

KIC 011468870

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})
011468870-01	OBS	No	0.690451	131.940826	21.4	2.884	7.7	7.1	0.61	4286	0.36	680.70
011468870-02	OBS	No	501.965459	208.226033	653.0	8.300	15.6	10.3	0.61	4286	1.70	0.10
011468870-03	OBS	No	278.856793	167.804402	467.6	9.000	9.9	-1.0	0.61	4286	1.27	0.23
011468870-04	OBS	No	265.646557	206.823817	369.7	9.559	8.6	6.2	0.61	4286	1.28	0.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011468870-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST
011468870-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
011468870-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011468870-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

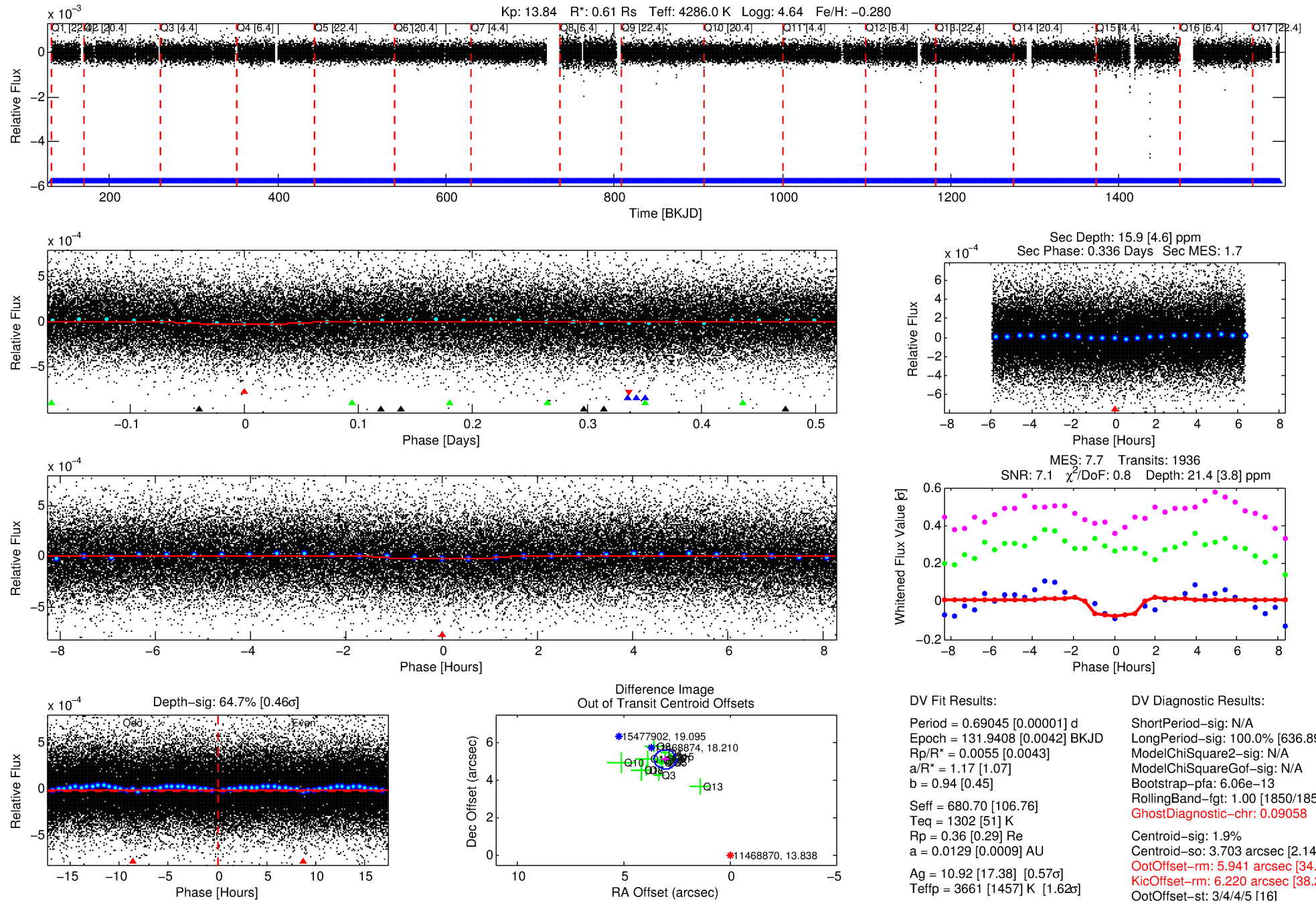
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011468870-01

No Significant Match Found

DV One-Page Summary

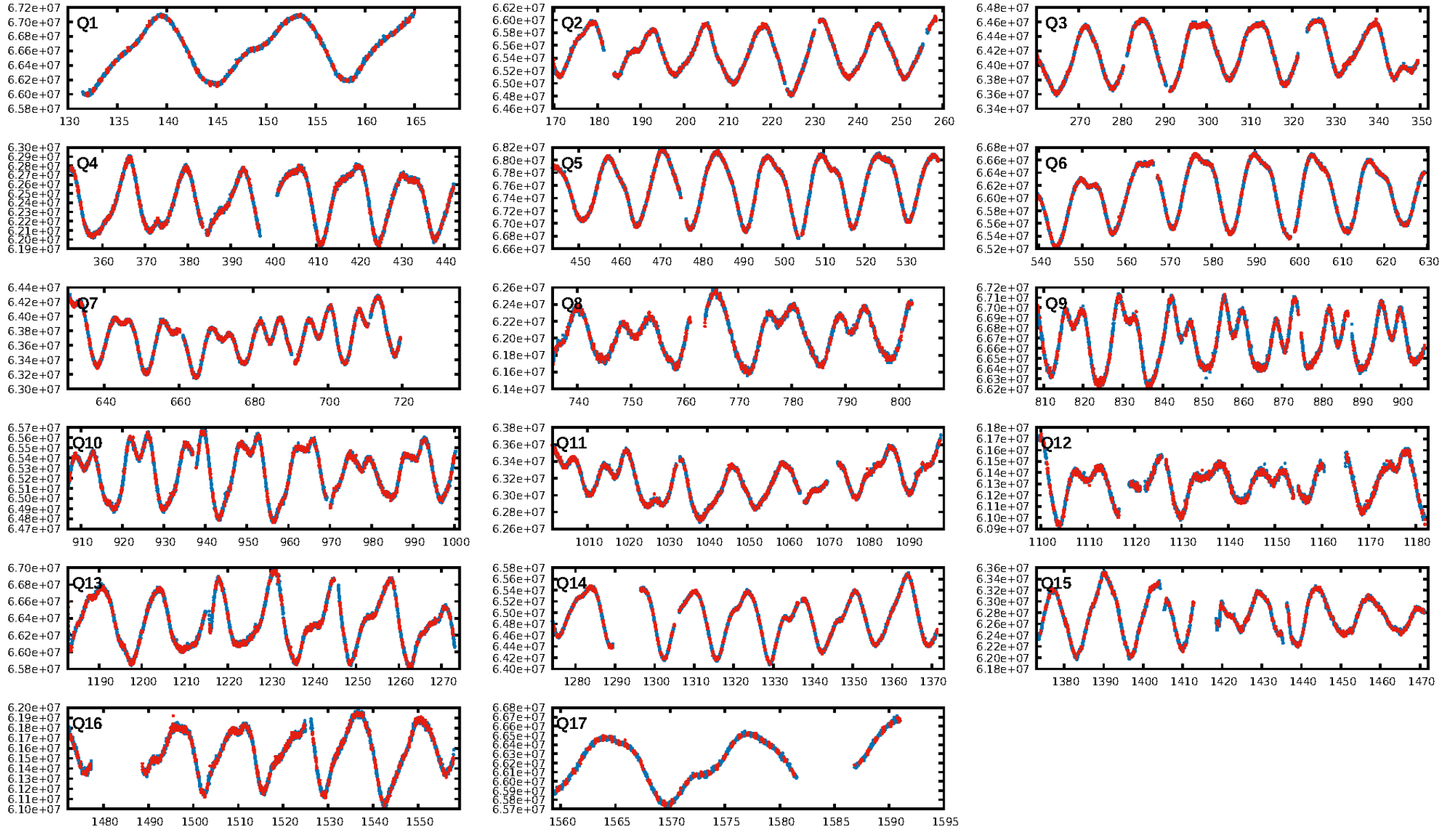
KIC: 11468870 Candidate: 1 of 4 Period: 0.690 d



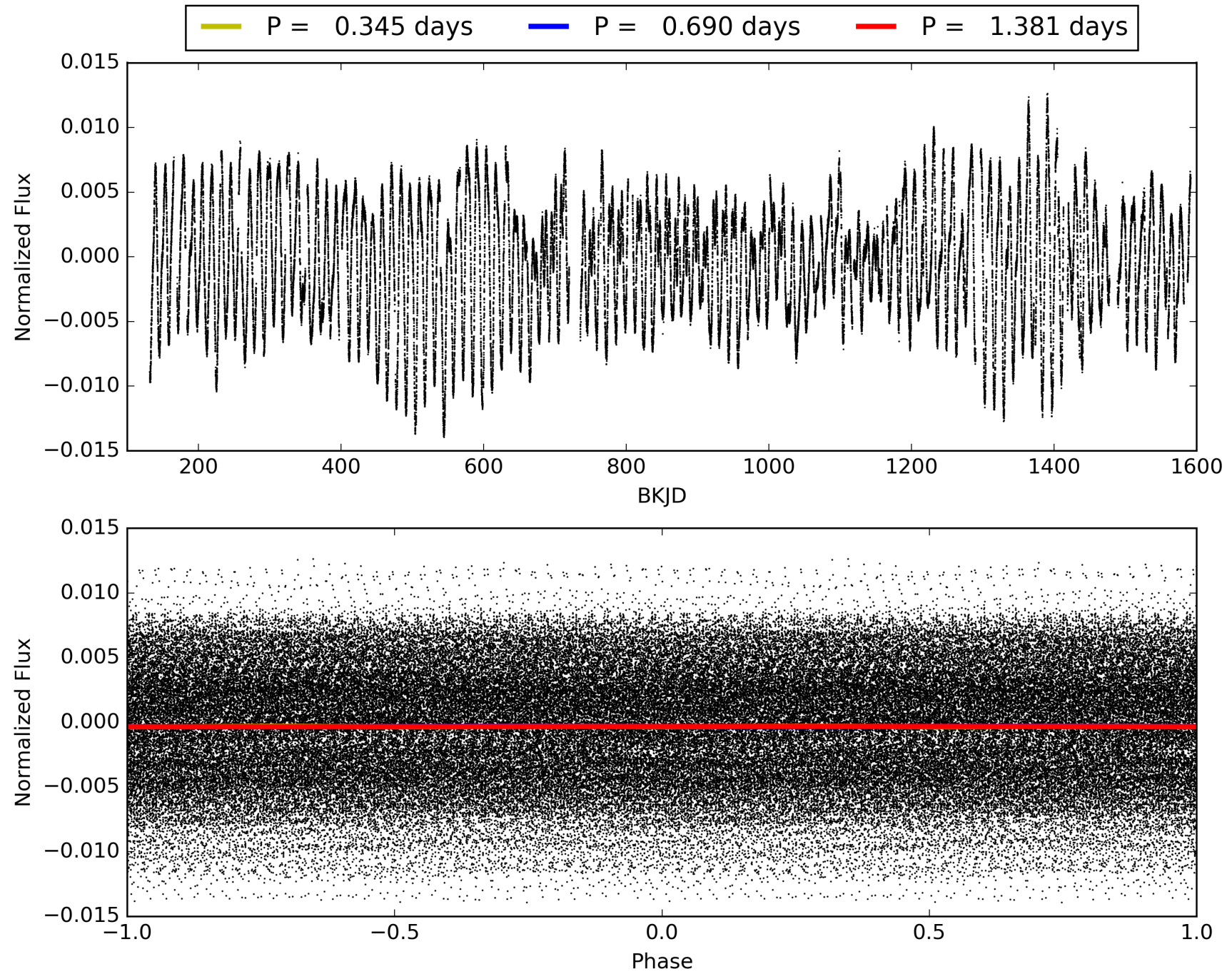
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:24:15 Z

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

TCE 011468870-01, PDC Light Curves

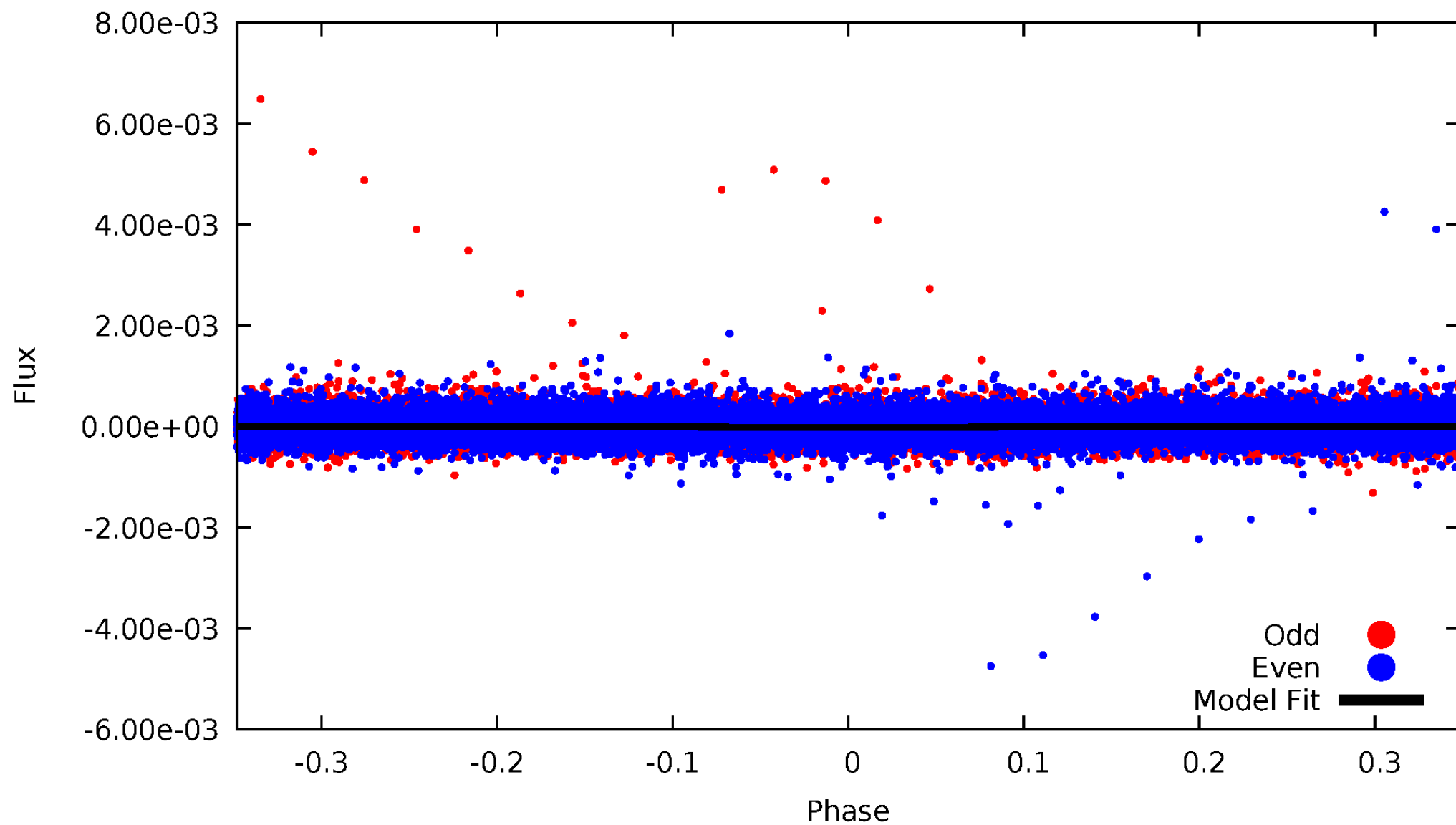


TCE 011468870-01



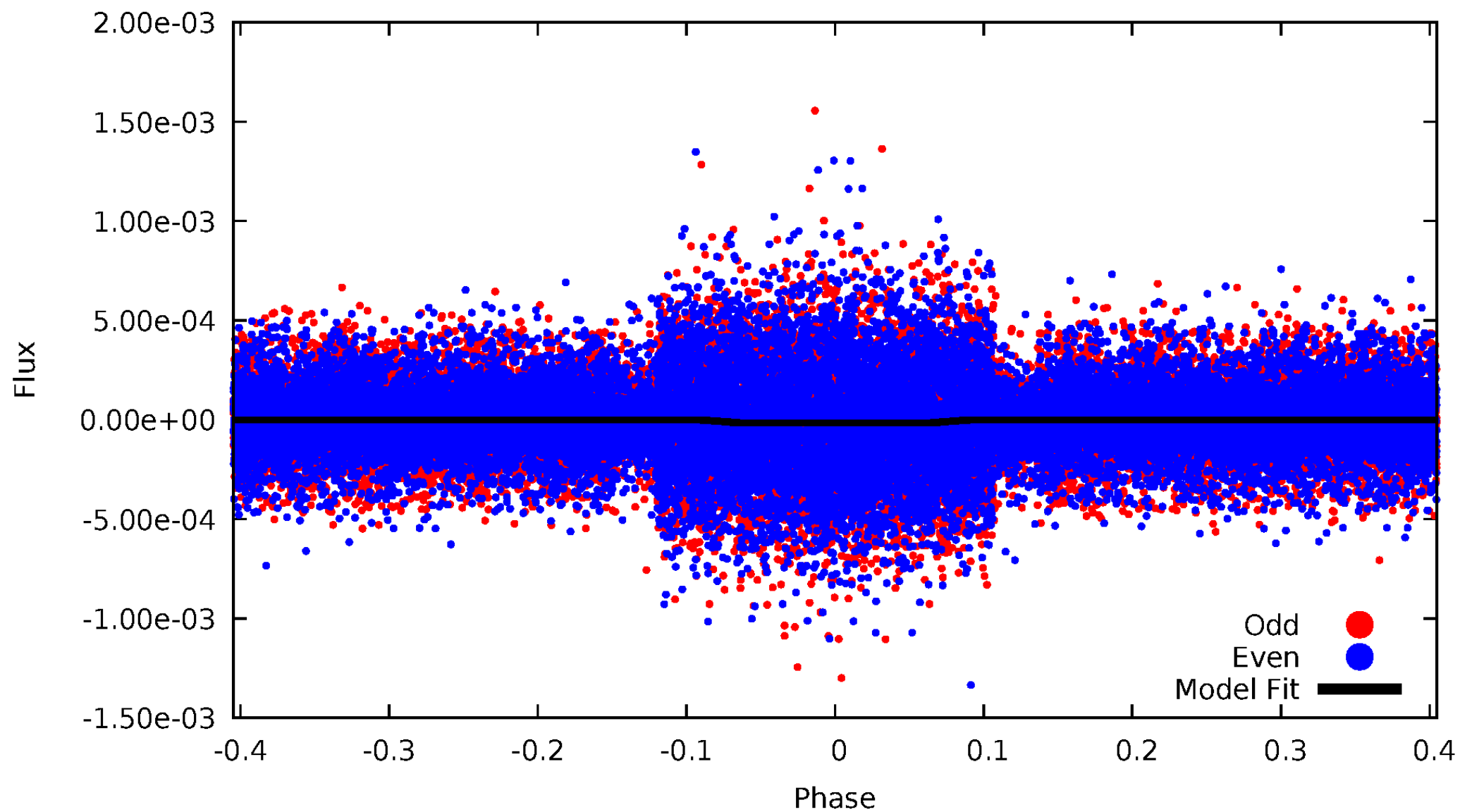
DV Odd/Even

TCE 011468870-01

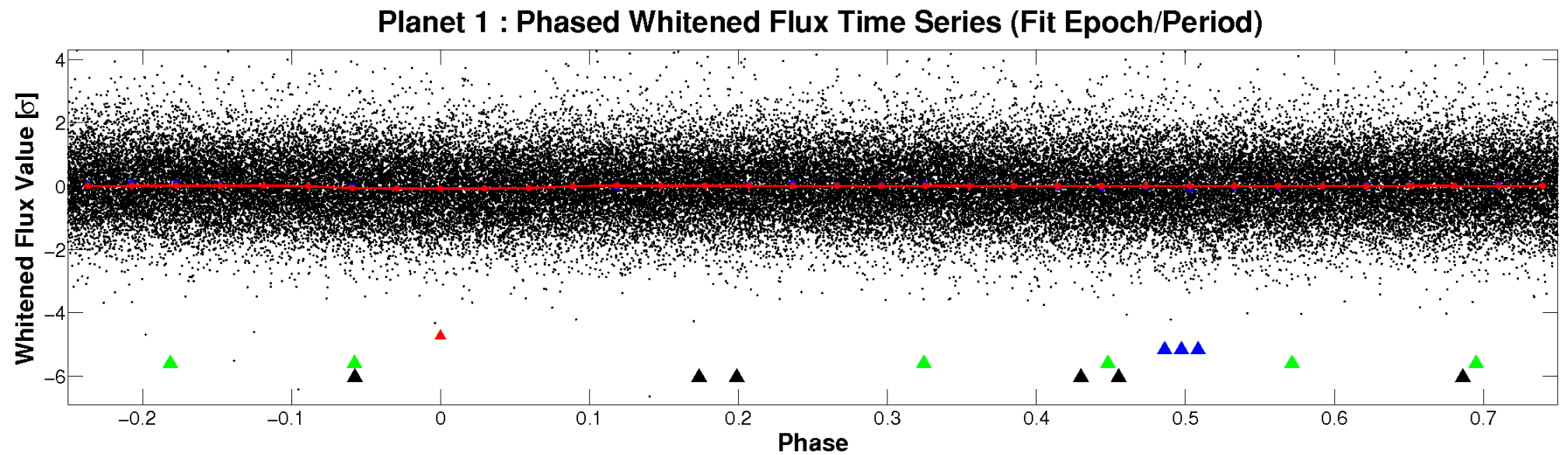
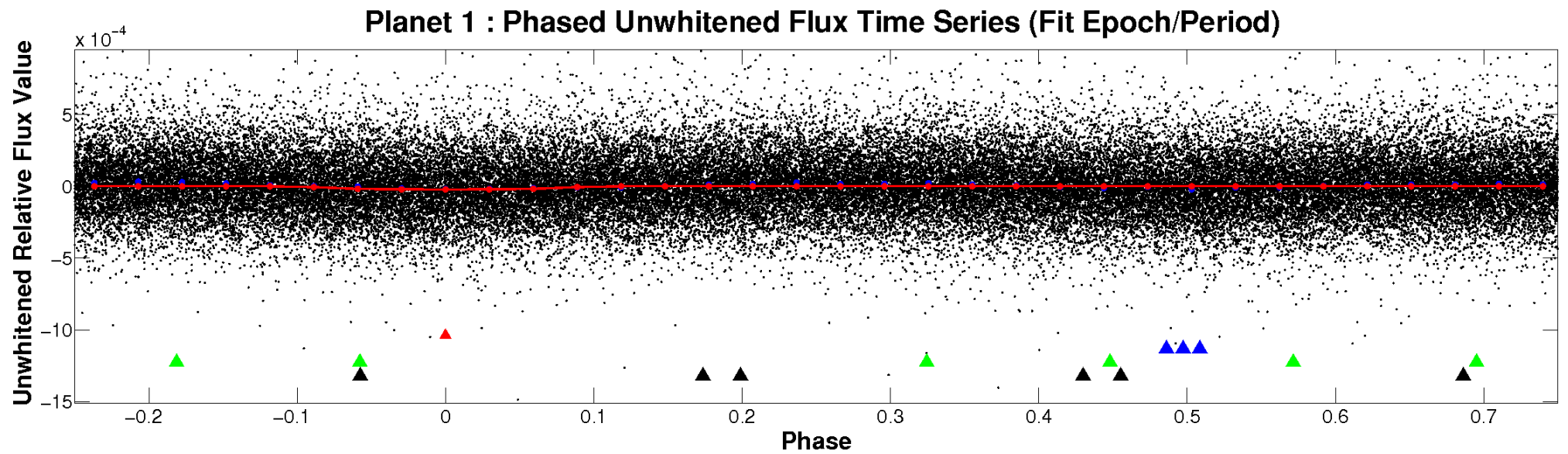


ALT Odd/Even

TCE 011468870-01

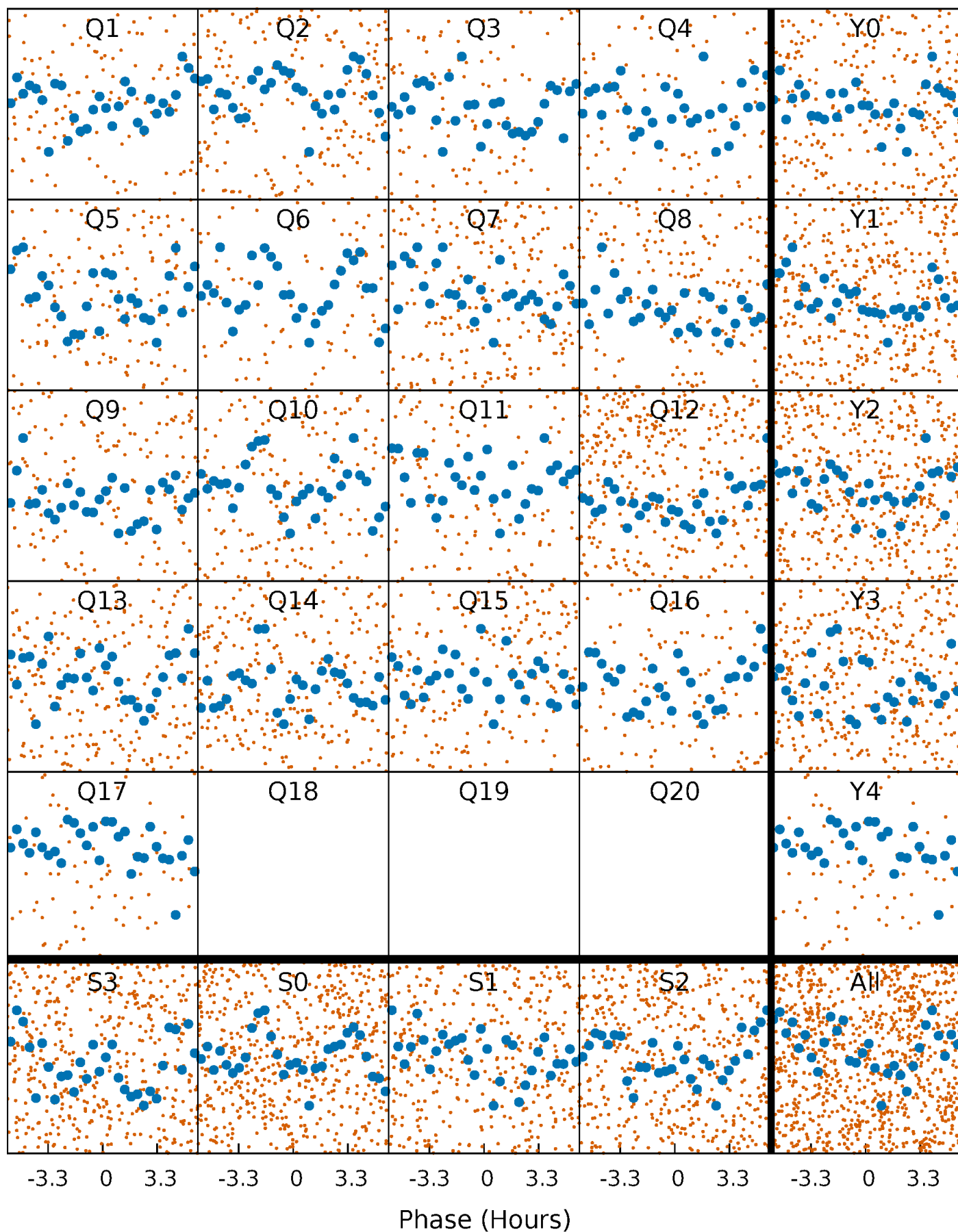


Non-Whitened Vs. Whitened Light Curve



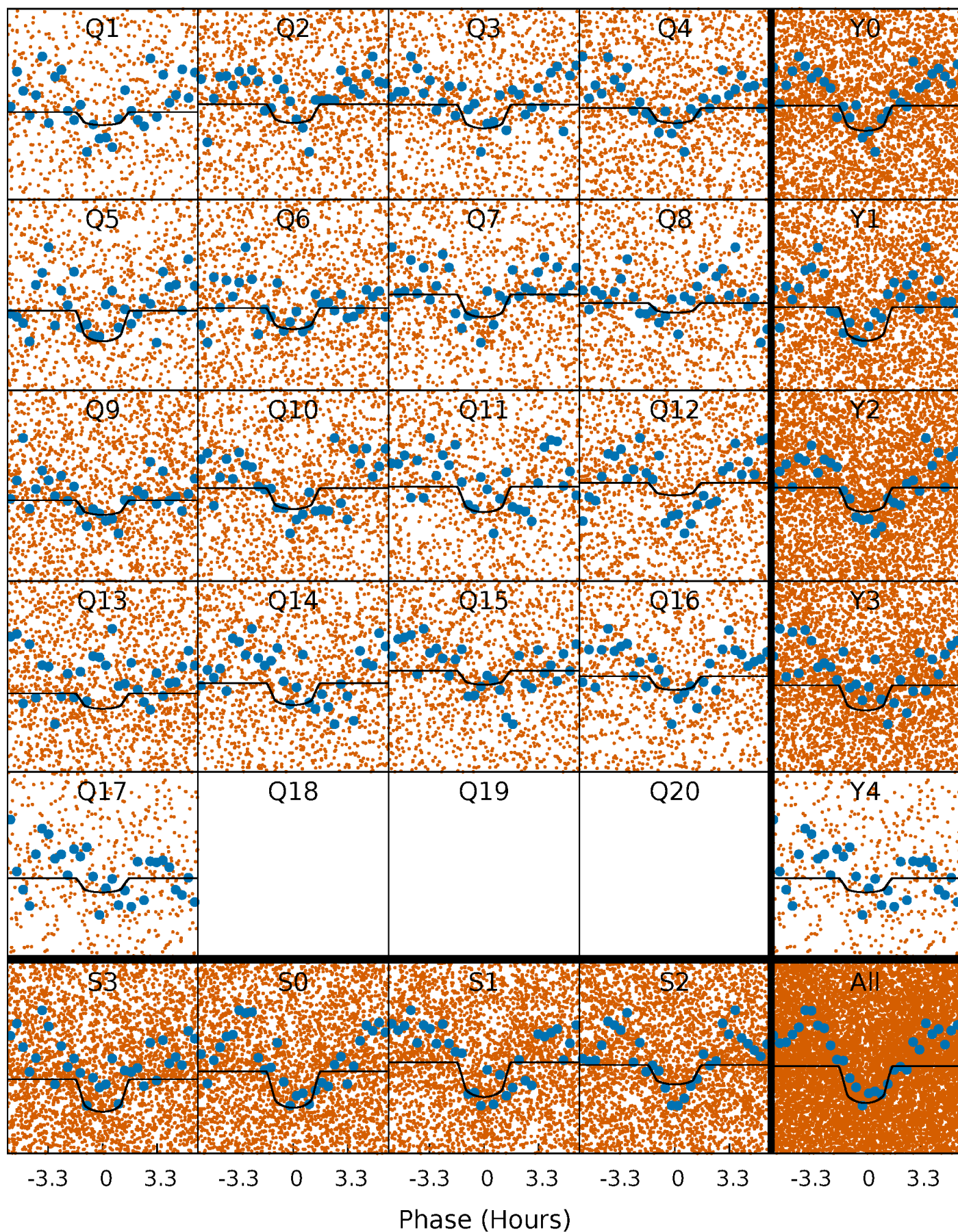
PDC Quarter-Phased Transit Curves

TCE 011468870-01 P= 0.690451 Days $T_0=131.940826$ (BKJD)



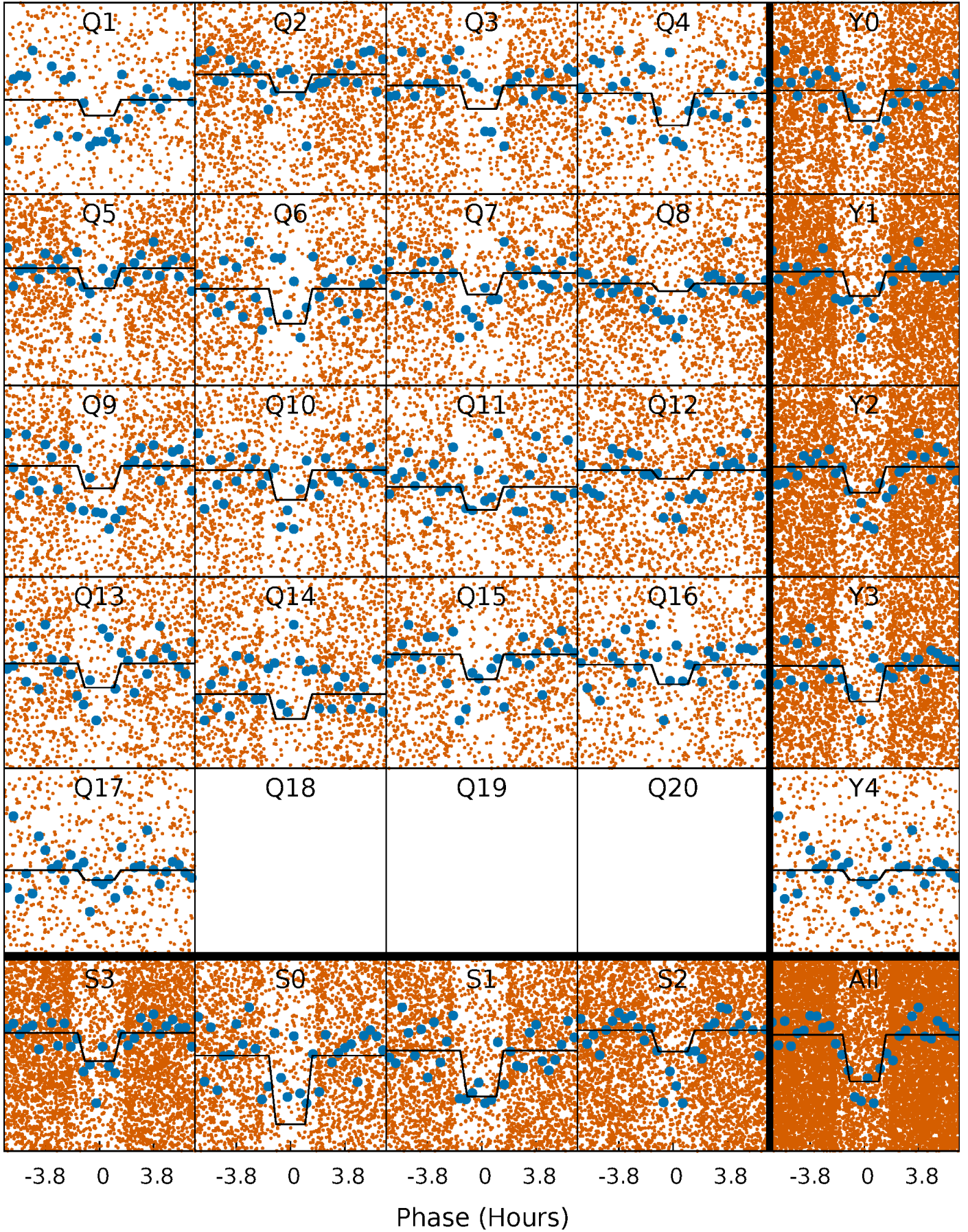
DV Quarter-Phased Transit Curves

TCE 011468870-01 P= 0.690451 Days $T_0=131.940826$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

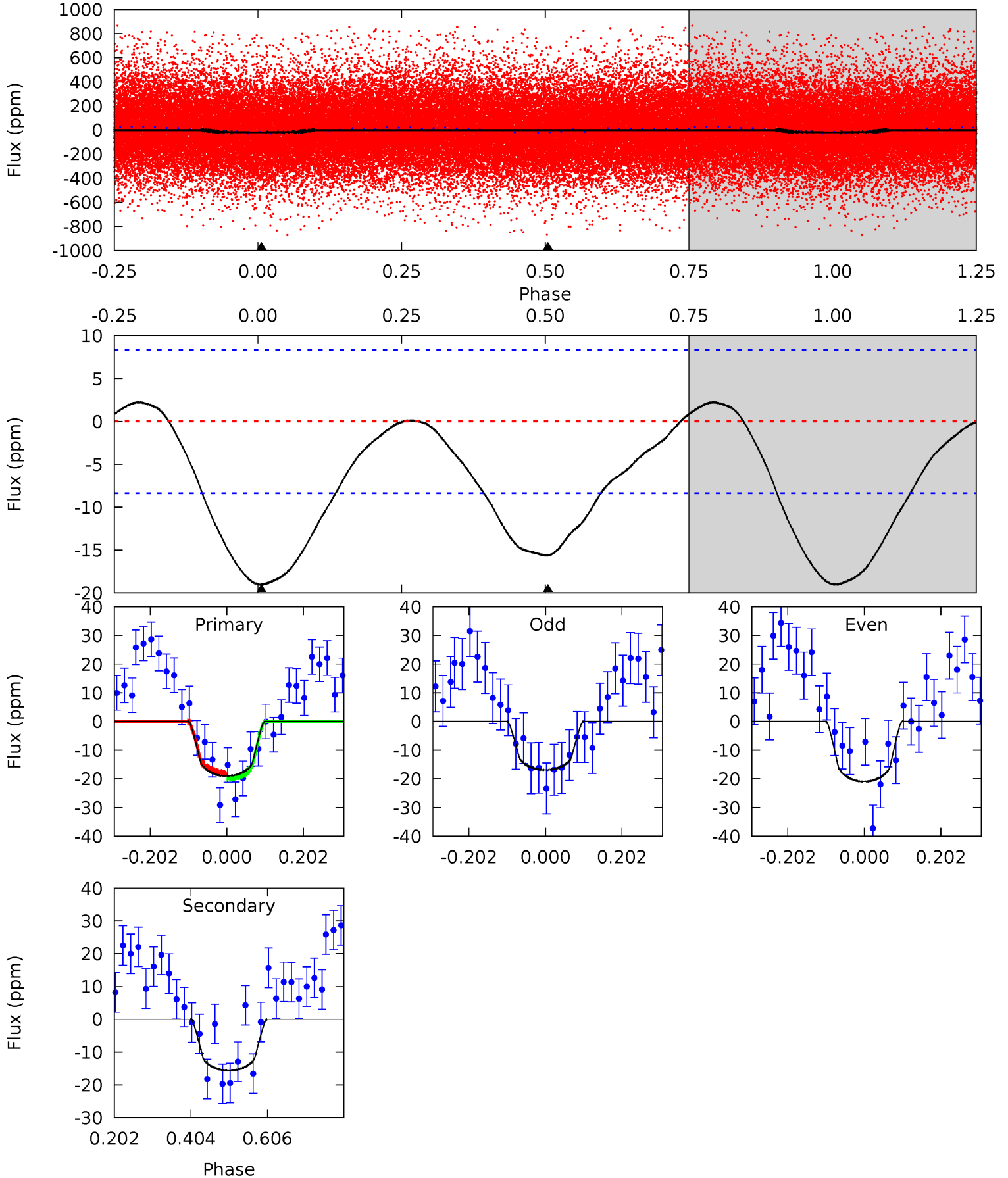
TCE 011468870-01 P= 0.690468 Days $T_0=131.924797$ (BKJD)



DV Model-Shift Uniqueness Test

011468870-01, P = 0.690451 Days, E = 131.250375 Days

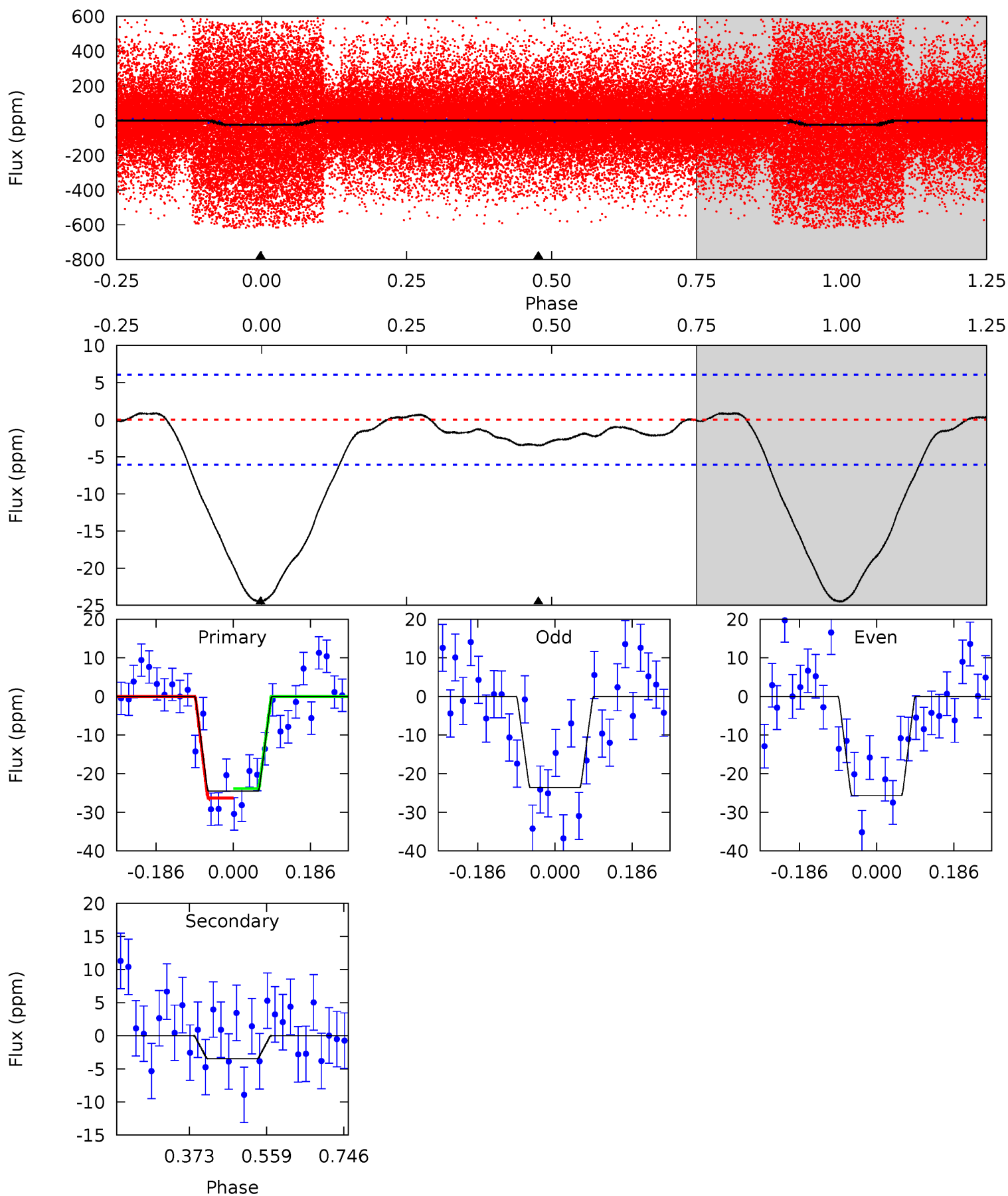
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	8.25	0	0	4.42	1.28	0.63	10.1	10.1	8.25	8.25	1.07	0.93	0.10	0.54



Alt Model-Shift Uniqueness Test

011468870-01, P = 0.690468 Days, E = 131.234329 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	2.52	0	0	4.43	1.32	0.70	17.9	17.9	2.52	2.52	0.73	0.91	0.03	0.89



Stellar Parameters For KIC 011468870

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4286^{+116}_{-129}	$4.642^{+0.052}_{-0.024}$	$-0.280^{+0.300}_{-0.300}$	$0.611^{+0.045}_{-0.056}$	$0.597^{+0.068}_{-0.049}$	$3.692^{+0.929}_{-0.392}$
	+3%/-3%	+1%/-1%	+107%/-107%	+7%/-9%	+11%/-8%	+25%/-11%
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 011468870-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-16 ± 2	$0.40^{+0.28}_{-0.23}$	1814^{+57}_{-62}	3656^{+1496}_{-564}	$8.888^{+42.089}_{-5.693}$
Alt.	-3 ± 1	$0.33^{+0.27}_{-0.20}$	1804^{+63}_{-61}	3038^{+1144}_{-589}	$2.815^{+16.909}_{-2.013}$

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

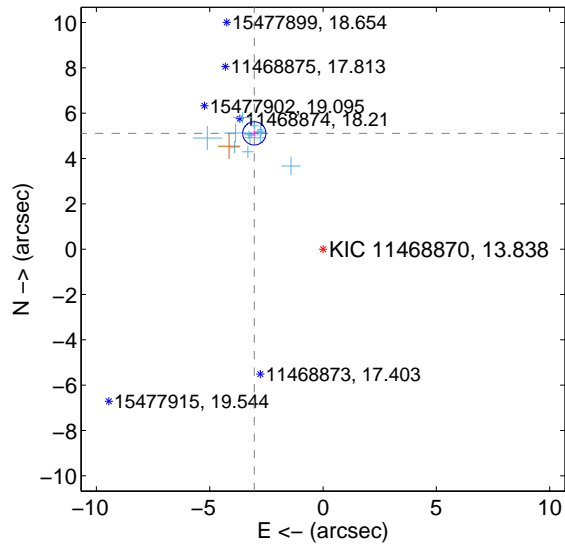
Supplemental centroid analysis for 011468870-01. Kepler magnitude: 13.84. Transit SNR 7.13

There are 15 quarters with good PRF difference image offsets

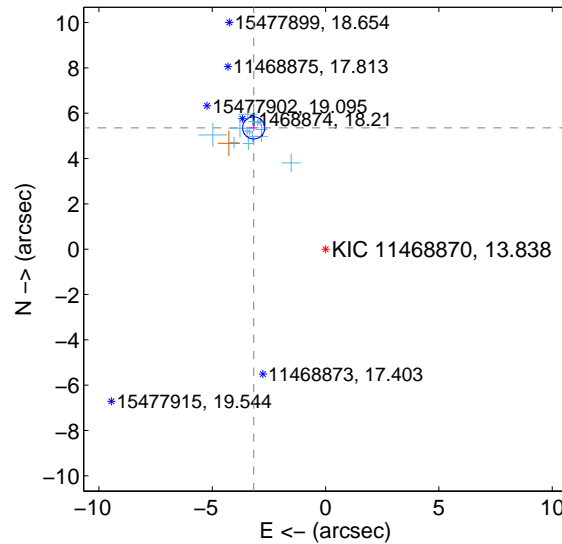
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.941 \pm 0.171	34.80	3.033 \pm 0.199	5.109 \pm 0.133
PRF-fit source offset from KIC position	6.220 \pm 0.163	38.26	3.172 \pm 0.209	5.351 \pm 0.134
photometric centroid source offset	3.70 \pm 1.73	2.14	3.16 \pm 1.76	1.94 \pm 1.66

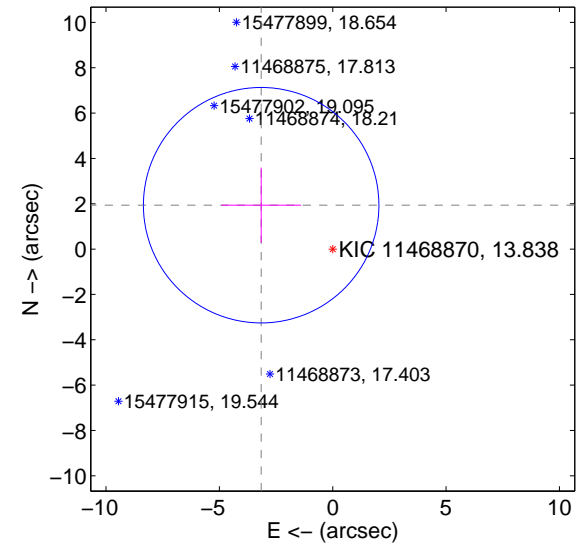
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

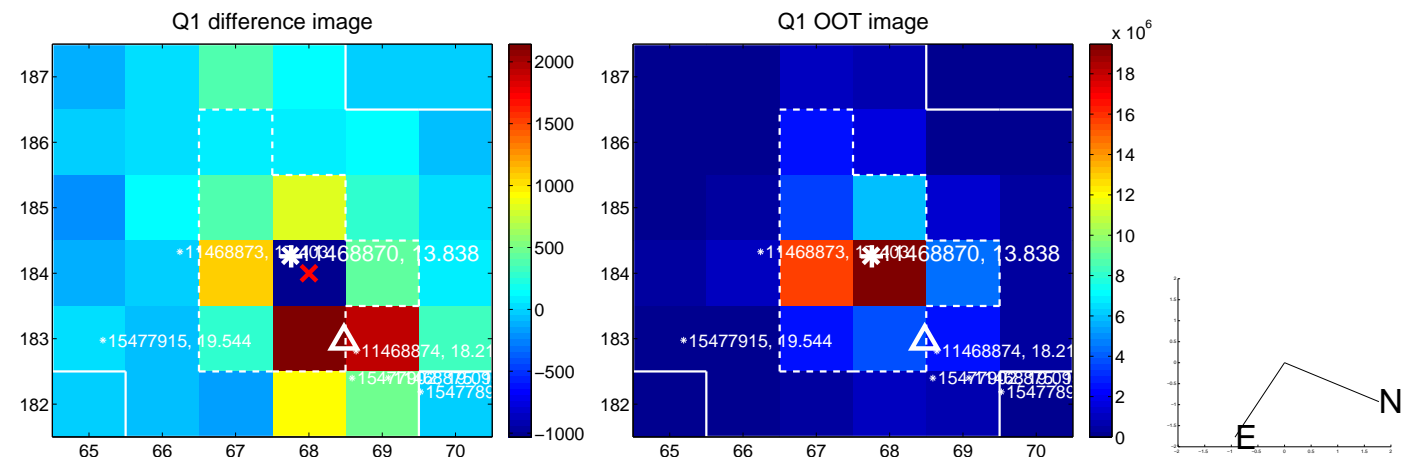


offset from photometric centroids

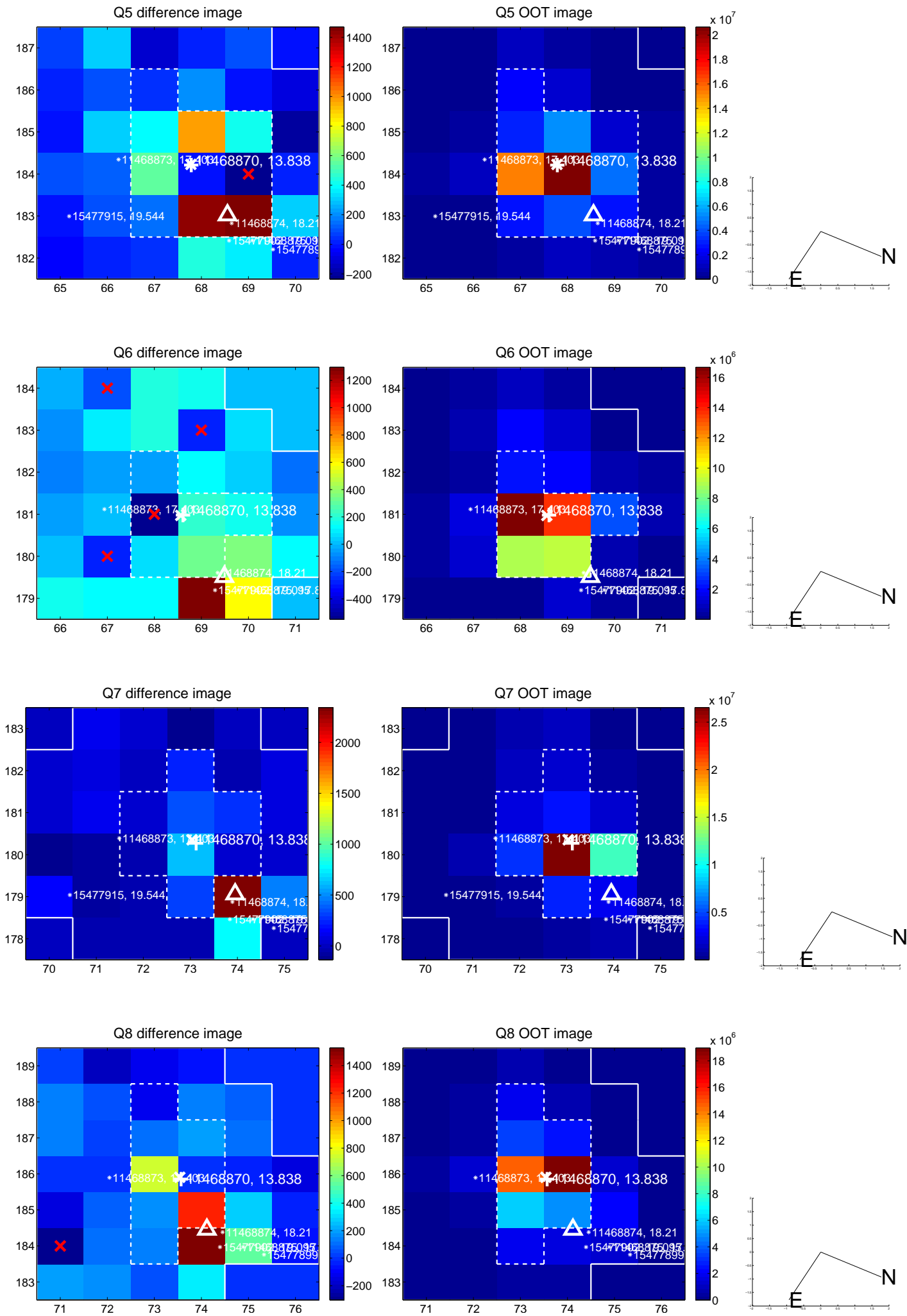


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

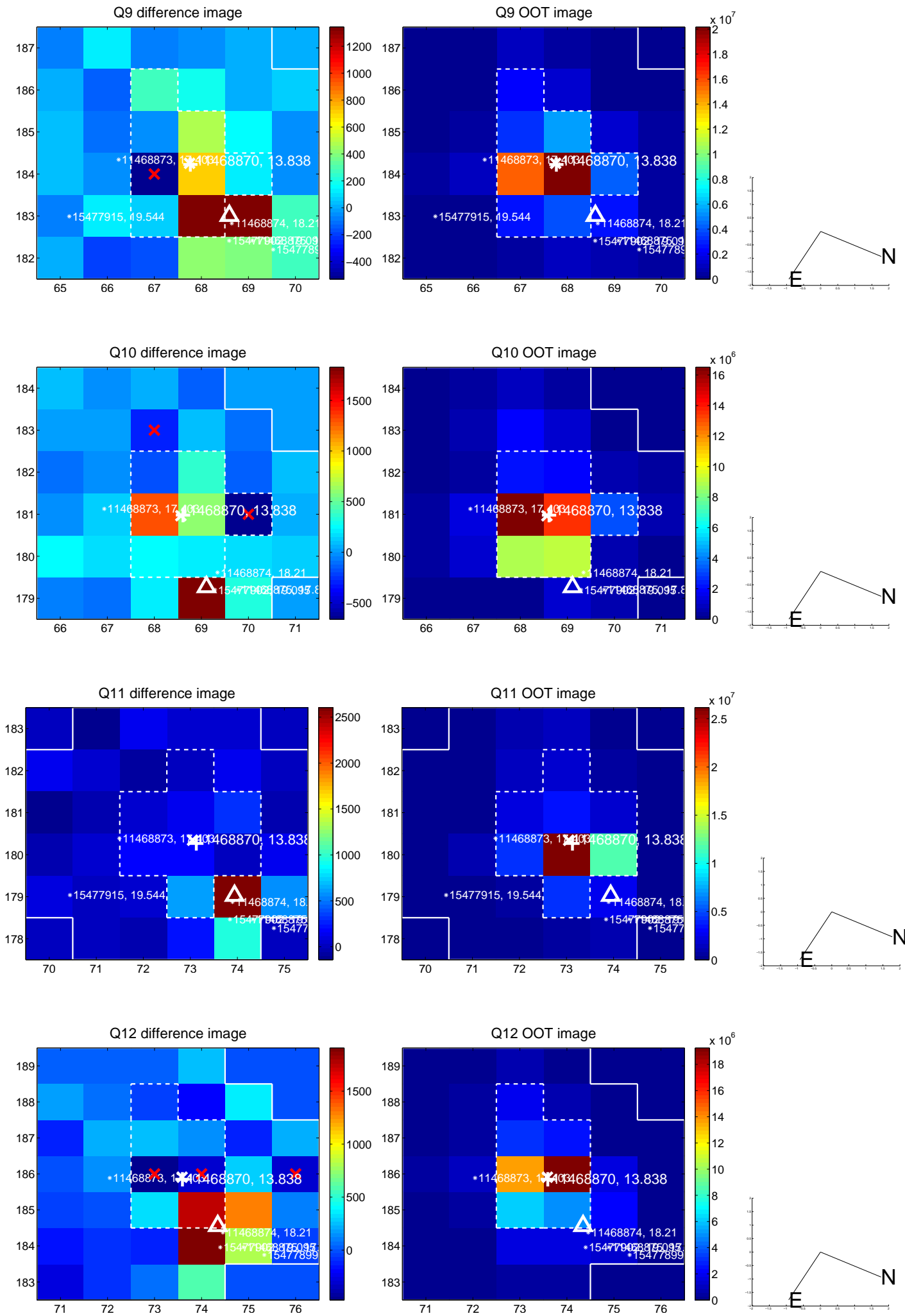
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



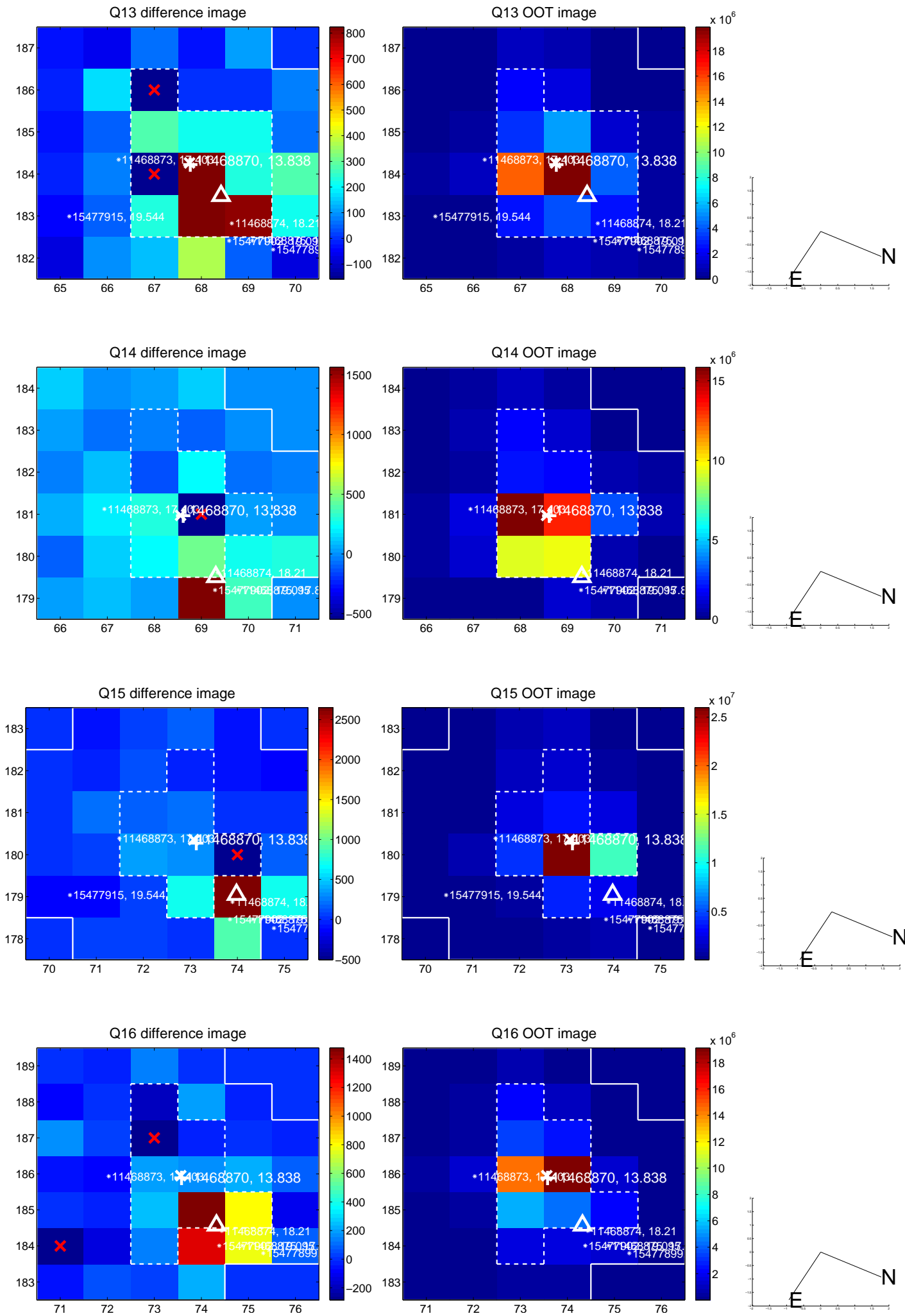
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



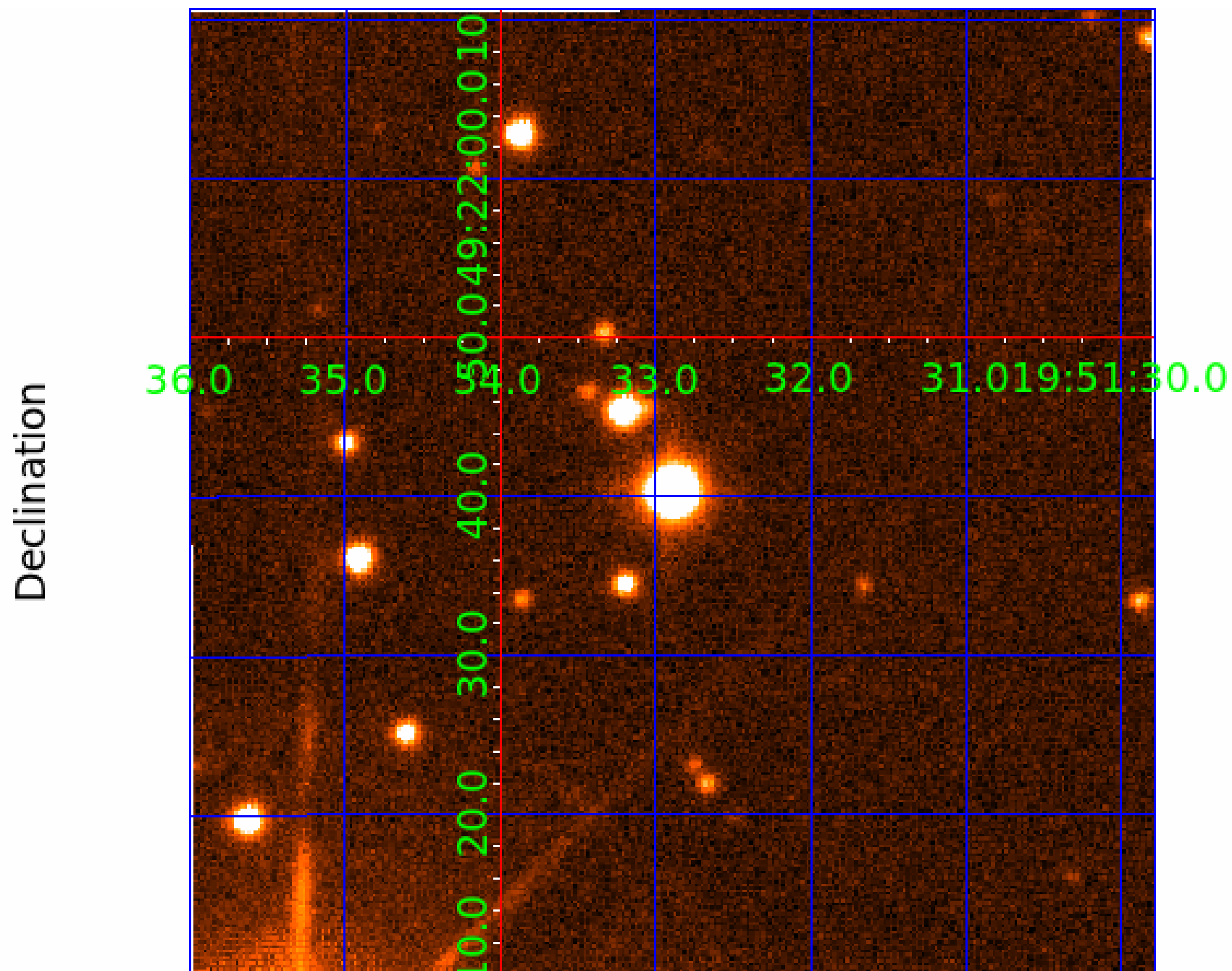
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011468870

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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011468870-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

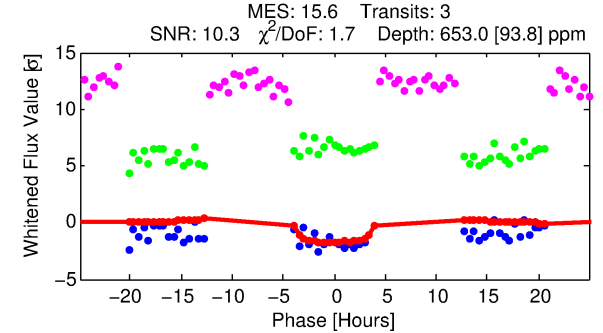
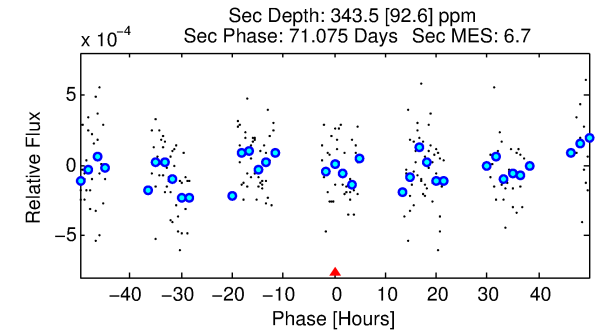
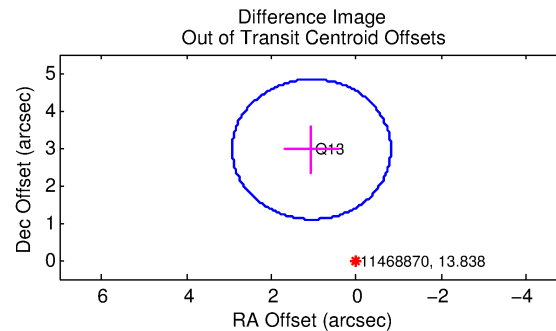
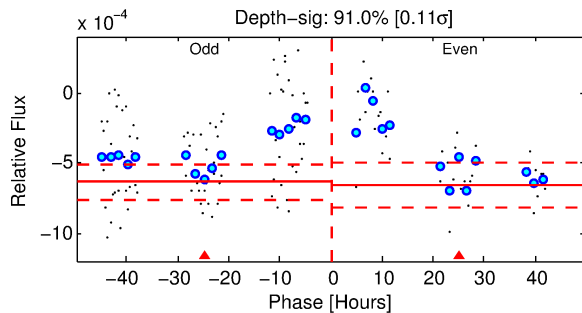
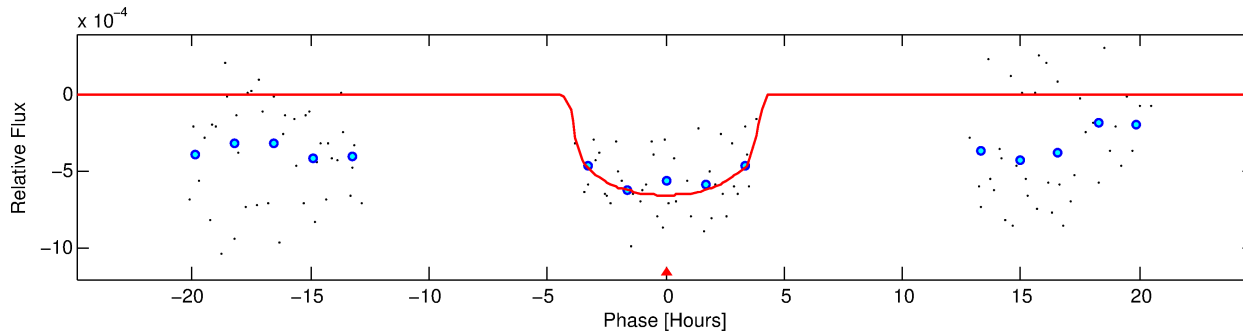
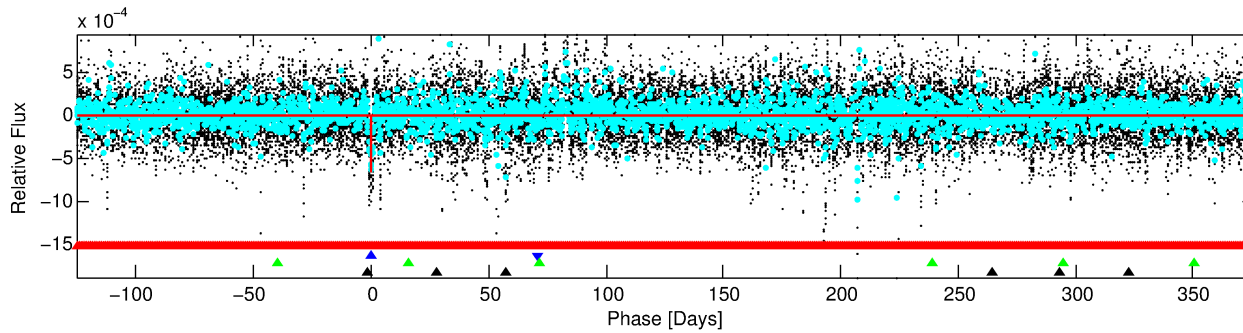
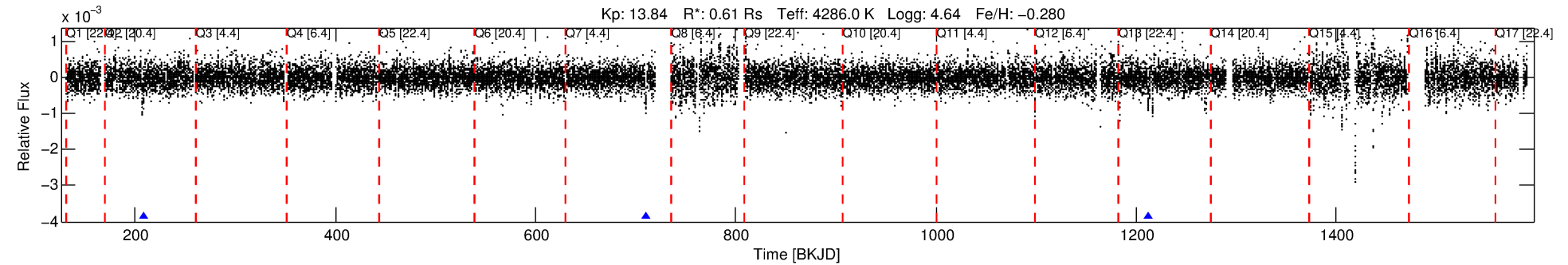
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011468870-02

No Significant Match Found

DV One-Page Summary

KIC: 11468870 Candidate: 2 of 4 Period: 501.965 d



DV Fit Results:

Period = 501.96546 [0.01701] d
Epoch = 208.2260 [0.0214] BKJD
Rp/R* = 0.0255 [0.0200]
a/R* = 326.28 [914.92]
b = 0.74 [1.71]
Seff = 0.10 [0.02]
Teff = 145 [6] K
Rp = 1.70 [1.34] Re
a = 1.0411 [0.0760] AU
Ag = 71033.48 [113374.70] [0.63 σ]
Teffp = 3656 [1460] K [2.40 σ]

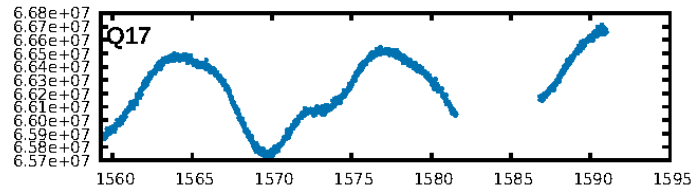
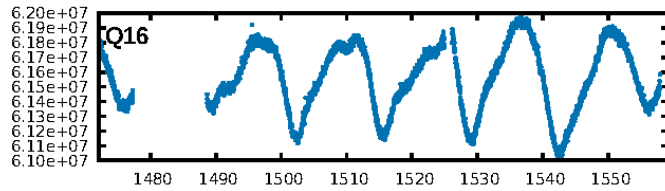
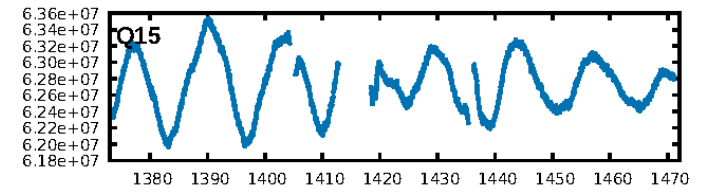
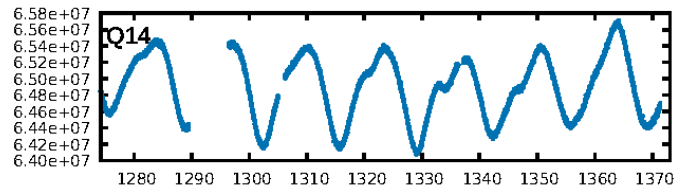
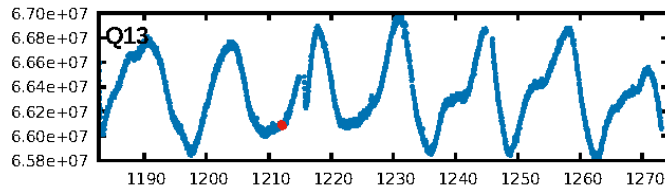
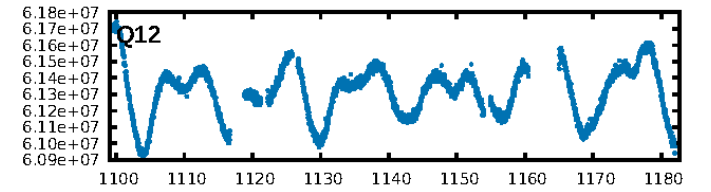
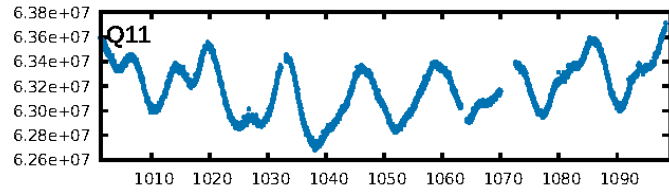
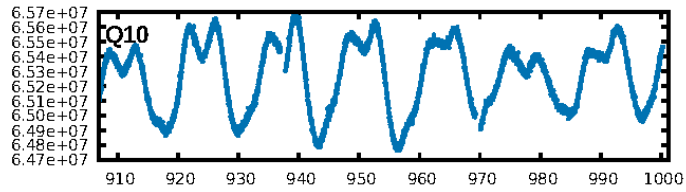
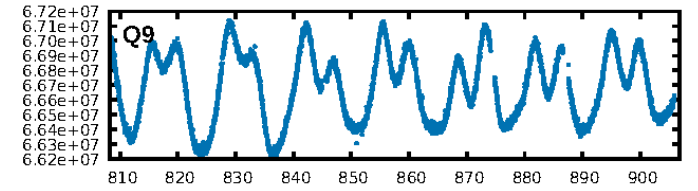
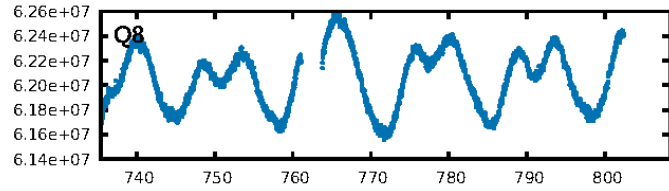
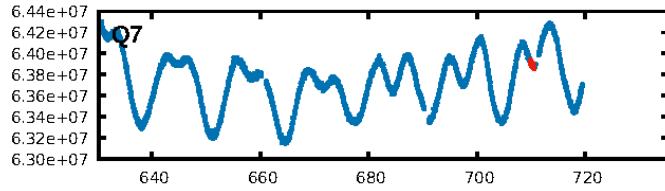
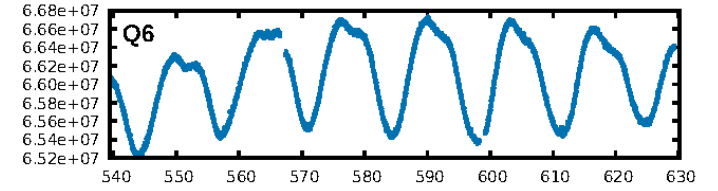
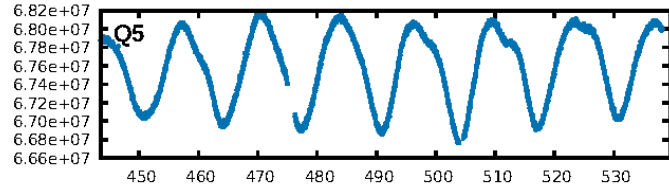
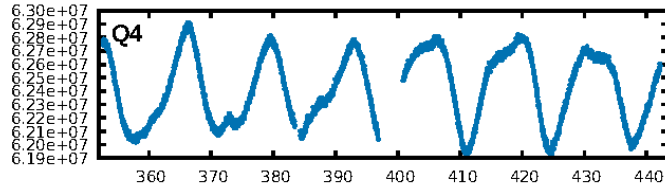
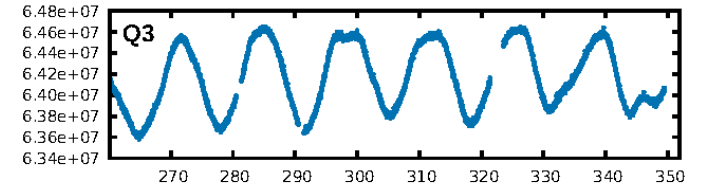
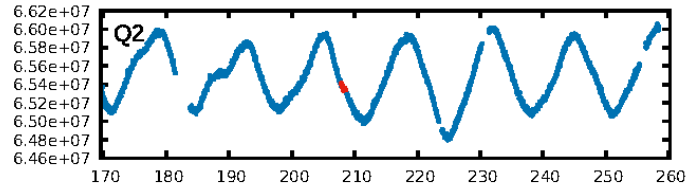
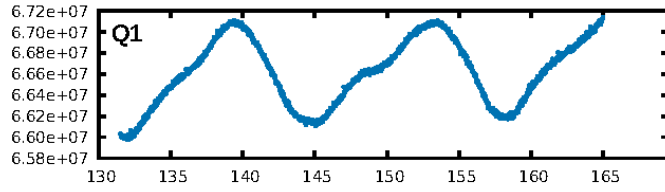
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [437.36 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 94.8%
Bootstrap-pfa: 1.84e-18
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.7555
Centroid-sig: 54.4%
Centroid-so: 0.399 arcsec [0.39 σ]
OotOffset-rm: 3.143 arcsec [5.04 σ]
KicOffset-rm: 3.308 arcsec [5.30 σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/3]

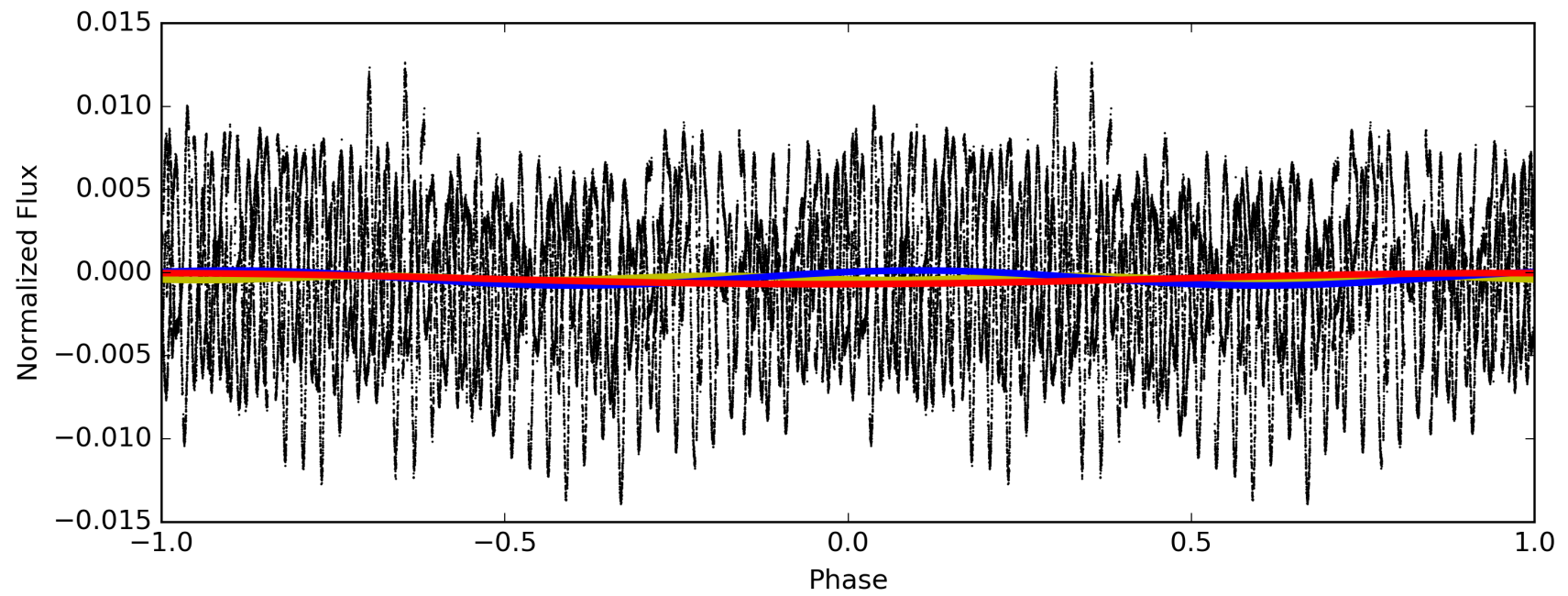
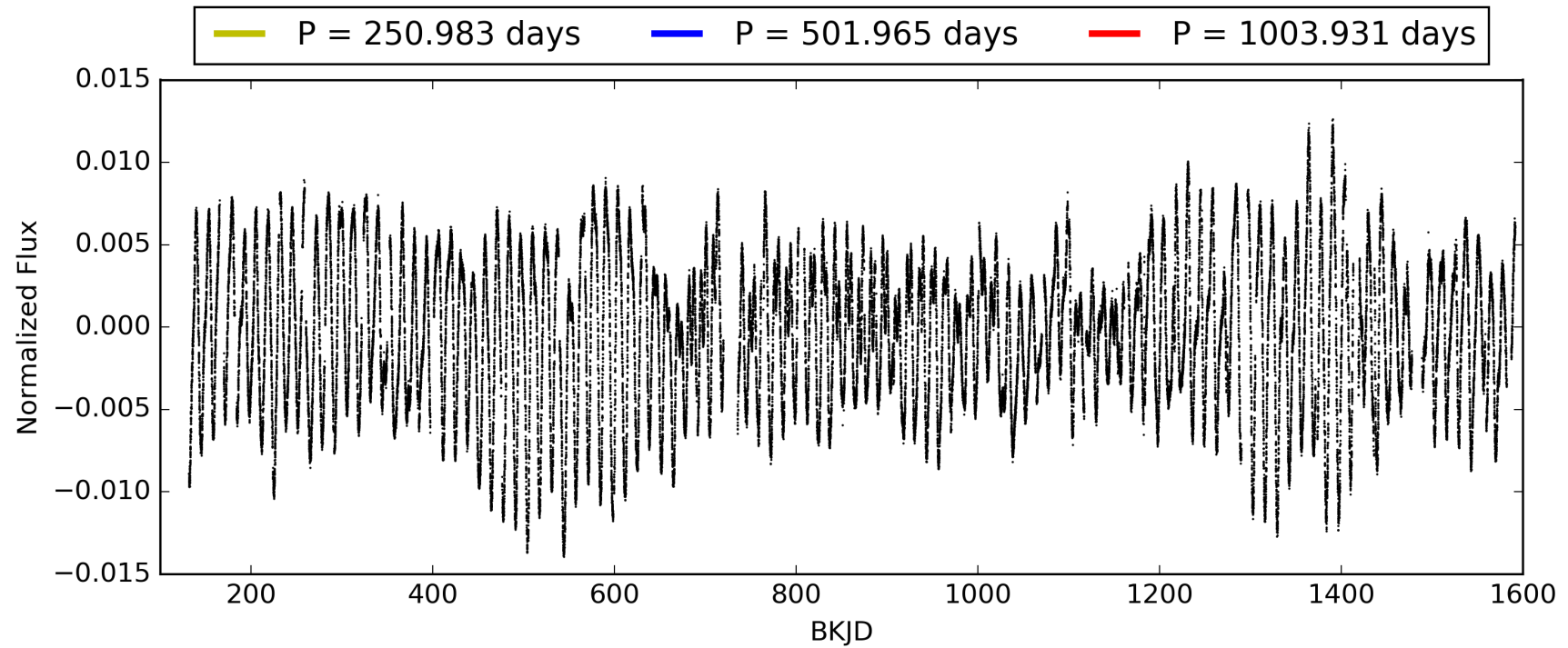
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:24:28 Z

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

TCE 011468870-02, PDC Light Curves

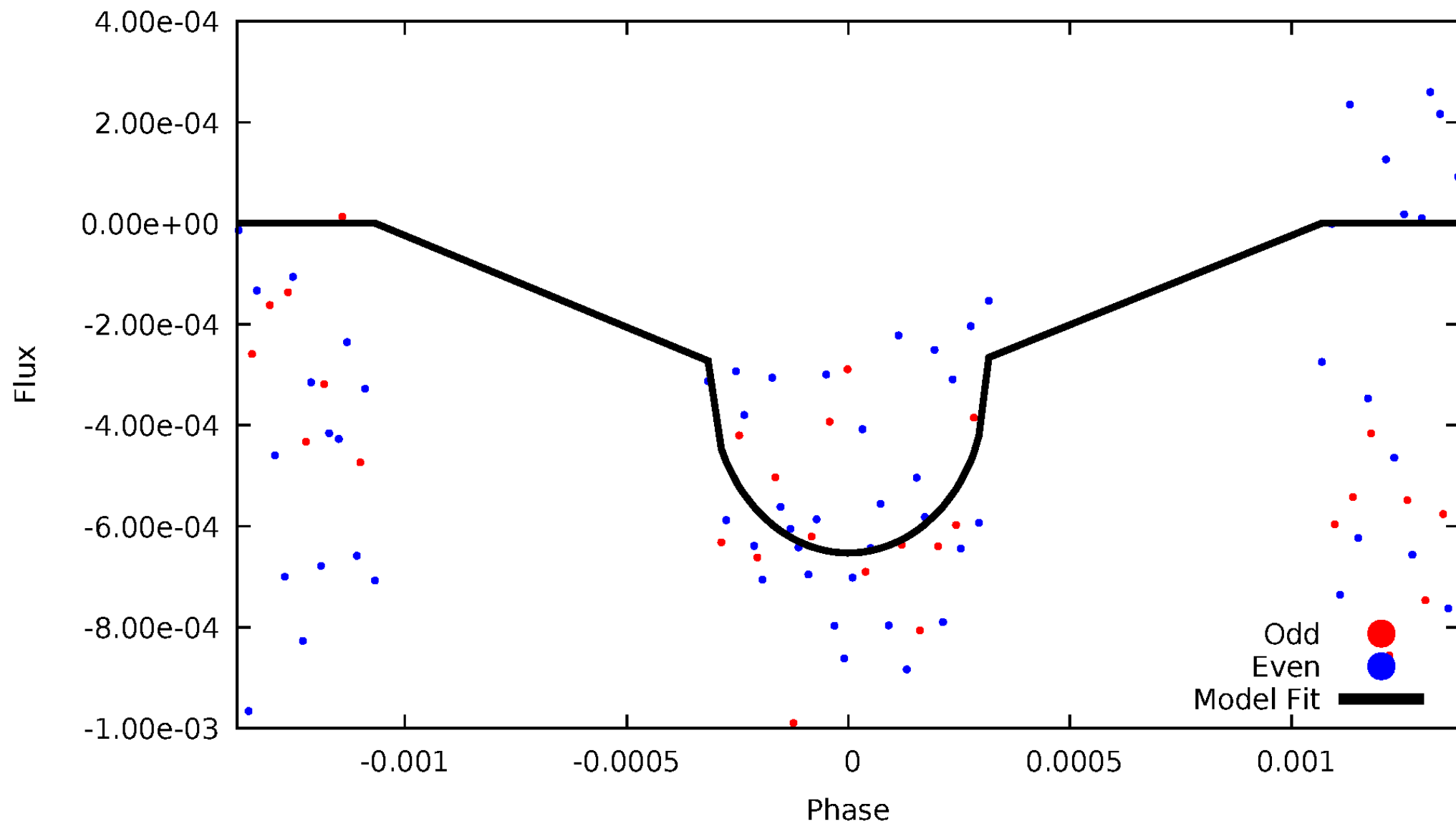


TCE 011468870-02



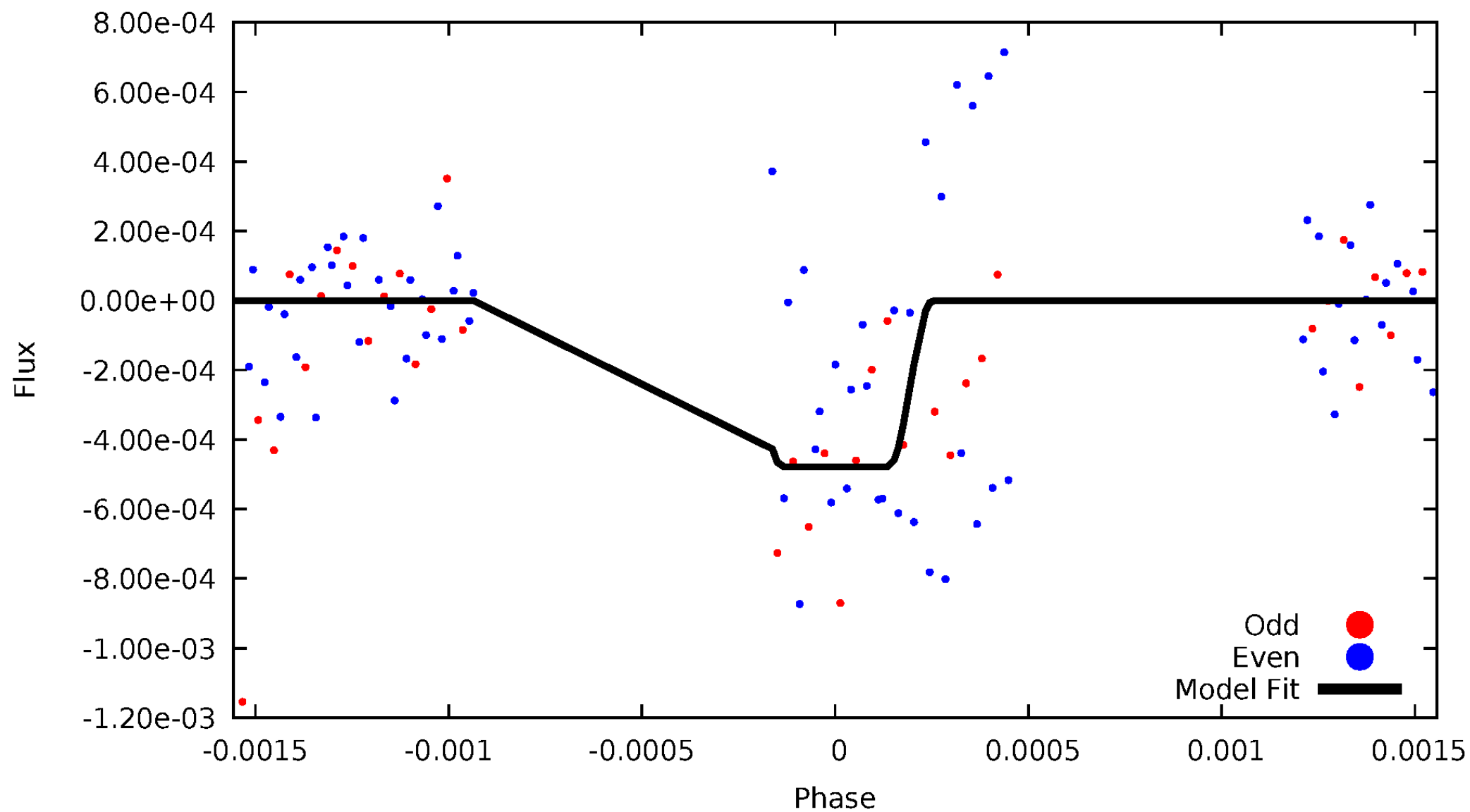
DV Odd/Even

TCE 011468870-02



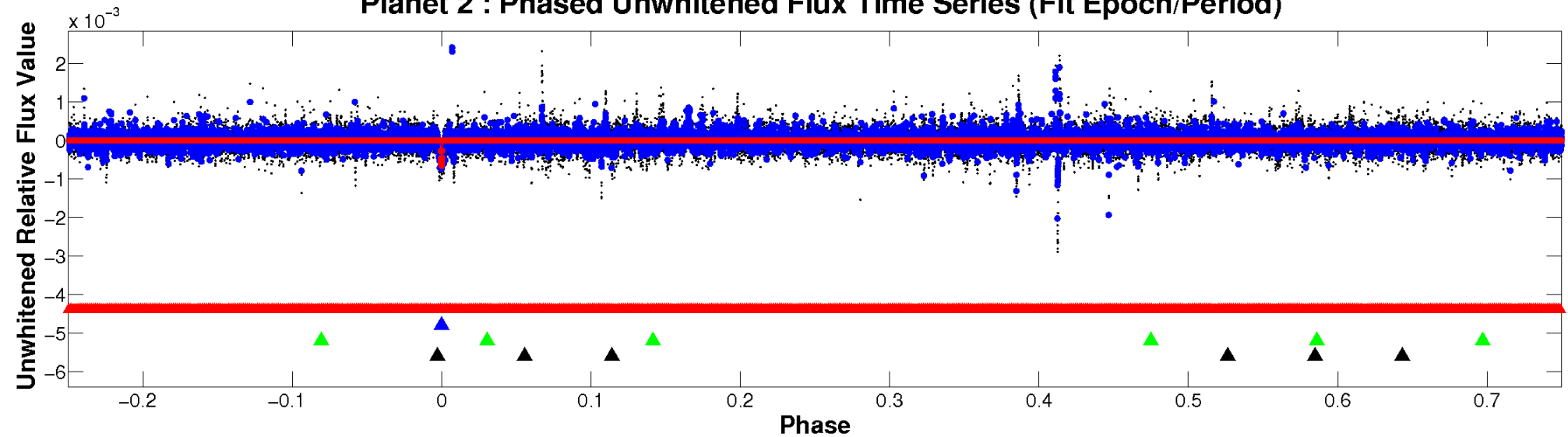
ALT Odd/Even

TCE 011468870-02

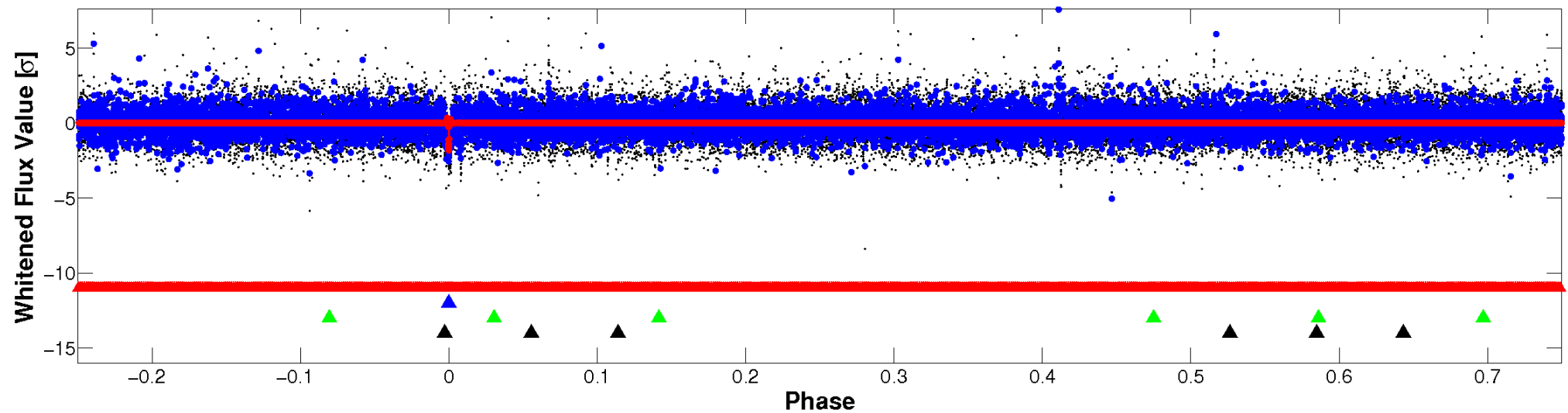


Non-Whitened Vs. Whitened Light Curve

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

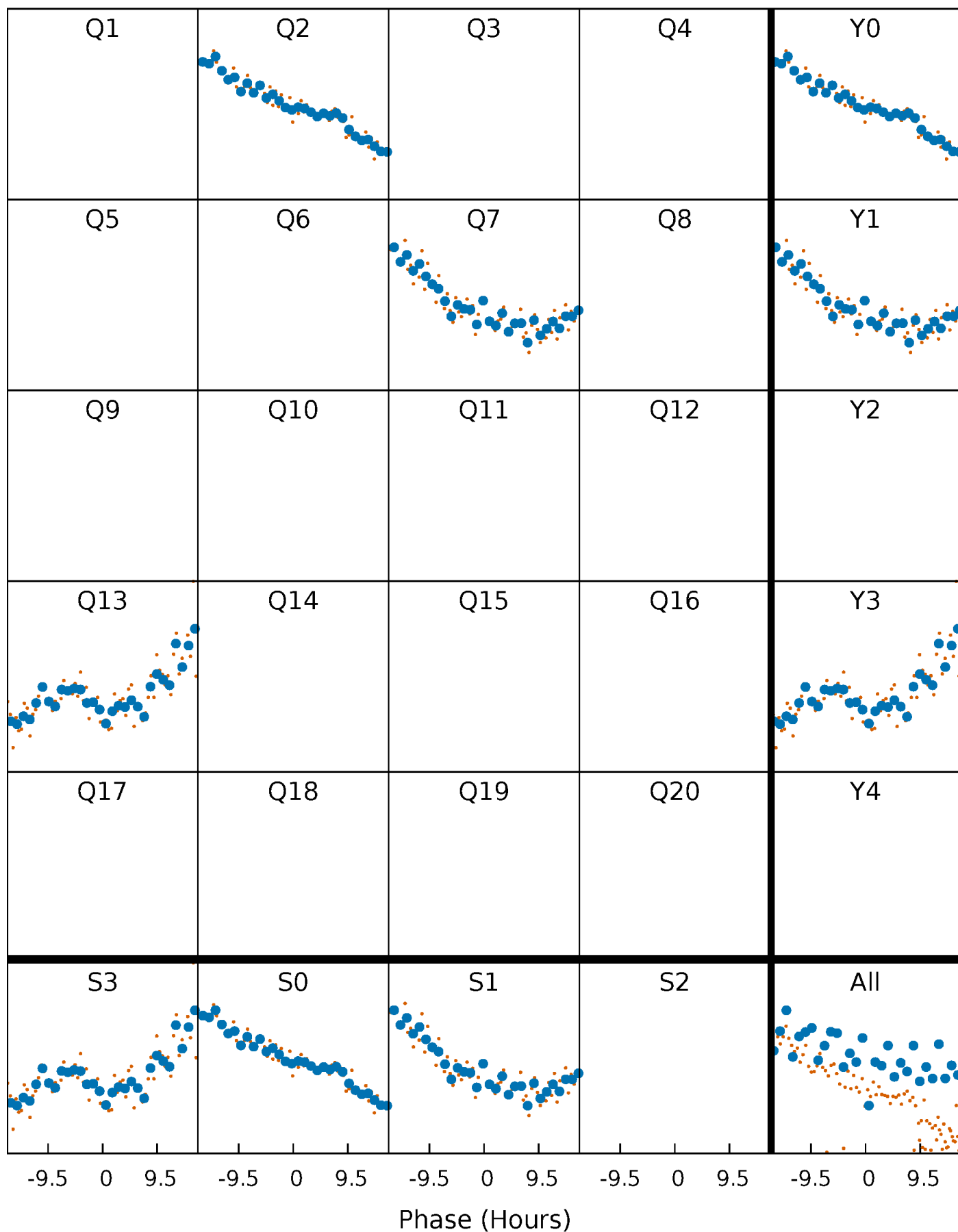


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



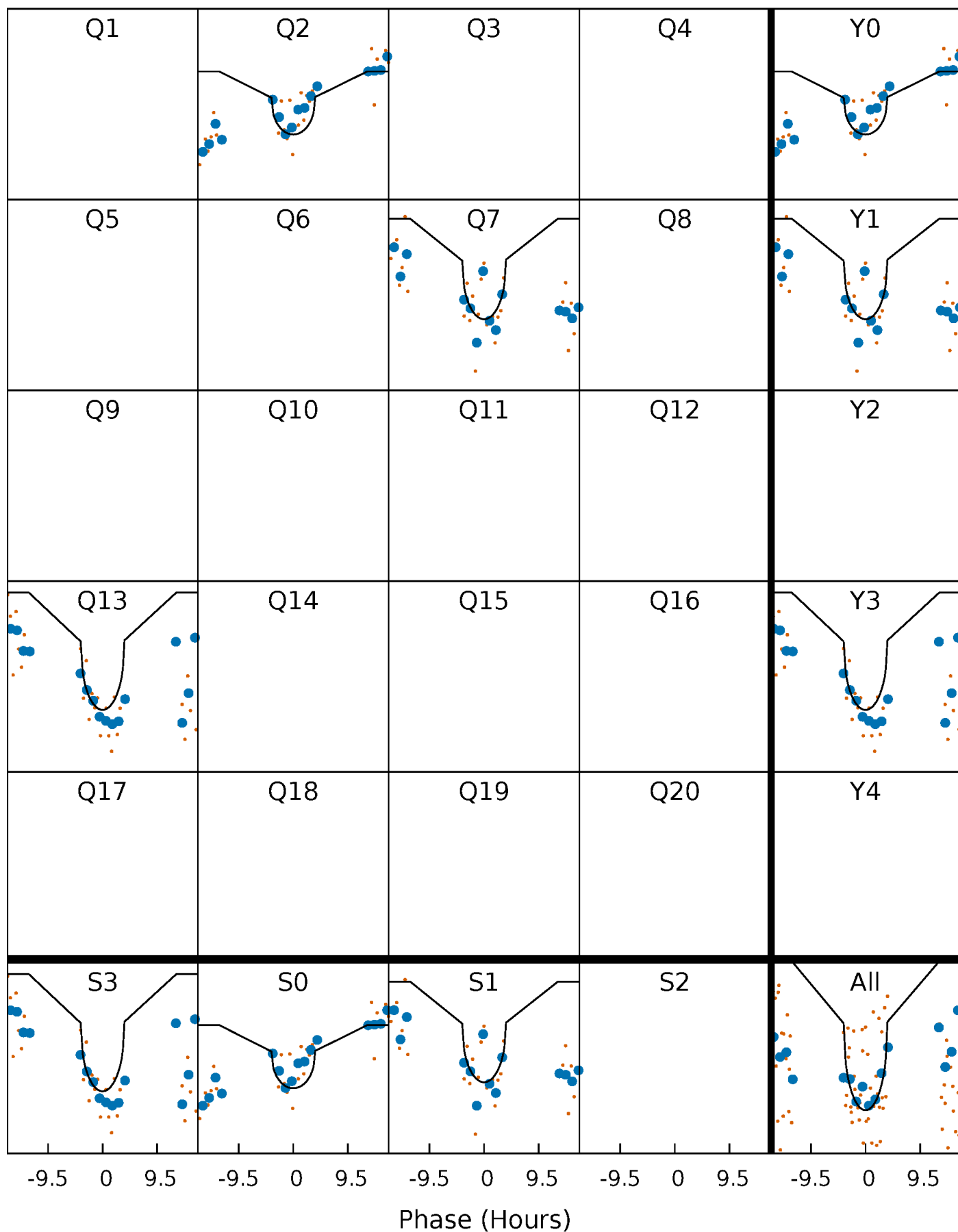
PDC Quarter-Phased Transit Curves

TCE 011468870-02 $P=501.965459$ Days $T_0=208.226033$ (BKJD)



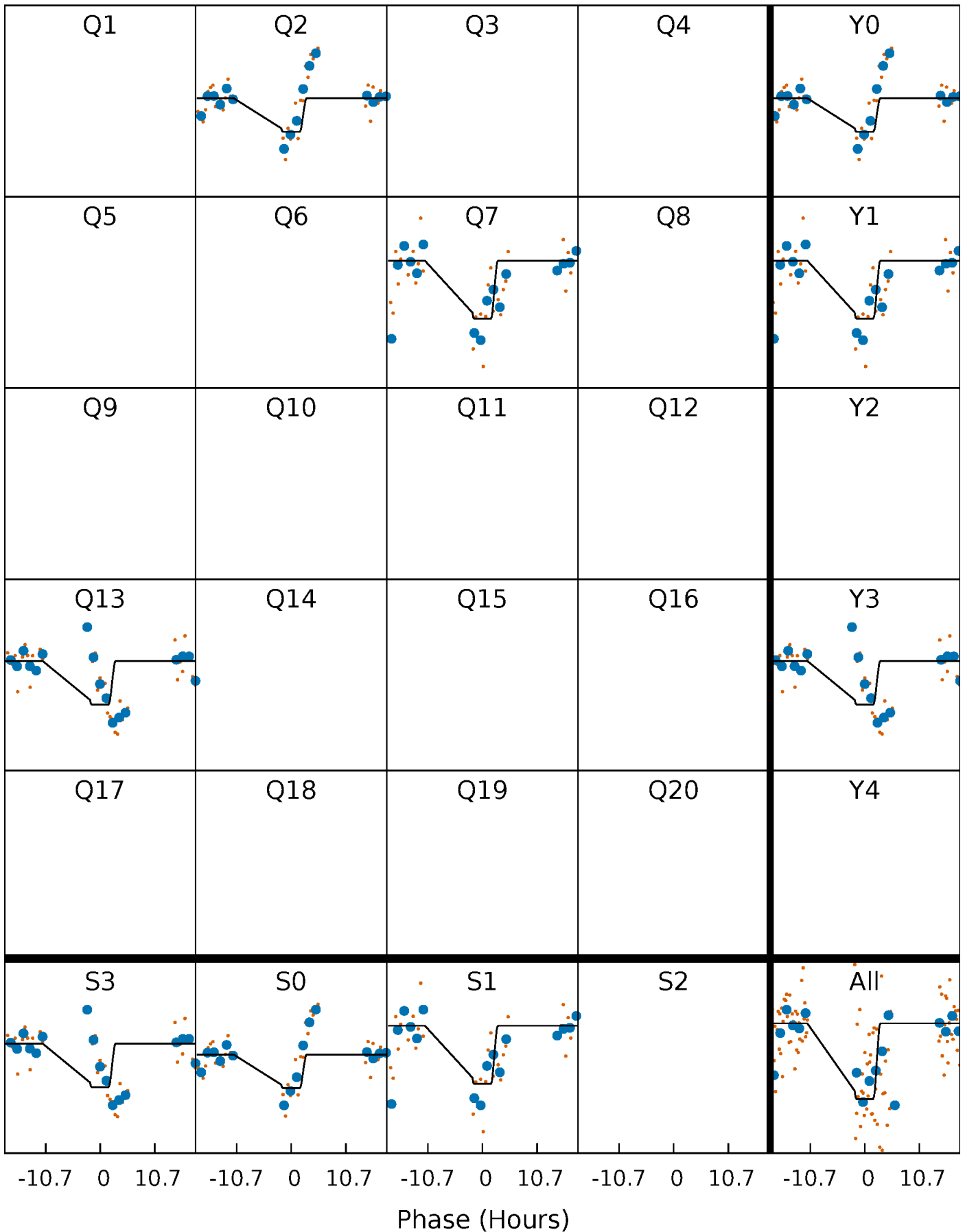
DV Quarter-Phased Transit Curves

TCE 011468870-02 P=501.965459 Days $T_0=208.226033$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

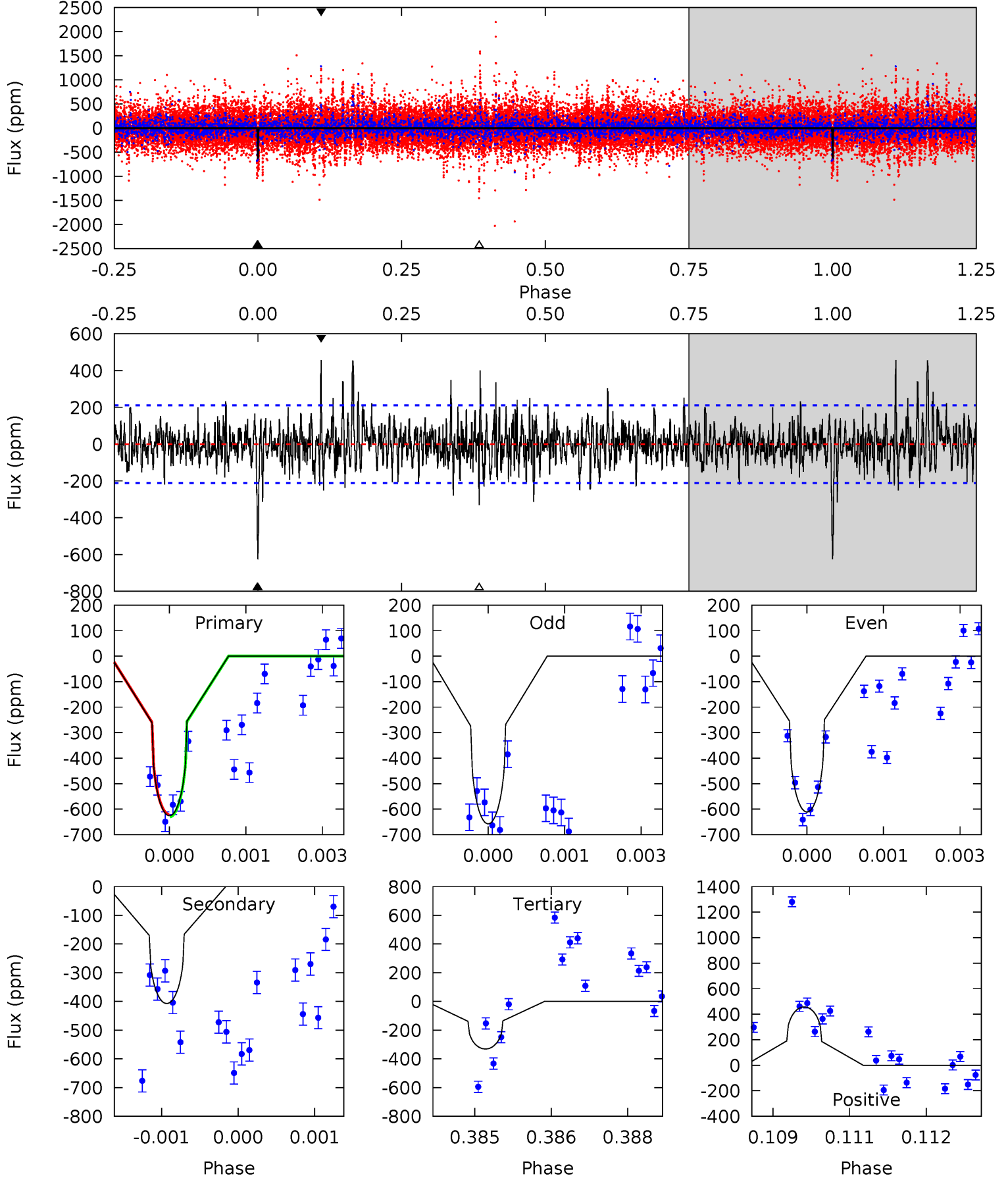
TCE 011468870-02 P=501.957213 Days $T_0=208.165449$ (BKJD)



DV Model-Shift Uniqueness Test

011468870-02, P = 501.965459 Days, E = 208.226033 Days

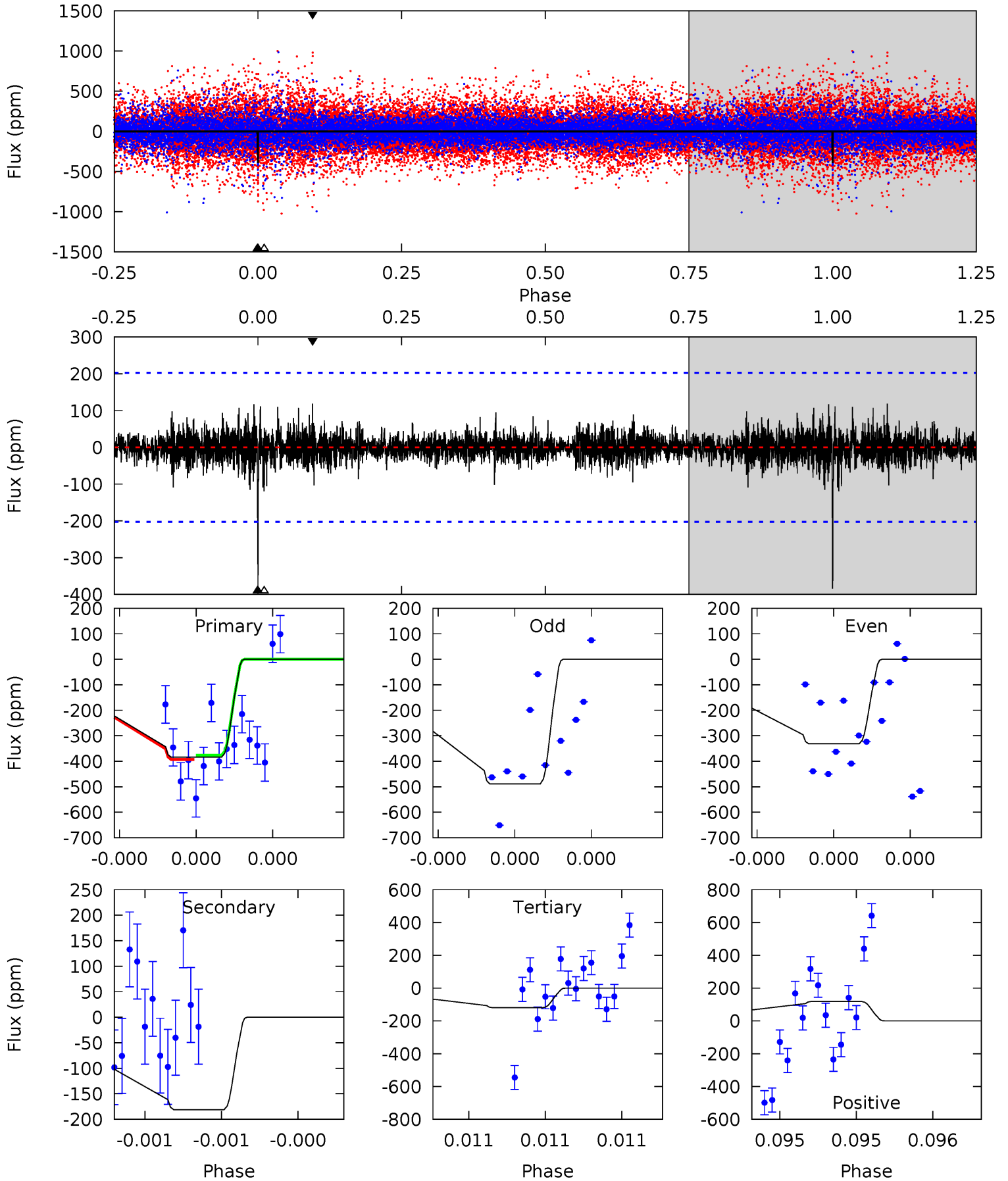
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	10.4	8.46	11.7	5.39	3.20	2.25	7.53	4.31	1.94	-1.28	0.53	0.95	0.42	0.11



Alt Model-Shift Uniqueness Test

011468870-02, P = 501.957213 Days, E = 208.165449 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	5.00	3.30	3.27	5.61	3.54	0.66	7.31	7.34	1.70	1.73	1.91	0.87	0.24	0.22



Stellar Parameters For KIC 011468870

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4286^{+116}_{-129}	$4.642^{+0.052}_{-0.024}$	$-0.280^{+0.300}_{-0.300}$	$0.611^{+0.045}_{-0.056}$	$0.597^{+0.068}_{-0.049}$	$3.692^{+0.929}_{-0.392}$
	+3%/-3%	+1%/-1%	+107%/-107%	+7%/-9%	+11%/-8%	+25%/-11%
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 011468870-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-407 ± 39	$1.84^{+1.27}_{-1.07}$	201^{+6}_{-7}	3819^{+1503}_{-619}	$72348^{+350171}_{-47861}$
Alt.	-181 ± 36	$1.71^{+1.23}_{-1.07}$	201^{+7}_{-7}	3424^{+1411}_{-502}	$37544^{+223962}_{-25261}$

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

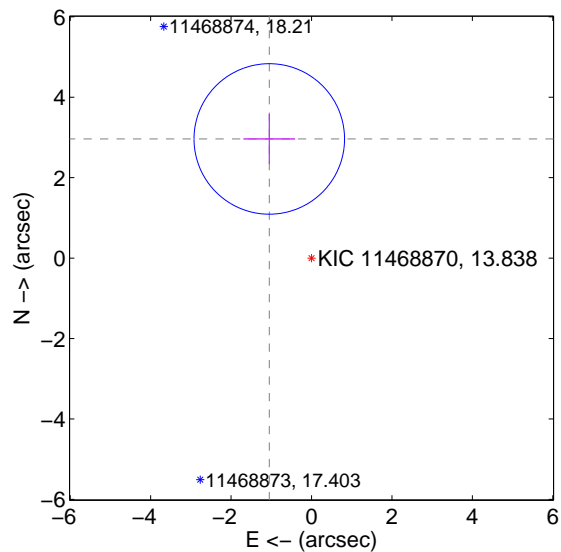
Supplemental centroid analysis for 011468870-02. Kepler magnitude: 13.84. Transit SNR 10.28

There are 1 quarters with good PRF difference image offsets

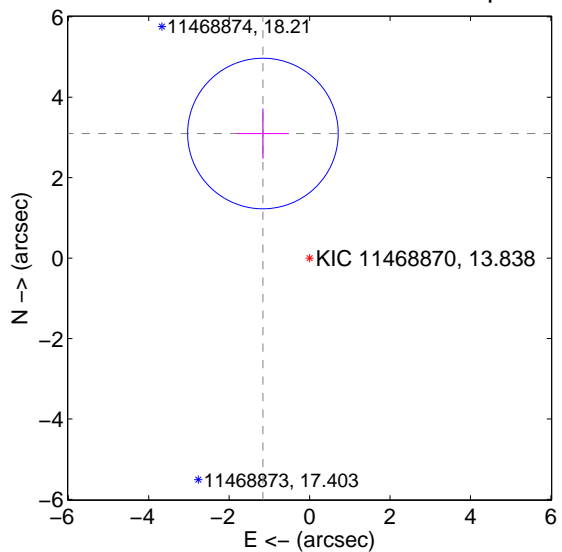
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.143 ± 0.624	5.04	1.050 ± 0.643	2.963 ± 0.621
PRF-fit source offset from KIC position	3.308 ± 0.624	5.30	1.160 ± 0.643	3.098 ± 0.621
photometric centroid source offset	0.40 ± 1.03	0.39	-0.40 ± 1.03	-0.04 ± 0.97

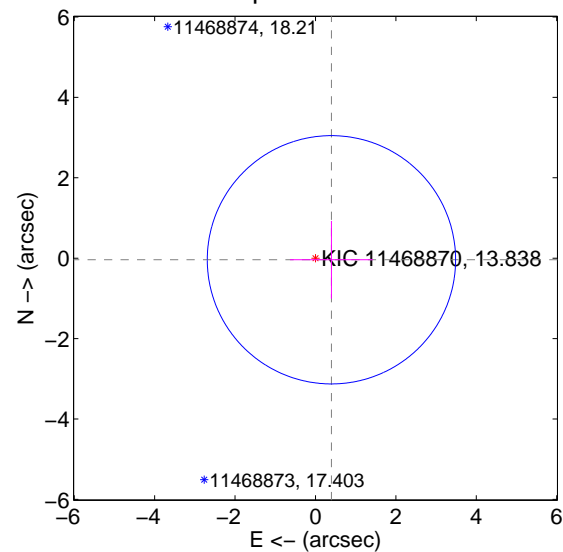
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



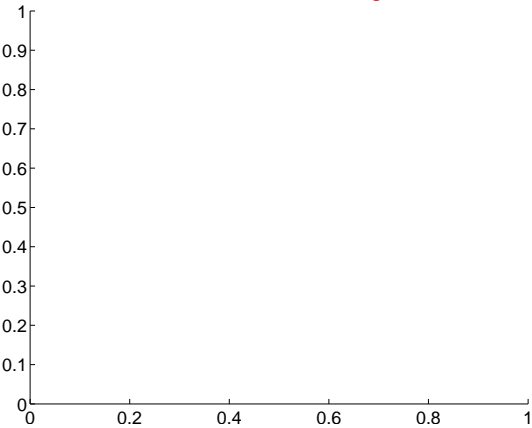
offset from photometric centroids



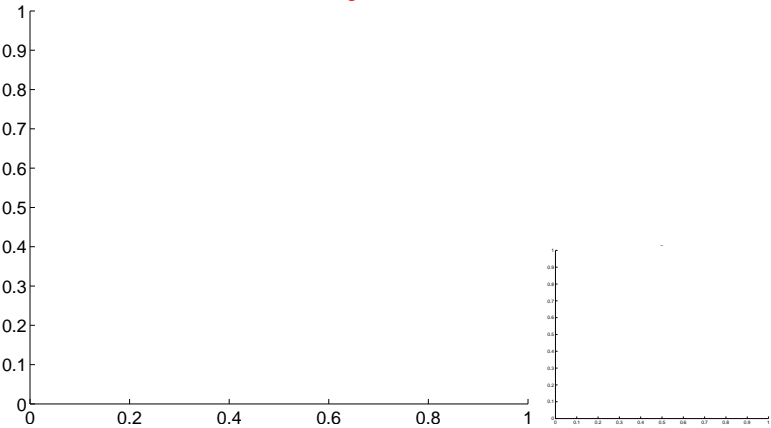
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

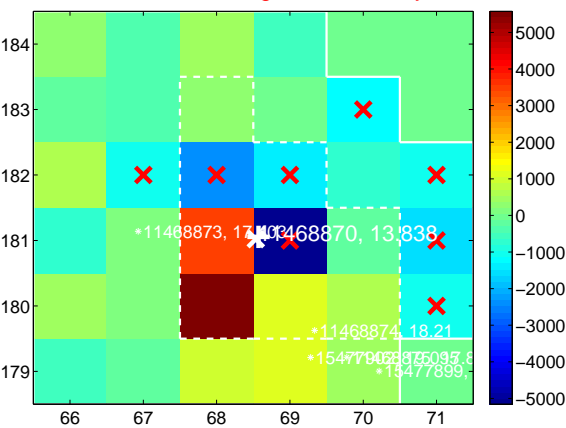
Q1 no difference image



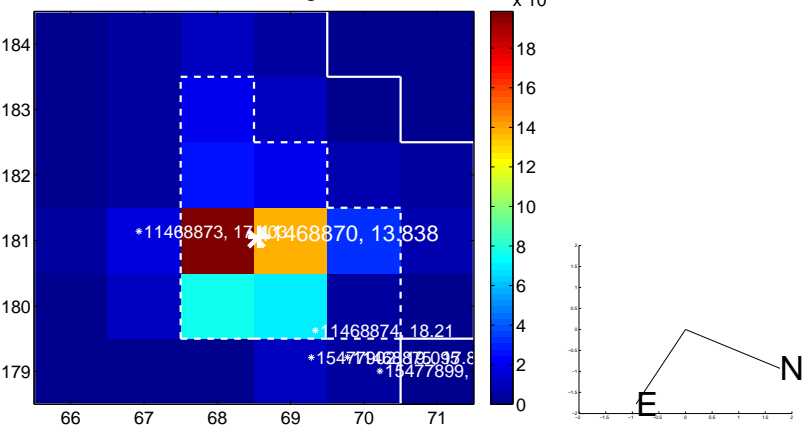
Q1 no OOT image



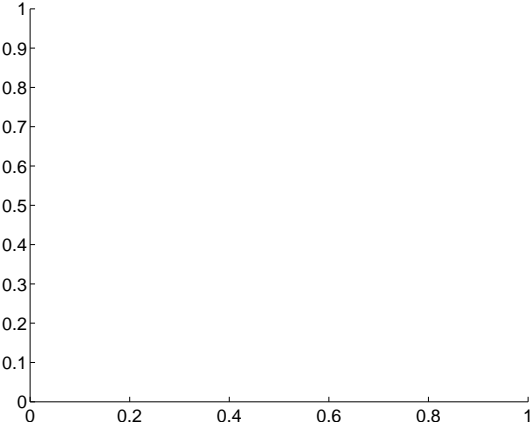
Q2 difference image. Poor Quality



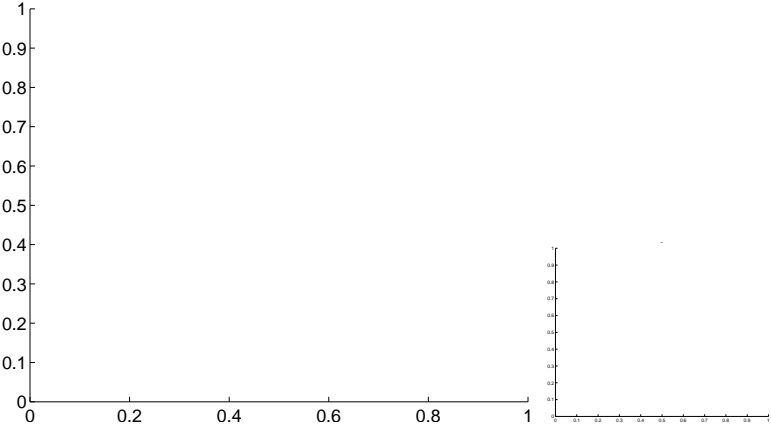
Q2 OOT image



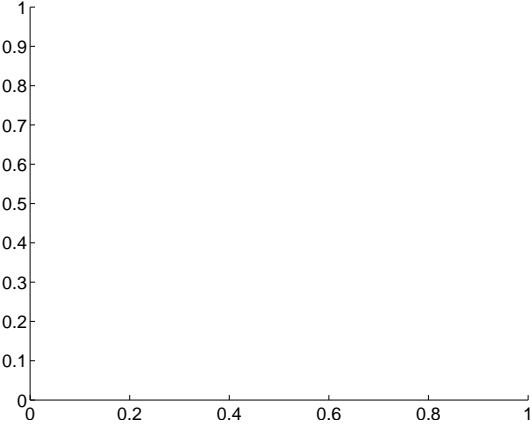
Q3 no difference image



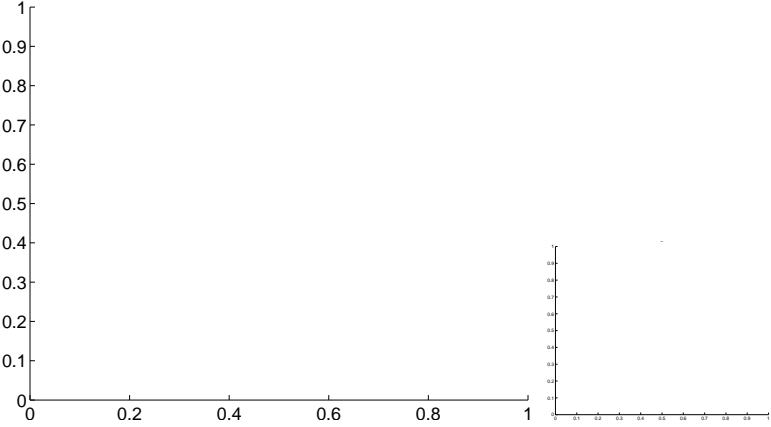
Q3 no OOT image



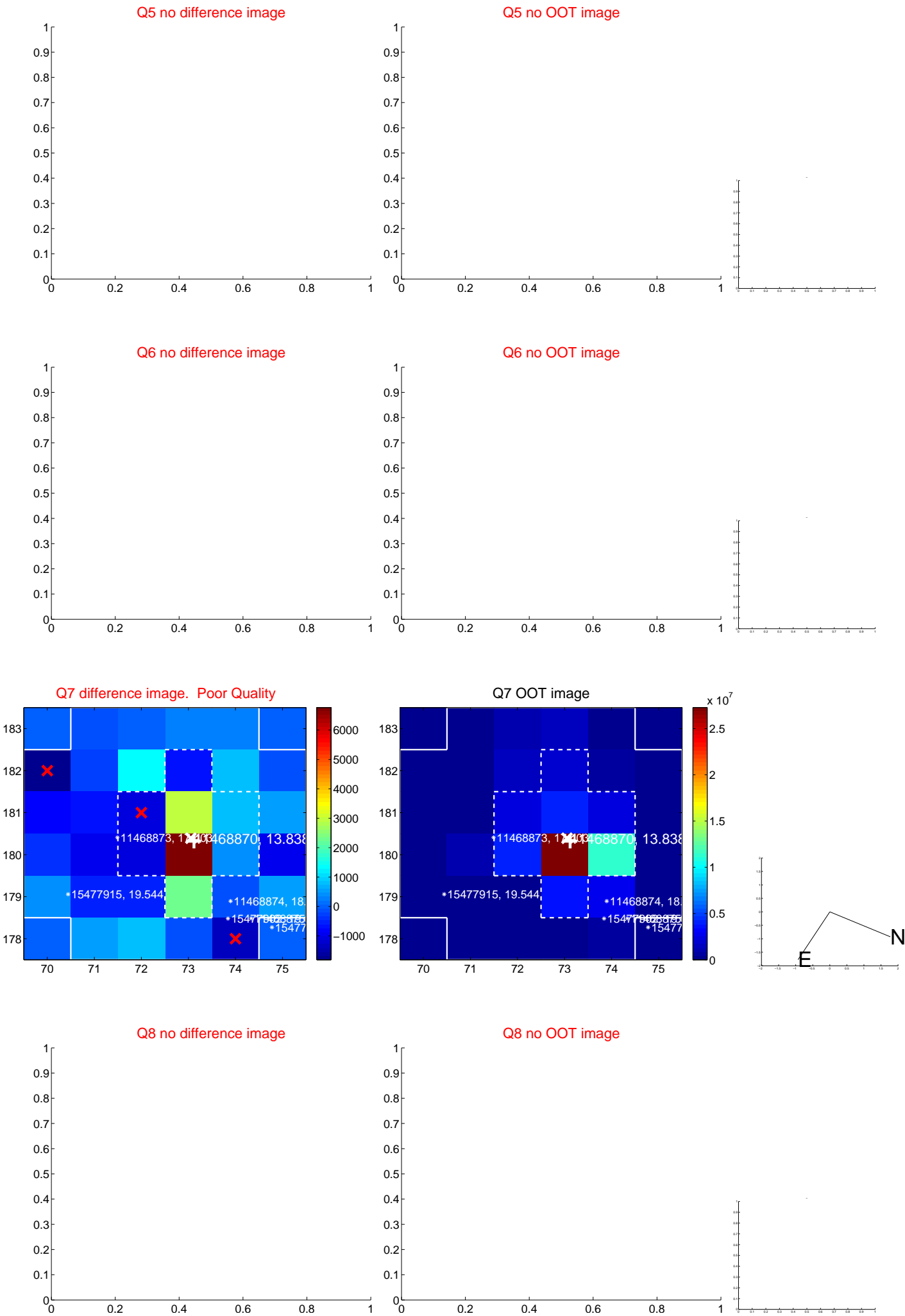
Q4 no difference image



Q4 no OOT image



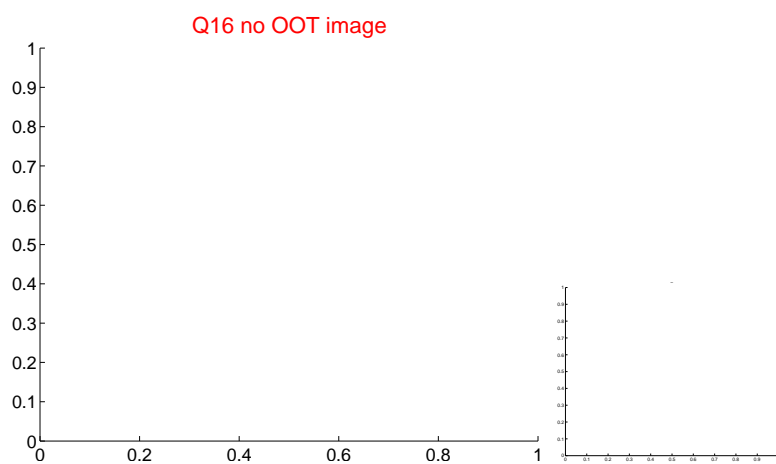
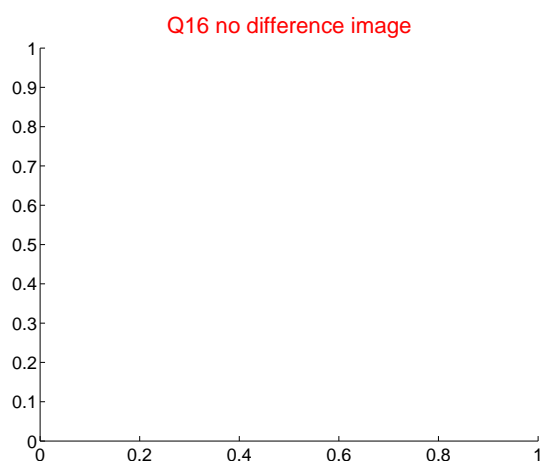
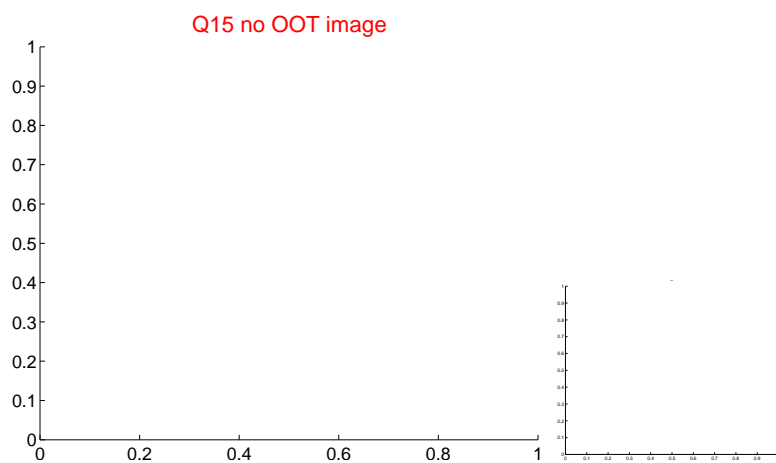
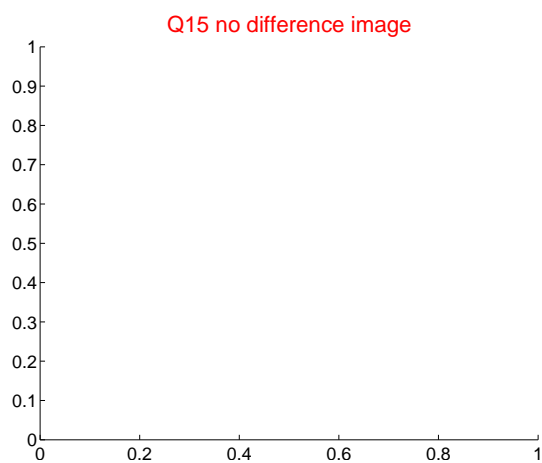
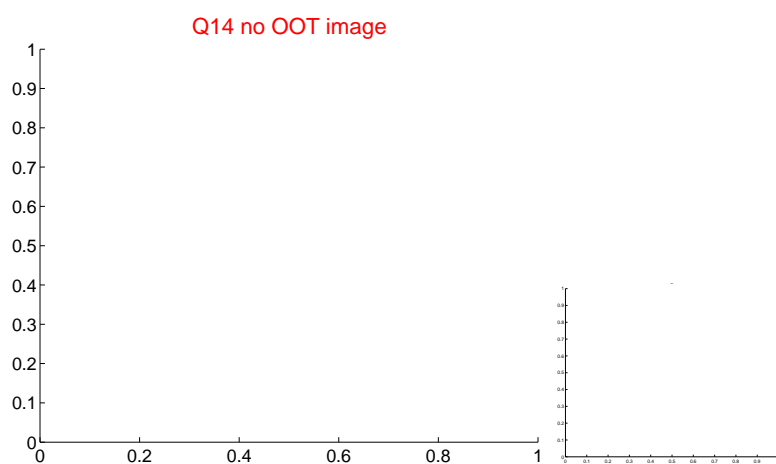
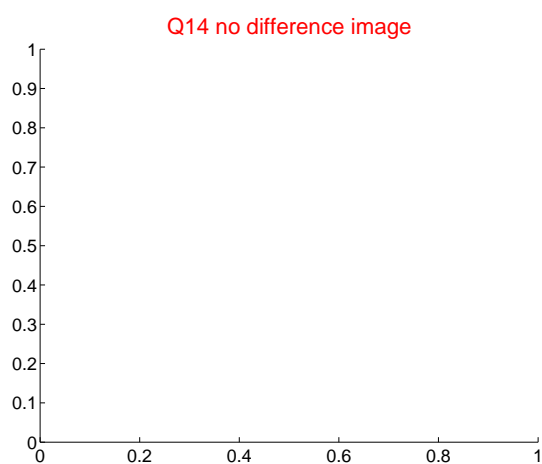
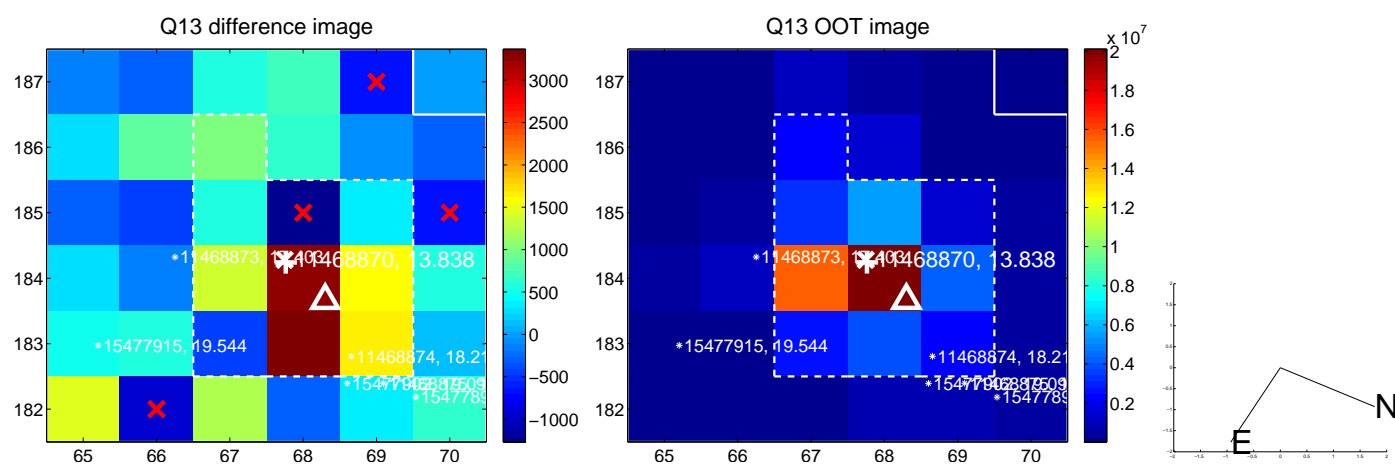
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



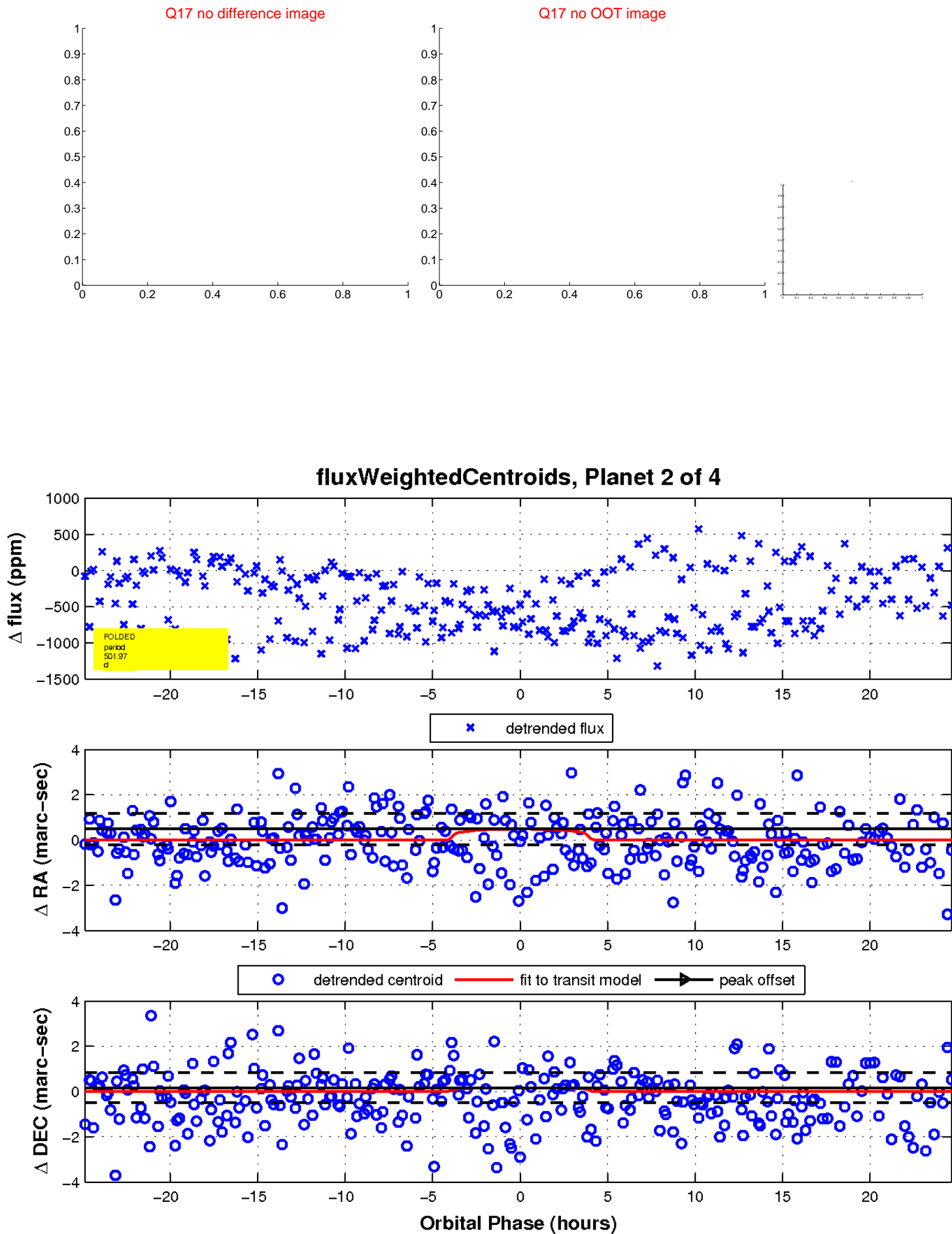
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



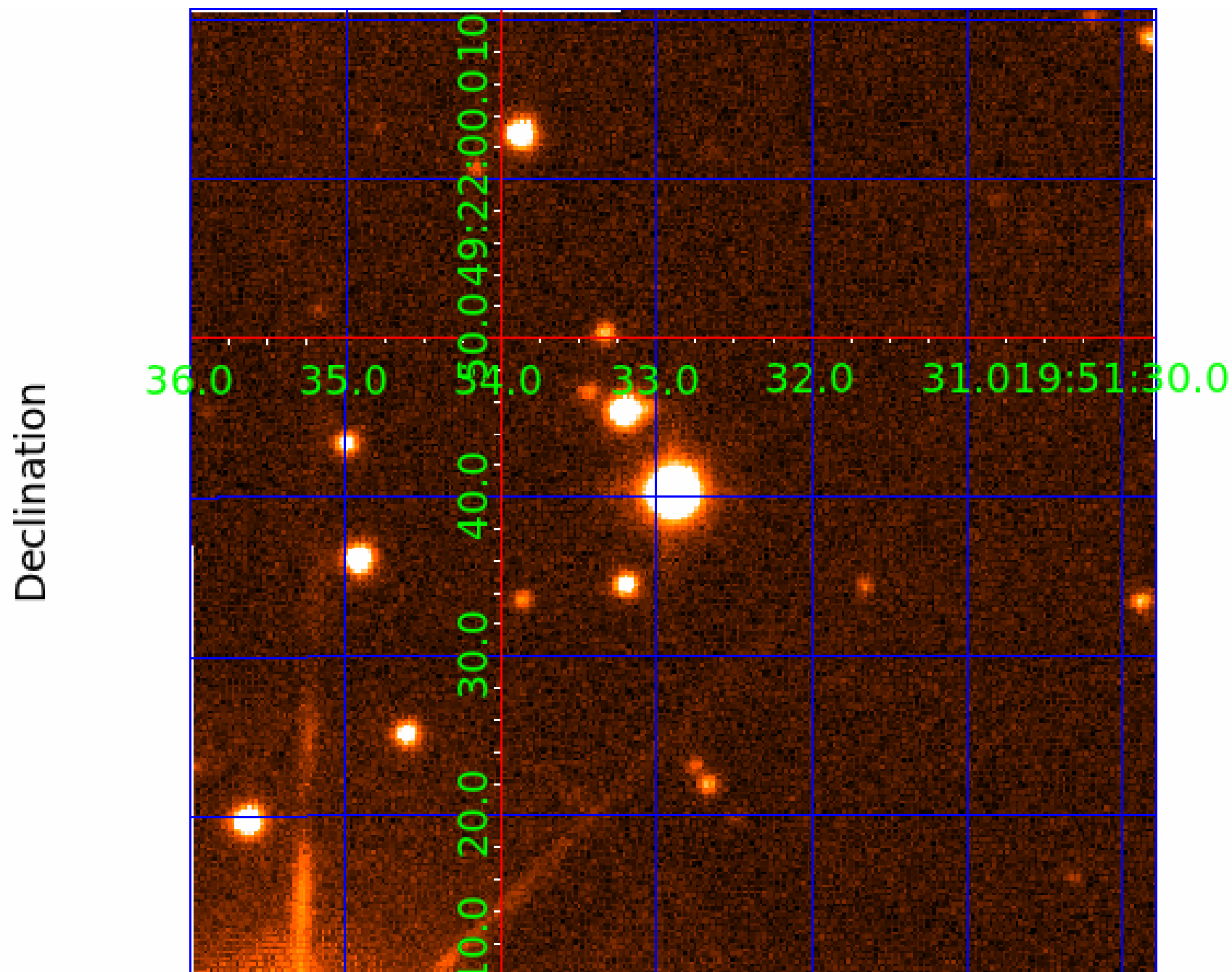
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



UKIRT Image



KIC 011468870

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})
011468870-01	OBS	No	0.690451	131.940826	21.4	2.884	7.7	7.1	0.61	4286	0.36	680.70
011468870-02	OBS	No	501.965459	208.226033	653.0	8.300	15.6	10.3	0.61	4286	1.70	0.10
011468870-03	OBS	No	278.856793	167.804402	467.6	9.000	9.9	-1.0	0.61	4286	1.27	0.23
011468870-04	OBS	No	265.646557	206.823817	369.7	9.559	8.6	6.2	0.61	4286	1.28	0.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011468870-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST
011468870-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
011468870-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011468870-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

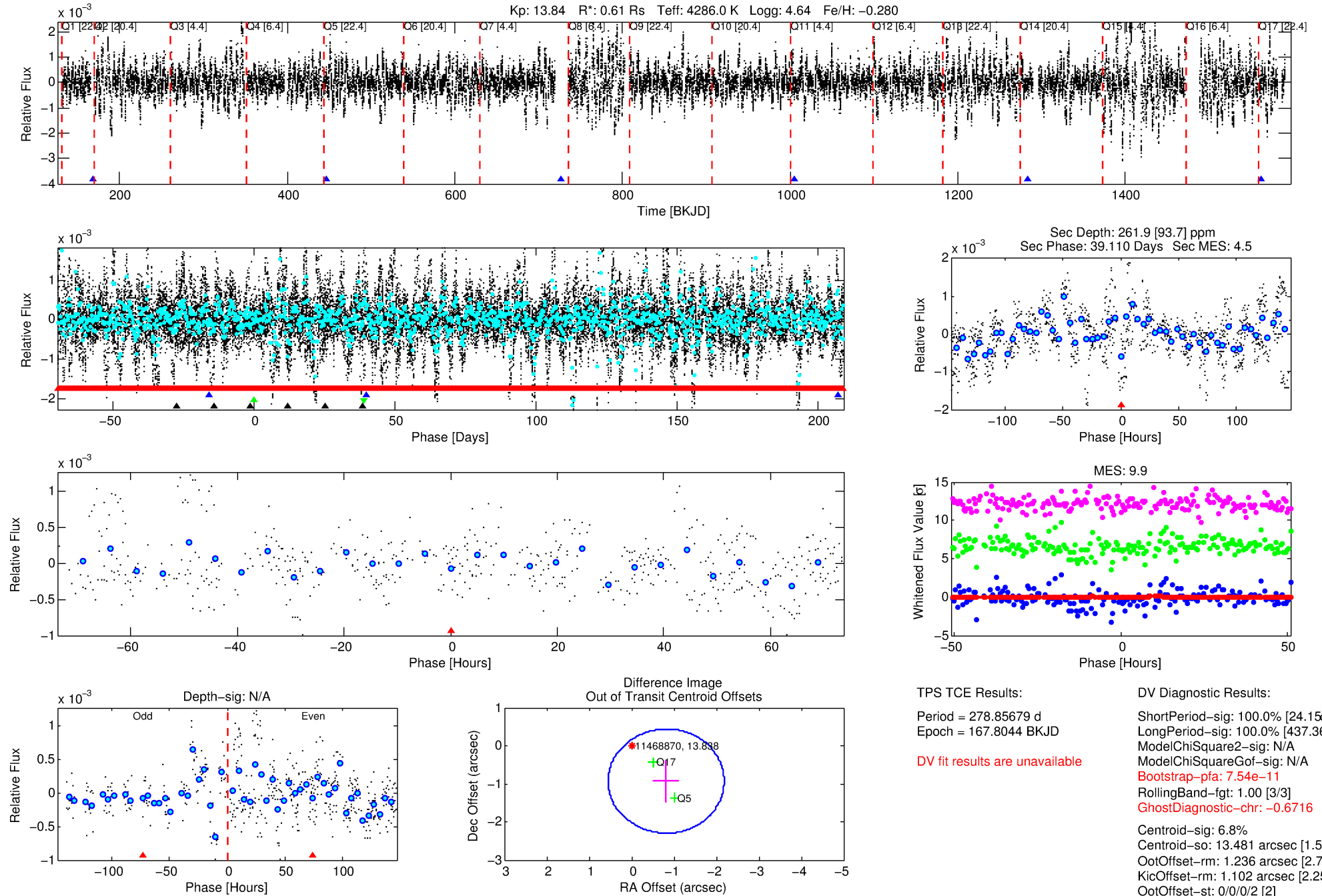
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011468870-03

No Significant Match Found

DV One-Page Summary

KIC: 11468870 Candidate: 3 of 4 Period: 278.857 d



TPS TCE Results:

Period = 278.85679 d
Epoch = 167.8044 BKJD

DV fit results are unavailable

DV Diagnostic Results:

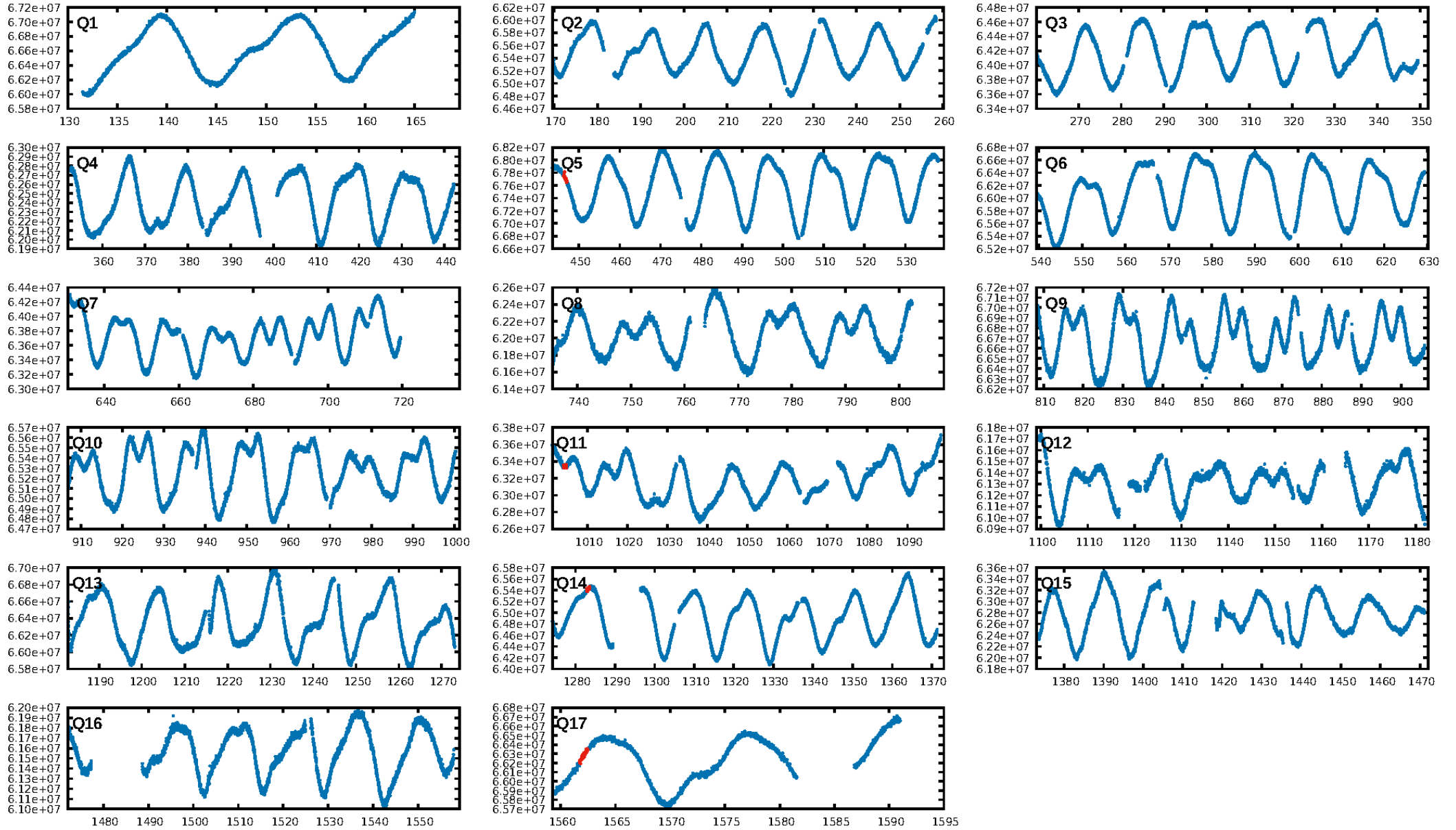
ShortPeriod-sig: 100.0% [24.15σ]
LongPeriod-sig: 100.0% [437.36σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.54e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.6716

Centroid-sig: 6.8%
Centroid-so: 13.481 arcsec [1.54σ]
OotOffset-rm: 1.236 arcsec [2.71σ]
KicOffset-rm: 1.102 arcsec [2.25σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/2]

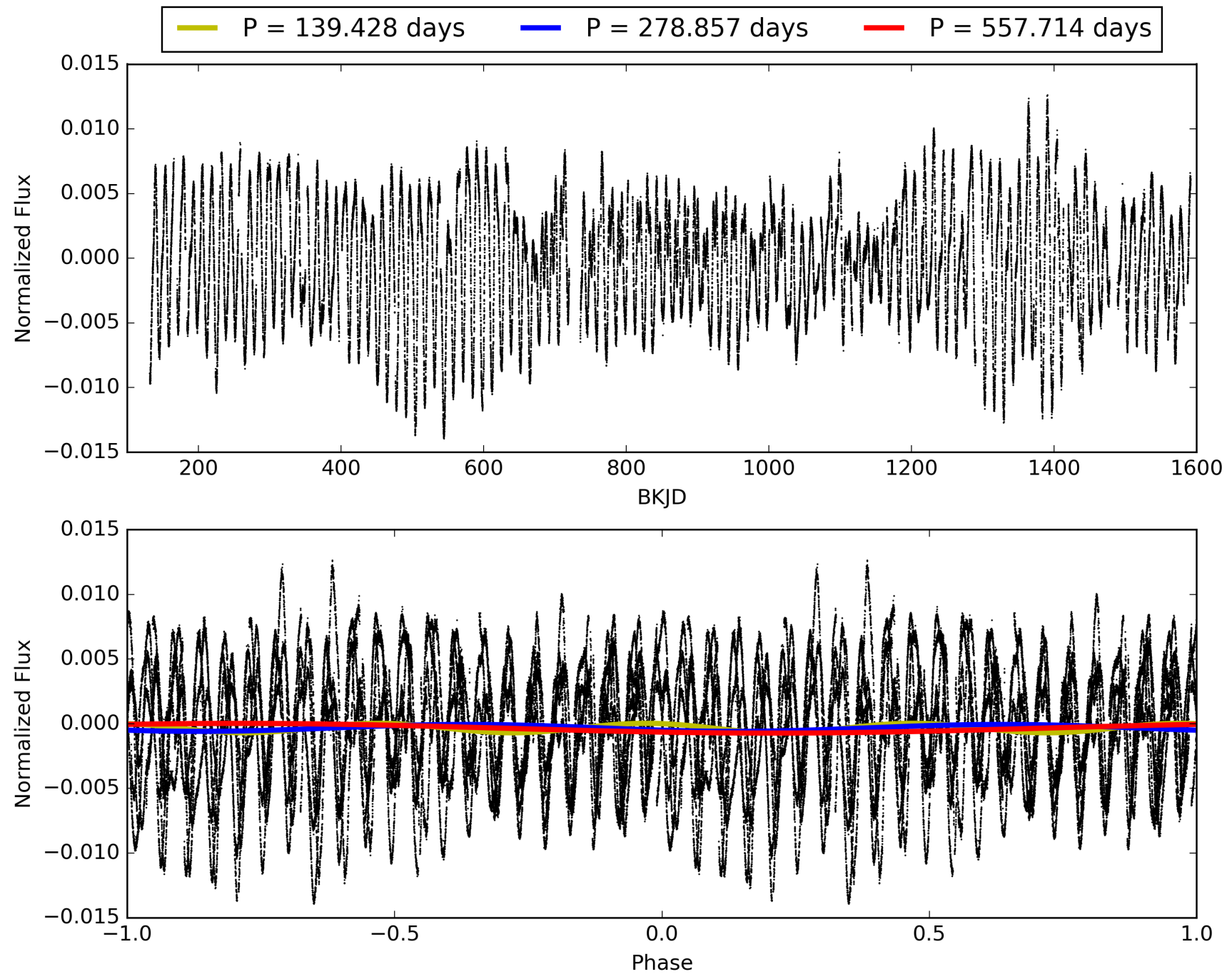
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:24:33 Z

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

TCE 011468870-03, PDC Light Curves

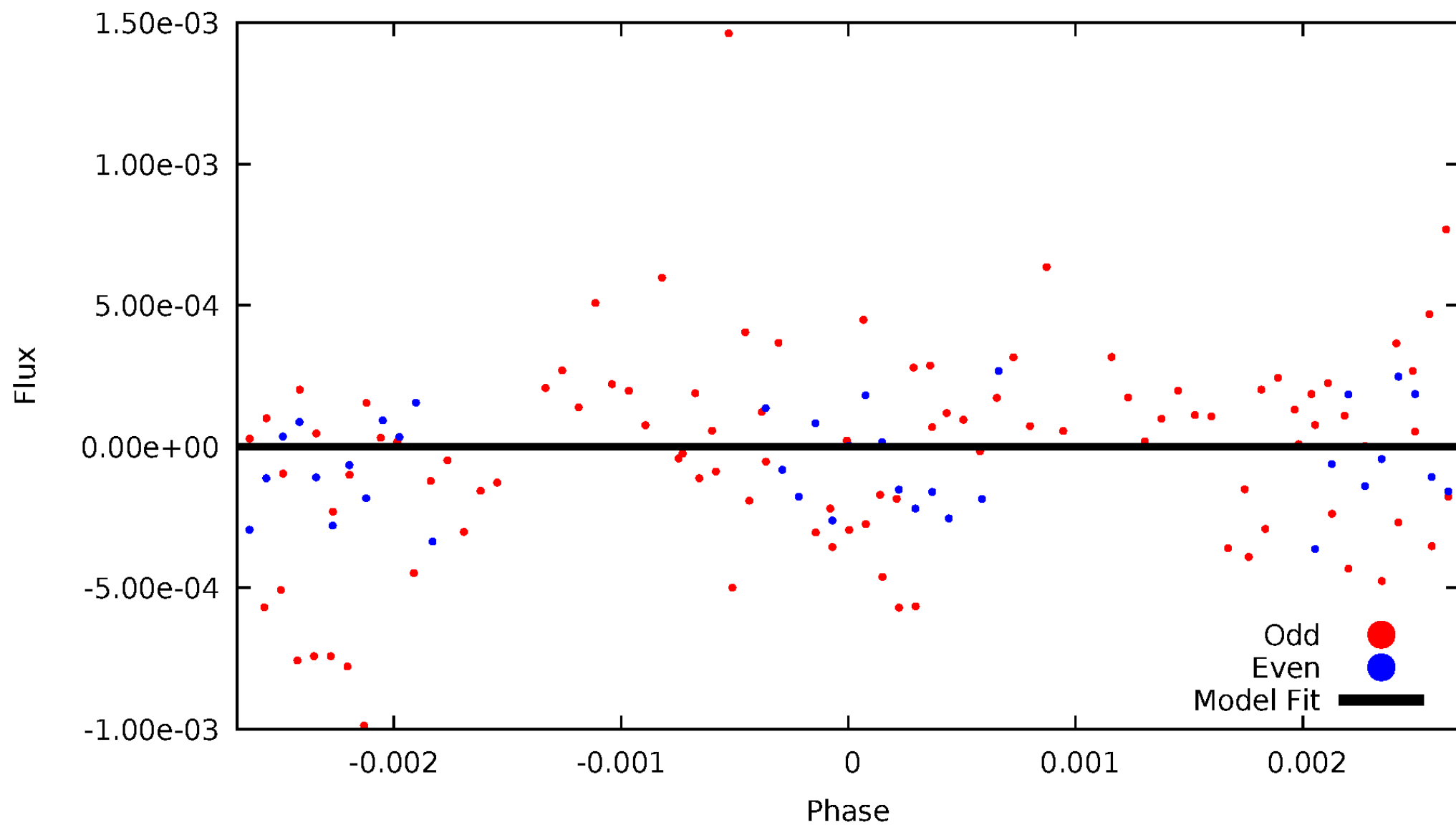


TCE 011468870-03



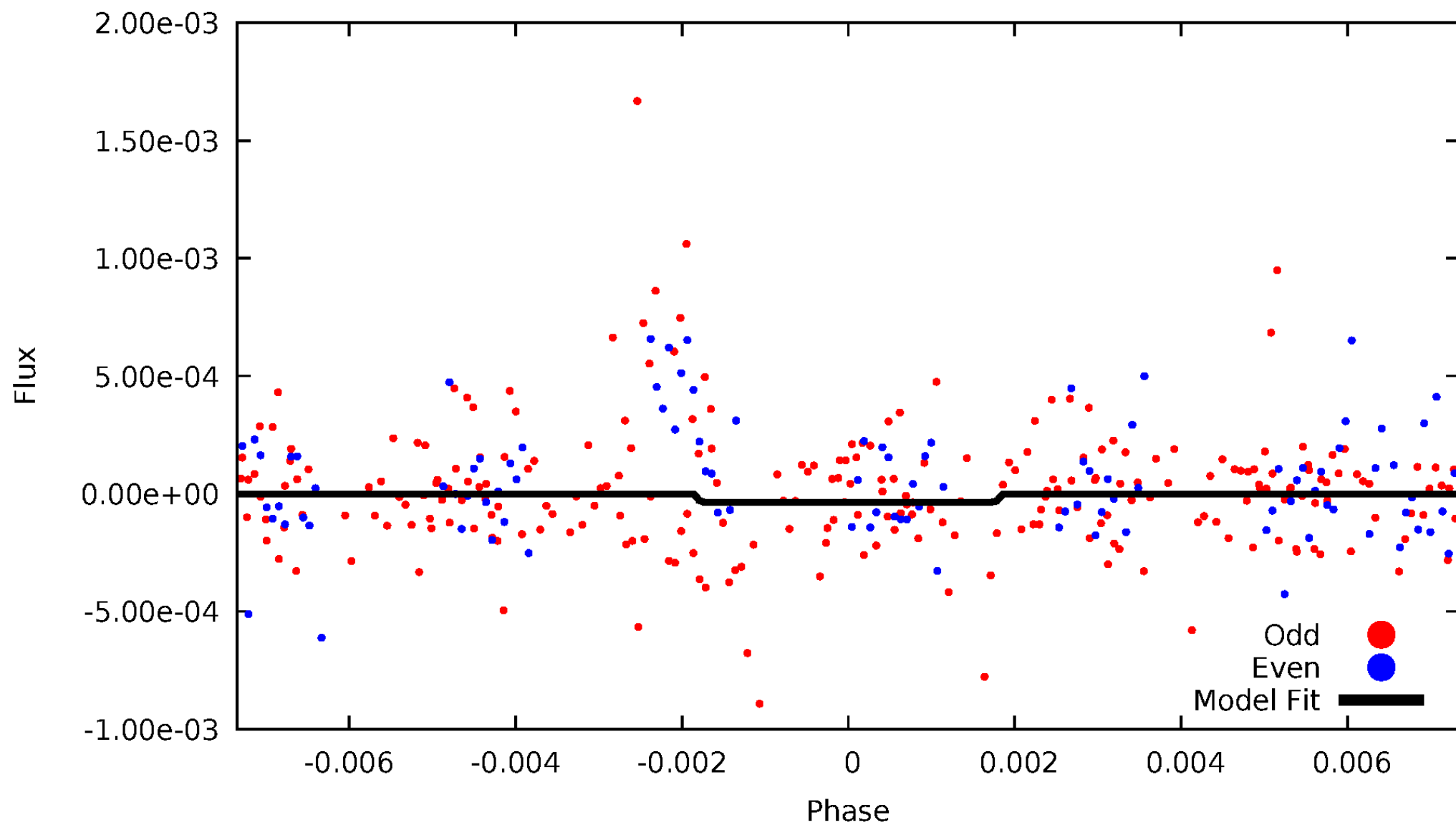
DV Odd/Even

TCE 011468870-03



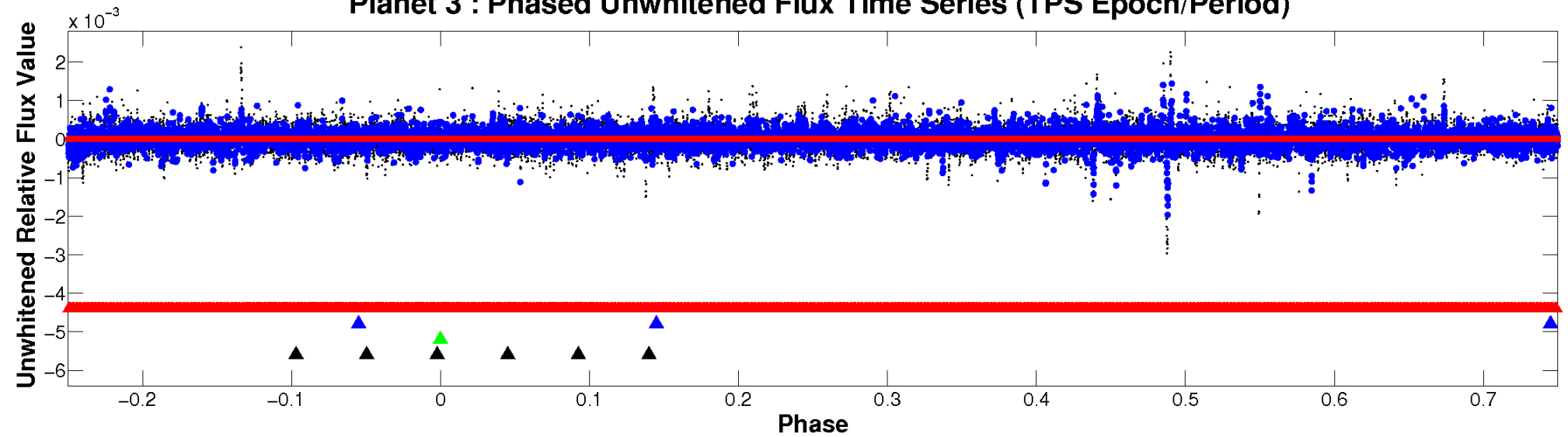
ALT Odd/Even

TCE 011468870-03

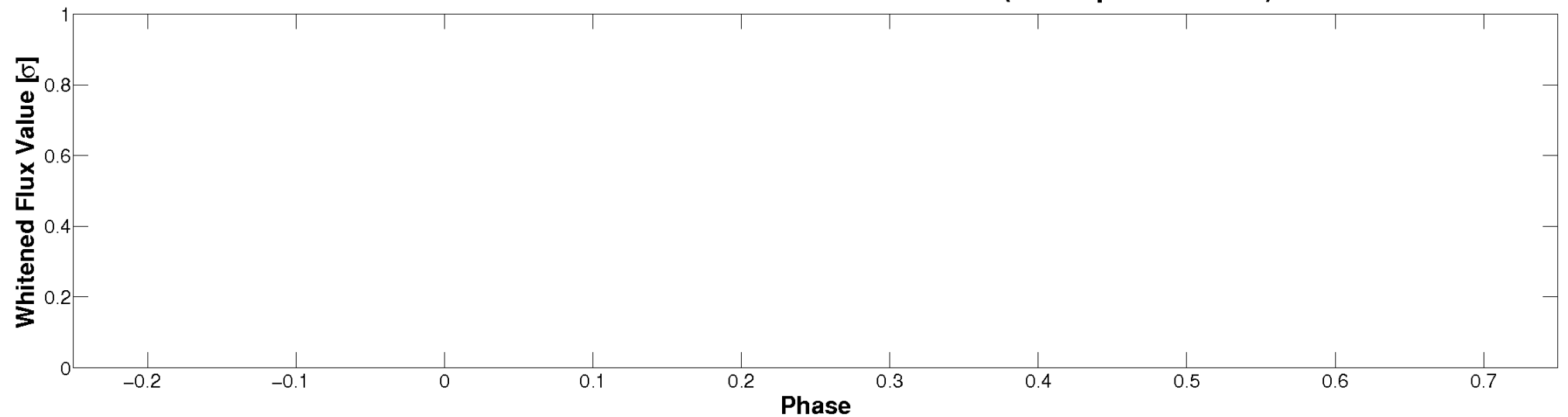


Non-Whitened Vs. Whitened Light Curve

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

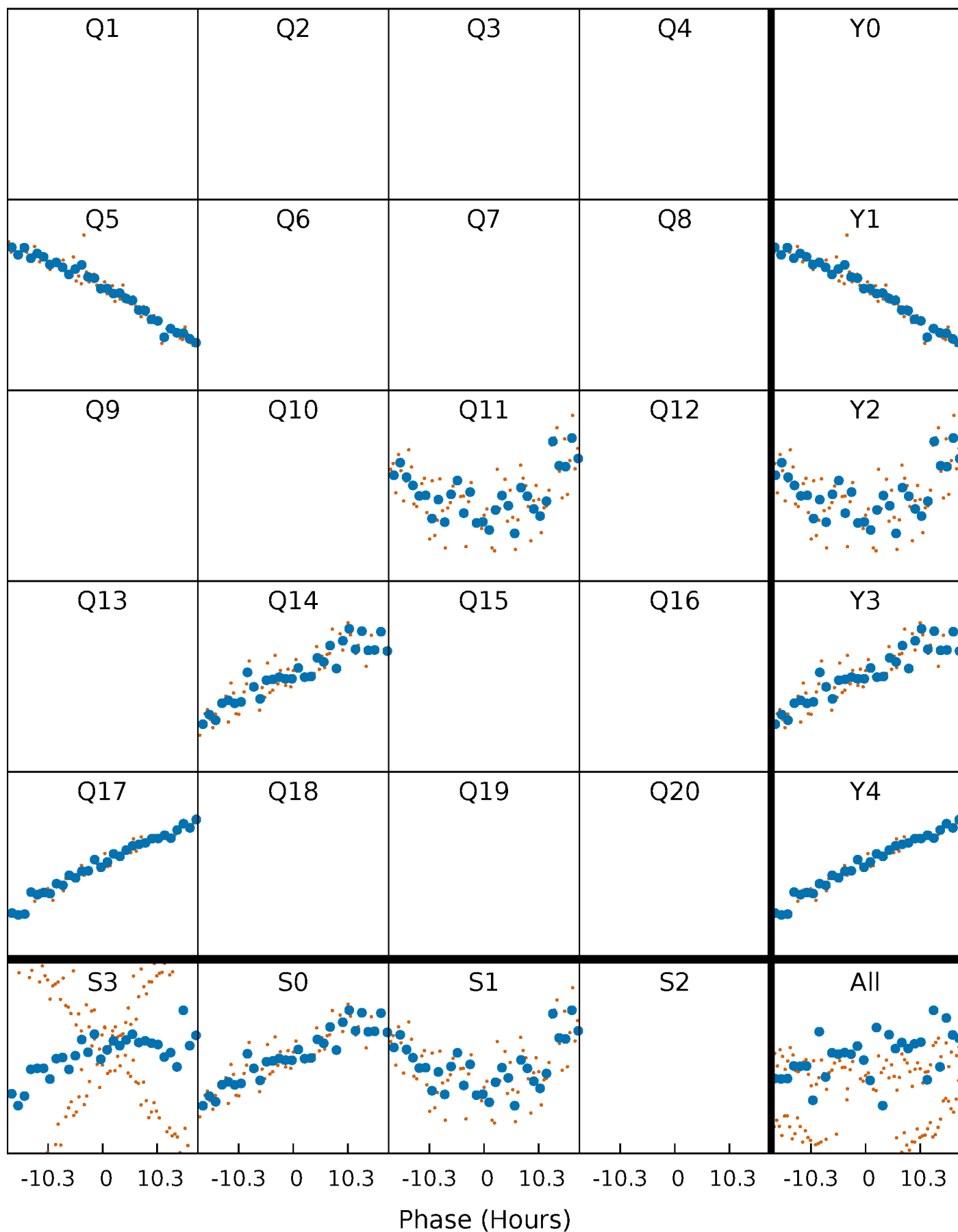


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



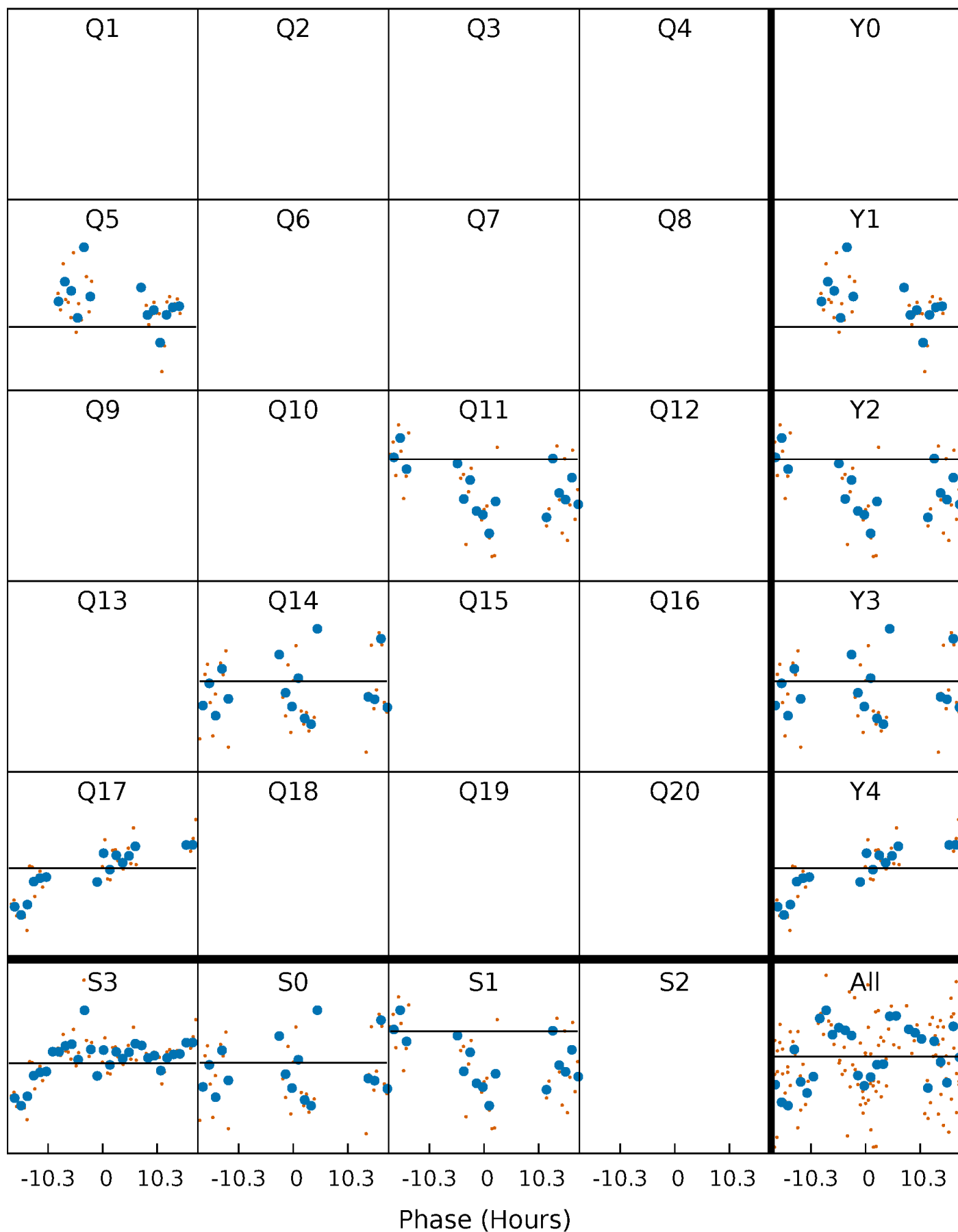
PDC Quarter-Phased Transit Curves

TCE 011468870-03 $P=278.856793$ Days $T_0=167.804402$ (BKJD)



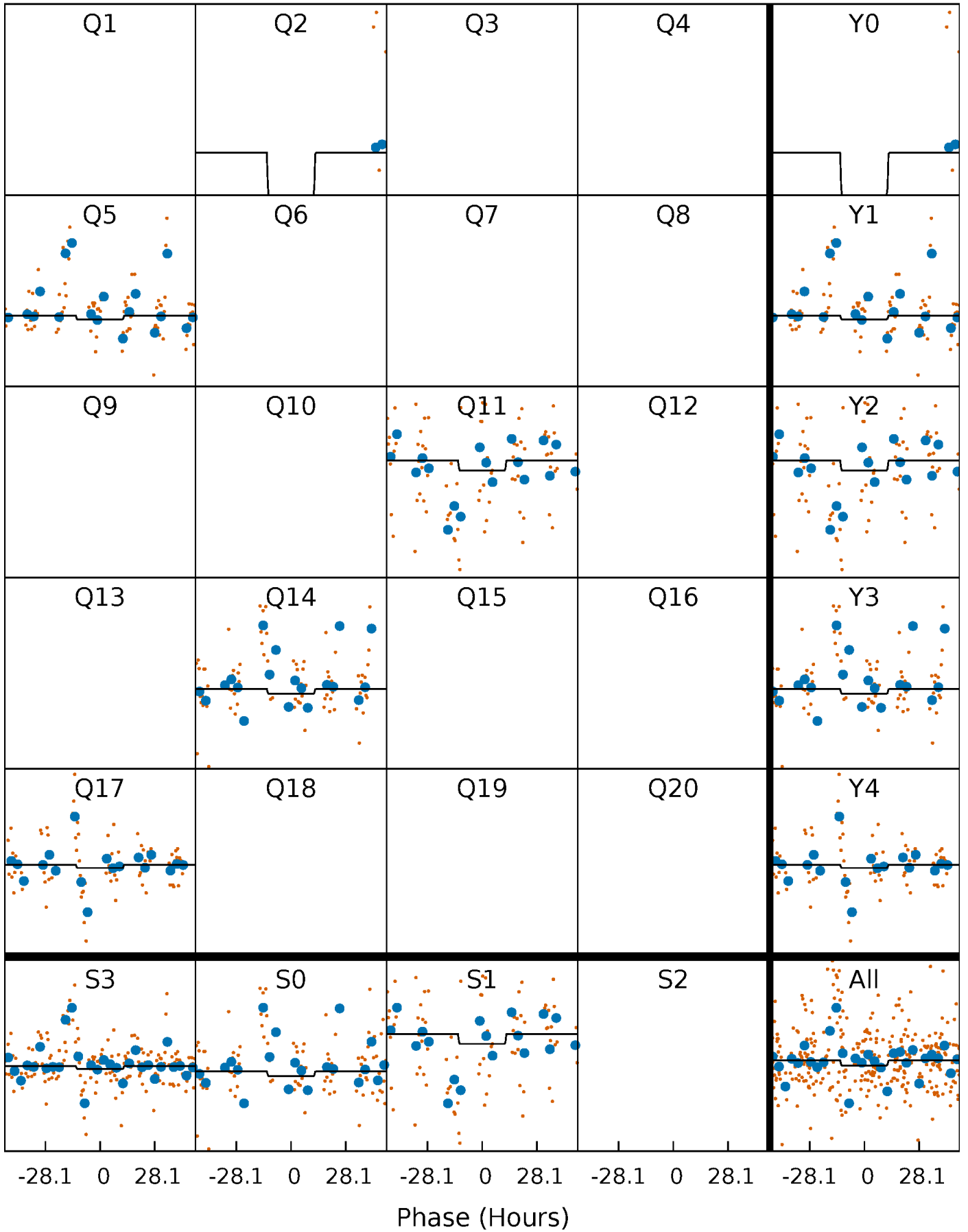
DV Quarter-Phased Transit Curves

TCE 011468870-03 $P=278.856793$ Days $T_0=167.804402$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

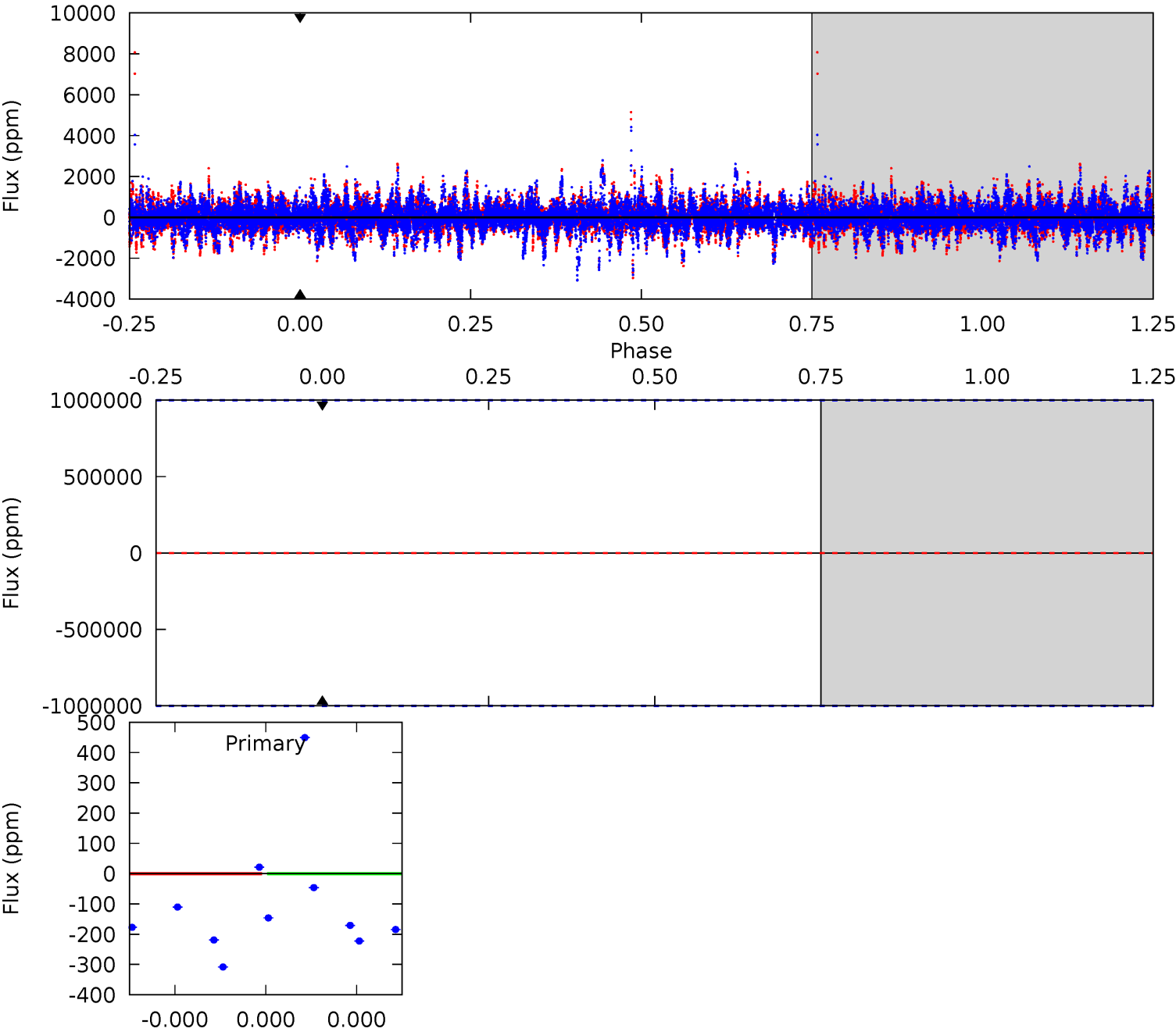
TCE 011468870-03 P=278.856793 Days $T_0=168.365459$ (BKJD)



DV Model-Shift Uniqueness Test

011468870-03, P = 278.856793 Days, E = 167.804402 Days

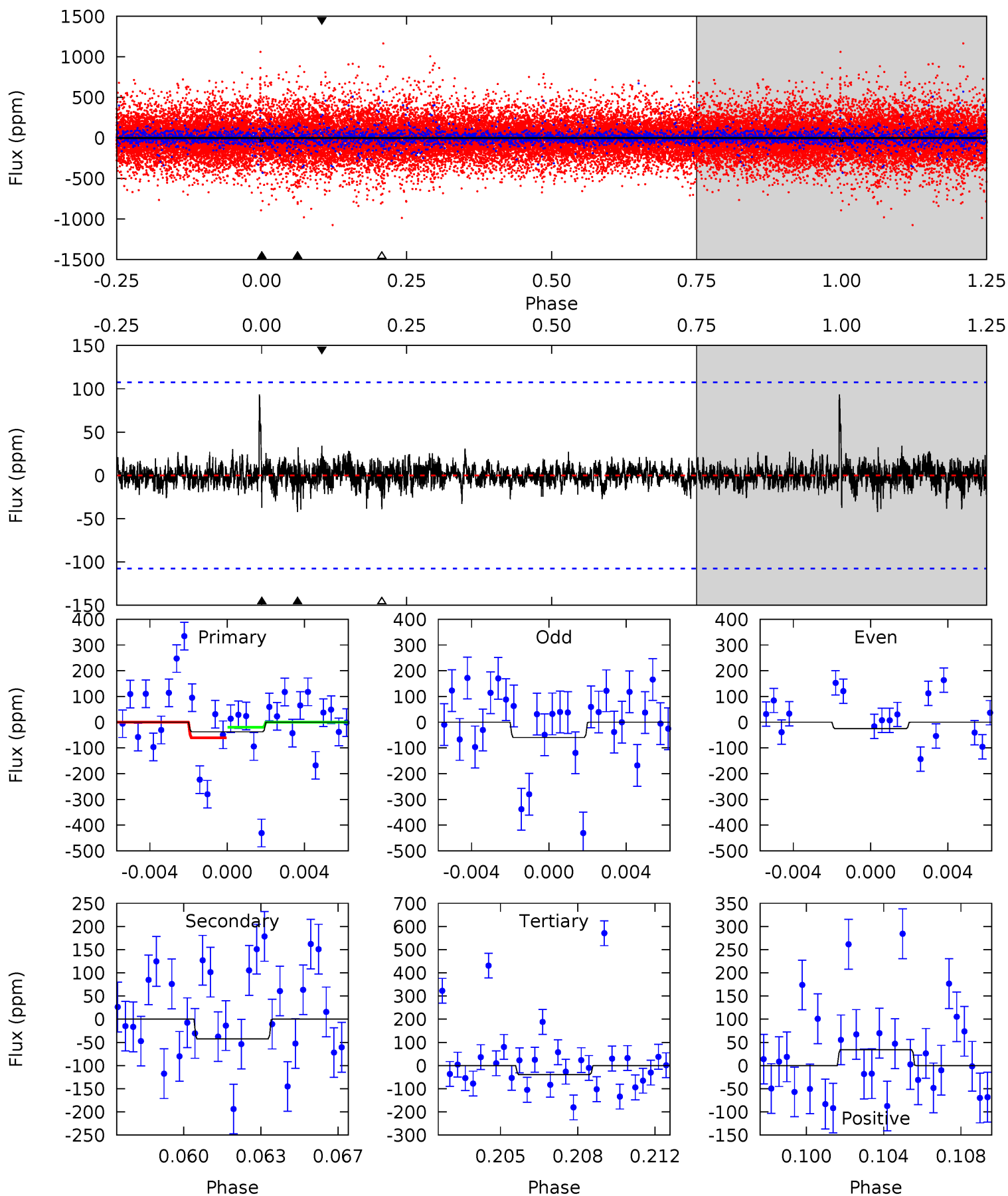
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011468870-03, P = 278.856793 Days, E = 168.365459 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.81	2.05	1.89	1.66	5.21	2.90	0.42	-0.08	0.15	0.16	0.39	0.72	0.75	0.69	0.99



Stellar Parameters For KIC 011468870

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4286^{+116}_{-129}	$4.642^{+0.052}_{-0.024}$	$-0.280^{+0.300}_{-0.300}$	$0.611^{+0.045}_{-0.056}$	$0.597^{+0.068}_{-0.049}$	$3.692^{+0.929}_{-0.392}$
	+3%/-3%	+1%/-1%	+107%/-107%	+7%/-9%	+11%/-8%	+25%/-11%
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 011468870-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$4.97^{+5.58}_{-3.48}$	244^{+8}_{-8}	3557^{+7690}_{-13892}	$23012^{+2232043}_{-1826804}$
Alt.	-42 ± 21	$4.48^{+5.09}_{-3.14}$	244^{+8}_{-8}	2196^{+723}_{-345}	540^{+4881}_{-430}

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 $A_{obs} \gg 1.0$

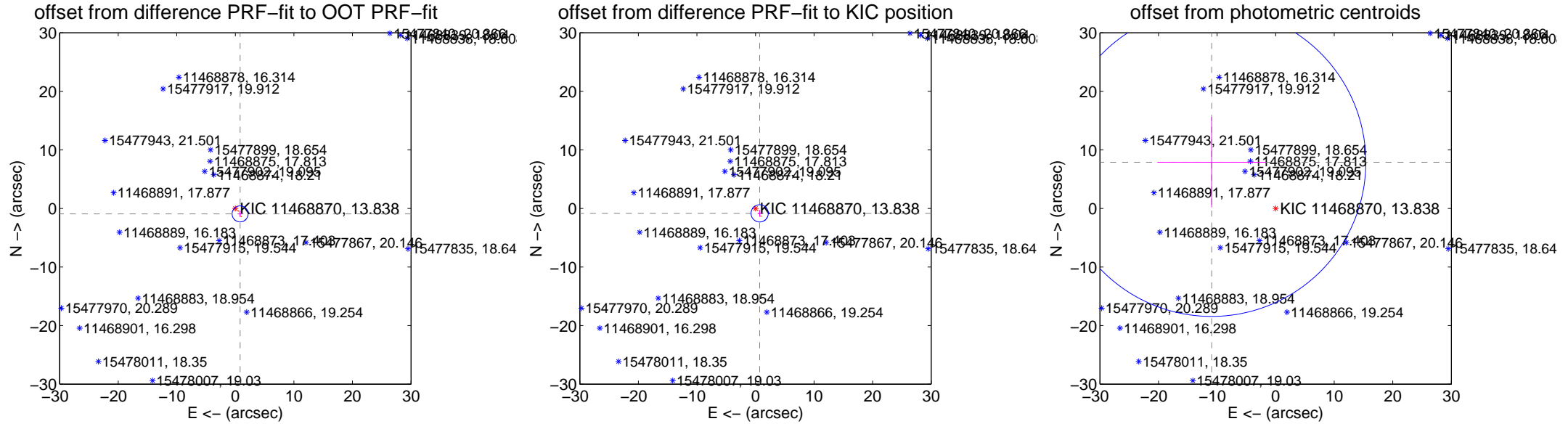
DV Centroid Data

Supplemental centroid analysis for 011468870-03. Kepler magnitude: 13.84. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

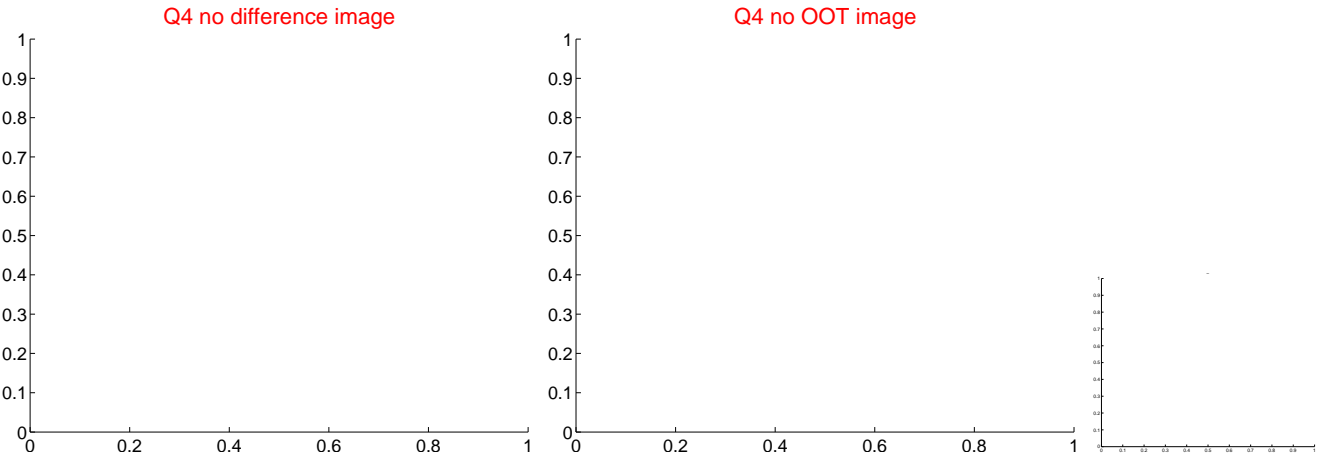
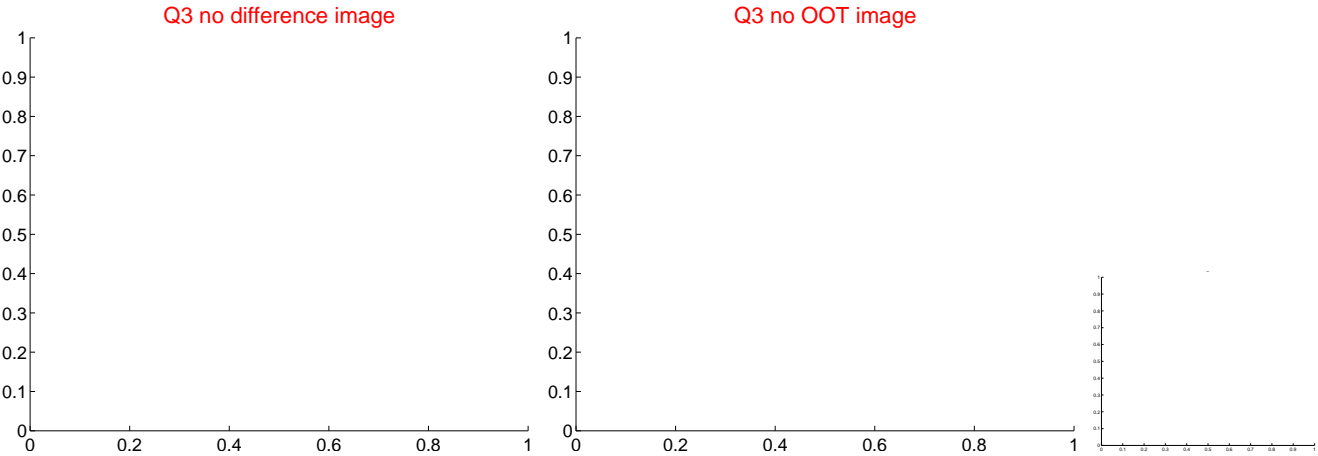
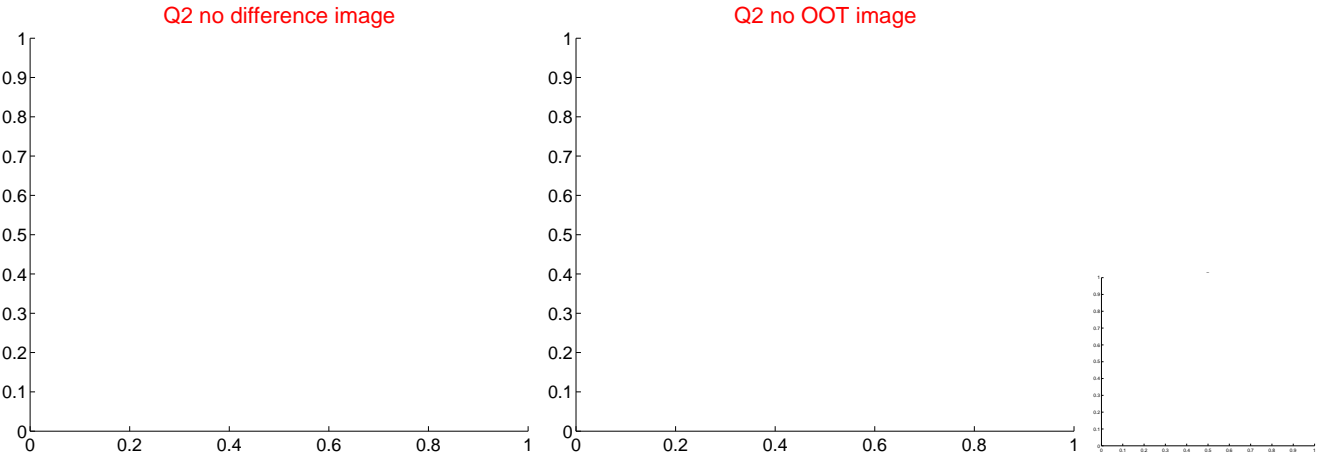
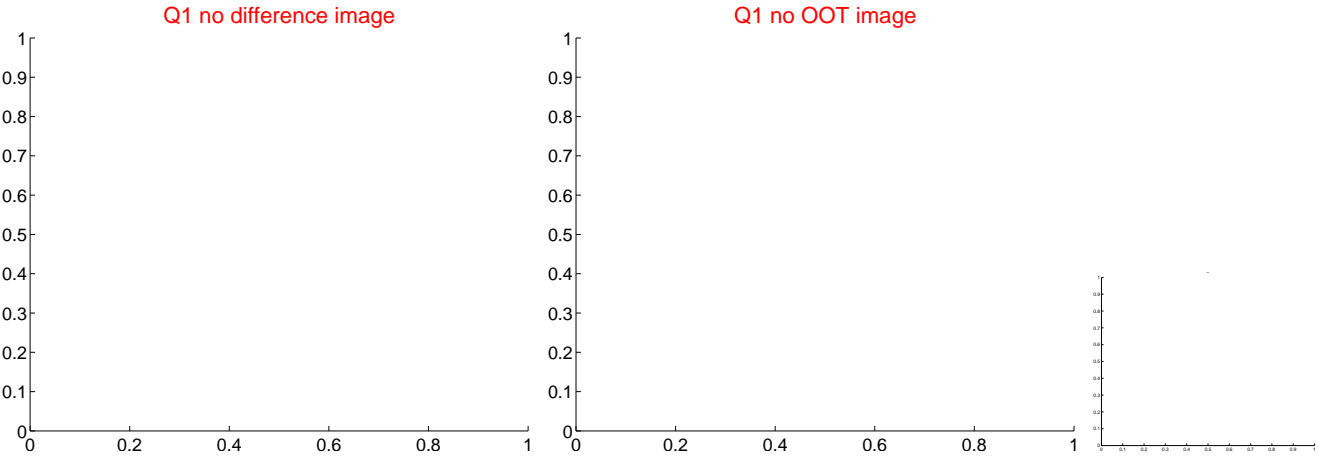
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.236 ± 0.456	2.71	-0.816 ± 0.296	-0.929 ± 0.548
PRF-fit source offset from KIC position	1.102 ± 0.490	2.25	-0.713 ± 0.322	-0.840 ± 0.582
photometric centroid source offset	13.48 ± 8.78	1.54	10.93 ± 9.28	7.89 ± 7.72

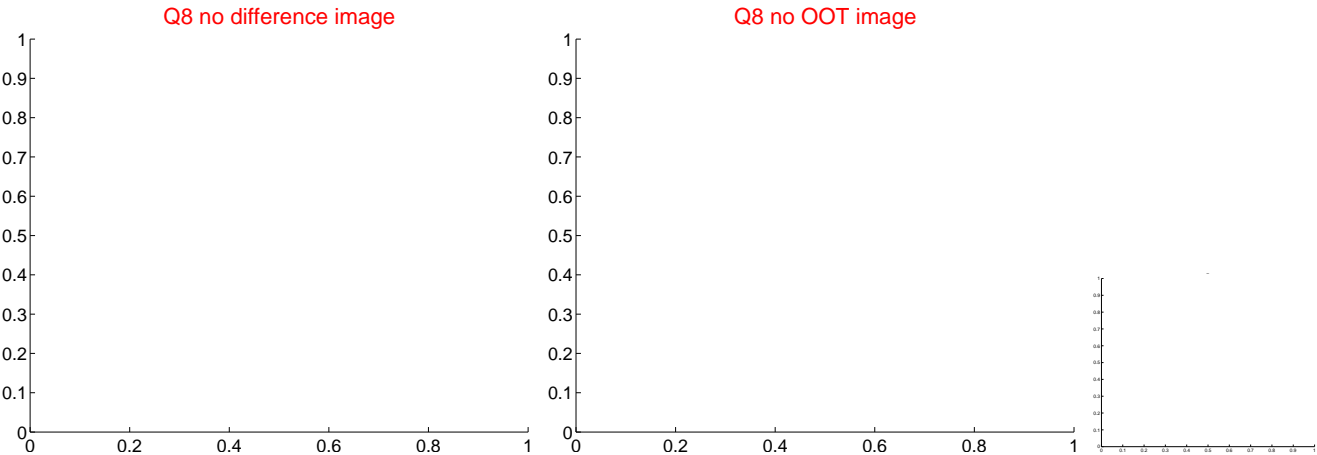
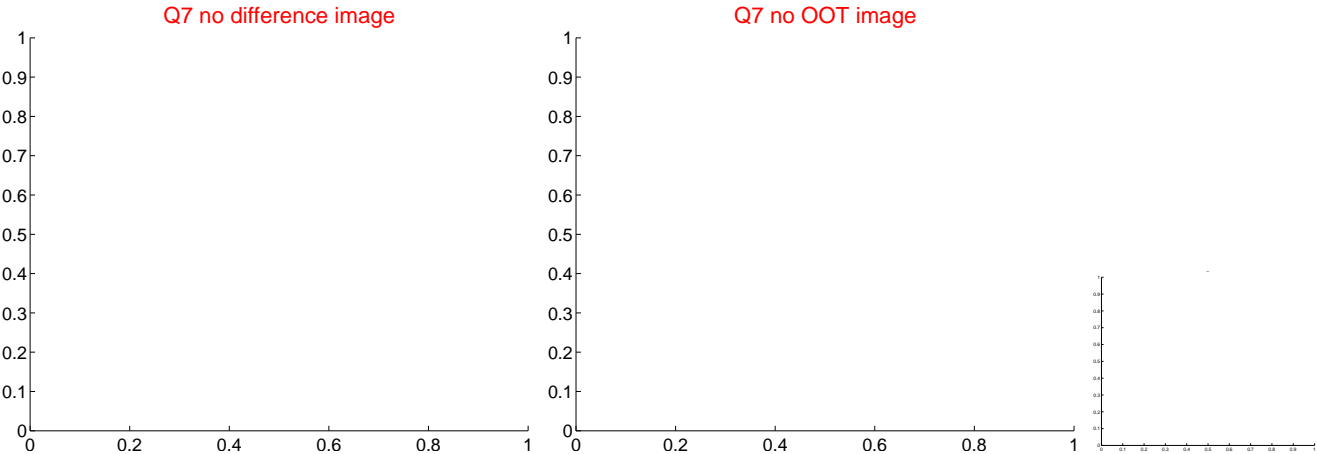
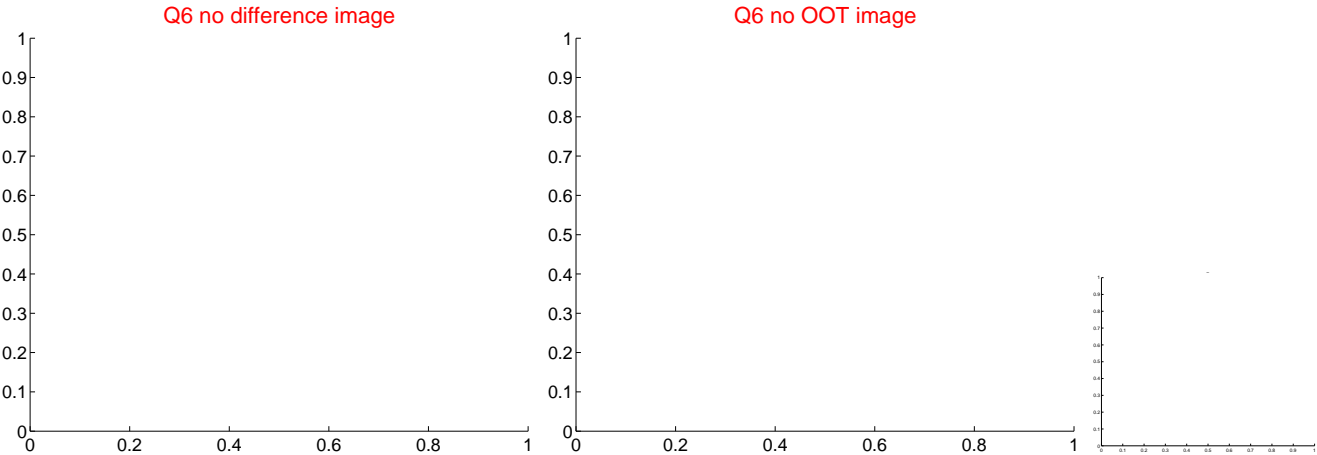
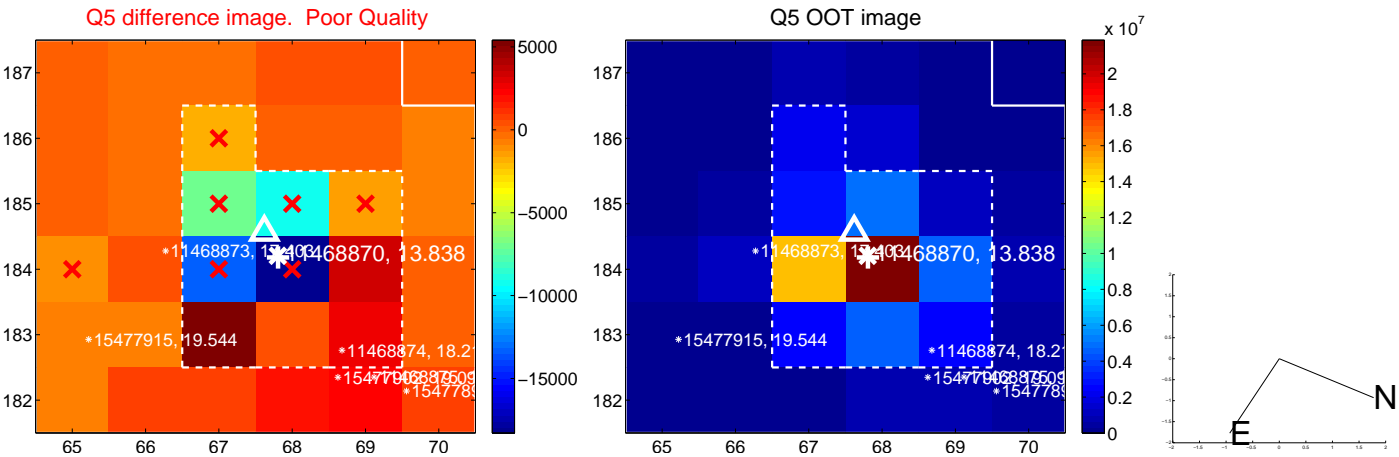


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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



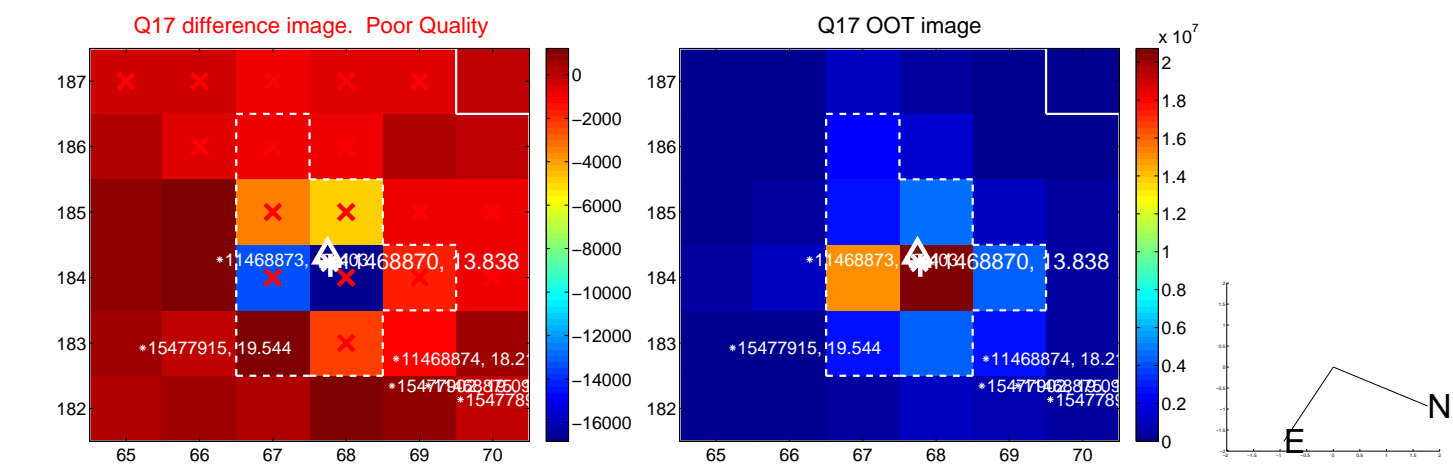
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



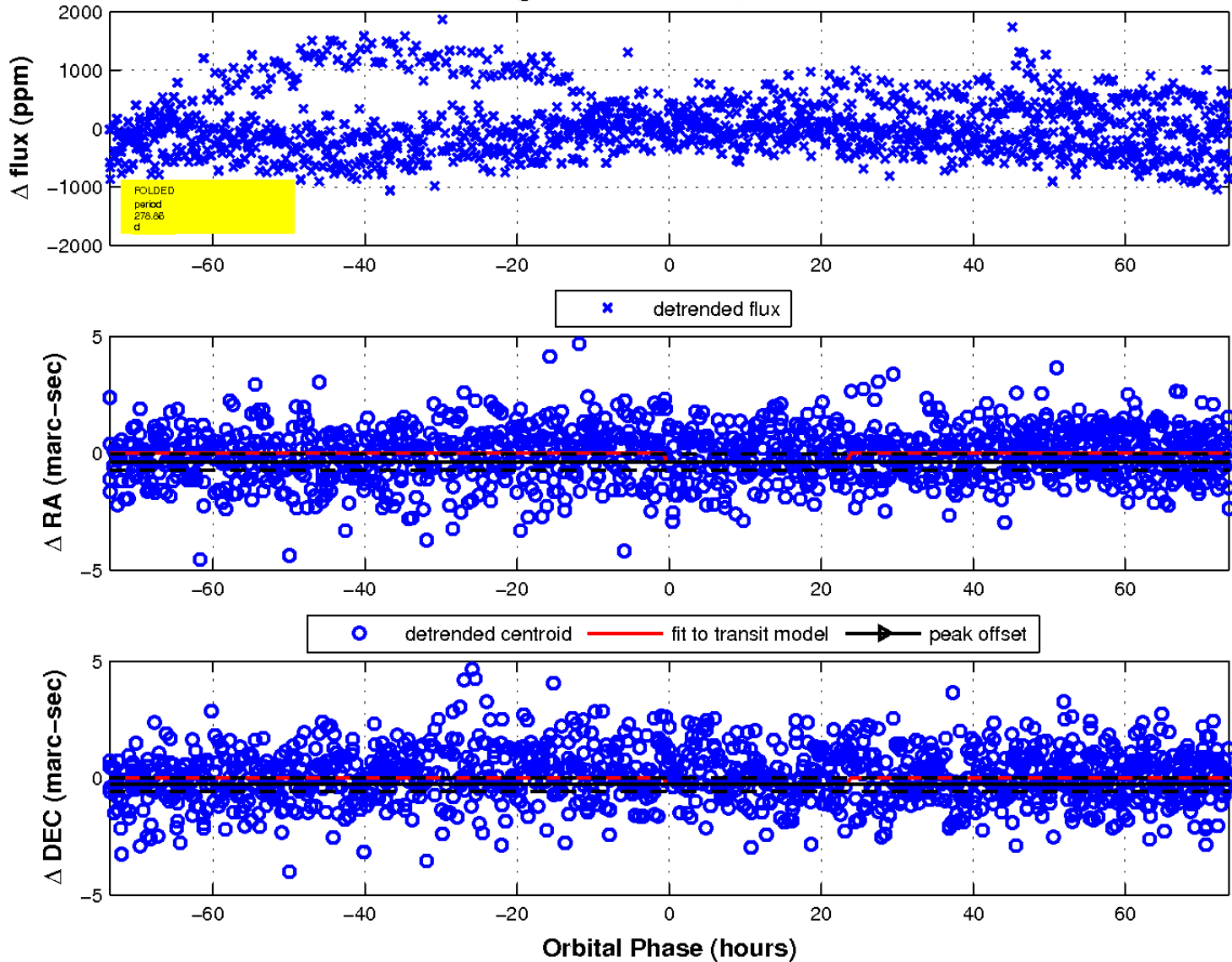
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



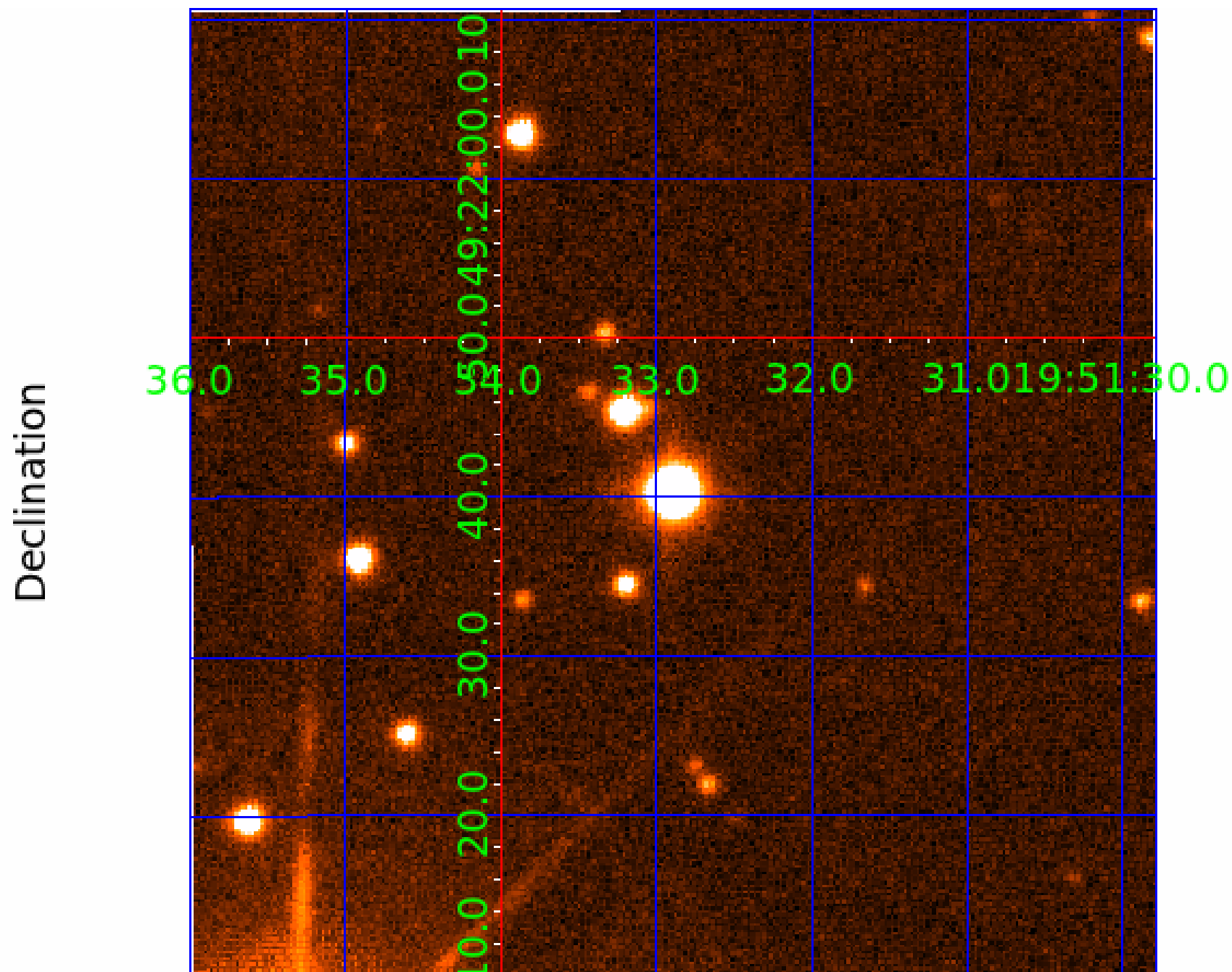
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 4



UKIRT Image



KIC 011468870

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})
011468870-01	OBS	No	0.690451	131.940826	21.4	2.884	7.7	7.1	0.61	4286	0.36	680.70
011468870-02	OBS	No	501.965459	208.226033	653.0	8.300	15.6	10.3	0.61	4286	1.70	0.10
011468870-03	OBS	No	278.856793	167.804402	467.6	9.000	9.9	-1.0	0.61	4286	1.27	0.23
011468870-04	OBS	No	265.646557	206.823817	369.7	9.559	8.6	6.2	0.61	4286	1.28	0.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011468870-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST
011468870-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
011468870-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011468870-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

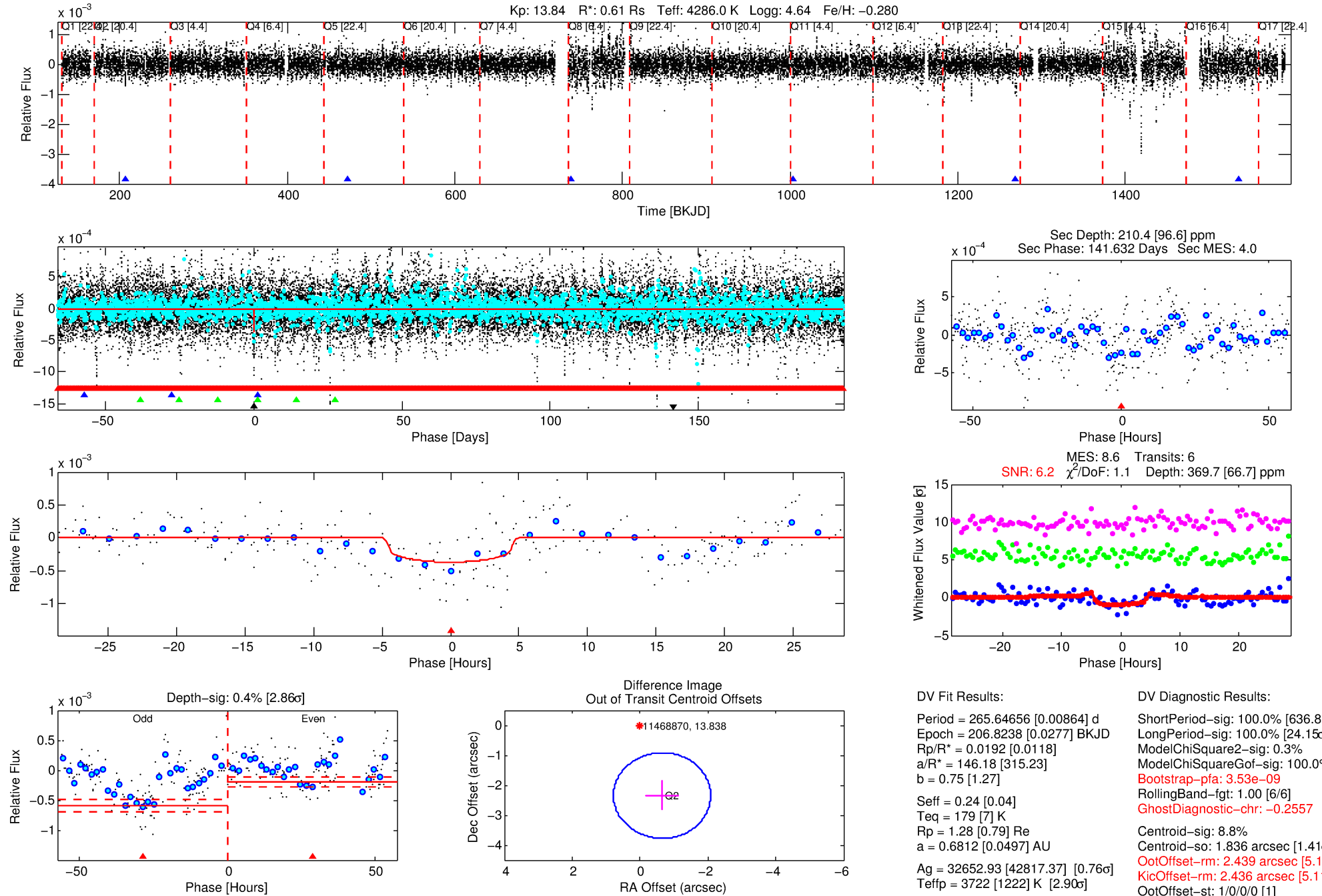
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011468870-04

No Significant Match Found

DV One-Page Summary

KIC: 11468870 Candidate: 4 of 4 Period: 265.647 d



DV Fit Results:

Period = 265.64656 [0.00864] d
Epoch = 206.8238 [0.0277] BKJD
Rp/R* = 0.0192 [0.0118]
a/R* = 146.18 [315.23]
b = 0.75 [1.27]
Seff = 0.24 [0.04]
Teq = 179 [7] K
Rp = 1.28 [0.79] Re
a = 0.6812 [0.0497] AU
Ag = 32652.93 [42817.37] [0.76 σ]
Teffp = 3722 [1222] K [2.90 σ]

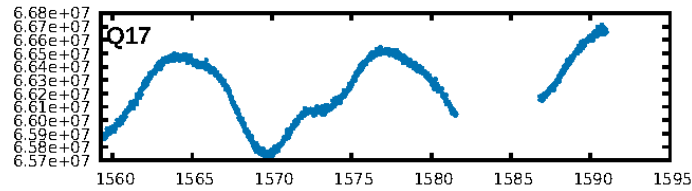
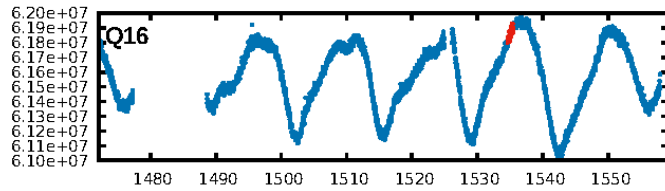
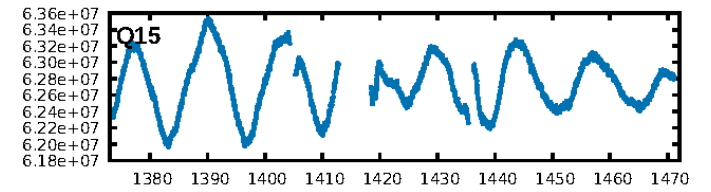
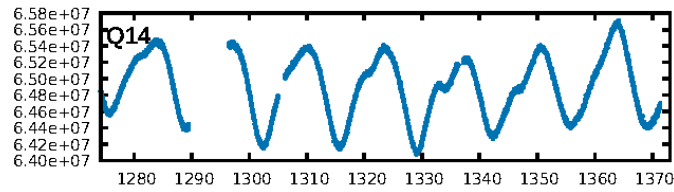
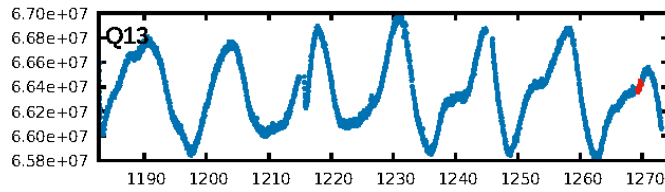
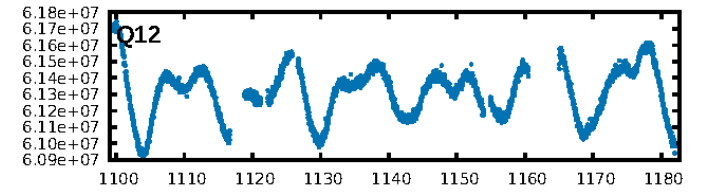
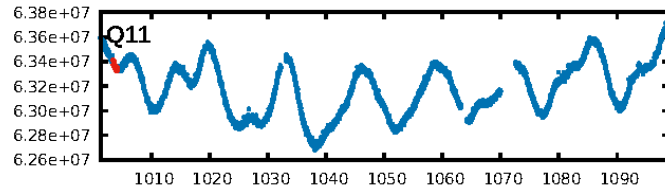
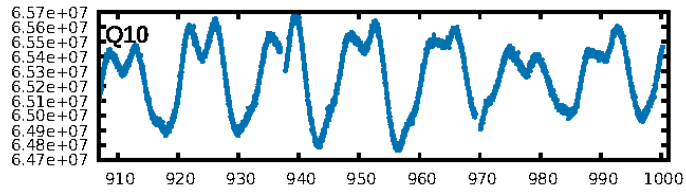
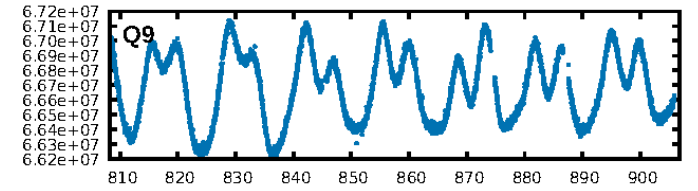
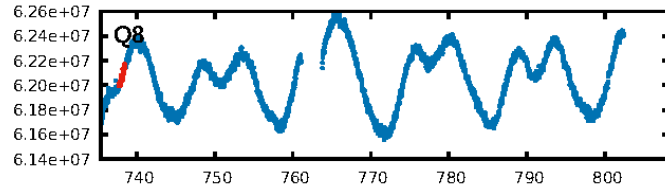
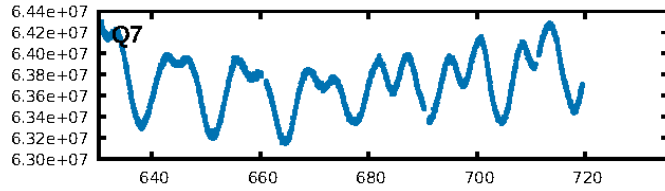
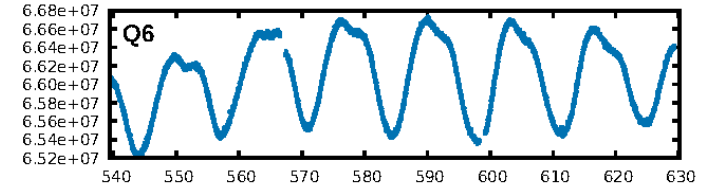
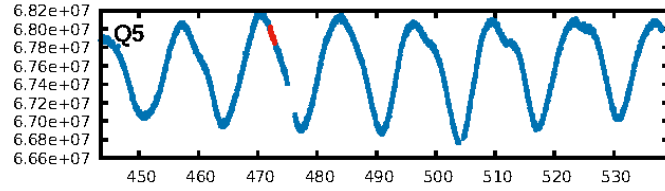
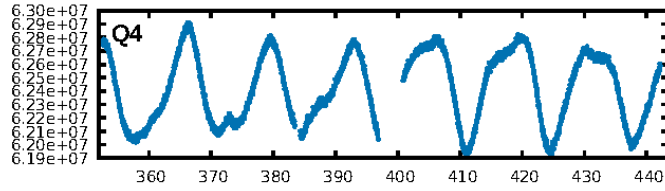
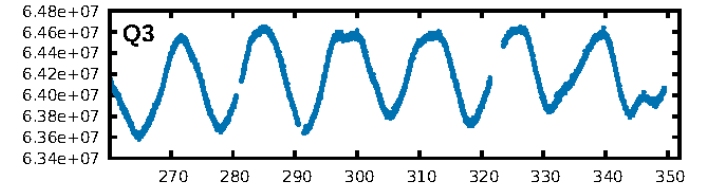
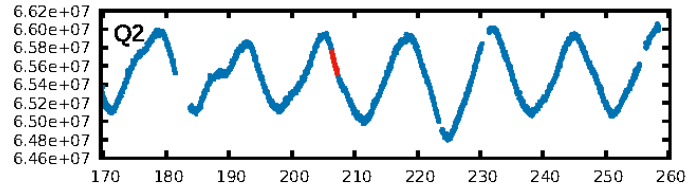
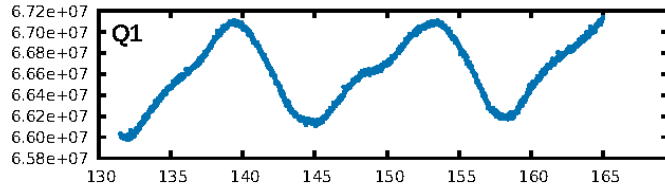
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [636.89 σ]
LongPeriod-sig: 100.0% [24.15 σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.53e-09
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.2557
Centroid-sig: 8.8%
Centroid-so: 1.836 arcsec [1.41 σ]
OotOffset-rm: 2.439 arcsec [5.12 σ]
KicOffset-rm: 2.436 arcsec [5.11 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/4]

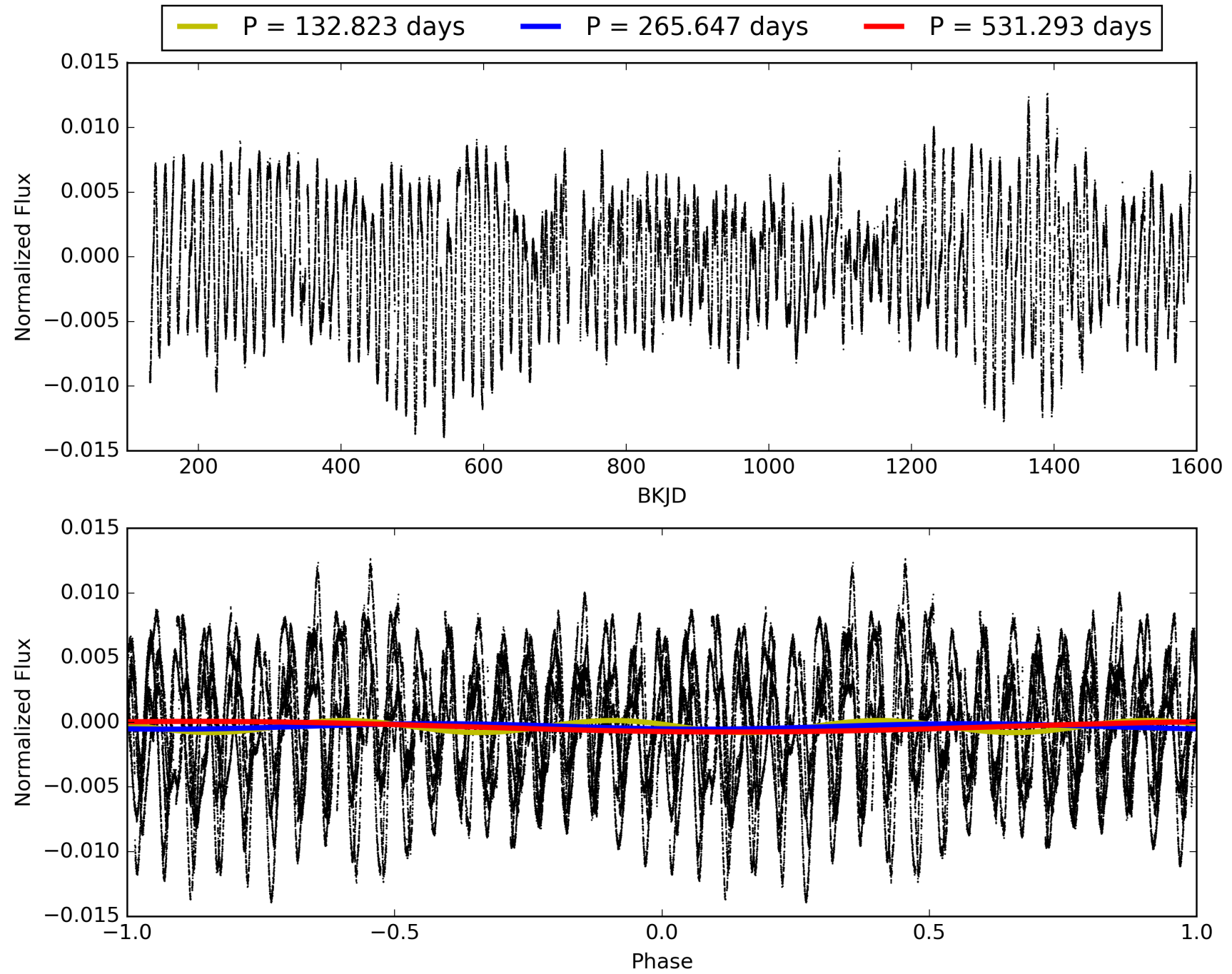
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:24:38 Z

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

TCE 011468870-04, PDC Light Curves

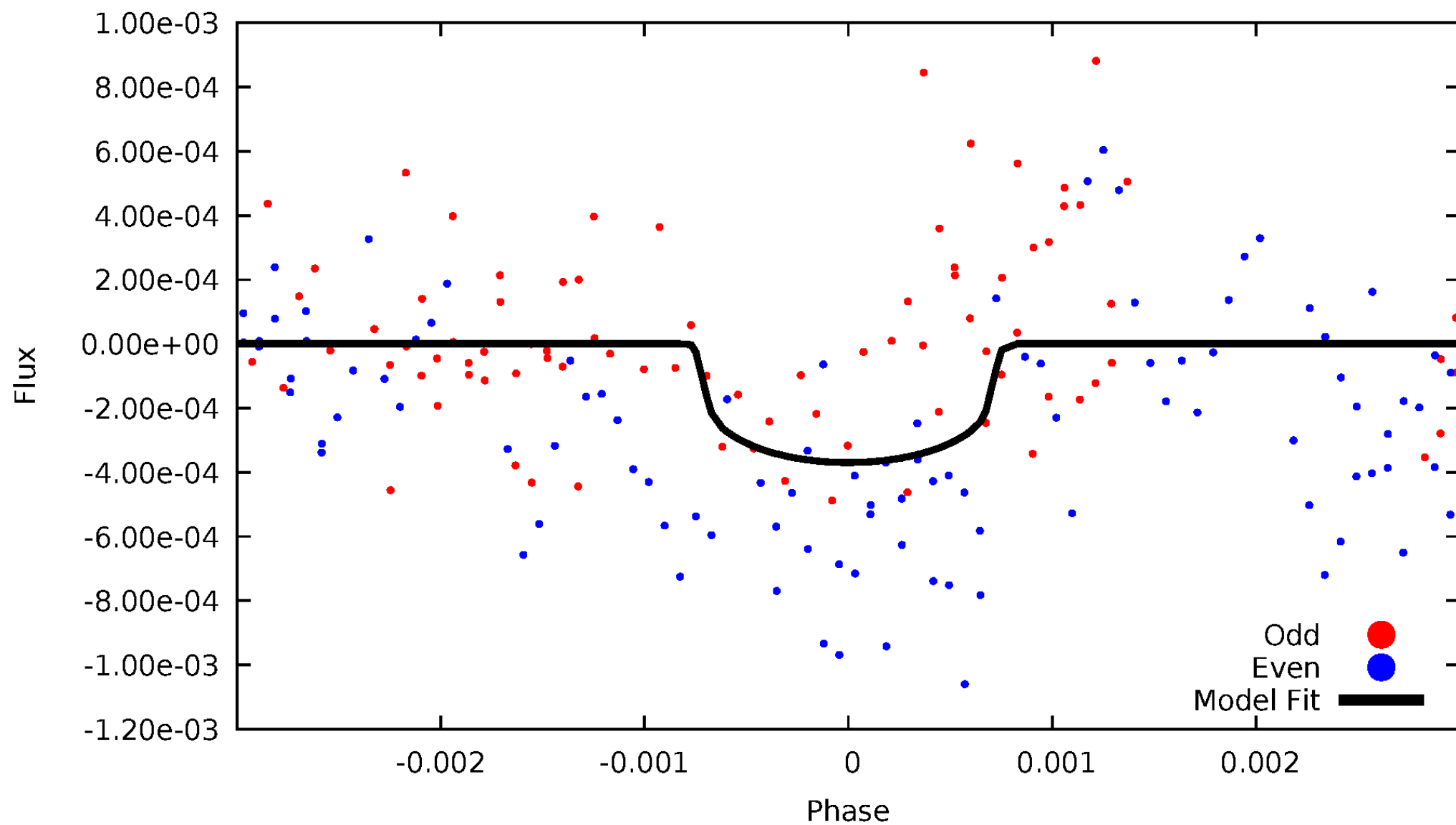


TCE 011468870-04



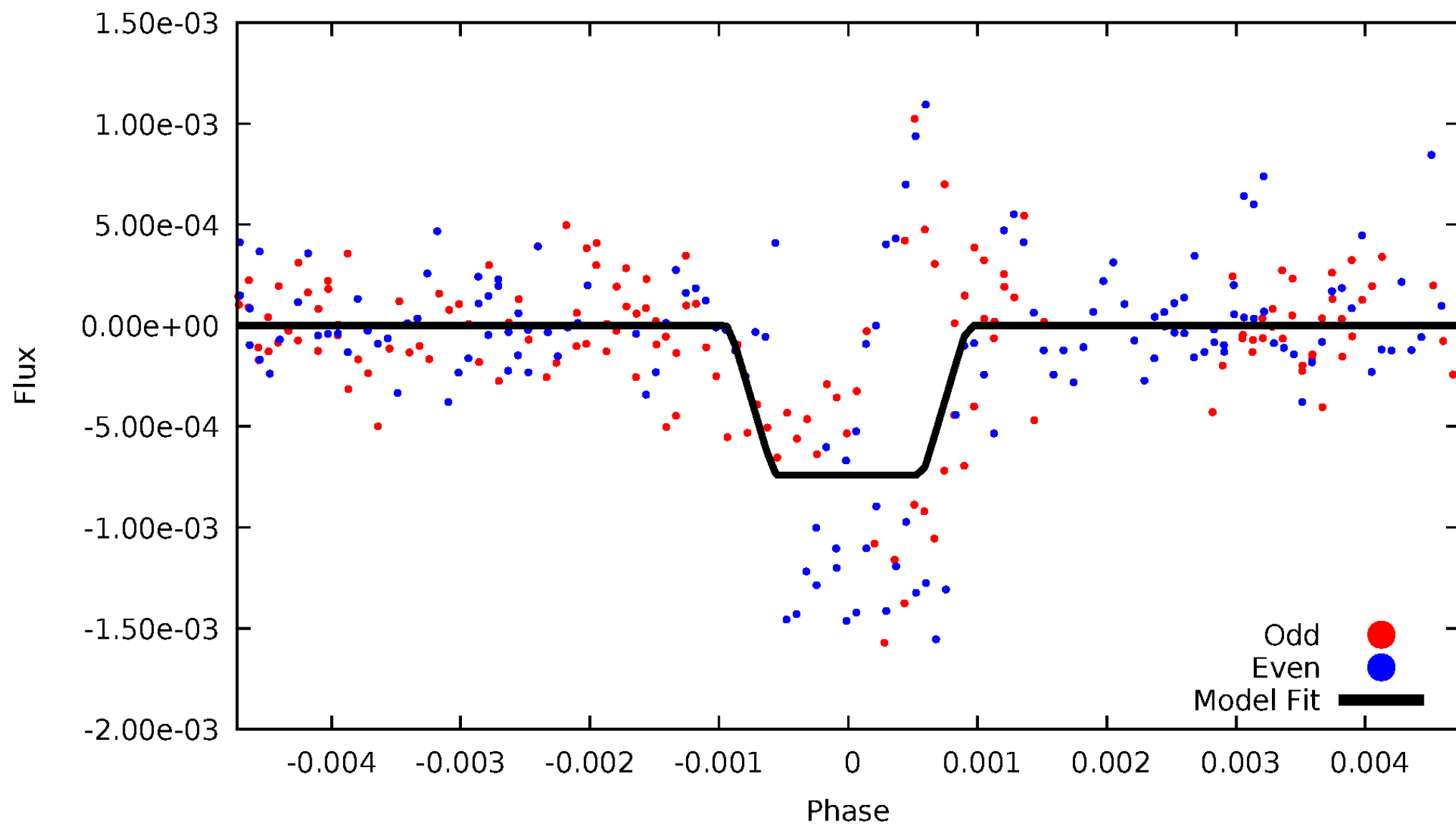
DV Odd/Even

TCE 011468870-04



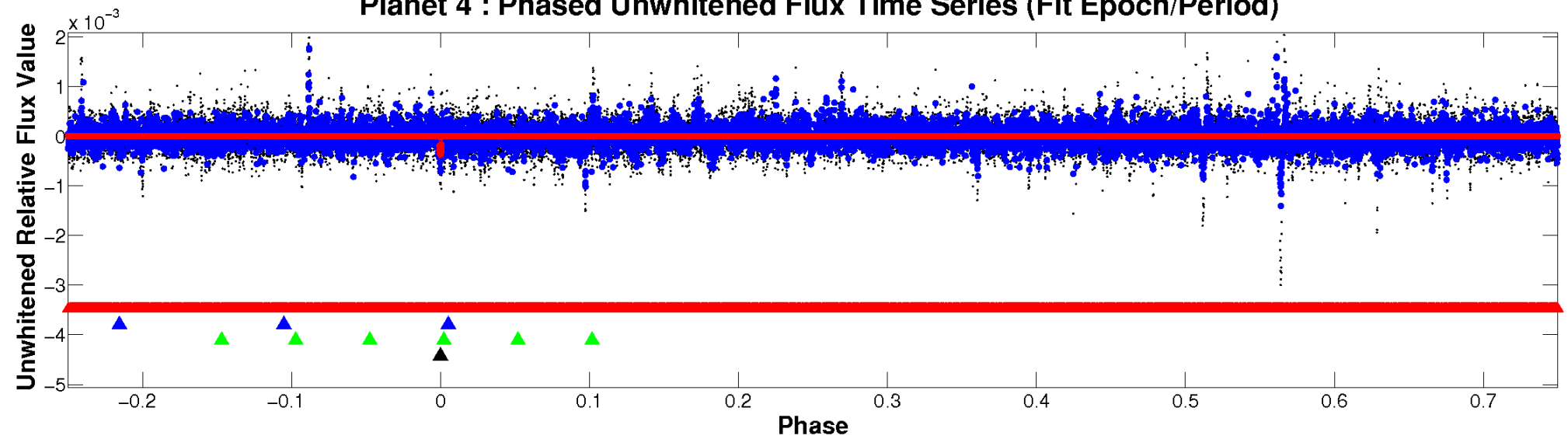
ALT Odd/Even

TCE 011468870-04

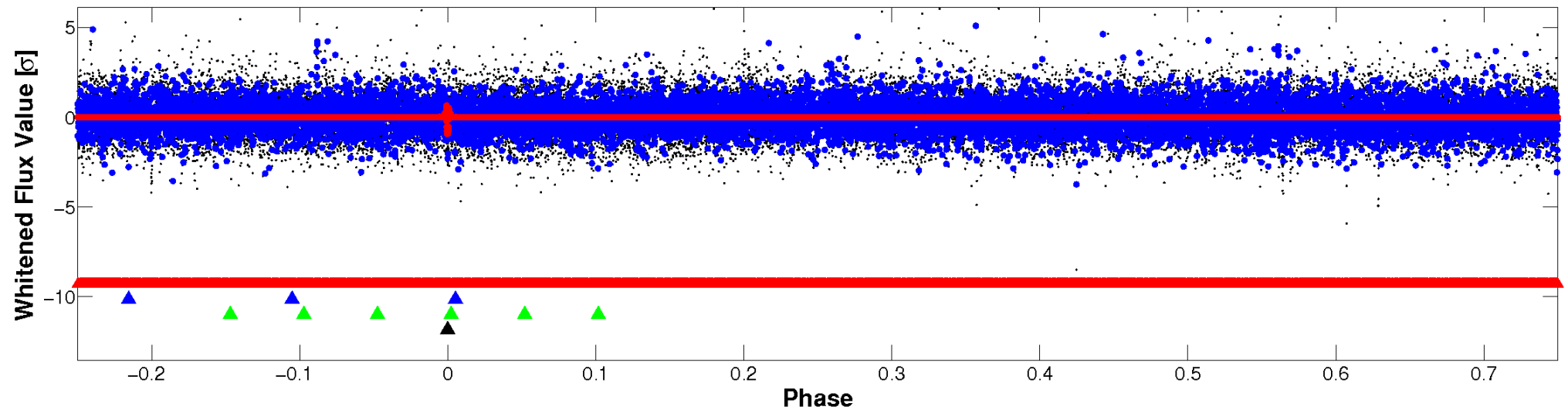


Non-Whitened Vs. Whitened Light Curve

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

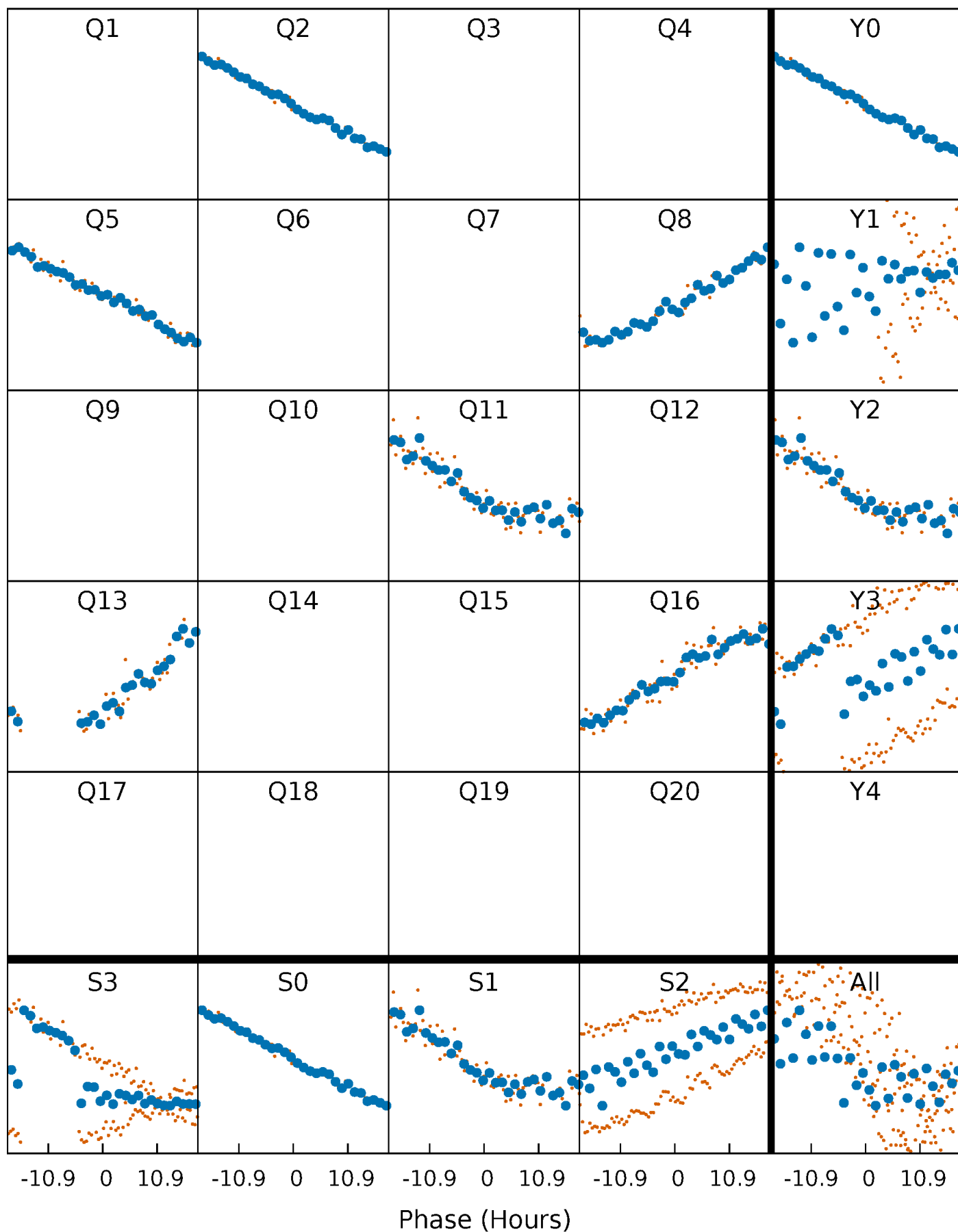


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



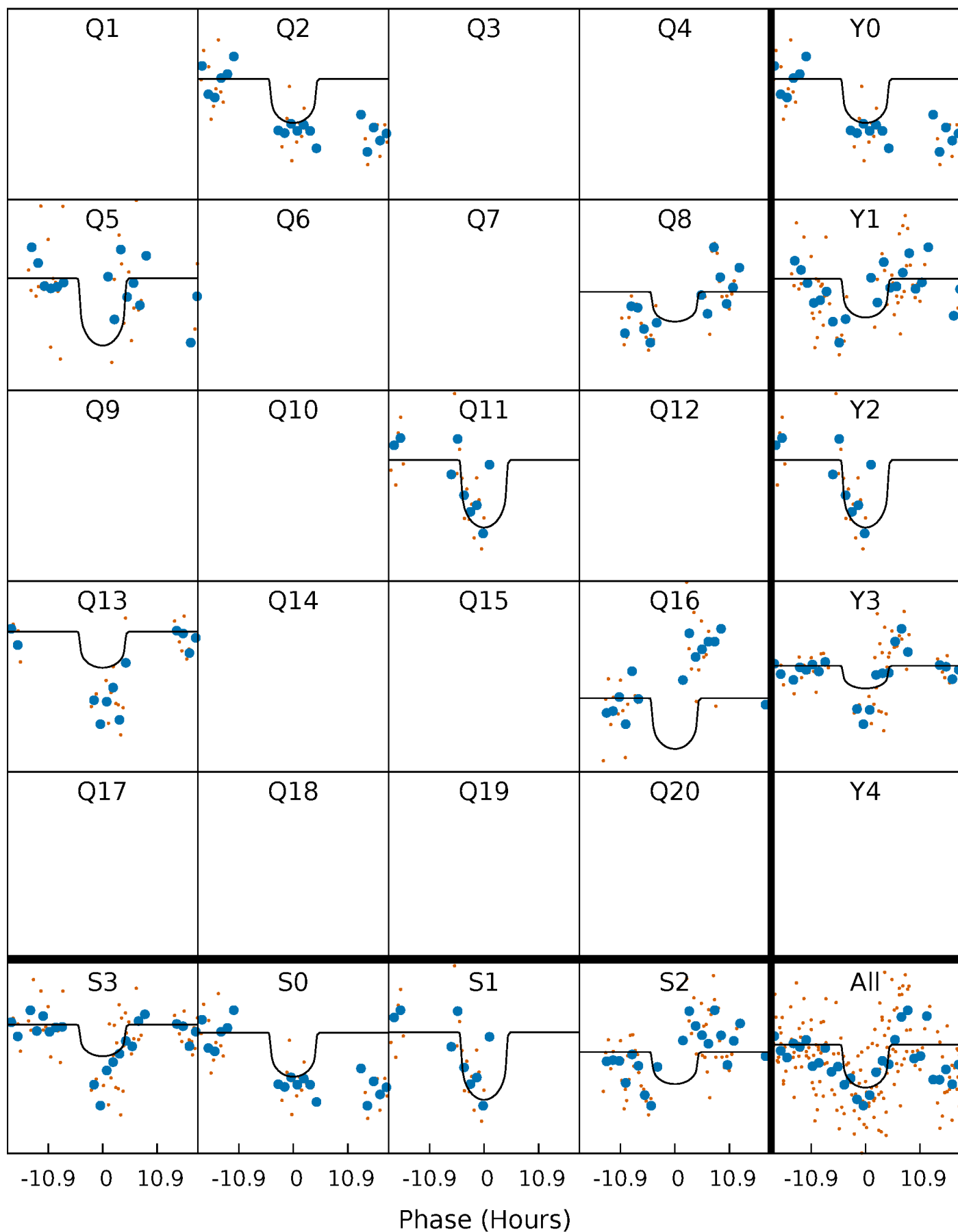
PDC Quarter-Phased Transit Curves

TCE 011468870-04 P=265.646557 Days $T_0=206.823817$ (BKJD)



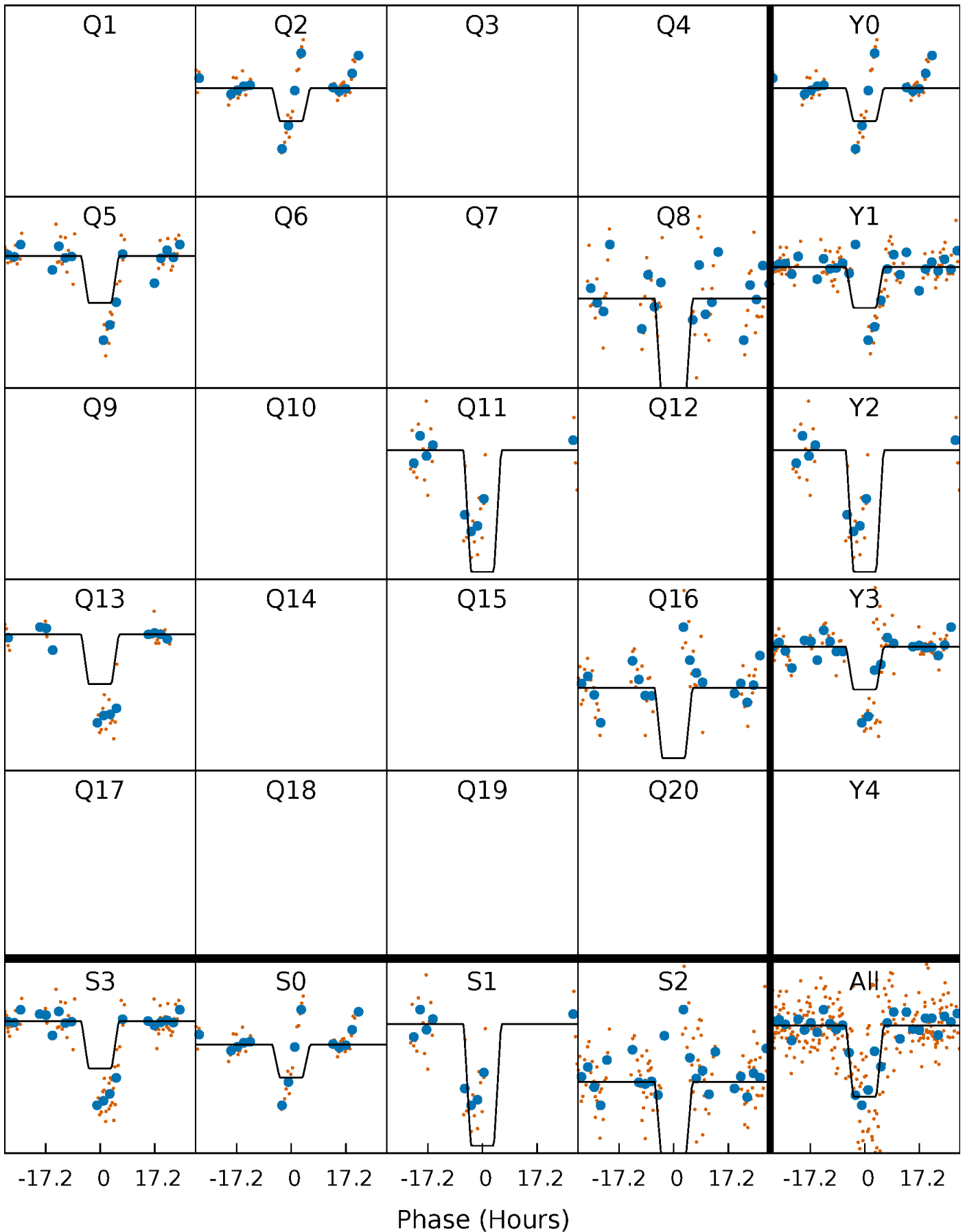
DV Quarter-Phased Transit Curves

TCE 011468870-04 $P=265.646557$ Days $T_0=206.823817$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

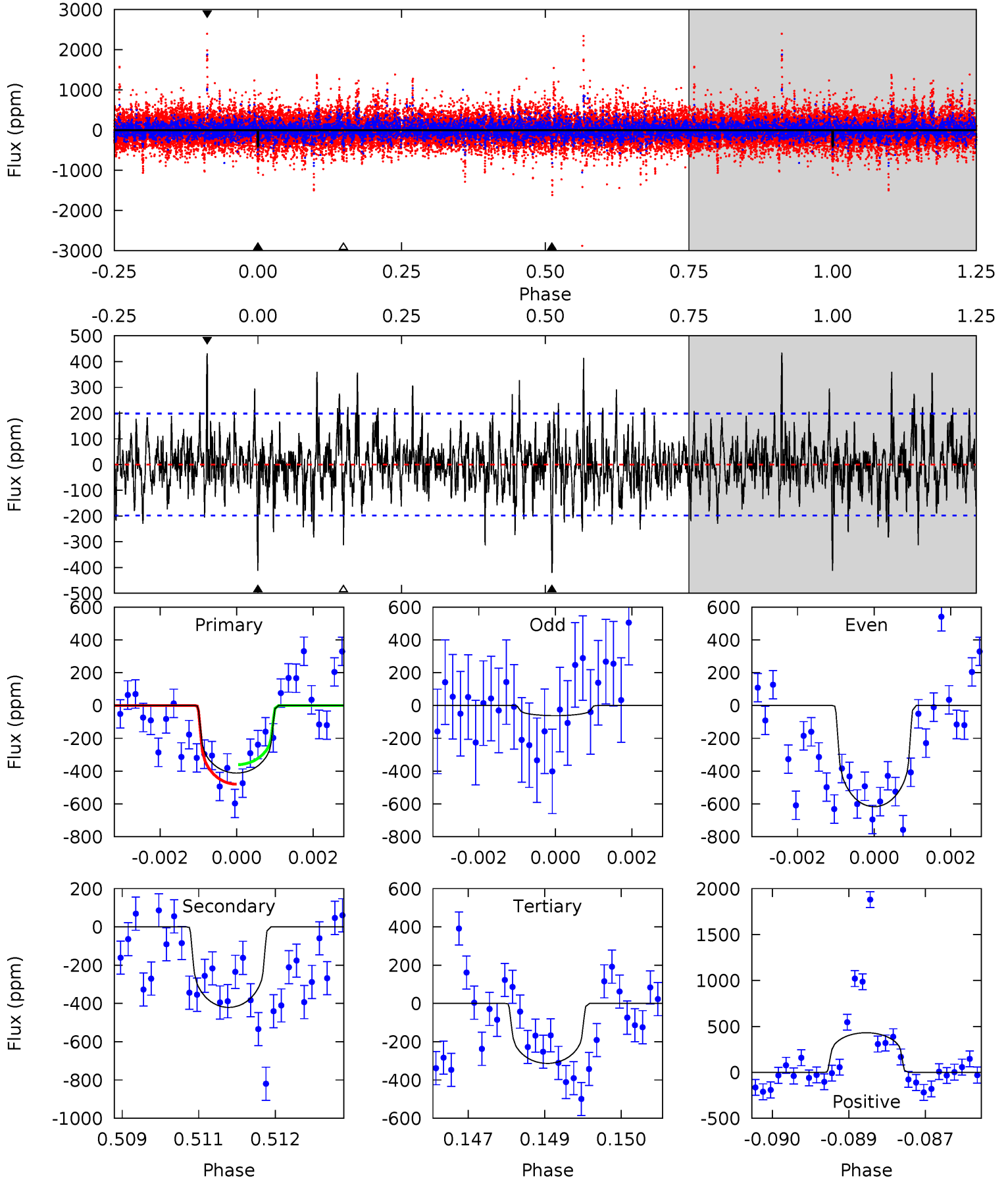
TCE 011468870-04 $P=265.636280$ Days $T_0=206.836602$ (BKJD)



DV Model-Shift Uniqueness Test

011468870-04, P = 265.646557 Days, E = 206.823817 Days

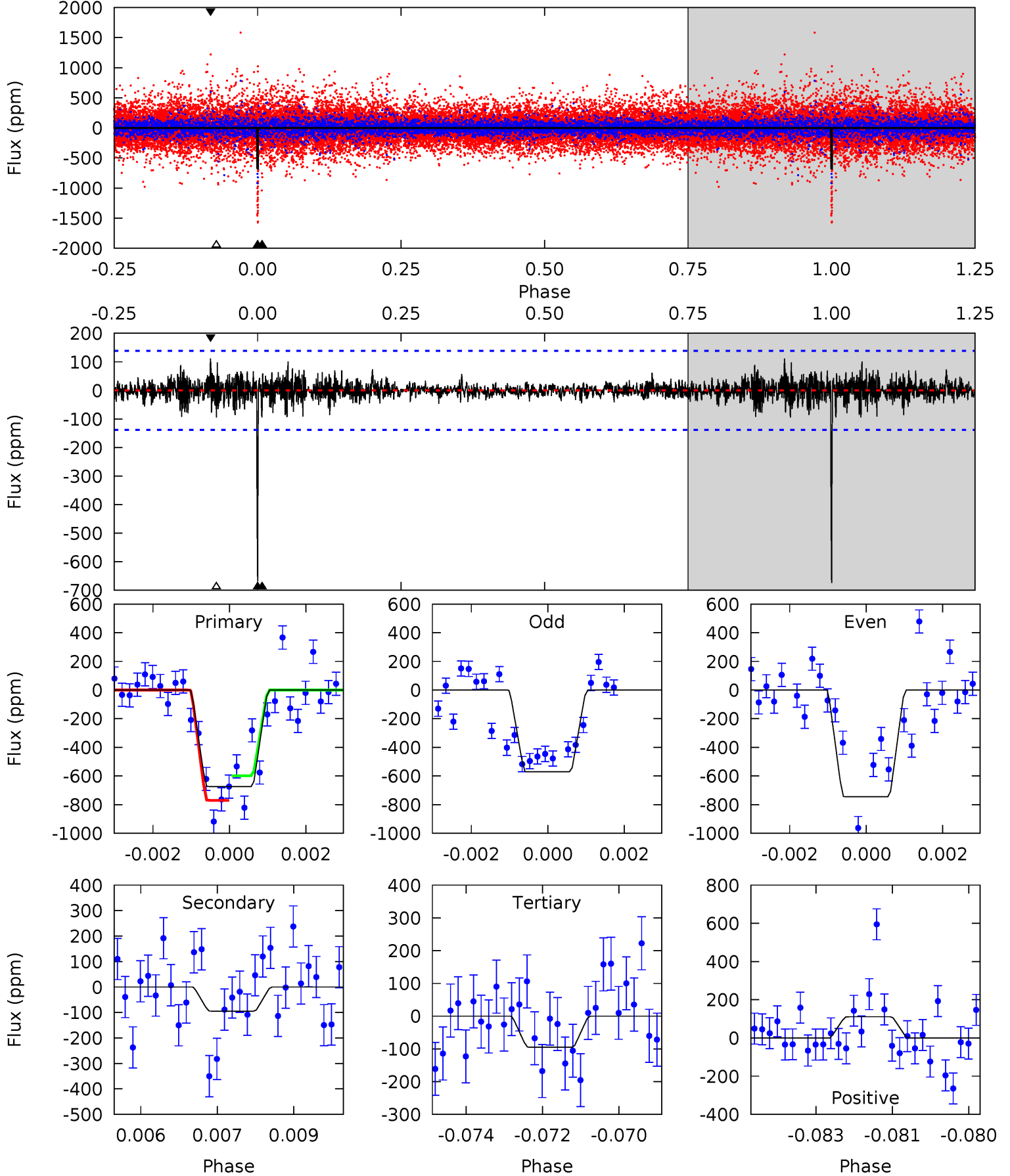
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	11.4	8.51	11.7	5.38	3.17	2.39	2.69	-0.52	2.92	-0.29	7.38	0.79	0.51	1.59



Alt Model-Shift Uniqueness Test

011468870-04, P = 265.636280 Days, E = 206.836602 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.0	3.66	3.66	4.29	5.34	3.11	0.84	22.4	21.8	0.00	-0.63	3.46	1.10	0.14	3.33



Stellar Parameters For KIC 011468870

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4286^{+116}_{-129}	$4.642^{+0.052}_{-0.024}$	$-0.280^{+0.300}_{-0.300}$	$0.611^{+0.045}_{-0.056}$	$0.597^{+0.068}_{-0.049}$	$3.692^{+0.929}_{-0.392}$
	+3%/-3%	+1%/-1%	+107%/-107%	+7%/-9%	+11%/-8%	+25%/-11%
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 011468870-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-421 ± 37	$1.32^{+0.77}_{-0.67}$	248^{+8}_{-8}	4358^{+1454}_{-690}	$63650^{+180377}_{-39072}$
Alt.	-95 ± 26	$1.88^{+0.75}_{-0.85}$	249^{+8}_{-8}	3035^{+588}_{-316}	6893^{+16699}_{-3673}

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

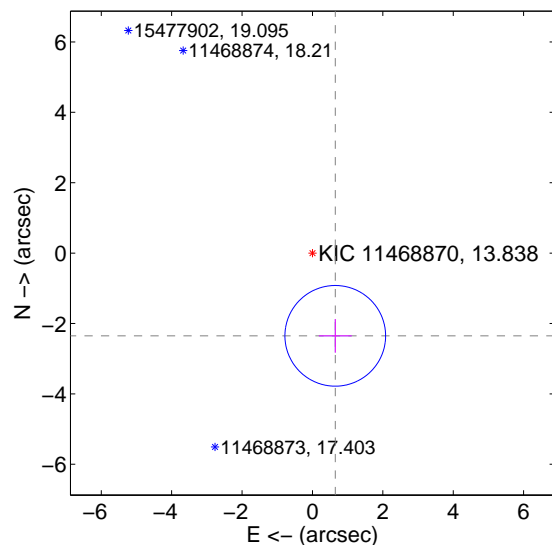
Supplemental centroid analysis for 011468870-04. Kepler magnitude: 13.84. Transit SNR 6.17

There are 1 quarters with good PRF difference image offsets

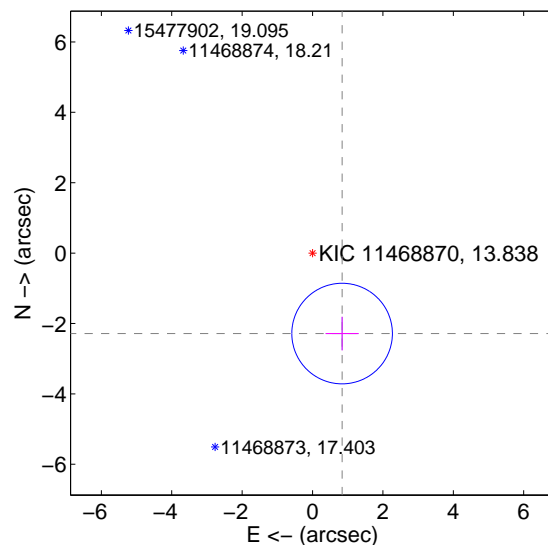
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.439 ± 0.477	5.12	-0.648 ± 0.468	-2.351 ± 0.477
PRF-fit source offset from KIC position	2.436 ± 0.476	5.11	-0.840 ± 0.468	-2.286 ± 0.477
photometric centroid source offset	1.84 ± 1.30	1.41	-1.83 ± 1.30	-0.09 ± 1.10

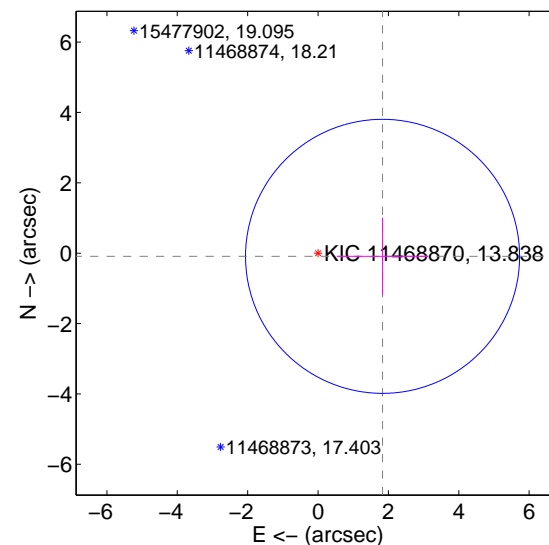
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



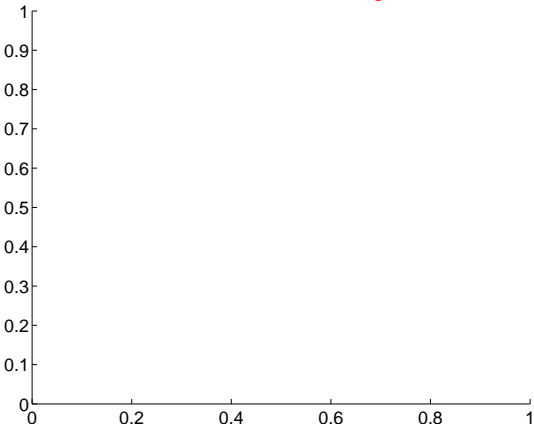
offset from photometric centroids



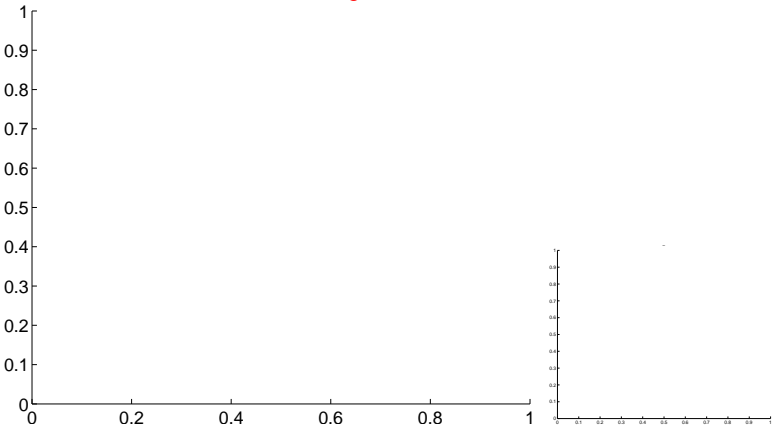
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

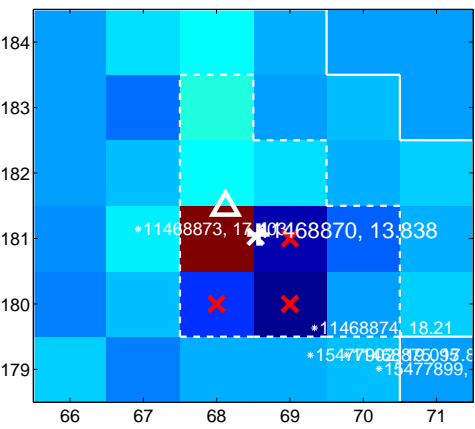
Q1 no difference image



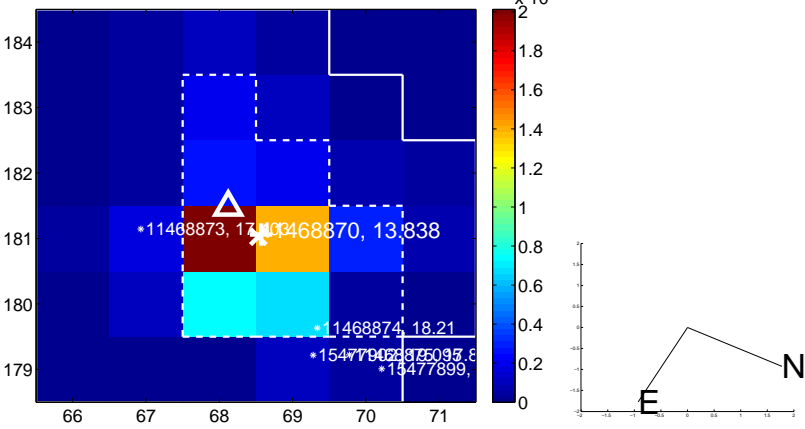
Q1 no OOT image



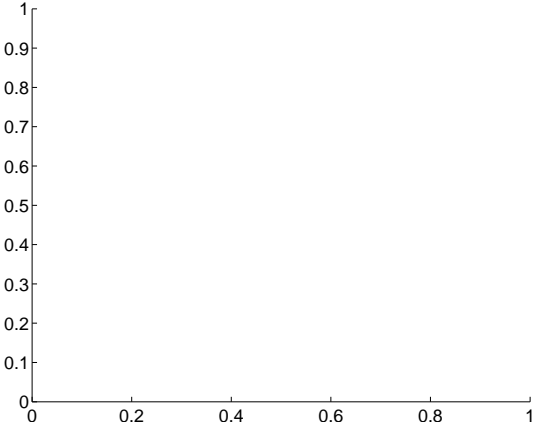
Q2 difference image



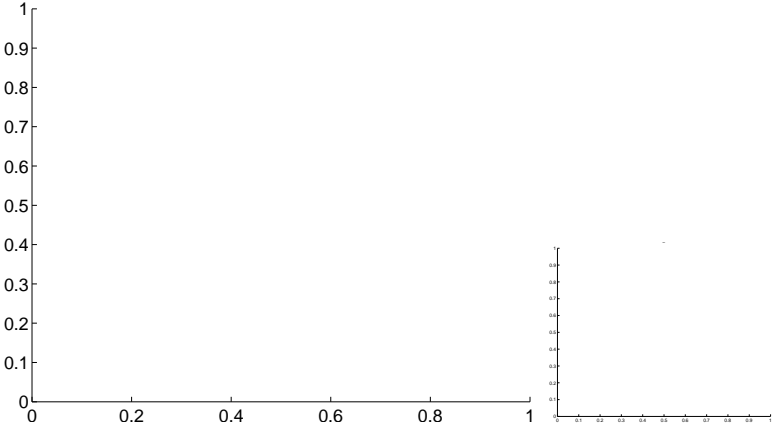
Q2 OOT image



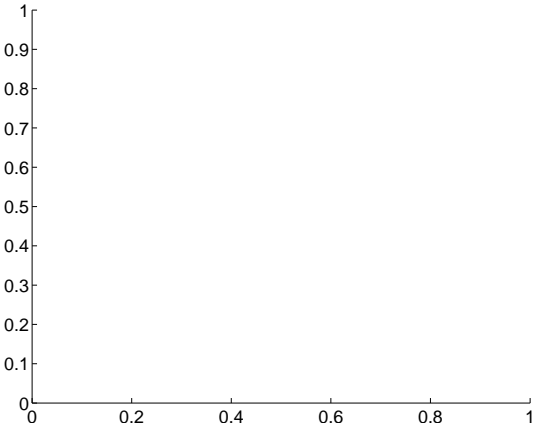
Q3 no difference image



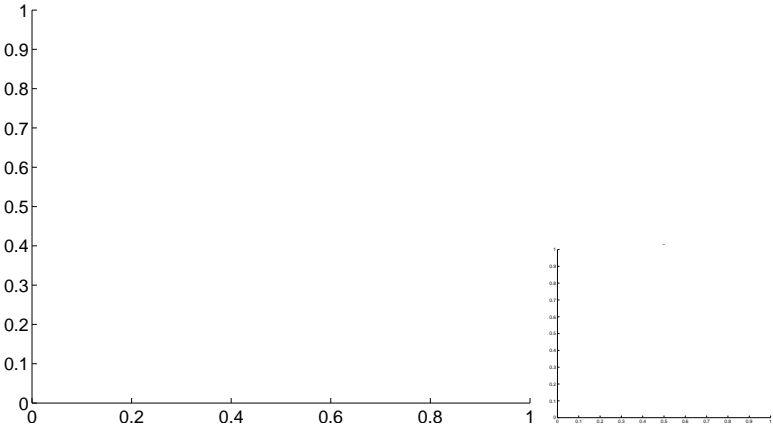
Q3 no OOT image



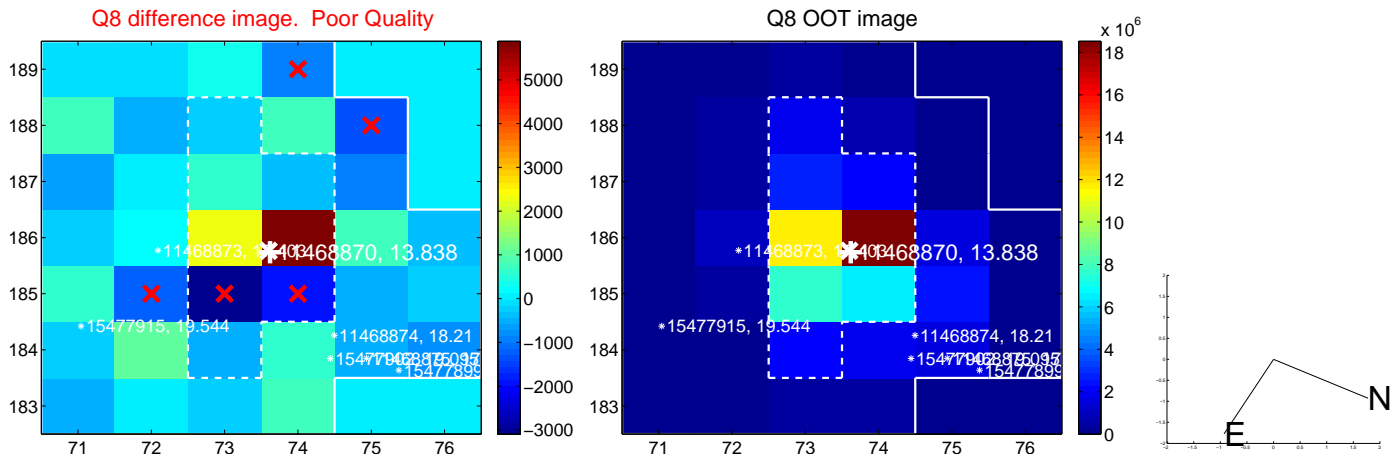
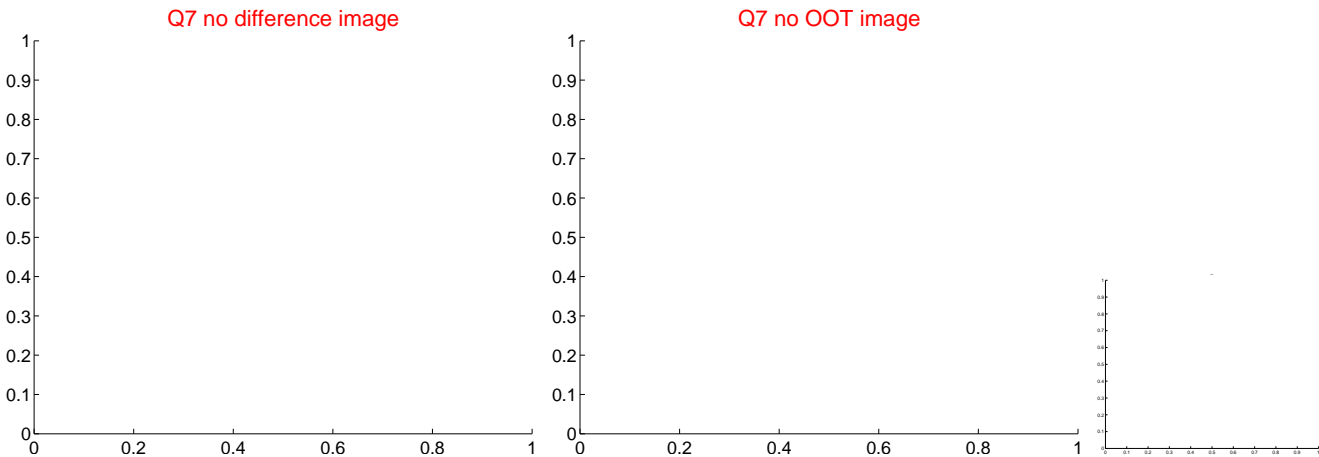
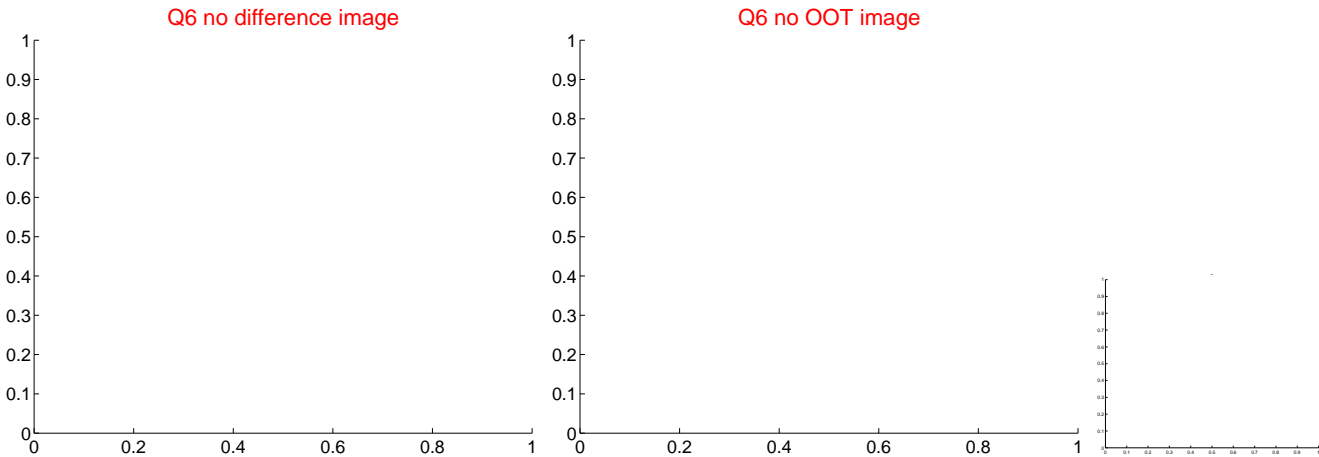
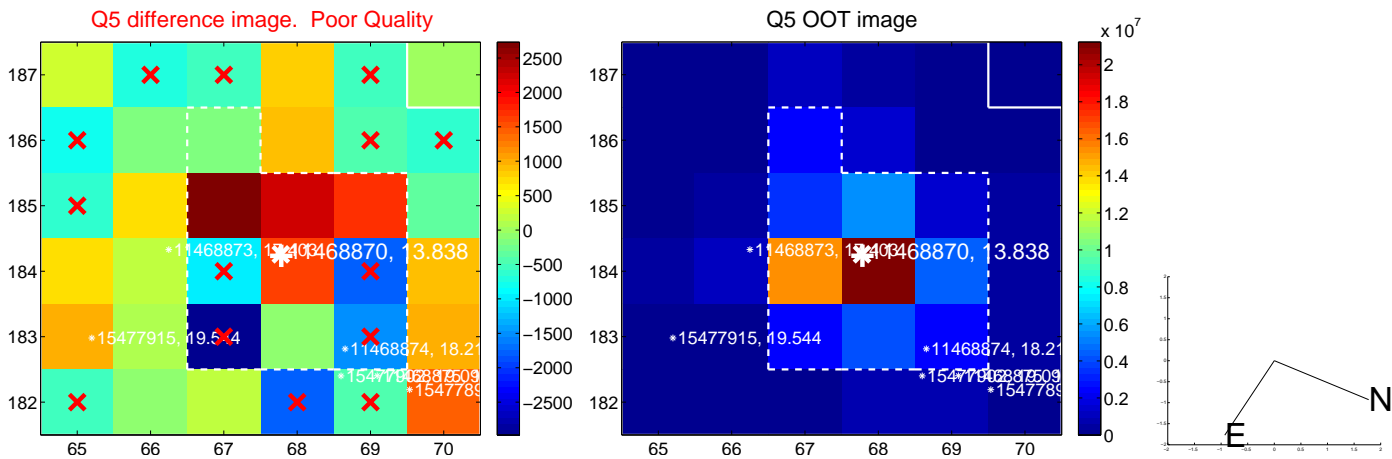
Q4 no difference image



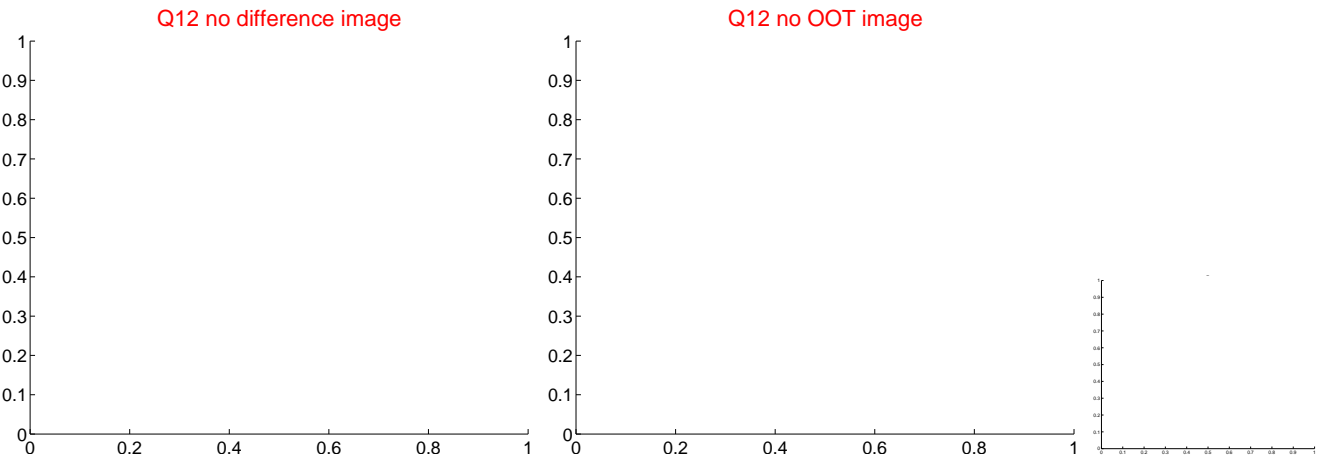
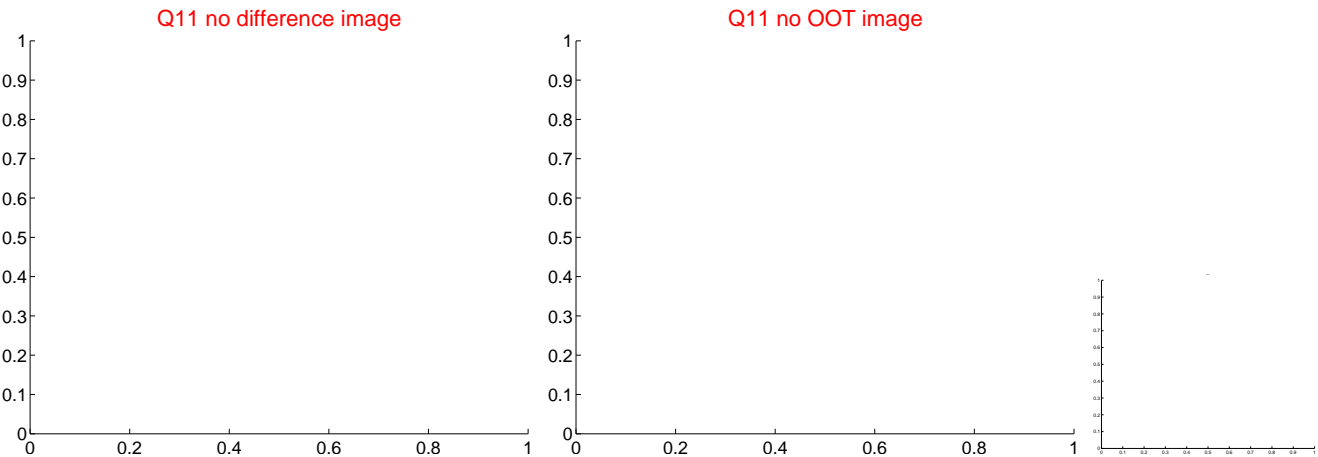
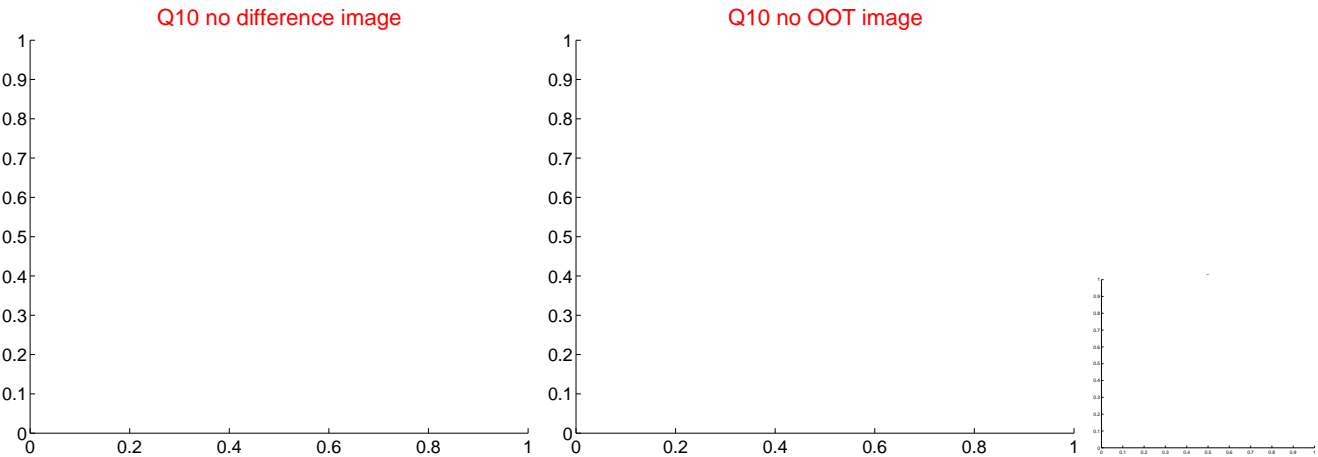
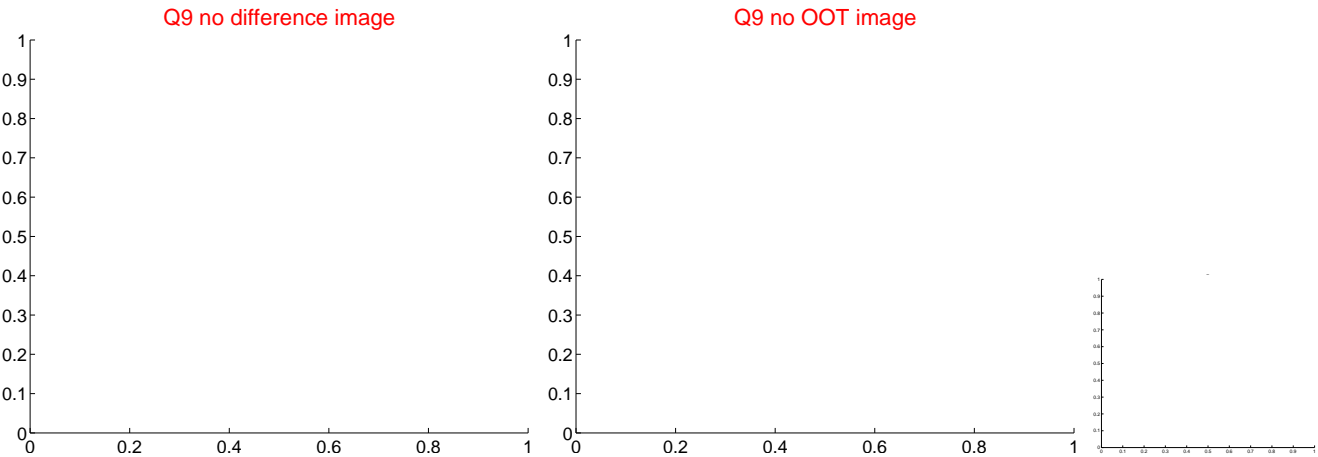
Q4 no OOT image



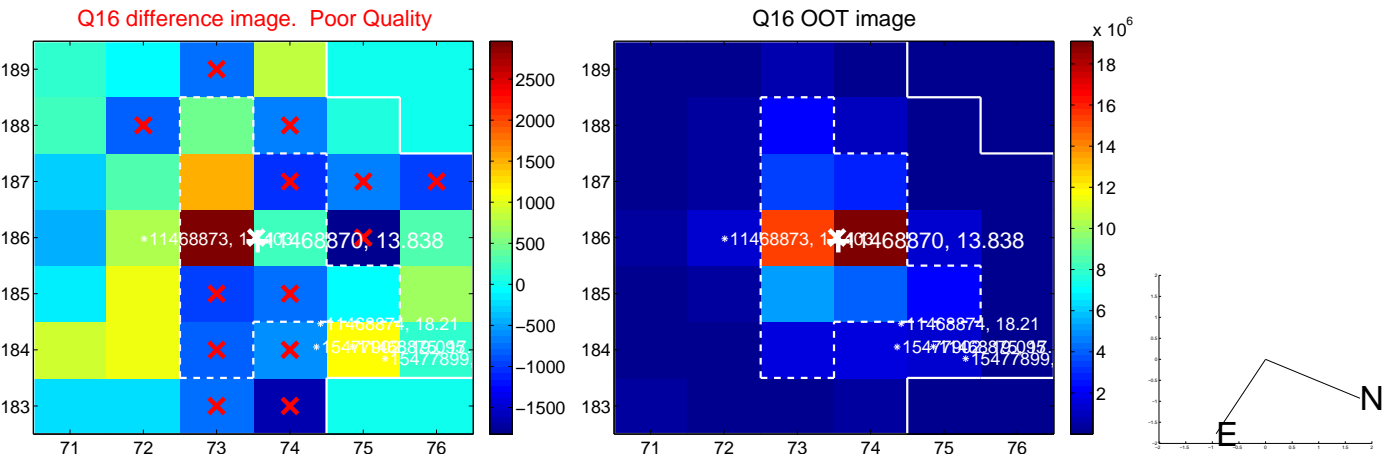
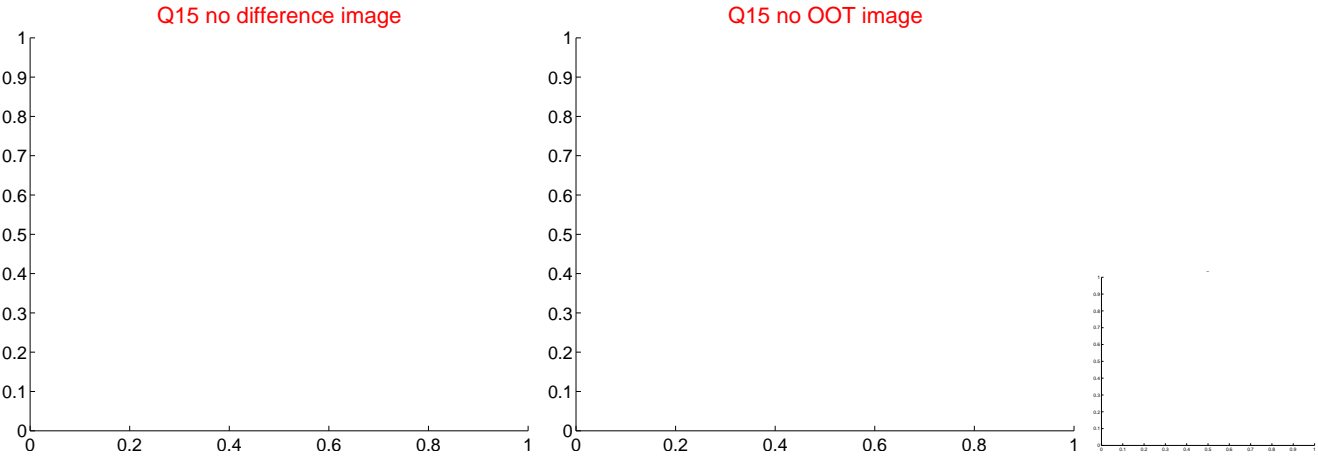
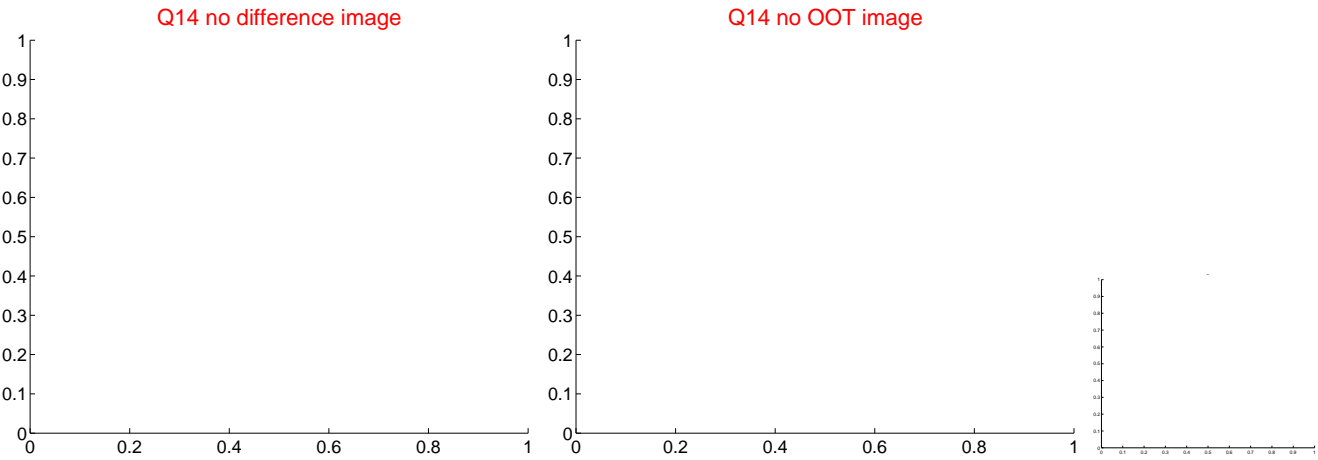
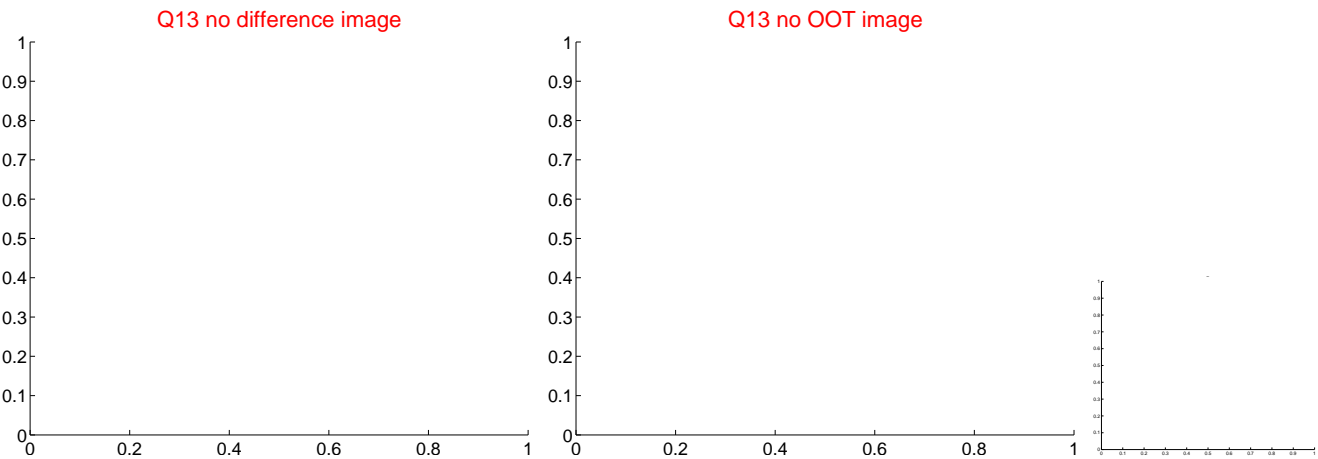
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



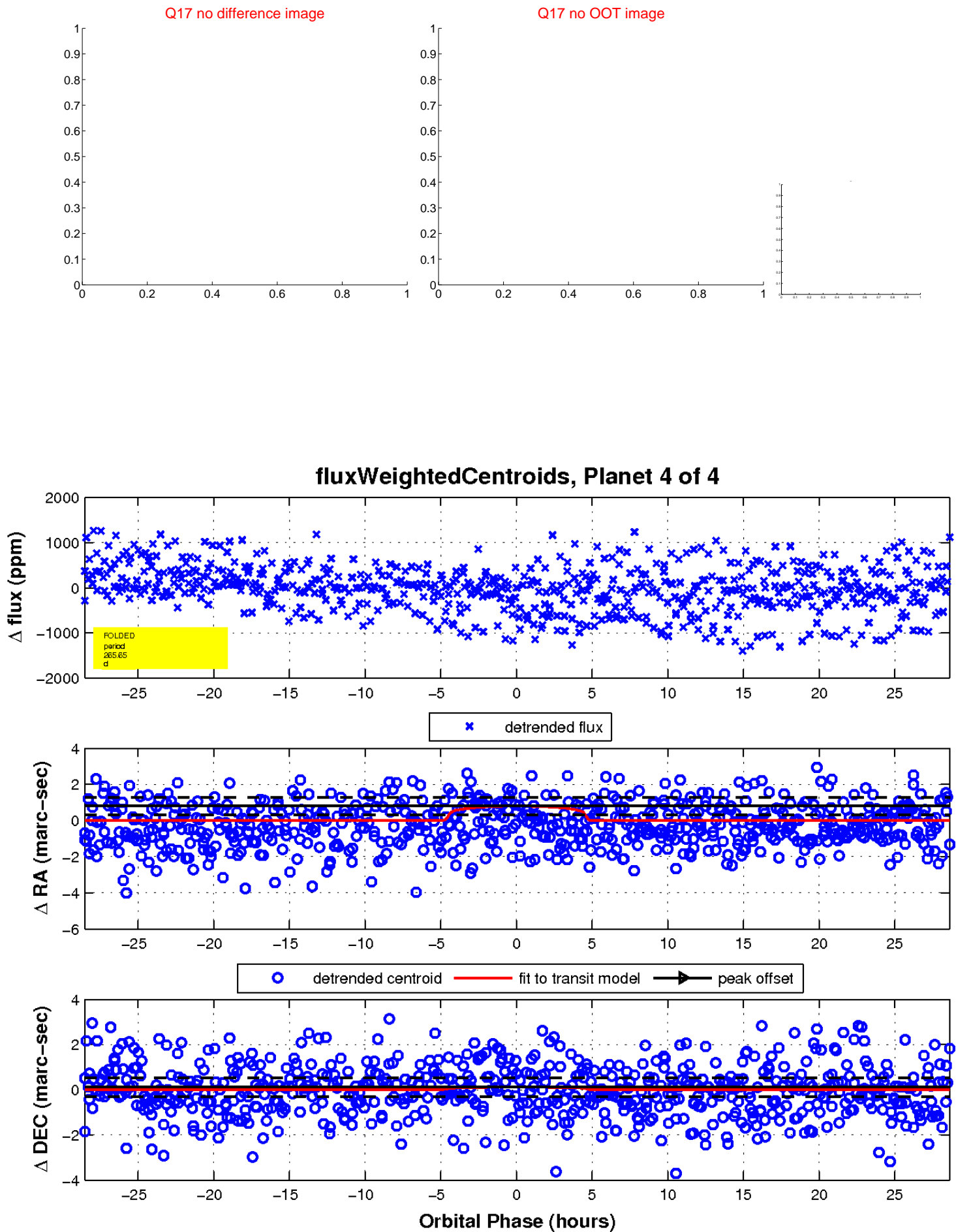
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

