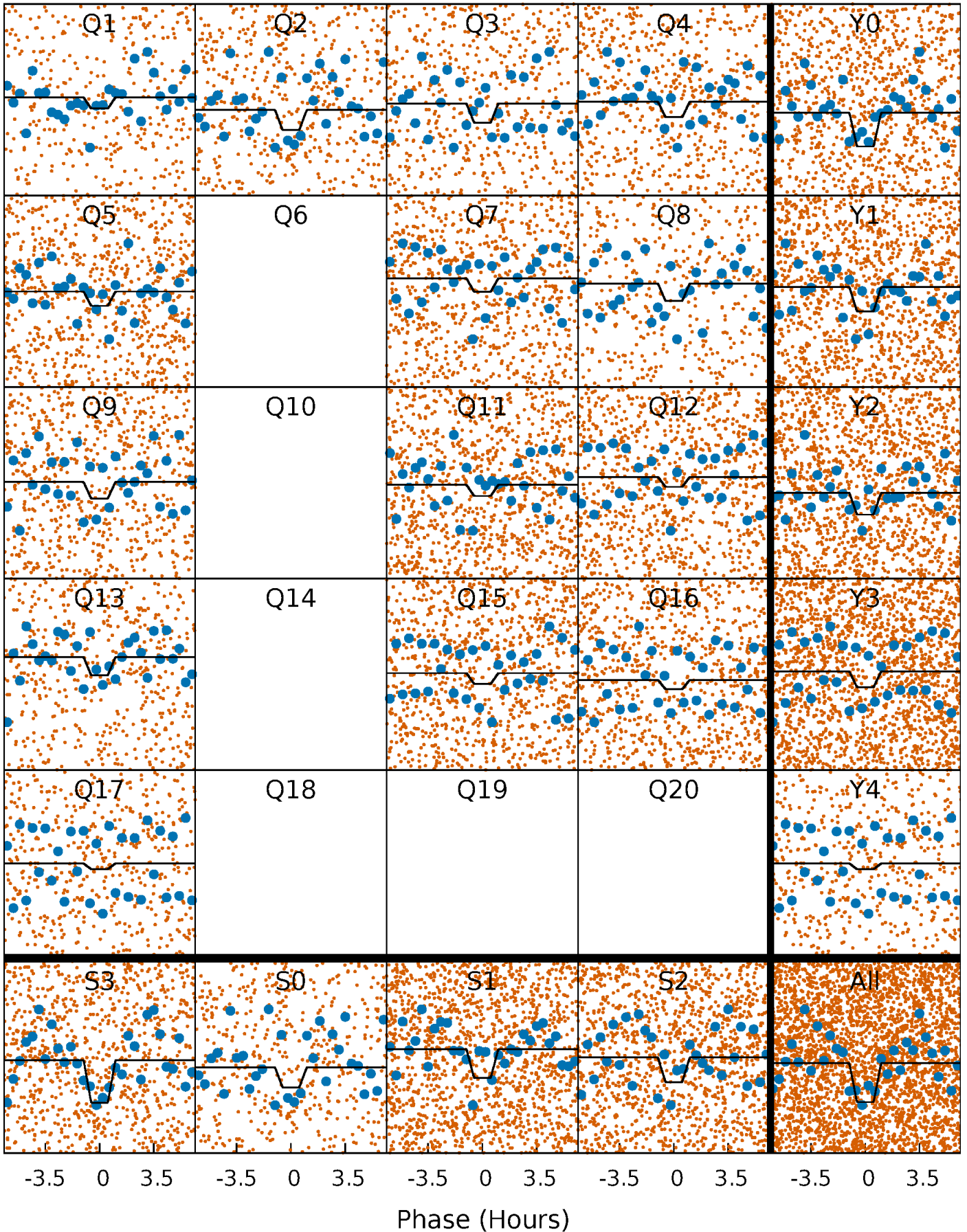
DV Quarter-Phased Transit Curves

TCE 004756040-01 P= 0.584023 Days $T_0=131.576557$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

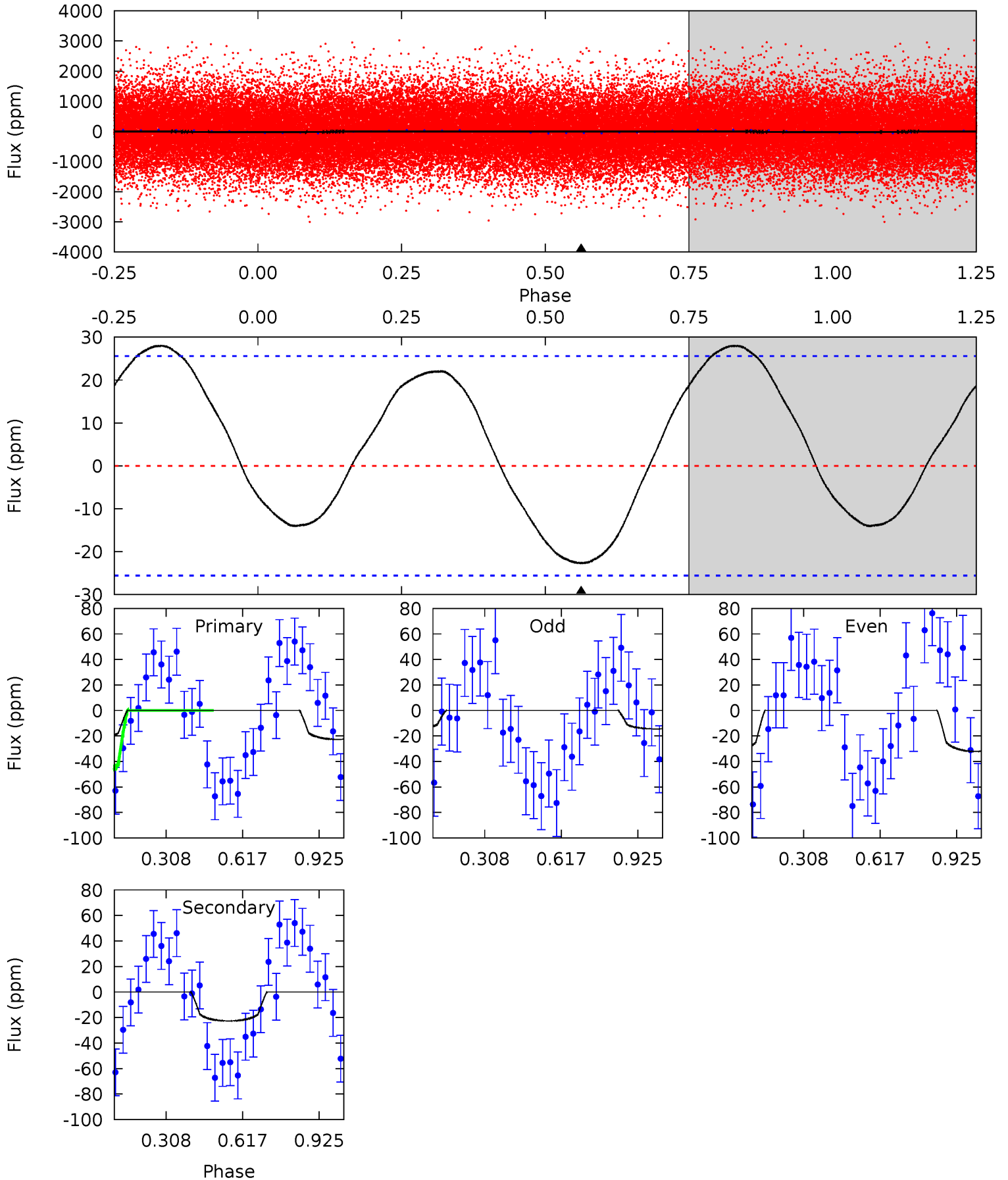
TCE 004756040-01 P= 0.584059 Days $T_0=131.572320$ (BKJD)



DV Model-Shift Uniqueness Test

004756040-01, P = 0.584023 Days, E = 130.992534 Days

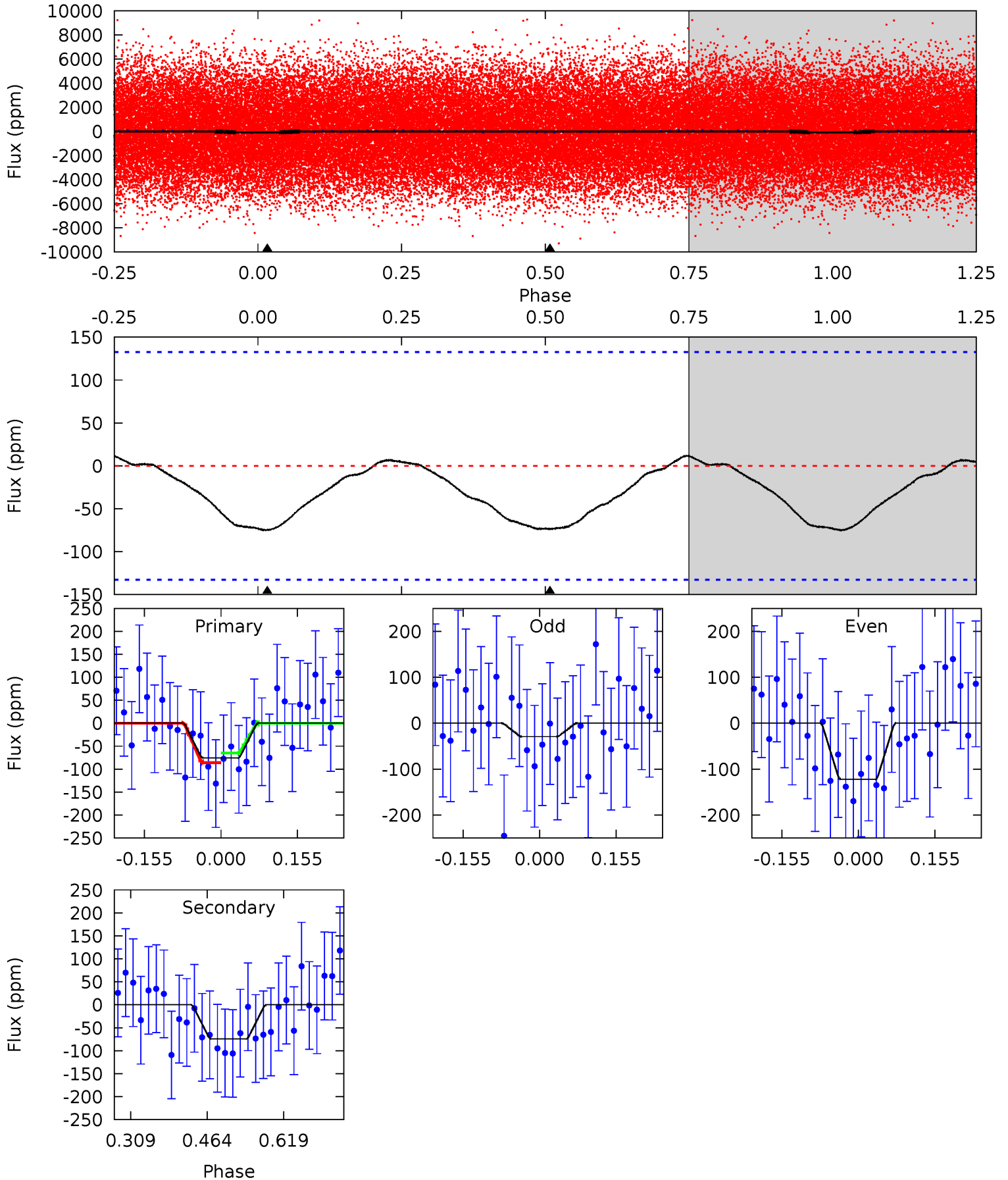
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.84	3.84	0	0	4.32	1.02	2.03	3.84	3.84	3.84	3.84	1.52	1.17	0.55	3.98



Alt Model-Shift Uniqueness Test

004756040-01, P = 0.584059 Days, E = 130.988261 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.55	2.51	0	0	4.47	1.42	0.30	2.55	2.55	2.51	2.51	1.57	0.88	0.14	0.35



Stellar Parameters For KIC 004756040

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7837^{+214}_{-322}	$4.091^{+0.135}_{-0.165}$	$-0.020^{+0.200}_{-0.350}$	$1.966^{+0.495}_{-0.405}$	$1.737^{+0.181}_{-0.294}$	$0.322^{+0.223}_{-0.144}$
	+3%/-4%	+3%/-4%	+1000%/-1750%	+25%/-21%	+10%/-17%	+69%/-45%
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 004756040-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-23 ± 6	$1.82^{+1.73}_{-1.19}$	5272^{+370}_{-340}	5117^{+5301}_{-8388}	$0.963^{+6.988}_{-0.717}$
Alt.	-74 ± 30	$2.34^{+1.74}_{-1.41}$	5268^{+401}_{-320}	6397^{+6144}_{-2048}	$1.912^{+10.172}_{-1.338}$

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

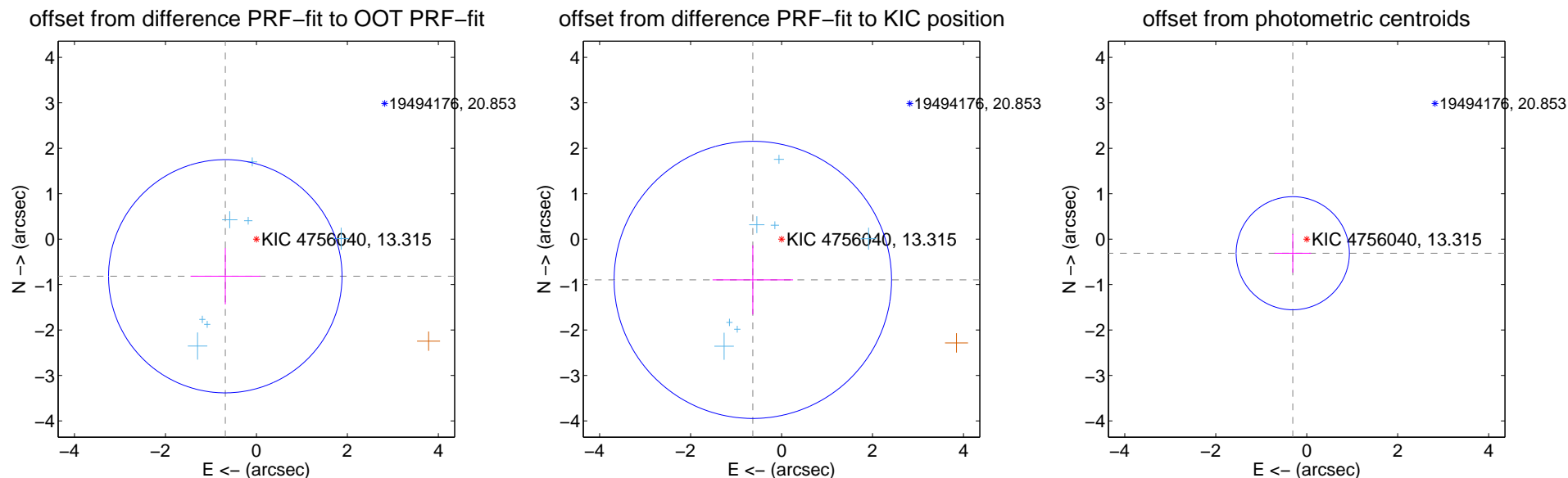
DV Centroid Data

Supplemental centroid analysis for 004756040-01. Kepler magnitude: 13.31. Transit SNR 6.28

There are 7 quarters with good PRF difference image offsets

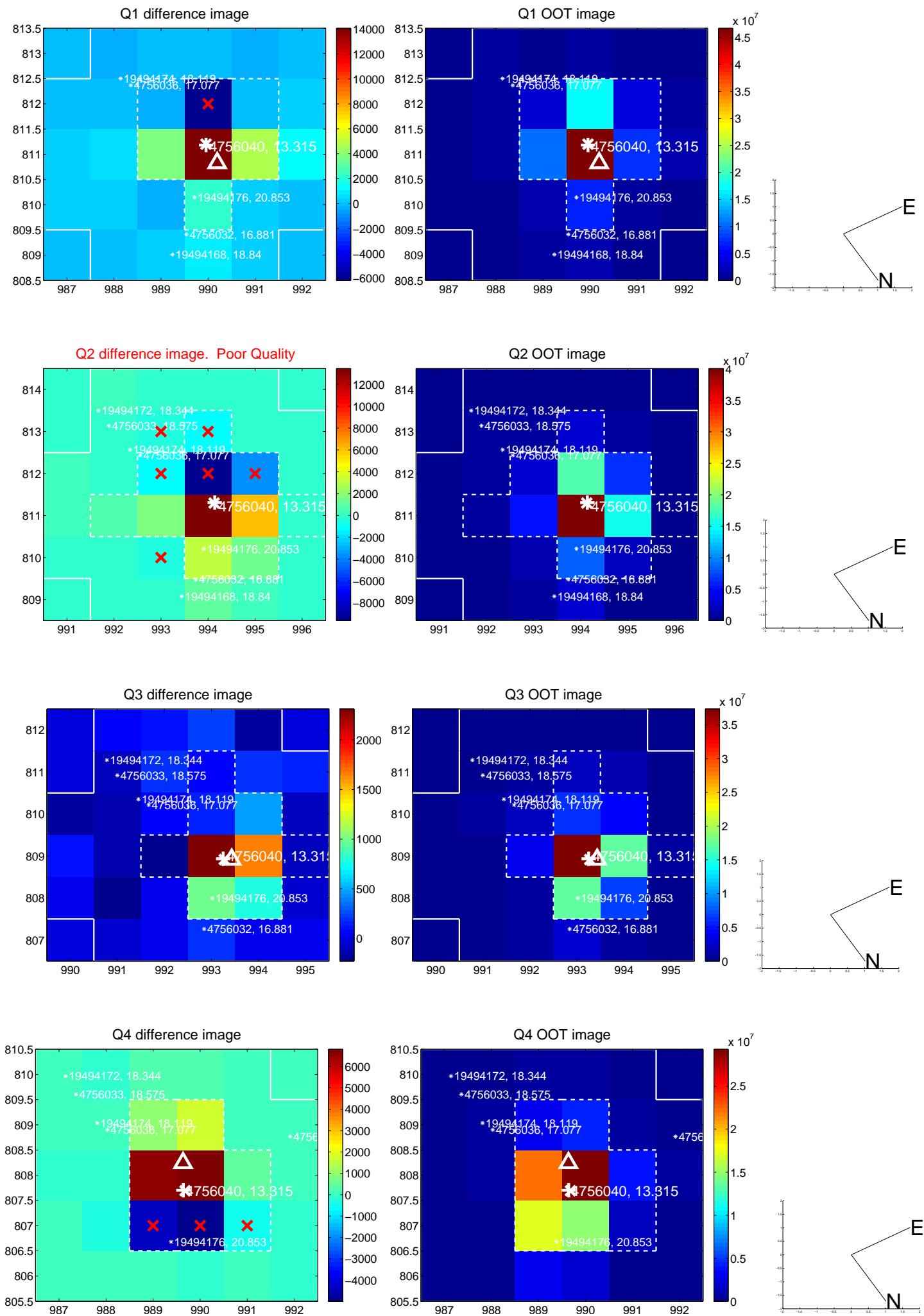
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.065 ± 0.855	1.25	0.684 ± 0.765	-0.816 ± 0.620
PRF-fit source offset from KIC position	1.097 ± 1.016	1.08	0.632 ± 0.885	-0.896 ± 0.762
photometric centroid source offset	0.44 ± 0.41	1.05	0.31 ± 0.40	-0.31 ± 0.43

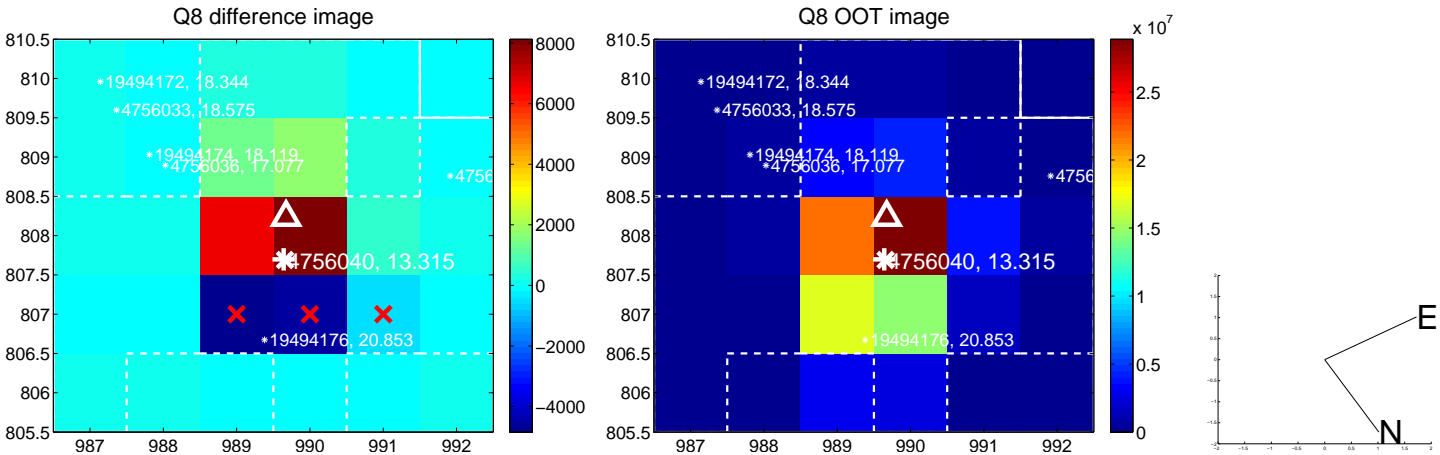
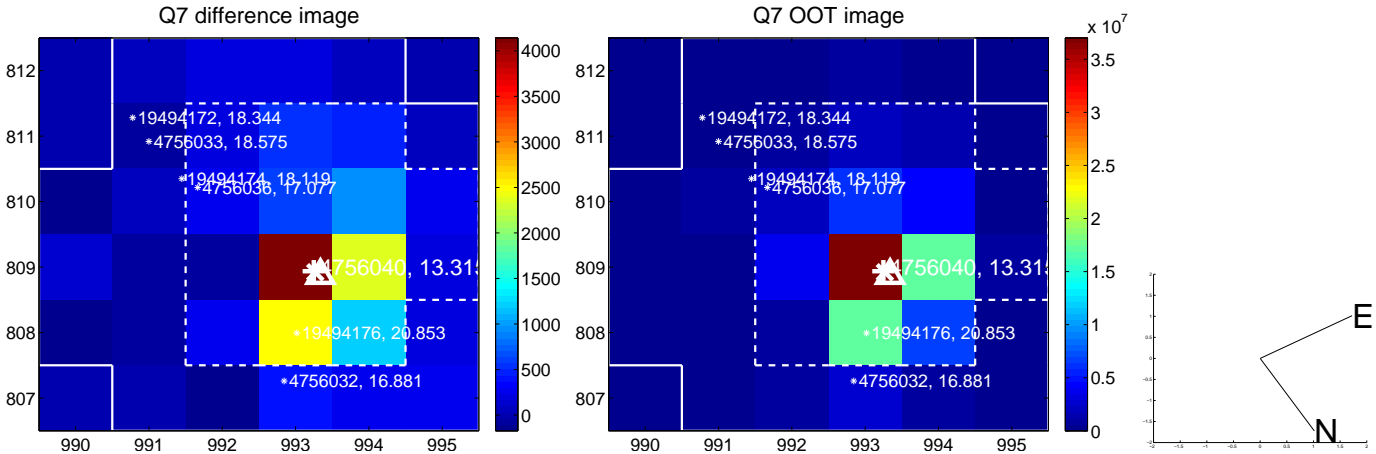
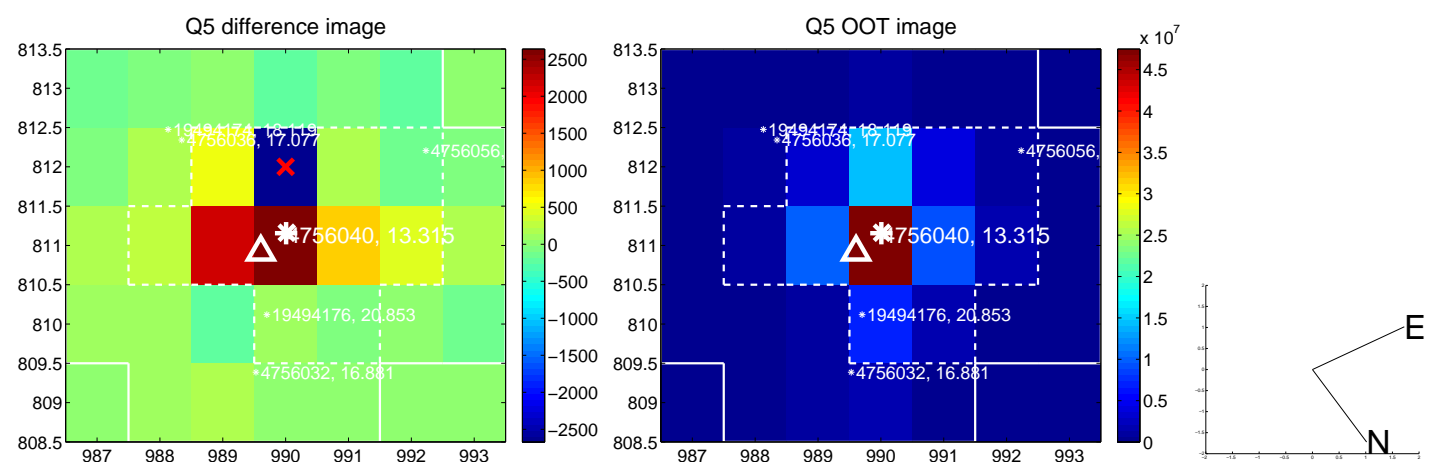


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

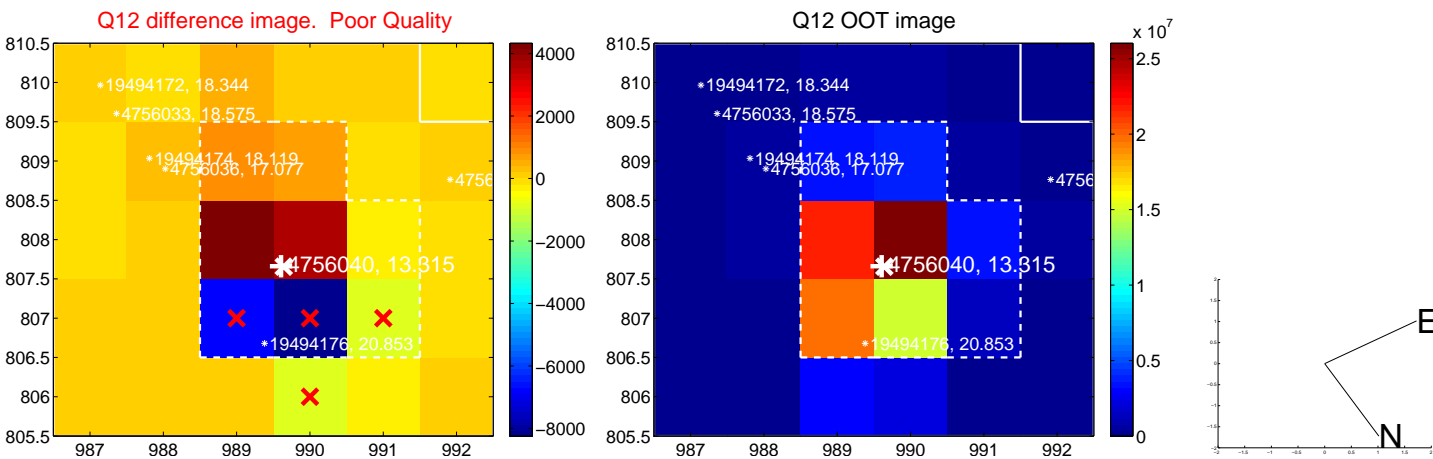
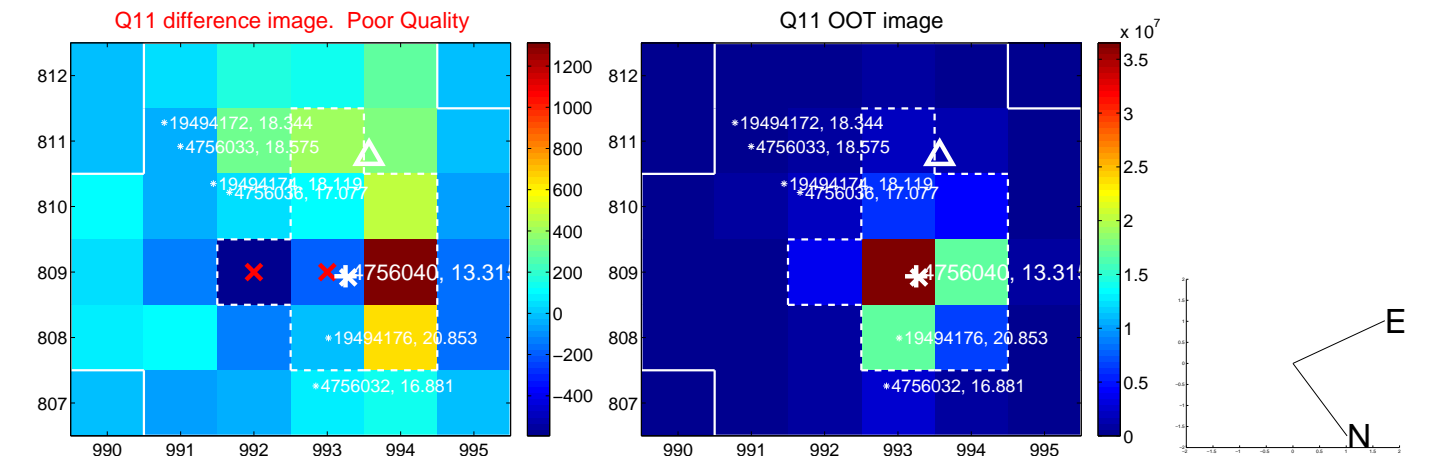
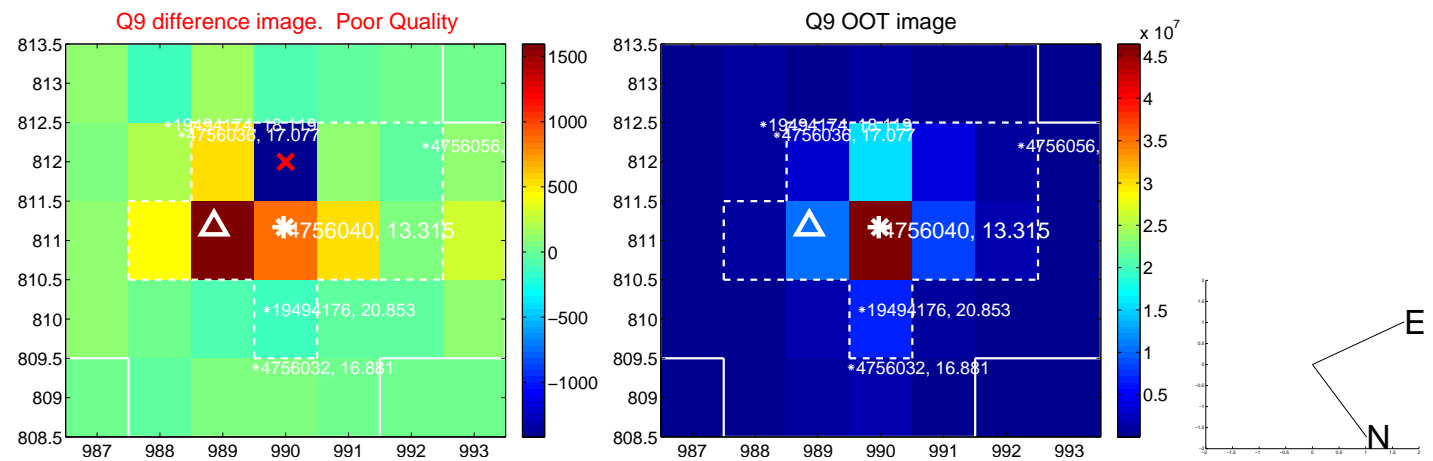
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



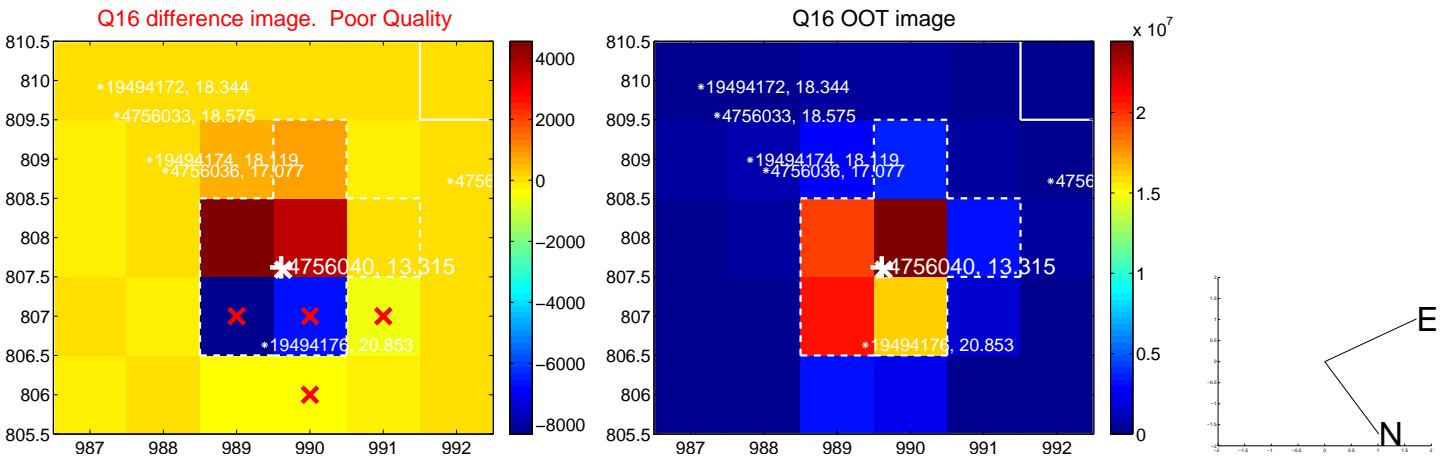
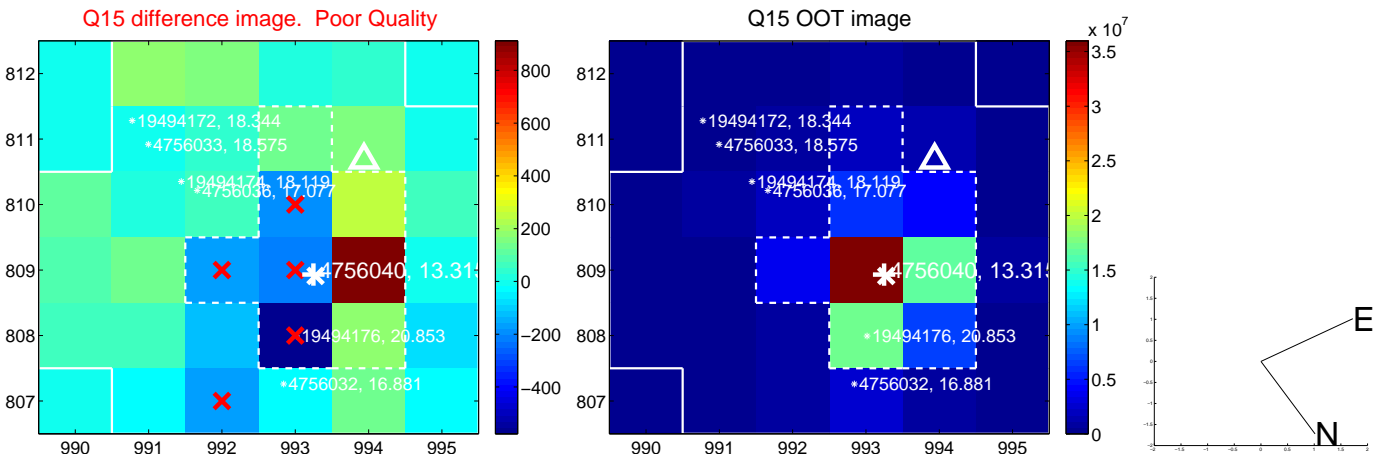
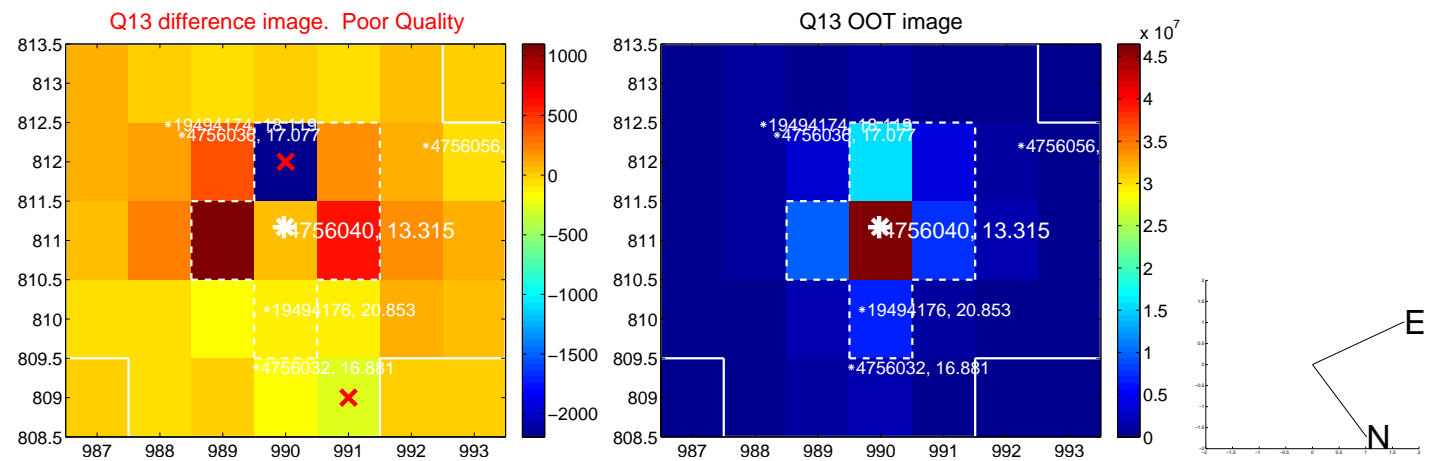
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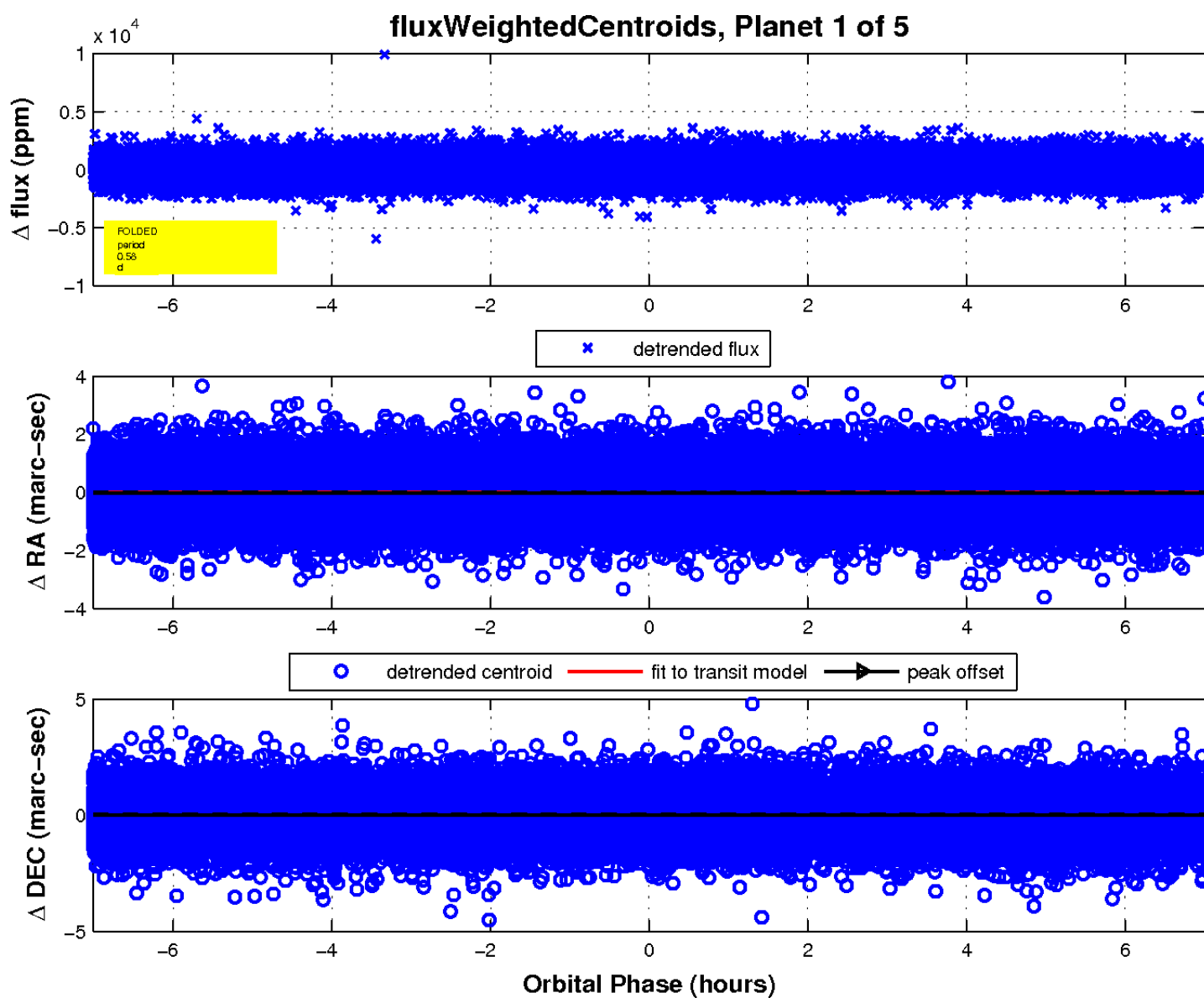
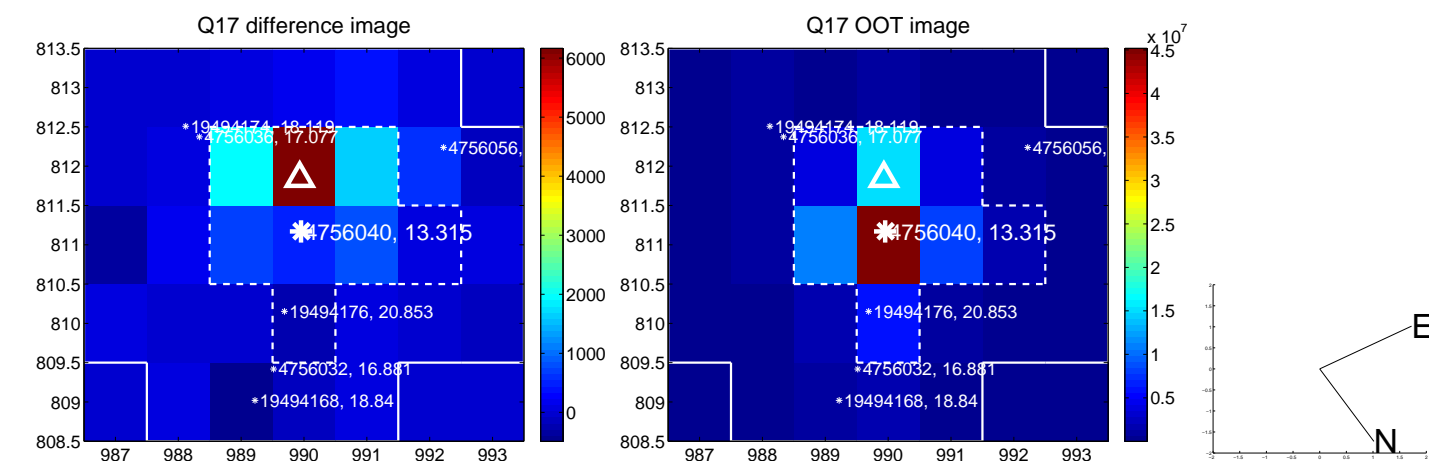
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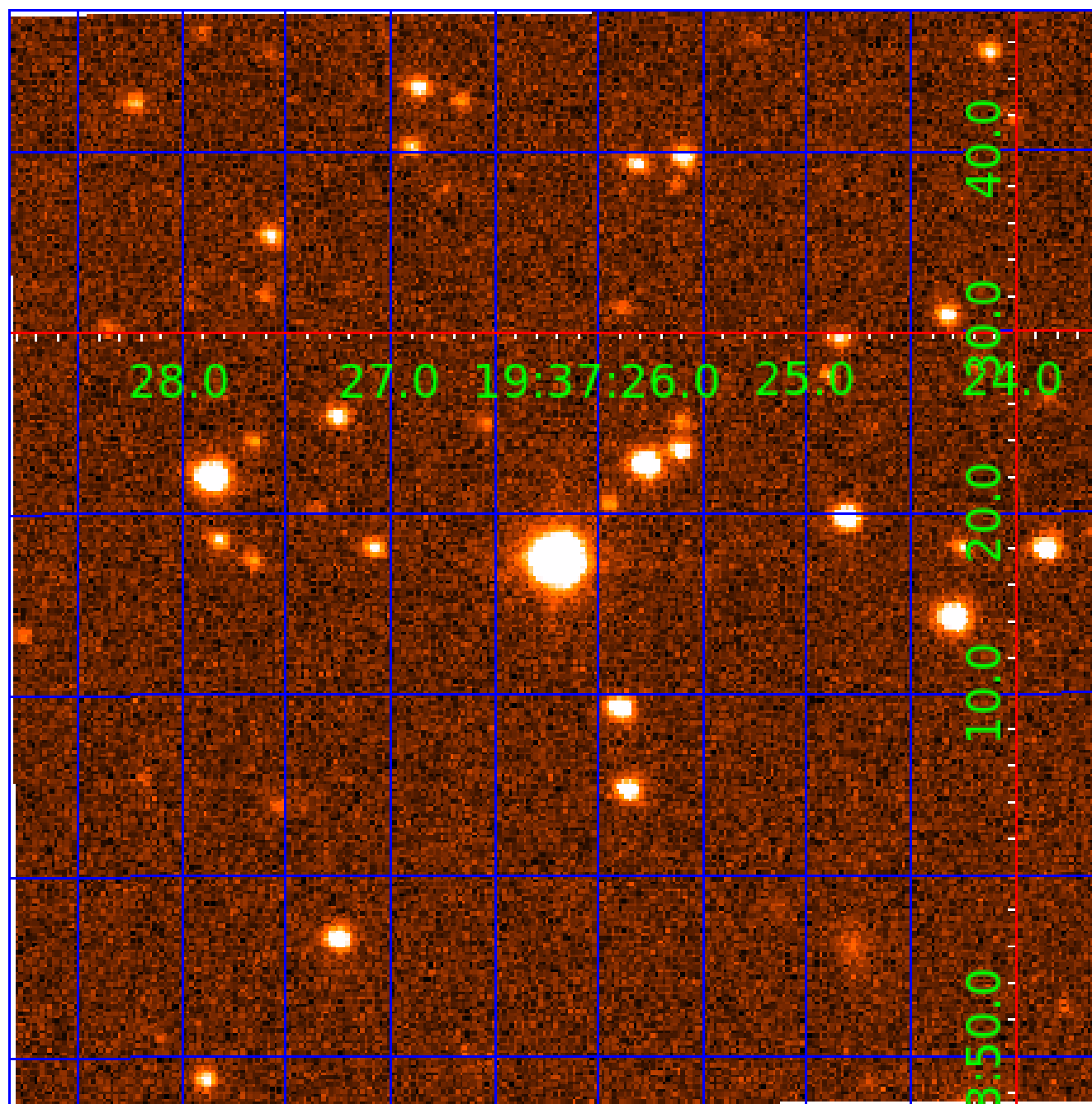


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004756040

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})
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Robovetter Results

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004756040-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004756040-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004756040-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV
004756040-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST

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

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

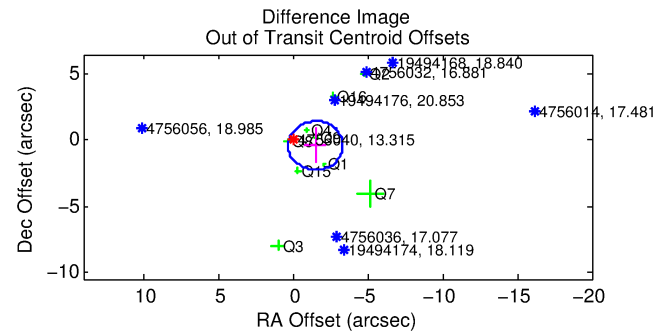
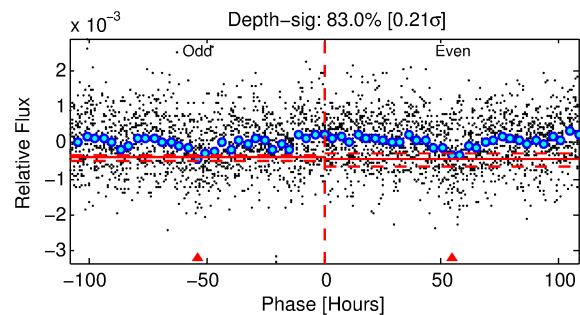
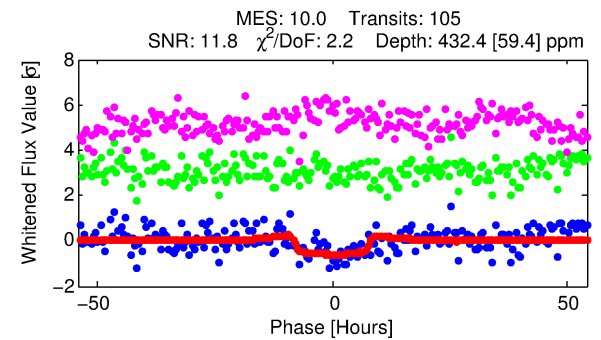
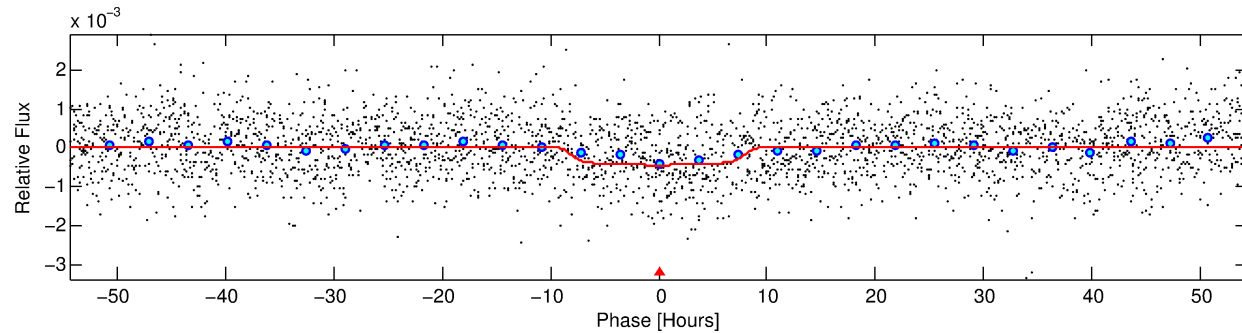
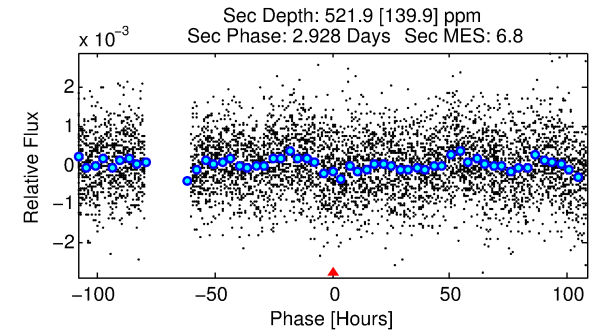
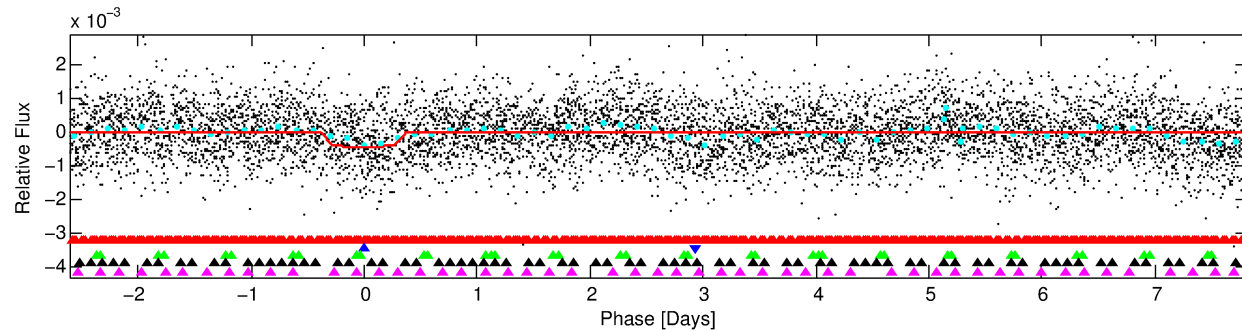
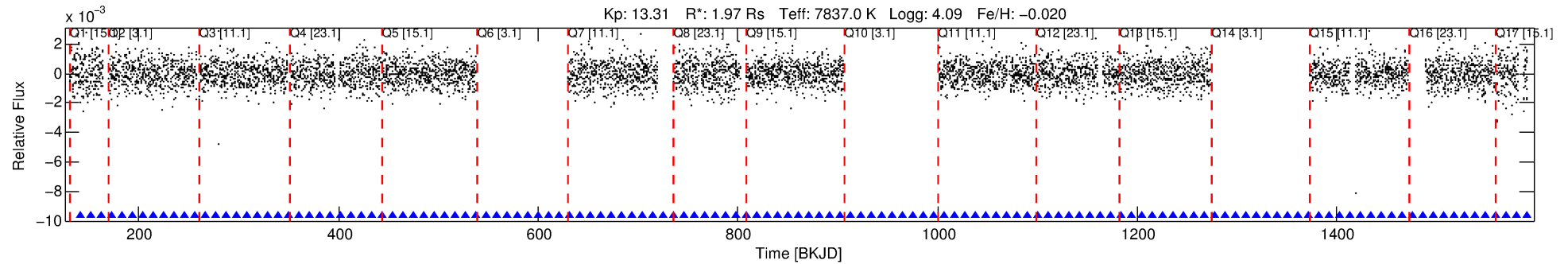
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004756040-02

No Significant Match Found

DV One-Page Summary

KIC: 4756040 Candidate: 2 of 5 Period: 10.429 d



DV Fit Results:

Period = 10.42863 [0.00048] d
Epoch = 141.2580 [0.0368] BKJD
Rp/R* = 0.0222 [0.0023]
a/R* = 2.26 [0.80]
b = 0.91 [0.09]
Seff = 1034.94 [357.52]
Teq = 1446 [125] K
Rp = 4.77 [1.30] Re
a = 0.1123 [0.0236] AU
Ag = 159.49 [72.40] [2.19σ]
Teffp = 7947 [745] K [8.60σ]

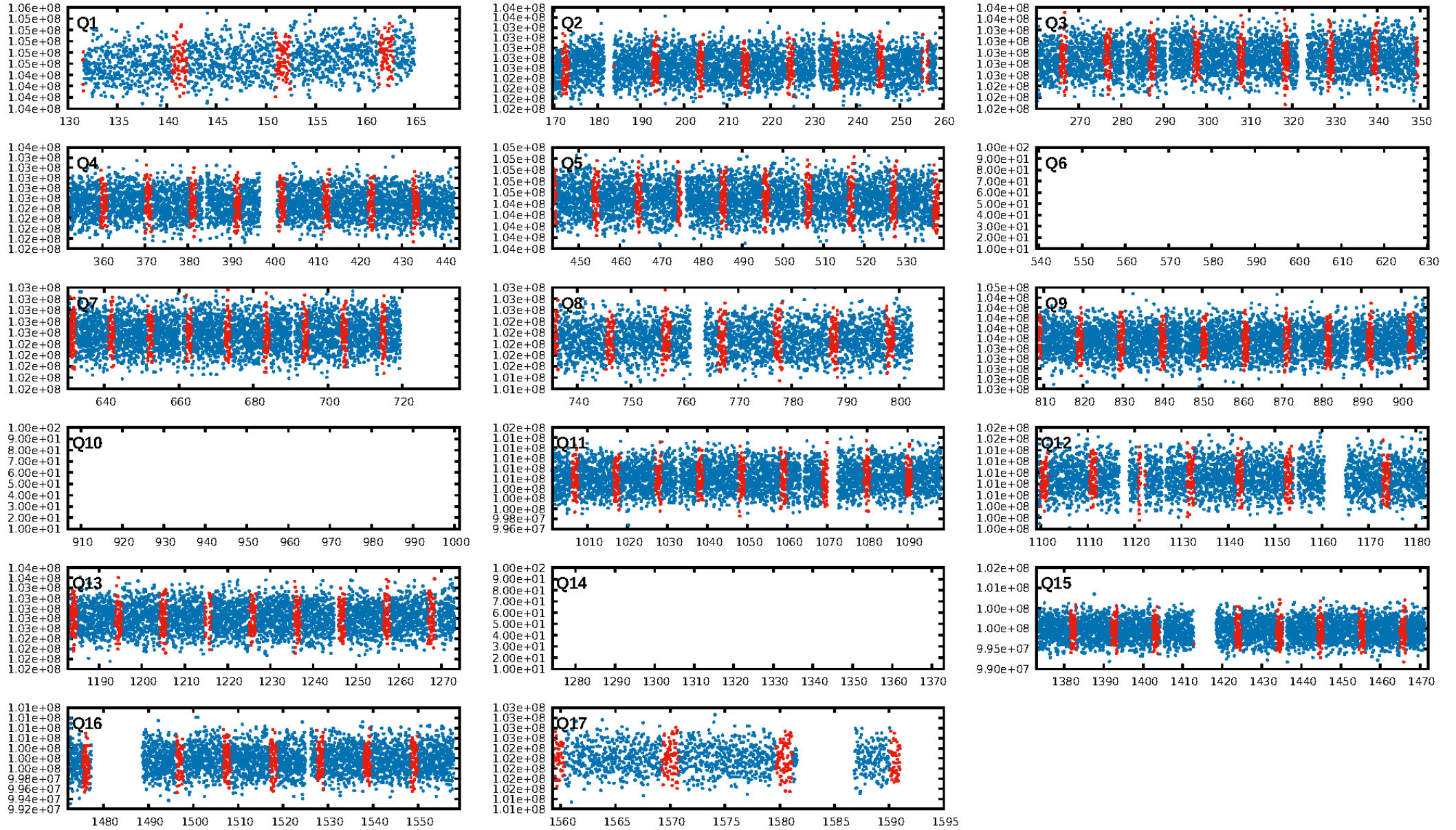
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.75σ]
LongPeriod-sig: 100.0% [11.51σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.25e-10
RollingBand-fgt: 1.00 [98/98]
GhostDiagnostic-chr: -1.476
Centroid-sig: 36.5%
Centroid-so: 0.099 arcsec [0.64σ]
OotOffset-rm: 1.571 arcsec [2.56σ]
KicOffset-rm: 1.645 arcsec [2.99σ]
OotOffset-st: 1/3/3/2 [9]
KicOffset-st: 1/3/3/2 [9]
DiffImageQuality-fgm: 0.33 [3/9]
DiffImageOverlap-fno: 0.00 [0/14]

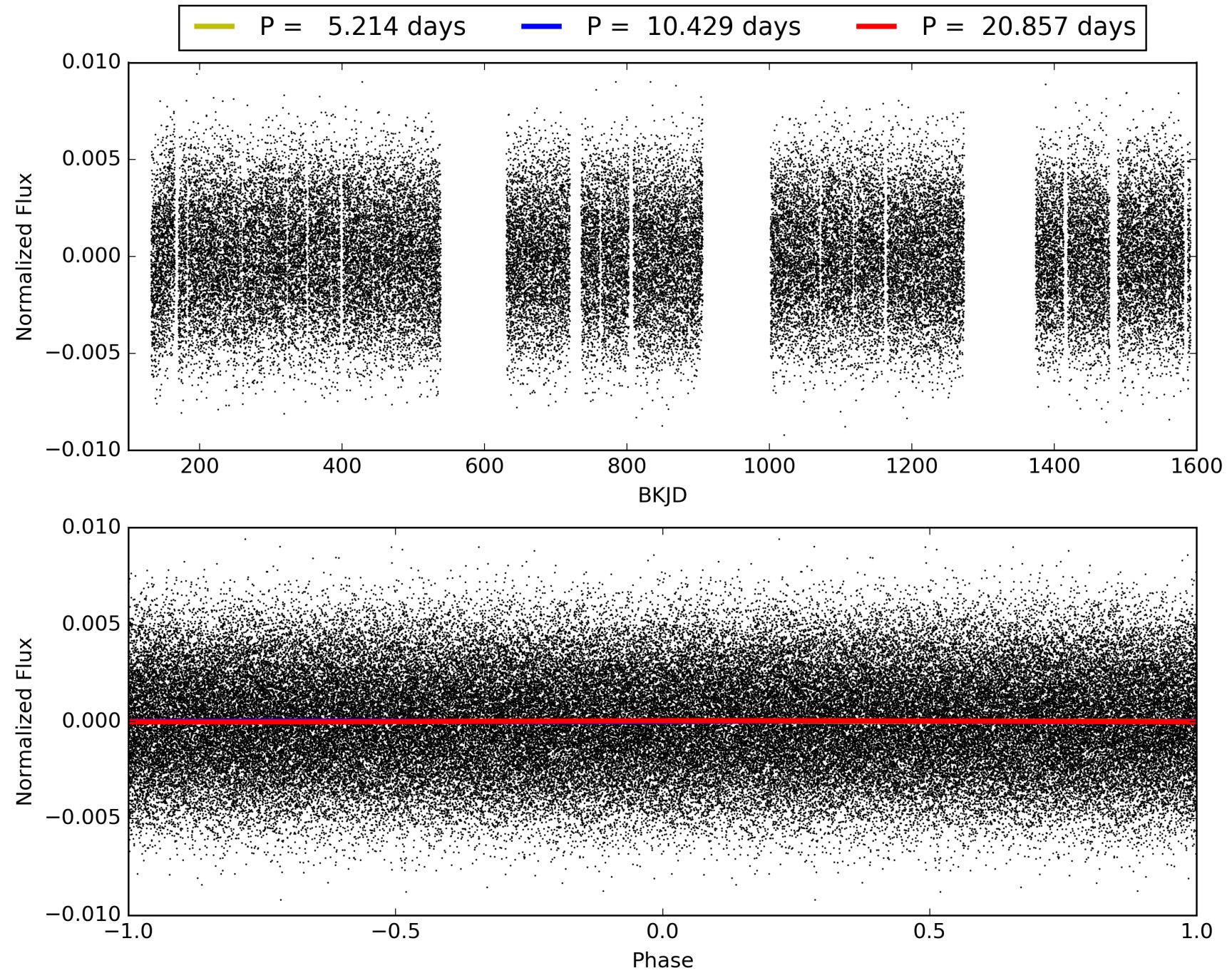
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:11:12 Z

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

TCE 004756040-02, PDC Light Curves

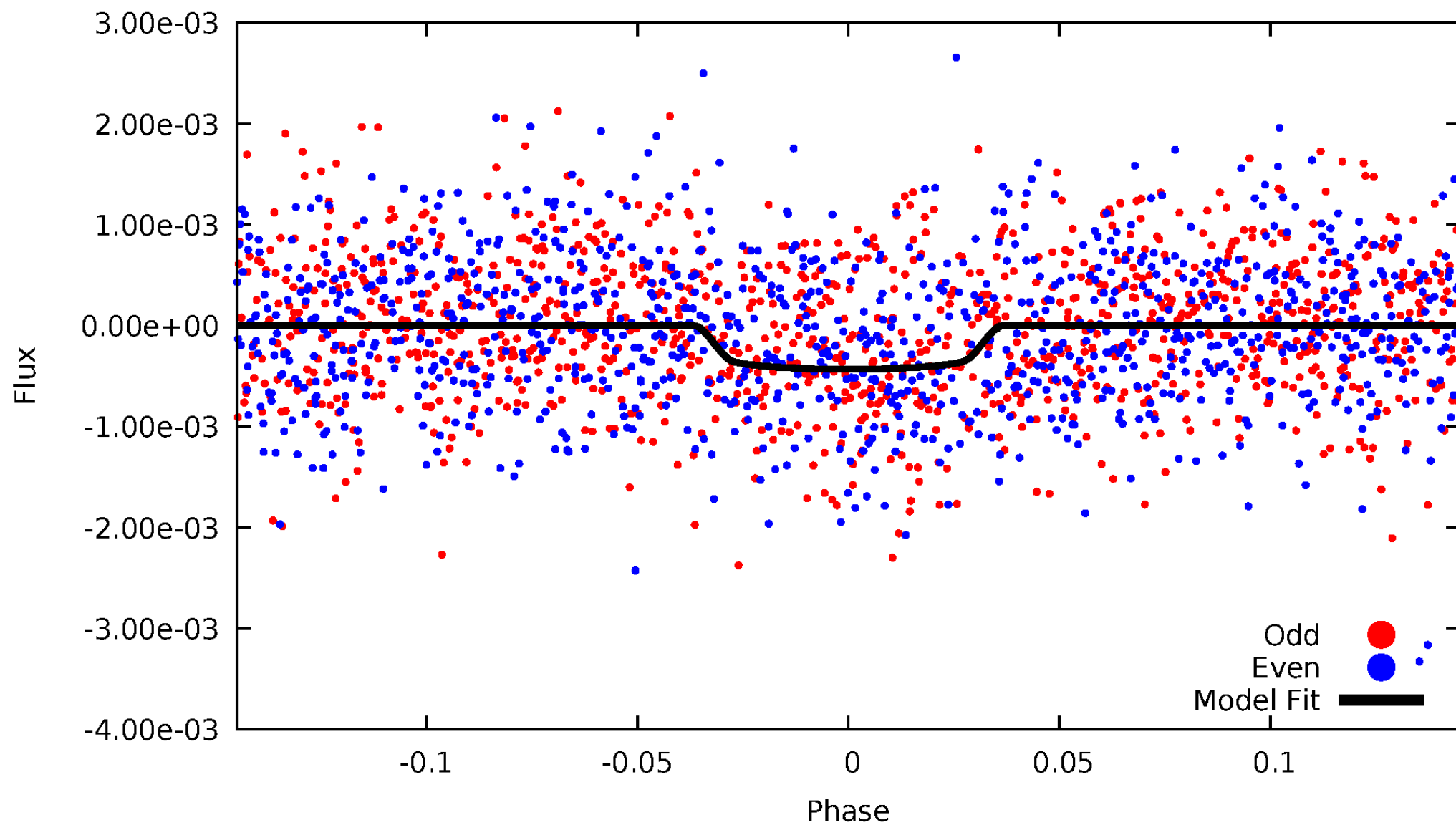


TCE 004756040-02



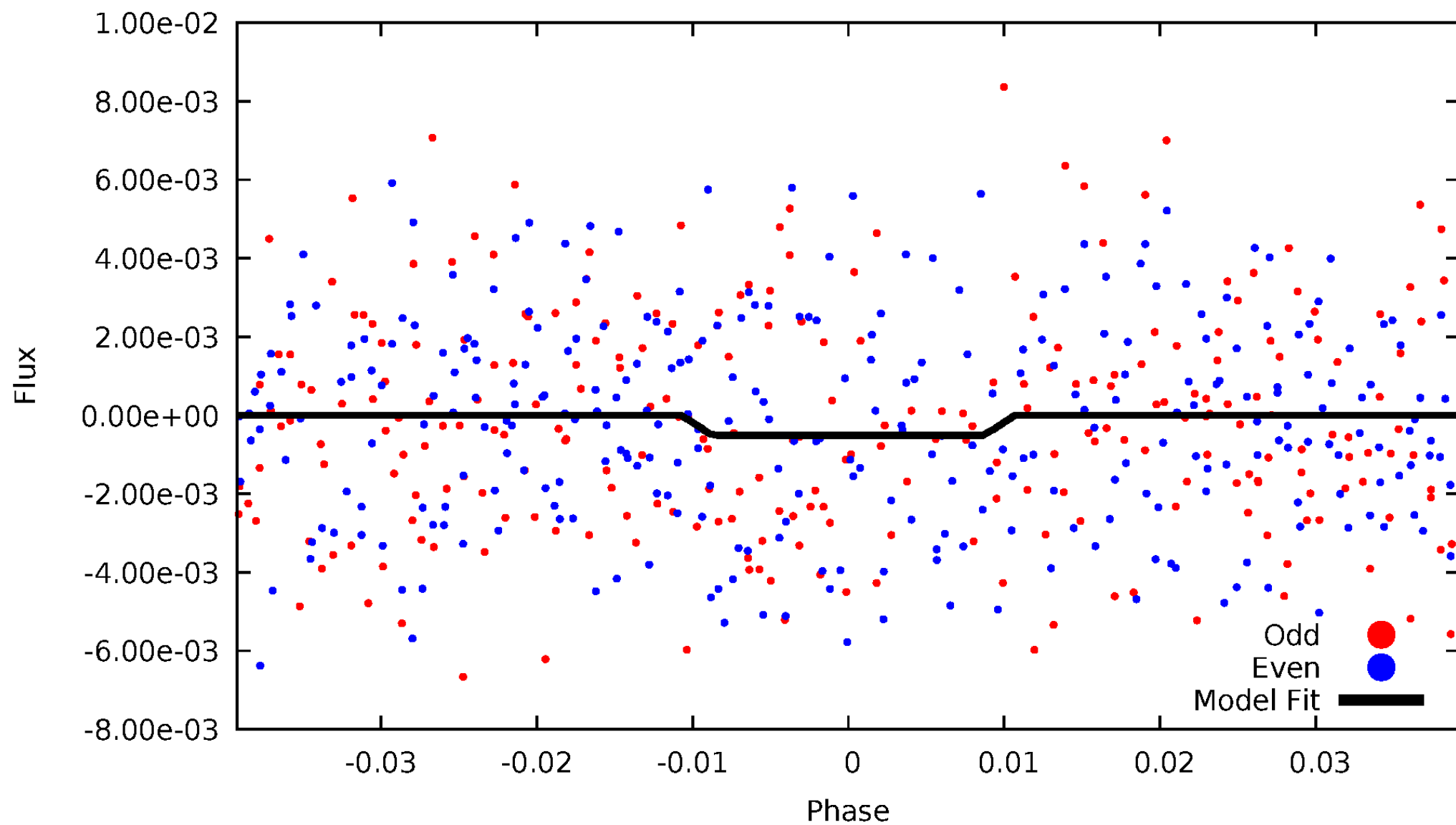
DV Odd/Even

TCE 004756040-02



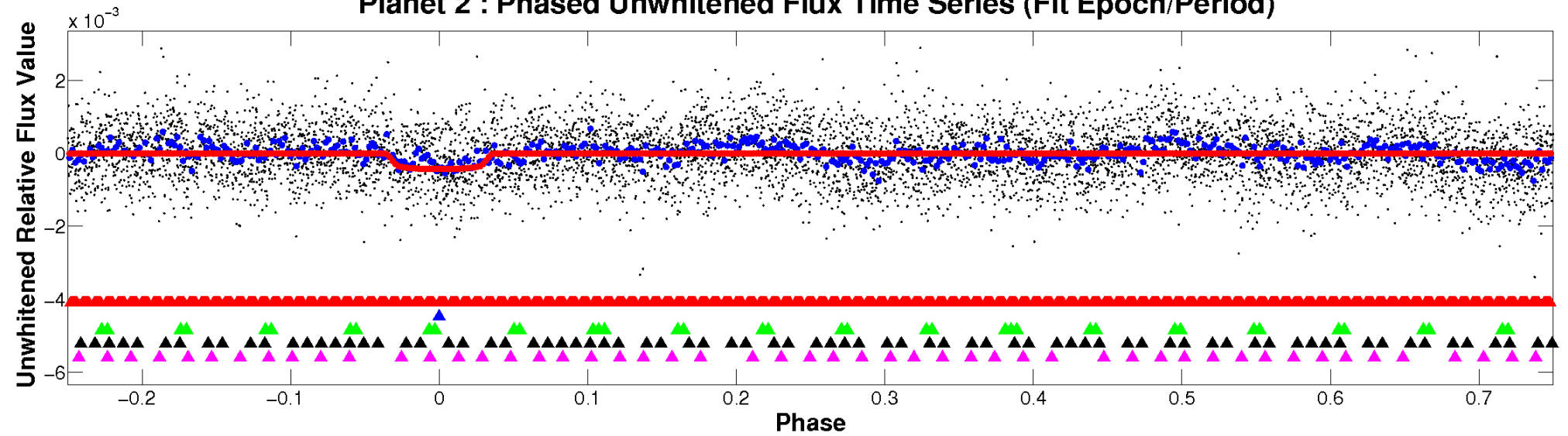
ALT Odd/Even

TCE 004756040-02

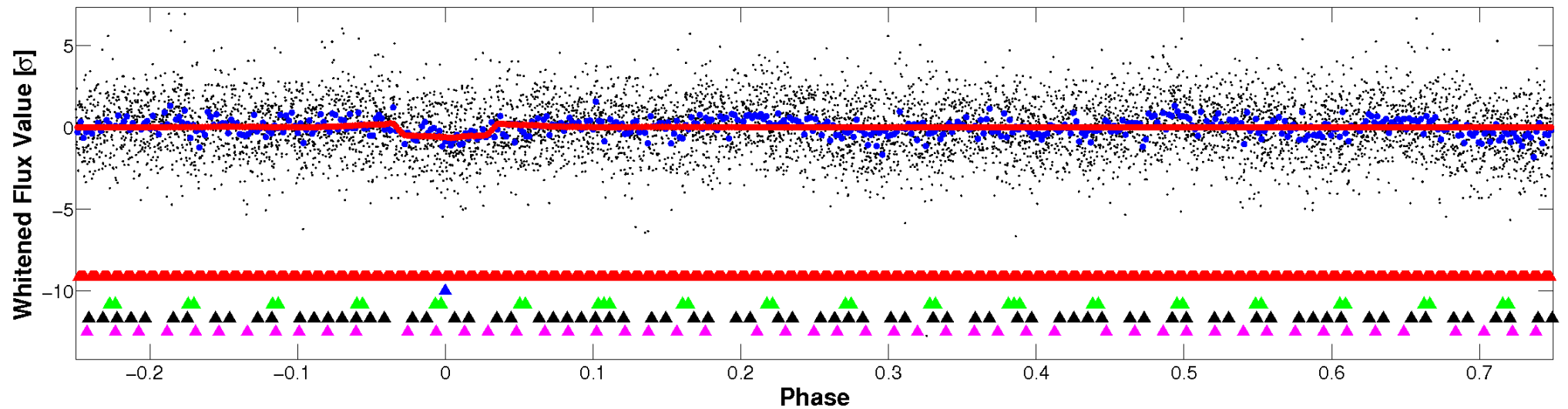


Non-Whitened Vs. Whitened Light Curve

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

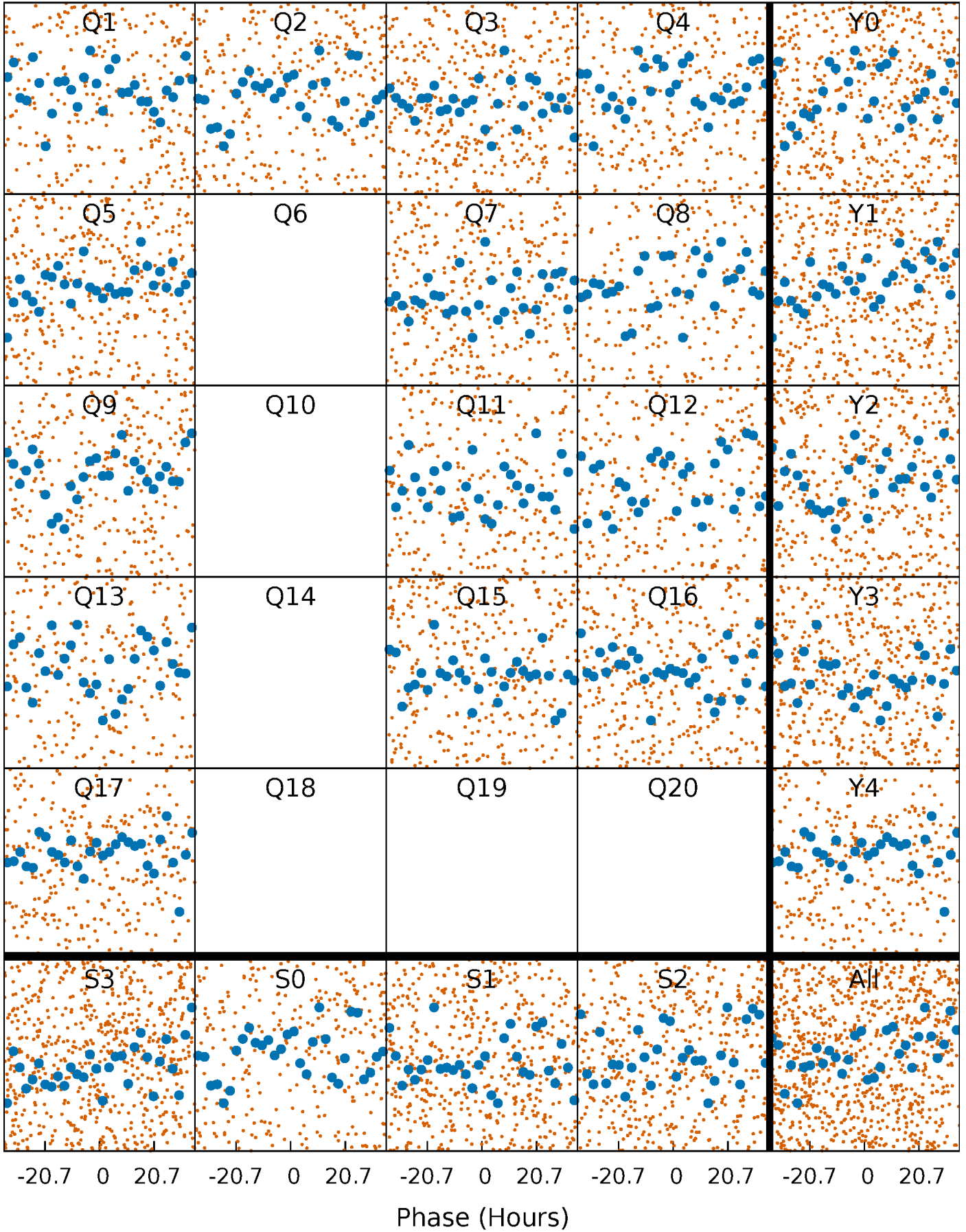


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



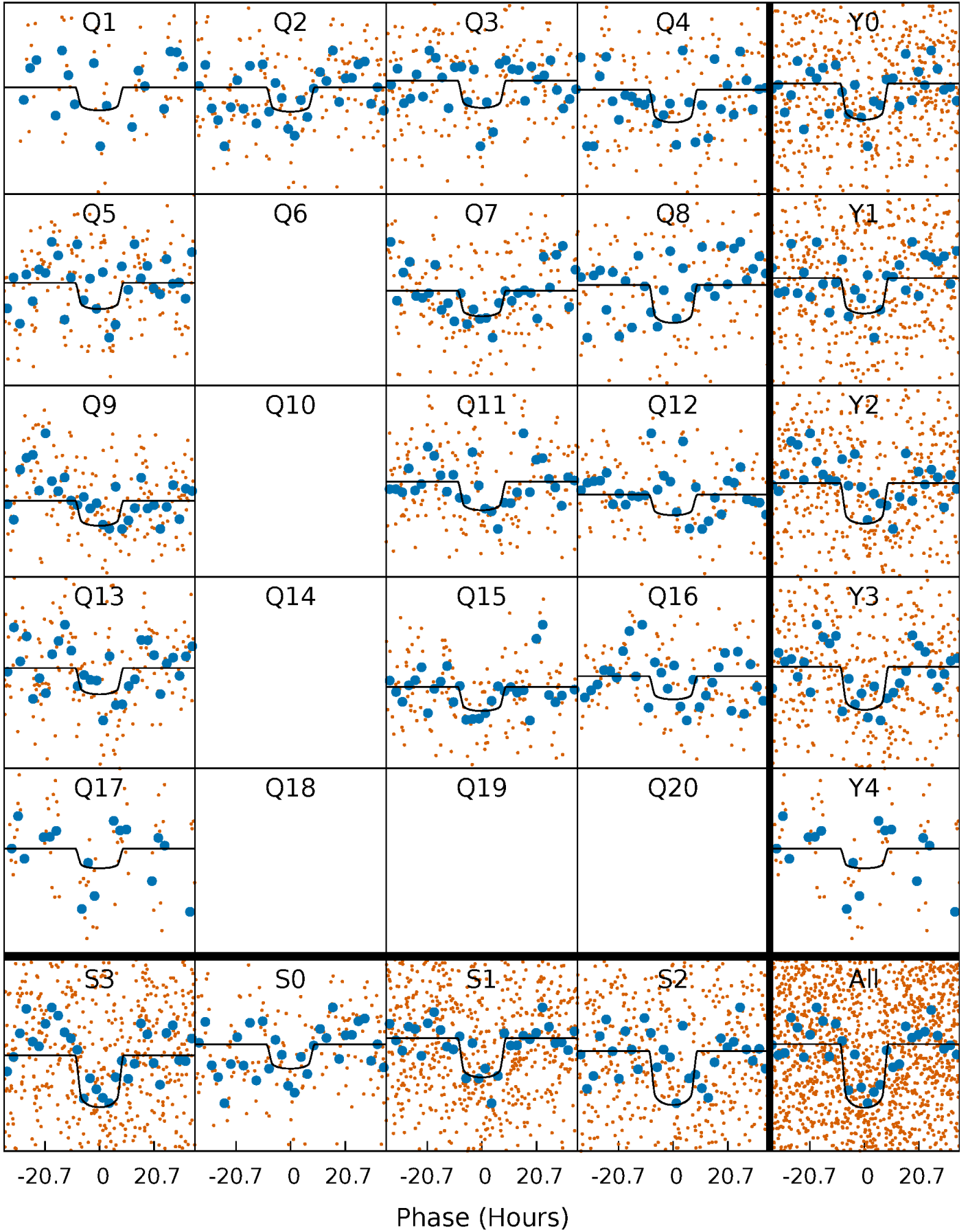
PDC Quarter-Phased Transit Curves

TCE 004756040-02 P= 10.428625 Days $T_0=141.257999$ (BKJD)



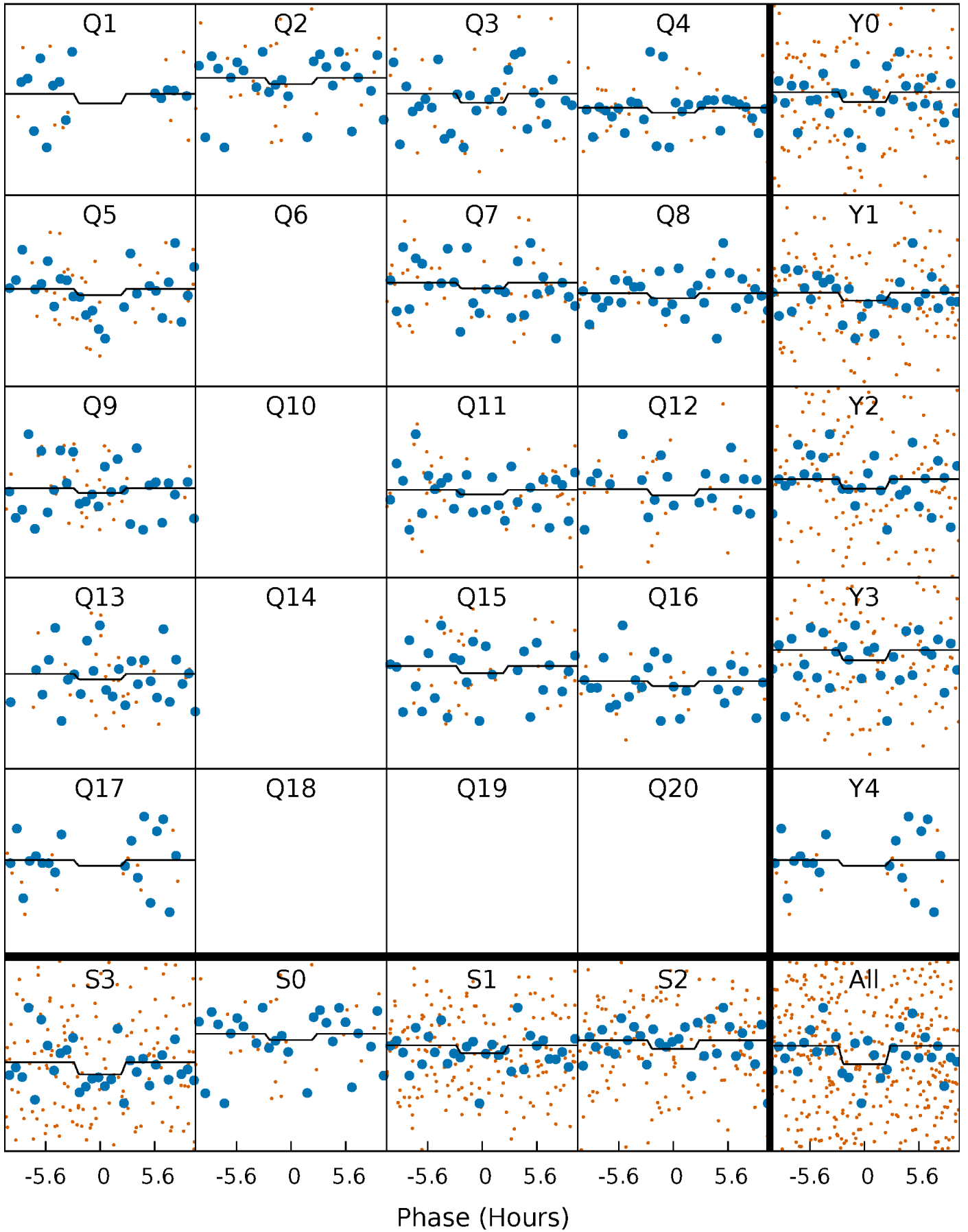
DV Quarter-Phased Transit Curves

TCE 004756040-02 $P = 10.428625$ Days $T_0 = 141.257999$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

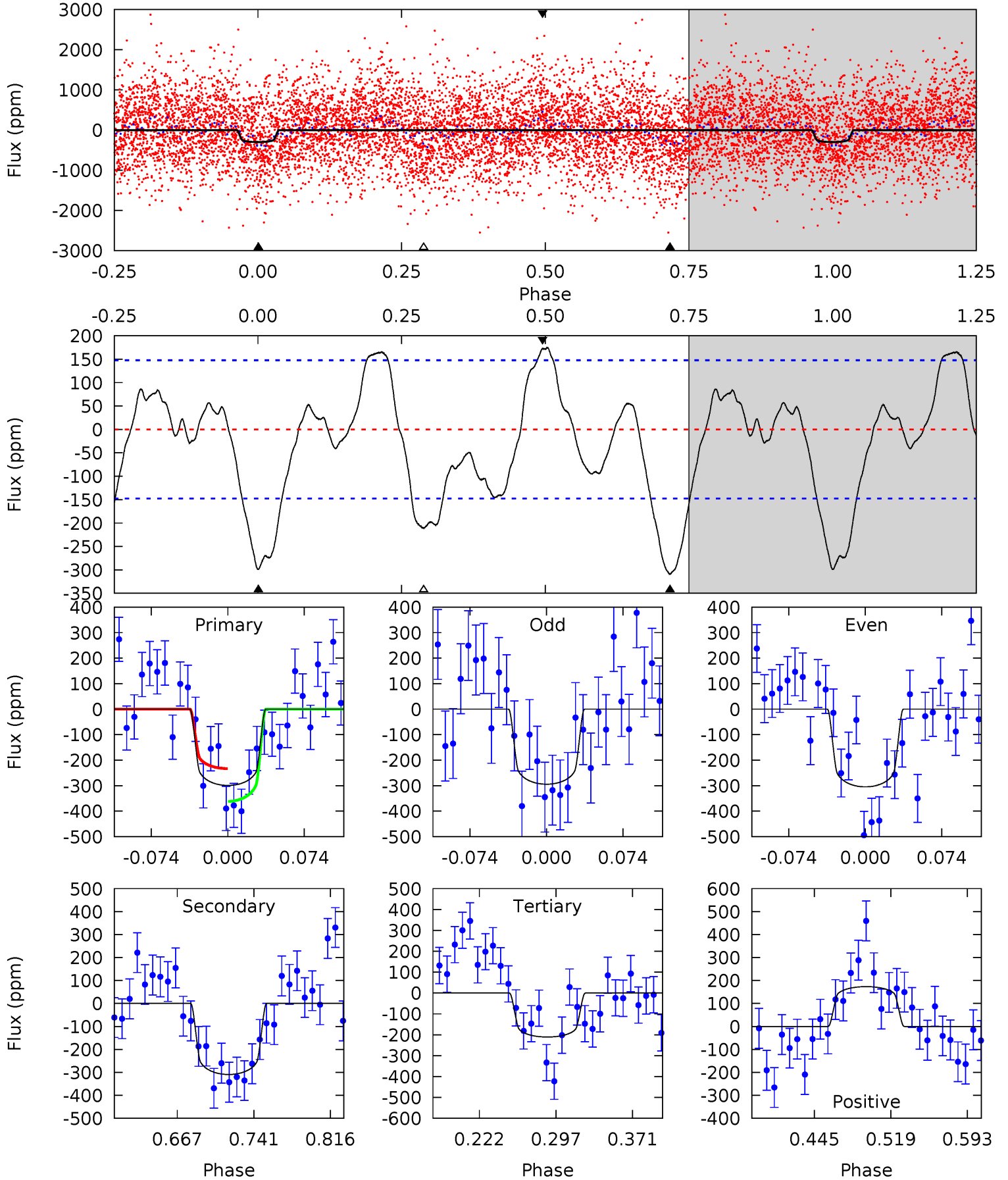
TCE 004756040-02 P= 10.427568 Days $T_0=141.528715$ (BKJD)



DV Model-Shift Uniqueness Test

004756040-02, P = 10.428625 Days, E = 130.829374 Days

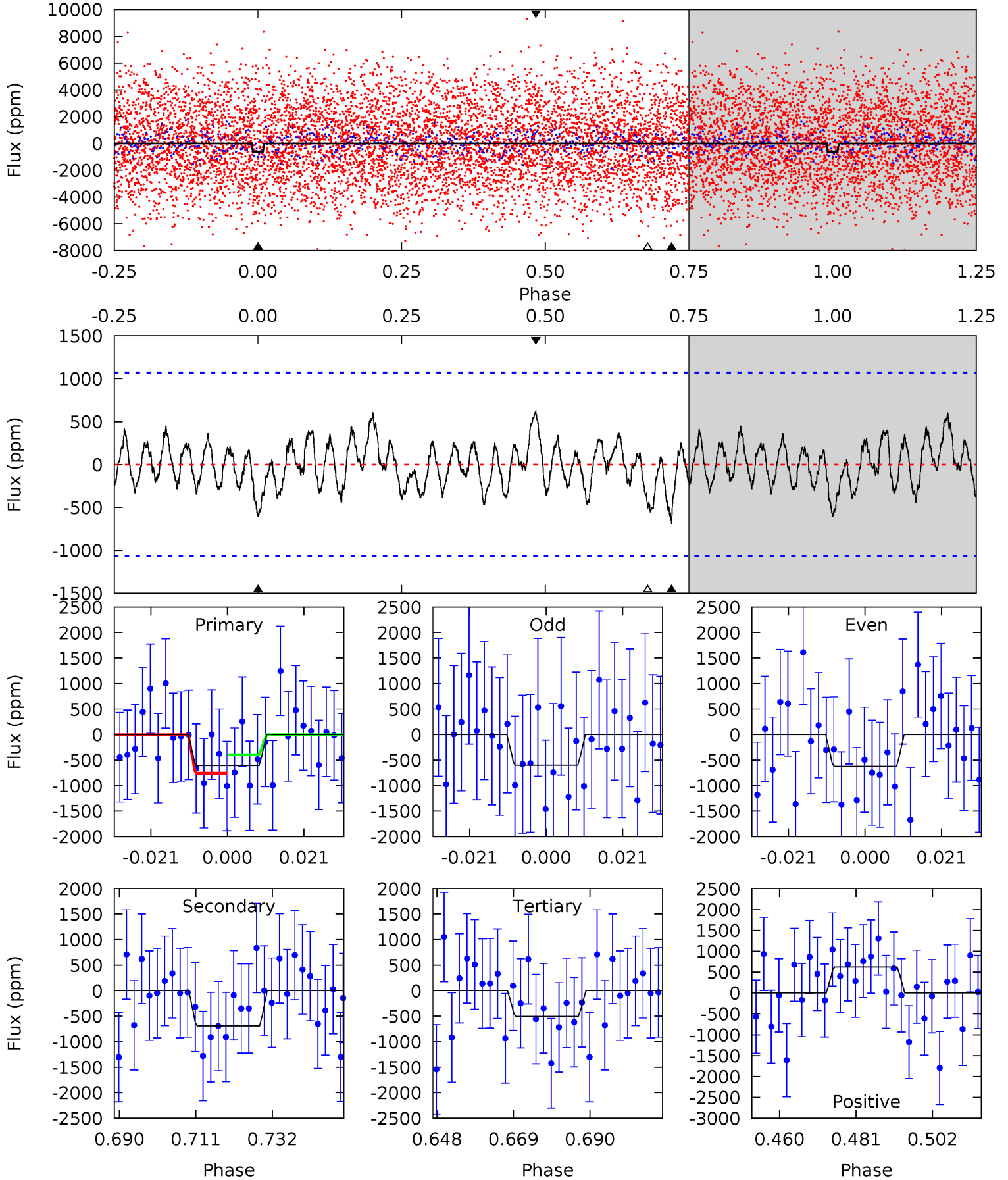
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.37	9.69	6.61	5.43	4.63	1.79	3.12	2.76	3.95	3.08	4.26	0.16	0.97	0.36	2.01



Alt Model-Shift Uniqueness Test

004756040-02, P = 10.427568 Days, E = 131.101147 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.78	3.15	2.30	2.84	4.88	2.31	1.04	0.48	-0.06	0.85	0.31	0.05	0.99	0.47	0.82



Stellar Parameters For KIC 004756040

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7837^{+214}_{-322}	$4.091^{+0.135}_{-0.165}$	$-0.020^{+0.200}_{-0.350}$	$1.966^{+0.495}_{-0.405}$	$1.737^{+0.181}_{-0.294}$	$0.322^{+0.223}_{-0.144}$
	+3%/-4%	+3%/-4%	+1000%/-1750%	+25%/-21%	+10%/-17%	+69%/-45%
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 004756040-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-309 ± 32	$4.78^{+0.85}_{-0.69}$	2027^{+129}_{-126}	6798^{+491}_{-428}	92^{+32}_{-26}
Alt.	-690 ± 219	$4.85^{+0.89}_{-0.70}$	2028^{+141}_{-131}	8488^{+1180}_{-1031}	193^{+105}_{-75}

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

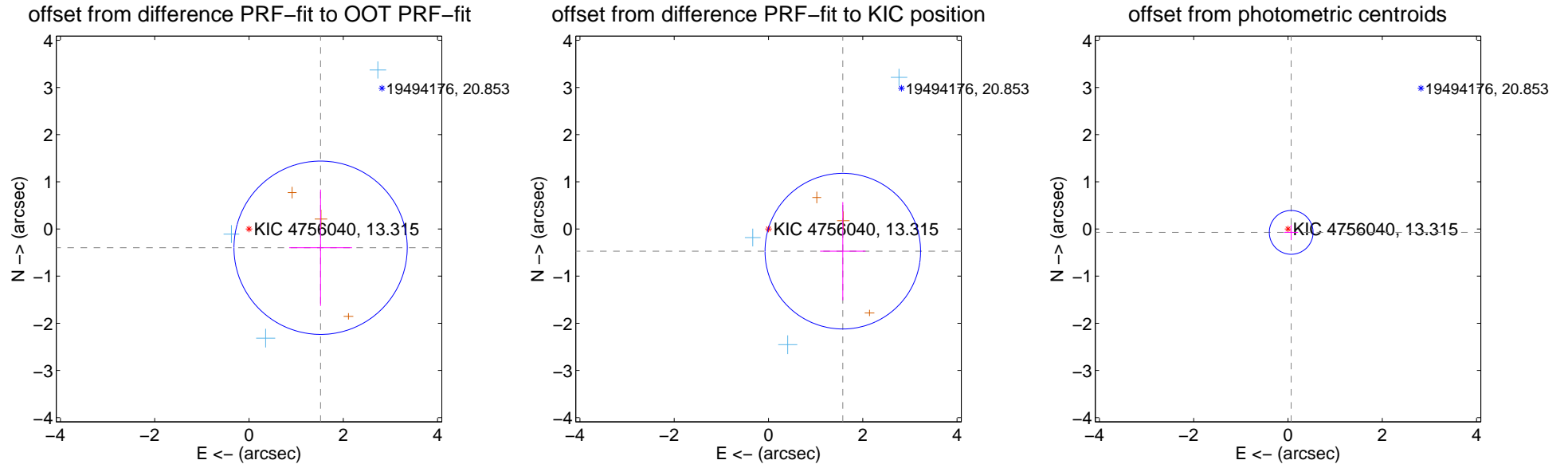
DV Centroid Data

Supplemental centroid analysis for 004756040-02. Kepler magnitude: 13.31. Transit SNR 11.78

There are 3 quarters with good PRF difference image offsets

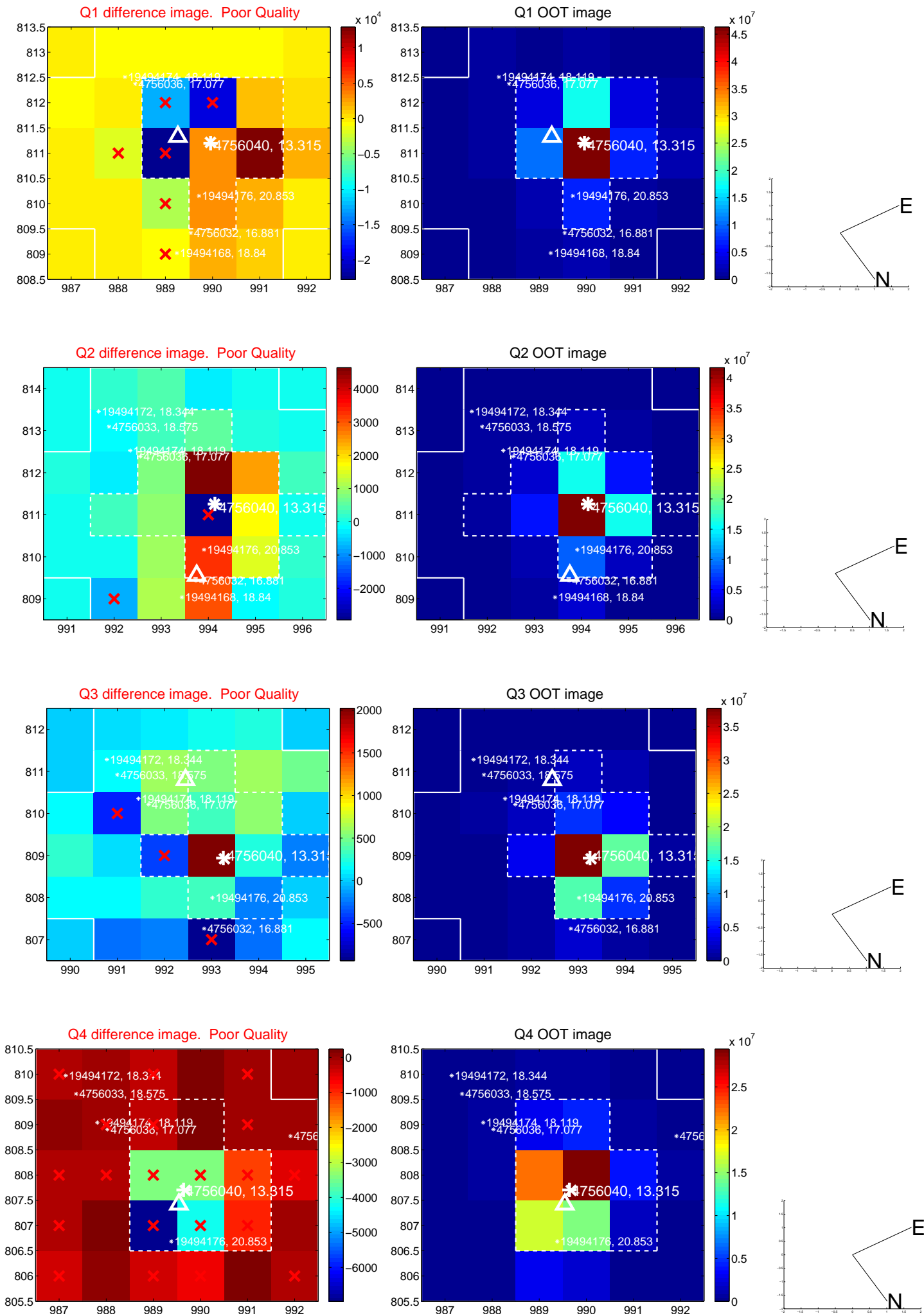
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.571 ± 0.613	2.56	-1.519 ± 0.667	-0.398 ± 1.233
PRF-fit source offset from KIC position	1.645 ± 0.550	2.99	-1.577 ± 0.483	-0.471 ± 1.041
photometric centroid source offset	0.10 ± 0.15	0.64	-0.07 ± 0.15	-0.07 ± 0.16

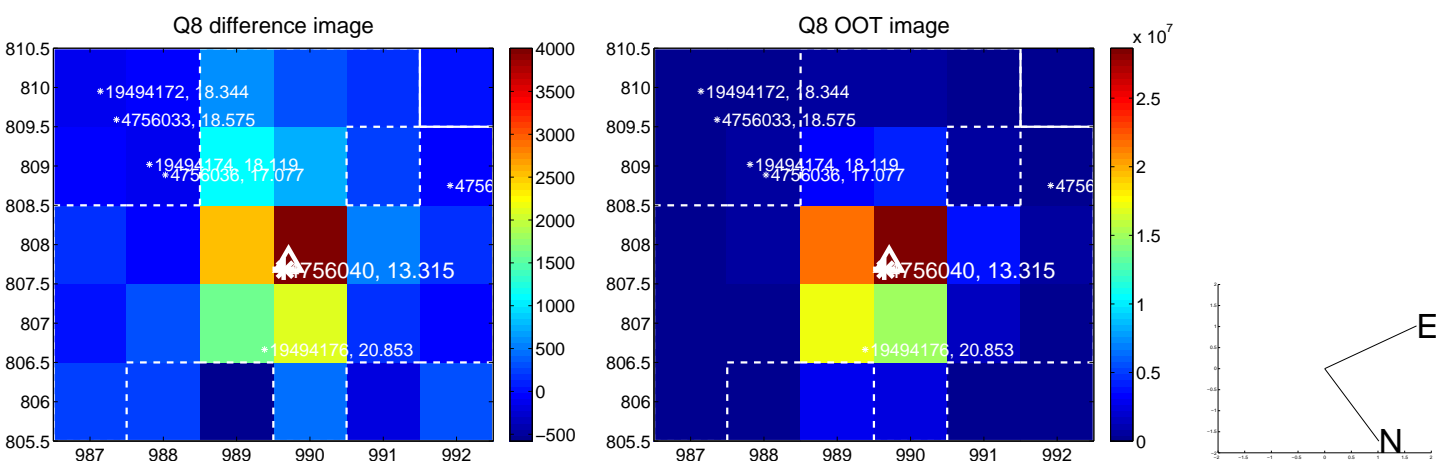
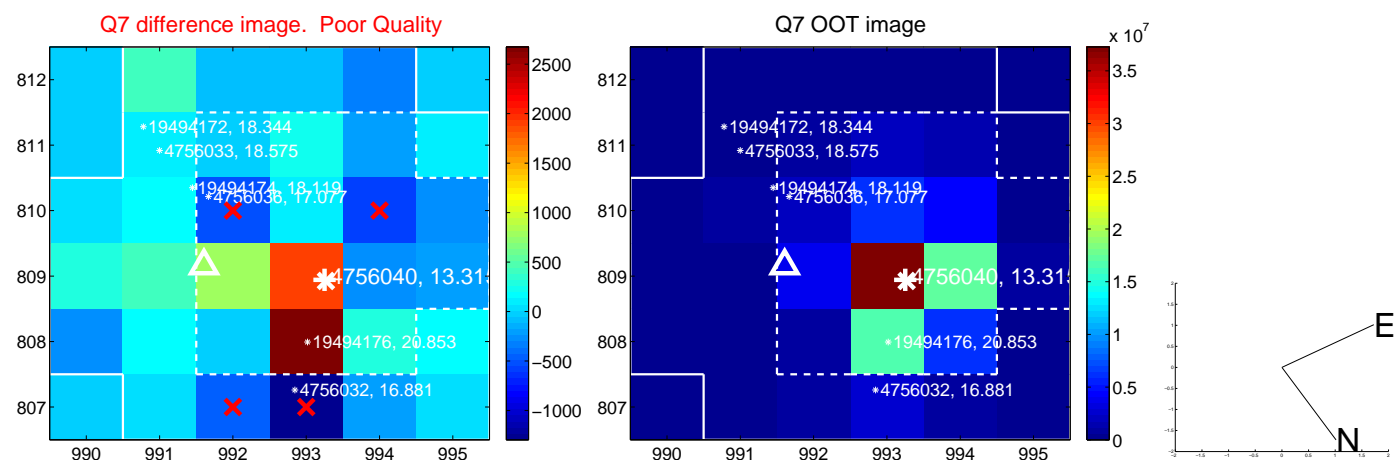
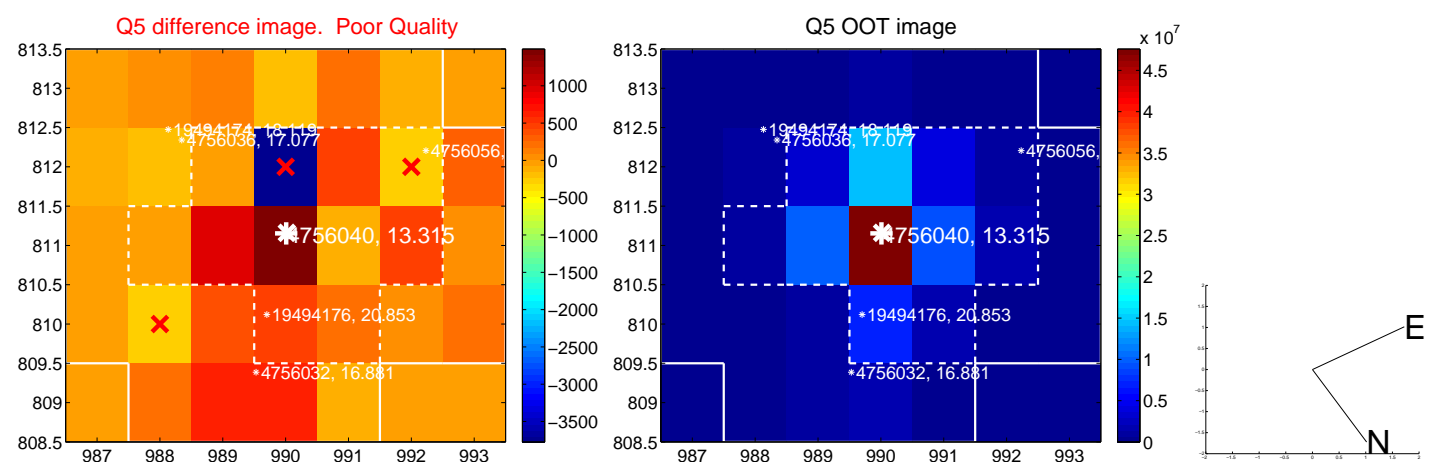


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

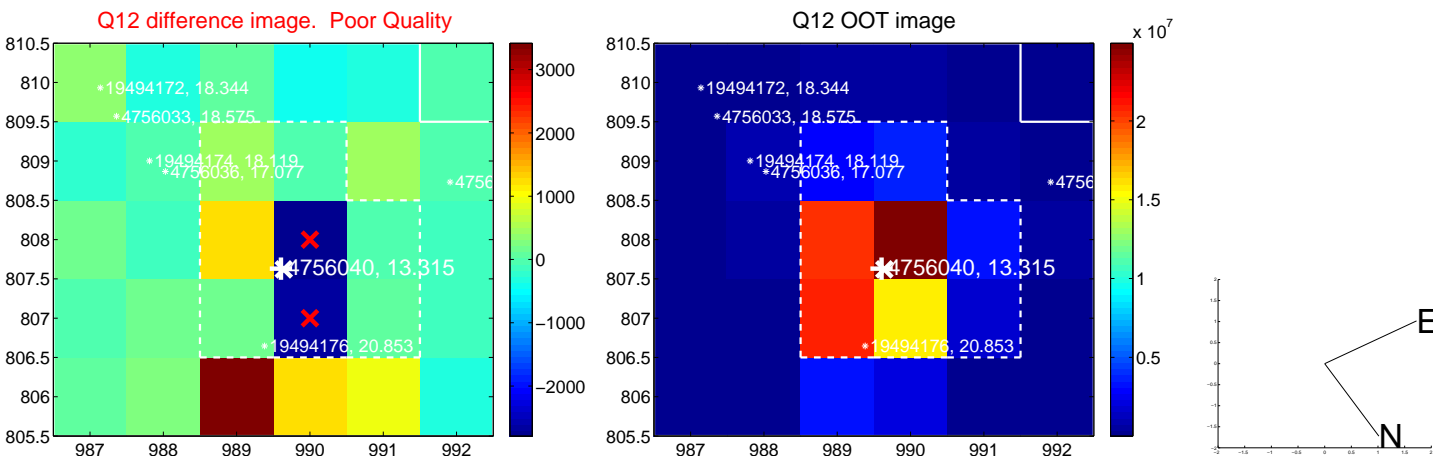
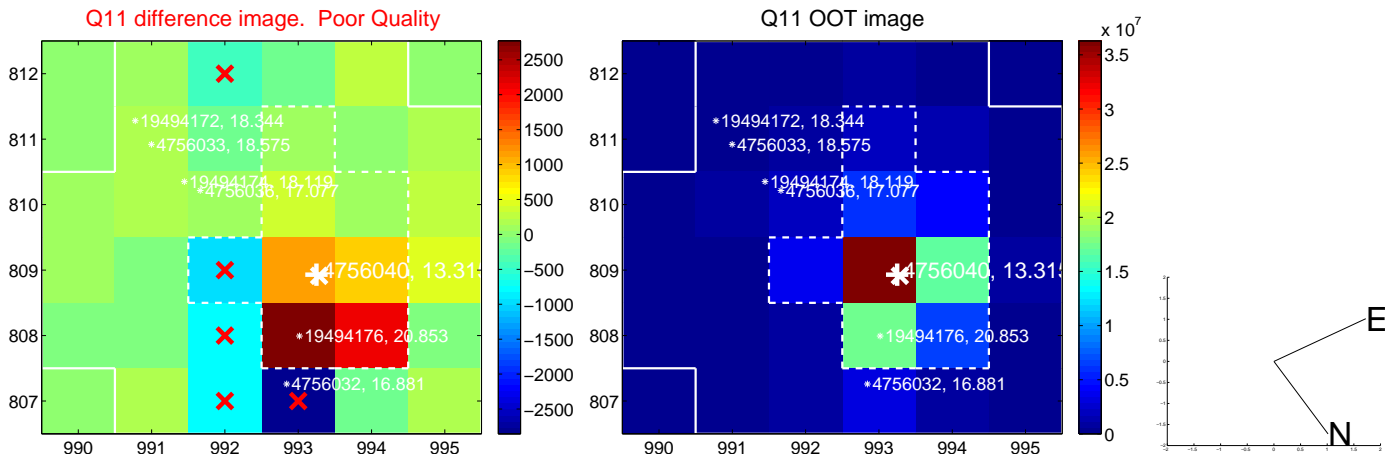
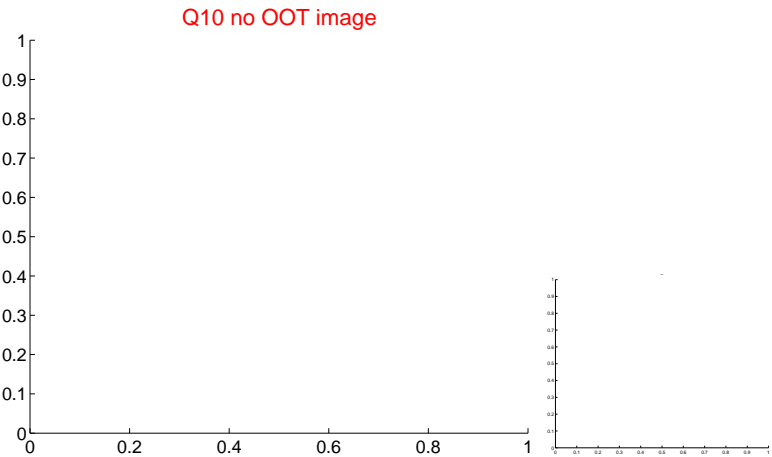
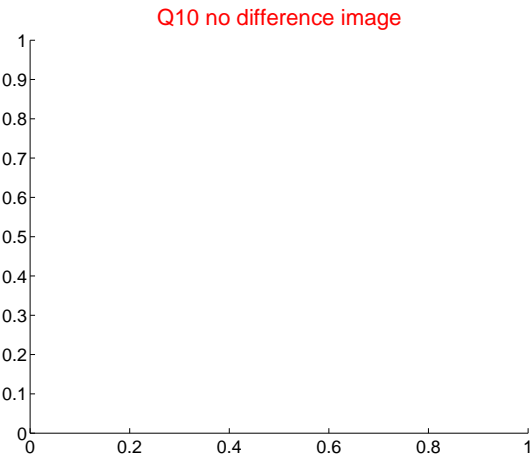
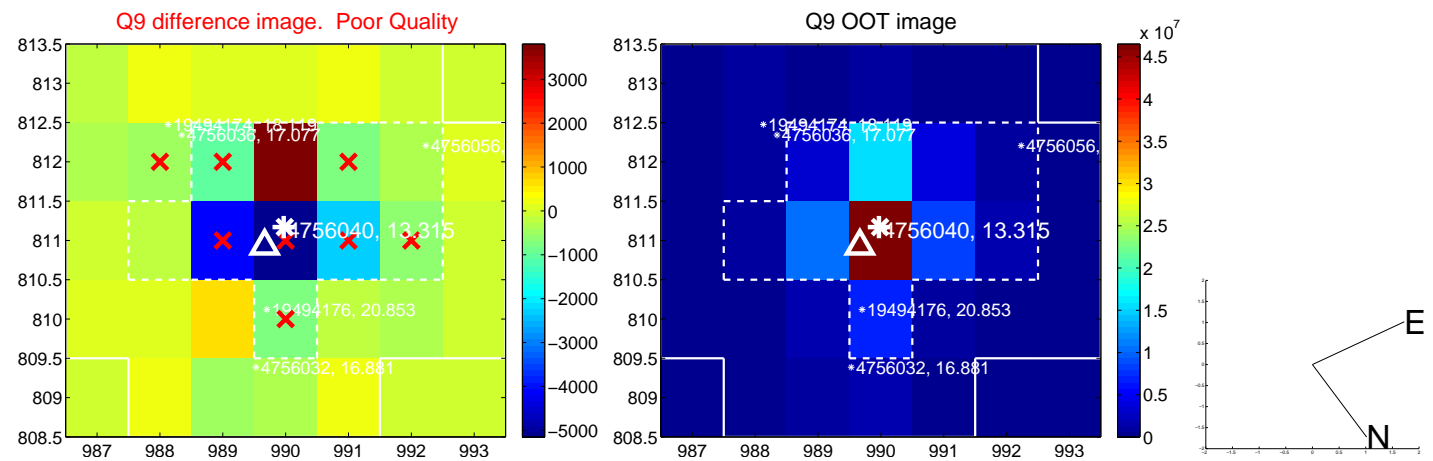
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



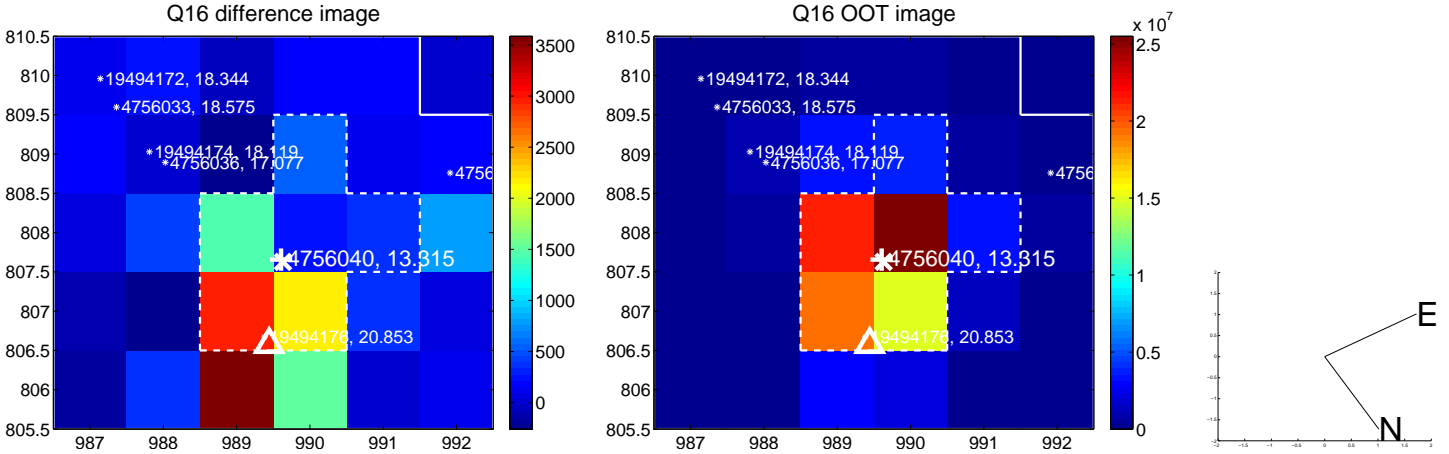
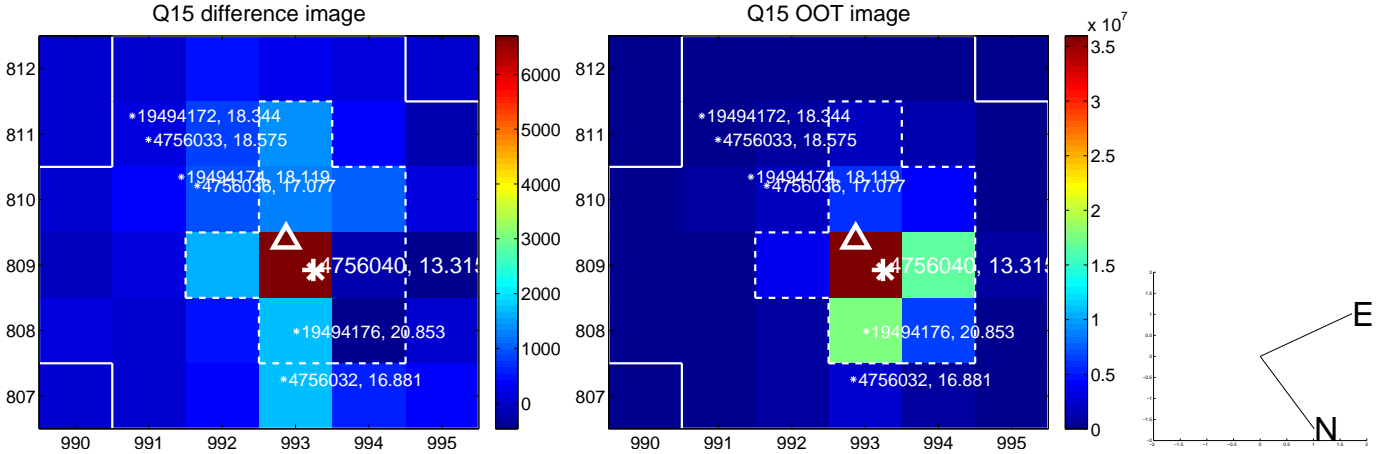
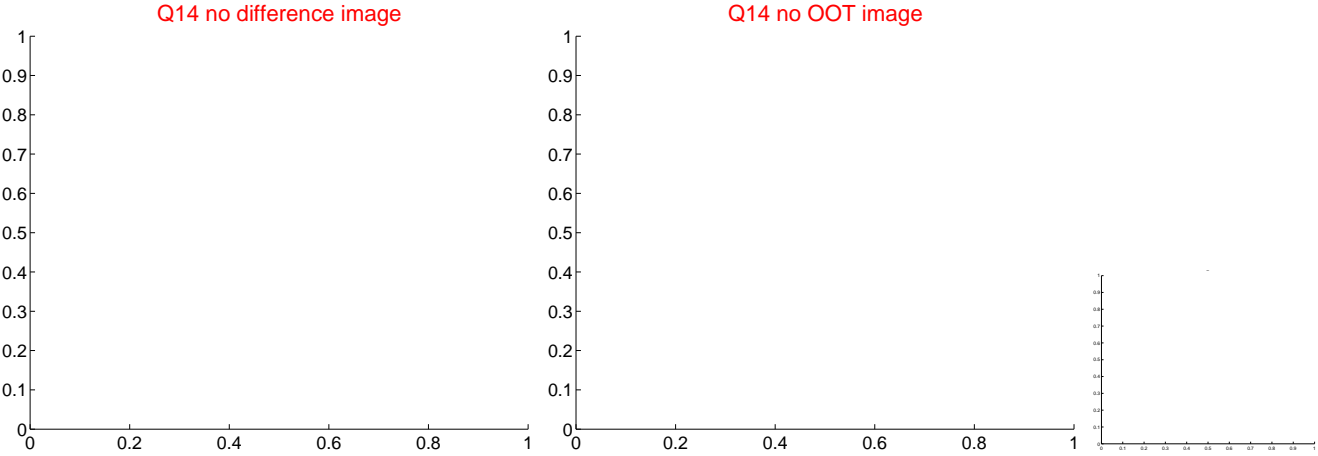
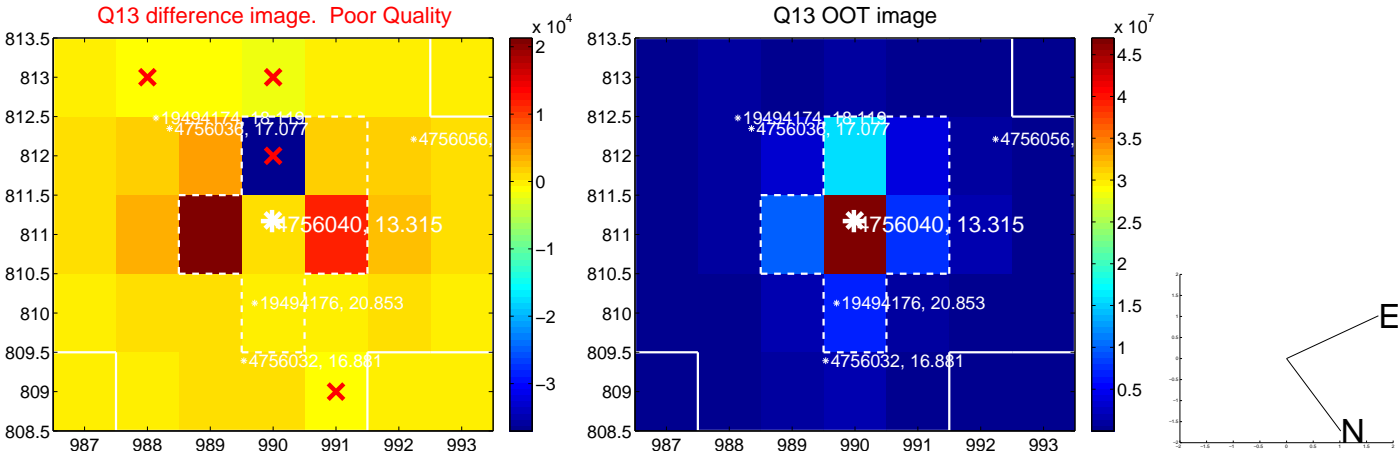
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



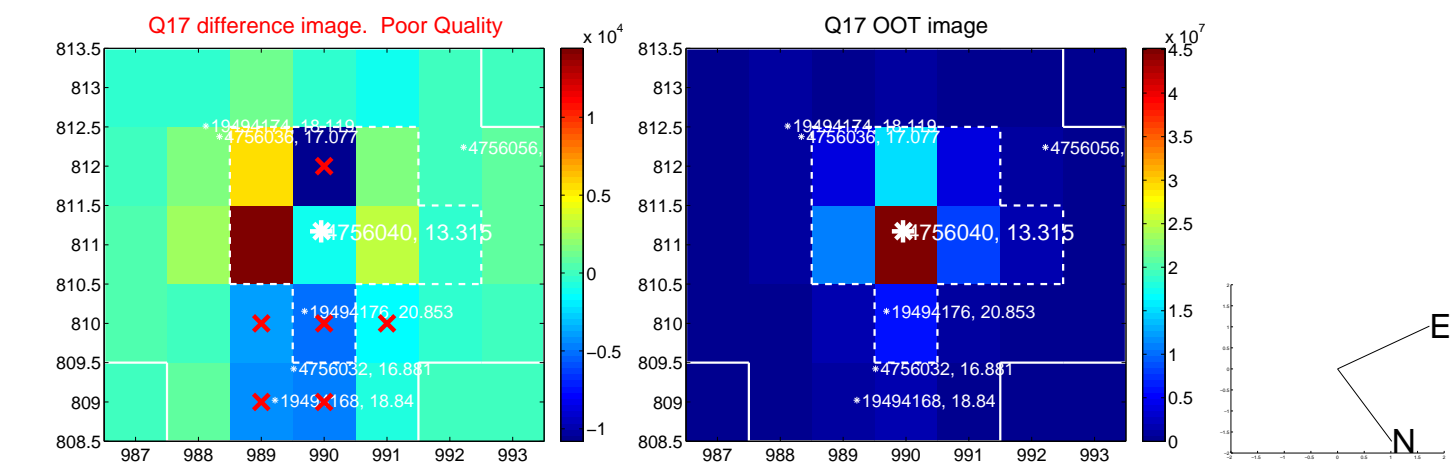
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



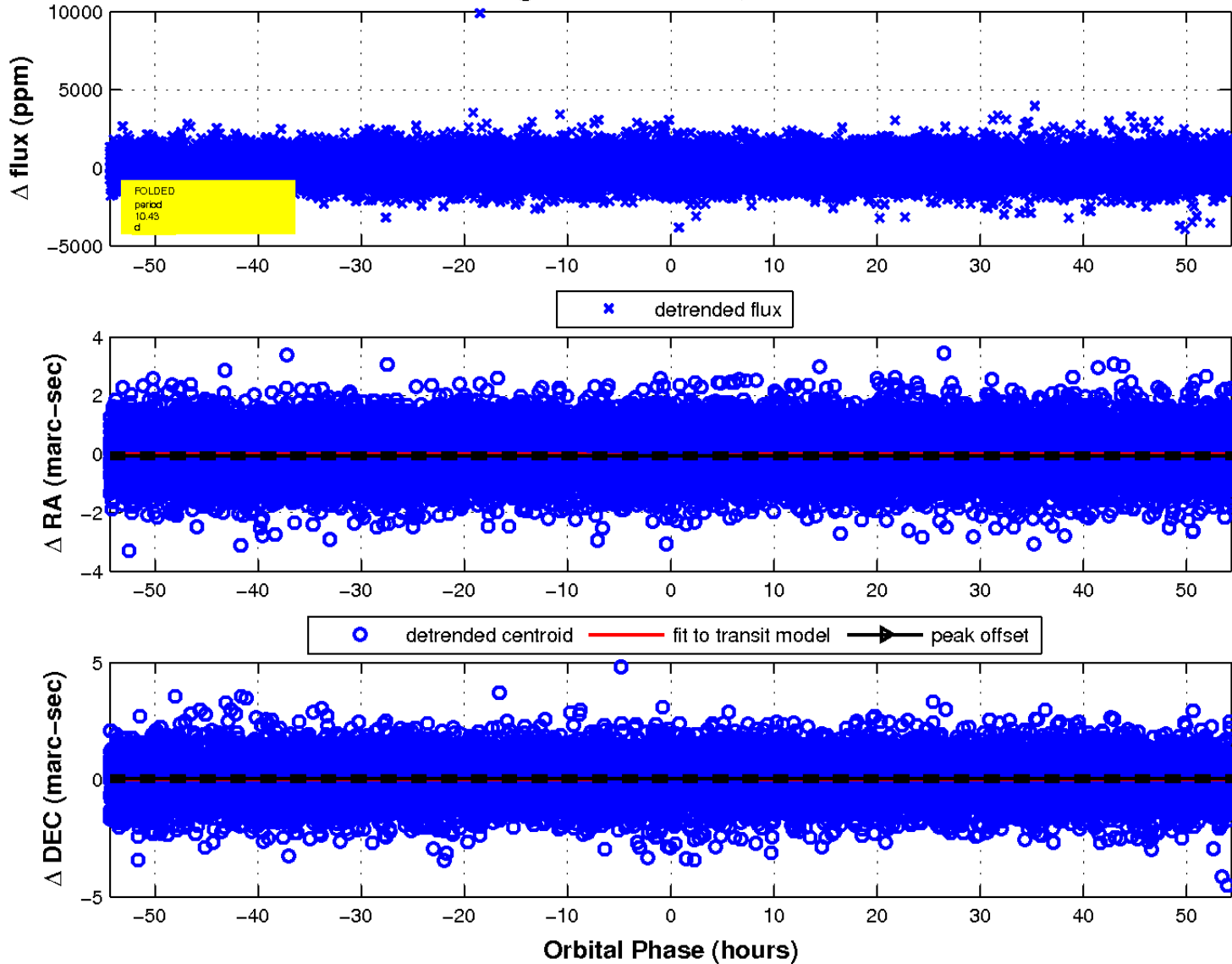
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

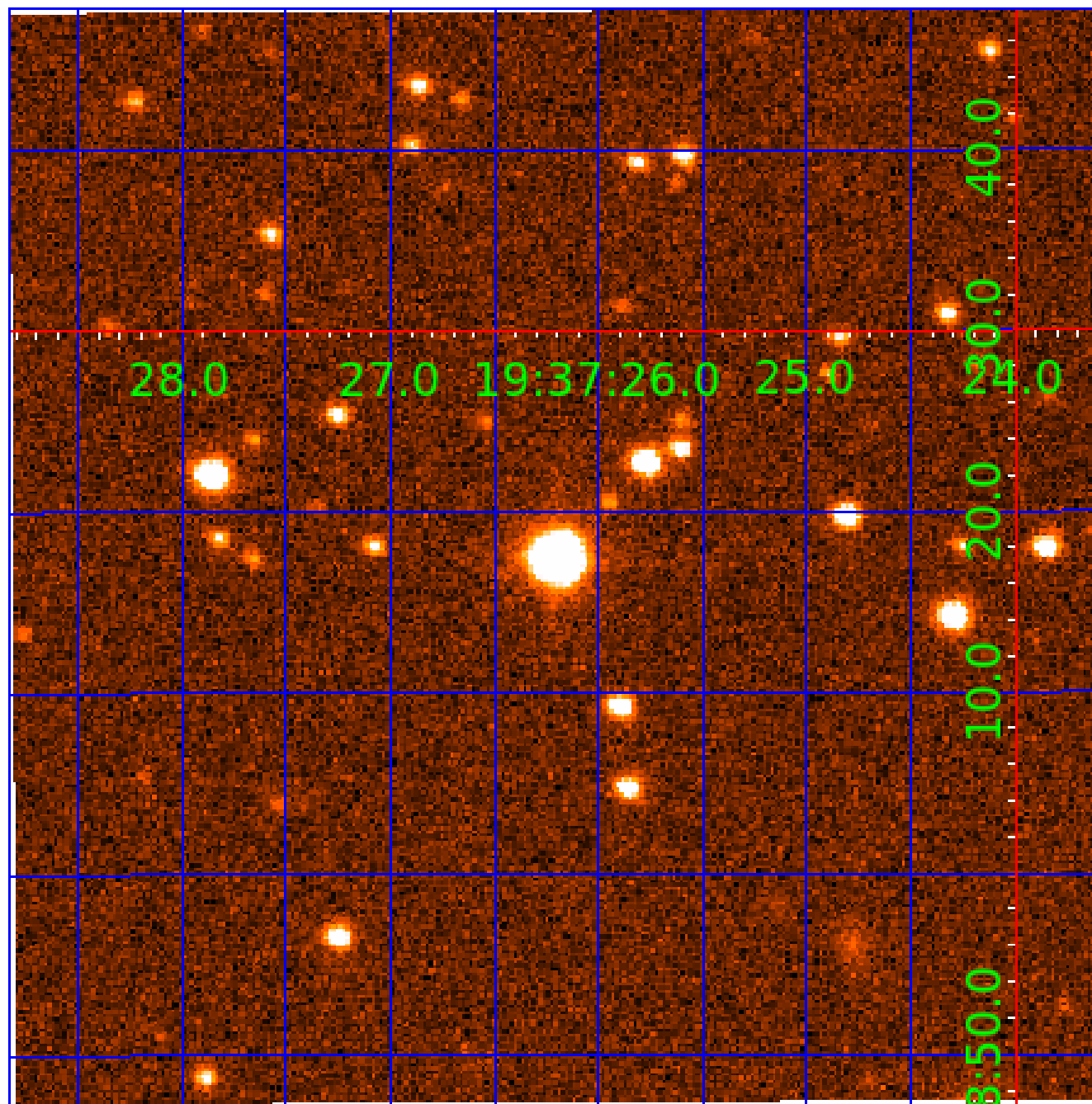


fluxWeightedCentroids, Planet 2 of 5



UKIRT Image

Declination



KIC 004756040

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})
004756040-01	OBS	No	0.584023	131.576557	50.6	3.858	9.0	6.3	1.97	7837	1.50	48303.25
004756040-02	OBS	No	10.428625	141.257999	432.4	18.124	10.0	11.8	1.97	7837	4.77	1034.94
004756040-03	OBS	No	38.819900	145.232715	1110.8	3.648	10.7	7.5	1.97	7837	6.99	179.40
004756040-04	OBS	No	19.168818	131.690165	1216.1	1.966	9.6	10.4	1.97	7837	6.98	459.64
004756040-05	OBS	No	28.820279	148.791369	704.5	10.460	8.7	9.9	1.97	7837	5.51	266.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004756040-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004756040-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004756040-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004756040-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV
004756040-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST

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

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

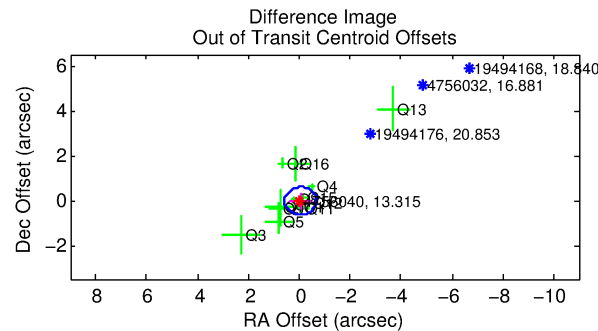
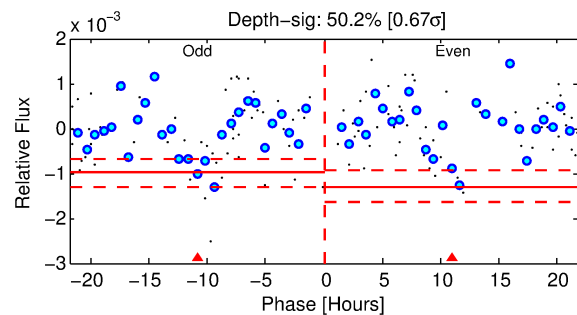
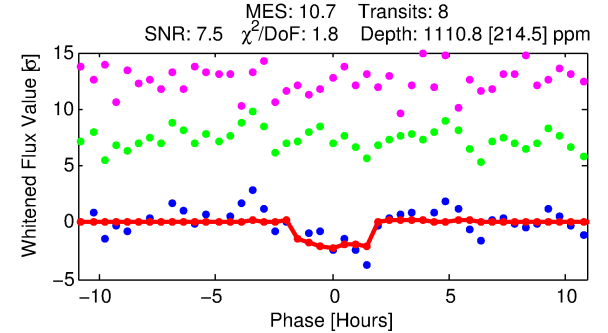
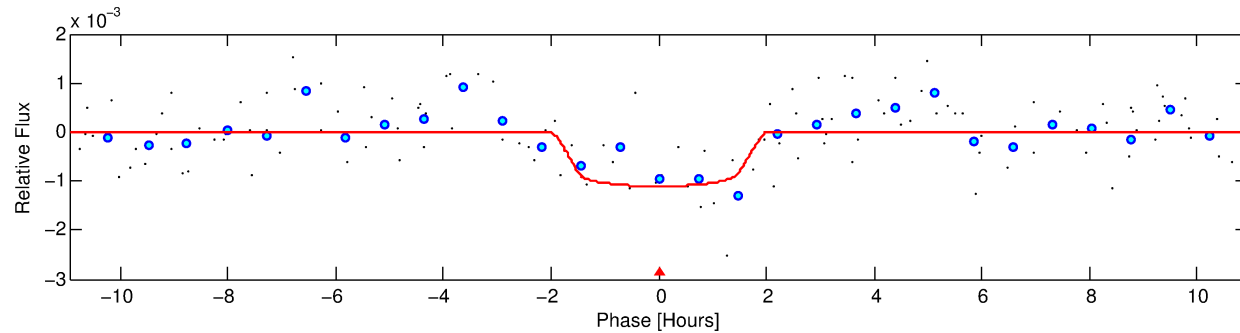
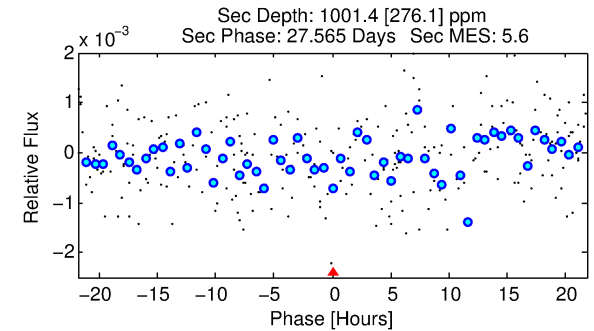
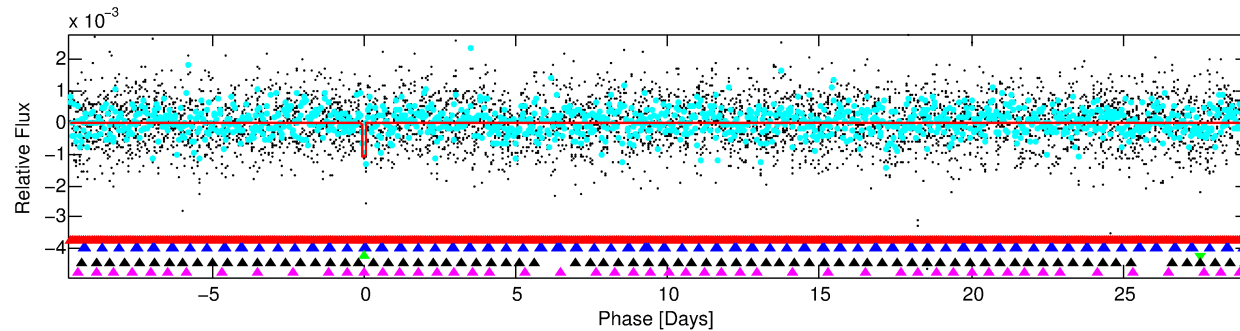
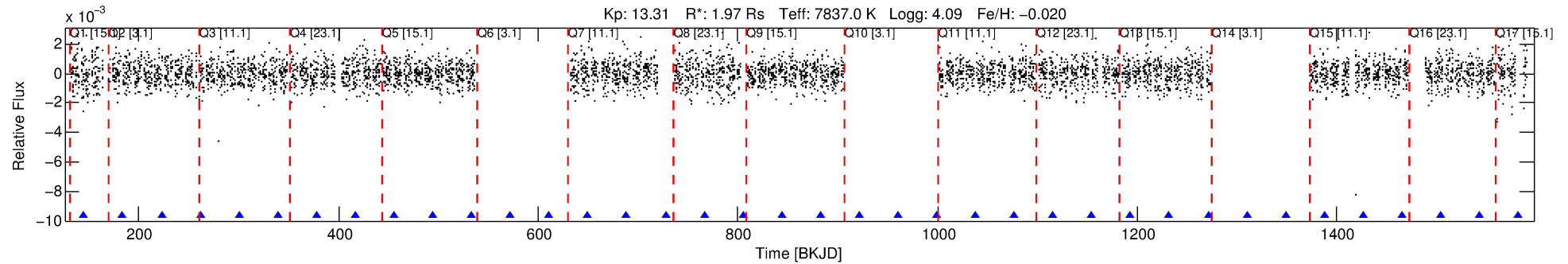
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004756040-03

No Significant Match Found

DV One-Page Summary

KIC: 4756040 Candidate: 3 of 5 Period: 38.820 d



DV Fit Results:

Period = 38.81990 [0.00051] d
Epoch = 145.2327 [0.0097] BKJD
Rp/R* = 0.0326 [0.0300]
a/R* = 63.67 [354.29]
b = 0.67 [4.57]
Seff = 179.39 [61.97]
Teq = 933 [81] K
Rp = 6.99 [6.68] Re
a = 0.2699 [0.0567] AU
Ag = 821.67 [1551.84] [0.53σ]
Teffp = 7725 [3614] K [1.88σ]

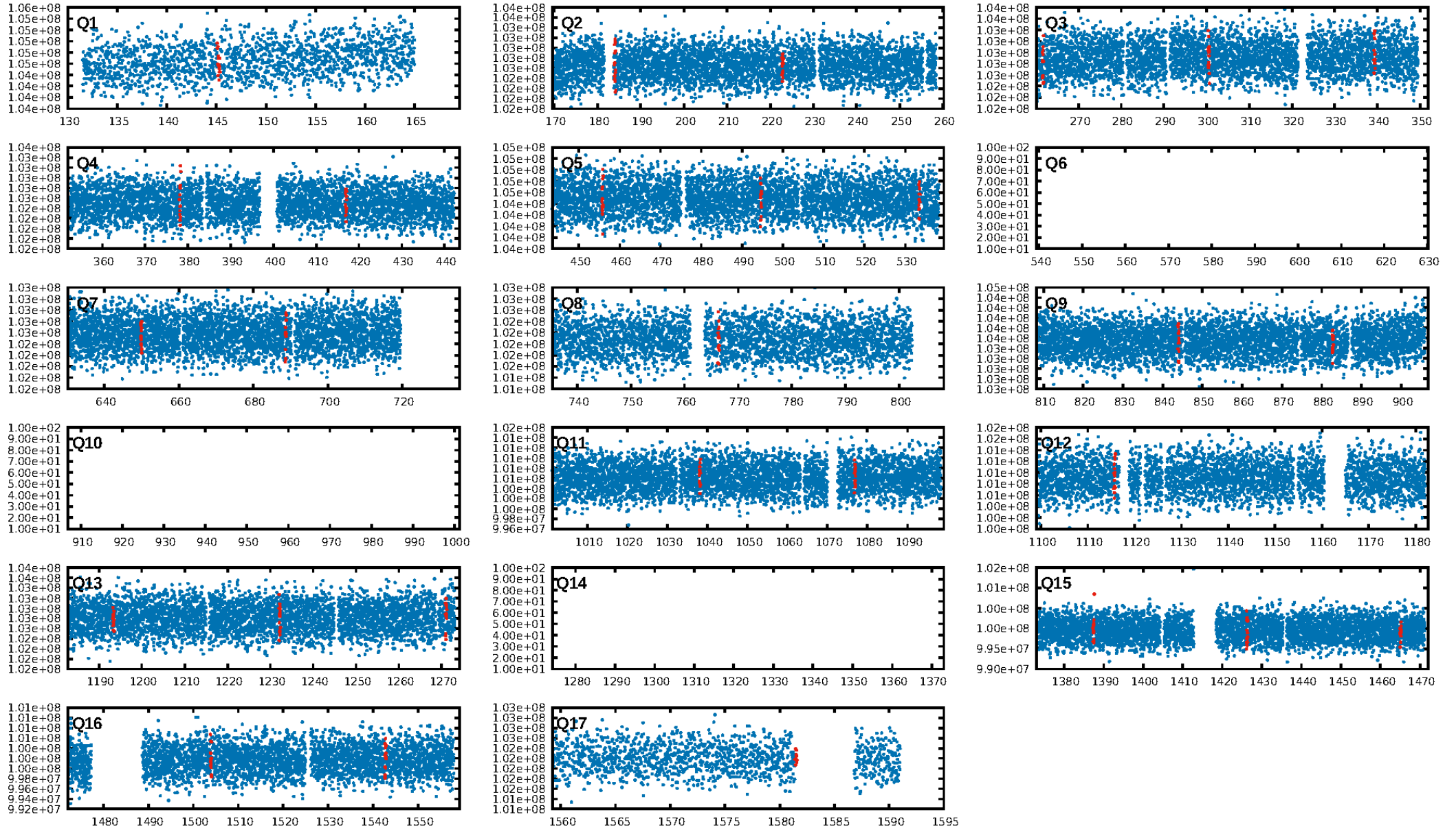
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [21.66σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 18.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.65e-10
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -2.364
Centroid-sig: 33.7%
Centroid-so: 0.208 arcsec [1.25σ]
OotOffset-rm: 0.058 arcsec [0.28σ]
KicOffset-rm: 0.165 arcsec [0.85σ]
OotOffset-st: 1/4/4/4 [13]
KicOffset-st: 1/4/4/4 [13]
DiffImageQuality-fgm: 0.54 [7/13]
DiffImageOverlap-fno: 0.00 [0/13]

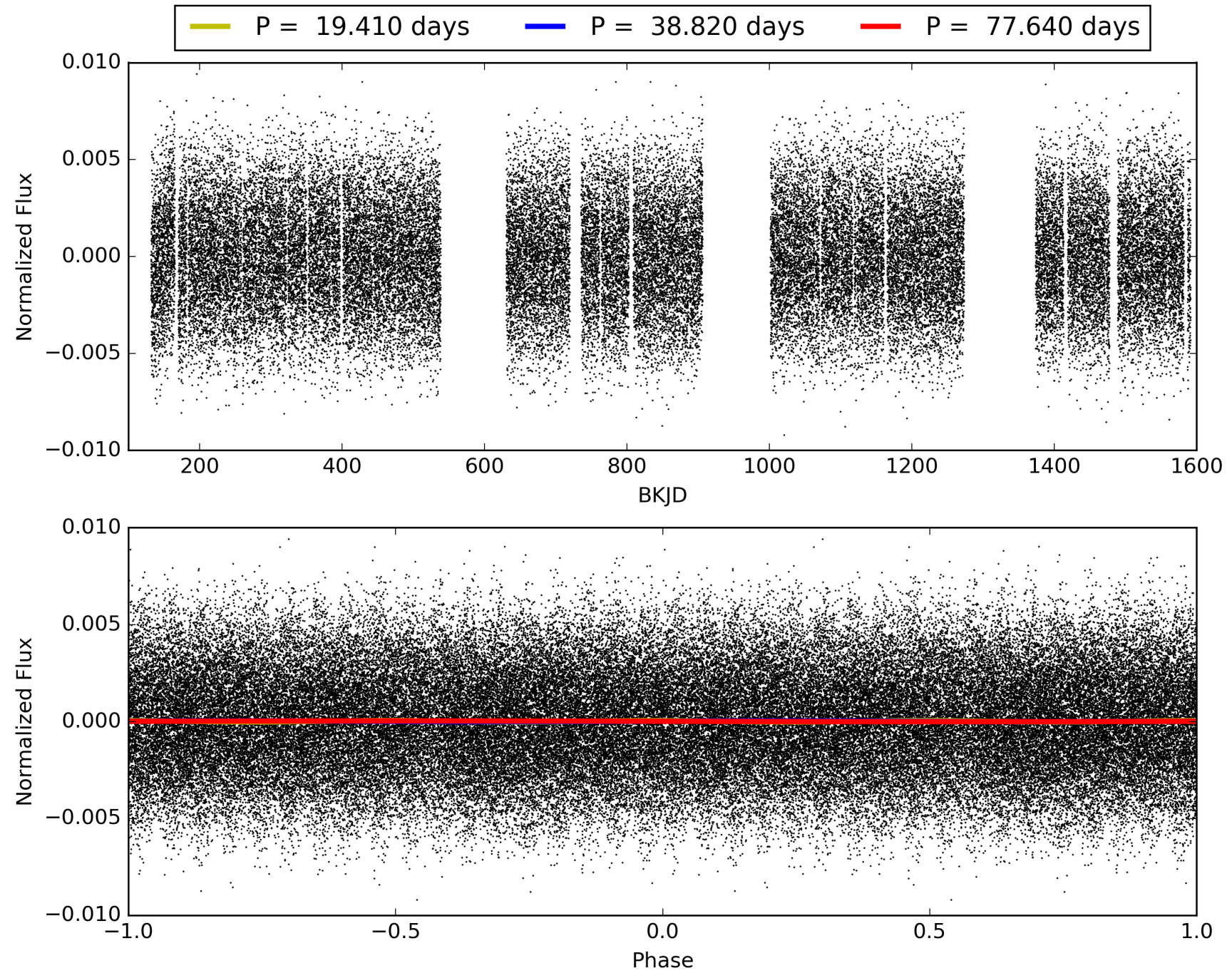
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:11:16 Z

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

TCE 004756040-03, PDC Light Curves

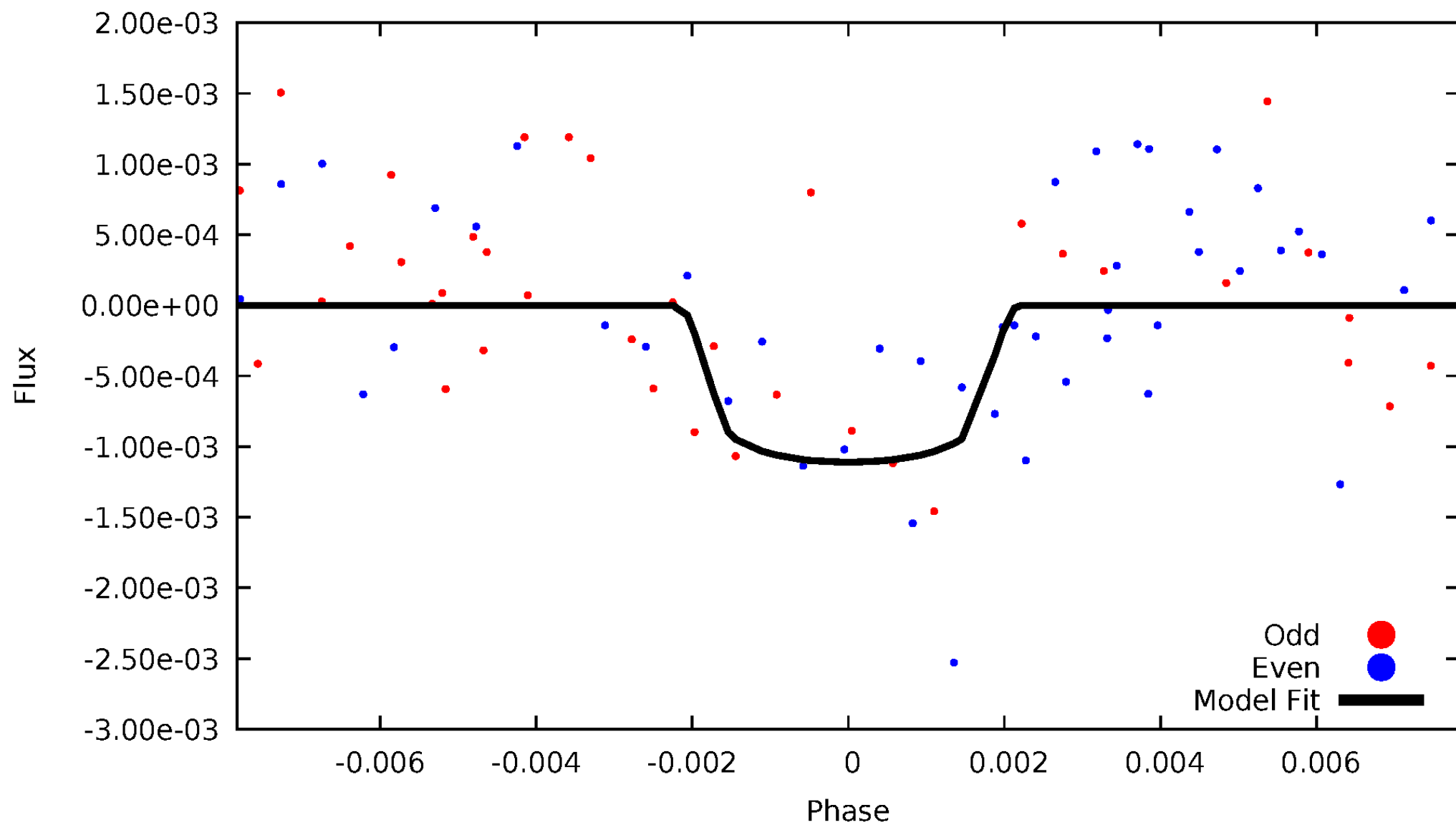


TCE 004756040-03



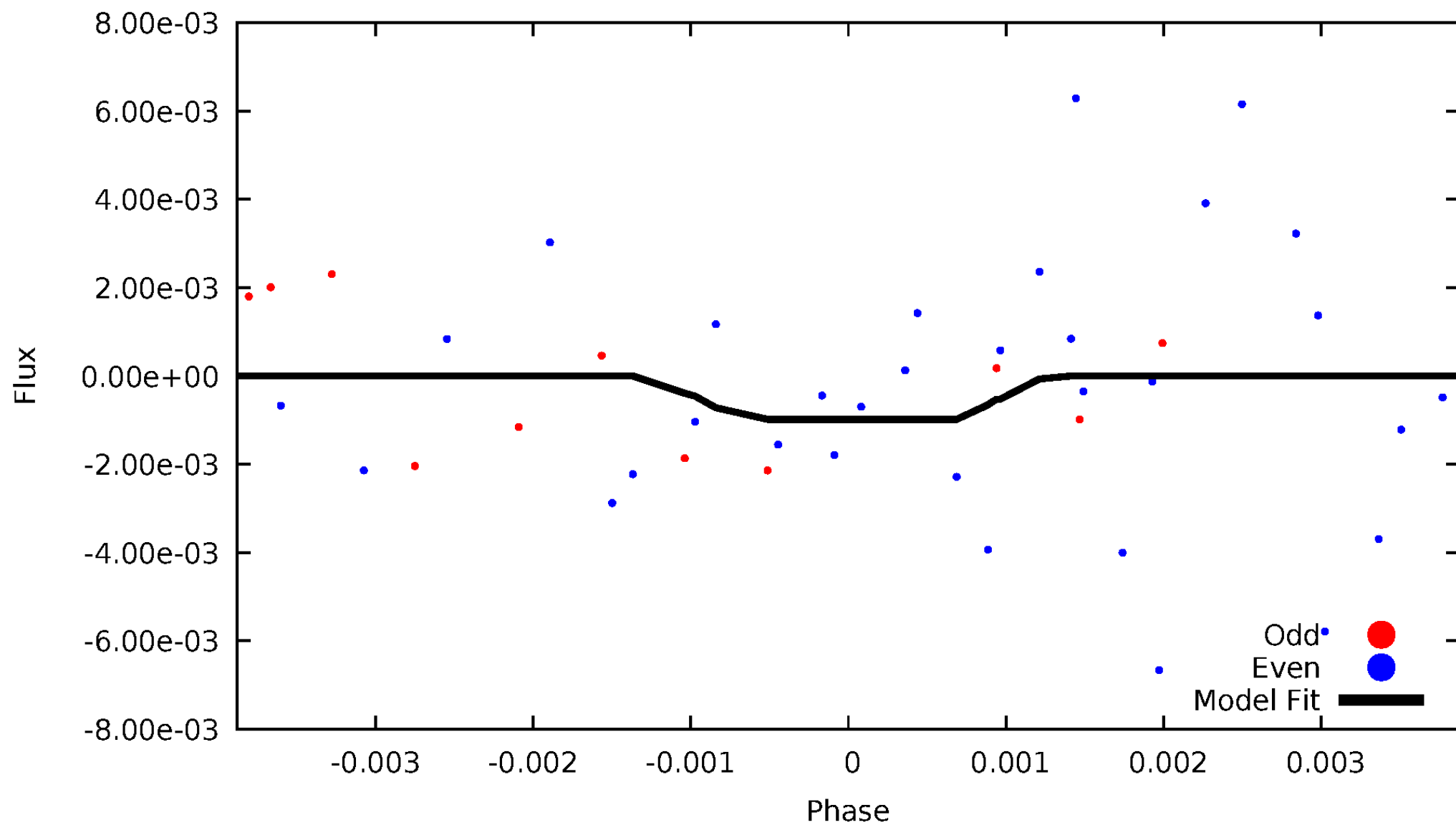
DV Odd/Even

TCE 004756040-03



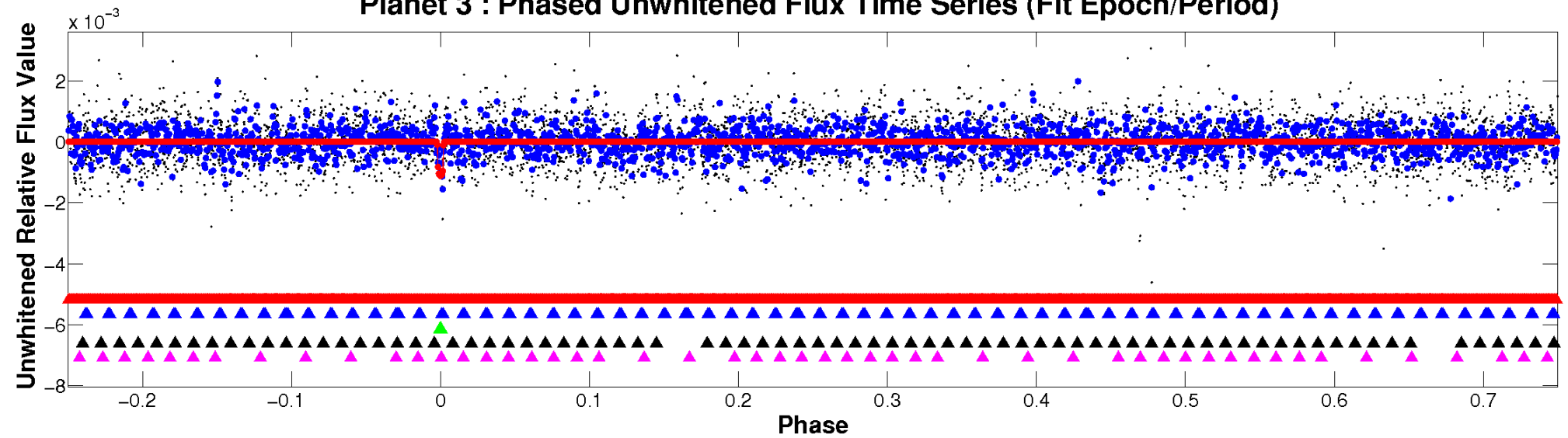
ALT Odd/Even

TCE 004756040-03

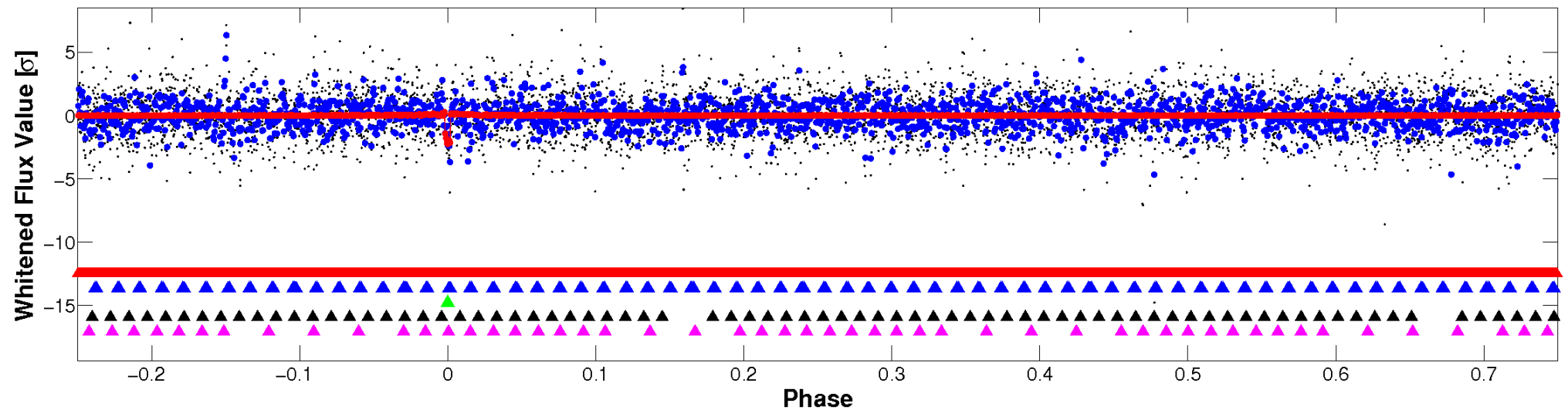


Non-Whitened Vs. Whitened Light Curve

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

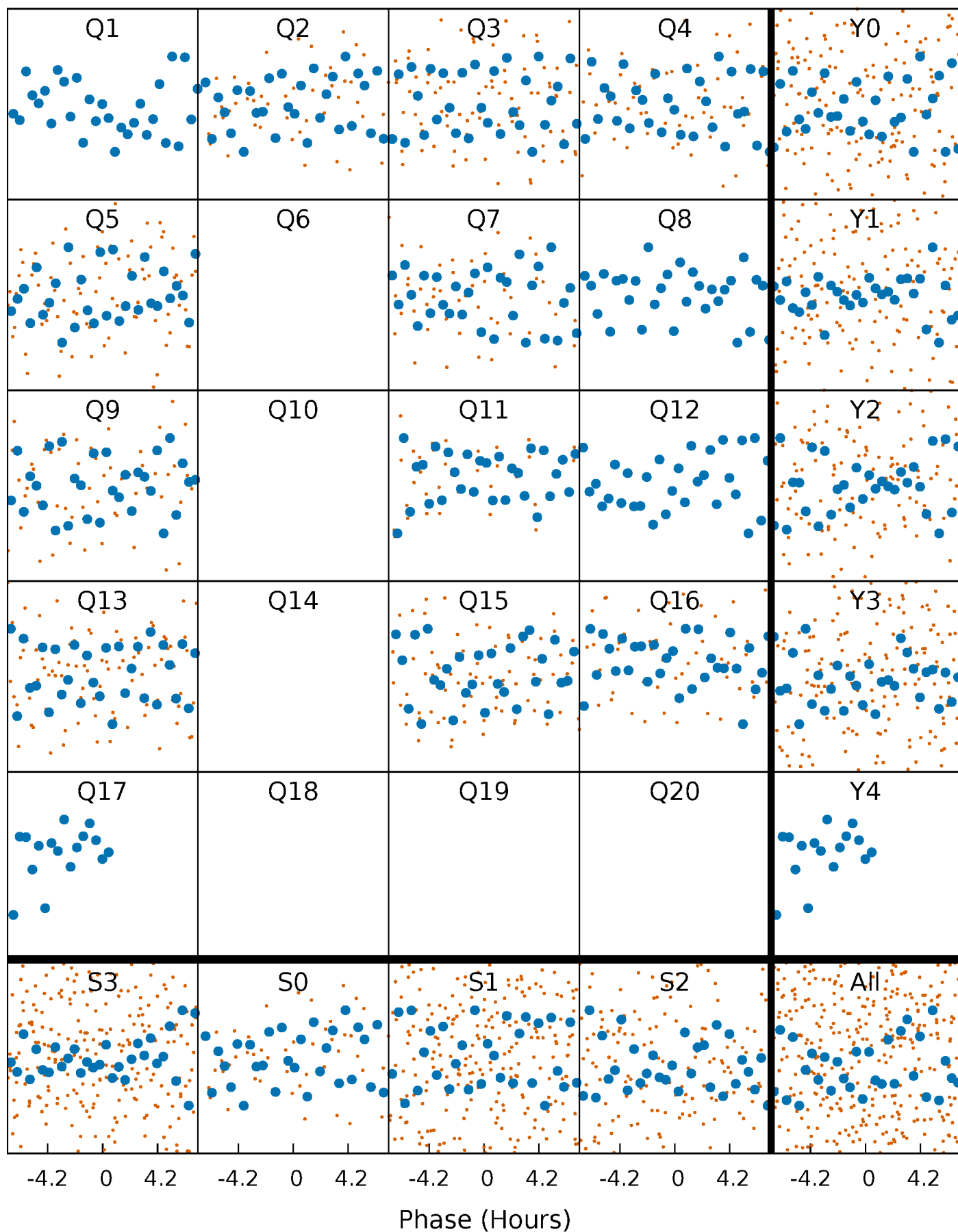


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



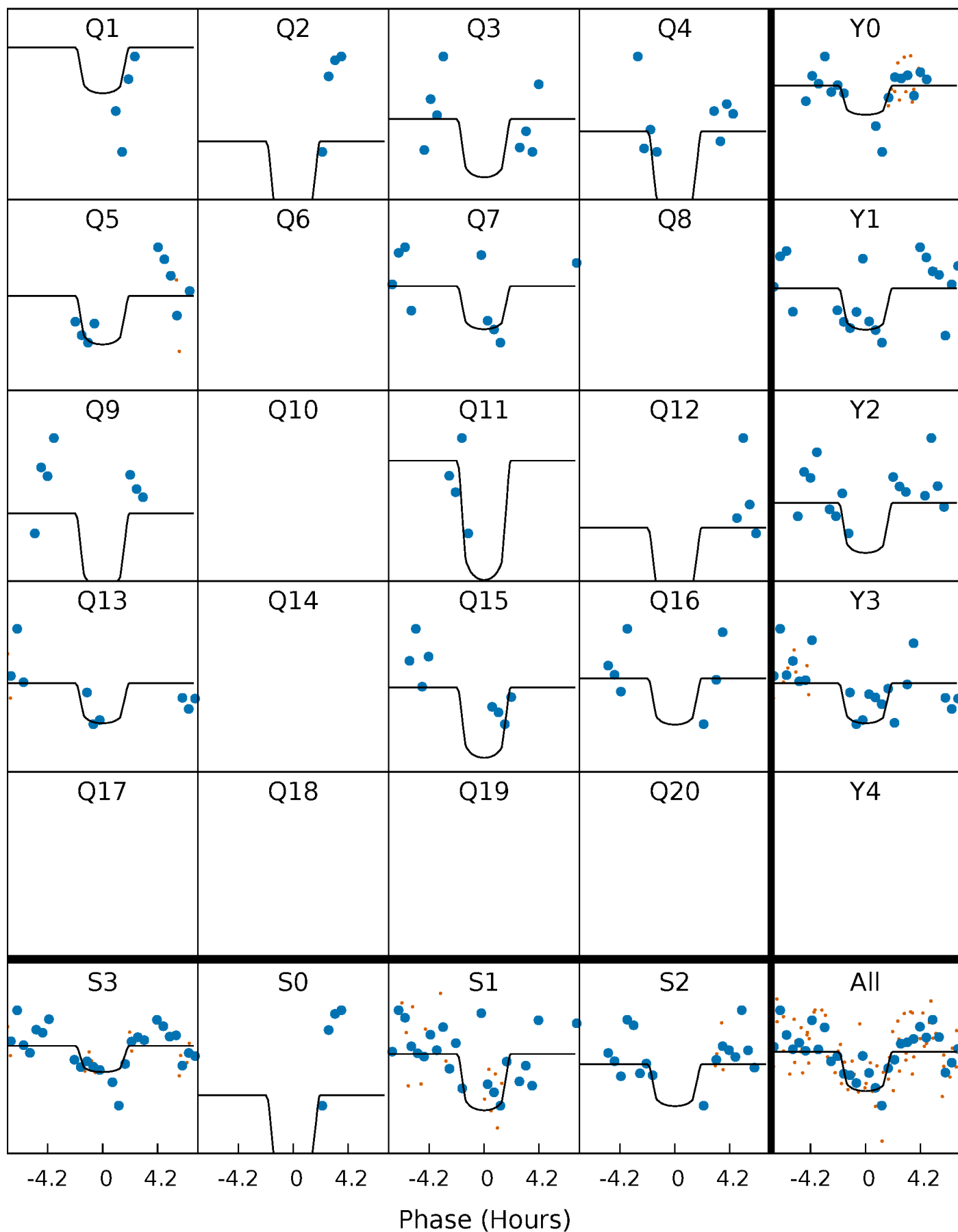
PDC Quarter-Phased Transit Curves

TCE 004756040-03 $P = 38.819900$ Days $T_0 = 145.232715$ (BKJD)



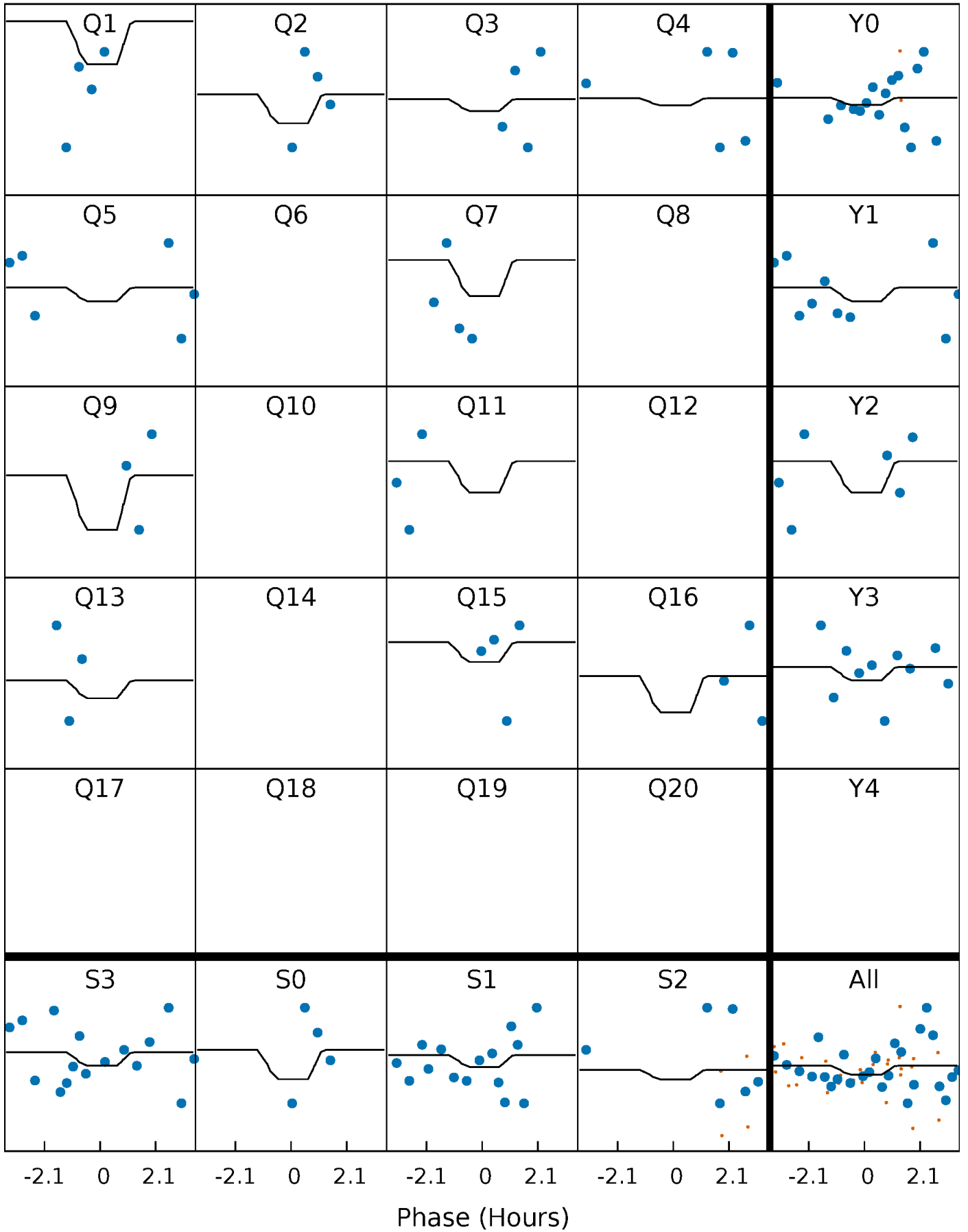
DV Quarter-Phased Transit Curves

TCE 004756040-03 $P = 38.819900$ Days $T_0 = 145.232715$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

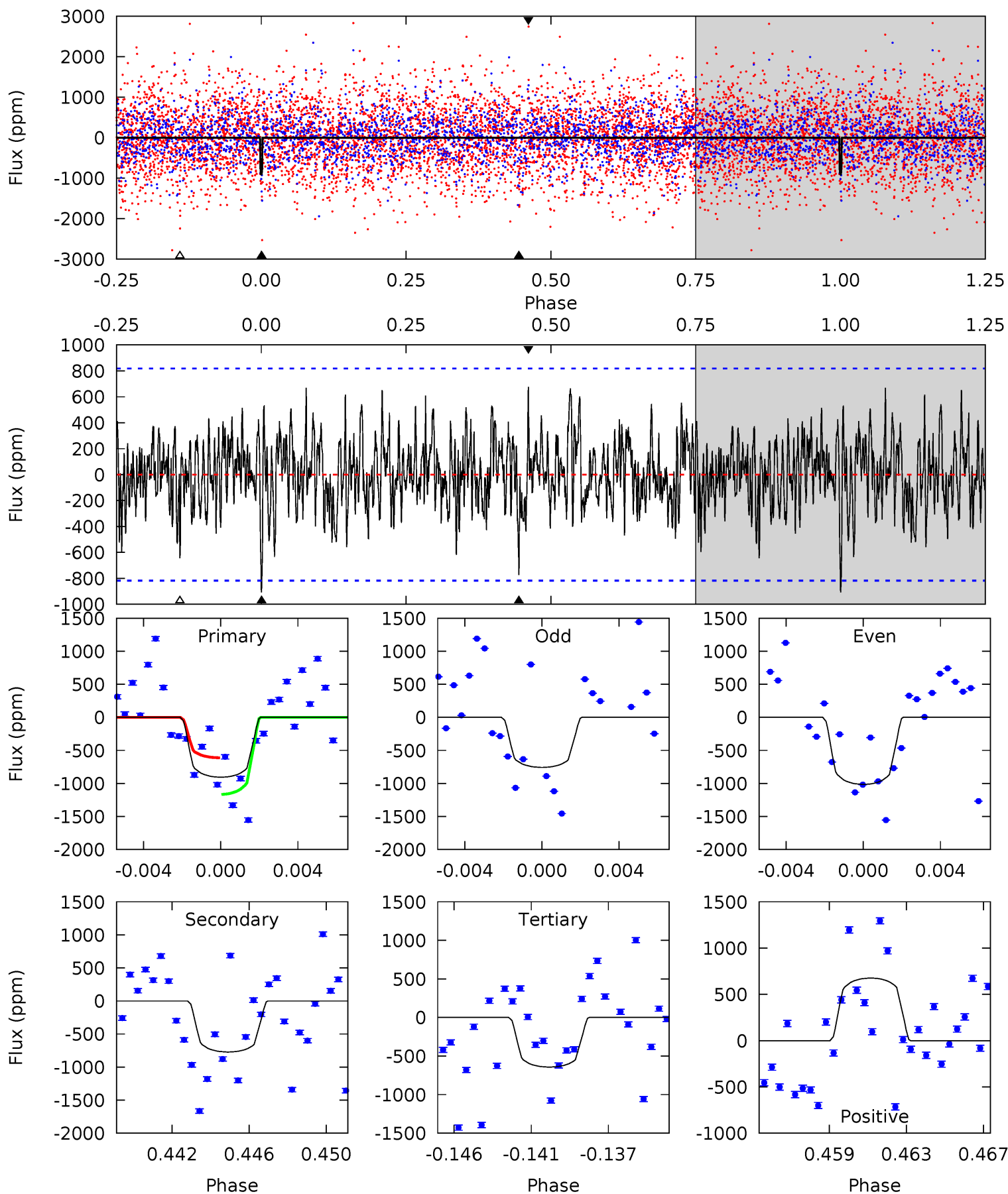
TCE 004756040-03 P= 38.817771 Days $T_0=145.322922$ (BKJD)



DV Model-Shift Uniqueness Test

004756040-03, P = 38.819900 Days, E = 106.412815 Days

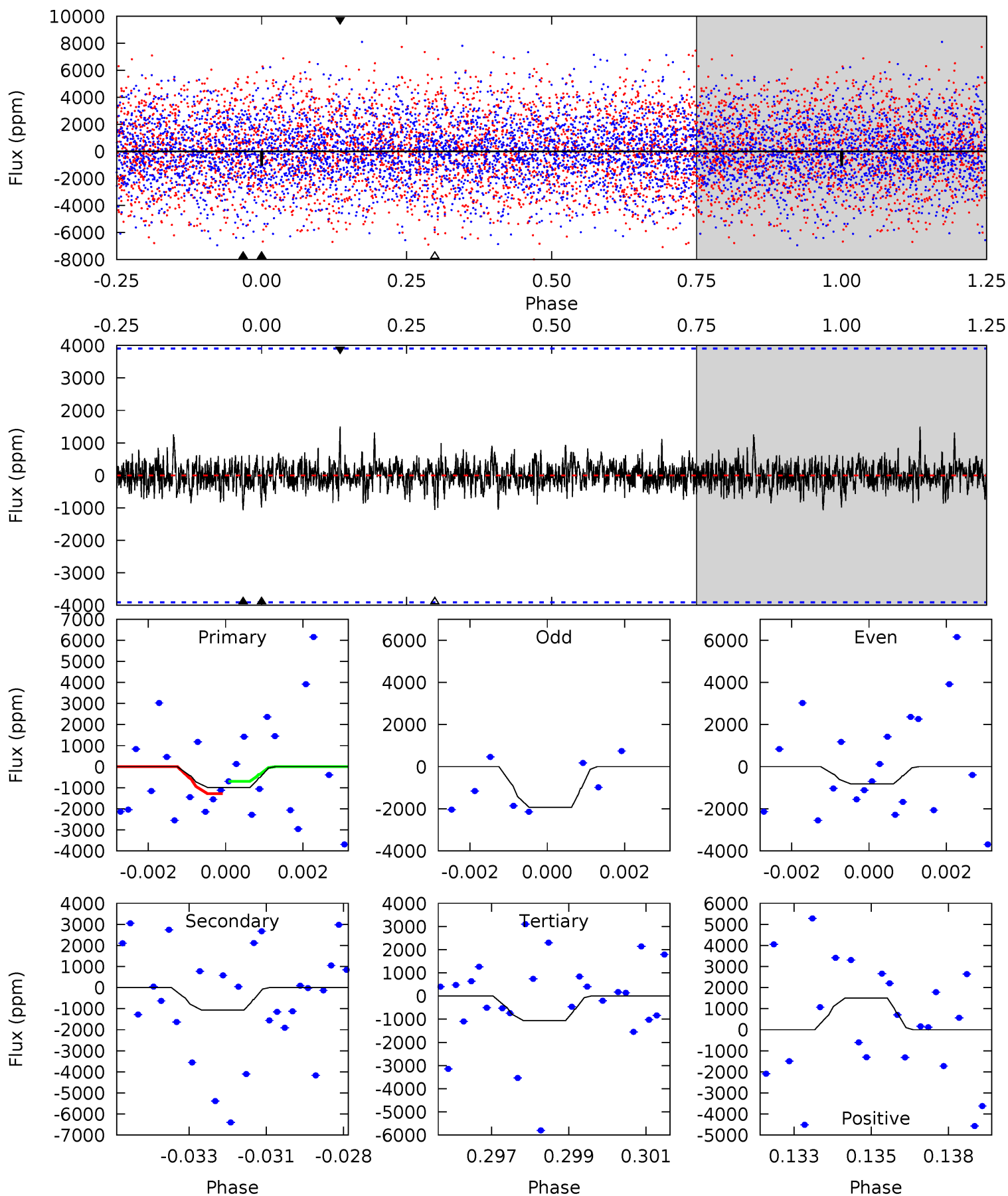
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.75	4.90	4.08	4.29	5.19	2.86	1.42	1.67	1.46	0.82	0.61	0.81	1.21	0.43	1.75



Alt Model-Shift Uniqueness Test

004756040-03, P = 38.817771 Days, E = 106.505151 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.34	1.45	1.44	2.04	5.31	3.06	0.41	-0.10	-0.70	0.01	-0.59	0.58	1.15	0.58	0.40



Stellar Parameters For KIC 004756040

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7837^{+214}_{-322}	$4.091^{+0.135}_{-0.165}$	$-0.020^{+0.200}_{-0.350}$	$1.966^{+0.495}_{-0.405}$	$1.737^{+0.181}_{-0.294}$	$0.322^{+0.223}_{-0.144}$
	+3%/-4%	+3%/-4%	+1000%/-1750%	+25%/-21%	+10%/-17%	+69%/-45%
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 004756040-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-773 ± 158	$7.96^{+6.48}_{-4.91}$	1310^{+89}_{-87}	6458^{+6413}_{-1450}	466^{+2864}_{-326}
Alt.	-1067 ± 736	$7.77^{+5.93}_{-4.70}$	1307^{+87}_{-84}	7157^{+7122}_{-2601}	633^{+3870}_{-541}

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 $A_{obs} \gg 1.0$

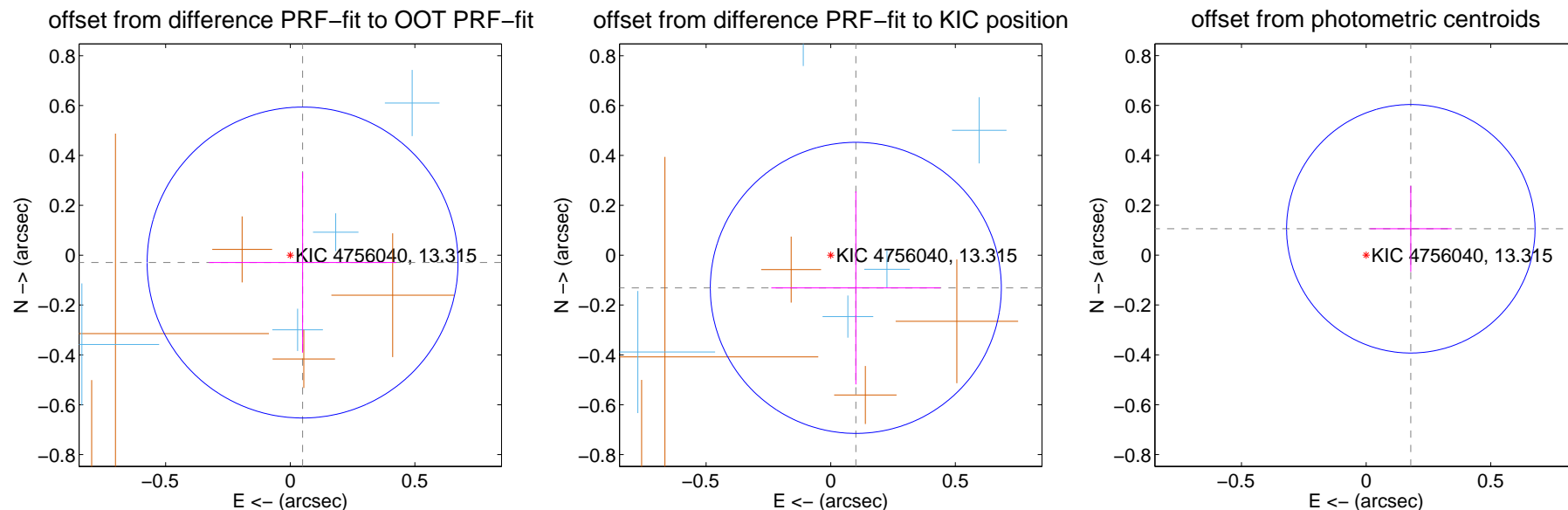
DV Centroid Data

Supplemental centroid analysis for 004756040-03. Kepler magnitude: 13.31. Transit SNR 7.51

There are 7 quarters with good PRF difference image offsets

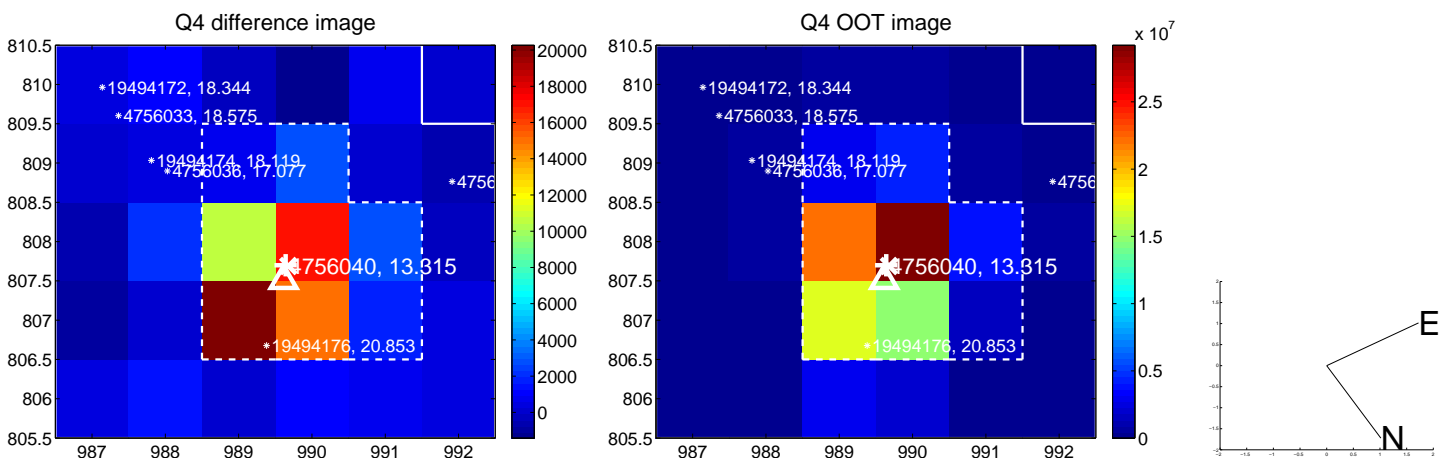
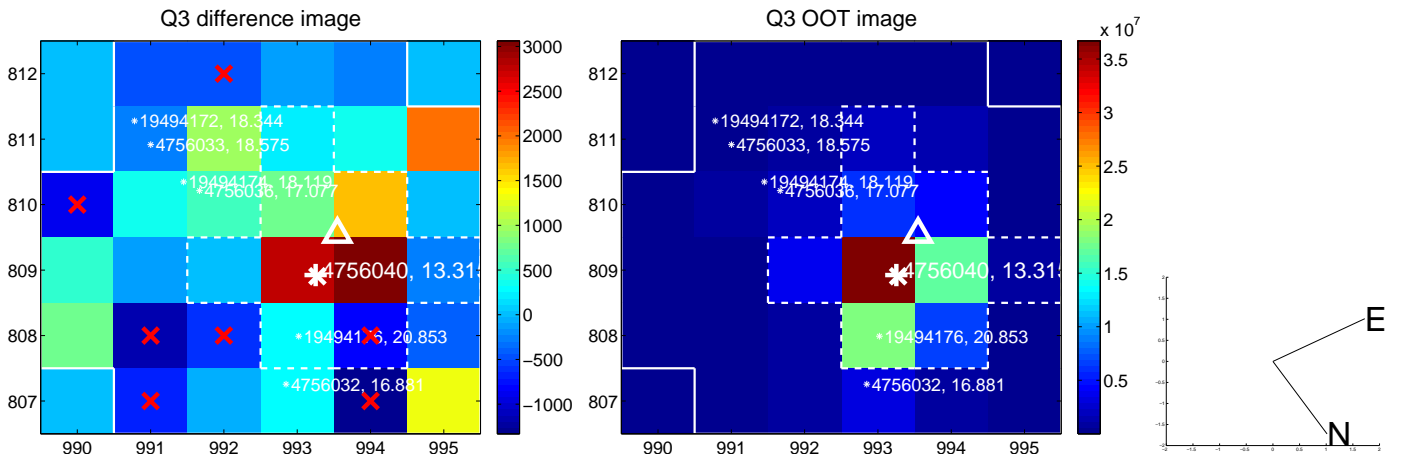
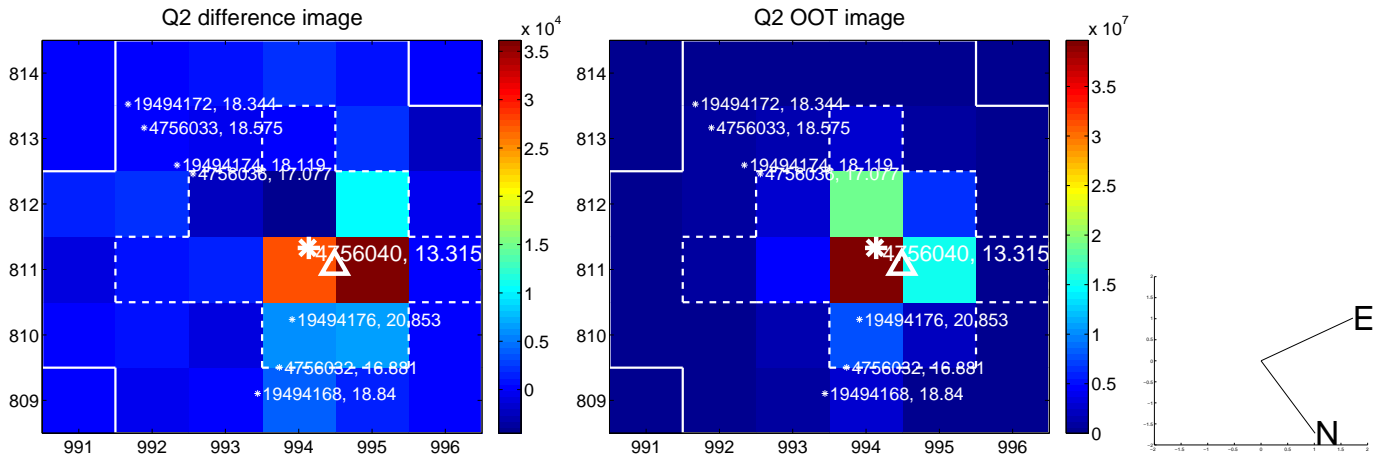
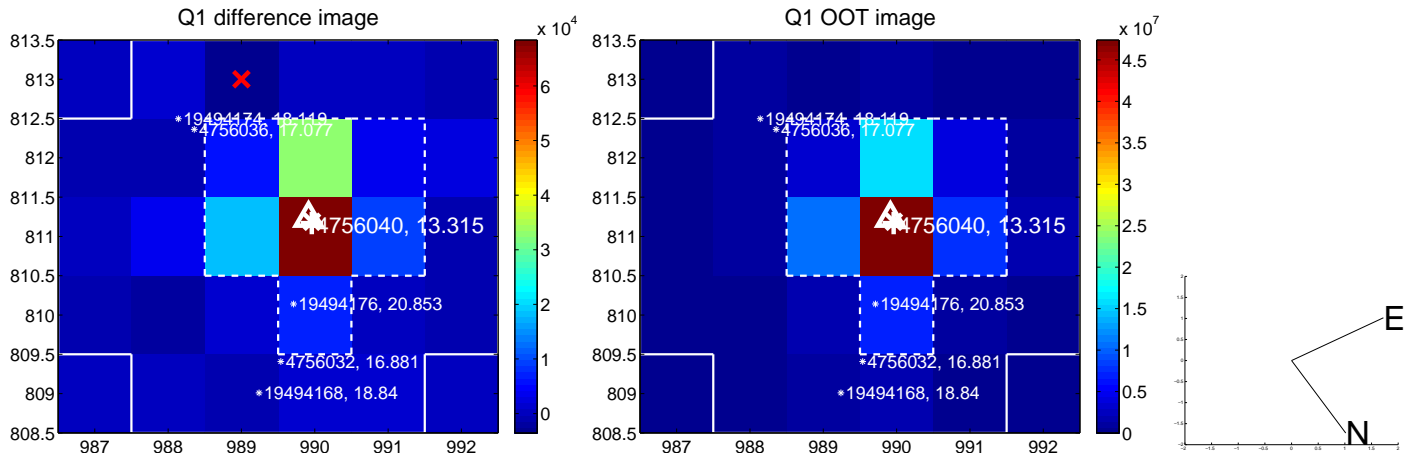
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.058 ± 0.208	0.28	-0.049 ± 0.376	-0.030 ± 0.362
PRF-fit source offset from KIC position	0.165 ± 0.195	0.85	-0.101 ± 0.339	-0.131 ± 0.387
photometric centroid source offset	0.21 ± 0.17	1.25	-0.18 ± 0.16	0.11 ± 0.17

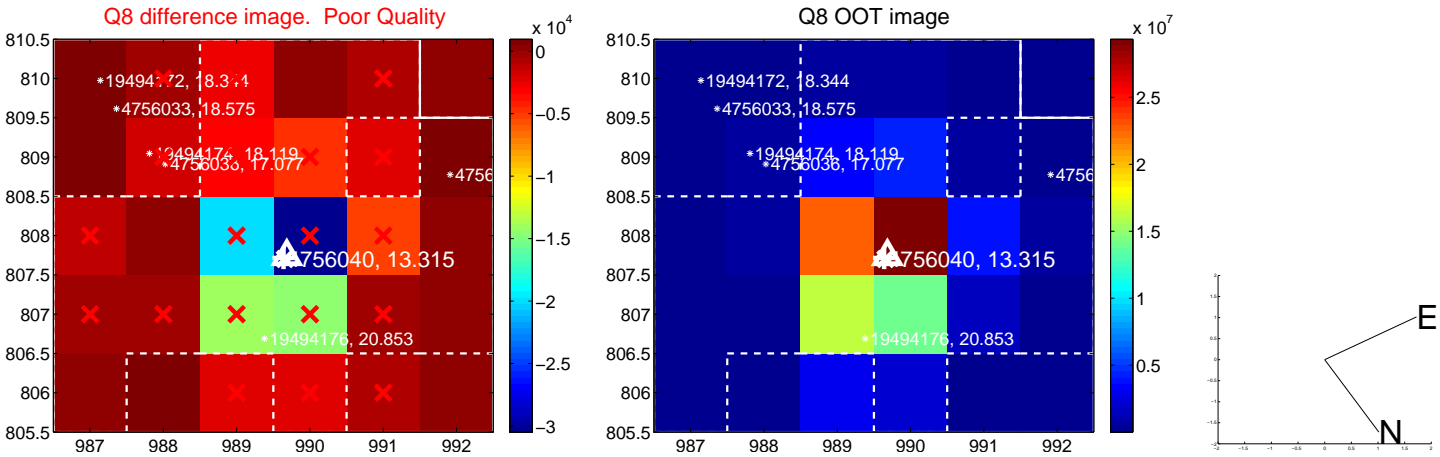
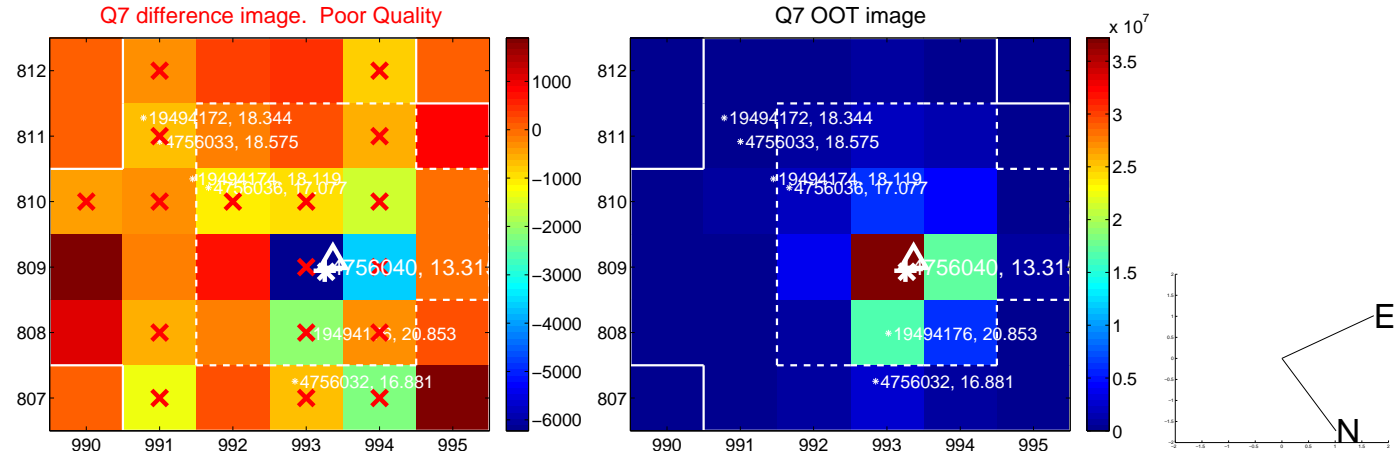
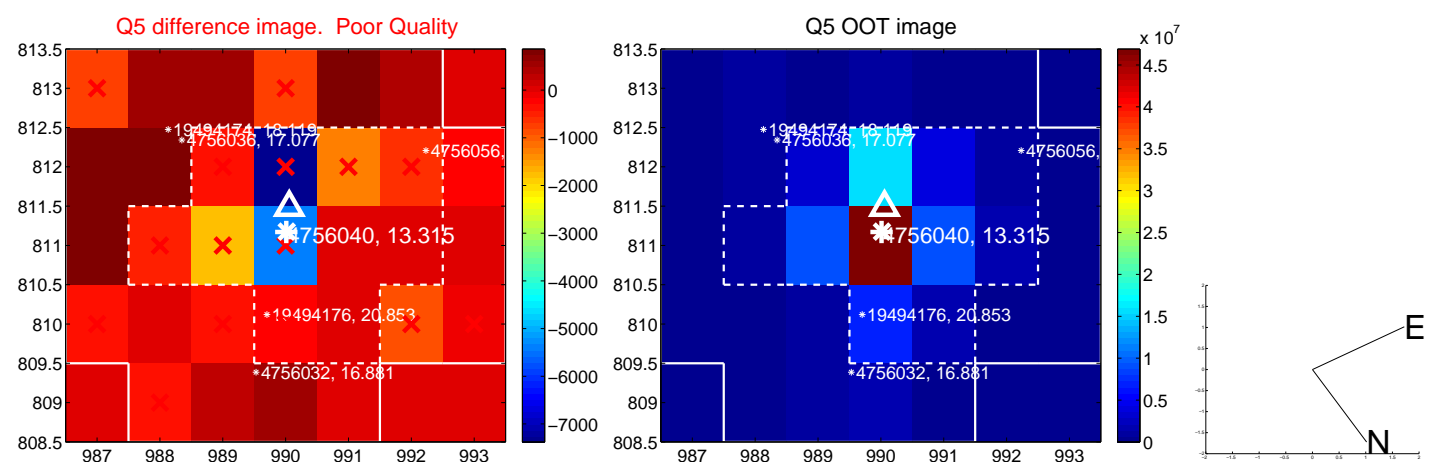


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

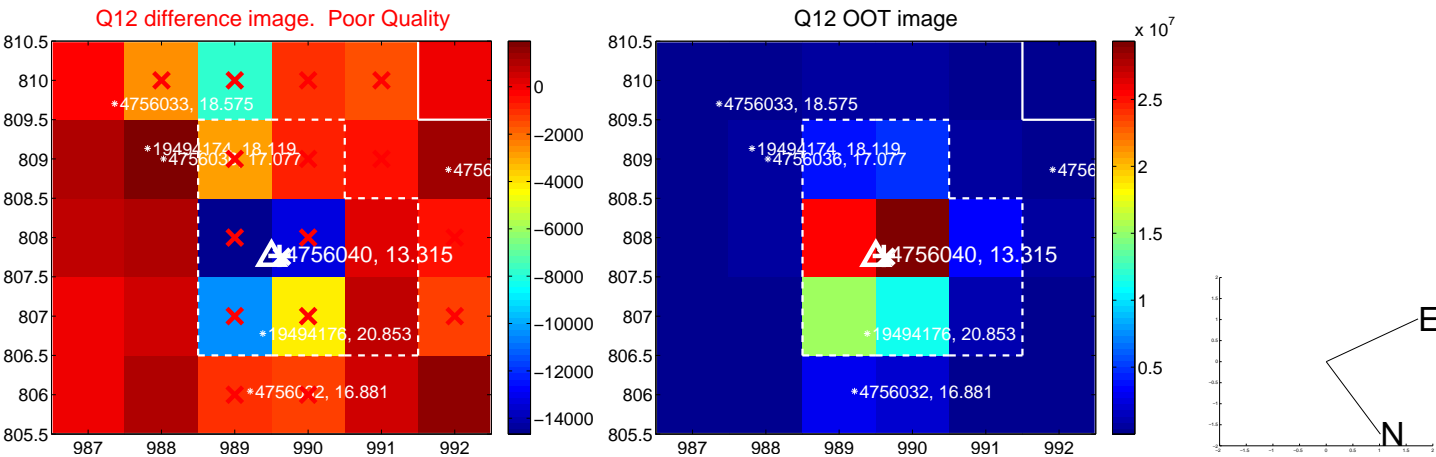
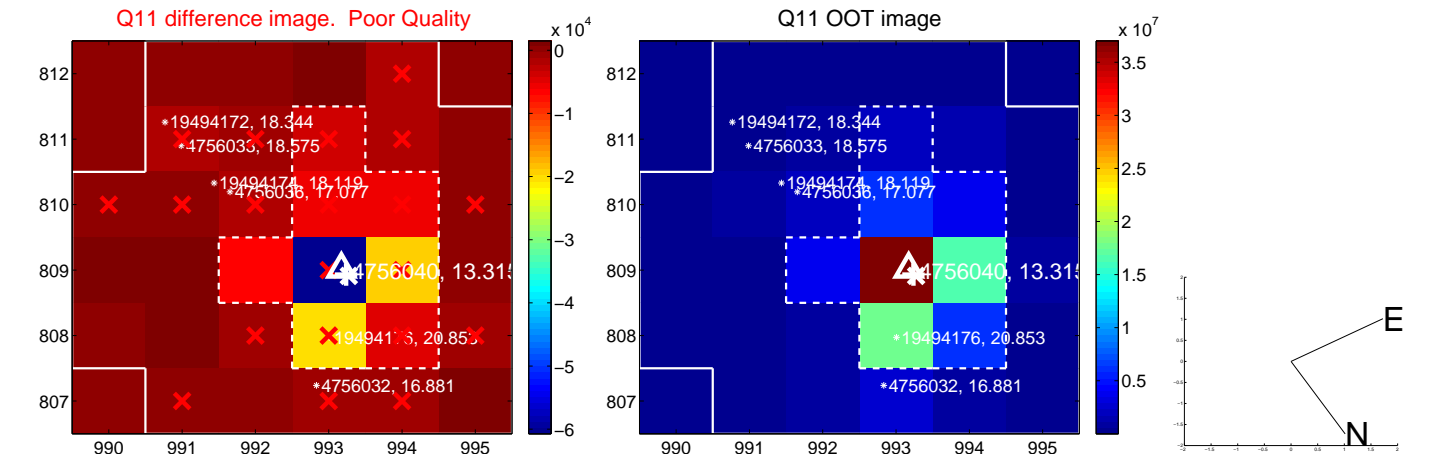
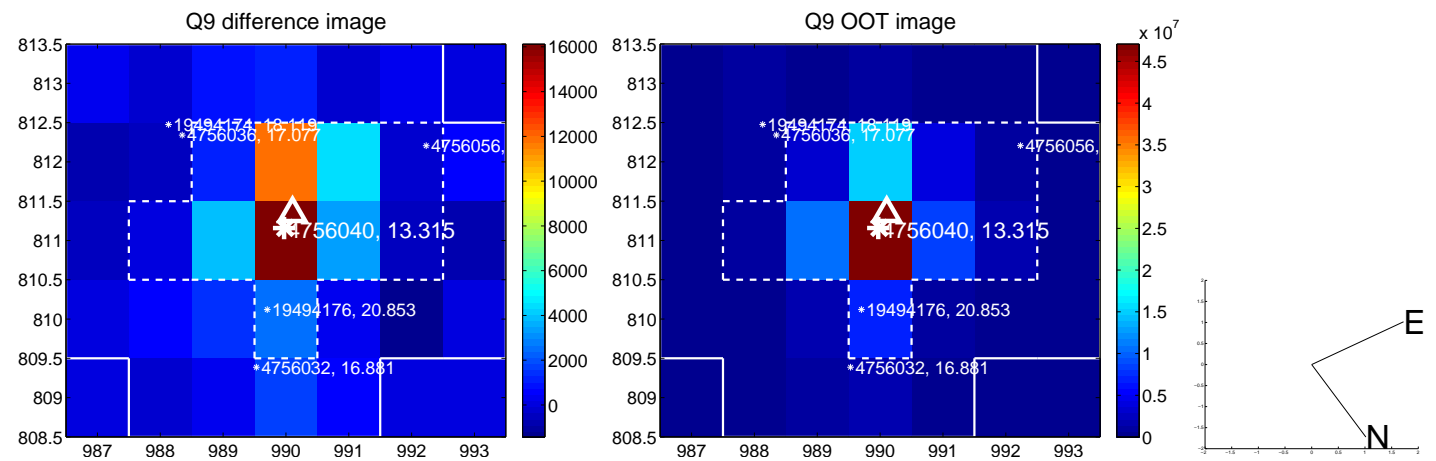
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



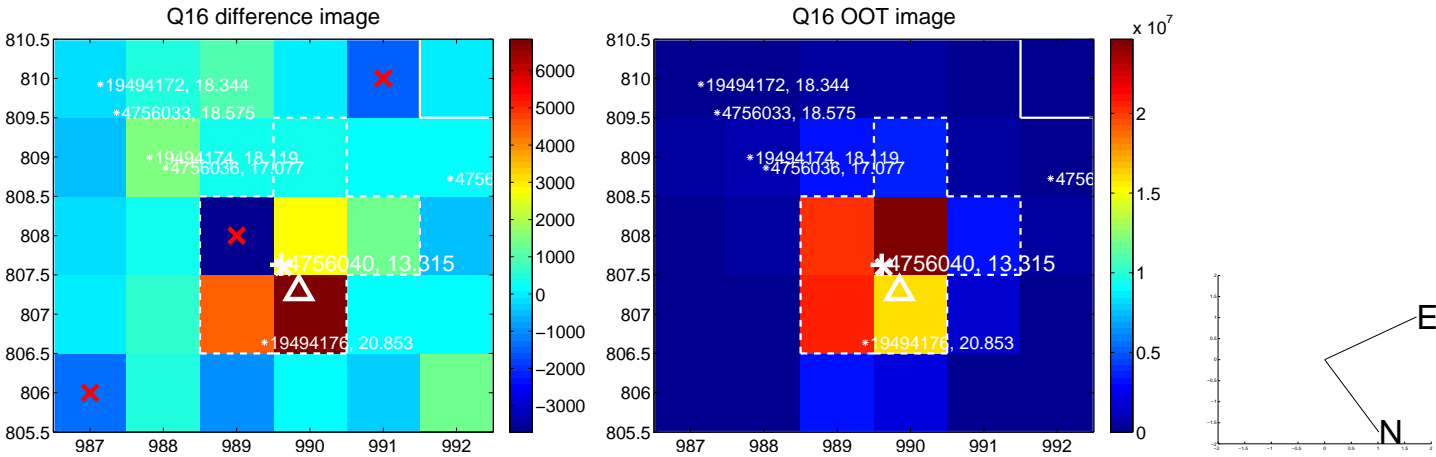
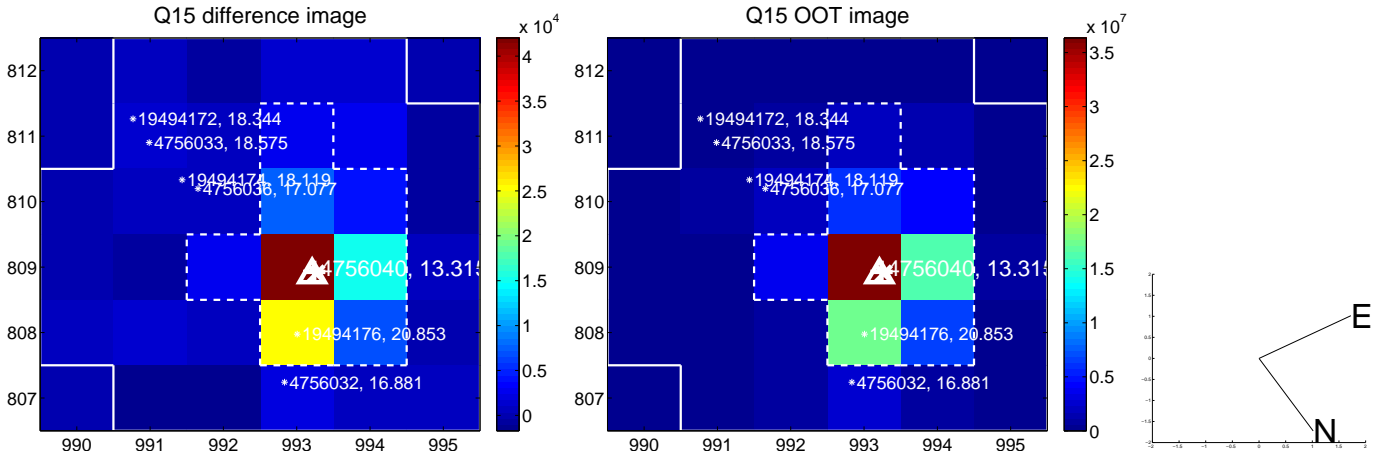
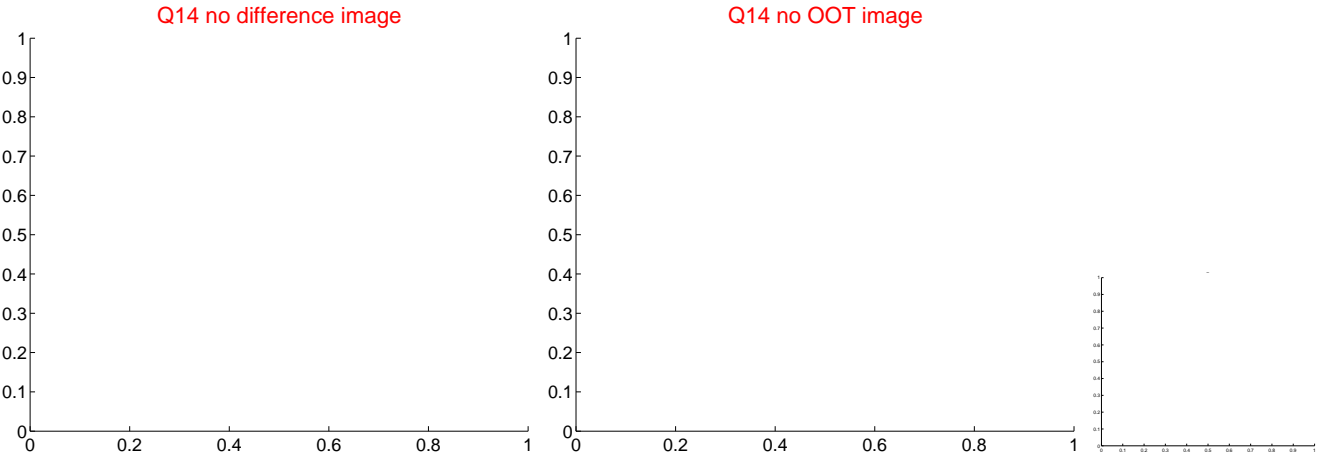
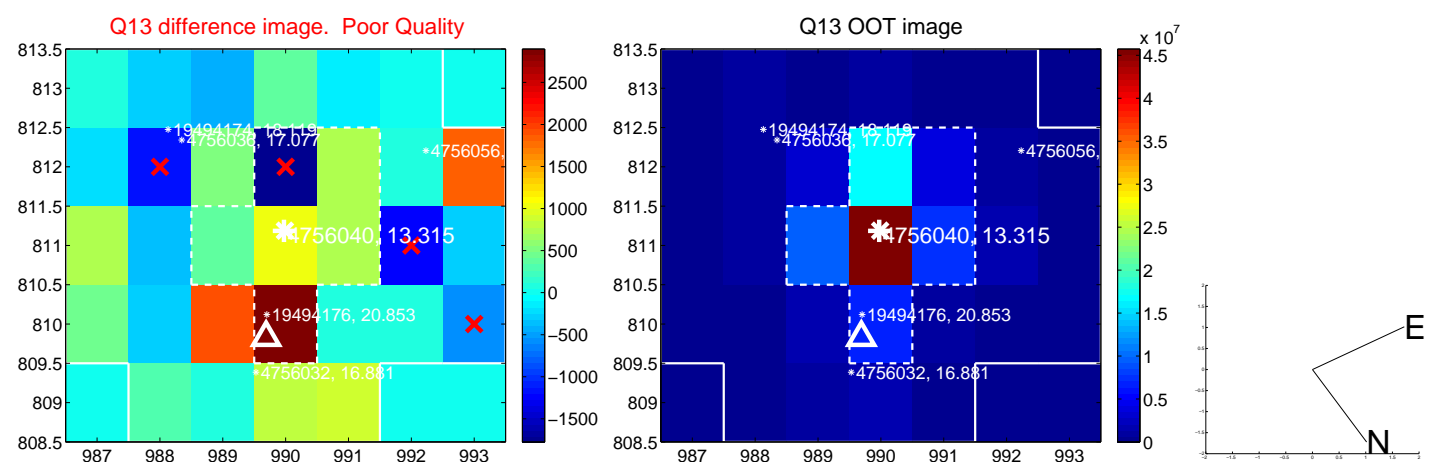
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



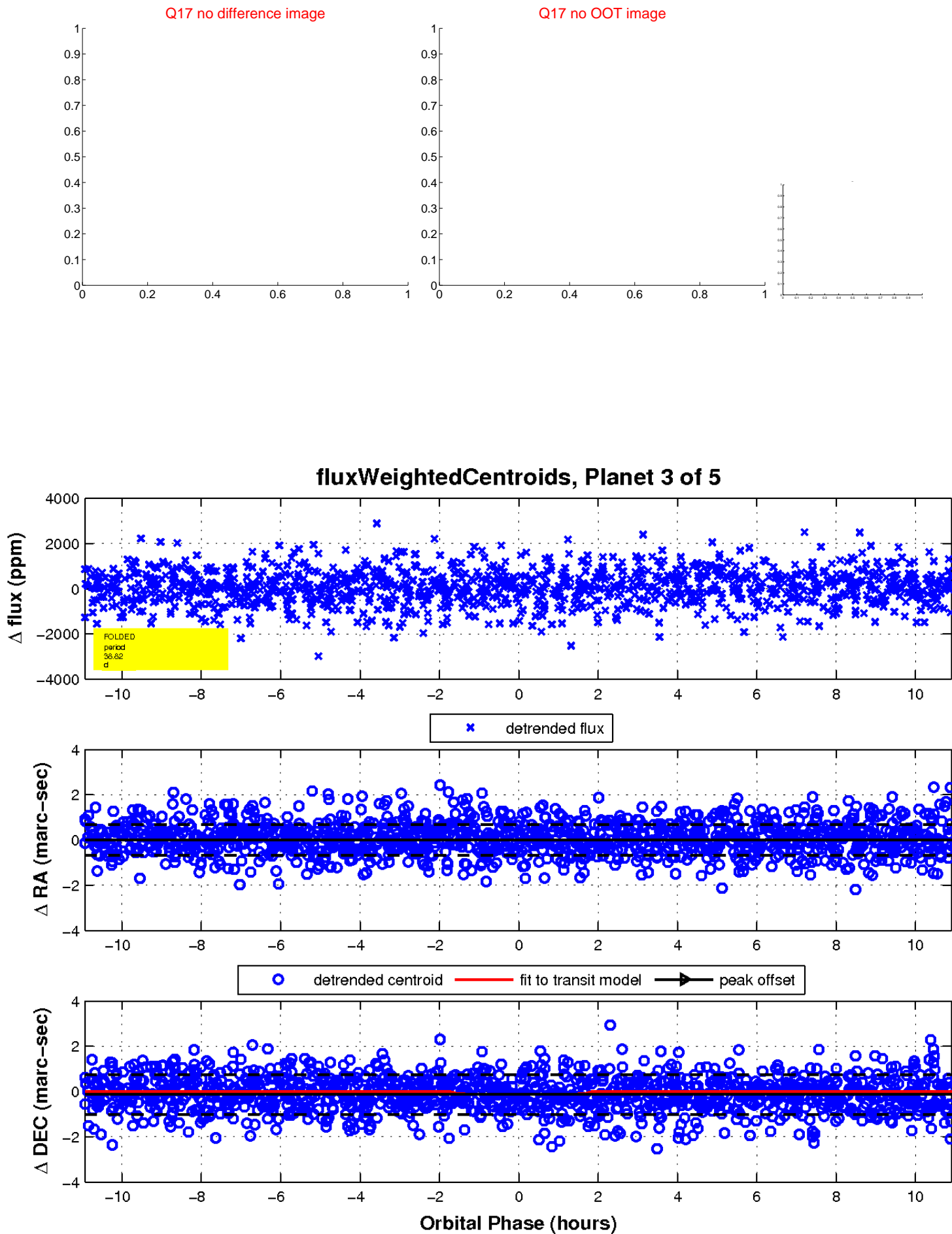
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

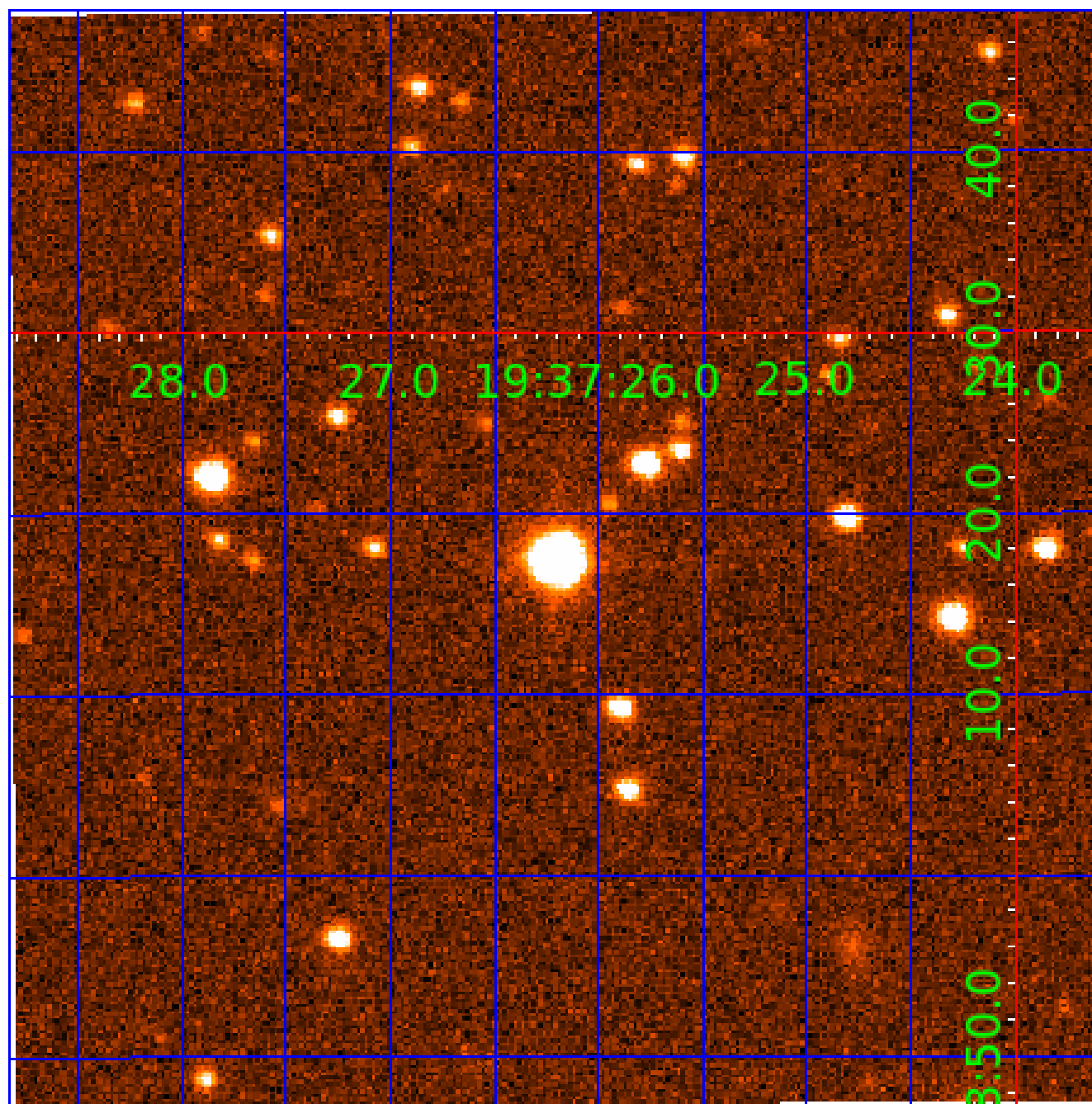


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004756040

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})
004756040-01	OBS	No	0.584023	131.576557	50.6	3.858	9.0	6.3	1.97	7837	1.50	48303.25
004756040-02	OBS	No	10.428625	141.257999	432.4	18.124	10.0	11.8	1.97	7837	4.77	1034.94
004756040-03	OBS	No	38.819900	145.232715	1110.8	3.648	10.7	7.5	1.97	7837	6.99	179.40
004756040-04	OBS	No	19.168818	131.690165	1216.1	1.966	9.6	10.4	1.97	7837	6.98	459.64
004756040-05	OBS	No	28.820279	148.791369	704.5	10.460	8.7	9.9	1.97	7837	5.51	266.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004756040-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004756040-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004756040-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004756040-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV
004756040-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST

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

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

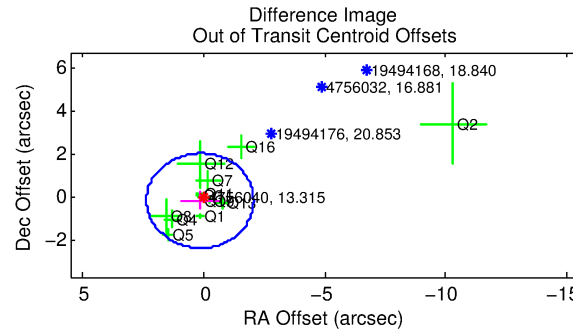
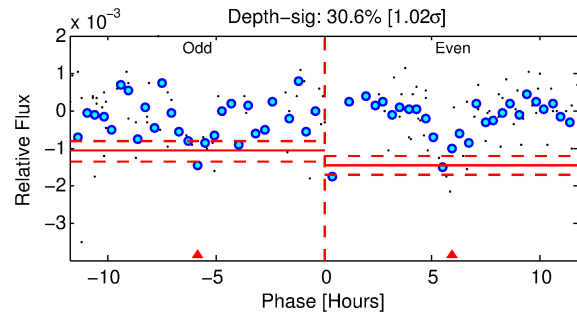
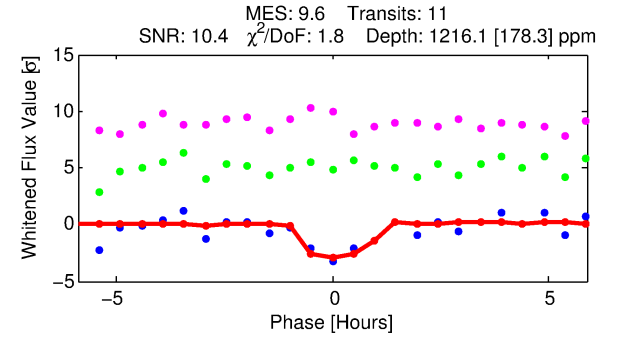
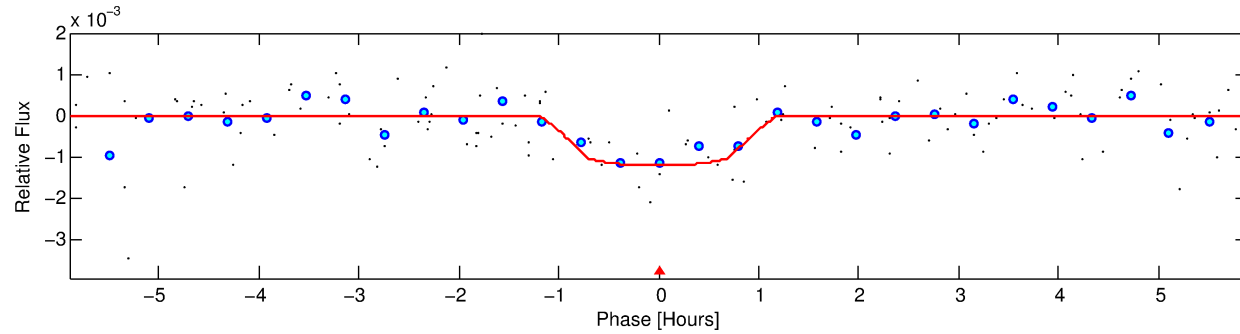
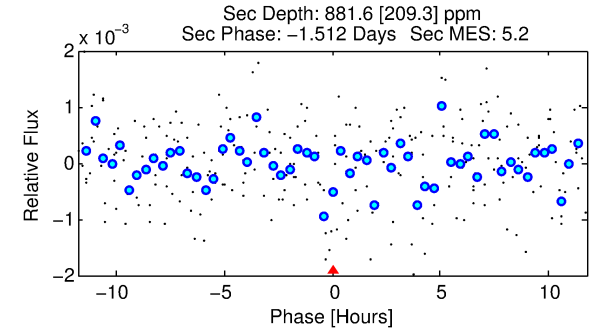
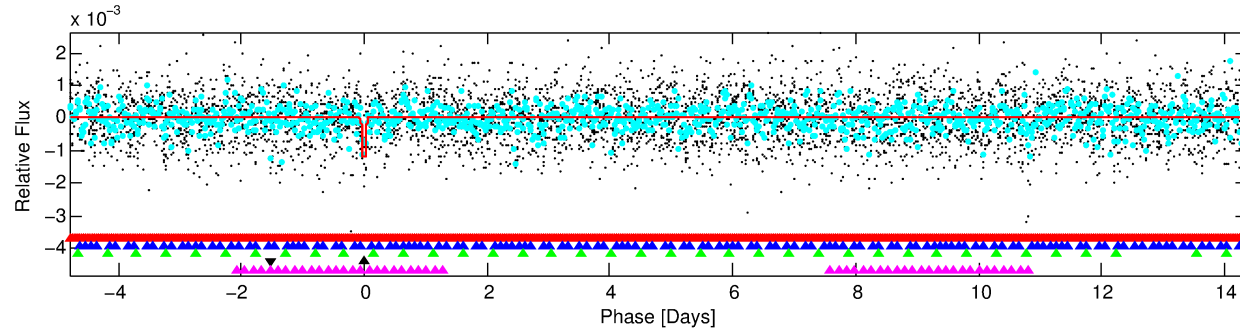
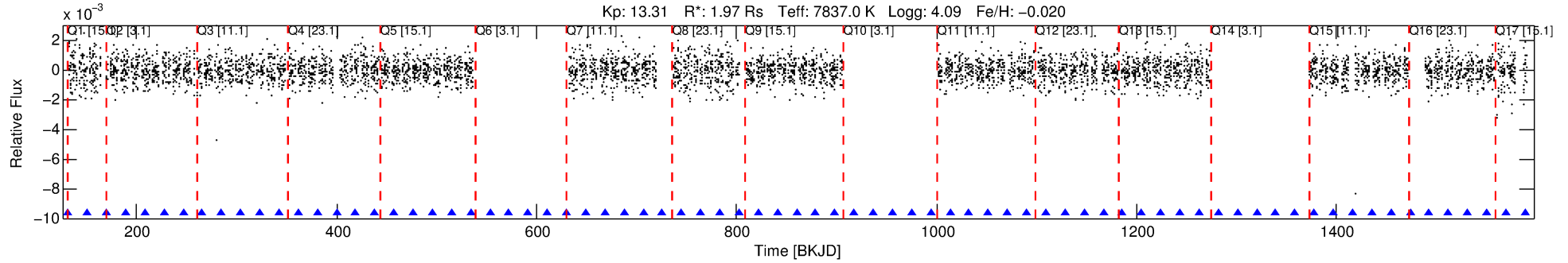
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004756040-04

No Significant Match Found

DV One-Page Summary

KIC: 4756040 Candidate: 4 of 5 Period: 19.169 d



DV Fit Results:

Period = 19.16882 [0.00015] d
Epoch = 131.6902 [0.0065] BKJD
Rp/R* = 0.0325 [0.0611]
a/R* = 76.11 [845.14]
b = 0.15 [72.93]
Seff = 459.64 [158.79]
Teq = 1181 [102] K
Rp = 6.98 [13.22] Re
a = 0.1686 [0.0354] AU
Ag = 283.03 [1068.15] [0.26σ]
Teffp = 7487 [7048] K [0.89σ]

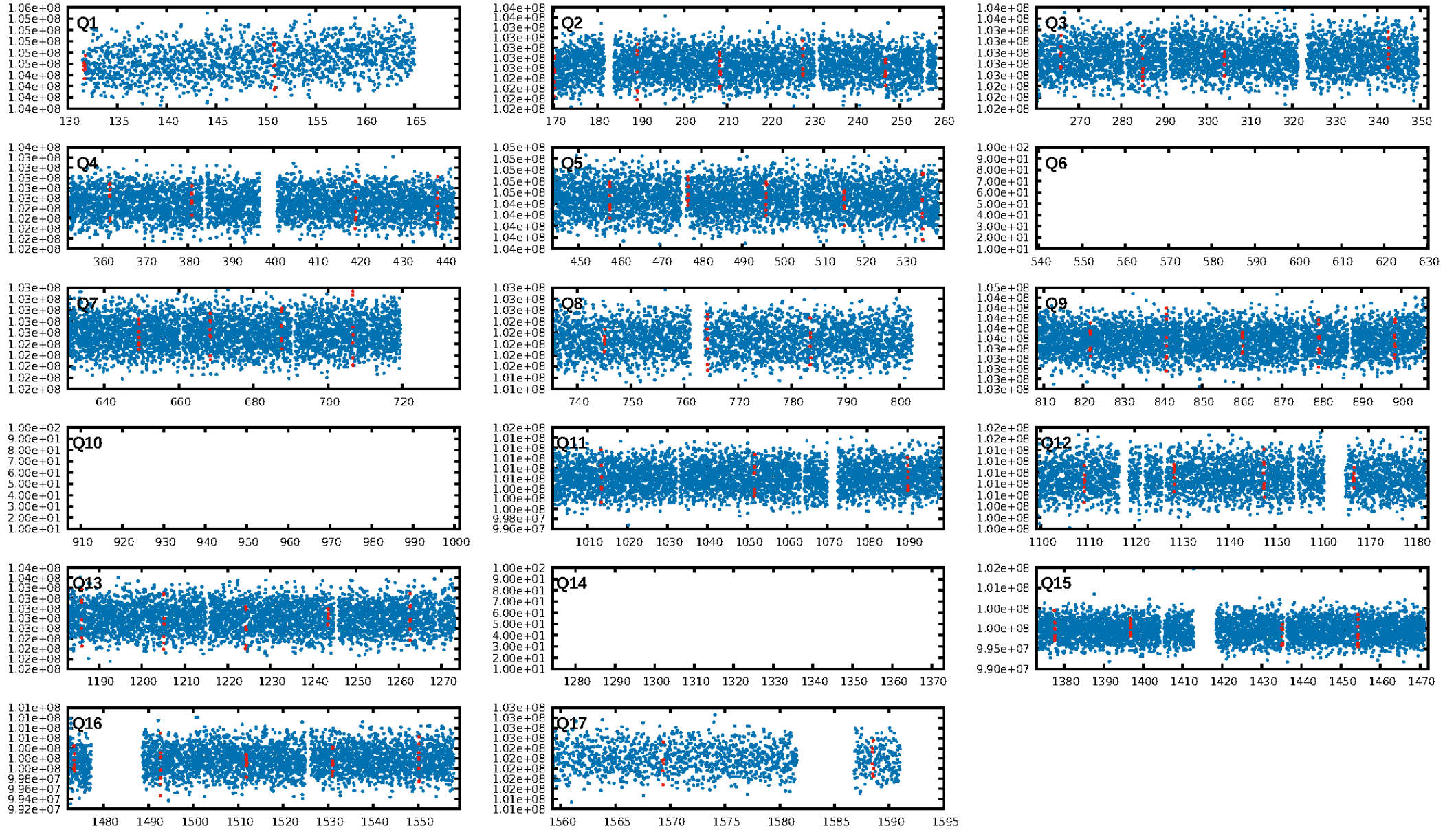
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.51σ]
LongPeriod-sig: 100.0% [21.76σ]
ModelChiSquare2-sig: 2.0%
ModelChiSquareGof-sig: 98.5%
Bootstrap-pfa: 8.51e-09
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 0.3496
Centroid-sig: 33.3%
Centroid-so: 0.242 arcsec [1.75σ]
OotOffset-rm: 0.230 arcsec [0.31σ]
KicOffset-rm: 0.263 arcsec [0.42σ]
OotOffset-st: 1/3/4/5 [13]
KicOffset-st: 1/3/4/5 [13]
DiffImageQuality-fgm: 0.54 [7/13]
DiffImageOverlap-fno: 0.00 [0/14]

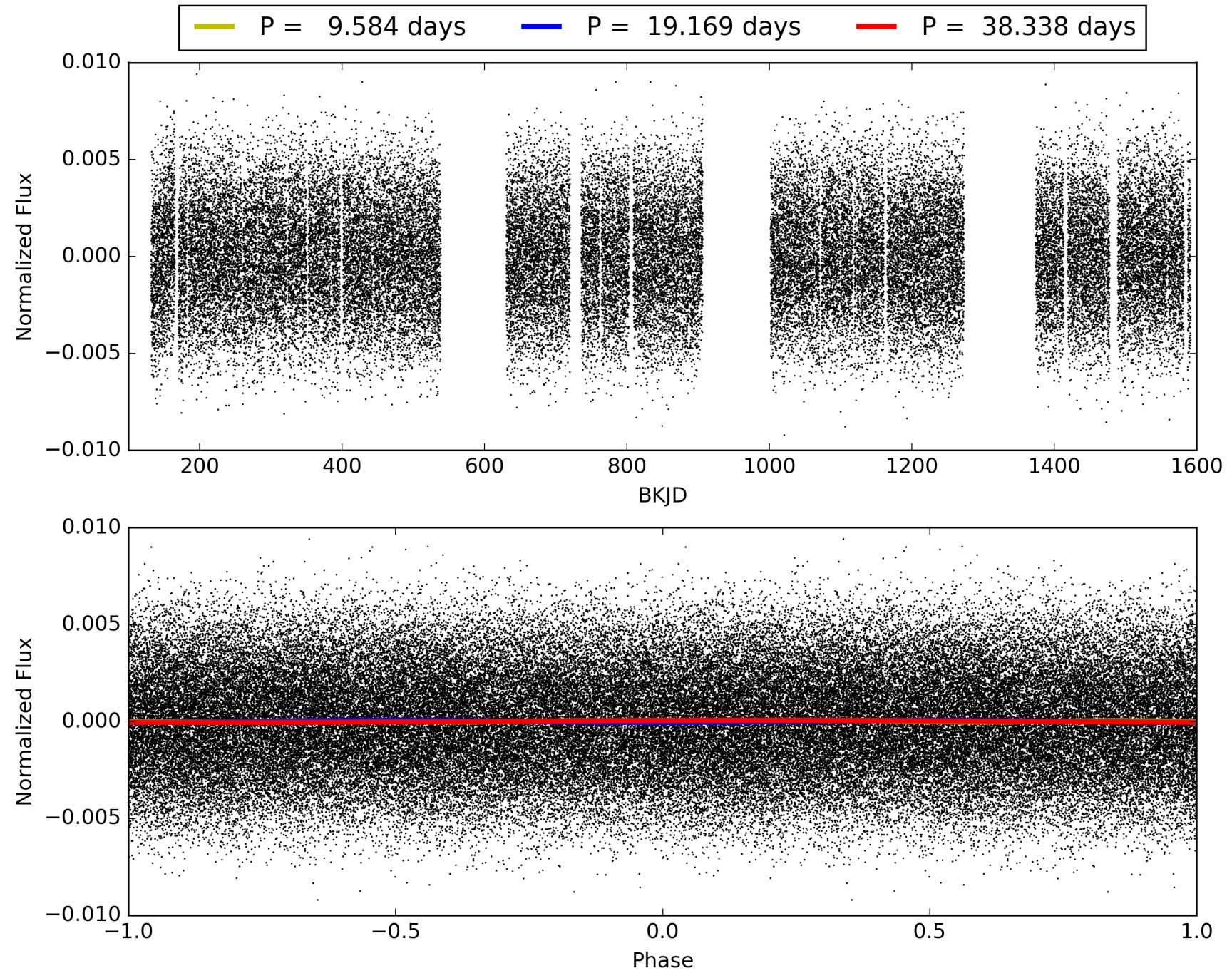
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:11:19 Z

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

TCE 004756040-04, PDC Light Curves

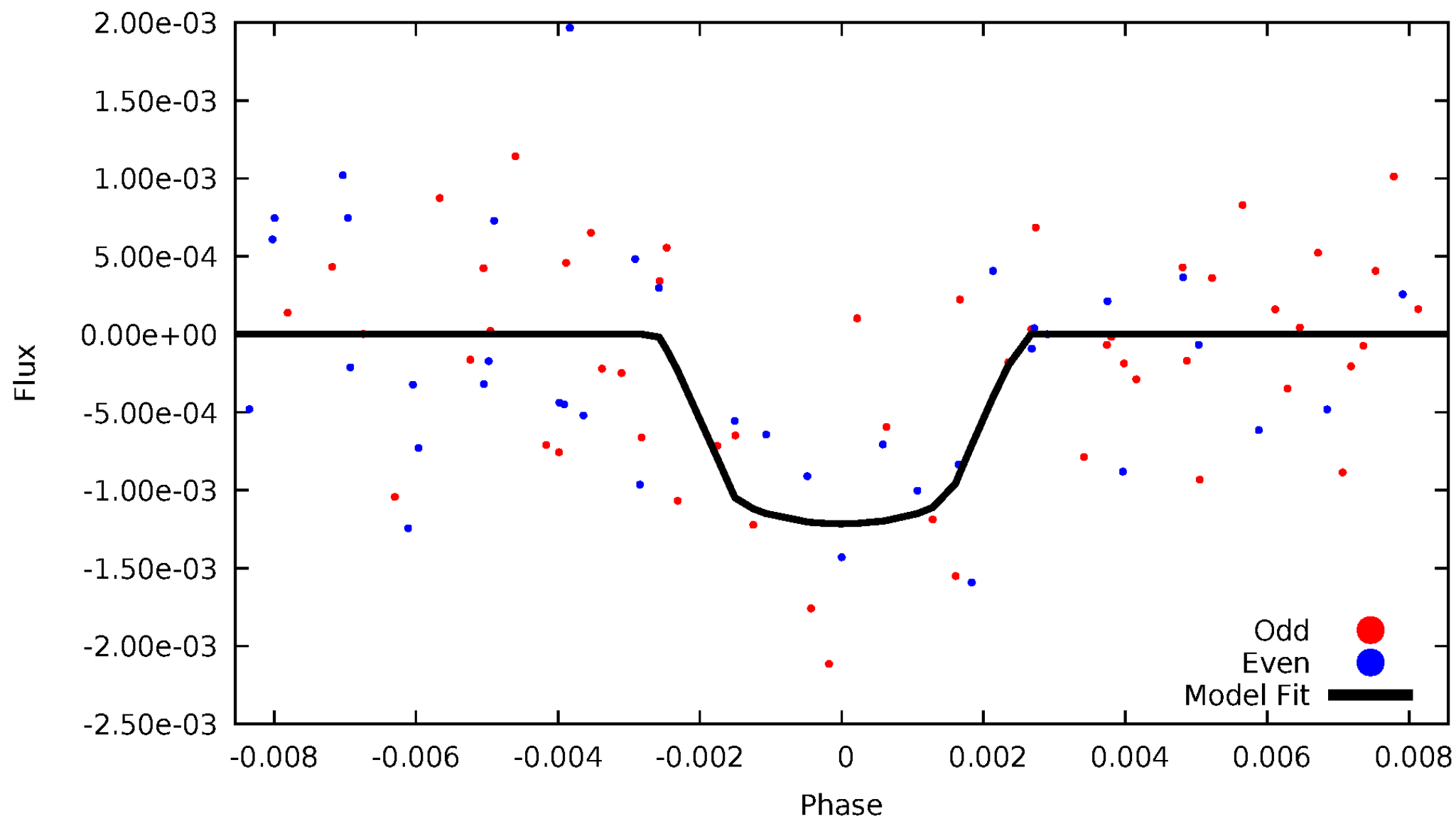


TCE 004756040-04



DV Odd/Even

TCE 004756040-04

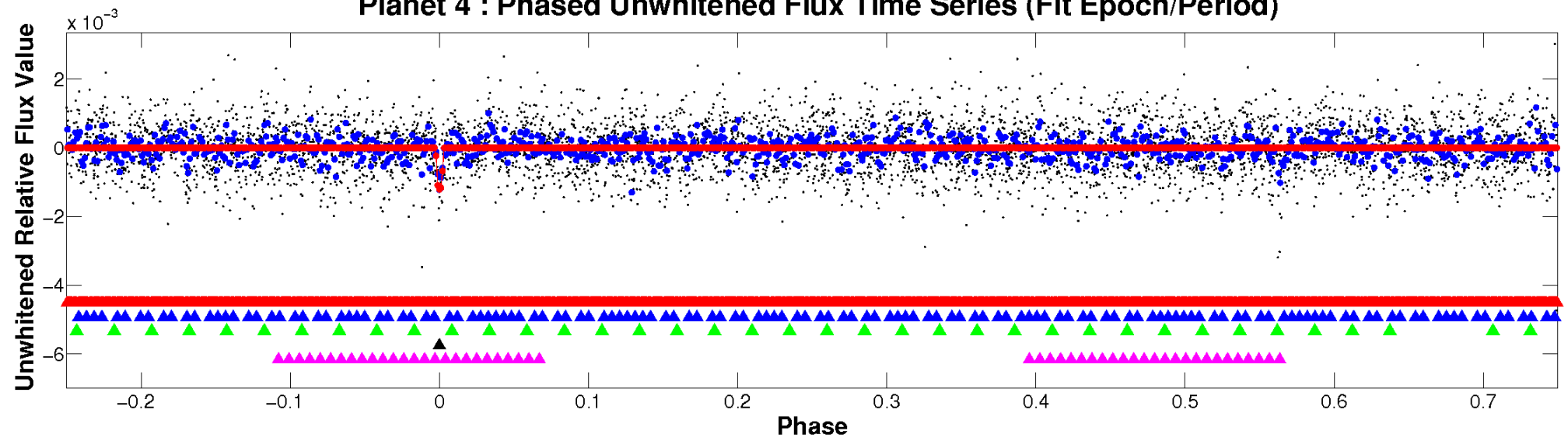


ALT Odd/Even

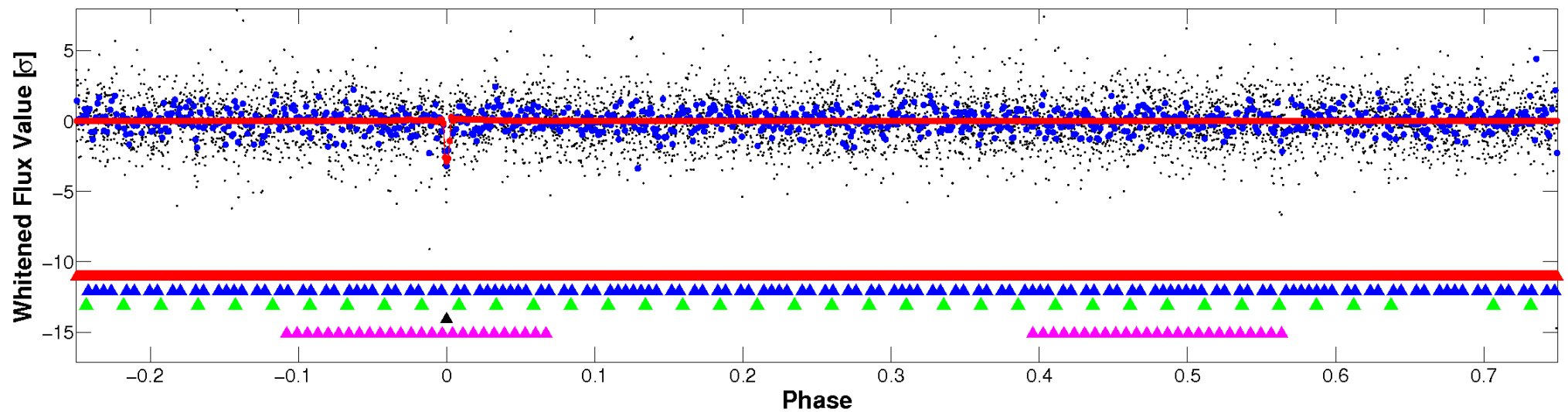
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

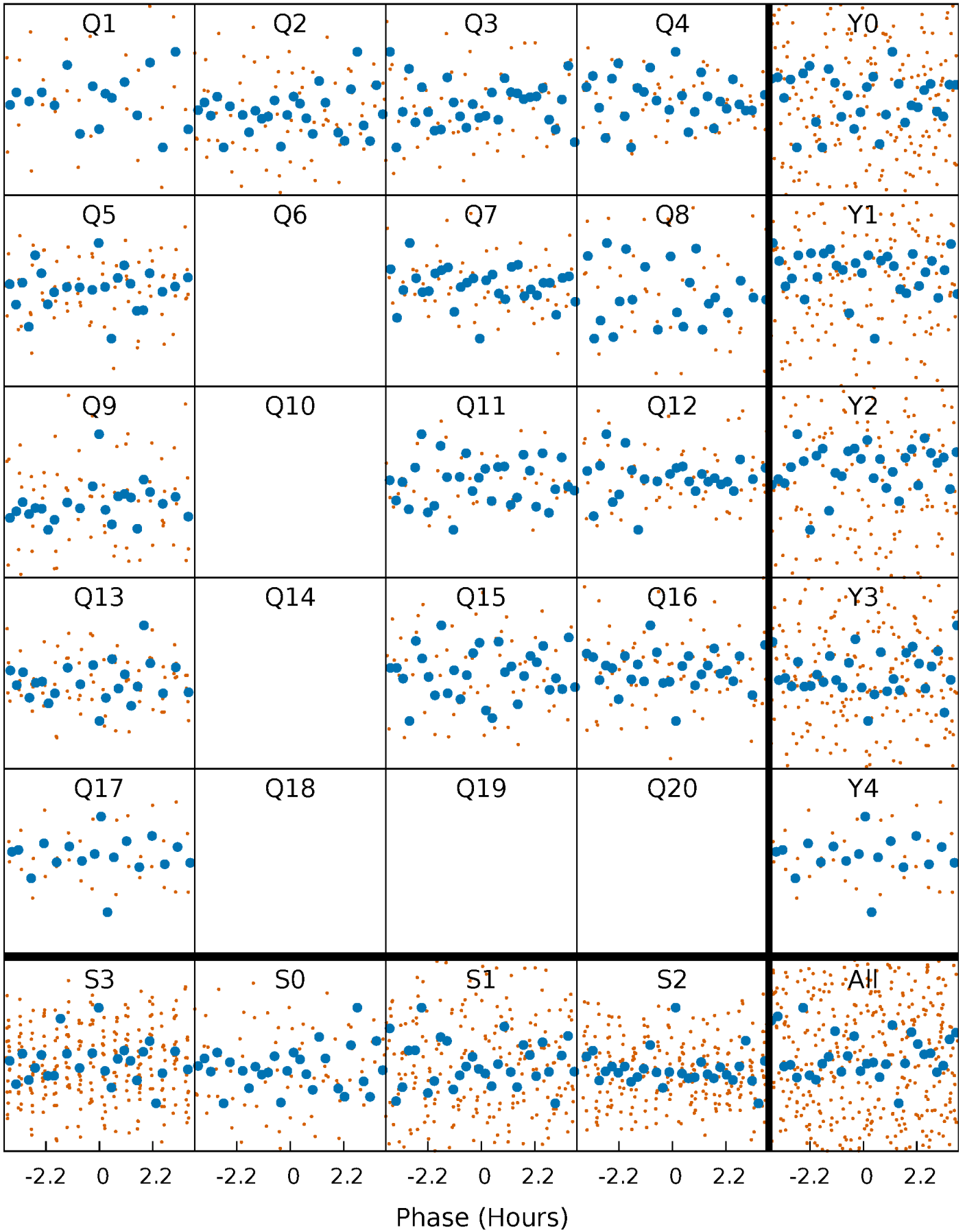


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



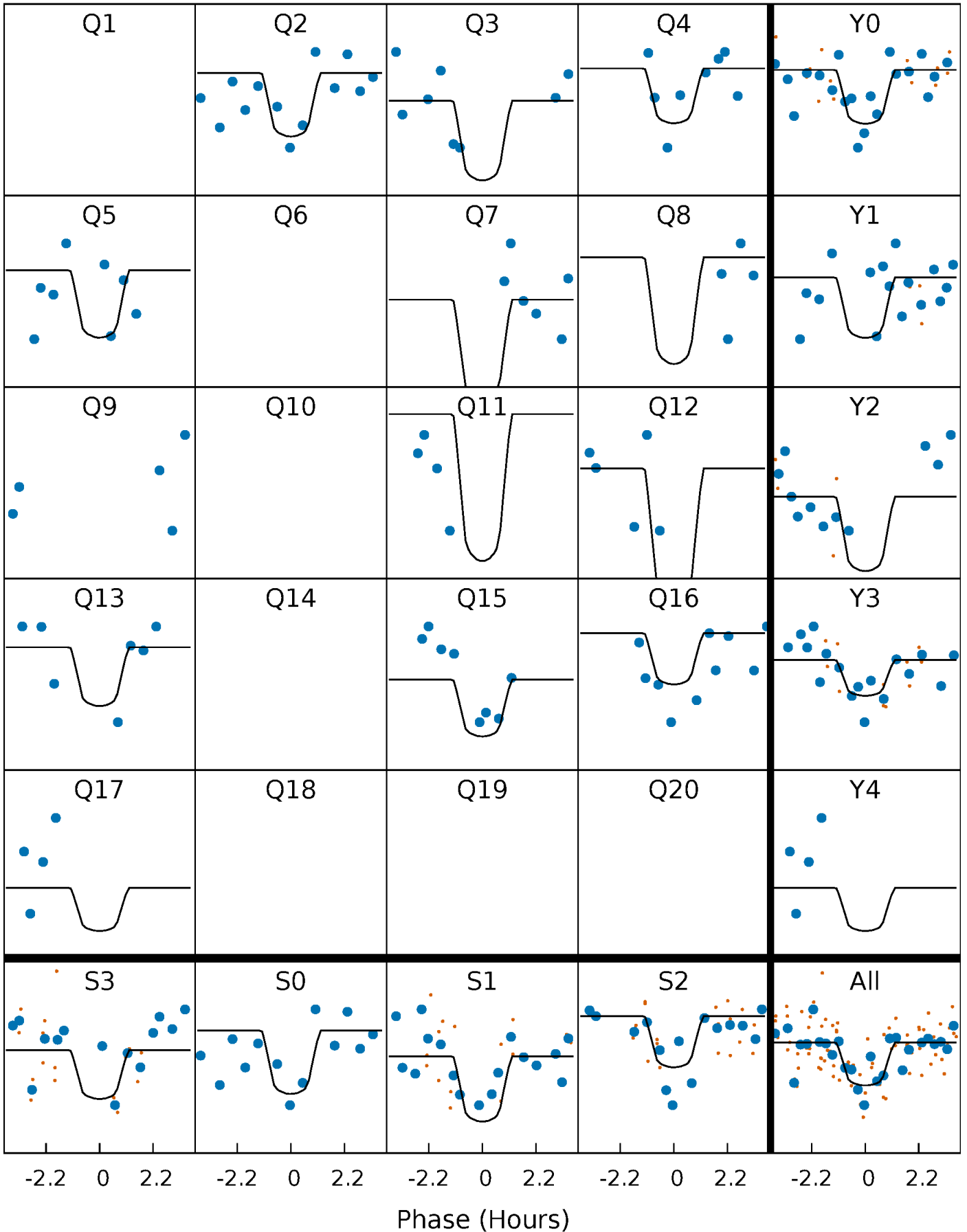
PDC Quarter-Phased Transit Curves

TCE 004756040-04 P= 19.168818 Days $T_0=131.690165$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 004756040-04 $P = 19.168818$ Days $T_0 = 131.690165$ (BKJD)

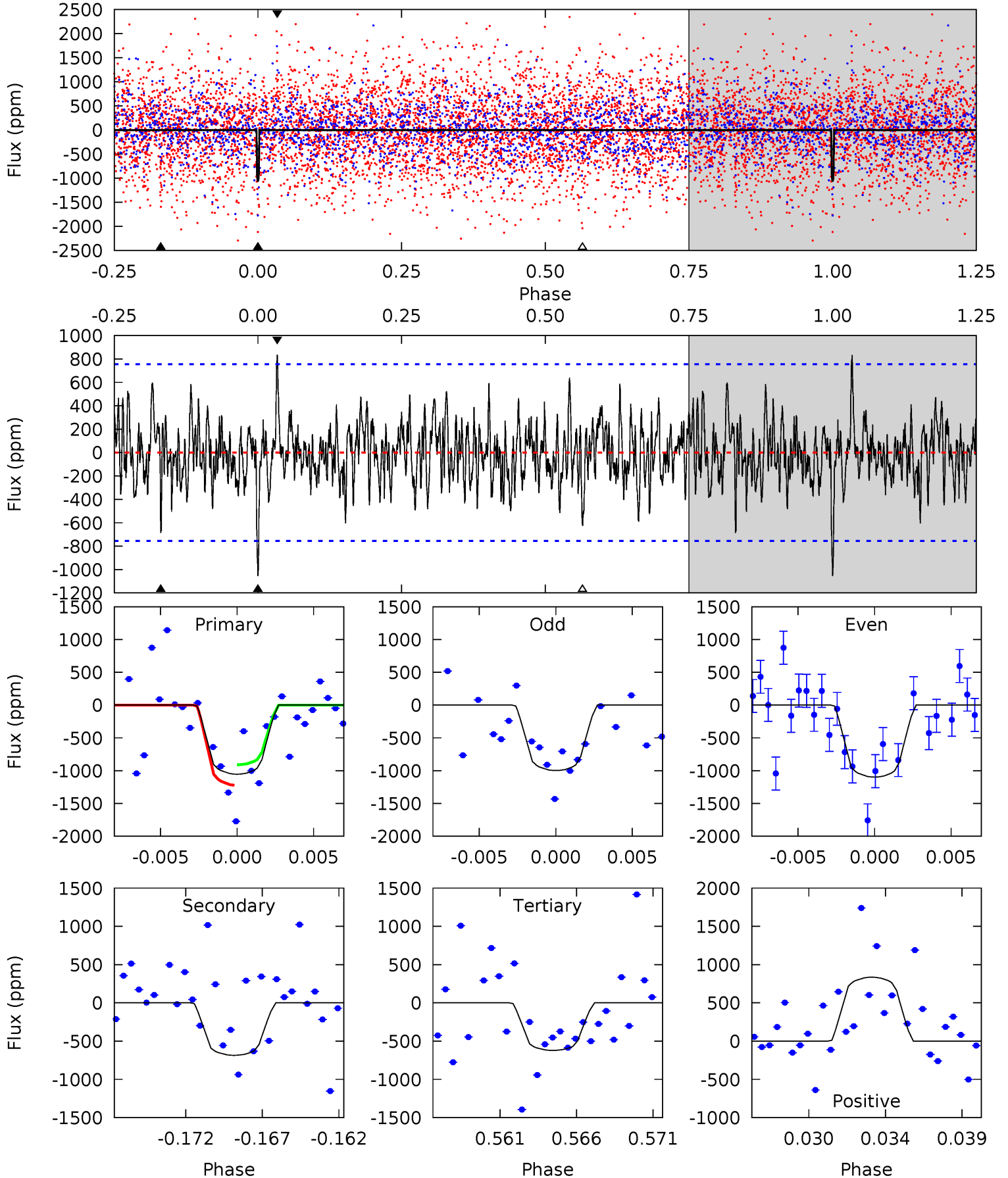


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

004756040-04, P = 19.168818 Days, E = 131.690165 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.21	4.69	4.25	5.71	5.16	2.81	1.46	2.96	1.50	0.44	-1.03	0.34	1.06	0.44	1.07



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 004756040

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7837^{+214}_{-322}	$4.091^{+0.135}_{-0.165}$	$-0.020^{+0.200}_{-0.350}$	$1.966^{+0.495}_{-0.405}$	$1.737^{+0.181}_{-0.294}$	$0.322^{+0.223}_{-0.144}$
	+3%/-4%	+3%/-4%	+1000%/-1750%	+25%/-21%	+10%/-17%	+69%/-45%
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 004756040-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-685 ± 146	$12.83^{+10.34}_{-8.43}$	1647^{+114}_{-103}	5079^{+4166}_{-1082}	61^{+517}_{-43}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

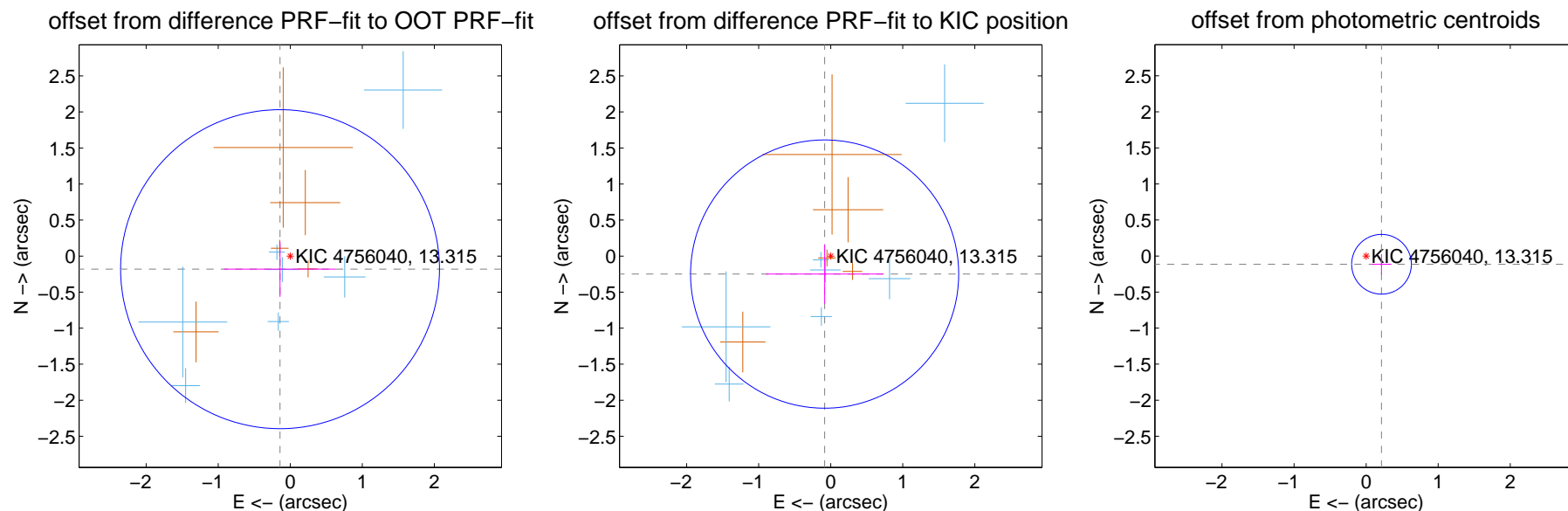
DV Centroid Data

Supplemental centroid analysis for 004756040-04. Kepler magnitude: 13.31. Transit SNR 10.45

There are 7 quarters with good PRF difference image offsets

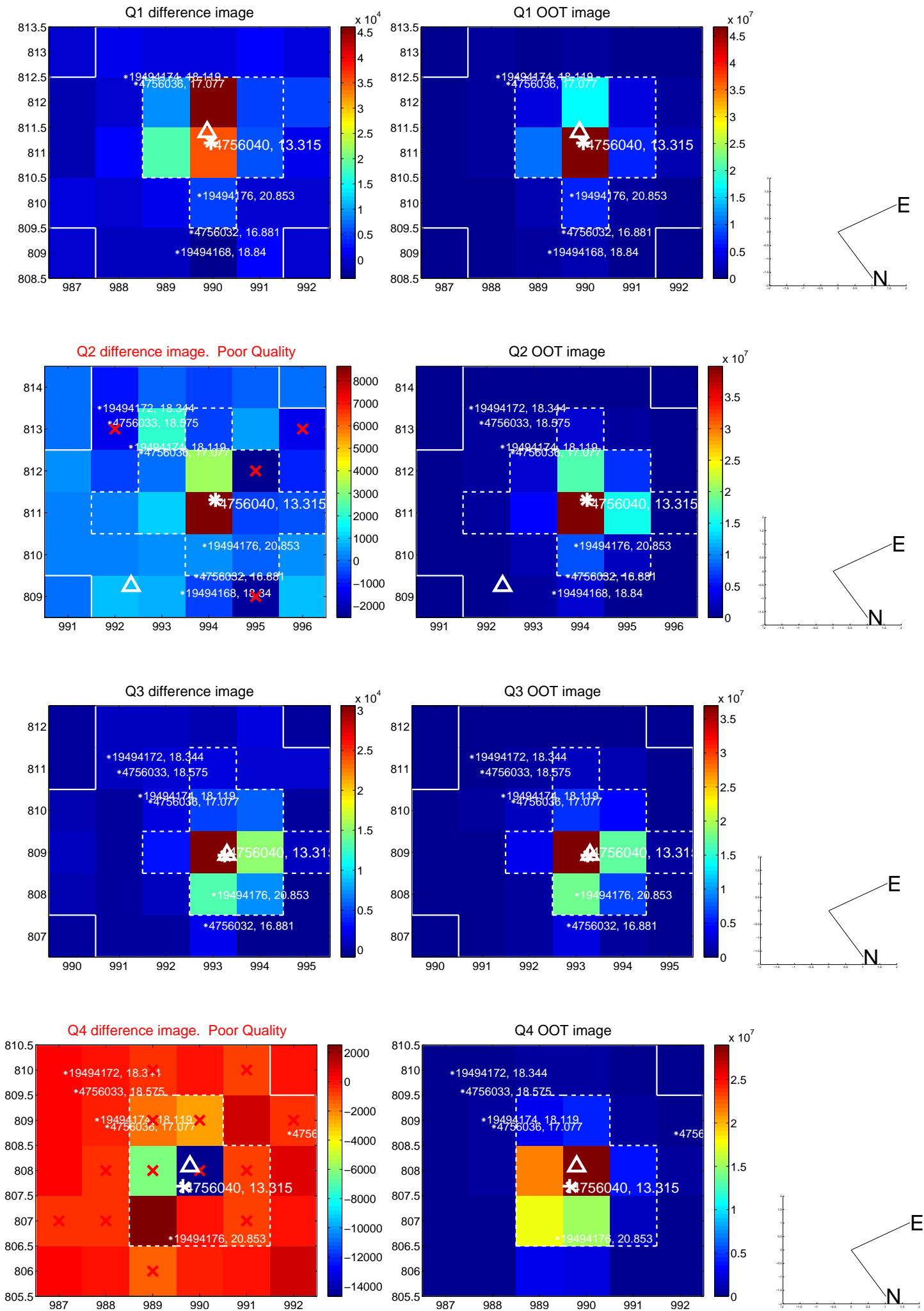
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.230 ± 0.738	0.31	0.142 ± 0.777	-0.182 ± 0.383
PRF-fit source offset from KIC position	0.263 ± 0.620	0.42	0.085 ± 0.815	-0.249 ± 0.410
photometric centroid source offset	0.24 ± 0.14	1.75	-0.21 ± 0.14	-0.11 ± 0.14

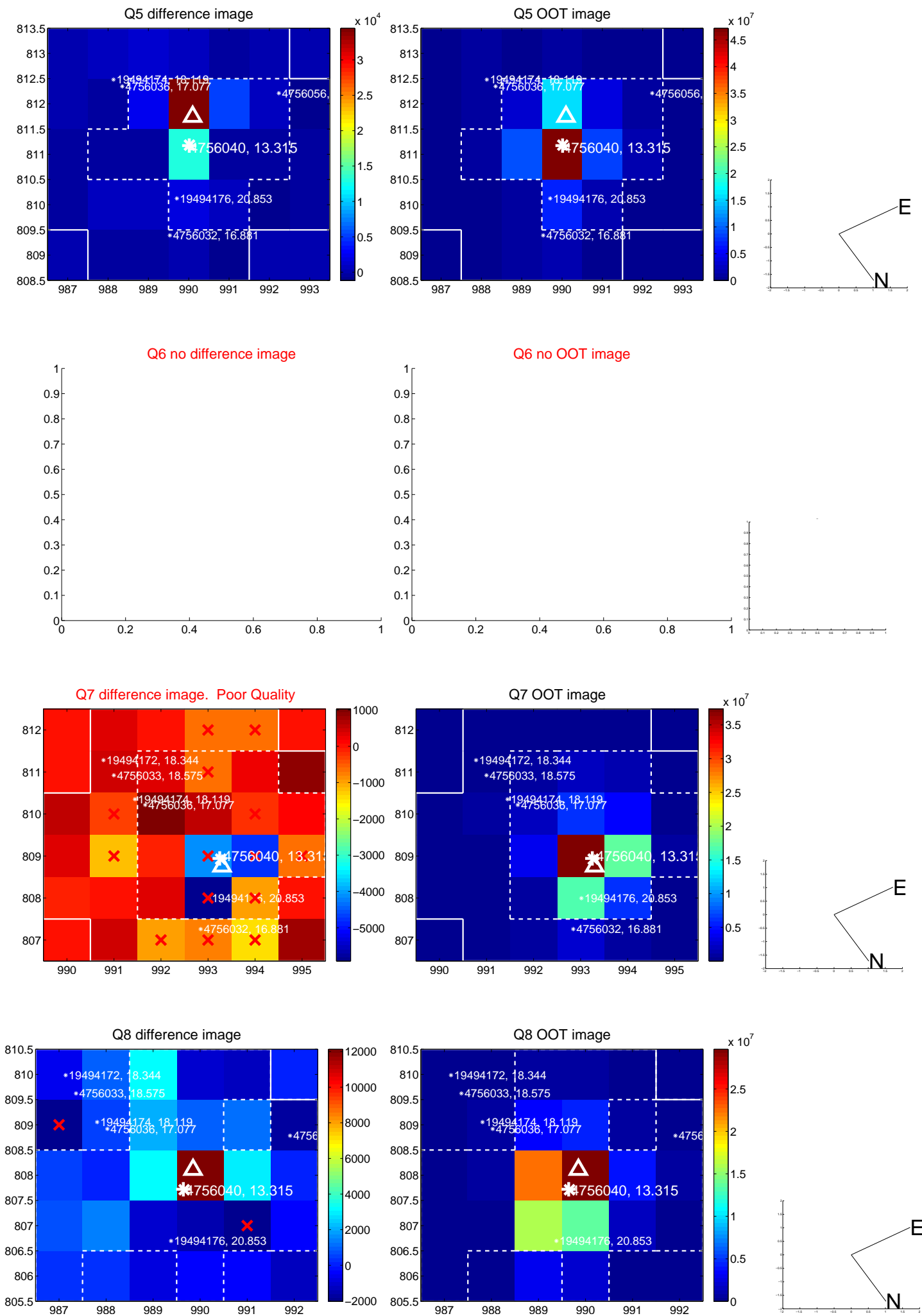


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

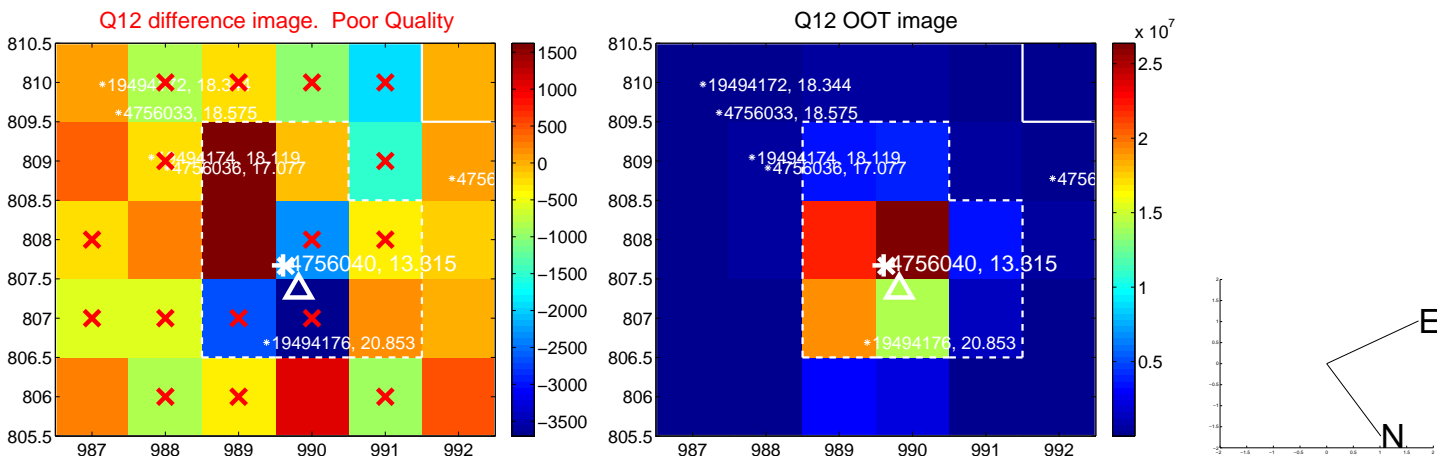
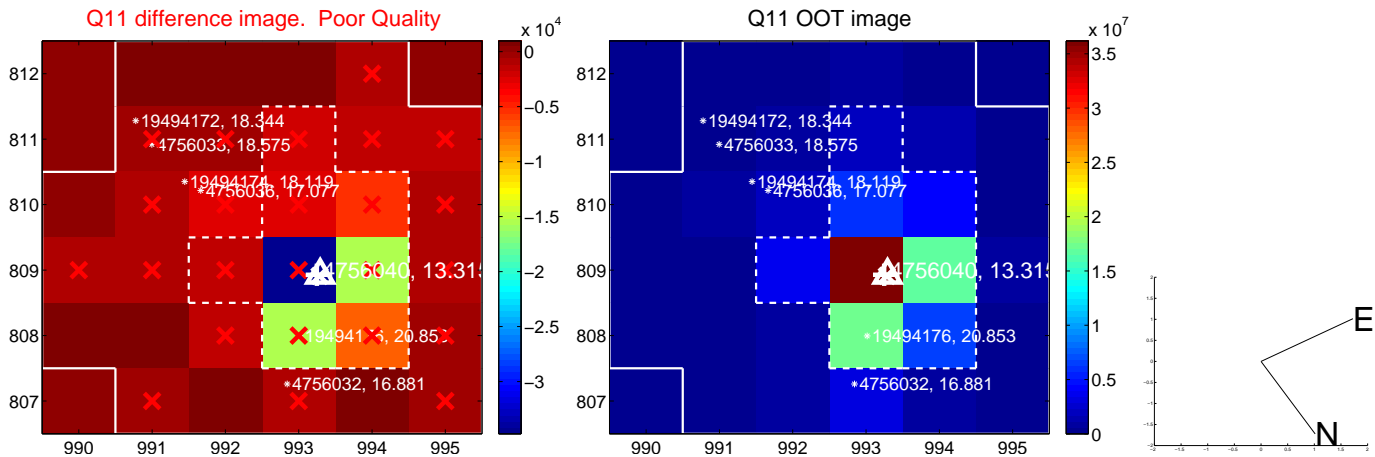
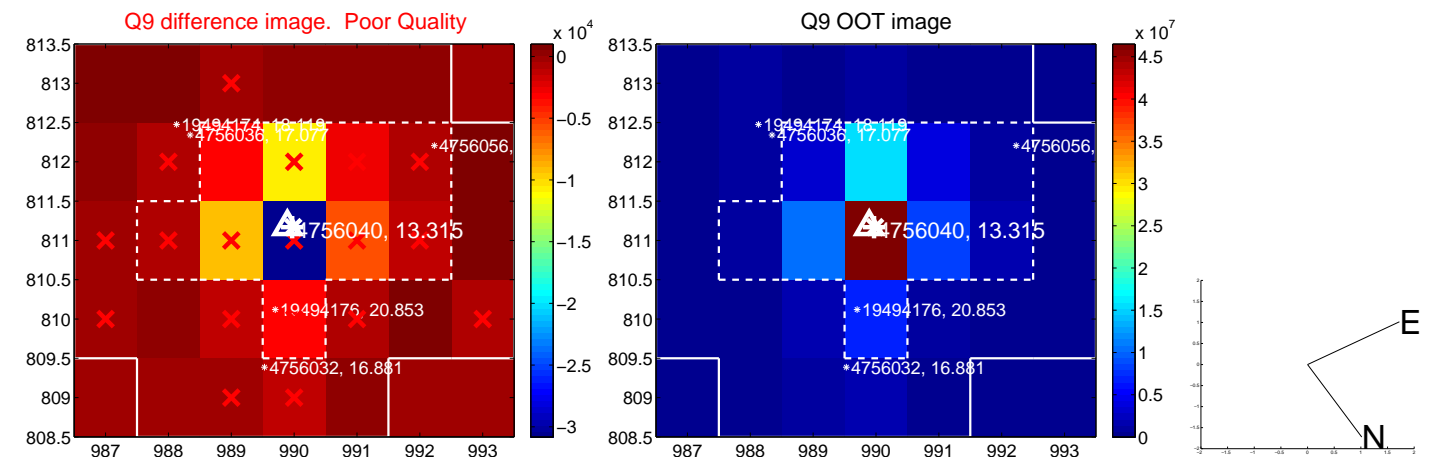
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



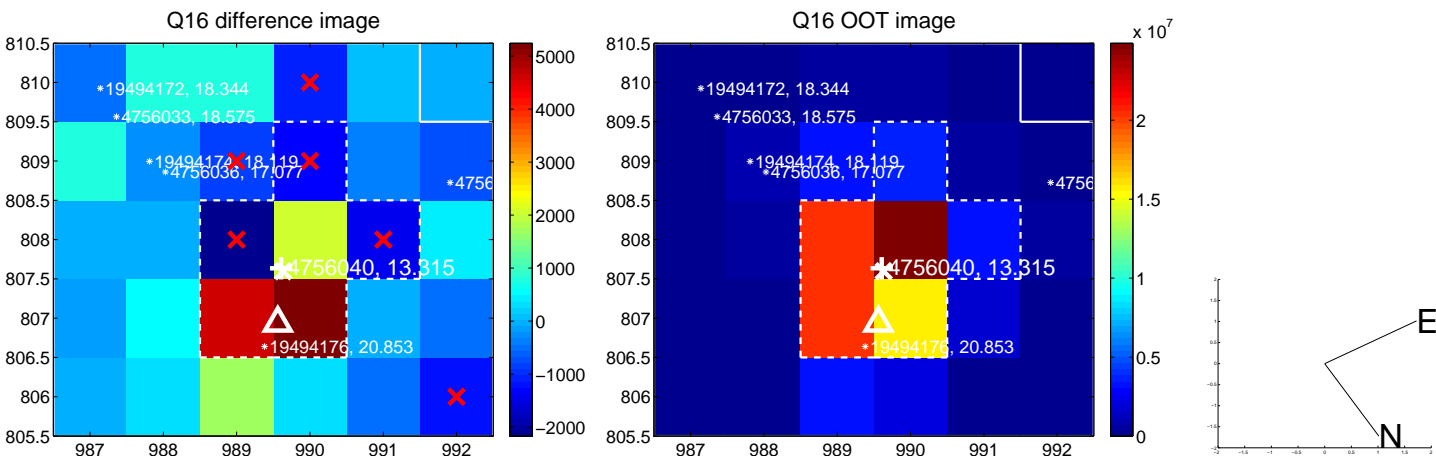
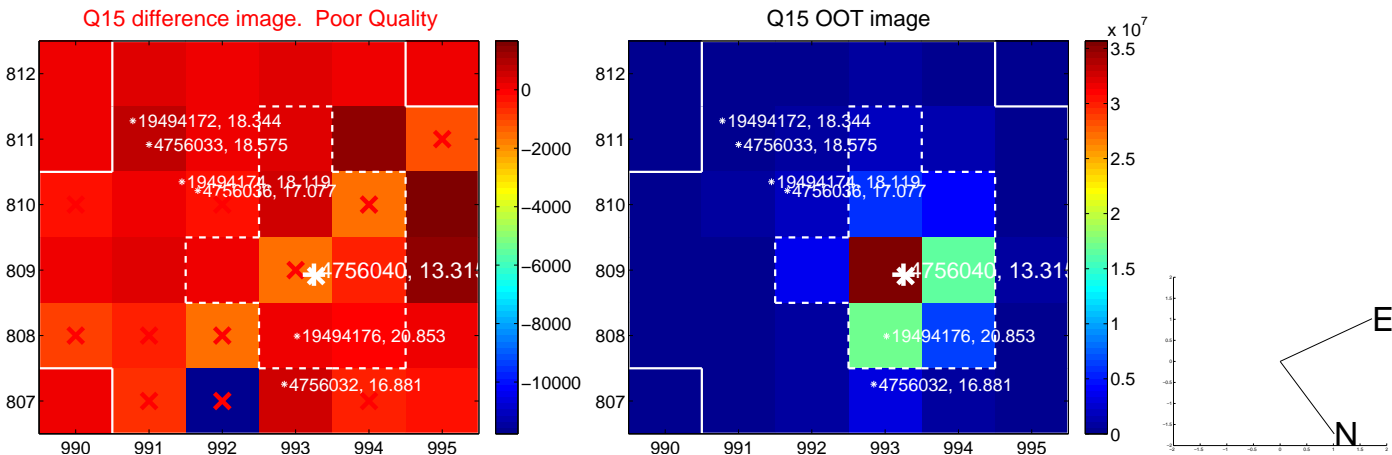
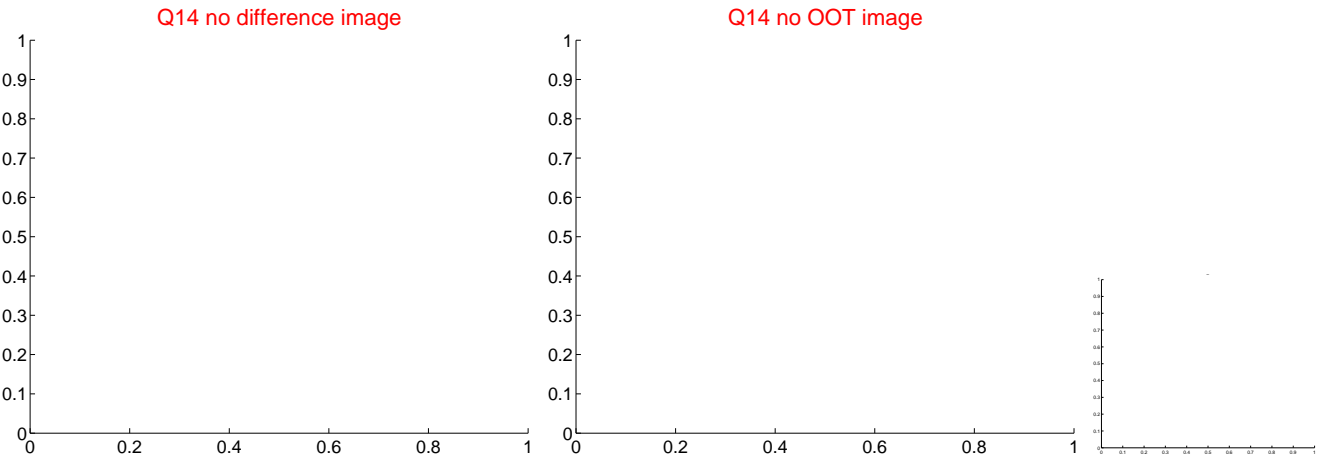
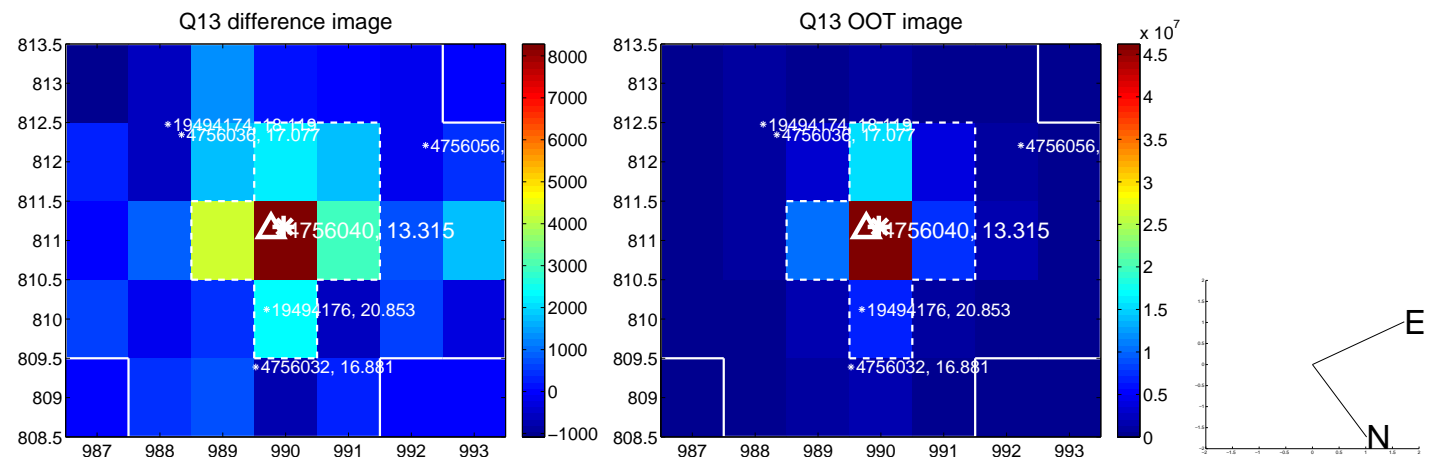
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



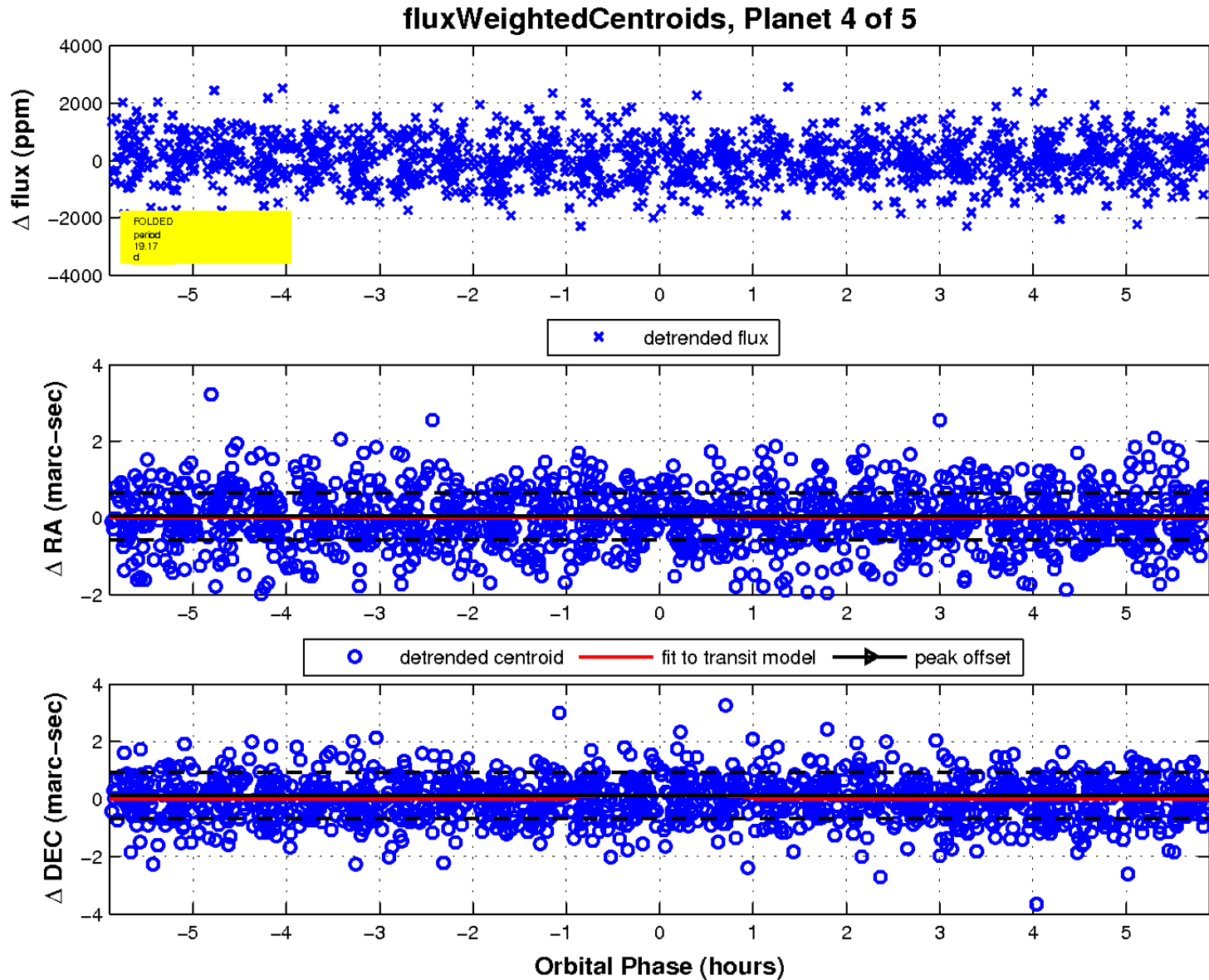
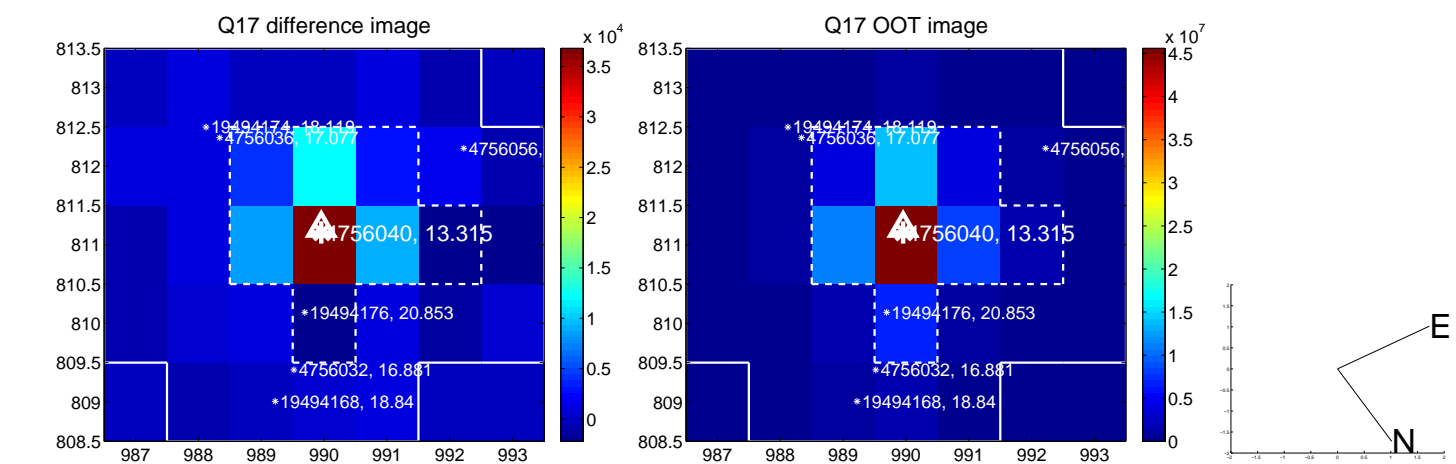
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

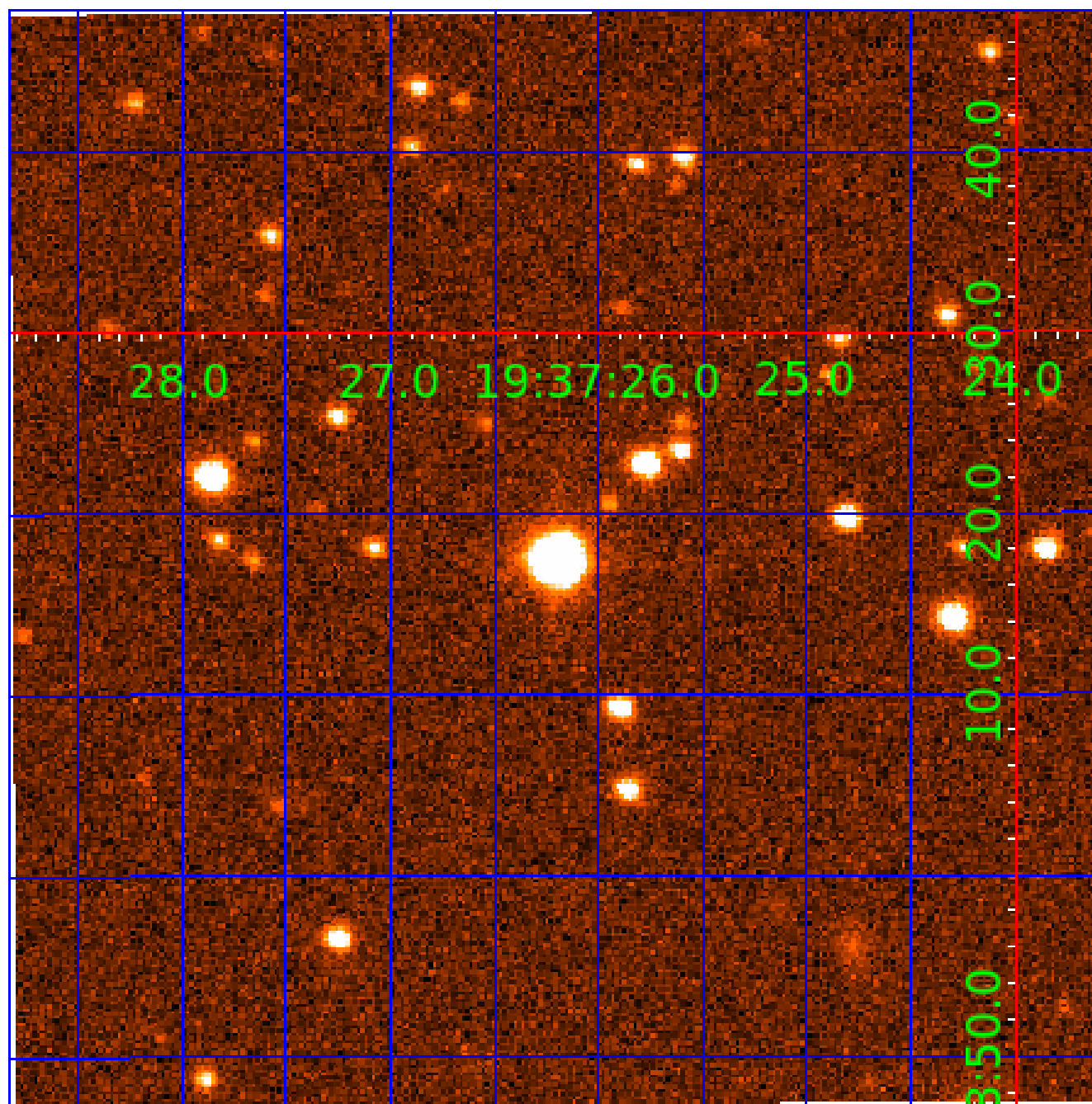


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004756040

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})
004756040-01	OBS	No	0.584023	131.576557	50.6	3.858	9.0	6.3	1.97	7837	1.50	48303.25
004756040-02	OBS	No	10.428625	141.257999	432.4	18.124	10.0	11.8	1.97	7837	4.77	1034.94
004756040-03	OBS	No	38.819900	145.232715	1110.8	3.648	10.7	7.5	1.97	7837	6.99	179.40
004756040-04	OBS	No	19.168818	131.690165	1216.1	1.966	9.6	10.4	1.97	7837	6.98	459.64
004756040-05	OBS	No	28.820279	148.791369	704.5	10.460	8.7	9.9	1.97	7837	5.51	266.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004756040-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004756040-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004756040-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004756040-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV
004756040-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST

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

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

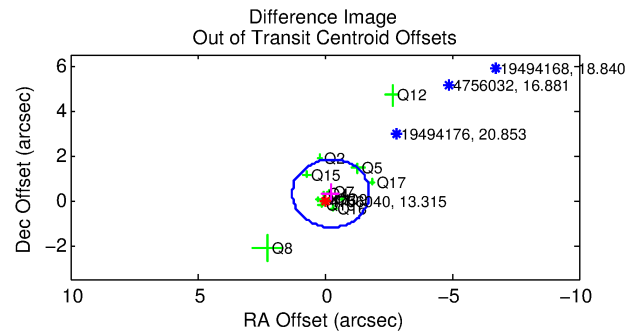
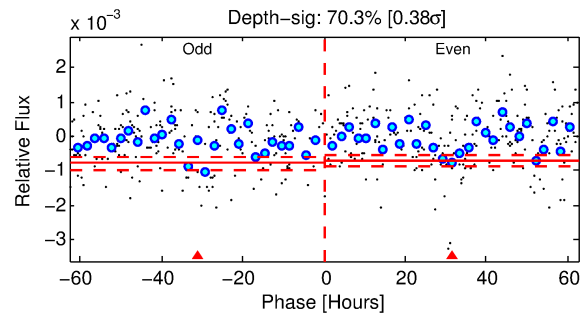
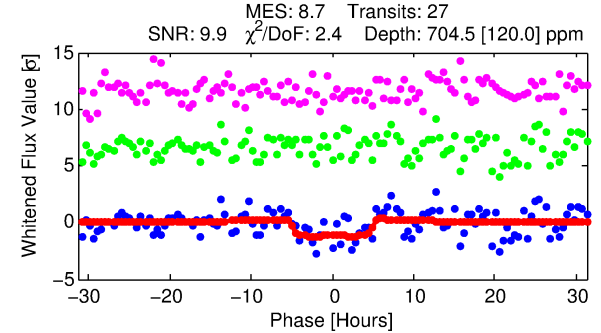
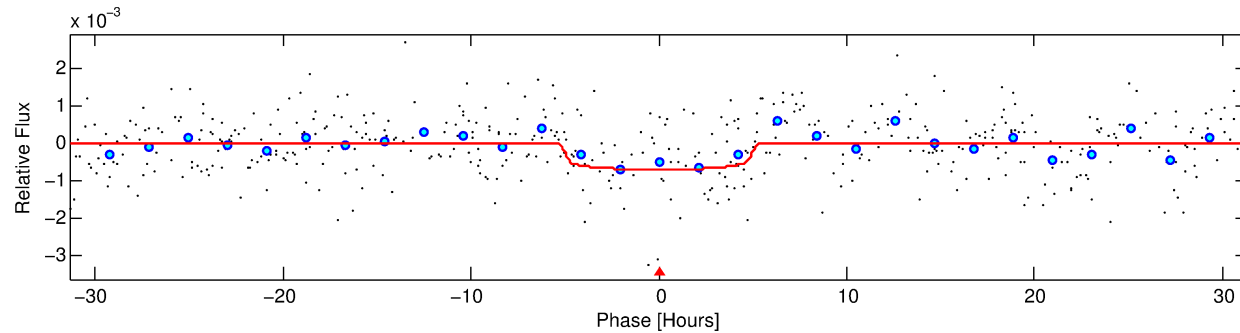
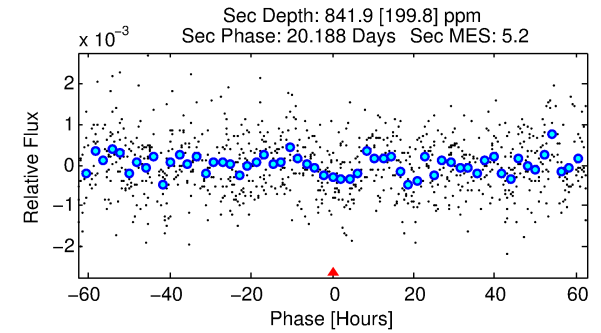
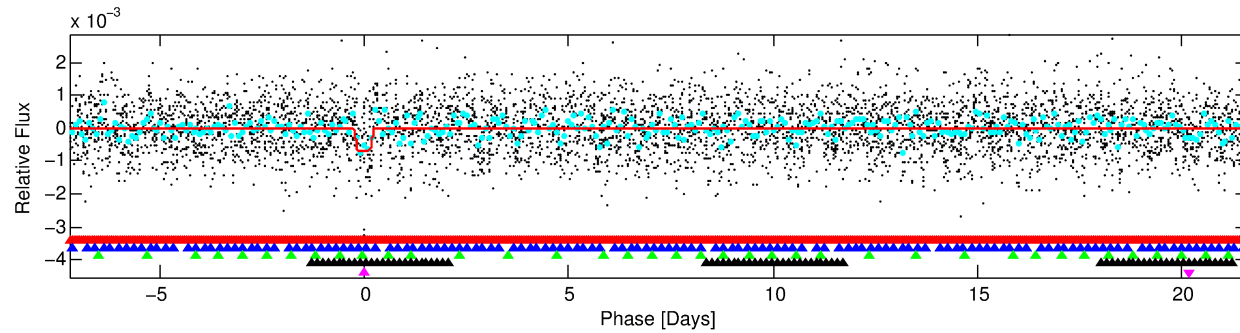
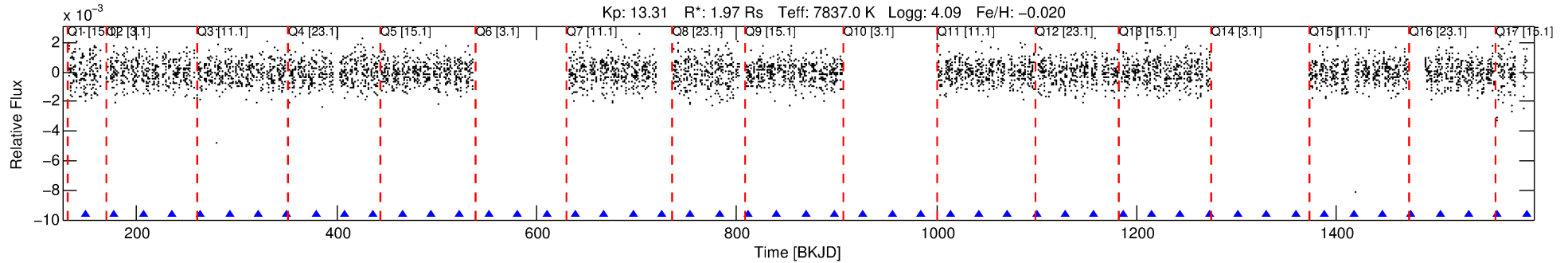
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004756040-05

No Significant Match Found

DV One-Page Summary

KIC: 4756040 Candidate: 5 of 5 Period: 28.820 d



DV Fit Results:

Period = 28.82028 [0.00063] d
Epoch = 148.7914 [0.0187] BKJD
Rp/R* = 0.0257 [0.0115]
a/R* = 17.14 [45.40]
b = 0.62 [2.62]
Seff = 266.86 [92.19]
Teq = 1031 [89] K
Rp = 5.51 [2.83] Re
a = 0.2213 [0.0465] AU
Ag = 745.95 [727.41] [1.02 σ]
Teffp = 8328 [1959] K [3.72 σ]

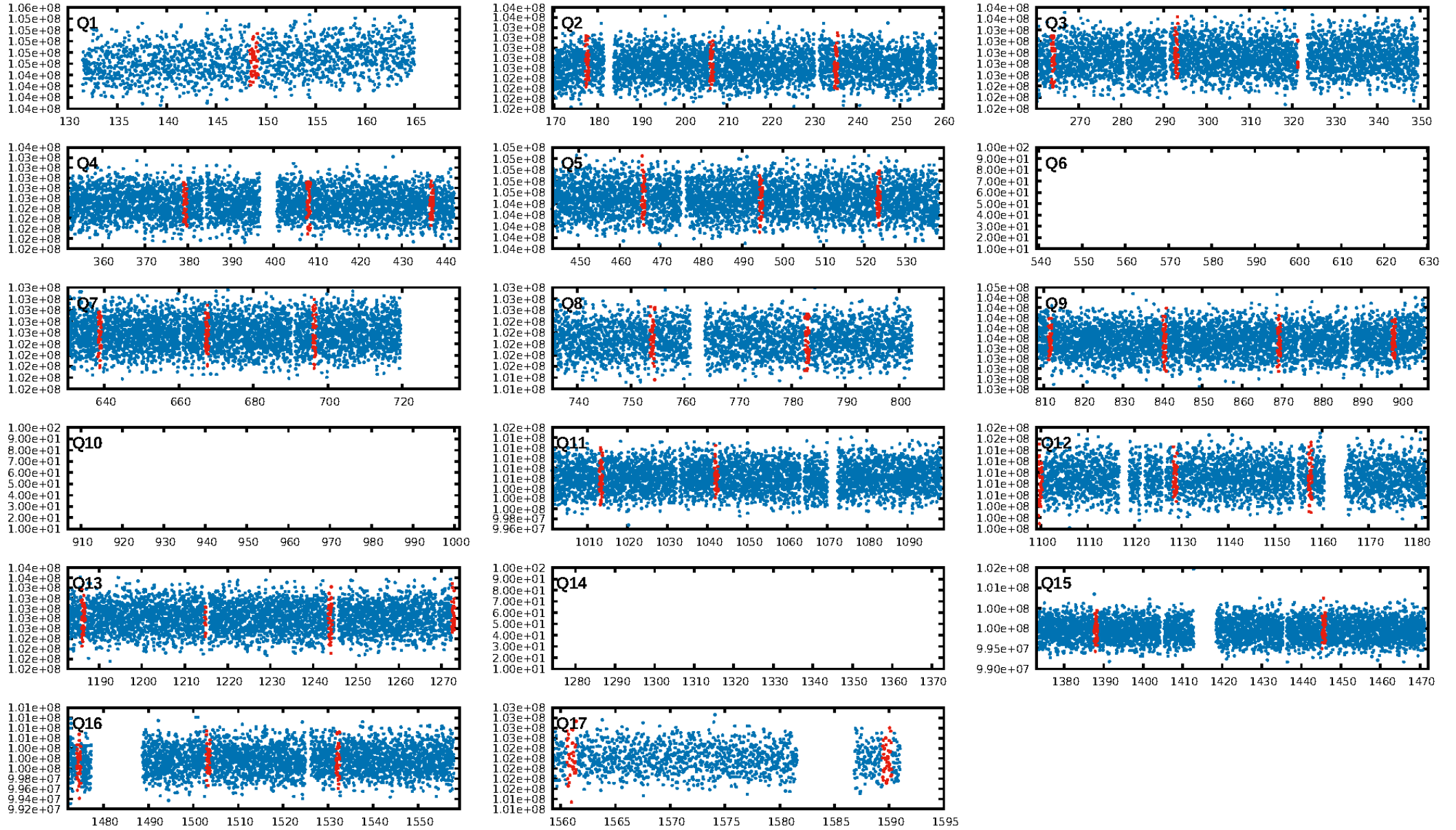
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [21.76 σ]
LongPeriod-sig: 100.0% [21.66 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.39e-08
RollingBand-fgt: 1.00 [24/24]
GhostDiagnostic-chr: -0.181
Centroid-sig: 47.1%
Centroid-so: 0.118 arcsec [0.69 σ]
OotOffset-rm: 0.397 arcsec [0.79 σ]
KicOffset-rm: 0.383 arcsec [0.77 σ]
OotOffset-st: 1/4/4/4 [13]
KicOffset-st: 1/4/4/4 [13]
DiffImageQuality-fgm: 0.77 [10/13]
DiffImageOverlap-fno: 0.00 [0/14]

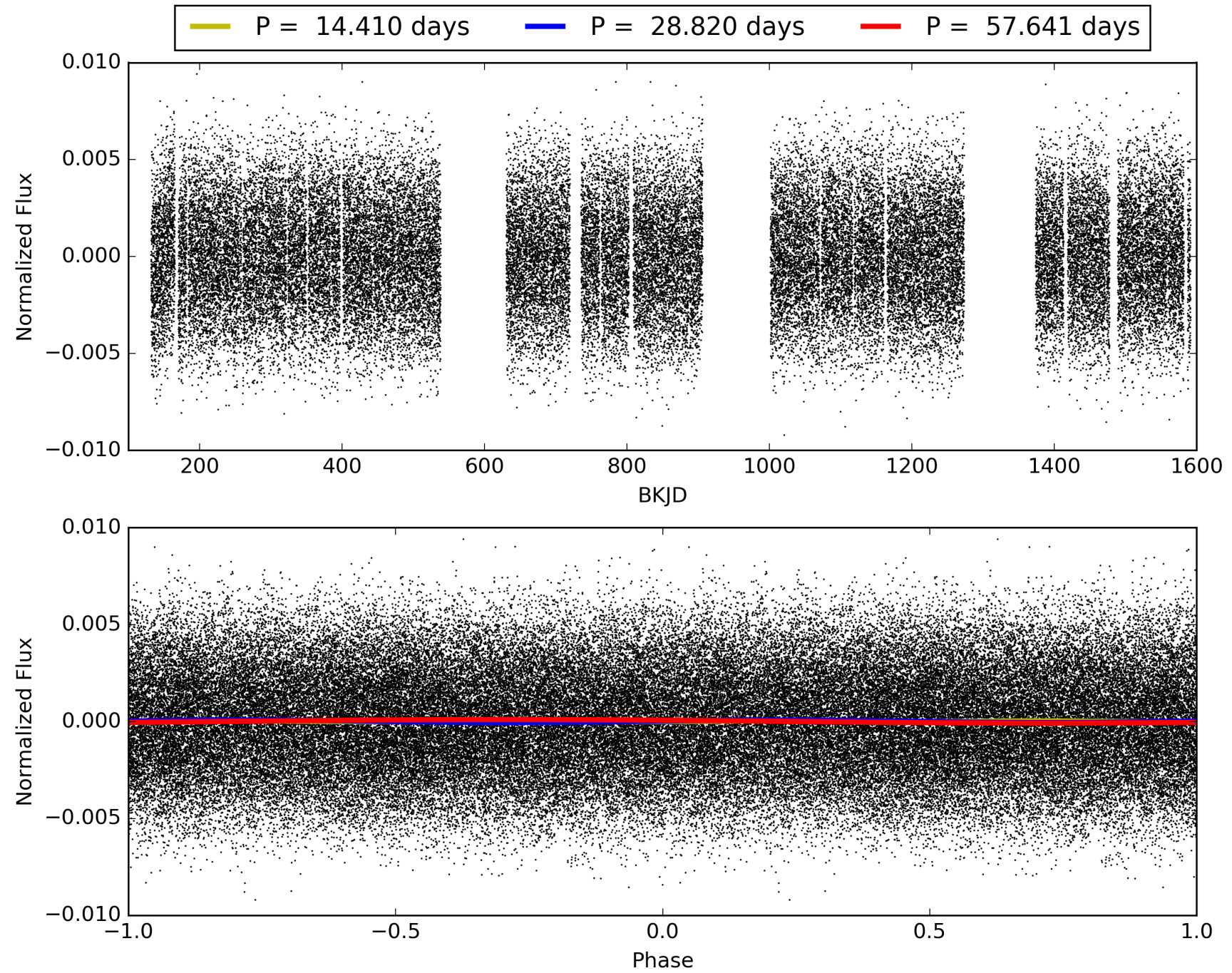
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004756040-05, PDC Light Curves

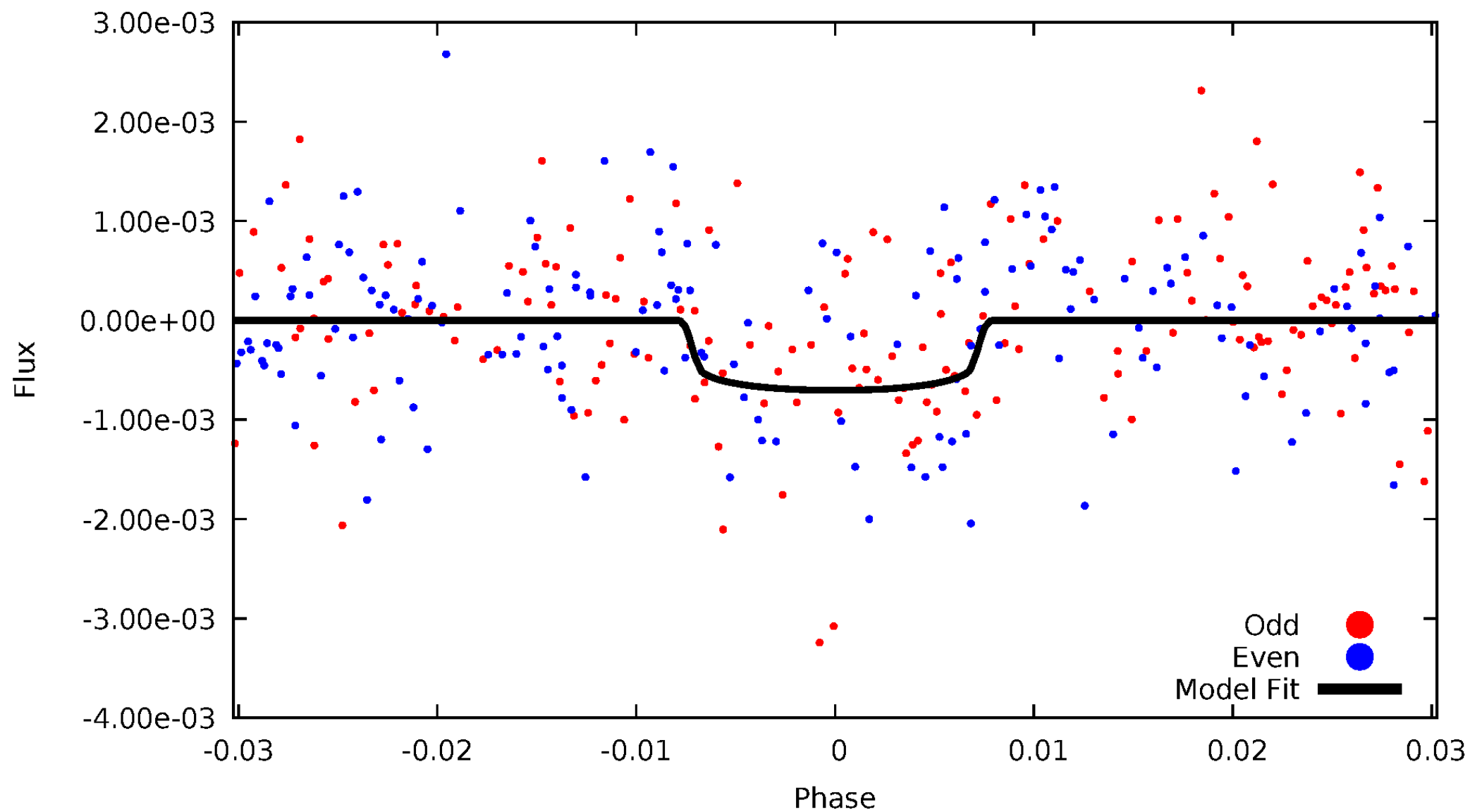


TCE 004756040-05



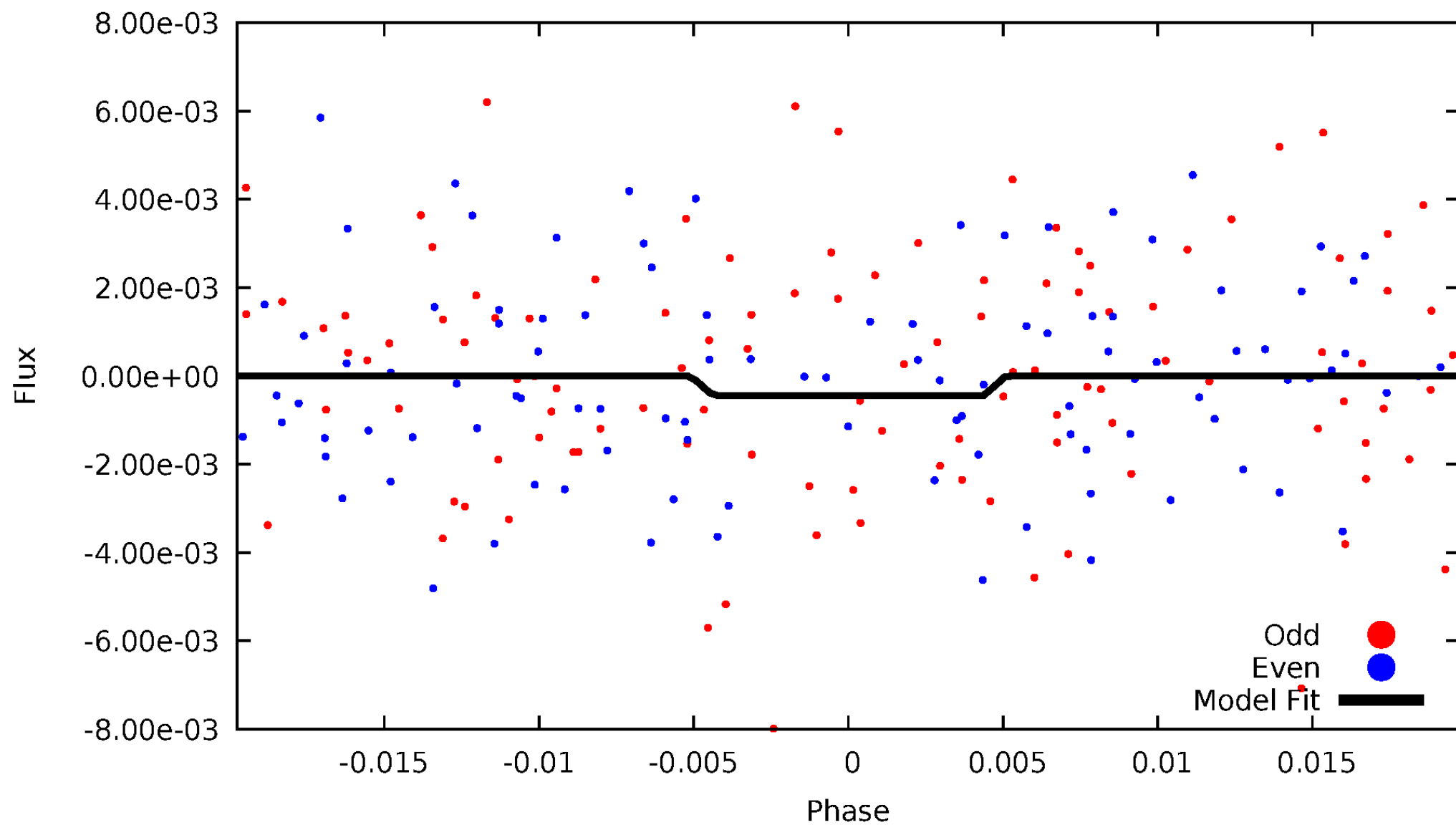
DV Odd/Even

TCE 004756040-05



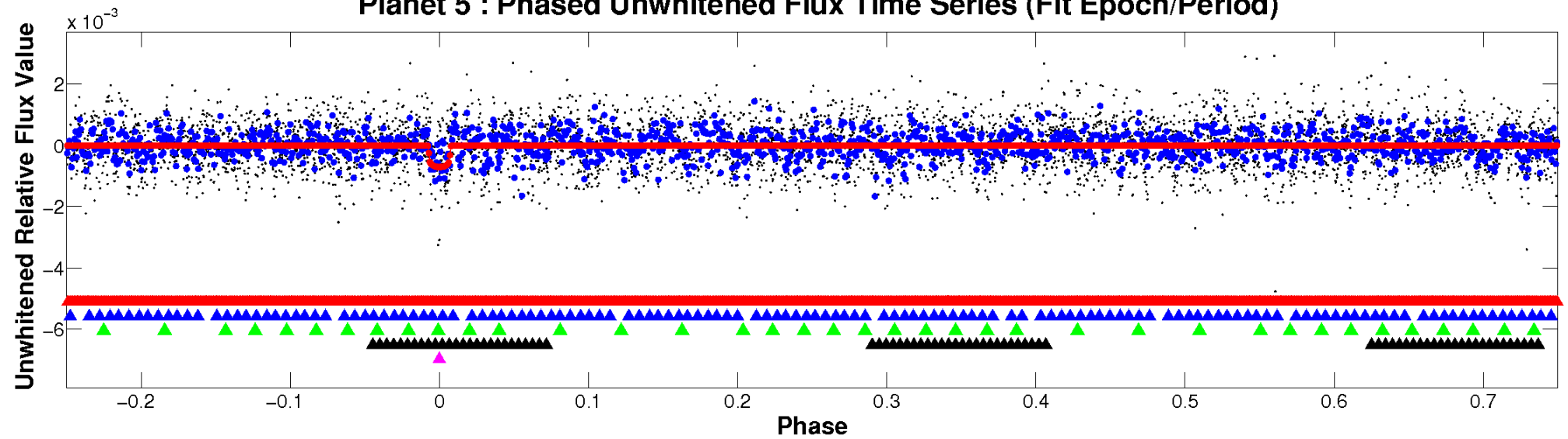
ALT Odd/Even

TCE 004756040-05

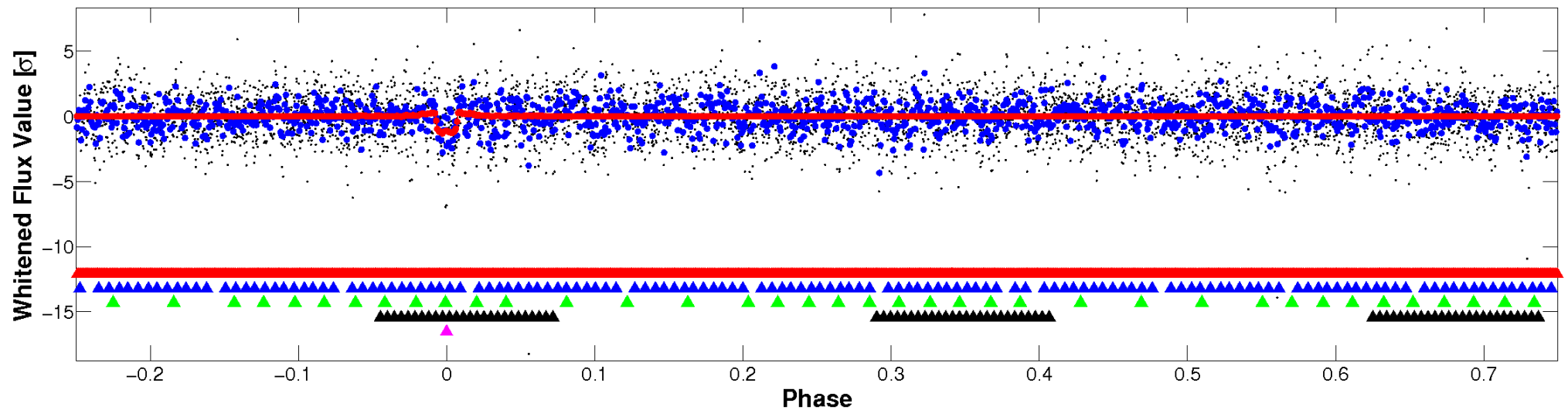


Non-Whitened Vs. Whitened Light Curve

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

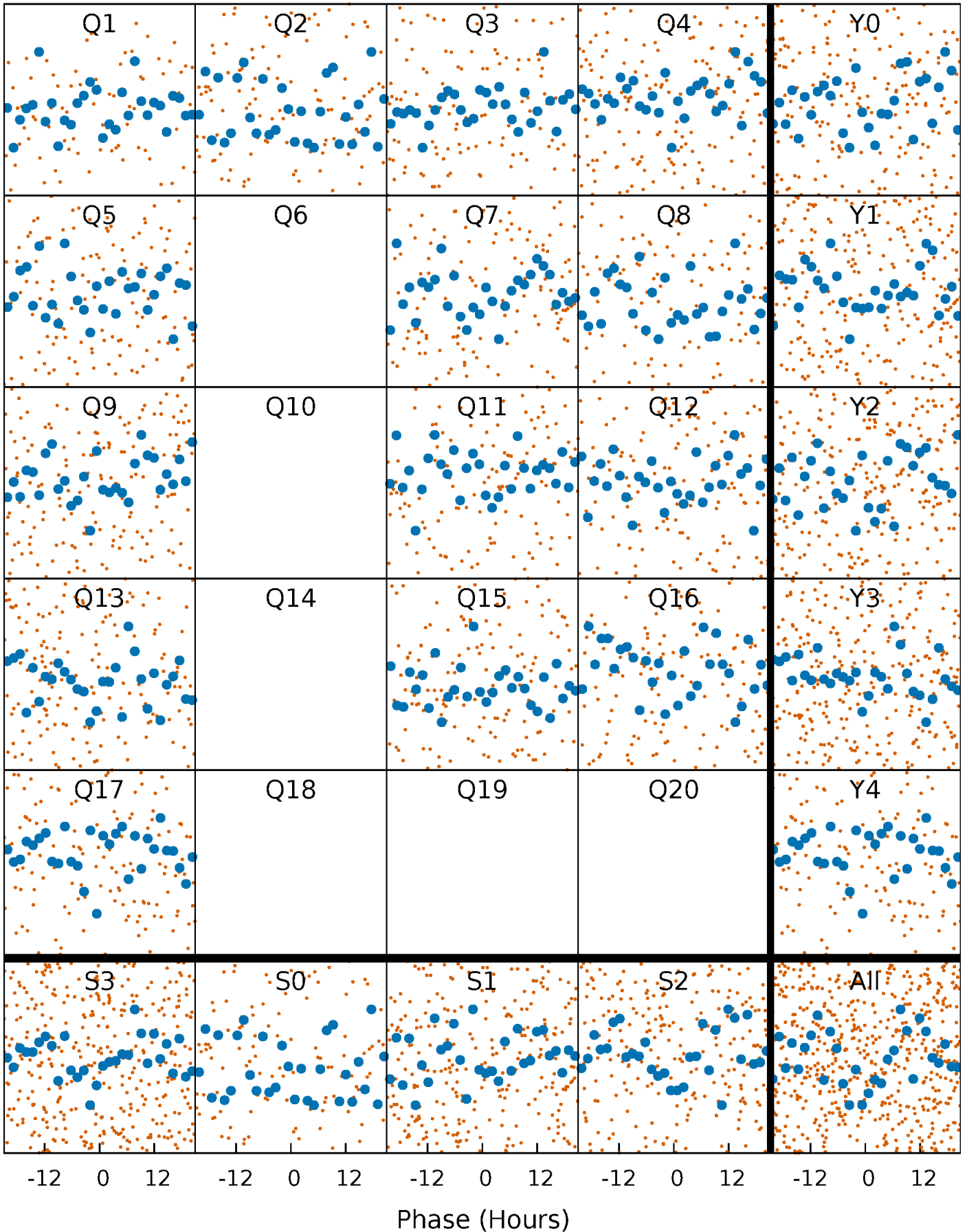


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



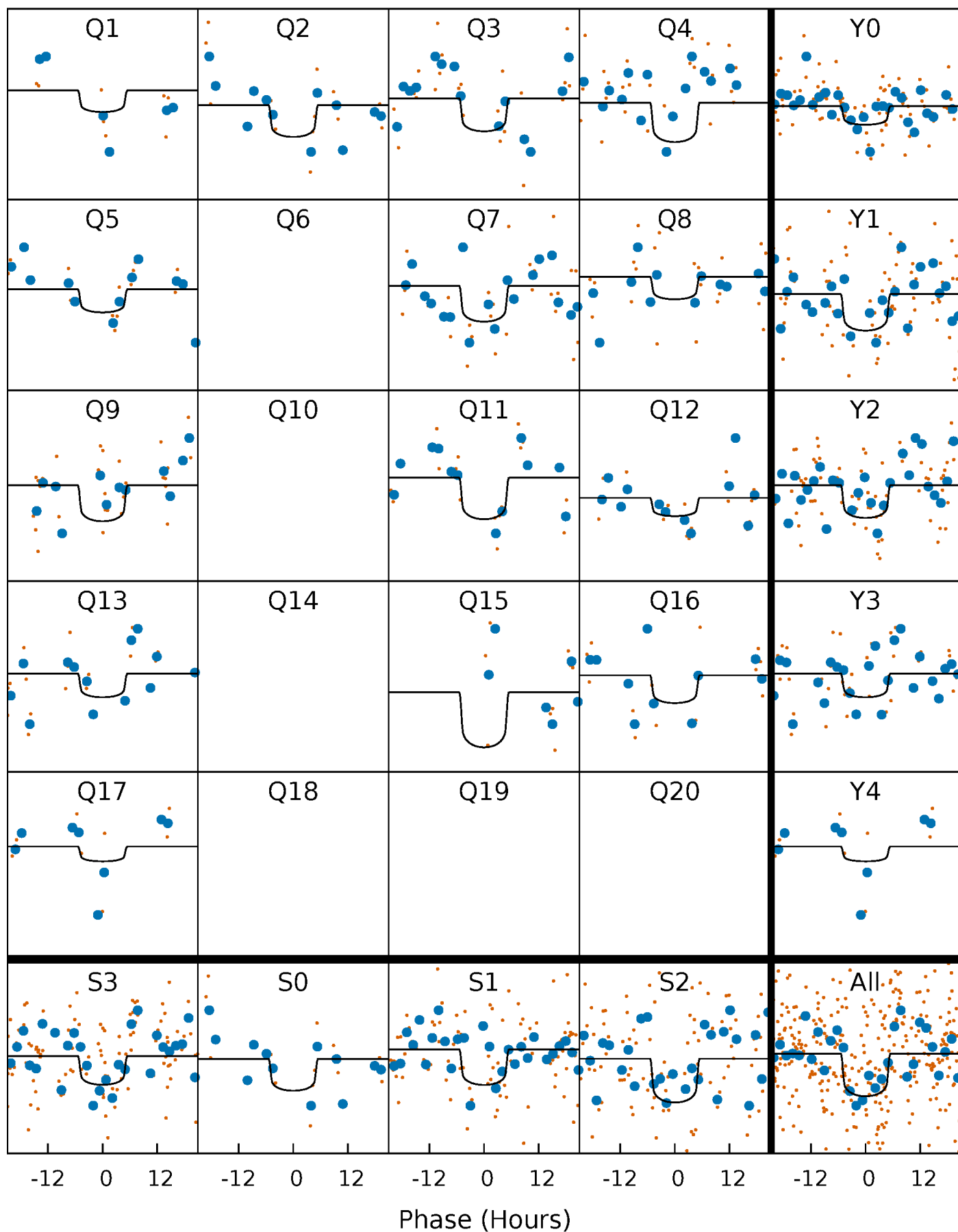
PDC Quarter-Phased Transit Curves

TCE 004756040-05 $P = 28.820279$ Days $T_0 = 148.791369$ (BKJD)



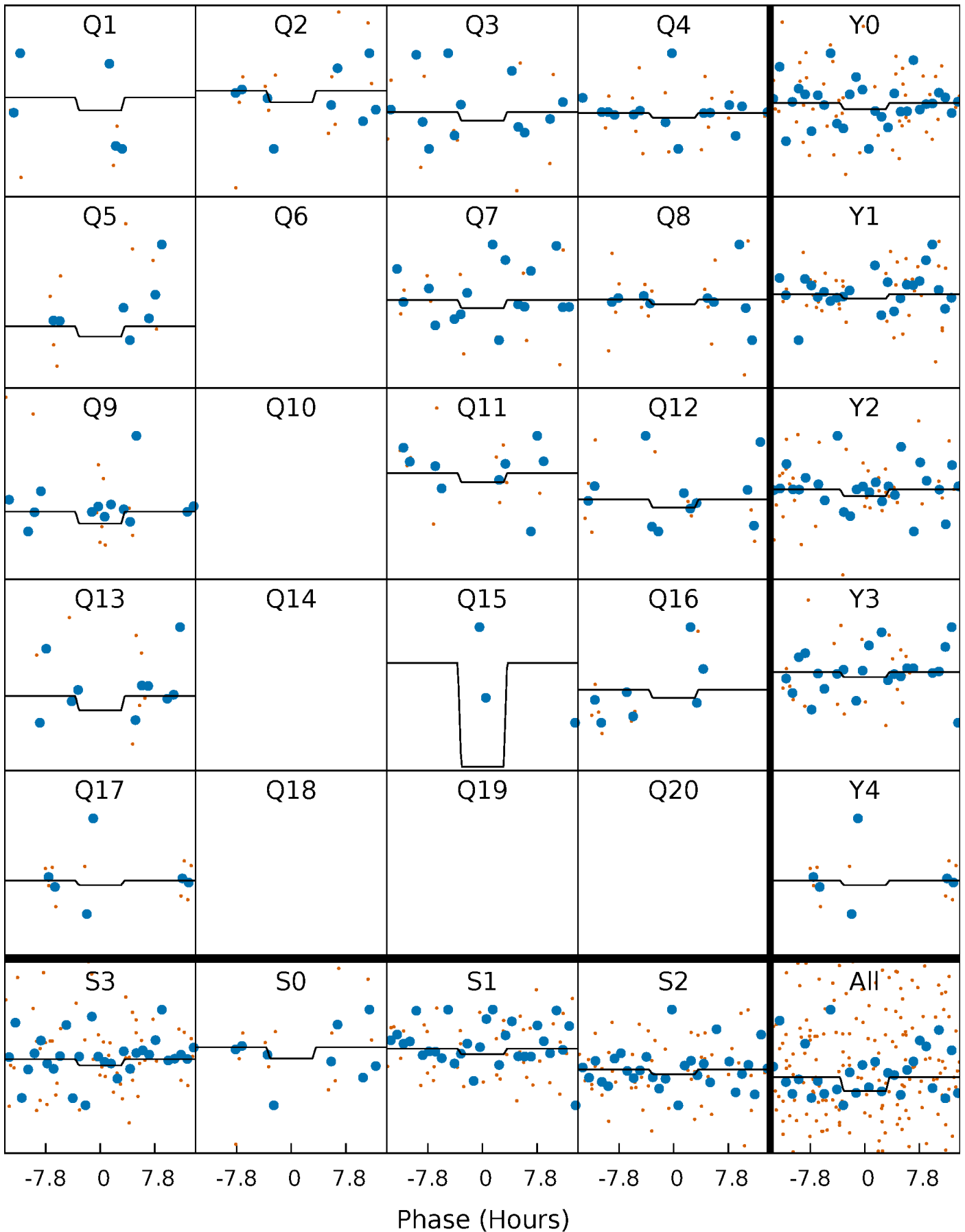
DV Quarter-Phased Transit Curves

TCE 004756040-05 $P = 28.820279$ Days $T_0 = 148.791369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

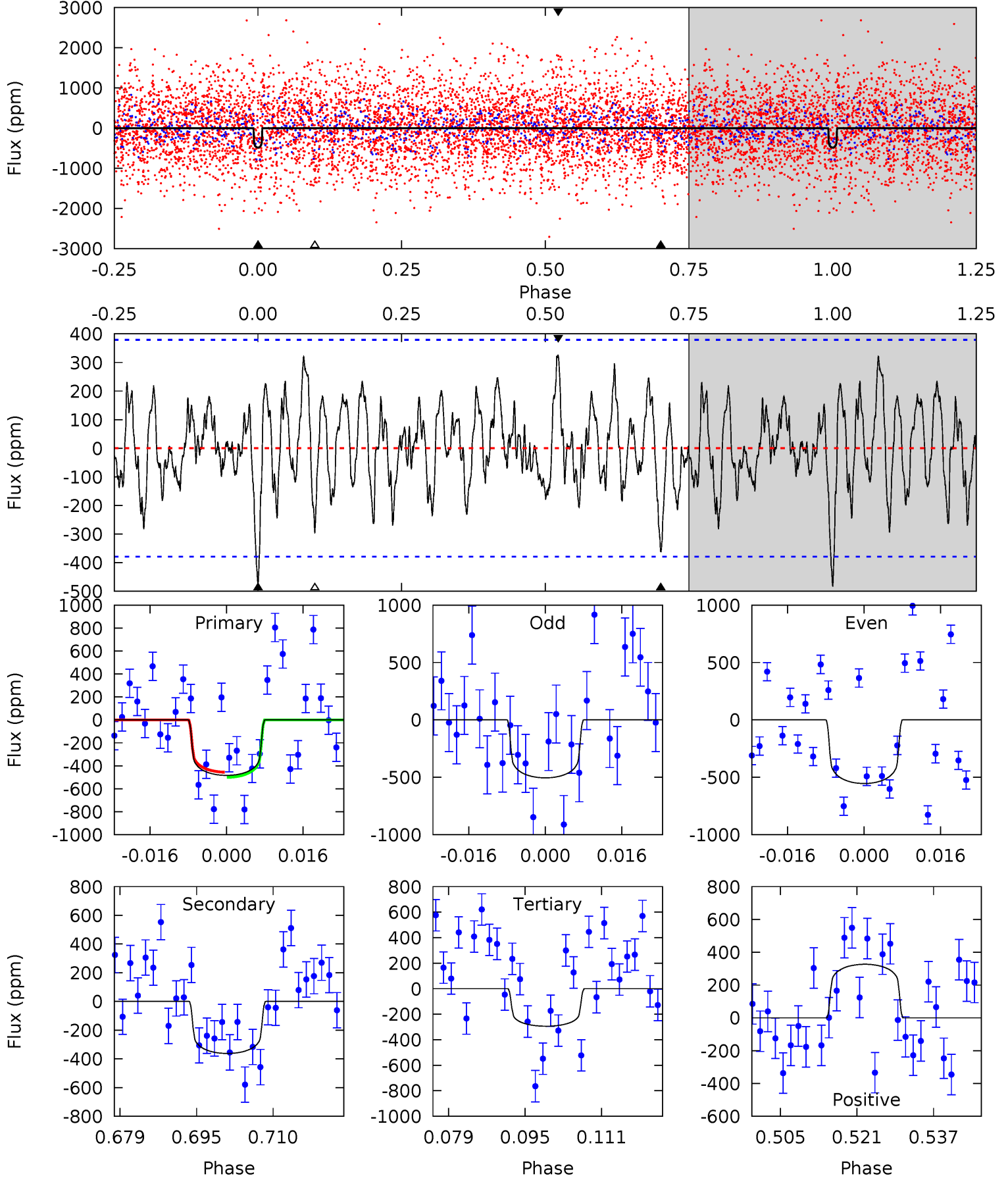
TCE 004756040-05 $P = 28.823127$ Days $T_0 = 148.719534$ (BKJD)



DV Model-Shift Uniqueness Test

004756040-05, $P = 28.820279$ Days, $E = 119.971090$ Days

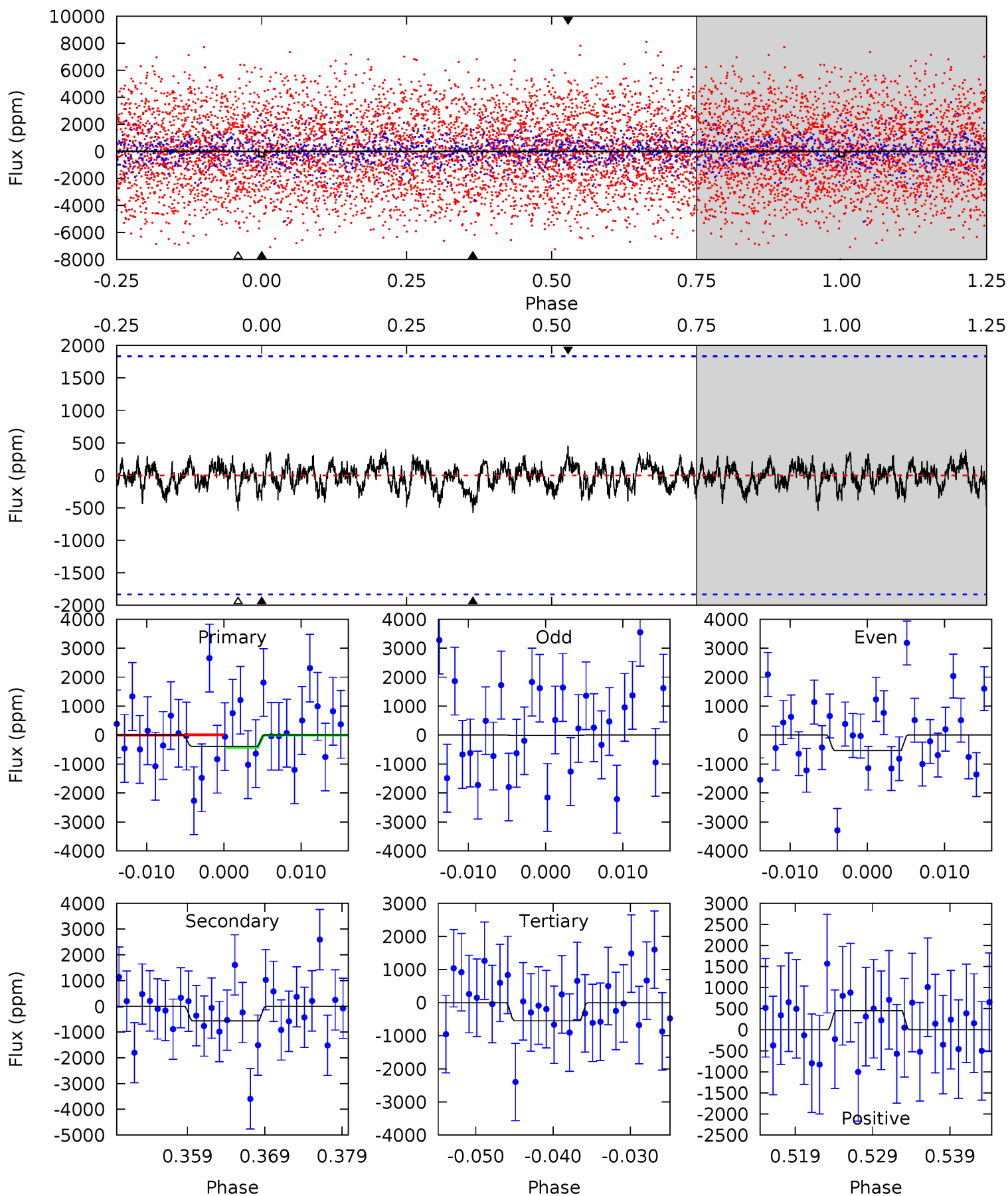
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.29	4.72	3.83	4.25	4.94	2.41	1.56	2.46	2.04	0.89	0.46	0.32	0.89	0.40	0



Alt Model-Shift Uniqueness Test

004756040-05, P = 28.823127 Days, E = 119.896407 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.07	1.56	1.50	1.25	5.03	2.58	0.43	-0.43	-0.18	0.06	0.31	0.71	3.08	0.44	0.56



Stellar Parameters For KIC 004756040

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7837^{+214}_{-322}	$4.091^{+0.135}_{-0.165}$	$-0.020^{+0.200}_{-0.350}$	$1.966^{+0.495}_{-0.405}$	$1.737^{+0.181}_{-0.294}$	$0.322^{+0.223}_{-0.144}$
	+3%/-4%	+3%/-4%	+1000%/-1750%	+25%/-21%	+10%/-17%	+69%/-45%
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 004756040-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-362 ± 77	$5.59^{+2.73}_{-2.59}$	1446^{+98}_{-99}	6501^{+3074}_{-1101}	318^{+738}_{-184}
Alt.	-568 ± 364	$4.61^{+2.65}_{-2.31}$	1443^{+102}_{-96}	7990^{+5623}_{-2319}	611^{+2090}_{-444}

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 $A_{obs} \gg 1.0$

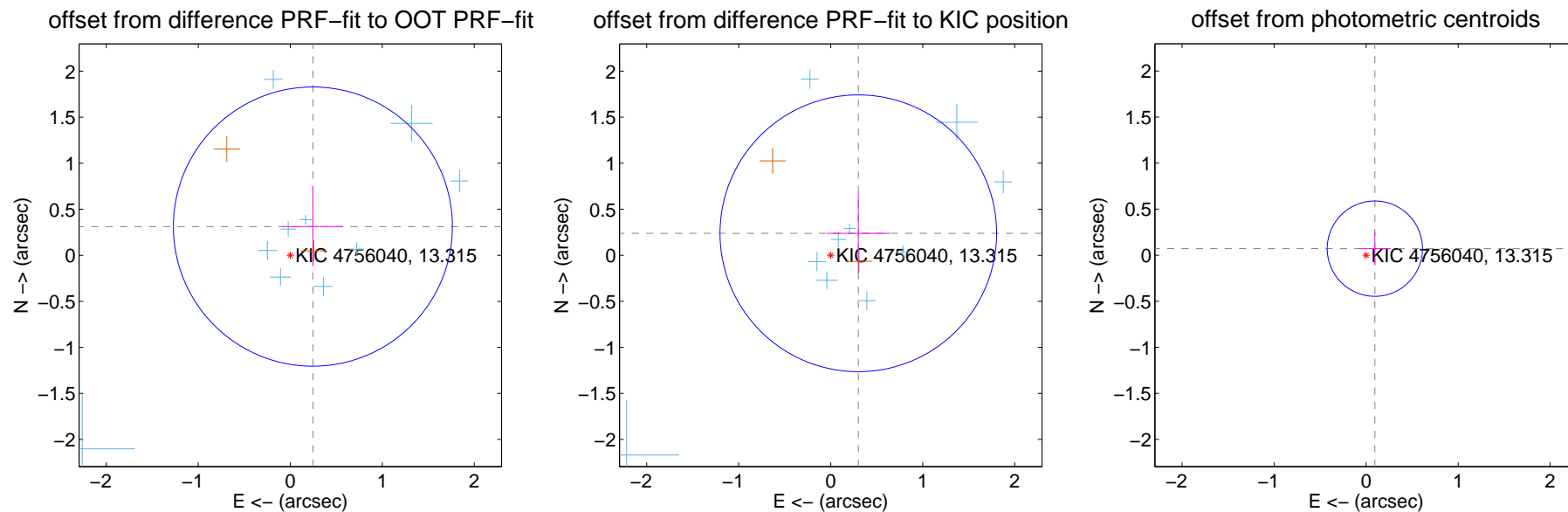
DV Centroid Data

Supplemental centroid analysis for 004756040-05. Kepler magnitude: 13.31. Transit SNR 9.86

There are 10 quarters with good PRF difference image offsets

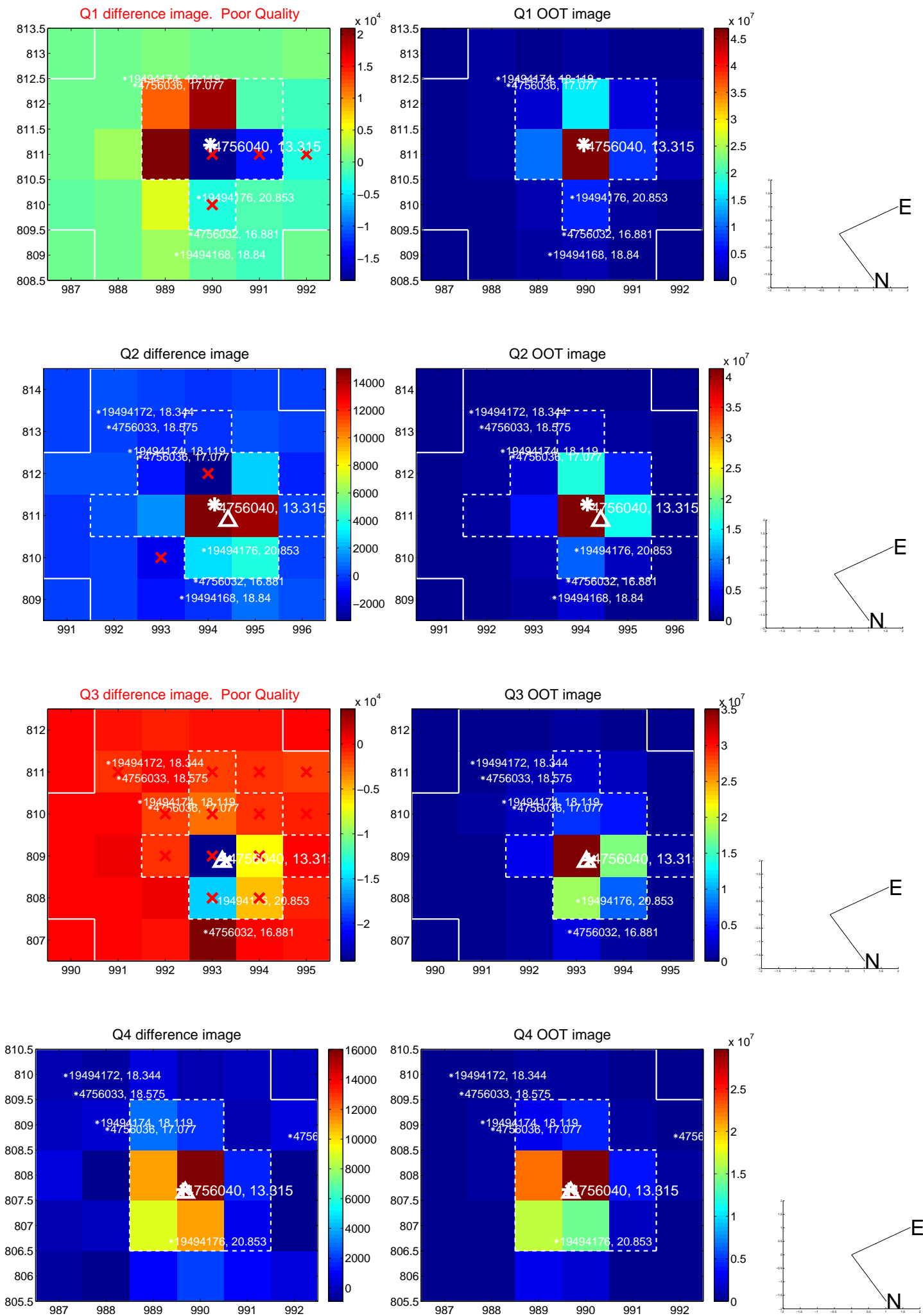
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.397 ± 0.505	0.79	-0.246 ± 0.331	0.312 ± 0.432
PRF-fit source offset from KIC position	0.383 ± 0.501	0.77	-0.300 ± 0.343	0.239 ± 0.436
photometric centroid source offset	0.12 ± 0.17	0.69	-0.09 ± 0.17	0.07 ± 0.18

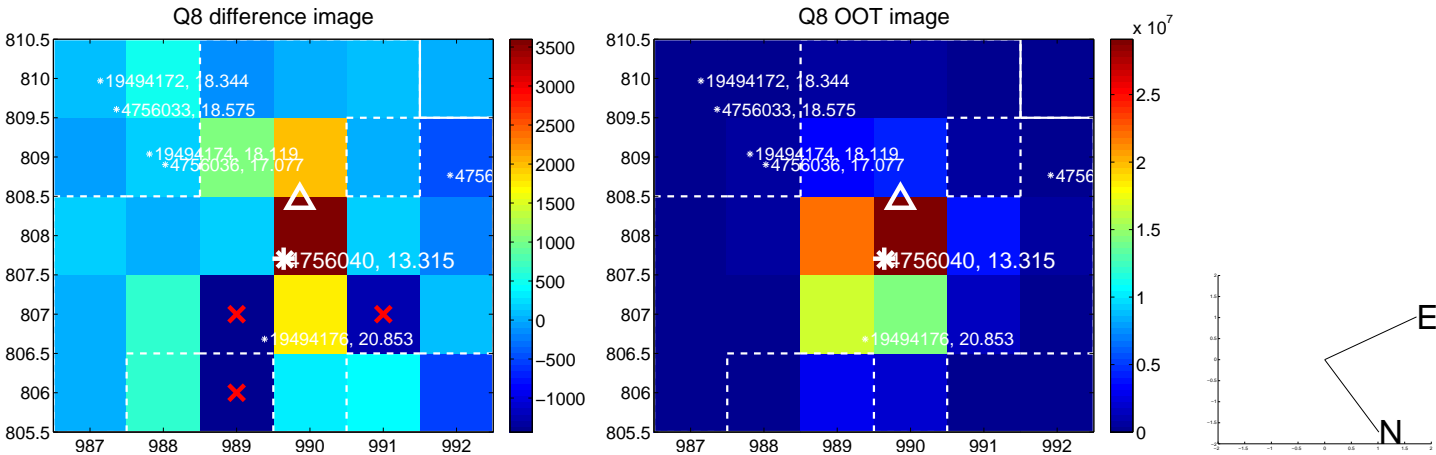
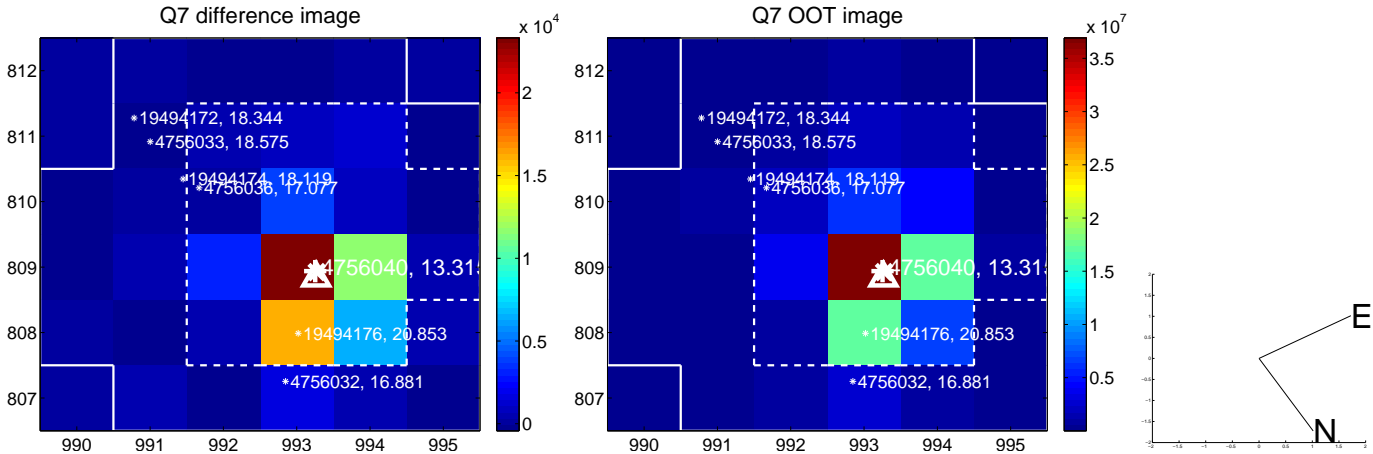
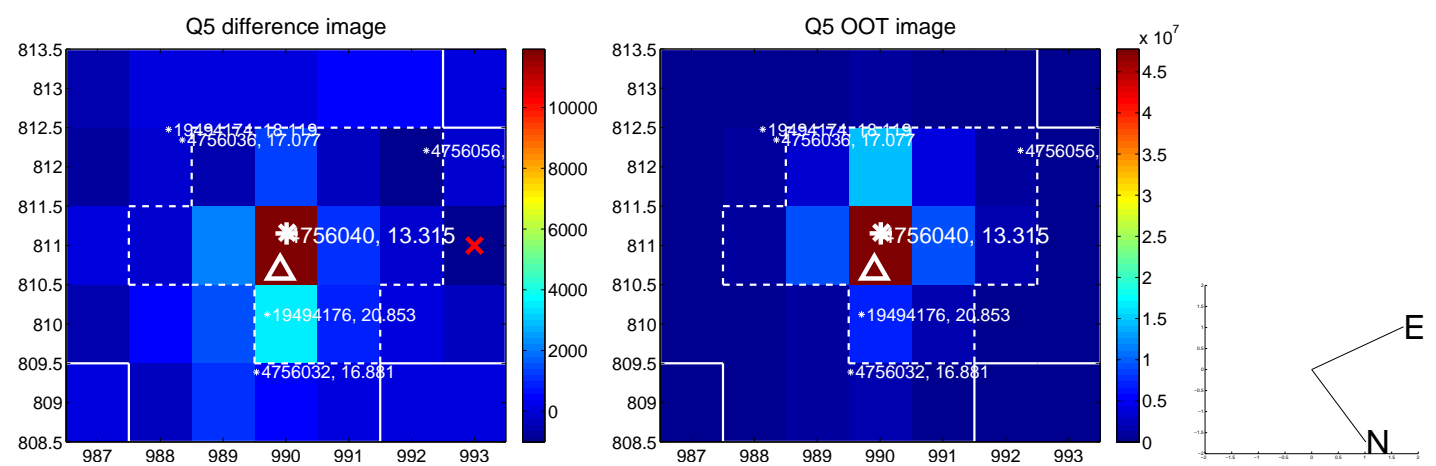


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

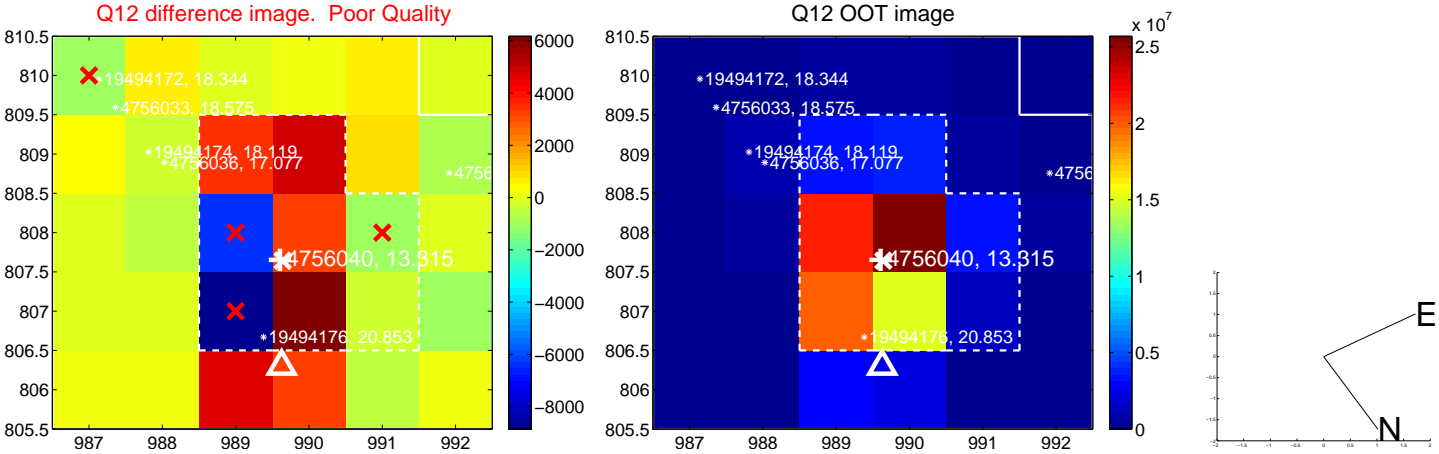
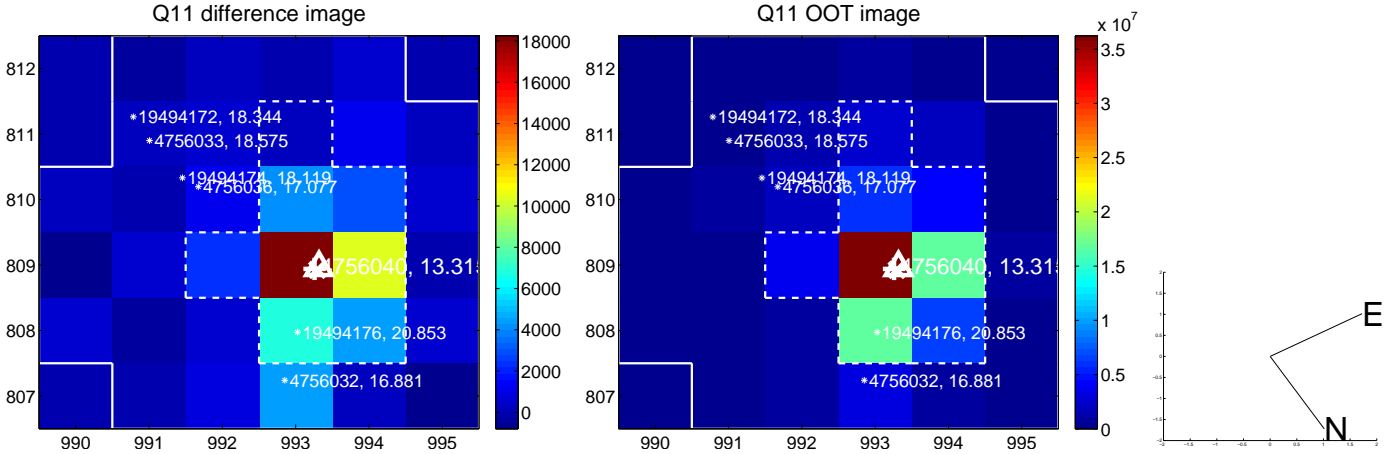
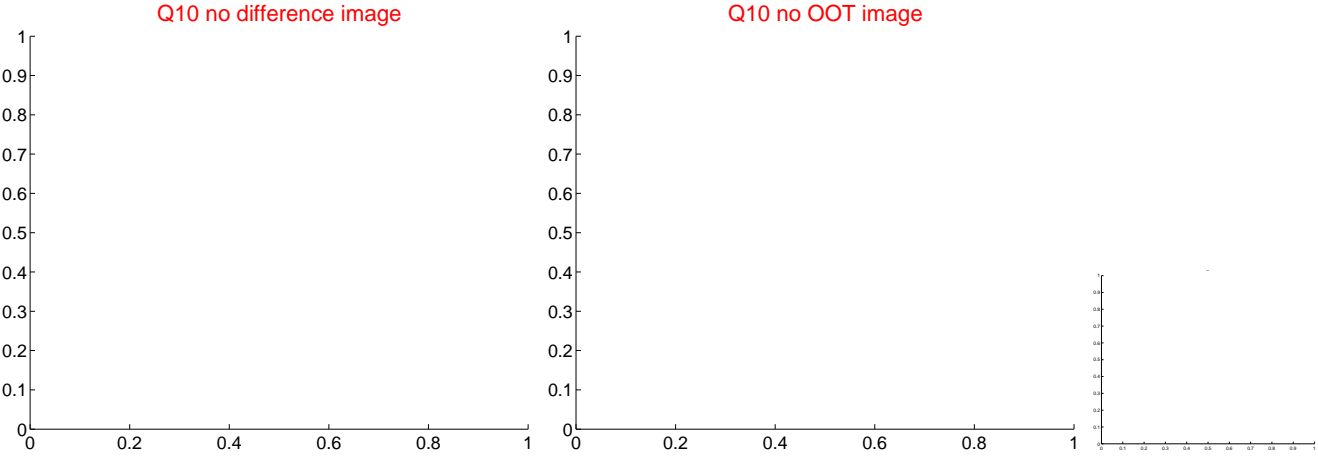
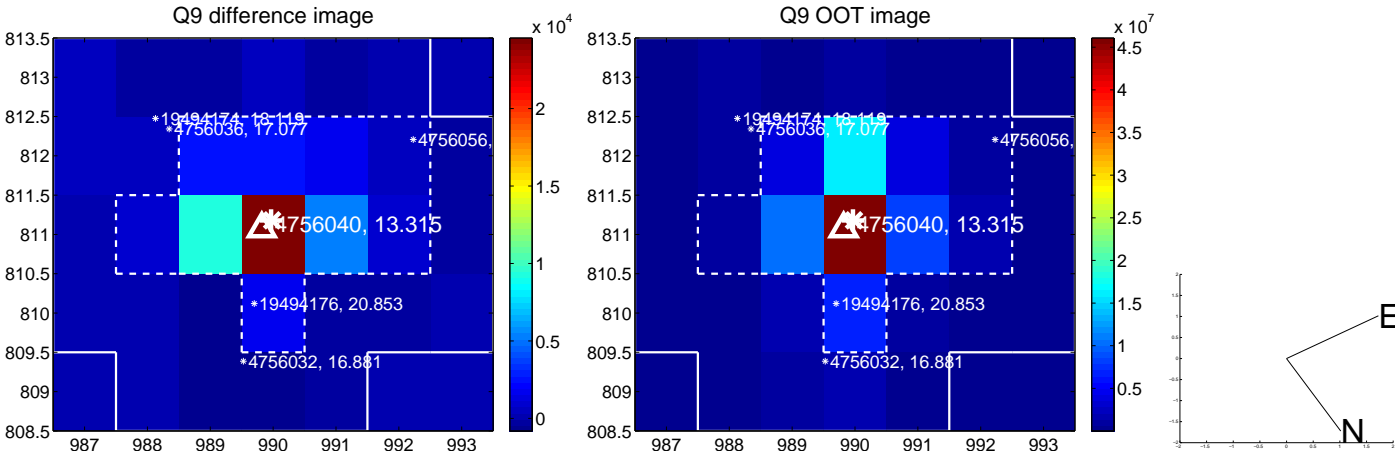
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



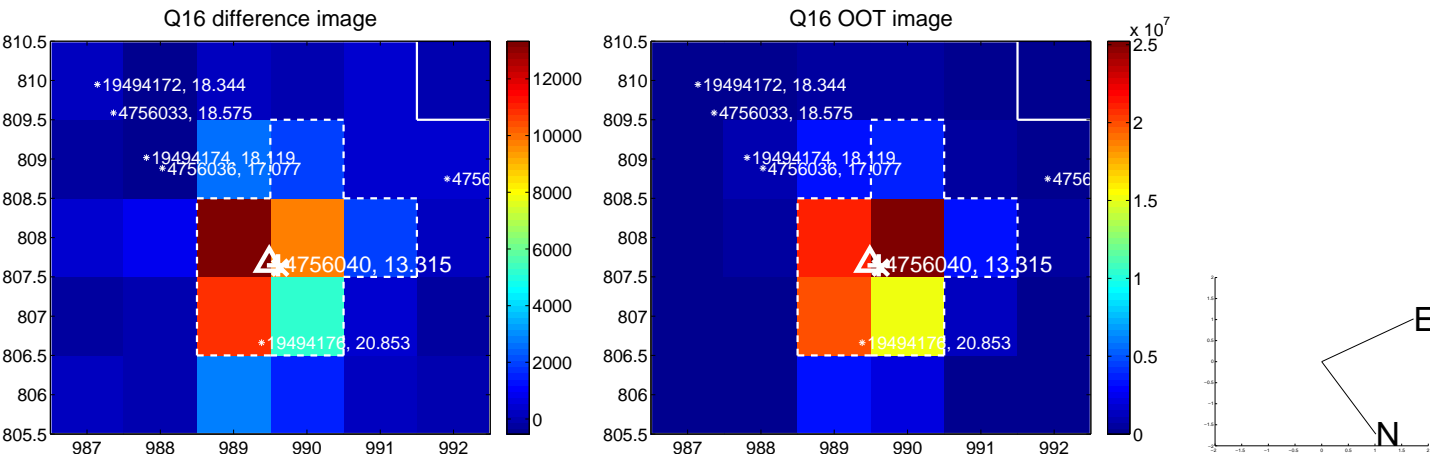
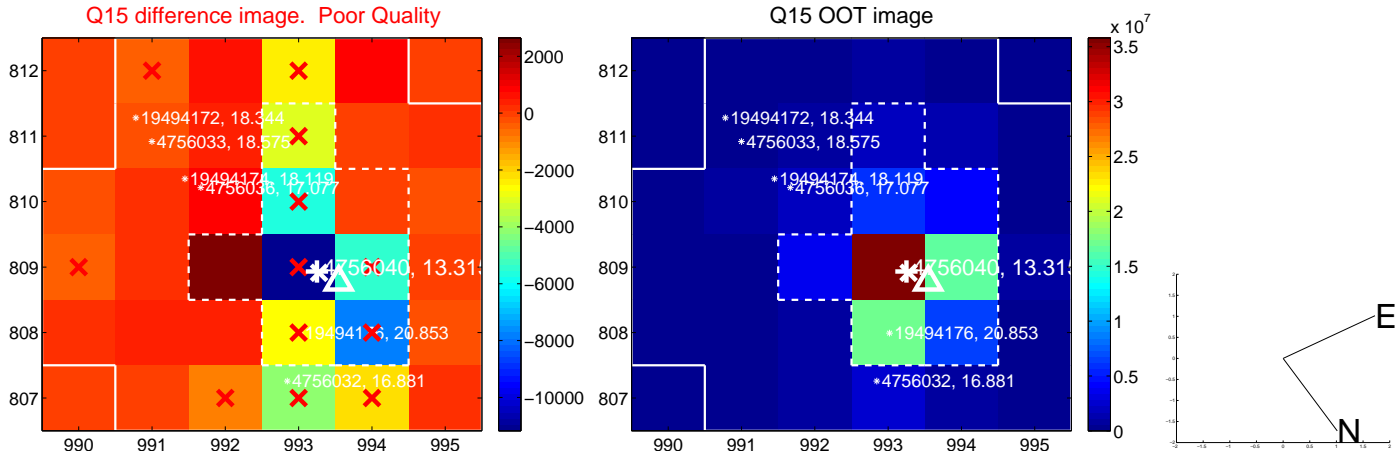
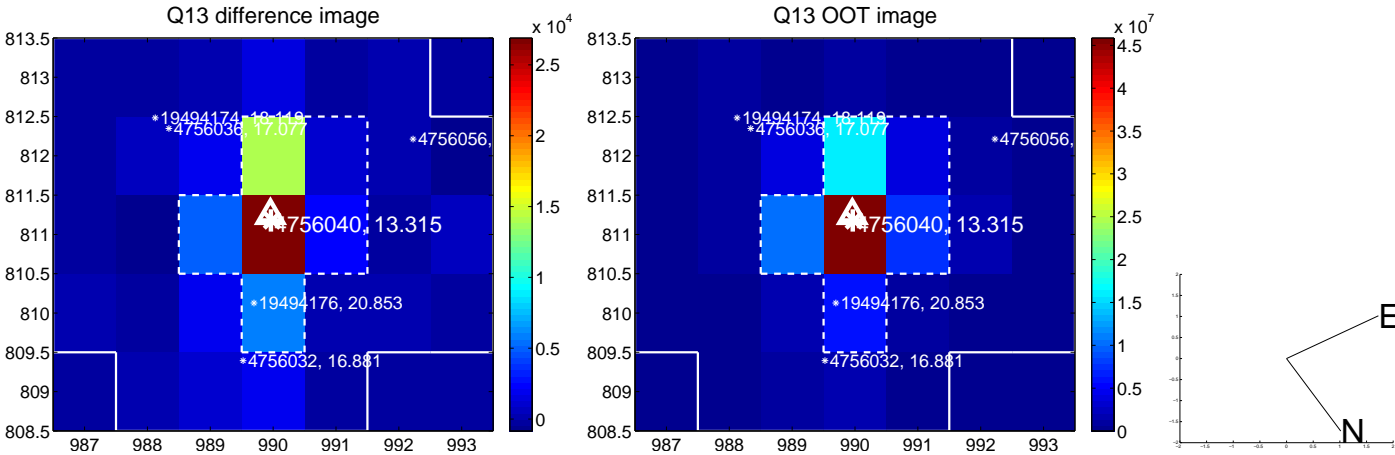
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



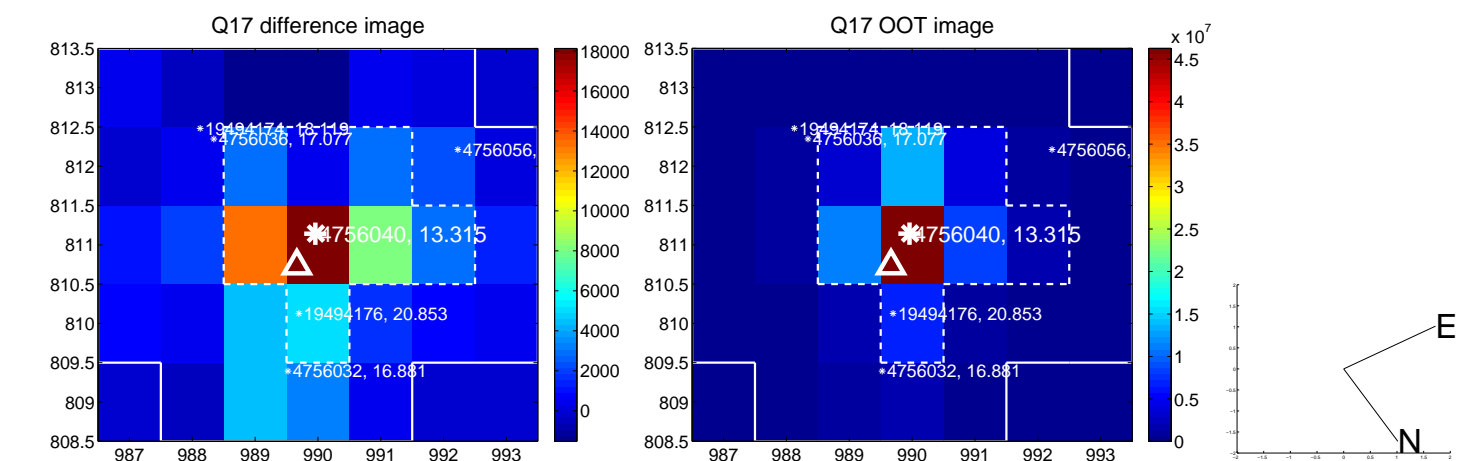
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



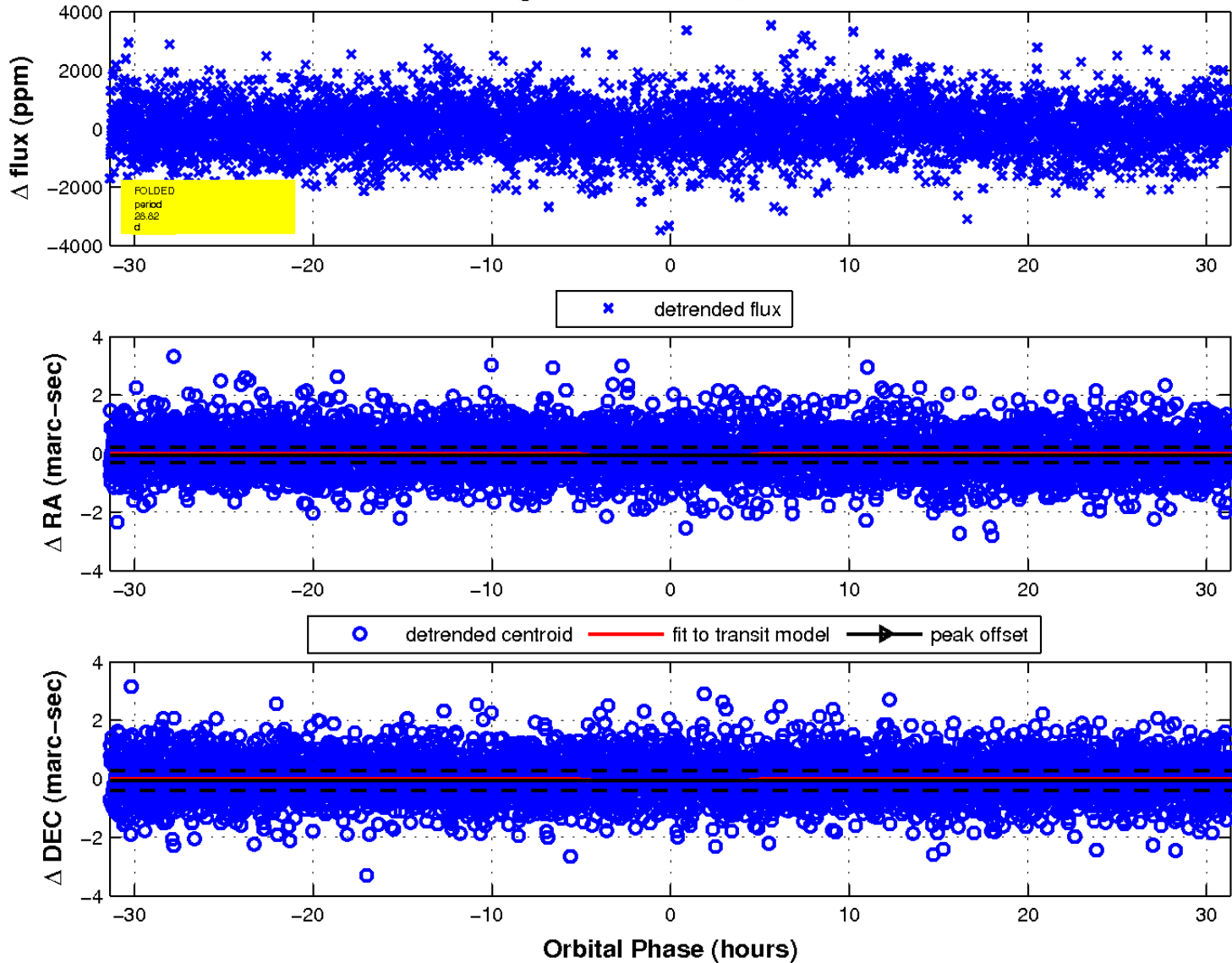
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

Declination

